

Integration of PORTS® Data Into AIS

Hydrographic Services Review Panel

By Mike Szabados

NOAA's Center for Operational Oceanographic Products and Services
(CO-OPS)

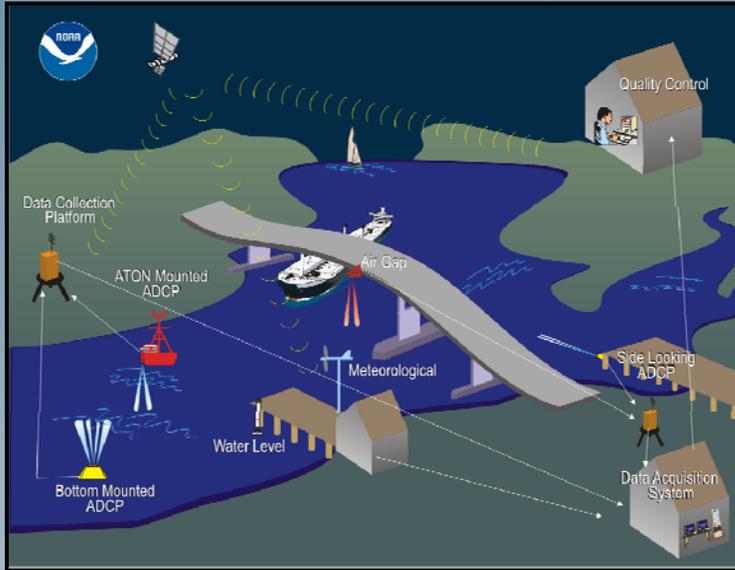
Wednesday, November 19th, 2008

HYDROGRAPHIC SERVICES REVIEW PANEL



noaa

PORTS[®] Data Through Coast Guard's Automatic Identification System (AIS)



- RTCM Special Committee 121 Working Group on Expanded Use of AIS within VTS
- PORTS[®] data part of a larger effort to expand AIS information capabilities
 - Environmental data
 - Zone message (right whale, spills, accidents, etc.)
 - Waterways management messages

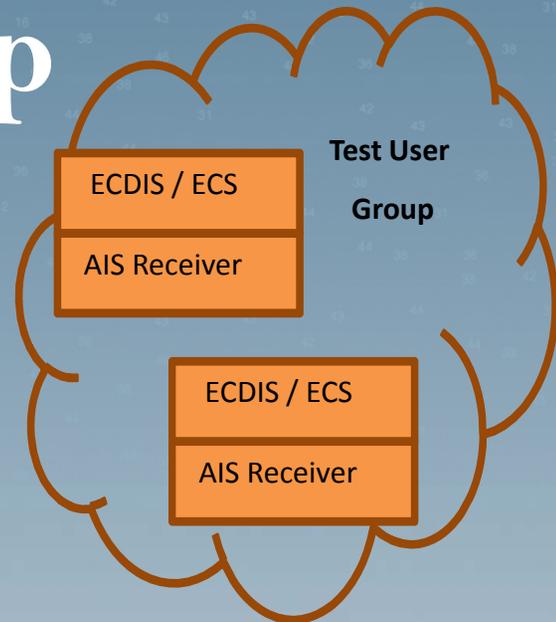
Participant POCs

- USCG R&D Center
 - Irene Gonin
- Alion Science & Technology
 - Greg Johnson
- USCG Cooperative VTS (C-VTS)
 - Steve Fidler
- Tampa Bay Pilots
 - Jorge Viso
- NOAA (PORTS)
 - Darren Wright



