



Viewed from space, the oceans give Earth its "blue marble" appearance, setting our planet apart from all others in the solar system. This cloak of life-giving water that covers more than 70 percent of Earth's surface area controls our planet's climate.

Studying the oceans, scientists are using TOPEX/Poseidon satellite altimeter data to learn how heat from the Sun is transported around the globe by ocean circulation patterns. Altimeter data over the oceans are used primarily to determine the sea-surface height. From these data researchers have an improved understanding of the role of the oceans in the phenomenon known as El Niño, their role in controlling seasonal variations and longer-term climate changes. TOPEX/Poseidon data are also used for operational purposes, such as monitoring eddies and their impact on human activities and marine life.

The radar altimeter sends out short pulses of microwave energy; the round-trip time of the pulses is used to calculate the sea-surface topography. Corrections are made for a variety of factors including the precise satellite orbit, gravitational topography, atmospheric effects and ionospheric effects and tides. Scientists and engineers have worked to improve the corrections with the result that sea-surface height measurements are now accurate to 2.3 cm.

Jointly sponsored by the National Aeronautics and Space Administration (NASA) and the French space agency Centre National d'Etudes Spatiales (CNES), TOPEX/Poseidon has continuously surveyed the oceans' surface with radar altimeters since launch in 1992. The satellite orbits Earth 4,700 times per year, and engineers are optimistic that the mission will continue to collect data through the year 2000. The Jet Propulsion Laboratory (JPL) of the California Institute of Technology manages the TOPEX/Poseidon mission for NASA.