IMS
INTELLIGENT MARITIME SOLUTIONS

DefenSea
CONSULTORIA

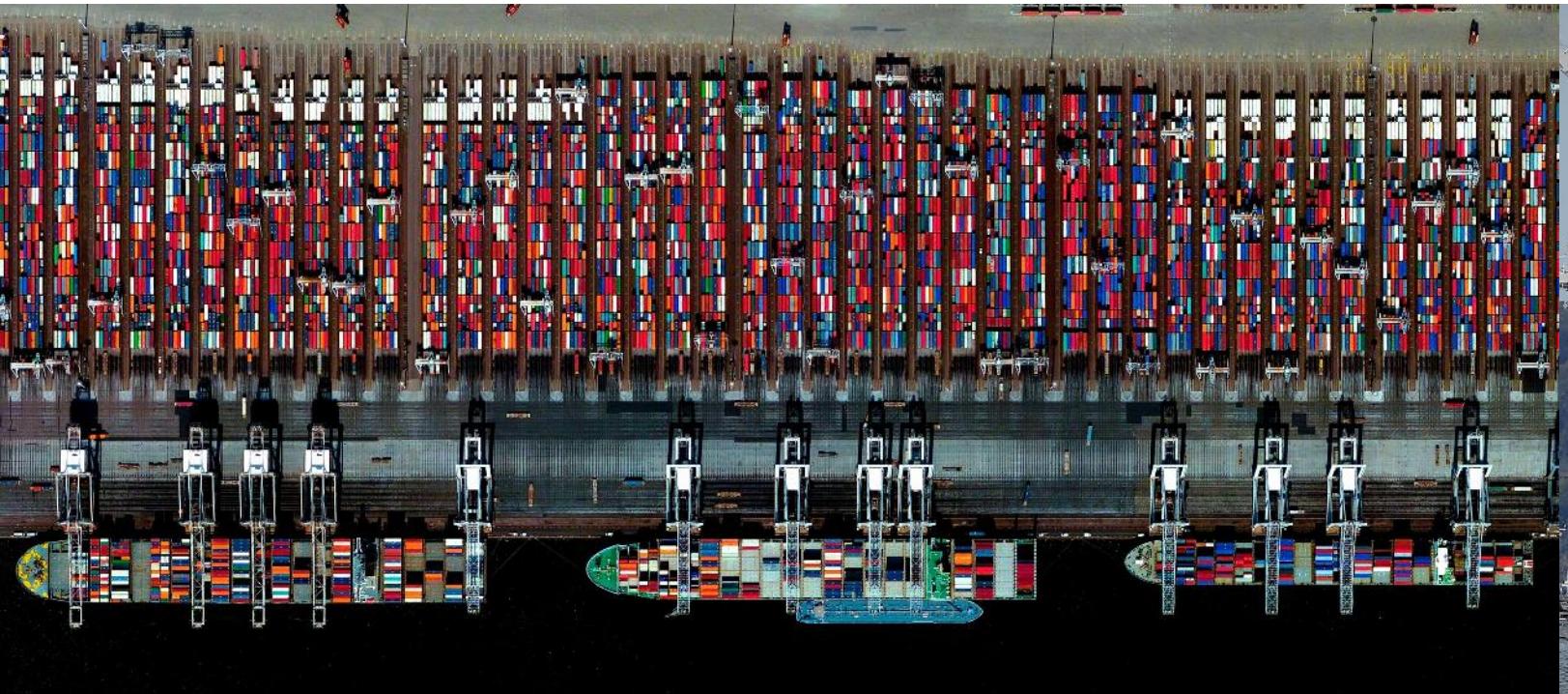
BEYOND RENCs

How static and dynamic data streams change the way that we interact with charts

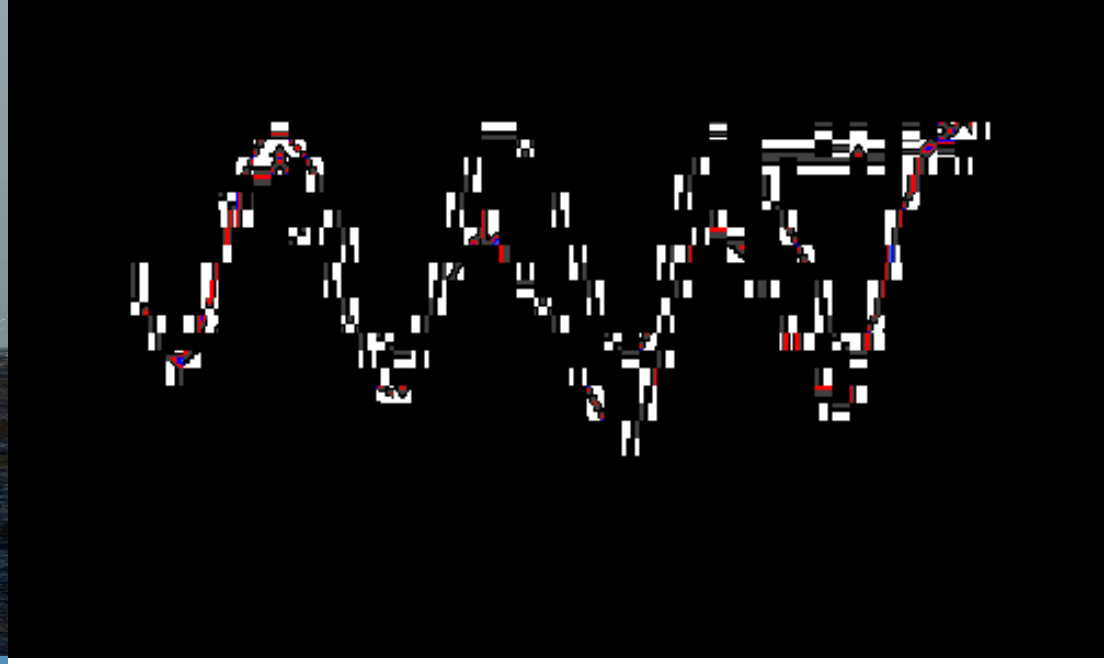
NAVEGAÇÃO SEGURA, HOJE, REQUER:

Mapeamento + condições ambientais + info tráfego + gestão

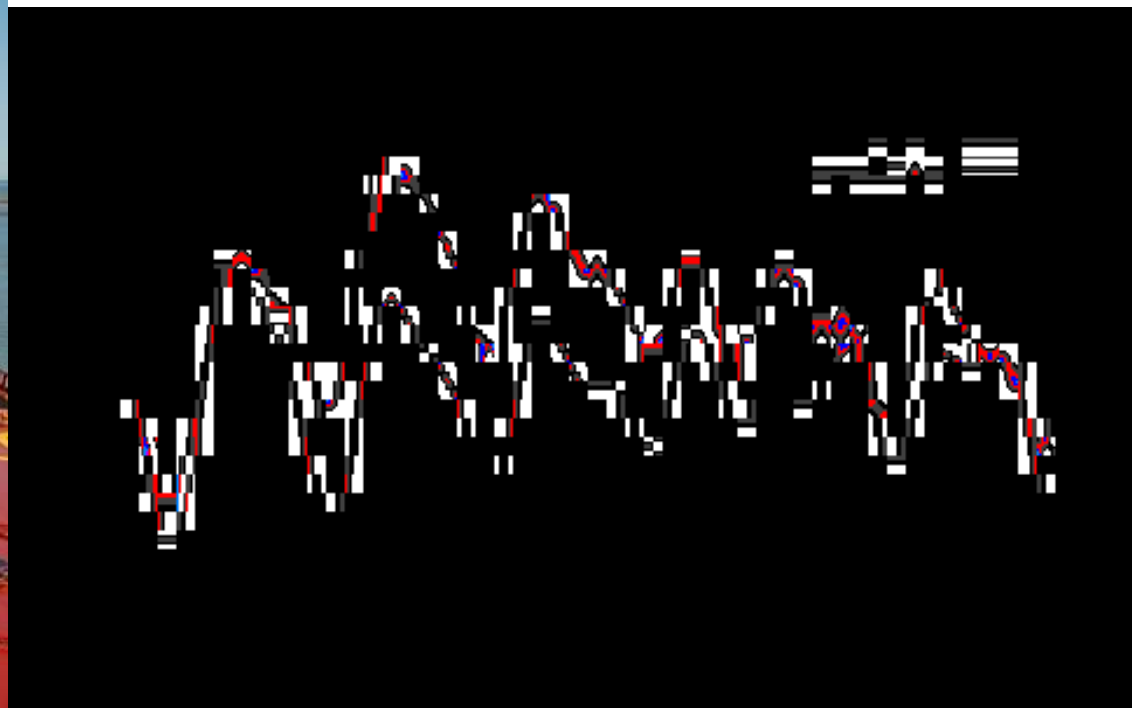
- Acurados, precisos e atuais – necessário para decisões seguras
- Confiáveis – sempre disponíveis
- **Em tempo real** – as margens de erro tendem a zero



