

Martin Marietta

Special Issue

December 14, 1990

Astronautics marches on to new frontiers

The first year of the new decade provided the Astronautics Group an opportunity to learn, prosper, and perhaps most importantly, prepare for the crucial years remaining in this century.

I am particularly pleased with the progress made in implementing Total Quality Management throughout the Astronautics Group. As the year comes to a close, we are beginning to operate with our new Manufacturing Resource Planning (MRP-II) system, and high-performance work teams are showing real productivity gains. As we continue to implement TQM initiatives, I urge each of you to rededicate yourselves to self-empowerment and to the goal of achieving "Quality in Everything We Do!"

During 1990, we continued our pre-eminence in civil and military space programs, guiding Magellan through a history-making rendezvous with Venus, and successfully launching two Titan IVs from Cape Canaveral. We also played an important role in advancing the nation's strategic missile objectives by supporting three successful operational test launches of the Peacekeeper intercontinental ballistic missile. Our dedication to 100 percent Mission Success helped us produce these exciting results.

To help prepare for the challenges ahead, we can use this past year as a springboard. Magellan, Titan IV, and Peacekeeper are tangible success stories that prove we indeed are an industry leader. Yet, we cannot be satisfied with where we are—we must continue to strive to obtain new business and find better ways of producing quality products.

In addition to the previously mentioned success stories, the past year saw several other key highlights.

We formed the Civil Space Systems company in November so we can aggressively seek new business opportunities in the growing civil space market. This will enable us to focus our energies on providing current and potential customers effective program management and strong technical expertise.

A five-year trend of improving Independent Research and Development scores continued when we earned a record 8.86 score out of a possible 10 from the Air Force evaluators. This outstanding performance puts us in the 99th percentile of the 142 companies the Air Force evaluates.

Also, in the first half of the year, the Air Force Contract Management Division gave us their prestigious Big "Q" Award. The award is presented annually to an Air Force contractor that significantly demonstrates ability to continually produce quality products.

Another area that I'm very proud of is our employee volunteers. More than 200 Astronautics Group employees took action to help improve the environment in 1990. Employees worked on the Colorado Trail, planted wildflowers along I-25, and helped the Volunteers for Outdoor Colorado and the South Suburban Park Foundation plant trees along the South Platte River.



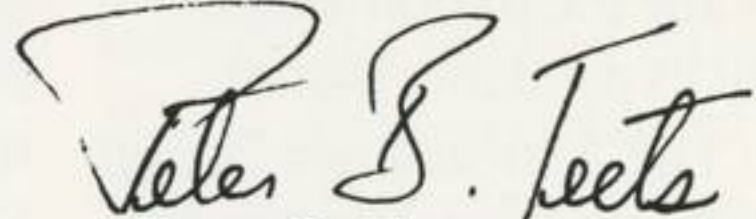
This image of the eastern edge of Alpha Region on Venus, acquired Nov. 7, shows seven circular domical hills averaging 15 miles in diameter with maximum heights of 2,475 feet. These features can be interpreted as thick eruptions of lava coming from a vent on the relatively level ground allowing the lava to flow in an even lateral pattern. The photo has been color-enhanced.

As I've mentioned, we should be proud of our accomplishments. I feel they serve to build the confidence needed to meet forthcoming challenges. Therefore, let me share with you some of the key goals I have for 1991:

- Continue commitment to Mission Success with increasing launch rates,
- Win new business in new areas and with new customers,
- Expand our existing business in the classified and military areas,
- Implement TQM, and improve productivity, and in turn, profitability,
- Continue 100 percent compliance with environmental regulations 100 percent of the time.

I encourage each of you to read more about 1990 in this special issue of our recently revamped *Astronautics Group News*.

Have a wonderful holiday season, and I urge you to come back on Jan. 2, 1991, ready to do your part to help us prosper in the coming years.


Peter B. Teets
President
Astronautics Group

Titan family paces Astronautics Group in 1990

The Titan family of launch vehicles continued its proud heritage in 1990, with two Titan IVs and two Commercial Titans thundering into space. Likewise, Titan II continued to make progress in preparation for launches in the next two years.



A second Titan IV space launch vehicle was launched successfully from Cape Canaveral on June 8, 1990. The booster, built by Martin Marietta and a team of subcontractors for the U.S. Air Force, carried a classified military payload.

Titan IV

Two Titan IV space boosters lit up the Florida skies in 1990, marking the beginning of the Titan IV's transition from a developmental to an operational status.

The most recent successful launch on Nov. 12 was the third in a row for the nation's most powerful expendable launch vehicle. The Astronautics Group is the U.S. Air Force's prime contractor and systems integrator for the Titan IV.

Further evidence of Titan IV's transition to operational status is the progress being made on launch complexes at Vandenberg Air Force Base and Cape Canaveral Air Force Station.

Col. Charles F. Stirling, Titan IV program director, said, "I am happy to report that on Oct. 25, I declared the initial operation capability at Vandenberg Air Force Base of the launch complex (SLC 4-E) and capability there to begin planning for launch operations ... next year. We now have two active launch pads, one on the East Coast—Launch Complex 41—and one on the West Coast—Space Launch Complex 4 East."

Launch Complex 40 at Cape Canaveral recently had its "topping ceremony" when the final steel beam was hoisted, carrying the American flag and traditional tree.

In a press conference following the Nov. 12, launch, Stirling outlined the Titan IV future launch capability using launch sites at both coasts. "We have a five-launch per year capability today. With Launch Complex 40 (achieving launch capability) in the 1992-93 timeframe, we will add three more (launches). With Space Launch Complex 6 in 1996, we will be up to 10 (launches) per year."

The activation of the Launch Systems Technology Test Bed will assist the current Titan family of launch vehicles and the next-generation launch systems. "With a facility like this, we can develop cheaper, more reliable launch vehicles, and the nation will be better served," said Gen. Donald J. Kutyna, commander in chief of the U.S. Space Command, at the building's opening last month.

Other Titan IV 1990 highlights included the delivery of the first payload fairing to Vandenberg by McDonnell Douglas Space Systems Co., the completion of all 23 liquid rocket engine shipments by Aerojet TechSystems



Astronautics Group employees watch a computer graphics presentation at the dedication of the company's new Launch Systems Technology Test Bed on Nov. 19 at Waterton.

Co., and the recent delivery of the first General Dynamics Space Systems wide-body Centaur upper stage to Cape Canaveral on Dec. 12.

Titan II

Modifications continued in 1990 of decommissioned Titan II ICBMs so they can be used to launch smaller payloads. With an Air Force contract to build and launch 14 Titan II space launch vehicles through 1995, there have been two launches from Vandenberg.

The Space Launch Systems company also has developed an enhanced Titan II that uses up to 10 solid rocket motors strapped to the first stage for greater lift. Under an Air Force contract, an enhanced Titan II will launch a Strategic Defense Initiative Organization experiment designed to discriminate between real warheads and decoys. Launch is slated for 1993.

Commercial Titan

Two Commercial Titans carrying INTELSAT VI communications satellites were launched from Cape Canaveral in 1990. Although the first satellite in March failed to separate from the Titan, leaving the satellite in

a too low orbit, the second was successfully placed in orbit in June.

The next Commercial Titan, which will carry NASA's Mars Observer, is planned for a late 1992 launch. Martin Marietta also is building the Gamma Ray Spectrometer, an instrument slated to fly on the Mars Observer, and the Transfer Orbit Stage, an upper stage that will send the spacecraft into its interplanetary trajectory.

