



Seventh Framework Programme
Theme 6 [SPACE]



Project: 607193 UERRA

Full project title:
Uncertainties in Ensembles of Regional Re-Analyses

**Deliverable D7.9
African Workshop**

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1. Introduction

Some of the UERRA project results are of interest to developing countries. Obviously, the European regional reanalyses data or station observations are not directly useful, but the methods that are developed within UERRA and other European projects may be of interest to countries in the developing world.

For this reason, the UERRA project planned for an activity with the Dissemination & Outreach Workpackage 7, to contribute to a workshop held in Africa in collaboration with the joint CCI/CLIVAR/JCOMM Expert Team on Climate Change Detection and Indices (ETCCDI) and WMO. Past Workshops of this Expert Team focused on data rescue, data collection, climate data management, and the development of a set of climate indices. This work strongly relates to what KNMI has been working on within the EURO4M and UERRA projects.

Although during the UERRA-project, the ETCCDI did not organise a workshop for Africa similar to the one previously held, an alternative was found in the Workshop “*Climate Change in Africa: Evidence, mechanisms and Impacts - Past and Present*“, held in Marrakesh, Morocco, 6-11 November 2017.

This Workshop (<http://vulpesproject.wixsite.com/workshop>) was attended by approximately 100 scientists from Africa, Europe and the USA, and focused on climate analyses on a very wide range of time scales: from the determination of African paleoclimate, to trends in droughts and teleconnections in more recent decades. The UERRA contribution focused on the work on ECA&D, EOBS and the development of similar systems outside Europe.

The Workshop Description, the Workshop Programme, and the abstract is given below. The full presentation will be available on the UERRA website.



2. CCA 2017 - Workshop description

Climate Change in Africa: Evidence, mechanisms and Impacts Past and Present

Marrakesh, Morocco 6-11 November 2017



Nowhere is the need for climate change assessment more urgent than in Africa. The continent combines the most climate vulnerable societies, ecosystems, and agrosystems on Earth, with the largest uncertainties in 21st century climate predictions. Yet, a vibrant scientific community is making fast advances in a broad range of environmental sciences.

The objective of this international workshop, hosted by the University of Marrakesh, Morocco, one year after the COP22, is to bring together African scientists and their international peers from complementary fields to build long-term synergies between climatology and ecology, millennial scale and modern observations, modelled and observational data, in global and African contexts.

During 3 days of scientific sessions and discussions, followed by a 2-day field excursion to Moroccan desert and oases, we will summarize the current progress on short and long-term trends in African climate, the interactions between climate and ecosystems on millennial to seasonal time scales, and the impacts of climate change on forests and crops productivity. The workshop is aimed to be a friendly and interactive experience to foster discussion, synthesis, future research actions, and publications on specific questions including:

- Is the African climate currently within or beyond the pre-industrial natural variability?
- How sensitive are African ecosystems and agrosystems to climate change? Can we quantify the climate-vegetation feedback in Africa?
- How is African climate linked to the rest of the world and external forcings?



Organizing Committee:

Abdelfattah Benkaddour: UCA, Marrakech, Morocco

Ali Rhoujjati: UCA, Marrakech, Morocco

Matthieu Carré: LOCEAN Paris, France

Ilham Bouimetarhan: Marum, Bremen, Germany

Rachid Cheddadi: ISEM, Montpellier, France

Majda Nourelbait: ISEM, Montpellier, France

Sponsors:





3. Workshop programme

18h - 20h	Monday 6th November 2017 - Registration and Ice breaker	
08h45 - 9h30	Tuesday 7th November - Opening of the Symposium	
S 1: Climate change mechanisms in Africa		
9h30 - 10h00	Keynote speaker: DEMENOCAL Peter, Columbia university, NY, USA.	
Break (10h10 - 10h30)		
10h30 - 10h50	HOPLEY P. J.	Links between orbital forcing and interannual rainfall variability from a South African speleothem.
10h50 - 11h10	TROMEL Silke	More extreme precipitation over Africa - a statistical analysis of observational and reanalysis data for probability assessments.
11h10 - 11h30	ZIELHOFER Christoph	Millennial-scale fluctuations in Saharan dust supply across the decline of the African Humid Period.
11h30 - 11h50	SHEEN K. L.	Skilful prediction of Sahel summer rainfall on inter-annual and multi-year timescales
11h50 - 12h10	NICHOLSON Sharon E.	Two centuries of rainfall variability over Africa.
12h10 - 12h30	SARR Alioune Badara	Multi-model analysis of the West African monsoon: intra-seasonal variability and the monsoon onset.
Lunch (12h30 - 14h00) - Poster session		
S 2: Climate impacts on eco- and agro-systems		
14h00 - 14h30	Keynote speaker: STONE Daithi, Berkeley, California, U.S.A.	
14h40 - 15h00	NICOLL Kathleen	Reconstructing climate change, surface water storage & cultural resilience within the NE Sahara.
15h00 - 15h20	KIAHTIPES Christopher A.	Sustainability and Resilience in the Congo Basin: A Natural History Perspective.
15h20 - 15h40	PHILIPPON Nathalie	What will become the contrasted solar radiation conditions under which forests grow in Central Africa ?
15h40 - 16h00	VERVER Gé	Development of the West-African Climate Assessment and Dataset (WACA&D).
Break (16h00 - 16h30)		
16h30 - 16h50	LINSTÄDTER Anja	Climate impacts on ecosystem functions and services provided by African ecosystems : Lessons from Sub-Saharan Africa
16h50 - 17h10	LEZINE Anne-Marie	Lake Bambili, Cameroon: 90 000 years of montane forest history in central Africa.
17h10 - 17h30	MIGLIORE Jérémy	Exploring genomic imprints left by past climate changes in Tropical Africa.
17h30 Poster session		



Wednesday 8th November 2017		
S 3: Tropical teleconnections and Monsoon systems		
9h00 – 9h30	Keynote speaker : BRACONNOT Pascale, LSCE, Paris, France.	
9h40 – 10h00	POMPOSI Catherine	Exploration of West and Southern Africa precipitation responses during recent El Niño events.
10h00 – 10h20	AIT BRAHIM Yassine	Speleothem-based Climate Reconstructions and Teleconnection Patterns during the Last Millennium in NW Africa.
Break (10h20-10h50)		
10h50 – 11h10	FOERSTER E. Verena	Between wet, dry and hyperarid: Climatic changes during the last >500 ka in the Chew Bahir basin, a key HSPDP site in southern Ethiopia.
11h10 – 11h30	KRÄMER Hauke	Detecting trends, rhythms and transitions during the Late Quaternary in southern Ethiopia using Recurrence Quantification Analyses
11h30 – 11h50	SKONIECZNY Charlotte	Simultaneous responses of organic carbon turnover and silicate weathering to past hydroclimate changes in Central Africa
11h50 – 12h10	CARRÉ Matthieu	Anthropogenic forcing brings Sahel drought to unprecedented level in the past 1600 years
Lunch (12h10 – 14h00) – Poster session		
S 4: The Mediterranean region		
14h00-14h30	Keynote speaker: ROBERTS Neil, University of Plymouth, Plymouth, UK	
14h40 – 15h00	ROGERSON Mike	Speleothem records of rainfall in central North Africa: 500,000 years of history, and fluid inclusion evidence for changes in atmospheric moisture transport.
15h00 – 15h20	KIRO Yael	Past droughts and flooding in the Levant as indicators of changes in Mediterranean and African climate.
15h20 – 15h40	STEIN Moerdechai	Climate conditions of desert dust transport from the Sahara- desert to the last interglacial Red Sea-Dead Sea from Nd-Sr compositions of sediment cores.
15h40 – 16h	YOCHANAN Kushnir	The climate of Interglacial Africa and its links to the East Mediterranean.
Break (16h – 16h20)		
16h20 – 16h40	ZERBONI Andrea	North African land surface responses to Holocene climate variability: an assessment.
16h40 – 17h00	FLETCHER William	Timescales and drivers of Holocene environmental change in the Middle Atlas, Morocco: Insights from the Lake Sidi Ali palaeoecological record
17h00 – 17h20	JAOUADI Sahbi	Eastern Maghreb Holocene climate changes and their drivers during the Holocene: An assessment based on palaeoecological record from Southern Tunisia
17h20 – 17h40	CHEDDADI Rachid	Past climate changes in Northern Morocco and the persistence of species in microrefugia
17h40 – 18h00	FRANÇOIS Louis	Refining plant traits in vegetation models using forest inventory and LAI measurements. An application to the modelling of Cedrus atlantica in the Rif Mountains with the CARAIB model
18h Poster session		
20h – CCA 2017 – DINNER		



