Geo-Seas

Pan-European infrastructure for management of marine and ocean geological and geophysical data

D10.4A Porcupine borehole viewer for Geo-Seas: User guide

Organisation name of lead contractor for this work package: EU-Consult

Date due: May 2012

Date submitted: 1 May 2012

Project acronym: Geo-Seas

Project full title: Pan-European infrastructure for management of marine and ocean geological and geophysical data

Grant Agreement Number: 238952

Start date of project: 1st May 2009

Co-ordinator: Helen Glaves

British Geological Survey
NATURAL ENVIRONMENT RESEARCH COUNCIL

e-infrastructure

Deliverable number	Short Title
10.4A	Geo-Seas Porcupine borehole viewer
Long Title	
Porcupine borehole viewer for Geo-Seas: User guide	
Short Description	
A user guide for the Porcupine borehole viewer developed for use by the Geo-Seas project in collaboration with the British Geological Survey	
Keywords	
Geo-Seas, borehole viewer, Porcupine	
Authors / Organisation(s)	**Editor / Organisation**
Helen Glaves (BGS)	Peter Miles (Geo-Seas Advisory Board)
File name	
D10.4_GS_WP10_PorcupineManual_6.docx	
Deliverable due date	**Deliverable submission date**
Month 26	Month 30
Comments	

History				
Version	**Author(s)**	**Status**	**Date**	**Comments**
001	Claire Morely and the Porcupine Development Team	DRAFT	April 2011	
002	Helen Glaves	DRAFT	April 2011	Editing
003	Helen Glaves	FINAL	June 2011	Editing
004	Helen Glaves	FINAL	July 2013	Edits following review feedback
005	Peter Miles	FINAL	July 2013	Proof reading
006	Helen Glaves	FINAL	July 2013	Sign-off

Dissemination level		
PU	Public	**X**
CO	Confidential, for project partners and the European Commission only	

Executive Summary

Geological boreholes provide important knowledge about the seabed. Users therefore need to be able to visualise and interpret these data using a quick and reliable software tool that is easy to use.

Viewing services have previously been developed for producing borehole logs directly from databases but with no functionality for storage of the resultant image files. Many of the tools are also proprietary and therefore costly to acquire and use.

The objective of the Geo-Seas task 10.2 was to develop a borehole viewer that was freely available and which could be used with the ODV format data being delivered by the Geo-Seas portal.

In a partnership with the British Geological Survey the 'Porcupine ®' borehole log viewer which had previously been developed solely for use with terrestrial geological data, was modified for use with the Geo-Seas data formats. The Porcupine borehole log-viewer is available to download from the Geo-Seas website at http://www.geo-seas.eu/content/content.asp?menu=0040033_000000

Contents

The BGS Porcupine® Borehole Viewer for Geo-Seas ("Porcupine")

User Guide

Porcupine is a basic borehole log viewer designed for use with a Windows operating system that is compatible with ODV-style ASCII files containing interpreted borehole log data. Porcupine allows you to:

- Load interpreted borehole log data from a suitably formatted ODV-style ASCII (plain text) data file. Multiple ODV data files can be loaded allowing multiple logs to be viewed within a single session.
- Display the logs graphically in a document-style interface, separately or alongside other logs in the workspace.
- Scale the log graphic depth-wise.
- Develop and apply a custom colour and ornamentation scheme keyed by log interval lithology.
- Apply a log stepping scheme to give a graphical impression of relative properties such as grain size.
- Export log graphics as screen-resolution images.

Porcupine does not allow you to:

- Interact with file formats or databases other than basic ODV-style as plain text.
- Load or present anything other than interpreted borehole logs (for example wireline log curves cannot be loaded).
- Make edits to interval top, base or lithology interactively (this must be done in the source ODV data file before loading).
- Export high-resolution image or vector graphical files.

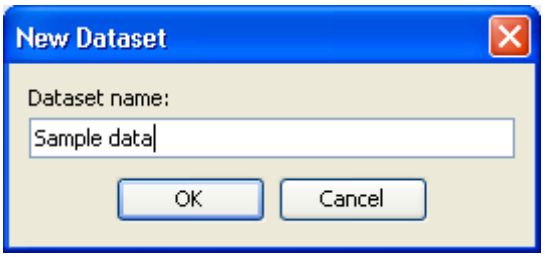
How to use Porcupine

First install the software by double-clicking on the Setup.exe. This gives the option to choose the installation directory and should only take a few moments.

