HiSeasNet 2012 Review

February 12, 2013
RVTEC at LDEO

Steve Foley

Scripps Institution of Oceanography

Current Capacity

- Pacific region: C-band on NSS-9
  - 512kbps shore-to-ship link (shared)
  - 5x 96kbps ship-to-shore links
- Atlantic region: C-band on IS-23
  - 512kbps shore-to-ship link (shared)
  - 4x 96kbps ship-to-shore links
- North America coastal: Ku-band on SatMex5 beam 1
  - 192kbps shore-to-ship link (shared)
  - 3x 64kbps ship-to-shore links
- North America coastal: Ku-band on SatMex5 beam 1
  - 256kbps shore-to-ship link (shared)
  - 4x 64kbps ship-to-shore links

Temporary Capacity in 2012

- Ku-band coverage on GE-23 for Oceanus 12/12 through 3/13
- C-band expanded bandwidth (1.6Mbit) on NSS-9 on for a month on Revelle
- C-band expanded bandwidth (512/512kbps) on NSS-9 for a month initially for Langseth, ultimately for Melville

Revelle Bandwidth Expansion

- Live video from ROV in the Lau Basin via Submarine Ring of Fire expedition (http://oceanexplorer.noaa.gov/explorations/12fire/welcome.html)
- 1.6Mbit ship-to-shore on C-band POR. Cost was about $13k for the month of September
- Webb Pinner put together the "Mobile Telepresence Unit" staffed with a video engineer at sea
- Whole deal took 3 months to organize, but went fairly smoothly, would probably go even better/faster if we did it again

Satellite Changes in 2012

- Moved from IS-707 to IS-23 as a new satellite in Intelsat's fleet was put into service
  - Lots of shuffling on Intelsat's part...thanks to the techs for their patience
- SatMex5 was schedule to be replaced by SatMex8 in 2012Q4.
  - Will be a stronger satellite, possibly little wider footprint off WA coast
  - Has not happened yet...fuel running low...
  - Scheduled...soon...
- Moved to new space on SatMex5 beam 2 in preparation for more seamless move to SatMex8

Equipment Changes in 2012

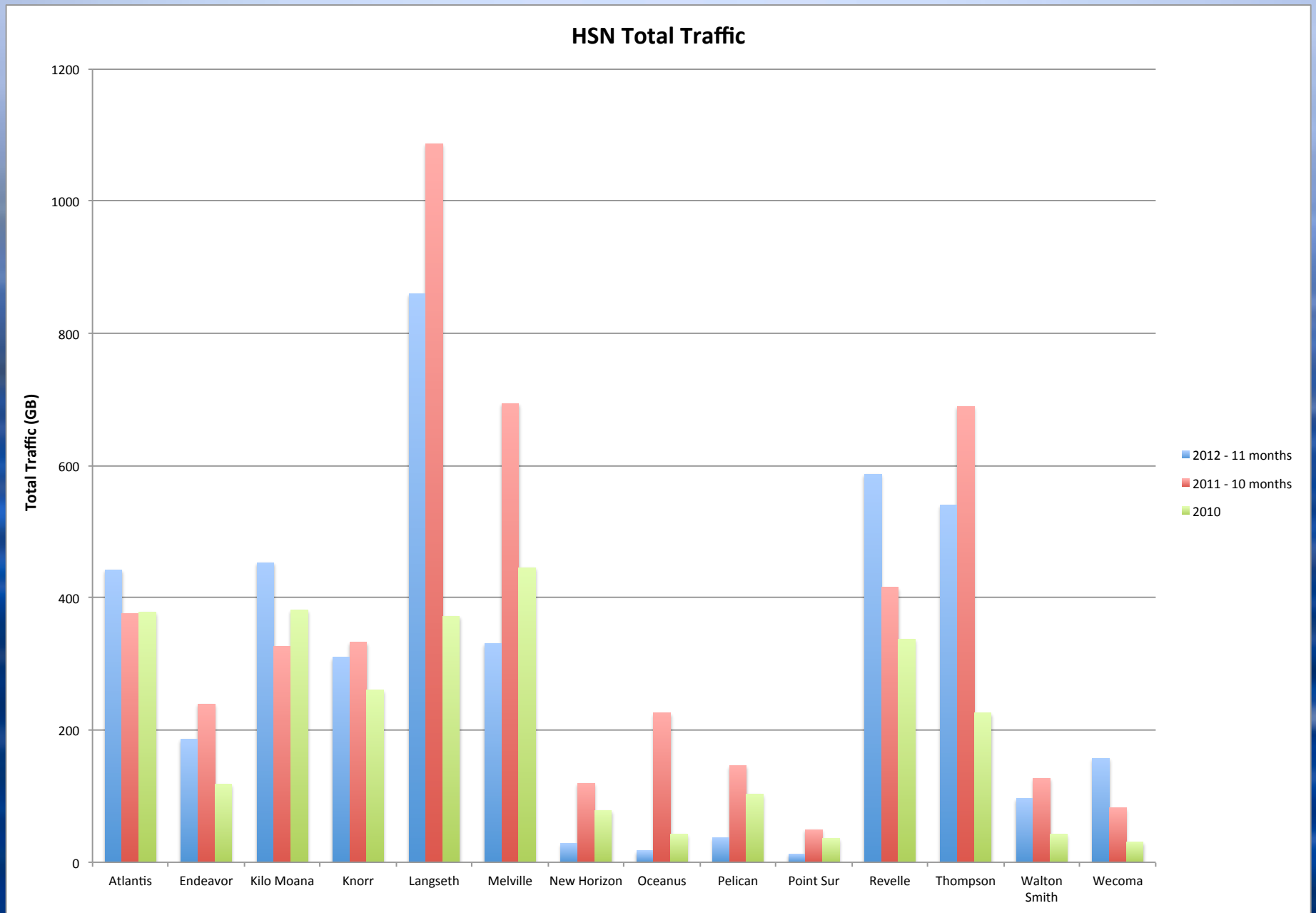
- Thompson and Revelle pedestals were upgraded to 9797B.
  - All of the old 9797s are now 9797Bs.
  - 4 ships still have 9797As
- Point Sur replaced its 4006 with a beta 4012 antenna from SeaTel.
  - Different antenna design/architecture
  - Better RF specs on the 1m antenna
  - Tracking trouble, out of balance, interface has rough edges
  - Has promise, needs work.
- Accelerators are out of support, no spares left, running until they die

