Section 13:

How to Access PIMS ISS Acceleration Data

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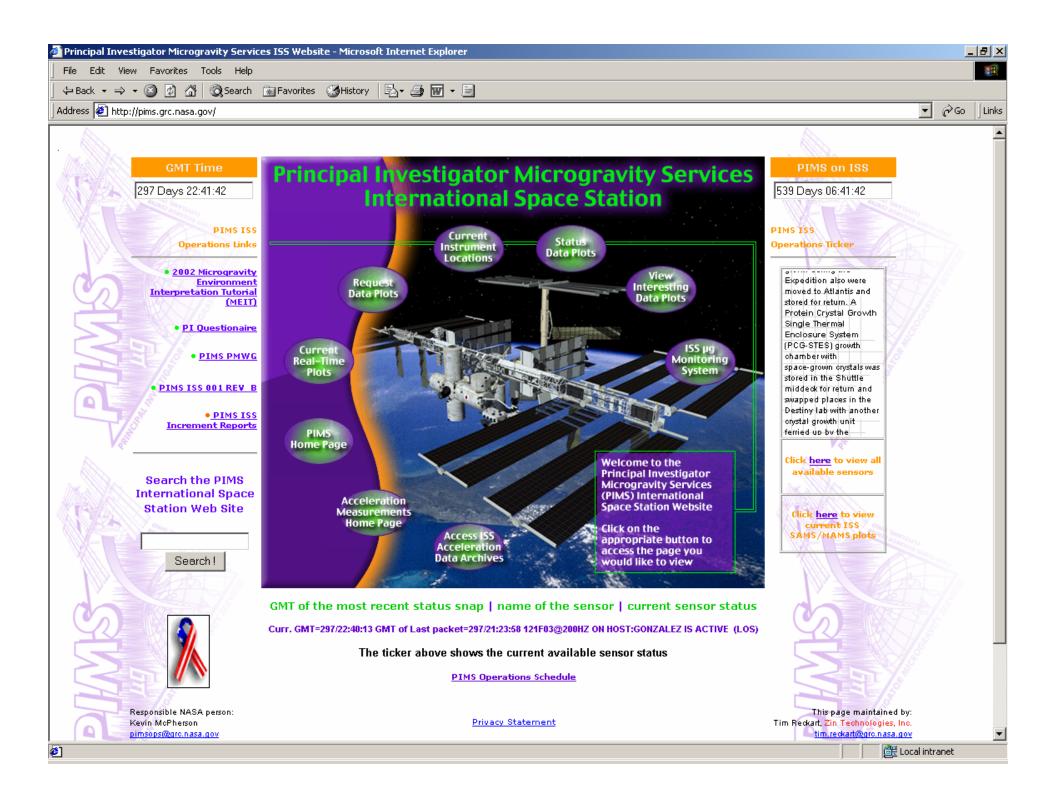
Outline

- **Ancillary PIMS ISS Web Page Functions**
  - **PIMS ISS Operations Links**
  - **PIMS ISS Operations Ticker**
  - **PIMS Sensor Status Bar**

- **Main PIMS ISS Web Page Functions**
  - **Acceleration Measurement Home Page**
  - **PIMS Home Page**
  - **Current Real Time Plots**
  - **Current Instrument Locations**
  - **Access ISS Acceleration Data Archives**
  - **View Interesting Data Plots**
  - **ISS Monitoring System**
  - **Request Data Plots**
  - **Status Data Plots**

Ancillary PIMS ISS Web Page Functions

- **PIMS ISS Operations Links**
  - **Provides current GMT timestamp**
  - **Provides links to latest PIMS data and important information**
    - Tutorial information
    - Increment reports
    - Specialized analysis
    - PI questionnaire

- **PIMS ISS Operations Ticker**
  - **Provides current ISS status information**

- **PIMS Sensor Status Bar**
  - **Provides description of current acceleration data measurement activity**
  - **Provides current GMT, last data packet received time, AOS/LOS indication and sensor sampling rate**

GMT Time

297 Days 22:41:42

Principal Investigator Microgravity Services International Space Station

PIMS on ISS

539 Days 06:41:42

PIMS ISS Operations Links

- **2002 Microgravity Environment Interpretation Tutorial (MEIT)**
- **PI Questionaire**
- **PIMS PMWG**
- **PIMS ISS 001 REV_B**
- **PIMS ISS Increment Reports**

Search the PIMS International Space Station Web Site

[ ]

Search !

