Identification from Flight Data of the Italian Unmanned Space Vehicle

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Abstract: Identification methodologies for processing flight data are frequently used to validate and improve a pre-flight aerodynamic data-base and, specifically, to reduce the associated uncertainties. This paper describes the process applied for the identification of the aerodynamic model of the Italian Unmanned Space Vehicle. The identification problem is solved through a multi-step approach, where the aerodynamic coefficients are identified first and, in a following phase, a set of model parameters are updated. The methodology was applied to actual flight data, gathered during the second flight test performed by the Italian Aerospace Research Centre.

Keywords: Identification, Kalman filter, aerodynamics, modelling, space vehicle