NEAR EARTH PHOTOGRAPHS FROM THE APOLLO MISSIONS AND THE APOLLO-SOYUZ TEST PROJECT

By

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Prepared By

Lockheed Electronics Company, Inc.
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Houston, Texas

Contract NAS 9-15200

For

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SPACE AND LIFE SCIENCES DIRECTORATE

National Aeronautics and Space Administration

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13. ABSTRACT

The most authoritative catalogs of near Earth photographs of all Apollo Missions and the Apollo-Soyuz Test Project are assembled into this report. Included for all photographs are JSC identification number, percent cloud cover, geographical area in sight, and miscellaneous information. In addition, details are given on cameras, filters, films, and other technical details. This document contains the primary reference documents for identification of all Apollo and Apollo-Soyuz photographs of the earth. Index maps are included for Apollo 6, 7, and 9, and the Apollo-Soyuz Test Project.

14. SUBJECT TERMS

Indexes (Documentation) Spaceborne Photography Reference Systems
Handbooks Lists Apollo
Apollo-Soyuz Test Project

ABSTRACT

The most authoritative catalogs of photographs of all Apollo and Apollo-Soyuz Test Project missions are assembled into this report. Included for all photographs are JSC identification number, percent cloud cover, geographical area in sight, and miscellaneous information. In addition, details are given on cameras, filters, films, and other technical details. This document contains the primary reference documents for identification of all Gemini photographs of the earth.

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1. INTRODUCTION

1.1 PURPOSE OF THIS DOCUMENT

In May of 1977, the most authoritative catalogs of all Gemini photographs were assembled into a single document (ref. 1). The motivation was to put these primary research data into a convenient form for access by the scientific community. Before that document was issued, they could only be found in a local research library at JSC.

Although some of the Apollo photographic catalogs were disseminated more widely, they are still relatively unaccessible. At present, the only single repository of these catalogs that is available to the community of scientists is the Research Data Facility of the Earth Observations Division of NASA at JSC.

This document assembles the most authoritative Apollo and Apollo-Soyuz Test Project (ASTD) catalogs (ref. 2-8) under a single title. It will be cataloged in STAR/Scientific and Technical Aerospace Reviews), and will be available on microfiche and xerox copy. As such, it should serve as the single primary source of identifications of the Apollo and ASTP photographs.

1.2 USE OF THIS DOCUMENT

Most of the useful photographs listed in this document were taken in the Apollo 6, 7, and 9 missions. These are all identified in the index maps in section 7.

Index maps are not available for Apollo 4.

There are few photographs of value from this mission. Individual photographs can be located by searching the tests in section 2 of this document.

Index maps for the ASTP photographs are included in section 8 (ref. 9).

All but the ASTP photographs are listed by geographical or political units in reference 10. This document lists the data files for a computer program that lists photographs by regions. Since it is also abstracted in STAR, it is available in microfiche or xerox copy.

1.3 OBTAINING APOLLO PHOTOGRAPHS

All photographs can be ordered directly from the

EROS Data Center
U. S. Department of the Interior
Sioux Falls, South Dakota 57198

Apollo photographs appear in many books. The best of these are listed in references 11 through 13.

The personnel in the Users Support Section of EROS can furnish information on all Apollo photographs. If a copy has not been examined elsewhere, it is probably best to have them examine a photograph for quality before ordering it.

In addition, area indices are presently available for Boliva (ref. 14) and Mexico (ref. 15).

1.4 CONTENTS OF THIS DOCUMENT

Sections 2 through 9 contain copies of original documents, and section 10 contains a list of references. Although all pages are numbered sequentially, many documents also maintain the pagination of the original document.

SECTION 2

APOLLO 4

(Reference 2)

APOLLO - SATURN 4

November 9, 1967

70mm ONBOARD PHOTOGRAPHIC IDENTIFICATION LIST

Camera: Maurer, Model 220G
Lens: Kodak Ektar, f=2.8, 76mm
Film: Kodak, Ektachrome, thin base, MS, SO-368, 70mm
Lens Setting: F=8 at 1/500 second

Launch: 1200 hours Zulu from Complex 39-A
Kennedy Space Center, Florida

Identification by: Richard W. Underwood, MSC/BL4
Herbert A. Tiedemann, MSC/BL4

GENERAL INFORMATION

The camera system was activated by a gravity switch set for G=3. It is possible that it was activated by the initial vibration at lift-off. Therefore, times and altitudes are approximate but within one minute of true. The first exposure was at G.E.T. equals 4 hours and 28 minutes with an exposure interval of approximately 10.6 seconds. The spacecraft nadir point for the first exposure was approximately 18S - 23E. Apogee was reached at G.E.T. equals 5 hours, 46 minutes, 48 seconds, at an altitude of 9850 nautical miles and an approximate nadir point of 28S - 36E. All photography was on the third revolution. Every tenth photograph is indicated on this list. Intermediate exposures can be interpolated.

EXPOSURE NUMBER	C.E.T. TIME	ALTITUDE NAUTICAL MILES	ALTITUDE KILOMETERS	LOCATION AND IDENTIFICATION
AS4-1-1	4:28	7310	13,538	Black unlighted sky.
AS4-1-10	4:29	7400	13,704	Black unlighted sky.
AS4-1-20	4:31	7490	13,870	Black unlighted sky.
AS4-1-30	4:33	7590	14,056	Black unlighted sky.
AS4-1-40	4:35	7690	14,241	Black unlighted sky.
AS4-1-50	4:36	7790	14,389	Atlantic Ocean between Africa and South America, horizon at edge of format.
AS4-1-60	4:38	7840	14,518	Atlantic Ocean between Africa and South America, horizon at edge of format.
AS4-1-70	4:40	7930	14,684	Atlantic Ocean between Africa and South America, horizon at edge of format

EXPOSURE NUMBER	G.E.T. TIME	ALTITUDE NAUTICAL MILES	ALTITUDE KILOMETERS	LOCATION AND IDENTIFICATION
AS4-1-80	4:43	8020	14,852	Coastal Brazil (Fortaleza to Rio), Coastal Africa (Dakar to Casablanca), Atlantic Ocean.
AS4-1-90	4:44	8130	15,056	Coastal Brazil, Atlantic Ocean, West Africa, Sahara, looking N.W.
AS4-1-100	4:46	8230	15,241	Coastal Brazil, Atlantic Ocean, West Africa, Sahara, looking N.W.
AS4-1-110	4:48	8322	15,412	Coastal Brazil, Atlantic Ocean, West Africa, Sahara, looking N.W.
AS4-1-120	4:50	8412	15,579	Coastal Brazil, Atlantic Ocean, West Africa, Sahara, looking N.W.
AS4-1-130	4:51	8466	15,679	Coastal Brazil, Atlantic Ocean, West Africa, Sahara, looking N.W.
AS4-1-140	4:53	8547	15,829	Coastal Brazil, Atlantic Ocean, West Africa, Sahara, looking N.W.
AS4-1-150	4:55	8637	15,995	Coastal Brazil, Atlantic Ocean, West Africa, Sahara, looking N.W.
AS4-1-160	4:56	8691	16,095	Coastal Brazil, Atlantic Ocean, West Africa, Sahara, looking N.W.
AS4-1-170	4:58	8772	16,246	Coastal Brazil, Atlantic Ocean, West Africa, Sahara, looking N.W.
AS4-1-180	5:00	8871	16,429	Coastal Brazil, Atlantic Ocean, West Africa, Sahara, looking N.W.
AS4-1-190	5:02	8952	16,579	Coastal Brazil, Atlantic Ocean, West Africa, Sahara, looking N.W.
AS4-1-200	5:04	9042	16,746	Coastal Brazil, Atlantic Ocean, West Africa, Sahara, looking N.W.
AS4-1-210	5:06	9132	16,913	Coastal Brazil, Atlantic Ocean, West Africa, Sahara, looking N.W.
AS4-1-220	5:07	9186	17,012	Coastal Brazil, Atlantic Ocean, West Africa, Sahara, looking N.W.
AS4-1-230	5:09	9260	17,148	Coastal Brazil, Atlantic Ocean, West Africa, Sahara, looking N.W.
AS4-1-240	5:11	9340	17,283	Coastal Brazil, Atlantic Ocean, West Africa, Sahara, looking N.W.
AS4-1-250	5:12	9390	17,384	Coastal Brazil, Atlantic Ocean, West Africa, Sahara, looking N.W.
AS4-1-260	5:13	9410	17,427	Coastal Brazil, Atlantic Ocean, West Africa, Sahara, looking N.W.

EXPOSURE NUMBER	G.E.T. TIME	ALTITUDE NAUTICAL MILES	ALTITUDE KILOMETERS	LOCATION AND IDENTIFICATION
AS4-1-270	5:15	9450	17,501	Coastal Brazil, Atlantic Ocean, West Africa, Sahara, looking N.W.
AS4-1-280	5:16	9485	17,566	Coastal Brazil, Atlantic Ocean, West Africa, Sahara, looking N.W.
AS4-1-290	5:18	9520	17,630	Coastal Brazil, Atlantic Ocean, West Africa, Sahara, looking N.W.
AS4-1-300	5:20	9560	17,705	Coastal Brazil, Atlantic Ocean, West Africa, Sahara, looking N.W.
AS4-1-310	5:21	9596	17,772	Coastal Brazil, Atlantic Ocean, West Africa, Sahara, looking N.W.
AS4-1-320	5:23	9626	17,827	Coastal Brazil, Atlantic Ocean, West Africa, Sahara, Antarctica, looking west.
AS4-1-330	5:24	9641	17,854	Coastal Brazil, Atlantic Ocean, West Africa, Sahara, Antarctica, looking west.
AS4-1-340	5:25	9656	17,882	Coastal Brazil, Atlantic Ocean, West Africa, Sahara, Antarctica, looking west.
AS4-1-350	5:26	9674	17,916	Coastal Brazil, Atlantic Ocean, West Africa, Sahara, Antarctica, looking N.W.
AS4-1-360	5:28	9701	17,965	Coastal Brazil, Atlantic Ocean, West Africa, Sahara, Antarctica, looking N.W.
AS4-1-370	5:30	9725	18,010	Coastal Brazil, Atlantic Ocean, West Africa, Sahara, Antarctica, looking N.W.
AS4-1-380	5:32	9752	18,060	Coastal Brazil, Atlantic Ocean, West Africa, Sahara, Antarctica, looking N.W.
AS4-1-390	5:34	9772	18,097	Coastal Brazil, Atlantic Ocean, West Africa, Sahara, Antarctica, looking N.W.
AS4-1-400	5:36	9794	18,138	Coastal Brazil, Atlantic Ocean, West Africa, Sahara, Antarctica, looking N.W.
AS4-1-410	5:39	9816	18,170	Coastal Brazil, Atlantic Ocean, West Africa, Sahara, Antarctica, looking west.
AS4-1-420	5:41	9822	18,190	Coastal Brazil, Atlantic Ocean, West Africa, Sahara, Antarctica, looking west.
AS4-1-430	5:43	9832	18,208	Coastal Brazil, Atlantic Ocean, West Africa, Sahara, Antarctica, looking west.
AS4-1-440	5:45	9844	18,230	Coastal Brazil, Atlantic Ocean, West Africa, Sahara, Antarctica, looking west.
AS4-1-450	5:47	9850	18,242	APOGEE, Coastal Brazil, Atlantic Ocean, West Africa, Sahara, Antarctica, looking west.

EXPOSURE NUMBER	G.E.T. TIME	ALTITUDE NAUTICAL MILES	ALTITUDE KILOMETERS	LOCATION AND IDENTIFICATION
AS4-1-460	5:49	9842	18,227	Coastal Brazil, Atlantic Ocean, West Africa, Sahara, Antarctica, looking west.
AS4-1-470	5:51	9831	18,209	Coastal Brazil, Atlantic Ocean, West Africa, Sahara, Antarctica, looking west.
AS4-1-480	5:53	9821	18,188	Coastal Brazil, Atlantic Ocean, West Africa, Antarctica, looking west.
AS4-1-490	5:55	9811	18,170	Coastal Brazil, Atlantic Ocean, West Africa, Antarctica, looking west.
AS4-1-500	5:57	9801	18,150	Coastal Brazil, Atlantic Ocean, West Africa, Antarctica, looking west.
AS4-1-510	5:58	9790	18,130	Coastal Brazil, Atlantic Ocean, West Africa, Antarctica, looking west.
AS4-1-520	6:00	9774	18,101	Coastal Brazil, Atlantic Ocean, West Africa, Antarctica, looking west.
AS4-1-530	6:02	9752	18,060	Coastal Brazil, Atlantic Ocean, West Africa, Antarctica, looking west.
AS4-1-540	6:04	9732	18,023	Coastal Brazil, Atlantic Ocean, West Africa, Antarctica, looking west.
AS4-1-550	6:06	9703	17,969	Coastal Brazil, Atlantic Ocean, West Africa, Antarctica, looking west.
AS4-1-560	6:08	9672	17,912	Coastal Brazil, Atlantic Ocean, West Africa, Antarctica, looking west.
AS4-1-570	6:09	9657	17,883	Coastal Brazil, Atlantic Ocean, West Africa, Antarctica, looking west.
AS4-1-580	6:11	9622	17,821	Coastal Brazil, Atlantic Ocean, West Africa, Antarctica, looking west.
AS4-1-590	6:12	9604	17,787	Coastal Brazil, Atlantic Ocean, West Africa, Antarctica, looking west.
AS4-1-600	6:13	9580	17,742	Coastal Brazil, Atlantic Ocean, West Africa, Antarctica, looking west.
AS4-1-610	6:15	9540	17,667	Coastal Brazil, Atlantic Ocean, West Africa, Antarctica, looking west.
AS4-1-620	6:17	9500	17,573	Coastal Brazil, Atlantic Ocean, West Africa, Antarctica, looking west.
AS4-1-630	6:18	9470	17,538	Coastal Brazil, Atlantic Ocean, West Africa, Antarctica, looking west.
AS4-1-640	6:20	9410	17,427	Coastal Brazil, Atlantic Ocean, West Africa, Antarctica, looking west.

EXPOSURE NUMBER	G.E.T. TIME	ALTITUDE NAUTICAL MILES	ALTITUDE KILOMETERS	LOCATION AND IDENTIFICATION
AS4-1-650	6:22	9346	17,308	Coastal Brazil, Atlantic Ocean, West Africa, Antarctica, looking west.
AS4-1-660	6:24	9280	17,186	Coastal Brazil, Atlantic Ocean, West Africa, Antarctica, looking west.
AS4-1-670	6:26	9200	17,037	Coastal Brazil, Atlantic Ocean, West Africa, Antarctica, looking west.
AS4-1-680	6:28	9112	16,874	Coastal Brazil, Atlantic Ocean, Antarctica, looking west.
AS4-1-690	6:30	9040	16,741	Atlantic Ocean, Antarctica, looking west.
AS4-1-700	6:32	8920	16,593	Atlantic Ocean, Antarctica, looking west.
AS4-1-710	6:34	8880	16,445	Atlantic Ocean, Antarctica, looking west.
AS4-1-720	6:36	8808	16,313	Atlantic Ocean, Antarctica, looking west.
AS4-1-730	6:38	8728	16,163	Atlantic Ocean, Antarctica, looking west.
AS4-1-740	6:40	8648	16,015	Atlantic Ocean, Antarctica, looking west.
AS4-1-750	6:41	8592	15,913	Atlantic Ocean, Antarctica, looking west.
AS4-1-755	6:41	8568	15,867	Atlantic Ocean, Antarctica, looking west.

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SECTION 3

APOLLO 6
(Reference 3)

APOLLO AS-502 MISSION DATA AND INFORMATION LIST, 70MM COLOR PHOTOGRAPHY

1 July 1968

Submitted By
Mapping Sciences Branch
Lunar and Earth Sciences Division
National Aeronautics and Space Administration
Manned Spacecraft Center
Houston, Texas

TECHNICAL REPORT
LEC/HASD No. 671-50-019
(645D.21.011)

APOLLO AS-502 MISSION DATA AND INFORMATION LIST, 70MM COLOR PHOTOGRAPHY

1 July 1968

Prepared By
Lockheed Electronics Company
for
Lunar and Earth Sciences Division
Under NASA Contract NAS 9-5191

Prepared By M. James Clinton

Approved By Jack E. Throop
Group Supervisor

Approved By
Section Supervisor

NASA Manned Spacecraft Center
Lunar and Earth Sciences Division
Houston, Texas

PREFACE

Prepared by Lockheed Electronics Company, Houston Aerospace Systems Division under Contract NAS 9-5191 in response to job order 44-395 issued by the Manned Spacecraft Center, Mapping Sciences Branch. Acknowledgement is made to the personnel who contributed to the analysis and preparation of this report, which are as follows: Messrs. J. Kaltenbach and V. Whitehead of NASA, J. Clinton, R. Cook, I. Duggan, and T. Johnson of Lockheed Electronics Company, and A. Anderson and F. Solomon of the Autometric Operation of the Raytheon Company.

ABSTRACT

The Apollo 502 mission exposed 370 images in sequence, from 99 to 200 nautical miles, over the United States, the Atlantic Ocean and Africa, 4 April 1968.

The film used was Ektachrome SO-121 high resolution aerial, 70mm film with a Wratten ZE filter.

The approximate solar time, latitude and longitude, altitude, ground tract width, and scales, derived from the spacecraft ground ellapsed time, are correlated with each photograph. The percent cloud cover, correlative Gemini photograph(s) and brief descriptions of various scientific disciplines are also provided for each image.

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1. INTRODUCTION

Valuable information was derived from the flight of the Apollo 502 mission as a result of the placement of an on-board spacecraft camera, used in the taking of a single continuous sequence of reconnaissance stereoscopic photographs, using a relatively new high resolution color film.

The primary objective of the Apollo 502 mission was to test the spacecraft booster performance. A secondary objective was to establish a photographic mission, which would begin at the end of the first orbit near New Orleans, and terminate near the end of the second orbit over Baja California. The nominal orbit was to be circular at 100 nautical miles. Approximately 300 photographs were to be taken and returned to earth in the command module. The film was to be recovered, and flown to the Manned Spacecraft Center to be processed in the Precision Photographic Laboratory.

The following pages comprise a preliminary report of the screening of these photographs by the Mapping Sciences Branch/Mapping Sciences Laboratory. This report contains a catalog of the photographs as well as pertinent image data.

2. DISCUSSION

2.1 Mission

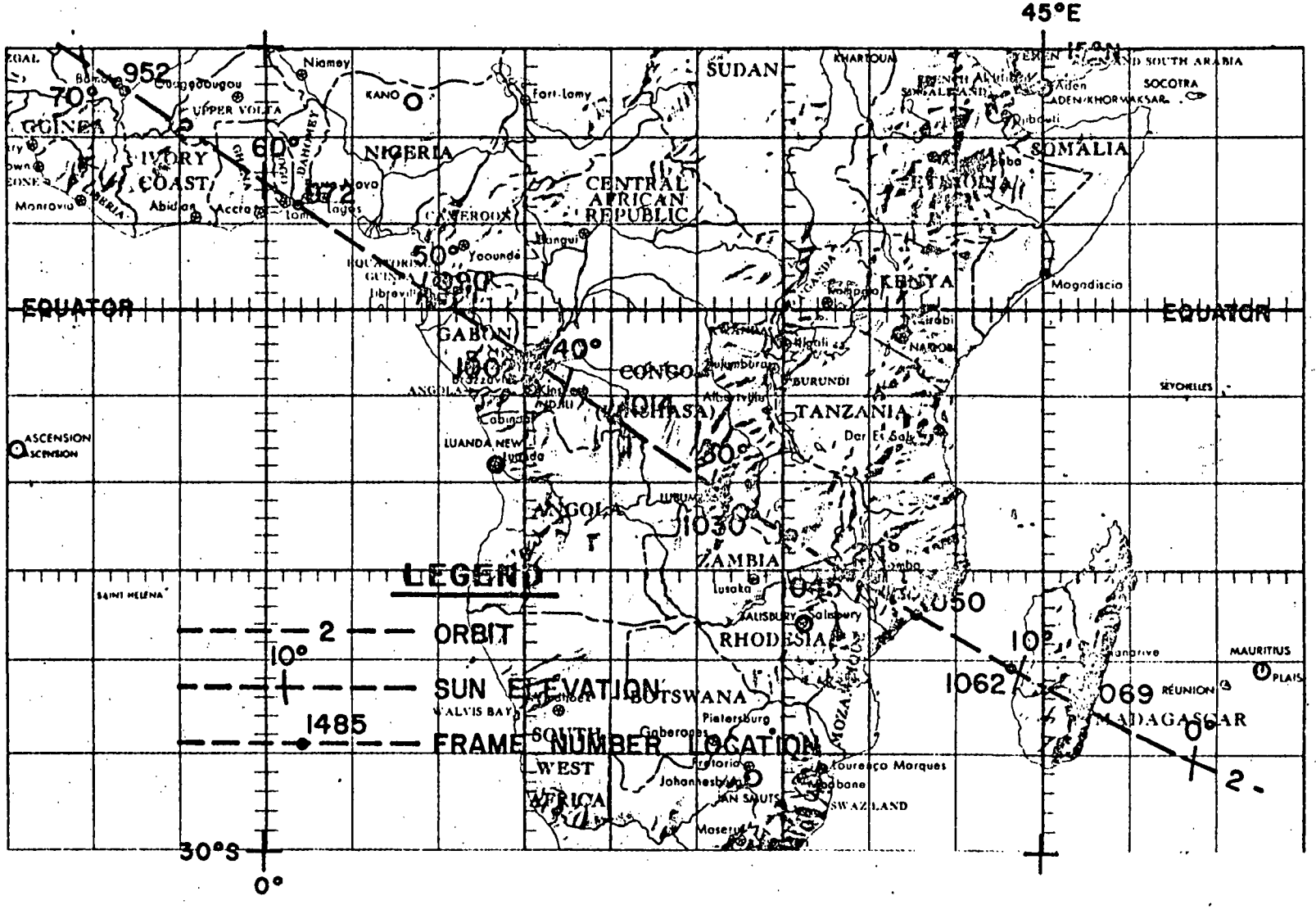
The mission performance schedule was such that the camera system could not be connected electrically to the spacecraft. Therefore,

the camera system was self powered and provided no data for telemetry.

The still camera mission was to be initiated by a 2.5 gravity switch near the time of lift off. This response activated a time delay device that initiated the camera exposure sequence 1½ hours after launch.

2.1.1 Nominal mission

The camera was to begin taking pictures, at the end of the first 100 nautical mile circular orbit. At this time the spacecraft was over New Orleans with the camera axis pointing into space. The spacecraft was then to make a 180° roll which would position the camera axis in an earthward photographic attitude. This orientation would produce essentially, a vertical camera axis over central Georgia, in the approximate area of Eastland. The camera would continue exposing film as the spacecraft passed over the Atlantic Ocean, the continent of Africa, and the dark side of the earth. Orbital continuation would bring the spacecraft into the light over the eastern Pacific, across Baja California and the Gulf of California. At this time, near the end of the second orbit, the spacecraft was to begin a second attitude maneuver and roll 180° so the camera axis would point skyward. The camera would continue exposing and advancing the film until the film supply was exhausted.


45°E
SUDAN
KHARTOUM
YEMEN ARAB REPUBLIC AND SOUTH ARABIA
Aden
SOCOTRA
ADEN/KHORMAKSAR
Djibouti
SOMALIA
ETHIOPIA
Addis Ababa
Niamey
KANO
Fort-Lamy
Ouagadougou
UPPER VOLTA
GUINEA
IVORY COAST
Abidjan
Accra
Monrovia
LIBERIA
DAHOMEY
NIGERIA
Porto Novo
Lagos
CAMEROUN
CENTRAL AFRICAN REPUBLIC
Bangui
Yaounde
KENYA
Mogadiscio
Nairobi
EQUATOR
GABON
Libreville
CONGO
Brazzaville
Kinshasa
(LEOPOLDVILLE)
ANGOLA
Cabinda
LUANDA
NEW Lumbala
BURUNDI
Bujumbura
RWANDA
Kigali
TANZANIA
Dar Es Salaam
SEYCHELLES
ASCENSION
ZAMBIA
Lusaka
RHODESIA
Salisbury
MAURITIUS
Plaisance
RÉUNION
MADAGASCAR
Tananarive
BOTSWANA
Gaberones
Pietersburg
Pretoria
Johannesburg
Lourenço Marques
Mbabane
SWAZILAND
SOUTH WEST AFRICA
WALVIS BAY
SAINT HELENA
952
972
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1014
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069
70°
60°
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LEGEND
2 ORBIT
SUN ELEVATION
1485 FRAME NUMBER LOCATION

Figure No. 3

FILM LAYOUT
70 mm

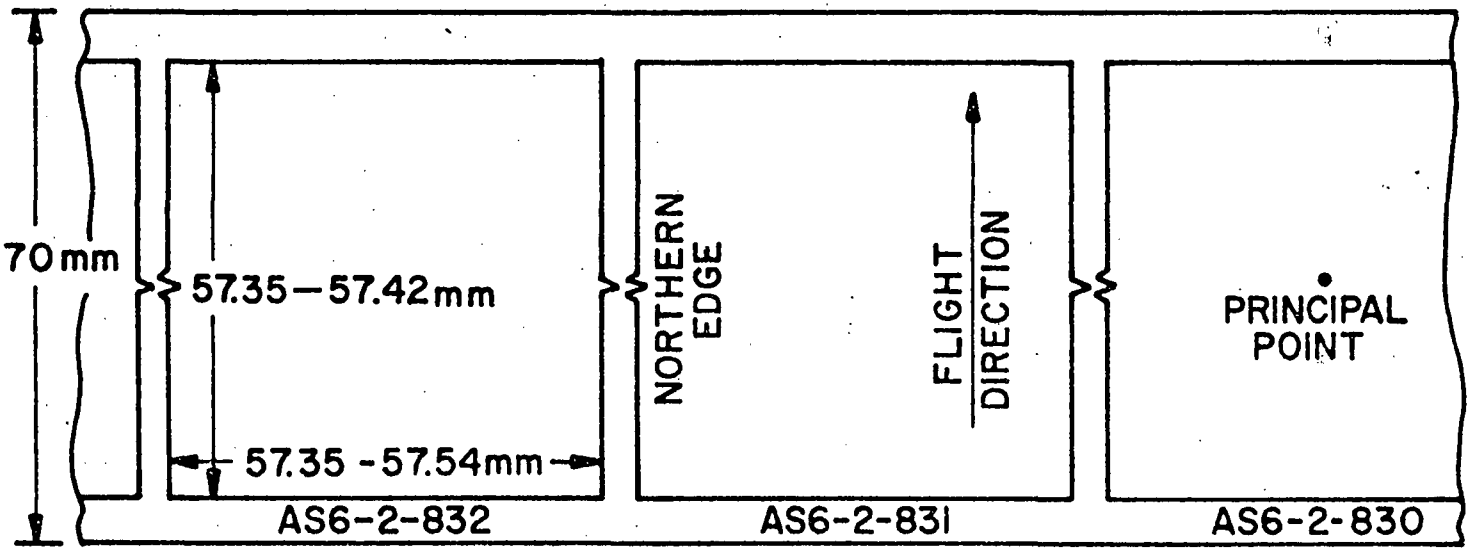

Figure No. 4

2.1.2 Actual mission

The prescribed sequence of booster power on the spacecraft did not perform as planned. This malfunction produced an ellipitical orbit with an apogee of 200 nautical miles, and a perigee of 99 nautical miles. The second 180 degree roll over Baja California did not occur and the camera remained pointing earthward. The orbit profile alteration produced some high altitude, apogee photography, of increasing overlap during the final stage of the second orbit. The film supply was exhausted over the western Atlantic, as noted in Figures 1, 2 and 3.

The photographs are essentially vertical, however, there exists a small variation in the spacecraft control mechanism allowing the camera axis to roam about the nadir point. Preliminary photogrammetric results from the examination of two photographs, indicate that the camera axis varies from the true vertical by angles of 0 to 5 degrees. At extreme orbital altitudes, this small angle of tilt is not a major problem for initial photo interpretation.

Launch time for the actual mission was 7:00:01 EST, 12:00:01 Zulu, 4 April 1968. The launch site was complex 39-A, Kennedy Space Center, Florida.

2.2 Camera Data

•J A. Maurer, 70mm camera, Model 220G

·Lens: Kodak Ektar, f/2.8, focal length, 76mm

·Aperture setting: f/5.6

·Shutter: focal plane, speed setting 1/500

·Filter: Wratten 2E

·Intervalometer setting: 8.64 seconds

·Anti-vignetting filter: none

·Platen vacuum: none; center of photograph more fuzzy than edges

·Exposure clock: none

·Fiducial marks: two were recorded on the film from a set of four

·Mounting: the camera was bolted to the interior of the Command Module with the view through the hatch window.

·Film transport: acceptable but variable, 90° to flight direction (see Figure 4)

·Camera parameters preclude this system from being a metric mapping camera, however, the reconnaissance ability of the camera system was quite applicable to the photographic mission desired

2.3 Film data

·Type: Eastman Kodak, Ektachrome, SO-121, high resolution aerial, 70mm

·ASA 64

·Color response: low in the blue, high in the red

·Film duplication: reproduction requests have been completed on 5386, a cinamascope movie film

·Emulsion: original pre-exposed emulsion contained streaks normal to film transport direction

•Format: almost square, ranging from 57.35 to 57.42mm parallel to the flight direction and 57.35 to 57.54mm normal to the flight direction, see Figure 4

•Resolution is 160 lines/mm at a 1000:1 contrast

2.4 Equipment/data used for interpretation

2.4.1 Transparency media

2.4.1.1 Tube magnifiers 7x, linen testers 5x

2.4.1.2 Stereoscopes

2.4.1.2.1 Hand, folding, 2x and 4x

2.4.1.2.2 Zoom, binocular, 0.7-30x

2.4.1.2.3 Rear projection viewers, 3, 4, 8, 12 and 24 magnification

2.4.2 Paper prints

2.4.2. 2.4.2.1 Tube magnifiers 7x, linen testers 5x, metric and English system scales

2.4.3 Simulated orbital mission ephemeris

Mission Planning and Analysis Division/Apollo Trajectory Support Group supplied two products, a post flight mission ephemeris and a simulated orbital mission. MPAD/ATSG compared and adjusted the simulated mission to the ephemeris and produced an updated simulated orbital mission computer printout. The validity of the ephemeris is well established by corroboration of several radar tracking stations.

Direct use of the post flight ephemeris was not feasible because of the work involved and the camera intervalometer time of 8.64 seconds.

Using an estimated time for the activation of the gravity switch followed by the time delay for the first exposure, the spacecraft/camera position was computed from the above digital data. The non-interference requirement placed upon the photographic mission by the spacecraft mission schedule, precluded any specific knowledge of ground elapse time, and therefore, spacecraft position. If the precise exposure time were known, the photographs could be correlated to the spacecraft position. The geographic position of the nadir point of some frames were plotted over areas of North America where sufficient planimetric control existed. The nadir point of the photographs were discovered to be beyond acceptable limits from geographically plotted principal points of the frames. The estimated time of the first exposure was then advanced 20.16 seconds to allow the simulated nadir point to more closely correspond with the plotted principal point of the photographs. Therefore, the solar time or the recorded times of exposure on the Screening Information List are estimates and are to be considered ONLY as approximate. The precise time of each exposure may never be known. Since the

Screening Information List categories of solar time, altitude, scales and nadir points are all derived from the spacecraft ground elapse time, these categories are also only to be considered as approximate. However, the listed positions and distances are expected to be close to the precise data and therefore useful to the user.

2.5 Image Enhancement

2.5.1 Low light level exposures

Due to changing sun elevations and the necessity to optimize the shutter speed and aperture setting for only one area, certain portions of the roll of photographs are under-exposed. Several frames from these dark portions were individually reproduced again by over-exposing them. Better imagery was obtained by this process. Detail, which on the original film was too dark to see, was now made visible. This technique was especially beneficial over the eastern part of Africa, from the Gulf of Guinea to the east coast of Madagascar, where photographic sun elevations ranged from 50 degrees to about 7 degrees.

As a result of this investigation, photo interpreters are urged to enhance any orbital or aerial photograph taken at a low light level. Proper enhancement may produce additional image information not originally available to the analyst.

2.5.2 Duplication

Since SO-118 duplicating film was manufactured specifically to duplicate the SO-121 film, it is suggested that the SO-118 film be used in the future to duplicate the SO-121 film.

The SO-118 would have been used for the original duplications had the film been available in time for the Apollo 502 mission.

2.6 Interpretation suggestions and/or comments for Apollo 502 photographs

2.6.1 All shadows will point toward the zero phase point in the sunglint area. This is caused primarily by the perspective view of the taking camera and possible in part by the projection of the earth's curvature to the flat plane of the film. At the same point in time, on the ground, simultaneous azimuth readings on the cloud shadows would be identical.

2.6.2 In photographs taken at low sun elevations, the shadows will be more noticeable on the side of the photographs closest to the sun and between the edge of the photograph and the principal point. This phenomena makes the photograph appear to be poorly exposed.

2.6.3 The sunglint areas, especially on the ocean, can be used to an advantage for use in interpretating the variations of the surface reflectance on the ocean.

2.6.4 The distortions inherent in the lens system, as well as the small scale, prevent the use of the photographs for accurate terrain slope measurements.

2.6.5 Streaks produced in the original emulsion, normal to the film transport direction, should be carefully excluded from interpretations.

2.6.6 Film transparency duplicates are superior to paper prints for resolution, contrast, and edge acuity. Every photo interpretator is urged to obtain the best possible reproduction for his interpretation.

2.7 Screening Information List Explanation

The following is a column by column explanation of the Screening Information List:

2.7.1 Frame Number - Photographic frames from Apollo-Saturn 6, Mission 502 begin in number with AS6-2-756 and extend through frame number AS6-2-1510. Frames AS6-2-756 through AS6-2-818 were taken with the camera facing away from the earth and show only the dark void of space. Frame AS-6-2-819 is the first frame which contains identifiable features. Frames AS6-2-819 through AS6-2-826 are high oblique, horizon visible exposures. Frames AS6-2-827 through AS6-2-834 are low obliques decreasing in obliqueness with increasing frame number. Frames AS6-2-834 through AS6-2-1510 contain some degree and direction of camera axis tilt. Frame numbers have been assigned to each consecutive photograph of the mission

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the correlation of spacecraft ground elapsed time (GET). The time derived by the nadir point method is less accurate than time derived by the principal point method, because the exact time of exposure is not known. The time of exposure for each frame, which was projected from an exposure interval of 8.64 seconds, is at best only a close estimation.

In cases where the solar time was derived by nadir point computation, the exposure time varied from the ordinary exposure interval and occurs earlier or later than normally expected. This is because the nadir point and the principal point do not exactly correspond geographically.

2.7.4 Principal Point, latitude and longitude - The listed latitude and longitude for each frame was determined by principal point projection where applicable or by nadir point computation where necessary.

2.7.4.1 Principal point projection and plotting

ACIC Sectional, ONC, and WAC charts were mosaiced into strips covering the orbital path and reduced to 1:1,000,000 scale on translucent vellum. The photographs were projected through a Kail projector, and enlarged 2 to 3 times. The photographic image was superimposed on the strip vellum, positioned and plotted by comparison of the planimetric detail. Loss of image detail due to cloud cover, low light level at the time of exposure and the amount of

planimetric detail of the maps would be the causes of any error in this method. The amount of error could be as much as 2 minutes of latitude or longitude.

2.7.4.2 Nadir point computation

Preliminary photogrammetric analysis of the vertical Apollo 502 photographs shows the camera axis could be tilted as much as 3 to 5 degrees from the nadir point axis. This means the nadir and principal points are relatively near each other, geographically. Therefore, when it was not possible to correlate the principal point with planimetric features due to cloud cover or an ocean view, the spacecraft position, hence the camera position and nadir point, were computed by the method described in detail in paragraph 2.4.3. An asterisk precedes the latitude where the nadir point is used in the Screening Information List instead of the principal point.

2.7.5 Spacecraft altitude, Ground Track Width and Scales

The data for the lists of these categories were obtained from data derived from the post-flight ephemeris and the simulated orbital mission computer printout furnished by MPAD/ATSG. Like the data of latitude and longitude of the nadir point and the solar time, these categories depend upon the spacecraft ground elapsed time, which is the one universal correlator of a spacecraft mission. For the

reasons described in section 2.4.3, simulated orbital mission ephemeris, the listed data are only approximate, but useful to the user of the orbital photographs.

A brief explanation of each of these categories is desirable and follows below.

The spacecraft altitude is that distance the spacecraft is above the earth's surface.

The Ground Track Width is the approximate distance on the earth's surface contained within the image format, normal to the spacecraft's flight direction.

The three separate categories of scales refer to the size of the format media most likely obtained by users of the Apollo 502 still photographs.

The 70mm size is the total width of the original onboard film and subsequent contact reproductions, including the sprocket holes on each side. The image is somewhat smaller, as can be seen in Figure 4.

The 8 x 10 format refers to the size, in inches, of the paper prints on which the image is reproduced. The image size will vary from print to print as the paper may stretch and shrink in either direction. The printing mask may also vary slightly from exposure to exposure. The average size of the image is 7.5 inches square on the 8 x 10 prints.

The 9 x 9 format is the common term applied to 9.5 inch width roll film or paper prints of a single frame, at this size. It is expected that the 9 x 9 film format will become the most popular reproduction format of the Apollo 502 photographs because of the three times enlargement of the original image, the marked superior qualities of film transparancy over that of the paper print, edge acuity, contrast, and resolution.

2.7.6 Percent Cloud Cover

This category is estimated by overlaying the photograph with a clear film on which a square block, the size of the image, is subdivided into 100 squares. A visual estimation is then made as to the percent of the image area that is covered by clouds. This information can be helpful to the user to determine the value of the individual photograph depending upon the interest of the user.

2.7.7 Correlative Gemini Photographs

This data has been compiled to aid the user in the correlation of Apollo 502 still photographs with Gemini photographs of the same locality. Correlations of this type, with common views at different exposure times will make a significant contribution to the Earth Resources Program.

The list was compiled by reviewing the descriptions of the Gemini photographs that were taken over the same orbital path of the Apollo 502 mission and comparing them with the Apollo 502 descriptions.

2.7.8 Descriptions

Members of the Mapping Sciences Branch, Mapping Sciences Laboratory briefly described, where applicable, each photograph of the mission by applying the following categories of scientific disciplines: geography, agriculture, geology, hydrology, forestry, oceanography, and meteorology. These descriptions are brief, generalized, and are made to aid the user in determining those photographs that are most applicable. The purpose is not to perform a detailed scientific analysis of the views, but rather to point out the apparent image evidence.

Since the Mapping Sciences Laboratory personnel are not trained in meteorology, NASA's Dr. Victor Whitehead of the Space Physics Branch, LESD, analyzed the photographs and provided the necessary meteorological descriptions for the Screening Information List.

FRAME NUMBER	ORBIT NUMBER	SOLAR TIME	PRINCIPAL POINT		SPACECRAFT ALTITUDE		GROUND TRACK WIDTH (STATUTE MILES)	SCALES			PERCENT CLOUD COVER	CORRELATIVE GEMINI COLOR PHOTOGRAPH (S)	DESCRIPTION
			LATITUDE	LONGITUDE	KILOMETERS	STATUTE MILES		70MM	8" x 10"	9" x 9"			
819	1	0753	*31°58'N	86°39'W	210	130	99	1:2,762,000	1:829,000	1:690,000	98		GEOGRAPHY: Oblique looking northward; Georgia, Tennessee, North and South Carolina. METEOROLOGY: Frontal zone, dense cirrostratus and altostratus, some cumiloform tops.
820	1	0755	*32°05'N	85°59'W	209	130	99	1:2,754,000	1:826,000	1:689,000	98		GEOGRAPHY: Oblique looking northward; Georgia, Tennessee, North and South Carolina. METEOROLOGY: Frontal zone dense cirrostratus and altostratus, some cumiloform tops.
821	1	0758	*32°06'N	85°20'W	209	130	98	1:2,746,000	1:824,000	1:686,000	98		GEOGRAPHY: Oblique looking northward; Georgia, Tennessee, North and South Carolina. METEOROLOGY: Frontal zone, dense cirrostratus, some cumiloform tops.
822	1	0801	*32°11'N	84°40'W	209	129	98	1:2,738,000	1:821,000	1:685,000	97		GEOGRAPHY: Oblique looking northward; Georgia, Tennessee, North and South Carolina. METEOROLOGY: Frontal zone, small clear band behind front, dense cirrostratus, some cumiloform tops.
823	1	0802	*32°15'N	84°18'W	208	129	98	1:2,730,000	1:819,000	1:683,000	97		GEOGRAPHY: Oblique looking northward; Georgia, Tennessee, North and South Carolina. METEOROLOGY: East of frontal zone, dense cirrus and altostratus, multilayered.
824	1	0806	*32°18'N	83°20'W	207	129	97	1:2,722,000	1:817,000	1:681,000	97		GEOGRAPHY: Oblique looking northward; Georgia, Tennessee, North and South Carolina. METEOROLOGY: East of frontal zone, dense cirrus and altostratus, multilayered.
825	1	0809	*32°22'N	82°43'W	206	128	97	1:2,715,000	1:815,000	1:679,000	97		GEOGRAPHY: Oblique looking northward; Georgia, Tennessee, North and South Carolina. METEOROLOGY: Dense cirrus layered altocumulus - altostratus.
826	1	0810	*32°25'N	82°36'W	206	128	97	1:2,707,000	1:812,000	1:677,000	97		GEOGRAPHY: Oblique looking northward; Georgia, Tennessee, North and South Carolina. METEOROLOGY: Dense cirrus, layered altocumulus - altostratus.
827	1	0815	*32°28'N	81°24'W	205	128	97	1:270,000	1:810,000	1:675,000	96		GEOGRAPHY: Oblique looking northward; Georgia, Tennessee, North and South Carolina. METEOROLOGY: Dense cirrus, layered altocumulus.
828	1	0817	*32°30'N	80°44'W	205	127	96	1:2,693,000	1:808,000	1:673,000	90		GEOGRAPHY: Georgia, South Carolina. HYDROLOGY: Edisto River. METEOROLOGY: Dense cirrus; altocumulus, layered, thin single layer to southeast.
829	1	0820	*32°33'N	80°05'W	204	127	96	1:2,685,000	1:806,000	1:671,000	70		GEOGRAPHY: Georgia, South Carolina; Williston, Blackville, Barnwell. HYDROLOGY: Savannah, Congaree, Edisto Rivers. METEOROLOGY: Dense cirrus to northwest; thin altocumulus to center.
830	1	0823	*32°35'N	79°25'W	204	126	96	1:2,678,000	1:804,000	1:670,000	70		GEOGRAPHY: South Carolina; Barnwell, Williston, Blackville; Aiken; Sand Hills. HYDROLOGY: Congaree River, Edisto River. METEOROLOGY: Dense cirrus, thin altocumulus.
831	1	0826	*32°37'N	78°46'W	203	126	96	1:2,670,000	1:801,000	1:668,000	86		GEOGRAPHY: South Carolina; Georgetown; Sand Hills, and Coastal Plain. HYDROLOGY: Lake Marion, Congaree River. METEOROLOGY: Some cirrus, thin altocumulus.
832	2	0829	*32°39'N	78°06'W	202	126	95	1:2,664,000	1:799,000	1:666,000	92		GEOGRAPHY: South Carolina, Atlantic coast from Charleston to Winyah Bay. METEOROLOGY: Cirrus; altocumulus
833	2	0831	*32°40'N	77°26'W	202	125	95	1:2,658,000	1:797,000	1:664,000	94		GEOGRAPHY: South Carolina; Atlantic Ocean. METEOROLOGY: Cirrus; altostratus, altocumulus.
834	2	0834	*32°42'N	76°46'W	201	125	95	1:2,650,000	1:795,000	1:662,000	90		GEOGRAPHY: Atlantic Ocean. METEOROLOGY: Altostratus, altocumulus.
835	2	0837	*32°42'N	76°07'W	201	125	95	1:2,643,000	1:793,000	1:661,000	85		GEOGRAPHY: Atlantic Ocean. METEOROLOGY: Altostratus, altocumulus.
836	2	0840	*32°43'N	75°27'W	200	125	94	1:2,637,000	1:791,000	1:659,000	75		GEOGRAPHY: Atlantic Ocean. METEOROLOGY: Altostratus; altocumulus.
837	2	0843	*32°44'N	74°47'W	200	124	94	1:2,630,000	1:789,000	1:658,000	72		GEOGRAPHY: Atlantic Ocean. METEOROLOGY: Altostratus lines orientated northeast-southwest; some altocumulus.

