



Introduction of Project- Scientific drilling in ITINERIS

- Angelo Camerlenghi, Riccardo Tribuzio

IR0000032 – ITINERIS, Italian Integrated Environmental Research Infrastructures System
(D.D. n. 130/2022 - CUP B53C22002150006) Funded by EU - Next Generation EU PNRR-
Mission 4 "Education and Research" - Component 2: "From research to business" - Investment
3.1: "Fund for the realisation of an integrated system of research and innovation infrastructures"



The Project



ITINERIS -Italian Integrated Environmental Research Infrastructures System is a project funded by EU – Next Generation EU PNRR- Mission 4 "Education and Research" – Component 2: "From research to business" – Investment 3.1: "Fund for the realisation of an integrated system of research and innovation infrastructures".

The project is coordinated by the CNR (National Research Council). It started in November 2022, and during 30 (+6) months will carry out an ensemble of cross-disciplinary actions across the different environmental sub-domains, with the main aim to build the network of the Italian environmental Research Infrastructures, connect it to the user community and establish access, trough the ITINERIS HUB, to the vast array of knowledge, data, analytical tools, and service produced by the participating RIs.



The Project

Italian Hub of Research Infrastructures for the observation and study of environmental processes in the atmosphere, marine domain, terrestrial biosphere, and geosphere.

ITINERIS Italian Integrated Environmental Research Infrastructures System



The Project



Finanziato
dall'Unione europea
NextGenerationEU



Ministero
dell'Università
e della Ricerca



Italiadomani
PIANO NAZIONALE
DI RIPRESA E RESILIENZA



Consiglio Nazionale
delle Ricerche

Goal:

to foster cross-disciplinary research in environmental sciences through the use and re-use of existing (or pre-operational) data and services and new observations.

ITINERIS Italian Integrated Environmental Research Infrastructures System



The Project at a glance

Project at a glance



€ 155M INVESTMENT



7 PARTNERS

39 OPERATING UNITS



75 INTERMEDIATE OBJECTIVES

208 DELIVERABLE



8 WORK PACKAGES

89 ACTIVITIES

ITINERIS HUB



ITINERIS Catalogue

Find the services and other relevant resources provided by the research facilities of the RIs.



ITINERIS Access Platform

ITINERIS supports physical and remote access to the services offered by selected research facilities. Use the Access Platform to submit applications within the available access program and get support in the scope of your scientific project.



ITINERIS Data Hub

Discover metadata through a geospatial visualization tool and get access to the datasets and digital products produced by the different RIs.



DATASETS



ITINERIS Virtual Research Environment (VRE)

