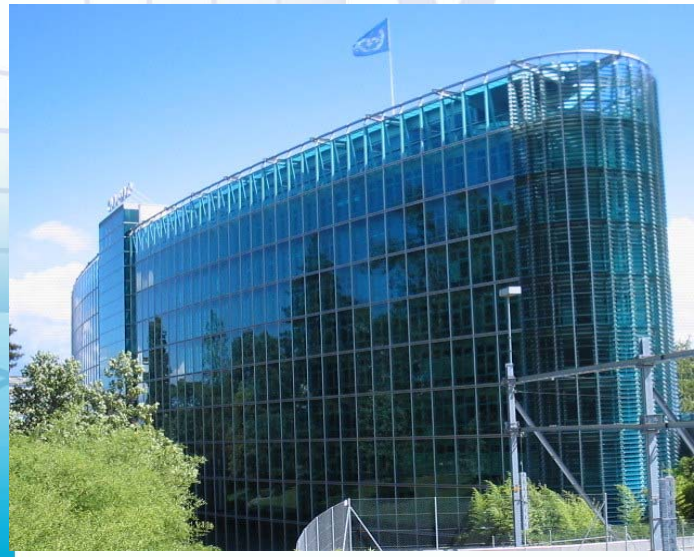
Regional Climate Outlook Forums: Concept and Structure



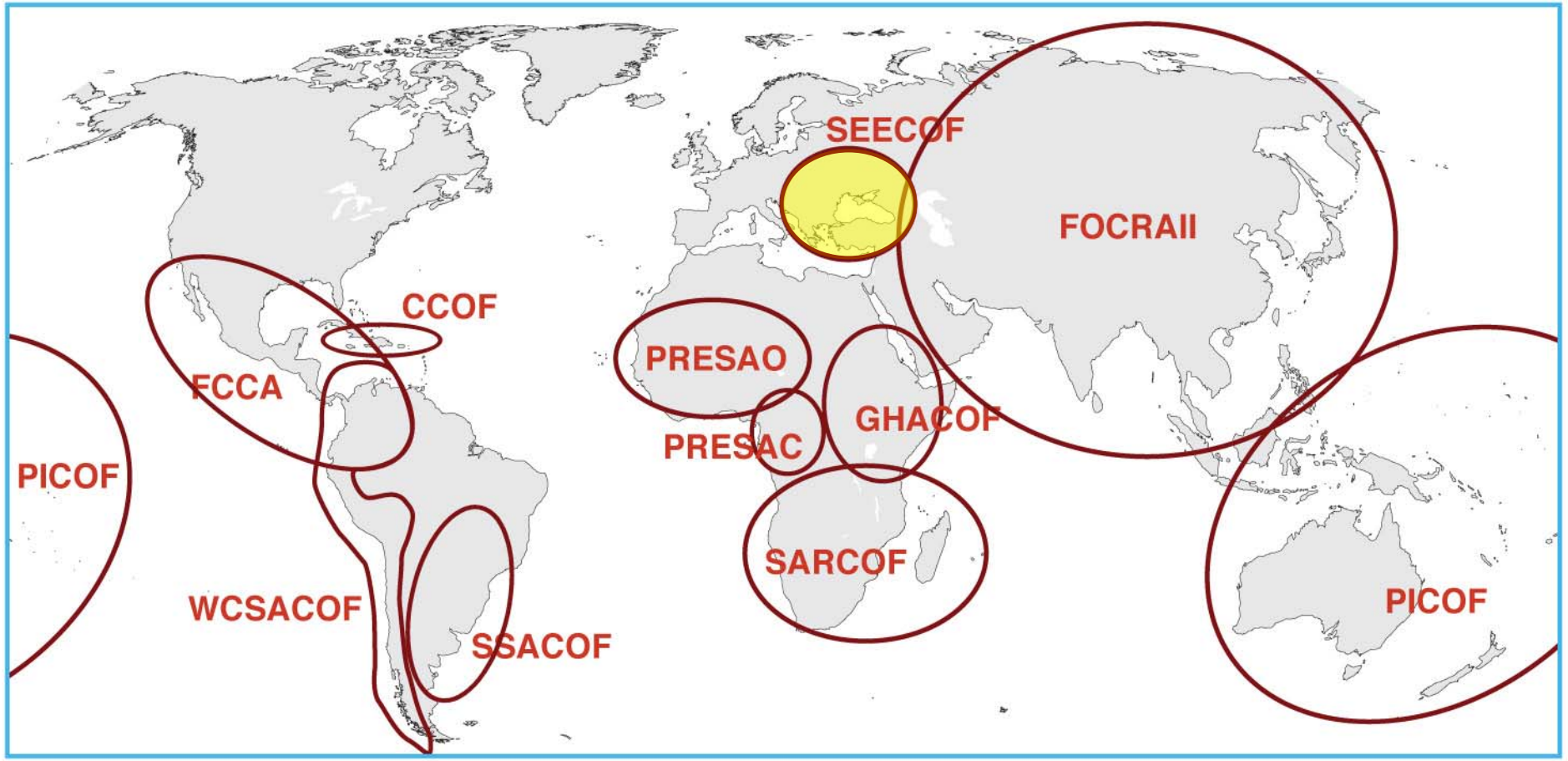
World Climate Applications & Services Division
Climate Prediction & Adaptation Branch
Climate & Water Department
World Meteorological Organization (WMO)

