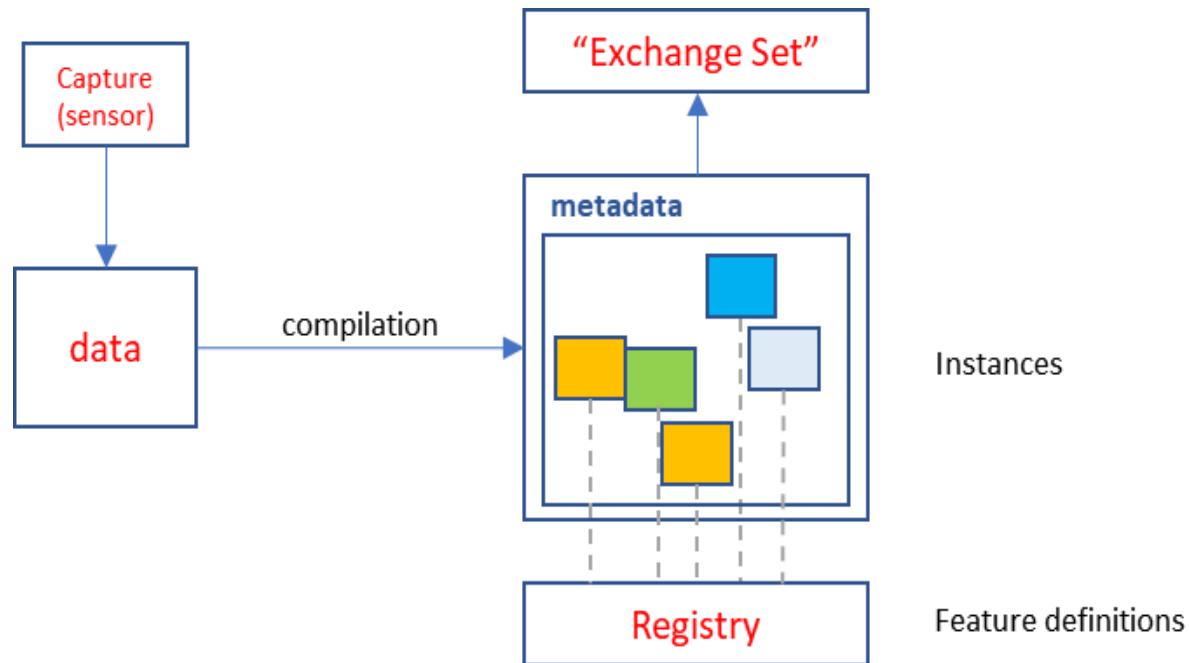# IIC TECHNOLOGIES

NEW PATHS. NEW APPROACHES

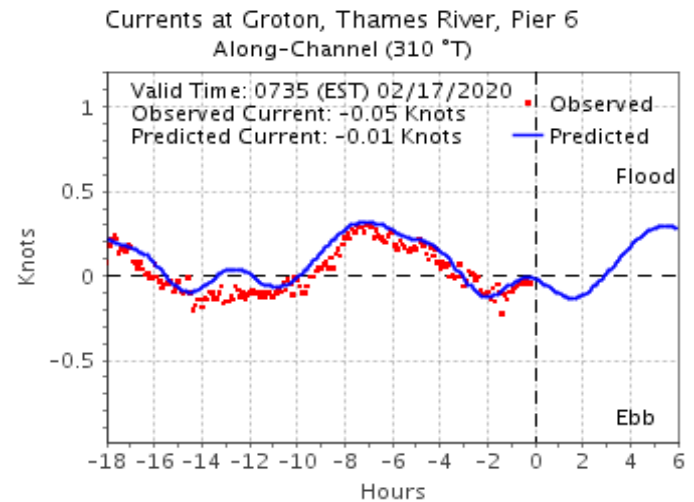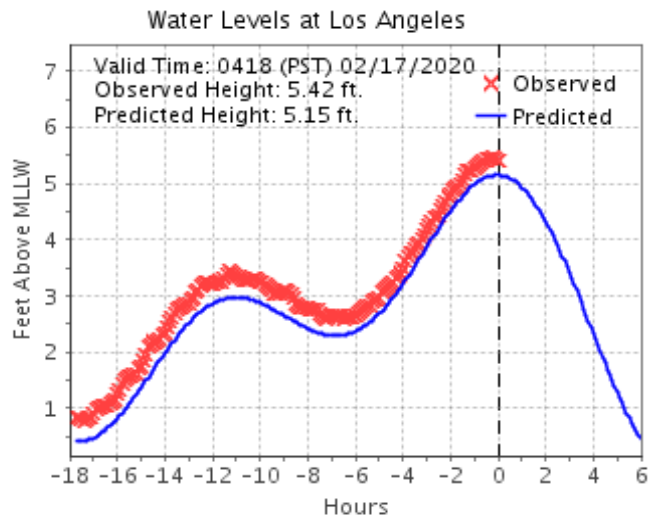# real-time data and S-100

v1.0 March 2nd - 2020

Goals

- Overview of options for support of real-time data within S-100

- Examples

- Potential liaison with other organisations for progressing

Existing Support

IIC TECHNOLOGIES

- S-100 support currently is mainly "dataset based" – exchange sets.

