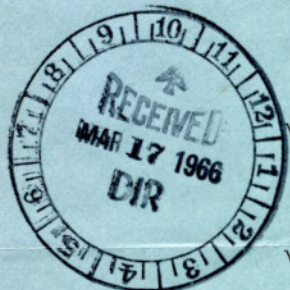


SPACE Log

January 1966 ©



January 3 -- The Naval Oceanographic Office is planning to undertake a program to develop the feasibility of using Earth orbiting spacecraft for oceanographic applications as a part of NASA's "natural resources" portion of the **AA (APOLLO Applications program)**. Areas to be studied include types of spacecraft, oceanography experimentation and instrumentation and sensors.

The discussions between NASA and CNES, the French space agency, over **EOLE**, the French weather satellite, are expected to end this month in an agreement to designate it **FR-2** and launch it from Wallops Island on a **SCOUT**.

✓ Philco's Aeronutronic Division receives three awards totaling \$86.74 million from the Army for engineering, production and modification of the **SHILLELAGH** gun-launched anti-tank missile.

✓ A laboratory test of a Sun-powered laser designed for communications between the vicinity of Mars and Earth has been successfully conducted by RCA's Applied Research Organization.

✓ ComSat realized revenues of \$966,000 from the operation of the **EARLY BIRD** communications satellite from June 28 (when the satellite began commercial operation) to September 30.

January 4 -- The General Electric Company retains the Republic Aviation division of Fairchild-Hiller for technical consultant services on the Air Force **MOL** program. Republic will participate in the planning of the space experiments for the orbiting laboratory program.

✓ The Air Force Space Systems Division orders development of the new Long Tank **THOR** which, combined with various upper stages, will take over much of the Air Force space booster business at Vandenberg.

✓ NASA elevates the Office of Tracking and Data Acquisition to the associate administrator level, on the same footing with the Offices of Manned Space Flight, Space Science and Applications and Advanced Research and Technology. Edmond C. Buckley, formerly director of T&DA, is promoted to associate administrator for T&DA.

✓ With negotiations at an end, NASA-Marshall awards North American Aviation a \$148,000, nine-month study to determine the impact of the improved J-2 engine on the **S-II SATURN V** upper stage. Also, Douglas is selected for a \$225,000, nine-month study of the impact of the new updated J-2 on the **S-IVB** third stage.

January 5 -- The Air Force Ballistic Systems Division issues requests for proposals to several firms for the development of a system(s) which could dispense radar cluttering and decoying chaff in the exoatmospheric (space) regions, thereby providing an anti-anti-missile missile defense/offense system as an improvement to penetration and weapons effect.

✓ The Bendix Radio Division of Baltimore is awarded a \$237,346 contract for a feasibility investigation of a teletype communication system which could be employed for space-air traffic control. The contract includes the study of a VHF system for communication via a synchronous satellite.

- ✓ The Natural Resources Program within the Communications and Navigation Division of the Office of Space Sciences and Applications was established to investigate the implications of remote sensing techniques to surveys of Earth resources.
- ✓ The NASA-JPL management teams responsible for the successes of the **MARINER IV** and the **RANGER** have been designated as top leadership for the **MARINER 67** and **MARINER 69** missions.
- ✓ The Falmouth Summer Conference on Lunar Exploration and Science has recommended a lunar program of exploration consisting of at least one and possibly two lunar missions per year and at least one manned lunar orbiter mission per year for a ten-year period following the first manned lunar landing.

January 6 -- NASA will select 15 additional astronauts for a training program to start next summer.

- ✓ When the **SATURN/APOLLO** Applications Directorate was established, one of its two main branches was the **SATURN** Applications office, under Col. H. G. Russell, with the mission of directing the modification of the **SATURN IB** to the **CENTAUR** upper stage for the 1969 **VOYAGER**. As the **VOYAGER** has been postponed, first until 1971 and then until 1973, and the launch vehicle changed to the **SATURN V**, the **SATURN** Applications office has dwindled out of existence.
- ✓ The \$5 billion NASA budget will be an official stamp of approval by President Johnson that all plans for any major post-**APOLLO** programs be deferred at least for another year while he uses the money for programs he considers more urgent. All evidence points to a Congressional approval of his actions, whether loyal or in opposition. It gives us little satisfaction that we can borrow from our September 24 report that the plan being approved for the national space program "will begin its first recession of ambitions since Kennedy's Space Mandate of 1961." If we can also borrow and paraphrase from James Webb, we can add that history has yet to teach us that our plans for our future in space should not be drawn by a timid hand--
SPACE Daily report.
- ✓ NASA is now about to award Philco-Aeronutronic a follow-on contract to continue the study of the ABL (Automated Biological Laboratory) through this fiscal year. Philco, contractor for the preliminary design model, was among nine bidders for the initial development package.

