

# Seven More Tiros Shots Necessary For a Complete Weather Picture

By David Miller

The nation's chief weather scientist cautioned yesterday that at least seven more television-equipped satellites similar to Tiros I would be necessary before dependable long-range weather forecasting becomes a reality.

Dr. Harry Wexler, the United States Weather Bureau's chief of research, hailed the successful launching of the 270-pound Tiros as opening a new era in meteorology and said future weather eye-in-the-sky satellites would contain infra-red gear for taking pictures in the dark.

He told the New York Herald Tribune by telephone from his home in Falls Church, Va., near Washington, that the vital equipment was left out of Tiros because of difficulty with components. Tiros II is scheduled for launching later this year.

"We decided to go ahead without the infra-red camera. But we must have it if the future launches are to mean anything. We must have six more satellites circling the poles and another circling the equator from west to east. These are minimums."

He said the weather satellite system would provide two pictures of every portion of the earth once every three hours, in both day light and darkness. The equatorial satellite would be used to photograph cloud masses associated with tropical storms.

Dr. Wexler, whose suggestion in 1954 triggered study for weather observation platforms in space, said the over-all system would provide "detection and almost continuous observation of every large cloud system surrounding a major storm. This way, we could keep track of the shape these cloud systems are taking, how they are moving and whether they are intensifying."

As Dr. Wexler spoke and other scientists continued computations, Tiros I, launched Friday morning at the head of a Thor-Able rocket at Cape Canaveral, Fla., circled the earth with all instruments reported functioning well.

By midnight the two-camera satellite was in its twenty-fourth circuit. Each pass took

ninety-nine minutes and nine seconds as the satellite varied between 435 and 468 miles above earth in one of the most perfect orbits ever achieved.

The temperature inside the satellite was 62 degrees, but climbed to 74 when receiving stations triggered Tiros to relay photos. Pictures of cloud formations in all parts of the world were radioed back, but Air Force officials doubted that Tiros initially would have millitary value outside meteorological phases.

But because of the importance of meteorology to the military, the project was given full support by civilians and military space agencies. Its value to the weatherman was underscored yesterday by Brig. Gen. David Sarnoff, chairman of the board of the Radio Corporation of America, which designed and built Tiros I under contract from the National Aeronautics and Space Administration.

"The day is approaching when you will be able to scan a dependable ninety-day forecast and decide whether to begin your vacation on July 1 or July 15. The farmer will get a better idea when to plant and when to harvest, and the weather forecaster will at last become a happy, well-adjusted man."

A dissent, however, was voiced by Dr. Harlow Shapley, Harvard University astronomer, who addressed a convocation yesterday at Lafayette College. He acknowledged the value of Tiros I, weather balloons and other recent developments in long-range weather forecasting, but said local conditions cause most of our weather, and it will be a long time before the satellite can bring about exact forecasts.

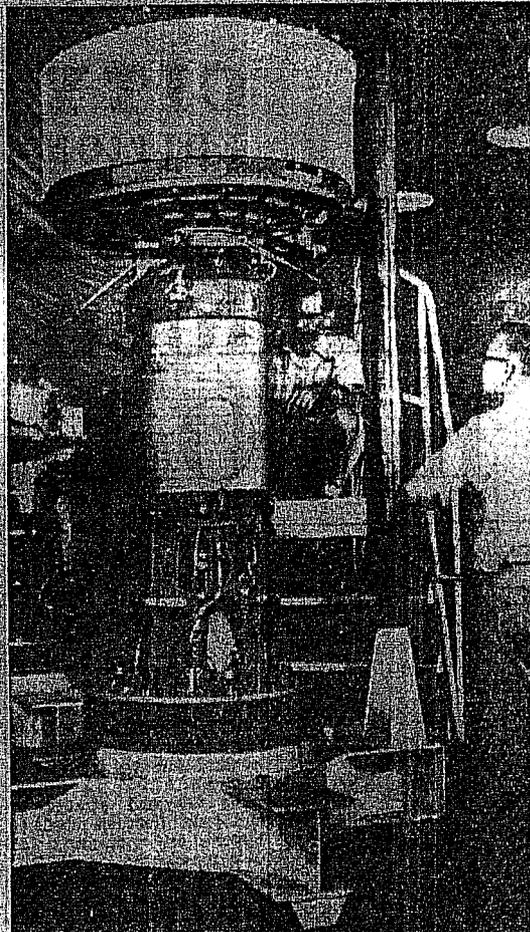
The feasibility of sending weather observation stations into space was first broached by Dr. Wexler at a 1954 symposium on space travel at the American Museum of Natural History Planetarium on Central Park West.

He said yesterday that in preparing for a speech he gave on "Observing the Weather From a Satellite" on May 4, 1954, he had found no previous suggestions for television-equipped weather space stations.

"I suggested then that the satellite be 4,000 miles away from earth and even drew a hypothetical map of how we could look down on the earth's weather. Obviously, we are getting a much better picture at 450 miles, but there is still a question of what the best height is."

He said Tiros II, another west-to-east weather satellite, would be launched from Cape Canaveral, but that the first polar-orbiting weather satellite would be fired from Vandenberg Air Force Base, Calif., in late 1961.

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Times-UPI Photo  
**SPACE PHOTOGRAPHER:** Here is the Tiros earth satellite carrying two television cameras to photograph the world's weather from 400 miles deep in space. It is resting on the third stage of the Thor-Able launching vehicle, as it was given its final check before launching.

## RCA Created New Satellite At Princeton

Picture On Page 2

The Tiros satellite which the U. S. put into orbit today and the ground communication and data recording check points were designed and built at the Astro-Electronic Products Division of the Radio Corporation of America.

The division's laboratory and plant, set up early in 1958, are on the Princeton-Hightstown Road at Locust Corners.

RCA described the satellite as "perhaps the most elaborate electronics package yet sent into orbit to study the world's weather."

It contains miniature television cameras, video tape recorders, transmitters, solar cells and rechargeable batteries and elaborate control and communications equipment.

RCA's Astro-Electronics worked with the research laboratory of the Signal Corps at Fort Monmouth in developing Tiros. The "pass drum" satellite is 42 inches in diameter and 19 inches high.

Top management at the division, who took part in the development are Sidney Sternberg, chief engineer; Vernon D. Landon, engineering staff manager, and Edwin A. Goldberg, Tiros project manager.

The division is headed by Dr. Elmer W. Engstrom, senior executive vice president of RCA. Carl W. Zemke is manager of operation control.