



Sexy Science User Interfaces

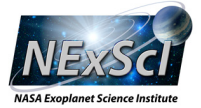
John Good

June 17, 2011

GRITS III, Pasadena, CA



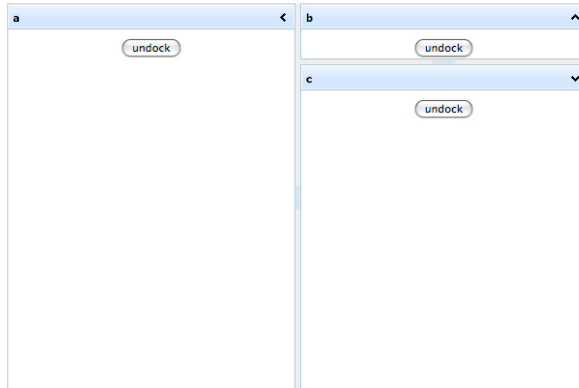
Javascript GUIs



- Love it or hate it
 - Javascript is the world's most popular language
 - Javascript is the world's most unpopular language
- Javascript is the language of the web
 - Browsers have become essentially Javascript engines
 - There are dozens of (free) libraries and frameworks that provide arguably the most extensive set of GUI capabilities in the world



Example: DHTMLX Layout



```
onUnDock event called, item id is a
onUnDock event called, item id is b
onUnDock event called, item id is c
onDock event called, item id is b
onDock event called, item id is a
onDock event called, item id is c
onUnDock event called, item id is c
onDock event called, item id is c
```

</> Source

```
<link rel="stylesheet" type="text/css" href="../../../codebase/dhtmlxlayout.css">
<link rel="stylesheet" type="text/css" href="../../../codebase/skins/dhtmlxlayout_dhx_skyblue.css">
<script src="../../../codebase/dhtmlxcommon.js"></script>
<script src="../../../codebase/dhtmlxlayout.js"></script>
<link rel="stylesheet" type="text/css" href="../../../dhtmlxWindows/codebase/dhtmlxwindows.css">
<link rel="stylesheet" type="text/css" href="../../../dhtmlxWindows/codebase/skins/dhtmlxwindows_dhx_skyblue.css">
<script src="../../../dhtmlxWindows/codebase/dhtmlxwindows.js"></script>
<script src="../../../dhtmlxWindows/codebase/engine/dhtmlxwindows_enginehx.js"></script>
<script src="../../../codebase/dhtmlxcontainer.js"></script>

<div id="winVP" style="position: relative; height: 500px; margin: 10px;">
  <div id="parentId" style="position: relative; top: 10px; left: 10px; width: 600px; height: 400px; aborder: #B5CDE4 1px solid;"></div>
</div>
<div id="log" style="position: relative; margin-top: 40px; margin-left: 20px; width: 600px; height: 120px; border: #909090 1px solid; overflow-y: scroll; font-family: Tahoma; font-size: 11px;">
</div>
<div id="objA" style="text-align: center; padding-top: 10px;"><input type="button" value="undock" onclick="dhxLayout.cells('a').undock();"></div>
<div id="objB" style="text-align: center; padding-top: 10px;"><input type="button" value="undock" onclick="dhxLayout.cells('b').undock();"></div>
<div id="objC" style="text-align: center; padding-top: 10px;"><input type="button" value="undock" onclick="dhxLayout.cells('c').undock();"></div>
</script>

var dhxLayout;
function doOnLoad() {
  dhxLayout = new dhtmlxLayoutObject("parentId", "3L");
  dhxLayout.dhxWins.enableAutoViewport(false);
  dhxLayout.dhxWins.attachViewportTo("winVP");
  dhxLayout.attachEvent("onDock", doOnDock);
  dhxLayout.attachEvent("onUnDock", doOnUnDock);
  dhxLayout.cells("a").attachObject("objA");
  dhxLayout.cells("b").attachObject("objB");
  dhxLayout.cells("c").attachObject("objC");
}
function doOnDock(itemId) {
  document.getElementById("log").innerHTML += "<b>onDock</b> event called, item id is <b>" + itemId + "</b><br>";
}
function doOnUnDock(itemId) {
  document.getElementById("log").innerHTML += "<b>onUnDock</b> event called, item id is <b>" + itemId + "</b><br>";
  dhxLayout.dhxWins.window(itemId).keepInViewport(true);
}
</script>
```



Example: DHTMLX Layout (2)



Panel a: Browser window showing the Yahoo! logo and navigation links like "My Yahoo!" and "Preview email with the Yahoo! Toolbar".

Panel b: A "Web" toolbar with a search input field.

Panel c: A navigation menu with links for "Home", "About JS Group", "Investors", "News", "Careers", and "Contact us". Below the menu is a banner for "Welcome to JS Group" with text: "JS Group is one of Pakistan's most diversified and progressive investors operating financial".

Countries

	Name: Czech Republic Area: 77,276 sq km Capital: Prague Language: Czech, Slovak
	Name: Belarus Area: 207,600 sq km Capital: Minsk Language: Russian, Byelorussian
	Name: France Area: 545,630 sq km Capital: Paris Language: Catalan, Flemish, French, Provencal, Breton
	Name: Russia Area: 16,995,800 sq km Capital: Moscow Language: Russian
	Name: Brazil Area: 8,456,510 sq km Capital: Brasilia Language: English, French, Portuguese, Spanish
	Name: United States Area: 9,158,960 sq km Capital: Washington Language: English, Spanish
	Name: Canada Area: 9,220,970 sq km Capital: Ottawa Language: English(official), French(official)
	Name: United Arab Emirates Area: 82,880 sq km Capital: Abu Dhab Language: Arabic, English, Hindi, Persian, Urdu
	Name: Zimbabwe Area: 386,670 sq km Capital: Harare Language: English, Ndebele, Shona
	Name: Poland Area: 304,465 sq km Capital: Warsaw Language: Polish
	Name: Argentina Area: 2,736,690 sq km Capital: Buenos Aires Language: English, French, German, Italian, Spanish
	Name: Switzerland

Map | Cities | Economic

Map Satellite

©2011 Geocentre Consulting, MapLink, Tele Atlas - Terms of Use

Description

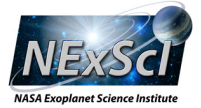
Tensions between slave and free states mounted with arguments over the relationship between the state and federal governments, as well as violent conflicts over the spread of slavery into new states. With the Confederate attack upon Fort Sumter, the American Civil War began and four more slave states joined the Confederacy. Lincoln's Emancipation Proclamation in 1863 declared slaves in the Confederacy to be free. Following the Union victory in 1865, three amendments to the U.S. Constitution ensured freedom for the nearly four million African Americans who had been slaves, made them citizens, and gave them voting rights. The war and its resolution led to a substantial increase in federal power.

Immigrants at Ellis Island, New York Harbor, 1902

After the war, the assassination of Lincoln radicalized Republican Reconstruction policies aimed at reintegrating and rebuilding the Southern states while ensuring the rights of the newly freed slaves. The resolution of the disputed 1876 presidential election by the Compromise of 1877 ended Reconstruction; Jim Crow laws soon disenfranchised many African Americans. In the North, urbanization and an unprecedented influx of immigrants from Southern and Eastern Europe hastened the country's industrialization. The wave of immigration, lasting until 1929, provided labor and transformed American culture. National infrastructure development spurred economic growth. The 1867 Alaska purchase from Russia completed the country's mainland expansion. The Wounded Knee massacre in 1890 was the last major armed conflict of the Indian Wars. In 1893, the indigenous monarchy of the Pacific Kingdom of Hawaii was overthrown in a coup led by American residents; the United States annexed the archipelago in 1898. Victory in the Spanish-American War the same year demonstrated that the United States was a world power and led to the annexation of Puerto Rico, Guam, and the Philippines. The Philippines gained independence a half-century later; Puerto Rico and Guam remain U.S. territories.



