Fiscal Year 2009 IMPLEMENTATION PLAN FOR NATIONAL WEATHER SERVICE TRAINING AND EDUCATION

In Support of the NOAA and National Weather Service Human Capital Strategic Plans and Goals (8/11/08)

Table of Contents

Page 1

1. Executive Summary	
 National Strategic Training and Education Plan (NSTEP) Process 	
3. Improvements to the NSTEP Process	
4. Challenges	
5. Training Infrastructure and Mandatory Training for Fiscal Year 2009	
5.1 Training Division Infrastructure Items	
5.2 Mandated Training Activities	
6. Recommended Training for Fiscal Year 2009	
6.1 Administration	
6.2 Advanced Weather Interactive Processing System (AWIPS) / Digita	l Services 7
6.2.1 AWIPS-I / Digital Services Training Activities	
6.2.2 AWIPS-II Training Activities	
6.3 Aviation	9
6.4 Climate	10
6.5 Diversity/Equal Employment Opportunity (EEO)	10
6.6 Engineering/Electronics	
6.6.1 In-Residence Maintenance Training	10
6.6.2 Additional Development and Support	11
6.7 Fire Weather	11
6.8 Homeland Security/Emergency Response	
6.9 Hydrology	
6.10 Information Technology	13
6.11 Integrated Sensor Training	
6.12 Integrated Warning Process Training	14
6.12.1 Dual-Polarization Upgrade to the WSR-88D	
6.12.2 Other New Training Activities	
6.13 Management/Leadership	
6.14 Numerical Weather Prediction	
6.15 Observing and Data Acquisition	
6.16 Safety/Environmental	
6.17 Uncertainty Training	
6.18 Winter Weather	
6.19 Regional Training Funds	
7. Mission Impact	
8. Cost Advantage Training Initiatives	
9. Summary	
10. Acknowledgments	

Appendices

Section/Title

Appendix 1: International Training Plans	. 23
Appendix 2: Out Year Training Needs (FY 2010)	. 23

1. Executive Summary

"It's all to do with the training: you can do a lot if you're properly trained." - *Elizabeth II*

This Implementation Plan is the guiding document for the national training and education activities within the National Oceanic and Atmospheric Administration's (NOAA's) <u>National Weather Service (NWS)</u> for Fiscal Year 2009 (FY 2009; hereafter referred to as FY09). The purpose of this plan is to specify the expected national training activities to be coordinated and executed by the <u>Office of Climate</u>, <u>Water</u>, <u>and Weather Services</u> (<u>OCWWS</u>) <u>Training Division</u> for the upcoming fiscal year. It includes detailed resource cost analyses including allocations for Division full-time equivalent (FTE) time and course dollar costs, as well as the unfunded training gap requirements.

The FY09 budget of \$9 million funded 93 of 171 (54 percent) National Strategic Training and Education Plan (NSTEP) process derived requirements. This is a direct result of limited resources due to lack of funding or FTEs. The process facilitates both mandated requirements such as Occupational Safety and Health Administration (OSHA) safety training, and the highest priority training needs identified. Prioritization of training needs is determined independent of financial and manpower limitation while recommended solutions were based on assumed FY 2008 Level funding and the FY 2009 President's Budget.

As the pace of science and technology change continues to increase, the ability to maintain a highly trained workforce may be compromised, as a result of constrained budget levels. Additionally, as the NWS explores new initiatives to enhance critical services, new training needs will be identified. This rise in training requirements increases the training gap thereby putting the NWS mission at risk. Program funds mitigate some impacts of continued level funding by supporting specific program needs for systems such as the Advanced Weather Interactive Processing System (AWIPS), Dual-Polarization (Dual-Pol) radar, the Automated Surface Observing System (ASOS) and the Radiosonde Replacement System (RRS).

2. National Strategic Training and Education Plan (NSTEP) Process

The FY09 Implementation Plan for NWS Training and Education (IP09) is the end result of the NSTEP process. The NSTEP Team's Field Requirements Group (FRG), consisting of Regional Scientific Services Division (SSD) Chiefs/Regional Scientists or their designate(s), and the Operations Officer for the National Centers for Environmental Prediction (NCEP), prioritized FY09 training requirements. The Heads of Training Group (HOTG), composed of the Directors of the <u>NWS Training Center (NWSTC)</u>, the Forecast Decision Training Branch (FDTB), the <u>Warning Decision Training Branch</u> (WDTB), and the <u>Cooperative Program for Operational Meteorology, Education, and</u> <u>Training (COMET)</u>, recommended the execution methods of the prioritized training requirements, taking into account available FTE and non-FTE staff resources. FY09 training requirements were determined and prioritized during a series of meetings and conference calls which included the OCWWS NSTEP Program Leader, the FRG, HOTG, select <u>NOAA Planning, Programming, Budgeting and Execution System (PPBES)</u> Program Managers, and representatives from training and hydrology.

The FY09 NSTEP process began with soliciting training requirements submitted in the form of a Training Needs Statement (TNS). A total of 171 TNSs were submitted for both existing and new training requirements. The HOTG analyzed all 171 requirements to determine the best delivery method (in-residence, distance learning (DL), blended, etc., along with the training needs analysis). Based on the HOTG analyses and the priority guidance listed below, the FRG proposed which training activities would be conducted using available funding and Training Division FTE resources.

The priority guidance used for the development of this IP was:

- 1. Preserve infrastructure (capabilities and staffing) to develop and deliver training
- 2. Health and safety of NWS staff
- 3. Maintain current operations and services to meet agency <u>Government</u> <u>Performance and Results Act (GPRA)</u> performance levels
- 4. New funded technologies with deployment schedules
- 5. New science advances, service improvements and GPRA performance improvement
- 6. Staff development and succession planning

3. Improvements to the NSTEP Process

In a successful attempt to improve the NSTEP process, the HOTG met with NOAA PPBES Program Managers and other NOAA representatives in March, 2008. The purpose of these meetings was to encourage their participation in NSTEP process by engaging them in the TNS definition and prioritization process. The Local Forecasts and Warnings, Hydrology and Aviation Program Managers included applicable training gaps in their Program Operating Plans for the FY 2011 to FY 2015 PPBES process. Future coordination efforts with PPBES Program Managers will ensure that training requirements continue to be identified and addressed in the out year planning cycles.

4. Challenges

The NWS' ability to maintain and enhance the workforce knowledge and skills necessary to execute the agency's critical mission is in jeopardy. Rapidly changing advances in science, information technology, communication, and structure continue, while there is insufficient financial and workforce resources available to adequately train the workforce. The pace of change dictates the generation of new training requirements and shortens the lifespan of existing training material. These two effects necessitate not only the development of new training courses but their continuous revision. The accelerated updates impact the training of both developers and users, who are faced with the increasing challenge of reallocating operational time to training.

5. Training Infrastructure and Mandatory Training for Fiscal Year 2009

Each year, OCWWS allocates a portion of the overall training budget for items that are considered training infrastructure (support for operations of Training Division), and items which are mandated by NOAA or NWS official policy. Funding for these items is summarized in Table 3. A listing of these items and a brief description of each is provided below.

5.1 Training Division Infrastructure Items

a. Administrative Budgets for each of the Branches within Training Division (NWS Headquarters, NWSTC, FDTB, and WDTB): Provides day-to-day operating funds.

b. American Meteorological Society (AMS) Journal Access: Training Division annually pays for NWS access to three AMS online journals: <u>Monthly Weather Review</u>, <u>Weather and Forecasting</u>, and a new Journal scheduled to begin publishing during FY09 – *Weather, Climate and Society*, which will replace NWS access to the Journal of Hydrometeorology. Training Division is working with NOAA to pursue NOAA-wide access to these and other AMS Journals. If successful, the NWS financial obligation to such access would be reduced, and the subsequent savings could be reinvested to meet unfunded training requirements.

c. NWS Learning Management System (LMS) Charges: Training Division pays for the <u>NWS LEARN Center</u> on the <u>Department of Commerce Learning Center (CLC)</u> in addition to redirecting the work of two Training Division instructors. Funds are set aside for system administration support staff at WDTB.

d. Telecommunications Charges: Pays for Division conference call costs.

e. GoToMeeting Licenses: A critical and cost effective tool used by Training Division for its training and meeting activities is <u>GoToMeeting</u>, a World Wide Web (WEB) conferencing tool used to view real-time applications from any computer, anywhere in the world. Funding is provided for Training Division license costs, which are managed by WDTB.

f. COMET Grant Core Funding: Per NOAA cooperative agreement with the University Corporation for Atmospheric Research (UCAR), OS6 annually provides the core funding for the COMET Program. This funding supports the following costs:

- Infrastructure and administrative costs
- A specialized DL training team delivering WEB-based training modules
- Support for the COMET Meteorology, Education, and Training (MetEd) WEB site
- Support for NOAA/NWS residence training

Other COMET activities in Table 3 are the Hydrology Team, which is cost-shared between Training Division and Office of Hydrologic Development (OHD) Base funds, the Numerical Weather Prediction team sponsored by AWIPS, and the Aviation Team sponsored by the OCWWS Aviation Weather Services Branch. g. Annual NSTEP Meetings: Travel funds are set aside for annual NSTEP meetings. NSTEP travel is minimized by conducting weekly teleconferences.

h. HOTG Meetings: Travel funds are set aside for annual HOTG meetings. HOTG travel is minimized by conducting weekly teleconferences.

i. AWIPS / National Centers AWIPS (N-AWIPS) Development: The AWIPS program funds two project scientists through UCAR to develop and conduct Numerical Weather Prediction training for new AWIPS and N-AWIPS Builds. Their activities will be further specified in Section 6.14.

j. VISIT Salaries: Training Division provides funds for staff at the <u>Virtual Institute</u> for <u>Satellite Integration (VISIT)</u> in Fort Collins, CO and Madison, WI. VISIT is a joint effort involving NOAA-National Environmental Satellite Data and Information Service (NESDIS) and the NWS to accelerate the transfer of research results based on space based remote sensing data into NWS operations using DL techniques.

k. International Weather and Water Leadership: Each year, there are unforeseen training needs and requests for Training Division support. For instance, Training Division has often been asked by the NWS International Activities Office to support visiting foreign delegations. To be better prepared for this, funding and FTE resources are set aside at FDTB, NWSTC and WDTB to quickly respond to these needs and requests.

1. Training Division Buffer Fund: A small amount of funds are set aside to be allocated as needed during FY09.

5.2 Mandated Training Activities

a. Incident Meteorologist (IMET) Workshop: NWS policy mandates that IMETs receive yearly training to fulfill their duties in the NWS and within NOAA. This is an annual workshop hosted in Boise, ID by the OCWWS Fire and Public Weather Services Branch.

b. Mandated Environmental and Safety Training Courses: NWS is required by OSHA to provide in-residence environmental and safety training courses for staff serving as environmental and safety focal points, as well as those who climb towers to maintain equipment: Environmental Compliance, Safety Training, Initial/Attrition Fall Protection and Rescue Training, and Fall Protection and Rescue Recertification. This training is inresidence and mostly managed by the NWSTC via contract instructors. To save costs, there are Fall Protection and Rescue Recertification training classes held in Alaska and Pacific Regions, and at the National Data Buoy Center in Stennis, MS, with the other classes held at the NWSTC.

c. CPR/First Aid Training: Provides funds to the NWS Regional Headquarters to fund Cardiopulmonary Resuscitation (CPR)/First Aid training at their local offices. OSHA dictates that people who need to do search and rescue or work in confined spaces

must receive annual training, which is provided onsite by the American Red Cross or the American Heart Association.

6. Recommended Training for Fiscal Year 2009

Recommended training activities for FY09 are given below for the program areas defined in the NSTEP process. Regional Training Funds, which are associated with many program areas, are described in Section 6.19. Refer to Tables 2a, 2b, 2c and 2d for training activities associated with discretionary funds and prioritized by the FRG. Note: recommended training for FY09 is outlined in the bulleted lists below. New training initiatives for FY09 are denoted in *italics*, and are accompanied by a brief description. For all initiatives, the Training Branch responsible for coordinating its execution is defined.

6.1 Administration

NWS administrative personnel are responsible for implementing and sustaining a wide range of administrative/budget programs including budget formulation and execution, travel, human resources, property, and procurement. Training will be required on new processes to ensure current standards are met within the multiple program areas. In many cases, administrative/budget personnel will be expected to train other personnel on these new processes. Due to continued tight budgets, no dedicated funds were allocated for this area in FY09. However, technology such as GoToMeeting, and the many off the shelf online learning modules available via the Commerce Learning Center, can effectively handle this training along with "train-the-trainer" sessions at national Financial Management Center (FMC) conferences.

6.2 Advanced Weather Interactive Processing System (AWIPS) / Digital Services

For FY09, training development for AWIPS-II will ramp up in preparation for its deployment, scheduled for the spring of FY10. As such, training for the existing AWIPS (AWIPS-I) will ramp down. AWIPS-II Procurement, Acquisitions and Construction (PAC) funds in the President's FY09 budget request will be used to fund WDTB's Weather Event Simulator (WES) Development and Support item listed below.

6.2.1 AWIPS-I / Digital Services Training Activities. Note: Hydrology Section 6.9 has additional training activities related to AWIPS-I:

- a. FDTB:
 - (1) GFE New Build Training
 - (2) WarnGen Delta Training
 - (3) Satellite Products (Total Precipitable Water (TPW), High Density Winds)

(4) *BOIVerify Learning Path and Gridded Verification Short Course*: A short course of methodologies to produce required metrics for forecast improvement will be developed that shows how forecasters can best use the BOIVerify program. Currently available training will be reviewed and augmented as necessary.

- b. NWSTC:
- (1) <u>AWIPS-I System Manager Course</u>
- (2) AWIPS-I Hydrometeorology Software Update Training
- (3) River Forecast Center (RFC) AWIPS-I Software Update Training
- (4) Integrated Forecast Preparation System (IFPS) / Graphical Forecast Editor (GFE) Focal Point Training
- (5) Smart Tools and Smart Initializations Training: A series of short on-line training videos produced by the NWSTC showing the use and value of many of the nationally recommended smart tools used by Weather Forecast Offices (WFOs) and RFCs. Note: Digital Services and IFPS training can be found online at http://www.nwstc.noaa.gov/nwstrn/ifps_met.htm, and at the NWS LEARN center (part of the CLC) catalog under IFPS/GFE.
- c. WDTB:
- (1) AWIPS-I Warning-Related Delta Training
- (2) <u>Weather Event Simulator (WES)</u> Development and Support

6.2.2 AWIPS-II Training Activities:

- a. FDTB:
- (1) *AWIPS-II Variance Training*: Develop and deliver distance learning modules as necessary to address identified variances in the user interface as AWIPS-I is migrated to AWIPS-II.
- (2) AWIPS-II OT&E Support Training: Provides funds for collaboration between the AWIPS contractor (Raytheon) and NWSTC staff / SMEs on application configuration and localization, and system administration of AWIPS-II, Version 1.
- (3) *AWIPS-II Focal Point Deployment:* Develop focal point training for the OT&E System Testing in late FY09. Focal points will be taught how to optimally configure the components of AWIPS-II.
- b. NWSTC:
- AWIPS-II Developer Training: Provides funds for AWIPS-II development organizations (OHD, Meteorological Development Laboratory (MDL), Global Systems Division (GSD), NCEP and the Systems Engineering Center (SEC)) to obtain specialized training.
- (2) *AWIPS-II Variance Training*: Develop and deliver distance learning modules as necessary to address identified variances in the user interface as AWIPS-I is migrated to AWIPS-II.
- (3) AWIPS-II Operational Test and Evaluation (OT&E) Support Training: Provides funds for collaboration between the AWIPS contractor (Raytheon) and NWSTC staff / Subject Matter Experts (SMEs) on application configuration and localization, and system administration of AWIPS-II, Version 1.

- (4) *AWIPS-II Focal Point Development:* Develop focal point training for the OT&E System Testing in late FY09. Focal points will be taught how to optimally configure the components of AWIPS-II.
- (5) AWIPS-II Local Applications Development
- (6) AWIPS-II System Administration Deployment
- c. WDTB:
- (1) *WES Capabilities in AWIPS-II (AWIPS PAC funded)*: Provides resources for design and initial development work. Includes four primary deliverables:

- WES-II Sandbox: A tested re-release of current AWIPS-II and selected and stable WES-II functionality. It is intended to provide WFO local application developers with a place to learn the environment.

- WES-II: Provides case review and playback capabilities in the AWIPS-II environment.

- CaseConverter: Allows for the conversion of existing WES cases to the new AWIPS-II data storage format.

- WES Scripting Language (WESSL)-II: Provides simulation scripting capabilities in the AWIPS-II environment.

6.3 Aviation

NOAA's Aviation Program and NSTEP will continue to support a DL team at COMET which collaborates with WDTB in the development of Aviation training. The focus of this team will be the continued development of the second <u>Distance Learning Aviation</u> <u>Course (DLAC)-II: Building an Effective Terminal Aerodrome Forecast (TAF)</u> with the production of a final module and corresponding WES cases. If time permits, work will begin on initiating the development of DLAC-III, the topic of which is still being determined.

The other NSTEP-related aviation training effort focuses on the Federal Aviation Administration's (FAA's) Air Traffic Control System Command Center in Herndon, VA. If this Center becomes fully staffed, the personnel assigned to the unit will have unique training needs tailored to the support function they provide to the Nation's Airspace System. To keep abreast of this effort, the Aviation Program's Next Generation Air Transportation System (NextGen), and its associated 4-Dimensional Cube concept, the NWSTC will participate in the Department of Commerce <u>Joint Planning and</u> <u>Development Office</u> (JPDO) activities. The JPDO's task is to create and execute an integrated plan for NextGen, spearhead planning, and coordinate research, demonstrations and development, in conjunction with relevant programs of other departments and agencies, and the private sector.

Additional training needs will be defined based on the FAA's decision on the future of the Center Weather Service Units (CWSUs). Training Division will address these requirements once they are specified and as resources are provided.

6.4 Climate

Due to higher priority training items, NSTEP-funded climate activities were scaled back for FY09. Funds will be allocated for Pacific Region (PR) to hold a Climate Services Operations course in Hawaii. This course, modeled after the Climate Services Operations courses held recently at the NWSTC, addresses the many PR climate specificities, and is partially funded by PR. It is more cost efficient to send the instructors to Hawaii to teach this course than to send PR staff to the mainland U.S.

Work will begin to convert an in-residence Climate Variability Symposium, previously held at COMET, to a DL course. There continues to be a UCAR Project Scientist working in the OCWWS Climate Services Division who develops climate related training modules. Training Division will provide instructional design and publishing support for these modules as time and resources permit. Training Division will continue dialogue with the Climate PPBES Goal Team Lead and the NOAA Climate Office on leveraging resources for future training needs.

All current climate materials, and new modules as they are developed, are available on the WEB at:

http://www.weather.gov/om/csd/pds/index.shtml

6.5 Diversity/Equal Employment Opportunity (EEO)

Diversity training in our workforce enhances teamwork, recognizes differences and similarities in people, and develops better working relationships on an individual and organizational level. For FY09, Training Division will work with the Office of EEO and Diversity Management to convert an existing Diversity presentation to an online module, and coordinate its inclusion as a course in the CLC. There are many EEO-related online courses available to all staff within the CLC, and in existing NWSTC residence courses, especially Field Operations Management and Management and Supervision (described in Section 6.13).

6.6 Engineering/Electronics

6.6.1 In-Residence Maintenance Training

Training Division will continue to offer existing in-residence maintenance training courses at the NWSTC. The following attrition courses will be offered in FY09:

- <u>Automated Surface Observing System (ASOS) Maintenance</u>
- Automated Radio Theodolite (ART) Rawinsonde System Maintenance
- <u>Console Replacement System (CRS) Maintenance</u>
- <u>CRS Network Operations</u>
- <u>NOAA Weather Radio (NWR) Armstrong Transmitter Maintenance</u>
- <u>NWR Crown Transmitter Maintenance</u>

- <u>NWR Scientific Radio Services (SRS) Transmitter Maintenance</u>
- <u>NWS Doppler Weather Radar (WSR-88D) Maintenance</u>
- WSR-88D Open Systems Radar Data Acquisition (ORDA) Maintenance
- WSR-88D Microwave Line of Sight (MLOS) Maintenance
- <u>Radiosonde Replacement System (RRS) Maintenance</u>. Training will be offered in support of RRS deployments (funded by the RRS Program), as well as attrition training (funded by NSTEP).

6.6.2 Additional Development and Support

An updated <u>Introduction to NWS Systems</u> DL course will be offered to provide systems specific knowledge to maintain systems and provide preventative maintenance to meet systems availability goals and meet operational systems needs. Other engineering/electronics activities at the NWSTC in FY09 are:

(a) *Wind Profiler Deployment Support*: Support for the maintenance and operation of the new (449 Megahertz) Wind Profiler Network.

(b) *Weather Radio Improvement Plan (WRIP) Deployment Support*: Support activities in the development/deployment of WRIP.

(c) *Transition Power and Maintenance Shelter (TPMS) Maintenance*: Funds are provided to send selected electronics staff to a vendor course – Powerware Maintenance - to competently and safely maintain the WSR-88D TPMS Uninterruptable Power System (UPS).

Finally, training development will begin in support of the deployment of WSR-88D Dual-Polarization radar scheduled for FY10. Funding provided by the Dual-Polarization Program ensures Dual-Polarization technical support of system development and training materials will occur in FY09.

6.7 Fire Weather

In addition to the IMET Workshop described in Section 5.2, funds will be provided to COMET to continue resource and instructional support for the fire weather program. One of COMET's primary activities has been the conversion of the S-290 Intermediate Wildland Fire Behavior Course to a DL course. The S-290 course, once a 30-hour inresidence course, provides participants the means to obtain certification as a fire weather forecaster (per NWS Directive 10-405, Fire Weather Services Training and Professional Development), and a better understanding of wildland fire behavior.

COMET will also update the <u>S-591 Advanced Fire Weather Course</u>, which provides a comprehensive overview of the three main dimensions of the fire environment triangle: fuels, topography, and weather. A yearly roundtable discussion/webinar on fire weather is part of this module.

6.8 Homeland Security/Emergency Response

Since September 11, 2001, NWS field offices have been asked to play an ever increasing role in providing important support to the emergency management community and other federal/state/local agencies during and after major emergencies. NWS Senior Management has stated that there will continue to be a high emphasis on the Emergency Management program. As with the Aviation program, if this emphasis includes training, requirements will be examined as they are defined and funded.

If FY09 funds are provided for the implementation of Operations and Services Improvement Plan (OSIP) Project #07-039, COMET, in partnership with WDTB, will develop training on Improved HYSPLIT (HYbrid Single-Particle Lagrangian Integrated Trajectory model) Model Depiction and Delivery. A 3-hour DL course with WES cases will teach students to run the PC-based HYSPLIT routine, and demonstrate reductions in response times to requests for support from emergency management/first responders. Currently, this item is unfunded by NSTEP.

6.9 Hydrology

The Training Division and the NWS OHD will continue to cost-share a hydrology development DL team at COMET. The following training courses and new initiatives will be offered in FY09:

- a. COMET/FDTB:
- (1) *Quantitative Precipitation Forecasting (QPF) for Hydrologic Modeling* (COMET): COMET will begin to develop a DL course based on materials from the RFC/Hydrometeorological Prediction Center (HPC) Hydromet course last offered in 2003. The training will focus on the people performing the Hydrometeorological Analysis and Support (HAS) function.
- (2) *Deterministic and Probabilistic Verification* (COMET): Hydrologists and hydrology focal points will be able to understand the methodologies and tools used to verify deterministic and probabilistic hydrologic forecasts.
- (3) *Short and Long Term Ensembles (FDTB)*: A series of online modules to demonstrate the necessary inputs, pre-processing techniques, post-processing techniques, and resultant output related to hydrologic ensemble prediction.
- (4) Vertical Datums (FDTB): An online module based on an existing Central Region training presentation to demonstrate how customers use NWS products affected by vertical datums.
- (5) *QPF Verification* (COMET/FDTB): Develop an online module series to explain the different ways to verify QPF and improve forecasts.