January 7 -- The NASA transfers \$900,000 to the Navy for funding the studies by the Naval Oceanographic Office of **APOLLO** Applications (**AA**) Oceanography missions.

- ✓ The Research and Technical Programs Subcommittee of the House Committee on Government Operations begins hearings seeking a better allocation of the \$16 billion annual research and development budget. Chairman Henry S. Reuss (D-Wis.) suggests that by advancing the **APOLLO** lunar landing target date from 1970 to 1975, approximately \$1.5 billion a year would be made available for R&D in such areas as housing, urban transportation, and pollution control. **MORE**

As for devoting more R&D funds to the areas of housing, transportation, and other domestic problems, Dr. Donald F. Hornig, director of the Office of Science & Technology, points out that "What we lack in many of the civilian problems areas. . . is not a consensus on their importance. . . We cannot buy and create progress in a field which is not ready to progress." Questions which Hornig considers essential in the allocation of R&D include: "Can the developments be applied in practice; and is the society ready to assimilate these results."

January 10 --The first **NERVA** nuclear rocket engine system begins preliminary checkout and testing at the Nuclear Rocket Development Station at Jackass Flats.

- ✓ NASA, which last week turned over responsibility for the oceanography experiments portion of its **APOLLO** Applications (**AA**) program to the Naval Oceanographic Office, assigns parts of the geology/planetology and hydrology portions of **AA** to the Department of the Interior's Geological Survey. In addition, NASA will soon turn over responsibility to the Geological Survey for efforts on the geography/cartology section of **AA**.

January 11 --The first contract to be awarded under the new cooperative agreement between NASA and the Department of the Interior's Geological Survey, to the University of Michigan, calls for feasibility studies of a lunar satellite-borne device that will produce images of the terrain in the infrared and ultraviolet radiation regions as well as in the visible light regions.

- ✓ Plans are well underway within ComSat to orbit in August of next year a small communications satellite to aid control of commercial aircraft traffic over the Atlantic Ocean.
- ✓ Rep. L. Mendel Rivers (D-S.C.), chairman of the House Armed Services Committee, orders investigations of Secretary of Defense McNamara's decisions to: phase out part of the strategic bomber force in favor of missiles, close down or downgrade 149 military bases, and delay starts on previously authorized military construction projects because of the rising costs of the war in Vietnam. Another group is preparing to hold hearings on military research and development.
- ✓ Reports circulating in Europe say "an important NASA team" would arrive in Europe on January 28, with its first destination West Germany. While such a trip could be expected to be no more than a follow-on of U.S./German talks in Washington for possible acceleration of U.S./European space cooperation in the future, intelligence portrays it as the start of a U.S.-European cooperation at the top level.