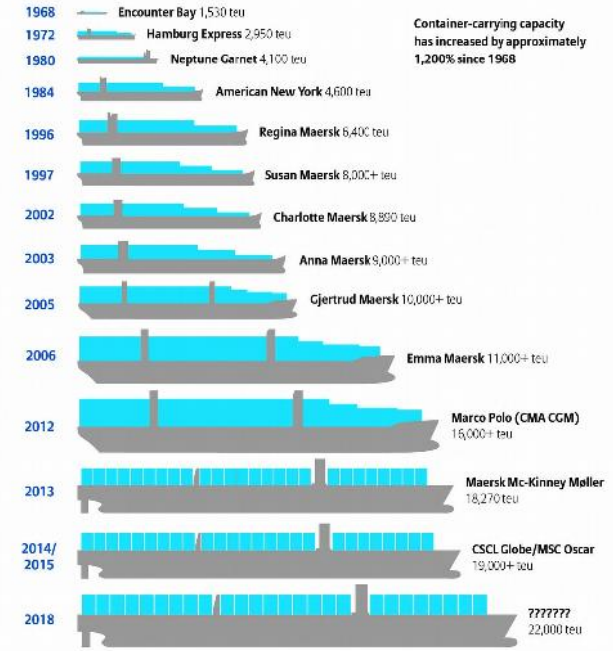

VALE RIO DE JANEIRO
MAERSK LINE




JAG LALIT

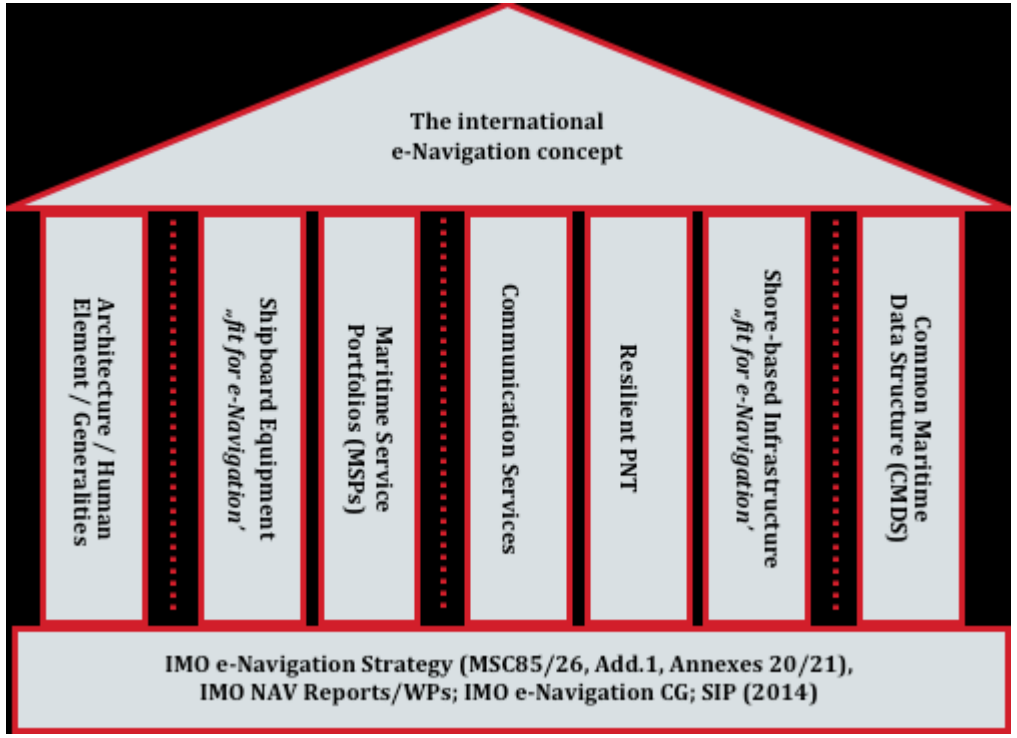


50 years of Container Ship Growth



Graphic Allianz Global Corporate & Specialty.
Approximate ship capacity data: Containerstransportation.com

e-Navigation



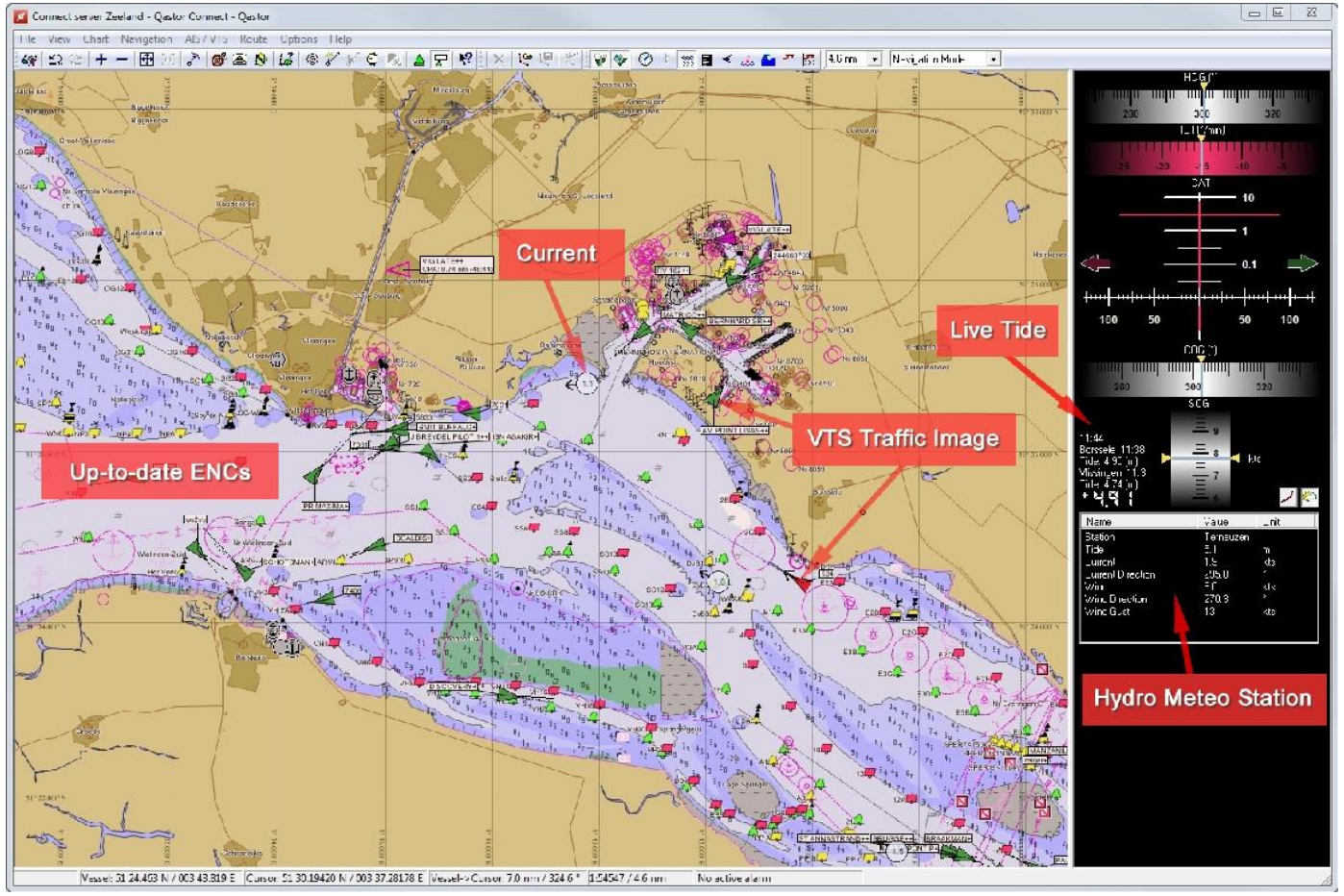
'e-Navigation is the harmonized collection, integration, exchange, presentation and analysis of maritime information onboard and ashore by electronic means to enhance berth to berth navigation and related services, for safety and security at sea and protection of the marine environment'*

e-Navigation FAQ: http://www.ialathree.org/about/faqs/enav.html

* Sem ambiguidades, inconsistências, redundâncias ou conflitos.

E-Navigation Strategy Implementation Plan

Solution 4: integration and presentation of available information in graphical displays received via communications equipment;



e-Navigation SIP: http://www.imo.org/en/OurWork/Safety/Navigation/Documents/enavigation/SIP.pdf

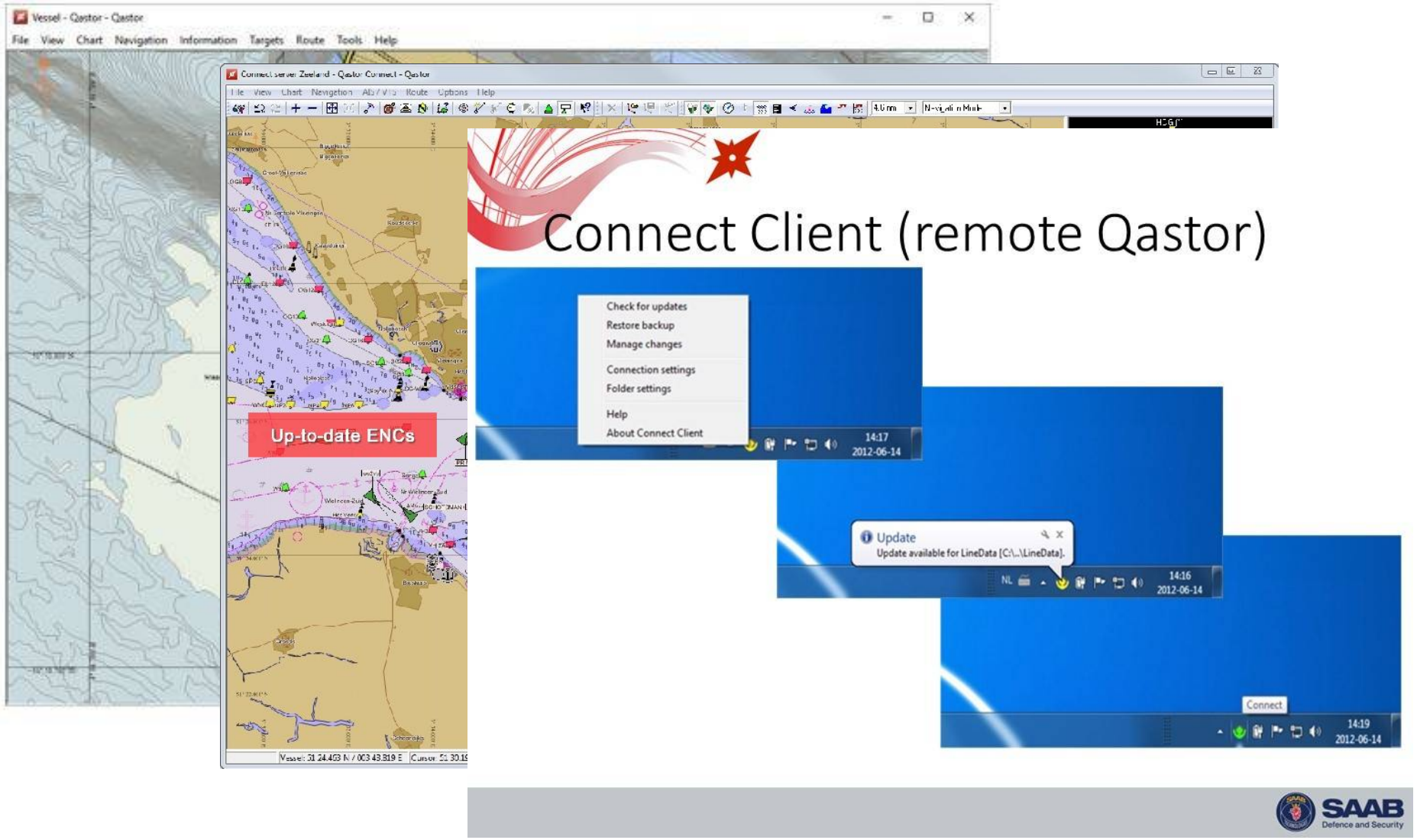
MICHAEL BERGMANN ON HYDROGRAPHIC DATA STREAMS:

"...the e-Navigation framework in development through IMO, IHO and IALA is changing the concept in how systems are managed, type approved and more importantly how they handle and render cartographic data. **This will change how hydrography and cartography will play together**."

