

# ARIES for SEEA

Semantic technology to streamline, facilitate and support SEEA accounting

**Advancing Earth Observation for Ecosystem Accounting**

Ferdinando Villa, Stefano Balbi, Ken Bagstad, Alessandra Alfieri, Bram Edens

The ARIES Team @ [bc3research.org](https://bc3research.org)

# Revolutionizing access to and use of data and methods



## SEMANTICS

a shared, easy-to-learn **language** used to describe and query scientific observations



## OPEN, LINKABLE DATA

an immediately actionable **resource layer**, streamlining publishing, review and curation of semantically annotated data



## OPEN, LINKABLE MODELS

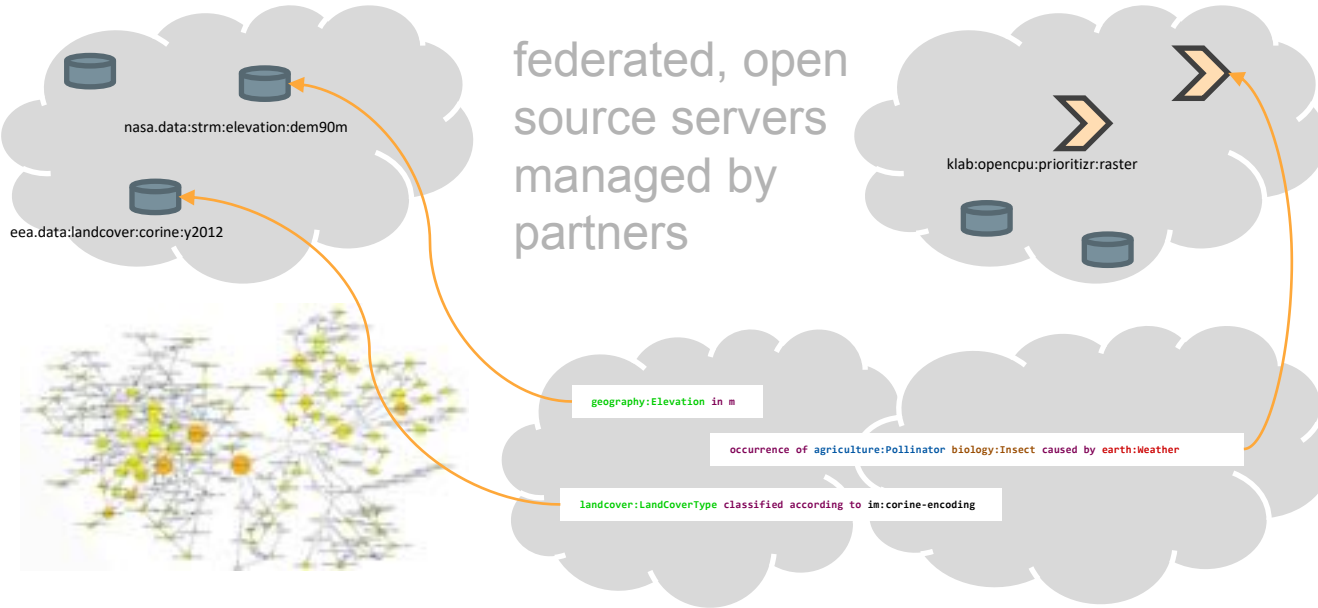
a fully connected **information landscape** using open, safe, accurate, “Wikipedia-like” sharing of linkable model components



## AI-POWERED INTEGRATION

a **software technology** supporting coding, publishing and distributing data and models, linking and generating new knowledge from existing building blocks

# ARIES: a semantics-driven, AI-assisted model and data federation



## RESOURCE layer

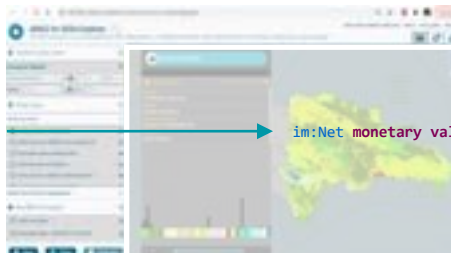
- **Assets** identified by **URNs**
- Include “conventional” data, models, and access metadata for external services and computational platforms

## SEMANTIC layer

- **Worldview**: shared **concepts** and relationships, communally curated
- **Semantic assets**: associate resource URNs to their meaning in terms of the worldview

## ARIES AI and modeling engine

- **User queries** (“observe *concept* in *context*”) asked through **API** or **applications** - such as **ARIES for SEEA**
- AI assembles the best-case algorithm and runs it to produce **observations: data, tables etc**



# ARIES for SEEA: Rapid, standardized environmental-economic accounting

- **Globally available, customizable data and models** enable SEEA EA compilation anywhere & improvement with local data where available
- **Minimal learning curve** without compromising correctness and method articulation
- **Automate production** of maps & tabular output, guaranteeing compliance with SEEA standard
- An opportunity for the community to share & **reuse interoperable data & models**

The screenshot shows the UN Environment Programme website. The main headline reads: "UN launches the first artificial intelligence tool for rapid natural capital accounting". Below the headline, there is a sub-headline: "New tool will make it easier for countries to measure ecosystems". The article text mentions: "New York, 29 April 2025 – An innovative artificial intelligence (AI) tool that will make it easier for countries to measure the contributions of nature to their economic prosperity and well-being was launched today by the United Nations and the Banque Paribas for Climate Change (BC3)."

Below the article, there are two tables. The first table is titled "Table 1. Accounting ecosystem data collected over 10 consecutive random stops of the ARIES Model Performance, April 2025". The second table is titled "Table 2. Accounting ecosystem data collected over 10 consecutive random stops of the ARIES Model Performance, April 2025". Both tables appear to be data tables with multiple columns and rows, but the content is mostly illegible due to the low resolution of the screenshot.

There is also a "Further Resources" button with the text "ARIES for SEEA" and "Ecosystem Accounting".

# SEEA interoperability strategy

- ▶ Current state of interoperability & vision for the future
- ▶ Roles & responsibilities (data providers, modelers, institutions incl. NSOs)
- ▶ Implementing the strategy (pilot testing, engaging key stakeholders, governance, training/capacity building)

[https://seea.un.org/sites/seea.un.org/files/interoperability\\_strategy\\_draft.pdf](https://seea.un.org/sites/seea.un.org/files/interoperability_strategy_draft.pdf)

2021  
**AN INTEROPERABILITY  
STRATEGY FOR THE  
NEXT GENERATION OF  
SEEA ACCOUNTING**



## UN Sector Hub

- **Development of data science methodologies** aimed to support new statistical approaches and methods in the domain of environment and sustainability
- **Capacity building and training** for researchers, statisticians and data scientists
- **Further development and maintenance of the ARIES for SEEA application** as part of the UN Global Platform as an authoritative source of data, methods and learning resources among the community of official statistics and its stakeholders
- **Implementation of the interoperability strategy that describes roles and responsibilities of all stakeholders** (data providers, research and model developers, and platform hosts) to support global implementation of the SEEA Ecosystem Accounting standard.



**Thank you!**

