ARMY RDT&E BUDGET ITEM JUSTIFICATION (R-2 Exhibit)

February 2003

BUDGET ACTIVITY	PE NUMBER AND TITLE	PROJECT
5 - System Development and Demonstration	**0604726A - Integrated Meteorological Support System**	**D85**

COST (In Thousands)	FY 2002 Actual	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	Cost to Complete	Total Cost
D85 IMETS (TIARA)	1899	3361	3309	3300	2902	2796	4545	4709	Continuing	Continuing

A. Mission Description and Budget Item Justification: The Integrated Meteorological System (IMETS) RDTE program element funds the development of evolving upgrades to the fielded system. It provides the battlefield commander at all echelons with accurate, high resolution, near real time weather data to conduct intelligence preparation of the battlefield (IPB). The IMETS is a mobile tactical automated weather data receiving, processing, and dissemination system designed to provide timely weather and environmental effects, forecasts, observations, and decision aid support to the Army. The IMETS is an Army-furnished system, which is operated by Air Force weather personnel and maintained within Army support channels. IMETS provides weather information overlays for the Common Tactical Picture (CTP), meteorological messages and other tailored products. IMETS provides direct client access to the IMETS meteorological database and to the database of weather impacts on friendly and threat systems. Three different configurations are tailored to the needs of the echelon supported; 1) command post configuration (CPC) for fixed facilities at echelon above corps (EAC) level where the IMETS is permanently integrated into the local area network; 2) vehicle mounted configuration (VMC) for tactical operations where the supported echelon moves frequently; and 3) light configuration (LC) for a small task force, where lightweight, easily deployed core weather functions can be performed without having its own vehicle, shelter, and power source. This system supports the Legacy to Objective transition path of the Transformation Campaign Plan (TCP). IMETS received $8M DERF in FY02 of which $3.073M on RDTE efforts to accellerate requested technology enhancements with the remainder spent in procurement of the requested systems for SOF.

Accomplishments/Planned Program	FY 2002	FY 2003	FY 2004	FY 2005
Improve the IMETS NOWCAST capability to ingest and fuse non-conventional battlefield observations such as UAV and mobile meteorological sensors and additional conventional observations such as Meteorological Satellite imagery and data. Along with the Navy and the Air Force, design, develop, and integrate a joint DOD standard 4-D weather database and common application interfaces to support current and future C4ISR systems. Integrate automated mission inputs into IWEDA from ABCS digital OP-ORD information from the JCDB or other sources. Complete integration of IMETS Weather Analysis into GCCS. Port the entire IMETS baseline software from UNIX to Intel Processor which is the objective IMETS Light processor.	537	3061	0	0

Accomplishments/Planned Program (continued)	FY 2002	FY 2003	FY 2004	FY 2005
Improve the Weather Feature application on the Common Tactical Picture (CTP). Continue enhancements to TAWS-A. Implement optimization ingest of artillery-met observations into IMETS forecasts. Develop and integrate improved IWEDA military weather effects database that can provide significantly improved weather support capability for Operation Enduring Freedom. The new IWEDA Rules cover: US Army and Air Force aviation systems and operational concepts, Special Operations Forces systems and operational concepts, Army Logistics/Combat Service Support systems and operations, as well as Afghan/Taliban threat systems. Implement automated mission inputs into IWEDA from ABCS digital OP-ORD information archived in the JCDB or other databases. Modify IMETS IWEDA and Contours client applications. Improve the ability for joint sharing of common meteorological forecasts, weather hazards/warnings and weather impact decision aids. Develop new prototype model for weather effects on illumination.	927	300	0	0
Conduct Security and JITC testing, combined DT/OT and Milestone C activities on Interim IMETS Light Configuration (LC).	435	0	0	0
Conduct Operational and Developmental testing on IMETS Light Objective and Command Post configurations. Conduct Intra-Army Interoperability and Joint Interoperability Test Command Certification testing; continue test and evaluation support to ABCS 7.0.	0	0	1445	0
Integrate and test required enhancements to the IMETS Weather Analysis Tool software in GCCS. This will include improving the GCCS tools to include EDAs capable of accessing NOWCAST databases hosted either on IMETS and/or Navy/AF weather centers.	0	0	400	300
Complete porting and integration of IMETS software to a laptop configuration with a PC (Intel) processor.	0	0	700	0
Complete development, integration and testing of the intitial IMETS NOWCAST capabilitywith the capability to ingest and fuse both conventional and non conventional battlefield observations and increase temporal /spatial resolution. Continue work to enhance the IMETS NOWCAST capability to ingest and fuse non-conventional battlefield observations (UAV/Mobile met sensors) and to increase temporal/spatial resolution. Integrate NOWCAST processing into IMETS Tactical Decision Aid client applications effectively creating a new class of decison aids called Execution Decison Aids (EDAs) in support of FCS Units of Action. Integrate a Joint Meteorological Standard 4-D database and common application interfaces to support surrent and future C4ISR systems.	0	0	764	0
DT/OT Continuous Evaluation testing of latest IMETS software baseline Conduct Intra-Army Interoperability and Joint Interoperability Test Command Certification testing; continue test and evaulation support to DCGS-A & FCS	0	0	0	256

