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Exhibit R-2, RDT&E Budget Item Justification: PB 2017 Navy **Date:** February 2016

Appropriation/Budget Activity 1319: <i>Research, Development, Test & Evaluation, Navy / BA 5: System Development & Demonstration (SDD)</i>	R-1 Program Element (Number/Name) PE 0604218N / <i>Air/Ocean Equipment Engineering</i>
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COST (\$ in Millions)	Prior Years	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	FY 2018	FY 2019	FY 2020	FY 2021	Cost To Complete	Total Cost
Total Program Element	79.213	2.126	4.515	3.875	-	3.875	4.563	15.111	5.255	5.360	Continuing	Continuing
2345: <i>Fleet METOC Equipment</i>	57.519	1.200	3.379	2.692	-	2.692	3.319	3.925	3.975	4.055	Continuing	Continuing
2346: <i>METOC Sensor Engineering</i>	21.694	0.926	1.136	1.183	-	1.183	1.244	11.186	1.280	1.305	Continuing	Continuing

A. Mission Description and Budget Item Justification

The Air/Ocean Equipment Engineering (AOEE) Program Element provides new capabilities to support naval combat forces. This program engineers and developmentally tests organic and remote sensors, communication interfaces, and processing and display devices. This equipment is engineered to measure, ingest, store, process, distribute and display conditions of the physical environment that are essential to the optimum employment and performance of naval warfare systems. AOEE also engineers capabilities for shipboard and shore-based tactical systems. A major area of focus for the AOEE program is to provide the engineering development of specialized equipment and measurement capabilities that are intended to monitor specific conditions of the physical environment in hostile and remote areas in response to fleet demand signals for increased sensing capability and capacity to support battlespace collections and prediction on short to intermediate time scales. With such capabilities, the war fighters' situational awareness of the operational effects of the physical environment are made more certain.

Major emphasis is on the Meteorological and Oceanographic Future Mission Capabilities (METOC FMC) project.

B. Program Change Summary (\$ in Millions)	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
Previous President's Budget	2.164	4.515	2.156	-	2.156
Current President's Budget	2.126	4.515	3.875	-	3.875
Total Adjustments	-0.038	0.000	1.719	-	1.719
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-0.038	0.000			
• Program Adjustments	0.000	0.000	0.000	-	0.000
• Rate/Misc Adjustments	0.000	0.000	1.719	-	1.719

Change Summary Explanation

Decrease in Air/Ocean Equipment Engineering (AOEE) by \$0.083M as required for the Department of the Navy to comply with the Bipartisan Budget Act of 2015.

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Appropriation/Budget Activity
1319: *Research, Development, Test & Evaluation, Navy / BA 5: System Development & Demonstration (SDD)*

R-1 Program Element (Number/Name)
PE 0604218N / *Air/Ocean Equipment Engineering*

Schedule - 1) LBS-UUV schedule is updated to reflect the development of the LBS-AUV (S) technical data package for sensor payloads in FY17.

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Navy										Date: February 2016		
Appropriation/Budget Activity 1319 / 5					R-1 Program Element (Number/Name) PE 0604218N / <i>Air/Ocean Equipment Engineering</i>				Project (Number/Name) 2345 / <i>Fleet METOC Equipment</i>			
COST (\$ in Millions)	Prior Years	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	FY 2018	FY 2019	FY 2020	FY 2021	Cost To Complete	Total Cost
2345: <i>Fleet METOC Equipment</i>	57.519	1.200	3.379	2.692	-	2.692	3.319	3.925	3.975	4.055	Continuing	Continuing
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

This project provides for the engineering and manufacturing development of sensors, communication interfaces, processing and display meteorological and oceanographic (METOC) equipment. This equipment is designed to provide future mission capabilities for war fighters to measure, ingest, store, process, distribute and display METOC parameters and derived products.