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Current Instrument Locations

Status Data Plots

Request Data Plots

View Interesting Data Plots

Current Real-Time Plots

ISS µg Monitoring System

PIMS Home Page

Acceleration Measurements Home Page

Access ISS Acceleration Data Archives

Welcome to the Principal Investigator Microgravity Services (PIMS) International Space Station Website

Click on the appropriate button to access the page you would like to view

PIMS ISS Operations Ticker

Expedition also were moved to Atlantis and stored for return. A Protein Crystal Growth Single Thermal Enclosure System (PCG-STES) growth chamber with space-grown crystals was stored in the Shuttle middeck for return and swapped places in the Destiny lab with another crystal growth unit ferried up by the

Click here to view all available sensors

Click here to view current ISS SAMS/MAMS plots

GMT of the most recent status snap | name of the sensor | current sensor status

Curr. GMT=297/22:40:13 GMT of Last packet=297/21:23:58 121F03@200HZ ON HOST:GONZALEZ IS ACTIVE (LOS)

The ticker above shows the current available sensor status

PIMS Operations Schedule

Privacy Statement

Local intranet

How to Access PIMS ISS Acceleration Data

Main PIMS Web Page Functions

- **Acceleration Measurement Home Page**
  - **Provides links to the various acceleration measurement systems supported by the Microgravity Environment Program**
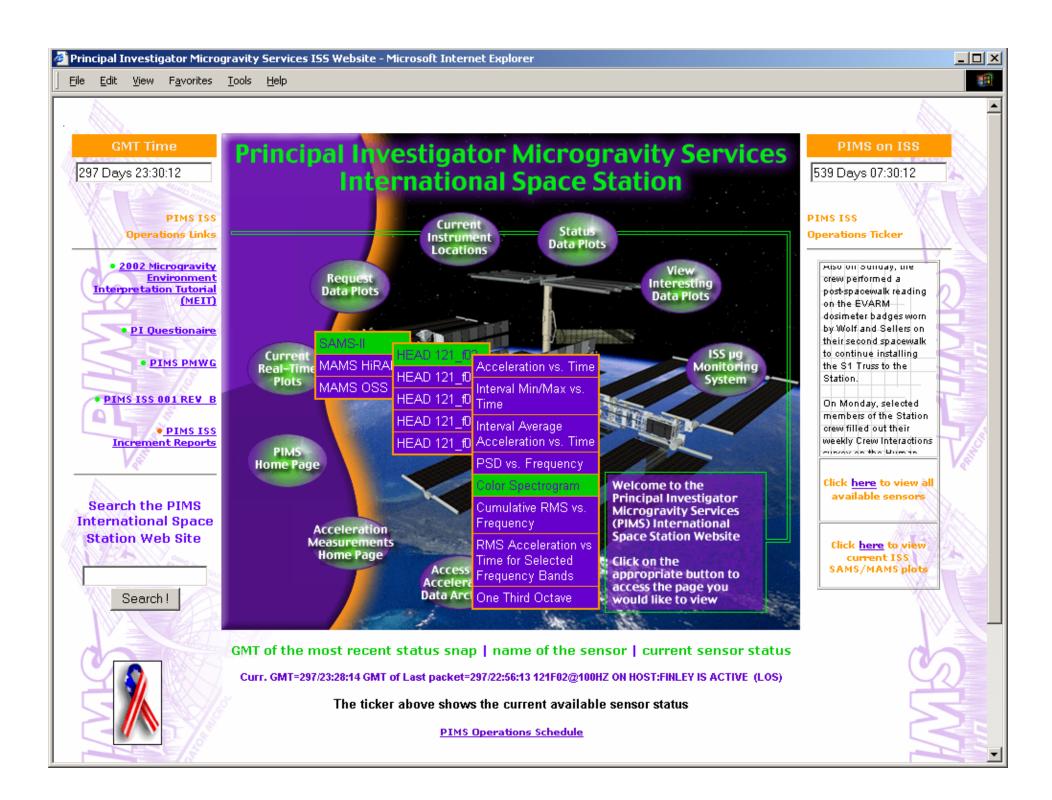
Main PIMS Web Page Functions
- **Principal Investigator Microgravity Services Home Page**
  - **Provides link to electronic copy of the PIMS brochure**
  - **Provides link to PIMS-ISS-001 document which describes the capabilities of the PIMS ISS software systems**
  - **Provides links to various other PIMS products and services**

Main PIMS Web Page Functions

- **Current Real Time Plots**
  - **Provides access to real time data plots based on acceleration measurement system, sensor, and plot types**
  - **Mouse over this button to get the acceleration measurement system menu**
  - **Select the sensor from the desired acceleration measurement system**
  - **Select the plot type for the sensor of interest**
  - **If a plot type is not available (not actively being generated by PIMS real time software), a message is displayed to contact PIMS if that plot type is desired**