Bergmann, M. 2013. Hydrographic Data as the Basis for Integrated e-Navigation Data Streams. In Marine Navigation and Safety of Sea Transportation: Advances in Marine Navigation. The Nautical Institute, CRC Press.

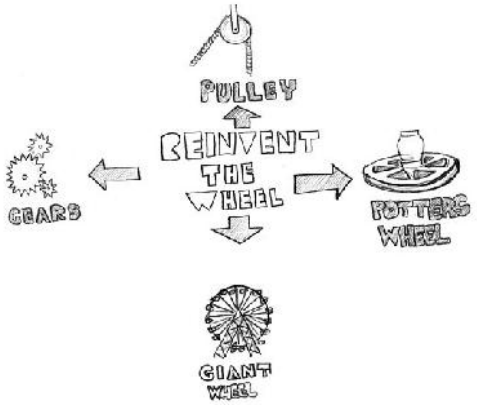
ENCs tradicionais, compiladas a partir de cartas em papel, não são capazes de explorar todas as funcionalidades que um ECDIS pode proporcionar.

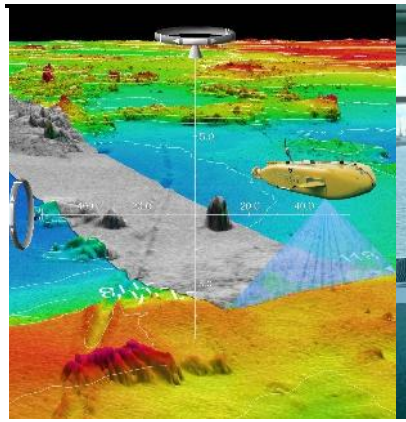
An up-to-date chart alone is not enough for a safe port operation anymore

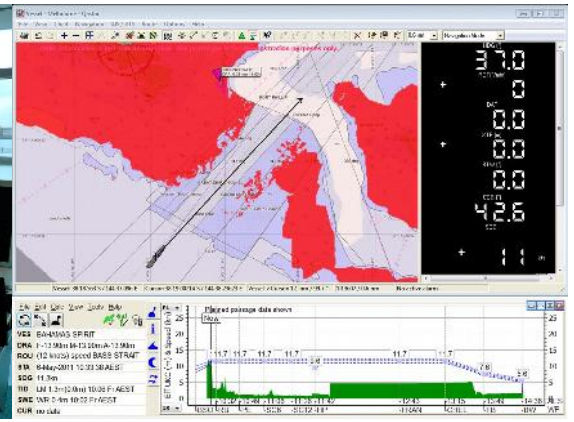


ARE YOU READY TO...

REINVENT THE WHEEL?







LET’S DO IT SAAB WAY!

TOP 50 WORLD CONTAINER PORTS

Rank	Port
1	**Shanghai, China**
2	Singapore
3	Shenzhen, China
4	**Ningbo-Zhoushan, China**
5	**Hong Kong, S.A.R., China**
6	Busan, South Korea
7	Qingdao, China
8	Guangzhou Harbor, China
9	**Jebel Ali, Dubai, United Arab Emirates**
10	Tianjin, China
11	**Rotterdam, Netherlands**

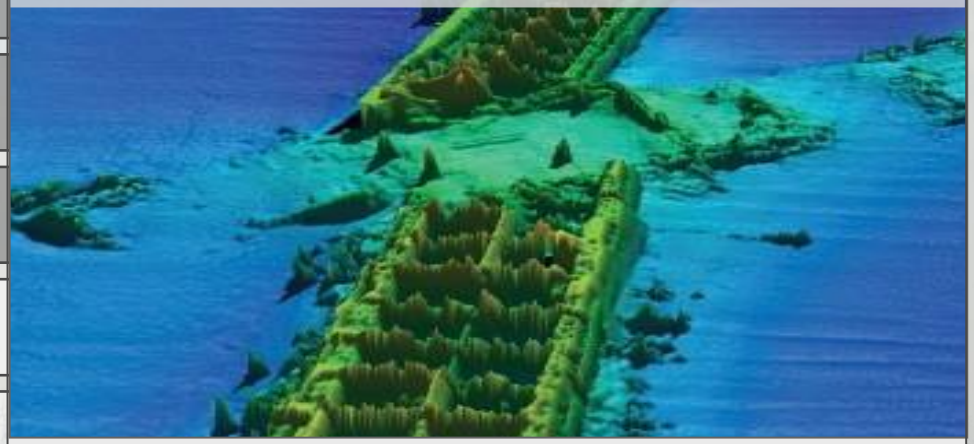
SAAB Defence and Security

QPS

MARITIME TRAFFIC MANAGEMENT

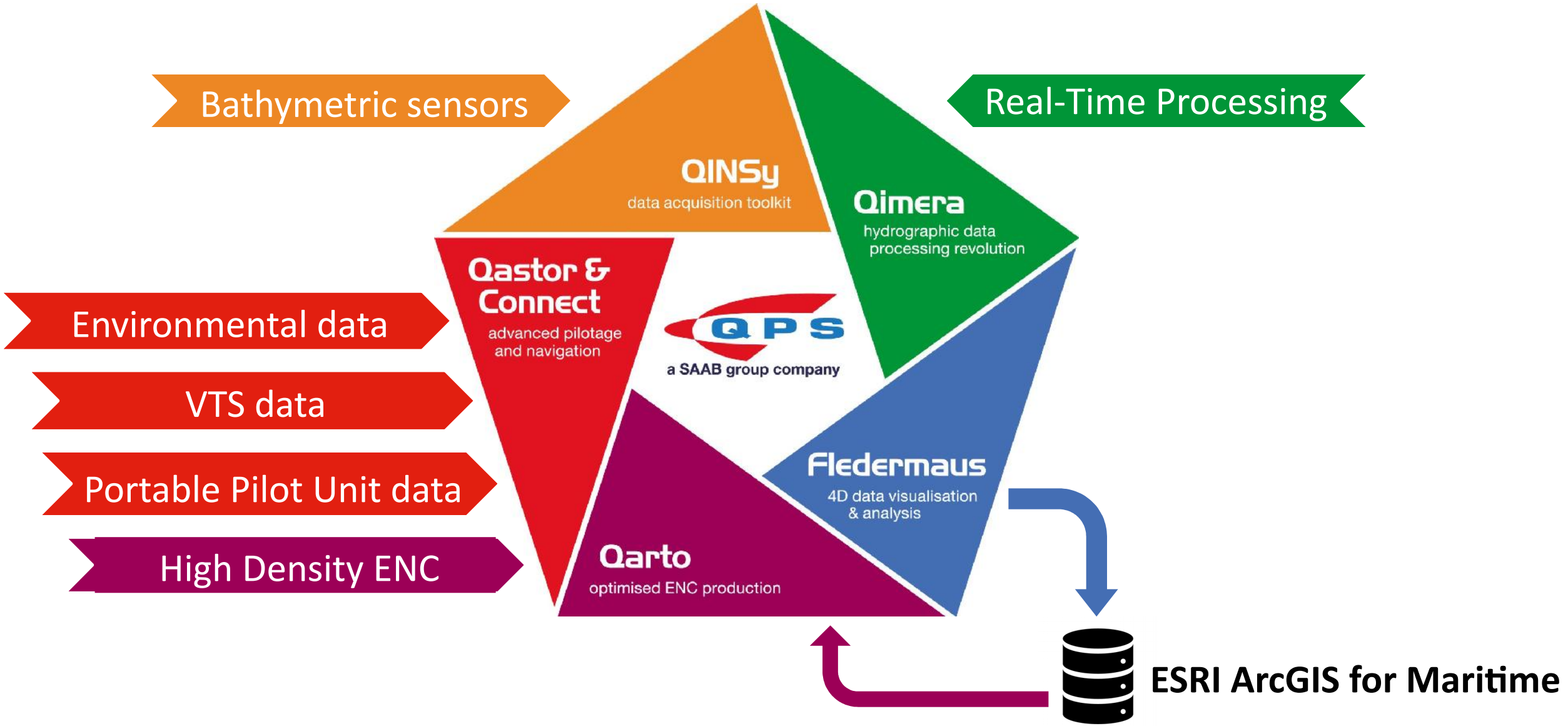
- AUTOMATIC IDENTIFICATION SYSTEM
- VESSEL TRAFFIC SERVICES
- PORT MANAGEMENT
- **HYDROGRAPHICS**
- **PRECISION NAVIGATION**

QINSy, Qimera, Fledermaus, Qarto, Qastor



- Data aquisition
- Data processing
- Data visualisation
- Rapid ENC production
- Advanced Pilotage and Navigation

