

Application and Practice of Survey-Grade GNSS Real-Time and Static surveys in the USGS

Trenton, NJ, April 14-18th, 2014

Day 1 – April 14, 2014

0800-1030 - Rydlund

1. Geodesy Primer and Datum Establishment Overview in the USGS
2. Equipment
 - Receivers
 - Antenna and Radio
 - Data Collector
 - Tripods
 - Benchmarks
 - Software
3. Mission Planning and Error Sources
 - Benchmark Assessment
 - Continually Operating Reference Station (CORS) Assessment
 - Ionosphere and Troposphere
 - Multipath
4. Real-Time (RT) Surveys
 - Traditional Single-Base Real-Time Kinematic (RTK)
 - Techniques
 - Base receiver: Reliant vs. Autonomous
 - Quality Assurance
 - Localization
 - Networks
 - Quality Assurance
 - Localization

1045 – 1200 - Rydlund

5. Static GNSS
 - Single-base OPUS
 - Quality Assurance

1300 – 1500 - Rydlund

6. GNSS Quality
 - Level I Survey
 - Level II Survey
 - Level III Survey
 - Level IV Survey

7. Metadata

1515 – 1700 - Rydlund

8. RT GNSS field exercise(s)
 - Localization
 - RT Blunder Check
 - GNSS "as a level"

Day 2 – April 15, 2014

0800 – 1000 - Rydlund

1. Total Station Primer
Project Application
 - Integrating total station surveying with GNSS
 - Bathymetric surveys
 - High-water mark surveys
 - Inundation mapping
 - Indirect measurement of peak discharge & modeling
 - Storm-surge sensor surveys
 - Project Application – GNSS Level Quality selection discussion

1015 – 1130 – Rydlund

2. Network Surveying and Processing
 - Network Control
 - Planning
 - Processing and Adjustment

1330 – 1530 – Rydlund and Ostheimer

Simplified Network Survey - Field exercise

1600 – 1730 – Ostheimer

3. Project Application – RTN Hurricane Sandy

Day 3 – April 16, 2014

0800 – 0930 – Webex (Densmore)

1. Simplified Network Survey - Processing

0945 – 1030 – Webex (Densmore)

2. OPUS-Projects
 - Introduction
 - Creating a Project

1030 – 1130 - Webex (Densmore)

- Uploading Data
- Session Processing

1230 – 1330 - Webex (Densmore)

- Session Processing
- Network Adjustment and Publishing

1330 – 1700 - Webex (Densmore)

3. OPUS-Projects – Application with user or example data set

Dr. Mark Schenwerk – Call in Q/A

Day 4 – April 17, 2014

0800– 0900 – Rydlund and Ostheimer Briefing

1. GNSS Class Campaign Assignment
 - Team 1, 2, 3, 4, and 5

1500 – 1700 – Class participants

2. Group data download and processing

1600 – 1700 – Rydlund and others

3. TEQC Demonstration using the windows-based utility

Day 5 – April 18, 2014

0800 – 0930 – Class participants

1. Results and discussion of GNSS Class Campaign

0945 – 1030 – Ostheimer and other

2. Individual Project Presentations / Discussion

3. Coastal Surge Sensor GNSS Discussion

1030 – 1100 - Rydlund

4. Future Direction & Wrap up