The impact of diabatic outflow on the large-scale midlatitude circulation and predictability

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Abstract:

The large-scale midlatitude flow is dominated by Rossby wave activity along the upper-level midlatitude wave guide and jet stream. In the Atlantic-European region this activity occurs in preferred quasi-stationary, persistent states, so-called weather regimes. In this presentation physical and dynamical processes impacting the prevailing Rossby wave pattern and weather regimes are elucidated with focus on "diabatic outflow" driven by cloud-condensational processes in synoptic-scale weather systems. Furthermore, the impact of these multi-scale interactions on extreme weather events and predictability are explored.