



BLAST

Bringing Land and Sea Together

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Land and Sea Model



E-Navigation in the North Sea



Maritime Traffic Monitoring



Coastal Zone Climate Change

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**The Interreg IVB
North Sea Region
Programme**

*Investing in the future by working together
for a sustainable and competitive region*



BLAST – facts and figures

- A regional project under EU's Interreg IVB North Sea Region Programme
- Project period 2009-2012
- Total budget approximately €6,300,000
- 17 Partners from 7 North Sea countries
- Public, private and university sectors



BLAST – partners

- Norwegian Hydrographic Service (lead partner)
 - Norwegian Coastal Administration
 - National Survey and Cadastre - Denmark
 - Danish Coastal Authority
 - DTU Space (National Space Institute) - Denmark
 - Local Government Denmark
 - Aalborg University - Denmark
 - Federal Maritime & Hydrographic Agency - Germany
 - Jeppesen GmbH - Germany
 - Delft University of Technology, Faculty of Aerospace Engineering - the Netherlands
 - T-Kartor AB - Sweden
 - Malardalen University - Sweden
 - Natural Environment Research Council - United Kingdom
 - Seazone Solutions Ltd. - United Kingdom
 - UK Hydrographic Office
 - Agency for Maritime and Coastal Services – Belgium
-
- Hjoerring Municipality - Denmark (sub-partner)
 - Lolland Municipality - Denmark (associated partner)
 - Port of Oslo - Norway (associated partner)
 - Swedish Maritime Administration (associated partner)
 - Icelandic Maritime Administration (associated partner)
 - Kristiansand Municipality - Norway (associated partner)
 - National Environmental Research Institute, Aarhus University – Denmark (associated partner)



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Why Bringing Land and Sea Together?

- North Sea nations handle geospatial data independently
- Little integration of land and sea data
- Lack of collaboration between countries
- Increasing pressure on coastal areas
- Threat of climate change and accelerated sea level rise



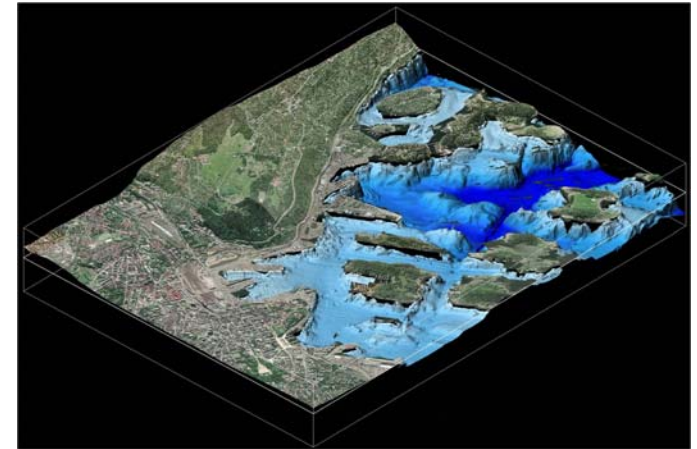
Project aims

- Provide new and innovative solutions for the harmonisation and integration of marine and terrestrial geospatial data.
- Improve maritime safety and integrated coastal zone management and planning in the context of climate change.

