

Poster.4: . **Developing a Real-Time Operational Short-range to Sub-seasonal Forecast System to Improve Planning and Mitigation Activities of Extreme Hydroclimatological Events in the Tarapacá Region, Chile**

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**Abstract**

Convective storms in northern Chile are generally related to the South American monsoon that develops during the Altiplano Winter. Scientific evidence indicates that convective precipitation from monsoon events have become more frequent and intense during the last decades and will keep this pattern in the future. Due to its location (Andes mountains), there are favorable conditions for occurrence of flash floods that impacts downstream where all cities are located, as it happened in this region on March 24-26, 2015. Current regional Hydrometric Monitoring Network managed by the Regional Directorate of Water Resources of Tarapacá Region has deficiencies in the temporal and spatial representation of convective storm events due to the low observational site density. In this regard, our research focuses on the construction, calibration, and validation of a real-time and operational Hydrometeorological Forecasting System to provide weather and hydrological short-range to sub-seasonal forecasts in the Tarapacá Region. We apply high-resolution convective-permitting modeling schemes to represent convective-scale processes with multiple ensemble realizations. These forecasts are used to establish hybrid evaluation metrics for the development of comprehensive data assimilation assessments, which will be operationally implemented in the region to inform stakeholders and decision makers about the socioeconomic risk and anticipate planning and mitigation activities at the regional scale.