

From pixels to puddles

Mapping surface melt on Antarctic ice shelves using satellite data and deep learning

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Propositions

accompanying the dissertation

FROM PIXELS TO PUDDLES

MAPPING SURFACE MELT ON ANTARCTIC ICE SHELVES
USING SATELLITE DATA AND DEEP LEARNING

by

Sophie DE RODA HUSMAN

1. When interpreting ‘surface melt’ as a property rather than a process, the amount of liquid water in Antarctica is overestimated. *This thesis*
2. Relying on a single satellite for surface melt detection in Antarctica is always insufficient. *This thesis*
3. Increased spatial resolution makes pretty maps; increased temporal resolution makes better science. *This thesis*
4. Describing hydrofracturing as a stabilizing mechanism is akin to claiming that a temporary patch can secure a sinking ship. *This thesis*
5. Developing slightly better black-box deep learning models without emphasizing interpretability and understanding adds no value to research.
6. Remote sensing observations can be considered ground truth, just like in-situ observations.
7. Simplicity in science is the ultimate form of sophistication.
8. The mission for PhD students at TU Delft should evolve from ‘Become an independent researcher’ to ‘Develop as a versatile academic professional’, highlighting the importance of not only publishing research but also excelling in teaching and effective science communication.
9. Showing vulnerability is a strength rather than a weakness.
10. Silence is silver, speech is golden.

These propositions are regarded as opposable and defensible, and have been approved as such by the promoters Prof. dr.-ing. habil. R. Klees, Dr. ir. S.L.M. Lhermitte, and Dr. ir. B. Wouters.