

# Antelope Web Technologies

*Antelope Users' Group Meeting  
February 27-28, 2007  
Trieste, Italy*

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Lindquist Consulting, Inc.*

# Antelope Interface for PHP

- “PHP Hypertext Preprocessor”
- A convenient web language, mixes with HTML
- **Finished!**
- Matches Perl interface
- PHP 5
- Full Object-oriented support for orb packets
- All database operations
- 2+ years of effort

# Antelope Interface for PHP

## ● Examples:

- Presented by Dr. Frank Vernon
- U.S. Array Network Facility
- Collaboration with Dr. Rob Newman

## ● This talk:

- Core tools

# PHP Interface

### Datascope

**Opening Databases**

ds\_dbopen dblockup dbmark  
dbfree dbtruncate dbtruncb  
ds\_dbclose dbdestroy dbdelete

**Manipulating Fields and Records**

dbaddv dbgetv dbputv  
dbadd\_remark dbget\_remark dbput  
dbadd dbget db2ini  
dbaddnull

**Forming Views**

dbsort dbjoin dbgroup  
dbsubset dbjoin dbungroup  
dbseparate dbjoin dbrooms  
dbsever dbbeta

**Misc. Datascope Functions**

dbquery dbinsert dbextfile  
dbrecs dbinvalid dbfind  
dbex\_eval dbstrtype dbmatches  
dbcomplete

**Instrument Response**

eval\_response dbresponse

**Handling Waveform Data**

trample trloadchan trtime2amp  
tramplebins trfilter tramp2time  
trdata trapply\_calb trampgate  
trdatbins trfree trramp  
trtrack\_data trendtime

**Parameter Files**

pfget pfrequire pfput  
pfzating pfcompile pfdel  
pfupdate pfget\_boolean pfwrite  
pffiles pf2ini

**Error Handling**

elog\_init elog\_log elog\_string  
elog\_clear elog\_notify elog\_debug  
elog\_mark elog\_complain elog\_callback  
elog\_flush elog\_alert  
elog\_die

**Time Conversion**

strdelta strlocaltime epoch2str  
strtime strlocaldate str2epoch  
str2time strlocaltime epoch  
strdate li\_epoch\_string now  
yearday

**Foreign Keys**

map\_autodm\_nersa autodm\_net  
map\_autodm\_chanaus autodm\_aux  
map\_seed\_netsta seed\_net  
map\_seed\_chanloc seed\_loc  
first\_db



