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Notes on Analysis and Severe-Storm Forecasting Procedures of the Air Force Global

Weather Central

May 1972 184 pages

Authors: [Robert C. Miller](#); [AIR WEATHER SERVICE SCOTT AFB IL](#)

Full Text

... discusses the various types of severe- **weather** air masses, how severe **weather** systems form, which parameters best define the existence and intensity of severe **weather**, and how to use local information to better forecast the ... various stability indexes are presented. Also, a chapter on severe **weather** in tropical air masses is included. A number of detailed ... material concentrates on the application of computer-derived aids to severe **weather** forecasting produced by the Air Force Global **Weather** ... Foremost among these aids are analyses and prognoses of the Severe **Weather** Threat (SWEAT) Index.

The 1859 Solar-Terrestrial Disturbance and the Current Limits of Extreme Space Weather Activity

Oct 8, 2004 17 pages

Authors: [E. W. Cliver](#); [L. Svalgaard](#); [AIR FORCE RESEARCH LAB HANSCOM AFB MA SPACE WEATHER CENTER OF EXCELLENCE](#)

Full Text

It is generally appreciated that the September 1859 solar-terrestrial disturbance, the first recognized space **weather** event, was exceptionally large. How large and how exceptional? To answer these questions, we compiled rank ... auroral extent. while the 1859 event has close rivals or superiors in each of the above categories of space **weather** activity, it is the only documented event of the last ^150 years that appears at or near the top of all of the lists. Taken together, the top-ranking events in each of the disturbance categories comprise a set of benchmarks for extreme space **weather** activity.

AN INTRODUCTION TO WEATHER MODIFICATION

Sep 1969 38 pages

Authors: [Herbert S. Appleman](#); [AIR WEATHER SERVICE SCOTT AFB IL](#)

Full Text

Weather modification techniques are explained and Air **Weather** Service activities in cloud-seeding and fog-dissipation experiments are discussed.

Computer Models Used by AFGWC and NMC for Weather Analysis and Forecasting

Aug 1992 79 pages

Authors: [Richard J. Conklin](#); [AIR FORCE GLOBAL WEATHER CENTRAL OFFUTT AFB NE](#)

Full Text

Describes the numerical analysis and forecast models most widely used by U.S. Air Force meteorologists. These models are: the Air Force Global **Weather** Central (AFGWC) Global Spectral Model (GSM) the AFGWC Real-Time Nephanalysis (RTNEPH); the AFGWC High Resolution Analysis (HIRAS) models; the ... the grids are built. Strengths and weaknesses of the various models are discussed, along with AFGWC and NMC production cycles. Meteorology, **Weather**, Forecasting, Computers, Supercomputers, Computer programs, Models, Analysis, Computer analysis, Numerical analysis, Cray, Grids, Resolution, Topography, Map ...

Weather Tutor I: Stability Basics

Aug 1993 19 pages

Authors: [AIR WEATHER SERVICE KEESLER AFB MS DETACHMENT 5](#)

Full Text

This is the first in a series of computer-based interactive packages produced by Air **Weather** Service for use by Air Force **weather** units. It consists of text (instructions for running and using the computer program) and three 3 1/2-inch diskettes containing program software that generate high-resolution graphic images, animation, and text. The training package is in three parts: the first familiarizes students with the relationships between atmospheric variables. The second ...

The Basics of Weather Models

Mar 1993 14 pages

Authors: [W. D. Meyer](#); [AIR WEATHER SERVICE SCOTT AFB IL](#)

Full Text

Without using mathematics, this memo summarizes the important information **weather** forecasters need to know to apply numerical **weather** prediction (NWP) forecasts. We've had to make some tough choices regarding what material to include. We've put the more technically rigorous information in an appendix; readers can review this material as they have time. We've organized the material under three main topics: History of NWP; Components of an NWP model; Strengths and weaknesses of NWP models--what these models can and cannot do.

[Air Weather Service Weather-Modification Program \(FY 1971\)](#) Apr 1972 33 pages

Authors: [Herbert S. Appelman](#); [Laurence D. Mendenhall](#); [John C. Lease](#); [Robert I. Sax](#); [AIR WEATHER SERVICE SCOTT AFB IL](#)

[Full Text](#)

The annual report on the weather-modification activities of the Air **Weather** Service discusses the techniques, procedures, and results of the projects undertaken during FY 1971. Its primary purpose is to inform AWS field personnel on the weather-modification progress enjoyed during the year. Detailed reports of the individual projects are published elsewhere when warranted. COLD WAND, COLD FLAKE, COLD COWL, COLD CRYSTAL, WARM FOG, and COLD RAIN are the activities covered in this report.

[Catalog of Air Force Weather Technical Documents 1941-2000](#) Sep 2000 167 pages

Authors: [AIR FORCE WEATHER TECHNICAL LIBRARY ASHEVILLE NC](#)

[Full Text](#)

This catalog lists unclassified technical documents produced by or for the Air Force **Weather** Agency and its subordinate units from 1941 through 2000. Documents listed include: technical reports, technical notes, data summaries, project reports, special studies, and forecaster memos, along with availability data and ordering instructions.

[Catalog of Air Force Weather Technical Documents, 1941-2006](#) May 19, 2006 182 pages

Authors: [Gary Swanson](#); [AIR FORCE WEATHER TECHNICAL LIBRARY ASHEVILLE NC](#)

[Full Text](#)

This catalog lists unclassified technical documents produced by or for the Air Force **Weather** Agency and its subordinate units from 1941 through 2006. Documents listed include technical reports, technical notes, data summaries, project reports, special studies and forecaster memos along with availability data and ordering instructions.

[An Analysis of Preflight Weather Briefings](#) Feb 2007 24 pages

Authors: [O. V. Prinzo](#); [Alfred M. Hendrix](#); [Ruby Hendrix](#); [FEDERAL AVIATION ADMINISTRATION OKLAHOMA CITY OK CIVIL AEROMEDICAL INST](#)

[Full Text](#)

... aviation (GA) accidents and mishaps. The type of **weather** information requested from, or provided by, automated flight service station (AFSS) specialists is dependent on **weather** conditions at the time the preflight briefing occurs. However ... The purpose of this research was to document the types of AFSS **weather** information that GA pilots requested and received ... synopsis, sky conditions (clouds), visibility, and **weather** conditions at the departure, en route, and destination point. ... sky conditions (clouds) in addition to any other **weather** conditions that might prove to be significant during a ...

[In Every Clime and Place: USMC Cold Weather Doctrine](#) Dec 16, 1991 52 pages

Authors: [Jerry L. Durrant](#); [ARMY COMMAND AND GENERAL STAFF COLL FORT LEAVENWORTH KS SCHOOL OF ADVANCED MILITARY STUDIES](#)

[Full Text](#)

... and training base for operations in a cold **weather** environment. Based on its reinforcement mission ... plan to establish a doctrinal basis for cold **weather** operations, integrate a training and exercise ... clothe and equip. The methodology of this cold **weather** doctrine and training review is to examine ... link to current Marine Corps cold **weather** doctrine. Second, this paper reviews the historical ... Third, it provides an analysis of existing cold **weather** tactical doctrine utilizing the functions and ... second part of the analysis evaluates cold **weather** training doctrine using the operational priorities ...

[The Role of Weather in Class A Naval Aviation Mishaps by FY90-98](#) Mar 2001 103 pages

Authors: [Ruben A. Cantu](#); [NAVAL POSTGRADUATE SCHOOL MONTEREY CA](#)

[Full Text](#)

... FY 98 are analyzed for the possibility of being **weather** related. In addition to determining the overall role ... 19% of mishaps involving aircrew error are **weather** related with helicopter category and controlled ... mishap characteristic having the largest percent of **weather** related mishaps for their respective groupings ... elements account for over half of all **weather** related mishaps, and nearly two-thirds ... mishaps were judged to be preventable with a perfect **weather** forecast believed by aircrew. These and ... develop intervention strategies for reducing the number of **weather** related flight mishaps (FMs) per ...

[Benign Weather Modification](#) Jun 1, 1996 61 pages

Authors: [Barry E. Coble](#); [AIR UNIV MAXWELL AFB AL SCHOOL OF ADVANCED AIRPOWER STUDIES](#)

[Full Text](#)

... peacetime missions. However, interest in the ability to modify **weather** has waned over recent years and ... This study examines one aspect of **weather** modification, benign **weather** modification, for possible use ... After briefly reviewing the history and science of **weather** modification, this study bounds the aspects ... study then describes barriers to benign **weather** modification (BWM), showing how they affect ... use by the military, and some military-unique needs for **weather** modification. After examining current ... should conduct a more in-depth review of **weather** modification to see if technological advances ...

[Benign Weather Modification](#) May 1997 43 pages

Authors: [Barry B. Coble](#); [AIR UNIV MAXWELL AFB AL](#)

[Full Text](#)

... peacetime missions. However, interest in the ability to modify **weather** has waned over recent years and ... study examines one aspect of **weather** modification, benign **weather** modification (BWM), for possible ... After briefly reviewing the history and science of **weather** modification, this thesis bounds the aspects ... BWM, showing how they affect current **weather** modification policy in the military. Examples are shown ... military, and some military- unique needs for **weather** modification. After examining current ... should conduct a more in-depth review of **weather** modification to see if technological advances ...

