



# Towards a Global Research Infrastructure for Solid Earth Sciences

## The Case for International Collaboration

eResearch Australasia Conference | Brisbane 21 Oct 2025

Helen Glaves – EPOS

*Carmela Freda, Rebecca Bendick, Tim Rawling, Elisabetta D'Anastasio, Helen Glaves, Gaetano Festa, Rebecca Farrington, Federica Tanlongo, Rossana Paciello Jan Michalek, Daniele Bailo, Otto Lange, Daniela Mercurio, Elizabeth Abbott, Jonathan Hanson, Lesley Wyborn, Massimo Cocco*

# A Global Partnership of Research Infrastructures

**USA**



**Australia & New Zealand**



**Europe**



# Why do we collaborate?

## Shared vision

- ✓ Uphold the principle of **open science**: open, accessible, interoperable data
- ✓ **Boost Visibility and Use** of Data in Global Research Ecosystems
- ✓ **Elevate local data** to global levels, while **involving local communities**, ensuring they benefit from relevant scientific outcomes



# Why do we collaborate?

## Practical Drivers

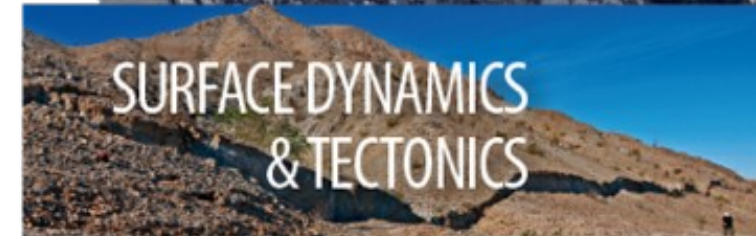
- ✓ **Efficiency:** Avoid duplication, foster harmonisation, enable innovation.
- ✓ **Advocacy:** speak with a unified voice to enhance, influence and reinforce sustainability.
- ✓ **Know-how:** build on the experience and points of strength of each RI & exchange best practice



# Why Solid Earth Science Needs Global RIs?

## #1 Multidisciplinarity

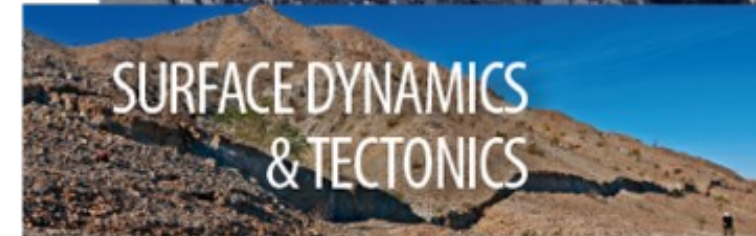
- Understanding the Earth's geodynamic processes can **drive innovation** related to **key societal challenges** such as **hazard assessment** and the **sustainable stewardship of georesources**.
- **Petabytes of data are available across borders, disciplines, and timescales** to unlock these advancements.
- **The challenge is to move from disconnected, heterogeneous data to open, integrated, multidisciplinary research.**
- **Research Infrastructures (RIs)** across the continents provide:
  - High-quality, standardized, open data
  - Equitable access and collaboration opportunities
  - Foundations for multidisciplinary science



# Why Solid Earth Science Needs Global RIs

## #2 Global scope

- Natural processes do not respect national or geographical boundaries
- To study them we need cross-disciplinary approaches and global scope
- **To accelerate scientific discovery and enable excellent science...**
  - ✓ Solid Earth science data must be **universally and openly accessible to scientists regardless of location**
  - ✓ **Open methodologies and tools** should also be made available to entire research community around the world