### Orb

orbopen orbclose orbping  
orbselect orbreject  
split\_srcname pforbita

### Sysinfo

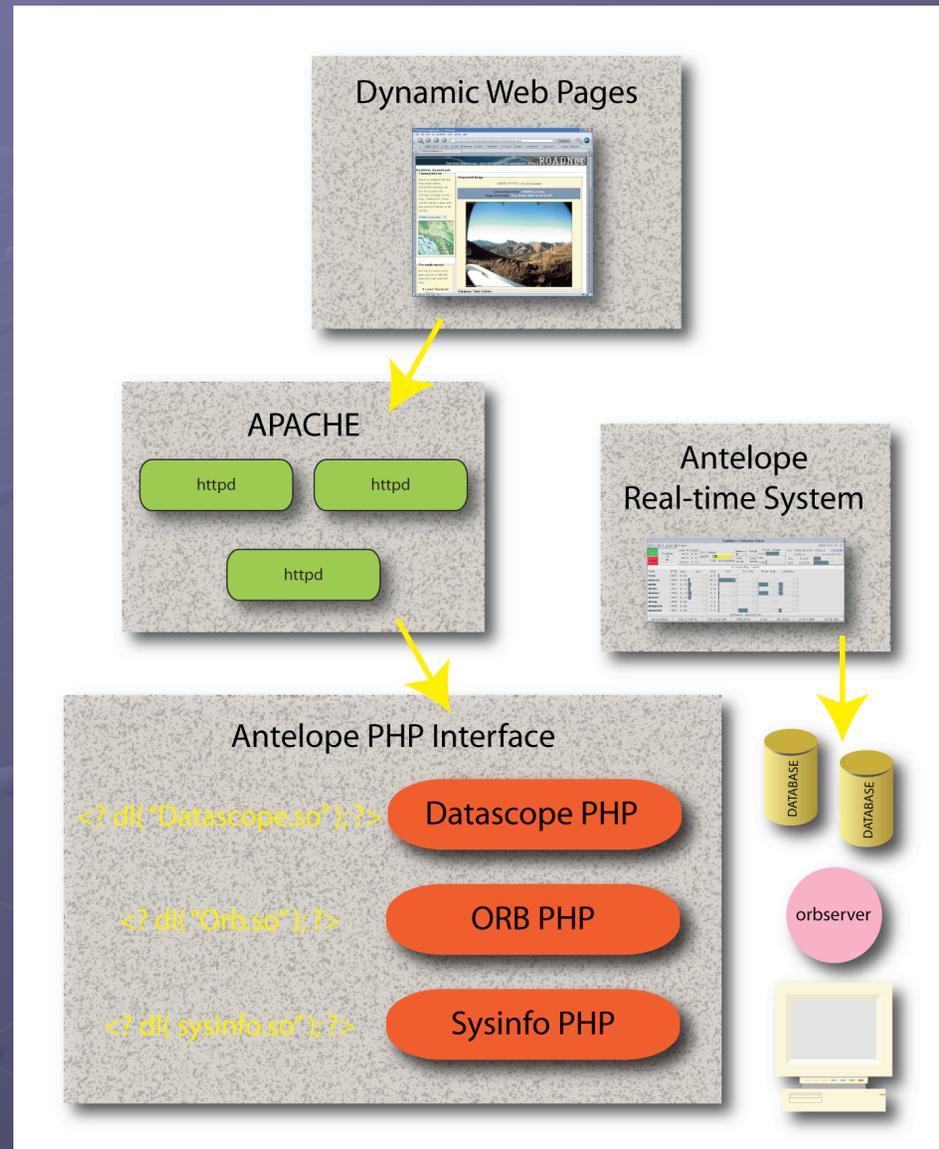
my\_ip pidexecname ip2name sysloading somem  
my\_os pidcwdline name2ip system statfs  
my\_hostname pidpid name2ip system statfs  
my\_hardware pid\_exists ip syscpu sysmounted  
pidinfo

