Section A-2 glossary of missions

Advanced Composition Explorer (ACE)—Measures energetic particles over a wide range of energy and mass, including the solar wind, solar particles, and the anomalous and galactic cosmic rays. The spacecraft measures the elemental and isotopic composition, from hydrogen to zinc, over the energy range of the cosmic rays from 100 eV to 500 MeV per nucleon for the charge range. ACE also provides realtime solar data from L1 for space weather applications.

Advanced Cosmic Ray Composition Experiment for the Space Station (ACCESS)—Attached payload for the International Space Station (ISS), it will measure the energy spectra from hydrogen to iron up to 10^{15} eV in order to test the supernova origin theory of cosmic rays.

Advanced Satellite for Cosmology and Astrophysics (ASCA)—Japanese x-ray imaging spectrometer mission. Launched in 1993, it served double its expected lifetime before suffering debilitating damage after an intense solar storm in July 2000.

Balloon Observations Of Millimetric Extragalactic Radiation and Geophysics (BOOMERANG)—Balloon-borne instrument that measured tiny variations in the cosmic microwave background radiation in order to detect the earliest ancestors of today's galaxies and to obtain indications that the geometry of the universe is flat, not curved. Jointly supported in the U.S. by NASA and NSF, BOOMERANG's science team included members from Canada, Italy, and the United Kingdom.

Cassini-Huygens—International mission involving NASA, the European Space Agency (ESA), the Italian Space Agency (ASI), and several separate European academic and industrial partners. The spacecraft carries a sophisticated complement of scientific sensors supporting 27 different investigations to probe the mysteries of the Saturn system. The mission consists of a NASA orbiter and ESA's Huygens Titan probe.

Chandra X-ray Observatory (CXO)—High resolution imaging and spectroscopy mission to observe high-energy cosmic events such as pulsars, supernova remnants, and black holes.

Cluster-2—ESA-led mission to study plasma structures, boundary layers, and energy transfer in three dimensions both within Earth's magnetosphere and in the solar wind. The mission consists of four identical spacecraft, each carrying a full complement of fields and particles instrumentation, flying in tetrahedral formation.

Comet Nucleus Tour (CONTOUR)—Will study the aging processes of comets by examining diverse comet nuclei. Using an innovative trajectory design, this spacecraft will conduct close-up observations of two short period comets, Encke and Schwassmann-Wachmann 3, known from ground-based telescopic observations to have different properties. An encounter with a third short period comet may be possible if sufficient resources remain for an extended mission. This is the sixth Discovery mission.

Compton Gamma Ray Observatory (CGRO)—Simultaneously obtained gamma ray measurements in an energy range spanning six orders of magnitude from 30 KeV to 30 GeV. The mission made many fundamental discoveries, including the discovery that gamma ray bursts are not galactic phenomena as previously believed, and that active nuclei of distant galaxies are dynamic and prolific emitters of enormous amounts of energy in high-energy gamma rays. CGRO was deorbited in June 2000.

Constellation X (Con-X)—Mission to measure x-ray spectral lines in hot plasmas in order to determine the elemental composition, temperature, and velocity of the emitting matter. Objectives are to determine the flow of gas in accretion disks around black holes in active galactic nuclei and in binary x-ray sources, measure the abundances of newly created elements in supernova remnants, and detect the influence of dark matter on the hot intergalactic medium in clusters of galaxies.

Cosmic Background Explorer (COBE)—Made precise measurements of the diffuse radiation with wavelengths between one micrometer and one centimeter over the entire celestial sphere, providing the first major step forward in space-based cosmology. COBE verified beyond all reasonable doubt that the cosmic microwave background has a cosmological origin with tiny primordial perturbations from which large-scale structure in the present-day universe grew.

Cosmic Journeys—Proposed initiative to probe the most profound aspects of nature by using the universe as a laboratory. Within the Cosmic Journeys initiative, the Journey to a Black Hole probes more and more closely to these extreme states of gravity. The Journey to Dark Matter seeks to unravel the mysterious nature of the universe's "missing mass," matter that we cannot see but know is present due to its gravitational effect on the visible universe. And the Journey to the Beginning of Time explores the basic physics revealed in the first few instants of the universe, observing as far back as the first 10^{-32} seconds of time.

