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Cedric Van Meerbeeck and Shelly-Ann Cox of CIMH preparing for their workshop at ICES 4. Photo by Francesco Fiondella

The Climate Services Partnership (CSP) is a platform for knowledge sharing and collaboration to advance climate service capabilities worldwide. CSP members are climate information users, providers, donors, and researchers; though they represent diverse interests, all are actively engaged with climate services through their own programs and activities. Partners collaborate to develop and improve climate services; they also learn from each other by sharing resources and experiences. The CSP creates a venue to generate new knowledge, establish best practices, and promote a resilient, sustainable, and climate-smart future. More information is also available on our website: www.climate-services.org.

The CSP newsletter is a quarterly publication meant to keep all informed of the latest updates of the partnership community. We rely on you for news of your activities, upcoming events, and recent publications. Please send all material for the next newsletter to Lissette Braman at lissette@iri.columbia.edu by **March 16, 2015**.

Editorial board: Lissette Braman (IRI), Cathy Vaughan (IRI), Steve Zebiak (IRI)

directions in climate services – messages from ICCS4

an editorial from the csp secretariat

At this writing, we are but a few days past the fourth International Conference on Climate Services, held in Montevideo, Uruguay from December 10-12, 2014. This year's ICCS once again provided a great opportunity for bringing many of our CSP members together, welcoming new members, and prompting great discussions and exchange of ideas. This year's participant list topped 200, hailing from 33 countries, including very good representation from Latin America.

The theme of ICCS4 – Decision Support Systems – was most appropriate for our Uruguayan hosts, who have remarkable accomplishments and examples of good practice to share with the international community, particularly in the agriculture sector. This theme is highly relevant to climate services generally, which in the end are intended to enable better, more informed, decisions. Decision support systems not only serve as mechanisms for the delivery of climate services; they also inform both the design of appropriate information products and the interpretation of them in the relevant decision context – key challenges of climate services in practice. A variety of experiences, approaches, and tools were presented and discussed in this context.

The agenda of ICCS4 was the most diverse we have ever had, featuring 28 parallel sessions spanning multiple sectors, geographic settings, and cross-cutting topics. It was good to see some sessions that built on prior discussions and collaborative work, with tangible outputs. For example, the economic valuation team has a nearly completed book on methodologies for the valuation of climate services, to be published later this year. The group on climate services ethics formed under CSP last year has drafted a white paper presenting issues and recommendations on guidelines and standards for the conduct of climate services. The ICCS4 sessions on these topics allowed outputs to be shared with conference participants, eliciting rich discussion and a deeper exploration of the topics than had been possible to date.

Many other sessions represented new topics for ICCS, including climate services in small island states, institutional arrangements that support climate services, early warning systems and the co-production of knowledge, to name a few. This indicates the degree to which interest and engagement in climate services are still expanding.

Of course, the international conferences serve not just as forums for the discussion of experiences, learning, innovations and new ideas in climate services, but also as the major gathering of CSP partners each year. As such, a portion of the agenda this year was devoted to issues concerning the future directions of CSP itself. Indeed, the conference marked an important moment to reflect on the CSP and its agenda for at least two reasons. The first is the changing landscape of climate services in the world today; and the second is the changing status of support to sustain the Partnership.

Since the CSP was founded three years ago, the Global Framework for Climate Services (GFCS) has been formally launched, endorsed by most countries and many international bodies, and has attracted significant attention and resources. National climate service programs have been advanced in many countries, and international humanitarian and development programs have increasingly taken on climate services dimensions. At this juncture, it is appropriate to ask what CSP could or should do to best support the objectives and deliverables of these major programs and investment areas.

Over recent months, the CSP and GFCS secretariats have jointly developed a white paper discussing the complementary nature of the two initiatives and their programs, along with potential areas for collaboration. (We will be circulating this shortly for comment). These ideas were presented for consideration of the ICCS4 participants in a plenary session. We also heard about a new initiative of the US government on data and services to support climate resilience, likely to include a community of practice component. Subsequently the conference participants engaged in an open discussion about the intersections between partner interests and program contributions in CSP's future work.

As we continue this important exercise of mapping out the future directions, establishing linkages, and securing resourcing to sustain the Partnership, we are anxious to extend the discussion to the broader CSP community. Please watch for forthcoming communications soliciting your thoughts and recommendations over the coming weeks. And please plan on joining the discussion!

Best wishes for the New Year,



the fourth international conference on climate services



Photos by Francesco Fiondella

iccs 4 in brief

The fourth International Conference on Climate Services was held in Montevideo, Uruguay on December 10-12, 2014. The CSP secretariat was delighted with the high turnout for the event and very much appreciates the energy, enthusiasm and active participation of our sponsors, host organizations, session leads, speakers, trainers, and participants. We certainly learned a lot and enjoyed the range of rich discussion; we very much look forward to building on the lessons shared and generated in Uruguay.

Special thanks are due to Uruguay's Ministry of Livestock, Agriculture and Fisheries, Uruguay's National System of Response to Climate Change, the University of the Republic, the Intergovernmental Coordination Committee of the Plata Basin, the United States Agency for International Development, and the World Bank. A number of other organizations served on the conference organization committee; their contributions are greatly appreciated as well. Thanks to all for make ICCS 4 a success!

Coverage of the conference, including photos, commentary, and video summaries, is available on the conference blog, [here](#).

Conference feedback is still being gathered, [here](#). Please do let us know what you think!

ICCS by the numbers ...

198 participants	33 countries
108 organizations	28 parallel sessions
103 speakers presented	8 DSS tools 3 side events

Looking forward to ICCS 5: Do you have thoughts about the next conference? Please be in [touch](#).

community spotlight

a conversation with Patrizia Gabellini, City of Bologna

CSPQUARTERLY January 2015

Patrizia Gabellini is Councillor for the Environment for the City of Bologna. Here she talks with us about the Mayor's Adapt Initiative.



Photo: Patrizia Gabellini (left) with Connie Hedegaard, former Commissioner for Climate, during the official ceremony of the signature of the Mayors Adapt in Brussels in May

Tell me a bit about what Comune di Bologna does?

