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QUARTERLY PROGRESS REPORT

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A Comparison of HCMM Surface Temperatures
with In Situ Temperature Data

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1.0 Introduction

The primary purpose of this research project is to examine the absolute and relative accuracy of the HCMM infrared data. In situ sea-surface temperatures will be used from the Nantucket Shoals region where the sea-surface temperature normally ranges from 5 to about 15°C, and the Gulf of Mexico where the sea-surface temperature normally ranges from 20 to 30°C for the comparison. In order to accomplish the objectives of this research project, the following tasks are being performed:

- 1) Determine periods when simultaneous clear-sky HCMM infrared data and in situ sea-surface data are available in regions of interest.
- 2) Obtain the HCMM data, in situ data, and meteorological data for the time and places of interest.
- 3) Develop all parameters required to correct the HCMM data for atmospheric effect.
- 4) Develop a geographically corrected analysis of sea-surface temperature distribution using both the HCMM data that have been corrected and those that have not been corrected for atmospheric effect.
- 5) Compare the HCMM sea-surface temperature data with ground truth data to establish the absolute and relative accuracy of the HCMM infrared data.

2.0 Progress to Date

All HCMM CCT's were received by the middle of the third month of this research project. While waiting for the CCT's, the algorithms were updated for a quicker analysis. Presently, data for 4 case studies have been identified and extracted from the tapes. These case studies are 1 July 1978, 12 July 1978, and 2 September 1978 for the Nantucket Shoals region, and 24 March 1979 for the Gulf of Mexico region.

Upper-air meteorological data have been ordered. These data are necessary to make the atmospheric correction of the HCMM data. To date, only half of the meteorological data have arrived. We are in the process

of reducing these data and preparing them for the calculations of the atmospheric effect.

3.0 Problem Areas

The major problem area encountered during this reporting period was the delay in the acquisition of the HCMM data. This has essentially set us back about a month in our analysis. However, we will endeavor to expedite the entire analysis procedure.

4.0 Work for the Next Reporting Period

For the next reporting period, the major emphasis will be on obtaining the analysis of the sea-surface temperature corrected for the atmospheric effect, and calibrated.
