

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)								DATE February 1999			
BUDGET ACTIVITY 7 - Operational System Development				PE NUMBER AND TITLE 0305111F Weather Service				PROJECT 2738			
COST (\$ In Thousands)		FY 1998 Actual	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	Cost to Complete	Total Cost
2738	Weather Service	8,070	10,398	19,069	15,089	11,586	11,785	12,030	12,281	Continuing	Continuing
	Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0	0

(U) **A. Mission Description**

(U) This program provides for the modification, sustainment, and acquisition of meteorological and space environmental hardware and software supporting the observing and forecasting needs of worldwide Air Force and Army operations, as well as Special Operation Forces (SOF) and other government agencies. It provides fixed and transportable equipment supporting the Expeditionary Aerospace Force (EAF) concept with weather observing and forecasting capabilities at in-garrison and deployed locations. Efforts include: (a) Cloud Depiction and Forecast System II (CDFS II) replaces logistically unsupportable mainframe computers at the Air Force Weather Agency (AFWA), Offutt AFB, and upgrades satellite data processing, cloud depiction and forecasting weather support functions for operational commanders and classified national programs; (b) Global Theater Weather Analysis and Prediction System (GTWAPS) acquires theater weather models and associated hardware to improve the AFWA theater support capabilities; (c) Tactical Weather Radar (TWR) provides lightweight, portable Doppler weather radar to support deployed combat operations worldwide; (d) Space Weather Analysis and Forecast System (SWAFS) replaces unsupportable hardware and modernizes software infrastructure and capabilities to meet warfighter requirements for the 55th Space Weather Squadron (55 SWXS); (e) Meteorological Operations Capability (MOC) Forecast System 21st Century (FS-21) provides user workstations capable of ingesting all sources of weather information to provide timely and precisely tailored weather products for the warfighter and supports the "train as you fight" concept by assuring fixed and deployable systems are the same; (f) Satellite Data Handling System II (SDHS II) provides a fused infrastructure for the assimilation of advanced model, radar, lightning, and satellite data into a single user interface for the timely analysis and production of tailored weather products; (g) MOC Observing System 21st Century (OS-21) provides a range of weather observing capabilities to include a fully automated capability for fixed and deployed locations and integrates both manual and remote systems.

(U) Beginning in FY00, Air Force Weather (AFW) programs will be aligned under the five core competency areas of Weather Data Collection, Analysis, Forecasting, Product Tailoring/Warfighter Applications, and Dissemination described in the AFW Mission Support Plan. Through this alignment, AFW will ensure an integrated and systems-oriented approach to program management decisions. Weather Data Collection will absorb TWR and MOC sensor program efforts in FY00 and beyond. Analysis will continue the SDHS II effort and ensure the interoperability of the AFWA processing infrastructure with users and data sources. Weather Forecasting will continue both GTWAPS and CDFS II and begin merging strategic and operational level forecasting for greater efficiency. Product Tailoring and Warfighter Applications will continue development of MOC FS-21 which is the cornerstone of AFW support to operational users. These consolidations and realignments are critical to AFW Re-Engineering and implementation of the CSAF-directed and approved AFW Strategic Plan.

