PRESS INFORMATION

An infrastructure for excellent science

How much of the fossil fuel emissions can be compensated by terrestrial ecosystems and oceans? Will these sinks be persistent? Are they influenced by nutrient availability? Which role do lakes and rivers play in the carbon cycle? More than 200 researchers will convene in Brussels from 23.–25. September 2014 for the first International ICOS Science Conference to answer questions like these. They will discuss recent scientific results on the exchange and the concentrations of greenhouse gases (GHG) in the atmosphere. The Integrated Carbon Observation System (ICOS RI) is a pan-European Research Infrastructure that comprises about 100 atmospheric, ecosystem and ocean observation stations distributed over 10 countries. ICOS RI provides long-term, coherent, precise and quality-controlled observation data on GHGs to support research and to help curb and monitor emissions.

Greenhouse gas science is much more than monitoring

The global cycles of carbon and nitrogen comprise all spheres of our planet. Manifold interactions between human and environmental systems have caused imbalances and perturbations that resulted in increases of the major GHGs: carbon dioxide (CO_2), methane (CH_4) and nitrous oxide (N_2O). Increased GHGs result in climate changes which influence the complex biogeochemical processes in terrestrial ecosystems, oceans and the atmosphere. Understanding these feedback mechanisms has become an important new and exciting branch of environmental science during the past three decades. The first ICOS Science Conference will bring together more than 200 scientists to discuss the recent results and future efforts in GHG science.

ICOS RI is an infrastructure to support excellent science, policy makers and society

Excellent science needs a reliable infrastructure. Data acquisition has to fulfill highest quality standards. Continuity of the measurements is as important as precision. Data access will be unrestricted – to be used by science and society – and free of charge. Research Infrastructures are large undertakings in size and by nature of their organisational complexity. The member states of the European Union and the European Commission have highlighted the importance of scientific and technological innovation. They started to build Research Infrastructures during the past 12 years in the ESFRI Roadmap process. ICOS RI has been on the ESFRI roadmap since 2006 and is currently taking its last step to become a European Institution (ICOS ERIC) with Finland as constitutional seat. Since March 2014 **Dr. Werner Kutsch** is the Director General of ICOS.

Dr. Kutsch is looking forward to the conference: *"After all those years of developing and constructing ICOS RI the community is so keen to focus on science again and discuss the latest developments. We will have extremely interesting presentations and more than 100 posters."* The conference will be also very important as a forum where data providers and data users can meet. Together with modellers ICOS RI wants to develop integrated data acquisition and model systems that will produce actual maps on GHG fluxes for Europe and the surrounding oceans. These maps can identify changes in the biosphere, but also be used for verification of inventories. Condensed information like that provided by ICOS will also help European policy makers to formulate their standpoint in international negotiations on GHG mitigation. The development and refinement of integrated information products will be the greatest scientific challenges for the next decades.

Media are cordially invited to attend the conference and meet scientists. There will be a special media event on Thursday, 25 September 2014 at 15:00 h.

Logistical details:

Conference venue
Academy Palace
Hertogsstraat 1
1000 Brussels
Belgium

Media event
A media event will be held on Thursday 25. September at 15:00 h.

Contact for media before the conference
ICOS RI Headoffice (icos-admin@helsinki.fi)
Eija Juurola (+358-50-4154833)

Contact persons for media during the conference
Prof. Timo Vesala (timo.vesala@helsinki.fi, +358-40-5779008)
Eija Juurola (eija.juurola@helsinki.fi, +358-50-4154833)

Links
ICOS Website: http://www.icos-infrastructure.eu/
ICOS Stakeholder handbook (detailed information): http://www.icos-ri.eu/sites/icos-infrastructure-transition.eu/files/MASTER__ICOS_SHB_05032013_final.pdf
Links to the national websites of ICOS partners: http://www.icos-infrastructure.eu/node/4
ESFRI Roadmap: http://ec.europa.eu/research/infrastructures/index_en.cfm?pg=esfri-roadmap

1st ICOS Science Conference
on Greenhouse Gases and Biogeochemical Cycles
Brussels, 23-25 September 2014