Bologna is the capital of Emilia Romagna region, in northern Italy. It is of paramount importance as a road and rail centre through which most traffic must pass between central and southern Italy and the north. Climate continues being a valuable resource for the city. The Latin term "Bononia" from which the name of the city derives, means "good things" and brings us directly to our historical raison d'etre based on the quality of the food and agricultural production, which is being affected by intense hot and dry summers.

What do you see as Comune di Bologna's greatest strengths?

Bologna sets a good example on climate change: we have been active for many years in adaptation to climate change and have taken measures to prevent heat islands, manage water resources in and improve overall security. The local administration is now elaborating its Local Adaptation Plan LAP within the framework of the European LIFE+ project Blue Ap (<http://www.blueap.eu/site/en/>).

Italy is currently holding the EU Presidency. With our adhesion to the European initiative Mayors Adapt (<http://mayors-adapt.eu/>) last June we are sharing our commitment to the overall aim of the EU Adaptation Strategy and we can lead on the example in Italy, in Europe and beyond.

Could you give an example of how climate information is shared?

Within BlueAP we have decided to set up an external Scientific Board SB asking Euro-Mediterranean Centre on Climate Change, member of the CSP, to coordinate this activity. S.Castellari, IPCC National Italian Focal Point from CMCC, has been appointed SB chairman.

What are your goals for the future of Comune di Bologna?

Our short term main goal is to approve our LAP. We have implemented a replicable participatory/bottom-up decision-making process involving all relevant local stakeholders.

What do you see as the largest challenges in developing effective climate services?

The need to move from the remedy of damages to systematic prevention-oriented actions, together with the obligation to provide the necessary economic resources, lead to the certainty that roles and responsibilities can not be maintained as they are now. LAP will consider also "how" to do this and will pay attention to interactions between public administrations with private partners. participatory/ bottom-up decision-making process involving all relevant local stakeholders.

What do you like most about your work?

We are proud to put into practice our strategies with a "planning by doing" approach, like the Municipal Operative Plan from June 2014 which aims at increasing 17,000 square meters of public and private green areas.

How does climate change and/or variability affect your country/region?

Local research confirms the trends already observed for other European areas. Clear signs of climate change can be observed with regard to both temperatures and precipitations: an upward trend in temperature has been measured from 0.5 °C up to 3 °C and the number of rainy days shows a clear downward trend, while the intensity of rain generally shows an upward trend.

How can climate services mitigate these impacts and/or take advantage of opportunities

The activities of the SB are intended to validate the technical documents of the Plan. The work developed to now by experts coming from Europe, USA and Australia, has proved to be extremely useful.

We think this is a good way to go!



Bologna, Italy. Photo credit: Viator.com



Photo: Dr. Daniela Jacob, acting head of the German Climate Service Center 2.0

Tell me a bit about what Climate Service Center 2.0 does, and the ways in which it is involved with the wider climate services community.

The Climate Service Center was originally developed by the German Federal Government in 2009, and supported by the German Federal Ministry of Education and Research until May 2014. Under the leadership of Prof. Guy Brasseur, it developed as a successful international climate service institution. In June 2014, the Center, renamed to Climate Service Center 2.0 became a permanent member of the HGF (Helmholtz Association of German Research Centres) and I became the acting director. The Center is located in Hamburg, with our mother institution, Helmholtz-Zentrum Geesthacht or HZG, located 45 km southeast in Geesthacht.

The Center is a national, research-based service facility in a network of partners, including scientific institutions and German climate services providers, such as “the Regional Climate Offices of the Helmholtz Association” and “KomPass - Climate Impacts and Adaptation in Germany.” Additionally, the Center collaborates with partners worldwide to develop concepts, services and products that bring climate services to the international level.

What do you see as the greatest strengths of the Climate Service Center 2.0? Climate Service Center 2.0 is an independent and neutral platform, linked to research and efforts conducted by the scientific community. We are a team of natural scientists, socio-economists and humanists (about 35 staff members), working across disciplines – and independently from special interests. We utilize scientific expertise and technology, to develop interdisciplinary methods and services in flexible cooperation projects with partners. Our vision is to become a central node of a climate experts network for the development of prototype products and services.

How would you define climate services?

Offering products, advisory services and decision-relevant information based on sound scientific knowledge to support government, administration and business in their efforts to cope with climate change. This is the mission of our business model.

What are your goals for the future of Climate Service Center 2.0? In order to provide a strong basis for a sustainable climate services in Germany, we aim to expand the network of

customers, partners and experts within the climate adaptation research community. We plan to develop new methods, tools and formats to address local climate change impacts, and focus on new prototype products and services to meet the adaptation needs of decision makers, through strong and clearly defined partnerships.

Our comprehensive framework for developing prototype products, services and networking activities over the next two years is “Climate-related change of extremes on the long-term perspective in regions worldwide.” The sectors designated for priority in 2015-2016 are Water, Energy and Ecosystems.

What do you see as the largest challenges in developing effective climate services? Many of the related policy and business decisions we make today will have profound impacts on our future economy and lifestyle. However, decision makers often lack the expertise to incorporate considerations related to climate. The Center works to address this issue, providing stakeholders with support to include the climatic perspective in design of policy options. As a multidisciplinary interface, we aim to foster connections and bridge climate research with climate information users.

While the development of improved connections with stakeholders remains an important challenge, engagement of the scientific community also needs to be better integrated into the field of climate services. Information on robustness of climate data and associated uncertainties is crucial when delivering e.g. model data. Thus, another major challenge is to develop methodologies that support decision makers to develop strategies that account for uncertainty.

What do you like most about your work? Helping society adapt to climate change is important work. It is satisfying to transform up-to-date scientific results into climate information products and services that are needed. Building of trust and cooperation with the user is critical, challenging, and fun. Motivating young people to work in this interdisciplinary theme is rewarding and of the utmost importance to future generations.

