

# Antelope Interfaces

European Antelope Users' Group  
Meeting

November 29, 2004

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*Lindquist Consulting*

# Established Antelope Interfaces

- C
- Fortran
- Perl
- TCL/Tk
- Matlab
- Command-line

# New Prototype Interfaces

- PHP

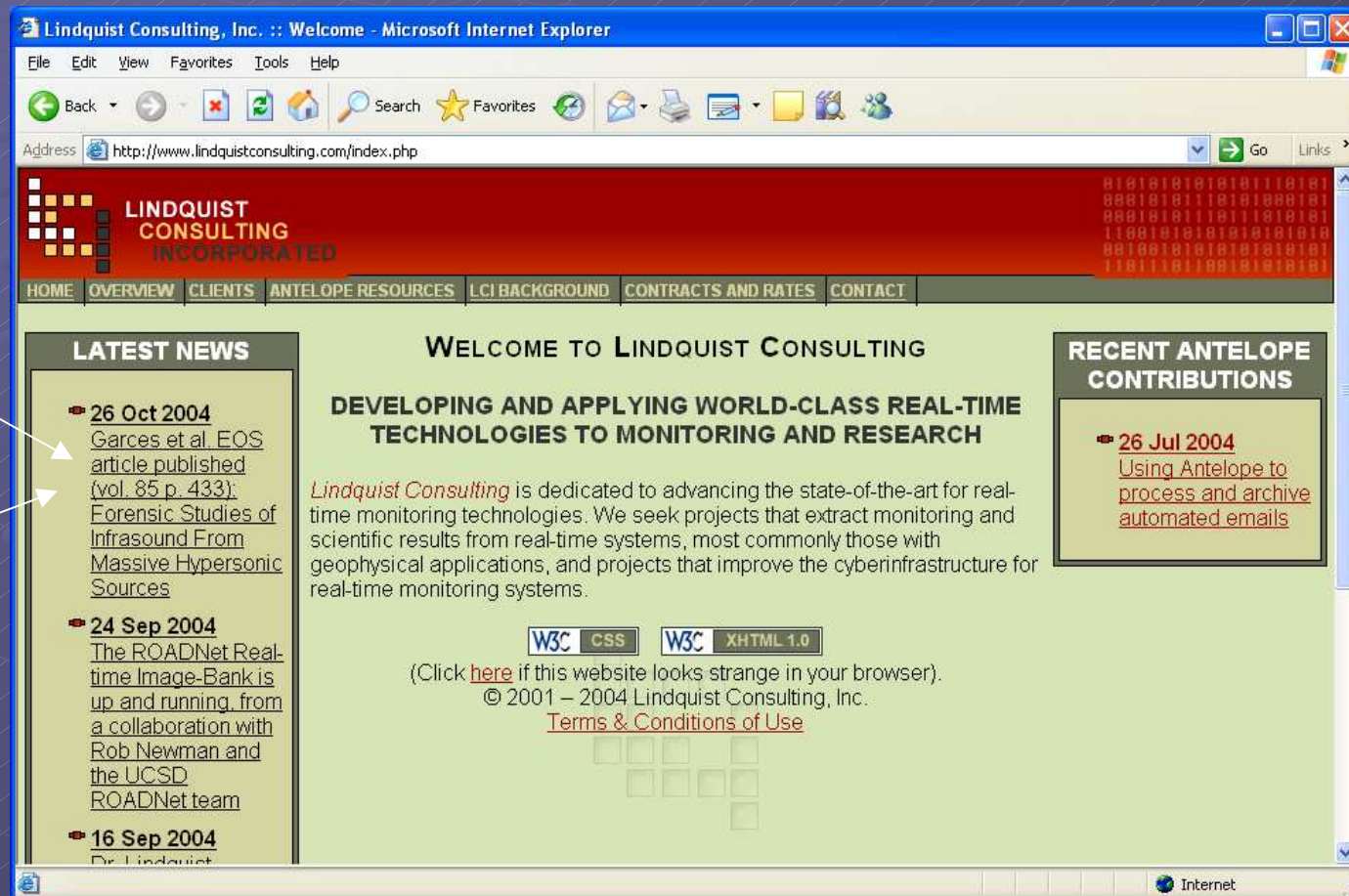
- XML

- SRB

# Antelope Interface for PHP

- “PHP Hypertext Preprocessor”
- A convenient web language, mixes with HTML
- Basic features in place for Datascope access
- Under Construction
- Currently needs custom compilation from Antelope contributed-code distribution

