LIMS REPORTS USER GUIDE

CONTENTS

REPORT FORMAT

The LIMS database contains samples/data for IODP expeditions beginning in 2009 (Expeditions 317 and beyond) and any new samples/data generated from legacy expeditions (DSDP/ODP Legs 1-210 and IODP Phase 1 Expeditions 301-312).

LIMS Reports provides two ways to view the data:

(1) **Standard reports** present the most important data for a particular analysis in a format that is ready to use for data review, research, and publications. The report output can be viewed in a browser or downloaded as a file.

(2) **Expanded reports** present all the data for a particular analysis. In cases where a standard report presents data from multiple analyses, the expanded reports comprise a set of all the individual analyses (e.g., chemistry).

The Standard LIMS Report format offers the following general data reporting columns. Columns are defined in **About this report** and are illustrated with examples:

- Expedition, Site, Hole, Core, Core Type, Section, Section Half. *Active fields vary across reports.*
- Offset: position where the observation was made. Point measurements are reported with a single offset, whereas interval measurements are reported with top and bottom offsets.
- Depth: position where the observation was made, measured from the top of the hole. Point measurements are reported with a single depth, whereas interval measurements are reported with top and bottom depths.
- Depth [other]: depth reported in an alternate depth scale specified by the user.
- Measurement (with unit) and/or image/data file (with format). *Multiple columns displayed.*
- Timestamp: point in time at which the measurement was made or uploaded to LIMS (always reported in UTC).
- Instrument: sensing device used to take the observation, and Instrument group: data collection device.
- Text ID: automatically generated unique database identifier for a sample, visible on printed labels.
- Test No: Unique number associated with the instrument measurement steps that produced these data.
- Comments: observer's notes about a measurement, the sample, or the measurement process.

The Expanded LIMS Report format differs depending on the database components that make up each report.

1. Directly access the LIMS Reports *Interface Page* at http://web.iodp.tamu.edu/LORE/(shore) or http://web.ship.iodp.tamu.edu/LORE/ (ship) (Figure 1).
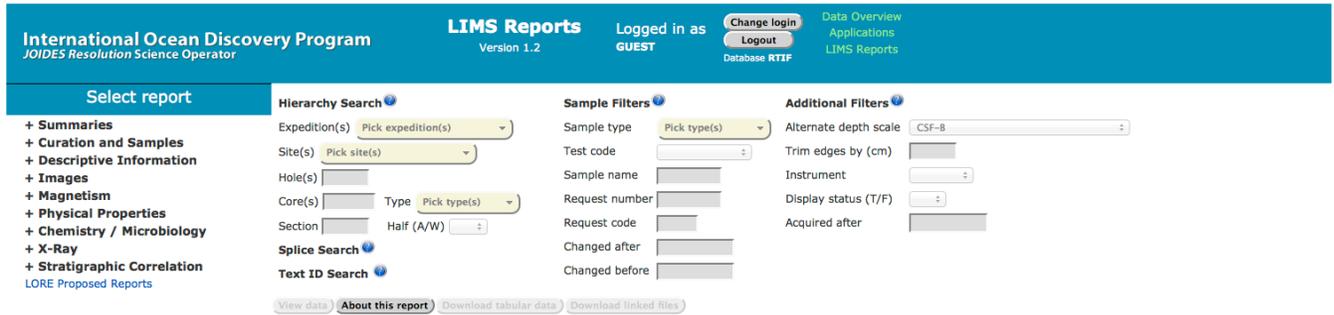

Figure 1. LIMS Reports Interface Page.

2. Access data from the *Overview Page* at http://web.iodp.tamu.edu/OVERVIEW (Figure 2). This page offers drill-down access to data and shows the number of results per report per expedition, site, or hole contained in the LIMS database. On the *Overview Page,* select any Report or number of results to launch the LIMS Reports *Interface Page* with a pre-populated query for the selected data.

