

National Aeronautics and Space Administration • Ames Research Center, Moffett Field, California

Venus Contracts

NASA has let study contracts for the design of spacecraft to go to Venus in 1977.

The Pioneer Venus missions would include entry probes and orbiting spacecraft and would study the nature and composition of Venus' atmosphere from high altitudes to the surface. NASA believes a comparison of the planet's atmosphere with that of Earth and Mars will lead to better predictions of atmospheric changes on Earth, including both longterm changes in climate and short-term effects of environmental contamination.

Venus is Earth's closest neighbor in the solar system. Although it is similar to Earth in size, and probably in origin, its low rotation rate, apparently complete cloud cover, extremely dense atmosphere and high surface temperature make Venus the object of intense scientific interest.



CAROLINAS TO KEYS

This montage of nine pictures was compiled from two passes on consecutive days by NASA's Earth Resources Technology Satellite (ERTS-1), from an altitude of 569 miles. The picture was made by infrared sunlight measured with the multispectral scanner, and it extends from Georgetown, S.C., to the Florida Keys. On this type of imagery water areas are characteristically dark, and vegetated areas are very light, depending on the type and density of the vegetation.

CFWS BILL SIGNED

Wage Grades Receive Raise

The President signed a bill on August 21, 1972 which fixes into law the main features of the Coordinated Federal Wage System, and which will result in some significant changes in the pay system for Wage Grade employees. While official details have not been received, unofficial advance releases indicate the following:

Public Law 92-392 provides for most features of the current Coordinated Federal Wage Systems (CFWS) which it supersedes. However, two features of the CFWS are changed resulting in increased pay for many wage grade employees when it becomes effective.

First, starting with the pay period which begins Nov. 26, 1972, the night shift differential becomes 7.5 percent for the second shift and 10 percent for the third shift.

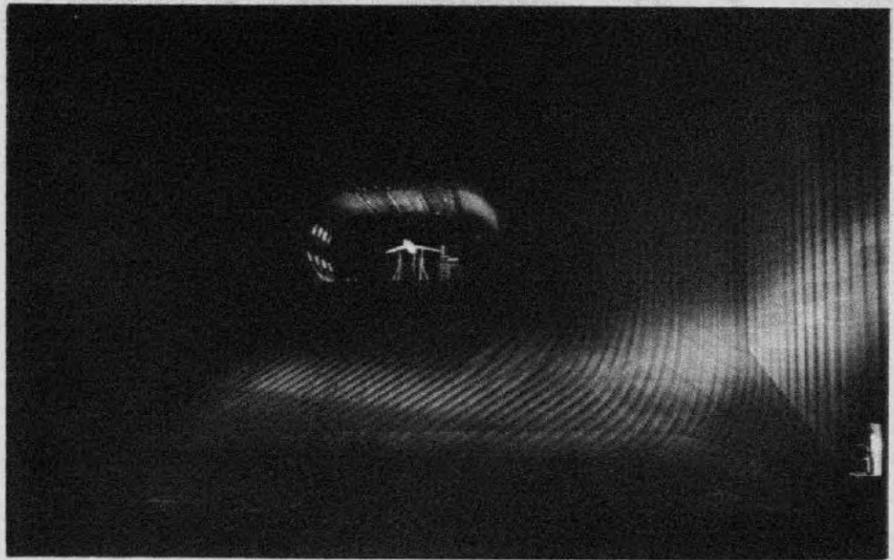
Second, effective May 13, 1973, or sooner if economic controls on wages and salaries are lifted, a fourth and fifth step at 4 percent increments will be added to the wage schedule. Employees who have been in the third of their grade step for 104 weeks or more, will move automatically to the fourth step. They will receive through this a 4 percent increase.

Ames' Pioneer 10 Halfway Thru Belt

Ames' Pioneer 10 spacecraft has crossed half the Asteroid Belt.

Though the larger missile-like particles so far encountered are more numerous than expected, it seems the Belt will not offer serious hazards to future spacecraft passing through it on outer-planet missions.

On Oct. 23 Pioneer was 265 million miles from the Sun and at the Belt's mid-point. It has completed more than 40 percent of man's first trip to Jupiter.



INSIDE AMES' 40-by 80-FOOT WIND TUNNEL

Ames' Famous Wind Tunnels

Ames has the biggest, the fastest, and most unique combination of wind tunnels of any known place in the world.

The largest tunnel has a test chamber of 40x80 feet, is .05 mile in total length, holds 900 tons of air, and circulates it at a maximum rate of 40 tons per second. The fastest tunnel can develop test velocities of up to Mach 50 (50 times the speed of sound) by means of hydrogen explosions. And Ames' 21 tunnels make it a more varied collection than any similar facility.

For reasons of economy, three of the wind tunnels use a common drive system. One of these, the 11-foot "transonic," which operates from Mach 0.5 to 1.2, is being "sound proofed" to minimize noise which, under certain weather conditions, may be detected in surrounding communities.

The tunnels are of two structural types: the "Prandtl," or conventional air recycling type, and the "flow through," or straight non-recycling type.

Ames' conventional tunnels range in size from the 40x80 to the smallest, 2x2 foot "hypersonic," which functions at well over the speed of sound. The size of the wind tunnel is always noted in terms of its chamber dimensions with faster tunnels generally being smaller.

Since 90 percent of a tunnel's power is used in over-coming air friction against its walls, the tunnels are developed so that air flows quickly through the test chamber only. This is done by a "venturi" which funnels air into the constricted

test chamber thus "squeezing" it to a greater velocity, then letting it slow itself in a wider chamber afterwards.