This project also exploits new government off-the-shelf /commercial off-the-shelf technologies, tactical sensors and web enablement for the Navy's computer-based tactical shipboard and shore capability used to predict and assess the operational effects of the physical environment on the performance of platforms, weapons and sensor systems. This project includes development of warfare specific mission planning modules to support unmanned systems with integration of data from environmental and tactical sensor systems, model forecast information and Geospatial Information & Services Databases. This project also supports development of autonomous environmental sensing systems for situational awareness and tactical decision aid/mission planner support, as well as iridium and advanced satellite communication integration in METOC sensor, vehicle control and mission planning systems that will be required to achieve Chief of Naval Operation objectives for information dominance and decision superiority.

Major emphasis areas include the Meteorological and Oceanographic Future Mission Capabilities (METOC FMC) project, Littoral Battlespace Sensors - Unmanned Undersea Vehicles (LBS-UUV) and the Environmental Satellite Receiver Processor (ESRP) (comprised of AN/SMQ-11 (sea and shore configuration) and AN/FMQ-17 (shore configuration)) program.

FY 2017 request provides for the conduct of Littoral Battlespace Sensors - Gliders (LBS-G) and Littoral Battlespace Sensors - Autonomous Undersea Vehicles (LBS-AUV) engineering design studies and development of system upgrades via ECP and correction of software & hardware deficiencies as required, and develop LBS-AUV Submarine Variant (AUV(S)) technical package for sensor payloads, and continue to develop and test annual hardware and software upgrades to integrate new METOC Satellite Sensors available in the Geostationary Operational Environmental Satellite (GOES) and the Polar Orbiting Environmental Satellite (POES).

B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)

	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
Title: Meteorological and Oceanographic (METOC) Future Mission Capabilities (FMC)	0.815	2.951	0.489	0.000	0.489
Articles:	-	-	-	-	-
FY 2015 Accomplishments: Continued to advance METOC infrastructure development for METOC decision support software applications and interfaces to tactical and strategic decision aids along with component and prototype efforts associated with					

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Navy		Date: February 2016
Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604218N / <i>Air/Ocean Equipment Engineering</i>	Project (Number/Name) 2345 / <i>Fleet METOC Equipment</i>

B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
<p>acquiring environmental data. Continued the development of an end-to-end methodology to collect, fuse, and integrate these data into Navy and DoD networks and command & control nodes. Continued the development of support infrastructure for advanced global & regional METOC prediction systems.</p> <p>FY 2016 Plans: Continue advanced METOC infrastructure development for METOC decision support software applications and interfaces to tactical and strategic decision aids along with component and prototype efforts associated with acquiring environmental data. Continue development of an end-to-end methodology to collect, fuse, and integrate these data into Navy and DoD networks and command & control nodes. Continue development of support infrastructure for advanced global & regional METOC prediction systems. Begin the Dual Band (air surveillance) Radar design and development for the new weather radar processing and display software for CVN 78 class ships.</p> <p>FY 2017 Base Plans: Continue advanced software tools development for METOC asset allocation, METOC decision support software applications, and interfaces to tactical and strategic decision aids along with component and prototype efforts associated with acquiring environmental data. Continue development of an end-to-end methodology to collect, fuse, and integrate these data into Navy and DoD networks and command & control nodes. Continue the development of support infrastructure for advanced global & regional METOC prediction systems. Coordinate efforts regarding the Dual Band (air surveillance) Radar design and development for the new weather radar processing and display software for CVN 78 class ships.</p> <p>FY 2017 OCO Plans: N/A</p>					
<p>Title: Littoral Battlespace Sensors - Unmanned Undersea Vehicle (LBS-UUV)</p> <p align="right">Articles:</p>	0.145 -	0.138 -	1.938 -	0.000 -	1.938 -
<p>FY 2015 Accomplishments: Conducted LBS-G and LBS-AUV engineering design and feasibility studies as required. Developed system upgrades via Engineering Change Proposals (ECPs), and corrected any identified software and/or hardware deficiencies as required. Continued efforts on enhanced AUV autonomy, Glider Operations Center (GOC) automation, battery redesign, and others as directed. Completed communications enhancements investigation</p>					