WMO
OMM

Regional Climate Outlook Forums (RCOFs)

- A key component of WMO Climate Information and Prediction Services (CLIPS) project activities.
- First established in October 1996 at the Workshop on Reducing Climate-Related Vulnerability in Southern Africa (Victoria Falls, Zimbabwe).
- Gained momentum as a regional response to the major 1997–1998 El Niño event.
- RCOF Concept was pioneered in Africa and spread worldwide.
- WMO and a number of national, regional and international organizations (e.g., NOAA, IRI, Meteo France, World Bank, etc.) have supported their growth and expansion.

Existing RCOFs worldwide



(http://www.wmo.int/pages/prog/wcp/wcasp/clips/outlooks/climate_forecasts.html),

RCOF Concept (1/2)

- Climate information including predictions/outlooks could be of substantial benefit to many parts of the world in adapting to and mitigating the impacts of climate variability and change.
- RCOFs across the world have the overarching responsibility to produce and disseminate a regional assessment (using a predominantly consensus-based approach) of the state of the regional climate for the upcoming season.
- Built into the RCOF process is a regional networking of the climate service providers and user-sector representatives.
- Participating countries recognize the potential of climate prediction and seasonal forecasting as a powerful development tool to help populations and decision-makers face the challenges posed by climatic variability and change.
- National and Regional capacities are varied but certainly inadequate to face the task alone.
- Ownership now lies largely with national and regional players, but there is a continuing need for support at all levels to ensure that the momentum gained to date is maintained.

