BUNDESAMT FÜR SEESCHIFFFAHRT UND HYDROGRAPHIE

MARNET

BSH's Marine Environmental Network in the North and Baltic Seas

JERICO Fixed Platforms Workshop

Rome, 29th of February 2012

Detlev Machoczek

MARNET & FINO

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Tasks of the Marine Monitoring

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- Monitoring of physical and biogeochemical variables, mainly in German coastal waters
- Monitoring of the current state of the physical properties of sea water
- Monitoring of changes of marine climate
- Support of marine services (i.e. sea ice service, water level and storm surge forecast service)
- Support of operational models
- Calibration of remote sensing data
- Basics for the Offshore-Industry

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Goals:

- Basic information about local met-ocean conditions
- Long-term observation of main met-ocean parameters
- Registration of boundary conditions for atmospheric and hydrodynamic models
- Basic input for access and logistics
- Identification of “Extrem Events”
- Basics for load calculations

MARNET - Boundary Conditions

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MARNET-stations:

Positions off the coast
rough weather conditions
access by ship only
permanent operation
real time data

General Trends:

fast availability of data (world-wide),

preferably in real time ==> Internet
decreasing resources

MARNET - Boundary Conditions

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MARNET - Boundary Conditions

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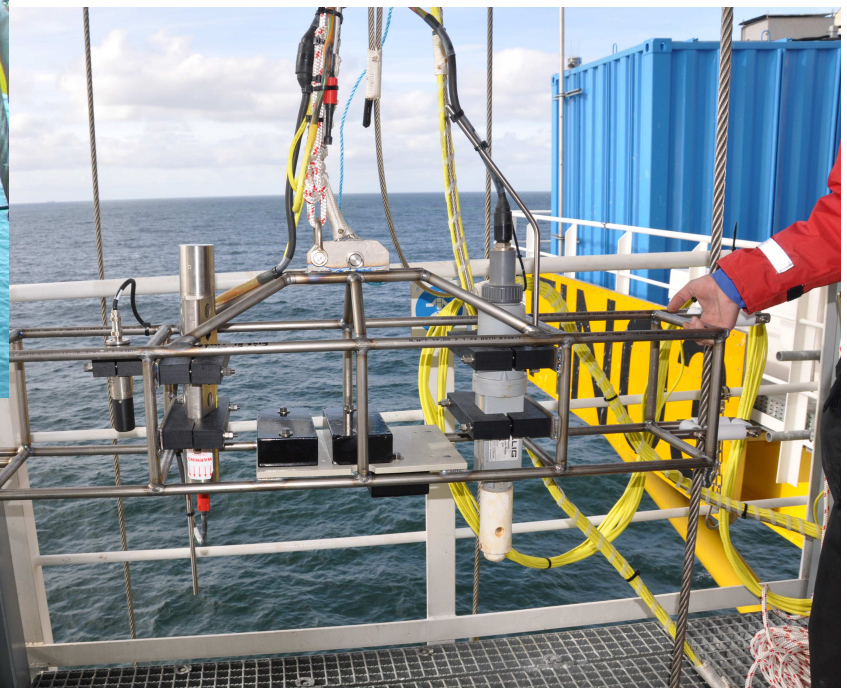

