Climate Information for Public Health Action (CIPHA)

Summer Institute

News from the Ground

February 2010

Vol. 2 Issue 2



Agreement Signing ceremony between Kamal El Kheshen, vice president of the AfDB,/OSVP (right) and Adama Alhassane Diallo, director general of ACMAD (left), Copenhagen, December 14, 2009

In this Issue

From the Editors	1
Updates	2
Interview	4
Upcoming Training Courses	6
Upcoming Events	6
Recent Publications	7
Related Links	9
Contact Information	9
Internet Citation	9

This newsletter provides updates on the latest developments within the CIPHA network, including the activities of alumni and facilitators, brief meeting reports, news from the health and climate community, and opportunities for collaboration.

From the Editors

The last few months have brought a series of exciting partnership developments that will have long-term impacts on the way the health and climate community work together across the globe. We are very excited about these partnerships and about the role that CIPHA members have played in facilitating them.

ClimDev-Africa launched. One of piece of good news to come out of the climate change conference in Copenhagen (Dec 2009) was the realization of the long-awaited Climate for Development in Africa (ClimDev-Africa), a joint project of the African Union (AU), UN Economic Commission for Africa (UNECA) and the African Development Bank (AfDB). This was acknowledged through the signing of a protocol of agreement between AfDB and the African Centre for Meteorological Applications in Development (ACMAD) for an initial $30 million (US) to strengthen operational African regional climate institutions and initiate a strategic partnership with the Global Humanitarian Forum. This new development brought immediate and positive results that will directly benefit the health sector – including the Banjul Action plan.

West African Met Directors focus on health and climate. The Spanish Meteorological Service (AEMET) has aligned its contribution to African meteorological agencies around ClimDev-Africa and discussed the opportunity for building a partnership with the health community at the recently convened meeting of West African met directors in Banjul, the Gambia. The product of the meeting, the Banjul Action Plan, will help establish **Climate and Health Working Groups** (CHWGs) throughout West Africa and use the Summer Institute Climate Information for Public Health (SI) as a vehicle for training the met services to work in partnership with the health community. The initial effort is focused on support to malaria and meningitis control in the region.

AEMET is part of the Meningitis Environmental Risk Information Technologies (**MERIT**) project partnership – a project focused on the control of meningococcal meningitis in the Sahel. It is hoped that the new national health and climate working groups will be able to provide practical support to this regional initiative.

Importantly, the main sponsor of the International Research Institute for Climate and Society, the United States National Oceanographic and Atmospheric Administration (NOAA), recently announced the establishment of the NOAA Climate Services to improve the US ability to provide reliable climate

information and services at home and abroad. In the press release NOAA cited the work of the IRI as an important provider of health and climate-related services (www.climate.gov)

Developing "partnerships that save lives" across the health and climate community through joint programs, new institutional frameworks, training and research activities is the central mandate of the CIPHA network. As you can see from this newsletter – our message is being heard!

Updates

Alumni & Facilitators



SI 08 alumna Michelle Stanton is a PhD student at Lancaster University, currently researching the relationship between meningitis epidemics in sub-Saharan Africa and the climate and environment. This research is part of the **MERIT** project, which is a collaborative project involving the World Health Organization (WHO) and numerous national and international climate and health groups, including the IRI. The report of the latest international MERIT meeting is available on the project website at:

http://merit.hc-foundation.org/.

The remainder of Michelle's PhD will be spent utilizing climate data (made available by the IRI) and meningitis data from both Niger and Ethiopia to create statistical models to aid meningitis epidemic prediction.



SI 2009 alumna Lina Nerlander is the Red Cross Red Crescent Climate Centre's specialist on climate and health and will lead a 2.5-year project titled "Health Risk Management in a Changing Climate" in Africa and Asia with financial support from the Rockefeller Foundation.

In East Africa, the focus is on using climate information to address the health effects of extreme precipitation and flooding at community level in Kenya and Tanzania to help prepare for changing risks due to climate change. The Red Cross will first identify how climate information on different timescales can help operational decision-making, and will then work with meteorology services to identify the best climate information products. The project will also seek to identify how best to inform local communities on climate change, climate variability, and associated health risks.

