

## ROCKETS AND MISSILES

# Flare Observed in Space

► THE SATELLITE Explorer X has observed a flare on the sun and measured a resulting magnetic storm on earth, the National Aeronautics and Space Administration in Washington, D. C., told SCIENCE SERVICE.

Explorer X, earlier called P-14, was launched March 25 and radioed information back to earth for 59 hours instead of the planned 55, NASA reported.

The magnetic tape recording this information at stations all over the world would cover 402 miles.

On the basis of one tape processed so far, NASA has learned that interstellar

space contains magnetic fields of greater strength than expected. The information on the tape also indicates that the flow of charged particles in space is at relatively high velocities.

Information from the satellite bears out the theory that the interplanetary magnetic field in space surrounding the earth is a continuation of the field of the sun.

Dr. James P. Heppner of the National Aeronautics and Space Administration said that the earth's and the sun's fields meet out in space between 13 and 25 earth radii (52,000 to 100,000 miles). He said that at 58,000 miles the field had been measured

by the satellite to be as strong as 20 to 35 gammas (a unit of magnetic field intensity). This, he said, could be expected from a solar wind.

At one point when the field was measured, great disturbances and fluctuations were taking place. During this time the field was found to change direction in less than two seconds. He said that five hours after the disturbance in the field the solar flare was observed.

This demonstrates for the first time that hydromagnetic shock waves can be propagated in the rarefied interplanetary media.

The large, short-lived fluctuations and shock waves are believed caused by blobs of matter sent out by the sun and traveling outward along the sun's magnetic field.

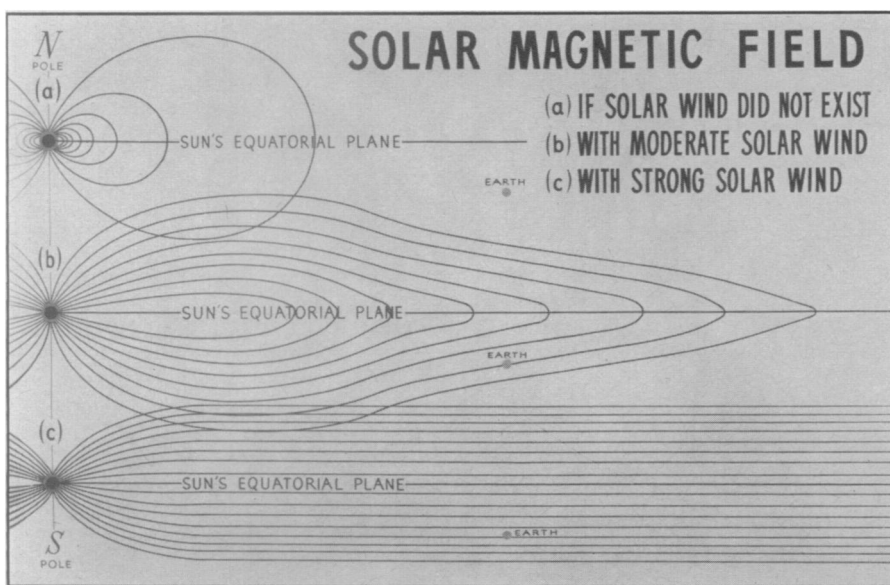
The solar flare observed by the satellite was of class III, described by Kent D. Boggs, chief forecaster at the North Atlantic Radio Warning Service, Fort Belvoir, Va., as being of fairly large size and bright. Solar flares often cause disturbances of radio and cable communications on earth.

Mr. Boggs told SCIENCE SERVICE that the Warning Service observed a flare on March 27 lasting about 18 hours. He said this flare caused moderate disturbance. It affected radio communications for about six hours near the end of the period.

He said the Warning Service would like to find aids in radio propagation forecasting so it can warn the nation when communication will be poor. Flares differ greatly as to the amount of radio disturbance they create.

One possible way of foretelling if a flare will have disturbing effects on radio has been worked out on a statistical basis, Mr. Boggs said. If an outburst of solar radio noise is heard during the first few minutes of the flare, it is likely to cause disturbances in radio, television and transatlantic telephone.

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SOLAR WIND REACHES INTO SPACE

## BIOLOGY

# All Life From One Spore

► ALL LIFE on earth may be descended from a single spore that hit this planet's lifeless surface after traveling for ages in the cold vast spaces between stars.

Dr. Edward Anders of the University of Chicago gives credence to this possibility from an analysis of what kind of organisms may be found on the moon. He concludes that organisms of earthly origin may very well be found on the moon, but the chances of finding lifelike forms from sources beyond the sun's system are overwhelmingly remote.

The idea that earth life was originated by organisms from interstellar space was first put forth early this century by Helmholtz, Arrhenius and others.

The latest addition to the moon by natural methods, Dr. Anders suggests, may have taken place when tiny specks of debris were smashed out of the earth by the Russian Tunguska meteorite. If Mars

has microorganisms, the moon's surface should also hold samples of them, although they would be less numerous than earth's.

These findings, Dr. Anders reports in Science, 133:1115, 1961, suggest that the goals of a lunar biology program should be reconsidered. One of the principal aims would be a test of the theory that all life on earth came from a single spore ending its interstellar travels here. This would be shown by the presence or absence of earth's microorganisms on the moon.

If finding earth life on the moon could be predicted with certainty on the basis of present knowledge, sterilization of lunar probes would no longer be necessary, Dr. Anders said. Russians reportedly sterilized the rocket they crashed into the moon and the United States now plans to sterilize its lunar probes.

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## ROCKETS AND MISSILES

## Space Capsule Path Seen at Control Center

See Front Cover

► WHEN THE FIRST U. S. astronaut goes into orbit the path of his space capsule will be followed on a display map at the Project Mercury's Control Center at Cape Canaveral, Fla.

Information from the capsule's three orbits will flow into the center from stations located in the U. S., at Bermuda, on a ship in the mid-Atlantic Ocean, in Grand Canary Island, Nigeria, Zanzibar, on a ship in the Indian Ocean, in West and South Australia, Canton Island, Hawaii and Mexico.

All the stations are shown on the map in different colors with rings to indicate the communication and tracking range of each station.

To the left and right of the map, constructed by General Dynamics/Electronics, San Diego, Calif., are trend charts. The map is seen on the cover of this week's SCIENCE NEWS LETTER.

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