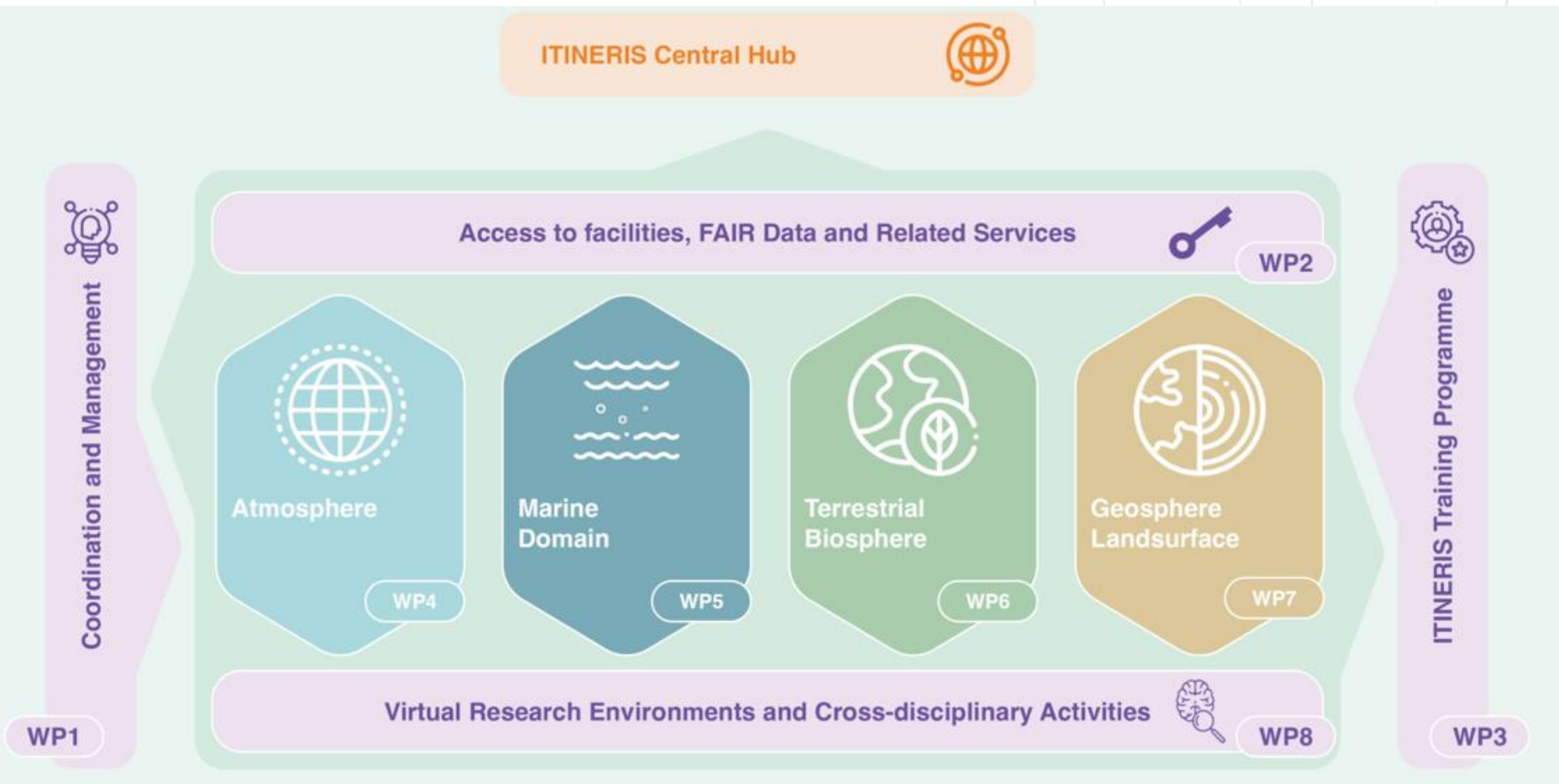
Make full benefit of the knowledge generated by the RIs using the flow of data, analysis and modelling tools, and/or including own data sets and methods to tackle specific issues.



ITINERIS Training Centre

Find courses, events and training material.

WP interconnections



**WP7 Geosphere
and Landsurface**

**ITINERIS
Italian Integrated
Environmental Research
Infrastructures System**



WP 7 – Geosphere and Landsurface

The WP aims to provide enhanced availability to the scientific community, the public, and decision-makers of a **rich multi-disciplinary set of open digital data on environmental observations of the Geosphere/landsurface**.

In particular:

- Making available to the scientific community, the public, and decision-makers a **rich multi-disciplinary set of open digital data on environmental observations** of the Geosphere/landsurface from the main Research Infrastructures.
- **Integrating Research Infrastructures** operating in different domains (such as **SMINO, ATLaS, part of EUFAR, ECORD-ICDP**);
- Testing **cutting-edge technologies** in **three pilot sites** (Friuli Venezia Giulia region, Tito and Potenza in Basilicata region).

