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# MAY 2002

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## **Task Assignment 99-001-00 May 2002**

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### **MANAGEMENT**

**GSFC ATR - Dr. J. Green**

**Raytheon ITSS Task Leader - L. Mayo**

**Raytheon ITSS Group Manager - L. Mayo**

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**TASK OBJECTIVE:** The non-personal services required under this task include performing all necessary functions to manage Raytheon ITSS contract staff supporting the Space Science Data Operations Office (SSDOO). The Raytheon ITSS management team will meet with the SSDOO management team to discuss significant events and contract highlights to be presented to upper management and Headquarters, and current contract issues and concerns.

### **SIGNIFICANT EVENTS:**

- A new science group manager was hired.
  - Staff supported BotBall tournament at George Mason University.
  - Staff gave presentation on IDIQ contract vehicles to code 630.
  - Staff held weekly senior staff meetings.
  - Staff made progress on DCE lease option decision and task allocations.
  - Staff finalized decision to hold data centers symposium in partnership with code 630.
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## **Task Assignment 99-003-00 May 2002**

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### **ASTROPHYSICS MISSION SUPPORT SERVICES**

**GSFC ATR - Dr. N. Gehrels**

**Raytheon ITSS Task Leader - Dr. J. F. Cooper**

**Raytheon ITSS Group Manager**

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**TASK OBJECTIVE:** This task provides support and consultation services for the Compton Gamma Ray Observatory (CGRO) project scientist in areas of data management, analysis, and archiving for CGRO and for the HIC experiment on the Galileo spacecraft. This support includes attending GRO Science Working Group meetings, aiding target-of-opportunity decisions, monitoring the health of the spacecraft, and presenting GRO papers at scientific meetings. In addition, this task will provide consultation on data products from the HIC.

#### **SIGNIFICANT EVENTS:**

1. An intensive effort was undertaken to model HIC data for all equatorial and polar flybys of Io by the Galileo Orbiter. Magnetic field models are not yet sufficient to allow ion trajectory fits for all flybys. Preliminary work was also done on modeling HIC response during the A34 flyby of Amalthea next November 2002. Results were presented in a poster at the "Farewell to Io" session of the Spring 2002 AGU Meeting in Washington, D.C.
2. K. Khurana (UCLA) offered to provide a corrected and updated version of his Alfvén Wing model code for applications to modeling of HIC data at Io and Europa.
3. The task leader participated in proposal team meetings at the Spring AGU for the Titan Aerover Mission. The mission proposal leader is E. C. Sittler (Code 692). Possibilities for cosmic ray experiments on the Titan orbiter and balloon components of the mission were discussed with R. B. McKibben (University of Chicago), H. Kunow (University of Kiel), and S. Livi (APL/JHU) during this meeting.
4. A Raytheon contract is now in place for the task leader's new supplementary support for Jupiter work from the selected 1999 proposal "Magnetospheric Irradiation of Io and Europa" to the NASA Jovian System Data Analysis Program.
5. Task staff continue to review EGRET files from viewing period 4230. Files R10738416-450 were reviewed in May 2002.

#### **UPCOMING MILESTONES/EVENTS:**

1. Work is in progress on a oral presentation about radiolysis processes on Jovian satellites for the upcoming Eurojove meeting next month in Lisbon.
2. A report on the Task Leader's Europa decadal survey study will be presented at the Magnetospheres of the Outer Planets meeting in July 2002 at APL/JHU.

**RELATIONS TO OTHER TASKS:** Work on this task is being supplemented by support from the SSDOO project and the two active Jovian System Data Analysis Program contracts with Raytheon ITSS. Funding from another contract on radiolytic chemistry modeling for Europa from

the NASA Planetary Atmospheres Program is expected to begin later this year.

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## Task Assignment 99-101-00 May 2002

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### AMASE-MOCHA-CONCAT DEVELOPMENT GSFC ATR - Dr. C. Cheung Raytheon ITSS Task Leader - E. Shaya Raytheon ITSS Group Manager

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**TASK OBJECTIVE:** This task provides support for the development of the object-oriented data base multispectral astrophysics data catalog, AMASE (Astrophysics Multimission Archive Search Engine) as an interface to NASA's astrophysics data holdings. This effort is a collaborative one with the University of Maryland (UMD) Computer Science Department, and frequent interactions with UMD counterparts are expected. The general goal for this performance period is to develop the AM ASE prototype into an astronomical search and discovery engine by expanding the data contents and augmenting the search capabilities. Work includes incorporating astrophysics data from other wavelength bands to complete the electromagnetic spectrum and developing procedures to access remote relational data bases.

#### SIGNIFICANT EVENTS:

- a. DSA:
  - o Staff attended bi-weekly DSA meetings and weekly DAPFA meetings.
  - o Staff worked on future planning for DSA.
  - o Staff worked on data model.
  - o Staff worked on XML telemetry language for OMG RFP.
  
- b. DSE:
  - o Staff attended general DSE weekly meetings.
  - o Staff attended DSE demonstration weekly meetings.

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## **Task Assignment 99-102-00 May 2002**

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**ADC  
GSFC ATR - Dr. C. Cheung  
Raytheon ITSS Task Leader - J. Gass  
Raytheon ITSS Group Manager -**

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**TASK OBJECTIVE:** This task operates the Astronomical Data Center, develops multispectral astrophysical metadata interfaces, and provides FITS data format support for the SSDOO.

### **SIGNIFICANT EVENTS:**

- Staff acquired, processed and archived the "New VLA Sky Survey (NVSS) Catalog of IRAS 2 Jy Galaxies", *Astrophys. J.* 554, 803 (2001).
- Staff archived five new catalogs and 58 new journals tables, and rearchived five catalogs and six journal tables.
- Task personnel answered five science/technical questions.
- Staff continued work on converting legacy datasets to XML, processing 23 catalogs and one journal table to XML using the legacy pipeline.
- ADC staff supported the activities of the IAU Working Group on Publishing, the IAU Working Group on Astronomical Nomenclature, and IAU Commission 45 on Stellar Classification Catalogs and Atlases.
- ADC staff participated in an ADEC telecon and additional ADEC discussions regarding the implementation of data set identifiers in journal articles as a means to track and link published articles with the corresponding NASA archive data sets used in each article.
- ADC staff provided inputs and responses to numerous inquiries about ADC's staffing, unique capabilities, tools, and services, for the NASA SAWG (Science Archives Working Group), for the ADC SSC (Science Steering Committee), and for an internal GSFC Code 600 review committee.
- ADC staff prepared for, supported, and made presentations at the meeting of the ADC SSC at the Raytheon/Lanham facility on May 10, 2002.
- ADC staff completed an inventory and analysis of the materials in the Bldg.26 ADC Reading Room, providing recommended actions for saving, recycling, or relocating the room materials.
- ADC staff provided detailed information about the ADC and its services to the Hayden Planetarium staff for inclusion on their new 'Astrophysics Data Centers' Web portal.
- Task personnel completed the latest edition of the ADC Electronic Newsletter.
- Staff members completed Basic IT Security Training course for 2002.