ASTRONAUTICS GROUP

NEWS


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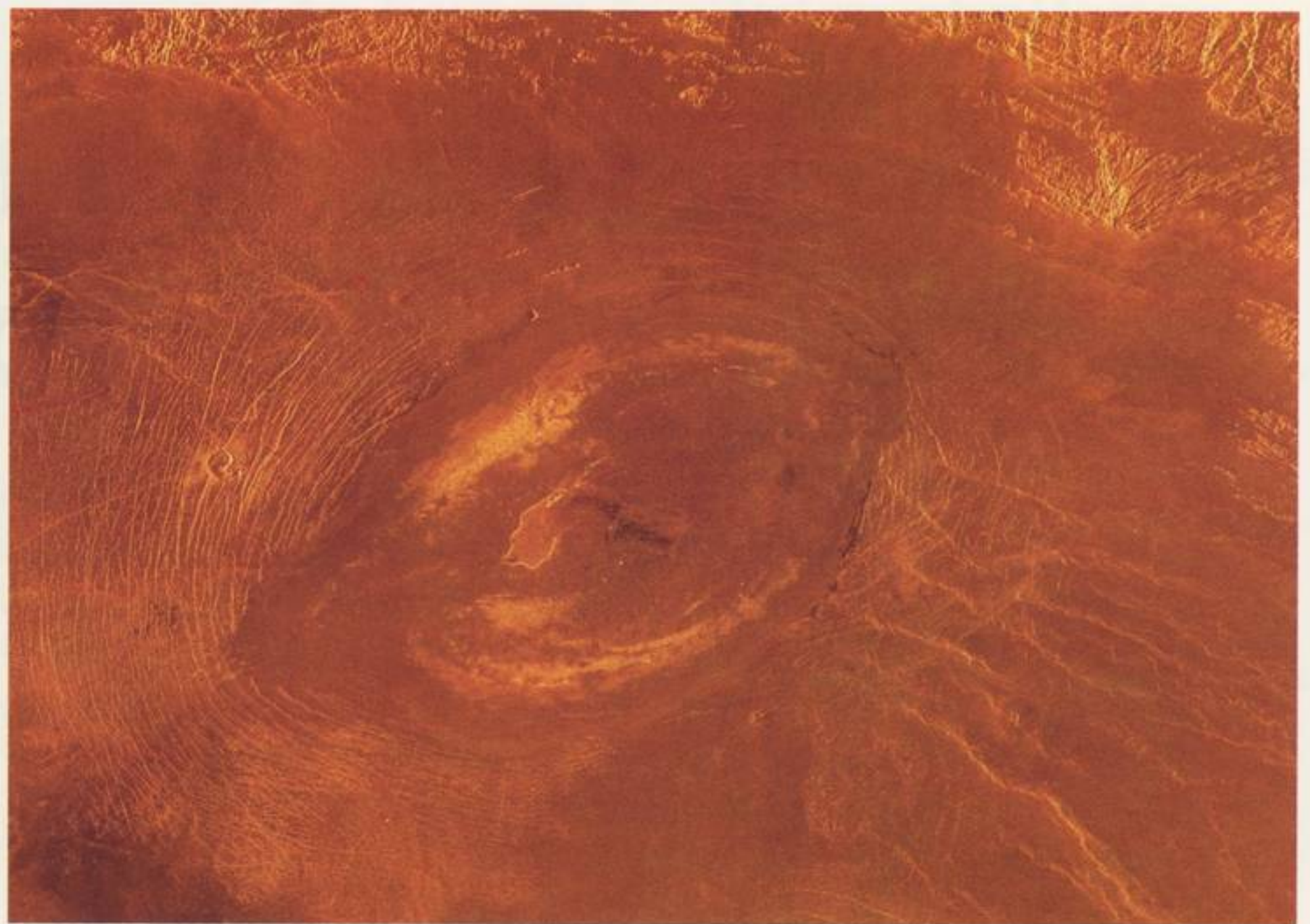
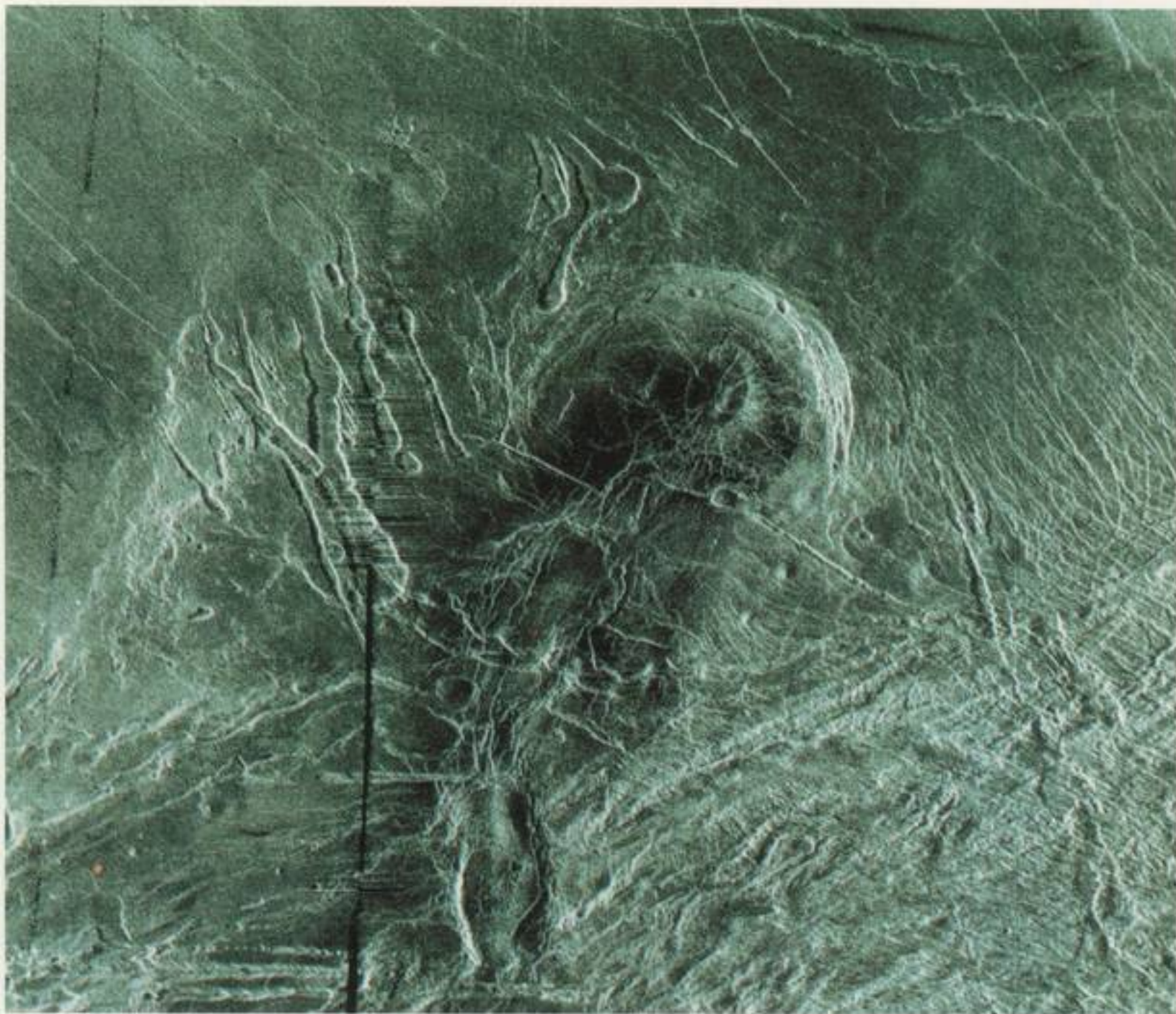
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The image, left, is a full-resolution mosaic of several Magellan images and covers an area 150-miles wide. The radar smooth region in the northern part of the picture is of a high-plateau region, ringed by intensely deformed terrain. The circular feature is a depression

and may be a volcanic caldera. The other image, right, reveals Sacajawea Patera, a large, elongate caldera approximately 1-mile deep and 74 miles by 133 miles in diameter. Both photos have been color-enhanced.