Accomplishments/Planned Program (continued)	FY 2002	FY 2003	FY 2004	FY 2005
Develop the capability to utilize high bandwidth Global Information Grid and the WIN-T communication technology to "reachback" into weather databases maintained at AF Operational Weather Squadrons and AF/Navy Weather Centers. The objective is to utilize emerging wide bandwidth tactical communications networks to relay battlefield observations to the rear in order to update tactical databases used to drive weather effects EDAs and TDAs.	0	0	0	500
Investigate and implement new remote sensing technologies and capabilities. Implement soil moisture, and snow cover overlays on the COP to support trafficability predictions. Investigate new sensing technologies to provide real-time film loops depicting the formation and the movement of fog and/or smoke and dust plumes over the battlefield.	0	0	0	600
Develop improvements to the Target Acquisition Weather software to include handling aerosols relevant to Army scenarios such as smoke and dust; improve handling of horizontal path scenarios; and increasing wavelength resolution in the visible to .5um.	0	0	0	600
Test the viability of implementing EDAs at the soldier level by utilizing wireless LAN technology and PDA type processors to "alert" the soldier when changing weather conditions are likely to impact the execution of their missions. The IMETS "Mission Watch" applications would monitor the IMETS NOWCAST database and immediately broadcast appropriate warnings to the soldier when significant changes occur.	0	0	0	444
Integrate and test the new standard meterological model (WRF) that the AF has mandated for use by the Army. The WRF model will replace the current AF standard meterological model (MM5) used in IMETS.	0	0	0	600
Totals	1899	3361	3309	3300

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B. Program Change Summary	FY 2002	FY 2003	FY 2004	FY 2005
Previous President's Budget (FY 2003)	1896	3417	3364	3356
Current Budget (FY 2004/2005 PB)	1899	3361	3309	3300
Total Adjustments	3	-56	-55	-56
Congressional program reductions				
Congressional rescissions		-37		
Congressional increases				
Reprogrammings	3	-19		
SBIR/STTR Transfer				
Adjustments to Budget Years			-55	-56

C. Other Program Funding Summary	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	To Compl	Total Cost
OPA 2 - SSN: BW0021-IMETS	2458	7034	9080	4831	4821	13189	8016	9331	Continue	Continue

D. Acquisition Strategy: The IMETS development program integrates efforts from the Air Force, Army, and OSD DII COE. It is consistent with the development of the C4I Joint Technical Architecture-Army. The IMETS Non Developmental Item acquisition strategy proved successful in the fielding of Block I IMETS and this strategy is being continued with the Block II program. Current improvement efforts are to incorporate new numerical weather prediction forecasts and products communicated from centralized Air Force Hubs to the individual IMETS. Weather tactical decision aid upgrades and updated forecaster aids are developed to include products from Air Force initiatives. IMETS data and applications are being made accessible to Battlefield Functional Area C4I systems as clients through weather database services within the IMETS; hosted on the ABCS Information Server (AIS) and/or through the Joint Common Data Base (JCDB). Application modules from the Army Research Laboratory will be integrated and fielded as an upgrade to the current software baseline. These include: improvements in generation and display of higher time resolution and higher spatially resolved weather forecast and effects information; inclusion of physics-based weather decision aids and models; development of more versatile weather databases that support a variety of service and allied weather forecast models and environmental databases; development of weather applications consistent with joint METOC data standards; development of weather remote-sensing products from meteorological satellites; and ingest of battlefield sensor data to augment initializing mesoscale forecasts. IMETS functionality has been ported to a laptop computer to respond to requirements for a lighter more flexible IMETS for the highly mobile units. Fielding decision for these Interim IMETS Lights was accomplished in 3QFY02.

