dbSEABED Output Formats

db9 Definitions Document

Chris Jenkins

(chris.jenkins@colorado.edu)

INSTAAR, University of Colorado

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General statements

System Concept

dbSEABED is an Information Processing System, using data storage arrangements akin to Markup Languages and XML. It is not a Relational Database (RDB) or Geographic Information System (GIS), though it generates orthodox RDB and GIS products.

The processing forms a stream with branches (Fig. 1) with more advanced and specialized products being built further along. The most specialized and recent forms of output - which will also not be detailed here - are for Google Earth, VRML CoreNavigator, and Rockware.

Output data format

dbSEABED outputs many data products, some specific to analysis and visualization software programs.

The basic output however is a set of tables which can be imported into practically any GIS, Relational Database, Spreadsheet or Maths application. Thosee files are comma delimited ASCII with Intel ('PC') bit arangement.

The data are classified into “positioning”, “housekeeping”, and “attributes”. Positioning gives information on the location, time and circumstance of observations. The housekeeping gives structure, operation and useability to the data for users. The attributes (otherwise called “parameters”) give the character, description and properties of the seafloor.

Field arrangement

A header identifying the fields (columns) occupies the first line of each table. All Header entries are in quotes ("").All freeform string data are also enclosed in quotes (""), but some codes that are used in databasing are not. The data in each column is the same type for all samples.

For numerics -99 is the usual ‘Null’ or 'No Data' value; for strings it is "-". An exception is made for Latitudes and Longitudes; where 'Null' is -999.

It is important to understand why the data are presented the way they are. Tables have been chosen over XML and distributed normalized database tables because the users of dbSEABED are familiar and comfortable with GIS tabled data and spreadsheets. We want to optimize the usefulness of

dbSEABED and technical finesse comes second.

Nulls

A very important driver of design is the fact that so many fields are Null, that there are so many possible attributes to describe sediments with, and standardization is minimal in the community for attributes. Therefore, the table structure as a whole is partly normalized, a sample may be represented in some tables, not others, depending on its outputs.

Arrangements for nulls and marking all string data with quotes, were driven by irregular behaviours of some databases where data in a column was not universally marked the same way (dBase and MS Access particularly).

Top 20 Attributes

The Primary Table structure presents the essential navigational, operational, and descriptive data in a highly integrated and fairly disciplined way, again with an emphasis on useability. The same 'Top-20' of attributes is given for the extracted, parsed, and on-calculated outputs so they can be mapped alongside each other, and analysed. They are put to separate files because they have different reliabilities and users may wish to judge for themselves which to use.

There is an argument that using all 3 reduces the biggest uncertainty in seabed mapping – spatial gaps between sample stations, and so that doing so produces the best final reliability.

Sample Absences / Data Filtering

Many samples in the raw data collection fail to appear in outputs because of quality issues, the current state of parseability, or that they have data which is not represented in the 'top-20' parameters.

For those samples refer to the raw data. In seabed cores, samples within the core may fail to appear even though their neighbours do. This is for the same reasons. The dropping-out can be awkward, but is necessary. Over time, it is cured as datasets are better quality-controlled. Where total representation of inputs is required in outputs the original data must be revised, lifted in quality, and reprocessed.

Overview

Column Groupings

The output parameters span these themes:

GROUP	EXPLANATION
Coordinates / Location	Extracted Data (no significant alteration of input data), usually numeric or coded data
Data Organization	Housekeeping, metadata, description of sampling methods
Texture	Sediment fractions, grainsizes and sorting
Classification	Coded assignment to a sediment or habitat class
Composition	The chemistry or mineralogy
PhysicalProperties	Geotechnical, geoacoustic or physical state

Relational Foreign Keys

All records in all the files are relationally keyed using sequential numeric indexes for (i) the dataset, (ii) the site, and (iii) the sample. These indexes will change with a new run, they are not stable. This has to be the case because of edits and improvements to the input datasets, processing software, and dictionaries.

Therefore, when a project is being constructed for publication, the whole project needs to be constructed starting with the processing of the Data Resource Files.

