Open Access

Earth System
Science
Data

Discussions

Interactive comment on "Geometric accuracy assessment of global coarse resolution satellite data sets: a study based on AVHRR GAC data at the subpixel level" *by* Xiaodan Wu et al.

Xiaodan Wu et al.

wuxd@lzu.edu.cn

Received and published: 1 November 2019

Thank you for spending your time on my manuscript and giving the opportunity to revise it. And we also thank you for your valuable comments as they actually improve the paper's quality. In this document, we describe how we address the reviewer's comments. The reviewer's comments are marked in black color, however, our reply is marked in blue color. This paper describes the work undertaken by the authors to assess the geolocation accuracy at the subpixel level of AVHRR Global Area Coverage data from NOAA-17, MetOp-A and MetOp-B satellites. The paper is comprehensive and generally well written, with sufficient figures to follow the work that is described.

The authors used a coregistration method based on reference NDVI data from MODIS. The authors use NDVI from NOAA-17, MetOp-A and MetOp-B satellites (using visible and near IR bands), and use the described Correlation-based Patch Matching Method to assess the sub-pixel geo-location accuracy in both the along-track and cross-track directions. Six regions of interest from Europe and Africa were selected for analysis, and included different land cover and terrain characteristics. The effect of large satellite zenith angles was also examined. Results are presented as mean cross-track and along-track shifts along with a standard deviation for each of the satellites applied to each of the regions of interest. The analysis was thorough, and I cannot suggest any further work needed for the paper. I have a few specific comments for the paper: 1) Provide a reference or two on the land-sea fraction method mentioned on page 3. Re: A reference (i.e. Bennartz, 1999) has been provided for land-sea fraction method in Line 85.

2) When introducing figures 1 and 2, point out the color bar for SatZ and that the white line represents small SatZ along the satellite path. This will be helpful to the reader. Re: We have pointed out the meaning of color bar and the white line in the captions of figures 1 and 2 in the new manuscript. The caption of figure 1 was revised as "Figure 1……… (b) and (d) are their corresponding SatZ respectively, which is indicated by the color bar, with the white line representing small SatZ along the satellite path." in Line 182-183. And the caption of figure 2 was revised as "Figure 2……(b) and (d) are their corresponding SatZ (indicated by the color bar), respectively. The white line in (d) represents small SatZ along the satellite path." in Line 186-187.

3) The figure 8 caption is not cor- rect. The first two rows are SatZ cross-track and along-track (a-c) and (d-f). Longitude should be (g-i). Latitude should be (j-l). Re: We have corrected this mistake in the new manuscript. The caption of figure 8 has been revised as "Figure 8. Influence of SatZ on the geolocation accuracy in the across-track (a-c) and along-track (d-f) directions. (g-i) and (j-l) describe the influence of longitude and latitude on the geolocation accuracy in the across-track and along-track directions,

respectively. The left column indicates results of NOAA-17 (blue), middle for MetOp-A (red), and right for MetOp-B (pink) scenes.".

Please also note the supplement to this comment:
https://www.earth-syst-sci-data-discuss.net/essd-2019-87/essd-2019-87-AC2-supplement.pdf