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Welcome to the CSP quarterly newsletter July 2016 edition!

This edition brings out the main themes being discussed this year in climate science and climate services, from across high profile scientific meetings and global workshops, right down to the local level. Within this there are two overarching themes that can be seen emerging 1) adaptation and resilience and 2) bridging the gap between science and the end-user.

In this edition, you will read about the launch of the Climate Services for Resilient Development programme, initiated to help developing countries achieve climate resilience, as well a feature interview with Richard Choularton, Chief of the World Food Programme's Climate and Disaster Risk Reduction Unit, on the programme, and its future goals as well as the challenges of climate services.

Under 'partner updates', we have insights into how the WFP's programme FoodSECuRE have been anticipating negative impacts of environmental change in order to pre-empt and counteract potential food insecurity; the exciting launch of the new *Climate Services* journal; and updates from the different activities at Adaptation Futures 2016, as well as many more interesting articles from the climate services community.

Additionally, as always, you will find a selection of recent topical publications and upcoming events.

conversations in adaptation

letter from the CSP Secretariat

Early summer of 2016 has seen the issues of climate change impacts, adaptation and resilience being addressed at the heart of the climate services and climate science communities. As well as this, bridging the gap between science and practice has also been at the core of many of the discussions and meetings taking place.

This began with Adaptation Futures 2016, held 10 - 13th May 2016 in Rotterdam, Holland. The conference was the fourth edition of the Adaptation Futures series, as part of the Global Programme of Research on Climate Change Vulnerability, Impacts and Adaptation (PROVIA). This particular conference had a focus on "promoting solutions across sectors, borders and communities." With almost 2,000 attendees present from across the world, from scientists to end users, themes such as food, forestry and rural livelihoods, fresh water availability and access and disaster risk reduction were addressed, enabling an impressively broad and international discussion on key issues of adaptation. There was a large focus on solutions at the workshop, as well as space being provided to facilitate the sharing of practical ideas and experience, allowing the invaluable exchange of tried-and-tested knowledge.

The International Conference on Regional Climate-CORDEX 2016 (ICRC-CORDEX 2016) held in Stockholm 17th-20th May, 2016, continued with complimentary themes. The Coordinated Regional Downscaling Experiment (CORDEX) serves to improve and generate new regional climate downscaling (RCD) techniques, as well as further to bridge the gap between the climate modelling community and end users. The latest ICRC-CORDEX 2016 conference focussed on "high resolution climate information and its applications to vulnerability, impacts and adaptation and the full spectrum of potential end users of regional climate information". This conference presented a unique opportunity to bring together the international regional climate research community to see how it can generate and coordinate scientifically rigorous regional climate information, that can be both communicated to, and utilised, by the end users, from city planners in Central Asia to those working in agriculture in Africa.

Both conferences enabled large global discussions and had a high focus on bridging the gap between the science being generated and its practical application, crucially including accessibility for the end user. These meetings, along with various other emerging global initiatives, signal an important recognition for the need to advance science and adaptation knowledge and techniques not in isolation, but with those who are able to apply the knowledge on the ground.

Furthermore, this comes at a key timing following closely behind the progress made last year towards an international climate agreement in Paris. This shows a fundamental understanding by scientists and policy-makers alike for the need to address all aspects of the climate narrative: from mitigation, to limiting negative impacts to working to enable communities, cities and countries to adapt to those changes that do come. It is clear within the climate community that it is the time not only for knowledge generation, but also for creating real solutions!

Daniela Jacob

Director of Climate Service Center Germany (GERICS)

Introducing the Climate Services for Resilient Development Partnership

a conversation with Stephen E. Zebiak, Global Coordinator of CSRD

One year ago, the U.S. government announced the launch of an international public-private partnership to empower developing nations to achieve climate resilience. The partnership – Climate Services for Resilient Development (CSRSD) – was created to bring together financial investments, information resources, tools, services, and training to help at-risk nations prepare for and adapt to the changing planet.

CSRSD's core commitment is to foster climate services—including the production, translation, transfer, and use of climate information—purposefully designed to enable policy-makers and decision-makers to address significant problems and create solutions. Toward this end, CSRSD supports climate services that are user-centric and collaborative, and that effectively harness the power of information, technology, and innovation from around the world.

CSRSD operates within a much wider sphere of climate services programmes internationally, including many that are coordinated through the Global Framework for Climate Services (GFCS). CSRSD aims for its work to support, complement and coordinate with existing programmes wherever possible, and to contribute specifically to the implementation of the GFCS.

The founding partners of CSRSD represent a novel collective of development institutions, humanitarian and philanthropic organisations, technology developers, and scientific organisations. They are: U.S. Agency for International Development, American Red Cross, Asian Development Bank, Department for International Development, Environmental Systems Research Institute (Esri), Google Inc, Inter-American Development Bank, Met Office, National Aeronautics and Space Administration, National Oceanic and Atmospheric Administration and Skoll Global Threats Fund. CSRSD is supported by a growing number of contributing partners, who provide technical and practical expertise, tools, and products in CSRSD projects and activities. CSRSD works closely with national partners in its country-based programmes.

Over its first year, CSRSD has devoted attention to articulating the principles, the approaches, and the specific plans for its work, including place-based programmes in three countries – Colombia, Ethiopia, and Bangladesh - and advancing a climate services knowledge agenda.

The CSRSD partners share a core belief: that huge potential exists to improve climate resilience and provide decision-makers in developing countries with new solutions to manage climate-related risks and opportunities. This partnership further believes that this potential can be realised when climate services are developed that effectively harness the power of information, technology, and innovation, while being advanced collaboratively to address real problems, and enable policy- and decision-makers.

Drawing on these tenets, CSRSD has developed both a framework and an agenda for its initial work. The framework will help structure and guide the Partnership's investments and activities. Its four pillars are:

- **Creating a Solution Space** – priorities include identification of the specific problem and decisions that climate services will target; enabling a process of knowledge exchange and collaboration among users, intermediaries, scientists and other information providers; coordinating with existing programs and institutions to exploit synergies and maximise impact.
- **Utilising Quality Data, Products, and Tools** – priorities include assessment of information and technology relevant to the identified problem and user requirements; enabling access to credible and applicable information and technology resources; advising and assisting in-country partners in the design and development of tailored products and tools to support end users' needs.
- **Building Capacities and Platforms** – priorities include strengthening institutional capacities; fostering policies and practices that promote internal and external institutional collaboration and data sharing; and improving platforms for the development and delivery of services. In these endeavours, CSRSD will seek to identify and fully leverage the opportunities for effective public-private partnerships.
- **Building knowledge** – priorities include supporting a learning agenda, together with a global community of practice focused on the exchange of climate services knowledge and identification of good practices; promoting effective climate service evaluative frameworks and metrics; fostering opportunities for innovation that can increase the reach and impact of climate services programs.

In advancing all of its work, especially the knowledge building dimension, CSRSD recognises the importance of engaging a broad community of practice. The CSRSD partners see the Climate Services Partnership (CSP) as a core part of that community of practice, with an extensive professional network, and established communications, convening and collaboration mechanisms. In fact, CSRSD is fully aligned with the CSP's intentions – to build connections, promote knowledge sharing and collaboration within the growing climate services community. Thus CSRSD is pleased to announce its intention to increase involvement and participation in CSP through contributions to this newsletter, the International Conference on Climate Services (ICCS) process, and future activities. CSRSD is anxious to work with CSP to increase communications, entrain new partners, and to contribute to the global community of practice in pursuit of climate services for resilient development.