Pilot sites



WP 7 – 5 objective

2 FAIR data from the RIs

Objective 1: harmonize the data, following the international standard (Activities 7.1-7.9);

Objective 2: concur to make the data FAIR (Findable, Accessible, Interoperable, and Reusable (Activities 7.1-7.9);

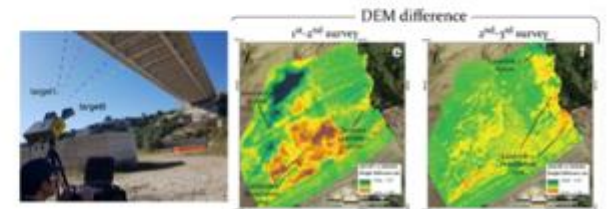


3 Specific for the different realms

Objective 3: focus on deep earth-drilling experiments (**ECORD, IODP, ICDP**) (Activities 7.1-7.3);

Objective 4: focus on an holistic observation of the near-surface processes, integrating geochemical, geophysical, geological and seismological data (**SMINO, ATLaS**, Activities 7.4-7.8);

Objective 5: improve the multi-parameter observation of surface processes, with space-borne and airborne SAR infrastructures (**SMINO, ATLaS, EUFAR**, Activities 7.4-7.5 and 7.9).

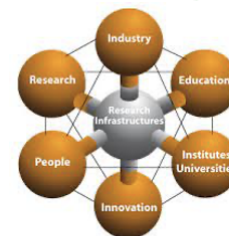


WP 7 – Participants in the WP

- OGS-CRS: Centro di Ricerche sismologiche OGS – Udine **RI SMINO**
- OGS-GEO: Sezione di Geofisica OGS – Trieste **RI ECORD**
- CNR-ISMARBO Istituto di Scienze Marine - Bologna **RI ECORD**
- INGV-Roma **RI ECORD**
- CNR-IMAA Istituto di Metodologie per l'Analisi Ambientale CNR
- CNR-IREA Istituto per il Rilevamento Elettromagnetico dell'Ambiente CNR
- UNIFI-CPC Centro per la Protezione Civile – **RI ATLaS**



WP7: Main Research Infrastructures



SMINO

Northeast Italy monitoring system

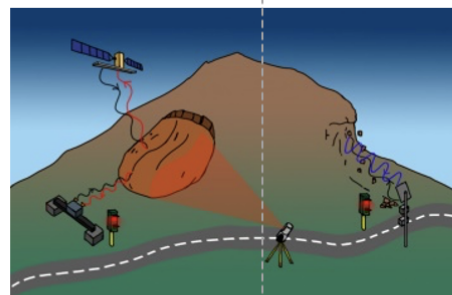
<https://www.ogs.it/en/northeast-italy-monitoring-system-smino>



