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Future changes in intense and prolonged precipitation events in Norway

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Observations show that extreme precipitation events in Norway are becoming more frequent and intense. Such changes may threaten important infrastructure that are designed along the guidelines based on known historical precedence. InfraRisk is a project that aims to improve the understanding of past and future variability of extreme weather events in Norway, and to gain knowledge about their impact on Norwegian infrastructure, such as roads, railways and related buildings.

In the current study we have assessed future changes in intense and/or prolonged precipitation events in Norway. Eight different climate projections have been used, which were dynamically downscaled and then empirically adjusted onto a 1x1 km grid. Changes in annual maximum 1-, 5-, and 10-day precipitation from the year 1961 until the year 2100 have been analyzed, as well as the number of precipitation events exceeding the respective thresholds of 10 mm, 40 mm and 60 mm. The outcome has been compared to results from a similar study performed on observations.

Although the downscaled climate projections show substantial differences for some regions and variables, most of them estimate an increase in frequency and intensity of precipitation events over the main parts of the country. The projected increase is generally highest in already wet regions such as along the west coast of Norway.