How does climate change and/or variability affect your country/region? Mean temperatures are increasing in Germany. According to recent projections (EURO CORDEX), the temperature increase is expected to be larger in the Alpine region than in Northern Germany. In winter, eastern Germany will have stronger temperature increases than the western part. Precipitation projections are more uncertain, but some trends towards heavier precipitation extremes are already visible and challenging current infrastructure.

How can climate services mitigate these impacts and/or take advantage of opportunities? Climate services will improve the knowledge base for better identifying risks, opportunities and options for adaptation. With products, like maps and charts of important climate variables, we are helping the “German Länder” develop adaptation strategies. To support towns and municipalities, we are currently developing an innovative modular adaptation toolkit for cities. Our flexible consultation framework has been tested successfully in a first case study with the city of Kiel and may be applied more widely beyond urban centers.

hacking for a more food-secure future

an op-ed by Ana María Loboguerrero and Jose Luis Urrea,
Climate Change, Agriculture and Food Security (CCAFS)

Climate change puts agriculture and farming at risk, threatening some of the most vulnerable people in the world. Decades of agricultural research and climate data are a rich resource only if someone can unlock their potential. A climate change, agriculture and food security Hackathon challenged innovators to develop solutions for a more food-secure future – and some of Latin America's most talented minds answered the call.

The Hackathon was organized by the CGIAR Research Program on Climate Change, Agriculture and Food Security (CCAFS), with the support of the CGIAR Consortium, and the Technical Centre for Agricultural and Rural Cooperation (CTA) in the sidelines of the 20th Conference of the Parties (COP20) in Lima, Peru.

The winning innovation tackled a crucial issue: helping farmers decide when to plant their crops each season in order to reduce impacts and enhance opportunities brought by climate change and variability. The prototype tool, developed by an enthusiastic group of young people from Colombia called "GeoMelódicos," is an easy to use, web-based platform to plan seasonal crops and planting dates. The tool analyses information from different agricultural and climate databases, complementing traditional farmers' almanacs, which may lose accuracy due to climate change.

The tool combines data on historical production and climate trends, historical planting dates with current climate trends and short-term weather forecasts, to generate more accurate information about optimal planting dates for different crops and locations.

The winning innovation was the result of a two-day gathering at the International Potato Center (CIP) campus in Lima, which gathered teams from countries of Latin America and the

Caribbean, including Peru and Jamaica. The Hackathon challenged developers to synthesize available datasets and turn them into useful insights and information for farmers in the region to better manage climate variability. The final products were developed in less than 40 hours.

The winning proposal also includes the possibility to send critical information such as forecasts, planting and harvest dates by SMS, in order to reach the most basic cell phones.

The second-place winners were the Peruvian team "ViaSoluciones," who developed a cell phone app that tackles water scarcity, a challenge for farmers around the world. Called "Illapa," after the Quechua goddess of water, the tool could help farmers make better decisions about how much water to use for irrigating different crops. The prototype application combines climate data and information from a tool that directly senses a plant's water use to calculate water needs in real-time. This could be a life-saver for farmers in times of drought.

Both winners and runner-ups received their awards during a workshop for policy makers and researchers from Latin America, who need better tools and approaches for planning and decision making in agriculture under climate change.

While the UN climate change conference continues to sideline issues related to agriculture, practical solutions are urgently needed. Negotiators are trying to hammer out a new political deal on climate change, but we have demonstrated that we have the knowledge and solution within our reach. Action is needed now, and scientists and farmers are ready.

A video on the Hackathon can be found at: <http://youtu.be/AocD4Yh11BA>



ECOMS & EUPORIAS launch climate service development principles

What should we consider when developing new climate services?

In November 2014, a group of 30 international experts in climate service development gathered in Honiton, UK, to discuss and identify the key principles that should be considered when developing new climate services. The symposium was supported by the European Provision Of Regional Impacts Assessments on Seasonal and Decadal Timescales (EUPORIAS) (www.euporias.eu) and European Climate Observations, Modelling and Services (ECOMS) (www.ecoms-wikidot.com), two climate service-related initiatives funded by the European Commission through its 7th Framework Programme. Through an interactive and dynamic workshop the attendees identified seven principles:

1) Be mindful of the edges:



- Who are the users and possible users of the climate service?
- What is the proposed approach?
- What are the motivations of each participant to take part to the project?

2) It takes (at least) two to “service”

- Have all the relevant people been involved in the discussion?
- Does the project initiator have a good understanding of the end-users’ needs?
- Do the providers have all the skills needed to deliver the service on time and in full?
- What expertise will the users contribute to the climate service development?



3) Listen to understand

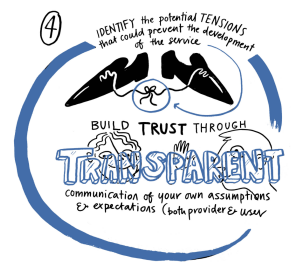


- It is essential that the scope is clearly defined at the beginning of the project and to ensure there is a common understanding how the scope is evolving throughout the project

- It is also important to maintain a clear understanding of what is not within the scope of the project.

4) Be open to be believed

- Be honest about what is and it is not achievable within the project.
- Be open about new ideas that can alter your perception of what is and is not possible.
- Spell out all the possible issue, (scientific, technical, legal, political or commercial) which could limit the service.



5) Take the journey together



- The service (should) provide value to users but it is also important to identify value (not necessarily monetary) to the provider.
- Make clear what each actor involved is expecting to get out of the service, meaning the journey can be more easily taken together.

6) Be flexible!

- Expect changes in the scope as this is part of human nature.
- Maintaining a highly interactive and flexible work-programme you will be able to account for some of those changes.
- Make clear what this means in terms of scope and what are the boundaries of flexibility.



7) Scope-deliver-evaluate: iterate.



- If possible divide the service in small components that can be delivered separately.
- Scope each of these, deliver to and evaluate them with the users and then, if necessary, re-scope.
- Some project management practices (e.g. agile) are intrinsically designed for this sort of applications.

