

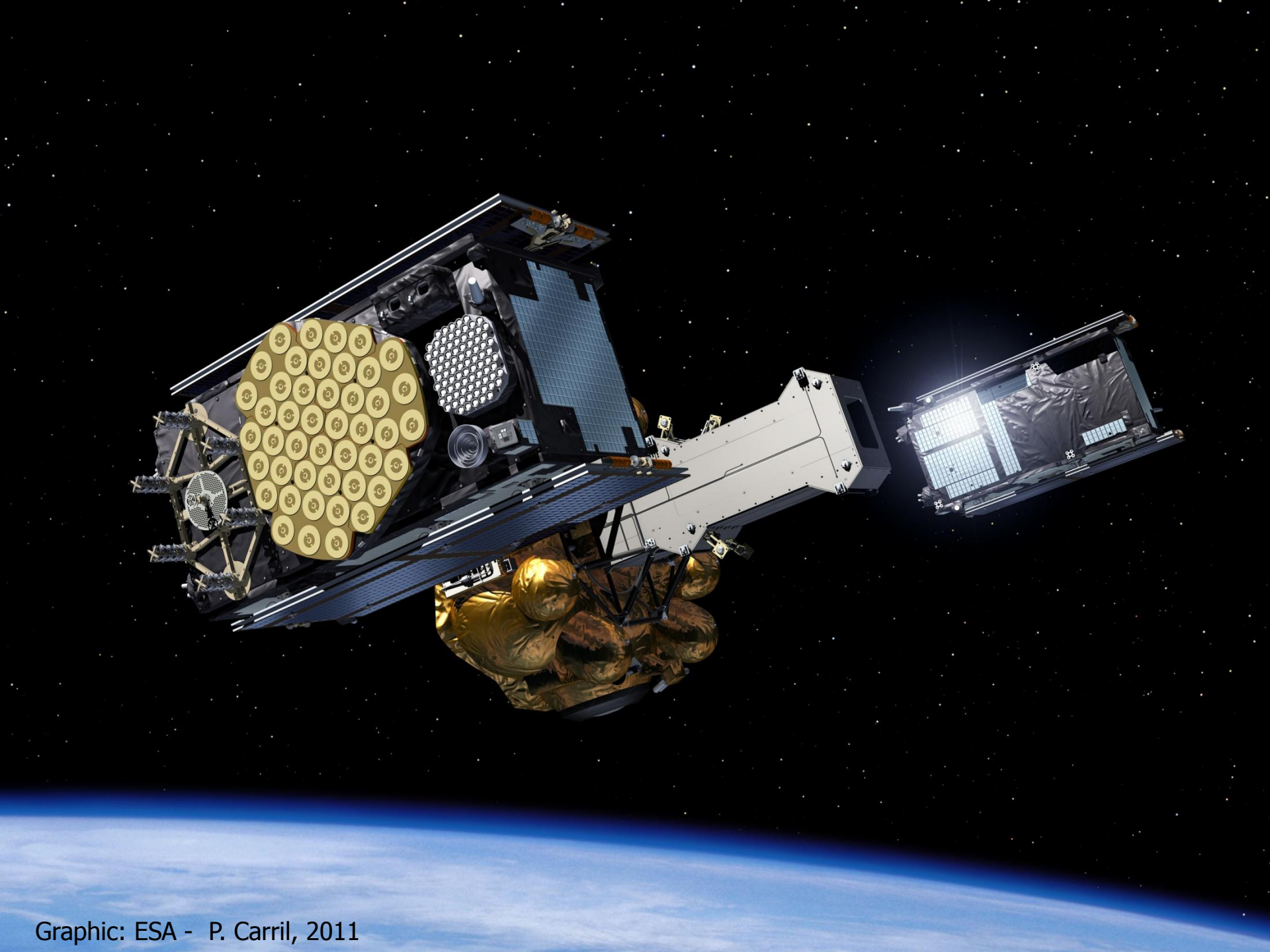


KYSTVERKET

PNT Advisory Board Nov 2011

Arve Dimmen

Director Maritime Safety
Norwegian Coastal Administration



Graphic: ESA - P. Carril, 2011

Maritime navigation

- International Maritime Organisation (IMO)
 - Fragmented Performance Standards for GNSS receivers
 - Present situation, various standards:
 - MSC.112(73) for GPS
 - MSC.113(73) for GLONASS
 - MSC.114(73) for dGPS and dGLONASS
 - MSC.115(73) for combined GPS and GLONASS
 - MSC.233(82) for GALILEO
 - Should evolve into a single “Performance Standard for Maritime Radionavigation Receivers”?
 - Could even include performance standards for back-up systems?
 - Initiatives to put this on the work programme for upcoming NAV-committee



Northern Sea Route

- Developments 2011



- Overview by Prof. Norvald Kjerstad,
- Ålesund Maritime University College

Graphic: Hugo Ahlenius, UNEP/GRID-Arendal



Vladimir Tikhonov largest ship ever on the NSR (120,000t Suezmax).
Assisted by NI 50 let Probedy

