


IPAC Archive Holdings

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Why?

- The “I” in NITARP stands for “IPAC”, the Infrared Processing and Analysis Center, based at Caltech.
- IPAC is not the Astronomy Department!
- 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, or your future (post-NITARP) work!
- Essentially all of IPAC has recently been consolidated into one AAS booth (for better branding in the community).
- (There are archives based at other places that have other booths here too...)

NED



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

News & Featured Updates — November 2014

- [1.6 million infrared sources from WINGS \(2009A&A...501_851V\)](#)
- [22 million XIDs and new objects from the GALEX MSC](#)
- [New help system in the new user interface](#)
- [Latest articles in Level 5](#)

NED is embarking on a major transformation: We invite you to [preview a new interface](#) providing a drop-down menu and a form to search for objects By Name directly on the landing page (future homepage). A new Near Position search option includes catalog sources that are undergoing integration into NED. All users should read about [these significant changes](#). Further streamlining of the interface, including consolidation of search forms, will be released incrementally with new content and evolving functionality.

OBJECTS	DATA	LITERATURE	TOOLS	INFO
By Name	Images by Object Name 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 <small>LEVEL 5</small>	Extinction-Law Calculators	Source Nomenclature
By Parameters	Redshift-Independent Distances	Galaxy Distance Tabulations (NED-D)	Galaxy Environment by Precomputed Parameters Radial Velocity Constraint	Web Links New Interface
By Classifications <i>Types, Attributes</i>	Classifications by Object Name	Abstracts	X/Y offset to RA/DEC	Glossary & Lexicon

NASA Exoplanet Archive



- Focused on stars harboring exoplanets, or thought to harbor exoplanets.
- Includes Kepler data, and US portal to CoRoT data.
- Anyone using Kepler data (none of you this year?) 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. At the top, it features the IPAC logo and the text "NASA EXOPLANET ARCHIVE A SERVICE OF NASA EXOPLANET SCIENCE INSTITUTE". There are social media icons for Twitter, Facebook, and YouTube, along with a "FOR THE PUBLIC PLANETQUEST" banner. A navigation menu includes "Home", "About the Archive", "Data", "Tools", and "User Guides & Helpdesk".

Key statistics displayed include:

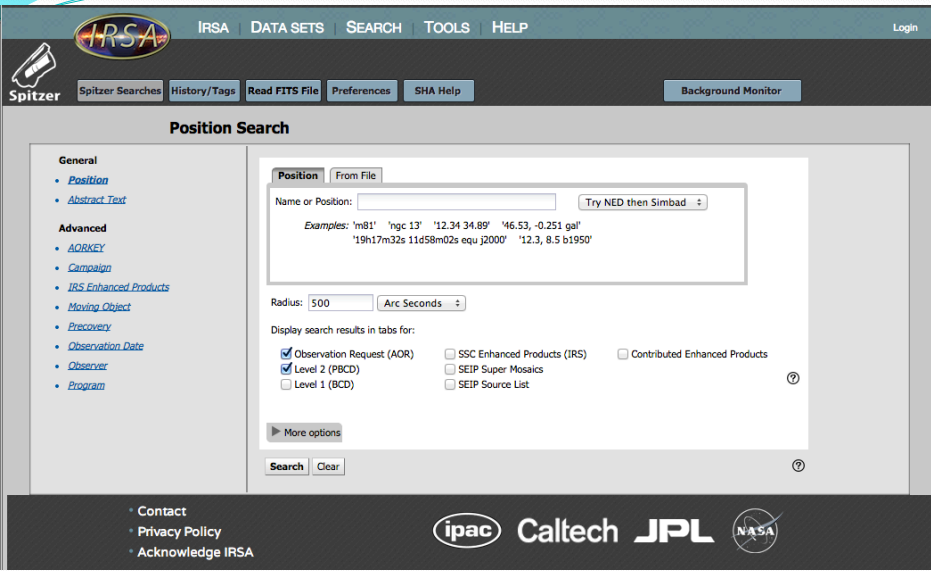
- 1,780 Confirmed Planets (12/03/2014)
- 459 Multi-Planet Systems (12/03/2014)
- 4,183 Kepler Candidates (12/04/2014)
- View more Planet and Candidate statistics

