

AMENDMENT OF SOLICITATION/MODIFICATION OF CONTRACT1. CONTRACT ID CODE
UPAGE OF PAGES
1 22. AMENDMENT/MODIFICATION NO.
493. EFFECTIVE DATE
23-Feb-20184. REQUISITION/PURCHASE REQ. NO.
75-022C-185. PROJECT NO. (If applicable)
N/A

6. ISSUED BY CODE

N00173

7. ADMINISTERED BY (If other than Item 6) CODE

S0701A

Naval Research Laboratory
4555 Overlook Ave., SW
Washington DC 20375DCMA HARTFORD
130 DARLIN STREET
EAST HARTFORD CT 06108-3234

SCD: C

8. NAME AND ADDRESS OF CONTRACTOR (No., street, county, State, and Zip Code)

SCIENCE APPLICATIONS INTERNATIONAL CORP
12010 Sunset Hills Road
Reston VA 20190

9A. AMENDMENT OF SOLICITATION NO.

9B. DATED (SEE ITEM 11)

[X]

10A. MODIFICATION OF CONTRACT/ORDER NO.

N00178-04-D-4119-EE01

10B. DATED (SEE ITEM 13)

01-Apr-2014

CAGE CODE
6XWA8

FACILITY CODE

11. THIS ITEM ONLY APPLIES TO AMENDMENTS OF SOLICITATIONS

[] The above numbered solicitation is amended as set forth in Item 14. The hour and date specified for receipt of Offers [] is extended, [] is not extended.

Offers must acknowledge receipt of this amendment prior to the hour and date specified in the solicitation or as amended, by one of the following methods:

(a) By completing Items 8 and 15, and returning one (1) copy of the amendment; (b) By acknowledging receipt of this amendment on each copy of the offer submitted; or (c) By separate letter or telegram which includes a reference to the solicitation and amendment numbers. FAILURE OF YOUR ACKNOWLEDGEMENT TO BE RECEIVED AT THE PLACE DESIGNATED FOR THE RECEIPT OF OFFERS PRIOR TO THE HOUR AND DATE SPECIFIED MAY RESULT IN REJECTION OF YOUR OFFER. If by virtue of this amendment you desire to change an offer already submitted, such change may be made by telegram or letter, provided each telegram or letter makes reference to the solicitation and this amendment, and is received prior to the opening hour and date specified.

12. ACCOUNTING AND APPROPRIATION DATA (If required)

SEE SECTION G

13. THIS ITEM APPLIES ONLY TO MODIFICATIONS OF CONTRACTS/ORDERS, IT MODIFIES THE CONTRACT/ORDER NO. AS DESCRIBED IN ITEM 14.

(*) A. THIS CHANGE ORDER IS ISSUED PURSUANT TO: (Specify authority) THE CHANGES SET FORTH IN ITEM 14 ARE MADE IN THE CONTRACT ORDER NO. IN ITEM 10A.

[]

[] B. THE ABOVE NUMBERED CONTRACT/ORDER IS MODIFIED TO REFLECT THE ADMINISTRATIVE CHANGES (such as changes in paying office, appropriation date, etc.) SET FORTH IN ITEM 14, PURSUANT TO THE AUTHORITY OF FAR 43.103(b).

[] C. THIS SUPPLEMENTAL AGREEMENT IS ENTERED INTO PURSUANT TO AUTHORITY OF:

[X] D. OTHER (Specify type of modification and authority)
FAR 52.232-22, Limitation of Funds

E. IMPORTANT: Contractor [X] is not, [] is required to sign this document and return ___ copies to the issuing office.

14. DESCRIPTION OF AMENDMENT/MODIFICATION (Organized by UCF section headings, including solicitation/contract subject matter where feasible.)

SEE PAGE 2

15A. NAME AND TITLE OF SIGNER (Type or print)

16A. NAME AND TITLE OF CONTRACTING OFFICER (Type or print)

15B. CONTRACTOR/OFFEROR

15C. DATE SIGNED

16B. UNITED STATES OF AMERICA

16C. DATE SIGNED

(Signature of person authorized to sign)

BY

(Signature of Contracting Officer)

23-Feb-2018

NSN 7540-01-152-8070

30-105

STANDARD FORM 30 (Rev. 10-83)

PREVIOUS EDITION UNUSABLE

Prescribed by GSA
FAR (48 CFR) 53.243

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GENERAL INFORMATION

The purpose of this modification is to:

1. Incrementally fund CLIN 7200 (Labor) IAW FAR 52.232-22, Limitation of Funds.

SUMMARY OF CHANGES

1. Section 1, CLIN 7200 is incrementally funded in the amount of \$164,000.00 as follows:

SLIN	ACRN	FROM:	BY:	TO:
720001	AA	\$480,900.00	\$164,000.00	\$644,900.00

2. Section G-5 is updated as follows:

Pursuant to FAR 52.232-22, Limitation of Funds, the total amount presently available for payment and allotted to this task order is as follows:

CLIN	COST	FEE	CPFF
7000	██████████	██████████	\$2,745,740.00
9000	\$0.00	\$0.00	\$0.00
9001	\$33,130.00	\$0.00	\$33,130.00
7100	██████████	██████████	\$2,803,561.00
9100	0.00	\$0.00	\$0.00
9101	\$56,000.00	\$0.00	\$56,000.00
7200	██████████	██████████	\$1,420,358.20
9200	\$0.00	\$0.00	\$0.00
9201	\$10,000.00	\$0.00	\$10,000.00
TOTAL	██████████	██████████	\$7,068,789.20

3. The Task Order value of \$7,108,773.00 remains unchanged.
4. The Task Order funded amount is increased by \$164,000.00 from \$6,904,789.20 to \$7,068,789.20.
5. The POP of 01 April 2014 - 02 March 2018 remains unchanged.
6. All other terms and conditions remain unchanged.

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SECTION B SUPPLIES OR SERVICES AND PRICES

CLIN - SUPPLIES OR SERVICES

For Cost Type Items:

Item	PSC	Supplies/Services	Qty	Unit	Est. Cost	Fixed Fee	CPFF
7000	AJ32	BASE (24 months) - Marine Meteorology Research & Development Support -- The Contractor shall furnish necessary personnel to perform efforts as described in Section C and provide reports and data in accordance with Exhibit A. PSC: AJ32 (RDT&E)					\$2,745,740.00
700001	AJ32	Funding for CLIN 7000 (RDT&E)					
700002	AJ32	Funding for CLIN 7000 (RDT&E)					
700003	AJ32	Funding for CLIN 7000 (RDT&E)					
700004	AJ32	(Fund Type - OTHER)					
700005	AJ32	Funding for CLIN 7000 (RDT&E)					
700006	AJ32	Funding for CLIN 7000 (RDT&E)					
700007	AJ32	Funding for CLIN 7000 (Fund Type - OTHER)					
700008	AJ32	Funding for CLIN 7000 (Fund Type - OTHER)					
700009	AJ32	Funding for CLIN 7000 (Fund Type - OTHER)					
700010	AJ32	Funding for CLIN 7000 (Fund Type - OTHER)					
700011	AJ32	Funding for CLIN 7000 (Fund Type - OTHER)					
700012	AJ32	Funding for CLIN 7000 (Fund Type - OTHER)					
700013	AJ32	Funding for CLIN 7000 (RDT&E)					
7100	AJ32	OPTION 1 (24 months) - Marine Meteorology Research & Development Support -- The Contractor shall furnish necessary personnel to perform efforts as described in Section C and provide reports and data in					\$2,804,036.00

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Item	PSC	Supplies/Services	Qty	Unit	Est. Cost	Fixed Fee	CPFF
		accordance with Exhibit A. PSC: AJ32 (RDT&E)					
710001	AJ32	Funding for CLIN 7100 (RDT&E)					
710013	AJ32	Funding for CLIN 7100 (RDT&E)					
710015	AJ32	(RDT&E)					
710016	AJ32	Funding for CLIN 7100 (RDT&E)					
710017	AJ32	Funding for CLIN 7100 (RDT&E)					
710018	AJ32	(RDT&E)					
710019	AJ32	Funding for CLIN 7100 (RDT&E)					
710020	AJ32	Funding for CLIN 7100 (RDT&E)					
710021	AJ32	Funding for CLIN 7100 (RDT&E)					
710022	AJ32	Funding for CLIN 7100 (RDT&E)					
710023	AJ32	Funding for CLIN 7100 (RDT&E)					
7200	AJ32	OPTION 2 (12 months) - Marine Meteorology Research & Development Support -- The Contractor shall furnish necessary personnel to perform efforts as described in Section C and provide reports and data in accordance with Exhibit A. PSC: AJ32 (RDT&E)					\$1,449,237.00
720001	AJ32	Funding for CLIN 7200 (RDT&E)					
720023	AJ32	Funding for CLIN 7200 (RDT&E)					
720024	AJ32	Funding for CLIN 7200 (RDT&E)					
720025	AJ32	Funding for CLIN 7200 (RDT&E)					
720026	AJ32	Funding for CLIN 7200 (RDT&E)					
720027	AJ32	Funding for CLIN 7200 (RDT&E)					
720028	AJ32	Funding for CLIN 7200 (RDT&E)					

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Item	PSC	Supplies/Services	Qty	Unit	Est. Cost	Fixed Fee	CPFF
720029	AJ32	Funding for CLIN 7200 (RDT&E)					

For ODC Items:

Item	PSC	Supplies/Services	Qty	Unit	Est. Cost
9000	AJ32	Materials in support of CLIN 7000 - BASE. PSC: AJ32 (RDT&E)	1.0	LO	\$4,036.00
9001	AJ32	Travel in support of CLIN 7000 - BASE. PSC: AJ32 (RDT&E)	1.0	LO	\$33,130.00
900101	AJ32	Funding for CLIN 9001 (RDT&E)			
900104	AJ32	(RDT&E)			
900106	AJ32	Funding for CLIN 9001 (RDT&E)			
900113	AJ32	Funding for CLIN 9001 (RDT&E)			
9100	AJ32	Materials in support of CLIN 7100 - OPTION 1. PSC: AJ32 (RDT&E)	1.0	LO	\$4,036.00
9101	AJ32	Travel in support of CLIN 7100 - OPTION 1. PSC: AJ32 (RDT&E)	1.0	LO	\$56,000.00
910101	AJ32	Funding for CLIN 9100 (RDT&E)			
9200	AJ32	Materials in support of CLIN 7200 - OPTION 2. PSC: AJ32 (RDT&E)	1.0	LO	\$2,018.00
9201	AJ32	Travel in support of CLIN 7200 - OPTION 2. PSC: AJ32 (RDT&E)	1.0	LO	\$10,540.00
920101	AJ32	Funding for CLIN 9201 (RDT&E)			

B-2 PAYMENTS OF FEE(S) (LEVEL OF EFFORT – ALTERNATE 1) (NAVSEA) (MAY 2010)

(a) For purposes of this contract, "fee" means "target fee" in cost-plus-incentive-fee type contracts, base fee" in cost-plus-award-fee type contracts, or "fixed fee" in cost-plus-fixed-fee type contracts for level of effort type contracts.

(b) The Government shall make payments to the Contractor, subject to and in accordance with the clause in this contract entitled "FIXED FEE" (FAR 52.216-8) or "INCENTIVE FEE", (FAR 52.216-10), as applicable. Such payments shall be submitted by and payable to the Contractor pursuant to the clause of this contract entitled "ALLOWABLE COST AND PAYMENT" (FAR 52.216-7), subject to the withholding terms and conditions of the "FIXED FEE" or "INCENTIVE FEE" clause, as applicable, and shall be paid fee at the hourly rate(s) specified above per man-hour performed and invoiced. Total fee(s) paid to the Contractor shall not exceed the fee amount(s) set forth in this contract. In no event shall the Government be required to pay the Contractor any amount in excess of the funds obligated under this contract.

(End of Text)

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SECTION C DESCRIPTIONS AND SPECIFICATIONS

Performance Work Statement (PWS)

Marine Meteorology Research and Development (R&D)

1 Introduction

This Performance Work Statement (PWS) describes the Research and Development (R&D) for the Naval Research Laboratory (NRL) Marine Meteorology Division (MMD). MMD is responsible for conducting a broadly based multidisciplinary program of scientific research and advanced technological development directed toward environment information superiority for the Navy/Marine Corps and DoD. MMD plans and executes a broad-spectrum S&T research and RDT&E programs designed to:

- 1) Improve the understanding of atmospheric processes and air-sea-ice-land-space interactions that impact fleet operation;
- 2) Develop and transition environmental products and software systems that analyze, simulate, and predict the structure and behavior of these processes; and
- 3) Assess environmental impacts on weapons systems and decision aids.

1.1 Mission

The Atmospheric Dynamics and Prediction Branch focuses on basic research and scientific and technological development related to the analysis and prediction of atmospheric processes that impact fleet operations and mission planning. Particular emphasis is placed on the investigation and quantitative description of dynamics and physics of the lower atmosphere and air-sea-land interface, on scales that range from the turbulence scale to the scale of planetary weather systems. Numerical data assimilation and prediction systems are developed to optimally estimate the three-dimensional state of the global and regional mesoscale atmosphere in real-time through assimilation of a variety of in situ and remotely sensed observations (e.g. satellite, radar); and to integrate these analyses forward in time through the use of sophisticated numerical models. These multi-scale prediction systems are transitioned for operational use in providing a broad range of environmental guidance to the fleet. The Branch also develops on-demand weather impact information systems and transitions them to operations to support naval missions in a variety of warfare areas, most notably strike, marine and special operations, and chemical-biological warfare. The Branch develops weather impact on-scene data analysis/nowcast/forecast systems and multisensory meteorological satellite data applications. Special focus is given to tropical cyclones, which affect fleet forces around the globe.

1.2 Background

The research addresses the underlying dynamical and physical mechanisms that lead to observed atmospheric structures, and develops quantitative data fusion and display products, data assimilation systems and models, including coupled air-ocean-ice-land-space models, that allow the accurate numerical analysis and prediction of atmospheric conditions from tactical to global scales. A broad range of scientific and technical resources are necessary components of marine meteorology research and development, including field programs and experiments, advanced numerical techniques, sophisticated physics, large real-time remote sensing and in-situ observational databases, software engineering, high-performance computing, and applications support. The Marine Meteorology Division Science and Technology (S&T) research and advanced "Research and Development, Testing and Evaluation" (RDT&E)

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programs are highly focused on operational transition, and the research is closely coordinated with resource sponsors, Navy customers, and the national weather prediction community to ensure active collaboration and achieve economies of scale in meeting Navy requirements for environmental weather support.

1.3 Scope

The main objective of this Performance Work Statement (PWS) is to seek unclassified support to the Naval Research Laboratory (NRL) Marine Meteorology Division (MMD) research activities. NRL MMD focuses its research in the areas described below:

The Contractor will perform Data Assimilation Research and Development to assist NRL reaching its Data Assimilation project objectives.

The Contractor will perform Global Numerical Weather Prediction (NWP) Model Research and Development to assist NRL reaching its Global NWP project objectives.

The Contractor will perform Mesoscale Numerical Weather Prediction (NWP) Research and Development to assist NRL reaching its Mesoscale NWP project objectives.

The Contractor will perform Satellite Data Fusion Applications Research and Development to assist NRL reaching its Satellite Tactical Application project objectives.

The general objective of this PWS is to provide research support extending from basic research (6.1) through applied research (6.2) to fleet applications (6.4) work, utilizing both current and future generations of NWP global and Mesoscale models.

Efforts in support of the tasks delineated in Section 3, Performance Requirements, below will be conducted in coordination with Principal Investigator (PI) led research teams that may include Government scientists and other Contractors. The quality and timeliness of the provider's contribution to the work will be evaluated in terms of its impact on the success of the overall project.

2 General Requirements

The Contractor **shall** have its support team in place and fully functioning within 45 days of contract award or exercise of a contract option.

During this period the contractor will transition all activities from the incumbent, as required. The Contractor must execute the scope of work in a manner that provides for high quality, timely services while incorporating the proper mix and the most effective use of personnel.

This is a performance-based acquisition and is structured around the results to be achieved as opposed to the manner by which the work is to be performed. The quality and effectiveness of the services performed hereunder will be evaluated in accordance with the performance standards/acceptable quality and the evaluation methods described in the Quality Assurance Surveillance Plan (QASP).

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2.1 Non-Personal Services

The Government will neither supervise contractor employees nor control the method by which the contractor performs the required tasks.

The Government will not assign tasks to, or prepare work schedules for, individual contractor employees.

The Contractor **shall** be responsible for managing its employees and guarding against any actions that are of the nature of personal services, or give the perception of personal services as defined in FAR-Part 37, Service Contracting, dated 31 May 2011.

The Contractor **shall** notify the Contracting Officer (KO) if any Government requested actions constitute, or are perceived to constitute personal services.

2.2 Business Relations

The Contractor **shall** integrate and coordinate all activity needed to execute this contract.

2.3 Contract Administration and Management

The following subsections specify requirements for contract management and contractor personnel administration.

2.3.1 Contract Management

The Contractor **shall** establish clear organizational lines of authority and responsibility to ensure effective management of the resources assigned to this contract.

2.3.2 Personnel Administration

The Contractor **shall** assign a single point of contact, also known as the Program Manager (PM), who must work closely with the government Contracting Officer and Contracting Officer's Representative (COR), as applicable. The contractor PM must ultimately be responsible for ensuring that the contractor's performance meets all government contracting requirements within cost and schedule. PM must have the requisite authority for full control over all company resources necessary for contract performance. As appropriate, the role of PM may be a full time management position, or a collateral duty assigned to a technical team member.

