



The radiation regime at Summit, Greenland - observations versus GCM simulations

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GCMs suggest the strongest future warming to happen in the Arctic regions. Radiative processes are tightly linked to this warming. To indicate possible deficiencies in GCM parameterizations, comparisons between observed climatologies and GCM present-day simulations have been made. Comparisons in the Arctic regions, however, are rare, as only few observations are available. Detailed observations of the short- and longwave radiative fluxes have been made at the Greenland Summit Environmental Observatory in the center of the Greenland ice sheet (72°35' N 28°30' W, 3203 m.a.s.l.). Measurements by the Swiss Federal Institute of Technology (ETH) started in July 2000 and continue today. They have been performed following the high quality standards of the Baseline Surface Radiation Network (BSRN). A radiation climatology from these observations is being compared to a climatology calculated from ECHAM5 simulations. The comparison addresses the annual cycle of the up- and downward fluxes of short- and longwave radiation, as well as cloudiness.