Scientist Develops Plan to Map African Diseases

By Randee Exler

Marc Imhoff

A GSFC scientist has developed a project which could reduce disease in Africa and improve the health of humans and livestock on that continent. The project uses radar image analysis to map insect breeding grounds and disease transmission areas.

Applications of this project could also be applied to research in drought and famine relief.

Marc L. Imhoff, Goddard principal project investigator, has described the program as a marriage between high technology, mapping and epidemiology. "Our goal," he explained, "is to demonstrate that disease vector control can be greatly enhanced through routine remote sensing."

The project is scheduled to run in 1987 during the African rainy season. The breeding habitats for mosquitos are the primary targets. Mosquitos in Africa can transmit many diseases and four major diseases have been selected for the study: Rift Valley fever, malaria, Congo-Crimean hemorrhagic fever and dengue fever.

Imhoff flew a similar project aboard the Shuttle Imaging Radar

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NASA
National Aeronautics and Space Administration
Goddard Space Flight Center

Goddard News

Vol. 32 No. 3 April 1986

Group Studies Ozone-Depleting Gases Over Atlantic

By James Elliott

Humankind is conducting a global-scale experiment with the Earth's atmosphere without fully understanding the consequences.

That's the conclusion reached by an assessment by NASA of a study conducted by a number of national and international organizations involving 150 scientists from 11 nations.

Dr. Marvin Geller

"There is compelling evidence," according to Dr. Marvin Geller, Chief, Laboratory for Atmospheres at Goddard, "of increases in the concentration of gases which control atmospheric ozone."

Ozone is the chemical that shields Earth life from harmful ultraviolet radiation from the Sun.

Geller said the report, still in draft form, shows that satellite observations prove there have been increases in recent years in chlorofluoro carbons, methyl chloroform, methane, nitrous oxide and carbon monoxide, something that has been theorized for some time.

Because these gases–most of them man-made–have been in the atmosphere for 75 to 150 years, Geller warned, "we must be aware if there is a change in atmospheric ozone or climate caused by increasing atmospheric concentrations of these gases. The recovery of the system will take centuries . . "

Geller pointed out that the trace gases that affect ozone are the same as those that affect the "greenhouse" warming of the planet.

Another researcher, Dr. Richard S. Stolarski, atmospheric research scientist at Goddard reported that ozone concentrations over the Antarctic in springtime have shown a decrease of approximately 40 percent since the mid-1970's.

While the decrease in the concentration has been verified from observations from a Total Ozone Mapping Spectrometer (TOMS) aboard NASA's Nimbus 7 satellite, the specific reason for the decrease remains a mystery. Nimbus was launched from the Western Test Range in California in September 1978. First indications of an "ozone hole" came from the British Antarctic Survey, which has measured ozone levels at Halley's Bay in the Antarctic since 1957.

Dr. Richard Stolarski

"These changes," Geller said, "have implications for a variety of problems and, in particualr, demonstrate the close connections among the studies of global tropospheric and stratospheric chemistry, trace gases and climate. We must realize that a global-scale experiment on the atmosphere of planet Earth is being conducted by humankind without our fully understanding the consequences."

Hubble Space Telescope To Undergo Five Month Science Verification

By Charles Recknagel

When the Hubble Space Telescope opens its eyes on the universe later this decade, some of the first star fields it views will be ones familiar to most amateur astronomers.

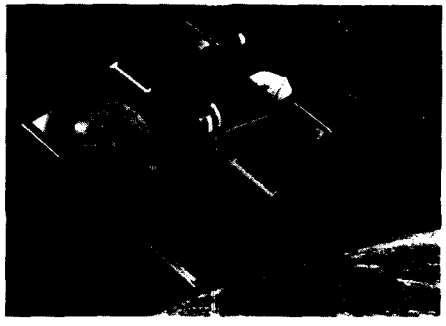
The objects, which will be used to obtain initial calibrations of the telescope's science instruments, include the star clusters NGC 188, Omega Centauri and 47 Tucanae, the star field surrounding the star Proxima Centauri, the quasar 3C48 the Orion Nebula, the Pulsar in the Crab Nebula, the 30 Doradus complex in the Large Magellanic Cloud, the bright ultraviolet standard star eta Ursa Majoris, Saturn's moon Titan or Jupiter's moon Europa, or both, the galaxy NGC 2903, and the Earth.

