



The Information **S**ystem in ECDIS

Bjørn Åge Hjøllo

Product Manager Weather/Routing/Piracy
Jeppesen, Norway

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From my experience in electronic charts & MetOc services:

- 1) eNavigation and Mandatory ECDIS – slower uptake than expected?**
- 2) Some practical examples of "Information Systems" from an on board perspective**



WHAT IS e-NAVIGATION?

e-Navigation is an International Maritime Organization (IMO) led concept based on the **harmonisation of marine navigation systems and supporting shore services driven by user needs.**

e-Navigation is currently defined as:

*“e-Navigation is the harmonised collection, **integration, exchange, presentation and analysis of maritime information onboard and ashore by electronic means to enhance berth to berth navigation and related services, for **safety and security** at sea and protection of the marine environment”***

*.... **Core elements are; high integrity electronic positioning, ENC and analysis capability to reduce human error,***



Customer feedback on ENC service (compared to C-MAP Prof+) :

- 1) "Sufficient coverage" to come
- 2) Pricing is not favorable
- 3) Updating and licensing must be improved (too much hassle today)

Type of ship	Applicable Size	New ships (constructed on or after)	Existing ships
Oil tankers	3,000 gt and upwards	1 July 2012	Not later than 1st survey on or after 1 July 2015
Other cargo ships	50,000 gt and upwards	1 July 2013	Not later than 1st survey on or after 1 July 2016
	20,000 gt and upwards but less than 50,000 gt	1 July 2013	Not later than 1st survey on or after 1 July 2017
	10,000 gt and upwards but less than 20,000 gt	1 July 2013	Not later than 1st survey on or after 1 July 2018
	3,000 gt and upwards but less than 10,000 gt	1 July 2014	No retrofitting is required for existing ships less than 10,000 gt

Still no hurry; ECDIS mandate will come 2012-2018. Majority in 2014 and later.

ECDIS (+ ENC) or ECS (+ non ENC)?

- Most customer buy ECDIS approved HW, but do not invest in ENCs yet.
- ECDIS with "non-ENCs" is still an ECS, i.e. they continue to navigate in paper charts.





Nautical Charts &
Updating/licensing



Communication Vessel – Shore



Route & Voyage planning



Weather Service



Piracy



Integration



Route **Exchange** with ECDIS



Nautical charts:

ENC; Official Charts for paperless navigation world wide, to be used in ECDIS

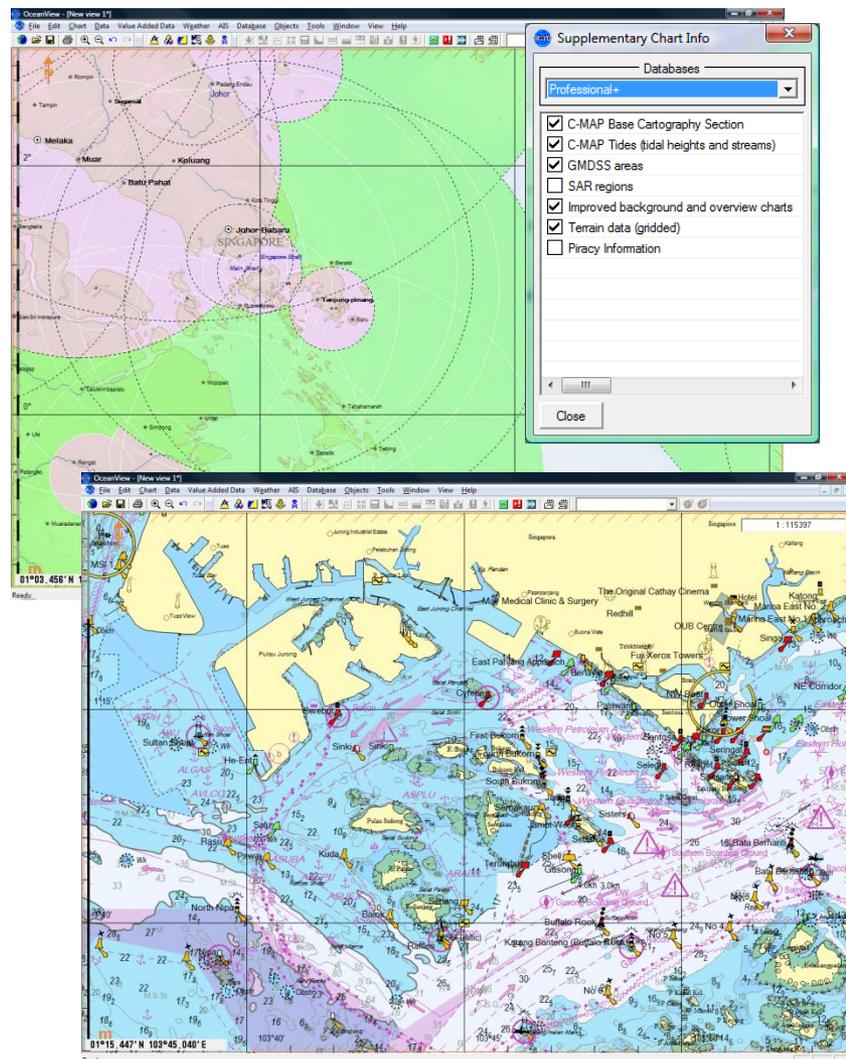
Proff+ charts; aid for navigation, used in ECS

