

Current status of meteorological and snow observations and reanalysis available in the French Alps.

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Abstract:

CNRM/CEN maintains two main experimental snow observatories in the French Alps : Col de Porte and du Lac Blanc (along with IRSTEA). Col de Porte is a mid-latitude mountain site (1325 m a.s.l.) located in Chartreuse massif (French Alps). For Col de Porte, a large database of observations, including weekly snow profiles but also meteorological and snow variables on a daily (1960-2017) to hourly basis (1993-2017) is available. Col du lac Blanc is a high altitude experimental site, located in Grandes Rouses massif (French Alps), initially designed for the study of snow-wind interactions. The dataset of meteorological and snow variables extends from 2010 to 2017. In the frame of INARCH network, snow and meteorological data from both sites have been made available for the scientific community. This presentation details the dataset from both sites.

In addition, this work describes the latest reanalysis release of snow-related simulations now covering 60 years over the French Alps. These simulations comprise: SAFRAN meteorological reanalysis, Crocus snowpack simulations and MEPRA avalanche risk analysis. This system is named S2M, the acronym of SAFRAN, SURFEX (land surface model comprising Crocus model) and MEPRA.

These in situ and simulations products are complemented by a wide database of remote sensing products from optical (Sentinel-2, SPOT6-7 and Pléiades) and radar (ALOS2 and Sentinel-1) sensors that are gathered on the kalideos project web site (www.kalideos.cnes.fr), also described in this work.