Exhibit R-2, RDT&E Budget Item Justification: FY 2018 Navy	Date: May 2017
Appropriation/Budget Activity 1319: *Research, Development, Test & Evaluation, Navy I* BA 7: *Operational Systems Development*	**R-1 Program Element (Number/Name)** PE 0305160N *I Navy Meteorological and Ocean Sensors-Space(METOC)*

COST ($ in Millions)	Prior Years	FY 2016	FY 2017	FY 2018 Base	FY 2018 OCO	FY 2018 Total	FY 2019	FY 2020	FY 2021	FY 2022	Cost To Complete	Total Cost
Total Program Element	2.640	0.599	0.000	0.000	-	0.000	0.000	0.000	0.000	0.000	0.000	3.239
0524: *Navy METOC Support (SPACE)*	2.640	0.599	0.000	0.000	-	0.000	0.000	0.000	0.000	0.000	0.000	3.239

A. Mission Description and Budget Item Justification

This program element supports the Navy's requirements in meteorological and oceanographic (METOC) space-based remote sensors. These requirements include commitments to satellite, sensor, and operational demonstration/development activities as well as the transition to fleet applications associated with the joint Defense Meteorological Satellite Program (DMSP).

The Navy METOC Space-Based Sensing Capabilities project provides for Navy participation in Navy/Air Force cooperative efforts leading to DMSP sensor development, and specifically participation in the calibration and validation of instruments and delivery of satellite products to the fleet. The passive microwave instruments carried on the DMSP satellites provide global and atmospheric data of direct operational relevance, including sea surface wind, sea ice, and precipitation.

B. Program Change Summary ($ in Millions)	FY 2016	FY 2017	FY 2018 Base	FY 2018 OCO	FY 2018 Total
Previous President's Budget	0.599	0.000	0.000	-	0.000
Current President's Budget	0.599	0.000	0.000	-	0.000
Total Adjustments	0.000	0.000	0.000	0.000	0.000
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-	-			

Exhibit R-2A, RDT&E Project Justification: FY 2018 Navy			Date: May 2017
Appropriation/Budget Activity 1319 / 7	R-1 Program Element (Number/Name) PE 0305160N / *Navy Meteorological and Ocean Sensors-Space(METOC)*	Project (Number/Name) 0524 / *Navy METOC Support (SPACE)*	

COST ($ in Millions)	Prior Years	FY 2016	FY 2017	FY 2018 Base	FY 2018 OCO	FY 2018 Total	FY 2019	FY 2020	FY 2021	FY 2022	Cost To Complete	Total Cost
0524: *Navy METOC Support (SPACE)*	2.640	0.599	0.000	0.000	-	0.000	0.000	0.000	0.000	0.000	0.000	3.239
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

The Meteorology and Oceanography (METOC) Space-Based Sensing Capabilities project provides for Navy participation in the Defense Meteorological Satellite Program (DMSP) Special Sensor Microwave/Imager and Special Sensor Microwave Imager Sounder calibration/validation efforts in support of the fleet operational requirements. The passive microwave instrument carried on DMSP provides global oceanic and atmospheric data of direct operational relevance, including sea surface wind speed, sea ice, and precipitation.

The METOC Space-Based Sensing Capabilities project ensures the naval service's operational requirements are satisfied primarily through demonstration of technologies for inclusion on operational constellations such as DMSP, the Joint Polar Satellite System (JPSS) and the National Oceanic and Atmospheric Administration's Geostationary Operational Environmental Satellites (GOES). These efforts fulfill naval service unique requirements that are not funded within the DMSP, JPSS or GOES programs, and are in accordance with current inter-agency agreements.

Beginning in FY 2017 funding was realigned to Program Element 0603207N, Project 2342.

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2016	FY 2017	FY 2018 Base	FY 2018 OCO	FY 2018 Total
Title: METOC Space-Based Sensing Capabilities	0.599	0.000	0.000	0.000	0.000
Articles:	-	-	-	-	-
FY 2016 Accomplishments: Continued performance assessment on National Polar-orbiting Operational Environmental Satellite System Preparatory Project (NPP) and Defense Meteorological Satellite Program (DMSP) satellite sensor suites. Continued assessment of planned environmental satellite sensor launches such as Geostationary Operational Environmental Satellite R-Series (GOES-R) and Global Change Observation Mission (GCOM) W-2 scheduled in FY16.					
FY 2017 Plans: Funding was realigned to PE 0603207N, project 2342.					
FY 2018 Base Plans:					

Exhibit R-2A, RDT&E Project Justification: FY 2018 Navy		Date: May 2017
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0305160N / *Navy Meteorological and Ocean Sensors-Space(METOC)*	**Project (Number/Name)** 0524 / *Navy METOC Support (SPACE)*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2016	FY 2017	FY 2018 Base	FY 2018 OCO	FY 2018 Total
N/A ***FY 2018 OCO Plans:*** N/A					
Accomplishments/Planned Programs Subtotals	0.599	0.000	0.000	0.000	0.000

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2016	FY 2017	FY 2018 Base	FY 2018 OCO	FY 2018 Total	FY 2019	FY 2020	FY 2021	FY 2022	Cost To Complete	Total Cost
• RDTEN/0603207N/2342: *METOC DATA ASSIMILATION AND MOD*	16.173	20.165	19.997	-	19.997	20.869	21.221	21.698	22.162	Continuing	Continuing

Remarks

D. Acquisition Strategy

Naval service unique, space based Meteorology and Oceanography (METOC) requirements. Particular sensors or data sources with unique naval service mission needs are targeted to accelerate acquisition or ensure threshold accomplishment of Joint or converged national program plans. The Joint Polar Satellite System (JPSS) program will collect global microwave radiometry and sounding data to produce microwave imagery and other meteorological and oceanographic data. Conical Microwave Imager Sounder (CMIS) can be viewed as the follow-on instrument to the Special Sensor Microwave (SSM) instruments Navy developed for the Defense Meteorological Satellite Program. These CMIS sensors will be acquired as part of the JPSS architecture which supports these Navy requirements in the future. Maintenance of rigorous sensor calibration and data validation for operational SSM instruments continues along with algorithm development in support of fleet applications. The Advanced Altimeter technologies will improve radar altimeter resolution and aerial coverage to support Navy requirements for sea surface topography measurement in the littorals.

E. Performance Metrics

Goal: Provide precise and near real-time METOC forecasting to the warfighter using existing and future space-based satellite derived data, including ocean surface wind speed, rain rate, ice concentration, and soil moisture measurements.
Metric: Provide precise ocean surface wind speed within plus or minus 2.0 meters per second, the rain over land and ocean rate within plus or minus 5.0 millimeters per hour, soil moisture measurements within plus or minus 10%; and sea ice concentrations within plus or minus 10%.