

NOAA-National Ocean Service-National Geodetic Survey



GPS Orbit Data

NOAA's National Geodetic Survey (NGS) computes improvements to the Global Positioning System (GPS) orbits in order to achieve an accuracy of 2 cm, Root Mean Square (RMS), including a rapid product (2-3 cm accuracy) available within 16 hours after data collection, and a more accurate product available within 7 to 10 days of data collection. Other orbit products include improved Earth orientation parameters and tropospheric scale parameters.

NGS is producing high-accuracy orbits in order to:

- improve positioning over observed baselines,
- reduce the time needed to position geodetic control points, and
- improve the accuracy of GPS-derived heights.

NGS GPS orbits are computed from global International GNSS Service (IGS) tracking stations. The orbits are computed using coordinates and velocities calculated in the International Earth Rotation Service Terrestrial Reference Frame (ITRF). GPS orbital data are available without cost from the NGS Web site. In addition, NGS is one of several analysis centers around the globe to contribute to the weighted combined products of the IGS. The IGS combined precise orbit is considered the international standard and should be used when available. NGS also contributes to the weighted combined IGS rapid orbit available the next day.

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NGS defines and manages the National Spatial Reference System which, determines position, height, distance, direction, gravity, and shoreline throughout the United States. Since 1807 NGS and its predecessor agencies have led the world in precise positioning and developed emerging technologies for the public. NGS provides its expertise and a wealth of free information, including direct access to its database, on the World Wide Web at:

www.ngs.noaa.gov

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