ATLaS

Advanced technologies for landslides

<https://flore.unifi.it/handle/2158/1103761?mode=full.1254>



ECORD



<http://www.iodp-italia.cnr.it/index.php/it/>



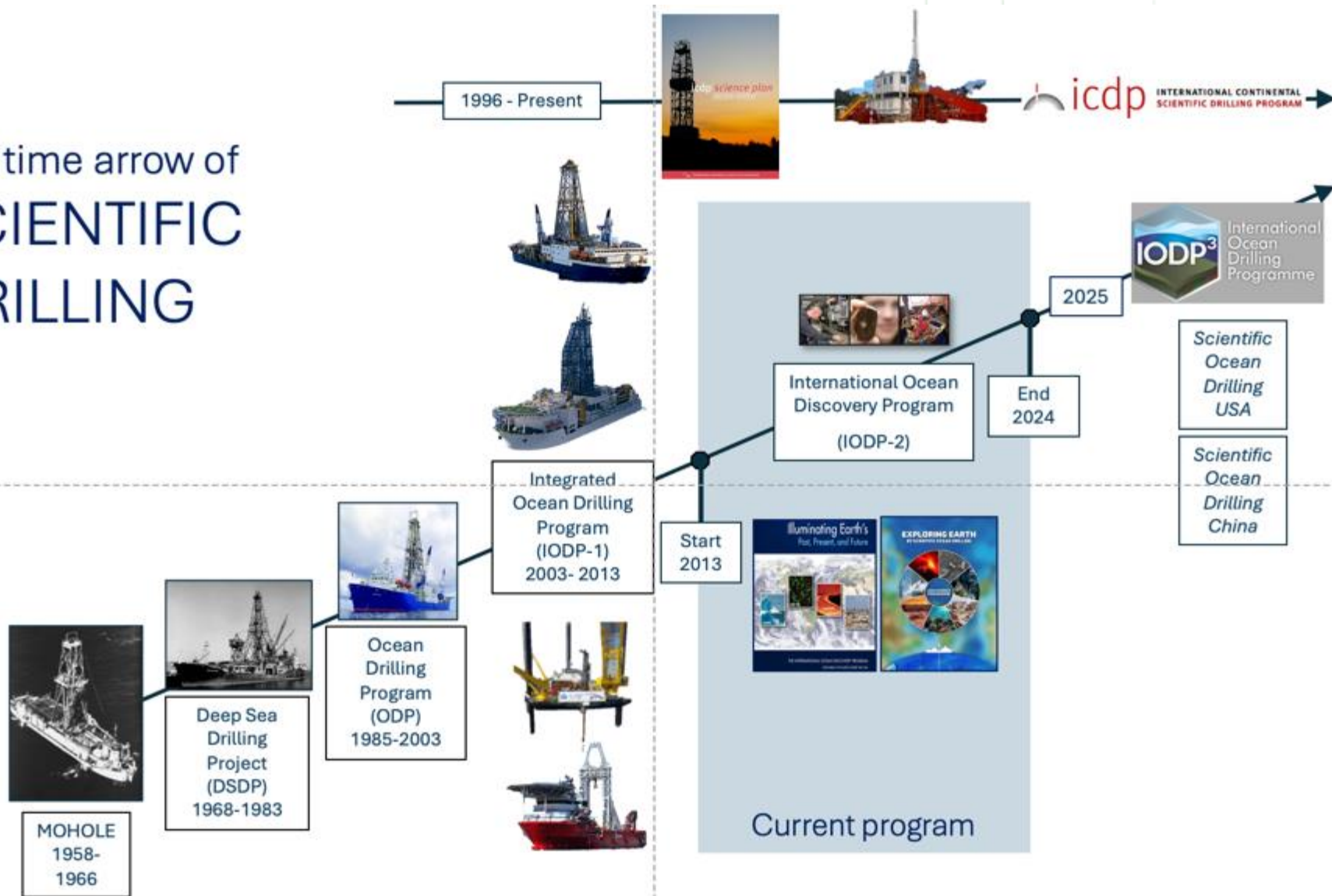
EUFAR

EUFAR
European Facility
For Airborne
Research



WP 7.1, .2, .3 - ECORD-ICDP

The time arrow of SCIENTIFIC DRILLING



WP 7.1, .2, .3 - ECORD-ICDP

After September 30 2024



WP 7.1, .2, .3 - ECORD-ICDP



Core Members (Ship Operators)



Associate Members (Cash/IKC)