In Southeast Asia, the project will help the Red Cross to address changing patterns of vector-borne disease, focusing on dengue fever in Vietnam and Indonesia. The project will ensure the organization's existing relationships with health ministries takes account of climate-sensitive diseases. This will involve enhancing the ability of the Red Cross to monitor surveillance information and to be aware of changing dengue patterns and plan their response accordingly. The project will also include community-based dengue prevention in collaboration with local health authorities and identify how best to inform communities on prevention of dengue and the links between climate and dengue in the context of other factors such as urbanization.

In the case of this project, partnerships will be key, including those with the IRI and the Centre for Research on Environmental Decision-Making at Columbia University, as well as local partners and the Rockefeller Asian Cities Climate Change Resilience Network. Lessons learned will help scale up climate and health work across the Red Cross Red Crescent societies. If you would like more information about the project, please contact us at cipha@iri.columbia.edu.

SI 08 alumni Adugna Woyessa, who currently works at the Ethiopian Health and Nutrition Research Institute (EHNRI), participated in most of the activities run by the Climate and Health Working Group (CHWG) of Ethiopia. Before the end of last year Adugna was involved in two key activities at international and national levels: the Fifth Multilateral Initiative on Malaria (MIM) Pan-African Malaria Conference, Nairobi, Kenya, 2-6 November 2009, and training of Professionals on Climate and Health, 30 November to 5 December, 2009, Addis Ababa, Ethiopia.

During the MIM, Adugna was a representative of the CHWG of Ethiopia, and participated in the 42 symposia with a theme of "Building Capacity to Use Climate and Environmental Information for Improving Health Outcomes." He also spoke at the MIM symposium representing the CHWGs in the afternoon at Kenyatta International Conference Centre.

Adugna also participated in organizing and facilitating the Ethiopian Training of Professionals on Climate and Health.

This training was a typical to the annual summer course conducted at IRI, Columbia University, which was initiated by three Ethiopian participants (two from health and one from climate) of the 2009 summer course on climate information for public health. The materials for this course were developed by adapting materials from the IRI summer course 2009 to local needs.



SI09 alumna Cristina Recalde works with climatologic numerical forecast in the National Weather and Hydrological Service of Ecuador.

Since the completion of the 2009 Summer Institute, Cristina has been working with the Malaria Service at the Ministry of Health and CMC (Centro de Modelado Científico, Venezuela) in a project aiming to study the predictability of malaria in Ecuador using dynamical models. Progress has been made despite a lack of significant funding. The methodology involves the execution of a regional model (CWRF) using reanalysis data for boundary conditions for the 1996-2008 periods. For the first test, they selected a very simple model: MacDonald (1959). Daniel Ruiz (PhD student at IRI) has been helping to choose the best set of parameters. The Ecuadorian Malaria Service has provided part of the data needed, especially the vector distribution and *Plasmodium vivax* and *Plasmodium falciparum* cases for the period under consideration, in order to "validate" the model output. Data analysis is on-going: results to be shared soon!



SI08 alumna and SI09 facilitator Laurence Cibrelus discussed IRI's involvement in the Madagascar trainings on climate and health (see below: Climate and Health Working Groups, Madagascar) during a panel discussion on the Evolution of Hydro-Met and Climate Services during the 1st American Meteorological Society (AMS) Environment and Health Symposium in January 2010, Atlanta, GA. Co-panelists were: David Rodgers from the Climate and Health Foundation, Kris Ebi from the Intergovernmental Panel on Climate Change (IPCC), and Howard Frumkin from the Center for Diseases Control and Prevention (CDC). Laurence emphasized policy solutions for the WHO, the World Meteorological Organization (WMO), ministries of health, and the national met services. She also stressed the need for financial sustainability of in-country CHWGs and other partnerships which require more resources.

Climate and Health Working Groups

Ethiopia

The Ethiopian CHWG helps decision-makers focus on climate and health issues, facilitating cooperation on all sides. It meets every month to develop strategies for increasing awareness — both public and within the health sector — of how weather and climate affect health. Its aim is to strengthen data collection and to integrate environmental indicators into health systems to aid in the identification of areas that are sensitive to malaria and other climate-sensitive diseases.

