WILLIAM T. PECORA AWARD

TOPEX/Poseidon Team

In recognition of outstanding contributions toward the understanding of the Earth's oceans.

Images recorded by the TOPEX/Poseidon satellite were seen by over one billion people during the 1997-1998 El Nino event. Through these images and the information derived from them, the TOPEX/Poseidon Team has increased the public understanding of how the oceans influence global climate processes.

A collaboration between the U.S. National Aeronautics and Space Administration and the French Centre National d'Etudes Spatiales (CNES), the TOPEX/Poseidon Team epitomizes successful international cooperation among oceanographers, engineers, and geodesists to produce a successful mission both in scientific accomplishments and in advancing remote sensing technology. TOPEX/Poseidon data are used to map ocean topography--the barely perceptible hills and valleys of the sea surface--for over 95 percent of the world's ice-free oceans, yielding global maps of ocean topography every 10 days for over 6 years.

The TOPEX/Poseidon Team observed for the first time how heat storage in the oceans changes from season to season, which contributed to better understanding of oceanic-planetary waves and their effect on global climate. This work allowed scientists to forecast and monitor the 1997-1998 El Nino phenomenon, which in turn enabled people to take actions to reduce the destructive impact of this global climatic event. TOPEX/Poseidon data provide an unprecedented digital baseline against which to test the modern theories of the ocean's role in climate change. Over 300 peer-reviewed articles in journals ranging from Science and Nature to the Journal of Geophysical Research have summarized these and many other accomplishments.

Technologies pioneered and implemented by the TOPEX/Poseidon Team enable the satellite to continue to provide cutting-edge oceanographic measurements. The mission design for maintaining precise knowledge of satellite orbit, attitude control, and satellite thermal control resulted in the Team's ability to determine precise orbits to less than 3 cm. Although the mission design life was 3 years, these unprecedented oceanographic measurements have been provided for over 6 years and are continuing. Future Earth-orbiting altimetry, gravity, and interferometry missions will be measured against the precision and reliability of TOPEX/Poseidon.

It is fitting that the TOPEX/Poseidon Mission lifetime spans the International Space Year (1992) and the International Year of the Ocean (1998). The National Aeronautics and Space Administration and the Department of the Interior take pleasure in granting the 1998 William T. Pecora Group Award to the TOPEX/Poseidon Team of scientists and engineers.

Daniel S. Goldin
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