Analysis and Comparison of GPS/Beidou GNSS signal performance

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Outline

• Advantages of GNSS and GPS-BeiDou in particular
• Layout of experiment
• Results
• Conclusions
GPS-BeiDou Advantages

As of Oct 2014

BeiDou Constellation

<table>
<thead>
<tr>
<th>PRN</th>
<th>Type</th>
<th>Launch Time</th>
<th>Longitude</th>
<th>Latitude</th>
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BeiDou Constellation

Multi GNSS Advantages

5 Minutes of data, more realistic sky plots for kinematic data
Multi GNSS Advantages

GPS Only

All GNSS

Rooftop Pillars
Zero Baseline Test

- 2 ComNav K508 Receivers
- Connected to a Choke Ring antenna
- Using Antenna Cable Splitter (PN:GS18)
- Track GPS L1, L2, L5
  BeiDou B1, B2, B3
  both GLONASS

Both receivers tracking the same signals
All external error sources, including Multipath, are differenced away
Resulting noise in the processed results are the observation resolution as well as the noise due to the satellite geometry spread
Available Satellites

East-West component
North-South component

Vertical component
Conclusions

- Multi-GNSS a big advantage
- Especially in built up areas
- Research into triple frequency ambiguity resolution
- Improves geometrical spread of satellites for kinematic applications in particular.
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