

# Title of my thesis

Firstname Lastname



Thesis submitted for the degree of  
Master in Meteorology  
60 credits

Department of Geoscience  
Faculty of Mathematics and Natural Sciences

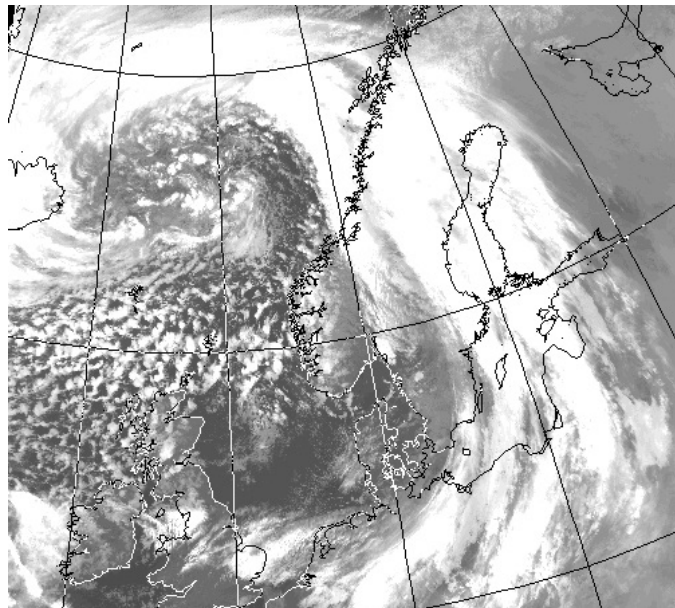
UNIVERSITY OF OSLO

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Firstname Lastname



Satellite image of the extreme extratropical cyclone on 24 December 2016 at the coast of Norway. Image obtained from the Dundee Satellite Receiving Station <http://www.sat.dundee.ac.uk>.

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## ABSTRACT

In the winter, orographic precipitation falls as snow in the mid to high latitudes where it causes avalanches, affects local infrastructure, or leads to flooding during the spring thaw. We present a ...



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# CHAPTER 1: INTRODUCTION

Forecasting precipitation quantitatively is challenging, especially in complex terrain where the evaluation of forecast models is difficult due to the sparse distribution of precipitation gauges [Barstad and Smith, 2005]. ...





## CHAPTER 2: METHODOLOGY

### 2.1 HAUKELISETER TEST SITE

The World Meteorological Organization (WMO) Haukeliseter test site (HTS), shown in Fig. ...

### 2.2 SNOWFALL REGIME ANALYSIS

An analysis of the 10-m wind ...

## CHAPTER 3: RESULTS

### 3.1 SNOWFALL REGIMES

The DFAR observed the most surface snowfall accumulation during the westerly snowfall regime, which accounted for 73 % (146.5 mm, see Fig. ...

### 3.2 RETRIEVAL VALIDATION

During the 2016-2017 winter, a difference of 10.9 % between retrieved (OESR) and DFAR total surface accumulations was observed ...



## CHAPTER 4: CONCLUSION

Here we present a new method for validating NWP model simulations in complex terrain with state-of-the-art observations. Specifically, we investigated how the model simulations from MET Norway's ensemble forecast product MEPS and two additional simulations with modified cloud microphysics schemes (CTRL and ICE-T) compared to observations and retrieved values. This study evaluated the model performance for 27 precipitation days by comparing simulated accumulated snowfall, SWC, and SWP to measurements at the HTS in Southern Norway.

An OESR algorithm, ...

## REFERENCES

Barstad, I. and Smith, R. B. Evaluation of an Orographic Precipitation Model. *J. Hydrometeor.*, 6(1):85–99, February 2005. ISSN 1525-755X. doi: 10.1175/JHM-404.1. URL <https://journals.ametsoc.org/jhm/article/6/1/85/5277/Evaluation-of-an-Orographic-Precipitation-Model>. Publisher: American Meteorological Society.

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