Backbone: QPS Product Family



HIGH DENSITY ENC - QASTOR

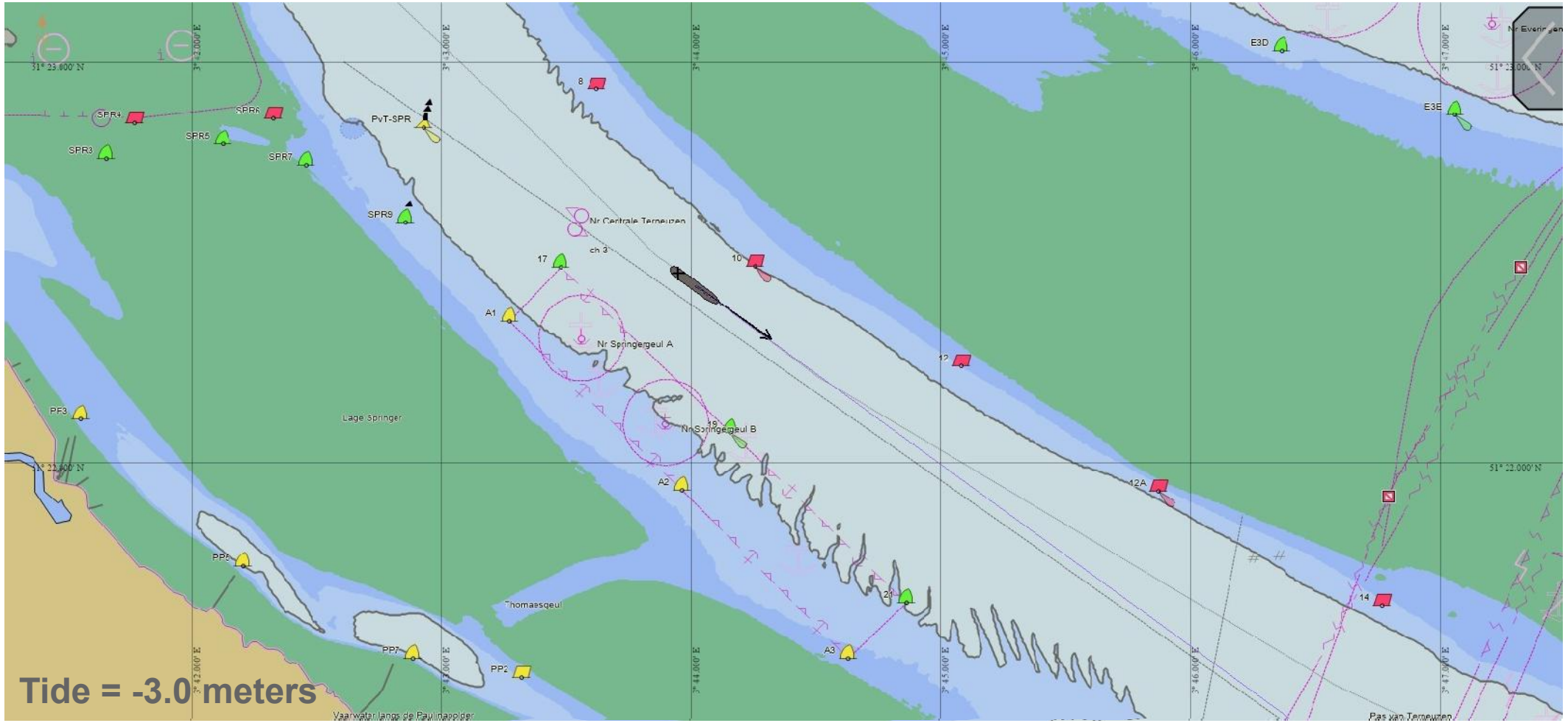


Chart adapts to Real-Time tide

Highly Detailed Electronic Chart

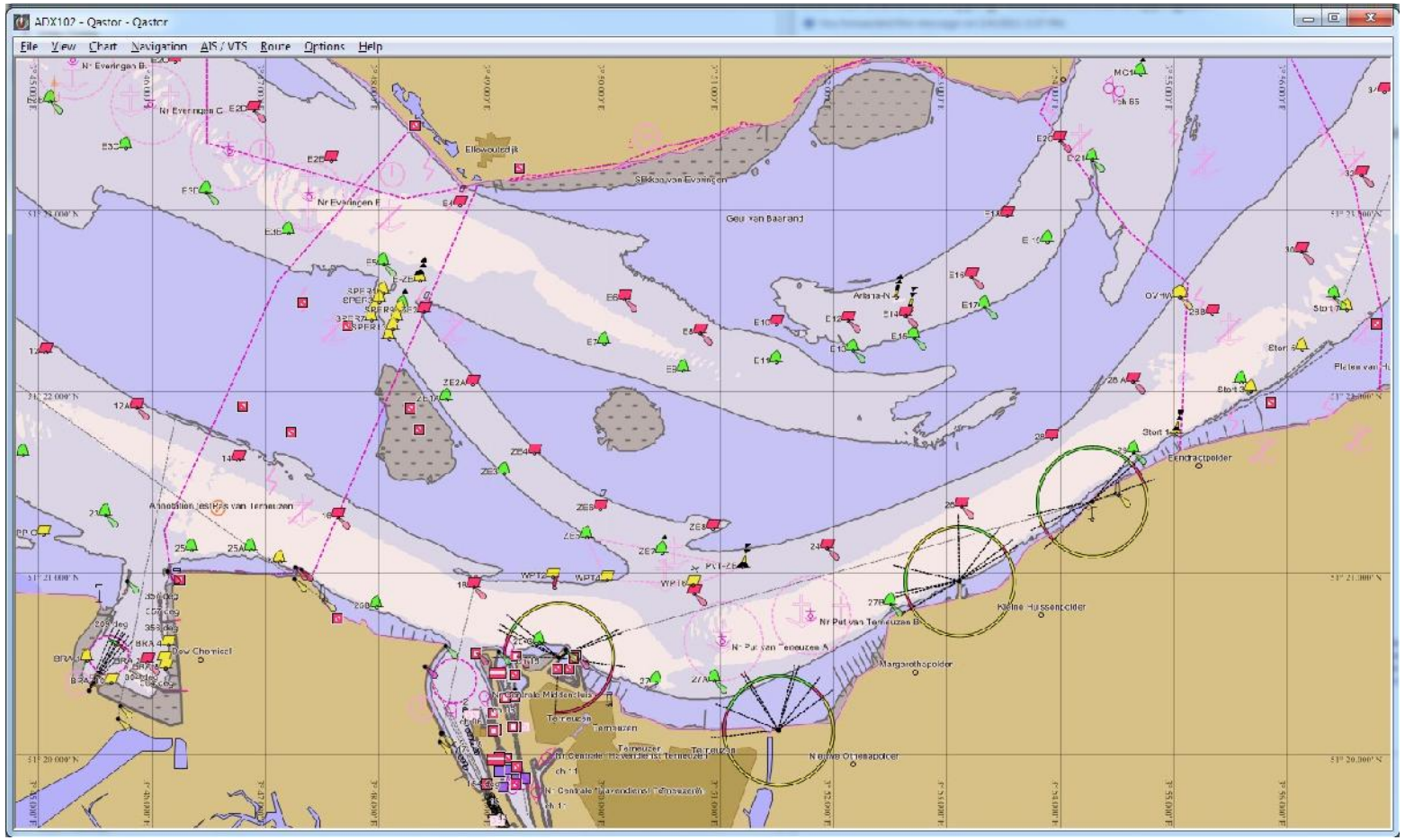


Chart adapts to realtime tide

HIGH DENSITY ENC - QASTOR

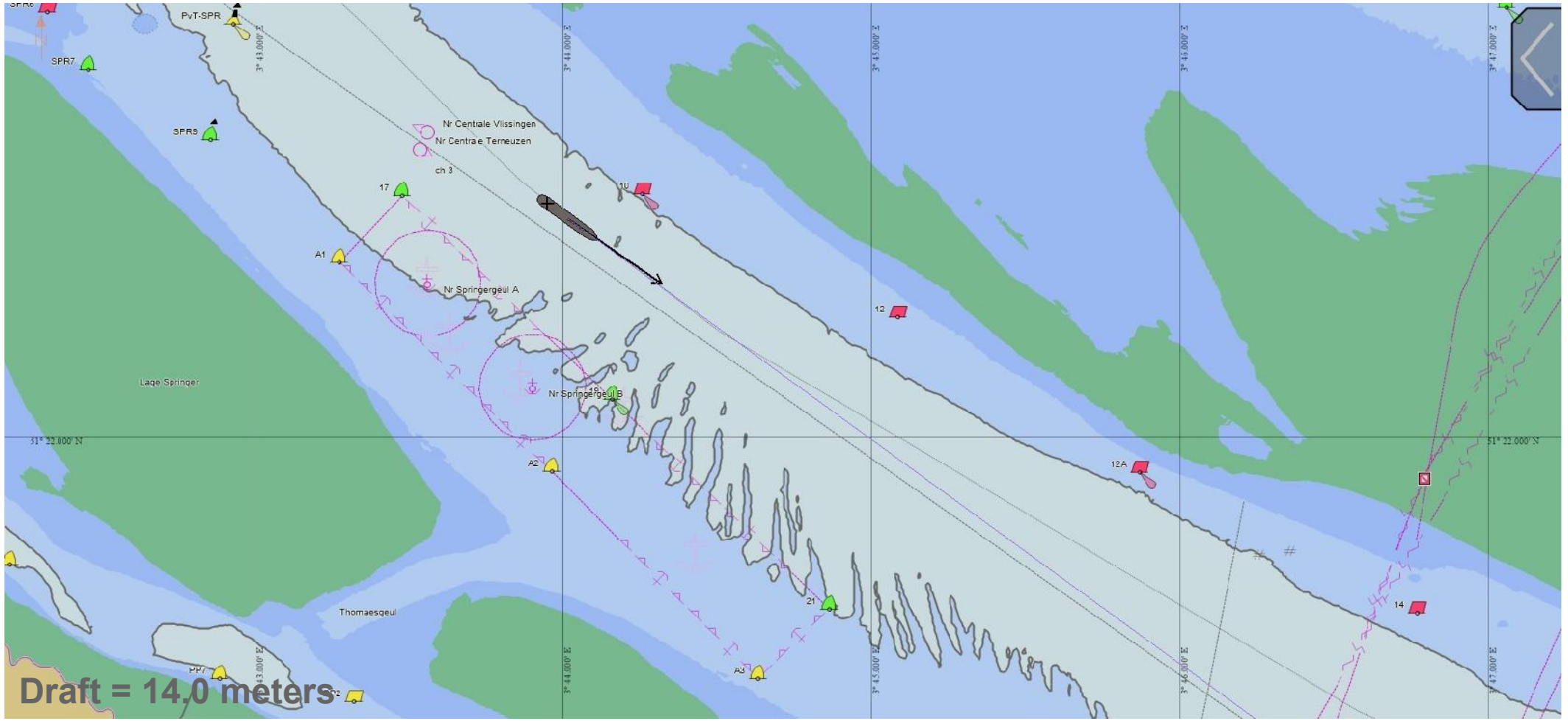
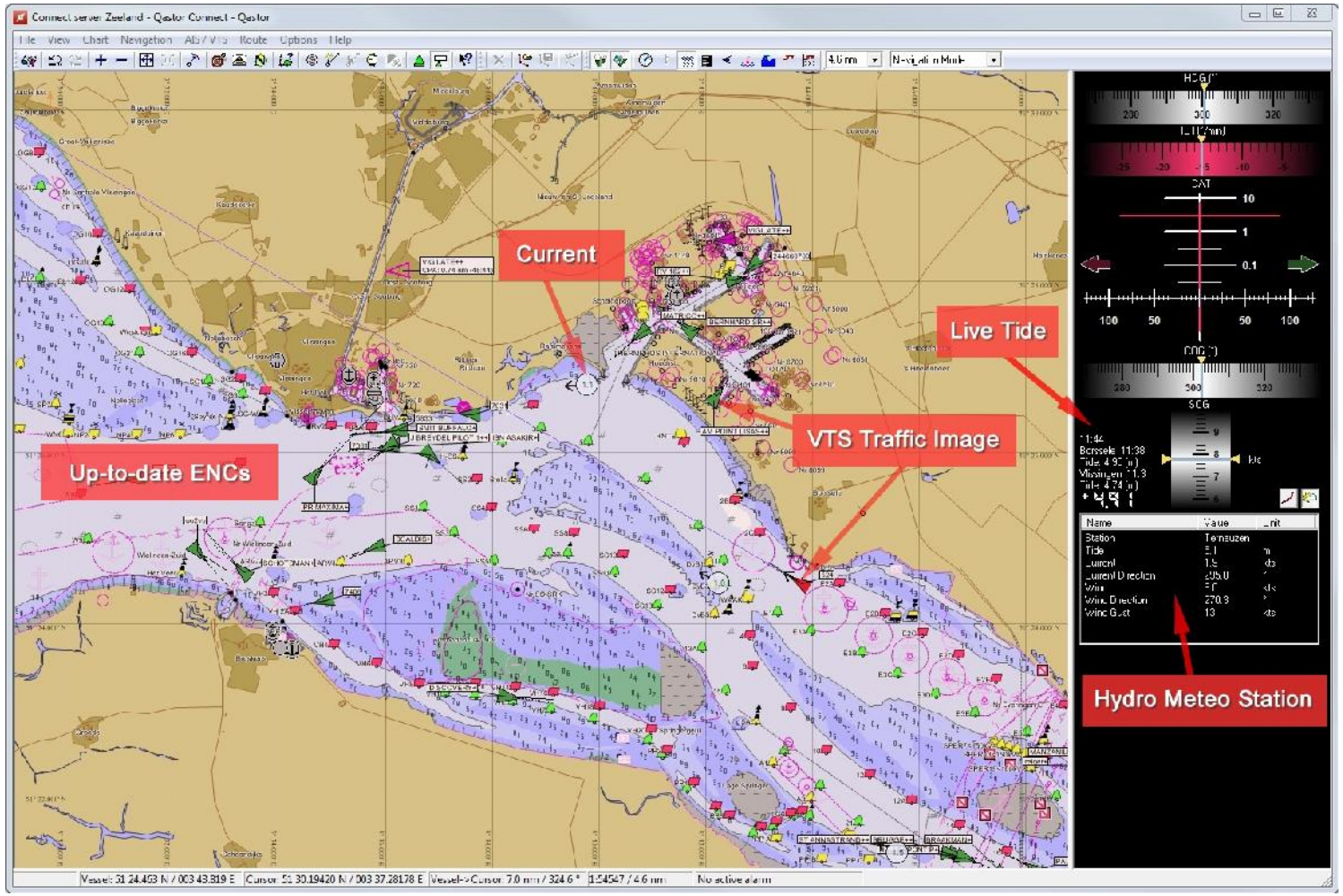