MARNET - Boundary Conditions

BUNDESAMT FÜR SEESCHIFFFAHRT UND HYDROGRAPHIE

MARNET - Boundary Conditions

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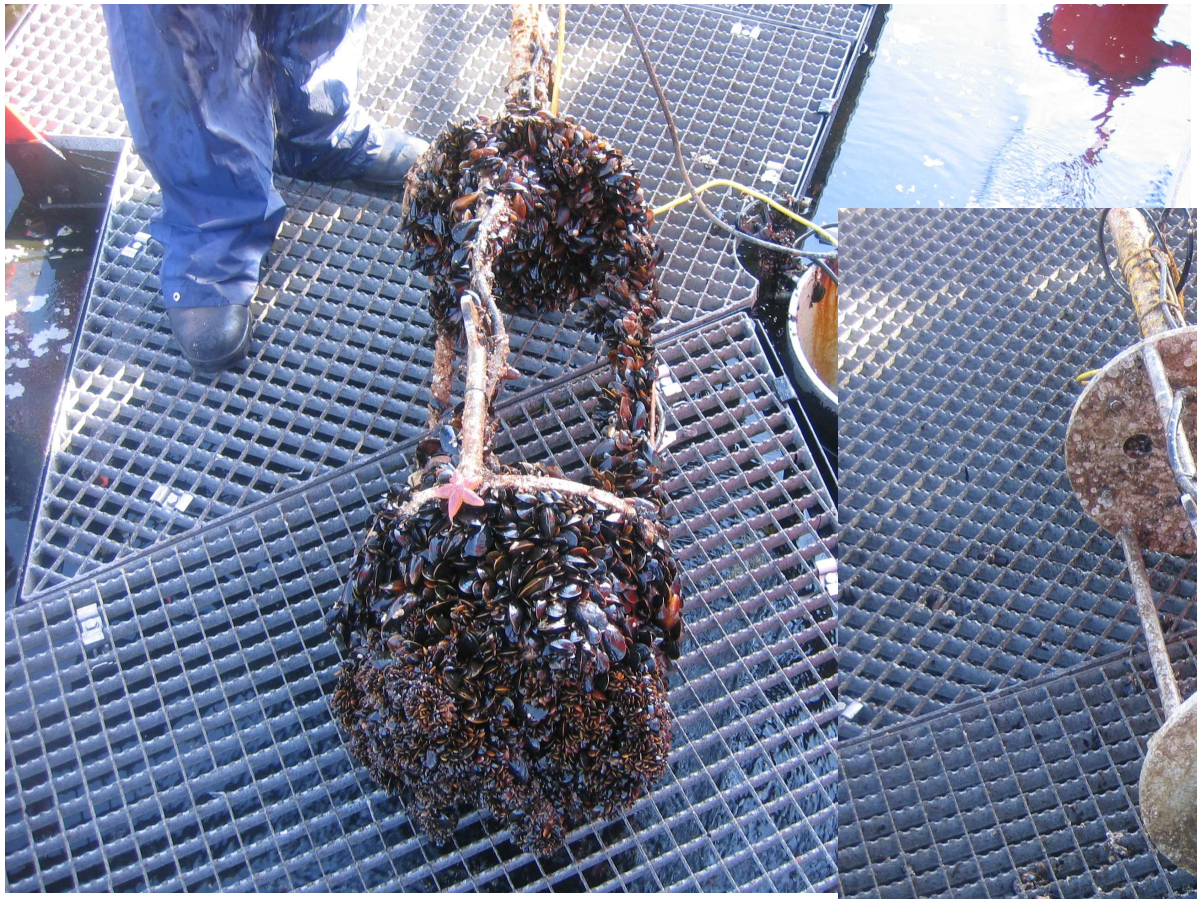
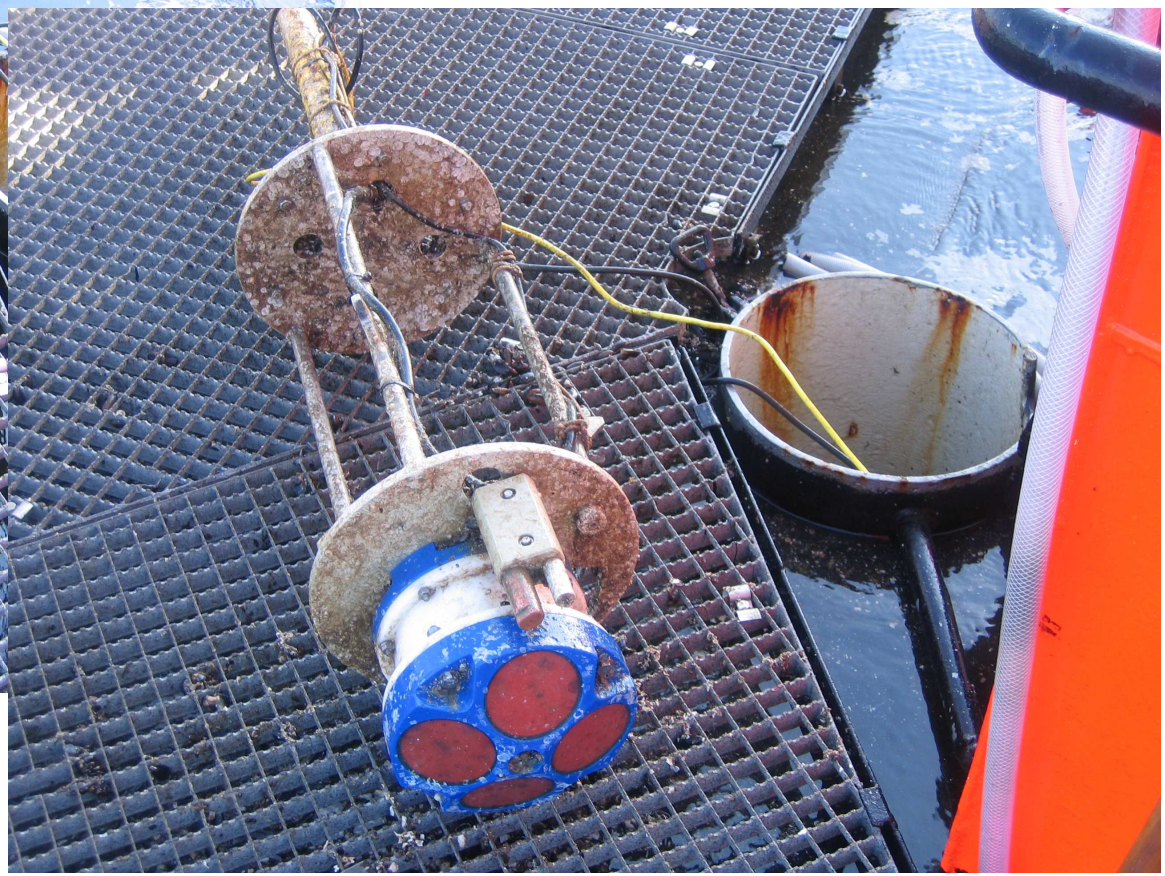
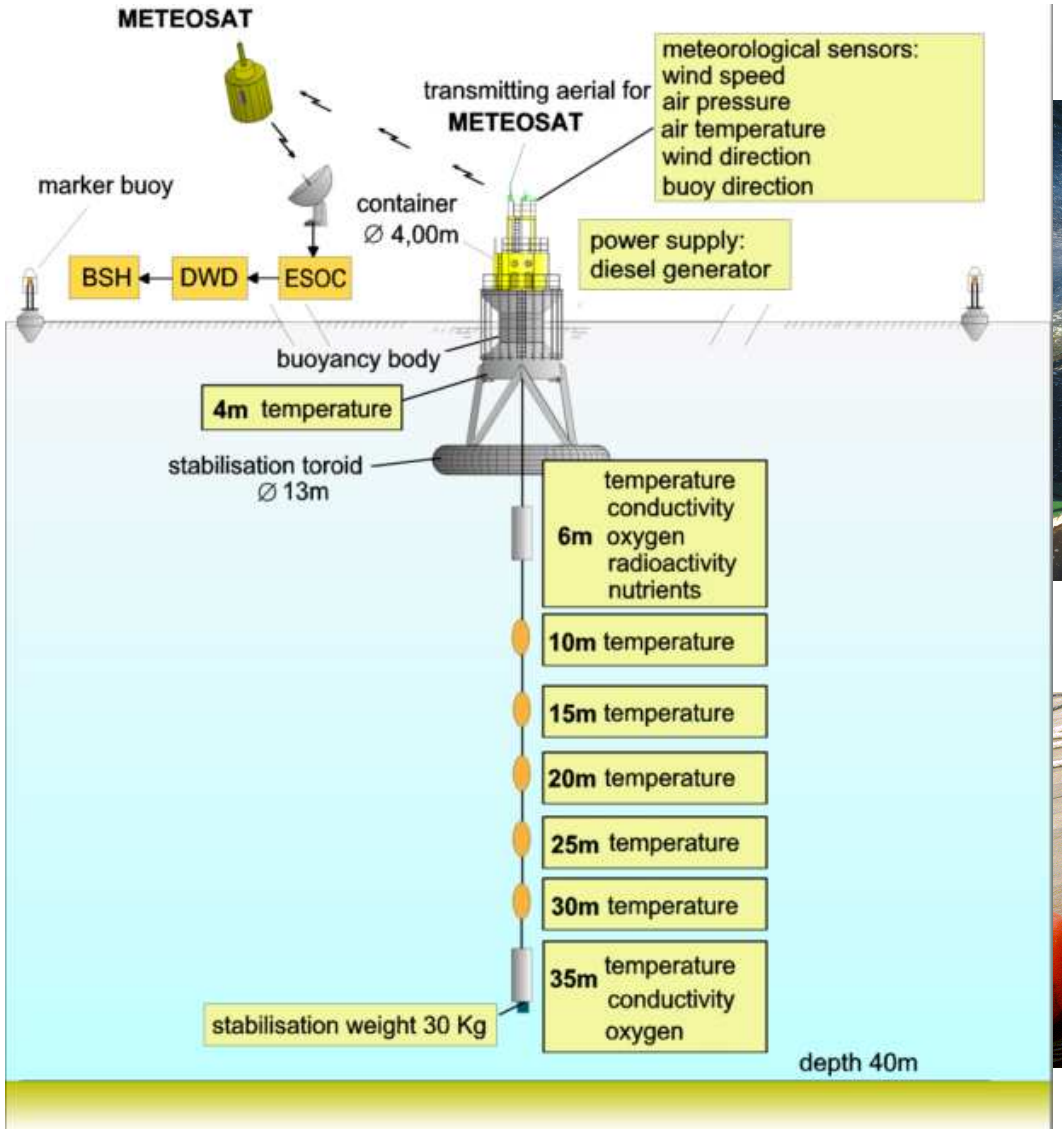
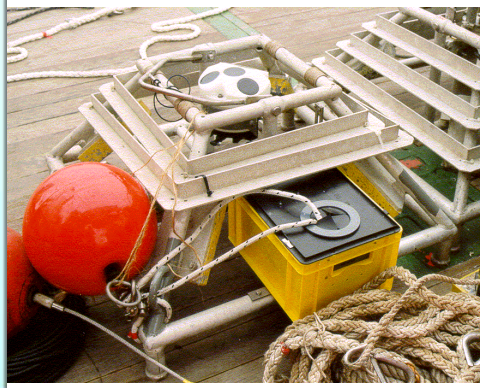




Station concept / measurement concept

BUNDESAMT FÜR SEESCHIFFFAHRT UND HYDROGRAPHIE





Station concept / measurement concept

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Meteorological System






central unit (MILOS)

sensors (wind, temperature, humidity, pressure)

add.sensors (sunshine, view)

NMEA Source (position, motion)

DCP (satellite communication)