Please watch for further information and announcements from CSRSD in subsequent Newsletters and CSP communications.

a conversation with Richard Choularton, Climate and Disaster Risk Reduction Unit at WFP



Richard Choularton

Chief of the Climate and
Disaster Risk Reduction Unit
World Food Programme

Tell me a bit about what the WFP's Climate and Disaster Risk Reduction Programmes Unit does, and the ways in which it is involved with the wider climate services community.

WFP's Climate and Disaster Risk Reduction Unit's role is to ensure that WFP has the tools, knowledge, resources and partnerships to enable the most food insecure to reduce the impacts of disasters and climate change. Today, about half of WFP's programmes address the risks of natural disasters and their impacts on food security, reaching approximately 80 million people in 60 countries each year.

WFP has gained significant experience using, developing and providing climate services for food security and humanitarian operations. Climate services help vulnerable communities strengthen resilience to climate shocks by providing the information they need to make well-informed decisions. Timely and easy to understand and act-upon climate information can help communities take the necessary actions to better anticipate and prepare for these changing risks, adapt to a changing climate and strengthen their resilience and food security.

We engage at the global level with the climate services community through the Global Framework on Climate Services, serving as the vice-chair of the Partner Advisory Committee. We work with global climate centres and research institutions to develop new tools and apply new science. We also work at regional and national level in the application and development of new tools and services. Most importantly we are a user, taking climate information and integrating this information into our own decision-making and planning.

What do you see as the largest challenges for climate services in resilience and risk management?

Creating long term relationships, collaboration and understanding between climate service providers and users remains the biggest challenge. There is an amazing amount of new research and climate information being produced. But taking this information and working to apply it is difficult. Even more difficult is making sure the new tools are the ones that

users need, whether they are farmers, emergency response organisations, or national governments. It takes time and persistence for users to begin to understand the climate scientists, and likewise for climate scientists to start to understand user's needs and their decision-making processes. Where this does happen though, we see amazing results.

Which new projects or developments are you involved in just now that excite you the most?

Two things excite me at the moment. First – forecast-based financing. Over the last 15 years our early warning systems for food crises have improved tremendously. A major part of this improvement is the integration of better seasonal forecasts into these systems and our ability to combine them with other data. We are now at the point where we are starting to use the seasonal forecasts to trigger action before a climate shock occurs, anticipating its impact. Our work on this through the Food Security Climate Resilience Facility is very exciting. As El Niño evolved, we were able to trigger action 3-5 months before the seasons failed in Zimbabwe and Guatemala helping people anticipate the drought.

Second – linking national early warning and crop monitoring with local level farmer climate and extension services. We have seen a growing blend of technology and community engagement to provide farmers and pastoralists with usable climate and agricultural extension services. Many of these services build on national early warning systems. Rather than seeing single climate services developed, I think we are starting to see the development of platforms that can serve

multiple users in a more cost effective way.

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

In our work, I am always amazed by how sophisticated farmers and pastoralist are in managing the many risks they face. When we engage them in the co-design and production of climate services, and it is equally amazing to see how they use the information to mitigate risk and to take risk. With regular maps of vegetation conditions, Ethiopian pastoralists maximise their use of scouts and their management of trekking routes. In the first year of the Satellite Assisted Pastoral Resource Management (SAPARM) project with Project Concern International (PCI), herd mortality along trekking routes was reduced by 40% in one evaluation.

What are your goals for the future of WFP's Climate and Disaster Risk Reduction Programmes Unit?

My goal is simple, keep focusing on supporting innovation and development of partnerships, tools, and policies that help the most food insecure people to manage climate risks, become food secure, and ultimately, to thrive.



WFP's FoodSECuRE triggers anticipatory action to avert impacts of El Niño

WFP's FoodSECuRE

WFP's Food Security Climate Resilience Facility ([FoodSECuRE](#)) is a forecast-based mechanism that unlocks funds before disasters, ensures their availability between disaster cycles, and provides predictable multi-year funding to bolster food and nutrition security. This system is designed to strengthen communities over time, ensuring their preparedness and reducing their vulnerability to climatic shocks. A 2015 cost-benefit analysis suggests that such a mechanism could cut the cost of emergency response by half. FoodSECuRE was piloted in Guatemala and Zimbabwe to trigger early action based on the expected impacts of the 2015/16 El Niño on livelihoods and food security. The results look promising.

In Zimbabwe, the seasonal forecast anticipated that the entire country, and particularly the south-east region, was going to experience below average rainfall throughout the 2015/2016 agricultural season due to the El Niño phenomenon. FoodSECuRE funds were released prior to the planting season in October 2015 to enhance the resilience of small holder farmers in five municipalities of the southern Mwenzezi district by training them on agro-ecological farming practices, including the use of fertilisers, drought-tolerant small grains, business practice, marketing strategies, value addition and record keeping. This enabled the farmers to reduce the negative impacts of the subsequent drought by shifting from growing maize to drought-tolerant small grains and maximise their stabilised production through the use of conservation agriculture. Despite the severe drought, farmers were able to sustain agricultural production and maintain their nutrition and food security.

The pilot showcases the potential of an anticipatory approach to slow onset disasters. WFP is working to mobilise US\$400 million USD to turn FoodSECuRE into a globally effective facility with the required contingency reserve.

For more info see here: <http://www.wfp.org/climate-change/initiatives/foodsecure>

Launch of *Climate Services* journal

GERICS

In cooperation with Elsevier Publisher GERICS has started a new scientific journal called [Climate Services](#). *Climate Services* focuses solely on the use and usability of climate information for adaptation. It bridges the gap between information from climate change research and stakeholder action, and directly refers to how climate information can be



Photo: Akino/WFP

applied in methodologies and tools for adaptation to climate change.

In March 2016 the first issue was published. The launch of the new journal was celebrated in a side-event of the international conference Adaptation Futures 2016 (10–13 May) in Rotterdam. About 60 representatives of the adaptation-community attended to the event. In her speech, Editor-in-Chief Daniela Jacob highlighted the uniqueness of the journal: the open access journal is dedicated to scientists as well as to practitioners. For building a bridge between science and practice, *Climate Services* designed an additional application-orientated chapter for research articles called “practical implications”.



Photo: Juliane Petersen

The practical implications chapter is an easily understandable, stand-alone text where practical aspects of the article are presented. It provides policy-makers and practitioners with all relevant information to understand and apply presented climate services. Practical implications could contain, for example, a case study or the practical application of a method. All practical implications for policy-makers and practitioners are included in the article, but they will also be distributed separately in a Climate Services Policy and Practitioner Brief, in order to reach a broader audience. We would like to invite you to submit your next paper in *Climate Services*. For more information visit the following website: www.journals.elsevier.com/climate-services.

SB44: First negotiations round after COP 21 UNFCCC Subsidiaries Bodies

Last May, in Bonn, [governments met](#) for the first negotiation round of the subsidiaries bodies (SB) of the United Nations Framework Convention on Climate Change after reaching the Paris Agreement at COP21 last December. This session served as the space for the meetings of the Subsidiary Body for Implementation (SBI) and the Subsidiary Body for Scientific and Technological Advice (SBSTA), which both are permanent bodies to the Convention. This session also served as the first session of the Ad Hoc Working Group on the Paris Agreement (APA), established during the COP 21.