But We are Science Nerds



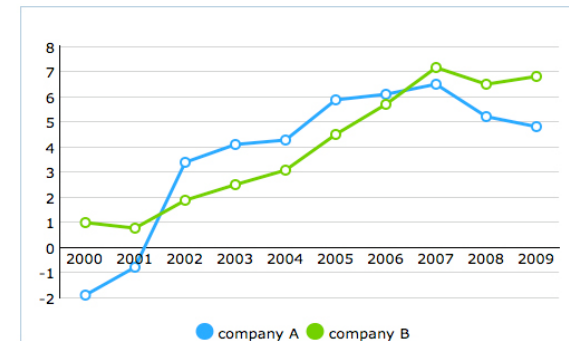
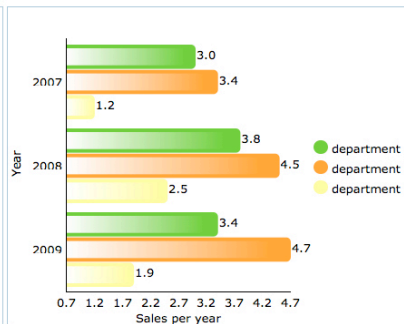
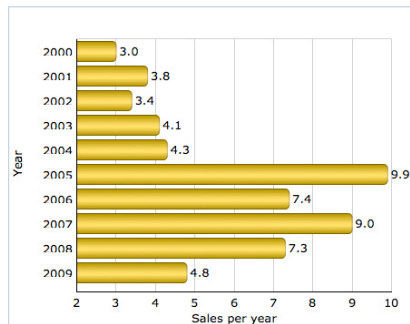
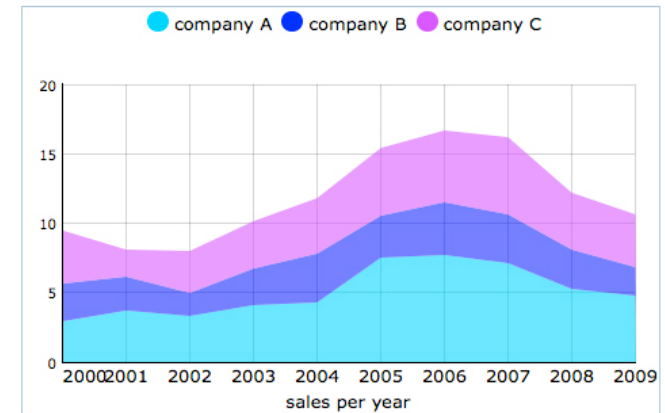
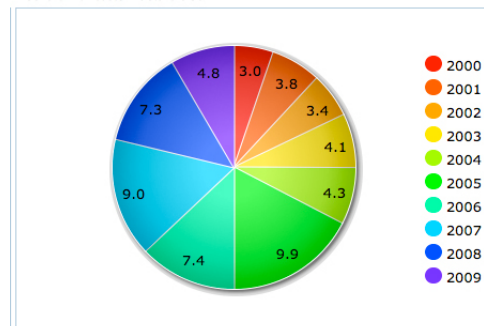
- Computer guys may get off on GUIs but we love *data*
 - Images
 - Plots
 - Tables
- ... Lots of it
 - Billion record tables
 - Multi-Gigabyte images
- ... And poking things
 - Which object is that?
 - Sort this, subset that



Web Plotting Tools



- Cute and OK for *managers*
- But totally inadequate for *real* data





Working at Scale



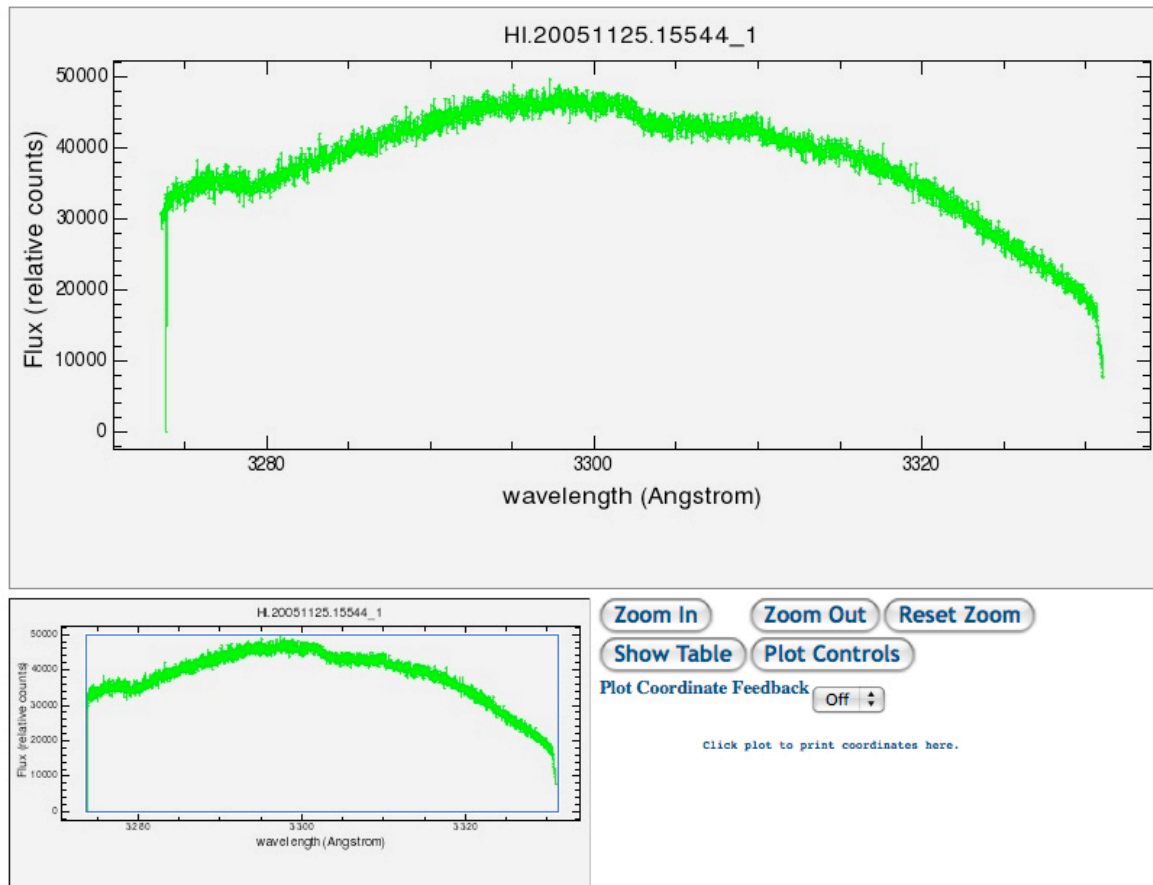
- Data is better left on the back end
 - Tabular data in a database (*e.g.* SQLite file) which allows fast, full SQL, manipulation
 - Images processed through a toolkit that provides science grade resampling, cutouts, and rendering (*e.g.* Montage)
- And served in bits and pieces
 - You may want to “explore” a 10-million record table but in fact will only actually interactively look at a few thousand records total
 - Screens have a million or so pixels, so why transfer 100 million?