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<p>(U) <u>FY 1998 (\$ in Thousands):</u></p> <ul style="list-style-type: none"> - (U) \$ 4,579 CDFS II: Continue to create, rewrite, and host software modules - (U) \$ 2,821 GTWAPS: Continue software development for IOC 1 - (U) \$ 433 TWR: Prepare documentation and achieve Milestones I/III - (U) \$ 237 MOC FS-21: Begin preparation of Milestones I/II documentation - (U) \$ 8,070 Total <p>(U) <u>FY 1999 (\$ in Thousands):</u></p> <ul style="list-style-type: none"> - (U) \$ 4,905 CDFS II: Continue development of cloud depiction and forecast software - (U) \$ 1,967 GTWAPS: Continue operational software development for incremental IOCs - (U) \$ 250 TWR: SPO support and continue development of system interfaces with Forecast and Analysis systems - (U) \$ 1,546 MOC FS-21: Complete Milestones I/II/III documentation, achieve Milestones I/II/III and award a contract for FS-21 procurement and software integration - (U) \$ 40 SDHS II: Initiate assessment of operational alternative study and preparation of Milestones I/II/III documentation and achieve Milestones I/II/III - (U) \$ 1,350 SWAFS: Perform design and architecture study to accommodate incremental operational software IOC deliveries - (U) \$ 340 Identified as a source for SBIR - (U) \$ 10,398 Total <p>(U) <u>FY 2000 (\$ in Thousands):</u></p> <ul style="list-style-type: none"> - (U) \$ 500 TWR: SPO support and continue development of system interfaces with Forecast and Analysis systems (Weather Data Collection) - (U) \$ 1,127 MOC OS-21: Prepare Milestones I/II/III documentation, achieve Milestones I/II/III, and begin integration and development of component sensor systems (Weather Data Collection) - (U) \$ 2,300 SDHS II: Achieve Milestones I/II/III and begin operational software development for enhanced analysis infrastructure (Analysis) - (U) \$ 2,894 CDFS II: Continue development of cloud depiction and forecast software (Weather Forecasting) - (U) \$ 1,646 GTWAPS: Continue operational software development for incremental IOCs (Weather Forecasting) - (U) \$ 7,477 SWAFS: Continue operational software development of SWAFS for incremental IOCs (Weather Forecasting) - (U) \$ 3,125 MOC FS-21: Continue operational software integration with regional and tactical weather systems (Product Tailoring/Warfighter Applications) - (U) \$ 19,069 Total 		
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<p>(U) <u>FY 2001 (\$ in Thousands):</u></p> <ul style="list-style-type: none">- (U) \$ 400 TWR: SPO support and continue development of system interfaces with Forecast and Analysis systems (Weather Data Collection)- (U) \$ 4,406 MOC OS-21: Continue development and integration of component sensor systems (Weather Data Collection)- (U) \$ 3,490 SDHS II: Continue software development for enhanced analysis infrastructure and achieve Milestone III (Analysis)- (U) \$ 996 CDFS II: Continue development of cloud depiction and forecast software (Weather Forecasting)- (U) \$ 2,519 SWAFS: Continue software development for incremental IOCs (Weather Forecasting)- (U) \$ 3,278 MOC FS-21: Continue software development and integration with regional and tactical weather systems (Product Tailoring/Warfighter Applications)- (U) \$ 15,089 Total <p>(U) B. <u>Budget Activity Justification</u></p> <p>This effort is in Budget Activity 7, Operational System Development, because it supports operational software development and system tests associated with the upgrade and replacement of currently operational systems, systems already in production, and systems with approved production funds in the DoD budget.</p>		
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(U) D. Other Program Funding Summary (\$ in Thousands)

	<u>FY 1998</u>	<u>FY 1999</u>	<u>FY 2000</u>	<u>FY 2001</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>	<u>To Compl</u>	<u>Total Cost</u>
(U) Other Procurement, AF, Weather Service (PE35111F WSC 833070)	21,124	18,352	25,434	26,434	28,854	27,643	28,172	28,750	Cont.	Cont.

(U) E. Acquisition Strategy

All major contracts within this Program Element used precompeted DoD contract vehicles or were awarded after full and open competition. Programs support DII COE compliance and use an evolutionary acquisition strategy with a series of incremental IOCs and software releases. This approach accommodates refinement and prioritization of user requirements and improves adaptability to evolving commercial activities.

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(U) F. Schedule Profile

	<u>FY 1998</u>				<u>FY 1999</u>				<u>FY 2000</u>				<u>FY 2001</u>			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
(U) GTWAPS Milestones I/II/III	*															
(U) TWR Milestones I/III				*												
(U) SWAFS Milestones I/II/III						X										
(U) MOC FS-21 Milestones I/II/III							X									
(U) MOC OS-21 Milestones I/II/III										X						
(U) SDHS II Milestones I/II/III													X			

