

Towards flow field measurements around dynamic cross-country skiers

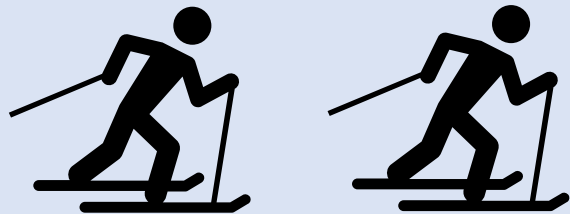


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Aim

Explore the possibilities and challenges associated with visualizing and measuring the flow field around XC skiers roller skiing, using the double poling technique, on a treadmill in a wind tunnel. The facility enables the study of a dynamic process with a more realistic flow field in a controlled environment.



Method

The flow field at various speeds around a single skier as well as around two skiers in line with the streaming airflow was studied using particle tracking velocimetry. Helium-filled soap bubbles were used to seed the flow. The region of interest was illuminated and imaged by cameras.



Results

The tested experimental approach has the potential to provide detailed insights, both qualitatively and quantitatively, into the flow field dynamics. The main improvements required to streamline the experimental methodology were identified and discussed.

