CHAPTER 1

INTRODUCTION

1.1 Background. The material presented in Part C, WSR-88D Products and Algorithms, of Federal Meteorological Handbook No. 11 (FMH-11) describes the meteorological and hydrological products and algorithms implemented in the Weather Surveillance Radar-1988, Doppler (WSR-88D). Additional supplementary material is presented to give the user insight into the subtleties and variations in product interpretations that may arise out of variations in algorithm performance due to differing location, scanning strategy employed, or operational configuration. This Part also serves to document the meteorological processing that is intrinsic to the WSR-88D system.

The material in Part C is as of software Build 6 for the Radar Product Generator (RPG) and Open System Principal User Processor (OPUP), Build 10.2 of the legacy Radar Data Acquisition (RDA), and Build 10 of the legacy Principal User Processor (PUP). The sections covering the usage, strengths/applications and limitations are based primarily on the inputs provided by agency personnel familiar with the operation and meteorological use of the WSR-88D, the National Weather Service's (NWS's) Warning Decision Training Branch, Radar Operations Center (ROC) subject matter experts, and a support services contractor. This version of Part C supersedes the February 1991 version.

1.2 Purpose and Scope. Part C brings together the existing knowledge of WSR-88D products and algorithms. Additional and more detailed information regarding operating instructions are contained in baseline WSR-88D technical manuals, other parts of this Handbook, and the Memorandum of Agreement among the DOC, DoD, and DOT for Interagency Operation of the WSR-88D dated 2 June 2004 (available at: http://www.roc.noaa.gov/PDFs/MOA.pdf). The Next Generation Weather Radar (NEXRAD) Program plans to update Part C when new products or algorithms are added as will be the case in Build 8 (May 2006 release).

1.3 Organization. Part C is organized into five chapters.

- Chapter 1 is this introduction.
- Chapter 2, WSR-88D Meteorological Products, contains a description of each WSR-88D hydrological and meteorological product, organized alphabetically by product.
- Chapter 3, Meteorological and Hydrometeorological Algorithms, summarizes the various types of meteorological processing and is intended to serve as a reference for the operational user. It contains a functional description, listing of the operational parameters, and a discussion of the operational considerations of each algorithm. A bibliography is included for those desiring or requiring additional in-depth detail.
- Chapter 4, Signal Processing Algorithms, provides brief descriptions of signal processing algorithms.

- Chapter 5, Operational Modes and Volume Coverage Patterns, describes the WSR-88D operational modes and volume coverage patterns.
- Appendix A lists acronyms and abbreviations used in Part C. Appendix B is a glossary of terms used in this Handbook. In the 1991 version of Part C, Appendix A provided information on the default product data levels. This product level information can now be found in the Interface Control Document for the Product Specification, Document Number 2620003H. The document number suffix, "H" in this case for Build 6, corresponds to the software build the document is baselined for. The Product Specification document is at: http://www.roc.noaa.gov/ssb/cm/icd_downloads.asp

The WSR-88D images used in Part C are from the many diverse NEXRAD agency user display systems available. The list of the primary user display systems is in Part D, Section 2.4, of this Handbook. In addition, figures from the proof-of-concept National Severe Storms Laboratory (NSSL) Warning Decision Support System (WDSS), the National Climatic Data Center (NCDC) Level III/product archives via the NCDC NEXRAD Viewer, and the Common Operations and Development Environment (CODE) CODEview Graphics are used. These diverse displays are used to ensure the best representative examples of the phenomena being depicted are presented

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