Special Issue "Selected Papers from “The 31st Nordic Conference on Meteorology (NMM31)”"

- Print Special Issue Flyer
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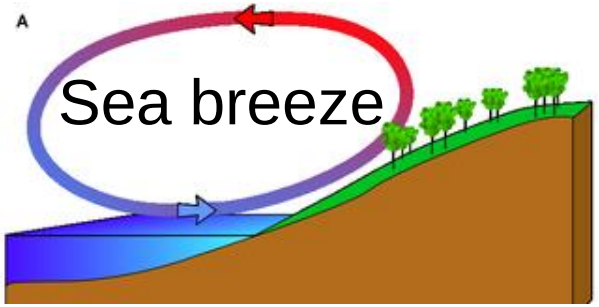
A special issue of *Atmosphere* (ISSN 2073-4433). This special issue belongs to the section "Climatology and Meteorology".

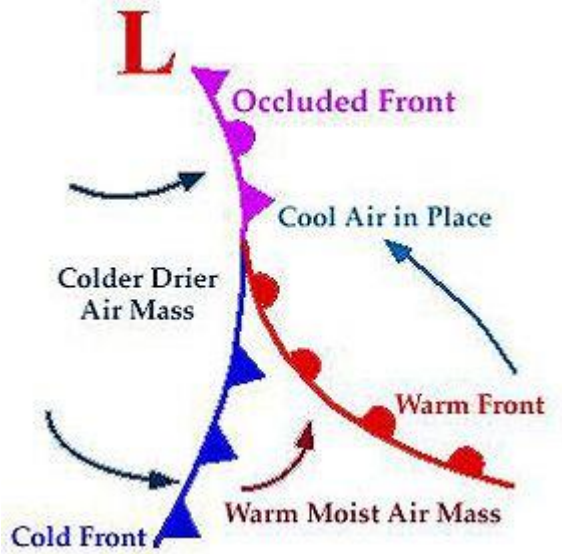
Deadline for manuscript submissions: **15 September 2018**

Some Concepts in Atmospheric Sciences

- Cyclone
- Front
- Trough
- Sea breeze
- Wave

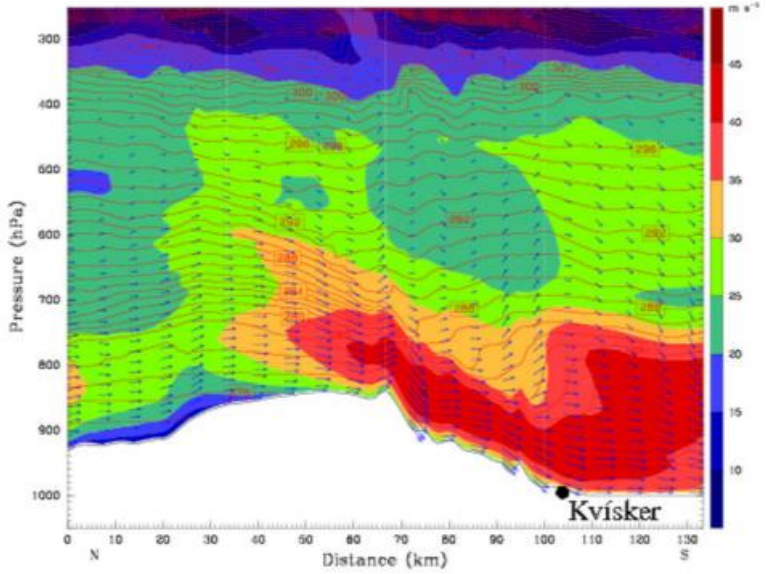
  etc. etc

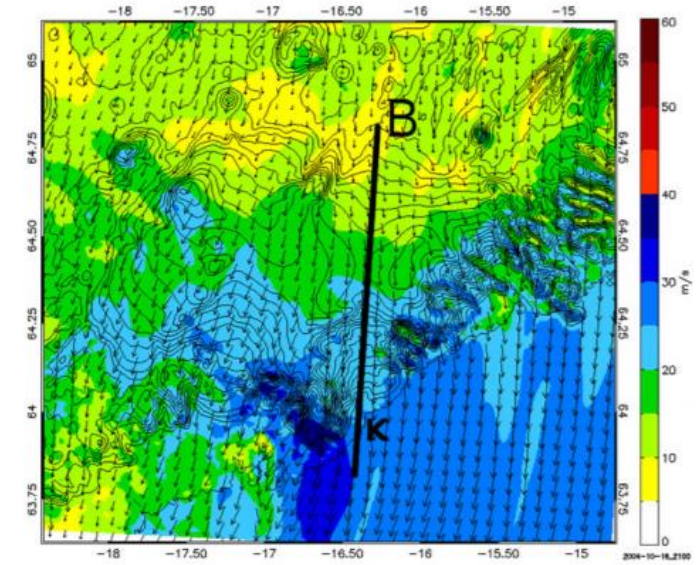




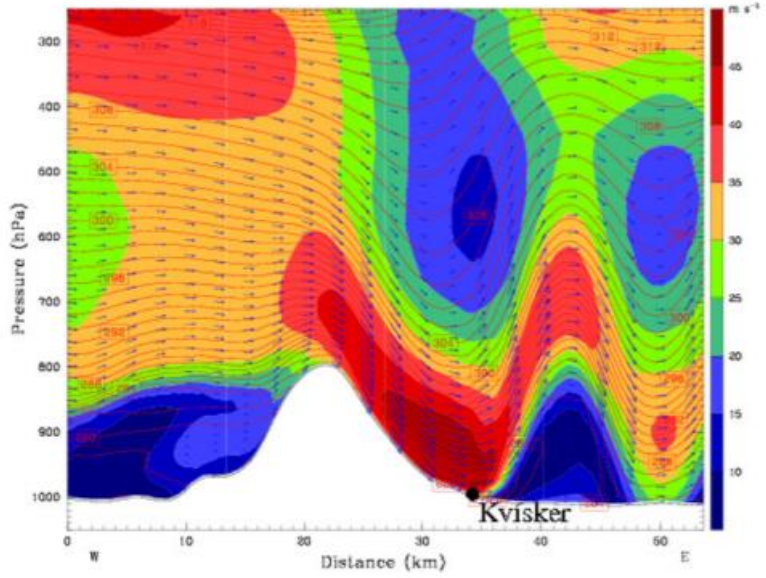
A few „new“ concepts introduced at the Bergen and Reykjavik schools

