

**WMO OMM**

World Meteorological Organization
Organisation météorologique mondiale
Organización Meteorológica Mundial
Всемирная метеорологическая организация
المنظمة العالمية للأرصاد الجوية
世界气象组织

Secrétariat

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11 June 2024

Annexes: 2 (available in English only)

Subject: WMO and Integrated Carbon Observations System summer school on Greenhouse Gases

Action required: For information and action as appropriate

Dear Sir/Madam,

The World Meteorological Congress at its nineteenth session (Cg-19, 22 May – 2 June 2023) approved the concept note of the Global Greenhouse Gas Watch (G3W) and the third session of the Commission for Observation, Infrastructure and Information Systems (INFCOM-3) recommended the adaptation of its Implementation Plan to the seventy-eighth session of the Executive Council (EC-78). The G3W aims at filling critical information gaps and provides an integrated, operational framework that brings together all observing systems, as well as modelling and data assimilation capabilities in relation to greenhouse gas. G3W works in close cooperation with the Global Atmosphere Watch Programme and its Integrated Global Greenhouse Gas Information System (IG³IS) that brings information of the Greenhouse Gas (GHG) emissions and uptake from the global to decision-relevant scale (national and smaller).

As demonstrated by the results of the Member survey, the capacities of Members regarding observations and modelling of GHG as well as data utilization are very limited. The summer school offered by WMO and Integrated Carbon Observations System (ICOS) will provide lectures and practical exercises on diverse measurement and modelling techniques regarding GHG.

The focus of this summer school is on the countries that have been engaged in the initial steps of building national capacities for IG³IS implementation or have expressed an interest in building national observing and data analysis systems to support national and subnational or sectoral mitigation strategies. The summer school will be conducted in English.

Learning will take place in person in Wageningen, the Netherlands, for one week, **from 19 to 24 August 2024**. You are invited to submit an application form ([annex II](#)) for interested and qualified candidates together with the candidates' curriculum vitae (CV) for consideration. All applications will be reviewed by the WMO Infrastructure Department and the Science and Innovation Department.

Nominations with the relevant attachments should be submitted to Ms Oksana Tarasova from the Infrastructure Department (otarasova@wmo.int) and Mr Sergio Moreno from the Science and Innovation Department (smoreno@wmo.int) **no later than 25 June 2024**. Any applications after this date will not be considered.

To: Permanent Representatives of Armenia, Brazil, Costa Rica, Dominican Republic, Ecuador, Egypt, India, Indonesia, Moldova, Morocco, Panama, Peru, and South Africa with WMO (limited distribution)

Please note that while Members are encouraged to cover the expenses of their participants to attend the summer school, WMO is prepared to support up to two participants from targeted Member countries.

May I take this opportunity to assure you of my unwavering commitment to capacity development-related activities in support of competency development and to thank you for your continued cooperation in this endeavour.

Yours faithfully,

A handwritten signature in dark ink, appearing to read 'Ko Barrett', with a long, sweeping horizontal line extending to the right.

Ms Ko Barrett
for the Secretary-General

WMO – INTEGRATED CARBON OBSERVATION SYSTEMS SUMMER SCHOOL PROGRAMME

Ref.: 09479/2024.1.4 SI/AER

Summer school description

The summer school is a special version of the regular biannual Integrated Carbon Observations System (ICOS) summer school, now as its seventh edition. The summer school offers a wide overview of the science of the Earth climate system and focuses on the role of the carbon cycle and greenhouse gases in climate change in the following domains: atmosphere; terrestrial ecosystem and oceans; including measurement techniques with a focus on in situ ones, data management, modelling and data assimilation.

Summer school format

The summer school will be given in the form of interactive lectures, excursions to field sites, hands on modelling exercises and group work. A preliminary schedule is given below.