[Weather as a Force Multiplier: Owning the Weather in 2025](#) Aug 1996 53 pages
 Authors: [Tamzy J. House](#); [James B. Near Jr.](#); [William B. Shields](#); [Ronald J. Celentano](#); [David M. Husband](#); [AIR WAR COLL MAXWELL AFB AL](#)

Full Text

... this paper is to outline a strategy for the use of a future **weather** modification system to achieve military objectives rather ... be reluctant to examine controversial issues such as **weather** modification, the tremendous military capabilities that could result ... or coerce an adversary. Some of the potential capabilities a **weather** modification system could provide to a war fighting ... in five major areas are necessary for an integrated **weather** modification capability: (1) advanced nonlinear modeling ... transmission, (4) a global sensor array, and (5) **weather** intervention techniques. Some intervention tools ...

[Integrated Terminal Weather System \(ITWS\) 1994 Demonstration Phase OT&E Final Report](#) Nov 1995 110 pages
 Authors: [Thomas M. Weiss](#); [Gloria Yastrop](#); [Glenn Smythe](#); [FEDERAL AVIATION ADMINISTRATION TECHNICAL CENTER ATLANTIC CITY NJ](#)

Full Text

... will produce a fully automated, integrated terminal **weather** information system to improve safety, efficiency, ... Aviation Administration (FAA) and National **Weather** Service (NWS) **weather** sensors as well as aircraft in These products include current terminal area **weather** and near-term predictions of significant ... (a) were useful during operationally significant **weather**, (b) were displayed without the need for meteorological ... traffic planning/management during adverse **weather**; (2) Terminal airspace and runways were ... perceived controller workload during adverse **weather** conditions in thegd=i1>ll3g*)i9> ...

[Weather Effects in Selected Air Warfare Simulations](#) Jan 1997 42 pages
 Authors: [John Burgeson](#); [SCIENCE AND TECHNOLOGY CORP HAMPTON VA](#)

Full Text

... the results of a limited review of some of the literature on **weather** effects on electro-optical weapon systems, and how ... Extended Air Defense Simulation (EADSIM) ignores **weather** effects. When executed at high resolution, THUNDER simulates ... target acquisition, discrimination and kill. The only **weather** factors explicitly allowed are ceiling and visibility, ... of various portions of an attack mission affected by **weather** (e.g. Are probability models physics-based?), the realism of other ... user input, and the degree of THUNDER's sensitivity to **weather** input needs to be determined. Other conclusions and ...

[Automated Surface Observing System. Site Technical Manual S100](#) Mar 1997 1061 pages
 Authors: [NATIONAL WEATHER SERVICE SILVER SPRING MD](#)

Full Text

... Surface Observing System (ASOS) automatically collects **weather** data and provides accurate, 24-hour accumulated ... **weather** reports to local **weather** observers; **weather** forecasters; airport personnel, including pilots and air ... Federal Aviation Administration (FAA) and National **Weather** Service (NWS) personnel. ASOS functions include: measurement of **weather** elements, data processing and display, communication, and data ... data and formats, displays, archives, and reports the **weather** elements included in a surface ... flexibility of the ASOS, it can provide useful **weather** information in text, video, and audio ...

[Weather Operations in the Transformation Era](#) Mar 2003 36 pages
 Authors: [John M. Lanicci](#); [AIR WAR COLL MAXWELL AFB AL](#)

Full Text

... , USAF, takes a compelling look at future **weather** operations. His hypothesis is that a consolidated battlespace picture ... such example is our historical tendency to look at **weather** as a somewhat isolated, tactical problem. Significant advances ... and advent of effects-based operations are propelling the USAF **weather** community away from traditional, single-Inject stand-up ... WISR concept is based on substantially increasing the volume of **weather** data collected in-theater by using the same ... concept also advocates transmitting real-time **weather** information to the cockpit as a means to optimize the kill ...

[The Next Generation Weather Radar \(NEXRAD\)/Air Route Surveillance Radar \(ARSR\) Operational Comparison](#) Jul 1993 123 pages
 Authors: [Brian Dunbar](#); [Jeff Mittelman](#); [MITRE CORP BEDFORD MA](#)

Full Text

... (FAA), and Department of Defense are in the process of fielding the Next Generation **Weather** Radars (NEXRAD). These doppler **weather** radars, ... Radar (WSR)88D, will be replacing the WSR-57 and WSR-74 **weather** radars in use today. The NEXRAD data will be used ... of the Air Route Surveillance Radar (ARSR) **weather** data currently being used by air traffic controllers. ... NEXRADs and ARSRs to detect and present significant **weather** in order to determine the operational impact of using NEXRAD data ... comparison study. NEXRAD, TDWR, ASR-9, WSR-88D, Radar, **Weather**, Surveillance, Reflectivity, Air traffic control.

[Analysis of Performance Characteristics of the MWR-05XP Mobile Weather Radar](#) Dec 2005 51 pages
 Authors: [Jeffrey B. Knorr](#); [NAVAL POSTGRADUATE SCHOOL MONTEREY CA DEPT OF ELECTRICAL AND COMPUTER ENGINEERING](#)

Full Text

... ProSensing, Inc., Amherst, MA to retrofit this radar with a **weather** processor. The intent is to provide a military capability to ... an analysis of numerous aspects of the radar's performance as a **weather** sensor. The ability of the MWR-05XP radar to detect rain ... to determine correlation and decorrelation times for **weather** signals with varying rms velocity spread. ... integration improvement has been computed for a Rayleigh **weather** target with varying pulse-to-pulse correlation and curves ... , scan strategy is discussed with emphasis on obtaining **weather** signal parameter estimates with small variance while ...

[Adding Weather to Wargames](#) Jan 2007 84 pages
 Authors: [Sean G. O'Brien](#); [Richard C. Shirkey](#); [ARMY RESEARCH LAB WHITE SANDS MISSILE RANGE NM COMPUTATIONAL AND INFORMATION SCIENCE DIRECTORATE](#)

... decision aid, and the rules embodied in the Integrated **Weather** Effects Decision Aid (IWEDA) we developed techniques that allowed significant improvement in **weather** effects and impacts for wargames. TAWS was ... infrared sensors acquiring targets under those **weather** conditions. IWEDA rules were used in ... (AWARS) model. AWARS was modified to incorporate **weather** impacts upon sensor operation and platform ... a favorable comparison with table look-up methods. **Weather** effects upon combatant platform mobility were ... in both the presence and absence of adverse **weather** conditions were tested and are summarized.

[Full Text](#)

[CRITICAL FIRE WEATHER PATTERNS, THEIR FREQUENCY AND LEVELS OF FIRE](#)

1966 53 pages

[DANGER](#)

Authors: [Melvin K. Hull](#); [Clyde A. O'Dell](#); [Mark J. Schroeder](#); [PACIFIC SOUTHWEST FOREST AND RANGE EXPERIMENT STATION BERKELEY CA](#)

... both urban and rural areas. Identification of the **weather** types causing critical burning conditions in ... of much practical value, knowing what the critical **weather** types are and where they influence burning ... know when they will occur and the type of **weather** and burning conditions that can be expected. ... a step in that direction. Ten years of synoptic **weather** maps (1951-1960) were studied to determine ... showing mean values and variations of **weather** parameters and fire danger indexes, ... should be able to make a first approximation probability statement about the occurrence of a particular **weather** event. ...

[Full Text](#)

[The Effects of Weather on Rapid Runway Repair. Volume 2](#)

May 1983 317 pages

Authors: [J. M. Whitehead](#); [M. D. Hoffman](#); [P. G. Potter](#); [C. P. Neuswanger](#); [M. M. Wilding](#); [BDM CORP MCLEAN VA](#)

... This report presents the results of a study to identify the effects of **weather** on Rapid Runway (RRR). There are two major components of the study. The first characterizes the aspects of **weather** affect RRR, by area for Korea, Europe, and ... , and humidity. The second component studies the effects of **weather** on the RRR process. The process is divided into activities, with associated efficiencies under various **weather** conditions. Values for efficiencies are developed from military and ... The report identifies potential solutions to some **weather** related problems, and makes recommendations for ...

[Full Text](#)

[Weather as the Decisive Factor of the Aleutian Campaign, June 1942- August 1943](#)

1993 125 pages

Authors: [Carol A. Wilder](#); [ARMY COMMAND AND GENERAL STAFF COLL FORT LEAVENWORTH KS](#)

... an examination of historical data to determine if **weather** was the decisive factor of the Aleutian Campaign. The campaign was ... made attempts at coordinated actions futile. The intense **weather** conditions of the North Pacific severely complicated operations ... Harbor and the American response is examined. The role of the **weather** is also examined as the Americans attempt to bomb the ... of Kiska and Attu. Finally, the influence of **weather** on the amphibious landings and ensuing ground action ... the islands is reviewed. Though a dominant factor, **weather** was not the decisive factor at the tactical level of ...

[Full Text](#)

[Temporal Weather Impacts Upon Exterior Intrusion Detection Systems](#)

Dec 1995 137 pages

Authors: [Charles C. Ryerson](#); [Lindamae Peck](#); [COLD REGIONS RESEARCH AND ENGINEERING LAB HANOVER NH](#)

... to intruders. This report is a technical analysis of causes of **weather** driven temporal changes in the environment that impact ... of reliability. This is accomplished by identifying temporal variations in **weather** that are sufficiently general to be identified as patterns, and ... respond to these patterns. The result is an understanding of how **weather** conditions influence the ability of types of IDSs ... intruder while successfully discriminating against **weather** created conditions within a detection zone. ... seasonal. Within each temporal scale, **weather** processes common at that scale are explained. Topics ...

