

UNCLASSIFIED

PE NUMBER: 0305111F
PE TITLE: WEATHER SERVICE

| Exhibit R-2, RDT&E Budget Item Justification | | | | | | | | DATE February 2005 | | |
|--|-------------------|---------------------|---------------------|---------------------|---|---------------------|---------------------|-----------------------|---------------------|-------|
| BUDGET ACTIVITY 07 Operational System Development | | | | | PE NUMBER AND TITLE 0305111F WEATHER SERVICE | | | | | |
| Cost (\$ in Millions) | 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 |
| Total Program Element (PE) Cost | 15.293 | 17.340 | 28.675 | 34.836 | 41.022 | 51.850 | 34.335 | 30.798 | Continuing | TBD |
| 2738 Weather Service | 15.293 | 17.340 | 28.675 | 34.836 | 41.022 | 51.850 | 34.335 | 30.798 | Continuing | TBD |

(U) **A. Mission Description and Budget Item Justification**

This budget activity funds operational development necessary to acquire, modify, and sustain segments of the Air Force Weather Weapon System (AFWWS). The AFWWS supports worldwide operations of Air Force and Army warfighters, as well as Special Operation Forces (SOF) and other government agencies, by providing observations and forecasts of terrestrial and space weather. The AFWWS provides fixed and transportable equipment supporting the Air and Space Expeditionary Force (EAF) with weather observing and forecasting capabilities at in-garrison and deployed locations. Air Force Weather (AFW) programs are aligned under the five capability areas of Weather Data Collection (WDC), Weather Data Analysis (WDA), Weather Forecasting, Product Tailoring/Warfighter Applications (PT/WA), and Weather Dissemination (relies on Commercial-off-the-Shelf products and so does not use RDT&E funding). Through this alignment, AFW ensures an integrated and systems-oriented approach to program management decisions.

WDC provides for terrestrial and space environmental sensing using automated weather observing capabilities at fixed and deployed locations worldwide. WDA provides interoperability for the AFW infrastructure with users and data sources, and includes the assimilation of advanced models, radar, lightning, and satellite data into a single user interface for the timely analysis and production of tailored weather products. Weather Forecasting integrates advanced scientific numerical weather prediction capabilities into the AFW Strategic Center for automated, high resolution mission-tailored weather forecast products. Beginning in FY06, funding becomes available within the WDC, WDA, and Forecasting capabilities to exploit data from the National Polar-orbiting Operational Environmental Satellite System (NPOESS), a joint DoD/Department of Commerce program. PT/WA provides timely, fine-scale weather products and services to operational commanders for a given Area of Responsibility, and at tactical levels, provides front-line weather information to warfighters in support of combat operations. PT/WA also provides the capability to ingest multiple 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 have a similar look and feel.

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.

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(U) B. Program Change Summary (\$ in Millions)

| | <u>FY 2004</u> | <u>FY 2005</u> | <u>FY 2006</u> | <u>FY 2007</u> |
|--------------------------------------|----------------|----------------|----------------|----------------|
| (U) Previous President's Budget | 16.098 | 16.526 | 16.670 | 16.970 |
| (U) Current PBR/President's Budget | 15.293 | 17.340 | 28.675 | 34.836 |
| (U) Total Adjustments | -0.805 | 0.814 | | |
| (U) Congressional Program Reductions | | -0.186 | | |
| Congressional Rescissions | | | | |
| Congressional Increases | | 1.000 | | |
| Reprogrammings | -0.323 | | | |
| SBIR/STTR Transfer | -0.482 | | | |

(U) Significant Program Changes:

FY05: Congressional Mark-up of \$1.0M for Pacific Islands Ocean Typhoon Experiment (PILOT) to be conducted by US Army Corps of Engineers.

FY06-07: Increased funding starting in FY06 to support the integration of National Polar-orbiting Operational Environmental Satellite Systems (NPOESS) data and to develop and field direct readout terminals prior to FY10 satellite launch.

Exhibit R-2a, RDT&E Project Justification

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| BUDGET ACTIVITY | | | | | PE NUMBER AND TITLE | | | PROJECT NUMBER AND TITLE | | |
|--|-------------------|---------------------|---------------------|---------------------|---------------------------------|---------------------|---------------------|-----------------------------|---------------------|-------|
| 07 Operational System Development | | | | | 0305111F WEATHER SERVICE | | | 2738 Weather Service | | |
| Cost (\$ in Millions) | 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 |
| 2738 Weather Service | 15.293 | 17.340 | 28.675 | 34.836 | 41.022 | 51.850 | 34.335 | 30.798 | Continuing | TBD |
| Quantity of RDT&E Articles | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | |

(U) **A. Mission Description and Budget Item Justification**

This budget activity funds operational development necessary to acquire, modify, and sustain segments of the Air Force Weather Weapon System (AFWWS). The AFWWS supports worldwide operations of Air Force and Army warfighters, as well as Special Operation Forces (SOF) and other government agencies, by providing observations and forecasts of terrestrial and space weather. The AFWWS provides fixed and transportable equipment supporting the Air and Space Expeditionary Force (EAF) with weather observing and forecasting capabilities at in-garrison and deployed locations. Air Force Weather (AFW) programs are aligned under the five capability areas of Weather Data Collection (WDC), Weather Data Analysis (WDA), Weather Forecasting, Product Tailoring/Warfighter Applications (PT/WA), and Weather Dissemination (relies on Commercial-off-the-Shelf products and so does not use RDT&E funding). Through this alignment, AFW ensures an integrated and systems-oriented approach to program management decisions.

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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.

(U) **B. Accomplishments/Planned Program (\$ in Millions)**

| | <u>FY 2004</u> | <u>FY 2005</u> | <u>FY 2006</u> | <u>FY 2007</u> |
|--|----------------|----------------|----------------|----------------|
| (U) Accomplishments/Planned Program | | | | |
| (U) WDC: Includes AF participation with National Weather Service and Federal Aviation Administration in Product Improvement Plans for automated weather sensors and the Next Generation Weather Radar and starting in FY06 includes development of NPOESS direct readout terminals | 1.225 | 1.365 | 2.338 | 5.338 |
| (U) WDA: Continues incremental software development and integration of enhanced analysis capabilities to include efforts to integrate NPOESS data starting in FY06 | 2.652 | 2.188 | 6.980 | 8.344 |
| (U) Forecasting: Continues integration of advanced terrestrial and space weather forecast capabilities within AFW Strategic Center to include the efforts to integrate NPOESS data starting in FY06 | 5.199 | 4.205 | 11.563 | 13.002 |
| (U) PT/WA: Continues software development and integration of regional and tactical weather systems and | 6.217 | 8.582 | 7.794 | 8.152 |

Project 2738

R-1 Shopping List - Item No. 181-4 of 181-8

Exhibit R-2a (PE 0305111F)

Exhibit R-2a, RDT&E Project Justification

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integration with warfighter C4I systems.

(U) PILOT: Pacific Islands Ocean Typhoon experiment to be conducted by US Army Corps of Engineers.

1.000

(U) Total Cost

15.293

17.340

28.675

34.836

(U) **C. Other Program Funding Summary (\$ in Millions)**

| | <u>FY 2004</u> <u>Actual</u> | <u>FY 2005</u> <u>Estimate</u> | <u>FY 2006</u> <u>Estimate</u> | <u>FY 2007</u> <u>Estimate</u> | <u>FY 2008</u> <u>Estimate</u> | <u>FY 2009</u> <u>Estimate</u> | <u>FY 2010</u> <u>Estimate</u> | <u>FY 2011</u> <u>Estimate</u> | <u>Cost to</u> <u>Complete</u> | <u>Total Cost</u> |
|--|---------------------------------|-----------------------------------|-----------------------------------|-----------------------------------|-----------------------------------|-----------------------------------|-----------------------------------|-----------------------------------|-----------------------------------|-------------------|
| Other Procurement, AF, Weather Service (PE 0305111F WSC 833070, 838010, and 86190A) | 42.928 | 42.970 | 49.077 | 49.023 | 55.477 | 62.671 | 59.061 | 58.756 | Continuing | TBD |
| (U) Operations and Maintenance | 131.381 | 118.401 | 141.221 | 144.426 | 151.284 | 155.627 | 160.972 | 164.781 | Continuing | TBD |

Note: Includes Congressional reduction of \$4.13M of Other Procurement, AF in FY05

(U) **D. Acquisition Strategy**

AFWWS employs an incremental development strategy with a series of incremental IOCs and software releases to enable rapid development and fielding of capabilities using full and open competition.

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Exhibit R-3, RDT&E Project Cost Analysis

