

Based on a modelling study of subcanopy and open-terrain snow cover for 8 years in a large Central Alpine domain, the authors propose a detailed analysis of the influence of different factors on the contrasted snowpack dynamics between forested and open areas. The factors analysed encompass aspect, altitude, location and interannual climate variability.

The study is well written, very well illustrated, and well structured. The impacts of forests on subcanopy snow have to my knowledge never been assessed with such level of analysis and detail over such a large spatial scale, making them very relevant for publication and of high interest for hydrological applications.

I have only **minor comments** which in my opinion should be taken into account prior to publications.

**Main minor comments :**

- In section 2.2, a description of how SCF is derived in the OSHD simulations is missing, making it hard to fully understand and assess the relevance of the evaluation carried out in Section 3.1

- The approach and results are not sufficiently discussed with respect to a previous publication that imo contributed to prepare the grounds for the present study and drew relevant conclusions for large spatial scales, namely Lundquist et al., 2013 (whom the authors cite).

Reference and an assessment of difference/progress beyond this work should be made in the Discussion.

**Specific comments :**

L 259 : it should be 13th April and not 14th April

L 364-366 : « *In contrast, forests on north-facing slopes advanced CT by up to two weeks, which also applied more generally above 1850 m in all regions, regardless of aspect.* »

Could the fact that forest is likely sparser above 1850 m, play a role in explaining this ? If relevant, the effect of canopy density could be a bit more discussed with respect to this result.

L 400-403 : « *Here, it is likely the difference in accumulation that drives the overall effect of forests on snow persistence* ». I think the affirmation is a bit stronger than what the observation tells, and maybe a reformulation could be appropriate, like « *Here, the difference in accumulation likely has an important contribution to the overall effect of forests on snow persistence* ».

L 458 : I think Fig 6 is meant instead of Fig 5

L 525 : « *Even 15 years ago, modeling studies were already instrumental in forming today's understanding of how snow dynamics are affected by the presence of forest cover in mountainous topography* » The formulation is weird and maybe a reformulation should be attempted.

L 533 : suggestion to replace « *extra* » by *additional*