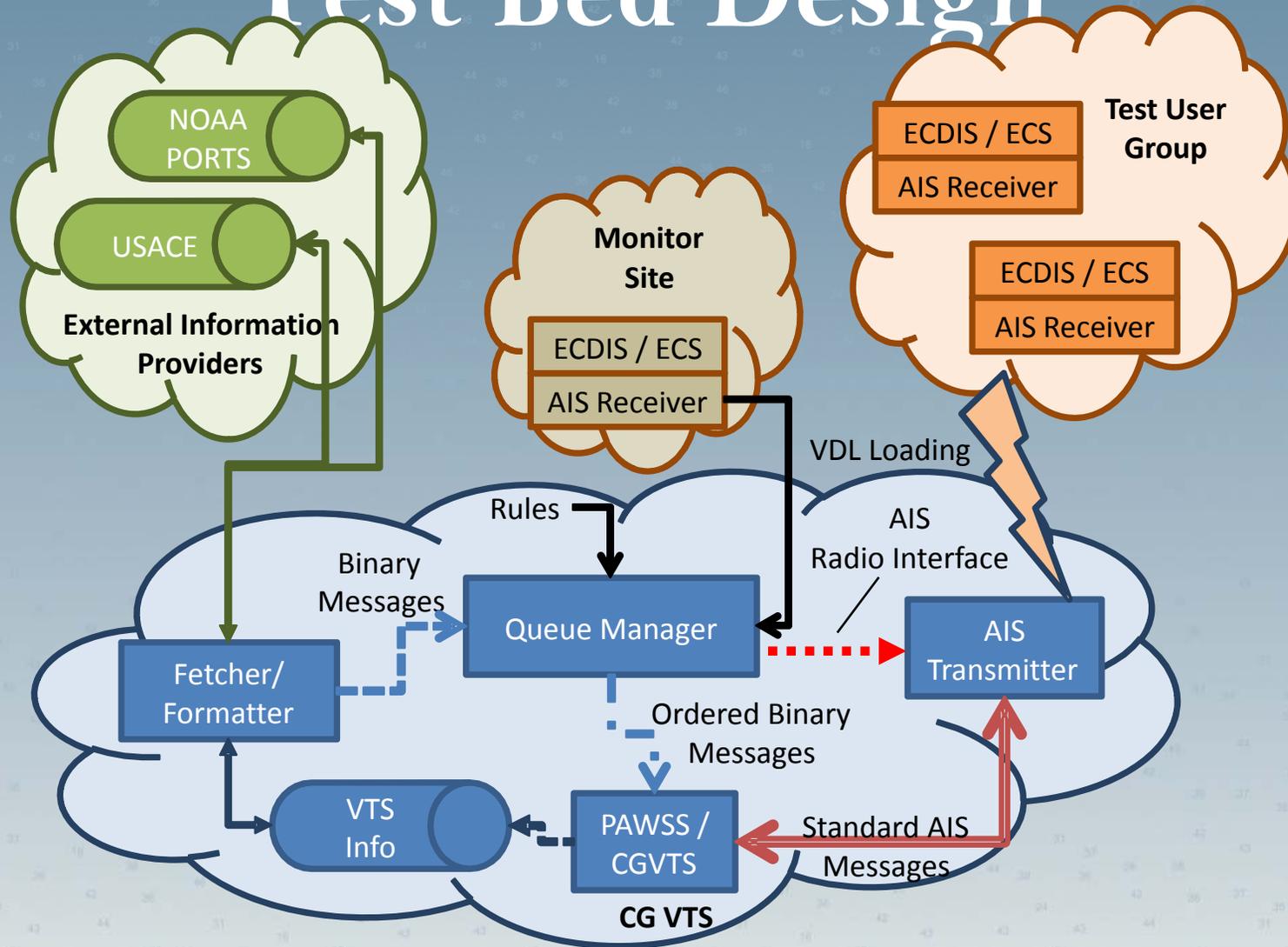
User Group

- Initially, Tampa Bay Pilots
- May be extended to other users after the initial Phase
 - Marine Towing of Tampa
 - Seabulk Towing
- Equipment Selection
 - All of the state pilots carry ARINC PPU's



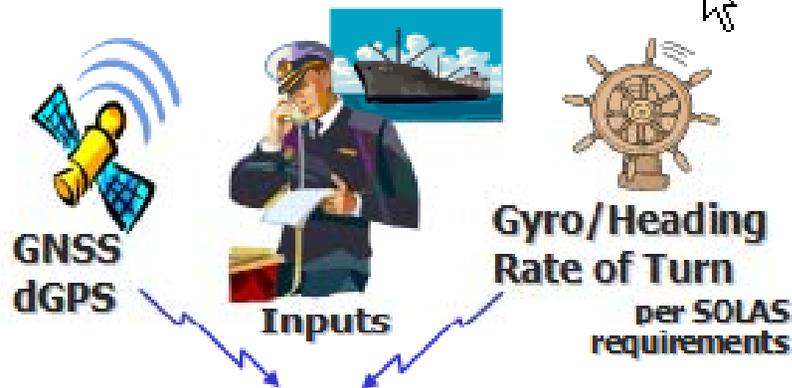
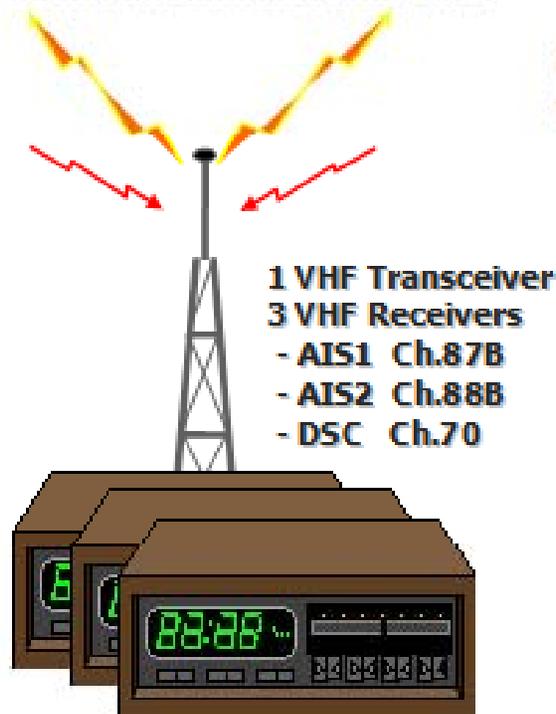
Organization	Name	Phone	e-mail
Tampa Bay Pilots	Jorge Viso	813 690-4810	moanamarine@verizon.net
Marine Towing	Norman Atkins	813-242-6500	
Seabulk Towing	Vic Davis	813-247-3187	
ARINC	Don English	619-225-5335	