Conventional tunnels operate with speed ranging from the subsonic level to well over the speed of sound. They are not nearly as fast as flowthrough models though, which work by hydrogen explosions at both ends, or by a pressure vessel which shoots air from one end. Velocities reach Mach 24 in the former, and Mach 50 in the latter.

Ames' tunnels are used to test all kinds of aircraft from helicopters to models of the new Space Shuttle vehicle. Almost all commercial airplane models from the early DC-4 to the modern 747 have been tested in an Ames wind tunnel, as well as numerous experimental aircraft such as vertical/short take-off and landing.

Great savings in money and oftentimes human life are achieved by perfecting aircraft in wind tunnels.

Tony Cook, Staff Assistant to the Director of Aeronautics and Flight Systems, says that finding a significant flaw in an aircraft test could save enough money to pay for an entire wind tunnel. Of course a wind tunnel is priceless when it detects a fault that could take a test pilot's life.

A maximum power input of about 240 million watts, about enough to run the entire city of San Jose, may be used for wind tunnel operations at Ames, while other facilities at the center combined use no more than 10 million watts.

Many Years of Service Honored



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Message Against Age Discrimination

Federal Employee's Health Benefits Program Improved

PREMIUMS REDUCED

In a memorandum for Heads of Departments and Agencies dated Sept. 13, 1972, the President called attention to the Federal Government's responsibility, as the Nation's largest employer, to take the lead in eradicating age discrimination from employment. The President's message reaffirms the Federal Government's long standing policy prohibiting discrimination against age. The text of the President's message is as follows:

INTOLERABLE WRONG

"For many years the Federal Government has been fighting against discrimination in employment. On the basis of age, creed, ethnic origin, sex or skin color, discrimination is an intolerable wrong. As discrimination is an affront to our society, it cannot be countenanced in our government.

AGE DISCRIMINATION

In my message to the Congress earlier this year transmitting this Administration's recommendations for action on behalf of older Americans, I stressed the importance of giving serious attention to the problems of our older citizens. One such problem is age discrimination. As the largest employer in the Nation, the Government has a special responsibility to take the lead in eradicating age discrimination from the world of employment.

COMMITMENT

It is appropriate, at this time, to reaffirm our commitment to the long-standing policy of the Federal Government that age, by itself, shall be no bar to a Federal job which an individual is otherwise qualified to perform. In doing so, I want to emphasize that our older Americans possess talents, experience, and skills which the Government needs and which our older citizens deserve the chance to contribute.

I call upon each of you to review your agency's programs to make sure that the skills and experience of our older citizens are being effectively utilized. I also ask that you review your agency's employment practices and take immediate steps to eliminate any which may directly or indirectly stand as a barrier to equal opportunity for older persons. We must not tolerate any practice that denies older citizens fair and full consideration for employment and advancement in the Federal service.

The U.S. Civil Service Commission today announced changes in benefits and premium rates for the 38 existing plans and two new plans that will be participating in the Federal Employees Health Benefits Program in 1973. Premiums for both of the Government-wide plans will be reduced for the first time in the 12-year history of the program.

An "open season" is scheduled for Nov. 15-30, 1972, during which time eligible employees may newly enroll and employees and retirees already enrolled may change from one plan or option to another, or from self-only to family coverage.

Changes made by employees and annuitants during the open season will take effect the first pay period in January, 1973, the same time that new premium rates and benefit changes become effective.

Premium rates for the Government-wide Service Benefit Plan (Blue Cross-Blue Shield) will be reduced by 10 percent in the high option and 15 percent in the low option. Rates for the Government-wide Indemnity Benefit Plan (Aetna) will be reduced 5 percent for both high and low option.

The Commission said these reductions were made possible in part by price controls which went into effect in August 1971, resulting in favorable financial experience for both Government-wide plans in the last half of 1971 and in 1972.

The Government's contribution to premium cost is fixed by law at 40 percent of the average high option premium of the six largest plans, not to exceed 50 percent of any premium. In addition to the two Government-wide plans whose premiums will be reduced, the "Big Six" plans include the American Postal Workers Union Plan, the National Association of Letter Carriers Plan, and the Kaiser Foundation Health Plans for Northern and Southern California, all of which will be increased.

Thus, since four of the six largest plans will have increased premium rates while two will be decreased, the Government's contribution will be increased from \$3.79 to \$4.04 biweekly for self-only coverage and from \$9.48 to \$10.17 biweekly for family enrollment.



Contractor's Reports Due L.O.S. Set Records

Under a statute recently enacted by Congress (sec. 7, Public Law 91-303), NASA employees formerly employed by certain aerospace contractors are required to submit a report, containing information specified in the statute. Personnel who were formerly employed by any of the aerospace companies listed below are required to file such a report by Nov. 15, 1972, if they also meet the following criteria:

1. Employment with the listed aerospace contractor terminated on or after July 1, 1968; and
2. Salary rate during employment with the listed aerospace contractor was \$15,000 per annum or more; and
3. NASA salary rate during FY 72 was equal to or greater than GS-13.

Additional information and NASA forms 1480 may be obtained from and should be returned to the Records and Reports Branch, Mail Stop 241-5.

Failure to file report is punishable by a maximum of six months imprisonment or a fine of not more than \$1,000 or both.

