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ZENTRALSTELLE FUER
GEO - PHOTOGAMMETRIE
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PROGRESS REPORT NO. 1 Coverage period: 9/9/75 to 9/9/76

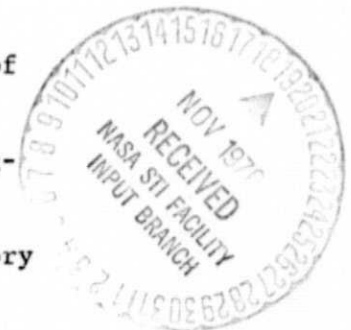
STATUS REPORT ON NASA - LANDSAT 2 INVESTIGATION NO. 28380

PI.: PROF. J. BODECHTEL

ATTN.: MR. J. BRODERICK - LANDSAT TECHNICAL MONITOR

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This report serves as information on the present status of our on-going LANDSAT 2 project. Due to the submitted statement of work, the overall objective will be investigations concerning the possibilities of scientific and operational applications of LANDSAT data under the typical european environmental frame- conditions. As indicated in our proposal main effort will be given to the development and application of digital and analog- electronic data evaluation procedures.



Present status of data delivery, data evaluation and preparatory phase.

VIDEO DATA

Video data (MSS 70 mm negative transparencies) covering about 90 % of the west-german area have been received by PI.

The processing and delivery of further video-data is being in preparation by TELESPAZZIO Italy. Data shipment is expected within the next two months.

On the basis of received negatives, copies (positive transparencies, scale 1 : 1 000 000 and positive hard copies, scale 1 : 2 00 000) have been processed by the Central laboratory and distributed to further participating groups in Germany.

The on-going investigations on the basis of video data are restricted to a visual interpretation under the following aspects.

Mapping of main surface-and land use categories within the boundaies of Bavaria. This investigations are carried out by support of the agricultural department of the University Munich. The evaluation has already shown that LANDSAT data provide sufficient detail - information on the areal distribution of vegetation categories which is needed on a repetative basis (every two years). Until now data akquisition is done by conventional field work.

Besides different types of forests (coniferous, decideous and mixed) bog-vegetation and grazing land, information could also be obtained on agricural used areas. In spite of the low ground resolution capabilities of the MSS system if related to the small field pattern

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(E77-10031) [LANDSAT DATA UNDER TYPICAL
EUROPEAN ENVIRONMENTAL FRAME CONDITIONS]
Progress Report, 9 Sep. 1975 - 9 Sep. 1976
(Zentralstelle fuer Geo-Photogrammetrie)
3 p HC A02/MF A01

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J0031

CSSL 05B G3/43

various intense stages of the agricultural land use can be interpreted. For above visual interpretation and differentiation the optimum data sources are analog-electronic preprocessed multi-spectral and multi temporal video data.

The results of the pointed out investigation will be compiled on maps. The further use and the practical significance of the results will be discussed. Up to date about 30 % of the area of interest has been mapped.

Interpretation of LANDSAT photo lineations over the coal mining district (Ruhr Valley) in northern Germany.

The primary objective of this study which is being carried out in cooperation with the University Clausthal, aims at the possibilities of obtaining improved information on subsurficial fracture pattern in the mining area by using LANDSAT data. The accomplishment of this project requires several intermediate steps.

- a) Lineament interpretation . The detectability of photo lineations is strongly dependent on illumination effects as demonstrated in our LANDSAT I final report. Furthermore the capabilities and the experience of the interpreter may also influence the results. In order to obtain a far reaching objective "LANDSAT lineament map" of the working area, all available LANDSAT I and 2 data are being interpreted independently by several scientists. Lineament maps of 3 frames are accomplished.
- b) On the basis of the most probable lineament pattern, a comparison with known fractures and fracture systems including comparisons with statistically displayed spatial joint measurements will be carried out. By this it is anticipated to improve the interpretability of joint measurements due to the prediction of subsurficial fracture systems. Preliminary results have already shown that there exists a good correlation between lineaments, joint pattern and known fracture systems in some areas.

DIGITAL DATA

Until now PI has received 3 scenes on digital tape (16 00 BpI) from TELESPAZZIO. (August 76). Further requested tapes are expected to be delivered within the next two months.

With respect to the experiences gathered during LANDSAT I investigations, the necessity of applying interactive digital data processing techniques became evident. With respect also to the continuation of the LANDSAT program, the Central laboratory is at present in the phase of implementing an analog/digital data processing system. The hybrid concept of the system is specially suited for a highly interactive evaluation procedure of the data. The system (ISI SYSTEM 470) includes an software package containing special I/O operations for interactive image data processing and special routines for handling, correcting and evaluating LANDSAT tapes.

The hardware configuration which consists of a PDP II/40 processor a CDC 80 megabyte disc system, a DIGIDATA tape drive (800 BpI) a MINI-TEC CRT terminal, a VERSATEC Printer/Plotter and the interfaced analog electronic processing system (ISI SYSTEM I50) will be ready for processing LANDSAT data towards the end of october 76.

As stated above, the system will be definitely installed towards the end of October 1967.

In order to fully utilize the capabilities of the system for our LANDSAT 2 investigations, NASA is requested to extend the duration of the investigations from 12 to 18 months.