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Navy				Date: February 2016	
Appropriation/Budget Activity 1319 / 5		R-1 Program Element (Number/Name) PE 0604218N / Air/Ocean Equipment Engineering		Project (Number/Name) 2345 / Fleet METOC Equipment	
B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)					
and some sub-elements of the GOC automation task (Batch File, Storm Mode, and Autonomous Abort Handling). Completed battery redesign study.					
FY 2016 Plans: Conduct LBS-G and LBS AUV engineering design studies as required. Develop system upgrades via ECPs and correct any identified software and/or hardware deficiencies as required. Continue efforts on AUV autonomy. Continue GOC automation efforts and battery redesign investigations. Begin investigating next generation propulsion technologies such as the Hybrid Thruster, battery chemistry, thermal engines, and universal buoyancy engines for potential system upgrades as directed.					
FY 2017 Base Plans: Conduct LBS-G and LBS AUV engineering design studies as required. Develop LBS-AUV submarine variant technical data package for sensor payloads. Develop system upgrades via ECPs and correct any identified software and/or hardware deficiencies as required. Continue efforts on AUV autonomy. Continue GOC automation efforts. Continue investigating next generation propulsion technologies such as the Hybrid Thruster, battery chemistry, thermal engines, and universal buoyancy engines for potential system upgrades.					
FY 2017 OCO Plans: N/A					
Title: Environmental Satellite Receiver Processor (ESRP)					
Articles:					
	0.240	0.290	0.265	0.000	0.265
	-	-	-	-	-
FY 2015 Accomplishments: Continued developing and testing of annual hardware and software upgrades to integrate new METOC Satellite Sensors available in the Geostationary Operational Environmental Satellite (GOES) and the Polar Orbiting Environmental Satellite (POES). Continued integration of ESRP systems in support of Joint Polar Satellite System (JPSS), and European Meteorology Satellites (EUMETSAT). Overall program efforts included investigation of emerging technologies through study, development and associated testing for feasibility of program insertion.					
FY 2016 Plans: Continue to develop and test annual hardware and software upgrades to integrate new METOC Satellite Sensors available in the GOES and the POES. Continue integration of ESRP systems in support of JPSS, and					

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Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604218N / <i>Air/Ocean Equipment Engineering</i>	Project (Number/Name) 2345 / <i>Fleet METOC Equipment</i>

B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
EUMETSAT. Overall program efforts include investigation of emerging technologies through study, development and associated testing for feasibility of program insertion.					
<i>FY 2017 Base Plans:</i> Continue to develop and test annual hardware and software upgrades to integrate new METOC Satellite Sensors available in the GOES and the POES. Continue integration of ESRP systems in support of JPSS, and EUMETSAT. Overall program efforts include investigation of emerging technologies through study, development and associated testing for feasibility of program insertion.					
<i>FY 2017 OCO Plans:</i> N/A					
Accomplishments/Planned Programs Subtotals	1.200	3.379	2.692	0.000	2.692

C. Other Program Funding Summary (\$ in Millions)											
<u>Line Item</u>	<u>FY 2015</u>	<u>FY 2016</u>	<u>FY 2017 Base</u>	<u>FY 2017 OCO</u>	<u>FY 2017 Total</u>	<u>FY 2018</u>	<u>FY 2019</u>	<u>FY 2020</u>	<u>FY 2021</u>	<u>Cost To Complete</u>	<u>Total Cost</u>
• OPN/4226:	12.825	15.090	29.253	-	29.253	27.020	22.605	18.837	19.802	Continuing	Continuing
<i>Meteorological Equipment</i>											
• RDTEN/0603207N/2341:	2.487	3.763	0.000	-	0.000	0.000	0.000	0.000	0.000	Continuing	Continuing
<i>METOC Data Acquisition</i>											
• RDTEN/0603207N/2342: <i>METOC Data Assimilation and MOD</i>	4.891	8.168	0.000	-	0.000	0.000	0.000	0.000	0.000	Continuing	Continuing
• RDTEN/0604218N/2346:	0.926	1.136	0.000	-	0.000	0.000	9.933	0.000	0.000	Continuing	Continuing
<i>METOC Sensor Engineering</i>											