Over the past year, two workshops have helped identify where climate information could be used for preventing and controlling malaria and meningitis. Through the IRI, the working group has helped train health care decision-makers; it has also funded local masters' students doing research on climate-sensitive disease. For more information please go to: http://tinyurl.com/ycqz69y

Madagascar

As part of the WMO program on Meteorological Services for the Public, Madagascar was selected for the implementation of the two-year pilot project "Learning through Doing," dedicated to enhance the use of climate information for the health sector in the country. The project aims for the public health sector to better adapt to climate variability and change in Madagascar, particularly with respect to malaria, plague, and Rift Valley Fever (RVF).

A Malagasy CHWG was established in 2008 and followed by an initial workshop based on the Ethiopian CHWG model. A partnership agreement was signed at the end of the workshop between the ministries of Health and Meteorology.

To further the CHWG 2009 activities, Dr Clémence RAKOTOARIVONY, head of the Malaria Surveillance Branch of the Ministry of Health (MoH), attended the IRI Summer Institute 2009. A climate and health training workshop was subsequently held at the Pasteur Institute of Madagascar in Antananarivo in October 2009, building on SI 2009 to enhance

in-country climate and health collaboration in the ground. This training workshop was developed and implemented in partnership with the IRI, the WMO and the WHO country office. Funds were provided by the WMO (refer to the previous newsletter). A second training workshop is scheduled in March 2010 with the same participants and partners to deepen the skills acquired during the first one. Mini-applications projects are underway in Madagascar to prepare for this workshop.

Additionally, the IRI funded the participation of a Malagasy project coordinator (health) and the team's focal point of climate information to the MIM in Nairobi in November 2009.

A key field activity of the Malagasy CHWG is the implementation of a seasonal forecasting bulletin prepared and disseminated by the met services for the 2009/2010 rainy season. In partnership with the MoH, this bulletin assesses the risk of change in incidence of given climate-sensitive diseases based on the seasonal forecast. For instance, public health officers responsible for diseases epidemiological surveillance in Madagascar compared weather forecast information for January-February-March 2010 with the statistical, microbiological and entomological bio-climatic characteristics of the country; they used this information to call for enhanced surveillance, preparedness and response to certain diseases and/or ongoing outbreaks in the regions and districts of Madagascar. This call for improved vigilance applied to the major diseases that affect Madagascar: diarrhea, acute respiratory infections, malaria, conjunctivitis, skin diseases, malnutrition, and arboviruses including Chikungunya, dengue, and RVF.

Trainings on climate and health

The 1st Ethiopian 'Training of Professionals on Climate and Health' was held from 30 November to 5 December 2009 in Addis Ababa, Ethiopia. This training, developed in partnership with the Ethiopian MoH and Met Services and with the IRI, provided the 16 participants from regions and city districts of Ethiopia (12 health officers working in malaria surveillance, public health emergencies, diseases prevention preparedness and 4 field epidemiology students) with fundamental concepts on climate and on its connection to the epidemiology of climate-sensitive diseases.

The course also helped the health professionals to identify the benefits of improved collaboration on climate and health issues and to plan a road map to achieve such collaboration. Several alumni and facilitators of the Summer Institute – including Daddi Jima, Adugna Woyessa, Yonas Asafaw, Gilma Mantilla, Tony Barnston, Tufa Dinku, Ousmane NDaye and Remi Cousin – collaborated to tailor the curriculum specifically to Ethiopia. The final report of this training is available from:

http://iri.columbia.edu/publications/id=981

Interview



Wendy Thomas (Source:AMS)

Wendy Thomas (WT), alumna of SI 08, is a meteorologist/policy analyst in the Policy Program of the AMS. Her duties are dedicated toward environment and health policy, including climate and health and severe weather impacts to healthcare infrastructure.

Wendy was interviewed by Dr. Gilma Mantilla (GM), senior public health staff associate at the IRI, during the 1st AMS Environment and Health Symposium of the most recent AMS annual meeting.

GM: **How did you hear about the Summer Institute on Climate Information for Public Health**?