International Ocean Discovery Program
JOIDES Resolution Science Operator

Ocean Drilling Data

DSDP (1 – 96) | ODP (101 – 210) | IODP (301 – 312) | IODP (317 – 346) | IODP (349 onwards) | My Expeditions

Report	346	345	344	342	341	341S	340	339	336	335	334	330	329	328	327	324	323	321	320T	320	318	317
Hole Summary	31	16	3	28	20	3	5	25	9	1	8	3	42	1	9	5	30	8	2	16	14	13
Core Summary	835	76	5	669	701	0	6	688	88	12	227	6	205	1	62	113	673	297	13	422	332	561
Section Summary	5408	96	33	4492	2998	0	46	4587	330	10	1317	33	1027	0	163	366	4800	2132	88	2934	1772	2268
Samples	13730	3704	649	19049	12210	0	303	13912	11094	753	20074	365	19880	0	3824	10522	37795	31578	223	38314	35807	32140
Piece Log	0	763	0	6	363	0	0	0	1597	33	392	0	709	0	596	2039	365	0	0	1	0	0
Core Composites (COREPHOTO)	2109	63	5	644	675	0	6	694	134	4	209	6	191	0	50	127	673	289	2	409	726	554
Core Sections (LSIMG)	5337	153	1343	4455	2959	0	2156	4533	365	12	1324	735	1020	0	163	370	4642	2111	148	3171	1750	2146
Whole-round Core Sections (WRLSC)	0	43	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Core Closeups (CLOSEUP)	4	983	2	54	279	0	0	217	87	166	70	22	73	0	208	0	0	0	0	0	0	0
Thin Sections (TSIMAGE)	0	357	0	11	0	0	0	0	130	88	10	66	133	0	59	0	0	0	0	0	0	0
Photomicrographs (MICROIMG)	428	3103	32	257	1048	0	0	241	761	41	114	0	351	0	46	1237	0	31	2	11	0	0
Gamma Ray Attenuation Bulk Density (GRA)	155795	8279	2890	347088	226948	0	2161	320750	34157	224	32492	2876	71587	0	17388	21276	265836	136657	5178	153940	90498	62579
Magnetic Susceptibility Pass-through (MS)	155584	8279	2890	348229	226679	0	2161	317889	34448	223	31857	2874	72200	0	16421	21307	201378	136115	2685	170183	91110	61867
Magnetic Susceptibility Contact (MSPOINT)	142727	5578	1365	161517	150546	0	1226	120660	16955	146	48806	3726	45850	0	15699	37593	33054	0	588	0	112386	43916
Moisture and Density (MAD)	661	131	36	3128	748	0	3	1171	239	4	973	21	291	0	163	169	942	613	21	1094	920	1754
Natural Gamma Radiation (NGR)	29099	544	189	55270	32448	0	570	35268	1407	20	7239	435	11834	0	554	4337	58230	26317	2988	35812	18678	24978
P-Wave Velocity, Logger (PWL)	48449	0	798	86312	63641	0	2161	63479	20289	0	27135	0	47618	0	10708	165	11457	78840	4301	129169	18665	17584
P-Wave Velocity, Caliper (PWC)	1	2241	7	6694	812	0	31	321	366	41	46	21	81	0	482	509	0	608	19	853	1360	792
P-Wave Velocity, Bayonet (PWB)	3	0	4	0	0	0	0	1	0	60	0	44	0	110	0	294	0	441	8	1011	155	238
Reflectance Spectroscopy and Colorimetry (RSC)	200890	9639	1365	163647	150017	0	1226	118603	16953	146	48876	3726	51734	0	11565	38093	111100	98794	1255	114345	112706	42821
Strength, Automated Vane	276	0	12	0	263	0	10	0	0	0	72	0	0	0	0	0	0	0	5	0	0	788
Strength, Torvane	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3
Strength, Penetrometer	0	0	15	0	0	0	0	0	0	0	197	0	0	0	0	0	0	0	0	0	0	0
Downhole Temperature	1	0	2	6	0	0	0	0	0	0	10	0	17	0	11	0	21	0	4	30	6	10
Thermal Conductivity (TCON)	2205	0	9	212	0	0	19	128	60	33	336	4	508	0	305	745	1322	257	55	820	531	2595
Magnetic Remanence (SRM section)	160912	37400	7066	355035	390700	0	4253	216133	0	119	88076	17687	116747	0	23116	7168	240374	166476	4363	148574	69815	94608
Magnetic Remanence (SRM discrete)	4179	0	237	0	0	0	0	1418	0	0	1611	0	667	0	756	0	0	0	0	2	19569	139
Interstitial Water (IW)	4068	0	93	2046	5930	0	11	6427	248	0	2910	0	3814	0	513	0	8126	2260	111	2165	1015	2676
ICP-AES Solids	0	0	0	0	0	0	0	0	44	14	0	5	0	0	31	0	0	0	252	541	3039	0
Carbonates	378	40	3	1888	336	0	1	358	0	0	93	0	172	0	0	11	357	780	10	1545	364	568
Source Rock Analysis (SRA)	0	0	0	33	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5	0	0	535
Gas Elements	0	0	0	0	0	0	170	384	80	0	449	0	4	0	45	0	625	85	24	132	210	644
X-Ray Diffraction (XRD)	340	78	8	67	395	0	5	559	51	4	175	5	61	0	17	105	50	0	0	0	328	367

