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# SRM Section Half Samples: Quick Start Guide

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V1.1; M. Hastedt (8/15/2011); Rev. (12/18/2013)

## Introduction

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This guide will help the paleomagnetists quickly begin using the continuous sample version of the Superconducting Rock Magnetometer (SRM) software and upload their data to the LIMS. For detailed information on the instrument (**Figure 1**), refer to the 2G Enterprises manuals, available both on the bookshelf in the laboratory in the “Pmag Manual” binder and online.



Figure 1. SRM in the Paleomag Lab.

## Procedure

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### Sample Preparation

1. Clean any dirt from the boat using paper towels and water, glass cleaner, or isopropyl alcohol.
2. Wipe the bottoms of sections to be scanned to try to prevent dirt from entering the magnetometer.
3. Wipe the bottom of the boat periodically with antistatic compound to help suppress flux-jumping, especially under low-humidity conditions.

### Start the Application

1. Double-click the **Discrete SRM** shortcut on the cyromag computer. If the program does not launch automatically, click the **Run** arrow in the upper left corner to start (**Figure 2**).
2. Enter LIMS credentials into the application login screen (**Figure 3**).
3. Once authenticated, the Communication Status dialog box apprises the user of the status of the SQUIDS and degausser controller (**Figure 4**). If any of the information is blank, notify the paleomagnetism technician.

X, Y, and Z are the SQUID axes; SQUID responses shown in the example in **Figure 3** are as follows:

–Filter (F) = 1

–Range (R) = 1

–Slew (S) = enabled (E)

- Loop (L) = closed (C)
- Degausser (D) codes shown in the example are as follows:
- Status (S) = idle (Z)
- Ramp Rate (R) = 3
- Dwell (D) = 1 s
- Coil (C) = Z
- Amplitude (A) = 50 gauss

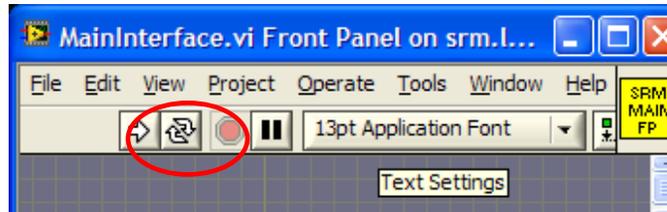


Figure 2. Run Application.

