

Interactive  
Comment

## ***Interactive comment on “Changes in seasonal snow cover in Hindu Kush-Himalayan region” by D. R. Gurung et al.***

### **Anonymous Referee #1**

Received and published: 29 April 2011

General comments: The authors utilized some techniques to reduce the frequency of cloud cover in the standard MODIS 8-day snow cover product in the Hindu Kush-Himalayan (HKH) region. They present the annual snow covered area in HKH and its trend during the most recent decade. Since in situ observations are very sparse in the HKH region due to its harsh environment, snow cover information derived from satellite remote sensing is especially useful in this region. However, I found the paper is not well written and I can't always follow ideas presented by the authors. Some comments outlined in the following will hopefully improve the final version of the paper. In the Methods Section the authors proposed some techniques to reduce the frequency of cloud cover in the MODIS snow product. However, they didn't use this improved dataset in their decadal snow cover analysis presented in Section 5.2. Which is kind of weird but I haven't found any explanation on this in the paper. “Snow cover” has been used

Full Screen / Esc

Printer-friendly Version

Interactive Discussion

Discussion Paper



numerous times through out the paper, but it is often not clear whether the authors refer to snow cover area, or snow cover extent, or snow cover fraction. For example, on P757 L28: Timing of snow cover peak differs across. . . . . Is it snow cover area or snow cover extent? I'd suggest the authors specify this every time they use "snow cover".

Specific comments: P756: The numbers used in L9: "+1.66%±2.26%", L10: (-1.04±0.97%) and L16: (-03.68±3.01) are not as same as they used in Table 1. Which one is right ?

P757 L18: The HKH region characterized by large climate variability due to altitudinal differences results in large spatial variation in snow cover across the region. . . . Meaning of the sentence not clear

P759 NDSI equation (1) is not necessary as the authors do not calculate NDSI but only use the MODIS product in the paper.

P759 L16-17: The SRTM DEM at 90m spatial resolution was re-sampled to 500m to make it consistent with snow data. Suggest change to "...make it comparable with snow ..."

P759 L22: Some of these procedures in detail are explained in Gafurov and B'ardossy (2009) Suggest change to "Some details of the procedures can be found in ..."

P760 L1-6: meaning not clear, need to explain every variable used in Eq (2) - what are SA and ST stand for? What's value of pixels?

P761 L23: explain Kappa coefficient

P762 L4-5: These graphs suggest good correlation between amount of snowfall and percentage of snow cover Need to provide correlation coefficient

P763 L21-23: The good correlation (see Fig. 8) suggests that changes in snow cover are due to inter annual variations in circulation pattern. Why is this? Need to provide

Full Screen / Esc

Printer-friendly Version

Interactive Discussion

Discussion Paper



more explanation

There is no description/explanation in the text for Figure 7 on P775.

---

Interactive comment on The Cryosphere Discuss., 5, 755, 2011.

TCD

5, C291–C293, 2011

---

Interactive  
Comment

Full Screen / Esc

Printer-friendly Version

Interactive Discussion

Discussion Paper

C293

