THEME 3

ACCESS TO RESEARCH INFRASTRUCTURES

PRESENTER: PAOLO LAJ
INSTITUTION: ENVRI COORDINATION (ACTRIS)
MOTIVATION

- Offering seamless access to a broad multidisciplinary community is a common goal of many ENVRIs.
- Develop governance for virtual, remote and physical access taking into account the specificity of distributed infrastructures
- Exploring synergies of trans-national access programmes at joint observation sites
- Identify related requirements for the governance tools of RIs
THEME 3 – ACCESS TO RESEARCH INFRASTRUCTURES

Usage
- Training
- Innovation
- Joint use of services
- Cross-domain use

Mode
- Virtual
- Physical
- Remote

Output
- Publications
- RI Data products
- Multi-domain data
- Interdisciplinary collaboration

Governance tools
4th ENVRI week – Grenoble, France – 15-17 May 2017
WORK PACKAGES OVERVIEW

- **WP 10**: Governance for sustainable and adjustable access to RIs (EISCAT)
- **WP11**: Improve access to RIs and explore synergies (ANAEE/INRA)

- **Highlight**: The ENVRI pilot trans-disciplinary access program [CNRS]
THEME 3 - OVERVIEW

RI-driven recommendation for Access across ENVRIls

WP10 Governance

Reference Access model for Distributed Infrastructures

WP11 Access to RI

User-driven recommendations for cross-domain physical access

4th ENVRI week – Grenoble, France – 15-17 May 2017
THEME 3: WPS AND TASKS

WP 10 Governance for sustainable and adjustable access to RIs (EISCAT)

- Task 10.1: Develop guidelines on access to environmental RIs (ACTRIS/CNR)
- Task 10.2: Develop master plan for access to RIs (EISCAT)
- Task 10.3: Develop Strategy for flexibility and sustainability of RIs (EISCAT)

WP 11 Improve access to RIs and explore synergies (ANAEE/INRA)

- Task 11.1: Assess the existing paths of physical access to RIs (EUROFLEETS).
- Task 11.2: Explore conditions for access to RIs across disciplines (ANAEE).
- Task 11.3: Access the use of governance tools and TNA within clusters of RIs to promote interdisciplinary research (ACTRIS/CNRS)
WP10- STATUS OF ACCESS PROCEDURES ACROSS RIS

Questionnaire : Guidelines on access to Ris,

- Questionnaire prepared by CNR with contributions from several RIs
- Filled by 3 Ris only (+ those preparing the survey) but sufficient to give indications related to modality of access (access modes, kind of access), selection procedure for access (criteria, panel), users (kind, provenance and purpose of physical access), access from private sector, ethical aspects, outreach to users, post-access provisions
- Not yet an integrated analysis of response
## WP10 – GOVERNANCE FOR SUSTAINABLE AND ADJUSTABLE ACCESS TO RIS

### Deliverables

<table>
<thead>
<tr>
<th>Del N°</th>
<th>Del Title</th>
<th>Lead</th>
<th>Due date</th>
<th>Submitted</th>
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<tr>
<td>D10. 1</td>
<td>Guidelines on access to RIs</td>
<td>CNR</td>
<td>M46</td>
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<td>D10. 2</td>
<td>Master plan to facilitate and encourage access to Ris</td>
<td>EISCAT</td>
<td>M46</td>
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<td>D10. 3</td>
<td>Description of performance criteria for open access and list of indicators</td>
<td>EISCAT</td>
<td>M30</td>
<td>On-going</td>
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<td>D10. 4</td>
<td>RI strategy for flexibility and sustainability</td>
<td>INRA</td>
<td>M46</td>
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## WP10 – GOVERNANCE FOR SUSTAINABLE AND ADJUSTABLE ACCESS TO RIS

### Milestones

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<thead>
<tr>
<th>MS N°</th>
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<th>Due date</th>
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<tr>
<td>MS10.1</td>
<td>First version of RI Guidelines for access and RI access prepared</td>
<td>EISCAT</td>
<td>M30</td>
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<td>(MS30)</td>
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WP11 – IMPROVE ACCESS TO RIS AND EXPLORE SYNERGIES

- Identifying interdisciplinary research topics
- Case studies for physical access to fixed platforms
- Definition of access process
WP11 – TASK 11.1 – END-USER NEEDS / RESEARCH GAPS / POTENTIAL SYNERGIES