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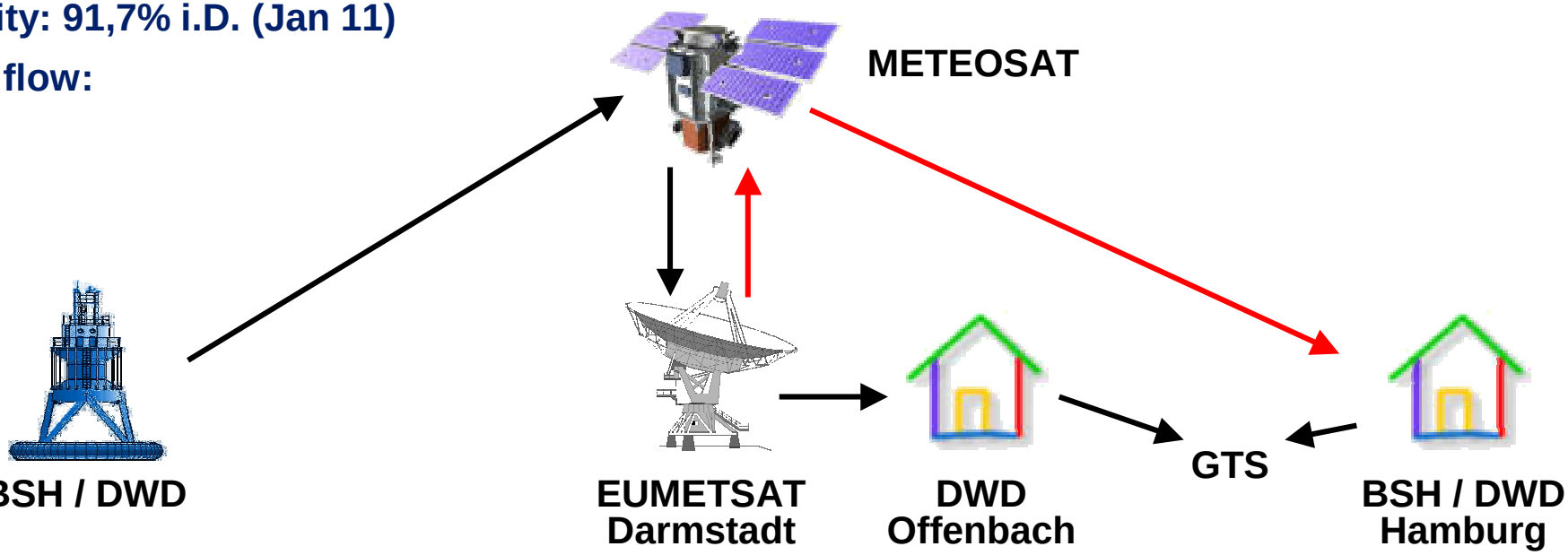
Data Transmission

Two transmissions per hour Std (1 x Meteo, 1 x Ozeano., optional . + 6 x Storm)

No transmission costs

Quality: 91,7% i.D. (Jan 11)

Data flow:



MARNET - Stations

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NORTH SEA BUOYS

NSB-3

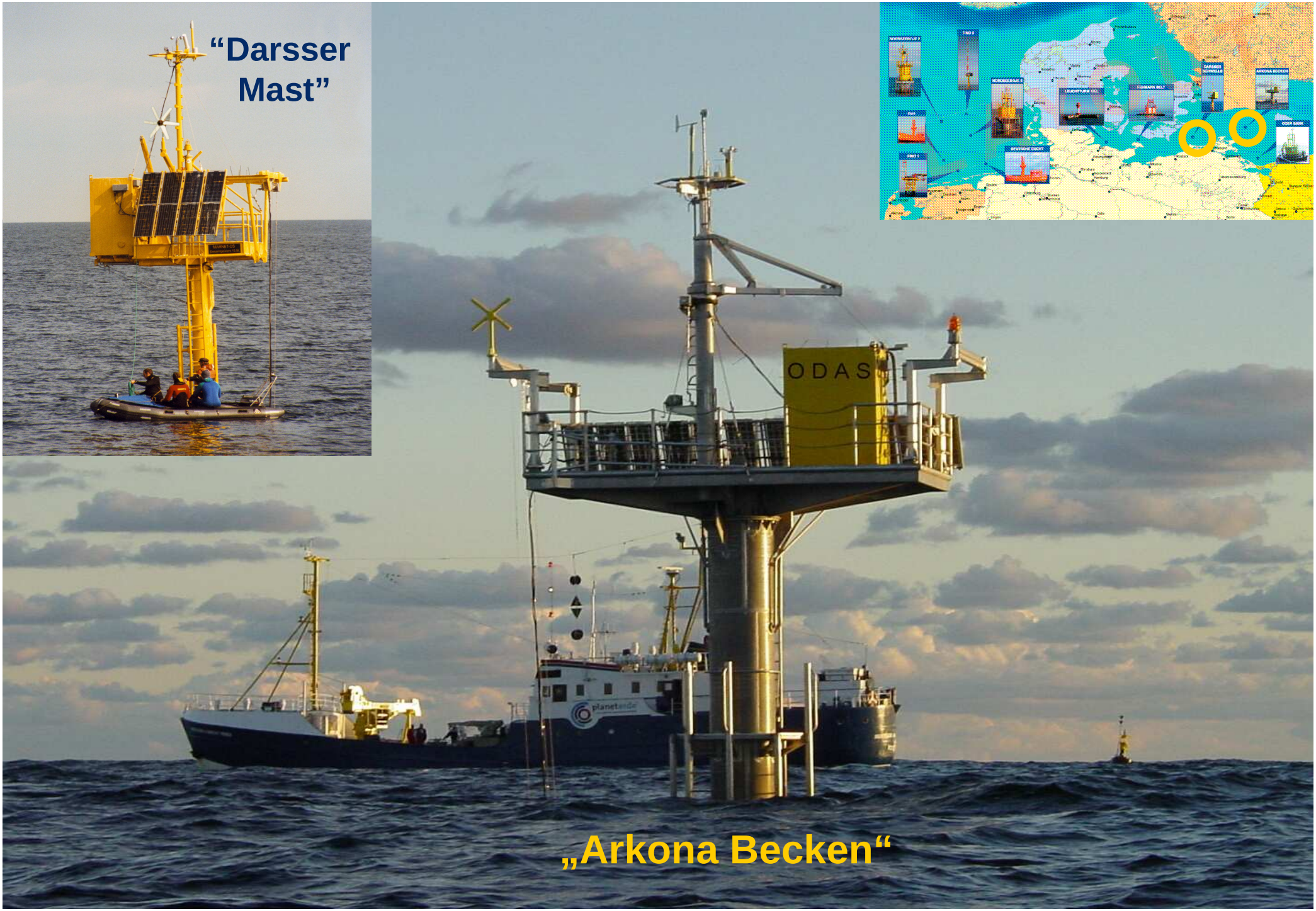
NSB-2

Unmaned Lightship „German Bight“ and „GW Ems“

Lighthouse „Kiel“

„FEHMARN BELT“ Buoy

“Oder Bank”
Buoy

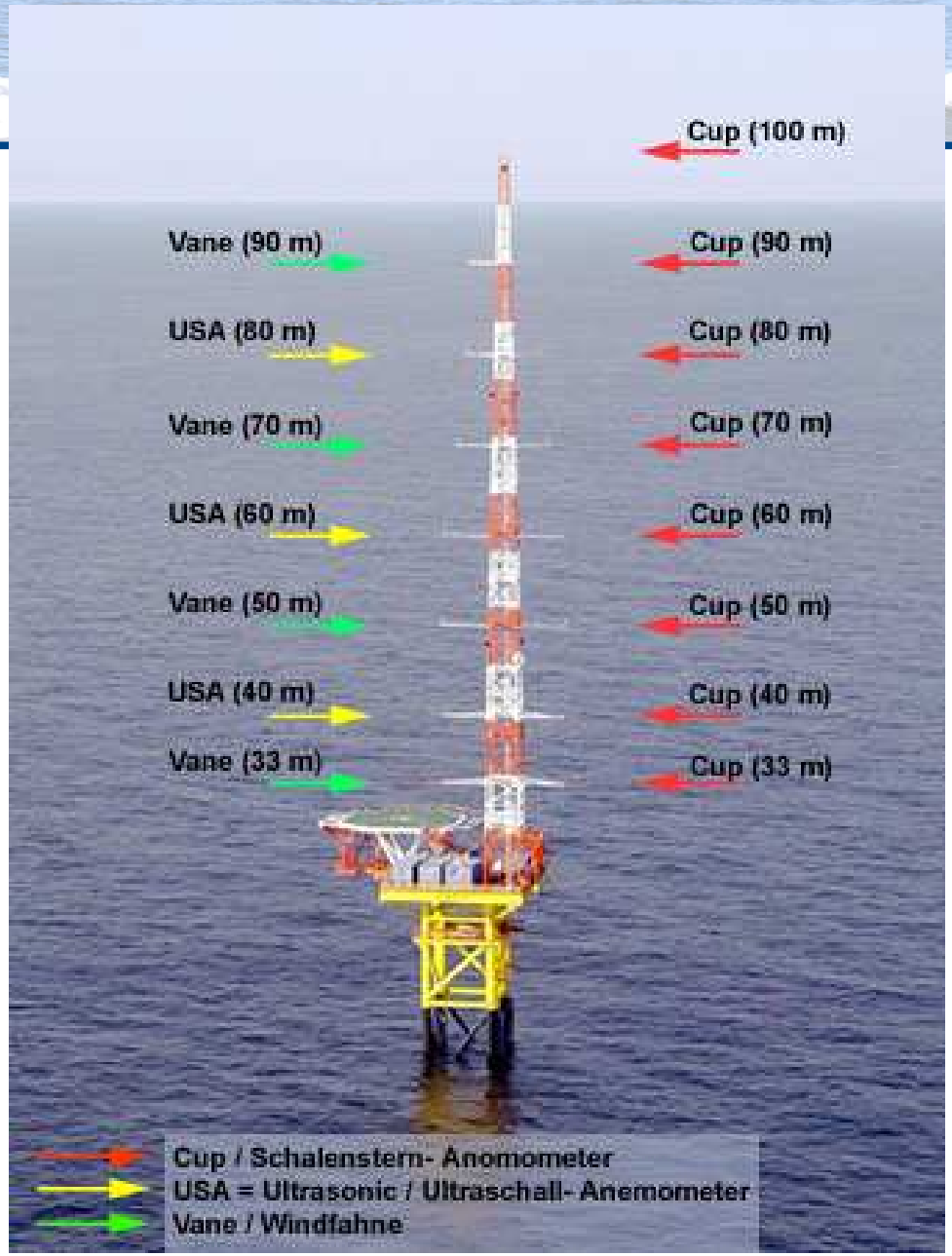

“Darsser Mast”
ODAS
„Arkona Becken“

FINO: Research Platforms in the North- and Baltic Sea

