

**Summary of Teleconference
CCI CXIV Expert Team 3.1 on
Research Needs for Intraseasonal, Seasonal and Interannual Prediction, including the
Application of these Predictions**

A teleconference was convened by the Expert Team Lead, Mr Jean-Pierre Ceron, and was organized by the WMO Secretariat on Thursday, 19 October 2006 at 12 Noon (Geneva Time). The following were the participants in the teleconference:

<i>Name</i>	<i>Position</i>	<i>Phone Number</i>
1. Mr Jean-Pierre Ceron (France)	ET 3.1 Lead	+33-561-078-310
2. Mr Wassila Thiaw (USA)	ET 3.1 Member	+1-301-763-8000 ext 7566
3. Mr Cherif Diop (Senegal)	ET 3.1 Member	+221-869-5339
4. Mr Won-tae Yun (South Korea)	ET 3.1 Member	+82-2-2181-0842
5. Mr Jim Renwick (New Zealand)	ET 3.1 Member	+64-4-973-2523
6. Mr Ose Tomoaki (Japan)	ET 3.1 Member	+81-29-853-8600
7. Mr Abdalah Mokssit (Morocco)	OPAG 3 Chair	+212-22-91-36-82
8. Dr Rupa Kumar Kolli (Switzerland)	C/WCAC, WMO	+41-22-730-8377

The objective of the teleconference was to review the Expert Team's Terms of Reference (ToRs), discuss the Team's activities to address them and the expected outcomes, and agree on a suitable work plan including deliverables and milestones. The following was the agenda considered for the meeting:

- Introductions
- Discussion on the main theme of the teleconference (expected outcomes, work plan including deliverables and milestones and organization of the ET's work for the present intersession)
- Presentation of each participants (notably the topics of their main interest in relation to the ToRs of the ET)
- Short presentation of the CCI Structure (with focus on OPAG3)
- Preparation of ET's work plan for the current intersession
- Identification of the deliverables, priorities, potential contributors

The teleconference commenced with welcoming remarks by the WMO Secretariat. The presence of Mr Mokssit, OPAG 3 Chair was noted to be very encouraging, and the enthusiastic response of all the ET members, despite the very inconvenient time for some of them due to the time difference, was especially appreciated. It was noted that two of the ET members, namely Mr Subramaniam Moten (Malaysia) and Mr Paulo Nobre (Brazil), were not available for the teleconference due to other commitments. They, however, communicated their support to the teleconference and requested to be informed about its proceedings. The teleconference was chaired by Mr J.-P. Ceron, ET 3.1 Lead, who conducted further proceedings.

Mr Ceron welcomed all the participants, and took up the agenda for the teleconference circulated by email earlier. He referred to the ET's ToRs and requested the members' active contribution to the fulfillment of all the associated work elements with special attention to the following:

- Work plan with agreement on the main topics for the whole intersessional period
- List of deliverables
- Two-and-half years available in to total for the work, setting aside half year for the preparation of report
- Work plan to be published on the CCI XIV web pages
- Organization of work
- Optimization of efforts and prevention of overlapping

Mr Ceron mentioned that a report will be prepared summarizing the proceedings of the teleconference, and will be consolidated by circulating among all the ET members. He requested the WMO Secretariat to help in the preparation of the report.

This was followed by brief presentations by the participants, introducing themselves and providing their perspectives related to the ET's work.

Mr Jim Renwick (New Zealand) mentioned that he had background in operational seasonal forecasting, with particular interest in statistical-dynamical approaches. He is interested in downscaling to provide user-targeted climate products, e.g., renewable energy, health, etc. He is also interested in validation of model simulations, but not modeling per se.

