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INVESTIGATION OF THE AERODYNAMIC CHARACTERISTIC DURING FOLDED RUDDER
DEPLOYMENT

Abstract

The folded rudder deploying procedure was simulated by the numerical method. The computing domain divided with the Cartesian grid, which could be easily applied to complex configurations, and the spring analogy method was coupled with the Cartesian grid for the complex topological variety. The ALE form governing equations were discretized by the modified Roe scheme, and solved by the dual-time method, in which the LU-SGS method was applied for the pseudo time step. The flowfield round the folded rudder while it static or deploying were simulated, the characteristic of the flow round the folded rudder was analyzed, and the influence to the whole vehicle during the deploying process was investigated.