

## Developing an Aerosol Layer Height Retrieval Algorithm for Passive Space-Based Sensors

Nanda, S.

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# Propositions

accompanying the dissertation

## DEVELOPING AN AEROSOL LAYER HEIGHT RETRIEVAL ALGORITHM FOR PASSIVE SPACE-BASED SENSORS

**Swadhin NANDA**

1. Often people confuse global warming and natural habitat destruction originating from human activity as the destruction of the planet. This is not the case: the planet will survive but various species will not.
2. Approximating computationally intensive radiative transfer models is a feasible use case for neural networks.
3. The cost function of a PhD is maximising scientific impact while learning the ins and outs of conducting scientific research. This may not necessitate a PhD candidate writing as many papers as possible.
4. With increasing accessibility to space, research organisations previously lacking sufficient funding will soon participate in Earth Observation more easily. This is an opportunity for governments to inspire the next generation to explore space.
5. Environmental disasters that cause severe tragedy make for compelling case studies with satellite data.
6. The scientific community in aerosol remote sensing should encourage more studies to replicate promising results presented in a peer-reviewed journal. This way, published scientific work can benefit beyond the 2 or 3 peer reviews necessary for publishing.
7. Unless the oxygen B-band is also used along with the A-band, retrieving a reliable aerosol layer height product over land may not be feasible.
8. Sensitivity analyses with synthetic data do not represent reality. Consequently, making strong conclusions from sensitivity analyses alone hold little weight, unless coupled with experiments on measured data. However, synthetic data are excellent for version-to-version analysis of algorithms because those require a closed loop simulation environment.
9. There is a lot that academia can learn from the industry and vice-versa. A good mix of both, however, is the best approach in solving problems in the long run.
10. The aerosol layer height data product needs more operational data products from different remote sensing techniques: there is still enough room for more players to contribute to this promising data product.

These propositions are regarded as opposable and defensible, and have been approved as such by the promoter prof. dr. P. F. Levelt. Propositions 2, 7, 8 and 10 pertain to this dissertation.