# Simple PHP example



Text Bullets  
In Datascope  
Database

PHP Code  
Fills in sidebars

# PHP Code for Web-site bullets

```
<?php
if( ! extension_loaded("Datascope") ) {
    dl( "Datascope.so" );
}

function list_bullets( $db ) {

    $db = dbprocess( $db, "dbopen bullets",
                    "dbsort -r time" );

    $nrecs = dbnrecs( $db );

    for( $db[3] = 0; $db[3] < $nrecs; $db[3]++ ) {

        list( $time, $bullet, $url ) =
            dbgetv( $db, "time", "bullet", "url" );

        $adate = date( "d M Y", $time );

        echo "<li><a href=\"$url\" target=\"_blank\"><b>$adate</b><br/>$bullet</a></li>\n";

    }
}
?>
```

# Antelope PHP Examples

- PHP Web Coding and Design by:

**Rob Newman, UCSD**

# 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	109C	Camp Elliot, Mirimar, CA, USA	32.89	-117.11	0.15	2004125
TA	A04A	Lummi Island, Lummi Island, WA, USA	48.72	-122.71	0.02	2004263
CI	ADO	Adelanto	34.55	-117.43	0.91	2000222
CI	ARV	Arvin	35.13	-118.83	0.26	2004191
CI	BBR	Big Bear Solar Observatory	34.26	-116.92	2.07	2000252
CI	BC3	Big Chuckawalla Mtns	33.66	-115.45	1.14	2002143
CI	BCC	Bear Creek Country Club	33.58	-117.26	0.39	2001201
CI	BEL	Belle Mtn	34.00	-116.00	1.39	2001074
CI	BFS	Mt Baldy	34.24	-117.66	1.30	2001191
CI	CIA	Catalina Island Airport	33.40	-118.41	0.47	1998253
BK	CMB	Columbia College, Columbia, CA	38.03	-120.39	0.70	1986298
BK	CVS	Carment Vineyards, Sonoma, CA	38.35	-122.46	0.30	1998126
CI	CWC	Cottonwood Creek	36.44	-118.08	1.60	1995086
TA	D05A	Wishkah Elem. School, Wishkah, WA, USA	47.12	-123.77	0.03	2004260
CI	DAN	Danby	34.64	-115.38	0.43	2001059
CI	DEC	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

