Shipping GHG MRV in the EU
Session 2

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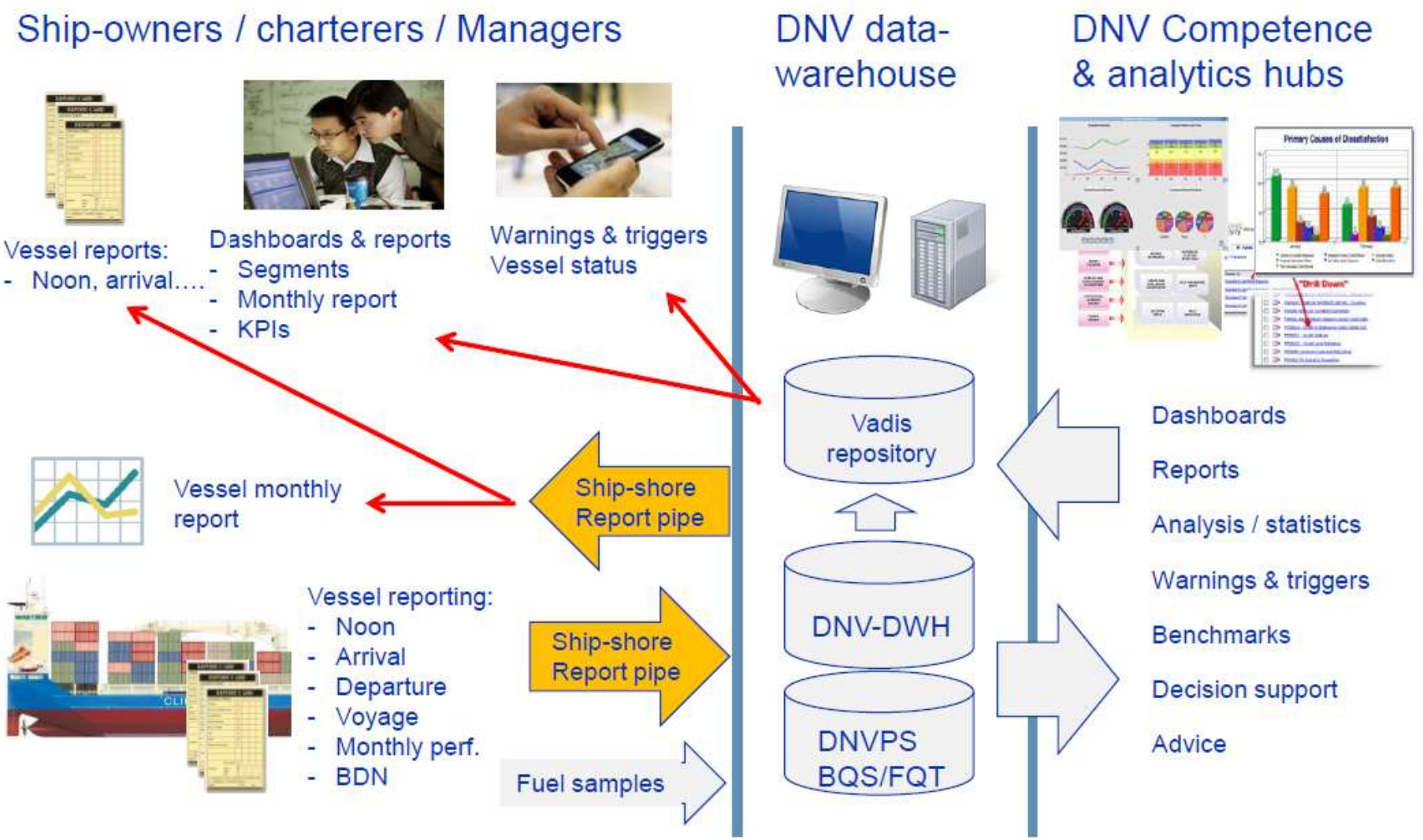
MANAGING RISK