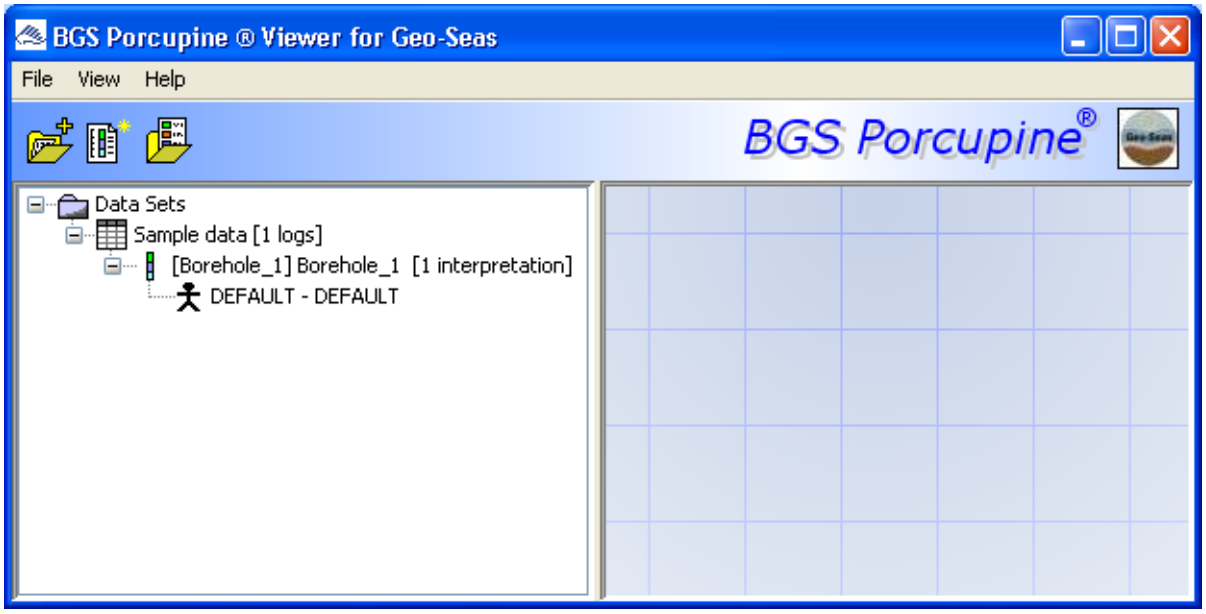
Start Porcupine using the desktop or program file shortcut created during installation.

Choose File > Open file (or use the open file button in the main toolbar ) and browse for an ODV-style text file containing interpreted borehole log data. You can find a sample of this format called ODV_sample.txt within the SampleData sub-folder of your main Porcupine installation folder (e.g. C:\Programs\BGS Porcupine Geo-Seas\SampleData).

When the file is loaded you will be prompted to give the loaded dataset a name. Enter a name and press OK.

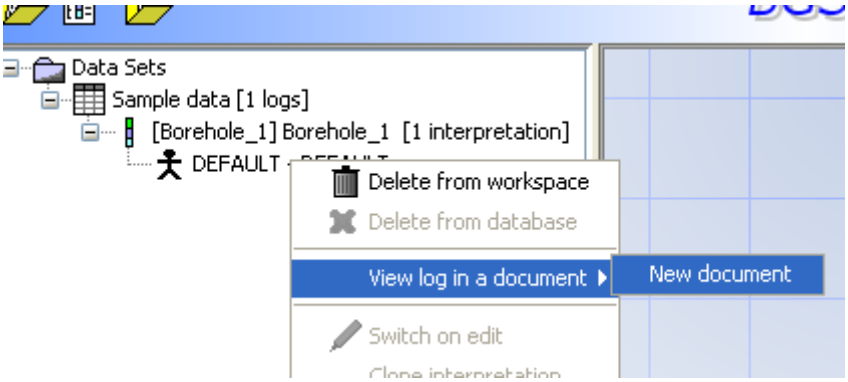


The data will be added to the left-side tree panel. If you load multiple datasets they will each have their own entry in this tree.

