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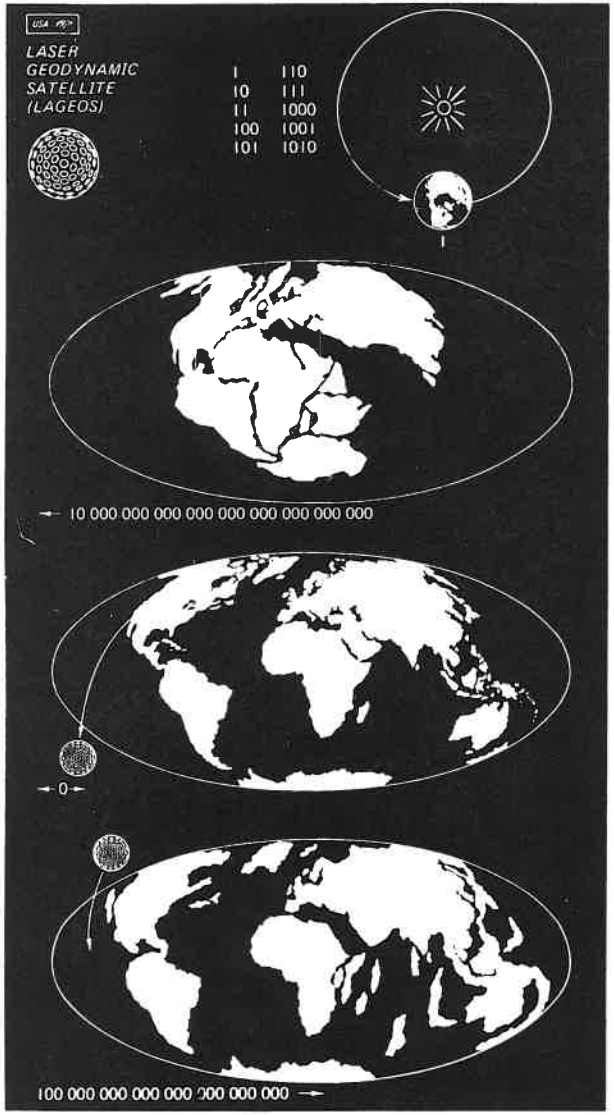
ducted by the NASA Headquarters Office of Applications.



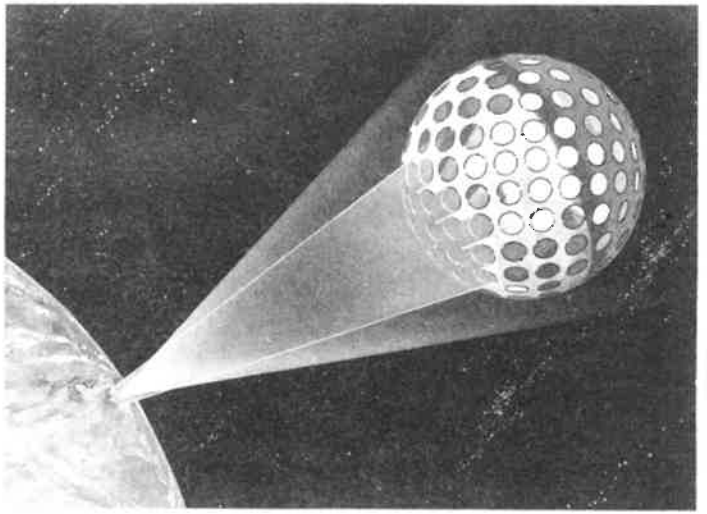
TIME MESSAGE - - A time message has been sealed inside Lageos, in the event it should ever be retrieved in space or discovered upon its predicted return to Earth some eight million years from now. Etched on a thin sheet of stainless steel four inches by seven inches, the Lageos time message consists of four basic pictures: (1) a schematic representation of the satellite, the Sun, the planet Earth and a binary system; (2) a roll view of the Earth as geophysicists theorize it looked 268 million years ago, with appropriate binary date; (3) a roll view of the present Earth indicating where Lageos came from with a zero to indicate present time; (4) a roll view of the Earth as geophysicists anticipate it will look 8.4 million years hence, with appropriate binary date.

AMERICAN REVOLUTION BICENTENNIAL 1776-1976

NASA
National Aeronautics and Space Administration

Lageos

LASER GEODYNAMIC SATELLITE



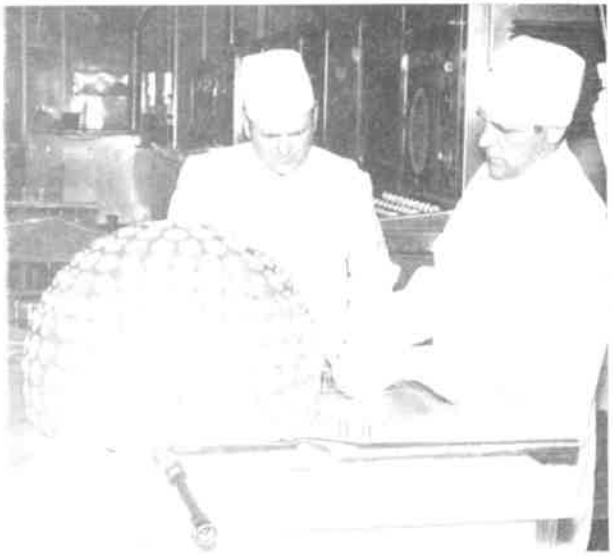
George C. Marshall Space Flight Center
Marshall Space Flight Center, Alabama 35812

The Laser Geodynamic Satellite (Lageos), developed and launched by the National Aeronautics and Space Administration, is helping scientists measure the motions of the Earth's crust responsible for earthquakes.