AEROSPACE CONTRACTORS

Recipients of Direct NASA Awards; 1972

The following is a list of aerospace contractors which received direct NASA awards totaling \$10 million or more in fiscal year 1972. This list is published pursuant to section 6 of Public Law 91-119, as amended by section 7 of Public Law 91-303 (84 Stat. 372; 42 U.S.C. 2462, 1970 Supp.). For related NASA reporting requirements, see 14 CFR Part 1208 (36 F.R. 12597, July 2, 1971).

- Aerojet—General Corp., 9100 East Flair Drive, El Monte, CA 91734.
- The Bendix Corp., Bendix Center, Southfield, Mich. 48076.
- The Boeing Co., Post Office Box 3707, Seattle, WA 98124.
- Brown Engineering Co., Research Park, Huntsville, Ala. 35807.
- Brown & Root—Northrop, 16915 El Camino Real, Houston, TX 77058.
- California Institute of Technology, 1201 East California Boulevard, Pasadena, CA 91109.
- Chrysler Corp., Post Office Box 757, Detroit, MI 48231.
- Computer Sciences Corp., 1901 Building, Century City, Los Angeles, Calif. 90067.
- Computing & Software, Inc., 1900 Building, Century City, Los Angeles, Calif. 90067.
- Fairchild Industries, Inc., Fairchild Drive, Germantown, Md. 20767.
- Federal Electric Corp., 621 Industrial Avenue, Paramus, NJ 07652.
- General Dynamics Corp., Pierce Laclade Center, St. Louis, Mo. 63105.
- General Electric Co., 570 Lexington Avenue, New York, NY 10022.
- Grumman Aerospace Corp., South Oyster Bay Road, Bethpage, N.Y. 11714.
- Honeywell, Inc., 2701 Fourth Avenue Street, Minneapolis, MN 55408.
- Hughes Aircraft Co., Centinela and Teale Street, Culver City, Calif. 90230.
- International Business Machines Corp., Route 22, Armonk, N.Y. 10504.
- LTV Aerospace Corp., Post Office Box 5003, Dallas, TX 75222.
- Lockheed Electronics Co., Inc., U.S. Highway 22, Plainfield, N.J. 07061.
- Lockheed Missiles & Space, Inc., Box 504, Sunnyvale, Calif. 94088.
- Martin Marietta Corp., 277 Park Avenue, New York, NY 10017.
- Massachusetts Institute of Technology, Massachusetts Avenue, Cambridge, Mass. 02139.
- McDonnell-Douglas Corp., Post Office Box 516, St. Louis, MO 63166.
- North American Rockwell Corp., 1700 East Imperial Highway, El Segundo, CA 90245.
- Philco-Ford Corp., Tioga & C Streets, Philadelphia, Pa. 19134.
- RCA Corp., 30 Rockefeller Plaza, New York, N.Y. 10020.
- Service Technology Corp., 2345 West Mockingbird Lane, Dallas, TX 75235.
- Singer Co., 30 Rockefeller Plaza, New York, NY 10020.
- Sperry Rand Corp., 1290 Avenue of the Americas, New York, NY 10019.
- TRW, Inc., 23555 Euclid Avenue, Cleveland, OH 44117.
- United Aircraft Corp., 400 Main Street, East Hartford, CT 06118.

Happenings

Drs. Melvin Silverman, LXD, Keith Kvenvolden, LXE, and Sherwood Chang, LXE, will appear on the TV program "What on Earth Have You Been Doing for Heaven's Sake?" Nov. 12, 8 a.m. on KGO TV Channel 7.

The program deals with the possibility of life existing elsewhere in the Universe, and the consequent philosophical implications. Dr. Vance I. Oyama, LXD, assisted in the production.

Joint CSPE, ASME and AIAA November Dinner Meeting, Nov. 29 from 6-9 p.m. Wives and guests invited. Reservations (by Nov. 24) at 965-6440 or 321-2300, ext. 4061. SPEAKERS

Professor M. Alexander, "Microbial formation and degradation of environmental pollutants" Wed., Nov. 15 at 3 p.m., Building 239, room B-39.

Dr. Chia-Han Liu, "Forces and Energy Transfer Induced by Rarefied Plasma Flows Past Solid Bodies."

Thurs., Nov. 16 at 3 p.m., Building 245, Space Science Auditorium

Dr. Irv Wagman, "Transmission of Cutaneous Sensations to the Central Nervous System" Thurs., Nov. 9 at 11 a.m., Building 239, room 201.

Professor S. Chandrasekhar, "Stability of Stellar Masses in General Relativity" Fri., Nov. 10 at 3 p.m., Building 245, Auditorium.

FUN Ames Ski Club Ski Swap, Sat. Nov. 11 from 1 p.m. to 3 p.m. in the Ames Cafeteria. Door prizes, beer, soft drinks. For information contact Jeanne Richardson, ext. 5422.

This year's Length of Service Ceremonies established interesting records, as noted by Robert L. Pike, Chief of the Personnel Division, in his welcoming address.

The largest number of awards ever presented, 191, were given, and the largest number of 30 and 35 year awards were presented. Most of the years of service were spent here at Ames.

Mr. Pike said the ceremony "... represents a vast reservoir of experience." "... Failure to draw upon this experience," he added, "would have serious consequences for both the individuals involved and the Center; and will not be allowed to happen."

SKI SWAP

The Ames Ski Club is sponsoring the Second Annual Ames Ski Swap on Sat., Nov. 11 from 1 p.m. to 3 p.m. in the Ames cafeteria. The Moffett Field Ski Club will also participate this year.