Attention was focused on the work of the APA, which as one of its main tasks has to prepare how to apply the Paris Agreement. Therefore, the outline and negotiation of the APA's agenda were the first steps to be made. Four days were needed in order to agree on the agenda, as the provisional agenda focused predominately on mitigation. Developing countries asked for the inclusion of adaptation communications as a way to balance the work of the APA. The items considered under the APA work are: features, information and accounting of national determined contributions (NDCs); guidance on adaptation communication; transparency framework for action and support; matters related to the global stock-take; and, further matters related to the implementation of the Paris Agreement. During the SBI, for the first time a Technical Expert Meeting (TEM) was held in relation to adaptation. The meeting was divided in two main topics: "enhancing the implementation of adaptation action" and "effective policy frameworks and institutional arrangements for adaptation planning and implementation". One of the main conclusions of the TEM was the importance of creating a link between climate science and socio-economic information, as well as a focus on demand-led models for climate services.

See here for more info: http://unfccc.int/meetings/bonn_may_2016/meeting/9413.php



Technical Expert Meeting on Adaptation. Bonn, May 2016. Photo credit: Tania Guillén

Updates from the Red Cross/Red Crescent Climate Centre

Red Cross Red Crescent

In an important development with work on forecast-based financing ([FbF](#)), the Katakwi branch of the Uganda Red Cross Society (URCS) carried out another humanitarian distribution, for just over 2,000 people. This was in response to forecast flood-danger in the East of the country, where seasonal rains were peaking. It was part of the URCS forecast-based financing programme supported by the German government and Red Cross.

Nearly 400 households in several villages received water-purification tablets, jerrycans, storage sacks and bars of soap. This took place after the European Commission's Global Flood Awareness System, backed up by the Uganda National Meteorological Authority, said water-levels would cross a specified threshold of hazard in May, which was the 'trigger' point established as part of FbF.

Planning for the operational roll-out of FbF in Bangladesh, meanwhile, reached an advanced stage with an established consensus, after [meetings](#) with communities, in favour of cash-based preparedness actions in both flood- and cyclone-prone project areas.

FbF was [jointly endorsed](#) by UN Office for the Coordination of Humanitarian Affairs (UNOCHA) and the International Federation of Red Cross and Red Crescent Societies (IFRC), which also covered it in a [special report](#) ahead of the World Humanitarian Summit in Istanbul that included a pledge to facilitate a doubling of FbF within the Red Cross Red Crescent Movement by 2018.

The IFRC Climate Centre's participation in global climate-related advocacy also included the tenth-anniversary Community-Based Adaptation Conference, known as [CBA10](#), at the Dhaka campus of the Independent University, Bangladesh.

Here they facilitated sessions engaging participants in active reflection on urban community-based adaptation. At the third meeting of the Executive Committee of the Warsaw International Mechanism for Loss and Damage associated with Climate Change Impacts in Bonn, IFRC's technical adviser represented the IFRC and was among invited expert observers who attended the meeting.

In May the IFRC Climate Centre's joined a new initiative using the latest science to help Asian and African societies understand the role of climate change in extreme-weather events and prepare for future ones. 'Raising Risk Awareness' brings together scientists from the 'World Weather Attribution' ([WWA](#)) initiative with the UK-based Climate and Development Knowledge Network. It will assess whether climate change has contributed to extreme-weather events such as droughts, floods and heatwaves in several countries in East Africa and South Asia.

The following month, WWA scientists concluded in an [analysis](#) that human-induced climate change had played an important role in the heavy rains that pounded parts of France. The latest European floods killed at least 18 people there as well as in Germany, Romania and Belgium. The WWA team found the probability of three-day extreme rainfall then had increased by at least 40% in France, but the results of a similar analysis for Germany were inconclusive.

Finally, the IFRC Climate Centre joined forces with the Ghana Education Service and Red Cross, UNICEF, Emerson College, and Right To Play to finalise a game to highlight the importance of hand washing to schoolchildren. Seventy-five children joined facilitators in Akosombo for an intensive three-day public-health session, the second of its kind this year, to design and develop Hand washing with Ananse, due to be rolled out in Ghanaian primary schools countrywide.



Photo: Fotolia/vali2ro

Success of Adaptation Futures 2016

Adaptation Futures 2016

With 1,700 delegates from more than 100 countries accredited, the [Adaptation Futures 2016](#) conference (AF2016) has been a great success. The biggest adaptation conference ever organised brought together people from the business community, governments and non-governmental organisations, to scientists and practitioners. A report highlighting the main outcomes of the conference will be soon released.

Presentations, reports of the sessions, recording of the plenaries and pictures are already available here: <http://www.adaptationfutures2016.org/results/introduction>

You can also access the "digest" of each day on the Daily Adapt page: <http://www.adaptationfutures2016.org/results/dailyadapt>

JPI Climate with ERA4CS at Adaptation Futures 2016

JPI (Joint Programming Initiative) Climate

On 9 May, at the Adaptation Futures 2016 Conference, JPI Climate organised a [science-business workshop](#) on climate risk management and the role of climate services in corporate strategies. The event that was partnered by the World Business Council of Sustainable Development (WBCSD) gathered actors in state of the art adaptation science as well as practitioners, in a forum for mutual learning in the context of ERA4CS, a large scale ERA-NET on Climate Services with 45 European partners.

Then, on Tuesday 10 May, the [official launch](#) of the submission portal for the joint call of ERA4CS took place in the presence of European's Commission's Director General for Research and Innovation, Robert-Jan Smits, together with his counterpart in the Dutch Ministry of Infrastructure and the Environment, Director General Peter Heij. You can submit your proposal [here](#).

The [new ERA4CS video](#) was shown at the JPI Climate booth throughout the AF2016 conference as well.

In addition, JPI Climate organised a parallel session during the official programme of AF2016: "[Adaptation as an innovation and market opportunity](#)", which focused on the



Chair of the session, Asun Lera St. Clair,
JPI Climate Working Group 4



Unveiling of the official launch of the ERA4CS submission portal

barriers and enablers to co-develop and use climate services for adaptation as a for-profit service. The report and presentations are now available [here](#). JPI Climate will build on these activities to implement its stakeholder engagement strategy with a follow up activity planned for autumn 2016, this time focusing on the specific sector of renewable energies and particularly on co-designing projects.

Measuring resilience of adaptation Independent Evaluation Office

The [Independent Evaluation Office \(IEO\) of the Global Environment Facility \(GEF\)](#) organised a panel session at the Adaptation Futures 2016 conference on measuring resilience of adaptation interventions and beyond. The session was organised in collaboration with the Scientific and Technical Advisory Panel of the Global Environment Facility (STAP GEF), the World Bank Climate Change Policy Team, the Overseas Development Institute (ODI), and the UK Climate Impacts Programme (UKCIP).

The objective of the session was to share, get feedback and stimulate discussion on the latest resilience measurement thinking, and how this might shape the programme logic of future adaptation relevant interventions, and related monitoring and evaluation endeavours. Presenters discussed the ongoing STAP GEF work on resilience and the Resilience, Adaptation Pathways and Transformation Assessment (RAPTA) framework, the World Bank's approach to the monitoring and evaluation of resilience at the project level, the bottom-up approach of ODI with a focus on subjective household resilience measurement, and lastly UKCIP's focus on transformational adaptation and the capacities needed to support it.

