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Supplement of

The life cycle of upper-level troughs and ridges: a novel detection method, climatologies and Lagrangian characteristics

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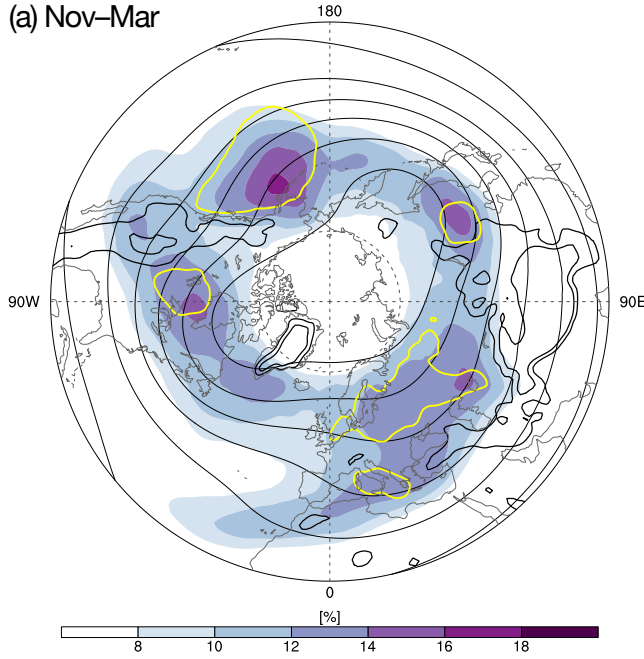
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Abstract. Supplementary figures:

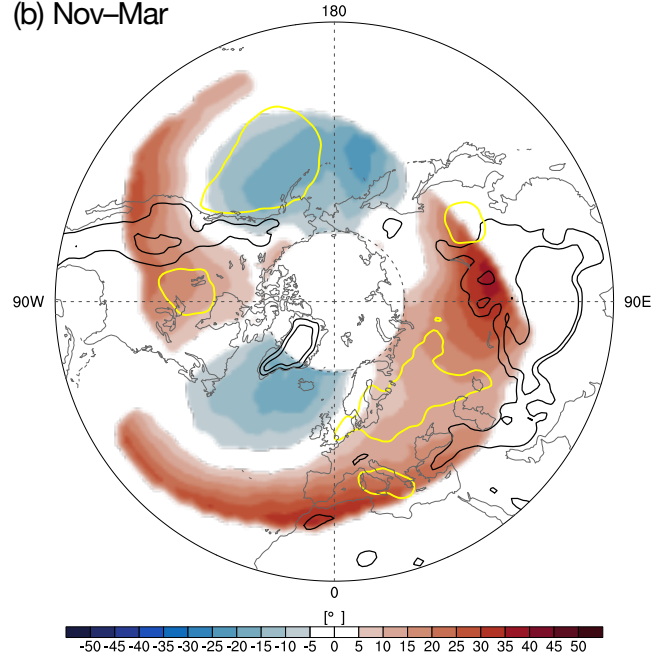
- 300-hPa trough and ridge climatologies (Fig. 1 and Fig. 2).
- 500-hPa trough and ridge climatologies with short-lived features removed (Fig. 3).
- Climatologies of the mean trough lifetime at the 500-hPa level (Fig. 3).