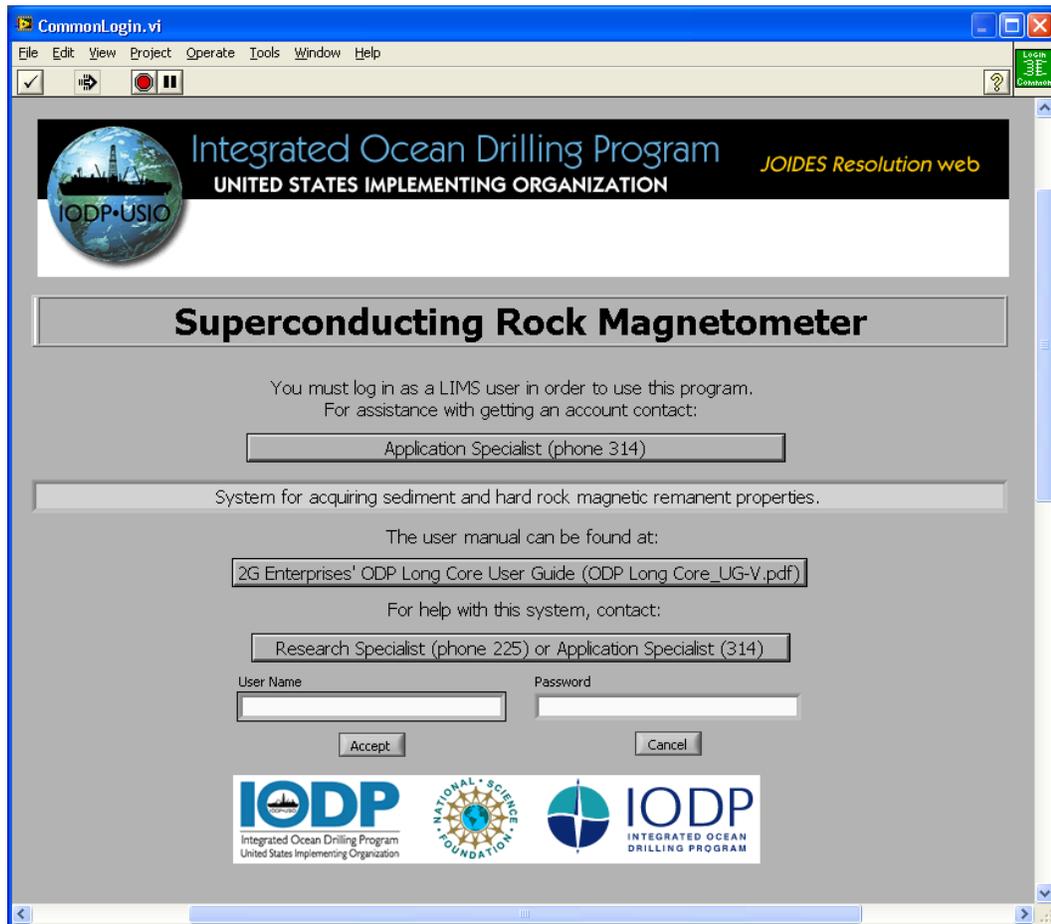


Figure 3. LIMS Login screen.

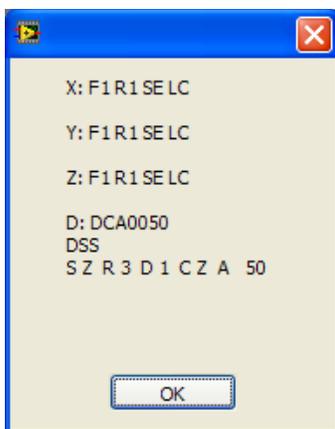


Figure 4. Communication Status Report.

## Set up the Software to Run Samples

### Main Screen

The *Discrete Samples Main* screen offers the following operations (see [Figure 5](#)):

Button/Field	Function	Purpose
<b>Identify Samples</b>	Opens <i>Discrete Sample Identification</i> screen	Input information about the sample (Text_ID, name, length, UserID, etc).
<b>Process Sample</b>	Opens <i>Sample Measurement</i> screen	Perform the measurement routine specified in <i>Set Demag Schedule</i> . <b>Note:</b> the last used sequence will load at startup.
<b>View Plots</b>	Opens <i>View Plots</i> screen	Examine data after measurement.
<b>Set Demag Schedule</b>	Opens <i>Processing Sequence Editor</i> screen	Specify sequential measurement and demag steps for a sample, as well as measurement intervals, averaging, and header/trailer lengths.
<b>Measure Tray</b>	Opens <i>Tray Data Collection</i> screen	Demagnetize and/or measure a tray.
<b>Tray Name</b>	Field	File name of the last used tray. This field must be filled in.
<b>Auto Save</b>	Toggle	Automatically save data without going to the <i>View Plots</i> screen between runs of a sequence. The switch can be toggled at any time. <b>NOTE:</b> v.2 Auto Save is enabled by default for multistep demag sequences.
<b>Comments</b>	Toggle	Enable/disable the three comment dialog boxes when saving each data file.
<b>Exit Program</b>	—	Quit the software (updates the configuration file at exit).