*computed nadir point of camera

FRAME NUMBER	ORBIT NUMBER	SOLAR TIME	PRINCIPAL POINT LATITUDE	PRINCIPAL POINT LONGITUDE	SPACECRAFT ALTITUDE KILOMETERS	SPACECRAFT ALTITUDE STATUTE MILES	GROUND TRACK WIDTH (STATUTE MILES)	SCALES 70MM	SCALES 8" x 10"	SCALES 9" x 9"	PERCENT CLOUD COVER	CORRELATIVE GEMINI COLOR PHOTOGRAPH (S)	DESCRIPTION
838	2	0846	*32°44'N	74°07'W	199	124	94	1:2,624,000	1:787,000	1:656,000	65		GEOGRAPHY: Atlantic Ocean METEOROLOGY: Altostratus lines orientated northeast-Southwest some altocumulus.
839	2	0848	*32°44'N	73°27'W	199	124	94	1:2,617,000	1:785,000	1:654,000	55		GEOGRAPHY: Atlantic Ocean METEOROLOGY: Some altostratus, mostly altocumulus.
840	2	0851	*32°44'N	72°48'W	198	123	93	1:2,611,000	1:783,000	1:653,000	70		GEOGRAPHY: Atlantic Ocean METEOROLOGY: Altocumulus, little organization.
841	2	0854	*32°43'N	72°01'W	198	123	93	1:2,605,000	1:781,000	1:651,000	72		GEOGRAPHY: Atlantic Ocean METEOROLOGY: Altocumulus, little organization.
842	2	0857	*32°43'N	71°28'W	197	123	93	1:2,599,000	1:780,000	1:650,000	30		GEOGRAPHY: Atlantic Ocean OCEANOGRAPHY: Variation in reflective pattern, possibly due to wind or temperature METEOROLOGY: Altocumulus, little organization.
843	2	0859	*32°42'N	70°48'W	197	122	93	1:2,592,000	1:778,000	1:648,000	21		GEOGRAPHY: Atlantic Ocean OCEANOGRAPHY: Reflective change, due to possible wind or temperature variation. METEOROLOGY: Altocumulus, patchy.
844	2	0902	*32°41'N	70°08'W	197	122	93	1:2,587,000	1:776,000	1:647,000	37		GEOGRAPHY: Atlantic Ocean METEOROLOGY: Altocumulus Band.
845	2	0905	*32°22'N	69°28'W	196	122	92	1:2,580,000	1:774,000	1:645,000	65		GEOGRAPHY: Atlantic Ocean METEOROLOGY: Altocumulus Bands.
846	2	0908	*32°38'N	68°48'W	196	122	92	1:2,576,000	1:773,000	1:644,000	41		GEOGRAPHY: Atlantic Ocean METEOROLOGY: Altocumulus Area.
847	2	0909	*32°36'N	68°40'W	195	121	92	1:2,570,000	1:770,000	1:642,000	18		GEOGRAPHY: Atlantic Ocean METEOROLOGY: Altocumulus.
848	2	0913	*32°34'N	67°28'W	195	121	92	1:2,564,000	1:769,000	1:641,000	22		GEOGRAPHY: Atlantic Ocean METEOROLOGY: Thin altocumulus.
849	2	0916	*32°32'N	66°48'W	194	121	92	1:2,558,000	1:768,000	1:640,000	50		GEOGRAPHY: Atlantic Ocean METEOROLOGY: Thin altocumulus layer.
850	2	0919	*32°29'N	66°09'W	194	121	91	1:2,553,000	1:766,000	1:638,000	54		GEOGRAPHY: Atlantic Ocean METEOROLOGY: Altocumulus, altostratus.
851	2	0922	*32°27'N	65°29'W	194	120	91	1:2,548,000	1:764,000	1:637,000	41		GEOGRAPHY: Atlantic Ocean METEOROLOGY: Thin altocumulus, altostratus layer, some small cumulus, little organization.
852	2	0932	*32°24'N	64°50'W	193	120	91	1:2,542,000	1:763,000	1:636,000	67		GEOGRAPHY: Atlantic Ocean METEOROLOGY: Altocumulus, altostratus layer, some small cumulus.
853	2	0927	*32°20'N	64°10'W	193	120	91	1:2,538,000	1:761,000	1:634,000	66		GEOGRAPHY: Bermuda Island, Atlantic Ocean. OCEANOGRAPHY: Light tones and shallow water patterns surrounding island area. METEOROLOGY: Altocumulus, Altostratus layer, some small cumulus.
854	2	0930	*32°17'N	63°31'W	192	120	91	1:2,533,000	1:760,000	1:633,000	53		GEOGRAPHY: Bermuda Island, Atlantic Ocean. OCEANOGRAPHY: Light tones and shallow water patterns surrounding island area. METEOROLOGY: Altocumulus, Altostratus layer, small cumulus.

*computed nadir point of camera

FRAME NUMBER	ORBIT NUMBER	SOLAR TIME	PRINCIPAL POINT LATITUDE	PRINCIPAL POINT LONGITUDE	SPACECRAFT ALTITUDE KILOMETERS	SPACECRAFT ALTITUDE STATUTE MILES	GROUND TRACK WIDTH (STATUTE MILES)	SCALES 70MM	SCALES 8" x 10"	SCALES 9" x 9"	PERCENT CLOUD COVER	CORRELATIVE GEMINI COLOR PHOTOGRAPH (S)	DESCRIPTION
855	2	0933	*32°14'N	62°51'W	192	119	90	1:2,528,000	1:758,000	1:632,000	68		GEOGRAPHY: Bermuda Island, Atlantic Ocean OCEANOGRAPHY: Light tones and shallow water patterns surrounding island area. METEOROLOGY: Altocumulus, Altostratus layer.
856	2	0936	*32°04'N	62°11'W	192	119	90	1:2,523,000	1:757,000	1:631,000	78		GEOGRAPHY: Atlantic Ocean METEOROLOGY: Altocumulus, Altostratus layer.
857	2	0939	*32°05'N	61°32'W	191	119	90	1:2,518,000	1:756,000	1:630,000	85		GEOGRAPHY: Atlantic Ocean METEOROLOGY: Altocumulus patches, Altostratus layer.
858	2	0941	*32°01'N	60°53'W	191	119	90	1:2,514,000	1:754,000	1:628,000	93		GEOGRAPHY: Atlantic Ocean METEOROLOGY: Altocumulus patches, Altostratus layer, sharp edge on thicker cloud.
859	2	0944	*31°57'N	60°13'W	191	119	90	1:2,510,000	1:753,000	1:627,000	85		GEOGRAPHY: Atlantic Ocean METEOROLOGY: Altocumulus, Altostratus layer, sharp edge on thicker cloud.
860	2	0947	*31°52'N	59°34'W	190	118	90	1:2,505,000	1:752,000	1:626,000	75		GEOGRAPHY: Atlantic Ocean METEOROLOGY: Altocumulus, some small cumulus.
861	2	0950	*31°46'N	58°55'W	190	118	90	1:2,501,000	1:750,000	1:625,000	69		GEOGRAPHY: Atlantic Ocean METEOROLOGY: Altocumulus, some small clouds.
862	2	0952	*31°42'N	58°16'W	190	118	89	1:2,497,000	1:749,000	1:624,000	65		GEOGRAPHY: Atlantic Ocean METEOROLOGY: Cumulus
863	2	0955	*31°37'N	57°37'W	189	118	89	1:2,493,000	1:748,000	1:623,000	71		GEOGRAPHY: Atlantic Ocean METEOROLOGY: Multilayered; Altocumulus, cirrus, small cumulus.
864	2	0958	*31°31'N	56°58'W	189	118	89	1:2,489,000	1:747,000	1:622,000	73		GEOGRAPHY: Atlantic Ocean METEOROLOGY: Multilayered; Altocumulus, cirrus, small cumulus.
865	2	1000	*31°24'N	56°32'W	189	117	89	1:2,485,000	1:746,000	1:621,000	82		GEOGRAPHY: Atlantic Ocean METEOROLOGY: Multilayered; cirrus, altocumulus, lower clouds aligned.
866	2	1003	*31°18'N	55°41'W	189	117	89	1:2,481,000	1:745,000	1:620,000	94		GEOGRAPHY: Atlantic Ocean METEOROLOGY: Multilayered; cirrus, altocumulus, altostratus.
867	2	1005	*31°13'N	55°08'W	188	117	89	1:2,478,000	1:743,000	1:619,000	99		GEOGRAPHY: Atlantic Ocean METEOROLOGY: Multilayered; middle and high clouds, some cumulus.
868	2	1009	*31°06'N	54°23'W	188	117	89	1:2,474,000	1:742,000	1:619,000	98		GEOGRAPHY: Atlantic Ocean METEOROLOGY: Multilayered; cirrus, middle clouds, some cumulus, little organization.
869	2	1011	*30°59'N	53°45'W	188	117	88	1:2,471,000	1:741,000	1:618,000	94		GEOGRAPHY: Atlantic Ocean METEOROLOGY: Multilayered; cirrus, middle clouds, some cumulus, little organization.
870	2	1014	*30°52'N	53°07'W	188	117	88	1:2,468,000	1:740,000	1:617,000	83		GEOGRAPHY: Atlantic Ocean, sunglint. METEOROLOGY: Multilayered; cirrus, middle clouds, some cumulus, little organization.
871	2	1017	*30°45'N	52°28' W	187	116	88	1:2,465,000	1:739,000	1:616,000	50		GEOGRAPHY: Atlantic Ocean, sunglint METEOROLOGY: Multilayered; cirrus, middle clouds, some cumulus, little organization.

*computed nadir point of camera

FILM NUMBER	ORBIT NUMBER	SOLAR TIME	PRINCIPAL POINT LATITUDE	PRINCIPAL POINT LONGITUDE	SPACECRAFT ALTITUDE KILOMETERS	SPACECRAFT ALTITUDE STATUTE MILES	GROUND TRACK WIDTH (STATUTE MILES)	SCALES 70MM	SCALES 8" x 10"	SCALES 9" x 9"	PERCENT CLOUD COVER	CORRELATIVE GEMINI COLOR PHOTOGRAPH (S)	DESCRIPTION
872	2	1019	*30°38'N	51°50'W	187	116	88	1:2,462,000	1:739,000	1:615,000	54		GEOGRAPHY: Atlantic Ocean, sunglint METEOROLOGY: Multilayered; cirrus increased, middle clouds, some cumulus.
873	2	1022	*30°30'N	51°12'W	187	116	88	1:2,459,000	1:738,000	1:615,000	85		GEOGRAPHY: Atlantic Ocean, sunglint METEOROLOGY: Multilayered; chaotic sky.
874	2	1025	*30°22'N	50°33'W	187	116	88	1:2,456,000	1:737,000	1:614,000	48		GEOGRAPHY: Atlantic Ocean, sunglint OCEANOGRAPHY: Wave patterns in sunglint. METEOROLOGY: Multilayered; cirrus middle clouds, some cumulus.
875	2	1028	*30°14'N	49°55'W	186	116	88	1:2,543,000	1:736,000	1:613,000	25		GEOGRAPHY: Atlantic Ocean, sunglint OCEANOGRAPHY: Wave patterns in sunglint METEOROLOGY: Cirrus; some small cumulus.
876	2	1030	*30°06'N	49°18'W	186	116	88	1:2,450,000	1:735,000	1:613,000	74		GEOGRAPHY: Atlantic Ocean, sunglint METEOROLOGY: Cirrus, small cumulus, some cloud streets.
877	2	1033	*29°57'N	48°40'W	186	116	88	1:2,448,000	1:735,000	1:612,000	23		GEOGRAPHY: Atlantic Ocean, sunglint METEOROLOGY: Few cirrus, small cumulus, some in streets.
878	2	1036	*29°49'N	48°03'W	186	116	88	1:2,446,000	1:734,000	1:611,000	16		GEOGRAPHY: Atlantic Ocean, sunglint OCEANOGRAPHY: Wave patterns in sunglint METEOROLOGY: Small cumulus, some in streets.
879	2	1038	*29°40'N	47°25'W	186	115	87	1:2,443,000	1:733,000	1:611,000	20		GEOGRAPHY: Atlantic Ocean METEOROLOGY: Small cumulus, altostratus, cirrus.
880	2	1041	*29°31'N	46°48'W	186	115	87	1:2,442,000	1:733,000	1:610,000	40		GEOGRAPHY: Atlantic Ocean METEOROLOGY: Small cumulus, altostratus, cirrus.
881	2	1043	*29°22'N	46°11'W	185	115	87	1:2,440,000	1:732,000	1:610,000	44		GEOGRAPHY: Atlantic Ocean METEOROLOGY: Cirrus, some small cumulus, altostratus.
882	2	1046	*29°13'N	45°33'W	185	115	87	1:2,438,000	1:731,000	1:609,000	36		GEOGRAPHY: Atlantic Ocean METEOROLOGY: Cirrus; altostratus, some small cumulus.
883	2	1049	*29°03'N	44°56'W	185	115	87	1:2,436,000	1:731,000	1:609,000	51		GEOGRAPHY: Atlantic Ocean METEOROLOGY: Cirrus band, altostratus, small cumulus.
884	2	1051	*28°53'N	44°20'W	185	115	87	1:2,434,000	1:730,000	1:609,000	66		GEOGRAPHY: Atlantic Ocean METEOROLOGY: Cirrus band; altostratus, small cumulus.
885	2	1054	*28°43'N	43°43'W	185	115	87	1:2,433,000	1:730,000	1:608,000	75		GEOGRAPHY: Atlantic Ocean METEOROLOGY: Cirrostratus, some small cumulus.
886	2	1057	*28°33'N	43°06'W	185	115	87	1:2,431,000	1:729,000	1:608,000	99		GEOGRAPHY: Atlantic Ocean METEOROLOGY: Cirrostratus, layered below.
887	2	1059	*28°33'N	42°30'W	185	115	87	1:2,430,000	1:729,000	1:607,000	99		GEOGRAPHY: Atlantic Ocean METEOROLOGY: Cirrostratus, few holes, layered below.
888	2	1102	*28°29'N	41°53'W	185	115	87	1:2,429,000	1:729,000	1:607,000	99		GEOGRAPHY: Atlantic Ocean METEOROLOGY: Cirrostratus layer, one break in higher cloud, layered below.

*computer nadir point of camera

FRAME NUMBER	ORBIT NUMBER	SOLAR TIME	PRINCIPAL POINT LATITUDE	PRINCIPAL POINT LONGITUDE	SPACECRAFT ALTITUDE KILOMETERS	SPACECRAFT ALTITUDE STATUTE MILES	GROUND TRACK WIDTH (STATUTE MILES)	SCALES 70 MM	SCALES 8" x 10"	SCALES 9" x 9"	PERCENT CLOUD COVER	CORRELATIVE GEMINI COLOR PHOTOGRAPH (S)	DESCRIPTION
889	2	1104	*28°13'N	41°17'W	185	115	87	1:2,428,000	1:728,000	1:607,000	100		GEOGRAPHY: Atlantic Ocean. METEOROLOGY: Solid cirrostratus layer.
890	2	1107	*28°08'N	40°41'W	184	115	87	1:2,427,000	1:728,000	1:607,000	100		GEOGRAPHY: Atlantic Ocean. METEOROLOGY: Solid cirrostratus layer.
891	2	1109	*27°51'N	40°05'W	184	115	87	1:2,426,000	1:728,000	1:606,000	98		GEOGRAPHY: Atlantic Ocean. METEOROLOGY: Solid cirrostratus layer, some wave form on cloud top, one break, scattered clouds below.
892	2	1112	*27°05'N	39°29'W	184	115	87	1:2,425,000	1:728,000	1:606,000	96		GEOGRAPHY: Atlantic Ocean. METEOROLOGY: Cirrostratus layer, scattered lower clouds.
893	2	1114	*27°17'N	38°53'W	184	115	87	1:2,424,000	1:727,000	1:606,000	94		GEOGRAPHY: Atlantic Ocean. METEOROLOGY: Cirrostratus layer, scattered small cumulus.
894	2	1117	*27°06'N	38°18'W	184	114	87	1:2,424,000	1:727,000	1:606,000	86		GEOGRAPHY: Atlantic Ocean, sun glint. METEOROLOGY: Cirrus, scattered small cumulus.
895	2	1119	*26°54'N	37°43'W	184	114	87	1:2,424,000	1:727,000	1:606,000	26		GEOGRAPHY: Atlantic Ocean, sun glint. METEOROLOGY: Cirrus, some in bands, small cumulus.
896	2	1122	*26°42'N	37°07'W	184	114	87	1:2,423,000	1:727,000	1:606,000	25		GEOGRAPHY: Atlantic Ocean, sun glint. OCEANOGRAPHY: Wave patterns in and around sun glint. METEOROLOGY: Cirrus, stratocumulus, small cumulus.
897	2	1124	*26°30'N	36°32'W	184	114	87	1:2,423,000	1:727,000	1:606,000	17		GEOGRAPHY: Atlantic Ocean, sun glint. OCEANOGRAPHY: Wave patterns in and around sun glint. METEOROLOGY: Stratocumulus, cumulus.
898	2	1127	*26°18'N	35°56'W	184	114	87	1:2,423,000	1:727,000	1:606,000	24		GEOGRAPHY: Atlantic Ocean, sun glint. OCEANOGRAPHY: Well defined wave patterns in and around sun glint. Dark, narrow strip of water in the sun glint area. METEOROLOGY: Stratocumulus, cumulus.
899	2	1129	*26°05'N	35°22'W	184	114	87	1:2,423,000	1:727,000	1:606,000	24		GEOGRAPHY: Atlantic Ocean, sun glint. OCEANOGRAPHY: Well defined wave patterns in and around sun glint. Dark, narrow strip of water in the sun glint area. METEOROLOGY: Stratocumulus, small cumulus.
900	2	1132	*25°52'N	34°47'W	184	114	87	1:2,424,000	1:727,000	1:606,000	16		GEOGRAPHY: Atlantic Ocean, sun glint. OCEANOGRAPHY: Well defined wave patterns in and around sun glint. METEOROLOGY: Stratocumulus, small cumulus.
901	2	1134	*25°40'N	34°12'W	184	114	87	1:2,424,000	1:727,000	1:606,000	17		GEOGRAPHY: Atlantic Ocean, sun glint. OCEANOGRAPHY: Well defined wave patterns in and around sun glint. METEOROLOGY: Stratocumulus, small cumulus.
902	2	1137	*25°27'N	33°38'W	184	115	87	1:2,424,000	1:727,000	1:606,000	24		GEOGRAPHY: Atlantic Ocean, sun glint. OCEANOGRAPHY: Well defined wave patterns in and around sun glint. METEOROLOGY: Stratocumulus, small cumulus.

*computer nadir point of camera

FRAME NUMBER	ORBIT NUMBER	SOLAR TIME	PRINCIPAL POINT LATITUDE	PRINCIPAL POINT LONGITUDE	SPACECRAFT ALTITUDE KILOMETERS	SPACECRAFT ALTITUDE STATUTE MILES	GROUND TRACK WIDTH (STATUTE MILES)	SCALES 70 MM	SCALES 8" x 10"	SCALES 9" x 9"	PERCENT CLOUD COVER	CORRELATIVE GEMINI COLOR PHOTOGRAPH (S)	DESCRIPTION
903	2	1139	*25°13'N	33°03'W	184	115	87	1:2,425,000	1:728,000	1:606,000	15		GEOGRAPHY: Atlantic Ocean, sun glint. OCEANOGRAPHY: Well defined wave patterns in and around sun glint. METEOROLOGY: Stratocumulus, small cumulus.
904	2	1142	*25°01'N	32°28'W	184	115	87	1:2,425,000	1:728,000	1:606,000	5		GEOGRAPHY: Atlantic Ocean, sun glint. OCEANOGRAPHY: Well defined wave patterns in and around sun glint. METEOROLOGY: Small cumulus.
905	2	1144	*24°48'N	31°55'W	184	115	87	1:2,426,000	1:728,000	1:606,000	4		GEOGRAPHY: Atlantic Ocean, sun glint. OCEANOGRAPHY: Well defined wave patterns in and around sun glint. METEOROLOGY: Small cumulus.
906	2	1146	*24°34'N	31°20'W	185	115	87	1:2,428,000	1:728,000	1:607,000	10		GEOGRAPHY: Atlantic Ocean, sun glint. OCEANOGRAPHY: Well defined wave patterns in and around sun glint. METEOROLOGY: Stratocumulus, small cumulus.
907	2	1149	*24°22'N	30°47'W	185	115	87	1:2,429,000	1:729,000	1:607,000	19		GEOGRAPHY: Atlantic Ocean, sun glint. OCEANOGRAPHY: Well defined wave patterns in and around sun glint. METEOROLOGY: Altocumulus, small cumulus.
908	2	1151	*24°07'N	30°13'W	185	115	87	1:2,430,000	1:729,000	1:607,000	17		GEOGRAPHY: Atlantic Ocean, sun glint. OCEANOGRAPHY: Well defined wave patterns in and around sun glint. METEOROLOGY: Altocumulus, small cumulus.
909	2	1154	*23°53'N	29°39'W	185	115	87	1:2,431,000	1:729,000	1:608,000	10		GEOGRAPHY: Atlantic Ocean, sun glint. OCEANOGRAPHY: Well defined wave patterns in and around sun glint. METEOROLOGY: Altocumulus, small cumulus.
910	2	1156	*23°39'N	29°06'W	185	115	87	1:2,432,000	1:730,000	1:608,000	6		GEOGRAPHY: Atlantic Ocean, sun glint. OCEANOGRAPHY: Well defined wave patterns in and around sun glint. Anomalous reflection pattern in the sun glint area, showing possible surface wind pattern. METEOROLOGY: Altocumulus, small cumulus.
911	2	1158	*23°25'N	28°32'W	185	115	87	1:2,434,000	1:730,000	1:609,000	9		GEOGRAPHY: Atlantic Ocean, sun glint. OCEANOGRAPHY: Well defined wave patterns in and around sun glint. Changes in tone of water in the sun glint area, not same area as #910. METEOROLOGY: Altocumulus, small cumulus.
912	2	1200	*23°11'N	27°59'W	185	115	87	1:2,436,000	1:731,000	1:609,000	9		GEOGRAPHY: Atlantic Ocean, sun glint. OCEANOGRAPHY: Well defined wave patterns in and around sun glint. METEOROLOGY: Altocumulus, small cumulus.
913	2	1203	*22°56'N	27°26'W	185	115	87	1:2,438,000	1:731,000	1:609,000	22		GEOGRAPHY: Atlantic Ocean, sun glint. OCEANOGRAPHY: Well defined wave patterns in and around sun glint. METEOROLOGY: Altocumulus, small cumulus.
914	2	1205	*22°42'N	26°52'W	185	115	87	1:2,440,000	1:732,000	1:610,000	32		GEOGRAPHY: Atlantic Ocean, sun glint. OCEANOGRAPHY: Well defined wave patterns in and around sun glint. Changes in tone of water on edge of sun glint. METEOROLOGY: Stratocumulus.
915	2	1208	*22°27'N	26°20'W	185	115	87	1:2,442,000	1:733,000	1:611,000	23		GEOGRAPHY: Atlantic Ocean, sun glint. OCEANOGRAPHY: Well defined wave patterns in and around sun glint. Changes in tone of water on edge of sun glint. Not same pattern as #914. METEOROLOGY: Stratocumulus.

*computed nadir point of camera

FRAME NUMBER	ORBIT NUMBER	SOLAR TIME	PRINCIPAL POINT LATITUDE	PRINCIPAL POINT LONGITUDE	SPACECRAFT ALTITUDE KILOMETERS	SPACECRAFT ALTITUDE STATUTE MILES	GROUND TRACK WIDTH (STATUTE MILES)	SCALES 70 MM	SCALES 8" x 10"	SCALES 9" x 9"	PERCENT CLOUD COVER	CORRELATIVE GEMINI COLOR PHOTOGRAPH (S)	DESCRIPTION
916	2	1211	*22°12'N	25°47'W	186	115	87	1:2,444,000	1:733,000	1:611,000	17		GEOGRAPHY: Atlantic Ocean, sun glint. OCEANOGRAPHY: Well defined wave patterns in and around the sun glint. Anomalous reflection pattern, possibly caused by wind. METEOROLOGY: Stratocumulus.
917	2	1212	*21°58'N	25°14'W	186	116	88	1:2,447,000	1:735,000	1:612,000	12		GEOGRAPHY: Atlantic Ocean, sun glint. OCEANOGRAPHY: Reflective pattern of waves in sun glint. METEOROLOGY: Stratocumulus.
918	2	1215	*21°42'N	24°42'W	186	116	88	1:2,449,000	1:735,000	1:612,000	9		GEOGRAPHY: Atlantic Ocean, sun glint. OCEANOGRAPHY: Reflective pattern, probably due to wind and temperature variations. METEOROLOGY: Stratocumulus, unusual pattern, chain of cells 15-20 miles diameter.
919	2	1216	*21°09'N	24°27'W	186	116	88	1:2,452,000	1:736,000	1:613,000	21		GEOGRAPHY: Atlantic Ocean, sun glint. OCEANOGRAPHY: Wave or swell patterns in sun glint region. METEOROLOGY: Stratocumulus, unusual pattern, chain of cells 15-20 miles diameter.
920	2	1219	*21°12'N	23°37'W	187	116	88	1:2,454,000	1:736,000	1:614,000	36		GEOGRAPHY: Atlantic Ocean, sun glint. OCEANOGRAPHY: Variations in reflective pattern on ocean. METEOROLOGY: Stratocumulus, unusual pattern, chain of cells 15-20 miles diameter.
921	2	1222	*20°56'N	23°05'W	187	116	88	1:2,457,000	1:737,000	1:614,000	30		GEOGRAPHY: Atlantic Ocean, sun glint. OCEANOGRAPHY: Variations in reflective patterns probably due to temperature, wind, or salinity changes. METEOROLOGY: Stratocumulus, some patches with sharp edges.
922	2	1224	*20°41'N	22°33'W	187	116	88	1:2,460,000	1:738,000	1:615,000	15		GEOGRAPHY: Atlantic Ocean, sun glint. OCEANOGRAPHY: Variations in reflective patterns, probably due to temperature, wind, or salinity changes. METEOROLOGY: Stratocumulus.
923	2	1226	*20°25'N	22°01'W	187	116	88	1:2,463,000	1:739,000	1:616,000	11		GEOGRAPHY: Atlantic Ocean, sun glint. OCEANOGRAPHY: Wave or swell patterns in sun glint area. METEOROLOGY: Stratocumulus.
924	2	1229	*20°09'N	21°29'W	187	116	88	1:2,466,000	1:740,000	1:617,000	7		GEOGRAPHY: Atlantic Ocean, sun glint OCEANOGRAPHY: Wave or swell patterns in sun glint area. METEOROLOGY: Stratocumulus.
925	2	1230	*19°54'N	20°58'W	188	117	88	1:2,470,000	1:741,000	1:617,000	8		GEOGRAPHY: Atlantic Ocean, sun glint. OCEANOGRAPHY: Wave or swell patterns in sun glint area. METEOROLOGY: Stratocumulus.
926	2	1233	*19°38'N	20°26'W	188	117	89	1:2,473,000	1:742,000	1:618,000	32		GEOGRAPHY: Atlantic Ocean, sun glint. OCEANOGRAPHY: Wave or swell patterns in sun glint area. METEOROLOGY: Stratocumulus.
927	2	1235	*19°22'N	19°55'W	188	117	89	1:2,477,000	1:743,000	1:619,000	32		GEOGRAPHY: Atlantic Ocean, sun glint. OCEANOGRAPHY: Wave or swell pattern in sun glint area. METEOROLOGY: Cirrus, altocumulus, stratocumulus.

*computed nadir point of camera

FRAME NUMBER	ORBIT NUMBER	SOLAR TIME	PRINCIPAL POINT LATITUDE	PRINCIPAL POINT LONGITUDE	SPACECRAFT ALTITUDE KILOMETERS	SPACECRAFT ALTITUDE STATUTE MILES	GROUND TRACK WIDTH (STATUTE MILES)	SCALES 70 MM	SCALES 8" x 10"	SCALES 9" x 9"	PERCENT CLOUD COVER	CORRELATIVE GEMINI COLOR PHOTOGRAPH (S)	DESCRIPTION
928	2	1237	*19°05'N	19°23'W	189	117	89	1:2,480,000	1:744,000	1:620,000	40		GEOGRAPHY: Atlantic Ocean, sun glint. METEOROLOGY: Cirrus, altocumulus, stratocumulus.
929	2	1240	*18°49'N	18°52'W	189	117	89	1:2,484,000	1:745,000	1:621,000	58		GEOGRAPHY: Atlantic Ocean, sun glint. METEOROLOGY: Cirrus patches and filaments; some small cumulus.
930	2	1241	*18°33'N	18°21'W	189	117	89	1:2,488,000	1:746,000	1:622,000	40		GEOGRAPHY: Atlantic Ocean, sun glint. METEOROLOGY: Cirrus, some small cumulus.
931	2	1244	*18°17'N	17°50'W	189	118	89	1:2,492,000	1:748,000	1:623,000	41		GEOGRAPHY: Atlantic Ocean, sun glint. METEOROLOGY: Cirrus in bands, diffluence indicated.
932	2	1246	*18°00'N	17°19'W	190	118	89	1:2,496,000	1:749,000	1:624,000	18		GEOGRAPHY: Atlantic Ocean, sun glint. METEOROLOGY: Cirrus in bands, diffluence indicated.
933	2	1248	*17°43'N	16°49'W	190	118	89	1:2,501,000	1:750,000	1:625,000	16		GEOGRAPHY: Atlantic Ocean, sun glint. METEOROLOGY: Cirrus in patches and bands.
934	2	1251	*17°27'N	16°18'W	190	118	90	1:2,505,000	1:752,000	1:626,000	14		GEOGRAPHY: Atlantic Ocean, sun glint. METEOROLOGY: Cirrus in patches and bands.
935	2	1249	17°34'N	16°39'W	191	119	90	1:2,509,000	1:753,000	1:627,000	9	S-65-63245	GEOGRAPHY: Coastline of Mauritania, East Africa. Desert area. GEOLOGY: Longitudinal sand dunes. HYDROLOGY: Lagoons along coastline. OCEANOGRAPHY: Sediments and shallow water patterns. METEOROLOGY: Cirrus in bands.
936	2	1251	17°07'N	16°07'W	191	119	90	1:2,514,000	1:754,000	1:629,000	2		GEOGRAPHY: Coastline of Mauritania, East Africa. Small portion of Senegal, East Africa. Rosso, Mauritania. GEOLOGY: Longitudinal sand dunes. HYDROLOGY: Lagoons along coastline. Portion of the Senegal River flood plain. FORESTRY: Low grass savanna, with scattered deciduous shrub form along river flood plain. OCEANOGRAPHY: Sediments and shallow water patterns. METEOROLOGY: Thin cirrus.
937	2	1253	17°00'N	15°37'W	191	119	90	1:2,519,000	1:756,000	1:630,000	1		GEOGRAPHY: Mauritania and Senegal, East Africa. Rosso, Mauritania. Dagana and Podor, Senegal. AGRICULTURE: Dark-toned patches along the Senegal River. GEOLOGY: Longitudinal sand dunes. HYDROLOGY: Lagoons along coastline. Senegal River alluvium flood plain. Lake Rkiz. FORESTRY: Low grass savanna with stream associated deciduous shrub form. OCEANOGRAPHY: Sediments and shallow water patterns. METEOROLOGY: Thin cirrus.
938	2	1255	16°45'N	15°08'W	192	119	90	1:2,524,000	1:757,000	1:631,000	0	S-65-63254	GEOGRAPHY: Mauritania and Senegal, East Africa. Dagana and Podor, Senegal. AGRICULTURE: Dark-toned angular patches along the Senegal River; might be cultivated, grazed, or burned-over areas. GEOLOGY: Longitudinal sand dunes. HYDROLOGY: Senegal River alluvium flood plain, Lake Rkiz. FORESTRY: Low grass savanna with some stream and river associated shrub form.

*computed nadir point of camera

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939	2 1258	16°39'N	14°37'W	192	119	90	1:2,529,000	1:759,000	1:632,000	0	S-65-63254	GEOGRAPHY: Mauritania and Senegal, East Africa. Podor, Senegal. AGRICULTURE: Dark-toned angular patches along the Senegal River; might be cultivated, grazed, or burned-over areas. GEOLOGY: Longitudinal sand dunes. HYDROLOGY: Senegal River alluvium flood plain. FORESTRY: Low grass savanna with some stream and river associated shrub form.
940	2 1300	16°11'N	14°07'W	193	120	91	1:2,534,000	1:760,000	1:633,000	0	S-65-63254	GEOGRAPHY: Mauritania and Senegal, East Africa. Kaedi, Mauritania. Desert and foothills. AGRICULTURE: Dark-toned angular patches along the Senegal River; might be cultivated, grazed or burned-over areas. GEOLOGY: Longitudinal sand dunes. HYDROLOGY: Senegal River alluvium flood plain. Light drainage patterns in foothills. FORESTRY: Low grass savanna with some river and stream associated shrub form.
941	2 1302	15°54'N	13°37'W	193	120	91	1:2,539,000	1:762,000	1:635,000	0	S-65-63254	GEOGRAPHY: Mauritania and Senegal, East Africa. Kaedi, Mauritania. Desert and foothills. AGRICULTURE: Dark-toned angular patches along the Senegal River; might be cultivated, grazed or burned-over areas. GEOLOGY: Longitudinal sand dunes. Stratigraphy and structure appear beneath dune cover. HYDROLOGY: Senegal River alluvium flood plain. Small lakes in flood plain. Gorgol Blanc River. Drainage patterns in foothills. FORESTRY: Low grass savanna with some drainage supported shrub form.
942	2 1304	15°35'N	13°07'W	193	120	91	1:2,544,000	1:763,000	1:636,000	0	S-65-63254	GEOGRAPHY: Mauritania and Senegal, East Africa. Kaedi, Mauritania. Matam, Senegal. AGRICULTURE: Dark-toned angular patches along the Senegal River; might be cultivated, grazed or burned-over areas. GEOLOGY: Longitudinal sand dunes, steeply dipping beds, dendritic and trellis drainage patterns. HYDROLOGY: Senegal River alluvium flood plain. Small lakes in flood plain. Gorgol Blanc River. Oued Garfa River. FORESTRY: Tall grass savanna with some drainage supported shrub form.
943	2 1306	15°19'N	12°37'W	194	120	91	1:2,550,000	1:765,000	1:637,000	0	S-65-63254	GEOGRAPHY: Mauritania, Senegal and Mali, East Africa. Selibaby, Mauritania. AGRICULTURE: Dark-toned angular patches along the Senegal River; might be cultivated, grazed or burned-over areas. GEOLOGY: Folded beds, dendritic and trellis drainage patterns. HYDROLOGY: Senegal River alluvium flood plain. Small lakes in flood plain. Oued Garfa River. FORESTRY: Tall grass savanna.
944	2 1308	15°01'N	12°07'W	194	121	91	1:2,555,000	1:767,000	1:639,000	2		GEOGRAPHY: Mauritania, Senegal and Mali, East Africa. Selibaby, Mauritania. AGRICULTURE: Dark-toned angular patches along Senegal River; might be cultivated, grazed or burned-over areas. GEOLOGY: Escarpment dipping southwestward from river. Folded and possibly faulted beds. Dendritic drainage pattern. HYDROLOGY: Senegal River, Marigot de Karakoro River. FORESTRY: Tall grass savanna with some areas of deciduous shrub form. METEOROLOGY: Few small cumulus.
945	2 1310	14°44'N	11°37'W	195	121	92	1:2,561,000	1:768,000	1:640,000	9		GEOGRAPHY: Mautitania, Senegal and Mali, East Africa. Kayes, Mali. GEOLOGY: Rectangular and dendritic drainage patterns. HYDROLOGY: Senegal River, Kolinbine River. FORESTRY: Tall grass savanna with some deciduous shrub form. METEOROLOGY: Small cumulus.

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946	2	1312	14°26'N	11°07'W	195	121	92	1:2,567,000	1:770,000	1:642,000	39		GEOGRAPHY: Mali, East Africa. Kayes and Bafoulabe, Mali. GEOLOGY: Rectangular, trellis and meandering drainage patterns. HYDROLOGY: Senegal River, Kolinbine River, Bakoy River. FORESTRY: Tall grass savanna with increasing amounts of deciduous shrub form. METEOROLOGY: Small cumulus.
947	2	1314	14°09'N	10°38'W	196	122	92	1:2,573,000	1:772,000	1:643,000	70		GEOGRAPHY: Mali, East Africa. Bafoulable, Mali. GEOLOGY: Guinea highlands, elevated plateau with dendritic drainage and obscured formations. HYDROLOGY: Senegal River, Bakoy River, Koumbou River. FORESTRY: Tall grass savanna with some shrub form vegetation. METEOROLOGY: Small cumulus.
948	2	1316	13°37'N	10°09'W	196	122	92	1:2,579,000	1:774,000	1:645,000	61		GEOGRAPHY: Mali, East Africa. Bafoulable, Mali. GEOLOGY: Highlands with soil covered region and dendritic drainage flowing north. HYDROLOGY: Senegal River, Bakoy River, Baoule River. FORESTRY: Tall grass savanna with scattered shrub form vegetation. METEOROLOGY: Small cumulus.
949	2	1318	13°33'N	9°38'W	196	122	93	1:2,585,000	1:776,000	1:646,000	40		GEOGRAPHY: Mali, East Africa. Kita, Mali. GEOLOGY: Elevated plateau with dendritic drainage flowing toward Niger Basin to the north. HYDROLOGY: Bakoy River, Darouma River, Baoule River, Badinn-Ko River. FORESTRY: Tall grass savanna with scattered shrub form vegetation. METEOROLOGY: Small cumulus.
950	2	1320	13°14'N	9°10'W	197	122	93	1:2,592,000	1:778,000	1:648,000	9		GEOGRAPHY: Mali, East Africa. Kita, Mali. GEOLOGY: Rectangular and some meander drainage pattern on the Guinea highlands. HYDROLOGY: Baoule River, Badinn-Ko River. FORESTRY: Tall grass savanna with shrub form vegetation and groups of broad-leaf deciduous trees along major drains. METEOROLOGY: Small cumulus.
951	2	1323	12°57'N	8°39'W	197	123	93	1:2,598,000	1:779,000	1:649,000	4		GEOGRAPHY: Mali, East Africa. GEOLOGY: Veneered Guinea highland of undifferentiated origin, with heavy dendritic drainage. HYDROLOGY: Baoule River, Bale River. FORESTRY: Tall grass savanna with scattered shrub form, minor drainage system void of vegetation. METEOROLOGY: Small cumulus.
952	2	1325	12°39'N	8°09'W	198	123	93	1:2,604,000	1:781,000	1:651,000	1		GEOGRAPHY: Mali, East Africa. Bamako, Mali. Koulikoro, Mali. GEOLOGY: Highlands with dendritic drainage and Niger drainage divide. HYDROLOGY: Niger River and tributaries. Baoule River. FORESTRY: Tall grass savanna and shrub form on hill slopes, drainage systems void of vegetation. METEOROLOGY: Few small cumulus.
953	2	1327	12°22'N	7°41'W	198	123	93	1:2,611,000	1:783,000	1:653,000	0		GEOGRAPHY: Mali, East Africa. Bamako, Mali. Koulikoro, Mali. GEOLOGY: Highland region along the Niger River. HYDROLOGY: Niger River and tributaries. Baoule River. Banifing River. FORESTRY: Tall grass savanna with shrub form primarily on slopes.

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954	2	1329	12°03'N	7°10'W	199	124	94	1:2,618,000	1:785,000	1:654,000	0		GEOGRAPHY: Mali, East Africa. GEOLOGY: Dendritic drainage patterns on the west Guinea highlands flowing east, Sikasso Plateau. HYDROLOGY: Baoule River and tributaries. Banifing and Bagoe Rivers. FORESTRY: Tall grass savanna and shrub form vegetation primarily restricted to higher relief. Drainage apparently void of vegetation.
955	2	1332	11°45'N	6°42'W	199	124	94	1:2,625,000	1:787,000	1:656,000	0		GEOGRAPHY: Mali, East Africa. GEOLOGY: Dendritic and trellis drainage patterns in the highland area of the Sikasso Plateau. HYDROLOGY: Baoule River and tributaries. Bagoe River and tributaries. Small lakes. FORESTRY: Tall grass savanna with shrub form vegetation restricted to slopes of higher relief; avenues of drainage apparently void of vegetation.
956	2	1334	11°27'N	6°13'W	200	124	94	1:2,632,000	1:790,000	1:658,000	0		GEOGRAPHY: Mali, Ivory Coast, East Africa. Sikasso, Mali. GEOLOGY: Southern region of Sikasso Plateau, bordering the Guinea highlands with prominent dendritic and trellis drainages. HYDROLOGY: Bagoe River and tributaries. Lotio River. Small lakes. FORESTRY: Tall grass savanna and deciduous shrub form restricted to slopes of relief.
957	2	1336	11°08'N	5°45'W	201	125	94	1:2,639,000	1:792,000	1:660,000	0		GEOGRAPHY: Mali, Ivory Coast, Upper Volta, East Africa. Sikasso, Mali. GEOLOGY: Boundary of Sikasso Plateau and highlands, dominant in trellis drainage. Drainage divides prominent. HYDROLOGY: Bagoe River. Lotio River and tributaries. Leraba River, Volta Noire River. Numerous small lakes. FORESTRY: Tall grass savanna with deciduous shrub form restricted primarily to slopes of relief.
958	2	1338	10°50'N	5°14'30"W	201	125	95	1:2,646,000	1:794,000	1:661,000	0		GEOGRAPHY: Mali, Ivory Coast, Upper Volta, East Africa. Orodara, Banfora and Niangoloko, Upper Volta. GEOLOGY: Guinea highlands, relatively flat with numerous drainage patterns of trellis and complex dendritic varieties. HYDROLOGY: Leraba River. Volta Noire River. FORESTRY: Tall grass savanna with deciduous shrub form restricted primarily to relief slopes, some drainage areas appear completely void of vegetation.
959	2	1340	10°31'N	4°48'W	202	125	95	1:2,653,000	1:796,000	1:663,000	0		GEOGRAPHY: Mali, Ivory Coast and Upper Volta, East Africa. Banfora and Niangoloko, Upper Volta. GEOLOGY: Escarpment forming a boundary of formations and drainage types, both dendritic and angular trellis. HYDROLOGY: Leraba River and tributaries. Sinloko River and tributaries. FORESTRY: Tall grass savanna with scattered deciduous shrub form.
960	2	1342	10°12'N	4°18'W	202	126	95	1:2,661,000	1:798,000	1:666,000	7		GEOGRAPHY: Ivory Coast and Upper Volta, East Africa. Banfora and Niangoloko, Upper Volta. GEOLOGY: Escarpment and highland region with heavy dendritic and trellis drainage on basement complex. HYDROLOGY: Sinloko River and tributaries. Iringo River, Bougouriba River. FORESTRY: Tall grass savanna with scattered deciduous shrub form. METEOROLOGY: Cirrus, small cumulus.
961	2	1344	9°54'N	3°50'W	203	126	95	1:2,668,000	1:800,000	1:667,000	8		GEOGRAPHY: Ivory Coast and Upper Volta, East Africa. GEOLOGY: Numerous drainage divides on the basement complex, soil covered Guinea highlands, fractures controlled drainage. HYDROLOGY: Iringo River, Bougouriba River FORESTRY: Tall grass savannas with scattered deciduous shrub form. METEOROLOGY: Cirrus, small cumulus.

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962	2	1346	9°36'N	3°23'W	203	126	96	1:2,676,000	1:803,000	1:669,000	31		GEOGRAPHY: Upper Volta, Ivory Coast and Ghana, East Africa. Bouna, Ivory Coast. GEOLOGY: Dendritic, trellis and angular drainage patterns on the basement complex, fracture controlled drainage. HYDROLOGY: Iringo River, Black Volta River. FORESTRY: Tall grass savannas with scattered deciduous shrub form. METEOROLOGY: Dense cirrus, few small cumulus.
963	2	1348	9°17'N	2°53'W	204	127	96	1:2,683,000	1:805,000	1:671,000	71		GEOGRAPHY: Upper Volta, Ivory Coast and Ghana, East Africa. Bouna, Ivory Coast. GEOLOGY: Dendritic, trellis and angular drainage patterns on the basement complex, fracture controlled drainage. HYDROLOGY: Black Volta River, Volta Noire River. FORESTRY: Tall grass savannas with scattered deciduous shrub form. METEOROLOGY: Dense cirrus band, few small cumulus.
964	2	1350	9°00'N	2°33'W	205	127	96	1:2,691,000	1:807,000	1:673,000	84		GEOGRAPHY: Upper Volta, Ivory Coast and Ghana, East Africa. GEOLOGY: Dendritic and angular drainage pattern. HYDROLOGY: Black Volta River. FORESTRY: Tall grass savannas with scattered deciduous shrub form. METEOROLOGY: Cirrus, some altocumulus and small cumulus.
965	2	1352	8°41'N	1°55'W	205	127	97	1:2,699,000	1:810,000	1:675,000	35		GEOGRAPHY: Ivory Coast and Ghana, East Africa. Kintampo, Ghana. GEOLOGY: Dendritic and angular drainage pattern, fracture controlled drainage. HYDROLOGY: Black Volta River. FORESTRY: Tall grass savannas with scattered deciduous shrub form along avenues of drainage. METEOROLOGY: Cirrus, small cumulus.
966	2	1354	8°21'N	1°27'W	206	128	97	1:2,707,000	1:812,000	1:677,000	37		GEOGRAPHY: Ghana, East Africa. Kintampo and Salaga, Ghana. GEOLOGY: Dendritic and meandering drainage pattern, fracture controlled drainage. HYDROLOGY: Black Volta River, Urukwain Bonchi River, Serada Chuko River, Tanfi Pru River. Lake Volta, submerged stream course. FORESTRY: Tall grass savanna with some shrub form. METEOROLOGY: Cirrus, small cumulus.
967	2	1356	8°03'N	0°58'W	206	128	97	1:2,715,000	1:815,000	1:679,000	38		GEOGRAPHY: Ghana, East Africa. Kintampo and Salaga, Ghana. GEOLOGY: Dendritic drainage pattern. HYDROLOGY: Serada Chuko River, Tanfi Pru River, Sene River. Lake Volta, submerged stream course. FORESTRY: Tall grass savanna with deciduous shrub form, grading into broadleaf evergreen (tropical rainforest). METEOROLOGY: Cirrus, small cumulus.
968	2	1358	7°44'N	0°31'W	207	129	97	1:2,724,000	1:817,000	1:681,000	50		GEOGRAPHY: Ghana, East Africa. Salaga, Ghana. GEOLOGY: Dendritic and meandering drainage pattern. HYDROLOGY: Tanfi Pru River, Sene River. Lake Volta, submerged stream course. FORESTRY: Tall grass savanna and deciduous shrub form changing to broadleaf evergreen rainforest. METEOROLOGY: Some cirrus, widespread, small cumulus.
969	2	1400	7°25'N	0°03'W	208	129	98	1:2,732,000	1:820,000	1:683,000	46		GEOGRAPHY: Ghana and Togo, East Africa. GEOLOGY: Dendritic drainage pattern. HYDROLOGY: Tanfi Pru River, Sene River. Lake Volta. FORESTRY: Tall grass savanna and deciduous shrub form changing to thick broadleaf evergreen rainforests. METEOROLOGY: Some cirrus, widespread small cumulus, none over lake.

