



Very high resolution climate and surface mass balance modelling over Svalbard with the regional climate model MAR

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We present climate and surface mass balance (SMB) results over Svalbard simulated by a new version of the regional climate MAR model allowing to reach ~km resolution without highly time-consuming runs.

Spitsbergen, the largest island of the Svalbard archipelago, has a very hilly topography and, as the SMB strongly depends on the local topography and ice distribution, we need a high spatial resolution to accurately represent the SMB of Svalbard and its complex spatial distribution. However, higher resolution simulations are also very time consuming.

That is why we have developed a new version of the MAR model in which the atmospheric module runs at a resolution of 5 km and the snow/ice module runs at a resolution of 2.5 km.

Simulations over 1958-2014 forced by ERA show better agreement with SMB observations compared to our recent 10km resolution results published in The Cryosphere.