Troughs

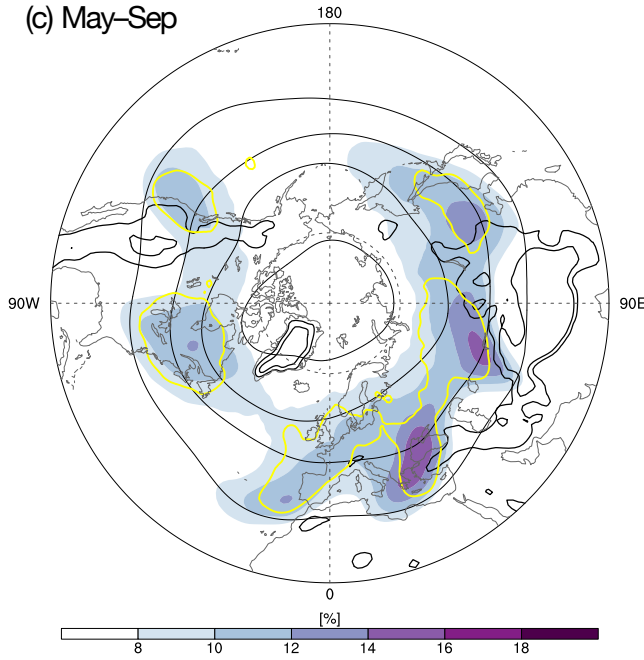
(a) Nov–Mar



(b) Nov–Mar



(c) May–Sep



(d) May–Sep

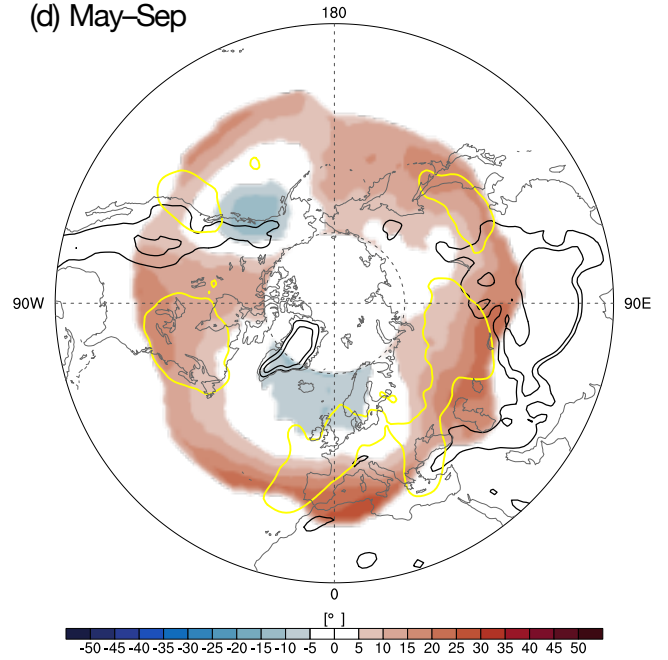
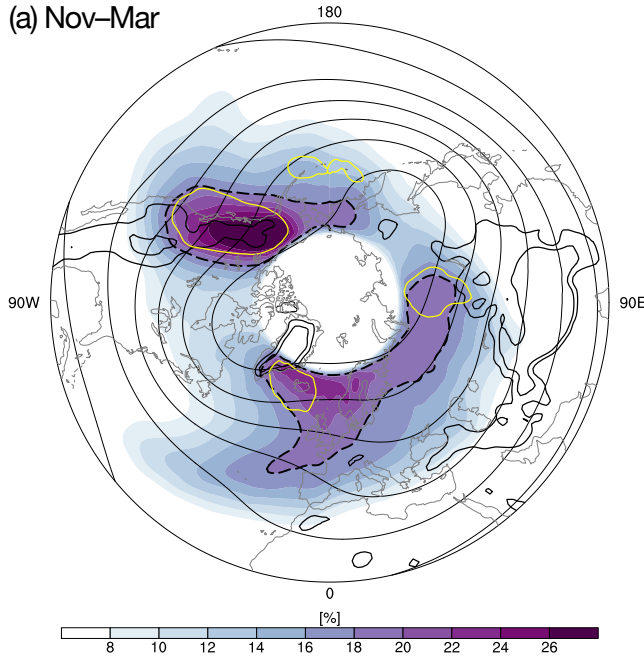