2013 Plans

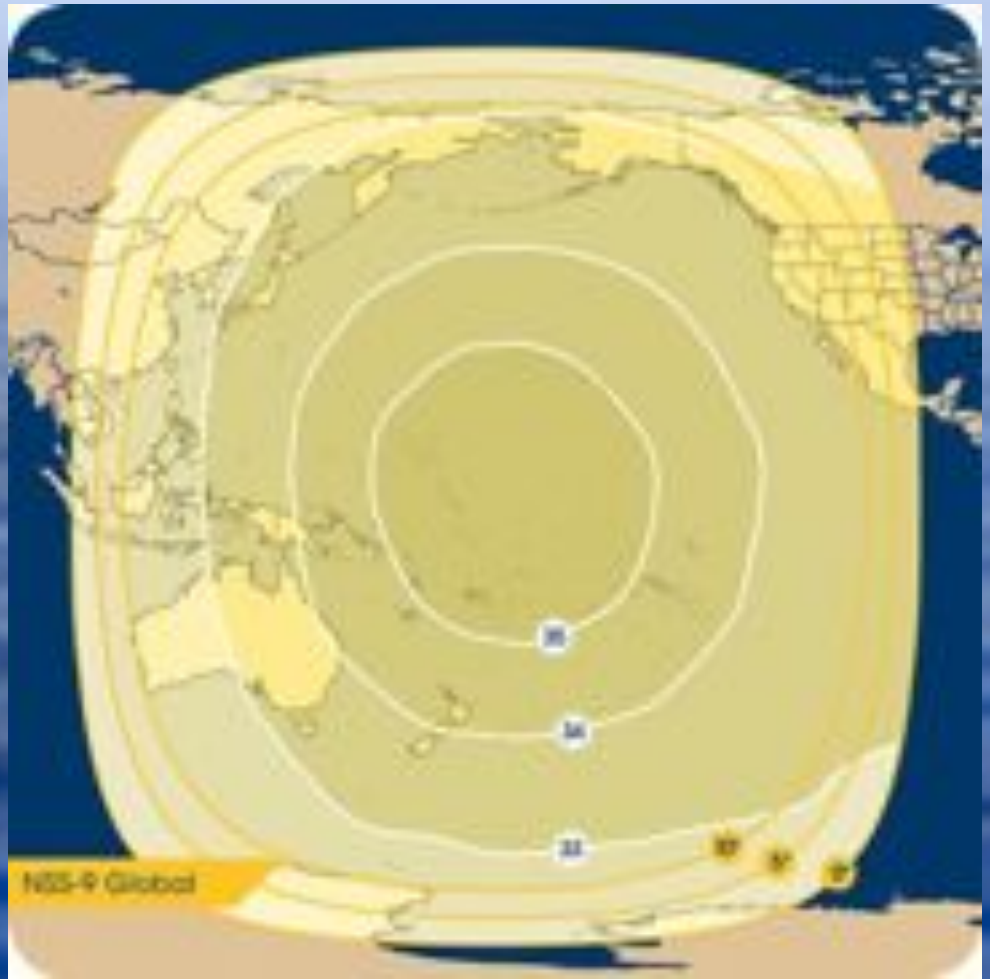
- Get Oceanus back into Ku-band service
- Move Ku-band ships to SatMex8
- Move NSS-9 ships down the spectrum as requested by SES
- Continue maintenance visits, replacing bearings on 9797A antennas over 12-18 months
- Sikuliaq testing while in AOR?
- Revelle in IOR Nov/Dec 2013?

