



Snow and Snowmelt Runoff in Small Catchments of North-western Russia

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Climate-related variability in snow cover has been revealed by long-term observations at Valday experimental basins, north-western Russia. Problems have been highlighted on how to validate the weather radar and satellite observational data, and what is to be assumed as the ground truth data. Two techniques were developed to advance analyses of the snow survey data: (1) kriging, a variance of optimal interpolation, as improved with allowance for elevation gradient and (2) statistical description of the SWE distributions along with landscape analysis. Among other things, these methods are to be used for retrieval of the snow cover spatial distribution at different scales. Reported also are two applications aimed to: (1) improve snow melt flow prediction and, (2) simulate local snow distribution in cold regions and low mountains. Spring discharges from two small rural catchments (one forested and one of open area) have been analyzed to reveal trends and regional relationships between SWEs, melt water infiltration and runoff.

Key words: Snow, Snowmelt, Runoff, Spatial variability, Temporal trends