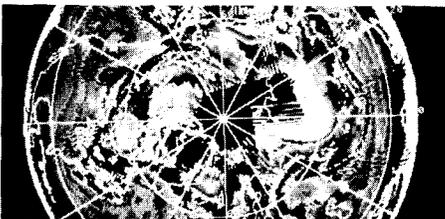
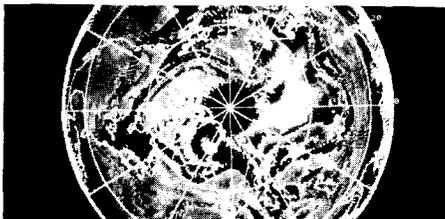


Northwest Airlines requests satellite experiment

Nimbus 7 maps to guide airplanes past ozone irritants to passengers

A press conference was held recently at Goddard to announce a two-month experiment, in which information from NASA's Nimbus 7 satellite will assist U.S. airlines in determining atmospheric ozone concentration, jet stream patterns and clear air turbulence regions. The experiment will begin March 2.



These photos are a sequence of North Pole total ozone maps for March 11 and 12, 1979 which illustrate the day to day motion of waves in the atmosphere. Individual waves can be traced although positions and shapes change considerably in 24 hours.

Scientists at Goddard and meteorologists with Northwest Airlines will conduct the experiment. If successful, the information could be used to avoid areas of high ozone concentration, and to save time and fuel on both domestic and international flights.

The joint NASA/Federal Aviation Administration/Northwest Airlines experiment is to be conducted because of a new FAA regulation, effective February 20, requiring airlines to limit the ozone levels inside aircraft. The regulation stems from an increasing number of complaints of ozone-related symptoms, such as eye and throat irritation.

The regulation allows airline operators to minimize ozone exposure through two methods: first, installation of filters to remove ozone from air entering the cabin; and, second, flight route planning to avoid areas of high ozone concentration. Currently, it is necessary to use statistical predictions of ozone concentrations because real time ozone data is not available. The experiment is geared to the second alternative and will directly measure the geographic ozone distributions on a near real time basis.

NASA's Nimbus-7 spacecraft, launched October 24, 1978, was the first satellite designed to monitor the Earth's atmosphere.
Continued to page 3

Baltimore lands Space Telescope's 'ground observatory'

NASA has selected the Association of Universities for Research in Astronomy (AURA) of Tucson, Arizona, a consortium of 14 universities, for final negotiation of a contract to establish, operate, and maintain the Science Institute for the Space Telescope scheduled for launch in early 1985 on the Space Shuttle.

The contractor's estimated cost for the initial 5-year contract is approximately \$24 million. Additional funding will be required in support of a guest observer and archival research program as it develops. The contract will contain options for three additional 5-year extensions.

The Space Telescope Science Institute will be located on the Homewood Campus of the Johns Hopkins University, in Baltimore Maryland. The Institute will perform critical mission science ac-

Continued to page 2

Code 100 notes:

EEO record for 1980 shows good progress

Starting with this issue, Code 100 administrators will be writing regular columns entitled Code 100 Notes to keep Goddard News readers abreast of current events and pending policy issues of concern to them. James R. Mundy, Head of the Equal Opportunity Programs Office submitted the following notes.

Dr. John E. McElroy,
Deputy Director

During fiscal year 1980, Goddard continued to show progress in reducing the degree of underrepresentation of minorities and women despite a decline in overall strength (from 3,482 to 3,436). Minorities gained 36 additional positions, up from 395 (11.3 percent, to 431 (12.5 percent). The net gains in minority employment were in grades GS-1/6, up 24 from 107 to 131, and in grades GS-11/13, up 15 from 133 to 148. Minorities in grades GS-14/16, dropped by 3 from 39 to 36 during the year. The number of minorities in professional positions increased by 15, from 219 (9.3 percent) to 234 (10 percent). Of particular significance was a net increase of 11 minorities in engineering occupations.

The number of women holding full-time positions increased by 53, from 750 (18.8 percent) to 803 (23.4 percent). Of this total, 182 are minorities whose numbers increased by 23, from 159 to 182. Net gains for women were in grades GS-1/6, up 29 to 459, in grades GS-11/13, up 29 to 173, and in grades GS-14/16, up 3. Women hold 321 professional positions, up 36 from 285.