File   Edit   View   Favorites   Tools   Help

Principal Investigator Microgravity Services International Space Station

297 Days 23:30:12

PIMS ISS Operations Links

- **2002 Microgravity Environment Interpretation Tutorial (MEIT)**

- **PI Questionaire**

- **PIMS PMWG**

- **PIMS ISS 001 REV B**

- **PIMS ISS Increment Reports**

Search the PIMS International Space Station Web Site
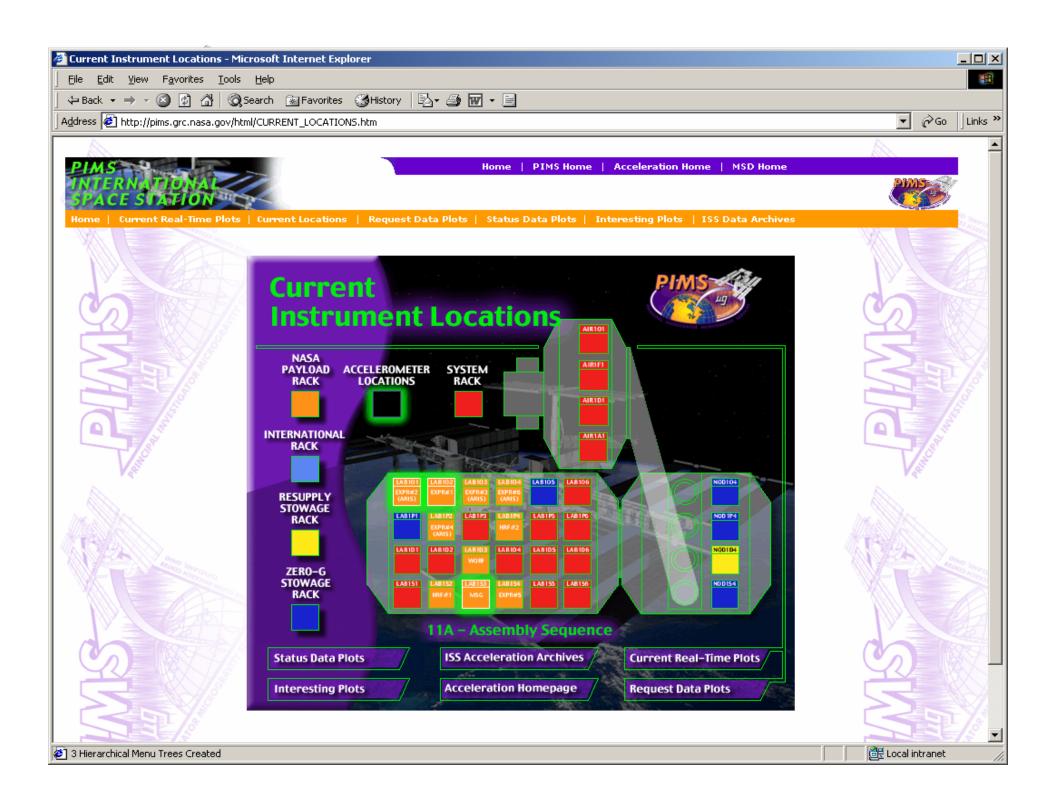
Search !

539 Days 07:30:12

PIMS ISS Operations Ticker

Also on Sunday, the crew performed a post-spacewalk reading on the EVARM dosimeter badges worn by Wolf and Sellers on their second spacewalk to continue installing the S1 Truss to the Station.

On Monday, selected members of the Station crew filled out their weekly Crew Interactions survey on the Human

Click **here** to view all available sensors

Click **here** to view current ISS SAMS/MAMS plots

Current Instrument Locations

Status Data Plots

Request Data Plots

View Interesting Data Plots

Current Real-Time Plots

ISS μg Monitoring System

SAMS-II
MAMS HiRAP
MAMS OSS

HEAD 121_f02
HEAD 121_f0
HEAD 121_f0
HEAD 121_f0
HEAD 121_f0

Acceleration vs. Time
Interval Min/Max vs. Time
Interval Average Acceleration vs. Time
PSD vs. Frequency
Color Spectrogram
Cumulative RMS vs. Frequency
RMS Acceleration vs Time for Selected Frequency Bands
One Third Octave

PIMS Home Page

Acceleration Measurements Home Page

Access Accelera Data Arc

Welcome to the Principal Investigator Microgravity Services (PIMS) International Space Station Website

Click on the appropriate button to access the page you would like to view

GMT of the most recent status snap | name of the sensor | current sensor status

Curr. GMT=297/23:28:14 GMT of Last packet=297/22:56:13 121F02@100HZ ON HOST:FINLEY IS ACTIVE (LOS)

The ticker above shows the current available sensor status

PIMS Operations Schedule

GMT Time

304 Days 14:23:38

**PIMS ISS
Operations Links**

- **2002 Microgravity Environment Interpretation Tutorial (MEIT)**

- **PI Questionaire**

- **PIMS PMWG**

- **PIMS ISS 001 REV B**

- **PIMS ISS Increment Reports**

Search the PIMS International Space Station Web Site

Search !

Principal Investigator Microgravity Services International Space Station

Current Instrument Locations

Status Data Plots

Request Data Plots

View Interesting Data Plots

ISS μg Monitoring System

SAMS-II	▶
MAMS HiRAP	▶
MAMS OSS	

Acceleration vs. Time

Interval Min/Max vs. Time

Interval Average Acceleration vs. Time   ▶

TMF Acceleration vs. Time

MAMS OSS B Bias Data vs. Time

MAMS OSS C Bias Data vs. Time

| SUBSA |
| CG |
| OSS |
| ML |

PIMS Home Page

Accelera...
Measurem...
Home Pa...

