

The Cryosphere Discuss., referee comment RC3
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Comment on tc-2021-46

Anonymous Referee #3

Referee comment on "Evaluation of snow extent time series derived from Advanced Very High Resolution Radiometer global area coverage data (1982–2018) in the Hindu Kush Himalayas" by Xiaodan Wu et al., The Cryosphere Discuss.,
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I spent a long time reading the first sections of the manuscript when I realized that this article should not have passed the Editor's initial screening. There are 16 figures but in fact most of the figures are multi-panel figures and I counted 72 individual graphs, some of them with multiple lines or symbols. That is too much information to analyze as a reviewer. The result section is a long description of these figures. I think that the authors should profoundly revise their manuscript to present a more concise assessment by cutting down some text and figures, and rework the design of the key figures.

Beyond that issues I still think that the study is useful and important. I am not able to provide a more detailed review because that would cost me a couple of extra hours of work. However, there is an important point that cast doubt on a significant part of the study :

About the Landsat data processing: "the 30 m FSC were resampled (nearest neighbor method) and projected to a geographic projection of 0.05° to identify FSC within a given AVHRR GAC pixel."

If this is actually done as written it means that a *single* Landsat pixel of 30 m resolution was assigned to the 0.05° pixel (about 5 km resolution), i.e. the pixel that is the nearest to the center of the AVHRR pixel. The source code was not provided so I could not check. The Landsat pixels should be resampled to AVHRR resolution using the area-weighted average of contributing pixels.