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Combined use of meteorological radar, forecast local model and air temperature at ground level measurements, in precipitation type detection.

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Heavy snow events can cause several problems to roads in Piemonte region, due to frozen surface, snowfall, snow drift. An algorithm, which involves radar and local area model data, has been developed in order to discriminate the phase of precipitation at ground level.

Algorithm input data come from different instruments managed by ARPA Piemonte, including two C-band polarimetric weather radar and ground observations carried out by over 300 stations. The freezing level, used as input data, is forecasted by the non-hydrostatic limited-area atmospheric model, developed by COSMO consortium.

The basic idea of the algorithm is to combine radar composite reflectivity data, estimated as near as possible to the ground, with ground observation or freezing level forecasted by LAMI model, distinguishing in snow, wet snow and rain.

The aim of this study is a verification of different versions of the algorithm, using present weather observation detected by Vaisala FD12P sensors.