For further updates please visit: <http://www.euporias.eu/symposium>

Final conference in Climate Forum East finds fun ways to point up health challenges

Red Cross/Red Crescent Climate Centre. Participants at the final conference of the Climate Forum East project, held in the Belarusian capital of Minsk this October, were disconcerted to find on the first day of the conference that their backs were covered with tick-shaped stickers bearing the ominous warning, "You won't notice a tick bite as you haven't noticed this sticker." The stickers were designed by the Belarus Red Cross to draw attention to the increasing risk of tick-borne diseases associated with warmer temperatures.

Meanwhile, volunteers dressed as polar bears were handing out discount vouchers for early action on climate adaptation, and a "pantomime" of fruit and vegetables heralded the impacts of climate change on agriculture.

These initiatives were part of a mini-advocacy campaign competition that kicked off the conference and encouraged NGOs to develop innovative ways to present their messages to decision-makers.

For more information, <http://www.climatecentre.org/site/news/566/final-conference-in-climate-forum-east-finds-fun-ways-to-point-up-health-challenges?type>

Peruvian Red Cross welcomes visitors to IFRC stand at UN climate talks in Lima

Red Cross/Red Crescent Climate Centre. Volunteers and staff from the Peruvian Red Cross (PRC) welcomed visitors to the International Federation of Red Cross and Red Crescent Societies (IFRC) stand at the COP 20 UN climate talks in Lima. During the COP, the Climate Centre co-organized the popular Development and Climate Days ("D&C Days") workshop, together with the [Climate and Development Knowledge Network](#), the [International Institute for Environment and Development](#) and the [Overseas Development Institute](#) (ODI). The theme of the event was a call to get both poverty and net carbon emissions down to zero "within a generation;" it's been hash tagged #zerozero on Twitter.

Read more: <http://www.climatecentre.org/site/news/575/peruvian-red-cross-welcomes-visitors-to-ifrc-stand-at-un-climate-talks-in-lima>

Strengthening climate services evaluation through the development of an evaluation framework

University Corporation for Atmospheric Research (UCAR). UCAR Climate Services has just completed an initial draft of its climate services evaluation framework. This framework, which spans the climate services continuum from resources to long-term outcomes, provides a comprehensive overview of how climate data, through implementation of climate services, production, and delivery of climate products, is intended to influence changes in user behaviors resulting in long-term societal impacts. One of the main objectives in the development of the framework is to

explicitly link different types of evaluation (i.e. implementation evaluation, product evaluation, outcomes evaluation, etc.) to specific questions and identify the corresponding data for addressing these questions. In this way, the framework is intended to facilitate the use of evaluations for understanding and improving the impact of climate services. This framework, which builds on information from the Global Framework for Climate Services, input from the CSP, and an extensive review of climate services evaluation literature, will be available to the public by Spring 2015.

Read more about climate services at UCAR at <http://www.ucp.ucar.edu/climate-services-at-ucar>

Promoting information sharing to strengthen health resilience to climate events

Health and Climate Foundation (HCF). On August 17-21, HCF participated in the World Weather Open Science Conference held in Montreal. From the organization, Michel Jancloes attended the conference as a plenary speaker presenting past and ongoing initiatives to highlight the pressing need for assessing the gap between the weather information and its temporal and spatial applicability at the public health decision-making level. Dr. Jancloes' presentation, "Research Needs for Better Health Resilience to Weather Hazards," discussed the consideration of this knowledge gap as a priority to address in order to strengthen public health adaptive responses to weather disasters. The presentation can be found [here](#).

In addition to the conference, HCF also co-chaired the fourth Global Leptospirosis Environmental Action Network (GLEAN) Technical Meeting in Colombo, Sri Lanka on November 18-20. Organized jointly with the Sri Lanka Ministry of Health and supported by the World Health Organization (WHO) South East Asia Regional Office, the meeting assembled experts and GLEAN members to re-assess the four working-group pillars of the network: detect, predict, intervene, prevent. The meeting provided an arena for knowledge sharing of experiences and current statuses of countries' leptospirosis control efforts for review and recommendations for future efforts. More on GLEAN can be found at <http://www.glean-lepto.org/>.

The foundation is also pleased to announce the launch of a new webpage in the near future. For more updates on HCF ongoing and past projects, please visit our current webpage at www.hc-foundation.org.

Scientific Board of Bologna Adaptation project approves direction of the Strategy on adaptation

Centro Euro Mediterraneo sui Cambiamenti Climatici (CMCC). BLUE AP (Bologna Local Urban Environment Adaptation Plan for a Resilient City) is a LIFE+ project for the implementation of an Adaptation Plan to Climate Change for the Municipality of Bologna. It provides concrete local measures to make the city more resilient and able to meet the climate change challenges. It

started in October 2012 and will end in September 2015.

The project is supported by a Scientific Board SB coordinated by the Euro Mediterranean Center on Climate Change, which gives services support to the project management and coordination and technical assistance to the actions. The members of the SB come from Europe mainly. The city of Canberra in Australia and Washington in the US have recently joined the board. This proves the willingness of foreign countries to share climate service information and exchange best practice.

During the 9th October meeting, the Strategy for Local Adaptation was presented to the SB which gave feedback on the involvement of local citizen, barriers and measures affecting three challenges: droughts and water scarcity, heat waves in urban areas, rain extreme events and hydrological risk. A definition of the detailed action plan on adaptation came out of this meeting.

The rest of the year will concentrate the efforts on the analysis of the measures to be adopted. This work will be the basis for the final event in May 2015. Contact: [Eva Baños de Guisasola](#), coordinator of the SB of Blue Ap within CMCC.



Photo: Scientific Board of the Bologna Adaptation Project

SERVIR at ICCS 4: Exploring the concept of space to village

Regional Visualization and Monitoring System (SERVIR) Among the events that kicked off the fourth International Conference on Climate Services in Uruguay's capital, Montevideo, was a three-hour side event workshop that first presented lessons learned from the [SERVIR program](#) on engaging users and the led to lively discussions around participants' approaches to ensure climate services achieve their full potential. SERVIR—the Regional Visualization and Monitoring System—helps government officials, scientists, researchers, and others make decisions by providing Earth observations and predictive models based on data from orbiting satellites. The program is jointly supported by NASA and USAID. The International Research Institute for Climate and Society and SERVIR co-hosted the side event.