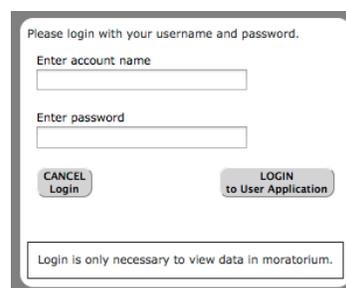Figure 2. Ocean Drilling Data Overview Page.

RUNNING A DATA QUERY

To query for samples or scientific data, complete the following information on the LIMS Reports *Interface Page* (Figure 1):

1. **Log in:** View data out of moratorium (**Guest**), or log in with expedition credentials to view moratorium data.
2. **Select Report:** Click **+** next to any category to see the available reports and select a report.
3. **Report Description:** Click on *About this report* to see a brief report description and column definitions.
4. **Select Hierarchy, Text ID, or Splice Search**: Enter one or more fields and appropriate filters to narrow the search.
   - **Hierarchy and Text ID**: depths can be viewed in CSF-A, CSF-B, or composite (CCSF) depth scales
   - **Splice**: if a splice is available, only data that belong to the splice will be returned with CCSF depths.
5. **View Data:** Click on *View data* to see the data onscreen. Data may be displayed on multiple pages.
6. **Download Data:** Click on *Download tabular data* or *Download linked files* to save the data to your computer.

1. LOG-IN

To view data under moratorium, click on **Change login** and
log in using your expedition's username and password.
Login credentials can be obtained from the Expedition Project Managers.

Note that no login is required to view data on the ship.

> Please login with your username and password.
>
> Enter account name
> [   ]
>
> Enter password
> [   ]
>
> CANCEL   LOGIN
> Login   to User Application
>
> Login is only necessary to view data in moratorium.

2. SELECT REPORT

To select a LIMS report, click **+** next to a category under **Select Report** to open the drop-down list. The types of reports available are listed below, along with the primary information included in each report.

SUMMARIES

Summary reports give primary operations and anlyses information.

> **- Summaries**
> Hole Summary
> Hole Summary List
> Core Summary
> Section Summary
> **+ Drilling Reports**
> Analysis Counts

- **Hole Summary**: operations data on a per-hole basis
- **Hole Summary List**: hole location and coring and drilling summary data
- **Core Summary**: core-by-core advancement and recovery
- **Section Summary**: section depths, lengths, and samples taken
- **Drilling Reports**: reports with detailed drilling and operations information
  - **All cores drilling summary**
  - **APC cores drilling summary**
  - **HLAPC cores drilling summary**
  - **XCB cores drilling summary**
  - **RCB cores drilling summary**
  - **Hole drilling summary**
  - **Core type drilling summary**
- **Analysis counts**: numbers of analyses made by hole

SAMPLES AND CURATION

Curation and Samples reports include detailed curatorial information about samples.

- **Samples**: sample location, length and volume, sample type, test request code and request number, sample name, text identifier, and date logged
- **Piece Log**: piece number, bin length, and whole-round, archive- and working-half piece lengths
- **Curator reports**: reports with detailed curatorial information

DESCRIPTIVE INFORMATION

Descriptive information (DESC) reports include all descriptive information entered into LIMS about a core, section, or interval using DESClogik, including sedimentology, igneous petrology, structural geology, alteration, and micropaleontology data.

IMAGES

Image reports offer individual and bulk downloads of image files stored in the LIMS database.

