

# EROS REPRINT #137

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## YELLOWSTONE "HOT SPOTS" REVEALED ON MOSAIC

All of the geothermal or "hot spot" areas of Yellowstone National Park - including the famous geyser basins of the Nation's oldest park - are revealed on a new high-altitude "thermographic" mosaic, the U. S. Geological Survey, Department of the Interior, announced today.

The mosaic, prepared from thermal infrared images obtained from an aircraft flying at an altitude of more than three miles, and covering nearly 2,700 square miles of the park area, is the result of a cooperative venture by the U. S. Geological Survey, the Air Force Cambridge Research Laboratories, and the University of Michigan.

Dr. Richard S. Williams, Jr., geologist, USGS, Washington, D. C., and a specialist in remote sensing techniques, said that "the project establishes the feasibility of making high altitude thermographic surveys in order to detect warm springs and other surface manifestations of thermal activity in the western United States, Alaska, and other parts of the world on a regional basis."

"Thus," he added, "it represents a potentially useful tool that can aid in our understanding of thermal emission from geothermal and volcanic areas."

President Nixon's Clean Energy Message of June 4, 1971 directed that the Nation's geothermal areas be brought under intensive study as potential sources of power.

On the mosaic, prepared at a scale of 1:175,000 (1 inch equals about 2-3/4 miles), hot spots are seen as individual white spots or small irregular whitish zones, and encompass nearly all of the 96 areas of principal thermal springs, geysers, and mud pools in Yellowstone National Park.



"It should be noted, however," Williams said, "that because of the survey altitude, small clusters of individual springs generally merge together, and thus appear on the mosaic as diffuse hot areas."

"Although many of the lakes and rivers were frozen at the time of the aerial survey, and the park was covered with deep snow, the runoff from geothermal areas prevented some of the rivers from freezing, and thus appear as bright white 'threads' on the mosaic," Williams explained.

Features identified by name on the mosaic include: Yellowstone River and Lake, Shoshone Lake, and the Norris, Lower and Upper Geyser Basins.

The Yellowstone thermograph project is linked to the Interior Department's EROS (Earth Resources Observation Systems) program, administered by the U. S. Geological Survey, and aimed at using a variety of data to be obtained from NASA's ERTS-A (Earth Resources Technology Satellite) scheduled for launch this year. It represents the third mosaic of Yellowstone National Park (previous two mosaics were compiled from radar imagery and color aerial photography) produced by the USGS to assess the utility of various types of remote sensor data for geological investigations.

Copies of the mosaic, measuring 24 x 36 inches, may be purchased for \$5.00 from the U. S. Geological Survey's Map Information Office, GSA Building, 18th and F Sts., N. W., Washington, D. C. 20242.

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(Note to Editors only: Glossy 8 x 10 prints of the attached mosaic photo may be obtained from the Information Office, U. S. Geological Survey, Washington, D. C. 20242)



