ENVRI-FAIR
Environmental Research Infrastructures building FAIR services accessible for society, innovation and research

coordinated by
Andreas Petzold, Forschungszentrum Juelich, on behalf of IAGOS AISBL
Ari Asmi, University of Helsinki, on behalf of the ENVRI community
The Keeling Curve and the Tesla or: Who is the Innovator?
Charles David Keeling or Elon Musk?

The Keeling Curve

Mauna Loa Observatory, National Oceanic and Atmospheric Administration, April 30, 2015
Scripps Institution of Oceanography, University of California, San Diego, June 12, 2015
American Chemical Society
The Earth is our Lab
Global Climate Indicators

- Temperature and Energy
- Atmospheric Composition
- Ocean and Water
- Cryosphere

Headline Indicators
- Surface Temperature
- Atmospheric CO₂
- Ocean Acidification
- Sea Level
- Glacier Mass Balance
- Arctic and Antarctic Sea Ice Extent

Mission
ENV RIs
ENVRI-FAIR
The Earth is our Lab
Europe’s Environmental Research Infrastructures

- Mission
- ENV RIs
- ENVRI-FAIR
Europe’s Environmental Research Infrastructures

- **Mission**: Identify common challenges and requirements
  - **Key output**: ENVRI Reference Model

- **ENVRI-FAIR**: Provide operational FAIR compliant services
  - **Approach**: data-knowledge-science

- **ENVRI**: Build reusable solutions to common development challenges
  - **Approach**: RM guided RI design
  - **Key output**: Service portfolio

**Approach**: multi viewpoint modelling common ontological framework

**Challenges**:
- Operational
- Science
- Sustainability
Europe’s Environmental Research Infrastructures
Joint Data Services and Products for the Society

C A M S S E R V I C E C H A I N

- Atmosphere Monitoring
- Space Agencies
- National scale
- In-situ observations

Mission
ENV RIs
ENVRI-FAIR
ENVRI-FAIR connects ENV RI Cluster to EOSC

The Concept

- Mission
- ENV RIs
- ENVRI-FAIR

Storage, computing, networking and other technologies provided by underlying e-Infrastructures (EGI, EUDAT, etc.)
The high-impact ambition of ENVRI-FAIR is to establish the technical preconditions for the successful implementation of a virtual, federated machine-to-machine interface to access environmental data and services provided by the contributing ENVRIs, called the ENVRI-hub.

For users that require the full spectrum of environmental parameters, the ENVRI-hub will offer a platform that reflects the complexity and diversity of the ENVRI landscape, while preserving their specific structures and addressing the requirements they were designed for.
Backup Slides
The Earth is our Lab
Landscape of Environmental Challenges

- Mission
- ENV RIs
- ENVRI-FAIR
Europe’s Environmental Research Infrastructures
Roadmap to FAIRness

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<tr>
<th>Level</th>
<th>Services</th>
<th>Maturity / FAIRness level</th>
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<tr>
<td></td>
<td>Portals / Human computer interface</td>
<td>R1.1</td>
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<td></td>
<td>User defined Workflows</td>
<td>R1.3</td>
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<td>Visualisation</td>
<td>R1.1</td>
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<td>Interoperability</td>
<td>Protocols</td>
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<td>SOA / web services</td>
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<td>PID</td>
<td>F1</td>
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<td>AAAI</td>
<td>A1.2, F4</td>
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<td>(RICH) Standard</td>
<td>F2, R1</td>
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<td>I1, R</td>
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<td>Vocabularies</td>
<td>I2, R</td>
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ENVRI-FAIR connects ENV RI Cluster to EOSC

The Ambition

Data Providers - ENV RIs

- Data
- Data products
- Metadata
- Services

Integrated Services

- Data integration
- Services integration
- Metadata integration

Data Lifecycle

- Acquisition
- Curation

Use

Processing

Publishing

Users of Data and Services

- Scientist
- Policy Makers
- IT specialists
- Citizens

- Domain scientists
- National Governments
- Regional
- IT managers
- Citizen scientist
- Students
- Press

Technical Infrastructures

- HPC
- HTC
- Other resources

- Mission
- ENV RIs
- ENVRI-FAIR
ENVRI-FAIR connects ENV RI Cluster to EOSC

The Workflow

- **Mission**
- **ENV RIs**
- **ENVRI-FAIR**

**European Commission**

**FAIR Initiatives:** RDA, CODATA, etc.

**EOSC standards and catalogues**

**Scientific user community**

**失调**

- **Policy suggestions**
- **Boundary conditions**

**Upcoming ENV RIs**

**Coordination Management**

WP 1: IAGOS / ENVRI

**Communication**

WP 2: ICOS

**ENV Community Strategy**

WP 3: ACTRIS / ENVRI

**Common FAIR policies**

WP 4: EPOS / ENVRI

**FAIR Training**

WP 5: ICOS / ACTRIS

**Standards Service catalogue**

WP 6: ICOS / LifeWatch

**Support to Implementation**

WP 7: ENVRI / SeaDataNet / EPOS

**Implementation Atmosphere**

WP 8: ACTRIS / IAGOS

**Implementation Marine**

WP 9: EuroARGO / EMSO

**Implementation Solid Earth**

WP 10: EPOS / EMSO

**Implementation Biodiv. / Ecosys.**

WP 11: LifeWatch / ICOS

**Public relations Outreach**

**Member States**

**Env. Obs. Institutions and Programmes**

**eInfrastructure Private sector**