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

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**ACKNOWLEDGEMENTS:** This work has been made possible by the following Ph.D. Grants: “Severo Ochoa” from the Government of the Principality of Asturias [BP17-151] and “Predoctoral Grant” from the University of Oviedo.

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**NEED FOR EVALUATIONS OF SATELLITE MEASUREMENTS**

The albedo decrease is associated with a temperature increase and a snow cover decrease, mainly in the polar areas.

**The snow albedo daily product of MODIS (MOD10A1) has been evaluated using version 5 data (Calleja et al. 2019).**

**The temporal variability of the MODIS data has been reported to be due to the fact that MODIS does not completely eliminate the effects of cloudiness (Box et al. 2012).**

**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.**

**Scatter plot of the albedo in-situ data and MOD10A1 data for all days (left), and cloudy and clear days (right). In clear days the results of MOD10A1 are much better related to in-situ data.**

**Albedo data (December 2006 to January 2015). Above, albedo values of in-situ (black triangles), MOD10A1 (v.6) (blue points) and MOD10A1(v.5) data (red points). Down, albedo trend of in-situ (black line), MOD10A1 (v.6) (blue line) and MOD10A1 (v.5) data (red line).**

**Automatic Weather Station (AWS): Johnson Glacier Spanish Meteorological Agency (AEMET)**

Above, RGB composite of MOD09GA of Livingston Island (left) and MOD10A1 image of Livingston Island (right) of 15/01/2007, where clr=0.0.

Down, RGB composite of MOD09GA of Livingston Island (left) and MOD10A1 image of Livingston Island(right) of 07/01/2008, where clr=0.5.