During fiscal year 1980, the Center made significant progress in its community outreach program. Research grants and contracts to colleges and universities with predominant or significant enroll-

Continued to page 6

Center adopts Flexitime policy

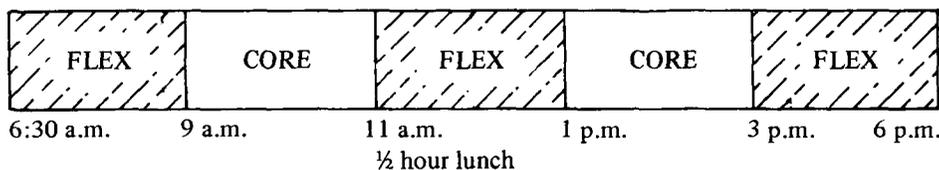
Center Director, A. Thomas Young, has announced that Goddard has officially adopted Flexitime in place of the normal fixed working day. This decision, which is effective immediately, is based on the acceptance and effectiveness of the Center-wide nontraditional working hours experiment which began June 4, 1979.

Flexitime has been successfully implemented because of the sense of responsibility shown by employees and supervisors, said Young. Both groups have ensured the primacy of operational needs and met the requirements of the timekeeping honor system. As a result, it has not proven necessary to revise any of the guidelines originally set forth and the provisions of the previous Flexitime

policy statement will remain unchanged.

Goddard's experiment with Flexitime resulted from a Fall 1978 survey which indicated that a majority of civil service employees would like to inaugurate Flexitime on Center. An implementation team, consisting of a representative from each directorate, developed a plan under which flexitime began operating on June 4, 1979.

The Flexitime concept replaced fixed arrival and departure time with time bands wherein the employee decides specific times for arrival and departure within those respective time bands on a day to day basis. The model being officially adopted on Center is below.



Space Telescope

Continued from page 1

tivity for the Space Telescope mission. The 13.1 meter (41 foot) spacecraft is to be placed into a 600-kilometer (370-mile) high orbit by the Space Shuttle and it will perform scientific investigation for at least 15 years.

The Science Institute will host American and foreign astronomers who will come to the facility to use the Space Telescope much as they would a ground-based observatory. Data from the telescope will flow by the new Tracking and Data Relay Satellite System and the NASA communications network to Goddard and then on to the Science Institute for use by the staff and guest scientist. Investigators will be able to ask controllers at Goddard to point the spacecraft at any desired field of view.

The Institute also will establish Space Telescope science observation schedules, fund United States user participation and provide direct technical support to observers before, during, and after their observations. It will support research necessary for efficient use of the telescope; will evaluate its scientific performance, advise NASA on instrument status and process, archive, and publicize the Telescope's findings.

Additionally, the Institute will staff and operate the Space Telescope Support Center at Goddard. This is essentially the section of the Operations Control Center which molds science observation requirements with practical spacecraft flight and control considerations.

Above the obscuring atmosphere of the Earth, the Space Telescope's 96-inch mirror will be able to observe 350 times the volume of space now visible from ground-based observatories. Its combination of high resolution, increased sensitivity and relatively large aperture should allow it to "see" objects 50 times fainter than can be seen from Earth. It can also study the ultraviolet region of the spectrum which is mostly absorbed by Earth's atmosphere.

Marshall Space Flight Center is the project management Center for the Space Telescope, and Goddard is responsible for management of the onboard science instrumentation and Telescope operations. The Office of Space Science has overall responsibility for the program.

The AURA consortium members are: the Universities of Arizona, California, Chicago, Colorado, Hawaii, Michigan, Texas, Wisconsin, CIT, Harvard, Indiana University, Ohio State University, Princeton, and Yale.

Charles Wash named Goddard Comptroller

Charles E. Wash has been selected as Comptroller of Goddard. In this directorate-level position, Wash will report directly to the Center Director and is responsible for planning, analysis, and control of the management and expenditure of Center financial resources. Wash will be located in Building 8, room 600.

A graduate of the University of Virginia, Wash began his federal career in the Department of the Navy in 1956, where he remained until he transferred to NASA headquarters in 1962 as a Financial Management Specialist in the Office of Administration. After assignment to progressively responsible positions, he was appointed Deputy Director, Resources Analysis in the Office of the Comptroller in June 1973; then Director, Program Analysis in the Office of Space Science in June 1976; and Director, Resources Analysis in the Office of the Comptroller in January 1980, his most recent assignment.