Thursday 9th November 2017		
S 5: Land-Ocean links		
8h30 – 9h00	Keynote speaker: SCHEFUß Enno, Marum, Bremen, Germany	
9h10 – 9h30	ZHAO Xueqin	Oceanic variability in the southern Benguela upwelling system: implications for increased Agulhas leakage during late Holocene.
9h30 – 9h50	NICHOLSON Sharon E	Land-ocean links over tropical Africa.
9h50 – 10h10	LOFTUS Emma	Southern Cape seasonal sea surface temperatures and hemispheric wind dynamics.
Break (10h10-10h30)		
10h30 – 10h50	ZABEL Matthias	New insights to climate variability and its driving forces in southern Africa—the RAIN project.
10h50 – 11h10	TOSSOU G. Monique	Dynamic of vegetation and palaeo-environments on middle and late Holocene in Benin
11h10 – 11h40	Keynote speaker: DUPONT lydie, Marum, Bremen, Germany	
11h050 – 12h10	End of workshop and information about the excursion.	
Lunch		

Thursday 9th November 2017

13h: EXCURSION depart

Saturday 11th November 2017

18h: EXCURSION return



4. Abstract

Development of the West-African Climate Assessment and Dataset (WACA&D)

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Climate change in Africa has serious impacts on food security, water management, health and other sectors. To be able to anticipate and increase resilience to these changes, assessments are needed with a focus on climate extremes with large impacts, like delays in the rainy season onset, droughts or excessively wet periods. Access to meteorological observations from the past and present is essential, but unfortunately lacking in large parts of Africa.

The International Climate Assessment and Dataset (ICA&D) facilitates the collection and QC of observations, as well as the analyses and assessment of climate evolution in a certain region. It supports the Global Framework of Climate Services (GFCS). ICA&D provides, in a user-friendly way, basic climatological observations, derived user-oriented climate indices, trends and return periods. It provides a historical climatological perspective that is essential for impact studies (e.g. health, agriculture, water management, risk assessment), validation of climate and seasonal forecast models, and calibration of satellite observations. For Europe, an even more comprehensive description of the climate is obtained by regional re-analyses, in which the historical observations are assimilated into regional models to generate a consistent and detailed three-dimensional description of the atmospheric state.

ICA&D is currently implemented in Europe (ECA&D), and further developed as part of the regional re-analysis project UERRA, which also includes data rescue activities to improve data coverage in Northern Africa. Other ICA&D implementations are operational in Southeast Asia (SACA&D) and South America (LACA&D). All ICA&D activities now include a high-resolution gridded data with daily temperature and precipitation data for e.g. verification and calibration of regional climate models. An implementation for Western Africa is being proposed as part of a larger project with the CREWS (Climate Risk and Early Warning) initiative.

In this workshop, we will present ICA&D and the CREWS project for West Africa. The goal is to discuss with the participants the functionality of the ICA&D system to serve climate analyses, climate (impact) research and development of early warning systems for Western



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Africa. We also foster collaboration between countries in the region both with providers of the observational data, as well as with researchers and developers of climate services.