Filename Formats

Output filenames are named "***_XXX.txt" where *** is a prefix set by the operator to denote a study region, for example "SYD" for Sydney, "CAL" for California. XXX is the type of table and tells their derivation and function.

Filenames tend to be put as upper case, to prepare for the fact that some FTP applications change filenames to upper on transfer to UNIX web sites, where filename case is important.

Catalogue of Output Files

The table types and names are as follows.

XXX	STAGE 1 OUTPUTS
***_EXT	Extracted Data (no significant alteration of input data), usually numeric or coded data and usually based on an instrumental analyses (probe or laboratory) or calibrated observation.

***_PRS	Parsed data, from word-based descripive inputs. This data is less precise than EXT, but includes indispensible extra information on outsized elements, the biota, structures, odours, consolidations, etc.
***_CLC	On-Calculated, Estimated, Modelled data based on EXT or PRS outputs. Estabilished theoretical or empirical functions are used.
***_SRC	Information about the sources of the data, data entry methods, releasability, and its extent
***_CMP	Components and their abundances, actually also features and their intensities of development. It lists the Fuzzy Memberships (as percent) of many important features and components of the seabed, notably the mineralogy and skeletonized biota.
***_FAC	Facies classification interms of components and features.
(***_DGN)	(A diagnostics file reporting issues found during processing. Comma delimited format suitable for spreadsheet. Not consiidered further.)
	STAGE 2 OUTPUTS
***_ONE	The EXT, PRS and CLC outputs are telescoped, with precedence to eitherEXT or PRS (user selectable). This is the primary form of output table that is used in GIS mappings, in concert with CMP, FAC and SRC.
***_ALL	This is simply a sequential re-listing of the EXT, PRS and CLC file contents, under just one column-header record. The EXT, PRS, CLC outputs are concatenated, represented equally. This file is very large, rather unwieldy for GIS packages to handle over large regions.
	STAGE 3 OUTPUTS (Water Depths Added)
***_WWD	This is the ONE file, but with water depths added from a gridded bathymetry such as ETOPO2. Optionally only missig, or all water depths can be placed. *This file format is the most highly useable of all.* The water depths are especially necessary for any downstream stratigraphic work.
***_POS	Statistics on the closeness of fit between input sample water depths and the grid water depths, useful when investigating locational errors.
	STAGE 3 OUTPUTS (Projects)
***_IDC.txt, ***_ISO.txt, ***.WRL, ***_DEC.txt, ***/_RKW, ***/_VRML, ***/LOGS, ***/_TABLS, ***/_CRLYZR, ***/_ADDONS	Stratigraphic projects involving Corelyser, Rockware, GIS and VRML

***CEL.kml, ***/_CEL/*.txt, ***/_HTM/*.htm, ***/_BIN.htm, ***_SRC.htm	Virtual Globe projects of binned surficial sediment data

The Table Fields

The following tables define the individual output fields, their formats, units, uses, precautions, and known issues.

Source Table Fields

PARAMETER	UNITS, MEANING, RANGE	COMMENTS
DataSetKey	Unique sequential numeric key to SRC file	For relational linking
SourceCode	Reference name for Source DataSet	
DataOwner	Institution or Person who owns the data	
DataPerson	Person facilitating supply of data from Source	May include email address.
ReleaseSecur	Level of Confidentiality required on release of data	Other measures are also needed to maintain agreements, do not rely on this entry
SurveyDate	Date of sampling	May be incomplete, eg. “??-08-1995, or ??-Oct-197?”
ReportDate	Date on source of dataset (report, digital file, etc)	
NavAccuracy	Degrees	

SRC example: 1 ,"Reynolds++Tagru-Makassar","NGDC","Obtained via Phil Abbot","confidential","17-12-1980","??-??-1981"

Primary Table Fields

The following arrangement of fields is found in the EXT, PRS, CLC, ONE, ALL, and WWD files and in some HTML renditions of the same.

