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Third Quarterly Progress Report
(October - December, 1973)

for

"A Cloud Physics Investigation
Utilizing Skylab Data"

EREP - 9611

Prepared for: Principal Investigator
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National Oceanic and Atmospheric Administration
National Environmental Satellite Service
FOB #4
Washington, D. C. 20233

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(E74-10155)	A CLOUD PHYSICS	N74-14023
INVESTIGATION UTILIZING SKYLAB DATA		
Quarterly Progress Report, Oct - Dec		
1973 (National Environmental Satellite		Unclas
Service) 4 p HC \$3 00-	CSSL 04B G3/13	00155

At the end of this reporting period (October - December, 1973) the status of the Cloud Physics Investigation is as follows:

Task I - Transmittances

a. Oxygen "A" Band

Transmittance calculations for clouds whose tops are at pressure levels of 100, 500, and 1013.2 mb for $\sec \theta + \sec \phi = 2^*$ and 6, and for spectral widths of 4 and 10 cm^{-1} have been performed.

b. 2.0 μ m CO_2 band

No significant progress has been made in these calculations during this reporting period.

Task II - Scattering Calculations

Our scattering calculations have been completed. All wavelengths, optical thicknesses, and particle size distributions have been calculated and the values compacted on tapes.

Task III - Cloud Models and Returned Signal

a. Cloud Models

This task has been completed.

b. Returned Signal

It is still planned to combine the results of Tasks I, II, and IIIa to compute the expected transmissions for actual sun-satellite geometrics.

Task IV - Deconvolution Procedure

During the past quarter spectral response data for the S191 has been received and some analysis of it performed. However,

* θ and ϕ are the solar and satellite zenith angles (see also, Ref. 1).

Mr. Fleming has been too heavily involved with other projects to be able to utilize this data.

Task V - Cloud Truth Data

No commercial aircraft pilot reports were available for the SKYLAB 3 data takes, however the JSC P-3 did make observations of cloud bases and tops on September 10.

Task VI - Analysis of Satellite Data

We are now in receipt of 24 data tapes comprising 11 days worth of data. Considerable difficulty has been encountered reading these tapes due to apparent discrepancies in format between the tapes and the Data Format Control Book TR-543. Recently progress has been made in resolving these discrepancies and it is believed they will be resolved during the next reporting period.

Travel

No travel was performed for this investigation this reporting period.

References

1. Wark, D. Q. and Mercer, D. M., Appl. Opt., 4, 839, (1965).

QUARTERLY
CONTRACTOR FINANCIAL MANAGEMENT REPORT

Contract Number: T-4715B

Contractor: National Oceanic and Atmospheric Administration
National Environmental Satellite Service
Washington, D. C. 20233

Total Estimated Cost: \$41,800

Task Description: Cloud Physics Investigation Utilizing
Skylab Data

Prepared by: H. J. Klassen Date: January 7, 1974
Report No. 3
For Quarter Ending: December 31, 1973

	Most Recent Quarter	Cumulative To Date	Estimated Total
Hours			
Investigator	262	688	1,330
Other	211	735	1,370
Total	473	1,423	2,700
Costs			
Labor	5,005	14,468	27,800
Material	0	12	200
Data Processing	4,561	5,680	8,120
Travel	0	0	1,200
Equipment Rental	0	0	0
Equipment Purchase	0	0	0
All Other	807	2,286	4,480
Total	10,373	22,446	41,800