Currently, many decision-support tools exist that help inform planning, resource management and

response related to climate adaptation. However, common challenges remain in facilitating uptake and engaging decision makers effectively when it comes to climate services.

"What's valuable to us is hearing about the experiences and challenges that users and providers face," said Noemi Danao-Schroeder, who leads the SERVIR Demand Activity program. "That's how we evolve at SERVIR."

Danao-Schroeder and her SERVIR colleagues presented examples of programs that demonstrated successful user engagement, including [flood forecasting in Bangladesh](#) and [frost mapping](#) for Kenya's tea producers.

This session was followed by a set of roundtable discussions on three topics identified as critical to the evolution and improvement of climate services: user engagement, communications and outreach, and monitoring and evaluation. Participants exchanged ideas on approaches, challenges and future priorities related to each topics.

"Today we heard a range of perspectives about what it means to consult and collaborate on climate services," said Jennifer Frankel-Reed, the SERVIR coordinator for USAID. "We shared examples of efforts that SERVIR has made to establish standards that complement NASA's science skills, and there is clearly much still left to learn from one another in the broader practitioner community." In the coming weeks, the organizers will draft a report from each of these topic discussions.



Photo: SERVIR Side Event at ICCS 4

CCAFS underscores need for gender-responsive climate services and plans a workshop to develop its climate services research strategy

Climate Change, Agriculture and Food Security (CCAFS). In October, CCAFS published a report titled, "Who gets the information? Gender, power and equity considerations in the design of climate services for farmers." This report, written and compiled by Arame Tall, Patti Kristjanson, Moushumi Chaudhury, Sarah McKune, and Robert Zougmore, documents results from a CCAFS study that was conducted in three rural, climate-vulnerable communities in Kaffrine, Senegal from 2011 – 2013. The goal of this work was to understand current climate information needs and

local vulnerabilities to climate change, and then to study the dissemination and use of climate information forecasts throughout the communities, highlighting the specific needs of female farmers. The study underscores the need for gender-responsive climate services, in order to meet the needs of all end-users.

For more information, please visit <http://ccaafs.cgiar.org/publications/who-gets-information-gender-power-and-equity-considerations-design-climate-services#.VIXcbNzJxv4> or see the blog on the report at <http://ccaafs.cgiar.org/blog/one-size-does-not-fit-all-considering-gender-equity-and-power-climate-information-services>.

On November 5-7, Dr. Sandra Russo, CCAFS' team member, attended the World Meteorological Organization's [Conference](#) on the Gender Dimensions of Weather and Climate Services in Geneva, Switzerland. The goal of the conference was to raise awareness and showcase good practices to empower women to produce, acquire, and use weather and climate services. Dr. Russo also gave a presentation and led an interactive discussion surrounding issues of access and use of climate information with regards to agriculture and food security.

CCAFS is also in the process of planning a workshop for spring 2015 to bring together scientists from each of the [Consultative Group on International Agricultural Research's](#) (CGIAR's) research centers. The goal of the workshop is to jointly produce a CCAFS climate services research strategy for the 2015 – 2020 timeframe, and to foster more collaboration amongst the CGIAR centers.

GFCS convenes series of meetings to guide coordination and implementation

[Global Framework for Climate Services \(GFCS\)](#). The Second Session of the Intergovernmental Board on Climate Services (IBCS-2) was held from 10 to 13 November in Geneva to review progress and provide guidance to enhance implementation of the GFCS. The meeting highlighted the need for more partnerships and coordination among various actors to achieve the overall goals of helping communities to adapt to extreme climate events to boost disaster resilience.

IBCS-2 took important decisions on the governance and implementation of the GFCS. It agreed to include urban activities related to climate as a specific cross-cutting element within the priority areas of the GFCS and to further develop an Energy Exemplar with a view to presenting a proposal to the Seventeenth World Meteorological Congress (25 May to 12 June 2015) for consideration of Energy as an additional priority sector for GFCS. For more information: <http://ibcs-2.wmo.int/>

A Regional Consultation on Climate Services at the National Level for South East Europe (SEE) was held in Antalya, Turkey from 21 to 22 November 2014. The consultation was organized by the GFCS Office in collaboration with the Turkish State Meteorological Service and the National Meteorological Service of Spain to facilitate the identification of priorities for the

implementation of the GFCS in the SEE region. More information: <http://www.gfcs-climate.org/node/621>

A meeting on coordination of the implementation of the GFCS was held from 29 September to 1 October at the WMO Secretariat with the participation of nearly 100 programme managers from the United Nations and international agencies, and other representatives. The meeting reviewed over 100 projects currently being implemented in 16 countries in which some project components directly support implementation of GFCS. This review of country-level programmes brought into sharp focus the clear need to effectively coordinate and link the activities of various agencies that are supporting climate services-related initiatives at global, regional and national levels. More information: <http://www.gfcs-climate.org/node/573>. For more updates please visit: <http://www.gfcs-climate.org/>

CORDEX explores the value of empirical-statistical downscaling

[Coordinated Regional Climate Downscaling Experiment \(CORDEX\)](#). A new experiment, designed to explore the added-value of downscaling, was set up by an international group of empirical-statistical downscaling experts at the second CORDEX-ESDM workshop in Buenos Aires Argentina, July 30-August 1, 2014. The objective of this effort was to bring together the wide range of different approaches commonly used in empirical-statistical downscaling and explore how different choices used by different downscaling practitioners impact the end results. A comprehensive set of diagnostics have been proposed, e.g. the methods' ability to predict realistic temporal dependencies, spatial coherence, and multi-variate consistency. Furthermore, they assessed whether the methods are capable of predicting long term change, i.e., whether the predictors include the relevant changes, and whether the model structure remains valid under extrapolations. A common structure for data and common code makes it possible to synthesize the results, in addition to making the empirical-statistical downscaling efforts more coordinated, and a standard experimental set-up and a common framework makes it possible to further analyze the multi-method results (e.g., by factorial regression). The protocol for this standard experiment is published on the CORDEX website: <http://wcrp-cordex.ipsl.jussieu.fr/>. It is anticipated that this type of distillation of the multi-model experiment will provide a better indication about what works and what breaks when applying the downscaling in different contexts. The standard experiment is the first step in what is expected to be a more comprehensive set of experiments to assess the skill of regional climate-change scenarios.