Updating:

By Internet or Email

Backup; DVD every month

Only provider of electronic updating of New Editions (due to hyper compact CM-93 format and SENC distribution)



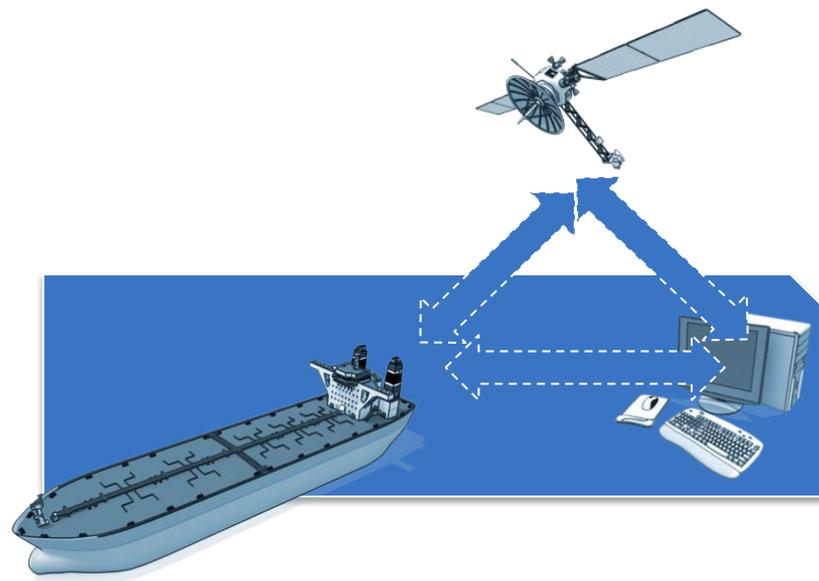
HTTP

4 x E-Mail

- Folder - using predefined send & receive folders
- File - send request, a received file is just to double-clicked!
- MAPI - using clients e-mail inbox & outbox
- POP/SMTP

Scheduled download by Email; data received every day at a given time

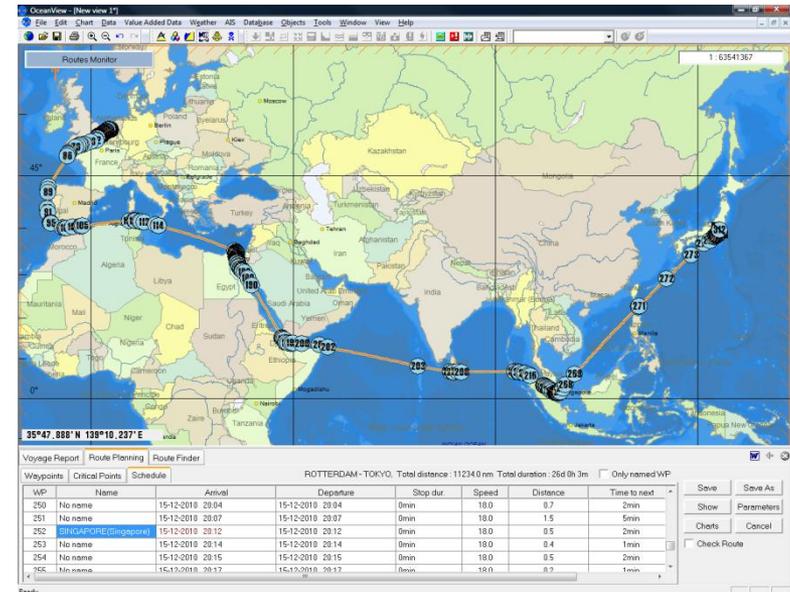
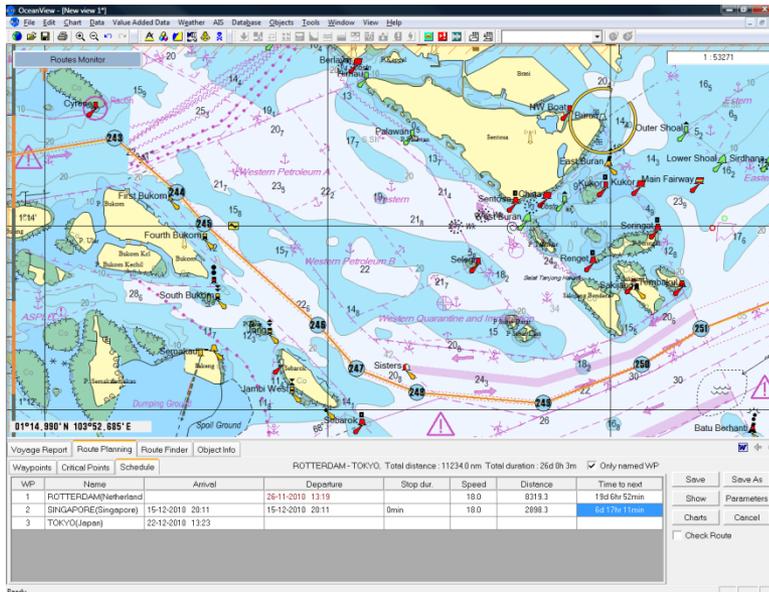
Using proprietary CM-93 format; **about 50% of GRIB files** (GRIB is today industry standard)