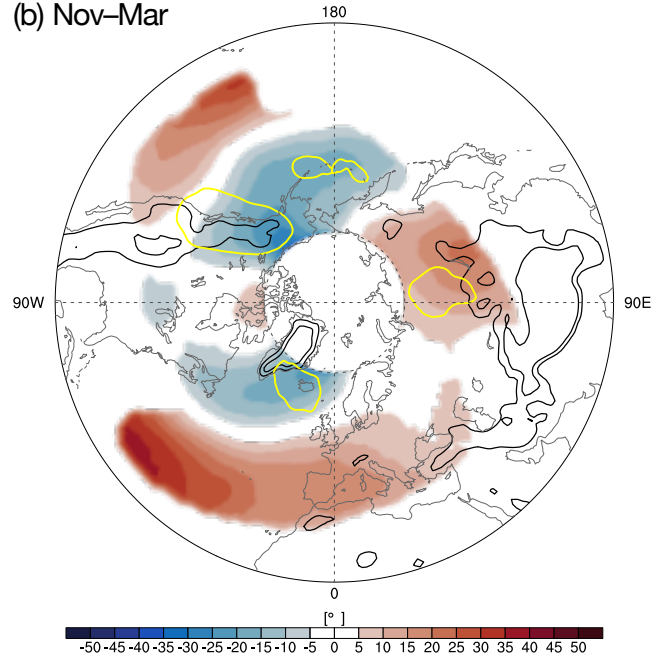
Figure 1. 300-hPa trough (left) detection frequencies and (right) corresponding horizontal orientation for the (a,b) cold (Nov–Mar) and (c,d) warm seasons (May–Sep).

Ridges

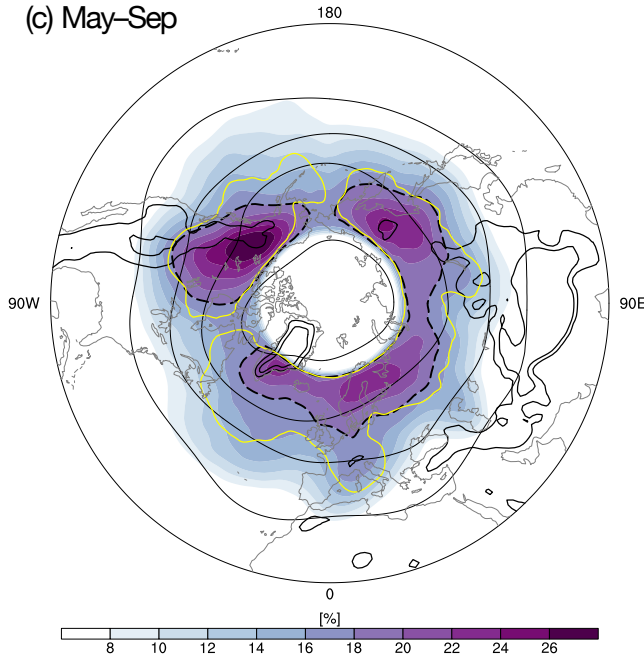
(a) Nov–Mar



(b) Nov–Mar



(c) May–Sep



(d) May–Sep

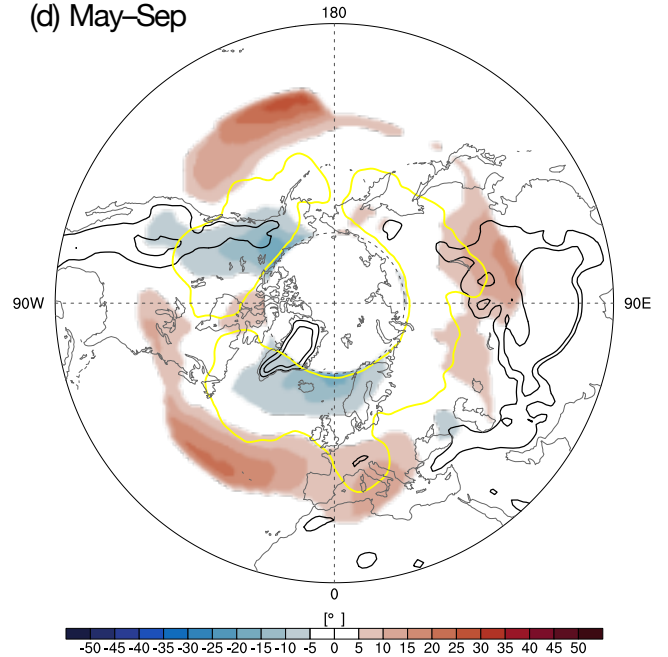
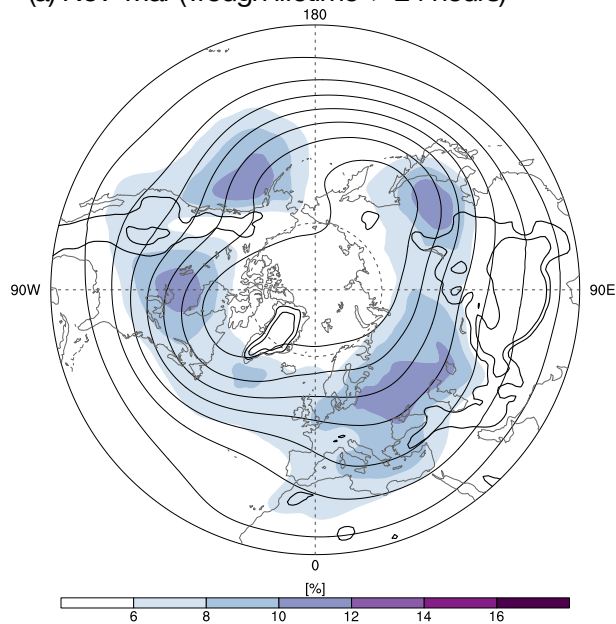


