



IPAC Archive Holdings

L. M. Rebull, 5 Jan 14



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 booth (for better branding in the community). Typically we have a large booth. Sequestration means we are FAR smaller.
- (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.
- 177 million unique objects!
- Myriad cross-links, notes, etc.
- Updates every few months.
- <http://ned.ipac.caltech.edu/>



NASA/IPAC EXTRAGALACTIC DATABASE

News & Featured Additions (Dec 2012 Release)

- Photometry and SEDs for 6.2 million objects in the SMC
- 17,400 Chandra X-ray sources in 383 nearby galaxies
- Redshift-independent distances of nearly 3,000 objects
- 733 highly processed FITS images contributed by authors
- 110 spectra of H I Bright Galaxies in the Southern Zone of Avoidance

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 <small>LEVEL 5</small>	Extinction-Law Calculators	Source List
By Parameters (All-Sky)	Redshift-Independent Distances	Galaxy Distance Tabulations (NED-D)	Skyplot	Web Links
By Classifications <i>Types, Attributes</i>	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.
- 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/>

NASA Exoplanet Archive

Home | Overview and Holdings | Documentation | Helpdesk

Current Exoplanet Archive Holdings



817 Planets around 642 Stars
2,320 Kepler Planetary Candidates
2,553,174 Transit Survey Light Curves

- *Planet parameters are updated weekly*
- *See the [Planet Counts](#) page for a breakdown by discovery method*
- *Pre-generated plots (see example, right) for exoplanets and Kepler candidates are also available*

Radius (Earth Radii)

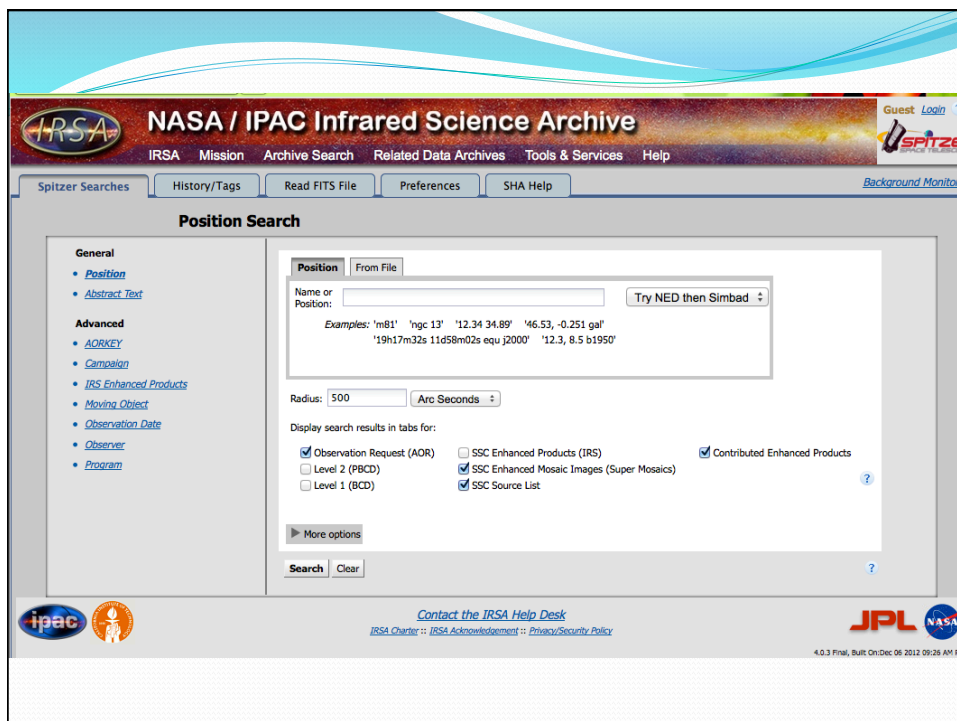
Transit Depth (ppm)

Latest News

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 NASA/IPAC Infrared Science Archive (IRSA) website. The main header includes the IRSA logo, the text "NASA / IPAC Infrared Science Archive", and navigation links for "IRSA", "Mission", "Archive Search", "Related Data Archives", "Tools & Services", and "Help". There are also links for "Guest Login" and "Background Monitor".