Admission is free to those not selling merchandise. Swappers will be charged \$1.

Two all-day lift tickets to Heavenly Valley, a pair of ski gloves, and a pair of thermal underwear will be given as door prizes. Ski movies will be shown in the private dining room throughout the swap.

To sell or swap write a note, including name, extension, mail stop and description of item, to Jeanne Richardson, MS 241-4.

WANT ADS

AUTOMOBILES
Wanted-67-69 Ford PU 1/2T, long bed, auto, PS, clean, call 356-9695.

Wanted-68-70 Ford st. wgn. 390, auto, air, clean, call 379-3206.

For Sale-Tent trailer, 70 Nimrod, hd-top, stove, sink, ice box, new tires, \$750, 253-7945.

For Sale-61 Falcon st. wgn., gd transport., \$75, call 253-6294

For Sale-68 Pont. Lemans, 5-pass., AT, 8 cy, vyn. roof, 59,500 mi., ex. cond., \$1250. 961-0533.

For Sale-63 Volvo 1225, B18 eng. new suspen., rebt hydr. brake sys. entire clutch sys. rebt., new glass-belted tires, new bat., recently tuned 68,000 mi., ex. cond. \$675, 243-4730.

For Sale-63 Cad. Sedan Deville, AC, AM/FM radio, tilt wheel, cruise con. all power, white, looks new, \$775, 867-1099.

HOUSING

For Rent-Ski grp needs members to share 5-bdrm house w/ all conven. Ideal loc. just off Hyw 28 in Lake Forest area, near Tahoe City, 961-7157. *****

For Rent-Tahoe City Cottage near lake. Slps 6. Autumn rate \$60/wk or \$30/wknd. 964-9848 or 967-3845. *****

For Sale-Four 560X 15 VW wheels w/ tires, \$15 all, 257-0583. *****

For Sale-Wedding gown, flr. length, trad., chappel train, tiered lace. Size 10-12, \$45. 10-spd. bike, gd. cond., \$45, bkcase, small, gd cond. \$15. Call 253-4475. *****

Wanted-Slant board, not divided but padded w/ stand. 257-7454. *****

For Sale-210m Kneissl White Star skis, used 2 seasons, \$60 w/o bind. call 252-4749. *****

For Sale-neat 5-rm older cottage on quiet st. in Willow Glen, near elem. sch. and groc. 2 blocks off Lincoln Ave. immed. occup. \$15,000, call 292-2522 after 5 p.m. *****

For Sale-Argus 300 watt 2x2" slide projector, F 3.3 4" lens, \$20. 36-slide Airequipt magazines, \$1 each. Phone 867-2748. *****

For Sale-Doberman pups, purebred parents there to see. Call 325-4309, leave name & number. *****

For Sale-Wicker arm chair, \$4, flr. lamp w/ beige shade, \$5. Call Russell Barton, 493-9422. *****

Free-to good home, 13-mo. old Lab. Shep. female, very affect., needs lots of attention, spayed, call Chuck, 734-8962 Before 3 p.m. *****

For Sale-Craftsman 9" bench saw w/ jointer planer attach., exten., base, and motor. \$110. 738-0290. *****

for Sale-3-place settings, Community White Orchid silverplate & misc. pieces, never used, make offer, 578-2676. *****

For Sale-Rotary mower, 22", 3 1/2 HP, grass catcher, used 5 hrs. \$45. Dual wall heater, used 45,000 BTU, \$25. Rotary mower 21", 3 1/2 HP used, \$20. 379-1633. *****

For Sale-70 Kawasaki 350, gd cond. 5700 mi. \$400 or best offer, 965-3643. *****

For Sale-GE refrig., combination, gold, ex. cond. \$110, 255-6836. *****

For Sale-Dishes, Fostoria, Blue Glass, odd assortment. 738-4849.

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Start EVA-2
Start EVA-3
Lunar Liffoff
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Splashdown

Seven from Ames Receive Special NASA Awards



Pictured above as they receive NASA medals and plaques from NASA Administrator, Dr. James C. Fletcher (center, in first photo) and Deputy Administrator, Dr. George M. Low, (right, in first photo) are (l to r); Willie L. White, Jr.; Charles F. Hall (on behalf of the Pioneer Team);

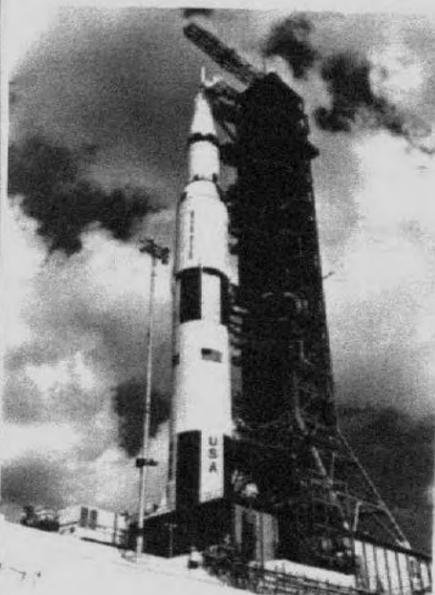
Woodrow L. Cook; Dr. Helmut Poppa; and Dr. Klaus Heinemann. (Hubert Vykukal, who received the Exceptional Scientific Achievement Award, was unable to attend the ceremony.)



the astrogram

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National Aeronautics and Space Administration • Ames Research Center, Moffett Field, California



Radio Amateurs Communicate Via OSCAR

Radio amateurs all over the world can talk to each other by way of the recently launched satellite OSCAR.