Plots and Tables



- Basic interactive plotting requires nothing more than adding positional event handling to existing JPEG plot generation





Plots and Tables (2)

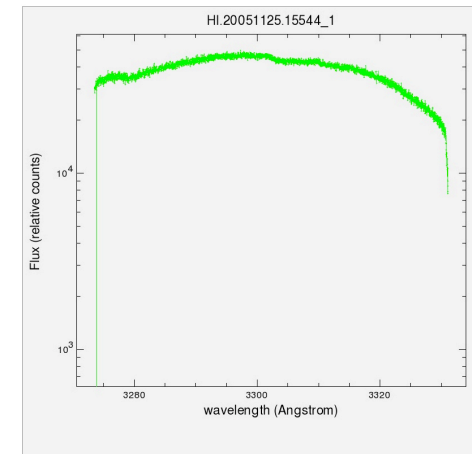
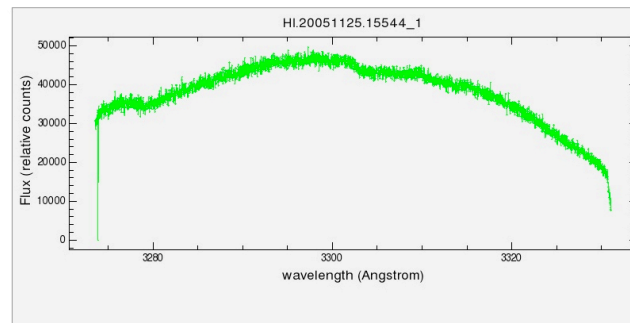
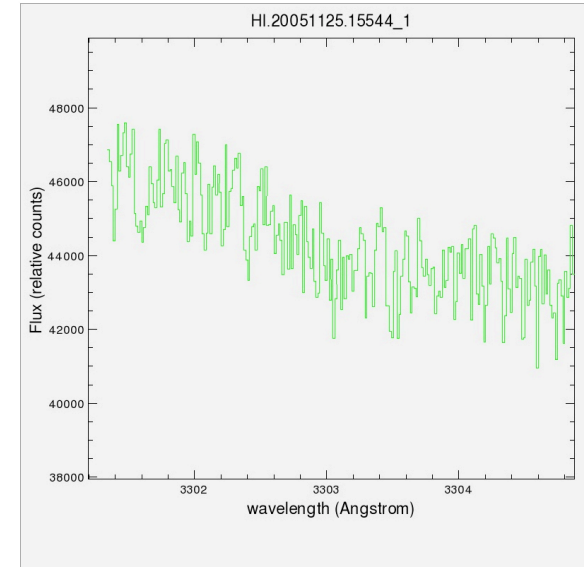


- Which can be augmented with control panels to make use of all the underlying plotting capabilities

Plot Controls Overplot Fields

Table File	#HI.20051125.15544_1_01_flux.tbl	Npts *	4056
Xaxis *	wave	Yaxis *	Flux
Xlabel	wavelength (Angstrom)	Ylabel	Flux (relative counts)
Plot Width	800	Plot Height	400
Xdatamin	3273.538300	Ydatamin	0.000000
Xdatamax	3331.056100	Ydatamax	49698.996000
X autoscale	Yes	Y autoscale	Yes
X flip	No	Y flip	No
Xmin		Ymin	
Xmax		Ymax	
Xscaling	Linear	Yscaling	Linear
Histogram Style	off	Label Color	Black
Axes Color	Black	Background Color	#f0f0f0
Pt Color *	Green	Ln Color *	Green
Pt Type *	Dot	Ln Type *	Solid
Pt Size *	1.0	Ln Width *	1

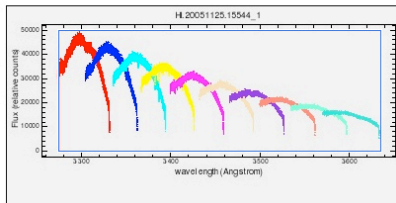
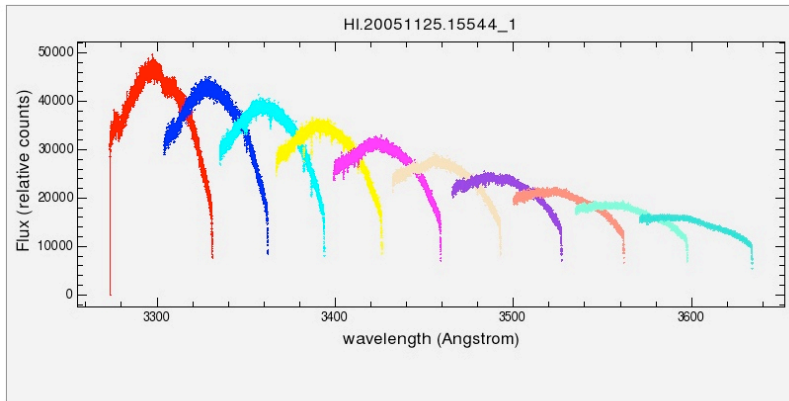
Note 1: The parameters in the asterisk (*) fields do not apply to the overplots. Overplot parameters should be set with the 'Overplot Fields' interface.
Note 2: The tick marks on Log scale plot only appear on the integer number (i.e. 10, 100 etc.). If the plot range is less than one order of magnitude, there might be no tick mark at all.



[Zoom In](#) [Zoom Out](#) [Reset Zoom](#)
[Show Table](#) [Plot Controls](#)
 Plot Coordinate Feedback [Off](#)
Click plot to print coordinates here.



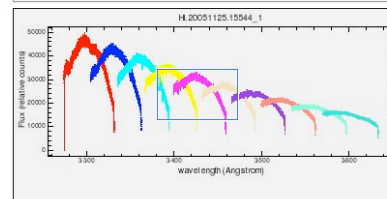
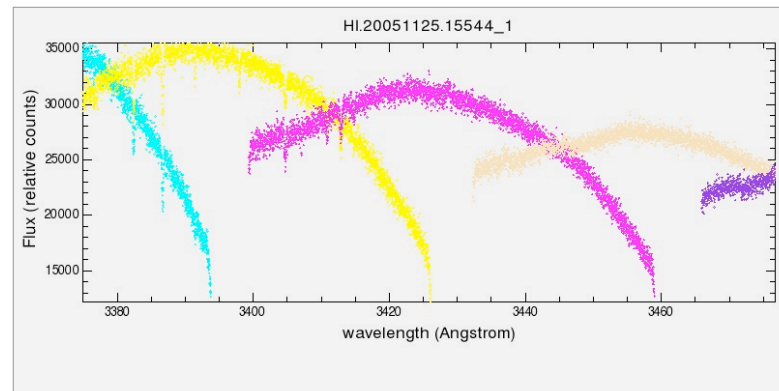
Plots and Tables (3)



[Zoom In](#) [Zoom Out](#) [Reset Zoom](#)
[Show Table](#) [Plot Controls](#)
Plot Coordinate Feedback

Click plot to print coordinates here.

- Including overplotting
- Basic region selection is all you need to support zooming



[Zoom In](#) [Zoom Out](#) [Reset Zoom](#)
[Show Table](#) [Plot Controls](#)
Plot Coordinate Feedback

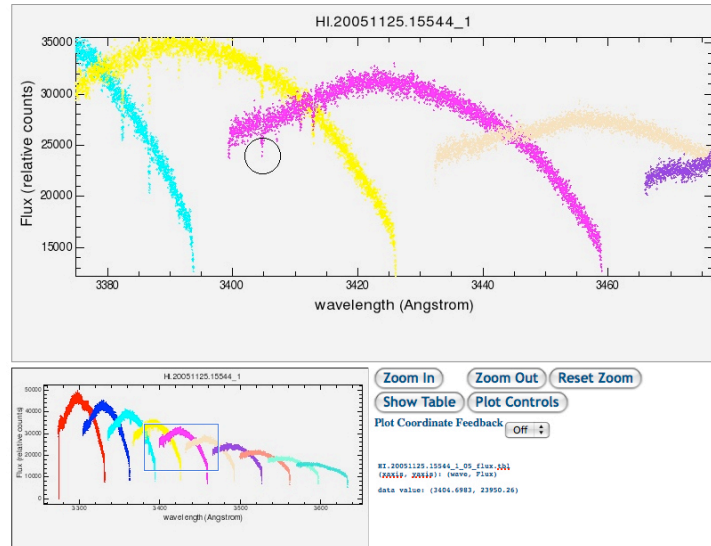
Click plot to print coordinates here.



