



Plenary Sessions

Day 1 – 22 Nov 2023	
Registration 8:30-9:30	
Plenary: Welcome session 9:30-11:00 <ul style="list-style-type: none"> - ESA Welcome - RTD intervention - DEFIS intervention - Invited speaker 	
<i>Coffee Break</i> 11:00-11:20	
Plenary: Setting up the scientific frontiers 11:20-13:20 Key notes on: Interfaces to <ul style="list-style-type: none"> - Polar - Ocean - Carbon – Markus Reichstein - Biodiversity - Disasters/Extremes - Agriculture 	
<i>Lunch break</i> 13:20-14:20	

Carbon Science Cluster Sessions

Day 1 – 22 Nov 2023	
Parallel Session 1 (14:20-16:00)	
14:20-14:30	An introduction to Carbon Science Cluster – Stephen Plummer An introduction to EC Projects – Terrestrial Carbon – Franz Immler
Vegetation State, Processes and Land Use	
14:30-14:45	Estimating GPP in Sen4GPP - Elise Belabeki-Joly
14:45-15:00	Emulation of JULES ESM for GPP in IMITATE – Rob Parker/Cristina RuizVillena
15:00-15:15	Biomass Estimation and BIOMASS – Clement Albinet
15:20-15:35	CORSO and COCO2 EC Projects – Richard Eneflen, Gianpaolo Balsamo
15:35-15:50	Soil Carbon Estimation in NL (E04CSM) – Gerbert Roerink
15:50-16:00	Estimating phenology and its role in the carbon cycle - Joshua Gray



carbon cycle

CORSO – Assesses the added-value of in-situ observations of specific additional atmospheric species and satellite observations of the land surface to better separate the impact of fossil fuel and biospheric fluxes on the atmospheric CO₂ concentrations. Develop coupled land-atmosphere data assimilation in the global CO₂MVS system constraining carbon cycle variables with satellite observations of soil moisture, LAI, SIF, and Biomass. Richard Engelen Richard.Engelen@ecmwf.int.

COCO2 - Prototype systems for a European Monitoring and Verification Support capacity for anthropogenic CO₂ emissions and deliver prototype anthropogenic CO₂ emission estimation systems at global, regional and local scales; <https://coco2-project.eu/objectives> Richard Engelen, Giampaolo Balsamo. Richard.Engelen@ecmwf.int, Giampaolo.Balsamo@ecmwf.int

Coffee break
16:00-16:20

Parallel Session 2 (16:20-18:00)

Dynamics, Disturbance and Emissions

16:20-16:35 Sense4Fire – [Jos de Laat](#)
16:35-16:50 S14Science – Amazonas – [Sivasankar Arul](#)
16:50-17:05 BURNQUEST – [Ivar van der Velde](#)
17:05-17:15 EYE-CLIMA EC Project – [Rona Thompson](#)

EYE-CLIMA – To improve estimates of emissions and removals of the most important greenhouse gases (CO₂, CH₄, N₂O and six F-gases), as well as black carbon using inverse modelling and satellite remote sensing - [Rona THOMPSON](#) (rona.thompson@nilu.no) (<https://eyeclima.eu>)

Linking to other Domains - Cryosphere

17:15-17:30 AMPAC-Net – [Annett Bartsch](#)
17:30-17:45 GreenFeedBack EC Project – [Lise Lotte Sorensen](#)
17:45-17:55 CryoBiolinks – [Kristin Bottcher](#)
17:55-18:10 MISO EC Project – [Tuan-vu Cao](#)

MISO - In-situ observation of CH₄, CO₂ in the Arctic permafrost and Wetlands, CH₄ using new cost-effective GHG monitoring solutions, NDIR sensor, autonomous system, UAV-based measurement, automated gas chamber (MISO) - [Tuan-vu Cao](#) (tvc@nilu.no)- (<https://miso.nilu.no>)