FINO 1

FINO 3

FINO 2



Offshore-Platform
FINO 1

general information:
www.fino-offshore.de

database:
fino.bsh.de

Measurements

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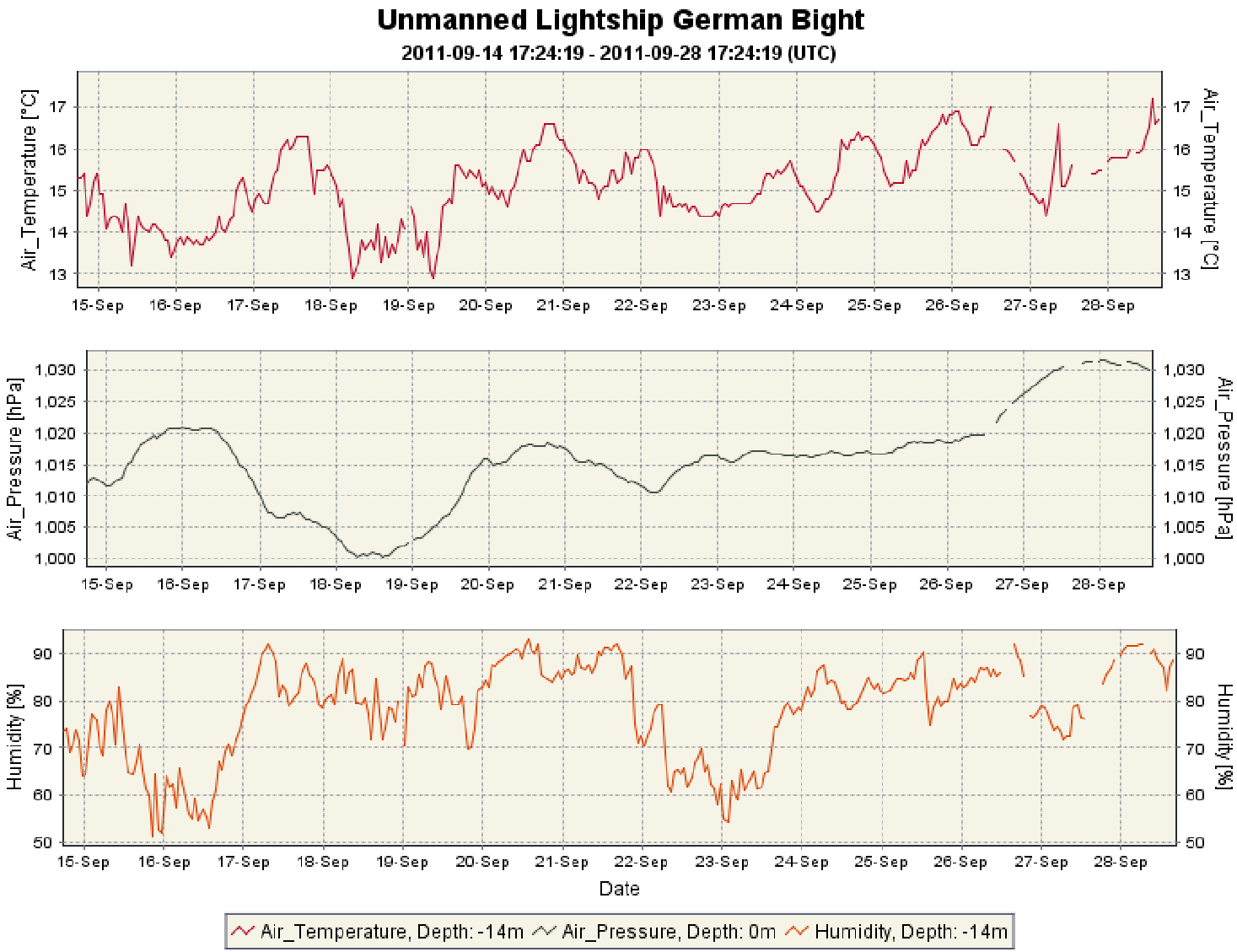

Measurements

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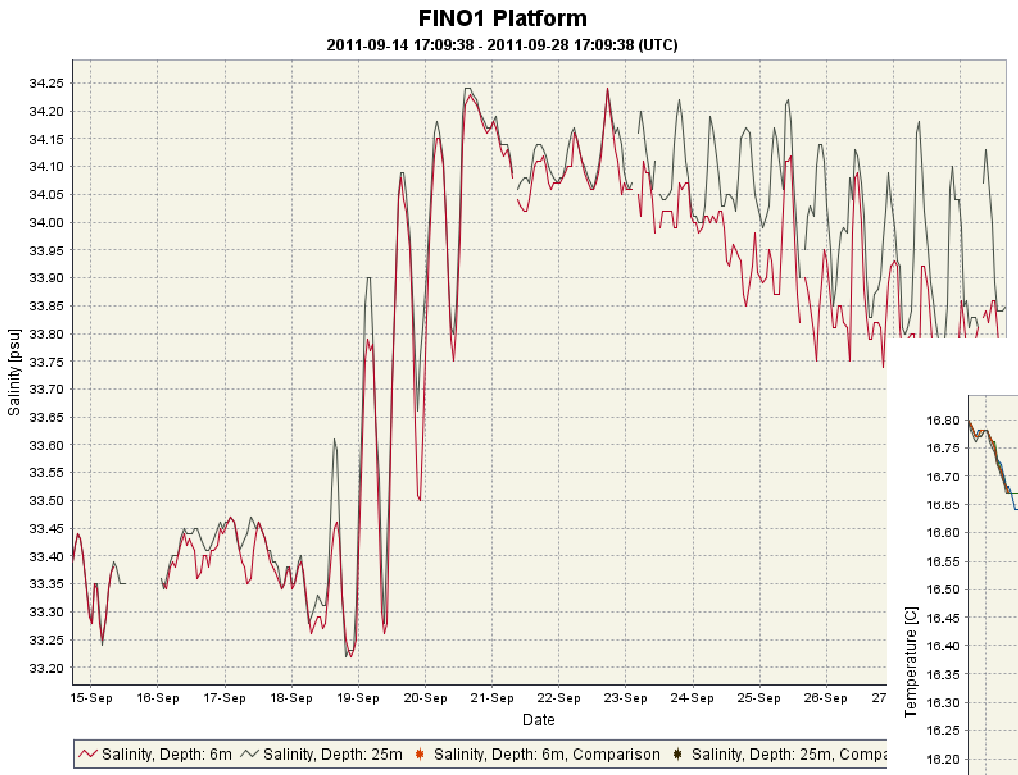