Mr Ose Tomoaki (Japan) has been working in climate modeling and seasonal forecasting for the past 20 years. For the past three years, he has been the in-charge of the operational forecasting system at Japan Meteorological Agency (JMA) headquarters. The operational seasonal forecasting activities at JMA include 3-month, 1-month and 2-week forecasts. Mr Tomoaki is also a member of the Commission for Basic Systems (CBS) Expert Team on Infrastructure for Long-Range Forecasting (LRF) and has been involved in the discussions on Global Producing Centres' (GPCs) framework; he mentioned that he will be leaving this ET soon. He has so far no experience with the CCI, and expressed his interest in ToR (a). He would be interested in assisting the preparation of a report on forecast systems. He feels that mere compilation of GPC products is not a meaningful activity, and that downscaling strategies need to be encouraged. He also said that the usage of current LRF products needs to be assessed to plan further activities in this area. He has strong links with the World Climate Research Programme (WCRP) through the CLIVAR Working Group on Seasonal to Interannual Prediction (WGSIP), which can facilitate the ET's cross-cutting activities with the WCRP.

Mr Won-tae Yun (South Korea) has been involved in the application of multi-model ensemble (MME) techniques in weather/climate forecasting, and has participated in several WMO meetings in the area. He believes that MME approach provides more accurate and reliable forecasts than a single model, and further enables estimation of uncertainties. There is a potential for significant improvement in forecast skills using the MME approach.

Mr Jean-Pierre Ceron (France) is the in-charge of operational seasonal forecasting in Meteo France, and has been working with both atmospheric and atmosphere-ocean coupled models. He has been involved in the EUROpean multi-model Seasonal-to-Interannual Prediction system (EUROSIP) at the European Centre for Medium Range Weather Forecasts (ECMWF). He is interested in downscaling problems, end-user support including the evaluation of economic benefits of climate prediction services. He has also been actively involved in the Regional Climate Outlook Forum (RCOF) processes in Africa, and has made substantial contributions to the CCI during the last inter-sessional period.

Mr Cherif Diop (Senegal) is the in-charge of research and development of climate prediction at the African Centre of Meteorological Application for Development (ACMAD). He was actively involved in the setting up of the PRESAO (PREvision Saisonniere en Afrique de l'Ouest) series of climate outlook for a for western Africa. Mr Diop is particularly interested in the user-outreach initiatives and development of national level seasonal forecasts. He has organized several PRESAO workshops. He is interested in downscaling, prediction of the onset of the rainy season and intra-seasonal variability.

Mr Wassila Thiaw (USA) is the in-charge of African Desk in the National Oceanic and Atmospheric Administration (NOAA), and closely interacts with the National Meteorological Services (NMSs) and Drought Monitoring Centres (DMCs) in Africa. He has been supporting the climate prediction activities in Africa, including the related training programmes. His primary interests are in seasonal to interannual prediction, with particular focus on applications to food security and health issues, and is closely involved in the Famine Early Warning Systems NETwork (FEWSNET). He is a member of the WCRP/CLIVAR Panel on Variability of the African Climate System (VACS). He

has been promoting capacity building initiatives for research as well as operations in climate prediction. At the Climate Prediction Centre (CPC) of NOAA, his interests are in ensemble prediction, from weekly to seasonal/interannual scales.

Mr Abdalah Mokssit (Morocco) is the Deputy Director of Direction de la Meteorologie Nationale (DMN) of Morocco, and is the Director of its national centre for meteorological research. His interests are in numerical weather prediction, nowcasting and LRF. He has been promoting ensemble prediction. He is also actively pursuing communication with policy makers and development of climate change scenarios with applications to agriculture, water resources and other sectors. He is also interested in other aspects of atmospheric research such as cloud physics. He is a member of the CBS Expert Team on Ensemble Prediction Systems, and is also one of the Lead Authors in the Working Group 1 (WG1) Fourth Assessment Report (AR4) of the Intergovernmental Panel on Climate Change (IPCC).

Overview of CCI

Mr Mokssit provided a brief overview of the structure of CCI XIV, describing the four Open Programme Area Groups (OPAGs), the Management Group (MG) and the Implementation and Coordination Team (ICT). He referred to the bifurcation of the earlier OPAG-3 into two, comprising of the present OPAG-3 and OPAG-4. Mr Mokssit provided his perspectives on the vision of the CCI, particularly in relation to OPAG-3. He said that the deliverables should have a clear user focus, and resolve the ToRs effectively. He suggested that two kinds of deliverables could be considered: (i) static (e.g., guide, atlas, etc.) and (ii) dynamic (e.g., El Niño/La Niña Updates etc.).

