

Global assessment Session A

28th September 2017 – Nienke Ansems

Within this global assessment pilot, we should look at the feasibility, willingness (engagement/ involvement of NHMSs) and the added value of a global coordinated hydrological assessment.

We discussed the main aim having a global assessment pilot;

- 1) Global coverage to provide information for areas (NHMSs) that do not have information
- 2) The global models should not replace the work of NHMSs, the aim is to focus on medium to extended range forecasting
- 3) Bring information of NHMSs in standardized information to the surface, create visibility of the NHMS/pilot areas of successful product and outcomes
- 4) Possible for comparison among areas, and provide a common standard (both for input of data and output of information).
- 5) Improve situational awareness

The system should provide complementary information, not overwriting NHMSs. However, this requires a dialogue with NHMSs

What is the added-values of global assessment pilot within HydroSOS?

- HydroSOS, provide a system that is inclusive and connects the dots, by providing a certain level of quality
- Ability to leverage successful of regional products,
- A global operational system that is connected to NHMSs
- hydroSOS is not only research project, because of the connection with NHMS, It can go to a system that provides better quality
- Illustrate what is desired as an overall system. Provide targets and ideas what could be done.
- Specify mutual interest for the global and regional focus

Q1: What status and outlook information currently exists?

Currently we have not a complete overview how many operational global systems exist. Examples mentioned where (GLDAS, NLDAS), GLOFAS, GLOFIS, WWHYPE.

Possible hydroSOS activity: to provide an inventory and assessment:

- Synthesize and visualize models what is already out there
- The global pilot assessment should consist of an ensemble of models,
- Start what benchmarking
- It will also assist in looking which **variable we want to look** at, which **dataset** are available (spatial temporal resolution) and what is the **required quality**

Technical feasibility looks at

- Because of the (more detailed) national models. The global model should focus on medium to extended range.

- Define what time frame do we want to look at in the future, weekly to give confidence?

The inventory and assessment of what currently exists also contains understanding of the

- **Uncertainty and limitation** of the current products,
- what are the **skills in the forecast**, also in the **regional context** (maybe one model might be useful in dry climate but less useful in humid climate)
- HydroSOS should be inclusive. Everyone who want to participate feel free. But then you need to be provide data in this format etc

Possible Activity: One of the hydroSOS activities could be to provide guidelines and protocol for benchmarking

KEY QUESTION: All this information should be linked to NHMS, there anything we can give back again, how do we adjust global product from bottom up?

Q2 what status and outlook products need to be developed, and who will be the key users?

- Key user from the global pilot could be:
 - o International users that need a global vision. Provide a system for comparison on a global scale, disaster risk reduction programs, UN, World Bank, NGO
 - o NHMS that don't have a system.
 - o NHMS that do have a model but that would like to be included in such an international activity
- Need for dialogues, between different users, products should be co-designed with the users from pilot projects (examples include decision making for hydropower nexus, how can we support them for season al based)
- We had some discussion that there might be various model output
 - o Unregulated basin
 - o regulated basin
- Global should include reservoirs, aim to mimic seasonal regulation patters?
- **This is also where the linkage back to regional systems comes in, because this level of detail (operational dams, flood control hydropower) is very difficult to include. Comparing the regional pilot to global might show if the dominant processes are included**

Q3 what might be the high-level 'look and feel' of the hydroSOS product?

We discussed that many interesting and technologies are already existing. This could be a task to explore possible visualization tools that already exist. One component that was mentioned is to present data on a basin scale, polygon style (compared to gridded products). Water managers work on a basin scale and links more to stakeholder needs. Data is link to the basin scale, where the portal is intuitive clearly communicate forecasting data and uncertainty,

Q4 In selecting a geographical area for the pilot to focus on, what are the essential factors which need to be considered?

- Pilot projects from range of climate: hot, cold, wet climate. And level of development: data rich /data poor. This could be paired with catchment with similar (climate) conditions.
- Together with the pilot project team we can test the applicability of the global model in a regional context

Q5: what are the potential risks?