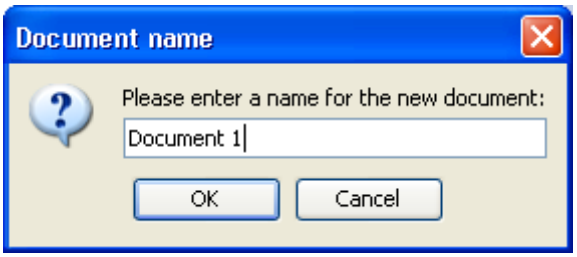


Porcupine uses the concept of a borehole “interpreter”. The real log data is therefore held at this level, so you must expand the dataset folders to find the interpreter entry (a person icon with the words “DEFAULT-DEFAULT”. The label on this entry uses a “DEFAULT” value in the Geo-Seas version of Porcupine because ODV files have no concept of the interpreter.

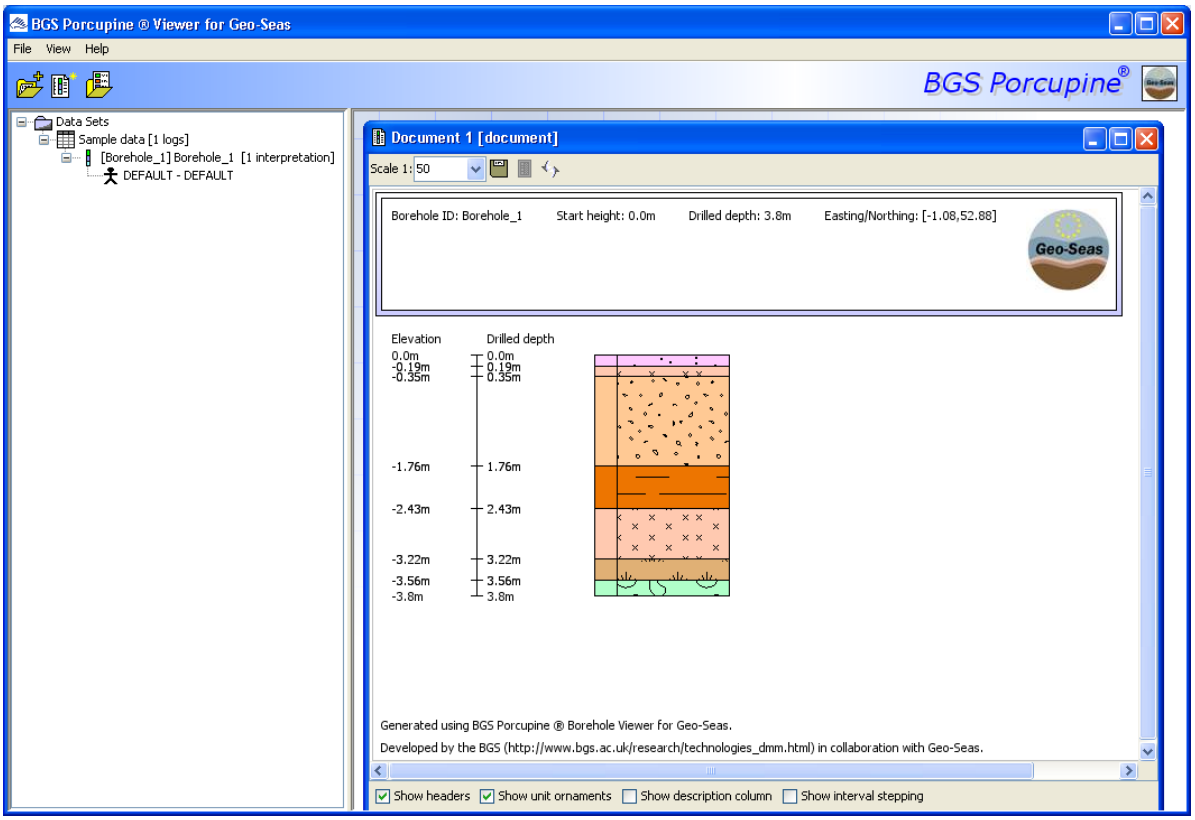
To view the log interpretation, right-click on the interpreter entry in the folder and choose ***View log in a document > New document.***



Enter a name for the new document.