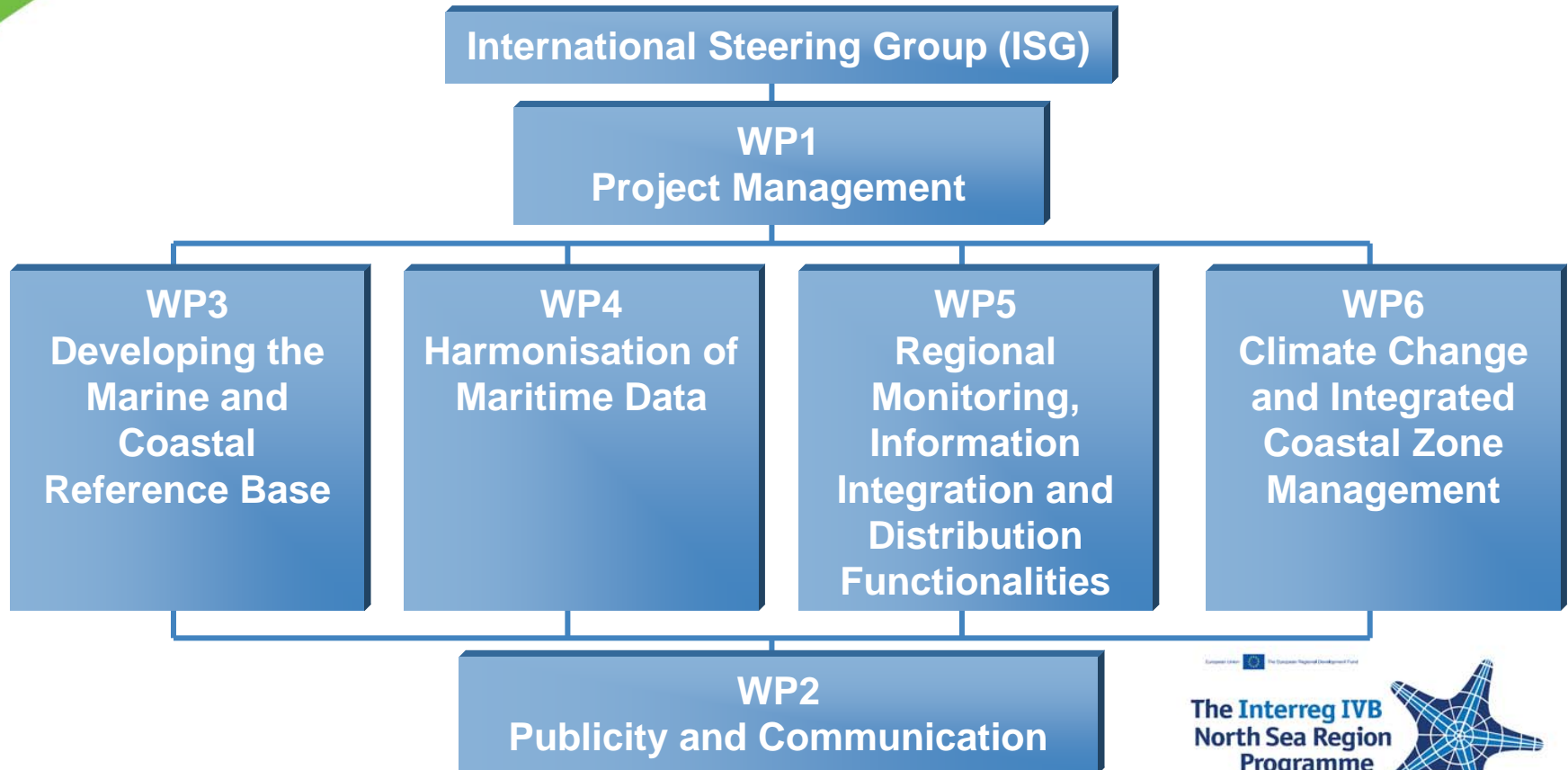


Project characteristics

- Combining skills
- Network of organisations
- Application of modern project philosophy
 - Land and sea approach
 - Transnational approach
 - International standards
 - Service-based architectures
 - Cooperation
 - Public results



Project organisation



WP3: Developing the Marine and Coastal Reference Base

- Develop a product specification including maritime and terrestrial features.
- Develop a new vertical datum for the North Sea Region
- Extensive testing of new airborne laser techniques in the coastal zone.
- Deploy, update and test reference base against user requirements.



WP3: Rationale: Marine & Coastal GI

- New Technical Requirements
 - Bathymetry & hydrographic features replaced by:
 - Vertically Corrected & Integrated Elevation
 - Harmonised Land & Sea Topographic Mapping
- New user groups
 - Marine Spatial Planning (MSP)
 - e.g. Climate Change and Sea Level Rise
 - Situational Awareness
 - e.g. Marine Traffic Monitoring
- New requirements
 - Multidisciplinary Scientific Use in MSP
 - Cross border / Trans-national Applications
 - e.g. North Sea Energy Supply & Management

WP3: Metadatabase for BLAST



GeoNetwork - The portal to spatial data and information - Windows Internet Explorer

http://mimetadatest.kmsex.dk/geonetwork_blast/srv/en/main.home

GeoNetwork - The portal to spatial data and information

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English

Username Password Login

WHAT?