## The Vision: shared objectives



**Promote Open Science and FAIR principles at the global level**  
to enable equitable and inclusive research

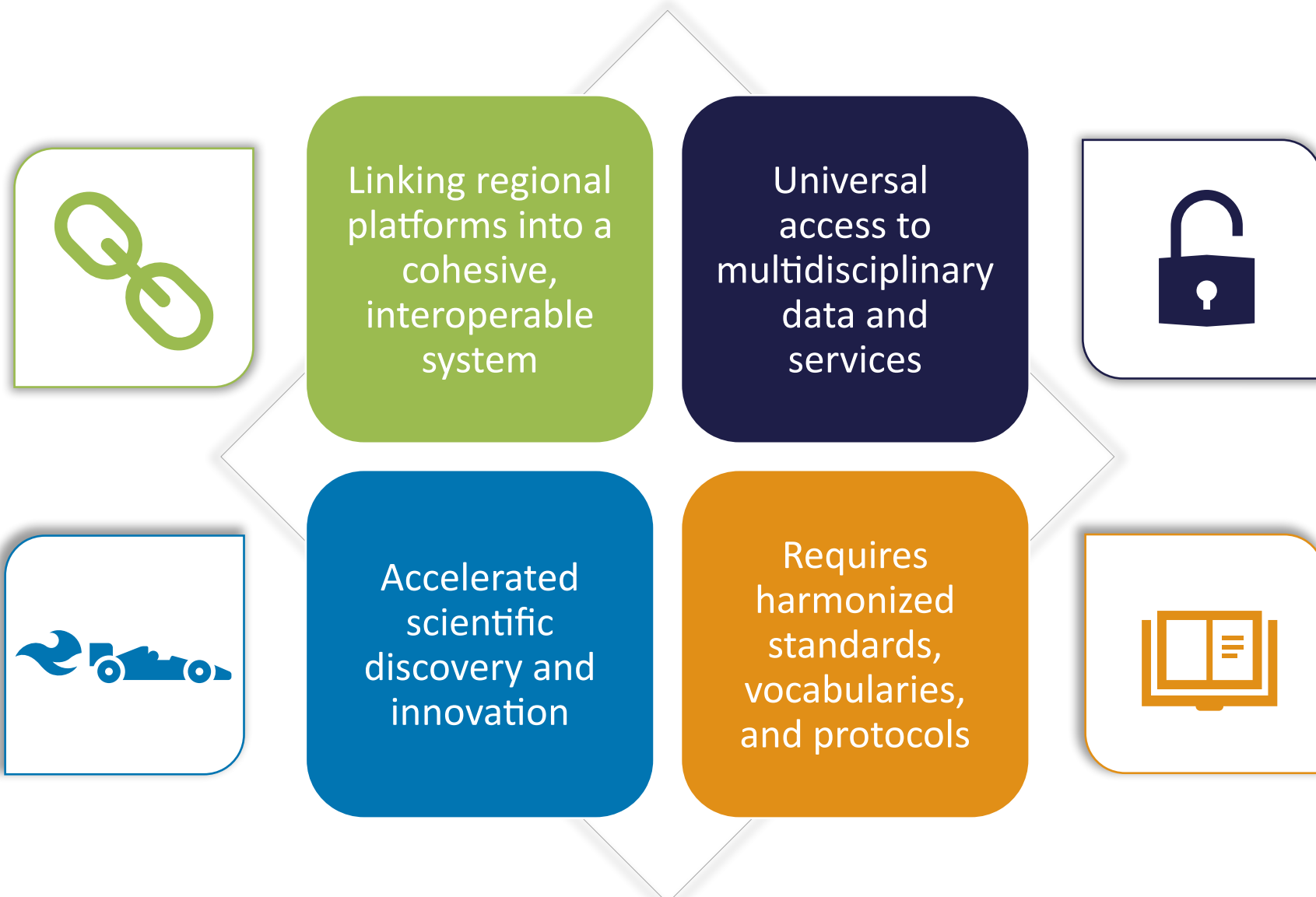


**Activate a global network of collaborations**  
to capitalize on joint investments and expertise



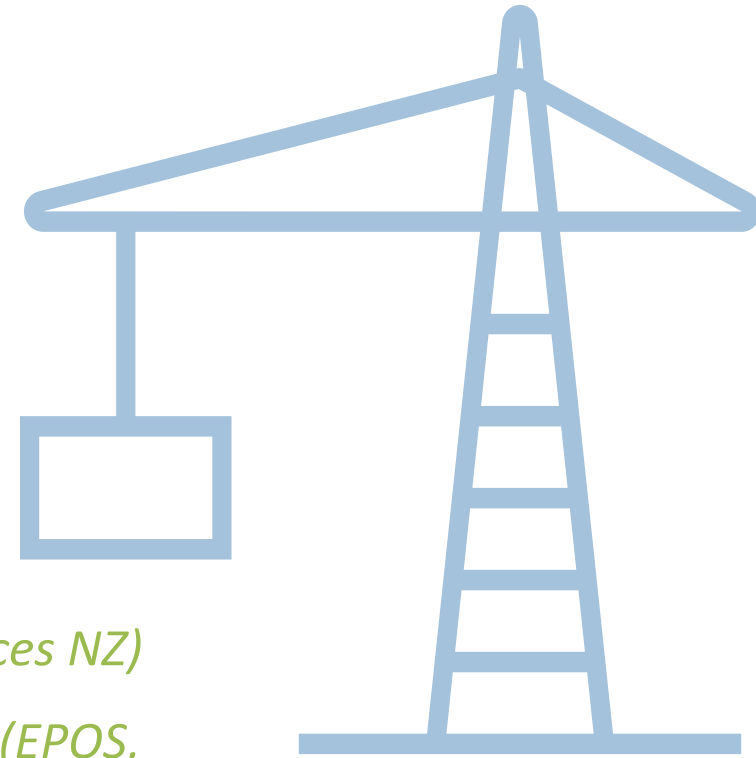
**Federate research platforms**  
to maximize the benefits of integrating multidisciplinary data to realise excellent science and innovation for responding to global societal needs

# The Vision: A Federated Global Infrastructure

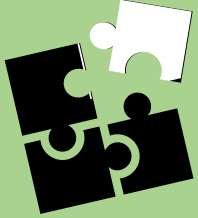


# Building a global reference RI for solid Earth science

- ✓ Use the experience gained by RI harmonisation across **countries**, **languages**, **cultures**, **scientific domains**
  - Across different countries (*EPOS*)
  - Engaging indigenous communities (*AuScope, Earth Sciences NZ*)
  - Across different thematic communities/backgrounds (*EPOS, AuScope, EarthScope...*)
- ✓ Harmonizing and integrating **multidisciplinary data and scientific products**, but also **methodologies and approaches** across the continents;
- ✓ Ensure open and FAIR access to these research assets **in lower-resourced regions/countries**.



# Overcoming Barriers to Global Federation



**Interoperability:** Align standards and vocabularies across regions and subdomains with varying technical maturity.

**Legal Hurdles:** Harmonize data governance and enable cross-border collaboration despite fragmented national regulations.



**Sustainability:** Ensure long-term funding, infrastructure access, data preservation, and capacity-building globally.

**Equity & Inclusion:** Support research autonomy, Indigenous rights, and community-led data stewardship in lower-resourced regions.



# Why it matters: call to action for a Global Roadmap for RIs



- Global RIs are vital tools for achieving the **UN Sustainable Development Goals** and enhancing disaster resilience e.g. UN Sendai Framework.