- Organisation of an international workshop (jointly with task 4.1) on “Science across observatory networks” (2nd ENVRI week, Zandvoort, NL, May 2016).
- Emerging case studies identified (gaps, new approaches):
  - Nitrogen from the field to the coastal ocean
  - Influences on and from phytoplankton blooms
  - Observations in the Arctic with special focus on methane
  - Simulating and monitoring O3 and CO2 deposition/coupling/interactions
- Existence of cross-cutting challenges and benefits of collaboration across disciplines to provide responses to societal challenges
WP11 – TASK 11.2 – ACCESS PROGRAM

Connecting needs and Ressources for ACCESS to Research Vessels

A coordinated ACCESS program to multi-disciplinary platforms in distributed infrastructures
## WP11 – PHYSICAL ACCESS TO RIs

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<td>D11.1</td>
<td>Report on planning and implementing physical access across disciplines</td>
<td>CNRS</td>
<td>M18</td>
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<td>D11.2</td>
<td>Plan for sustained multi-year planning of oceanographic vessels for the environment European RIs</td>
<td>IFREMER</td>
<td>M18</td>
<td>Shifted to M26</td>
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<td>D11.3</td>
<td>Whitepaper on improving access across to RI disciplines</td>
<td>CNRS</td>
<td>M40</td>
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<td>D11.4</td>
<td>Report on interdisciplinary integration capacity, end-user needs TNA implementation requirement and added-value for the scientific community</td>
<td>INRA</td>
<td>M48</td>
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## WP11 – PHYSICAL ACCESS TO RIs

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<td>MS11.1 (MS7)</td>
<td><strong>Definition of the case studies</strong></td>
<td>CNRS</td>
<td>M12</td>
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<td>MS11.2 (MS26)</td>
<td><strong>First case study on access finalized</strong></td>
<td>INRA</td>
<td>M24</td>
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OVERALL STATUS

Success: implementation of
  WP11 access program

Issues and corrective actions
  Theme 3: re-assign responsibilities
  WP10 : propose internal milestones
  Ensure better connexion between WP10 and WP11

Plans for the next period
  WP11 Address new access
  Synthesis to develop the reference model concept for access
Successful implementation of a physical access procedure to four multi-disciplinary observation platforms

Two calls for multi-disciplinary access including selection and support to 20 high-quality projects

First results following multi-disciplinary access projects supported within ENVRIplus
(1) Successful implementation of physical access procedure applicable to multi-disciplinary observation platforms

- Synergies for access and use of multi-disciplinary observation sites via definition of a harmonized physical access process to ENV RI:
  - Emphasis on “multi-domain” aspects
  - Thorough planning with RI operators providing access
  - Optimized application and review process
THEME 3 HIGHLIGHT

(1) Successful implementation of physical access procedure applicable to multi-disciplinary observation platforms

- Harmonized physical access => defining the conditions and modalities of access applicable to different types of ENV Ris
  - Central access management (user / access provider/ reviewer)
  - Succinct application form allowing to evaluate project needs and excellence (user group information, objectives & methodology, availability of results, financial needs): focus on multi-disciplinarity
  - 2-stage optimized review process applicable to all ENV Ris: i) Access provider review (on-site capacity and requirement, overall feasibility and planning); ii) Independent peer-review by multi-domain review panel with defined selection criteria; iii) Proposal selection meeting (primary/secondary review)
- Post access reporting / results and impact: lessons learnt / target high-quality proposals / open science requirement: availability and reusability of data and results
THEME 3 HIGHLIGHT

(1) Successful implementation of physical access procedure applicable to multi-disciplinary observation platforms

Selection criteria

Access Provider

- **Multi-disciplinarity**: choice of participants / instrumentation / objectives / results...
- Method & experimental setup, choice of infrastructure / efficient use / feasibility, on-site support (instrumentation, staff)
- Project timeline and capacity at platform, number of participants, role/need of participants to achieve objectives
- Budget: planning of resources (duration, costs), propose grant amount (if different from request, apply same subsistence cost per platform)
- Strong points, weak points, general comments (ranking in case of several proposals)
- Approval / refusal

Peer Reviewer

- **Multi-disciplinarity (5/30)**: objectives, methodology, participants and role/expertise, use of infrastructure, impact, results
- **Scientific objectives (15/30)**: originality, scientific quality, work plan, interest and impact, availability and user of results
- **Innovation (3/30)**: collaboration with private sector
- **User profile (6/30)**: scientific excellence, training benefit, new user, gender
- **Other 1/30**: bonus
- Ranking: A, B, C, D, E (high quality)
(2) Successful implementation of two calls for multi-disciplinary access and support to high-quality projects

- 27 proposals received from 17 different countries (of which 7 are from outside EU: Madagascar, New Zealand, Pakistan, Singapore, US + Hawaii, Yemen), involving multi-national research teams