Program

Tuesday 23 September	
11.00-13.00	Registration open
12.00-14.55 Opening of the Congress and Plenary Session (Espace Roi Beaudouin) Chair: Reinhart Ceulemans	
12.00-12.20	Opening words by Flemish representative *Rudy Herman*, and ICOS Director General *Werner Kutsch*
12.20-12.40	*Anna Maria Johansson, European Commission:* RESEARCH INFRASTRUCTURES AND THE HORIZON 2020 PROGRAM
12.40-13.25	*Ingeborg Levin*: THE CHALLENGE OF DEDICATED GREENHOUSE GASES MONITORING IN EUROPE
13.25-14.10	*Bob Scholes*: INTEGRATION ON A SHOESTRING: CARBON CYCLE OBSERVATIONS AT A RANGE OF SCALES IN SOUTH AFRICA
14.10-14.55	*Dorothee Bakker*: THE SURFACE OCEAN CO_2 ATLAS (SOCAT) ENABLES DETECTION OF CHANGES IN THE OCEAN CARBON SINK
14.55-15.25	Coffee break (Atrium)
15.25-16.40	General Session (Espace Roi Beaudouin) Chair: Samuel Hammer
15.25-15.50	*Alessandro Cescatti*: SOURCES AND PATTERNS OF INTER-ANNUAL VARIABILITY IN THE CARBON BUDGET OF TERRESTRIAL ECOSYSTEM
15.50-16.15	*Philip Nightingale*: ENVIRONMENTAL DRIVERS OF VARIABILITY IN AIR-SEA GAS TRANSFER
16.15-16.40	*Yilong Wang*: POTENTIAL OF EUROPEAN $^{14}CO_2$ OBSERVATION NETWORK TO ESTIMATE THE FOSSIL FUEL CARBON DIOXIDE EMISSIONS VIA ATMOSPHERIC INVERSIONS
16.40-17.00	Health break with coffee (Atrium)
17.00-17.25	*Christopher Williams*: WHAT MATTERS MOST FOR FUTURE LAND CARBON STORAGE: LAND CHANGE, CLIMATE CHANGE, OR CLIMATE EXTREMES??
17.25-17.50	*Lukas Emmenegger*: FIVE YEARS OF REAL-TIME ^{d13}C-CO_2 and ^{d18}O-CO_2 MEASUREMENTS AT JUNGFRAUJOCH
17.50-19.30	Poster Session I (Atrium)

Wednesday 24 September	
Parallel Sessions	
8.30-10.10	Parallel Session 1: *Better assessment of greenhouse gases surface fluxes in Europe using atmospheric measurements and transport models* (Ockeghemzaal) Chair: Leonard Rivier
8.30-8.50	*Samuel Hammer*: ^{14}C SUPPORTED INTERPRETATION OF LONG-TERM ATMOSPHERIC TRACE GAS RECORDS IN THE URBAN ENVIRONMENT OF HEIDELBERG, GERMANY
8.50-9.10	*Filip Desmet*: GREENHOUSE GAS MEASUREMENTS AT THE ILE DE LA RÉUNION IN THE FRAME OF TCCON AND ICOS
9.10-9.30	*Felix Vogel*: STABLE CARBON ISOTOPES TO MONITOR THE CO_2 SOURCE MIX IN THE URBAN ENVIRONMENT
9.30-9.50	*Dietrich Feist*: RETRIEVING MIXING HEIGHT FROM LIDAR AND CEILOMETER NETWORKS
9.50.10.10	*Thomas Röckmann*: HOW DO ISOTOPE EFFECTS IN THE STRATOSPHERIC SINK REACTIONS OF LONG-LIVED GASES AFFECT THEIR TROPOSSPHERIC ISOTOPE BUDGETS?