Charles Wash



Mail your story to the
Goddard News, Code 202,
or call the Editor at

344-5566

NEW EMPLOYEES

Cacho, Wallace D. Jr., Aerospace Engineer
(Code 713.2), 01-25-81
Braman, Jane S., Clerk-Typist (Code 513),
01-25-81
Timothy, Adrienne F., Chf, Applications
Sys Analysis Off (Code 903), 01-25-81

NASA honors Dr. Mutch by memorial on Mars

The late Dr. Thomas A. Mutch, former NASA Administrator for Space Science, has been honored by a memorial on Mars. The Dr. Mutch remembrance is the Viking I lander craft, henceforth to be known as the "Thomas 'Tim' A. Mutch Memorial Station."

Dr. Frosch rededicated the craft by unveiling an eight by ten inch stainless steel plate inscribed to Dr. Mutch and by charging a future administrator of NASA with the responsibility of assuring that the plaque is subsequently placed on the lander craft. The plaque will be passed on until there is an appropriate Mars mission on which it can fly.

Dr. Frosch noted, "it is extremely proper and fitting that the Viking I lander be dedicated after Tim. He was the Viking lander imaging team leader . . . (and) he was a superb photo-geologist whose talents included two books on the geology of the Moon and Mars."

REORGANIZATION & KEY APPOINTMENTS

Engineering Directorate

The transfer of functions to the Flight Projects Directorate has necessitated certain organizational changes within the Engineering Directorate.

1. The Office of Deputy Project Managers/Technical (Code 701) is retitled Office of Technical Management.
2. The Preliminary Systems Office, Space Technology Division (Code 710.1) is abolished.
3. Within the Instrument Division, the Instrument System Office (Code 720.1) is abolished. The Instrument Systems Analysis Branch (Code 725) and its sections are retitled.
4. The Systems Division (Code 730) is retitled Applied Engineering Division, and Systems and Operations Office (Code 730.2) is abolished. Code 730 has a new organizational structure.

James D. Gemmill is appointed Head, Spacecraft Operations Section (Code 734.4, 344-8348).

5. Within the Sounding Rocket Division, the Delta Project Technical Management Office (Code 740.2) is abolished. The Payload Operations Section, Instrumentation Branch

Continued to page 4



Baltimore Red Cross launches new century

The Baltimore Regional Red Cross is "ready for a new century." To portray the 1981 Centennial slogan, five Red Cross volunteers accompanied by Blood Services Nurse Bobbie Stokes came to Goddard and posed with the Gemini Space

Capsule. Pictured from left to right are: Wayne Mitchell, Red Cross water safety instructor; Peter Davis; Stephanie Anne Chin; Bobbie Stokes; Gigi Blair; and Patrick Howard.

Ozone maps

Continued from page 1

phere for man-made and natural pollutants. At that time, there was great national concern that fluorocarbons, the man-made chemicals found in spray cans and some refrigerants, were drifting into the stratosphere and slowly destroying the Earth's protective layer of ozone.

The instruments onboard Nimbus 7 have been highly successful in recording those effects. Early computer-enhanced pictures from the satellite's Total Ozone Mapping Spectrometer provided clear evidence that there are significant commercial advantages to be gained from these observations. The first pictures from the ozone spectrometer showed a distinctly patchy pattern in the ozone concentration in the lower stratosphere.

In studying the pictures, Arlin J. Krueger, the spectrometer sensor scientist at Goddard where the satellite information is processed, also discovered that there was a high correspondence between the ozone concentrations and high and low stratospheric pressure areas that establish the flow of jet streams. Consultation with Dr. Melvyn Shapiro, of the National Center of Atmospheric Research in Boulder,

Colorado, and with other meteorologists supported his findings.

Further evaluation by Daniel F. Sowa, Superintendent of Meteorology with Northwest Airlines, indicated that "there is an excellent correlation between the high concentrations of ozone shown on the spectrometer charts and the atmospheric synoptic weather patterns." Sowa also said that the spectrometer data "can be used to identify areas of clear air turbulence associated with the jet stream." Flight in clear air turbulence can produce a bumpy, discomforting ride and disturb the controllability of the airplane.