Deep Impact—Will determine the composition of pristine material in a comet nucleus. The spacecraft will send a 500 kilogram projectile into the nucleus of comet Temple 1 to excavate a crater deep enough to penetrate beneath the chemically-altered crust of the nucleus. Experiments on the spacecraft will then examine the properties of the ejected material and observe the structure of the crater. The eighth Discovery mission.

Deep Space-1 (DS-1)—Technology validation mission that successfully validated solar electric propulsion and a suite of eleven other high priority spacecraft technologies.

Discovery Program—Level-of-effort program offering the scientific community regular opportunities to propose low-cost deep space missions. Proposals are selected through competitive peer review, and selected teams have responsibility for implementation of the entire mission with minimal management oversight by NASA. Teaming arrangements among university, industry, and/or Government laboratories are encouraged. Discovery is the deep space counterpart of the Explorer program.

Europa Orbiter—Will orbit this icy moon of Jupiter to determine if there is an underlying ocean, determine the thickness of the ice, and image the complex features on its icy surface. To determine if there is an ocean, the orbiter may use radar sounding, high-resolution laser altimeters, and free-falling probes equipped with seismometers. As a possible liquid water habitat in our Solar System, Europa is a critical target in the search for life beyond Earth.

Explorer Program—Level-of-effort program to provide frequent, low-cost access to space for physics and astronomy investigations with small to mid-sized spacecraft. Investigations selected for Explorer projects are usually of a survey nature, or have specific objectives not requiring the capabilities of a major observatory.

Extreme Ultraviolet Explorer (EUVE)—Explorer mission to survey the entire sky in the extreme ultraviolet, discover the brightest sources in the sky, and perform detailed spectroscopic investigations of the EUV radiation from stars, nebulae, and galaxies. EUV radiation provides unique information concerning the physical and chemical properties of hot gas and plasma, and this information contributes to our knowledge of the matter and energy interactions between stars and the interstellar medium.

Far Infrared and Submillimeter Telescope (FIRST)—ESA-led mission to study objects that radiate a substantial portion of their luminosity in this band. This includes detecting dusty galaxies at cosmological distances when the universe was less than one billion years old, regular spiral galaxies out to intermediate redshifts, and dense molecular clouds in our galaxy where stars are currently being formed. This will allow a study of the dynamical and chemical evolution of galaxies and stars.

Far Ultraviolet Spectroscopic Explorer (FUSE)—Explorer mission conducting high-resolution spectroscopy of faint objects at wavelengths from 905 to 1,195 angstroms. FUSE is probing the interstellar medium and galactic halo to measure the amount of cold, warm, and hot plasma in objects ranging from planets to quasars, including primordial gas created in the Big Bang.

Fast Auroral Snapshot Explorer (FAST)—Small Explorer mission investigating the plasma physics of various auroral phenomena at extremely high time and spatial resolution. In polar orbit around Earth, the spacecraft carries fields and particle instrumentation and features fast data sampling and a large burst memory.

Full-sky Astrometric Mapping Explorer (FAME)—Explorer to determine accurate positions, distances, and motions of 40 million stars within our galactic neighborhood. FAME will measure stellar positions to less than 50 microarcseconds.

Galaxy Evolution Explorer (GALEX)—Explorer space ultraviolet mission to map the global history and causes of star formation over the redshift range $0<z<2$, 80 percent of the life of the universe. GALEX will also explore the period over which galaxies have evolved dramatically, and the time that most stars, elements, and galaxy disks had their origins.

Galileo Europa Mission (GEM)—Conducted the first comprehensive investigation of Jupiter, its magnetosphere, and its planet-size moons. On its arrival at Jupiter in December 1995, Galileo dropped an entry probe into the planet's atmosphere that returned the first direct measurements of the physical properties and chemical composition of a gas giant planet. The orbiter discovered magnetic fields belonging to two of the satellites and has given us close-up views of their surfaces. The two-year Galileo Europa Mission, which focused primarily on the satellite Europa, followed the prime Galileo mission.

Gamma Ray Large Area Space Telescope (GLAST)—Mission to observe the gamma ray energy range from 20 MeV to 300 GeV. Fifty times more sensitive than the EGRET instrument on the Compton Gamma Ray Observatory, this instrument will observe thousands of active galactic nuclei (AGNs) and galactic sources, in addition to studying the more diffuse emissions from the Milky Way and other extended sources, including the diffuse all-sky background. A burst monitor will combine with the primary instrument to provide gamma ray burst observations over a wide energy range. Cooperative with the Department of Energy, Japan, and Europe.