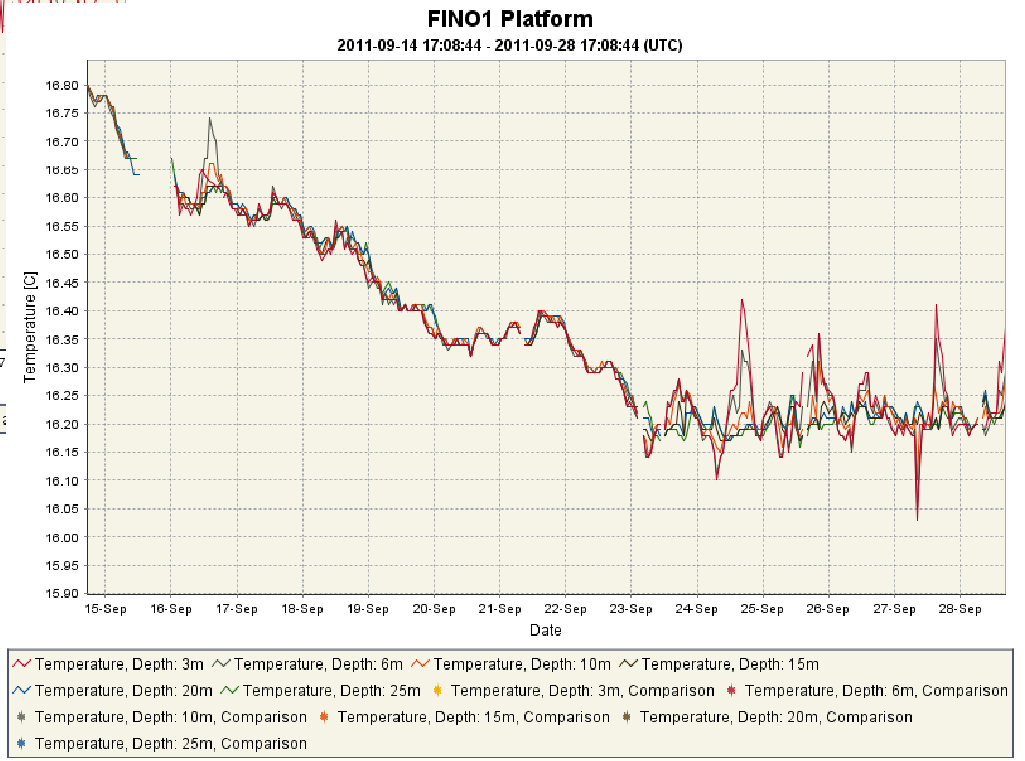

Measurements

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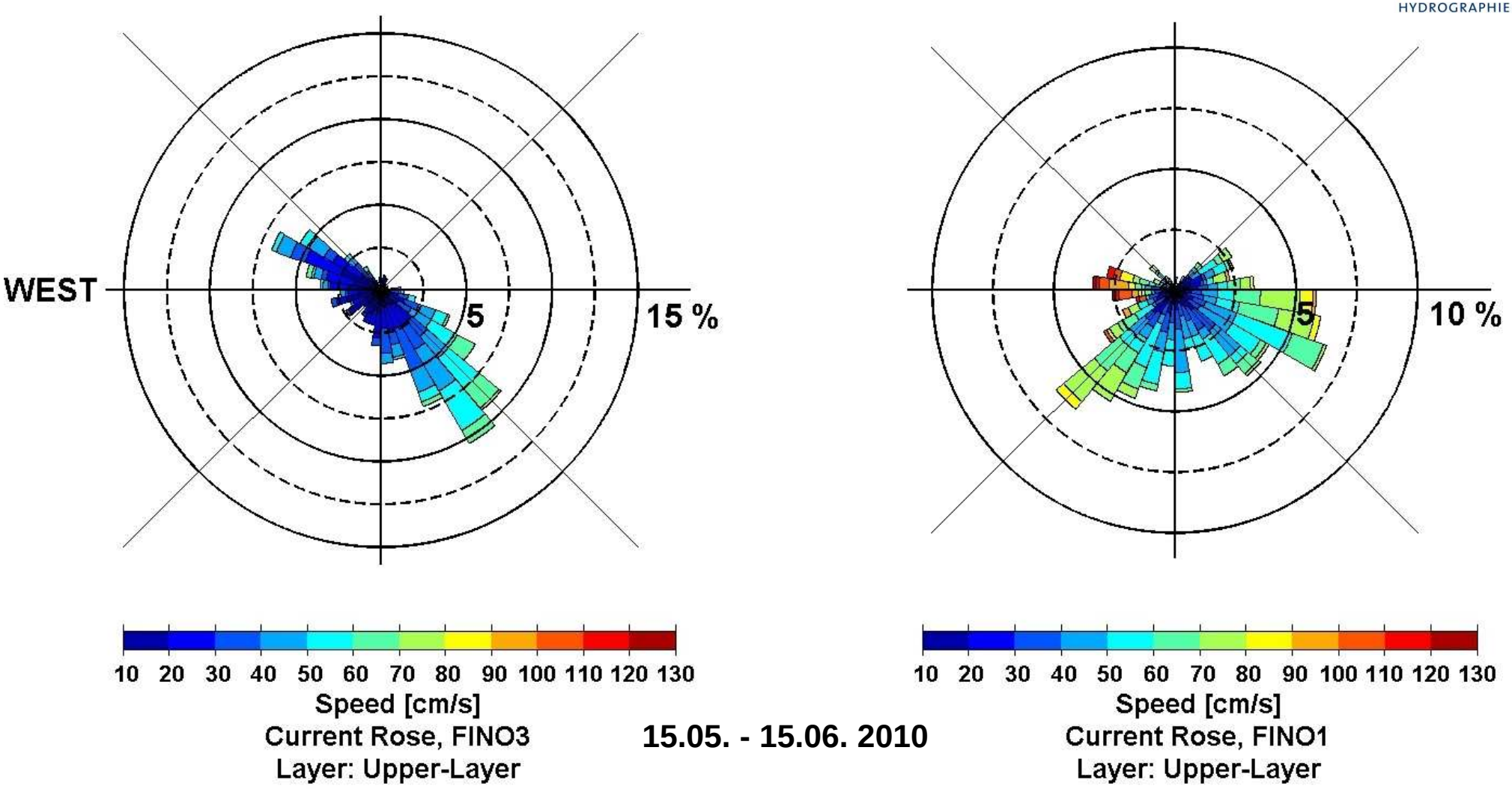
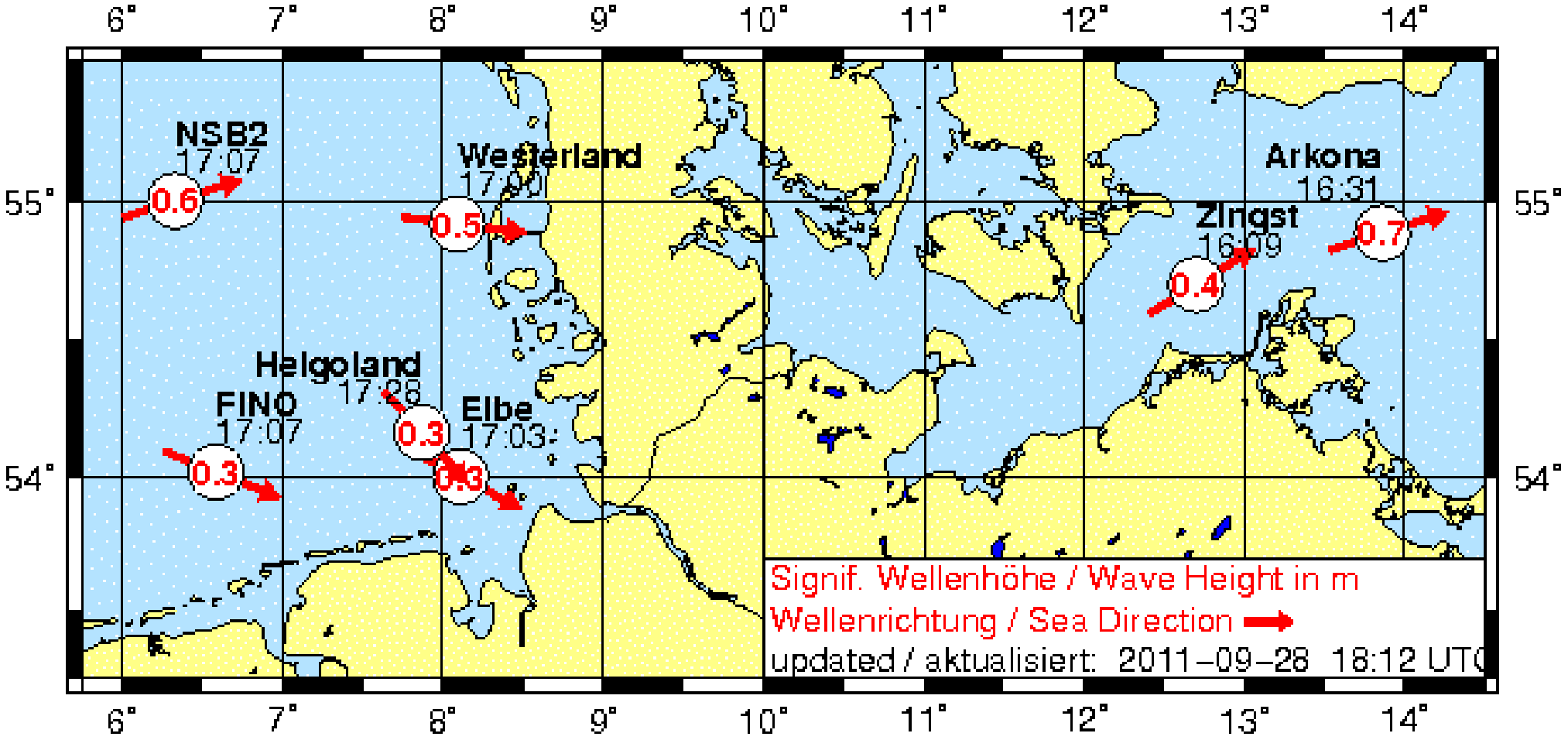