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| BUDGET ACTIVITY | | | | | | PE NUMBER AND TITLE | | | | | PROJECT NUMBER AND TITLE | | | | |
|--|------------------------------|--------------------------------------|--------------------------------------|-----------------|--------------------------|--------------------------|--------------------------|-----------------|--------------------------|-----------------|--------------------------|---------------------|------------|--------------------------------|--|
| 07 Operational System Development | | | | | | 0305111F WEATHER SERVICE | | | | | 2738 Weather Service | | | | |
| (U) Cost Categories (Tailor to WBS, or System/Item Requirements) (\$ in Millions) | Contract Method & Type | Performing Activity & Location | Total Prior to FY 2004 Cost | FY 2004 Cost | FY 2004 Award Date | FY 2005 Cost | FY 2005 Award Date | FY 2006 Cost | FY 2006 Award Date | FY 2007 Cost | FY 2007 Award Date | Cost to Complete | Total Cost | Target Value of Contract | |
| (U) Product Development | | | | | | | | | | | | | | | |
| Northrup Grumman | GSA schedule/L OE | Colorado Springs, CO | 2.341 | 2.344 | Nov-03 | 2.072 | Feb-05 | 2.296 | Oct-05 | 2.357 | Oct-06 | Continuing | TBD | TBD | |
| Raytheon | C/CPFF | Bellevue, NE | | 2.112 | May-04 | 1.681 | Mar-05 | 1.903 | Mar-06 | 1.949 | Mar-07 | Continuing | TBD | TBD | |
| Multiple [PT/WA] | GSA schedule/L OE | various | 13.368 | 2.311 | Jan-04 | | | | | | | | 15.679 | 15.679 | |
| Multiple [PT/WA JET] | C/FFP | various | | 2.730 | Jul-04 | 5.920 | Nov-04 | | | | | | 8.650 | 9.089 | |
| TBD [JET] | C/CPAF | | | | | | | 4.788 | Nov-05 | 5.133 | Nov-06 | Continuing | TBD | TBD | |
| TBD [WDC - NPOESS] | C/CPAF | | | | | | | 2.000 | Mar-06 | 5.000 | Jan-07 | Continuing | TBD | TBD | |
| TBD [WDA - NPOESS] | C/CPAF | | | | | | | 4.300 | Mar-06 | 5.600 | Jan-07 | Continuing | TBD | TBD | |
| TBD [Forecasting - NPOESS] | C/CPAF | | | | | | | 5.650 | Mar-06 | 6.900 | Jan-07 | Continuing | TBD | TBD | |
| Atmospheric Environmental Research | GSA Task Order | Lexington, MA | | 1.994 | Jun-04 | | | | | | | Continuing | TBD | TBD | |
| National Center for Atmospheric Research | MIPR | Boulder, CO | | | | 1.215 | Feb-05 | 1.200 | Jan-06 | 1.500 | Jan-07 | Continuing | TBD | | |
| National Weather Service | MIPR | Norman, OK | | 1.225 | Apr-04 | | | | | | | Continuing | TBD | TBD | |
| US Army Corps of Engineers [PILOT] | MIPR | Millington, TN | | | | 1.000 | Feb-05 | | | | | | 1.000 | | |
| Various | various | various | 4.359 | 0.945 | Oct-03 | 3.032 | Oct-04 | 3.499 | Oct-05 | 3.325 | Oct-06 | Continuing | TBD | TBD | |
| Subtotal Product Development | | | 20.068 | 13.661 | | 14.920 | | 25.636 | | 31.764 | | Continuing | TBD | TBD | |
| Remarks: | | | | | | | | | | | | | | | |
| (U) Management | | | | | | | | | | | | | | | |
| Electronic Systems Center | | Hanscom AFB, MA | 2.254 | 1.501 | Oct-03 | 2.086 | Oct-04 | 2.709 | Oct-05 | 2.742 | Oct-06 | Continuing | TBD | TBD | |
| Space & Missile Systems Center | | Los Angeles AFB, CA | 0.220 | 0.131 | Oct-03 | 0.099 | Oct-04 | 0.095 | Oct-05 | 0.095 | Oct-06 | Continuing | TBD | TBD | |
| Air Force Research Laboratory | | Hanscom AFB, MA | | | | 0.235 | Oct-04 | 0.235 | Oct-05 | 0.235 | Oct-06 | Continuing | TBD | | |
| Subtotal Management | | | 2.474 | 1.632 | | 2.420 | | 3.039 | | 3.072 | | Continuing | TBD | TBD | |
| Remarks: | | | | | | | | | | | | | | | |
| (U) Total Cost | | | 22.542 | 15.293 | | 17.340 | | 28.675 | | 34.836 | | Continuing | TBD | TBD | |

