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

Surveying, Mapping, and Geosciences Subcommittee

- 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

Surveying, Mapping, and Geosciences Subcommittee

- 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

Surveying, Mapping, and Geosciences Subcommittee

- 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.