Chart adapts to specified vessel draft (UKC)

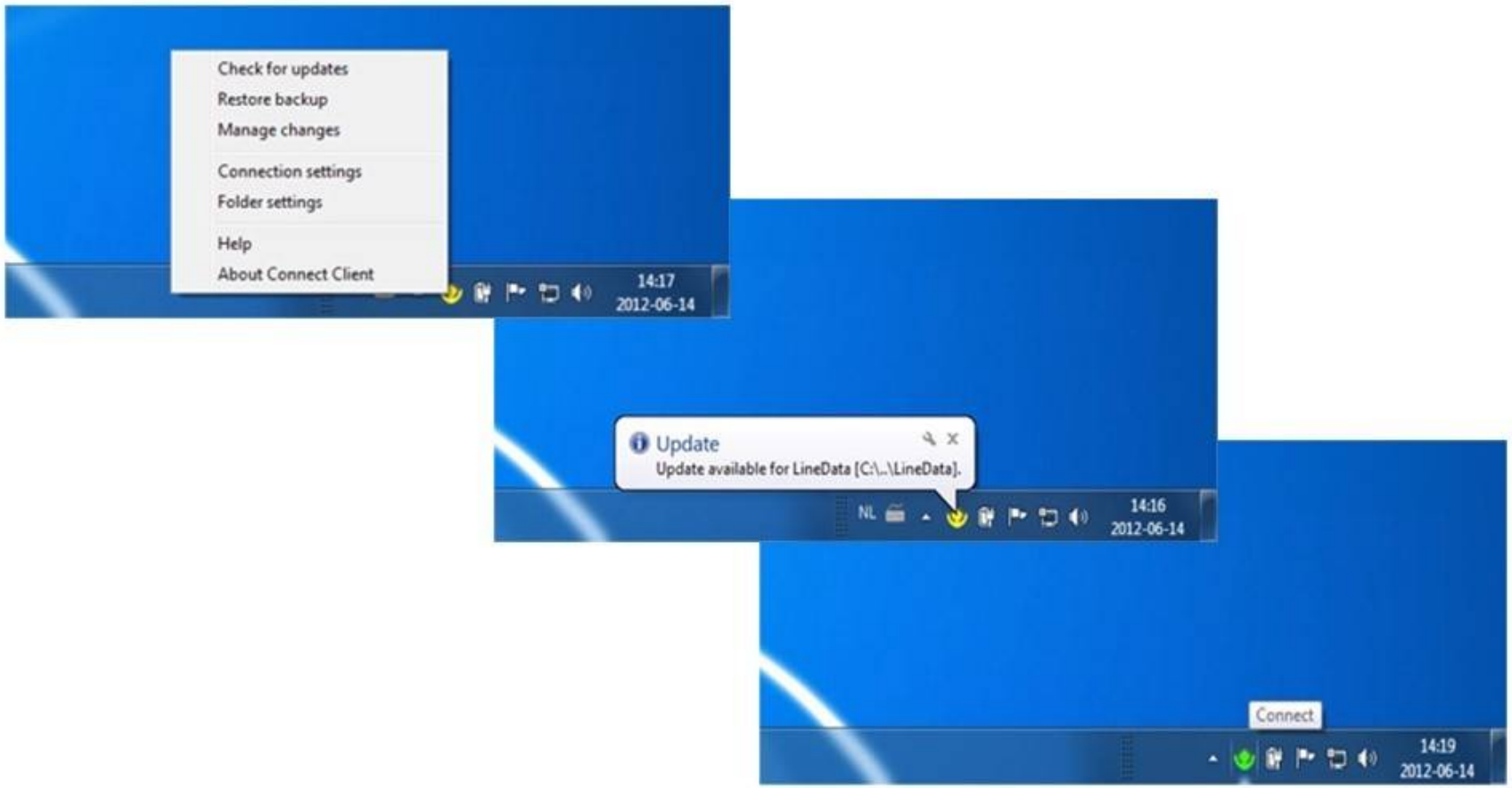
Qastor

Realtime Underkeel Clearance

Qastor Connect Server



Connect Client (remote Qastor)



Background: SAAB Infrastructure

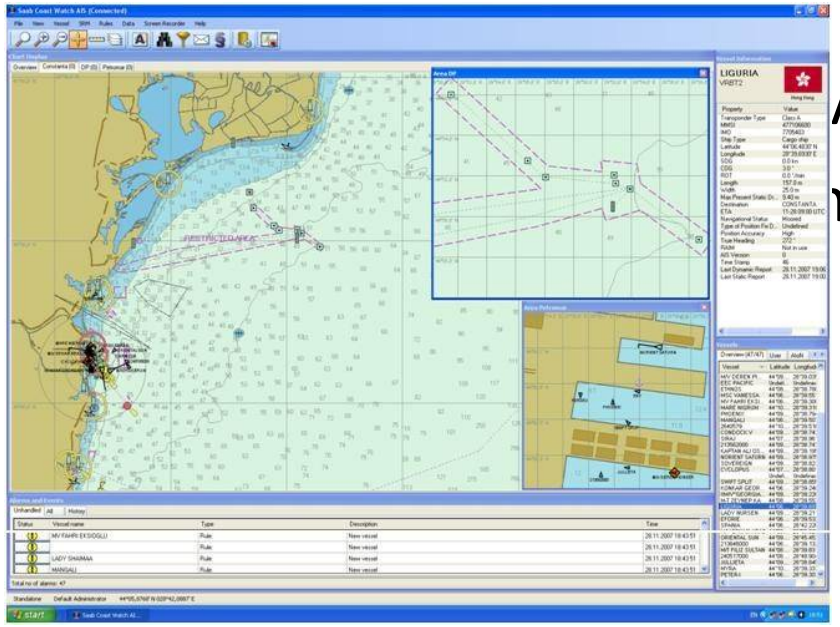
SAAB Transpondertech

SAAB Klein Systems

Klein Port

Port Management and Information Systems

Background: SAAB Infrastructure



AAB Technologies

nagement Software

ement Software

CONCLUSÃO

A SAAB dispõe de tecnologia, testada e aprovada nos ambientes portuários mais complexos do mundo, capaz de:

- Adquirir e processar dados hidrográficos;
- Construir BENC;
- Estabelecer e manter fluxo de dados estáticos e dinâmicos; e
- Suportar a navegação de precisão.


QPS
TELEDYNE RESON
Everywhereyoulook™
IIC TECHNOLOGIES
NEW PATHS. NEW APPROACHES
Ocean Sonics
The Smart Hydrophone Company
AML
OCEANOGRAPHIC
KRAKEN
SONAR SYSTEMS INC.
MetOcean
Data Collection and Communication Experts
HAWBOLDT INDUSTRIES
MARINENAV
Built North Atlantic Tough
Trusted Everywhere
KNUDSEN
IMS
INTELLIGENT MARITIME SOLUTIONS
DefenSea
CONSULTORIA
SAAB
TECHNOLOGIES
Navicom Dynamics
Precision Portable Navigation
OMC
International
GTI
Traffic Management
and Mining Warfare
Consultancy Services

Obrigado!

