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Climate Information for Public Health Action Summer Institute

News From the Ground

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

Editorial

A changing climate is expected to affect both the geographical spread and incidence of infectious and vector-borne disease around the world, and disaster management organizations are striving to learn concrete methods to take preventative action for climate-based health risks. Within the Red Cross Red Crescent Movement, volunteers are the backbone of disaster prevention and response: these community-members that are the first responders to prevent and mitigate negative health impacts from climate change.

Vulnerable communities are the first hit by changing health risks, and are therefore best poised to take preventative action. Focusing "climate and health" programming on the vulnerabilities and capacities of communities themselves can be both empowering and effective, which the Red Cross Red Crescent Climate Centre and its partners have shown in a recent project titled **"Health Risk Management in a Changing Climate".** This project works in four countries to manage the risk of disease due to climate and climate change; it is implemented by the International Federation of Red Cross and Red Crescent Societies and supported by the Rockefeller Foundation. The Red Cross Red Crescent Climate Centre and the International Research Institute for Climate and Society (IRI) provided technical support and oversight in the integration of climate and health.

Incoming results from this project are encouraging. In Kenya and Tanzania, this project focused on diarrheal disease, which is highly related to extreme rainfall events that result in contaminated drinking water. East Africa is

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expected to see increased rainfall variability in the future, including an increased risk of heavy precipitation events. In Vietnam and Indonesia, project implementers worked to reduce the risk of Dengue Fever through the development of a climate-based early warning system for the disease.

Project implementers focused on community understanding of changing health risks, and began the project with a comprehensive baseline survey in project locations. Between 65% and 75% of all survey respondents had already heard of climate change in each of the four countries! Survey respondents identified changes to their local rainy seasons, and communities in all four countries mentioned that they were concerned that climate change would cause an increase in disease.

Given that so many people at the local level are interested in and worried about this issue, program interventions specifically targeting the community level can be one of the most effective methods of climate change adaptation in the health sector. The **"Health Risk Management in a Changing Climate"** used the baseline surveys to create *targeted educational materials* for each community, which explain clearly the anticipated climate change effects in each location.

In Kenya, the Red Cross established a community volunteer group for Early Warning. This group disseminates rainfall alerts to the rest of the community, sometime even using megaphones when there is a risk of severe flooding. The volunteers create water drainage channels and repair latrines when the rainy season is approaching, and carry out hygiene awareness-raising activities before a rainy event.

In Vietnam, community groups carry out activities based on the seasonal peak of dengue occurrence. Volunteers go house-to-house with education about dengue fever during the peak season, and use seasonal forecasts to trigger community clean-ups that reduce mosquito breeding grounds. Close monitoring of recorded cases of dengue fever, in conjunction with rainfall forecasts, triggers action at the community level through established partnerships with the Ministry of Health and the Vietnam Meteorological Institute.

In all four countries, local volunteers demonstrated their potential to be the front line in disease prevention, particularly with regards to climate change. Communities involved in this project were not only interested in the relationship between climate and health, but also eager and willing to be involved in preventative action to reduce risk.

Partnerships at many levels were an integral part of project design; partnering with the IRI aided implementing partners to use technical climate and health information. Partnerships with local health and meteorological agencies helped ensure sustainability at the community level.

While the project has not yet come to completion, current evidence indicates that this community-focused approach is scalable and can be an effective tool to manage the health risks of climate change in some of the world's most vulnerable communities. Building on this first indication of positive results, we will be documenting many more findings on this topic in the coming months.

Erin Coughlan

Updates

Alumni

2008 SI Wendy Thomas since August she is working at NOAA/NWS/Office of Climate, Water, and Weather Services as a meteorologist, supporting operations in Emerging Service Areas.

2010 SI James Sang is currently the Focal Point-Advocacy, Communication and Social Mobilization. Division of Malaria Control at the Ministry of Public Health and Sanitation in Kenya. He is sitting in Climate outlook forum for GHA countries in Zanzibar for the SOND season and helping to interpret the climate outlook impacts in health sector in the region. It's a great experience and we will be providing advisories to the Health sector in the region. More info jsang@domckenya.or.ke

2009 SI Rachel Lowe published a new paper entitled "The development of an early warning system for climate-sensitive disease risk with a focus on dengue epidemics in Southeast Brazil"

This paper builds upon a preliminary study by Lowe *et al.* but uses extended, more recent data and a refined model formulation, which, amongst other adjustments, incorporates past dengue risk to improve model predictions. For the first time, a thorough evaluation and validation of model performance is conducted using out-of-sample predictions and demonstrates considerable improvement over a model that mirrors current surveillance practice.