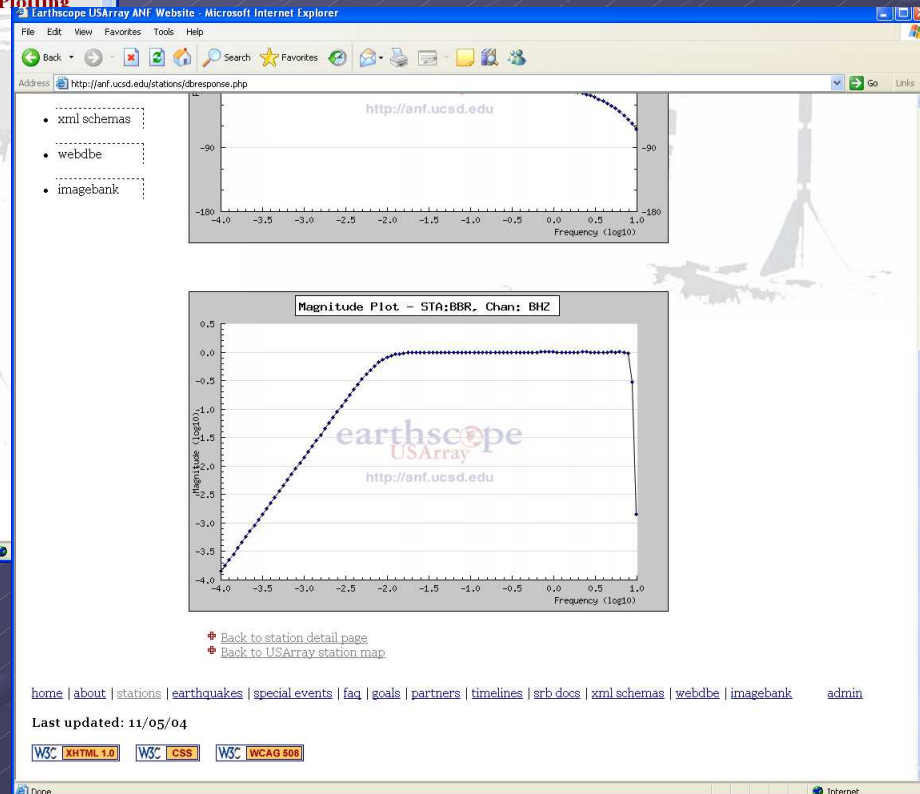
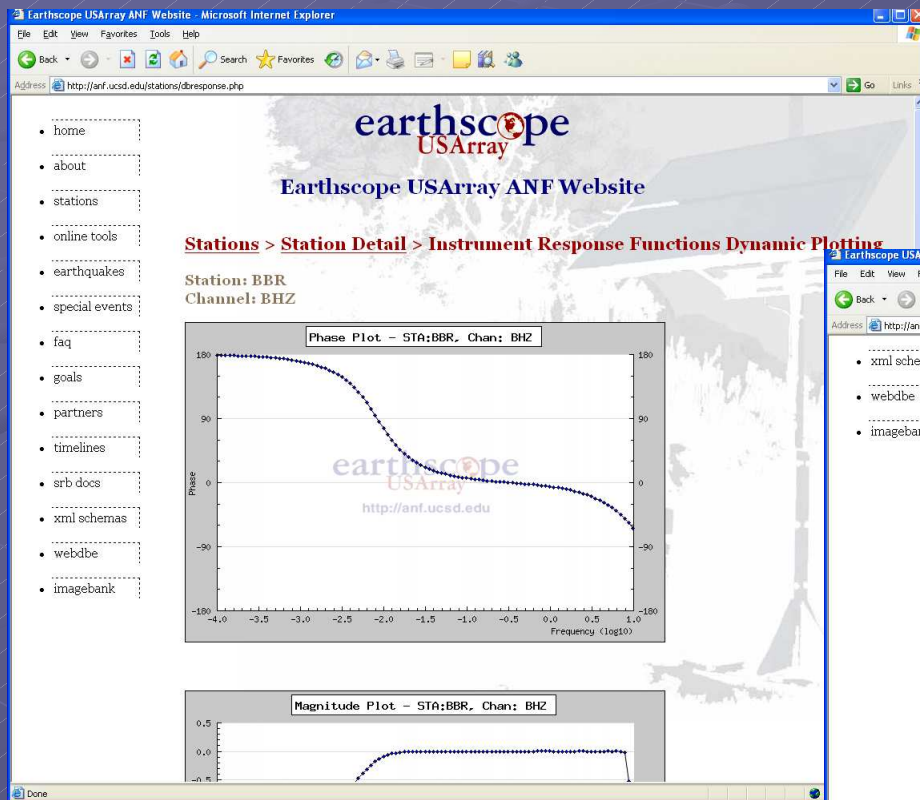
Stations > Station Details > Recent Events Recorded at Station BBR

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	-121.21	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	-116.5316	12.2322	Tuesday, November 23,	2004-11-23 (327)	c	6004	null	CalTech	

