

# A new classification of the Arctic spring transition in the middle atmosphere

V. Matthias, G.Stober, A.Kozlovsky, M.Lester, E. Belova and J. Kero

## Stratosphere

- stratospheric final warming (SFW)
- SFW onset days vary by about 2 month
- common classification: early/late or 10hPa/1hPa-first

## Mesosphere

- final wind reversal earlier and less variable as in stratosphere, mostly propagates downward
- studies are much rarer, less systematic and decoupled from stratospheric investigations

## What is missing?

- systematic studies of the spring transition covering the whole middle atmosphere
- common classification do not consider all SFWs
- it is not clear if and how pre-winter conditions have an impact on when and how spring transition take place

## What we want to

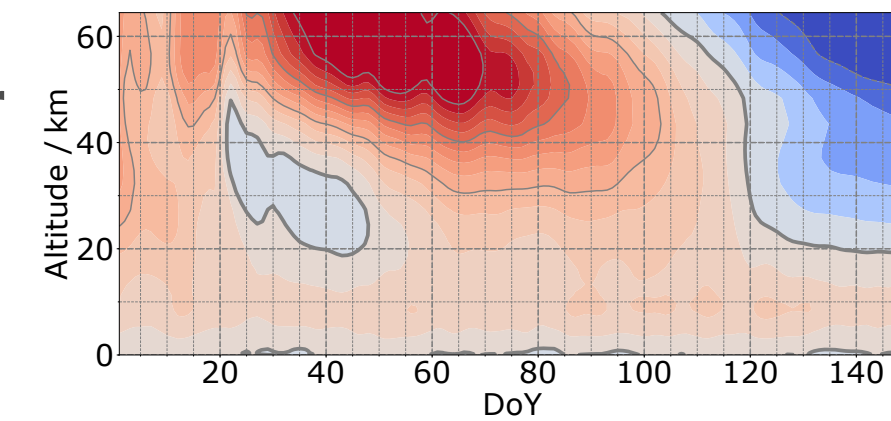
- introduce a new type of classification based on temporal-vertical evolution of polar vortex
- includes: stratosphere and mesosphere, all spring transitions, SSWs in preceding winter

timing of major SSW in preceding winter

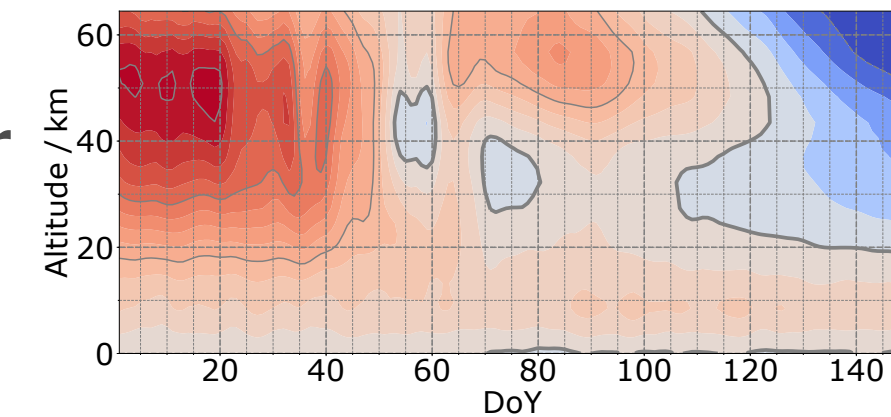
5 new classes

downward propagating negative NAM

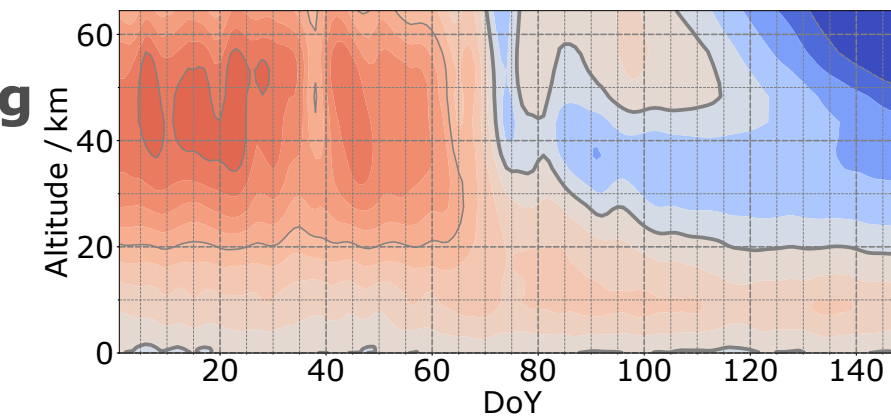
mid-winter SSW



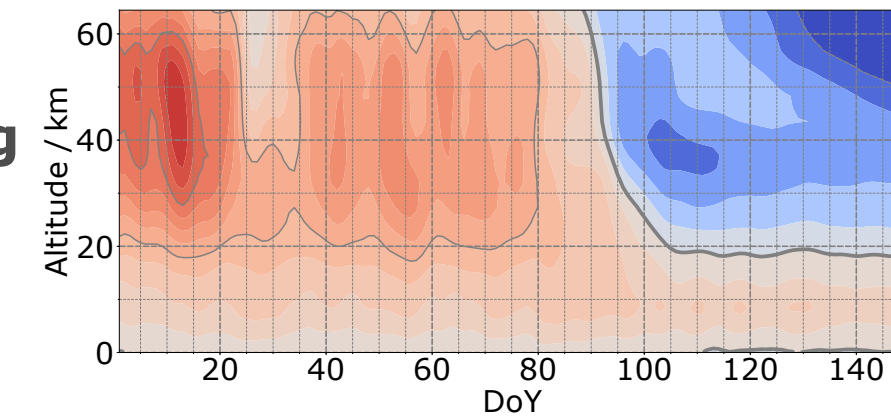
late-winter SSW



early-spring SSW



mid-spring SSW



no negative NAM

