

LAGEOS II - Small Satellite, Big Results

Columbia ejected the LAGEOS-II satellite from the cargo bay on the second day of the mission. Built by the Italian Space Agency using NASA blueprints, this small, 900-pound satellite is designed to help geologists fill in important details about the Earth. The first LAGEOS was launched in 1976; adding a second spacecraft will enable researchers to gather twice the data.

"The satellite may be small, but the data returned is big-time science," said Program Scientist Dr. Miriam Baltuck. This information will be particularly useful for monitoring regional fault movement in earthquake prone areas.

USMP Makes Debut

A major new materials processing payload made its debut on STS-52 -- the first United States Microgravity Payload (USMP-1). The payload consists of three experiments mounted on a new carrier, derived from the previously flown Materials Science Lab, in Columbia's cargo bay.

"This is an excellent user of the Shuttle to perform microgravity experiments that are primarily operated remotely from the ground," said Program Manager David Jarrett. This type of remote operations will help prepare the science community for Space Station Freedom in advance of its permanently manned operational phase.

Experiments on USMP-1 will explore using the unique space environment to do research that is not possible on earth. The science, while basic in nature, could impact applications on Earth in areas such as computer memory, metals and semi-conductors. Another experiment will measure the Shuttle's vibrations, information critical to scientists analyzing current experiments and planning future ones.

Columbia, An Orbiting Testbed

Columbia was turned into an orbiting testbed for the other STS-52 experiments. One, called the Attitude Sensor Package built by the European Space Agency, gathered information on the performance and accuracy of new sensors. Space is the best place to test these sensors. The data returned could be used in the design of sensors for future spacecraft.

Other space technology experiments examined how very cold liquids behave in space, the use of heat pipe technology for temperature control, and the effects of atomic oxygen on different materials -- space technologies that may have important contribution to the design of future spacecraft.

Commercial Office Payloads

Major payloads, sponsored by NASA's Commercial Programs Office, examined a compound for possible use in combating diseases which involved loss of bone mass; thin-film membrane research which has potential application in the biotechnology and pollution control field; and a new facility for growing semiconductor crystals which permits interaction from the crew to achieve optimum growth.

A commercial protein crystal growth facility also flew on STS-52. Scientists hope the

new facility will result in more crystals that are better ordered, larger and more uniform in size than their ground-based counterparts.