# System Context: PHP Interface

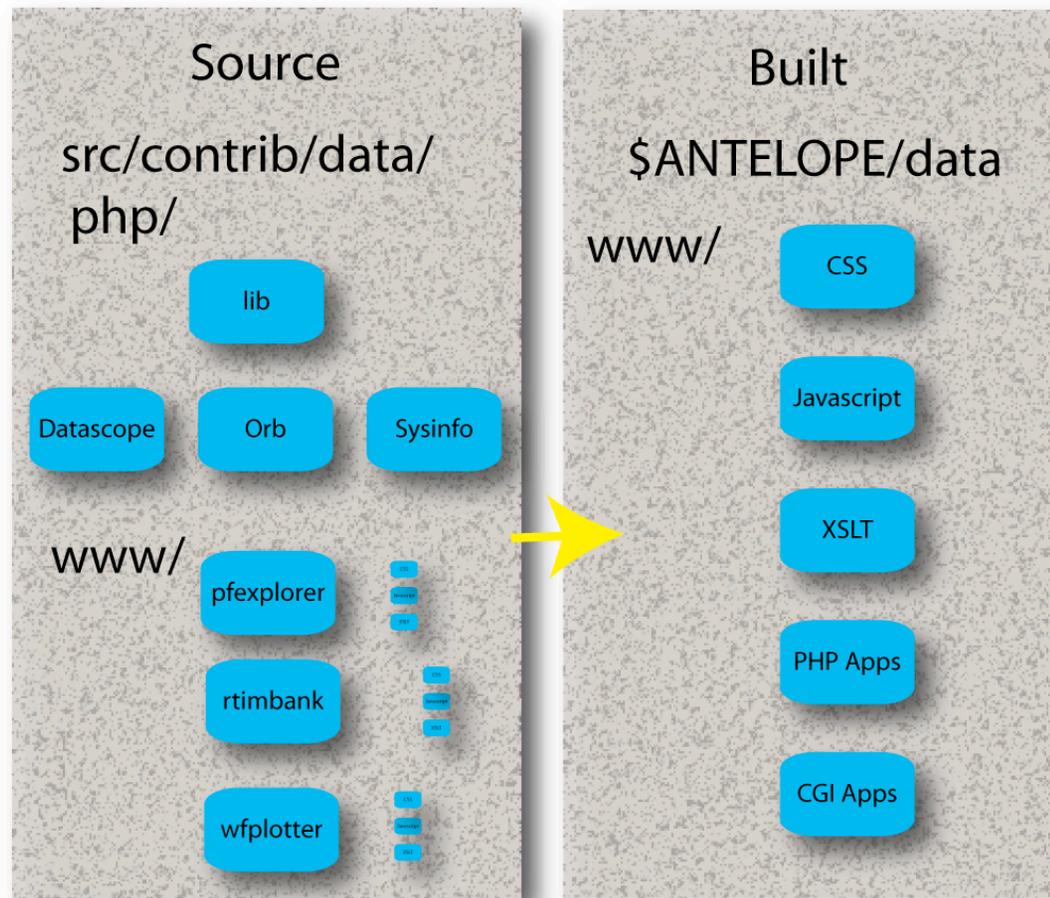
Dynamic Web Pages

Apache mod PHP

Dynamic Link Libraries

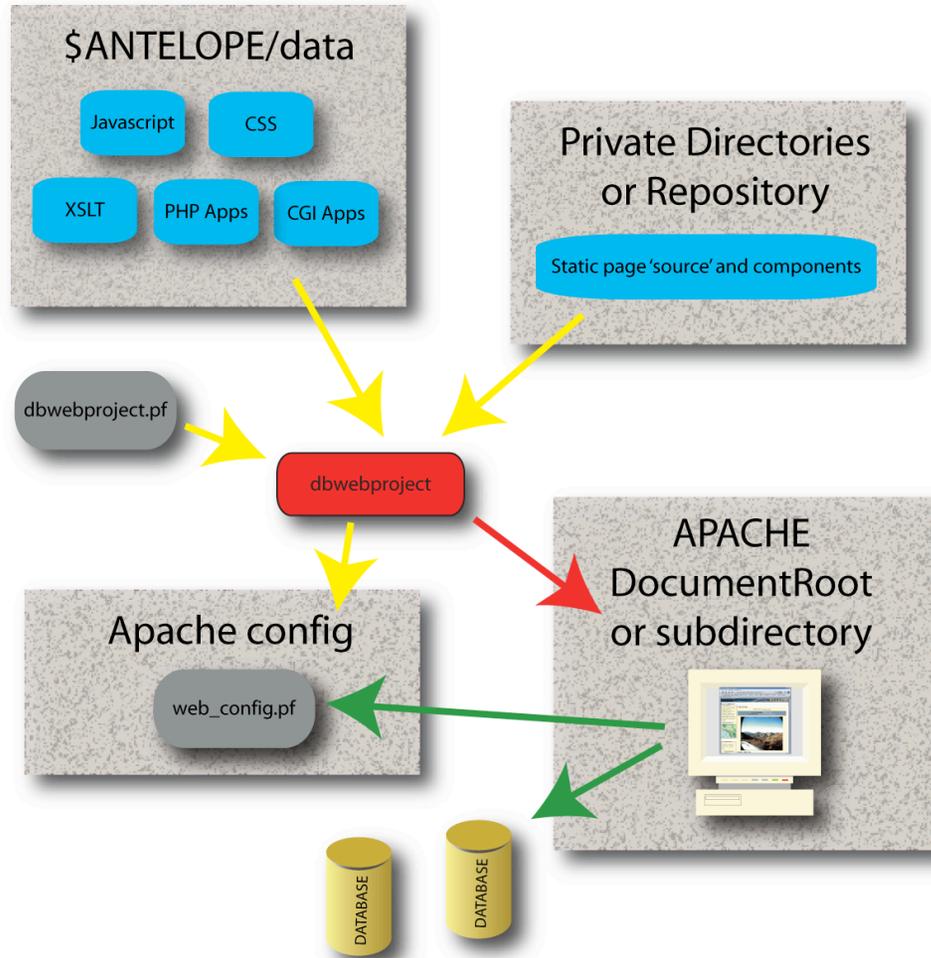


# PHP Compilation Architecture



# dbwebproject

Built



Installed

# Dbwebproject

- Reproducible web-page generation
- Configurable templates
- Parameter-file driven
- Integrated with Antelope software-generation architecture

# PHP Applications

- Webdlmon
- Real-time Image Bank
- Webdbe
- Stations.php
- Pfexplorer
- Webdbshow
- Weborbstat
- Wfplotter

# PHP Applications

- With David Slater's lead, U. Nevada Reno:
  - PHP Mobile applications
  - ShakeMap Mobile
- SSA 2007 presentation

# PHP Code Samples

- In contributed-code repository:
  - Examples\_datascopes\_php
  - Examples\_orb\_php
- \$ANTELOPE/example/php
- ( Partial list; also D. Slater, UNR)

# Clickable Station Maps

**Station table**

You can sort the station table entries by clicking on any of the column headings.

Definitions of the station table column headings can be found on our [Frequently Asked Questions \(FAQ\)](#) page.

Network	Station ID	Station Name	Latitude	Longitude	Elevation	Ondate
TA	<a href="#">109C</a>	Camp Elliot, Mirimar, CA, USA	32.89	-117.11	0.15	2004125
TA	<a href="#">A04A</a>	Lummi Island, Lummi Island, WA, USA	48.72	-122.71	0.02	2004263
CI	<a href="#">ADQ</a>	Adelanto	34.55	-117.43	0.91	2000222