Route & Voyage planning

In coastal waters; use chart details to comply to navigational regulation

In open sea; Less regulated, but Safety, Efficiency and Security will apply



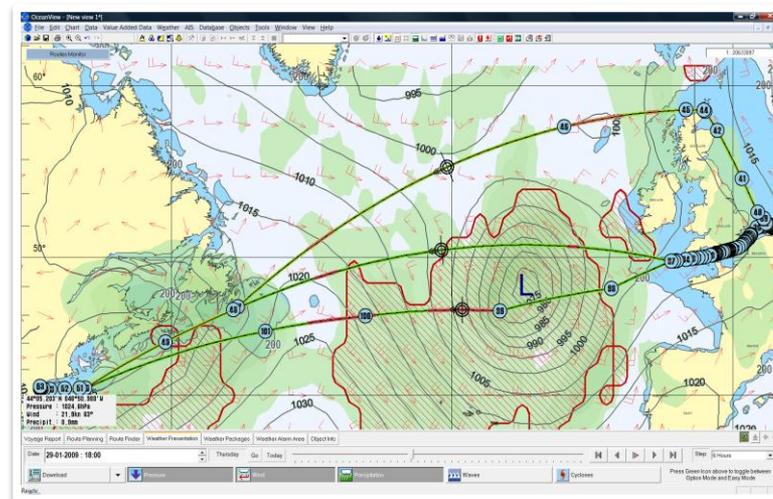
NB! A variety of professional Nautical Tools is available



Jeppesen Weather Service:

- Weather and wave forecast from ECMWF (world leading)
- Current & SST (Mercator)
- Tropical Cyclone track
- Satellite wind observations
- Tidal data
- Climatology of wind and waves
- Online access to Historical Forecast
- Alarm tools, times series, weather windows, etc
- GUI to tailor presentation

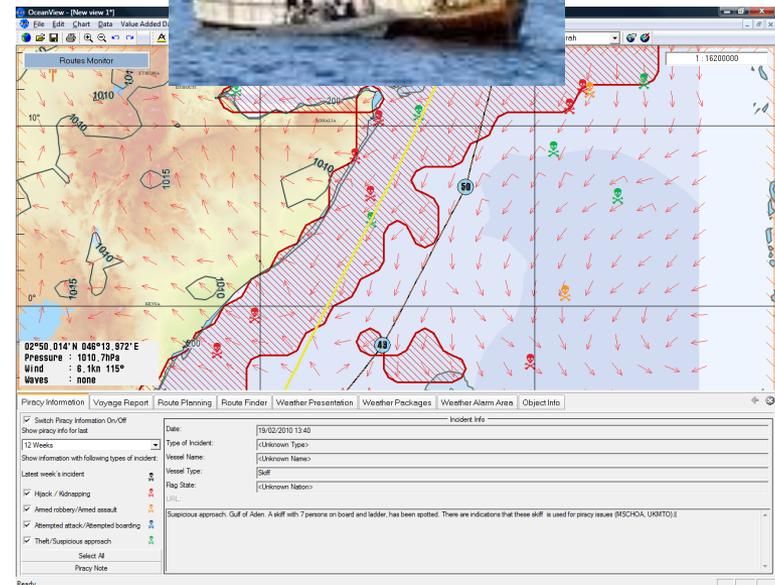
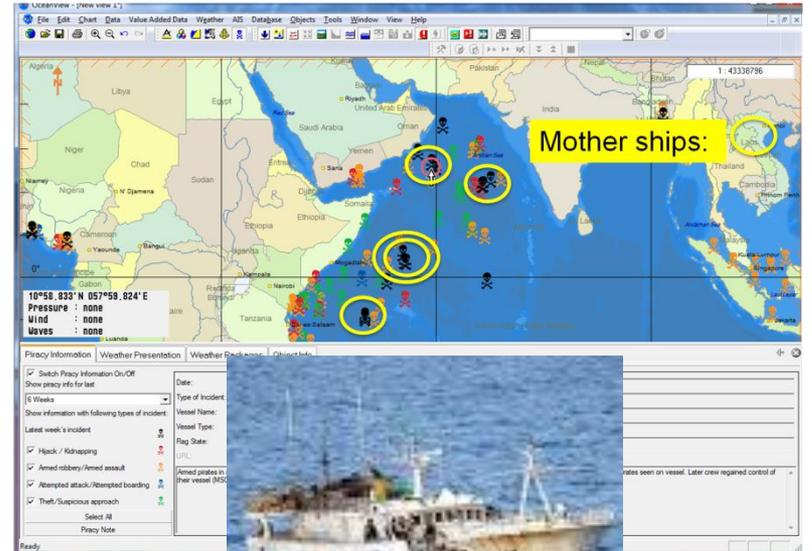
E.g. Compare routes against latest Weather Forecast:



Green legs are below WX alarm
Red legs are beyond WX alarm

Jeppesen Piracy Service; Piracy Detection and Avoidance!

- Always updated with latest piracy incident world wide
- Faster updated then web-services
- Detect pattern of Mother-Ships
- Combine with Wave Height forecast to seek routes with wave > 1.75m
- Add info that reduces pirates operation ability:
 - Cloudiness, Precipitation
 - Nautical Twilight
 - Moon Phases



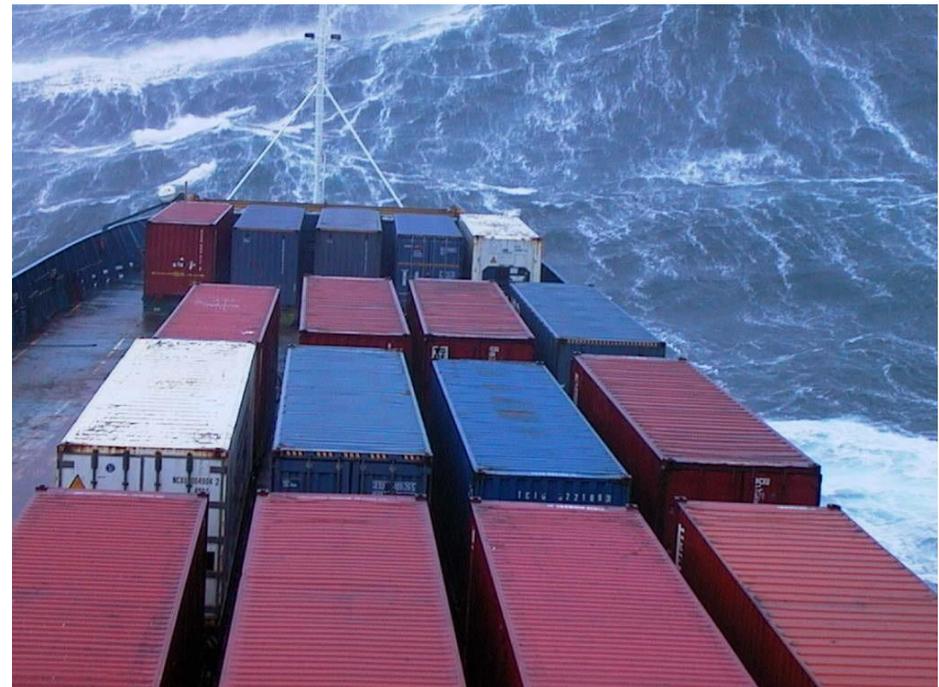
Weather + Navigation – integrated!

Aim; Bring important nautical information on board, and help Navigator to utilize it

Focus;

- 1) **Quality** of Data
- 2) **Integration;** Merge Chart and Weather/MetOcean data into a user friendly GUI
- 3) **Tailored Tools** for Safe and Efficient Navigation

Don't be surprised by Weather!

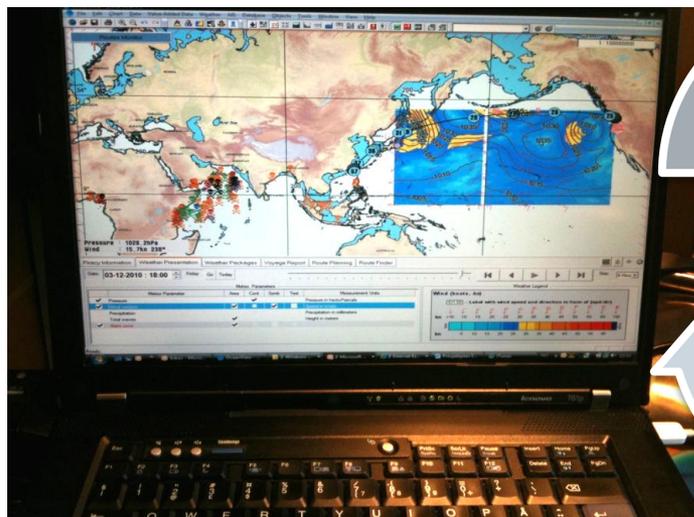


Planning Station

Detailed route planning to be made easy by utilizing updated Nautical information