Plots and Tables (4)



- And point selection (across multiple input tables)



rowid	wave	Flux	col	row	raw_col	raw_row	Error	Background	Sig_to_Noise	Flat	Arc_Lamp	S
333	3404.5727	25706.850000000000	332.00	170.89	828.11	332.00	209.895220000000	806.276670000000	122.474680000000	37.081524000000	40.582840000000	25677
334	3404.5884	25419.135000000000	333.00	170.91	828.09	333.00	209.539560000000	802.550350000000	121.309480000000	37.030529000000	47.425949000000	25421
335	3404.6041	26659.768000000000	334.00	170.94	828.06	334.00	219.803560000000	806.028020000000	121.289060000000	37.002693000000	47.320786000000	26669
336	3404.6198	25367.752000000000	335.00	170.96	828.04	335.00	207.321210000000	788.050420000000	122.359650000000	36.757359000000	45.394859000000	25333
337	3404.6355	25259.102000000000	336.00	170.98	828.02	336.00	252.688150000000	792.136600000000	99.961560000000	36.654655000000	35.252052000000	25005
338	3404.6512	25937.826000000000	337.00	171.01	827.99	337.00	213.067530000000	775.440920000000	121.735240000000	36.832993000000	26.436966000000	25937
339	3404.6669	26434.250000000000	338.00	171.03	827.97	338.00	266.569720000000	782.095460000000	99.164490000000	36.962559000000	23.088053000000	24843
340	3404.6826	25520.646000000000	339.00	171.05	827.95	339.00	237.404500000000	781.041140000000	107.498580000000	36.965271000000	21.234365000000	24410
341	3404.6983	23950.260000000000	340.00	171.08	827.92	340.00	199.447460000000	778.036440000000	120.083050000000	37.308620000000	26.004427000000	23963
342	3404.7140	25071.494000000000	341.00	171.10	827.90	341.00	236.737770000000	767.255740000000	105.904080000000	37.420944000000	29.231855000000	23341
343	3404.7297	24835.305000000000	342.00	171.12	827.88	342.00	263.982270000000	769.369570000000	94.079441000000	37.512573000000	29.254761000000	23405
344	3404.7454	24346.625000000000	343.00	171.15	827.85	343.00	226.007590000000	777.845150000000	107.724810000000	37.578087000000	27.779198000000	23188
345	3404.7611	25479.879000000000	344.00	171.17	827.83	344.00	220.448360000000	790.606870000000	115.582070000000	37.524879000000	29.032696000000	25460
346	3404.7768	27312.262000000000	345.00	171.19	827.81	345.00	246.397610000000	790.140260000000	110.846290000000	37.689655000000	24.875174000000	26247
347	3404.7925	26132.293000000000	346.00	171.22	827.78	346.00	213.253500000000	783.481450000000	122.540980000000	37.705669000000	21.256557000000	26140
348	3404.8082	26304.264000000000	347.00	171.24	827.76	347.00	231.197600000000	781.384830000000	113.773950000000	37.600502000000	17.448601000000	26124
349	3404.8239	25180.689000000000	348.00	171.26	827.74	348.00	221.905280000000	792.229860000000	113.474950000000	37.699024000000	16.896076000000	25277
350	3404.8396	25741.096000000000	349.00	171.29	827.71	349.00	207.930810000000	791.643430000000	123.796450000000	37.796806000000	15.692874000000	25725
351	3404.8553	25682.617000000000	350.00	171.31	827.69	350.00	228.186950000000	784.359740000000	112.550770000000	37.859200000000	17.957493000000	25917
352	3404.8710	25813.244000000000	351.00	171.33	827.67	351.00	208.984270000000	781.659610000000	123.511730000000	37.872467000000	16.984316000000	25840

331 of 4056 records

Reset



Table Manipulation



- Tables are linked to a server-side SQLite database
 - This allows data transfer to be minimized (intelligent paging is built into the DHTMLX table tool)
 - Sorting, filtering, etc. can use full SQL syntax (e.g. you can say that the "flux1" column needs to be "> flux2")
- Table cell content can have complex rendering and adornment
- All sorts of functions and links can be attached to the data, header, etc.

NSiED NASA/IPAC/NExSci STAR AND EXOPLANET DATABASE

Home | Overview | Holdings | Helpdesk

Download IPAC ASCII Format table Convert & download other formats.

• Click on next to Planet Host Star for more info and tools
 • Click on Column Headers to Sort
 • Use Textbox below Headers to filter by String, or Values. For Example, "> 10.0" or "<= 7.5"
 • If the new Planets Table doesn't work well for you, you can view the [Old Version](#)

Result Table

Modify Constraints | Plot | Tools | Save/Restore

Planet Host Star Name	Planet Letter	Mass of the Planet Jupiter masses	Orbital Period days	Orbital Semi-major Axis AU	Is the Planet Known to Transit? (1=yes 0=no)	Radius of the Planet Jupiter Radii	Measured Transit Depth perc
GQ Lup	b	21.50000±20.50000			0	1.800	
GSC 06214-00210	b	14.00000±0.00000			0		
HIP 78530	b	23.04000±4.00000			0		
MOA-2007-BLG-192-L	b	0.01000 ^{+0.01500} _{-0.00500}			0		
MOA-2007-BLG-400-L	b	0.90000±0.40000			0		
MOA-2008-BLG-310-L	b	0.23000±0.05000			0		
MOA-2009-BLG-319-L	b	0.15700 ^{+0.13600} _{-0.07500}			0		
OGLE-2007-BLG-368L	b	0.06940			0		
OGLE235-MOA53	b	2.60000±0.80000			0		
SCR 1845	b	45.00000±5.00000			0		
UScoCTIO 108	b	14.00000 ^{+2.00000} _{-8.00000}			0		
1RXS J160929.1-210524	b	8.00000		330.000000	0		
2M1207	b	4.00000 ^{+6.00000} _{-1.00000}		41.000000	0	1.500	
2M J044144	b	7.50000±2.50000		15.000000	0		
AB Pic	b	13.50000±0.50000		260.000000	0		
CT Cha	b	17.00000±6.00000		440.000000	0	2.200 ^{+0.810} _{-0.600}	
55 Cnc	e	0.02700±0.00200	0.73654000±0.00000300	0.015730±0.000540	1	0.146±0.014	
WASP-19	b	1.14000±0.07000	0.78883990±0.00000080	0.016400 ^{+0.000500} _{-0.000500}	1	1.280±0.070	
WASP-43	b	1.78000±0.10000	0.81347500±0.00000100	0.014200±0.000400	1	0.930 ^{+0.070} _{-0.090}	
Kepler-10	b	0.01430 ^{+0.00360} _{-0.00490}	0.83749500 ^{+0.00000400} _{-0.00000600}	0.016840 ^{+0.000320} _{-0.000340}	1	0.127±0.003	
CoRoT-7	b	0.01500±0.00300	0.85358500±0.00002400	0.017200±0.000290	1	0.150±0.008	
WASP-18	b	10.30000±0.69000	0.94145299±0.00000087	0.020260±0.000680	1	1.106 ^{+0.072} _{-0.054}	
WASP-43	b	1.45000±0.10000	0.8142300±0.00000300	0.022000±0.001000	1	1.200±0.090	

538 records Columns Setting Reset

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Table Manipulation (2)



NSTED NASA/IPAC/NEXSCI STAR AND EXOPLANET DATABASE

Home | Overview | Holdings | Helpdesk

Download IPAC ASCII Format table | Convert & download other formats.