- b. NWSTC:
- WFO Hydrologic Applications DL Course (AWIPS-I): A DL course based on materials from the WFO Hydrologic Forecast System (WHFS) Workshop and the current Advanced Hydrologic Applications course. The course provides training on the tools and techniques implemented in AWIPS to support the WFO Hydrology Program.
- (2) <u>Advanced Hydrologic Applications</u> residence course (AWIPS-I): Develops an operational understanding of the various software available to assist in the hydrologic forecast and warning decision process.
- (3) AWIPS Hydrometeorology Software Update Training (AWIPS-I)
- (4) RFC AWIPS Software Changes DL Modules (AWIPS-I)
- (5) AWIPS Hydromet Distance Learning Modules (AWIPS-I)

The three items above provide a series of short, focused, DL courses to address changes in AWIPS-I hydrometeorology with Operational Build (OB) release changes and additions in capabilities.

- (6) WFO Hydrologic Operations DL Series (AWIPS-I): DL modules will be developed to teach how to fully utilize the capabilities of the WFO AWIPS-I hydrologic applications.
- (7) Static Flood Inundation Mapping (NWSTC and FDTB): Provides a series of live WEBcasts and online modules to train the methodologies which produce the hydraulic information rendered onto the Advanced Hydrologic Prediction System (AHPS) WEB page.
- c. Other Training Coordinated by the OCWWS Hydrologic Services Division:
- (1) RFC Workshops: Provide training for RFC staff focused on operational tools and techniques.
- (2) Hydraulic Modeling/Hydrologic Engineering Center River Analysis System (HEC-RAS) Training: Funds for RFC forecasters to attend HEC-RAS training classes, offered external to the NWS.

6.10 Information Technology

Information Technology (IT) training ensures operational continuity of IT networks and services. Much of this training is accomplished locally on a Region by Region basis using Regional Training Funds, which are discussed in Section 6.19. The NWSTC offers an <u>Introduction to NWS Systems</u> course (described in Section 6.6.2) which offers basic information on the different platforms used in the NWS. In addition, a <u>Linux</u> <u>Administration for WFOs/RFCs</u> in-residence training course will continue to be offered by the NWSTC.

6.11 Integrated Sensor Training

Funding is again provided by NSTEP to support NOAA's <u>Virtual Institute for Satellite</u> <u>Integration Training (VISIT)</u> program (see Section 5.1, part j). The VISIT team includes staff from NWS, NESDIS, and two NOAA Cooperative Institutes: The <u>Cooperative</u> <u>Institute for Research in the Atmosphere (CIRA)</u> and the <u>Cooperative Institute for</u> <u>Mesoscale Meteorological Studies (CIMMS)</u>. The VISIT team supports satellite and related remote sensing training and provides assistance with live and recorded teletraining.

All additional funding for integrated sensor training is provided by other parts of NOAA. In collaboration with the VISIT program, NESDIS continues funding the expansion of the <u>Satellite Hydrometeorology (SHyMet) courses</u> for NWS interns and forecasters. Both the Geostationary Orbiting Environmental Satellite (GOES) and the National Polar-Orbiting Operational Environmental Satellite System (NPOESS) Programs provide funding for development of satellite training modules on COMET's <u>MetEd Satellite</u> <u>WEBsite</u> with needs identified at an annual satellite training workshop. A new activity funded by the NESDIS/GOES Program in FY09 provides the framework for a NOAA satellite proving ground, in which NWS Users can interact with NOAA research scientists and product developers. NWS offices will interact with the satellite proving ground to provide forecasters access to new and advanced data and products from various satellites in preparation for GOES-R+ series.

6.12 Integrated Warning Process Training

Training addressed by the Integrated Warning Process is directed at NWS field forecasters with the goal of increasing scientific understanding of the elements involved in the warning and decision making process. Expected results from this training include improved skills in decision making and ultimately better service in the issuance of mission-critical warnings.

The following activities will continue in FY09:

WDTB:

(1)	WSR-88D initial radar operator training via the
	WSR-88D Distance Learning Operations Course (DLOC).

- (2) <u>WSR-88D Radar Build Training</u> DL training to allow forecasters to keep pace with WSR-88D software and hardware upgrades.
- (3) <u>Advanced Warning Operations Course (AWOC)</u>. The Core, Severe and Winter Weather Tracks will be updated and offered.

6.12.1 Dual-Polarization Upgrade to the WSR-88D

Training development will begin in support of the deployment of WSR-88D Dual-Polarization (Dual-Pol) radar scheduled for FY 2010. Funding provided by the Dual-Pol Program ensures the following:

- (1) Dual-Pol Operations Course: To be primarily delivered as online modules through the LMS with support from local facilitators, the course will address principles of Dual-Pol radar, base and derived Dual-Pol product interpretation, convective and winter storm structure and evolution using Dual-Pol products, Dual-Pol radar applications using AWIPS, basic microphysics for precipitation type and formation, and any yet-to-be-discovered operationally relevant applications of the data.
- (2) *Dual-Pol Education and Outreach:* Provide WEB-based module(s) addressing the capabilities and limitations of the various WSR-88D Dual-Pol products which will be made available to the public.

6.12.2 Other New Training Activities

Other new training activities which WDTB will conduct include:

- (1) *Advanced Storm-Based Warning Training*: DL training designed to share best practices and improve forecasters' ability to issue effective storm-based warnings.
- (2) Optimizing WSR-88D Effectiveness through Volume Coverage Pattern (VCP) Selection: A DL module to address the strengths and limitations of the available VCPs, with an emphasis on the appropriate VCP(s) for a given weather environment.
- (3) Using the Integrated Warning Team to Improve Weather Warning Performance: This will provide support for a 2009 Severe Weather Annual Workshop to be held in Norman, OK. WDTB will capture the outcomes from this workshop, and create two distance learning modules applying the workshop outcomes to two key learning objectives: identify key operational pressures and limitations of other warning partners; and develop plans to mitigate potential loss in shared situation awareness among warning partners.

The first module will target NWS forecasters and will be integrated into the AWOC starting in FY 2010. The second module will be an education and outreach module for use by NWS WCMs in their local Emergency Manager and Broadcaster outreach program.

This effort is also supported by the NOAA SeaGrant Program, which will provide matching funding to allow WDTB to present WES cases and other

warning information at conferences in North Carolina and Vail, CO during FY09.

6.13 Management/Leadership

The NWSTC offers management and leadership training for NWS, NOAA, and external agencies through its <u>Leadership Academy</u>. In FY09, NWSTC will continue to offer the <u>Management and Supervision</u> course, which provides new supervisors foundational knowledge and skills to effectively manage operations and lead people. This course meets the Office of Personnel Management mandate for 80 hours of supervisory training within the first year of becoming a new supervisor. The <u>Field Operations Management</u> course provides introductory management and leadership knowledge and skills to shift supervisors and office personnel who manage an office or operation in the absence of the permanent supervisor. Field Operations Management is open to all staff regardless of bargaining unit status, whereas Management and Supervision is only open to non-bargaining unit personnel.

The third Leadership Academy course, the <u>Executive Leadership Seminar (ELS)</u>, will not be offered in FY09 due in part to budget constraints and the reduced number of NWS slots required by the Regions. To retain the agency emphasis on the operational importance of leader development and succession planning, the ELS funding was shifted to deliver additional course offerings of Management and Supervision and Field Operations Management. ELS is slated to be offered again in the second quarter of FY 2010.

In addition, the NWSTC will host a <u>Warning Coordination Meteorologist</u> (WCM)/Service Coordination Hydrologist (SCH) Course in the first quarter of FY09. This biannual course, which trains new WCMs on strategies on the WFO Programs they are required to manage, has been expanded to include the new SCH position at NWS RFCs due to their identical role with customer service, outreach and education.

6.14 Numerical Weather Prediction

The accuracy of NWS forecasts is largely driven by the forecaster's ability to correctly interpret and understand operational numerical weather prediction (NWP) guidance. To maintain and improve forecaster proficiency in a period of rapidly evolving NWP systems, two project scientists are dedicated to NWP training development under the COMET non-discretionary funding outlined in Table 3. FDTB provides one dedicated FTE in support of Weather Research and Forecasting (WRF) Environmental Modeling Systems (EMS) development, training and support (both domestic and international). FDTB also supports the <u>Science and Operations Officer (SOO) Science and Training Resource Center (STRC)</u>.

The following training will be conducted by COMET and FDTB in FY09:

- (1) Integrating NWP into the Forecast Process (INForP): An 8- to 12- hour DL course modeled after WDTB's successful AWOC courses, will be delivered via the LMS/CLC and via WES simulations provided by WDTB. The INForP course will cover the application of NWP in the forecast process, how to glean useful information from the plethora of available model output, and using model data to investigate forecasting challenges/problems. On-station delivery of the course will be facilitated by the SOO or training facilitator.
- (2) NWP Operational Matrix Maintenance/Updates: Update the COMET <u>Operational Models Matrix</u> as the models change. The matrix is designed as "1-stop-shopping", quick-look-up, reference material which answers common NWP questions. In FY09, there will be fewer updates required while NCEP is moving to its new building and transitioning its codes to the Earth System Modeling Framework.
- (3) *Rapid Refresh WRF*: WEBcasts and teletraining will be given on the analysis and forecast impacts of the model change from the Rapid Update Cycle (RUC) to Rapid Refresh WRF. Development will occur in the 4th quarter of FY09 for delivery at time of model implementation.

6.15 Observing and Data Acquisition

Two residence courses will again be offered in FY09 by the NWSTC to support NWS observation and data acquisition programs:

- (1) Data Acquisition and Operations (DATAC)
- (2) <u>Cooperative Network Operations</u>

Training requirements for the NWS data acquisition process are met by both courses, while the Cooperative Network Operations course also supports the NWS Cooperative Observer Program.

A new training initiative, *Data Acquisition for Management*, will be developed and delivered in FY09 as a DL course to provide a sufficient level of understanding of the NWS data acquisition programs, including the Cooperative Observer Program.

An analysis will be conducted to determine if these three activities could be effectively combined into one revamped residence course, a DL course, or a combination thereof, for discussion during the FY 2010 process.

6.16 Safety/Environmental

Safety and environmental focal points in NWS offices promote the critical value of safety and environmental compliance to all employees, and focal points must ensure that applicable laws and regulations are being followed. Since this training is mandated by OSHA and NOAA/NWS policy, the following courses are considered part of the Training Division's "Mandated" Training Activities (described in Section 5.2):

- (1) <u>Safety Training</u>
- (2) <u>Environmental Compliance</u>
- (3) <u>Fall Protection and Rescue (initial/attrition)</u>
- (4) <u>Fall Protection and Rescue (re-certification)</u>
- (5) CPR/First Aid Training

There were several other safety and environmental initiatives proposed for FY09 that were not funded due to budget constraints. This training can be funded, at the Regions' discretion, through the limited pot of Regional Training Funds (described in Section 6.19).

6.17 Uncertainty Training

Improving the assessment and communication of uncertainty is a very high priority for the NWS and is receiving increasing attention in the training community. In 2005, the NWS commissioned the National Research Council (NRC) to provide recommendations on how the NWS can more effectively estimate and communicate forecast uncertainty. The resulting report (NRC, 2006) identified several recommendations, from which the NWS is addressing, through a coordination group called the <u>NOAA/NWS Forecast</u> <u>Uncertainty Steering (NFUSE) Team</u>.

The NFUSE Team submitted a series of training requirements for FY09. A primary requirement is to set up a forecast uncertainty learning path, which allows students to take training in a sequential manner, building upon skills in an organized approach to meet a final set of competencies. This learning path identifies the training required to reach a baseline competency to improve forecast decisions regarding high impact events, and to communicate the uncertainty regarding these forecast decisions, within the current forecast process.

Training Division will provide instructional design and publishing support to the NFUSE Team to help establish this learning path, which consists of the following performance goals:

- (1) Explain the need for assessing and communicating uncertainty.
- (2) Identify the practical statistical and guidance knowledge relevant to uncertainty forecasts.
- (3) Apply uncertainty guidance (both within AWIPS/N-AWIPS and on the WEB) to the current forecast process.
- (4) Effectively communicate uncertainty to Emergency Managers and other decision makers.

To assure such a learning path has maximum benefit, an introductory module explaining the motivation for uncertainty training is required. The weather enterprise's efforts to

address uncertainty needs, and identifying uncertainty training resources is also necessary. This effort will begin in FY09.

A NOAA/University of Oklahoma Social Science Initiative for the weather community in Norman, OK will commence. Social scientists will help develop technology-relevant outreach activities for WDTB. Due to budget constraints, NSTEP was unable to allocate additional funds for this effort. WDTB staff will participate, as time permits, in this initiative to try to glean useful information which can be integrated into NWS course development.

6.18 Winter Weather

Winter weather training requirements will be addressed in FY09 with the offering of:

- (1) <u>MSC/COMET Winter Weather Workshop</u> (mostly outside funding)
- (2) WDTB's <u>Advanced Warning Operations Course (AWOC)</u> Winter Weather Track

NSTEP will continue to provide support for the MSC/COMET Winter Weather Workshop, held at COMET and hosted by the Meteorological Service of Canada (MSC). As has been the case for the last several years, NSTEP will provide funding for up to three guest instructors, and up to five students, to attend the course. The <u>AWOC</u> – <u>Winter Weather Track</u> will also continue. This AWOC course, offered via WEB modules and WES simulations, addresses forecast/warning/climatological tools and methodologies for operational winter weather products and customer service issues.

6.19 Regional Training Funds

A small portion of NSTEP Base and AWIPS training funds are allocated directly to the Regions for their use. These are often the only available resource to meet unique training requirements in mission-critical areas. These funds, which have been significantly cut in the last several years, are maintained at the FY 2008 funding level. Without this source of funds, the Regions/NCEP would lose all flexibility in meeting their unique high priority training items. The Regional Training Funds are typically used for the following areas of training, which did not receive sufficient funding in the FY09 NSTEP process:

- Local facilities training
- Local IT training such as system administration, networking, security, etc.
- Specialized safety training
- Additional scientific training from local universities
- Training for administrative personnel
- Travel for NWS/university projects and workshops supporting collaborative research
- Purchase of innovative software to support and enhance distance education and training
- Project and Program Management training, Contracting Officers Technical Representative (COTR) training

The Regions and NCEP are required to submit spend plans for these funds to the Training Division, which then transfers money directly to them. These plans provide useful information on local training needs, and ensures accountability.

7. Mission Impact

With major deployments of new software and equipment (i.e., AWIPS-II, Wind Profiler, Dual-Pol, WRIP, etc), providing the necessary training to the workforce is a mission imperative. However, the total unfunded training activities projected for FY09 is \$2.6 million based on all submitted requirements. This training gap of unfunded needs continues to compromise the NWS' ability to maintain a highly trained workforce and could also impact the agency's ability to meet NWS GPRA and NOAA Strategic goals. Most of the new initiatives and some existing training were either funded at significantly reduced levels or not funded at all. Some examples of mission-critical training not being offered in FY09 are:

- (1) Executive Leadership Seminar (ELS) –This annual course has been deferred to the second quarter of FY 2010.
- (2) Fire Weather Training Funds are not provided for NWS Incident Support Specialists (ISS) to attend training provided by the Department of Homeland Security and other external agencies. Failure to implement this training will result in NWS IMETs and ISS having a knowledge gap when working an incident. This will result in degradation in service support provided to responders.
- (3) Climate Training Workshops (the Climate Variability Symposium at COMET and the Climate Operations Course at the NWSTC) are not being held in FY09. Work will begin on converting the Climate Variability Workshop to a DL course in FY09; not having this training will hinder local staff in their ability to use their climate knowledge to provide effective, high value climate services. This includes the interpretation of NWS climate products, both national and local, and the proper use of climate tools and methodologies into the local office climate services program.

Unfunded training amounts are summarized in Tables 4 and 4a, which contains a list of all submitted training activities for FY09.

8. Cost Advantage Training Initiatives

Training Division is exploring cost advantage training solution initiatives beyond the ongoing expansion of distance learning solutions and blended curricula solutions. A pilot program for FY09 reverses the traditional wisdom which holds that field subject matter expertise is brought to the Training Division for development. While the process is effective, it is limited based on the availability of the training staff. Reversing this process and providing basic instructional design guidance, remote consulting, course development tool guidance and review services to the field may provide a means to increase training development and updates.

The FY09 pilot will work in cooperation with the NOAA Office of Education to leverage its FY09 release of a distance learning curriculum on "Designing Educational Projects". Cost savings can be realized by utilizing the most relevant components of this new curriculum and minimizing travel by using remote consultation and review services. Advantages in empowering field experts with instructional design knowledge and formal methods to develop and validate products will enhance training material productivity.

Four topics are under consideration for the pilot program: Hydrology Vertical Datums, BOIVerify, Smart Tool and Diversity training. Release of the Office of Education online curricula and NWSTC staff availability will determine the number of pilot projects for FY09. The Training Division outcome is to field the best training and educational products and to continue to explore alternative methods to minimize the current training gap.

9. Summary

Effective training is vital to maintain a proficient and highly effective NWS workforce. The budget environment, combined with the pace and magnitude of scientific, technological, and cultural change, continues to challenge our ability to provide our employees with the knowledge, skills, and abilities they need to execute the mission of NOAA and NWS. The Training Division has pledged to leverage technology in the use of innovative distance learning and blended learning solutions. While these methodologies offer dramatic cost reduction per student, it is important for system deployment and manpower planning purposes to recognize they carry a significant increase in development and maintenance time and do not eliminate the need for residence training. The 2006-2010 Human Capital Strategic Plan, approved in 2005 by the NWS Corporate Board, continues to be a guiding document to move training in the NWS forward. The plan lays out specific training strategies objectives and outcomes for establishing a world-class workforce. This includes requiring Training Division sign-off on training adequacy before implementing new systems or major upgrades. While these goals are deliberately ambitious, they must be incorporated into the NSTEP and PPBES processes to ensure we retain our focus on training as a priority. As stated in the Plan, we are directed to "maintain excellence in the face of change by safeguarding the most valuable asset of NOAA's National Weather Service - the NWS workforce."

10. Acknowledgments

The OCWWS Training Division's NSTEP Program Leader acknowledges the efforts of those who significantly contributed to the FY09 NSTEP process. First, thanks to WDTB Chief Ed Mahoney and FDTB Chief Tony Mostek for their development of an interactive spreadsheet which allows for complete training budget and FTE resource allocation tracking. The Program Area Team Leads worked tirelessly and under severe time constraints to produce NWS training requirements for FY09. Their technical expertise and the results of their efforts were important contributions to the process. The efforts of the HOTG and their staffs are also greatly appreciated. They performed the difficult task of evaluating the training initiatives in terms of appropriate methodologies and required resources. The FRG is gratefully acknowledged for their ongoing efforts and dedication throughout the NSTEP process. The FRG in concert with the HOTG and select NWSH representatives reviewed all the training initiatives, and then prioritized and recommended the training to be offered to NWS employees in FY09.

Special thanks goes out to Michael T. Smith of the OCWWS Resource Management Staff, who quickly developed the online database which allowed TNS entry, analysis and prioritization.

Appendix 1: International Training Plans

COMET International Training

NOAA's NWS International Activities Office (IAO) provides funds to the COMET Program for translation of their online training materials. NWS/IAO intends to fund Spanish translations again for FY09. Additional international activities will be identified and conducted as funding is provided in FY09.

Appendix 2: Out Year Training Needs (FY 2010)

One of the shortfalls of the NSTEP process has been the lack of multi-year strategic planning (the "S" in NSTEP). For the past several years, NSTEP and its companion Implementation Plan has been mainly a single year, tactical document, not explicitly linked to any out year planning processes such as NOAA's PPBES and NWS' OSIP. Another consequence of focusing on single year training needs is the possibility that a training effort may not be seen through to completion. For instance, for a new course with a large target audience, training must occur over several fiscal years in order to train everyone in that target audience.

In FY09, Training Division and the HOTG have taken steps to "put the "S" back into NSTEP". The HOTG held a series of meetings with key NOAA PPBES Program Managers to educate them about existing NWS training activities within their programs, planned training activities, and to ensure they account for training in their Program Operating Plan (POP) submissions. We expect to have a continuing dialogue with these key decision makers to find ways to resource needed training for the next several years. In fact, for the first time, these managers will be afforded the opportunity to review this Implementation Plan and provide feedback before it is signed by the OCWWS Director.

In addition, Training Division examined all current OSIP projects, and have indicated which projects will have current and future training needs if they are implemented. Finally, Training Division has committed to better tracking its training, especially new initiatives, to ensure sufficient resources are allocated to see it through to completion.

