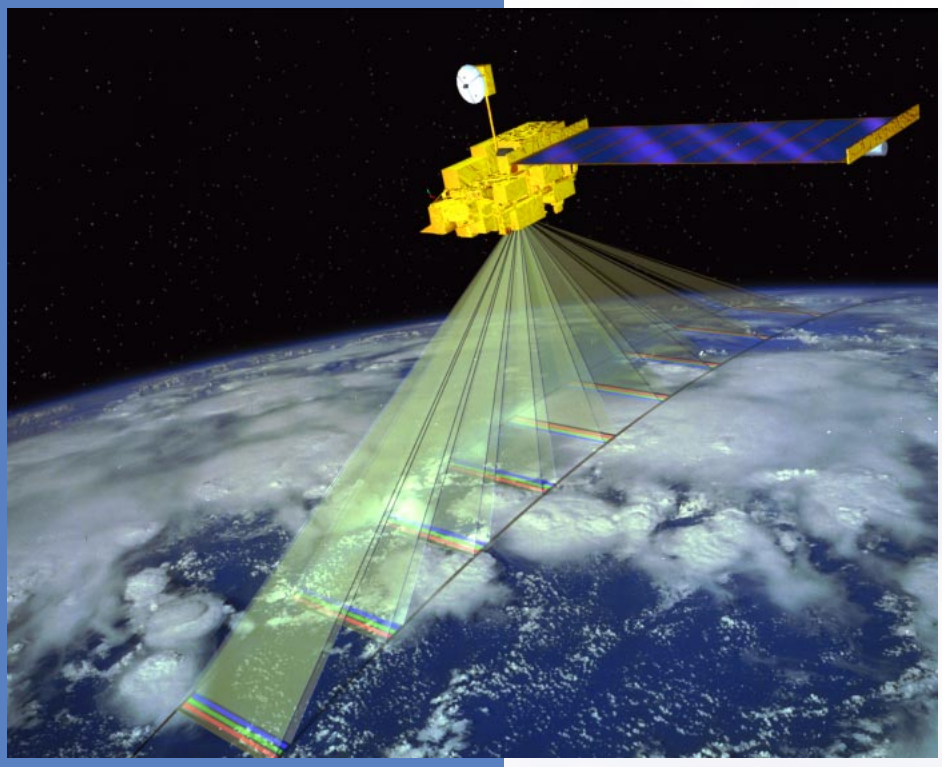
MISR

Multi-angle Imaging Spectro-Radiometer

If Earth were a movie screen, there would be no need for MISR. Movie screens are made of a material that reflects light nearly equally in all directions. So for people sitting in the right, left, and center sections of the theater, the movie looks equally sharp and bright.

But Earth is a more complicated place: its surface, the clouds, even tiny particles floating in the air, each reflect light differently when viewed at different angles. This matters to us because the light being reflected is sunlight, which carries the energy that heats our planet. The ways in which sunlight is scattered — by forests; deserts; snow- and ice-covered surfaces; cumulus, stratus, and cirrus clouds; smoke from forest fires; and soot and other by-products of industry — all affect Earth's climate.



Most satellite instruments look only straight down or toward the edge of the planet. To fully understand Earth's climate, and to determine how it may be changing, we need to know the amount of sunlight that is scattered in different directions under natural conditions. MISR is a new type of instrument that will view Earth with cameras pointed in nine different directions. As the instrument flies overhead, each piece of the planet's surface below will be successively imaged by all nine cameras, in each of four color bands (blue, green, red, and near-infrared).

MISR will fly on the National Aeronautics and Space Administration's (NASA's) first Earth Observing System (EOS) satellite — EOS AM-1 — together with four other instruments designed to study Earth from space. Launch is planned for 1999. The Jet Propulsion Laboratory (JPL) of the California Institute of Technology built the MISR instrument for NASA. JPL, in collaboration with the MISR science team, is also building the software to convert raw MISR data into information that Earth science researchers can use.