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970	2	1402	7°07'N	0°25'E	208	129	98	1:2,740,000	1:822,000	1:685,000	71		GEOGRAPHY: Ghana and Togo, East Africa. GEOLOGY: Dendritic drainage pattern. HYDROLOGY: Asuakawkaw River, Dayi River. Lake Volta. FORESTRY: Tall grass savanna and tropical rainforest. METEOROLOGY: Some cirrus, widespread, small cumulus.
971	2	1404	6°48'N	0°53'E	209	130	98	1:2,749,000	1:826,000	1:687,000	53		GEOGRAPHY: Ghana, Togo and Dahomey, East Africa. Lome, Togo. GEOLOGY: Dendritic drainage pattern. HYDROLOGY: Lake Volta, coastline of Gulf of Guinea. Keta Lagoon. Mono River. FORESTRY: Tropical rainforest with coastal savanna grasses. OCEANOGRAPHY: Sediments and shallow water patterns. METEOROLOGY: Cirrus, small cumulus, stratocumulus.
972	2	1406	6°28'N	1°22'E	210	130	99	1:2,757,000	1:827,000	1:689,000	35		GEOGRAPHY: Ghana, Togo and Dahomey, East Africa. Lome, Togo. Allada, Dahomey. GEOLOGY: Coastal plains. Swamp along coastline, lateral drainage. HYDROLOGY: Keta Lagoon, Lake Togo, Lake Aheme. Coastline of Gulf of Guinea, Mono River. Zio River. FORESTRY: Tropical rainforest, savanna grasses and possible mangrove. OCEANOGRAPHY: Sediments and shallow water patterns. METEOROLOGY: Cirrus, small cumulus, sea breeze effect.
973	2	1408	6°10'N	1°50'E	210	131	99	1:2,766,000	1:830,000	1:692,000	10		GEOGRAPHY: Ghana, Togo and Dahomey, East Africa. Lome, Togo. Allada, Ouidah, Cotonou and Porto-Novo, Dahomey. GEOLOGY: Coastal plains. Swamp along coastline, lateral drainage. HYDROLOGY: Lake Togo, Lake Aheme, Lake Nokoue. Oueme River, Kouffe River, Mono River, Zio River. Coastline of Gulf of Guinea. FORESTRY: Tropical rainforest, scattered coastal savanna and possible mangrove. OCEANOGRAPHY: Sediments and shallow water patterns. METEOROLOGY: Cirrus, small cumulus, sea breeze effect.
974	2	1410	5°49'N	2°19'E	211	131	99	1:2,775,000	1:833,000	1:694,000	10		GEOGRAPHY: Togo and Dahomey, East Africa. Allada, Ouidah, Cotonou and Porto-Novo, Dahomey. GEOLOGY: Coastal plain. HYDROLOGY: Lake Aheme, Lake Nokoue. Kouffo River, Oueme River. Coastline of Gulf of Guinea. FORESTRY: Tropical rainforest, possible mangrove swamp along coastline. OCEANOGRAPHY: Sediments and shallow water patterns. METEOROLOGY: Cirrus, small cumulus, sea breeze effect.
975	2	1412	5°32'N	2°45'E	212	131	100	1:2,784,000	1:835,000	1:696,000	30		GEOGRAPHY: Dahomey, East Africa. 95% of photo falls over Gulf of Guinea. HYDROLOGY: Small portion of coastline of the Gulf of Guinea. OCEANOGRAPHY: Sediments and shallow water patterns. METEOROLOGY: Altocumulus, small cumulus.
976	2	1414	5°24'N	3°14'E	212	132	100	1:2,793,000	1:838,000	1:698,000	44		GEOGRAPHY: Gulf of Guinea, sun glint. METEOROLOGY: Cirrocumulus, altocumulus, small cumulus.
977	2	1416	4°56'N	3°42'E	213	132	100	1:2,802,000	1:841,000	1:701,000	44		GEOGRAPHY: Gulf of Guinea, sun glint. METEOROLOGY: Cirrocumulus, altocumulus, small cumulus.
978	2	1418	4°38'N	4°11'E	214	133	101	1:2,812,000	1:844,000	1:703,000	32		GEOGRAPHY: Gulf of Guinea, sun glint. METEOROLOGY: Cirrocumulus, altocumulus, small cumulus.

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979	2	1420	4°19'N	4°39'E	214	133	101	1:2,821,000	1:846,000	1:705,000	30		GEOGRAPHY: Gulf of Guinea, sun glint. OCEANOGRAPHY: Anomalous reflective pattern in sun glint, probably due to wind variations. METEOROLOGY: Cirrocumulus, altocumulus, small cumulus.
980	2	1422	4°00'N	5°07'E	215	134	101	1:2,830,000	1:849,000	1:708,000	47		GEOGRAPHY: Gulf of Guinea, sun glint. OCEANOGRAPHY: Anomalous reflective pattern, probably due to wind variations. METEOROLOGY: Cirrus, altocumulus, small cumulus.
981	2	1424	3°41'N	5°35'E	216	134	102	1:2,840,000	1:852,000	1:710,000	38		GEOGRAPHY: Gulf of Guinea, sun glint. METEOROLOGY: Cirrus, altocumulus, small cumulus.
982	2	1426	3°21'N	6°02'E	217	135	102	1:2,849,000	1:855,000	1:712,000	19		GEOGRAPHY: Gulf of Guinea, sun glint. METEOROLOGY: Cirrus, altocumulus, small cumulus.
983	2	1428	3°02'N	6°30'E	217	135	102	1:2,859,000	1:858,000	1:715,000	23		GEOGRAPHY: Gulf of Guinea, sun glint. METEOROLOGY: Altocumulus, small cumulus.
984	2	1430	2°43'N	6°57'E	218	135	103	1:2,869,000	1:861,000	1:717,000	37		GEOGRAPHY: Gulf of Guinea, sun glint. METEOROLOGY: Altocumulus, small cumulus.
985	2	1432	2°23'N	7°24'E	219	136	103	1:2,879,000	1:864,000	1:720,000	45		GEOGRAPHY: Gulf of Guinea, sun glint. Principle Island (Portugal). METEOROLOGY: Altocumulus, small cumulus.
986	2	1434	2°04'N	7°52'E	220	136	103	1:2,889,000	1:867,000	1:722,000	43		GEOGRAPHY: Gulf of Guinea, sun glint. Principle Island (Portugal). OCEANOGRAPHY: Some shallow water penetration. METEOROLOGY: Cirrus, small cumulus.
987	2	1436	1°44'N	8°20'E	220	137	104	1:2,899,000	1:870,000	1:725,000	23		GEOGRAPHY: Gulf of Guinea, sun glint. Principle Island (Portugal). OCEANOGRAPHY: Some shallow water penetration. METEOROLOGY: Cirrus, small cumulus.
988	2	1438	1°23'N	8°47'E	221	137	104	1:2,909,000	1:873,000	1:727,000	34		GEOGRAPHY: Coastline of Rio Muni, Gulf of Guinea, sun glint. OCEANOGRAPHY: Well developed beaches, some water penetration. METEOROLOGY: Cirrus, small cumulus.
989	2	1440	1°05'N	9°13'E	222	138	104	1:2,919,000	1:876,000	1:730,000	49		GEOGRAPHY: Africa; east side of Gulf of Guinea; Bay of Mondah; boundary between Rio Muni on the north, Gabon on the south; Siegue, Rio Muni; Coco Beach, Atem, Idokogo, Libreville and Denis, Gabon. Estuary of Gaber. GEOLOGY: Coastal plain. HYDROLOGY: Drowned stream pattern, aggrading regime. FORESTRY: Tropical rainforest. OCEANOGRAPHY: Sediment and/or channel patterns in Gaber Estuary and Bay of Mondah. Well developed beaches on Bay of Mondah. Some water penetration revealing bottom topography. METEOROLOGY: Cirrus, small cumulus, cumulonimbus tops.
990	2	1442	0°47'N	9°41'E	223	138	105	1:2,929,000	1:879,000	1:732,000	44		GEOGRAPHY: Africa; east side of Gulf of Guinea; Bay of Mondah, boundary between Rio Muni on the north, Gabon on the south; Bay of Monlah; Siegue, Rio Muni; Coco Beach, Atem, Idokogo, Libreville, Denis, Makok, Gabon. Estuary of Gaber. GEOLOGY: Coastal plain. HYDROLOGY: Drowned stream pattern, aggrading regime. FORESTRY: Tropical rainforest. OCEANOGRAPHY: Well developed beaches on Gulf of Guinea. Sediment and channel patterns. Possible salt/fresh water interface in Gaber Estuary. Some water penetration revealing bottom topography. METEOROLOGY: Cirrus, small cumulus, cumulonimbus tops.

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991	2	1444	0°26'N	10°08'E	223	138	105	1:2,940,000	1:882,000	1:735,000	73		GEOGRAPHY: Africa; Bay of Mondah; Gabon Estuary, boundary between Rio Muni and Gabon. Libreville, Denis, Gabon. Ogooue River. GEOLOGY: Coastal plain. HYDROLOGY: Sediment pattern in streams, aggrading regime. FORESTRY: Tropical rainforest. OCEANOGRAPHY: Well developed beaches, possible salt/fresh water interface, channel configuration and sediment patterns in Gabon Estuary. METEOROLOGY: Cirrus, small cumulus, cumulonimbus tops.
992	2	1446	0°07'N	10°36'E	224	139	106	1:2,950,000	1:885,000	1:738,000	67		GEOGRAPHY: Africa; Gabon, Ogooue River, town of Kango on Gabon Estuary road from Kango to Bifoum, Lakes Nguene and Ayem. Towns of Ndjole and Junkville. Some apparent clearing of forest along Ogooue River. Some roads visible along river. GEOLOGY: Rapids near Junkville indicate structure not visible on photos. Ogooue River is incised into highlands. FORESTRY: Tropical rainforest. METEOROLOGY: Cirrus, small cumulus, cumulonimbus tops.
993	2	1448	0°07'S	11°01'E	225	140	106	1:2,961,000	1:888,000	1:740,000	64		GEOGRAPHY: Africa; Gabon, Ogooue River. Towns of Bifoum and Ndjole, Junkville, Ayem, Achouka and Booue along Ogooue River. Some apparent clearing of forest along river. Road along river. GEOLOGY/HYDROLOGY: Ogooue River is incised into highlands. FORESTRY: Tropical rainforest. METEOROLOGY: Cirrus, small cumulus, cumulonimbus tops.
994	2	1450	0°30'S	11°31'E	226	140	106	1:2,971,000	1:892,000	1:743,000	74		GEOGRAPHY: Africa; Gabon, upper reaches of Ogooue River from Junkville to Kombo. Main stream appears not to trend northeastward but turns southeastward at Kon-Kon. GEOLOGY: Ogooue River meanders upstream from Kon-Kon. FORESTRY: Tropical rainforest. METEOROLOGY: Cirrus, small cumulus, cumulonimbus tops.
995	2	1452	0°51'S	11°55'E	227	141	107	1:2,940,000	1:895,000	1:746,000	65		GEOGRAPHY: Africa; Gabon, Ogooue River from Achouka to Lastoursville and Koula-Moutou. Mount Boundji obscured by clouds. GEOLOGY: Streams appear to be structurally controlled; however, the structure is not visible on the photograph. FORESTRY: Tropical rainforest. METEOROLOGY: Cirrus from cumulonimbus, small cumulus.
996	2	1454	1°11'S	12°23'E	227	141	107	1:2,993,000	1:898,000	1:748,000	61		GEOGRAPHY: Africa; Gabon, Ogooue River from Kon-Kon to Franceville. Mount Boundji covered by clouds. GEOLOGY: Meandering streams, appear to be structurally controlled; however, the structure is not visible on the photograph. FORESTRY: Tropical rainforest. METEOROLOGY: Cirrus from cumulonimbus, small cumulus.
997	2	1456	1°29'S	12°56'E	228	142	108	1:3,004,000	1:901,000	1:751,000	62		GEOGRAPHY: Africa; Gabon, Ogooue River from Lastoursville to Franceville. Mougnda mine and partial forestscar of cableway. Northwest corner of the Congo. GEOLOGY: Meandering streams. FORESTRY: Tropical rainforest. Forest cover denuded, naturally, around dendritic stream pattern tributaries. METEOROLOGY: Cirrus from cumulonimbus, small cumulus.
998	2	1458	1°46'S	13°18'E	229	142	108	1:3,015,000	1:905,000	1:754,000	56		GEOGRAPHY: Africa; southeastern corner of Gabon, northwestern corner of Congo. GEOLOGY/HYDROLOGY: Ogooue River is a meandering stream. The other streams appear to be controlled by structure of stratigraphy. FORESTRY: Area west of Franceville along the Ogooue River is denuded of the rainforest cover and savanna vegetation appears. METEOROLOGY: Cirrus, towering cumulus, small cumulus.

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999	2	1500	2°05'S	13°47'E	230	143	108	1:3,026,000	1:908,000	1:756,000	40		GEOGRAPHY: Africa; border of Gabon and Congo. Franceville, Gabon. GEOLOGY: Stream in the Congo have a rectangular appearance as if controlled by a fracture system. FORESTRY: Approximate border position of Gabon and the Congo is the change from the tropical rainforest to the savanna. METEOROLOGY: Cirrus, towering cumulus, small cumulus.
1000	2	1502	2°24'S	14°17'E	231	143	109	1:3,037,000	1:911,000	1:759,000	44		GEOGRAPHY: Africa; Gabon/Congo boundary. Plateau de Djambala, Congo. GEOLOGY: Rectangular stream pattern. FORESTRY: Savanna/tropical rainforest boundary. METEOROLOGY: Cirrus, towering cumulus, small cumulus.
1001	2	1504	2°43'S	14°44'E	232	144	109	1:3,048,000	1:915,000	1:762,000	40		GEOGRAPHY: Africa; Eastern border of Gabon with the Congo. Plateau de Djambala and de Nsah. GEOLOGY: Rectangular stream pattern. FORESTRY: Savanna/tropical rainforest boundary. METEOROLOGY: Cirrus, underlying cumulonimbus, towering cumulus, small cumulus.
1002	2	1506	3°01'S	15°10'E	233	144	109	1:3,059,000	1:918,000	1:765,000	36		GEOGRAPHY: Africa; Congo, Plateau de Djambala and Nsah. Plain of Tha and Ozoiba Mountain. Congo River. Several smoke plumes. GEOLOGY/HYDROLOGY: Tributaries to the Congo River. FORESTRY: Savanna, streams delineated by trees. METEOROLOGY: Cirrus with underlying cumulonimbus, towering cumulus, small cumulus.
1003	2	1508	3°22'S	15°39'E	233	145	110	1:3,071,000	1:921,000	1:768,000	22		GEOGRAPHY: Africa; Plateau Bateke, Congo; Congo River, from just north of Brazzaville/Kinshasa to just south of M'pouya; Congo Republic, Kasai River confluence with the Congo River. Several plumes of smoke on the Congo side of the river. AGRICULTURE: Some light patches which may be areas of cultivation. GEOLOGY/HYDROLOGY: Stream pattern is partially rectangular; Bateke Plateau. FORESTRY: Savanna grasses with drainage associated hardwoods vegetation. METEOROLOGY: Cirrus with underlying cumulonimbus, towering cumulus, small cumulus.
1004	2	1510	3°39'S	16°07'E	234	146	110	1:3,082,000	1:925,000	1:770,000	20		GEOGRAPHY: Africa; Congo, Congo River from just north of Brazzaville/ Kinshasa to just south of M'pouya. Congo Republic, Kwango River. Smoke plumes on the Congo side of the Congo River. AGRICULTURE: Few small light-toned patches which may be areas of cultivation. GEOLOGY: Barbed, rectangular and dendritic drainage patterns. FORESTRY: Savanna grasses with stream associated hardwood vegetation. METEOROLOGY: Cirrus with underlying cumulonimbus, towering cumulus, small cumulus.
1005	2	1512	4°01'S	16°34'E	235	146	111	1:3,093,000	1:928,000	1:773,000	15		GEOGRAPHY: Africa; Congo; Congo River; Congo Republic, Kwango and Wamba Rivers. GEOLOGY: Dendritic drainage pattern. Meander pattern in Kwango River. HYDROLOGY: Kwango River has wider channel than Wamba River. FORESTRY: Savanna grasses with stream associated hardwood vegetation. METEOROLOGY: Cirrus, towering cumulus, small cumulus.
1006	2	1514	4°19'S	17°02'E	236	147	111	1:3,105,000	1:932,000	1:776,000	10		GEOGRAPHY: Africa; Congo Republic, Kwango and Wamba Rivers confluence. GEOLOGY: Meander pattern in Kwango River. Dendritic drainage pattern on highlands. HYDROLOGY: Kwango River has wider channel than Wamba River. FORESTRY: Savanna grasses with stream and river associated hardwood vegetation. METEOROLOGY: Towering cumulus, small cumulus.

FRAME NUMBER	ORBIT NUMBER	SOLAR TIME	PRINCIPAL POINT LATITUDE	PRINCIPAL POINT LONGITUDE	SPACECRAFT ALTITUDE KILOMETERS	SPACECRAFT ALTITUDE STATUTE MILES	GROUND TRACK WIDTH (STATUTE MILES)	SCALES 70 MM	SCALES 8" x 10"	SCALES 9" x 9"	PERCENT CLOUD COVER	CORRELATIVE GEMINI COLOR PHOTOGRAPH (S)	DESCRIPTION
1007	2	1516	4°38'S	17°27'E	237	147	112	1:3,116,000	1:935,000	1:779,000	12		GEOGRAPHY: Africa; Congo Republic; Confluence of the Kwango and Wamba Rivers to the Kafi River. GEOLOGY: Dendritic drainage pattern. Trees line water courses. FORESTRY: Savanna grasses with stream associated hardwood vegetation. METEOROLOGY: Towering cumulus, small cumulus.
1008	2	1518	4°57'S	17°54'E	238	148	112	1:3,128,000	1:938,000	1:782,000	19		GEOGRAPHY: Africa; Congo Republic, from the Wamba to the Kwango River watersheds. Few smoke plumes. GEOLOGY: Dendritic drainage pattern. FORESTRY: Savanna grasses with stream associated hardwood vegetation. METEOROLOGY: Cirrus, towering cumulus, small cumulus.
1009	2	1520	5°15'S	18°21'E	239	148	112	1:3,139,000	1:942,000	1:785,000	40		GEOGRAPHY: Africa; Congo Republic, from the Inzia to the Lutshima watershed. GEOLOGY: Dendritic drainage pattern. FORESTRY: Savanna grasses with stream associated hardwood vegetation. METEOROLOGY: Dense cirrus, imbedded cumulonimbus, towering cumulus, small cumulus.
1010	2	1522	5°33'S	18°48'E	239	149	113	1:3,151,000	1:945,000	1:788,000	65		GEOGRAPHY: Africa; Congo Republic, from the Kwenge to the Kwilu watershed, town of Gungu. GEOLOGY: Rectangular drainage patterns. FORESTRY: Savanna grasses with stream associated hardwood vegetation. METEOROLOGY: Dense cirrus, imbedded cumulonimbus, towering cumulus, small cumulus.
1011	2	1524	5°51'S	19°15'E	240	149	113	1:3,163,000	1:949,000	1:791,000	.70		GEOGRAPHY: Africa; Congo Republic, Oange River. AGRICULTURE: Possible areas of cultivation. GEOLOGY: Rectangular drainage patterns. FORESTRY: Savanna grasses with stream associated hardwood vegetation. METEOROLOGY: Dense cirrus, imbedded cumulonimbus, towering cumulus, small cumulus. Tower penetrating cirrus.
1012	2	1526	6°09'S	19°42'E	241	150	114	1:3,175,000	1:953,000	1:794,000	57		GEOGRAPHY: Africa; Congo Republic, Oange River. Possible areas of habitation. AGRICULTURE: Possible areas of cultivation. FORESTRY: Savanna grasses with scattered river and stream associated hardwoods. METEOROLOGY: Dense cirrus, imbedded cumulonimbus, towering cumulus, small cumulus, cumuloform tower penetrating cirrus layer.
1013	2	1528	6°28'S	20°10'E	242	151	114	1:3,187,000	1:956,000	1:797,000	43		GEOGRAPHY: Africa; Congo Republic, Oange and Kasai Rivers, town of Tshikapa; northern tip of Angola. GEOLOGY: Dendritic and rectangular drainage patterns. FORESTRY: Savanna grasses with scattered stream associated hardwood vegetation. METEOROLOGY: Dense cirrus, underlying towering cumulus, small cumulus.
1014	2	1530	6°44'S	20°34'E	243	151	114	1:3,199,000	1:960,000	1:800,000	23		GEOGRAPHY: Africa; Congo Republic, Kasai River, town of Tshikapa, Lubembe River, Shamukumbi mine, with connecting road. Some possible areas of habitation. GEOLOGY: Dendritic and rectangular drainage pattern. FORESTRY: Savanna grasses with some drainage associated herbaceous vegetation. METEOROLOGY: Cirrus, towering cumulus, small cumulus.

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1015	2	1532	7°02'S	21°02'E	244	152	115	1:3,211,000	1:963,000	1:803,000	34		GEOGRAPHY: Africa; Congo Republic, town of Tshikapa on the Kasai River. Some roads, Tshisanda and Shamukumbi mines; northern tip of Angola. FORESTRY: Savanna grasses with drainage associated herbaceous vegetation. METEOROLOGY: Cirrus, towering cumulus, small cumulus.
1016	2	1534	7°22'S	21°30'E	245	152	115	1:3,223,000	1:967,000	1:806,000	48		GEOGRAPHY: Africa; Congo Republic, Lubombe River, Shamukumbi and Tshisanda mines. Northern tip of Angola. GEOLOGY: Dendritic drainage pattern. FORESTRY: Savanna grasses with sparse herbaceous stream associated vegetation. METEOROLOGY: Cirrus, imbedded cumulonimbus, towering cumulus and cumulus.
1017	2	1536	7°41'S	22°00'E	246	153	116	1:3,235,000	1:971,000	1:809,000	45		GEOGRAPHY: Africa; Congo Republic and Angola. GEOLOGY: Dendritic and annular drainage patterns. FORESTRY: Savanna grasses with stream associated herbaceous vegetation. METEOROLOGY: Dense cirrus with imbedded cumulonimbus tops, towering cumulus, small cumulus.
1018	2	1538	7°59'S	22°18'E	247	153	116	1:3,247,000	1:974,000	1:812,000	31		GEOGRAPHY: Africa; Congo Republic and northern tip of Angola. Some areas of habitation and roads. FORESTRY: Savanna grasses with some areas of thick deciduous vegetation. METEOROLOGY: Dense cirrus with imbedded cumulonimbus tops, towering cumulus, small cumulus.
1019	2	1540	8°18'S	22°56'E	248	154	117	1:3,253,000	1:978,000	1:815,000	26		GEOGRAPHY: Africa; Congo Republic. GEOLOGY: Dendritic drainage patterns. FORESTRY: Savanna grasses with areas of dense deciduous vegetation. Some areas of possible cultivation. METEOROLOGY: Dense cirrus, cumulonimbus tops, towering cumulus, cumulus.
1020	2	1542	8°37'S	23°25'E	249	154	117	1:3,271,000	1:981,000	1:818,000	38		GEOGRAPHY: Africa; Congo Republic, from the Luisa to the Lub watershed. GEOLOGY: Rectangular and dendritic drainage patterns. FORESTRY: Savanna grasses with stream and marsh associated vegetation. METEOROLOGY: Dense cirrus, cumulonimbus tops, towering cumulus, cumulus.
1021	2	1544	8°56'S	23°54'E	250	155	118	1:3,284,000	1:985,000	1:821,000	27		GEOGRAPHY: Africa; Congo Republic, marsh and shallow lakes of southwestern Congo Republic, town of Kamina, smoke plume. AGRICULTURE: Some areas of probable cultivation. GEOLOGY/HYDROLOGY: Trellis and dendritic drainage pattern, shallow lakes. FORESTRY: Open woodland, possibly inundated (marsh lands). METEOROLOGY: Cirrus, altocumulus, towering cumulus, small cumulus.
1022	2	1546	9°14'S	24°21'E	251	156	118	1:3,296,000	1:989,000	1:824,000	30		GEOGRAPHY: Africa; Congo Republic, towns of Kamina, Kinda, Kakwisamba and Mulengi, Lubudi River, railroad scar north and west of Kamina. AGRICULTURE: Some areas of probable cultivation. GEOLOGY/HYDROLOGY: Trellis, dendritic drainage pattern, shallow lakes. FORESTRY: Open woodland. METEOROLOGY: Dense cirrus patches, altocumulus, small cumulus.
1023	2	1548	9°33'S	24°50'E	251	156	118	1:3,309,000	1:993,000	1:827,000	23		GEOGRAPHY: Africa; Congo Republic, towns of Kamina, Kinda, Kakwisamba, Mulengi, and Mwida. Lubudi River, railroad scar north and west of Kamina. AGRICULTURE: Some areas of probable cultivation. GEOLOGY/HYDROLOGY: Northeastward-trending structural/stratigraphic lineaments. Trellis and dendritic drainage patterns, shallow lakes. FORESTRY: Open woodland. METEOROLOGY: Dense cirrus patches, altocumulus, small cumulus.

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1024	2	1550	9°51'S	25°19'E	252	157	119	1:3,321,000	1:996,000	1:830,000	29		GEOGRAPHY: Africa; Congo Republic, Lubudi and Lualaba Rivers, towns of Kinda, Kakwiamba, Mulengi and Mwida mine. Lubidi and Lualaba Rivers. GEOLOGY/HYDROLOGY: Northeastward-trending structural/stratigraphic lineaments. Trellis and dendritic drainage patterns. Meandering streams. FORESTRY: Open woodland. METEOROLOGY: Dense cirrus patches with imbedded cumulonimbus top, towering cumulus, cumulus.
1025	2	1552	10°09'S	25°46'E	253	157	119	1:3,333,000	1:1,000,000	1:833,000	37		GEOGRAPHY: Africa; Congo Republic, Lualaba River, Lake Kolwezi, mining area northwest of Lakasi (Jadotville). Town of Mwida. GEOLOGY/HYDROLOGY: Northeastward-trending structural/stratigraphic lineaments. Meandering river pattern. FORESTRY: Savanna vegetation with scattered dry open woodlands. METEOROLOGY: Cumulonimbus top with cirrus blow-off, towering cumulus, small cumulus.
1026	2	1554	10°28'S	26°15'E	254	158	120	1:3,346,000	1:1,004,000	1:836,000	65		GEOGRAPHY: Africa; Congo Republic, towns of Lakasi (Jadotville) and some mining and/or habitations northwest of Lakasi. Lake of Retumus. GEOLOGY/HYDROLOGY: Northeastward-trending structural/stratigraphic lineaments. FORESTRY: Sparse, open deciduous woodland. METEOROLOGY: Widespread cirrus, some dense, towering cumulus; small cumulus.
1027	2	1556	10°47'S	26°44'E	255	159	120	1:3,358,000	1:1,008,000	1:840,000	52		GEOGRAPHY: Africa; Congo Republic; Lakasi (Jadotville) and some mining and/or habitation areas northwest of Lakasi, Lake of Retumus, power transmission line scar from Lakasi southeastward. Small tip of northeastern Zambia. GEOLOGY: Northeastward-trending structural/stratigraphic lineaments. FORESTRY: Sparse, open deciduous woodland. METEOROLOGY: Cirrus, small cumulus.
1028	2	1558	11°06'S	27°13'E	256	159	121	1:3,371,000	1:1,011,000	1:843,000	37		GEOGRAPHY: Africa; Congo Republic, towns of Mulungwishi, Kamalanda, Lakasi (Jadotville) and Lubumbashi (Elisabethville). Power transmission line scar between Lakasi and Lubumbashi. Kipushi/Malindi mine area on the border between Congo Republic and Zambia. GEOLOGY: Northeastward-trending structural/stratigraphic lineaments. FORESTRY: Open woodland. METEOROLOGY: Cirrus, small cumulus.
1029	2	1600	11°24'S	27°42'E	257	160	121	1:3,383,000	1:1,015,000	1:846,000	12		GEOGRAPHY: Africa; Congo Republic, towns of Lubumbashi (Elisabethville) and Kipushi/Malindi mine area, Luapula River forming the Zambia border. Habitation areas along the Luapula River. Tshinsenda and Mokambo in the Congo Republic along the Zambia (Rhodesia and Nyasaland) border with the towns of Mufulira and Chingola and associated mines. GEOLOGY: Dendritic and meandering stream patterns. FORESTRY: Open woodland. METEOROLOGY: Cirrus, small cumulus.
1030	2	1602	11°42'S	28°10'E	258	160	122	1:3,396,000	1:1,019,000	1:849,000	11		GEOGRAPHY: Africa; southeastern corridor of the Congo Republic and the Zambia border. Lubumbashi (Elisabethville), Mokambo, Kisbala, Tshinsenda and Fort Rossberry, Congo Republic; Mufulira and Chingola Zambia (Rhodesia and Nyasaland). Some un-named habitation areas in both countries. Luapula River. GEOLOGY: Dendritic drainage pattern. FORESTRY: Open woodland. METEOROLOGY: Cirrus, small cumulus.

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1031	2	1604	12°00'S	28°40'E	259	161	122	1:3,409,000	1:1,023,000	1:852,000	15		GEOGRAPHY: Africa; southeastern corridor of Congo Republic and the Zambia border. Ndola, Mufulira and Fort Roseberry, Zambia; Mokambo, Sakania, Congo Republic, Luapula River. GEOLOGY: Dendritic drainage pattern, constriction of Luapula River course just upstream from Kabunda. FORESTRY: Open woodland. METEOROLOGY: Cirrus, small cumulus.
1032	2	1606	12°18'S	29°08'E	260	162	122	1:3,421,000	1:1,027,000	1:855,000	15		GEOGRAPHY: Africa; southeastern corridor of Congo Republic and Zambia border. Luapula River and lake area near Lake Bangweulu. Kabunda, Kakielo and Mokambo Congo Republic; Fort Roseberry, Mufulira and Ndola, Zambia. GEOLOGY: Dendritic stream pattern, multi-lake area near Lake Bangweulu. Constriction of Luapula River course near Kabunda. FORESTRY: Open woodland. METEOROLOGY: Cirrus, small cumulus.
1033	2	1609	12°37'S	29°38'E	261	162	123	1:3,434,000	1:1,030,000	1:859,000	11		GEOGRAPHY: Africa; southeastern corridor of Congo Republic and Zambia border. Kabunda on the Luapula River. The lower lake area of Lake Bangweulu region. AGRICULTURE: Possible areas of cultivation. GEOLOGY/HYDROLOGY: Constriction of Luapula River near Kabunda, dendritic drainage pattern, shallow lake area. FORESTRY: Open woodland. METEOROLOGY: Cirrus, altocumulus.
1034	2	1611	12°55'S	30°07'E	262	163	123	1:3,447,000	1:1,034,000	1:862,000	11		GEOGRAPHY: Africa; southeastern tip of Congo (Kinshasa) where Congo borders Zambia. Zambian lake Lusiwasi included. Luapula River, separating Congo and Zambia. Lavashi ridge. GEOLOGY: Long sinuous ridges trending northeastward. HYDROLOGY: Luapula River with flood plain and associated tributary pattern. FORESTRY: Dry, open woodland, grading into tall grass and other herbaceous plants. METEOROLOGY: Cirrus, altocumulus, small cumulus.
1035	2	1615	13°14'S	30°38'E	263	163	124	1:3,459,000	1:1,038,000	1:865,000	18		GEOGRAPHY: Africa; northeastern Zambia including portions of Luangwa River and headwaters of Lukusashi River. Chitango. GEOLOGY: Major highland area bordered by high escarpment which separates higher elevations from river valley. HYDROLOGY: Dendritic/rectangular drainage pattern (Luangwa River) and (Lukusashi River). FORESTRY: Dry, open woodland with grass and other herbaceous plants. METEOROLOGY: Cirrus, altocumulus, small cumulus.
1036	2	1617	13°30'S	31°04'E	264	164	124	1:3,472,000	1:1,042,000	1:868,000	13		GEOGRAPHY: Africa; northeastern Zambia over Luangwa River Valley, Lupanie River empties into Luangwa. GEOLOGY: Major drainage basin of area. Prominent scarp with probable faulting. HYDROLOGY: Dendritic/Rectangular drainage. Highland waters draining into Luangwa River Valley. Meandering stream patterns. FORESTRY: Sparse, open deciduous woodland. METEOROLOGY: Cirrus, small cumulus.
1037	2	1619	13°46'S	31°32'E	265	165	125	1:3,485,000	1:1,046,000	1:871,000	25		GEOGRAPHY: Africa; eastern Zambia borders with western Mozambigue. Border line is apparent in photograph. Zambia side apparently void of major vegetation. Luangwa River Valley. GEOLOGY: Highlands with major northeastward-trending ridge system. HYDROLOGY: Luangwa and Lupande Rivers, major source of water. FORESTRY: Sparse, open deciduous woodlands. METEOROLOGY: Cirrus, small cumulus.

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1038	2	1621	14°04'S	32°02'E	266	165	125	1:3,498,000	1:1,049,000	1:874,000	21		GEOGRAPHY: Africa; extreme southeastern tip of Zambia, Ft. Jameson Zambia, Mozambique and Malawi border. GEOLOGY: Arcuate and northward trending ridges showing differential resistant stratigraphy. HYDROLOGY: Luangwa river, major water source. FORESTRY: Sparse open woodlands grading to thick deciduous overstory.
1039	2	1623	14°22'S	32°31'E	267	166	126	1:3,511,000	1:1,053,000	1:878,000	14		GEOGRAPHY: Africa; point of three country intersection, Zambia, Mozambique and Malawi area of Fort Jameson and Dzalanyama range. GEOLOGY: Dzalanyama mountain range prominant relief. Secondary highlands include Macuacua and Desindoo peaks. HYDROLOGY: Headwaters and tributaries of Capoche river. FORESTRY: Sparse open deciduous woodlands. METEOROLOGY: Cirrus, small cumulus.
1040	2	1625	14°39'S	33°00'E	268	166	126	1:3,523,000	1:1,057,000	1:881,000	2		GEOGRAPHY: Africa; Mozambique covering portion of Zambia and Malawi. AGRICULTURE: Probable areas of cultivation. GEOLOGY: Northward trending lineaments and possible faults, rugged resistant stratigraphy in ridge form. HYDROLOGY: Capoche and Zambezi rivers major sources of drainage. Namanzi and Ponfi rivers drainage basins. FORESTRY: Sparse, open deciduous woodlands. METEOROLOGY: Small cumulus.
1041	2	1629	14°55'S	33°29'E	269	167	127	1:3,536,000	1:1,061,000	1:884,000	6		GEOGRAPHY: Africa; Mozambique and Malawi borders, southwest of Lake Nyasa. AGRICULTURE: Probable areas of cultivation. GEOLOGY: Rugged Dzalanyama range grading into Zambezi river bottom lands. Western slopes of Northern Kirk Range in leading edge of photograph. Apparent steeply dipping beds. HYDROLOGY: Zambezi river major hydrologic feature, Rio Revubue and Namanzi rivers are extensive secondary drains. FORESTRY: Sparse open deciduous woodlands grading into lowland marshgrasses. METEOROLOGY: Altocumulus, small cumulus.
1042	2	1630	15°12'S	33°59'E	270	168	127	1:3,549,000	1:1,065,000	1:887,000	5		GEOGRAPHY: Africa; Northeastern corner of Mozambique, including border of Mozambique and Malawi. GEOLOGY: Namanzi river valley bounded by Dzalanyama and Kirk mountain ranges. Kirk Range with fracture joints. Large extrusive feature near southeastern corner of photograph. Kirk range sloping into Lake Nyasa basin. HYDROLOGY: Zambezi river major drainage source, Namanzi secondary source. FORESTRY: Open deciduous woodlands grading southeastward into tall grass savanna. METEOROLOGY: Altocumulus, small cumulus.
1043	2	1632	15°29'S	34°28'E	271	168	127	1:3,562,000	1:1,069,000	1:890,000	5		GEOGRAPHY: Africa; border of Mozambique and Malawi directly over Kirk Range. Blantyre. AGRICULTURE: Possible areas of cultivation. GEOLOGY: Major river basin bordered by extensive highland ranges that are highly fractured. Faults may border the river valley. Numerous intrusive rocks, lineation trends northeast probably associated with rift valley structure. HYDROLOGY: Shire river major source of drainage, contains numerous falls and rapids, Livingston falls. At lower elevations this river is associated with extensive marshlands. FORESTRY: Open deciduous woodlands grading into lowland savanna grasses. METEOROLOGY: Altocumulus, orographic cumulus pattern.

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1044	2	1634	15°45'S	34°58'E	272	169	128	1:3,575,000	1:1,073,000	1:894,000	3	S-65-64023	GEOGRAPHY: Africa; Blantyre Malawi, Lake Chilwa area. Zomba, Limbe. AGRICULTURE: Probable areas of cultivation. GEOLOGY: Cholo Mountain and associated peaks, Mlanje Mountains very pronounced. Numerous northeastward trending lineaments. HYDROLOGY: Shire river valley, Livingston falls, Mkula falls, Lake Chilwa, lowland marshes along Shire river. FORESTRY: Open deciduous woodlands grading into lowland savanna grasses with river associated aquatic vegetation. METEOROLOGY: Altocumulus, orographic cumulus pattern, T shaped.
1045	2	1636	16°02'S	35°29'E	273	169	128	1:3,588,000	1:1,076,000	1:897,000	3		GEOGRAPHY: Africa; Malawi and Mozambique border. Blantyre and Limbe. AGRICULTURE: Probable areas of cultivation. GEOLOGY: Isolated highlands, major escarpments along Shire river valley, northeastward and eastward trending lineaments. HYDROLOGY: Shire river and Lake Chilwa major water sources. FORESTRY: Open deciduous woodlands grading into grass savanna. METEOROLOGY: Orographic cumulus pattern in shape of "T"
1046	2	1638	16°18'S	35°58'E	274	170	129	1:3,601,000	1:1,080,000	1:900,000	2		GEOGRAPHY: Africa; Malawi and Mozambique border, Mlanje Mountains. AGRICULTURE: Probable areas of cultivation. GEOLOGY: Numerous eastward trending arcuate lineaments that are probable resistant intrusives associated with the rift valley structure. HYDROLOGY: Shire river and Lake Chilwa, Rio Liciro and Lunla rivers contribute major water sources. FORESTRY: Open deciduous woodlands with grass and other herbaceous plants. METEOROLOGY: Small cumulus.
1047	2	1640	16°34'S	36°28'E	275	171	129	1:3,614,000	1:1,084,000	1:903,000	2		GEOGRAPHY: Africa; Mozambique, Montie Mabu peak area. GEOLOGY: Northeastward and eastward trending lineaments and steeply dipping beds. Probable faults associated with rift valley structure. HYDROLOGY: Extensive drainage system from inland highlands to lower coastal region. Munguzi, Lunla, Rio Lugela major drainage. FORESTRY: Open deciduous woodlands. METEOROLOGY: Small cumulus.
1048	2	1642	16°51'S	36°58'E	276	171	130	1:3,627,000	1:1,088,000	1:907,000	2		GEOGRAPHY: Africa; East coast Mozambique, Rio Lugela. GEOLOGY: Coastal plain, with scattered isolated highland outcrops, meandering stream pattern. HYDROLOGY: Extensive drainage system from highlands to coast, Rio Lugela, Nipiodi and Melela rivers, primary hydrologic sources. FORESTRY: Open deciduous woodlands changing to grasses and then to mangrove. OCEANOGRAPHY: Well developed beaches, smooth coastline. METEOROLOGY: Small cumulus.
1049	2	1645	17°07'S	37°28'E	277	172	130	1:3,639,000	1:1,092,000	1:910,000	4		GEOGRAPHY: Africa; eastern coast of Mozambique, Pebau, Licungo river, Quelimane. GEOLOGY: Coastal plain. HYDROLOGY: Aggrading regime on Licungo river. FORESTRY: Predominantly mangrove. OCEANOGRAPHY: Well developed beaches, smooth coast line. METEOROLOGY: Cumulus.
1050	2	1647	17°22'S	37°57'E	278	172	131	1:3,652,000	1:1,096,000	1:913,000	8		GEOGRAPHY: Africa; eastern coast of Mozambique, Quelimane Licungo river. AGRICULTURE: Probable areas of cultivation. GEOLOGY: Coastal plain. HYDROLOGY: Aggrading regime. FORESTRY: Predominantly mangrove. OCEANOGRAPHY: Well developed beaches, smooth coastline. Light toned pattern off shore and off shore reefs. METEOROLOGY: Cumulus.

FRAME NUMBER	ORBIT NUMBER	SOLAR TIME	PRINCIPAL POINT LATITUDE	PRINCIPAL POINT LONGITUDE	SPACECRAFT ALTITUDE KILOMETERS	SPACECRAFT ALTITUDE STATUTE MILES	GROUND TRACK WIDTH (STATUTE MILES)	SCALES 70MM	SCALES 8" x 10"	SCALES 9" x 9"	PERCENT CLOUD COVER	CORRELATIVE GEMINI COLOR PHOTOGRAPH (S)	DESCRIPTION
1051	2	1649	*18°01'S	39°03'E	279	173	131	1:3,665,000	1:1,100,000	1:916,000	7		GEOGRAPHY: Africa; East coast of Mozambique, Nipiodi and Melela rivers. GEOLOGY: Coastal plain. HYDROLOGY: Aggrading regime. FORESTRY: Predominantly mangrove. OCEANOGRAPHY: Well developed beaches, smooth coastline. Light-toned pattern offshore and offshore reefs. METEOROLOGY: Cumulus, some sea breeze effect, some alignment normal to shore
1052	2	1651	*18°17'S	39°33'E	280	174	132	1:3,678,000	1:1,104,000	1:920,000	13		GEOGRAPHY: Africa; East coast of Mozambique, Molocure river area. GEOLOGY: Coastal plain. HYDROLOGY: Aggrading regime. FORESTRY: Mangrove. OCEANOGRAPHY: Well developed beaches, light-toned patterns offshore, and offshore reefs. METEOROLOGY: Altocumulus.
1053	2	1653	*18°33'S	40°03'E	281	174	132	1:3,691,000	1:1,108,000	1:923,000	17		GEOGRAPHY: Tip of Mozambique east coast visible. OCEANOGRAPHY: Offshore reefs faintly visible (Lilha Epidendron Lilha Casuarina) METEOROLOGY: Altocumulus, towering cumulus, cumulus.
1054	2	1655	*18°49'S	40°33'E	282	175	133	1:3,704,000	1:1,111,000	1:926,000	25		GEOGRAPHY: Mozambique Channel, Indian Ocean. OCEANOGRAPHY: No visible wave action. METEOROLOGY: Altocumulus, towering cumulus, cumulus.
1055	2	1658	*19°05'S	41°04'E	283	176	133	1:3,717,000	1:1,115,000	1:929,000	16		GEOGRAPHY: Mozambique Channel, Indian Ocean. OCEANOGRAPHY: No visible surface wave motion. METEOROLOGY: Towering cumulus, cumulus, stratocumulus.
1056	2	1700	*19°20'S	41°34'E	283	176	133	1:3,730,000	1:1,119,000	1:933,000	7		GEOGRAPHY: Mozambique Channel, Indian Ocean. OCEANOGRAPHY: No visible wave action. METEOROLOGY: Cumulus.
1057	2	1702	*19°36'S	42°04'E	284	177	134	1:3,743,000	1:1,123,000	1:936,000	2		GEOGRAPHY: Mozambique Channel, Indian Ocean. OCEANOGRAPHY: No visible wave action. METEOROLOGY: Cumulus.
1058	2	1704	*19°52'S	42°35'E	285	177	134	1:3,756,000	1:1,127,000	1:939,000	2		GEOGRAPHY: Mozambique Channel, Indian Ocean. OCEANOGRAPHY: No visible wave action. METEOROLOGY: Altocumulus.
1059	2	1706	*20°07'S	43°05'E	286	178	135	1:3,769,000	1:1,131,000	1:942,000	10		GEOGRAPHY: Mozambique Channel, Indian Ocean. OCEANOGRAPHY: No visible wave action. METEOROLOGY: Altocumulus.
1060	2	1708	*20°22'S	43°37'E	287	179	135	1:3,782,000	1:1,135,000	1:945,000	15		GEOGRAPHY: Mozambique Channel, Indian Ocean. OCEANOGRAPHY: No visible wave action. METEOROLOGY: Altocumulus.
1061	2	1711	*20°37'S	44°07'E	288	179	136	1:3,795,000	1:1,139,000	1:949,000	15		GEOGRAPHY: Malagasy Republic; west coast of Madagascar at Morondava. GEOLOGY: Coastal plain. HYDROLOGY: Major coastal drainage consists of Maharivo river and Tsiribihina river delta. FORESTRY: Dry open woodland with scattered mangrove. OCEANOGRAPHY: Irregular, illdefined coastline. METEOROLOGY: Altocumulus.

*computed nadir point of camera

FRAME NUMBER	ORBIT NUMBER	SOLAR TIME	PRINCIPAL POINT LATITUDE	PRINCIPAL POINT LONGITUDE	SPACECRAFT ALTITUDE KILOMETERS	SPACECRAFT ALTITUDE STATUTE MILES	GROUND TRACK WIDTH (STATUTE MILES)	SCALES 70MM	SCALES 8" x 10"	SCALES 9" x 9"	PERCENT CLOUD COVER	CORRELATIVE GEMINI COLOR PHOTOGRAPH (S)	DESCRIPTION
1062	2	1713	*20°52'S	44°38'E	289	180	136	1:3,807,000	1:1,142,000	1:952,000	20		GEOGRAPHY: Malagasy Republic; western coast of Madagascar, Mahabo. GEOLOGY: Coastal plain, gentle to moderate slopes inland to southern tip of Causses de Lantsingy range. HYDROLOGY: Maharivo river major drain of area. Tsiribihina delta region. FORESTRY: Dry open woodland with scattered mangrove. OCEANOGRAPHY: Irregular, illdefined coastline. METEOROLOGY: Altocumulus.
1063	2	1715	*21°07'S	45°09'E	290	180	137	1:3,820,000	1:1,146,000	1:955,000	30		GEOGRAPHY: Malagasy Republic; western coast of Madagascar, Mahabo. GEOLOGY: Coastal plains joining Massif du Makay highland range. HYDROLOGY: Maharivo river dominant drainage system. FORESTRY: Open deciduous woodlands changing to grass and other herbaceous plants of highlands. OCEANOGRAPHY: Irregular, illdefined coastline. METEOROLOGY: Altocumulus, towering cumulus, stratocumulus, sea breese effect.
1064	2	1717	*21°22'S	45°40'E	291	181	137	1:3,833,000	1:1,150,000	1:958,000	53		GEOGRAPHY: Malagasy Republic; western coast of Madagascar Mahabo. GEOLOGY: Some highland terrain visible through clouds. HYDROLOGY: Maharivo river dominant visible hydrologic feature. FORESTRY: Open deciduous woodlands changing to grasses. OCEANOGRAPHY: Coast faintly visible. METEOROLOGY: Towering cumulus, stratocumulus.
1065	2	1719	*21°37'S	46°12'E	292	182	138	1:3,846,000	1:1,154,000	1:961,000	60		GEOGRAPHY: Malagasy Republic; western coast of Madagascar. GEOLOGY: Highlands of Massif Du Makay visible but dim. Other rugged highlands visible. HYDROLOGY: Tributary of Maharivo river visible at one point in cloud break. METEOROLOGY: Towering cumulus, stratocumulus.
1066	2	1722	*21°52'S	46°43'E	293	182	138	1:3,859,000	1:1,158,000	1:965,000	46		GEOGRAPHY: Malagasy Republic; western Madagascar. GEOLOGY: Rugged inland highlands visible in cloud break. METEOROLOGY: Towering cumulus, stratocumulus.
1067	2	1724	*22°06'S	47°14'E	294	183	139	1:3,871,000	1:1,161,000	1:968,000	41		GEOGRAPHY: Malagasy Republic; central Madagascar. GEOLOGY: Central highlands visible, but dark. METEOROLOGY: Towering cumulus, stratocumulus.
1068	2	1726	*22°14'S	47°46'E	295	183	139	1:3,884,000	1:1,165,000	1:971,000	19		GEOGRAPHY: Malagasy Republic; east central Madagascar. GEOLOGY: Extremely rough central highlands visible but dark. OCEANOGRAPHY: Eastern coast barely visible, smooth coastline. METEOROLOGY: Aligned towering cumulus, and cumulus, at terminator.
1069	2	1728	*22°34'S	48°18'E	296	184	139	1:3,897,000	1:1,169,000	1:974,000	12		GEOGRAPHY: Malagasy Republic; east coast of Madagascar. GEOLOGY: Undefinable near coast. OCEANOGRAPHY: Eastern coast barely definable, apparently smooth coastline. METEOROLOGY: Aligned towering cumulus and cumulus at terminator.
1070	2	1729	*22°34'S	48°18'E	297	185	140	1:3,909,000	1:1,173,000	1:977,000	11		GEOGRAPHY: Indian Ocean; eastern coast of Madagascar, very dark. OCEANOGRAPHY: Faintly visible, apparently smooth shoreline. METEOROLOGY: Few tops visible at terminator.
1071	2	1731	*22°49'S	48°50'E	298	185	140	1:3,922,000	1:1,177,000	1:980,000	3		GEOGRAPHY: Indian Ocean; eastern coast of Madagascar, very dark. OCEANOGRAPHY: Faintly visible, apparently smooth shoreline. METEOROLOGY: Few tops visible at terminator.
1072	2	1735	*23°17'S	49°54'E	299	186	141	1:3,935,000	1:1,181,000	1:984,000	3		GEOGRAPHY: Indian Ocean, very dark. METEOROLOGY: Fine cloud top pattern visible beyond terminator.