In the Nimbus 7 experiment, observations from the spacecraft will be obtained at Goddard and relayed to meteorologists with Northwest Airlines in Minneapolis. Using the information, the meteorologists are expected to determine if it is feasible to predict on a real time basis high ozone locations so that high-altitude flying aircraft can avoid the ozone exposure. They also hope to identify more accurately the areas of clear air turbulence associated with jet streams.

Computer Club starts at Goddard

Based on the number of people who came to the Building 8 auditorium on January 15 to attend the first meeting of the Goddard Computer Club, a great many employees here either own, or are potential owners of one of those hot-selling, personal microcomputers. The over 80 people present at the meeting elected officers, ratified a constitution, and saw a demonstration of a new Apple II micro-computer.

According to the constitution, the purpose of the club is to "promote an interest in the use of microcomputers, to promote the education of the members in micro-computer technology, and to provide members of the club with the opportunity to exchange ideas, software, hardware, and programs."

To these ends the new president of the club, Chuck Mason, said that future meetings will feature professional talks on each of the most popular microcomputers and

peripherals, classes on hardware and software selection and BASIC programming for beginners, the building of a software library, and, within a few months, the acquisition of a new microcomputer system complete with disk drive, display, printer, and software.

Another idea being considered is to provide a central computer and data bank at Goddard to which access is available with only an inexpensive at-home terminal.

One expected spinoff from the computer club is the increased expertise of those who already have a working knowledge of computers, and the education of those with little or no experience in data processing, so that job skills applicable to work assignments may be enhanced.

The club meets in the Building 3 auditorium on the third Thursday of the month.



Pictured above from left to right are the newly elected officers of the Goddard Computer Club: Pete Minott, activities officer; Barbara Lowrey, vice president; Chuck Mason, president; John Celmer, treasurer; and Jim Williamson, secretary.

REORGANIZATION & KEY APPOINTMENTS

Continued from page 3

(Code 743.3), is retitled Payload Support Section.

Scientist Designation for Landsat-D

Dr. Phillip Cressy, Head, Eastern Regional Remote Sensing Applications Center, Applications Directorate, is designated Study Scientist for the Operational Land Observing System (OLOS) and the Landsat Solid State Sensor (LS³) Studies (344-7658, Code 902.1). Leslie L. Thompson, of the Sensor Scientist (344-6166, Code 941).

Dr. John L. Barker, of the Earth Resources Branch, Earth Survey Applications Division,

is designated Associate Project Scientist for Landsat-D (344-8978, Code 923). Dr. Vincent V. Salmonson, Chief, Earth Survey Applications Division, continues as Project Scientist, and Darrel L. Williams as Assistant Project Scientist.

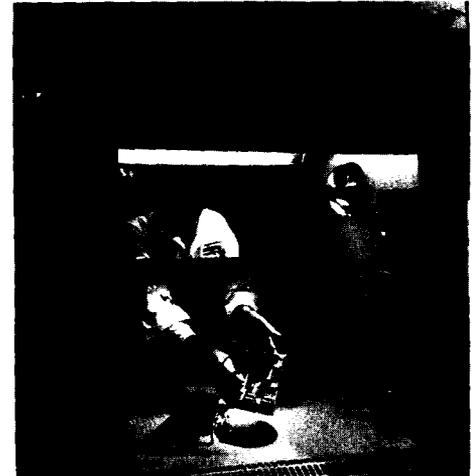
Support Group Established

Effective January 11, 1981, a support group for the Management Operations Directorate is established within the Functional Support Division and assigned code 262. Martin Stein continues as Directorate Resources Manager for Management Operations (344-7981, Code 262).

Space Shuttle gets table-top lab

A working model of an all-purpose table-top laboratory designed to fit into Spacelab on the Space Shuttle, was delivered recently to NASA's Ames Research Center, Moffett Field, Calif.

The portable laboratory—officially the general purpose work station intended to support general life sciences laboratory experiments conducted in weightless space—was designed and built by Lockheed Missiles and Space Company Biotechnology Organization under contract.



This is a working model of a scientist's table-top laboratory for life science experiments to be conducted on board the Space Shuttle. Equipped with its own clean-room environment, lights and outlets for water, electricity, vacuum, and data links, the general purpose work station will travel into space stowed in a rack in the Spacelab on the Space Shuttle.