Genesis—Mission to determine accurately the chemical composition of the Sun. The spacecraft will expose panels of ultra-pure materials to the solar wind for two years to collect samples of the material that continually streams off of the Sun. These samples will then be returned to Earth for detailed laboratory analysis. The fifth Discovery mission.

Geospace Electrodynamic Connections (GEC)—Near-term Solar Terrestrial Probe to help us understand how the interaction of Earth with the interplanetary medium is conditioned by the presence of Earth's atmosphere and its magnetic field. The mission will consist of four spacecraft following each other in the same orbit with variable spacing. The spacecraft generally fly in highly inclined elliptical parking orbits, but focused science campaigns will be conducted during satellite excursions down to 130 km or lower.

Geotail—ISAS-led mission to measure global energy flow and transformation in the magnetotail in order to increase our understanding of fundamental magnetospheric processes.

Global Geospace Science (GGS)—Consists of the Wind and Polar spacecraft and is part of the U.S. contribution to the International Solar Terrestrial Physics (ISTP) program. The objectives of GGS are to measure, model, and quantitatively assess geospace processes in the Sun-Earth interaction chain.

Gravity Probe B (GP-B)—Will test Einstein's general theory of relativity by measuring predicted dragging of space-time caused by the rotation of Earth. In order to make this measurement, GP-B will fly the world's most perfect sphere as a gyroscope. Also known as the Relativity Mission.

High Altitude Laboratory for Communications and Astrophysics (HALCA)—ISAS radio telescope in orbit that can be combined with large radio antennae on Earth to create a highly sensitive radio interferometric array. HALCA demonstrated the feasibility of space-Earth arrays and observation of fine structure in radio galaxies, jets from active galactic nuclei, and supernova remnants.

High Energy Solar Spectrographic Imager (HESSI)—Explorer mission to study the basic physics of the particle acceleration and explosive energy release in solar flares. HESSI will carry an x-ray and gamma ray imaging spectrometer with ultra-high temporal and spatial resolution in order to address the dynamic high-energy phenomena of the Sun.

High Energy Transient Explorer 2 (HETE 2)—Small mission to search for and detect the prompt x-ray and ultraviolet emission that may accompany gamma ray bursts, as well as measure their position and send the information to ground based optical telescopes fast enough to allow the prompt optical emission to be detected as well. Cooperative mission with Japan and France.

Hubble Space Telescope (HST)—Explores the universe in the visible, ultraviolet, and near-infrared regions of the electromagnetic spectrum. It is investigating the composition, physical characteristics, and dynamics of celestial bodies, examining the formation, structure, and evolution of stars and galaxies, studying the history and evolution of the universe, and providing a long-term space-based research facility for optical astronomy. Cooperative with ESA.

Imager for Magnetospheric to Aurora Global Exploration (IMAGE)—Explorer mission observing the response of Earth's magnetosphere to changes in the solar wind. The mission uses a combination of neutral atom, ultraviolet, and radio imaging techniques to provide global views of magnetospheric dynamics from a polar orbit.

Infrared Astronomical Satellite (IRAS)—Joint mission sponsored by the United Kingdom, the United States, and the Netherlands, that mapped the sky at infrared wavelengths. Mission ended in 1983.

Infrared Space Observatory (ISO)—ESA follow-on to IRAS, explored the "cool and hidden" universe through observations in the thermal infrared between 3 and 200 microns. Its objectives included studies of brown dwarfs in our galaxy, protoplanetary disks around nearby stars, and the evolution of galaxies.

International Gamma Ray Astrophysics Laboratory (INTEGRAL)—ESA-led gamma ray observatory dedicated to spectroscopy and imaging in the energy range 15 keV to 10 MeV. In addition to two gamma ray instruments it will have optical and x-ray monitors. This mission will study gamma ray lines from a range of astrophysical sources, giving us information on nucleosynthesis in supernovae, the supernova history of the Milky Way, active galactic nuclei, Seyfert galaxies, gamma ray bursts, and solar flare acceleration processes.

Keck Interferometer—Ground-based program to harness the twin 10-meter Keck telescopes together as a single instrument to search for planetary systems around other stars. This will complement and extend current ground-based planet detection capabilities and will serve as a prototype/test bed for future interferometers in space such as SIM and Terrestrial Planet Finder.