*computed nadir point of camera

FRAME NUMBER	ORBIT NUMBER	SOLAR TIME	PRINCIPAL POINT LATITUDE	PRINCIPAL POINT LONGITUDE	SPACECRAFT ALTITUDE KILOMETERS	SPACECRAFT ALTITUDE STATUTE MILES	GROUND TRACK WIDTH (STATUTE MILES)	SCALES 70MM	SCALES 8" x 10"	SCALES 9" x 9"	PERCENT CLOUD COVER	CORRELATIVE GEMINI COLOR PHOTOGRAPH (S)	DESCRIPTION
1073	2	1738	*23°30'S	50°26'E	300	186	141	1:3,947,000	1:1,184,000	1:987,000	3		GEOGRAPHY: Indian Ocean, very dark. METEOROLOGY: Fine cloud top pattern visible beyond terminator.
1074	2	1740	*23°44'S	50°58'E	301	187	142	1:3,960,000	1:1,188,000	1:990,000	5		GEOGRAPHY: Indian Ocean, very dark. METEOROLOGY: Fine cloud top pattern visible beyond terminator.
1075	2	1742	*23°58'S	51°30'E	302	188	142	1:3,972,000	1:1,192,000	1:993,000	10		GEOGRAPHY: Indian Ocean, very dark. METEOROLOGY: Fine cloud top pattern visible beyond terminator.
1076	2	1744	*24°11'S	52°03'E	303	188	143	1:3,985,000	1:1,196,000	1:996,000	9		GEOGRAPHY: Indian Ocean, very dark. METEOROLOGY: Fine cloud top pattern visible beyond terminator.
1077	2	1747	*24°24'S	52°36'E	304	189	143	1:3,997,000	1:1,199,000	1:999,000	4		GEOGRAPHY: Indian Ocean, very dark. METEOROLOGY: Fine cloud top pattern visible beyond terminator.
1078	2	1749	*24°37'S	53°08'E	305	189	144	1:4,009,000	1:1,203,000	1:1,002,000	3		GEOGRAPHY: Indian Ocean, very dark. METEOROLOGY: Fine cloud top pattern faintly visible beyond terminator.
1079	2	1751	*24°50'S	53°41'E	306	190	144	1:4,022,000	1:1,207,000	1:1,005,000	1		GEOGRAPHY: Indian Ocean, very dark. METEOROLOGY: Fine could top pattern faintly visible beyond terminator.
								(DARK SIDE)					
1400	2	0555	*24°09'N	137°13'W	248	154	116	1:3,266,000	1:980,000	1:816,000	100		GEOGRAPHY: Eastern Pacific. METEOROLOGY: Daylight terminator, few cloud tops illuminated.
1401	2	0556	*25°21'N	136°39'W	247	154	116	1:3,255,000	1:977,000	1:814,000	100		GEOGRAPHY: Eastern Pacific. METEOROLOGY: Daylight terminator, few cloud tops illuminated.
1402	2	0559	*25°34'N	136°04'W	247	153	116	1:3,244,000	1:973,000	1:811,000	100		GEOGRAPHY: Eastern Pacific. METEOROLOGY: Daylight terminator, few cloud tops illuminated.
1403	2	0601	*25°46'N	135°31'W	246	153	116	1:3,234,000	1:970,000	1:808,000	100		GEOGRAPHY: Eastern Pacific. METEOROLOGY: Thin lines, cloud tops illuminated.
1404	2	0603	*25°59'N	134°57'W	245	152	115	1:3,223,000	1:967,000	1:806,000	100		GEOGRAPHY: Eastern Pacific. METEOROLOGY: Thin lines, cloud tops illuminated.
1405	2	0606	*26°11'N	134°23'W	244	152	115	1:3,213,000	1:964,000	1:803,000	100		GEOGRAPHY: Eastern Pacific. METEOROLOGY: Cloud top illuminated, open cells about 20-40 miles in diameter.
1406	2	0608	*26°23'N	133°48'W	243	151	115	1:3,202,000	1:961,000	1:800,000	100		GEOGRAPHY: Eastern Pacific. METEOROLOGY: Cloud top illuminated, open cells about 20-40 miles in diameter.
1407	2	0611	*26°35'N	133°14'W	243	151	114	1:3,192,000	1:958,000	1:798,000	100		GEOGRAPHY: Eastern Pacific. METEOROLOGY: Stratus and stratocumulus, some very thin altostratus or cirrus, fine detail.
1408	2	0613	*26°47'N	132°39'W	242	150	114	1:3,181,000	1:954,000	1:795,000	100		GEOGRAPHY: Eastern Pacific. METEOROLOGY: Stratus, some very thin higher clouds, ripples on lower clouds.
1409	2	0616	*26°58'N	132°04'W	241	150	113	1:3,171,000	1:951,000	1:793,000	100		GEOGRAPHY: Eastern Pacific. METEOROLOGY: Stratus, some higher clouds, ripples on lower clouds.

*computed nadir point of camera

FRAME NUMBER	ORBIT NUMBER	SOLAR TIME	PRINCIPAL POINT LATITUDE	PRINCIPAL POINT LONGITUDE	SPACECRAFT ALTITUDE KILOMETERS	SPACECRAFT ALTITUDE STATUTE MILES	GROUND TRACK WIDTH (STATUTE MILES)	SCALES 70MM	SCALES 8" x 10"	SCALES 9" x 9"	PERCENT CLOUD COVER	CORRELATIVE GEMINI COLOR PHOTOGRAPH (S)	DESCRIPTION
1410	2	0618	*27°10'N	131°30'W	240	149	113	1:3,161,000	1:948,000	1:790,000	100		GEOGRAPHY: Eastern Pacific. METEOROLOGY: Stratus, some higher clouds, fine detail in lower clouds.
1411	2	0621	*27°21'N	130°54'W	239	149	113	1:3,150,000	1:945,000	1:788,000	100		GEOGRAPHY: Eastern Pacific. METEOROLOGY: Stratus, some higher clouds, fine detail in lower clouds.
1412	2	0623	*27°33'N	130°19'W	239	148	112	1:3,140,000	1:942,000	1:785,000	100		GEOGRAPHY: Eastern Pacific. METEOROLOGY: Stratus, some thin higher clouds, fine detail in lower clouds.
1413	2	0626	*27°43'N	129°44'W	238	148	112	1:3,130,000	1:939,000	1:784,000	100		GEOGRAPHY: Eastern Pacific. METEOROLOGY: Stratus, some thin higher clouds, fine detail in lower clouds.
1414	2	0628	*27°54'N	129°09'W	237	147	112	1:3,109,000	1:936,000	1:780,000	100		GEOGRAPHY: Eastern Pacific. METEOROLOGY: Stratus with fine detail.
1415	2	0631	*28°05'N	128°33'W	236	147	111	1:3,109,000	1:933,000	1:777,000	100		GEOGRAPHY: Eastern Pacific. METEOROLOGY: Thin stratus becoming stratocumulus, some higher clouds.
1416	2	0633	*28°15'N	127°57'W	236	146	111	1:3,099,000	1:930,000	1:775,000	100		GEOGRAPHY: Eastern Pacific. METEOROLOGY: Stratus becoming stratocumulus, some higher clouds.
1417	2	0636	*28°26'N	127°21'W	235	146	111	1:3,089,000	1:927,000	1:772,000	100		GEOGRAPHY: Eastern Pacific. METEOROLOGY: Stratus becoming stratocumulus, some higher clouds.
1418	2	0638	*28°36'N	126°45'W	234	145	110	1:3,079,000	1:924,000	1:770,000	100		GEOGRAPHY: Eastern Pacific. METEOROLOGY: Stratocumulus, some higher clouds.
1419	2	0641	*28°46'N	126°09'W	233	145	110	1:3,069,000	1:921,000	1:767,000	100		GEOGRAPHY: Eastern Pacific. METEOROLOGY: Stratocumulus, some higher clouds.
1420	2	0643	*28°55'N	125°33'W	233	145	110	1:3,060,000	1:918,000	1:765,000	100		GEOGRAPHY: Eastern Pacific. METEOROLOGY: Stratocumulus, some higher clouds.
1421	2	0646	*29°05'N	124°57'W	232	144	109	1:3,050,000	1:915,000	1:762,000	100		GEOGRAPHY: Eastern Pacific. METEOROLOGY: Stratocumulus, some higher clouds.
1422	2	0648	*29°15'N	124°21'W	231	144	109	1:3,040,000	1:912,000	1:760,000	100		GEOGRAPHY: Eastern Pacific. METEOROLOGY: Stratocumulus, some higher clouds.
1423	2	0651	*29°24'N	123°43'W	230	143	108	1:3,031,000	1:909,000	1:758,000	100		GEOGRAPHY: Eastern Pacific. METEOROLOGY: Stratocumulus, some higher clouds.
1424	2	0654	*29°33'N	123°07'W	230	143	108	1:3,021,000	1:906,000	1:755,000	100		GEOGRAPHY: Eastern Pacific. METEOROLOGY: Stratocumulus, some higher clouds.
1425	2	0656	*29°42'N	122°30'W	229	142	108	1:3,011,000	1:904,000	1:753,000	99		GEOGRAPHY: Eastern Pacific. METEOROLOGY: Stratocumulus with thin spots.
1426	2	0659	*29°51'N	121°53'W	228	142	107	1:3,002,000	1:901,000	1:750,000	99		GEOGRAPHY: Eastern Pacific. METEOROLOGY: Stratocumulus with thin spots.
1427	2	0701	*29°59'N	121°16'W	228	141	107	1:2,992,000	1:898,000	1:748,000	99		GEOGRAPHY: Eastern Pacific, off Mexico - Baja California. METEOROLOGY: Stratocumulus with thin spots.

*computed nadir point of camera

FRAME NUMBER	ORBIT NUMBER	SOLAR TIME	PRINCIPAL POINT		SPACECRAFT ALTITUDE		GROUND TRACK WIDTH (STATUTE MILES)	SCALES			PERCENT CLOUD COVER	CORRELATIVE GEMINI COLOR PHOTOGRAPH (S)	DESCRIPTION
			LATITUDE	LONGITUDE	KILOMETERS	STATUTE MILES		70MM	8" x 10"	9" x 9"			
1428	2	0704	*30°07'N	120°39'W	227	141	107	1:2,983,000	1:895,000	1:746,000	99		GEOGRAPHY: Eastern Pacific, off Mexico - Baja California. METEOROLOGY: Stratocumulus with thin spots.
1429	2	0707	*30°15'N	120°01'W	226	140	106	1:2,974,000	1:892,000	1:743,000	85		GEOGRAPHY: Eastern Pacific, off Mexico - Baja California. METEOROLOGY: Stratocumulus, large element in one area, small elements in another.
1430	2	0709	*30°23'N	119°24'W	225	140	106	1:2,964,000	1:889,000	1:741,000	80		GEOGRAPHY: Eastern Pacific, off Mexico - Baja California. METEOROLOGY: Stratocumulus, large elements in one area, small elements in another.
1431	2	0712	*30°31'N	118°46'W	225	140	106	1:2,955,000	1:887,000	1:739,000	70	S-65-34671 S-66-63517 thru 23	GEOGRAPHY: Mexico, Baja California, Pacific Coast. METEOROLOGY: Stratocumulus, small cloud elements.
1432	2	0720	30°52'N	116°55'W	224	139	105	1:2,946,000	1:884,000	1:737,000	50	S-65-34671 S-66-63044 thru 55	GEOGRAPHY: Mexico, coast of Baja California and Pacific Ocean; San Pedro Matir Mountain Range. GEOLOGY: Fault block mountain range of intrusives to the East. FORESTRY: Sparse, broadleaf evergreen shrubform, some areas of possible cultivation. METEOROLOGY: Stratocumulus, small cloud elements.
1433	2	0723	30°59'N	116°10'W	223	139	105	1:2,937,000	1:881,000	1:734,000	15	S-65-45763 S-65-45764 S-65-45788	GEOGRAPHY: West coast of Baja California, Punta Colnett, Santa Maria Bay; San Pedro Matir Mts., Sa. De La Tinaja and Sa. Pinta Mt. Ranges. GEOLOGY/HYDROLOGY: Faulted mountain ranges and alluvial fans to the East; West coast contains intrusives and volcanics. FORESTRY: Sparse, broadleaf evergreen shrubform. METEOROLOGY: Stratocumulus, small cloud elements.
1434	2	0725	31°05'N	115°30'W	223	138	105	1:2,928,000	1:878,000	1:732,000	1	S-65-34652 S-66-62954	GEOGRAPHY: Baja California, Pacific Coast and Gulf of California at San Felipe; Sierra De Juarez, Sierra San Pedro Matir Mt. Ranges. GEOLOGY/HYDROLOGY: Colorado River Delta and Playa, and interior desert plains adjacent to volcanic ranges in this semi arid region of alluvium deposits. METEOROLOGY: Few orographic clouds along coastal mountains.
1435	2	0729	31°13'N	114°44'W	222	138	104	1:2,919,000	1:876,000	1:730,000	0	S-65-34653 S-65-34654 S-65-45582 S-65-45703 S-66-63015 S-66-63016	GEOGRAPHY: Mexico, East coast of Baja California. GEOLOGY: Southern region of Sierra De Juarez and northern San Pedro Matir mountain complex; Sonoran Desert showing dunal patterns and alluvium along east coast. HYDROLOGY: Mouth of Colorado River flowing into the Gulf of California forming deltaic silting. FORESTRY: No visible vegetation.
1436	2	0731	31°20'N	114°07'W	221	137	104	1:2,910,000	1:873,000	1:726,000	0	S-66-62793 thru 96	GEOGRAPHY: Mexico, Gulf of California; mouth of Colorado River; Great Sonoran Desert; Bahia De Aduar. GEOLOGY: Pinacates volcanic field, Puerto Penasco, Quaternary Desert of various dune types due to changing wind directions. FORESTRY: None.
1437	2	0734	31°25'N	113°29'W	221	137	104	1:2,901,000	1:870,000	1:725,000	0	S-65-34675 S-65-45703 S-66-63044 thru S-66-63054	GEOGRAPHY: Mexico-Arizona border; Gulf of California, Pinacatus volcanic field; Bahia De Aduar; Sonoyta River, Sierra Prieta. GEOLOGY: Sierra Pinta Volcanic Mountain Ranges; basin and range Province containing quaternary alluvium in the Sonora Desert. FORESTRY: None.

*computed nadir point of camera

FRAME NUMBER	ORBIT NUMBER	SOLAR TIME	PRINCIPAL POINT LATITUDE	PRINCIPAL POINT LONGITUDE	SPACECRAFT ALTITUDE KILOMETERS	SPACECRAFT ALTITUDE STATUTE MILES	GROUND TRACK WIDTH (STATUTE MILES)	SCALES 70MM	SCALES 8" x 10"	SCALES 9" x 9"	PERCENT CLOUD COVER	CORRELATIVE GEMINI COLOR PHOTOGRAPH (S)	DESCRIPTION
1438	2	0737	31°31'N	112°51'W	220	136	104	1:2,893,000	1:868,000	1:723,000	0	S-65-34656	GEOGRAPHY: Mexico-Arizona; Bahia De Aduar, Bahia San Jorge, Pinacates volcanic field; Rio Sonoyta, Organ Pipe Cactus National Monument; Ajo Mountains. GEOLOGY: Basin and Range Province of volcanic mountain range. FORESTRY: Very sparse, scattered desert shrubforms primarily along drainage.
1439	2	0739	31°36'N	112°12'W	219	136	103	1:2,884,000	1:865,000	1:721,000	0	S-65-34657	GEOGRAPHY: Mexico-Arizona; Santa Rosa Valley, Organ Pipe Cactus National Monument Baboquivari Mountains, North and South Camobabi Mountains, Ajo Mountains. GEOLOGY: Block fault mountains in the Basin and Range Province. FORESTRY: Scattered shrubform (desert) with desert grasses.
1440	2	0742	31°43'N	111°33'W	219	136	103	1:2,876,000	1:863,000	1:719,000	0	S-65-34658	GEOGRAPHY: Mexico-Arizona; Santa Rosa Valley, Baboquivari Mountains, Coronado National Forest, Nogales, Tuscon, copper mining, Sierrita Mountains, Santa Cruz River, Santa Rita Mountains. GEOLOGY: Tertiary volcanics surrounded by quaternary alluvium. HYDROLOGY: Vamori Wash River. FORESTRY: Scattered desert shrubform, coniferous woodland at higher elevation.
1441	2	0745	31°48'N	110°53'W	218	135	103	1:2,867,000	1:860,000	1:717,000	0	S-65-34679	GEOGRAPHY: Mexico-Arizona; Tuscon, Nogales, Benson, Colorado National Forest, Baboquivari Mountains, Santa Catalina Mountains, Rincon Mountains, Whetstone Mts. AGRICULTURE: Some cultivated areas. GEOLOGY: Volcanic mountain ranges surrounded by alluvium deposits. HYDROLOGY: Santa Cruz River, San Pedro River FORESTRY: Scattered desert shrubform with coniferous woodlands at higher elevations.
1442	2	0748	31°52'N	110°15'W	217	135	102	1:2,859,000	1:858,000	1:715,000	0	S-65-34680	GEOGRAPHY: Mexico-Arizona; Tuscon, Nogales, Benson, Colorado National Forest, Huachuca Mountains, Rincon Mountains, Dragoon Mountains, San Pedro Valley, Sulfur Springs Valley. AGRICULTURE: Some areas of cultivation. GEOLOGY: Volcanic mountains, alluvium deposits and a large playa. HYDROLOGY: San Pedro River and Willcox Dry Lake. FORESTRY: Scattered shrubform and coniferous woodlands at higher elevation.
1443	2	0750	31°58'N	109°38'W	217	135	102	1:2,850,000	1:855,000	1:713,000	0	S-65-34681	GEOGRAPHY: Arizona-New Mexico; Willcox, Sulfur Spring Valley, Dragoon Mountains, Willcox Playa, Chiricahua Mountains, Pelocino Mountains, Animas Valley, Alkali Flats, San Simon Valley. AGRICULTURE: Areas of cultivation on flood plain. GEOLOGY: Various types of volcanic and basement complex mountain ranges with alluvium basins of unconsolidated sediments. HYDROLOGY: San Pedro River. FORESTRY: Desert shrubform with some coniferous woodlands at higher elevation.
1444	2	0753	32°01'N	108°59'W	216	134	102	1:2,842,000	1:853,000	1:711,000	0	S-65-34686 thru 94	GEOGRAPHY: Arizona-New Mexico; Willcox, Douglas, Lordsburg, Animas Valley, Chiricahua Mountains, Alkali Flats, Animas Mountains, Continental Divide, Big Burro Mountains, Hatchet Mountains, Playas Valley. GEOLOGY: Tertiary volcanic uplands and granitic ranges. HYDROLOGY: Playa Lake. FORESTRY: Scattered shrubform with coniferous woodlands at higher elevation. Scattered areas of cultivation.
1445	2	0756	32°06'N	108°18'W	215	134	101	1:2,834,000	1:850,000	1:708,000	0	S-65-34686 thru 94	GEOGRAPHY: Mexico-New Mexico; Lordsburg, Deming, Palomas, Continental Divide, Playas Valley, Hatchet Mountains, Cedar Mountains, Florida Mountains, Mining at Silver City, Hurley Areas, Mimbres Mountains. AGRICULTURE: Areas of cultivation at lower elevation. GEOLOGY: Alluvium deposits on elevated plains. FORESTRY: Scattered desert shrubform with some coniferous woodlands at higher elevation.

FRAME NUMBER	ORBIT NUMBER	SOLAR TIME	PRINCIPAL POINT LATITUDE	PRINCIPAL POINT LONGITUDE	SPACECRAFT ALTITUDE KILOMETERS	SPACECRAFT ALTITUDE STATUTE MILES	GROUND TRACK WIDTH (STATUTE MILES)	SCALES 70MM	SCALES 8" x 10"	SCALES 9" x 9"	PERCENT CLOUD COVER	CORRELATIVE GEMINI COLOR PHOTOGRAPH (S)	DESCRIPTION
1446	2	0759	32°10'N	107°38'W	215	133	101	1:2,826,000	1:826,000	1:706,000	0	S-65-34686 thru 94 S-65-18739 thru 41	GEOGRAPHY: Mexico-New Mexico; Deming, Palomas, Mimbres Mountains, Florida Mountains, Sierra De Las Uvas, Potrillo Mountains. GEOLOGY: Palomas volcanic field, alluvium plains throughout the entire region. HYDROLOGY: Rio Grande. FORESTRY: Scattered desert shrub (sparse), cultivation in rio grande river area.
1447	2	0801	32°13'N	106°59'W	214	133	101	1:2,818,000	1:845,000	1:704,000	0	S-65-18739 thru 41 S-65-34686 thru 94 S-65-45670 S-65-45671	GEOGRAPHY: Mexico-New Mexico, Texas; Deming, Las Cruces, El Paso, Florida Mountains, Sierra De Las Uvas, San Andres Mountains, Organ Mountains, Franklin Mountains, White Sands, Tularosa Basin. AGRICULTURE: Areas of cultivation along Rio Grande. GEOLOGY: Alluvium deposits, volcanic ranges and westerly dipping flat irons to the North; volcanic field of recent origin. HYDROLOGY: Rio Grande and flood plain. FORESTRY: Desert shrubform.
1448	2	0804	32°16'N	106°20'W	214	133	101	1:2,810,000	1:843,000	1:703,000	0	S-65-18739 thru 41 S-65-45671 S-65-34686 thru 94	GEOGRAPHY: Mexico-New Mexico, Texas; Las Cruces, El Paso, Juarez, Alamogordo, San Andres, Organ and Franklin Mountains, Sacramento Mountains, White Sands (Alkali Flats), Tularosa Basin, Hueco Mountains. GEOLOGY: Great Plains of sedimentary beds, alluvium deposits, sedimentary mountain ranges. HYDROLOGY: Rio Grande flood plain. FORESTRY: Shrubform with coniferous woodlands in Sacramento range. METEOROLOGY: Three very small orographic clouds.
1449	2	0807	32°19'N	105°41'W	213	132	100	1:2,802,000	1:841,000	1:700,000	0	S-65-18739 thru 41 S-65-45671 S-65-34686 thru 94 S-66-63017 S-66-63018	GEOGRAPHY: New Mexico-Texas; White Sands, Alamogordo, Lincoln National Forest, Sacramento Mountains, Tularosa Basin, Guadalupe Mountains, Salt Basin. GEOLOGY: Sedimentary mountain ranges, volcanic intrusives and elevated plateaus of sedimentary and alluvium deposits. FORESTRY: Some desert shrubform coniferous woodlands in high elevations. METEOROLOGY: Three very small orographic clouds.
1450	2	0810	32°22'N	105°02'W	212	132	100	1:2,794,000	1:838,000	1:698,000	0	S-66-63426 thru 28	GEOGRAPHY: New Mexico-Texas; Carlsbad, Sacramento Mountains, Lincoln National Forest, Salt Basin. AGRICULTURE: Highly cultivated area Artesia, N.M. GEOLOGY: Capitan reef complex, western side of Delaware basin area. HYDROLOGY: Pecos River. FORESTRY: Scattered desert shrubform, some coniferous woodlands at higher elevations. METEOROLOGY: Three very small orographic clouds.
1451	2	0812	32°26'N	104°23'W	212	132	100	1:2,786,000	1:836,000	1:697,000	0		GEOGRAPHY: New Mexico-Texas; Carlsbad, Guadalupe Mountains, Salt Basin, Mescalero Escarpment, Pecos Plains, Great Plains Province, West Texas oil fields. AGRICULTURE: Cultivation along Pecos. GEOLOGY: Structural province of the Delaware Basin, Capitan reef complex, western side of Central Basin platform. HYDROLOGY: Pecos River, Red Bluff Lake. FORESTRY: Desert grass and shrubform coniferous woodlands in higher elevations.
1452	2	0815	32°29'N	103°44'W	211	131	99	1:2,778,000	1:834,000	1:695,000	2	S-65-24701	GEOGRAPHY: New Mexico-Texas; Hobbs, Mescalero Escarpment, Querecho Plains, Pecos Plains, Staked Plains, West Texas Gas & Oil Fields. GEOLOGY: Central Basin platform, Pecos flood plain, alluvium covering high plains. HYDROLOGY: Pecos River. FORESTRY: Desert shrubform and grass. METEOROLOGY: Thin altocumulus.

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1453	2	0818	32°31'N	103°04'W	211	131	99	1:2,771,000	1:831,000	1:693,000	10	S-65-34701	GEOGRAPHY: New Mexico-Texas; Hobbs, Mescalero Escarpment, Staked Plains, Gas and Oil Fields, agriculture prominent. AGRICULTURE: Moderate to intense cultivation. GEOLOGY: Contact of Central Basin platform and sedimentary plateau of the Great Plains. FORESTRY: Predominantly desert grass. METEOROLOGY: Thin altocumulus.
1454	2	0821	32°33'N	102°25'W	210	131	99	1:2,763,000	1:829,000	1:691,000	20	S-65-34702 thru 5	GEOGRAPHY: New Mexico-Texas; Hobbs, Odessa, Midland, Brownfield, Staked Plains, West Texas Oil and Gas Fields, agricultural field patterns, sand hills. GEOLOGY: Central Basin platform and Great Plains. FORESTRY: Transition from desert grasses to plains grasses with extensive cultivation. METEOROLOGY: Thin altocumulus.
1455	2	0823	32°35'N	101°46'W	209	130	99	1:2,756,000	1:827,000	1:689,000	25	S-65-34706	GEOGRAPHY: Texas; Midland, Brownfield, Big Springs, Gas and Oil Fields, Central Plains. GEOLOGY: Central lowlands of sedimentary beds. HYDROLOGY: Colorado River, Brazos River. FORESTRY: Grasslands interrupted by cultivation. METEOROLOGY: Thin altocumulus.
1456	2	0826	32°38'N	101°06'W	209	130	98	1:2,745,000	1:825,000	1:687,000	10	S-64-34706, and 7	GEOGRAPHY: Texas; Big Springs, Sweetwater, oil fields, staked plains. AGRICULTURE: Cultivated fields. GEOLOGY: Central lowlands sedimentary formations. HYDROLOGY: Colorado River, Brazos, River. METEOROLOGY: Thin altocumulus.
1457	2	0829	32°38'N	100°26'W	208	129	98	1:2,741,000	1:823,000	1:685,000	0	S-65-34708	GEOGRAPHY: Texas; Snyder, Sweetwater, Abilene, Callahan Divide, Abilene-Haskel Plains, Limestone Belt, oil fields and Central Plains. AGRICULTURE: Cultivated areas. GEOLOGY: Mid-Continental Region of sedimentary beds and alluvial deposits. HYDROLOGY: Brazos River. FORESTRY: Predominantly grassland and cultivation, range lands.
1458	2	0832	32°40'N	99°47'W	208	129	98	1:2,734,000	1:820,000	1:684,000	0	S-65-34709	GEOGRAPHY: Texas; Abilene, Callahan Divide, Plateau, Limestone Belt, Great Plains Province. GEOLOGY: Contact of sedimentary beds in the mid-continent region. HYDROLOGY: Brazos River, Hubbard Creek Lake FORESTRY: Grassland with cultivation and livestock range.
1459	2	0835	32°41'N	99°07'W	207	129	98	1:2,727,000	1:818,000	1:682,000	0	S-65-34709	GEOGRAPHY: Texas; Abilene, Breckenridge, Abilene-Haskel Plains. AGRICULTURE: Areas of cultivation and rangeland. GEOLOGY: Gulf Coast Plain sedimentary deposits. HYDROLOGY: Brazos River, Hubbard Creek Lake, Possum Kingdom Lake. FORESTRY: Predominantly grassland with scattered deciduous timber.
1460	2	0837	32°41'N	98°28'W	207	128	97	1:2,720,000	1:816,000	1:680,000	0		GEOGRAPHY: Texas; Weatherford, Graham, Cisco, Great Plains Province. GEOLOGY: Gulf Coast Plain, undifferentiated sedimentary beds trending north-south. HYDROLOGY: Brazos River, Hubbard Creek Lake, Possum Kingdom Lake, Lake Bridgeport. FORESTRY: Mixed conifers and hardwoods in river lowlands, range grasses and cultivation.
1461	2	0840	32°42'N	97°49'W	206	128	97	1:2,714,000	1:814,000	1:678,000	0		GEOGRAPHY: Texas; Mineral Wells, Weatherford, Denton, Fort Worth, Grand Prairie, Great Plains Province. GEOLOGY: Sedimentary beds of the coastal plain trending north-south. HYDROLOGY: Brazos River, Trinity River. FORESTRY: Mixed hardwoods in river and stream lowlands, range grasses and cultivation.

FRAME NUMBER	ORBIT NUMBER	SOLAR TIME	PRINCIPAL POINT		SPACECRAFT ALTITUDE		GROUND TRACK WIDTH (STATUTE MILES)	SCALES			PERCENT CLOUD COVER	CORRELATIVE GEMINI COLOR PHOTOGRAPH (S)	DESCRIPTION
			LATITUDE	LONGITUDE	KILO-METERS	STATUTE MILES		70MM	8" x 10"	9" x 9"			
1462	2	0843	32°43'N	97°14'W	206	128	97	1:2,707,000	1:812,000	1:677,000	0	S-66-63022 thru 25	GEOGRAPHY: Texas; Fort Worth, Dallas Area, Whiterock Escarpment, Grand Prairie, Great Plains Province, coastal plain boundaries. AGRICULTURE: Range grasses and some cultivation. GEOLOGY: North-south trending sedimentary beds covered by soil cover, timber and alluvium. HYDROLOGY: Brazos River, Trinity River. FORESTRY: Mixed hardwood with some conifers, predominantly along drainage.
1463	2	0845	32°44'N	96°38'W	205	128	97	1:2,700,000	1:810,000	1:675,000	2	S-66-63022 thru 25	GEOGRAPHY: Texas; Fort Worth, Dallas, of Gulf coast plain. AGRICULTURE: Range grasses with some cultivation. GEOLOGY: Northeast-southwest trending sedimentary beds, of Gulf coast plain. HYDROLOGY: Trinity River, Garza-Little Elm and Lavon Reservoirs, Cedar Lake, Lake Tawakoni. FORESTRY: Mixed hardwood and conifers. METEOROLOGY: Thin altocumulus.
1464	2	0848	32°43'N	96°03'W	205	127	96	1:2,693,000	1:808,000	1:673,000	10	S-66-63022 thru 25	GEOGRAPHY: Texas; Dallas, Greenville, Sulphur Springs, Corsicana, Black Prairie, Sandy Hills, Coastal Plain. GEOLOGY: South easterly flowing dendritic drainage on sedimentary beds covered by a soil layer. HYDROLOGY: Cedar Lake, Lake Tawakoni, Sulphur River, Sabine River, Trinity River. FORESTRY: Mixed hardwood and conifers with an increasing ratio of coniferous stands. METEOROLOGY: Thin altocumulus.
1465	2	0850	32°42'N	95°25'W	204	127	96	1:2,687,000	1:806,000	1:672,000	15		GEOGRAPHY: Texas; Greenville, Tyler, Longview, Sandy Hills, Coastal Plain. GEOLOGY: Sedimentary coastal plain deposits covered with veneer of soil. Prevalent dendritic rivers flow southeast ward. HYDROLOGY: Sabine River, Sulphur River, Cedar Lake, Lake Tawakoni. FORESTRY: Mixed hardwood and conifers, timber cover increasing in area. Some range land. METEOROLOGY: Altocumulus.
1466	2	0853	32°42'N	94°51'W	204	127	96	1:2,680,000	1:804,000	1:670,000	30		GEOGRAPHY: Texas; Longview, Marshall, Henderson, Sandy Hills, Pine Flats, Coastal Plain. HYDROLOGY: Sabine River, Sulphur River, Caddo Lake, Texarkana Reservoir. FORESTRY: Mixed hardwood and conifers. Some range lands. METEOROLOGY: Altocumulus. GEOLOGY: Gulf Coast Plain sedimentary beds.
1467	2	0856	32°40'N	94°07'W	203	126	96	1:2,674,000	1:802,000	1:668,000	40	S-66-63055 thru 59	GEOGRAPHY: Texas- Louisiana, Arkansas; Longview, Marshall, Shreveport, Pine Flats, Sandy Hills, Coastal Plain. GEOLOGY: Sedimentary beds of the Red River flood plain flowing southeast ward. HYDROLOGY: Red River, Caddo Lake. FORESTRY: Mixed hardwood and conifer, increasing amounts of pure conifer. METEOROLOGY: Altocumulus, cirrus.
1468	2	0859	32°40'N	93°27'W	203	126	95	1:2,668,000	1:800,000	1:667,000	60	S-66-63055 thru 59	GEOGRAPHY: Texas- Louisiana, Arkansas; Shreveport, El Dorado, Sandy Hills, Coastal Plains. GEOLOGY: Sedimentary Gulf Coastal Plain and Red River flood plain. HYDROLOGY: Red River, Caddo Lake. FORESTRY: Mixed conifers and hardwoods, some pure conifer. METEOROLOGY: Cirrostratus, altocumulus.
1469	2	0902	32°40'N	93°44'W	202	126	95	1:2,661,000	1:798,000	1:665,000	80	S-66-63055 thru 59	GEOGRAPHY: Texas- Louisiana, Arkansas; El Dorado. GEOLOGY: Gulf Coast Plain. HYDROLOGY: Red River. FORESTRY: Mixed conifer and hardwood, increasing amounts of pure conifer. METEOROLOGY: Dense cirrostratus, cirrus, altocumulus.

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1470	2	0905	*32°38'N	91°49'W	202	125	95	1:2,655,000	1:797,000	1:664,000	95	S-66-63055 thru 59	GEOGRAPHY: Louisiana, Arkansas. METEOROLOGY: Dense cirrostratus, cirrus, opening with cumulus tops visible.
1471	2	0908	*32°37'N	91°09'W	201	125	95	1:2,649,000	1:795,000	1:662,000	100		GEOGRAPHY: Louisiana, Arkansas. METEOROLOGY: Dense cirrostratus, cumulus or cumulonimbus, imbedded.
1472	2	0911	*32°34'N	90°30'W	201	125	95	1:2,643,000	1:793,000	1:661,000	100		GEOGRAPHY: Louisiana, Arkansas, Mississippi. METEOROLOGY: Dense cirrostratus with cumulus or cumulonimbus, imbedded.
1473	2	0914	*32°32'N	89°49'W	200	125	94	1:2,638,000	1:791,000	1:659,000	100		GEOGRAPHY: Mississippi. METEOROLOGY: Dense cirrostratus with cumulus or cumulonimbus, imbedded.
1474	2	0917	*32°30'N	89°10'W	200	124	94	1:2,632,000	1:790,000	1:658,000	100		GEOGRAPHY: Mississippi. METEOROLOGY: Dense cirrostratus with cumulonimbus, imbedded.
1475	2	0919	*32°27'N	88°30'W	200	124	94	1:2,626,000	1:788,000	1:657,000	100		GEOGRAPHY: Mississippi, Alabama. METEOROLOGY: Multilayered cirrus, altocumulus.
1476	2	0920	*32°28'N	88°41'W	199	123	94	1:2,613,000	1:784,000	1:653,000	100		GEOGRAPHY: Alabama. METEOROLOGY: Multilayered cirrus, altocumulus, small cumulus.
1477	2	0922	*32°25'N	88°01'W	198	123	93	1:2,608,000	1:782,000	1:652,000	100		GEOGRAPHY: Alabama. METEOROLOGY: Multilayered cirrus, altocumulus, small cumulus.
1478	2	0924	*32°22'N	87°22'W	198	123	93	1:2,603,000	1:781,000	1:651,000	100		GEOGRAPHY: Alabama. METEOROLOGY: Multilayered cirrus, altocumulus, small cumulus.
1479	2	0927	*32°19'N	87°22'W	197	123	93	1:2,597,000	1:779,000	1:649,000	100		GEOGRAPHY: Alabama, Georgia. METEOROLOGY: Multilayered cirrus, altocumulus, small cumulus.
1480	2 1	0930	*32°15'N	86°03'W	197	122	93	1:2,592,000	1:778,000	1:648,000	100		GEOGRAPHY: Georgia. METEOROLOGY: Multilayered cirrus, altocumulus, small cumulus.
1481	2	0933	*32°12'N	85°23'W	197	122	93	1:2,587,000	1:776,000	1:647,000	90	S-65-34790 and 1	GEOGRAPHY: Georgia; Macon. METEOROLOGY: Multilayered cirrus, altocumulus, cumulus, tendency for alignment into rows.
1482	2	0936	*32°07'N	84°44'W	196	122	92	1:2,582,000	1:775,000	1:646,000	50	S-65-34790 and 1	GEOGRAPHY: Georgia; Dublin, Altamaha Upland, Fall Line Hills, Coastal Plain GEOLOGY: Atlantic Coastal Plain, sedimentary beds, consequent drainage pattern. HYDROLOGY: Ocmulgee River, Oconee River. FORESTRY: Mixed pine and hardwood, incressing to pure pine. METEOROLOGY: Cirrus, altocumulus, small cumulus tendency for alignment into rows.
1483	2	0938	*32°03'	84°04'W	196	122	92	1:2,578,000	1:773,000	1:644,000	15	S-65-34790 and 1	GEOGRAPHY: Georgia; Dublin, Hazlehurst, Altamaha Upland, Tifton Upland, Coastal Plains. GEOLOGY: Coastal Plain sedimentary beds with a soil cover obscuring the contacts. HYDROLOGY: Ocmulgee River, Oconee River. FORESTRY: Predominantly pure conifer. METEOROLOGY: Row convection cloud formation (small cumulus cloud streets)

*computed nadir point of camera

FRAME NUMBER	ORBIT NUMBER	SOLAR TIME	PRINCIPAL POINT LATITUDE	PRINCIPAL POINT LONGITUDE	SPACECRAFT ALTITUDE KILOMETERS	SPACECRAFT ALTITUDE STATUTE MILES	GROUND TRACK WIDTH (STATUTE MILES)	SCALES 70MM	SCALES 8" x 10"	SCALES 9" x 9"	PERCENT CLOUD COVER	CORRELATIVE GEMINI COLOR PHOTOGRAPH (S)	DESCRIPTION
1484	2	0941	*31°58'N	83°25'W	196	122	92	1:2,573,000	1:772,000	1:643,000	25	S-65-34790 and 1	GEOGRAPHY: Georgia; Baxley, Jessup, Brunswick to Wassaw Sound, Atlantic Coastal Plain. GEOLOGY: River bed and flood plain of Altamaha River on the sedimentary coastal plain. A compound coastline of emergence followed by submergence along the eastern region. HYDROLOGY: Altamaha River. FORESTRY: Pure pine, intermixed with bottomland hardwood. OCEANOGRAPHY: Refective variation parallel to coastline. METEOROLOGY: Cloud streets of small cumulus.
1485	2	0944	*31°58'N	82°46'W	195	121	92	1:2,568,000	1:771,000	1:642,000	60		GEOGRAPHY: Georgia; Atlantic Coast from Savannah to Brunswick, water penetration on coastal shelf off Georgia. GEOLOGY: Atlantic coast line of compound origin with emergence followed by submergence. OCEANOGRAPHY: Anomalous linear variation, possibly caused by sediment. METEOROLOGY: Cloud streets of small cumulus inland, middle clouds off shore.
1486	2	0947	*31°49'N	82°07'W	195	121	92	1:2,564,000	1:769,000	1:641,000	35		GEOGRAPHY: Georgia; Altamaha Sound, sun glint. GEOLOGY: Atlantic Coastal Plain forming a compound shoreline. HYDROLOGY: Savannah River. METEOROLOGY: Cirrus, altocumulus or cumulus with some alignment into rows off shore.
1487	3	0949	*31°44'N	81°28'W	194	121	92	1:2,559,000	1:768,000	1:640,000	45		GEOGRAPHY: Atlantic Ocean. METEOROLOGY: Cirrus, altocumulus or cumulus with some alignment into rows.
1488	3	0952	*31°39'N	80°49'W	194	121	91	1:2,555,000	1:767,000	1:639,000	45		GEOGRAPHY: Atlantic Ocean, sun glint. METEOROLOGY: Altocumulus or cumulus some in row formation.
1489	3	0955	*31°33'N	80°10'W	194	120	91	1:2,551,000	1:765,000	1:638,000	50		GEOGRAPHY: Atlantic Ocean. METEOROLOGY: Altocumulus or cumulus with some alignment.
1490	3	0957	*31°27'N	79°31'W	194	120	91	1:2,547,000	1:764,000	1:637,000	45		GEOGRAPHY: Atlantic Ocean, sun glint. OCEANOGRAPHY: Anomalous reflective pattern possibly resulting from currents, salinity, wind or temperature difference. METEOROLOGY: Altocumulus or cumulus with some alignment.
1491	3	1000	*31°21'N	78°52'W	193	120	91	1:2,543,000	1:763,000	1:636,000	40		GEOGRAPHY: Atlantic Ocean, sun glint. METEOROLOGY: Altocumulus or cumulus with some alignment.
1492	3	1003	*31°15'N	78°13'W	193	120	91	1:2,539,000	1:762,000	1:635,000	30		GEOGRAPHY: Atlantic Ocean, wave patterns and sunglint. METEOROLOGY: Altocumulus and cumulus.
1493	3	1006	*31°09'N	77°35'W	193	120	91	1:2,535,000	1:761,000	1:634,000	12		GEOGRAPHY: Atlantic Ocean, sun glint. METEOROLOGY: Altocumulus and cumulus.
1494	3	1008	*31°01'N	76°57'W	192	120	91	1:2,531,000	1:760,000	1:633,000	10		GEOGRAPHY: Atlantic Ocean, sun glint. METEOROLOGY: Altocumulus and cumulus.
1495	3	1011	*30°55'N	76°18'W	192	119	90	1:2,528,000	1:758,000	1:632,000	10		GEOGRAPHY: Atlantic Ocean, sun glint. OCEANOGRAPHY: Distinct reflective variation probably from temperature, salinity or wind variation. METEOROLOGY: Altocumulus and cumulus.
1496	3	1013	*30°48'N	75°40'W	192	119	90	1:2,525,000	1:757,000	1:631,000	8		GEOGRAPHY: Atlantic Ocean, sun glint. METEOROLOGY: Small cumulus.

*computed nadir point of camera

FRAME NUMBER	ORBIT NUMBER	SOLAR TIME	PRINCIPAL POINT LATITUDE	PRINCIPAL POINT LONGITUDE	SPACECRAFT ALTITUDE KILOMETERS	SPACECRAFT ALTITUDE STATUTE MILES	GROUND TRACK WIDTH (STATUTE MILES)	SCALES 70MM	SCALES 8" x 10"	SCALES 9" x 9"	PERCENT CLOUD COVER	CORRELATIVE GEMINI COLOR PHOTOGRAPH (S)	DESCRIPTION
1497	3	1016	*30°40'N	75°02'W	192	119	90	1:2,521,000	1:756,000	1:630,000	11		GEOGRAPHY: Atlantic Ocean, sun glint. OCEANOGRAPHY: Anomalous reflective variations possibly resulting from wind, salinity or temperature differential. METEOROLOGY: Small cumulus.
1498	3	1019	*30°33'N	74°24'W	191	119	90	1:2,518,000	1:755,000	1:630,000	15		GEOGRAPHY: Atlantic Ocean, sun glint. OCEANOGRAPHY: Variations in the reflectance from the ocean surface due possibly to wind or temperature. METEOROLOGY: Altocumulus and small cumulus.
1499	3	1022	*30°25'N	73°46'W	191	119	90	1:2,515,000	1:755,000	1:629,000	15		GEOGRAPHY: Atlantic Ocean, sun glint. OCEANOGRAPHY: Anomalous reflective pattern, linear and angular shaped. METEOROLOGY: Altocumulus and small cumulus.
1500	3	1023	*30°17'N	73°08'W	191	119	90	1:2,512,000	1:754,000	1:628,000	16		GEOGRAPHY: Atlantic Ocean, sun glint. OCEANOGRAPHY: Anomalous reflective pattern, linear and angular shaped. METEOROLOGY: Altocumulus and small cumulus.
1501	3	1027	*30°17'N	72°30'W	191	118	90	1:2,509,000	1:753,000	1:627,000	8		GEOGRAPHY: Atlantic Ocean, sun glint. OCEANOGRAPHY: Anomalous reflective patterns. METEOROLOGY: Small cumulus.
1502	3	1030	*30°09'N	71°52'W	190	118	90	1:2,506,000	1:752,000	1:627,000	9		GEOGRAPHY: Atlantic Ocean, sun glint. OCEANOGRAPHY: Anomalous reflective patterns. METEOROLOGY: Altocumulus and small cumulus.
1503	3	1032	*30°06'N	71°15'W	190	118	90	1:2,504,000	1:751,000	1:626,000	25		GEOGRAPHY: Atlantic Ocean, sun glint. METEOROLOGY: Altocumulus and small cumulus.
1504	3	1035	*29°52'N	70°37'W	190	118	90	1:2,501,000	1:750,000	1:625,000	35		GEOGRAPHY: Atlantic Ocean, sun glint. OCEANOGRAPHY: Anomalous reflective patterns. METEOROLOGY: Altocumulus and small cumulus.
1505	3	1038	*29°43'N	70°00'W	190	118	89	1:2,499,000	1:750,000	1:625,000	32		GEOGRAPHY: Atlantic Ocean, sun glint. OCEANOGRAPHY: Three reflective pattern boundaries, probably due to wind, temperature or salinity changes. METEOROLOGY: Cirrus, altocumulus and small cumulus.
1506	3	1040	*29°34'N	69°22'W	190	118	89	1:2,496,000	1:749,000	1:624,000	45		GEOGRAPHY: Atlantic Ocean, sun glint. OCEANOGRAPHY: Anomalous reflective patterns with multiple variations. METEOROLOGY: Cirrus, altocumulus and small cumulus.
1507	3	1043	*29°25'N	68°46'W	190	118	89	1:2,494,000	1:748,000	1:624,000	40		GEOGRAPHY: Atlantic Ocean, sun glint. OCEANOGRAPHY: Linear reflective patterns. METEOROLOGY: Cirrus, altocumulus and small cumulus.
1508	3	1046	*29°07'N	68°09'W	189	118	89	1:2,492,000	1:748,000	1:623,000	48		GEOGRAPHY: Atlantic Ocean, sun glint. METEOROLOGY: Cirrus, altocumulus and small cumulus.
1509	3	1048	*28°57'N	67°31'W	189	118	89	1:2,490,000	1:747,000	1:622,000	40		GEOGRAPHY: Atlantic Ocean, sun glint. METEOROLOGY: Cirrus, altocumulus and small cumulus.
1510	3	1051	*28°47'N	66°55'W	189	118	89	1:2,488,000	1:747,000	1:622,000	40		GEOGRAPHY: Atlantic Ocean, sun glint, linear light-tone streak is a possible reflection from spacecraft windows. METEOROLOGY: Cirrus, altocumulus and small cumulus.