VTM/DUKC: cesar.pimenta@defensea.com.br
Hidrografia: cesar@ims-consulting.com.br
Tel/WhatsApp: +55-41-98807-8228

WHY DO WE NEED BENC

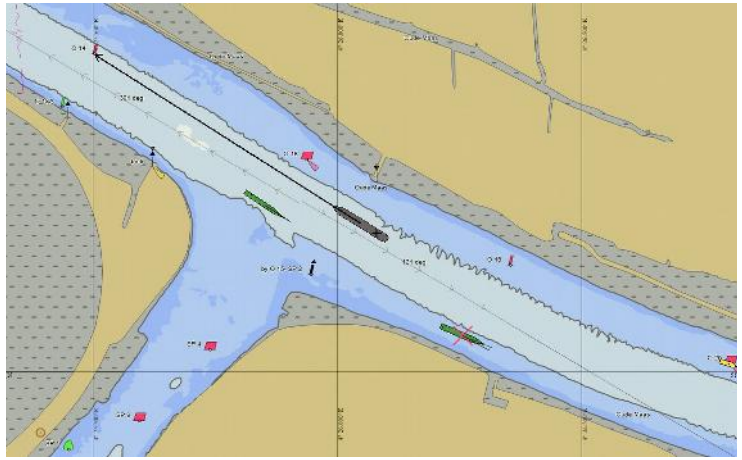
- Maximize throughput
- Maximize port availability
- Make use of real-time tide input
- Provide high detail nautical info to the pilot
- Increase situational awareness of the pilot

We need charts that adapt to the local conditions of tide and vessel size

WHO WOULD NEED QARTO

- Ports

- River authorities



DUKC

- Conceito e produto criado pela empresa australiana OMC International;
- Simulação da evolução da folga sob a quilha para diferentes velocidades, calados, condições ambientais etc; e
- Demanda previsão ambiental de qualidade e rede de sensores ambientais.

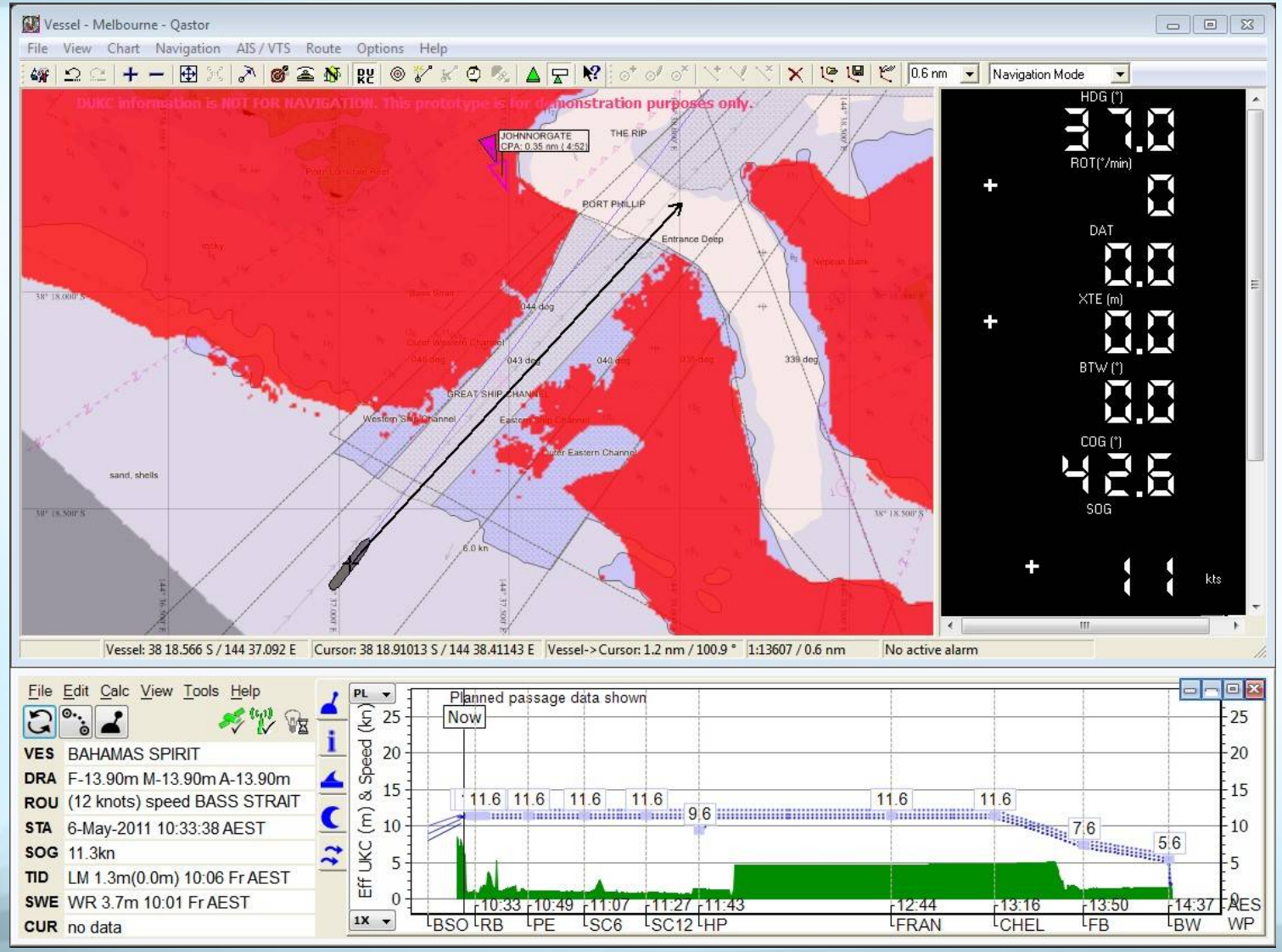
DUKC

Under keel clearance é pela primeira vez explicitada no capítulo referente a “Port VTS”:

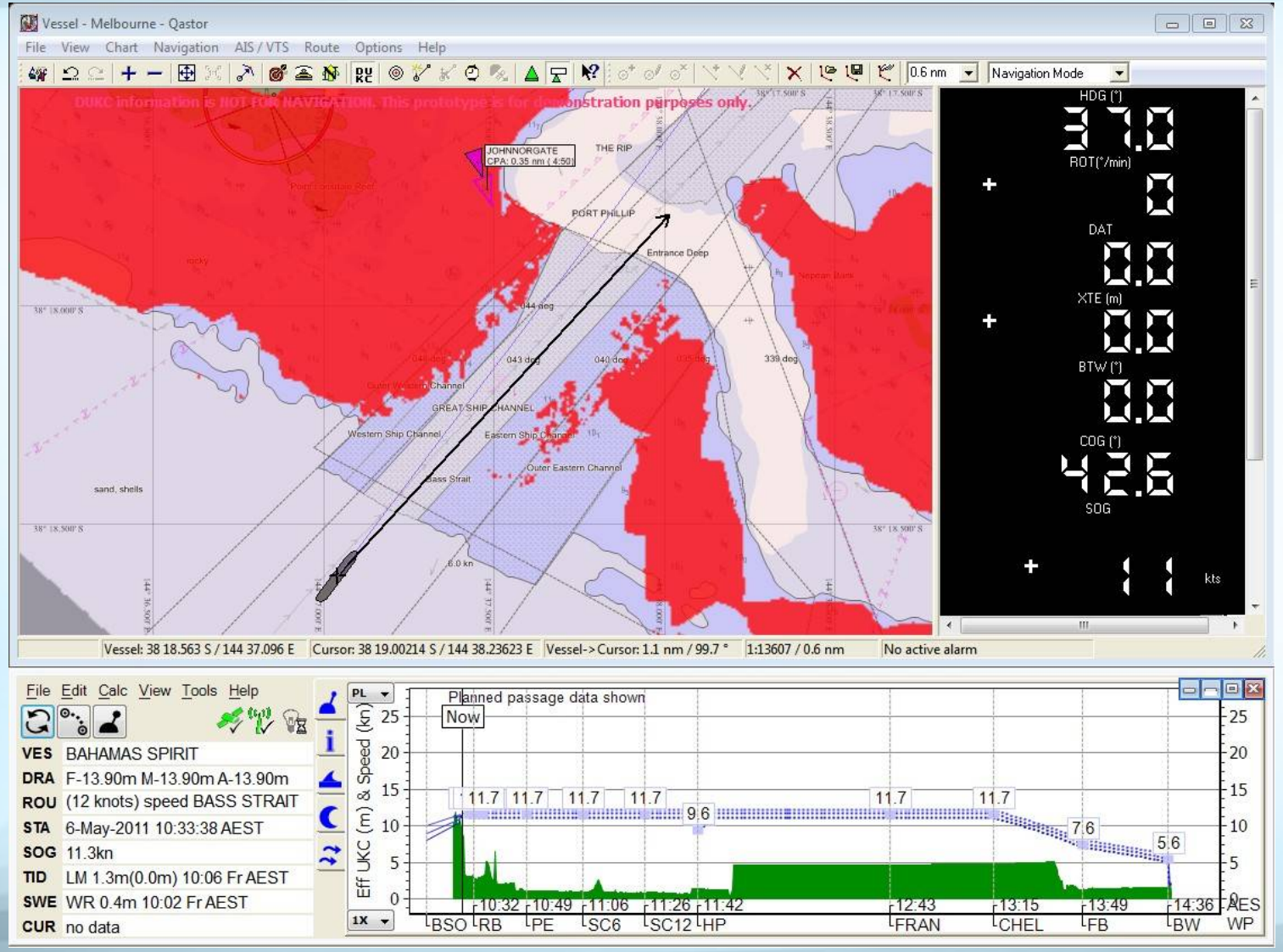
“In port areas both the separation between vessels and the required under-keel clearances may be reduced. These two factors directly affect the navigation of vessels and therefore port VTS procedures.”

