

This study introduces a radio frequency interference (RFI) detection system for Earth observation products, which combines multiple RFI detection techniques to reduce missed detections. The system evaluated the RFI environment in the passive microwave frequency band for ground observation at 6-200GHz, and analysis and validation of it is presented for the year 2022. Overall, the manuscript was well written, however, some of the issues (as stated below) need to be solved/ clarified:

1. Five RFI techniques are listed in the manuscript: **Intensity algorithm, Polarization ratio, Spatial Variability, Image Enhancement** and **Generalized RFI Index**. In this paper, **Polarization Ratio Method** only applies to the AMSR2 instrument, and what methods are applied for other instruments respectively? Sometimes, the same method may not be suitable for all surface types.
2. P12 Line 251: “Furthermore, after discarding measurements potentially affected by sun glint, observations over 350 K were stored along with their latitude, longitude and date per each frequency band.”
P15 Line 301: “Analysis of the AMSR2 measurements at 23.8 GHz highlighted instances in which the measured brightness temperature was between 350 K and 400 K which indicates presence of RFI. Some of those observations are due to by sun glint effects, and they were discarded from the analysis.”
How to distinguish whether the observations with brightness temperature values between 350-400K are affected by RFI or sun glint effects? On a specific surface of the Earth or within a certain range of sun glint angles?
Are only those AMSR2 observations at 23.8GHz affected by sun glint? What about other frequencies or instruments?
3. Figures 5 and 6 show mean RFI probability maps for selected channels from the four instruments considered, covering the frequency range 6.9 GHz to 183 GHz. Although the RFI signal at 23.8GHz is not as significant as other low-frequency channels (Figures 5), those observations over 350 K were grouped in clusters and are listed in the Table 3. The locations of all RFI at 23.8 GHz showed in Figures 8 does not seem to match the ones in Figure 5(e). And a similar situation exists for 36.5 GHz (Figure 6(b) & Figures 8).
4. *BC* term in Equation 13: Are the values of *BC* term different for different channels? Is the average value of *BC* term at different channels about 5K?