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The Importance of the Measurements of the Snow Cover Parameters for the Hydrological Forecasting

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The snow measuring network in the Jizerske hory Mountains was set up in 1981, in the framework of CHMI Experimental Base. The basic snow profiles were measured in weekly time steps. The network was many times changed during the next ten years, due to the proceeding deforestation. At the beginning the profiles were mainly situated in the forest than in the open area. At the end of the 80´s the research was focused into seven experimental catchments (Uhlirska, Blatny rybnik, Kristianov, Smedava I, Smedava II, Jezdecka and Jizerka). Since 1991 the stable measuring network with twenty-six snow profiles has been used. The elevation ranges from 800 m to 1000 m a.s.l. The pair profiles, which means under the canopy and on the clearings, are observed in eight localities. The measuring is practiced regularly in weekly time steps.

During the winter season 2000/2001 seven new snow profiles were chosen in the western part of the Krkonose Mountains (Giant Mountains), which belongs to the Jizera river basin. There is one pair profile and the snow courses are situated at the elevation from 610 m to 1310 m a.s.l. Snow depth and water equivalent samples are carried out in weekly time steps from January till April. The maps with the distribution of the snow cover will be a part of the poster presentation.

Also in these days the figure for the calculation of the daily value of the snow water equivalent is verified. This figure is able to calculate the continual daily snow water equivalent during the whole winter season. The total precipitation (water and snow), the total snow depth and the water vapour tension from the nearest climatic station are its input daily values.

Data of snow depth and water equivalent captured by these measurements are important sources for the estimation of water storage in basins. Together with the precipi-

tation and air temperature data they are used for hydrological forecasting especially during the snowmelt period.

The information from the regular weekly snow depth and water equivalent measurements, provided in the Experimental Base, is utilized for the run-off forecasting in the Jizera river catchment. Measured data serve as a check and for possible adjustments of the snow water equivalent generated by the model SNOW 17 – which is a part of the forecasting modeling system Aqualog. This system is in everyday use for the Elbe river forecasts in the Forecasting center of CHMI. Usefulness of this procedure was especially proved during the last year floods from a snow melting, when the snowfalls in the CR were exceptionally high and the results of expedition measurements were taken into a consideration immediately before the flood event.

The model SNOW 17 has been calibrated for the catchment of the Cerna Desna river with a closing profile Jezdecka (one of the experimental basins in the Jizerske hory Mountains). The obtained results demonstrate the very good capability of the model to duplicate the dynamics of snow cover accumulation and thaw, if quality input data are available.