- January 12 --- ELDO (European Launcher Development Organization) scientific and/or space research ministers are considering a possible major planning meeting in the second half of 1966 to review the future of the European space launcher program. The theme of the agenda will be the search for a decision on how far and how fast should the ELDO move after **EUROPA-1**.
- January 13 --- For the first time since the National Space Program was conceived under President Eisenhower, our struggles for leadership in space are not important enough to be mentioned by the Chief Executive as a topic deserving of attention in a report to the Congress and the American people. Only one or two conclusions can be drawn. Either the President now considers the battle won or the fruits of our space labors are of a minority priority for competition with the domestic and international welfare and war endeavors of our nation--
SPACE Daily report.
- ✓ NASA-Edwards awards Martin-Baltimore a \$200,000 contract to design, fabricate, and test a thermal protection system for the modified X-15 experimental aircraft (No. 2) that will fly at speeds above 5000 mph.
- ✓ Air Force Chief of Staff Gen. John P. McConnell says the United States must continue its program of space and missile R&D but adds that we must maintain a missile/bomber mix in case the Soviet Union scores a "technological breakthrough" which would "lead to a revolutionary principle of missile defense which would be virtually impenetrable to even the most advanced missiles." Our deterrent, in such a case, "would be seriously impaired," McConnell says.
- January 14 -- The requests for proposals for two or more parallel nine-month study contracts for defining the **AA (APOLLO Applications)** experiment integration for the **LEM**, **SATURN Instrument Unit** and the **S-IVB** transportation vehicles for the **SATURN I** and **SATURN V** are being issued by NASA-Marshall. Studies will include the consideration of mission analysis experiment equipment, installation and integration equipment, specialized crew requirements, launch facility requirements, tracking and other support requirements.
- ✓ NASA-Washington begins issuing RFPs for a program of investigation of feasibility and preliminary design consideration of a system of data relay satellites to be positioned in synchronous equatorial Earth orbit combined with a complimentary network of ground stations. The network would transmit two-way voice and data communications between space vehicles and mission control centers, much in the same way as the ComSat **APOLLO** satellite system is supposed to do.
- ✓ The award by Hughes of a \$2 million contract to Thiokol for four retro-rockets (three flight models, one spare) for the heavier 2500-pound operational model **SURVEYOR** sets the stage in case NASA decides to proceed with the full 10 spacecraft plan in the **SURVEYOR** program.

- January 17 -- The Advanced Research Project Agency's **HBEX** (High-Boost-EXperiment) test program was concluded last week. The ten-test series, a part of ARPA's Project **DEFENDER** ballistic missile defense test program, was designed to study problems connected with the boost phase of a high-acceleration interceptor missile. Boeing was prime contractor, with Hercules Powder as propulsion subcontractor.
- January 18 -- Northrop president Thomas Jones will formally deliver the **HL-10** lifting body to NASA-Edwards director Paul Bikle. The termination of the ten-test **HBEX** (High-Boost-EXperiment) program is only a temporary interval in the ARPA high-acceleration booster project. While no firm follow-on programs have been decided on as of now, analysis is going on within ARPA to determine exactly which direction the follow-on will take. Chairman Joseph E. Karth (D-Minn.) of the House Space Sciences and Applications Subcommittee, indicates that he has some doubt about the recent NASA decision to push **VOYAGER** back until 1973 and to substitute a reworked **MARINER** program. The Congressman says that he does not think that post-**APOLLO** programs, such as manned expeditions to Mars or to the Moons of Jupiter and Saturn, will gain "general acceptance" until "we have solved the continually worsening home planet problems of hunger and poverty." He says that much greater emphasis will be on areas such as oceanography, which have the ability to solve the problems here on Earth.
- The year lost in the **MOL** program while Defense Secretary McNamara and the Administration pondered the necessity for its initiation has now come forward for its accounting. Under the original program the first manned flights would come in 1968. Now, it is sometime in 1969 that the first manned flight is considered most acceptable, *SPACE Daily* report.
- The Centre Nationale D'Etudes Telecommunications receives a \$60,000, six-month ComSat contract to study a medium-altitude phased-orbit satellite system that would have 12 to 15 spacecraft in 12-hour, 30-degree orbits for five years of operation.
- January 19 -- The Oversight Committee of the House Space Committee meets in closed session in order to hear reports on a number of its investigations including: NASA's master planning, Automatic Data Processing (ADP), maintenance of facilities (roads and grounds, custodial services, security services, and the centers' construction execution programs), international programs, and NASA's administrative operations appropriations.
- Some quarters of the European space industry are becoming concerned over the effect of the continuing problems the European Launcher Development Organization (ELDO) is having in its programs to put its initial vehicle, **EUROPA I**, into service.
- Marshall, now testing Bell Aerosystems' most recent mockup of the **LUNAR HOPPER**, has yet to give the go-ahead for production models, but the current Bell contract, which is an extension of the initial

award calls for submission of the final design report this summer, and the decision to enter procurement may be made this spring.

The proposals for the **LEM** and launch vehicle experiment payload integration, due February 28, will call for consideration of a two-phase **AA (APOLLO Applications)** program including operation of a Payload Integration Facility.

January 20 -- The objectives of the ill-fated Advanced Orbiting Solar Observatory (**AOSO**), cancelled recently by NASA due to "budgetary considerations," are set to be attempted as major experiments aboard manned **AA (APOLLO Applications)** flights.