Oscar stands for orbital satellite carrying amateur radio. It was recently launched piggyback aboard a weather satellite, the National Oceanic and Atmospheric Administration's NOAA-2.

The satellite was provided by an international group of amateurs working through the Radio Amateur Satellite Corporation (AMSAT). Both spacecraft were launched by NASA in a polar orbit of about 1500 kilometers (900 miles) by a Delta launch vehicle.

The satellite is designed to conduct an experimental program of multiple access communications using a large number of relatively low-powered Earth terminals - ham radio stations.

Powered by solar cells and battery and weighing 40 pounds the satellite carries as its primary payload a 2-to-10 meter linear translator with a band-width of 100 kHz. The input frequency is centered at 29.5 MHz. Peak output power of the satellite transmitter is about 1 watt.

Design lifetime is for at least one year operation in orbit. Detailed information is available from AMSAT Corporation, Post Office Box 27, Washington, D.C. 20044.



DR. MARK . . . receives NASA award from NASA Deputy Administrator, Dr. Low (right). (Behind Dr. Mark is NASA Administrator, James C. Fletcher, who presented him with a gold medal).

Dr. Hans Mark Tops Honor List of Ames Awards

Dr. Hans Mark, Ames' Director was awarded NASA's highest honor, the Medal for Distinguished Service, by NASA Administrator, Dr. James C. Fletcher in Washington, D.C., Nov. 9.

The gold medal headed an honor list of seven awards for Ames people at the annual ceremony.

Woodrow L. Cook, Chief of Ames' V/STOL Projects Office, received the NASA Medal for Exceptional Service; the NASA Medal for Ex-

ceptional Scientific Achievement was presented to Hubert Vykukal, LTC, Dr. Helmut Poppa, STS, and Dr. Klaus Heinemann, a Stanford University employee working as an Ames Research Scientist; the team who produced the successful Pioneer spacecrafts orbiting the Sun was honored with the NASA Group Achievement Award (Story on Page 3); and Willie L. White, Jr., AP, received the NASA Equal Employment Opportunity Award.

Dr. Mark was cited for his "distinguished scientific, technical and managerial contributions as Director of the Ames Research Center," and for his "exceptionally strong scientific capabilities" which have "enhanced Ames' position in the field of aeronautics and space technology."

Former Chairman of the Department of Nuclear Engineering at the University of California, Berkeley, Dr. Mark has been Director of Ames since 1969. His leadership has made possible a nationally pre-eminent role for Ames in computational fluid dynamics, airborne infrared astronomy, short take off and landing aircraft, Pioneer missions to Jupiter and Venus, Earth resources surveys, project cost-effectiveness, equal opportunity programs, and inter-governmental agency programs with the U.S. Army, Air Force, Federal Aviation Administration, National Oceanic and Atmospheric Administration and others. He has fostered participation by Ames in programs with local colleges, universities and high schools, and as a volunteer lecturer for the University of California (Continued on Page 3)

Apollo 17 Launch Vehicle was transported from the Vehicle Assembly Building Aug. 28, 1972. The final mission in the Apollo Program will be manned by Commander Gene Cernan; Lunar Module Pilot Harrison Schmitt and Command Module Pilot Ron Evans. Lift-off is scheduled for Dec. 6, 1972 from Complex 39A.

LAST LAUNCH ON DEC. 6, 1972

Apollo 17 Schedule

Event	December Date
Launch	6
Translunar Injection	7
Lunar Orbit Insertion	10
Descent Orbit Insertion #1	10
Descent Orbit Insertion #2	11
Lunar Landing	11
Start EVA-1	11
Start EVA-2	12
Start EVA-3	13
Lunar Liftoff	14
Transearth Injection	16
Transearth Coast EVA	17
Splashdown	19



A CONGRESSMAN VISITS . . . The Honorable Lou Frey, Jr. (left), Congressman from Florida, on a recent visit to Ames talks with Cheryl Boynton (right) a senior at the University of Santa Clara working in the Chemical Evolution Branch with Dr. James G. Lawless. Frey attended the Annual Facilities Conference here Nov. 1, then toured several of the Life Science laboratories, talking particularly with students working at Ames. Congressman Frey is investigating the inter-relationship of government agencies and educational institutions.

Cheryl is presently working at Ames on a research project entitled "Origin of Life Studies Using Thermo Synthesis," while finishing her studies at the University.



Dr. Irving C. Statler, new Director of the Ames Directorate, U.S. Army Air Mobility Research and Development Laboratory, (AMRDL).

New Director of Ames Army Lab

Dr. Irving C. Statler, 49, has been appointed Director of the Ames Directorate, Army Air Mobility Research and Development Laboratory, AMRDL, it was announced by Paul F. Yaggy, Director of the Laboratory.

Prior to joining the Headquarters of the Laboratory in November, 1970, as the principal research scientist in aerodynamics and performance, Dr. Statler served as head of the

Applied Mechanics Department, and later as Senior Staff Scientist, Aeronautics Division, Cornell Aeronautical Laboratory.

In 1945 he obtained Bachelor of Science Degrees in Aeronautical Engineering and Mathematics from the University of Michigan, and a Ph.D. in Aeronautics and Mathematics from the California Institute of Technology in 1956.

