ARMY RDT&E BUDGET ITEM JUSTIFICATION (R2 Exhibit)

February 2005

BUDGET ACTIVITY
5 - System Development and Demonstration

PE NUMBER AND TITLE
0604□26A - Integrated Meteorological Support System

COST (In Thousands)	FY 2004 Actual	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	Cost to Complete	Total Cost
Total Program Element (PE) Cost	3160	2450	0	0	0	0	0	0	0	Continuing
D85 IMETS (TIARA)	3160	2400	0	0	0	0	0	0	0	Continuing
D86 IMETS TADSS (TIARA)	0	50	0	0	0	0	0	0	0	Continuing

A. Mission Description and Budget Item Justification: The Integrated Meteorological System (IMETS) RDT&E 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. The weather requirement and effects capability transitions to the Distributed Common Ground Station - Army (DCGS-A). Future weather research and development will be conducted under the DCGS-A program.

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B. Program Change Summary	FY 2005	FY 2006	FY 2007
Previous President's Budget (FY 2005)	2485	2369	2772
Current Budget (FY 2006/2007 PB)	2450	0	0
Total Adjustments	-35	-2369	-2772
Net of Program/Database Changes			
Congressional Program Reductions	-39		
Congressional Rescissions			
Congressional Increases			
Reprogrammings	4		
SBIR/STTR Transfer			
Adjustments to Budget Years		-2369	-2772

FY06 and funds realigned (-$2369K) to higher priority requirements.
FY07 and funds realigned (-$2772K) to higher priority requirements.

ARMY RDT&E BUDGET ITEM JUSTIFICATION (R2a Exhibit)

February 2005

BUDGET ACTIVITY	PE NUMBER AND TITLE	PROJECT
5 - System Development and Demonstration	**0604□26A - Integrated Meteorological Support System**	**D□5**

COST (In Thousands)	FY 2004 Actual	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	Cost to Complete	Total Cost
D85 IMETS (TIARA)	3160	2400	0	0	0	0	0	0	0	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.

Accomplishments/Planned Program	FY 2004	FY 2005	FY 2006	FY 2007
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 Tool into GCCS. Port the entire IMETS baseline software from UNIX to Intel Processor which is the objective IMETS Light processor.	0	0	0	0

Accomplishments/Planned Program (continued)	FY 2004	FY 2005	FY 2006	FY 2007
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.	200	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 6.4.	1096	0	0	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.	400	298	0	0
Complete porting and integration of IMETS software to a laptop configuration with a PC (Intel) processor.	700	0	0	0
Complete development, integration and testing of the intitial IMETS NOWCAST capability with 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.	764	0	0	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	256	0	0
Develop the capability to utilize high bandwidth Global Information Grid, Global Broadcast System (GBS), 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	300	0	0

Accomplishments/Planned Program (continued)	FY 2004	FY 2005	FY 2006	FY 2007
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	380	0	0
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	380	0	0
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	386	0	0
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	400	0	0
Totals	3160	2400	0	0

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B. Other Program Funding Summary	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	To Compl	Total Cost
OPA 2 - SSN: BW0021-IMETS	11343	346	0	0	0	0	0	0	Continuing	Continuing

C. 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.