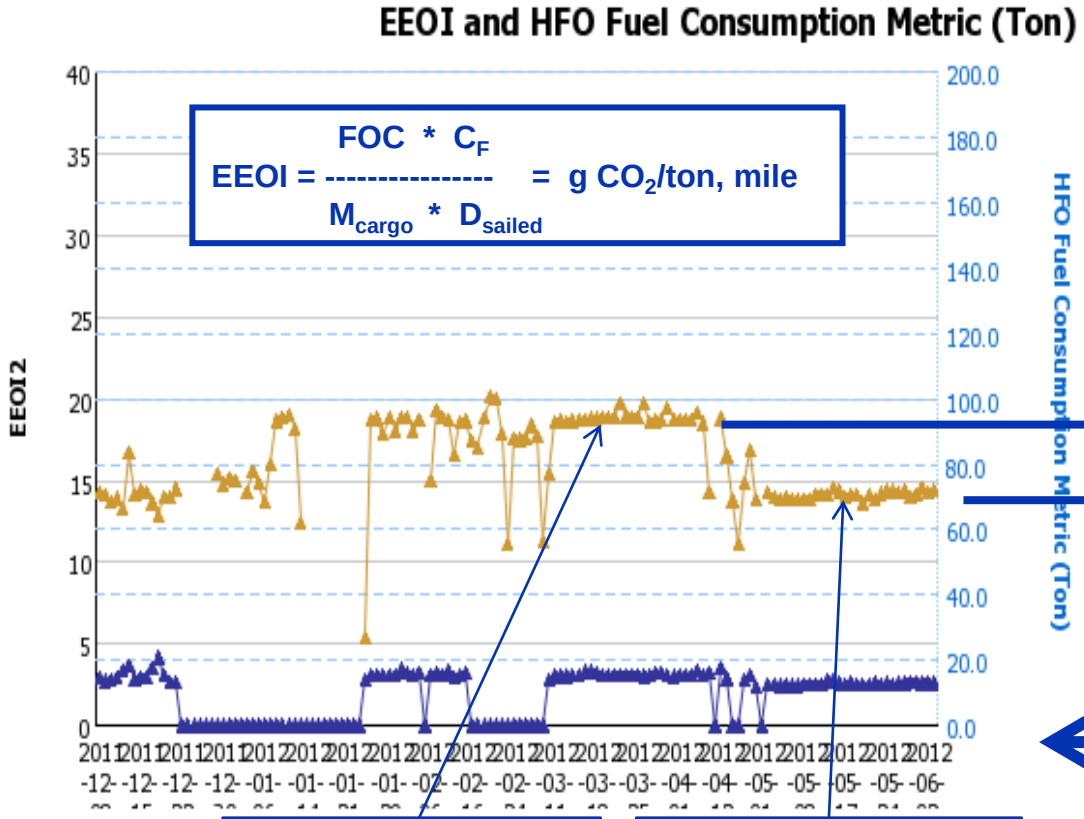
Agenda

1. Experience samples - reporting
2. Experience sample - tracking
3. MRV options - who should do what?

Application concept; high level data flow example
Basis for advisory activities



Nauticus Air – example of operational system at DNV



Mandatory daily input:

- Total fuel oil consumption (FOC)
- Sailed distance
- Cargo transported
- Fuel type – Carbon factor (C_f)

Fuel saving potential:

Appr. 23 MT/day (24%)

(@ 700 USD/MT)

Example: Fully loaded VLCC - speed reduction approx. 13 %

- Cargo: 276.220 ton crude
- Speed: **15.1 kn**
- FOC: 94.5 MT HFO/day
- Sailed dist: 362 nm
- Route: ME - Rdam

- Cargo: 282.230 ton crude
- Speed: **13.1 kn**
- FOC: 71.1 MT HFO/day
- Sailed dist: 301 nm
- Route: Denmark-China

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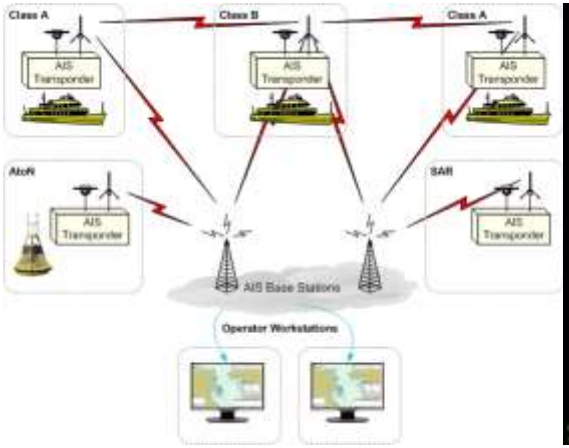
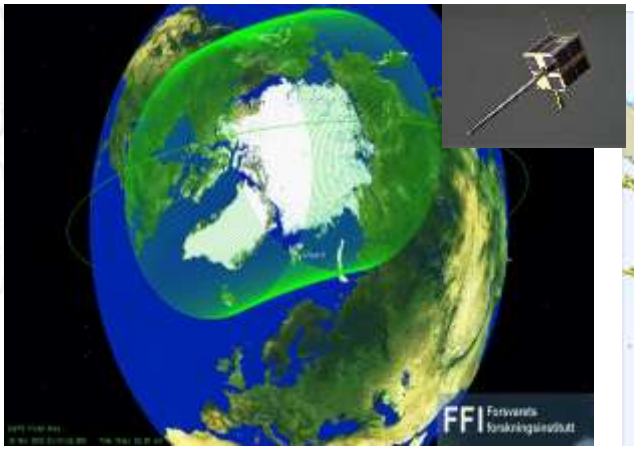
Activity based monitoring and reporting