"In all we have about 200 potential early targets," said Dr. Keith Kalinowski, the Science Verification Program Manager for Hubble Space Space Telescope at Goddard. Observations of the targets will be used to evaluate the scientific performance of the telescope before the new observatory is handed over to the astronomical community for routine use.

Dr. Keith Kalinowski

"These targets have been selected to provide several choices in the case of most tests," said Kalinowski. "The final target selections often will depend on the specifics of orbital and Earth-Sun geometry in the time frame of the test."

Kalinowski is manager of a verification program that will involve astronomers and engineers from Goddard, academia and private industry who will spend some five months testing the Hubble Space Telescope in orbit through the Hubble Space Telescope Operations Control Center at Goddard and the Space Telescope Science Institute in Baltimore, MD. The testing period, known as the Science Verification period, will follow an initial engineering check-out of the spacecraft by many of the same team members.



***ORBITING OBSERVATORY* — the Hubble Space Telescope as it will appear in orbit.**

The Science Verification team will use the stars to "certify" the telescope's scientific performance in numerous areas, most of which fall into three broad categories: Pointing performance, science instruments' performance in various operating modes, and science instruments' response to starlight.

"We will begin with the most basic activities and move to the more complex," said Kalinowski. The earliest tests will establish the optimum focus settings for the telescope and instruments and verify various techniques for pointing the telescope at specific targets, while later tests will calibrate various science instrument light gathering and sampling configurations.

"Periodically," Kalinowski noted, "we also will repeat tests in order to evaluate the stability of the systems over time."

The team's work calibrating the telescope and its instruments will require about three months of effort and will be interspersed with two months worth of the telescope's first scientific observations for a total of 5 months in all. The first observers will be scientists who have served on the instrument development teams for the telescope.

The Hubble Space Telescope will be opened to routine observing operations by guest astronomers from around the world at the conclusion of the Science Verification period.

Mail your story to the Goddard News (Code 130), or call the Editor at 344-5565

Disease Mapping

Continued from page 1

B-2 program in 1984 and demonstrated that radar can penetrate jungle vegetation and expose areas of ponded water below.

"Radar has no human sensory counterpart," he explained. "It can penetrate cloud cover and to a certain extent vegetation growth and also detect soil moisture."

***GLOBAL PROBLEM*—The regions in black are those hit hardest by malaria.**

For this project, the radar images will be shot from aircraft. Because of differences in the aircraft system, the images will show land features in greater detail than those acquired from the shuttle.

The Goddard scientist is responsible for coordinating the expedition to Africa, collecting the radar data and establishing a ground truth (verifying a small area in order to classify a larger one) for the regions to be studied. The United States Army Medical Research Institute of Infectious Diseases (USAMRIID) is sponsoring the project and will act as co-investigators with NASA. USAMRIID also will help with diplomatic liaison activities between Goddard and the nations involved.

Space Science To The Crime Lab

By Carter Dove

Dr. Jacob (Jack) Trombka

Criminals soon may be hurting from the heat of a space age spin-off proposed by a NASA scientist and a university professor.

Dr. Jacob I. (Jack) Trombka of Goddard and Professor Sam Dash of Georgetown University, Washington, D.C. have proposed the adaptation of state-of-the-art space exploration techniques and instrumentation for use in crime detection, analysis, investigation and deterrence.

Their premise is that developments in these areas are out of touch with techniques, technology, and hardware which are readily available.

As Dash and Trombka see it, many rugged, portable detectors developed for space applications could be used by mobile police crime lab technicians at the crime scene to support their investigations.

The instrumentation which the two envision "transplanting" from a basically out-of-this-world habitat to Earth include neutron, gamma ray, x-ray, infrared, mass spectrometer and magnetometer devices.

Eventually, computer banks of investigative data would be compiled by specialty crime labs around the world and exchanged by law enforcement agencies through an international communications satellite network.

The two innovators cited the presence of various types of soils at the crime scene as an example of evidence which yields a detectable, tell-tale x-ray signature.

Armed with this signature, investigators then would query the appropriate lab for identifying data from the computer data bank of the specialty lab concerned via communications satellite.