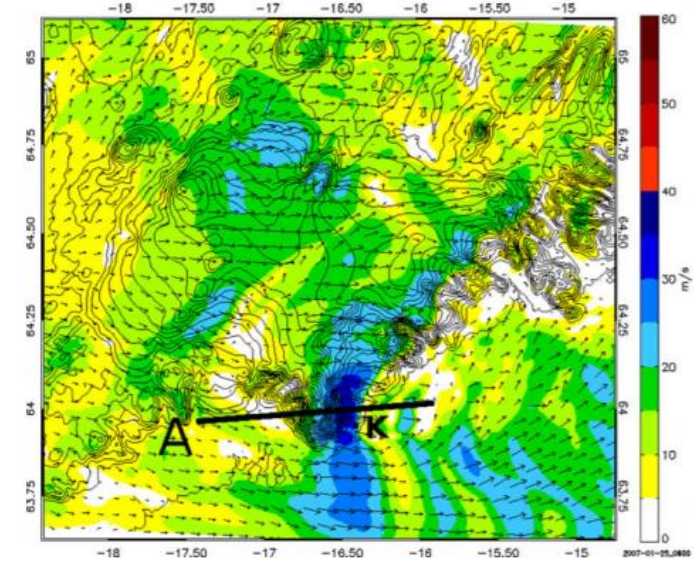
- Secondary gravity wave breaking
- Warm Bora
- Type E and S downslope windstorms
- Gustiness of rain
- The M-curve of orograhpic precipitation
- Quasi-geostrophic orographic flow
- The peninsula-effect on the sea breeze
- The Greenland heat pump
- The glacier rainband
- The orographic sea breeze pump
- The missing momentum flux
- The spring snow heating effect
- The Reykjavik Wake
- The two-step wake
- The Bergen Orographic Shelter
- QG forecast error tracking
- The traveling lee low
- The morning cooling
- The wind gust diagramme