WHERE?

Show map

Identification info

Title: Low water line LAT (Lowest Astronomical Tide)
Date: 2008-03-05
Date type: Publication: Date identifies when the resource was issued
Code: Low water line LAT (Lowest Astronomical Tide)
Codespace: mim.dk
Abstract: The low water line is the border between the intertidal area and depth area.
From 5 March 2008 the Flemish national and international charts (INT) - paper and electronic charts (ENC) are only be systematically produced by the Flemish Hydrography in LAT.

Point of contact

Individual name	Hans Poppe	Delivery point	Vrijhavenstraat 3
Organisation name	Maritime and Coastal Services - Department Coast - Flemish Hydrography	City	Oostende
Position name	Project Engineer	Postal code	8400
Role	Point of contact: Party who can be contacted for acquiring knowledge about or acquisition of the resource	Country	Belgium
		Electronic mail address	hans.poppe@mow.vlaanderen.be

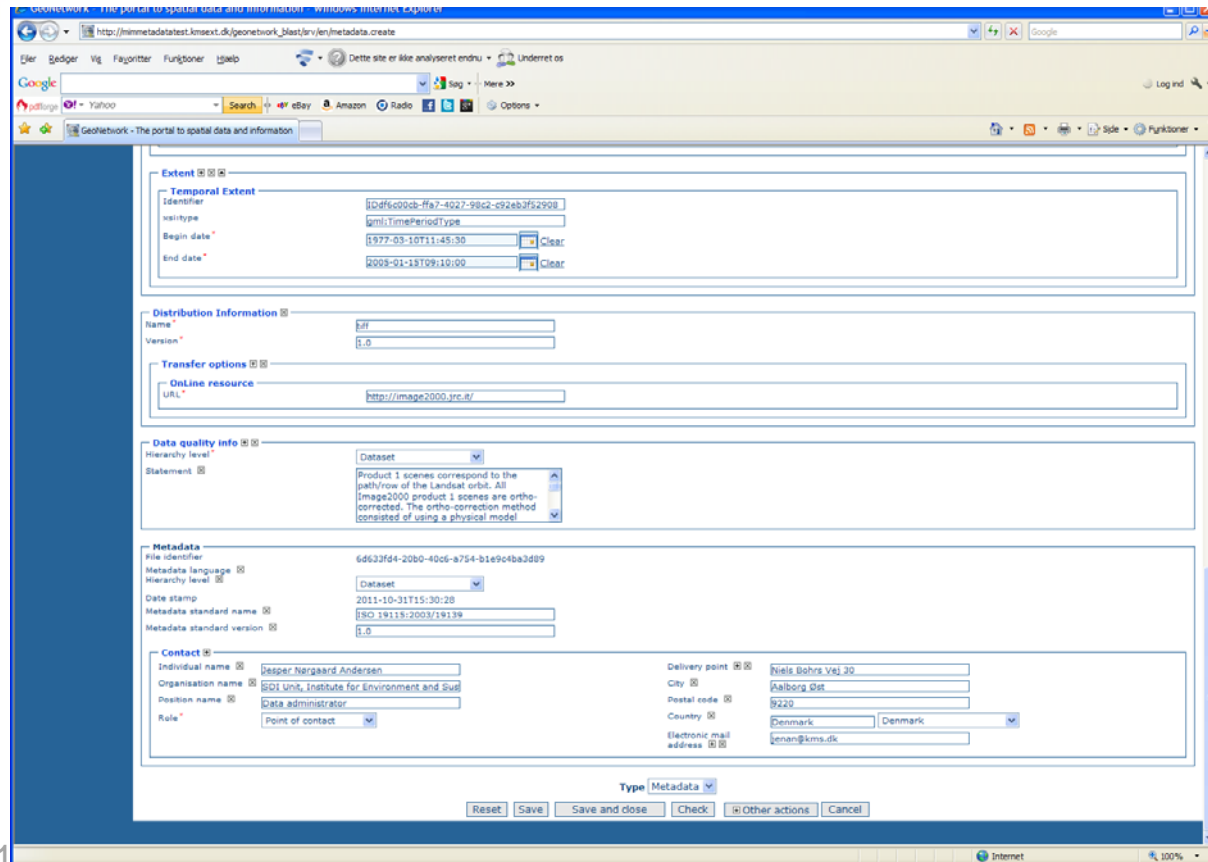
Descriptive keywords: Low Water Line, BLAST.