With the computer generated data in hand, investigators would have a powerful weapon for interrogation of the suspect, criminal charges and later conviction—not to speak of deterring similar crimes.

The professor-scientist team recently outlined the space-age-to-the crime lab proposal to a special Puerto Rican senate commission on crime, which currently has their proposal under consideration.

CRIME LAB — **From left to right: Professor Sam Dash, director, Criminal Law and Procedure, Georgetown University Law School, Washington, D.C.; Dr. Pio Rechany, director, Police Crime Lab, San Juan, Puerto Rico; Honorable Hector Riviera Cruz, Attorney General, Puerto Rico and Dr. Frank Martin, Director of Space and Earth Sciences, GSFC. Dash, Rechany and Cruz visited Goddard recently to be briefed on space science applications in the criminal laboratory.**

Trombka is an astrophysicst at Goddard with a PhD in Nuclear Science and an MS in Physics. He has a patent pending on neutron/gamma ray methods for mapping distribution of contamination in building materials—a technology he applied in the identification of sources and causes of disintegration in such renowned antiquities as the Basilica of San Marco in Venice.

Dash was a key legal figure in the Nixon-era Watergate investiga-

Continued on page 8

GOES-G To Carry Search And Rescue System

An experiment designed to bring near instantaneous alert of ships and planes in distress will be flown on the National Oceanic and Atmospheric Administration's GOES-G spacecraft, scheduled for launch from Florida no earlier than May 1.

The experiment marks the first time search and rescue equipment will be flown on a spacecraft in geosynchronous orbit, according to officials at Goddard who are conducting the test. NASA will launch the spacecraft for NOAA from the Cape Canaveral Air Force Station launch complex. The launch window on May 1 runs from 6:13 P.M. to 7:12 P.M. EDT.

The experiment, being conducted in coordination with Canada, France, Norway and the Soviet Union, will augment a satellite-aided search and rescue system that since it began operations in September 1982 has been instrumental in saving more than 524 lives.

GOES G — **the new meteorological satellite will carry Search and Rescue Equipment.**

That system uses low-flying satellites, currently three from the Soviet Union and one from the United States, to pick up distress signals and relay them to rescue forces on the ground.

Those low-Earth satellites, in coordination with sophisticated equipment at ground stations in Canada, France, Great Britain, Norway, the Soviet Union and the United States, can detect and locate the site of a downed aircraft or a ship in distress. The spacecraft picks up the distress signal and relays it to the ground, where ground controllers and their

Continued on page 4

Goddard's *Satellite Doctor* Revives NASA Birds

By Randee Exler

Henry Clay Hoffman believes that satellites can have as many lives as a cat. Like a family vet who nurses sick pets back to health, Hoffman rejuvenates NASA "birds" again and again and again.

Some say the slightly-built, dark-haired engineer thinks that dying satellites can be resurrected and that, like a witch doctor making black magic, he breathes life into ailing spacecraft with a special engineering mumbo-jumbo using arcane phrases like "poles and zeroes, nulls and stability factors."

No matter how one looks at Hoffman, however, he is—by any measure—a unique individual whose name undoubtedly will go down in history as one of the greatest "fixers" of satellites the world has ever known.

Hoffman is the conspicuously colorful and dashing Chief of the Guidance and Control Branch of the Space Technology Division at Goddard. He has been responsible for the technical development of spacecraft and launch vehicle stabilization, guidance and control subsystems since 1962. He also has developed a team of Goddard engineers who under his leadership, work as a team to keep spacecraft alive and well.

People Notice

When Hoffman enters a room, people notice. He is a man who makes a statement through his dress and deed. It is not unusual to see him sporting a red plaid jacket with a bright orange tie or to hear him aggressively articulating his concerns, according to his colleagues. His infectious laughter permeates the air.

When the 5'6"-inch tall Hoffman speaks, people listen. This energetic dynamo converses in double time as his words try to keep up with the racing wheels in his head. His near instantaneous grasp of spacecraft attitude problems and wealth of experience enable him to quickly win over both government and industry teams alike.

The 140-pound Hoffman has been instrumental in bringing back to life a number of satellites which, without him, probably would have failed at a tremendous loss both in dollars and in science.

