DELAWARE GEOLOGICAL SURVEY
Robert R. Jordan, STATE GEOLOGIST

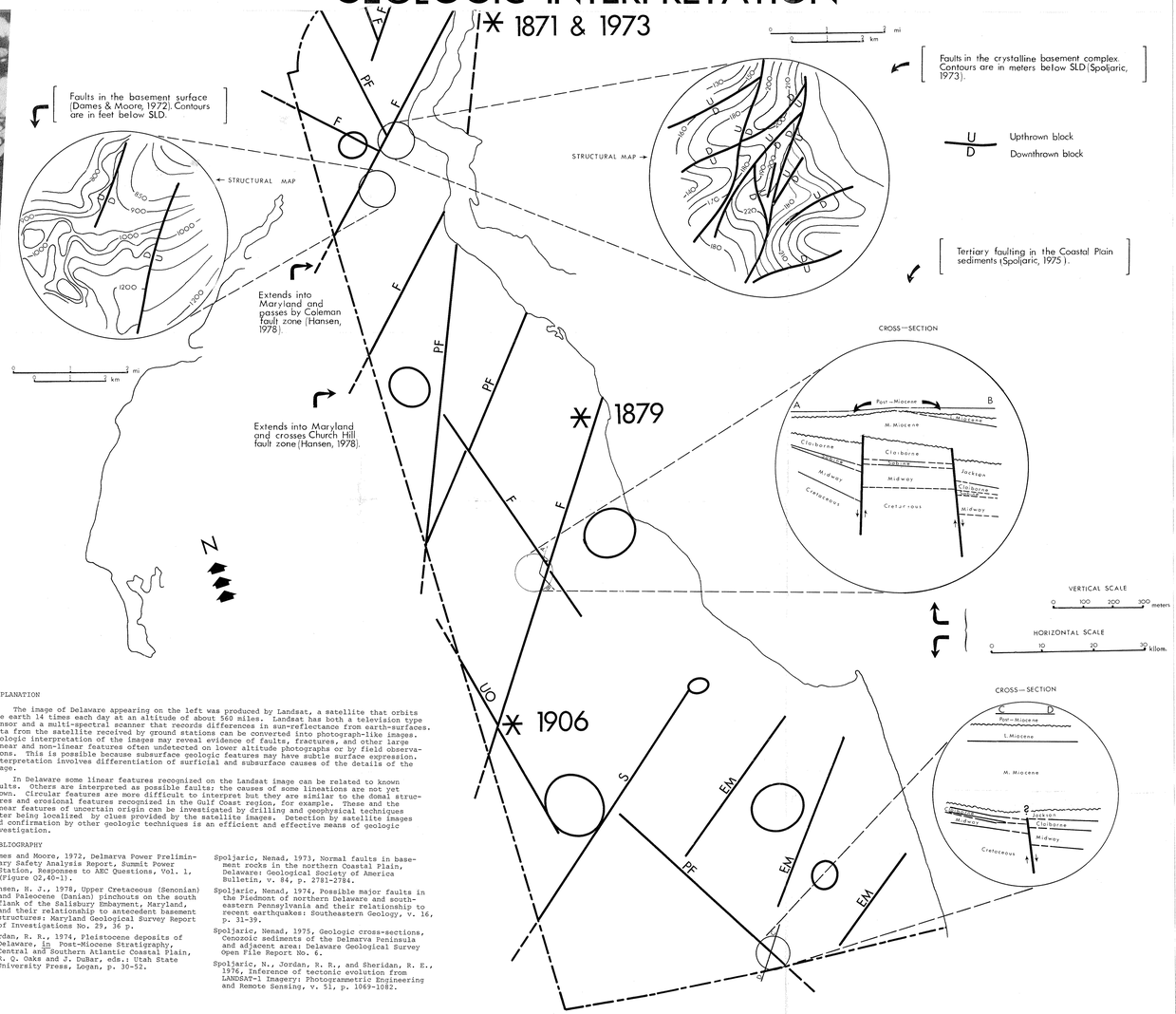
OPEN FILE REPORT No. 12

UNIVERSITY OF DELAWARE
NEWARK, DELAWARE 19711

LANDSAT VIEW OF DELAWARE

LANDSAT IMAGERY

GEOLOGIC INTERPRETATION



EXPLANATION

The image of Delaware appearing on the left was produced by Landsat, a satellite that orbits the earth 14 times each day at an altitude of about 560 miles. Landsat has both a television type sensor and a multi-spectral scanner that records differences in sun-reflectance from earth-surfaces. Data from the satellite received by ground stations can be converted into photograph-like images. Geologic interpretation of the images may reveal evidence of faults, fractures, and other large linear and non-linear features often undetected on lower altitude photographs or by field observations. This is possible because subsurface geologic features may have subtle surface expression. Interpretation involves differentiation of surficial and subsurface causes of the details of the image.

In Delaware some linear features recognized on the Landsat image can be related to known faults. Others are interpreted as possible faults; the causes of some lineations are not yet known. Circular features are more difficult to interpret but they are similar to the domal structures and erosional features recognized in the Gulf Coast region, for example. These and the linear features of uncertain origin can be investigated by drilling and geophysical techniques after being localized by clues provided by the satellite images. Detection by satellite images and confirmation by other geologic techniques is an efficient and effective means of geologic investigation.

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EXPLANATION:

- F — Faults and fault zones.
- PF — Possible faults or fault-zones.
- S — Stream valleys (Probably structurally controlled).
- UO — Unknown origin
- EM — Elongate mounds of unknown origin.
- ○ — Erosional features or subsurface domal structures?
- ✳ 1906 — Approx. location of earthquake epicenters and date of events.

SCALE
0 5 10 15 20 25 30 km
0 5 10 15 20 25 mi

by
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1979