AIAM
INTERNATIONAL ADVANCED SCHOOL
IN AGRICULTURAL METEOROLOGY

FIRST EDITION

AGRICULTURAL METEOROLOGY FOR A CLIMATE SMART AGRICULTURE



CO-ORGANIZED BY WORLD METEOROLOGICAL ORGANIZATION

WITH THE SUPPORT OF

Alliance Bioversity International CIAT

GACSA GLOBAL ALLIANCE FOR CLIMATE-SMART AGRICULTURE

CGIAR RESEARCH PROGRAM ON Climate Change, Agriculture and Food Security

CCAFS

Fondazione Clima e Sostenibilità

Consiglio Nazionale delle Ricerche Istituto per la BioEconomia

Accademia dei Georgofili

crea Consiglio per la ricerca in agricoltura e l'analisi dell'economia agraria

RETE RURALE NAZIONALE 2014 2020

ccrs Center for Corporate Responsibility and Sustainability at the University of Zurich

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Università degli Studi Firenze DAGRI Dipartimento di Scienze e Tecnologie Agrarie, Alimentari, Ambientali e Forestali

Ministero dell'Ambiente e della Tutela del Territorio e del Mare

BACKGROUND

Since its foundation in 1997, AIAM has been involved in enhancing and promoting agrometeorological research through conferences, seminars, and training courses. It also acts as a link between the services and research activities. This connection has the result of promoting researches on relevant agrometeorological themes, which are internationally disseminated through the Italian Journal of Agrometeorology.

As part of its mission, **AIAM is proud to launch the First Edition of the International Advanced School in Agricultural Meteorology**, aiming to build up knowledge about the use of integrated tools and advanced technologies for a sustainable management of agroecosystems.

The 2020 edition, co-organized with WMO-RTC and FAO, is focused on the role of Agricultural Meteorology for a Climate Smart Agriculture (CSA), and wants to provide young researchers and professionals with high-level innovative knowledge and skills on the most advanced technologies for the agrometeorological analysis and monitoring applied to a sustainable agricultural development under climate change.

Course Content

In order to facilitate participants to increase their knowledge on **how Agricultural Meteorology can contribute to a Climate Smart Agriculture, the school will include theoretical activity and practical sessions to allow the direct application of theoretical concepts through the use of advanced tools, and the analysis of case studies**. The active participation of the trainees is necessary to facilitate the realization of an interdisciplinary partnership among technicians and scientists.

A large spectrum of topics will be covered by the course:

- **Climate Smart Agriculture concept and the 5 step-process to CSA implementation**
- **Eddy Covariance and flux measurement techniques in the agricultural ecosystem: briefing on theory, experimental design and implementation**
- **Climate information Services, Early Warning Systems and Early Action**
- **European Space Agency (ESA) facilities and tools: Copernicus, databases, instruments/tools**
- **Extreme events, risk reduction**
- **Index based insurance**
- **Climate Change, Agriculture, and Food Security**

Trainers are world-class experts from acknowledged **Universities, Research Institutions, International Agencies, as well as, Food and Agriculture Organization of United Nations - FAO, European Space Agency ESA**.

Selection of participants

The selection will be carried out by the scientific committee. The Commission will evaluate, for each candidate, the application, their motivation, and profile.

Scientific coordinators for AIAM

Filiberto Altobelli, Anna Dalla Marta, Federica Rossi, Francesca Ventura

Scientific committee

Filiberto Altobelli (CREA-PB), Anna Dalla Marta (University of Florence-DAGRI), Federica Rossi and Marina Baldi (CNR-IBE and WMO-RTC), Federica Matteoli (FAO)

Organization committee

AIAM, National Research Council (**CNR**), Council for Agricultural Research and Economics (**CREA**), Food and Agriculture Organization (**FAO**), World Meteorological Organization - Regional Training Center (**WMO-RTC**), Rete Rurale Nazionale (**RRN**), Italian Ministry for Environment, Land and Sea Protection, European Space Agency (**ESA**), Foundation for Climate and Sustainability (**FCS**), Global Alliance for Climate-Smart Agriculture (**GACSA**), **Alliance-Bioversity – CIAT**. University of Florence (**DAGRI**), University of Zurich (**CCRS**).

Course Format

One-week classroom school, which includes lectures, group discussions, case studies and extensive practical training sessions. Students and teachers of the course will benefit from the Moodle platform through which educational material will be shared and assessment procedures conducted.

Date and Time

From **Monday 23 November** 2020 09:00 to **Friday 27 November** 2020 17:00

Venue

The school is hosted by the National Research Council in Roma – Italy:
https://www.cnr.it/en/reach-headquarters
Please, note that, **depending on circumstances due to COVID-19, the course will be moving online, if necessary**.