As part of the discussion on CCI structure, Mr Yun pointed out that some of the ToRs of OPAG-3 have overlapping issues with CBS, and therefore suitable communication with the corresponding ETs of CBS should be established. Mr Mokssit clarified that the MG of CCI had already considered this issue, and that efforts are being taken to minimize duplication. However, some amount of overlap cannot be avoided. The space-time scales may be suitably delineated between the two entities, which requires proper coordination.

Work Plan Organization

Initiating discussion on this agenda item, Mr Ceron highlighted the following aspects:

- Assignment of Priority/Focus to the relevant issues
- Agreed set of deliverables and time lines
- Sharing of responsibilities
- Identification of Focal Points (FPs) and distribution of work load

He noted that all the Regional Associations (RAs) of WMO are represented in the ET, and therefore all the Regions can be taken care of in the ET's work. He called for a step-by-step organization of the work. All the members agreed to Mr Ceron's strategy. Mr Thiaw added that the FPs may also be asked to take care of coordination with other ETs and Working Groups (WGs).

The TORs of the ET were then considered one by one, for discussion:

- (a) *To appraise and report on current intraseasonal, seasonal and interannual prediction systems, and their ability to meet the requirements of specific applications areas, and to provide an assessment of the likely capabilities achievable by the years 2010 and 2015.*

There is a general agreement on liaising with NMHSs and RCCs and reaching out to the user community, but ensuring appropriate collaborative relationships with organisations like IRI, APCC, ECMWF, etc. There is a need to be an inventory of what is being done and who is doing what, and collaborate with CLIPS to address some of the gaps. The members considered whether there should be a split approach to handle intraseasonal, seasonal and interannual scales. Mr Tomoaki

wondered whether the forecast strategies can be really separated, as their prediction systems are essentially the same. Mr Ceron explained that the split approach is primarily to distribute the work load among the FPs. Mr Thiaw highlighted the need for close liaison with the CBS in this regard. WMO Secretariat requested the members to note the need to prepare a report as specified in this ToR. In this context, it was noted that three levels of requirements are of particular interest: users, NMHSs and RCOFS (or other regional entities facilitating regional climate outlooks). These may also differ from region to region, and therefore some amount of region-specific information needs to be provided. It is also essential to generate an appraisal of the current prediction systems in a generic sense (the best available currently, irrespective of their access or cost), whether and how these systems can address the above requirements, and then provide a future perspective for 2010 and 2015.

(Action 1: Identification of Focal Points and Report Preparation – ET 3.1 Lead and Members)

- (b) *To produce a critical review of the methodologies for the creation and the presentation to users of intraseasonal, seasonal and interannual products, including consensus methodology and downscaling, and to recommend improvements to the methods used;*

It was agreed that close collaboration would be needed with ET 3.2 to handle this ToR. There was also a general agreement to work on the preparation of suitable guidelines on downscaling methods. Mr Ceron offered to take lead for this task. There was also some discussion on whether to consider single model or multi-model approaches at this stage. The members felt that a statement on MME should be prepared, possibly in consultation with CBS. Mr Yun agreed to take lead on this matter. The members then discussed the issues relating to consensus methodology. Mr Renwick informed that a number of objective methods were being used in New Zealand, and called for a summary report of what is being done in different NMHSs, including their strengths and weaknesses. Mr Thiaw added that the RCOF approach may also be considered for this purpose. Mr Renwick agreed to take lead on preparing a summary report on consensus methodology.

(Action 2: Preparation of Guidelines on Downscaling Methods – Mr Ceron)

(Action 3: Statement on MME Approach - Mr Yun)

(Action 4: Summary Report on Consensus Methodology - Mr Renwick)

- (c) *To look at the relative value of dynamical downscaling methods against empirical methods;*

The members felt that in both the cases, the issues relating to methodology vs. operational use need to be considered. The members agreed that this ToR should be merged with ToR (b) as far as the deliverables are concerned.

