

**NGS (National Geodetic Survey) recently updated the coordinates and velocities for all CORS stations.** This aligned the CORS network of 2000+ active controls stations (a GNSS receiver in a fixed location) with over 180,000 passive controls (monuments, brass caps and similar physical locations marked by survey).

NA2011 is “geometric” in that while it yields new latitude, longitude and ellipsoid heights for stations, it will not affect the orthometric height of stations. In conjunction with this realignment, NGS also released the following 3 distinct products in September 2011.

### **# 1. 3 new realizations of the NAD83 reference frame**

The new realizations are based on the global reference frame IGS08 epoch 2005.00.

#### ***for Conterminous US, AK, and US Caribbean territories***

All active controls were           NAD83(CORS96)

All passive controls were           NAD83(NSRS2007)

**With NA2011, all controls are now NAD83(2011) epoch 2010.00**

□

***for Pacific Plate: HI, American Samoa, Marshall Islands***

All active controls were NAD83(PacP00) epoch 2002.00

Passive controls in HI were NAD83(1993)

Passive controls in Samoa were NAD83(2002)

**With NA2011, all controls are now NAD83(PA11) epoch 2010.00**

***for the Mariana Plate (Guam and others)***

All active controls were NAD83(MarP00) epoch 2002.00

All passive controls were NAD83(2002)

**With NA2011, all controls are now NAD83(MA11) epoch 2010.00**

□

*\* Note, terminology has been inconsistent over the years. Although (CORS96) is the official*

*standard, (CORS96) have been used interchangeably. Likewise NAD83(PacP00) and NAD83(MarP00) were often mislabeled (CORS)*

## **# 2. Two new geoids**

A geoid is a mathematical model of the Earth that includes contours such as mountains and valleys.

### **a. Gravimetric geoid USGG2012**

Gravimetric geoids are based on gravity and used for theoretical scientific purposes.

### **b. Hybrid geoid GEOID12A**

Hybrid geoids combine orthometric heights (actual measured elevations) and ellipsoid heights with the gravity data for better elevations. This new GEOID12A\* replaces GEOID09 and allows ellipsoid heights to match that of the 3 new realizations of NAD83.

GEOID12 was released and then amended, the most current geoid is **12A**

### # 3. Gulf Coast Height Modernization Project

GEOID12 provides a more efficient mechanism to transform GPS heights to elevations relative to North American Vertical Datum of 1988 (NAVD88).

Vertical Time-Dependent Positions (VTDP) software can combine older and newer observations provide more accurately elevation data for this area

Read to see how the new NAD83(2011) has been impacted [differential correction of GPS data](#)

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