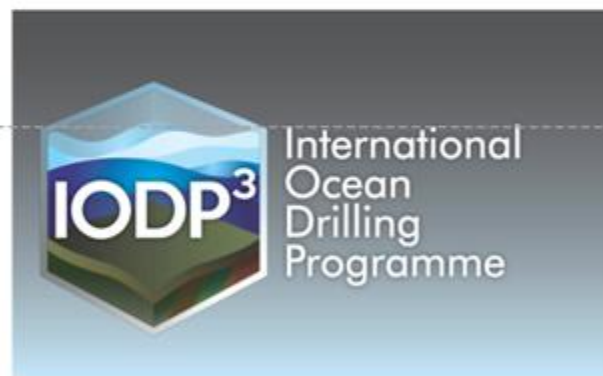
Australia & New Zealand Consortium



IODP India

ESSO

others



Temporary Members

Unique tools: Mission-Specific Platforms in IODP³





**land to sea
(L2S) drilling
transects**

A successful breakthrough

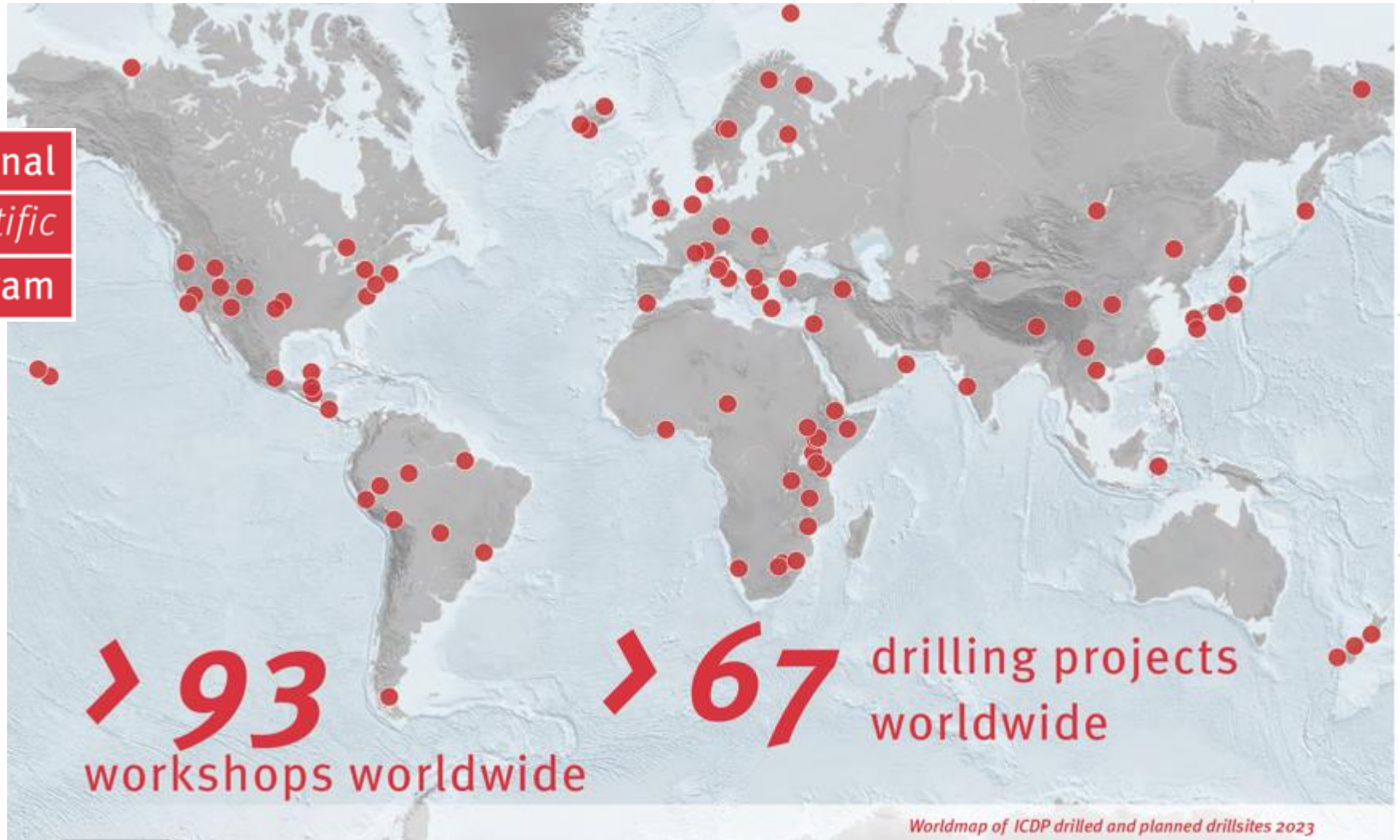


- Land-2-Sea: MSPs offer the opportunity for operational collaboration between domains, as well as scientific collaboration (e.g. share coring infrastructure and equipment)