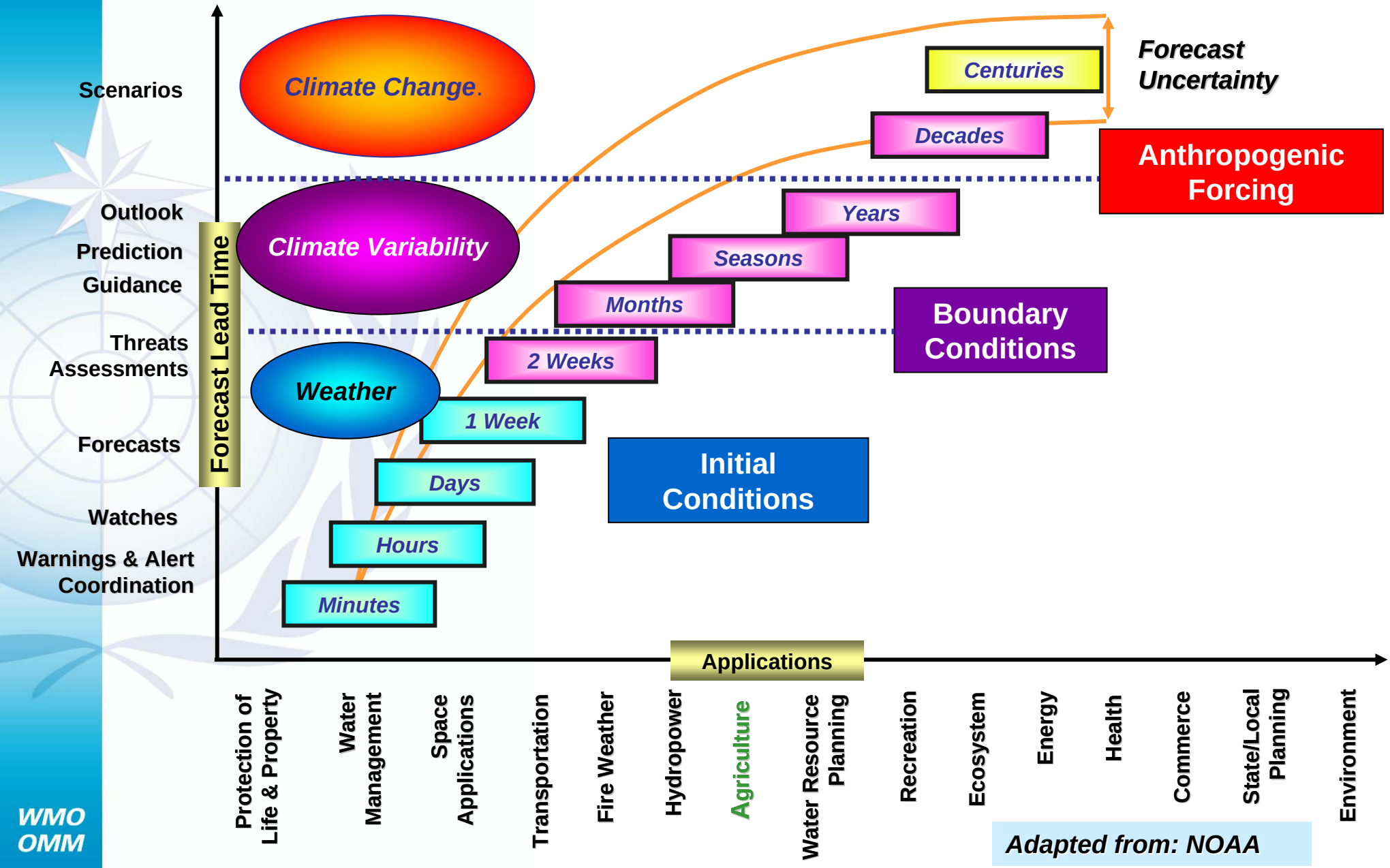
RCOF Concept (2/2)

- RCOFs bring together national, regional and international climate experts, on an operational basis, to produce regional climate outlooks based on input from NMHSs, regional institutions, Regional Climate Centres (RCCs) and Global Producing Centres of long range forecasts (GPCs) and other climate prediction centres.
- Through interaction with sectoral users, extension agencies and policy makers, RCOFs assess the likely implications of the outlooks on the most pertinent socio-economic sectors in the given region and explore the ways in which these outlooks could be made use of.
- RCOFs also review impediments to the use of climate information, experiences and successful lessons regarding applications of the past RCOF products, and enhance sector-specific applications.
- These RCOFs then lead to national forums to develop detailed national-scale climate outlooks and risk information including warnings for communication to decision-makers and the public.