The "Explore the Archive" section contains a search bar for "Name or Coordinates" and a "Radius Arcsecs" field set to 30. Below this is a "Transit Surveys" section for Kepler, mentioning "21,300,145 Light Curves" and describing the mission's goal to search for Earth-sized planets in the habitable zone. A "7 Planets Added, 7 Planetary Systems Updated" announcement for December 4, 2014, is also visible, along with a background image of exoplanets.


Spitzer



- Spitzer is both an active mission and no longer an active mission. Its entire archive is available through IRSA (coming up).
- 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 was the testbed for a new “look and feel” for all of IRSA's holdings, and the same underlying software is now used to serve several of the rest of IPAC's holdings – like Planck!



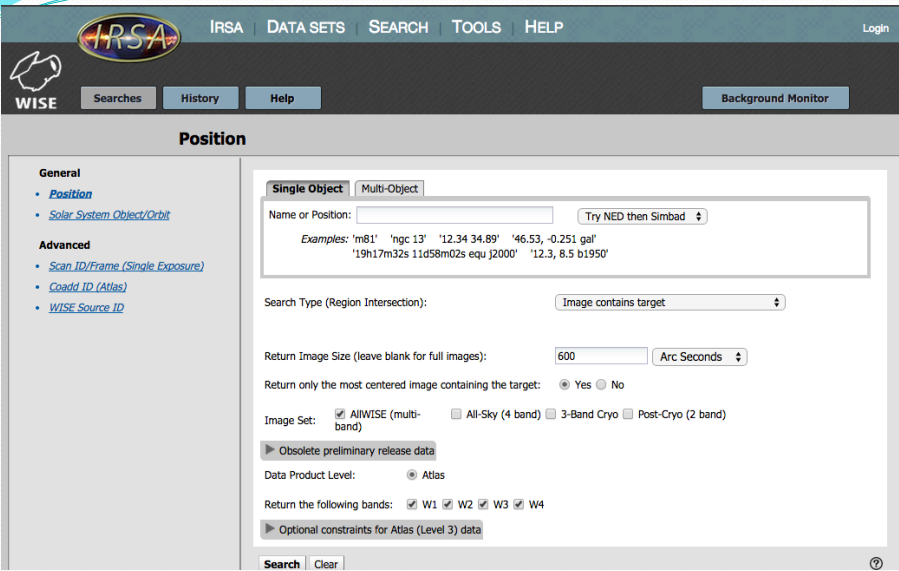
The screenshot shows the IRSA Position Search web interface. At the top, there is a navigation bar with links for IRSA, DATA SETS, SEARCH, TOOLS, and HELP, along with a Login button. Below this is a secondary navigation bar with Spitzer, Spitzer Searches, History/Tags, Read FITS File, Preferences, SHA Help, and Background Monitor. The main content area is titled "Position Search" and features a sidebar with a "General" section containing links for Position, Abstract Text, and an "Advanced" section with links for AORKEY, Campaign, IRS Enhanced Products, Moving Object, Precovary, Observation Date, Observer, and Program. The main search area includes a "Position" tab, a "From File" button, a text input field for "Name or Position" with a "Try NED then Simbad" button, and a list of example coordinates. Below the input field is a "Radius" field set to 500 and a unit selector for "Arc Seconds". A section for "Display search results in tabs for:" contains several checkboxes: "Observation Request (AOR)" (checked), "Level 2 (PBCD)" (checked), "Level 1 (BCD)", "SSC Enhanced Products (IRS)", "SEIP Super Mosaics", "SEIP Source List", and "Contributed Enhanced Products". There are "More options" and "Search" buttons, along with a "Clear" button. The footer contains links for Contact, Privacy Policy, and Acknowledge IRSA, and logos for ipac, Caltech, JPL, and NASA.