# Instrument Response Curves



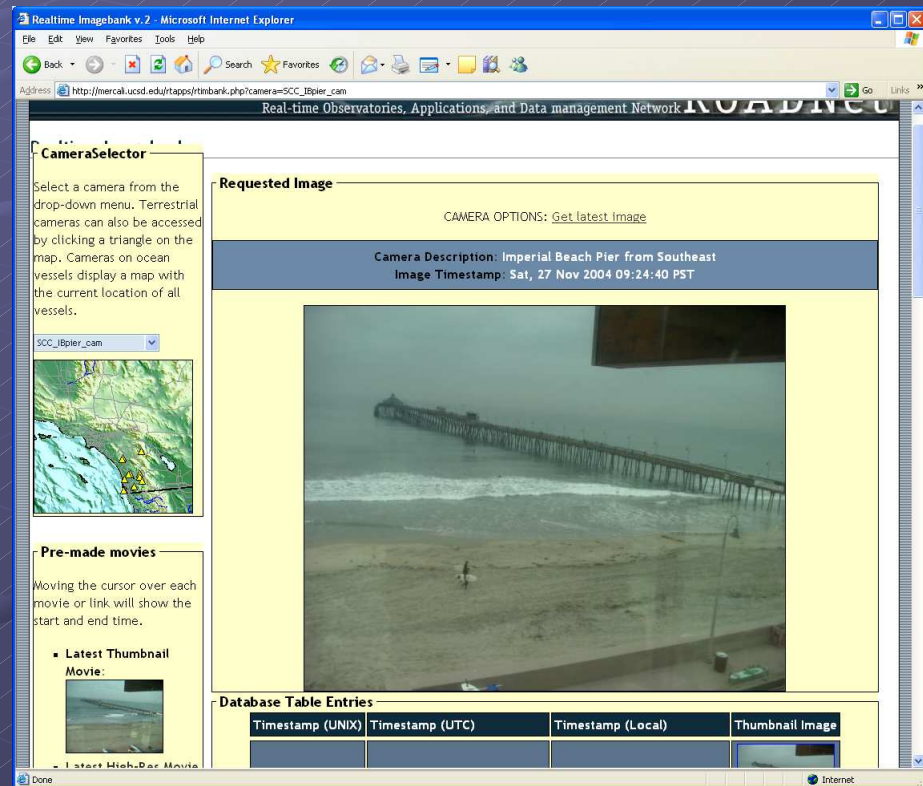
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# Real-time Image Bank

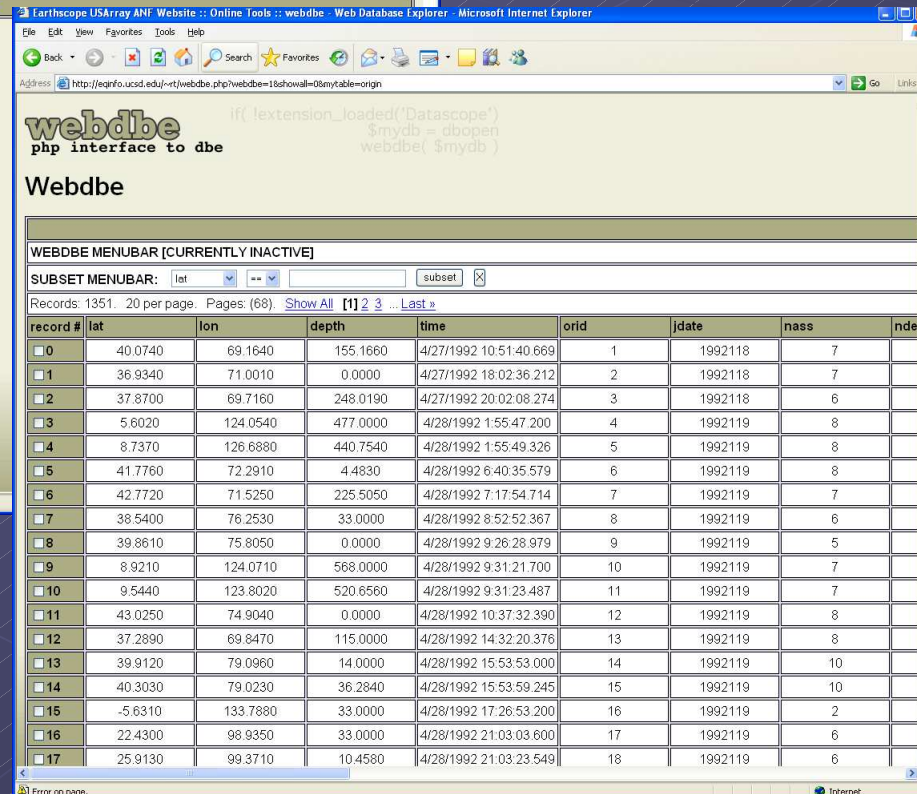
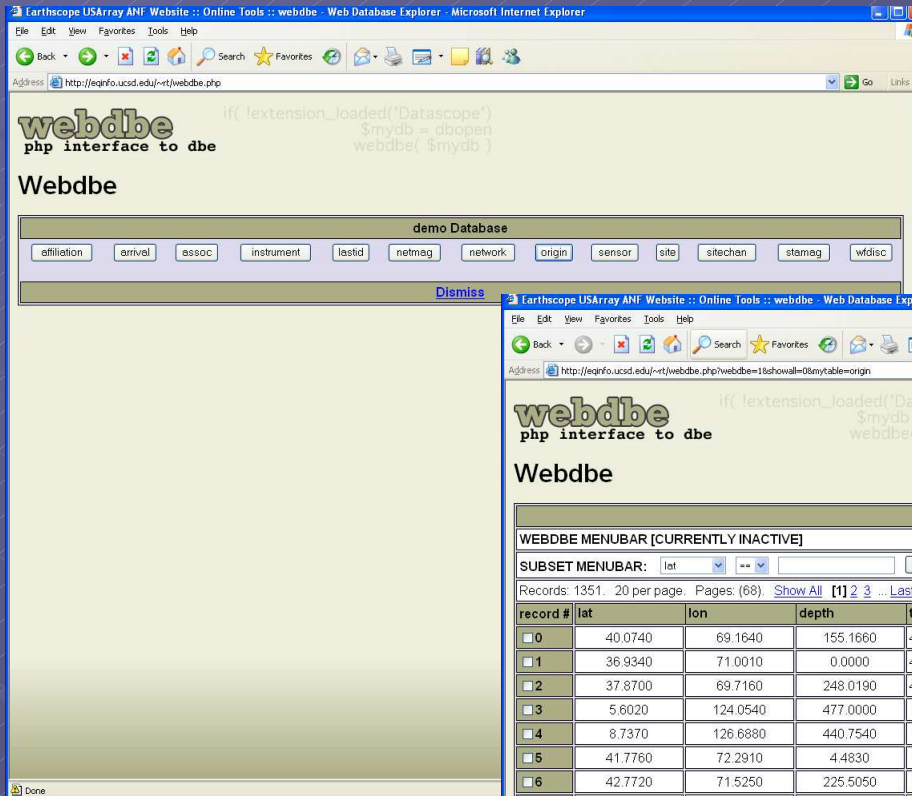
Remote cameras  
acquired via  
ORB

