General Disclaimer

One or more of the Following Statements may affect this Document

- This document has been reproduced from the best copy furnished by the organizational source. It is being released in the interest of making available as much information as possible.

- This document may contain data, which exceeds the sheet parameters. It was furnished in this condition by the organizational source and is the best copy available.

- This document may contain tone-on-tone or color graphs, charts and/or pictures, which have been reproduced in black and white.

- This document is paginated as submitted by the original source.

- Portions of this document are not fully legible due to the historical nature of some of the material. However, it is the best reproduction available from the original submission.

QUARTERLY REPORT TO NASA ON

LANDSAT 2 PROJECT NO.29020

HYDROLOGICAL INVESTIGATIONS IN NORWAY

FROM JOHNNY SKORVE, CO-INVESTIGATOR

UNIVERSITY OF OSLO

INTRODUCTION

LANDSAT 2 images of Southern Norway from February and March 1975 have been studied. The scenes show a winter situation, and at that time of the year, the snowmelting is neglectable.

DESCRIPTION AND PRELIMINARY RESULTS

Except for a rim along the southeastern coast and the outer Oslofjord lowland,the area is snowcovered. These February and March images are the first LANDSAT winter pictures of the Oslo region. The winter scenes reflect interesting features.

Most of Norway experienced an extremly mild winter in 1975, and the LANDSAT 2 images do show the resulting extraordinary icesituation. Fjords, lakes and rivers that during winter time nearly always are completely icecovered, were this year icefree or only partly icecovered. Changes that have taken place during two LANDSAT cycles, have been determined by comparing the 14. February and 21. March images.

The snow on the LANDSAT 2 images do strongly enhance features like roads and urban settlements. One illustrating example is seen on the flat,open terrain east of lake Mjøsa. Here small villages and narrow roads are clearly seen,while they are completely invisible on snowfree images.

A study of scene no.2024-10031 and 2024-10035 of 15.February proves to be of geological interest. This is because of the enhancement introduced through the combination of low solar angle and snowcover. These LANDSAT images should be very valuable as supplementary material for the structure and lineament mapping already done on the basis of LANDSAT 1 images of Norway from 1972 and 73.

I find the quality of LANDSAT 2 imagery superior to that of number one.

The study of spring and summer images will now be initiated for mapping the decrease in areal extent of the snowcover and determination of snowlines. The LANDSAT 2 data will be compared with oblique angle aerial photographs of selected areas taken simultaniously with LANDSAT 2 passes over Norway. Ground truth measurements and data will be used in the further interpretation of the LANDSAT 2 images.

Johnny Skorve

Johnny Skorve

Oslo, 28.August 1975