Remarks

D. Acquisition Strategy

Acquisition, management and contracting strategies are to support engineering and manufacturing development by providing funds to Naval Research Laboratories and miscellaneous contractors, with management oversight by the Office of Naval Research.

E. Performance Metrics

Goal: Develop and engineer equipment to acquire meteorological and oceanographic (METOC) data in order to improve the accuracy of global and regional scale Meteorological and Oceanographic forecast models.

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Navy		Date: February 2016
Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604218N / <i>Air/Ocean Equipment Engineering</i>	Project (Number/Name) 2345 / <i>Fleet METOC Equipment</i>

Metric: Tasks will address no less than 75% of applicable capability gaps and requirements, as identified by Resource and Requirements Sponsor(s). As tasks relate to exploitation of fleet sensors for METOC data (Through-the-Sensor), no less than 80% of approved initiatives will have a cost, schedule, performance and transition risk analysis completed within the past 12 months.

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2017 Navy												Date: February 2016			
Appropriation/Budget Activity				R-1 Program Element (Number/Name)				Project (Number/Name)							
1319 / 5				PE 0604218N / Air/Ocean Equipment Engineering				2345 / Fleet METOC Equipment							
Product Development (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
METOC Future Mission Capabilities	WR	Naval Research Laboratory : Monterey, CA	21.618	0.815	Nov 2014	0.751	Nov 2015	0.489	Nov 2016	-		0.489	0.000	23.673	Continuing
METOC Future Mission Capabilities	Various	Various : Various	30.848	0.000		0.000		0.000		-		0.000	0.000	30.848	18.623
Littoral Battlespace Sensing - Gliders	C/CPIF	Teledyne Brown Engineering : Alabama	0.476	0.073	Mar 2015	0.069	Mar 2016	0.970	Mar 2017	-		0.970	Continuing	Continuing	Continuing
Littoral Battlespace Sensing - Autonomous Undersea Vehicle	C/FP	Hydroid : Pocasset, MA	0.594	0.072	Mar 2015	0.069	Mar 2016	0.968	Mar 2017	-		0.968	Continuing	Continuing	Continuing
METOC ESRP	C/CPFF	RAYTHEON : Indianapolis	0.840	0.240	Feb 2015	0.290	Feb 2016	0.265	Feb 2017	-		0.265	Continuing	Continuing	Continuing
METOC Future Mission Capabilities (DBR)	C/FFP	Unknown : Unknown	0.000	0.000		0.685	Feb 2016	0.000		-		0.000	0.000	0.685	-
METOC Future Mission Capabilities DBR	C/FFP	Unknown : Unknown	0.000	0.000		1.515	Mar 2016	0.000		-		0.000	0.000	1.515	-
Subtotal			54.376	1.200		3.379		2.692		-		2.692	-	-	-
Support (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
METOC Future Mission Capabilities	C/CPFF	SSA/CSC : MISC	1.312	0.000		0.000		0.000		-		0.000	0.000	1.312	-
Littoral Battlespace Sensing - Autonomous Undersea Vehicle	Various	Various : Various	0.767	0.000		0.000		0.000		-		0.000	0.000	0.767	-
Subtotal			2.079	0.000		0.000		0.000		-		0.000	0.000	2.079	-

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Exhibit R-4, RDT&E Schedule Profile: PB 2017 Navy **Date:** February 2016

Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604218N / <i>Air/Ocean Equipment Engineering</i>	Project (Number/Name) 2345 / <i>Fleet METOC Equipment</i>
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Meteorological and Oceanographic (METOC) Future Mission Capabilities (FMC)	FY 2015				FY 2016				FY 2017				FY 2018				FY 2019				FY 2020				FY 2021							
	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q				
FMC Network Integration (DoN & DoD)																																
FMC Develop Global & Regional Support Infrastructure																																
FMC Through the Sensor (TTS) Ocean Characterization Techniques: FY 17-20																																
DBR Design and Development																																

2017OSD - 0604218N - 2345

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Exhibit R-4A, RDT&E Schedule Details: PB 2017 Navy		Date: February 2016
Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604218N / <i>Air/Ocean Equipment Engineering</i>	Project (Number/Name) 2345 / <i>Fleet METOC Equipment</i>

Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
<i>Meteorological and Oceanographic (METOC) Future Mission Capabilities (FMC)</i>				
FMC Network Integration (DoN & DoD):	1	2015	4	2016
FMC Develop Global & Regional Support Infrastructure:	1	2015	4	2020
FMC Through the Sensor (TTS) Ocean Characterization Techniques: FY 17-20:	1	2017	4	2020
DBR Design and Development:	2	2016	4	2016
<i>Littoral Battlespace Sensors - Unmanned Undersea Vehicle (LBS-UUV)</i>				
Technical Data Package Development:	2	2017	4	2017
Sensor Payload Enhancement:	1	2018	4	2021
Sensor Payload Integration: Sensor Payload Integration 1	3	2018	4	2018
Sensor Payload Integration: Sensor Payload Integration 2	1	2019	4	2021
Sensor Payload Approval: Sensor Payload Approval 1	1	2019	1	2019
Sensor Payload Approval: Sensor Payload Approval 2	1	2020	1	2020
Sensor Payload Approval: Sensor Payload Approval 3	1	2021	1	2021
Sensor Payload Testing: Sensor Payload Testing 1	2	2019	2	2019
Sensor Payload Testing: Sensor Payload Testing 2	2	2020	2	2020
Sensor Payload Testing: Sensor Payload Testing 3	2	2021	2	2021

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Navy										Date: February 2016		
Appropriation/Budget Activity 1319 / 5					R-1 Program Element (Number/Name) PE 0604218N / Air/Ocean Equipment Engineering				Project (Number/Name) 2346 / METOC Sensor Engineering			
COST (\$ in Millions)	Prior Years	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	FY 2018	FY 2019	FY 2020	FY 2021	Cost To Complete	Total Cost
2346: METOC Sensor Engineering	21.694	0.926	1.136	1.183	-	1.183	1.244	11.186	1.280	1.305	Continuing	Continuing
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

This project provides for the engineering and manufacturing development of specialized, high resolution instrumentation systems and measurement capabilities for obtaining near real-time, in-situ Meteorological and Oceanographic (METOC) data in hostile, remote, and denied areas. The project's objectives are to engineer near term future mission sensing capabilities that are intended to survive the harsh littoral and deep-strike environments and also to meet demanding requirements for timeliness and accuracy. Engineering is performed within this project to ensure that air and safety certification for deployment from fleet aircraft or ships is met and that the proper data formats are engineered for electronic communications transmissions, human interface displays, and inputs to predictive models. The major area of emphasis is the METOC Future Mission Capabilities (FMC) project.

