

DSDP-ODP Geographic Information Systems Project Northwest South America

an Energy and Geoscience Institute Proposal
by M.P. Segall, Ph.D.

Proposal

The objective of this study is to gather and organize the exploration-relevant data and materials from 38 DSDP-ODP wells (see Table 1 and Figure 1) off northwestern South America in a GIS database, enabling sponsors to include it in their geological evaluations of the region.

The database design and products will include:

1. a combined sedimentologic and geochemical database
 - a. sedimentologic database will include age, depth, grain size, mineralogic, sonic velocity and environmental information
 - b. geochemical database will include, depth, TOC, HI, OI, S₁, S₂, S₃, and sonic velocity information
2. two display formats – online and desktop; and
3. hard-copy panels for each well with environmental and depositional interpretations and figures.

The desktop database allows the user to query multiple variables among cores at every depth. A specific query may direct the program to provide a list of all the wells and all the depths at which porosity is greater than x%, TOC is greater than x%, HI is greater than x%, and feldspar is less than x%. In this case, the ArcGIS™ program will respond with a location map of all the wells that fit the query criteria as well as a table with all the values for each well and depth that correspond to the query parameters.

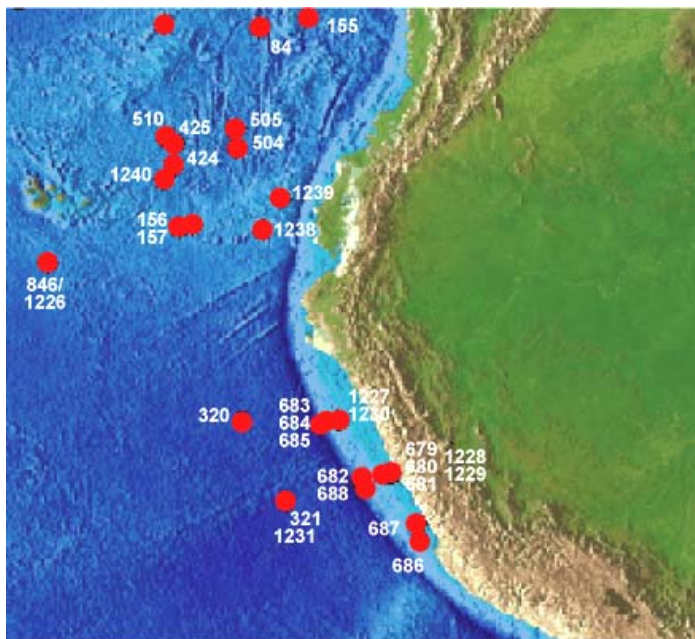


Figure 1 Map showing location of 38 wells included in project

Table 1. Wells included in the DSDP-ODP Geographic Information Systems

	Leg	Well	Latitude	Longitude	Year	Water Depth (m)	Maximum Depth (m)	Maximum Age
1	9	84	5.748	-82.888	1970	3096	254	Miocene
2	15	153	13.972	-72.435	1971	3932	770	late Cretaceous
3	15	154	11.085	-80.38	1971	3338	269.4	Tertiary
4	16	155	6.123	-81.043	1971	2752	528	Miocene
5	16	156	-1.68	-85.402	1971	2369	1.6	Pleistocene
6	16	157	-1.762	-85.903	1971	2591	434	Miocene
7	16	158	6.623	-85.237	1971	1953	3 15.6	Miocene
8	34	320	-9.007	-83.53	1974	4483	111.4	Miocene
9	34	321	-12.022	-81.903	1964	4817	131.1	Eocene
10	54	424	0.593	-86.13	1977	2685	33	Pleistocene
11	54	425	1.395	-86.07	1977	2850	110	Pleistocene
12	68	501	1.227	-83.735	1979	3457	126	Pliocene
13	69	504	1.227	-83.732	1979	3460	237	Miocene
14	69	505	1.913	-83.79	1979	3537	210	Pliocene
15	70	506	0.61	-86.1	1979	2710	37	Pleistocene
16	70	507	0.567	-86.09	1979	2692	33	Pleistocene
17	70	508	0.533	-86.1	1979	2783	35	Pleistocene
18	70	509	0.588	-86.132	1979	2677	32	Pleistocene
19	70	510	1.613	-86.41	1979	2781	133	Pliocene
20	112	679	-11.05	-78.265	1986	424	245	middle Miocene
21	112	680	-11.06	-78.078	1986	261	98	early Pliocene
22	112	681	-10.97	-77.958	1986	151	112	Miocene?
23	112	682	-11.26	-79.062	1986	3791	127	Eocene
24	112	683	-9.028	-80.407	1986	3076	218	middle Eocene
25	112	684	-8.993	-79.906	1986	427	73	middle Miocene
26	112	685	-9.113	-80.584	1986	5083	279	late Miocene
27	112	686	-13.48	-76.891	1986	444	3	unknown
28	112	687	-12.86	-76.99	1986	306	402	Pliocene
29	112	688	-11.53	-78.943	1986	3817	429	early Eocene
30	201	1226	-3.1	-90.8167	2002	3297	414	early Miocene
31	201	1227	-8.9833	-79.95	2002	428	101	late Miocene
32	201	1228	-11.0667	-78.0833	2002	262	126	Pliocene
33	201	1229	-10.9833	-77.95	2002	151	133	late Pliocene
34	201	1230	-9.1167	-80.5833	2002	5086	277.3	Miocene
35	201	1231	-12.0167	7 -81.9	2002	4813	120	late Eocene
36	202	1238	-1.8667	-82.7833	2002	2202	410	Miocene
37	202	1239	-0.6667	-82.0833	2002	1415	515	Miocene
38	202	1240	0.0167	-86.4667	2002	2922	264	Miocene

Personnel Project Responsibility

- M.P. Segall PI -- environmental/depositional interpretations, graphic compilation, final report
- C. Kesler -- database management, ArcGIS[™] manipulation, links, web-design
- G. Nash -- database design
- Students -- data entry under supervision

Cost per sponsor: \$19,952 with a minimum of 2 sponsors required.

Timing: project will be completed within 6 weeks of contract signing

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