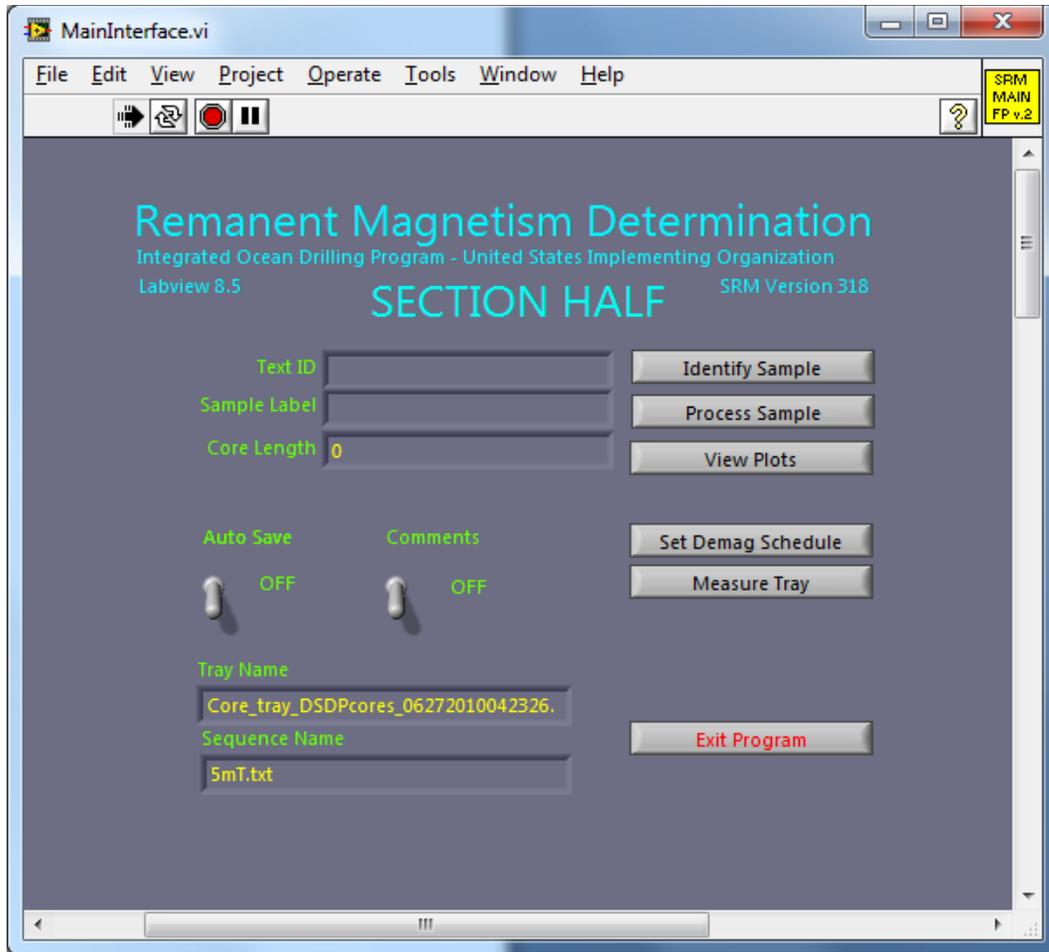


Figure 5. Section Half Main Screen.

### Measure the Sample Tray

1.	On the <i>Main</i> screen, click <b>Measure Tray</b> to open the <i>Tray Data Collection</i> screen ( <a href="#">Figure 6</a> ).
2.	Type the name of the tray to be measured in the <i>Tray ID</i> field.
3.	Click <b>Cleanse</b> to degauss the tray (up to 80 mT) before measuring. A dialog box will prompt for the demag level.
4.	To examine older tray measurements, select one from the <i>Current Tray Files</i> window and click <b>Load Selected Tray</b> . This will show that tray's X, Y, and Z moments on the graphs.
5.	Click <b>Use Tray</b> to return to the <i>Main</i> window to proceed with section measurements using the loaded tray data or Click <b>Change File Name</b> to overwrite an older tray file with new data.
6.	To measure a new tray, enter the tray name into the <i>Tray ID</i> field (timestamp is automatically added to the data filename when saving) and click <b>Measure</b> .
7.	When the new tray run finishes, click <b>Use Tray</b> to save the tray and use it for subsequent measurements.

