

## ***Interactive comment on “Tilt error in cryospheric surface radiation measurements at high latitudes: a model study” by W. S. Bogren et al.***

### **Anonymous Referee #1**

Received and published: 1 September 2015

The authors try to quantify the impact of platform tilt on the solar radiation measurements at high latitudes based on model simulations. This is an important and interest topic. The authors concluded that the tilt errors are important for direct solar radiation component. Currently, one can measured solar radiation with two methods. The first, one can measure total solar radiation with a pyranometer. The second, one can also measure direct solar radiation with a pyrhelimeter and measure diffuse solar radiation with a shaded pyranometer. Total solar radiation can be calculated as a sum of these two measurements. The authors did not mentioned which method they targeted. For the first one, only total solar radiation is measured and its error depends on the received energy by detector of pyranometer. For the second one, the error of observed direct solar radiation is determined by whether the pyrhelimeter tracks the sun exactly. For a 5 degree error, the pyrhelimeter can totally miss the sun and error of the ob-

C1519

Full Screen / Esc

Printer-friendly Version

Interactive Discussion

Discussion Paper



served direct solar radiation can be huge. The model simulations did not address none of the above mentioned factors. To quantify the tilt errors, the authors should set up instruments with a reference measurements. The errors can be studied by comparing the observations. To quantify the measurement errors, the authors should know more about the instruments and measurements, and updated references in the field.

---

Interactive comment on The Cryosphere Discuss., 9, 4355, 2015.

**TCD**

9, C1519–C1520, 2015

---

[Interactive  
Comment](#)

[Full Screen / Esc](#)

[Printer-friendly Version](#)

[Interactive Discussion](#)

[Discussion Paper](#)