The "Position Search" section is active, showing 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" and a unit selector set to "Arc Seconds".
- 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)
 - SSC Enhanced Mosaic Images (Super Mosaics)
 - SSC Source List
 - Contributed Enhanced Products
- A "More options" button.
- "Search" and "Clear" buttons.

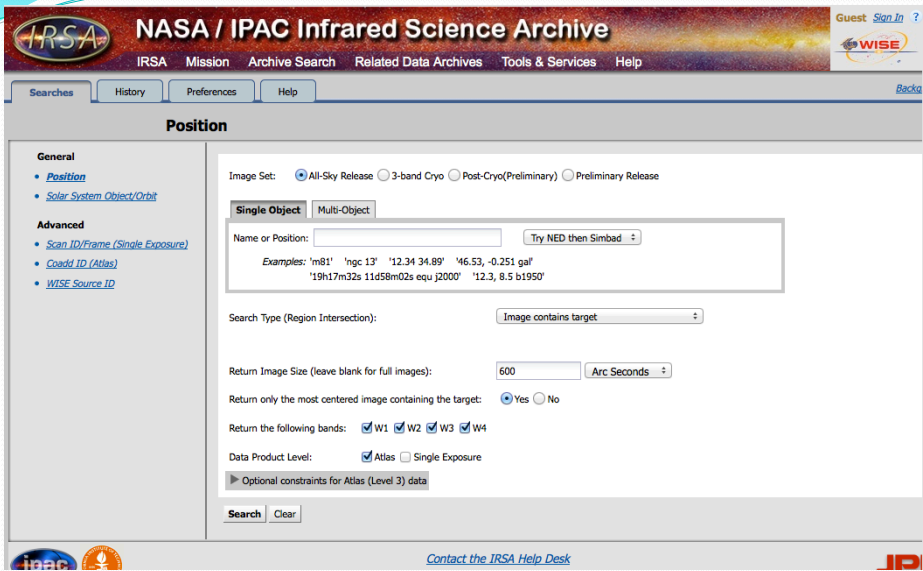
The footer contains the IPAC logo, a "Contact the IRSA Help Desk" link, the IRSA Charter, Acknowledgment, and Privacy/Security Policy, the JPL NASA logo, and the version information "4.0.3 Final, Built On: Dec 09 2012 09:26 AM PST".



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 recently reawakened.
- 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 search interface. The main header is "NASA / IPAC Infrared Science Archive" with navigation links for IRSA, Mission, Archive Search, Related Data Archives, Tools & Services, and Help. Below the header is a "Position" search form. The form includes a "General" section with radio buttons for "Image Set" (All-Sky Release, 3-band Cryo, Post-Cryo(Preliminary), Preliminary Release). The "Single Object" section has a "Name or Position" input field with a "Try NED then Simbad" button and examples: 'm81' 'lrgc 13' '12.34 34.89' '46.53, -0.251 gal' and '19h17m32s 11d58m02s equ j2000' '12.3, 8.5 b1950'. The "Search Type (Region Intersection)" dropdown is set to "Image contains target". The "Return Image Size" is set to 600 with a unit dropdown for "Arc Seconds". The "Return only the most centered image containing the target:" checkbox is checked. The "Return the following bands:" section has checkboxes for W1, W2, W3, and W4, all of which are checked. The "Data Product Level:" section has checkboxes for "Atlas" and "Single Exposure", with "Atlas" checked. There is a link for "Optional constraints for Atlas (Level 3) data". At the bottom of the form are "Search" and "Clear" buttons. The footer includes logos for ipac and IRSA, and a link to "Contact the IRSA Help Desk".



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.

IRSA NASA / IPAC Infrared Science Archive Guest [Sign In](#) ?

