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**QWeCI**

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# QWeCI

## Quantifying Weather and Climate Impacts on Health in Developing Countries

Newsletter

April 2012, No. 4

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### EDITORIAL

Dear Reader,

Welcome to the fourth six-monthly newsletter of the QWeCI Project!

Some of you were able to attend the QWeCI Workshop, held in Dakar, Senegal, in November. The workshop was a great success and participants were enthused by the work and collaboration that went on.

Many thanks to all the organisers in Dakar.

We thank all those working on and associated with the QWeCI Project and look forward to our further productive collaboration!

– The QWeCI Management Board

### Coordinator’s report

As the QWeCI Project passes the watershed of the half-way mark, we enter the second phase of this project and, I hope, we remain stimulated and energetic. So far we have achieved a great deal and, across the project, participants have reached landmark findings, publishing in journals and presenting at international conferences.

Since I last wrote to you, partners in Dakar hosted an effective and informative workshop in November. More than forty people attended and participants came from across the project. Andy Heath and Cyril Caminade, from the University of Liverpool, led an interactive tutorial on the Disease

Model Cradle and the DMC was installed on participants' computers before they left, indicative of the collaboration that exists in the project. I would like to thank the local organisers, Jacques-André in particular, for their excellent work and particular thanks must go to the translators who provided an exceptional service.

We are aware of much bilateral exchange and please highlight the tremendous work that is going on in all of the reports you write for the project. Please remember to acknowledge the project and its EC FP7 financing in any presentation or publication you submit.

It was good to meet with a number of you at the EGU conference in Vienna, Austria, where we had a short but productive catch up meeting.

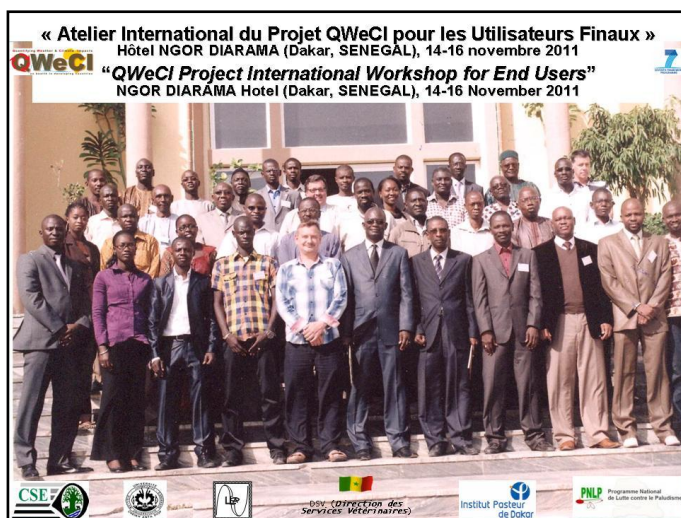
In our last Newsletter, I explained that the Project Office was in the process of appointing a new Project Manager. I am happy to report that we have appointed Mr Peris Roberts, who has now started work. Having worked throughout the UK and Europe, Peris has managed a number of projects. We very much look forward to Peris working with QWeCI as we enter the important consolidation phases. Andrew will continue to work in the project office alongside Peris.

With best wishes,

Andy



## Dakar Workshop



In November 2011, a skills workshop was hosted by partners in Dakar, Senegal, from 14<sup>th</sup> – 16<sup>th</sup> November. More than forty people attended the workshop.

The workshop was an excellent opportunity to expand collaboration within the project and demonstrate the groundbreaking work currently being undertaken.

A number of PhD students were able to present their findings research and participants took part in an interactive tutorial on the Disease Model Cradle (DMC). In addition, participants left with DMC installed on their computers.

The Project Office joins Dr Morse in commending all local organisers for an outstanding job. We would also like to offer sincere commendations to the translators and thank them for the excellent service they provided.