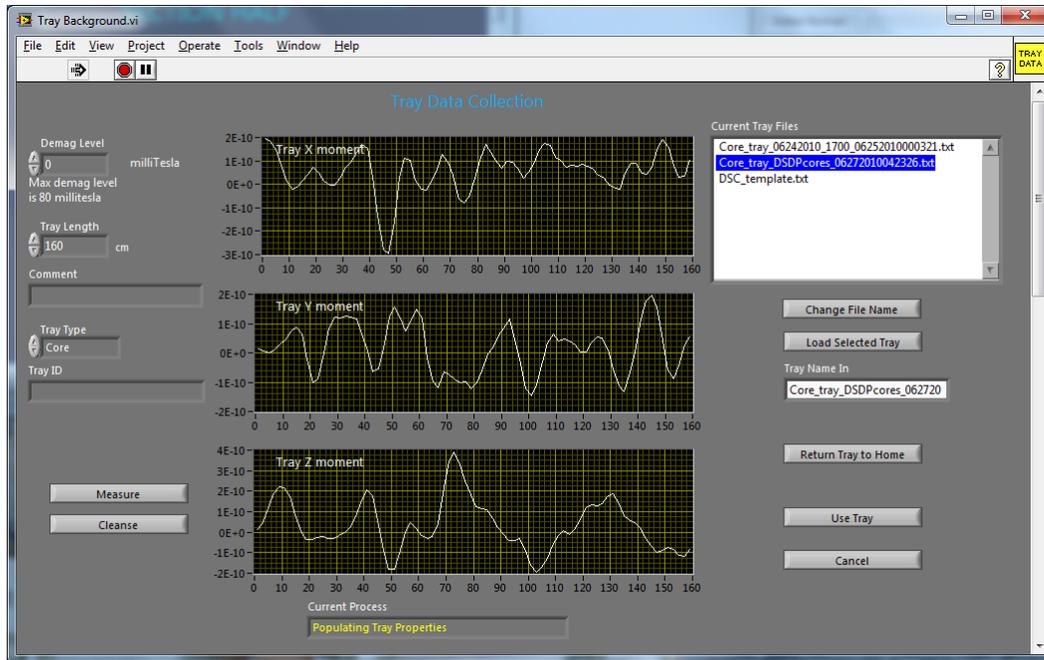


Figure 6. Tray Data Collection Screen.

## Set up Measurement Parameters

Configure measurement replicates and degauss sequences using the *Remanent Magnetism Processing Sequence Editor* screen (**Figure 7**). To access this screen, click **Set Demag Schedule** on the *Main* screen. Use the buttons on the measurement parameters screen to use a previous sequence, modify a previous sequence, or build a new measurement sequence including degaussing and measurement steps. Tips for use on this screen:

- Click **Load a Sequence** to see a list of old sequences, or start a new sequence by clicking the buttons to **Add Measure**, **Add a Demag Level** (demag levels must be above 0 and less than or equal to 80 mT), or **Add Offline Treatments**.
- To delete a step from a sequence, double-click the step and use **the Delete Selected Item** button.
- When finished click **Save Sequence** and give an explanatory name such as “0-5-10-15” to indicate an NRM/5 mT/10 mT, 15 mT sequence.
- Ensure there is a **Measure** step between each demag step or it will demag consecutively without stopping to take a measurement.
- Ensure that every sequence has as a last step **end** (this command is automatically added when clicking **Save Sequence** (note: **Use Sequence** will not add the END statement).
- Click **Continue** to return to the *Main* screen.