### **UPCOMING MILESTONES/EVENTS:**

- Staff will continue working on the conversion of legacy dataset files to XML, and will continue validation of legacy datasets converted to XML.
- Raytheon will modify selected ADC Web pages to provide better access to the available XML-based archive and XML-based services.
- Staff will produce a tag-delimited database containing information about ADC's repository datasets that are not directly related to specific article in the ADS.
- Raytheon will determine what needs to be done to ADC Web pages into compliance with Section 508 guidelines.

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## **Task Assignment 99-104-00 May 2002**

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### **INFRARED/SUBMILLIMETER/RADIO ASTROPHYSICS DATA MANAGEMENT**

**GSFC ATR - Dr. D. Leisawitz  
Raytheon ITSS Task Leader  
Raytheon ITSS Group Manager**

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**TASK OBJECTIVE:** The contractor shall perform the following tasks applicable to each of the NASA astrophysics missions, COBE, IRAS, SWAS, MAP, ISO, SOFIA, MSX, WIRE, SIRTf, 2MASS, and possibly others identified by the government: Planning and Communication, Interactions with Projects, Improving Data Management Processes, Data Processing, Data Archiving and Archive Quality Assurance, Archival Research Support, Miscellaneous, and General Guidelines (as given in the detailed task description).

#### **SIGNIFICANT EVENTS:**

- Staff supported NASA Astrophysics Data centers Executive Council (ADEC) discussions that involved Code 631 activities.
- Staff prepared for the the ADCCC/ADEC Meeting to be held at the AAS meeting in Albuquerque, New Mexico on June 5, 2002.

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## **Task Assignment 99-110-00 May 2002**

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**AUTONOMOUS TECHNOLOGY**  
**GSFC ATR - Dr. M. E. Van Steenberg**  
**Raytheon ITSS Task Leader - R. Dunlap**  
**Raytheon ITSS Group Manager -**

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**TASK OBJECTIVE:** The objective of this task is to support the development of a simulation environment that supports autonomous distributed spacecraft control and test science collection techniques using artificial intelligence (AI) technologies. This work is in collaboration with the GSFC's Guidance, Navigation and Control Center and JPL's Automation and Control group. The contractor shall support the following activities and contribute to reports and white papers as appropriate: (a) evaluate Science Quick-Look Analysis Tools (e.g., HEASARC) for use as on-board analysis tools, (b) define Typical Science-Driven Maneuver Automation Requirements, (c) define Typical Science Automation Requirements, (d) define Basic System Architecture, and (e) develop rapidly a prototype to demonstrate key capabilities.

**SIGNIFICANT EVENTS:** No work was performed on this task during the reporting period.

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## Task Assignment 99-113-00 May 2002

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**GLAST**  
**GSFC ATR - R. Fink**  
**Raytheon ITSS Task Leader - J. Palencia**  
**Raytheon ITSS Group Manager**

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**TASK OBJECTIVE:** GLAST is a multipartner gamma-ray survey mission with a GO observation component. The ADF will provide a prototype public archive design using Beowulf and other related technology. The prototype will implement the archive design using the Compton Gamma Ray Observatory EGRET data set. The contractor shall provide personnel to support the following tasks: (1) systems administration support of the Beowulf cluster and (2) programming support as requested for implementing the archive prototype.

### **SIGNIFICANT EVENTS:**

- Staff prepared the hardware specs for the 688-Processor THUNDERHEAD/GR Cluster.
- Staff submitted the hardware specs of THUNDERHEAD/GR to the system integrators for bidding.
- Staff finished the configuration of five MEDUSA workstations.
- Staff prepared four Linux workstations for the Summer HPC Guests.
- Staff assisted in the system administration of HPC's Beowulf Clusters.
- Staff assisted in the system administration of Glast Beowulf Cluster.

**UPCOMING MILESTONES/EVENTS:** Staff continues the upgrade HPC's Beowulf Clusters.

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## **Task Assignment 99-115-00 May 2002**

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**SWIFT**  
**GSFC ATR - Dr. R. Pisarski**  
**Raytheon ITSS Task Leader - Dr. E. Pier**  
**Raytheon ITSS Group Manager -**

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**TASK OBJECTIVE:** Swift is a multipartner gamma-ray burst detection and follow-up observation mission. The Astrophysics Data Facility (ADF) will provide science data processing pipeline design, development, and operations. In addition, the ADF will be responsible for providing Quicklook processing to the Swift Mission Operations Center (MOC) at Pennsylvania State University (PSU). The final outputs of the pipeline processing will be delivered to the HEASARC at GSFC and to project partners in England and Italy.

### **SIGNIFICANT EVENTS:**

- Staff finished development of imagexform tool.
- Staff wrote aligncal tool for doing boresight alignment calibrations.
- Staff released version 2.3 of packets software.
- Staff finished re-write of stream dameon, with significant modifications to make it compliant with the v3 GNU compiler and standard library.
- Staff began setting up tests of the MOC -> SDC data transfer system in conjunction with the MOC.
- Staff tested DTS data transfer software with HEASARC and ISAC.
- Staff set up a network performance test with Leicester, UK.
- Staff installed a first version of xrt2fits, wrote a demo processing script around it and tested.

### **UPCOMING MILESTONES/EVENTS:**

- Staff will release aligncal tool to the SSC for inclusion in the HEAdas package.
- Staff will produce first draft teldef calibration files for the XRT and UVOT and perhaps BAT.
- Staff will continue testing the network to Leicester.
- Staff will discuss Leicester's involvement as an archive site with them.
- Staff will finish official DTS testing.
- Staff will continue work on DLT telemetry archiving system, as time permits.
- Staff will finish setting up and testing data transfers from the MOC.

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## Task Assignment 99-201-00 May 2002

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**IMAGE**  
**GSFC ATR - R. Burley**  
**Raytheon ITSS Task Leader - C. Klipsch**  
**Raytheon ITSS Group Manager - T. Kovalick**

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**TASK OBJECTIVE:** The objectives of the IMAGE Mission Data System task are to develop, test, and maintain the IMAGE Web data access and display system, the IMAGE data processing system, and the IMAGE data distribution system.

