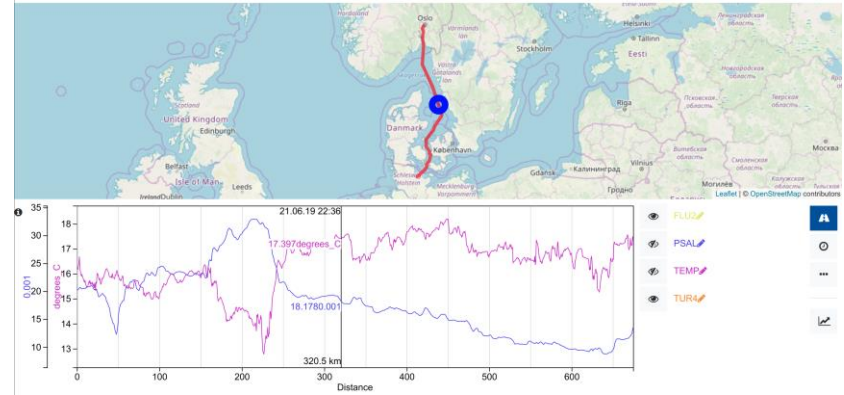
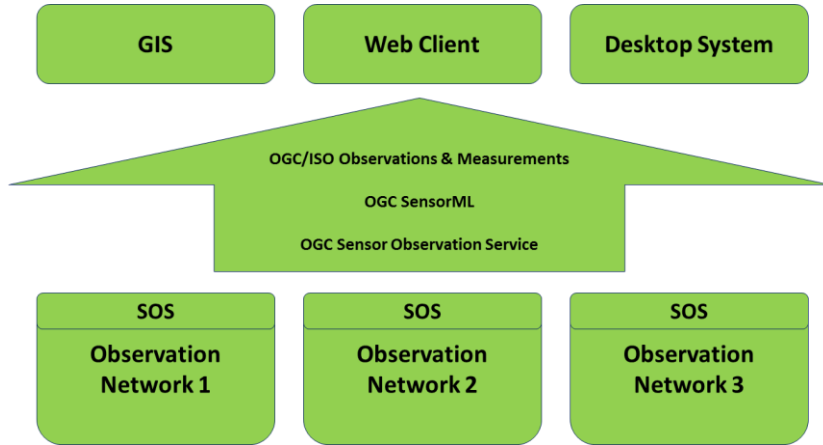




**SensorThings API and the OGC API family of standards:  
A new generation of interoperability standards for research  
data infrastructures to further improve the sharing of ocean  
observation data**

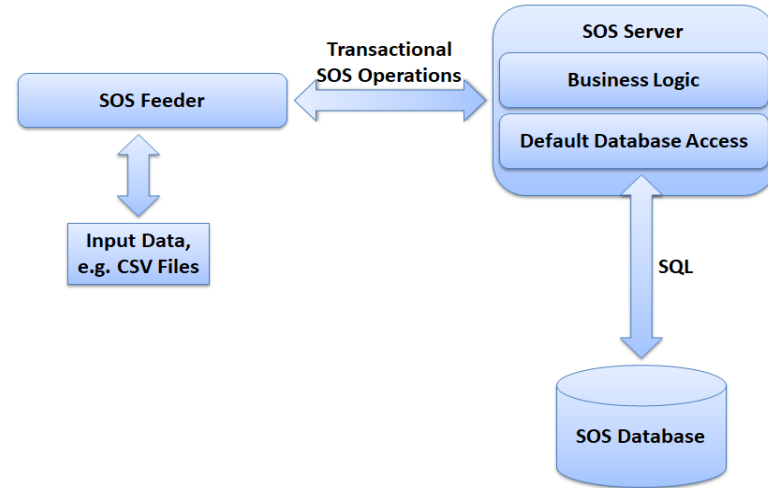
Simon Jirka, Christian Autermann, Jan Speckamp and Matthes Rieke  
52°North GmbH, Münster, Germany, [jirka@52north.org](mailto:jirka@52north.org)