A concise session report can be downloaded here:

http://www.adaptationfutures2016.org/gfx_content/documents/SP%208.11%20session%20report.pdf

Individual presentations are available here: <http://library.wur.nl/WebQuery/adaptationfutures2016?referaat=%22SP8.11%22>

2016 North American Drought, Wildfire and Climate Services Forum

North American Drought Monitor Forum

In North America, severe drought during the past several years created cross-border concerns about water availability, agriculture and farming impacts, and firefighting resources. There is a strong history of climate service collaboration between the U.S., Mexico and Canada on these topics. For example, the North American Seasonal Fire Assessment and Outlook (NASFAO) provides wild-land fire managers a concise look at the expected conditions that will drive wild-land fire activity in the coming months and allows them to make strategic decisions about resources needs and distribution of capability. The North American Drought Monitor (NADM) provides a comprehensive analysis of end-of-month drought conditions through the use of numerous objective drought indices and indicators along with input from contributors at the regional, provincial, and local levels. Recognising the intersection of drought and wildfires, a joint workshop was held over 21-23 June in Fort Worth Texas, between the biennial NADM Forum, the NASFAO team, and the North American Climate Services Partnership (NACSP). The purpose of this joint workshop was to address synergies and opportunities in the areas of drought monitoring, fire forecasting, and transboundary climate services. Outcomes from this workshop include the following: sharing knowledge and practices between the U.S., Mexico and Canada; improving the development and delivery of specific products; encouraging broader use of Drought Impact Reporting; developing proposals for a new North American Drought Outlook; and conducting scientific evaluations of existing products using regional pilots. These outcomes will further improve transboundary early warning systems for drought and wildfires across North America.

More info can be found here: <https://www.drought.gov/nadm/content/2016-nadm-workshop>

Health and Climate Colloquium

International Research Institute for Climate and Society (IRI)

Over 8-10 June, IRI hosted a [Climate and Health Colloquium](#) at the Lamont Doherty campus in Palisades. The colloquium was designed to help build a global community of health practitioners and policy-makers that can use climate information as a means to support health delivery and improved outcomes in the context of a changing climate, with a focus on infectious diseases, nutrition and the public health outcomes of meteorological disasters.

The meeting was sponsored by the World Health Organization, including WHO – Special Programme for Research and Training in Tropical Diseases, the World Meteorological Organization, the Global Framework for Climate Services, the World Bank Group, the Nordic



Development Fund, the International Development Research Centre, the CGIAR research programs on Climate Change, Agriculture and Food Security and Agriculture for Nutrition and Health, and the Earth Institute.

The Colloquium had a great turnout of 120 participants over the three days, bringing together experts from governments, humanitarian agencies, development organisations, U.N. agencies, research centres and universities. And for those that were unable to attend we had a successful live stream that reached 58 countries.



During each of the three days a different theme was presented, and was followed by talks, expert and practitioner panels, and audience discussions. Day 1 (June 8th) had a theme of “Climate Information to Serve the Health Community;” Day 2 was focused on “Case Studies and Tools;” and Day 3 concluded the colloquium with the theme of “Education, Training and the Donor Perspective.”

For more information visit IRI’s website: <http://iri.columbia.edu/healthclimate2016/>

For archives of the live video, visit: <https://livestream.com/LDEO/healthandclimate>

Call for proposals: Sustainable Water Future Programme

Future Earth

Managing freshwater in the planetary water cycle has become a key challenge for global environmental sustainability. The Sustainable Water Future Programme, or [Water Future](#), a global research project of Future Earth, addresses this challenge by providing the knowledge and support to understand the state of global water and to develop potential policy solutions, including co-designing improved, evidence-based solutions that support sustainable development trajectories.

Water Future has announced a call for proposals to form working groups. The groups will help to develop the research programme of Water Future in several key areas. These include water, sanitation and health; freshwater systems and deltas; and sustainability in the Water-Energy-Food Nexus. The Water Future Programme will provide the mechanisms and frameworks that facilitate greater cooperation and collaboration across academia, industry, and government at the local, national and global scale.

Water Future is looking for working groups that include researchers from around the world and across disciplines, including the natural and social sciences, and with experience in law, governance, economics and technology. The deadline for working group proposals is 15 July.

See here for more info: <http://www.water-future.org/>

Call for volunteers: Citizen scientists to digitise old weather records

International Environmental Data Rescue Organization

The International Environmental Data Rescue Organization ([IEDRO](#)) is about to launch a citizen-science/crowd-sourcing website called Weather Wizards.

The site will enable volunteers from around the world to digitise historic weather observations that have been rescued (imaged) from deteriorating paper, microfiche, and microfilm, before they are lost forever. These digitised data will be available in a comma-delimited (CSV) format easily archived or used in computer models.

The first images to be digitised will be several thousand analog strip charts provided to IEDRO by the National Meteorological and Hydrologic Service of El Salvador. These charts contain detailed precipitation rates and amounts. It is estimated that there exist tens of millions of these charts throughout the world with recorded precipitation, pressure, temperature, wind, humidity, sunshine and other parameters, each one useless in its current deteriorating paper format.

Once the digitisation of these analog charts (see photo below) is well underway, IEDRO will launch additional data sets on the Weather Wizards website to be digitised, such as alpha-numeric surface observations from the National Meteorological and Hydrologic Service of Bolivia.

IEDRO needs volunteers to become part of the Weather Wizards digitisation effort. Recognition on the Weather Wizards website will be given to the digitising volunteers who are most prolific and accurate.

Once the Weather Wizards system is fully operational, it will be announced on and can be accessed through the [IEDRO website](#).

For further information and/or to volunteer, please e-mail Rick Crouthamel, IEDRO’s Executive Director: r.crouthamel@iedro.org

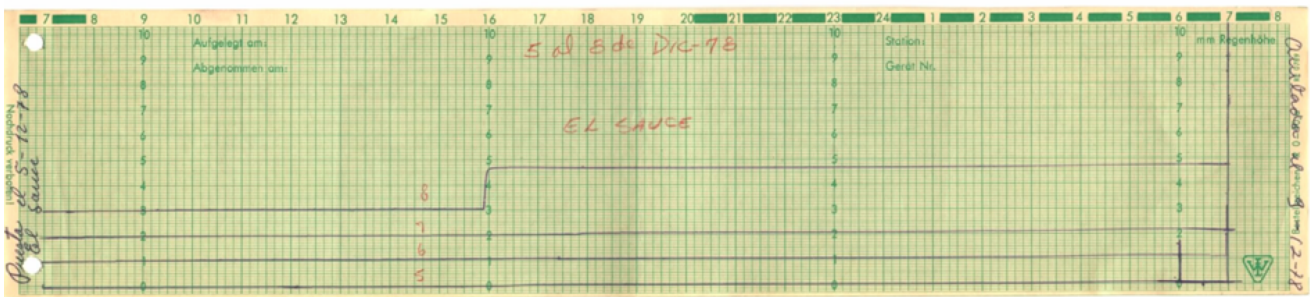


Photo: Old weather record

Demystifying Climate Model: A Users Guide to Earth System Models (Book)

Author(s): Gettelman, A. & Rood, R., B.