ICOS/WMO Summerschool 2024										
Sponsored by WMO and NUBICOS										
From	to	Sun 18-8	Mon 19-8	Tue 20-8	Wed 21-8	Thu 22-8	Fri 23-8	Sat 24-8	Sun 25-8	
07:00	08:00	Arrival	Breakfast							Departure
08:00	08:30		Break							
08:30	09:15		Elevator pitches		Getting in the bus	Group work preparation	Remote sensing - De Mazière	The global budget top down vs bottom up - ?		
09:15	09:30		Break							
09:30	10:15		Intro to ICOS and GGGW - Vermeulen	Ecosystem modelling - Bastos	Excursion	Fires and disturbances - ?	Data assimilation- Peters	The global budget top down vs bottom up - ?		
10:15	10:30		Break							
10:30	11:15		Climate system - Heimann	Ecosystem modelling - Bastos	Excursion	GHG fluxes in the tropics - Merbold	Data assimilation practical - Luijkx/Peters	Group work		
11:15	11:30		Break							
11:30	12:15		Measurement principles - Gerbig	Atmospheric transport modelling - Peters	Excursion	Ecosystem measurements I - Mammarella	Data assimilation practical - Luijkx/Peters	Group work		
12:15	13:15		Lunch							
13:15	14:00		Carbon cycle I - Heimann	Atmospheric modelling practical I -Peters	Excursion	Ecosystem measurements II - Mammarella	Excursion	Group work		
14:00	14:15		Break							
14:15	15:00		Carbon cycle II - Heimann	Atmospheric modelling practical II -Peters	Excursion	Ocean obs and fluxes I- ?	Excursion	Presentations		
15:00	15:15		Break							
15:15	16:00		Chamber measurements - Treat	Wetland and acquatic emissions - Treat	Excursion	Ocean obs and fluxes II - ?	Excursion	Presentations		
16:00	16:15		Break							
16:15	17:00		Open science - data management - Adamaki	Urban fluxes - Järvi	Excursion	Isotopes, O2 and the carbon cycle - Luijkx	Excursion	Discussion		
17:00	18:00		Break							
18:00	20:00		Dinner at own expense	Dinner						

Expected learning outcomes

Participants will have a broad overview and deep understanding of the field having gained a deep insight in the most recent knowledge on climate change and the role of the carbon cycle and natural fluxes of greenhouse gases in climate feedbacks. Participants will all learn how observations and modelling can help in understanding the current state of the climate and reduce the uncertainties in future climate change, in connection to emission reductions in the framework of the Paris agreement.

Target audience

Academics with a minimum level of Master of Science with a background in relevant science fields such as physics, chemistry, biology, meteorology, environmental sciences. Some experience in data processing and (Python) programming is recommended.

Instructors

Instructors are experienced world class specialists in this scientific field from experimentalists to modellers, spanning a broad range of disciplines and all relevant domains.

Confirmed lecturers are:

Prof. Ana Bastos
Prof. Martine de Mazière
Prof. Christoph Gerbig
Prof. Martin Heimann
Dr Lutz Merbold
Prof. Wouter Peters.

Working language

The course will be conducted in English. No translation in other languages is offered.

Entry requirements

- Involvement in GHG measurement operations
- Having relevant background such as climate science, environmental science, geography, Earth sciences, or a related field (such as chemistry and physics)
- Basic skills of data, methods, and tools/ instrument for GHG operations
- Basic skills of computer programming languages (particularly Python)
- Good skills in English – reading, written and spoken (language comprehension)

All applications will be handled according to the protection of private information requirements.

Only successful applications will be notified by email by WMO.

NOMINATION FORM

WMO – INTEGRATED CARBON OBSERVATION SYSTEMS
SUMMER SCHOOL

Wageningen, The Netherlands

19–24 August 2024

Ref.: 09479/2024-1.4 SIAER

A. PERSONAL INFORMATION ON THE NOMINATED PERSON

First name

Surname

Institution

Country

Date of birth (DD/MM/YYYY)

Gender

Contact email

B. INFORMATION ON THE NOMINATING PERSON

First name

Surname

Institution

Motivation for this nomination

I declare that to the best of my knowledge all the information in this form is true and correct.

Signature of nominating person

Date

C. PERMANENT REPRESENTATIVE ENDORSEMENT

Signature

Date