Figure 2. 300-hPa ridge (left) detection frequencies and (right) corresponding horizontal orientation for the (a,b) cold (Nov–Mar) and (c,d) warm seasons (May–Sep).

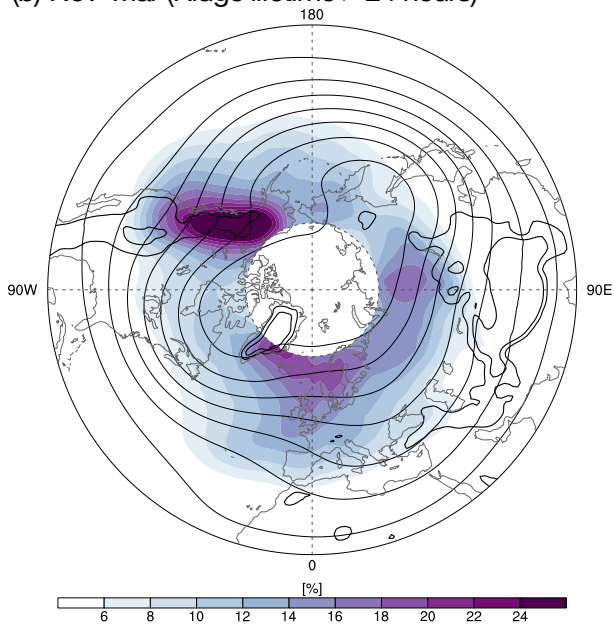
Troughs

(a) Nov–Mar (Trough lifetime > 24 hours)

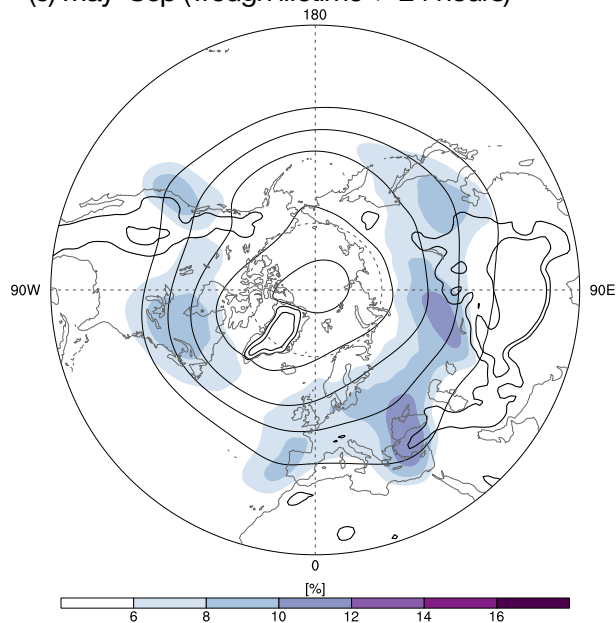


Ridges

(b) Nov–Mar (Ridge lifetime > 24 hours)



(c) May–Sep (Trough lifetime > 24 hours)