*computed nadir point of camera

CONCLUSIONS

The data and information contained in this report is intended to aid the scientist in the analysis of the Apollo AS-502 70mm color photography.

Ideally, this information should accompany the photography that is provided to the scientists in the earth resources disciplines and meteorology for their study of this imagery. However, due to the amount of time that is needed to prepare this report, the photography and this information could not have been disseminated to the scientists simultaneously.

REFERENCES

The following is a list of references used to aid in the compilation of the descriptions of the photographs. It was noted in some localities that spelling of the names may vary from map to map, even between two maps from the same agency. An effort was made to use the most recent and reliable map possible.

Spacecraft Recovery Chart, (ACIC) Apollo Mission 6, 1:5,000,000.

Apollo Mission Charts (ACIC), Apollo Mission 6, 1968, Sheets 1 and 2, 1:40,000,000.

Gemini III-XII Index Maps by P.D. Lowman and H.A. Tiedeman, unpublished, 1:30,000,000.

Sectional Aeronautical Charts - (ACIC), 1:500,000.

ONC Charts (ACIC) 1:1,000,000.

WAC Charts (ACIC) 1:1,000,000.

Topographic maps (AMS) 1:250,000.

Small Craft charts, U.S. Coast and Geodetic Survey, 1967, 1:80,000.

Landforms of the United States - Erwin Raisz - 1957, 1:4,500,000.

Geologic Map of the United States - U.S. Geological Survey, Stose, G.W. (5 parts) - 1960, 1:2,500,000.

Geologic Map of Texas, 1933, Sellards, E.H., Adkins, W.S., Plummer, F.B., Bur. Econ. Geol., 1:2,000,000.

Geologic Map of New Mexico, 1965, Dane, C.H., Backman, G.O., New Mexico Inst. Min. Tech., 1:500,000.

Geologic Map of Africa, 1963, UNESCO, 1:5,000,000.

Goode's School Atlas by J.P. Goode, E.B. Espenshade, Rand McNally Co., 12th Ed., 1965.

National Geographic Society, Atlantic Ocean, 1968, 1:30,412,800.

APOLLO - SATURN 6

April 4, 1968

70mm ONBOARD PHOTOGRAPHIC IDENTIFICATION LIST

Camera: Maurer, Model 220 C
Lens: Kodak Ektar, f/2.8, 76mm
Film: Kodak, Ektachrome, High Resolution Aerial, SO-121, 70mm
Lens Setting: f/5.6 at 1/500 second
Mounting: In Hatch Window

Launch: 12:00:01 Zulu from Complex 39-A
Kennedy Space Center, Florida
Splash: Zulu, North of Honolulu, Hawaii
Identification by: Richard W. Underwood, MSC/BL4
Herbert A. Tiedemann, MSC/BL4

GENERAL INFORMATION:

The camera system was activated by a gravity switch set for G=2.5 (ambient + 1.5 G) at Ground Elapsed Time (GET) equals 00:01:30 after lift-off. The first exposure was at GET 01:29:51, with an exposure interval of approximately 8.64 seconds. During the first exposures, the camera was pointed away from the Earth. The camera continued to operate until shortly after the beginning of the third revolution, when the last exposure on the roll was taken.

PHOTO FRAME NUMBER	ORBIT (REVOLUTION)	GROUND ELAPSED TIME	CENTER OF PHOTO LATITUDE	CENTER OF PHOTO LONGITUDE	SPACECRAFT ALTITUDE NAUT. MILES	SPACECRAFT ALTITUDE KILOMETERS	LOCATION AND IDENTIFICATION
AS6-2-756	1	01:29:51					Camera on.
(Frames 756 through 818 were taken with camera facing away from the Earth, and show only the dark void of space.)							
AS6-2-819	1	01:38:55					Looking north over cloud-covered portions of Georgia, Tennessee, North Carolina, and South Carolina.
AS6-2-820	1	01:39:04					Looking north over cloud-covered portions of Georgia, Tennessee, North Carolina, and South Carolina.
AS6-2-821	1	01:39:12					Looking north over cloud-covered portions of Georgia, Tennessee, North Carolina, and South Carolina.
AS6-2-822	1	01:39:21					Looking north over cloud-covered portions of Georgia, Tennessee, North Carolina, and South Carolina.
AS6-2-823	1	01:39:29					Looking north over cloud-covered portions of Georgia, Tennessee, North Carolina, and South Carolina.
AS6-2-824	1	01:39:38					Looking north over cloud-covered portions of Georgia, Tennessee, North Carolina, and South Carolina.

PHOTO FRAME NUMBER	ORBIT (REVOLUTION)	GROUND ELAPSED TIME	CENTER OF PHOTO LATITUDE	CENTER OF PHOTO LONGITUDE	SPACECRAFT ALTITUDE NAUT. MILES	SPACECRAFT ALTITUDE KILOMETERS	LOCATION AND IDENTIFICATION
AS6-2-825	1	01:39:46					Looking north over cloud-covered portions of Georgia, Tennessee, North Carolina, and South Carolina.
AS6-2-826	1	01:39:55					Looking north over cloud-covered portions of Georgia, Tennessee, North Carolina, and South Carolina.
AS6-2-827	1	01:40:03					Looking north over cloud-covered portions of Georgia, Tennessee, North Carolina, and South Carolina.
AS6-2-828	1	01:40:12					Georgia, South Carolina: Looking over cloud cover north of Columbia, Savannah River, North and South Forks of Edisto River in foreground.
AS6-2-829	1	01:40:20					Georgia, South Carolina: Williston, Blackville, Barnwell, Denmark, Bamberg, Orangeburg; Savannah River, Congaree River, Edisto River; Augusta, Columbia, beneath edge of cloud cover.
AS6-2-830	1	01:40:29					South Carolina: Barnwell, Williston, Blackville, Denmark, Bamberg, Orangeburg; Congaree River, Edisto River; Aiken, Columbia beneath edge of cloud cover.
AS6-2-831	1	01:40:37					South Carolina: Georgetown; Lake Marion, Winyah Bay, Congaree River; Columbia beneath cloud cover
AS6-2-832	2	01:40:46					South Carolina: Atlantic coastline from Charleston to Winyah Bay; extensive cloud cover.
AS6-2-833	2	01:40:55					South Carolina: Andrews, Georgetown; Black River, Winyah Bay, Atlantic Ocean: extensive cloud cover.
AS6-2-834	2	01:41:03					Atlantic Ocean, clouds.
AS6-2-835	2	01:41:12					Atlantic Ocean , clouds.
AS6-2-836	2	01:41:20					Atlantic Ocean , clouds.
AS6-2-837	2	01:41:29					Atlantic Ocean , clouds.
AS6-2-838	2	01:41:37					Atlantic Ocean , clouds.
AS6-2-839	2	01:41:46					Atlantic Ocean, clouds.
AS6-2-840	2	01:41:54					Atlantic Ocean, clouds.
AS6-2-841	2	01:42:03					Atlantic Ocean, clouds.
AS6-2-842	2	01:42:11					Atlantic Ocean, clouds.
AS6-2-843	2	01:42:20					Atlantic Ocean, clouds.
AS6-2-844	2	01:42:29					Atlantic Ocean, clouds.
AS6-2-845	2	01:42:37					Atlantic Ocean, clouds.
AS6-2-846	2	01:42:46					Atlantic Ocean, clouds.
AS6-2-847	2	01:42:54					Atlantic Ocean, clouds.
AS6-2-848	2	01:43:03					Atlantic Ocean, clouds.
AS6-2-849	2	01:43:11					Atlantic Ocean, clouds.
AS6-2-850	2	01:43:20					Atlantic Ocean, clouds.
AS6-2-851	2	01:43:28					Atlantic Ocean, clouds.
AS6-2-852	2	01:43:37					Atlantic Ocean, clouds.
AS6-2-853	2	01:43:45					Bermuda: Atlantic Ocean, clouds.

PHOTO FRAME NUMBER	ORBIT (REVOLUTION)	GROUND ELAPSED TIME	CENTER OF PHOTO LATITUDE	CENTER OF PHOTO LONGITUDE	SPACECRAFT ALTITUDE NAUT. MILES	SPACECRAFT ALTITUDE KILOMETERS	LOCATION AND IDENTIFICATION
AS6-2-854	2	01:43:54					Bermuda: Atlantic Ocean, clouds.
AS6-2-855	2	01:44:02					Bermuda: Atlantic Ocean, clouds.
AS6-2-856	2	01:44:11					Atlantic Ocean, clouds.
AS6-2-857	2	01:44:20					Atlantic Ocean, clouds.
AS6-2-858	2	01:44:28					Atlantic Ocean, clouds.
AS6-2-859	2	01:44:36					Atlantic Ocean, clouds.
AS6-2-860	2	01:44:45					Atlantic Ocean, clouds.
AS6-2-861	2	01:44:53					Atlantic Ocean, clouds.
AS6-2-862	2	01:45:02					Atlantic Ocean, clouds.
AS6-2-863	2	01:45:10					Atlantic Ocean, clouds.
AS6-2-864	2	01:45:19					Atlantic Ocean, clouds.
AS6-2-865	2	01:45:28					Atlantic Ocean, clouds.
AS6-2-866	2	01:45:36					Atlantic Ocean, clouds.
AS6-2-867	2	01:45:45					Atlantic Ocean, clouds.
AS6-2-868	2	01:45:53					Atlantic Ocean, clouds.
AS6-2-869	2	01:46:02					Atlantic Ocean, clouds.
AS6-2-870	2	01:46:11					Atlantic Ocean, clouds, sun glint.
AS6-2-871	2	01:46:19					Atlantic Ocean, clouds, sun glint.
AS6-2-872	2	01:46:27					Atlantic Ocean, clouds, sun glint.
AS6-2-873	2	01:46:36					Atlantic Ocean, clouds, sun glint.
AS6-2-874	2	01:46:45					Atlantic Ocean, clouds, sun glint.
AS6-2-875	2	01:46:53					Atlantic Ocean, clouds, sun glint.
AS6-2-876	2	01:47:01					Atlantic Ocean, clouds, sun glint.
AS6-2-877	2	01:47:10					Atlantic Ocean, clouds, sun glint.
AS6-2-878	2	01:47:18					Atlantic Ocean, clouds, sun glint.
AS6-2-879	2	01:47:27					Atlantic Ocean, clouds.
AS6-2-880	2	01:47:36					Atlantic Ocean, clouds.
AS6-2-881	2	01:47:44					Atlantic Ocean, clouds.
AS6-2-882	2	01:47:53					Atlantic Ocean, clouds.
AS6-2-883	2	01:48:01					Atlantic Ocean, clouds.
AS6-2-884	2	01:48:10					Atlantic Ocean, clouds.
AS6-2-885	2	01:48:18					Atlantic Ocean, clouds.
AS6-2-886	2	01:48:27					Atlantic Ocean, clouds.
AS6-2-887	2	01:48:35					Atlantic Ocean, clouds.
AS6-2-888	2	01:48:44					Atlantic Ocean, clouds.
AS6-2-889	2	01:48:53					Atlantic Ocean, clouds.
AS6-2-890	2	01:49:01					Atlantic Ocean, clouds.
AS6-2-891	2	01:49:10					Atlantic Ocean, clouds.
AS6-2-892	2	01:49:28					Atlantic Ocean, clouds.
AS6-2-893	2	01:49:37					Atlantic Ocean, clouds.

PHOTO FRAME NUMBER	ORBIT (REVOLUTION)	GROUND ELAPSED TIME	CENTER OF PHOTO LATITUDE	CENTER OF PHOTO LONGITUDE	SPACECRAFT ALTITUDE NAUT. MILES	SPACECRAFT ALTITUDE KILOMETERS	LOCATION AND IDENTIFICATION
AS6-2-894	2	01:49:45					Atlantic Ocean, clouds, sun glint.
AS6-2-895	2	01:49:56					Atlantic Ocean, clouds, sun glint.
AS6-2-896	2	01:50:04					Atlantic Ocean, clouds, sun glint.
AS6-2-897	2	01:50:13					Atlantic Ocean, clouds, sun glint.
AS6-2-898	2	01:50:21					Atlantic Ocean, clouds, sun glint.
AS6-2-899	2	01:50:30					Atlantic Ocean, clouds, sun glint.
AS6-2-900	2	01:50:38					Atlantic Ocean, clouds, sun glint.
AS6-2-901	2	01:50:47					Atlantic Ocean, clouds, sun glint.
AS6-2-902	2	01:50:55					Atlantic Ocean, clouds, sun glint.
AS6-2-903	2	01:51:04					Atlantic Ocean, clouds, sun glint.
AS6-2-904	2	01:51:13					Atlantic Ocean, clouds, sun glint.
AS6-2-905	2	01:51:21					Atlantic Ocean, clouds, sun glint.
AS6-2-906	2	01:51:30					Atlantic Ocean, clouds, sun glint.
AS6-2-907	2	01:51:38					Atlantic Ocean, clouds, sun glint.
AS6-2-908	2	01:51:47					Atlantic Ocean, clouds, sun glint.
AS6-2-909	2	01:51:55					Atlantic Ocean, clouds, sun glint.
AS6-2-910	2	01:52:04					Atlantic Ocean, clouds, sun glint.
AS6-2-911	2	01:52:12					Atlantic Ocean, clouds, sun glint.
AS6-2-912	2	01:52:21					Atlantic Ocean, clouds, sun glint.
AS6-2-913	2	01:52:29					Atlantic Ocean, clouds, sun glint.
AS6-2-914	2	01:52:38					Atlantic Ocean, clouds, sun glint.
AS6-2-915	2	01:52:46					Atlantic Ocean, clouds, sun glint.
AS6-2-916	2	01:52:55					Atlantic Ocean, clouds, sun glint.
AS6-2-917	2	01:53:03					Atlantic Ocean, clouds, sun glint.
AS6-2-918	2	01:53:12					Atlantic Ocean, clouds, sun glint.
AS6-2-919	2	01:53:20					Atlantic Ocean, clouds, sun glint.
AS6-2-920	2	01:53:29					Atlantic Ocean, clouds, sun glint.
AS6-2-921	2	01:53:38					Atlantic Ocean, clouds, sun glint.
AS6-2-922	2	01:53:46					Atlantic Ocean, clouds, sun glint.
AS6-2-923	2	01:53:55					Atlantic Ocean, clouds, sun glint.
AS6-2-924	2	01:54:04					Atlantic Ocean, clouds, sun glint.
AS6-2-925	2	01:54:12					Atlantic Ocean, clouds, sun glint.
AS6-2-926	2	01:54:21					Atlantic Ocean, clouds, sun glint.
AS6-2-927	2	01:54:30					Atlantic Ocean, clouds, sun glint.
AS6-2-928	2	01:54:38					Atlantic Ocean, clouds, sun glint.
AS6-2-929	2	01:54:47					Atlantic Ocean, clouds, sun glint.
AS6-2-930	2	01:54:55					Atlantic Ocean, clouds, sun glint.
AS6-2-931	2	01:55:04					Atlantic Ocean, clouds, sun glint.
AS6-2-932	2	01:55:12					Atlantic Ocean, clouds, sun glint.
AS6-2-933	2	01:55:21					Atlantic Ocean, clouds, sun glint.

PHOTO FRAME NUMBER	ORBIT (REVOLUTION)	GROUND ELAPSED TIME	CENTER OF PHOTO LATITUDE	CENTER OF PHOTO LONGITUDE	SPACECRAFT ALTITUDE NAUT. MILES	SPACECRAFT ALTITUDE KILOMETERS	LOCATION AND IDENTIFICATION
AS6-2-934	2	01:55:30					Atlantic Ocean, clouds, sun glint.
AS6-2-935	2	01:55:38					Mauritania: Atlantic coast north of Senegal River.
AS6-2-936	2	01:55:47					Mauritania, Senegal: Rosso; Trarza Scrub Hills (long, fixed sand dunes), excellent meander patterns along Senegal River.
AS6-2-937	2	01:55:55					Mauritania, Senegal: Rosso, Dagana; Lake Rkiz, Trarza Scrub Hills (long, fixed sand dunes), Lake de Guier, excellent meander patterns along Senegal River.
AS6-2-938	2	01:56:04					Mauritania, Senegal: Rosso, Dagana, Podor; Lake Rkiz, Trarza Scrub Hills (long, fixed sand dunes), Lake de Guier, excellent meander patterns along Senegal River.
AS6-2-939	2	01:56:12					Mauritania, Senegal: Bogue, Podor; Trarza Scrub Hills (long, fixed sand dunes), excellent meander patterns along Senegal River.
AS6-2-940	2	01:56:21					Mauritania, Senegal: Bogue, Kaedi; excellent meander patterns along Senegal River.
AS6-2-941	2	01:56:27					Mauritania, Senegal: Kaedi, Matam; drainage of the Gorgol Noir, excellent meander patterns along Senegal River.
AS6-2-942	2	01:56:36					Mauritania, Senegal: Kaedi, Matam; drainage of the Gorgol Noir, excellent meander patterns along Senegal River.
AS6-2-943	2	01:56:45					Mauritania, Senegal, Mali: Selibaby, Bakel; Oued Garfa, Assaba Plateau, excellent meander patterns along Senegal River.
AS6-2-944	2	01:56:53					Mauritania, Senegal, Mali: Selibaby, Bakel; Oued Garfa, Assaba Plateau, Senegal River.
AS6-2-945	2	01:57:02					Mauritania, Senegal, Mali: Kayes; Assaba Plateau, Senegal River.
AS6-2-946	2	01:57:10					Mali: Kayes; Senegal River, Kolinbine River.
AS6-2-947	2	01:57:19					Mali: Bafoulabe; Senegal River and tributaries.
AS6-2-948	2	01:57:27					Mali: Bafoulabe; Senegal River and tributaries.
AS6-2-949	2	01:57:36					Mali: Baoule and Bakoy Rivers, tributaries of Senegal River.
AS6-2-950	2	01:57:45					Mali, Guinea: Baoule and Bakoy Rivers, tributaries of Senegal River.
AS6-2-951	2	01:57:53					Mali, Guinea: headwaters of Baoule and Bakoy Rivers.
AS6-2-952	2	01:58:02					Mali, Guinea: Bamako; Niger River.
AS6-2-953	2	01:58:10					Mali: Bamako; Niger River and tributary, Baoule River.
AS6-2-954	2	01:58:19					Mali: Baoule and Bagoe Rivers, tributaries of Niger River.
AS6-2-955	2	01:58:27					Mali: Baoule and Bagoe Rivers, tributaries of Niger River.
AS6-2-956	2	01:58:35					Mali, Ivory Coast: Bagoe and Banifing River systems.
AS6-2-957	2	01:58:44					Mali, Ivory Coast, Upper Volta: Bagoe and Banifing River systems, headwaters of Komoe and Black Volta River systems.
AS6-2-958	2	01:58:52					Mali, Ivory Coast, Upper Volta: Bagoe and Banifing River systems, headwaters of Komoe and Black Volta River systems.
AS6-2-959	2	01:59:01					Mali, Ivory Coast, Upper Volta: headwaters of Bagoe, Banifing, Komoe and Black Volta River systems.
AS6-2-960	2	01:59:10					Ivory Coast, Upper Volta: headwaters of Komoe and Black Volta River systems.

PHOTO FRAME NUMBER	ORBIT (REVOLUTION)	GROUND ELAPSED TIME	CENTER OF PHOTO LATITUDE	CENTER OF PHOTO LONGITUDE	SPACECRAFT ALTITUDE NAUT. MILES	SPACECRAFT ALTITUDE KILOMETERS	LOCATION AND IDENTIFICATION
AS6-2-961	2	01:59:18					Ivory Coast, Upper Volta: headwaters of Komoe and Black Volta River systems.
AS6-2-962	2	01:59:27					Ivory Coast, Upper Volta, Ghana: Komoe; Black Volta River systems and tributaries; clouds.
AS6-2-963	2	01:59:35					Ivory Coast, Upper Volta, Ghana: Black Volta River; clouds.
AS6-2-964	2	01:59:44					Ivory Coast, Ghana: Black Volta River; clouds.
AS6-2-965	2	01:59:52					Ivory Coast, Ghana: junction of Black Volta and White Volta Rivers at upper end of Lake Volta; clouds.
AS6-2-966	2	02:00:01					Ghana: Lake Volta; clouds.
AS6-2-967	2	02:00:10					Ghana: Lake Volta; clouds.
AS6-2-968	2	02:00:18					Ghana: Lake Volta; clouds.
AS6-2-969	2	02:00:27					Ghana, Togo: Lake Volta; clouds.
AS6-2-970	2	02:00:35					Ghana, Togo: Lake Volta; clouds.
AS6-2-971	2	02:00:44					Ghana, Togo: Lome; Lake Volta, Gulf of Guinea, Keta Lagoon, Lake Togo; clouds.
AS6-2-972	2	02:00:52					Ghana, Togo, Dahomey: Lome; Gulf of Guinea, Keta Lagoon, Lake Togo, Lake Aheme; clouds.
AS6-2-973	2	02:01:01					Ghana, Togo, Dahomey, Nigeria: Lome, Cotonue, Porto Novo; Gulf of Guinea, Keta Lagoon, Lake Toto, Lake Aheme, Lake Nokoue; clouds.
AS6-2-974	2	02:01:10					Dahomey: Porto Novo, Cotonou; Lake Aheme, Lake Nokoue, Gulf of Guinea.
AS6-2-975	2	02:01:18					Dahomey: Porto Novo; Gulf of Guinea.
AS6-2-976	2	02:01:27					Gulf of Guinea, clouds, sun glint.
AS6-2-977	2	02:01:35					Gulf of Guinea, clouds, sun glint.
AS6-2-978	2	02:01:44					Gulf of Guinea, clouds, sun glint:
AS6-2-979	2	02:01:53					Gulf of Guinea, clouds, sun glint.
AS6-2-980	2	02:02:01					Gulf of Guinea, clouds, sun glint.
AS6-2-981	2	02:02:10					Gulf of Guinea, clouds, sun glint.
AS6-2-982	2	02:02:18					Gulf of Guinea, clouds, sun glint.
AS6-2-983	2	02:02:27					Gulf of Guinea, clouds, sun glint.
AS6-2-984	2	02:02:35					Gulf of Guinea, clouds, sun glint.
AS6-2-985	2	02:02:43					Gulf of Guinea, clouds, sun glint.
AS6-2-986	2	02:02:52					Gulf of Guinea, clouds, sun glint.
AS6-2-987	2	02:03:01					Gulf of Guinea, clouds, sun glint.
AS6-2-988	2	02:03:09					Equatorial Guinea: Gulf of Guinea coast, Cape San Juan; clouds, dark.
AS6-2-989	2	02:03:18					Equatorial Guinea, Gabon: Libreville; Cape San Juan, Gulf of Guinea coast; clouds, dark.
AS6-2-990	2	02:03:26					Equatorial Guinea, Gabon: Libreville; Cape San Juan, Gabon Bay, Gulf of Guinea coast, clouds, dark.
AS6-2-991	2	02:03:35					Equatorial Guinea, Gabon: Libreville; Gabon Bay, Mondah Bay, Gulf of Guinea coast; clouds, dark.

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AS6-2-992	2	02:03:44					Gabon: head of Gabon Bay, Ogooue River; clouds, dark.
AS6-2-993	2	02:03:52					Gabon: Ogooue River, Crystal Mts.; clouds, dark.
AS6-2-994	2	02:04:01					Gabon: Ogooue River, Crystal Mts.; clouds, dark.
AS6-2-995	2	02:04:07					Gabon: Ogooue River; clouds, dark.
AS6-2-996	2	02:04:16					Gabon: Ogooue River; clouds, dark.
AS6-2-997	2	02:04:24					Gabon: Franceville; Ogooue River; clouds, dark.
AS6-2-998	2	02:04:33					Gabon, Congo: Franceville; Ogooue River; clouds, dark.
AS6-2-999	2	02:04:42					Gabon, Congo: headwaters of Ogooue and Alima Rivers; clouds, dark.
AS6-2-1000	2	02:04:50					Gabon, Congo: headwaters of Ogooue, Alima and Lefini Rivers; clouds, dark.
AS6-2-1001	2	02:04:59					Congo: trellis drainage patterns in upper Alima and Lefini River systems; clouds, dark.
AS6-2-1002	2	02:05:08					Congo, Republic of the Congo: Congo River, trellis drainage patterns of Lefini River system; clouds, forest fires, dark.
AS6-2-1003	2	02:05:16					Congo, Republic of the Congo: junction of Lefini and Kwa Rivers with "Chenal" section of Congo River; clouds, forest fires, dark.
AS6-2-1004	2	02:05:25					Congo, Republic of the Congo: Kwango River, junction of Kwa River with "Chenal" section of Congo River; clouds, forest fires, dark.
AS6-2-1005	2	02:05:34					Congo, Republic of the Congo: Junction of Kwango and Wamba Rivers, junction of Kwa River and "Chenal" section of Congo River; clouds, forest fires, dark.
AS6-2-1006	2	02:05:42					Republic of the Congo: junction of Kwango and Wamba Rivers; clouds, forest fires, dark.
AS6-2-1007	2	02:05:51					Republic of the Congo: junction of Kwango and Wamba Rivers; clouds, forest fires, dark.
AS6-2-1008	2	02:05:59					Republic of the Congo: drainage basin of Kwango and Kwilu Rivers; clouds, forest fires, dark.
AS6-2-1009	2	02:06:08					Republic of the Congo: Kwilu River drainage basin; clouds, forest fires, dark.
AS6-2-1010	2	02:06:17					Republic of the Congo: Kwenge and Lutshima Rivers, tributaries of Kwilu River; clouds, dark.
AS6-2-1011	2	02:06:25					Republic of the Congo: drainage of the Kasai and Kwilu Rivers; clouds, dark.
AS6-2-1012	2	02:06:34					Republic of the Congo: drainage of the Kasai River; clouds, dark.
AS6-2-1013	2	02:06:42					Republic of the Congo, Angola: Tshikapa; upper Kasai River; clouds, dark.
AS6-2-1014	2	02:06:51					Republic of the Congo, Angola: Tshikapa, Portugalia; headwaters of the Kasai River; clouds, dark.
AS6-2-1015	2	02:07:00					Republic of the Congo, Angola: Tshikapa, Portugalia; headwaters of the Kasai River; clouds, dark.

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AS6-2-1016	2	02:07:08					Republic of the Congo, Angola: Portugalia; headwaters of the Kasai River; clouds, dark.
AS6-2-1017	2	02:07:17					Republic of the Congo, Angola: Katanga Province; headwaters of the Kasai River; clouds, dark.
AS6-2-1018	2	02:07:25					Republic of the Congo: Katanga Province; mixed trellis and dendritic drainage; clouds, dark.
AS6-2-1019	2	02:07:34					Republic of the Congo: Katanga Province; mixed trellis and dendritic drainage; clouds, dark.
AS6-2-1020	2	02:07:43					Republic of the Congo: Katanga Province; mixed trellis and dendritic drainage; clouds, dark.
AS6-2-1021	2	02:07:51					Republic of the Congo: Katanga Province, Kamina; clouds, dark.
AS6-2-1022	2	02:08:00					Republic of the Congo: Katanga Province, Kamina; clouds, dark.
AS6-2-1023	2	02:08:09					Republic of the Congo: Katanga Province, Kamina, Bukama; Hakansson Mts.; clouds, dark.
AS6-2-1024	2	02:08:17					Republic of the Congo: Katanga Province, Bukama; Hakansson Mts., Bia Mts., Upemba National Park: clouds, dark.
AS6-2-1025	2	02:08:26					Republic of the Congo: Katanga Province; Mitumba Mts.; clouds, very dark.
AS6-2-1026	2	02:08:34					Republic of the Congo: Katanga Province, Jadotville; clouds, very dark.
AS6-2-1027	2	02:08:43					Republic of the Congo: Katanga Province, Jadotville; clouds, very dark.
AS6-2-1028	2	02:08:52					Republic of the Congo, Zambia: Katanga Province, Lubumbashi (Elizabethville); clouds, very dark.
AS6-2-1029	2	02:09:00					Republic of the Congo, Zambia: Katanga Province, Lubumbashi (Elizabethville); Luapala River; clouds, very dark.
AS6-2-1030	2	02:09:08					Republic of the Congo, Zambia: Katanga Province, Lubumbashi (Elizabethville), Mufulira, Chingola, Fort Rosebery; Luapala River; clouds, very dark.
AS6-2-1031	2	02:09:17					Republic of the Congo, Zambia: Mufulira, Kitwe, Chingola, Fort Roseberry; Luapala River; clouds, very dark.
AS6-2-1032	2	02:09:25					Republic of the Congo, Zambia: Mufulira, Ndola; Luapala River; clouds, very dark.
AS6-2-1033	2	02:09:34					Republic of the Congo, Zambia: Katanga Province; Luapala River; clouds, very dark.
AS6-2-1034	2	02:09:43					Republic of the Congo, Zambia: Katanga Province, Chitango; Luapala River, Lake Lusiwasi, Lavashi Ridge; clouds, very dark.
AS6-2-1035	2	02:09:51					Zambia: Chitango; Lake Lusiwasi, Muchinga Escarpment, Luangwa River, clouds, very dark.

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AS6-2-1036	2	02:10:00					Zambia: Chitango; Lake Lusiwasi, Muchinga Escarpment, Luangwa River, clouds, very dark.
AS6-2-1037	2	02:10:08					Zambia, Malawi: Fort Jameson; Luangwa River; clouds, very dark.
AS6-2-1038	2	02:10:17					Zambia, Malawi, Mozambique: Fort Jameson; Luangwa River; clouds, very dark.
AS6-2-1039	2	02:10:26					Zambia, Malawi, Mozambique: Fort Jameson; clouds, very dark.
AS6-2-1040	2	02:10:34					Zambia, Malawi, Mozambique: east of Fort Jameson; clouds, very dark.
AS6-2-1041	2	02:10:43					Malawi, Mozambique: Kirk Range; clouds, very dark.
AS6-2-1042	2	02:10:52					Malawi, Mozambique: Kirk Range; clouds, very dark.
AS6-2-1043	2	02:11:00					Malawi, Mozambique: Zomba, Blantyre; Kirk Range, Shire River; clouds, very dark.
AS6-2-1044	2	02:11:09					Malawi, Mozambique: Zomba, Blantyre; Shire River, Lake Chilwa; clouds, very dark.
AS6-2-1045	2	02:11:18					Malawi, Mozambique: Lake Chilwa, Mount Mlanje; clouds, very dark.
AS6-2-1046	2	02:11:26					Malawi, Mozambique: Lake Chilwa, Mount Mlanje; clouds, very dark.
AS6-2-1047	2	02:11:35					Mozambique: clouds, very dark.
AS6-2-1048	2	02:11:43					Mozambique: coastline on Mozambique channel, mouth of Licungo River; clouds, very dark.
AS6-2-1049	2	02:11:51					Mozambique: Pebaue; coastline on Mozambique Channel; clouds, dark.
AS6-2-1050	2	02:12:00					Mozambique: coastline on Mozambique Channel from Licungo River to Ligonha River; clouds, very dark.
AS6-2-1051	2	02:12:09					Mozambique: coastline on Mozambique Channel, from Ligonha River to Melela River, coral reefs in channel; clouds, very dark.
AS6-2-1052	2	02:12:18					Mozambique: coastline on Mozambique Channel at Ligonha and Molocue Rivers, coral reefs in channel; clouds, very dark.
AS6-2-1053	2	02:12:26					Mozambique Channel, clouds, very dark.
AS6-2-1054	2	02:12:34					Mozambique Channel, clouds, very dark.
AS6-2-1055	2	02:12:43					Mozambique Channel, clouds, very dark.
AS6-2-1056	2	02:12:52					Mozambique Channel, clouds, very dark.
AS6-2-1057	2	02:13:00					Mozambique Channel, clouds, very dark.
AS6-2-1058	2	02:13:09					Mozambique Channel, clouds, very dark.
AS6-2-1059	2	02:13:17					Mozambique Channel, clouds, very dark.
AS6-2-1060	2	02:13:26					Mozambique Channel, clouds, very dark.
AS6-2-1061	2	02:13:34					Malagasy Republic: west coast of Madagascar at Morondava; clouds, very dark.
AS6-2-1062	2	02:13:43					Malagasy Republic: west coast of Madagascar at Morondava; clouds, very dark.
AS6-2-1063	2	02:13:52					Malagasy Republic: west coast of Madagascar at Morondava; clouds, very dark.
AS6-2-1064	2	02:14:00					Malagasy Republic: inland from Morondava; clouds, very dark.

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AS6-2-1065	2	02:14:09					Malagasy Republic: central Madagascar; clouds, land completely dark.
AS6-2-1066	2	02:14:17					Malagasy Republic: central Madagascar; clouds, land completely dark.
AS6-2-1067	2	02:14:26					Malagasy Republic: central and eastern Madagascar; clouds, land completely dark.
AS6-2-1068	2	02:14:35					Malagasy Republic: Madagascar coastline on Indian Ocean at Manakara; clouds, land completely dark.
AS6-2-1069	2	02:14:43					Malagasy Republic: Madagascar coastline on Indian Ocean at Manakara; clouds, land completely dark.
AS6-2-1070	2	02:14:52					Malagasy Republic: Madagascar coastline on Indian Ocean at Manakara; clouds, land completely dark.
AS6-2-1071	2	02:15:00					Indian Ocean: red cloud tops.
AS6-2-1072	2	02:15:09					Indian Ocean: red cloud tops.
AS6-2-1073	2	02:15:18					Indian Ocean: red cloud tops.
AS6-2-1074	2	02:15:26					Indian Ocean: red cloud tops.
AS6-2-1075	2	02:15:35					Indian Ocean: red cloud tops.
AS6-2-1076	2	02:15:44					Indian Ocean: red cloud tops.
AS6-2-1077	2	02:15:52					Indian Ocean: red cloud tops.
AS6-2-1078	2	02:16:01					Indian Ocean: red cloud tops.
AS6-2-1079	2	02:16:10					Indian Ocean: red cloud tops.
Frames 1080 to 1399 were taken during the night pass, with no visible clouds, land, or ocean.							
AS6-2-1400	2	03:02:37					Eastern Pacific, off Mexico; red cloud tops.
AS6-2-1401	2	03:02:46					Eastern Pacific, off Mexico; red cloud tops.
AS6-2-1402	2	03:02:54					Eastern Pacific, off Mexico; red cloud tops.
AS6-2-1403	2	03:03:03					Eastern Pacific, off Mexico; red cloud tops.
AS6-2-1404	2	03:03:11					Eastern Pacific, off Mexico; red cloud tops.
AS6-2-1405	2	03:03:20					Eastern Pacific, off Mexico; red cloud tops.
AS6-2-1406	2	03:03:29					Eastern Pacific, off Mexico; red cloud tops.
AS6-2-1407	2	03:03:37					Eastern Pacific, off Mexico; red cloud tops.
AS6-2-1408	2	03:03:46					Eastern Pacific, off Mexico; red cloud tops.
AS6-2-1409	2	03:03:54					Eastern Pacific, off Mexico; clouds.
AS6-2-1410	2	03:04:03					Eastern Pacific, off Mexico; clouds.
AS6-2-1411	2	03:04:12					Eastern Pacific, off Mexico; clouds.
AS6-2-1412	2	03:04:20					Eastern Pacific, off Mexico; clouds.
AS6-2-1413	2	03:04:29					Eastern Pacific, off Mexico; clouds.
AS6-2-1414	2	03:04:37					Eastern Pacific, off Mexico; clouds.
AS6-2-1415	2	03:04:46					Eastern Pacific, off Mexico; clouds.
AS6-2-1416	2	03:04:54					Eastern Pacific, off Mexico; clouds.

PHOTO FRAME NUMBER	ORBIT (REVOLUTION)	GROUND ELAPSED TIME	CENTER OF PHOTO LATITUDE	CENTER OF PHOTO LONGITUDE	SPACECRAFT ALTITUDE NAUT. MILES	SPACECRAFT ALTITUDE KILOMETERS	LOCATION AND IDENTIFICATION
AS6-2-1417	2	03:05:03					Eastern Pacific, off Mexico; clouds.
AS6-2-1418	2	03:05:11					Eastern Pacific, off Mexico; clouds.
AS6-2-1419	2	03:05:20					Eastern Pacific, off Mexico; clouds.
AS6-2-1420	2	03:05:28					Eastern Pacific, off Mexico; clouds.
AS6-2-1421	2	03:05:37					Eastern Pacific, off Mexico; clouds.
AS6-2-1422	2	03:05:45					Eastern Pacific, off Mexico; clouds.
AS6-2-1423	2	03:05:56					Eastern Pacific, off Mexico; clouds.
AS6-2-1424	2	03:06:04					Eastern Pacific, off Mexico; clouds.
AS6-2-1425	2	03:06:13					Eastern Pacific, off Mexico; clouds.
AS6-2-1426	2	03:06:21					Eastern Pacific, off Mexico; clouds.
AS6-2-1427	2	03:06:30					Eastern Pacific, off Mexico; clouds.
AS6-2-1428	2	03:06:39					Eastern Pacific, off Mexico; clouds.
AS6-2-1429	2	03:06:47					Eastern Pacific, off Mexico, clouds.
AS6-2-1430	2	03:06:56					Eastern Pacific, off Mexico, clouds.
AS6-2-1431	2	03:07:04					Mexico: Baja California, Pacific coast at Puerto Santo Tomas; clouds, dark.
AS6-2-1432	2	03:07:13					Mexico: Baja California, Pacific coast from Puerto Santo Tomas to Bahia Santa Maria; clouds, dark.
AS6-2-1433	2	03:07:21					Mexico: Baja California, Pacific coast from Puerto Santo Tomas to Bahia Santa Maria, Sierra de Juarez, Sierra San Pedro Martir, clouds, dark.
AS6-2-1434	2	03:07:28					Mexico: Baja California, Pacific Coast at Bahia Santa Maria, Sierra de Juarez, Sierra San Pedro Martir, Gulf of California coast at San Felipe, mouth of Colorado River; west half dark.
AS6-2-1435	2	03:07:37					Mexico: San Felipe; Gulf of California, Sierra de Juarez, Sierra San Pedro Martir, mouth of Colorado River, Bahia de Aduar, Great Sonoran Desert; west half dark.
AS6-2-1436	2	03:07:45					Mexico, Arizona: Gulf of California, mouth of Colorado River, Bahia de Aduar, Great Sonoran Desert, Pinacates volcanic field.
AS6-2-1437	2	03:07:54					Mexico, Arizona: Gulf of California, Bahia de Aduar, Bahia San Jorge, Great Sonoran Desert, Pinacates volcanic field, Rio Sonoyta, Organ Pipe Cactus National Monument.
AS6-2-1438	2	03:08:02					Mexico, Arizona: Gulf of California, Bahia de Aduar, Bahia San Jorge, Pinacates volcanic field, Rio Sonoyta, Organ Pipe Cactus National Monument.
AS6-2-1439	2	03:08:11					Mexico, Arizona: Sonoyta River, Organ Pipe Cactus National Monument, Baboquivari Mountains.
AS6-2-1440	2	03:08:20					Mexico, Arizona: Nogales, Tucson; Baboquivari Mountains, Coronado National Forest, copper mines.

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AS6-2-1441	2	03:08:28					Mexico, Arizona: Nogales, Tucson; Coronado National Forest, San Pedro River, copper mines.
AS6-2-1442	2	03:08:37					Mexico, Arizona: Nogales, Tucson, Aqua Prieta; smokestack at Douglas, Willcox Dry Lake.
AS6-2-1443	2	03:08:45					Mexico, Arizona, New Mexico: Willcox, Nogales; smokestack at Douglas, Willcox Dry Lake, Animas Valley, Coronada National Forest, Peloncillo Mountains.
AS6-2-1444	2	03:08:54					Mexico, Arizona, New Mexico: Nogales, Douglas, Lordsburg, Peloncillo Mountains, Continental Divide, Animas Valley, Big and Little Hatchet Mountains.
AS6-2-1445	2	03:09:02					Mexico, Arizona, New Mexico: Lordsburg, Deming, Palomas; Animas Valley, Continental Divide, Big and Little Hatchet Mountains, Cedar Mountains, Florida and Tres Hermanas Mountains, Palomas volcanic field, mines at Silver City.
AS6-2-1446	2	03:09:11					Mexico, New Mexico: Deming, Palomas; mines at Silver City, Cedar Mountains, Caballo Reservoir, Florida and Tres Hermanas Mountains, Palomas volcanic field.
AS6-2-1447	2	03:09:20					Mexico, New Mexico, Texas: Deming, Palomas; Las Cruces, El Paso, Florida Mountains, East and West Potrillo Mountains, San Andres, Franklin and Juarez Mountains, Rio Grande.
AS6-2-1448	2	03:09:28					Mexico, New Mexico, Texas: Las Cruces, El Paso, Juarez, Alamogordo; Rio Grande, San Andres, Franklin and Organ Mountains, Sacramento Mountains, White Sands.
AS6-2-1449	2	03:09:37					Mexico, New Mexico, Texas: El Paso, Alamogordo; White Sands, Sacramento and Cornudas Mountains, Guadalupe Mountains, highest point in Texas, Salt Basin.
AS6-2-1450	2	03:09:46					New Mexico, Texas: Carlsbad, Sacramento and Cornudas Mountains, Guadalupe Mountains, highest point in Texas, Salt Basin, Pecos River.
AS6-2-1451	2	03:09:54					New Mexico, Texas: Carlsbad; Guadalupe Mountains, highest point in Texas, Salt Basin, Pecos River, Red Bluff Lake, Mescalero Escarpment.
AS6-2-1452	2	03:10:03					New Mexico, Texas: Hobbs; Pecos River, Red Bluff Lake, Mescalero Escarpment, Staked Plains, west Texas gas and oil fields.
AS6-2-1453	2	03:10:11					New Mexico, Texas: Hobbs, Andrews; Mescalero Escarpment, Staked Plains, west Texas gas and oil fields.
AS6-2-1454	2	03:10:20					New Mexico, Texas: Hobbs, Andrews, Odessa, Midland, Brownfield; Staked Plains, west Texas gas and oil fields.
AS6-2-1455	2	03:10:29					Texas: Midland, Brownfield, Big Spring; J. B. Thomas Lake, headwaters of Colorado and Brazos Rivers, west Texas gas and oil fields.

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AS6-2-1456	2	03:10:37					Texas: Big Spring, Sweetwater; J. B. Thomas Lake, headwaters of Colorado River, forks of the Brazos River, west Texas gas and oil field.
AS6-2-1457	2	03:10:46					Texas: Snyder, Colorado City, Sweetwater, Abilene; J. B. Thomas Lake, junction forks of the Brazos River, west Texas gas and oil field.
AS6-2-1458	2	03:10:55					Texas: Abilene; junction forks of the Brazos River, Hubbard Creek Lake, Interstate 20.
AS6-2-1459	2	03:11:04					Texas: Abilene, Breckenridge; Brazos River, Hubbard Creek Lake, Possum Kingdom Lake, Interstate 20.
AS6-2-1460	2	03:11:12					Texas: Cisco, Graham, Weatherford; Brazos River, Hubbard Creek Lake, Possum Kingdom Lake, Lake Bridgeport, Interstate 20.
AS6-2-1461	2	03:11:21					Texas: Mineral Wells, Denton, Fort Worth; Brazos River, Trinity River drainage.
AS6-2-1462	2	03:11:30					Texas: Fort Worth-Dallas metropolitan area; Brazos and Trinity Rivers, Grapevine and Garza-Little Elm Reservoirs.
AS6-2-1463	2	03:11:38					Texas: Fort Worth-Dallas metropolitan area; Trinity River, Grapevine, Garza-Little Elm and Lavon Reservoirs, Cedar Lake and Lake Tawakoni.
AS6-2-1464	2	03:11:47					Texas: Dallas metropolitan area, McKinney, Greenville, Sulphur Springs; Cedar Lake, Lake Tawakoni, Trinity, Sabine and Sulphur Rivers.
AS6-2-1465	2	03:11:56					Texas: Greenville, Tyler, Longview; Cedar Lake, Lake Tawakoni, Sabine and Sulphur Rivers.
AS6-2-1466	2	03:12:04					Texas: Tyler, Longview, Marshall; Sabine and Sulphur Rivers, Caddo Lake, Texarkana Reservoir.
AS6-2-1467	2	03:12:13					Texas, Louisiana, Arkansas: Longview, Marshall, Shreveport, Texarkana; Sabine River, Red River, Texarkana Reservoir, Caddo Lake.
AS6-2-1468	2	03:12:21					Texas, Louisiana, Arkansas: Shreveport, Texarkana, El Dorado; Lake Caddo, Texarkana Reservoir, Red River; clouds.
AS6-2-1469	2	03:12:30					Texas, Louisiana, Arkansas: Minden, El Dorado; Red River; clouds.
AS6-2-1470	2	03:12:38					Louisiana, Arkansas: El Dorado; clouds.
AS6-2-1471	2	03:12:47					Louisiana, Arkansas: clouds.
AS6-2-1472	2	03:12:56					Louisiana, Arkansas, Mississippi: clouds.
AS6-2-1473	2	03:13:05					Mississippi: clouds.
AS6-2-1474	2	03:13:13					Mississippi: clouds.
AS6-2-1475	2	03:13:22					Mississippi, Alabama: clouds.
AS6-2-1476	2	03:13:30					Alabama: clouds.
AS6-2-1477	2	03:13:39					Alabama: clouds.
AS6-2-1478	2	03:13:48					Alabama: clouds.

