Plenary A5 Applications of Regional Climate Information

- **Chair:** Clare Goodess,
- **Rapporteurs**: Rupa Kumar Kolli, Andy Morse
- 15 papers

- **Topics from titles :** Development, vector borne diseases, risk capacity, water resources and energy, early warning – disaster risk management, Global Framework for Climate Services, Society, crop yields, forests, soil erosion, adaptation, coastal marine ecosystems, Alpine glaciers, extreme events, farming.

- **Regions:** Africa, Europe, Middle East, North America.

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Impact Fields and Activity:

Drought frequency and drought vulnerability, malaria, water resources and energy, Disaster Risk Management through early warning, frameworks and information systems, Africa and integrated tailored approaches, crop modeling and bias correction, trees and climate past, present and future, soil erosion and KE, marine ecosystems, cryosphere, severe weather – night time minima, agriculture, farm financial vulnerability.

Techniques and Communication:

CORDEX RCMs, seamlessness, GFCS, map room; disease, crop, marine ecosystem, glacial mass balance and forest models; conveying uncertainty, using impacts as validation tool, insurance for fast recovery, RCMs with great lakes, investing in early warning use, regional and national capacity, capacity building from low start points, cloud schemes for impacts, heat index, circulation composites, towards farm scale(region) downscaling – financial planning, expert opinion.

Notes are below for report

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integrative approaches toward action-oriented climate information for development, ***Andrew Robertson*** (Pl-a5-01) analysis of past variability and change, bridge time scales (seamless), sharing visualization of data, information tailoring, increasing drought frequency in East Africa, attribution of trends, online map room, probability of upper quintile, map rooms redesigned.

impacts: Health – the challenges and successes of projecting regional scale climate impacts of vector- borne diseases of animals and people in Europe and Africa, ***Andy Morse*** (Pl-a5-02) malaria, east African pattern in malaria changes seen at most time scale and most RCPs, can see changes climate driven in malaria in East Africa.

Climate change stress test for the african risk capacity, ***Federica Carfagna*** (Pl-a5-03) get funds 8 months after a disaster i.e. droughts so how to get resources earlier. Looking at insurance to pay more quickly, Africa Risk Capacity, drought to vulnerability to number of people at risk. Map drought risk.

using rCM data over north america: examples of impact studies on water resources and energy through collaboration projects at Ouranos, ***Anne Frigon*** (Pl-a5-04) precipitatble water to possible max pptn, to probable max flood.PMP chnages inot 2 hydro models HYDROTEL & SSARR for two basins. Working with NARCCAP and CORDEX - …. Great Lakes project IULGS International Upper Great Lakes Study.see amplification over seasonal cycle in lake level increases in future., none of the NARCCAPRMCs have no lake models limiting their ability to produce annual cycles, CORDEX models will have Lake models so good.

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COrdex and the global Framework for Climate Services, ***Rupa Kumar Kolli*** (Pl-a5-06) lack of capabilities in developing countries to A Global Framework of Climate Services, user needs, wider access etc. 4 pillars, user interface, climate services information system, observations and monitoring, research modeling and prediction, capacity development by 2015 data available – was implemented through first ever extraordinary session of WMO Congress. Got about 30 mill CHF. Climate Services Operational System CSIS is part of the wider GFCS, importance of RCOFs – talked about seamless approach. National level roll out. WMO Commission for Climatology. Need for CORDEX to capitalize on this collaboration to contribute to the GFCS.

COrdex-africa: taking COrdex to society, ***Christopher Lennard*** (Pl-a5-07)
75% urban, 1.1 billion people 54 countries, develop methods and tools, addressing modeling gaps, regional messages, integrated approaches … Madagascar possible area., data to Information to Knowledge to A basis for action need to work on each stage … assess your assumptions about what yu yu think is understood bring in stakeholders need early on,

are regional climate models relevant for crop yield prediction in West africa?, ***Benjamin Sultan*** (Pl-a5-08) Sahel rainfall anomalies, mirror yields anomalies and thius economic factors, scale mismatches, daily weather data 1990-2005 12

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regional climate models: a novel approach to studying soil erosion, ***Hannah Nissan*** (Pl-a5-10) Simulate kinetic energy of rainfall, compare models with obs, aerosol related to raindrop size, kinetic energy f impact plus the transport in run off is used to transport and the combination of effects important. Steiner and Smith JA rain drops , drop diameter, mass flux and KE and number or by mm-1 s-1 etc. Amplified response of erosivity to aerosols compared with pptn response.

driaS, les futurs du climat : a service for access to climate information for adaptation in France, ***Julien Lemond*** (Pl-a5-11) framework for climate information in France. 136,000 users 90 countries http://www.drias-climat.fr/ VIADUC is follow on improved from DIRAS

impacts of climate-driven changes on coastal marine ecosystems and related good and services, ***Cosimo Solidoro*** (Pl-a5-12) changes seasonal prediction patterns on biochemistry and in turn ecosystem of lagoon of Venice., RegCM rain T solar wind pressure rain - to nutrient and boundary model then specialist eco-models for marine systems. Phytoplankton impact by temperture change but either adapt or replaced by new species. Have a marine food web model too.

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the Swiss alpine glaciers response to the global 2°C air temperature target based on transient gridded rCM data, ***Nadine Salzmann*** (Pl-a5-13) gridded Swiss monthly data, 12 long term time sieres since 1880, 1955-85 minus global 2C time is 2.5 deg C warming. Used 7 transient RCM tiem series. By 2150 by 70% reduction on glacier runoff.

expected future changes in the climate and severe weather events in the Middle east and the arabian gulf region", ***Krishna Kumar Kanikicharla*** (Pl-a5-14) Doha extreme values, …1962-2012 daily data. Increase in >40C a year is inc but rapid inc in Tmin>25C high humidity … 60 mm per year no rian summer. Shamal winds – heat indexes Steadman (1979) heat index % days > 92F which is the extreme category … shamal >17 knots N/NNW persisting for more than 6 hrs.

using downscaled climate change scenarios to model the impact on farming systems from a financial vulnerability point of view, ***Peter Johnston*** (Pl-a5-15 climate models integrated with hydro models for irrigated crops, farm surveys to understand farming system and financial viability. Stakeholder involvement, crop climate thresholds timing of temperature and precipitation events. Expert opinion Internal rate of return > 8% debt asset ratio, cash flow to debit ratio. Farmers with high debt levels will be vulnerable.

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