WISE

- Widefield Infrared Survey Explorer (WISE) is also both active and no longer an active mission. Its entire archive is available through IRSA (coming up).
- WISE was on for ~13 months, then turned off, and reawakened Fall 2013.
- Those of you using WISE data will get more of an introduction to WISE in the context of your work.
- WISE data (images and data tables) are available most transparently from the WISE Image Server.

Does this look familiar? Once you've mastered one of these archives through this interface, the rest are easier to pick up.



The screenshot shows the IRSA WISE Position search interface. The top navigation bar includes IRSA, DATA SETS, SEARCH, TOOLS, HELP, and a Login link. The main header features the WISE logo and buttons for Searches, History, Help, and Background Monitor. The 'Position' section is active, showing a search form with the following options:

- General**
 - [Position](#)
 - [Solar System Object/Orbit](#)
- Advanced**
 - [Scan ID/Frame \(Single Exposure\)](#)
 - [Coadd ID \(Atlas\)](#)
 - [WISE Source ID](#)

The search form includes:

- Single Object** / Multi-Object tabs
- Name or Position:** Input field with a "Try NED then Simbad" button. Examples: 'm81' 'ngc 13' '12.34 34.89' '46.53, -0.251 gal' '19h17m32s 11d58m02s equ J2000' '12.3, 8.5 b1950'
- Search Type (Region Intersection):** Image contains target
- Return Image Size (leave blank for full images):** 600 Arc Seconds
- Return only the most centered image containing the target:** Yes (selected) / No
- Image Set:** AllWISE (multi-band) All-Sky (4 band) 3-Band Cryo Post-Cryo (2 band)
- Obsolete preliminary release data:** (collapsed)
- Data Product Level:** Atlas
- Return the following bands:** W1 W2 W3 W4
- Optional constraints for Atlas (Level 3) data:** (collapsed)

Buttons for Search and Clear are at the bottom of the form.



IRSA

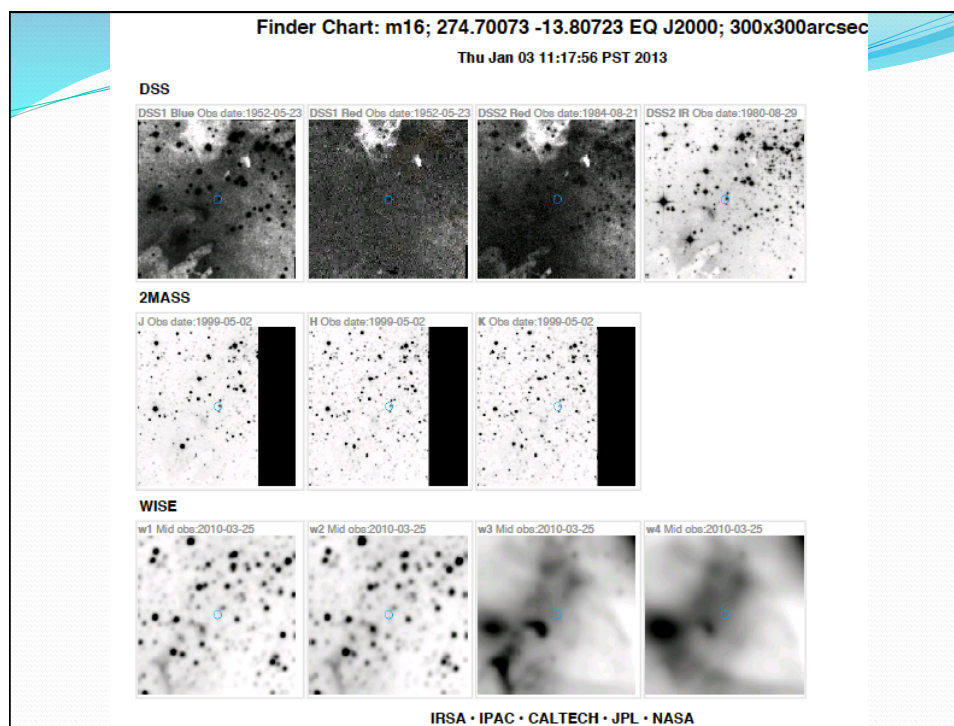
- IRSA = NASA/IPAC Infrared Science Archive
- Charter is to provide interface to all NASA infrared and sub-mm data sets. Has a few others in there too.
- Some are small (e.g., Spitzer Legacy programs), and some are VERY large (all-sky surveys like WISE).
- IRSA datasets are cited in about 10% of astronomical refereed journal articles.
- Several of the newest data sets are served via Hydra; the rest are accessible via ATLAS or Gator.
- Total holdings in images: 88.1 TB, 17,684,845 images
- Total in catalogs: 20,668,829,117 sources
- Total in spectra: 16.62 GB, 157,712 spectra