ARMY RDT&E COST ANALYSIS(R-3)

February 2003

BUDGET ACTIVITY
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I. Product Development	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2003 Cost	FY 2003 Award Date	FY 2004 Cost	FY 2004 Award Date	FY 2005 Cost	FY 2005 Award Date	Cost To Complete	Total Cost	Target Value of Contract
a . Product Integration Efforts	GSA Task Order	NGIT, Lakewood, Washington	11403	1159	1-4Q	909	1-4Q	1900	1-4Q	Continue	Continue	0
b . Weather Applications SW Development and Integration	MIPR	ARL, White Sands Missile Range, NM	5138	1643	1-4Q	500	1-4Q	700	1-4Q	Continue	Continue	0
c . ABCS SE&I	MIPR	PEOC3T, Fort Monmouth, NJ	0	59	1Q	0		0		0	59	0
Subtotal:			16541	2861		1409		2600		Continue	Continue	0

II. Support Cost	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2003 Cost	FY 2003 Award Date	FY 2004 Cost	FY 2004 Award Date	FY 2005 Cost	FY 2005 Award Date	Cost To Complete	Total Cost	Target Value of Contract
a . Documentation Coordination	MIPR	CECOM, Fort Monnouth, NJ	1050	200	1Q	200	1Q	200	1Q	Continue	Continue	0
b . Program Management Support	MIPR	PMO Intel Fusion, Fort Belvoir, VA	1292	200	1Q	200	1Q	200	1Q	Continue	Continue	0
Subtotal:			2342	400		400		400		Continue	Continue	0

ARMY RDT&E COST ANALYSIS(R-3)

February 2003

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Remarks: MIPRs are used to pay for work by other government organizations and are issued incrementally contiguous with the fiscal year.

III. Test and Evaluation	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2003 Cost	FY 2003 Award Date	FY 2004 Cost	FY 2004 Award Date	FY 2005 Cost	FY 2005 Award Date	Cost To Complete	Total Cost	Target Value of Contract
a . Test and Evaluation Support to ABCS	MIPR	EPG, Ft. Huachuca, AZ	639	100	1Q	500	1Q	300	1Q	Continue	Continue	0
b . Operational Testing	MIPR	ATEC, VA	852	0		700	1Q	0		Continue	Continue	0
c . JITC and Intra-Army Interoperability Certification	MIPR	JITC/ Ft Huachuca, AZ and CTSF/Ft Hood, TX	0	0		300	1Q	0		0	300	0
Subtotal:			1491	100		1500		300		Continue	Continue	0

Remarks: MIPRs are used to pay for work by other government organizations and are issued incrementally contiguous with the fiscal year.

ARMY RDT&E COST ANALYSIS(R-3)

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IV. Management Services	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2003 Cost	FY 2003 Award Date	FY 2004 Cost	FY 2004 Award Date	FY 2005 Cost	FY 2005 Award Date	Cost To Complete	Total Cost	Target Value of Contract
Subtotal:			0	0		0		0		0	0	0

Remarks: No management services are purchased.

Project Total Cost:			20374	3361		3309		3300		Continue	Continue	0

Schedule Profile Detail (R-4a Exhibit)

February 2003

BUDGET ACTIVITY
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Schedule Detail	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009
Conduct development, integration and testing of enhanced weather applications into IMETS baseline	1-4Q	1-4Q	1-4Q	1-4Q	1-4Q	1-4Q	1-4Q	1-4Q
Improve the Weather Feature Application on Common Tactical Picture (CTP). Enhancements to TAWS-A	1-4Q	1-4Q						
Porting and integration of IMETS to a laptop configuration with a PC (Intel) processor			1-4Q					
OT, DT, JITC, Intraoperability Testing on Objective IMETS Light and Command Post. Spt ABCS T&E			1-4Q					
Integrate and test required enhancements to IMETS Weather Analysis Tool software in GCCS			1-4Q					
Objective IMETS Light and Command Post Configurations MS C			4Q					