Laser Interferometer Space Antenna (LISA)—Joint NASA-ESA mission to detect and study in detail gravitational wave signals from massive black holes. This includes both transient signals from the terminal stages of binary coalescence, which we will call bursts, and binary signals that are continuous over the observation period.

Living With A Star (LWS)—Program to develop the scientific understanding of aspects of the connected Sun-Earth system that directly affect life and society, with specific emphasis on understanding the factors that affect human radiation exposure in space, the impacts of space weather on technical systems, and the effects of solar variability on the terrestrial climate. Program elements include the Solar Dynamics Observatory (SDO), Radiation Belt Mappers (RBM), Ionospheric Mappers (IM), and Sentinels missions; a program of space environmental test beds; and an associated theory, modeling, and data analysis program.

Lunar Prospector—Conducted the first global survey of minerals on the surface of the Moon. Of particular interest for future human exploration of the Moon, Lunar Prospector detected indications of water ice in the perpetually dark bottoms of craters near the north and south poles. The third Discovery mission.

Magnetospheric Multiscale (MMS)—Near-term Solar Terrestrial Probe to characterize the basic plasma processes that control the structure and dynamics of Earth's magnetosphere, with a special emphasis on meso- and micro-scale processes. The mission will consist of a constellation of five identical spacecraft, each carrying fields and particle instrumentation, flying in a variably spaced tetrahedron.

Magnetosphere Constellation (MagCon)—Solar Terrestrial Probe mission to understand the nonlinear dynamic responses and connections within Earth's magnetotail. It envisions placement of 50-100 autonomous micro-satellites, each carrying a minimum set of fields and particles instruments, into a variety of orbits.

Mars Exploration Program (MEP)—Program of successive Mars exploration missions to study: the solid planet, how it evolved, and what resources it provides for future exploration; the relationship to Earth's climate change process; and the potential for life there and elsewhere in the universe. The exploration series began with Mars Global Surveyor to orbit Mars and map the planet at infrared and visible wavelengths and observe selected areas at very high-resolution. MEP data will help us understand the geological and climatological history of the planet and lay the groundwork for choosing the sites for surface missions. The subsequent two missions, Mars Climate Orbiter (MCO) and Mars Polar Lander (MPL), were lost in 1999. Two geologic exploration rovers will be launched in 2003. Additional orbiter and lander missions to follow are under study.

Mars Pathfinder—Paved the way for future low-cost, robotic missions to Mars. The mission deployed a micro-rover named Sojourner on the Martian surface and acquired geological and meteorological data to characterize the surface composition, geology, morphology, and atmospheric structure and conditions in Ares Valles. The second Discovery mission.

Mercury Surface, Space Environment, Geochemistry, and Ranging (MESSENGER)—Will conduct a comprehensive global survey of Mercury's interior structure, surface composition, geological processes, tenuous atmosphere, and magnetic field. The spacecraft will operate in orbit around Mercury for approximately one Earth year. The seventh Discovery mission.

Microwave Anisotropy Probe (MAP)—Follow-on to the successful COBE mission, MAP is a medium-class Explorer to measure the fluctuations in the cosmic microwave background with sufficient sensitivity to infer whether the first large structures in the universe after the Big Bang were galaxies or large clusters of galaxies. MAP's observations will also be sensitive enough to determine the total amount of dark matter in the early universe.

MUSES-C—ISAS-led mission to return a sample from an Earth-approaching asteroid. NASA will contribute a microrover to explore the asteroid's surface.

Near Earth Asteroid Rendezvous (NEAR)—In orbit around Earth-approaching asteroid Eros, NEAR is conducting the first comprehensive investigation of the physical properties and mineral characteristics of one of these small bodies. The first Discovery mission.

New Millennium Program (NMP)—Flight program to demonstrate new technologies in space.

Next Generation Space Telescope (NGST)—Follow-on observatory to HST to study the formation of galaxies at near infrared wavelengths. It will combine a collecting area 10 times larger than HST with spectrometers optimized for near infrared radiation.

Planck—ESA-led third generation mission for exploring the fluctuations and anisotropies in the cosmic microwave background. Planck will improve previous measurements of the background by a factor of five.

