

E72-10225
CR-129158ENVIRONMENTAL STUDY OF ERTS-1 IMAGERY
LAKE CHAMPLAIN AND VERMONT

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A. O. Lind

UN 137

SR 347

Contract NAS 5-21753

SUMMARY OF FIRST-LOOK ANALYSIS BY DISCIPLINES

NASA Category

- 1 A. Crop Survey and Classification
- 2 A. Land Use Classification
- 2 C. Thematic Mapping

Major land-type classes identified for the Burlington, Vermont, study area include a) Woodland b) Open land and c) Built-up area. A map of the land-types in the Burlington area was generated at a scale of approximately 1:143,000 using direct positive enlargements provided by Polaroid MP-3 copy camera equipment.

Cropland is generally identifiable, and certain crop types could be detected; however, the small field sizes in Vermont will prevent a complete survey. A determination of omission error is in progress.

The imagery used for the above purposes was RBV. Band 2 was especially useful, although other bands provided supplemental information.

(E72-10225) ENVIRONMENTAL STUDY OF ERTS-1
IMAGERY LAKE CHAMPLAIN AND VERMONT A.O.
Lind (Vermont Univ.) 6 Dec. 1972 3 p CSCL
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NASA Category

3 I. Geomorphic and Landform Surveys

4 A. Ground Water Surveys

Major ice-marginal deposits and ancient shorelines were located on the basis of terrain-land type relationships on RBV band 2 imagery. Two major Laurentide deposits of morainic type were located in Quebec and were found to extend nearly into Vermont, somewhat beyond formerly defined boundaries.

A shoreline of the Champlain Sea was recognized on RBV band 2 imagery, with an extent somewhat greater than anticipated.

Features of the type above and additional features as will become visible in subsequent coverage may be related to ground water interpretations.

NASA Category

4 C. Wetlands

Major wetlands adjacent to Lake Champlain were delineated using RBV band 2 and 3 imagery. Wetlands at the mouths of the Lamoille and Mississquoi Rivers were best seen. Minor wetlands, corresponding to meander scars could be detected on river floodplains of most major rivers. RBV band 3 was most useful overall.

4 K. River Monitoring

Major rivers were readily detected and recognized on RBV band 3 imagery. Floodplain areas could also be approximately located. Future changes in river course and major changes in stage (i.e. floods) can be monitored.

4 D. Limnology

Identification of major lake features was accomplished largely by the use of RBV band 2 and 3 imagery. Islands more than 200 meters in smallest dimension and man-made barriers could be detected and recognized. Shoreline delineation was best accomplished using RBV band 3 imagery. Algal blooms (blue-green and diatoms) were detected on bands 1 and 2 along with a major turbidity boundary which will be monitored. Minor turbidity zones associated with river mouths and bottom topography were additional features appearing on the ERTS, RBV imagery.