Summary: Demystifying Climate Models is designed as a qualitative and schematic description of climate models. The goal is to give the reader an understanding of the philosophy and practice behind climate models. This book is designed to be a guide to climate simulation and prediction for the non-specialist and an entry point for understanding uncertainties in climate models. The goal of the book is not to be simply a popular guide to climate modelling and prediction, but to help those using climate models to understand the results. This book provides background on the earth's climate system and how it might change, a detailed qualitative analysis of how climate models are constructed, and a discussion of model results and the uncertainty inherent in those results. It is appropriate for undergraduates and graduate students learning about climate change and climate policy. It is also appropriate as an introduction for those with a background in meteorology. The book will also be valuable for graduate students in other scientific disciplines who may want to use climate models in their research. It is not a guide for designing climate models. It is a guide for their use, with a focus on uncertainty in model output, and framing that uncertainty so models are useful for different problems.

Link: <http://link.springer.com/book/10.1007%2F978-3-662-48959-8>

Mapping the Climate Change Challenge

Author(s): Hallegatte, S., Rogelj, J., Allen, M. et al.

Summary: Discussions on a long-term global goal to limit climate change, in the form of an upper limit to warming, were only partially resolved at the UNFCCC negotiations in Paris, 2015. Such a political agreement must be informed by scientific knowledge. One way to communicate the costs and benefits of policies is through a mapping that systematically explores the consequences of different choices. Such a multi-disciplinary effort based on the analysis of a set of scenarios helped structure the IPCC AR5 Synthesis Report. This Perspective summarizes this approach, reviews its strengths and limitations, and discusses how decision-makers can use its results in practice. It also identifies research needs that can facilitate integrated analysis of climate change and help better inform policy-makers and the public.

Link: <http://www.nature.com/nclimate/journal/v6/n7/full/nclimate3057.html>

Cultivating Climate Resilience - The Shea value chain

Author(s): Venturini, C., Haworth, A., Coudel, N., Jiménez Alonso, E. & Simonet, C.

Summary: This report was prepared as part of the UK government's BRACED programme by Acclimatise and ODI. The paper explores the role of Shea trees in building climate resilience of the Shea value chain and the whole economy in Burkina Faso.

Link: <http://www.acclimatise.uk.com/network/article/report-odi-andamp-acclimatise-cultivating-climate-resilience---the-shea-value-chain>

Projected Changes in Semi Permanent Systems of Indian Summer Monsoon in CORDEX-SA Framework

Author(s): Patwardhan*, S., Kulkarni, A., & Sabade, S.

Summary: The semi-permanent systems such as Seasonal Heat Low (HL), Monsoon Trough (MT), Tibetan Anticyclone (TA), Tropical Easterly Jet (TEJ) and Low Level Jet (LLJ) or Somali jet are observed over Indian region during Indian summer monsoon season (June through September). These systems play a vital role in defining the strength of the Indian summer monsoon rainfall as a whole. Here we evaluate the ability of Consortium for Small-Scale Modeling (COSMO) regional Climate Model (COSMO-CLM), a high resolution regional climate model within the Coordinated Regional Climate Downscaling Experiment for South Asia (CORDEX-SA) framework, to simulate these systems of Indian summer monsoon. The historical runs of the COSMO-CLM for the period 1951-2000 are analysed. Overall the COSMO-CLM is able to simulate these components reasonably well. Possible changes in the position and the strength of these systems and their role in changing rainfall pattern over India are examined to assess the impact of global warming, under the RCP 4.5 simulations towards the end of the century (2051-2100). The analysis shows that the semi-permanent systems may not strengthen in the future as compared to the present climate. The summer monsoon rainfall does not show uniform changes over the region. It is likely to enhance over the southern parts of the country, south of 20°S while it is projected to decrease in the northern parts under the global warming scenario.

Link: <http://www.scirp.org/Journal/PaperInformation.aspx?PaperID=66985>

Emerging Trends in Mainstreaming Climate Resilience in Large Scale, Multi-sector Infrastructure PPPs – A global knowledge product

Author(s): Acclimatise for the World Bank Group

Summary: Private public partnerships (PPPs) are increasingly used to finance and operate infrastructure in many countries, particularly in developing regions, in conditions where other financing options can be limited. A new report, researched and written by Acclimatise for the World Bank, finds that climate resilience is not being considered in public-private partnership (PPP) policy frameworks for infrastructure. Sixteen such frameworks were analysed for the report and not a single one mentioned climate change, climate resilience, or climate adaptation. This is without a doubt a missed opportunity.

Link: <http://www.acclimatise.uk.com/network/article/new-world-bank-report-about-emerging-trends-in-mainstreaming-climate-resilience-in-infrastructure-ppps>

Socio-Demographic and Economic Correlates of Climate Change Coping and Adaptation Strategies: A Study on the Farmer Communities in Barisal District, Bangladesh

Author(s): Huda, N., Hossin, M. Z., Ashik-E-Elahi, S. & Mahbub, F.

Summary: The major objective of the study is to apply Conservation of Resource (COR) theory for examining the influence of farmers' socio-demographic and economic correlates upon their adoption of agricultural, economic and emotion-focused coping and adaptation strategies of climate change. An interview schedule developed from the COR theory was utilised for data collection. Using multistage cluster sampling technique, a total of 384 farmers were chosen from Agailjhara Upazila of Barisal District and interviewed through a predesigned structured questionnaire. For triangulation of the quantitative findings, the study employed case study technique to collect qualitative data from the respondents. The findings of the study demonstrate that the most common emotion-focused, agricultural and economic coping and adaptation strategies of climate change were social support seeking (79.69%), planting trees (71.35%), homestead gardening (52.08%), hydroponic farming/floating garden (46.88%), duck rearing (30.73%), saving (20.83%), self-insurance (18.75%), etc. Bivariate results indicate that age, ownership of land, income and ownership of television or mobile phone were found significantly correlated with the three variables, including economic, agricultural and emotion-focused coping and adaptation strategies of COR theory. Again, access to microcredit has relationship with economic and agricultural adaptation strategies. Furthermore, education has significant relationship with agricultural adaptation strategies. The study suggests that continuous researches by policy-makers, researchers, governmental organisations and non-governmental organisations are very essential to exploring and enhancing farmers' coping and adaptation strategies which may relegate the adverse impacts and vulnerabilities of climate change in the study area.

Link: <http://www.scirp.org/Journal/PaperInformation.aspx?PaperID=67227>

Value of Storage Technologies for Wind and Solar Energy

Author(s): Braff, W. A., Mueller, J. M., & Trancik, J. E.

Summary: Wind and solar industries have grown rapidly in recent years but they still supply only a small fraction of global electricity. The continued growth of these industries to levels that significantly contribute to climate change mitigation will depend on whether they can compete against alternatives that provide high-value energy on demand. Energy storage can transform intermittent renewables for this purpose but cost improvement is needed. Evaluating diverse storage technologies on a common scale has proved a major challenge, however, owing to their widely varying performance along the two dimensions of energy and power costs. Here we devise a method to compare storage technologies, and set cost improvement targets. Some storage technologies today are shown to add value to solar and wind energy, but cost reduction is needed to reach

widespread profitability. The optimal cost improvement trajectories, balancing energy and power costs to maximise value, are found to be relatively location invariant, and thus can inform broad industry and government technology development strategies.

Link: <http://www.nature.com/nclimate/journal/vaop/ncurrent/full/nclimate3045.html>

A High-Resolution Modeling Strategy to Assess Impacts of Climate Change for Mesoamerica and the Caribbean

Author(s): Oglesby, R., Rowe, C., Grunwaldt, A. et al.

