NeXOS:
INSPIRE Compliant Data Flows from Marine Observation Platforms into Spatial Data Infrastructures

INSPIRE Conference 2017

Simon Jirka, Joaquin del Rio, Eric Delory, Simone Meme, Jay Pearlman, Matthes Rieke, Daniel Mihai Toma, Christoph Waldmann
NeXOS

Next generation, Cost-effective, Compact, Multifunctional Web Enabled Ocean Sensor Systems Empowering Marine, Maritime and Fisheries Management

- Project number: 614102 (FP7-OCEAN-2013.2)
- Duration: October 2013 - September 2017
- EC Contribution: 5.9M€ / 8M€
- 21 partners from 6 European countries
- Coordinator: Eric Delory (PLOCAN, Spain)
Goals

- Facilitate the provision of marine sensor data
- Cover the full flow between device and application
- Two main aspects
  - Facilitate sensor integration
  - Rely on SDI concepts for sharing the collected data
Sensor Integration

- Facilitate the integration of instruments on platforms
- Provide an universal instrument driver → no instrument-specific driver code
- Use OGC PUCK protocol to read SensorML from device
- SensorML describes manufacturer’s command protocol
- Use manufacturer protocol to configure, initialize instrument and acquire its data
- Automatic configuration of the full sensor data flow → from the sensor to Web application
Sensor Integration
Sensor Integration

• Implementation completed, demonstrations ongoing
• Demonstrated for
  - Gliders
  - Sail buoy
  - Cabled observatories
  - Research vessels (ferry boxes)
• Efficient data transmission
  - EXI binding for SOS/O&M
  - For data publication: ResultHandling operations of the SOS interface
NeXOS Sensor Web Infrastructure

- Share collected observation data via the Web
- Interoperability
  - Multiple observatories, data providers, platform/sensor types, etc.
  - International data sharing
- Rely on INSPIRE principles
  - OGC Sensor Observation Service as Download Service → see recently published Technical Guidance document
    - Technical Guidance SOS as a download service:
  - Use O&M and INSPIRE Observation Types recommended in Technical Guidance
    - Guidelines for O&M (D2.9):
NeXOS Sensor Web Infrastructure

- Demonstration:
  - http://nexos.demo.52north.org/demo-client/
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Future Work

• Marine Sensor Web Profiles
• Extend the use of vocabularies
• Further ongoing projects will continue the activities, e.g.
  - SeaDataCloud
  - BRIDGES
• SensorML-based metadata editors
Conclusions

- Covering the full data flow from sensing device to (Web) applications
- Interoperability between multiple data providers and sensor platforms
- Efficient integration of new sensors
- SOS and O&M are a valuable foundation for sharing observation data
- High importance of metadata
Acknowledgements

NeXOS has received funding from the European Union’s Seventh Programme for research, technological development and demonstration under grant agreement No 614102.
Thank you for your attention!

More information:

http://52north.org

jirka@52north.org

http://www.nexosproject.eu/