

IBM Computer . . .

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erent atmospheric phenomena are important to the national space programs and advances in supersonic transportation.

While the primary intent of these studies is basic research, Dr. T. Neil Davis, with the Geophysical Institute, does not rule out their immediate use and application.

"It is well known that the energized particles which cause auroras can be lethal in space, as well as damaging to spacecraft and satellites," Dr. Davis said. "They are a potential danger to passengers in new aircraft such as the supersonic transport, which will cruise outside the shielding atmosphere."

In a recent experiment, the University of Alaska's computer plotted two courses which instrument-laden jet aircraft flew at the two ends of 80,000-mile-long lines of force in the earth's magnetic field.

Energized particles from outer space, which cause the aurora borealis' effects, speed along these lines at nearly a tenth the speed of light. The university's geophysicists were interested in learning whether distortions in the magnetic field would affect similarities between auroras occurring in the northern and southern hemispheres.

"The results of this experiment were remarkable," said Dr. Davis. "Distortions had little effect on the particles and there was a close similarity between the shape, intensity, and the time variations between auroras occurring at opposite ends of the earth."

At precisely prescribed points and pre-established time intervals determined by the computer, special equipment aboard the two airborne laboratories recorded the auroral activity. Scientists found that one second after an aurora occurred over Alaska, energized particles

bouncing back along the lines of force created almost identical auroras over New Zealand.

Data from this experiment, and others measuring auroral activity from satellites and instrument packages aboard rockets, is being analyzed by the computer. It is expected to provide new information about the high altitude composition of the atmosphere, the heights to which auroras occur, and to help scientists gain a better understanding of auroral rays.

Information from these experiments also enables scientists to use the computer to produce mathematical models of auroras. These studies, simulating auroras between the northern and southern hemispheres, are helping to further define auroral similarities and to more precisely map distortions in the earth's magnetic field.

In addition to its studies of the Northern Lights, the institute is using the computer to:

-Investigate magnetic disturbances around the world;
-Study the drift of radar signals reflected from meteor trails;

-Determine the epicenters of earthquakes occurring in the Aleutians;

-Analyze materials in lava flows from active volcanoes in Alaska;

-Probe the nature of man-made ice-fog, an Alaskan air pollution problem, and

-Define the nature and causes of air-glow, a soft lighting of the sky which often occurs in pre-dawn hours around the world.

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AN IMPORTANT AGREEMENT for sanitary conveniences is signed by representatives of Barrow City Council with Alaska Native Health Area for a project which will alleviate the serious problems of waste disposal in that farthest north city. Shown signing are, far right, Able Akpik, secretary of the Council and second from right, Lester Suvlu, sitting in for President Wayne Panigo. Others are not identified.

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Waste Disposal Problem Plan By Barrowites

A first step toward solving vexing and long-standing waste disposal problems at Barrow will be taken next month as a joint project between the Alaska Native Health Area of the U. S. Public Health Service and organizations of America's farthest north community.

A simple program dictated by extremely difficult terrain and climatic conditions and limited PHS funds has been worked out. Each of the 296 homes and 23 commercial establishments will receive a new "box-and-pail" toilet and two covered garbage cans on a stand.

The neatly designed toilet (a handsome avocado color) with special plastic receptacle bags will replace the various contrivances families have used in the past.

The garbage cans will take the place of the unsightly and unsanitary fuel oil drums which have been an unpleasant but necessary part of the town's scene.

The PHS environmental health field engineer, working with the townspeople, will inform them how to keep the new equipment clean for both health and esthetic considerations.

In plans (first begun five years ago) worked out through conferences with the Barrow Improvement Board, JayCees and City Council, PHS will also provide a specially designed four-wheel drive dumping truck. It is due to arrive on the "North Star" in August.

The \$2,000 transportation charge on the truck alone is evidence of cost problems for such a project.

A PHS consultant's survey for safe water supply and sewage disposal system in Barrow a few years ago gave preliminary cost estimates of more than \$2 million for a home system approximating the familiar urban services in other states.

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