Department of the Air Force
Scientific Advisory Board

DEPARTMENT OF THE AIR FORCE
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Persistence Near Space Altitudes Study

Abstract

The U.S. Air Force Scientific Advisory Board conducted a quick look study on the subject of Persistence at Near Space Altitudes during the March 2005 to June 2005 time frame. The term near space has recently begun to refer to the region of the earth's atmosphere that lies between 65,000 ft (20 km) and 325,000 ft (100 km) in altitude.

There has been a great deal of interest in the notion of developing sensor and/or communications platforms and systems which could operate in this near space regime and, more importantly, which could persist and focus on a region of interest on the earth for long periods of time (days, weeks, and potentially years).

The present study endeavored to identify the scientific issues associated with operations in the near space regime, and to explore alternative platform options and operations, their strengths and weaknesses, and the ultimate capabilities that these concepts could bring to bear on U.S. military operations. Alternative unmanned platforms explored in this study were generically categorized as Fixed Wing aircraft, Lighter-than-Air (LTA) Balloon concepts, and LTA Airship concepts. Recommendations and technology development strategies were formulated for potential applications in the near-, mid-, and far-term.

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