Commands Respect

While he is widely respected for his technical expertise in designing and developing attitude control systems for a number of major NASA spacecraft, this enthusiastic engineer's recognition stretches far beyond the NASA arena. Over the last few years, he has gained an international reputation for his efforts of taking the "wobble" out of satellites that have lost their control systems hundreds and even thousands of miles above Earth.

On two occasions, once in 1980 and again in 1984, Hoffman played a major role in the re-stabilization of the Solar Maximum Mission (SMM) satellite, masterfully plucking it from doom with a touch of space magic that has brought him

Continued on page 5

Rescue System

Continued from page 3

equipment pinpoint the location, usually to within 5 or 10 miles (8 - 16 kilometers).

The receiver on the GOES (Geostationary Observational Environmental Satellite) will not assist in the location of a distress signal specifically. However, it will pick up distress signals and relay them to Earth, where rescue forces will be alerted so they can check out the location using the low-flying satellites. The low-flying satellites are in Polar orbit. The Soviet spacecraft fly at an altitude of approximatley 620 miles, (1000 kilometers) and the US satellite is at 525 miles (850 kilometers).

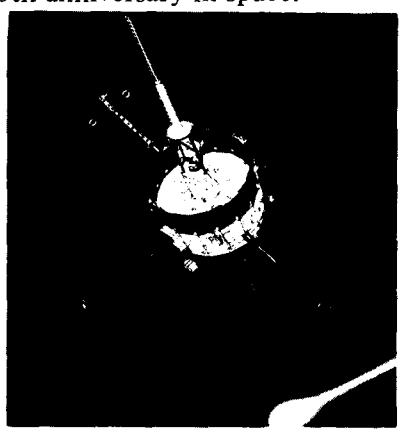
Latest ICE Maneuver Will Return Spacecraft To Earth Orbit In 2014

A critical orbital maneuver on April 7 positioned the International Cometary Explorer (ICE) for a return to Earth orbit on August 10, 2014.

GSFC controllers fired the spacecraft's hydrazine thrusters to reduce a 130-feet-per-second (40-meter-per-second) change in velocity that will make a slight adjustment to the spacecraft's orbit around the sun. The total velocity of the spacecraft in solar orbit is roughly 18-miles-per-second (30 kilometers-per-second) around the sun.

The maneuver will return ICE to the Earth's vicinity, where it can use the gravity field of the Moon to capture the spacecraft into an orbit around the Earth, according to Dr. Robert W. Farquhar, ICE Flight Director.

ICE currently is measuring the solar wind upstream of Halley's Comet and will continue making measurements of interplanetary conditions during its return trip to Earth. The lunar swingby and return to Earth orbit will take place two days before the spacecraft's 36th anniversary in space.



***COMING HOME*—ICE will return to Earth orbit in the year 2014.**

Satellite Doctor

Continued from page 4

honors and fame the world over. Hoffman's leadership in developing the new control laws which stabilized Solar Max led directly to the historic first recovery and repair of a spacecraft in space.

When the stability of any NASA satellite is threatened, the first person to get a panic call for help is this 60-year old Goddard engineer. Hoffman is always ready to jump in when his expertise is needed.

Booster Fails

That was the case with the Tracking and Data Relay Satellite (TDRS) in 1983. It failed to reach geosynchronous orbit when its booster rocket failed shortly after deployment from the Space Shuttle. Hoffman made major contributions to a NASA-industry team that over a 59-day period, nursed the satellite more than 8,000 miles into its proper orbit using only six of the spacecraft's thimble-sized thrusters. The achievement is considered one of the outstanding engineering feats in space history.

Hoffman thrives on problem solving. Perhaps this is why the recovery of the International Ultraviolet Explorer (IUE) is not only his most recent success story but also his pet project.

Maintaining three-axes stabilization with only two gyros is a problem considered nearly impossible to solve. But not for this brown-eyed answer man who often seems to be talking two levels of intelligence above ordinary man. Hoffman led the team of Goddard engineers who saved this 128 million dollar observatory after one of its three remaining gyros failed. Their highly unconventional and ingenious plan substituted the spacecraft's sunsensor for the missing gyro.