Special focus - wave measurements

BUNDESAMT FÜR SEESCHIFFFAHRT UND



Special focus - wave measurements

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Instrumentation

Buoy

AWAC

X-Band marine radar

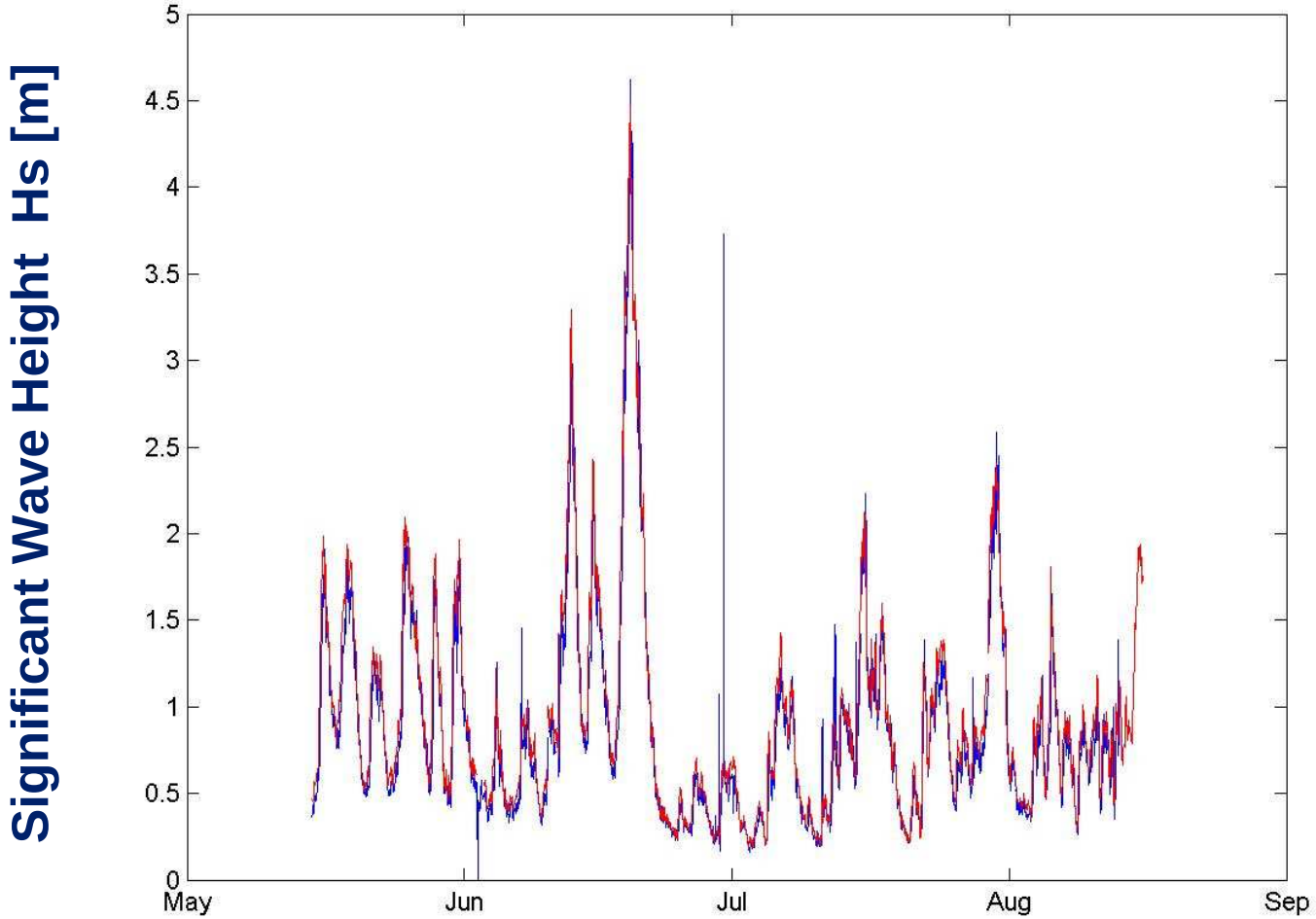
Radar gauges

Wave camera

Special focus - wave measurements

BUNDESAMT FÜR SEESCHIFFFAHRT UND HYDROGRAPHIE

Comparison VEGA - buoy



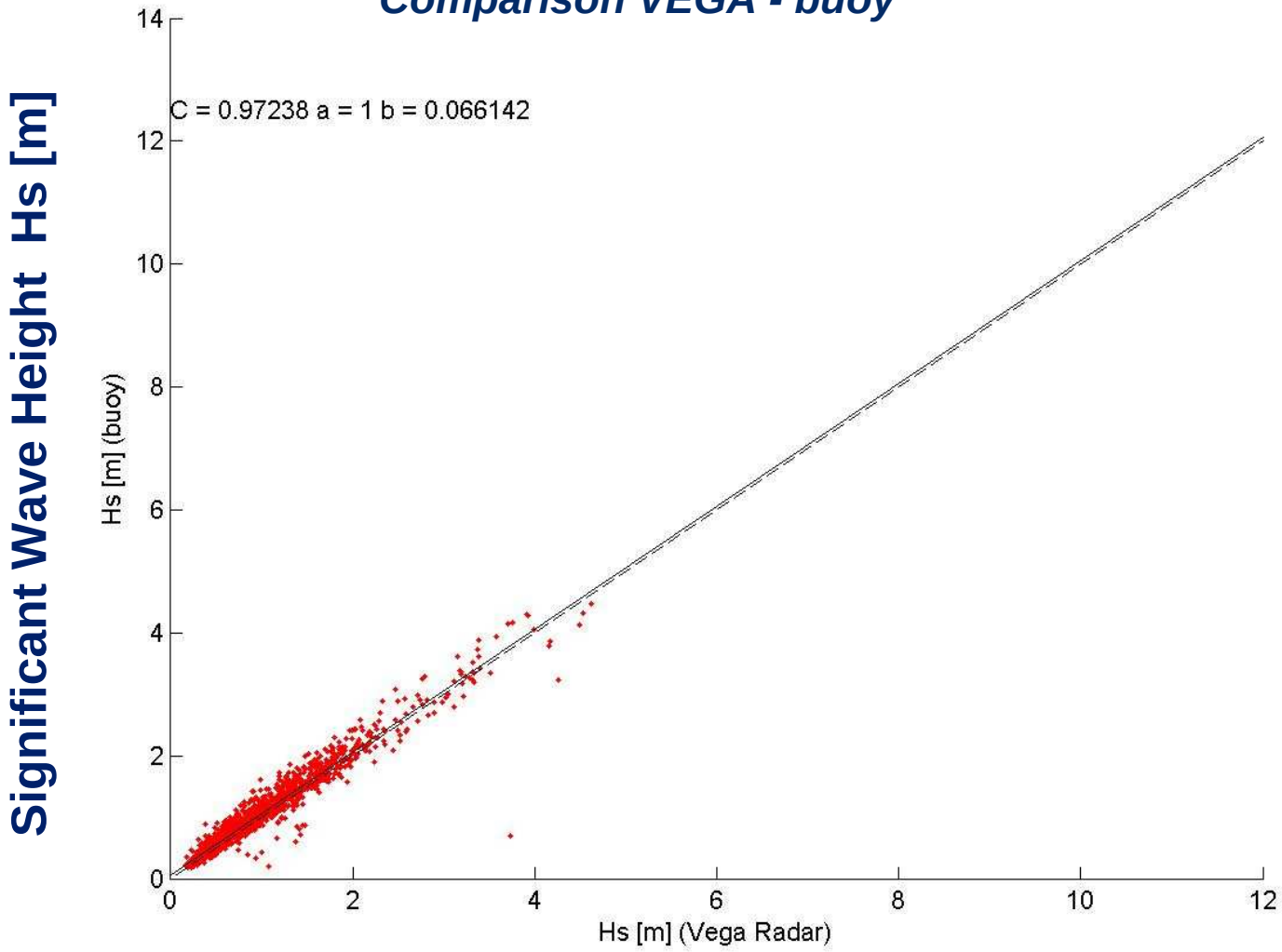
Buoy

Radar gauge

C = 0.97

BUNDESAMT FÜR SEESCHIFFFAHRT UND HYDROGRAPHIE

Comparison VEGA - buoy

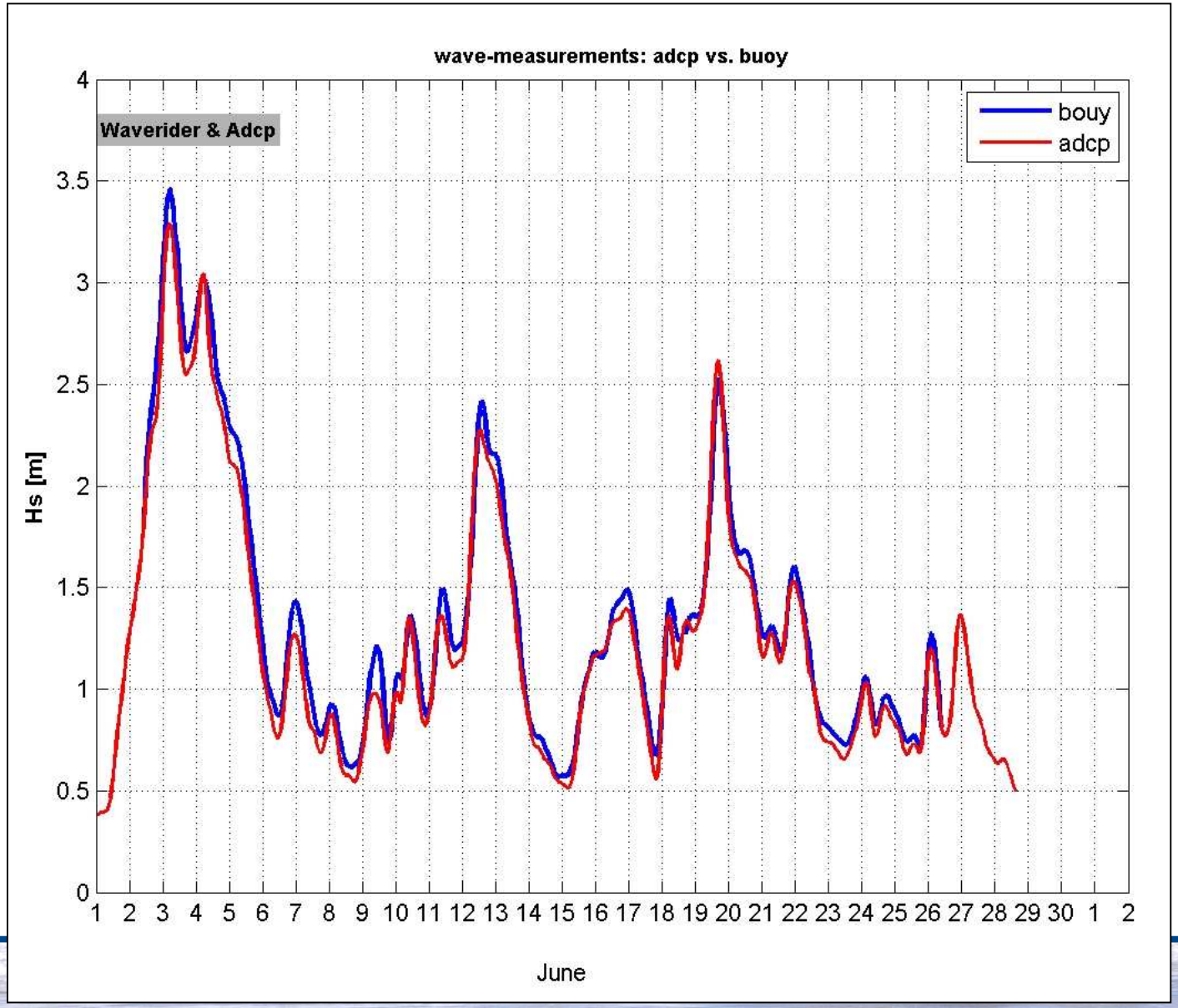


Buoy

Radar gauge

Special focus - wave measurements

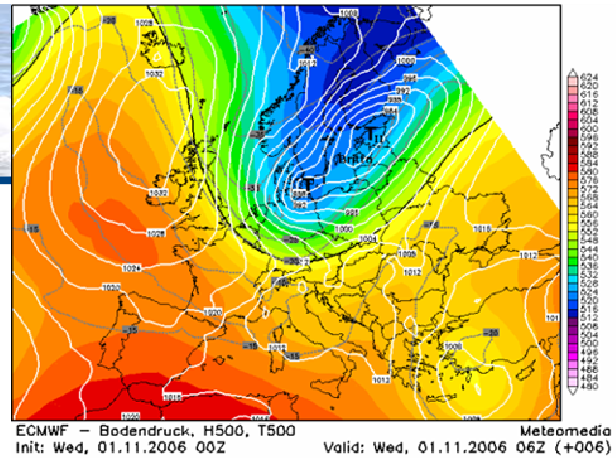
BUNDESAMT FÜR SEESCHIFFFAHRT UND HYDROGRAPHIE



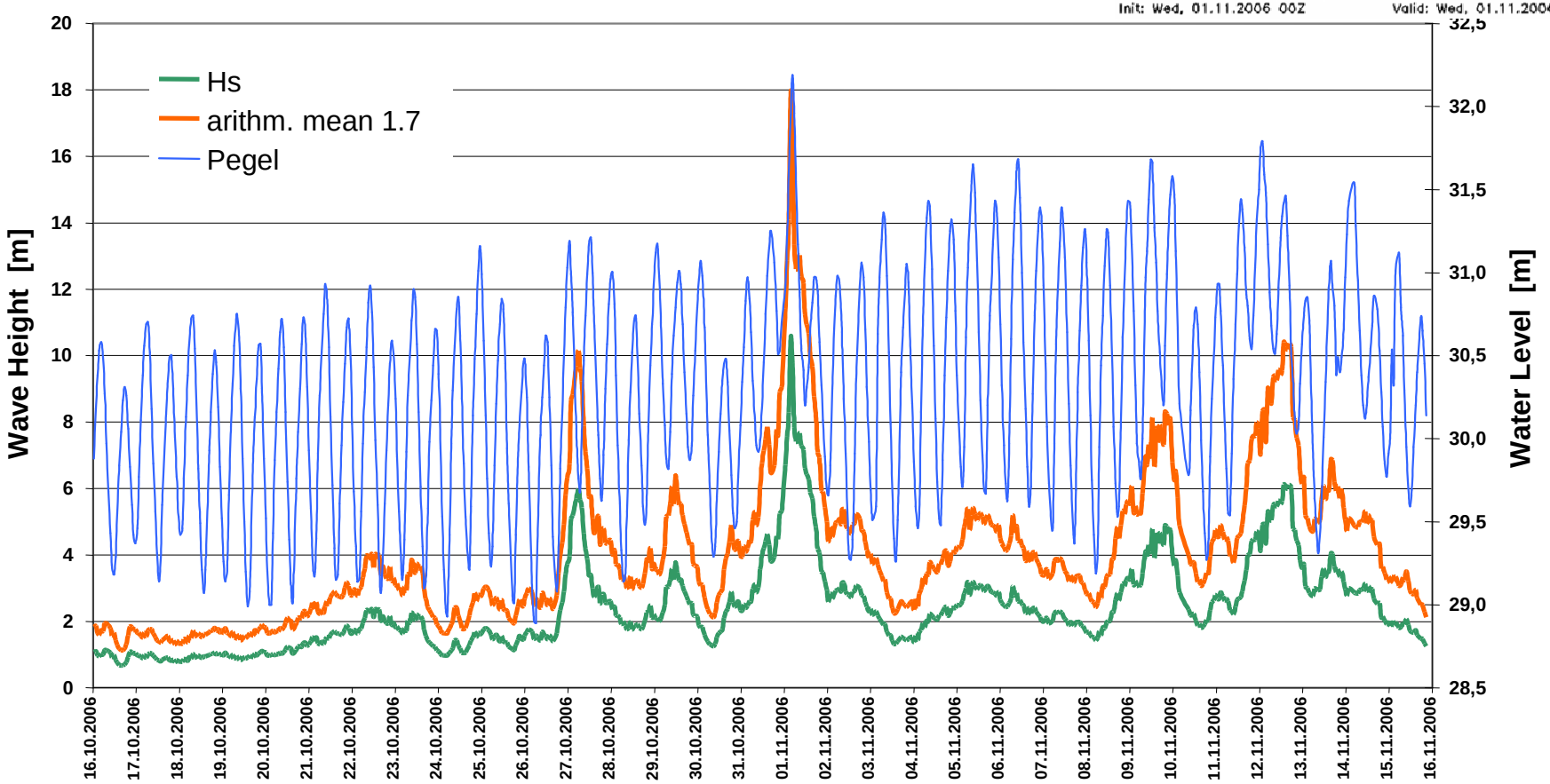