WT: I came to know about the Summer Institute at IRI by way of a friend, actually, at NOAA, and he sent me a few emails. I saw the first one. I was too busy to apply and I was interested, and I saw the second one about two weeks before the deadline and I said I have got to go, so I just put everything aside and just started to fill out the application. I believe I had my executive director fill out an application – and my director. They both saw an immediate value for me to do this as my portfolio is environment and health. That entails climate and health impacts, as well as severe weather impacts

on hospitals. So, I applied, I bit my fingernails for a few weeks, and I got a phone call from Madeleine's Thomson assistant and said, you know, we'd like to have you come up, and I was really excited, so that was great.

GM: How was your experience at the Summer Institute?

WT: I got there, to the program, and it blew away my expectations quite honestly. I had a picture of what it would be like. I was meeting people from around the world. It was about 13 of us, and I believe I was one of two domestic U.S. citizens to participate. But the organization of the program, the pace of the program, the expectations they had of us, the information they provided, the contacts that were made, and yes, the food was also very good. It was exciting. It was fun to be in New York. There were a lot of interesting things that just transpired from that opportunity.

GM: **How has the knowledge you learned from the Summer Institute helped you on your work**?

WT: I knew that the experience would help me, but I didn't know exactly how, and it's been a year and a half since I left and it has just blossomed in ways that I cannot explain. For example, the 90th Annual AMS meeting that I've helped put on with the WMO, that convened 60 permanent representatives, including the Secretary General from the WMO, leadership from NOAA, and we also had program leadership from NASA present. It was just – I was able to put together a program because of the Summer Institute exposure and what I was given in terms of knowledge, in terms of who are the key contacts there, who are the key players, what are the key research questions, what are the operational issues between hydro-meteorologists and public health services. It just opened a whole universe that I could not have done or have massaged in terms of presenting with confidence a good product and a good program for them. I have found that, at this meeting, some of the WMO PR's are coming up to me and saying they had no idea of the intersections between environment and health until this. It's really solidified their understanding of what they can do. They may have already been working on asthma or something air quality-wise, depending on their hydro-met's service and how it's set up; however, they see this whole new universe that, by way of the Summer Institute faculty and everyone there, I was able to expose other people to something. And these are not just other people. These are people who can shape a whole weather service, who can contact a public health service in their country and make a big difference.

I've got a lot from the Summer Institute, as I mentioned, I've used a lot of the contacts, a lot of the knowledge base, and I still build on it.

GM: What are the benefits, from your perspective, of attending the Summer Institute?

WT: I think one of the key benefits of the Summer Institute is that it's a node. It's a node in which, once you get into it, it opens up a whole network that's global, and you can't do that anywhere else. I've participated in other programs. I go to meetings in Washington D.C., which is a very connected city, but I have to say I've never had that experience before or since, and it's only – I keep going back to the IRI book, the people that I've met. There's a friend of mine now who's a real friend of mine. He's in Zimbabwe. He's the WHO representative for southern and eastern Africa, and through him there are just, you know, contacts that just constantly blossom and bloom that you just can't replicate, nor can you buy.

GM: **What would be your final message for people who will like to work in health and climate ?**

WT: I would say the message for people who work in climate and health is really to stay connected is beneficial. It's that simple. The knowledge base comes. The modeling that we have to do that's integrated modeling will come, but it will not come in isolation. A program like the Summer Institute on Climate Information for Public Health at IRI is one that integrates so much. It brings together the world, quite honestly. It brings together two disciplines that, historically, were in fact always linked. They ebbed and flowed in terms of their connections over time, but it's ironic at about the same time in the United States, at least, in the late 18th century or so, that we separated. Germ theory came around and our medical professionals went off to chase the germs and the bacteria and whatever caused the pathologies. And in meteorology, my forefathers went off to study all the little chaotic parameters of the atmosphere. And we had to do that in both fields, but climate change is bringing us back together. It's the awakening of the public health to awaken us to say look, I see the parasites and the vectors are changing to a changing climate. As humans, we're not as cognizant on that level, the microclimatic changes that are happening, but when you see the lower biological elements are changing faster than we are, it's waking us up, and it's waking up people in our community that climate change is happening, it is real, and that we have to do something about it.