(d) May–Sep (Ridge lifetime > 24 hours)

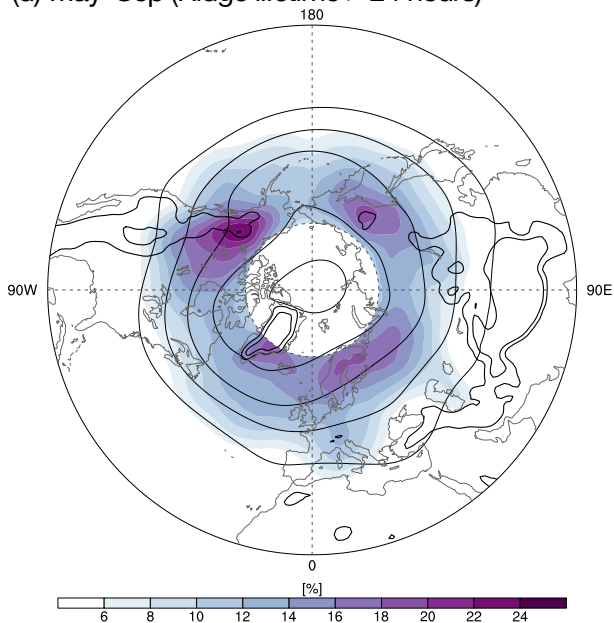


Figure 3. 500-hPa trough (left column) and ridge (right column) detection frequencies with short-lived features (< 24 hours) excluded.

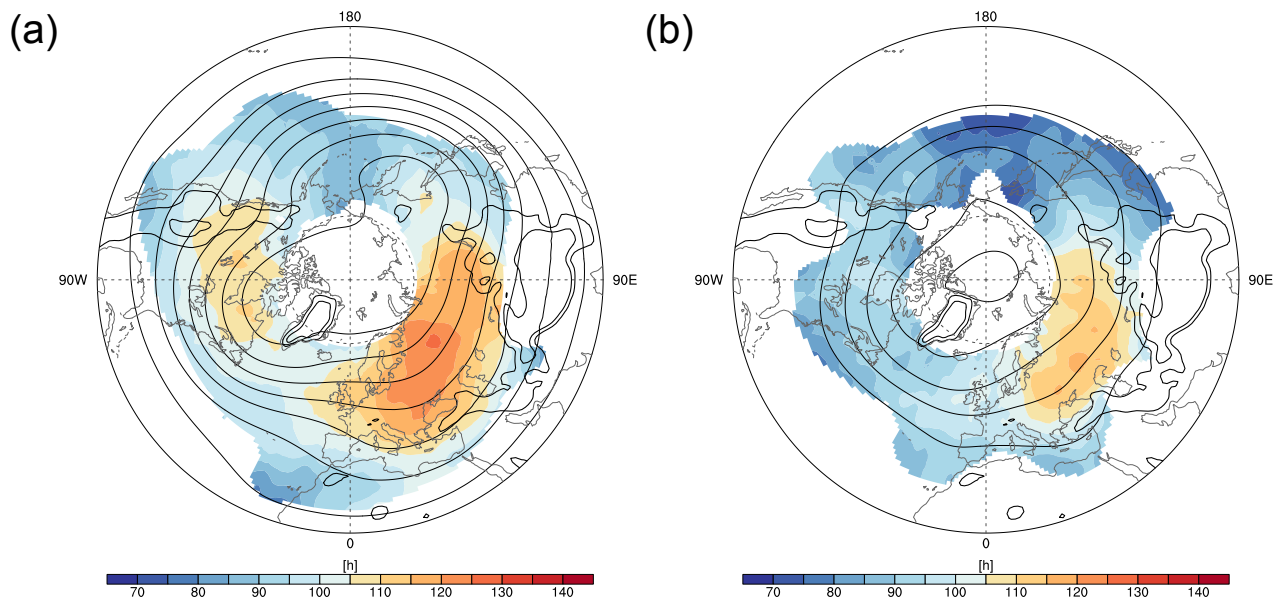


Figure 4. The mean trough lifetime during (a) the cold (Nov–Mar) and (b) warm season (May–Sep).