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EOS ASTER: High Resolution Imager for Earth Science

Michael Abrams, Anne Kahle, Simon Hook, Jet Propulsion Laboratory/California Institute of Technology, 4800 Oak Grove, Pasadena, CA 91109

Remote sensing data for earth applications will be greatly improved in 1999 with the launch of NASA's Earth Observation System AM-1 (EOS-A) satellite platform, that will carry five earth observation instruments. One of these is the Advanced Spaceborne Thermal Emission and Reflectance Radiometer (ASTER). This imaging system will provide high spatial resolution data in 14 bands, and along-track stereo imaging capability for producing digital elevation models. Three bands are in the visible and near-infrared (VNIR) with 15 m spatial resolution; six bands are in the short-wave infrared (SWIR) with 30 m resolution, and five bands are in the thermal infrared (TIR) with 90 m resolution. The swath width is 60 km. Cross-track pointing will allow viewing of a spot on Earth at least once every 16 days. ASTER is a joint project between Japan and the US; the Japanese are building the instrument, and the US is providing launch vehicle and telemetry. Science team activities and data distribution are shared. ASTER is the only high spatial resolution imager on EOS-A. As a result there are a variety of distinct science objectives for the instrument. The main contributions to the EOS global change studies will be providing surface temperatures, surface emitted and reflected radiances at a spatial scale that will allow detailed surface studies to be conducted at the sub-pixel level of the other global monitoring instruments.