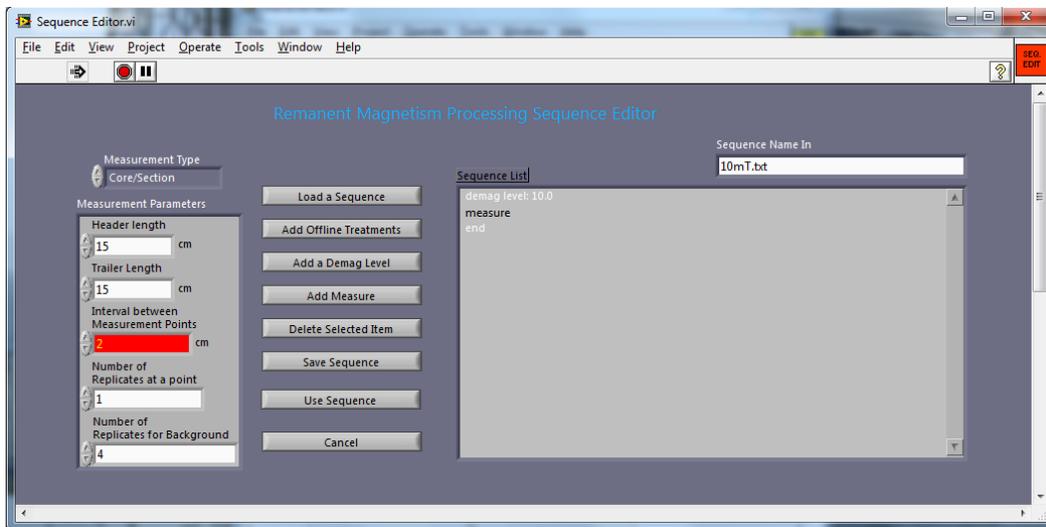


Figure 7. Processing Sequence Editor Screen.

## Measure Sample

1. Click **Identify Sample** on the *Main* screen to enter sample information: Scan the barcode label or enter the sample information in the *Text ID* field.
2. Select **Process Samples** from the *Main* screen to start measuring the sample and open the *Data Collection* screen (Figure 8). The plots show real-time acquisition plots for the sequence step in progress.
3. To abort a measurement, click **Abort**.
4. Double-click **end** in the sequence list to finish aborting the run.
5. Double-click any other step in the sequence list to resume measurements.

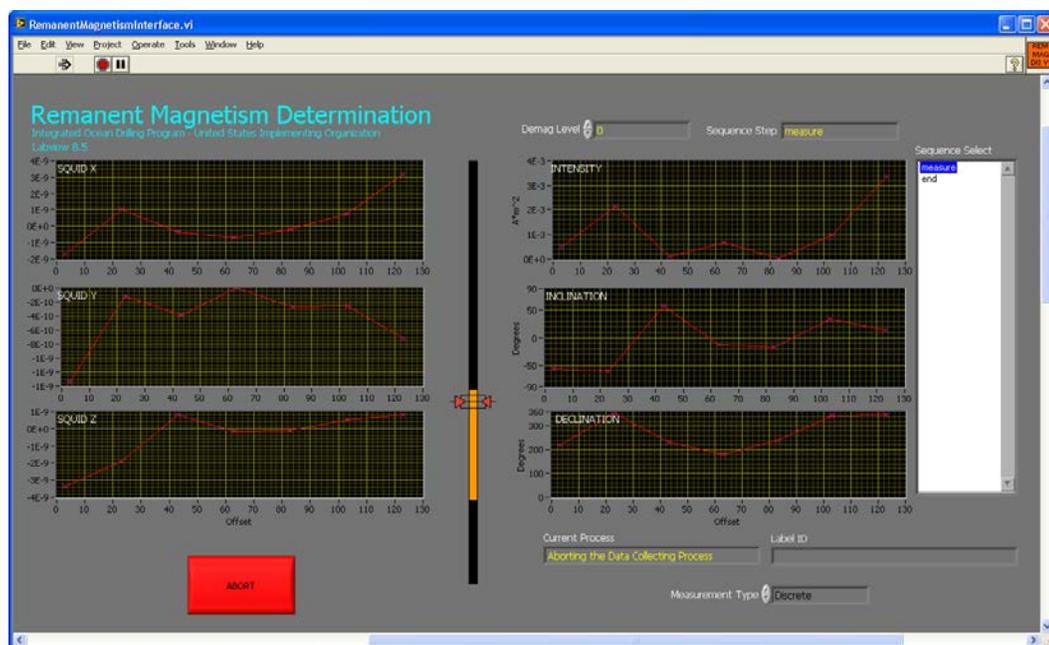


Figure 8. Data Collection Screen.