Exhibit R-4, RDT&E Schedule Profile

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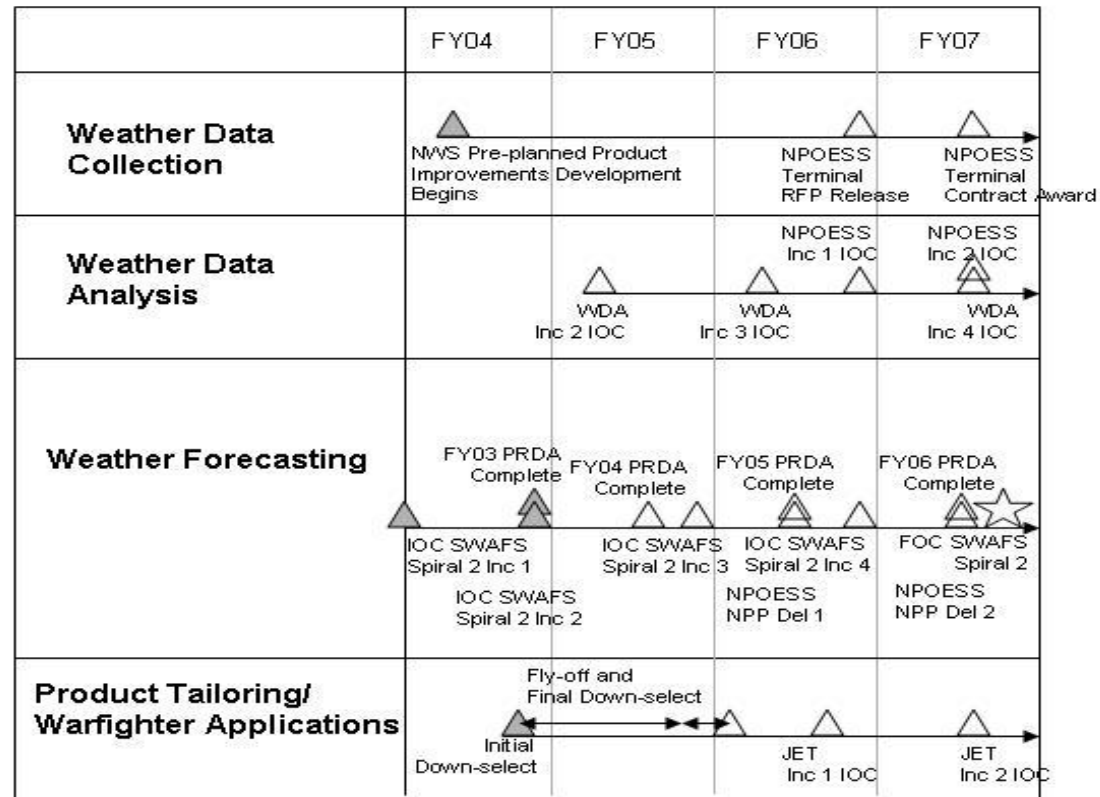
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Exhibit R-4: PE 0305111F Weather Service



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Exhibit R-4a, RDT&E Schedule Detail

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PROJECT NUMBER AND TITLE

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| (U) Schedule Profile | <u>FY 2004</u> | <u>FY 2005</u> | <u>FY 2006</u> | <u>FY 2007</u> |
|--|----------------|----------------|----------------|----------------|
| (U) WDC NWS Pre Product Improvement Begins (Note 1) | 2Q | | | |
| (U) WDC - NPOESS Terminal RPF Release | | | 4Q | |
| (U) WDC - NPOESS Terminal Contract Award | | | | 3Q |
| (U) WDA Increment 2 IOC | | 2Q | | |
| (U) WDA Increment 3 IOC | | | 2Q | |
| (U) WDA Increment 4 IOC | | | | 3Q |
| (U) WDA - NPOESS Increment 1 IOC | | | 4Q | |
| (U) WDA - NPOESS Increment 2 IOC | | | | 3Q |
| (U) Forecasting FY03 PRDA Tasks Complete (Note 2) | 4Q | | | |
| (U) Forecasting FY04 PRDA Tasks Complete | | 3Q | | |
| (U) Forecasting FY05 PRDA Tasks Complete | | | 3Q | |
| (U) Forecasting FY06 PRDA Tasks Complete | | | | 3Q |
| (U) Forecasting - NPOESS Preparatory System delivery 1 | | | 3Q | |
| (U) Forecasting - NPOESS Preparatory System delivery 2 | | | | 3Q |
| (U) Forecasting - SWAFS Spiral 2 Increment 1 IOC | 1Q | | | |
| (U) Forecasting - SWAFS Spiral 2 Increment 2 IOC | 4Q | | | |
| (U) Forecasting - SWAFS Spiral 2 Increment 3 IOC | | 4Q | | |
| (U) Forecasting - SWAFS Spiral 2 Increment 4 IOC | | | 4Q | |
| (U) Forecasting - SWAFS Spiral 2 FOC | | | | 4Q |
| (U) PT/WA Initial JET Down-Select | 4Q | | | |
| (U) PT/WA JET Fly-Off | | 4Q | | |
| (U) PT/WA Final JET Down-Select | | | 1Q | |
| (U) PT/WA JET Increment 1 IOC | | | 3Q | |
| (U) PT/WA JET Increment 2 IOC | | | | 3Q |

Note 1: AF participation with National Weather Service (NWS) and Federal Aviation Administration (FAA) in Product Improvement Plans for automated weather sensors and the Next Generation Weather Radar (NEXRAD).

Note 2: Permission for Research and Development Announcement (PRDA) contracting vehicle for reaching multiple universities and laboratories. PRDA replaced the spiral development for Forecasting reported in FY04 PB.