### **SIGNIFICANT EVENTS:**

- Staff continued development of new ISTP POLAR Web page:
    - Added rotating images
    - Added drawing of POLAR
  - Staff continued work on ISTP Section 508 compliance.
  - Staff continued work on 508 compliance of SMOC Data Delivery Website, updating links to greatly reduce use of frames.
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## Task Assignment 99-202-00 May 2002

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### MAGNETOSPHERIC MODELING AND ANALYSIS

GSFC ATR - Dr. S. Fung

Raytheon ITSS Task Leader - Dr. L. Tan

Raytheon ITSS Group Manager - T. Kovalick

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**TASK OBJECTIVE:** This task calls for (1) the performance of analysis supporting the development of a new generation of trapped radiation, (2) the documentation and analysis support in an ongoing SSDOO research program on the outer magnetosphere, and (3) ISTP campaign coordination.

#### SIGNIFICANT EVENTS:

- Task staff worked on various SQL queries against the contents of the solar wind index database. Staff also ran statistics on the distribution of various solar wind indices for the use in the AGU poster paper.
- Staff helped Dr. S. F. Fung to prepare the poster entitled "Development of a new trapped radiation data base for the NASA Living With A Star (LWS) program" (authors: S. F. Fung et al.) which was presented in the 2002 AGU Spring Meeting held in Washington, D.C., on May 28-31, 2002.
- Task staffs prepared the poster entitled "CRRES observations of rapid relativistic electron flux increases during intense isolated substorms" (authors: L. C. Tan and S. F. Fung), which was presented in the 2002 AGU Spring Meeting held in Washington, D.C., on May 28-31, 2002.
- Task staff collected the magnetic field data measured on the CRRES spacecraft from the Boston University Web server. The emphasis of his collection was put on the time interval when the northward component of the magnetic field on CRRES was higher than the model field value. The data are used to study the acceleration of magnetospheric relativistic electrons.

**UPCOMING MILESTONES/EVENTS:** Relevant to this task, a talk entitled "Development of a magnetospheric state-based trapped radiation data base" (authors: S. F. Fung et al.) is to be presented in the 34th COSPAR Scientific Assembly, to be held in Houston, TX, on October 10-19, 2002.

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## **Task Assignment 99-203-00 May 2002**

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### **SPACE SCIENCE VISUALIZATION FACILITY GSFC ATR - Dr. R. Kessel Raytheon ITSS Task Leader - J. Friedlander Raytheon ITSS Group Manager - T. Kovalick**

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**TASK OBJECTIVE:** The task of the Space Science Visualization Facility within the SSDOO is to support the SSDOO education and outreach activities, scientific analyses, and IMAGE mission activities. Members of the facility will need to work closely with the space science community in order to create appropriate space science videos, illustrations, and displays and to develop overall approaches and procedures for the maintenance of the task.

#### **SIGNIFICANT EVENTS:**

- Staff welcomed summer interns and faculty fellows and began assigning tasks and expectations.
- Staff continued integration and update of equipment including five new monitors, battery backups, and ethernet hub.
- Staff took delivery of HDTV Server, acquire component cabling and switchers to integrate system into lab hardware. HDTV presentations were acquired from UIUC NCSA site have been placed on server and are now being presented on HDTV screen.
- Staff supported efforts of SSDOO scientists for presentations at spring AGU and AAS meetings as well as preparations for OSS meeting in Chicago. Support included creation and printing of ten posters.
- Staff Continued animation work on cluster and IMAGE satellites including:
  - a. Completed a set of Cluster animations for M. Kessel.
  - b. Completed proof and revision of a 3-D image for L. Garcia for paper publication.
  - c. Began 2-D convolutions techniques for DATA analysis.
  - d. Accomplished surface\_displacement tests for 3-D animation.
- Staff Illustrated 24 figures for the Space Science Data Operations Office (SSDOO) Chief for an upcoming presentation to be given at the Spring American Geophysical Union (AGU) meeting held May 28-31, 2002 in Washington, D.C.
- Staff continued work on Lightwave LScript pipeline for IMAGE EUV data. This is to be used by staff to produce quick-turnaround of EUV events for NASA-TV. Progress on the many aspects of this scripting are being made with most of the problem originating from a lack of understanding of the coordinate systems used in Space Physics.
- Staff revised and updated the CDAWeb/SSCWeb poster and banner for Code 632 Space Physics Data Facility (SPDF) head entitled "Correlative Sun-Earth Connections Science Serviced in the Early Phase of LWS," to be presented at the Spring AGU poster session.
- Staff completed the design for the Sun Earth Day 2003 web site. The site for 2003 is now being

developed. Staff is am working on forms for this site also. The DPS site has a design beginning. There will be some additions to it later. An architectural chart was also developed for the site.

- Staff assisted Lanham newsletter staff with scannig for a farewell to Ashok.

**UPCOMING MILESTONES/EVENTS:**

1. Staff will support OSS EPO meeting.
2. Staff will begin design work on video project with LWS staff.
3. Staff will coordinate summer staff to assist in completing 3-D animation projects.

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## **Task Assignment 99-204-00 May 2002**

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### **SPACE PHYSICS SOFTWARE DEVELOPMENT, SYSTEM MAINTENANCE, AND SPECIAL PROJECTS GSFC ATR - Dr. R. McGuire Raytheon ITSS Task Leader - T. Kovalick Raytheon ITSS Group Manager - T. Kovalick**

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**TASK OBJECTIVE:** The objectives of the space physics development task are to design, develop, document, support, and promote the re-engineering of the SSC Software Systems and the CDAW Graphics Systems. These software systems will support Satellite Situation Center (SSC) Operations, ISTP SPOF, SPDS, STEP, other NASA projects, and the space physics community in general. Accomplishing this objective requires maintenance of the software in both a UNIX and VMS environment, use of appropriate software development tools and methods, development of concise documentation, definition of new magnetospheric field and region models, and communication with scientists and end users both at the NSSDC and in the larger space physics community to ensure that their needs and requirements are being met. This task will work closely with the CDF/graphics task to fulfill its responsibilities. CRUSO in particular will play an important user support role for both SSC and the CDAW Graphics System. It will serve as the first point of contact for users, distribute documentation, answer simple questions, and forward software and science questions to this task and to SSC Operations.

#### **SIGNIFICANT EVENTS:**

1. Work on CDAWeb Software: Staff continued testing and modifying the Web pages and/or cgi scripts in order to make them Section 508 compliant. Staff continued investigating the geographic registration problem long suspected by staff and recently reported by a user of the Polar UVI/VIS image data. Staff configured and modified the RAL provided software to allow a Web user to change his/her password via a Web page and associated script, and also set up usernames and associated passwords for 30 users; the bugs are still being worked out of the installation. Staff re-processed several months of the systems FTP statistics so that we may better understand the user communities use of the data files.
2. CDAWeb Design work: Staff began thinking about the various requirements and is formulating an approach.
3. Work on SSCWeb Software: Staff continued testing and modifying the html and cgi scripts so that the SSCWeb applications will be Section 508 compliant. Software to ingest ISEE3 ascii data was developed and the data was successfully ingested into the system and made available to users in a timely manner. Staff also set up a special directory structure where all of the various "special" ingest software now resides with their associated documentation.
4. CDAWeb Statistics: The statistics include GSFC, RAL and EDC (not ISAS): CDAWeb fulfilled 7,467 plotting requests, 1,788 ASCII listing requests and 320 CDF delivery requests, where each request can contain more than one plot/listing/file; (RAL: 36, 15, 4) and (EDC: 45, 3, 0); there were 124,414 total accesses to the rumba CDAWeb HTTP Server. The anonymous ftp site delivered 29,760 CDF files and 538 software/document files to non-staff users. The "overall" ftp statistics file was updated and can be found at [http://cdaweb/cdaweb/logs/FTPaccumulative\\_record.html](http://cdaweb/cdaweb/logs/FTPaccumulative_record.html). The monthly Web server and ftp

statistics files can be found at <http://cdaweb/cdaweb/logs>.

