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Earth System

Science

Data

Discussions

Interactive comment on "Daily gridded datasets of snow depth and snow water equivalent for the Iberian Peninsula from 1980 to 2014" *by* Esteban Alonso-González et al.

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General Comments

This paper presents us an interesting dataset of estimated snow depth and water equivalent for the Iberian Peninsula. It was obtained by a laudable combination of meteorological reanalysis, regional climate modelling, and detailed snow modelling. The dataset is relevant and worthy of publication. The methodology is flawless, interesting, and well presented.

Specific comments

- The workflow used in this paper, from reanalysis to modelling, is really meritorious. Several hypothesis and parameterizations had to be used to obtain some inputs required for the snow modelling (lapse rates, cloud cover, fraction of solid precipitation...). They make a nice chain of hypothesis but, at the same time, add a lot of uncertainty to the input data derived from them. The authors themselves recognize, rightly, these limitations (section 3.2 and line 338 and following) and have clearly stated that the dataset may be useful only at regional scale studies. Besides, the resolution of the simulation, despite the usage of bands for the solid fraction of precipitation, is in the order of magnitude of the size or width of the mountain ranges we are dealing with in Spain, with the exception of the Pyrenees. I think that in most of these areas this is an important drawback to use this dataset, not only for avalanches or wind-driven phenomena, but also for hydrological or environmental applications (Line 373-374), which are here very dependent on local constrictions. I guess that the use of a more detailed model is feasible and a good next step. This is not a question in itself, but rather a comment to generate some discussion on this topic.

- Did you carry out any kind of calibration of the snow model FSM? What criteria have been used to decide the configuration and the value of the parameters of the model?

- Even though English is not my mother tongue, I think there are many poorly constructed sentences in what seems like a bad translation from Spanish passive tense. The paper would require a thorough grammatical revision. Examples:

  - Line 201. Original: 'For RH, it was used the methodology proposed by...'. Suggestion: 'For RH, the methodology proposed by... was used.'
  - Line 203. 'First, it was calculated the dew point temperature from...' by

'First, the dew point temperature was calculated from...'

- – Line 234. 'It was downloaded all the available...' by 'All the available ...were downloaded'
- – Line 248. 'Then, it was aggregated the...' by 'Then, the MODIS pixels (500 m) were aggregated to...'
- – Line 257. 'It was projected the meteorological variables from...' by 'The meteorological variables were projected from...'
- – Line 274. 'It was converted the series into... ' by 'The series were converted into...'
- – And so on.

Technical corrections

- • **Line 40: extra comma between 'economy' and 'of'**
- • **Line 181 'de' by 'the'**
- • **Line 194. 'parametrization proposed by Walcek'... Do you mean parametrization of Cc or SW?**
- • **Line 229-230. The sentence seems incomplete.**
- • **Line 232. 'Same workflow to each...' by 'Same workflow for each...'**
- • **Lines 517 and 520. The author enumeration is duplicated (Liston and Elder).**
- • **Lines 556-557 The same as above. And something similar in other references, like Line402-403, Line 425, Line 429, Line 482, Line 507, Line 536, Line 569-575 (this is specially funny... more than 100 authors!), Line 603,**
- • **Line 448. '?' in place of a missing character**