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Volcanic Hazards Monitoring with ASTER Data

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The Advanced Spaceborne Thermal Emission and Reflection Radiometer on NASA's Terra satellite has been acquiring global data since March 2000. ASTER has channels in the visible to thermal infrared, with 15-90 m spatial resolution and a stereo channel to construct DEMs. The revisit time is 16 days or less; at higher latitudes, repeat times for day/night coverage can be as low as 2 days. We have targeted about 100 active or potentially active volcanoes worldwide to monitor temporal variations of thermal features, such as lava lakes, high temperature fumaroles and lava flows. Examples will be shown from Mauna Loa and Kilauea volcanoes, Hawaii, where we have acquired a series of nighttime images; Mt. Etna, Italy; Erta Ale, Eritrea; Mt Usu, Japan; and other targets as they are acquired. Time series analyses of targets will supplement other satellite imagery, like Landsat, AVHRR, and GOES. ASTER provides unique capabilities that will increase our ability to monitor and study volcanoes.