- Foster **science diplomacy** by maintaining international dialogue even amid geopolitical tensions.
- **Policy support** is essential: Align roadmaps, reduce regulatory barriers, fund infrastructure and mobility, and support global standards.
- Investing in global RI collaboration is not optional—it's a **strategic necessity** for a sustainable, secure, and equitable future.



## To conclude...

- Investing in global RI collaboration is not optional - it's a strategic necessity for a sustainable, secure, and equitable future.
- Open opportunity for other RIs to be part of this initiative
- A survey to assess current relevant collaborations is open now



# Thank You!

*“By making high-quality facilities, resources and services available to everyone, research infrastructures ensure that science is driven by excellence and not by the research capacity of individual countries, economic sectors, or institutions”*

*Rita Costa Abecasis and Barbara Pintar*



## Getting involved...

**Are you a Research Organisation, ERIC, International Initiative, ...?**

- Go to <https://www.epos-eu.org/tcs>, browse the existing Thematic Core Services and contact the one that better fits with your research interests

Your community is not yet involved in EPOS? contact us at [info@epos-eric.eu](mailto:info@epos-eric.eu)

**Are you a Researcher, Student, Teacher, Industry User, .... ?**

- The Platform <https://www.epos-eu.org/dataportal> is open and free for you to use
- Register for a better experience and, please, don't forget to mention the Platform and the service providers in your publications (here's the [citation guide](#))

**Are you a Government official or ministerial representative?**

Go to <https://www.epos-eu.org/epos-eric> to check if your country is a member already, and <https://www.epos-eu.org/epos-national-nodes> for operational EPOS national nodes

- Your country is not yet involved in EPOS but would benefit from the infrastructure? Contact us at [info@epos-eric.eu](mailto:info@epos-eric.eu)