NASA Administrator James E. Webb's proposed trip to western Europe to discuss the "joint exploration of space" as announced by President Johnson, is tentatively scheduled for late March or early April.

Soviet reports refer to preparations for a new major manned space flight which will represent an outstanding expansion of manned experimentation. Space stations, carrying from three to eight men, will be orbited for missions of about 30 days.

A Working Group of the United Nations Committee on the Peaceful Uses of Outer Space is presently considering a proposal to hold an international conference in 1967 on the possible cooperative applications of space exploration.

Douglas's backlog jumped from \$935,861,000 as of November 30, 1964, to \$2,041,739,000 a year later.

A plutonium-238 fueled isotope Brayton cycle system appears to be the best system for providing power to a second-generation space station (**MORL**) Douglas Missile & Space Systems Division has reported to NASA-Langley.

NASA has chosen the first three-man **APOLLO** crew for the first manned **SATURN IB** flight planned for late this year. Announcement of the crew is being held up until the first unmanned flight test of the **SATURN IB**, presently scheduled for the middle of February.

January 21 -- The **APOLLO** Telescope Orientation Mount (**ATOM**) is scheduled to carry the **AOSO** experiments on the Manned Solar Observatory Missions (**MSOM**) of the **AA (APOLLO Applications)** program.

The House Space Committee's Oversight Subcommittee has been warned that the Administration must decide which direction the national space program is going to take after the manned lunar landing within the next 18 months to two years in order to take advantage of the technological gains which have been made in the **APOLLO** programs.

In order to meet the requirements of the full-blown plan for the **AA (APOLLO Applications)** program, NASA needs authorization for 16 additional **SATURN IBs** and 10 **SATURN V** transportation systems, which is only one vehicle short of the presently approved 27-vehicle program and includes six possible vehicles for the **AA** program.

An official cooperative agreement between NASA and the Department of the Interior's Geological Survey for the first area in the Space Agency's **APOLLO Applications (AA)** remote sensor program--Geography/-

MORE

Cartology--is being held up in the Air Force, which is consulted on all matters relating to NASA geological efforts.

NASA has converted its \$2.2 billion contract with North American for the **APOLLO** Command and Service Module and **LEM** adapter from a cost-plus-fixed-fee to a cost-plus-incentive-fee agreement.

The conversion covers the period from October 1965 to December 10, 1966, and will be extended through additional negotiations to subsequent periods of the contract. Estimated cost of the conversion will be \$671,300,000.

Under present planning, NASA would hope to land the first astronauts on the Moon by the fourth quarter of 1969 with the **SATURN V/-APOLLO** flight 512, after 23 flights of the **SATURN IB** and **SATURN V**.

January 24 -- Total expenditures requested by President Johnson for space exploration and exploitation for FY 1967 are \$7.065 billion. This is about \$220 million less than was requested for FY 1966. For FY '67 NASA has asked \$5.211 billion; DOD is requesting \$1.65 billion; AEC, \$174 million; Commerce Department (Weather Bureau), \$27 million; and National Science Foundation, \$3 million.

The NASA fiscal 1967 budget has been approved by President Johnson and the Bureau of the Budget at \$5.012 billion, over half a billion dollars less than the \$5.58 billion which NASA urgently requested for its FY '67 program. NASA Deputy Administrator Dr. Robert Seamans says the "extremely stringent budget" was the result of pressing needs of the Vietnam War and the Great Society.

The Department of Defense's budget request for fiscal 1967 calls for funding of the Manned Orbiting Laboratory (**MOL**) at approximately the FY '66 level--between \$100 million and \$150 million--with the first mission scheduled for 1969.

Fifty companies have submitted notice of interest to the Naval Oceanography Office on the NASA/NOO Space-Oceanography program. The program is designed to develop the feasibility of using Earth orbiting spacecraft for oceanographic applications. It is part of the overall NASA **AA** (**APOLLO** Applications) remote sensor program.

An agreement has been made whereby Allied Research Associates of Concord, Mass., will purchase the assets of Aeronca Manufacturing's Aerospace Division for cash and common stock.

NASA will negotiate with TRW Systems to convert the prototype **OGO** (Orbiting Geophysical Observatory) into a flight model spacecraft. The \$9 million contract will also include a possible option to fabricate an additional observatory.