IRSA Mission Archive Search Related Data Archives Tools & Services Help

PLANCK Searches Catalogs Preferences Home > Multiple Wavelength (Name/Position) [Background Monitor](#)

Planck

Search By ...

- [Single Wavelength \(All-Sky\)](#)
- [Multiple Wavelength \(Name/Position\)](#)
- [Download Planck Products](#)

Name or Position: NED

Examples: 'm81' 'ngc 13' '12.34 34.89' '46.53, -0.251 gal'
'19h17m32s 11d58m02s equ j2000' '12.3, 8.5 b1950'

Radius (Degree): 0.5

Select Bands 30 GHz 44 GHz 70 GHz 100 GHz 143 GHz 217 GHz 353 GHz 545 GHz 857 GHz ESZ ECC

[Search](#) [Clear](#) ?

IRSA NASA / IPAC Infrared Science Archive Guest [Login](#) ?

IRSA Mission Archive Search Related Data Archives Tools & Services Help

Searches History Preferences Help Background Monitor

Finder Chart

Single-Object Multi-Object

Name or Position: Try NED then Simbad

Examples: 'm81' 'ngc 13' '12.34 34.89' '46.53, -0.251 gal'
'19h17m32s 11d58m02s equ j2000' '12.3, 8.5 b1950'

Image Size: 300 Arc Seconds

Display Size: Small Medium Large

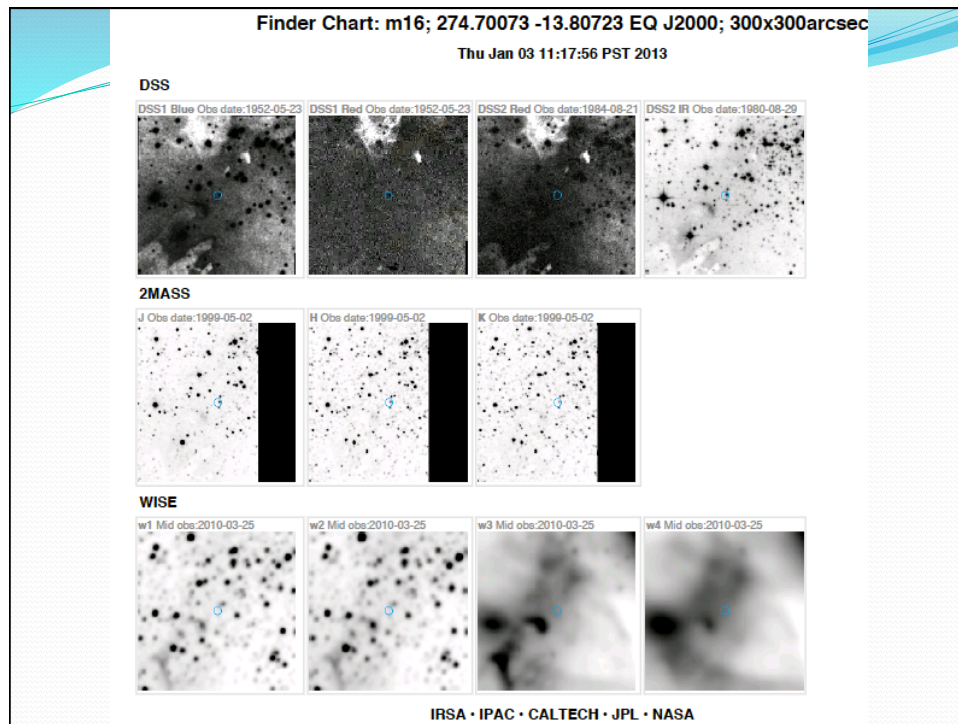
Select Image(s): DSS SDSS 2MASS WISE IRAS (IRIS)

[Customize wavelength selection](#)

[Search](#) [Clear](#) ?

[Contact the IRSA Help Desk](#)
IRSA Charter :: IRSA Acknowledgment :: Privacy/Security Policy

2.0 Final, Built On: Oct 29 2012 09:25 AM PDT



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!