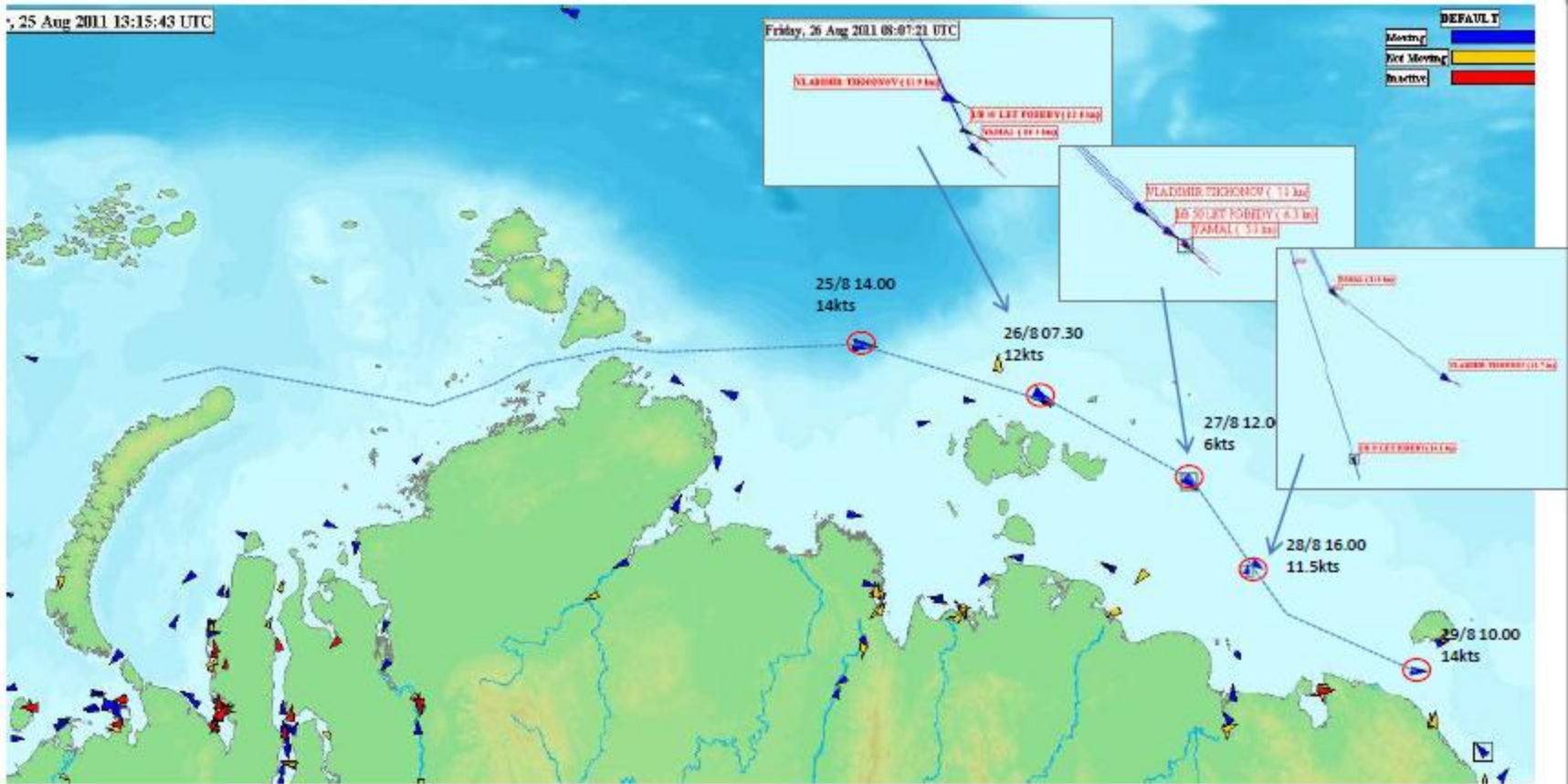
Start Murmansk 21/8-2011
Loaded with 120,000t condensate (162,000 DWT)

Feature name	Value
MMSI	636012814
Country	Liberia
Active	true
Ship name	VLAODIMIR TIKHONOV
Call sign	A81A6
IMO number	9311622
Ship type	Tanker
Cargo	Hazard or pollutant category A
Destination	MAP TA PHUT THAILAND
To Country	THAILAND
To Port	MAP TA PHUT
ETA	2011-09-18T20:00:00.000Z
Length	281.0 m
Breadth	50.0 m
Maximum actual draught	13.5 m
Positioning device	GPS
Transponder	ClassA
From Country	RUSSIA
From Port	MURMANSK
Latitude	N 75°47.42'
Longitude	E 055°18.08'
Time stamp	2011-08-22T13:35:30.000Z
Sun Altitude	14.2 °
SOG	14.2 kn



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25 Aug 2011 13:15:43 UTC



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2011 – International breakthrough?

- 15/7 Perseverance (E), 70,000t condensate to China 1)
(return voyage 8/9)
- 15/7 Kigoriak (W) – unassisted. 2)
- 15/7 Dmitriy Pozharskiy (E) 3)
- 21/7 STI Heritage (E) 61,000t condensate to China 4)
- 4/8 Marilee (E) 5)
- 6/8 Pioner Moldavii (E)
- 9/8 Kommunary Nikolayeva (W)
- 14/8 Kapitan Pryakha (W)
- 22/8 Vladimir Tikhonov (E) 6)
- 28/8 Rainfrost (W) – unassisted. 7)
- 31/8 Sanko Odyssey (E) 8)
- 31/8 Stena Poseidon (E) 9)
- 14/9 Palva (E) 10)
- 19/9 Polarcus Alima (E) (unassisted) 11)
- 24/9 Mariann (E) 12)
- 12/10 Affinity (E) 13)
- 1/11 Mar Adriana (E) 14)



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Relevance to PNT?

Excellent discussed in an article in InsideGNSS sept/oct 2011:

- "Breaking the Ice – Navigation in the Arctic"
 - By Grace Xingxin Gao, Liang Heng, Todd Walter and Per Enge
 - Arctic extension SBAS systems
 - Use of LEO satellites to broadcast integrity info
 - Multi-constellation GNSS to improve vertical performance





Kystverket tar ansvar for sjøveien

Kystverket er til stede langs hele Norges kyst og yter et mangfold av tjenester for alle typer brukere av norske farvann.