[Full Text](#)

[The Effects of Cold Weather on Tactical Operations](#)

Jan 1, 1997 99 pages

Authors: [Paul D. West](#); [John V. Farr](#); [Gregory S. Fortier](#); [Kevin D. Lilly](#); [Gerald D. Ingalls](#); [MILITARY ACADEMY WEST POINT NY](#)

The study of **weather** effects on tactical military operations has focused almost exclusively on human factor ... , and less yet to integration of known **weather** effects into commonly used training and ... human factors studies, exploration into cold **weather** effects in a combat simulation, the need is highlighted for ... mobility model. From a mounted operations perspective, cold **weather** and snow can affect many factors ... and man/machine effects during cold **weather**. A studied directed at quantifying the effects of cold ... interest. Atmospheric conditions unique to cold **weather** also warrant attention. Detections and ...

[Full Text](#)

[Determining If "Space Weather" Conditions Should Be Considered in the Intelligence](#)

Jun 5, 1998 93 pages

[Preparation of the Battlefield Process](#)

Authors: [Thomas B. Froominckx](#); [ARMY COMMAND AND GENERAL STAFF COLL FORT LEAVENWORTH KS](#)

... space environmental conditions, commonly referred to as space **weather**, should be considered in Army Intelligence Preparation of the Battlefield (IPB). Space **weather** refers to a variety of naturally occurring phenomena involving electromagnetic radiation, ... of Army systems that are adversely affected by space **weather**. These systems are used at all echelons by ... potential mission impacts and failures due to the effects of space **weather**. In determining the utility of space **weather** ... and system operators could use space **weather** information to mitigate the adverse effects. The study concludes ...

[Full Text](#)

[An Intelligent User Interface to Support Air Force Weather Product Generation and Automated Metrics](#)

Mar 2000 214 pages

Authors: [Darryl N. Leon](#); [AIR FORCE INST OF TECH WRIGHT-PATTERSON AFB OH](#)

Air Force pilots require dependable **weather** reports so they may avoid ... flying conditions. In order to better gauge the accuracy of its **weather** products, Air Force ... requirement for an Air Force- wide automated **weather** metrics program. Under the guidelines for this program ... forecasts will automatically be compared to observed **weather** to determine their accuracy. Statistics will be collected in the hopes ... however, the system must also

[Full Text](#)

have **weather** domain knowledge to understand when the input data ... observer during product generation, with the ultimate goal of producing more accurate **weather** products ...

[Weather Impact Decision Aids \(WIDA\)](#)

Sep 27, 1999 56 pages

Authors: [Melanie J. Gouveia](#); [Richard B. Bensinger](#); [Jeffrey S. Morrison](#); [ANALYTIC SCIENCES CORP READING MA](#)

[Full Text](#)

Weather Impact Decision Aids (WIDAs) predict the effects of **weather** and other environmental factors on the performance of electro-optical ... broken down into two software development programs. The **Weather** Automated Mission Planning Software (WAMPS) will ... aids can benefit mission planning. The Target Acquisition **Weather** Software (TAWs) will be fielded to replace the aging DOS-based Electro-Optical ... (IRTSS) and Night Vision Goggles Operations **Weather** Software (NOWS) programs. Together, these programs ... of time using precision guided munitions, automation and inclusion of **weather** effects is essential.

[Analysis of Performance Characteristics of the Naval Postgraduate School MWR-05XP](#)

Dec 1, 2005 51 pages

[Mobile Weather Radar](#)

Authors: [Jeffrey B. Knorr](#); [NAVAL POSTGRADUATE SCHOOL MONTEREY CA DEPT OF ELECTRICAL AND COMPUTER ENGINEERING](#)

[Full Text](#)

... ProSensing Inc., Amherst, MA to retrofit this radar with a **weather** processor. The intent is to provide a military capability to ... an analysis of numerous aspects of the radar's performance as a **weather** sensor. The ability of the MWR-05XP radar to detect rain ... to determine correlation and decorrelation times for **weather** signals with varying rms velocity spread. ... integration improvement has been computed for a Rayleigh **weather** target with varying pulse-to-pulse correlation and curves ... , scan strategy is discussed with emphasis on obtaining **weather** signal parameter estimates with small variance while ...

[Combining Spatial Statistical and Ensemble Information in Probabilistic Weather](#)

Feb 22, 2006 32 pages

[Forecasts](#)

Authors: [Veronica J. Berrocal](#); [Adrian E. Raftery](#); [Tilmann Gneiting](#); [WASHINGTON UNIV SEATTLE DEPT OF STATISTICS](#)

[Full Text](#)

... that generates calibrated probabilistic forecast products for **weather** quantities at individual sites. This paper introduces the ... to generate calibrated probabilistic forecasts of whole **weather** fields simultaneously, rather than just **weather** ... Spatial BMA method provides statistical ensembles of **weather** field forecasts that take the spatial structure of ... the Spatial BMA ensemble are obtained by dressing the **weather** field forecasts from the dynamical ensemble with simulated spatially ... the raw ensemble, both at individual sites, for **weather** field forecasts, and for forecasts of composite quantities ...

[The Effects of Weather on Rapid Runway Repair. Volume 1](#)

May 1983 215 pages

Authors: [J. M. Whitehead](#); [M. D. Hoffman](#); [P. G. Potter](#); [C. P. Neuswanger](#); [M. M. Wilding](#); [BDM CORP MCLEAN VA](#)

[Full Text](#)

... volumes. Volume I contains the technical analysis and **weather** effects on RRR process, while Appendix A, ... This report presents the results of a study to identify the effects of **weather** on Rapid Runway Repair (RRR). There are ... major components of the study. The first characterizes the aspects of **weather** that affect RRR, by area for Korea, Europe, and ... , and humidity. The second component studies the effects of **weather** on the RRR process. The process is divided into activities, with associated efficiencies under various **weather** conditions. Values for the efficiencies are developed from military and ...

[The Severe Weather Warning Process Using the WSR-88D at the Raleigh Weather](#)

1996 123 pages

[Forecast Office](#)

Authors: [Debra K. Hoiuim](#); [AIR FORCE INST OF TECH WRIGHT-PATTERSON AFB OH](#)

[Full Text](#)

... and tornado forecasts. In recent years, the Doppler radar was developed in an attempt to increase severe **weather** warning timeliness and accuracy. This research is a preliminary analysis of the severe **weather** warning process using the WSR-88D at the Raleigh **Weather** Forecast Office (RDU WFO). A schematic representation of the warning process was developed based on ... warned counties are called leading to the verification of 38 percent of the warnings during the severe **weather** episode. Seventy percent of these severe **weather** reports are accurate if Storm Data is ...

[Free Cockpit Displays of Traffic and Weather Information Effects of Dimension and Data](#)

Jun 24, 1997 72 pages

[Base Integration](#)

Authors: [Janelle V. O'Brien](#); [AIR FORCE INST OF TECH WRIGHT-PATTERSON AFB OH](#)

[Full Text](#)

... displays that effectively depict traffic and **weather** information as more and more responsibility ... integration through overlays of traffic and **weather** information within displays) . it was hypothesized that the 2D ... would result in fewer traffic and **weather** conflicts than the 3D displays, replicating ... separated displays for trials in which both **weather** and traffic were critical for maneuver ... smaller percentage of conflicts with traffic and **weather** hazards. The results regarding database integration suggest that displays in which traffic and **weather** are overlaid result in fewer hazard conflicts ...

[Management Organization for Army Weather Programs and Support Functions](#)

Dec 1997 107 pages

Authors: [Carl H. Chesley](#); [Vincent P. Grocki](#); [SCIENCE AND TECHNOLOGY CORP HAMPTON VA](#)

[Full Text](#)

This report records the results of the investigators' review of **weather** support management within the U. S. Army, both recently ... 's request, describes a long-term absence of a positive **weather** culture that has engendered a failure to use **weather** ... some exciting progress, the overall configuration of Army **weather** support was peppered with a lack of direction, little soldier ... also documented observations of specific problems in Army **weather** support, and where reasonable, offered possible solutions ... recorded some of the problem commentaries of the Army **weather** community and their suggested solutions. ...

[Limited Job Task Analysis \(JTA\) For Aviation Weather Products](#)

Apr 1999 151 pages

Authors: [William Banner](#); [Thomas Carty](#); [FEDERAL AVIATION ADMINISTRATION TECHNICAL CENTER ATLANTIC CITY NJ](#)

To assist in the understanding of **weather** product use by Air Traffic Control Specialists (ATCS) and Automated Flight Service Station (AFSS) ... TMCs. The second stage of the JTA involved confirming the flowcharts and **weather** tables developed during the first stage. This was accomplished by comparing the flowcharts and **weather** tables to observed job tasks and **weather** information requirements of specialists and controllers at the Ft. Worth AFSS and ... are discussed in detail along with issues relating to the user system interface of **weather** systems and recommendations for new aviation **weather** products.

[Full Text](#)[Antarctic Operational Weather Forecasting](#)

2004 80 pages

Authors: [Sean R. Keaveney](#); [MARYLAND UNIV COLLEGE PARK DEPT OF METEOROLOGY](#)

... Guard. Flights to and around the continent require accurate operational **weather** forecasts to minimize the threat posed by Antarctica's harsh, highly variable **weather**. This paper reviews literature on significant Antarctic **weather** features, primarily katabatic winds and mesocyclones, around McMurdo Station, ... It then describes the analysis and forecasting tools, specifically, Automatic **Weather** Stations, space-based remote sensing, and numerical **weather** prediction, used by USAP forecasters to create their **weather** forecasts. Problems with these tools and required improvements, including the ...