CI	<a href="#">ARV</a>	Arvin	35.13	-118.83	0.26	2004191
CI	<a href="#">BBR</a>	Big Bear Solar Observatory	34.26	-116.92	2.07	2000252
CI	<a href="#">BC3</a>	Big Chuckawalla Mtns	33.66	-115.45	1.14	2002143
CI	<a href="#">BCC</a>	Bear Creek Country Club	33.58	-117.26	0.39	2001201
CI	<a href="#">BEL</a>	Belle Mtn	34.00	-116.00	1.39	2001074
CI	<a href="#">BFS</a>	Mt Baldy	34.24	-117.66	1.30	2001191
CI	<a href="#">CIA</a>	Catalina Island Airport	33.40	-118.41	0.47	1998253
BK	<a href="#">CMB</a>	Columbia College, Columbia, CA	38.03	-120.39	0.70	1986298
BK	<a href="#">CYS</a>	Carment Vineyards, Sonoma, CA	38.35	-122.46	0.30	1998126
CI	<a href="#">CWC</a>	Cottonwood Creek	36.44	-118.08	1.60	1995086
TA	<a href="#">D03A</a>	Wishkah Elem. School, Wishkah, WA, USA	47.12	-123.77	0.03	2004260
CI	<a href="#">DAN</a>	Danby	34.64	-115.38	0.43	2001059
CI	<a href="#">DEC</a>	Green Verdugo	34.25	-118.33	0.52	2000223

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# Station Details; Earthquakes at each station

Earthscope USArray ANF Website

**Stations > Station Details**

Site Information for Station

Network	CI - CalTech
Station ID	BBR
Station Name	Big Bear Solar Observatory
Latitude	34.26
Longitude	-116.92
Elevation	2.07
Ondate	2000252

Recent Events Recorded at Station BBR

You can see a list of earthquakes recorded at station BBR in the last seven days.

