

Abstract Submitted  
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**Aerodynamics of ski jumping flight and its control: II. Simulations**<sup>1</sup> JUNGIL LEE, Ajou University, HANSOL LEE, WOJIN KIM, HAECHEON CHOI, Seoul National University — In a ski jumping competition, it is essential to analyze the effect of various posture parameters of a ski jumper to achieve a longer flight distance. For this purpose, we conduct a large eddy simulation (LES) of turbulent flow past a model ski jumper which is obtained by 3D scanning a ski jumper's body (Mr. Chil-Ku Kang, member of the Korean national team). The angle of attack of the jump ski is  $30^\circ$  and the Reynolds number based on the length of the jump ski is 540,000. The flow statistics including the drag and lift coefficients in flight are in good agreements with our own experimental data. We investigate the flow characteristics such as the flow separation and three-dimensional vortical structures and their effects on the drag and lift. In addition to LES, we construct a simple geometric model of a ski jumper where each part of the ski jumper is modeled as a canonical bluff body such as the sphere, cylinder and flat plate, to find its optimal posture. The results from this approach will be compared with those by LES and discussed.

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