Equivalent scale

Denominator

Applications
Audio/Video
Case studies, best practices
Conference proceedings
Datasets
Directories
Interactive resources
Maps & graphics
Other information resources
Photo

WP3: Metadatabase for BLAST



The screenshot shows a web browser window displaying the BLAST Metadatabase interface. The URL in the address bar is http://immetadatabase.knsvt.dk/geonetwork_blast/v/en/metadata.create. The interface is divided into several sections:

- Extent:** Includes a Temporal Extent section with fields for Identifier (6d8f6c00cb-ffa7-4027-98c2-c2eb2f52909), Identifier type (gml:TimePeriodType), Begin date (1977-03-10T11:45:30), and End date (2009-01-19T09:10:00).
- Distribution Information:** Includes fields for Name (buff) and Version (1.0).
- Transfer options:** Includes a field for Online resource URL (http://image2000.jrc.si/).
- Data quality info:** Includes a field for Hierarchy level (Dataset) and a Statement (Product 1 scenes correspond to the path/row of the Landsat orbit. All Image2000 product 1 scenes are ortho-corrected. The ortho-correction method consisted of using a physical model).
- Metadata:** Includes fields for File identifier (6d633f64-20b0-40c6-a754-b1e9c4ba3d09), Metadata language (Dataset), Date stamp (2011-10-31T15:30:20), Metadata standard name (ISO 19115:2003/19139), and Metadata standard version (1.0).
- Contact:** Includes fields for Individual name (Desper Nergaard Andersen), Organisation name (SDI Unit, Institute for Environment and Sea), Position name (Data administrator), Role (Point of contact), Delivery point (Niels Bohrs Vej 20), City (Aalborg Øst), Postal code (9220), Country (Denmark), and Electronic mail address (lenan@kms.dk).

At the bottom, there are buttons for Reset, Save, Save and close, Check, Other actions, and Cancel. The Type dropdown menu is set to Metadata.

- Contents of the metadatabase
- Methods for adding metadata
- Integration of metadata in local solutions

Co-funded under the European Regional Development Fund

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WP3: Metadatabase for BLAST - Benefits

- Single shared collection of all BLAST data – available to all BLAST partners and WPs
- ISO & INSPIRE Compliant
 - Metadata input by data owners
 - Metadata maintenance by data owners
- Built on Open-Source Technologies
- Developed according to best practice and current standards
- Adaptable to future use requirement

WP3: Vertical Reference Frames (VRF)

- VRF (or datums) are realized relative to a reference surface.
 - National realizations of a vertical datum can differ in the definition and in the choice of a reference surface, which can cause cross-border inconsistencies.
 - In WP3 a transformation tool is developed that links the global and European datums (both marine and land) to the regional and national realizations.
- Based on 12 years data from satellite altimetry (enhanced and modified near the coast), a regional mean sea level model (MSL) for the North Sea area, and a lowest astronomical tide model (LAT) is constructed
- Other vertical datums are the global and the regional geoids (EGM2008, EGG2007), the European height datum (EVRF2007), and linked to the main national land and marine datums in different countries.