PARAMETER	UNITS, MEANING, RANGE	COMMENTS
Latitude	Degrees, WGS 84 Spheroid, 90o to -90o range	WGS 84 Spheroid is within 1m of the more recent International Earth Rotation Service Terrestrial Reference Frame (ITRF) (GDA for Australia)
Longitude	Degrees, WGS 84 Spheroid, -180o to 180o range	
WaterDepth	Metres	Not always tidally corrected
SampleTop	Metres below seabed surface	
SampleBase	Metres below seabed surface	If Nul and Top <> Nul then equals Top

SiteName	Survey or laboratory code for site	Not Unique
DataSetKey	Unique sequential numeric key to SRC file	For relational linking
SiteKey	Unique sequential numeric key to SRC file	For relational linking
SampleKey	Unique sequential numeric key to SRC file	For relational linking
Sampler	Type of sampling device (or inspection / probe)	In the terms of original input data.
DataTypes	For audit only	Indicates type of data contributing to output.
Gravel	Gravel grainsize fraction, percent	
Sand	Sand grainsize fraction, percent	
Mud	Mud grainsize fraction, percent	
Clay	Clay grainsize fraction, percent (also included in Mud)	Output for EXT only since can only be determined only by analysis
Grainsize	Phi characteristic grainsize	Consensus of mean and median grainsizes
Sorting	Phi grainsize dispersion	Standard deviation sorting only
SeafloorClass	Class (Facies) with the maximum Fuzzy Membership value > 30%	Output for PRS table only
ClassMbrshp	Fuzzy membership (%) of above Class (Facies)	Output for PRS table only
FolkCode	Hydrographic Bottom Type	Refer to Hydrographic Office (1991) for Codes or Coastguard Survey Codes the codings. The EXT output is an echo of naval HBT codes held in the database. The PRS output is an HBT rendition of the textures and grain compositions of all descriptions in the database. The CLC outputs are HBT renditions of the textural (R:G:S:S:C) and weed makeup of the sediments (eg, from numeric grainsize analysis data).
RockMbrshp	Fuzzy membership (%) reflecting percent exposure	
VegetationMbrshp	Fuzzy membership (%) reflecting percent coverage	Includes seagrasses, kelp and other algae
Carbonate	Percent	Depending on analysis method may or may not include dolomite.

MunsellCode	Standard Alphanumeric coding of colour partitioned into Hue, Value and Chroma	Example “5YR 6/4”; refer to Geological Society of America (199?).
OrganicCarbon	Percent	Minimum value from descriptions (PRS tables) is 0.1%
ShearStrength	Log10 of undrained shear strength, in KiloPascals (kPa)	From a variety of instrumentation
Porosity	Percent	
P-WaveVelocity	Metres / second	Usually not corrected for P/T effects
BottomRoughness	In a coding that expresses the height and length of the bottom feature with greatest aspect ratio.	A coded output representing the V:H of the roughness element with greatest aspect ratio, values expressed as (rounded) integer log2 of V and H in cm. For example “4:6” represents 16cm height over length scale of 64cm. Powers <0 are set to zero (ie scales <1cm not considered). Horizontal lengths scales are normal to strike and are the length of expression of a feature, rather than wavelength of repetition. The outputs refer only to observed roughness; ephemeral roughness would need to be _odeled.
Critical Shear Stress	Log10 of Tau in kPa, being the Shear Stress required to initiate easily observable erosion and transport, whether by traction or suspension.	Taken from a compilation of published relationships ranging from large boulder to muds, through a range of grain shapes (eg. Shell).
Geologic Age	Millions of years	From the parsing of chronostratigraphic terms, and laboratory various age dating techniques.
PhaseSituation	A string entry that belongs to the Locational data section.	It describes any special circumstance of the sampling or analysis that would cause the result not to refer to the bulk geomaterials.