Modern-day Magellan explores a new wonder

Imagine the awe Ferdinand Magellan must have experienced at discovering the wondrous bodies of land and water on the first voyage around the Earth.

The 15th-century Portuguese explorer and his crew delved deeply into Earth's uncharted territory. Unbelievable tales of a new tranquil ocean, named *Pacifico*, and descriptions of the lush green countryside along the journey reached modern civilization—tantalizing Europeans with the possibilities and opportunities the planet could provide.

With the same magnitude Ferdinand Magellan's discoveries revolutionized 15th-century exploration, the Magellan of our time continues to return marvelous information on a new frontier—revealing a cornucopia of geological and geographical wonders on the planet Venus unlike anything ever seen on Earth.

Five hundred days after its launch on May 4, 1989, the Magellan spacecraft began its 243-day Venus mapping mission on Sept. 15, beaming back images that are 10 times better than any ever taken of that planet's surface. Details revealed by Magellan's synthetic aperture

radar are spectacular—meteorite impact craters large enough to swallow the entire city of Los Angeles, mountains that dwarf Mount Everest, volcanic lava flows, faults and fractures, deep canyons, and startling tectonic features that as yet are unexplainable.

With the enthusiasm early Earth explorers must have felt, Magellan project scientist Dr. Stephen Saunders of the Jet Propulsion Laboratory said, "We'll have more data about Venus than had been provided by all the previous missions."



The waiting was the hardest part for Astronautics Group engineers, seated from left, Greg Privette, John Morgione, and Chris Miller, and, standing, Ken Starnes. But the group was elated after receiving the first signal from Magellan after it attained orbit around Venus.

The scientific community has been no less impressed with the modern-day Magellan.

"Believe me, it's giving us a revolutionary new view of Venus," said Brown University geologist Dr. Jim Head, a Magellan scientist at JPL. "Literally, Magellan is a microscope on Venus."

Saunders said that many features on Venus are similar to those found in the Himalayas, Iceland, Hawaii, and California's Mojave desert. Many have been generated by similar natural forces. However, even Saunders, who is

the project expert, expressed awe at some of the unique geologic scars on Venus that are unlike anything on Earth. He said scientists expected to see mountains formed by crustal "folding" like the Appalachians, but have found evidence that they may be formed by a "pulling apart" of the surface crust.

The Magellan spacecraft, built and operated by Martin Marietta for the National Aeronautics and Space Administration's (NASA) Jet Propulsion Laboratory, spent most of 1990 completing its 968-million-mile cruise to Venus. After one and a half loops around the sun, on Aug. 10, 1990, Magellan entered Venus orbit precisely on target. After completing checkout and overcoming minor communications losses, the spacecraft turned on its sophisticated radar to penetrate Venus' thick cloud cover.

To date, Magellan had sent back images of more than 23 percent of Venus' surface. Future mapping missions will continue for several years, filling in pieces that Magellan is expected to miss during the first mission. NASA plans to construct a complete surface map of Venus with the images Magellan returns to Earth.

Positive vibrations: FOS sends good news from Hubble telescope

Since its successful launch on April 24, 1990, the Hubble Space Telescope hasn't produced as expected because of a flaw in its mirror design.

However, good news now is filtering to Earth from the troubled Hubble. The Faint Object Spectrograph (FOS), built by Martin Marietta Space Systems, continues its scientific checkout procedures and is working properly. On Oct. 28, the Hubble made its first observation of a faint object spectrum using the FOS.

Recently the Hubble returned awesome pictures of Saturn with a massive storm engulfing portions of the ringed planet with a great white cloud belt of frozen ammonia crystals billowing 150 miles high. Saturn's "Great White Spot"—more than 10 times Earth's diameter—is racing eastward around the equator at 1,000 mph.

Scientists are perplexed as to why the storms occur on Saturn, a caldron of liquid and gas with atmospheric pressures millions of times greater than Earth's. They believe the storms may be the largest atmospheric structure currently in the solar system outside of the sun. Saturn's last storm of this magnitude was spotted in 1933 and lasted 50 days.

While science investigations using the spectrograph will be somewhat limited by Hubble's mirror flaw, the faint object spectrograph's ability to detect ultraviolet light—which cannot be detected by ground telescopes because it is blocked by the Earth's atmosphere—is expected to make it

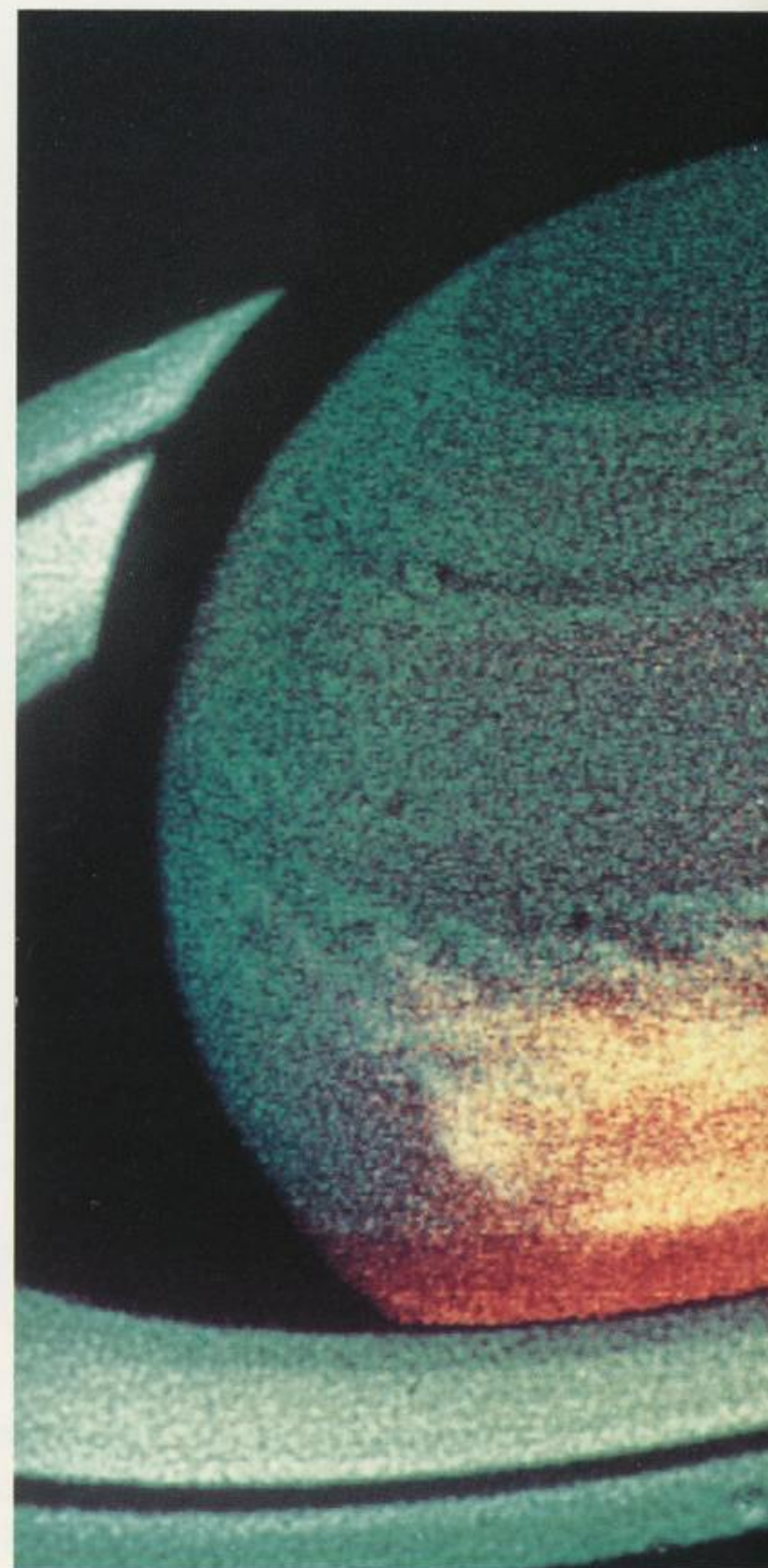
one of the telescope's workhorses until Hubble's vision can be corrected later this decade.