Based on discussions at the May 2008 NSTEP meeting, the following training items were agreed to be deferred to, or must be held in FY 2010:

- ELS
- COMET Mesoscale Analysis and Prediction (COMAP) Course
- Dual-Pol Training
- AWIPS-II Training
- Safety Training

	Table	1 - FY09 In-F	Residence Train	ing																			
					-				Course	Slots								osts per Cou	rse			L	
		Funding	Students /		Courses								Reqstd		Class	Class		Instructor			Single		Total
THOID	NWOTO	Source	Course	Course	Funded	AR	CR	ER	PR S	RWR	NCEP	Other	Slots	Need	Hotel	PerDiem	Hotel	Per Diem	Contracts	Supplies	Course	<u> </u>	Cost
-	NWSTC	1000		10				-			-	-	05	1.00	0 11 070							<u> </u>	
EE01	ASOS Maintenance	ASOS	8	13	3	2	6	5	2 8	3 10	0	2	35	4.38	\$ 14,072	\$ 12,600				\$ 1,334	\$ 28,006	5	84,018
EE02	ART Rawinsonde System Maintenance	Base	7	12	1	1	0	1	3 1	1	0	1	8	1.14	\$ 11.629	\$ 10.150				\$ 1.000	\$ 22.779	s	22.779
EE03	CRS Maintenance	Base	8	6	3	2	6	4		3 7	-	1	30	3.75	\$ 7.036						\$ 16.838	Ś	50.514
EE05	NWR / Armstrong Transmitter Maintenance	Base	5	3	5	0	8	8		5 10	0	0	35	7.00	\$ 1,954						\$ 6,646	Ś	33,230
EE06	NWR / Crown Transmitter Maintenance	Base	5	3	5	1	8	6			0	0	22	4.40	\$ 1,954						\$ 6,646		33,230
EE07	NWR / SRS Transmitter Maintenance	Base	4	3	1	0	0	1		2	-	0	4	1.00	\$ 1.564					\$ 253			5,317
EE10	RRS Maintenance (attrition)	Base	6	7	2	0	6	6	0 1			0	27	4.50	\$ 5,863						\$ 13,559		27,118
ME47	CRS Network Operations	Base	8	3	3	1	6	2	1 9		0	1	25	3.13	\$ 3,127					\$ 506		Ś	31.899
OB01	Data Acquisition Operations	Base	16	3.5	1	4	12	8		2 4	0	0	43	2.69	\$ 6,254		\$ 391	\$ 875	1	\$ 1,076		\$	22,596
OB03	Cooperative Network Operations	Base	16	8	2	2	10	8		5 7	0	0	48	3.00		\$ 19,600	\$ 2,736		1	\$ 2,148		\$	90,216
LE01	Management and Supervision	Base	20	9.5	2	2	10	8	3 5		4	5	43	2.15	\$ 23,453	\$ 25,500	\$ 391		\$ 5,539	\$ 4,592	\$ 61,025	\$	122,050
LE05	Field Operations Management	Base	24	4.5	2				5			4	9	0.38	\$ 11,726				\$ 5,000	\$ 1,946	\$ 40,873	\$	81,746
SA01	Environmental Compliance (attrition)	Base	26	3.5	1	4	3	5	3 5	5 4	1	1	26	1.00	\$ 10,554	\$ 23,625			\$ 36,000	\$ 3,509	\$ 73,688	\$	73,688
SA03	Fall Protection & Rescue (initial/attrition)	Base	19	2.5	2	3	5	5	3 6	6 12	0	5	39	2.05	\$ 5,570	\$ 15,675			\$ 14,288	\$ 1,777	\$ 37,310	\$	74,620
SA04	Fall Protection & Rescue (recertification)	Base	16	2.5	9	10	28	36	12 1	5 15	0	41	157	9.81	\$ 9,381	\$ 15,600			\$ 12,032	\$ 1,851	\$ 38,864	\$	349,776
SA05	Safety Training (attrition)	Base	28	3.5	1	4	3	8	3 5	5 4	0	1	28	1.00	\$ 11,336	\$ 25,375			\$ 36,000	\$ 3,636	\$ 76,347	\$	76,347
WM04	WCM/SCH Course	Base	33	8	1	2	6	9	2 6	6 6	2	0	33	1.00	\$ 37,622	\$ 42,875	\$ 782	\$ 5,125	\$ 3,700	\$ 4,505	\$ 94,609	\$	94,609
																						L .	
HY03	Advanced Hydrologic Applications	AWIPS	8	3	3	1	6	4	1 7	4	0	2	25	3.13	\$ 3,127	\$ 7,000	\$ 391	\$ 875		\$ 1,300	\$ 12,693	\$	38,079
IT01	AWIPS-I System Manager	AWIPS	16	12	1	3	3	5	1 6	6 4	0	2	24	1.50	\$ 26,580	\$ 24,400				\$ 2,549	\$ 53,529	\$	53,529
IT04	Linux for WFOs/RFCs	AWIPS	12	8	2	6	15	3	3 1	0 8	0	3	48	4.00	\$ 12,899	\$ 14,700				\$ 1,380	\$ 28,979	\$	57,958
EE08	WSR-88D Maintenance	NEXRAD	8	25	3	0	6	4	0 4	1 8	0	2	24	3.00	\$ 28,925	\$ 20,200				\$ 2,456	\$ 51,581	\$	154,743
EE09	WSR-88D Open RDA Maintenance	NEXRAD	12	6	3	0	5	12	0 1	0 3	0	2	35	2.92	\$ 10,554	\$ 13,500				\$ 1,203	\$ 25,257	\$	75,771
EE12	WSR-88D Refresher Training	NEXRAD																					
EE21	WSR-88D MLOS Maintenance	NEXRAD	2	3	1	0	0	0	0 0) 2	0	0	2	1.00	\$ 2,932	\$ 3,525				\$ 646	\$ 7,103	\$	7,103
EE23	RRS Maintenance (deployment)	RRS	6	7	5			TBD -	Based o	n Depl	oyment So	hedule		5.00	\$ 5,863	\$ 7,050				\$ 646	\$ 13,559	\$	67,795
																						L	
	Total NWSTC Residence	-								_												\$	1,728,731
	WDTB											-	1	1							1	I	
ME01	WSR-88D Distance Learning Operations Course	NEXRAD	24	4.5	5	1	1		1 1	- 1	1		120	5.00	\$ 9,000	\$ 23,664		1		\$ 2,800	\$ 35,464	s	177.320
	3					1	1		1 1		1	1			+ -,	+ _0,000				+ _,		F	
	COMET																					L	
ME49	Canada Winter Weather Workshop	Base	5	8	1	2	1	1	0 0) 1	0	0	5	1.00				1			\$13.000	<u> </u>	\$13.000
				-		1					-	1	1 -										,
	Total Base Funded Residence Courses		\$ 1,202,735				*																-
	Total AWIPS Funded Residence Courses		\$ 149,566																				
	Total NEXRAD Funded Residence Courses		\$ 414,937																				
	Total ASOS Funded Residence Courses		\$ 84,018																				
	Total RRS Funded Residence Courses		\$ 67,795				1				1						1		1			1	

Table 2a - FY09 BASE Resourced Training - by Training Facility

Note: C=COMET, F=FDTB, N=NWSTC, W=WDTB, OS6=NWS HQ

DL = Distance Learning; Res = In-residence training

Branch	Method	TNS ID	TNS Requirement	Cos	st (K)	Comments
ALL	Support		International Weather and Water Leadership	\$	72	\$51K COMET; \$21K WDTB
F/N/W	Support	IN01	Support NWS LEARN Center and Sub LEARN Centers	\$	85	\$85K to WDTB; The NWS LMS focal point and CIMMS support staff
F/N	Support	HY22	Vertical Datums	\$	-	Online module development from existing CR presentation
COMET	DL	CL01	Virtual Climate Variability Symposium Development/Offering	\$	6	Costs cover NWS instructor to develop virtual course
	DL	FW02	S-591 Advanced Fire Weather Course	\$	-	Funds for COMET to update S-591 - part of COMET Grant
	DL	FW08	S-290 Intermediate Wildland Fire Behavior Course	\$	401	Part of NWS COMET core funding
	Res	ME49	Canada Winter Weather Workshop	\$	13	Funds to send 3 NWS Instructors and up to 5 NWS Students
	DL	NP01	Effective Use of Numerical Weather Prediction (AWIPS-I)	\$	90	NWP Team
FDTB	Support	IS02	Observing and Forecasting Satellite - VISIT Salaries	\$	377	
	DL	ME21	WarnGen Training for OB9+	\$	3	Online course development
	Support	ME34	Introduction to Forecast Uncertainty	\$	-	Work with NFUSE Team to develop Learning Path
NWSTC	Support		FAA's Next Generation Air Transportation System	\$	-	NWSTC participation in DOC JPDO activities
	Res	EE02	ART Rawinsonde System Maintenance	\$	23	1 offering
	Res	EE03	Console Replacement System (CRS) Maintenance	ŝ	51	3 offerings
	Res	EE05	NWR Armstrong Transmitter Maintenance	ŝ	33	5 offerings
	Res	EE06	NWR Crown Transmitter Maintenance	¢	33	5 offerings
	Res	EE07	NWR SRS Transmitter Maintenance	ŝ	5	1 offering
	Res	EE10	RRS Maintenance course (Attrition)	¢	27	2 offerings. This is in addition to RRS Maintenance courses in support of deployment
	DL	EE11	Introduction to NWS Systems	¢ ¢	-	Update existing DL course
	Support		Weather Radio Improvement Plan (WRIP) Deployment Support	Ψ \$	_	Required to support deployment training
	Support		Service Coordination Hydrologist (SCH) Training	¢		Form a Field Requirements Team (FRT) to explore what training is needed for SCHs
	Res	LE01	Management and Supervision (2 offerings)	φ ¢	122	\$61K per course
		LE01		φ	82	\$41K per course
	Res		Field Operations Management (2 offerings)	φ Φ		
	Res	ME47	CRS Network Operations	φ Φ	32	3 offerings
	Res	OB01	Data Acquisition Operations	¢	23	1 offering
	DL	OB02	Data Acquisition for Management	\$	-	Development of DL course
	Res	OB03	Cooperative Network Operations	\$	90	2 offerings
	Res	SA01	Environmental Compliance (Attrition)	\$	74	1 offering
	Res	SA03	Fall Protection and Rescue (Initial/Attrition)	\$	75	2 offerings
	Res	SA04	Fall Protection and Rescue Recertification	\$	350	9 offerings - 1 at NDBC in Stennis, MS; 1 each in Alaska and Hawaii; 6 at NWSTC
	Res	SA05	Safety Program Management (Attrition)	\$	76	1 offering
	Res	WM04	WCM/SCH Course	\$	95	1 offering
OS6	Support		Operational Climate Course in Pacific Region	\$	11	Pacific Region is also providing \$11K. Managed by OCWWS Climate Services Division
	Support		Incident Meteorologist (IMET) Workshop	\$	192	Held in Boise, ID. Managed by OCWWS Fire Weather Program Manager
	Support		Hydraulic Modeling (HEC-RAS) Training	\$	35	For NWS staff to attend external vendor training
	Support	HY26	River Forecast Center (RFC) Workshops	\$	60	Managed by OCWWS Hydrologic Services Division
	Support	SA08	CPR/First Aid Training	\$	64	To be distributed as supplement to Regional Training Funds
			TOTAL BASE FUNDING - TABLE 2A			
			COMET	\$	561	
			FDTB	\$	380	
			NWSTC	\$	1,190	
			WDTB	\$	106	
			OS6	\$	362	
				\$	2,598	
				¥	_,000	

Table 2b - FY09 AWIPS Resourced Training - by Training Facility

Note: C=COMET, F=FDTB, N=NWSTC, W=WDTB, OS6=NWS HQ

DL = Distance Learning; Res = In-residence training

Note 2: All funds are AWIPS O&M Funds EXCEPT IT09, which are AWIPS PAC funds

F/N			TNS Requirement	Cost (K) Comments
1719	DL	IT06	AWIPS-II Focal Point Deployment Training	\$ 36	Funds to NWSTC; GFE/IFPS, Gridded MOS, Station-Based MOS, GFS LAMP, WarnGen
F/N/W	DL	IT17	AWIPS-II Variance Training	\$ 26	Funds to WDTB (.2 FTE and .3 CIMMS)
C/F/W	DL	NP01	Effective Use of Numerical Weather Prediction (AWIPS-I)	\$ 161	NWP Team. \$26K to WDTB (to provide Inst Design Support), and \$135K to COMET
C/F	DL	NP05	NWP Operational Matrix Management (AWIPS-I)	\$ 75	Add assimilations to matrix. NWP Team. Funds to COMET
	DL	NP06	Rapid Refresh WRF (AWIPS-I)	\$ 15	
FDTB	DL	DS02	Graphical Forecast Editor (GFE) New Build Training	\$-	Web-based training
	DL	ME29	BOIVerify Training	\$-	Learning Path of modules
NWSTC	DL	DS03	NWSTC IFPS/GFE Focal Point Course	\$-	
	DL	DS05	Smart Tools and Initializations Training	\$-	
	DL	HY02	WFO Hydrologic Applications DL Course (AWIPS-I)	\$5	
	Res	HY03	Advanced Hydrologic Applications (AWIPS-I)	\$ 38	
	DL	HY04	AWIPS-I Hydrometeorology Software Update Training	\$5	
	DL	HY05	RFC AWIPS-I Software Changes DL Modules	\$-	
	DL	HY06	AWIPS-I Hydromet Distance Learning Modules	\$ 4	
	DL	HY23	WFO Hydrologic Operations DL Series (AWIPS-I)	\$-	
	Res	IT01	AWIPS-I System Manager Course	\$ 54	Transitioning to AWIPS-II, only one class
	Res	IT04	Linux for WFOs/RFCs	\$ 87	
	Support	IT05	AWIPS-II Developer Training	\$ 46	Required to complete development lab training
	DL	IT07	AWIPS-II System Administration Deployment	\$ 13	
	DL	IT08	AWIPS-II Local Applications Development	\$ 20	
	DL	IT10	AWIPS-II OT&E Support Training	\$ 45	
OS6	Support	IT18	WES-II Raytheon Collaboration (AWIPS-II)	\$75	Mandated to ensure WES-II meets training needs
WDTB	DL	IT06	AWIPS-II Focal Point Training (Warning Related)	\$ 68	FFMP, Radar, SCAN, GUARDIAN, Prep for Svr Wx, Snow, TOA
	DL	IT09	WES-II incorporating AWIPS-II	\$ 131	PAC Funding; Moving WES into the AWIPS Baseline
	DL	ME20	AWIPS-I Warning-Related Delta Training	\$ 106	For AWIPS Training Development
	DL	ME22	WES Development and Support (AWIPS-I)	\$ 137	
			TOTAL AWIPS O&M FUNDING - TABLE 28		
			COMET	\$ 225	
			FDTB	φ 220 ¢	
			NWSTC	ۍ چې \$ 353	
			OS6	\$ 353 \$ 75	
			WDTB	\$ 75 \$ 363	
				\$ 1,016	
			TOTAL AWIPS PAC FUNDING - TABLE 2E	•	
			WDTB	\$ 131	

Table 2c - FY09 NEXRAD Resourced Training - by Training Facility

DL = Distance Learning; Res = In-residence training

Branch	Method	TNS ID	TNS Requirement	Co	ost (K)	Comments
NWSTC	Res	EE08	WSR-88D Maintenance	\$	155	
	Res	EE09	WSR-88D ORDA Maintenance	\$	76	
	Res	EE12	WSR-88D Refresher Training	\$	20	Pilot Course to be offered
	Support	EE15	Terminal Doppler Weather Radar Program Support	\$	-	
	Support	EE18	TPMS Maintenance - Powerware Course	\$	16	
	Support	EE20	Wind Profiler Deployment Support	\$	5	
	Res	EE21	WSR-88D MLOS Maintenance	\$	7	
	Support	EE22	NEXRAD Dual-Polarization Development Support	\$	5	
WDTB	Blended	ME01	Initial Radar Operations Training (DLOC)	\$	279	Distance Learning and Workshops - Capacity 120 Slots (5 workshops)
	DL	ME12	AWOC - Core Decision Making	\$	30	AWOC Core Track
	DL	ME13	AWOC - Severe Weather Warnings	\$	28	AWOC Severe Track
	DL	ME15	AWOC - Winter Weather Warnings	\$	15	AWOC Winter Track
	Blended	ME28	WSR-88D Operations Build Training	\$	28	Blended Learning Approach. Build Training
	DL	ME45	Effective WSR-88D Operations through VCP Selection	\$	17	
			TOTAL NEXRAD FUNDING - TABLE 2C			
			NWSTC	\$	283	
			WDTB	\$	396	
				\$	679	

Table 2d - FY09 OTHER Resourced Training - by Training Facility

Note: C=COMET, F=FDTB

DL = Distance Learning; Res = In-residence training

Branch	TNS ID	Method	Source	TNS Requirement	Co	st (K)	Comments
C/F	IS03	DL	NESDIS	Earth Observing and Forecasting Satellite - GOES-R+	\$	300	
	IS04	DL	NPOESS	Earth Observing and Forecasting Satellite - NPOESS	\$	268	
COMET	AV04	DL	Aviation	DLAC-II - Producing Customer-Focused TAFs	\$	263	
	HY19	DL	Hydro+	QPF for Hydrologic Modeling	\$	112	Hydro Team. Previously RFC/HPC Hydromet Course
	HY20	DL	Hydro+	Short and Long Term Ensembles	\$	11	For module development and COMET support
	HY21	DL	Hydro+	Deterministic and Probabilistic Verification	\$	130	Hydro Team.
	HY29	DL	Hydro+	Quantitative Precipitation Forecast (QPF) Verification	\$	144	Hydro Team. Develop two 2-hour modules
FDTB	IS01	Blended	NESDIS	Observing and Forecasting Satellite - SHyMet	\$	164	
	IS05	Support	NESDIS	Observing and Forecasting Satellite - Proving Ground	\$	11	
NWSTC	AV02	Support	Aviation	Air Traffic Control System Command Center Weather Unit	\$	-	Participate in DOC JPDO activities
	EE01	Res	ASOS	ASOS Maintenance	\$	84	3 offerings
	EE01	Support	N/A	ASOS Maintenance (Military)	\$	-	FTE support to teach ASOS Maintenance course for military
	EE23	Res	RRS	RRS Maintenance (Deployment)	\$	68	5 offerings
WDTB	AV10w	DL	Aviation	Distance Learning Aviation Course (DLAC)-II - Simulations	\$	74	Support DLAC-II Training Modules (See AV04)
	ME23	DL	Dual-Pol	WSR-88D Dual-Polarization Operations Course	\$	161	LMS Online Module Development
	ME39	DL	Dual-Pol	WSR-88D Dual-Pol Education and Outreach	\$	46	Web-based Module Development
	ME41	DL	FY08	Using the Integrated Warning Team	\$	25	\$12.5K for Matching Sea Grant Funds + \$13K from FY08/Hydro+ (8K FY08 + 5K Hydro+)
	ME41	Support	SeaGrant	Using the Integrated Warning Team	\$	13	FY09 Norman Severe Weather Workshop Support. SeaGrant Funding.
	ME43	DL	FY08	Advanced Storm-Based Warnings Training	\$	17	FY08 end-of-year funds used
				TOTAL OTHER FUNDING TABLE 2D			
				Aviation	\$	337	
				ASOS	\$	84	
				Dual-Pol	ŝ	207	
				FY08	Ś	50	
				Hydro+	\$	401	
				NESDIS	Ś	475	
				NPOESS	\$	268	
				RRS	\$	68	
				SeaGrant	\$	13	
					\$	1,901	
					Ψ	1,001	

Table 3 - FY09 Training Division Infrastructure and	Mandated Tra	inin	g				
			FY09 F	undi	ina		
	BASE		AWIPS		IEXRAD	OTHER	Comments
						0	
Total Training Budget (from PPBES Local Forecasts and Warnings)	\$ 5,119,000	\$	1,163,700				Assumes level funding from FY08
Training Division Headquarters (OS6) Infrastructure							
OS6 HQ Base Operating Budget	\$ 40,000						
Communications for Teletraining/Teleconferencing	\$ 10,000						
AMS Journals	\$ 130,995						Reflects change from JHM to Weather and Society
Learning Management System Charges	\$ 144,000	_					
NSTEP Meeting	\$ 30,000						
HOTG Planning Meetings (2)	\$ 20,000	_					1 in Silver Spring; 1 offsite
IMET Workshop (required for IMETs - Annual)	\$ 191,900						Boise Residence Course
Training Division Buffer Fund	\$ 38,760						
NUMETO Managed Infrastructure							
NWSTC (OSS4) Data Orientian Durlet	\$ 317.000						
NWSTC (OS61) Base Operating Budget	\$ 317,000						
NWS Leadership Academy: Breakouts in Table 1. 1 course of each is funded:							
Management and Supervision (mandated by OPM via new supervisor training) (1)	\$ 61,025						Also in Table 1
Field Operations Management (1)	\$ 40,873						Also in Table 1
Safety Related Courses - Mandated by OSHA - Costs are Estimates							
Fall Protection and Rescue Initial (fund based on Olga's estimate)	\$ 74,620						Also in Table 1
Fall Protection and Rescue Recertification	\$ 349,776						Also in Table 1
Environmental Compliance	\$ 73,688						Also in Table 1
Safety Training	\$ 76,347						Also in Table 1
Total Base Residence Courses	\$ 676,329						
CPR/First Aid Training	\$ 64,000						Divide amongst Regions
Equipment Maintenance Training - Fund Based on Program Estimates	+ 01,000						
ASOS Maintenance						\$ 84.01	8 ASOS funded - Also in Table 1
RRS Maintenance						\$ 67,79	5 RRS funded for new RRS deployment sites - Table 1
Open RDA Maintenance				\$	75,771	<i>•</i> ••••••	NEXRAD funded - Also in Table 1
WSR-88D Maintenance				\$	154,743		NEXRAD funded - Also in Table 1
WDTB Managed Infrastructure					,		
WDTB NEXRAD Operating Budget				\$	538,000		
GoToMeeting Licenses - Managed by WDTB for all OS6	\$ 11,250			•	,		\$450. each license
EDTP Managed Infrastructure							
FDTB Managed Infrastructure		+					
AWIPS-I/AWIPS-II/N-AWIPS Development		\$	315,000				Will not be paid for out of AWIPS in FY10
COMET Grant Core Funding (BASE) - Also includes Hydrology Team (OHD and NSTEP contribution)	\$ 2,188,000						
FDTB (OS63) Base Operating Budget	\$ 47,744						
AWIPS Support		\$	5,000				Instructor Travel
VISIT Salaries - Integrated Sensor Training	\$ 390,000						restores 07 and 08 cuts
Totals	\$ 4,299,978	\$	320,000	\$	768,514	\$ 151,81	3
Remaining in Base & AWIPS	\$ 819,022	\$	848,700				

Table 4 - Prioritized FY09 Unfunded or Not FTE- Staffed Training Requirements (7/30/08)

Note: Items in Italics have no cost, but do require FTEs above and beyond OS6 current resources N=NWSTC, F=FDTB, V=VISIT, W=WDTB, CI=CIMMS