Pluto/Kuiper Express—Miniaturized spacecraft to fly past the Pluto/Charon system and conduct a reconnaissance of the only planet that has not been visited heretofore by a spacecraft. Following the Pluto/Charon encounter, the spacecraft may be redirected to survey a diverse collection of icy Kuiper Belt objects beyond the orbit of Neptune.

Polar—Measures the entry of plasma into the polar magnetosphere, determines the ionosphere plasma outflow, obtains auroral images, and determines the energy deposited into the ionosphere and upper atmosphere. Polar is the second spacecraft in the Global Geospace Science program; it carries in situ fields and particles instrumentation and a remote sensing imager.

Roentgen Satellite (ROSAT)—International collaborative mission to observe and map x-ray emissions from galactic sources. ROSAT studied coronal x-ray emissions from stars of all spectral types, detecting and mapping x-ray emissions from galactic supernova remnants, evaluating the overall spatial and source count distributions for various x-ray sources. Additionally, ROSAT performed detailed studies of various populations of active galaxy sources, conducting morphological studies of the x-ray emitting clusters of galaxies, and performing detailed mapping of the local interstellar medium. Cooperative with Germany and the United Kingdom.

Rossi X-ray Timing Explorer (RXTE)—Explorer mission to detect fluctuations in the x-ray intensity of cosmic sources that occur as rapidly as one millisecond or less. RXTE also studies the x-ray emission over a broad spectral band and a wide range of time scales in x-ray sources of all kinds. These capabilities enable astronomers to study accretion onto black holes in sources as different as x-ray binaries in our galaxy and the cores of active galaxies and quasars millions of light-years away.

Solar and Heliospheric Observatory (SOHO)—ESA-led mission, component of the International Solar Terrestrial Physics program, to study the internal structure of the Sun, its outer atmosphere, and the origin of the solar wind. The spacecraft carries instruments devoted to helioseismology, remote sensing of the solar atmosphere, and in situ measurement of solar wind disturbances.

Solar Anomalous and Magnetospheric Particle Explorer (SAMPEX)—A small Explorer mission to investigate the origins and dynamics of solar energetic particles, heavy ions and electrons in the radiation belts, and anomalous cosmic rays. Its instruments observe the energy range from low energy solar particles to galactic cosmic rays.

Solar Dynamics Observer—First mission in the Living with a Star program, will observe the outer layers of the Sun to determine the Sun's interior dynamics and the origin of solar activity and coronal mass ejections.

Solar Probe—Will make the first measurements within the atmosphere of a star and will answer long-standing questions about how and where the corona is heated and how the solar wind is accelerated. The spacecraft, which will carry both imaging and in situ instrumentation, is targeted to pass within three solar radii of the Sun's surface.

Solar Terrestrial Probes (STP)—Program of successive missions to perform a systematic study of the Sun-Earth system. Its major goals are to provide an understanding of solar variability on time scales that range from a fraction of a second to many centuries and to determine planetary and heliospheric responses to this variability. The line begins with TIMED and is expected to continue near-term with Solar-B, STEREO, Magnetospheric Multiscale, Global Electrodynamic Connections, and Magnetospheric Constellation.

Solar Terrestrial Relations Observatory (STEREO)—Near-term Solar Terrestrial Probe to understand the origin and development of coronal mass ejections and trace the propagation and evolution of these disturbances from the Sun to Earth. The mission will consist of two identical spacecraft, one leading and the other lagging Earth in its orbit. Both spacecraft will carry instrumentation for solar imaging, for the tracking of solar ejection heading toward Earth, and for in situ sampling of the solar wind.

Solar-B—ISAS-led mission to reveal the mechanisms that give rise to solar variability and study the origins of space weather and global change. The spacecraft, which will be placed in polar Earth orbit, will make coordinated measurements at optical, EUV, and x-ray wavelengths, and will provide the first measurements of the full solar vector magnetic field on small scales.

Space Interferometry Mission (SIM)—First optical interferometer in space and a technological precursor to the Terrestrial Planet Finder. SIM will allow indirect detection of planets through observation of thousands of stars and investigate the structure of planetary disks with nulling imaging.

Stardust—Will fly through the coma of comet Temple-II, collect a sample of cometary dust, and return the sample to Earth for detailed laboratory analysis. A suite of remote-sensing instruments on the spacecraft will also investigate various physical and chemical properties of the comet. The fourth Discovery mission.

