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## Wind Tunnel Correlation on External Aerodynamics with STAR-CCM+



ART Grand Prix has been engaged in the Formula 3 Euroseries Championship since 2003. The regulations allow teams to work intensively on external aerodynamics to improve the performance of their Formula 3 car. Therefore, many wind tunnel tests were performed to obtain experimental data which permitted to characterize the global aerodynamic performances of the ART F3 car and to lead to many developments. To bring more efficiency into the development process of external aerodynamic parts, the use of CFD, as a tool in the evaluation and understanding of aerodynamic performances, became more and more important. The development of such CFD methods are required to perform a strong correlation study between the simulation data and the wind tunnel ones and to ensure successful future developments, in touch with the "real world". This correlation study has been possible via the use of STAR-CCM+. The presented correlation study details the problems encountered and solved using the functionalities of STAR-CCM+ to adjust the ART F3 CFD model (mesh and physics) to be as aerodynamically close as possible to the wind tunnel data (front wing angle, rear wing angle, stalling point of the diffuser).

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**Industries:**

**Products:**

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