The Contractor **shall** maintain the adequacy of their employees by providing initial and refresher training to meet the PWS requirements.

The Contractor **shall** make necessary travel arrangements for employees.

2.3.3 Contract Administration

The Contractor **shall** establish processes and assign appropriate resources to effectively

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administer this contract.

The Contractor **shall** respond to Government requests for contractual actions within five work days.

2.3.4 Contractor's Management Plan

The Contractor must submit a Contractor's Management Plan (CMP) defining the contractor's approach to implementing the contract.

The CMP provides the Government insight to the systems, processes, and structure within which the contractor operates. The CMP should include, as applicable and if not defined in a separate plan: quality control, risk management, systems engineering, software development, configuration management, and subcontract management.

A draft CMP must be delivered with the contractor's proposal. Three copies of the complete version must be submitted to the KO and COR 30 days after contract award, and within 5 working days when changes are made thereafter.

The Contractor **shall** receive the contracting officer's acceptance in writing of any proposed change to his management plan once the CMP has been accepted by the Government.

The Contractor **shall** develop and maintain an effective quality control program to ensure services are performed in accordance with this PWS.

The Contractor **shall** develop and maintain an effective risk management program to ensure services are performed in accordance with this PWS.

The Contractor **shall** develop and maintain an effective systems engineering program to ensure services are performed in accordance with this PWS.

The Contractor **shall** develop and maintain an effective software development program to ensure services are performed in accordance with this PWS.

The Contractor **shall** develop and maintain an effective configuration management program to ensure services are performed in accordance with this PWS.

The Contractor **shall** develop and maintain an effective subcontract management program to ensure services are performed in accordance with this PWS.

The Contractor **shall** develop and maintain an effective Integrated Master Schedule (IMS) and Contract Work Breakdown Structure (CWBS) to ensure services are performed in accordance with this PWS.

2.3.5 Quality Assurance Surveillance Plan (QASP)

The Government will evaluate the contractors performance under this contract in accordance with the Quality Assurance Surveillance Plan (QASP) provided as an

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attachment to this proposal.

The QASP is focused on what the Government will do to ensure that the contractor has performed in accordance with the performance standards. It defines how the performance standards will be applied, the frequency of surveillance, and the minimum acceptable defect rate(s).

2.4 Contractor Furnished Equipment, Materials, Subcontracts and Supplies

Equipment and unexpended materials and supplies purchased by the contractor under this contract become the property of the Government at the end of the performance period, including all options.

The Contractor **shall** provide supplies for contractor personnel.

The Contractor **shall** provide any other equipment, material, and supplies, not furnished by the Government, but required to perform the work defined under Section 3, Performance Requirements, below.

The Contractor **shall** be responsible for any subcontract management necessary for performing efforts described in Section 3, Performance Requirements, below.

2.5 Location and Hours of Work

Accomplishment of the results contained in this PWS requires work at various Naval Research Laboratory facilities in the Southwest Region. Normal workdays are Monday through Friday except US Federal Holidays. NRL workers typically work eight (8) hours per day, 40 hours per week. Flextime workers start not earlier than 0600 and not later than 1000. Core hours of work are from 1000-1100 and 1300-1400 daily. All employees are expected to be available during core hours. Additional information on work hours is provided in Section 1. (c), NRL HOURS OF OPERATION AND HOLIDAY SCHEDULE, in the NRL ROSC.

2.6 Travel / Temporary Duty (TDY)

Travel to other government facilities or contractor facilities may be required for conduct of experimental research or attendance at government reviews or scientific meetings and seminars.

The Contractor **shall** maintain the capability to arrange the travel of contractor personnel to locations in CONUS/OCONUS often on short notice.

The Contractor **shall** submit all travel requirements (including plans, agenda, itinerary and dates) for pre-approval to the Government and is on a strictly cost reimbursable basis.

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The Contractor **shall** bill costs for travel in accordance with FAR 31.205-46 Travel Costs (subject to local policy & procedures).

3 Performance Requirements

The following section specifies the Performance Objectives and Performance Elements for the contract. The Performance Elements for each Performance Objective Apply to each and every Requirement under that Objective. Priority levels will help the team establish service level commitments with the client. For instance, the highest priority calls (urgent) may need to be resolved in three hours. A low priority call may not need to be resolved for three days. A rating scale for support requests is as follows:

- 1) *Severity 1 (Urgent)*. A major service disruption usually associated with downtime or erroneous information in critical business processes. For instance, an online application is down and users are idle until the application comes back up again.
- 2) *Severity 2 (High)*. This is a definite problem that needs to be resolved, but there is some additional flexibility on the resolution time. For instance, you may have four business hours to contact the user and one business day to resolve the problem.
- 3) *Severity 3 (Medium)* A nuisance in the short-term, but will cause a problem if not resolved soon. There may be a workaround that can be used in the short-term. You may need to follow up with the requestor within one business day and resolve within three business days.
- 4) *Severity 4 (Low)*. These support requests should be resolved, but there is an abundance of time to complete. There may be a workaround that will be fine indefinitely or perhaps the nature of the problem is such that it does not cause a major problem. If a support call stays at a low priority for some period of time, it is likely that it is really a discretionary request. You can then close the problem ticket and open a discretionary request instead.

3.1 The Contractor shall perform Data Assimilation Research and Development to assist NRL in reaching its Data Assimilation project objectives.

Performance Standards

STD: Provides Level 2 High support response

AQL: Calls are returned within four hours and the problem is usually diagnosed and/or resolved within one business day

The Performance standard 'Level 2 High Support response' indicates a problem that definitely needs to be resolved, but there is some additional flexibility on the resolution time.

STD: Cost Effective

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AQL: 95% of TDM task cost objectives met and budget can withstand additional costs for high level 2 response

Deliverables

- A001 Contractor's Management Plan (CMP)
- A002 Monthly Progress Report
- A003 Monthly Funds Status and Expenditure Report
- A004 Monthly Labor Report
- A005 Contract Yearly Technical Summary Report
- A006 Software Demonstration

3.1.1 The Contractor shall perform Data Quality control Research and Development and shall develop new generation quality control software based on the adjoint-based diagnostic tools.

The analysis screens out bad observations, while post-facto quality control is equally important and consists of the continual determination of the error properties of the observations and forecast models utilized by the data assimilation systems.

3.1.2 The Contractor shall perform Satellite Radiance Data Assimilation research and Development.

3.1.2.1 The contractor shall deliver satellite data assimilation capability for radiances from visible, infrared (IR) and microwave (MW) sounders as well as assimilation of bending angle profiles from GPS Radio Occultation (GPS-RO) and the ozone profile from various satellite sensors.

Assimilation of satellite data from IR/MW sounders and GPS-RO directly improve the analysis of both temperature and humidity, and indirectly affect winds due to geostrophic balance and the subsequent forecasts due to the improved initial conditions they provide to the NWP model. The ozone data assimilation benefits the stratosphere data assimilation and improves its analysis and provides improved initial conditions for the NWP models. Typically, several years of dedicated effort are required to implement a single satellite sensor operationally. The research will require qualified talents to support the on-going research effort in this area.

3.1.2.2 The Contractor shall deliver radar radiance data assimilation capability.

Radar data assimilation includes both reflectivity and radial component of the wind and is used for initializing the nowcast (1-6 hrs.) NWP models.

3.1.3 The Contractor shall provide research and development to NRL in examining the benefits and deficiencies of each variant of the ensemble base data assimilation scheme.

This task involves the possible next-generation atmospheric data assimilation methodology. Data assimilation has been done for many years using variational methods, optimal interpolation, and other related methods (e.g. NAVDAS, NAVDAS-AR). All these methods include estimating the background covariance errors.

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The new direction of research is using a collection of flexible-state estimation techniques that use ensemble forecasts to estimate flow-dependent background error covariance or other probabilistic aspects of the background forecast. The best-known form of ensemble-based assimilation is the ensemble Kalman filter (EnKF) and its variant.

3.1.4 The Contractor shall provide research and development for coupled data assimilation systems.

Current Navy data assimilation schemes for the atmosphere and ocean have many limitations: they cannot improve ocean estimates from atmospheric observations, cannot use satellite observations of wave height to estimate the spectral distribution of wave energy, cannot appropriately impart ensemble based uncertainty information from the atmosphere to the ocean, and cannot assimilate observations of acoustic transmission loss or propagation loss. The coupled ensemble data assimilation scheme, when developed, can assimilate any quantity that the non-linear model can forecast. To provide a better and coherent initial condition for the coupled model (initially air/ocean coupled model) will undoubtedly improve the model predictions.

3.2 The Contractor shall perform Global Numerical Weather Prediction (NWP) Research and Development to assist NRL in reaching its Global NWP project objectives.

Performance Standards

STD: Provides Level 2 High support response

AQL: Calls are returned within four hours and the problem is usually diagnosed and/or resolved within one business day

The Performance standard 'Level 2 High Support response' indicates a problem that definitely needs to be resolved, but there is some additional flexibility on the resolution time.

STD: Cost Effective

AQL: 95% of TDM task cost objectives met and budget can withstand additional costs for high level 2 response

Deliverables

A001 Contractor's Management Plan (CMP)

A002 Monthly Progress Report

A003 Monthly Funds Status and Expenditure Report

A004 Monthly Labor Report

A005 Contract Yearly Technical Summary Report

A006 Software Demonstration

3.2.1 The Contractor shall provide research and development for NAVGEM

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forecast model Spiral Development.

3.2.1.1 The Contractor shall provide dynamic core research and development for the forecast model.

3.2.1.1.1 The Contractor shall test different alternatives for vertical interpolations in the semi-Lagrangian advection scheme.

3.2.1.1.2 The Contractor shall optimize semi-implicit time integration.

3.2.1.1.3 The Contractor shall optimize diffusion and time step.

3.2.1.1.4 The Contractor shall complete the development of the NAVGEM T425L60 semi-Lagrangian/semi-implicit model.

This includes testing the T425L60 model along with the data assimilation scheme for FNMOC transition and modifying the T425L60 model to be compliant with FNMOC coding standards.

3.2.1.1.5 The Contractor shall test NAVGEM on DSRC platform in real-time.

3.2.1.1.6 The Contractor shall develop the T575L60 SL/SL dynamical core for NAVGEM.

3.2.1.2 The Contractor shall perform advanced physics development research and development.

3.2.1.2.1 The Contractor shall test the impact of using the Rapid Radiative Transfer Model for GCM applications (RRTMG) together with a multi-species prognostic treatment for water condensate in NAVGEM.

Adjust as necessary the cumulus cloud water output, and examine the sensitivity to details of the diagnostic cloud fraction scheme.

3.2.1.2.2 The Contractor shall implement high-order boundary layer parameterization scheme.

3.2.1.2.3 The Contractor shall optimize vertical levels for computational efficiency, requirement of data assimilation upgrade, and advanced physics.

3.2.1.2.4 The Contractor shall implement and test NOGAPS-ALPHA physics, and GFS gravity wave drag schemes.

3.2.1.3 The Contractor shall develop SVN-based configuration management system with version control and collaborations for NAVGEM.

3.2.1.4 The Contractor shall develop the code and scripts for the NAVGEM Ensemble Prediction System (EPS).

Enhance the EPS performance by increasing the resolution of the system, multiple physics package, and perturbation of physical parameters.

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3.2.1.5 The Contractor shall develop diagnostic software to better analyze NAVGEM errors in terms of regions and synoptic situations, and through energy budget, vorticity budget and wave spectrum analysis.

This will also require re-writing existing diagnostic code in a common language for computation and display.

3.2.2 The Contractor shall provide research and development for NRL Seasonal Global NWP Prediction research.

3.2.2.1 The Contractor shall perform extended integrations for both the Navy global and mesoscale models using different configurations to evaluate and understand the potential for predictability on monthly time scales for the global Seasonal Prediction.

3.2.2.2 The Contractor shall evaluate NAVGEM for monthly time scales at highest resolution possible, and at resolutions considered operationally feasible.

Perform reforecasts with analyzed SST and SST information available in real time.

3.2.2.3 The Contractor shall examine metrics of specific high interest to the Navy, such as frequency of occurrence of high-speed near surface winds, and larger-scale phenomenon, such as the Madden Julian Oscillation (MJO).

3.2.2.4 The Contractor shall investigate and evaluate the representation of the MJO in NAVGEM.

Assess the simulated correspondence between clouds, radiation and precipitation.

3.2.2.5 The Contractor shall investigate the mechanism controlling MJO's occurrence and amount of convection.

3.2.2.5.1 The Contractor shall participate in the MJO Diabatic Heating Model Inter-comparison Project.

It is a joint effort between the Year of Tropical Convection (YOTC) Program and the GEWEX Cloud System Study (GCSS), to investigate the sensitivity of the representation of the MJO to various model formulations.

3.2.2.5.2 The Contractor shall conduct NAVGEM numerical experiments to simulate the MJO phenomena observed in the field experiments.

3.2.3 The contractor shall perform model physics improvement research and development for the Earth System Prediction Capability (ESPC).

NRL is participating in the ESPC project. ESPC is an interagency collaboration between DoD (Navy, Air Force), NOAA, DoE, NASA, and NSF for coordination of research to operations for an earth system analysis and extended range prediction capability. Two

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focus areas are the development of coupled global model physics package and testing the improved resolution & physics parameterization

3.2.3.1 The contractor shall investigate the Initial Value Problem through joint observational retrievals (air & sea) and new hybrid data assimilation approaches.

3.2.3.2 The contractor shall perform research and development in improvements of forecast skill through i) stochastic prediction and post-model processing, ii) Multi-model ensembles, and iii) multi-scale seamless prediction.

3.2.4 The Contractor shall develop flexible computing/network architecture to execute global data assimilation system at a remote HPC center.

3.2.4.1 The Contractor shall develop flexible best practice for real-time data transfer of the METOC observations, and post processing of data staging strategy.

Maximize the HPC compute cycle to minimize wasted cycles or storage space.

3.2.4.2 The Contractor shall simulate an operational scenario of executing global NWP system at a remote HPC center.

The global NWP system will include both data assimilation system(s) and global model(s).

3.2.4.3 The Contractor shall extend the CONOPS to global coupled prediction system(s).

3.2.4.4 The Contractor shall develop executing strategy to migrate global model among various architectures.

3.3 The Contractor shall perform Mesoscale Numerical Weather Prediction (NWP) Research and Development to assist NRL in reaching its Mesoscale NWP project objectives.

Performance Standards

STD: Provides Level 2 High support response

AQL: Calls are returned within four hours and the problem is usually diagnosed and/or resolved within one business day

The Performance standard 'Level 2 High Support response' indicates a problem that definitely needs to be resolved, but there is some additional flexibility on the resolution time.

STD: Cost Effective

AQL: 95% of TDM task cost objectives met and budget can withstand additional costs for high level 2 response

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Deliverables

A001 Contractor's Management Plan (CMP)
A002 Monthly Progress Report
A003 Monthly Funds Status and Expenditure Report
A004 Monthly Labor Report
A005 Contract Yearly Technical Summary Report
A006 Software Demonstration

3.3.1 The Contractor shall perform research and development for 3-Way Atmosphere-Ocean-Wave Coupling Capability.

3.3.1.1 The Contractor shall test and evaluate implementation of Simulating Waves Nearshore (SWAN) versus Wave Watch III in 3-way coupled system, to include: i) initialization, ii) lateral boundary condition update, and iii) optimization and efficiency.

3.3.1.2 The contractor shall test and evaluate coupling impact on lower atmosphere/upper ocean boundary-layer structure for long-term data assimilation tests.

3.3.1.3 The contractor shall document the statistical significance of improvements of the coupled runs against un-coupled runs.

3.3.2 The Contractor shall perform research and development for the improvement of microphysics packages.

3.3.2.1 The Contractor shall test and evaluate new microphysics packages for long-term cases.

NRL-Schmidt and weather Research Forecast (WRF) Thompson schemes.

3.3.2.2 The contractor shall test and evaluate improvements to model boundary layer and surface physics, to include: i) new WRF packages, ii) new boundary layer mixing, and iii) new surface fluxes.

3.3.2.3 The Contractor shall evaluate and document Quantitative Precipitation Forecast (QPF) and evaluate improvements to cumulus parameterization and microphysics to improve QPF performance.

3.3.3 The Contractor shall perform research and development for the COAMPS Tropical Cyclone Capability.

3.3.3.1 The contractor shall merge the current COAMPS-TC branch with the main COAMPS code and perform benchmark tests.

3.3.3.2 The Contractor shall test new improvements to the data assimilation (including radiance assimilation) and vortex initialization and evaluate the impact on tropical cyclones.

E.g., synthetic observations, and related initialization methods

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3.3.3.3 The Contractor shall provide upgrades to the PBL for the COAMPS-TC.

3.3.3.4 The Contractor shall provide upgrades to the microphysics.

3.3.3.5 The Contractor shall provide diagnosis and evaluation of systematic errors for the TC seasons.

3.3.3.6 The Contractor shall evaluate the air-ocean coupled COAMPS-TC for retrospective cases.

This is compared to the uncoupled version for a homogeneous set of cases.

3.3.3.7 The Contractor shall prepare the new air-ocean coupled COAMPS-TC for transition to FNMOC.

3.3.3.8 The contractor shall prepare COAMPS-TC to be code compliant with FNMOC coding standards.

3.3.3.9 The Contractor shall perform real-time COAMPS-TC forecasts with the latest version.

3.3.3.10 The Contractor shall assist in field experiment to collect observations.

This can assist the improvement of COAMPS-TC in both physics parameterization area and validation of the predictions.