Type E(xtended) downslope windstorm

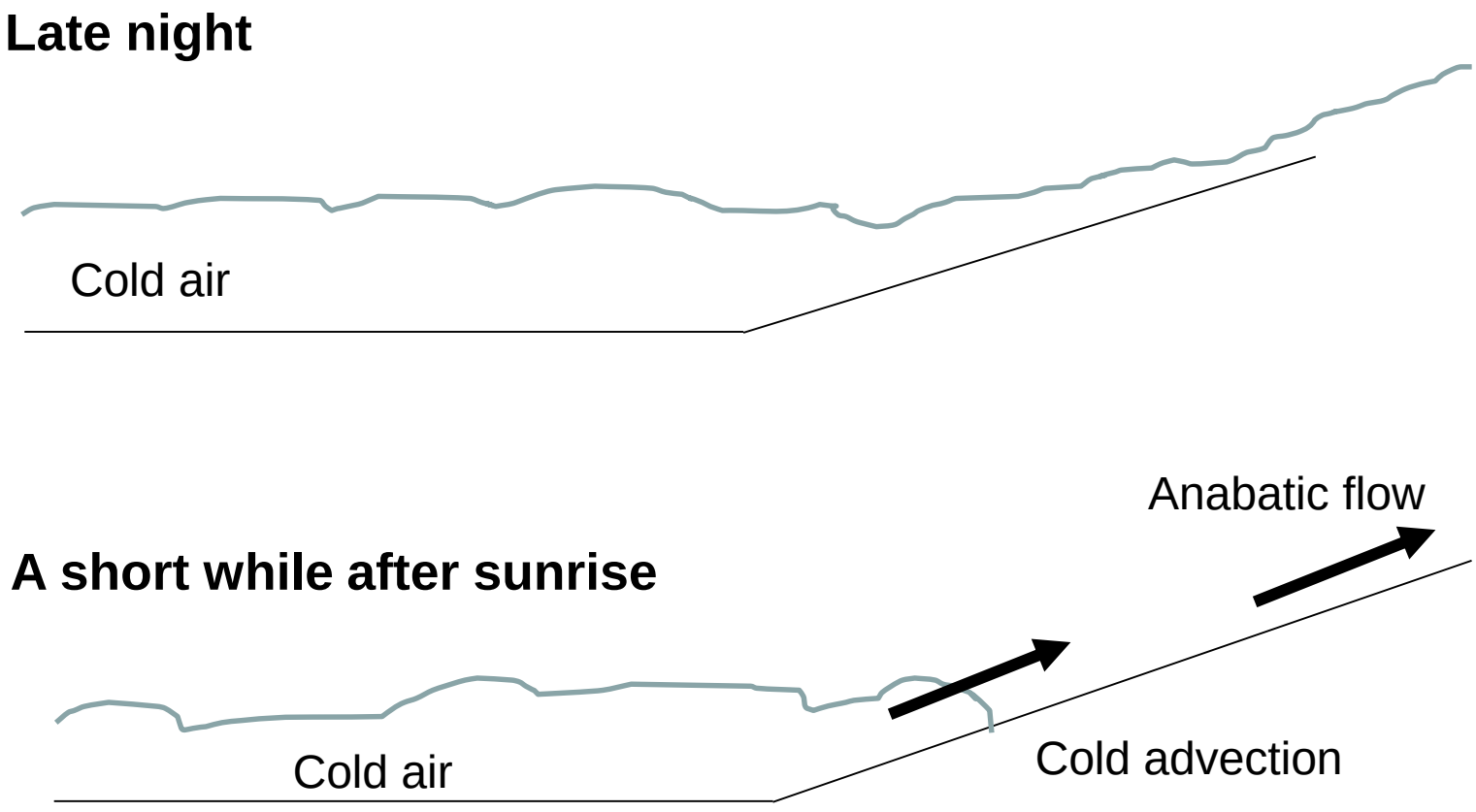




Type S(hort) downslope windstorm

Ágústsson & Ólafsson, 2010

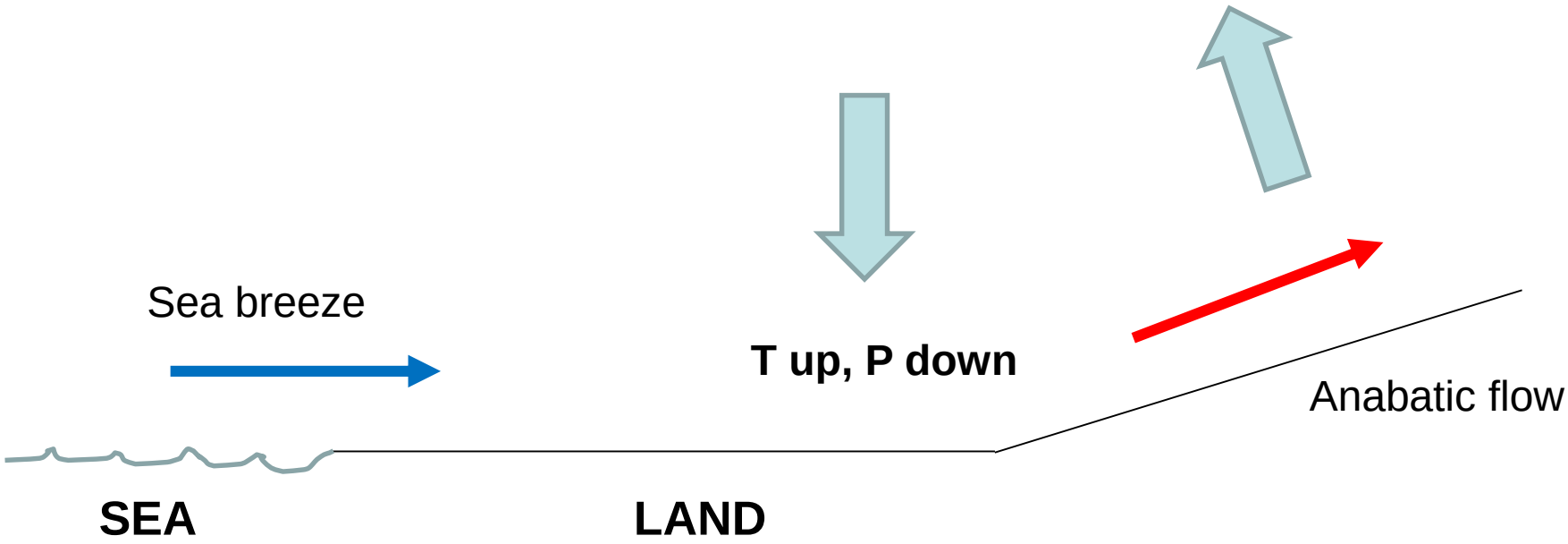