Project organisation



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WP4: Harmonisation of Maritime Information

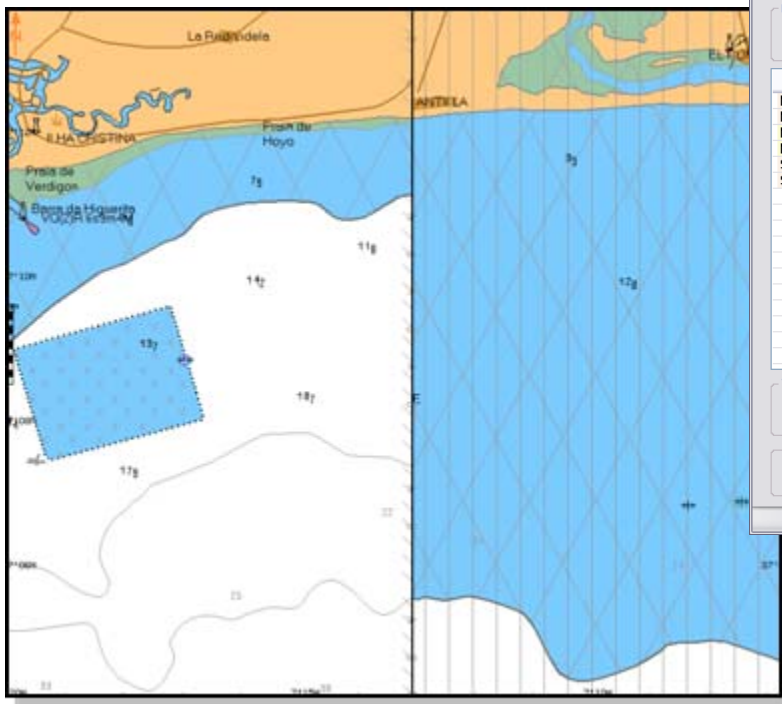
- Develop a regional basis for harmonisation of maritime information products, give input to IHO.
- Demonstrate and evaluate the use of satellite data and 3D visualization/models in navigational aid displays.
- Demonstrate a web-based port and coastal data collection system.
- Demonstrate digital mariner's routing guide for the North Sea.



WP4: Rationale

- Maritime information is distributed and presented in a non –standardised way
 - In ports
 - Transnationally
- The latest GIS-technology and state-of-the-art GI are rarely used in navigational aids.

WP4: ENC Harmonisation



ENC Harmonization Checker. Developed with support from EU Interreg IVB North Sea Region Programme

+ Add - Remove Help

Output
Directory: C:\BLAST

Name	Scale	Compilation ...	Horizontal Datum	Coordinate...	Soundi...
NL50120D	5	22000	WGS 84	10000000	10
NL40121E	4	45000	WGS 84	10000000	10
NO4D0722	4	22000	WGS 84	10000000	10
NO4D0721	4	22000	WGS 84	10000000	10
SE4DHVHE	4	22000	WGS 84	10000000	10
SE4CI3T4	4	22000	WGS 84	10000000	10

Tolerances
Linear Object Search at Data Limit (meters) 20 Edge Matching Tolerance (meters) 40

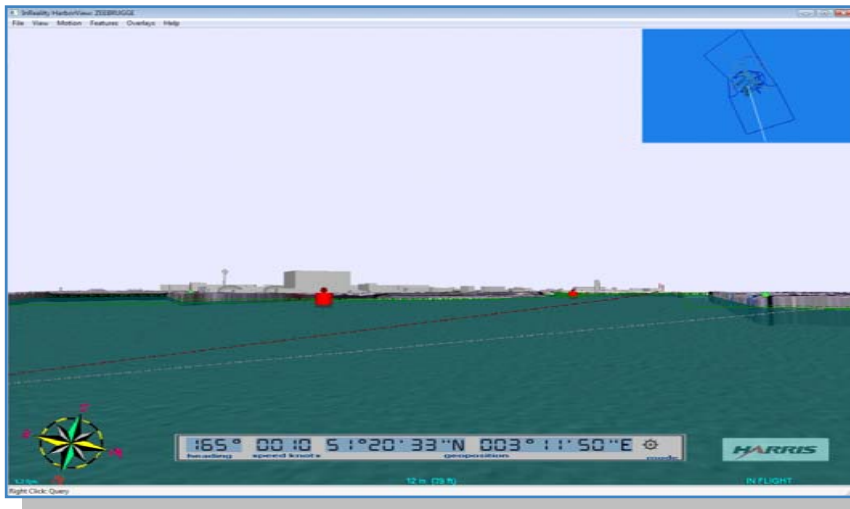
Test Types
☒ Horizontal Checks ☐ Vertical Checks