Using the model, we can issue probabilistic dengue early warnings for pre-defined 'alert' thresholds. This technique allows decision makers to identify areas where the model predicts with certainty a particular dengue risk category, to effectively target limited resources to those districts most at risk for a given season

Available online at: http://onlinelibrary.wiley.com/doi/10.1002/sim.5549/abstract

Facilitators

SI08-2011 Judy Omumbo has joined the Malaria Public Health Department of the Oxford/Wellcome Trust Research Program in Nairobi, Kenya. In her new position as Head of the Policy Impact Unit, Judy will be working with Ministries of Health and National Malaria Control Programs across Africa to foster evidence based approaches to planning and resource allocation in malaria control. A particular focus of her work will be to promote the use of epidemiological maps based on national level data for defining resource needs and guiding the rational allocation of resources.

SI08-2011 Madeleine Thomson and Simon Mason participated in the second International Conference on Climate Services (ICCS) in Brussels, Belgium. The annual conference of the Climate Services Partnership (CSP), ICCS 2 brought together climate information users, providers, researchers, and donors to discuss opportunities to improve the development and delivery of climate services around the world. The conference also provided an opportunity for CSP members to begin to articulate a shared work plan that supports and furthers this agenda.

SI 08-11 Pietro Ceccato and John del Corral made presentations at the Centers for Disease Control and Prevention's second annual Science Symposium on Climate and Health in Atlanta, Georgia on September 12 and September 13. They presented IRI's work on Climate and Health and the IRI Climate Data Library

and its use in Public Health.

SI 08-11 **John Del Corral J**., Blumenthal B., **Mantilla G., Ceccato P., Connor S., Thomson M**. published a new paper entitled "Climate information for public health: the role of the IRI climate data library in an integrated knowledge system"

The paper presents the capacities of the IRI climate data library and shows how we have used it to build an integrated knowledge system in the support of the use of climate and environmental information in climate-sensitive decision-making with respect to health. Initiated as an aid facilitating exploratory data analysis for climate scientists, the IRI climate data library has emerged as a powerful tool for interdisciplinary researchers focused on topics related to climate impacts on society including public health.

Available online at:
http://www.geospatialhealth.unina.it/main.php?idi=13

SI 08-11 Ceccato Pietro et al. published a paper entitled "A Vectorial Capacity Product (VCAP) to Monitor Changing Malaria Transmission Potential in Epidemic Regions of Africa " in the Journal of Tropical Medicine.

The paper shows an analysis of VCAP in relation to rainfall, temperature and malaria incidence data in some regions in Africa and shows that the expanded VCAP correctly tracks the risk of malaria both in regions where rainfall is the limiting factor and in regions where temperature is the limiting factor. The VCAP maps are currently offered as an experimental resource for testing within Malaria Early Warning applications in epidemic prone regions of sub-Saharan Africa.

Available online at:
http://www.hindawi.com/journals/jtm/2012/595948/

Upcoming Courses

ICPT - Spring School on Modeling tools and capacity building in climate and public health. Trieste, Italy.5 April – May 1, 2013.

The Spring School on Modeling tools and capacity building in climate and public health will give participants a wide range of lectures and practical sessions from expert in the field of: the fundamentals of climate and public health interactions; the use of observational, model and forecast climate data; remote sensing as a tool to manage environmental data; introduction to environmental epidemiology and statistical and dynamical disease modeling.

More information available online at:
http://www.ictp.it/

12th International NCCR Climate Summer School:" From Climate Reconstructions to Climate Predictions". Grindelwald, Switzerland.September 1 – 6, 2013.

The organizers invite young researchers from all fields of climate research. The courses cover a broad spectrum of climate and climate impact research issues and foster cross-disciplinary links. Participation is highly competitive and will be limited to a maximum of 70.

Detailed information and the application form are available at http://www.nccr-climate.unibe.ch/summer_school/2013/

Upcoming Events

European and Latin American Conference on Climate Change Management. Antigua, Guatemala. August 29-30, 2013.

The theme of the conference is: "Opportunities and Challenges for the Modernization of High Education Institutions" and is being organized by the Research and Transfer Centre on Climate Change at Galileo University in Guatemala.

