

VISUALIZATION IN A WATER CHANNEL WORKING AS A PRELIMINARY DESIGN TOOL

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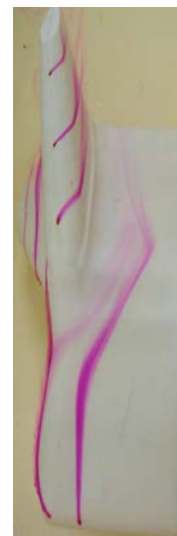
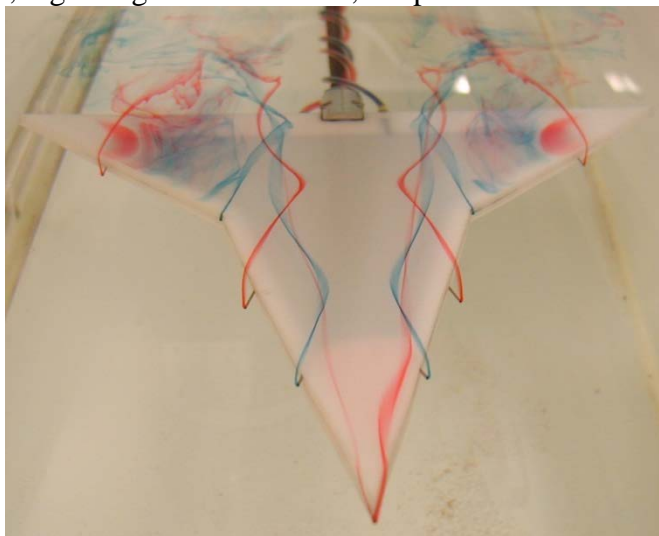
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ABSTRACT

This paper presents the visualization results obtained in a water channel. These results have shown the streamlines in several conventional and non-conventional wing planforms, in an incompressible and stationary flow over the range of low Reynolds number. The authors will present the results obtained in several configurations (delta wings, winglets, box-wing). These experimental results have been used in the preliminary design of non-conventional wing planforms. This tool for aerodynamic design has been applied to the process of developing and building of an UAV which the authors have carried out .

This paper also describes in detail the main characteristics of the visualization technique, both in the water channel and in the model. The complete set of experimental visualization results carried out in the facility is presented and it is compared with the same configuration tested in a wind tunnel. This configuration will be a box-wing lay-out one. Finally, the conclusions the authors have reached, regarding stall conditions, are put forward.



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