Stratospheric Observatory for Infrared Astronomy (SOFIA)—The next generation airborne observatory, SOFIA will provide astronomers routine access to the infrared and submillimeter part of the electromagnetic spectrum. It will observe a wide range of phenomena, from the formation of planets, stars, and galaxies, to the evolution of complex organic molecules in interstellar space. SOFIA will be ten times more sensitive than its predecessor, the Kuiper Airborne Observatory, enabling observations of fainter objects and measurements at higher spectral resolution. Cooperative with Germany.

Space Infrared Telescope Facility (SIRTF)—The fourth of NASA's Great Observatories and a follow-on to the Infrared Astronomical Satellite (IRAS). SIRTF will perform imaging and spectroscopy in the infrared of the formation of stars and planets and will investigate the evolution of luminous galaxies.

Submillimeter Wave Astronomy Explorer (SWAS)—Small Explorer mission to study water and other similar molecules throughout the galaxy. By measuring the density and distribution of these materials, the origin of ingredients necessary for life on Earth can be determined.

Swift Gamma Ray Burst Explorer—Explorer mission multiwavelength observatory for gamma ray burst astronomy. Swift has a complement of three co-aligned instruments. Two are an x-ray and a UV/optical focusing telescope that will produce arcsecond positions and multiwavelength light curves for gamma ray burst (GRB) afterglow. A third instrument is a wide field-of-view coded-aperture gamma ray imager that will produce arcminute GRB positions onboard within 10 seconds.

Terrestrial Planet Finder (TPF)—Currently envisioned as a long baseline infrared interferometer operating in the 7-20 micron wavelength range for direct detection of terrestrial planetary companions to other stars and of spectral signatures that might indicate a habitable planet.

Thermosphere-Ionosphere-Mesosphere Energetics and Dynamics (TIMED)—Solar Terrestrial Probe to understand the basic energetic and dynamics of the region where Earth's atmosphere transitions to space. The spacecraft, which will fly in a 600-km circular Earth orbit, carries remote sensing instrumentation that will be supplemented by significant collaborative investigations.

Titan Explorer—Mission to follow up on the scientific results at Titan expected from the Huygens probe and Cassini orbiter. Detailed study of the organic-rich environment of Titan may be of key importance to studies of pre-biotic chemistry.

Transition Region and Coronal Explorer (TRACE)—Small Explorer mission exploring the connection between fine-scale solar magnetic fields and the associated plasma structures. The spacecraft, which is in Sun-synchronous Earth orbit, carries a EUV/UV telescope for studies of fast-evolving dynamic phenomena on the Sun at one arc-second spatial resolution.

Two Wide-angle Imaging Neutral-atom Spectrometers (TWINS)—An Explorer program-supported Mission of Opportunity payload with the goal of assessing the geo-response to solar wind input. This will be accomplished through analysis of the first stereo views of Earth's magnetosphere, which will be provided by the flight of a pair of energetic neutral atom imagers on spacecraft with complementary orbits.

Ulysses—ESA-led mission to explore the high-latitude regions of the Sun and inner heliosphere. The spacecraft passes over the Sun's poles at a distance of about 2 AU and carries a variety of fields and particles instruments.

Voyager Interstellar Mission (VIM)—Combines the capabilities of the Voyager 1 and 2 spacecraft to explore the region where the Solar System merges with the interstellar medium and to sample the local interstellar medium itself. These spacecraft are now both beyond the orbit of Pluto and are speeding toward the edge of the Solar System.

Wind—Part of the Global Geospace Science Program. The goals of Wind are to determine the characteristics of the solar wind upstream of Earth and to investigate basic plasma processes occurring in the near-Earth solar wind. It also carries two modest-sized gamma ray burst instruments for measuring the spectra and count rate time-history of gamma ray bursts.

X-ray Multiple-mirror Mission (XMM)—ESA-led x-ray spectroscopy mission to determine the abundance and density of iron, silicon, oxygen, and other heavy elements in stars and x-ray binaries. An understanding of the cycling of these elements between stars and the interstellar medium is necessary for studying the formation of planets.

Yohkoh—ISAS-led mission to better understand the birth and evolution of various forms of solar activity, especially solar flares. Because x-rays outline the magnetic structure of the Sun's outer atmosphere, the spacecraft carries instrumentation that combines hard and soft x-ray imaging and spectroscopy.