

RTNet SOFTWARE

RTNet is primarily designed for real-time applications, but post-processing is also easily accomplished.

RTNet is versatile to meet a wide range of science and engineering demands.

RTNet can process data in network mode or in precise point positioning (PPP) mode in real-time or post-processing.

RTNet processes zero-differenced observations and the satellite and receiver clock corrections are estimated at every epoch independently.

RTNet is designed for processing GNSS networks with the highest possible accuracy with ambiguity resolution.

In PPP mode RTNet requires good satellite clocks – these can be provided by RTNet itself or by some other source.

OPEN OCEAN APPLICATIONS

Ship based Water Vapor Monitoring

Ship / Drill Rig Positioning

Buoy Positioning / Wave Monitoring

Geoid studies

No baselines or reference stations are required to position a ship in the open ocean at the several cm level.

Precise point positioning (PPP) mode estimation of the tropospheric delay and < 3 mm-level atmospheric water vapor from moving ocean platforms have been demonstrated.

Additional Information:
www.gps-solutions.com
1320 Pearl St. Suite 310
Boulder, CO 80301
Tel. 303 402 9150

OCEAN GNSS

GNSS Software System



RTNet

Ocean Applications

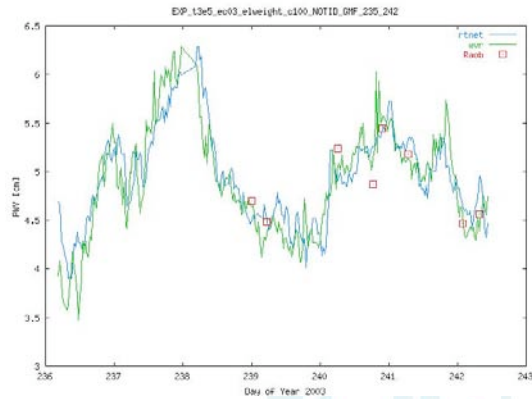
- Positioning
- Meteorology
- Engineering
- Surveying



OCEAN METEOROLOGY

Ship or buoy-based GNSS receivers can be used to estimate the tropospheric delay in the ocean with high accuracy and temporal resolution.

RTNet has demonstrated the capability to estimate atmospheric water vapor from a ship under-way in the open ocean.



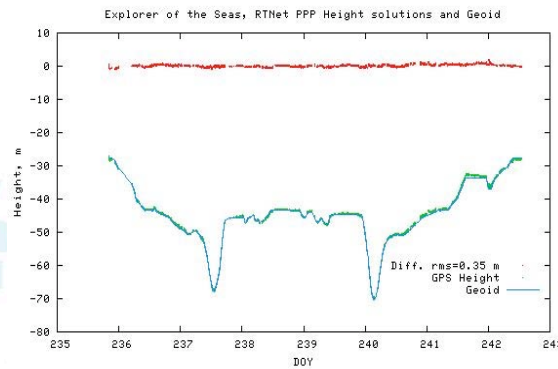
This figure shows the precipitable atmospheric water vapor during a 7-day Caribbean cruise. RTNet results agree to within 2.8 mm rms with 0.1 mm bias with a ship-based water vapor radiometer (WVR). Comparison with ship-launched radiosondes is also shown.

GPS data from ships and buoys can thus be used for atmospheric studies, satellite calibration and weather forecasting.



SHIP / BUOY POSITIONING

Precise ship or buoy positions can be obtained anywhere. In post-processing mode this can be applied to ocean Geoid studies, sea level studies and wave monitoring.



This figure shows the height of a GPS antenna aboard a ship in the Caribbean. The two main features are the dips in the sea surface as the ship passes over the Puerto Rico trench.

High resolution sea surface maps can be obtained in this way.

Real-time applications for navigation are feasible if good GPS satellite clocks and orbits are available in real-time (i.e. from a commercial service or another RTNet network run).



OCEAN ENGINEERING

Applications of precise positioning in the ocean anywhere and at any time are:

- Platform installation and monitoring
- Exploration and seismic surveying
- Dredging
- Ocean buoy, tsunami monitoring