CSP Early Career Professionals Network Climate Services Partnership

The ECPN continues to build steam, holding a virtual meet & greet in November, featuring a presentation by Andrew Harding of ClimateXChange. The network also held a side event at the fourth International Conference on Climate Services. To get more involved, or with ideas for how to improve the network, please be in touch with Lisette Braman at lisette@iri.columbia.edu.

Title: Climate change and farm-level adaptation decisions and strategies in drought-prone and groundwater-depleted areas of Bangladesh: an empirical investigation

Authors: M. Alauddin and M. A. R. Sarker

Summary: Despite recognizing the vulnerability of Bangladesh's agriculture to climate change, the existing literature pays limited attention to a rigorous, quantitative analysis of farm-level data to investigate rice farmers' preferred adaptation strategies, perceived barriers, and policy implications. By employing data from 1800 Bangladeshi farm-households in eight drought-prone and groundwater-depleted districts of three climatic zones and logit models, this study breaks new ground in investigating farm-level adaptation to climate change.

Results showed that farmers' perceptions of climatic variability supported macro-level evidence. Science-driven (e.g., drought tolerant rice), environmental resource-depleting (e.g., groundwater), and crop-switching (e.g., non-rice crops) typified preferred farm-level adaptation strategies to alleviate adverse effects of climate change. Drought severity, extent of groundwater depletion, education level, farm-size, access to climate information, and electricity for irrigation, and agricultural subsidies were significant factors underpinning farmers' decision to adapt. Inadequate access to climate information and scientific research outcomes, limited irrigation facility and resource-base represented major adaptation barriers.

Strengthening agricultural research and support services including information accessibility, community-focussed farming education and training for improved crop culture practices, and expanded and efficient surface-water irrigation infrastructure are critically important for creating an effective adaptation process to climate change. Scientific research-driven adaptation measures with stronger support systems appear more sustainable.

Link: <http://www.sciencedirect.com/science/article/pii/S0921800914002274>



Photo: Allyza Lustig

Title: Climate service development, delivery and use in Europe at monthly to inter-annual timescales

Authors: C. Buontempo, C.D. Hewitt, F.J. Doblas-Reyes, S. Dessai

Summary: Managing the multiple boundaries between producers and users of climate information is of crucial importance in developing climate services. The concept of co-design and more generally of co-generation of knowledge is key to success of the new generation of climate services which need to be perceived as being not only credible scientifically but also salient and legitimate. In this paper we argue that much more should be done to map specific decisions onto our knowledge (or lack thereof) of the future climate state. We have often tried to characterise our ignorance of the future state of the system through a number of techniques (such as empirical models, an ensemble of initial conditions, perturbed physics ensemble, etc). With a few noticeable exceptions these approaches start from the climate scientist's knowledge and map it into a decision-relevant space. To some decision makers the only part of the prediction space that matters is the one that maps in the surroundings of a specific decision threshold. Effort should be put into inverting the relationship linking climate information to climate-sensitive decisions as this would help the user understand which part of our ignorance is more relevant to them.

Link: <http://www.sciencedirect.com/science/article/pii/S2212096314000321>

Title: Climate Adaptation Services for the Netherlands: an operational approach to support spatial adaptation planning

Authors: H. Goosen, M.A.M. de Groot-Reichwein, L. Masselink, A. Koekoek, R. Swart, J. Bessembinder, J.M.P. Witte, L. Stuyt, G. Blom-Zandstra, W. Immerzeel

Summary: There is a growing availability of climate change information, offered to scientists and policy makers through climate services. However, climate services are not well taken up by the policy-making and planning community. Climate services focus on primary impacts of climate change, e.g., the disclosure of precipitation and temperature data, and this seems insufficient in meeting their needs. In order to reach the spatial planning community, climate services should take on a wider perspective by translating climate data to policy-relevant indicators and by offering support in the design of adaptation strategies. We argue there should be more focus on translating consequences of climate change to land-use claims and subsequently discuss the validity, consequences and implications of these claims with stakeholders. The term Climate Adaptation Services is introduced as being a stepwise approach supporting the assessment of vulnerability in a wider perspective and include the design and appraisal of adaptation strategies in a multi-stakeholder setting. We developed the Climate Adaptation Atlas and the Climate Ateliers as tools within the Climate Adaptation Services approach to support decision-making and planning processes. **Link:** <http://link.springer.com/article/10.1007/s10113-013-0513-8>

Title: Reviewing innovative Earth observation solutions for filling science-policy gaps in hydrology

Authors: A. Lehmann, G. Guiliani, N. Ray, K. Rahman, K.C. Abbaspour, S. Nativi, M. Craglia, D. Cripe, P. Quevauviller, M. Beniston

Summary: Improved data sharing is needed for hydrological modeling and water management that require better integration of data, information and models. Technological advances in Earth observation and Web technologies have allowed the development of Spatial Data Infrastructures (SDIs) for improved data sharing. International initiatives catalyze data sharing by promoting interoperability standards to maximize the use of data and by supporting easy access to and utilization of geospatial data. A series of recent European projects are contributing to the promotion of innovative Earth observation solutions and the uptake of scientific outcomes in policy. Several success stories involving different hydrologists' communities can be reported around the World.

Gaps still exist in hydrological, agricultural, meteorological and climatological data access because of various issues. The brokering approach allows binding heterogeneous resources published by different data providers and adapting them to tools and interfaces commonly used by consumers of these resources.

The challenge is to provide decision-makers with reliable information, based on integrated data and tools derived from both Earth observations and scientific models. Successful SDIs rely therefore on various aspects: a shared vision between all participants, necessity to solve a common problem, adequate data policies, incentives, and sufficient resources. The need for capacity building at human, infrastructure and institutional levels is also a major driver for reinforcing the commitment to SDI concepts.

