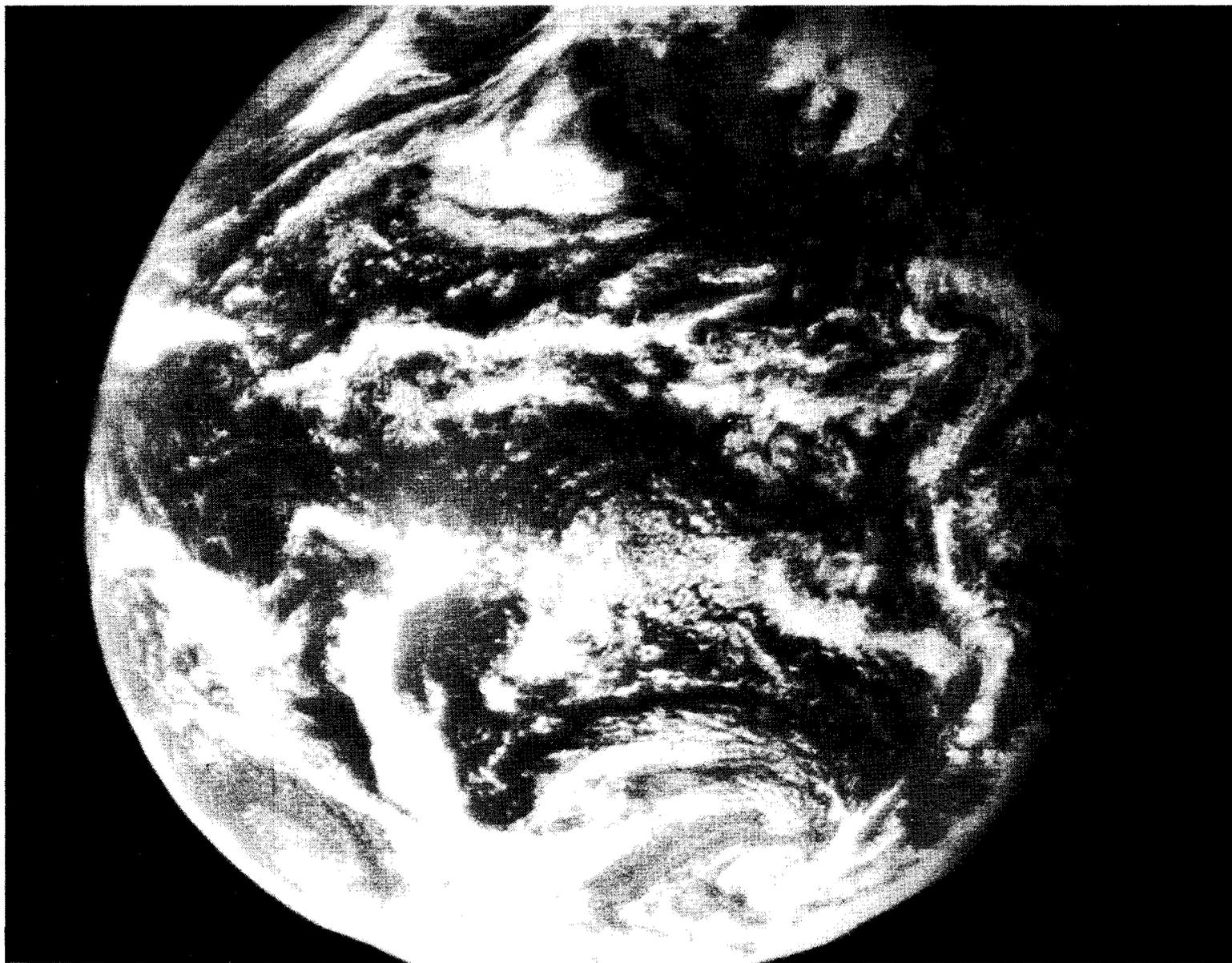


GODDARD NEWS

NASA/GODDARD SPACE FLIGHT CENTER
GREENBELT, MARYLAND

DECEMBER 19, 1966

SPECIAL



FIRST COMPLETE EARTH PHOTO FROM ATS-1

The above photo was taken by the Applications Technology Satellite-1 (ATS-1) at 4:33 p.m., Friday, December 9, 1966, and transmitted to the ATS ground station at Rosman, N.C. The camera was triggered upon command from the ATS Operations Control Center (ATSOCC) at Goddard.

This picture represents the first U.S. photo of most of the earth's disc from about the stationary orbit altitude of 22,300 miles. About seventy percent of the picture covers the eastern Pacific and shows

existing storms in that area.

Across the center of the picture, roughly north and south of the equatorial regions, there are broad bands of clouds extending horizontally over almost the entire disc of the earth. The relatively cloud-free area in the upper center exposes the southern portion of North and Central America.

