

**"Real time retrieval of volcanic cloud particles and SO<sub>2</sub> by satellite using an improved simplified approach" by S. Pugnaghi et al.**

The manuscript presents Volcanic Plume Removal (VPR) developed for ash optical depth, effective radius and mass, and sulphur dioxide mass using an improved simplified approach. Unfortunately, the paper is difficult to understand for the general reader of Atmospheric Measurement Techniques (AMT). Therefore, I am not recommending the publication of this paper as it is.

1. Sometimes it is difficult to understand what the authors want to present in this manuscript. In particular, weak logical connections between paragraphs and sentences and too-long sentences to catch in Abstract and Introduction (e.g. page 1 lines 22-24, pages 2 lines 13-19) can make the reader confusing. Please rephrase and clarify the manuscript for general AMT readers. Additionally, please discuss more in detail about other satellite products comparable to your products using a new table summarizing the accuracy and characteristic.
2. The manuscript looks like a technical document for the experts. Please explain in more detail about the essential equations with clear and consistent definitions for the variables.
3. The authors need to enhance the validation part by spatial comparison against other satellite- and ground-based observations from other publications if possible. Furthermore, try to explain why they are different.