Summary: Mesoamerica and the Caribbean are low-latitude regions at risk for the effects of climate change. Global climate models (GCM) provide large-scale assessment of climate drivers, but, at a horizontal resolution of 100km, cannot resolve the effects of topography and land use as they impact the local temperature and precipitation that are keys to climate impacts. For this study, a robust dynamical downscaling strategy was developed that used the Weather Research and Forecasting (WRF) regional climate model to downscale at 4-12km resolution GCM results. Model verification demonstrates the need for such resolution of topography in order to properly simulate temperatures. Precipitation is more difficult to evaluate, being highly variable in time and space. Overall, a 36km resolution is inadequate; 12km appears reasonable, especially in regions of low topography, but the 4 km resolution provides the best match with observations. This represents a tradeoff between model resolution and the computational effort needed to make simulations. A key goal is to provide climate change specialists in each country with the information they need to evaluate possible future climate change impacts.

Link: <http://www.scirp.org/Journal/PaperInformation.aspx?PaperID=67596>

Climate Change Impact Modelling Needs to Include Cross-Sectoral Interactions

Author(s): Harrison, P. A., Dunford, R. W., Holman, I. P. & Rounsevell, M. D. A.

Summary: Climate change impact assessments often apply models of individual sectors such as agriculture, forestry and water use without considering interactions between these sectors. This is likely to lead to misrepresentation of impacts, and consequently to poor decisions about climate adaptation. However, no published research assesses the differences between impacts simulated by single-sector and integrated models. Here we compare 14 indicators derived from a set of impact models run within single-sector and integrated frameworks across a range of climate and socio-economic scenarios in Europe. We show that single-sector studies misrepresent the spatial pattern, direction and magnitude of most impacts because they omit the complex interdependencies within human and environmental systems. The discrepancies are particularly pronounced for indicators such as food production and water exploitation, which are highly influenced by other sectors through changes in demand, land suitability and resource competition.

Furthermore, the discrepancies are greater under different socio-economic scenarios than different climate scenarios, and at the sub-regional rather than Europe-wide scale.

Link: <http://www.nature.com/nclimate/journal/vaop/ncurrent/full/nclimate3039.html>

Numerous Strategies but Limited Implementation Guidance in US Local Adaptation Plans

Author(s): Woodruff, S. C. & Stults, M.

Summary: Adaptation planning offers a promising approach for identifying and devising solutions to address local climate change impacts. Yet there is little empirical understanding of the content and quality of these plans. We use content analysis to evaluate 44 local adaptation plans in the United States and multivariate regression to examine how plan quality varies across communities. We find that plans draw on multiple data sources to analyse future climate impacts and include a breadth of strategies. Most plans, however, fail to prioritise impacts and strategies or provide detailed implementation processes, raising concerns about whether adaptation plans will translate into on-the-ground reductions in vulnerability. Our analysis also finds that plans authored by the planning department and those that engaged elected officials in the planning process were of higher quality. The results provide important insights for practitioners, policy-makers and scientists wanting to improve local climate adaptation planning and action.

Link: <http://www.nature.com/nclimate/journal/vaop/ncurrent/full/nclimate3012.html>

Business Case for the Bangladeshi Private Sector to Invest in Climate Change and Access International Climate Finance

Author(s): Steeves, J., Fayolle, V., Odianose, S., Rai, N., Soanes, M., Haque, M., & Mahid, Y.

Summary: This paper is aimed at members of the Bangladeshi private sector, developed based on consultation with in-country stakeholders. It outlines the case for action on climate change by the private sector, specifically asking, what opportunities are available for businesses to harness as a result of climate change? This includes accessing new sources of finance, particularly the Green Climate Fund (GCF).

Link: <http://www.acclimatise.uk.com/resources?resource=263>

Future Climate Warming and Changes to Mountain Permafrost in the Bolivian Andes

Author(s): Rangelcroft, S., Suggitt, A. J., Anderson, K. & Harrison, S.

Summary: Water resources in many of the world's arid mountain ranges are threatened by climate change, and in parts of the South American Andes this is exacerbated by glacier recession and population growth. Alternative sources of water, such as more resilient permafrost features (e.g. rock glaciers), are expected to become increasingly important as

current warming continues. Assessments of current and future permafrost extent under climate change are not available for the Southern Hemisphere, yet are required to inform decision-making over future water supply and climate change adaptation strategies. Here, downscaled model outputs were used to calculate the projected changes in permafrost extent for a first-order assessment of an example region, the Bolivian Andes. Using the 0 °C mean annual air temperature as a proxy for permafrost extent, these projections show that permafrost areas will shrink from present day extent by up to 95% under warming projected for the 2050s and by 99% for the 2080s (under the IPCC A1B scenario, given equilibrium conditions). Using active rock glaciers as a proxy for the lower limit of permafrost extent, we also estimate that projected temperature changes would drive a near total loss of currently active rock glaciers in this region by the end of the century. In conjunction with glacier recession, a loss of permafrost extent of this magnitude represents a water security problem for the latter part of the 21st century, and it is likely that this will have negative effects on one of South America's fastest growing cities (La Paz), with similar implications for other arid mountain regions.

Link: <http://link.springer.com/article/10.1007/s10584-016-1655-8>

Climate Resilience and Financial Services

Author(s): Haworth, A., Frandon-Martinez, C., Fayolle, V. & Simonet, C.

Summary: This report prepared as part of the UK government's BRACED programme by Acclimatise and the Overseas Development Institute (ODI), shows why allowing more people to access financial services is a good way to build climate resilience in developing countries. Focusing on three BRACED countries, Ethiopia, Mali and Myanmar, the paper provides a high-level overview of the context and structure of their financial services sector.

Link: <http://www.acclimatise.uk.com/network/article/braced-new-working-paper-on-climate-resilience-and-financial-services-published>

Business Opportunities in a Changing Climate: Managing Impacts and Market Opportunities

Author(s): Acclimatise

Summary: Climate change is presenting UK businesses with opportunities as well as risks, according to this report commissioned by the Environment Agency and produced by Acclimatise. The report combines evidence from Carbon Disclosure Project (CDP) surveys of UK firms with new insights from a series of interviews with leading UK businesses. When it comes to climate risks the vast majority (86%) of the companies have already identified on or more climate-related risks to their businesses. This apparently high-level of awareness is, however, not matched when it comes to taking action to adapt.

Link: <http://www.acclimatise.uk.com/resources?resource=261>

Uncertainty in Precipitation Projection under Changing Climate Conditions: A Regional Case Study

Author(s): Mandal, S., Breach, P. A. & Simonovic, S. P.

Summary: This study investigates different sources of uncertainty in the assessment of the climate change impacts on total monthly precipitation in the Campbell River basin, British Columbia, Canada. Four GCMs, three greenhouse gas emission scenarios (RCPs) and six downscaling methods (DSMs) are used in the assessment. These sources of uncertainty are analysed separately for two future time periods (2036 to 2065 and 2066 to 2095). An uncertainty metric is calculated based on the variation in simulated precipitation due to choice of GCMs, emission scenarios and downscaling models. The results show that the selection of a downscaling method provides the largest amount of uncertainty when compared to the choice of GCM and/or emission scenario. However, the choice of GCM provides a significant amount of uncertainty if downscaling methods are not considered. This assessment work is conducted at ten different locations in the Campbell River basin.

Link: <http://www.scirp.org/Journal/PaperInformation.aspx?PaperID=65244>

Tropical Temperature and Precipitation Responses to Large Volcanic Eruptions: Observations and AMIP5 Simulations

Author(s): Meyer, A., Folini, D., Lohmann, U. & Peter, T.