The morning cooling (Reuder, Jonassen & Ólafsson, 2012)



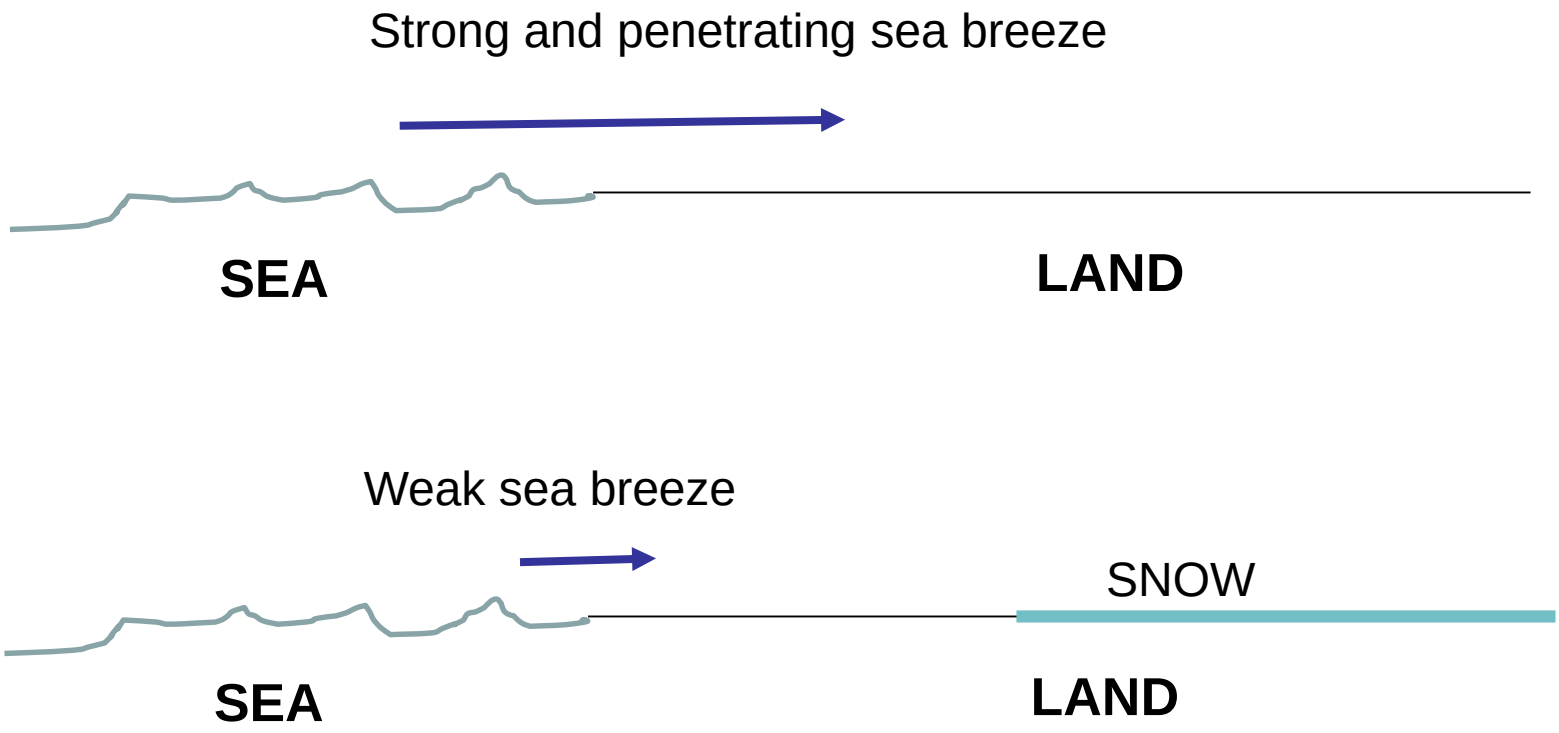
Found during the BLLAST campaign in the Pyrenees

