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CR-13/481

Detecting Changes in Water Quality and Surface Area in Tahoka Lake,
Lynn County, Texas, Using Sequential ERTS MSS Data.

Discipline Category: 4-M Water Resources - Other

ERTS Frame Number: E 1078-16524   9 Oct., E 1114-16532   14 Nov.,
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Introduction

ERTS MSS data from three passes over Lynn County, Texas were
temporarily overlayed, i.e., spatial registration of data from three
ERTS passes on a point by point basis. Resolution of the resulting
data was not significantly reduced because the overlayed points were
within one-half of a resolution element of the base data.

Procedure

A non-supervised classification was made of Tahoka Lake using
the infrared bands (MSS 6 and 7) for the three overlayed dates.

Results

Classes from the non-supervised classification are normally
based entirely on spectral data, but because the data used in the
above classification were from three dates, classes were based on
both spectral and temporal differences. It was found that there
were four major types of classes: (1) classes which were not
water on any of the three days, (2) classes which were water for
all three days, (3) classes which were water on only two days,
and (4) classes which were water on only one day. By analyzing
the arrangement of these points, changes in water surface area
can be observed. Deep and/or clear water can be distinguished
from shallow and/or turbid water by comparing the class means
provided by the classification.

Submitted 16 March 1973