Automatic Identification System (AIS)



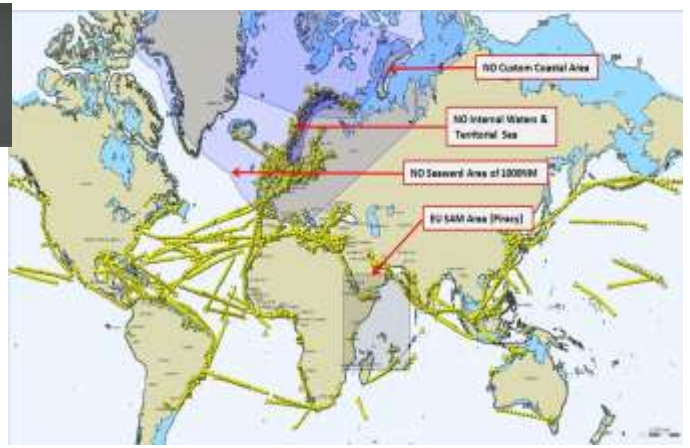
AIS Ship positions every 6 minute alternatively online every 3rd sec

Satellite (AIS)



Ship positions Northern hemisphere (60degN) every 6th hrs

Long Range Identification and Tracking (LRIT)



Ship positions worldwide every 6th hrs

- The AIS is transmitted via VHF causing limited coverage, typical 40-60nm from land
- Satellite AIS improve potential world wide AIS coverage
- The Long Range Identification and Tracking (LRIT) - satellite based tracking system. Can be integrated with the AIS system.

Metrics centre Storage & processing

Model for data collection and processing – applied in multiple projects

AIS traffic data

- Vessel id
- Latitude
- Longitude
- Time stamp

Data capture and processing

- Operational statistics (distance / Hours)
- Fuel consumption
- Air emissions (CO2, NOX, SOX, PM,..)
- Discharges to sea (Oils, garbage)

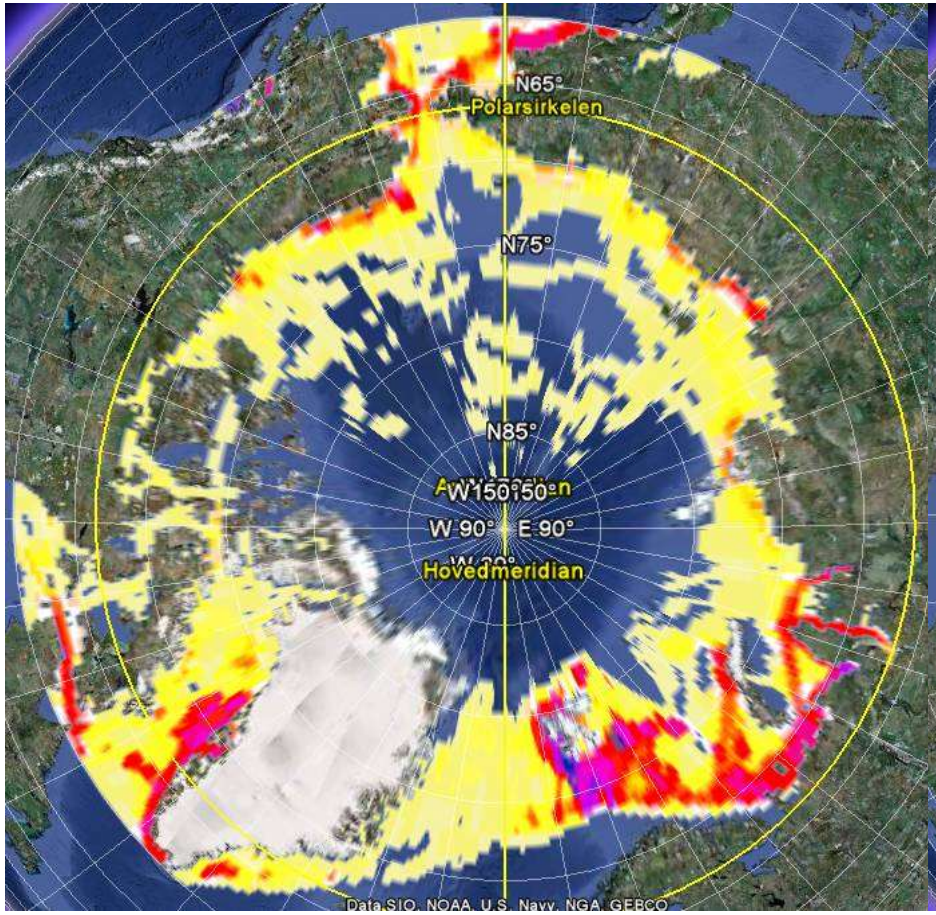
Fleet data

- IMO number
- Ship type and size
- Other ship details
- Machinery details
- Performance details

