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**AERONAUTICAL RESEARCH IN THE UNITED STATES:
CHALLENGES FOR THE 1990's**

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New opportunities for greater performance of civil air transportation aircraft derive from the continuing advancements in the aeronautical disciplines: advancements in aerodynamics, structures and materials, propulsion, and flight controls technologies. These opportunities impact future subsonic transports, high speed civil transports, and hypersonic vehicles. There are, however, new constraints within which progress will be made, including stringent environmental constraints on engine emissions and noise, old and new safety constraints on operations (especially in severe weather), aging airframes, and changing transportation marketplace demands affecting all of these vehicle classes. In this presentation, some of the NASA aeronautical research programs will be discussed in four areas: 1) Advanced Subsonic Airplanes, 2) Next Generation High Speed Civil Transport Aircraft (SST's), 3) High Performance Military Aircraft, and 4) Next Century Hypersonic Vehicles. This presentation overviews the exciting progress which is possible in aeronautics during the 1990's.

Continued U.S. investment in an aggressive aeronautics research program during the 1990's can pay handsome dividends for air transportation and defense in the next century. The research planning described reflects an awareness of and sensitivity to modern stringent environmental constraints, changing marketplace demands, and advanced-technology-driven opportunities. Our planet needs affordable global transportation and defense in the next century; this presentation has described the foundations of those future systems.