| GODDARD SPACE FLIGHT CENTER | **TASK ORDER** (Instructions and Distribution on Reverse) | PAGE 1 OF 1 |
|---|---|---|
| 1. CONTRACTOR: **SSAI** | 2. CONTRACT NO.: **NNG12HP08C** | 3. TASK/REVISION NO.: Task Order #003 |
| 4. JOB ORDER NO./PROJECT: | 5. FLIGHT HARDWARE /SOFTWARE; CRITICAL GSA (IF, YES, OBTAIN BLOCK 16 CONCURRENCE): ____ YES X NO | 6. DESIGNATED FLIGHT ASSURANCE MGR.: |

7. DESCRIPTION OF WORK TO BE PERFORMED (OBJECTIVES OR RESULTS DESIRED):

Support for three-dimensional modeling of ozone and constituents important to ozone in the troposphere and stratosphere

8. TASK DOCUMENTATION REQUIREMENTS/DELIVERABLE ITEMS:

(See Attached Task Order)

9. PERFORMANCE/MILESTONE SCHEDULE:

**May 1, 2015 – April 30, 2016**

10. QUALITY ASSURANCE REQUIREMENTS:

N/A

11. TRAVEL, MATERIALS, ETC., KNOWN TO BE REQUIRED:

(See Attached Task Order)

12. OTHER (FUNDING, NTE, HOURS, ETC.):

Total Cost:

Fee:

Total Price: $232,248

| 13. TASK ORIGINATOR/MONITOR/CODE/PHONE: Ann Douglass/614.0/4-6028 | | 18. THIS TASK ORDER IS ISSUED PURSUANT TO THE TERMS OF THE CONTRACT. |
|---|---|---|
| 14. BRANCH APPROVAL: | 15. DIVISION CONCURRENCE: | CONTRACTING OFFICER'S SIGNATURE/ DATE 4/30/15 Ayana A. Briscoe Contracting Officer |
| 16. CONTRACTING OFFICER'S TECHNICAL REPRESENTATIVE: Joel Susskind | | Ayana A. Briscoe TYPED OR PRINTED NAME |
| 17. CONTRACTOR SIGNATURE: | | |

Science Systems and Applications, Inc.
NNG12HP08C
Task Order Statement of Work

Task Order Number: CY4_003_Rev0
Task Order Title: Support for three-dimensional modeling of ozone and constituents important to ozone in the troposphere and stratosphere

1.0 Task Monitor (TM):

| | |
|---|---|
| Name: | Anne Douglass |
| Organization: | 614: Atmospheric Chemistry and Dynamics Laboratory |
| Email Address: | anne.r.douglass@nasa.gov |

2.0 Description of Work to be Performed

The contractor shall perform the following:

- Provide support for development of algorithms for three-dimensional models of constituent transport, photochemistry, aerosols, radiation, and constituent sources and sinks. These models are run on various computers in a UNIX environment using parallel architecture.
- Provide support for routine maintenance of the three-dimensional model, including updating input parameters such as the chemical kinetic data and emissions inventories.
- Provide support for modifying the model code to include additional photochemical mechanisms.
- Provide support for implementation and test of modular subroutines that represent alternative approaches to constituent transport, photochemistry, sources and sinks, aerosols and radiation so that sensitivity to model assumptions can be evaluated in a controlled framework.
- Provide support for development, implementation, and test of modules in global and regional models.
- Perform data analysis of observations from various platforms using global and regional models.
- Test the model against measurements from various platforms such as orbital spacecraft, aircraft, balloons, and ground based instruments in order to assess the models' capabilities in simulating the behavior of atmospheric trace constituents, and document the results within a month after performing the tests.
- Provide support for production of appropriate model simulations for use in analysis of observations from aircraft, ground based, balloon, and satellite platforms to identify and clarify photochemical and transport processes of atmospheric interest.
- Provide support for near real time production of model simulations for use in NASA aircraft missions.

- Provide support to facilitate analysis of model fields by members of the Branch and by colleagues at other institutions.
- Develop, maintain, document and utilize IDL software (or other suitable software) to investigate physical and chemical processes that might control the evolution of stratospheric and tropospheric constituents through analysis of model output and atmospheric observations.
- Maintain ongoing documentation of any changes and improvements to the three-dimensional model codes and provide documentation for IDL software used in routine analysis of model fields.
- Develop and maintain software necessary to manage the model generated data sets, including communication software to move data sets between computers.
- Provide documentation of the above with annual reports and contribute to the publication of results from three-dimensional model studies in the refereed scientific literature.

3.0 Special Requirements

None

4.0 Performance/Milestone Schedule

The SAS Contract Year 4 POP is May 01, 2015 - April 30, 2016

5.0 Deliverables/Reporting Requirements

- Contributions to scientific publications, workshops/conferences/symposia, both oral presentations and written contributions.
- Quarterly and annual reports.
- Delivery and availability of quality-controlled datasets and web-based material.
- Software and hardware documentation.
- Reports documenting participation in conferences, workshops, symposia, working groups and field activities.
- Document model test results within one month
- Near real-time production of simulations for NASA aircraft missions
- Timely input for computing resources and science in responding to proposals
- Timely support for annual report

6.0 Other Information Needed for Performance of Task

No travel will be required for task performance.

7.0 Data Rights

N/A

8.0 Safety

Staff on this task shall comply with federal, state, local, and center safety regulations. This shall be accomplished through management emphasis, technical training, and personal responsibility. Staff shall participate in safety orientation and training in accordance with the contract Safety and Health Plan, and work within the requirements of that plan.

## 9.0 Risk

Contractor shall provide ongoing risk assessment and mitigation in performance of the Task Order. Priorities shall be re-evaluated as appropriate with the TM. Cost and schedule performance shall be assessed on a regular basis (no less frequently than monthly) and significant variations discussed and acted on in consultation with the TM and COR.

## 10.0 Proposed Cost and Fixed Fee

In accordance with Paragraph B.8 of the contract, propose the Cost and Fixed Fee amount.