3.4 The Contractor shall perform Satellite Data Fusion Applications research and Development to assist NRL in reaching its Satellite Tactical Application project objectives.

NRL conducts research in the areas of data manipulation and fusion, digital image analysis, algorithm development, system design, and fusion of satellite data with other types of environmental data such as NWP model data. Conduct research that includes working with data from various satellite platforms and their sensors to provide timely, operationally relevant “value added” products to the various warfighters.

Performance Standards

STD: Provides Level 2 High support response

AQL: Calls are returned within four hours and the problem is usually diagnosed and/or resolved within one business day

The Performance standard ‘Level 2 High Support response’ indicates a problem that definitely needs to be resolved, but there is some additional flexibility on the resolution time.

STD: Cost Effective

AQL: 95% of TDM task cost objectives met and budget can withstand additional costs for high level 2 response

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Deliverables

A001 Contractor's Management Plan (CMP)
A002 Monthly Progress Report
A003 Monthly Funds Status and Expenditure Report
A004 Monthly Labor Report
A005 Contract Yearly Technical Summary Report
A006 Software Demonstration

3.4.1 The Contractor shall perform research and development for data ingest modules for new satellite sensor data.

The contractor will perform research support to i) demonstrate new remote sensing sensor capabilities by using near real-time data sets, ii) demonstrate the data processing capability by testing the navigation of the new sensor data and calibration of the new sensor data, iii) demonstrate the sensor data meet the designed specifications through testing and validating the navigation and calibration data processing capability, and iv) conduct extensive testing, validation and tuning for eventual transition to operations.

The Contractor shall demonstrate the sensor data meet the designed specifications through testing and validating the navigation and calibration data processing capability. Perform extensive testing, validation and tuning required prior to final transition to FNMOC.

3.4.2 The Contractor shall perform research and development for the imagery interpretation techniques and sensor data fusion capability to create multi-channel tactical parameters for the war fighters.

Examples for satellite tactical parameters: dust, low/high clouds, snow, fog, fire, data/night band applications.

3.4.2.1 The contractor shall validate the new product and demonstrate the utility on NRL Sat METOC web site and prepare for eventual transition to operations.

3.4.2.2 The Contractor shall extend the data fusion techniques to include model capabilities and radar data set for nowcasting.

3.4.2.3 The Contractor shall develop new and innovative products fusing multiple datasets such as satellite, surface observations, and NWP model output data and provide training in their use.

3.4.3 The Contractor shall perform research and development for Tier-2 product used by Typhoon Duty Officer (TDO) for Tropical Cyclone Interpretation related to track, intensity, and structure.

3.4.3.1 The contractor shall perform research and development for the "derived" imagery products in near real-time to support tropical cyclone (TC) storm characterization for near real-time warnings.

The product will be useful to the TDOs to estimate the TC current location, intensity

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strength/growth potential, wind radii/structure, and potential development of a tropical cyclone.

3.4.3.2 The contractor shall perform research and development for the improvement of TC forecast guidance and tactical applications for operational decision makers.

3.4.3.3 The contractor shall develop, test, and evaluate existing and emerging technologies and apply them to improve tropical cyclone track, intensity, and structure predictions that TDOs provide to operational decision makers.

3.4.3.4 The contractor shall assist in TC field experiment for field trip planning (aircraft flight patterns), collect both atmospheric and oceanic data, perform data processing and analysis for post field experiment reports.

3.4.3.5 The Contractor shall develop data processing algorithm and analysis for field experiments.

3.4.4 The Contractor shall design and develop the Automated Tropical Cyclone Forecast System (ATCF).

ATCF is a computer-based application intended to automate and optimize the TC forecasting process. The use of ATCF has expanded from DoD to DoC (NOAA/NHC) for consistency in TC forecasting procedures and warnings.

3.4.4.1 The Contractor shall address the ATCF requirements, which can expand from S&T research to advanced development and further to the system functional maintenance.

These requirements come from the annual ATCF interdepartmental meetings (usually in November of each year).

3.4.4.2 The Contractor shall develop the ATCF TC warning capabilities such as movement, intensity, structure, waves, and probabilistic forecast.

This will also require ATCF assistance for system development by adopting modern IT and IA technology.

3.4.4.3 The Contractor shall develop ATCF Tier-3 TC avoidance guidance for ashore bases and afloat units.

Develop TC condition of readiness setting and sortie criteria.

4 Special Requirements

This section describes the special requirements for this effort. The following sub-sections provide details of various considerations on this effort.

4.1 Transition

The Contractor will follow the transition plan submitted as part of the Contractor's Management Plan and keep the Government fully informed of status throughout the

transition period.

This plan should describe the Contractor's transition in to service at the beginning of the contract, and how work would be transitioned to a different contractor or contract vehicle at the end of the contract. It should include a staffing and training plan for new personnel. The Contractor should plan for the transfer of work control and information, addressing any security issues, the transfer and accountability of GFE, inspections and acceptance, and delineating the method for processing and assigning tasks during the phase-in/phase-out periods. The plan should address how the Contractor will implement adequate measures to coordinate communications with the incumbent contractor and NRL staff in order to ensure uninterrupted workflow and minimal mission impact during the transition process (32).

The Contractor **shall** provide deliverables with the schedule and format as described in section 3.0 of this contract and outlined in the CDRL's listed below.

5 Deliverables

Identifier	Name	Description
A001	Contractor's Management Plan (CMP)	Describes the contract implementation approach, including the systems and processes, to provide overall coordination of contract management activities, and subcontract management activities if applicable. It provides insight into staffing, organizational structure, and approaches.
A002	Monthly Progress Report	Provides report of all technical work accomplished during the month. Indicates the progress of the contractor's work on assigned tasks, and the status of the program. Informs technical issues and potential problem areas.
A003	Monthly Funds Status and Expenditure Report	Provides report of all technical work accomplished

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		during the month. Indicates the progress of the contractor's work on assigned tasks, and the status of the program. Informs technical issues and potential problem areas.
A004	Monthly Labor Report	Reports labor hours for the current month and accumulated hours. Forecasts labor hours for the next month and informs of existing or potential labor problem areas.
A005	Contract Yearly Technical Summary Report	Provides summary report of all technical work accomplished during the past year. Include electronic copy of all published journal/conference articles.
A006	Software Demonstration	As needed by task, demonstrates software capability on Government assigned systems. For the demonstration, provides source code, complies software code, demonstrates capabilities, and provides user's manual.

6 Acronyms

COAMPS	Coupled Ocean/Atmosphere Mesoscale Prediction System
DSRC	DoD Supercomputing Resource Center
EM/EO	Electromagnetic and Electro-optical
EnKF	Ensemble Kalman filter
EPS	Ensemble Prediction System
ESPC	Earth System Prediction Capability
FNMOC CA	Fleet Numerical Meteorology and Oceanography Center, Monterey, CA
GPS-RO	Global Positioning System - Radio Occultation
MJO	Madden Julian Oscillation

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MVOI Multivariate Optimum Interpolation

NAVDAS NRL Atmospheric Variational Data Assimilation System

NAVDAS-AR NAVDAS Accelerated Representer

NAVGEN Navy Global Environmental Model

NRL Naval Research Laboratory, Monterey, CA

NWP Numerical Weather Prediction

SUBV/2 Solar Backscatter Ultraviolet Radiometer

SVN Subversion version control

Performance Requirement Summary (PRS)

Statements	Standards/AQLs
3.1 The Contractor shall perform Data Assimilation Research and Development to assist NRL in reaching its Data Assimilation project objectives.	
3.1.1 The Contractor shall perform Data Quality control Research and Development and shall develop new generation quality control software based on the adjoint-based diagnostic tools.	<p>a) Provides Level 2 High support response AQL: Calls are returned within four hours and the problem is usually diagnosed and/or resolved within one business day</p> <p>b) Cost Effective AQL: 95% of TDM task cost objectives met and budget can withstand additional costs for high level 2 response</p>
3.1.2 The Contractor shall perform Satellite Radiance Data Assimilation research and Development.	<p>a) Provides Level 2 High support response AQL: Calls are returned within four hours and the problem is usually diagnosed and/or resolved within one business day</p> <p>b) Cost Effective AQL: 95% of TDM task cost objectives met and budget can withstand additional costs for high level 2 response</p>
3.1.2.1 The contractor shall deliver satellite data assimilation capability for radiances from	<p>a) Provides Level 2 High support response AQL: Calls are returned within four hours and the problem is usually diagnosed and/or resolved within</p>

	<p>visible, infrared (IR) and microwave (MW) sounders as well as assimilation of bending angle profiles from GPS Radio Occultation (GPS-RO) and the ozone profile from various satellite sensors.</p>	<p>one business day</p> <p>b) Cost Effective AQL: 95% of TDM task cost objectives met and budget can withstand additional costs for high level 2 response</p>
3.1.2.2	<p>The Contractor shall deliver radar radiance data assimilation capability.</p>	<p>a) Provides Level 2 High support response AQL: Calls are returned within four hours and the problem is usually diagnosed and/or resolved within one business day</p> <p>b) Cost Effective AQL: 95% of TDM task cost objectives met and budget can withstand additional costs for high level 2 response</p>
3.1.3	<p>The Contractor shall provide research and development to NRL in examining the benefits and deficiencies of each variant of the ensemble base data assimilation scheme.</p>	<p>a) Provides Level 2 High support response AQL: Calls are returned within four hours and the problem is usually diagnosed and/or resolved within one business day</p> <p>b) Cost Effective AQL: 95% of TDM task cost objectives met and budget can withstand additional costs for high level 2 response</p>
3.1.4	<p>The Contractor shall provide research and development for coupled data assimilation systems.</p>	<p>a) Provides Level 2 High support response AQL: Calls are returned within four hours and the problem is usually diagnosed and/or resolved within one business day</p> <p>b) Cost Effective</p>

	AQL: 95% of TDM task cost objectives met and budget can withstand additional costs for high level 2 response
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Statements		Standards/AQLs
3.2	The Contractor shall perform Global Numerical Weather Prediction (NWP) Research and Development to assist NRL in reaching its Global NWP project objectives.	
3.2.1	The Contractor shall provide research and development for NAVGEM forecast model Spiral Development.	<p>a) Provides Level 2 High support response AQL: Calls are returned within four hours and the problem is usually diagnosed and/or resolved within one business day</p> <p>b) Cost Effective AQL: 95% of TDM task cost objectives met and budget can withstand additional costs for high level 2 response</p>
3.2.1.1	The Contractor shall provide dynamic core research and development for the forecast model	<p>a) Provides Level 2 High support response AQL: Calls are returned within four hours and the problem is usually diagnosed and/or resolved within one business day</p> <p>b) Cost Effective AQL: 95% of TDM task cost objectives met and budget can withstand additional costs for high level 2 response</p>

<p>3.2.1.1.1 The Contractor shall test different alternatives for vertical interpolations in the semi-Lagrangian advection scheme.</p>	<p>a) Provides Level 2 High support response AQL: Calls are returned within four hours and the problem is usually diagnosed and/or resolved within one business day</p> <p>b) Cost Effective AQL: 95% of TDM task cost objectives met and budget can withstand additional costs for high level 2 response</p>
<p>3.2.1.1.2 The Contractor shall optimize semi-implicit time integration.</p>	<p>a) Provides Level 2 High support response AQL: Calls are returned within four hours and the problem is usually diagnosed and/or resolved within one business day</p> <p>b) Cost Effective AQL: 95% of TDM task cost objectives met and budget can withstand additional costs for high level 2 response</p>
<p>3.2.1.1.3 The Contractor shall optimize diffusion and time step.</p>	<p>a) Provides Level 2 High support response AQL: Calls are returned within four hours and the problem is usually diagnosed and/or resolved within one business day</p> <p>b) Cost Effective AQL: 95% of TDM task cost objectives met and budget can withstand additional costs for high level 2 response</p>
<p>3.2.1.1.4 The Contractor shall complete the development of the NAVGEM T425L60 semi-Lagrangian/semi-</p>	<p>a) Provides Level 2 High support response AQL: Calls are returned within four hours and the problem is usually diagnosed and/or</p>

<p>implicit model.</p>	<p>resolved within one business day</p> <p>b) Cost Effective AQL: 95% of TDM task cost objectives met and budget can withstand additional costs for high level 2 response</p>
<p>3.2.1.1.5 The Contractor shall test NAVGEM on DSRC platform in real-time.</p>	<p>a) Provides Level 2 High support response AQL: Calls are returned within four hours and the problem is usually diagnosed and/or resolved within one business day</p> <p>b) Cost Effective AQL: 95% of TDM task cost objectives met and budget can withstand additional costs for high level 2 response</p>
<p>3.2.1.1.6 The Contractor shall develop the T575L60 SL/SI dynamical core for NAVGEM.</p>	<p>a) Provides Level 2 High support response AQL: Calls are returned within four hours and the problem is usually diagnosed and/or resolved within one business day</p> <p>b) Cost Effective AQL: 95% of TDM task cost objectives met and budget can withstand additional costs for high level 2 response</p>
<p>3.2.1.2 The Contractor shall perform advanced physics development research and development.</p>	<p>a) Provides Level 2 High support response AQL: Calls are returned within four hours and the problem is usually diagnosed and/or resolved within one business day</p> <p>b) Cost Effective AQL: 95% of TDM task cost objectives met and budget can</p>

		withstand additional costs for high level 2 response
3.2.1.2.1	The Contractor shall test the impact of using the Rapid Radiative Transfer Model for GCM applications (RRTMG) together with a multi-species prognostic treatment for water condensate in NAVGEM.	<p>a) Provides Level 2 High support response AQL: Calls are returned within four hours and the problem is usually diagnosed and/or resolved within one business day</p> <p>b) Cost Effective AQL: 95% of TDM task cost objectives met and budget can withstand additional costs for high level 2 response</p>
3.2.1.2.2	The Contractor shall implement high-order boundary layer parameterization scheme.	<p>a) Provides Level 2 High support response AQL: Calls are returned within four hours and the problem is usually diagnosed and/or resolved within one business day</p> <p>b) Type your new standard here Cost Effective AQL: 95% of TDM task cost objectives met and budget can withstand additional costs for high level 2 response</p>
3.2.1.2.3	The Contractor shall optimize vertical levels for computational efficiency, requirement of data assimilation upgrade, and advanced physics.	<p>a) Provides Level 2 High support response AQL: Calls are returned within four hours and the problem is usually diagnosed and/or resolved within one business day</p> <p>b) Cost Effective AQL: 95% of TDM task cost objectives met and budget can withstand additional costs for high level 2 response</p>

<p>3.2.1.2.4 The Contractor shall implement and test NOGAPS-ALPHA physics, and GFS gravity wave drag schemes.</p>	<p>a) Provides Level 2 High support response AQL: Calls are returned within four hours and the problem is usually diagnosed and/or resolved within one business day</p> <p>b) Cost Effective AQL: 95% of TDM task cost objectives met and budget can withstand additional costs for high level 2 response</p>
<p>3.2.1.3 The Contractor shall develop SVN-based configuration management system with version control and collaborations for NAVGEM.</p>	<p>a) Provides Level 2 High support response AQL: Calls are returned within four hours and the problem is usually diagnosed and/or resolved within one business day</p> <p>b) Cost Effective AQL: 95% of TDM task cost objectives met and budget can withstand additional costs for high level 2 response</p>
<p>3.2.1.4 The Contractor shall develop the code and scripts for the NAVGEM Ensemble Prediction System (EPS).</p>	<p>a) Provides Level 2 High support response AQL: Calls are returned within four hours and the problem is usually diagnosed and/or resolved within one business day</p> <p>b) Cost Effective AQL: 95% of TDM task cost objectives met and budget can withstand additional costs for high level 2 response</p>
<p>3.2.1.5 The Contractor shall develop diagnostic software to better analyze NAVGEM errors in terms of</p>	<p>a) Provides Level 2 High support response AQL: Calls are returned within four hours and the problem is usually diagnosed and/or</p>

	regions and synoptic situations, and through energy budget, vorticity budget and eave spectrum analysis.	resolved within one business day b) Cost Effective AQL: 95% of TDM task cost objectives met and budget can withstand additional costs for high level 2 response
3.2.2	The Contractor shall provide research and development for NRL Seasonal Global NWP Prediction research.	a) Provides Level 2 High support response AQL: Calls are returned within four hours and the problem is usually diagnosed and/or resolved within one business day b) Cost Effective AQL: 95% of TDM task cost objectives met and budget can withstand additional costs for high level 2 response
3.2.2.1	The Contractor shall perform extended integrations for both the Navy global and mesoscale models using different configurations to evaluate and understand the potential for predictability on monthly time scales for the global Seasonal Prediction.	a) Provides Level 2 High support response AQL: Calls are returned within four hours and the problem is usually diagnosed and/or resolved within one business day b) Cost Effective AQL: 95% of TDM task cost objectives met and budget can withstand additional costs for high level 2 response
3.2.2.2	The Contractor shall evaluate NAVGEM for monthly time scales at highest resolution possible, and at resolutions considered operationally feasible.	a) Provides Level 2 High support response AQL: Calls are returned within four hours and the problem is usually diagnosed and/or resolved within one business day b) Cost Effective AQL: 95% of TDM task cost objectives met and budget can

		withstand additional costs for high level 2 response
3.2.2.3	The Contractor shall examine metrics of specific high interest to the Navy, such as frequency of occurrence of high-speed near surface winds, and larger-scale phenomenon, such as the Madden Julian Oscillation (MJO).	
3.2.2.4	The Contractor shall investigate and evaluate the representation of the MJO in NAVGEM.	<p>a) Provides Level 2 High support response AQL: Calls are returned within four hours and the problem is usually diagnosed and/or resolved within one business day</p> <p>b) Cost Effective AQL: 95% of TDM task cost objectives met and budget can withstand additional costs for high level 2 response</p>
3.2.2.5	The Contractor shall investigate the mechanism controlling MJO's occurrence and amount of convection.	<p>a) Provides Level 2 High support response AQL: Calls are returned within four hours and the problem is usually diagnosed and/or resolved within one business day</p> <p>b) Cost Effective AQL: 95% of TDM task cost objectives met and budget can withstand additional costs for high level 2 response</p>
3.2.2.5.1	The Contractor shall participate in the MJO Diabatic Heating	<p>a) Provides Level 2 High support response AQL: Calls are returned within</p>