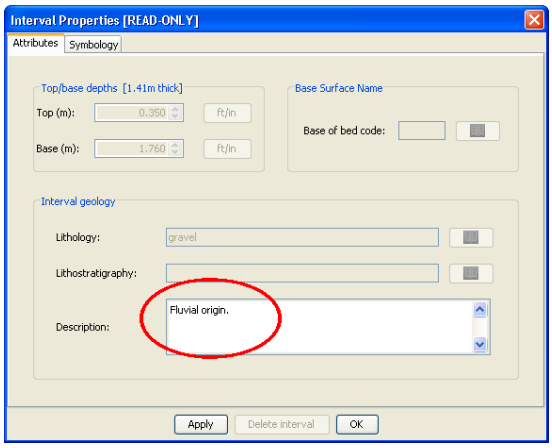


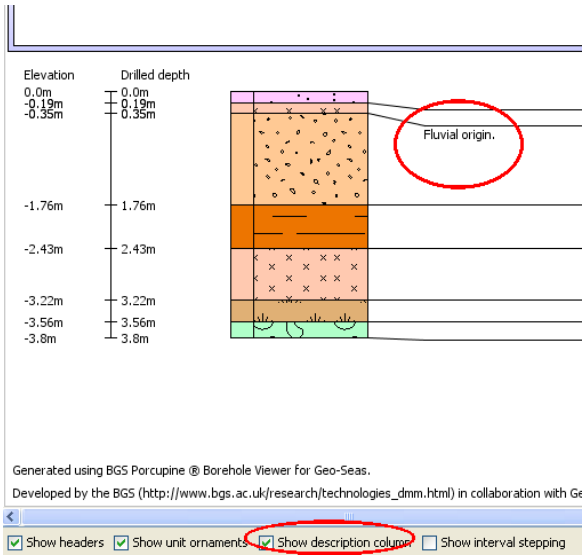
The log will be displayed in a document window in the main desktop panel on the right.



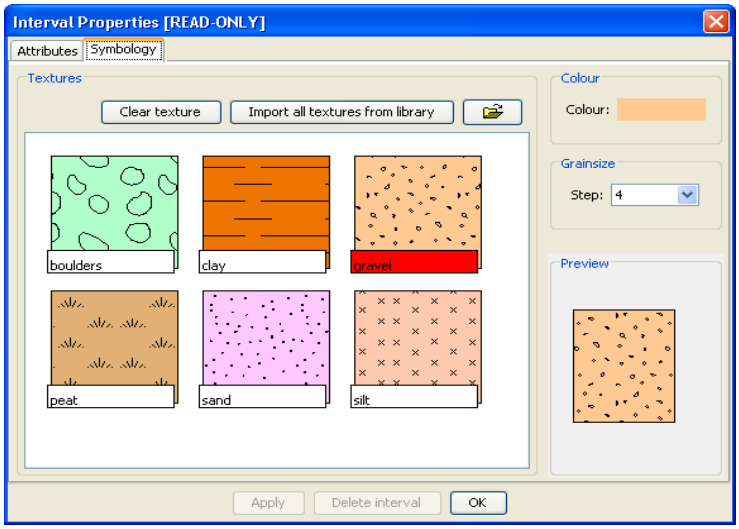
Editing the appearance of the log

To change the colours and ornamentation/texture for any interval in the log, double click it to open the interval properties dialog. In the first panel (“Attributes”) the only available field is the description field which can be edited within the session and shown in the log by clicking “Apply” and then checking on the “Show description column” option in the bottom of the document window.





Click on the “Symbology” panel to edit colours and ornaments. Use the “colour” button to change the colour, use the “grain size” selector to choose a relative stepping value for the interval. Choose a texture from the textures panel in the lower left (to bring all available textures into this window click on “Import all textures from library”.



Building a legend

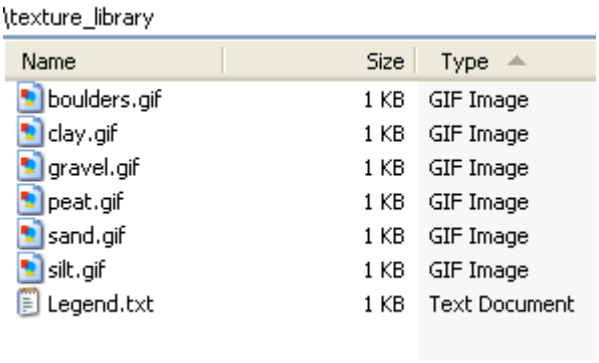
The available colours and ornaments (texture files) are controlled via the texture_library folder within the main BGS Porcupine installation folder (e.g. C:\Programs\BGS Porcupine Geo-Seas\texture_library). Within this folder is a file called Legend.txt – each row in this file contains a colour, texture and stepping value for a single lithology code in the following format:

Lithology	*Red value*	*Green value*	*Blue value*	*Image file*	*Step value*
peat	224	176	117	peat.gif	1
sand	255	201	255	sand.gif	3

