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Hydrological Predictability for the Peruvian Amazon

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Population growth in the Peruvian Amazon has prompted the expansion of livelihoods further into the floodplain and thus increasing vulnerability to the annual rise and fall of the river. This growth has coincided with a period of increasing hydrological extremes with more frequent severe flood events. The anticipation and forecasting of these events is crucial for mitigating vulnerability. Forecast-based Financing (FbF) an initiative of the German Red Cross implements risk reducing actions based on threshold exceedance within hydrometeorological forecasts using the Global Flood Awareness System (GloFAS). However, the lead times required to complete certain actions can be long (e.g. several weeks to months ahead to purchase materials and reinforce houses) and are beyond the current capabilities of GloFAS. Therefore, further calibration of the model is required in addition to understanding the climatic drivers and associated hydrological response for specific flood events, such as those observed in 2009, 2012 and 2015. This review sets out to determine the current capabilities of the GloFAS model while exploring the limits of predictability for the Amazon basin. More specifically, how the temporal patterns of flow within the main coinciding tributaries correspond to the overall Amazonian flood wave under various climatic and meteorological influences. Linking the source areas of flow to predictability within the seasonal forecasting system will develop the ability to expand the limit of predictability of the flood wave. This presentation will focus on the Iquitos region of Peru, while providing an overview of the new techniques and current challenges faced within seasonal flood prediction.