5. SSC Statistics: Usage statistics from WHARFRAT, are as follows: There were 61 accesses of the SSC Version 3.0 Main Menu; Locator was executed 17 times; Query was not executed; the Data Base listing was not accessed; the Calculator was accessed three times; the File Output option of the system was executed 48 times and the FTP option was executed 33 times.
6. Usage statistics for the Web-based versions of SSC Query and SSC Locator programs are as follows: The query\_server was executed a total of 71 times; the tabular\_server was executed a total of 1,683 times; the graphical\_server was executed 1,548 times (highest usage ever) for a total of 3,302 accesses, excluding developers. In addition, the SPOF accessed the systems 47 times; SSC Operations staff accessed the systems 185 times. The SSC Web pages (main page as well as any GIF, user's guide, etc.) were accessed 11,784 times, with 144 accesses by SPOF staff and 508 accesses by SSC Operations staff.
7. Mirror Sites: RAL, EDC and the Japanese sites are retrieving their provided data and software updates on a regular basis through their FTP accounts. Usage statistics were received from two of the three sites this month; these numbers were incorporated into the CDAWeb statistics listed above.
8. The CDAWeb metadata generator and inventory plot generation software are being executed nightly. As part of this process, any new MAP, IMAGE, LANL, GOES, ACE and Cluster files are being "ingested" as well. The FAST data provider did access his account, but thus far has just sent us one data file. We received more Wind high resolution SWE data, but the data files all contain bad records at the end of each file, so the data provider has agreed to regenerate the files. An ingest account was also established for the Polar Hydra data provider, test files were received, sample plots were generated for him and he is preparing to begin daily delivery of files. In addition, the master cdf "notes" Web site is ready for operational use.
9. New SPDF Web site : Staff installed the provided Web site files and tested it on the NSSDC machine. A few problems need to be corrected and the fact that the "pop-up" information boxes do not work under Netscape 6.2, has been reported to the ATR and developers.

#### **UPCOMING MILESTONES/EVENTS:**

1. Staff will assist the ATR with providing documentation and the appropriate level of information to help define meaningful assignments for a new co-op. student.
2. Staff will assess the CDAWeb and SSCWeb pages for Section 508 Web Accessibility compliance and report findings to the government Web development coordinator for the NSSDC.
3. Staff will continue to work with the IMAGE project personnel and develop the appropriate software to be able to display the best "views" of the IMAGE data through CDAWeb.
4. Staff will continue testing and maintenance on CDAWeb and testing/enhancing all of the plotting and listing software.
5. Staff will continue testing, modifying, and documenting the CDAWlib software and associated Web pages.

6. Staff will continue investigating making 3-D orbit plots available through the SSCWeb system.

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## **Task Assignment 99-205-00 May 2002**

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### **SPACE PHYSICS DATA ACQUISITION AND VALUE-ADDED SERVICES GSFC ATR - Dr. R. McGuire Raytheon ITSS Task Leader - Dr. H. Hills Raytheon ITSS Group Manager - T. Kovalick**

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**TASK OBJECTIVE:** The objectives of this task are four-fold: 1. to support space physics and information acquisition for NSSDC, including support for ingest to the near-line/on-line archive and/or for distribution as CD-ROMs; 2. to support value-added space physics services, including operation of the SSC, creation of new composite space physics data/model products, definition of science user requirements for SSSDOO systems and other NSSDC data and information systems, and science-expert support for other efforts such as IACG and SPDS as appropriate; 3. to carry out selected archival research and mission planning activities, including publication of results; and 4. to provide logistics support as directed for working meetings related to SPDS, including travel reimbursement.

#### **SIGNIFICANT EVENTS:**

##### **1. DIONAS INGEST:**

- a. **ISIS:** Routine ingest continued. TOPIST processing of ISIS topside ionograms into electron density profiles continued, with 41 station-years of data processed in May 2002, for a total of 73 station-years now completed.
- b. **SAMPEX:** Routine ingest continued for the four files into NSSDCFTP, plus the creation of two CDFs and their ingest into CDAWeb. The L-1 data from SAMPEX continue to be stored (just stored) off-line.
- c. **Wind:** The three IDL-saved datasets from WAVES were made into one CDF for ingest into CDAWeb. (Ingesting the PS data from WAVES remains on hold until the pressure on DIONAS s/w eases up.)

##### **2. OTHER DATA INGEST:**

- a. Continued to receive shipments of Tiros data thru istp-events.
- b. CDFs `_h0_cdf` were generated for Helios 1 and 2 cosmic ray data from the University of Kiel. A problem with non-monotonic increase in times of some data records was identified and may be due to occasional asynchronous sampling for different sets of data channels.
- c. The RHESSI PDMP says that the data will be archived at the NSSDC with a time lag of just two months. J. King contacted J. Gurman (GSFC Solar DAAC) to eventually conclude that at some comfortable date, the NSSDC expects to archive the data. Also, Dr. Holman of RHESSI was contacted to clarify a slightly ambiguous description of the telescope that the Acqsci noted in their Web page. (Yes, the entire telescope rotates as one piece, not just the rear grids and the detectors.)

- d. A revised versions of the AE-B ion mass spectrometer data was received from the data provider (B. Schar).
  - e. A new version of the Explorer 32 ion mass spectrometer data, including now the correct fill values, was obtained from the data provider.
  - f. The 30-minute University of Chicago data files for cosmic ray measurements by Pioneer 10 and 11 were uploaded from off-line archive tapes to NSSDCFTP.
3. ISIS-1 and -2: Work continued in looking at the isis2 CDFs that could not be classified into one of three problems described below.
1. 31 day problem (makecdf problem)
  2. Multiple Station (isis pipeline software problem)
  3. 31 day and Multiple station

There was a total of 8977 extra CDFs that could not be classified and software was written to look in the files generated by Barbara Rowland that contained the averaged and full binaries files. The software was able to find 6588 of the binary files that were used in creating these CDFs and additional 1063 files that were found that had the 31 day problem. These files were found on a total of 20 out of the 136 possible platters that were used. Why these files were not copied initially is not known. Documentation was produced on the procedures to come up with these results.