The orographic sea breeze pump

Ólafson & Ágústsson, 2008

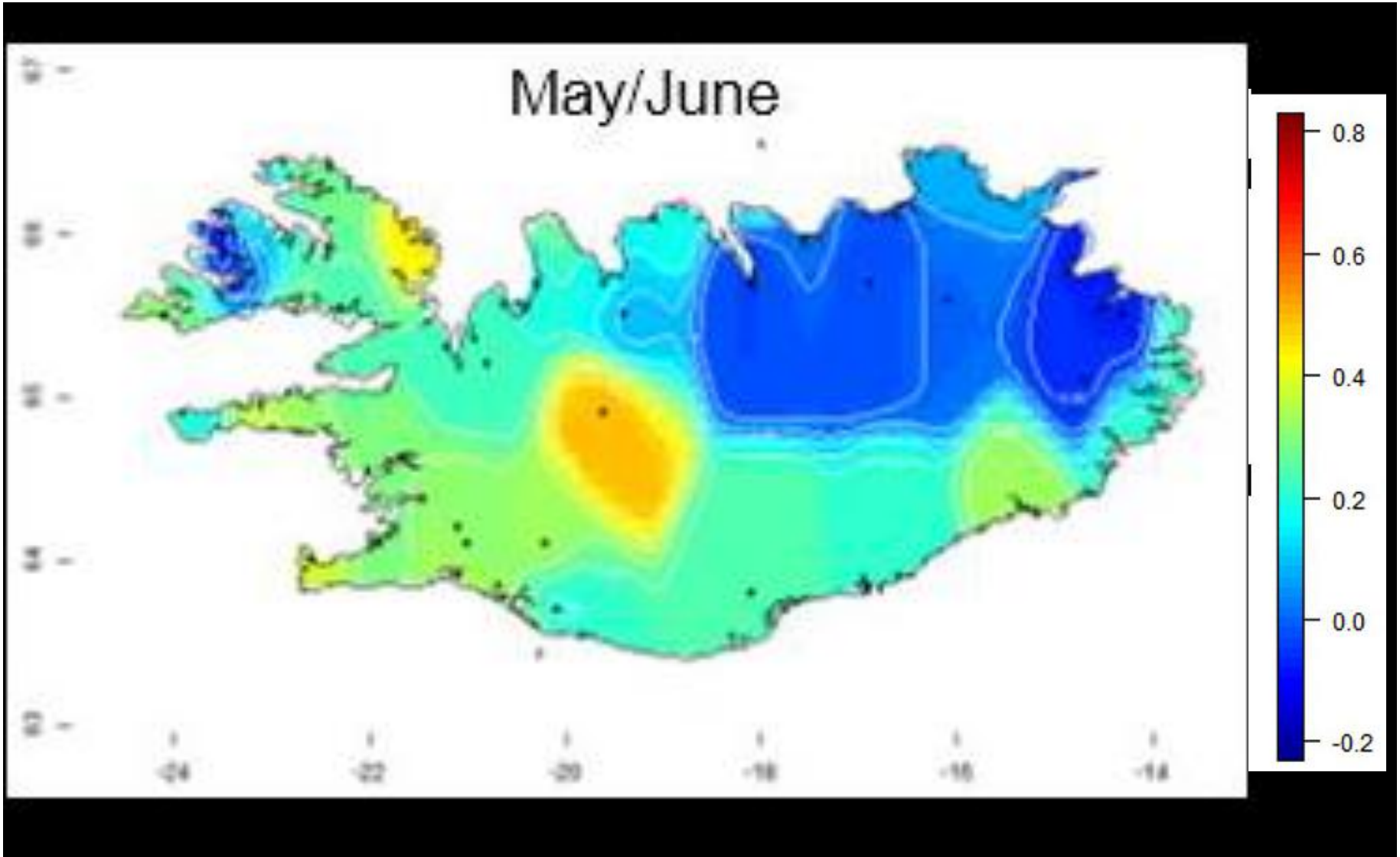


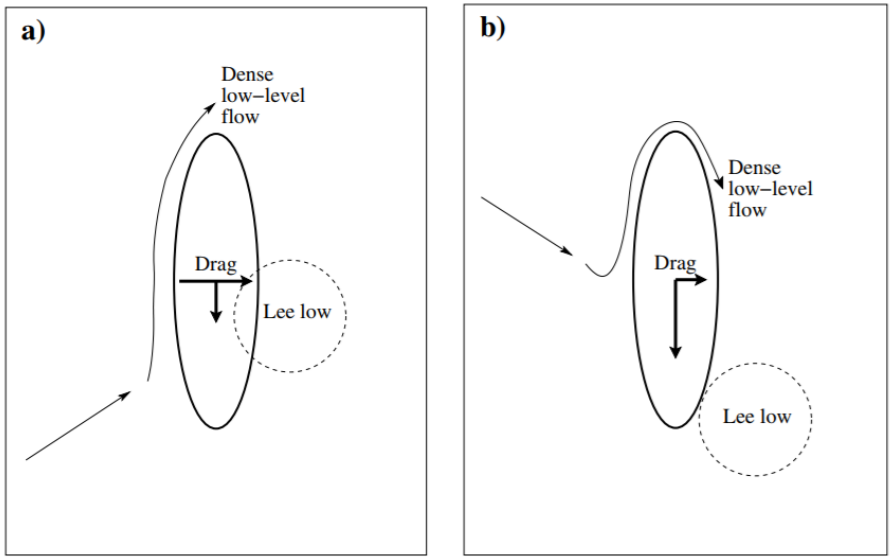
The warming snow



Degenhardt & Ólafsson, Int. J. Clim., in revision

Correlation between mean T2m in May and June

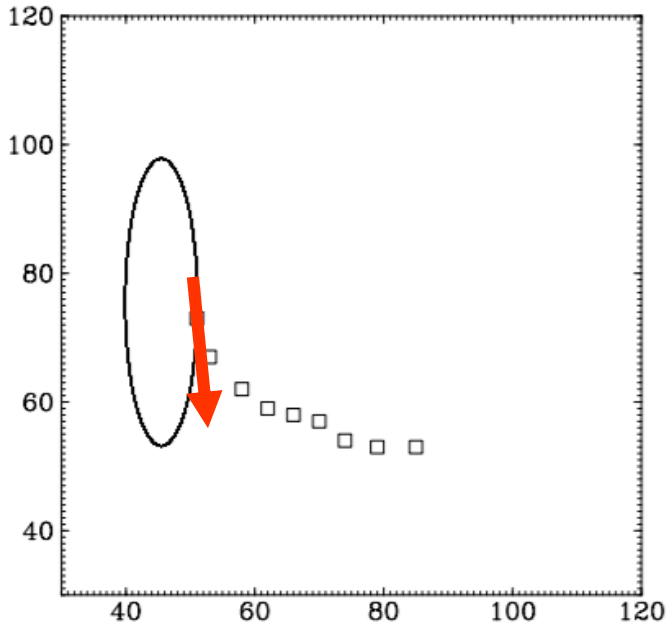




The taveling lee-low

Petersen, Krisjánsson, Ólafsson, 2005

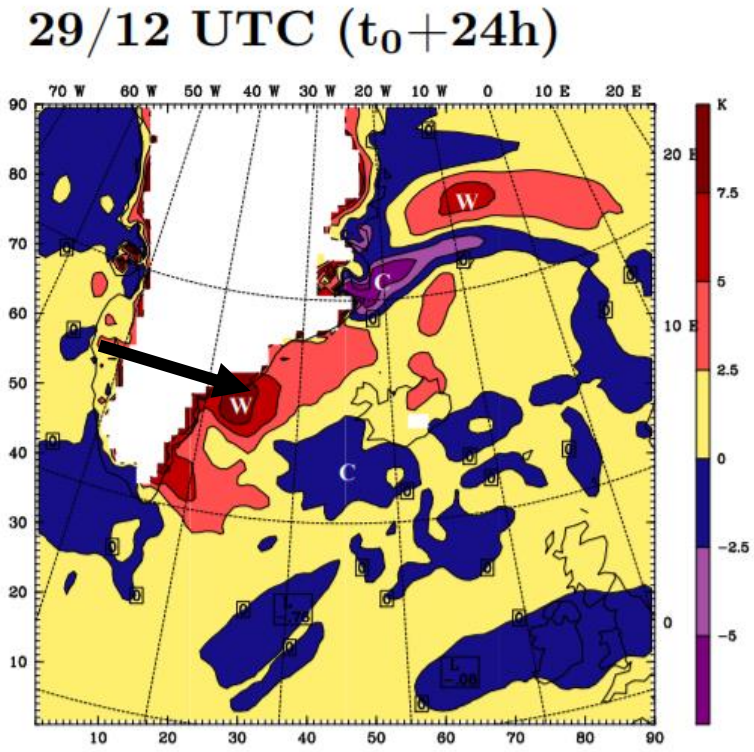
A self-induced process that moves the lee-low to the right if you are facing the impinging flow