Link: <http://www.sciencedirect.com/science/article/pii/S0022169414004235>

Title: Climate–Human–Land Interactions: A Review of Major Modelling Approaches

Authors: M. Michetti, M. Zampieri

Summary: International agreements on climate change have highlighted the role of land in climate and human dynamics, making it an issue of global importance. The modelling of land-related processes, sectors, and activities has recently become a central topic in economic and policy theory, as well as within climate and environmental sciences. Indeed, land-use change has been identified as one of the main interactions amongst the human and physical spheres for which a tighter linkage between Integrated Assessment and Earth System models is required. As a result, modelling strategies have been improved and new datasets have come into light for land-cover and land-use change analysis. However, unexpected human behavior and natural constraints challenge the modelling of interdependences and feedback mechanisms amongst economies, societies, and the environment, resulting from land-use and cover change. This paper provides a detailed overview of the most representative and advanced methods

developed to represent climate–human–land interactions. It offers a critical discussion about relevant methodological aspects, missing knowledge, and areas for future research.

Link: <http://www.mdpi.com/2073-445X/3/3/793>.

Title: Managing the Health Impacts of Drought in Brazil

Authors: A. Sena, C. Barcellos, C. Freitas and C. Corvalan

Summary:

Drought is often a hidden risk with the potential to become a silent public health disaster. It is difficult to define precisely when it starts or when it is over, and although it is a climatological event, its impacts depend on other human activities, and are intensified by social vulnerability. In Brazil, half of all natural disaster events are drought related, and they cause half of the impacts in number of affected persons. One large affected area is the semiarid region of Brazil's Northeast, which has historically been affected by drought. Many health and well-being indicators in this region are worse than the rest of the country, based on an analysis of 5565 municipalities using available census data for 1991, 2000 and 2010, which allowed separating the 1133 municipalities affected by drought in order to compare them with the rest of the country. Although great progress has been made in reducing social and economic vulnerability, climate change and the expected changes in the semiarid region in the next few decades call for a review of current programs, particularly in public health, and the planning of new interventions with local communities. This study reviews the literature, analyzes available data and identifies possible actions and actors. The aim is to ensure there will be sufficient and sustainable local adaptive capacity and resilience, for a population already living within the limits of environmental vulnerability.

Link: <http://www.mdpi.com/1660-4601/11/10/10737/pdf>

Title: Spatiotemporal clustering, climate periodicity, and social-ecological risk factors for dengue during an outbreak in Machala, Ecuador, in 2010

Authors: A. M. Stewart-Ibarra, Á.G Muñoz, S. J. Ryan, E. Beltrán Ayala, M. J. Borbor-Cordova, J. L. Finkelstein, R. Mejía, T. Ordoñez, G. Cristina Recalde-Coronel and K. Rivero

Summary: Dengue fever, a mosquito-borne viral disease, is a rapidly emerging public health problem in Ecuador and throughout the tropics. However, we have a limited understanding of the disease transmission dynamics in these regions. Previous studies in southern coastal Ecuador have demonstrated the potential to develop a dengue early warning system (EWS) that incorporates climate and non-climate information. The objective of this study was to characterize the spatiotemporal dynamics and climatic and social-ecological risk factors associated with the largest dengue epidemic to date in Machala, Ecuador, to inform the development of a dengue EWS. Our findings highlight the importance of geospatial information in dengue surveillance and the potential to develop a climate-driven spatiotemporal prediction model to inform disease prevention and control interventions. This study provides an operational methodological framework that can be applied to understand the drivers of local dengue risk.

Link: <http://www.biomedcentral.com/1471-2334/14/610>

upcoming events

in the climate services community

95th Annual Meeting of the American Meteorological Society

Date: January 4-8, 2015

Location: Phoenix, Arizona, United States

Lead organization(s): American Meteorological Society

About: The meeting theme, *Fulfilling the Vision of Weather, Water, and Climate Information for Every Need, Time, and Place*, explores how our community is turning this vision into reality. Its focus is the scientific, technical, and professional advances – ongoing and anticipated – required to develop and deliver widespread, highly-customized weather, water, and climate information.

Link: <http://annual.ametsoc.org/2015/>

Workshop on Water Resources and Drought Information in the Southwest U.S.

Date: January 8, 2015

Location: Phoenix, Arizona, United States

Lead organization(s): NOAA's National Climatic Data Center and Global Science & Technology, Inc

About: Building on the challenges and lessons learned of recent and current drought events in the southwest, southeast and midwest United States, the workshop will feature speakers and dialogue from across the federal, state, and local government, academia, and the research community, as well as affected industries and private sector information providers. NCDC is convening this workshop to increase the dialogue between information users and providers about drought-related information products and work collaboratively in responding to ongoing water resources challenges in the region. Interested parties can attend plenary sessions online.

Link: <https://www.eventbrite.com/e/workshop-on-water-resources-and-drought-information-in-the-southwest-us-registration-14542385667>

Advancing Climate-Resilient Development Symposium

Date: March 16-19, 2015

Location: Washington, D.C.

Lead organization(s): Climate Change Resilient Development Project of USAID's Office of Global Climate Change

About: Climate Change Resilient Development (CCRD) is a global, four-year project in support of USAID's Office of Global Climate Change (GCC). CCRD's climate adaptation focused programs operate in Asia, Africa, Eastern Europe, and Latin America and the Caribbean. The CCRD Project will host the Advancing Climate-Resilient Development Symposium. This invitation-only Symposium will bring together adaptation and development experts and decision-makers to:

- Share lessons learned from USAID's CCRD project
- Exchange ideas and methods for adaptation practitioners
- Identify new ways to advance climate resilient development

Implemented by the Engility/IRG and a consortium of 11 partners, the CCRD project successfully demonstrated USAID's "development-first" approach to climate change adaptation in more than 30 countries.