June 2009

C = 0.96

Special focus - wave measurements



FINO 1
Storm Event 01. Nov. 2006



Special focus - wave measurements

BUNDESAMT FÜR SEESCHIFFFAHRT UND HYDROGRAPHIE

Storm Event
1st of Nov. 2006

15m (LAT)

Sea State

BUNDESAMT FÜR SEESCHIFFFAHRT UND HYDROGRAPHIE

Special focus - wave measurements

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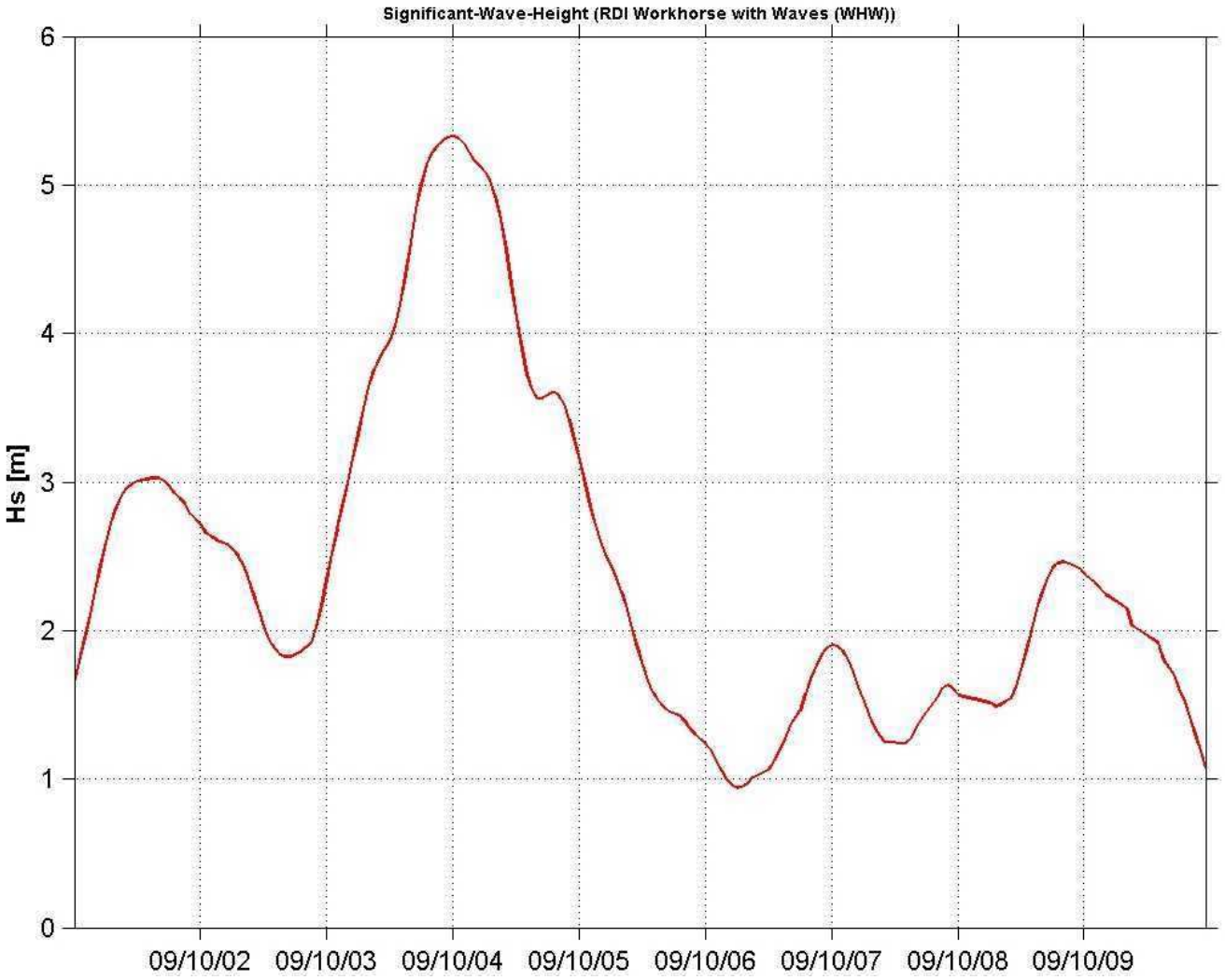

Storm event October 2009

***Hs* ~ 5 m**

***Hmax* ~10 m**

BUNDESAMT FÜR SEESCHIFFFAHRT UND HYDROGRAPHIE

Future objectives :

- Optimisation of the measurement system
- Intensification of see state analyses
- Intensification of current analyses
- Implementation of hydrophones according the demand of the MSFR
- Implementation of other parameters