Upcoming Training Courses

Second Training on Climate Information for Public Health. Antananarivo, Madagascar, March 22-26, 2010.

This training will be conducted by the local CHWG in collaboration with the IRI, the WMO and the WHO, using materials adapted from the SI 09 and focusing in three major climate-sensitive diseases that affect Madagascar: plague, malaria, and RVF. It will rely on the projects on applications that are currently underway in the country.

Summer Institute 2010 on Climate Information for Public Health. Palisades, New York, May 17-28, 2010.

The International Research Institute for Climate and Society, in partnership with the Center for International Earth Science Information Network (CIESIN) and the Mailman School of Public Health is pleased to announce the **Summer Institute 2010 course on Climate Information for Public Health.** This two-week training course will offer public health decision-makers and their partners the opportunity to learn practical methods for integrating climate knowledge into the decision-making processes through expert lectures, special seminars, focused discussions and practical exercises.

More info available from:
http://iri.columbia.edu/education/summerinstitute10

Mathematical and Statistical Approaches to Climate Modeling and Prediction. Cambridge, UK, August 11 - December 22, 2010.

This four-month course aims to bring together mathematicians, climate scientists and statisticians to make progress toward solving some of the major issues currently facing climate prediction. A more detailed summary, along with a list of invited participants who have confirmed their intention to attend, can be found at: http://www.newton.ac.uk/programmes/CLP/index.html

Upcoming Events

Fifth Ministerial Conference on Environment and Health. Parma, Italy, 10-12 March 2010.

Climate change will be one of the main topics on the agenda of the Fifth Ministerial Conference on Environment and Health. WHO/Europe will inform the Conference with a proposal for a European framework for action on climate change and health. WHO/Europe started its activities on global change and health on mandate of the Third Ministerial Conference on Environment and Health in 1999. Since then, it has worked to identify policy options to help prevent, prepare for and respond to the health effects of these changes, and to support its member states in selecting and implementing the most suitable strategies. More information from: http://tinyurl.com/yfjd6md.

Unite For Sight Global Health & Innovation 2010 Conference. New Haven, USA, April 17-18, 2010.

This "meeting of minds", says CNN, will gather 200 speakers representing all disciplines of global health, social entrepreneurship, international development, and innovation. Keynote speakers include Seth Godin, Jacqueline Novogratz, Jeffrey Sachs, and Sonia Sachs. Jeffrey Sachs describes the conference as "a famous global crossroads" where thousands get together to discuss innovative solutions to improving health and development, including in relation to climate. More on the conference at: http://www.uniteforsight.org/conference/.

2nd All-Africa Environmental Health Congress (AAEH) Congress. Lilongwe, Malawi, 24-27 May 2010.

This conference will bring together experts in environmental health from throughout Africa. Organized by the International Federation of Environmental Health (Africa Group), it welcomes practitioners, academics, NGOs, government officials and private companies. More at: http://tinyurl.com/ygt4asy.

13th Regional Climate Outlook Forum) for West Africa, Cameroon and Chad PRESAO13: "Seasonal Climate Prediction: Coping with Climate Change Impacts". Niamey, Niger, May 27-28, 2010.

This meeting is organized by ACMAD, the National Meteorological and Hydrological Services (NMHSs) and they partners in Seasonal Forecasting in support to the Global Framework for Climate Services (GFCS). The Forum program will include discussions on the Seasonal Climate Forecast and its Applications to Socio-Economic Sectors. The Forum is intended for representatives from the development community (agriculture and food

security, water resources and energy management, health and natural ecosystems management); Natural disasters actors and managers; NMHSs, Representatives of regional and international institutions; Climate scientists and Professionals in communication. For more information, please email: presao13@acmad.org and visit the ACMAD Web-page at: http://www.acmad.ne/.

Climate Change: Health and Ecology. Uppsala, Sweden, 1-3 September 2010.

This interdisciplinary conference linking research from veterinary and human medicine, physiology, ecology and evolution is organized by the Climate Centre at the National Veterinary Institute of Uppsala, Sweden. More on the conference from: http://tinyurl.com/y9jqb45.