- (d) *To promote the Climate Predictability Tool (CPT) of the International Research Institute for Climate Prediction (IRI) as applications tool (this tool can downscale empirically large-scale forecast fields to specific sites for climate and applications forecasting);*

Mr Ceron felt that promotion of CPT was not really relevant to this ET, though some guidance may be provided in comparison with other methods, including the development of tailored products. In particular, the pitfalls need to be identified, and the “black-box” approach should be avoided. Thus, all members agreed that the scientific aspects of CPT rather than promoting its use should be the main concern of this ET. Close coordination with CCI ET 3.2 on CLIPS Operations, Verification and Services is required in this regard.

(Action 5: Coordination with CCI ET 3.2 – ET 3.1/3.2 Leads, OPAG-3 Chair/Co-Chair, WMO Secretariat)

- (e) *To make recommendations on research and development activities needed in the areas of forecast systems, presentation of products, applications and to support user decision processes (this includes marine, atmospheric and terrestrial data provision)*

The members felt that there was a clear risk of overlapping of this ToR also with CCI ET 3.2. In any case, the members called for a close coordination with all other ETs and OPAGs relevant to this ToR, preferably through OPAG chairs and ET Leads. The members briefly discussed the strategies for the forecasting of extreme events. Mr Renwick remarked that extreme events are generally associated with smaller spatial scales and it is therefore difficult to determine the best way to predict them. Mr Thiaw suggested that the ET may liaise with CBS to identify extreme weather/climate events. WMO Secretariat mentioned that OPAG 2 has an ET dealing with this issue, and may need to be consulted. Mr Thiaw also referred to ENSO/Kelvin wave aspects in this context.

(f) *To coordinate research needs with WCRP;*

It was noted that Mr Thiaw and Mr Tomoaki were members of WCRP/CLIVAR panels/working groups, who may facilitate this task and act as Focal Points to liaise with WCRP. There is a need to ensure sustained communication between WCRP (notably via CLIVAR) and OPAG-3 in general and ET 3.1 in particular.

(Action 6: Facilitate and establish communication with WCRP/CLIVAR – OPAG-3 Chair, ET 3.1 Lead, Mr Thiaw, Mr Tomoaki, WMO Secretariat)

(g) *To incorporate the WMO cross-cutting themes (on Disaster Prevention and Mitigation, Space/GEO and Least Developed Countries) into planning and activities of the ET, and to collaborate as needed with experts (across all related disciplines) in other CCI ETs, members of other WMO Technical Commissions, and in relevant external Organizations;*

Mr Ceron said that it might not be possible to address all the cross-cutting issues in this teleconference, particularly in view of the difficulty in keeping the conversation going in the midst of the noisy communication. Mr Mokssit suggested that a focal point may be identified to handle this aspect. Mr Ceron volunteered to take up this responsibility.

(Action 7: Incorporate cross-cutting issues and develop collaborations – Mr Ceron)

(h) To explore, document and make recommendations for addressing the needs for capacity building in each region, pertinent to this topic;

There was general agreement that this was a shared task for all the members of the ET, and there is a clear need for close linkages with the CLIPS Project Office at the WMO Secretariat. Collection of available material for dissemination through CLIPS activities and identification gaps was also noted to be essential. WMO Secretariat highlighted the need to develop a comprehensive CLIPS Curriculum much beyond the PowerPoint presentations, to provide material that can be effectively used in national/regional training activities in a sustained manner. It was also felt useful to have a list of experts who can act as resource persons for capacity building initiatives in different Regions.

(Action 8: Contributions to CLIPS Curriculum – All members, WMO Secretariat)

(i) *To submit reports in accordance with timetables established by the OPAG chair and/or Management Group.*

Promotion, follow-up and reporting on show case projects (if any) could be considered as part of the deliverables for this ToR. All members are requested to follow and report on these projects for their region of interest.

(Action 9: Inputs for reports – All members)

The teleconference ended with a vote of thanks to all the participants for their valuable inputs to the discussion. The ET expressed special appreciation to the WMO Secretariat for organizing the teleconference.