# Snowmelt simulation in the experimental basin of “Fiumarella of Corleto” (Southern Italy)

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The AD3n rainfall-runoff model was applied to the experimental basin of Fiumarella of Corleto to analyze the importance of the snow accumulation end melt processes in the streamflow simulation. The “Fiumarella of Corleto” river is located in Basilicata region (Southern Italy), with an area of about 33 km2, a mean altitude of 1050 m (ranging from 650 to 1500m), characterized by a mean annual precipitation 720 mm with conspicuous snowfalls during winter periods. The snowy precipitation is quantified by means of a raingauge provided of a heat resistance, installed on a hillslope at the mean altitude. The adopted snowmelt module is based on a degree-day method. The snow cover spatial distribution, result of the mass balance between snow accumulation and melt, was compared with NDSI (Normalized Difference Snow Index) obtained by reflectance data from the Moderate Resolution Imaging Spectroradiometer (MODIS) onboard the NASA Earth Observing System (EOS) Terra spacecraft. Such index allows a reduction of cloud obscuration producing a good description of snow cover. The DREAM model application have been validated producing good results both in terms of snowmelt runoff, highlighting a delayed response in the streamflow during a flood event, and in terms of basin snow cover distribution: in this way the model shows a good capability to reproduce not only the outlet streamflow but also the physical processes on the basis of snowpack generation and melting.