- Click on next to Planet Host Star for more info and tools
- Click on Column Headers to Sort
- Use Textbox below Headers to filter by String, or Values. For Example, "> 10.0" or "<= 7.5"
- If the new Planets Table doesn't work well for you, you can view the Old Version

Result Table

GQ Lup

- Detail Exoplanet Information
- Transit Ephemeris Calculator
- Exoplanet Encyclopedia
- Exoplanet Data Explorer

Save/Restore

Planet	Host Star	Orbital Period	Orbital Semi-major Axis	Is the Planet Known to Transit?	Radius of the Planet	Measured Transit Depth
CT Cha			440.000000	0	2.200 ^{+0.810} _{-0.600}	
XO-3		3.19154260±0.00014000	0.047600±0.000500	1	1.950±0.160	
GQ Lup	b	21.50000±20.50000		0	1.800	
TrES-4		0.91900±0.07300	3.55394500±0.00007500	0.050910±0.000710	1	1.799±0.063
WASP-12	b	1.41000±0.10000	1.09142300±0.00003000	0.022900±0.004000	1	1.790±0.090
WASP-17	b	0.49000 ^{+0.05900} _{-0.05600}	3.73544170 ^{+0.00000720} _{-0.00000730}	0.051000 ^{+0.001700} _{-0.001800}	1	1.740 ^{+0.260} _{-0.230}
WASP-48	b	0.98000±0.09000	2.14363400±0.00003000	0.034440±0.000430	1	1.670±0.080
OGLE2-TR-L9	b	4.50000±1.50000	2.48553350±0.00000070	0.030800±0.000500	1	1.610±0.040
WASP-31	b	0.50000	3.50000000		1	1.600
WASP-1	b	0.91800 ^{+0.09100} _{-0.09000}	2.51996100	0.039570 ^{+0.000490} _{-0.000490}	1	1.514 ^{+0.052} _{-0.047}
HAT-P-8	b	1.52000 ^{+0.18000} _{-0.16000}	3.07637760±0.00000400	0.048700±0.002600	1	1.500 ^{+0.080} _{-0.060}
2M1207	b	4.00000 ^{+0.00000} _{-1.00000}		41.000000	0	1.500
WASP-33	b	< 4.10000	1.21986690±0.00000120	0.025550±0.000170	1	1.497±0.045
CoRoT-1	b	1.03000±0.12000	1.50895570±0.00000640	0.025400±0.000400	1	1.490±0.080
Kepler-7	b	0.43300 ^{+0.04000} _{-0.04100}	4.88552500±0.00004000	0.062240 ^{+0.001090} _{-0.000840}	1	1.478 ^{+0.060} _{-0.051}
CoRoT-2	b	3.31000±0.16000	1.74299640±0.00000170	0.028100±0.000900	1	1.465±0.029
CoRoT-12	b	0.91700 ^{+0.07000} _{-0.06600}	2.82804200±0.00001300	0.040160 ^{+0.000930} _{-0.000920}	1	1.440±0.130
Kepler-5	b	2.11400 ^{+0.05600} _{-0.05600}	3.54846000±0.00003200	0.050640±0.000700	1	1.431 ^{+0.041} _{-0.032}
CoRoT-11	b	2.33000±0.34000	2.99433000±0.00001100	0.043600±0.005000	1	1.430±0.030
WASP-15	b	0.54200±0.05000	3.75206560±0.00000280	0.049900±0.001800	1	1.428±0.077
WASP-51	b	0.76000±0.05000	2.81060300±0.00000800	0.041180±0.000310	1	1.420±0.040
Kepler-8	b	0.60300 ^{+0.13000} _{-0.19000}	3.52254000 ^{+0.00003000} _{-0.00005000}	0.048300 ^{+0.000600} _{-0.001200}	1	1.419 ^{+0.056} _{-0.058}
HAT-P-11	b	0.78000±0.00000	3.03280000±0.00001000	0.052000±0.00000000	1	1.400±0.060

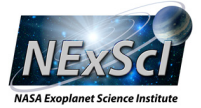
538 records

Columns Setting | Reset





Table Manipulation (3)



NStED NASA/IPAC/NExSci STAR AND EXOPLANET DATABASE

Home | Overview | **Holdings** | Helpdesk

Download IPAC ASCII Format table Convert & download other formats.

- Click on next to Planet Host Star for more info and tools
- Click on Column Headers to Sort
- Use Textbox below Headers to filter by String, or Values. For Example, "> 10.0" or "<= 7.5"
- If the new Planets Table doesn't work well for you, you can view the Old Version

Planets							
Planet Host Star Name	Planet Letter	Mass of the Planet	Orbital Period	Orbital Semi-major Axis	Is the Planet Known to Transit?	Radius of the Planet	Measured Transit Depth
		Jupiter masses	days	AU	(1=yes 0=no)	Jupiter Radii	perc
CT Cha	b	17.0000±6.00000		440.000000	0	2.200 ^{+0.810} _{-0.800}	
XO-3	b	13.25000±0.64000	3.19154260±0.00014000	0.047600±0.000500	1	1.950±0.160	
GQ Lup	b	21.50000±20.50000			0	1.800	
TrES-4		0.91900±0.07300	3.55394500±0.00007500	0.050910±0.000710	1	1.799±0.063	
WASP-12	b	1.41000±0.10000	1.09142300±0.00000300	0.022900±0.004000	1	1.790±0.090	
WASP-17	b	0.49000 ^{+0.05900} _{-0.05900}	3.73544170 ^{+0.00000720} _{-0.00000790}	0.051000 ^{+0.001700} _{-0.001800}	1	1.740 ^{+0.280} _{-0.290}	
WASP-48	b	0.98000±0.09000	2.14363400±0.00000300	0.034440±0.000430	1	1.670±0.080	
OGLE2-TR-L9	b	4.50000±1.50000	2.48553350±0.00000070	0.030800±0.000500	1	1.610±0.040	
WASP-31	b	0.50000	3.50000000		1	1.600	
WASP-1	b	0.91800 ^{+0.09100} _{-0.09000}	2.51996100	0.039570 ^{+0.000490} _{-0.000480}	1	1.514 ^{+0.052} _{-0.047}	
HAT-P-8	b	1.52000 ^{+0.18000} _{-0.18000}	3.07637760±0.00000400	0.048700±0.002600	1	1.500 ^{+0.080} _{-0.080}	
2M1207	b	4.00000 ^{+6.00000} _{-1.00000}		41.000000	0	1.500	
WASP-33	b	< 4.10000	1.21986690±0.00000120	0.025550±0.000170	1	1.497±0.045	
CoRoT-1	b	1.03000±0.12000	1.50895570±0.00000640	0.025400±0.000400	1	1.490±0.080	
Kepler-7	b	0.43300 ^{+0.04000} _{-0.04100}	4.88552500±0.00004000	0.062240 ^{+0.001090} _{-0.000840}	1	1.478 ^{+0.050} _{-0.051}	
CoRoT-2	b	3.31000±0.16000	1.74299640±0.00000170	0.028100±0.000900	1	1.465±0.029	
CoRoT-12	b	0.91700 ^{+0.07000} _{-0.06500}	2.82804200±0.00001300	0.040160 ^{+0.000930} _{-0.000920}	1	1.440±0.130	
Kepler-5	b	2.11400 ^{+0.05600} _{-0.05900}	3.54846000±0.00003200	0.050640±0.000700	1	1.431 ^{+0.041} _{-0.052}	
CoRoT-11	b	2.33000±0.34000	2.99433000±0.00001100	0.043600±0.000500	1	1.430±0.030	
WASP-15	b	0.54200±0.05000	3.75206560±0.00000280	0.049900±0.001800	1	1.428±0.077	
WASP-51	b	0.76000±0.05000	2.81060300±0.00000800	0.041180±0.000310	1	1.420±0.040	
Kepler-8	b	0.60300 ^{+0.13000} _{-0.19000}	3.52254000 ^{+0.00003000} _{-0.00005000}	0.048300 ^{+0.000600} _{-0.001200}	1	1.419 ^{+0.056} _{-0.058}	
HAT-P-9	b	0.78000±0.00000	3.02280000±0.00000000	0.053000±0.000000	1	1.400±0.050	

538 records Columns Setting Reset





Table Manipulation (4)



NSIED NASA/IPAC/NExSci STAR AND EXOPLANET DATABASE

Home | Overview | Holdings | Helpdesk

Download IPAC ASCII Format table | Convert & download other formats.

