

Organization

Dates

30.06.2014: Applications due

31.07.2014: Notification of participants

Venue

30./31.3.2015: Palm Beach Hotel

1./2.4.2015: University / WASCAL

Costs

Tuition and meals during the workshop are free for all participants. A limited number of travel grants is available.

Target group

The training school is open to young researchers from West Africa in climate research, meteorology, hydrology, environmental sciences, signal processing applications and precipitation remote sensing who intend to use commercial microwave links. Previous experience in the field of quantitative precipitation analysis is a plus. We expect from applicants a sound knowledge of programming languages, ideally Python or R, alternatively MATLAB or IDL.

Application

Participation will be limited to a maximum of 20. Please send your application, including a motivation letter, a support letter from your lab/institution and a short CV, to the contact listed below.



Contact

Dr. Marielle Gosset, IRD

Prof. Harald Kunstmann, KIT

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More information can be found on
<http://raincell01.sciencesconf.org/>

Training School RainCell West Africa

Rainfall Observation Using
Commercial Microwave Links in
West Africa:

Prospects and Methods

30.3. - 2.4.2015

Ouagadougou, Burkina Faso

Karlsruhe Institute of Technology
Institut de Recherche pour le Développement
University of Ouagadougou
West African Science Service Centre
on Climate Change and Adapted Land Use (WASCAL)



Basic information

Background

Current and future climate changes are likely going to alter precipitation characteristics in West Africa. Effective adaptation and mitigation measures are required, for which an improved understanding of all aspects of the regional water cycle is of crucial importance. In areas with limited technical infrastructure and coarse observation networks like West Africa, reliable rainfall estimations remain a challenge.

The need for additional measurements has inspired the use of microwave links, which have been proven to provide line integrated accurate rainfall estimates at the near-surface level. Since these microwave links comprise a large portion of the backbone of all commercial cell phone networks, they are present even in remote rural areas. Hence they provide a promising and cost effective new way to improve the coverage and quality of rainfall estimation in West Africa.

Aim

The training school is part of the first Rain Cell Africa Workshop that will take a lead in introducing the new technique of precipitation remote sensing using terrestrial or satellite microwave links in West Africa. Example of implementations of the method in different parts the world

(Germany, The Netherlands, Switzerland, Israel and Burkina Faso) will be presented and the potential for a regional network will be discussed.

During the Training School African scientists will learn more on the theoretical principles, potentials and limitations of the new technique, as well as solutions and practical examples that will be presented by leading scientists in this field.

Workshop topics

- Water- and climate monitoring initiatives
- Precipitation measurement in Africa: issues and state of the art

Observation networks

Satellite observations

- Rainfall monitoring using commercial microwave links

Rainfall retrieval algorithms

Applications in Israel, Germany, The Netherlands, Switzerland, Burkina Faso

- Practical exercises

Electromagnetics: theory of microwave scattering

Processing methods for MW-link data: baseline determination, error correction

Derivation of spatial information: interpolation and data fusion techniques

Lecturers

Prof. Pinhas Alpert and Prof. Hagit Messer (Tel Aviv University, Department of Geophysics and Planetary Sciences & Institute for Electrical Engineering)

Dr. Marielle Gosset (IRD, Géosciences Environnement Toulouse)

Prof. Harald Kunstmann and Christian Chwala (Karlsruhe Institute of Technology, Campus Alpin, Institute of Meteorology and Climate Research)

Dr. Hidde Leijnse (KNMI Royal Netherlands Meteorological Institute)

Dr. Jork Rieckermann (EAWAG, Zurich)

Prof. Remko Uijlenhoet (Wageningen University, Hydrology and Quantitative Water Management Group)

Prof. François Zougmore (University of Ouagadougou, Department of Physics)