Link: <http://www.ccrdproject.com/acrd-symposium>

European Geosciences Union General Assembly 2015

Date: April 12-17, 2015

Location: Vienna, Austria

Lead organization(s): European Geosciences Union (EGU)

About: The EGU General Assembly 2015 will bring together geoscientists from all over the world to one meeting covering all disciplines of the Earth, planetary and space sciences. The EGU aims to provide a forum where scientists, especially early career researchers, can present their work and discuss their ideas with experts in all fields of geoscience.

Link: <http://www.egu2015.eu>

European Climate Services Partnership (ECSP) Workshop

Date: May 6, 2015

Location: Exeter, United Kingdom

Lead organization(s): UK Met Office

About: The European Climate Services Partnership (ECSP) is an informal, open and inclusive network to create and grow a community of climate service researchers and developers, providers, funders and users across Europe and build connections between them. The ECSP intends to hold an annual workshop to ensure that the community has the opportunity to get together to build connections, share and learn knowledge and experiences. More details to follow early in 2015.

The second European Climate Change Adaptation conference (ECCA)

Date: May 12-14, 2015

Location: Copenhagen, Denmark

Lead organization(s): Confederation of Danish Industry, European Commission, City of Copenhagen, Aarhus Universitet, European Environment Agency, Danish Ministry of the Environment

About: The conference will offer a unique platform for researchers, policy makers, and businesses to share new research results, novel policy developments, and practical implementation experiences regarding climate change impacts and adaptation, as well as highlight opportunities for business innovations aimed at supporting the transition to resilient low carbon societies.

Link: <http://www.ecca2015.eu/about-ecca-2015>

Resilient Cities 2015

Date: June 8-10, 2015

Location: Bonn, Germany

Lead organization(s): International Council for Local Environmental Initiatives (ICLEI)

About: Resilient Cities - The Annual Global Forum on Urban Resilience and Adaptation - is the global platform for urban resilience and climate change adaptation, hosted every year in Bonn. The congress offers a number of sessions and events on a wide variety of topics among which were urban risk data and indicators, ecosystem-based approach, resilient urban logistics, urban agriculture, smart infrastructure, financing the resilient city, community-based adaptation and many more. In 2015, congress themes will feature a new focus on areas such as ICT solutions for disaster risk management, resilient public health systems, and integrated climate actions.

Link: <http://resilient-cities.iclei.org/>

3rd International Conference Energy & Meteorology (ICEM): Next Generation Meteorological Practices in the Energy Sector

Date: June 23-26, 2015

Location: Boulder, Colorado, United States

Lead organization(s): ICEM 2015 Secretariat

About: As with the International Conference Energy & Meteorology (ICEM) 2011 (<http://www.icem2011.org/>) and ICEM 2013 (<http://www.icem2013.org/>), the objective of ICEM 2015 is to provide a dedicated forum where scientists, engineers, economists, policy makers, and other specialists and practitioners involved in research or implementation activities at the intersection between weather, climate and energy can discuss recent research findings and emerging practices ranging from operational activities to long-term investment planning and to policy making.

Link: <http://icem2015.org>

9th International Conference on Urban Climate (ICUC 9)

Date: July 20-24, 2015

Location: Toulouse, France

Lead organization(s): International Association for Urban Climate (IAUC) and the American Meteorological Society (AMS)

About: These meetings are preeminent events for the presentation of research on the urban climate effect at all scales and have set important benchmarks for the development of the field. The aims of this conference are to provide an international forum where the world's urban climatologists can discuss modern developments in research, and the application of climatic knowledge to the design of better cities.

Link: <http://www.meteo.fr/icuc9/>

15th European Meteorological Society (EMS) Annual Meeting & 12th European Conference on Applications of Meteorology (ECAM)

Date: September 7-11, 2015

Location: Sofia, Bulgaria

Lead organization(s): European Meteorological Society (EMS),

About: The theme of the conference is, *High impact weather and hydrological hazards: from observation to impact mitigation*. The considerable socio-economic costs of severe weather (such as intense precipitation, extreme temperatures and strong winds) and its impacts (including flooding, droughts, destruction of infrastructure, or forest fires) across Europe each year are increasingly apparent. The benefits of effective forecasting and warning are clear and quantifiable: lives are saved, communities are protected, and governments and businesses can take action to manage and mitigate risks. The ECAM theme for 2015 explores the end-to-end process of modern weather and flood risk forecasting. We will discuss optimising use of observations and NWP, through to the changing way meteorological information is presented to, and used by, forecasters, decision-makers and other end-users. The emerging concept of 'Big Data' and its application to operational meteorology will also be examined.

Link: <http://www.ems2015.eu>

11th International Conference on Southern Hemisphere Meteorology and Oceanography

Date: October 5-9, 2015

Location: Santiago, Chile

Lead organization(s): American Meteorological Society and the Department of Geophysics, Universidad de Chile

About: ICSHMO provides a unique contribution to ocean and atmosphere sciences that are specific to the Southern Hemisphere. The objective of the 2015 conference is to provide an interdisciplinary forum for presentations of our current knowledge, as well as encouraging new research and applications within the variety of disciplines related to weather and climate of the ocean and atmosphere. The overarching theme of this conference will be the Challenges of the Next Decade. Participation of early career scholars and postgraduate researchers is positively encouraged.

Adaptation Futures 2016

Date: May 10-13, 2016

Location: Rotterdam, the Netherlands

Lead organization(s): Global Programme of Research on Climate Change Vulnerability, Impacts and Adaptation (PROVIA), European Commission, Government of the Netherlands

About: Adaptation Futures 2016 leads to major progress in climate change adaptation. It fosters an active exchange of new and practical ideas, experiences and insights among governments, businesses, researchers and civil society from around the world. The conference combines discussion of the latest adaptation research with an Adaptation Practice Expo and Business Fair. At the Business Fair knowledge based supply will be connected to practitioners' demand. It will contain stands, matchmaking facilities and signing ceremonies. At the Expo cutting edge adaptation projects are shown. Adaptation Futures 2016 is where scholars, practitioners and policymakers go to connect, learn and inspire. It highlights adaptation practices and solutions for people, governments and businesses. The programme will address all sectors and all parts of the world, with a special focus on urban and coastal areas.

Link: <http://www.adaptationfutures2016.org/>



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