[Full Text](#)[The Impacts of Weather Forecasts on Military Operations: A System for Conducting Quantitative Near-Real Time Analyses](#)

Sep 2005 101 pages

Authors: [Mark Butler](#); [NAVAL POSTGRADUATE SCHOOL MONTEREY CA](#)

... collecting and analyzing in near-real time **weather** forecast and observational data to assess: ... major goal of the system is to quantify the impacts of **weather** forecasts on the planning execution and outcomes ... during mission planning in response to forecasted **weather** (e.g. changes in mission schedule targets weapons ... plans that occurred during missions in response to **weather** conditions actually encountered by air crews ... mission impacts (e.g. TAWS WOF accuracy **weather** impacts on weapon sensors); and (6) forecast ... and mission impacts with respect to specific **weather** factors (e.g. surface and aloft winds ...

[Full Text](#)[Calibrated Probabilistic Mesoscale Weather Field Forecasting: The Geostatistical Output Perturbation \(GOP\) Method](#)

Mar 12, 2003 20 pages

Authors: [Yulia Gel](#); [Adrian E. Raftery](#); [Tilmann Gneiting](#); [WASHINGTON UNIV SEATTLE DEPT OF STATISTICS](#)

... **weather** forecasting consists of finding a joint probability distribution for future **weather** quantities or events. It is typically done by using a numerical **weather** prediction model, perturbing the inputs to the model in various ways, often depending on data assimilation, ... taken to be a sample from the joint probability distribution of the future **weather** quantities of interest. This is typically not feasible for mesoscale **weather** prediction ... organizations without the vast data and computing resources of national **weather** centers. Instead, we propose a simpler method which breaks with ...

[Full Text](#)[SYNOPTIC WEATHER TYPES ASSOCIATED WITH CRITICAL FIRE WEATHER](#)

1964 503 pages

Authors: [Mark J. Schroeder](#); [Monte Glovinsky](#); [Virgil F. Henricks](#); [Frank C. Hood](#); [Melvin K. Hull](#); [PACIFIC SOUTHWEST FOREST AND RANGE EXPERIMENT STATION BERKELEY CA](#)

Mass fires are likely to spread rapidly and burn intensely when strong winds are combined with low humidities and high temperatures, particularly after a rainless period. To identify synoptic **weather** types that create such periods of critical fire **weather**, the 48 contiguous states were divided into 14 regions and fire danger indexes were computed from **weather** data at 89 stations for the years 1951-60. Surface **weather** types and upper-air patterns associated with high fire danger are described for each region.

[Full Text](#)[Adverse Weather Test Site Selection Study](#)

Jul 1992 94 pages

Authors: [Steven R. Christy](#); [Ronald L. Comoglio](#); [Robert G. Hauser](#); [Randy J. Lefevre](#); [AERONAUTICAL SYSTEMS CENTER WRIGHT-PATTERSON AFB OH](#)

This report details the percent frequency of occurrence of the adverse **weather** testing criteria (as outlined in AFFTC-TIH-88-004) for five airfields: Keflavik, Iceland; Goose Bay, Canada; ... single location best suited, climatologically, to perform flight testing. Criteria tested and **weather** conditions evaluated include artificial and natural in-flight icing and rain; wet, slushy, ... Numerous tables and graphs are used to demonstrate the percent frequency differences of the adverse **weather** conditions between the five locations.... Climatology, Adverse **weather** testing, Adverse **weather** site selection, ...

[Full Text](#)[Next Generation Weather Radar \(NEXRAD\) Principal User Processor \(PUP\) operational Test and Evaluation \(OT&E\) Operational Test Plan](#)

Jun 1993 13 pages

Authors: [Baxter R. Stretcher](#); [FEDERAL AVIATION ADMINISTRATION TECHNICAL CENTER ATLANTIC CITY NJ](#)

... procedural approach, method, and responsibilities to be employed in conducting the Operational Test and Evaluation (OT&E) on the Next Generation **Weather** Radar (NEXRAD) Principal User Processor (PUP) system. The testing of the NEXRAD PUP will determine the operational suitability and effectiveness of the NEXRAD PUP aviation **weather** products used by the Center **Weather** Service Unit (CWSU) meteorologists for air traffic control (ATC)... Principal User Processor (PUP), Next Generation **Weather** Radar (NEXRAD), Center **Weather** Service Unit (CWSU), Meteorologists.

[Full Text](#)[Weather Modification: The Ultimate Weapon?](#)

Apr 1993 30 pages

Authors: [Angus Watt](#); [AIR WAR COLL MAXWELL AFB AL](#)

Within the topic of true **weather** modification, there is a considerable diversity of issues, not the least of which is the ... agriculturally-oriented, while the military tends to be more interested in using **weather** for hostile purposes.

[Full Text](#) While each group may use similar ... With the foregoing in mind, the focus of this paper will be on the deliberate use of **weather** modification techniques by the military. The discussion will concentrate on the practicality ... morality of **weather** warfare, with the aim of demonstrating that military **weather** modification may be technically feasible, but some of its forms ...

[The ATC Operational Evaluation of the Prototype Integrated Terminal **Weather** System \(ITWS\) at Dallas/Fort Worth and Orlando Airports \(May-September 1993\)](#) Mar 1995 119 pages

Authors: [Thomas M. Weiss](#); [FEDERAL AVIATION ADMINISTRATION TECHNICAL CENTER ATLANTIC CITY NJ](#)

[Full Text](#) The Integrated Terminal **Weather** System (ITWS) was developed by Massachusetts Institute of Technology/Lincoln Laboratory (MITLL). The ITWS processor acquires data from Federal Aviation Administration (FAA) and National **Weather** Service (NWS) **weather** sensors in the terminal area and provides an integrated set of safety and planning **weather** products to air traffic personnel. An operational evaluation of the ITWS functional prototype was ... at these sites was to evaluate various technical and operational issues of IWS **weather** products and their display and usability on the GSD. (AN) ...

[Forecasters Guide to Tropical Meteorology. Updated](#) Aug 1995 127 pages

Authors: [Colin S. Ramage](#); [AIR WEATHER SERVICE SCOTT AFB IL](#)

[Full Text](#) ... by Maj Gary D. Atkinson, has served as the reference manual for USAF **weather** forecasting in the tropics since it was first published in 1971. Although it has endured for the past 20 years, HQ Air **Weather** Service recognized the need for an update and contracted with tropical forecasting authority ... suitable for forecasters. Analysis and forecasting of disturbances, cyclones, severe **weather**, terminal **weather**, etc., are treated at length. The uses of climatology and the interpretation and use of **weather** satellite imagery are emphasized. Numerous figures adapted from the literature or ...

[Forecasters Guide to Tropical Meteorology. AWS TR 240 Updated](#) Aug 1995 493 pages

Authors: [Colin S. Ramage](#); [AIR WEATHER SERVICE SCOTT AFB IL](#)

[Full Text](#) ... by Maj Gary D. Atkinson, has served as the reference manual for USAF **weather** forecasting in the tropics since it was first published in 1971. Although it has endured for the past 20 years, HQ Air **Weather** Service recognized the need for an update and contracted with tropical forecasting authority Dr ... suitable for forecasters. Analysis and forecasting of disturbances, cyclones, severe **weather**, terminal **weather**, etc., are treated at length. The uses of climatology and the interpretation and use of **weather** satellite imagery are emphasized. Numerous figures adapted from the literature or ...

[Intercomparison of Icing Aviation Impact Variable Forecasts Produced During Real-Time Mesoscale Numerical **Weather** Prediction](#) 1998 205 pages

Authors: [Christopher M. Stock](#); [OKLAHOMA UNIV NORMAN](#)

[Full Text](#) ... initiated between the University of Oklahoma (OU), the Air Force **Weather** Agency (AFWA), and the Cooperative Program for Operational ... (COMET) to evaluate the use of real-time mesoscale numerical **weather** prediction (NWP) by USAF forecasting personnel. Its goal ... aviation impact variables (AIVs) which could be incorporated directly into the **weather** services provided by the base **weather** station (BWS) at Tinker Air Force Base (AFB). During a Winter Operational Period (WOP), ... Icing forecast products derived from algorithms developed by various **weather** agencies world-wide were generated using the model ...

[Operational Test and Evaluation \(OT&E\) Test Plan for the Federal Aviation Administration \(FAA\) Bulk **Weather** Telecommunications Gateway \(FBWTG\)](#) Jan 1999 42 pages

Authors: [Bart Khatiwala](#); [William E. Benner](#); [Gerald DiMassa](#); [FEDERAL AVIATION ADMINISTRATION TECHNICAL CENTER ATLANTIC CITY NJ](#)

[Full Text](#) The Federal Aviation Administration (FAA) Bulk **Weather** Telecommunications Gateway (FBWTG) is a communications gateway to the FAA for high-resolution gridded **weather** forecast data (e.g., Eta Forecast Model, Aviation (AVN) and Rapid ... Data Collection and Reporting System (MDCRS)) from the National **Weather** Service Telecommunications Gateway (NWSTG). The FBWTG will provide ... to simultaneously and continuously receive high-resolution gridded **weather** forecast data and MDCRS data from the ... System Command Center (ATCSCC), and FBWTG to National **Weather** Service (NWS) Filter Unit (NFU)-Test device ...

[U.S. Navy Heavy **Weather** Mooring Criteria](#) Mar 1999 25 pages

Authors: [William N. Seelig](#); [NAVAL FACILITIES ENGINEERING SERVICE CENTER PORT HUENEME CA](#)

[Full Text](#) ... Navy ships to go to sea prior to forecasted heavy **weather**, such as an approaching hurricane or major storm. However, some ... These ships must be securely moored during heavy **weather** to piers, wharves or Fleet Moorings to ensure safety of the ... of life. Therefore, this report: (1) Proposes U.S. Navy heavy **weather** (Mooring Service Type 3) requirements by region. (Inactive, ... in this report). (2) Recommends Navy wide heavy **weather** environmental design criteria applied to key Navy regions. (3) Provides technical guidance for the analysis, design, construction, and use of heavy **weather** mooring facilities.

