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DEVELOPING A DATA RELAY NETWORK FOR MONITORING HYDROLOGIC CONDITIONS IN SOUTH AND CENTRAL FLORIDA

A. L. Higer
U.S. Geological Survey
Miami, Florida 33130

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By

E. T. Wimberly, A. L. Higer and E. H. Cordes

a. Title: Developing a Data Relay Network for Monitoring Hydrologic Conditions in South and Central Florida.

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c. (1) In December, ERTS-1 imagery of Lake Okeechobee area was received in the Miami office of U. S. Geological Survey. The imagery was taken on November 16, 1972, one day after a cold front passed through central and southern Florida. The front cleared the cloud cover over the site and the imagery was excellent (figures 1 & 2). However, the frame just below Lake Okeechobee, which would have included the Everglades watershed and Dade and Broward Counties, was not available. On several occasions, efforts were made by the U. S. Geological Survey to obtain that particular image from NASA.

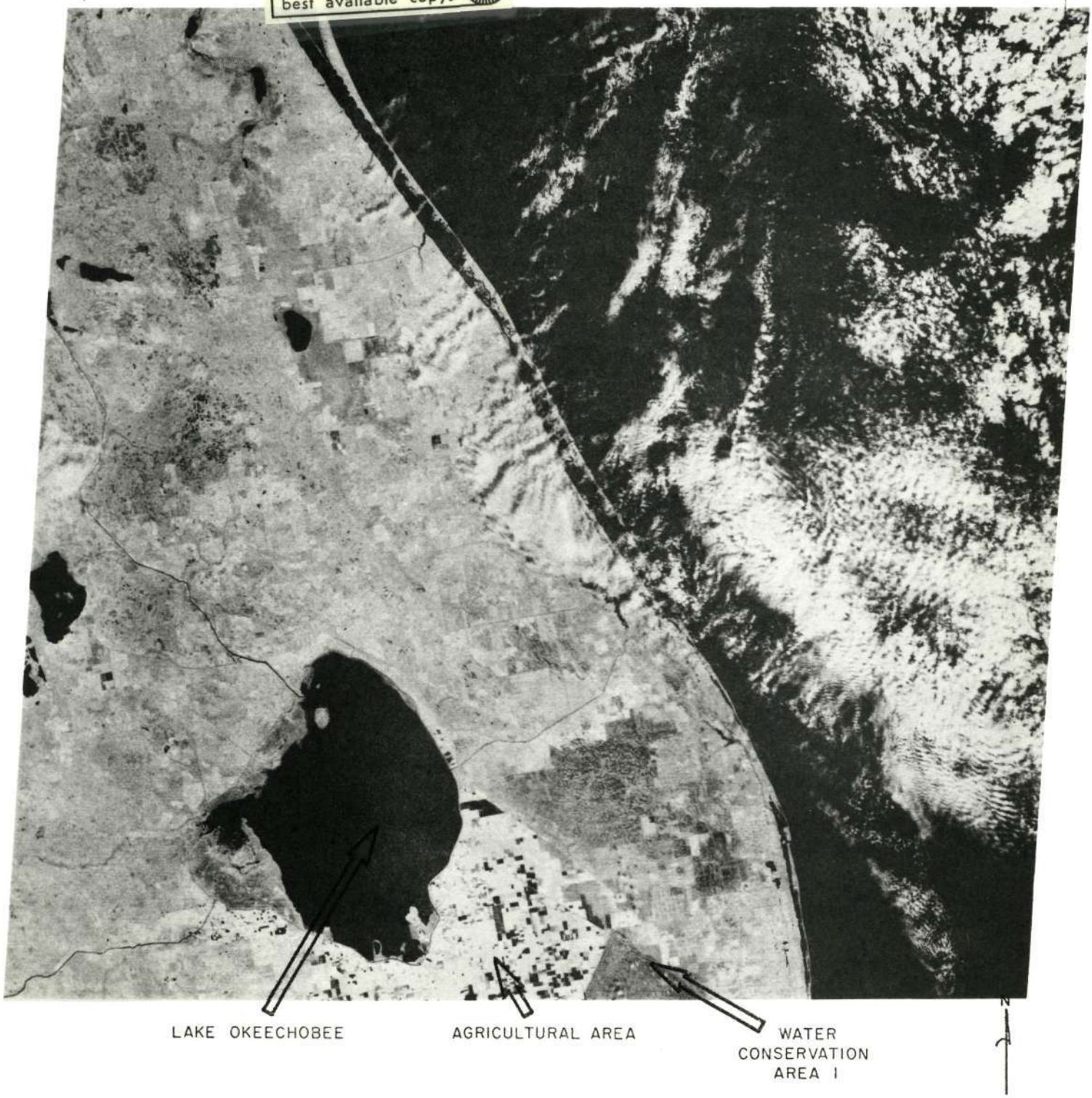

Figure 1....Imagery of the Central and Southern East Coast of Florida from the the 0.8 to 1.1 micrometer band. The white spots in the wet area of Conservation Area 1 are tree islands. The dark black rectangles in the agricultural area are fields which are intentionally flooded to prevent soil subsidence.