4. Maintenance of NSSDC Information Databases:

- a. Astrid 2 became inoperational about two years ago; that info was submitted to update the NMC. The entries for RHESSI, JASON 1, GOES 12, and SAC-C in the NMC were clarified or augmented and submitted for update. Six other recent mission entries were inspected; they were satisfactory.
- b. Numerous readme files were modified or prepared on nssdcftp.
- c. Numerous new entries and updates were added to the s/c, experiments, and data sets database.

5. Ephemeris information was created and updated into the SSC's UNIX data base for 29 spacecraft. Files for five spacecraft were updated for the [ACTIVE.IACG.ELEMENTS] directory.

6. The draft and final versions of SPX 582 were made available via WWW and FTP. SPX 583 was drafted and loaded online. It carried launch reports on seven s/c. As usual, a copy of that was emailed to COSPAR. Five WDC SI announcements regarding the launch and assignment of IDs to six missions were sent by e-mail and posted to the Usenet News. No CCSDS IDs were assigned for future mission/simulation telecommunications.

7. At the request of Jolene Pickett (U. Iowa), the FDF was approached about extending the Polar s/c orbit predictions into September 2003. The FDF agreed to the extended predictions and provided the late-2002 post-maneuver orbital elements.

More work was done to ingest the 12-min GEI vectors for ISEE 3 into the SSC. It was found that the GSE data in the nssdcftp site has a 7-day long gap. That gap was filled up in the GEI data. Also noted was an error in the GSE-GEI conversion matrix. The error was corrected and the database in SSC was replaced.

## 8. MAINTENANCE AND UPDATING ON THE VARIOUS WWW PAGES:

## a. Algorithms and Models on WEB:

1. Made presentation at AGU meeting: "Models archives and ModelsWeb at NSSDC"

Accesses for this month:

CGM .....	1050
IRI model .....	8238
MSIS model .....	944
IGRF model .....	1346
TRAP particle model ....	93
T89 model .....	132
T96 model .....	526
Heliospheric Ephemerides	553
IMP-8 daily position ...	5

## b. COHOWEB and OMNIWEB systems (data and software)

Accesses for OMNIWEB: plots/list/scatter: 781 / 466 / 95 = 1342  
 Accesses for COHOWEB: plots/list: 262 / 15 = 277

## c. ATMOWEB system and FTPHelper (graphical browsing &amp; retrieve FTP data)

Added to FTPBrowser interface:

1. Merged 2-min resolution ISEE 3 files, with magnetic field, plasma, and position.
2. Merged IMP/LANL, IMP/MIT, ISEE3, OMNI plasma data set.

FTPBrowsering accesses for this month (plotting/listing): 119 / 14 = 133  
 ATMOWEB accesses for this month (plotting/listing): 76 / 15 = 91

## d. FTP site (System software, data ingest, creation of CD-Rs)

1. Built new merged IMP/LANL, IMP/MIT, ISEE3, OMNI plasma data set; downloaded this data set to NSSDCFTP.

## e. Cosmic and Heliospheric pages and services

- a. Edited and transferred all Cosmic and Heliospheric script files from old nssdc to new NSSDC machine: many scripts passed through test.

## f. Geomagnetic and Magnetospheric Models through network

## g. Space Physics home page

1. Edited and updated main Space Physics home pages: imp.html, net\_sc.html, etc.
2. Uploaded and made additional corrections to the Cluster II web page for R. Kessell (Code 632)

## h. JSPAG home page

## 9. Support for CDAWeb:

10. Support for SKTEEDITOR and MAKECDF: New corrected version of makeCDF was tested and installed on the alpha and vms machines. Includes new time algorithm generated at the request of a user. New code was sent to the requester. New ftp site was created on nssdcftp for user download of the source code. MakeCDF web page was updated to point users to the correct location. Web pages on use of makeCDF were updated.

### 11. Meetings, Presentations, and Publications

- a. Four task scientists attended the Spring 2002 AGU Meeting in Washington, D.C. Task scientists presented three posters, and were co-authors on one more.
- b. An article submitted to Advances in Space Research was reviewed and recommended for publication, after suggested changes.
- c. Five Task members have taken (and passed) the current IT security test.
- d. A task scientist visited the University of Ilorin in Ilorin, Nigeria (May 11- 17) and the University of Cocody in Abidjan, Ivory Coast (May 18-22) as part of an NSF-funded project, and presented lectures on ionospheric modeling and space weather.
- e. A Task scientist participated in the Ionospheric Effects Symposium in Alexandria, VA (May 7-9). He presented an invited talk "TOPIST - Automated Processing of ISIS Topside Ionograms" by D. Bilitza, X. Huang, B. Reinisch, B. Benson, and K. Hills. He was also a co-author on an IRI/STORM paper, and he represented empirical modelling on a Panel of Experts.
- f. Four abstracts were submitted for the World Space Congress in Houston, Texas this October.
- g. A task scientist is working with E. C. Sittler (Code 692) and R. B. McKibben (University of Chicago) on definition of cosmic ray experiments for a future proposal for the Titan Aerover mission to Saturn's outermost large moon. Among other things, these experiments would provide a 10-AU baseline for cosmic ray modulation studies during two years of Titan orbital operations at Saturn.
- h. Two task scientists are co-authors of a report on new merged data sets for the next NSSDC newsletter.
- i. A task scientist is working with J. Green to develop a list of NASA-involved s/c with magnetospheric particles and fields experiments.

### REQUEST HIGHLIGHTS:

- a. Seventeen users were responded to with respect to queries on science data, Spacewarn activities, CCSDS IDs, or SSC.
- b. Five users were assisted with requests regarding ITM models and data (IGRF, Jacchia reference, GSFC geomagnetic models, US Standard Atmosphere, MSISE90).

