Evaluating Flood Forecasting System Performance in Cambodia

Claire Nauman\textsuperscript{1,2}, Amanda Markert\textsuperscript{2,3}, Robert Griffin\textsuperscript{1}

\textsuperscript{1}Department of Atmospheric & Earth System Science, \textsuperscript{2}NASA/SERVIR Science Coordination Office, \textsuperscript{3}Earth System Science Center

\textbf{Objectives}

Understand differences in performance
- of global, regional, and national flood forecasting systems
- at various forecast lead times
- between different station locations in Cambodia

\textbf{Overview}

Every year, Cambodia experiences flooding as a result of monsoon rains and typhoons. Flood forecasting systems are designed to enable people to mitigate economic and social impacts from these events. However, in order for forecasts to be used effectively, an assessment of their accuracy is needed. This study demonstrates the performance of regional and global flood forecasting systems over the 2019 flood season. To do this, we assess the flood forecast accuracy at different forecast lead times and gauge locations in Cambodia. We then compare the flood forecast performance to satellite-based flood maps produced by the Hydrological Remote Sensing Analysis of Floods (HYDRAFloods) tool currently being co-developed by SERVIR-Mekong in collaboration with the Myanmar Department of Disaster Management. This assessment of the flood forecasting systems’ performance and comparison to flood extents helps (1) provide valuable information to forecasters and disaster managers as they make improvements to their models, and (2) provides support to forecast users as they evaluate the strengths and weaknesses of different systems for taking action.

\textbf{Flood Map}

The coarse resolution of GloFAS (shown above) offers a potential explanation for the poor performance at Phnom Penh using the red pixel.

\textbf{Conclusions}

- Regional and national level systems far outperform global systems at all lead times and all locations, but can only provide outlooks up to the next 5 days
- Performance varies widely between stations for global systems, but very little for regional and national systems
- Although no flood events occurred in the 2019 flood season according to water level thresholds, satellite based flood maps indicate large areas of flooding

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Observed water level data was downloaded from the MRC website. Historical data was provided by MRC for the construction of rating curves used to convert SPT and GloFAS streamflow to water level.

\textbf{Acronyms}

MOWRAM: Ministry of Water Resources & Meteorology (National)
MRC: Mekong River Commission (Regional)
SPT: Streamflow Prediction Tool (Regional/Global)
GloFAS: Global Flood Awareness System (Global)