ID26- CFD ANALYSIS AND HYDRODYNAMIC IMPROVEMENT ON HYBRID BUOYANCY DRIVEN UNDERWATER GLIDER FOR EXTENDED RANGE CAPABILITIES

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It is well known the interesting capabilities of underwater autonomous gliders for travelling long distances in survey missions. Nevertheless, these high range capabilities have associated several difficulties related to the low velocity and high dependence on external disturbances, which make sometimes difficult to cope even weak external environmental forces. These external disturbances, generally produced by currents, rotational dynamic areas, turbulences or waters of variable densities can difficult or even make impossible to follow the desired course. With the aim of providing more dynamic capacity it has been intended the Alba 14 Underwater glider driven by a buoyancy engine which provides improved capacities of navigation in cases when additional momentum and maneuvering features can be of interest. For achieving this goal it is essential maximizing the hydrodynamic characteristics in order to improve the horizontal to vertical navigation ratio in each saw-to cycle. It is presented in this paper part of the work done on the design of the underwater Alba-14 for improving its hydrodynamic capabilities in order to extend its endurance in short to medium distance schema deployments. Simulations and results by CFD are presented as well as different navigation strategies for extended endurance and range.