### ACTIVITY LOG:

The NSSDC models sites on anonymous ftp and on the Web continue to be very popular:

	2001	ftp							WWW				
		RAID Model	atm	geom	ion	rad	solar	CGM	IRI	MSIS	IGRF	TRAP	hpage
Nov	49425	4175	854	627	2076	260	202	977	2333	13066	612	366	66026
Dec	36022	3736	701	613	1874	257	175	6485	1001	3599	304	125	61423
Jan02	154622	4926	968	819	2377	324	273	1505	3399	8270	454	244	69610
Feb	116199	7092	1078	659	3651	619	525	1106	2322	41633	475	621	71078
Mar	164875	10177	1869	1462	4682	640	740	717	1659	5257	528	161	73074

Apr	245162	6863	1134	884	3665	353	319	899	2220	1162	1266	122	74803
May	275487	4426	754	537	2208	305	261	1050	8238	944	1346	93	76584

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----- ISIS -----

Month	Files	GBy	Total	WWW	I	AE	Aer	DE	Exp	Hin	I/A	OGO	SM	SNOE
Oct	3,485	2.0	516.5	5178	I									
Nov				5339	I	886	12	1389	5	9	16	6		48
Dec					I	18	7	61	6	41	64	1		1937
Jan02	26,410	15.1	531.6	5640	I	1396	4	3154	11	44	13	47	379	29035
Feb	10,342	6.1	537.7	5736	I	25	5	371	3	22	836	8	29	4176
Mar	20,492	12.0	549.7	5917	I	179	18	48	99	83	78	27	17	14263
Apr	17,460	9.2	558.9	6057	I	50		215	15	5	22	1	5	16365
May	19,126	15.4	574.3	6257	I	52	9	271K	34	30	15	19	213	2

(The high activity reported for Dec - Apr is mainly due to Operations Group accesses for making copies of the data.)

- c. WWW file and plot accesses during the month (and yearly totals) for interplanetary COHO-related data from COHOweb, CDAWeb, and NSSDCFTP:  
 Deep Space (Ulysses, Voyager, Pioneer, etc.): 16,633 {2002 Total: 24,700}  
 Geospace (IMP-8, Prognoz, ACE, WIND, SOHO): 19,340 {2002 Total: 142,149}

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## Task Assignment 99-301-00 May 2002

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### COMPUTER SYSTEMS MANAGEMENT TASK

GSFC ATR - C. Barrett

Raytheon ITSS Task Leader - J. Jacobi

Raytheon ITSS Group Manager

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**TASK OBJECTIVE:** The objectives of this task are to provide systems analysis and technical support to the operational computer activities of the NSSDC; to maintain existing hardware and system-level software to ensure the optimal performance and utilization of its resources and connectivity to its computing sites; to integrate new hardware and system-level software into existing systems to achieve upgraded capabilities and state-of-the-art facilities; to administer specialized software such as data base and optical disk management systems; and to provide users with the necessary documentation, training, and assistance so that NCF resources are fully utilized.

#### SIGNIFICANT EVENTS:

- Staff upgraded all SGI computers to the current version of the Irix operating system.
  - Staff developed and deployed software to send email to users in advance of the expiration of their passwords, and to check all filesystems for situations that could indicate a security problem.
  - Staff performed various hardware upgrades and reconfigurations on several Unix machines and PCs.
  - Staff decommissioned an older Digital Unix machine, moving all the users, software, and development tools that it supported to another similar machine.
  - Staff set up numerous Macs, PCs, and computer accounts for summer students and visiting teachers.
  - Staff continued to perform routine system administrative duties, including backups, application of stupid and confusing software upgrades and patches, providing assistance to users, and maintaining the IP spreadsheets and equipment database.
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**Task Assignment 99-302-00  
May 2002**

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**SYSTEMS NETWORKING AND SMALL SYSTEMS**

**GSFC ATR - G. Goucher**

**Raytheon ITSS Task Leader - R. Dunlap**

**Raytheon ITSS Group Manager -**

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**TASK OBJECTIVE:** The objective of this task is to provide network engineering support to Code 600.

**SIGNIFICANT EVENTS:**

- Staff continued work on the ROSAT router access list.
- Staff is monitoring two UPS's that appear to need battery replacements.
- Staff continues work to develop the Code 630 Web-based equipment data base.

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## Task Assignment 99-303-00 May 2002

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**NSSDC COMMON DATA FORMAT (CDF)**  
**GSFC ATR - D. Han**  
**Raytheon ITSS Task Leader - M. Liu**  
**Raytheon ITSS Group Manager - T. Kovalick**

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**TASK OBJECTIVE:** The objectives of this task are to carry out computer science research, develop computer software and provide user support for the NSSDC Common Data Format (CDF).

### **SIGNIFICANT EVENTS:**

- Work near completed to incorporate XML into CDF for enhancing CDF data exchange/conversion among other formats through XML. Several enhancements were implemented into the CDFML to CDF translator. Some live CDF files were used for testing.
- Eight user requests/questions were received this month.

### **CONCERNS AND PROBLEM AREAS:**

- The GZIP compression/decompression option is turned off for 16-bit DOS/Windows 3.x due to its memory constraint.
- A unusual problem occurs with the older Microsoft C 7.00 compiler in one of the EPOCH parsing routines on DOS/Windows 3.x. It occurs while using the floating point functions and type casting. It is suspected that the Microsoft executables may be getting too large and will require memory overlaying.

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## **Task Assignment 99-304-00 May 2002**

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### **PLES**

**GSFC ATR - N. James**

**Raytheon ITSS Task Leader - Dr. D. Williams**

**Raytheon ITSS Group Manager - T. Kovalick**

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**TASK OBJECTIVE:** The objectives of this task are to maintain data bases and metadata (NMC, WWW) for planetary, Earth sciences, and selected astrophysics data (HEASARC, EUVE, HST), provide request support and coordinate updates of user interfaces, coordinate WWW activities, support internal and external data base users, assure data set quality, coordinate planetary data acquisition and Earth science data transition, support educational activities, and coordinate publications.

### **SIGNIFICANT EVENTS:**

- The NSSDC WWW server had a total of 14,089,136 error-free accesses logged for May, an increase of 8% compared to April.
  - Task staff responded to over 170 email queries and phone calls from external users and the Request Office.
  - Task personnel put up online calendar, "This day in planetary and lunar exploration", on the planetary home page with assistance from K. Gygas and H. Felder.
  - Task personnel examined a Mariner 10 PDS/PPI node CD-RW for information on which NSSDC datasets appeared to be resident.
  - Task member provided matrix of data volume expected from PDS for 2002-2005 to J. King.
  - Task staff opened new experiment records for Venera 15 and 16 infrared experiments
  - Task member updated the NMC and the CD-ROM catalog resulting from the receipt of a new volume in the NIMS Cube CD-ROM set from Galileo/PDS.
  - Task personnel added "Planetary Geology" to online books and updated the planetary fact sheets to include the 11 newly discovered Jovian moons.
  - Task staff reviewed and updated all information on future under study missions.
  - Task member participated in telecom with PDS and other data groups to discuss education and public outreach.
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## **Task Assignment 99-305-00 May 2002**

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### **NASA SCIENCE OFFICE OF STANDARDS AND TECHNOLOGY (NOST) GSFC ATR - D. Sawyer Raytheon ITSS Task Leader - J. Garrett Raytheon ITSS Group Manager**

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**TASK OBJECTIVE:** The objective of this task is to maintain and expand the NOST so that it can effectively respond to the standards needs of the NSSDC community.

