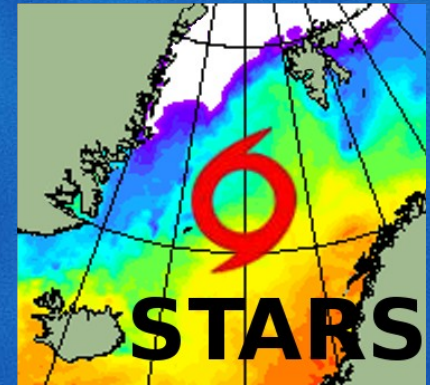




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# Final outcome and future recommendations

Øyvind Sætra

STARS final meeting, ESTEC, 11-03-2013



# Impact of STARS

- Focused study on use of satellite data and NWP models for polar low forecasting
- Established a climatological and updated climatology study on polar low events in the Nordic Seas.
- Investigation of ocean response to polar lows
- Extended use of SAR data in polar low forecasting
- Established an extensive database for further polar low studies. In addition to the usefulness of this for the Norwegian Meteorological Institute. In addition, this data set is already widely used in research communities outside the institute. The following institutions responding that they are using the STARS-DAT:
  - University of Reading
  - University of Oslo
  - University of Bergen
  - University of Trier



Allégaten 70  
Postboks 7800  
5020 Bergen  
Norway

Dr. Thomas Spengler  
Associate Professor  
phone: + 47 55 58 98 46  
fax: + 47 55 58 98 83  
e-mail: [thomas.spengler@gf.i.uib.no](mailto:thomas.spengler@gf.i.uib.no)  
web: [www.uib.no/persons/Thomas.Spengler](http://www.uib.no/persons/Thomas.Spengler)



To whom it may concern.

Bergen: 9<sup>th</sup> March 2013

### Letter of support for STARS project

Dear Madam or Sir,

Until recently, there has been an urgent need for an organized and extensive polar low database for research purposes and public awareness. One of the results of the STARS project is its comprehensive webpage <http://polarlow.met.no/>, which also contains a database of all polar low events in the Norwegian Sea from 2002 until today, easily accessible via the project's webpage, <http://polarlow.met.no/stars-dat/>. From the very initiation of the webpage, my working group on High Impact Weather in the Arctic at the Geophysical Institute, University of Bergen, Norway, made significant use of this database to carry out our research. The database turned out to be vital for some of our purposes to identify favorable environments for polar low development, which helped us to gain the necessary knowledge that is currently used to devise idealized numerical simulations to better understand these phenomena.

We hope that this database will be maintained in the future with constant updating and that it is also potentially extended into the further past. I strongly believe that this will make it the ultimate polar low database for the Norwegian Sea for future research of these phenomena and will be of enormous value to the international research community.

Yours sincerely,  
Thomas Spengler





I would like to thank you again for the useful information on STARS you sent me a few months ago.

I have used the STARS polar lows dataset (2002-2010) for tuning Hodges tracking algorithm to the identification of polar lows in ERA-Interim reanalysis data. The methodology is similar to the one adopted in the Matthias Zahn papers, with some minor modifications that seem to improve the identification of STARS polar lows. This was supposed to be only the first step toward the analysis of polar lows in an high resolution climate model. However, the STARS Vs ERAI-Interim comparison has shown some interesting results, and I am considering of putting that together into a paper. Of course the algorithm could be further improved, and I thought that some of the most valuable indications could come from those contributing to STARS development. I get you are also applying Hodges' to polar lows identification in an operational context, so I hope there could be some good potential for collaboration. If you may be interested in these analyses, I would be happy to discuss the details of the methodology and the results I have found with you.

Kind Regards, Giuseppe Zappa

Research Scientist - TEMPEST project - <http://tempest.nerc.ac.uk>

National Centre for Atmospheric Science

Department of Meteorology

University of Reading, Reading, UK



# Recommendations

- The creation of a polar low database for the Norwegian Sea in the frame of the Sea Surface Temperature and Altimeter Synergy (STARS) project will provide a valuable resource for future research and, potentially, predictability improvements. The maintenance of this database and the creation of similar databases for other polar areas including satellite and NWP data are highly recommended.
- There is also a need for free and timely access to satellite data, in particular to SAR data to fill the gap caused by the mission end of ENVISAT.
- With the increasing resolution of climate models, mesoscale processes such as polar mesocyclones will have to be considered in international research programs such as the World Climate Research Programme (WCRP) Polar Climate Predictability Initiative and the World Weather Research Programme (WWRP) Polar Predictability Project.
- Simultaneous observations of SLA and SST on next satellite mission!