EXECUTIVE SUMMARY

Over the past two decades, wind profiling technology has proved valuable in both research and operational applications, including severe weather analysis and forecasting, numerical modeling, pollution monitoring and space launch support. Individual profilers and networks of profilers provide continuous measurements, economically and automatically, with high space and time resolutions which are necessary in defining smaller scale as well as synoptic scale phenomena. Following a discussion of the theory of operation and history of wind profiler development, this paper examines the state-of-the-art of wind profiling in the United States. Many examples of the profiler's widespread use are described along with new avenues of research that are now possible because of profilers. Strengths and limitations of the technology as it is currently implemented are examined. Ongoing efforts to improve the technology are discussed.