The file requires no header. Red, green, blue values should be in the range 0-255 The image file is the name of a GIF file (these should have a white background). The step value should be in the range 1-5. An example file is contained in the SampleData folder, with the following format:

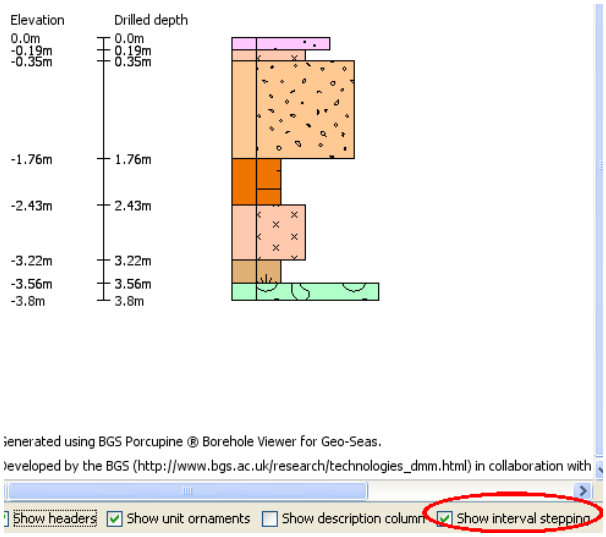
```
peat    224    176    117    peat.gif     1
clay    237    117    0      clay.gif     1
silt    255    201    176    silt.gif     2
sand    255    201    255    sand.gif     3
gravel         255    201    148    gravel.gif   4
boulders       176    255    201    boulders.gif       5
```

The image files should be placed in the texture_library folder alongside the Legend.txt file.



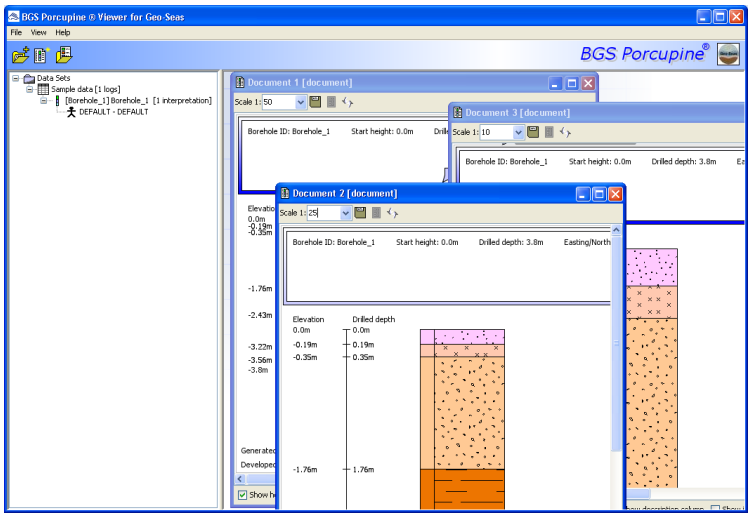
Applying log stepping

The log stepping values are taken from the last column in the Legend.txt file and can be applied to the log using the check option in the lower-right of the document window.