* - Denotes completed event

X - Denotes planned event

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RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)						DATE February 1999					
BUDGET ACTIVITY 7 - Operational System Development				PE NUMBER AND TITLE 0305111F Weather Service				PROJECT 2738			
(U) A. <u>Project Cost Breakdown (\$ in Thousands)</u>											
				<u>FY 1998</u>	<u>FY 1999</u>	<u>FY 2000</u>	<u>FY 2001</u>				
(U) 1st Article Development				0	0	1,255	0				
(U) System Software Integration				268	202	1,444	2,217				
(U) System Engineering Support				982	1,676	2,543	3,659				
(U) Contractor Engineering Support				1,108	1,137	2,741	2,835				
(U) Software Development				5,282	5,989	9,770	5,263				
(U) Travel				173	220	300	251				
(U) Program Management Support				257	834	1,016	864				
(U) Identified as a source of SBIR					340						
(U) Total				8,070	10,398	19,069	15,089				
(U) B. <u>Budget Acquisition History and Planning Information (\$ in Thousands)</u>											
Performing Organizations:											
Contractor or Government Performing Activity	Contract Method/Type or Funding Vehicle	Award or Obligation Date	Performing Activity EAC	Project Office EAC	Total Prior to FY 1998	Budget FY 1998	Budget FY 1999	Budget FY 2000	Budget FY 2001	Budget to Complete	Total Program
Identified as a source for SBIR						340					
<u>Product Development Organizations</u>											
Phillips Lab	MIPR	May 94	270	270	270	0	0	0	0	0	270
CalTech	LOE	Jun 94	1,172	1,172	1,172	0	0	0	0	0	1,172
CSC	LOE	Jan 94	2,127	2,127	2,127	0	0	0	0	0	2,127
GTE	FFP/PR	Oct 90	13,064	13,064	13,064	0	0	0	0	0	13,064
PRISM(Raytheon)	LOE	Jan 93	3,497	3,497	3,497	0	0	0	0	0	3,497
PRISM (Hughes)	LOE	Jan 93	3,396	3,396	3,396	0	0	0	0	0	3,396
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Contractor or Government Performing Activity	Contract Method/Type or Funding Vehicle	Award or Obligation Date	Performing Activity EAC	Project Office EAC	Total Prior to FY 1998	Budget FY 1998	Budget FY 1999	Budget FY 2000	Budget FY 2001	Budget to Complete	Total Program
Sterling	CPAF	Jun 95	21,621	21,621	4,600	4,441	4,770	2,800	742	0	17,353
(U) B. Budget Acquisition History and Planning Information (\$ in Thousands) - Continued											
Contractor or Government Performing Activity	Contract Method/Type or Funding Vehicle	Award or Obligation Date	Performing Activity EAC	Project Office EAC	Total Prior to FY 1998	Budget FY 1998	Budget FY 1999	Budget FY 2000	Budget FY 2001	Budget to Complete	Total Program
Air Weather Svc (CDFS II related work)	MIPR	4FY95	2,900	2,900	2,900	0	0	0	0	0	2,900
Hughes DNA	MIPR	Sep 95	1,682	1,682	1,682	0	0	0	0	0	1,682
CCPL (TRW)	FFP	Jan 95	100	100	100	0	0	0	0	0	100
Raytheon	FFP	Dec 97	3,986	3,986	0	2,023	1,067	996	0	Cont.	Cont.
TBD/MOC FS-21	MIPR	Sep 98	1,184	1,184	0	232	250	415	351	0	Cont.
TBD/MOC OS-21	TBD	TBD	TBD	TBD	0	0	1054	2,037	2,183	Cont.	Cont.
TBD SDHS II	TBD	TBD	TBD	TBD	0	0	0	879	3,506	Cont.	Cont.
SWAFS/SMC	TBD	TBD	TBD	TBD	0	0	0	1,353	2,151	Cont.	Cont.
	LOE	3FY99	TBD	TBD	0	0	1,350	6,000	1,648	Cont.	Cont.
<u>Support and Management Organizations</u>											
Electronic Systems Center (ESC)					632	192	637	765	843	Cont.	Cont.
Space and Missile Center (SMC)					0	40	45	878	517	Cont.	Cont.
MITRE/Aerospace TEMS					1,009	1,142	885	2,946	3,148	Cont.	Cont.

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<u>Test and Evaluation Organizations</u> Not Applicable		

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(U) B. <u>Budget Acquisition History and Planning Information (\$ in Thousands) - Continued</u>											
Contractor or Government Performing Activity	Contract Method/Type or Funding Vehicle	Award or Obligation Date	Performing Activity EAC	Project Office EAC	Total Prior to FY 1998	Budget FY 1998	Budget FY 1999	Budget FY 2000	Budget FY 2001	Budget to Complete	Total Program
Government Furnished Property: Not Applicable											
Identified as a source for SBIR							340				
Subtotal Product Development					32,808	6,696	8,491	14,480	10,581	Cont.	Cont.
Subtotal Support and Management					1,641	1,374	1,567	4,589	4,508	Cont.	Cont.
Subtotal Test and Evaluation					0	0	0	0	0	Cont.	Cont.
Total Project					34,449	8,070	10,398	19,069	15,089	Cont.	Cont.

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