Data Assimilation to Forecast heavy events in Peru

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During the second week of September, the south of Peru was affected for unusual events like snowed, rain and heavy winds in the south of Peru, this events caused problems in the region, like accidents in the roads, low visibility in the airports, heavy winds, the forecasters can see this events one day before, an this time is insufficient to prevent the activities in the region, we need to know more days before, in this case. Data Assimilation is a procedure that combines satellite data and other more direct measurements, such as those taken from balloon-based platforms, with information from predictive models to give the best possible estimate of the Earth's atmosphere and surface at given time. In this work, we show some results of the forecasts for this kind of events in Peru, including data assimilation to numerical weather prediction, the data assimilated is conventional data coming from conventional stations and data satellite from NOAA, like retrievals. The results show that the inclusion of System Assimilation into numerical weather prediction will improved the forecast in time and the capture the events locally, observations locallys, form stations located in Peru that not is availability for another centers was used in the system assimilation. In levels close the surface an surface was observed the events clearly, considering of time of forecast can do it four days before with the anomaly correlation of 78% in the four day. This results show the importance of the implemented a system assimilation together to numerical weather prediction model. The important conclusions is that in weather forecast the data assimilation help us to improve the forecast using the data observations properly and prevent some natural hazards related with the atmospherics phenomenals.