Climate change and projections for the Barents region

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We present an outlook for a number of climate parameters for temperature, precipitation, and storm statistics in the Barents region and an atlas based on empirical-statistical downscaling applied to large multi-model ensembles from the CMIP5 experiment. In addition to an outlook, we apply a sensitivity test to see which aspects are likely to change with a future warming and which are likely to remain unchanged. The climate parameters include traditional sorts like the mean, but also untraditional statistics, such as wet-day frequency, wet-day mean precipitation, and storm tracks. These climate change projections were derived using a new strategy for empirical-statistical downscaling, making use of principal component analysis to represent the local climate parameters and large ensembles of global climate model simulations to provide information about the large scales. The method and analysis were validated on three different levels: (a) the representativeness of the global climate models, (b) traditional validation of the downscaling method, and (c) assessment of the ensembles of downscaled results in terms of past trends and interannual variability.