

The ICOS France Science day 2021.

Understanding the greenhouse gases cycle in a warming Earth.

Université de Reims, France, 12th - 14th Oct. 2021.

<https://colloque.inrae.fr/ast-icos-reims2021>



The winter heat wave in February 2020, followed by the reduction in greenhouse gas emissions due to COVID 19 lock-down, a new drought and several hot days during last summer, and a new period of near-universal lock-down during the winter of 2021 are unpredictable and historically unprecedented events that affect the atmospheric greenhouse gas budget. They highlight the critical importance of accurate, distributed, real-time measurements of the surface carbon cycle. The ICOS France research infrastructure, its laboratories and data processing centres, and the network of stations it deploys in the atmosphere, ocean surface waters, and on major types of continental ecosystems, responds well to this challenge today. The ICOS France Open Science Days, organized in **Reims from October 12th to 14th, 2021**, will present the latest research and data on the carbon cycle and on the impacts of rare events.

Four speakers will inaugurate the open presentation sessions. The latest report of the G.I.E.C. Working Group I (**Valérie Masson**, WGI co-chair), carbon in surface waters from source to ocean (**Richard Sanders**, head of the Ocean thematic centre), the coupling of carbon and nitrogen cycles (**Mark Sutton**, Centre for Ecology and Hydrology) and inversion approaches for determining surface fluxes (**Frédéric Chevallier**, L.S.C.E.) will be presented.

These days will be organized to minimize its fossil carbon emissions with the involvement of the hotel school of Reims.

The ICOS France Science day 2021.

Tuesday Oct. 12.

Hôtel de la Paix, Salle Athènes

Accueil 09h00-09h30

Bienvenue 09h30-09h45 : Accueil par **Guillaume Gelé**, Président d'Université Reims-Champagne et mot de bienvenue

09h45-10h30 : **Richard Sanders (visio)**,
Director of the ICOS Ocean Thematic Centre.
The Oceans role in the global C cycle: Future priorities for research.

10h30-10h50 : **Margaux Brandon**, Catherine Goyet, Franck Touratier, Nathalie Lefèvre :
Spatial and temporal evolution of surface biogeochemistry in the southern ocean

10h50-11h10 : Laurent Coppola, Marine Fourier, Dominique Lefevre, Caroline Ulses,
Thibaut Wagener : Integrated observations of oceanic CO₂ in the North-Western
Mediterranean Sea. A synthesis of the last ten years and perspectives.

11h10-11h25 Coffee Break

11h25-11h45 : **Leseurre Coraline**, Lo Monaco Claire, Reverdin Gilles, Metz Nicolas, Fin
Jonathan, Mignon Claude : Trends and drivers of sea surface fCO₂ and pH observed in the
Southern Indian Ocean over the last two decades (1998-2019)

11h45-12h05 : **Léa Olivier**, Sabrina Speich, Jacqueline Boutin , Johannes Karstensen :
Impact of North Brazil Current rings on air-sea CO₂ fluxes variability in winter 2020 in the
north-western tropical Atlantic

12h05-12h25 : Fengjiao Shen, Jingjing Wang, Gaoxuan Wang, Tu Tan, Zhensong Cao,
Xiaoming Gao, Pascal Jeseck, Yao-Veng Te, **Weidong Chen** : Remote sensing of greenhouse
gases in the atmospheric column using ground-based laser heterodyne radiometers (LHR)

12h25-12:45: **Carole Deniel**, Programmes spatiaux en Atmosphère, CNES-Paris : Quelle
place pour les observations spatiales de GHG dans l'étude du cycle du carbone ?

12h45:14:00 Lunch - Salle Berlin

14:00-14h20 : **Jean-Daniel Paris**, Mia Schumacher, Roberto Grilli, Mathis Lozano, Marc
Delmotte, Thomas Giunta, Dominique Birot, Camille Blouzon, Jean Pierre Donval, Vivien
Guyader, Helene Leau, Vlad Radulescu, Sorin Balan, Jens Greinert, Livio Ruffine : Toward
direct evidence of methane transfer from the sediment to the atmosphere using a suite of
systematic observations

14h20-15:05 :

Mark Sutton (visio)

Why nitrogen and climate change? Emerging science-policy needs

15h05-15h25 : **Maryam Gebleh-Goydaragh**, Pauline Buysse, Nicolas Saby, Sébastien Lafont, Claudy Jolivet, Céline Ratie, Jean-Philippe Chenu, Nicolas Proix, Brigitte Durand, Benjamin Loubet : N₂O emissions from decomposing crop residues in soils

15h25-15:45 : **Gwenaëlle Lashermesa**, Sylvie Recousa, Gonzague Alavoinea, Baldur Janzb, Klaus Butterbach-Bahlb, Maria Ernforsc, Patricia Lavilled : N₂O emissions from decomposing crop residues in soils

