


IPAC Archive Holdings

L. M. Rebull, 8 Jan 11



Why?

- The “I” in NITARP stands for “IPAC”, the Infrared Processing and Analysis Center, based at Caltech.
- IPAC houses several different archives, each with their own goals, methodology, tools, staff, (and sometimes science goals).
- As NITARP educators, you will learn about at least one of our data sets in great detail, but the rest of IPAC’s holdings may also prove useful to you in your NITARP project.
- There are also upcoming data releases that may be useful to you in your future (post-NITARP) work.
- Every one of these archives has a booth here at the AAS – go seek them out! There are more archives too...

NED



- NED = NASA/IPAC Extragalactic Database
- Focused on extragalactic science.
- Ingests catalogs and literature tables.
- 163.2 million unique objects!
- Myriad cross-links, notes, etc.
- Updates every few months.
- <http://nedwww.ipac.caltech.edu/>

NASA/IPAC EXTRAGALACTIC DATABASE

Latest updates to NED content and interface (December 2010)

- Over 2.4 million new database entries
- Additions to Level 5, including "Extreme Star Formation" (I. Turner 2010)
- 2,658 Images from the Spitzer Local Volume Legacy program (Dale et al. 2010)
- Major updates to Redshift-Independent Distances (NED-D)
- 229,734 Classifications and Attributes added for 108,003 objects
- Attributes now include Distance Indicators, Kinematics, and Hierarchy
- Query reports now contain Quick-look Photometry and Derived Luminosities
- New services build User-Customized Data Tables from Input Lists

OBJECTS	DATA	LITERATURE	TOOLS	INFO
By Name	Images By Object Name or By Region	References by Object Name	Coordinate Transformation & Extinction Calculator	Introduction Latest News/Updates
Near Name	Photometry & SEDs	References by Author Name	Velocity Calculator	Features FAQ
Near Position	Spectra	Text Search	Cosmology Calculators	Overview (pdf)
IAU Format	Redshifts	Knowledgebase	Extinction-Law Calculators	Source List
By Parameters (All-Sky)	Redshift-Independent Distances	Galaxy Distance Tabulations (NED-D)	Skyplot	Web Links
By Classifications Types, Attributes	Classifications by Object Name	Abstracts	X/Y offset to RA/DEC	Glossary & Lexicon
By Refcode	Positions	Thesis Abstracts	Batch Job Submission	Team



NASA Exoplanet Archive



- Focused on stars harboring exoplanets, or thought to harbor exoplanets.
- Includes Kepler data, and US portal to CoRoT data.
- Those of you using Kepler data will get more of an introduction to this as part of your work.
- Online tools to work with these data, like the periodogram service.
- <http://exoplanetarchive.ipac.caltech.edu/>

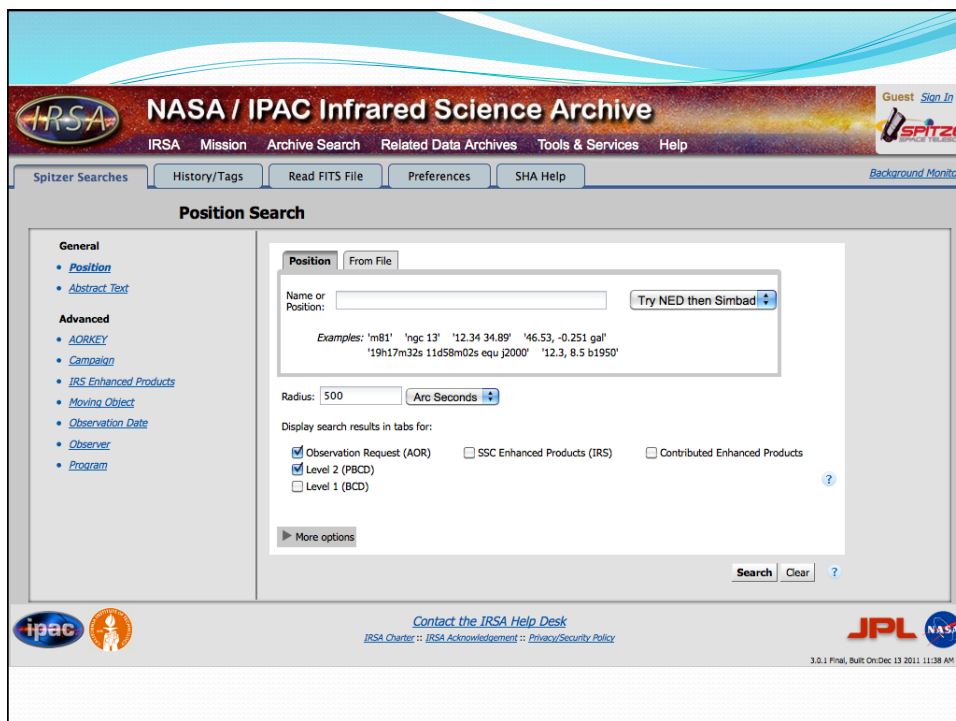
The screenshot shows the NASA Exoplanet Archive website interface. The top navigation bar includes links for Home, Overview and Holdings, Documentation, and Help. The main content area is titled "Planets and Hosts" and displays a table of exoplanet data. On the left, there is a "Column Controls" panel with a list of columns and checkboxes to select or deselect them. The table columns are: Row ID, Host Name, Planet Letter, HD Name, HIP Name, RA [deg], Dec [deg], and Distance [parsec]. The table contains 20 rows of data, with the first row being HD 175541 b.