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AS6-2-1479	2	03:13:56					Alabama, Georgia: clouds.
AS6-2-1480	2	03:14:05					Georgia: clouds.
AS6-2-1481	2	03:14:14					Georgia: Macon; Ocmulgee River; clouds.
AS6-2-1482	2	03:14:22					Georgia: Macon, Dublin; Ocmulgee and Oconee Rivers; clouds.
AS6-2-1483	2	03:14:31					Georgia: Dublin, Hazlehurst; Ocmulgee, Oconee and Altamah Rivers; clouds.
AS6-2-1484	2	03:14:40					Georgia: Baxley, Jessup; Altamaha River, Atlantic coast from Brunswick to Wassaw Sound; clouds.
AS6-2-1485	2	03:14:48					Georgia, South Carolina: Atlantic coast from Brunswick to Savannah; clouds.
AS6-2-1486	2	03:14:57					Georgia, South Carolina: Atlantic coast from Altamaha Sound to Savannah River; clouds.
AS6-2-1487	3	03:15:06					Atlantic Ocean, clouds, sun glint.
AS6-2-1488	3	03:15:14					Atlantic Ocean, clouds, sun glint.
AS6-2-1489	3	03:15:23					Atlantic Ocean, clouds, sun glint.
AS6-2-1490	3	03:15:32					Atlantic Ocean, clouds, sun glint.
AS6-2-1491	3	03:15:40					Atlantic Ocean, clouds, sun glint.
AS6-2-1492	3	03:15:49					Atlantic Ocean, clouds, sun glint.
AS6-2-1493	3	03:15:58					Atlantic Ocean, clouds, sun glint.
AS6-2-1494	3	03:16:06					Atlantic Ocean, clouds, sun glint.
AS6-2-1495	3	03:16:15					Atlantic Ocean, Gulf Stream, clouds, sun glint.
AS6-2-1496	3	03:16:24					Atlantic Ocean, Gulf Stream, clouds, sun glint.
AS6-2-1497	3	03:16:32					Atlantic Ocean, clouds, sun glint.
AS6-2-1498	3	03:16:41					Atlantic Ocean, clouds, sun glint.
AS6-2-1499	3	03:16:50					Atlantic Ocean, clouds, sun glint.
AS6-2-1500	3	03:16:59					Atlantic Ocean, clouds, sun glint.
AS6-2-1501	3	03:17:08					Atlantic Ocean, clouds, sun glint.
AS6-2-1502	3	03:17:17					Atlantic Ocean, clouds, sun glint.
AS6-2-1503	3	03:17:26					Atlantic Ocean, clouds, sun glint.
AS6-2-1504	3	03:17:34					Atlantic Ocean, clouds, sun glint.
AS6-2-1505	3	03:17:43					Atlantic Ocean, clouds, sun glint.
AS6-2-1506	3	03:17:52					Atlantic Ocean, clouds, sun glint.
AS6-2-1507	3	03:18:00					Atlantic Ocean, clouds, sun glint.
AS6-2-1508	3	03:18:09					Atlantic Ocean, clouds, sun glint.
AS6-2-1509	3	03:18:18					Atlantic Ocean, clouds, sun glint.
AS6-2-1510	3	03:18:27					Atlantic Ocean, clouds, sun glint.

SECTION 4

APOLLO 7
(Reference 4)

APOLLO 7 MISSION DATA AND INFORMATION LIST, 70MM COLOR PHOTOGRAPHY

17 March 1969

Submitted By
Mapping Sciences Laboratory
National Aeronautics and Space Administration
Manned Spacecraft Center
Houston, Texas

PREFACE

Prepared by the NASA Mapping Sciences Laboratory, Manned Spacecraft Center, Houston, Texas and the Lockheed Electronics Company, Houston Aerospace Division under contract NAS 9-5191 in response to Job Order 60-114, (Action Document No. 024.03-4, Apollo 7 Mission Data and Information List, 70mm Color Photography) issued by the Mapping Sciences Laboratory, Manned Spacecraft Center, Houston, Texas.

ABSTRACT

(Missing in original)

ACKNOWLEDGEMENTS

(Missing in original)

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LIST OF ILLUSTRATIONS

APOLLO 7 MISSION DATA AND INFORMATION LIST, 70MM COLOR PHOTOGRAPHY

1. INTRODUCTION

The information obtained from the photographs taken during the Apollo 7 Mission proved to be extremely valuable. Numerous areas which have never before been photographed from spacecraft altitudes were acquired. The photographic attitudes ranged from near vertical to high oblique, and from under to over exposed photographic quality. Photographic altitudes ranged from 88 nautical miles to 198 nautical miles, with an average range of 120 to 130 nautical miles. Sun angles, for the exposures, varied from 5 degrees to 84 degrees. A wide range of factors therefore affected the overall quality of the resulting imagery.

The following pages comprise a report of the mission data and an information list for the Apollo 7 photographs compiled by the Mapping Sciences Laboratory.

A guide to the user is that portion of the report which deals with the total number of frames pertaining to a single discipline. This information should enable the user to quickly select those frames which apply to his specific discipline. No attempt has been made to establish which frames have the largest percentage of single discipline occurrence, but only that the particular frame in question does contain major features of interest to that discipline. Some photographs will contain features pertaining to a number of disciplines.

2. DISCUSSION

2.1 Mission

The primary mission objectives were to test the command module, spacecraft performance and capabilities. This mission was a 10 day earth orbital operations mission. The launch azimuth was 72 degrees from true north, with an orbit inclination of 33 degrees to the equator. As a secondary mission objective, photos were obtained throughout the mission, from 35 degrees north to 35 degrees south latitude, over a period of 157 orbits. Targets of weather and terrain were of prime importance during the entire mission. These areas could then be further studied, from a different perspective and incorporated into the Earth Resources survey.

Each of the areas photographed was analyzed in a generalized manner for further study to be performed for its specific related disciplines of Geography/Cartography, Geology/Hydrology, Agriculture, Forestry, Meterology, and Oceanography.

2.1.1. World Apollo Index Map

Figures 1, 3 and 5 illustrate the extent and location of Apollo 6 and 7 photographis coverage. The limits of frame coverage were extracted from previously compiled ONC plots.

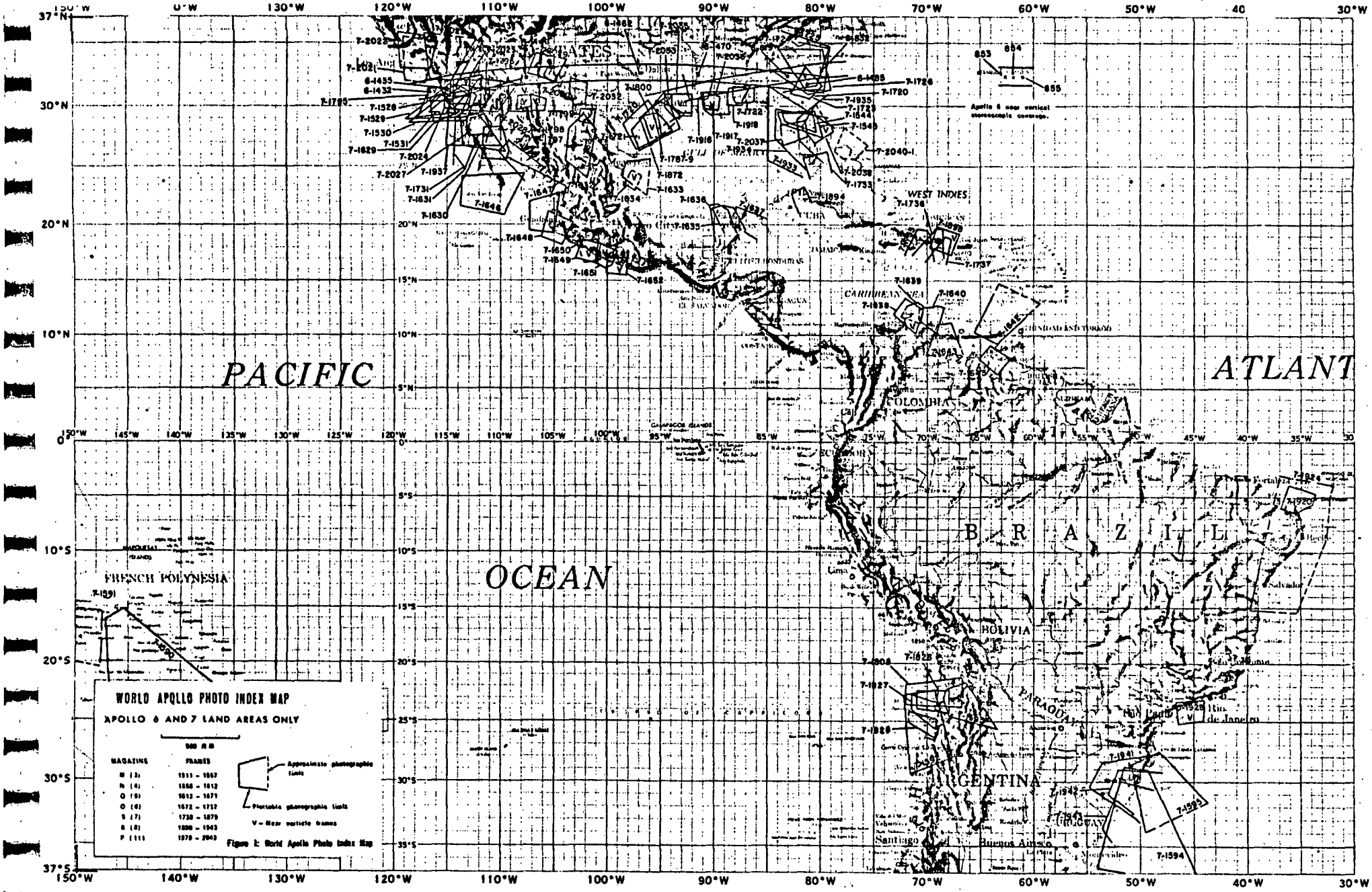


Figure 1: World Apollo Photo Index Map

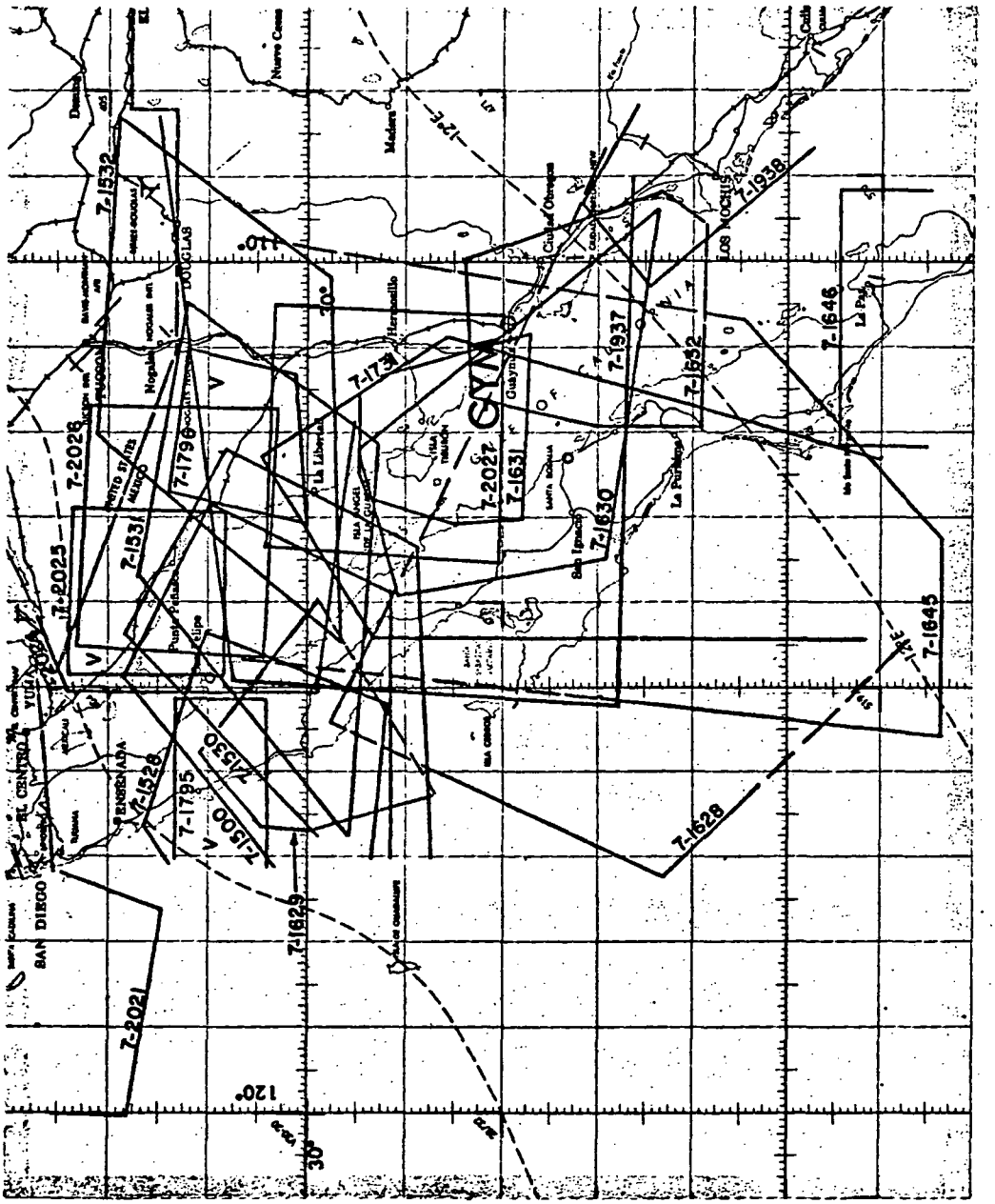
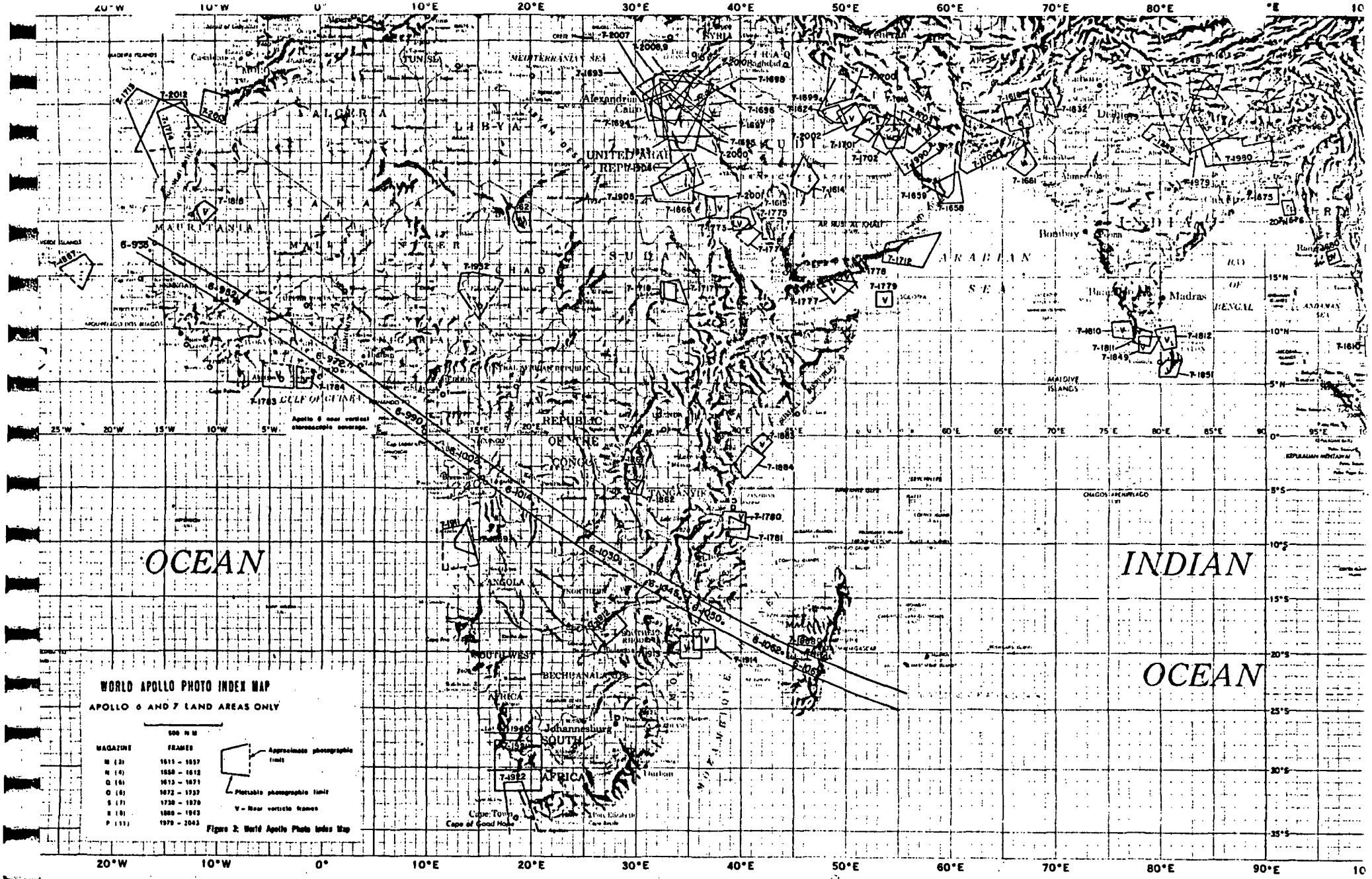
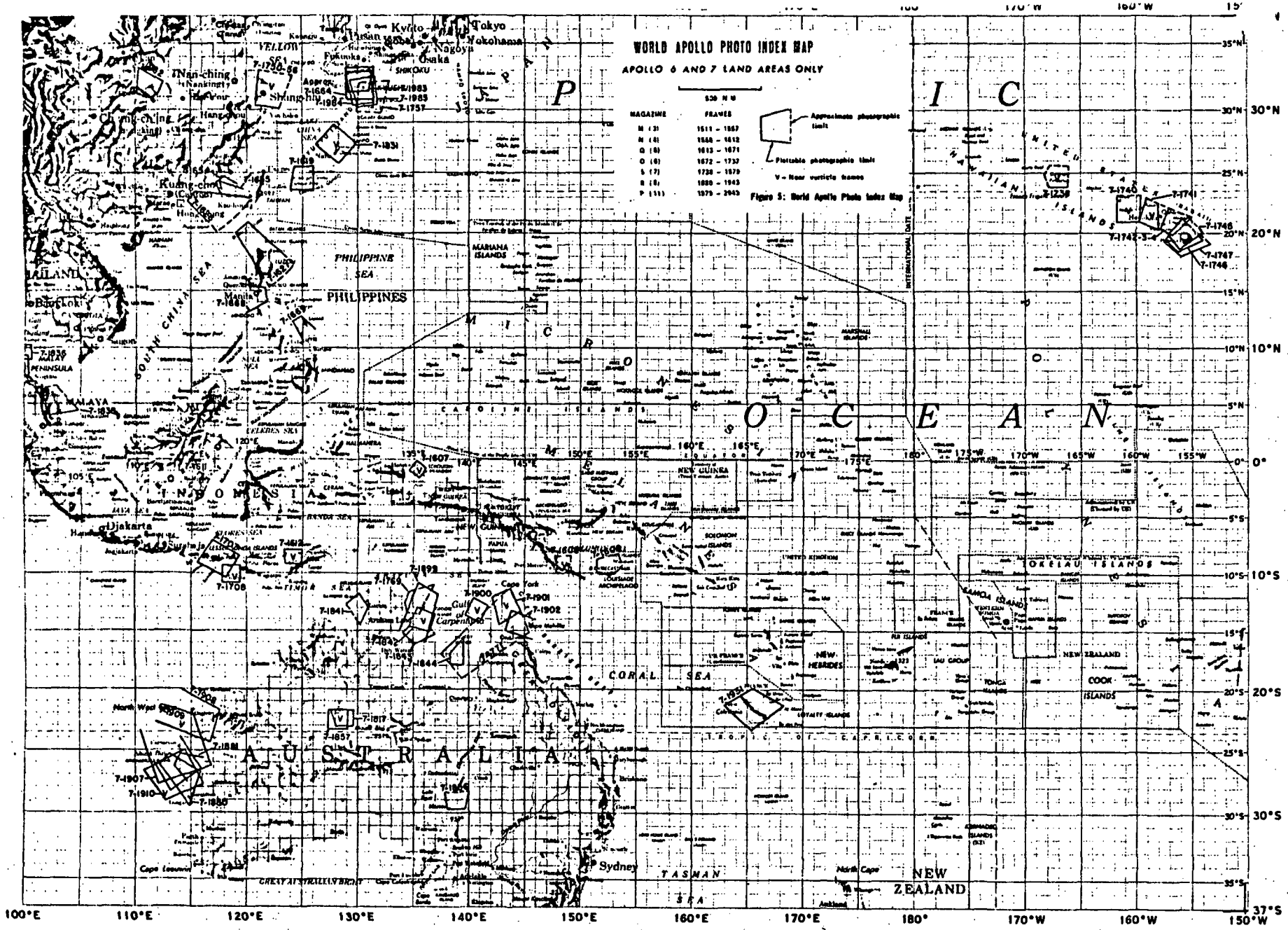


Figure 2: Apollo Photo Coverage Enlargement of Baja California Area


WORLD APOLLO PHOTO INDEX MAP
APOLLO 6 AND 7 LAND AREAS ONLY
MAGAZINE
FRAMES
Approximate photographic limit
Plottable photographic limit
V - Near vertical frames
OCEAN
INDIAN
OCEAN
ATLANTIC
ALGERIA
LIBYA
MAURITANIA
MALI
NIGER
CHAD
SUDAN
NIGERIA
REPUBLIC OF THE CONGO
TANZANIA
ANGOLA
SOUTH WEST AFRICA
BECHUANALAND
SOUTH AFRICA
Johannesburg
Cape Town
Cape of Good Hope
Alexandria
Cairo
Baghdad
Bombay
Madras
ARABIAN SEA
BAY OF BENGAL
MALDIVE ISLANDS
CHAGOS ARCHIPELAGO
MADAGASCAR
Figure 3. World Apollo Photo Index Map


WORLD APOLLO PHOTO INDEX MAP
APOLLO 6 AND 7 LAND AREAS ONLY
MAGAZINE
FRAMES
Approximate photographic limit
Plottable photographic limit
V - Near vertical frames
Figure 5: World Apollo Photo Index Map
P A C I F I C O C E A N
INDONESIA
PHILIPPINES
PHILIPPINE SEA
SOUTH CHINA SEA
CELEBES SEA
CORAL SEA
TASMAN SEA
AUSTRALIA
NEW ZEALAND
NEW GUINEA
MARIANA ISLANDS
CAROLINE ISLANDS
MARSHALL ISLANDS
SOLOMON ISLANDS
NEW HEBRIDES
TONGA ISLANDS
COOK ISLANDS
SAMOA
TOKELAU ISLANDS
Tokyo
Yokohama
Nagoya
Osaka
Kyoto
Djakarta
Manila
Sydney
Cape York
Gulf of Carpentaria
Great Australian Bight
North Cape
Cape Leeuwin
100°E
110°E
120°E
130°E
140°E
150°E
160°E
170°E
180°
170°W
160°W
150°W
35°N
30°N
25°N
20°N
15°N
10°N
5°N
0°
5°S
10°S
15°S
20°S
25°S
30°S
35°S
37°S

7

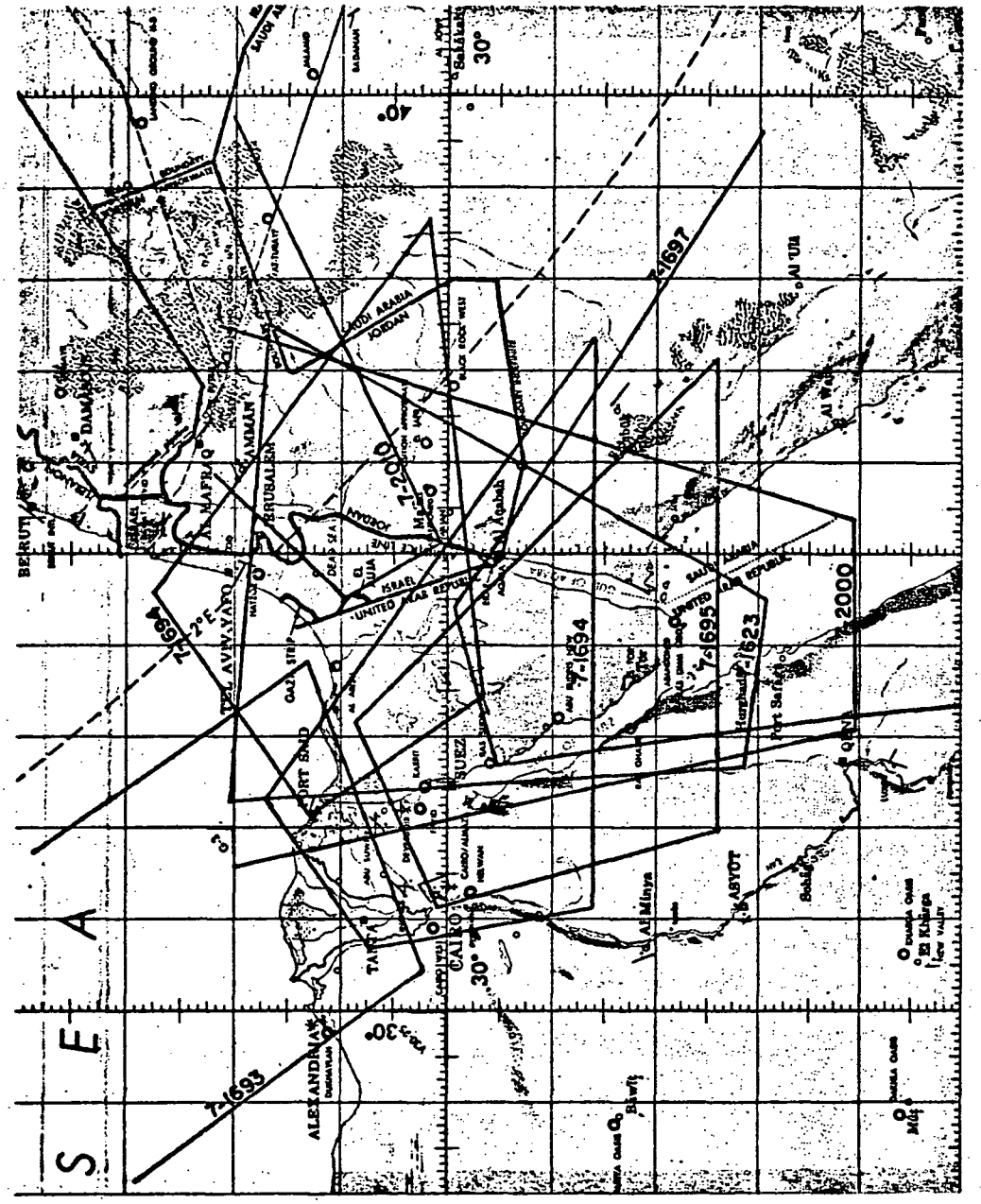


Figure 4: Apollo Photo Coverage Enlargement of Sinai Peninsula Area

Figures 2 and 4 are enlarged segments of the Baja California area and the Sinai Peninsula respectively. These areas were photographed extensively and appear as heavy line congestion on the World Apollo Index Map. The purpose of the enlargement is to reduce line conjestion for easy frame limit identification.

2.2 Camera Data

- Camera: Hasselblad 500-C NASA Modified, 70mm, Serial No. 023
- Lens: Zeiss Planar, f/2.8, 80mm focal length
- Aperture Setting: f2.8 to f 22
- Shutter: Between the lens
- Film-Filter Combination per Magazines

Magazine	Film	Filter	MSC Numbers
M	SO-368	None	AS7-3-1511 to 1557
N	SO-368	None	AS7-4-1558 to 1612
Q	SO-121	2A	AS7-5-1613 to 1671
O	SO-121	2A	AS7-6-1672 to 1737
S	SO-121	2A	AS7-7-1738 to 1879
R	SO-121	2A	AS7-8-1880 to 1943
P	SO-121	None	AS7-11-1980 to 2043

Magazines V and U were not included in this evaluation due to a malfunction in the camera system.

2.3 Film Data

•Type: Eastman Kodak, SO-368, Medium Speed Ektachrome, ASA-64.

•Type: Eastman Kodak, SO-121, High Resolution Aerial Ektachrome, AEI-6.

•Size: 70mm, 2.5 mils thick, on polyester base.

•Format: 55.5mm by 55.5mm

2.4 Filter Data

•Type: Wratten 2A, lower limit of transmittance is 4100 Angstroms.

2.5 Equipment/Data Used for Interpretation

2.5.1 Transparency media

2.5.1.1. Tube magnifiers 7X, linen testers 5x

2.5.1.2. Stereoscopes

2.5.1.2.1 Hand, folding, 2x and 4x

2.5.1.2.2 Zoom, binocular, 0.7-30x

2.5.1.3 Rear projection viewers, 3, 4, 8, 12 and 24 magnification

2.6 Screening Information List Explanation

The following is a column by column explanation of the Screening Information List:

2.6.1 Frame Number - The photographic frames from the Apollo 7 mission were from AS7-3-1511 to AS7-8-1943 and AS7-10-1949 through AS7-11-2043. These frames were exposed on seven magazines as previously listed in paragraph 2.2.

2.6.2 Orbit Number - The orbit numbers designate the orbit in which the frame was exposed.

2.6.3 Date - The day in which the photo, on its designated orbit, was exposed.

2.6.4 Seasons - Apollo 7 photographs were taken during October. The season in the areas north of 15 degrees north latitude is Fall, and in the areas south of 15 degrees south latitude is Spring. In the tropical latitudes, areas between latitudes 15 degrees north and 15 degrees south, there is a small annual temperature range, resulting in a lack of distinct seasons; Fall, Winter, Spring and Summer. The principal determinant factor of seasons in tropical areas is the extent and distribution of moisture, which results in a tropical climate of hot-wet and cool-dry seasons.

2.6.5 Ground Elapse Time (G.E.T.) - This time designation is initiated from the time of launch through the entire mission on a continuous basis starting at 000 hours, 00 minutes and 00 seconds.

The listing is only recorded in hours and minutes, and was extracted from the orbit trace. The exact geographic position of the spacecraft at the time of exposure cannot

be determined by the resulting imagery without extensive analytical photogrammetric resection and mensuration. Camera orientation angles as well as spacecraft altitudes are inconsistent for a quick nadir point location determination. In most frames, the image format is obscured by the limits of the spacecraft windows, and only in a few cases is the horizon available for accurate tilt axis analysis or principal line construction on the imagery.

Since the exact nadir point location is difficult to determine from the photography, the possibility of determining an exact G.E.T. from the imagery is improbable. The G.E.T. for each frame has been extracted from the "Apollo 7 Preliminary Report." These exposure times are approximate and intended only as an aid to the user.

2.6.6 Local Solar Time - Local Solar Time, for a particular frame, is that time at or near the principal point at the time of exposure and is based upon the GMT of the exposure and the geographic position of the principal point. The time change constant applied to the calculation of Local Solar Time is 4 minutes for every one degree of longitude change. Local time corridors were

not taken into consideration for this computation.

2.6.7 Sun Elevation - The local Sun Elevation is an approximate value that indicates the angle of the sun above the horizon for a particular time and location and is intended only as a guide to the user. These values were extracted from the "Apollo 7 Preliminary Report" and are used as support data.

2.6.8 Principal Point - Each photograph that contained enough land mass for geographical identification, was plotted on either World Aeronautical Charts 1:1,000,000 or Operational Navigation Charts, 1:1,000,000. In many instances the map or photo detail was insufficient for photo frame plotting. The photo principal points, once established on the photography, were plotted on the map source, by a detail comparison of photo imagery at the principal point with the map detail. In some instances the terrain at the principal point, in even near vertical imagery, contained inadequate topographic character for image transfer. On those frames where the principal point falls over water or cloud covered areas, and to far from land mass for even approximate placement, the principal point was not plotted. The principal points for high oblique frames were not plotted, due to the lack of visible detail near the center of the photograph.

However, when the principal point could be transferred from the photograph to the map source, the geographic coordinates were scaled and recorded to the nearest minute of latitude and longitude of the point. These values, which were extracted from map sources, are in most cases accurate to plus or minus 30 minutes of latitude and longitude. The resulting values appear in the tables as Principal Point Latitude and Longitude.

In cases where it was not possible to establish the principal point due to one or more of the above reasons, the latitude and longitude of the principal point for that particular frame was extracted from the "Apollo 7 Preliminary Report." Such values are designated by an asterisk. These coordinates are only approximate and generally accurate to plus or minus one degree. They are intended to give the user the approximate location of the principal points.

2.6.9 Approximate Scales at the Principal Point - The established scales of Apollo 7 photographs are variable and approximate. A majority of the frames were exposed at various angles of camera attitude and spacecraft altitudes, which constantly changed the scale of the photographs along the axis of tilt.

Scales will be constant however along lines constructed perpendicular to the axis of tilt. To compute and construct a scale grid for each individual frame proved too time consuming. It was decided however, to determine the scale for a particular perpendicular under certain conditions.

If the conditions of reliable map sources, and sufficient photo detail were present, the scales along a line perpendicular to the axis of tilt and at the principal point could be determined. This was accomplished by the ratios of map scale, map distance to photo distance. The problem is to have measurable image distances which correspond to measurable map distances; for example: drainage intersections, points on a coast line, highway intersections, small islands, etc.. All measurements were made perpendicular to the tilt axis and as close to the principal point as possible. Scales of this type were determined only when the proper conditions prevailed, and are meant only as a guideline for the user. They should not be used for precise photo mensuration and it should be remembered that the scales are only as reliable as the map source.

2.6.10 Map Plots - Figures 6 and 7 are indices published by the

Aeronautical Chart and Information Center, denoting the sequence and location of the Operational Navigation Chart series throughout the world. These maps, compiled at 1:1,000,000 scale were used for Apollo 7, photographic plotting. World Aeronautical Charts were used for plotting where ONC's were lacking. The above circumstances were seldom and do not justify the incorporation of a WAC index in this publication. For each of the photographs, where a principal point was located, a designated ONC or WAC is recorded.

2.6.11 Altitude - The spacecraft elevation above mean sea level, at the spacecraft nadir, expressed in nautical miles.

2.6.12 Present Cloud Cover - Clouds appear in over 90% of Apollo photography and obliterate a large percent of the photographable land mass. Although cloud formations are of definite interest to meteorologist, and climatologist, their obscuring nature produces a problem to the Earth Resources Investigator who is interested in the underlying terrain. It was decided therefore that the person or persons required to make photographic terrain analysis of Apollo 7 imagery should be forwarned regarding the approximate percentage of cloud coverage of each frame. This was accomplished by placing a 100 unit proportionate grid, constructed to frame format requirements, over each

Figure 6

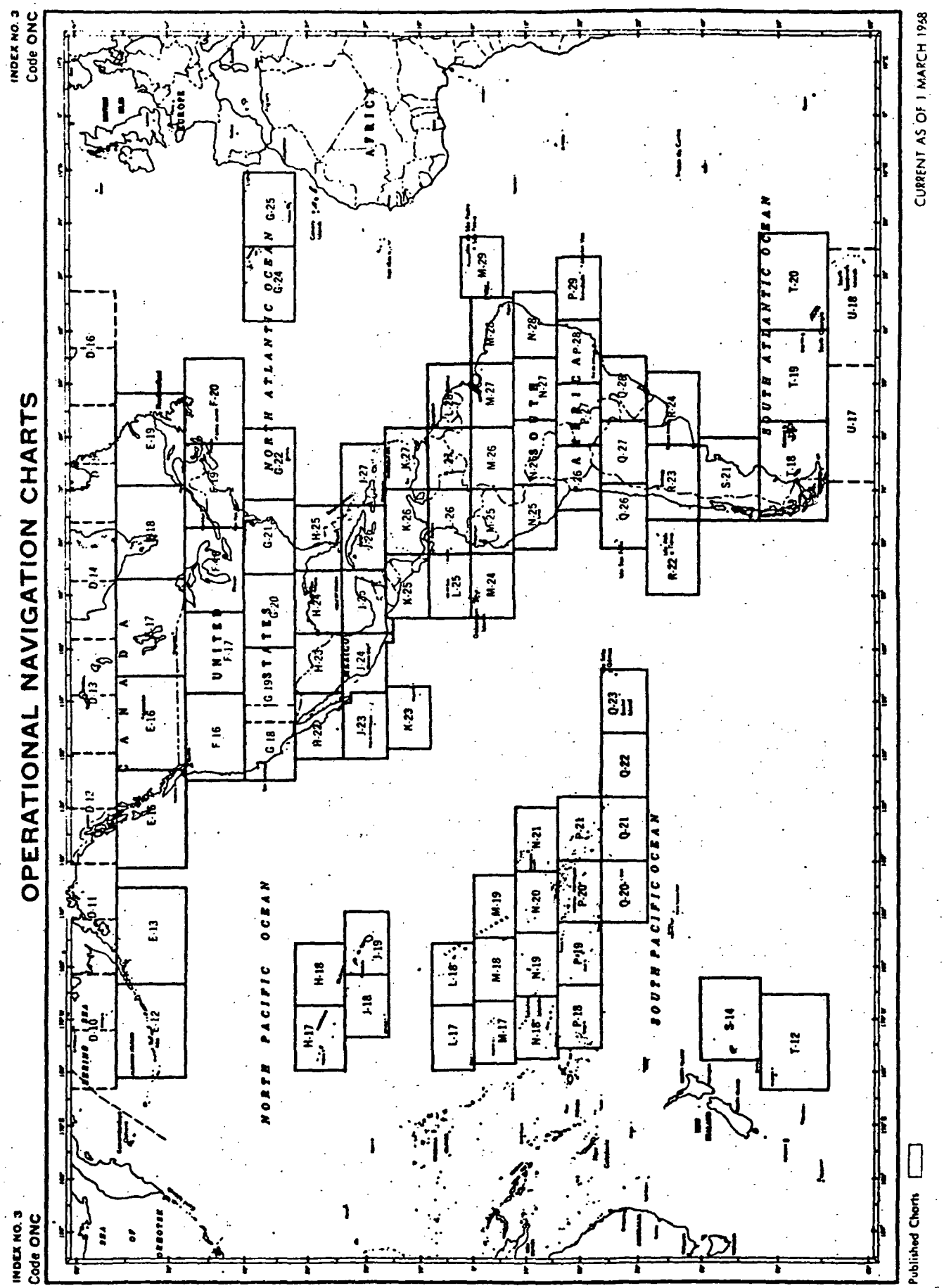
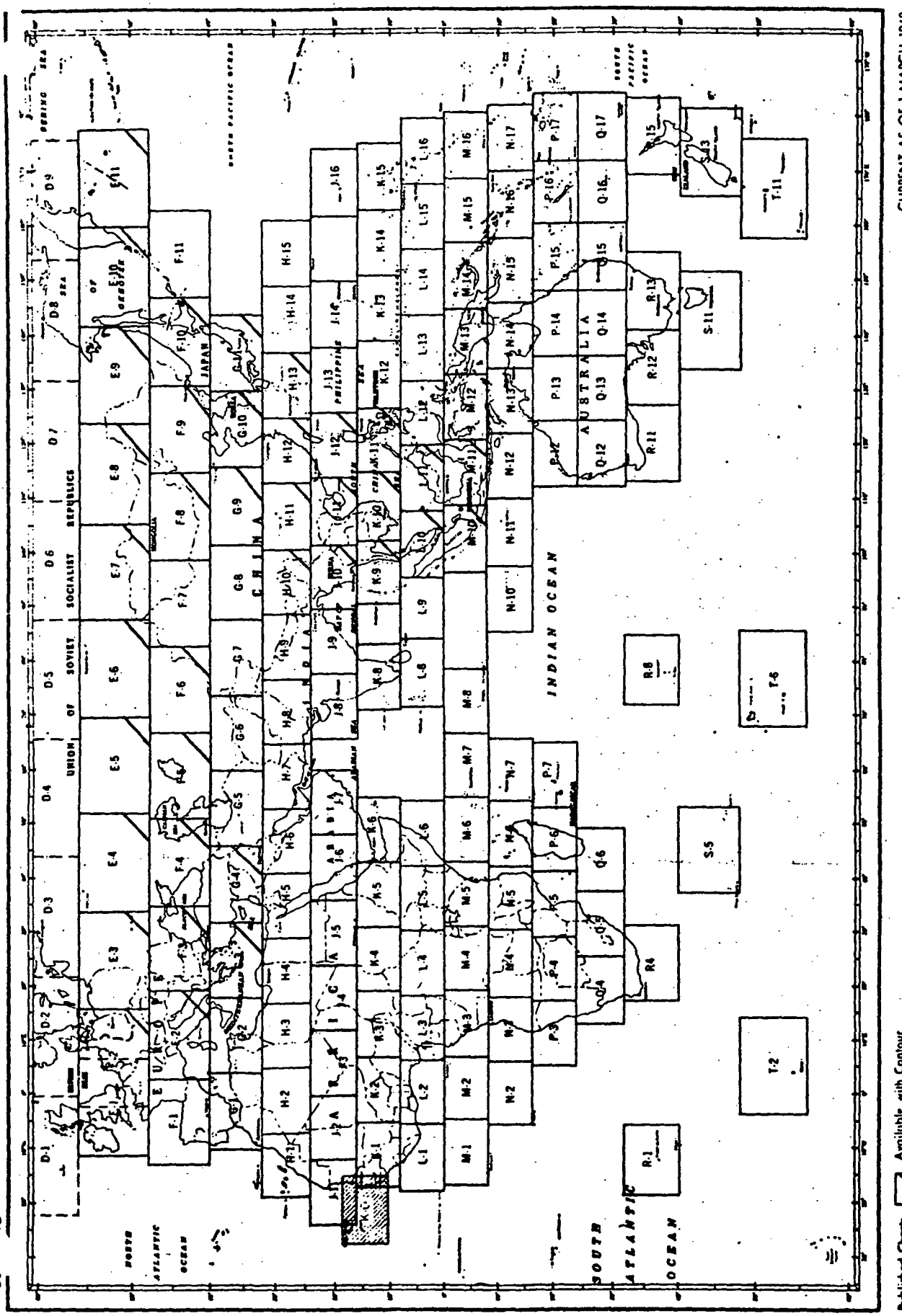

OPERATIONAL NAVIGATION CHARTS
INDEX NO. 3
Code ONC
CURRENT AS OF 1 MARCH 1958
NORTH ATLANTIC OCEAN
SOUTH ATLANTIC OCEAN
NORTH PACIFIC OCEAN
SOUTH PACIFIC OCEAN
CANADA
UNITED STATES
MEXICO
AFRICA
EUROPE
Published Charts

Figure 7


OPERATIONAL NAVIGATION CHARTS
CURRENT AS OF 1 MARCH 1968
INDIAN OCEAN
AUSTRALIA
CHINA
JAPAN
Published Charts
Available with Contour Evaluation Overprint
Page 55-IV

frame. If a one percent square contained clouds over one half its area the cloud coverage was considered one percent. Each square within the frame limits, which contained actual imagery was counted and recorded as the percentage of cloud coverage within that frame. In cases where the frame was exposed for cloud-top brightness, the underlying imagery is dark. The presence or absence of clouds below the bright cloud barrier was impossible to ascertain. Therefore, the percentage of cloud cover is based entirely upon the uppermost apparent cloud cover.

2.6.13 Description by Discipline - The description of the current Earth Resource disciplines on Apollo 7 imagery was undertaken to aid the photo analyst in his search for discipline occurrence within each frame. In the event a given discipline does not appear to be contained within the frame limits, that discipline category was excluded from the frame description column.

The descriptions for each frame are short, concise, general statements of occurrence. They are based upon visual inspection of the 70mm film positive with the aid of magnification devices. Only those discipline aspects which were most apparent to the evaluator were described. No attempt was made to perform a detailed

analysis of any one discipline. The location of the desired disciplines within the frame has been denoted only geographically and not by coordinates.

Because of their closely related characteristics, Geography and Cartography and Geology and Hydrology were combined into one description. The other disciplines were Agriculture, Forestry, Meteorology and Oceanography.

Image evaluation in this report, denoted in parenthesis at the end of Geography, was devised as a rapid method for determining exposure quality. The three descriptive terms used to denote exposure quality are simple and concise. The terms Light, Normal, and Dark denote over-exposure, normal exposure, and underexposure respectively. This guideline should enable the investigator to eliminate or at least grade those frames which are applicable for his particular discipline evaluation.

CONCLUSIONS

The data and information contained in this report is intended to aid the scientist in selecting the frames most suited to his needs, and to provide him with the basic information about the selected frames to aid him in the analysis of the Apollo 7, 70mm color photography.

Ideally, this information should accompany the photography that is provided to the scientists in the Earth Resources Program. Due to the amount of time that is needed to prepare this report, the photography and this information could not have been disseminated to the scientists simultaneously. However, it is hoped that there will be a continued demand for Apollo photography for scientific analysis; and to those scientists, the data and information in this report should be an invaluable aid in the initial stages of their investigations.