Tests
General
☒ Compilation Scale
☒ Horizontal Geodetic Datum
☒ Sounding Datum
☒ Coordinate Multiplication Factor
☒ 3D Multiplication Factor
☒ Depth/Area Intervals
☒ SCAMIN
☒ Not encoded SCAMIN
☒ SCAMIN S-65 Recommendations
Alignment
☒ Data Limit
☒ Data Alignment

Run Cancel Close



WP4: 3D Visualisation and Navigation



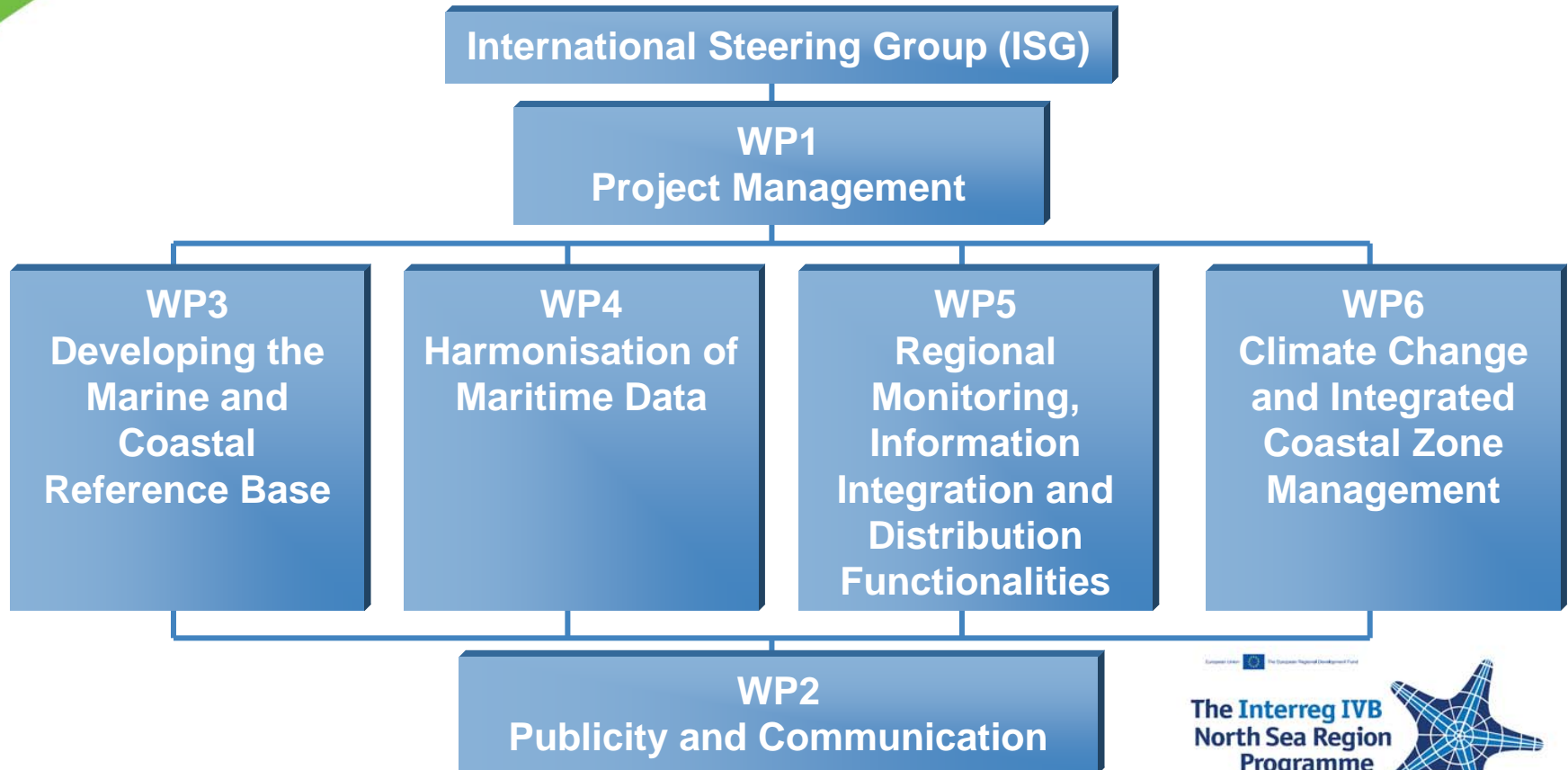
3D model of Zeebrugge harbour – tested by navigators in April, 2011

