

1. Record Nr.	UNINA9910962036403321
Titolo	Weather radar technology beyond NEXRAD // Committee on Weather Radar Technology Beyond NEXRAD, Board on Atmospheric Sciences and Climate, National Research Council
Pubbl/distr/stampa	Washington, D.C., : National Academy Press, c2002
ISBN	0-309-16945-3 1-280-18357-8 9786610183579 0-309-50245-4
Edizione	[1st ed.]
Descrizione fisica	1 online resource (97 p.)
Collana	Compass series
Disciplina	551.63/53
Soggetti	Radar meteorology - Technological innovations Weather forecasting - Technological innovations Meteorological services - United States - Evaluation
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Note generali	Description based upon print version of record.
Nota di bibliografia	Includes bibliographical references (p. 62-68).
Nota di contenuto	Front Matter; Preface; Acknowledgments; Contents; Summary; 1 Role of Radar in the Weather and Climate Observing and Predicting System; 2 The Current System; 3 Advanced Radar Technologies: Capabilities and Opportunities; 4 Networks and Mobile Platforms; 5 Automated and Integrated Products; 6 Findings and Recommendations; 7 Concluding Remarks: Radar in a Time of Terrorism; References; APPENDIX A NEXRAD WSR-88D System Characteristics; APPENDIX B Acronyms; APPENDIX C Committee and Staff Biographies
Sommario/riassunto	Weather radar is a vital instrument for observing the atmosphere to help provide weather forecasts and issue weather warnings to the public. The current Next Generation Weather Radar (NEXRAD) system provides Doppler radar coverage to most regions of the United States (NRC, 1995). This network was designed in the mid 1980s and deployed in the 1990s as part of the National Weather Service (NWS) modernization (NRC, 1999). Since the initial design phase of the NEXRAD program, considerable advances have been made in radar technologies and in the use of weather radar for monitoring and

prediction. The development of new technologies provides the motivation for appraising the status of the current weather radar system and identifying the most promising approaches for the development of its eventual replacement. The charge to the committee was to determine the state of knowledge regarding ground-based weather surveillance radar technology and identify the most promising approaches for the design of the replacement for the present Doppler Weather Radar. This report presents a first look at potential approaches for future upgrades to or replacements of the current weather radar system. The need, and schedule, for replacing the current system has not been established, but the committee used the briefings and deliberations to assess how the current system satisfies the current and emerging needs of the operational and research communities and identified potential system upgrades for providing improved weather forecasts and warnings. The time scale for any total replacement of the system (20- to 30-year time horizon) precluded detailed investigation of the designs and cost structures associated with any new weather radar system. The committee instead noted technologies that could provide improvements over the capabilities of the evolving NEXRAD system and recommends more detailed investigation and evaluation of several of these technologies. In the course of its deliberations, the committee developed a sense that the processes by which the eventual replacement radar system is developed and deployed could be as significant as the specific technologies adopted. Consequently, some of the committee's recommendations deal with such procedural issues.

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