Atmospheric Rivers and Extreme Precipitation in Norway

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Cold season, extreme precipitation in Norway is almost exclusively the result of anomalously-large moisture flux impinging upon mountainous terrain. So-called atmospheric rivers (ARs), long narrow regions of intense water vapor transport within the lower atmosphere, have been shown to be integral to the transport of (sub)tropical moisture to Norwegian latitudes.

After a brief introduction, a representative event will be presented: a destructive flood in western Norway in October 2014 which resulted in over 30 million Euro in damages. This event in conjunction with previous work motivates an in-depth climatological study.

Extreme precipitation from 1979 - 2014 is investigated for three distinct geographical regions in Norway. In addition to an analysis of the general statistics (frequency, seasonality, interannual, variability), the characteristic large-scale patterns that ‘precondition’ the environment are examined. Intra- and inter-region variability are explored.

Finally, the work will be placed in the context of the upcoming, international field program NAWDEX (North Atlantic Waveguide and Downstream Impact Experiment) scheduled for September-October 2016.