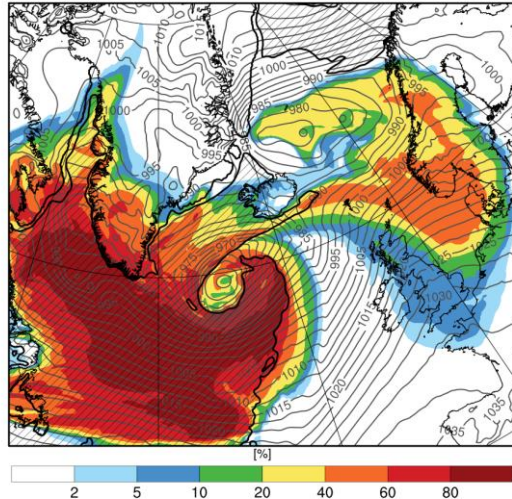


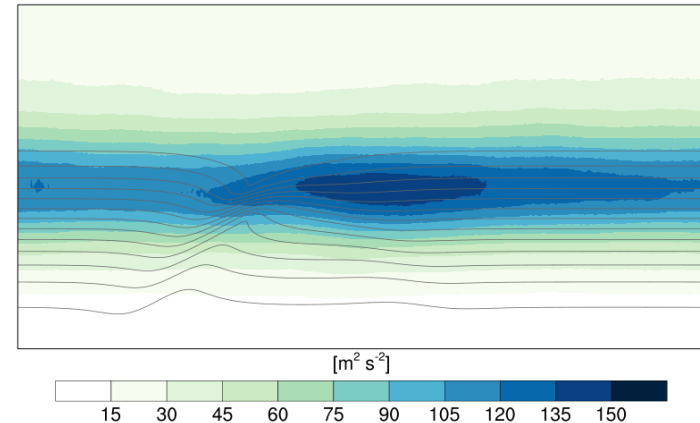
# ICON projects in Atmospheric Dynamics group

- Still use COSMO in many projects
  - isotope-enabled version COSMOiso (Fabienne Dahinden, Leonie Villiger, Franziska Aemisegger, Andries de Vries)
  - Foehn case studies using COSMO-1 (Lukas Jansing)
- ICON projects so far:

**(1) Water vapour tagging**



**(2) Storm tracks in Aquaplanet**



# (1) Water vapour tagging

- Secondary water cycle to trace moisture from specific sources (e.g., geographical region or weather system)  
[Winschall et al. \(2014\)](#), [Sodemann et al. \(2009\)](#)

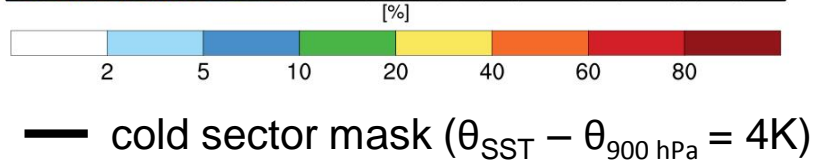
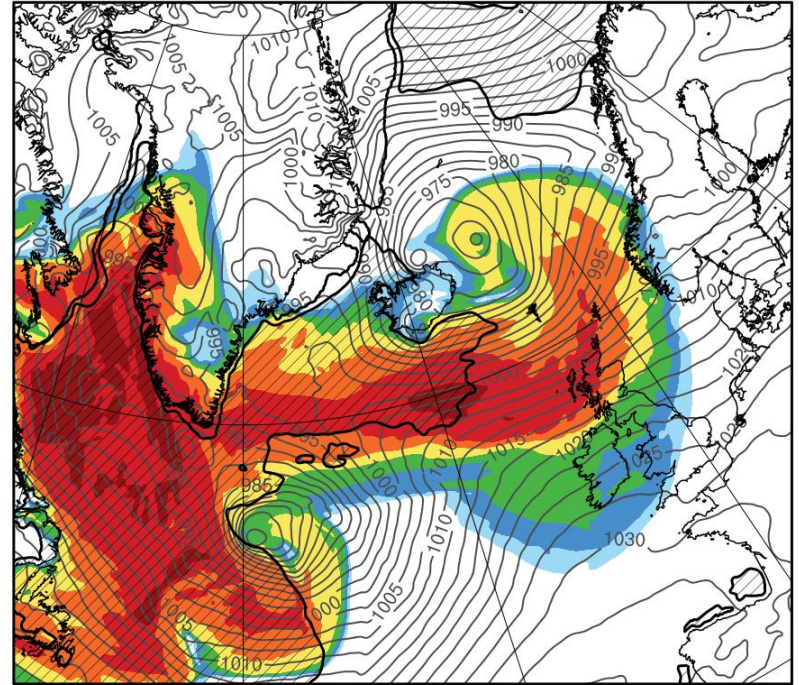
## Technical:

- Collaboration with Stephan Pfahl (FU Berlin)
- Implement tagging in ICON using tracer framework
- Just started to work on this, aim to have a running version in autumn

## Scientific questions:

- Role of moisture originating in cold air outbreaks / cold sector of cyclones in mid-latitude water cycle

% of total column vapour originating in cold sectors of cyclones (from COSMOtag)



## (2) Aquaplanet simulations

Collaboration with Sebastian Schemm

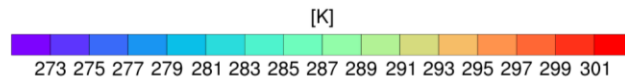
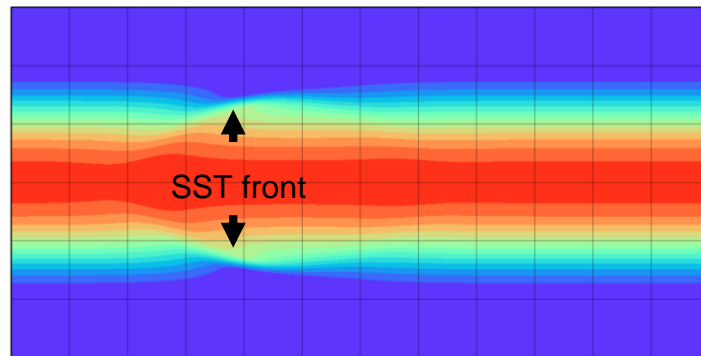
### Technical:

- Aquaplanet setup with prescribed SST (QOBS with and without mid-latitude SST front)  
*Neal and Hoskins (2001), Brayshaw et al. (2011)*
- NWP Physics
- Complete budget of diabatic temperature tendencies
- Set of simulations with different SST front configurations à 10 years (80 seasons to analyze)

### Scientific questions:

- What role do diabatic processes play in maintaining baroclinicity along storm track?
- How does a mid-latitude ocean front (such as Gulf Stream) influence a storm track?

SST distribution



EKE @ 500 hPa with SST front