- Risk that global hydrSOS product is providing the hydrological forecasting, and people rely to much on the output of the data. Need clear dialogues (including disclaimers, training) to understand the use and limitation of the system
- Risk: hydroSOS has to respect the authority of local warnings

Global assessment Session B

Notes:

Background field of anomalies evaluated with confidence

Many products already exist -> list models, variables, reanalysis and met data, operational systems

How to include management of river systems -> product un-regulated plus different levels of regulations (lake only; managed etc...) -> whole sub-task

How to include groundwater -> whole sub-task

Look and feel -> sub-task (communication)

Pilot studies -> data rich/ poor/ hydroclimate regions

Risks -> how to manage competition with NHS

5. Institutional arrangements and HydroSOS design

- how can hydroSOS influence the institutions?

- Pilot study: opportunity to foster dialogue between different agencies, demonstrate added value and start a momentum

- Provide ownership to different agencies. International river basins authorities could be really supported and support hydroSOS. e.g. reaching right stakeholders, facilitate conversation, play on their reputation; can set-up meetings.

- Quantify the value of their contributions to HydroSOS e.g. data sharing through a data-rich region treated as ungauged region and improved predictability.

- Combination of information from different agencies, increase the quality of the product, fills gaps etc.. But could be difficult as we need to acknowledge possible tensions across agencies, internationally and nationally

- Talk to technicians before engaging with authorities

Session B questions

1. Priority of pilot stage [by mid 2020]. Final product: 'a demonstrator of added value of global hydro status with involvement of all major actors'

a. Identify potential partners and what has already be done in the region. Lake Victoria; plata basin; US

b. Create a leaflet and mini demon to hand over to people and a little pilot somewhere. This would help communication but needs also face-to-face meetings. Set-up a webinar soon

c. Develop visualisation examples. But this needs to be done really early during the pilot and should involve the users. What is the best mechanism? through national agencies to-down to engage with the national users? Or global but the programme engaging with all?

d. Work in pilot regions and engage regional/ local agencies to understand how they would use the global information. E.g. lake Victoria and engage with local national authorities? Should this be done very soon or in one year time? Need to be careful not duplicating the engagement done at the regional pilot study? Need to work with them? How to merge regional hydroSOS and global hydroSOS? This could be an exercise of the pilot. Should we also have another region?

- science in parallel about confidence and skill assessment; define protocols

Project management issues need to be clarified, e.g. who does what? monthly telecom to check the progress? definition of a gantt chart etc...

- test model and data flow

- could use existing operational systems e.g. GloFAS. But not multi-model

- Could use the existing platform, lowest hanging fruit

- could distribute the river flow simulations, to be re-processed by other groups and disseminated by others groups, e.g. EDgE platform

First meeting in region: in 1 year time.

2. Contributions/ inputs from external partners

a. opened to any contribution to be analysed

b. centres can offer to be a regional hub.

c. can ask for specific requirements: data sharing, feedback on forecast performances, help design the products. But needs to be careful of conflicts with national products.

3. delivery and time frame

Final deliverable:

- products delivered: near-real time web maps updated weekly hosted one 1 server; informed by regional NHS

- reports of engagement with users including user needs; road to operationalisation and sustainability

- proof of success: number of registered users, number of web views etc.. number of partners, statements of support etc... , number of engagement

monthly telecom with technical team , inviting representative of the pilot regions (lake Victoria plus south Asia)

year 1: inventory of what can be delivered and design feedback mechanism; identifying funding mechanisms; develop a demo system; engage models

end year 1 : First face to face meeting dialogue with pilot - they will participate to the co-design.;

year 2: develop an outreach mechanism; link with existing capacity building mechanism to reach out; revise the demon (web site dissemination procedure plus product types)

end year 2: reaching out with other regions

year 3: lessons learnt, road map for sustainable activities; user requirement product list.

end year 3: deliverables