Climate Prediction

- There is a need for accurate, timely, useful predictions of climate variability and change.
- Prior to the 1997-98 El Niño, no established global infrastructure for coordinated climate forecasting existed.
- Coordinated climate prediction development needs the expertise of:
  - oceanic, atmospheric, and social scientists;
  - regional experts in climate applications and services;
  - sectoral users of climate information.
- Success relies on:
  - Knowledge of global, regional and local aspects of the climate system;
  - Climate prediction skills on relevant space-time scales;
  - Up-to-date modeling, computing and communications technology;
  - Adequate input data from national observation systems;
  - Understanding of the needs of the various users of the climate information;
  - Factoring of climate related uncertainties into decision-making processes

Climate Prediction Framework



WMO
OMM

RCOF Process (1/3)

- Meetings of the regional and international climate experts to develop a consensus for the regional climate outlook, typically in a probabilistic form;
- The Forum proper, that involves both climate scientists and representatives from the user sectors, for identification of impacts and implications, and the formulation of response strategies;
- Training programmes on seasonal climate prediction to strengthen the capacity of the national and regional climate scientists;
- Special outreach sessions involving sector specialists as well as media experts to develop effective communications strategies.

RCOF Process (2/3)

- Determine the critical time for development of climate prediction for the region in question;
- Assemble a group of experts:
  - Large scale prediction specialists,
  - regional and local climate applications and prediction/downscaling specialists,
  - stakeholders representative of climate-sensitive sectors;
- Review current large scale (global and regional) climate anomalies and the most recent predictions for their evolution;
- Review current climate conditions and their impacts at local, national and regional levels, and national-scale predictions;

RCOF Process (3/3)

- Considering all factors, produce a climate outlook with related output (e.g. maps of temperature and precipitation anomalies) that will be applied and fine-tuned by NMHSs in the region to meet national needs;
- Discuss applications of the outlook and related climate information to climate-sensitive sectors in the region; consider practical products for development by NMHSs;
- Develop strategies to effectively communicate the information to decision-makers in all affected sectors;
- Critique the session and its results:
  - document achieved improvements to the process and any challenges encountered,
  - Establish steps required to further improve the process for subsequent sessions.

Consensus is NOT Corralling (1/2)

- Consensus process is not really a way to corral the forecasters into submerging their disagreements, but give a platform to openly discuss their perspectives, understand each other's point of view, and try and see if there are any common elements that can be highlighted with greater confidence.
- The WMO El Nino/La Nina Update is a fine example of how consensus can be achieved, and how useful information can be extracted from seemingly divergent perspectives.
- With multiple sources of climate information, the user is often confused by conflicting signals from different quarters, and there should be a way of assisting him to decide how much confidence he can place on these outlooks for his decision making.

Consensus is NOT Corralling (2/2)

- The consensus process does not attempt to "submerge disagreements", but rather tries to assess the level of intractable disagreements which can have a bearing on the confidence that can be placed on the prediction product.
- All predictions are intrinsically probabilistic in nature, and the consensus process makes no attempt to hide uncertainty. Indeed, RCOF products have traditionally been probabilistic in nature and special efforts are made to communicate the probabilistic nature to the user sectors.

WMO El Niño and La Niña Update

- The WMO El Niño/La Niña Update is a consensus statement prepared in collaboration with the International Research Institute for Climate and Society (IRI) and with contributions from NMHSs, regional and global prediction/research centres and individual experts.
- Seasonal climate outlooks, as produced by NMHSs, provide detailed information on expected impacts, after considering other factors that influence regional climate.
- In considering response strategies, it is important to consider regional climate outlooks and not to rely solely on the presence of El Niño or La Niña.
- http://www.wmo.int/pages/prog/wcp/wcasp/enso_update_latest.html

Example: The Greater Horn of Africa Climate Outlook Forum (GHACOF)

- IGAD Climate Prediction and Applications Centre (ICPAC), formerly known as the regional Drought Monitoring Centre (DMC)-Nairobi has been organizing Climate Outlook Forums (COFs) at the beginning of every major rainfall season in the GHA, since 1998.
- Opportunity for the climate scientists from NMHSs , international and regional centers to develop a single best regional seasonal climate outlook products in order to avoid unnecessary competition and confusing users with products from the individual centers.
- Also include media experts, and experts from policy-makers, agriculture, food security, water resources, health, and the general user community.
- The COFs are preceded with capacity building workshop of national climate scientists on new developments in seasonal climate prediction.
- The workshop is normally opened by a senior government minister, and involves several lead speakers.