Test Bed Design



AIS how...

Time-Division Multiple Access (TDMA)

←!AIVDM,2,2,7,A,2220<5<-FTq2r7F2222220p4q@T<tdE2r'P0,2*4E...
NMEA-0183
!ECBBM,2,2,0,0,8,>@#Qp0PPPPPP>1>D937;5@fb80,0*64→



COMMUNICATE

Broadcasts and manages the flow of AIS data sentences

ASSEMBLE

Gathers positioning, heading, vessel data and assembles it into an AIS compliant data sentences

READ

AIS data sentences may be read/sent on/to multiple devices

PORTS Data Retrieval Interface

Tampa Bay PORTS

Date	20081103	Time	22:44	Time Zone	GMT
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[Back](#)
[Stations](#)
[Definitions](#)
[Units](#)
[Disclaimer](#)

Station ID	Time	W. Level	Datum	Trend	Time	W. Temp.	Time	A. Temp.	Time	W. Speed	W. Direction
8726384	22:30	0.505	0	2					22:30	3.7	1.0
8726413							22:30	23.45	22:30	5.0	17.0
8726520	22:30	0.5	0	2	22:30	23.561	22:30	24.584	22:30	2.264	1.702
8726607	22:30	0.512	0	2					22:30	2.2	12.0
8726667											
8726669									22:30	3.114	33.258
8726673									22:30	2.649	18.98
8726694											

Satation ID	Time	Current Speed	Current Direction
102010	22:30	0.947	18.0

HTML Format

Data Snap Shop

```

<?xml:version="1.0" encoding="UTF-8" ?>
<soap:Envelope>
  <soap:body>
    <portsData date="20081103" portsId="Tampa Bay PORTS " time="22:47" timeZone="GMT">
      <definitions>
        <level>Real time bin for the current instrument</level>
        <datum>0 = MLLW, 1 = IGLD, 2 = CRD, 4 = STD</datum>
        <trend>
          0 = Steady (Slack), 1 = decreasing (Ebbing), 2 = increasing (Flooding), 3 = undefined
        </trend>
        <missingValue>
          -999.999 = indicates that there was no reading recorded
        </missingValue>
      </definitions>
      <units>
        <timeStamp>Timestamp of all data is in GMT</timeStamp>
        <waterLevel>Water level height is in meters</waterLevel>
        <airTemperature>Air temperature is in degrees centigrade</airTemperature>
        <waterTemperature>Water temperature is in degrees centigrade</waterTemperature>
        <windUnits>
          <speed>Wind speed is in meters per second</speed>
          <direction>Wind direction is in degrees (true)</direction>
          <gust>Wind gust is in meters per second</gust>
        </windUnits>
        <barometricPressure>Barometric pressure is in millibars</barometricPressure>
        <airGap>Clearnace is in meters</airGap>
        <salinity>Salinity is in psu -- parts per thousand</salinity>
      </units>
      <current>
        <speed>Current speed is knots</speed>
        <direction>Current direction is in degrees (true)</direction>
      </current>
    </portsData>
  </soap:body>
</soap:Envelope>
  