Welcome to the Principal Investigator Microgravity Services (PIMS) International Space Station Website

Click on the appropriate button to access the page you would like to view

GMT of the most recent status snap | name of the sensor | current sensor status

Curr. GMT=304/14:22:56 GMT of Last packet=304/14:07:38 121F05@100HZ ON HOST:BRANYAN IS ACTIVE (LOS)

The ticker above shows the current available sensor status

PIMS on ISS

545 Days 22:23:38

**PIMS ISS
Operations Ticker**

attention was turned to the arrival of two upcoming missions to the International Space Station. The first set of visitors, the Soyuz Five Taxi Flight crew, is scheduled to launch at 9:11 p.m. CST Oct. 29 (0311 GMT Oct. 30) and dock with the station two days later, delivering a new Soyuz spacecraft that will serve as the station's crew return ...

Click **here** to view all available sensors

Click **here** to view current ISS SAMS/MAMS plots
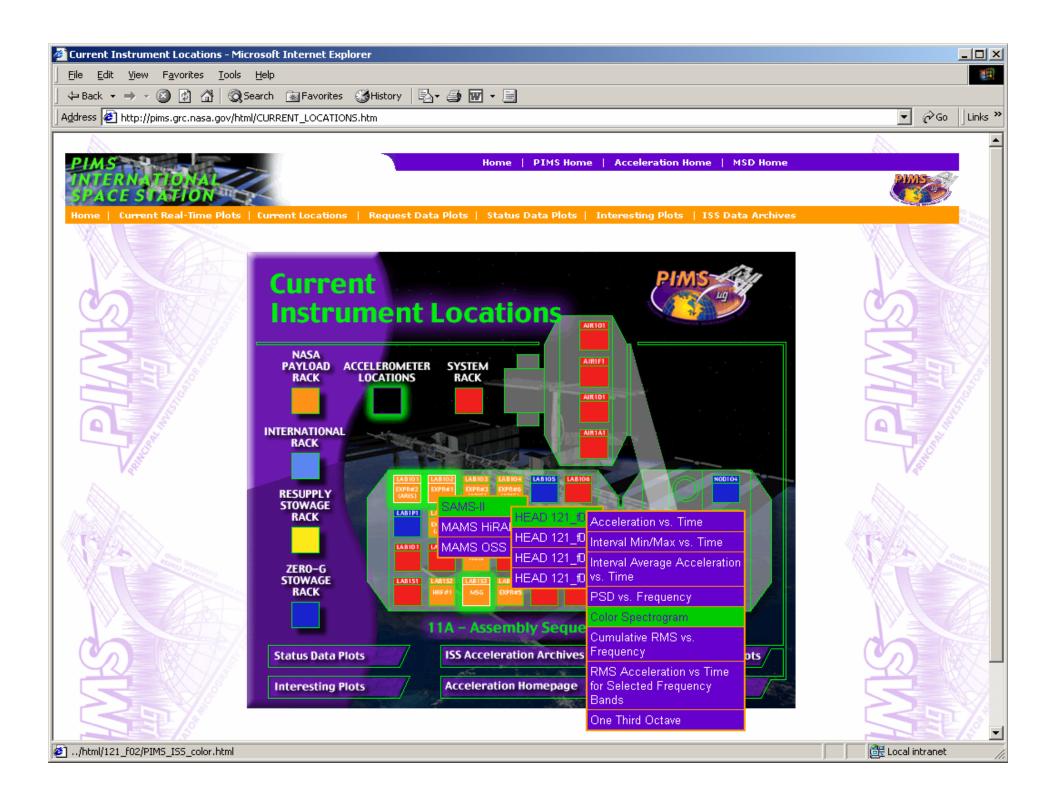
Main PIMS Web Page Functions

- **Current Instrument Locations**
    - **Contains a drawing of the US Lab, designating payload racks, system racks, and stowage racks**
    - **Racks containing acceleration measurement system hardware are ghosted in green**
    - **Mousing over a ghosted rack brings up the same menu selections as for the Current Real Time Plots link**
        - Provides access to real time data plots based on acceleration measurement system, sensor, and plot types
        - Mouse over this button to get the acceleration measurement system menu
        - Select the sensor from the desired acceleration measurement system
        - Select the plot type for the sensor of interest
    - **If a plot type is not available (not actively being generated by PIMS real time software), a message is displayed to contact PIMS if that plot type is desired**
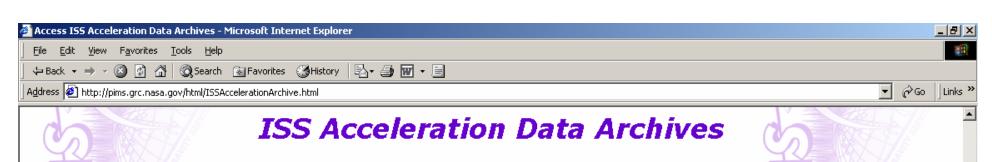
PIMS
INTERNATIONAL
SPACE STATION