GHACOF Products & Applications

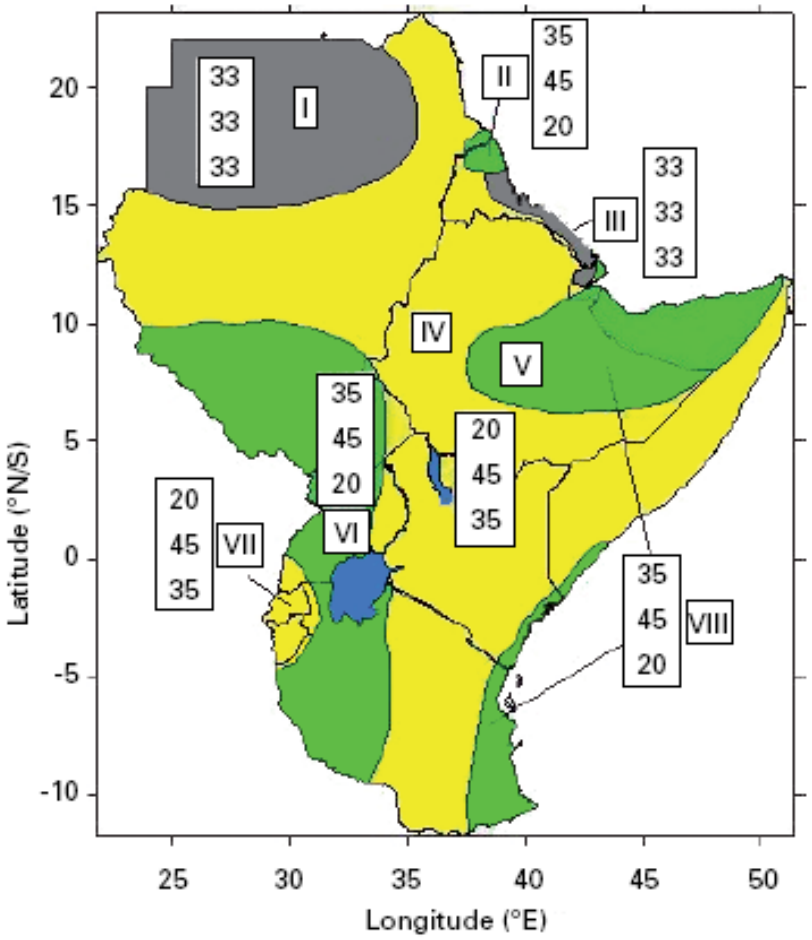


Figure 2(a) — Greater Horn of Africa Consensus Climate Outlook for March to May 2008 by ICPAC and partners including WMO and IRI.