Database of  
images  
presented via  
PHP code



# Webdbe

Development Prototype



Web-based clone  
of db(1)

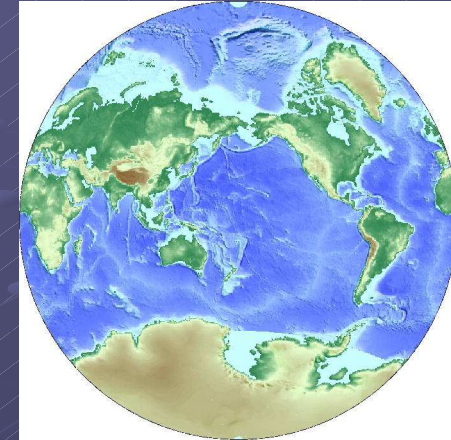
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# Incidental Note: Mapmaking

- 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>

# Make\_dbrecenteqs\_map: Romania



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# eXtensible Markup Language (XML)

- Db2xml(1)
  - similar to dbselect(1)
- db2xml(3)
  - Default structure available; primary or all fields
  - Fine control over fieldname/expression pairs
- Pf2xml(1)
- Pf2xml(3)
- Inverse directions started



# Expanded Java Interface

- Work done by **Tobin Fricke**, expanding on Danny Harvey's original interface
- **Orb packet reading and writing**
- **Waveform-packet unstuffing**
- Part of Antelope contrib
- Used in Kepler visual programming applications

# What is Kepler/Ptolemy?

The screenshot displays the Ptolemy II Version 4.0 software interface. The main window shows a model titled "Spectrum" with a block diagram and a Time Domain Display. The diagram includes a Signal Source, Carrier Source, and Noise Source, which feed into an Expression2 block. The Expression2 block contains the mathematical expression:  $\text{signal}^{\text{carrier}} + \text{noise}$ . The output of the Expression2 block is connected to a Spectrum block, which is then connected to a Frequency Domain Display. A Time Domain Display is also connected to the output of the Expression2 block. The interface includes a menu bar (File, View, Edit, Graph, Debug, Help), a toolbar with various icons, and a sidebar with a "Utilities" menu. The bottom of the window shows a system tray with icons for network, battery, and time (Fri Jul 16 09:15).

