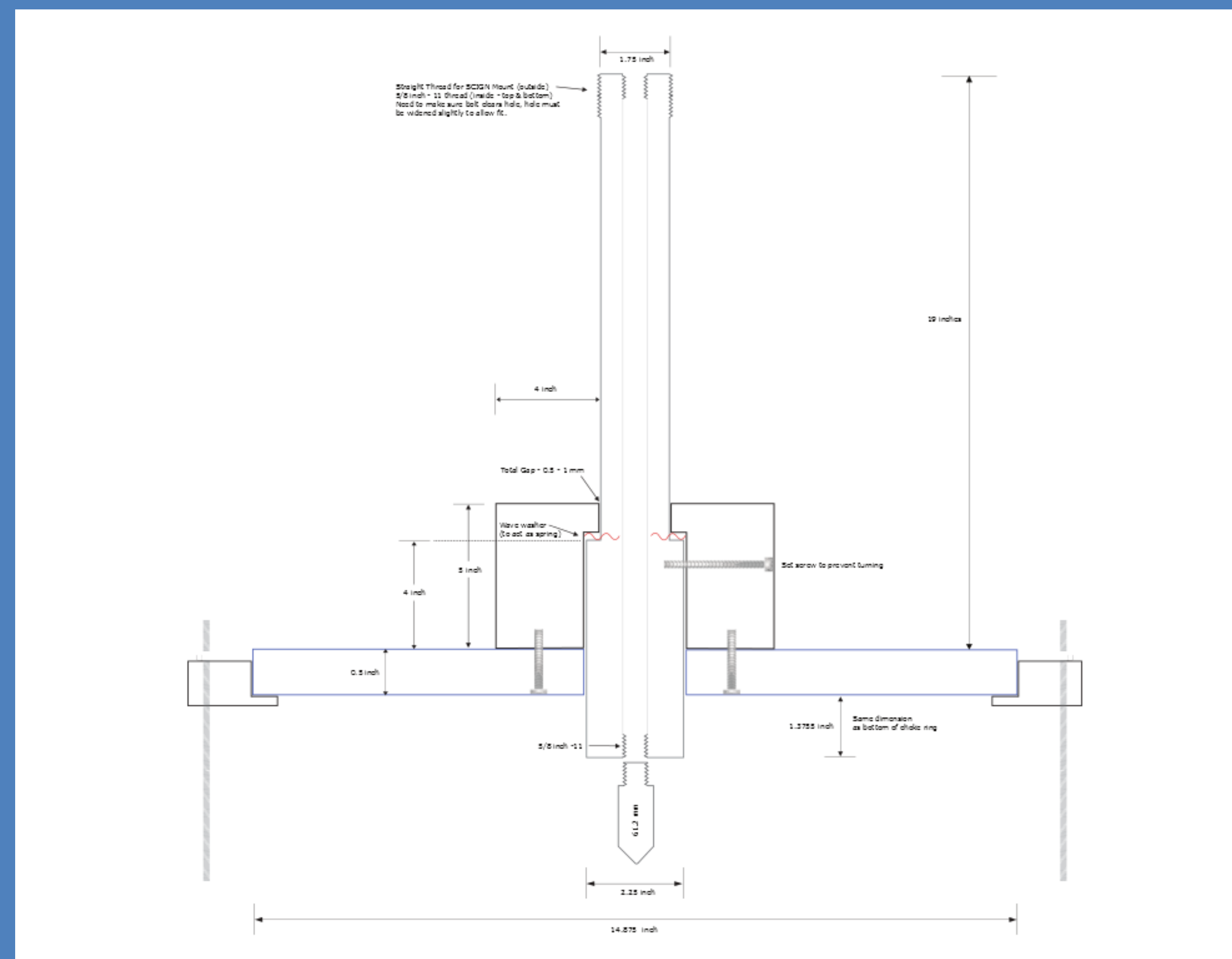


Status and Plans for the NASA Global GNSS Network (GGN)

