The Dai et al. paper used the MODIS fractional snow cover product, in situ observations, and airborne observation data to evaluate the accuracy of snow cover and snow depth derived from passive microwave remote sensing data and to analyze the possible causes of uncertainties, such as cold desert, soil temperature, atmospheric correction, spatial resolution and topography and snow characteristics. The analyses are well-organized, the results are quite specific, which can provide a reference for the use of passive microwave remote sensing retrieving snow cover and snow depth, especially in some complex land surface region, such as Tibetan Plateau. Despite of its significance, several issues still need to be resolved before a publication to The Cryosphere. The paper needs thorough English edits and I only catch a few below, and some qualitative discussions are also needed.

Below are some general comments:

Introduction:

- The first paragraph needs to rewrite. ‘The Qinghai-Tibetan plateau (QTP) is considered the third pole of the world; its snow cover is an indicator of global climate change (Kang et al., 2010; Wu et al., 2003; Wang et al., 2015), and snow cover variation impacts the near ground air temperature and precipitation in Eurasia and across the Northern Hemisphere (Zhang et al, 2004; Lü et al., 2008; You et al.,2011).’ This part should be more focused on the topic of study and does not need to include everything that does not link to the topic of snow cover change in QTP.

- P2L17 remove should be replaced by eliminate.

- P3L1-4 the part is makes no sense for the topic of this paper, should be removed.

- P3L24 mainly should be replaced by primarily.

2. Data

2.1 MODIS snow cover fraction

- Snow cover fraction (SCF)-----Fractional snow cover (FSC)

- Which products version was used in your manuscript?

2.3 Meteorological station observations of snow depth

- How the snow water equivalents were measured by meteorological station?

- P6L19 18 and 36GHz, please keep the consistency of expression. Use K and Ka band or 18 and 36GHz all through the paper.

2.4 Field experiments

- Three observation routes were presented in figure 1, but in the following comparisons, you didn't compare the results of the observations in red and green line, why?

- P7L18 Why was the total portion of all possibilities not 1? Please check the data.

- When compared with MODIS snow cover fraction in figure 3, what is the relationship between the left and right figures? Please describe them clearly.

3. Evaluation methods and results

- Your results involved AMSR2, but nothing results about AMSR2 appeared in 3.2.1.

- P7L18 "12.2 % uncertainty area, including 6.1 % high possibility of snow cover area and 6.1 %

high possibility of snow free area." Very confused.

- P8L13 snow depth is low---snow depth is shallow.
- P8L18 …with shallow snow---because of shallow snow.
- P9L2-3 'Snow cover conditions were derived from AMSR-E or AMSR2 at grids that contained meteorological stations and were compared with observations.' Please rewrite.
- P9L4 'points'. I think here 'samples' should be better.
- Table 1 & 2. Please use confusion matrix to introduce how the accuracy values calculate.
- Please add the trend line and correlation coefficient in fig. 6a.

3.2.2 Comparison with field observations

- When the estimated snow depth was compared with the observation along the observation route, do you consider the snow cover fraction as in Binggou watershed?
- P10L4 'Compared with these snow depth.' Please replace the snow depth to samples.
- P10L6 'deep' --- 'thick or heavy'
- P10L18 'Snow depth in a PM grid is reflected in the dense sample and snow cover fraction across the QTP.' What is your meaning?

4. Sources of error

4.1 Cold desert

- How do you know where is the cold desert？ what is your base?
- P11L1 'Take the Tuotuohe station for example' --- 'Take the Tuotuohe station as a example'.
- What are the locations of Nyalam station (Id: 55655) in Section 3.2.1, Batang station (Id: 56247) in section 4.2, Tuotuohe station (Id:56004) in section 4.1, please label them on the fig. 1.
- Fig. 8a. You mentioned the 'significant', you have to do the F test, and also add the test value to fig. 8a.
- P11L14 'Therefore, the ground temperature is the main reason cause the change in TBD'.
- P11L25 ...is key to improving the...---is key to improve the...

5 Conclusions

- You need separate your conclusions into two parts, a discussion section and conclusions section, to put your results in the big picture of literature, how your results differ from, similar as, or extent in certain degree of the current literature. You also need to include a paragraph on the possible explanations to the observed change, difference, or extension.