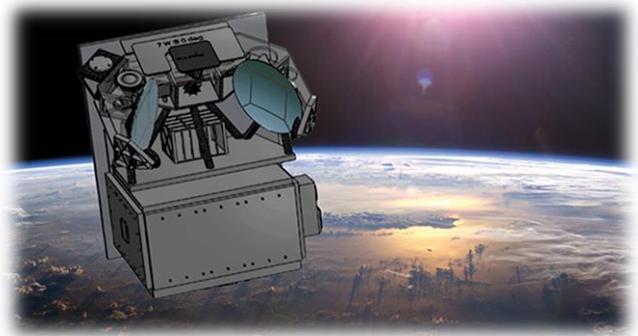


Master's thesis project in atmospheric science:
**Preparing for a future satellite mission
to measure wind and improve climate forecasts**

Measuring wind at high altitude

Physical processes in the middle atmosphere (15-90km high) influence what occurs at surface level. This is why including this region in the atmospheric models is essential to **improve weather and climate forecasting**. Yet, no accurate long-term and global wind observational data set is available at these altitudes. A new satellite, **Stratospheric Inferred Winds (SIW)**, will fill in this gap! SIW will be a sub-millimetre radiometer instrument, optimised for wind measurements and orbiting the Earth aboard



a small satellite. It has recently been **selected by Rymdstyrelsen (Swedish Space Agency) to become the next Swedish research satellite**, and will be launched in a few years from now.

Your job

You will be involved in the preparation of the SIW mission! **The goal of this master thesis project is to carry out a preliminary study to start preparing for the scientific exploitation of the future wind data.** You will compare the output of different atmospheric models, in order to better understand their deficiencies when it comes to wind simulation. These comparisons will show us where and when the models have the greatest difficulties to accurately reproduce the wind field. You will have to interpret these results in light of current knowledge on atmospheric dynamics. To perform the job, you will therefore have to:

- Learn about the wind measurement techniques based on satellite observations,
- Perform programming tasks in order to **statistically analyse large amounts of data**,
- Learn about important physical phenomena in the atmosphere,
- Write a report summarising your findings.

Prerequisites

- Background in physics,
- Good programming skills,
- Interest for environmental sciences.

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Check this out, if you want to know more about SIW:

<https://www.chalmers.se/sv/institutioner/see/nyheter/Sidor/Ny-satellit-fran-Chalmers-ska-studera-vindarna-i-atmosfaren.aspx>