NOAA Manages Height Modernization Program

Height Modernization

NOAA's National Geodetic Survey (NGS) manages a national program called **Height Modernization**, an initiative whose focus is establishing accurate, reliable heights using **Global Navigation Satellite System (GNSS)** technology in conjunction with traditional leveling, gravity, and modern remote sensing information. The needs and benefits for accurate heights were originally documented in the **National Height Modernization Study Report to Congress in 1998**. Today, Height Modernization is being implemented in more than a dozen states across the country, including **coastal states susceptible to severe storms**, such as Louisiana in the Gulf of Mexico and North Carolina on the Atlantic; states experiencing **crustal motion**, such as California's earthquakes and post-glacial rebound in Wisconsin and the Great Lakes; and states where events like **riverine flooding** and activities like **precision agriculture** require accurate positioning.

NOAA is expanding and managing the Height Modernization Program through partnerships with federal, state, and local government agencies, academic institutions, and professional organizations and tailors the program to meet specific local needs. Accurate, reliable, and up-to-date **heights are essential for a wide range of activities**, including managing construction and infrastructure projects such as bridges, dams, and levees; alerting emergency planners to changes in elevation over storm evacuation routes that are slowly sinking and are susceptible to inundation; mapping flood plains to produce accurate flood zone maps and determine flood insurance rates; precisely controlling equipment used in agriculture, road construction, and snow removal; monitoring sea-level changes; and managing ecosystem restoration projects, to name just a few.

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Height Modernization:

- **saves money**, by eliminating the cost of unnecessary flood hazard certificate fees,
- **saves lives**, by helping aircraft land safely in low-visibility conditions,
- **protects the environment**, by improving our ability to monitor ground and surface-water movement and tectonic plate motions.

For more information, contact NGS:

- **On the Web**
  geodesy.noaa.gov/heightmod
- **By email**
  ngs.htmod@noaa.gov

NGS implements this national program through its three focus areas: **providing access** to the National Spatial Reference System, **developing models and tools**, and **building local users' capacity** to determine accurate heights. NGS coordinates grants to local organizations, publishes and distributes specifications and guidelines for field surveying and data processing, and conducts forums and workshops to identify local needs and educate and guide local users in the most effective means to meet those needs.