Frames Pertaining To Each Discipline

Oceanography	Geography/ Cartography	Agriculture	Geology/ Hydrology	Forestry	Meteorology
1590-92	1528-36	1529-32	1528-31	1528-32	1528-32
1594-95	1541-46	1613-15	1541-45	1593-95	1536-56
1607-08	1590-95	1624	1593-94	1607-11	1590-95
1611	1604	1626	1613-43	1613-1616	1606-12
1613	1607-43	1629-36	1645-52	1626-27	1617-19
1615	1645-52	1641	1654-55	1629-38	1624-30
1619	1654-70	1643	1657-62	1640-43	1634-55
1623-24	1672-80	1693	1666-67	1647-52	1658-59
1626-36	1693-1708	1699	1693-1705	1662	1662-66
1638-42	1712-26	1700-02	1713-26	1666	1668-71
1649-52	1731-37	1717-18	1731-37	1693-99	1675-89
1654-55	1737-60	1720-1725	1740-50	1701-05	1693-1700
1661	1764-85	1731-33	1752-59	1716-1718	1702-47
1666	1787-1800	1736-37	1764	1720-1725	1749-74
1670	1802-24	1773-74	1772-81	1732	1776-90
1680	1826-32	1796	1783-90	1748-49	1792-1808
1694-97	1835-88	1798	1793-1800	1769-70	1810-16
1699-1705	1891-94	1831	1802	1777-78	1819-28
1716	1896-1903	1835	1804	1781	1830-31
1717	1905-14	1837-39	1807-13	1783-84	1833-54
1720-21	1916-18	1844	1817-19	1789	1861-80
1723-26	1920-22	1849	1824	1797	1883-88
1731	1924-28	1868-69	1826-32	1799	1891-99
1733-38	1931-43	1899	1835	1809	1901-04
1740-47	1979-85	1900	1837-39	1811-12	1907-14
1751-56	1987-93	1910	1841-45	1830-31	1919-27
1760	1996-2003	1916-18	1849-53	1835-39	1929-32
1769	2006-2013	1928	1856-57	1843-45	1934-37
1772-74	2015-2041	1942	1859-64	1850-51	1939-84
1777-1781		1980	1867-73	1855-56	1985-87
1811		2006-09	1880-81	1861	1890
1831		2020-34	1887-88	1863	1893
1843-44			1893-94	1868-73	1896-97
1867			1896-1903	1880-81	2001
1880-81			1905-14	1887-88	2003-23
1884			1916-18	1894	2027-41
1888			1920-22	1897-03	
1894-99			1924-25	1905-14	
1901-02			1927-28	1917-18	
1907			1931	1920	
1909-10			1936	1922	
1913-14			1938-43	1924-25	
1918			1979-85	1927-28	
1927-28			1988-93	1931-32	

Frames Pertaining to Each Discipline

Oceanography	Geography/ Cartography	Agriculture	Geology/ Hydrology	Forestry	Meteorology
1931			1996-2003	1936	
1933-34			2006-2013	1941-43	
1938-39			2015-2033	1979-85	
1943				1999	
1983-84				2001	
1996-97				2012-13	
2001-02				2020-40	
2024-27					
2033-41					

FRAME NUMBER	ORBIT	DATE	SEASON	GET	LOCAL SOLAR TIME	SUN ELEV.	PRINICIPAL POINT		APPROXIMATE SCALES OF 70MM AT PP	MAP PLOTS		ALTITUDE N.M.	%CLOUDS	DESCRIPTION BY DISCIPLINE
							LATITUDE	LONGITUDE		WAC	ONC			
		1968												
1511	2	10/11											30	Congo, coastal area, out of focus (Normal)
1512	2	"											--	Condensation (Dark)
1513	2	"											--	" (Dark)
1514	2	"											--	Spacecraft window (Light)
1515	2	"											--	" " (Dark)
1516	2	"											--	Spacecraft window (Dark)
1517	"	"											--	" " (Dark)
1518	"	"											--	S-IVB booster and condensation (Dark)
1519	"	"											--	" " " " (Dark)
1520	"	"											--	Blank (Dark)
1521	"	"											36	S-IVB booster (Dark)
1522	"	"											60	" " (Normal)
1523	"	"											50	S-IVB booster (Normal)
1524	"	"											45	" " (Normal)
1525	"	"											41	S-IVB booster (Normal)
1526	"	"											30	" " (Normal)
1527	"	"											95	S-IVB booster, clouds (Normal)
1528	"	"	Fall	03:07	11:00	46°	30°31'N	115°56'W	1:4,250,000		H-22	125	20	GEOGRAPHY/CARTOGRAPHY: Baja California, Sierra San Pedro Martir Mountains, Rio San Rafael, Bay of San Quintin. (Normal) GEOLOGY/HYDROLOGY: Complex mountains highly faulted. and folded, and elevated alluvial plains. Intermittent drainage is well defined. FORESTRY: Scattered low shrubform. METEOROLOGY: Alto-cumulus clouds. OCEANOGRAPHY: Sediment flow from Colorado River.
1529	"	"	Fall	03:08	10:34	47°	30°32'N	114°21'W			H-22	125	5	GEOGRAPHY/CARTOGRAPHY: Baja California, Gulf of California, Mexico, Puerto Penasco, Mouth of Colorado. (Normal) AGRICULTURE: Dry land cultivation, irrigated. GEOLOGY/HYDROLOGY: Complex mountains, alluvial plains and erg desert, all containing intermittent drainage. FORESTRY: Scattered low shrubform. METEOROLOGY: Strato-cumulus and Alto-cumulus. OCEANOGRAPHY: Sediment flow from Colorado River.
1530	"	"	Fall	03:08	10:37	47°	30°20'N	113°44'W			H-22	125	5	GEOGRAPHY/CARTOGRAPHY: Baja California, Gulf of California, Mexico, Bay of DeAduar, Bay of San Jorge. (Normal) AGRICULTURE: Extensive dry land cultivation, irrigated. GEOLOGY/HYDROLOGY: Deltaic and elevated erg. plains with complex mountains in the background. FORESTRY: Scattered low shrubform. METEOROLOGY: Cirro-cumulus. OCEANOGRAPHY: Sediment flow from Colorado River.

FRAME NUMBER	ORBIT	DATE	SEASON	GET	LOCAL SOLAR TIME	SUN ELEV.	PRINICIPAL POINT		APPROXIMATE SCALES OF 70MM AT PP	MAP PLOTS		ALTITUDE N.M.	%CLOUDS	DESCRIPTION BY DISCIPLINE
							LATITUDE	LONGITUDE		WAC	ONC			
1531	2	1968 10/11	Fall	03:08	10:41	47°	30°37'N	112°57'N			H-22	125	0	GEOGRAPHY/CARTOGRAPHY: Gulf of California, Mexico, Caborca, Magdalena River. (Normal) AGRICULTURE: Irrigated dry land cultivation, along drainage. GEOLOGY/HYDROLOGY: Highly dissected hills and mountains with intermittent stream beds. FORESTRY: Scattered low shrubform, some coniferous forest at higher elevations. METEOROLOGY: Cirrus, small alto-cumulus. OCEANOGRAPHY: Some tonal changes.
1532	"	"	Fall	03:08	10:43	47°	30°58'N	111°03'W			H-22	125	2	GEOGRAPHY/CARTOGRAPHY: Gulf of California, Mexico, Nogales, Arizona, Magdalena River. (Normal) AGRICULTURE: Dry land cultivation along drainage. GEOLOGY/HYDROLOGY: Complex hills and mountains. FORESTRY: Scattered shrubform, some coniferous forests at higher elevations. METEOROLOGY: Cirrus. OCEANOGRAPHY: Some tonal changes.
1533	"	"	Fall	03:09	11:02	47°	31°00'N	107°30'W				125	15	GEOGRAPHY: S-IV booster, Arizona. (Blurred)
1534	"	"	Fall	03:09	11:06	48°	30°30'N	106°30'W			H-23	125	20	GEOGRAPHY: Arizona, New Mexico, Texas, SIVB booster. (Normal)
1535	"	"	Fall	03:09	11:12	48°							30	GEOGRAPHY: Texas, SIVB booster. (Normal)
1536	"	"	Fall	03:10	11:17	48°						126	15	GEOGRAPHY: Texas, SIVB booster. (Normal)
1537	"	"	——	03:10	——	49°						126	50	Clouds, SIVB booster (Normal)
1538	"	"	——	03:11	——	50°						126	95	Clouds, SIVB booster (Normal)
1539	"	"	——	03:12	——	—						126	100	Clouds, SIVB booster (Normal)
1540	"	"	——	03:13	——	—						126	95	Clouds, SIVB booster (Normal
1541	"	"	Fall	03:13	12:16	—					H-25	126	80	GEOGRAPHY/CARTOGRAPHY: Mississippi Sound, Gulfport, Biloxi, Hattiesburg. (Normal) GEOLOGY/HYDROLOGY: Atlantic Coastal Plain deposits. METEOROLOGY: Strato-cumulus, some alto-cumulus. OCEANOGRAPHY: Some tonal changes.
1542	"	"	Fall	03:14	12:17	48°					H-25	126	70	GEOGRAPHY/CARTOGRAPHY: Mississippi Sound, Biloxi, and coastal beaches. (Normal) GEOLOGY/HYDROLOGY: Marine and coastal plain region. METEOROLOGY: Cirro-cumulus, alto-cumulus, strato-cumulus. Cumulus. OCEANOGRAPHY: Sediment flows, fresh, salt water interface.

FRAME NUMBER	ORBIT	DATE	SEASON	GET	LOCAL SOLAR TIME	SUN ELEV	PRINICIPAL POINT		APPROXIMATE SCALES OF 70MM AT PP	MAP PLOTS		ALTITUDE N.M.	%CLOUDS	DESCRIPTION BY DISCIPLINE
							LATITUDE	LONGITUDE		WAC	ONC			
1543	2	1968 10/11	Fall	03:15	12:36	48°					H-25	126	65	GEOGRAPHY/CARTOGRAPHY: Florida, Pensacola, Panama City, Appalachicola. (Normal) GEOLOGY/HYDROLOGY: Submerged coastline and coastal plain deposits. METEOROLOGY: Strato-cumulus, alto-cumulus. OCEANOGRAPHY: Sediment flows, submerged sandbars.
1544	3	"	Fall	03:16	12:51	48°	28°56'N	82°31'W			H-25	126	70	GEOGRAPHY/CARTOGRAPHY: Florida, Cape Kennedy, Daytona, Orlando, Lake McCoy. (Normal) GEOLOGY/HYDROLOGY: Low coastal plain region with karst topography inland. METEOROLOGY: Cirrus, cumulus, towering cumulus. OCEANOGRAPHY: Coastline.
1545	3	"	Fall	03:16	12:53	48°	28°55'N	82°40'W			H-25	127	60	GEOGRAPHY/CARTOGRAPHY: Florida, Cape Kennedy, Titusville, Daytona. (Normal) GEOLOGY/HYDROLOGY: Low coastal plain region with karst topography inland. METEOROLOGY: Cirrus, cumulus, towering cumulus. OCEANOGRAPHY: Well developed beach pattern.
1546	3	"	Fall	03:16	13:08	48°	28°00'N	82°20'W			H-25	127	75	GEOGRAPHY/CARTOGRAPHY: Florida, Cape Kennedy, Titusville, Daytona Beach. (Normal) METEOROLOGY: Cumulus, some alto-cumulus. OCEANOGRAPHY: Some color changes.
1547	3	"	----										100	METEOROLOGY: Strato-cumulus and high altitude clouds. (Normal)
1548	3	"	----										100	METEOROLOGY: Strato-cumulus and high altitude clouds. (Normal)
1549	3	"	----										45	METEOROLOGY: Cumulus in linear arrangement, alto-cumulus, cirrus. (Normal)
1550	3	"	----										50	METEOROLOGY: Cumulus in linear arrangement, alto-cumulus, cirrus. (Normal)
1551	3	"	----										50	METEOROLOGY: Cumulus, alto-cumulus, cirrus. (Normal)
1552	3	"	----										--	OVEREXPOSED: (Light)
1553	3	"	----										100	METEOROLOGY: Cirrus, cumulus-nimbus. (Dark)
1554	3	"	----										100	METEOROLOGY: Cirrus, cumulus-nimbus. (Dark)
1555	3	"	----										65	METEOROLOGY: Strato-cumulus, alto-cumulus. (Normal)
1556	3	"	----										70	METEOROLOGY: Strato-cumulus, alto-cumulus. (Normal)

FRAME NUMBER	ORBIT	DATE	SEASON	GET	LOCAL SOLAR TIME	SUN ELEV	PRINICIPAL POINT		APPROXIMATE SCALES OF 70MM AT PP	MAP PLOTS		ALTITUDE N.M.	%CLOUDS	DESCRIPTION BY DISCIPLINE
							LATITUDE	LONGITUDE		WAC	ONC			
		1968												
1558	19	10/12												Astronaut Schirra, Spacecraft Interior
1559	19	"												Astronaut Cunningham, Spacecraft Interior
1560	19	"												Rendezvous with SIVB Booster
1561	19	"												Rendezvous with SIVB Booster
1562	19	"												Rendezvous with SIVB Booster
1563	19	"												Rendezvous with SIVB Booster
1564	19	"												Rendezvous with SIVB Booster
1565	19	"												Rendezvous with SIVB Booster
1566	19	"												Rendezvous with SIVB Booster
1567	19	"												Rendezvous with SIVB Booster
1568	19	"												Rendezvous with SIVB Booster
1569	19	"												Rendezvous with SIVB Booster
1570	19	"												Rendezvous with SIVB Booster
1571	19	"												Rendezvous with SIVB Booster
1572	19	"												Rendezvous with SIVB Booster
1573	19	"												Rendezvous with SIVB Booster
1574	19	"												Rendezvous with SIVB Booster
1575	19	"												Rendezvous with SIVB Booster
1576	19	"												Rendezvous with SIVB Booster
1577	19	"												Rendezvous with SIVB Booster
1578	19	"												Rendezvous with SIVB Booster
1579	19	"												Rendezvous with SIVB Booster
1580														Fogged Spacecraft Window
1581														Spacecraft Window with Vapor
1582														Astronaut Schirra
1583														Astronaut Eisele
1584														Astronaut Eisele.
1585														Astronaut Cunningham, Spacecraft Interior
1586														Astronaut Cunningham, Spacecraft Interior
1587														Spacecraft Interior, Blurred
1588														Astronaut Cunningham
1589														Astronaut Cunningham
1590	141	10/20	Spring	224:18	13:40	62°	16°00'S	145°15'W*				119	25	GEOGRAPHY/CARTOGRAPHY: Tuamotu Archipelago, View Southeast, Society Islands. (Normal) GEOLOGY/HYDROLOGY: Island chain of atolls. METEOROLOGY: Cirrus, small cumulus, alto-cumulus. OCEANOGRAPHY: Wave-action along coastline.
1591	141	10/20	Spring	224:18	13:40	65°	15°30'S	148°00'W*				120	35	GEOGRAPHY/CARTOGRAPHY: Tuamotu Archipelago, Rangroa, Tikahua, Society Islands. (Normal) GEOLOGY/HYDROLOGY: Island chain of atolls. METEOROLOGY: Cirrus, small cumulus, alto-cumulus. OCEANOGRAPHY: Wave-action along coastline.

*Approximate

FRAME NUMBER	ORBIT	DATE	SEASON	GET	LOCAL SOLAR TIME	SUN ELEV	PRINICIPAL POINT		APPROXIMATE SCALES OF 70MM AT PP	MAP PLOTS		ALTITUDE N.M.	%CLOUDS	DESCRIPTION BY DISCIPLINE
							LATITUDE	LONGITUDE		WAC	ONC			
1592	154	1968 10/21	Spring	243:57	14:18	47°	24°00'S	70°30'W*	1:6,666,670		P-26 Q-26, 27	172	38	GEOGRAPHY/CARTOGRAPHY: Chile, Argentina, Atacama Desert, Andes Mountains. (Normal) GEOLOGY: Narrow coastal plain and rugged complex mountain region. METEOROLOGY: Stratus, strato-cumulus. OCEANOGRAPHY: Shallow water in bay. Wave-action in bay areas.
1593	154	10/21	Spring	243:58	14:29	46°	23°00'S	67°29'W			P-26 Q-27	175	4	GEOGRAPHY/CARTOGRAPHY: Laguna Colorada, Bolivia, Salar de Atacama, Chile, Salar de Arizaro, Argentina. (Normal) GEOLOGY: Complex mountain region with karst topography and region of ferric mining. FORESTRY: Mountains in southeast forested. METEOROLOGY: Small cumulus.
1594	154	10/21	Spring	244:03	15:42	32°	31°08'S	51°02'W			R-24 Q-28	195	13	GEOGRAPHY/CARTOGRAPHY: Brazil, Uruguay, Lago dos Patos. (Normal) GEOLOGY: Coastal Plain with a shoreline region of emergence and lagoon regions. FORESTRY: Marsh along coastline. Dense forest. METEOROLOGY: Small cumulus, alto-cumulus. OCEANOGRAPHY: Shallow lagoon. Wave-action along the coastline, sediment movement along coastline.
1595	154	10/21	Spring	244:04	15:51	31°	28°58'S	49°24'W	1:4,062,500		Q-28	198	21	GEOGRAPHY/CARTOGRAPHY: Brazil, East Coast. Road Network. Scattered settlements. (Normal) GEOLOGY: Narrow Coastal Plain and complex mountain region. FORESTRY: Dense forest and coastal marsh grasses. METEOROLOGY: Cumulus, alto-cumulus. OCEANOGRAPHY: Continental Shelf. Continental slope interface.
1596														Astronaut Schirra. (Dark)
1597														Astronaut Cunningham. (Out of focus)
1598			Hot-Wet											GEOGRAPHY/CARTOGRAPHY: Brazil, Lagoa dos Patos. (Out of focus. Dark.)
1599	155												63	GEOGRAPHY/CARTOGRAPHY: Christmas Island. (Out of focus)
1600														Astronaut Eisele, spacecraft interior. (Dark)
1601 -														Spacecraft interior and window.

*Approximate

FRAME NUMBER	ORBIT	DATE	SEASON	GET	LOCAL SOLAR TIME	SUN ELEV	PRINICIPAL POINT		APPROXIMATE SCALES OF 70MM AT PP	MAP PLOTS		ALTITUDE N.M.	%CLOUDS	DESCRIPTION BY DISCIPLINE
							LATITUDE	LONGITUDE		WAC	ONC			
1602		1968												Spacecraft interior and window.
1603													75	METEOROLOGY: Cirrus, small cumulus.
1604	157	10/22	Fall	249:37	06:50	10°	27°30'N	92°30'E*			H-10	93	0	GEOGRAPHY/CARTOGRAPHY: Himalaya Mountains. (Light) GEOLOGY: Complex mountain region. METEORCLOGY: Alto-cumulus.
1605														Spacecraft window. (Light)
1606													27	METEOROLOGY: Strato-cumulus. (Dark)
1607	158	10/22	Spring	251:16	11:22		00°43'S	135°48'E	1:2,272,727		M-13	115	22	GEOGRAPHY/CARTOGRAPHY: Schouten-Eilanden Islands. Small scattered settlements along the coast. (Normal) GEOLOGY: Volcanic island chain. METEOROLOGY: Cumulus, cumulus-nimbus, cirrus. FORESTRY: Dense tropical forests. OCEANOGRAPHY: Waves along the coastline.
1608	158	10/22	Hot-Wet	251:20	12:19		09°04'S-	148°52'E	1:3,000,000		N-15	130	47	GEOGRAPHY/CARTOGRAPHY: Cape Nelson, New Guinea, Solomon Sea, sketchy road pattern. (Normal) GEOLOGY: Coastal plain of island. FORESTRY: Dense tropical forests. METEOROLOGY: Cirrus, small cumulus, alto-cumulus. OCEANOGRAPHY: Waves in bay areas.
1609	158	10/22	Hot-Wet	251:21	12:29		08°48'S	152°43'E	1:3,846,150		N-15 K-9	140	29	GEOGRAPHY/CARTOGRAPHY: Woodlark Island, Solomon Sea. (Normal) GEOLOGY: Low marine island, bounded by coral reefs. FORESTRY: Dense tropical forests. METEOROLOGY: Cirrus, small cumulus, towering cumulus.
1610	159	10/22	Hot-Wet	252:42	10:25	63°	08°29'N	99°53'E			K-9 L-10	100	85	GEOGRAPHY/CARTOGRAPHY: Gulf of Thailand. Tha Mma Rat, Thailand. (Normal) GEOLOGY: Coastal plain region. FORESTRY: Intermittent forest. METEOROLOGY: Cirrus, small cumulus, alto-cumulus.
1611	159	10/22	Hot-Wet	252:47	11:34	83°	02°01'S	116°03'E	1:4,000,000		M-11	120	54	GEOGRAPHY/CARTOGRAPHY: Borneo Island, Makasser Strait. (Dark) GEOLOGY: Coastal plain region. FORESTRY: Dense forest. METEOROLOGY: Small cumulus, towering cumulus, alto-cumulus. OCEANOGRAPHY: Varying breadth of Continental Shelf.

*Approximate

FRAME NUMBER	ORBIT	DATE	SEASON	GET	LOCAL SOLAR TIME	SUN ELEV	PRINICIPAL POINT		APPROXIMATE SCALES OF 70MM AT PP	MAP PLOTS		ALTITUDE N.M.	%CLOUDS	DESCRIPTION BY DISCIPLINE
							LATITUDE	LONGITUDE		WAC	ONC			
1612	159	1968 10/22	Hot-Wet	252:50	12:09	84°	08°07'S	124°01'E	1:3,875,000		N-13	130	2	GEOGRAPHY/CARTOGRAPHY: Lesser Sunda Islands, Pulau Alor, Pulau Pantar, Pulau Lomblen. (Light) GEOLOGY: Complex mountain island chain. METEOROLOGY: Cirrus, cumulus.
1613	24	10/13	Fall	37:20	07:05	15°	20°00'N	40°23'E	1:3,333,000		J-6	132	0	GEOGRAPHY/CARTOGRAPHY: Saudia Arabia, Red Sea, Coast of Al Lith. (Normal) AGRICULTURE: Grazing. GEOLOGY/HYDROLOGY: Highly fractured igneous mountain region and an adjacent elevated desert plain. FORESTRY: Scattered low shrubform. OCEANOGRAPHY: Submerged land forms visible.
1614	24	10/13	Fall	37:21	07:28	20°	23°41'N	46°80'E			J-6	131	0	GEOGRAPHY/CARTOGRAPHY: Saudia Arabia, Jabel Tuwayq, south of Ar Riyad, Marrah. (Normal) AGRICULTURE: Nomadic herding. GEOLOGY/HYDROLOGY: Dissected sedimentary plateau and erg plain region. Dendritic drainage throughout the plateau. FORESTRY: Scattered low shrubform.
1615	24	10/13	Fall	37:23	08:04	26°	26°52'N	54°42'E	1:3,173,000		H-7	128	0	GEOGRAPHY/CARTOGRAPHY: Southern coast of Iran, Bandarte Lengeh, Qishm Island, Qeys Island. (Normal) AGRICULTURE: Nomadic herding. GEOLOGY/HYDROLOGY: Highly folded region of anticlines with possible salt plug intrusions. FORESTRY: Grass and low scattered shrubform. OCEANOGRAPY: Sediment patterns from Rud-i-kul River.
1616	24	10/13	Fall	37:27	08:54	34°	28°55'N	66°17'E			H-8	127	0	GEOGRAPHY/CARTOGRAPHY: Pakistan, Kirthar and Makran Ranges, Quetta. (Normal) GEOLOGY/HYDROLOGY: Folded and fractured mountainous region. FORESTRY: Intermittent grasslands.
1617	24	10/13	Fall	37:31	10:08	43°	31°28'N	83°54'E	1:3,400,000		H-9	124		GEOGRAPHY/CARTOGRAPHY: Tibet, Nganglaring Tsho Lake, Tarok Tsho Lake. (Normal) GEOLOGY/HYDROLOGY: Complex hills and mountains of Tibet Plateau. METEOROLOGY: Cumulus, alto-cumulus.
1618	24	10/13	Fall										40	GEOGRAPHY/CARTOGRAPHY: Tibet, Himalayas. (Dark) GEOLOGY/HYDROLOGY: Complex mountainous region. METEOROLOGY: Cirrus, alto-cumulus.

FRAME NUMBER	ORBIT	DATE	SEASON	GET	LOCAL SOLAR TIME	SUN ELEV	PRINICIPAL POINT		APPROXIMATE SCALES OF 70MM AT PP	MAP PLOTS		ALTITUDE N.M.	%CLOUDS	DESCRIPTION BY DISCIPLINE
							LATITUDE	LONGITUDE		WAC	ONC			
1619	24	1968 10/13	Fall	34:40	12:55	50°	25°00'N	123°00'E*			H-12	125	60	GEOGRAPHY/CARTOGRAPHY: Ryukyu Island, Tarama, Irabu, Miyako. (Normal) GEOLOGY/HYDROLOGY: Marine coral deposits. METEOROLOGY: Cumulus, alto-cumulus, cirrus. OCEANOGRAPHY: Island atolls.
1620	25	"	Fall	38:48	06:51	11°	19°00'N	15°00'E*				134	0	GEOGRAPHY/CARTOGRAPHY: Niger, Grand Erg sand dunes. (Dark) GEOLOGY: Linear Seif Dune Plain Region of the Sahara.
1621	25	"	Fall	38:49	07:06	14°	19°55'N	18°32'E			J-4	133	0	GEOGRAPHY/CARTOGRAPHY: Chad, Tibesti Mountains, Emi Koussi volcano. (Dark) GEOLOGY/HYDROLOGY: Volcanic mountains of basalt in the Sahara.
1622	25	"	Fall	38:51	07:38	21°	23°00'N	26°00'E*				130	0	GEOGRAPHY/CARTOGRAPHY: United Arab Republic, Gilf Kebar Plateau. (Dark) GEOLOGY/HYDROLOGY: Sedimentary plateau elevated above the erg plains.
1623	25	"	Fall	38:53	08:10	26°	28°20'N	33°53'E			H-5	128	4	GEOGRAPHY/CARTOLOGY: Sinai Peninsula, Red Sea, Gulf of Suez, Gulf of Aqaba. (Normal) GEOLOGY/HYDROLOGY: Fractured mountainous granitic region, and coastal erg plains. OCEANOGRAPHY: Coral reef buildup and sedimentation along the coast.
1624	25	"	Fall	38:56	09:15	37°	29°00'N	49°00'E*			H-6	126	4	GEOGRAPHY/CARTOGRAPHY: Kuwait, Persian Gulf coast, Failaka Island. (Normal) AGRICULTURE: Dry land cultivation along coast. GEOLOGY/HYDROLOGY: Coastal Plain and sedimentation deposits. METEOROLOGY: Cumulus. OCEANOGRAPHY: Fresh-salt water interface, current patterns showing sediment flows, sun glint.
1625	25	"	Fall	39:03	11:58	53°	28°00'N	88°00'E*			H-9	124	5	GEOGRAPHY/CARTOGRAPHY: Nepal, Tibet, India, Ganges Plain. (Normal) GEOLOGY/HYDROLOGY: Mountainous region of basement complex bounded by a sedimentary plain. METEOROLOGY: Alto-cumulus.
1626	25	"	Fall	39:11	13:58	45°	23°00'N	116°00'E*			J12	126	70	GEOGRAPHY/CARTOGRAPHY: China, Han River, Shan-T'Oli. (Normal) AGRICULTURE: Irrigated subsistence. GEOLOGY/HYDROLOGY: Submerged coastline, dissected hills and mountains of complex structure. FORESTRY: Intermittent evergreen forests. METEOROLOGY: Cumulus, strato-cumulus. OCEANOGRAPHY: Fresh-salt water interfaces, sediment flow patterns.

FRAME NUMBER	ORBIT	DATE	SEASON	GET	LOCAL SOLAR TIME	SUN ELEV.	PRINICIPAL POINT		APPROXIMATE SCALES OF 70MM AT PP	MAP PLOTS		ALTITUDE N.M.	%CLOUDS	DESCRIPTION BY DISCIPLINE
							LATITUDE	LONGITUDE		WAC	ONC			
1627	25	1968 10/13	Fall	39:14	14:22	42°	19°00'N	121°22'E	1:4,600,000		J-12	127	41	GEOGRAPHY/CARTOGRAPHY: Philippine Island, north Luzon coast, Babuyan Island, Luzon Strait. (Normal) GEOLOGY/HYDROLOGY: Complex hill structure and volcanic islands. FORESTRY: Scattered tropical hardwood forests. METEOROLOGY: Cumulus, alto-cumulus. OCEANOGRAPHY: Well developed beaches, some water tonal differences.
1628	33	"	Fall	52:32	12:01	52°	26°40'N	113°40'W*			H-22, 23	122	24	GEOGRAPHY/CARTOGRAPHY: Baja California, Gulf of California, western coast of Mexico. (Normal) GEOLOGY/HYDROLOGY: Coastal plain deposits and dissected hills and mountains. METEOROLOGY: Cumulus. OCEANOGRAPHY: Faint tonal changes.
1629	33	"	Fall	52:32	12:01	52°	30°00'N	116°00'N*			H-22	122	35	GEOGRAPHY/CARTOGRAPHY: Baja California, Bahia San Quintin. (Normal) AGRICULTURE: Cultivation patterns apparent along western coast. GEOLOGY/HYDROLOGY: Folded and basement complex hill and mountainous region. Intermittent dendritic drainage. FORESTRY: Scattered desert shrubform. METEOROLOGY: Cumulus, towering-cumulus. OCEANOGRAPHY: Tonal changes along eastern coast.
1630	33	"	Fall	52:33	12:06	52°	28°20'N	112°40'W*	1:3,700,000		H-22	122	0	GEOGRAPHY/CARTOGRAPHY: Baja California, Gulf of California, Mexico, Tiburon Island. (Normal) AGRICULTURE: Extensive cultivation along Sonora River delta. GEOLOGY/HYDROLOGY: Complex and volcanic hills and mountains, with coastal and alluvial plains. FORESTRY: Scattered desert shrubform. OCEANOGRAPHY: Current patterns along Mexican coast.
1631	33	"	Fall	52:33	12:06	52°	28°42'N	112°20'W	1:3,000,000		H-22	122	0	GEOGRAPHY/CARTOGRAPHY: West coast of Mexico, Gulf of California, Tiburan Island. AGRICULTURE: Extensive cultivation along Sonora River Delta. GEOLOGY/HYDROLOGY: Deltaic, coastal and alluvial plains with complex hills distributed throughout. FORESTRY: Scattered desert shrubform. OCEANOGRAPHY: Sun glint showing surface currents.

FRAME NUMBER	ORBIT	DATE	SEASON	GET	LOCAL SOLAR TIME	SUN ELEV.	PRINICIPAL POINT		APPROXIMATE SCALES OF 70MM AT PP	MAP PLOTS		ALTITUDE N.M.	%CLOUDS	DESCRIPTION BY DISCIPLINE
							LATITUDE	LONGITUDE		WAC	ONC			
1632	33	1968 10/13	Fall	52:33	12:06	52°	27°30'N	111°00'W*			H-22	122	0	GEOGRAPHY/CARTOGRAPHY: Western Coast of Mexico, Gulf of California. (Normal) AGRICULTURE: Extensive cultivation along coast, prominent field patterns. GEOLOGY/HYDROLOGY: Deltaic coastal plains and complex hills and mountains. FORESTRY: Scattered desert shrubform, with evergreens at higher elevations. OCEANOGRAPHY: Prominent sun glint revealing surface current patterns.
1633	33	"	Fall	52:35	13:49	51°	24°45'N	97°30'W	1:2,920,000		H-23 J-24	123	47	GEOGRAPHY/CARTOGRAPHY: Mexico, Lower Texas Gulf Coast, Laguna Madre, Gulf of Mexico, San Fernando. (Normal) AGRICULTURE: Extensive cultivation along northern coast. GEOLOGY/HYDROLOGY: Shoreline of emergence with an offshore bar and lagoon. FORESTRY: Scattered to dense shrubform, coastal grasses. METEOROLOGY: Cumulus, towering cumulus. OCEANOGRAPHY: Well developed beaches, inner coastal lagoon depths evident by color contrast. Some offshore current patterns apparent.
1634	33	"	Fall	52:35	13:49	51°	24°20'N	97°30'W	1:3,300,000		H-23 J-24	123	35	GEOGRAPHY/CARTOGRAPHY: Mexico, Laguna Madre, Laguna de Morales, Soto la Marina River, Gulf Coast. (Normal) AGRICULTURE: Isolated field patterns, primarily along Soto River and coast. GEOLOGY/HYDROLOGY: Shoreline of emergence with an offshore bar and lagoon. FORESTRY: Coastal grasses with scattered shrubform. METEOROLOGY: Cumulus. OCEANOGRAPHY: Well developed beaches, sun glint exposing surface wave and current patterns.
1635	33	"	Fall	52:37	13:50	48°	21°24'N	89°12'W	1:4,560,000		J-15	123	40	GEOGRAPHY/CARTOGRAPHY: Mexico, northern coast of Yucatan, Merida, Gulf of Mexico, Progreso. (Normal) AGRICULTURE: Extensive cultivation patterns along coast at Progreso and inland to Merida. GEOLOGY/HYDROLOGY: Emerged coastline and coastal plain deposits. FORESTRY: Grasses with scattered shrubform. METEOROLOGY: Cumulus, alto-cumulus. OCEANOGRAPHY: Some surface current activity apparent along coast.

FRAME NUMBER	ORBIT	DATE	SEASON	GET	LOCAL SOLAR TIME	SUN ELEV	PRINICIPAL POINT		APPROXIMATE SCALES OF 70MM AT PP	MAP PLOTS		ALTITUDE N.M.	%CLOUDS	DESCRIPTION BY DISCIPLINE
							LATITUDE	LONGITUDE		WAC	ONC			
1636	33	1968 10/13	Fall	52:37	13:50	48°	21°30'N	89°40'W			J-25	123	40	GEOGRAPHY/CARTOGRAPHY: Mexico, northern coast of Yucatan, Merida, Gulf of Mexico. (Normal) AGRICULTURE: Extensive field pattern development along coast. GEOLOGY/HYDROLOGY: Emerged coastline and coastal plain deposits. FORESTRY: Grasses and low shrubform. METEOROLOGY: Cumulus, cumulo-nimbus. OCEANOGRAPHY: Partial sun glint revealing offshore wave or current activity.
1637	33	"	Fall	52:38	13:52	47°	20°41'N	87°20'W			J-25	123	90	GEOGRAPHY/CARTOGRAPHY: Mexico, northeastern tip of Yucatan, Puerto Juarez. (Normal) GEOLOGY/HYDROLOGY: Emerged coastline and coastal plain. FORESTRY: Dense shrubform with large open areas near coast. METEOROLOGY: Cumulus, towering cumulus, cirrus.
1638	34	"	Cool-Dry	52:42	14:46	38°	12°17'N	72°04'W	1:5,100,000		K-26	128	38	GEOGRAPHY/CARTOGRAPHY: Columbia, Venezuela, Peninsula de Guajira, Gulf of Venezuela, Maracaibo. (Normal) GEOLOGY/HYDROLOGY: Sedimentary coastal plain with complex and folded hills. FORESTRY: Dense tropical forests inland. METEOROLOGY: Cumulus, cirrus. OCEANOGRAPHY: Some sediment patterns in Gulf of Venezuela.
1639	34	"	Cool-Dry	52:42	15:00	38°	12°15'N	71°30'W	1:3,110,000		K-26	128	25	GEOGRAPHY/CARTOGRAPHY: Columbia, Venezuela, Peninsula de Guajira. (Normal) GEOLOGY/HYDROLOGY: Sedimentary coastal plain with complex and folded hills. METEOROLOGY: Cumulus, cirrus. OCEANOGRAPHY: Some color change.
1640	34	"	Cool-Dry	52:43	15:05	37°	12°09'N	70°13'W	1:3,750,000		K-26	128	30	GEOGRAPHY/CARTOGRAPHY: Venezuela, Peninsula de Paraguana, Islands of Aruba and Curacao. (Normal) GEOLOGY/HYDROLOGY: Coastal plain region. FORESTRY: Dense to semi-dense stands on mainland. METEOROLOGY: Cumulus, cirrus. OCEANOGRAPHY: Some wave activity along beaches.
1641	34	"	Cool-Dry	52:43	15:05	36°	10°25'N	68°29'W			K-27	129	50	GEOGRAPHY/CARTOGRAPHY: Venezuela coastline, Gulf of Triste, Valencia. (Normal) AGRICULTURE: Field patterns evident in lowlands of interior. GEOLOGY/HYDROLOGY: Coastal plain and complex mountain region. FORESTRY: Dense tropical forests in upper peninsula. METEOROLOGY: Cumulus, cirrus. OCEANOGRAPHY: Sediment patterns along interface.

FRAME NUMBER	ORBIT	DATE	SEASON	GET	LOCAL SOLAR TIME	SUN ELEV	PRINICIPAL POINT		APPROXIMATE SCALES OF 70MM AT PP	MAP PLOTS		ALTITUDE N.M.	%CLOUDS	DESCRIPTION BY DISCIPLINE
							LATITUDE	LONGITUDE		WAC	ONC			
1642	34	1969 10/13	Cool-Dry	52:44	15:31	32°	11°00'N	64°00'W	1:6,510,000		K-27	129	14	GEOGRAPHY/CARTOGRAPHY: Venezuela coast, Peninsula de Araya, Barcelona, De Margarita Island. (Normal) GEOLOGY/HYDROLOGY: Submerged coastline and coastal plain. FORESTRY: Dense tropical rainforest grading to shrub-form. METEOROLOGY: Cumulus, alto-cumulus. OCEANOGRAPHY: Some tonal change.
1643	34	"	Cool-Dry	52:44	15:31	33°	8°05'N	64°15'W	1:4,100,000		K-27 L-27	130	35	GEOGRAPHY/CARTOGRAPHY: Venezuela, Orinoco River, Cuidad Bolivar, El Tigre. (Normal) AGRICULTURE: Isolated field patterns near El Tigre. GEOLOGY/HYDROLOGY: Sedimentary plateau, flood plain and meandering perennial drainage. FORESTRY: Isolated dense forest stands, primarily along Orinoco River and tributaries. METEOROLOGY: Cumulus.
1644	34	"											95	CLOUDS: Strato-cumulus. (Normal)
1645	34	"	Fall	54:07	13:38	45°	26°00'N	113°00'W*			H-22	123	10	GEOGRAPHY/CARTOGRAPHY: Baja California. (Normal) GEOLOGY/HYDROLOGY: Alluvial and low plains. Complex mountains in the foreground. METEOROLOGY: Small-cumulus.
1646	34	"	Fall	54:07	13:38	46°	23°00'N	111°00'W*			H-22	123	20	GEOGRAPHY/CARTOGRAPHY: Baja California. (Normal) GEOLOGY/HYDROLOGY: Low plains region. METEOROLOGY: Cumulus, alto-cumulus.
1647	34	"	Fall	54:09	14:08	43°	21°00'N	106°00'W*			J-24	124	54	GEOGRAPHY/CARTOGRAPHY: Mexico, Puerto Vallarta. (Normal) GEOLOGY/HYDROLOGY: Coastal plain region. FORESTRY: Semi-dense forest stands in the southern boundary grading to isolated shrubform to the north. METEOROLOGY: Cumulus, cirrus.
1648	34	"	Fall	54:09	14:08	43°	19°30'N	104°50'W	1:3,840,000		J-24	124	46	GEOGRAPHY/CARTOGRAPHY: Mexico, Puerto Vallarta to Manzanillo. (Normal) GEOLOGY/HYDROLOGY: Coastal plain and dissected hills region. FORESTRY: Semidense forest stands changing to dense stands along drainage. METEOROLOGY: Cumulus, towering-cumulus, alto-cumulus, cirrus.

FRAME NUMBER	ORBIT	DATE	SEASON	GET	LOCAL SOLAR TIME	SUN ELEV	PRINICIPAL POINT		APPROXIMATE SCALES OF 70MM AT PP	MAP PLOTS		ALTITUDE N.M.	%CLOUDS	DESCRIPTION BY DISCIPLINE
							LATITUDE	LONGITUDE		WAC	ONC			
1649	34	1968 10/13	Fall	54:09	14:08	42°	17°38'N	101°58'W	1:3,840,000		J-24		15	GEOGRAPHY/CARTOGRAPHY: Mexico, Bahia de Petacalco. (Normal) GEOLOGY/HYDROLOGY: Basement complex of Sinai Madre and elevated coastal plain. FORESTRY: Semidense to open forests with dense vegetation along major drains. METEOROLOGY: Small cumulus, alto-cumulus. OCEANOGRAPHY: Excellent fresh-salt water interface with definite sediment flow patterns.
1650	34	"	Fall	54:10	14:27	42°	17°37'N	101°30'W	1:3,320,000		J-24	125	17	GEOGRAPHY/CARTOGRAPHY: Mexico, West Coast, Bahia de Petacalco. (Normal) GEOLOGY/HYDROLOGY: Basement complex of the Sierra Madre Del Sur with intermittent and perennial drainage. FORESTRY: Semidense to open forests with dense vegetation along drains. METEOROLOGY: Cumulus, alto-cumulus. OCEANOGRAPHY: Excellent fresh-salt water interface with definite sediment flow patterns.
1651	34	"	Fall	54:10	14:27	42°	17°10'N	100°25'W	1:3,320,000		J-24	125	32	GEOGRAPHY/CARTOGRAPHY: Mexico, West Coast, Acapulco. (Normal) GEOLOGY/HYDROLOGY: Complex mountains and perennial drainage flowing toward the Coastal Plain region. FORESTRY: Scattered low shrubform. METEOROLOGY: Cumulus, alto-cumulus. OCEANOGRAPHY: Sediment flows showing offshore currents.
1652	34	"	Fall	54:10	14:27	42°	16°45'N	99°17'W	1:3,390,000		J-24	125	50	GEOGRAPHY/CARTOGRAPHY: Mexico, west coast, Acapulco to Tecuanapa. (Normal) GEOLOGY/HYDROLOGY: Coastal Plain region with adjacent complex and dissected hills. FORESTRY: Scattered low shrubform with intermittent forest stands. METEOROLOGY: Cumulus, alto-cumulus, cirrus. OCEANOGRAPHY: Fresh-salt water interface showing sediment flows.
1653														BLANK.
1654	36	"	Fall	56:45	07:40	21°	24°00'N	118°00'E*				131	75	GEOGRAPHY/CARTOGRAPHY: China Coast near Quemoy Island. (Dark) GEOLOGY/HYDROLOGY: Shoreline of submergence with coastal sedimentation. METEOROLOGY: Cumulus, cirrus. OCEANOGRAPHY: Some sediment transports.

FRAME NUMBER	ORBIT	DATE	SEASON	GET	LOCAL SOLAR TIME	SUN ELEV	PRINICIPAL POINT		APPROXIMATE SCALES OF 70MM AT PP	MAP PLOTS		ALTITUDE N.M.	%CLOUDS	DESCRIPTION BY DISCIPLINE
							LATITUDE	LONGITUDE		WAC	ONC			
1655	36	1968 10/13	Fall	56:45	07:40	21°	24°20'N	118°30'E				131	70	GEOGRAPHY/CARTOGRAPHY: China Coast near Quemoy Island. (Dark) GEOLOGY/HYDROLOGY: Shoreline of submergence. METEOROLOGY: Cumulus, alto-cumulus, cirrus. OCEANOGRAPHY: Some sediment transports.
1656	38	10/14	Fall	59:40									5	GEOGRAPHY/CARTOGRAPHY: Saudi Arabia, Empty Quarter sand dunes. (Light)
1657	38	"	Fall	59:40	06:19	05°	22°00'N	54°00'E				136	25	GEOGRAPHY/CARTOGRAPHY: Saudi Arabia, Trucial States, Coast of Abu Dhabi. (Light) GEOLOGY/HYDROLOGY: Erg plains of seif dunes.
1658	38	10/14	Fall	59:41	06:42	10°	22°19'N	59°50'E			J-7	135	10	GEOGRAPHY/CARTOGRAPHY: Muscat and Oman, Oman Ranges. (Light) GEOLOGY/HYDROLOGY: Coastal mountain complex and interior desert plains of seif dunes. METEOROLOGY: Cumulus.
1659	38	10/14	Fall	59:42	06:45	09°	24°00'N	60°00'E			J-7	135	5	GEOGRAPHY/CARTOGRAPHY: Muscat and Oman, Oman Ranges, Coast of Iran. (Light) GEOLOGY/HYDROLOGY: Coastal mountain complex. METEOROLOGY: Cumulus.
1660	38	10/14	Fall	59:44	07:15	14°	32°00'N	67°00'E				132	15	GEOGRAPHY/CARTOGRAPHY: Pakistan, Kirthar and Makran Ranges, Indus River. (Normal) GEOLOGY/HYDROLOGY: Complex anticlinorium folding.
1661	38	10/14	Fall	59:44	07:15	15°	25°00'N	66°58'E	1:3,200,000		H-8	132		GEOGRAPHY/CARTOGRAPHY: Pakistan, Karachi and Indus River. (Light) GEOLOGY/HYDROLOGY: Perennial deltaic flood plain and sedimentary folded and horizontal beds. FORESTRY: Scattered shrubform changing to dense vegetation in delta. OCEANOGRAPHY: Fresh-salt water interface with sediment patterns showing current directions.
1662	38	10/14	Fall	59:55	10:26	44°	31°52'N	111°56'E	1:3,000,000		G-9 H-11	124	20	GEOGRAPHY/CARTOGRAPHY: China, Han River Area. Fanch Eng. (Normal) GEOLOGY/HYDROLOGY: Alluvial flood plain, and sedimentary and complex mountain structure. FORESTRY: Isolated shrubform. METEOROLOGY: Cirrus, cumulus.
1663	38	10/14	Fall	59:56	10:59	43°	36°00'N	120°00'E			G-10 H-12	123	25	GEOGRAPHY/CARTOGRAPHY: China, Shantung Peninsula, Yellow Sea, Korea Bay. (Light) METEOROLOGY: Cirrus, cumulus.

FRAME NUMBER	ORBIT	DATE	SEASON	GET	LOCAL SOLAR TIME	SUN ELEV	PRINICIPAL POINT		APPROXIMATE SCALES OF 70MM AT PP	MAP PLOTS		ALTITUDE N.M.	%CLOUDS	DESCRIPTION BY DISCIPLINE
							LATITUDE	LONGITUDE		WAC	ONC			
1664	38	1968 10/14	Fall	59:59	11:42	50°	31°30'N	130°00'E*			H-13	122	90	GEOGRAPHY/CARTOGRAPHY: Southern tip of Japan. (Light) METEOROLOGY: Cirrus, alto-cumulus, cumulus.
1665	38	10/14	Fall										55	GEOGRAPHY/CARTOGRAPHY: Two small islands. (Light) METEOROLOGY: Cumulus.
1666	39	10/14	Fall	61:12	06:43	10°	21°23'N	36°51'E	1:2,900,000		J-6	133	20	GEOGRAPHY/CARTOGRAPHY: Sudan, Red Sea, Coast at Ras Abu Shajarah. (Light) GEOLOGY/HYDROLOGY: Highly fractured sedimentary and igneous mountain complex, coastal plain and intermittent drainage. FORESTRY: Shrubform and grasses. METEOROLOGY: Cumulus. OCEANOGRAPHY: Offshore, subsurface topography visible.
1667	39	10/14	Fall	61:20	08:52	31°					H-8		0	GEOGRAPHY/CARTOGRAPHY: Afghanistan, Kabul, Panjshir River, Kah-i-Baba Mountains. (Normal) GEOLOGY/HYDROLOGY: Folded mountain complex and intermittent drainage.
1668	40	10/14	Cool-Dry				14°55'N	121°18'E			K-11		80	GEOGRAPHY/CARTOGRAPHY: Philippine Islands, Manila. (Dark) METEOROLOGY: Cumulus, towering cumulus, cirrus.
1669	40	10/14	Cool-Dry	63:08	14:33	43°	12°16'N	125°20'E			K-11	125	80	GEOGRAPHY/CARTOGRAPHY: Philippine Islands, northern coast of Samar. (Dark) METEOROLOGY: Cumulus, cirrus.
1670	40	10/14	Hot-Wet										60	GEOGRAPHY/CARTOGRAPHY: North of Solomon Islands. (Dark) METEOROLOGY: Cumulus, cirrus. OCEANOGRAPHY: Circular reefs.
1671	40	10/14											50	CLOUDS: Cumulus, towering cumulus, cirrus. (Dark)
1672	41	10/14	Fall	64:33	13:24	50°	21°30'N	87°00'E*				122	0	GEOGRAPHY/CARTOGRAPHY: India, mouth of Hooghly River, Bay of Bengal. (Dark)
1673	41	10/14	Fall	64:34	13:29	50°	21°40'N	88°00'E*				122	0	GEOGRAPHY/CARTOGRAPHY: India, mouth of Hooghly River, Bay of Bengal. (Dark)
1674	41	10/14	Fall	64:34	13:34	49°	21°30'N	88°40'E*				122	0	GEOGRAPHY/CARTOGRAPHY: India, Pakistan, mouth of Haringata River, Bay of Bengal. (Dark)
1675	41	10/14	Fall	64:34	13:38	48°	21°58'N	90°20'E			J-10	122	28	GEOGRAPHY/CARTOGRAPHY: Burma, Pakistan, mouth of Ganges River, Bay of Bengal. (Dark) METEOROLOGY: Cumulus, cirrus.

