عنوان مقاله:

Helicopter Vortex Ring State Simulation Using Moving Reference Frame Approach

محل انتشار:

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خلاصه مقاله:

In a specific condition of a helicopter flight, around the main rotor may appear the toroidal structure called a vortex ring. This is a very dangerous phenomenon, because the rotor stops pulling a helicopter up, instead wasting its power to propel the vortex around it. This work contains the numerical simulation of vortex ring state (VRS) appearance and evolution around an experimental rotor of Tung and Caradona. A second order implicit unsteady, upwind inviscid solver is applied to simulate the rotor in several descending velocities. Results show that VRS starts to appear at the descent velocities around half of the velocity induced by the rotor, and stops at 1.5 of this velocity. Trust and torque variation was studied though the simulation

کلمات کلیدی:

CFD, Helicopter, Vertical Flight, VRS

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