11th World Congress on Environmental Health.
Vancouver, Canada, 5-10 September 2010.

As organized by the International Federation of Environmental Health (IFEH) together with the Canadian Institute of Public Health Inspectors (CIPHI), the theme of this conference is: Global Health Protection from Sea to Sky. It will provide a broad platform to explore universal challenges to environmental health in an era of increasing globalization. Keeping true to the IFEH/CIPHI motto "Educate, Innovate, Advocate," attendees will be provided with up-to-date information on the latest innovations and strategies in health protection by focusing on core competencies in a number of thematic areas. More from: http://www.ifeh2010.org/ .

Recent Publications

Protecting Health from Climate Change: Connecting Science, Policy and People. World Health Organization, 2009.



"All populations will be affected by a changing climate, but the initial health risks vary greatly, depending on where and how people live. People living in small island developing states and other coastal regions, megacities, and mountainous and polar regions are all particularly vulnerable in different ways. Health effects are expected to be more severe for elderly people and people with infirmities or pre-existing medical conditions. The groups who are likely to bear most of the resulting disease burden are children and the poor, especially women. The major diseases that are most sensitive to climate change – diarrhea, vector-borne diseases like malaria, and infections associated with under nutrition – are most serious in children living in poverty.

The diverse, widespread, long-term and inequitable distribution of health risks makes climate change a truly global challenge, calling for an unprecedented degree of partnership. An effective response will require actions from across society: from individuals, the health sector, as well as community and political leaders. This requires a sharing of responsibilities between the populations that make the greatest contribution to climate change and those that are most vulnerable to its effects, in order to safeguard and enhance global public health security. The skills, capacities and shared values of the public health community can make an important contribution to a fair and effective response to climate change." This report details the risks of climate change, and what needs to be done. It is available online at: http://tinyurl.com/y874gx5

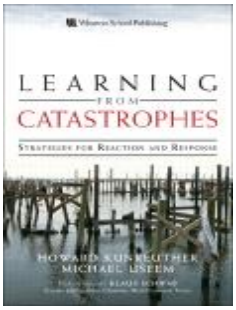
Science and Innovation for Development. Professor Sir Gordon Conway and Professor Jeff Waage, with Sara Delaney, published by the UK Collaborative on Development Sciences (UKCDS) in partnership with the London International Development Centre (LIDC), with contributions from Imperial College., January 2010.



This new book by two of the UK's leading international development thinkers is a landmark in development thinking and practice. Sir Gordon Conway, professor of International Development at Imperial College (and former chief scientist at the UK Department for International Development) and Professor Jeff Waage, director of the London International Development Centre (LIDC), with Sara Delaney, LIDC & Imperial College, demonstrate how science and innovation can be harnessed to tackle today's biggest challenges in poor countries, including **climate change**. Using case studies, the authors illustrate how even the most basic daily activities in developing-country communities are based on science and innovation.

The entire book or individual chapters may be downloaded from: http://www.ukcds.org.uk

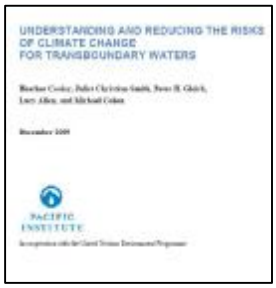
Learning from Catastrophes, **Strategies for Reaction and Response.** Howard Kunreuther and Micheal Useem (editors), foreword by Klaus Schwab, founder and executive chairman, World Economic Forum, Wharton Risk Management and Decision Processes Center, November 2009.



How can you prepare for events that go far beyond anything anticipated in normal day-to-day decisions?

In *Learning from Catastrophes*, twenty-two of the world's leading experts in risk management and disaster recovery identify the factors that can trigger low-probability, high-consequence events, and specify the operating principles that can reduce severe risk and enhance readiness and resilience in the face of catastrophes. This book provides a useful set of principles for guiding decision-making and leadership so essential for averting and overcoming those future risks that are sure to threaten yet again our global prosperity. For more information see: http://tinyurl.com/yb3aqpt

Understanding and Reducing the Risks of Climate Change for Transboundary Waters. Heather Cooley, Juliet Christian-Smith, Peter H. Gleick, Lucy Allen and Michael Cohen, Pacific Institute, in cooperation with the United Nations Environment Program, December 2009.