GreenFeedBack - Knowledge of feedbacks in the carbon cycle in the boreal zone, the Arctic and the permafrost regions under a changing climate - [Lise Lotte Sørensen](#) (lils@envs.au.dk) - (<https://eu-greenfeedback.com/>)

18:00-19:00
Posters and networking cocktail



Day 2 – 23 Nov 2023

Parallel Session 3 (9:30-11:00)

09:30-09:45	Land Carbon Constellation – Marko Scholze
09:45-10:00	TCCAS Community Model development – Thomas Kaminski
10:00-10:15	RECCAP_cci Ana Bastos
10:15-10:30	NRT-Extremes - Stephen Sitch
10:30-10:45	AVENGERS EC Project – Marko Scholze
10:45-11:00	PARIS EC Project – Thomas Röckmann

AVENGERS - Reconcile GHG emissions with independent information from atmospheric observations using top-down methods and process-based model for national inventories, ecosystem and atmospheric modelling, tracer transport inversions - Marko SCHOLZE (marko.scholze@nateko.lu.se) (<https://avengers-project.eu>)

PARIS - focuses on the interface between bottom-up and top-down approaches and aims to strengthen the collaboration between scientists and national inventory teams for the evaluation and development of national inventories - Thomas RÖCKMANN (t.roeckmann@uu.nl) (<https://horizoneurope-paris.eu/>)

Coffee break
11:00-11:20

Parallel Session 4 (11:20-13:20)

11:20-11:30	Bringing together FluxNet and EO - Sophia Walther
11:30-11:40	Developing improved decametric vegetation products at flux tower sites: the GROUNDED EO project - Luke Brown
11:40-11:55	ICOS and beyond – Dario Papale
11:55-12:10	World projects and carbon – Zoltan Szantoi
12:10-12:25	Science Hub Cluster Repository/Catalogue – Anca Angheloa
12:25-12:50	Amazon Campaign 2024 – Clement Albergel
12:50-13:05	Supporting Open Science with the BIOMASS Mission Algorithm and Analysis Platform (MAAP) and GEOTREES initiative - Clement Albinet
13:05-13:20	Discussion and Framing

Lunch break
13:20-14:20



Parallel session 5 (14:20-16:00)

- 14:20-14:40 Key note Talk – **Mat Williams**
14:40-14:55 4C EC Project – **Pierre Friedlingstein**
14:55-15:05 The Terrestrial Carbon Reconciliation Challenge – a Joint ESA-NASA activity - **Stephen Plummer**

4C - Developing and making use of novel observations and data products to constrain the land and ocean carbon fluxes and their drivers, combined with forced land and ocean carbon cycle model simulations over the historical period (1900-2020) - Pierre Friedlingstein (p.friedlingstein@exeter.ac.uk) (<https://4c-carbon.eu>)

15:05 – 16:00 Opening Remarks on links between EC and ESA projects, and prospects for coordination

Coffee break
16:00-16:20

Parallel Session 6 (16:20-18:00)

Planning for a data-driven high resolution assessment of terrestrial carbon as a coordinated EC-ESA-NASA activity

- Framing the problem
- What should it look like
- How should EC-ESA-NASA coordinate activities
- Links to other international efforts
- Planning for new missions – BIOMASS, FLEX, NISAR etc
- What is needed in data terms and what is missing
- Global or by Region?

Posters and networking cocktail
18:00-19:00



Day 3 - 24 Nov 2023

Parallel Session 7 (9:00-11:00)

Framing the solution

What should it look like

What is needed in data terms and what is missing

Global or by Region?

What coordination is needed from ESA-EC-NASA?

How will the community be involved??

What are the short, medium and long term aims and how should they be organised

Coffee break

11:00-11:20

Plenary: Summary and Wrap up session (11:20-13:00)

John Bell (remote)

Summary for each topic – recommendations (5-10min each session)

Carbon Science Cluster presentation on workshop outcomes

1. Scientific challenges to be addressed
2. How do we collaborate across EC-ESA – what roles, how mechanisms could work??

Floor final words