[At Atmospheric Sounding Program: An Analysis and Forecasting Tool for **Weather** Hazards on the Battlefield](#) May 1999 61 pages

Authors: [Jeffrey E. Passner](#); [ARMY RESEARCH LAB WHITE SANDS MISSILE RANGE NM BATTLEFIELD ENVIRONMENT DIRECTORATE](#)

[Full Text](#) To assist the staff **weather** officer and enhance **weather** predictions in the battlefield, the Atmospheric Sounding Program (ASP) has been designed to furnish a series of **weather** outputs with an emphasis on **weather** hazards such as turbulence, icing, clouds, thunderstorms, and surface visibility. The ASP is initialized by either upper air observations or output from the Battlescale Forecast Model (BFM). The BFM produces a 24 hour forecast: thus, the **weather** hazard is placed into the database and can be displayed for the 24 hour forecast period.

[National Oceanic and Atmospheric Administration: National Weather Service Modernization and Weather Satellite Program](#)

Mar 29, 2000 13 pages

Authors: [Joel C. Willemssen](#); [GENERAL ACCOUNTING OFFICE WASHINGTON DC ACCOUNTING AND INFORMATION MANAGEMENT DIV](#)

Full Text

... (NOAA). At your request, we will discuss the status of the National Weather Service (NWS) systems modernization and the National Environmental Satellite ... the coming year, NWS plans to finish commissioning the Advanced Weather Interactive Processing System (AWIPS), the final system of the modernization ... to improve radar and satellite data processing and to provide weather forecasters with a full range of interactive forecasting techniques. The agency ... acquisitions. Regarding the GOES program, NOAA continues to deploy weather satellites to ensure adequate satellite coverage. However, because ...

[Data Warehouse Techniques to Support Global On-Demand Weather Forecast Metrics](#)

Mar 2000 94 pages

Authors: [Meriellen C. Joga](#); [AIR FORCE INST OF TECH WRIGHT-PATTERSONAFB OH SCHOOL OF ENGINEERING](#)

Full Text

Air Force pilots and other operators make crucial mission planning decisions based on weather forecasts; therefore, the ability to forecast the weather accurately is a critical issue to Air Force Weather (AFW) and its customers. The goal of this research is to provide Air Force Weather with a methodology to automate statistical data analysis for the purpose of providing on-demand metrics. A data warehousing methodology is developed and applied to the weather metrics problem in order to present an option that will facilitate on-demand metrics. On-line ...

[Meteorological Techniques](#)

Jul 15, 1998 241 pages

Authors: [Maria Reymann](#); [Joe Piasecki](#); [Fizal Hosein](#); [Salinda Larabee](#); [Greg Williams](#); [AIR WEATHER SERVICE SCOTT AFB IL](#)

Full Text

Contains weather forecasting techniques of interest to military meteorologists, in three sections: surface weather elements, flight weather elements, and severe weather. Includes both general and geographically specific rules of thumb, results of research, lessons learned from experience, etc, gathered from military and other sources. Update to earlier Air Weather Service Manual 105-56 "Forecasting Techniques."

[A Case Study of the Persistence of Weather Forecast Model Errors](#)

Jan 2005 48 pages

Authors: [Barbara Sauter](#); [ARMY RESEARCH LAB WHITE SANDS MISSILE RANGE NM](#)

Full Text

Decision makers could frequently benefit from information about the amount of uncertainty associated with a specific weather forecast. Automated numerical weather prediction models provide deterministic weather forecast values with no estimate of the likely error. This case study examines the day- to-day persistence of forecast errors of basic surface weather parameters for four sites in northern Utah. Although exceptionally low ... subsequent day's forecast. More sophisticated methods are needed to generate and portray weather forecast uncertainty information.

[Biomechanical Analyses of Body Movement and Locomotion as Affected by Clothing and Footwear for Cold Weather Climates](#)

Apr 2005 110 pages

Authors: [Brian E. O'Hearn](#); [Carolyn K. Bense](#); [Amy F. Polcyn](#); [GEO-CENTERS INC NEWTON CENTRE MA](#)

Full Text

A study of Army cold weather clothing was conducted to determine effects on soldiers' movements and walking gait ... temperate duty uniform was also compared with performance in cold weather clothing, and differences in walking gait associated with regular combat boots and with cold weather foot gear were investigated. Study participants, 13 ... the shoulder. Compared with the temperate duty uniform, cold weather clothing changed walking patterns; participants leaned further ... the arms less at the shoulders with the multilayered clothing. The cold weather boots also interfered with leg swing, compared ...

[Development of a Weather Radar Signal Simulator to Examine Sampling Rates and Scanning Schemes](#)

Sep 2005 175 pages

Authors: [Ulf P. Schroder](#); [NAVAL POSTGRADUATE SCHOOL MONTEREY CA DEPT OF INFORMATIONAL SCIENCES](#)

Full Text

... representing the radar return permits investigation of the performance of different estimators for the weather signal parameters and their sensitivity when varying radar parameters ... realism to study the effects on the radar return for different phenomena. A Weather Radar Signal Simulator has been developed in MATLAB. ... PRFs, pulse compression using a chirp, and variation of both weather and radar input parameters. Post processing capabilities include autocorrelation and FFT (for single PRF only); estimation of weather parameters such as reflectivity factor, Z; average doppler, radial velocity, ...

[Time Series Analyses of Integrated Terminal Weather System Effects on System Airport Efficiency Ratings](#)

Oct 2007 32 pages

Authors: [Elaine M. Pfeleiderer](#); [Scott M. Goldman](#); [Thomas Chidester](#); [FEDERAL AVIATION ADMINISTRATION OKLAHOMA CITY OK CIVIL AEROSPACE MEDICAL INST](#)

Full Text

The FAA has initiated efforts to improve weather information, forecasting, and dissemination to enhance both safety ... as a metric of facility operating efficiency that accounts for weather by using either actual demand or the facility-set arrival rate ... ability to handle departures or arrivals due to prevailing weather conditions. Interventions aimed at improving performance should be ... of interventions aimed at improving performance during inclement weather. One such intervention is the Integrated Terminal Weather System (ITWS). In the present study, we applied time series analysis to average daily ...

[WAVE SPECTRA ESTIMATED FROM WAVE RECORDS OBTAINED BY THE OWS](#)

WEATHER EXPLORER AND THE OWS WEATHER REPORTER (II)

Mar 1963 172 pages

Authors: [L. Moskowitz](#); [W. J. Pierson](#); [E. Mehr](#); [NEW YORK UNIV BRONX SCHOOL OF ENGINEERING AND SCIENCE](#)**Full Text**

As a part of the problem of developing numerical wave forecasting procedures for the North Atlantic Ocean, selected sequences of the **weather** maps for the North Atlantic for which wave data were known to be available were studied in detail for the five year ... for study. For these dates and times, the National Institute of Oceanography provided copies of the wave records that were obtained by the OWS **Weather** Explorer and by the OWS **Weather** Reporter. In total, about 800 wave records were provided, and a complete spectral analysis is planned for about 400 of these records. Data are presented in ...

SONIC BOOM

Feb 1966 46 pages

Authors: [WEATHER WING \(6TH\) WASHINGTON DC](#)**Full Text**

Because there are important meteorological effects on shock wave propagation, **weather** officers should become acquainted with some of the terminology and the physical principles of **weather** effects on sonic boom propagation. Calculation of shock wave patterns covering many square ... an exceedingly complex operation which involves several parameters other than **weather** data. Sonic booms caused by either aircraft or missiles are ... booms with the aid of electronic computers. Current knowledge of the effect of **weather** parameters on sonic boom has been gained primarily from limited ...

Cold Weather Field Study of Marine Corps Emergency Medical Treatment

Apr 19, 1982 20 pages

Authors: [Kevin Laxar](#); [William Rogers](#); [George Moeller](#); [NAVAL SUBMARINE MEDICAL RESEARCH LAB GROTON CT](#)**Full Text**

To assess the extent and sources of impairment due to cold **weather** field conditions, times to complete an emergency medical treatment scenario (EMTS) ... from a snowstorm with temperatures near 22 F (-5.6 C) to clear **weather** around 47 F (8.3 C). Results showed that performance under the milder conditions ... practice is beneficial. Better performance was found to be related to previous cold **weather** medical training and experience. These findings, and the comments ... of a decrement in medical treatment performance under cold **weather** field conditions. Recommendations were made for improved adhesive tape, ...

Weather and Overlord: Contemporary Lessons

Mar 1985 45 pages

Authors: [G. J. Pfeffer](#); [AIR WAR COLL MAXWELL AFB AL](#)**Full Text**

... represents one of the most weather-sensitive military operations ever undertaken. The actual **weather** constraints for a successful landing were critical and complex. The dramatic story of how **weather** played in the D-Day decision has been recounted elsewhere. Instead, this report focuses on the process, i.e., how **weather** support was provided, in order to gain insights applicable to contemporary military operations. The report review the functioning of the supporting **weather** services including organization, command relationships, scientific state of the art, ...

Predictors of Cold Weather Health Behaviors: A Replication and Extension

Aug 1985 29 pages

Authors: [Ross R. Vickers Jr.](#); [Linda K. Hervig](#); [NAVAL HEALTH RESEARCH CENTER SAN DIEGO CA](#)**Full Text**

... prior findings that the Health Brief Model (HBM) can predict cold **weather** health behaviors (CWHB). Major findings in a study of marines in cold **weather** training were: (a) Perceived efficacy, one component of the HBM, was a weak, but reliable ... foot care. Modification of health behaviors is unnecessary under the relatively mild **weather** conditions studied because the minor behavioral deficiencies that occur do not More extreme conditions might make behavior modification desirable in other cold **weather** settings. If so, modifying rations and supplying foot powder appear ...