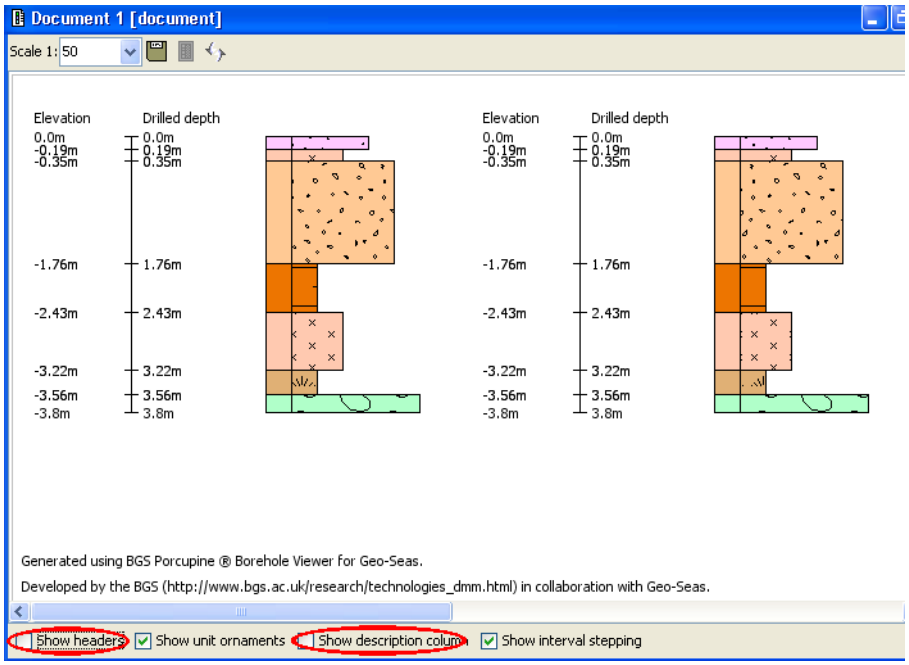
Working with documents

Multiple documents can be created in the desktop panel by using the ***Right-click on log entry > View log in a document > New document*** option, or by clicking on the create new document button the top toolbar  .

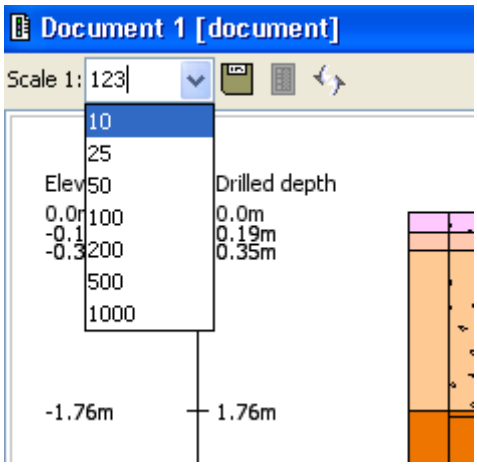


If a document window is closed it can be re-opened via the ***View > Documents*** menu.

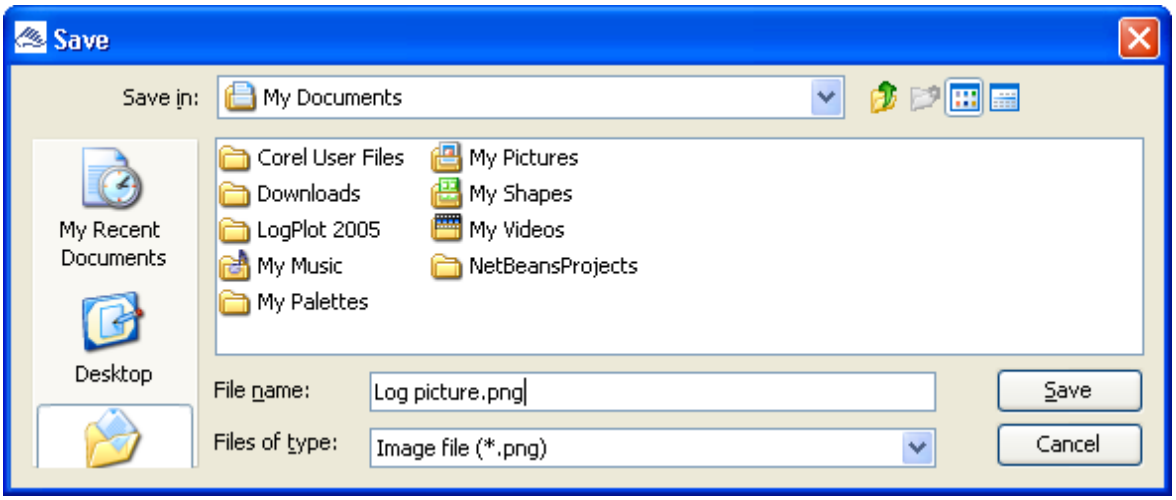
Multiple logs can be added to a single document by using the ***Right-click on log entry > View log in a document > ["Document name"]*** option. To see the logs closer together un-check the "show headers" and the "show description column" options in the lower left of the document window.



The scale of the log can be changed using the pull-down list in the top-right of the document window. This list has a set of preset values, but other numeric values can also be typed in and applied by hitting the Enter key.



An image of the document can be saved out to a PNG format image file (a format similar to a JPEG and recognised by most software) by pressing the “Save” button to the right of the log scale pull-down and specifying a filename to save out to.



Annex A. Terminology

Term	Definition
GIF	GIF images are low resolution files suitable for viewing on web pages being best for images of simple shapes.
Lithology	A description of the physical characteristics of a rock, in this case visible as a core sample.
ODV	Ocean Data View ASCII output format used to handle profile, time series and trajectory data.
PNG	A raster graphics file format that supports lossless data compression. PNG was created as an improved, non-patented replacement for GIF.