```

XML Format



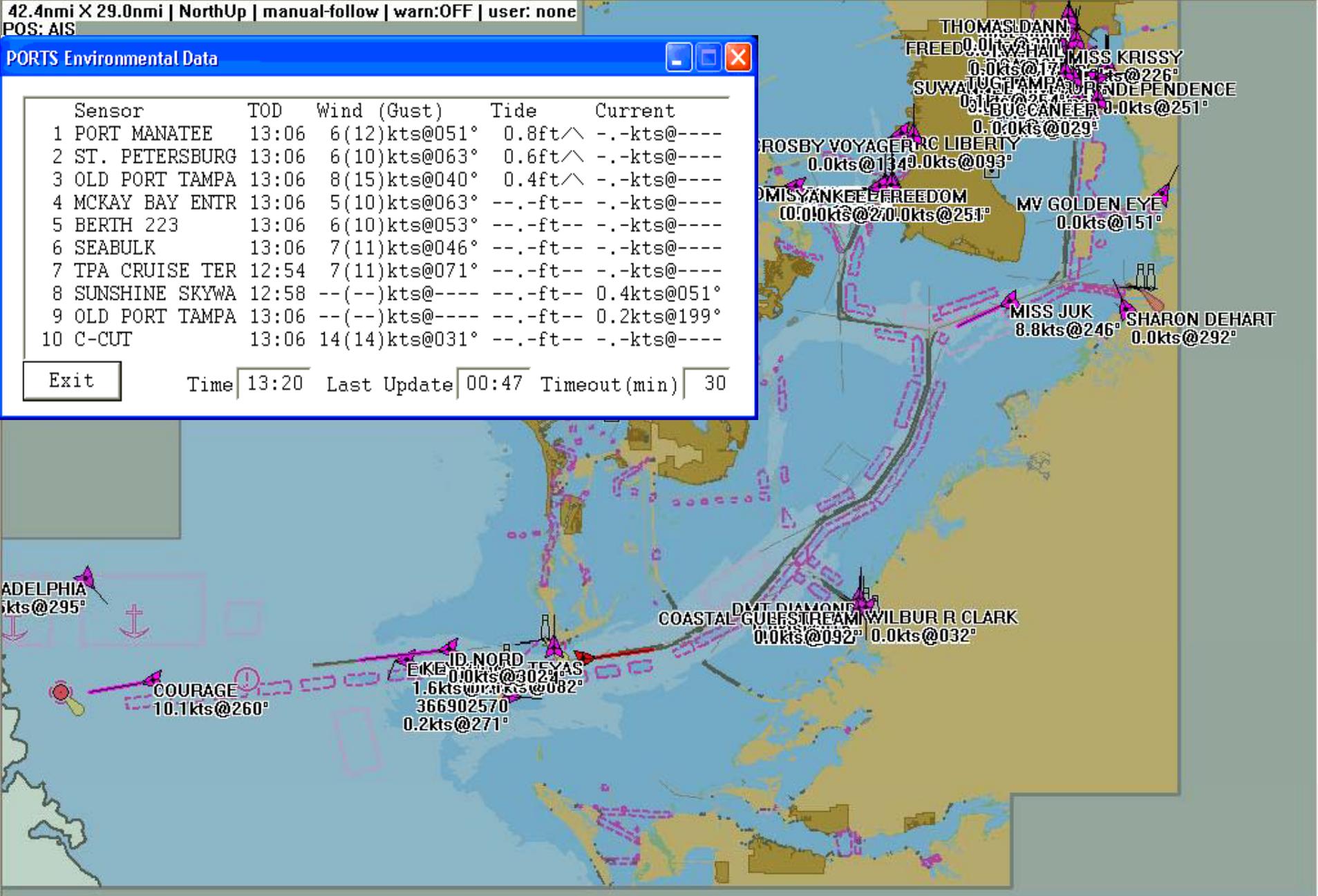


42.4nmi X 29.0nmi | NorthUp | manual-follow | warn:OFF | user: none
 POS: AIS

PORTS Environmental Data

Sensor	TOD	Wind (Gust)	Tide	Current
1 PORT MANATEE	13:06	6(12)kts@051°	0.8ft^	-.kts@----
2 ST. PETERSBURG	13:06	6(10)kts@063°	0.6ft^	-.kts@----
3 OLD PORT TAMPA	13:06	8(15)kts@040°	0.4ft^	-.kts@----
4 MCKAY BAY ENTR	13:06	5(10)kts@063°	-.ft--	-.kts@----
5 BERTH 223	13:06	6(10)kts@053°	-.ft--	-.kts@----
6 SEABULK	13:06	7(11)kts@046°	-.ft--	-.kts@----
7 TPA CRUISE TER	12:54	7(11)kts@071°	-.ft--	-.kts@----
8 SUNSHINE SKYWA	12:58	--(--kts@----	-.ft--	0.4kts@051°
9 OLD PORT TAMPA	13:06	--(--kts@----	-.ft--	0.2kts@199°
10 C-CUT	13:06	14(14)kts@031°	-.ft--	-.kts@----

