Civil GPS Service Interface Committee

Surveying, Mapping, and Geosciences Subcommittee Report

Chair: Dr. Kevin Choi, NOAA-National Geodetic Survey
Deputy Chair: Mr. Neil Winn, National Park Service

25 September 2018
Surveying, Mapping, and Geosciences Subcommittee

• Combined with U.S. States and Local Government subcommittee
• Covered 9 presentations
• NOAA
  • CORS Status and the future
    • Current status report and the Foundation CORS project
  • North American Datum changes in 2022 (Mr. Riordan)
    • Briefing of upcoming changes in the National Spatial Reference System
  • Intra-plate velocity model in the new reference system (Dr. Damiani)
    • Dealing with the dynamics other than the plate rotation
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• NOAA (cont’d)
  • GNSS user support at the Space Weather Prediction Center (Mr. Steenburgh)
    • Civil aviation support and the ground application, and multi-day forecast by coupling WAM (Whole Atmosphere Model) with IPE (Ionosphere Plasmasphere Electrodynamics model).
  • Incorporating GNSS at NOAA’s National Water Level Observation Network (Ms. Schneck)
    • Monitoring & accounting for vertical movement of water level sensors
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• FL DOT
  • Florida Custom Geoid (Mr. Hanson)
    • Denser data points and move to more absolute sense

• DOI
  • GNSS use in NPS (Mr. Winn)
    • Reliance on GPS/GNSS, Benefit of using full GNSS signals
  • Ground movement tracking with GNSS (Mr. Hothem)
    • Monitoring ground movement using GNSS techniques such as Earthquakes and Volcanic activities

• Commercial
  • Survey-Grade accuracy in GIS (Mr. Gakstatter)
    • A few examples of survey-grade GNSS usage in GIS
• L2C discussion
  • L2C is a new civilian GPS signal in L2 frequency (1227 MHz)
  • Enables ionospheric correction for the civilian uses.
  • GPS Block IIR-M and II-F satellites transmits L2C (19 SVs)
  • Pre-operational by USAF

• High Precision Survey-Grade Users
  • Quarter Cycle Offset Problem reported back in 2009.
  • Many receiver vendors updated the firmware to mitigate the issue.
  • If not corrected Ambiguity resolution algorithm is affected.