# Branch TS Discourcement FIG PM \$100 MUST RVM Connents 1 NWSTC LES Excurbes allesdering Seminar 1.33 \$7.8 2.13 0 Not and NVS MET's to DVS ARE AVAILABLE 2 OSE FVXRD DK Indered Support Special Hequined Training 1.33 \$7.8 2.13 0 Not and NVS MET's to DVS Textones 3 ONTET CONTET Not and the processes Virtual Course 1.43 \$7.8 2.23 0 Not and the processes Virtual Course 4 MVSTC CONTET Not and the processes Virtual Course 1.43 \$7.4 \$7.8 \$7.9 2.29 0.11 Vould Terrespond on the processes Virtual Course 1.43 \$7.4 \$7.4 \$7.4 \$7.4 \$7.4 \$7.4 \$7.4 \$7.4 \$7.4 \$7.4 \$7.4 \$7.4 \$7.4 \$7.4 \$7.4 \$7.4 \$7.4 \$7.4 \$7.4 \$7.5 \$7.4 \$7.5 \$7.7 \$7.5 \$7.7 \$7.7 \$7.7 \$7.7 \$7.7 \$7.7 \$7.7 \$7.7			,,,,					OS6	
2 0.88 FW0 DHS Incident Support Specialis Required Training 1.31 3 7 5 213 0 St usern MVS IMETs to IAV200FER Training 3 0.85 FW0 DHS Incident Support Specialis Required Training Truind and Special Support Specialis SME 1.03 2 28 0.25 Depends upont the number of optional scatchings 4 COMET MEST to MX000FER Conside SME 1.03 3 2.80 1.07 Woad fund scatching 1.07 <td< th=""><th>#</th><th></th><th></th><th></th><th></th><th><u>`</u></th><th></th><th></th><th></th></td<>	#					<u>`</u>			
3 0.98 FW03 HAZVAPER Taming For Incident Support Sequentiates 1.50 8 20 2.02 Depends upon the number of pointomi workshops. 5 WWTC 0.800 East Acquisition Operations residence ocurse (0.2 Min diversity). 1.83 5.0 2.28 0.28 Depends upon the number of pointomi workshops. 6 COMET MET to Acquisition Operations residence ocurse (0.2 Min diversity). 1.83 5.00 2.28 Depends upon the number of pointomi workshops. 7 COMET MET to Acquisition Operations residence ocurse 2.00 5.4 5.00 2.00 COMET Met to Acquisition Weinshops. 2.00 5.4 4.01 Depends upon the number of pointal workshops. 10 COMET MET to Acquisition Weinshops. 2.00 5.44 4.01 Depends upon the number of pointal workshops. 12 NWTC HT to Acquisition Weinshops. 2.00 5.44 5.01 0.11 Continue COMET Sectors 2.00 5.44 5.01 0.11 Continue COMET Sectors 2.00 5.44 5.01 0.01 Depends upon the number of pointal workshops. 2.01 1.0									
4 CONET MS3D Relancel and Creat Laker Marine Training Vinaul Course 1.43 \$ 2.5 2.50 0.2.F 0.2.F 0.0.ST FE outside SME 6 CONET MS3D Course for YS03 cours									
5 WMTC 0801 Deta Aquation Operations residence course (00 2nd offering) 1.47 \$ 3 \$ 2.89 0.1.1 Counter (MC) 0.0.67 FEC outside SNEE 7 WMSTC CLU2 Operational Charate Sectors 1.33 \$ 4.8 3.47 0 Devolution for most of operation contained Model fund accurse limit on climate Sectors 7 WMSTC CLU2 Operational Charate Sectors 1.33 \$ 4.8 3.47 0 Devolution contained on the number of operation divolution. 6 COMET HEID Number Methoday Vintal Course 1.33 \$ 4.8 3.47 0 Devolution simulation counter divolution for course of the number of operation divolution for Course of the Number of operation divolution for Course of the Number of operation divolution for Course of the Number of Course of the Number of Operation divolution for Course of the Operation divolution for Course of the Number of Operation divolution for Course of the Operation divolution for Co			• • •						
6 COMET Me37 Soundary Layer Processes Vintual Course 1.3 \$ 9 2.99 0.17 COMET repeating of Link Services Residence Course 8 COMET Coll 20 cynational Climate Services Paraleliated at Nutional Weather Center 1.33 \$ 48 6 77 2.67 Depends upon the number of optional workshops. 9 COMET Coll 20 cynational Climate Services Paraleliated at Nutional Weather Center 1.33 \$ 48 5 30 \$ 477 Depends upon the number of optional workshops. 10 Coll 20 cynational Climate Services Paraleliated at Nutional Weather Center 2.00 5 30 \$ 477 Depends upon the number of optional workshops. 11 Coll 20 cynational Climate Services Paraleliated at Nutional Weather Center 2.00 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 7 6 6 0 Nutritional Sources Paraleliated at Nutritional Weather Center 7 5 6 5 0 Nutritional Sources Nutritio								0.2 F	
7 WNSTC CLU2 Operations Climate Services Residence Course 1.3 \$ 4 \$ 37 0 Would fund i course offening. 0.05 FLE from Climate 9 COMET CL03 Climate Services and Outseed from Course 2.00 \$ 30 \$ 477 0.2 P Depends youth a fundation of potical workshops. 10 COMET CL03 Climate Services and Outseed from Course 2.00 \$ 43 4 0 Develop withal course offening. 0.05 FLE from Climate 11 COS FM24 Call Regions Hydrology Workshop 2.00 \$ 43 4 0 Develop withal course offening. 0.05 FLE from Climate 11 COMET CL01 Cli Warabity Symp at COMET (2 Winual FV00 offening) 2.03 \$ 47 5 601 No No No S 400 \$ 41 Develop web modules on Tunamis Science and TWC Operations 14 COMET CL01 Cli Warabity Symp at COMET (2 Winual FV00 offening) 2.03 \$ 40 \$ 86 0 Module Develop web modules on Tunamis Science and TWC Operations 17 WWSTC CL03 Cli Warabity Symp at COMET (2 Winual FV00 offening) 2.03 \$ 40 \$ 40 \$ 40 \$ 40 \$ 40 \$ 40 \$ 40 \$ 40 \$ 40 \$ 4	5	NWSTC	OB01 Data Acquisition Operations residence course (09 2nd offering)	1.67	\$	30	\$ 289	0.1 N	Would fund second offering of course for FY09; 0.05 FTE outside SME
8 COMET ME11 Munutain Meteorology Virtual Course 1.33 \$ 377 0.27 Depends upon the number of optional workshops. 9 COMET LG33 Clinates Services and Ourseaft wells may be been of mate force & NOAA Office of Bucation for Ourseaft Spri-FE short 10 COMET ME09 New SOD Taining - OFF & Flash Flood Florecasting 200 \$ 40 8 517 0.24 Beneficia Contrained SyrCMWS HSD 12 WWST H'13 Mir/Digot Departaint (FFL) Relatione Course 2.00 \$ 40 \$ 517 0.24 0.10 Actional BWE 12 OWST H'13 Mir Digot Departaint (FFL) Relatione Course 2.00 \$ 40 \$ 617 0.24 0.10 Actional BWE 13 COMET LD10 Clineatistic Relation (Feal on Actional BWE 2.00 \$ 617 0.20 0.10 Actional BWE 14 COMET LD10 Clineatistic Relation (Feal on Actional BWE 2.00 \$ 3.0 8.00 0.10 Actional BWE 0.10 Actional BWE 17 WWSTC SA10 Specialized Staty Training for Remote NUS Personnel 2.00 5									
9 COMET CL03 Climate Services and "Quereach (web module) 2.00 \$ 30 \$ 407 0 Liaizen between dimate office & NOAA Office of Education for Outreach Spri - FTE shott 11 COMET Mr24 Cold Regions Hydrology Workshop 2.00 \$ 44 \$ 443 0 Develop a virtual course 12 COMET Hr11 Flash Flood Operation (FFQPE Residence Course) 2.01 \$ 46 \$ 471 0 Ru and Coordinated by OCWWS HSD 13 COMET Hr11 Flash Flood Operation (FFQPE Residence Course) 2.17 \$ 67 \$ 844 0.1 Forder National Course 14 VMSTC Loss Sympa to MMET Service Training Service Training CPC Hazards Corporation Training CPC Hazards Corporation 16 WMSTC Loss Sympa to MMET Service Training 2.33 \$ 35 8 65 0.05N Help OR, R.P., PA, N.WSH Degin programs moduled after BLAST, LIFT 17 WSTC Loss State State Training OR Remote NWS Personnel 2.50 \$ 407 \$ 853 0.05N Help OR, R.P., PA, N.WSH Degin programs moduled after BLAST, LIFT 18 PDTB ME18 Graphical Forecast Eduto (STP) Projecs (NTP) 2.50	7	NWSTC	CL02 Operational Climate Services Residence Course	1.83	\$		347	0	Would fund 1 course offering; 0.05 FTE from Climate
10 COMET HEDS New SOD Training - OPF & Flaish Flood Toreasting 2.00 \$4 \$4 411 0 Develop a virtual course 11 OS6 HY3 CM Reports Hydrogy Workshop 2.00 \$4 \$5 471 0 Run and Coordinated by OCWN HSD 12 NWSTC HY3 CW Polytology Program Manager Residence Course 2.00 \$4 \$5 571 0 Run and Coordinated by OCWN HSD 12 COMET C.01 CU virability Symp at COMET (2 Virual PV00 offening) 2.33 \$135 135 855 0.05 N Develop a virual course 0 14 COMET C.01 CU virability Symp at COMET (2 Virual PV00 offening) 2.33 \$135 95 0.05 N Develop a virual course 0 Develop a virual course 14 COMET F107 GIS Functionersitil Division Linearing Modules (Virual) 2.33 \$15 95 0.05 N Module Develop a virual course 0 Nortains CoMET Flash Flood CPE residence Course 19 WISTC SA10 Separating Konzon Process Edu (C) CEP COMET Nortains Comet Flash Flood CPE residence Course 2.05 N Nortains Comet Flash Flood CPE residence Course 0 Module Develop neint Module Develop	8	COMET	ME11 Mountain Meteorology Virtual Course	1.83	\$	30	\$ 377	0.2 F	Depends upon the number of optional workshops.
11 056 HY22 Cold Regions Hydrodgy Workshop 2.00 \$ 40 \$ 10 Run and Coordinated by OCWWS HSD 13 COMET HY13 WFO Hydrodgy Program Manager Residence Course 2.17 \$ 6 5 17 0.2 No.1 ackternal SME 14 COMET HY11 Fish Fibod Operations (FF/DFR Residence Course) 2.17 \$ 6 5 57 0.5 N 0.1 external SME 15 COMET T303 Tranami Science and Warning Service Training 2.33 \$ 17 NWSTC NWSTC RAR, NWS HQ begin programs modeled after ELAST, LIFT 17 NWSTC EV00 SIG Fundamental Distance Learning Modules (Vinual) 2.33 \$ 17 \$ 8 0.05 N Module Development 10 MWSTC FV07 GIS Fundamental Distance Learning Modules (Vinual) 2.33 \$ 17 NMSTC Notable Development Notable Development 0.05 N Module Development 0.05 N No Str Commet Manager Asia Markanger Asia M	9			2.00	\$		407		Liaison between climate office & NOAA Office of Education for Outreach Sprt - FTE short
12 MVSTC HY13 WFD Hydrology Program Manager Residence Course 200 \$ 6 5 5 4 0.211 \$ 6 5 5 5 5 5 0.1 external SME 14 COMET CLD1 CI Variability Symp at COMET (2 Vitual IV93 offering) 2.33 \$ 17 \$ 6 7 5 55 7.3 0.05 N Develop web modules on Tsunami Science and TWC Operations 16 WWSTC LE66 Support for Leadership Programs (RegionsHdqts) 2.33 \$ 7.8 60.55 N Help CR, ER, PR, AR, NWS HQ begin programs modeled after FLAST, LIFT 17 WWSTC LE66 Support for Leadership Programs (RegionsHdqts) 2.33 \$ 3 8.85 6.05 Nodule Development 0.05 N Help CR, ER, PR, AR, NWS HQ begin programs modeled after FLAST, LIFT 18 PDT8 ME19 Graphical Forecast Effort (GF) Tropical Training 2.50 \$ 3 8.85 1.067 0.27 Nodule Development 9.000 NTDE Webgin Arbitratus Presentation af SOO-provided Cases 2.67 \$ 3 1.114 0 D Process Programs SOO-provided Cases 2.67 \$	10	COMET		2.00	\$	24	\$ 431		
13 COMET HY11 Flash Fload Operations (FF/OPE Residence Course) 2.17 \$ 67 \$ 58.4 0.1 F Control (1 virability Symp at COMET 2.13 \$ 17 600 0.05 N Develop web modules on Tsunani Science and TWC Operations 15 CCMET TS03 Tsunami Science and Warning Service Training 2.33 \$ 13 5 7 600 0.05 N Develop web modules on Tsunani Science and TWC Operations 17 WWSTC Elos Support for Leadership Porgams (Regions/Hdgis) 2.33 \$ 36 0.05 N Module Development Module Development 19 WWSTC SA10 Specialized Safety Training for Remote NWS Personnel 2.50 \$ 40 \$ 866 0.27.027 FTE Shortage. Develop Conse with support from WR and SOOS 21 COMET MESS Uncertainty Statistics Basics 2.67 \$ 96 \$ 1.07 0.27.027 FTE Shortage. Develop Conse with support from WR and SOOS 21 FDTB MWSTC SA11 Sgli Provention, Ortal and Countermeasuus Course 2.67 \$ 91 0.05 N Module Development 0.05 N Module Development 0.05 N Notalia Develop ment modul	11			2.00	\$	40	\$ 471	0	
14 COMET CLDT CII Variability Symp at COMET (2 Virtual FY09 offerings) 2.33 \$17 \$6 0 15 COMET Soliton and Warning Service Training 2.33 \$15 \$7 86 0.05 N Help CR, ER, PR, AR, NWS HG begin programs modeled after BLAST, LFT 16 WWSTC LE06 Support for Leadership Programs (Regions/Hdqts) 2.33 \$15 \$7 86 0.05 N Help CR, ER, PR, AR, NWS HG begin programs modeled after BLAST, LFT 17 WWSTC LE06 Support for Leadership Programs (Regions/Hdqts) 2.33 \$15 \$16 0.05 N Model Development Model Development Model Development Model Development North Covers HE33 Frop Cyc Hazards Graphics; Online course with possible webinars 10 COMET ME38 Uncertainty Statistics Basics 2.67 \$3 \$11 \$10 O PT ES hortage: Develop Anticulate Presentations of SOO-provided cases 20 COMET MWSTC Covers Haining for Covers Haging Education Projects (DEP) 2.67 \$3 \$11 10 Approach applicable to support other needs 21 FDTB HE38 Develop web modules on Tsurami Science ad Warnod Science	12			2.00	\$	46	\$ 517	0.2 N	0.1 external SME
15 COMET T303 Tsunami Science and Warning Service Training 2.33 \$ 135 \$ 7.36 0.05 N Develop web modules on Tsunami Science and TWC Operations 17 WWSTC ELGe Support to Ladership Programs (Regions/Hodgs) 2.33 \$ 80 \$ 86 0.05 N Medip CR, PR, AR, NWS Hob Degin programs modeled after BLAST, LFT 17 WWSTC SATO Specialized Safety Training for Renote NWS Personnel 2.33 \$ 80 \$ 86 0.05 N Module Development 19 WWSTC SATO Specialized Safety Training for Renote NWS Personnel 2.50 \$ 3 \$ 866 0.2 F Also cores Net BC33. Trop Cyc Hazards Graphics; Online course with possible webinars 21 COMET MESS Uncertainty Statistics Basics 2.67 \$ 5 \$ 1,10 0.2 F. Course being; Develop course with support from WR and SOOs 21 COMET MMSTC SATI Specialized Basics 2.67 \$ 1,41 0.1 Vuclual Development 2.60 Note Net Development 2.66 Note Net Development 25 COMET MMSTC Medica Messocial Analysis of Accord 2.67 \$ 1,43 0.16 Vuclual Development 2.67 S 1,43 0 Update dated COMET module Comerevelopment 2.6	13	COMET	HY11 Flash Flood Operations (FF/QPE Residence Course)	2.17	\$	67	\$ 584	0.1 F	Continue COMET Flash Flood/QPE residence course
16 NWSTC LE06 Support for Leadership Programs (Regions/Hdgts) 2.33 \$ 8 80 S 810 0.05 N Help CR, ER, PR, AR, NWS HQ beging programs modeled after BLAST, LIFT 17 NWSTC FWO7 GIS Fundamental Distance Learning Modules (Virtual) 2.33 \$ 8 805 0.05 N Module Development 18 FDTE ME18 Graphical Forecast Editor (GFE) Topical Training 2.50 \$ 3 8 805 0.2 F Also covers ME33 - Trop Cyc Hazards Graphics; Online course with possible webinars 19 NWSTC SA10 Specialized Safety Training for Remote WWS Personnel 2.50 \$ 3 8 806 0.2 F Also covers ME33 - Trop Cyc Hazards Graphics; Online course with possible webinars 20 COMET ME36 Uncertainty Statistics Basics 2.67 \$ 3 \$ 806 0.2 F Course thing; Course with possible webinars 21 COMET ME36 Uncertainty Statistics Basics 2.67 \$ 3 \$ 806 0.2 F Course thing; Course with possible webparent 0.0 Peeteopment 24 FDTE MMSTC ME31 Spite Proteact Training 2.67 \$ <	14	COMET	CL01 Cli Variability Symp at COMET (2 Virtual FY09 offerings)	2.33	\$	17	\$ 601	0	
17 NWSTC FWOT (GiF Lundamental Distance Learning Modules (Virtual) 2.33 \$ 37 \$ 853 0.05 N Module Development 19 NWSTC SA10 Specialized Safety Training for Remote NWS Personnel 2.50 \$ 40 \$ 856 0.27 A Socores NE33 - Trop Cyc Hazards Graphics; Online course with support from VR and SOOs 21 COMET MES3 Uncertainty Guidance Application Basics 2.67 \$ 96 1.107 0.27, 0.27 FE Shortage; Develop Articulate Presentations of SOO-provided cases 21 COMET MES3 Uncertainty Guidance Application Basics 2.67 \$ 5 911 0.007 0.27, 0.27 FE Shortage; Develop Articulate Presentations of SOO-provided cases 23 NWSTC SA11 Split Prevention, Control and Countermeasures Course 2.67 \$ 23 \$ 1.144 0 Module Development 26 COMET MVB1 WAD Wational SY(WARN Spotter Training 2.67 \$ 1.148 0.005 FTE Shortage; Develop Articulate Prevelop Articulate	15	COMET	TS03 Tsunami Science and Warning Service Training	2.33	\$	135	\$ 736	0.05 N	Develop web modules on Tsunami Science and TWC Operations
18 FDTB ME18 Graphical Foresate Editor (GFE) Tropical Training 2.50 \$ 3 8 856 0.2 F Also Secondardial Staty Straining for Remote NWS Personnel 20 COMET ME33 Uncertainly Statistics Basics 2.50 \$ 3 8 971 0 FTE Shortage: Develop course with support from VWR and SOOs 21 COMET ME30 Uncertainly Statistics Basics 2.67 \$ 971 0 FTE Shortage: Develop course with support from VWR and SOOs 22 FDTB WM01 WCM Designing Education Projects (DEP) 2.67 \$ 35 1,142 0.2 F. CV. FTE Shortage: Develop Course with support from VWR and SOOs 24 FDTB WYZT Static Flood Inurdation Mapping 2.67 \$ 3 1,144 0.1 F Webcast/Online module development 26 COMET HE31 Storesate Process Online Course 2.67 \$ 2 1,380 0.05 F FTE Shortage: Develop online module for brasic and advanced spotters. Convert from print materials 27 COMET NWDTS Andona Advanced application Basics 2.67 \$ 5 1,436 0.05 F FTE Shortage: Develop online module for brasic and advanced spotters. Convert from print materials <t< td=""><td>16</td><td>NWSTC</td><td>LE06 Support for Leadership Programs (Regions/Hdqts)</td><td>2.33</td><td>\$</td><td>80</td><td>\$ 816</td><td>0.05 N</td><td>Help CR, ER, PR, AR, NWS HQ begin programs modeled after BLAST, LIFT</td></t<>	16	NWSTC	LE06 Support for Leadership Programs (Regions/Hdqts)	2.33	\$	80	\$ 816	0.05 N	Help CR, ER, PR, AR, NWS HQ begin programs modeled after BLAST, LIFT
19 NWSTC SA10 Specialized Safety Training for Remote NWS Personnel 2.50 \$400 886 0 Module Development 20 COMET ME30 Uncertainty Guidance Application Basics 2.60 \$75 \$970 0 FTE Shortage: Develop Anticulate Presentations of SOO-provided cases 21 COMET ME30 Uncertainty Guidance Application Projects (DEP) 2.67 \$23 \$1,124 0.2 F Course being Converted to DL. Appreach applicable to support other needs 23 WMSTC SA11 Spill Prevention, Control and Countermeasures Course 2.67 \$23 \$1,124 0.1 F Module Development 2467 \$25 \$1,436 0.1 F FTE Shortage: Develop Anticulate Presentations of SOO-provided cases 2467 \$100 \$1,284 0.1 F Update dated COMET module Module Development 2467 \$100 \$1,284 0.0 F FTE Shortage: Develop work-foaset applicable to support other needs 270 COMET MM03 Mational SKYWARN Sporter Training for casating 2.67 \$1,436 0.0 F FTE Shortage: Develop ment. Convert frammational data advanced sporters. Convert from print materials 280 COMET COMET NMVSTC Sh	17	NWSTC	FW07 GIS Fundamental Distance Learning Modules (Virtual)	2.33	\$	37	\$ 853	0.05 N	Module Development
20 COMET ME38 Uncertainty Statistics Basics 2.60 \$75 \$95 10 FTE Shortage: Develop Anciated presentations of SOO-provided cases 22 FDTB WM01 WCM Designing Education Projects (DEP) 2.67 \$35 \$1,102 0.2.7 Course being converted to DL. Approach applicable to support other needs 24 FDTB HV2X Static Flood functation Mapping 2.67 \$24 \$1,144 0.1 FTE Shortage: Develop Anciated presentations of SOO-provided cases 26 COMET HK33 Forecast Process Online Course 2.67 \$23 \$1,144 0.1 FW becast/Online module development 26 COMET MMSTG Test Masks and Analysis of Record 2.67 \$1,436 0 Develop online module for basic and advanced spotters. Convert from print materials 27 COMET WM0R National SK/WARN Spotter Training 2.67 \$1,436 0.0 Develop online module for basic and advanced spotters. Convert from print materials 28 DS07 Real Training Forecasting 2.17 \$5 \$1,466 0.1F FTE Shortage: Develop wole hase and advanced spotters. Convert from print materials 29 DS07 Real Training Forecasting 2.17 \$5 \$1,632 0.0F <td>18</td> <td>FDTB</td> <td>ME18 Graphical Forecast Editor (GFE) Tropical Training</td> <td>2.50</td> <td>\$</td> <td>3</td> <td>\$ 856</td> <td>0.2 F</td> <td>Also covers ME33 - Trop Cyc Hazards Graphics; Online course with possible webinars</td>	18	FDTB	ME18 Graphical Forecast Editor (GFE) Tropical Training	2.50	\$	3	\$ 856	0.2 F	Also covers ME33 - Trop Cyc Hazards Graphics; Online course with possible webinars
11 COMET ME36 Uncertainty Guidance Application Basics 247 \$96 \$1.07 0.27 PUTS Word WCM Uncertainty Guidance Application Projects (DEP) 247 \$9.6 \$1.07 0.27 0.27 FUTS Module Development 24 FDTB HY27 Static Flood Inundation Mapping 2.67 \$1.23 \$1.144 0 Module Development 26 WOTB ME31 Forecast Process Online Course 2.67 \$1.44 0 Updata dated CoMET module 26 WOTB ME31 Forecast Process Online Course 2.67 \$1.44 0 Updata dated CoMET module 26 WOTB ME33 AWOC - Tropical (Vinual Course) 2.67 \$1.58 0 Develop online module of basics and advanced spotters. Convert from print materials 27 COMET NMO3 Keal Training Program 2.67 \$1.56 0.17 ST	19	NWSTC	SA10 Specialized Safety Training for Remote NWS Personnel	2.50	\$	40	\$ 896	0	Module Development
22 FDTB WM01 WCM Designing Education Projects (DEP) 2.67 \$3 \$1,120 0.2 Course being converted to DL. Approach applicable to support other needs 24 FDTB HY27 Static Flood Inundation Mapping 2.67 \$23 \$1,124 0.1 F Wotte 25 COMET ME31 Forecast Process Online Course 2.67 \$23 \$1,124 0.1 F Wotte Module Development 26 WDTB ME33 AWOC - Tropical (Virtual Course) 2.67 \$2 \$1,486 0.05 WTE Shortage; Develop web-based training. Comparitor to ME29 27 COMET WM02 National SKYWARN Spoter Training 2.67 \$1,486 0.05 FTE Shortage; Develop web-based training. Comparitor to ME29 28 DS0 / Real Training Program 2.77 \$5 \$1,486 0 Develop online module for basic and advanced spotters. Convert from print materials 29 OS6 IT13 COTR Training Program 2.77 \$5 \$1,486 0 Develop online module for basic and advanced spotters. Convert from print materials 20 COMET NP02 KWP, Part 1: Application of NWP Proceasting 2.71 \$75 \$1,487 0 Webdoube Develop o	20	COMET	ME35 Uncertainty Statistics Basics	2.60	\$	75	\$ 971	0	FTE Shortage; Develop course with support from WR and SOOs
23 NWSTC SA11 Splil Prevention, Control and Countermeasures Course 2.67 \$2 \$1,124 0 Module Development 25 COMET ME31 Forecast Process Online Course 2.67 \$2 \$1,124 0 Module Development 26 WDTB ME03 AWOC - Tropical (Virtual Course) 2.67 \$1,40 0.1 Pertode WTE Metode development 26 WDTB ME03 AWOC - Tropical (Virtual Course) 2.67 \$1,50 0.05 W FTE Shortage; Develop web-based training. Companion to ME29 27 COMET WM02 National SKYWARN Spotter Training Program 2.67 \$1,50 0.05 W FTE Shortage; Develop web-based training. Companion to ME29 28 DTB DS01 Real Time Mesoscale Analysis and Analysis of Record 2.67 \$1,57 0.16 FTE Shortage; Develop web-based training. Companion to ME29 20 OS6 Training Program 2.67 \$1,587 0.16 VEb Module Development. 2.07 NWSTC 20 VRMTB Avian Training tor Forecasting 2.11 \$1,587 0.16 VEb Module Development. 1.07 VEb Module Development. 0.07 VEb Module Development. 0.0	21	COMET	ME36 Uncertainty Guidance Application Basics	2.67	\$	96	\$ 1,067	0.2 F, 0.2V	FTE Shortage; Develop Articulate Presentations of SOO-provided cases
24 FDTB HY27 Static Flood Inundation Mapping 2.67 \$ 2.0 \$ 1.14 0.1 F Webcast/Online module development 25 COMET ME03 AWOC - Tropical (Virtual Course) 2.67 \$ 2.0 \$ 1.284 0.05 W FTE Shortage; AWOC Tropical Track 27 COMET WMOTB ME03 AWOC - Tropical (Virtual Course) 2.67 \$ 2.67 \$ 1.284 0.05 W FTE Shortage; AWOC Tropical Track 29 OS6 IT13 COTR Training Program 2.67 \$ 1.436 0.05 F FTE Shortage; Develop web-based raining. Companion to ME29 29 OS6 IT13 COTR Training Program 2.67 \$ 5 1.646 F FTE Shortage; Develop ream. 31 COMET NOT Shortage: NWP Team. 2.67 \$ 1.641 0.557 FTE Shortage; Develop ream. 34 FDTB HY07 Assic Channel Hydraulics 2.83 \$ 1.840 0.557 FTE Shortage; Develop Profemation. 0.557 FTE Shortage; Develop Profemation. 0.557 FTE Shortage; Develop Profemation. 0.557 FTE Shortage; Develop Profine Module 0.557 FTE Shortage; Pro	22	FDTB	WM01 WCM Designing Education Projects (DEP)	2.67	\$	35	\$ 1,102	0.2 F	Course being converted to DL. Approach applicable to support other needs