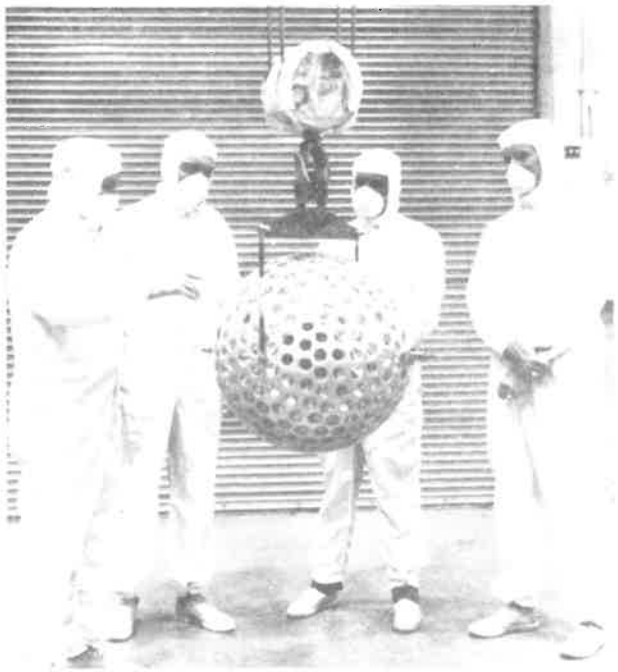
Resembling a giant golf ball - - 60 centimeters (24 inches) in diameter and weighing 411 kilograms (903 pounds) - - Lageos is a sophisticated mirror in space which reflects laser beams directed at it by tracking/receiving stations on the ground.

By measuring the time required for the laser beams to complete the round trip to Lageos and back, scientists will eventually be able to determine movements of the Earth's surface as small as two centimeters (0.8 inch).

One important benefit of the pin-point accuracy of such measurements could be a better understanding of the mechanisms which cause earthquakes.



MANUFACTURING THE SATELLITE - - Two Marshall Space Flight Center technicians are shown as they put the finishing touches on fabrication of the Laser Geodynamic Satellite (Lageos). Fused silica retroreflectors, 426 in number, would later be installed on the satellite.



READY FOR TESTING - - The completed Lageos satellite, its retroreflectors installed, is inspected prior to optical testing.

NASA expects the U. S. Geological Survey, which is responsible for earthquake research and prediction, to use Lageos to make minute measurements of movements of large land masses called tectonic plates, as well as specific measurements along critical faults such as the San Andreas fault in California.

By tracking Lageos for a period of several years, characteristics of these motions can be determined, and perhaps correlated with observed Earth dynamics phenomena.

The useful life of Lageos is estimated at up to 50 years, but it will remain in orbit for more than eight million years.

The NASA-Marshall Space Flight Center (MSFC) had management responsibility for the design, development and launch of the satellite. Continued mission operations of the ground stations that track Lageos is a responsibility of the NASA-Goddard Space Flight Center (GSFC).

Lageos, in a circular orbit of 3,691 statute miles, is serving as an important tool for obtaining information on Earth's crustal movements, polar motion, solid Earth tides and precise locations of various spots on Earth.

The satellite is performing "exceedingly well," according to reports. The 10-centimeter accuracy goal prescribed to be attained within one year after its May 4, 1976 launch was in fact attained by the system within the first two weeks.

Lageos is a solid, heavy, passive satellite with no moving parts or electronic components. Its extremely stable circular orbit will allow it to serve as a geodetic reference for ground observations to be made in support of NASA's Earth dynamics programs.

Lageos is an aluminum sphere with a brass core. It carries an array of 426 prisms called cube-corner retroreflectors, giving it the "dimpled" appearance of a golf ball.

Retroreflectors are three-dimensional prisms that reflect light - - and, in this case, a laser beam - - back to its source, regardless of the angle at which it is received. The Lageos retroreflectors are made of high-quality fused silica, a synthetic quartz.

A laser pulse beamed from a ground tracking/receiving station to Lageos initiates a timing signal at the ground station that continues until the pulse is bounced back from the satellite and received at the station. By measuring this length of time, the distance between the station and the satellite can be calculated. This process is known as laser ranging.

The Lageos project is part of the Earth and Ocean Dynamics Application Program (EODAP) being con-