In announcing the appointment, Mr. Yaggy noted that "as evidenced by his career, Dr. Statler has continually advanced in the field of aerospace technology and supervisory responsibility. He has served as a manager with broad assignments relating to management, funding, programming, and personnel as well as with the technical funding and programming aspects related to Army operations. His accomplishments and contributions in the areas of technical papers and articles published, participation in committees of national and international significance, and membership in professional societies are of an outstanding nature. The knowledge Dr. Statler has gained during his career in the aeronautical field will prove invaluable in the development of the Laboratory."

Dr. Statler and his wife, Renee, with their two sons, William and Thomas, reside in Los Altos.

"Open Season" for Health Benefits Closes Nov. 30

"Open season" for Federal Employees Health Benefits Program ends Nov. 30. "Open season," from Nov. 15-30, 1972, is that period during which eligible employees may newly enroll and employees and retirees already enrolled may change from one plan or option to another, or from self-only to family coverage.

Changes made by employees and annuitants during the open season will take effect the first pay period in January, 1973; the same time that new premium rates and benefits changes become effective.

New Brochure Available Now

Copies of two new brochures entitled, "Space Benefits and Older Citizens," and "Pioneer, Mission to Jupiter," are available, by written request from Audio-Visual Facility, c/o Public Affairs Office, Mail Stop 201-6. Indicate the number wanted and give name and mail stop.

Copies of several other brochures which describe the benefits of space research are available and may be obtained upon written request.

Help Is Needed

Curt Cooper is collecting Betty Crocker coupons to go toward the purchase of a special medical machine to help restore the health of a kidney infection victim. If you can help call Curt at ext. 5418 or 5419.



A VISIT FROM THE WHITE HOUSE . . . Gus W. Weiss (left), a senior staff member of the White House Council on International Economic Policy toured Ames Nov. 14, escorted by John W. Boyd (right), Deputy Director, Aeronautics and Flight Systems. Weiss was briefed on several of Ames' programs including the "Buffalo" Augmentor Wing, the Noise Abatement Program and the Pioneer Program.

C.F.C. Reaches Record High

Results of the Combined Federal Campaign indicate that Ames achieved higher levels of participation than ever before.

Contributions amounted to \$44-585, with 76 percent of the staff participating, including 141 Army employees.

MUTT & JEFF



SP - 1230D



PIONEER 9 MANAGERS . . . This photo, taken just prior to the Nov. 8, 1968 launch of Pioneer 9 shows the Project Pioneer Managers at that time. They are: Front row (l to r) David W. Lozier, Joseph E. Lepetich, Experiments Manager, and Ralph W. Holtzclaw, Spacecraft and Ground Operations Equipment Manager; second row (l to r) Alvin J. Wilhelmi, Robert U. Hofstetter, Launch Vehicle and Operations Manager; and Robert L. Edens; back row (l to r) George J. Nothwang, Integration and Test Manager and Charles F. Hall, Project Manager.

NASA Awards

(Continued from Page 1)

conducts classes in neutron physics.

Dr. Mark received his A.B. degree in physics at the University of California, Berkeley, in 1951, and his PhD in physics from the Massachusetts Institute of Technology, Cambridge, Mass., in 1954. He currently serves as a member of the Scientific Advisory Committee for the Livermore and Los Alamos Scientific Laboratories, the U.S. Air Force Scientific Advisory Board and the State of California Panel on Energy Planning and Programs.

The NASA Exceptional Service Medal citation for Woodrow L. Cook commends his "pioneering aeronautical research" and recognizes his unusual personal initiative and creative ability in the development of a new family of aircraft to better serve the Nation's demand for more quiet and efficient aircraft in short-haul inter-urban transportation systems. He is a University of Minnesota graduate and has been with Ames since 1947. He now leads the Ames V/STOL team as chief of the V/STOL Projects Office.

Hubert C. Vykukal's accomplish-



HUBERT VYKUKAL WITH AWARD WINNING DEVICE

ments in developing new technology for space suits earned him the NASA Medal for Exceptional Scientific Achievement. He has originated and developed new personal protective systems for astronauts and pilots, and has extended that technology for use in aiding limb movements of the neurologically handicapped. He is a graduate of Texas A&M and has been with Ames since 1960.

Drs. Helmut Poppa and Klaus Heinemann received Medals for Exceptional Scientific Achievement for their research in the fundamental processes in surface and solid state physics and in advancement of surface characterizations and electron microscopy techniques. They are credited with an entirely new aperture imaging system which improves the resolution of high performance electron microscopes by a factor of three.

The new system is a significant breakthrough, not only to the field of nucleation and growth, but more generally, to such fields as biology, medicine, biophysics, metallurgy, geophysics and electronics.

Dr. Poppa has degrees in physics from the Free University of West Berlin and the University of Giessen, Germany.

Dr. Heinemann earned his PhD in applied physics from the University of Tuebingen in 1968 and has been working with NASA since 1969.

The Ames Pioneer Project team, numbering a hundred staff members, was recognized for its outstanding contributions to the management, design, operations of Pioneer 6 - 9.

Willie L. White, Jr. was recognized by the NASA Equal Employment Opportunity Award, an honor granted jointly by NASA and the U.S. Civil Service Commission for his superior accomplishments as Ames' Equal Employment Opportunity Officer. White, through the excellence of his leadership, skill, imagination and perseverance, has been instrumental at Ames in improving equal opportunities.