Physiological Acceptance Criteria for Cold Weather Clothing

Apr 1991 22 pages

Authors: [Nancy A. Pimental](#); [NAVY CLOTHING AND TEXTILE RESEARCH FACILITY NATICK MA](#)**Full Text**

... the present investigation was to develop physiological limit criteria for cold **weather** clothing items which meet the limits for protection against development of ... and temperature sensation were examined. Under many conditions that Navy cold **weather** clothing items are worn, it is not practical to expect that the optimal ... and thermal discomfort, the following physiological criteria for acceptance of cold **weather** clothing items were developed: (1) a mean weighted skin temperature > or ... be met. Application of these criteria will enable us to better evaluate and compare cold **weather** clothing items.

U. S. Navy Cold Weather Handbook for Surface Ships

May 1988 235 pages

Authors: [OFFICE OF THE CHIEF OF NAVAL OPERATIONS WASHINGTON DC](#)**Full Text**

The purpose of this Cold **Weather** Handbook is to provide a consolidated training publication in support of the United States Navy's Surface Ship Fleet Arctic/Cold **Weather** Operations. The uniqueness of this Handbook is its explicit, single-source approach in addressing current problems facing the fleet in cold **weather**. It draws heavily upon lessons learned in recent operations and exercises and uses that collective experience to provide solutions to some critical cold **weather** operations problems.

Gulf War Weather

Mar 1992 250 pages

Authors: [Kenneth R. Walters Sr.](#); [Kathleen M. Traxler](#); [Michael T. Gilford](#); [Richard D. Arnold](#); [Richard C. Bonam](#); [AIR FORCE ENVIRONMENTAL TECHNICAL APPLICATIONS CENTER SCOTT AFB IL](#)**Full Text**

A daily history of **weather** that affected United States military operations from 8 August 1990 through 31 March 1991 in the conduct of the Persian Gulf War. Illustrations include **weather** satellite imagery of the study area, which comprised Saudi Arabia, Kuwait, Iraq, and areas immediately adjoining. Separate chapters describe the **weather** during Operations DESERT SHIELD, DESERT STORM, and PROVIDE COMFORT. ... wind chill temperatures) for selected stations in the study area. CLIMATOLOGY, METEOROLOGY, **WEATHER**, SATELLITE PHOTOGRAPHY, METEOROLOGICAL SATELLITES, MILITARY OPERATIONS, WARFARE, GULF WAR ...

- [Environmental Assessment of the Relocation of a Weather Training Division to Keesler Air Force Base, Biloxi, Mississippi](#) Dec 1989 88 pages
 Authors: [DEPARTMENT OF THE AIR FORCE WASHINGTON DC](#)
 The action detailed in this assessment is the relocation of the **Weather** Training Division and the reallocation of personnel authorizations from Chanute AFB (Rantoul, Illinois) to Keesler AFB (Biloxi, Mississippi) as ... currently located at Chanute AFB are also being addressed in separate EAs. The action at Keesler AFB includes the construction of a **Weather** Training Facility, demolition of two existing buildings at the **Weather** Training Facility site, installation of the Next Generation **Weather** Radar (NEXRAD) system, and renovations to a dormitory, a dining hall, and a technical training building. ...
- [Full Text](#)
- [New Techniques for Contrail Forecasting](#) Aug 1993 37 pages
 Authors: [Jeffrey L. Peters; AIR WEATHER SERVICE SCOTT AFB IL](#)
 ... DO) to update previous contrail forecasting research done by Herbert Appleman for HQ Air **Weather** Service in 1953. Advancements in aircraft power plants, especially the development of bypass turbofan ... attempt to update and improve current contrail forecasting methods was performed by the SAC Directorate of **Weather** (SAC/DOW). It describes the development of new contrail forecast algorithms for several types of ... accuracy over the Appleman technique now in use at the Air Force Global **Weather** Central. **Weather**, Climatology, Clouds, Cirrus, Clouds, Forecasting, Algorithms, Condensations trails, Contrails ...
- [Full Text](#)
- [Next Generation Weather Radar \(NEXRAD\) Principal User Processor \(PUP\) operational Test and Evaluation \(OT&E\) Operational Report](#) Oct 1993 38 pages
 Authors: [Baxter Stretcher; FEDERAL AVIATION ADMINISTRATION TECHNICAL CENTER ATLANTIC CITY NJ](#)
 ... report details the results of the Operational Test and Evaluation (OT&E) Operational Test of the Next Generation **Weather** Radar (NEXRAD) , Principle User Processor (PUP). The PUP was evaluated at the Leesburg, ... 22 through April 1, 1993. The objective of the OT&E Operational Test was to obtain the Central **Weather** Service Unit (CWSU) meteorologists' evaluation of the NEXRAD PUP. A questionnaire was used to ... by the PUP, the workload, operational procedures, radar connections, and training. Next Generation **Weather** Radar (NEXRAD), Principle User Processor (PUP), Central **Weather** Service Unit (CWSU).
- [Full Text](#)
- [Weather, European Theater Weather Orientation \(ETWO\)](#) Nov 1, 1992 203 pages
 Authors: [Janie W. Santos; UNITED STATES AIR FORCES IN EUROPE APO NEW YORK 09012](#)
 This publication provides a general introduction to the geography, climatology and **weather** of the European theater. Conscientious study of this pamphlet will ensure newly assigned forecasters assume their duties more rapidly. We have provided review questions at the end ... HQ USAF/DOW. We would be pleased to hear any suggestions for improvement. Winds, Turbulence, Tornadoes, Analysis, USAF Europe, Mediterranean Sea, **Weather**, Orientation, Climatic controls, Climatology, General Circulation, European flying **weather**, Pressure systems, Storm tracks, Upper air winds, Jet stream, Fog, Thunderstorms.
- [Full Text](#)
- [Lightweight Extreme Weather Shelter Market Investigation](#) Aug 1992 78 pages
 Authors: [Laura A. Ryan; ARMY NATICK RESEARCH DEVELOPMENT AND ENGINEERING CENTER MA](#)
 ... U.S. Army Special Operations Forces (SOF) has the need for a backpackable extreme **weather** shelter. The shelter is to provide protection for three soldiers in the case of extreme **weather** conditions, such as sand storms, heavy winds, blowing rain and snow. The ... statement of Need Clothing and Individual Equipment for a three man extreme **weather** shelter. The findings of this investigation indicate that there are several commercially available, state-of-the-art tents capable of meeting all of the performance characteristics for a lightweight extreme **weather** shelter.
- [Full Text](#)
- [A Mathematical Analysis of the Janus Combat Simulation Weather Effects Models and Sensitivity Analysis of Sky-to-Ground Brightness Ratio on Target Detection](#) Sep 1994 80 pages
 Authors: [Vincient F. Shorts; NAVAL POSTGRADUATE SCHOOL MONTEREY CA](#)
 The Janus combat simulation offers the user a wide variety of **weather** effects options to employ during the execution of any simulation run, which can directly influence detection of opposing forces. Realistic **weather** effects are required if the simulation is to accurately reproduce 'real world' results. This thesis examines the mathematics of the Janus **Weather** Effects Models. A **weather** effect option in Janus is the Sky-to-Ground Brightness Ratio (SGR). SGR affects an optical sensors ability to detect targets. It is ...
- [Full Text](#)
- [3-D Weather Displays for Aircraft Cockpits](#) Dec 1994 62 pages
 Authors: [Bradley S. Boyer; AIR FORCE INST OF TECH WRIGHT-PATTERSON AFB OH](#)
 ... to examine the effects of dimensionality and rotating frame of reference in a **weather** avoidance task. Forty student pilots, performed a 3-D route planning task to navigate around **weather** formations and arrive at a target within an airspace. The subjects ... radial distance, and the 2-D displays also resulted in faster **weather** planning times. This additional distance and time is attributed to the ... found between the displays in terms of vertical distance traveled, penetrations of the **weather** formations, number of vectors created, or the evaluation of situational awareness.
- [Full Text](#)
- [On the Large Scale Circulation of the East Asia Mei-Yu Fronts and Secondary Weather Dimension Disturbances](#) Dec 16, 1994 37 pages
 Authors: [Gongwang Si; NATIONAL AIR INTELLIGENCE CENTER WRIGHT-PATTERSON AFB OH](#)
 ... the large scale circulation of the East Asian Mei-Yu fronts as well as their secondary **weather** dimension or subsynoptic disturbances. It brings out the following points. The East Asian Mei-Yu ... Hadley (or tradewind)

