



Multi-Fidelity Simulation of a Turbofan Engine with Results Zoomed Into Mini-Maps for a Zero-D Cycle Simulation

By Mark G. Turner

BiblioGov. Paperback. Book Condition: New. This item is printed on demand. Paperback. 22 pages. Dimensions: 9.7in. x 7.4in. x 0.1in. A Zero-D cycle simulation of the GE90-94B high bypass turbofan engine has been achieved utilizing mini-maps generated from a high-fidelity simulation. The simulation utilizes the Numerical Propulsion System Simulation (NPSS) thermodynamic cycle modeling system coupled to a high-fidelity full-engine model represented by a set of coupled 3D computational fluid dynamic (CFD) component models. Boundary conditions from the balanced, steady state cycle model are used to define component boundary conditions in the full-engine model. Operating characteristics of the 3D component models are integrated into the cycle model via partial performance maps generated from the CFD flow solutions using one-dimensional mean line turbomachinery programs. This paper highlights the generation of the high-pressure compressor, booster, and fan partial performance maps, as well as turbine maps for the high pressure and low pressure turbine. These are actually mini-maps in the sense that they are developed only for a narrow operating range of the component. Results are compared between actual cycle data at a take-off condition and the comparable condition utilizing these mini-maps. The mini-maps are also presented with comparison to actual component data where possible....



[READ ONLINE](#)

Reviews

The best publication i actually study. We have study and that i am certain that i will likely to study once more again later on. Your daily life span will likely be transform the instant you total reading this book.

-- Mrs. Alene Leffler DVM

Comprehensive information for publication enthusiasts. It is rally exciting throug reading through time. I am happy to tell you that here is the greatest book i have got read through in my personal existence and can be he best ebook for possibly.

-- Reese Morisette