25 COMET ME31 Forecast Process Online Course 2.67 \$ 1.284 0 Update date COMET module 2.67 2 1.284 0.05 WTB ME03 AWIOC - Tropical (Virtual Course) 2.67 2 1.286 0.05 W FTE Shortage; Develop web-based training, Companion to ME29 ESI International - Vendor Course COMET VN002 NWP, Part I: Application of NWP Forecasting 2.71 2.83 1.73 COMET COMET VN003 Channel Ash Monitoring and Climate 2.71 2.83 1.75 1.604 0.57 T 500 0.84 0.25F T ES Nortage; NWP Team. 1.005 0.18 0.25F 1.604 0.52 1.604 0.52 1.604 0.52 1.604 0.52F 1.604 1.605 1.605 <	23	NWSTC	SA11 Spill Prevention, Control and Countermeasures Course	2.67	\$	23	\$ 1,124	0	Module Development
26 WDTB ME03 AVQC - Tropical (Virtual Course) 2.67 \$ 2 \$ 1.286 0.05 W FTE Shortage; AWQC Tropical Track 27 COMET WM02 National SKYMARN Spotter Training 2.67 \$ 150 \$ 1.486 0 Develop online module for basic and advanced spotters. Convert from print materials 28 <i>PDTB DS01 Real Time Mesoscale Analysis and Analysis of Record</i> 2.67 \$ 150 \$ 1.486 0.05 F <i>FTE Shortage; Develop web-based training. Companion to ME29</i> 29 OS6 IT13 COTR Training Program 2.67 \$ 5 1.587 0 Web Module Develop web-based training. Companion to ME29 29 OS6 IT13 COTR Training Program 2.67 \$ 5 \$ 1.610 0.57 <i>FTE Shortage; Develop web-based training. Companion to ME29</i> 20 OS6 IT13 COTR Training Program 2.67 \$ 1.587 0 Web Module Development. 1.0FTE external SME required 30 NWSTC MS36 Communicating Forecast Uncertainty to EMs 2.83 \$ 5 \$ 1.610 0.255 FTE Shortage; Aveloponine Module 31	24	FDTB	HY27 Static Flood Inundation Mapping	2.67	\$	20	\$ 1,144	0.1 F	Webcast/Online module development
27 COMET WM02 National SKVWARN Spotter Training 2.67 \$ 1.436 0.05 Perform module for basic and advanced spotters. Convert from print materials 28 FDTB DS01 Real Time Mesoscale Analysis of Record 2.67 \$ 1.36 0.05 F FE shortage; Develop web-based training. Companion to ME29 30 COMET NP02 NWP, Part I: Application of NWP Forecasting 2.71 \$ 7.5 \$ 1.641 0.05 F FE shortage; Develop meth 2.67 \$ 1.561 0.1 F FE shortage; Develop ment 2.67 \$ 1.60 0.05 F FE shortage; Develop ment 2.67 \$ 1.60 0.1 N Develop ment 2.67 \$ 1.60 0.1 N Develop ment 2.67 \$ 1.60 0.1 N Develop ment 2.67 \$ FTE Shortage; Series of Web module 2.83 \$ 1.62 0.5 FTE Shortage; Series of Web modules 2.65 F FE Sh	25	COMET	ME31 Forecast Process Online Course	2.67	\$	140	\$ 1,284	0	Update dated COMET module
28 FDTB DS01 Real Time Mesoscale Ånalysis and Ånalysis of Record 2.67 \$ - \$ 1.436 0.05 F FTE Shortage; Develop web-based training. Companion to ME29 29 OS6 IT13 COTR Training Program 2.67 \$ 5 5 1.436 0.05 F FTE Shortage; Develop web-based training. Companion to ME29 29 OS6 IT13 COTR Training Program 2.67 \$ 5 1.636 0.15 F FTE Shortage; Develop web-based training. Companion to ME29 31 COMET NP02 XWVP, Part I: Application of NWP Forecasting 2.71 \$ 75 \$ 1.561 0.1 F TET Shortage; NWP Team. 32 WDTS AV11 A vitation Training Torecast Uncertainty to EMS 2.83 \$ 1 \$ 0.05 F FTE Shortage; Develop Web-based training. Companion to ME29 33 NWSTC KB38 Communicating Forecast Uncertainty to EMS 2.83 \$ 1.605 0.1 N Develop Online Module 34 FDTB DS04 Emerging Topics - New Implementations 2.83 \$ 5 1.632 0.0 S FTE Shortage; Series of Web modules 37 FDTB DS04 Emerging Topics	26	WDTB	ME03 AWOC - Tropical (Virtual Course)	2.67	\$	2	\$ 1,286	0.05 W	FTE Shortage; AWOC Tropical Track
29 OS6 IT 13 COTR Training Program 2.67 \$ 50 \$ 1,486 ESI International - Vendor Course 30 COMET C1010 clanic Ash Monitoring and Climate 2.71 \$ 75 \$ 1,561 0.1 F FTE Shortage; NWP Team. 32 WDTB AV11 Aviation Training for Forecast troctainty to EMs 2.83 \$ 1,751 \$ 1,604 0.5 Ø, V. Q.2CI For AWIPS Training Development; 1.0 FTE external SME required 34 WDTB AV11 Aviation Training for Forecast Uncertainty to EMs 2.83 \$ 1 \$ 1,604 0.55 F FTE Shortage; NWP Team. 34 FDTB HY07 Basic Channel Hydraulics 2.83 \$ 5 \$ 1,610 0.25 F FTE Shortage; Series of Web module 35 NWSTC SA09 Environmental Refresher Training 2.83 \$ 5 \$ 1,610 0.25 F FTE Shortage; Series of Web modules 36 DS07 Digital Services for NOAA, FEMA, Emergency Managers 2.83 \$ 20 \$ 1,652 0.05 F FTE Shortage; Series of Web modules 37 FDTB DS07 Digital Services for NOAA, FEMA, Emergency Managers 2.83 \$ 2 \$ 1,652 0.05 F FTE Shortage; NWP Team. 39 COMET	27	COMET	WM02 National SKYWARN Spotter Training	2.67	\$	150	\$ 1,436	0	Develop online module for basic and advanced spotters. Convert from print materials
30 COMET NP02 NWP, Part I: Application of NWP Forecasting 2.71 \$ 75 \$ 1.587 0.1 F FTE Shortage; NWP Team. 31 COMET CL10 Volcanch Sch Monitoring and Climate 2.71 \$ 75 \$ 1.587 0 Web Module Development 32 WDTB AV11 Aviation Training for Forecasters (Virtual Course) 2.83 \$ 1 \$ 1.604 05 W, 0.201 For AWIPS Training Development 1.0 FTE external SME required 34 FDTB HY07 Basic Channel Hydraulics 2.83 \$ 5 \$ 1.604 0.5 F FTE Shortage; Develop Online Module 36 NWSTC SA09 Environmental Refresher Training 2.83 \$ 2.83 \$ 0 Module Develop Online Module 37 FDTB DS04 Emerging Topics - New Implementations 2.83 \$ 2.83 \$ 0.5 F FTE Shortage; Series of Web modules 38 OS6 IT14 COTR Management of IT Service Contracts 2.83 \$ 1.687 0.05 F FTE Shortage; Series of Web modules 39 COMET HY08 Smail Basin Customization and Management 3.00 \$ <t< td=""><td>28</td><td>FDTB</td><td>DS01 Real Time Mesoscale Analysis and Analysis of Record</td><td>2.67</td><td>\$</td><td>-</td><td>\$ 1,436</td><td>0.05 F</td><td>FTE Shortage; Develop web-based training. Companion to ME29</td></t<>	28	FDTB	DS01 Real Time Mesoscale Analysis and Analysis of Record	2.67	\$	-	\$ 1,436	0.05 F	FTE Shortage; Develop web-based training. Companion to ME29
31 COMET CL10 Volcanic Ash Monitoring and Climate 2.71 \$ 26 \$ 1,587 0 We boulde Development 32 WDTB AV11 Aviation Training for Forecasters (Virtual Course) 2.83 \$ 17 \$ 1,604 .05 W, 0.2Cl For AWIPS Training Development; 1.0 FTE external SME required 34 FDTB HY07 Basic Channel Hydraulics 2.83 \$ 5 \$ 1,604 .05 W, 0.2Cl For AWIPS Training Develop Online Module 34 FDTB HY07 Basic Channel Hydraulics 2.83 \$ 5 \$ 1,610 0.25 F FTE Shortage; Develop Online Module 35 NWSTC SA09 Environmental Refresher Training 2.83 \$ 5 \$ 1,632 0 Module Development 36 FDTB DS07 Digital Services for NOAA, FEMA, Emergency Managers 2.83 \$ 2.85 \$ 1,687 0.5 F FTE Shortage; Series of Web modules 37 FDTB DS07 Digital Services for NOAA, FEMA, Emergency Managers 2.83 \$ 3.5 \$ 1,687 0.5 F FTE Shortage; Series of Web modules 2.86 \$ 1,771	29	OS6	IT13 COTR Training Program	2.67	\$	50	\$ 1,486		ESI International - Vendor Course
32 WDTB AV11 Aviation Training for Forecasters (Virtual Course) 2.83 \$ 1.604 .05 W, 0.2Cl For AWIPS Training Development; 1.0 FTE external SME required 33 NWSTC MS38 Communicating Forecast Uncertainty to EMs 2.83 \$ 1 \$ 1.605 0.1 N Develop Online Module 34 FDTB HY07 Basic Channel Hydraulics 2.83 \$ 2 \$ 1.604 0.5 V, 0.2Cl For AWIPS Training Develop Online Module 36 FDTB DS04 Environmental Refresher Training 2.83 \$ 2 \$ 1.632 0.5 F FTE Shortage; Develop Online Module 37 FDTB DS04 Environmental Refresher Training 2.83 \$ 2 \$ 1.632 0.5 F FTE Shortage; Series of Web modules 38 OS6 IT14 COTR Management of IT Service Contracts 2.83 \$ 3 \$ 1.687 ESI International - Vendor Course 39 COMET NY03 NWP, Part II: Application of NWP Forecasting 2.86 \$ 1.771 \$ 1.771 \$ 1.771 \$ 1.771 0.1 F FTE Shortage; NWP Team. 40 <t< td=""><td>30</td><td>COMET</td><td>NP02 NWP, Part I: Application of NWP Forecasting</td><td>2.71</td><td>\$</td><td>75</td><td>\$ 1,561</td><td>0.1 F</td><td>FTE Shortage; NWP Team.</td></t<>	30	COMET	NP02 NWP, Part I: Application of NWP Forecasting	2.71	\$	75	\$ 1,561	0.1 F	FTE Shortage; NWP Team.
33 NWSTC ME38 Communicating Forecast Uncertainty to EMs 2.83 \$ 1 \$ 1,605 0.1 N Develop Online Module 34 FDTB HY07 Basic Channel Hydraulics 2.83 \$ 5 \$ 1,610 0.25 F FTE Shortage; Develop Online Module 36 FDTB DS04 Emerging Topics - New Implementations 2.83 \$ 2.2 \$ 1,632 0.5 F FTE Shortage; Series of Web modules 37 FDTB DS04 Emerging Topics - New Implementations 2.83 \$ 2.43 \$ 1,771 0.5 F FTE Shortage; Series of Web modules 38 OSE IT14 COTR Management of IT Service Contracts 2.83 \$ 1,771 0.1 F FTE Shortage; NWP Team. 39 COMET NP03 NWP, Part II: Application of NWP Forecasting 2.86 \$ 1,771 \$ 1,771 0.1 F FTE Shortage; NWP Team. 40 COMET HY08 Small Basin Customization and Management 3.00 \$ 1,771 \$ 1,959 0.1 F FTE Shortage; Hydro Team. Redo previous Basin Customization course at COMET 41 FDTB NY04 NWP, Part III: Investigating the Forecast Problem 3.00 \$ 1,959 0.1 F FTE Shortage; Hydro Team. 42 COMET <td< td=""><td>31</td><td>COMET</td><td>CL10 Volcanic Ash Monitoring and Climate</td><td>2.71</td><td>\$</td><td>26</td><td>\$ 1,587</td><td>0</td><td>Web Module Development</td></td<>	31	COMET	CL10 Volcanic Ash Monitoring and Climate	2.71	\$	26	\$ 1,587	0	Web Module Development
34FDTBHY07 Basic Channel Hydraulics2.83\$ 5\$ 1,6100.25 FFTE Shortage; Develop Online Module35NWSTCSA09 Environmental Refresher Training2.83\$ 22\$ 1,6320Module Development36FDTBDS04 Emerging Topics - New Implementations2.83\$ 22\$ 1,6320.5 FFTE Shortage; Series of Web modules38OS6IT14 COTR Management of IT Service Contracts2.83\$ 23\$ 1,687ESI International - Vendor Course39COMETNP03 NWP, Part II: Application of NWP Forecasting2.86\$ 84\$ 1,7710.1 FFTE Shortage; Hydro Team.40COMETHY08 Small Basin Customization and Management3.00\$ 102\$ 1,8730.5 FFTE Shortage; Hydro Team.Redo previous Basin Customization course at COMET41FDTBNP04 NWP, Part III: Investigating the Forecast Problem3.00\$ 102\$ 1,9570.1 FFTE Shortage; Hydro Team.42COMETHY08 Dam Break Modeling (Web Module)3.00\$ 102\$ 1,9570.1 FFTE Shortage; Hydro Team.43NWSTCCL08 DEP DL Module with Training Development Virtual Support3.00\$ 2\$ 1,9590.1 FFTE Shortage; Hydro Team.44WDTBME41 Using the Integrated Warning Team3.00\$ 2\$ 1,9510.1 FFTE Shortage; Hydro Team.45NWSTCEE16 ASOS Refresher Training - Blended Learning3.00\$ 2\$ 1,9510.1 FFTE Shortage; Hydro Team.46WDTBME42 Ad	32	WDTB	AV11 Aviation Training for Forecasters (Virtual Course)	2.83	\$	17	\$ 1,604	.05 W, 0.2CI	For AWIPS Training Development; 1.0 FTE external SME required
35 NWSTC SA09 Environmental Refresher Training 2.83 \$ 22 \$ 1,632 0 Module Development 36 FDTB DS04 Emerging Topics - New Implementations 2.83 \$ 22 \$ 1,632 0.5F FTE Shortage; Series of Web modules 37 FDTB DS07 Digital Services for NOAA, FEMA, Emergency Managers 2.83 \$ 20 \$ 1,652 0.05 F FTE Shortage; Series of Web modules 38 OS6 IT14 COTR Management of IT Service Contracts 2.83 \$ 35 \$ 1,652 0.05 F FTE Shortage; Series of Web modules 39 COMET NP03 NWP, Part II: Application of NWP Forecasting 2.83 \$ 35 \$ 1,677 \$ 1,771 0.1 F FTE Shortage; Hydro Team. 40 COMET HY08 Small Basin Customization and Management 1,071 \$ 1,771 \$ 1,771 \$ 1,771 41 FDTB NP04 NVP, Part III: Investigating the Forecast Problem 3.00 \$ 42 \$ 1,959 0.1 F FTE Shortage; NWP Team. 42 COMET HY09 Dam Break Modeling (Web Module) 3.00 \$ 2 \$ 1,959 0.1 F FTE Shortage; Hydro Team. 43 NWSTC CL08 DEP DL Module wi	33	NWSTC	ME38 Communicating Forecast Uncertainty to EMs	2.83	\$	1	\$ 1,605	0.1 N	Develop Online Module
36 FDTB DS04 Emerging Topics - New Implementations 2.83 \$ - \$ 1,632 0.5 F FTE Shortage; Series of Web modules 37 FDTB DS07 Digital Services for NOAA, FEMA, Emergency Managers 2.83 \$ 20 \$ 1,652 0.05 F FTE Shortage; Series of Web modules 38 OS6 IT14 COTR Management of IT Service Contracts 2.83 \$ 35 \$ 1,677 0.1 F FTE Shortage; NWP Team. 39 COMET NP03 NWP, Part II: Application of NWP Forecasting 2.86 \$ 44 \$ 1,771 0.1 F FTE Shortage; NWP Team. 40 COMET HY08 Small Basin Customization and Management 3.00 \$ 102 \$ 1,873 0.5 F FTE Shortage; Hydro Team. Redo previous Basin Customization course at COMET 41 FDTB NP04 NWP, Part III: Investigating the Forecast Problem 3.00 \$ 44 \$ 1,957 0.1 F FTE Shortage; Hydro Team. Redo previous Basin Customization course at COMET 42 COMET HY09 Dam Break Modeling (Web Module) 3.00 \$ 2 \$ 1,959 0.1 F FTE Shortage; Hydro Team. 43 NWSTC CLoB DEP DL Module with Training Development Virtual Support 3.00 \$ 2 \$ 1,969 0.10 CI<	34	FDTB	HY07 Basic Channel Hydraulics	2.83	\$	5	\$ 1,610	0.25 F	FTE Shortage; Develop Online Module
37 FDTB OS6 COMET DS07 Digital Services for NOAA, FEMA, Emergency Managers IT14 COTR Management of IT Service Contracts 2.83 \$ 20 \$ 1,652 0.05 F FTE Shortage; Series of Web modules ESI International - Vendor Course 39 COMET NP03 NWP, Part II: Application of NWP Forecasting 2.83 \$ 35 \$ 1,657 ESI International - Vendor Course 40 COMET HY08 Small Basin Customization and Management \$ 1,771 \$ 1,771 \$ 1,771 40 FDTB HY08 Small Basin Customization and Management 3.00 \$ 1,873 0.5 F FTE Shortage; Hydro Team. Redo previous Basin Customization course at COMET 41 FDTB NP04 NWP, Part III: Investigating the Forecast Problem 3.00 \$ 1,957 0.1 F FTE Shortage; Hydro Team. Redo previous Basin Customization course at COMET 43 NWSTC CL08 DEP DL Module with Training Development Virtual Support 3.00 \$ 2 \$ 1,969 0.1 F FTE Shortage; Hydro Team. 44 WDTB ME41 Using the Integrated Warning Team 3.00 \$ 2 \$ 1,969 0.10 Cl FY09 Norman Severe Weather Workshop Support 45 NWSTC EE16 ASOS Refresher Training - Blended Learning 3.00 \$ 27 \$ 2,008	35	NWSTC	SA09 Environmental Refresher Training	2.83	\$	22	\$ 1,632	0	Module Development
38 OS6 COMET IT14 COTR Management of IT Service Contracts 2.83 \$ 35 \$ 1,687 ESI International - Vendor Course 39 COMET NP03 NWP, Part II: Application of NWP Forecasting 2.86 \$ 44 \$ 1,771 0.1 F FTE Shortage; NWP Team. 40 COMET HY08 Small Basin Customization and Management \$ 1,771 \$ 1,771 \$ 1,771 0.1 F FTE Shortage; NWP Team. 41 FDTB NP04 NWP, Part III: Investigating the Forecast Problem 3.00 \$ 1,957 0.1 F FTE Shortage; NWP Team. 42 COMET HY09 Dam Break Modeling (Web Module) 3.00 \$ 4 \$ 1,957 0.1 F FTE Shortage; Hydro Team. Redo previous Basin Customization course at COMET 43 NWSTC CL08 DEP DL Module with Training Development Virtual Support 3.00 \$ 2 \$ 1,959 0.1 F FTE Shortage; Hydro Team. 44 WDTB ME41 Using the Integrated Warning Team 3.00 \$ 9 \$ 1,969 0.10 CI FY09 Norman Severe Weather Workshop Support 45 NWSTC EE16 ASOS Refresher Training - Blended Learning 3.00 \$ 27 \$ 2,008 .15 N 46 WDTB ME42 Advanced Wat	36	FDTB	DS04 Emerging Topics - New Implementations	2.83	\$	-	\$ 1,632	0.5 F	FTE Shortage; Series of Web modules
39COMETNP03 NWP, Part II: Application of NWP Forecasting2.86\$84\$1,7710.1 FFTE Shortage; NWP Team.40COMETHY08 Small Basin Customization and Management\$1,771\$1,771\$1,77140COMETHY08 Small Basin Customization and Management3.00\$102\$1,8730.5 FFTE Shortage; Hydro Team. Redo previous Basin Customization course at COMET41FDTBNP04 NWP, Part III: Investigating the Forecast Problem3.00\$102\$1,8730.5 FFTE Shortage; Hydro Team. Redo previous Basin Customization course at COMET42COMETHY09 Dam Break Modeling (Web Module)3.00\$2\$1,9590.1 FFTE Shortage; Hydro Team.43NWSTCCL08 DEP DL Module with Training Development Virtual Support3.00\$2\$1,9590.1 FFTE Shortage; Hydro Team.44WDTBME41Using the Integrated Warning Team3.00\$2\$1,9690.10 ClFY09 Norman Severe Weather Workshop Support45NWSTCEE16 ASOS Refresher Training - Blended Learning3.00\$27\$2,008.15 W, .3 ClFTE Shortage; Develop web-based/WES training46WDTBHY30 New Hydrology Forecast Service Outreach Education3.00\$65\$2,0730DEP Module (see WM04) / residence training	37	FDTB	DS07 Digital Services for NOAA, FEMA, Emergency Managers	2.83	\$	20	\$ 1,652	0.05 F	FTE Shortage; Series of Web modules
TOTAL PRIORITY 1.0 to 2.99\$ 1,771\$ 1,771\$ 1,77140COMETHY08 Small Basin Customization and Management3.00\$ 102\$ 1,8730.5 FFTE Shortage; Hydro Team. Redo previous Basin Customization course at COMET41FDTBNP04 NWP, Part III: Investigating the Forecast Problem3.00\$ 44\$ 1,9570.1 FFTE Shortage; NWP Team.42COMETHY09 Dam Break Modeling (Web Module)3.00\$ 2\$ 1,9590.1 FFTE Shortage; Hydro Team.43NWSTCCL08 DEP DL Module with Training Development Virtual Support3.00\$ 2\$ 1,9610.15 N44WDTBME41Using the Integrated Warning Team3.00\$ 9\$ 1,9690.10 ClFY09 Norman Severe Weather Workshop Support45NWSTCEE16 ASOS Refresher Training - Blended Learning3.00\$ 27\$ 2,008.15 W, .3 ClFTE Shortage; Develop web-based/WES training46WDTBME42 Advanced Watch by County Training3.00\$ 27\$ 2,008.15 W, .3 ClFTE Shortage; Develop web-based/WES training47FDTBHY30 New Hydrology Forecast Service Outreach Education3.00\$ 65\$ 2,0730DEP Module (see WM04) / residence training	38	OS6	IT14 COTR Management of IT Service Contracts	2.83	\$	35	\$ 1,687		ESI International - Vendor Course
40COMETHY08 Small Basin Customization and Management3.00\$102\$1,8730.5 FFTE Shortage; Hydro Team. Redo previous Basin Customization course at COMET41FDTBNP04 NWP, Part III: Investigating the Forecast Problem3.00\$84\$1,9570.1 FFTE Shortage; NWP Team.42COMETHY09 Dam Break Modeling (Web Module)3.00\$2\$1,9590.1 FFTE Shortage; Hydro Team.43NWSTCCL08 DEP DL Module with Training Development Virtual Support3.00\$2\$1,9690.10 CIFY09 Norman Severe Weather Workshop Support44WDTBME41 Using the Integrated Warning Team3.00\$9\$1,9690.10 CIFY09 Norman Severe Weather Workshop Support45NWSTCEE16 ASOS Refresher Training - Blended Learning3.00\$12\$1,9810.3 NFTE Shortage46WDTBME42 Advanced Watch by County Training3.00\$27\$2,008.15 W, .3 CIFTE Shortage; Develop web-based/WES training47FDTBHY30 New Hydrology Forecast Service Outreach Education3.00\$65\$2,0730DEP Module (see WM04) / residence training	39	COMET	NP03 NWP, Part II: Application of NWP Forecasting	2.86	\$	84	\$ 1,771	0.1 F	FTE Shortage; NWP Team.
41FDTBNP04 NWP, Part III: Investigating the Forecast Problem3.00\$84\$1,9570.1 FFTE Shortage; NWP Team.42COMETHY09 Dam Break Modeling (Web Module)3.00\$2\$1,9590.1 FFTE Shortage; Hydro Team.43NWSTCCL08 DEP DL Module with Training Development Virtual Support3.00\$2\$1,9610.15 N44WDTBME41Using the Integrated Warning Team3.00\$9\$1,9690.10 ClFY09 Norman Severe Weather Workshop Support45NWSTCEE16ASOS Refresher Training - Blended Learning3.00\$12\$1,9810.3 NFTE Shortage46WDTBME42Advanced Watch by County Training3.00\$27\$2,008.15 W, .3 ClFTE Shortage; Develop web-based/WES training47FDTBHY30 New Hydrology Forecast Service Outreach Education3.00\$65\$2,0730DEP Module (see WM04) / residence training			TOTAL PRIORITY 1.0 to 2.99		\$1	,771	\$ 1,771		
41FDTBNP04 NWP, Part III: Investigating the Forecast Problem3.00\$84\$1,9570.1 FFTE Shortage; NWP Team.42COMETHY09 Dam Break Modeling (Web Module)3.00\$2\$1,9590.1 FFTE Shortage; Hydro Team.43NWSTCCL08 DEP DL Module with Training Development Virtual Support3.00\$2\$1,9610.15 N44WDTBME41Using the Integrated Warning Team3.00\$9\$1,9690.10 ClFY09 Norman Severe Weather Workshop Support45NWSTCEE16ASOS Refresher Training - Blended Learning3.00\$12\$1,9810.3 NFTE Shortage46WDTBME42Advanced Watch by County Training3.00\$27\$2,008.15 W, .3 ClFTE Shortage; Develop web-based/WES training47FDTBHY30 New Hydrology Forecast Service Outreach Education3.00\$65\$2,0730DEP Module (see WM04) / residence training	40	COMET	HY08 Small Basin Customization and Management	3.00	\$	102	\$ 1.873	0.5 F	FTE Shortage: Hydro Team. Redo previous Basin Customization course at COMFT
42COMETHY09 Dam Break Modeling (Web Module)3.00\$2\$1,9590.1 FFTE Shortage; Hydro Team.43NWSTCCL08 DEP DL Module with Training Development Virtual Support3.00\$2\$1,9610.15 N44WDTBME41Using the Integrated Warning Team3.00\$9\$1,9690.10 ClFY09 Norman Severe Weather Workshop Support45NWSTCEE16ASOS Refresher Training - Blended Learning3.00\$12\$1,9810.3 NFTE Shortage; Develop web-based/WES training46WDTBME42Advanced Watch by County Training3.00\$27\$2,008.15 W, .3 ClFTE Shortage; Develop web-based/WES training47FDTBHY30 New Hydrology Forecast Service Outreach Education3.00\$65\$2,0730DEP Module (see WM04) / residence training			0				,		
43NWSTCCL08DEP DL Module with Training Development Virtual Support3.0021,9610.15 N44WDTBME41Using the Integrated Warning Team3.005951,9690.10 ClFY09 Norman Severe Weather Workshop Support45NWSTCEE16 ASOS Refresher Training - Blended Learning3.0051251,9810.3 NFTE Shortage46WDTBME42 Advanced Watch by County Training3.0052752,008.15 W, .3 ClFTE Shortage; Develop web-based/WES training47FDTBHY30 New Hydrology Forecast Service Outreach Education3.0056552,0730DEP Module (see WM04) / residence training							,		
44WDTBME41Using the Integrated Warning Team3.00\$9\$1,9690.10CIFY09 Norman Severe Weather Workshop Support45NWSTCEE16ASOS Refresher Training - Blended Learning3.00\$12\$1,9810.3 NFTE Shortage46WDTBME42Advanced Watch by County Training3.00\$27\$2,008.15 W, .3 CIFTE Shortage; Develop web-based/WES training47FDTBHY30 New Hydrology Forecast Service Outreach Education3.00\$65\$2,0730DEP Module (see WM04) / residence training							,		
45NWSTCEE16ASOS Refresher Training - Blended Learning3.00121,9810.3 NFTE Shortage46WDTBME42Advanced Watch by County Training3.00272,008.15 W, .3 CIFTE Shortage; Develop web-based/WES training47FDTBHY30 New Hydrology Forecast Service Outreach Education3.00552,0730DEP Module (see WM04) / residence training							,		FY09 Norman Severe Weather Workshop Support
46WDTBME42Advanced Watch by County Training3.00272,008.15 W3 CIFTE Shortage; Develop web-based/WES training47FDTBHY30 New Hydrology Forecast Service Outreach Education3.00552,0730DEP Module (see WM04) / residence training							,		
47 FDTB HY30 New Hydrology Forecast Service Outreach Education 3.00 \$ 65 \$ 2,073 0 DEP Module (see WM04) / residence training							,		8
TOTAL OF PRIORITY 3.00 \$ 302 \$ 2,073									
			TOTAL OF PRIORITY 3.00		\$	302	\$ 2,073		