January 25 -- Rep. Chet Holifield's (D-Calif.) Military Operations Subcommittee on Government Operations wants to know why it is necessary for NASA to spend approximately \$80 million over a 10-year period (or around \$29 million every three years) for the Communications Satellite Corporation's **BLUE BIRD** (303A) satellite system to fill in the gaps in the global communications network that will support the **APOLLO** flights when NASA has a communications capability of its own.

Ground testing of the Martin **SV-5D** space shuttle, the vehicle for the AF **PRIME** (Precision Recovery Including Maneuvering Entry) program is underway at the Pt. Loma test site of General Dynamics/-Convair.

Secretary of Defense McNamara informs the House Armed Services Subcommittee that China "could possibly develop and deploy a small force of ICBMs by the mid to the latter part of 1970."

McNamara had earlier stated that the Chinese could develop an MRBM force within about one year.

NASA has selected Commander John W. Young, the co-pilot of **GEMINI III**, as the command pilot for the **GEMINI X** mission scheduled for this summer. Major Michael Collins will serve as co-pilot for the mission.

- January 26 -- Since 1955, the year of the first official approval of a national space effort and the year this effort became a fiscal responsibility, the United States has budgeted (through FY '67) \$40.667 billion for space exploration and exploitation. Expenditures for that period will total \$37.1 billion, including the DOD, AEC, NSF and Commerce.
- Seven geophysical instruments have been selected by NASA for inclusion in the **ALSEP (APOLLO** Lunar Surface Experiments Package) which will be carried in the initial **APOLLO** manned lunar landing flights to be activated and left on the lunar.
- January 27 -- The Defense Department has concluded that a light anti-ballistic-missile (**ABM**) system using exoatmospheric (space) interceptor missiles and terminal defenses around a limited of cities will provide the most effective defense against ballistic missile threats such as can be expected from the Red Chinese during the next decade. McDonnell and Northrop Norair, after six months of design feasibility studies, have reported to NASA-Edwards that a minimum manned lifting body flight test program is "highly feasible."
- January 28 -- The **AA** Experiment Program, which must be considered by potential bidders for the **AA** integration contract, will include the re-entry from orbit of a scale model, unmanned, "high lift re-entry body" similar in configuration to the **HL-10** and **M-2**.
- Defense Secretary Robert McNamara tells Congress that presently planned U. S. defenses could not prevent the Soviet Union from killing 130-135 million Americans if Russia were to launch a surprise nuclear attack. American casualties would be 90-95 million even if the United States were to attack the Soviet Union first, McNamara says. Without these programs which are currently approved, a surprise attack by the Soviet Union would result in 160 million U.S. casualties, he says. All of the above figures are based on the currently approved U. S. defense program in 1970.
- NASA Administrator James E. Webb is expected to assume the chief negotiator role in future international space cooperation efforts by the United States.
- A UN Committee on Space has reached agreement in principle to hold an international conference in 1967 to discuss the benefits of space exploration for the developing nations.

**SPACE FLIGHT LOG
JANUARY 1966**

Launch	Space System	Designation	Program	Launch System	Spacebase	Perigee	Apogee	Inclination	Period	Decay	Duration
1) Jan. 6	DOD R&D	—	US-AF	THOR ALTAIR	V	Failed					
2) 7	COSMOS 104	01A	USSR		B-K	124.80	250.29	64.94	90.21	1/15	8
3) 19	SAMOS-class	02A	US-AF	ATLAS AGENA	V	97.34	125.24	93.91	89.00	1/25	6
4) 22	COSMOS 105	03A	USSR		B-K	131.44	194.06	65.07	90.00	1/30	8
5) 25	COSMOS 106	04A	USSR		B-T	175.46	341.00	48.30	92.90	—	—
6) 28	DOD R&D	05A	US-AF	SCOUT	V	535.06	753.30	89.70	105.90	—	—
7) 31	LUNA IX	06A	USSR		B-T	Barycentric Orbit					

Coding: Spacebase. B-K—Baykonur-Karsakpay. B-T—Baykonur-Tyuratam. V—Vandenberg.

Decays in January	
Launch	Decay
1) COSMOS 102 (1965-111A)	Dec. 27 Jan. 13
2) DOD R&D (1965-110A)	Dec. 24 Jan. 20

Launch	Duration
1) COSMOS 102 (1965-111A)	17
2) DOD R&D (1965-110A)	27