#### **SIGNIFICANT EVENTS:**

##### **NOST Archiving Tools Suite - Staff has**

- Continued working on the Multifile Package Group Analyzer (MPGA) focusing on the data file formats and attributes, and their functions throughout the utility's lifecycle.
- Continued implementing the MPGA's management level functionality
- Continued analyzing the environment to derive requirements for the entire system, including the MPGA, Splitter, Extractor, DIONAS, and Operations roles.

##### **ISO Data Archiving - Staff has**

- Met with Senior Policy directors for Australian DOD to help them develop preservation strategies for their national DOD records. We were able to coordinate this meeting with the same meeting at NARA. Consequently there was an excellent exchange of ideas and verification from several sources for workable strategies.
- Updated information on the ISO Data Archiving Web Site at:  
<http://ssdoo.gsfc.nasa.gov/nost/isoas/>.

##### **CCSDS On-Line Information System - Staff has**

- Began setup of the registration and agenda posting activities for the Fall set of CCSDS meetings.
- Working with current contract holder to maintain the current CCSDS.ORG web site and transition to the new web site designed by the new contractor.
- Started testing of Docushare. Set up a private file structure (up to limits of testing copy of Docushare) for testing purposes. Set up about 50 new accounts for Management Representatives and Panel 2 for testing purposes.
- Participated in SSDOO Webmasters meetings.
- Posted the following new documents to the web site.
  - CCSDS 650.0-B-1: Reference Model for an Open Archival Information System (OAIS). Blue Book. Issue 1. January 2002. (Note: This document was later removed when it was determined that some updates were not yet incorporated in the document.)
  - CCSDS 135.0-B-1, Space Link Identifiers. Blue Book. Issue 1. January 2002. (Removed original version and added this updated version of document which includes editorial updates)
  - CCSDS 133.0-R-1, Encapsulation Service. Red Book. Issue 1. April 2002. (Also installed the review materials for associated with this document).

- Corrected problems with access to Subpanel 1C tar files with compression information.
- Investigated problems with CCSDS Feedback messages not reaching Tom Gannett. Seems to be related to the messages being refused and/or filtered on the receiving end
- Monitored the log files for the CCSDS.ORG WWW-server for any indications of problems or security incidents and continued generating the required data to develop monthly statistics.

**CCSDS Standards - Staff has**

- Participated in GSFC CCSDS Group meeting discussing CCSDS reorganization. We have reviewed various drafts of a GSFC perspective and provided input.
- Participated in a recent GSFC Standards Coordination Group meeting.
- Participated in discussions with the National Archives and Records Administration regarding possible collaborations on archiving, data description, data identification, and registry activities.
- Attended portions of Space Internet Workshop to better understand the issues and concerns being raised.
- Reviewed an ESA document on their proposed implementation of a new CCSDS Control Authority office software set that takes advantage of JAVA and XML techniques.

**Goddard Technical Standards Coordination - Staff has**

- Participated in a GSFC Technical Standards meeting.
- Updated the web site to detail a number of completed and upcoming GSFC reviews of standards.

**STATISTICS: CAOIS:** As of 31 May 2002, there were 438 Data Description registration numbers assigned. Of these about 30 of the Data Description registration numbers are reserved for NSSDC use during the Cygnet migration, 45 are reserved for IMAGE ingest, and 26 for ISIS ingest. Data Description Packages for these must be generated.

**UPCOMING MILESTONES/EVENTS:****NOST Archiving Tool Suite:** Staff will

- Identify XML grouping criteria structure and requirements for analyzing data fields and determining groups and attributes.
- Identify XML list file format and its capabilities.
- Finalize and document MPGA System Requirements.
- Begin Coding the MPGA.

**ISO Archiving Standards:** Staff will

- Update the web site to provide information on new archiving thrusts.

**CCSDS XML Group:** Staff will

- Continue low level of support for possible CCSDS XML prototype effort.

**CCSDS Standards:** Staff will

- Comment on new drafts of the CCSDS Concept of Operations, CCSDS reorganization, and NASA CCSDS budgeting priorities.

**Goddard Technical Standards Participation:** Staff will

- Participate as needed in the GSFC Standards Working Group, the NASA Data System Standards Council and the GSFC Standards Review Boards.
- Continue updates for the web site for GSFC Standards Coordination.

**OLIS:** Staff will

- Participate in upcoming CCSDS.ORG web site redesign meetings as requested. Develop additional proposals for improving the CCSDS Web site as required.
- Add additional documents to the CCSDS Web site as they become available from the CCSDS editor.

**CAOIS:** Staff will

- Register new data description packages as they are submitted. Note that Cygnet migration, IMAGE ingest and ISIS ingest descriptions still need to be submitted.

**Formats Evolution Process - Staff will**

- Updating the FEP Web site if any new material is submitted.

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## **Task Assignment 99-306-00 May 2002**

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### **INFORMATION (METADATA) SYSTEMS DEVELOPMENT AND UPGRADES**

**GSFC ATR - Dr. J. Thieman**  
**Raytheon ITSS Task Leader -**  
**Raytheon ITSS Group Manager - T. Kovalick**

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**TASK OBJECTIVE:** The objectives of this task are to define and develop information systems and the interfaces thereto, maintain these systems and interfaces and support the generation of reports therefrom, and recommend and participate in the planning of upgrades to necessary support systems and software as appropriate.

#### **SIGNIFICANT EVENTS:**

- The Space Events servlet was delivered and made available for use.
- A serious security hole in the Task Request system was uncovered by R. Kosby (QSS) and was fixed.
- Some JEDS problems fixed were: a NullPointerException message that was appearing on the Discipline pages; and, not accepting a space between certain words on the Acknowledgements page.
- Minor problems with JCD (which wouldn't run as a Mac applet) and JRAND (which prevented the modification of a particular record) were fixed.
- Corrected a problem with JEDS, JRAND and JCD not running on the development machine by resetting the HOSTNAME variable.
- Fixed a bug in the MasterCatalog servlet (discovered by J. King) where a "0" preceding an experiment number was being improperly handled.
- Work began on devising a schedule for the JIN work.
- Some general clean-up was performed on the database records for the GRACE 1 and 2 spacecraft as well adding supplemental files and images for the same.
- A. Sapperstein (Union of Concerned Scientists) was contacted regarding some questions about the content of NMC.
- Six CD-ROMs were added to the NIMS database for the CD-ROM Catalog.

#### **UPCOMING MILESTONES/EVENTS:**

- A schedule of activities for the remainder of the calendar year will be delivered.
- Work will continue on JIN.

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## **Task Assignment 99-307-00 May 2002**

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### **SUN-EARTH CONNECTION EDUCATION FORUM (SECEF) GSFC ATR - Dr. J. Thieman Raytheon ITSS Task Leader - Dr. S. Odenwald Raytheon ITSS Group Manager - L. Mayo**

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**TASK OBJECTIVE:** The objective of this task is to provide administrative support of the SECEF managers and assistance in preparing for educational outreach events, seek opportunities to leverage SECEF activities for broad national impact, and assist in publicity for the SECEF by developing content for a Web site and publications.