The FOS zeroed in on the quasar UM675, one of the oldest, most distant bodies in the universe in November. UM675 is billions of light years from the Milky Way and receding faster than eight-tenths of the speed of light.

Astronomer E. Margaret Burbidge, who led a team of University of California-San Diego astronomers in the investigation, said, "After the target acquisition was successfully carried out, and the first of the three data sets appeared on the computer screen, the team and the control room personnel at Goddard (Space Flight Center) were all just ecstatic."

One of the astronomers' goals was to look for the spectral signature of helium in the far ultraviolet. Measurements in the Milky Way and other nearby galaxies show that helium is the second most abundant element in the universe. Yet, the amounts seem too great to be accounted for by thermonuclear processes in stars, which transform hydrogen to helium. Therefore, scientists have postulated that most of the helium was made in the "Big Bang" that created the universe.

Burbidge said the strength of the helium signature in a far distant quasar such as UM675—the light from which left its source billions of years ago—will tell scientists about helium abundance in the early universe.



The much-improved sharpness of the computer reveals a new "white spot" near the equator. The turbulent atmosphere were taken Nov. 9 with the

Quasars are enigmatic objects that pour out an intense energy, seemingly too bright to be produced from an object so compact. The physical processes that make this possible are still little understood nearly 30 years after the first quasars were discovered.

UM675 appears in visual light as a faint star-like object, some six million times

Tethered satellite zeroes in on first flight

After completing initial construction and testing in Denver, Martin Marietta shipped the Tethered Satellite System (TSS) to the Kennedy Space Center in 1990.

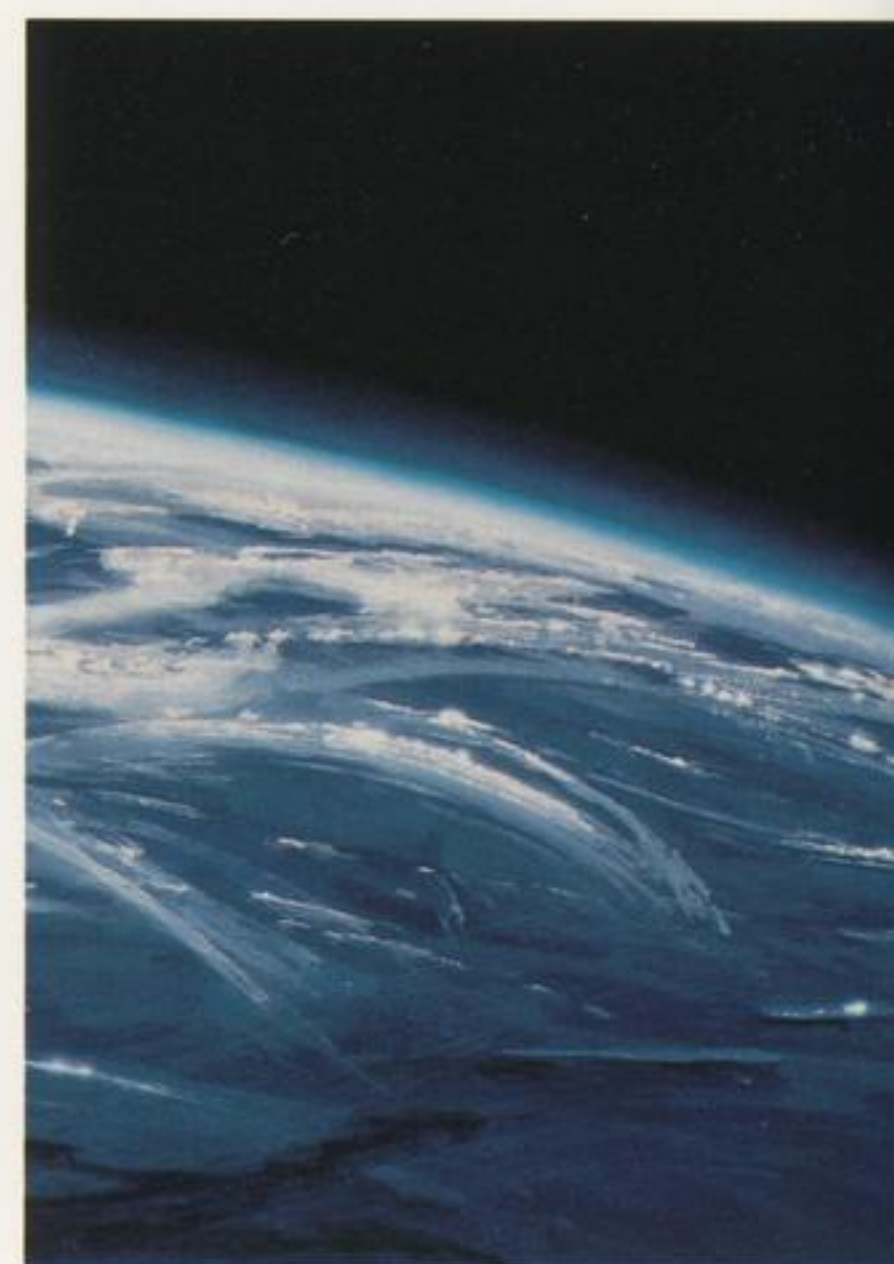
The system, which will deploy reusable satellites from the shuttle on a tether up to 78 miles long, will be used for long-term upper atmospheric research. The company developed and built deployer flight hardware, including the boom, reel, and tether, for NASA and will integrate it with a satellite built by

Aeritalia, an Italian aerospace company. During its first flight test, scheduled for 1991, the system will troll the satellite out 12 miles above the shuttle to study plasma physics and power generation in space.