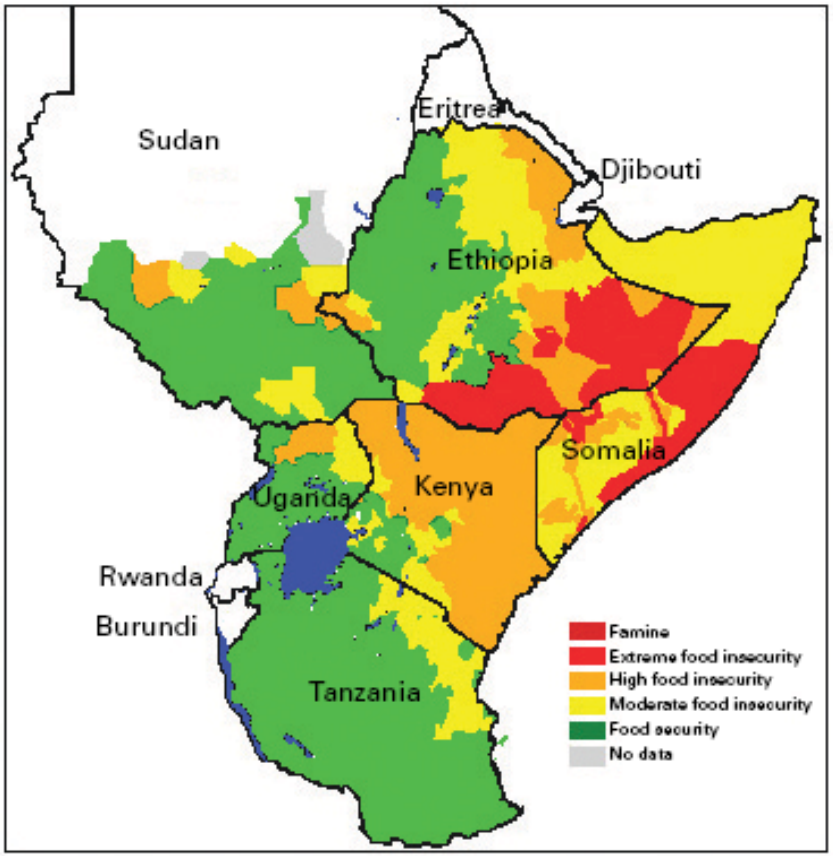


Figure 2(b) — Food Security Outlook for March to July 2008 by Famine Early Warning Systems Network (FEWSNET)

WMO OMM

WMO Global Producing Centres (GPCs) of long-range forecasts

- Climate Prediction Center, National Centers for Environmental Prediction (CPC/NCEP/NWS/NOAA)
- European Centre for Medium-range Weather Forecasts (ECMWF)
- Japan Meteorological Agency (JMA)
- Met Office (United Kingdom)
- Météo-France
- Meteorological Service of Canada (MSC)
- Korean Meteorological Administration (KMA)
- National Climate Centre of the China Meteorological Administration (NCC/CMA)
- World Meteorological Centre, Bureau of Meteorology (BoM), Australia