	Model Inter-comparison Project.	<p>four hours and the problem is usually diagnosed and/or resolved within one business day</p> <p>b) Cost Effective AQL: 95% of TDM task cost objectives met and budget can withstand additional costs for high level 2 response</p>
3.2.2.5.2	The Contractor shall conduct NAVGEM numerical experiments to simulate the MJO phenomena observed in the field experiments.	<p>a) Provides Level 2 High support response AQL: Calls are returned within four hours and the problem is usually diagnosed and/or resolved within one business day</p> <p>b) Cost Effective AQL: 95% of TDM task cost objectives met and budget can withstand additional costs for high level 2 response</p>
3.2.3	The contractor shall perform model physics improvement research and development for the Earth System Prediction Capability (ESPC).	<p>a) Provides Level 2 High support response AQL: Calls are returned within four hours and the problem is usually diagnosed and/or resolved within one business day</p> <p>b) Cost Effective AQL: 95% of TDM task cost objectives met and budget can withstand additional costs for high level 2 response</p>
3.2.3.1	The contractor shall investigate the Initial Value Problem through joint observational retrievals (air & sea) and new hybrid data assimilation approaches.	<p>a) Provides Level 2 High support response AQL: Calls are returned within four hours and the problem is usually diagnosed and/or resolved within one business day</p> <p>b) Cost Effective</p>

		AQL: 95% of TDM task cost objectives met and budget can withstand additional costs for high level 2 response
3.2.3.2	The contractor shall perform research and development in improvements of forecast skill through i) stochastic prediction and post-model processing, ii) Multi-model ensembles, and iii) multi-scale seamless prediction.	<p>a) Provides Level 2 High support response AQL: Calls are returned within four hours and the problem is usually diagnosed and/or resolved within one business day</p> <p>b) Cost Effective AQL: 95% of TDM task cost objectives met and budget can withstand additional costs for high level 2 response</p>
3.2.4	The Contractor shall develop flexible computing/network architecture to execute global data assimilation system at a remote HPC center.	<p>a) Provides Level 2 High support response AQL: Calls are returned within four hours and the problem is usually diagnosed and/or resolved within one business day</p> <p>b) Cost Effective AQL: 95% of TDM task cost objectives met and budget can withstand additional costs for high level 2 response</p>
3.2.4.1	The Contractor shall develop flexible best practice for real-time data transfer of the METOC observations, and post processing of data staging strategy.	<p>a) Provides Level 2 High support response AQL: Calls are returned within four hours and the problem is usually diagnosed and/or resolved within one business day</p> <p>b) Cost Effective AQL: 95% of TDM task cost objectives met and budget can withstand additional costs for high level 2 response</p>

<p>3.2.4.2 The Contractor shall simulate an operational scenario of executing global NWP system at a remote HPC center.</p>	<p>a) Provides Level 2 High support response AQL: Calls are returned within four hours and the problem is usually diagnosed and/or resolved within one business day</p> <p>b) Cost Effective AQL: 95% of TDM task cost objectives met and budget can withstand additional costs for high level 2 response</p>
<p>3.2.4.3 The Contractor shall extend the CONOPS to global coupled prediction system(s).</p>	<p>a) Provides Level 2 High support response AQL: Calls are returned within four hours and the problem is usually diagnosed and/or resolved within one business day</p> <p>b) Cost Effective AQL: 95% of TDM task cost objectives met and budget can withstand additional costs for high level 2 response</p>
<p>3.2.4.4 The Contractor shall develop executing strategy to migrate global model among various architectures.</p>	<p>a) Provides Level 2 High support response AQL: Calls are returned within four hours and the problem is usually diagnosed and/or resolved within one business day</p> <p>b) Cost Effective AQL: 95% of TDM task cost objectives met and budget can withstand additional costs for high level 2 response</p>

<p>3.3 The Contractor shall perform Mesoscale Numerical Weather Prediction (NWP) Research and Development to assist NRL in reaching its Mesoscale NWP project objectives.</p>	
<p>3.3.1 The Contractor shall perform research and development for 3-Way Atmosphere-Ocean-Wave Coupling Capability.</p>	<p>a) Provides Level 2 High support response AQL: Calls are returned within four hours and the problem is usually diagnosed and/or resolved within one business day</p> <p>b) Cost Effective AQL: 95% of TDM task cost objectives met and budget can withstand additional costs for high level 2 response</p>
<p>3.3.1.1 The Contractor shall test and evaluate implementation of Simulating Waves Nearshore (SWAN) versus Wave Watch III in 3-way coupled system, to include: i) initialization, ii) lateral boundary condition update, and iii) optimization and efficiency.</p>	<p>a) Provides Level 2 High support response AQL: Calls are returned within four hours and the problem is usually diagnosed and/or resolved within one business day</p> <p>b) Cost Effective AQL: 95% of TDM task cost objectives met and budget can withstand additional costs for high level 2 response</p>
<p>3.3.1.2 The contractor shall test and evaluate coupling impact on lower atmosphere/upper ocean boundary-layer structure for long-term data</p>	<p>a) Provides Level 2 High support response AQL: Calls are returned within four hours and the problem is usually diagnosed and/or resolved within one business day</p> <p>b) Cost Effective AQL: 95% of TDM task cost</p>

	assimilation tests.	objectives met and budget can withstand additional costs for high level 2 response
3.3.1.3	The contractor shall document the statistical significance of improvements of the coupled runs against un-coupled runs.	<p>a) Provides Level 2 High support response AQL: Calls are returned within four hours and the problem is usually diagnosed and/or resolved within one business day</p> <p>b) Cost Effective AQL: 95% of TDM task cost objectives met and budget can withstand additional costs for high level 2 response</p>
3.3.2	The Contractor shall perform research and development for the improvement of microphysics packages.	<p>a) Provides Level 2 High support response AQL: Calls are returned within four hours and the problem is usually diagnosed and/or resolved within one business day</p> <p>b) Cost Effective AQL: 95% of TDM task cost objectives met and budget can withstand additional costs for high level 2 response</p>
3.3.2.1	The Contractor shall test and evaluate new microphysics packages for long-term cases.	<p>a) Provides Level 2 High support response AQL: Calls are returned within four hours and the problem is usually diagnosed and/or resolved within one business day</p> <p>b) Cost Effective AQL: 95% of TDM task cost objectives met and budget can withstand additional costs for high level 2 response</p>

<p>3.3.2.2 The contractor shall test and evaluate improvements to model boundary layer and surface physics, to include: i) new WRF packages, ii) new boundary layer mixing, and iii) new surface fluxes.</p>	<p>a) Provides Level 2 High support response AQL: Calls are returned within four hours and the problem is usually diagnosed and/or resolved within one business day</p> <p>b) Cost Effective AQL: 95% of TDM task cost objectives met and budget can withstand additional costs for high level 2 response</p>
<p>3.3.2.3 The Contractor shall evaluate and document Quantitative Precipitation Forecast (QPF) and evaluate improvements to cumulus parameterization and microphysics to improve QPF performance.</p>	<p>a) Provides Level 2 High support response AQL: Calls are returned within four hours and the problem is usually diagnosed and/or resolved within one business day</p> <p>b) Cost Effective AQL: 95% of TDM task cost objectives met and budget can withstand additional costs for high level 2 response</p>
<p>3.3.3 The Contractor shall perform research and development for the COAMPS Tropical Cyclone Capability.</p>	<p>a) Provides Level 2 High support response AQL: Calls are returned within four hours and the problem is usually diagnosed and/or resolved within one business day</p> <p>b) Cost Effective AQL: 95% of TDM task cost objectives met and budget can withstand additional costs for high level 2 response</p>
<p>3.3.3.1 The contractor shall merge the current COAMPS-TC branch with the main COAMPS code and</p>	<p>a) Provides Level 2 High support response AQL: Calls are returned within four hours and the problem is usually diagnosed and/or</p>

	perform benchmark tests.	resolved within one business day b) Cost Effective AQL: 95% of TDM task cost objectives met and budget can withstand additional costs for high level 2 response
3.3.3.2	The Contractor shall test new improvements to the data assimilation (including radiance assimilation) and vortex initialization and evaluate the impact on tropical cyclones.	a) Provides Level 2 High support response AQL: Calls are returned within four hours and the problem is usually diagnosed and/or resolved within one business day b) Cost Effective AQL: 95% of TDM task cost objectives met and budget can withstand additional costs for high level 2 response
3.3.3.3	The Contractor shall provide upgrades to the PBL for the COAMPS-TC.	a) Provides Level 2 High support response AQL: Calls are returned within four hours and the problem is usually diagnosed and/or resolved within one business day b) Cost Effective AQL: 95% of TDM task cost objectives met and budget can withstand additional costs for high level 2 response
3.3.3.4	The Contractor shall provide upgrades to the microphysics.	a) Provides Level 2 High support response AQL: Calls are returned within four hours and the problem is usually diagnosed and/or resolved within one business day b) Cost Effective AQL: 95% of TDM task cost objectives met and budget can

		withstand additional costs for high level 2 response
3.3.3.5	The Contractor shall provide diagnosis and evaluation of systematic errors for the TC seasons.	<p>a) Provides Level 2 High support response AQL: Calls are returned within four hours and the problem is usually diagnosed and/or resolved within one business day</p> <p>b) Cost Effective AQL: 95% of TDM task cost objectives met and budget can withstand additional costs for high level 2 response</p>
3.3.3.6	The Contractor shall evaluate the air-ocean coupled COAMPS-TC for retrospective cases.	<p>a) Provides Level 2 High support response AQL: Calls are returned within four hours and the problem is usually diagnosed and/or resolved within one business day</p> <p>b) Cost Effective AQL: 95% of TDM task cost objectives met and budget can withstand additional costs for high level 2 response</p>
3.3.3.7	The Contractor shall prepare the new air-ocean coupled COAMPS-TC for transition to FNMOC.	<p>a) Provides Level 2 High support response AQL: Calls are returned within four hours and the problem is usually diagnosed and/or resolved within one business day</p> <p>b) Cost Effective AQL: 95% of TDM task cost objectives met and budget can withstand additional costs for high level 2 response</p>

<p>3.3.3.8 The contractor shall prepare COAMPS-TC to be code compliant with FNMOC coding standards.</p>	<p>a) Provides Level 2 High support response AQL: Calls are returned within four hours and the problem is usually diagnosed and/or resolved within one business day</p> <p>b) Cost Effective AQL: 95% of TDM task cost objectives met and budget can withstand additional costs for high level 2 response</p>
<p>3.3.3.9 The Contractor shall perform real-time COAMPS-TC forecasts with the latest version.</p>	<p>a) Provides Level 2 High support response AQL: Calls are returned within four hours and the problem is usually diagnosed and/or resolved within one business day</p> <p>b) Cost Effective AQL: 95% of TDM task cost objectives met and budget can withstand additional costs for high level 2 response</p>
<p>3.3.3.10 The Contractor shall assist in field experiment to collect observations.</p>	<p>a) Provides Level 2 High support response AQL: Calls are returned within four hours and the problem is usually diagnosed and/or resolved within one business day</p> <p>b) Cost Effective AQL: 95% of TDM task cost objectives met and budget can withstand additional costs for high level 2 response</p>

Statements	Standards/AQLs
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<p>3.4 The Contractor shall perform Satellite Data Fusion Applications research and Development to assist NRL in reaching its Satellite Tactical Application project objectives.</p>	
<p>3.4.1 The Contractor shall perform research and development for data ingest modules for new satellite sensor data.</p>	<p>a) Provides Level 2 High support response AQL: Calls are returned within four hours and the problem is usually diagnosed and/or resolved within one business day</p> <p>b) Cost Effective AQL: 95% of TDM task cost objectives met and budget can withstand additional costs for high level 2 response</p>
<p>3.4.2 The Contractor shall perform research and development for the imagery interpretation techniques and sensor data fusion capability to create multi-channel tactical parameters for the war fighters.</p>	<p>a) Provides Level 2 High support response AQL: Calls are returned within four hours and the problem is usually diagnosed and/or resolved within one business day</p> <p>b) Cost Effective AQL: 95% of TDM task cost objectives met and budget can withstand additional costs for high level 2 response</p>
<p>3.4.2.1 The contractor shall validate the new product and demonstrate the utility on NRL Sat METOC web site and prepare for eventual transition to operations.</p>	<p>a) Provides Level 2 High support response AQL: Calls are returned within four hours and the problem is usually diagnosed and/or resolved within one business day</p> <p>b) Cost Effective AQL: 95% of TDM task cost</p>

		objectives met and budget can withstand additional costs for high level 2 response
3.4.2.2	The Contractor shall extend the data fusion techniques to include model capabilities and radar data set for nowcasting.	<p>a) Provides Level 2 High support response AQL: Calls are returned within four hours and the problem is usually diagnosed and/or resolved within one business day</p> <p>b) Cost Effective AQL: 95% of TDM task cost objectives met and budget can withstand additional costs for high level 2 response</p>
3.4.2.3	The Contractor shall develop new and innovative products fusing multiple datasets such as satellite, surface observations, and NWP model output data and provide training in their use.	<p>a) Provides Level 2 High support response AQL: Calls are returned within four hours and the problem is usually diagnosed and/or resolved within one business day</p> <p>b) Cost Effective AQL: 95% of TDM task cost objectives met and budget can withstand additional costs for high level 2 response</p>
3.4.3	The Contractor shall perform research and development for Tier-2 product used by Typhoon Duty Officer (TDO) for Tropical Cyclone Interpretation related to track, intensity, and structure.	<p>a) Provides Level 2 High support response AQL: Calls are returned within four hours and the problem is usually diagnosed and/or resolved within one business day</p> <p>b) Cost Effective AQL: 95% of TDM task cost objectives met and budget can withstand additional costs for high level 2 response</p>

<p>3.4.3.1 The contractor shall perform research and development for the “derived” imagery products in near real-time to support tropical cyclone (TC) storm characterization for near real-time warnings.</p>	<p>a) Provides Level 2 High support response AQL: Calls are returned within four hours and the problem is usually diagnosed and/or resolved within one business day</p> <p>b) Cost Effective AQL: 95% of TDM task cost objectives met and budget can withstand additional costs for high level 2 response</p>
<p>3.4.3.2 The contractor shall perform research and development for the improvement of TC forecast guidance and tactical applications for operational decision makers.</p>	<p>a) Provides Level 2 High support response AQL: Calls are returned within four hours and the problem is usually diagnosed and/or resolved within one business day</p> <p>b) Cost Effective AQL: 95% of TDM task cost objectives met and budget can withstand additional costs for high level 2 response</p>
<p>3.4.3.3 The contractor shall develop, test, and evaluate existing and emerging technologies and apply them to improve tropical cyclone track, intensity, and structure predictions that TDOs provide to operational decision makers.</p>	<p>a) Provides Level 2 High support response AQL: Calls are returned within four hours and the problem is usually diagnosed and/or resolved within one business day</p> <p>b) Cost Effective AQL: 95% of TDM task cost objectives met and budget can withstand additional costs for high level 2 response</p>
<p>3.4.3.4 The contractor shall assist in TC field experiment for field trip planning (aircraft flight patterns),</p>	<p>a) Provides Level 2 High support response AQL: Calls are returned within four hours and the problem is usually diagnosed and/or resolved within</p>

	collect both atmospheric and oceanic data, perform data processing and analysis for post field experiment reports.	one business day b) Cost Effective AQL: 95% of TDM task cost objectives met and budget can withstand additional costs for high level 2 response
3.4.3.5	The Contractor shall develop data processing algorithm and analysis for field experiments.	a) Provides Level 2 High support response AQL: Calls are returned within four hours and the problem is usually diagnosed and/or resolved within one business day b) Cost Effective AQL: 95% of TDM task cost objectives met and budget can withstand additional costs for high level 2 response
3.4.4	The Contractor shall design and develop the Automated Tropical Cyclone Forecast System (ATCF).	a) Provides Level 2 High support response AQL: Calls are returned within four hours and the problem is usually diagnosed and/or resolved within one business day b) Cost Effective AQL: 95% of TDM task cost objectives met and budget can withstand additional costs for high level 2 response
3.4.4.1	The Contractor shall address the ATCF requirements, which can expand from S&T research to advanced development and further to the system functional maintenance.	a) Provides Level 2 High support response AQL: Calls are returned within four hours and the problem is usually diagnosed and/or resolved within one business day b) Cost Effective AQL: 95% of TDM task cost objectives met and budget can

		withstand additional costs for high level 2 response
3.4.4.2	The Contractor shall develop the ATCF TC warning capabilities such as movement, intensity, structure, waves, and probabilistic forecast.	<p>a) Provides Level 2 High support response AQL: Calls are returned within four hours and the problem is usually diagnosed and/or resolved within one business day</p> <p>b) Cost Effective AQL: 95% of TDM task cost objectives met and budget can withstand additional costs for high level 2 response</p>
3.4.4.3	The Contractor shall develop ATCF Tier-3 TC avoidance guidance for ashore bases and afloat units.	<p>a) Provides Level 2 High support response AQL: Calls are returned within four hours and the problem is usually diagnosed and/or resolved within one business day</p> <p>b) Cost Effective AQL: 95% of TDM task cost objectives met and budget can withstand additional costs for high level 2 response</p>

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SECTION D PACKAGING AND MARKING

D-1 Marking of Reports (NAVSEA)(SEP 1990)

All reports delivered by the Contractor to the Government under this contract shall prominently show on the cover of the report:

- (1) Contractor: SAIC
1710 SAIC Dr
McLean, VA 22102

- (2) MAC #: N00178-04-D-4119

- (3) Task Order #: EE01

- (4) Sponsor: Liang Xu
Naval Research Laboratory
Monterey, CA 93943

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SECTION E INSPECTION AND ACCEPTANCE

E-1 Inspection and Acceptance Terms

Supplies/services will be inspected/accepted at:

CLIN	INSPECT AT	INSPECT BY	ACCEPT AT	ACCEPT BY
7000	N00173	Government	N00173	Government
9000	N00173	Government	N00173	Government
9001	N00173	Government	N00173	Government
7100	N00173	Government	N00173	Government
9100	N00173	Government	N00173	Government
9101	N00173	Government	N00173	Government
7200	N00173	Government	N00173	Government
9200	N00173	Government	N00173	Government
9201	N00173	Government	N00173	Government

E-2 Clauses Incorporated by Reference

52.246-9 - Inspection of Research and Development (Short Form)(APR 1984)

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SECTION F DELIVERABLES OR PERFORMANCE

The periods of performance for the following Items are as follows:

7000	4/1/2014 - 3/31/2016
7100	3/3/2015 - 3/2/2017
7200	3/3/2017 - 3/2/2018
9000	4/1/2014 - 3/31/2016
9001	4/1/2014 - 3/31/2016
9100	3/3/2015 - 3/2/2017
9101	3/3/2015 - 3/2/2017
9200	3/3/2017 - 3/2/2018
9201	3/3/2017 - 3/2/2018

F-1 Period of Performance

See above.

