

The Cryosphere Discuss., community comment CC1  
<https://doi.org/10.5194/tc-2020-357-CC1>, 2021  
© Author(s) 2021. This work is distributed under  
the Creative Commons Attribution 4.0 License.



## Comment on tc-2020-357

Enrico Mattea

---

Community comment on "A local model of snow-firn dynamics and application to Colle Gnifetti site" by Fabiola Banfi and Carlo De Michele, The Cryosphere Discuss.,  
<https://doi.org/10.5194/tc-2020-357-CC1>, 2021

---

Very interesting read. Could your monthly estimations of the non-eroded snow fraction help with the analysis of ice cores retrieved at the Colle? Or at other alpine sites with a similar seasonal bias.

In the (instantaneous) hourly series of Capanna Margherita, I found some instances of a frozen anemometer, with extended periods of zero wind speed (not supported by other, lower stations). Does this happen also in the hourly means, and if yes, would it have an impact on your modeled density and erosion rates?

Did you compare the performance of the Arnaud et al. (2000) densification model against Herron and Langway (1980)? The H-L model appears to perform quite well on the B76 core (Fig. 5) with parameters  $T = -10\text{ °C}$ ,  $a = 0.3\text{ m w.e. yr}^{-1}$ ,  $\rho_0 = 0.35\text{ g cm}^{-3}$ .