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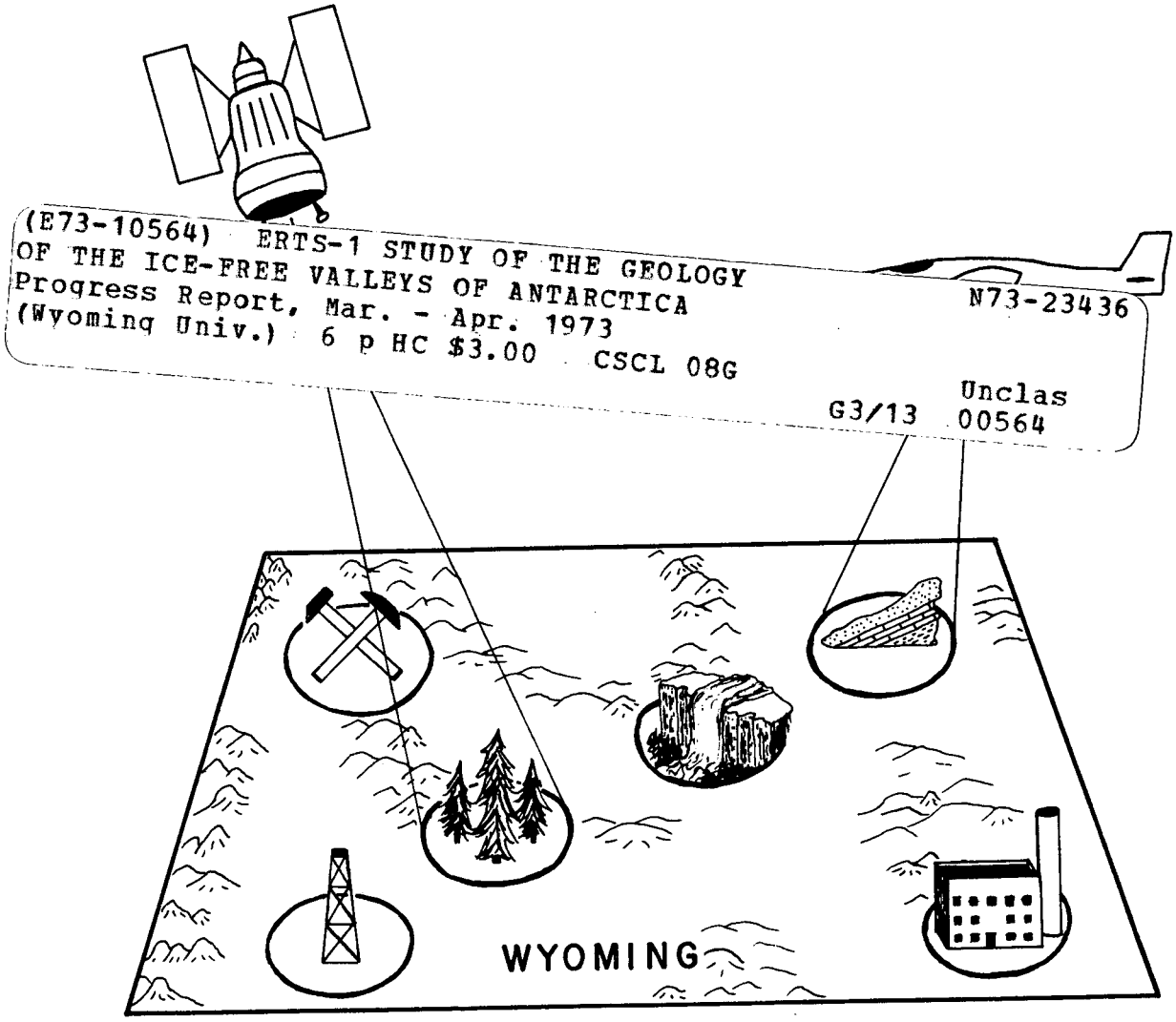

ERTS-1 STUDY OF THE GEOLOGY OF THE ICE-FREE VALLEYS OF ANTARCTICA

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Type I Progress Report (March-April, 1973)

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16. Abstract

During the March-April, 1973 report period the ERTS-1 Antarctic investigation continued with the major effort being to complete the compilation of the geologic base map. That map is now nearing completion and a primary test area was chosen in the Lake Vida area where the geologic map is most detailed. The image interpretations in this area have been augmented by color-additive viewing and densitometric contouring.

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Figure 2. Technical Report Standard Title Page

SECOND BIMONTHLY

ERTS TYPE I REPORT

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OBJECTIVES OF THE CONTRACT

The objective of the University of Wyoming Antarctic study is to determine how well geologic features of the ice-free valleys of Antarctica can be recognized and mapped by interpretation of ERTS-1 imagery.

WORK SUMMARY

During the March-April report period Mr. Zochol has continued his compilation of a geologic base map for the Dry Valleys area of Antarctica. This map is now nearing completion but various areas exhibit different degrees of accuracy and detail reflecting the differences in the maps incorporated in the compilation. Work used in assembling the compilation includes that of Allen and Gibson (1962), Gunn and Warren (1962), McKelvey and Webb (1962), Blank and others (1963), Hamilton (1965), Haskell and others (1965), Fikkan (1968), Murphy (1971), and the field notes and maps of Scott B. Smithson of the University of Wyoming.

The area around Lake Vida in Victoria Valley was chosen a prime reference site because the mapping in that area done by Fikkan (1968) offers the greatest detail and accuracy. Also, the ERTS-1 imagery for that area is of excellent quality and shows the area relatively free of snow.

Mr. Zochol has begun mapping the Lake Vida area from interpretations of the ERTS-1 imagery. He is employing standard photointerpretation techniques, color-additive enhancement, and densitometry in this effort. The pronounced contrast between the mafic and felsic rocks of the area (Houston, 1973) allows for accurate distinction of these lithologies solely on the basis of image

density. Mr. Zochol has recently been using the false-color isodensitracer to objectively map areas of mafic and felsic rock outcrop.

SIGNIFICANT RESULTS

None for the March-April report period.

WORK SCHEDULE

Progress on the University of Wyoming ERTS-1 Antarctic program is in keeping with the schedule of activities. Antarctic imagery of the ice-free valleys test area was received in February, 1973, initial evaluations were made, and a data analysis plan is now being assembled. We are now ready to continue with Phase III of the program... Continuing Data Analysis.

PROBLEMS

No limiting problems have occurred during the March-April report period. We continue to receive high-quality imagery of the test area which allows stereo-viewing of the images and seasonal comparisons.

PERSONNEL

No changes have been made in personnel involved in the Antarctic investigation.

SUMMARY STATEMENT

The University of Wyoming Antarctic investigation is progressing on schedule with no significant problems. Results to date are encouraging, and it appears that the contract objectives will be realized.

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