Costs

A registration fee of 400€ will be charged to all participants, to be paid before the beginning of the School via Internet banking. Details will be provided to the selected participants.
Tuition fee includes

- Course material
- Coffee breaks during the course

Participants will need to cover the costs of their travel, accommodation and daily subsistence.
Candidates can apply online:
https://docs.google.com/forms/d/e/1FAIpQLSefgVjaE966_qHMByOf9A4QQ1YZ4OULMUBi5iFjohLveKZ-ww/viewform

Fee waiver

Tuition fee waivers will be available for a maximum of 3 participants coming from Developing Countries, if endorsed by their National Permanent Representative to WMO. The tuition fee waiver will not be paid to the student. In addition, donors will cover travel and accommodation costs for these participants.
Selected participants will be informed on how to proceed.

Important dates

- Closing date for applications: **15 July 2020**
- Decisions on acceptance will be announced by email: **1 September 2020**
- Closing date for registration fee payment: **15 September 2020**

Additional information
AgroMetSchool@gmail.com

The personal data will be processed in compliance with the Italian legislation on the protection of privacy pursuant to Legislative Decree 30 June 2003 n. 196 and the General Data Protection Regulation (EU/2016/679).

PROGRAMME

Monday, 23

Opening Session

Welcome
Course introduction and overview

Session 1 (4h) - Climate Smart Agriculture

The session will focus on the Climate Smart Agriculture - CSA approach and CSA pillars. Specifically, **the session will include challenges and opportunities for agriculture in the face of climate change**; CSA concept and 5 step-process to CSA implementation; practices and production systems for CSA; tools and Methods for Evidence-based Decision Making in CSA.

Session 2 (4h) - Eddy covariance and flux measurement techniques in the agricultural ecosystem

The session will be divided in two parts. A first **including current state-of-the-art sensors for remote sensing, platforms and approaches for assessment of plant traits and productivity and stress detection**. A second part that will **focus on laboratory activity based on interactive visualization of an invisible fluorescence signal, hands-on environmental low-cost sensors for agriculture, practical test of WSN** (Wireless Sensor Network) **and UAV precision agriculture**.

Tuesday, 24

Session 3 (8h) - Climate information Services

The session will be organized into two parts. A first session, which includes a series of lectures to be delivered **by experts of FAO, will cover various aspects of climate services value chain in the agricultural sector**. A second session will aim to provide practical experiences/tools how to translate climate knowledge into climate action on the ground. **More specifically, climate information services; delivery of climate information services to end-users; Early Warning Systems and Early Action, hands-on activities will be delivered**.

Wednesday, 25

Session 4 (8h) - Copernicus, databases, instruments/tools, visit at ESA

Participants will spend a day at the European Space Agency's Earth Observation Centre, ESRIN, in Frascati outside Rome.
ESA experts **will illustrate New Capabilities in Earth Observation to support a sustainable Agriculture** with reduced environmental impact and increased climate resilience by responding to global, regional and local needs for: mapping and monitoring of crops; supporting and monitoring agricultural practices.

Thursday, 26

Session 5 (6h) - Extreme events, risk reduction, Early Warning Systems

The session will include an **introduction to drought and its impacts on agro-ecosystems, a description of an open and interoperable climate service to support user needs for reducing the gap between the drought development and the emergency management.** Attention will be pointed out on what type of information should be produced and how, dealing with concepts of Data Cube, Open Science and FAIR principles. **A practical session will explain how to use the different drought Climate Service tools and integrate its products with other information.**

Session 6 (2h) – How agribusiness and agricultural meteorology can contribute to CSA

Digital agriculture can improve forecasting, diagnosis of pests and diseases, or bundle field and weather information to offer an integrated smart on-field strategy. The customized, real-time, finely tailored intelligent insights gathered can help growers tackle intra-field variability, make intelligent choices on what, when and where to plant, and what to apply. **Agribusinesses can help farmers adopt digital agriculture practices through consolidation across the food value chain, new cooperative ways of investing, and modern finance and risk-sharing models.**

Friday, 27

Session 7 (1.30h) - Climate Information Services for Agricultural Advisory and its application

The presenter will showcase deployment of different example of climate services for informed agricultural decision making from **Latin America, Africa and South East**.

Session 8 (2h) Climate Risk Profiling

They present key challenges posed by climate change and the impacts it might have on the agricultural sector. They then **suggest specific interventions that could address those challenges and outline financing opportunities for CSA.** The session will provide students with **an overview on how the profiles are structured, scientific models used to develop them and practical ways to adopt them in decision making processes**.

Session 9 (2h) – Climate Finance

Meeting the financing requirements for climate-smart agriculture is pivotal to address global food insecurity. The Climate Finance **session aims at illustrating the main concepts related to financing mechanisms that aims to increase investments in agriculture sector, while delivering positive climate outcomes, such as increased resilience and reduced emissions intensity.**

Closing of the school

PROGRAMME