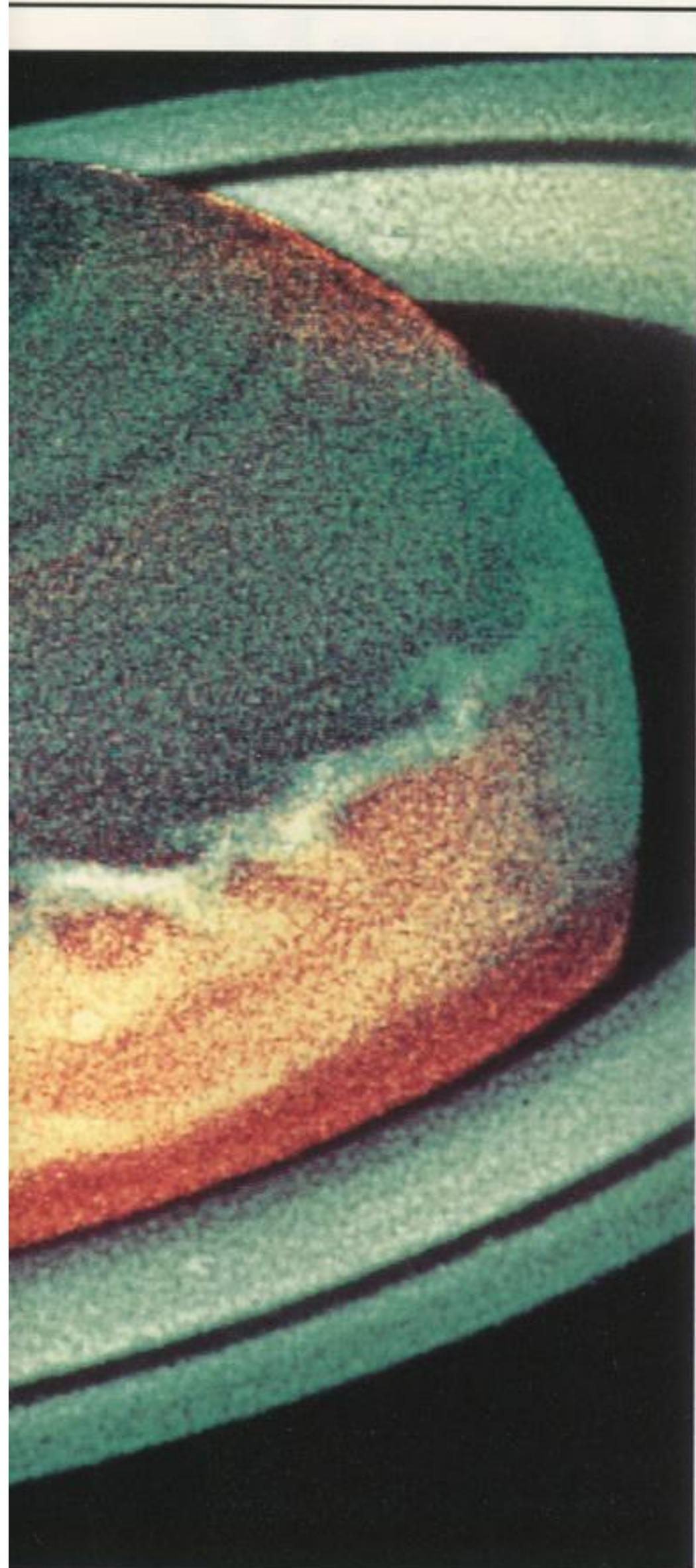
Deployed toward Earth, the TSS can operate at altitudes previously accessed only by the brief flights of sounding rockets. Anticipated research applications include studies of crustal magnetism, location of extractive mineral deposits, and upper atmospheric phenomena.

The satellite can conduct electrodynamic research because it is deployed away from the orbiter and Earth on a conductive tether to generate electricity.

The tether system also may be used to assemble large space structures, electric power generation, space station waste disposal, and many other potential applications.



Tethered Satellite System



Processed Hubble Space Telescope data. The first photos of Saturn's very turrey camera in blue and infrared light.

...r than the bright star Vega, which is ...e to the naked eye. Because of the ...ous speed at which this quasar is ...ng away from the Earth, its light— ...d out into its component wavelengths ...e spectrograph—is shifted far toward ...d end of the spectrum. This red shift is ...only attributed to the expansion of the ...rse.



Group looks forward to Super Collider challenge

While Martin Marietta has enjoyed tremendous successes with its major projects in 1990, including Magellan and Titan IV, the Corporation continues to look to the future and new challenges.

One of the challenges on the horizon is the Superconducting Super Collider. The Astronautics Group is a member of a consortium called EMPACT-TEXAS (Electrons, Muons, Partons with Air Core Toroids-Totally Hermetic Experiment at the Supercollider) that is bidding to build one of two \$500 million particle detectors for the Super Collider, a 54-mile superconducting accelerator situated in an oval tunnel to be built underground south of Dallas, Texas.

The Super Collider, a high-energy physics project sponsored by the U.S. Department of Energy, will examine the origins of the universe by studying the high-energy collision of subatomic particles. The Super Collider detectors, the project's most sophisticated components, will provide scientists data about what happens when particles collide.

Strategic Systems formed a Science Systems group, composed of engineers and physicists, about a year ago to pursue business opportunities related to the Superconducting Super Collider and other ground-based science program business.

The company's role in EMPACT-TEXAS is to provide expertise in overall systems design and engineering, electronics, computer-aided design, and physics. If EMPACT-TEXAS is selected, the company will be responsible for designing and building the calorimeter for the detector. The calorimeter, which accounts for about a third of the detector cost, is the heart of the detector. It will absorb and measure the energy produced in the collisions.

EMPACT-TEXAS is one of three consortiums seeking to build a detector for the Super

Collider. The other consortiums are SDC, which includes Lawrence Berkeley Laboratory, and L-Star, a European-based group.

Members of the EMPACT-TEXAS consortium include Grumman Corp., Brookhaven National Laboratory, the State University of New York at Stony Brook, the Massachusetts Institute of Technology (MIT), and about 35 other universities and national laboratories. EMPACT-TEXAS is the only one of the three consortiums that includes industrial partners. Two MIT professors on the EMPACT-TEXAS team shared the 1990 Nobel prize for physics.

"The team is quite optimistic."

