

## **Near-surface strong winds and sting jets in extratropical winter storms**

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### *Abstract:*

Strong surface wind gusts within extratropical cyclones are closely connected to the presence of intense jets in the lower troposphere like the warm-conveyor-belt jet, the cold-conveyor-belt jet or the sting jet. The formation of these jets is analyzed by performing an eddy kinetic energy budget and using both reanalysis data and idealized numerical experiments. Then, the presentation will focus on sting jets which occur in the frontal fracture zone of the so-called Shapiro-Keyser cyclones. The different mechanisms leading to their formation will be compared using both idealized and real case simulations. Finally, processes allowing the transfer of momentum within the boundary layer down to the surface will be discussed.