Observatory controllers placed the spacecraft in a yaw-spin configuration, or "sunbath mode," before feeding the plan to the IUE's onboard computers. Hoffman explained why: "A sunbath mode is a safe hold mode," he said. "And besides," he joked, "once a spacecraft is in a safe mode, there is time for emphaloskepsis (meditation while gazing at the navel)!"

Plan Developed

Hoffman currently is developing a standby plan to be implemented when another gyro fails. He puts all kidding aside when he said, "Get me enough bodies, and I'll get you a one gyro system! Of course, this is assuming we could do it. I think we can."

***SATELLITE DOCTOR*—Henry Hoffman nurses sick satellites back to earth.**

Hoffman is the recipient of many awards including Goddard's 1985 Moe I. Shneebaum Memorial Award which is presented for outstanding accomplishments in the field of engineering. NASA awarded him with two Exceptional Service Medals, one in 1974 and the other in 1983. He won the NASA Exceptional Engineering Achievement Medal in 1984.

The National Society of Professional Engineers cited the TDRS rescue team, of which Hoffman was a key member, for one of the 10 most outstanding engineering achievements of 1983. *Aviation Week and Space Technology* cited his role as one of the top achievements of 1984.

Perhaps Hoffman is too modest when he says, "No way was I the biggest contributor from Goddard for the TDRS rescue. I may have had the biggest mouth during teleconferences, but I really don't know why I was singled out by the magazine. Perhaps I was the most vocal one!"

Expertise Applied

In addition to the significant role that Hoffman has played in Goddard missions, he has applied his expertise to international and commercial programs such as Helios (German); Eole (French); INSAT (India); San Marco and LAGEOS II (Italian); Intasat (Spanish); the UK Series (British); Swedish sounding rockets; the Active Magnetospheric Particle Tracer Explorers (AMPTE), and many of the Intelsat series of commercial communication satellites.

Much of his success is owed to the engineers with whom he works, according to Hoffman.

"I work with a top level team," he said. "We've been working together for a long time. Three of the people I work with now were already here when I came to Goddard in 1962,"

When asked about retirement, Hoffman smiled and said: "I can stir a lot of pots and get my fingers into a lot of programs here at Goddard. I couldn't conceive of any other job in the world that would be as interesting or as challenging as the one I have here."

BLOOD DONORS

Following is a list of Goddard donors who were cited by the American Red Cross with gallon pins at the Bloodmobile of April 2, 1986.

Name	No of Gallons
Dan Andrews	1
Jonathan Bryson	2
George Fleming	6
Ida Hakkarinen	4
Greg Manfra	6

Thanks again, Goddard, for your overwhelming support of the recent bloodmobile put us way over our goal!

The next mobile is scheduled for Wednesday, June 4, 1986, in Bldg. 8 auditorium from 8:30 to 2:30.

Goddard To Extend Tracking Station Operations

By Carter Dove

Consistent with NASA's announced baseline plan for a one-year delay in Space Shuttle launches and the accompanying delay in Tracking and Data Relay Satellite (TDRS) launches, Goddard has announced plans to extend operations at five of its ground tracking stations to at least July 1, 1987.

The ground stations affected are at Ascension Island (ACN) in the southeast Atlantic Ocean; Santiago (AGO), Chile; Guam (GWM); Hawaii (HAW); and Yarragadee (YAR) located in western Australia.

NASA originally had planned to close the stations beginning July 1, 1986.

The ground stations, managed by Goddard, relay commands to and receive data from spacecraft—including the Space Shuttle— in near-Earth orbit.

The timetable for station closure is conditional on the Space Shuttle's deployment of the second Tracking and Data Relay Satellite-D (TDRS-D) into synchronous orbit in February, 1987. At that time, the spaceborne network—the Tracking and Data Relay Satellite System (TDRSS)— will be able to provide more than 85% coverage of a spacecraft's orbit, rather than the 50% coverage now provided by the existing ground stations and the one TDRS now on station.

Goddard also manages the TDRSS, a system owned and operated by the Space Communications Company (SPACECOM), Gaithersburg, MD.

A sixth ground station, at Dakar, Senegal (Africa), will be placed on caretaker status effective May 1, 1986 and be reactivated shortly before resumption of Space Shuttle flights. Dakar is marked for closure not earlier than April 1, 1988, conditional on deployment of the third TDRS.