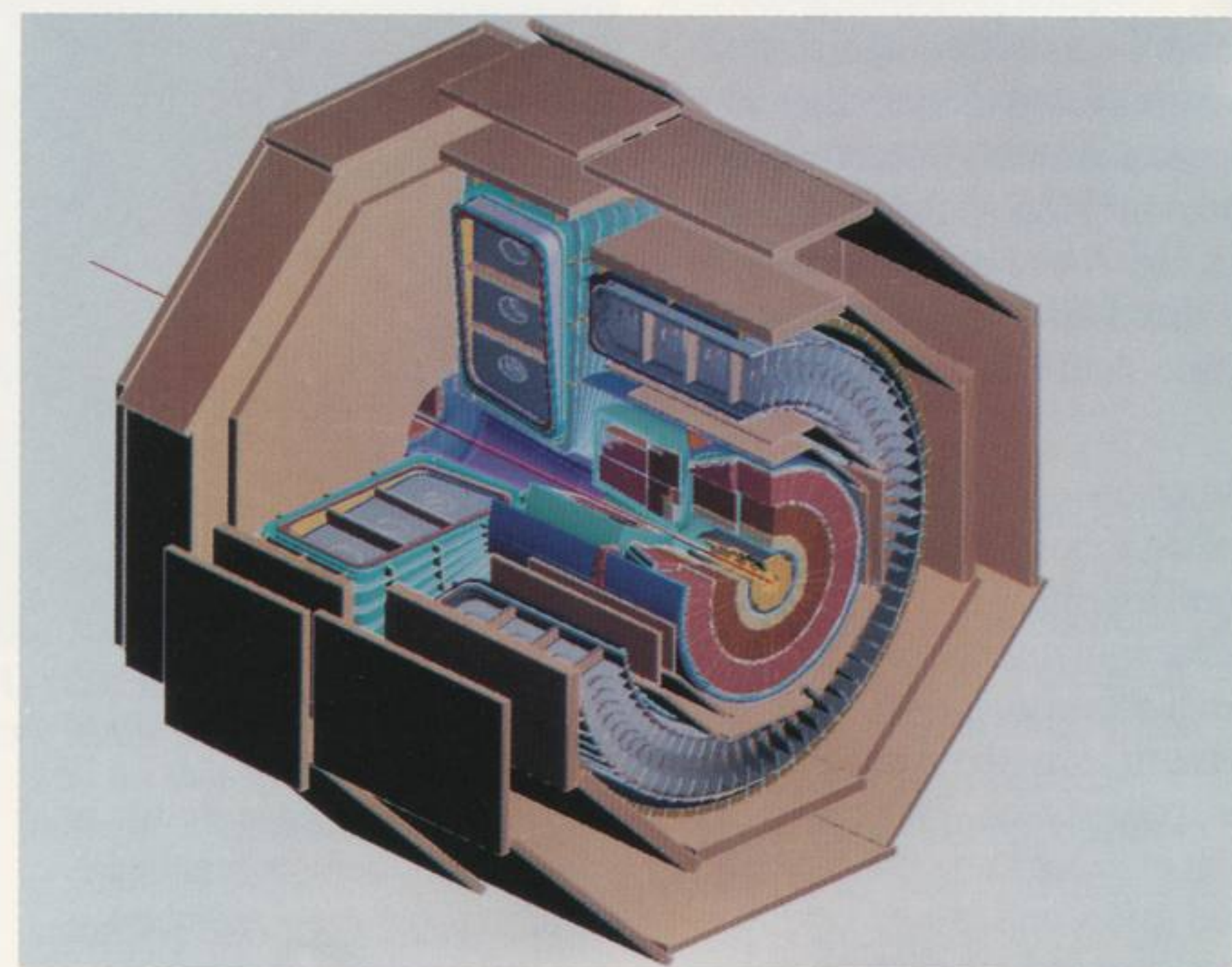
—Nick DiGiacomo

EMPACT-TEXAS recently announced the addition of the Soviet Union as a partner. The Soviets will bring \$200 million to the consortium and provide the group with expertise in precision manufacturing, cryogenics, sensor technology, and building large mechanical systems.

The Soviets may become subcontractors to Martin Marietta in building the calorimeter. According to Martin Marietta's director of Science Systems, Nicholas DiGiacomo, the Soviets want to demonstrate their expertise in this country and build relationships with companies like Martin Marietta. The Super Collider project is ideal for the interchange because it is an unclassified basic science project.

The EMPACT-TEXAS team submitted its proposal on Nov. 30, 1990, and will defend its approach during presentations this month at the Superconducting Super Collider Laboratory. A decision is anticipated by January 1991.

Science Systems also is involved in the Super Collider accelerator technical systems as a team member to Westinghouse Corp. Westinghouse and General Dynamics have been selected to design and build 9,000 superconducting dipole magnets that steer the proton beam inside the accelerator. DiGiacomo said Science Systems' role with Westinghouse includes cryogenic and electrical test of the Super Collider magnets.



This cutaway view of the EMPACT-TEXAS detector with liquid argon calorimeter shows the beam tube where protons are accelerated to near the speed of light, then focused on each other to produce a collision. The collision produces particles that will be studied and may reveal the nature of matter and the forces that hold it together.

Strategic Systems plays key defense role

As government budgets continue to tighten, top performance on critical programs becomes increasingly important—and the Astronautics Group can look back on 1990 with satisfaction and pride.

During the year, support from Strategic Systems for the nation's strategic forces modernization effort continued as assembly, test, and system support work for both Peacekeeper and Small ICBM programs progressed. The company was instrumental in producing three successful flight tests of Peacekeeper—one in March, May, and September. The system is capable of delivering 10 independently targetable warheads.

For the single-warhead Small ICBM, preparations for its second test launch are on schedule, with flight expected early next year. Small ICBM work got an added boost in October when the Air Force announced that Strategic Systems' contract to build, integrate, and test the Small ICBM had been restarted.

The Air Force also has contracted with the company to design and build 55 missile payload transporter trailers for the Minute-

man ICBM. The first completed trailer is planned for delivery in 1992.

Meanwhile, despite congressional budget cuts during the year, Space Systems' Strategic Defense Initiative (SDI) work pushed forth.

The Air Force this year awarded the company a strategic defense contract to build a Survivable Power Subsystem (SUPER) for satellites. SUPER will be able to withstand such hazards as space debris, ultraviolet radiation, and other natural or manmade threats. The 45-month contract calls for hardware and operations support for a demonstration test flight in the mid-1990s.

Plans to pursue a space-based strategic defense system call Brilliant Pebbles also were announced during the year. Brilliant Pebbles are small, lightweight satellites that would autonomously detect and destroy hostile ballistic missiles by force of impact. The company won a contract to use space-based interceptor technologies for Brilliant Pebbles application and is studying concepts for implementation.

Also in the works is a proposed study for the Lawrence Livermore Laboratory for concepts for "lifejackets" to enclose and protect Brilliant Pebble interceptors.



