

Advanced turboprop multidisciplinary design and optimization within AGILE project

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The present paper deals with the design, analysis and optimization of a 90 passengers turboprop aircraft with a design range of 1200 nautical miles and a cruise Mach number equal to 0.56. The prescribed aircraft is one of the use cases of the AGILE European project, aiming to provide a 3rd generation of multidisciplinary design and optimization chain, following the collaborative and remote aircraft design paradigm, through an heterogenous team of experts. The multidisciplinary aircraft design analysis is set-up involving tools provided by AGILE partners distributed worldwide and run locally from partners side. A complete design of experiment, focused on wing planform variables, is performed to build response surfaces suitable for optimization purposes. The goal of the optimization is the direct operating cost, subject to wing design variables and top-level aircraft requirements.

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