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CR-131221

Smithsonian Astrophysical Observatory

Contract NAS5-21748

Type I Progress Report January 1 - February 28, 1973

Discipline and Sub-Discipline 3. Mineral Resources, Geological Structure and Landform Surveys
J. Lithologic Surveys
K. Structural Surveys

a) TITLE: Mapping of the Major Structures of the African Rift System,Proposal Number 320

b) PRINCIPAL INVESTIGATOR: Dr. Paul Mohr OT-306

c) A STATEMENT AND EXPLANATION OF ANY PROBLEMS: None. Dr. Mohr is regularly receiving imagery of the area he is investigating.

d) DISCUSSION OF ACCOMPLISHMENTS DURING PERIOD:
1. Continued mapping of major lineaments on incoming ERTS-1 imagery, with special reference to the regions of the Ethiopian rift and the Ethiopian plateau.

2. Preparation for ground survey in Ethiopia of some features revealed by ERTS-1.

3. Assisted three Dartmouth graduate students to obtain a research grant to map a possible astrobleme revealed by ERTS-1 imagery of northern Ethiopia.

During the next reporting period, Dr. Mohr will undertake a field investigation of the region he is mapping.

e) SEPARATE DISCUSSION OF SIGNIFICANT RESULTS:
The Tara graben, northern Ethiopian plateau.
Lake Tara lies within a previously recognized asymmetric graben situated on the Ethiopian plateau and about 250km west of the plateau-Afar margin. ERTS-1 imagery confirms

(E73-10431) MAPPING OF THE MAJOR STRUCTURES OF THE AFRICAN RIFT SYSTEM Progress Report, 1 Jan. - 28 Feb. 1973 (Smithsonian Astrophysical Observatory) 3 p HC $3.00 CSCL 08B G3/13 N73-20392 Unclas 00431

the stronger deformation of the western side of the Tara graben, with intense faulting and some associated monoclinal mapping extending between latitudes 12° and 14°N, and lying close to meridian 37°E. The zone of deformation is gentley arcuate in plan, trending NNE in the south and NNW in the north. In the north, the Quaternary faulting dies out in the alluvial plains of the Takazze valley; in the south the faulting appears to die out in coincidence with a large erosional escapement trending S30°W from Lake Tara (western shoreline) to precisely latitude 11°N. This escapement aligns with the massive NE-SW escapement of western Simien, northeast of Lake Tara, and may represent erosional recession from major faulting and tilting much older than that of the superimposed, obliquely trending Tara graben. A 30km diameter circular feature has been identified from the ERTS-1 imagery of the Tara graben, centered on 13°05'N, 37°20'E. ERTS imagery further shows that the Tara graben and its associated young volcanics have no direct connection with the Red Sea or Ethiopian rift valley.

f) PUBLICATIONS:

1. ERTS-1 IMAGERY OF EASTERN AFRICA: A FIRST LOOK AT THE GEOLOGICAL STRUCTURE OF SELECTED AREAS, P. A. Mohr, SAO Special Report No. 347, December 20, 1972.

2. In press: (Buth. Geophys. Obv. Addis Ababa, no. 15) "Structural elements of the Afar margins - data from ERTS-1 imagery."

g) RECOMMENDATIONS: None

h) Attached is a new standing order form reflecting the current needs for data acquisition.

i) ERTS IMAGE DESCRIPTOR FORMS - ANY SUBMITTED: None

j) LISTING BY DATE OF DATA REQUEST FORMS, FOR RETROSPECTIVE DATA: None

k) The funds remaining are adequate for the period of the contract.

ERTS 1 STANDING ORDER FORM

NDPF USE ONLY
D
N
ID
AA
REP
TM
TM APP

DATE 3/9/73

USER ID NUMBER OT 306

PRINCIPAL INVESTIGATOR Paul A. Mohr

TELEPHONE NO. (617) 86407910 ☐NEW

SHIP TO Dr. Paul A. Mohr (NAME)
Smithsonian Astro. Observatory (AGENCY)
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☐NEW
☒CHANGE
☐DELETION
☐NEW ADDRESS

CATALOGS DESIRED
STANDARD ☐ U.S. ☒ NON-U.S.
DCS ☐
MICROFILM ☐ U.S. ☒ NON-U.S.

AREA NUMBER	GEOGRAPHIC POINTS LATITUDE	GEOGRAPHIC POINTS LONGITUDE	CLOUD COVER %	QUALITY	COVERAGE PERIOD START DATE	COVERAGE PERIOD STOP DATE	PROD TYPE	PROD FORMAT	TICK MARK	QUANTITY	RBV BANDS 1	RBV BANDS 2	RBV BANDS 3	MSS BANDS 1	MSS BANDS 2	MSS BANDS 3	MSS BANDS 4	DELETE
	19°N	38°E	3	G	9/1	8/31		P		2					X	X		
	13°N	55°E						P		1							X	
	18°S	37°E																
	15°S	27°E																
	2°N	27°E																

FOUR CORNER POINTS OF AREA OVER NORTH AMERICA

UP TO 30% CLOUD COVER

COVERAGE FROM 6/15/72 TO 10/31/72

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BULK IMAGES HAVE GEOGRAPHIC TICK MARKS

TRANSPARENCY – 9.5 IN.

BULK IMAGE

Figure 4-2. Standing Order Form