

Review amt-2017-216
Sievert et al.

The manuscript seeks to prove that the phase matching amplitude technique applied to GNSS radio-occultation (GNSS RO) signals can be used for detection of GNSS signals reflected off the Earth surface and interfere with the direct radio-link.

The topic is very interesting and this new technique to detect presence of reflected signals in RO events has potential to be easily implemented. Nevertheless, the manuscript is rather poor, written in a style and degree of detail and rigourosity which is closer to an internal report than a peer-review article. The authors claim the technique is a good detector, but this cannot be claimed when tested in only 10 cases, and especially if no assessment is done about the false positives. Moreover, they do not provide any way for the reader to cross-check whether these 10 cases do present indeed reflected signals, or not.

The authors present a forward model for the relationship between reflected bending and impact parameter as original, but this operator is already given in Gorbunov et al. 2016 (which points to the original source, a ROM SAF internal report). Authors must be aware of this, as in another location of the manuscript they cite Gorbunov et al. 2016.

The manuscript only mentions the canonical transform as an alternative way of detecting reflected signals in RO, while the ROM SAF is providing a list with of the order of millions of COSMIC RO events flagged with presence or not of reflected signals detected with a different technique (support vector machine). The authors are fully aware of this technique, as they do cite (for another reason) the ROM SAF report where the technique is described. By the way, the technique has been validated with several thousands of RO events, and clear assessments have been made not only of the positive detections but on the false positives, too.