file:/home/tobin/build/ptii4.0/ptolemy/configs/full/intro.htm

file:/home/tobin/build/ptii4.0/ptolemy/domains/sdf/demo/Spectrum/Spectrum.xml

Ptolemy II Version 4.0

File View Edit Graph Debug Help

Utilities  
Directors  
Actors  
MoreLibraries  
UserLibrary

SDF Director

This model shows a simple periodogram spectral estimate of a modulated sinusoid in noise. The top-level parameters control the carrier frequency, the signal frequency, and the noise level. Notice that the two peaks are centered at the carrier frequency, with their distance from the carrier given by the signal frequency. The sample rate is assumed to be 8kHz.

The blocks with red outlines are hierarchical. Right click and select "Look Inside". These generate sinusoids, one for the signal and the other for the carrier.

- carrierFrequency: 2000.0
- signalFrequency: 500.0
- noiseStandardDeviation: 0.1

Signal Source  
Carrier Source  
Noise Source

Time Domain Display  
Spectrum  
Frequency Domain Display

Expression2  
signal<sup>carrier</sup> + noise

The Expression block calculates a mathematical expression, as shown.

Select "Run Window" from the View menu to execute the model, or click on the red triangle in the toolbar. Try changing the parameters in the run window or on the diagram.

Author: Edward A. Lee

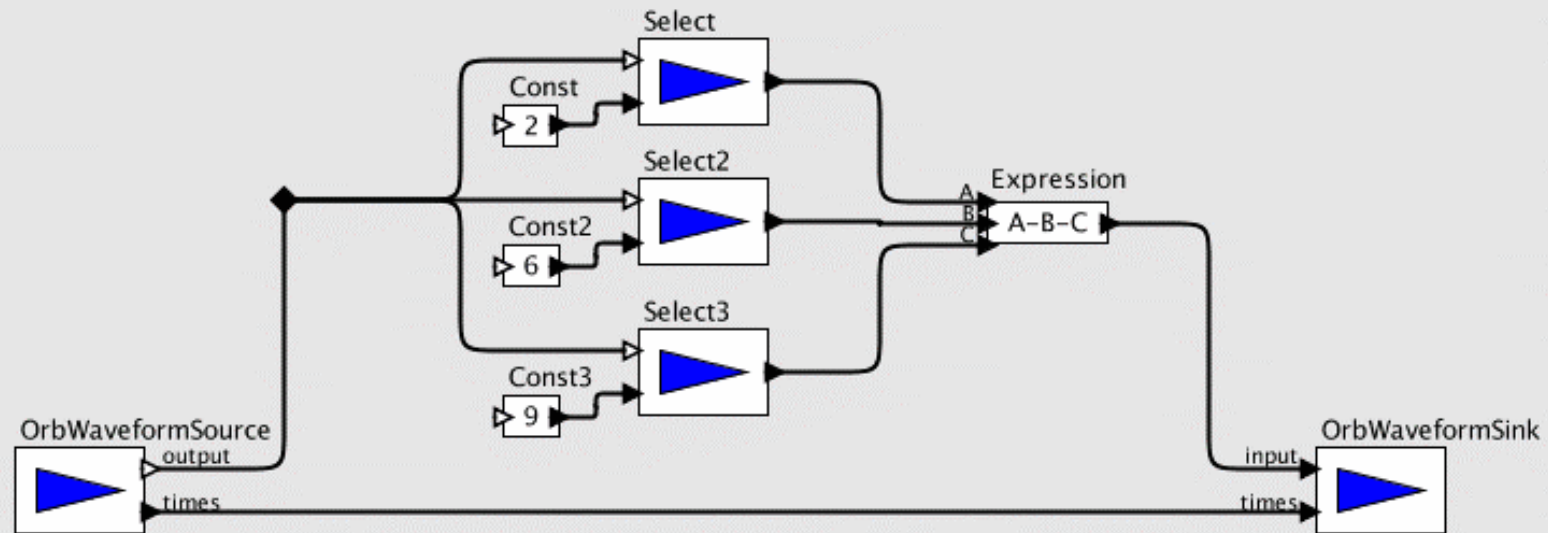
[tobin] [file:/ho] [file:/hc] [file:/ho] The GI [WIFI 55%] Fri Jul 16 09:15

# Kepler/Antelope Stream Processing

PN Director



This model shows a simple use of the Antelope ORB interface. This example adds three channels from an MGENC data stream and submits the resulting stream back to the ORB.