48	NWSTC	HY01 QPF Forecasting in NDFD	3.17	\$ 45	\$ 2,118	0.1 F, 0.1N	FRT and Residence Course as test of DL material
49	WDTB	ME46 Integrating Social Science in Forecast and Warnings	3.17	\$ 28	\$ 2,145	0.3 W, .3 CI	FTE Shortage; Directed by NOAA AA. NOAA and OU providing \$528K in SMEs
50	COMET	ME37 Using Web Uncertainty Guidance (from Ensembles)	3.33	\$ 15	\$ 2,160	0	FTE Shortage; Form teams to look at existing training
51	NWSTC	TS04 DEP DL Module with Training Development Virtual Support	3.50	\$ 2	\$ 2,162	0.05 N	
52	NWSTC	LE07 Leadership Development Design and Facilitator Training	3.50	\$ 41	\$ 2,203	0.2 N	
53	COMET	CL05 Monsoons (web module)	3.67	\$ 30	\$ 2,233	0	FTE Shortage; DL Module - OS6 Publishing Support
54	FDTB	HY12 The Use of GIS in Hydrologic Operations	3.67	\$ 11	\$ 2,244	0.1 F	FTE Shortage; Produce tutorials and webinars (2 per year)
55	OS6	IT12 Fundamentals of Earned Value Management (EVM)	3.67	\$ 40	\$ 2,284		ESI International - Vendor Course
56	OS6	IT11 Capital Planning & Investment Control (CPIC), & Exhibit 300	3.67	\$ 30	\$ 2,314		ESI International - Vendor Course On-Site
57	OS6	IT16 Program Management	3.83	\$ 25	\$ 2,339		ESI International - Vendor Course
58	OS6	IT15 Managing Projects / Project Management	3.83	\$ 45	\$ 2,384		ESI International - Vendor Course
59	COMET	HY10 Distributed Hydrologic Modeling	3.83	\$ 12	\$ 2,396	0.2 F	FTE Shortage; Hydro Team. Develop online module
60	FDTB	DS06 Digital Services Technical Training	3.83	\$ 25	\$ 2,421	0.05 F	National DS Technical Workshop
		TOTAL OF PRIORITY 3.01 TO 3.99		\$ 349	\$ 2,421		
61	OS6	University Assignment Program	4.00	\$ 100	\$ 2,521	0	Funds for NWS staff to take university courses with time off
62	NWSTC	HY17 The Use of GFE in the RFCs	4.00	\$ 12	\$ 2,533	0.1 N, 0.1F	FTE Shortage; Webinar/DL Module Production
63	NWSTC	TS01 DEP DL Module with Training Development Virtual Support	4.00	\$ 2	\$ 2,535	0.05 N	
64	NWSTC	HY18 RFC Operations	4.00	\$ 3	\$ 2,538	0.2 N	
65	COMET	ME32 SOO Training Communicating Forecast Uncertainty	4.00	\$ 36	\$ 2,574	0.2 F	FTE Shortage; Develop a virtual course
66	NWSTC	SA07 Safety Refresher Training	4.00	\$ 20	\$ 2,594	0	
67	COMET	CL09 NCEP Advancements in Climate Modeling	4.00	\$ 26	\$ 2,620	0	Development of Articulate Presenter module
68	FDTB	HY15 Hydrologic Model Calibration	4.00	\$ 37	\$ 2,657	0.25 F	FTE Shortage; Develop residence course
		TOTAL OF PRIORITY 4.00		\$ 136	\$ 2,657		

