

Abstract

It is already known how the actual global warming is raising the line of natural snow reliability in the Alps; it has been asked, if it would be possible to cool the air over skispistes with the aid of artificial snow, in order to postpone the closing of the ski-season. Many studies showed the influence of snow in lowering the values of maximum and minimum temperatures, but presented different results about the evolution of temperatures at night; this uncertainty makes the role that snow plays in the nocturnal cooling of air unclear. In order to determine such role, 15-yr temperature and snow-height data from the weather station of the Innsbruck airport have been collected: twenty days with clear sky and windless night were selected, ten with and ten without a snow cover, and their temperature values plotted together. The results show a cooling of the air over snow throughout the night stronger than over grass, which is thought to be due to the insulating properties of snow, that prevent the heat stored in the soil during day to reach the surface of the snow cover.