ASCENSION ISLAND — **the tracking station in the Atlantic is one of five ground stations which will continue operations during NASA's baseline one-year delay for Shuttle launches.**

Another station in the ground network, Merritt Island, FL will end its orbital support July 1, 1987, but continue with pad and launch/landing support for space launches from Kennedy Space Center and Cape Canaveral Air Force Station, FL.

Additionally, effective in April, 1986 the GSTDN station in Greenbelt, MD will transfer its tracking operations to the Goddard/Wallops Flight Facility, Wallops Island, VA. The Goddard station will, however, retain its test facilities.

In the Greenbelt-to-Wallops transfer, the WFF station will pick up orbital tracking support for several satellites now handled by the Greenbelt station: International Ultraviolet Explorer (IUE), Interplanetary Monitoring Platform (IMP-8), Cosmic Background Explorer (COBE) and Nimbus-7.

The satellite tracking realignment is designed to streamline network facilities in anticipation of an operational spaceborne TDRSS.

The first satellite in the TDRSS, TDRS-1, was launched in April 1983 and currently is operational in geosynchronous orbit at 41 degrees west longitude.

TDRS-B, to have been the second satellite in the System, was destroyed in the explosion of the Space Shuttle Challenger (STS 51-L) on January 28, 1986. Once deployed by the Challenger, TDRS-B was to have taken up its geosynchronous orbit at 171 degrees west longitude.

NASA HEADQUARTERS BUS SCHEDULE

Depart GSFC Bldg. 8	Arrive NASA Hq FOB 10	Depart NASA Hq FOB 10	Arrive GSFC Bldg. 8
8:00 am	8:30 am	8:45 am	9:15 am
10:00 am	10:30 am	10:45 am	11:15 am
12:15 pm	12:45 pm	1:00 pm	1:30 pm
3:15 pm	3:45 pm	4:00 pm	4:30 pm

CLOSE-UP

The Goddard Employees Welfare Association (GEWA) sponsored a ribbon cutting ceremony for the grand opening of the Building 1 Employee Service Center on March 17, 1986. Dr. Hinners officially cut the ribbon (below) at noon with several GSFC, Canteen and GEWA officials in attendance. Nearly 400 employees visited the Building 1 facility during the lunch time festivities.

A theme of St. Patrick's Day was reflected in colorful decorations and the menu fare (corned beef and cabbage). Many "specials" were offered by Canteen and the GEWA Exchange Store—free ice cream, additional discounts on designated store items, film processing, etc.

Prize drawings were held every 30 minutes for gifts donated by the GEWA Exchange Store and Canteen Corporation. The happy winners were:

3 lb. bag popcorn—
Margie Small/253
Kathy Orwig/693
Bruno Baldini/311
J. Merryman/291
Umbrella — Dave Moulton/205
Wallet — George Shipley/205
4 lb Heart of Candy—
Ron Felice/500
Trivial Pursuit Game — Melvyn Goldstein/692
Watch — Shirley Rupp/750
12-speed Bicycle—Andre' Burgess/724

GEWA congratulates the winners and thanks the managers and personnel of the cafeterias and Exchange Store for their efforts in making the day a success.

DICK COSTA, long-time Chief of the Information Processing Division (IPD) at Goddard, left April 14 to devote full-time attention to his new job at NASA HQ as Director, Communications and Data Systems Division in the Office of Space Tracking and Data Systems (Code T). As of press time, no one had been named to succeed Dick at the IPD.

DR. ALBERT BOGGESS, Hubble Telescope project scientist for for operations at GSFC, has been named the co-recipient of the Herschel Medal, awarded by the Council of the Royal Astronomical Society of the United Kingdom.

Boggess was cited for his contribution to the success of the International Ultraviolet Explorer (IUE) satellite. He served as IUE project scientist from the development phase, through the first several years of operation, including the January 1978 launch of the spacecraft.

Professor R. Wilson, University of London, was the co-awardee of the Herschel Medal, which is awarded once every 3 years for exceptional contributions to observational astronomy.

The IUE is continuing a 10-month program to study Comet Halley's evolution as it approaches and then recedes from the sun. The research centers on the comet's physical and chemical properties.

