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CR 143223

A Landsat-2 Experiment

DETECTION OF CROP MARK CONTRAST FOR ARCHAEOLOGICAL SURVEYS

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Second Quarter Progress Report

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Contract No. NAS5-20792

ERTS Investigation No. 23220

(E75-10364) DETECTION OF CROP MARK CONTRAST FOR ARCHAEOLOGICAL SURVEYS Quarterly Progress Report (Pennsylvania Univ.) 4 p HC $3.25 CSCL 08F

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Unclas
G3/43 00364

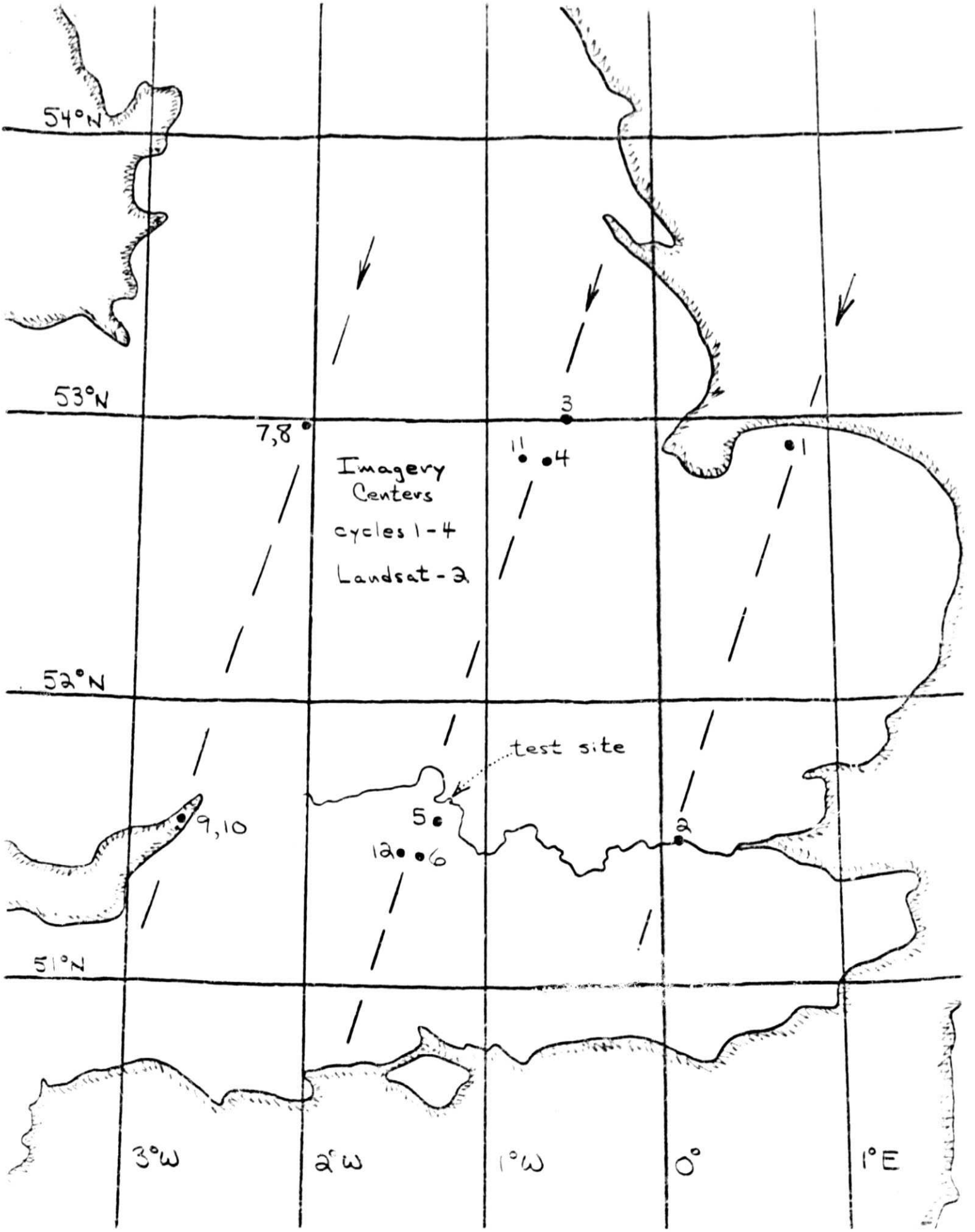
The most recent Standing Request Processing Report from the EROS Data Center, for June 26, 1975, indicates that no Landsat-2 photographs have yet been taken of the Dorchester, England, test site, evidently a result of excessive cloud cover there.