Home | PIMS Home | Acceleration Home | MSD Home

PIMS

Home | Current Real-Time Plots | Current Locations | Request Data Plots | Status Data Plots | Interesting Plots | ISS Data Archives

Current Instrument Locations

PIMS

NASA PAYLOAD RACK

ACCELEROMETER LOCATIONS

SYSTEM RACK

INTERNATIONAL RACK

RESUPPLY STOWAGE RACK

ZERO-G STOWAGE RACK

AIR1O1

AIR1F1

AIR1D1

AIR1A1

| LAB1O1 EXPR#2 (ARIS) | LAB1O2 EXPR#1 | LAB1O3 EXPR#3 (ARIS) | LAB1O4 EXPR#6 (ARIS) | LAB1O5 | LAB1O6 |

| LAB1P1 | LAB1P2 EXPR#4 (ARIS) | LAB1P3 | LAB1P4 HRF#2 | LAB1P5 | LAB1P6 |

| LAB1D1 | LAB1D2 | LAB1D3 WORF | LAB1D4 | LAB1D5 | LAB1D6 |

| LAB1S1 | LAB1S2 HRF#1 | LAB1S3 MSG | LAB1S4 EXPR#5 | LAB1S5 | LAB1S6 |

NOD1O4

NOD1P4

NOD1D4

NOD1S4

11A – Assembly Sequence

Status Data Plots

ISS Acceleration Archives

Current Real–Time Plots

Interesting Plots

Acceleration Homepage

Request Data Plots

PIMS
INTERNATIONAL
SPACE STATION

PIMS

Current Instrument Locations

PIMS

NASA PAYLOAD RACK

ACCELEROMETER LOCATIONS

SYSTEM RACK

INTERNATIONAL RACK

RESUPPLY STOWAGE RACK

ZERO-G STOWAGE RACK

AIR1O1
AIR1F1
AIR1D1
AIR1A1

LAB1O1 EXPR#2 (ARIS)
LAB1O2 EXPR#1
LAB1O3
LAB1O4
LAB1O5
LAB1O6
NOD1O4

LAB1P1

LAB1D1

LAB1S1
LAB1S2 HRF#1
LAB1S3 MSG
EXPR#5

SAMS-II
MAMS HiRAP
MAMS OSS

HEAD 121_f0
HEAD 121_f0
HEAD 121_f0
HEAD 121_f0

Acceleration vs. Time
Interval Min/Max vs. Time
Interval Average Acceleration vs. Time
PSD vs. Frequency
Color Spectrogram
Cumulative RMS vs. Frequency
RMS Acceleration vs Time for Selected Frequency Bands
One Third Octave

11A – Assembly Seque...

Status Data Plots

ISS Acceleration Archives

Interesting Plots

Acceleration Homepage

🖳 ../html/121_f02/PIMS_ISS_color.html   🖳 Local intranet

Main PIMS Web Page Functions

- **Access ISS Acceleration Data Archives**
    - **This link provides instructions on how to downlink acceleration data files and their associated header files. Details of the PIMS Acceleration Data (PAD) file directory structure and file formats are contained in the document PIMS-ISS-101, ISS PIMS Acceleration Data (PAD) File Description Document**
    - **First step is to determine data availability using monthly data availability profiles assembled by PIMS data analysts**
    - **Second step is to verify the ability to properly read PAD binary data files by downloading the appropriate file pair below, either for four column binary data or six column binary data. For MAMS OSS raw data, download the six column example files. For all other data (SAMS, MAMS filtered data, MAMS HiRAP), download the four column example files**
        - Download a pair of test files, an actual binary data file and an Excel spreadsheet containing the first 20 records of that file
        - Use your binary data file reader to read the first 20 records of the binary data file
        - Open the associated spreadsheet data file spreadsheet and compare the resultant data
        - When the results are identical, proceed to steps for downloading desired data from the time period and sensor of interest

ISS Acceleration Data Archives

ON-LINE ACCESS TO PIMS ACCELERATION DATA ARCHIVE

Acceleration data measured by the MAMS and the SAMS acceleration measurement systems on the ISS are available over the Internet via FTP from a NASA GRC file server. The contents of these acceleration data files (PIMS Acceleration Data (PAD) files) and the overall acceleration data archive directory structure are described in the document, International Space Station PIMS Acceleration Data File Description Document (*PIMS-ISS-101*). The binary data stored in the PAD binary acceleration data files are stored in binary 32-bit IEEE float little endian format.