Project Pioneer 6 - 9 Team Receives Group Award

At the NASA Annual Honor Awards Ceremony in Washington, D.C. on Nov. 9 a NASA Group Achievement Award was presented to the Ames Pioneer Project team. The team's citation reads;

"For outstanding contributions to the management, design, development and operations that led to the successful launch and mission operations of Pioneers 6 through 9 resulting in the achievement of all of the primary mission objectives. The scientific data obtained from these missions have provided major contributions to the understanding of the solar processes, the interplanetary medium and the effects of solar activity on the Earth."

The extremely long operating lives of the Pioneers have made possible long-term solar monitoring and other solar studies, giving the United States an unexpected national asset.

Though their original design lives were specified at six months all four Pioneers have far exceeded this. Pioneer 6 was launched in 1965 and is still returning useful data. Pioneers 7, 8, and 9 all have operated for a number of years.

Pioneers 6 to 9 gather data on the solar wind, solar energetic par-

ticles, and the magnetic and electric fields which constantly move outwards from the rotating Sun. This combined data helps scientists further understand solar processes, the interplanetary medium and the effects of solar activity on the Earth.

The intense solar storm last July was predicted and measured by Pioneers 6 through 9, and by Pioneer 10, on its way to Jupiter.

The highest solar wind speeds ever recorded and the greatest number of high-speed particles ever seen in space were measured by the spacecrafts.

Pioneer data, taken simultaneously by each of the four spacecraft at many points in space, millions of miles apart, around the Sun, are reduced by computers to produce solar weather tables.

The Pioneer solar weather stations in solar orbit provide up to two weeks' warning on the effects of solar activity on Earth. Another practical application of Pioneer gathered solar data is expected to be an improved ability to predict or control certain aspects of our terrestrial environment. U.S. weather scientists have found statistical correlations between solar disturbances and frequency and inten-

sity of Earth storms. Scientists also believe climate changes, life pattern, growth rate and even earthquake activity may be directly related to solar activity.

Pioneer spacecraft are now providing warnings of communications blackouts and electric power interruptions. During the Apollo lunar landings, hourly reports of solar activity are sent to the Apollo Mission Control Center, Houston, Texas. The Apollo reports guard against any unexpected arrival of intense showers of solar protons which could be dangerous to astronauts on the Moon.

Adequate solar forecasting is essential to the success of many aeronautical and space activities.

The Pioneer team's superior work has continued beyond the recently recognized Pioneers 6 through 9 to produce Pioneer 10, now on its way to Jupiter.

Pioneer 10 will pass the Red Planet in December of 1973, becoming the first mission to explore the Asteroid Belt and Jupiter, and the first man-made object to leave our solar system.

Research is also underway at Ames for a future Pioneer mission to Venus.

WANT ADS

AUTOMOBILES

For Sale-VW chassis & rebt engine right for building a dune buggy, extra eng. & pts. \$150. 1962 Pontiac Tempest Lemans convert. body, top & inter. in gd. cond., \$200, Fred Bear, 354-2769, Los Gatos.

For Sale-69 Mustang, 250 cu.in., 6-cyl., 3-spd., air cond., AM radio, tinted windshield, \$1500, call 257-2952 after 6 p.m.

For Sale-71 Pinto, yellow, auto., 2000 cc engine, 20,000 miles, new tires, gd. cond., \$1650. Call 225-4297 after 5:30 p.m.

For Sale-64 Chevy Bel Air st.wgn. auto, PS, tires, brakes and muffler recently renewed, gd. cond., \$550. Late 71 (72-model) VW beetle, sun-roof, like new, only 6,700 mi., \$1900 965-1029.

For Sale-68 Ply. 8-Satellite. Auto trans, air cond, vinyl roof & many extras, almost new radial tires & bat., 31,000 mi. ex. cond. \$1390, 941-8013.

For Sale-61 Falcon sta. wgn. cracked cylinder head, no valves. \$20. 734-8962, 4-6 p.m., M-F.

For Sale-71 Sherwood tent trailer, slps. 6, asking \$695 or best offer. 225-6550.

For Sale-64 VW except. clean, needs engine work, \$400. Dick Claeys, 493-7091 after 6 p.m.

Wanted-Low priced work car, G.E. Peterson, 262-4129.

For Sale-68 Fiat 850 Spyder, ex. cond., new top, radial tires, rebt. eng. Best offer, over Bluebook, 964-7289.

HOUSING

For Sale-4-bdrm, 2-ba. home, step-down rec. room, w/ brick fireplace. Elec. kitchen, rec. painted, kit. & ba. floors recovered & coved, very close to schools and shop. 2 mi. from Ames, Mtn. Shadows, avail. now, see to appre., 969-1092.

For Sale-12'x57' mobile home w/ skirting porch and awnings, ex. cond. Call 734-0943 or 734-0973.

For Rent-Ski grp needs members to share 5-bdrm house in conven. Lake Forest loc. near Tahoe City. \$130/person for 5-mo. lease begin. Dec. 1. Call 961-7157.

MISCELLANEOUS

For Sale-Metal bed frame, adjust. for either twin or dble size, gd cond. \$2.99. 257-0583.

For Sale-East/West football game for the benefit of Shrine Cripple Children's Hospital will be held at Candlestick Park, Sat., Dec. 30. Have some good seats avail., call Tom Tomberlin, 274-3603.

For Sale-7ft. modern vinyl sofa, brn w/ match. chair, ex. cond., \$100. 2 kingsize bedsprds, floral print, \$20 ea. Beaut. wrought-iron coffee table w/ glass top, 24x55x16 in. high, \$75, 321-0625.

