ARMY RDT&E BUDGET ITEM JUSTIFICATION (R2 Exhibit)

February 2005

BUDGET ACTIVITY	PE NUMBER AND TITLE	PROJECT
6 - Management support	**0605702A - Meteorological Support to RDT&E Activities**	**128**

	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
128	METEOROLOGICAL SUPPORT TO RDT&E ACTIVITIES	9375	8415	8829	9205	9543	9586	9859	8607

A. Mission Description and Budget Item Justification: Meteorological support to research, development, test, and evaluation (RDT&E) activities provides standard and specialized weather forecasts and data for test reports to satisfy Army/DoD RDT&E test requirements for modern weaponry, e.g., (1) unique atmospheric analysis and sampling to include atmospheric transmittance, extinction, optical scintillation, infrared temperature, aerosol/smoke cloud dispersion characteristics, ballistic meteorological measurements, snow characterization and crystal structure; (2) test event forecasting to include prediction of sound propagation for ballistic firing tests, specialized prediction of light levels and target to background measurements, and predictions for electro-optical testing and ballistic artillery/mortar firing; and (3) advisory and warning products such as go/no-go test recommendations for ballistic and atmospheric probe missiles, smoke/obscurant tests, hazard predictions for chemical agent munitions disposal, monitoring dispersion of simulant clouds for chemical/biological detector tests, simulated nuclear blasts, and weather warnings for test range safety. Provides technical support to Army Program Executive Officers (PEOs), Project Managers (PMs), and the Army test ranges and sites at: White Sands Missile Range (WSMR), NM; Electronic Proving Ground (EPG), Fort Huachuca, AZ; Dugway Proving Ground (DPG), UT; Aberdeen Test Center (ATC), Aberdeen Proving Ground, MD; Redstone Technical Test Center (RTTC), Redstone Arsenal, AL; Yuma Proving Ground (YPG), AZ (including the Cold Regions Test Center (CRTC), Fort Greely, AK and the Tropical Regions Test Center, Schofield Barracks, HI); Fort Belvoir, VA; and Fort A.P. Hill, VA. Develops methodologies and acquires instrumentation and systems that allow meteorological teams to support current and future Army/DoD RDT&E requirements. This PE finances indirect meteorological support operating costs not billable to customers and replacement/upgrade of meteorological instrumentation and support systems. Direct costs for meteorological support services are not funded by this PE, but are borne by the customer (i.e., materiel/weapons developers and project/product managers) in accordance with DoD Directive 7□□□14R, October 1999. This program is integral to the accomplishment of the Army's developmental test and evaluation mission and its support of the Army Transformation from Current to Future Force. Characterization of the weather is critical to this developmental test mission at outdoor range activities since weapon systems respond very differently under different weather conditions and system performance must be evaluated under different operational environments.

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Accomplishments/Planned Program	FY 2004	FY 2005	FY 2006	FY 2007
Provides indirect costs (personnel salaries) for generating weather forecasts, severe weather warnings and advisories; staff meteorological services; and atmospheric measurements in support of Army/DoD tests and projects at nine Army sites/test ranges, and alternate test sites as required. In FY04 and FY05, provides full salaries for interns at each site. These new hires are essential to support increasing demands for detailed weather knowledge required to test modern weapon systems, and to ensure continuity of specialized meteorological support as the aging workforce begins to retire. Provides program management for meteorological support to the Army research, development, test and evaluation community and technical review/assistance to ranges and meteorological support teams. Includes Verification, Validation and Accreditation (VV&A) for the Four-Dimensional Weather (4DWX) System.	3092	3359	2994	2766

Accomplishments/Planned Program A(continued)	FY 2004	FY 2005	FY 2006	FY 2007
Provides funding for meteorological instrumentation and technology to support RDT&E activities at Army test ranges. Includes funding for development, fielding, and enhancement of the 4DWX system, an advanced meteorological support system that provides high-resolution weather forecasts and analyses to support developmental and operational field tests. The 4DWX analyses and forecasts of the 3-dimensional structure of the atmosphere over time (4th dimension) are used in test planning, conduct, and forensic analyses and also provide realistic atmospheric conditions for Virtual Proving Ground modeling & simulation (M&S). The Global Meteorology on Demand (GMOD) capability completed during FY04 allows range meteorologists to set-up and launch 4DWX modeling capabilities anywhere in the world, or as a backup to their 4DWX system. Other 4DWX accomplishments in FY04 include addition of 4DWX real-time four-dimensional data assimilation (RT-FDDA) capability to the next generation mesoscale model, the Weather Research and Forecasting (WRF) model. Planned 4DWX enhancements include providing the next generation of Linux PC clusters at the ranges with mesoscale modeling capabilities, increasing the computer resources available for GMOD applications to allow concurrent use at multiple locations and/or ensemble model runs to quantify model uncertainty; transitioning the range 4DWX systems to the WRF model; including other meteorological data sources such as Doppler weather radar in the RT-FDDA; and enhancing or adding more links between 4DWX and range applications such as noise prediction models. FY04-FY07 funding supports a multiyear effort to replace or upgrade obsolete instrumentation including replacing obsolete upper-air sounding systems; upgrading the sensors on the Surface Automated Weather Station (SAMS) fixed and mobile remote automated weather stations; and replacement of Doppler acoustic sounders (sodars) for near-real-time boundary layer wind profile measurements.	6283	5056	5835	6439
Totals	9375	8415	8829	9205

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B. Program Change Summary	FY 2005	FY 2006	FY 2007
Previous President's Budget (FY 2005)	8711	7952	8512
Current Budget (FY 2006/2007 PB)	8415	8829	9205
Total Adjustments	-296	877	693
Net of Program/Database Changes			
Congressional Program Reductions	-126		
Congressional Rescissions			
Congressional Increases			
Reprogrammings			
SBIR/STTR Transfer	-170		
Adjustments to Budget Years		877	693

Change Summary Explanation:
FY 2006(+877) & 2007 (+693): Funds provide for a multi-year effort to replace obsolete meteorological instrumentation including: upper-air sounding systems; sensors on the Surface Automated Weather Station (SAMS) fixed and mobile remote automated weather stations; and Doppler acoustic sounders (sodars) for near-real-time boundary layer wind profile measurements. This instrumentation is critical to the continued operations of the meteorological teams.