O2A: Data flow from Observations to Analysis & Archives

Welcome to O2A

Questions, feature requests, bugs?: o2a-support (at) awi.de.
Interested in learning more? Attend our training/webinar series or watch the recordings.

YouTube Channel

Watch our YouTube channel to learn how to use our components and services!

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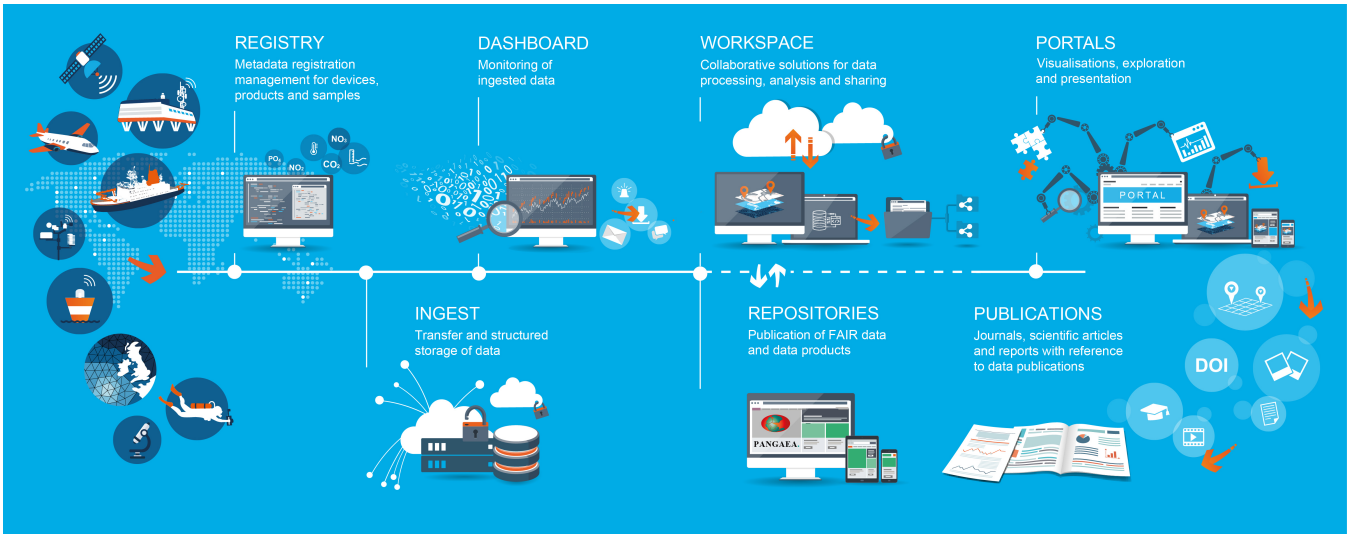
Background

The Alfred Wegener Institute (AWI) Helmholtz Centre for Polar and Marine Research has been committed over decades to develop and sustain an eResearch infrastructure for coherent discovery, view, dissemination, and archival of scientific data and related information in polar and marine regions. In order to address the increasing heterogeneity of research platforms and respective devices and sensors along with varying project-driven requirements, a generic and modular framework has been built intended to support the flow of sensor observations to archives (O2A) (Koppe et al, 2015). O2A supports the scientific workflows by providing data streaming and transfer solutions to a collaborative workspace ecosystem along with modern analytical tools and infrastructure. Adopting FAIR data principles, the World Data Center PANGAEA ensures data preservation and the various portal solutions provide integrative one-stop-shop frameworks for discovering and re-using the existing metadata, data and data products.