## View Plots

1. Select **View Plots** from the *Main* screen to open the *View Plots* screen (**Figure 9**).
2. Select a *Filter* from the drop-down list to see sample plots:
  - No filter:** raw moments (corrected for section half) calculated to declination, inclination, and intensity
  - Background only:** background-corrected data calculated to declination, inclination, and intensity
  - Tray only:** tray data are subtracted from raw moments then calculated to declination, inclination, and intensity
  - Background and Tray:** raw data are corrected for both background and tray moments then calculated to declination, inclination, and intensity
3. Click **Save Files** to save the data to the upload directory.

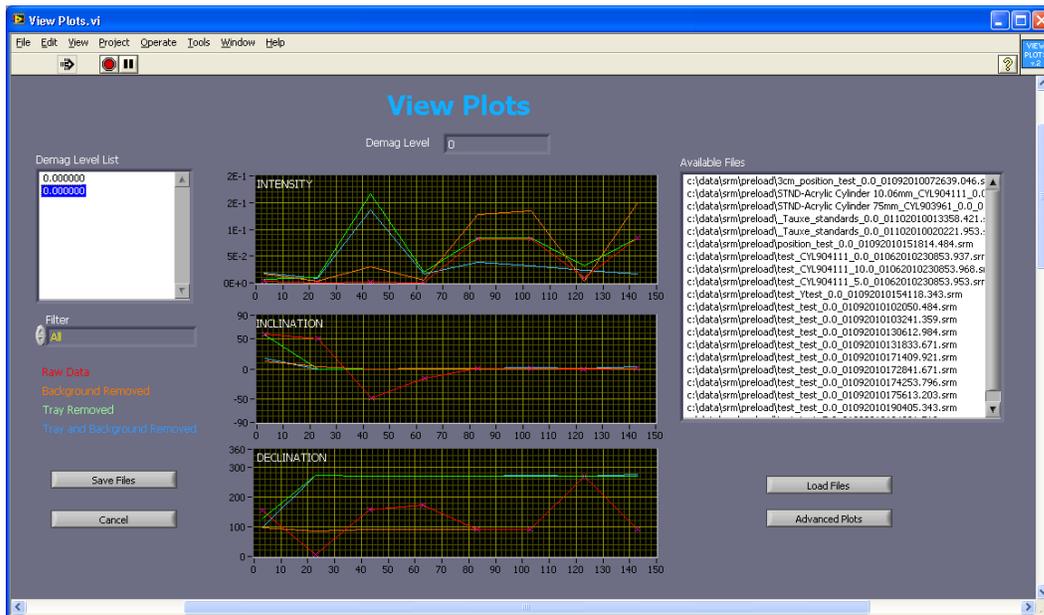


Figure 9. View Plots Screen.

## Upload Data to LIMS

Please see an application developer if there are any problems uploading files.

1. Double-click the upload icon on the desktop to open the MegaUploadTron (MUT) uploader screen (**Figure 10**).
2. Manually upload samples by clicking **Upload**; alternatively, **selecting Automatic Upload** will cause the loader will to check `c:\data\srm\in` for new files to upload every few minutes.
3. Close the upload application by clicking the red X in the upper right-hand corner, but be advised that the true application close is on the Windows task bar in the lower right corner of the desktop. Right-click the LIMS loader icon and click Exit to fully close the uploader (**Figure 11**).