Instrument Response Functions Dynamic Plotting

Plot the instrument response functions dynamically for different channels for station

BHE Plot

[back to the list of current stations in the USArray](#)

[home](#) | [about](#) | [stations](#) | [earthquakes](#) | [special events](#) | [faq](#) | [goals](#) | [partners](#) | [timelines](#) | [srb docs](#) | [xml schemas](#)

Last updated: 11/27/04

W3C XHTML 1.0 W3C CSS W3C WCAG 508

Earthscope USArray ANF Website

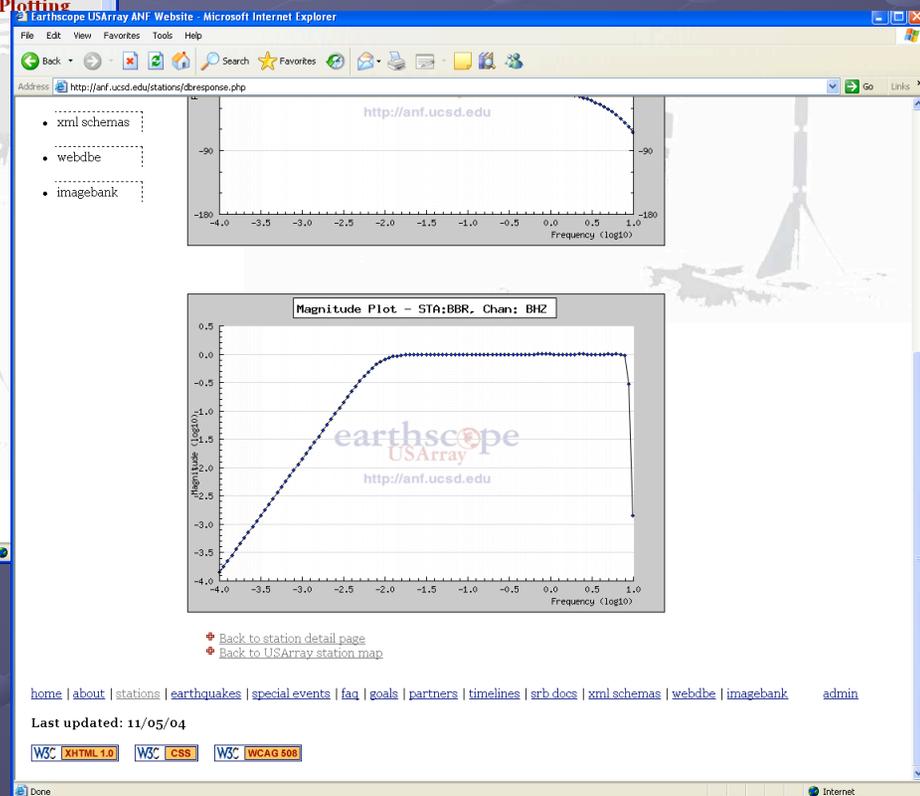
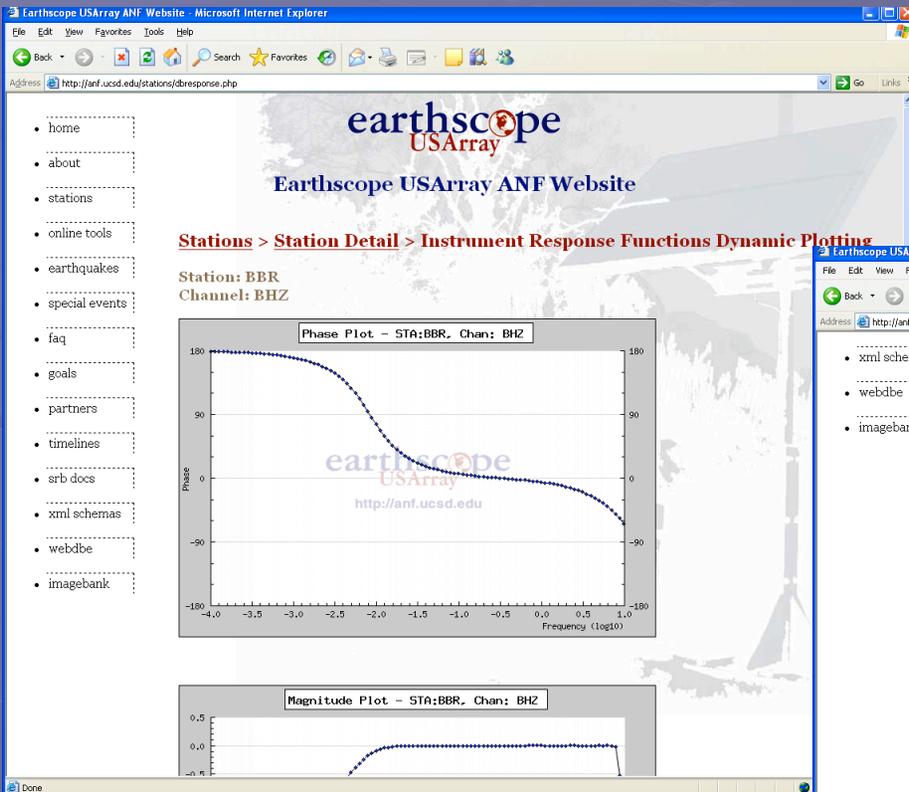
**Stations > Station Details > Recent Events Recorded at Station BBR**