The scientists' hooded laboratory is extremely versatile, according to Lockheed Project Leader, Phillip A. Wagner. He said it is capable of being adapted to the particular requirements of many different life science experiments. "An important function for it is to protect experimenters as well as the specimens from biological contamination and to control liquids and chemical vapors released inside the laboratory in a zero-gravity environment," he added.

The laboratory also has a camera stand available to photograph experiments and interior lighting and connections that bring electricity, water, vacuum, and data links to the experimenter. The laboratory can be used in one of three positions in zero gravity:

Continued to page 6

NEW EMPLOYEES

Noll, Carey Elizabeth, Mathematician
(Code 931.1), 01-04-81

Linebaugh, Gregory, Student Trainee
(Code 226/821), 01-04-81

Corso, Juanita, Personnel Clerk
(Code 225), 01-04-81

Clark, Cynthia, Clerk-Typist
(Code 200), 01-11-81

Peterson, Ralph Alvin, Meteorologist
(Code 914), 01-11-81

Kell, Veronica Anne, Mathematician
(Code 664), 01-11-81

Fuhr, Peter Louis, Physicist
(Code 723.2), 01-11-81

Wentz, Lester H. Jr., Computer Systems Analyst
(Code 816.1), 01-11-81

Hoppe, Glenn Herman, Jr., Student Trainee
(Code 226/511.1), 01-11-81

Wong, Harvey S., Student Trainee
(Code 226/840), 01-11-81

Wormwood, Kerry W., Engineering Aid
(Code 751.1), 01-18-81

Drury, Francis E., Electrician
(Code 291.2), 01-18-81

Woodham, Patricia G., Secretary
(Code 405), 01-18-81

Davidson, Regina L., Clerk-Typist
(Code 503), 01-18-81

Henderson, Kathleen P., Clerk-Typist
(Code 683.3), 01-18-81

Griffin, Christopher P., Student Trainee
(Code 226/754), 01-18-81

Gaylor, Kelly A., Student Trainee
(Code 226/151), 01-18-81

Pitter, Leighton G., Student Aid
(Code 251.2), 01-18-81

REORGANIZATION & KEY APPOINTMENTS

Effective January 28, 1981, Ms. Benita A. Sidewell, formerly Deputy Director of Management Operations, is appointed Director of Management Operations (Code 200, 344-8641).

Dr. Henry H. Plotkin, formerly Chief, Earth Observations Systems Division, Applications Directorate, is assigned to the new position of Assistant Director for Program Planning in the Program and Institutional Planning Office (Code 110).

Development Section is changed from Code 743.4 to Code 743.3 The Attitude Control and Stabilization Branch (Code 745) is reorganized as follows: the former Design and Evaluation Section (Code 745.2) is retitled and recoded Rocket Systems Section (Code 745.3), and the Balloon Systems Section (Code 745.2) is established.

Coming Up:

Goddard's 20th Anniversary March 16



PM Magazine films Astronaut candidate

Astronaut candidate Dr. Kathryn Sullivan was the subject of a recent segment of WJLA-TV's "PM Magazine," partially filmed at Goddard. Dr. Sullivan, who visited Goddard's Eastern Regional Remote Sensing Applications Center (ERRSAC), was interviewed by the "PM Magazine" host, Henry Tenenbaum. She was filmed visiting ERRSAC before lecturing on

Space Transportation in Building 3 during the Federal Women's Program Series. The show was aired in February.

Pictured above, Dr. Sullivan (left) examines a Landsat classification with ERRSAC head, Dr. Philip Cressy (right) and ERRSAC training manager, William Campbell (center) while host Tenenbaum and film crew look on.

Goddard employee receives Navy award

William J. Racz, project support manager in code 800, recently received the 1980 "Reserve Seabee of the Year" award from the Reserve Naval Construction Force. Racz joined the Naval Reserve 14 years ago and is a member of the Reserve Naval Mobile Construction Battalion in Fort Belvoir, Virginia. The Navy cited Racz for "... outstanding performance and leadership, attention to duty, personal and professional accomplishment, and service to the community. . . ." Racz, currently the Alpha Company Administrative Assistant for the Reserve Force, said that he was very surprised when he found out he had been chosen. "It was a strange, fine feeling . . . like when I first got married," he said. For the past 4½ years, he has worked as a civilian at Goddard, contracting for the OAO corporation.