15h45-16h05 : **Pauline Buysse**, B. Loubet, F. Lafouge, R. Ciuraru, L. Gonzaga-Gomez, B. Durand, O. Zurfluh, C. Decuq, O. Fanucci, J.-C. Gueudet, S. Bsaibes, F. Truong, C. Boissard, Dominique B., R. Sarda-Estève, V. Gros. : VOC fluxes measured by eddy-covariance with a PTR-Qi-TOF-MS over a rapeseed field near Paris

16h05-16:25 : **Sauveur Belviso**, David Montagne, Dalila Hadjar, Didier Tropée, Laurence Vialettes, Victor Kazan, Marc Delmotte, Camille Abadie, Fabienne Maignan, Michel Ramonet, Morgan Lopez, Camille Yver-Kwok, Philippe Ciais : Carbonyl sulfide dynamics in agricultural ecosystems: comparative study of emissions from wheat and rapeseed crops

16h25-16h45 Coffee Break

16h45:18h45 POSTER SESSION

- Eddy-covariance methane flux estimation in a western France landfill site. **Mathis Lozano.**
- Two numerical tools for an easier generation of level 3 products: flexpart-toolbox and the CIF. **Isabelle Pison.**
- Développement et mise à jour du réseau ICOS France atmosphère. **Morgan Lopez.**
- AirCore : Couplage des Picarro G24 et G53 pour mesure in situ des concentrations atmosphériques de CO₂, CH₄, N₂O et CO. **Julien Moyé.**
- The Moulin De la Housse launching site. **Nicolas Dumelie.**
- Ground-based FTIR measurements. An efficient way to the GHG-satellites monitoring validation? **Bruno Grouiez.**
- Development of a Tunable Diode Laser based fluxmeter for eddy covariance of H₂O and CO₂ co-localized with 3D wind measurements. **Julien Cousin.**
- Soil sampling protocol and analysis by the ICOS ecosystem thematic center (ETC). **Benjamin Loubet.**



Exhibitors list

- **LI-COR Biosciences GmbH** : Mme Katia Bonne; M. Graham Leggett
- **Picarro Inc** : M. Ruthger van Zwieten
- **ENVITEC** : M. Adrien Danner

- **MIRO Analytical AG** : M. Morten Hundt

18h45 : End of the session.

The ICOS France Science day 2021.

Wednesday 13th Oct. 2021.

Hôtel de la Paix Salle Athènes

8h30-9h15: **Valérie Masson-Delmotte (visio)**
LSCE, IPCC WGI vice chair

Changement climatique, points clés du rapport du GIEC de 2021

9h15-9h35 : **Herig Coimbra**, P., Buysse, P., Loubet, B., Simioni, G., Lafont, S., Berveiller, D., Ruffault, J., Fléchar, C. R., Martin-St-Paul, N., Bornet, F., Brut, A., Calvet, J-F., Chipeaux, C., Cuntz, M., Darsonville, O., Dufrêne, E., Galy, C., Gogo, S., Jacotot, A., Klumpp, K., Léonard, J., Lily, J-B., Limousin, J-M., Loustau, D., Marloie, O., Ourcival, J-M, Tallec, T., Voisin, D., Zawilski, B. : Impact of heat wave episode in summer 2019 on the carbon flux of the French ICOS sites

9h35-9h55 : Renaud Decarsin, Nicolas Martin - Saint Paul, Julien Ruffault, Olivier Marloie, **Guillaume Simioni** : Déterminants et variations de la respiration du sol dans une forêt mélangée méditerranéenne

9h55-10h15 : **Nicolas Delpierre**, Jean Maysonnave, Daniel Berveiller, Christophe François, Eric Dufrêne, Kamel Soudani, Ivan Cornut, Gaëlle Vincent, Alexandre Morfin : Keeping cool during drought: access to subsoil water relaxes water stress in a temperate deciduous forest

10h15-10h35 : **Angela Che Ing Tang**, Denis Loustau, Matthias Cuntz, Silvano Fares, Paul C. Stoy, Christophe Flechar, Guillaume Simioni, Katja Klumpp, Emilie Joetzjer, Ladislav Šigut, Matthias Peichl, Ivan Mammarella, Daniel Berveiller, Nina Buchmann, Corinna Rebmann, John Douros, Renske Timmermans, Alexander Knohl, Bernard Heinesch, Nicola Arriga, Mats Nilsson, Jiří Dušek, Ivan Janssens, Damiano Gianelle, Natalia Kowalska, Marilyn Roland, Eeva-Stiina Tuittila, Andrej Varlagin : The impact of COVID-19 lockdown on ecosystem gross primary productivity