IALA VTS Manual Edition 6 (2016), pág. 27

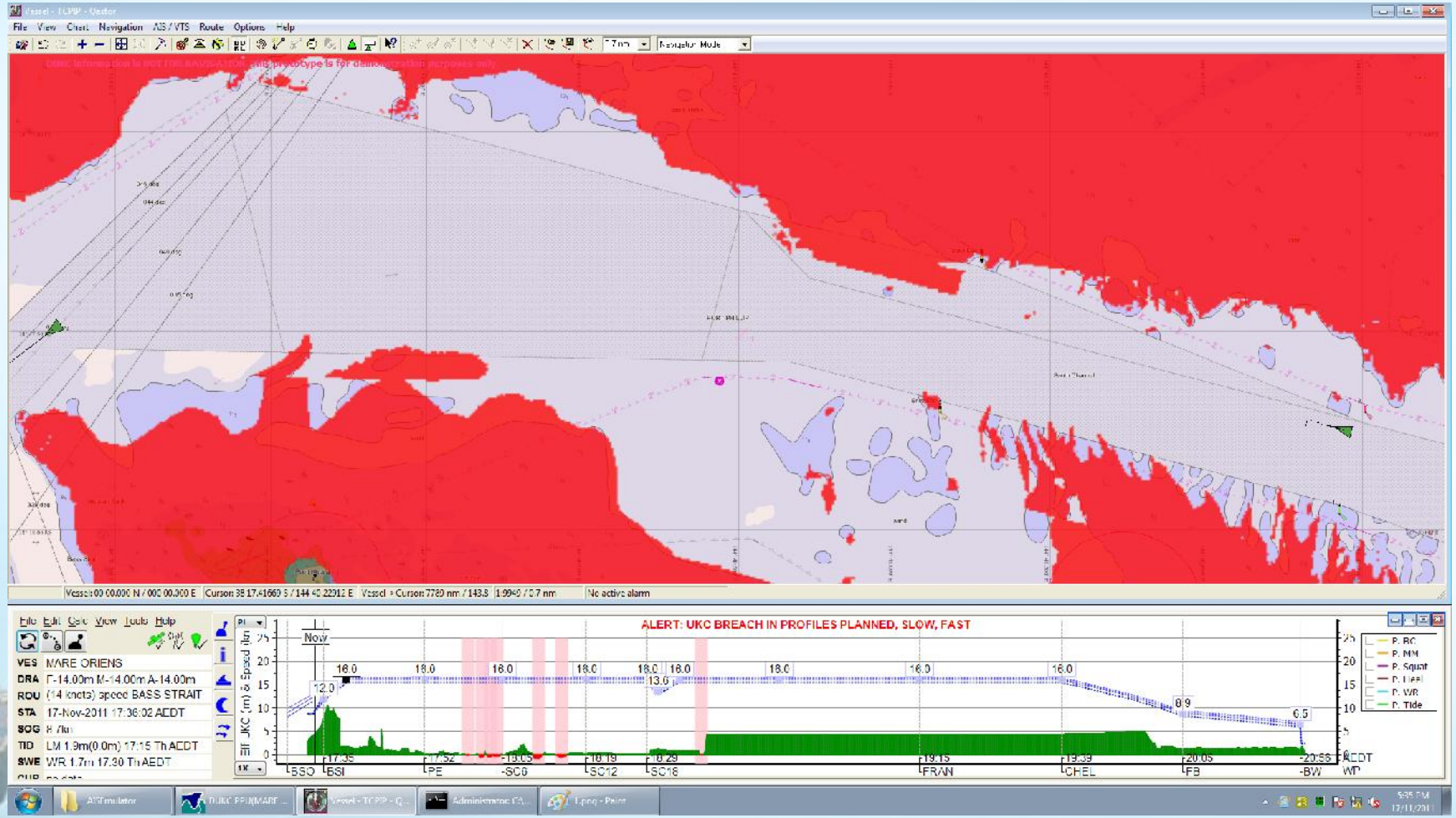
What If – High Waves...



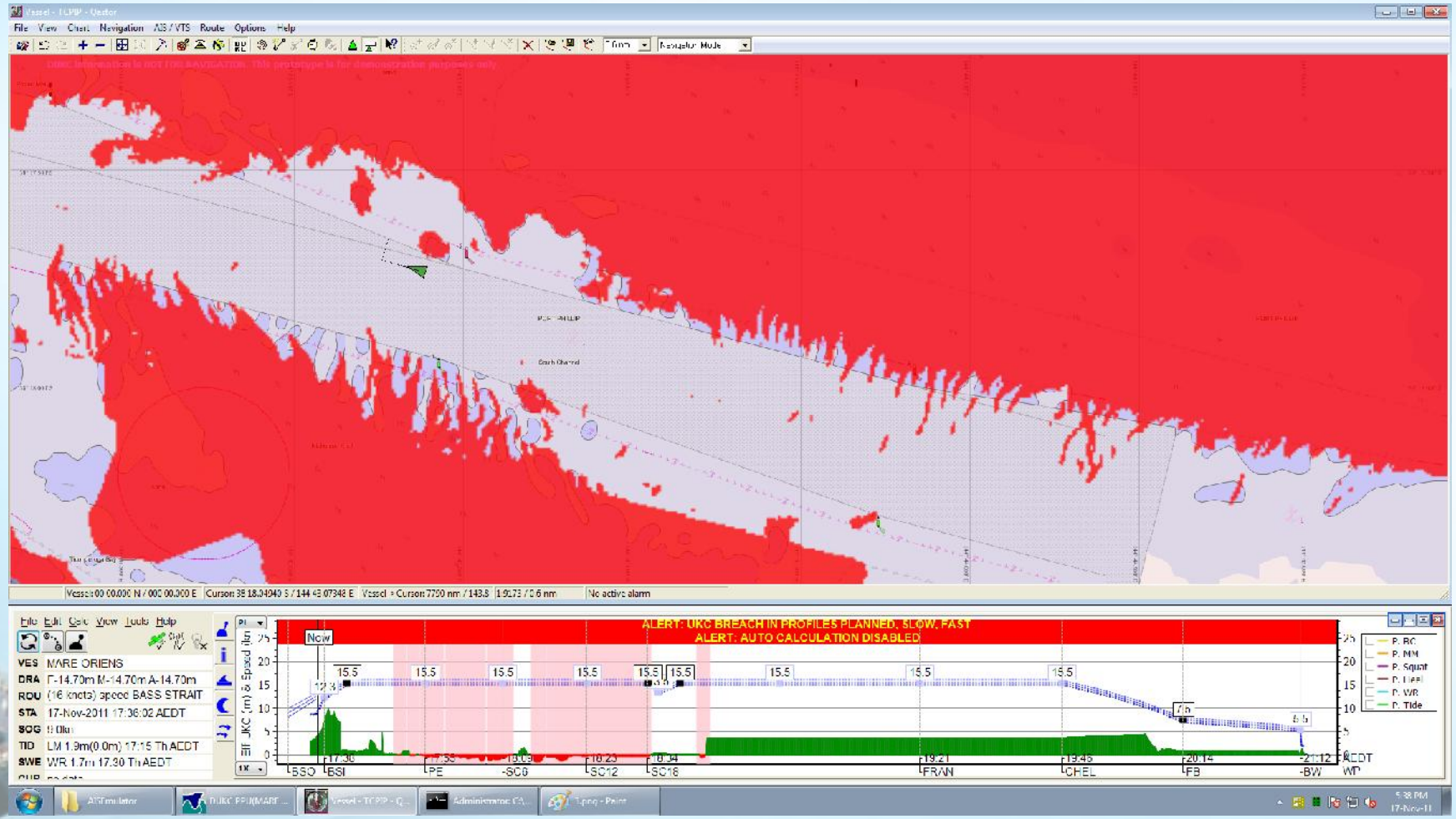
What If – Low Waves...