If you are using the O2A Framework in your research please cite:

Koppe, R. , Gerchow, P. , Macario, A. , Haas, A. , Schäfer-Neth, C. and Pfeiffenberger, H. (2015): O2A: A Generic Framework for Enabling the Flow of Sensor Observations to Archives and Publications , OCEANS 2015 Genova . doi: 10.1109/OCEANS-Genova.2015.7271657

O2A Components



Video Recommendation

Index

REGISTRY (formerly known as SENSOR)

- REGISTRY (fka SENSOR) Best Practices
  - Overview
  - Contacts
  - Actions
  - Parameters
  - Resources
  - Properties
  - Local Frame
  - Subdevices
  - Images
  - Ingest Tab
- Frequent Tasks
- API crash course
  - fundamentals

    - collection of use cases
- Chief Editors

DATA ACQUISITION

- Data acquisition on research vessels
    - DSHIP
    - MDM (Mass Data Management)
- Data collection via voice control
- DMS for Research Aircrafts
    - Access data archive dms.awi.de
- Mobile Event Log App

INGEST

- Only three steps to archive your sensor data
    - Step 1 - Describe your sensor and your sensor output data
        - A Sensors raw Data Description
    - Step 2a - Sensor installed on an AWI large scale research platform (Central data transmission)
    - Step 2b - Sensor installed on a platforms with satellite link (Near RealTime data transmission)
    - Step 2c - Sensor installed on a platform without internet connection (Your data transmission)
    - Step 3 - Archiving sensor data
- Archiving Directory Structure
- NRT INGEST Software
- NRT Data Format
    - NRT RAW Data Format
    - NRT Drivers
- Quality flagging
    - Flagging Scheme
- Spatial Data Formats

DASHBOARD

- Data Web Service

WORKSPACE

- Marketplace Documentation

ANALYTICS

- GitLab Documentation
- AI Tools & Projects
    - Classification of Zooplankton Images Using Deep Learning
    - Classification of Zooplankton Images Using Descriptors
    - ML Workflow
- Jupyterhub Documentation
    - Jupyterhub Documentation (old Version)

REPOSITORIES

- EPIC
- PANGAEA
- SAMS: Sample Management Sytem

PORTAL

- Become a Content Provider

§ Projects

- MOSAiC
    - MOSAiC Scientific Publications - Internal Guidelines
    - Accessing the MOSAiC (Data) Services
        - Accessing MOSAiC data on land (@AWI)
        - Get MOSAiC User Account
        - Get virtual machines
            - Marketplace for MOSAiC
            - mosaic-eco.awi.de
            - Policy for virtual MOSAiC machines
        - Jupyterhub
        - Upload MOSAiC data to the MCS on land
        - VPN Access

- MOSAiC Data Management Concepts
  - MOSAiC Central Storage (MCS)
  - Handling of Analytical/Lab Data in MCS, SENSORWeb and DSHIP
  - Handling of Coring-Events in MCS, SENSORWeb and DSHIP
  - Update or add DSHIP-Device Operations for past legs
  - Export DSHIP data on land
  - Polarstern Devices: DShip data management systems
    - Polarstern Devices: Data storage overview
    - Integration of Polarstern Devices in DShip System
    - List of Devices
- SENSORWeb in MOSAiC
  - Data Description in SENSORWeb
  - Manual
  - MOSAiC Best Practices for SENSOR
  - Recommendations for MOSAiC
- MOSAiC Data Publication
  - In detail: MOSAiC data publication guideline
  - MOSAiC Raw Data Publication
  - Reuse and republication of MOSAiC data - guideline
- MOSAiC Data Policy
- MOSAiC Data Contacts

§ Spatial Data Infrastructure

- Standard Operating Procedures (SOP)
- Spatial Data Formats Specifications
  - (Deprecated) O2A specification for GeoCSV (.sdi.tab)
  - O2A Media Layer - Gallery Mapping
  - O2A specification for GeoCSV (.sdi.csv)
  - O2A specification for GeoTIFF (.sdi.tif)
  - O2A specification for Mapping Files (.sdi.mapping.tab)
  - O2A specification for PANGAEA sources (.sdi.pangaea.lst)
  - O2A specification for SDI Data Product Configuration
- Exchange Folder Specification
- Data Harmonization
- Technical Infrastructure
- Layer Styling
- Visual Exploration Framework
  - Metadata Templates
  - VEF Viewer Prototype Use Cases
- Service Catalog
- Data Product Guides
  - O2A Guide for media in the viewer

§ Collaboration

- Organisation
- Software development

§ Web Services

§ Seminars and User Workshops

- Meetings AI-Group