68 GRAND TOTAL \$\$

\$ 2,657

FTEs Needed - 0.7F, 0.95 W

Table 4a - FY09 Unresourced Training by Program Area

Note: F=FDTB, C=COMET, N=NWSTC

DL = Distance Learning; Res = In-residence training

3 37 Amily Avids DL COMET Avids on training for formations 3 3 3 317 AMPS DSM Res FDTB Digal Services Terming registry Managers 5 CoNET Avids on Terming for Managers 3 317 AMPS Digal Services Terming registry Managers 5 CoNET Avids on Terming for Managers 3 317 AMPS Digal Services Terming registry Managers 5 Seeked of Wein Avids on Terming Weinkers 1703 DL NYSTC AVMPS-10 Appending to AVIDPS-10 Appending to AVIDPS-10 Appending to AVIDPS-10 1703 DL FOTB NVPT Form 1 Application NVPT Formation Form Model Digal Services 5 Terming to AVIDPS-10 Appending to AVIDPS-10 Appending to AVIDPS-10 Appending to AVIDPS-10 Appending to AVIDPS-10 AVIDPS-10 Appending to AVIDPS-10 Avids on the AVIDPS-10 Avids on the AVIDPS-10 AVIDPS-10 <t< th=""><th>Total Unfunded (K)</th><th>Source</th><th>TNS ID</th><th>Method</th><th>Branch</th><th>TNS Requirement</th><th></th><th></th><th>Comments</th></t<>	Total Unfunded (K)	Source	TNS ID	Method	Branch	TNS Requirement			Comments
337 AWIES DSNR Res POTE Digital Services Training Solution National Digital Services Training Attaination 10 DLP FTTE Digital Services Training National Digital Services Training		7 Avn							
HY01 DL F/N OfF Foresating in National Diguel Foresating Subabase S	\$ 33	7 AWIPS	DS06	Res	FDTB	Digital Services Technical Training	\$ 3	25	National Digital Services Technical Workshop
T122 Res MVIST C AVIPE-1 Operations Support 5 Transforming to AVIPE-3 ILL model and the PVI and the PV			DS07	DL	FDTB	Digital Services for NOAA, FEMA, Emergency Managers	\$ 2	20	Series of Web modules
IT03 DL NMISTC AVVPE-11 Local Application Development 5 AVVPE-11 Unit Application of NVVP Forestating 2 NP02 DL F/C NVVP, Fair L'Application of NVVP Forestating 2 2 NP02 DL F/C NVVP, Fair L'Application of NVVP Forestating 2 2 NP04 DL F/C NVVP, Fair L'Application of NVVP Forestating 2 2 NP04 Support OS6 DMI Intel ^{IN} Support Specialistic Registration Training 2 2 NP05 Support OS6 DMI Intel ^{IN} Support Specialistic Registration Training 2 2 NE00 DL F/DTB Boundary Layer Processes 2 2 NE01 DL F/DTB Boundary Layer Processes <t< td=""><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td>23</td><td></td></t<>								23	
ME48 DL WUDTB AVMP-Fail Warming-Restance Training 5 Bit Bended Learning Approach NP02 DL F-C WVP, Part I: Clearing Used Information from Model Data 5 7 COMET NVP Team NP03 DL F-C WVP, Part I: Clearing Used Information from Model Data 5 7 State State State State 7 COMET NVP Team WVP, Part I: Model Data State Virtual Course 5 7 WVP, Part I: Model Data State State 7 Virtual Course 7 WVP, Part I: Model Data Network Network Network Network 7 WVI-B Network Network Network Network 7 Network ME40 OL FOTB Boundary Larger Processes 7 Network 7 Network ME40 DL FOTB Moder State FOT 7 Network 7 Network 7 ME40 DL FOTB Moder State FO							\$	-	
NPD2 DL F/C NVP: Part I: Application of NVP Forecasting \$ 7 COMET NVP Texin APD4 3 2.440 Base PMO2 DL F/C NVP: Part II: Investigning the Forecast Product 8 4 COMET NVP Texin 3 2.440 Base PMO2 DL F/C NVP: Part II: Investigning the Forecast Product 8 4 COMET NVP Texin 4 Desting the strength of the strengt of the strength of the strength of the strength of								-	AWIPS-II DL module available in FY08, new modules to be added in FY09
NPG3 DL F/C NVP: Part I: Cleaning Useful Information: Trion Model Data \$ 8 COMET NVP Team S 2.440 Base FW06 Support OS DHE Incident Support Specialitii Required Training 5 75 Image: State									
NP04 DL FDTs NVP, Part III: Investigning the Foremast Problem 8 COMET NVP Team 2.440 Base Wood DHS incident Support Specialitis 5 20 ME30 Virtual F Notation and or for incident Support Specialitis 5 20 ME30 Virtual F Notation and or for incident Support Specialitis 5 20 ME11 DL Notation and or for incident Services 5 40 Paperation COMET Virtual course ME11 DL FOTE Mountain Mesonology 5 6 Virtual course 5 ME11 DL COMET Cland Regin Hydroby 5 6 Virtual course 6 ME11 DL COMET Cland Regin Hydroby 5 7 Dovelop a virtual course 30 Liaison Testween NOAA (Diffe of a NOAA Office of Education for Coll Regin Hydroby 30 Liaison Testween NOAA (Diffe of A NOAA Office of Education for Coll Regin Hydroby 30 Liaison Testween NOAA (Diffe of A NOAA Office of Education for Coll Regin Hydroby 30 Liaison Testween NOAA (Diffe of A NOAA Office of Education for Coll Regin Hydroby 30 Liaison Testween N									
3 2,640 Base FW06 Support 056 DHE Incident Support Speciality Required Training 5 76 RE30 Virtual F/C National and Great Lakes Marine Training 5 26 Virtual course; S3K to FDTB; \$23K to COMET ME30 Virtual F/C National and Great Lakes Marine Training 5 3 Repart of current COMET virtual course CU22 PDT Boundary Layer Processes 5 4 Door FTE from COMET virtual course CU23 PDT Boundary Layer Processes 5 4 Develop a virtual course 5 CU23 DL COMET New SOD Training - DPT and Fland Flood Forecasting 5 4 Develop a virtual course HY14 Res NW20T FOTE Cold Region Mediation of Virtual Course 5 4 Develop a virtual Recurse 4 Develop virtual Recurse 5 Develop virtual Recurse									
FW103 Support OS6 HA2/WOPER Training for incident Support Specialists \$ 20 ME30 Virtual course; SX to FDTB; 523K to COMET National and Great Lakes Marine Training \$ 20 ME07 DL FDTB Boundary, Ley Processe \$ 40 ME11 DL COMET Cimale Services and Outreach \$ 40 ME11 DL COMET Cimale Services and Outreach \$ 40 ME13 DL COMET Cimale Services and Outreach \$ 40 O1 external SME H'113 Res NW100 REAL Services and Outreach \$ 135 Develop web modules on Tsunami Science and Tsunami Marker Course \$ 135 H'114 Res FW107 S sopport for Code Region Hydrology Program Manager Course \$ 130 Develop web modules on Tsunami Science and Tsunami Warning Code and Science and Science and Tsunami Warning Code and Science and Science and Science and Science and S									COMET NWP Team
ME30Virtual CRF/CNational and Great Likes Marine TrainingSS26Virtual course; SK to FDTB; S23K to COMETME67DLPDTBBounday Layer ProcessesS-Repeat of current COMET virtual courseME67DLPDTBResNVIrtualOberTFE of Comercional Cirtual ServicesS4ME67DLPDTBMountain MateonologyS3Usings on Pathemen NOAA Cirtual courseME61DLPDTBCold Region HydrologyS3Usings on Pathemen NOAA Cirtual Collect A NOAA Office of Education for COH724SupportPDTBCold Region HydrologyS4For Cold Region Hydrology Program Manager CourseS4H711ResNVICTotamani Science and OperationsS57Hydro Team: Continue Dista Fload/QPE residence courseH733DLNVITCTotamani Science and Operations Chine CoursesS677Hydro Team: Continue Dista Fload/QPE residence courseH733DLPDTBTotapical Cyclone Hazards Graphics (resources in ME16)S577H735DLCoMTCSpecial Caurante Science and Sumani Warning CenterS6H618DLPDTBTotapical Cyclone Hazards Graphics (resources in ME16)S7H735DLCoMTCSpecial Caurante Science and Sumani Warning CenterS8H735DLCoMTCSpecial Caurante Science and Sumani Warning CenterS8H736DLForp	\$ 2,64	0 Base							
0801 Res NWSTC Data Acquisition Operations residence course (2nd FV90 Offering) \$ Repeat of current COMET Virtual course Obs FTE from Climate Virtual course Obs FTE from Climate Virtual course Virtual course									Virtual sources \$2K to EDTD: \$22K to COMET
MED7 DL FOTB Boundary Layer Processes S - Repeat of current COMET virtual course GL02 Res NVSTC Operational Climate Services and Outreach \$ 4 0.05 TFL From Climate Services ME09 DL COMET Netson Outreach \$ 6 Virtual course CL03 DL COMET Cellinate Services and Outreach \$ 30 Laison between NOAA Climate Office A NOAA Office of Education for C H11 Res NVSTC Virtual Course \$ 4 For Cod Region Hydrology Workshop H11 Res NVSTC Virtual Course Offering \$ 4 For Cod Region Hydrology Workshop H11 Res NVSTC Upport for Leadership Program Manager Course \$ 48 100 EFTE Early Manager Course \$ 130 Develop web modules on Tsunam Science and Tsunam Viening Course \$ 37 H200 Store Store Store Store Store \$ 0 0 \$ 0 0 \$ 0 0 \$ 0 0 \$ 0 0 \$ 0									VIITUAI COUISE, SON TO FDID, SZON TO COMET
CL02ResNWSTCOperational Climate Services\$440.05 FTE from ClimateME10DLCOMETNew SOD Training - OPF and Flash Flood Forecasting\$2Develop a vitrula courseME03DLCOMETClimate Services and Outreach\$3Dialization terviewan OAA Office of Education for CH124SupportFDTECold Region Hydrology Porgam Manager Course\$4614 estimated ME1H111ResNVSTCVFC Hydrology Porgam Manager Course\$674For Cold Region Hydrology WorkshopH111ResNVSTCClimate Order Vitrual Offering)\$78 cond Course Offering5H111ResNVSTCClimate Order Vitrual Offering)\$78 cond Course Offering5H111ResNVSTCTarnami Science and Operations Online Courses\$135Develop web modules on Taunami Science and Taunami Varining Course\$H207VILLNVSTCGapport Interacting Forepast Editor (Secures In ME16)\$-Online course with possible webinarsH208DLFOTBTrapical Carlone Application Basics\$80Develop course with possible webinarsME18DLFOTBGraphical Greater Editor (Secures In ME16)\$-Online course with possible webinarsME19DLFOTBGraphical Greater Editor (Secures In ME16)\$-Online course with possible webinarsME19DLFOTBGraphical Greater Editor (S									Papaget of ourrant COMET virtual course
ME11 ME9DLFDTBMountain MeteorologySSVincal courseME9DLCOMETNew SOO Training - OPA and Fissh Flood Forecasting24Develop a vincula course14CL03DLCOMETNew SOO Training - OPA and Fissh Flood Forecasting30Liaison between NOAA Clinice of Education for CHY13ResNW3TCWFO Hydrology Program Manager Course460.1 external SME0.1 external SMEHY11ResCFissh Flood Operations517Second Course Offering18CL03WTWContract Contral Course516Hydrology Workshop18CL03WTWContract Contral Course Offering517Second Course OfferingWW3TCSupport for Ladorship Programs (Regions/Headquarter) (Vinual Jonine Course with possible webinars18Online course with possible webinarsME33DLFDTBTopical Cyclone Hazard Graphics (Foorcourse in ME18)50Online course with possible webinarsME43DLFDTBTopical Cyclone Hazard Graphics (Foorcourse in ME18)50Online course with possible webinarsME45DLFDTBTopical Cyclone Hazard Graphics (Foorcourse in ME18)50Online course with possible webinarsME45DLFDTBGraphical Sociation Projecal Toining50Online course with possible webinarsME45DLFDTBGraphical Sociation Course50Online course with possible webinarsME45DLF									
ME69DLCOMETNew SOD Training - GPF and Flash Flood Porecasting\$2Develop a virual courseCl3DLCOMETClimate Services and Outreach530Liston between NAAA Climate Office & NOAA Office of Education for CHY34ResNVCWFD Hydrology Porgram Manager Course400For Cold Region Hydrology WorkshopHY11ResFCFlash Flood Operations56Hydro Team. Continue Flash Flood/OPE residence courseCl01VirualCMETClimate Virual Virual Offering57T303DLNWSTCGS Fundmental Datatence Laming Modules (Virual part offering)37LB9SupportNWSTCSupport for Leadership Programs (Regions-Headquart offering)37LB9SupportNWSTCSupport for Leadership Programs (Regions-Headquart offering)37LB9SupportSupport for Leadership Programs (Regions-Headquart offering)37LB9SupportSecalized Salety Training for Reance NWS Personnel50ME18DLCOMETNorthel Sorthera Klinking Sand Analysis of Analysis and Analys									
CL03DLCOMETClimate Services and Outreach\$30Liaison between NOAA Climate Office & NOAA Office of Education for CAHY13ResNVSTCFinal Region Hydrology Program Manager Course\$40For Cold Region Hydrology WorksopHY11ResNVSTCFinal Nod Operations\$10For Cold Region Hydrology WorksopCl01VirtualCOMETClimate Variability (Second Virtual Offering)\$11Second Course Offering\$17Second Course OfferingTS03DLNVSTCSupart NVSTCSuport NVSTCSuport NVSTCLE06SupportNVSTCSuport NVSTCSuport NVSTCSuport NVSTCME33DLFDTBGriphical (FGE) Tropical (Facing Final Second Course)\$0ME33DLFDTBGriphical (FGE) Tropical (Facing Final Final Res\$0M633DLFDTBGriphical (FGE) Tropical (Facing Final Res\$0M634DLFDTBSupport NVSTCSuperial Reside Analysis and Analysis of Record\$0M0410DLFDTBReal Time Mesoaceia Analysis and Analysis of Record\$00SupportOS6COTR Management of TI Service Courtracts\$300NM11DLFDTBSuff Course Course Course Analysis and Analysis of Record\$0SupportOS6COTR Management of TI Service Courtracts\$0SupportOS6COTR Management of TI Service Courtracts\$0									
HY24SupportFDTBCold Region HydrologyS40For Cold Region Hydrology WorkshopHY11ResFVCField Hydrology Program Manager Course5460.1 external SMEHY11ResF/CField Hydrology Program Manager Course567Hydro Tam. Continue Fiabe Flood ODPE residence courseCL01 VirtualVirtualVirtualWVSTCGIS Indianemental Distance Learning Modules (Virtual pat only)5FW07 VirtualNVSTCSupport for Leadership Programs (Regions/Headquarters)580ME33DLFDTBTrojical Grocast Editor (GFE) Tropical Training50SA10SupportNVSTCGrabical Softsys Tringing Tor Manaber MVS Personnel40ME33DLFOTEUncertainty Statistics Basis575Develop revelop web-based training. Companion to ME29SA110DLFOTEWVSTCSeptication Projects (DEP)5355Course with possible webinars: Possible use of SMEsMM13DLFOTEWVSTCNetworks, Oncorreast Editor (GFE) Tropical Training Programs50Course with possible webinars: Possible use of SMEsSA110DLWVSTCWVSTCNetworks, Oncorreast Editor (GFE) Tropical Training Programs50Course with possible webinars: Possible use of SMEsSA111DLWVSTCWVSTCRelation Projects (DEP)53Course with possible webinars: Possible use support from WR and SOOsWM101DLFOTEReal Training Programs50Course with possible webinars: P									
HY13 Reis NWSTC VFO Hydrology Program Manager Course \$ 46 0.1 external SME 0.1 HY11 Reis FCO Flash Flood Operations \$ 67 Hydro Team. Continue Flash Flood/OPE residence course CL01 Virtual COMET Climate Variability (Second Virtual Offering) \$ 17 Second Course Offering T606 Support WKSTC Second Operations Online Gourses \$ 13 LE066 Support FOTB Topical Cyclone Hazards Graphics (resources in Net18) \$ 0 ME13 DL FDTB Topical Cyclone Hazards Graphics (resources in Net18) \$ 0 ME33 DL COMET Lonertainty Statistics Basics \$ 16 DL FCO Uncertainty Statistics Basics \$ 16 DL FCO Uncertainty Statistics Basics \$ 20 DL FCO Uncertainty Statistics \$ 36 DL FCT Uncertainty Statistics Basics \$ 36 DL FCT Uncertainty Statistics Basics \$ 36 DL FCT Uncertainty Statistics Analysis of Record \$ 20 DV FCT Entrainty Resource Analysis of Record \$ 20 DL FDTB Entrainty Resource Analysis of Record \$ 20 D									
HY11 Res F/C Flash Fiold Operations S 67 Hydro Team. Continue Flash Fiold/OPE residence course CL01 Virtual COMET Climate Varability (Scood Virtual Differing) \$ 17 Second Course Offering FW07 Virtual WWSTC Struthance Learning Modules (Virtual part only) \$ 37 LE66 Support for Leadership Programs (Regions/Headquarters) \$ 80 Online course with possible webinars. ME33 DL FDTB Toropical Cyclone HazardS Graphics Forsources in ME18) \$ Online course with possible webinars. SA10 Support for Leadership Programs (Regions/Headquarters) \$ 30 Online course with possible webinars. SA10 Support NWSTC Socialized Safety Training for Remote NWS Personnes \$ 75 Develop Articulate Presentations of SOC-provided cases; \$21K to FDTB ME35 DL COMET Taining for Remote NWS Personnes \$ 35 Course being converted to DL. Approach applicable to support other ne SA11 DL NWSTC Silf Training for Remote Application Records \$ 2 Develop Articulate Presentations of SoC-provided case; \$21K to FDTB WM11 DL FDTB									
Cl.01VirtualCOMEClimate Variability (Second Virtual Offering)\$\$17Second Course OfferingW305NUMSTStruami Science and Operations Online Courses\$37LE06SupportNWSTSupport for Ladarship Porgrams (Gegions/Hadquarters)\$37ME33DLFDTBGraphical Foreast Reigons/Hadquarters)\$37ME33DLFDTBSraphical Foreast Reigons/Hadquarters)\$30ME34DLFDTBSraphical Foreast Reigons/Hadquarters)\$40ME35DLFCCUncertainly Statistics Basics\$96ME36DLFCCUncertainly Statistics Basics\$96ME36DLFCCUncertainly Statistics Basics\$96ME36DLFCCUncertainly Statistics Basics\$96ME36DLFCCUncertainly Statistics Basics\$96ME31DLNUSTSymper (Surger)\$\$50ME31DLNUSTSymper (Cortra Inting Program\$\$50ME31DLNUSTCortra Management of IT Savice Cortracts\$\$50ME38DLNUSTCortra Management of IT Savice Cortracts\$\$50ME39DLNUSTCortra Management of IT Savice Cortracts\$\$50ME38DLNUSTSaviand Customization course (MUCC) - Tropical Traking\$\$50ME39DL <t< td=""><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></t<>									
TS03DLNWSTCTsunami Science and Operations Online Courses\$ 135Develop web modules on Tsunami Science and Tsunami Warning CentsFW04VitualNWSTCGis Fundamental Distance Learning Modules (Vitual part only)\$ 0ME33DLFDTBTropical Cyclone Hazards Graphice (resources in ME18)\$ 0ME18DLFDTBTropical Cyclone Hazards Graphice (resources in ME18)\$ 0ME18DLFDTBTropical Cyclone Hazards Graphice (resources in ME18)\$ 0ME35DLCOMETUncertainy Statistice Basics\$ 75Develop Anticulate Presentations of SOC-provided cases; \$21K to FDTEWM01DLFDTBRecal Time Mesoscale Analysis of Analysis of Record\$ 20SA11DLNWSTCSignili Prevention, Control and Countermeasures Course\$ 23DS01DLFDTBReal Time Mesoscale Analysis of Analysis of Record\$ 0ME38DLNWSTCGormanicaling Forecast Uncertainty to Emergency Managers\$ 15DS01DLFDTBReal Time Mesoscale Analysis of Analysis of Record\$ 5ME38DLNWSTCGormanicaling Forecast Uncertainty to Emergency Managers\$ 15HY07DLFDTBReal Time Mesoscale Analysis of									
FW07VirtualNWSTCGIS Fundamental Distance Learning Modules (findual part only)\$3LEOGSupport of Laddership Programs (Regions/Headquarters)\$80ME33DLFDTBTropical Cyclone Hazards Graphics (resources in ME18)\$-SA10SupportNWSTCSpecialized Safety Training for Remote NWS Personnel40ME35DLCOMETUncertainty Statistics Basics\$75Develop course with possible webinars; Possible use of SME3Develop Anticulate Presentations of SOO-provided cases; \$21K to FDTBW1001DLFDTBWCM Designing Education Projects (DEP)\$SA11DLFDTBReal Time Mesoscale Analysis and Analysis of Record\$DS01DLFDTBReal Time Mesoscale Analysis and Analysis of Record\$DS01DLFDTBBasic Channel Hydraulics\$5Develop web-based training. Companion to ME29Costs are estimatedT114SupportOS6COTR Training Program\$T14SupportFTBBasic Channel Hydraulics\$\$SA04DLFDTBBasic Channel Hydraulics\$\$SA04DLFDTBBasic Channel Hydraulics\$\$SA04DLFDTBBasic Channel Angegenents\$\$HY07DLFDTBBasic Channel Angegenents\$\$LinkFDTBBasic Channel Angegenents\$\$HY07Res/T04FOTBBasic Channel Angegenent									Develop web modules on Tsunami Science and Tsunami Warning Center Operations
LE06SupportNWSTCSupport for Leadership Programs (Regions/Headquarters)\$80ME18DLFDTBTropical Cyclene Hazards Graphice (resources in ME18)\$Online course with possible webinarsSA10SupportWWSTCSpecialized Safety Training for Remote NWS Personnel\$Online course with possible webinarsME36DLCOMETUncertainty Statistics Basics\$75Develop course with support from WR and SOOsME36DLF/CUncertainty Statistics Basics\$96Develop Anticulate Presentations of SOO-provided cases; \$21K to PTDFWM01DLFDTBWCM Designing Education Projects (DEP)\$\$50Costs are estimatedS101DLFDTBReal Time Mesoscale Analysis and Analysis of Record\$0Develop web-based training. Companion to ME29S111SupportOS6COTR Training Program\$\$5Costs are estimatedT14SupportOS6COTR Training Program\$\$5Develop Online ModuleME38DLNWSTCCommunicating Program\$\$5Develop Online ModuleME39DLNWSTCCommunicating Program\$\$5Develop Online ModuleME39DLNWSTCCommunicating Program\$\$\$Develop Online ModuleME39DLNWSTCCommunicating Program\$\$Develop Online Module\$ME30DLNWSTCEnerging Topics - New Inplem				Virtual			\$ 3	37	
ME33 ME34DLFOTBTropical Cyclone Hazards Graphics (resources in ME18)\$Online course with possible webinarsME18DLFOTBGraphical Forceat Editor (FE) Tropical Training\$3Online course with possible webinars; Possible use of SMEsSA10SupportNWSTCSpecialized Safety Training for Remote NWS Personnel\$4ME36DLCOMETUncertainty Statistice Basics\$75Develop Articulate Presentations of SOO-provided cases; 321K to FDTEWM01DLFDTBWCM Designing Education Projects (DEP)\$\$5Course being converted to DL. Approach applicable to support other nerSA11DLNWSTCSpill Prevention, Control and Countermeasures Course\$22DS01DLFDTBReal Time Mesoscale Analysis and Analysis of Record\$5Costs are estimatedIT13SupportOS6COTR Training Program\$5Develop web-based training. Companion to ME29IT14SupportOS6COTR Management of IT Service Contracts\$5Develop Online ModuleHY07DLFDTBBasic Channel Hydraulics\$5Develop Online ModuleSoldDLFDTBName Refresher Training22DS04DLFDTBSmall Basic Customization and Management\$1HY07DLFDTBSmall Basic Customization and Management\$2DS04DLFDTBSmall Basic Customization Course (AWOC) - Tropical Track22									
SA10SupportNWSTCSpecialized Safety Training for Remote NWS Personnel\$40ME35DLCOMETUncertainty Statistics Basics\$75Develop course with support from WR and SOOsME36DLFiCUncertainty Statistics Basics\$75Develop Articulate Presentations of SOO-provided cases; \$21K to FDTBWM01DLFDTBWCM Designing Education Projects (DEP)\$35Course being converted to DL. Approach applicable to support other netSA11DLNUSTCSplil Prevention. Control and Countermeasures Course\$23DS01DLFDTBReal Time Mesoscale Analysis and Analysis of Record\$Develop web-based training. Companion to ME29T114SupportOS6COTR Management of IT Service Contracts\$35Develop Provided cases; Service Outpendication and Social Service ContractsME38DLNWSTCEnvironmental Refresher Training\$22DS04DLFDTBBasic Channel Hydraulics\$5SA09DLNWSTCFacilities Training Requirements\$-HY07DLFDTBSmall Basin Customization and Management\$+HY08ResDLFDTBSmall Basin Customization and Management\$-HY09DLF/CDaw Break Modeling2+Hydro Team. Funds to COMETE131N/ANWSTCFacilities Training Requirements\$ClubNWSTCFacilities Training Requirements <t< td=""><td></td><td></td><td>ME33</td><td>DL</td><td>FDTB</td><td></td><td>\$</td><td>-</td><td>Online course with possible webinars</td></t<>			ME33	DL	FDTB		\$	-	Online course with possible webinars
ME36 ME36DLCOMETUncertainty Statistics Basics\$75Develop course with support from WR and SOOsME36DLF/CEUncertainty Guidance Application Basics\$96Develop Articulate Presentations of SOO-provided cases; \$21K to FDTBWM01DLFDTBWCM Designing Education Projects (DEP)\$35Course being converted to DL. Approach applicable to support other nerSA11DLWNSTSSpill Prevention, Control and Courtermeasures Course\$23DS10DLFDTBReal Time Mesosciel Analysis of Record\$Develop web-based training. Companion to ME29IT13SupportOS6COTR Training Program\$50Costs are estimatedIT14SUpportOS6COTR Training Program\$50Costs are estimatedHY07DLFDTBBasic Channel Hydraulits\$5Develop Online ModuleSA09DLNUSTCEnrormental Refresher Training\$22DS04DLFDTBSmall Basin Customization and Management\$\$HY08Res/DLFDTBSmall Basin Customization and Management\$2HY09DLFDTDam Reak Modeling\$2HY08NANWSTCFacilities Training Requirements\$2HY09DLFOTBadvanced Warning Qeretains Course (AWOC) - Tropical Track\$2HY09DLWSTGCollinate Change and IPCC Report\$2HY09DLW			ME18	DL	FDTB	Graphical Forecast Editor (GFE) Tropical Training	\$	3	Online course with possible webinars; Possible use of SMEs
ME36DLF/CUncertainty Guidance Application Baciss\$96Develop Articulate Presentations of SOC-provided cases; \$21k to FDTEWM01DLNWSTCSpill Prevention, Control and Countermeasures Course\$35Course being converted to DL. Approach applicable to support other nerSA11DLNWSTCSpill Prevention, Control and Countermeasures Course\$23D801DLFDTBReal Time Mesoscale Analysis and Analysis of Record\$5Costs are estimatedIT14SupportOS6COTR Training Program\$50Costs are estimatedME38DLNWSTCCommunicating Forecast Uncertainty to Emergency Managers\$1HY07DLFDTBBasic Channel Hydraulics\$5Develop Online ModuleSA09DLNUSTCEnvironmental Refresher Training\$2DS04DLFDTBEmerging Topics - New Implementations\$-Series of Web modulesHY08Res/DLFDTBSmall Basin Customization and Management\$-Hydro Team. Funds to COMETE13N/ANVSTCCamal Reak Modeling\$2DEP DL Module with Training Development (Virtual Support)ME40DLFDTBRes/Referer Training Decretors (AVOC) - Tropical Track\$2AVOC Tropical TrackE16DLNVSTCCamagement of ID Creast and Warnings\$2DEP DL Module with Training Development (Virtual Support)ME42DLWDTBAdvanced Warth by Coun			SA10	Support	NWSTC	Specialized Safety Training for Remote NWS Personnel	\$ 4	40	
WM01DLFDTEWCM Designing Education Projects (DEP)\$35Course being converted to DL. Approach applicable to support other netSA11DLNWSTCSpill Prevention, Control and Countermeasures Course\$23DS01DLFDTBReal Time Mesoscale Analysis and Analysis of Record\$5Develop web-based training. Companion to ME29IT13SupportOS6COTR Training Program\$50Costs are estimatedIT14SupportOS6COTR Management of IT Service Contracts\$35Costs are estimatedME38DLNWSTCCommunicating Forecast Uncertainty to Emergency Managers\$1HY07DLFDTBBasic Channel Hydraulics\$5Develop Online ModuleSA09DLWWSTCEnvironmental Refresher Training\$2DS04DLFDTBSmall Basin Customization and Management\$+HY08ReS/DLFDTBSmall Basin Customization and Management\$+HY08ReS/DLFDTBFacilites Orage and IPCC Report\$2DEP DL Module with Training Development (Virtual Support)HY09DLF/CDam Break Modeling\$2Develop web-based/WES trainingHY109DLF/CDam Break Modeling\$2HY109DLWDTBAdvanced Warning Operations Course (AWCO) - Tropical Track\$2Develop web-based/WES trainingHY109DLF/CDam Break Modeling\$ </td <td></td> <td></td> <td>ME35</td> <td>DL</td> <td>COMET</td> <td>Uncertainty Statistics Basics</td> <td>\$</td> <td>75</td> <td>Develop course with support from WR and SOOs</td>			ME35	DL	COMET	Uncertainty Statistics Basics	\$	75	Develop course with support from WR and SOOs
SA11DLNWSTCSpill Prevention Control and Countermeasures Course\$ 23DS01DLFDTBReal Time Mesoscale Analysis and Analysis of Record\$ -IT13SupportOS6COTR Training Program\$ 50Costs are estimatedIT14SupportOS6ME38DLNWSTCCommicating Forecast Uncertainty to Emergency Managers\$ 1HY07DLFDTBBasic Channel Hydraulics\$ 5Develop Online ModuleSA09DLNWSTCEmerging Topics - New Implementations\$ -Series of Web modulesHY08Res/DLFDTBEmerging Topics - New Implementations\$ -Hydro Team. Redo previous Basin Customization courseHY08Res/DLFDTBSmall Basin Customization and Management\$ -Hydro Team. Redo previous Basin Customization courseHY09DLFDTBFortBreak Modeling\$ -Hydro Team. Redo previous Basin Customization courseHY09DLVirtualWDTCCalifies Training Programing Course (AWOC) - Tropical Track\$ -E13N/ANWSTCCalefresher Training - Blended Learning\$ -ME42DLWDTBAdvanced Wartning Operations Course (AWOC) - Tropical Track\$ 20ME42DLWDTBAdvanced Wartning - Blended Learning\$ 27Develop web-based/WES training\$ 27Develop web-based/WES trainingME43DLWDTBNew Hydrology Forecast And Warnings\$ 28Directed by NOAA AA, NOAA and OU providing \$528K in SMEsUpdate d			ME36	DL	F/C	Uncertainty Guidance Application Basics	\$ 9	96	Develop Articulate Presentations of SOO-provided cases; \$21K to FDTB; \$75K to COMET
DS01DLFDTBReal Time Mesoscale Analysis and Analysis of Record\$-Develop web-based training. Companion to ME29IT13SupportOS6COTR Training Program\$35Costs are estimatedIT14SupportOS6COTR Management of IT Service Contracts\$35Costs are estimatedHY07DLFDTBBasic Costannel Hydraulics\$55Develop Online ModuleSA09DLNWSTCCommunicating Forecast Uncertainty to Emergency Managers\$2-HY07DLFDTBBasic Customization and Management\$-Hydro Team. Redo previous Basin Customization courseHY08Res/DLFDTBSmall Basin Customization and Management\$-Hydro Team. Funds to COMETHY09DLF/CDam Break Modeling\$-Hydro Team. Funds to COMETHY09DLF/CDam Break Modeling\$-DEP DL Module with Training Development (Virtual Support)ME30VirtualWDTBAdvanced Warning Operations Course (AWOC) - Tropical Track\$2DEP DL Module with Training Development (Virtual Support)ME42DLWDTBAdvanced Warning Operations Course (AWOC) - Tropical Track\$2DEP Obl Module With Training Development (Virtual Support)HY30DLFDTBNew Hydrology Forecast Service Outreach Education\$55ME43DLVDTBAdvanced Warth by County TrainingS2Develop web-based/WES training<									Course being converted to DL. Approach applicable to support other needs
IT13SupportOS6COTR Training ProgramS550Costs are estimatedIT14SupportOS6COTR Management of IT Service Contracts\$35Costs are estimatedME38DLNVWSTCCommunicating Froecast Uncertainty to Emergency Managers\$1HY07DLFOTBBasic Channel Hydraulics\$5Develop Online ModuleS049DLFDTBEmerging Topics - New Implementations\$-Series of Web modulesHY08Res/DLFDTBSmall Basin Customization and Management\$-Hydro Team. Redo previous Basin Customization and ManagementHY09DLF/CDam Break Modeling\$2-Hydro Team. Redo previous Basin Customization courseHY09DLF/CDam Break Modeling\$Hydro Team. Redo previous Basin Customization courseHY09DLF/CDam Break Modeling\$EE13N/ANWSTCClimate Change and IPCC Report\$2DEP DL Module with Training Development (Virtual Support)ME42DLNWSTCClimate Change and IPCC Report\$2AWOC Tropical TrackME42DLWVSTCAdvanced Warkin by County Training\$27ME42DLWDTBAdvanced Warkin by County Training\$27ME42DLWDTBAdvanced Warkin by County Training\$27ME44DLCOMETForceast Process Online Course <td< td=""><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td>23</td><td></td></td<>								23	
IT14SupportOS6COTR Management of IT Service Contracts\$35Costs are estimatedME38DLNWSTCCommunicating Foreast Uncertainty to Emergency Managers\$1HY07DLFDTBBasic Channel Hydraulics\$55Ds04DLFDTBEmerging Topics - New Implementations\$-HY09DLFDTBEmerging Topics - New Implementations\$-HY09DLF/CDam Break Modeling\$2HY09DLF/CDam Break Modeling\$2E13N/ANWSTCFacilities Training Requirements\$-CL08DLNWSTCClimate Change and IPCC Report\$2DEP DL Module with Training Development (Virtual Support)ME03VirtualWDTBAdvanced Warning Operations Course (AWOC) - Tropical Track\$2DEP DL Module with Training Development (Virtual Support)ME42DLWDTBAdvanced Warning Operations Course (AWOC) - Tropical Track\$2Develop web-based/WES trainingME44DLWDTBAdvanced Warning Operations Course\$10Develop web-based/WES trainingME43DLWDTBAdvanced Warning Operations Course\$10ME44DLWDTBNergarting Social Science Into Forecast and Warnings\$28Directed by NOAA AA. NOAA and OU providing \$\$28K in SMEsME44DLCOMETForecast Process Online Course\$140Update dated COMET module <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td>									
ME38DLNWSTCCommunicating Forecast Uncertainty to Emergency Managers\$1HY07DLFDTBBasic Channel Hydraulics\$5Develop Online ModuleSA09DLNVSTCEnvironmental Refresher Training\$22DS04DLFDTBEmerging Topics - New Implementations\$-Hydro Team. Redo previous Basin Customization courseHY08Res/DLFDTBSmall Basin Customization and Management\$-Hydro Team. Redo previous Basin Customization courseHY09DLF/CDam Break Modeling\$2Hydro Team. Funds to COMETEE13N/ANWSTCFacilities Training Requirements\$-CL08DLNWSTCColimate Change and IPCC Report\$2DEP DL Module with Training Development (Virtual Support)ME03VirtualWDTBAdvanced Warning Operations Course (AWOC) - Tropical Track\$2DEV DL wold (see WM04) / residence trainingHY30DLFDTBNew Hydrology Forecast Service Outreach Education\$65DEF Module (see WM04) / residence trainingME42DLWDTBIntegrating Social Science Into Forecast and Warnings\$2424ME43SupportCOMETForecast Process Online Course\$10Update dated COMET moduleME43SupportCOMETImproved HYSPLIT Model Depiction and Delivery\$20Wold be addressed by NVM Team at a level to be determinedME44DLCOMETImproved HYSPLI									
HY07DLFDTBBasic Channel Hydraulics\$ 5Develop Online ModuleSA09DLNWSTCEnvironmental Refresher Training\$ 22DS04DLFDTBEmerging Topics - New Implementations\$ -Series of Web modulesHY08Res/DLFDTBSmall Basin Customization and Management\$ -Hydro Team. Redo previous Basin Customization courseHY09DLF/CDam Break Modeling\$ 2Hydro Team. Funds to COMETE13N/ANWSTCFacilities Training Requirements\$ -CL08DLNWSTCClimate Change and IPCC Report\$ 2DEP DL Module with Training Development (Virtual Support)ME03VirtualWDTBAdvanced Warning Operations Course (AWOC) - Tropical Track\$ 2AWOC Tropical TrackE16DLNWSTCSclos Refresher Training - Biended Learning\$ 12ME42DLWDTBAdvanced Watch by County Training\$ 12ME42DLWDTBAdvanced Watch by County Training\$ 27Develop web-based/WES trainingBirected by NOAA AA.AAA And OU providing \$528K in SMEsME42DLWDTBHole Course\$ 140Update dated COMETForecast Process Online Course\$ 140Update dated COMETImproved HYSPLIT Model Depiction and Delivery\$ 200W640DLCOMETWord HysPLIT Model Depiction and Delivery\$ 200DS05DLFDTBSmart Tools and Smart Initialization\$ 5ME37DLCOMETWat									Costs are estimated
SA09DLNWSTCEnvironmental Refresher Training\$22DS04DLFDTBEmerging Topics - New Implementations\$-Series of Web modulesHY08Res/DLFDTBSmall Basin Customization and Management\$-Hydro Team. Redo previous Basin Customization courseHY09DLF/CDam Break Modeling\$2Hydro Team. Funds to COMETEE13N/ANWSTCFacilities Training Requirements\$-CL08DLNWSTCClimate Change and IPCC Report\$2DEP DL Module with Training Development (Virtual Support)ME03VirtualWDTBAdvanced Warning Operations Course (AWOC) - Tropical Track\$2DEP DL Module (see WM04) / residence trainingH420DLNWSTCASOS Refresher Training - Blended Learning\$12ME42DLWDTBAdvanced Watch by County Training\$27Develop web-based/WES trainingME43DLWDTBIntegrating Social Science Into Forecast Bruce Courteach Education\$65DEP Module (see WM04) / residence trainingME44DLCOMETForecast Process Online Course\$140Update dated COMET mortuleME31SupportCOMETImproved HYSPLIT Model Depiction and Delivery\$200Would be addressed by NWP Team at a level to be determinedDS05DLFDTBSmart Tools and Smart Initialization\$-Series of Web modulesSeries of Web modulesME37DLCOMET<									
DS04DLFDTBEmerging Topics - New Implementations\$-Series of Web modulesHY08Res/DLFDTBSmall Basin Customization and Management\$-Hydro Team. Redo previous Basin Customization courseHY09DLF/CDam Break Modeling\$2Hydro Team. Redo previous Basin Customization courseEE13N/ANWSTCFacilities Training Requirements\$-CL08DLNWSTCClimate Change and IPCC Report\$2DEP DL Module with Training Development (Virtual Support)ME03VirtualWDTBAdvanced Warning Operations Course (AWOC) - Tropical Track\$2AWOC Tropical TrackEE16DLNWSTCASOS Refresher Training - Blended Learning\$12ME42DLWDTBAdvanced Warning Operations Course (AWOC) - Tropical Track\$2Develop web-based/WES trainingHY30DLFDTBNew Hydrology Forecast Service Outreach Education\$5DEP Module (see WM04) / residence trainingME42DLWDTBIntegrating Social Science Into Forecast and Warnings\$28Directed by NOAA AA. NOAA and OU providing \$528K in SMEsME31SupportCOMETForecast Process Online Course\$140Update dated COMET moduleME40DLCOMETImproved HYSPLIT Model Depiction and Delivery\$20World e-addressed by NWP Team at a level to be determinedDS05DLFDTBSmart Tools and Smart Initialization\$15T									Develop Online Module
HY08Res/DLFDTBSmall Basin Customization and Management\$-Hydro Team. Redo previous Basin Customization courseHY09DLF/CDam Break Modeling\$2Hydro Team. Funds to COMETEE13N/AN/WSTCFacilities Training Requirements\$-CL08DLNWSTCClimate Change and IPCC Report\$2DEP DL Module with Training Development (Virtual Support)ME03VirtualWDTBAdvanced Warning Operations Course (AWOC) - Tropical Track\$2AWOC Tropical TrackEE16DLNWSTCASOS Refresher Training - Blended Learning\$2Develop web-based/WES trainingME42DLWDTBAdvanced Watch by County Training\$27Develop web-based/WES trainingHY30DLFDTBNew Hydrology Forecast Service Outreach Education\$65DEP Module (see WM04) / residence trainingME43SupportCOMETIntegrating Social Science Into Forecast and Warnings\$28Directed by NOAA AA. NOAA and OU providing \$528K in SMEsME31SupportCOMETImproved HYSPLIT Model Depiction and Delivery\$20Would be addressed by NWAP Team at a level to be determinedDS05DLFDTBSmart Tools and Smart Initialization\$5Series of Web modulesME37DLCOMETUsing Web Uncertainty Guidance (from Ensembles)\$1ME37DLCOMETUsing Web Uncertainty Guidance (from Ensembles)\$2ME37 <td< td=""><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></td<>									
HY09DLF/CDam Break Modeling\$2Hydro Team. Funds to COMETEE13N/ANWSTCFacilities Training Requirements\$-CL08DLNWSTCClimate Change and IPCC Report\$2DEP DL Module with Training Development (Virtual Support)ME03VirtualWDTBAdvanced Warning Operations Course (AWOC) - Tropical Track\$2AWOC Tropical TrackEE16DLNWSTCASOS Refresher Training - Blended Learning\$12ME42DLWDTBAdvanced Watch by County Training\$27Develop web-based/WES trainingHY30DLFDTBNew Hydrology Forecast Service Outreach Education\$65DEP Module (see WM04) / residence trainingME44DLWDTBIntegrating Social Science Into Forecast and Warnings\$28140Update dated COMET moduleME40DLCOMETForecast Process Online Course\$140Update dated COMET moduleME40DLCOMETImproved HYSPLIT Model Depiction and Delivery\$200Would be addressed by NWP Team at a level to be determinedDS05DLFDTBSmart Tools and Smart Initialization\$55TS04DLNWSTCTsunami Warning Center Watchstander Training\$2Web Module - Virtual DEP SupportCL10DLCOMETVolcanic Ash Monitoring and Climate\$26Development of Articulate Presenter moduleLE07DLNWSTCLeadership Development							-	-	
EE13N/ANWSTCFacilities Training Requirements\$-CL08DLNWSTCClimate Change and IPCC Report\$2DEP DL Module with Training Development (Virtual Support)ME03VirtualWDTBAdvanced Warning Operations Course (AWOC) - Tropical Track\$2AWOC Tropical TrackEE16DLNWSTCASOS Refresher Training - Blended Learning\$12ME42DLWDTBAdvanced Watch by County Training\$27Develop web-based/WES trainingHY30DLFDTBNew Hydrology Forecast Service Outreach Education\$65DEP Module (see WM04) / residence trainingME46DLWDTBIntegrating Social Science Into Forecast and Warnings\$28Directed by NOAA AA. NOAA and OU providing \$528K in SMEsME31SupportCOMETImproved HYSPLIT Model Depiction and Delivery\$200Would be addressed by NWP Team at a level to be determinedDS05DLFDTBSmart Tools and Smart Initialization\$-Series of Web modulesME37DLCOMETUsing Web Uncertainty Guidance (from Ensembles)\$15TS04DLNWSTCTsuami Warning Center Watchstander Training\$2Web Module - Virtual DEP SupportCL10DLCOMETVolcanic Ash Monitoring and Climate\$26Development of Articulate Presenter moduleLEO7DLNWSTCLeadership Development Design and Facilitator Training\$11Produce tutorials and webinars (2 per yea								-	
CL08DLNWSTCClimate Change and IPCC Report\$2DEP DL Module with Training Development (Virtual Support)ME03VirtualWDTBAdvanced Warning Operations Course (AWOC) - Tropical Track\$2AWOC Tropical TrackEE16DLNWSTCASOS Refresher Training - Blended Learning\$12ME42DLWDTBAdvanced Watch by County Training\$27Develop web-based/WES trainingHY30DLFDTBNew Hydrology Forecast Service Outreach Education\$65DEP Module (see WM04) / residence trainingME46DLWDTBIntegrating Social Science Into Forecast and Warnings\$28Directed by NOAA AA. NOAA and OU providing \$528K in SMEsME31SupportCOMETForecast Process Online Course\$140Update dated COMET moduleME40DLCOMETImproved HYSPLIT Model Depiction and Delivery\$200Would be addressed by NWP Team at a level to be determinedDS05DLFDTBSmart Tools and Smart Initialization\$5Series of Web modulesME37DLCOMETUsing Web Uncertainty Guidance (from Ensembles)\$15TS04DLCOMETVolcanic Ash Monitoring and Climate\$26Development of Articulate Presenter moduleLE07DLNWSTCLeadership Development Design and Facilitator Training\$11Produce tutorials and webinars (2 per year)CL05DLCOMETMonsoons\$30DL Module - OS6 Publishing Supp									Hydro Team. Funds to COMET
ME03VirtualWDTBAdvanced Warning Operations Course (AWOC) - Tropical Track\$2AWOC Tropical TrackEE16DLNWSTCASOS Refresher Training - Blended Learning\$12ME42DLWDTBAdvanced Watch by County Training\$27Develop web-based/WES trainingHY30DLFDTBNew Hydrology Forecast Service Outreach Education\$65DEP Module (see WM04) / residence trainingME46DLWDTBIntegrating Social Science Into Forecast and Warnings\$28Directed by NOAA AA.NOAA and OU providing \$528K in SMEsME31SupportCOMETForecast Process Online Course\$140Update dated COMET moduleME40DLCOMETImproved HYSPLIT Model Depiction and Delivery\$200Would be addressed by NWP Team at a level to be determinedDS5DLFDTBSmart Tools and Smart Initialization\$-Series of Web modulesME37DLCOMETUsing Web Uncertainty Guidance (from Ensembles)\$15TS04DLNWSTCTsunami Warning and Climate\$26Development of Articulate Presenter moduleLE07DLNWSTCLeadership Development Design and Facilitator Training\$11Produce tutorials and webinars (2 per year)CL05DLCOMETMonsoons\$30DL Module - OS6 Publishing Support							-		DEP DL Module with Training Development (Virtual Support)
EE16DLNWSTCASOS Refresher Training - Blended Learning\$ 12ME42DLWDTBAdvanced Watch by County Training\$ 27Develop web-based/WES trainingHY30DLFDTBNew Hydrology Forecast Service Outreach Education\$ 65DEP Module (see WM04) / residence trainingME46DLWDTBIntegrating Social Science Into Forecast and Warnings\$ 28Directed by NOAA AA. NOAA and OU providing \$528K in SMEsME31SupportCOMETForecast Process Online Course\$ 140Update dated COMET moduleME40DLCOMETImproved HYSPLIT Model Depiction and Delivery\$ 200Would be addressed by NWP Team at a level to be determinedDS05DLFDTBSmart Tools and Smart Initialization\$ -Series of Web modulesME37DLCOMETUsing Web Uncertainty Guidance (from Ensembles)\$ 15TS04DLNWSTCTsunami Warning Center Watchstander Training\$ 2Web Module - Virtual DEP SupportCL10DLCOMETVolcanic Ash Monitoring and Climate\$ 26Development of Articulate Presenter moduleLE07DLNWSTCLeadership Development Design and Facilitator Training\$ 41HY12DLFDTBThe Use of GIS in Hydrologic Operations\$ 11HY12DLFDTBThe Use of GIS in Hydrologic Operations\$ 30DL Module - OS6 Publishing Support									
ME42DLWDTBAdvanced Watch by County Training\$27Develop web-based/WES trainingHY30DLFDTBNew Hydrology Forecast Service Outreach Education\$65DEP Module (see WM04) / residence trainingME46DLWDTBIntegrating Social Science Into Forecast and Warnings\$28Directed by NOAA AA. NOAA and OU providing \$528K in SMEsME31SupportCOMETForecast Process Online Course\$140Update dated COMET moduleME40DLCOMETImproved HYSPLIT Model Depiction and Delivery\$200Would be addressed by NWP Team at a level to be determinedDS05DLFDTBSmart Tools and Smart Initialization\$-Series of Web modulesME37DLCOMETUsing Web Uncertainty Guidance (from Ensembles)\$15TS04DLNWSTCTsunami Warning Center Watchstander Training\$2Web Module - Virtual DEP SupportCL10DLCOMETVolcanic Ash Monitoring and Climate\$26Development of Articulate Presenter moduleLE07DLNWSTCLeadership Development Design and Facilitator Training\$41HY12DLFDTBThe Use of GIS in Hydrologic Operations\$11Produce tutorials and webinars (2 per year)CL05DLCOMETMonsoons\$30DL Module - OS6 Publishing Support									
HY30DLFDTBNew Hydrology Forecast Service Outreach Education\$ 65DEP Module (see WM04) / residence trainingME46DLWDTBIntegrating Social Science Into Forecast and Warnings\$ 28Directed by NOAA AA. NOAA and OU providing \$528K in SMEsME31SupportCOMETForecast Process Online Course\$ 140Update dated COMET moduleME40DLCOMETImproved HYSPLIT Model Depiction and Delivery\$ 200Would be addressed by NWP Team at a level to be determinedDS05DLFDTBSmart Tools and Smart Initialization\$ -Series of Web modulesME37DLCOMETUsing Web Uncertainty Guidance (from Ensembles)\$ 15TS04DLNWSTCTsunami Warning Center Watchstander Training\$ 2Web Module - Virtual DEP SupportCL10DLCOMETVolcanic Ash Monitoring and Climate\$ 26Development of Articulate Presenter moduleLE07DLNWSTCLeadership Development Design and Facilitator Training\$ 41HY12DLFDTBThe Use of GIS in Hydrologic Operations\$ 11Produce tutorials and webinars (2 per year)CL05DLCOMETMonsoons\$ 30DL Module - OS6 Publishing Support									Develop web-based/WES training
ME46DLWDTBIntegrating Social Science Into Forecast and Warnings\$ 28Directed by NOAA AA.NOAA and OU providing \$528K in SMEsME31SupportCOMETForecast Process Online Course\$ 140Update dated COMET moduleME40DLCOMETImproved HYSPLIT Model Depiction and Delivery\$ 200Would be addressed by NWP Team at a level to be determinedDS05DLFDTBSmart Tools and Smart Initialization\$ -Series of Web modulesME37DLCOMETUsing Web Uncertainty Guidance (from Ensembles)\$ 15TS04DLNWSTCTsunami Warning Center Watchstander Training\$ 2Web Module - Virtual DEP SupportCL10DLCOMETVolcanic Ash Monitoring and Climate\$ 26Development of Articulate Presenter moduleLE07DLNWSTCLeadership Development Design and Facilitator Training\$ 41HY12DLFDTBThe Use of GIS in Hydrologic Operations\$ 11HY12DLCOMETMonsoons\$ 30DL Module - OS6 Publishing Support									
ME31 Support COMET Forecast Process Online Course \$ 140 Update dated COMET module ME40 DL COMET Improved HYSPLIT Model Depiction and Delivery \$ 200 Would be addressed by NWP Team at a level to be determined DS05 DL FDTB Smart Tools and Smart Initialization \$ - Series of Web modules ME37 DL COMET Using Web Uncertainty Guidance (from Ensembles) \$ 15 TS04 DL NWSTC Tsunami Warning Center Watchstander Training \$ 2 Web Module - Virtual DEP Support CL10 DL COMET Volcanic Ash Monitoring and Climate \$ 26 Development of Articulate Presenter module LE07 DL NWSTC Leadership Development Design and Facilitator Training \$ 41 HY12 DL FDTB The Use of GIS in Hydrologic Operations \$ 11 Produce tutorials and webinars (2 per year) CL05 DL COMET Monsoons \$ 30 DL Module - OS6 Publishing Support									
ME40DLCOMETImproved HYSPLIT Model Depiction and Delivery\$ 200Would be addressed by NWP Team at a level to be determinedDS05DLFDTBSmart Tools and Smart Initialization\$ -Series of Web modulesME37DLCOMETUsing Web Uncertainty Guidance (from Ensembles)\$ 15TS04DLNWSTCTsunami Warning Center Watchstander Training\$ 2Web Module - Virtual DEP SupportCL10DLCOMETVolcanic Ash Monitoring and Climate\$ 26Development of Articulate Presenter moduleLE07DLNWSTCLeadership Development Design and Facilitator Training\$ 41HY12DLFDTBThe Use of GIS in Hydrologic Operations\$ 11Produce tutorials and webinars (2 per year)CL05DLCOMETMonsoons\$ 30DL Module - OS6 Publishing Support									
DS05DLFDTBSmart Tools and Smart Initialization\$ -Series of Web modulesME37DLCOMETUsing Web Uncertainty Guidance (from Ensembles)\$ 15TS04DLNWSTCTsunami Warning Center Watchstander Training\$ 2Web Module - Virtual DEP SupportCL10DLCOMETVolcanic Ash Monitoring and Climate\$ 26Development of Articulate Presenter moduleLE07DLNWSTCLeadership Development Design and Facilitator Training\$ 41HY12DLFDTBThe Use of GIS in Hydrologic Operations\$ 11Produce tutorials and webinars (2 per year)CL05DLCOMETMonsoons\$ 30DL Module - OS6 Publishing Support									
ME37DLCOMETUsing Web Uncertainty Guidance (from Ensembles)\$15TS04DLNWSTCTsunami Warning Center Watchstander Training\$2Web Module - Virtual DEP SupportCL10DLCOMETVolcanic Ash Monitoring and Climate\$26Development of Articulate Presenter moduleLE07DLNWSTCLeadership Development Design and Facilitator Training\$41HY12DLFDBThe Use of GIS in Hydrologic Operations\$11Produce tutorials and webinars (2 per year)CL05DLCOMETMonsoons\$30DL Module - OS6 Publishing Support								-	
TS04DLNWSTCTsunami Warning Center Watchstander Training\$2Web Module - Virtual DEP SupportCL10DLCOMETVolcanic Ash Monitoring and Climate\$26Development of Articulate Presenter moduleLE07DLNWSTCLeadership Development Design and Facilitator Training\$41HY12DLFDTBThe Use of GIS in Hydrologic Operations\$11Produce tutorials and webinars (2 per year)CL05DLCOMETMonsoons\$30DL Module - OS6 Publishing Support								15	
CL10 DL COMET Volcanic Ash Monitoring and Climate \$ 26 Development of Articulate Presenter module LE07 DL NWSTC Leadership Development Design and Facilitator Training \$ 41 HY12 DL FDTB The Use of GIS in Hydrologic Operations \$ 11 Produce tutorials and webinars (2 per year) CL05 DL COMET Monsoons \$ 30 DL Module - OS6 Publishing Support									Web Module - Virtual DEP Support
LE07DLNWSTCLeadership Development Design and Facilitator Training\$ 41HY12DLFDTBThe Use of GIS in Hydrologic Operations\$ 11Produce tutorials and webinars (2 per year)CL05DLCOMETMonsoons\$ 30DL Module - OS6 Publishing Support									
HY12 DL FDTB The Use of GIS in Hydrologic Operations \$ 11 Produce tutorials and webinars (2 per year) CL05 DL COMET Monsoons \$ 30 DL Module - OS6 Publishing Support				DL					
CL05 DL COMET Monsoons \$ 30 DL Module - OS6 Publishing Support			HY12	DL				11	Produce tutorials and webinars (2 per year)
				DL			\$	30	
IT11 Support OS6 Capital Planning and Investment Control (CPIC), & Exhibit 300 \$ 30 Costs are estimated			IT11	Support	OS6	Capital Planning and Investment Control (CPIC), & Exhibit 300			Costs are estimated