Row ID	Host Name	Planet Letter	HD Name	HIP Name	RA [deg]	Dec [deg]	Distance [parsec]
1	HD 175541	b	HD 175541	HIP 92895	283.920349	4.265325	127.55±16.07
2	HD 176051	b	HD 176051	HIP 93017A	284.256714	32.901272	14.98±0.12
3	HD 177830	b	HD 177830	HIP 93746	286.336548	25.920660	59.03±2.54
4	HD 177830	c	HD 177830	HIP 93746	286.336548	25.920660	59.03±2.54
5	HD 178911 B	b	HD 178911B	HIP 94075	287.262939	34.599850	46.73±8.78
6	HD 179079	b	HD 179079	HIP 94256	287.790955	-2.638385	63.69±3.60
7	HD 179949	b	HD 179949	HIP 94645	288.888458	-24.179352	27.05±0.57
8	HD 180902	b	HD 180902	HIP 94951	289.823792	-23.558155	114.55±11.77
9	HD 181342	b	HD 181342	HIP 95124	290.267639	-23.619572	115.47±11.09
10	HD 181433	b	HD 181433	HIP 95467	291.289856	-66.468796	26.15±0.76
11	HD 181433	c	HD 181433	HIP 95467	291.289856	-66.468796	26.15±0.76
12	HD 181433	d	HD 181433	HIP 95467	291.289856	-66.468796	26.15±0.76
13	HD 181720	b	HD 181720	HIP 95262	290.720764	-32.919056	55.93±3.82
14	HD 183263	b	HD 183263	HIP 95740	292.102386	8.358054	52.83±2.80
15	HD 183263	c	HD 183263	HIP 95740	292.102386	8.358054	52.83±2.80
16	HD 185269	b	HD 185269	HIP 96507	294.298920	28.499865	47.37±1.60
17	HD 187085	b	HD 187085	HIP 97546	297.391541	-37.780552	44.98±2.19
18	HD 187123	b	HD 187123	HIP 97336	296.742126	34.419525	47.92±1.58
19	HD 187123	c	HD 187123	HIP 97336	296.742126	34.419525	47.92±1.58
20	HD 18742	b	HD 18742	HIP 13983	45.044407	-20.802603	127.88±15.27

Spitzer

- Spitzer is both an active mission and no longer an active mission. Its entire archive is available through IRSA (next main topic).
- Those of you using Spitzer data will get more of an introduction to Spitzer in the context of your work.
- Spitzer's data are available from the Spitzer Heritage Archive (SHA).
- It is the testbed for a new “look and feel” for all of IRSA's holdings, and may strongly influence the rest of IPAC's holdings – like Planck!
- (New version released literally days ago...)



The screenshot shows the NASA / IPAC Infrared Science Archive (IRSA) website. The main navigation bar includes links for IRSA, Mission, Archive Search, Related Data Archives, Tools & Services, and Help. Below this is a secondary navigation bar with buttons for Spitzer Searches, History/Tags, Read FITS File, Preferences, and SHA Help. The central content area is titled "Position Search" and features a search form with the following elements:

- Position** (selected) and **From File** tabs.
- A text input field for "Name or Position" with a "Try NED then Simbad" button.
- Examples of coordinates: 'm81' 'ngc 13' '12.34 34.89' '46.53, -0.251 gal' and '19h17m32s 11d58m02s equ J2000' '12.3, 8.5 b1950'.
- A "Radius" field set to "500" with an "Arc Seconds" dropdown.
- A section for "Display search results in tabs for:" with checkboxes for "Observation Request (AOR)", "Level 2 (PBCD)", "Level 1 (BCD)", "SSC Enhanced Products (IRS)", and "Contributed Enhanced Products".
- A "More options" link.
- "Search" and "Clear" buttons.

