TITLE: Remote Sensing Geophysics from Skylab

INVESTIGATION NO.: 487

PERIOD COVERED: February 1974

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Houston, Texas 77058

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TYPE OF REPORT: Monthly

Status during February

1. A paper is being prepared by Howard Pohn on the 1.0-2.6μm spectral reflectance anomalies in southern California and Nevada. When it has obtained Director's approval an information copy will be transmitted to NASA/JSC for review. The abstract follows.

High reflectivity anomalies in the near infrared (1.0-2.6μm) have been observed on scanner images of southern California flown by the Environmental Research Institute of Michigan (ERIM) and on images of western Nevada obtained from the Skylab II and III missions. These anomalies are almost always in rocks that are at least as mafic as andesites. The most reasonable explanation for the anomalies is that the anomalous materials are coated with a 5μm or finer coating of hematite which was deposited during posteruptive fumarolic steaming.

2. Discussions were held with Alex Goetz of the JPL/Caltech to consider various means to handle the digital tapes from S192. There are noise problems and tape format problems that the USGS is probably not aware of and it may be more appropriate to handle some of the processing at JPL rather than struggle with all the unknowns on the DEC 1070.

3. The theory for Rayleigh scattering of thermal microwave energy within a layer over a halfspace by A. England is complete. Modeling programs based upon the new scattering theory have been written and appear to be running properly. Once this is verified, intensive parametric studies will begin of microwave emission from various thickness snowpacks, seasonally frozen soil, and permafrost.

Requirements

No thermal data from S192.