		IT12	Support	OS6	Fundamentals of Earned Value Management (EVM)	\$	40	Costs are estimated
		IT16	Support	OS6	Program Management	\$	25	Costs are estimated
		IT15	Support	OS6	Managing Projects / Project Management	\$	45	Costs are estimated
		HY10	DL	FDTB	Distributed Hydrologic Modeling	\$	-	Hydro Team. Develop online module
		HY17	DL	F/N	The Use of GFE in the RFCs	\$	12	Webinar/DL Module Production; Funds to NWSTC
		TS01	Support	NWSTC	Tsunami Warning Center Intern Program	\$	2	DEP DL Module with Training Development (Virtual Support)
		HY18	DL	NWSTC	RFC Operations	ŝ	3	
		ME32	DL	FDTB	SOO Training Communicating Forecast Uncertainty	ŝ	36	Develop a virtual course; \$30K to COMET; \$6K to FDTB
		SA07	DL	NWSTC	Safety Refresher Training	ŝ	20	
		CL09	DL	COMET	NCEP Advancements in Climate Modeling	ŝ	26	Development of Articulate Presenter module
		HY15	Res/DL	FDTB	Hydrologic Model Calibration	ŝ	37	Develop residence course
		HY14	Res	C/F	Hydrologic Science	ŝ	112	Hydro Team. Continue Advanced Hydrologic Science Workshop; Funds to COMET
		LE03	DL	WDTB	Facilitation Skills for SOOs	ŝ	5	Post COMAP Symposium
		WM03	Support	NWSTC	Field Reg Team - ISS follow-on course to WCM/SCH Training	ŝ	53	0.20 FTE external SME
		N/A	Support	OS6	University Assignment Program	φ ¢	100	
		ME08	Res	C/F	New SOO Training (COMAP)	Ψ ¢	152	COMAP course and associated module development. Held in FY08; \$68K to COMET
		LE02	Res	NWSTC	Executive Leadership Seminar (ELS)	φ	276	2 offerings
¢	254 Hydro+	HY27	DL	FDTB	Static Flood Inundation Mapping	ψ Φ	210	Webcast/Online module development
φ	204 Hydro+	HY08	Res	COMET	Static Flood mundation Mapping Small Basin Customization and Management	¢ D	102	•
					8	¢ ¢	102	Hydro Team. Redo previous Basin Customization course
		HY10	DL	COMET	Distributed Hydrologic Modeling	ъ	12	Hydro Team. Develop online module
		HY16	DL	COMET	Precipitation Processing	\$	120	Hydro Team. Continue module development begun in FY08
\$	3,267				Total Deliverable Costs	\$ 3	8,267	

	Table 5 - FY09 Travel Cost Breakdown per Location						
Kansas City, MO (NWSTC)	Hotel	First/Last Day	Per Diem	Air/Misc.	TOTAL		
1 night stay for guest inst	\$97.72	\$75.00	\$0.00	\$650.00	\$822.72		
2 night stay for guest inst	\$195.44	\$75.00	\$50.00	\$650.00	\$970.44		
2 day class - 3 night stay	\$293.16	\$75.00	\$100.00	\$650.00	\$1,118.16		
3/3.5 day class - 4 night stay	\$390.88	\$75.00	\$150.00	\$650.00	\$1,265.88		
4/4.5 day class - 5 night stay	\$488.60	\$75.00	\$200.00	\$650.00	\$1,413.60		
6 night stay	\$586.32	\$75.00	\$250.00	\$650.00	\$1,561.32		
6 day class - 9 night stay	\$879.48	\$75.00	\$400.00	\$650.00	\$2,004.48		
8/8.5 day class - 11 night stay	\$1,074.92	\$75.00	\$500.00	\$650.00	\$2,299.92		
9.5 day class - 12 night stay	\$1,172.64	\$75.00	\$550.00	\$650.00	\$2,447.64		
10 day class - 15 night stay	\$1,465.80	\$75.00	\$700.00	\$650.00	\$2,890.80		
12 day class - 17 night stay	\$1,661.24	\$75.00	\$800.00	\$650.00	\$3,186.24		
13 day class - 18 night stay	\$1,758.96	\$75.00	\$850.00	\$650.00	\$3,333.96		
25 day class - 37 night stay	\$3,615.64	\$75.00	\$1,800.00	\$650.00	\$6,140.64		
30 day class - 38 night stay	\$3,713.36	\$75.00	\$1,850.00	\$650.00	\$6,288.36		
33 day class - 46 night stay	\$4,495.12	\$75.00	\$2,250.00	\$650.00	\$7,470.12		
Boulder, CO (COMET)	Hotel	First/Last Day	Per Diem	Air/Misc.	TOTAL		
1 night stay for guest inst	\$103.00	\$88.50	\$0.00	\$650.00	\$841.50		
2 night stay for guest inst	\$206.00	\$88.50	\$59.00	\$650.00	\$1,003.50		
2 day class - 3 night stay	\$309.00	\$88.50	\$118.00	\$650.00	\$1,165.50		
3/3.5 day class - 4 night stay	\$412.00	\$88.50	\$177.00	\$650.00	\$1,327.50		
4/4.5 day class - 5 night stay	\$515.00	\$88.50	\$236.00	\$650.00	\$1,489.50		
6 day class - 9 night stay	\$927.00	\$88.50	\$472.00	\$650.00	\$2,137.50		
8 day class - 11 night stay	\$1,133.00	\$88.50	\$590.00	\$650.00	\$2,461.50		
10.5 day class - 15 night stay	\$1,545.00	\$88.50	\$826.00	\$650.00	\$3,109.50		
15 day class - 20 night stay	\$2,060.00	\$88.50	\$1,180.00	\$650.00	\$3,978.50		
30 day class - 38 night stay	\$3,914.00	\$88.50	\$2,183.00	\$1,300.00	\$7,485.50		
Norman, OK (WDTB)	Hotel	First/Last Day	Per Diem	Air/Misc.	TOTAL		
4.5 day class - 5 night stay	\$375.00	\$58.50	\$117.00	\$775.00	\$1,325.50		
4.5 day class - 5 hight stay	\$375.00	\$30.50	\$117.00	\$775.00	φ1,325.50		
Washington, DC (NWS HQ)	Hotel	First/Last Day	Per Diem	Air/Misc.	TOTAL		
9.5 day class - 11 night stay	\$2,068.00	\$96.00	\$640.00	\$600.00	\$3,404.00		
Boise, ID (Fire Weather)	Hotel	Firet/Lest Day	Per Diem	Air/Misc.	TOTAL		
		First/Last Day		1 1			
3 day class - 4 night stay	\$316.00	\$73.50	\$147.00	\$700.00	\$1,236.50		
4/4.5 day class - 5 night stay	\$395.00	\$73.50	\$196.00	\$700.00	\$1,364.50		