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LANDSAT-3 HAS MULTISPECTRAL SCANNER PROBLEM

Landsat-3's multispectral scanner is now producing some randomly defective images as the satellite circles the globe, scanning the Earth's surface to obtain data useful to agriculture, geology, water management and other Earth resources disciplines.

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(NASA-News-Release-79-67) LANDSAT-3 HAS
MULTISPECTRAL SCANNER PROBLEM (National
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Since the 950-kilogram (2,100-pound) NASA spacecraft was launched March 15, 1978, the equipment has scanned and obtained data on over 91,000 scenes, each representing an area 185-by-185 kilometers (115-by-115 miles) of the Earth's surface. The resulting data can be processed to produce either photos or computer tapes.

At NASA's Goddard Space Flight Center, Greenbelt, Md., home of the Landsat project, an engineering review has concluded that a problem developed in the scanner's line scan monitor system. A scanner image or "photo" is built up from one swing of an on-board oscillating mirror, read out and transmitted line by line. The lines would form one long, continuous line if not broken and printed one under the other to form a rectangular picture. What breaks these lines are line start pulses (which signal line data start) and end scan pulses that mean the line is complete. It is with the start pulses that the problem is occurring. Some lines are offset about 25 per cent because the line scan monitor fails to insert the start signal.

A secondary pulse system provided by a multiplexer in the circuit inserts a pseudo start signal 25 per cent of the way across the line, and this backup system operates to save the remaining 75 per cent of the affected lines if the start pulse is missing.

A similar problem occurred in the fall of 1978, when the solution was to switch to Landsat-3's backup system, the one now being used.

While the photos can be computer-corrected to some extent, one-quarter of the data segment will still be missing from the flawed lines. The ground computer processing equipment necessary for this correction is not expected to be available until this fall.

Some scenes have about 5 per cent of their lines offset; others have as much as 40 per cent. Some are not affected at all. The majority of data produced is still accurate, useful and continues to be processed for users throughout the world.

Besides the useful portions of these Landsat-3 scenes, however, users of Landsat data will still have data from Landsat-2, launched Jan. 22, 1975. Landsat-2 has taken over 325,000 scanner scenes and is still going strong. Landsat-1, launched July 23, 1972, was turned off Jan. 8, 1978, after the failure of its S-band transponder. Landsat-D is scheduled for launch in 1981.