

Education strengthening knowledge development in order to positioning NMCs in the future

- **What are the roles of WMCs and RSMCs to enhance LDCs/SIDS capacities in the prediction of hydro-meteorological hazards?**
- **What are the key areas that need attention from WMCs and how to address them?**
- **Is there any appetite for twining between WMCs and Regional Centres ad or national if yes, how and what areas?**

What are the roles of WMCs and RSMCs to enhance LDCs/SIDS capacities in the prediction of hydro-meteorological hazards?

- Russia is running a forum with other nations in their area to discuss the performance and status of seasonal forecasts. Feedback from countries is positive.
- Japan has a training forecasters from countries in the region.
- China
 - is doing similar training. China Asian meteorological cooperation forum in 2014. Help countries to install software to display and make forecasts.
 - offering long term scholarships. More than 200 students study in China from neighbouring countries. Invite forecasters from Mozambique Malawi, ...
 - installing TV studio to enhance service delivery. China-African forum.
 - chat room to CMACast helpdesk with email is answering on a best effort basis.

- Some countries don't have structure and they have high need to build capability. Human power and infrastructure are needed.
- Sustainability of the National Meteorological Centres has to include infrastructure. Training and support are needed.
- WMCs can work on syllabus to be used in training. **Train the trainer** as well. Sometimes difficult to find the trainer because they have a role in their countries and they need to be replaced when out to provide training.

What are the key areas that need attention from WMCs and how to address them?

- Capacity building is two ways because there is mutual investment for mutual benefit.
- Leverage on the different strengths and resources of the WMCs to support training in more effective way.

Is there any appetite for twining between WMCs and Regional Centres ad or national if yes, how and what areas?

- Myanmar Meteorological Department and CMA have established a twining arrangement on the development of numerical weather models.
- Currently CMA is sharing the 9 Km resolution model products through CMA cloud for Myanmar.
- CMA will help Myanmar to develop 3 Km resolution once their HPC is ready.
- Myanmar is going to run a configuration of CMA GRAPES model.

Thank you Merci



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Data sharing mechanism: observation (NMCs → RSMCs/WMCs), product (RSMCs/WMCs → NMCs) and availability of direct model output (NWP data)

- What are the issues that prevent some Members from sharing their data through the GTS? What mechanism is required to address the issues?**
- Sharing data instead of charts with LDCs and SIDS appears to be in high demand by LDCs and SIDS. Can this be considered by WMCs? What are the limitations**

What are the issues that prevent some Members from sharing their data through the GTS? What mechanism is required to address the issues?

- Having robust observations input is an issue due to:
 - Lack of telecommunication means
 - Maintenance of the observation network and data exchange
 - Lack of resources to provide data in the GTS
 - Keeping metadata updated
- **Policy of cost recovery** is in many cases preventing the data to be exchanged on GTS.
- **Enforcing data policy and building a mechanism in WIS 2.0** to control data access in a way that data can be given free to WMCs could help in releasing more data from the NMHSs.
- **Where are the critical gaps** in global observations network? It would be very useful for NMHS to have clear feedback on the gaps.



Sharing data instead of charts with LDCs and SIDS appears to be in high demand by LDCs and SIDS. Can this be considered by WMCs? What are the limitations

- Charts are fundamental for operational reasons. Charts exchange cannot be stopped.
- Data have value for the users as they can be used to produce tailored information for different purposes.
- Exchange of data alongside charts is recommended.
- We don't have a standardised way of providing feedback.

NetCDF

- NetCDF is a generic format.
- Climate and Forecast (CF) conventions are making NetCDF specific for weather data.
- Need of NetCDF-CF in WMO for GCW, Satellite, Climate, NWP, radar presented at IPET-DD (Data representation Development) meeting 18-20 Feb in Zagreb

NetCDF

- Proposed additions to CF convention are not always accepted by CF committee.
- Need to establish a collaboration between WMO and CF community and to make a set of CF profiles maintained by WMO
- Workshop on WMO and CF conventions in September to establish working framework.
- Endorsement by WMC workshop of the outcome of IPET-DD meeting as fundamental for the development of S/GDPFS required

Publication of data on WIS

- WMCs are encouraged to contact their principal GISC for the publication of the data on WIS.

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