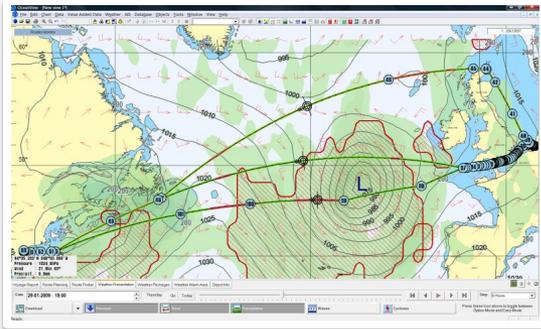
ECDIS

Route check,
Route Planning and
Paperless Navigation

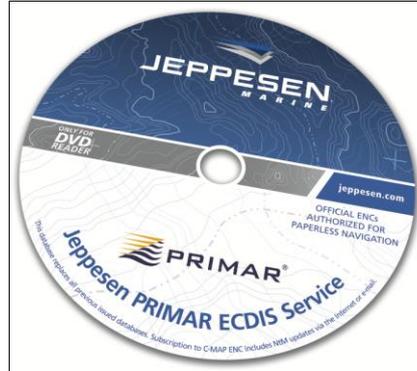


Safety - Integration - Exchange

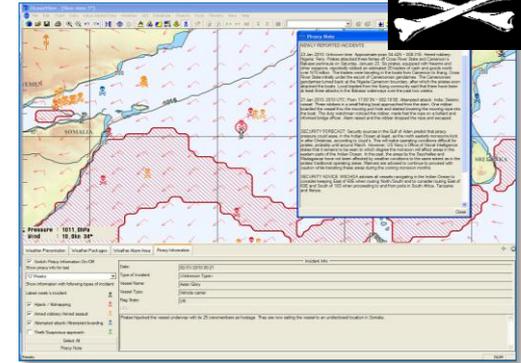
Weather & Routing



Charts - ENC



Piracy



Email / Internet



Planning station
“Back of Bridge”



ECDIS;
“Front of Bridge”



Practical use of an "Information Systems"

The screenshot shows the OceanView software interface. The main map displays a yellow route from the United States to Ras at Tannurah, Saudi Arabia. A red arrow points from the text 'ARR: S.A.; Ras at Tannurah' to the destination. A tide gauge window is open, showing tide data for the selected location. The 'Disabled Passages' list includes 'Suez Canal', which is checked, indicating it is disabled. A red arrow points from the text 'Suez disabled' to the 'Suez Canal' entry in the list.

