Nationwide Differential GPS System
Presentation Overview

- NAVCEN Organizational Summary.
- Nationwide Differential GPS (DGPS) Overview.
- Dept. of Transportation (DOT) Inland DGPS coverage/site status.
- DGPS Equipment Upgrades.
- DGPS Partnerships
- Summary
Command Overview

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CAPT Frank Parker

Command Master Chief
CMC Neil Orthober

Command Duty Officer

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Executive Officer

Operations Division

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(OSC Billet)
Maritime Information Operations Center

24/7 Operation of the following:

- Web based Information Services.
- Navigation Information Service.
- GPS Civil Interface.
- DGPS Monitor & Control.
- Inland River Vessel Movement Center.
- Nationwide Automatic Information System.
Nationwide Differential GPS

• Satisfies Harbor Entrance & Approach, Inland Waterways & Terrestrial Requirements

• 50 Maritime Broadcast Sites, 9 U.S. Army Corps of Engineer Sites, 29 Nationwide DGPS Sites, 2 Control Centers.

• Maritime DGPS System achieved Full Operational Capability (FOC) on 15 March 1999.

• Nationwide DGPS System is currently working towards Initial Operational Capability (IOC). Seven sites remain to be constructed to achieve single coverage of 99% of the continental United States.

• *Partnership agencies: USCG, DOT (RITA), NOAA/NGS, USACE*
Typical DGPS Site Layout
NDGPS Signal Coverage
DOT DGPS Single Coverage Goal

• Initial Operational Capability (IOC) goal is 99% of continental United States with single coverage.

• 7 sites are needed to achieve IOC.
  • **Site Name:** Bliss  
    **Location:** Bliss, Idaho
  • **Site Name:** Tucson  
    **Location:** Tucson, Arizona
  • **Site Name:** Carlsbad  
    **Location:** Carlsbad, New Mexico
  • **Site Name:** Sage Junction  
    **Location:** Sage Junction, Idaho
  • **Site Name:** Marshall  
    **Location:** Marshall, Texas
  • **Site Name:** Big Lake  
    **Location:** Big Lake, Texas
  • **Site Name:** Patten  
    **Location:** Patten, Maine

• All advance preparation work has been either completed or is near completion for the remaining 7 sites.

• Funding is pending.
DOT Inland Coverage IOC Objective
DGPS Recap/Upgrades

• **FC-20**
  - FC-20: Upgraded Receivers & Antennas: L1/L2 (L2C) Geodetic Grade

• **EC-03**
  - **COTS equipment.**
    - Accuracy is observed to be 1-3 meters
    - New system architecture is easier and less expensive to upgrade as new technologies become available.
    - Ethernet based with remote capability.

• **NAUTEL Transmitter Replacement**
  - Southern Avionics Company (SAC) transmitters replaced with new modular NAUTEL Vector D transmitters.
  - USCG Maritime DGPS sites currently being upgraded.
  - DOT Inland DGPS sites will begin in 2011
Continuously Operating Reference Stations (CORS)

- DGPS Systems forms 15% of CORS.
- Used by surveyors, GIS/LIS professionals, engineers, scientists, etc.
- Post-Processing data enables centimeter accuracy.
GPS Surface Observing System (GSOS) Network.

NOAA’s Forecast Systems Lab

• NOAA also uses data from our DGPS sites to continuously measure the water vapor in the atmosphere.
• Greatly improves short term weather forecasts.
DGPS Problem Online Worksheet

DGPS REPORT-A-PROBLEM WORKSHEET

The Navigation Center appreciates your reports regarding service degradations, outages, or other incidents or anomalies. Please answer the questions below. Some fields are required for submission, but all personal data will be kept private and will only be used to contact you in the event that we need more information or classification is required. Please be as complete as possible when reporting an incident. Thank you!

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Worldwide DGPS Coverage
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