WP4: Maritime Data Collection System

AddressObserver	AddressSender	BoxNavai	BoxOt	BoxSound	Chart	Company Name	Date observ	Date sent	Details	Email	Fax	Name of c	Name of s	PositionLat	PositionLon
10050 Commerce Square, Micklefirth	c/o Port of Micklefirth, 500 Rimon Bay Road, Micklefirth	Yes	No	No	220	Jussland Cruise Lines	1/10/2010	1/10/2010	Calva Island Light was observed to be unlit at 2015 hrs. LT on January 10 2010.	h.milo@ju	+999 4539	H Milo	SS Proteus	32.3690 S	61.0170 E
200 Main Street, Micklefirth	c/o Port of Micklefirth, 500 Rimon Bay Road, Micklefirth								Charted depth at this location is 7m but echo sounder reported depth of 3m at high tide	t.roberts@	+999 4539	Theodore	MV Herrin	32.2340 S	61.1020 E
2319 Museum Street, Micklefirth	c/o Port of Micklefirth								N. mole at						



Project organisation



WP5: Regional Monitoring, Information Integration and Distribution Functionalities

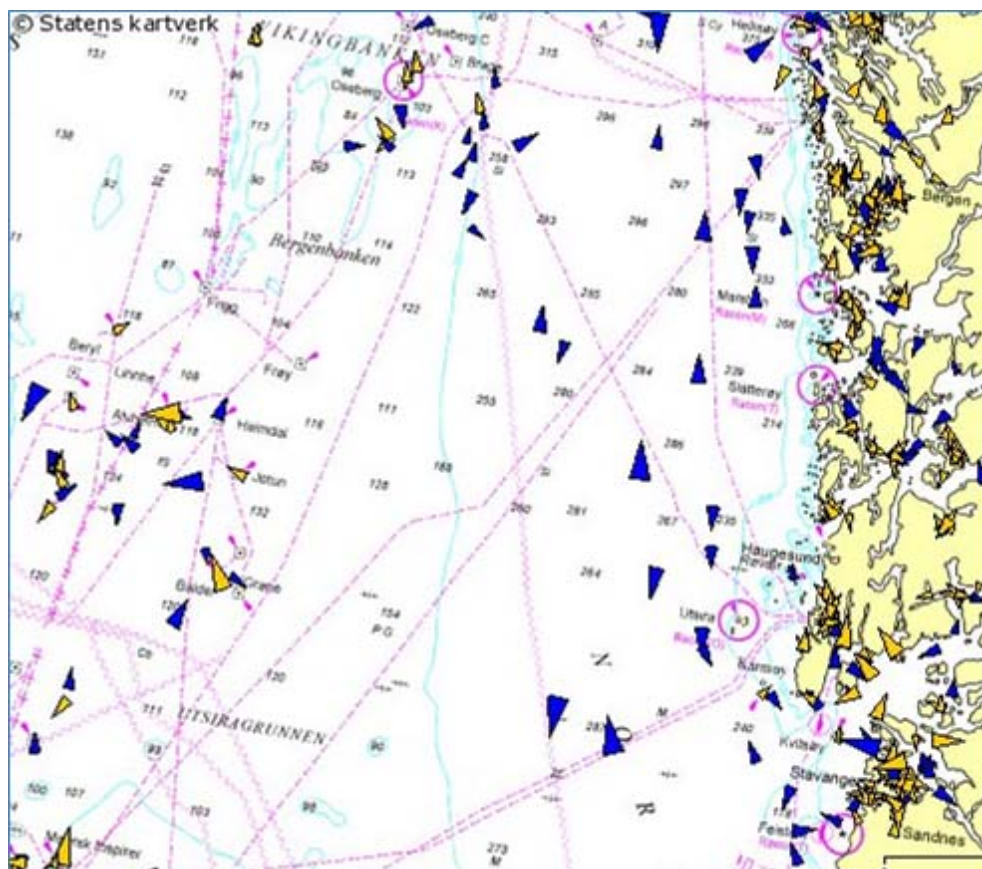
- Design and develop a regional maritime traffic monitoring platform for the North Sea region.
- Harmonise maritime traffic information formats in the region, add new formats where needed.
- Harmonise regional maritime traffic information with SafeSeaNet, propose new functionalities.
- Develop a network and server platform for development and demonstration.



