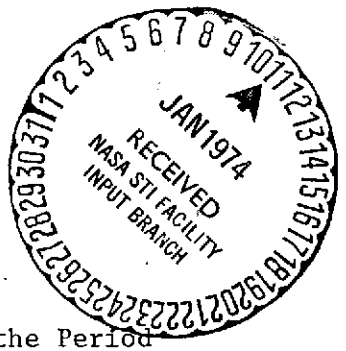
September 12, 1973



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RESEARCH TRIANGLE PK. INST. N.C.

Subject: Contract NAS9-13304 Monthly Progress Report for the Period of 1 August - 31 August, 1973.

General

Efforts this period have been devoted to analyzing "quick-look" data from SL-2 and continuing with the development of mathematical models for processing of the S-193 radar altimeter data.

Problem Areas

Data obtained on SL-2 and during SL-3 have been, for the most part, under relatively small sea-state conditions. The success of this investigation is highly dependent upon obtaining S-193 radar altimeter data for large waveheights (9 feet or more). To date, there have been two opportunities to gather altimeter data under hurricane surface conditions and neither opportunity was exercised due to "higher priority" operation of the S-193 RAD/SCAT. Unless there is an equitable sharing of the S-193 sensor during overflights of relatively high seas, this investigation can not be completed due to a lack of appropriate data.

Investigation Results

Mathematical models for waveform reconstruction have been developed and will now be implemented on the computer. Analysis of 100 ns. return waveforms has indicated that we will be able to predict antenna pointing errors to within $\pm$ 0.05° by comparing the measured and theoretical returns. SL-2 data has yielded pointing errors of from 0.3 to 0.6° off of nadir. With this order of pointing error, waveheight estimation will only be possible with 20 ns. transmitted pulse widths.

Next Period Efforts

Implementation of the mathematical models will be initiated and examinations of the "quick-look" data will continue. Verification of the angle sensing capability of the altimeter will be completed when JSC data is available.

Travel Summary and Plans

No trips were undertaken this period. It is anticipated that a trip to NASA-Wallops Station will be necessary this next period to implement data processing techniques.

Financial Management Report

A financial report for this period is included as Appendix A.

for Gary S. Brown, Co-Investigator
Lee S. Miller, Ph.D.
Principal Investigator

LSM/dc