There are 4 basic sensor data types available for downloading. Each sensor data type has some handling/use restrictions that need to be employed prior to generating any plots or performing any manipulation of these data. These limitations are described in the table below:
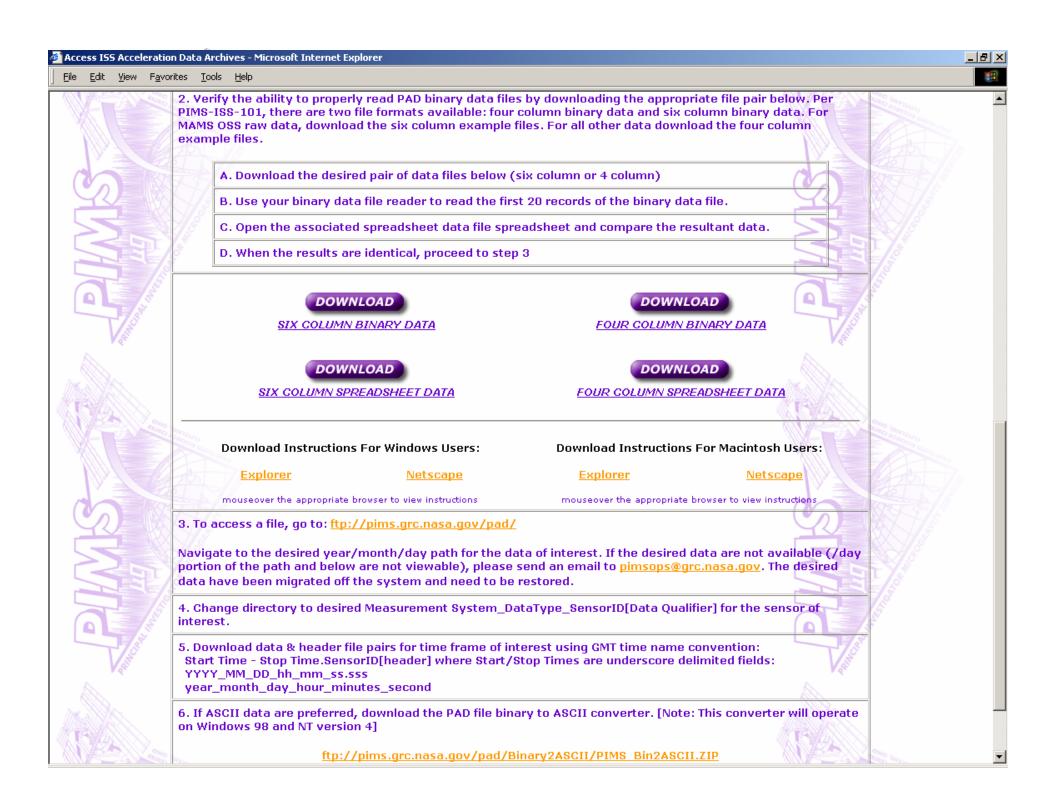
SAMS data	Data must be demeaned to remove any instrument bias
MAMS HiRAP data	Data must be demeaned to remove any instrument bias
MAMS OSS TMF data	No limitations. Data have been trimmean filtered and bias compensated and are ready for use.
MAMS OSS raw data	Recommend not using the data because bias has not been removed and the bias compensation process requires addition data and data processing. If raw MAMS OSS data are desired, contact PIMS at pimsops@grc.nasa.gov

To download acceleration data, follow the steps indicated below to first verify availability of acceleration data for the time period of interest and second to verify the ability to properly read PAD binary data files.

1. Determine the availability of data for time period of interest by checking the PAD profile for the month of interest

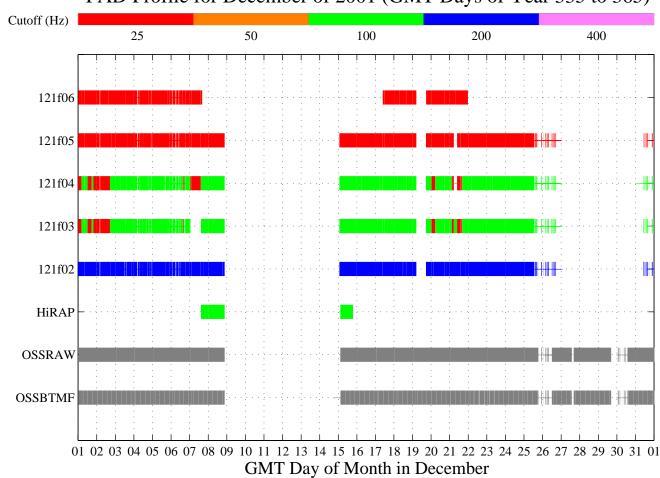*Click Here to get a listing of PAD files for 2001*