The Spin Scan Cloud Camera (SSCC) on the ATS-1 can provide continuous coverage of the earth's changing cloud pattern.



7:05 AM



9:02 AM



9:15 PM

The Difference Between Night and Day

These photos were taken from about 23,000 miles above the earth by the Applications Technology Satellite-1 on Sunday, December 11, 1966.

Each photo took 20 minutes to record. Together, they show the world's changing cloud pattern for an 18-hour period beginning at 6:18 a.m., EST.

The Spin Scan Cloud Camera (SSCC) on the ATS-1 is triggered by ground command from one of the ATS ground stations as directed by the Applications Technology Satellite Operations Control Center (ATS OCC) at Goddard.



APPLICATIONS TECHNOLOGY SATELLITE-1

. . . Right On The Money

Some have called it a "public benefactor." Others have dubbed it the "busiest satellite the world has ever seen." Still others say "It's the most diversified spacecraft ever."

Without a doubt, the Applications Technology Satellite-1 lives up to all of these distinctions and more. A complex space laboratory, it carries engineering and scientific experiments to extend the scope of spacecraft communications, meteorology, control technology and scientific observation.

All will agree, the ATS-1 heralds a new era in space technology.

The performance of this multi-purpose spacecraft reads almost like the operations manual said it would—word for word. After a smooth countdown, the ATS-1 lifted off within 9/10th. of a second of its scheduled time of 9:12 p.m., EST, on December 6, 1966. All maneuvers went like clockwork and the ATS-1 was injected into a drift orbit some 16 hours, 31 minutes, and 34 seconds after liftoff when the apogee motor performed as designed.

All Systems "Go"

So far, every major system on the ATS-1 has checked out. The Spin Scan Cloud Cover Camera has produced exceptional pictures of the global weather pattern. The microwave repeater has relayed color television between the U.S. and Australia. The VHF communications repeater has relayed the first two-way voice conversations between a ground station and inflight aircraft. And every one of the seven units in the Environmental Measurement Experiment (EME) have reported data on the orbit environment at 22,300 miles as well as the effect of this environment on the spacecraft.

In addition, the electronically de-spun antenna has directed the

radio beam from the microwave repeaters toward the earth from the spinning ATS-1.

After it had been injected into the drift orbit and until its drift was stopped this past weekend, the spacecraft had been drifting westward toward its operating station. Today, it is over a spot on the equator east of the Christmas Islands.

Sometime within the next 10 days, the final two experiments will be operated. These include the Nutation Sensor to measure wobble about the spin axis and a Resisto Jet. This jet will be used to de-spin the spin-stabilized ATS-1 as an evaluation for such uses as spin control and orbital maneuvers.

Goddard Record Excellent

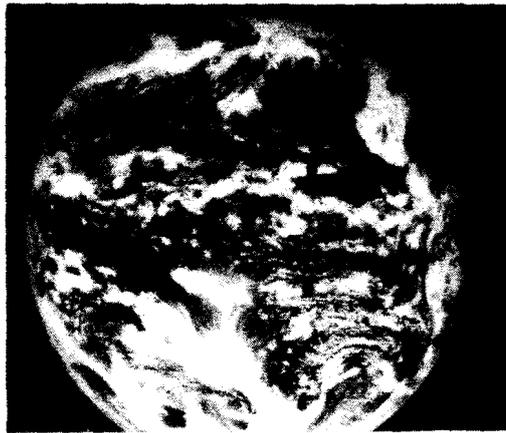
During a post-launch press conference at Goddard on December 13, Goddard Director Dr. John F. Clark said, "This gives us a cumulative success record of all classes of satellites of 46 out of 51—slightly over 90 percent.

"The ATS-1 is really our first interdisciplinary observatory-class satellite to involve the disciplines of communications, meteorology, and fields and particles. It emphasizes overtly the development of technology in the applications areas and in its own right," he added.

Deputy Administrator for NASA, Dr. Robert Seamans, said at the same conference, "This experimental satellite is built to look into some of the best means of moving ahead in a rapidly changing world. Engineering concepts will be tested on the ATS-1 and follow-on spacecraft. The man in the street will ultimately see the results in improved operational systems. He will see them in better weather forecasts, in better radio and TV, and in better and more flexible communications of all kinds."



6 PM



3:45 PM



5:44 PM



10:05 PM

Another first in space...

