

Earth Observations from the International Space Station: Benefits for Humanity

William L. Stefanov, Astromaterials Research and Exploration Science Division, Exploration Integration and Science Directorate, NASA Johnson Space Center, Houston TX 77058; william.l.stefanov@nasa.gov

The International Space Station (ISS) is a unique terrestrial remote sensing platform for observation of the Earth's land surface, oceans, and atmosphere. Unlike automated remote-sensing platforms it has a human crew; is equipped with both internal and externally-mounted active and passive remote sensing instruments; and has an inclined, low-Earth orbit that provides variable views and lighting (day and night) over 95 percent of the inhabited surface of the Earth. As such, it provides a useful complement to autonomous, sun-synchronous sensor systems in higher altitude polar orbits.

Beginning in May 2012, NASA ISS sensor systems have been available to respond to requests for data through the International Charter, Space and Major Disasters, also known as the "International Disaster Charter" or IDC. Data from digital handheld cameras, multispectral, and hyperspectral imaging systems has been acquired in response to IDC activations and delivered to requesting agencies through the United States Geological Survey. The characteristics of the ISS for Earth observation will be presented, including past, current, and planned NASA, International Partner, and commercial remote sensing systems. The role and capabilities of the ISS for humanitarian benefit, specifically collection of remotely sensed disaster response data, will be discussed.