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Meteorological and hydrological modeling of an extreme precipitation event in S-Iceland

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The atmospheric conditions and surface runoff during an event of extreme precipitation have been simulated using numerical weather and hydrological runoff models. The results are compared to the available observations, indicating that the simulations are quite successful in reproducing the event. In the atmospheric simulations, there are very large orographic gradients in precipitation, but no direct observations to verify these gradients. The increase in runoff provides however an indirect validation and the quality of the results are such that numerically simulated precipitation will be used in future hydrological studies in the region.

These studies are of great importance to improve flood prediction for the area and for the creation of design floods for various hydropower plants, reservoirs and diversion structures within the river basin.