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Simultaneous Pressure and Stereoscopic PIV measurements of the flow around a wall-mounted cube in an Urban-type Boundary Layer[1]
BRUNO MONNIER, PARITOSH MOKHASI, DIETMAR REMPFER, CANDACE WARK, Illinois Institute of Technology — An experimental investigation of the flow around a wall-mounted cube in an experimentally modeled thick atmospheric boundary layer will be presented. Simultaneous Stereoscopic PIV measurements around the cube and pressure measurements on its surface are combined to obtain the 3D velocity field resolved both in space and time using a combination of the method of proper orthogonal decomposition and nonlinear Kalman filters. Mean velocity field, turbulence statistics and coherent structure identification tools are presented while the feasibility of extraction of time dependent data is investigated.

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