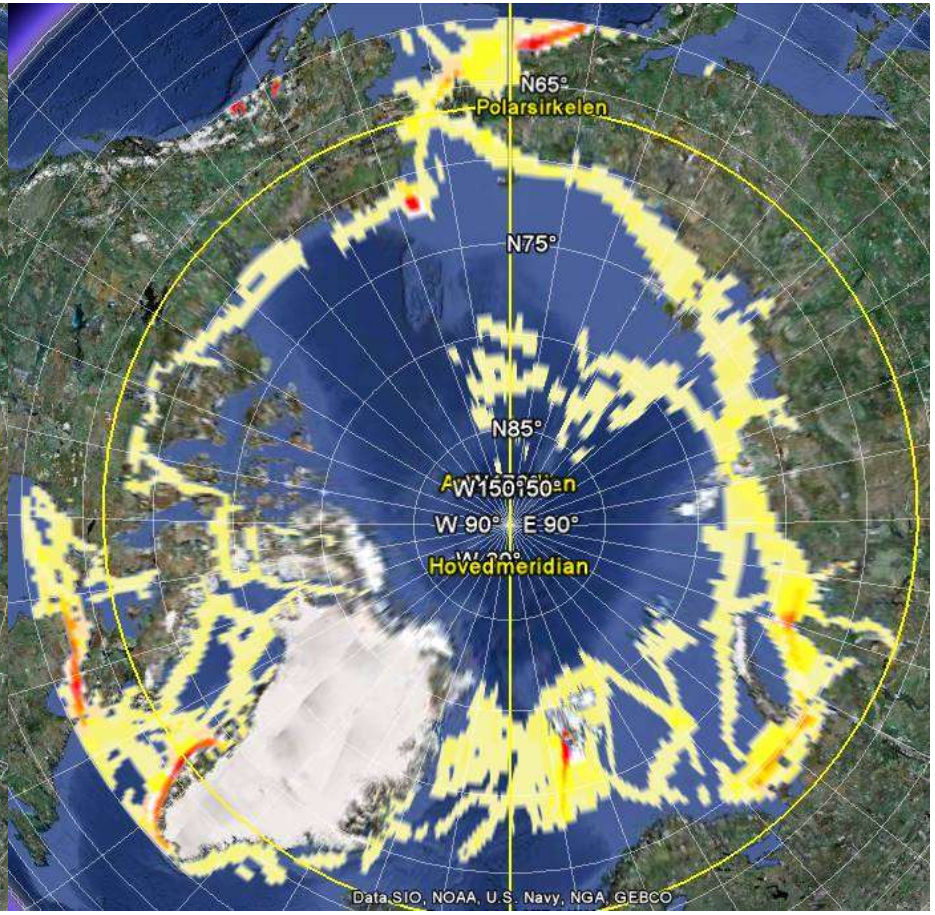
Individual and aggregated emission figures

- For individual ships
- For a ship type and size category
- For the national / international fleet
- For a selected time frame
- For a selected geographical area

Traffic density within the Arctic (August-November 2010)



All vessels



Vessels burning HFO

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Given an MRV scheme, what could it broadly look like?

Option A – On-board measurement and reported consumption

- Ship operators report data directly to the Competent Authority(CA)
- Third party involvement cannot constitute validation and approval of every data set. Spot checks and consistency checking is feasible as a long term trends build up, but should be performed by CA
- Certification by third parties of ship reporting systematics and possibly of calculation approach could add value
- Selection and accreditation of third parties should not be linked to Regulation 391/2009
- Note option for CA data cross-checking through opti onB approach

Option B – Vessel tracking and calculation

- The Competent Authority utilises satellite/standard AIS and LRIT and known vessel characteristics to calculate emissions.
- Ship operators have the option to provide own measured data in case of disputes
- Third parties could be involved but should then primarily validate monitoring / calculation approach used by Competent Authority
- Accreditation of third parties as per option A
- Note high automation potential

Key points

- Reporting should be directly to the Competent Authority
- Third-party validation limited to at most certification of reporting systematics, data validation best performed by CA
- Selection and accreditation of third parties should not be linked to Regulation 391/2009
- Critical that the system is transparent, with feasible and practicable error correction options
- Keep ship operator reporting burden to a minimum – consider “AIS option”
- Consider global approach through linkage to US IMO MEPC64 proposal

Safeguarding life, property and the environment

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