8.30-10.10	Parallel Session 2: *Observation of subtle changes in the net greenhouse gases flux from land surface at ecosystem level* (Espace Roi Beaudouin) Chair: Denis Loustau
8.30-8.50	*Katja Klumpp*: PLANT TRAITS AS PREDICTORS OF ECOSYSTEM CARBON FLUXES – A CASE STUDY ACROSS EUROPEAN GRASSLANDS
8.50-9.10	*Lutz Merbold*: LONG-TERM EDDY COVARIANCE FLUX DATA FROM A SUB-ALPINE FOREST: CHALLENGES AND OPPORTUNITIES
9.10-9.30	*Stefanos Mystakidis*: EMERGENT CONSTRAINTS ON FUTURE TERRESTRIAL CARBON FLUXES
9.30-9.50	*Jan Reent Köster*: SOIL pH AS A MAIN CONTROLLER OF N_2O EMISSIONS – PROOF OF CONCEPT USING AN AUTOMATED FIELD ROBOT FOR HIGH FREQUENCY FLUX MEASUREMENT
9.50.10.10	*Jonard Mathieu*: IS TREE MINERAL NUTRITION DETERIORATING IN EUROPE
8.30-10.10	Parallel Session 3: *The role of oceans in the general global carbon cycle and CO_2-fluxes, an update and future perspectives* (Rubensauditorium) Chair: Truls Johannessen
8.30-10.47	*Ute Schuster*: SEA SURFACE pCO_2 THE SEA-AIR CO_2 FLUX OBTAINED BY VOLUNTARY OBSERVING SHIPS IN THE ATLANTIC
10.47-9.04	*Tobias Steinhoff*: SEASONAL AND INTERANNUAL VARIABILITY OF CO_2 FLUXES IN THE NORTH ATLANTIC OCEAN
9.04-9.21	*Nathalie Lefevre*: SUSTAINED CO_2 OBSERVATIONS IN THE ATLANTIC OCEAN FROM 50°N TO 25°S
9.21-9.38	*Pedro Monteiro*: OCEAN ROBOTICS AS PLATFORMS TO REDUCE THE UNCERTAINTY OF AIR-SEA CO_2 FLUXES IN THE SOUTHERN OCEAN
9.38-9.55	Luke Gregor: OPTIMISING STRATEGIES FOR SAMPLING AIR-SEA CARBON DIOXIDE FLUXES IN THE SOUTHERN OCEAN: A GENETIC ALGORITHM APPROACH
9.55-10.12	*Goulven G. Laruelle*: GLOBAL ATMOSPHERIC CO_2 UPTAKE BY CONTINENTAL SHELF SEAS: A REVISED ESTIMATE
10.10-10.40	Coffee break (Atrium)
Parallel Sessions	
10.40-12.00	Parallel Session 4 *ICOS Data and modelling* (Ockeghemzaal) Chair: Alex Vermeulen
10.40-11.00	*Dominik Brummer (Lukas Emmenegger):* THE CARBOCOUNT CH INTERACTIVE VISUALIZATION TOOL FOR GREENHOUSE GAS OBSERVATIONS AND SOURCE SENSITIVITY MAPS
11.00-11.20	*Benjamin Pfeil*: THE ROLE OF ICOS DATA WITHIN THE GLOBAL MARINE CARBON NETWORK
11.20-11.40	*Gregor Josef Schürmann*: IMPROVING THE MODELLED GLOBAL TERRESTRIAL CARBON CYCLE BY ASSIMILATING CO_2 MOLE FRACTIONS AND FAPAR WITH THE MPI - CARBON CYCLE
11.40-12.00	*Christoph Gerbig:* NETWORK ASSESSMENT AND DESIGN USING MESOSCALE MODELS WITHIN ICOS-INWIRE
10.40-12.00	Parallel Session 2 continues (Espace Roi Beaudouin) Chair: Denis Loustau
10.40-11.00	*Bruce Osborne*: CONTRASTING IMPACTS OF AFFORESTATION ON TRACE GAS EMISSIONS
11.00-11.20	*Manuel Helbig:* MONITORING CARBON, WATER AND HEAT FLUXES IN NORTHWESTERN CANADA UNDER THE INFLUENCE OF CHANGING LAND COVER AND PERMAFROST CONDITIONS
11.20-11.40	*Sigrid Dengel*: HIGH LATITUDE FOREST DYNAMICS
11.40-12.00	*Tiphaine Tallec*: MANAGEMENT AND CLIMATE EFFECTS ON NET ECOSYSTEM CARBON, GHG AND WATER BUDGETS ON CROP SITES OF SOUTH WEST FRANCE