- systems. Mei-Yu fronts are semi- tropical and semi-extratropical **weather** systems by nature. There is a relationship between the development of Mei-Yu front torrential rains and previous mei-yu front **weather** dimension or subsynoptic disturbances. (MM) ANNOTATION: On the Large Scale Circulation of the East Asia Mei-Yu Fronts and Secondary **Weather** Dimension Disturbances--Translation.
- Full Text**
- [Proceedings of the International Conference on Cold **Weather** Military Operations Held in Burlington, Vermont on 28 February-2 March 1995](#) 1995 288 pages
- Authors: [Nicholas H. Collins](#); [COLD REGIONS RESEARCH AND ENGINEERING LAB HANOVER NH](#)
- The 1995 International Conference on Cold **Weather** Military Operations brought together more than 150 scientists, engineers and soldiers from ten ... and the civilians who support the soldier who must be prepared to operate in cold **weather** must be proactive in identifying issues and creating a greater awareness of the impact of cold **weather** on military operations. Without a realistic perspective of the impact of cold, equipment, ... be lacking and our readiness to operate effectively in winter and cold **weather** will be compromised. Without awareness the propensity and resources to address even the most ...
- Full Text**
- [Weather Forecasting, Radar Availability Requirement Not Being Met](#) May 31, 1995 49 pages
- Authors: [GENERAL ACCOUNTING OFFICE WASHINGTON DC ACCOUNTING AND FINANCIAL MANAGEMENT D IV](#)
- NEXRAD is a Doppler radar system that measures wind velocity in severe **weather**, tracks storm movement and intensity, and generates data and imagery ... users, such as air traffic controllers. NEXRAD is expected to provide improved **weather** radar information, thus increasing the accuracy, timeliness, and credibility for ... flash floods, turbulence, wind shear, and other types of hazardous **weather** and related events. The radars are also expected to be extremely useful in analyzing a variety of other **weather** events, including estimating accumulated rainfall and analyzing large-scale precipitation systems ...
- Full Text**
- [A Tactical Present **Weather** Sensor for Air Force Applications](#) Oct 25, 1994 47 pages
- Authors: [D. F. Hansen](#); [W. K. Shubert](#); [HSS INC BEDFORD MA](#)
- A Present **Weather** Sensor has been developed for Air Force tactical applications under a Phillips Laboratory Broad Agency Announcement to meet the more general requirement for 'Automated Fixed/Bare Based **Weather** Sensors'. The Present **Weather** Sensor design is based on techniques evolved over a period of time by HSS Inc for the automated ... and rate of fall). Preliminary tests demonstrate that the performance of the tactical sensor is comparable to that of the performance of the highly regarded larger HSS Inc Present **Weather** Sensors. (MM)
- Full Text**
- [Research in Automating **Weather** Templating Procedures for Aerial Intelligence Preparation of the Battlefield \(AIPB\)](#) Aug 1995 42 pages
- Authors: [Heather D. Pfeiffer](#); [NEW MEXICO STATE UNIV LAS CRUCES](#)
- This document describes a prototype software system that automates the generation of **weather** related templates used in the Aerial Intelligence Preparation of the Battlefield ... AIPB) process. The software system is called the Terrain and **Weather** PB Software Toolkit (TWIST). The primary purpose of the prototype ... using artificial intelligence technology can be developed to effectively integrate **weather**, terrain, and doctrinal information and to accurately generate AIPB ... modules. One module serves as the user interface and performs **weather** and terrain analyses that generate gridded data bases covering ...
- Full Text**
- [AWS Technical Library Accessions Bulletin 95-1](#) Oct 1995 14 pages
- Authors: [AIR WEATHER SERVICE SCOTT AFB IL](#)
- ... AWS Technical Library Accessions Bulletin has resumed. For people new to Air Force **Weather**, the AWSTL Accessions Bulletin brings you the latest updates on the status ... tips for establishing automatic distribution for certain hard-to-get documents. Cataloging AF **Weather** Publications. As mentioned in our last bulletin (and in the last AWS technical catalog), we chose to close out the Catalog of Air **Weather** Service Technical Documents as of the end of 1991, the year in which the Air **Weather** Service was shorn of its wings and squadrons. That catalog includes all numbered technical documents published ...
- Full Text**
- [Use of the NSWCDD **Weather** Databases for Prediction of Atmospheric Transmission in Common Thermal Imaging Sensor Bands](#) Oct 1995 34 pages
- Authors: [Daniel E. Austin](#); [Kenneth C. Hepfer](#); [Marilyn R. Rudzinsky](#); [NAVAL SURFACE WARFARE CENTER DAHLGREN DIV VA](#)
- ... the signal. The amount of attenuation depends on the sensor band and **weather** conditions, and may have a considerable affect on the strength of ... used to calculate the atmospheric transmission for a given range and set of **weather** conditions, but this can be time consuming and involves the specification of many variables. In an attempt to simplify this process, **weather** information previously combined into databases was processed into a form ... 10,000 (R10K), represent a worldwide sample of a larger collection of **weather** data, known as the Naval Surface Warfare Center, Dahlgren Division Environmental ...
- Full Text**
- [Communist China's Research on Long-Range **Weather** Forecasting During the Past Decade](#) May 2, 1960 17 pages
- Authors: [Yang Chien-Chu](#); [JOINT PUBLICATIONS RESEARCH SERVICE ARLINGTON VA](#)
- ... production under the correct leadership of the Chinese Communist Party. The demand for **weather** forecasting by the various productive agencies has become increasingly more urgent and ... or in research. At the same time, China's research on long-range **weather** forecasting for the past decade is no exception to this rule. In 1958 medium-and long-range **weather** forecasting was declared by the Central Meteorological Bureau to be one of the three cardinal ... the meteorological stations of China. ANNOTATION: Communist China's Research on Long-Range **Weather** Forecasting During the Past Decade. --Translation.
- Full Text**

[Weather Constrained Throughput: Substituting Spangdahlem and Ramstein for Rhein](#)

Jun 1999 77 pages

[Main](#)Authors: [Richard P. MacKeeb](#); [AIR UNIV MAXWELL AFB AL](#)

... operations out of Rhein Main AB are absorbed by Ramstein AB and Spangdahlem AB, Air Force leadership needs to be aware of the impact the **weather** differences have on operations. This paper looks at the operational differences between these bases from a standpoint of **weather** constrained throughput. To get to the final **weather** constraining factors, a ten- year history of **weather** conditions at the bases in question were analyzed. The analysis was based off of the percent of each month that operations were ...

[Full Text](#)[Identification of Weather Deck Runoff Discharge Constituents Onboard a U.S. Navy Mine](#)

Feb 2000 70 pages

[Countermeasure \(MCM-1\) Class Ship](#)Authors: [Mary L. Wenzel](#); [NAVAL SURFACE WARFARE CENTER CARDEROCK DIV BETHESDA MD SURVIVABILITY STRUCTURES AND MATERIALS DIRECTORATE](#)

... Navy MCM-1 class ship to identify constituents that have the potential to contribute to **weather** deck runoff. The data obtained during the assessment will be used to develop the MPCD for **weather** deck runoff. The shipboard assessment team conducted a one day at-sea and ... assessment, the following constituents were identified as having the potential to contribute to **weather** deck runoff (in order of predominance): MIL- G-24139, approximately three pounds ... the RHIBs onboard ship; and Simple Green detergent used to clean the **weather** decks and topside equipment.

[Full Text](#)[Extensible Markup Language as a Weather Tool](#)

Mar 2000 72 pages

Authors: [Michael J. Calidonna](#); [AIR FORCE INST OF TECH WRIGHT-PATTERSON AFB OH SCHOOL OF ENGINEERING](#)

... will extend the Core Mapping Application Program Interface (CMAPI) components to include **weather** data. The CMAPI project is headed by Air Force Research Lab (AFRL)/Information ... areas. The first goal is to figure out how to overlay and display **weather** data on a dynamically linked Internet platform. This was accomplished by incorporating existing data from the Air Force **Weather** Agency (AFWA) into the CMAPI program in a static environment. The ... (XML) and how it can contribute to characterizing structured data (i.e., **weather** data output from AFWA). Once this tool can be exploited, a dynamic ...

[Full Text](#)[Fighting The Cold: The Need for Standing Cold Weather Combat Capabilities](#)

Feb 4, 2002 34 pages

Authors: [John G. Bechtol](#); [NAVAL WAR COLL NEWPORT RI JOINT MILITARY OPERATIONS DEPT](#)

... nation's wars. History has shown that unprepared military forces deployed to cold **weather** combat may suffer severe losses from the climate. An example of poorly prepared forces suffering unnecessary casualties due to the **weather** is the Aleutian Campaign of World War II. The preponderance of current cold **weather** training conducted among the services is focused on survival, and not on operations. Therefore, a Joint ... functions. The confidence that he can introduce acclimatized forces into a cold **weather** theater with no further training gives the operational commander more options, and ...

[Full Text](#)[Suitability of Unidata Metapps for Incorporation in Platform-Independent User-](#)

Mar 8, 2002 103 pages

[Customized Aviation Weather Products Generation Software](#)Authors: [Harmen P. Visser](#); [AIR FORCE INST OF TECH WRIGHT-PATTERSON AFB OH SCHOOL OF ENGINEERING AND MANAGEMENT](#)

... resolution of meteorological models, demand for access to customized aviation **weather** products has increased exponentially. This has given rise to a need for a multi-purpose interactive aviation **weather** product generation software solution. This software solution must be ... over current visualization applications used in the operational military aviation **weather** community. This thesis determines whether Unidata MetApps meets ... to determine their suitability for incorporation in platform-independent user-customized aviation **weather** products generation software. The results prove that a ...

[Full Text](#)[Utility of Tactical Environmental Processor \(TEP\) as a Doppler At-Sea Weather Radar](#)

Jun 2002 84 pages

Authors: [Sean D. Robinson](#); [NAVAL POSTGRADUATE SCHOOL MONTEREY CA](#)

... Task Force Exercise (JTSEX) 00-2. On 15 May, TEP observed severe **weather** associated with a line of passing thunderstorms. These **weather** events proved serious enough to suspend mid-cycle flight operations for the USS George Washington (CVN 73) during its simulated wartime scenario. TEP is a significant benefit to nowcast **weather** forecasting and supports at-sea METOC and warfighters in two primary areas: improved ... and tactics. Results from this case study demonstrate the importance of TEP as a Doppler at-sea **weather** radar in support of naval operations.