The estimated overflight dates during the experiment have been recalculated from the April 1975 edition of the map "Landsat Coverage of the United States" (General Electric Co., Space Division) and the corrected extrapolations are given below (thanks to Dr. Robert Price of Goddard Space Flight Center for an independent check of these dates):

Cycle Number	Landsat-2 Overflight Date	Cloud Cover	Landsat-2 Photos
4	13 April	60%	no
5	1 May	?	no
6	19 May	0%	no
7	6 June	?	no
8	24 June	?	no
9	12 July		
10	30 July		
11	17 August		

The cloud cover for cycle 4 has been determined from the listing in the most recent Landsat Non-U.S. Standard Catalog, No. N-32 which covers the month of April. The photos which have taken from Landsat-2 of southern England, as determined from catalogs N-30, N-31, and N-32 are listed below. The reference number at the left gives the location of the center point of the photo on the index map given with this report.

#	PP	ID	%CC	Cycle
1	49'E 52°54'N	2026-10171	90	1
2	7'E 51°30'N	2026-10174	100	1
3	33'W 53° N	2045-10225	40	2
4	38'W 52°52'N	2027-10230	90	1
5	1°16'W 51°36'N	2045-10232	100	2
6	1°21'W 51°28'N	2027-10232	100	1
7	2° 1'W 52°59'N	2028-10284	60	1
8	2° 1'W 52°59'N	2046-10284	100	2
9	2°44'W 51°35'N	2028-10291	60	1
10	2°44'W 51°35'N	2046-10290	80	2
11	48'W 52°53'N	2081-10224	70	4
12	1°31'W 51°28'N	2081-10231	60	4


54°N
53°N
52°N
51°N
3°W
2°W
1°W
0°
1°E
7,8
3
11
4
1
Imagery
Centers
cycles 1-4
Landsat-2
test site
5
12
6
9,10
2

One photo station for the satellite is at about 51½°N 1½°W and is approximately 30 km southwest of the test site. It is possible that the photo station over eastern London may also allow coverage of the site; since these photos are taken on the day prior to the one over Dorchester, the chances of getting low cloud cover will be improved.

For the interpretation of the photos which we will eventually get, it is still anticipated that direct examination of the 9½ inch positive transparencies with a low power microscope will be sufficient. Black-and-white photographic subtraction of Band 5 from Band 7 may also be tried to see if any accentuation of the channel crop marks is possible. In addition, false color composites might be generated with color diazo film (O.G. Malan, South African Journal of Science, June 1974, pp.185,6; J.A. Rupkalvis, Photo Methods for Industry, January 1974, pp. 21-25).

If the third generation transparencies which we will be receiving do not have sufficient resolution of the ground patterns, it may be possible to try brightness contouring on the original data from the computer compatible tapes, for the area of interest is imaged with only about 1100 pixels (less than 0.02% of the total MSS image).

* The table of contents of a MASCA report published on May 15, 1975, is enclosed. While the pamphlet was not prepared for this project, it does describe some of the applications of space photography to archaeology.

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AERIAL PHOTOGRAPHY FOR THE ARCHAEOLOGIST

* See page 3