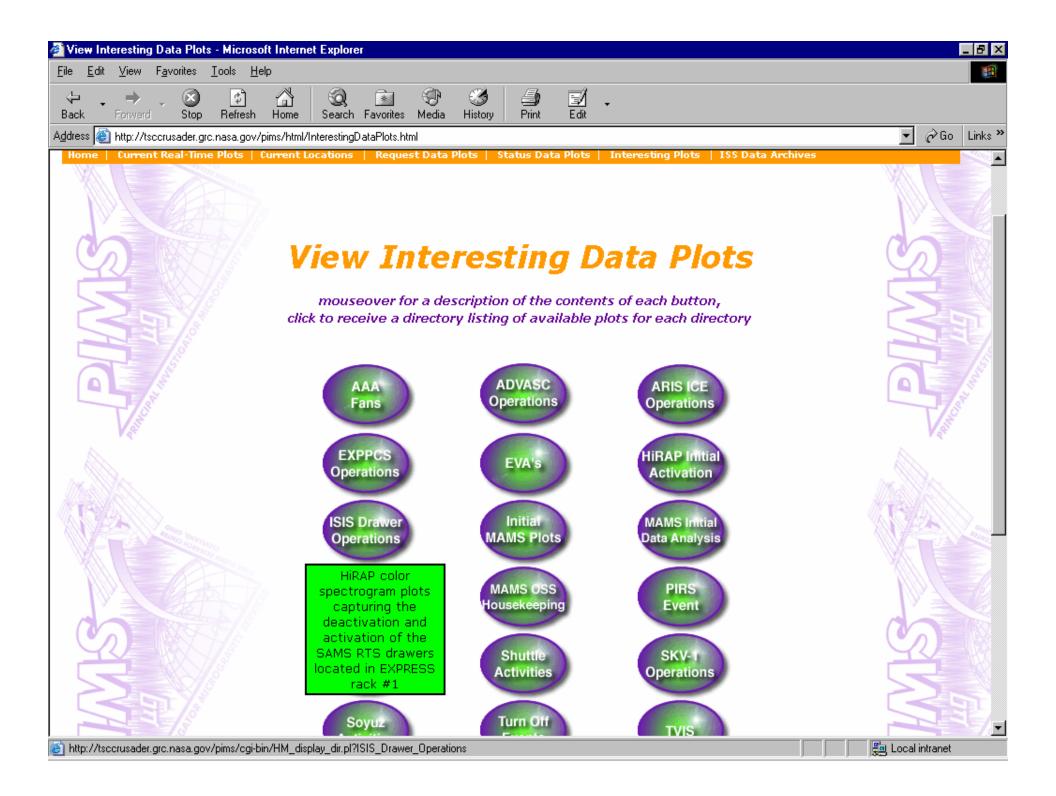*Click Here to get a listing of PAD files for 2002*

2. Verify the ability to properly read PAD binary data files by downloading the appropriate file pair below. Per PIMS-ISS-101, there are two file formats available: four column binary data and six column binary data. For MAMS OSS raw data, download the six column example files. For all other data download the four column example files.

| A. Download the desired pair of data files below (six column or 4 column) |
| B. Use your binary data file reader to read the first 20 records of the binary data file. |
| C. Open the associated spreadsheet data file spreadsheet and compare the resultant data. |
| D. When the results are identical, proceed to step 3 |

DOWNLOAD
SIX COLUMN BINARY DATA

DOWNLOAD
FOUR COLUMN BINARY DATA

DOWNLOAD
SIX COLUMN SPREADSHEET DATA

DOWNLOAD
FOUR COLUMN SPREADSHEET DATA

Download Instructions For Windows Users:

Explorer   Netscape

mouseover the appropriate browser to view instructions

Download Instructions For Macintosh Users:

Explorer   Netscape

mouseover the appropriate browser to view instructions

3. To access a file, go to: ftp://pims.grc.nasa.gov/pad/

Navigate to the desired year/month/day path for the data of interest. If the desired data are not available (/day portion of the path and below are not viewable), please send an email to pimsops@grc.nasa.gov. The desired data have been migrated off the system and need to be restored.

4. Change directory to desired Measurement System_DataType_SensorID[Data Qualifier] for the sensor of interest.

5. Download data & header file pairs for time frame of interest using GMT time name convention:
 Start Time - Stop Time.SensorID[header] where Start/Stop Times are underscore delimited fields:
 YYYY_MM_DD_hh_mm_ss.sss
 year_month_day_hour_minutes_second

6. If ASCII data are preferred, download the PAD file binary to ASCII converter. [Note: This converter will operate on Windows 98 and NT version 4]

ftp://pims.grc.nasa.gov/pad/Binary2ASCII/PIMS_Bin2ASCII.ZIP

PAD Profile for December of 2001 (GMT Days of Year 335 to 365)

