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TYPE II PROGRESS REPORT

September 16, 1973 - March 15, 1974

Utilizing ERTS-1 Imagery for Tectonic Analysis Through Study of the Bighorn Mountains
Region

MMC #256

ERTS Contract #NAS5-21852

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We are in the final stages of preparation of the final report, the first draft of which has been asked for on April 28, 1974.

In the last month we have been concentrating our analysis on the Black Hills region. To further aid in our study, we now have available U-2 color imagery of the northern two thirds of the Black Hills. Of possible significance is a faint tonal linear trending N.10°E, in the Powder River basin approximately 10 miles west of Moorcroft, Wyoming. This feature was identified on spring imagery (1263-17190, 12 April, 1973) but is not apparent on fall imagery (1047-17175). Interestingly, this linear falls along a probable basement fault postulated by Wulf in 1963. The subtle tonal change may reflect moisture differences which might be more detectable in spring. This is still very tentative, but it suggest that there is some possibility of "seeing through" the cover of Fort Union (Paleocene) and Wasatch (Eocene) in the basin. At the northern end of the possible linear follows a belt of Fox Hills (Cretaceous) which crops out along a similar trend marking a change in dip. U-2 and RB-57 photography crossing this possible linear are now being examined.

Three MS theses have been completed. A fourth will be completed in the next month. Preliminary summaries were presented in the previous Type II report. Considerable portions of these theses will be incorporated in the final report.

The studies by the CI's Drake (glacial features) and Baker (vegetation) are proceeding on schedule.

Our laboratory has just purchased an additive color viewer manufactured by Dot Products Inc. We find it a considerable improvement, particularly in ease of operation, compared with the I²S viewer we have been using.

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