FRAME NUMBER	ORBIT	DATE	SEASON	GET	LOCAL SOLAR TIME	SUN ELEV.	PRINICIPAL POINT		APPROXIMATE SCALES OF 70MM AT PP	MAP PLOTS		ALTITUDE N.M.	%CLOUDS	DESCRIPTION BY DISCIPLINE
							LATITUDE	LONGITUDE		WAC	ONC			
1676	41	1968 10/14	Fall	64:35	13:46	47°	21°00'E	92°00'E*			J-10	122	35	GEOGRAPHY/CARTOGRAPHY: Burma, Pakistan, Cox's Bazar. (Dark) METEOROLOGY: Cumulus, cirrus.
1677	41	10/14	Fall	64:35	13:48	47°	20°00'N	92°30'E*				122	25	GEOGRAPHY/CARTOGRAPHY: Burma, Bay of Bengal, coast of Akyab. (Dark) METEOROLOGY: Cumulus.
1678	41	10/14	Fall	64:35	13:52	47°	18°40'N	92°30'E*				123	13	GEOGRAPHY/CARTOGRAPHY: Burma, Bay of Bengal, Cheduba Island. (Dark) METEOROLOGY: Cumulus, cirrus.
1679	41	10/14	Fall	64:36	13:56	47°	18°20'N	94°20'E*				123	50	GEOGRAPHY/CARTOGRAPHY: Burma, Bay of Bengal, Cheduba Island, Andren Bay. (Dark) METEOROLOGY: Cumulus, towering cumulus, cirrus.
1680	41	10/14	Fall	64:36	14:04	47°	16°27'N	96°15'E				124	38	GEOGRAPHY/CARTOGRAPHY: Burma, Rangoon, Hlaing River. (Dark) METEOROLOGY: Cumulus OCEANOGRAPHY: Sediment pattern from river mouth.
1681	41	10/14	Cool-Dry	64:38	14:43	41°	13°30'N	105°30'E*				126	100	GEOGRAPHY/CARTOGRAPHY: Cambodia, Mekong River near Stung Treng. (Dark) METEOROLOGY: Cumulus, towering cumulus, cirrus.
1682	41	10/14											95	METEOROLOGY: Cumulus, strato-cumulus, cirrus. (Dark)
1683	41	10/14											90	METEOROLOGY: Towering cumulus, cirrus. (Dark)
1684	41	10/14											80	METEOROLOGY: Cumulus, cirrus. (Dark)
1685	41	10/14											50	METEOROLOGY: Cumulus, cirrus. (Dark)
1686													40	METEOROLOGY: Cumulus, cirrus. (Dark)
1687	41	10/14											20	METEOROLOGY: Cumulus, cirrus. (Dark)
1688	41	10/14											100	METEOROLOGY: Cumulus, alto-cumulus, cirrus. (Dark)
1689	41	10/14											50	METEOROLOGY: Cumulus, cirrus. (Dark)
1690	41	10/14											0	BLANK
1691	41	10/14											0	BLANK
1692	42	10/14	Fall	65:46	09:41	25°	27°00'N	13°00'E*				129	0	GEOGRAPHY/CARTOGRAPHY: Morocco, coast near Ifni, horizon. (Light)

FRAME NUMBER	ORBIT	DATE	SEASON	GET	LOCAL SOLAR TIME	SUN ELEV	PRINICIPAL POINT		APPROXIMATE SCALES OF 70MM AT PP	MAP PLOTS		ALTITUDE N.M.	%CLOUDS	DESCRIPTION BY DISCIPLINE
							LATITUDE	LONGITUDE		WAC	ONC			
1693	42	1968 10/14	Fall	65:59	10:59	48°	31°23'N	30°38'E			H-5	124	33	GEOGRAPHY/CARTOGRAPHY: Nile Delta, Alexandria to Port Said. (Dark) AGRICULTURE: Extensive cultivation in Nile Delta area. GEOLOGY/HYDROLOGY: Deltaic flood plain and a lower coastal plain. Perennial drainage is dominant within the delta. FORESTRY: Scattered shrubform outside of agriculture patterns. METEOROLOGY: Cumulus, towering cumulus.
1694	42	10/14	Fall	65:54	10:59	51°	30°12'N	32°09'E	1:4,930,000		H-5	124	27	GEOGRAPHY/CARTOGRAPHY: Nile Delta, Gulf of Suez. (Dark) GEOLOGY/HYDROLOGY: Erg and alluvial plains with highly fractured complex mountains. Intermittent drainage dominates. FORESTRY: Scattered shrubform. METEOROLOGY: Cumulus. OCEANOGRAPHY: Submerged coastline in Gulf of Suez.
1695	42	10/14	Fall	65:55	10:59	55°	29°21'N	32°50'E	1:4,100,000		H-5 J-6	124	7	GEOGRAPHY/CARTOGRAPHY: Gulf of Suez, Red Sea, Gulf of Aqaba. (Dark) GEOLOGY/HYDROLOGY: Elevated erg plains with fractured basement complex mountains. Intermittent drainage dominates. FORESTRY: Scattered shrubform and desert grasses. METEOROLOGY: Cumulus. OCEANOGRAPHY: Submerged coastline visible in Gulf of Suez.
1696	42	10/14	Fall	65:55	11:13	49°	30°59'N	33°55'E	1:4,000,000		H-5	124	13	GEOGRAPHY/CARTOGRAPHY: Mediterranean Sea, Israel, Dead Sea. (Dark) GEOLOGY/HYDROLOGY: Coastal plain and fractured sedimentary hills and mountains. FORESTRY: Scattered shrubform and desert grasses. METEOROLOGY: Cumulus, cirrus. OCEANOGRAPHY: Inland salt water bodies along coast.
1697	42	10/14	Fall	65:55	11:16	52°	28°15'N	34°25'E	1:5,700,000		H-5	124	10	GEOGRAPHY/CARTOGRAPHY: Sinai Peninsula, Red Sea, Gulf of Aqaba. (Dark) GEOLOGY/HYDROLOGY: Fractured mountain complex with dendritic intermittent drainage. FORESTRY: Desert shrubform. METEOROLOGY: Cumulus. OCEANOGRAPHY: Coral visible in Strait of Gubal.
1698	42	10/14	Fall	65:56	11:21	49°	31°28'N	35°45'E	1:4,500,000		H-5	123	1	GEOGRAPHY/CARTOGRAPHY: Israel, Dead Sea, Jordan. (Dark) GEOLOGY/HYDROLOGY: Fractured mountain complex with intermittent drainage. FORESTRY: Desert shrubform. METEOROLOGY: Cirrus.

FRAME NUMBER	ORBIT	DATE	SEASON	GET	LOCAL SOLAR TIME	SUN ELEV	PRINICIPAL POINT		APPROXIMATE SCALES OF 70MM AT PP	MAP PLOTS		ALTITUDE N.M.	%CLOUDS	DESCRIPTION BY DISCIPLINE
							LATITUDE	LONGITUDE		WAC	ONC			
1699	42	1968 10/14	Fall	65:58	12:17	50°	30°02'N	48°54'E	1:7,800,000		H-6	121	3	GEOGRAPHY/CARTOGRAPHY: Persian Gulf, Kuwait, mouth of Tigris-Euphrates Rivers. (Dark) AGRICULTURE: Scattered field patterns along rivers. GEOLOGY/HYDROLOGY: Deltaic flood plain region. FORESTRY: Desert shrubform primarily along banks of major drains. METEOROLOGY: Small cumulus. OCEANOGRAPHY: Good fresh-salt water interface, showing sediment patterns.
1700	42	10/14	Fall	65:58	12:21	49°	31°04'N	49°40'E	1:6,900,000		H-6 H-7	121	7	GEOGRAPHY/CARTOGRAPHY: Persian Gulf, Iran, Iraq, mouth of Tigris-Euphrates Rivers. (Dark) AGRICULTURE: Field patterns along Karun Rud River. GEOLOGY/HYDROLOGY: Alluvial flood plain, delta, and complex folded mountains. METEOROLOGY: Cumulus. OCEANOGRAPHY: Sediment flow patterns from rivers.
1701	42	10/14	Fall	66:00	12:29	52°	28°03'N	51°45'E	1:3,860,000		H-6 H-7	121	0	GEOGRAPHY/CARTOGRAPHY: Persian Gulf, Iran, coast of Kangan; Zagros Mountains. (Dark) AGRICULTURE: Possible cultivation patterns along avenues of drainage near Lake Daryachehi. GEOLOGY/HYDROLOGY: Folded sedimentary mountain region with an intermittent drainage system. FORESTRY: Grass and scattered desert shrub. OCEANOGRAPHY: Sediment flow patterns along coast.
1702	42	10/14	Fall	66:01	12:40	52°	27°09'N	54°02'E	1:3,590,000		H-7	121	1	GEOGRAPHY/CARTOGRAPHY: Persian Gulf, Iran, coast south of Lar, Zagros Mountains. (Dark) AGRICULTURE: Cultivation patterns visible near town of Rizak. GEOLOGY/HYDROLOGY: Folded sedimentary mountain region. FORESTRY: Grass and scattered desert shrub. METEOROLOGY: Cumulus. OCEANOGRAPHY: Some color change.
1703	42	10/14	Fall	66:01	12:48	51°	26°58'N	56°03'E	1:4,000,000		H-7	121	1	GEOGRAPHY/CARTOGRAPHY: Gulf of Oman, Iran, Qishm Island. (Dark) GEOLOGY/HYDROLOGY: Folded mountains, salt plugs, and a submerged delta region. FORESTRY: Grass and scattered desert shrubform. METEOROLOGY: Cumulus. OCEANOGRAPHY: Sediment deposits along coast, channels off island of Qishm very distinctive.

FRAME NUMBER	ORBIT	DATE	SEASON	GET	LOCAL SOLAR TIME	SUN ELEV	PRINICIPAL POINT		APPROXIMATE SCALES OF 70MM AT PP	MAP PLOTS		ALTITUDE N.M.	%CLOUDS	DESCRIPTION BY DISCIPLINE
							LATITUDE	LONGITUDE		WAC	ONC			
1704	42	1968 10/14	Fall	66:02	13:13	50°	25°26'N	62°01'E	1:5,000,000		H-7 H-8	121	0	GEOGRAPHY/CARTOGRAPHY: Arabian Sea, Iran, Pakistan, Makran Ranges. (Dark) GEOLOGY/HYDROLOGY: Alluvial coastal plain and complex sedimentary folded mountain ranges. FORESTRY: Scattered desert shrubform and grass. OCEANOGRAPHY: Fresh-salt water interface.
1705	42	10/14	Fall	66:05	13:44	47°	22°20'N	69°00'E	1:4,900,000		J-8	122	10	GEOGRAPHY/CARTOGRAPHY: India, Gulf of Kutch, Jamnagar. (Dark) GEOLOGY/HYDROLOGY: Low flood plain area of low hills and salt marshes. FORESTRY: Scattered to dense shrubform, mostly mangrove. METEOROLOGY: Cumulus. OCEANOGRAPHY: Possible sediment flows or subsurface topography visible.
1706	42	10/14	Fall	66:06	14:01	45°	21°00'N	73°00E*			J-8	122	35	GEOGRAPHY/CARTOGRAPHY: India, Gulf of Cambay. (Dark) METEOROLOGY: Cumulus, alto-cumulus.
1707	42	10/14	Hot-Wet	66:17	17:12	09°	08°40'N	118°10'E*				137	40	GEOGRAPHY/CARTOGRAPHY: Somewhere in Indonesia. (Dark) METEOROLOGY: Cumulus, cirrus.
1708	42	10/14	Hot-Wet	66:17	17:24	07°	09°30'N	121°00'E*				137	60	GEOGRAPHY/CARTOGRAPHY: Indonesia, east end of Sumba Island. (Dark) METEOROLOGY: Cumulus, cirrus.
1709	42	10/14												METEOROLOGY: Small cumulus. (Dark)
1710	42	10/14											60	METEOROLOGY: Cumulus. dense cirrus. (Dark)
1711	42	10/14											75	METEOROLOGY: Cumulus, strato-cumulus, some cirrus. (Dark)
1712	43	10/14	Fall	67:35	14:16	44°	16°54'N	54°41'E			J-7	124	20	GEOGRAPHY/CARTOGRAPHY: Muscat-Oman, Arabian Sea, Coast of Salalah. (Dark) GEOLOGY/HYDROLOGY: Coastal plain region with numerous wadis. METEOROLOGY: Cumulus, cumulo-nimbus.
1713	44	10/14	Fall	68:53	10:52	50°	29°10'N	16°25'W	1:6,000,000		H-1	124	35	GEOGRAPHY/CARTOGRAPHY: Canary Islands, African coast in background. (Dark) GEOLOGY/HYDROLOGY: Volcanic islands and coastal plain desert region. METEOROLOGY: Small cumulus.
1714	44	10/14	Fall	68:53	10:54	52°	28°30'N	13°30'W*			H-1	124	25	GEOGRAPHY/CARTOGRAPHY: Canary Islands, African coast in background. (Dark) GEOLOGY/HYDROLOGY: Low erg coastal plain. METEOROLOGY: Strato-cumulus.

FRAME NUMBER	ORBIT	DATE	SEASON	GET	LOCAL SOLAR TIME	SUN ELEV	PRINICIPAL POINT		APPROXIMATE SCALES OF 70MM AT PP	MAP PLOTS		ALTITUDE N.M.	%CLOUDS	DESCRIPTION BY DISCIPLINE
							LATITUDE	LONGITUDE		WAC	ONC			
1715	44	1968 10/14	Fall	68:53	10:56	52°	27°00'N	15°00'W			H-1	124	13	GEOGRAPHY/CARTOGRAPHY: Canary Islands, African coast in background. (Dark) GEOLOGY/HYDROLOGY: Low erg coastal plain. METEOROLOGY: Strato cumulus.
1716	44	"	Fall	68:54	11:03	52°	27°26'N	14°05'W			H-1	124	8	GEOGRAPHY/CARTOGRAPHY: Canary Islands, Fuerteventura Island Coast of Spanish Sahara in background. (Dark) GEOLOGY/HYDROLOGY: Island of complex hills and mountains, erg coastal plain with numerous wadis and dry lakes. FORESTRY: Dense tropical forests. METEOROLOGY: Cumulus. OCEANOGRAPHY: Surface patterns visible near islands.
1717	44	"	Cool-Dry	69:07	10:01	43°	13°48'N	33°22'E	1:3,200,000		K-5	124	30	GEOGRAPHY/CARTOGRAPHY: Africa, Sudan, Blue and White Nile, South of Khartoum AGRICULTURE: Extensive cultivation, field patterns and irrigation system easily discernable. GEOLOGY/HYDROLOGY: Interior elevated alluvial floodplain. FORESTRY: Tall savanna intermixed with groups of subtropical hardwoods. METEOROLOGY: Cumulus, cumulo-nimbus.
1718	44	"	Cool-Dry	69:07	09:58	43°	13°44'N	35°56'E	1:2,900,000		K-5	124	22	GEOGRAPHY/CARTOGRAPHY: Africa, Sudan, Blue and White Nile, South of Khartoum. (Dark) AGRICULTURE: Extensive cultivation, field patterns and irrigation system easily discernable. GEOLOGY/HYDROLOGY: Interior elevated alluvial floodplain. FORESTRY: Tall savanna, intermixed with groups of subtropical hardwoods. METEOROLOGY: Cumulus.
1719	44	"	Cool-Dry	69:08	09:42	42°	11°45'N	37°28'E	1:3,760,000		K-5	125	40	GEOGRAPHY/CARTOGRAPHY: Africa, Ethiopia, Lake Tana. (Dark) GEOLOGY/HYDROLOGY: Drainage basin in a mountainous region. METEOROLOGY: Cumulus, part of cumulo-nimbus.
1720	45	"	Fall	71:45	08:24	28°	29°01'N	95°29'W	1:4,130,000		H-24	125	37	GEOGRAPHY/CARTOGRAPHY: Texas Gulf Coast, Galveston to Corpus Christi. (Normal) AGRICULTURE: Extensive cultivation, irrigated, grasing. GEOLOGY/HYDROLOGY: Coastal plain region with a shoreline of emergence. FORESTRY: Mixed hardwood-conifer forests changing to grass and shrubform along coast. METEOROLOGY: Cumulus, strato-cumulus. OCEANOGRAPHY: Excellent sediment flows into Gulf from Texas rivers, indicating offshore currents.

FRAME NUMBER	ORBIT	DATE	SEASON	GET	LOCAL SOLAR TIME	SUN ELEV.	PRINICIPAL POINT		APPROXIMATE SCALES OF 70MM AT PP	MAP PLOTS		ALTITUDE N.M.	%CLOUDS	DESCRIPTION BY DISCIPLINE
							LATITUDE	LONGITUDE		WAC	ONC			
1721	45	1968 10/14	Fall	71:45	08:26	28°	28°50'N	96°08'W			H-24	125	30	GEOGRAPHY/CARTOGRAPHY: Texas Gulf Coast, Beaumont to Corpus Christi. (Normal) AGRICULTURE: Extensive cultivation, irrigated, grazing. GEOLOGY/HYDROLOGY: Coastal plain region with a shoreline of emergence. FORESTRY: Mixed hardwood-conifer forests changing to grass. METEOROLOGY: Cumulus, strato-cumulus. OCEANOGRAPHY: Excellent sediment flows into Gulf from rivers, Galveston Bay.
1722	45	"	Fall	71:47	09:02	34°	30°58'N	87°11'W			H-24	124	1	GEOGRAPHY/CARTOGRAPHY: Mobile, Alabama. Pensacola, Florida. (Normal) AGRICULTURE: Field patterns near Pensacola. GEOLOGY/HYDROLOGY: Gulf coastal plain of sedimentary bed. FORESTRY: Mixed conifer-hardwood forests. METEOROLOGY: Small scattered cumulus.
1723	45	"	Fall	71:48	09:25	38°	31°32'N	81°31'W	1:3,800,000		H-23	124	30	GEOGRAPHY/CARTOGRAPHY: Georgia coast. Savannah. (Normal) AGRICULTURE: Extensive cultivation, scattered definable field patterns. GEOLOGY/HYDROLOGY: Atlantic Coastal Plain with a shoreline of emergence and perennial drainage inland. FORESTRY: Mixed conifer-hardwood, dense hardwood growth in bottom lands. OCEANOGRAPHY: Fresh-salt water interfaces with an abundance of sediment flows.
1724	45	"	Fall	71:48	09:27	38°	32°28'N	81°19'W	1:3,660,000		G-21 H-23	123	10	GEOGRAPHY/CARTOGRAPHY: Georgia coast. Savannah. (Normal) AGRICULTURE: Extensive cultivation, but scattered definable field patterns. GEOLOGY/HYDROLOGY: Atlantic Coastal Plain and shoreline of emergence. FORESTRY: Mixed conifer-hardwood, dense hardwood growth in bottomlands. METEOROLOGY: Cumulus, alto-cumulus. OCEANOGRAPHY: Fresh-salt water interfaces with an abundance of sediment flows.
1725	45	"	Fall	71:49	09:30	38°	32°37'N	80°39'W	1:4,200,000		G-21 H-23	123	15	GEOGRAPHY/CARTOGRAPHY: Georgia and South Carolina coasts. Savannah, Charleston. (Normal) AGRICULTURE: Extensive cultivation, scattered definable field patterns. GEOLOGY/HYDROLOGY: Atlantic coastal plain and shoreline of emergence. FORESTRY: Mixed conifer-hardwoods, dense hardwood growth in bottomlands.

FRAME NUMBER	ORBIT	DATE	SEASON	GET	LOCAL SOLAR TIME	SUN ELEV.	PRINICIPAL POINT		APPROXIMATE SCALES OF 70MM AT PP	MAP PLOTS		ALTITUDE N.M.	%CLOUDS	DESCRIPTION BY DISCIPLINE
							LATITUDE	LONGITUDE		WAC	ONC			
		1968												METEOROLOGY: Cumulus, alto-cumulus. OCEANOGRAPHY: Fresh-salt water interfaces showing sediment flow.
1726	45	10/14	Fall	71:49	0930	38°	32°22'N	80°40'W	1:4,600,000		G-21 H-23	123	15	GEOGRAPHY/CARTOGRAPHY: South Carolina-Georgia coast. Savannah, Charleston. (Normal) GEOLOGY/HYDROLOGY: Atlantic Coastal Plain and shoreline of emergence. METEOROLOGY: Cumulus, alto-cumulus. OCEANOGRAPHY: Fresh-salt water interface, showing sediment
1727	45	"											75	METEOROLOGY: Cumulus, alto-cumulus. (Normal)
1728	45	"											75	METEOROLOGY: Cumulus, alto-cumulus. (Normal)
1729	45	"											80	METEOROLOGY: Cumulus, alto-cumulus. (Dark)
1730	45	"											80	METEOROLOGY: Cumulus, alto-cumulus. (Dark)
1731	47	"	Fall	73:16	09:17	38°	28°41'N	112°51'W	1:4,800,000		H-22	126	20	GEOGRAPHY/CARTOGRAPHY: West coast of Mexico, Gulf of Baja California, Pacific Ocean. (Dark) AGRICULTURE: Extensive area of cultivation along west coast of Mexico. GEOLOGY/HYDROLOGY: Basement complex mountains and elevated alluvial plains. METEOROLOGY: Cirrus, cumulus. OCEANOGRAPHY: Some tonal changes.
1732	47	"	Fall	74:53	11:07	52°	28°05'N	102°20'W	1:5,100,000		H-23	124	30	GEOGRAPHY/CARTOGRAPHY: Mexico, Torreon, Sierra Madre Mountains. (Dark) AGRICULTURE: Cultivation sparse, field patterns discernable near town of Torreon. GEOLOGY/HYDROLOGY: Folded and complex mountain region with intermittent drainage. FORESTRY: Desert shrubform changing to dwarf evergreen at higher elevations. METEOROLOGY: Cumulus.
1733	48	"	Fall	74:58	12:39	54°	25°10'N	80°33'W			H-25	121	60	GEOGRAPHY/CARTOGRAPHY: United States, Miami, Florida Keys, Florida Straits. (Dark) AGRICULTURE: Field patterns near Miami. GEOLOGY/HYDROLOGY: Atlantic Coastal Plain. METEOROLOGY: Cumulus, cirrus. OCEANOGRAPHY: Great Bahama Bank in background.
1734	48	"		74:58	12:48	53°	28°00'N	78°20'W*			H-25	121	50	GEOGRAPHY/CARTOGRAPHY: Bahamas, Andros Island, Williams Island. (Normal) METEOROLOGY: Cumulus, alto-cumulus, cirrus. OCEANOGRAPHY: Great Bahama Bank.

FRAME NUMBER	ORBIT	DATE	SEASON	GET	LOCAL SOLAR TIME	SUN ELEV	PRINICIPAL POINT		APPROXIMATE SCALES OF 70MM AT PP	MAP PLOTS		ALTITUDE N.M.	%CLOUDS	DESCRIPTION BY DISCIPLINE
							LATITUDE	LONGITUDE		WAC	ONC			
1735	48	1968 10/14	Fall	75:00	13:19	52°	18°10'N	70°57'W	1:5,200,000		J-27	122	85	GEOGRAPHY/CARTOGRAPHY: Dominican Republic, Santa Domingo. (Dark) METEOROLOGY: Towering cumulus, cirrus. OCEANOGRAPHY: Some tonal change.
1736	48	10/14	Fall	75:01	13:26	52°	18°40'N	69°36'W	1:3,850,000		J-27	122	75	GEOGRAPHY/CARTOGRAPHY: Dominican Republic. (Dark) AGRICULTURE: Field patterns visible along southern coast. GEOLOGY/HYDROLOGY: Coastal plain region showing perennial drainage. METEOROLOGY: Towering cumulus, cirrus. OCEANOGRAPHY: Sun-glint near Santo Domingo.
1737	48	10/14	Fall	75:01	13:29	52°	18°00'N	68°45'W*				123	75	GEOGRAPHY/CARTOGRAPHY: Dominican Republic, La Romana, Saona Island. (Dark) AGRICULTURE: Some field patterns visible. GEOLOGY/HYDROGOLOGY: Coastal plain region. METEOROLOGY: Cumulus, cirrus. OCEANOGRAPHY: Sun-glint.
1738	51	10/14	Fall	80:56		53°						121	35	GEOGRAPHY/CARTOGRAPHY: Gardiner's Pinnacles.(Normal) METEOROLOGY: Cumulus, alto-cumulus, cirrus. OCEANOGRAPHY: Shoal area.
1739	51	10/14		80:57		53°						121	40	GEOGRAPHY/CARTOGRAPHY: Pacific Ocean. (Normal) METEOROLOGY: Cumulus, alto-cumulus, cirrus.
1740	51	10/15	Fall	80:58	10:41	50°	23°00'N	160°30W*		599		122	33	GEOGRAPHY/CARTOGRAPHY: Island of Niihau in Hawaiian, Chain, the Northeastern most island. (Normal) GEOLOGY/HYDROLOGY: Volcanic mountains. METEOROLOGY: Cumulus, cirrus. OCEANOGRAPHY: Island beaches.
1741	51	10/15	Fall	80:59	10:32	50°	23°00'N	158°30W*		599		122	25	GEOGRAPHY/CARTOGRAPHY: Island of Oahu, Hawaii, City of Honolulu. (Normal) GEOLOGY/HYDROLOGY: Volcanic mountains. FORESTRY: Dense tropical rainforests in highlands. METEOROLOGY: Cumulus, cirrus. OCEANOGRAPHY: Island coastlines and beaches.
1742	51	10/15	Fall	80:59	10:26	50°	23°00'N	157°00'W*		599		122	30	GEOGRAPHY/CARTOGRAPHY: Island of Oahu, Molokai, Lanai, Maui, Kahoolawe. (Normal)

FRAME NUMBER	ORBIT	DATE	SEASON	GET	LOCAL SOLAR TIME	SUN ELEV.	PRINICIPAL POINT		APPROXIMATE SCALES OF 70MM AT PP	MAP PLOTS		ALTITUDE N.M.	%CLOUDS	DESCRIPTION BY DISCIPLINE
							LATITUDE	LONGITUDE		WAC	ONC			
1742 (cont'd)		1968												GEOLOGY/HYDROLOGY: Volcanic mountains. METEOROLOGY: Cumulus, cirrus. OCEANOGRAPHY: Coastlines
1743	51	10/15	Fall	80:59	10:26	50°	22°00'N	157°00'W*		599		122	31	GEOGRAPHY/CARTOGRAPHY: Islands, Oahu, Molokai, Lanai, Maui, KahooLawe. (Normal) GEOLOGY/HYDROLOGY: Volcanic mountains. METEOROLOGY: Cumulus, thick cirrus. OCEANOGRAPHY: Coastline.
1744	51	10/15	Fall	80:59	10:24	49°	22°00'N	156°30'W*		599 634		122	35	GEOGRAPHY/CARTOGRAPHY: Hawaiian Islands, MoloKai, Lanai, Maui, Kahoolawe, and Hawaii. (Normal) GEOLOGY/HYDROLOGY: Volcanics. METEOROLOGY: Cumulus, alto-cumulus, cirrus. OCEANOGRAPHY: Island coastlines.
1745	51	10/15	Fall	81:00	10:21	49°	21°30'N	156°00'W*				123	43	GEOGRAPHY/CARTOGRAPHY: Islands, Hawaii and Maui. (Normal) GEOLOGY/HYDROLOGY: Volcanics, dendritic drainage. METEOROLOGY: Cumulus, alto-cumulus, cirrus. OCEANOGRAPHY: Island coastlines.
1746	51	10/15	Fall	81:00	10:21	50°	32°02'N	155°40'W		634		123	50	GEOGRAPHY/CARTOGRAPHY: Island of Hawaii. (Normal) GEOLOGY/HYDROLOGY: Volcanics, dendritic drainage. METEOROLOGY: Cumulus, alto-cumulus, cirrus. OCEANOGRAPHY: Island coastline.
1747	51	10/15	Fall	81:00	10:18	49°	21°30'N	155°20'W*		634		123	70	GEOGRAPHY/CARTOGRAPHY: Island of Hawaii. (Normal) GEOLOGY/HYDROLOGY: Volcanics, dendritic drainage. METEOROLOGY: Cumulus, alto-cumulus, cirrus. OCEANOGRAPHY: Island coastline.
1748	52	10/15	Fall	82:08	06:57	10°	32°02'N	85°00'E			H-9	132	0	GEOGRAPHY/CARTOGRAPHY: India, Nepal, South China, Himalayas, Mt. Everest, Ganges R., Ghaghra R., Lakes Tangra, Tsho and Terinam Tsho. (Normal) GEOLOGY/HYDROLOGY: Complex mountain system, with perennial and intermittent streams. FORESTRY: Dense evergreen forests on southern slopes.
1749	53	10/15	Fall	83:09	08:06	25°	27°00'N	81°00'E*			H-9	129	18	GEOGRAPHY/CARTOGRAPHY: India, Nepal, Himalayan

FRAME NUMBER	ORBIT	DATE	SEASON	GET	LOCAL SOLAR TIME	SUN ELEV.	PRINICIPAL POINT		APPROXIMATE SCALES OF 70MM AT PP	MAP PLOTS		ALTITUDE N.M.	%CLOUDS	DESCRIPTION BY DISCIPLINE
							LATITUDE	LONGITUDE		WAC	ONC			
		1968												Foothills, Ganges Plain, Ghaghara River, Towns of Lucknow and Shanjahanpur. (Light) GEOLOGY/HYDROLOGY: Interior elevated plains with meandering perennial drainage and flood plain. METEOROLOGY: Strato-cumulus, cirrus. FORESTRY: Scattered to semi dense stands of mixed species.
1750	53	10/15	Fall	83:50	11:01	25°	31°00'N	122°00'E*			H-12	123	50	GEOGRAPHY/CARTOGRAPHY: China, Yantze River, Lake Tai Hu, Shanghai, East China Sea. (Light) GEOLOGY/HYDROLOGY: Delta and sedimentation outflow from the meandering Yangtze. METEOROLOGY: Cumulus, thick cirrus.
1751	53	10/15	Fall	83:50	11:06	48°	31°00'N	122°00'E*				123	20	GEOGRAPHY/CARTOGRAPHY: Shanghai, Yangtze River, East China Sea. (Light) METEOROLOGY: Cumulus, thick cirrus. OCEANOGRAPHY: Sediments polluting offshore water showing direction and dispersion of littoral drift. Nearshore current setting southwesterly.
1752	53	10/15	Fall	83:50	11:05	48°	31°00'N	123°00'E*				123	30	GEOGRAPHY/CARTOGRAPHY: China, Shanghai, Minttane, Chung Ming Tao Island, at Yangtze River Mouth. (Light) GEOLOGY/HYDROLOGY: Coastal Flood Plain. METEOROLOGY: Cumulus, strato-cumulus, cirrus. OCEANOGRAPHY: Sediments polluting offshore water with nearshore current setting southwesterly.
1753	53	10/15	Fall	83:50	11:01	48°	30°51'N	121°57'E			H-12	123	36	GEOGRAPHY/CARTOGRAPHY: China, Mouth of the Yangtze River, East China Sea. (Light) GEOLOGY/HYDROLOGY: Coastal Flood Plain. METEOROLOGY: Cumulus, strato-cumulus, cirrus. OCEANOGRAPHY: Sediments polluting offshore water showing definite direction and dispersion patterns to the southwest by nearshore currents.
1754	53	10/15	Fall	83:50	11:02	48°	30°40'N	122°20'E*			H-12	123	46	GEOGRAPHY/CARTOGRAPHY: China, Mouth of Yangtze River, East China Sea. (Light) GEOLOGY/HYDROLOGY: Coastal Flood Plain. METEOROLOGY: Cumulus, thick cirrus. OCEANOGRAPHY: Sediments outflowing from Yangtze River in a southwesterly direction.

FRAME NUMBER	ORBIT	DATE	SEASON	GET	LOCAL SOLAR TIME	SUN ELEV	PRINICIPAL POINT		APPROXIMATE SCALES OF 70MM AT PP	MAP PLOTS		ALTITUDE N.M.	%CLOUDS	DESCRIPTION BY DISCIPLINE
							LATITUDE	LONGITUDE		WAC	ONC			
		1968												
1755	53	10/15	Fall	83:50	10:59	48°	30°57'N	121°43E			H-12	123	34	GEOGRAPHY/CARTOGRAPHY: China, Mouth of Yangtze River, East China Sea, Shanghai, Hang Chow Bay. (Light) GEOLOGY/HYDROLOGY: Coastal Flood Plain METEOROLOGY: Cumulus, thick cirrus. OCEANOGRAPHY: Definite gradation of sedimentary outflow from the Yangtze River Mouth.
1756	53	10/15	Fall	83:50	11:01	48°	31°20'N	122°00'E*			H-12	123	28	GEOGRAPHY/CARTOGRAPHY: China, Mouth of Yangtze River, East China Sea. (Light) GEOLOGY/HYDROLOGY: Coastal Flood Plain. METEOROLOGY: Cumulus, thick cirrus. OCEANOGRAPHY: Definite gradation of sedimentary outflow from the Yangtze River Mouth, nearshore current setting in a southwesterly direction.
1757	53	10/15	Fall	83:52	11:43	51°	30°00'E	132°00'E*			H-13	121	52	GEOGRAPHY/CARTOGRAPHY: Southern Japan, Kagoshima Bay and Islands of Yakushima and Tanegaishima, Pacific Ocean and East China Sea. (Light) GEOLOGY/HYDROLOGY: Volcanics. METEOROLOGY: Cumulus, thick cirrus.
1758	54	10/15	Fall	85:18	10:16	43°	31°40'N	88°48'E			H-9	123	19	GEOGRAPHY/CARTOGRAPHY: China, Plateau of Tibet, Lake Seling Tsho and Nagtsong Tsho Lake. (Normal) GEOLOGY/HYDROLOGY: Sedimentary plateau with perennial lakes and snow covered hills. METEOROLOGY: Towering cumulus.
1759	54	10/15	Fall										80	GEOGRAPHY/CARTOGRAPHY: Himalayas. (Normal) METEOROLOGY: Towering cumulus, alto-cumulus, cirrus.
1760	54	10/15	Hot-Wet	85:33	14:56	40°	07°30'N	155°00'E*				127	12	GEOGRAPHY/CARTOGRAPHY: Oroluk Lagoon and Caroline Islands in the Pacific Ocean. (Dark) METEOROLOGY: Small cumulus, towering cumulus. OCEANOGRAPHY: Coral atoll with color differentation.
1761		10/15											100	METEOROLOGY: Cumulus, alto-cumulus, cirrus. (Dark)
1762		10/15											100	METEOROLOGY: Towering cumulus, cirrus. (Dark)

FRAME NUMBER	ORBIT	DATE	SEASON	GET	LOCAL SOLAR TIME	SUN ELEV.	PRINICIPAL POINT		APPROXIMATE SCALES OF 70MM AT PP	MAP PLOTS		ALTITUDE N.M.	%CLOUDS	DESCRIPTION BY DISCIPLINE
							LATITUDE	LONGITUDE		WAC	ONC			
		1968												
1763		10/15											75	METEOROLOGY: Towering cumulus, cirrus. (Dark)
1764	56	10/15	Fall	88:09	08:00	22°	31°30'N	12°00'E*				130	33	GEOGRAPHY/CARTOGRAPHY: Tunisia Gulfo de Gabis. (Dark) GEOLOGY/HYDROLOGY: Erg plains and coastal plain adjacent to the Gulf. METEOROLOGY: Cumulus.
1765	56	10/15	Fall	88:11	08:46	29°	35°00'N	23°00'E*				127	20	GEOGRAPHY/CARTOGRAPHY: Cyprus, Turkey, Mediterranean Sea. (Dark) METEOROLOGY: Cumulus, cirrus.
1766	56	10/15	Spring	88:41	16:36	18°	05°30'S	133°00'E*				135	63	GEOGRAPHY/CARTOGRAPHY: Kepuluan Kai, Banda Sea, North of Australia. (Dark) METEOROLOGY: Cumulus, cirrus.
1767	56	10/15	Spring	88:41	16:36	18°	12°00'S	133°00'E*				136	26	GEOGRAPHY/CARTOGRAPHY: Australia, Northern Territory, Van Diemen Gulf. (Dark) METEOROLOGY: Cumulus, strato-cumulus, cirrus.
1768	56	10/15	Spring	88:42	16:54	16°	12°30'S	135°15'E*				136	13	GEOGRAPHY/CARTOGRAPHY: Australia, Northern Territory, Queensland, Gulf of Carpentaria. (Dark) METEOROLOGY: Cumulus, strato-cumulus, cirrus.
1769	56	10/15	Hot-Wet	88:42	16:45	16°	12°35'S	135°17'E			N-14	136	23	GEOGRAPHY/CARTOGRAPHY: Australia, Northern Territory, Wessel Islands, Howard Island, Buckingham Bay, Arnhem Bay. (Light) METEOROLOGY: Cumulus, cirrus. FORESTRY: Several smoke plumes from fires. OCEANOGRAPHY: Sun-glint area off the coast.
1770	56	10/15	Hot-Wet	88:42	16:49	16°	14°20'S	135°45'E			N-14	137	37	GEOGRAPHY/CARTOGRAPHY: Australia, Queensland, Western Gulf of Carpentaria, Limmex Bight. (Light) METEOROLOGY: Cumulus, cirrus. FORESTRY: Smoke plumes.
1771	56	10/15	Spring	88:43	17:10	11°	16°54'S	140°11'E			P-14	137	53	GEOGRAPHY/CARTOGRAPHY: Australia, Queensland, Gulf of Carpentaria, Wellesly Islands. (Light) METEOROLOGY: Cumulus, strato-cumulus.

FRAME NUMBER	ORBIT	DATE	SEASON	GET	LOCAL SOLAR TIME	SUN ELEV.	PRINICIPAL POINT		APPROXIMATE SCALES OF 70MM AT PP	MAP PLOTS		ALTITUDE N.M.	%CLOUDS	DESCRIPTION BY DISCIPLINE
							LATITUDE	LONGITUDE		WAC	ONC			
		1968												
1772	58	10/15	Fall	91:19	13:02	56°	19°30'N	40°00'E*			J-6	88	2	GEOGRAPHY/CARTOGRAPHY: Saudi Arabia, Red Sea, Hamdanah, Abo Latt Coral Reefs. (Normal) GEOLOGY/HYDROLOGY: Coastal plain and coral reef build-up offshore. OCEANOGRAPHY: Coral reefs, atolls, clear water, wave front/current pattern in sun-glint area. METEOROLOGY: Small cumulus.
1773	58	10/15	Fall	91:19	13:03	56°	19°43'N	40°12'E			J-6	88	2	GEOGRAPHY/CARTOGRAPHY: Saudi Arabia, Red Sea, Hamdanah, Ad Dugah, Abo Latt Coral Reefs. (Normal) AGRICULTURE: Small field patterns. GEOLOGY/HYDROLOGY: Coastal plain and coral reef build-up offshore. OCEANOGRAPHY: Coral reefs and a possible wave front in the sun glint area. METEOROLOGY: Small cumulus.
1774	58	10/15	Fall	91:19	13:06	56°	18°50'N	40°38'E			J-6	88	2	GEOGRAPHY/CARTOGRAPHY: Arabian coast, Red Sea, Al Qunfundah. (Normal) AGRICULTURE: Extensive dry land cultivation in delta area. GEOLOGY/HYDROLOGY: Dome structure, dendritic intermittent streams (braided) on the sedimentary hill region. OCEANOGRAPHY: Coral reefs partly obscured by sun-glint, no breakers over reefs. METEOROLOGY: Small cumulus.
1775	58	10/15	Fall	91:19	13:15	54°	19°20'N	43°20'E*				89	0	GEOGRAPHY/CARTOGRAPHY: Saudi Arabia, Asia Mts. (Normal) GEOLOGY/HYDROLOGY: Complex, folded mountains with intermittent dendritic streams.
1776	58	10/15	Fall	91:21	13:24	57°	14°00'N	45°00'E*			K-6	89	50	GEOGRAPHY/CARTOGRAPHY: Saudi Arabia, Yemen, South Arabia, Southwest corner, Red Sea. (Light) GEOLOGY/HYDROLOGY: Coastal plain and intermittent streams. METEOROLOGY: Cumulus, stratus.
1777	58	10/15	Fall	91:22	13:41	52°	14°20'N	49°02'E			K-6	90	37	GEOGRAPHY/CARTOGRAPHY: Saudi Arabia, Aden, Gulf of Aden, Al Mukalla Sharma Bay. (Normal)

FRAME NUMBER	ORBIT	DATE	SEASON	GET	LOCAL SOLAR TIME	SUN ELEV.	PRINICIPAL POINT		APPROXIMATE SCALES OF 70MM AT PP	MAP PLOTS		ALTITUDE N.M.	%CLOUDS	DESCRIPTION BY DISCIPLINE
							LATITUDE	LONGITUDE		WAC	ONC			
		1968												GEOLOGY/HYDROLOGY: Complex and sedimentary hills and mountains, volcanic plain with intermittent drainage. FORESTRY: Low shrub forms. METEOROLOGY: Towering cumulus, part of cumulus-nimbus. OCEANOGRAPHY: Sun-glint in the nearshore area.
1778	58	10/15	Fall	91:22	13:43	52°	14°35'N	49°47'E			K-6	90	39	GEOGRAPHY/CARTOGRAPHY: Saudi Arabia, Gulf of Aden, Aden. (Normal) GEOLOGY/HYDROLOGY: Complex, sedimentary hills and mountains, consequent intermittent wadis throughout the area. FORESTRY: Low shrub form. METEOROLOGY: Towering cumulus, small cumulus. OCEANOGRAPHY: Sun-glint in nearshore area.
1779	58	10/15	Fall	91:23	14:00	50°	12°20'N	53°30'E			K-6	91	36	GEOGRAPHY/CARTOGRAPHY: Island of Secotra, located off coast of Somali, Africa, Gulf of Aden and Indian Ocean. (Normal) GEOLOGY/HYDROLOGY: Complex hills and mountains, coastal plain and alkali deposits. METEOROLOGY: Towering cumulus, cumulus, cirrus. OCEANOGRAPHY: Evident current patterns (possibly a manifestation of the strong somali current) and wave fronts with a line of surf offshore probably denoting a reef or bar.
1780	60	10/15	Hot-Wet	94:30	14:09	25°	07°48'S	39°10'E			M-5	108	65	GEOGRAPHY/CARTOGRAPHY: Mafia Island off coast of East Africa, Tanzania, Mafia Channel. (Light) GEOLOGY/HYDROLOGY: Meandering perennial streams on the coastal plain METEOROLOGY: Cumulus, alto-cumulus. OCEANOGRAPHY: Partial sun-glint area.
1781	60	10/15	Hot-Wet	94:30	14:11	25°	08°05'S	39°23'E	1:4,333,330		N-5	108	80	GEOGRAPHY/CARTOGRAPHY: South of Mafia Island, East Coast of Africa, Tanzania. (Light) GEOLOGY/HYDROLOGY: Coastal plain. METEOROLOGY: Cumulus, alto-cumulus. FORESTRY: Intermittent forest lands. OCEANOGRAPHY: Depth differences outlining the boundary between continental shelf and continental slope.

FRAME NUMBER	ORBIT	DATE	SEASON	GET	LOCAL SOLAR TIME	SUN ELEV	PRINICIPAL POINT		APPROXIMATE SCALES OF 70MM AT PP	MAP PLOTS		ALTITUDE N.M.	%CLOUDS	DESCRIPTION BY DISCIPLINE
							LATITUDE	LONGITUDE		WAC	ONC			
		1968												
1782		10/15											38	GEOGRAPHY/CARTOGRAPHY: An Island. METEOROLOGY: Cumulus, strato-cumulus.
1783	61	10/15	Hot-Wet	95:52	14:18	43°	05°20'N	03°53'W	1:3,333,330		L-2	95	88	GEOGRAPHY/CARTOGRAPHY: West Africa - Ivory Coast, Ghana, cities of Abidjan and Treichville. (Light) GEOLOGY/HYDROLOGY: Coastal plain, dendritic drainage. METEOROLOGY: Cumulus, alto-cumulus. FORESTRY: Densely forested.
1784	61	10/15	Hot-Wet	95:52	14:11	42°	05°12'N	01°49'W	1:4,000,000		L-2	95	76	GEOGRAPHY/CARTOGRAPHY: Ghana, Africa, city of Sekondi. (Light) GEOLOGY/HYDROLOGY: Coastal plain. METEOROLOGY: Comulus, thick cirrus. FORESTRY: Densely forested.
1785	61	10/15	Cool-Dry	95:55	15:30	33°	00°00'	08°00'E*				102	64	GEOGRAPHY/CARTOGRAPHY: Galoon, Port Gentil. (Light. GEOLOGY/HYDROLOGY: Coastal plain. METEOROLOGY: Cumulus, thick cirrus.
1786	61	10/15		95:56	15:49	30°	04°30'S	12°30'E*				103		Overexposed
1787	61	10/15	Fall	97:04	09:46		29°51'N	95°12'W	1:3,860,000		H-24	95	53	GEOGRAPHY/CARTOGRAPHY: Texas, Houston Area. (Dark) GEOLOGY/HYDROLOGY: Coastal plain. METEOROLOGY: Cumulus.
1788	61	10/15	Fall	97:04	09:46	40°	29°52'N	95°03W	1:3,650,000		H-24	95	43	GEOGRAPHY/CARTOGRAPHY: Houston Area, Texas. (Dark) GEOLOGY/HYDROLOGY: Coastal plain. METEOROLOGY: Cumulus.
1789	61	10/15	Fall	97:05	10:07	43°	29°57'N	90°14W	1:3,410,000		H-24	94	22	GEOGRAPHY/CARTOGRAPHY: Louisiana, New Orleans Area, Lake Pontchartrain, regional transportation network. (Dark) GEOLOGY/HYDROLOGY: Low alluvial plain FORESTRY: Marsh vegetation - intermittent.