Evaluation the MOD10A1 daily snow albedo product (v. 6) on Livingston Island, Antarctica

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One of the factors that can most influence climate changes on a global scale is the albedo decrease, associated with a temperature increase and a snow cover decrease, mainly in the polar areas, where the remote sensing data are essential because there is much difficulty access to obtain measurements in situ. Therefore, evaluations of satellite measurements are essential.

The daily MOD10A1 snow product provides daily measurements of albedo. Version 6 is currently available. In Antarctica, and more specifically on Livingston Island (South Shetland Archipelago), where one of the Spanish Antarctic bases is located, the daily snow albedo product of MODIS (MOD10A1) has been evaluated using version 5 data (Calleja et al. 2019). However, several authors have recommended updating the analyses based on version 6 data (Box et al. 2012, Casey et al. 2017), as they are more accurate.

In this work, we have analyzed the albedo behavior using MOD10A1 version 6 data between 2006 and 2015 and we have seen an increasing trend of albedo. Version 5 showed an increase of 0.07 per decade. However, version 6 data show less variability (0.04 per decade), and its results are closer to those obtained in the measurements in situ (0.03 per decade). In addition, the results obtained allow us to affirm that the MOD10A1 daily albedo product (v. 6) can be used to determine the albedo in the study area.

References:


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