F-2 Place of Performance

The principal place of performance of this task order shall be the US Naval Research Laboratory, 7 Grace Hopper Ave, Monterey, CA 93943. Details regarding the location of the services to be performed hereunder will be provided in the technical instructions.

F-3 Data Delivery

All data to be furnished under this task order shall be delivered prepaid to the destination(s) and at the time (s) specified on the Exhibit A, Contract Data Requirements List(s), DD Form 1423.

F-4 Place of Delivery

Receiving Officer
Naval Research Laboratory
Task Order Number: N00178-04-D-4119-EE01
ATTN: Liang Xu
Code: 7530
Location: Bldg 715 Rm 133
7 Grace Hopper Ave
Monterey, CA 93943

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SECTION G CONTRACT ADMINISTRATION DATA

G-1 Contract Administration

In order to expedite administration of this contract, the following delineation of duties is provided including the names and contact information for each individual or office specified. Contact the individual/position designated as having responsibility for any questions, clarifications or information regarding the functions assigned herein.

The Contract Administration Office (CAO) designated in Block 20A on the Standard Form 26 is responsible for all matters specified in FAR 42.302(a) and DFARS 242.302(a), except in those areas otherwise designated herein.

The ACO shall direct procuring agency inquiries as follows:

Contract Specialist – Ryan Wheelock, Code 3235, 228-688-5434, ryan.wheelock@nrlssc.navy.mil

Contracting Officer - Carol Parnell, Code 3230, 202-767-2372, carol.parnell@nrl.navy.mil

Security Matters – Contracting Officer for Security, Code 1226, (202) 767-2240, DSN 297-2240, email security-group@nrl.navy.mil.

Safety Matters – Head Safety Branch, Code 3540, (202) 767-2232, email safety@nrl.navy.mil.

Patent Matters – Associate Counsel (Intellectual Property), Code 1008.2, (202) 404-1552, DSN 297-1552, email patents@nrl.navy.mil.

Release of Data – Public Affairs Officer, Code 1030, (202) 767-2541, DSN 297-2541, email publicaffairs@nrl.navy.mil.

Contract administration functions withheld, additional contract administration functions assigned, or special instructions are set forth below:

Inquiries regarding payment should be referred to DFAS at <http://www.dod.mil/dfas/contractorpay/myinvoice.html>

G-2 Contracting Officer's Representative (COR)

(a) Liang Xu, Phone: (831) 656-4769, Email: liang.xu@nrlmry.navy.mil is hereby designated as the Contracting Officer's Representative (COR). Unless terminated sooner, this appointment is effective for the period of performance of this contract including any options, if exercised. COR authority may not be re-delegated. No change in COR assignment shall be made without written notice by the Contracting Officer, who will modify the contract to reflect the change of COR assignment. The Contracting Officer may designate assistant or alternate COR(s) to act for the COR by naming such assistant/alternate(s) in writing and transmitting a copy of such designation to the contractor via contract modification.

(b) The responsibilities and limitations of the COR are as follows:

1. The COR is responsible for:
2. Providing technical direction and guidance as necessary with respect to the performance of work under this contract. Technical direction and guidance may be used to provide technical advice/recommendations/clarifications on the statement of work/specifications. It MAY NOT be used to tell the contractor how to perform the work.
3. Submitting interim and final Contractor Performance Assessment Reports (CPARS) at

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www.cpars.csd.disa.mil/cparsmain.htm.

4. Quality assurance of services performed or deliveries made
5. Inspection and acceptance of services or deliverables
6. Ensuring that Government Furnished Property, to include any contractor use of on-site equipment and/or IT resources is adequately monitored and accounted for.
7. Security requirements on Government installation, such as the request and retrieval of personnel security badges and vehicle passes.
8. Monitoring contractor's performance and promptly report problems and recommendations for corrective action to the PCO
9. Annually, furnish a written report on performance of the contractor to the PCO. And, if deemed necessary, attending a follow-up meeting to discuss.
10. Attend post award conference, if conducted.
11. Ensuring a copy of all Government technical correspondence, to include Technical Direction Memorandums/Guidance, is forwarded to the PCO for placement in the contract file.
12. Monitoring of funds expended
13. Ensuring that the Contractor does not exceed the defined statement of work set forth in the contract.

(c) Limitations: The COR is not authorized to take any action, either directly or indirectly, that could result in a change in the cost/price, quantity, quality, place of performance, delivery schedule, or any other terms or conditions of the contract. If, as a result of technical discussions, it is desirable to alter contract obligations or the statement of work/specifications, a modification must be issued in writing and signed by the Contracting Officer in order to effect such changes. No such changes shall be made without the express written prior authorization/direction of the Contracting Officer.

G-3 TECHNICAL DIRECTION MEMORANDUM (TDM)

(a) For the purposes of this clause, technical direction includes the following:

- (1) Direction to the Contractor which shifts work emphasis between work areas or tasks, requires pursuit of certain lines of inquiry, fills in details or otherwise describes work which will accomplish the objectives described in the statement of work;
- (2) Guidelines to the Contractor, which assist in interpretation of drawings, specifications or technical portions of, work description.

(b) Technical instructions must be within the scope of work stated in the contract. Technical instructions may not be used to:

- (1) Assign additional work under the contract;
- (2) Direct a change as defined in the contract clause entitled "Changes";
- (3) Increase or decrease the estimated contract cost, the fixed fee, or the time required for contract performance; or
- (4) Change any of the terms, conditions or specifications of the contract

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(c) The TDM shall be written by the Contracting Officer's Representative (COR), with the original given to the Contractor and a copy retained in the CORs file. Technical direction may be issued orally only in emergency situations. If technical direction is issued orally, a TDM must follow within two (2) working days from the date of the oral direction. Amendments, corrections, or changes to TDMs shall also be in written format and shall include all the information set forth in paragraph (e) below.

(d) A TDM shall be considered issued when the Government deposits it in the mail, or if transmitted by other means, when it is physically delivered to the contractor.

(e) TDMs shall include, at a minimum, the following information:

- (1) Date of TDM,
- (2) Contract Number,
- (3) Reference to the relevant portion or item in the Statement of Work,
- (4) The specific technical direction or clarification,
- (5) The type of work to be performed, i.e., (a) SETA support or (b) R&D work,
- (6) A reference to the appropriate CLIN or SubCLIN,
- (7) The anticipated level of effort, materials and travel expected as a result of the TDM,
- (8) The JON, Program Element, and associated dollar amount, and
- (9) The signature of the COR

(f) CORs shall provide a copy of each TDM with the necessary increment of funds to the Contracting Officer for retention in the official contract file. CORs shall retain all files containing TDMs for a period of two (2) years after the final contract completion date.

(g) The only individual authorized in any way to amend or modify any of the terms of this contract shall be the Contracting Officer. When, in the opinion of the Contractor, any technical direction calls for effort outside the scope of the contract or inconsistent with this special clause, the Contractor shall notify the Contracting Officer in writing within ten (10) working days after its receipt.

G-4 Subcontractors/Consultants

Advance notification or requests for consent pursuant to the contract clause entitled "Subcontracts" (FAR 52.244-2) shall be directed to the cognizant administrative contracting officer (ACO).

(Paragraph (j) of FAR 52.244-2 is filled in as follows. The following subcontractor/consultants have been identified in the Contractor's proposal as necessary for performance of this contract and were evaluated during negotiations:

SUBCONTRACTOR/CONSULTANT NAME	ESTIMATED TOTAL COST
Ocog Inc	\$252,104.00
DeVine Consulting	\$481,792.00
Providence	\$279,262.00
Cherokee	\$636,818.00

G-5 Informational Subline Items

It is anticipated that the research and development services performed under this task order may be paid

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for from multiple sources of funds. Informational subline items may be established as necessary to identify each accounting citation classification.

G-6 Payment Instructions for Multiple Accounting Classification Citations (Cost Reimbursement)

In accordance with PGI 204.7108(d)(12), if none of the standard payment instructions identified in paragraphs (d)(1) through (11) are appropriate, other payment instructions may be inserted. The following payment instructions are provided to provide a more accurate reflection of how funds will be expended in support of contract performance. The contract has multiple sponsors, and funds are to be dispersed depending on which agency is sponsoring the work. Thus, (d)(1) through (11) are not appropriate. Therefore, if there is more than one ACRN within a contract line item, the payment office will make payment using the ACRN(s) cited on the contractor's invoice, as it reflects the agency that is sponsoring the work.

G-7 252.232-7006 Wide Area Workflow Payment Instructions (MAY 2013)

(a) *Definitions.* As used in this clause—

“Department of Defense Activity Address Code (DoDAAC)” is a six position code that uniquely identifies a unit, activity, or organization.

“Document type” means the type of payment request or receiving report available for creation in Wide Area WorkFlow (WAWF).

“Local processing office (LPO)” is the office responsible for payment certification when payment certification is done external to the entitlement system.

(b) *Electronic invoicing.* The WAWF system is the method to electronically process vendor payment requests and receiving reports, as authorized by DFARS [252.232-7003](#), Electronic Submission of Payment Requests and Receiving Reports.

(c) *WAWF access.* To access WAWF, the Contractor shall—

(1) Have a designated electronic business point of contact in the System for Award Management at <https://www.acquisition.gov>; and

(2) Be registered to use WAWF at <https://wawf.eb.mil/> following the step-by-step procedures for self-registration available at this web site.

(d) *WAWF training.* The Contractor should follow the training instructions of the WAWF Web-Based Training Course and use the Practice Training Site before submitting payment requests through WAWF. Both can be accessed by selecting the “Web Based Training” link on the WAWF home page at <https://wawf.eb.mil/>

(e) *WAWF methods of document submission.* Document submissions may be via web entry, Electronic Data Interchange, or File Transfer Protocol.

(f) *WAWF payment instructions.* The Contractor must use the following information when submitting payment requests and receiving reports in WAWF for this contract/order:

(1) *Document type.* The Contractor shall use the following document type(s).

Cost Voucher

(Contracting Officer: Insert applicable document type(s).

Note: If a “Combo” document type is identified but not supportable by the Contractor’s business systems, an

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“Invoice” (stand-alone) and “Receiving Report” (stand-alone) document type may be used instead.)

(2) *Inspection/acceptance location.* The Contractor shall select the following inspection/acceptance location(s) in WAWF, as specified by the contracting officer.

Inspection at Destination

(Contracting Officer: Insert inspection and acceptance locations or “Not applicable.”)

(3) *Document routing.* The Contractor shall use the information in the Routing Data Table below only to fill in applicable fields in WAWF when creating payment requests and receiving reports in the system.

ROUTING DATA TABLE

Field Name in WAWF	Data to be entered in WAWF
Pay Official DoDAAC	HQ0338
Issue By DoDAAC	N00173
Admin DoDAAC	S2404A
Inspect By DoDAAC	N00173
Ship To Code	N00173 EXTENSION 7500
Ship From Code	N/A
Mark For Code	N/A
Service Approver (DoDAAC)	N00173
Service Acceptor (DoDAAC)	N00173 EXTENSION 7500
Accept at Other DoDAAC	N/A
LPO DoDAAC	N/A
DCAA Auditor DoDAAC	HAA50W
Other DoDAAC(s)	N/A

(4) *Payment request and supporting documentation.* The Contractor shall ensure a payment request includes appropriate contract line item and subline item descriptions of the work performed or supplies delivered, unit price/cost per unit, fee (if applicable), and all relevant back-up documentation, as defined in DFARS Appendix F, (e.g. timesheets) in support of each payment request.

(5) *WAWF email notifications.* The Contractor shall enter the e-mail address identified below in the “Send Additional Email Notifications” field of WAWF once a document is submitted in the system.

Liang Xu: liang.xu@nrlmry.navy.mil or 831-656-4769
Anna Noriega: anna.noriega@nrlmry.navy.mil or 831-656-4768

(g) WAWF point of contact.

(1) The Contractor may obtain clarification regarding invoicing in WAWF from the following contracting activity’s WAWF point of contact.

Donna Washington: donna.washington@nrl.navy.mil or 202-767-0547
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(2) For technical WAWF help, contact the WAWF helpdesk at 866-618-5988.

(End of clause)

Accounting Data

SLINID	PR Number	Amount

BASE Funding 0.00
Cumulative Funding 0.00

MOD 01 Funding 0.00
Cumulative Funding 0.00

MOD 02

700001	75-027C-14	40000.00
LLA :		
AA 97x4930 .NH4A 000 77777 0 000173 2F 000000 N00173Z450000		

700002	75-036c-14	40000.00
LLA :		
AB 1741319 .X4CV 255 00039 0 050120 2D 000000 A60002001120		
Standard Number: N0003914RX00054		

700003	75-036C-14	20000.00
LLA :		
AC 1741319 .X556 255 00039 0 050120 2D 000000 A00002159224		
Standard Number: N0003914RX00173		

MOD 02 Funding 100000.00
Cumulative Funding 100000.00

MOD 03

700001	75-037C-14	400000.00
LLA :		
AA 97x4930 .NH4A 000 77777 0 000173 2F 000000 N00173Z450000		

MOD 03 Funding 400000.00
Cumulative Funding 500000.00

MOD 04

700001	75-037C-14	(2500.00)
LLA :		
AA 97x4930 .NH4A 000 77777 0 000173 2F 000000 N00173Z450000		

900101	05-C022-14	2500.00
LLA :		
AA 97x4930 .NH4A 000 77777 0 000173 2F 000000 N00173Z450000		
Memo Mod		

MOD 04 Funding 0.00
Cumulative Funding 500000.00

MOD 05

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700004 75-055C-14 102500.00
 LLA :
 AD 1741804 .60CM 252 00065 068566 2D X00808 000654N8404Q
 Standard Number: N0006514WX00808

900104 75-055C-14 2500.00
 LLA :
 AD 1741804 .60CM 252 00065 068566 2D X00808 000654N8404Q
 Standard Number: N0006514WX00808

MOD 05 Funding 105000.00
 Cumulative Funding 605000.00

MOD 06

700001 75-054C-14 340000.00
 LLA :
 AA 97x4930 .NH4A 000 77777 0 000173 2F 000000 N00173Z450000
 FUNDING FOR CLIN 7000

MOD 06 Funding 340000.00
 Cumulative Funding 945000.00

MOD 07

700005 75-058C-14 13351.00
 LLA :
 AE 1741319 .WIAE 255 RA329 0 068342 2D 000000 000000000RH0
 Standard Number: N0001414WX20287

700006 75-058C-14 134899.00
 LLA :
 AF 1741319 .WIAE 255 RA329 0 068342 2D 000000 000000000RE0
 Standard Number: N0001414WX20287

MOD 07 Funding 148250.00
 Cumulative Funding 1093250.00

MOD 08

700001 75-045C-14 260000.00
 LLA :
 AA 97x4930 .NH4A 000 77777 0 000173 2F 000000 N00173Z450000
 FUNDING FOR CLIN 7000

MOD 08 Funding 260000.00
 Cumulative Funding 1353250.00

MOD 09

700004 75-055C-14 (102500.00)
 LLA :
 AD 1741804 .60CM 252 00065 068566 2D X00808 000654N8404Q
 Standard Number: N0006514WX00808