- **Core Composite (COREPHOTO)**: links to composite core images of section images
- **Core Sections (LSIMG)**: links to cropped/uncropped digital section images
- **Whole-round Core Sections (WRLSC)**: links to digital whole-round section images (quarters taken at 0°, 90°, 180°, 270°) and core composites
- **Core Closeups (CLOSEUP)**: links to digital close-up images
- **Photomicrographs (MICROIMG)**: links to digital microscope images
- **Thin Sections (TSIMAGE)**: links to digital thin section images
- **Scanning Electron Microscope (SEM)**: links to digital microscope images

MAGNETISM

Magnetism reports summarize data run in the Paleomagnetism Laboratory, including natural remanent magnetization (NRM), anhysteretic remanent magnetization (ARM), and other magnetic treatments.

- **Magnetic Remanence (SRM section)**: inclination, declination, intensity, and magnetic moment after alternating-field demagnetization on section halves, run on the cryogenic magnetometer
- **Magnetic Remanence (SRM discrete)**: inclination, declination, intensity, and magnetic moment after alternating-field or thermal demagnetization or other treatment on discrete samples, run on the cryogenic magnetometer
- **Expanded SRM:** section + discrete data combined
- **Expanded SRM_QAQC:** for a few early IODP expeditions, some tray/background data were stored separately
- **Orientation:** azimuth and dip orientation data obtained from piston cores with IceField or FlexIT tools
- **Spinner:** inclination, declination, intensity, and magnetic moment after alternating-field or thermal demagnetization or other treatment on discrete samples, run on the spinner magnetometer

PHYSICAL PROPERTIES

Physical properties reports include standard and/or expanded reports
of the following types of data. Some reports (MAD and RSC) contain supplementary
reports.

- Gamma Ray Attenuation Bulk Density
- Magnetic Susceptibility, Pass Through
- Magnetic Susceptibility, Point or Contact
- Moisture and Density
- Natural Gamma Radiation
- P-wave Velocity, Logger
- P-wave Velocity, Caliper
- P-wave Velocity, Bayonet
- Reflectance Spectroscopy and Colorimetry
- RGB Channels
- Shear Strength, Automated Vane
- Shear Strength, Torvane
- Compressional Strength Penetrometer
- Downhole Temperature
- Thermal Conductivity
- Non-Contact Resistivity expanded format only)
- Formation Factor (expanded format only)

- Physical Properties
+ Gamma Ray Attenuation Bulk Density (GRA)
+ Magnetic Susceptibility Pass-through (MS)
+ Magnetic Susceptibility, Point or Contact System (MSP)
+ Moisture and Density (MAD)
+ Natural Gamma Radiation (NGR)
+ P-wave Velocity, Logger System (PWL)
+ P-wave Velocity, Caliper System (PWC)
+ P-wave Velocity, Bayonet System (PWB)
+ Reflectance Spectroscopy and Colorimetry (RSC)
+ RGB Channels (RGB)
+ Shear Strength Automated Vane (AVS)
+ Shear Strength Torvane (TOR)
+ Compressional Strength Penetrometer (PEN)
+ Downhole Temperature
+ Thermal Conductivity (TCON)
Expanded NCR
Expanded FORM_FACT

CHEMISTRY / MICROBIOLOGY

Chemistry data are compiled into manageable reports for interstitial water
geochemistry, inorganic and organic solids geochemistry, and safety monitoring.

- **Interstitial Water (IW)**: interstitial water analyses including major cations
  and anions, minor and trace elements, dissolved carbon, pH and alkalinity,
  salinity, and other dissolved species analyzed on a variety of instruments
  (includes expanded reports of data from ALKALINITY, DA, IC, ICPAES-LIQ,
  SALINITY, SPEC, and TITRA_MAN)
- **ICP-AES Solids**: major element oxides and minor elements run on sediment
  and rock samples on the inductively coupled plasma spectrophotometer (includes expanded reports of data from
  ICPAES-SOLIDS and LOI)
- **Carbonates**: organic geochemistry solid samples including carbon forms and elemental CHNS (includes expanded
  reports of data from CHNS, COUL, and TOC)
- **Source Rock Analysis (SRA)**: solid sample pyrolysis for safety monitoring of hydrocarbon maturity
- **Gas Elements**: headspace and void space gases for safety monitoring: C_1 through C_7 hydrocarbons and N_2, O_2, CO_2,
  and H_2S (includes expanded reports of data from GC3, NGAFID, and NGATCD)

- Chemistry / Microbiology
+ Interstitial Water (IW)
+ ICP-AES Solids
+ Carbonates
+ Source Rock Analysis (SRA)
+ Gas Elements
Expanded CELLCOUNT
Expanded DIC
Expanded DO
Expanded H2
Expanded PFT

X-RAY

The XRD report provides diffractogram information necessary to determine mineral
chemistry on solid samples.