B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)

	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
Title: Meteorological and Oceanographic (METOC) Future Mission Capabilities (FMC)	0.926	1.136	1.183	0.000	1.183
Articles:	-	-	-	-	-
FY 2015 Accomplishments:					
Continued the system development and demonstration of METOC manned, unmanned and automated sensors (to include integration of environmental sensors into a larger environmental sensing strategy). Continued the development of advanced sensor system support technologies and techniques for sensor deployment, data processing and analysis to include performance metrics to optimize sensor performance. Continued the development of infrastructure to acquire, process and distribute METOC data and products.					
FY 2016 Plans:					
Continue development of METOC manned, unmanned and automated sensing technologies (to include integration of environmental sensors into a larger environmental sensing strategy). Continue the development of advanced sensor system support technologies and techniques for sensor deployment, data processing and analysis to include performance metrics to optimize sensor performance. Continue to develop infrastructure to acquire, process and distribute METOC data and products. Additionally, FY16 funding will assess new sensor capabilities.					
FY 2017 Base Plans:					
Continue system development and demonstration of METOC manned, unmanned and automated sensors					

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Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604218N / <i>Air/Ocean Equipment Engineering</i>	Project (Number/Name) 2346 / <i>METOC Sensor Engineering</i>

B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)

	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
(to include integration of environmental sensors into a larger environmental sensing strategy). Continue the development of advanced sensor system support technologies and techniques for sensor deployment, data processing and analysis to include performance metrics to optimize sensor performance. Assessed viability of sensors and subsystem sensors on unmanned and manned aircraft systems and autonomous undersea systems for collection of automated Meteorological and Oceanographic (METOC) data. Continue the development infrastructure to acquire, process and distribute METOC data and products. Assess improved sensor capabilities for unmanned and manned aircraft systems and autonomous undersea systems. <i>FY 2017 OCO Plans:</i> N/A					
Accomplishments/Planned Programs Subtotals	0.926	1.136	1.183	0.000	1.183

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

<u>Line Item</u>	<u>FY 2015</u>	<u>FY 2016</u>	<u>FY 2017 Base</u>	<u>FY 2017 OCO</u>	<u>FY 2017 Total</u>	<u>FY 2018</u>	<u>FY 2019</u>	<u>FY 2020</u>	<u>FY 2021</u>	<u>Cost To Complete</u>	<u>Total Cost</u>	
• RDTEN/0603207N/2341: <i>METOC DATA ACQUISITION</i>	2.487	3.763	0.000	-	0.000	0.000	0.000	0.000	0.000	0.000	Continuing	Continuing
• RDTEN/0603207N/2342: <i>METOC DATA ASSIMILATION AND MOD</i>	4.891	8.168	0.000	-	0.000	0.000	0.000	0.000	0.000	0.000	Continuing	Continuing
• RDTEN/0604218N/2345: <i>FLEET METOC EQUIPMENT</i>	1.200	3.379	0.354	-	0.354	0.491	0.480	0.458	0.467	0.467	Continuing	Continuing

Remarks

D. Acquisition Strategy

Acquisition and contracting strategies are to support engineering and manufacturing development of specialized, high resolution instrumentation systems and measurement techniques for obtaining near real-time in-situ Meteorological and Oceanographic (METOC) data in denied or remote areas by providing funds to miscellaneous performers.

E. Performance Metrics

Goal: Develop and engineer unique sensors to acquire METOC data in order to improve the accuracy of global and regional scale meteorological and oceanographic forecast models.
Metric: Tasks will address no less than 75% of applicable capability gaps and requirements, as

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Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604218N / <i>Air/Ocean Equipment Engineering</i>	Project (Number/Name) 2346 / <i>METOC Sensor Engineering</i>

identified by Resource Sponsor and Type Commander(s). No less than 75% of sensor engineering initiatives will be informed by an Analysis of Alternatives or market study to assess the state of the technology.