EXT Example: -2.48330, 117.60000, 40,-99,-99,"USNS Chauvanet 81-1", 1 , 2 , 2 ,1,"T ", 2, 91, 5, 2, +1.8, +2.0,"-",-99,"", 0,-99,-99,"",-99,-99,-99, -99, "2:3",-99,-99 PRS Example: -16.73700, 115.53500, 2189, 0.00, 62.70,"ODP 761", 3 , 11 , 280 ,1,"L ", 0, 23, 76,-99, +6.4,-99.0,"Pelagic", 77,"",-99,-99,100,"",-99,-99,-99, -99, "0:0",-99,-99 CLC Example: -35.08200, 109.09500, 5435,-99,-99,"Robert Conrad RC08 055", 6 , 836 , 1135 ,1,"PR:L",-99,-99,-99,-99, +4.8, +2.1,"",-99,"M.S",-99,-99,-99,"",-99,-99, 51,1693, "2:4",-1.5,0.00012,1..5
ONE Example: -33.17000,+151.60001,20,-99,-99,"1537",1 ,8 ,8 ,1,EEEEEEPPCExEEExCCxCC,0,100,0,0,+3.0,+1.0,"Terrigenous",82,"S",0,99,7,"5YR6/3",0,-99,42,1868,"2:3",-3.28 ,0.0023,2

Special Audit Format of ONE Tables

The "ONE" output tables are a telescoping of the EXT, PRS and CLC results (see below) into one table that takes the best quality data of each field, determined field-by-field. The output format is the same as for EXT, PRS and CLC tables except for field 11, which indexes the source of the

telescoped data as follows.

Field 11 performs an audit function: where does the data come from ? An entry like "EEEEEEPPCExEEExCCxC" tabulates the origins of the data using 'E' for extracted data, 'P' for parsed data, 'C' for calculated data and 'x' for no (null) data. It begins this at field 12 (gravel) and applies to 20 attribute fields.

Note that Field 11 in EXT, PRS and CLC tables performs the same audit function, but at a lower level in the processing of data.

Component/Feature Table Parameters

The CMP table outputs Fuzzy Membership values (%) for each denoted component or feature flagged for inclusion in the project setup file. The list can differ between projects, for instance between Australia (biogenic) and the USA (terrigenous).

PARAMETER	UNITS, MEANING, RANGE	COMMENTS
Latitude	Degrees, WGS 84 Spheroid, 90o to 90o range	WGS 84 Spheroid is within 1m of the more recent International Earth Rotation Service Terrestrial Reference Frame (ITRF) (GDA for Australia)
Longitude	Degrees, WGS 84 Spheroid, -180o to 180o range	
WaterDepth	Metres	Not always tidally corrected
SampleTop	Metres below seabed surface	
SampleBase	Metres below seabed surface	If Nul and Top <> Nul then equals Top
DataSetKey	Unique sequential numeric key to SRC file	For relational linking
SiteKey	Unique sequential numeric key to SRC file	For relational linking
SampleKey	Unique sequential numeric key to SRC file	For relational linking
RecordType	For audit only	Indicates data status: 1-3 samples, 8 error, 4 time series, etc.

DataTypes	For audit only	Indicates type of data contributing to output.

Repeated for each component / feature

Component Abundance or Feature Intensity	Fuzzy Membership (as %)	The component or feature must be a major synonym in the dbSEABED dictionary (see list of components below).

CMP Example: -16.14500,110.29900, 5702, 46.35, 47.55, 2 , 5 , 98 ,3,"P ",,, 1,,,,,,,,, 0,,,,,,,,,,, 26,,,, 72,,,,,,,,,,,,,,,,,,,,,,,,, ,,,,,,,,,,,,,,,,

The components and features currently output (November 2000 auSEABED settings) are as follows, with abbreviations and details.

In the table header, and also here features are marked with a "_F" postscript on the feature name. Their quantities are intensities, that is, they are not necessarily normalized to 100% and are highly relative and qualitative values.

Abbreviation - Details	Abbreviation - Details
fld - feldspar	spng - sponges
qtz - quartz	pectn - pectens
sulf - sulfide	clst - clasts
octcor - octocorals	sil_spic - siliceous spicules
maf - mafics	gstrpd - gastropods
dolmt - dolomite	rlct- - relict materials
metlif - metalliferous	umafic - ultramafics
frm - forams	brach - brachiopods
sftcrl - soft corals	shl - shells (mollusc & brachiopod)
klp - kelp	bryz - bryozoans
hvy_min - heavy minerals	burw – burrows
lrg_frm - large modern foraminifera (e.g. Marginopora)	crustac - crustaceans
wood - wood	baslt - basalt
crl - coral and octocoral material	bioturb – all bioturbation
crl_dbr - coral debris / material	shl_dbr - shell debris / material
orgcbn - organic carbon	ostr – ostracods
mica - mica	gls - glass
bfrm - benthic forams	brncl – barnacles
claymin - mineral clay	vol – volcanics
ool - ooliths and ooids	d alg - algae (hard)