WP 7.1, .2, .3 - ECORD-ICDP

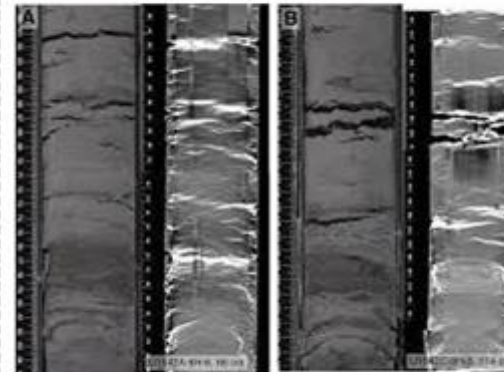


icdp: international
continental scientific
drilling program



WP 7.1, .2, .3 - ECORD-ICDP

- 7.1 Improving the access to the ECORD infrastructure and enabling scientific drilling micro-analysis, geochemical and site survey data sharing;
- 7.2 Improving the access to the ICDP infrastructure and enabling the sharing of paleomagnetic data from scientific drilling;
- 7.3 Improving the access to IODP scientific borehole geophysics, subsurface structural data, and stratigraphic/lithologic samples-data sharing;



WP 7.1 - ECORD-ICDP

Generate a thematic digital archive of data archived for scientific drilling/coring activities.

Access to analytical facilities in the future on cores and samples from drilling expeditions on the following thematic areas:

- a. Laboratory of Microanalysis and electron microscopy (LAM2) for optical and electron microscopy (SEM). CNR-IGAG Institute-Sapienza; Daniel Tentori IGAG
- b. Geochemistry and isotopic and elemental characterization, stable isotopes, radiogenic isotopes, dating. CNR-IGG Institute in Pisa;
- c. Archiving of ECORD site-survey data such as sediment/rock cores, vintage seismic data and integration and harmonization of multi-beam echo-sounder data (bathymetry) generated by the Italian scientific community. CNR-ISMAR Institute. Irene Sammartino, Simone Toller ISMAR

Alessandro Bragagni, Lorenzo Monaco ISMAR/IGAG

WP 7.2 - ECORD-ICDP

Generate a thematic digital archive of data of rock magnetism and paleomagnetism of both discrete rock samples and u-channels from sediment cores generated by scientific drilling activities. INGV Rome

Fabio Florindo, Anita Di Chiara, INGV

WP 7.3 - ECORD-ICDP

Improving the access to IODP scientific borehole geophysics, subsurface structural data, and stratigraphic/lithologic samples-data sharing

OGS, borehole geophysics, stratigraphic/lithology — Angelo Camerlenghi/Andrea Schleifer/Renata Lucchi, Luigi Lucerna

University of Milano (Biostratigraphy) - Elisabetta Erba, Andrea Chiari

University of Pavia (Petrographic data) – Riccardo Tribuzio, Davide Mariani

University of Florence (Structural Geology) – Paola Vannucchi, Júlia Carvalho Lannes Galvão Fonseca

WP 8 – Virtual Research Environment



ITINERIS Virtual Research Environment (VRE)

Make full benefit of the knowledge generated by the RIs using the flow of data, analysis and modelling tools, and/or including own data sets and methods to tackle specific issues.

OGS Paolo Bernardi - Technologist

WP2 Access to scientific infrastructures

Access to ECORD and ICDP

Guarantee the improvement of the access of Italian scientists to the ICDP infrastructure

Fabio Florindo, INGV

Guarantee the improvement of the access of Italian scientists to the ECORD infrastructure

Annalisa Iadanza, CNR (DTA)

WP 7.1, .2, .3 - ECORD-ICDP – Common Tool



The mobile Drilling Information System (mDIS)*

developed at GFZ Potsdam for ICDP and now employed by ECORD

Behrends, K., Heeschen, K., Kunkel, C., and Conze, R.: The mobile Drilling Information System (mDIS) for core repositories, EGU General Assembly 2020, Online, 4–8 May 2020, EGU2020-13663, <https://doi.org/10.5194/egusphere-egu2020-13663>

<https://helmholtz.software/software/mdis>

WP3 Training Center



This Workshop

Hosted by the University of Pavia

Trainers:

Cindy Kunkel

Katja Heeschen

Knut Behrends

GFZ Potsdam, Data management of scientific drilling projects within the International Continental Scientific Drilling Program (ICDP)



.... and here we are

THANKS!

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