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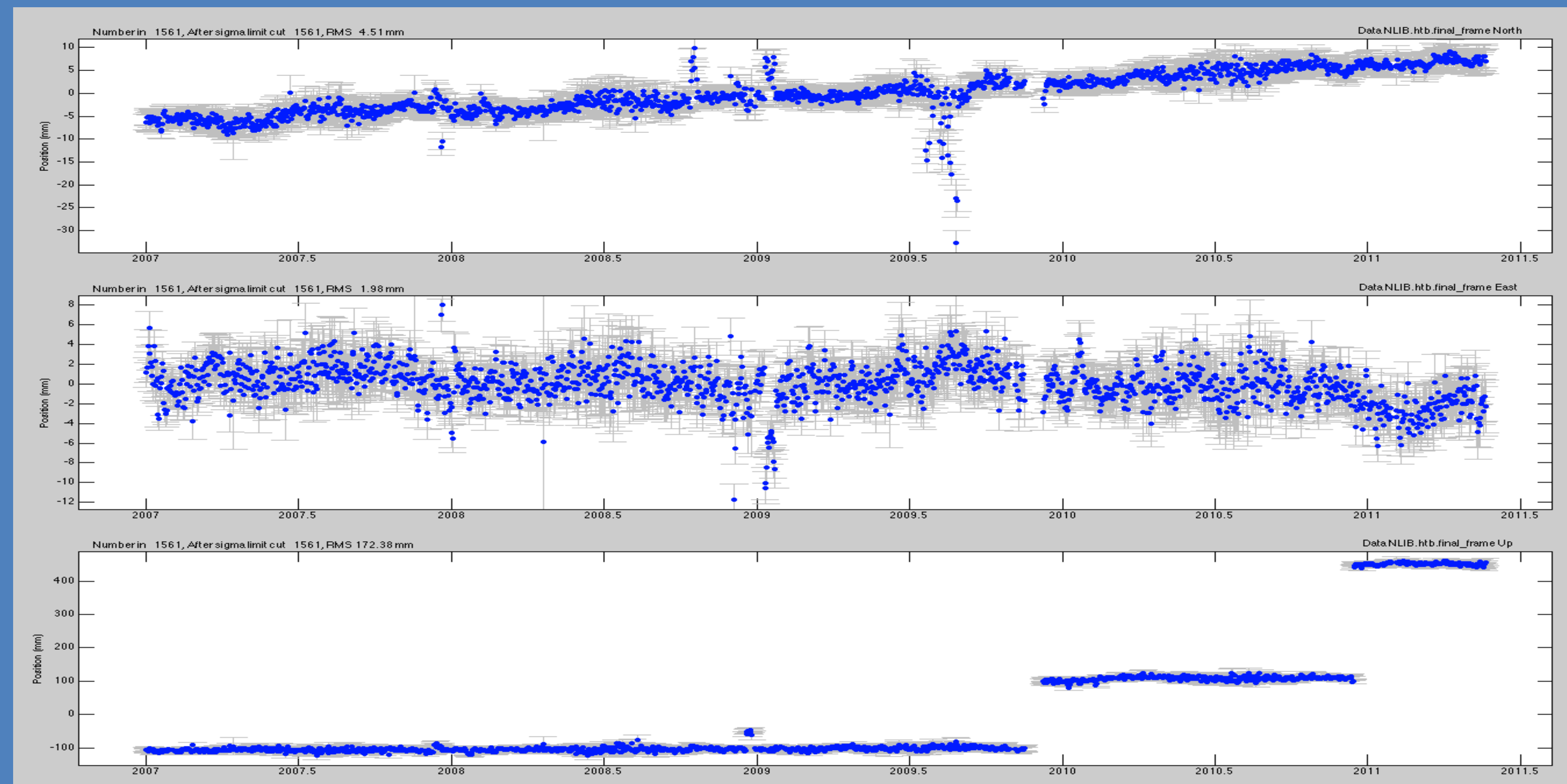
Equipment Upgrades

Nine long running GGN reference frame stations are planned to receive equipment upgrades; specifically antenna plus radome upgrades required to support the increase in GNSS satellites and signal types. These reference frame sites use an AOA choking antenna, several with uncalibrated domes, and all use an older method of mounting the antenna which precludes the direct installation of a calibrated antenna radome combination.



Changes at these stations require precise and delicate modification in order to adequately account for position offsets due to such equipment upgrades. UNAVCO and JPL have collaborated in the design and development of a new set of monument hardware.

This hardware can be used to augment the JPL ring monument and allow for the installation of a calibrated antenna radome combination that minimizes the North and East displacements while introducing a precisely known Up displacement.



NASA's Space Geodesy Project

The GGAO Facility is one of the few locations in the world where four or more space geodesy techniques are co-located, thus providing scientists with a unique opportunity to assess system performance and perform multi-technique analysis.



UNAVCO in collaboration with JPL recently installed two deep drilled-braced monuments at the Goddard Geophysical and Astronomical Observatory in early January. These monuments, operating with multi-constellation capable receivers and using calibrated antenna/radome pairs, are part of NASA's Space Geodesy Project, a joint effort led by Goddard Space Flight Center and Jet Propulsion Laboratory. The project is focused on developing, constructing,

operating, and maintaining a NASA Space Geodetic Network (NSGN) of integrated, multi-technique next generation space geodetic observing systems. The new NSGN will serve as NASA's core contribution to the global network designated to provide a portion of infrastructure needed to meet the requirements for a wide array of both NASA missions and international cooperatives such as GGOS.

GGN Planned Activities

SANT The Santiago, Chile station hosted by SSC Chile Satellite Station facility will be upgraded to a GPS & GLONASS station.

GLPS The Galapagos, Ecuador station has been plagued with network communication problems. In the coming months UNAVCO, in collaboration with the Charles Darwin Foundation, hope to finalize the repair of the network link.

MDO1 The Fort Davis, Texas station hosted by the McDonald Observatory Site will receive a monument upgrade similar to NLIB in order to accommodate a calibrated antenna and dome pair.

CORD The previously decommissioned station in Cordoba, Argentina hosted by the Comision Nacional De Actividades Espaciales (CONAE) facility will once again be reestablished.

Other Initiatives: Discussions with several organizations, both in sparsely GNSS populated areas, as well as sites with existing geodetic infrastructure (i.e., multi-technique) are in process, and may lead to new station installations in the coming year.

Global GNSS Network (GGN)



The Jet Propulsion Laboratory (JPL) and UNAVCO operate NASA GNSS infrastructure consisting of a network of 61 permanent GNSS stations called the Global GNSS Network (GGN). These stations, operated in cooperation with many international agencies and groups, represent approximately 16% of the active stations that make up the IGS permanent station network.

The GGN thus provides access to GNSS ground tracking data that contributes to precise GPS orbit determination and terrestrial reference frame control for a wide array of NASA missions as well as providing public data access through the IGS structure.