WP5: Rationale

- GI is rarely used in the operating traffic monitoring systems.
- Limited amount of information is provided by the existing services.
- There is a need for harmonisation of information between different operating traffic monitoring systems.
- Wider range of service interfaces for traffic info is required

WP5: AIS Traffic Monitoring



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WP6: Climate Change and Integrated Coastal Zone Management (ICZM)

- Analyse and develop transnational concepts for ICZM design
- Develop a decision-support framework for ICZM in the context of climate change.
- Deploy, update and test the decision-support system in practical planning contexts in different municipalities.



WP6: Rationale

- Climate change challenges
 - Adaption and mitigation scenarios
- Continuous conflict between several stakeholders in the coastal zone
- Lack of transnational ICZM&P concepts
- Strong needs for harmonised GI for ICZM&P purposes

WP6: Climate Change Adaptation Scenario



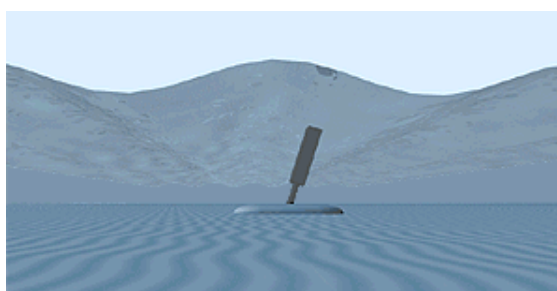
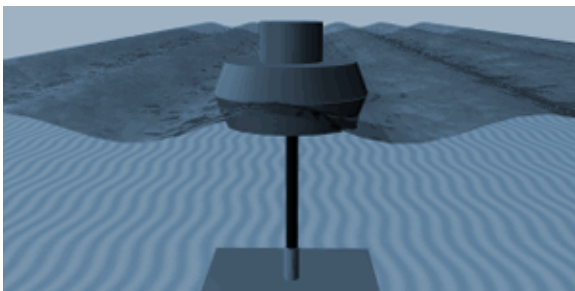
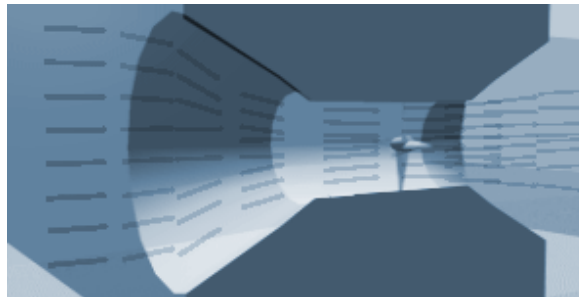
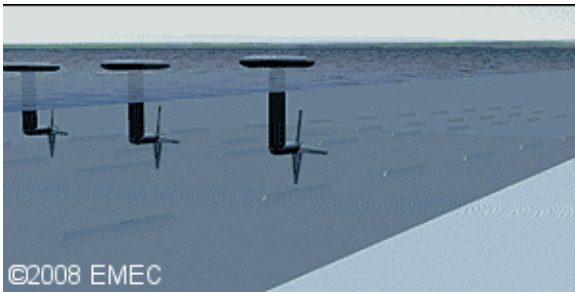
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WP6: Alternative Energy Mitigation Scenario



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BLAST is supporting a
clean, safe, attractive and
sustainable future
North Sea region.

Thank you for your attention.

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