10h35-10h55 Coffee Break

10h55-11h15 : **Nicolas Brodu**, Yao Liu : Data-based inference of ecosystem dynamics

11h15-11h35 : **Michel Ramonet**, Jérôme Tarniewicz, Bavo Langerock, Thorsten Warneke, Nicolas Gourgue, N.C.O. Diaby, Tanguy Martinez, Léonard Rivier, Anna Agustí-Panareda and Henk Eskes : Evaluation of the the CAMS greenhouse gas global reanalysis and high resolution forecasts using ICOS, TCCON, NDACC, Aircraft and Aircore measurements

11-35-11h55 : **Cyril Crevoisier**, Jérôme Pernin, Axel Guedj, Lilian Joly, Delphine Combaz, Nicolas Dumelie, Michel Ramonet, Julien Moyé, Morgan Lopez, Jean-Luc Baray, Aurélie Colomb, Jean-Claude Rubio, Frédéric Thoumieux and Caroline Bès : What is brought by

measuring vertical profile of concentrations of greenhouse gases?

11h55-12h15 : **Jean-Louis Bonne**, Jérémie Burgalat, Nicolas Chauvin, Delphine Combaz, Gregory Albora, Julien Cousin, Thomas Decarpenterie, Ludovic Donnat, Catherine Juery, Abel Mauroury, Nicolas Galas, Olivier Ventre et Lilian Joly : Industrial site emissions quantification from simultaneous CH₄/CO₂ in-situ concentration measurements on-board unmanned aircraft vehicles

12h15-12h30: **Yver-Kwok Camille**, Fuente-Lastra Martha : Trace radon: a project to develop metrology to determine emission reduction strategies of GHG and improve radiation protection of the general public

12h30:14:00 Lunch - Salle Berlin

14:00-14:45 :

Frédéric Chevallier
LSCE, IPSL

Atmospheric inversion : : where is the beauty contest between surface measurements and space observations?

Conference Closure

ICOS France general Assembly (private)

14h50:15h20 : ICOS France activity report: stations networks, ATC, ETC, (ICOS France ex com)

15h20-15h40 : ICOS-RI report: evaluation, new members, (D. Loustau). Administrative and financial report (Contract renewals, labelling, Fench RI roadmap , Publometric project, Good practice project) (D. Loustau)

15h40-15h50 : Ongoing and future projects: OBS4CCLIM, PAUL, ATMO-ACCESS, ENVRI-CLIM (L. Rivier, M. Ramonet)

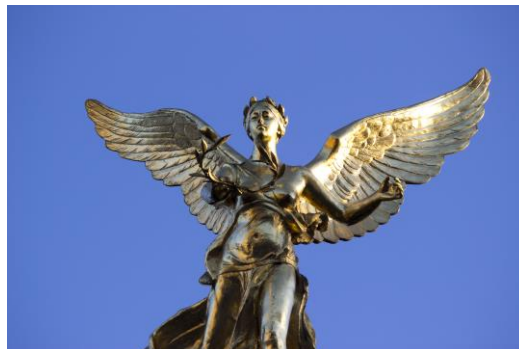
15h50-16h00 : Retour du COPIL ICOS France et mot du MESR

End of the ICOS-France General Assembly.

Social events

16h15 : Visit of Champagne wine cellars, duration about 1h15

20h00 : Gala Dinner sponsored by University of Reims-Champagne . Hôtel de Ville de Reims ([adresse](#))



The ICOS France Science day 2021.

Thursday 14th Oct. 2021.

Hôtel de la Paix, Salles Lisbonne, Rome, Athènes

8h30 : Scientific and technical workshops (private) : parallel sessions: Ecosystem, Ocean, Atmosphere

10h30-11h00 Coffee Break

11h00 : Scientific and technical workshops (private) : parallel sessions Ecosystem, Ocean, Atmosphere ; Transverse session: "ICOS France trans domain projects"

12h30:14:00 Lunch - Salle Berlin

14h00-15h00 : Transfer to the University Campus (special bus to be confirmed)

Reims-Champagne-Ardenne University Campus

15h00 Inauguration of the ICOS Atmospheric station (followed by a cocktail).

15h30 -16h30 :

- Demonstration of Aircore and Amulse under balloon for atmospheric sounding 0-30km.
- Spatio-temporal mapping of surface CO₂ CH₄ exchanges in real time by drone.

16h30 : Departures (special bus, to be confirmed)



Venue

October 12th, 13th and 14th until Lunch: Hôtel de la Paix, 9 Rue Buirette 51100 Reims, (tel +33 (0)3 26 40 04 08).

October 14th afternoon: Atmospheric Station Inauguration :

GPS : 49.243442187164106, 4.060832353290433

(arrival along the « *chemins des rouliers* » and *Conservatoire National des Arts et Métiers*).