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# SURFACE WATER MODELING EVERGLADES WATER BASIN, FLORIDA

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by
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a. Title: Surface Water Modeling
Everglades Water Basin, Florida

b. GSFC I.D. No. of P.I.: I414

c. A list of items which have hindered the progress of the investigation follows:

1) as stated in the last ERTS I progress report, there is a need for additional DCP's for deployment in the Everglades Basin to acquire the additional data needed to complete a water budget analysis. There is also a need for spare program boards to allow the present stations to maintain continuous operations.

2) during this reporting period, fires have burned uncontrolled in the Big Cypress Swamp, the Everglades National Park, and the water conservation areas. In Water Conservation Area 3A, some of the supports for the structure containing a DCP and related equipment were burned away leaving the structure hanging precariously. Fortunately the DCP which was closer to the fire than other equipment was insulated by three inches of sand and was unharmed.

3) a station in Water Conservation Area 2A has been shot by gunfire several times. The DCP has not been hit but recorders, rainfall reservoir, and shelters have been damaged.

4) imagery provided to user I414 has been arriving in Miami intermittently.

d. 1) during the reporting period, three new stations have been installed to monitor precipitation and upstream and downstream water stage at water controls. The head difference between the upstream/downstream stage status are used to

calculate discharge through the controls. A sketch of one of the stations is shown in figure 1. The station shown in figure 1 is operated in cooperation with the U. S. Corps of Engineers and located at S-12-C, a water control structure which regulates flow from Water Conservation Area 3A into the Everglades National Park. Installation of the station at the structure involved the use of over 600 feet of multiconductor cable in order to link the digital, water-stage recorders with the DCP. The DCP is located atop the control structure about 15 feet above the ground. The twenty conductor cable is inside aluminum conduit above ground and inside plastic polyvinyl conduit below ground. The control structure provides a good location for the DCP because it provides some protection from vandalism and is about halfway between the two recorders. The housing for the DCP is strapped to the guard rail atop the control structure with the antenna mounted atop the housing. Included in the housing are the battery power, a rain gage, an environmental monitor, and the DCP. The environmental monitor contains an electronic counter which is linked between the rain gage and the DCP to count the tips by the rain gage. A rainfall receiver is mounted to one side of the housing. Rainfall is fed to the rain gage inside the housing by a tube.

In addition to the 3 upstream/downstream and precipitation stations, 5 more stations are near completion in the Everglades National Park. These stations will monitor precipitation and water stage when they are installed but will be set up to add other parameters. The environmental monitor to be installed at each station can monitor other parameters as well as rainfall. The environmental monitor was designed by Ed Cordes of the Miami office of the U. S. Geological Survey. Cordes is also working on an improved solid state clock to be used with the DCP.

More work on rectification of ERTS imagery is being done with the Bendix Corporation. The effort is aimed at quantifying volumes of water with imagery.

f. The following report has been approved for the third ERTS symposium, NASA/Coddard Space Flight Center and more recently it was approved to be published in the proceedings of the Eleventh Space Congress: "Water Management Models in Florida from ERTS-1 Data" by A. L. Higer, A. E. Coker, and E. H. Cordes.

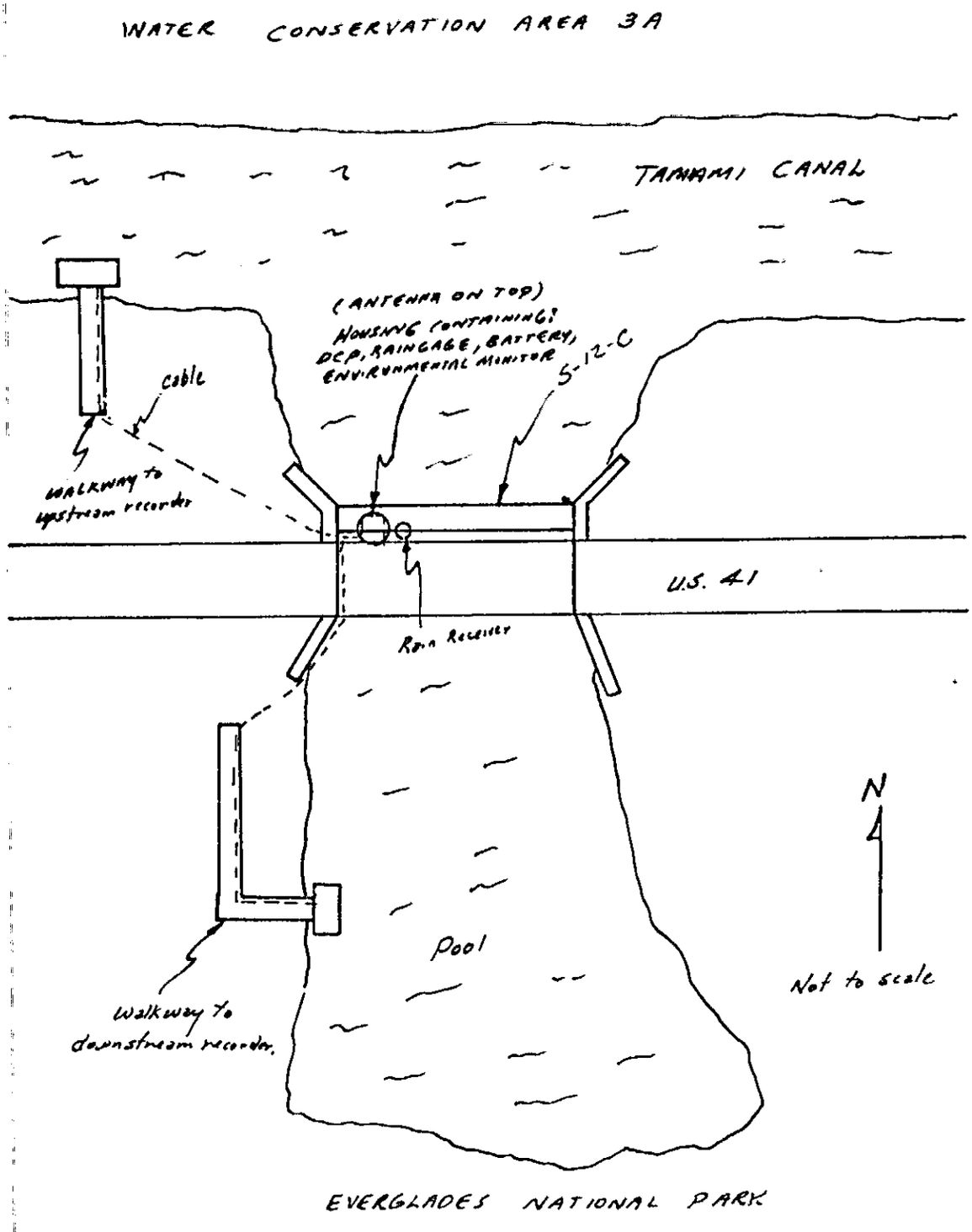


Figure 1.--Sketch of ERTS DCS station at water control structure S-12-C near Miami, Florida.