Dr Abdoulaye Deme at the Dakar workshop

## Participant Profiles

### Dr Volker Ermert

Universitaet zu Koeln, Germany

Dr Volker Ermert is a graduate meteorologist with a research focus on the impact of climate change on the malaria spread in Africa. Also, he gained expertise in tropical meteorology and synoptic meteorology (i.e. the analysis of large-scale weather systems such as winter storms).



In 1997, Dr Ermert started to study meteorology at the University of Cologne. His diploma thesis focused on rainfall types of the West African summer monsoon (see Fink et al. 2006; Schrage et al. 2006) and he received his diploma degree in 2004. Subsequently, he was leading a problem cluster within the GLOWA-IMPETUS project (An Integrated Approach to the Efficient Management of Scarce Water Resources in West Africa), where his research shifted toward health and climate issues, and malaria modelling. Volker Ermert finished his PhD study in 2009 and his research was honoured in February 2011 with the Klaus-Liebrecht award of the Faculty of Mathematics and Natural Sciences of the University of Cologne for outstanding dissertations and diploma theses.

Regarding malaria, Dr Ermert extensively gathered information from the entomological and parasitological malaria literature. This data enabled the construction and calibration of a new version of the Liverpool Malaria Model (Ermert et al. 2011a,b). The malaria projections (see Ermert et al. 2012) reveal a potential decline of the malaria transmission in the northern Sahel and a higher epidemic risk in the more populous southern Sahel due to a simulated decrease in precipitation. Because of climate warming, the epidemic risk is expected to increase in the East African highlands above 2000m. On the contrary, malaria could become more stable in lower altitudes, thus epidemics are consequently less likely.

In terms of capacity building, Dr Ermert participated in the development of integrated information and decision support systems within the



Dr Volker Ermert on field work

IMPETUS project. He invented the information system MalaRis (see <http://www.impetus.uni-koeln.de/malaris>), where stakeholders and health decision makers have access to malaria projections. In QWeCI, Dr Ermert designed the Atmospheric database and he is generating the QWeCI multi agency system (see <http://qweci.uni-koeln.de>).

Volker Ermert travelled several times to Africa during his research work at the Institute of Geophysics and Meteorology. In 2002 and 2006, he took part and led a radiosonde campaign in Parakou/Benin, respectively.

He is engaged in the teaching of students, where he spreads knowledge in synoptic meteorology and develops material for lectures and exercises. Dr Ermert furthermore programmed daily updated weather diagrams and an e-learning portal for the web. He represents the institute in interviews for the radio and television, for example, in terms of extreme weather events or climate change issues.

### Dr Mayamiko Nkolma

University of Malawi (Polytechnic), Malawi



Mayamiko Nkoloma received his MTech degree in Advanced Information Technology with specialisation in Telecommunications and Networking from International Institute of Information and Technology (I<sup>2</sup>IT) in

Pune, India; in 2011.

His main objective in the QWeCI Project is to take a leading role using his extensive data networking, wireless communication and computer programming background, through which beneficial, affordable and reliable up-to-date Information and Communication Technology services can be derived, implemented and sustained to meet communication demands of people in developing countries.

Mayamiko's current research interest is on the use of wireless sensor networks as early warning systems for environment monitoring. He is currently working as an assistant Lecturer in Telecommunication at the Polytechnic, a constituent college of the University of Malawi.

## Exchange visit to ICTP

Ernest Asare is currently conducting his PhD at KNUST, Ghana, working on the hydrology of mosquito breeding sites.

Even basic aspects of malaria transmission such as the surface hydrology and water body temperatures are poorly understood at present, especially with regard to peri-urban and urban environments, and are thus only very simply treated in present dynamical malaria models, if at all.

Ernest's project involves taking new measurements of pond dimensions, temperatures and larvae presence in peri-urban environments and then developing new simple pond parameterization models to represent these in the dynamical malaria model of ICTP.

Ernest's PhD stipendium was generously funded by two ICTP programmes, namely the Italian government's funds-in-trust programme and the ICTP PhD sandwich programme called STEP, which enables students from developing countries to spend 4 months a year at ICTP. ICTP then used QWeCI funds to extend the exchange period to 6 months.