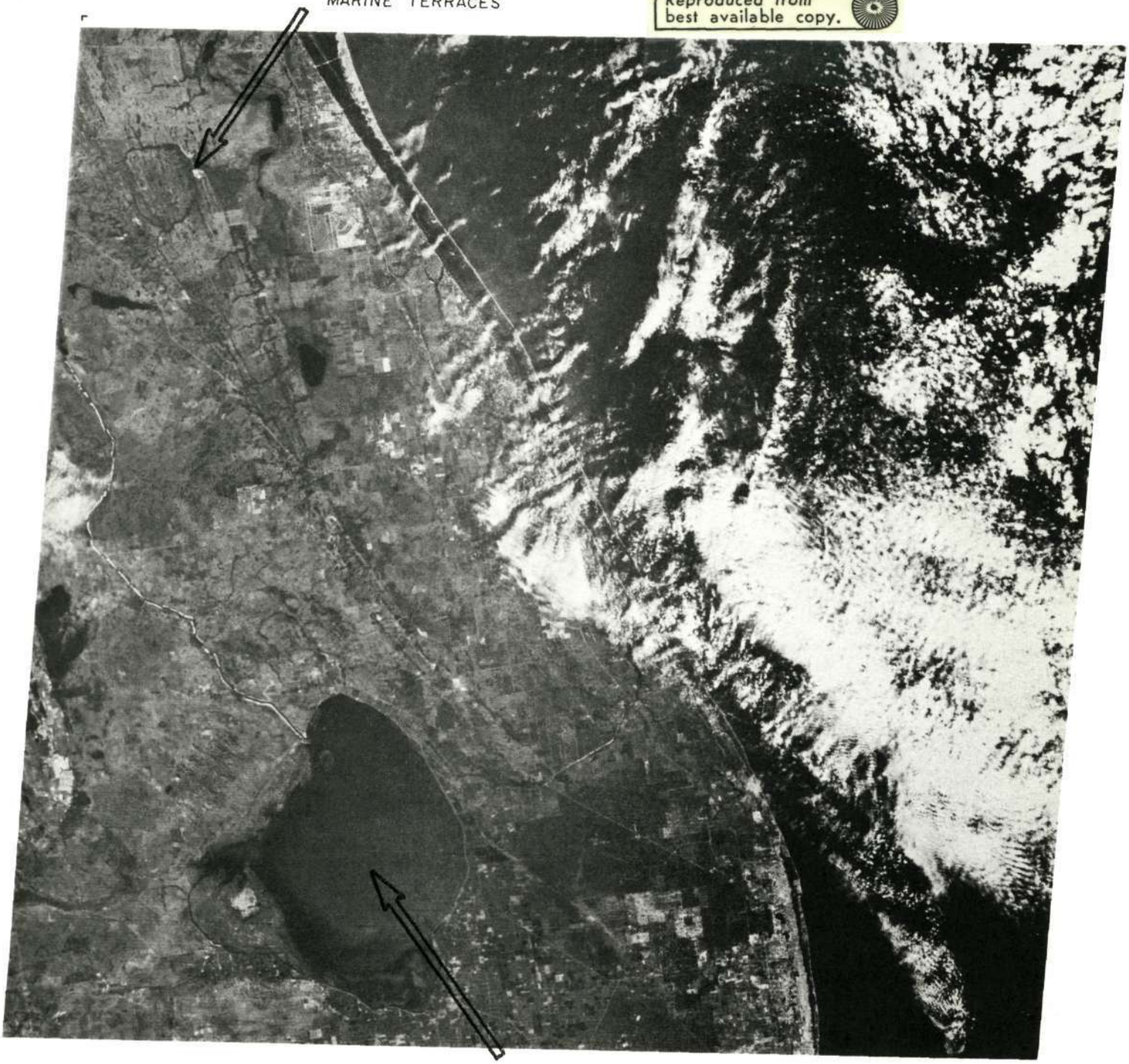

Figure 2....Imagery of the Central and Southern East Coast of Florida from the 0.6 to 0.7 micrometer band. Turbidity patterns in Lake Okeechobee are evident with ground truthing and several synoptic images it may be possible to determine current patterns in the lake. The U.S. Army Corps of Engineers is interested in both turbidity and velocity determinations in the lake. This band also accents the marine terraces along the east coast of Florida.

The first run on the computer model of the water management area is dependent on the distribution of surface water in the Everglades watershed. That complete imagery is needed if work is to continue on water management modeling.

(2) A data multiplexing system, which is vital to operation of the meteorologic stations, has not been delivered.

d. Nine data collection platforms (DCP) are now operating in Water Conservation Areas 1, 2, and 3. Two stations are operating in the Shark River Slough, Everglades National Park; one station is operating in the Big Cypress Swamp. Locations of the stations are shown in figure 3 and table 1. Power supplies at all stations are being improved by replacing the present dry-cell batteries with nickel-cadmium wet-cell batteries. At present, water level and precipitation data is being received from DCP stations daily from only 0800 to 1200 and 2000 to 2400 (eastern standard time). To obtain daily hourly coverage, the Mississippi Testing Facility, Water Resources Division, U.S. Geological Survey was contracted to build a memory device.

Figure 3.--Location map of the present data collection platform network.

Table 1

Locations of present (January, 1973) operating data collection platforms

MAP NO.	GENERAL AREA	PLATFORM I.D.	LATITUDE	LONGITUDE