For Sale-Ideal Xmas gifts, Sony TC-40 cassette tape recorder, new \$85. Sony stereorecorder 300, up to 7" reels, 4-trk stereotape recor., \$95. Poss. tax deduction. Call Mike Bader 968-8070.

For Sale-Ohus balance scale, 2610 grams, tripple beam magnetic, never used, \$35. Polaroid land cam. J-66, \$20 or best offer. Small chem. microscope, 100x to 300x. \$5. Call 736-5894.

For Sale-Two-wheel trailer equip. for camping. Stainless steel axil. gd. tires, \$75. 736-5894.

For Sale-Kneissl white star skis, 210 cm. marker bind. gd. cond. \$80. 252-4749.

For Sale-Sony tape recorder, hi fi cabinet, air cond., add. machine, \$35 ea. L. Russell, 252-8316.

Wanted-For Boy's Ranch at Palo Cedro, CA. Horse saddles, boy's bicycles, tractor & farm equip. 916-547-3306 or 1463 Deschutes Rd. Palo Cedro, CA. 96073.

For Sale-Foley lapping lawn mower sharpener, \$50. 243-3289.

For Sale-Orig. oil paintings, 1/2 price. nice gifts, for Xmas. 734-3368, after 5, anytime on wkends.

For Sale-Girl's Schwinn bike, \$30, 734-3368.

For Sale-Moving back to Europe, 12 ft. sofa, dinette, 6-chairs, chests 2 twin beds, bunk bed and other household goods, 965-1029.

For Sale-Girl's stingray bike, gd. shape, \$25. Call 252-7849, eves. BEFORE 7 p.m.

For Sale-Pennsyl. Champ. tennis balls, new, never used. 964-3772.

Anyone-interested in obtaining info. re. membership in American Rhododendron Society, its benefits and advan. call Bob George 252-4110.

For Sale-Bar w/ formica top, uphol. front & ends, spacious wrking area in back. 4 matching swivel chairs. 968-3021 after 6:30 p.m.

Happenings

MEETINGS

JANNAF-AIAA-SAE 8th Propulsion Joint Specialists Conference, Nov. 27-Dec. 1, in New Orleans, La. Ames scientists presenting papers: Norman E. Sorensen (JANNAF meeting) paper: "Advanced Supersonic Inlet Technology"

Eldon A. Latham (AIAA meeting) paper: "Method for Increasing Wind-Tunnel Mach Number for Large-Scale Inlet Testing"

Daniel P. Bencze (AIAA meeting) paper: Nacelle-Airframe Interference at Low Supersonic Mach Numbers"

Joint CSPE, ASME and AIAA November Dinner Meeting, Nov. 29, from 6-9 p.m. Wives and guests invited. Reservations (by Nov. 24) at 965-6440 or 321-2300, ext. 4061.

1973 Winter Convention on Aerospace and Electronics Systems International Hotel, Los Angeles, Feb. 13-15. Sponsored by the IEEE, and Aerospace & Electronic Systems Group.

Theme will be "Emerging Business Opportunities Through New Technologies."

FUN

ARA-sponsored trip to Apollo 17 launch, Dec. 6-10.

Photography Club

The next meeting of the Ames Photography Club is Wed., Nov. 29, in the Space Sciences Auditorium, building 245. Schedule follows: 4:45 p.m. - Business Meeting 5:00 p.m. - "Autumn" photo competition and critique

Three Categories:

1. slides
2. prints processed by entrant
3. prints processed commercially.

Entries, identified with name and title, must be submitted to George Mateer, Mail Stop 229-1, on or before Nov. 28. Mrs. Gen Rogers of the Los Altos Camera Club will serve as judge and critic, assisted by three club members. A point system used by the Santa Clara Camera Club will be implemented.

Lost Books

A number of Ryerson Steel Co. "Data Books," yellow with black lettering - 1/2" x 4-1/2" x 8-1/2" in size, in either one or two cartons or packages have apparently been sent to a wrong mail stop or supply delivery point.

These books were ordered from Ryerson to be used in the training program conducted by the Metals Fabrication Branch for DeAnza students, and the time draws near for their use.

They could have been delivered any time since the last of August.

Anyone having a knowledge of the whereabouts of these "Data Books" please contact Don (Whitey) Ayers, Metals Fabrication Branch, N211-10, N211-D or ext. 5335.

Do Christmas Mailing Early

To be sure that Christmas packages and cards reach their destinations on time:

- *Shop early and mail early
- *Address parcels on one side only
- *Use zip code numbers as part of address on packages and cards.

MAILING SCHEDULE

Domestic	Surface	Surface	Air	Air
	Parcels	Greeting Cards	Parcels	Greeting Cards
Alaska - Hawaii	Nov. 30	Dec. 15	Dec. 20	Dec. 20
Distant States	Dec. 10	Dec. 15	Dec. 20	Dec. 21
Local - Nearby	Dec. 13	Dec. 18	(Not Applicable)	
(Zip Codes 200-209)				
<u>International</u>				
Canada - Mexico	Dec. 2	Dec. 7	Dec. 14	Dec. 19
So.-Cent. America	Nov. 11	Nov. 17	Dec. 11	Dec. 16
Europe	Nov. 11	Nov. 17	Dec. 11	Dec. 16
Africa	Nov. 1	Nov. 4	Dec. 9	Dec. 14
Near East	Nov. 1	Nov. 4	Dec. 9	Dec. 14
Far East	Oct. 14	Oct. 25	Dec. 9	Dec. 14

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