



Comparison of snow cover characteristics over territory of Russia based on observational and reanalysis data

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It is well known snow plays important role in the climate systems through both direct and indirect feedbacks. Thus a study of snow cover characteristics in different scales is a necessary step for a water management. It is also important to describe snow processes in hydrodynamical models to improve the parameterization of hydrological cycle. Several studies have focused to validate hydrodynamical models using of SWE data based on Reanalysis data; however, so far there is no detailed study about applicability of this type of data. A comparison between SWE data from ECMWF, NCAR/NCEP (version 1 and version 2), JMA Reanalysis and observational snow data in the present study was performed assessing the ability of Reanalysis data to simulate seasonal SWE and also in determining whether snow anomalies simulations in past have been realistic in the study region. Results of the validation of four Reanalysis data sets in term of simulating of seasonal SWE variability averaged over main river basins over Russia region demonstrate reasonable coincidence with observations for the late autumn and early winter time. It is found that the coincidence between ECMWF reanalysis and observational SWE data is high over European part of Eurasia. Significant improvements were found for NCAR/NCEP Reanalysis-2 in comparison with previous version. An analysis of the annual cycle and interannual variability of total SWE (Snow Water Equivalent) and SCA (Snow Cover Extent) in the principal river basins over Russia is carried out. This work has been supported by the INTAS Project 03-51-5296, RFBR grant 04-05-65099 and NATO ESP CLG grant 981842.