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Scandinavian floods: from past observations to future trends

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Although most climate models agree on a general increase in future precipitation in the Northern Hemisphere due to higher temperatures, no consensus has yet been reached on how this warming will perturb flooding rates. Here we examine the potential co-variability between winter precipitation (Pw) and floods on millennial time scales. This is accomplished by analyzing reconstructed Pw from five records in Scandinavia, which is, compared to data from two high-resolution flood records from southern Norway. These Holocene records reveal a positive correlation (R^2=0.41, $p>0.01$) between the number of floods and Pw on centennial time scales over the last 6000 years. Future projections for Pw over central Scandinavia for the next 100 years suggest a continued increase in Pw that approximates maximum Holocene precipitation values. Despite an anticipated increase in Pw, the paleodata, nevertheless, suggest that we are likely to witness a decrease in future floods 50-100 years from now because the accompanying warming will cancel that net effect of a wetter regime.