700006 75-058C-14 (2500.00)
 LLA :
 AF 1741319 .WIAE 255 RA329 0 068342 2D 000000 000000000RE0
 Standard Number: N0001414WX20287

900104 75-055C-14 (2500.00)
 LLA :
 AD 1741804 .60CM 252 00065 068566 2D X00808 000654N8404Q
 Standard Number: N0006514WX00808

900106 75-M033-14 2500.00

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LLA :
AF 1741319 .W1AE 255 RA329 0 068342 2D 000000 000000000RE0
Standard Number: N0001414WX20287

MOD 09 Funding -105000.00
Cumulative Funding 1248250.00

MOD 10

700006 75-058C-14 (2200.00)
LLA :
AF 1741319 .W1AE 255 RA329 0 068342 2D 000000 000000000RE0
Standard Number: N0001414WX20287

900106 75-M033-14 2200.00
LLA :
AF 1741319 .W1AE 255 RA329 0 068342 2D 000000 000000000RE0
Standard Number: N0001414WX20287

MOD 10 Funding 0.00
Cumulative Funding 1248250.00

MOD 11

700006 75-058C-14 (1300.00)
LLA :
AF 1741319 .W1AE 255 RA329 0 068342 2D 000000 000000000RE0
Standard Number: N0001414WX20287

900106 75-M033-14 1300.00
LLA :
AF 1741319 .W1AE 255 RA329 0 068342 2D 000000 000000000RE0
Standard Number: N0001414WX20287

MOD 11 Funding 0.00
Cumulative Funding 1248250.00

MOD 12

700001 75-045C-14 77000.00
LLA :
AA 97x4930 .NH4A 000 77777 0 000173 2F 000000 N00173Z450000
FUNDING FOR CLIN 7000

900101 05-C022-14 12000.00
LLA :
AA 97x4930 .NH4A 000 77777 0 000173 2F 000000 N00173Z450000
Memo Mod

MOD 12 Funding 89000.00
Cumulative Funding 1337250.00

MOD 13

700001 75-045C-14 54500.00
LLA :
AA 97x4930 .NH4A 000 77777 0 000173 2F 000000 N00173Z450000
FUNDING FOR CLIN 7000

MOD 13 Funding 54500.00
Cumulative Funding 1391750.00

MOD 14

700001 75-045C-14 183370.00

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LLA :
AA 97x4930 .NH4A 000 77777 0 000173 2F 000000 N00173Z450000
FUNDING FOR CLIN 7000

900101 05-C022-14 630.00
LLA :
AA 97x4930 .NH4A 000 77777 0 000173 2F 000000 N00173Z450000
Memo Mod

MOD 14 Funding 184000.00
Cumulative Funding 1575750.00

MOD 15

700001 75-045C-14 134500.00
LLA :
AA 97x4930 .NH4A 000 77777 0 000173 2F 000000 N00173Z450000
FUNDING FOR CLIN 7000

MOD 15 Funding 134500.00
Cumulative Funding 1710250.00

MOD 16

700001 75-020C-15 238000.00
LLA :
AA 97x4930 .NH4A 000 77777 0 000173 2F 000000 N00173Z450000
FUNDING FOR CLIN 7000

MOD 16 Funding 238000.00
Cumulative Funding 1948250.00

MOD 17

700007 75-017C-15 8000.00
LLA :
AG 1751319 .X4CV 255 00039 0 050120 2D 000000 A00002601113
Standard Number: N0003915RX00072

700008 75-017C-15 2000.00
LLA :
AH 1751319 .X4CV 255 00039 0 050120 2D 000000 A10002601113
Standard Number: N0003915RX00072

700009 75-017C-15 12000.00
LLA :
AJ 1751319 .X4CV 255 00039 0 050120 2D 000000 A20002601113
Standard Number: N0003915RX00072

700010 75-017C-15 24000.00
LLA :
AK 1751319 .X4CV 255 00039 0 050120 2D 000000 A30002601113
Standard Number: N0003915RX00072

700011 75-017C-15 16000.00
LLA :
AL 1751319 .X4CV 255 00039 0 050120 2D 000000 A20002623973
Standard Number: N0003915RX00088

700012 75-017C-15 14000.00
LLA :
AM 1751319 .X4CV 255 00039 0 050120 2D 000000 A10002623973
Standard Number: N0003915RX00088

MOD 17 Funding 76000.00
Cumulative Funding 2024250.00

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MOD 18

700001 75-020C-15 232000.00
 LLA :
 AA 97x4930 .NH4A 000 77777 0 000173 2F 000000 N00173Z450000
 FUNDING FOR CLIN 7000

MOD 18 Funding 232000.00
 Cumulative Funding 2256250.00

MOD 19

700001 75-040C-15 180000.00
 LLA :
 AA 97x4930 .NH4A 000 77777 0 000173 2F 000000 N00173Z450000
 FUNDING FOR CLIN 7000

MOD 19 Funding 180000.00
 Cumulative Funding 2436250.00

MOD 20

700013 75-028C-15 342620.00
 LLA :
 AN 1751319 .W4CV 255 00014 0 050120 2D 000000 A00002715622
 710013 75-028C-15 107380.00
 LLA :
 AN 1751319 .W4CV 255 00014 0 050120 2D 000000 A00002715622

MOD 20 Funding 450000.00
 Cumulative Funding 2886250.00

MOD 21

710001 75-037C-15 120000.00
 LLA :
 AA 97x4930 .NH4A 000 77777 0 000173 2F 000000 N00173Z450000

MOD 21 Funding 120000.00
 Cumulative Funding 3006250.00

MOD 22

710001 75-040C-15 75000.00
 LLA :
 AA 97x4930 .NH4A 000 77777 0 000173 2F 000000 N00173Z450000

MOD 22 Funding 75000.00
 Cumulative Funding 3081250.00

MOD 23

700013 75-028C-15 (12000.00)
 LLA :
 AN 1751319 .W4CV 255 00014 0 050120 2D 000000 A00002715622
 900113 12000.00
 LLA :
 AN 1751319 .W4CV 255 00014 0 050120 2D 000000 A00002715622

MOD 23 Funding 0.00
 Cumulative Funding 3081250.00

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MOD 24

710001 75-046C-15 435900.00
 LLA :
 AA 97x4930 .NH4A 000 77777 0 000173 2F 000000 N00173Z450000

MOD 24 Funding 435900.00
 Cumulative Funding 3517150.00

MOD 25

710001 75-046C-15 (20000.00)
 LLA :
 AA 97x4930 .NH4A 000 77777 0 000173 2F 000000 N00173Z450000

910101 75-046C-15 20000.00
 LLA :
 AA 97x4930 .NH4A 000 77777 0 000173 2F 000000 N00173Z450000

MOD 25 Funding 0.00
 Cumulative Funding 3517150.00

MOD 26

710001 75-046C-15 20000.00
 LLA :
 AA 97x4930 .NH4A 000 77777 0 000173 2F 000000 N00173Z450000

710015 75-052C-15 140000.00
 LLA :
 AP 1751804.60CM 252 00065 068566 2D C00208 000655TBTC SQ
 Standard Number: N0006515RC00208

MOD 26 Funding 160000.00
 Cumulative Funding 3677150.00

MOD 27

710001 75-056C-15 27000.00
 LLA :
 AA 97x4930 .NH4A 000 77777 0 000173 2F 000000 N00173Z450000

710016 75-017c-16 160000.00
 LLA :
 AR 1761319.X4CV 255 00039 0 050120 2D 000000 A10003129343
 Standard Number: N0003916RX00035

MOD 27 Funding 187000.00
 Cumulative Funding 3864150.00

MOD 28 Funding 0.00
 Cumulative Funding 3864150.00

MOD 29

710015 75-052C-15 (140000.00)
 LLA :
 AP 1751804.60CM 252 00065 068566 2D C00208 000655TBTC SQ
 Standard Number: N0006515RC00208

710016 75-017c-16 (160000.00)
 LLA :
 AR 1761319.X4CV 255 00039 0 050120 2D 000000 A10003129343
 Standard Number: N0003916RX00035

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MOD 29 Funding -300000.00
Cumulative Funding 3564150.00

MOD 30

710001 75-056C-15 198000.00

LLA :

AA 97x4930 .NH4A 000 77777 0 000173 2F 000000 N00173Z450000

MOD 30 Funding 198000.00
Cumulative Funding 3762150.00

MOD 31

710001 75-007C-16 538300.00

LLA :

AA 97x4930 .NH4A 000 77777 0 000173 2F 000000 N00173Z450000

MOD 31 Funding 538300.00
Cumulative Funding 4300450.00

MOD 32 Funding 0.00
Cumulative Funding 4300450.00

MOD 33

710016 75-017c-16 18726.00

LLA :

AR 1761319.X4CV 255 00039 0 050120 2D 000000 A10003129343
Standard Number: N0003916RX00035

710017 75-017C-16 11360.00

LLA :

AS 1761319.X4CV 255 00039 0 050120 2D 000000 A10003128418
Standard Number: N0003916RX00028

MOD 33 Funding 30086.00
Cumulative Funding 4330536.00

MOD 34 Funding 0.00
Cumulative Funding 4330536.00

MOD 35

710018 75-029C-16 80000.00

LLA :

AT 1761319.W7FV 255 00014 0 050120 2D 000000 A00003172036
Standard Number: N0001416RX00044

710019 75-029C-16 40807.00

LLA :

AU 1761319.X4CV 255 00039 0 050120 2D 000000 A20003129343
Standard Number: N0003916RX00035

710020 75-029C-16 98271.00

LLA :

AV 1761319.X4CV 255 00039 0 050120 2D 000000 A00003129343
Standard Number: N0003916RX00035

710021 75-029C-16 128252.00

LLA :

AW 1761319.X4CV 255 00039 0 050120 2D 000000 A30003129343
Standard Number: N0003916RX00035

710022 75-029C-16 13205.00

LLA :

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AX 1761319.X4CV 255 00039 0 050120 2D 000000 A20003128418
Standard Number: N0003916RX00028

MOD 35 Funding 360535.00
Cumulative Funding 4691071.00

MOD 36

710001 75-041C-16 300000.00

LLA :
AA 97x4930 .NH4A 000 77777 0 000173 2F 000000 N00173Z450000

910101 75-041C-16 36000.00

LLA :
AA 97x4930 .NH4A 000 77777 0 000173 2F 000000 N00173Z450000

MOD 36 Funding 336000.00
Cumulative Funding 5027071.00

MOD 37

710017 75-046C-16 47140.00

LLA :
AS 1761319.X4CV 255 00039 0 050120 2D 000000 A10003128418
Standard Number: N0003916RX00028

MOD 37 Funding 47140.00
Cumulative Funding 5074211.00

MOD 38

710018 (80000.00)

LLA :
AT 1761319.W7FV 255 00014 0 050120 2D 000000 A00003172036

MOD 38 Funding -80000.00
Cumulative Funding 4994211.00

MOD 39

710001 75-065C-16 300000.00

LLA :
AA 97x4930 .NH4A 000 77777 0 000173 2F 000000 N00173Z450000

MOD 39 Funding 300000.00
Cumulative Funding 5294211.00

MOD 40

710001 75-010C-17 312220.00

LLA :
AA 97x4930 .NH4A 000 77777 0 000173 2F 000000 N00173Z450000

MOD 40 Funding 312220.00
Cumulative Funding 5606431.00

MOD 41 Funding 0.00
Cumulative Funding 5606431.00

MOD 42

710023 75-025C-17 32000.00

LLA :
AY 1771319.W4CV 255 00014 0 050120 2D 000000 A00003692844

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Standard Number: N0001417RX00026

MOD 42 Funding 32000.00
Cumulative Funding 5638431.00

MOD 43

720001 75-028C-17 165900.00
LLA :
AA 97x4930 .NH4A 000 77777 0 000173 2F 000000 N00173Z45000

720024 75-028C-17 62500.00
LLA :
AZ 1771319.W4CV 255 00014 0 050120 2D 000000 A00003731799
Standard Number: N0001417RX00059

720025 75-028C-17 30000.00
LLA :
BA 1771319.W4CV 255 00014 0 050120 2D 000000 A00003692884
Standard Number: N0001417RX00027

720026 75-028C-17 28000.00
LLA :
BB 1771319.W4CV 255 00014 0 050120 2D 000000 A00003704845
Standard Number: N0001417RX00043

720027 75-028C-17 50000.00
LLA :
BC 1771319.W7FV 255 00014 0 050120 2D 000000 A00003705314
Standard Number: N0001417RX00044

920101 75-028C-17 10000.00
LLA :
AA 97x4930 .NH4A 000 77777 0 000173 2F 000000 N00173Z45000

MOD 43 Funding 346400.00
Cumulative Funding 5984831.00

MOD 44

720023 75-031C-17 15600.00
LLA :
AY 1771319.W4CV 255 00014 0 050120 2D 000000 A00003692844
Standard Number: N0001417RX00026

720026 75-031C-17 127545.30
LLA :
BB 1771319.W4CV 255 00014 0 050120 2D 000000 A00003704845
Standard Number: N0001417RX00043

720028 75-031C-17 120000.00
LLA :
BD 1771319.W4CV 255 00014 0 050120 2D 000000 A00003702975
Standard Number: N0001417RX00039

MOD 44 Funding 263145.30
Cumulative Funding 6247976.30

MOD 45

720027 75-028C-17 (50000.00)
LLA :
BC 1771319.W7FV 255 00014 0 050120 2D 000000 A00003705314
Standard Number: N0001417RX00044

MOD 45 Funding -50000.00

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Cumulative Funding 6197976.30

MOD 46

720001 75-048c-17 165000.00
 LLA :
 AA 97x4930 .NH4A 000 77777 0 000173 2F 000000 N00173Z45000

MOD 46 Funding 165000.00
 Cumulative Funding 6362976.30

MOD 47

720001 75-056C-17 150000.00
 LLA :
 AA 97x4930 .NH4A 000 77777 0 000173 2F 000000 N00173Z45000

720023 75-056C-17 191000.00
 LLA :
 AY 1771319.W4CV 255 00014 0 050120 2D 000000 A00003692844
 Standard Number: N0001417RX00026

720026 75-056C-17 10254.70
 LLA :
 BB 1771319.W4CV 255 00014 0 050120 2D 000000 A00003704845
 Standard Number: N0001417RX00043

MOD 47 Funding 351254.70
 Cumulative Funding 6714231.00

MOD 48

720029 75-011C-18 190558.20
 LLA :
 BE 1771319.W4CV 255 00014 0 050120 2D 000000 A00004261138
 Standard Number: N0001418RX00030

MOD 48 Funding 190558.20
 Cumulative Funding 6904789.20

MOD 49

720001 75-022C-18 164000.00
 LLA :
 AA 97x4930 .NH4A 000 77777 0 000173 2F 000000 N00173Z45000

MOD 49 Funding 164000.00
 Cumulative Funding 7068789.20

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SECTION H SPECIAL CONTRACT REQUIREMENTS

H-1 Type of Task Order

This is a Cost Plus Fixed Fee Term Task Order.

H-2 Level of Effort ONR 5252.216-9706 (DEC 88)

- 1) The Contractor agrees to provide the total level of effort specified in the next sentence in performance of the work described in this contract. The 12-month level of effort for the performance of this contract shall be [REDACTED] total hours of direct labor, including subcontractor direct labor for those subcontractors specifically identified in the Contractor's proposal as having hours included in the proposed level of effort. This corresponds to a level of effort for the base period of the task order of [REDACTED]. A breakdown of labor categories and hours is set forth in Paragraph 11 below.
- 2) The level of effort for this contract shall be expended at an average rate of [REDACTED] hours per month. It is understood and agreed that these rates per month may fluctuate in pursuit of the technical objective, provided such fluctuation does not result in the use of the total hours of effort prior to the expiration of the term of the contract.
- 3) The Contractor is required to notify the Contracting Officer when any of the following situations occur or are anticipated to occur: If during any three consecutive months the monthly average is exceeded by 25% or, if at any time it is forecast that during the last three months of the contract less than 50% of the monthly average will be used during any given month; or, when 85% of the total level of effort has been expended.
- 4) If, during the term of the contract, the Contractor finds it necessary to accelerate the expenditure of direct labor to such an extent that the total hours of effort specified would be used prior to the expiration of the term, the Contractor shall notify the Contracting Officer in writing, setting forth the acceleration required, the probable benefits which would result, and an offer to undertake the acceleration at no increase in the estimated cost or fixed fee together with an offer, setting forth a proposed level of effort, cost breakdown, and proposed fixed fee, for continuation of the work until expiration of the term hereof. The offer shall provide that the work proposed will be subject to the terms and conditions of this contract and any additions or changes required by then current law, regulations, or directives, and that the offer, with a written notice of acceptance by the Contracting Officer, shall constitute a binding contract. The Contractor shall not accelerate any effort until receipt of such written approval by the Contracting Officer. Any agreement to accelerate will be formalized by contract modification.
- 5) The Contracting Officer may, by written order, direct the Contractor to accelerate the expenditure of direct labor such that the total hours of effort specified in paragraph 1 above would be used prior to the expiration of the term. This order shall specify the acceleration required and the resulting revised term. The Contractor shall acknowledge this order within five days of receipt.
- 6) If the total level of effort specified in paragraph 1 above is not provided by the Contractor during the period of this contract, the Contracting Officer shall either (i) reduce the fixed fee of this contract as follows:

$$\text{Fee Reduction} = \frac{\text{Fixed Fee} \times (\text{Required LOE Hours} - \text{Expended LOE Hours})}{\text{Required LOE Hours}}$$

or (ii) subject to the provisions of the clause of this contract entitled "Limitation of Cost", require the Contractor to continue to perform the work until the total number of hours of direct labor specified in paragraph 1 shall have been expended, at no increase in the fixed fee of this contract.