# Sensor Web for Marine Observation Data

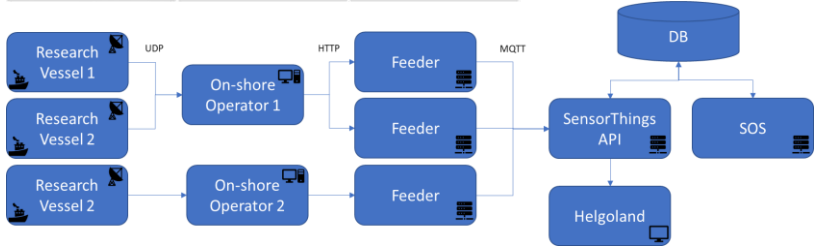
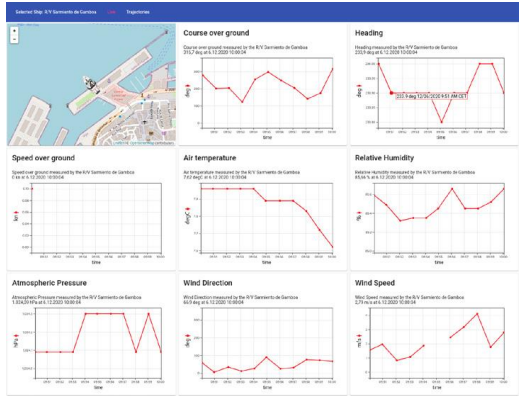
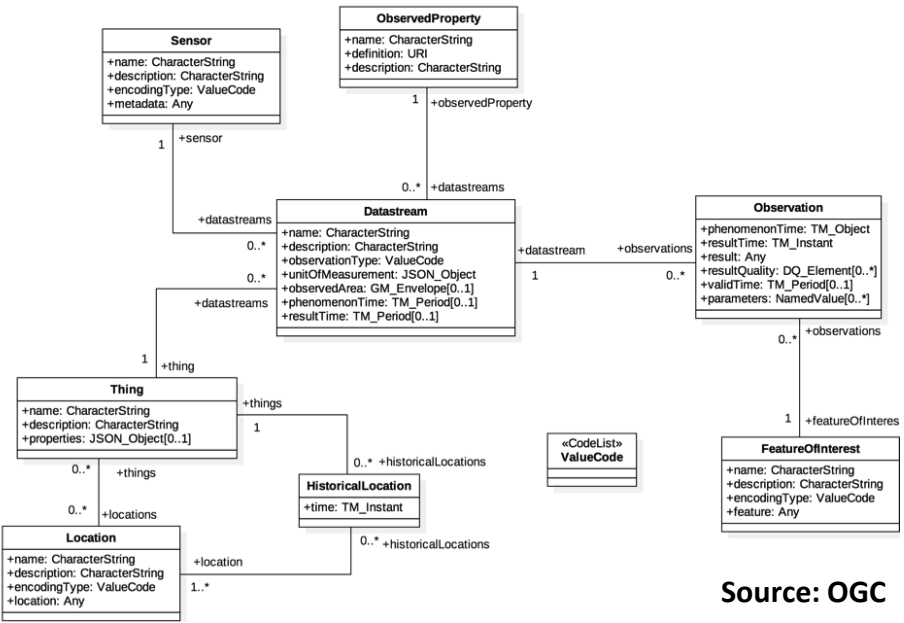


# OGC Sensor Observation Service

- Remote Procedure Call (RPC)-based access to
  - \_ sensor data
  - \_ corresponding metadata
- Pull-based
- SOS standard defines a set of operations and their query parameters
- Typically provides XML-based outputs (although other formats are possible)

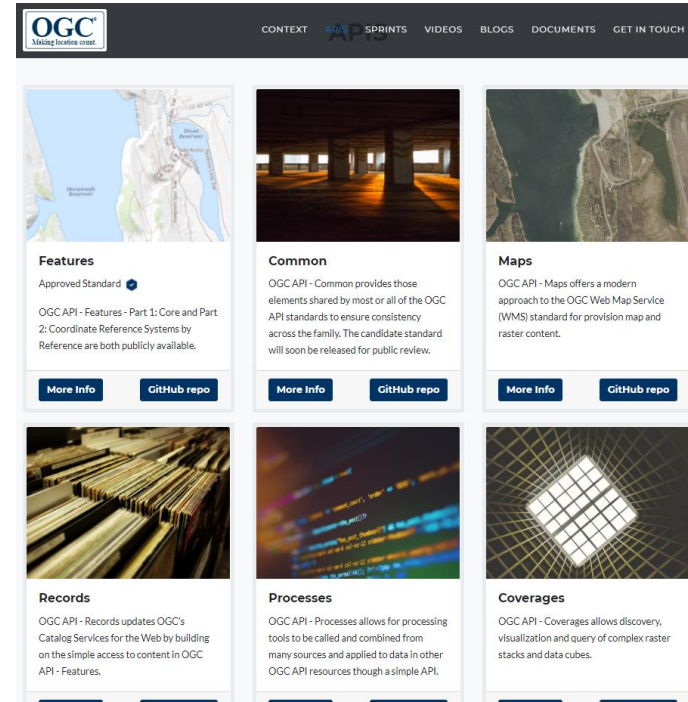


# OGC SensorThings API



# OGC API Family of Standards

- New generation of the OGC baseline architecture
- Based on mainstream technologies such as OpenAPI
- Coherent and modular framework comprising the functionality currently offered by typical OGC Services
- OGC API for Features → access to vector data
- Environmental Data Retrieval (EDR) API → access to environmental data



Source: OGC

# Opportunities

- Efficient RESTful interfaces with powerful query options and developer-friendly JSON encodings
- Support of MQTT data streams by the STA specification
  - \_ Enables efficient push-delivery of observation data
  - \_ Cover the transmission
    - > from devices into data repositories
    - > from data servers to end-user applications
  - \_ Latency of the data provision can be significantly reduced
  - \_ Supply larger numbers of clients while ensuring a good scalability
- Modular structure of the OGC API family of standards
  - \_ Facilitate the interlinking between different types of resources

# Open Challenges

- Marine Sensor Web Profiles and Best Practices
  - \_ Align with the new specifications
  - \_ E.g. JSON-based representations for sensor metadata
- Define dedicated observation types for typical marine use cases
- Specify the payload of MQTT streams
  - \_ Including patterns for registering new sensors
- Link to vocabularies
- Access control

# Conclusion

- Valuable enhancements to further evolve Sensor Web infrastructures
- Increase the acceptance through developer friendly approach
- Real-time data delivery
- Linking between different types of data



# Thank you for your attention!

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