plnk_frm - planktic forams
sol_crl - solitary corals
nan - nannofossils (coccoliths)
silca – hydrous silica
biv - bivalves
ploid – peloids
ptr – pteropods
oyst – oysters
lmp - lumps
gyps - gypsum
cal_nod - calcareous nodules
zeol - zeolites
diat - diatoms
pinna - Pinna (razor clams)
glauc - glauconite
rad - radiolaria
rck_frg - rock fragments
crinod - crinoids
borng - borings
pumc -pumice
trail - trails
trrg - terrigenous
halmda - Halimeda
ophiurd - ophiuroids
fces – faeces
rhodl - rhodoliths
echnd – echinoids
phspht - phosphate
crnalg - coralline algae
weed - 'weed'
fe_nod - ferruginous nodules
srpul - serpulids
seagrs - seagrass
coal - coal

Facies Table Parameters

The FAC table outputs Fuzzy Membership values for each denominated seabed class (facies) for each sample where word-based descriptions are sufficient to support the analysis. The facies are denoted in the setup table "db8_fac.txt" and can be set differently between projects, for instance between Australia (biogenic) and the USA (terrigenous).

PARAMETER	UNITS, MEANING, RANGE	COMMENTS
Latitude	Degrees, WGS 84 Spheroid, 90o to -90o range	WGS 84 Spheroid is within 1m of the more recent International Earth Rotation Service Terrestrial Reference Frame (ITRF) (GDA for Australia)
Longitude	Degrees, WGS 84 Spheroid, -180o to 180o range	
WaterDepth	Metres	Not always tidally corrected
SampleTop	Metres below seabed surface	
SampleBase	Metres below seabed surface	If Nul and Top <> Nul then equals Top
DataSetKey	Unique sequential numeric key to SRC file	For relational linking

SiteKey	Unique sequential numeric key to SRC file	For relational linking
SampleKey	Unique sequential numeric key to SRC file	For relational linking
RecordType	For audit only	Indicates data status: 1-3 samples, 8 error, 4 time series, etc.
DataTypes	For audit only	Indicates type of data contributing to output.
Facies	Fuzzy Membership (/ 1.0) for each type of seabed.	Repeated for each nominated facies as listed in "db8_fac.txt" setup file (see below).

FAC Example: -12.947 , 117.893 , 5667 , 97.67, 98.00, 2 , 6 , 169 ,,,,,,0.51,,,,,,0.04,0.08,0.09,,,,,,,,,

Facies Names currently output (November 2000 auSEABED settings) are: CarbMud CarbSand CalcCrust/Nods Oolite Peloid Terrigenous Volcanic 'Coral' 'Shell' CoralReef Sponge Bryozoan CalcPelag SilcPelag Pelagic Phosphate Glauc/Relict Seagrass Plants LargeFrm Rhodolith CorallnAlga Halimeda MnNodule Bioturbated

The defining Components / Features (Senior Synonyms) are: cal_mud mcrt ooz cal_ooz cal_snd skl_dbr limstn calcret carb_nod calcrst ool oolt ooltc ploid trrg hvy_min qtz fld maf vol baslt pumc maf tuff crl octcor srpul crl_dbr crlrf shl mlsc biv gstrpd scph brach crlrf lthmnn spng bryz ooz plnk_frm nan ptr cal_ooz sil_ooz rad silf diat ooz plnk_frm nan ptr rad cal_ooz phspht glauc rlctseagrs plnt weed seawd seagrs klp lrg_frm mrgnpra rhodl algl_nod lthmnn crnalg rhodl halmda mn_nod mn_crst mn_stnd mnoxd mn_mnod burw pit trail fces

Subbottom and Stratigraphic Files

General

dbSEABED is a 2.5D data system, meaning that data is located geographically (latitude, longitude, WGS84 datums) then with an offset from the seafloor. Water depths are positive.