- Part 14 also deals with distribution of stream based data.
    - Part 14 describes how data can be streamed using SOAP/XML
    - References ISO/OSI reference model

- Content is not dealt with exhaustively. Part 14 could use some revision to bring it up to date

- Proposal to include more complete handling for real-time data types within S-100

Existing Support

- S-100 support currently is "dataset based" – exchange sets.

- Instances of features defined by product specification, compiled from source / capture and rendered as features defined under the IHO geospatial registry

Examples

- Examples of NOAA real-time data sources.

Water Levels at Los Angeles

Valid Time: 0418 (PST) 02/17/2020
Observed Height: 5.42 ft.
Predicted Height: 5.15 ft.

Currents at Groton, Thames River, Pier 6
Along-Channel (310 °T)

Valid Time: 0735 (EST) 02/17/2020
Observed Current: −0.05 Knots
Predicted Current: −0.01 Knots

Proposal

IIC TECHNOLOGIES

- Characteristics of real-time data:
  - Generally, little "compilation" process. Data from sensors is streamed, generally through API access
  - Implicit temporal element in data
  - Data content is not necessarily "exchange sets" but could be single features with much smaller metadata content and overhead

- Enhance S-100s handling of real-time data by:
  - Being more specific about how the "content" is modelled and transported to the end user.
  - Include data integrity and security from Part 15 – modify to include feature level integrity and security
  - Refresh Part 14 to make it normative
  - Ensure that the content of real-time data conforms to S-100 encodings
  - Implement standardised API model if possible. Research use of OGC API standards for transport of data

Capture (sensor)

data

metadata

Instances

Registry

Access
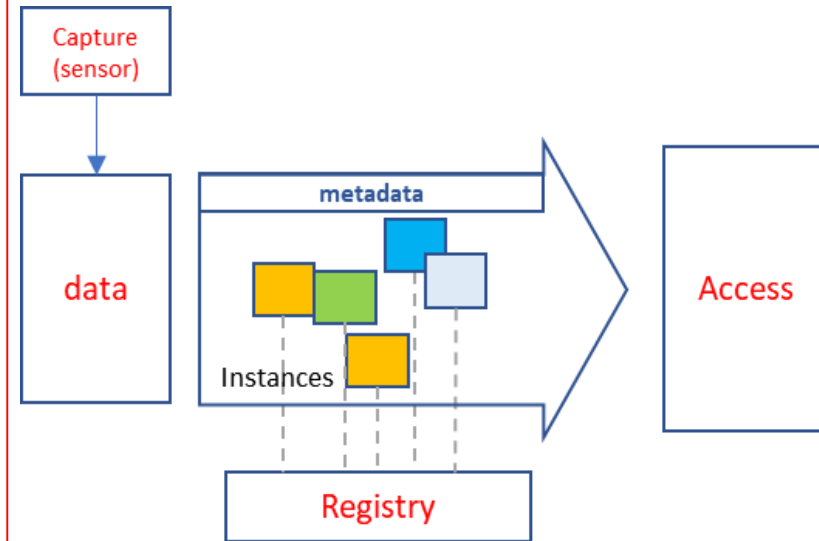
Using OGC standards

- Is it possible to accomplish this by documenting how existing (and future) OGC standards can be used to achieve the required goals?

- OGC has an established framework (sensor web enablement, SWE) which deals with all aspects of sensor based data transfer

- OGCs new API standards are content neutral and achieve a lot of the end goals.

- Harmonising IHO modelling and encapsulation of data (including security) together with OGC methods of data transfer might reduce rework and duplication.

- **Some enhancements to S-100 still required. Notably Part 15 should be enhanced to provide "feature-level" security and integrity measures.**

OGC®
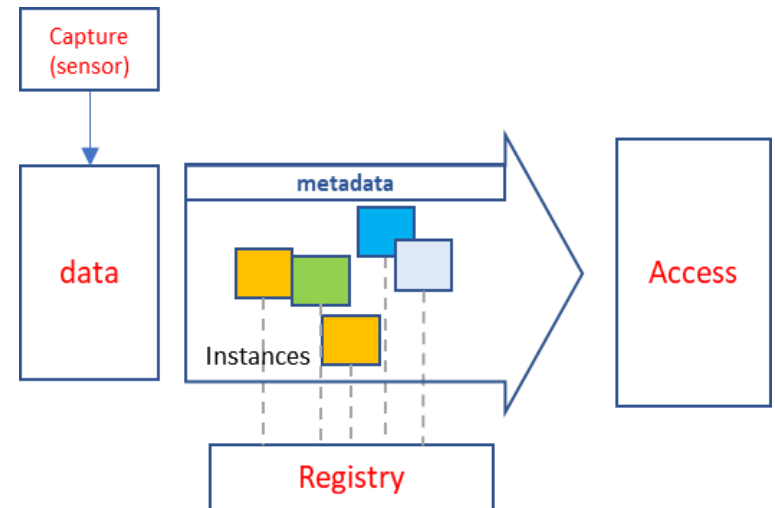
The S-100WG5 is asked to…

- Note the contents of the paper submitted

- Comment on further use cases for handling of real-time data within S-100.

- Acknowledge the potential for joint approach to the problem with OGCs Marine Domain Working Group (MDWG)

- Endorse the approach and recommendations.