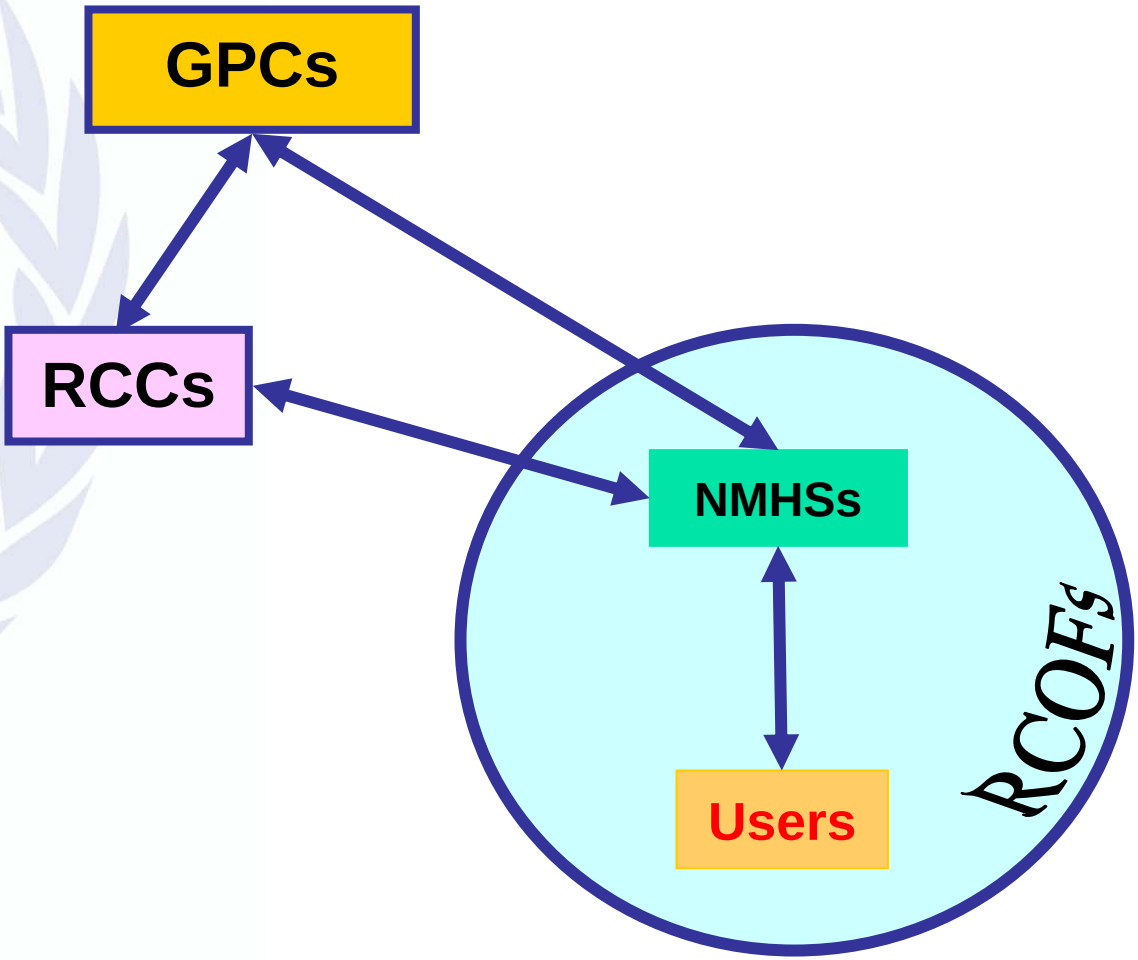
Regional Climate Centres (RCCs)

- RCCs will be Centres of Excellence, designated by CBS and CCl, to perform regional-scale climate functions, including:
  - Operational LRF and Climate Monitoring
  - Coordination between RCCs, GPCs and NMHSs in the region
  - Data services
  - Climate Applications
  - Training and capacity building
  - Research and Development
- RCCs will be complementary to and supportive of NMHSs, who will deliver all Warnings and national-scale products
- Establishment of RCCs will be initiated by Regional Associations, based on regional needs and priorities

RCCs and climate prediction

- GPC global products essential input to RCCs
- RCCs will downscale and develop regional-scale prediction products
- RCCs will serve NMHSs, all latitudes/regions
- End-users are sectoral experts, governments, the public
- RCOFs can provide an extending arm to the GPC/RCC operations, to reach out to regional climate/user communities

Global Climate Prediction Framework



WMO and RCOFs

- WMO assists developing countries hold and benefit from these forums through CLIPS:
  - facilitating training workshops,
  - coordinating the collection and dissemination of training materials,
  - capacity building initiatives including some initial (limited) financial support, and
  - coordination of special applications to sectors (e.g. health and agriculture)
- Regional institutions (e.g. DMCs, ACMAD, CRRH, CIIFEN) play key roles in the organization and overall implementation of these forums
- NMHSs, the regions and the users of the products must contribute to the sustainability of COFs in the regions: demonstrate utility of the forums and value of the products to those who need the information
- Research capacities at the regional level need to be enhanced, to assess the forecast skills as well as to work towards their improvement
- Media has an important role to play in RCOF process, which needs to be factored in.

RCOF Success

- The RCOF process has facilitated a better understanding of the links between the climate system and socio-economic activities.
- An increasing demand for climate services has been recorded in many parts of the world as a result of these developments.
- Awareness has been created that climate information, including short-range climate predictions, is an essential element in mitigating against the impacts of climate variations.
- RCOFs have fostered interactions and exchange of information between the climate scientists and users of climate information.