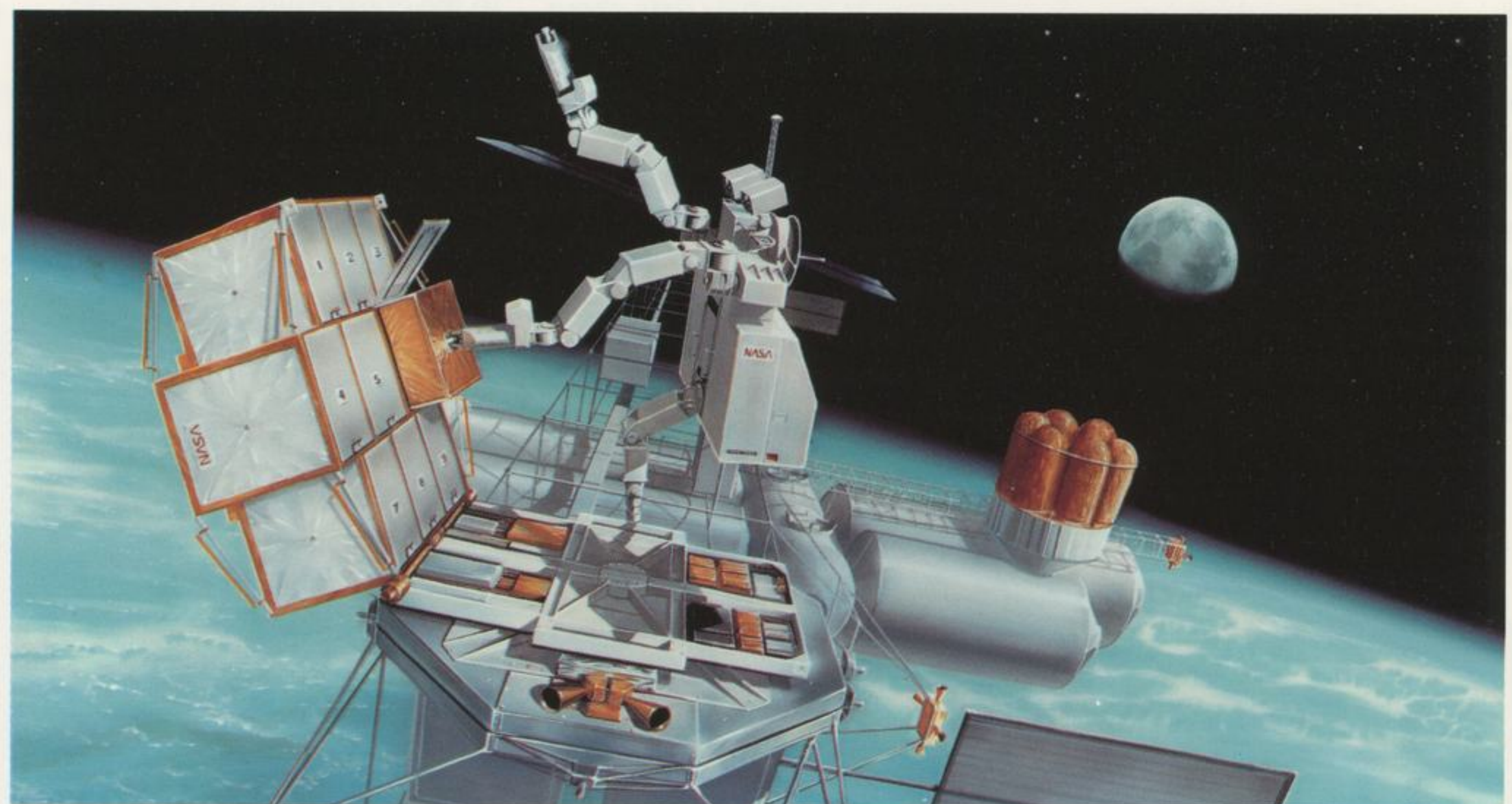
Peacekeeper

Flight Telerobotic Servicer moving forward

Martin Marietta is building a space robot, the Flight Telerobotic Servicer (FTS), to help assemble the U.S. Space Station Freedom in the mid-1990s. This year a robotic hand controller and computer, simulating the robot's control and operation, was delivered to the National Aeronautics and Space Administration (NASA) for astronaut testing. A one-armed prototype is slated for flight testing on the space shuttle in 1992.

When operational, the multi-armed robot will be able to perform assembly and maintenance tasks with minimal direction from astronauts, who will not have to leave the space shuttle or space station. This capability will enhance crew productivity and safety and extend the life of satellites and other space objects through periodic in-orbit servicing.

For space station assembly operations, the FTS will be at-



The Flight Telerobotic Servicer (FTS) is a space robot that will enable astronauts to accomplish routine assembly and maintenance work without leaving the space shuttle or space station.

tached to either space shuttle or space station remote manipulator arms, with crew members inside the shuttle or space station directing FTS operations. FTS tasks for the space station include installing and removing truss members, changing orbital replacement units, mating ther-

mal utility connectors, and performing inspection tasks.

Eventually, NASA expects the FTS to perform complex tasks with a single command.

Although the FTS has been designed to supplement astronaut capabilities, the program and its

associated technologies also are expected to put the United States on the cutting edge in space robotics. Technologies developed for the FTS can be used in the commercial sector to enhance national productivity and position within the global marketplace.

Mars Mission: Company reaffirms goals

Martin Marietta reaffirmed its commitment to the manned exploration of space in 1990, investing resources to design several missions that would place men and women on Mars within the next 20 years.

Two mission concepts—Mars Direct and Concept Six—were submitted to a presidential advisory council in response to President Bush's 1989 call for a space exploration initiative and permanent settlement of space. The Mars Direct concept proposes using heavy lift launch vehicles to send separate manned and unmanned payloads directly to Mars within the next decade. The Concept Six idea calls for constructing a Mars transfer vehicle in Earth orbit for the long journey to the red planet.

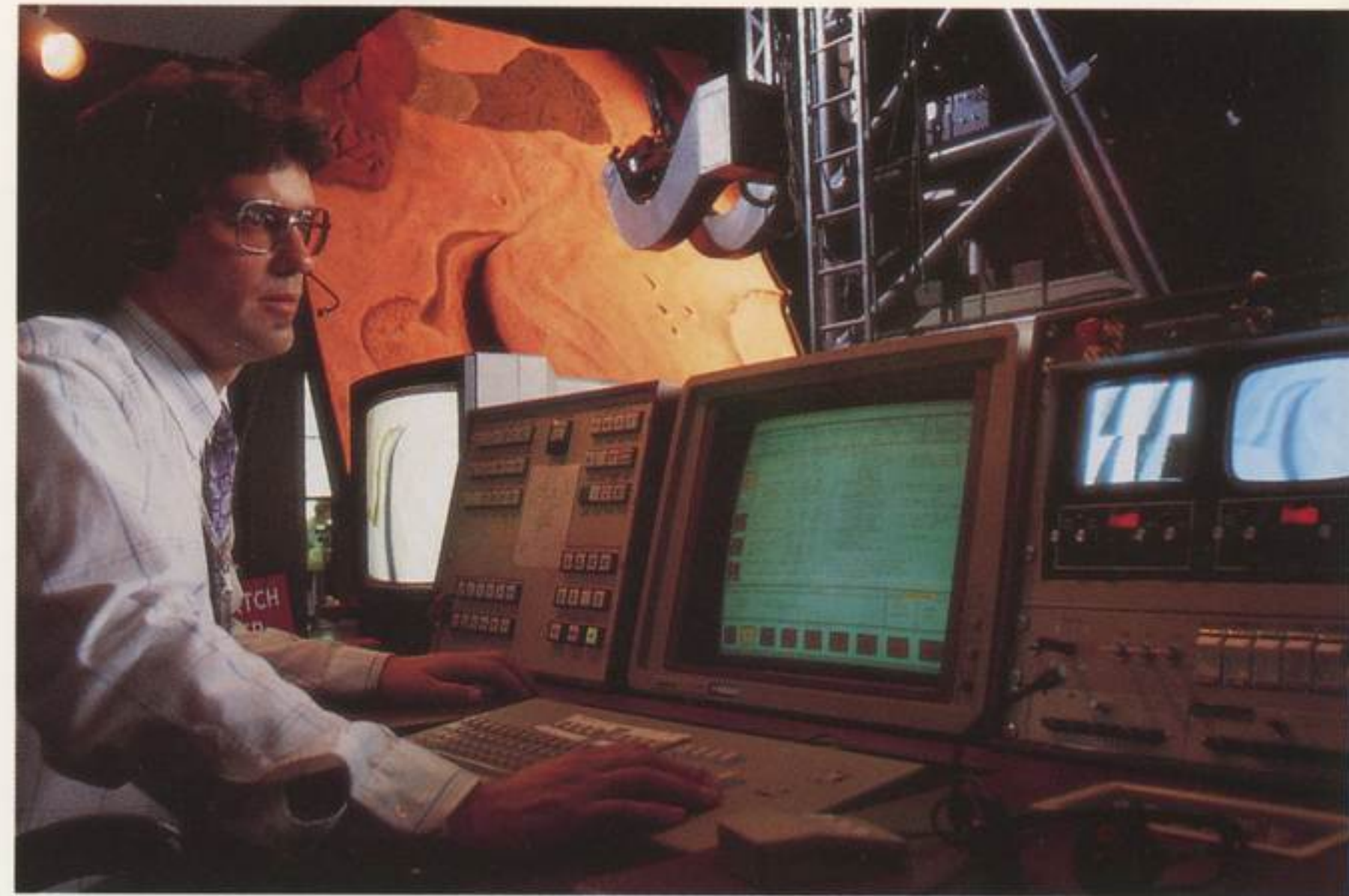
During the year, the Astronautics Group diversified its work on robotic vehicles for un-

manned exploration missions on the moon and Mars and started construction of a wheeled planetary rover prototype. The wheeled rover, like the company's quarter-scale walking beam robot, is designed to collect Martian soil and rock samples for return to Earth. Its four large composite wheels would allow it to traverse hazardous terrain at greater speeds than the walking robot.