Summary: Tropical land mean surface air temperature and precipitation responses to the eruptions of El Chichón in 1982 and Pinatubo in 1991, as simulated by the atmosphere-only GCMs (AMIP) in phase 5 of the Coupled Model Intercomparison Project (CMIP5), are examined and compared to three observational datasets. The El Niño–Southern Oscillation (ENSO) signal was statistically separated from the volcanic signal in all time series. Focusing on the ENSO signal, it was found that the 17 investigated AMIP models successfully simulate the observed four-month delay in the temperature responses to the ENSO phase but simulate somewhat too-fast precipitation responses during the El Niño onset stage. The observed correlation between temperature and ENSO phase (correlation coefficient of 0.75) is generally captured well by the models (simulated correlation of 0.71 and ensemble means of 0.61–0.83). For precipitation, mean correlations with the ENSO phase are –0.59 for observations and –0.53 for the models, with individual ensemble members having correlations as low as –0.26. Observed, ENSO-removed tropical land temperature and precipitation decrease by about 0.35 K and 0.25 mm day⁻¹ after the Pinatubo eruption, while no significant decrease in either variable was observed after El Chichón. The AMIP models generally capture this behaviour despite a tendency to overestimate the precipitation response to El Chichón. Scatter is substantial, both across models and across ensemble members of individual models. Natural variability thus

may still play a prominent role despite the strong volcanic forcing.

Link: <http://journals.ametsoc.org/doi/10.1175/JCLI-D-15-0034.1>

Radiative influence of Saharan dust on North Atlantic hurricane genesis

Author(s): Bretl, S. E.

Summary: The radiative influence of mineral dust and the Saharan air layer (SAL) on North Atlantic tropical cyclones (hurricanes) has been discussed thoroughly since more than a decade. However, to date a dominating supporting or inhibiting effect could not be determined. On the one hand, dust warms and dries the environment, thus suppressing convection and stabilising the atmosphere. On the other hand, as convection is more likely to be suppressed when dust is present, convection is shifted southward to regions with lower wind shear and higher sea surface temperatures (SSTs). Hence, a vertical circulation around the SAL is maintained, enhancing upward vertical motions on the southern edge of the SAL. In this thesis, we investigate the radiative effect of dust on North Atlantic hurricane genesis on a statistical basis. For this, we perform simulations with a steady-state tropical cyclone model and an aerosol-climate model. Our simulations show that the dynamic processes in and around the SAL are reproduced well with the simplified ECHAM6-HAM. This aids in understanding large-scale processes induced by dust radiative effects. However, no significant impact of dust on hurricane genesis could be determined. Therefore, our results emphasise the complexity of this subject and question whether dust has a dominant positive or negative effect on hurricane activity.

Link: <http://e-collection.library.ethz.ch/view/eth:47818>

Collective Responsibility Amplifies Mitigation Behaviors

Author(s): Obradovich, N. & Guenther, S. M.

Summary: How can individuals be convinced to act on climate change? It is widely assumed that emphasising personal responsibility for climate change is effective at increasing pro-climate behaviour whereas collectively framing the causes of climate change diffuses responsibility and dampens the incentive for individual action. We observe the opposite result. Here we find, across three experiments, that emphasising collective responsibility for the causes of climate change increases pro-climate monetary donations by approximately 7% in environmental group members and by 50% in the general public. Further, highlighting collective responsibility amplifies intent to reduce future carbon emissions. In contrast, focusing on personal responsibility for climate change does not significantly alter donations to climate change advocacy or the intent for future pro-climate behaviour. These effects replicate and persist multiple days after treatment.

Link: <http://link.springer.com/article/10.1007/>

upcoming events

in the climate and climate services community

Climate and Health Workshop: Enabling Climate-Based Health Decision Making in West Africa

Dates: 19-21 July, 2016

Location: Dakar, Senegal

Lead organisation(s) U.S. National Oceanic and Atmospheric Administration (NOAA) National Weather Service (NWS) and Agence Nationale de l'Aviation Civile et de La Meteorologie (ANACIM)

Brief summary: The objective of the workshop is to bring climate experts together with health specialists in West Africa to assess the gaps in the use of climate information for health decision-making. The goal is to work with the National Meteorological and Hydrological Services (NMHSs) and the Ministries of Health in West Africa to develop climate products that meet the needs of the health sector and improve services to epidemic prevention.

For more details, please email Dr. Wassila Thiaw: wassila.thiaw@noaa.gov

World Water Week in Stockholm

Date: 28 August – 2 September, 2016

Lead organisation(s): Stockholm International Water Institute

Location: Stockholm, Sweden

Overview: World Water Week in Stockholm is the annual focal point for the globe's water issues. This year, the theme is Water for Sustainable Growth. It is also the 20th jubilee of the Stockholm Junior Water Prize. In 2015, over 3,000 individuals and close to 300 convening organisations from 130 countries participated in the Week. Experts, practitioners, decision-makers, business innovators and young professionals from a range of sectors and countries come to Stockholm to network, exchange ideas, foster new thinking and develop solutions to the most pressing water-related challenges of today. We believe water is key to our future prosperity, and that together, we can achieve a water wise world.

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

4th Nordic Conference on Climate Adaptation: From Research to Actions and Transformation

Date: 29-31 August, 2016

Lead organisation(s): Bjerknes Centre for Climate Research

Location: Bergen, Norway

About: Following on from the three successful earlier conferences, the 4th Nordic Conference on Climate Adaptation will ensure a lively, inspiring conference on climate adaptation, with a focus on Northern Europe. The event will provide a space where scientists and stakeholders can meet to discuss recent research findings, adaptation experiences, plans and practices. The scope of the conference this time round will widen to also include the marine and maritime sectors.

Link: <http://nordicadaptation2016.net/>

16th EMS Annual Meeting & 11th European Conference on Applied Climatology (ECAC)

Date: 12-16 September, 2016

Lead organisation(s): European Meteorological Society

Location: Trieste, Italy

Brief summary: All components of the Earth system interact in the climate system: the sun, atmosphere, land, sea, cryosphere, and biosphere. Climate change and its impacts must therefore be studied and assessed by considering all these interacting components together. This will support the various stakeholders, practitioners and decision makers - throughout their various levels and sectors of activities - to mitigate as far as possible future environmental change and to adapt where and when necessary.

Historically, many major centres of economic and cultural activities have developed in coastal areas (currently nearly 50% of Europe population live within 50 km from the coast). Therefore, many issues on safety, socio-economic impacts and infrastructure investments are particularly urgent in coastal areas. These are linked to the changing atmospheric and oceanic circulation, sea level rise, extreme events, floods and landslides. The ECAC theme 2016 explores these intertwined issues with special emphasis on sea-atmosphere-land interactions and transitions. Assessing and predicting the evolution of the environment and impacts will have to go hand-in-hand with developing solutions supporting risk assessment, preparedness and mitigation.

Link: <http://www.ems2016.eu/home.html>

5th European Environmental Evaluators Network Forum: Evaluation for better regulation in environment and climate policies – Lessons from research and practice

Date: 15-16 September, 2016

Lead organisation(s): Environmental Evaluators Network (EEN)

Location: Copenhagen, Denmark

Overview: The 2016 EEN Forum will identify contributions, opportunities and lessons from evaluation research and practice to support better regulation in environment and climate policies. The Forum will bring together a wide range of actors and provide a platform for exchange of knowledge, ideas and experiences. The areas of thematic priority objectives of the 7th Environment Action Programme. Thematic priority objectives relate to:

- Natural capital. Examples: evaluations of natural capital, biodiversity and water management or policies;
- Resource-efficient, green and competitive low-carbon economy. Examples: evaluations of policies in the areas of circular economy, climate change, energy, and transport;
- Environment-related pressures and risks to health and well-being. Examples: evaluations of policies in the areas of air, waste, and health.

