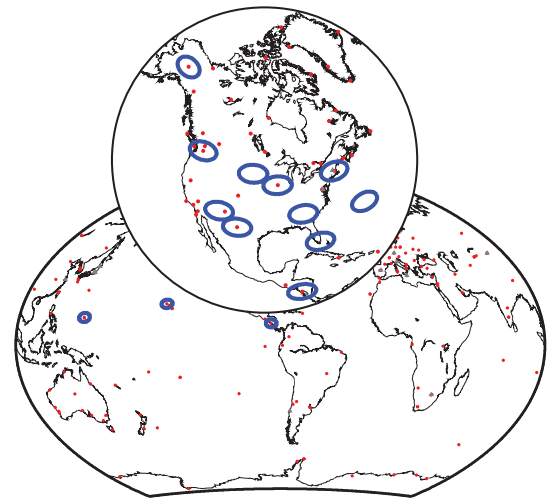# Continuously Operating Reference Stations: Foundation CORS

The primary mission of **NOAA's National Geodetic Survey (NGS)** is to define, maintain, and provide access to the **National Spatial Reference System (NSRS)**. The NSRS is the basis for all civilian positioning applications in the United States. The geometric component (latitude, longitude, and ellipsoid height) of the NSRS is defined using space-geodetic techniques and is accessed via **Continuously Operating Reference Stations (CORS)** that track **Global Navigation Satellite System (GNSS)** signals. The CORS provide data continuously, and when combined with their NSRS coordinates, permit users to position their points of interest rapidly and precisely.

A modern, high-accuracy NSRS is achieved by connections to the global framework of the International Terrestrial Reference Frame (ITRF). The ITRF is realized through a combination of space-geodetic techniques including: GNSS, Very Long Baseline Interferometry (VLBI), Satellite Laser Ranging (SLR), and Doppler Orbitography and Radiopositioning Integrated by Satellite (DORIS).

Many ITRF sites are insufficient to meet the new accuracy requirements of critical scientific and surveying projects, such as measuring sea level change to within a few millimeters.

To support the new requirements, NGS is constructing a small number of ultra-stable **Foundation CORS** to serve the dual functions of being an important United States contribution to the ITRF, as well as to link

Locations of NGS' Planned Foundation CORS Sites

the ITRF to the NSRS. Beginning in 2011, NGS plans to establish one to two new Foundation CORS per year and will oversee the installation of a minimum of eight Foundation CORS sites in the continental United States, with additional sites constructed in Alaska, Hawaii, United States territories, and select foreign countries.

For more information, contact NGS:

- **On the Web**
  http://geodesy.noaa.gov/CORS

- **By email**
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