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SUMMARY OF RESULTS OF AN EXPERIMENT
TO EVALUATE SKYLAB EARTH RESOURCES SENSORS
FOR DETECTION OF THE GULF STREAM

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(E76-10194) SUMMARY OF RESULTS OF AN
EXPERIMENT TO EVALUATE SKYLAB EARTH
RESOURCES SENSORS FOR DETECTION OF THE GULF
STREAM (National Oceanic and Atmospheric

An experiment to evaluate the SKYLAB Earth Resources Package for observing ocean currents was performed in the Straits of Florida in January 1974. Data from the S-190 photographic facility, S-191 spectroradiometer, and the S-192 multispectral scanner, were compared with surface observations made simultaneously by the R/V VIRGINIA KEY and the NASA C-130 aircraft. The anticyclonic edge of the Gulf Stream could be identified in the SKYLAB S-190 A and B photographs, but the cyclonic edge was obscured by clouds. The aircraft photographs were judged not useful for spectral analysis because vignetting caused the blue/green ratios to be dependent on the position in the photograph. The spectral measurement technique could not identify the anticyclonic front, but a mass of Florida Bay water which was in the process of flowing into the Straits could be identified and classified. No calibration was available for the S-191 infrared detector, so the goal of comparing the measurements with theoretical calculations was not accomplished. Monte Carlo simulations of the visible spectrum showed that the aerosol concentration could be estimated and a correction technique was devised.

The S-192 scanner was not useful for detecting the anti-cyclonic front because the radiance resolution was inadequate. An objective cloud discrimination technique was developed; the results were applied to the several useful oceanographic channels to specify the radiance ranges required for an ocean tuned visible multispectral scanner.