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).
- **WISE** = Widefield Infrared Survey Explorer – all-sky survey at 3-23 μm
- Planck = ESA mission, all-sky survey at 30 to 857 GHz (1 cm to 350 microns)
- 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 IRSA website interface for browsing catalogs. At the top, there is a navigation bar with 'IRSA', 'DATA SETS', 'SEARCH', 'TOOLS', and 'HELP'. A 'Login' link is on the right. Below this is a secondary bar with 'Planck', 'Searches', 'History', 'Help', and 'Background Monitor'. The main content area is titled 'Browse Single PCCS Catalogs'. It features two columns of links: 'Planck Data Release 1' (with sub-links for 'Browse Single PCCS Catalogs' and 'Multiple Frequency Cutout Visualization') and 'Planck ERCSC Release' (with sub-links for 'Browse Single ERCSC Catalogs' and 'Multiple Frequency Catalog Visualization'). To the right is a search filter section with a 'Band:' dropdown set to '30 GHz', a 'Number of Column Filters: 0' indicator, and 'Search' and 'Clear' buttons. The footer contains 'Contact', 'Privacy Policy', 'Acknowledge IRSA', and logos for 'ipac', 'Caltech', 'JPL', and 'NASA'.

The screenshot shows the 'Finder Chart' interface. It has a top navigation bar with 'FINDER CHART', 'Searches', 'History', 'Help', and 'Background Monitor'. The main section is titled 'Finder Chart' and contains a search form. The form has two tabs: 'Single Position' (selected) and 'Multiple Positions'. The 'Name or Position:' field has a 'Try NED then Simbad' dropdown and examples: 'm81', 'ngc 13', '12.34 34.89', '46.53, -0.251 gal', '19h17m32s 11d58m02s equ j2000', and '12.3, 8.5 b1950'. Below this are settings for 'Image Size' (300, Arc Seconds), 'Display Size' (Small, Medium, Large), and 'Select Image(s):' (checked for DSS, SDSS (DR7), 2MASS (allsky), WISE (AllWISE), and IRAS (IRIS)). There are also options for 'Search Corresponding Catalog(s):' (Yes/No), 'Search within the image boundary' (radio button), and 'Search radius (arcsec)' (radio button). At the bottom, there are input fields for 'SDSS (DR10): 5', '2MASS (PSC): 5', and 'WISE (AllWISE): 5', along with a 'One to One Match' checkbox and an 'Image Search Options' section. 'Search' and 'Clear' buttons are at the bottom.



Summary

- LOTS of data available to you RIGHT NOW.
- Everything is web-based. Most are intuitive (I hope). Most have on-line help. They are getting more integrated all the time.
- Many have some related material on the NITARP wiki, and/or in NITARP Tutorials.
- All of these archives have representation 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!