Significantly, too the atomic level in the data is the sample, so that cores etc are considered only as aggregations / traverses of samples. In cores however, the traverse of samples has a time-stratigraphic implication and also an implication of accessibility for resource extraction.

Following this, stratigraphic structures are compiled in dbSEABED after the processing of the sample data, and are assembled by recognizing sample sequences that consititute a core (same location, site name, site number, etc). In practice the software also relies on the samples lying in one group in tables such as WWD. The WWD file is the primary source of data for stratigraphic constructions.

dbSEABED currently makes an in-house stratigraphic construct (unnamed) and a RockWare Project Suite.

The SubBottom File Suite

Processing in the SubBottom mode, text project files of form ***_IDC, ***_ISO, and ***_DEC are formed, as well as the per-core files ***_COR, ***_HTM, ***_LOG in sub-directories.

The IDC file is an Index of Cores, used in subsequent software, foe example CoreNavigator and KML constructions. The parameters (fields) are as follows.

PARAMETER	UNITS, MEANING, RANGE	COMMENTS
CoreCode	Software-assigned code formed of Aannnnnn, where AA represents the dataset, and nnnnnn represents the sample.	This is necessary to resolve conflicts in core/site names assigned by different expeditions. It is also succinct for plots.
Latitude	(See earlier)	(See earlier)
Longitude	(See earlier)	(See earlier)
WaterDepth	(See earlier)	(See earlier)

MinSubDepth	Level in the subbottom of the shallowest sample in the input data.	There may have been shallower data in the original input Data Resource Files.
MaxSubDepth	Level in the subbottom of the deepest sample in the input data.	There may have been deeper data in the original input Data Resource Files.
SiteName	(See earlier)	(See earlier)
DataSetKey	Unique numeric for each processed dataset	Assigned in the early stages of data processing.
SiteKey	Unique numeric for each processed site	Assigned in the early stages of data processing.
SampleKey	Unique numeric for each processed sample	Assigned in the early stages of data processing.
Sampler	Coded name of sampling or observation device / method	(See earlier)
Penetrn	Device penetration recorded in the Data Resource Files	This remains null if null, even though a recovery or units may be recorded.
DataTypes	Types of data that were successfully processed to this stage	(See earlier)

CoreLogImage	URL to the location of an image.	The URL is usually to – db9_Data_**Documents_Images" where ** is au9, am, us, go, db etc. The format will be specified by the extension. The aspect, whether the core image is complete/partial, vertical/horizontal is unspecified at present. Note that out often just gives the filename of the URL and an editor is necessary later.

IDC Example: "og292497", 29.095,-90.60966, 0, 0, 3.36,"WI-89-9", 371, 292497, 218663,"VibroCore",-99 ,"PPPxPCxxxPPxxxxCCPCx","og292497.___"

The ISO file gives the results of isopach and related calculations, and is meant to be GIS-mappable. The parameters (fields) are as follows. See the paper by Jenkins, Kulp, Flocks (2006) for details.

PARAMETER	UNITS, MEANING, RANGE	COMMENTS
Latitude	(See earlier)	(See earlier)
Longitude	(See earlier)	(See earlier)
WaterDepth	(See earlier)	(See earlier)
CoreCode	(See earlier)	(See earlier)
CoreNAME	(See earlier)	(See earlier)
NumberObs	Number of Observations (ie samples plus EPC data variants) that support the calculations	A statistic supporting confidence estimates
TotThicknsObs	Total Thickness over which the observations are made	A statistic supporting confidence estimates
ThknsAvgCseF	Average Thickness (metres) of gvl+snd units.	This calculation is adjustable per project. Care is required in the documentation of those changes.
mOverburden	Overburden thickness over gvl+snd units, usually of mud.	This calculation is adjustable per project. Care is required in the documentation of those changes.
MaxCseF	In the gvl+snd units, the maximum percent of coarse fraction	This calculation is adjustable per project. Care is required in the documentation of those changes.
MinCseF	In the gvl+snd units, the minimum percent of coarse fraction	This calculation is adjustable per project. Care is required in the documentation of those changes.

