The Advanced Spaceborne Thermal Emission and Reflection Radiometer (ASTER)

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The Advanced Spaceborne Thermal Emission and Reflection Radiometer (ASTER) is currently operating onboard NASA's Earth Observing System, Terra, which was launched Dec,1999. ASTER has three spectral bands in the VNIR, six bands in the SWIR and five bands in the TIR regions with 15, 30, and 90 m ground resolution respectively. In addition to nadir viewing, the VNIR subsystem has one backward-viewing band to provide along-track stereo. Because the data will have wide spectral coverage and relatively high spatial resolution, we will be able to discriminate a variety of surface materials and reduce problems resulting from mixed pixels. ASTER provides the highest spatial resolution multispectral thermal data of any Earth orbiting system.

The primary science objective of the ASTER mission is to improve understanding of the local- and regional-scale processes occurring on or near the Earth's surface. The wavelengths of many of the spectral bands were chosen specifically to aid in geologic and soil mapping. The thermal infrared spectral region contains a wealth of surface compositional information for a wide range of geologically important materials that are difficult or impossible to distinguish using visible and near infrared observations. One goal of ASTER is to provide a cloud-free, multispectral, map of all the land surface of the Earth, with stereo imaging. Upon request, data will also be acquired multiple times over an area to monitor changes.

Further information can be found at http://asterweb.jpl.nasa.gov.