Challenges to Consensus Prediction (1/2)

- Climate products that are timely, and understandable to the end-users, and that translate easily into decision models and processes (e.g. tercile output) can still require considerable explanation to users
- Reliability of climate outlook products, from the perspectives of the producers and the users (e.g. systematic biases inherent to numerical models)
- Improved spatial and temporal resolution/downscaling
- Implementation of reliable communication linkages to the sectors and institutions who use forecasts
- Consistent evaluation by producers and users of the use, impact and value of climate outlook products

Challenges to Consensus Prediction (2/2)

- In addition to such technical issues:
  - There is a need to continue to improve mutual understanding, between climate outlook producers and users, of the opportunities, capabilities and needs of the others, and to enhance two-way information sharing.
  - Trained climate prediction and service specialists are assets anywhere, and keeping critical levels of skilled staff in all services and centres is difficult.
  - In some regions there is a scarcity of funding to sustain regular climate outlook forums. Steps must be taken to establish the value of these efforts to attract the required resources.

Climate Change and RCOFs (1/2)

- RCOFs worldwide have been set up so far with the main focus on seasonal prediction.
- However, the same RCOF mechanisms can be effectively expanded to cater to the needs of developing and disseminating regional climate change information products.
- Such initiatives are already being taken up by some RCOFs (e.g., Greater Horn of Africa)
- Regional assessments of observed and projected climate change, including the development of downscaled climate change scenario products for impact assessments, can be included in the product portfolio of RCOFs

Climate Change and RCOFs (2/2)

- RCOFs have been recognized to have potential contributions to the UNFCCC/SBSTA Nairobi Work Programme (NWP) on Adaptation to Climate Change
- CLIPS/RCOFs have been included in the UNFCCC Compendium of Methods and Tools in support of climate adaptation
- RCOFs form a core component of WMO Action Pledge to the NWP on climate information, products and services for adaptation

Climate Watches

- Aim to enable an end user to take action to minimize the effects of an expected adverse climate-related impact, rather than simply reacting to an observed climate anomaly.
- A Climate Watch System can also be seen as an addition to an NMHS's climate prediction system and to RCOF.
- A Climate Watch could use climate outlooks generated by RCOF, but should be thought of as being a proactive alert of impending unfavourable climate anomalies specifically focused on the end user.
- NMHSs participating in RCOF may consider how the results of the RCOF in their region can be integrated into the Climate Watches issued by the NMHSs and/or associated regional climate institutions.

Sustainability

- Training:
  - Build global curriculum on seasonal prediction for use by specialized training centres and NMHSs
  - Train the trainers
- Costs:
  - Engage the user sectors – if the value of the climate information is demonstrated to business and policy users, they are more likely to support the process
  - Explore cost-efficient methods for collaboration where possible (email, teleconference, etc.)
- Succession planning:
  - Keep bringing new people on board
  - Foster an atmosphere of continual learning – keep up with research
  - Institutionalize the process within the regions creating sustained networking of relevant climate/user agencies; Regional Drought Monitoring/Management Centres can play a pivotal role to nurture and sustain RCOFs
- Local ownership
  - Local ownership of the RCOF process and minimal dependence on external sources are critical to the sustainability of RCOFs

Global Review of RCOFs

- October 2000 (Pretoria, South Africa)
- Another planned for November 2008 (Arusha, Tanzania):
  - Review of lessons learnt from 10 years of RCOFs;
  - Identification of opportunities and new approaches for RCOFs over the next decade;
  - Development of strategies for effective application of RCOFs in climate adaptation, disaster risk reduction and sustainable development.

Thank You

For more information, please contact:

R. Kolli
Chief,
World Climate Applications & Services Division
Climate Prediction & Adaptation Branch
Climate & Water Department
Tel: 41.22.730.8377
Fax: 41.22.730.8042
Email: RKolli@wmo.int