

## SESSION DESCRIPTION

ID: TBC

Addressing ecosystem services modelling bottlenecks through simple to complex models:  
The ARIES approach

### Hosts:

	Title	Name	Organisation	E-mail
Host:		Zuzana Harmackova	Stockholm Resilience Centre	zuzana.harmackova@su.se
Host	Prof.	Ferdinando Villa		ferdinando.villa@bc3research.org
Co-host:		Dr. Stefano Balbi		stefano.balbi@bc3research.org
Others involved:		Dr. Marta Pascual, Dr. Ken Bagstad, Dr. Javier Martínez	Basque Centre for Climate Change (BC3) (Spain), Geosciences & Environmental Change Science Center. U.S. Geological Survey (US), Basque Centre for Climate change.	marta.pascual@bc3research.org; kjbagstad@usgs.gov

### Abstract:

Recent research has identified the robustness, relevance and transparency of ecosystem services mapping as key features to enhance its information value for decision-making processes. Nevertheless, multiple bottlenecks (challenges) remain to be resolved within current ecosystem-service modelling practice, such as implementing a tiered approach to address multiple users' needs, operationalizing large pools of open-access and citizen-science data, and connecting and taking advantage of the plethora of existing scientific models and datasets. To date, most ecosystem services modelling approaches have struggled to adequately address these challenges.

This session aims to address how some of these key ecosystem-service modelling bottlenecks can be resolved through the integrated approach of semantic modelling. Building on the ARIES modelling environment (ARtificial Intelligence for Ecosystem Services), the session illustrates how integrated semantic modelling covers a broad range of modelling approaches from simple to complex, efficiently reuses scientific and stakeholder knowledge and shares it with the larger ecosystem services community, and represents a versatile tool to address different modelling needs of researchers and practitioners. In addition, the session focuses on how integrated semantic modelling can contribute to the current needs of large-scale science-policy processes such as the Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services (IPBES) and System of Environmental-Economic Accounting – Experimental Ecosystem Accounting (SEEA-EEA). Individual contributions will illustrate existing approaches to deal with today's bottlenecks, while

participants and presenters will have the opportunity for open dialogue to discuss potential solutions to remaining challenges.

The session strives to provide space for participants' active involvement in discussions and a practical demonstration. The session consists of two parts: (1) a theoretical presentation/discussion part, focusing on ecosystem-service modelling bottlenecks and their potential solutions through integrated modelling approaches, and (2) a practical real-time demonstration of the ARIES modelling environment as well as selected simple and complex ecosystem services models.

The session is further accompanied by an ARIES booth at the conference project marketplace, where conference participants are welcome to further familiarize with the ARIES modelling environment, raise practical questions and engage in one-to-one discussion with a member of the ARIES development team.

### Goals and objectives of the session:

1. To present the ARIES approach to integrated semantic modelling:
    - a. What is the ARIES modelling environment?
    - b. How can the ARIES approach contribute to address current ecosystem services modelling bottlenecks?
    - c. How can ARIES be useful for current ecosystem services decision-making processes?
  2. To discuss the ecosystem service assessment bottlenecks that integrated semantic modelling can overcome, and which remaining challenges may require other novel approaches.
  3. To demonstrate how interested users can apply ARIES and what are the current developments and applications of the ARIES modelling environment.
- These goals will be reached through a block of presentations, an inclusive discussion and a real-time demonstration.

### Planned output / Deliverables:

1. Following the session, the participants will be asked to fill in a short online survey focused on the capabilities of currently available ecosystem services modelling tools to address ecosystem services mapping bottlenecks.
2. Journal paper: A discussion paper on current advances towards addressing the bottlenecks in ecosystem services mapping
  - a. Based on the issues raised during the presentations and discussion at the session
  - b. Open for contribution by session participants
  - c. Incorporating the input from the survey among session participants.

### Voluntary contributions accepted:

No, I only want to include my own invited speakers

### Related to ESP Working Group/National Network:

I don't know

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