Event Information for Station BBR

The table below shows all the events that have been recorded in the last seven days at station BBR, most recent first.

Earthquakes recorded at station BBR in the last seven days: 19									
Latitude	Longitude	Depth (km)	Local Time	Universal Time	iPhase	Event ID	Magnitude	Author	
31.773	-115.8644	8.1154	Friday, November 26, 2004 07:00:45 AM	2004-11-26 (330) 15:00:45 (UTC)	P	6156	3.38 ML	CalTech	
-3.634	135.477	35	Thursday, November 25, 2004 06:43:29 PM	2004-11-26 (330) 02:43:29 (UTC)	P	6150	null	CalTech	
45.663	10.643	15	Wednesday, November 24, 2004 03:12:27 PM	2004-11-24 (328) 23:12:27 (UTC)	P	6147	5.3 Mb	CalTech	
35.398	-118.6434	9.1197	Wednesday, November 24, 2004 06:32:08 AM	2004-11-24 (328) 14:32:08 (UTC)	Lg	6101	null	CalTech	
34.3452	-118.6786	18.8393	Wednesday, November 24, 2004 12:25:08 AM	2004-11-24 (328) 08:25:08 (UTC)	P	6093	2.53 ML	CalTech	
36.596	-121.2368	12.4135	Tuesday, November 23, 2004 09:24:44 PM	2004-11-24 (328) 05:24:44 (UTC)	P	6086	4.04 ML	CalTech	
35.7988	-120.3321	17.2101	Tuesday, November 23, 2004 09:13:04 PM	2004-11-24 (328) 05:13:04 (UTC)	P	6085	2.97 ML	CalTech	
36.6003	-121.1998	6.37	Tuesday, November 23, 2004 06:12:54 PM	2004-11-24 (328) 02:12:54 (UTC)	S	6074	3.26 ML	CalTech	
36.61	-121.121	7.5	Tuesday, November 23, 2004 06:07:09 PM	2004-11-24 (328) 02:07:09 (UTC)	P	6069	4.4 Mb	CalTech	
35.067	-117.7076	7.7344	Tuesday, November 23, 2004 05:09:07 PM	2004-11-24 (328) 01:09:07 (UTC)	S	6066	2.66 ML	CalTech	
32.4502	-116.5216	12.2422	Tuesday, November 23, 2004 05:09:07 PM	2004-11-23 (327)	c	6004	null	CalTech	