2012 Equipment Failures

4/8/12	Kilo Moana	DAC daughter card failure	4 ship days?
5/17/12	Endeavor	Flapping lock on the modem, unknown cause	3 ship days
6/7/12	Revelle	Base spring tension too loose	10 ship days
7/20/12	Kilo Moana	RF failure	8 ship days
8/7/12	Pelican	Unknown cause	7 ship days
10/26/12	Knorr	Flapping carrier, unknown cause	5 ship days
11/13/12	Earth Station	Accelerator failure	3 ship days
11/26/12	Point Sur	Antenna firmware and balance	14 days
11/29/12	Pelican	Unknown cause	3 ship days
12/13/12	Earth Station	RF gear flaky	0.25 ship days
12/22/12	Melville	Balance issue	18 ship days


HSN Total Traffic
Total Traffic (GB)
1200
1000
800
600
400
200
0
Atlantis
Endeavor
Kilo Moana
Knorr
Langseth
Melville
New Horizon
Oceanus
Pelican
Point Sur
Revelle
Thompson
Walton Smith
Wecoma
2012 - 11 months
2011 - 10 months
2010

NSS-9 (POR)

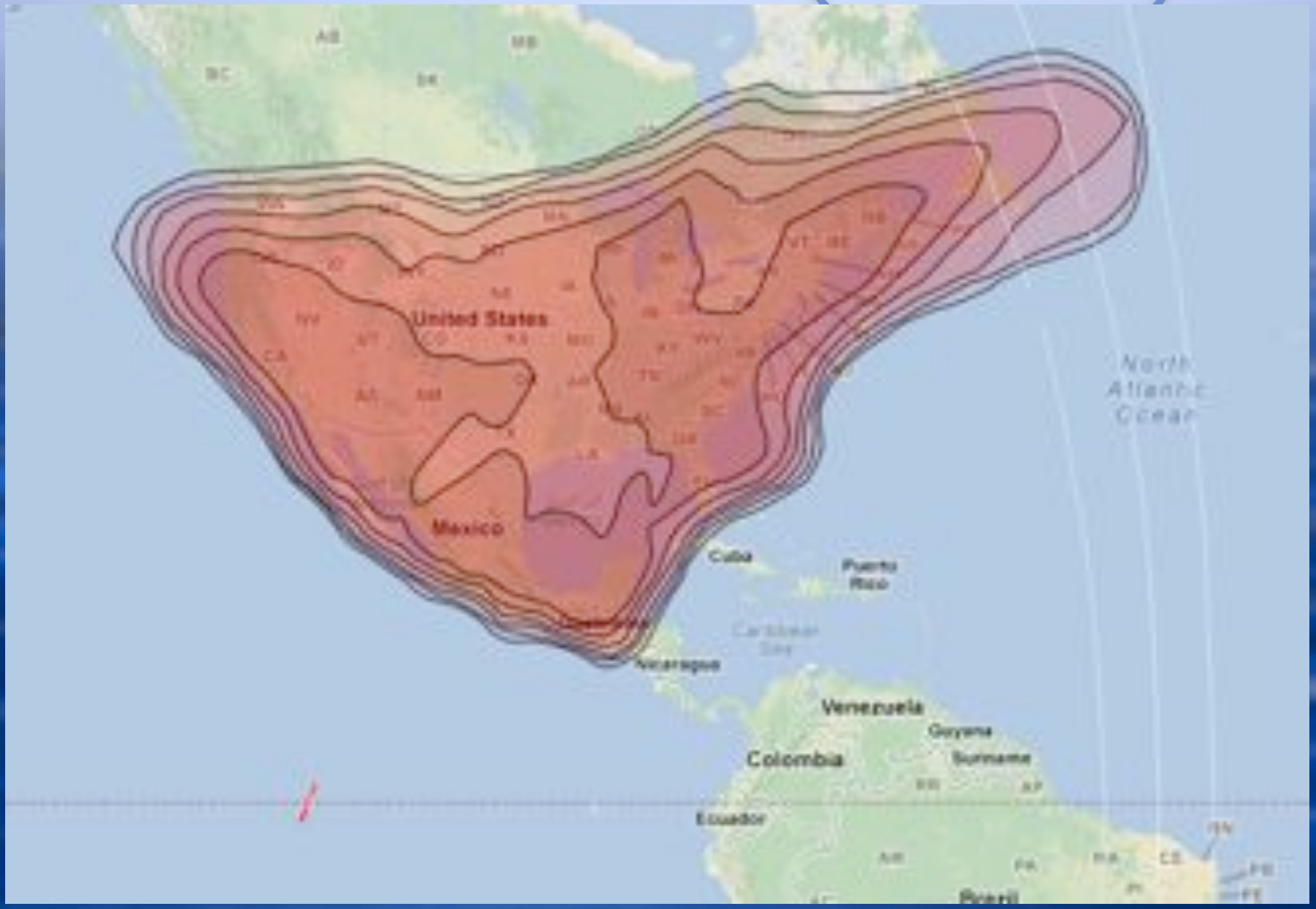


IS-23 (AOR)

SatMex5 Beam 1 (Ku-band)

SatMex5 Beam 2 (Ku-band)

SatMex8 Beam 1 (Ku-band)



SatMex8 Beam 2 (Ku-band)