



The Global Geodetic Infrastructure for Accurate Monitoring of Earth Systems

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The National Geodetic Survey (NGS) and the Integrated Ocean Observing System (IOOS), two Program Offices within the National Ocean Service, NOAA, routinely collect, analyze and disseminate observations and products from several of the 17 critical systems identified by the U.S. Group on Earth Observations. Gravity, sea level monitoring, coastal zone and ecosystem management, geo-hazards and deformation monitoring and ocean surface vector winds are the primary Earth systems that have active research and operational programs in NGS and IOOS. These Earth systems collect terrestrial data but most rely heavily on satellite-based sensors for analyzing impacts and monitoring global change. One fundamental component necessary for monitoring via satellites is having a stable, global geodetic infrastructure where an accurate reference frame is essential for consistent data collection and geo-referencing. This contribution will focus primarily on system monitoring, coastal zone management and global reference frames and how the scientific contributions from NGS and IOOS continue to advance our understanding of the Earth and the Global Geodetic Observing System.