- X-Ray
+ X-Ray Diffraction (XRD)
Expanded XRF

- **X-Ray Diffraction (XRD)**: links to PDF, raw, and instrument files for X-ray diffractograms that can be used for mineral identification in discrete sediment and rock samples.
- **X-Ray Fluorescence (XRF):** data obtained with a portable XRF instrument on discrete samples, powders, or core pieces (expanded format only)

STRATIGRAPHIC CORRELATION

Stratigraphic correlation reports provide affine tables and splice interval tables for expeditions where stratigraphic correlation was used to create composite depth scales from multiple holes.

- **List of Affine Tables**: list of all the splice interval tables available for each expedition. *Search by hierarchy.*
- **Affine Tables**: lists the core composite depth along with the cumulative and differential depth offsets and the growth factor. *Search by Alternate Depth Scale.*
- **List of Splice Interval Tables**: list of all the splice interval tables available for each expedition. *Search by hierarchy.*
- **Splice Interval Tables**: a series of splice intervals that represent the most complete stratigraphic section for a set of holes. A splice is created by depth shifting and correlating core data from one hole to another. *Search by splice.*

Note the different search methods used to access these data (see below for details).

3. SEARCH BY HIERARCHY

Narrow the data search by expedition, site, hole, core, core type, section, and/or section half to limit the number of results returned. In the expedition and site menus, several expeditions and/or sites can be selected. In the Core(s) field, several cores can be selected with dashes or commas (e.g., 1-3 or 2, 3, 4). In the Core type menu, several types of cores can be selected. More specific sample ranges will return results faster. If you are looking for data from a site cored on several expeditions, choose the site and leave the expedition value blank.

4. SEARCH BY SPLICE

For data reports, this option returns data only from intervals included in the specified splice. Data sets can be large depending on the type of report and the number of cores included in the splice. The Interval field corresponds to the splice intervals and can be used to limit the data search.

5. SEARCH BY TEXT ID

If the Text ID of a particular sample is known, such as a section, section half, or discrete sample, the data search can be limited to that sample by entering a single Text ID in the field provided.

6. USE FILTERS TO CONSTRAIN RESULTS

There are two types of filters that can be used to constrain the data output. (1) Filters that act on samples (left column below) can be used to constrain the data by sample type, analysis (test), scientist request, and date. (2) Filters that act on data (right column below) can be used to specify an alternate depth scale (CSF-B or CCSF), trim data from the disturbed

ends of core sections, separate whole-round data obtained on different instruments, extract core images that have been designated as "display" images in core descriptions, and download images acquired after a certain date.

7. VIEW AND DOWNLOAD DATA

VIEW DATA

To view the data output onscreen, click on **View data**. The size of the output can be changed by changing the number in the rows field, and you can page through multiple pages by using the next, previous, first page, and last page arrows provided.

The data presented in the output of "standard" reports are defined in **About this report** and are illustrated with examples. Each report may present the data from several combined analyses if those were run on the same sample (e.g., the IW report represents 7 analyses).

The data presented in the output of "expanded" reports represent what is in the database for individual analyses, with extended information included for each sample and experiment. Headers reflect the exact database components.

Downhole Temperature << < > >> Show up to 50 rows.

8 rows displayed for 4 tests of 4

Exp	Site	Hole	Core	Type	Depth CSF-A (m)	Depth CSF-B (m)	Equilibrium temperature (C°)	Analysis program	Analysis report	Results image	Contour image	Session file	Raw data	Timestamp (UTC)	Instrument	Instrument group	Text ID	Test No.	Comments
344	U1381	C	3	H	27.660	27.100	7.94	TP-Fit Version 1	20157961	20157931	20157921	20157971	20156561	2012-10-30 02:24	APCT_T	APCT-3	CORE4270261	39769931	
344	U1381	C	3	H	27.660	27.100				20157951	20157941			2012-10-30 02:24			CORE4270261	39769931	
344	U1381	C	5	H	46.620	46.100	12.86	TP-Fit Version 1	20158031	20158001	20157991	20158041	20156491	2012-10-30 02:25	APCT_T	APCT-3	CORE4271181	39769941	
344	U1381	C	5	H	46.620	46.100				20158021	20158011			2012-10-30 02:25			CORE4271181	39769941	
344	U1381	C	6	H	56.130	55.600	13.71	TP-Fit Version 1	20158101	20158071	20158061	20158111	20156421	2012-10-30 02:25	APCT_T	APCT-3	CORE4271751	39769951	
344	U1381	C	6	H	56.130	55.600				20158091	20158081			2012-10-30 02:25			CORE4271751	39769951	
344	U1381	C	7	H	65.660	65.100	16.16	TP-Fit Version 1	20158171	20158141	20158131	20158181	20158191	2012-10-30 02:25	APCT_T	APCT-3	CORE4272511	39769961	
344	U1381	C	7	H	65.660	65.100				20158161	20158151			2012-10-30 02:25			CORE4272511	39769961	

