Earth Resources Experiment Package (EREP)
Progress Report - 1 September 1973
Investigation #089
New England Reservoir Management

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The EREP Skylab contract was signed on 23 April 1973 for our investigation #089. Depending upon availability of appropriate Skylab imagery the following tasks are planned:

a. The utility of S-190A and S-190B photographs for mapping the extent of flooding will be determined by visual interpretation and comparison of data with stream and reservoir gaging stations in the Connecticut River Valley.

b. The type and scale of imagery for monitoring the extent of floods and preparing vegetation or land-use maps will be determined by comparing the S-190A/B photographs with ERTS imagery and existing aerial photographs.

c. Vegetation and land-use maps of the Merrimack River Valley will be prepared from S-190A and S-190B photographs.

d. The effects of factors such as vegetation and land-use patterns on basin runoff characteristics will be studied by analyzing the hydrologic characteristics of selected subbasins of the Connecticut and Merrimack Rivers.

During the preflight simulation mission we became familiarized with the Skylab system and procedures used to obtain data from the

Houston facility. These data were used in selecting specific site locations for ground truth data acquisition in coordination with the Skylab overflight.

Mr. Anderson of the Houston NASA facility provided assistance in the preparation of lines and selection of camera systems to be used in SL-2, 3 and 4. This portion of the mission was accomplished with relative ease. EREP coverage of New England was aborted for SL-2 due to the failure of the solar panels in the early portion of the Skylab mission. However, during this time we still interrogated the NASA Houston telecorder telephone system and remained in contact with our Technical Monitor, Dr. Martin Miller.

During late May and throughout June precipitation in New England was abnormally high. Many areas received twice their normal amounts and because of saturated ground conditions, additional rainfall in late June and early July caused excessive runoff. Widespread flooding occurred along the northern tributaries of the Connecticut and Merrimack Rivers. These flooding conditions were recorded by ERTS-1 overpasses on 6 and 7 July and an underflight mission by CRREL over much of the flooded area using a Hasselblad camera. Ground truth hydrometeorological data was collected by the combined efforts of NED's ERTS-1 Data Collection System and Automatic Hydrologic Radio Reporting Network. A request for extending the NASA aircraft underflight lines from 13 to 17 has been approved for SL-3. This imagery, the Skylab photos and ground truth data should enable us to perform a more detailed post flood analysis.

Candidate SL-3 EREP tracks 18 and 32 were tentatively scheduled for 7 and 8 August. However, due to crew illness and engine malfunction, these EREP passes over New England were cancelled. Sun angle limitations and optimum allocation of the remaining passes will prevent coverage of New England from mid-August through 2 September. Passes are tentatively scheduled for 6, 11, 16 and 21 September. Coordination of aerial underflight and real time ground truth data acquisition for these passes is in progress.

During the next six months a comparison of S-190A/B, ERTS and aircraft imagery and ground truth data should determine the appropriate type and scale of imagery for land-use and vegetation mapping. A preliminary flood plain map of selected watersheds in

the Merrimack River basin will be made to determine the influence of vegetational patterns and land-uses on runoff characteristics.

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New England Division,
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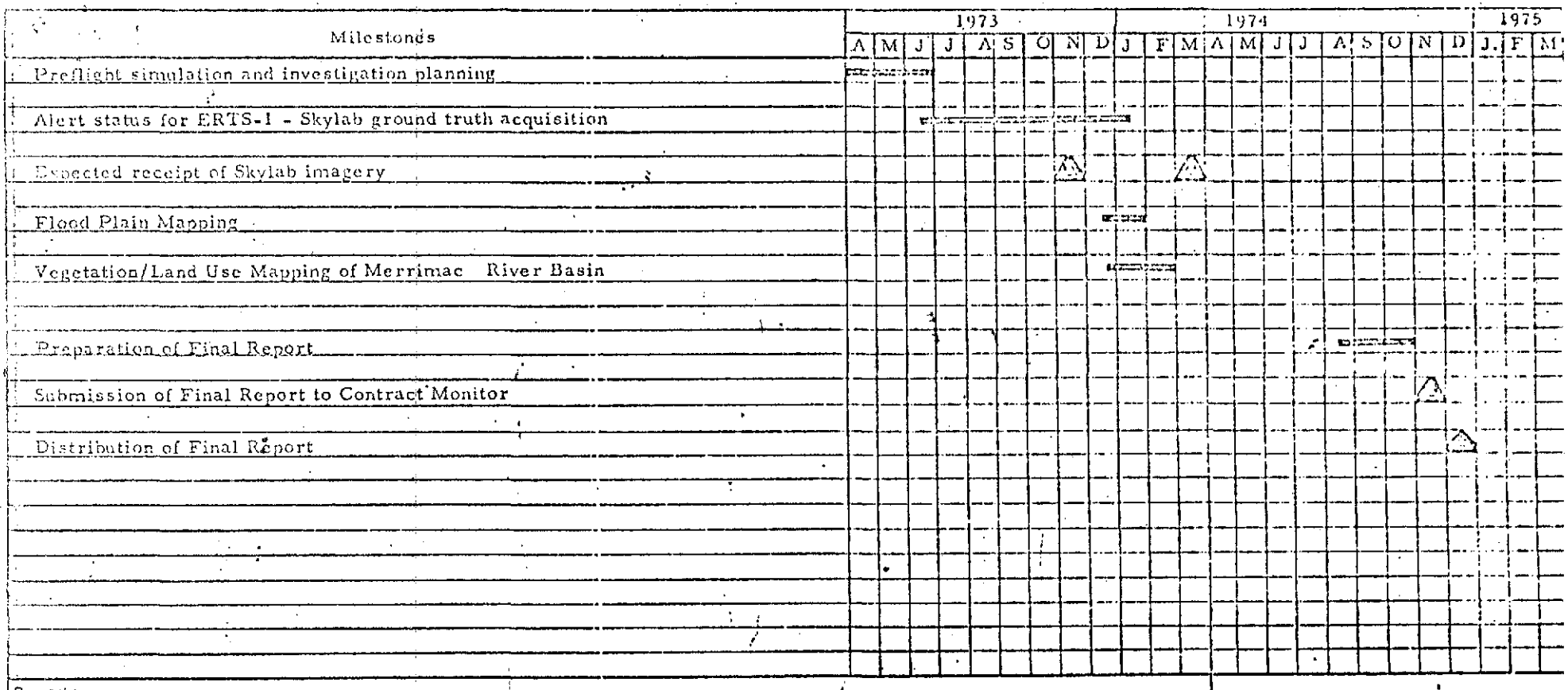

Remarks

This chart has been updated to reflect Skylab mission status as of 1 Sept. 1973.