ISO Example: 29.0715 ,-90.646 , 3 ,"og292538","CIP-86-4", 20 , 2 , 86 , .29 , 100 , 0 ,-99 ,-99

To support Web delivery of stratigraphic data, the attribute data per sample is written under each core. This is done for the COR and HTM filesets and in graphical formats for the LOGS written in

Scalable Vector Graphics format (SVG, a form of XML).

The COR format is used by some subsequent programs (CoreNavigator) and consists of a Leading table of just 2-lines (header then data) describing the core, and a main Trailing table describing the samples.

COR Leading Table:

PARAMETER	UNITS, MEANING, RANGE	COMMENTS
CoreCode	(See earlier)	(See earlier)
Latitude	(See earlier)	(See earlier)
Longitude	(See earlier)	(See earlier)
WaterDepth	(See earlier)	(See earlier)
MinSubDepth	(See earlier)	(See earlier)
MaxSubDepth	(See earlier)	(See earlier)
SiteName	(See earlier)	(See earlier)
DataSetKey	(See earlier)	(See earlier)
SiteKey	(See earlier)	(See earlier)
SampleKey	(See earlier)	(See earlier)
Sampler	(See earlier)	(See earlier)
Penetrn	(See earlier)	(See earlier)
DataTypes	(See earlier)	(See earlier)
CoreLogImage	(See earlier)	(See earlier)

COR Example: og292489, 29.09 ,-90.63817 , 0 , 0 , 2.06 ,”WI-89-1”, 371 , 292489 , 218565 ,”VibroCore”,-99 ,PPPxPCxxxPPxxxxCCPCx,”og292489.___”

The COR Trailing Table format is identical with the dbSEABED Primary Table format, and is usually based on ONE and WWD input and then has the special ONE audit coding.

Graphical Core Logs in SVG

Graphical corelogs are produced by the SubBottom processing program of dbSEABED. Until Sep 2006 the output was in Postscript, converted in batch to PDF or JPG. All these are specialized data formats and are not escribed further here. Refer to the programs and to the graphical files.

The layout of the graphical logs is a little unusual compared to other systems. Mostly that is driven by (a) the fact that at any one level in a core there may be conflicting values of a parameter (such as grainsize) depending on analysis method, sample scale, laboratory, presence of descriptive data, and stratigraphic segregations; (b) that cores are usually described with a mixture of broad lithologic

units and spot laboratory analyses. As a result all parameters are plotted pointwise. The paper by Jenkins, Kulp, Flocks (2006) describes the methods.

SVG files are unsuitable as a source or repository of data. The COR files are the best parallel data source.

HTML Renditions

The COR file format is also rendered in HTML for use with web-based projects including CoreNavigator and CoreKML. The Leading- TrailingTable format is kept and Parameter names refer to exactly the same parameters as in COR.

The RockWare Project Suite

Quite a number of file types are produced, in conformity with RockWare version ## requirements. There are also some setup files which need to be put in place from a template project folder ("BLANK").

To open the output project, first open Rockware then import the BoreHole .BH files.

Rockware files have a XML-subset format which will not be detailed here. Refer to the Application Manuals and examples. To best of knowledge at present, the Rockware data files are not useable by any other applications.

The file set is:

FILE TYPE	COMPUTED OR TEMPLATE FORMED	DETAILS AND COMMENTS
aannnnnn.BH	Computed	The data file for each core (borehole') Named with the dbSEABED software-assigned coreCDE
RW_PROJECT.TXT	Computed	Geographic extents of the project
RW_PROJ.TXT	Made by Rockware during project	Another form of geographic extents of the project, applying to grids produced during Rockware
Lithology.Tab	Template	Needed beforehand to compute the project
Stratigraphy.Tab	Template	Template / Pallete
Lith01.mod	Made by Rockware during project	Template / Pallete
Idata_Column_Titles.txt	Template	Template / Pallete
geochem_pfl.mod	Template	Template / Pallete
current_graphic.rkw	Made by Rockware during project	State file for project
Chem_Titles.txt	Template	Template / Pallete

Interpolation Files

Background

Gridded map products are a highly sought after product from dbSEABED but difficult to make reliably. The Competant Interpolator (Jenkins & Goff subm.) put in place a number of rational steps to achieving gridded maps that are environmentally reasonable.