Reported on Wed May 13 2015 14:44:37 GMT-0500 (CDT)

DOWNLOAD DATA AND IMAGES

To download tabular data, click on **Download tabular data**. Depending on the type of report, the user will be asked to save (1) a CSV file or (2) a "download.jnlp" Java file to your hard drive. To obtain data via the Java file, the user has to run the Java file, and then specify where on their hard drive they want to save the data. This makes it possible to download large data sets without occupying someone's browser. It also makes it possible to conduct several searches and downloads at the same time.
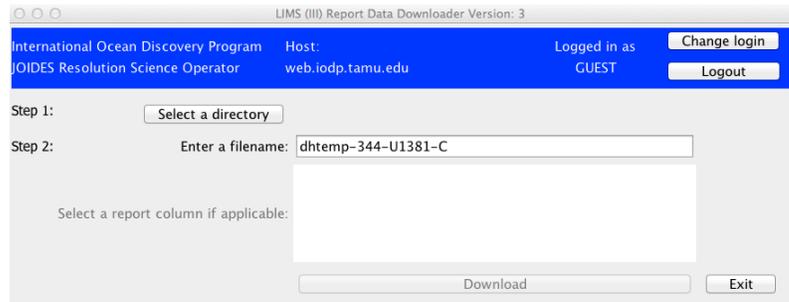
To download a few individual linked files such as images or raw data files, the user can click on the blue links on the screen (see image on previous page).

To do a batch download of tens or hundreds of files, click on **Download linked files** and save the "download.jnlp" Java file on your hard drive. In addition to specifying where on your hard drive you want to save the data, you also need to select which column of linked files you want to download. Only one type of files can be downloaded at a time.
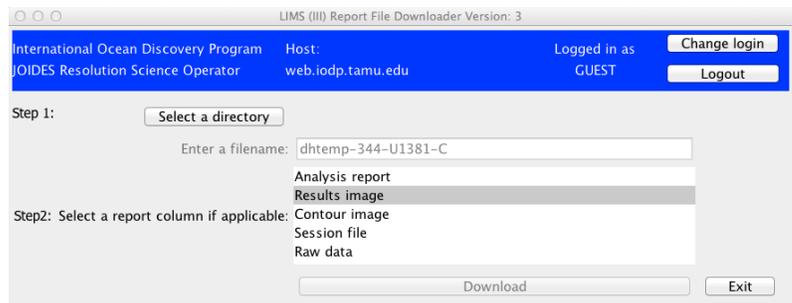
Tips for running Java:
(1) If your computer does not recognize the Java file format, you can right-click on download.jnlp and then select "Open with" and choose Java.
(2) If your Mac's permissions are set to not allow apps from third-party developers, you need to access your security settings (Preferences > Security & Privacy) and under "Allow apps downloaded from" select "Anywhere." You will need to repeat this step every time you update your OS.

SHARE DATA

LORE has one additional feature that makes it easy to share data among researchers. When a search is made, all pertinent parameters are saved in the browser's URL (e.g., highlighted terms). So users can email URLs to collaborators and have them view or download the same data with little effort. If the data are under moratorium protection, the second user has to log in first. For example, GRA data for Hole 344-U1381C can be viewed by pasting the following URL in a browser:
http://web.iodp.tamu.edu/LORE/?reportName=gra&appl=LORE&action=show&filters=[%22x_expedition%20in%20%28%27344%27%29%22,%22x_site%20in%20%28%27U1381%27%29%22,%22x_hole%20in%20%28%27C%27%29%22]&postretrieve={%22scale_id%22:%2211331%22}