

METEOROLOGY

Daily Rockets to Probe Weather in U. S. Net

BEGINNING April 18, weather data from Tiros I satellite will be supplemented by wind data from rockets fired daily from five U.S. bases.

Weather rockets will be fired daily for a month each season from Tonopah, Nev., Eglin Air Force Base, Fla., Cape Canaveral, Fla., Point Mugu, Calif., and Wallops Island, Va.

The Space Science Board of the National Academy of Sciences announced details of the new network. It will be patterned after the present international program of daily balloon observations.

But the new routine of rocket observations will probe more than 200,000 feet into the atmosphere—twice as high as balloons go.

Two solid-propellant rockets will be used. Inexpensive and only a little more than three feet long, Loki will carry a payload of metallic confetti to be ejected at the desired altitude by explosive.

To measure winds, radar will track the chaff as it drifts toward earth.

The other rocket, the eight-foot Arcas, will carry a 12-pound package of instruments to telemeter temperature data to earth. The Arcas nose cone will break from the main rocket and drift on a parachute. Radar will again track the drift.

Both rockets can climb higher than 40 miles.

Data from the new weather network will be distributed to the rest of the world through the international Committee on Space Research (COSPAR). American scientists hope that during COSPAR'S quarterly International Rocket Weeks other countries will join the network.

The unprecedented American network will operate for a month each spring, summer, fall and winter.

Feasibility tests of weather rockets were made daily from Fort Greeley, Alaska, and Point Mugu in October, 1959, and Wallops Island and Point Mugu this past January and February.

It was found that high winds may exceed 250 miles an hour and may change rapidly. Meteorologists want to determine how these changes affect weather below.

The new network is a joint undertaking of the Air Force, Army Signal Corps, Atomic Energy Commission, the National Aeronautics and Space Administration, the Navy and the U.S. Weather Bureau.

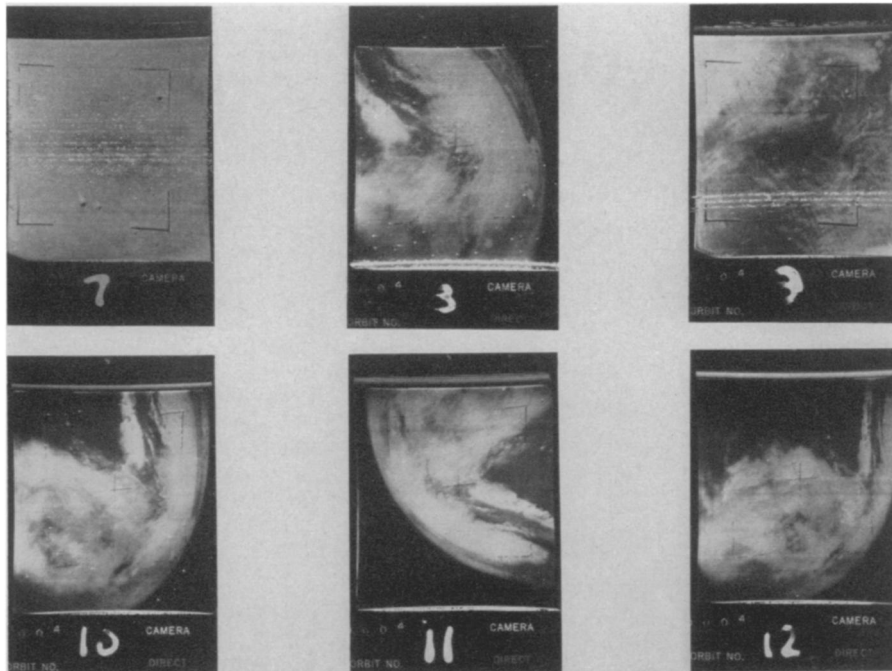
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TECHNOLOGY

Greenland Ice Cap Gets Nuclear Reactor

THE UNITED STATES and Denmark plan to install a portable nuclear reactor on the Greenland Ice Cap. A pressurized-water, prefabricated reactor, the first remote-area installation of "portable" atomic power in the free world, is to be installed later at the U.S. Army's Camp Century in Greenland.

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CLOUDS OF THE U. S.—These photos were made by the weather satellite Tiros I over the eastern United States and televised back to earth. The cameras were at this time pointed downward and toward the west. The pictures were received by the Army Signal Corps at Fort Monmouth, N. J., for transmission to the National Aeronautics and Space Administration. Pictures 7 and 9 were taken by the Tiros high resolution camera, showing fine detail of the cloud covers. Pictures 8, 10, 11 and 12, were taken with its low resolution camera, showing a larger area with less detail.

ROCKETS AND MISSILES

Tiros Weighs 270 Pounds**See Front Cover**

LAUNCHED into orbit April 1, Tiros I is only about a third full. The rest is empty space.

According to an official of the National Aeronautics and Space Administration, the hatbox-shaped satellite could not carry much more instrumentation without becoming too heavy to be lifted into orbit by the 90-foot, 105,000-pound Thor-Able rocket. Tiros I weighs 270 pounds.

Then why did NASA not decrease the size of the satellite shell? Because this would have reduced the area for exposure of solar cells. These convert sunlight into electricity to run Tiros' instruments.

So Tiros is an attempt to strike a balance between weight reduction and energy enough to function.

But it accidentally overdid the weight reduction. A device to measure the heat budget of the earth was not included in Tiros I, as planned, because the device was not ready in time.

Tiros II, scheduled later this year, will include the device (but will still be far from full). The infrared device will measure the heat coming from the earth and the heat coming from space, an official of the U.S. Weather Bureau has said.

This will provide data on the energy budget of the atmosphere—the income, outgo and what is left in the bank. This type of information should be enormously valuable for understanding the atmosphere and the weather.

A smaller infrared device in Tiros I tells only whether it is facing the earth or not. This keeps track of the spinning of the satellite.

But Tiros' manufacturer, the Radio Corporation of America, reports that even without the major infrared device Tiros I is perhaps the most elaborate electronics package yet sent into orbit around the earth.

It contains two miniature TV cameras, video tape recorders, transmitters, solar cells and rechargeable battery power supplies, plus control and communications equipment.

Seen on the cover of this week's SCIENCE NEWS LETTER is Robert Schmicker, of RCA's Astro-Electronic Products Division, Princeton, N. J., putting finishing touches on the interior assembly, mounted on the 42-inch base of the satellite. One of the two TV cameras is in the foreground on a round base. Two magnetic tape recorders for TV pictures are under the transparent domes left and right. See SNL, 77:227, 1960.

Science News Letter, April 16, 1960