But users of dbSEABED have complete freedom to use other solutions in this. Those independent methods will generate ASC, GRD and other gridded filetypes.

Ignoring the files that must be made before running the Interpolator, the following files are generated during the Interpolation.

PARAMETER	UNITS, MEANING, RANGE	COMMENTS
***_ITP_.ASC	Interpolated parameter, in the units of the parameter.	The parameter is one of the numeric fields in 12-29 in the Primary Table Format (above)
***_ITP_.TXT	Same as above, but in point form	
***_ITPB.ASC	The bathymetry grid congruent with interpolated outputs	
***_ITPU.ASC	The uncertainty values for the interpolated grid, in same units as that grid	

Google Earth Displays

General

KML encoded data displays have been released for the Gulf of Mexico and Australian regions. The data is binned, which means that multi-parameter data is organized in geographic units - in this case of 0.1 degrees latitude and longitude. There is no spatial interpolation. The code was written for Google Earth ver. 4.0 .

An article describing the displays has been published: Jenkins, C.J., Bone, Y., Collins, L., Griffiths, C. and Hamilton, L. 2008. The Australian Seabed in Virtual Globe. *Position Magazine, Oct-Nov. 2008*, p. 49-51. South Pacific Press, Australia.

On clicking a cell (bin) an initial bubble appears with these data items:

PARAMETER	UNITS, MEANING, RANGE	COMMENTS
CELL code	Geographically unique 0.1deg cell code	-
Lat Lon:	Latitude and Longitude (WGS 84) to 0.1 deg precision, for the cell centre.	-
Approximate Water Depth	Water depth of the bin centre, in metres.	-

Observation Types	Methods of observation including sampler types	-
Number of samples	Number of observations in the database	-
Sediment Codes	A concatenation of unique Folk Codes for the sediments observed in the bin	-
Rock Presence	The extent of rock exposure at the surface of the seabed, or presence by sectional area in the subsurface (%)	-

If the browing is continued through the link “Goto details of this cell”, an HTML file of “SUMMARY OF dbSEABED INTEGRATED DATA FOR THIS CELL” appears.

The data appearing there is essentially an extract from the data which is presented in EXT/PRS/CLC/ONE and WWD files. Refer to the format tables for details. A departure is the the Google Earth linked HTML listings provide statistical information on the range of values observed within each bin:

STATISTIC	**MEANING**
Value	Median value
Range	Observed range of values
Unit	The units of measurement
Observations	Number of observations
Data Origins	Whether the data is **E**XT, **P**RS or **C**LC-derived (see above) and how many of each were available.

Following on from the table is text describing the sources of the data by an abbreviation reference to a line in a SRC file listing (see above). For example ‘am9:52’ refers to dataset 52 (for this compiling run of dbSEABED) in the data collection ‘am9’ which covers the Americas. Other data collections include “eu9” for Europe, ‘au9’ for Australia, ‘go9’ for Global, ‘od9’ for IODP, ‘ds9’ for DSDP.

Appendix 1. Filetypes by program

File Type	Produced by	Used by
***_EXT.txt	_DPR*	_ONE*, _ALL* & GIS
***_PRS.txt	"	"
***_CLC.txt	"	"
***_SRC.txt	"	"
***_CMP.txt	"	"
***_FAC.txt	"	"
(***_DGN.txt)	"	Diagnostics only
***_ONE.txt	_ONE*	_BTY* & GIS
***_WWD.txt	_BTY*	_SUB* & GIS
***_POS.txt	"	Statistics only
***_IDC.txt	_SUB*	_VIZ*, GIS
***_ISO.txt	"	GIS
***_COR.txt	"	_VIZ*
***_XXX.htm	"	_VIZ, GooEar, CorNav
***_XXX.svg	"	_VIZ, GooEar, CorNav
***_XXX.wrl	_VIZ*	CorNav
***_COR.kml	"	GooEar
***_BIN.kml	_KML*	GooEar

Appendix 2. Processing Flow