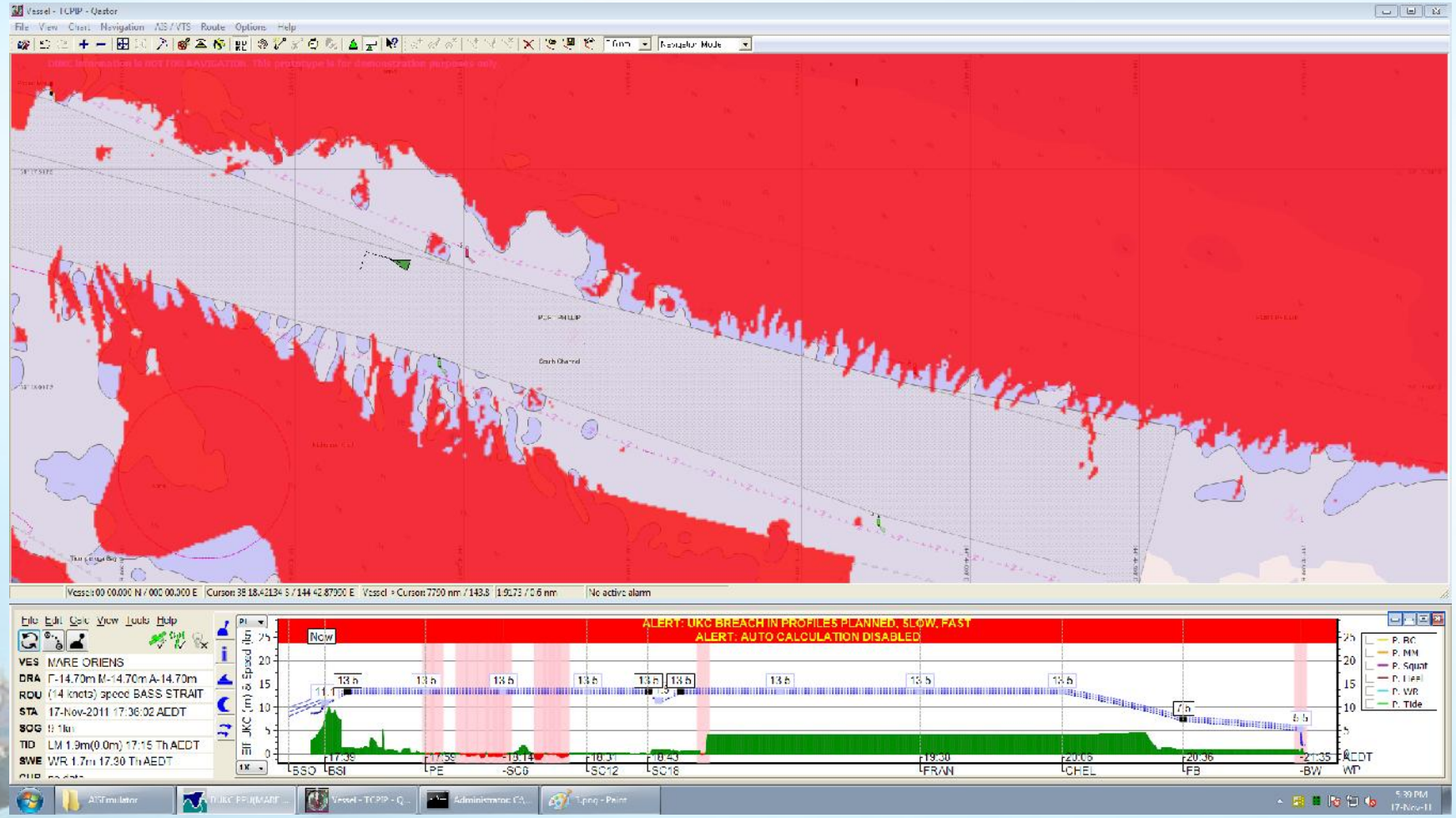
What If – 14.0m at 16 knts



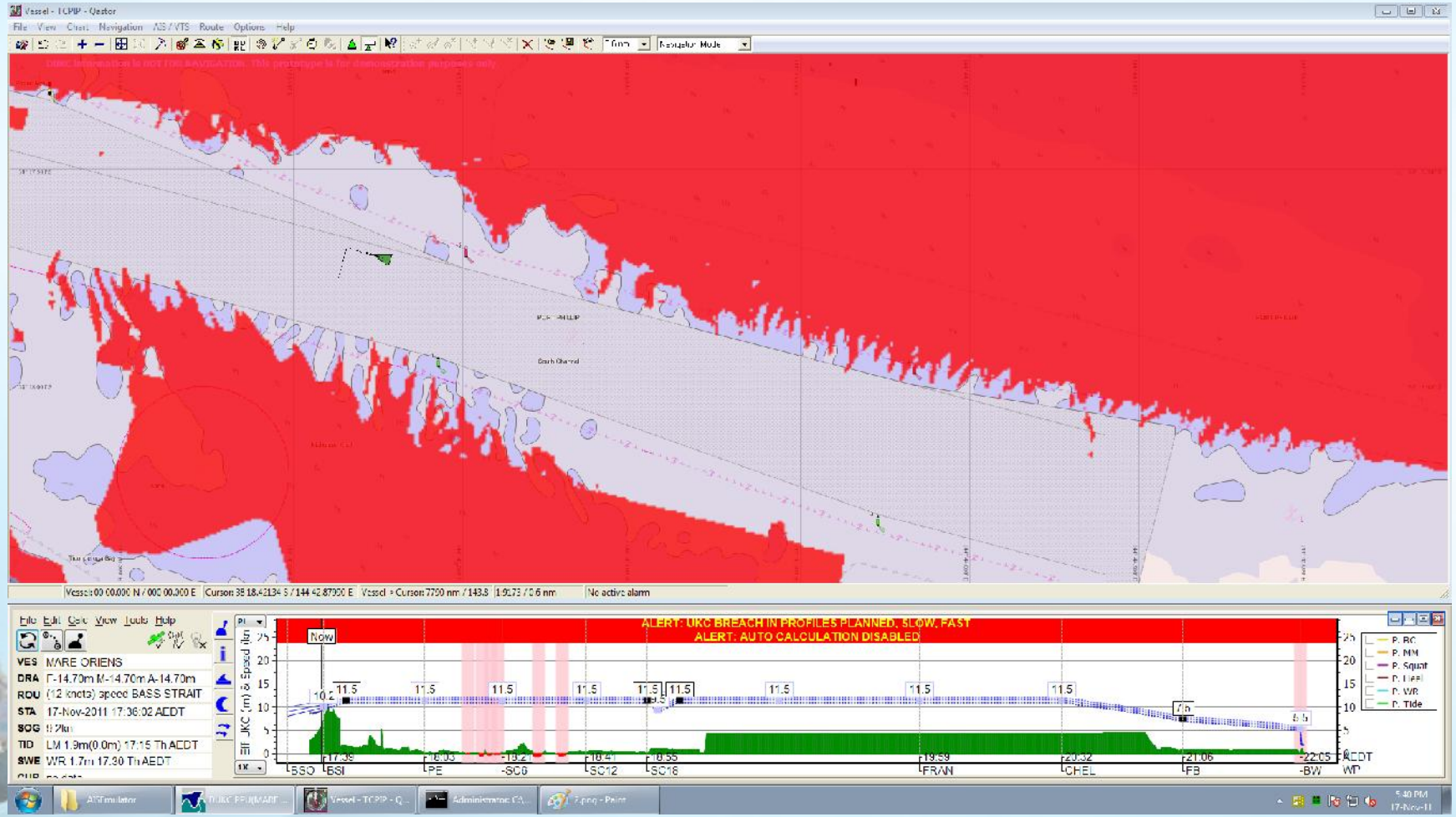
What If – 14.7m at 16 knts?



What If – 14.7m at 14 knts?



What If – 14.7m at 12 knts?

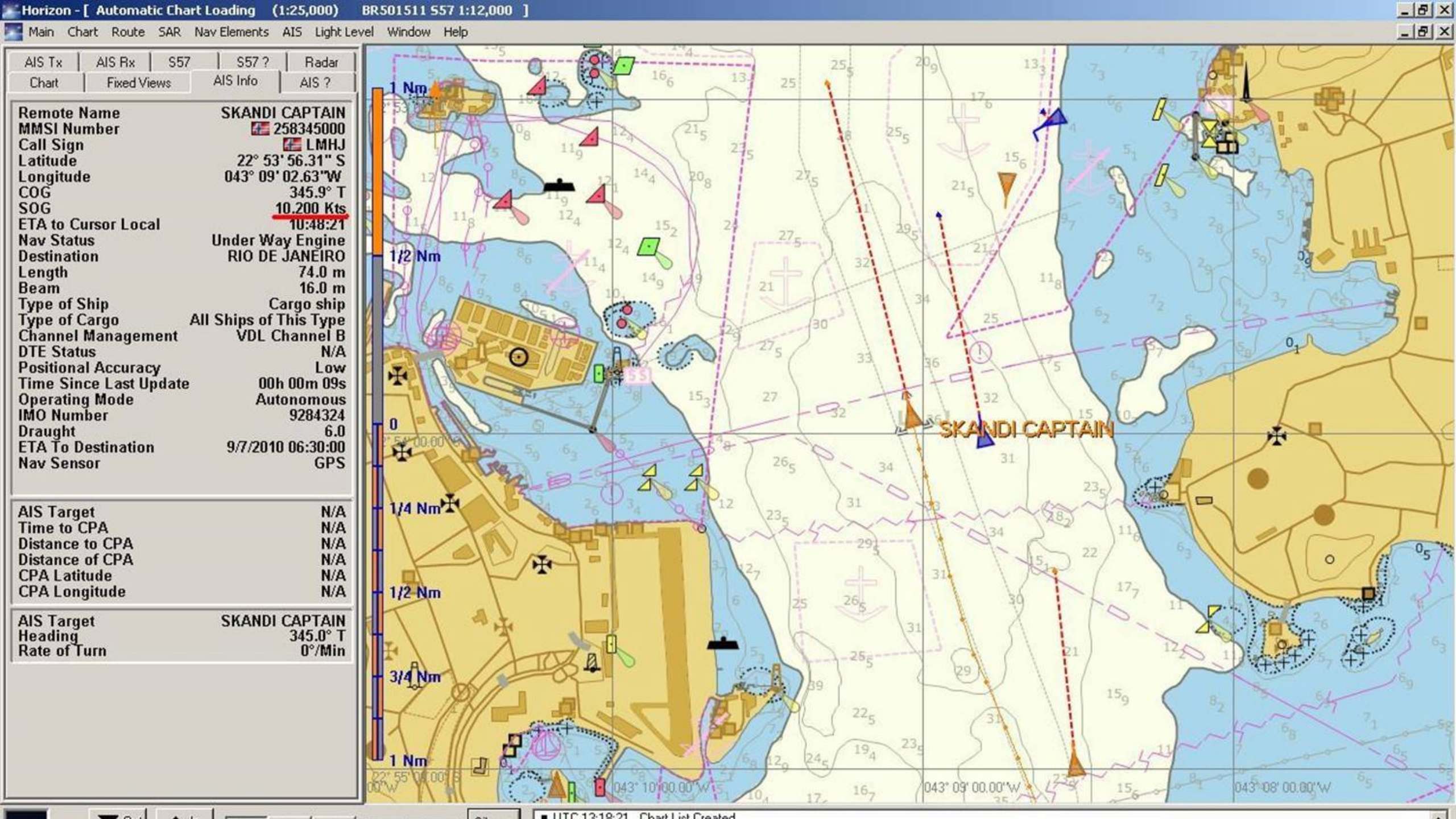


MANUAL DE VTS, CAPÍTULO 4: FUNÇÕES DE UM VTS

The purpose of VTS in inland waters is to improve the safety and efficiency of navigation, safety of life and the protection of the environment and/or the adjoining waterway banks, nearby residents and enterprises from possible adverse effects of vessel traffic.

COMO UM VTS PODE AGREGAR TAIS TECNOLOGIAS?

- Ponto focal de segurança da navegação
- Pessoal adequadamente treinado
- Infraestrutura de comunicações


Horizon - [Automatic Chart Loading (1:25,000) BR501511 S57 1:12,000]
Main Chart Route SAR Nav Elements AIS Light Level Window Help
AIS Tx AIS Rx S57 S57 ? Radar
Chart Fixed Views AIS Info AIS ?
Remote Name SKANDI CAPTAIN
MMSI Number 258345000
Call Sign LMHJ
Latitude 22° 53' 56.31" S
Longitude 043° 09' 02.63"W
COG 345.9° T
SOG 10.200 Kts
ETA to Cursor Local 10:48:21
Nav Status Under Way Engine
Destination RIO DE JANEIRO
Length 74.0 m
Beam 16.0 m
Type of Ship Cargo ship
Type of Cargo All Ships of This Type
Channel Management VDL Channel B
DTE Status N/A
Positional Accuracy Low
Time Since Last Update 00h 00m 09s
Operating Mode Autonomous
IMO Number 9284324
Draught 6.0
ETA To Destination 9/7/2010 06:30:00
Nav Sensor GPS
AIS Target N/A
Time to CPA N/A
Distance to CPA N/A
Distance of CPA N/A
CPA Latitude N/A
CPA Longitude N/A
AIS Target SKANDI CAPTAIN
Heading 345.0° T
Rate of Turn 0°/Min
1 Nm
1/2 Nm
0
1/4 Nm
1/2 Nm
3/4 Nm
1 Nm
SKANDI CAPTAIN
043° 10' 00.00"W
043° 09' 00.00"W
043° 08' 00.00"W