A Science & Technology observatory for the SDSN Global Climate Hub

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Science & Technology observatory for the SDSN Global Climate Hub

A place to aggregate, connect and visualise data relative to objectives of Climate Hub on:

• Inputs – funding research (public/private)
• Outputs – who is producing what
• Outcomes – scientific knowledge/trends, data, technology (tools & services), policies
• Effects – interdisciplinarity, networks
• Impacts – links to SDGs, usage by non-academia
Why? Better understand the STI landscape for climate

- Monitor relevant research activities related at global scale
- Assess their impact on R&I ecosystem, economy and society
- Build a directory of who’s who (people, organisations) relating with outcomes
- Monitor and enhance policies practices & uptake
- Benefits
  - Identify efforts to build synergies
  - See what works and what not
  - Reveal hidden potential
  - Promote good practices
How? It’s about open data and collaboration

Completeness, inclusion, transparency and replicability

• Built on the OpenAIRE Research Graph
  Linked scholarly information from trusted data sources around the world. Publications-data-software-services.

• Based on Open Science principles
  Open data sources, Open APIs, well documented metrics and indicators.

• Relevance for the community
  Indicators development & visualizations to meet community requirements.

The OpenAIRE Research Graph has global coverage.
How? Methodological approach of the observatory

- **Openness and transparency:** Methodological assumptions are openly and clearly presented.
- **Coverage and accuracy:** Ingest authoritative data sources to cover to the fullest extent possible, in order to provide meaningful indicators.
- **Clarity and replicability:** Describe construction methodology in detail, so that it can be verified and used by the relevant communities, and to create ongoing updates to proposed metrics and indicators.
- **Readiness and timeliness:** Build around well-established (open) databases and already tested knowledge extraction technologies - natural language processing (NLP)/machine-learning (ML) - using operational workflows to warrant timely results.
- **Trust and robustness:** Strive to be reliable, robust, and aligned with community norms so that it can be operationalized, used and reused, in conjunction with other assessment methods.
HOW? THE POWER OF AN OPERATIONAL AI-DRIVEN DATA INFRASTRUCTURE

1. Combining data from the global research ecosystem > 10K sources

2. A big AI-driven data infrastructure to extract information (meaning)

3. A community to develop indicators and validate data
What to keep in mind:

Different levels of interest: global, regional, national
A wide range of indicators: clear definitions for global consensus

*Keep it simple.*
WHAT? MANY CHALLENGES ON THE DATA

Heterogenity
Standards, crosswalks, community and cross-community view

Quality and accuracy
Trust and stability of the data: researchers and operators in the loop

Completeness
Practices, sharing of technology and data (Scientific Knowledge Graphs)
STARTING FROM A SOLID BASE

Science for UN Sustainable Development Goals

Laying the foundation for new approaches and solutions.

We have developed a classification scheme for UN Sustainable Development Goals, to view contributions of research towards complex challenges for humanity such as climate change, biodiversity loss, pollution and poverty reduction.

A collaboration with Athena RC, AURORA European University Alliance, and Swinburne University of Technology, Australia (pending)
A case study for SDSN Greece
Build a Gateway for your Community

Turn Open Science into Practice. It takes your open and linked research products. A service customized to your needs.

A Virtual Research Environment
An overlay platform making it easy to share, link, disseminate and monitor all your publications, research data, research software, methods. In one place.
- Access to OpenAIRE research graph
- Moderated, front-end linking
- Cross-platform search

A time-saving bundle of services for researchers to effortlessly practice open science. An integral part of the European Open Science Cloud.
- Use of OpenAIRE Guidelines
- Publish and get DOIs with Zenodo
- EOSC Single Sign-On

Customized to your needs
A Gateway with your own brand, rules for aggregation, text & data mining, and presentation. Run by you via a simple, yet powerful back-end administration tool.
- Access control
- Analytics: rich set of indicators
- Look & feel to match your brand

https://connect.openaire.eu
OpenAIRE CONNECT service in practice

- A fully customised view of the Open Research Graph
  - By keywords, projects, people/organisations/labs, data sources, SDG links
- Complete branding capabilities
- Direct links to Zenodo and repositories of choice
- Community functionalities for linking & claiming research, depositing, sharing
- Authentication via global AAI standards
- Customised authorisation for community members
- Discovery and monitoring functionalities
- Data updates on a regular basis (every 1-2 months)
- Full IT support of the service
  - Operated by OpenAIRE technical team: cloud, maintenance, upgrade, backups
Community Gateway content configuration in more detail

**Gateway curators**

- **Keywords**
  - Discipline-specific subject terms to be found in the metadata

- **Projects**
  - From the 22 funders integrated in OpenAIRE

- **Data sources**
  - E.g. thematic repositories, archives and journals

- **Zenodo communities**
  - With research products relevant for the field

- **Organizations**
  - Organizations in the field: we look for them in the affiliations

**Link**

- Link products in OpenAIRE, Crossref, Datacite, ORCID to the community, also in bulk

**Propagation**

- If a community result is supplemented by another research product, then the latter is also added in the community gateway

**Full-text mining**

- Links to projects
- Affiliations
- Document classification

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SDSN Global Climate Hub Science & Technology Observatory
OPEN RESEARCH GATEWAY ON SDSN GREECE

https://sdsn-gr.openaire.eu
Identify relevant research products

Community Gateway

Gateway configuration

SDSN Global Climate Hub Science & Technology Observatory

https://doi.org/10.5281/zenodo.3980490

https://doi.org/10.5281/zenodo.4439644
The configuration of the SDSN Greece gateway

- ~500 research project grants from the EC and NSF
- Keywords based on specific SDGs
- Full-text mining (22K research products identified)
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