



## **Requirements for the end-to-end application of seamless ensemble prediction systems for forecast users in Africa.**

A.P. Morse (1)

(1) Department of Geography, University of Liverpool, Liverpool, L69 7ZT, U.K.  
(A.P.Morse@liv.ac.uk / Fax: +44 151 794 2866 / Phone: +44 151 794 2866)

Forecast user communities have grown in recent years alongside forecast product communities. It is clear that many of the issues encountered by the user and application communities are common to all ensemble prediction systems (EPS) regardless of forecast lead time. Producing a seamless integration of climate forecasts, weather forecasts and observations is an important forthcoming community activity e.g. WCRP COPES. However, for these seamless systems to be successful they must include relevant user and application communities from their inception. The integration of user communities has started but it is not universal and the nature of this integration is not clear in some programmes.

There is a strong demand for forecasts from users in Africa. From discussion through AMMA and WCRP CLIVAR VACS, it is very clear that users want event specific or intra-seasonal information e.g. rainfall onset, false starts or withdrawals and breakcycle length. This information is best served from seasonal or monthly EPS. 'Confirmation' and details can be made at WWRP THORPEX scales in a seamless system. The performance of forecast models at all forecast scales are poor in West Africa and this is an issue that need to be addressed by the forecast communities.

Users are not over concerned the details of the forecasting system but require an integrated system that uses information from all forecast products over a range of forecasting lead times in a seamless interface – issues such as weighting, bias correction and scale all need to be addressed in ways to best drive specific user applications and requests. Therefore, users need to be involved from the start in a true end-to-end approach. The end-to-end involvement of users has been undertaken with seasonal

forecasting in the EU FP5 DEMETER project and continues in EU FP6 ENSEMBLES project and is increasingly part of WCRP CLIVAR WGSIP and VACS and in THORPEX i.e. THORPEX Africa.

Only users can help to define relevant and useful skill, utility or cost-benefit of a forecast. In terms of forecast quality both users and forecasters need to be pragmatic, users need to adapt to use the inherent skill contained in the forecast and forecasters need to know the skill of their meteorological forecasts from a user perspective. Downscaling remains an issue; again communities are unaware of each others needs, requirements or constraints. The EU FP6 ENSEMBLES project is linking users with statistical downscalers but data issues in Africa will limit statistical downscaling and dynamical techniques need to be developed.

The way forward is to run pilot projects for certain regions in West Africa and to maintain a programme of capacity building within or parallel to the forecast development activity.