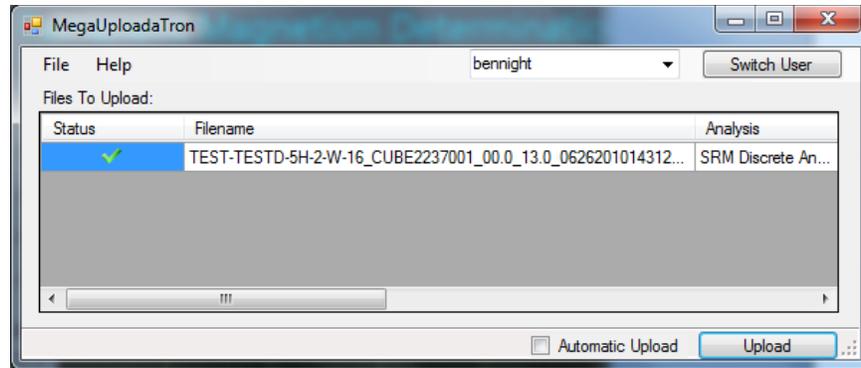


Figure 10. LIMS Uploader Screen.



Figure 11. LIMS Uploader System Tray Icon (second from left).

## Verifying Data in LIMS

### LIMS Reports

1. Go to *LIMS Reports* at <http://webserv.ship.iodp.tamu.edu:8080/UWQ/>.
2. Under **Select Report**, choose **Magnetism > Magnetic Remanence (SRM discrete)**.
3. Under **Select Sample Range**, specify *Expedition*, *Site*, *Hole*, and *Section* image(s) to retrieve.
4. Click **View data or Download data**.

### LIMSpeak

1. Open *LIMSpeak* at <http://ship.iodp.tamu.edu/tasapps/limspeak/>.
2. Click **Select a hole** to view a drop-down list of available holes, and select a hole.
3. Click **Select a template** to view a drop-down list of available templates, and select **SRM**.
4. Click **Display**.
5. Click on any section in the *Samples* column to zoom in on the SRM plot image.

### Web Tabular

1. To obtain detailed information that is not available on the LIMS report use *Web Tabular Report*: <http://webserv.ship.iodp.tamu.edu:8080/Lims-client/html/>.
2. Under Expedition/Sample, enter the *Expedition*, *Site*, *Hole*, etc.
3. Under Test/Result > *Analysis* select **SRM** from the drop-down list.
4. Select **Show Report** to see data on screen.

## Appendix: File Locations

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There are several locations for SRM data on the cryomag computer. All files are ASCII text regardless of file extension. The main directories include the following:

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**C:\DATA\SRM\IN:** This is the SRM data folder that the LIMS uploader watches for transfer to the database. Files you chose to save at the end of a run are copied from the preload folder to this location. SRM discrete sample data will have a .DSC file extension; section data has a .SRM extension.

**C:\DATA\SRM\PRELOAD:** New with version 2. This folder contains copies of the measurement data files and is used by View Plots to display previously-measured data. Important: ALL data files are written to this location, including those that were cancelled for whatever reason. Clean or reorganize this folder periodically to keep the plot file list manageable or to avoid viewing the bad data files.

**C:\DATA\SRM\CONFIG:** Location of the instrument.ini configuration file, last-used sequence, and LIMS webserver location information.

**C:\DATA\SRM\LOGIN:** LIMS authentication and uploader configuration information.

**C:\DATA\SRM\SAMPLE\_DATA:** Location of .BKU (backup) files containing only measured moments of each section, used internally by the software. Clean or reorganize this folder periodically to keep the file list manageable.

**C:\DATA\SRM\ARCHIVE:** The uploader moves files from C:\DATA\SRM\IN to this location after successful upload to the database.

**C:\DATA\SRM\ERROR:** The uploader moves files here if there are problems that prevent upload to the database. Check the number of files shown in the error window of the uploader to see if there are problem files.