

Global Observations and Alerts from Lagrange-Point, Pole-Sitter, and Geosynchronous Orbits (GOAL&GO)

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The Global Observations and Alerts from Lagrange-point, Pole-sitter, and Geosynchronous Orbits (GOAL&GO) mission is a revolutionary measurement concept that will enable the deployment, maintenance, and seamless integration of diverse and distributed measurement capabilities that provide a new capability for humankind to monitor the Earth as it responds to anthropogenically-induced global climate change. GOAL&GO will form a smart, adaptable sensor web for disaster management and science data collection. GOAL&GO incorporates current technology thrusts and accounts for roadmap technologies to posit a system of sensors in geosynchronous, L1, L2, and pole-sitter orbits. These sensors can operate autonomously or under the control of remotely located users. Geolocated data GOAL&GO consists of two types of sensors: the Visible/IR/UV Imaging System Hardware for New Uses (VISHNU), a "science" sensor, and the Supporting High-resolution IR Visible Applications (SHIVA), a disaster management sensor. VISHNU provides full disk imagery from the poles, L1, and L2 to monitor ozone depletion, tropospheric weather patterns in support of weather prediction initiatives, biomass burning, urbanization, and aerosol and cloud distributions, heights, and transport. VISHNU data are obtained with a 1 km resolution from the poles and 5 km from L1 and L2. VISHNU also incorporates an organic capability to command SHIVA sensors to examine particular areas in the VISHNU field of view. SHIVA is a compact multi-spectral imaging system with 250 m resolution capable of being pointed anywhere within the visible portion of the Earth. The unique feature of SHIVA is that it is designed to be commanded from remote, simple, inexpensive and portable ground sites, and to downlink data and data products directly to users. This system would require relatively little investment on the part of the end users.