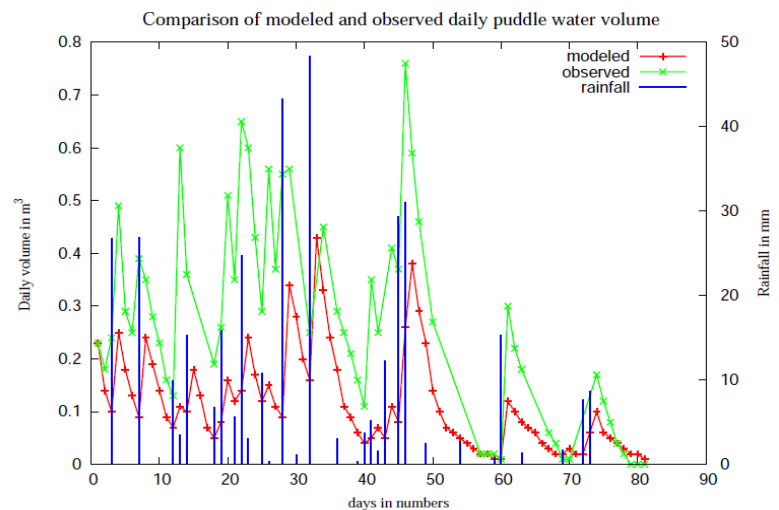


LEFT: Ernest taking water temperatures in a stagnant drainage ditch, one potential breeding site in urban environments also out of the main rainy season.

RIGHT: A temporary pond sampled during the rainy season on 2011 in Kumasi. Such ponds on the 1 metre scale are too small to directly monitor using remote sensing, but during the rainy season may last long enough to allow the larvae development cycle to be completed. The challenge of malaria modeling is to incorporate the aggregate effects of many such small water bodies into malaria models

The first such visit was recently completed at ICTP September 2011 to February 2012, although Ernest was already familiar with ICTP, having already completed their full-time, one-year diploma course previously.

During this time Ernest successfully processed and analysed the daily data collected from 15 temporary water bodies during the first measurement campaign and then proceeded to investigate various methods to represent the individual ponds in simple models (see figure below).



Modelled pond volume using the simple pond model developed during the first exchange visit by Ernest to ICTP. The model also uses an energy balance approach to model the temperature. The challenge will be to develop this into a generalized approach to model the aggregate effect of all the ponds within a kilometer sized grid-cell, which will be the aim of the second exchange visit within QWeCI

Ernest has now returned to Ghana where he is preparing for the next rainy season, where the number of water bodies and the complexity of the measurements will be extended, including the collection and identification of mosquito larvae species.

Ernest will return to ICTP in the autumn after the rains recede in order to develop the next stage of the model which can be inserted into the dynamical malaria models.

## Talking Science, Talking Sense

The Humanitarian Futures Programme has produced a short film (available in English and Wolof) on science–humanitarian policy dialogue from their recent exchange work in Senegal.

Many QWeCI partners are involved in Humanitarian Futures Programme and Dr Jacques-André Ndione from CSE appears in the film.

The video can be accessed from the [QWeCI Website](#) and from the [Humanitarian Futures Programme](#).



LEFT: Dr Jacques-André Ndione being interviewed by Humanitarian Futures Programme

## Geophysical Research Letters Publication

Professor Andreas Fink of the University of Cologne and colleagues have recently published an article in Geophysical Research Letters.

### Abstract

New ground- and space-based observations show that summertime southern West Africa is frequently affected by an extended cover of shallow, non-precipitating clouds only few hundred meters above the ground. These clouds are associated with nocturnal low-level wind speed maxima and frequently persist into the day, considerably reducing surface solar radiation. While the involved phenomena are well represented in re-analysis data, climate models show large errors in low-level wind, cloudiness, and solar radiation of up to  $90 \text{ W m}^{-2}$ . Errors of such a magnitude could strongly affect the regional energy and moisture budgets, which might help to explain the notorious difficulties of many models to simulate the West African climate. More effort is needed in the future to improve the monitoring, modeling, and physical understanding of these ultra-low clouds and their importance for the West African monsoon system.