The footer contains the IPAC logo, a "Contact the IRSA Help Desk" link, the IRSA Charter, Acknowledgment, and Privacy/Security Policy, the JPL and NASA logos, and the version information: "3.0.1 Final, Built On: Dec 13 2011 11:38 AM PST".

IRSA



- IRSA = NASA/IPAC Infrared Science Archive
- Charter is to provide interface to all NASA infrared and sub-mm data sets.
- Some are small (e.g., Spitzer Legacy programs), and some are VERY large (all-sky surveys).
- IRSA datasets are cited in about 10% of astronomical refereed journal articles

Some IRSA holdings

- Infrared Astronomy Satellite (IRAS) – the first all-sky mid- and far-IR survey.
- **Two Micron All-Sky Survey (2MASS)** – a deep, uniform all-sky survey at J, H, and Ks.
- **Spitzer Space Telescope** – 3-160 microns (see earlier slide).
- **Planck** = ESA mission, all-sky survey at 30 to 857 GHz (1 cm to 350 microns)
- **WISE** = Widefield Infrared Survey Explorer – all-sky survey at 3-23 μm
- Balloon-borne Large Aperture Submillimeter Telescope (BLAST) – a prototype of Herschel's SPIRE camera flown on a balloon in 2005-2006.
- Cosmic Evolution Survey (COSMOS) - a multiwavelength survey of a 2 sq. degree field involving every Great Observatory as well as ground-based data.
- BOLOCAM – a millimeter wavelength bolometer array at the Caltech Submillimeter Observatory.
- AKARI – a Japanese IR telescope that surveyed the whole sky at 9-160 microns.
- Midcourse Science Experiment (MSX) – a mid-IR telescope that mapped the Galactic plane and the gaps in the IRAS all-sky coverage.
- Infrared Space Observatory (ISO) – US interface to the ESA archive for ISO.

The screenshot shows the NASA/IPAC Infrared Science Archive (IRSA) website. The header includes the IRSA logo and navigation links: IRSA, Mission, Archive Search, Related Data Archives, Tools & Services, and Help. Below the header is the Planck logo and a search bar with options for Searches, Catalogs, and Preferences. The main content area is titled "Planck" and features a "Search By ..." sidebar with options: Single Wavelength (All-Sky), Multiple Wavelength (Name/Position), and Download Planck Products. The search form includes a "Name or Position:" field with a "NED" dropdown, example coordinates, a "Radius (Degree):" field set to 0.5, and a "Select Bands" section with checkboxes for 30, 44, 70, 100, 143, 217, 353, 545, 857, and ECC GHz. Search and Clear buttons are at the bottom right.

The screenshot shows the NASA/IPAC Infrared Science Archive (IRSA) website. The header includes the IRSA logo and navigation links: IRSA, Mission, Archive Search, Related Data Archives, Tools & Services, and Help. Below the header is the WISE logo and a search bar with options for Searches, Catalogs, and Preferences. The main content area is titled "Wide-Field Infrared Survey Explorer" and features a "Search By ..." sidebar with options: Position, Scan/Frame (Single Exposure), Coadd (Atlas), WISE Source ID, and Solar System Object/Orbit. The search form includes a "Single Object" / "Multi-Objects" toggle, a "Name or Position:" field with a "NED" dropdown, example coordinates, a "Search Type (Region Intersection):" dropdown set to "Image contains target", a "Return Image Size" field set to 600 with an "Arc Seconds" dropdown, a "Return only the most centered image containing the target:" radio button set to "No", a "Return the following bands:" section with checkboxes for W1, W2, W3, and W4, a "Data Product Level:" section with checkboxes for "Single Exposure (Level 1b)" and "Atlas (Level 3)", and a link for "Optional constraints for Atlas (Level 3) data". Search and Clear buttons are at the bottom right.

Summary

- LOTS of data available to you RIGHT NOW.
- Everything is web-based. Most are intuitive (I hope). Most have on-line help.
- Many have some related material on the NITARP wiki.
- All of these archives have booths here at the AAS.
- You will learn more about archives specific to you as you work on your project, but don't be afraid to branch out and go exploring!