- 18 multi-disciplinary proposals accepted according to defined selection criteria

- More than 140 users initially estimated users from multi-national research teams mobilizes > 80 experts and young scientists (of which 65 are TNA users) within case studies

- Total estimated costs: 271 K€, requested to ENVRIplus: 170 K€, accepted and allocated: 110 € (64% of requested)

1st Call
- 18 Jan 2016
- 18 Mar 2016
- 4-6 W review
- 6/16-8/17
- 5000 EUR pP

2nd Call
- 22 Dec 2016
- 24 Feb 2017
- 4-6 W review
- 1/17-7/18
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++ Access to RI: added value to ENVRI
++ First step towards cutting-edge research at interface of domains: atmosphere, solid earth, bio-ecosphere, marine

- Cross-domain vs limited multi-domain nature of research project (inter-disciplinary collaboration and multi-domain expertise not truly mature yet, despite efficient advertisement and financial support)
- Curation of data resulting from access

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- 5000 EUR pP

2nd Call
- 22 Dec 2016
- 24 Feb 2017
- 4-6 W review
- 1/17-7/18
- 10000 EUR pP
(3) First results following multi-disciplinary access projects supported within ENVRIplus

- **IBAIRN**: Influence of Biosphere-Atmosphere Interactions on the Reactive Nitrogen Budget (217 RWD)
- **COSMOS**: Constraining gross carbon fluxes using ecosystem flux and atmospheric concentration measurements of carbonyl sulfide (COS) and CO2 (25 RWD)
- **EtnaPlum**: Aerosol nucleation in the ETNA passive plume (9 RWD)
- **ETNA-Nuc**: Radioactive Aerosols and other source parameters for better atmospheric Dispersion and Impact estimations (66 RWD)
- **SIMCIO**: Seismic and Infrasound Monitoring of Cyclones in the Indian Ocean (30 RWD)

4th ENVRI week – Grenoble, France – 15-17 May 2017
THEME 3 HIGHLIGHT

(3) First results following multi-disciplinary access projects supported within ENVRIplus

**EtnaPlumeLabRadio**: Radioactive Aerosols and other source parameters for better atmospheric Dispersion and Impact estimatiOns

- Solid Earth – Atmosphere
- Four measurement campaigns 2016 and 2017
- 11 (4 TNA) Particip.: experts / PhD / Post-doc (FR/IT)
- Aim: improving the characterisation of Mt. Etna as atmospheric aerosols source

Inner degassing mechanisms =>

- Plume dispersion tracer
- Volcanic airmass source attribution

Emission processes =>

- Radioactivity of emitted volcanic aerosols: radon daughters $^{222}\text{Rn}$, $^{210}\text{Pb}$, $^{210}\text{Bi}$, $^{210}\text{Po}$
- Degassing dynamics controlling eruptive activity: (magma residence time, kinetics of gases extraction

Aerosol near-surface characterisation

- Detailed characterisation of the emitted aerosols to constrain the regional climatic impacts of Mt. Etna in the Mediterranean area.

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1 article published, 1 under review, 1 in prep. 2017, Int Conf contributions
THREE 3 HIGHLIGHT

(3) First results following multi-disciplinary access projects supported within ENVRIplus

**COSMOS**: Constraining gross carbon fluxes using ecosystem flux and atmospheric concentration measurements of carbonyl sulfide (COS) and CO2

- Biosphere – Atmosphere
- 5 Participants: expert scientists / PhD (NL, UK, US, FL)
- Aim: improve our knowledge about the fluxes of COS and CO2 on ecosystem scales, and to derive a better GPP estimate of northern high latitude boreal forests

Combined BIO-ATMO measurements (leaf-scale uptake of COS and CO2, accurate in situ atmospheric concentration measurements of COS for a whole growing season) to verify the use of COS as a tracer for GPP on the ecosystem scale and improve the parameterization of a biosphere to understand the photosynthetic uptake of CO2 in northern high latitude boreal forest.
THEME 3 HIGHLIGHT

(3) First results following multi-disciplinary access projects supported within ENVRIplus

SIMCIO: Seismic and Infrasound Monitoring of Cyclones in the Indian Ocean

- Atmosphere – Solid Earth
- 4 (1 TNA) Participants: PhD / experts (MG / FR)
- Aim: tracking of cyclones in the SW Indian ocean using seismic and infrasound information

Tropical cyclones -> swells -> standing waves (recorded by infrasound station/ ATM) -> pressure variations through the water column down to the ocean floor -> seismic waves that propagate as surface waves in the oceanic crust (recorded by seismic stations/ SOL EARTH).

=> Regional impact /natural risk management of tropical cyclones.