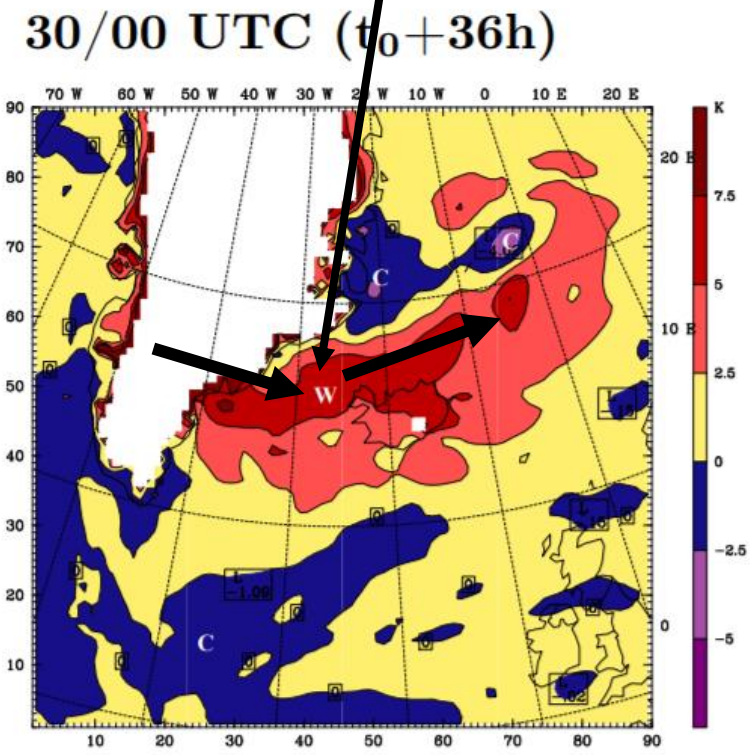


The Greenland Heat Pump

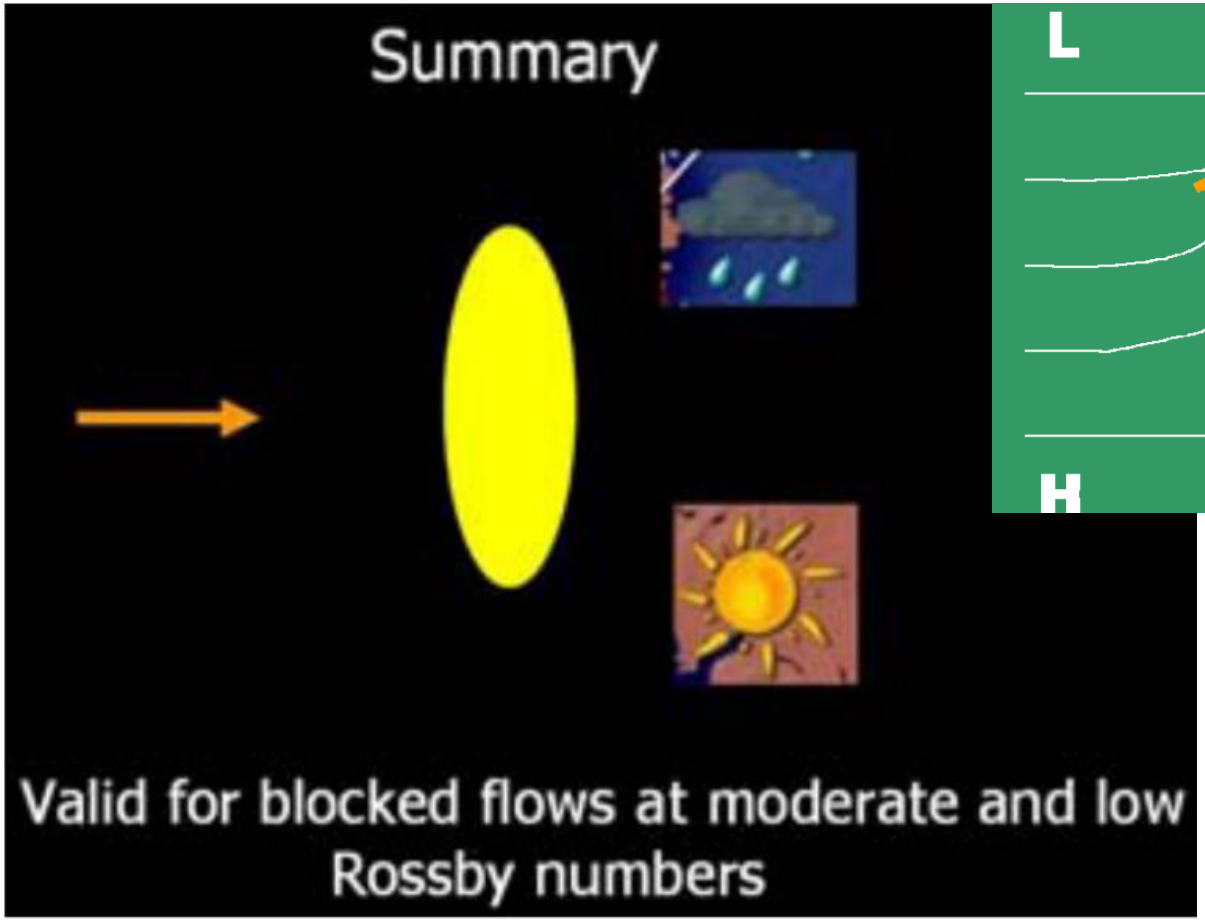
Rögnvaldsson & Ólafsson, 2003

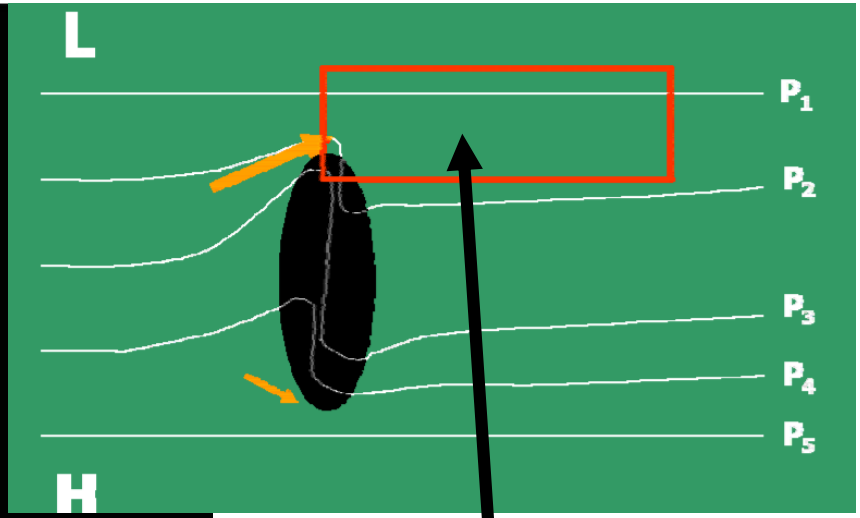
T (850 hPa) increased by more than 5K (Dark red)





