



This diagram shows the Terra spacecraft, with the MISR instrument on board, orbiting Earth. The actual locations imaged by the 9 cameras, each with 4 color bands, along Earth's surface are illustrated here with translucent surfaces. The Terra spacecraft flies at an altitude of 705 km above sea level on a sun-synchronous orbit. It revolves once around the planet in 98.88 minutes and thus completes about 14.5 revolutions per day. Each complete revolution is called an "orbit", and orbits are consecutively numbered from launch. The orbits of the Terra platform repeat themselves every 233 revolutions around the Earth, or every 16 days. The ground track covered by these orbits are referred to as "paths", and are numbered consecutively from East to West.

The MISR instrument continuously acquires dayside data nearly everywhere on Earth, but with a frequency that is dependent on the latitude of the location of interest. Indeed, due to the overlap of the swathes (paths) near the poles and their wide separations at the equator, coverage time varies from 2 to 9 days, respectively.

New types of information are provided by MISR for scientists studying Earth's climate, such as the partitioning of energy between the land surface and the atmosphere, and the regional and global impacts of clouds and different types of atmospheric particles, or aerosols, on climate. The change in reflection at different view angles affords the means to distinguish

aerosol types, cloud forms, and land surface covers. Combined with stereoscopic techniques, this enables construction of 3-D cloud models and estimation of the total amount of sunlight reflected by Earth's diverse environments.

MISR acquires systematic multi-angle imagery for global monitoring of top-of-atmosphere and surface albedos and to measure the shortwave radiative properties of aerosols, clouds, and surface scenes in order to characterize their impact on the Earth's climate.

MISR was built for NASA by the Jet Propulsion Laboratory (JPL) in Pasadena, California. It is part of NASA's first Earth Observing System (EOS) spacecraft, the Terra spacecraft, which was launched into polar orbit from Vandenberg Air Force Base on December 18, 1999. MISR has been continuously providing data since February 24, 2000.

The [MISR Home Page](#) provides more information about MISR.