1.	Everglades National Park	6256	25°32'12"N	080°47'06"W
2.	Everglades National Park	6121	25°38'54"N	080°41'18"W
3.	Conservation Area 3	6321	25°48'55"N	080°43'18"W
4.	" "	6070	25°58'24"N	080°40'18"W
5.	" "	6236	26°11'18"N	080°32'09"W
6.	" "	6033	26°10'57"N	080°44'13"W
7.	Miami	6252	25°45'53"N	080°11'36"W
8.	Big Cypress Swamp	6250	25°51'05"N	080°58'50"W
9.	Conservation Area 1	6313	26°31'10"N	080°19'40"W
10.	Conservation Area 1	6363	26°30'00"N	080°13'15"W
11.	" "	6362	26°26'55"N	080°17'10"W
12.	Conservation Area 2	6214	26°17'01"N	080°17'54"W
13.	" "	6141	26°16'50"N	080°25'10"W

The memory device will work with the DCS to store hourly data during the periods when ERTS-1 is not in communication with the DCP's and a remote receiving site.

e. Preprocessing of ERTS-1 imagery of central and southern Florida by Stanford Research Institute has been accomplished.

Water-level and precipitation data-collection platforms have been installed in the Everglades water basin. The data from these stations are relayed to the Miami office of the USGS via a NASCOM line. The data are then analyzed and disseminated to water-management agencies such as the U.S. Corps of Engineers and the Central and Southern Florida Flood Control District. The data are transmitted in daily, weekly, and monthly reports to other governmental agencies. These agencies rely on the data to manage the water resources in a 1400-square-mile area. Through the ERTS imagery and Stanford Research Institute, we are able to delineate wetlands or agriculture areas of central Florida as shown in figure 1.

In figure 2 we are able to detect turbidity patterns in Lake Okeechobee and to delineate marine terraces north of Lake Okeechobee.

f. - k. **Nothing to report.**