7) In the event the government fails to fully fund the contract in a timely manner, the term of the contract will be extended accordingly with no change to cost or fee. If the government fails to fully fund the contract, the fee will be adjusted in direct proportion to that effort which was performed.

8) Notwithstanding any of the provisions in the above paragraphs, the Contractor may furnish hours up to five percent in excess of the total hours specified in paragraph 1 above, provided that the additional effort is furnished within the term hereof, and provided further that no increase in the estimated cost or fixed fee is required, and no adjustment in the fixed fee shall be made provided that the contractor has delivered at least 95% of the level of effort required in paragraph 1 above.

9) It is understood that the mix of labor categories provided by the Contractor under the contract, as well as the distribution of effort among those categories, may vary considerably from the initial mix and distribution of effort that was estimated by the government or proposed by the Contractor.

10) Nothing herein shall be construed to alter or waive any of the rights or obligations of either party pursuant to the clause entitled "Limitation of Costs" or "Limitation of Funds", either of which clauses as incorporated herein applies to this contract.

11) A breakdown of the total level of effort is as follows:

The period of performance shall be as follows: a 24-month base period, a 24-month option and a 12-month option have been estimated for the proposed contract.

Labor Category	BASE (24-MONTHS)	OPTION 1 (24-MONTHS)	OPTION 2 (12-MONTHS)
Program Manager	████	████	████
Senior Scientist	██████	██████	██████
Senior Engineer	██████	██████	██████
Junior Scientist/Programmer	██████	██████	████
Administrative Assistant	████	████	████
TOTAL HOURS	██████	██████	██████

H-3 INCREMENTAL FUNDING

Pursuant to FAR 52.232-22 LIMITATIONS OF FUNDS (APR 1984), the total amount presently available for payment and allotted to this contract is as follows:

CLIN	ALLOTTED TO COST	ALLOTTED TO FEE	ALLOTTED TO CPFF
7000	[REDACTED]	[REDACTED]	[REDACTED]
9001	[REDACTED]	-	[REDACTED]
7100	[REDACTED]	[REDACTED]	[REDACTED]
9101	[REDACTED]	-	[REDACTED]
7200	[REDACTED]	[REDACTED]	[REDACTED]
9201	[REDACTED]	-	[REDACTED]

H-4 ONR 5252.237-9705 – Key Personnel (DEC 88)

(a) The Contractor agrees to assign to the contract tasks those persons whose resumes were submitted with its proposal and who are necessary to fulfill the requirements of the contract as "key personnel". No substitutions may be made except in accordance with this clause.

(b) The Contractor understands that during the first ninety (90) days of the contract performance period, no personnel substitutions will be permitted unless these substitutions are unavoidable because of the incumbent's sudden illness, death or termination of employment. In any of these events, the Contractor shall promptly notify the Contracting Officer and provide the information described in paragraph (c) below. After the initial ninety (90) day period the Contractor must submit to the Contracting Officer all proposed substitutions, in writing, at least thirty (30) days in advance (sixty (60) days if security clearance must be obtained) of any proposed substitution and provide the information required by paragraph (c) below.

(c) Any request for substitution must include a detailed explanation of the circumstances necessitating the proposed substitution, a resume for the proposed substitute, and any other information requested by the Contracting Officer. Any proposed substitute must have qualifications equal to or superior to the qualifications of the incumbent. The Contracting Officer or his/her authorized representative will evaluate such requests and promptly notify the Contractor of his/her approval or disapproval thereof.

(d) In the event that any of the identified key personnel cease to perform under the contract and the substitute is disapproved, the contract may be immediately terminated in accordance with the Termination clause of the contract.

The following are identified as key personnel:

Labor Category
Program Manager
Senior NWP DA Scientist

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Senior Global NWP Modeling Scientist
Senior Mesoscale NWP Modeling Scientist

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SECTION I CONTRACT CLAUSES

I-1 CLAUSES INCORPORATED BY REFERENCE

52.222-2	PAYMENT FOR OVERTIME PREMIUMS - THE USE OF OVERTIME IS AUTHORIZED UNDER THIS CONTRACT IF THE OVERTIME PREMIUM DOES NOT EXCEED "0"	(JUL 1990)
52.222-40	NOTIFICATION OF EMPLOYEE RIGHTS UNDER THE NATIONAL LABOR RELATIONS ACT	(DEC 2010)
52.223-5	POLLUTION PREVENTION AND RIGHT-TO-KNOW INFORMATION	(MAY 2011)
52.223-6	DRUG-FREE WORKPLACE	(MAY 2001)
52.223-10	WASTE REDUCTION PROGRAM	(MAY 2011)
52.232-39	UNENFORCEABILITY OF UNAUTHORIZED OBLIGATIONS	(JUN 2013)
52.233-1	DISPUTES	(JUL 2002)
52.237-2	PROTECTION OF GOVERNMENT BUILDINGS, EQUIPMENT AND VEGETATION	(APR 1984)
52.243-2	CHANGES - COST-REIMBURSEMENT WITH ALTERNATE V	(AUG 1987) (APR 1984)
52.247-1	COMMERCIAL BILL OF LADING NOTATIONS	(FEB 2006)
252.203-7003	AGENCY OFFICE OF THE INSPECTOR GENERAL	(DEC 2012)
252.203-7004	DISPLAY OF FRAUD HOTLINE POSTER(S)	(DEC 2012)
252.204-7000	DISCLOSURE OF INFORMATION	(AUG 2013)
252.204-7005	ORAL ATTESTATION OF SECURITY RESPONSIBILITIES	(NOV 2001)
252.211-7008	USE OF GOVERNMENT-ASSIGNED SERIAL NUMBERS	(SEP 2010)
252.215-7002	COST ESTIMATING SYSTEM REQUIREMENTS	(DEC 2012)
252.223-7006	PROHIBITION ON STORAGE AND DISPOSAL OF TOXIC AND HAZARDOUS MATERIALS	(APR 2012)
252.231-7000	SUPPLEMENTAL COST PRINCIPLES	(DEC 1991)
252.235-7010	ACKNOWLEDGMENT OF SUPPORT AND DISCLAIMER	(MAY 1995)
252.235-7011	FINAL SCIENTIFIC OR TECHNICAL REPORT	(NOV 2004)
252.244-7001	CONTRACTOR PURCHASING SYSTEM ADMINISTRATION	(JUN 2012)

I-2 CLAUSES INCORPORATED BY FULL TEXT

52.217-9 -- Option to Extend the Term of the Contract. (mar 2008)

(a) The Government may extend the term of this contract by written notice to the Contractor within 30 days prior to completion of the base period; provided that the Government gives the Contractor a preliminary written notice of its intent to extend at least 60 days before the contract expires. The preliminary notice does not commit the Government to an extension.

(b) If the Government exercises this option, the extended contract shall be considered to include this option clause.

(c) The total duration of this contract, including the exercise of any options under this clause, shall not exceed five years.

252.227-7014 Rights in Noncommercial Computer Software and Noncommercial Computer Software Documentation. (MAY 2013)

(a) *Definitions.* As used in this clause—

(1) "Commercial computer software" means software developed or regularly used for non-governmental purposes which—

(i) Has been sold, leased, or licensed to the public;

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(ii) Has been offered for sale, lease, or license to the public;

(iii) Has not been offered, sold, leased, or licensed to the public but will be available for commercial sale, lease, or license in time to satisfy the delivery requirements of this contract; or

(iv) Satisfies a criterion expressed in paragraph (a)(1)(i), (ii), or (iii) of this clause and would require only minor modification to meet the requirements of this contract.

(2) "Computer database" means a collection of recorded data in a form capable of being processed by a computer. The term does not include computer software.

(3) "Computer program" means a set of instructions, rules, or routines, recorded in a form that is capable of causing a computer to perform a specific operation or series of operations.

(4) "Computer software" means computer programs, source code, source code listings, object code listings, design details, algorithms, processes, flow charts, formulae, and related material that would enable the software to be reproduced, recreated, or recompiled. Computer software does not include computer databases or computer software documentation.

(5) "Computer software documentation" means owner's manuals, user's manuals, installation instructions, operating instructions, and other similar items, regardless of storage medium, that explain the capabilities of the computer software or provide instructions for using the software.

(6) "Covered Government support contractor" means a contractor under a contract, the primary purpose of which is to furnish independent and impartial advice or technical assistance directly to the Government in support of the Government's management and oversight of a program or effort (rather than to directly furnish an end item or service to accomplish a program or effort), provided that the contractor—

(i) Is not affiliated with the prime contractor or a first-tier subcontractor on the program or effort, or with any direct competitor of such prime contractor or any such first-tier subcontractor in furnishing end items or services of the type developed or produced on the program or effort; and

(ii) Receives access to technical data or computer software for performance of a Government contract that contains the clause at [252.227-7025](#), Limitations on the Use or Disclosure of Government-Furnished Information Marked with Restrictive Legends.

(7) "Developed" means that—

(i) A computer program has been successfully operated in a computer and tested to the extent sufficient to demonstrate to reasonable persons skilled in the art that the program can reasonably be expected to perform its intended purpose;

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(ii) Computer software, other than computer programs, has been tested or analyzed to the extent sufficient to demonstrate to reasonable persons skilled in the art that the software can reasonably be expected to perform its intended purpose; or

(iii) Computer software documentation required to be delivered under a contract has been written, in any medium, in sufficient detail to comply with requirements under that contract.

(8) “Developed exclusively at private expense” means development was accomplished entirely with costs charged to indirect cost pools, costs not allocated to a government contract, or any combination thereof.

(i) Private expense determinations should be made at the lowest practicable level.

(ii) Under fixed-price contracts, when total costs are greater than the firm-fixed-price or ceiling price of the contract, the additional development costs necessary to complete development shall not be considered when determining whether development was at government, private, or mixed expense.

(9) “Developed exclusively with government funds” means development was not accomplished exclusively or partially at private expense.

(10) “Developed with mixed funding” means development was accomplished partially with costs charged to indirect cost pools and/or costs not allocated to a government contract, and partially with costs charged directly to a government contract.

(11) “Government purpose” means any activity in which the United States Government is a party, including cooperative agreements with international or multi-national defense organizations or sales or transfers by the United States Government to foreign governments or international organizations. Government purposes include competitive procurement, but do not include the rights to use, modify, reproduce, release, perform, display, or disclose computer software or computer software documentation for commercial purposes or authorize others to do so.

(12) “Government purpose rights” means the rights to—

(i) Use, modify, reproduce, release, perform, display, or disclose computer software or computer software documentation within the Government without restriction; and

(ii) Release or disclose computer software or computer software documentation outside the Government and authorize persons to whom release or disclosure has been made to use, modify, reproduce, release, perform, display, or disclose the software or documentation for United States

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government purposes.

(13) “Minor modification” means a modification that does not significantly alter the nongovernmental function or purpose of the software or is of the type customarily provided in the commercial marketplace.

(14) “Noncommercial computer software” means software that does not qualify as commercial computer software under paragraph (a)(1) of this clause.

(15) “Restricted rights” apply only to noncommercial computer software and mean the Government's rights to—

(i) Use a computer program with one computer at one time. The program may not be accessed by more than one terminal or central processing unit or time shared unless otherwise permitted by this contract;

(ii) Transfer a computer program to another Government agency without the further permission of the Contractor if the transferor destroys all copies of the program and related computer software documentation in its possession and notifies the licensor of the transfer. Transferred programs remain subject to the provisions of this clause;

(iii) Make the minimum number of copies of the computer software required for safekeeping (archive), backup, or modification purposes;

(iv) Modify computer software provided that the Government may—

(A) Use the modified software only as provided in paragraphs

(a)(15)(i) and (iii) of this clause; and

(B) Not release or disclose the modified software except as provided in

paragraphs (a)(15)(ii), (v), (vi) and (vii) of this clause;

(v) Permit contractors or subcontractors performing service contracts (see 37.101 of the Federal Acquisition Regulation) in support of this or a related contract to use computer software to diagnose and correct deficiencies in a computer program, to modify computer software to enable a computer program to be combined with, adapted to, or merged with other computer programs or when necessary to respond to urgent tactical situations, provided that—

(A) The Government notifies the party which has granted restricted rights that a release or disclosure to particular contractors or subcontractors was made;

(B) Such contractors or subcontractors are subject to the use and non-disclosure agreement at [227.7103-7](#) of the Defense Federal Acquisition

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Regulation Supplement (DFARS) or are Government contractors receiving access to the software for performance of a Government contract that contains the clause at DFARS [252.227-7025](#), Limitations on the Use or Disclosure of Government-Furnished Information Marked with Restrictive Legends;

(C) The Government shall not permit the recipient to decompile, disassemble, or reverse engineer the software, or use software decompiled,

disassembled, or reverse engineered by the Government pursuant to paragraph (a)(15)(iv) of this clause, for any other purpose; and

(D) Such use is subject to the limitations in paragraphs (a)(15)(i) through (iii) of this clause;

(vi) Permit contractors or subcontractors performing emergency repairs or overhaul of items or components of items procured under this or a related contract to use the computer software when necessary to perform the repairs or overhaul, or to modify the computer software to reflect the repairs or overhaul made, provided that—

(A) The intended recipient is subject to the use and non-disclosure agreement at DFARS [227.7103-7](#) or is a Government contractor receiving access to the software for performance of a Government contract that contains the clause at DFARS [252.227-7025](#), Limitations on the Use or Disclosure of Government-Furnished

Information Marked with Restrictive Legends;

(B) The Government shall not permit the recipient to decompile, disassemble, or reverse engineer the software, or use software decompiled,

disassembled, or reverse engineered by the Government pursuant to paragraph (a)(15)(iv) of this clause, for any other purpose; and

(C) Such use is subject to the limitations in paragraphs (a)(15)(i) through (iii) of this clause; and

(vii) Permit covered Government support contractors in the performance of covered Government support contracts that contain the clause at [252.227-7025](#),

Limitations on the Use or Disclosure of Government-Furnished Information Marked

with Restrictive Legends, to use, modify, reproduce, perform, display, or release or

disclose the computer software to a person authorized to receive restricted rights computer software, provided that—

(A) The Government shall not permit the covered Government support contractor to decompile, disassemble, or reverse engineer the software,

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or use software decompiled, disassembled, or reverse engineered by the Government pursuant to paragraph (a)(15)(iv) of this clause, for any other purpose; and

(B) Such use is subject to the limitations in paragraphs (a)(15)(i) through (iv) of this clause.

(16) “Unlimited rights” means rights to use, modify, reproduce, release, perform, display, or disclose computer software or computer software documentation in whole or in part, in any manner and for any purpose whatsoever, and to have or authorize others to do so.

(b) *Rights in computer software or computer software documentation.* The Contractor grants or shall obtain for the Government the following royalty free, world-wide, nonexclusive, irrevocable license rights in noncommercial computer software or computer software documentation. All rights not granted to the Government are retained by the Contractor.

(1) *Unlimited rights.* The Government shall have unlimited rights in—

- (i) Computer software developed exclusively with Government funds;
- (ii) Computer software documentation required to be delivered under this contract;
- (iii) Corrections or changes to computer software or computer software documentation furnished to the Contractor by the Government;
- (iv) Computer software or computer software documentation that is otherwise publicly available or has been released or disclosed by the Contractor or subcontractor without restriction on further use, release or disclosure, other than a release or disclosure resulting from the sale, transfer, or other assignment of interest in the software to another party or the sale or transfer of some or all of a business entity or its assets to another party;
- (v) Computer software or computer software documentation obtained with unlimited rights under another Government contract or as a result of negotiations; or
- (vi) Computer software or computer software documentation furnished to the Government, under this or any other Government contract or subcontract thereunder with—
 - (A) Restricted rights in computer software, limited rights in technical data, or government purpose license rights and the restrictive conditions have expired; or
 - (B) Government purpose rights and the Contractor's exclusive right to use such software or documentation for commercial purposes has expired.

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(2) *Government purpose rights.*

(i) Except as provided in paragraph (b)(1) of this clause, the Government shall have government purpose rights in computer software developed with mixed funding.

(ii) Government purpose rights shall remain in effect for a period of five years unless a different period has been negotiated. Upon expiration of the five-year or other negotiated period, the Government shall have unlimited rights in the computer software or computer software documentation. The government purpose rights period shall commence upon execution of the contract, subcontract, letter contract (or similar contractual instrument), contract modification, or option exercise that required development of the computer software.

(iii) The Government shall not release or disclose computer software in which it has government purpose rights to any other person unless—

(A) Prior to release or disclosure, the intended recipient is subject to the use and non-disclosure agreement at DFARS [227.7103-7](#); or

(B) The recipient is a Government contractor receiving access to the software or documentation for performance of a Government contract that contains the clause at DFARS [252.227-7025](#), Limitations on the Use or Disclosure of Government Furnished Information Marked with Restrictive Legends.

(3) *Restricted rights.*

(i) The Government shall have restricted rights in noncommercial computer software required to be delivered or otherwise provided to the Government under this contract that were developed exclusively at private expense.