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- If the new Planets Table doesn't work well for you, you can view the Old Version

Modify Constraints | Plot | Tools | Save/Restore

Planets

Planet Host Star Name	Planet Letter	Mass of the Planet	Orbital Period	Orbital Semi-major Axis	Is the Planet Known to Transit?	Radius of the Planet	Measured Transit Depth
		Jupiter masses	days	AU	(1=yes 0=no)	Jupiter Radii	perc
<input type="text"/>	<input type="text"/>	<input type="text" value="< 0.02"/>	<input type="text"/>	<input type="text"/>	<input type="text" value="1"/>	<input type="text"/>	<input type="text"/>
Kepler-11	d	0.01919 ^{+0.00975} _{-0.00535}	22.68719000±0.00021000	0.159000±0.005000	1	0.307±0.029	
CoRoT-7	b	0.01500±0.00300	0.85358500±0.00002400	0.017200±0.000290	1	0.150±0.008	
Kepler-10	b	0.01430 ^{+0.00360} _{-0.00400}	0.83749500 ^{+0.00000400} _{-0.00000500}	0.016840 ^{+0.000320} _{-0.000340}	1	0.127±0.003	
Kepler-11	b	0.01353 ^{+0.00692} _{-0.00629}	10.30375000±0.00016000	0.091000±0.003000	1	0.176±0.017	
Kepler-11	f	0.00724 ^{+0.00692} _{-0.00376}	46.68876000±0.00074000	0.250000±0.009000	1	0.234±0.022	
BOKS-1	b		3.90512000±0.00005000	0.047700±0.000700	1	1.110±0.020	

0 of 6 records

Columns Setting | Reset



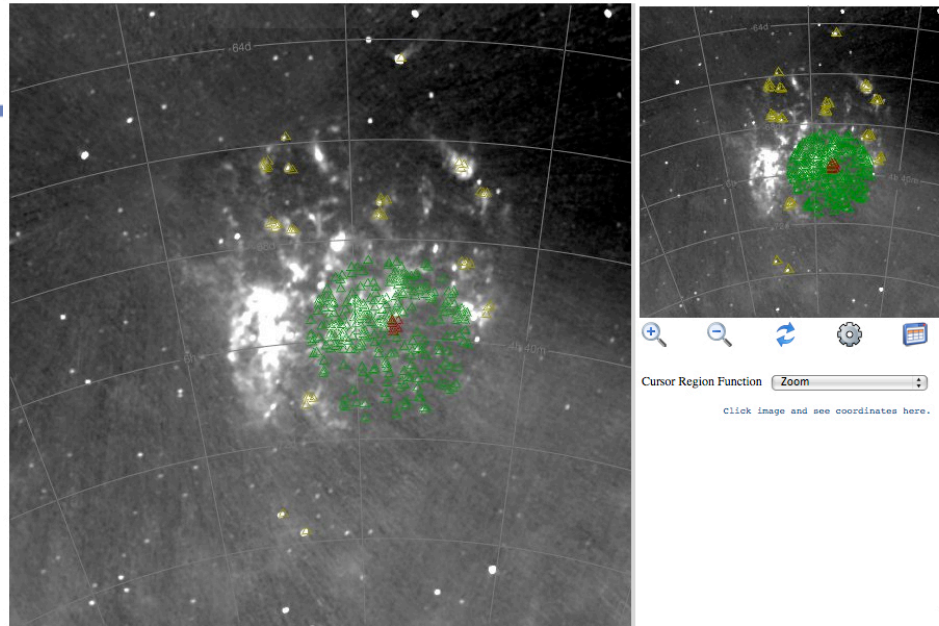


Images

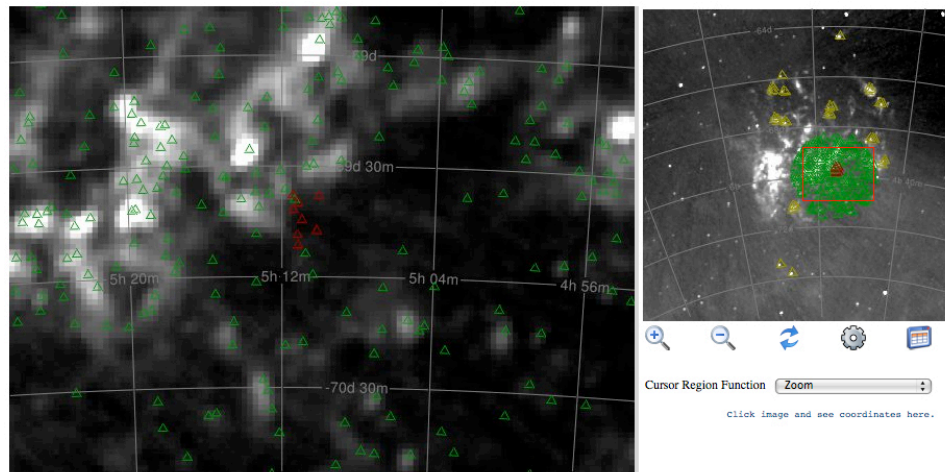


- The same interaction functionality can be applied to images
 - Region zooming
 - Point selection from overlay tables