10.40-12.00	Parallel Session 5: *Freshwaters and urban environments* (Rubensauditorium) Chair: Timo Vesala
10.40-11.00	*Cristopher Caldow*: THE INVESTIGATION AND IN-SITU MEASUREMENT OF INLAND WATER-ATMOSPHERE GREENHOUSE GAS (CO_2, CH_4 & N_2O) EXCHANGE
11.00-11.20	*Mats Öquist*: THE FULL ANNUAL CARBON BALANCE OF BOREAL FORESTS IS HIGHLY SENSITIVE TO PRECIPITATION
11.20-11.40	*Johannes Staufer*: INVERSIONS OF CO_2 EMISSIONS FROM THE PARIS AREA USING YEARLONG MEASUREMENT SERIES
11.40-12.00	*Leena Järvi*: THE EFFECT OF VEGETATION ON THE EXCHANGE ON CO_2 AND N_2O IN AN URBAN AREA
12.00-13.00	Lunch (Atrium)
13.00-15.45	Plenary Session (Espace Roi Beaudouin) Chair: Timo Vesala
13.00-13.45	*John Finnigan:* THE INFLUENCE OF TOPOGRAPHY ON EDDY FLUX MEASUREMENTS-LONG STANDING PROBLEMS AND A WAY FORWARD
13.45-14.30	*Sue Grimmond*: URBAN GREENHOUSE GASES: VARIABILITY AND KEY DRIVERS
14.30-15.00	Coffee break (Atrium)
15.00-15.45	*Xunhua Zheng*: SOME ESSENTIAL ISSUES IN FIELD EXPERIMENT STUDIES AND BIOGEOCHEMICAL MODELLING ON GHG FLUXES FROM TERRESTRIAL ECOSYSTEMS
15.45-16.40	General Session (Espace Roi Beaudouin) Chair: Timo Vesala
15.45-16.10	*Emanuel Gloor*: INTER-ANNUAL VARIABILITY OF AMAZONIAN GREENHOUSE GAS BALANCES
16.10-16.35	*Marcos Fernández-Martínez*: NUTRIENTS MATTERS MOST FOR GLOBAL FOREST CARBON BALANCE
16.40-18.30	Poster Session II (Atrium)
20.00-	Conference Dinner (Marbelzaal)

Thursday 25 September		
9.00-10.15	General Session (Espace Roi Beaudouin) Chair: Ivan Janssens	
9.00-9.25	*Mathias Herbst*: LONG-TERM OBSERVATIONS OF ECOSYSTEM CARBON EXCHANGE REVEAL CONTROL MECHANISMS NOT CAPTURED BY TRADITIONAL MODELS	
9.25-9.50	*Reiner Steinfeldt*: STORAGE OF ANTHROPOGENIC CARBON IN ATLANTIC OCEAN WATER MASSES AND ITS DECADAL VARIABILITY	
9.50-10.15	*Ana Bastos*: THE ROLE OF THE NORTH-ATLANTIC OSCILLATION AND EAST-ATLANTIC PATTERN IN THE INTER-ANNUAL VARIABILITY OF THE EUROPEAN CO_2 SINK	
10.15-10.45	Coffee break (Atrium)	
10.45-13.00	Plenary Session (Espace Roi Beaudouin) Chair: Werner Kutsch	
10.45-11.30	*Philippe Ciais*: TBA	
11.30-12.15	*Beverly Law: TBA*	
12.15-12.35	*Evelyne Testas, European Commission:* THE PROCESS OF ESTABLISHEMENT OF ICOS ERIC	
12.35-13.00	*Werner Kutsch*: EXCELLENT SCIENCE BECOMES INSTITUTIONAL – AN ANTAGONISM?	
13.00-15.00	ICOS Annual Celebrations (Atrium) Welcome speeches by *Martine Vanderstraeten* (Belgian Science Policy Office) and *Timo Vesala* (University of Helsinki)	
15.00-17.00	Early Career Meeting (Ockeghemzaal)	ICOS Focal Point meeting with IRICom (Rubensauditorium)
	Grant Allen: FINDING FUNDING: HOW TO APPLY FOR A RESEARCH GRANT	
	Discussion	
19.30-	Hosted Dinner (Restaurant La Quincallerie)	

Friday 26 September				
ISIC and ICOS RI meetings				
9.00-13.00	ISIC meeting (Stevinzaal)	Ecosystem MSA (Ockeghemzaal)	Atmosphere MSA (Rubensauditorium)	Ocean MSA (Albert I zaal)
10.30-11.30	Coffee available at Lipzius and Atrium			
13.00-14.00	Lunch (Atrium)			
14.00-16.00	IRICommittee meeting (Stevinzaal)			