Link: <http://www.eea.europa.eu/themes/policy/events/5th-european-environmental-evaluators-network>

2016 Climate Knowledge Brokers Workshop**Dates:** 20-22 September, 2016**Lead Organisation(s):** Climate Knowledge Brokers Group**Location:** Denver, USA**Overview:** The Climate Knowledge Brokers Group (CKB) gathers the best climate knowledge brokers in the world to discuss tactics and strategies to use information to shift the world to a more climate compatible future.

This workshop will be fully interactive – don't expect lots of powerpoint presentations. If you come to CKB, you come to work; to share; to think.

The objectives of this year's CKB workshop are:

- Consider developments affecting climate knowledge brokering
- Provide networking opportunities and peer support to climate knowledge brokers, (e.g. through 'knowledge sharing clinics')
- Contribute to future development of CKB activities including capacity building for knowledge brokers and the Climate Knowledge Grid concept.
- Broaden the participation and increase understanding of the CKB group and the principles of climate knowledge brokering.

The workshop offers a number of specific opportunities for you to shape your participation:

- Volunteer as a 'patient' in a 'knowledge sharing clinic'; an intensive, facilitated peer support exercise that offers the opportunity to present a specific current challenge or issue, and receive support, suggestions and advice from other participants acting as doctors;
- Organise a session. Other participants will be able to choose from the options available;
- Bring a poster to display at the Outreach Event to promote your organisation's work.

The U.S. Dept. of Energy's National Renewable Energy Laboratory (NREL) is hosting this year's CKB Annual Workshop at its facility in Golden, Colorado. During the workshop you'll have the opportunity to tour the labs.

Link: <http://www.climateknowledgebrokers.net/event/2016-climate-knowledge-brokers-workshop/>**1.5 degrees: meeting the challenges of the Paris Agreement****Date:** 20-22 September, 2016**Lead organisation(s):** Environmental Change Institute**Location:** Oxford, England**Overview:** The ambition of the 2015 Paris Agreement of the 21st Conference of the Parties of the United Nations Framework Convention on Climate Change has caught the world by surprise. "Holding the increase in the global average temperature to well below 2°C above pre-industrial levels and to pursue efforts to limit the temperature increase to 1.5°C" represents a substantially more ambitious mitigation objective than many were expecting, and reveals a significant research gap on the nature, benefits and feasibility of a 1.5 degree world, as well as a huge policy challenge.

The 1.5 degrees conference will bring together researchers, policy-makers, businesses and members of civil society to

understand the impacts of warming of 1.5 °C above pre-industrial levels and assess the feasibility of meeting the challenges in the Paris Agreement. The conference will review the arguments behind the 1.5 degrees goal and will seek to understand how the goal is to be interpreted. It will explore the options for how a 1.5 degrees target could be achieved and evaluate the possible consequences of the goal from a wide range of perspectives.

The 1.5 degrees conference will contribute to the evidence base for the Special Report on the impacts of global warming of 1.5 °C above pre-industrial levels and related global greenhouse gas emission pathways, which the IPCC has been called upon to produce in 2018.

Link: <http://www.1point5degrees.org.uk/>**Data Analysis and Modeling in Earth Science (DAMES)****Dates:** 26-28 September, 2016**Lead organisation(s):** ClISAP**Location:** Hamburg, Germany**Overview:** The objective of the international conference series "Data Analysis and Modeling in Earth Sciences" (DAMES) is to bring together researchers dealing with data analysis and modelling in all fields of Earth Sciences, promoting the exchange of knowledge on both methodological developments and Earth Science applications across disciplines. Specific topics come from all fields of Earth Sciences, including atmospheric sciences, hydrology, oceanography, present-day and paleo-climatology, climate change and its impacts. Contributions on applied topics such as environmental risk analysis and sustainability are welcome as well.**Link:** www.clisap.de/dames**18th Annual EPA Region 6 Stormwater Conference****Date:** 2-6 October, 2016**Lead organisation(s):** US Environmental Protection Agency**Location:** Oklahoma City, OK, USA**Overview:** The U.S. Environmental Protection Agency (EPA) Region 6, in partnership with Texas A&M University in Kingsville, the City of Oklahoma City, Oklahoma, Municipal Separate Storm Sewer Systems (MS4s), and States in Region 6, is hosting the 18th Annual EPA Region 6 Stormwater Conference. This conference will address and discuss the various issues and challenges of managing municipal stormwater, as well as new and upcoming rules and regulations. Topics will include, amongst others: Stormwater Management Programs; Sustainability, Green Infrastructure & Low Impact Development; and Construction & Industrial Stormwater Management.**Link:** <https://www.epa.gov/ok/18th-annual-epa-region-6-stormwater-conference>

Modelling Tools and Capacity Building in Climate and Public Health

Date: 17-28 October, 2016

Lead organisation(s): Vice-Presidency of Education, Information and Communication of Oswaldo Cruz Foundation (Fiocruz)

Location: Manaus, State of Amazonas, Brazil

Overview: A number of diseases with high socioeconomic impacts have significant environmental drivers. Although there is a wealth of environmental remote sensing data freely available via the internet, these data are rarely converted to health-specific prediction models, to form planning and mitigation actions, especially in the Amazon region. This workshop aims to (i) train participants in the use of remote sensing data in the important study of these diseases; (ii) teach statistical modelling techniques necessary for the type of problem posed; (iii) integrate this set of aspects in computing environments; (iv) produce some comprehensive studies from the problems brought by the participants.

Link: <https://drive.google.com/file/d/0B0ZpTZRDyyeKT1VJNmIXSkgzaUINUzFQM2tlaUVKSHNFRVZF/view>

American Geophysical Union Fall Meeting 2016

Date: 12-16 December, 2016

Lead organisation(s): American Geophysical Union (AGU)

Location: San Francisco, USA

Overview: With approximately 24,000 attendees in 2015, AGU's Fall Meeting is the largest Earth and space science meeting in the world. 2016 will mark Fall Meeting's 49th year as the premiere place to present your research; hear about the latest discoveries, trends, and challenges in the field; and network with colleagues that can enhance your career.

The AGU's Fall Meeting brings together the entire Earth and space science community from across the globe for discussions of emerging trends and the latest research. The technical programme includes presentations on new and cutting-edge science, much of which has not yet been published, meaning you'll return to work with knowledge you can't get anywhere else.

With more than 1,700 sessions in 2015, Fall Meeting's scientific programme spans the Earth and space sciences, offering something for everyone no matter their scientific discipline. The meeting offers a unique mix of more than 20,000 oral and poster presentations, a broad range of general sessions, various types of formal and informal networking and career advancement opportunities, and an exhibit hall packed with hundreds of exhibitors showcasing new and relevant research tools and services that meet the professional needs of our attendees year after year.

Link: <http://fallmeeting.agu.org/2016/welcome/>

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 programmes 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.

Editorial board: April Humble, Daniela Jacob, María Máñez Costa, Irene Fischer-Bruns (all GERICS)



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