Click [here](#) to download the article.

## Farewell to Claudio and Javier

Earlier this year, the QWeCI Project wished farewell to two key participants: Dr Claudio Piani and Dr Javier García-Serrano.



Dr Claudio Piani

Dr Piani was an established figure at ICTP and led Work Packages 6. He was well known around the project for delivery of strong results and was a constant and reliable force.



Dr Javier García-Serrano

Dr Javier García-Serrano has similarly been a rock through the first half of the QWeCI Project as part of the IC3 Team. Javier was part of the leadership of Work Package 3.2 and demonstrated a great passion for the project.

Javier will be travelling to the University of Tokyo to take up a six month position, after which he will be moving to the University of Sao Paulo.

We all wish both Claudio and Javier the very best of luck in his new positions.

## Dr Ndione at CoP17

In December, Dr Jacques-André Ndione participated to CoP17 in Durban, South Africa, specifically in the 'Africa-EU scientific and technological cooperation in the field of climate change: best practices, challenges and opportunities for addressing capacity developments needs for research in Africa'.

The event had been chaired by M. Luca Perez (Research Programme Officer) and organised by the European Commission in the Warsaw Room in the European Pavilion.

Dr Ndione's oral presentation was dealing with 'The QWeCI project: forecasting disease outbreaks' taking Rift Valley Fever as an example.

The presentation was received very well and the QWeCI Management Board wishes to thank Dr Ndione for representing QWeCI at the conference.



Dr Jacques-André Ndione at CoP17 in Durban, South Africa

## Introducing Peris Roberts

Dr Morse is pleased to welcome Mr Peris Roberts to the project, as QWeCI Project Manager.

Peris has many years of consultancy, project management and accountancy experience and completed an MBA at Manchester Business School in 2004.

His regular days as QWeCI Project Manager will be Tuesdays (mornings only), Wednesdays and Fridays.

When not in the QWeCI office Peris works in Cheshire helping small businesses with their accountancy and tax affairs.

## Asian Tiger Mosquito video featured

The Asian Tiger Mosquito video, created by QWeCI participants, has featured in a recent Planet Earth Online news article.

To view the Planet Earth Online page, click [here](#).

## Future events

- **Third Annual QWeCI Meeting – Nairobi, Kenya**

**23<sup>rd</sup> – 24<sup>th</sup> October 2012**

Partners in ILRI will be hosting the next annual QWeCI meeting. Further details will follow.

## Recent Publications

- Knippertz, P., Fink, A. H., Schuster, R., Trentmann, J., Schrage, J. M. and Yorke, C., 'Ultra-low clouds over the southern West African monsoon region', *Geographical Research Letters*, Vol. 38 (2011)

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The QWeCI Project Office is open Tuesday mornings, Wednesdays, Thursdays and Fridays. Please feel free to get in touch whenever you have a query or question.

### Coordination

The Coordinator and Principle Investigator of QWeCI is Dr Andy Morse of the University of Liverpool ([A.P.Morse@liverpool.ac.uk](mailto:A.P.Morse@liverpool.ac.uk)) with Dr Adrian Tompkins acting as Deputy Coordinator at the International Centre for Theoretical Physics, Trieste ([Tompkins@ictp.it](mailto:Tompkins@ictp.it)).

## Further Information

### Keep up to date

Please visit the QWeCI website for project details, partner information, and regular updates:

<http://www.liv.ac.uk/qweci>

### Our Friends

Please see below the pages of related projects:

[www.liv.ac.uk/ENHanCE](http://www.liv.ac.uk/ENHanCE)

[www.HealthyFutures.eu](http://www.HealthyFutures.eu)

[www.BaobabHealth.org](http://www.BaobabHealth.org)

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