Almost every snow-cover gets patchy in the course of the melting season. The patchiness of a snow cover is caused by the spatially variable snow-depth distribution at the time of peak accumulation and by the spatially variable energy balance. The local energy balance is driven by net radiation and turbulent exchange of mostly sensible and to a lesser degree latent heat. Using the surface energy and mass exchange models SNOWPACK and Alpine3D together with high resolution meteorological simulations, the effects of locally developing atmospheric stratification and thus de-coupling from the warm atmosphere are investigated. The detailed numerical results are validated by measurements using distributed meteorological stations and local eddy flux measurements. It is shown that atmospheric de-coupling is a key mechanism in snow patch survival.