# Instrument Response Curves



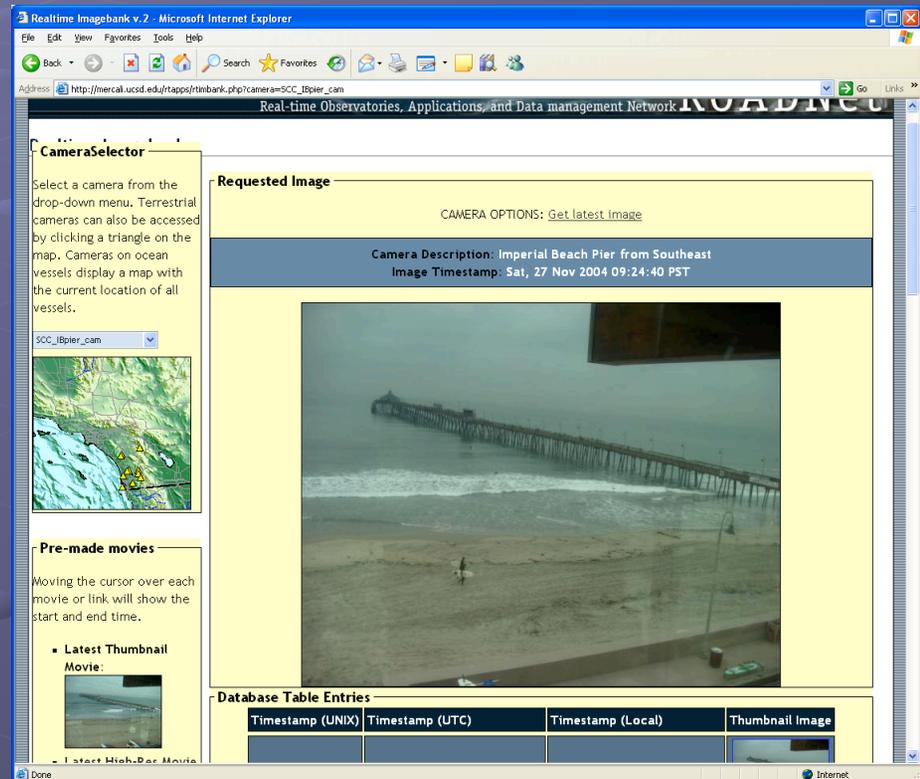
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# Real-time Image Bank

Remote cameras  
acquired via  
ORB

Database of  
images  
presented via  
PHP code



# Webdbe

*Development Prototype*

Earthscope USArray ANF Website :: Online Tools :: webdbe - Web Database Explorer - Microsoft Internet Explorer

Address: http://eqinfo.ucsd.edu/~rt/webdbe.php

webdbe php interface to db

Webdbe

demo Database

affiliation arrival assoc instrument lastid netmag network origin sensor site sitechan stamag wfdisc

Dismiss

Earthscope USArray ANF Website :: Online Tools :: webdbe - Web Database Explorer - Microsoft Internet Explorer

Address: http://eqinfo.ucsd.edu/~rt/webdbe.php?webdbe=1&showall=0&mytable=origin

webdbe php interface to db

Webdbe

WEBDBE MENUBAR [CURRENTLY INACTIVE]

SUBSET MENUBAR: lat [dropdown] [dropdown] subset [input]