GMT Day of Month in December
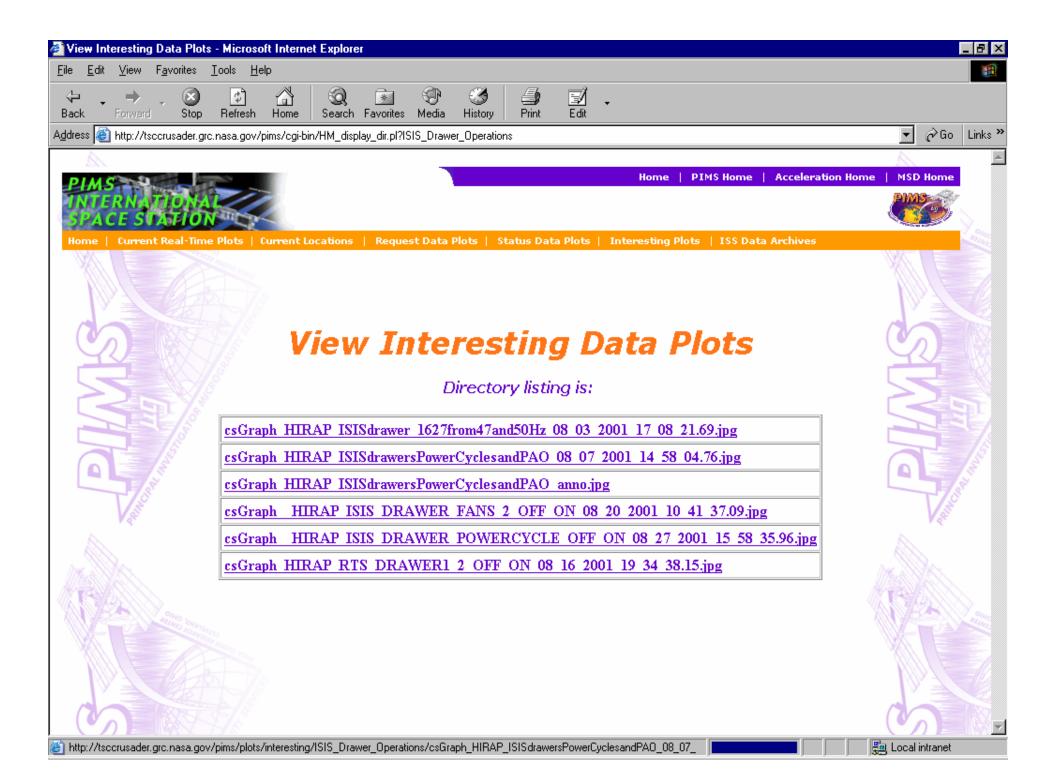
Main PIMS Web Page Functions

- **View Interesting Data Plots**
  - **This link provides access to a "best of" collection of acceleration data plots generated by PIMS personnel**
  - **The page consists of links to various events documented by PIMS**
  - **Mousing over a particular link gives descriptive text for the files contained within that link**

Back   Forward   Stop   Refresh   Home   Search   Favorites   Media   History   Print   Edit

Address   http://tsccrusader.grc.nasa.gov/pims/html/InterestingDataPlots.html   Go   Links »

Home | Current Real-Time Plots | Current Locations | Request Data Plots | Status Data Plots | Interesting Plots | ISS Data Archives

View Interesting Data Plots

mouseover for a description of the contents of each button,
click to receive a directory listing of available plots for each directory

AAA Fans

ADVASC Operations

ARIS ICE Operations

EXPPCS Operations

EVA's

HiRAP Initial Activation

ISIS Drawer Operations

Initial MAMS Plots

MAMS Initial Data Analysis

HiRAP color spectrogram plots capturing the deactivation and activation of the SAMS RTS drawers located in EXPRESS rack #1

MAMS OSS Housekeeping

PIRS Event

Shuttle Activities

SKV-1 Operations

Soyuz Activities

Turn Off Events

TVIS

http://tsccrusader.grc.nasa.gov/pims/cgi-bin/HM_display_dir.pl?ISIS_Drawer_Operations

Local intranet

PIMS INTERNATIONAL SPACE STATION

View Interesting Data Plots

Directory listing is:

csGraph_HIRAP_ISISdrawer_1627from47and50Hz_08_03_2001_17_08_21.69.jpg

csGraph_HIRAP_ISISdrawersPowerCyclesandPAO_08_07_2001_14_58_04.76.jpg

csGraph_HIRAP_ISISdrawersPowerCyclesandPAO_anno.jpg

csGraph__HIRAP_ISIS_DRAWER_FANS_2_OFF_ON_08_20_2001_10_41_37.09.jpg

csGraph__HIRAP_ISIS_DRAWER_POWERCYCLE_OFF_ON_08_27_2001_15_58_35.96.jpg

csGraph_HIRAP_RTS_DRAWER1_2_OFF_ON_08_16_2001_19_34_38.15.jpg

Main PIMS Web Page Functions

- **ISS Monitoring System**
  - **This system is not currently on line, but will provide a neural network interpretation of the acceleration data**

- **Request Data Plots**
  - **This link will eventually allow users to generate custom data plots or plot requests.**
  - **Currently this link provides access to the PIMS PI survey. This is the first step in requesting any data plots from PIMS.**
  - **Completing this survey logs the requester into the PIMS User Database**

- **Status Data Plots**
  - **This link will status plot and data requests when the automated "Request Data Plots" link is functional**