[Full Text](#)[Report on Current Convective Weather Processes and Product Requirements at the Air](#)

Mar 2002 24 pages

[Traffic Control System Command Center \(ATCSCC\) and Kansas City Air Route Traffic Control Center \(ARTCC\)](#)Authors: [Danny Sims](#); [Cynthia Fidalgo](#); [Jeff Weinrich](#); [WILLIAM J HUGHES TECHNICAL CENTER ATLANTIC CITY NJ](#)

... report summarizes current processes and information sources used when convective **weather** impacts Air Traffic Control (ATC) operations at the ... Traffic Control Center (ARTCC). In addition, user needs for convective **weather** forecast products are presented. ACT-320 collected information from both facilities ... 2000. Based upon collected information, it is recommended that the integration of a convective **weather** forecast capability, for example, the National Convective **Weather** Forecast (NCWF), into the Traffic Situation Display (TSD) be investigated. In addition, further research should be conducted ...

[Full Text](#)[Using MHD Simulation for Space Weather Forecasting and Nowcasting](#)

Dec 31, 2001 17 pages

Authors: [Charles Goodrich](#); [MARYLAND UNIV COLLEGE PARK DEPT OF PHYSICS AND ASTRONOMY](#)

... of using the Lyon-Fedder-Moharry (LFM) code to predict in real time space **weather** conditions and display these conditions through diagnostics tailored for the use ... Air Force operators. We have performed numerous simulations of diverse space **weather** events including magnetic storms and substorms using as input solar ... community code metrics studies We have also developed diagnostics for space **weather** operators that display the simulation results effectively and meaningfully. We have ... evaluation of the diagnostics and presented them in papers each year at the Space **Weather** Week meeting they host.

[Full Text](#)

[Terminal Convective Weather Forecast \(TCWF\) 2000 Demonstration Report](#)

Jun 2003 104 pages

Authors: [Danny Sims](#); [Starr McGettigan](#); [Cynthia Fidalgo](#); [WILLIAM J HUGHES TECHNICAL CENTER ATLANTIC CITY NJ](#)

The Terminal Convective **Weather** Forecast (TCWF) 2000 Demonstration was conducted during the convective season at Air Traffic Control (ATC) ... at the Massachusetts Institute of Technology Lincoln Laboratory (MIT/LL) under FAA Aviation **Weather** Research Program funding. The product provides a graphical 0 to 60-minute forecast of convective **weather** for an airport terminal area. Results indicated overall positive impressions. Users reported the TCWF provided benefit in performing ATC tasks; was a beneficial supplement to the Integrated Terminal **Weather** System (ITWS); and enhanced situational awareness.

[Full Text](#)

[Meteorological Techniques](#)

Jun 13, 2003 233 pages

Authors: [Mark R. Mireles](#); [Kirth L. Pederson](#); [Charles H. Elford](#); [AIR FORCE WEATHER AGENCY OFFUTT AFB NE](#)

Contains **weather** forecasting techniques of interest to military meteorologists, in three chapters: surface **weather** elements, flight **weather** elements, and convective **weather**. Includes both general specific rules of thumb, results of research, lessons learned from experience, etc, gathered from military and other sources. Updates and supersedes earlier AFWA/TN-98/002, Meteorological Techniques.

[Full Text](#)

[U.S. Army Tactical Weather Support Requirements for Weather and Environmental Data Elements and Meteorological Forecasts](#)

Feb 2006 20 pages

Authors: [Richard J. Szymer](#); [ARMY RESEARCH LAB WHITE SANDS MISSILE RANGE NM](#)

The U.S. Army has stated and validated their tactical **weather** support and data element requirements over the past 30 years. Over 80 **weather** and environmental data elements, along with their required accuracies, are required for Army tactical **weather** support. This report establishes the spatial (horizontal and vertical) and temporal resolutions for meteorological forecasts necessary to satisfy the validated accuracy requirements, based on Army echelons (levels of command). Similar information on resolutions is also provided for the new Army modular forces echelons and unit designations.

[Full Text](#)

[Analysis of Weather Forecast Impacts on United States Air Force Combat Operations](#)

Mar 2006 120 pages

Authors: [Karen M. Darnell](#); [NAVAL POSTGRADUATE SCHOOL MONTEREY CA](#)

... air combat operations. Quantitative assessments of forecasts and their operational impacts are essential to improving **weather** support for war fighters. We adapted an existing U.S. Navy, web-based, near real ... forecasts. We used the adapted system to collect and analyze data on Air Force **Weather** (AFW) forecasts, and the planning and execution of flying operations, at six Air Combat ... develop quantitative metrics of forecast performance and operational impacts. Our results indicate that planning **weather** forecasts (PWFs) have a higher potential for making positive contributions to air operations than ...

[Full Text](#)

[Autumn Regimes](#)

Feb 13, 2004 178 pages

Authors: [Eugene M. Weber](#); [AIR FORCE WEATHER AGENCY OFFUTT AFB NE](#)

This technical note presents a back-to-basics approach to forecasting the **weather** in this transition from the weaker, slower moving **weather** systems of summer to the stronger more dynamic **weather** systems of winter. It is especially designed for new and inexperienced forecasters but it is also an excellent review ... as autumn progresses. By the end of the autumn transition period into winter drastic changes in **weather** conditions become more common. This technical note presents synoptic patterns and regimes that routinely occur during ...

[Full Text](#)

[Meteorological Techniques](#)

Jun 13, 2003 233 pages

Authors: [Mark R. Mireles](#); [Kirth L. Pederson](#); [Charles H. Elford](#); [AIR FORCE WEATHER AGENCY OFFUTT AFB NE](#)

This tech note is a compilation of various **weather** forecasting techniques of interest to military meteorologists. It is divided into three chapters: surface **weather** elements, flight **weather** elements, and convective **weather**. It includes both general and specific rule-of-thumb results of research including lessons learned from experience, gathered from military and other sources. Updates and supersedes earlier AFWA/TN-98/002, Meteorological Techniques.

[Full Text](#)

[Pilot Willingness to Take Off Into Marginal Weather. Part 2. Antecedent Overfitting with Forward Stepwise Logistic Regression](#)

Aug 2005 17 pages

Authors: [William R. Knecht](#); [FEDERAL AVIATION ADMINISTRATION OKLAHOMA CITY OK CIVIL AEROMEDICAL INST](#)

Adverse **weather** is the leading cause of fatalities in general aviation (GA). In prior research, influences of ground visibility, cloud ceiling height, ... tested on 60 GA pilots' willingness to take off into simulated adverse **weather**. Results suggested that pilots did not see "**weather**" as a monolithic cognitive construct but, rather, as an interaction between its separate factors. However, methodological issues arose during ... of 60+ candidate predictors on the outcome variable of takeoff into adverse **weather**. It was found quite possible to obtain false "significance" for models comprised merely of ...

[Full Text](#)

[Owning the Weather in the Maritime Environment](#)

May 17, 2005 26 pages

Authors: [Michael Angove](#); [NAVAL WAR COLL NEWPORT RI JOINT MILITARY OPERATIONS DEPT](#)

There is a long history of **weather** impacting military operations. Today's U.S. Joint Forces must incorporate a thorough understanding of the ... of military operations. For largely cultural reasons the Navy continues to view **weather** more as a potential hazard, or limit to operations rather than as actionable force-multiplying ... (JFMCC) working with limited resources against an enemy seeking to exploit asymmetric advantages (e.g., **weather**, terrain). A strategy for better incorporating **weather** into Maritime Operations and Plans through both organizational changes within the JFMCC, and adopting a ...

[Full Text](#)

[Employing Net Centric Technology for a Mobile Weather Intelligence Capability](#)

Jun 2004

22 pages

Authors: [David Sauter](#); [Mario Torres](#); [ARMY RESEARCH LAB WHITE SANDS MISSILE RANGE NM](#)

Weather affects personnel, military operations and weapon systems at all echelons, down to the individual soldier level. ... networking, communications, and computers (both hardware and software), these **weather** intelligence products (decision aids, alerts, map overlays, etc) can ... of the pervasive net centric technologies that will be utilized in the development and demonstration of the mobile **weather** intelligence capability. This capability will contribute to **weather** related information sharing and enhanced situational awareness at the lower echelons. A mobile computing device (Toshiba e800 personal ...

[Full Text](#)

[The Mesoscale Forecasting Process: Applying the Next Generation Mesoscale Forecast](#)

Oct 5, 2006

39 pages

Authors: [Calvin C. Naegelin](#); [Paul J. McCrone](#); [AIR FORCE WEATHER AGENCY OFFUTT AFB NE](#)

The **weather** forecast effort has progressed a long way past its embryonic stage of the barotropic forecast. Both computer power and our knowledge of atmospheric processes have increased substantially over the years, allowing for the classification of many **weather** phenomena into scales, including the global/hemispheric scale, the synoptic scale, the mesoscale, and the microscale. These ... When performing a mesoscale forecast, however, it is prudent to use a mesoscale model, such as the Air Force **Weather** Agency's (AFWA) **Weather** Research and Forecasting (WRF) model.

[Full Text](#)

[Meteorological Techniques](#)

Jun 13, 2003

237 pages

Authors: [Mark R. Mireles](#); [Kirth L. Pederson](#); [Charles H. Elford](#); [AIR FORCE WEATHER AGENCY OFFUTT AFB NE](#)

Contains **weather** forecasting techniques of interest to military meteorologists, in three chapters: surface **weather** elements, flight **weather** elements, and convective **weather** includes both general specific rules of thumb, results of research lessons learned from experience, etc gathered from military and other sources.

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