DEP:
US; Loop

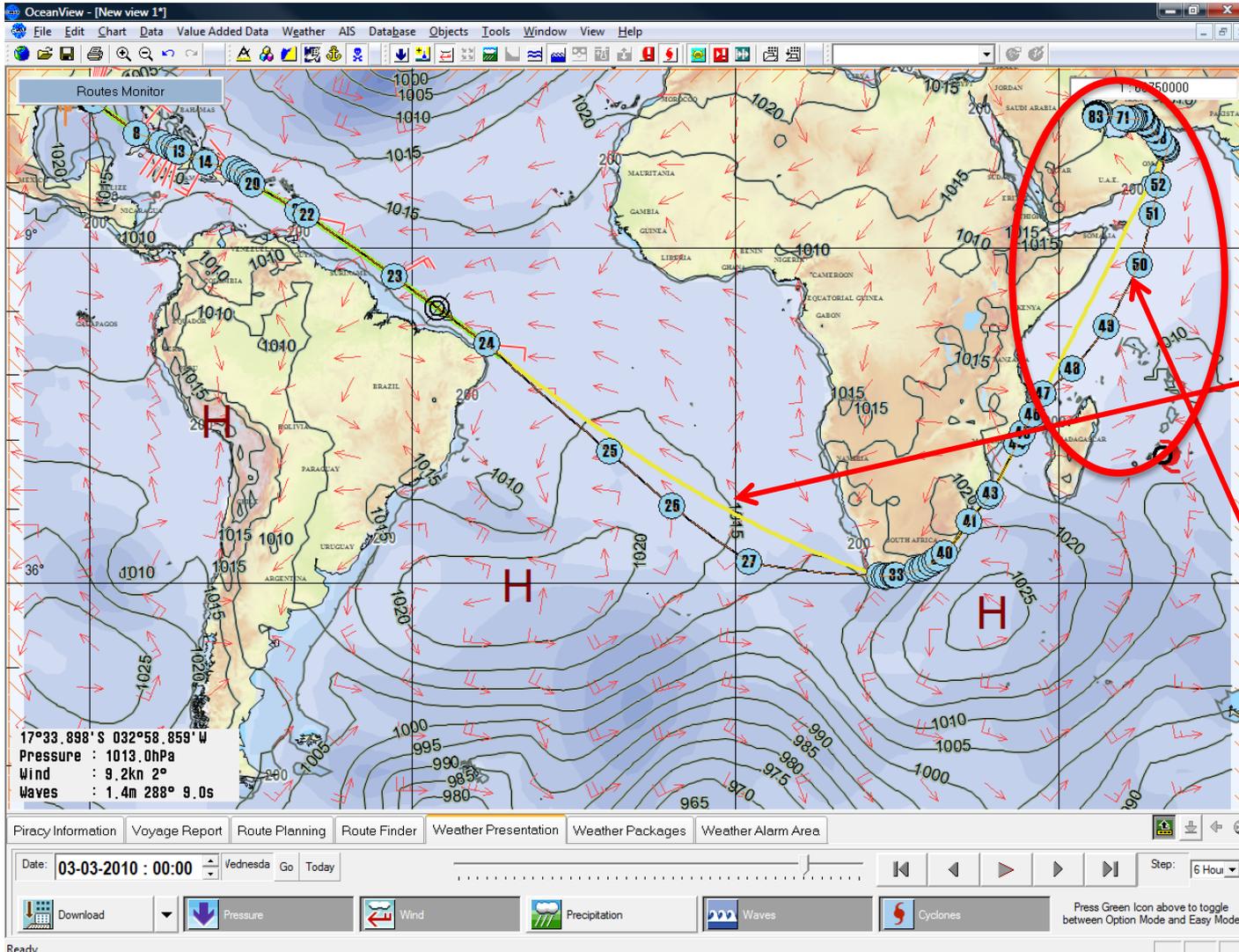
ARR:
S.A.; Ras at Tannurah

All chart info into account

Suez disabled

Suez disabled

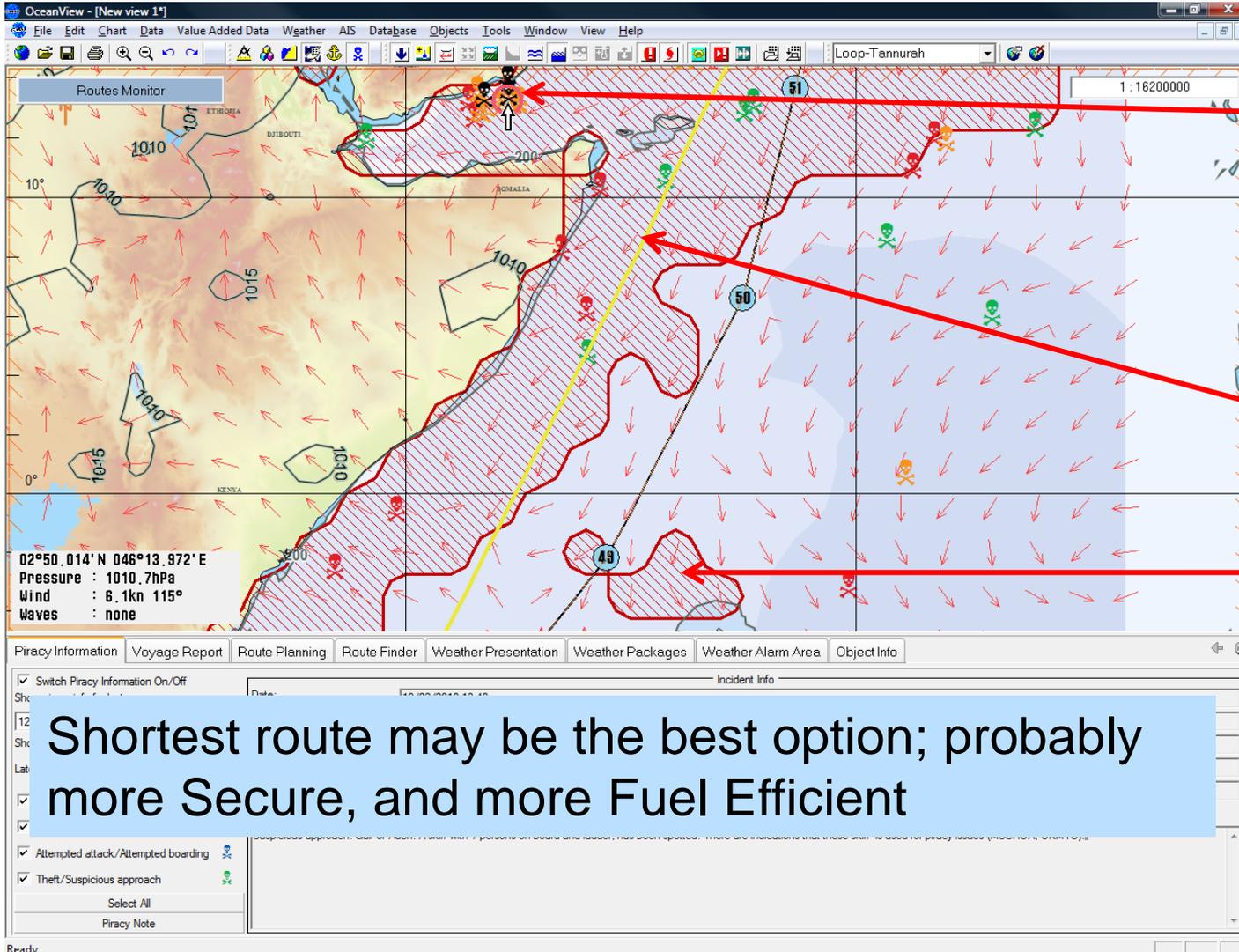
Route without Piracy info



Deviation I
due to WR

Deviation II
due to Piracy

With updated Piracy information



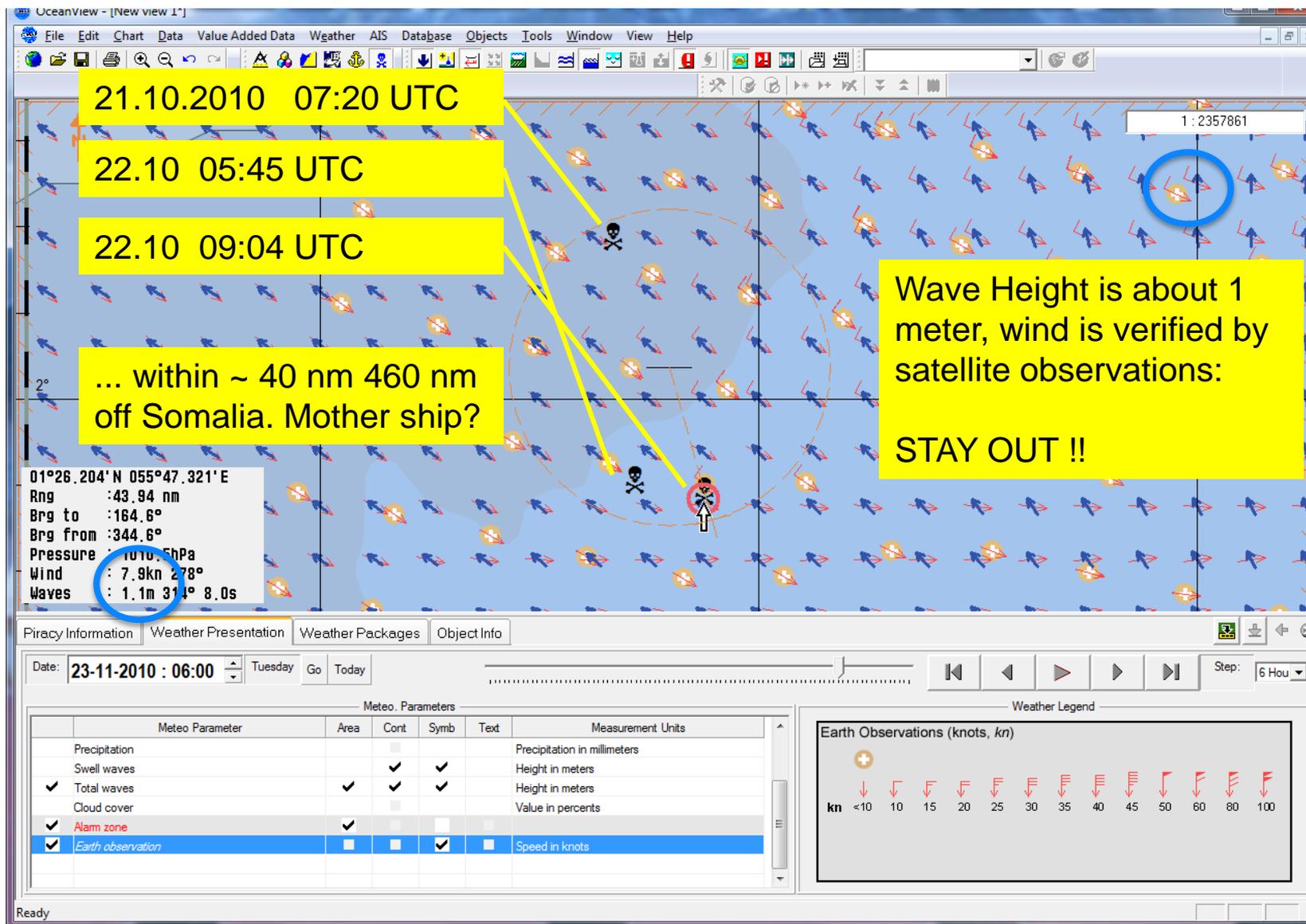
Black icons is last week's incidents

No recent activity along shortest route

Red area indicates wave height btw. 1.5 and 3 meters
US Navy and OCIMF
www.ocimf.com - use of best management practices deters piracy



Identify "patterns", and verify WX-forecast



Attacks last 6 weeks End Nov. 2010

OceanView - [New view 1*]

File Edit Chart Data Value Added Data Weather AIS Database Objects Tools Window View Help

Possible Mother Ships:

1 : 43338796

10°58.833' N 057°59.824' E
 Pressure : none
 Wind : none
 Waves : none

Piracy Information Weather Presentation Weather Packages Object Info

Switch Piracy Information On/Off
 Show piracy info for last: 6 Weeks
 Show information with following types of incident:
