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International Space Station Instruments Collect Imagery of Natural Disasters

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A new focus for utilization of the International Space Station (ISS) is conducting basic and applied research that directly benefits Earth's citizenry. In the Earth Sciences, one such activity is collecting remotely sensed imagery of disaster areas and making those data immediately available through the USGS Hazards Data Distribution System, especially in response to activations of the International Charter for Space and Major Disasters (known informally as the "International Disaster Charter", or IDC). The ISS, together with other NASA orbital sensor assets, responds to IDC activations following notification by the USGS. Most of the activations are due to natural hazard events, including large floods, impacts of tropical systems, major fires, and volcanic eruptions and earthquakes.

Through the ISS Program Science Office, we coordinate with ISS instrument teams for image acquisition using several imaging systems. As of 1 August 2013, we have successfully contributed imagery data in support of 14 Disaster Charter Activations, including regions in both Haiti and the east coast of the US impacted by Hurricane Sandy; flooding events in Russia, Mozambique, India, Germany and western Africa; and forest fires in Algeria and Ecuador. ISS-based sensors contributing data include the Hyperspectral Imager for the Coastal Ocean (HICO), the ISERV (ISS SERVIR Environmental Research and Visualization System) Pathfinder camera mounted in the US Window Observational Research Facility (WORF), the ISS Agricultural Camera (ISSAC), formerly operating from the WORF, and high resolution handheld camera photography collected by crew members (Crew Earth Observations). When orbital parameters and operations support data collection, ISS-based imagery adds to the resources available to disaster response teams and contributes to the public-domain record of these events for later analyses.