DR. JOHN C. BRANDT, Chief of the Laboratory for Astronomy and Solar Physics, was invited with other eminent astronomers and physicists to the White House March 26 to have lunch with President Reagan. The guest list included three cometary specialists, including Brandt, and three specialists on Uranus. The lunch was the fourth in a series where the President hears first hand from leaders in science and technology about discoveries, developments and breakthroughs in their disciplines.

ON YOUR MARK, GET SET GO!—This year's Winter Olympics at Goddard included a 2 mile relay race March 14 which included (left to right, front) Bob Phillips, Mike Painter, John Landadis, Tom Plumber, Dave Case, and Ray Hartenstein. The Winter Olympics were held from March 10 to 14.

Bendix Field Engineering Corporation (BFEC), Columbia, MD, Mission Operations Support Services (MOSS) and Spaceflight Tracking and Data Network (STDN) employees assigned to Goddard have received a Million Labor Hours Safety Award from Bendix. The award recognizes the efforts of the employees for "working 1,000,000 labor hours without a lost time accident." The safety award is given to all MOSS employees for the period September 3, 1983, through October 31, 1985, and to the STDN employees for the period May 24, 1985, through October 28, 1985.

Continued on page 8

Close-up

Continued from page 7

ED NACE, Lockheed Project Manager for the International Cometary Explorer satellite, has been named Advanced Systems Technology Programs, Employee of the Year by Lockheed.

The Employee of the Year Award comes after a successful data recovery mission for the ICE/Giacobini-Zinner encounter that was described by NASA Code 500 Director Peter Bracken as, "A ringing success."

DANIEL A. GRUNBERG, staff engineer with Lockheed Engineering and Management Services Company at Goddard will receive Lockheed Corporation's highest award for technical achievement this month.

Grunberg was selected for the award because of his work as a project engineer and lead designer for key NASA projects at Goddard, including the Hubble Space Telescope Data Capture Facility and the Spacelab Data Processing Facility.

SHUTTLE SAFETY FIRST

"Since shortly after the accident of the Space Shuttle Challenger, NASA Centers have been engaged in a detailed study of all systems to ensure flight safety. NASA will continue this careful review over the coming months to determine every area that must be corrected, and evaluate the most efficient way to effect changes that must be made.

We will not launch again until safety related issues have been properly addressed throughout the total NASA system."

Rear Admiral Richard Truly
NASA Associate Administrator
for Space Flight

Retirees

Farewell and best of luck to the following retirees who recently left Goddard.

March	Code	Years
Hall, Jean F.	801	35
Conant, William W.	675	38
April		
Hickman, Ralph E.	833	34
Gray, Catherine W.	801	36
Parks, William F.	293	35
Snead, Everett J.	293	35
Wessells, Robert W.	833	38
Burel, Dorothy M.	286	36

Crime Lab

Continued from page 3

tion and a veteran of 35 years in every phase of the criminal justice system. He is now the Director of the Institute for Criminal Law and Procedure at Georgetown.

It was Dash who broached the idea of applying space technology to crime solving in discussions with Trombka in 1968.

Commenting on the current state of criminal investigation, Dash said that, for example, "Handwriting analysis techniques date to 1609—we're talking more than 350 years ago—and they haven't changed since."

Further amplifying the need for state-of-the-art crime techniques, Trombka added that, "Most crime labs simply collect evidence but do not analyze. The more quickly we can identify and analyze—such as through nuclear sensors and computer data banks—soil particles, bloodstaines, hair, etc., the better the chance of apprehending criminals."

After identifying the problems of crime solving and deterrence through years of research, Dash and Trombka now have brought their proposal through the development stage and to the point of feasibility demonstration—and perhaps none too soon.

The Dash-Trombka system also will reduce the chances of human error in the classification and analysis of evidence, improve the efficiency of the investigation, increase the credibility of the prosecution effort and, therefore, enhance the probability of justice being served.

NASA National Aeronautics and Space Administration Goddard Space Flight Center

Goddard News

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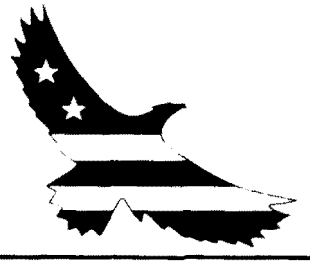
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