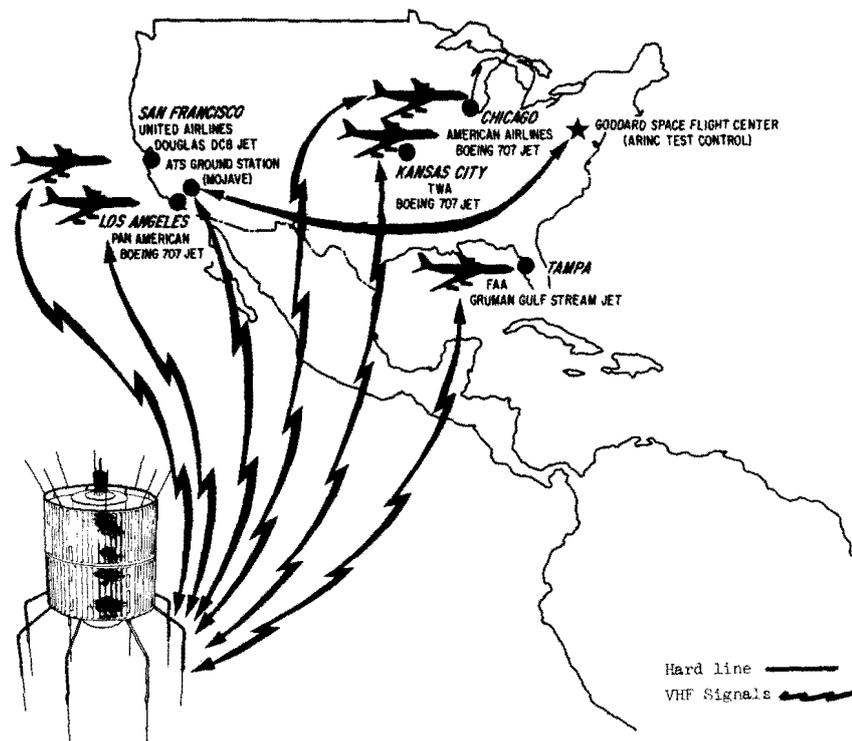
The versatile ATS-1 was used to relay the first two-way voice conversations between a ground control station and inflight aircraft. First contact was made at 3:00 p.m., Saturday, December 10, 1966. These tests continued off and on over the next few days.

The signals originated in the ATS Operations Control Center (ATSOCC) here at Goddard and were sent to the ATS ground station at Mojave. There, the signals were transmitted in VHF up to the ATS-1 over the Pacific and relayed to aircraft.

Each of four commercial aircraft and a Federal Aviation Agency plane conversed with officials at Goddard over the same VHF loop returning to Goddard.

The initial 16 hours of tests with the ATS-1's VHF communications repeater were dubbed Exercise SPARC for *SP*ace-*Air* Relay Communications. This exercise began on December 10, some four days after launch, and was concluded in a demonstration at an ATS-1 press conference on December 13, at Goddard. More intensive testing of the VHF system on the ATS-1 will take place in the coming months. This will include the participants of Exercise SPARC as well as Eastern Air Lines, British Overseas Airways and Qantas Empire Airways.

The diagram below shows the Exercise SPARC participants and their location:





ROBERT DARCEY PRESENTS ATS-1 STATUS to press conference at Goddard on December 13. Left to right at head of table are: Dr. Verner Suomi, Spin Scan Cloud Cover Camera (SSCC) experimenter, U. of Wisconsin; Gil Bullock,

ATS project assistant operations manager; Leonard Jaffe, Director, Space Applications Program, NASA; Dr. Robert C. Seamans, Jr., Deputy Administrator, NASA Hq.; and Dr. John F. Clark, Goddard Director.

Goddard ATS Project Team

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 J. L. Baker, Proj. Coordinator A. M. Hanson, Secretary

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SPACECRAFT

R. H. Pickard, Spacecraft Mgr. W. I. Gould, Asst. Spcrft. Mgr.
 M. A. Thacker, Secretary K. W. Parks, Mech. Considerations
 R. B. Ratliff, Mech. Despun Antenna D. H. Suddeth, Reaction Control
 J. F. Wagner, Interface Coord.

GRAVITY GRADIENT

A. H. Sabelhaus R. J. Wirth G. F. Banks

GROUND TERMINALS SECTION

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 B. A. Fariss, Secretary C. R. Kinley
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 J. W. Peters, Mojave J. P. Corrigan, Nutation Sen. Reflectometer, VHF
 R. A. Mattson, Launch Vehicle F. H. Wainscott II, EME, SCNS

HUGHES LIAISON OFFICE

A. D. Brown, Head L. E. Austin
 S. R. Neal D. E. O'Rourke, Secretary

Many other individuals at Goddard, too numerous to list, contributed to the ATS-1 success. They include members of the Tracking and Data Systems Directorate for operations and computer support, and members of the Spacecraft Integration and Sounding Rocket Division for support of the experiment development. Many others at all echelons of Goddard organization also contributed time and effort.

GIL BULLOCK discusses ATS-1 photo montage with Dr. Seamans, Dr. Clark, and others.



MR. DARCEY and Dr. Suomi answer press questions.