Reorganizations within the Management Operations Directorate resulting from the transfer of functions to the Flight Projects Directorate will be effected at a later date.



Nat'l secretaries Assoc. (P. G. Chapter) honors Rosemarie Givens

Goddard secretary, Rosemarie Givens, was recently honored by the Prince George's Chapter of the National Secretaries Association (International) as Secretary of the Year (SOTY). Mrs. Givens, a secretary in code 200, was selected on the basis of her poise, appearance, and answers to questions by a committee chaired by Shirley Ponder, a secretary in code 250.2. Mrs. Givens will compete for higher SOTY honors next on the division level in Hershey, Pennsylvania, in May. Mrs. Givens works for Charles Dunfee, Goddard Procurement Officer.

APPLICATIONS MILESTONES

Laser measurements of Atmosphere temp/pressure

For some time, various scientific study groups and research programs have called for the measurement of atmospheric temperature to a 1°K accuracy with a 2 km vertical resolution. This data could then be used as an important parameter for climate modeling and weather forecasting. Currently, passive radiometric techniques for determining temperature profiles are limited to about 8 km vertical resolution and 2.5°K accuracy. New laser techniques



under development at Goddard have the potential of making measurements to a resolution and accuracy required for the climatologists and meteorologists for their most sophisticated models: better than 1 km resolution and 1°K accuracy throughout the troposphere.

Experiments recently conducted at the Goddard Optical Research Facility have clearly demonstrated the measurement of atmospheric temperature to better than 1°K over a fixed 1 km path using a dual frequency laser system. The measurements are obtained through the monitoring of temperature-sensitive resonant absorption lines of oxygen near a wavelength of 770 nm. This is the first reported system to

require only two laser frequencies to perform a measurement, others requiring three. This simplifies the system and makes flyable units a practical goal.

This Applications Milestone was submitted by Dr. James E. (Jan) Kalshoven, Jr., Code 941.

EEO update

Continued from page 1

ments increased from \$1,207,000 to \$1,643,000. Goddard exceeded the Minority Business Enterprise Program goal of \$11,500,000 during the year with awards to minority firms totalling 12,258,518.

Three new programs with minority colleges were implemented during this fiscal year. At Bowie State College and Lincoln Univ., Goddard is providing support to those institutions' 3-2 engineering programs. In cooperation with Howard University, Goddard is providing graduate students from Johns Hopkins University, the University of Maryland, and Howard University with an opportunity to participate in Center research activity under the Graduate Research Program. Youth Motivational Activity was continued during the year through the Goddard Introduction to Engineering Careers (GITEC) program, the Summer Institute in Science and Technology for Junior High School Girls, and by means of a 3-day symposium, conducted with the Newark Institute of Technology for 1000 junior and senior high school students.

Volunteers offer training in CPR

C-P-R. . . three important letters that stand for Cardiopulmonary Resuscitation . . . a special form of emergency life saving first aid given to heart attack victims and others whose breathing and circulation has stopped due to automobile or other accidents including drowning, electrical shock or drug overdose. These three letters have continually played a vital role in true life-saving efforts—efforts that could also apply to you. *You* could save a life through CPR. Goddard has a corps of 18 volunteer Red Cross instructors waiting to pass along these life-saving techniques to you in regularly scheduled 8-hour classes. Contact Kathy at 344-6296 or Art at 344-7443 to get yourself scheduled to learn this valuable life-saving technique.

Your assistance and cooperation is much appreciated.

Arthur E. Anderson, Safety Specialist

Table-top lab

Continued from page 4

in its storage rack in one wall when used by a standing experimenter; partially pulled from the rack and used by a seated experimenter; and pulled entirely out of the rack, pivoted 90 degrees, and used by two experimenters seated opposite each other.



The Shuttle passed its last major flight readiness test with the firing of its main engines on February 20, 1981.

NASA National Aeronautics and Space Administration GODDARD NEWS

The GODDARD NEWS is published every two weeks by the Office of Public Affairs, Goddard Space Flight Center, Greenbelt, Md. 20771. Deadline for submitted material is two weeks from the date of publication. For additional information on major articles contained herein, contact the editor on (301) 344-5566

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