#### **SIGNIFICANT EVENTS:**

- Staff continued with SECEF Web site redesign.
- Staff is coordinating next Sun Earth Day-March 20, 2003.
- Staff began planning for 2004 Venus Transit.
- Contacted Library of Congress about Venus Transit historical documents and American Memory project collaboration
- Staff talked to C. Clemens of NESSIE (a new broker) before sending her five packets and 50 sun disks.
- Staff supported C. Runyon of SERCH by giving her 120 sun disks to demonstrate to ERCN directors.
- Staff provided sun disks to the GSFC Management Council.
- Staff promoted SEC/SECEF's participation in the June Exceptional Needs Workshop.
- Staff reviewed and provided more comments on the SECEF proposal.
- Staff helped two teams to submit SEC products for review.
- Staff worked with ISTP/SOHO and HQ on the reprint of Tormentes Solaris poster.
- Staff provided suggestions to ISTP on printing the new aurora poster and brochure.
- Staff prepared guest list and sent invitations to more than 100 SEC scientists/education specialists for the Raytheon SEC EPO appreciation lunch at Grand Hyatt Washington. About 45 people attended it, and several announcements were made as part of the SPA EPO business meeting.
- SECEF managers attended the AGU meeting on May 27-30, 2002. GSFC DAAC let us use part of their exhibit booth to promote Space Weather for a couple of hours per day. We took advantage to cross train one another on the products and services available. Between the exhibit and the Parker

lecture, we handed out the sun disk and the 2003 aurora flyer to 200 professionals. About 70 signed up for educational packets and newsletter

**UPCOMING MILESTONES/EVENTS:**

- Staff will continue planning for the 2003 Sun-Earth Day.
- Staff will continue with planning for Venus Transit 2004.
- Staff will continue with scheduled EPC meetings.
- Staff will support SECEF teleconferences.

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## **Task Assignment 99-312-00 May 2002**

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### **ANALYSIS SUPPORT FOR THE IMAGE MISSION**

**GSFC ATR - Dr. J. Green**

**Raytheon ITSS Task Leader - L. Garcia**

**Raytheon ITSS Group Manager - T. Kovalick**

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**TASK OBJECTIVE:** The objectives of the Analysis support for the IMAGE Mission task are to maintain and update local copies of the IMAGE software suite, create RPI data analysis software, and to create software to be used in correlative studies between IMAGE detectors and between IMAGE and other missions. This task will also support the synthesis of data and theory in the study of Earth's magnetosphere through creation of unique data products and services. This task will make available appropriate documentation for all of these objectives and will support the IMAGE Science Center Web site.

#### **SIGNIFICANT EVENTS:**

- Daily RPI spectrograms for January 2002 through April 2002 were posted to the IMAGE Science Center site.
  - Additional requirements were written for the script to scan for suspicious links.
  - Staff presented poster paper on correlations of IMAGE RPI and EUV observations of plasma tails at the Spring meeting of the AGU in Washington, D.C.
  - Staff created a COSPAR conference publication page with two references and abstracts.
  - Staff added a press release, space science update announcement, the FUV meeting agenda, and an abstract to the IMAGE Web site.
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***Curator: Natalie Barnes***

***Responsible Official: Dr. Joseph H. King, Code 633***

***Last Revised: Sunday, 16-Jun-2002 21:58:12 EDT [NAB]***

## Task Assignment 99-313-00 May 2002

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### COMMUNITY COORDINATED MODELING CENTER GSFC ATR - Dr. M. Hesse Raytheon ITSS Task Leader - M. Kuznetsova Raytheon ITSS Group Manager - T. Kovalick

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**TASK OBJECTIVE:** This task will provide science and software support for Community Coordinated Modeling Center (CCMC). Specific support includes developing and testing of simulation codes for space weather models, performing simulations of realistic space weather events, providing visualization and analysis software, performing comparison of modeling results to satellite measurements, performing research in space plasma physics.

#### SIGNIFICANT EVENTS:

- Staff developed software for real time Global MHD Simulations and set up Web page with realtime magnetospheric and ionospheric dynamics using ACE data from NOAA SEC and 3D MHD CODE BATSRUS.
  - Staff performed comparative study on ionospheric conductance effects on the results of Global MHD Simulations.
  - Staff performed research on location of magnetic reconnection sites at dayside magnetopause in Global MHD Simulations.
  - Staff prepared three oral and three poster presentations for Spring AGU Meeting.
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**Curator:** *Natalie Barnes*

**Responsible Official:** *Dr. Joseph H. King, Code 633*

**Last Revised:** *Monday, 17-Jun-2002 15:09:22 EDT [NAB]*

**Task Assignment 99-315-00  
May 2002**

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**Automated Vulnerability Scanning and Data Integration/Reporting System  
DB Repository and Reporting/Publishing Sub-task  
GSFC ATR - R. Schneider  
Raytheon ITSS Task Leader - D. Baldrige  
Raytheon ITSS Group Manager -**

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**TASK OBJECTIVE:** This task will provide automated uploading of ISS scan database files into a central composite database. A user interface for generating vulnerability reports will also be provided.

**SIGNIFICANT EVENTS:** Work continues to be stopped.

**UPCOMING MILESTONES/EVENTS:** Waiting for direction from ATR to continue effort.

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*Curator: [Natalie Barnes](#)  
Responsible Official: [Dr. Joseph H. King, Code 633](#)  
Last Revised: [Tuesday, 18-Jun-2002 14:31:05 EDT \[NAB\]](#)*

## Task Assignment 99-316-00 May 2002

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**Solar Nebula SiO**  
**GSFC ATR - J. Nuth**  
**Raytheon ITSS Task Leader - A. Ali**  
**Raytheon ITSS Group Manager**

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**TASK OBJECTIVE:** The objective of this study is to carry out research and analysis of SiO cluster mass distributions from data obtained using the molecular beam apparatus located at Penn State University. This experimental setup produced a unique data set on the cluster distribution of SiO clusters produced by partial condensation following laser evaporation. Future experiments will concentrate on extending these basic experiments to isotopically labeled systems using pure Si[28] and enriched oxygen isotopes. These experiments are highly relevant to the origin of oxygen isotopic anomalies in the early solar nebula and present a very complex analytical problem.

**SIGNIFICANT EVENTS:** Staff is currently involved in understanding the mechanism of nucleation of one of the major cosmically abundant species SiO. Measurements of oxidation of (SiO)<sub>n</sub> clusters by free O<sub>2</sub> molecules will be undertaken in the laboratory. Such studies would permit the analysis of oxygen isotopic fractionation in meteoritic components.

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