- The following set of slides shows some of the underlying capabilities



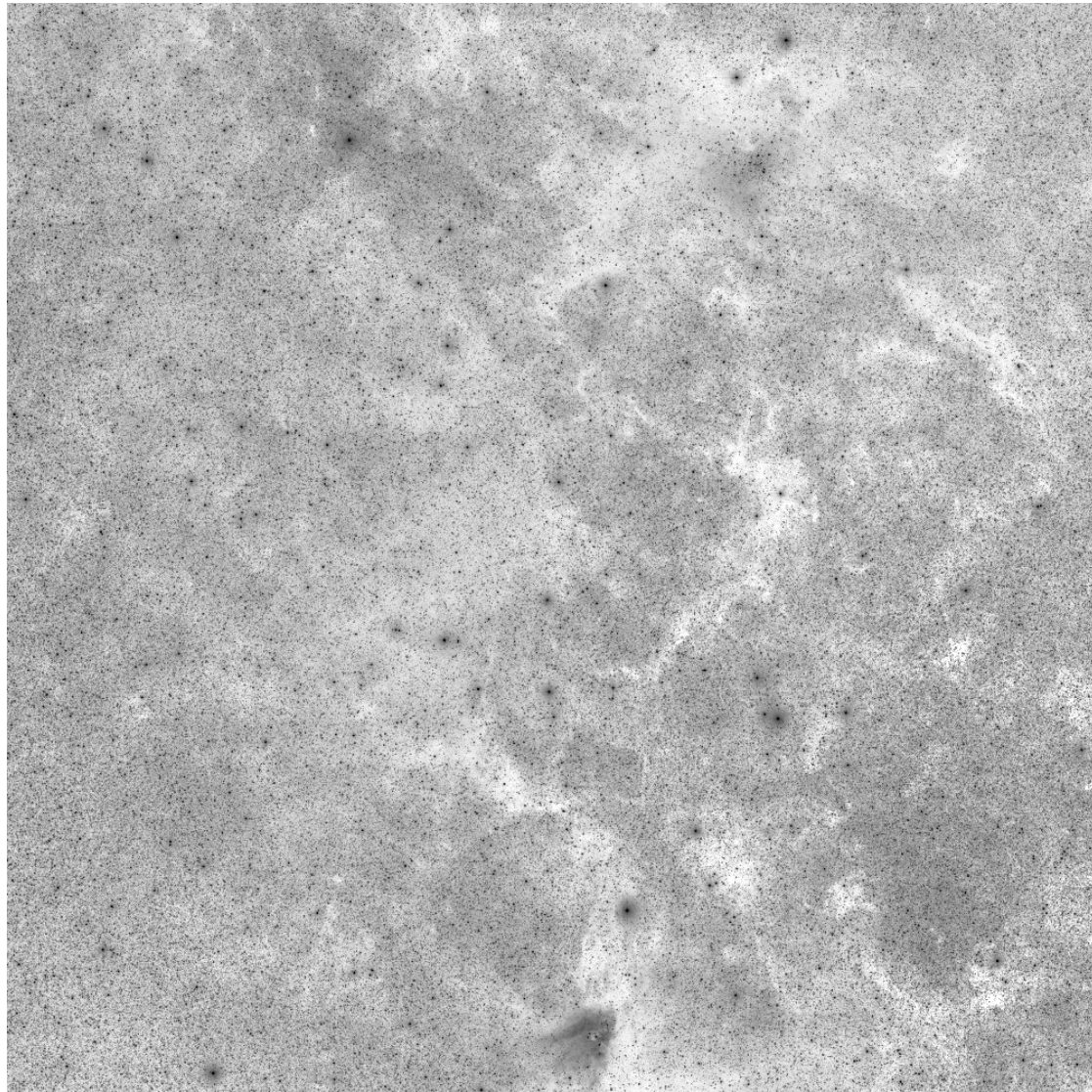
The main image area allows for pick image points by clicking or defining zoom areas by dragging a box shape. Coarse zoom steps are also available via the buttons above. If the data table window has been activated, selected points will be highlighted there also and selecting table records will cause the image picked point to change in response.



The main image area allows for pick image points by clicking or defining zoom areas by dragging a box shape. Coarse zoom steps are also available via the buttons above. If the data table window has been activated, selected points will be highlighted there also and selecting table records will cause the image picked point to change in response.

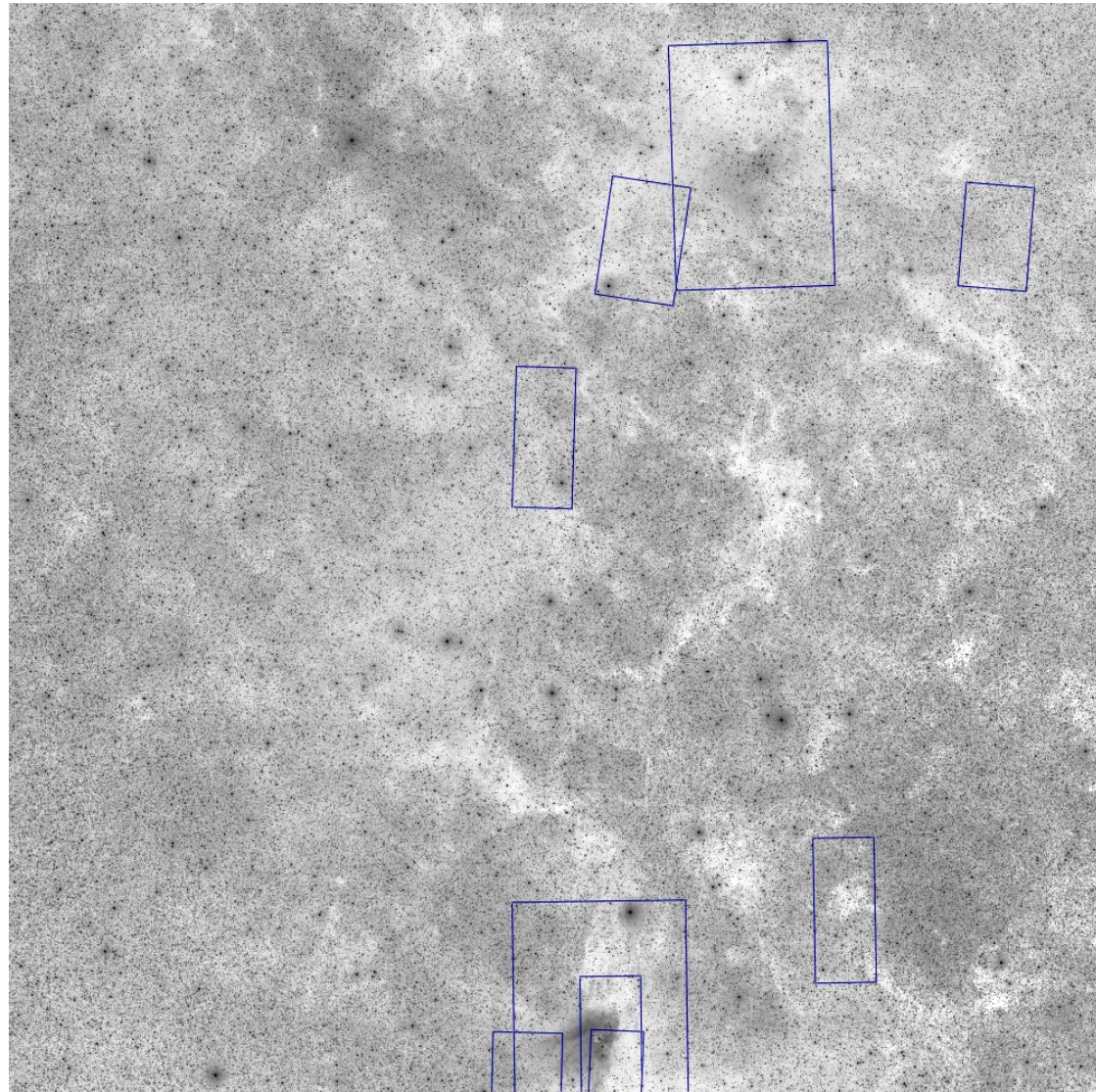


Images (2)





Images (3)