Records: 1351. 20 per page. Pages: (68). Show All [1] 2 3 ... Last >

record #	lat	lon	depth	time	orid	jdate	nass	nde
0	40.0740	69.1640	155.1660	4/27/1992 10:51:40.669	1	1992118	7	
1	36.9340	71.0010	0.0000	4/27/1992 18:02:36.212	2	1992118	7	
2	37.8700	69.7160	248.0190	4/27/1992 20:02:08.274	3	1992118	6	
3	5.6020	124.0540	477.0000	4/28/1992 1:55:47.200	4	1992119	8	
4	8.7370	126.6880	440.7540	4/28/1992 1:55:49.326	5	1992119	8	
5	41.7760	72.2910	4.4830	4/28/1992 6:40:35.579	6	1992119	8	
6	42.7720	71.5250	225.5050	4/28/1992 7:17:54.714	7	1992119	7	
7	38.5400	76.2530	33.0000	4/28/1992 8:52:52.367	8	1992119	6	
8	39.8610	75.8050	0.0000	4/28/1992 9:26:28.979	9	1992119	5	
9	8.9210	124.0710	568.0000	4/28/1992 9:31:21.700	10	1992119	7	
10	9.5440	123.8020	520.6560	4/28/1992 9:31:23.487	11	1992119	7	
11	43.0250	74.9040	0.0000	4/28/1992 10:37:32.390	12	1992119	8	
12	37.2890	69.8470	115.0000	4/28/1992 14:32:20.376	13	1992119	8	
13	39.9120	79.0960	14.0000	4/28/1992 15:53:53.000	14	1992119	10	
14	40.3030	79.0230	36.2840	4/28/1992 15:53:59.245	15	1992119	10	
15	-5.6310	133.7880	33.0000	4/28/1992 17:26:53.200	16	1992119	2	
16	22.4300	98.9350	33.0000	4/28/1992 21:03:03.600	17	1992119	6	
17	25.9130	99.3710	10.4580	4/28/1992 21:03:23.549	18	1992119	6	

Web-based clone  
of db(1)

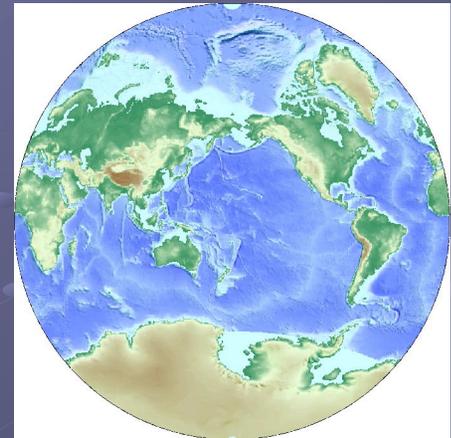
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# Incidental Note: Mapmaking

- Dbgmtgrid(1)
- Make\_dbrecenteqs\_map(1)



## ● World30 topo database:

- [EOS 85 p. 186, May 11 2004: Global Topography and Bathymetry Grids \(with K. Engle, D. Stahlke, E. Price\)](#)
- <http://www.gina.alaska.edu/page.xml?group=data&page=griddata>

# orb2rrd

- **Round-Robin Database**
  - <http://people.ee.ethz.ch/oetiker/webtools/rrdtool/>
- Thanks Niko! (prototype scripts)
- Station status-monitoring:
  - Graphic State-of-health histories
  - Voltages, GPS locks, etc.
- Orb2rrd reads `./pf/st datalogger-status orb` packets
- Creates RRD Cache Database

# Perl XML tools

## ● Datascope::db2xml

- Arbitrary database views translated to XML
- Several different translation modes
- Basic output; transform with XSLT

## ● Datascope::pf2xml

- Arbitrary parameter-files translated to XML
- Several different translation modes
- Basic output; transform with XSLT

- Once again, Thanks Niko! (perlpolygon example)

# Orbdlstat2xml

- Conversion of `./pf/st` datalogger status
- Creates directory of XML files
- Handles initial stash packets and periodic status updates
- Infrastructure support for **webdlmon**

# Antelope Web Technologies: The Future

- Evaluating interest for more official support
  - Formal, professional-grade tools
  - Plug-n-play
  - Standardized
- What are key needs and concerns ?
  - Feedback welcome!