UNCLASSIFIED

Exhibit R-3, RDT&E Project Cost Analysis: PB 2017 Navy												Date: February 2016			
Appropriation/Budget Activity				R-1 Program Element (Number/Name)					Project (Number/Name)						
1319 / 5				PE 0604218N / Air/Ocean Equipment Engineering					2346 / METOC Sensor Engineering						
Product Development (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Product Development	WR	Naval Research Laboratory : Monterey, CA	9.936	0.147	Nov 2014	0.193	Nov 2015	1.183	Nov 2016	-		1.183	Continuing	Continuing	Continuing
Product Development	Various	Various : Various	11.750	0.000		0.000		0.000		-		0.000	0.000	11.750	-
Product Development	C/CPFF	University of Washington : Washington	0.000	0.100	Apr 2015	0.125	Apr 2016	0.000		-		0.000	0.000	0.225	-
Product Development	WR	NSWC Carderock : Maryland	0.000	0.105	Oct 2014	0.125	Oct 2015	0.000		-		0.000	0.000	0.230	-
Product Development	C/FP	SSC PAC : San diego, CA	0.000	0.300	Oct 2014	0.693	Oct 2015	0.000		-		0.000	0.000	0.993	-
Product Development	WR	NPS : Monterey, CA	0.000	0.063	Dec 2014	0.000		0.000		-		0.000	0.000	0.063	-
Product Development	C/CPFF	OWEN, LLC : New Jerisy	0.000	0.200	Jun 2015	0.000		0.000		-		0.000	0.000	0.200	-
Subtotal			21.686	0.915		1.136		1.183		-		1.183	-	-	-
Management Services (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Acquisition Workforce	C/CPFF	Not Specified : Not Specified	0.008	0.000		0.000		0.000		-		0.000	0.000	0.008	0.008
METOC Future Mission Capabilities	C/CPFF	PSS : California	0.000	0.006	Jun 2015	0.000		0.000		-		0.000	0.000	0.006	-
METOC Future Mission Capabilities	C/CPFF	Unknown : Unknown	0.000	0.005	Sep 2015	0.000		0.000		-		0.000	0.000	0.005	-
Subtotal			0.008	0.011		0.000		0.000		-		0.000	0.000	0.019	-
Project Cost Totals			21.694	0.926		1.136		1.183		-		1.183	-	-	-

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2017 Navy							Date: February 2016			
Appropriation/Budget Activity 1319 / 5			R-1 Program Element (Number/Name) PE 0604218N / <i>Air/Ocean Equipment Engineering</i>			Project (Number/Name) 2346 / <i>METOC Sensor Engineering</i>				
	Prior Years	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract	

Remarks

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Exhibit R-4, RDT&E Schedule Profile: PB 2017 Navy **Date:** February 2016

Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604218N / <i>Air/Ocean Equipment Engineering</i>	Project (Number/Name) 2346 / <i>METOC Sensor Engineering</i>
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Meteorology and Oceanographic (METOC) Future Mission Capabilities (FMC)	FY 2015				FY 2016				FY 2017				FY 2018				FY 2019				FY 2020				FY 2021			
	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q
Develop & Demonstrate METOC Automated Sensors																												
Advanced METOC Sensor Deployment, Data Processing, & Performance Metrics																												
Assess Viability of METOC Sensors & Subsystems on Aircraft Systems and Undersea Platforms																												
Develop Infrastructure to Acquire, Process, and Distribute METOC Data																												

2017OSD - 0604218N - 2346

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Exhibit R-4A, RDT&E Schedule Details: PB 2017 Navy		Date: February 2016
Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604218N / <i>Air/Ocean Equipment Engineering</i>	Project (Number/Name) 2346 / <i>METOC Sensor Engineering</i>

Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
<i>Meteorology and Oceanographic (METOC) Future Mission Capabilities (FMC)</i>				
Develop & Demonstrate METOC Automated Sensors:	1	2015	4	2016
Advanced METOC Sensor Deployment, Data Processing, & Performance Metrics:	1	2015	4	2020
Assess Viability of METOC Sensors & Subsystems on Aircraft Systems and Undersea Platforms:	1	2015	4	2020
Develop Infrastructure to Acquire, Process, and Distribute METOC Data:	1	2015	4	2020