

Urban, Lagoon and Oceanographic Mapping with EO-1 Data

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The EO-1 satellite was launched in November 2000, carrying three earth observing instruments: the Hyperion imaging spectrometer covering the visible to short wave infrared with 30 m resolution in 220 bands; the Advanced Land Imager, covering Landsat Thematic Mapper bands with 30 m resolution and a 10 m panchromatic band; and the Atmospheric Corrector with 200 bands in the visible-near infrared with 250 m resolution. The mission is a technology demonstration effort to test new instrument concepts for future satellites, such as Landsat 8. As part of the EO-1 validation activity, data are being obtained with EO-1, Landsat-7, ASTER, and the Italian MIVIS airborne imaging spectrometer over the city of Venice, the Venice lagoon, and the Adriatic. The goal of this validation project is to compare the capabilities of the EO-1 instruments in comparison with Landsat-7 for urban mapping of surface materials; for measuring water quality, suspended matter, and pollution in the lagoon; for measuring chlorophyll, suspended matter, and pollution in the Adriatic. Coincident in situ measurements of water characteristics, atmospheric conditions and profiles provide information for atmospherically correcting the EO-1 data, and providing ground truth.