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Sonic Boom: Six Decades of Research

Sonic booms generated by aircraft traveling at supersonic speeds have been the subject of extensive aeronautics research for over 60 years. Hundreds of papers have been published that document the experimental and analytical research conducted during this time period. The purpose of this publication is to assess and summarize this work and establish the state-of-the-art for researchers just entering the field, or for those interested in a particular aspect of the subject. This publication consists of ten chapters that cover the experimental and analytical aspects of sonic boom generation, propagation and prediction with summary remarks provided at the end of each chapter. Aircraft maneuvers, sonic boom minimization, simulation techniques and devices as well as human, structural, and other responses to sonic booms are also discussed. The geometry and boom characteristics of various low-boom concepts, both large civil transports and smaller business-jet concepts, are included. The final chapter presents an assessment of civilian supersonic overland flight and highlights the need for continued research and a low-boom demonstrator vehicle. Summary remarks are provided at the end of each chapter. The studies referenced in this publication have been drawn from over 500 references.

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Authors Maglieri, (Eagle Aeronautics, Inc. Hampton, VA, United States)
Domenic J.
Bobbitt, (Eagle Aeronautics, Inc. Hampton, VA, United States)
Percy J.
Plotkin, (Wyle Labs., Inc. Arlington, VA, United States)
Kenneth J.
Shepherd, (NASA Langley Research Center Hampton, VA, United States)
Kevin P.
Coen, (NASA Langley Research Center Hampton, VA, United States)
Peter G.
Richwine, (NASA Langley Research Center Hampton, VA, United States)
David M.

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