The Astronautics Group also is working under contract to National Aeronautics and Space Administration (NASA) on a space transfer vehicle, a reusable upper stage that would be the cornerstone of future planetary space travel such as a mission to Mars. In 1990 the company completed the first phase of the contract, which involved definition of a family of space transfer vehicles for the first part of the 21st century.

In a related development, the company won a NASA contract to provide a ground test capability for evaluating cryogenic propellants that would be used in space transfer vehicles. It also won a separate NASA contract

to re-fly on the shuttle in 1992 a company-owned experiment aimed at better understanding the effects of the low-gravity environment of space on cryogenic fluids.



Paul Fleming, senior software engineer, performs a software simulation of a safe landing on the Mars Terrain Board at the Space Operations Simulator Laboratory. A video camera represents the "eyes" of an unmanned spacecraft and is attached to an arm that moves to simulate the spacecraft's descent to the surface.

Group strives to improve environmental posture

In 1990 the Astronautics Group worked toward improving its environmental posture. Efforts focused on minimizing wastewater, hazardous waste, and air emissions at all operating locations, and cleaning up soil and groundwater contamination at the Waterton plant.

During the group's first environmental conference, Astronautics Group President Peter B. Teets, Environmental Management Director Bob McMullen, and managers of various environmental program areas within the group, stressed the importance of taking the lead in environmental management.

"I think it's of real importance that we bring environmental management more and more into the mainstream of our business," Teets said in kicking off the conference.

According to Teets, the group has taken a number of proactive actions to protect the environment, including upgrading its

wastewater treatment facility and building facilities to intercept and treat contaminated groundwater.

The company began operating a state-of-the-art \$8 million wastewater treatment plant in May at the Waterton plant. The plant, which can treat up to one million gallons of water daily, is one of the most sophisticated industrial wastewater treatment facilities in the country. Results show that the plant cleans wastewater so well that the water meets most government standards for drinking water.

In addition to its water cleanup program, the company has reduced toxic chemical releases by 55 percent since 1987, primarily by instituting an active waste minimalization program and better management of chemicals used in manufacturing operations.

The Astronautics Group also reached an agreement with the U.S. Environmental Protection

Agency and the Colorado Department of Health on a plan to clean up contaminated soil and groundwater at Waterton.

Realizing there is still more to be done, the group has established environmental goals and measurements of how well those goals are achieved. According to Bob McMullen, director of Environmental Management, the 1991 Long-Range Operating Plan says, "... We have an overall goal to achieve public recognition as a leader on environmental issues ... to manage our business in a manner that will minimize our impact on the environment and its resources. We will do this by maintaining 100 percent compliance with our regulatory requirements; by substantially eliminating our use of hazardous and toxic chemicals; and by minimizing our overall consumption of natural resources such as water, wood products, and other raw materials."

Employees were actively involved in 1990 in community efforts to improve the environment. With the support of the company, approximately 200 employees spent their own time and energy working on the Colorado Trail, planting wildflowers along I-25, and helping Volunteers for Outdoor Colorado and the South Suburban Park Foundation plant 10,000 trees along the South Platte River.

In other environmental developments during the year, a U.S. District Court judge dismissed a lawsuit brought by a group of residents in the Friendly Hills subdivision. The residents claimed they suffered health problems as the result of groundwater pollution caused by the company. However, the judge ruled that "no reasonable juror could conclude that it was probable that plaintiffs were exposed" to contaminants from Martin Marietta.

Did you know that in 1990 Martin Marietta ...

- Employee volunteers—more than 120—planted more than 300 trees and shrubs as part of an Earth Day project called 10,000 Trees.
- Employees participated in a Zoo Walk for the Juvenile Diabetes Foundation, helping raise \$30,000 for the organization.
- Employees built and adopted to maintain in perpetuity an alternate trailhead to the Colorado Trail in Roxborough Park.
- Employees involved in the Cutthroat Chapter of Trout Unlimited are developing access for handicapped persons to a fishing area along the South Platte River using a \$3,000 grant from Martin Marietta.
- Provided 195 facility tours for 4,676 people in groups including Young Astronauts, community leaders, educators, and Air Force Academy cadets.
- Designed and printed a “Home Arts Adventures” booklet for parents with children who have special needs for Very Special Arts Colorado, an organization dedicated to bringing every aspect of the arts to disabled children.
- Donated more than \$1,700 to Sharing and Caring, an organization that provides counseling, food, shelter, and clothing to primarily minority homeless people in the downtown Denver area.
- Contributed \$5,000 to the building fund for Mi Casa’s Business Center for Women. Mi Casa is dedicated to helping disadvantaged women become self-sufficient.
- Was actively involved—through contributions and volunteers—in the Colorado Association of Commerce and Industry’s Business Week for high school students.
- Was a major sponsor of the Colorado Minority Engineering Association (CMEA), providing financial support and resources to produce a videotape aimed at attracting more middle school and high school students into the organization. CMEA helps prepare students for careers in math and science.
- Contributed \$5,000 to the Colorado Federation of Parents for a Drug Free Youth’s annual Red Ribbon Campaign against substance abuse, and helped bring NASA Astronaut Bruce McCandless to a local elementary school to encourage students to remain drug free and to fulfill their potential.
- Sponsored college students to attend the Society of Women Engineers’ (SWE) monthly meetings, and printed and distributed SWE’s membership directory.
- Co-sponsored the Colorado Science Olympiad for students in elementary through high school.
- Facilitated a mentorship program between the Colorado Women’s Chamber of Commerce and Girls, Inc. (formerly the Girls Club of Denver). Ten thousand dollars was contributed to help Girls, Inc., renovate its downtown resource center.
- Co-sponsored, with the Boy Scouts of America, two career-related Explorer Posts for 200 youths who are focused on computers and aerospace engineering.
- Contributed \$5,000 to Volunteers for Outdoor Colorado to underwrite a project to improve the environment along the South Platte River in Littleton.
- Sponsored the Frontiers of Science program at the University of Northern Colorado for gifted students to attend a special eight-week summer program designed to enhance their math and science skills.
- Underwrote a Denver Botanic Gardens research program to develop a hardy blend of wildflowers to be planted along Colorado’s highways for beautification and erosion control. Also, 25 employees volunteered a Saturday in June to plant wildflowers in a pilot program at the Waterton facility.
- Celebrated “16th de Septiembre,” commemorating the beginning of Mexico’s struggle for independence from Spanish rule. The week-long celebration included exhibits of local Hispanic artists and performances by musicians and dancers.
- Sponsored the performances of “The Road to Mecca” at the Denver Center for the Performing Arts. The company also hosted a performance of “Huckleberry Finn” for Big Brothers volunteers and their little brothers.
- Provided a loaned executive to the Urban League for six months to help develop new programs.
- Supported the Colorado Symphony Orchestra by purchasing concert tickets for managers to distribute to employees for motivation.
- Employees spoke to 230 groups, including 19,403 people, as part of our speakers bureau. The groups included elementary schools, Boy Scout troops, Rotary clubs, technical organizations, and professional groups.

Why? Each year Martin Marietta contributes significantly to the Denver-metropolitan community, focusing on environment, minority and women’s issues, and education. “There are several reasons for this,” said Art Koski, director of Public Relations. “We are a major employer in Colorado, and management believes it is important to reinvest in the community to improve the quality of life for our more than 13,000 employees, their families, and others. We also are committed to being a good corporate citizen, and we would like people to know it. Our community relations program, together with our employee volunteers, are making a big difference.”