Quasi-geostrophic flow past mountains

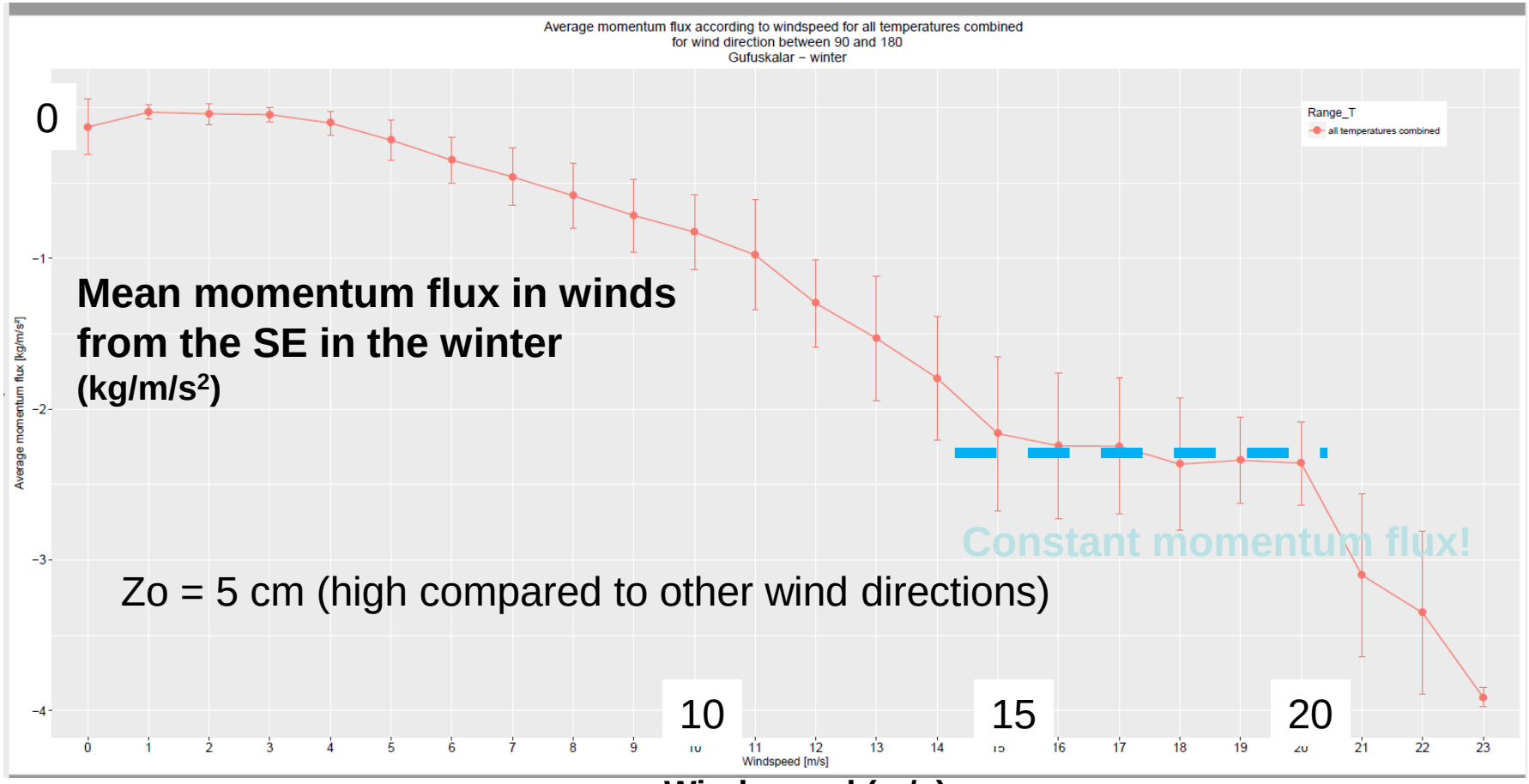




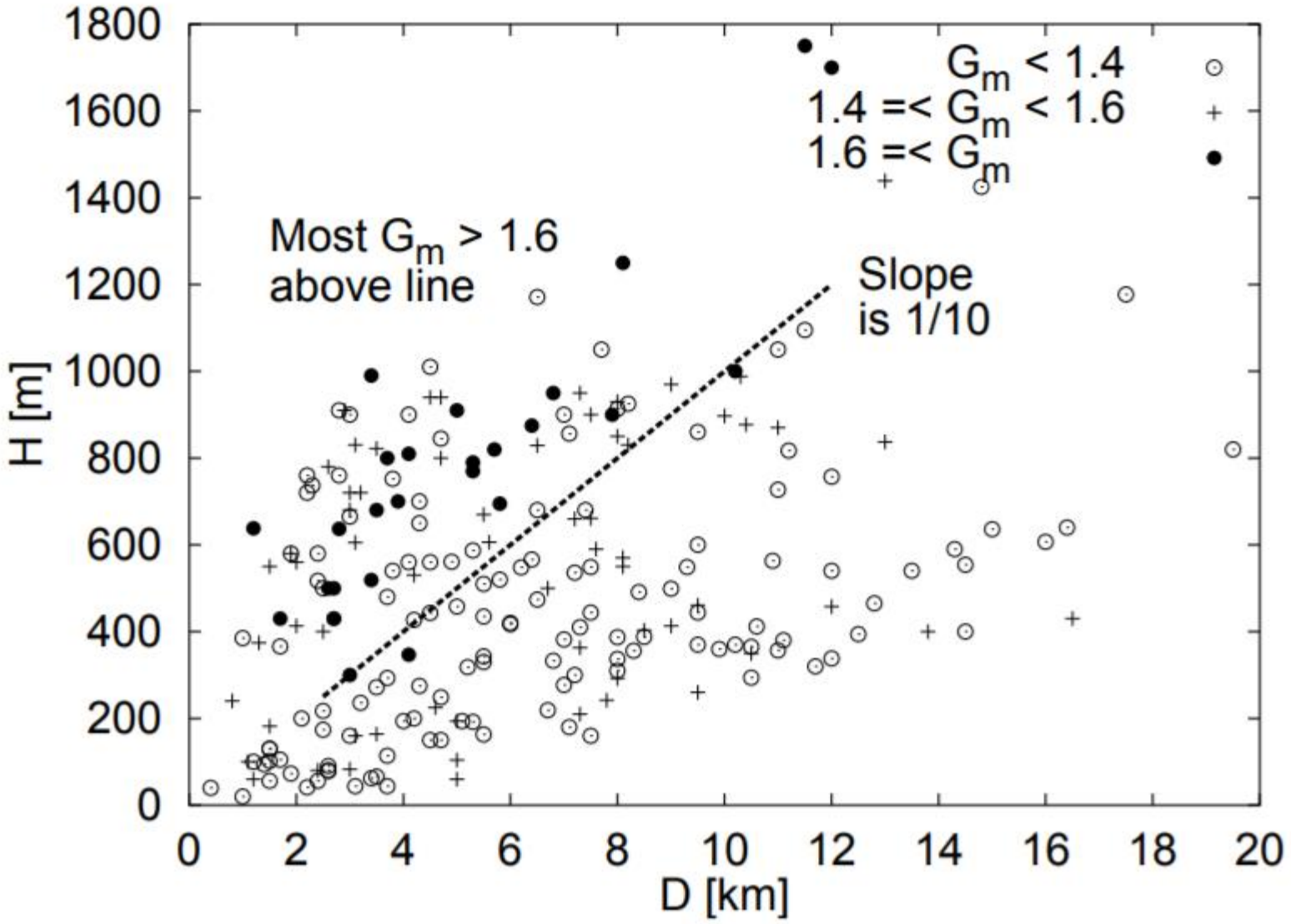
Rising motion in this box

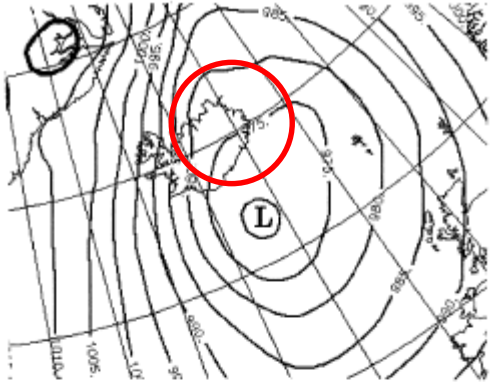
Ólafsson, 2000; Hunt, Ólafsson & Bougeault, 2001; Ólafsson, 2005

The missing momentum

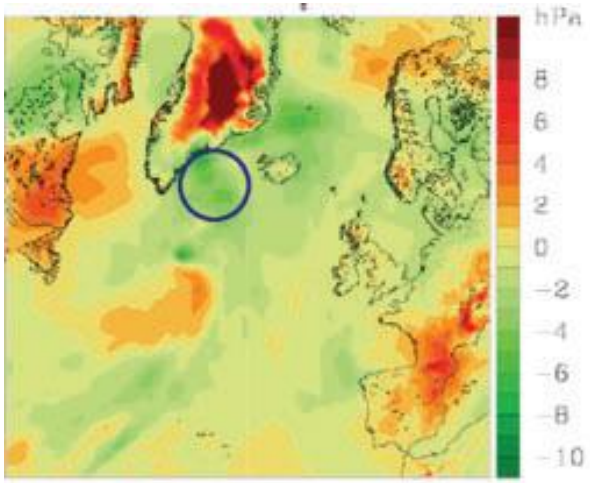


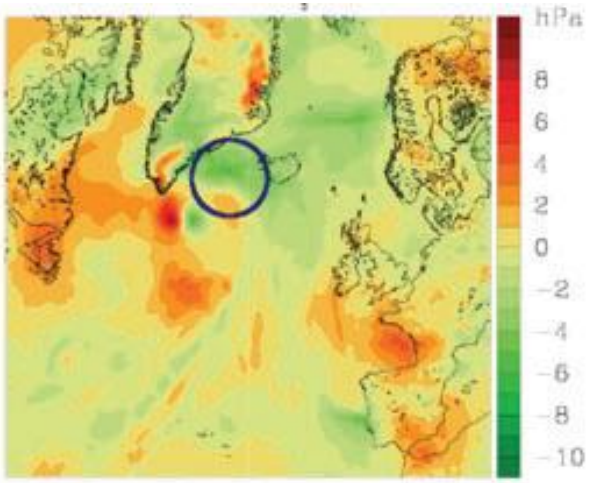
The Gust Factor Diagramme (Ágústsson & Ólafsson, 2004)

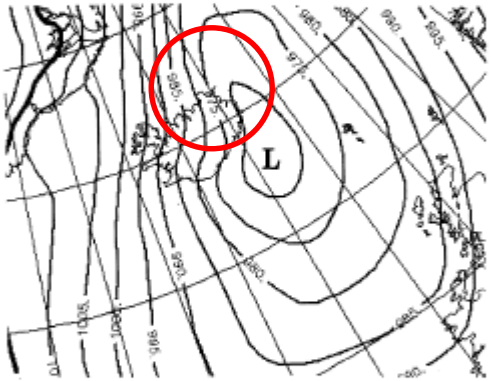




ECMWF 22.02.96 12UTC+36h. Valid 24/00







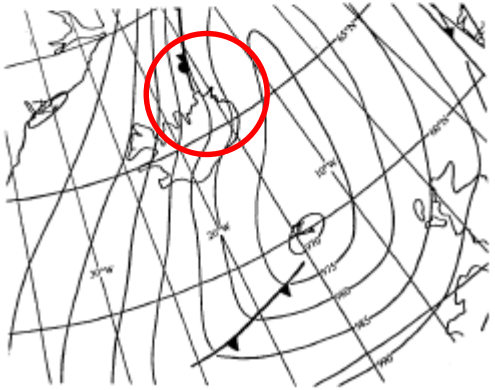
Arpège 22.02.96 12UTC+36h. Valid 24/00

Steensen, Ólafsson & Jonassen, 2011

QG error tracking

$$\left\{\nabla^2 + \frac{f^2}{\sigma}\frac{\partial^2}{\partial p^2}\right\}\frac{\partial \Phi}{\partial t} = -f\,\mathbf{V}_g \cdot \nabla\left\{\frac{1}{f}\nabla^2\Phi + f\right\}$$

$$+\frac{f^2}{\sigma}\frac{\partial}{\partial p}\left\{-\mathbf{V}_g \cdot \nabla\frac{\partial \Phi}{\partial p}\right\} \qquad (1)$$



Surface analysis for 24.02.96 00UTC (24/00)

Ólafsson, 1998

Thank you
Photo: Olafur Sigurjonsson