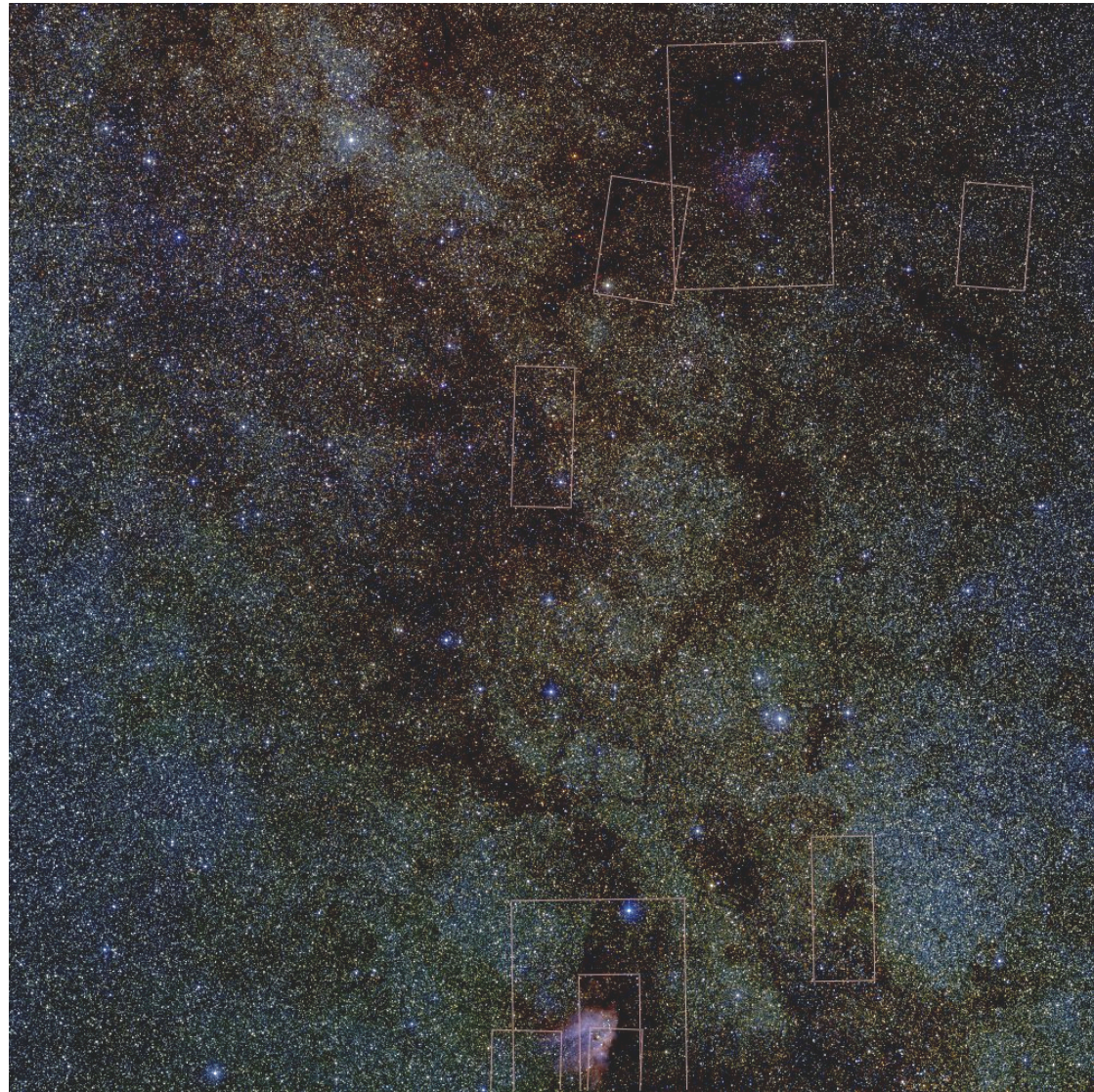


Images (4)



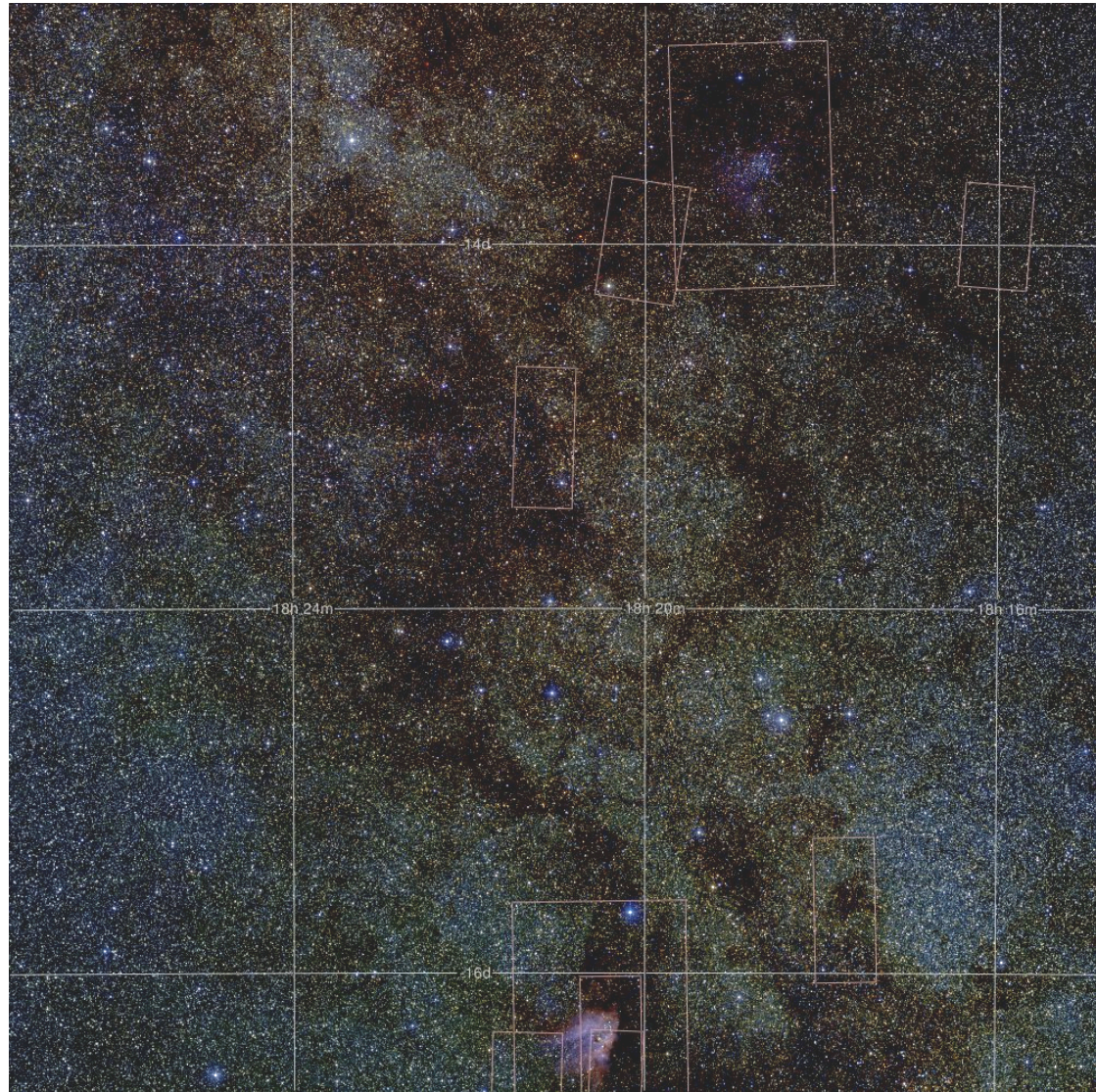


Images (5)





Images (6)



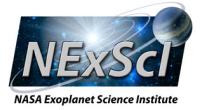


Images (7)





Images (8)





Closing Notes



- ICE components (our name for the tools described in this talk) fit into a page or pages in the same way as DHTMLX (or other) Javascript display objects. They can be intermixed.
- The server-side tools (SQLite-based dbLoad and dbSelect, jPlot, Montage manipulation and image rendering) can all be used in multiple modes:
 - From the command-line
 - From within pipelines and run by any scripting language
 - As the underpinnings for the tools shown here
- Server-side (and even remote computing such as on a cloud) is much higher performance than trying to shoehorn it into the client and allows the most effective/efficient languages to be used.
- Other backend components could just as easily be factored in
 - Instead of jPlot (an application built with the PIPlot library) one could instead use JPEGs generated by, for instance, a statistical analysis package
 - Very little of the client Javascript logic would have to change