 Latest week's incident

- Hijack / Kidnapping
- Armed robbery/Armed assault
- Attempted attack/Attempted boarding
- Theft/Suspicious approach

Select All
Piracy Note

Incident Info

Date: 21/11/2010 21:45
 Type of Incident: <Unknown Type>
 Vessel Name: <Unknown Name>
 Vessel Type: Tanker
 Flag State: <Unknown Nation>
 URL:

Armed pirates in a skiff chased and boarded a tanker underway. The crew locked themselves in the citadel. On 22 Nov naval helicopter confirmed no pirates seen on vessel. Later crew regained control of their vessel (MSCHOA, UKMTO, ONI, IMB)

Ready



Sorry – Piracy will not disappear..

May 18th 2011

2010, The German Institute for Economic Research (DIW):
The presence of international war ships has failed to curtail pirate attacks. Pirates have merely shifted from the Gulf of Aden to the open seas in the Indian Ocean.

(DN.no):

The number of attacks has in fact more than **doubled last years:**

In 2008, 111 ships were attacked

In 2009, 217 ships were attacked

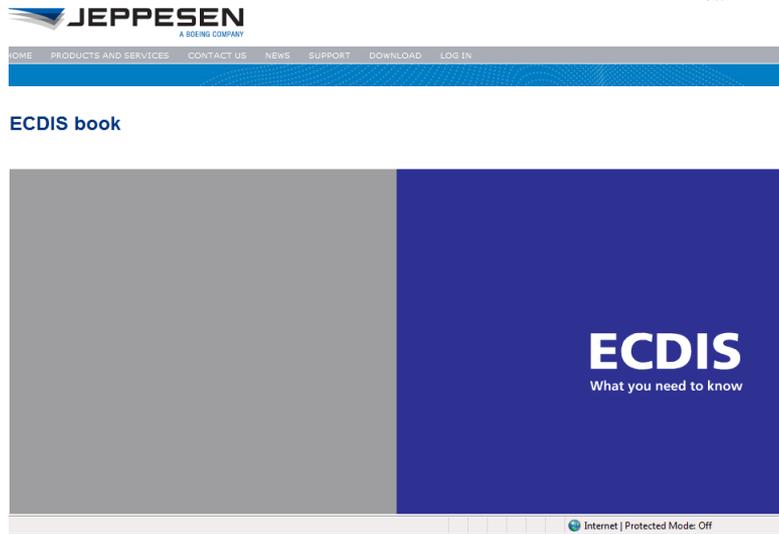
In 2010, **242** vessels were attacked, 61 were "successful".

In January 2011 are 30 vessels and 680 mariners hijacked.

Four pirates in a skiff armed with guns chased, fired upon and attempted to board a tanker underway. Master raised alarm, increased speed, took evasive manoeuvres, sent distress messages, contacted authorities and crew activated fire hoses. The pirates attempted to board the tanker several times using grappling hooks but unable due to the aggressive manoeuvres made by the tanker. A naval helicopter came for assistance and the pirates are believed to have been killed. The tanker and crewmembers are safe. (UKMTD, IMB)



Jeppesen Piracy Service; Awarded the **2010 Safety at Sea International Security Award**



<http://www.jeppesenmarine.com/ecdis-book.aspx>

Questions please?



▲ Still smiling: Jeppesen product manager (weather services) Bjørn Åge Høilo (left) with Jeppesen marketing and communications manager Willy Zeller display the 2010 Safety at Sea International Security Award for Jeppesen's Piracy Update System, at SMM 2010 in Hamburg, Germany