The Pacific Institute recently released a study on the growing risks of conflict in international watersheds as a result of climate change. The report was requested, and funded, by the United Nations Environment Program.

The full report is available at: http://tinyurl.com/ydmmbt7

Health and Climate Experts Must Jointly Tackle Disease. Hiwot Teka, *Science and Development Network* (on-line publication), December 2009.

This opinion article, written by the former coordinator of the Ethiopian CHWG, emphasizes the importance of partnership between health and climate professionals to combat diseases. Full-text is available from: http://tinyurl.com/ycqz69y**.**

Climate Change and Global Health: Linking Science with Policy. *Global Health Action Special Volume 2009*, December 2009.

Guest editors Tord Kjellstrom and Rainer Sauerborn, together with leading experts in the field, address the direct and indirect impacts of global warming upon health and suggest policy strategies in Climate Change and Global Health: linking science with policy. Their message is that health impacts should be a central topic in the ongoing debate on climate policies. Available online from: http://tinyurl.com/yjseep4.

Local Scale Prediction of *Plasmodium falciparum* Malaria Transmission in an Endemic Region using Temperature and Rainfall. Y. Yé, M. Hoshen, C. Kyobutungi, V. Louis and R Sauerborn. *Global Health Action*, Vol 2, 2009.

In this chapter of the second volume of the 2009 Global Health Action dedicated to climate change and infectious diseases, the authors develop and validate a non-spatial dynamic model driven by meteorological conditions that can capture seasonal malaria transmission dynamics at the village level in a malaria holoendemic area of northwestern Burkina Faso. Full-text is available from: http://tinyurl.com/yby5cdu

Individual, Household and Environmental Risk Factors for Malaria Infection in Amhara, Oromia and SNNP Regions of Ethiopia. P. Graves, F. Richards, J. Ngondi, P. Emerson, E. Shargie, T. Endeshaw *et al. Transactions of the Royal Society of Tropical Medicine and Hygiene*, 2009:103, 1211-1220.

The IRI provided the expertise and data on rainfall in this study conducted by the Carter Center, the University of Cambridge, Department of Public Health and Primary Care, Cambridge, (UK) and the Disease Prevention and Control Department, Addis Ababa (Ethiopia). The study assessed malaria infection in relation to age, altitude, rainfall, socio-

economic factors and coverage of control measures in a representative sample of 11,437 people in Amhara, Oromia and SNNP regions of Ethiopia in December 2006-January 2007. In multivariate analysis, it was shown that significant protective factors were: i) number of long-lasting insecticidal net per household; ii) living at higher altitude; and iii) household wealth. Malaria prevalence was positively associated with peak monthly rainfall in the year before the survey (2006). It was also shown that people living above 2000m and people of all ages are still at significant risk of malaria infection. More from: http://tinyurl.com/ycktvcw.

Environmental Factors Associated with the Malaria Vectors *Anopheles gambiae* and *Anopheles funestus* in Kenya. L Kelly-Hope, J Hemingway, F McKenzie, *Malaria Journal* 2009, 8 :268.

The *Anopheles gambiae* and *Anopheles funestus* mosquito species complexes are the primary vectors of *Plasmodium falciparum* malaria in sub-Saharan Africa. To better understand the environmental factors influencing these species, the abundance, distribution and transmission, data from a south-eastern Kenyan study were retrospectively analyzed, and the climate, vegetation and elevation data in key locations compared. Available from: http://www.malariajournal.com/content/8/1/268

Related Links

http://iri.columbia.edu/education/summerinstitute10
http://www.mailman.columbia.edu/
http://www.ciesin.columbia.edu/
http://www.acmad.ne/
http://merit.hc-foundation.org/

Contact Information

Please contact cipha@iri.columbia.edu to send your comments or materials to be included in the next CIPHA newsletter. **The deadline for documents to be included in the next issue is April 20th, 2010.**

If you have questions about IRI activities, please visit our Home Page: http://portal.iri.columbia.edu/portal/server.pt

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