



CLIMATE IN WINTER 2015-16 IN CENTRAL-NORTHERN ITALY

by the ARCIS work group

The winter season 2015-16 was a double-sided season: it was initially characterised by major anomalies in large scale circulation, led by an intense El Niño event, resulting in temperatures well over the average and scarce precipitation, alternating with long dry periods. At the start of 2016, the meteorological situation gradually got back to normal and, thanks to a very rainy February and early cold spring, the strong anomalies of early winter fortunately had no major impacts either on the recharge of aquifers, or the tourist activities in the mountains.

SNOWCOVER EVOLUTION IN THE ALPS In the winter season 2015-2016

M. Valt and P. Cianfarra

From a statistical viewpoint, the

winter season 2015-2016 will be remembered as a normal season, even though being actually characterised by marked scarcity of snowfalls until late January in most of the southern sectors of the Alps, then followed by intense snowfalls. The absence of structured snowcover in December and January, save for some sectors of Valle d'Aosta, affected the seasonal evolution of snowcover, reducing basic snowpack instability. Intense avalanche activity was observed from mid-February on, and mainly after the heavy snowfalls in the first days of March, when many large avalanches reaching valley bottoms were observed. Avalanche accidents concentrated in the second part of winter, with their number and victims below the average. The season was characterised by an average danger degree. Snowcover duration was below the average by 23/46 days depending on height,

and snowcover thickness values exceeded average values only in the first ten days of March. The most frequent avalanche danger degrees were 1-low and 2-moderate, with degree 3-considerable being more frequently recorded in February and the first ten days of March. Worth mentioning are the high temperatures of December, which reached their maximum levels ever recorded from 1920 to date (when historical data sets for the present work were first available).

SNOWCOVER IN THE APENNINES In the winter season 2015-2016

M. Valt, S. Sofia and P. Cianfarra

The winter season 2015-2016 in the Apennines was characterised by less snowfalls than the 2010-2015 average. Fresh snow accumulation was below 0.10 percentile as for SAI Index calculation, a value that underlines scarce precipitation.

Snow, like in the Alps, fell late in the season and the heaviest snowfalls occurred in February and March. All figures have been processed with an experimental database of data published online, and therefore should not be intended as definitive.

SNOWFALLS AND AVALANCHES Snow and climate events and territorial problems in the winter season 2015-2016

by AINEVA avalanche services

This article describes, for the various administrative areas, the most significant snow and climate events of winter season 2015-2016 and their principal impact on territory. The reports, drawn up by the regional and provincial avalanche services that are part of AINEVA, are not certainly exhaustive as for the winter season trend at local level, but should



be mainly intended as targeted studies that aim at pointing out the most important problems that have emerged in the various areas and which had major impact on economic-production activities and the civil defence system.

RED SNOW **A chromatic effect or a stability defect?**

M. Valt and M.C. Prola

The presence of sand powders from

the Sahara desert in precipitations over central-southern Europe is a quite frequently observed event.

These deposits have also been found in the core samples taken from Alpine glaciers and they give snow a red colour, more or less evident depending on their concentration. At first sight, this colour may also be confused with that produced by *Chlamydococcus nivalis* unicellular algae.

The presence of powders on



the snowcover surface reduces snow albedo, accelerating melting processes.

This leads to the formation of surface layers mostly made up of melt forms that, with subsequent freezing, turn rapidly into crusts. The latter, once incorporated in the snowpack and under determined conditions, seem to facilitate formation of thin weak layers of faceted crystals, which leads to increasing snowpack instability.

After proposing a historical description of some events observed in the last centuries, this article describes from a meteorological viewpoint some recent events of major powder depositions in the southern Alps and their observed effects on snowcover stability.

AVALANCHE ACCIDENTS **Overview of avalanche accidents in Italy in the winter season 2015-2016**

S. Pivot

15 avalanche casualties were recorded in the winter season 2015-2016, a number well below the average, in only 9 fatal accidents. This figure, in line with those recorded in other alpine countries, underlines a serious problem: the growth, in the last few years, in the number of accidents that involve a number of buried people.

Due to the particular seasonal trend, 85% of the accidents took place between February and May and a third of them in April alone. 70% of the accidents took place on slopes with inclination from 40° upwards, which confirms a growing trend: people seem to search for steeper and steeper slopes, thanks to the use of high-performance materials.

At least in 5 accidents, several people still were not equipped with the basic safety pack: ARTVA-shovel-probe. However, out of 15 casualties, trauma turned out to be the cause for the death of 14 people, and in these cases self-rescue by companions is virtually useless.