Exit Time 13:20 Last Update 00:47 Timeout(min) 30

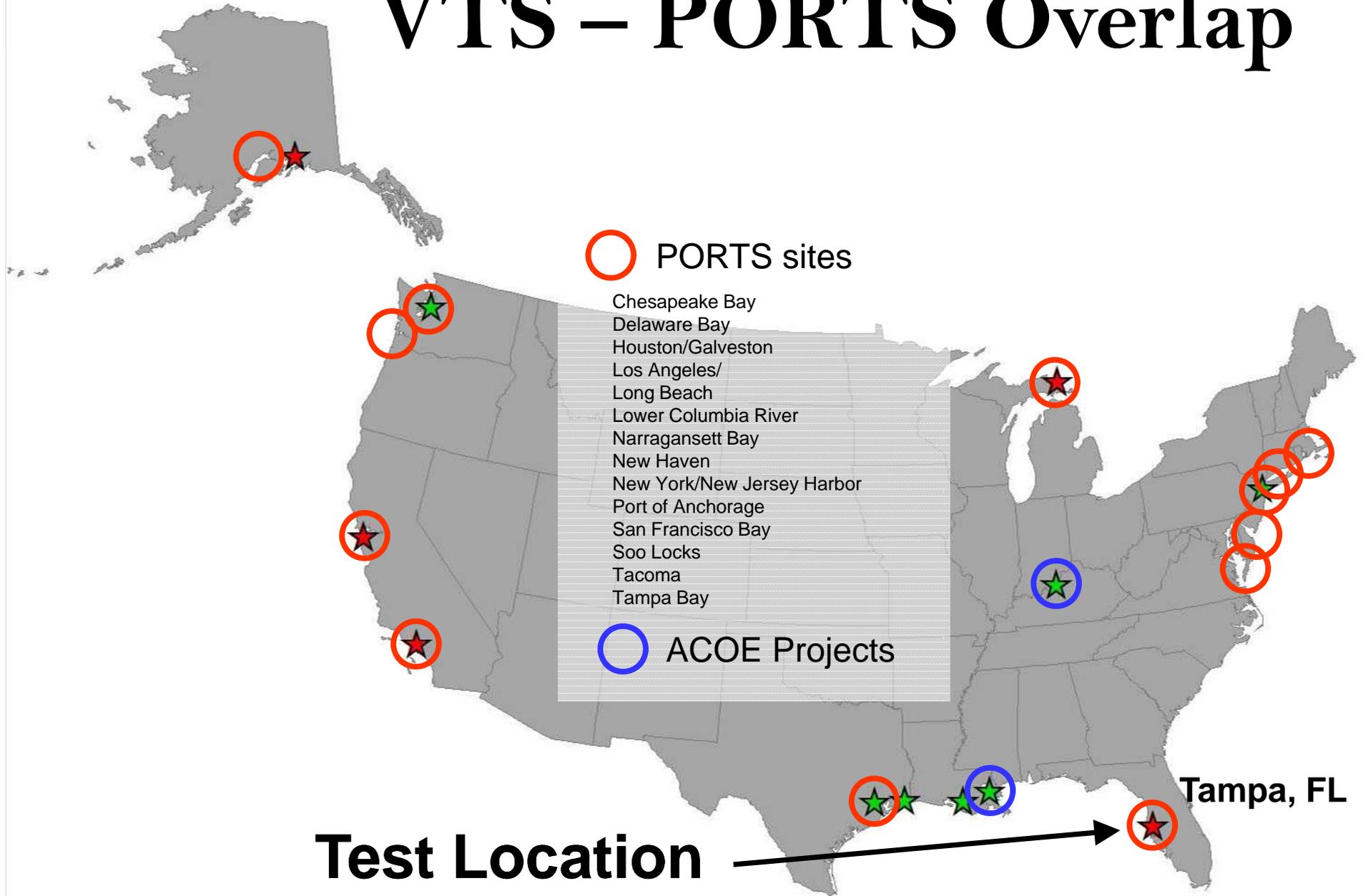


User Assessment

- Information Desired
 - Is the data received in a timely manner?
 - Is the data being used?
 - Is the data improving operations?
 - Is the data delivery via AIS better than alternative means?
 - Usefulness of text display?
 - Usefulness of graphical display
- Methods
 - Log kept by the Pilots after each transit on what was good and what was bad.
 - Capture data on AIS installation problems on



VTS – PORTS Overlap



Questions?

For more information please contact the PORTS Program Manager:

Organization	Name	Phone	e-mail
NOAA	Darren Wright	301-713-4278 x193 240-338-1347 cell	darren.wright@noaa.gov