Author: Tobin T. Fricke

This model has no graphical displays -- the beauty of this is that it can be run non-interactively, allowing Ptolemy to serve as a generic stream processor.

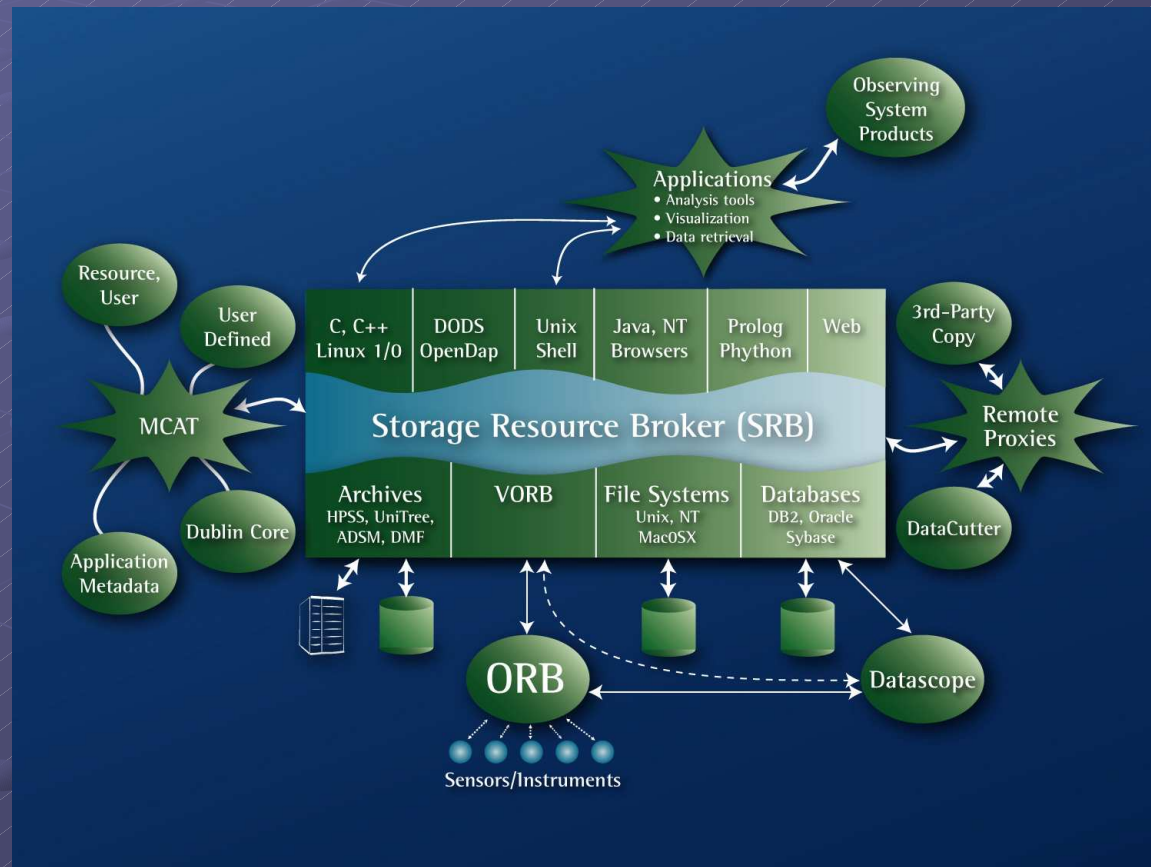
# Datascope and ORB drivers for Storage Resource Broker

Multi-TeraByte Storage

Sophisticated Archive

Data Replication

Virtual-server access



# Rtbackup\_srb

- Development prototype being tested for USARRAY
- Parallel to rtbackup(1)
  - (tar-tape backup of waveforms)
- Backup of waveforms and parametric tables to Storage Resource Broker

# Future Directions

- Further development of PHP-based Web Support
- ROADNet multidisciplinary applications