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Growing season precipitation in Finland under recent and projected climate

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Abstract. The past and projected future precipitation sum in May–September for two areas in Finland, one located in the south-west and the other in the north-east (NE), is studied using 13 regional climate simulations and three observational datasets. The conditions in the present-day climate for agricultural crop production are far more favourable in the south-western part of the country than the more continental eastern Finland. Based on a new high-resolution observational precipitation dataset for Finland (*FMI_grid*), with a resolution of 10 km, the only statistically significant past long-term (1908–2008) precipitation tendencies in the two study regions are positive. Differences between *FMI_grid* and two other observational datasets during 1961–2000 are rather large in the NE, whereas in the SW the datasets agree better. Observational uncertainties stem from the interpolation and sampling errors. The projected increases in precipitation in the early stage of the growing season would be most favourable for agricultural production. The projected increases in August and September might be harmful. Projections for the future indicate a statistically significant increase in precipitation for most of the growing season by 2100, but the distribution of precipitation within the growing season is not necessarily the most optimal.

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