

Abstract Submitted  
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**Dynamics of wing tip vortices in the near and far wake** MARIE COULIOU, KEVIN AZIM, JEAN-CLAUDE MONNIER, VINCENT BRION, DAAA, ONERA, DAAA, ONERA TEAM — Wing tip vortices are a major challenge for civil aviation, both regarding air transport management (efficiency, safety) and environmental impact (induced drag, condensation trails). In this work, an experimental investigation on the development of cooperative instabilities of vortex wakes in the near and far field of a finite wing is carried out. The experiment takes place in a 22 m long hydrodynamic towing tank capable of towing speeds up to 5 *m/s* and enabling PIV measurements up to 200 spans of wake development. PIV data provides an extensive characterization of the vortex evolution. The effect of a perturbation placed along the span of the wing, following recent theoretical results on the control of vortex wake dynamics, is particularly discussed.

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