



High impact weather research themes



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High impact weather research themes



This WG is concerned with improving our knowledge and understanding of high impact weather over the West African continent, downstream tropical Atlantic and the extratropics.

- (i) West African Continent: onset and duration of wet/dry spells including monsoon onset; risk of heavy rainfall/floods, aerosol
- (ii) Downstream Atlantic: tropical cyclogenesis and intensity change; role of large-scale (e.g. shear, SAL, dry air, large-scale convergence)
- (iii) Extratropics: extratropical transition, Rossby wave trains

Linkages with other WGs:

WG1: Model evaluation; Monsoon onset

WG2: Rainfall prediction; floods

WG3: Role of land surface processes; ALDAS

WG4: Impacts; seamless prediction



Proposed Operational Activities



- (i) Tailoring and evaluation of forecast products for users in tropical regions (1-14day)*
- (ii) Impact of additional observations and especially radio-soundings over West Africa in analysis/forecasting systems for (a) West Africa, (b) Atlantic & USA and (c) Europe*
- (iii) Targeted observations in tropical regions (SOP2 & SOP3)*

The AMMA-Forecasting Group is very active – the dry run is a major activity

NWP centers with who we are initiating activities include:

ECMWF Meteo-France

NCEP NRL

UK Met Office.

Much enthusiasm!



Proposed Operational Activities



(i) Tailoring and evaluation of forecast products for users in tropical regions (1-14day): Lafore

The plenary talks that described current forecasting practices were extremely useful. We should make efforts to document these approaches – (this could be included in the handbook)

Prediction of rainfall was discussed as the highest priority: MCS, onset, dry spells etc

Models have some difficulties with MCS prediction: arising due to problems with data assimilation, and representation of physics



Proposed Operational Activities



(i) Tailoring and evaluation of forecast products for users in tropical regions (1-14day): Lafore

The Dry Run

A variety of products are available now as a result of the dry run: will add more

We agreed to continue to evaluate the forecasts in this period and work together on how to do this (in the forecasting group)

ACTION: We agreed to provide documentation of this activity on the web – invite contributions from the forecasting core, NWP centres, chemists etc (JPL/CT/EA)

ACTION: We need to ensure strong coordination of the assessment of models: global and regional (we are in discussion with coordinators and will confirm soon) (JPL/CT/EA).

RECOMMENDATIONS

We should ensure coordination with WG2 investigation of the 28th August case.

Although PPN may be poorly represented in models, dynamical features maybe be OK. Combining this with climatological information maybe useful.

We should make efforts to continue making the “AMMA products” available after AMMA (TIGGE may be part of this answer)

We should provide feedback to GCM group on our evaluations



Proposed Operational Activities



(i) Tailoring and evaluation of forecast products for users in tropical regions (1-14day): Lafore

Ensemble Prediction System (EPS)

This was discussed here and in the impacts discussion.

The EPS may be of value to users and forecasters. This is included in one of the AMMA-EU demonstration projects (Kamga). There is a need however for training in this area for both of these communities – a series of workshops should be considered in this regard.

ACTION: WG5 and WG4 to discuss further the utility of EPS for prediction of weather impacts.

ACTION: Communicate with ST4 over the need for more resources for training in this endeavour.

ACTION: Contact TIGGE regarding their suggestion of making AMMA a FDP (CT/A.Morse).

RECOMMENDATION:

Given the presence of objective measures of AEW characteristics, we should promote more analysis of AEWs in the EPS.

We should consider other such objective measures important for this WG.

We should investigate inputs from NWP centers , additional to NCEP.



Proposed Operational Activities



(ii) Impact of additional observations and especially radio-soundings over West Africa in analysis/forecasting systems for (a) West Africa, (b) Atlantic & USA and (c) Europe (Nuret and Taylor)

OSEs will be carried out by Meteo-France and ECMWF for the dry run period. These will include high resolution analyses and forecasts for the 28th August case (liase with WG2).

ACTION: Establish precisely what other NWP centres will do for the dry run and also AMMA in general (WG5-core)

ACTION: Request high resolution rainfall datasets for evaluation of the models during dry run (Nuret).

ACTION: Ensure that satellite rainfall estimates are made available on the website to support this evaluation (Nuret, AMMA-satellite)



Proposed Operational Activities



(ii) Impact of additional observations and especially radio-soundings over West Africa in analysis/forecasting systems for (a) West Africa, (b) Atlantic & USA and (c) Europe (Nuret and Taylor)

We recognize the important of soil moisture for assimilation and prediction.

AMSR data will be used to support the study of land-surface-atmosphere interactions in the prediction models.

We look forward to ALDAS products for use in data assimilation and prediction efforts (after SOP).

RECOMMENDATION:

In the absence of ALDAS, we must make efforts to get more SYNOP data on the GTS.

We should and will include investigation of the role of soil moisture in the dry run period.

ACTION: WG5-core should discuss the procedures for achieving more SYNOP observations on the GTS – in collaboration with AMMA-Africa (EA).



Proposed Operational Activities



(iii) Targeted observations in tropical regions (SOP2 & SOP3): (Chris Thorncroft)

There is concern in the community about the usefulness of targeted observations for the AMMA field campaign next year – except for the driftsonde system.

Groups will continue to work on the sensitivity area calculations, as a contribution to the AMMA project and WG5.

ACTION: Establish the contributors to the work on targetted observations and initiate discussions (WG5-Core).



Proposed Operational Activities



(ii) Impact of additional observations and especially radio-soundings over West Africa in analysis/forecasting systems for (a) West Africa, (b) Atlantic & USA and (c) Europe (Nuret and Taylor)

Radiosounding network:

There was a recommendation that efforts be made to establish a sounding station at Conakry to support the analysis of AEW/MCS systems before they leave the West African coast.

There was also a recommendation for establishing Khartoum for the SOP, to support upstream observations, potentially key for triggering of AEWs.

Dropsondes:

Efforts need to be made to coordinate and establish appropriate flight patterns during SOP3.



Societal Impacts



(iv) Societal impacts (A. Morse)

We need to be sure to define high impact with respect to societal needs and users.

Several applications at 15-day timescales were presented (e.g. rainfall onset, break cycles, false onset, dust, fires, extreme heat in urban areas).

RECOMMENDATIONS

We need to make more effort to identify the users of the 1-15 day forecasters.

Potential users could include a diverse group – as well as agriculture and health we could also consider fisheries, insurance companies etc.

Some discussion was had on how WG4 and WG5 should interact. A suggestion was made not to include impacts people in WG5 and that WG5 should work closely with WG4 on the linkage with users.

ACTION: WG5-core will discuss further the issue of representation of impacts people on WG5 in conjunction with WG4.



Satellite



Satellite

These products are key:

AMSR products (soil moisture)

Cloud products for convection (IR, vis, wv)

Rainfall estimates (daily?)

Scatterometer data (low-level winds)

More discussion is needed



Other Issues



Communication

A list of names and e-mails was signed up for communication within the WG5 at the end of the parallel session

A newsletter for WG5 will be initiated in the coming months.

We will prepare a contribution to the AMMA International AMMA newsletter

We will develop the international web pages

Threats to WG5:

Funding for exchange of visits between the collaborating partners in the WG and especially for the African Scientists was discussed. However, the strategy and opportunities were not addressed.

Workshop

The possibility of a focused workshop in 2007 was briefly discussed. More needed.