Further details can be seen at: http://www.cela-project.net/download/2012_Call_for_papers_ELAC3M.pdf

The IMPACTS WORLD 2013 conference. Potsdam, Germany. May 27-30, 2013.

IMPACTS WORLD 2013 will lay the foundation for regular, community-driven syntheses of climate change impact analyses. . In this conference leading scientists and decision makers from local to international levels will discuss the development of: comprehensive impact assessments, covering all scales and sectors; the uncertainty in impact modeling and communication of climate impacts to decision makers from the local to the international level.

Learn more about the conference at: http://www.climate-impacts-2013.org/

Publications

World Health Organization (WHO)/ World Meteorological Organization (WMO). **The Atlas of Health and Climate**, 2012.

The Atlas highlights current and emerging challenges to human health and showcases how climate services can protect human health through prevention, preparedness and risk management.

The Atlas is based on the recognition that climate variability and extreme conditions, such as cyclones, droughts and floods, affect human health and can trigger infectious disease epidemics, including diarrhea, dengue, malaria and meningitis. The Atlas stresses that other types of vulnerability influence the relationship between climate and health, including environmental degradation, poverty, and poor sanitation and water infrastructure.

The Atlas provides case study examples of how information on climate change and variability can protect human health by predicting the onset, intensity and duration of epidemics. The Atlas includes a preface and three sections on: infections, emergencies and emerging environmental challenges.

Available online at: The Atlas of Health and Climate

Á.G. Muñoz, D. Ruiz, P. Ramírez, G. León,J. Quintana, A. Bonilla, W. Torres, M. Pastén and O. Sánchez. **Risk Management in the Latin American Observatory**. 2012. INTECH

The Latin American Observatory is a regional partnership aimed at providing science-based tools for decision makers, fostering collaborations that improve capacity building, outreach and research. It is discussed in this seminar how climate information and local vulnerability maps are used in the Observatory to provide a probabilistic approach to risk assessment and management in different sectors, considering an inter-dependence between vulnerability and hazards.

Available online at: http://www.intechopen.com/articles/show/title/risk-management-at-the-latin-american-observatory

UK's Health Protection Agency (HPA). **Health Effects of Climate Change in the UK**, 2012 Report.

This study is an extensive update of earlier reports published by the Department of Health. Alongside a more detailed look at the effect of temperature changes on death rates in hot and cold spells, the report also investigated the effects a changing climate will have on pollen production, outdoor and indoor air pollution, floods, ultraviolet radiation, food, water and insect-borne diseases.

This report can be regarded as a well-designed template for national health risk assessments for climate change. The report can be downloaded at URL http://www.hpa.org.uk/hecc2012

Wesolowski A, et al. **Quantifying the Impact of Human Mobility on Malaria**. Science 12 October 2012: Vol. 338 no. 6104 pp. 267.

Human movements contribute to the transmission of malaria on spatial scales that exceed the limits of mosquito dispersal. Identifying the sources and sinks of imported infections due to human travel and locating high-risk sites of parasite importation could greatly improve malaria control programs. Here, we use spatially explicit mobile phone data and malaria prevalence information from Kenya to identify the dynamics of human carriers that drive parasite importation between regions. Our analysis identifies importation routes that contribute to malaria epidemiology on regional spatial scales.

Available on line at: http://www.sciencemag.org/content/338/6104/267.full

Climate and Development Knowledge Network (CDKN). **Managing Climate Extremes and Disasters: Lessons from the Intergovernmental Panel on Climate Change's (IPCC) SREX Report.**

This report is written specially for professionals in the water, agriculture, health and ecosystem conservation sectors.

These CDKN Guides highlight the scientific findings of the IPCC Special Report on Managing the Risks of Extreme Events and Disasters to Advance Climate Change Adaptation http://www.ipcc-wg2.gov/SREX/ (known as 'SREX') for each of these sectors, and discuss the implications for decision-making.

The SREX report itself was compiled over two and a half years, involving 220 expert authors, 19 review editors and a four-day approval process by government representatives from around the world. The final 594-page report and its 20-page summary represent the 'state of the art' of scientific knowledge about climate extremes and disasters.

Contact Information

Please contact ciph@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 January 20th, 2013.



If you have questions about IRI activities, please visit our home page: http://iri.columbia.edu

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Available from http://iri.columbia.edu/education/ciphnews

Related Links

http://iri.columbia.edu

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