(ii) The Contractor, its subcontractors, or suppliers are not required to provide the Government additional rights in noncommercial computer software delivered or otherwise provided to the Government with restricted rights. However, if the Government desires to obtain additional rights in such software, the Contractor agrees to promptly enter into negotiations with the Contracting Officer to determine whether there are acceptable terms for transferring such rights. All noncommercial computer software in which the Contractor has granted the Government additional rights shall be listed or described in a license agreement made part of the contract (see paragraph (b)(4) of this clause). The license shall enumerate the additional rights granted the Government.

(iii) The Contractor acknowledges that—

(A) Restricted rights computer software is authorized to be released or disclosed to covered Government support contractors;

(B) The Contractor will be notified of such release or disclosure;

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(C) The Contractor (or the party asserting restrictions, as identified in the restricted rights legend) may require each such covered Government support contractor to enter into a non-disclosure agreement directly with the Contractor (or the party asserting restrictions) regarding the covered Government support contractor's use of such software, or alternatively, that the Contractor (or party asserting restrictions)

may waive in writing the requirement for a non-disclosure agreement; and

(D) Any such non-disclosure agreement shall address the restrictions on the covered Government support contractor's use of the restricted rights software as set forth in the clause at [252.227-7025](#), Limitations on the Use or Disclosure of

Government-Furnished Information Marked with Restrictive Legends. The non-disclosure agreement shall not include any additional terms and conditions unless mutually agreed to by the parties to the non-disclosure agreement.

(4) *Specifically negotiated license rights.*

(i) The standard license rights granted to the Government under paragraphs (b)(1) through (b)(3) of this clause, including the period during which the Government shall have government purpose rights in computer software, may be modified by mutual agreement to provide such rights as the parties consider appropriate but shall not provide the Government lesser rights in computer software

than are enumerated in paragraph (a)(15) of this clause or lesser rights in computer software documentation than are enumerated in paragraph (a)(14) of the Rights in Technical Data--Noncommercial Items clause of this contract.

(ii) Any rights so negotiated shall be identified in a license agreement made part of this contract.

(5) *Prior government rights.* Computer software or computer software documentation that will be delivered, furnished, or otherwise provided to the Government under this contract, in which the Government has previously obtained rights shall be delivered, furnished, or provided with the pre-existing rights, unless—

(i) The parties have agreed otherwise; or

(ii) Any restrictions on the Government's rights to use, modify, reproduce, release, perform, display, or disclose the data have expired or no longer apply.

(6) *Release from liability.* The Contractor agrees to release the Government from liability for any release or disclosure of computer software made in accordance

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with paragraph (a)(15) or (b)(2)(iii) of this clause, in accordance with the terms of a

license negotiated under paragraph (b)(4) of this clause, or by others to whom the

recipient has released or disclosed the software, and to seek relief solely from the party who has improperly used, modified, reproduced, released, performed, displayed, or disclosed Contractor software marked with restrictive legends.

(c) Rights in derivative computer software or computer software documentation. The Government shall retain its rights in the unchanged portions of any computer software or computer software documentation delivered under this contract that the Contractor uses to prepare, or includes in, derivative computer software or computer software documentation.

(d) Third party copyrighted computer software or computer software documentation. The Contractor shall not, without the written approval of the Contracting Officer, incorporate any copyrighted computer software or computer software documentation in the software or documentation to be delivered under this contract unless the Contractor is the copyright owner or has obtained for the Government the license rights necessary to perfect a license or licenses in the deliverable software or documentation of the appropriate scope set forth in paragraph (b) of this clause, and prior to delivery of such—

(1) Computer software, has provided a statement of the license rights obtained in a form acceptable to the Contracting Officer; or

(2) Computer software documentation, has affixed to the transmittal document a statement of the license rights obtained.

(e) Identification and delivery of computer software and computer software documentation to be furnished with restrictions on use, release, or disclosure.

(1) This paragraph does not apply to restrictions based solely on copyright.

(2) Except as provided in paragraph (e)(3) of this clause, computer software that the Contractor asserts should be furnished to the Government with restrictions on use, release, or disclosure is identified in an attachment to this contract (the Attachment). The Contractor shall not deliver any software with restrictive markings unless the software is listed on the Attachment.

(3) In addition to the assertions made in the Attachment, other assertions may be identified after award when based on new information or inadvertent omissions unless the inadvertent omissions would have materially affected the source selection decision. Such identification and assertion shall be submitted to the Contracting Officer as soon as practicable prior to the scheduled date for delivery of the software, in the following format, and signed by an official authorized to contractually obligate the Contractor:

Identification and Assertion of Restrictions on the Government's Use, Release, or Disclosure of
Computer Software.

The Contractor asserts for itself, or the persons identified below, that the

Government's rights to use, release, or disclose the following computer software should be restricted:

Computer Software			Name of Person
to be Furnished	Basis for	Asserted Rights	Asserting
With Restrictions*	Assertion**	Category***	Restrictions****
(LIST)	(LIST)	(LIST)	(LIST)

*Generally, development at private expense, either exclusively or partially, is the only basis for asserting restrictions on the Government's rights to use, release, or disclose computer software.

**Indicate whether development was exclusively or partially at private expense. If development was not at private expense, enter the specific reason for asserting that the Government's rights should be restricted.

***Enter asserted rights category (e.g., restricted or government purpose rights in computer software, government purpose license rights from a prior contract, rights in SBIR software generated under another contract, or specifically negotiated licenses).

****Corporation, individual, or other person, as appropriate.

Date _____

Printed Name and Title _____

Signature _____

(End of identification and assertion)

(4) When requested by the Contracting Officer, the Contractor shall provide sufficient information to enable the Contracting Officer to evaluate the Contractor's assertions. The Contracting Officer reserves the right to add the Contractor's assertions to the Attachment and validate any listed assertion, at a later date, in accordance with the procedures of the Validation of Asserted Restrictions —Computer Software clause of this contract.

(f) *Marking requirements.* The Contractor, and its subcontractors or suppliers, may only assert restrictions on the Government's rights to use, modify, reproduce, release, perform, display, or disclose computer software by marking the deliverable software or documentation subject to restriction. Except as provided in paragraph (f)(5) of this clause, only the following legends are authorized under this contract: the government purpose rights legend at paragraph (f)(2) of this clause; the restricted rights legend at paragraph (f)(3) of this clause; or the special license rights legend at paragraph (f)(4) of this clause; and/or a notice of copyright as prescribed under 17 U.S.C. 401 or 402.

(1) *General marking instructions.* The Contractor, or its subcontractors or suppliers,

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shall conspicuously and legibly mark the appropriate legend on all computer software that qualify for such markings. The authorized legends shall be placed on the transmittal document or software storage container and each page, or portions thereof, of printed material containing computer software for which restrictions are asserted. Computer software transmitted directly from one computer or computer terminal to another shall contain a notice of asserted restrictions. However, instructions that interfere with or delay the operation of computer software in order to display a restrictive rights legend or other license statement at any time prior to or during use of the computer software, or otherwise cause such interference or delay, shall not be inserted in software that will or might be used in combat or situations that simulate combat conditions, unless the Contracting Officer's written permission to deliver such software has been obtained prior to delivery. Reproductions of computer software or any portions thereof subject to asserted restrictions, shall also reproduce the asserted restrictions.

(2) *Government purpose rights markings.* Computer software delivered or otherwise furnished to the Government with government purpose rights shall be marked as follows:

GOVERNMENT PURPOSE RIGHTS

Contract No.
Contractor Name
Contractor Address

Expiration Date

The Government's rights to use, modify, reproduce, release, perform, display, or disclose this software are restricted by paragraph (b)(2) of the Rights in Noncommercial Computer Software and Noncommercial Computer Software Documentation clause contained in the above identified contract. No restrictions apply after the expiration date shown above. Any reproduction of the software or portions thereof marked with this legend must also reproduce the markings.

(End of legend)

(3) *Restricted rights markings.* Software delivered or otherwise furnished to the Government with restricted rights shall be marked with the following legend:

RESTRICTED RIGHTS

Contract No.
Contractor Name
Contractor Address

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The Government's rights to use, modify, reproduce, release, perform, display, or disclose this software are restricted by paragraph (b)(3) of the Rights in Noncommercial Computer Software and Noncommercial Computer Software Documentation clause contained in the above identified contract. Any reproduction of computer software or portions thereof marked with this legend must also reproduce the markings. Any person, other than the Government, who has been provided access to such software must promptly notify the above named Contractor.

(End of legend)

(4) *Special license rights markings.*

(i) Computer software or computer software documentation in which the Government's rights stem from a specifically negotiated license shall be marked with the following legend:

SPECIAL LICENSE RIGHTS

The Government's rights to use, modify, reproduce, release, perform, display, or disclose these data are restricted by Contract No. _____(Insert contract number)_____, License No. _____(Insert license identifier)_____. Any reproduction of computer software, computer software documentation, or portions thereof marked with this legend must also reproduce the markings.

(End of legend)

(ii) For purposes of this clause, special licenses do not include government purpose license rights acquired under a prior contract (see paragraph (b)(5) of this clause).

(5) *Pre-existing markings.* If the terms of a prior contract or license permitted the Contractor to restrict the Government's rights to use, modify, release, perform, display, or disclose computer software or computer software documentation and those restrictions are still applicable, the Contractor may mark such software or documentation with the appropriate restrictive legend for which the software qualified under the prior contract or license. The marking procedures in paragraph (f)(1) of this clause shall be followed.

(g) *Contractor procedures and records.* Throughout performance of this contract, the Contractor and its subcontractors or suppliers that will deliver computer software or computer software documentation with other than unlimited rights, shall—

- (1) Have, maintain, and follow written procedures sufficient to assure that restrictive markings are used only when authorized by the terms of this clause; and
- (2) Maintain records sufficient to justify the validity of any restrictive markings on computer software or computer software documentation delivered under this contract.

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(h) *Removal of unjustified and nonconforming markings.*

(1) *Unjustified computer software or computer software documentation markings.*

The rights and obligations of the parties regarding the validation of restrictive markings on computer software or computer software documentation furnished or to be furnished under this contract are contained in the Validation of Asserted Restrictions--Computer Software and the Validation of Restrictive Markings on Technical Data clauses of this contract, respectively. Notwithstanding any provision of this contract concerning inspection and acceptance, the Government may ignore or, at the Contractor's expense, correct or strike a marking if, in accordance with the procedures of those clauses, a restrictive marking is determined to be unjustified.

(2) *Nonconforming computer software or computer software documentation markings.*

A nonconforming marking is a marking placed on computer software or computer software documentation delivered or otherwise furnished to the Government under this contract that is not in the format authorized by this contract. Correction of nonconforming markings is not subject to the Validation of Asserted Restrictions--Computer Software or the Validation of Restrictive Markings on Technical Data clause of this contract. If the Contracting Officer notifies the Contractor of a nonconforming marking or markings and the Contractor fails to remove or correct such markings within sixty (60) days, the Government may ignore or, at the Contractor's expense, remove or correct any nonconforming markings.

(i) *Relation to patents.* Nothing contained in this clause shall imply a license to the Government under any patent or be construed as affecting the scope of any license or other right otherwise granted to the Government under any patent.

(j) *Limitation on charges for rights in computer software or computer software documentation.*

(1) The Contractor shall not charge to this contract any cost, including but not limited to license fees, royalties, or similar charges, for rights in computer software or computer software documentation to be delivered under this contract when—

(i) The Government has acquired, by any means, the same or greater rights in the software or documentation; or

(ii) The software or documentation are available to the public without restrictions.

(2) The limitation in paragraph (j)(1) of this clause—

(i) Includes costs charged by a subcontractor or supplier, at any tier, or costs incurred by the Contractor to acquire rights in subcontractor or supplier computer software or computer software documentation, if the subcontractor or supplier has been paid for such rights under any other Government contract or under a license conveying the rights to the Government; and

(ii) Does not include the reasonable costs of reproducing, handling, or mailing the documents or other media in which the software or documentation will be

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delivered.

(k) *Applicability to subcontractors or suppliers.*

(1) Whenever any noncommercial computer software or computer software documentation is to be obtained from a subcontractor or supplier for delivery to the Government under this contract, the Contractor shall use this same clause in its subcontracts or other contractual instruments, and require its subcontractors or suppliers to do so, without alteration, except to identify the parties. No other clause shall be used to enlarge or diminish the Government's, the Contractor's, or a higher tier subcontractor's or supplier's rights in a subcontractor's or supplier's computer software or computer software documentation.

(2) The Contractor and higher tier subcontractors or suppliers shall not use their power to award contracts as economic leverage to obtain rights in computer software or computer software documentation from their subcontractors or suppliers.

(3) The Contractor shall ensure that subcontractor or supplier rights are recognized and protected in the identification, assertion, and delivery processes required by paragraph (e) of this clause.

(4) In no event shall the Contractor use its obligation to recognize and protect subcontractor or supplier rights in computer software or computer software documentation as an excuse for failing to satisfy its contractual obligation to the Government.

(End of clause)

ALTERNATE I (JUN 1995)

As prescribed in [227.7203-6\(a\)\(2\)](#), add the following paragraph (l) to the basic clause:

(l) *Publication for sale.*

(1) This paragraph only applies to computer software or computer software documentation in which the Government has obtained unlimited rights or a license to make an unrestricted release of the software or documentation.

(2) The Government shall not publish a deliverable item or items of computer software or computer software documentation identified in this contract as being subject to paragraph (l) of this clause or authorize others to publish such software or documentation on its behalf if, prior to publication for sale by the Government and within twenty-four (24) months following the date specified in this contract for delivery of such software or documentation, or the removal of any national security or export control restrictions, whichever is later, the Contractor publishes that item or items for sale and promptly notifies the Contracting Officer of such publication(s). Any such publication shall include a notice identifying the number of this contract and the Government's rights in the published software or documentation.

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(3) This limitation on the Government's right to publish for sale shall continue as long as the software or documentation are reasonably available to the public for purchase.

252.227-7017 Identification and Assertion of Use, Release, or Disclosure Restrictions. (JAN 2011)

(a) The terms used in this provision are defined in following clause or clauses contained in this solicitation—

(1) If a successful offeror will be required to deliver technical data, the Rights in Technical Data--Noncommercial Items clause, or, if this solicitation contemplates a

contract under the Small Business Innovation Research Program, the Rights in Noncommercial Technical Data and Computer Software--Small Business Innovation Research (SBIR) Program clause.

(2) If a successful offeror will not be required to deliver technical data, the Rights in Noncommercial Computer Software and Noncommercial Computer Software Documentation clause, or, if this solicitation contemplates a contract under the Small

Business Innovation Research Program, the Rights in Noncommercial Technical Data

and Computer Software--Small Business Innovation Research (SBIR) Program clause.

(b) The identification and assertion requirements in this provision apply only to technical data, including computer software documentation, or computer software to be delivered with other than unlimited rights. For contracts to be awarded under the

Small Business Innovation Research Program, the notification and identification requirements do not apply to technical data or computer software that will be

generated under the resulting contract. Notification and identification is not required for restrictions based solely on copyright.

(c) Offers submitted in response to this solicitation shall identify, to the extent known at the time an offer is submitted to the Government, the technical data

or computer software that the Offeror, its subcontractors or suppliers, or potential subcontractors or suppliers, assert should be furnished to the Government with restrictions on use, release, or disclosure.

(d) The Offeror's assertions, including the assertions of its subcontractors or suppliers or potential subcontractors or suppliers, shall be submitted as an attachment to its offer in the following format, dated and signed by an official authorized to contractually obligate the Offeror:

Identification and Assertion of Restrictions on the Government's Use, Release, or Disclosure of Technical Data or Computer Software.

The Offeror asserts for itself, or the persons identified below, that the Government's rights to use, release, or disclose the following technical data or computer software should be restricted:

Technical Data or			
Computer Software			Name of Person
to be Furnished	Basis for	Asserted Rights	Asserting
With Restrictions*	Assertion**	Category***	Restrictions****
(LIST)*****	(LIST)	(LIST)	(LIST)

*For technical data (other than computer software documentation) pertaining to items, components, or processes developed at private expense, identify both the deliverable technical data and each such item, component, or process. For computer software or computer software documentation identify the software or documentation.

**Generally, development at private expense, either exclusively or partially, is the only basis for asserting restrictions. For technical data, other than computer software documentation, development refers to development of the item, component, or process to which the data pertain. The Government's rights in computer software documentation generally may not be restricted. For computer software, development refers to the software. Indicate whether development was accomplished exclusively or partially at private expense. If development was not accomplished at private expense, or for computer software documentation, enter the specific basis for asserting restrictions.

***Enter asserted rights category (e.g., government purpose license rights from a prior contract, rights in SBIR data generated under another contract, limited, restricted, or government purpose rights under this or a prior contract, or specially negotiated licenses).

****Corporation, individual, or other person, as appropriate.

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*****Enter "none" when all data or software will be submitted without restrictions.

Date _____
Printed Name and Title _____
Signature _____

(End of identification and assertion)

(e) An offeror's failure to submit, complete, or sign the notification and identification required by paragraph (d) of this provision with its offer may render the offer ineligible for award.

(f) If the Offeror is awarded a contract, the assertions identified in paragraph (d) of this provision shall be listed in an attachment to that contract. Upon request by the Contracting Officer, the Offeror shall provide sufficient information to enable the Contracting Officer to evaluate any listed assertion.

(End of provision)

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SECTION J LIST OF ATTACHMENTS

J-1 Attachments

Attachment 1: DD1423's

Attachment 2: Personnel Qualifications

Attachment 3: On-Site Requirements