

The Young Stellar Object Corral (YSOC): A Searchable Database of Young Stars

Lynne A. Hillenbrand, California Institute of Technology
(lah@astro.caltech.edu)



ABSTRACT

We announce the availability of YSOC v2.

(We still need an SSL certificate from our university in order to open the floodgates by announcing the URL, but please email me for access if you are interested.)

YSOC, the Young Stellar Objects Corral, is an interactive database of young stars that are located within about 1.5 kpc of the Sun. Collated data are made available for suspected members of: star forming regions, young stellar associations, the young field population, and benchmark open clusters. The database is a work in progress, with more uploaded data to come, but we are broadly advertising the existence of YSOC and inviting interested persons to assist us in increasing its population so as to further community science.

This project has been supported by NSF and NASA.

THE PROBLEM

You need a sample of cod stars with high lithium abundance, perhaps for an observing proposal. Or you need to collect all published extinction values for a particular source of interest. Or you want to see the HR diagram for kinematically confirmed members of Upper Sco.

You need YSOC.

Welcome to the Corral!

THE SOLUTION

YSOC is a comprehensive relational database of observed data and derived stellar and circumstellar characteristics focused on young stars. The total number of YSOs Corralled ultimately should exceed 200,000.

We include photometric, spectroscopic, kinematic, measured stellar features, binary/multiplicity, and membership data. YSOC data holdings come from published papers accessed through ADS and VizieR, and survey archives. Some higher level products are also self-consistently derived within YSOC.

Currently ingested regions include: Mon R2, GGD 4, NGC 7129, Iam Ori, North America Nebula, and h/chi Per from the northern sky; and eps Cha, eta Cha, rho Oph, and the ScoCen complex from the southern sky. Near-term ingests will include YSOs of the Taurus, Perseus, and Serpens-Aquila clouds. Data collection continues on many other regions.

YSOC Tutorials Tables & Columns References
Sign Up Sign In

The Young Stellar Object Corral

40711 YSOs Corralled

Search by Object

If you have a specific object or set of objects in mind, this is the area for you. You can query YSOC for an object name, or by a coordinate or list of coordinates. Under the hood, what is going on here is a query to SIMBAD that returns a coordinate, and that coordinate is then used to search YSOC. You can also do an area search by specifying a cone around an object name or coordinate.

- Object Name

Search by **Object** Association Data Availability Query on Data Values Clear Search Form

Name	Name	Cone Radius	Unit
<input type="checkbox"/> Single Coordinate	JM4659 J204074398.0622801	2	arcmin
<input type="checkbox"/> Multiple Coordinates			

An Object/Name search must use a name that is recognizable by SIMBAD. Under the hood, what is going on here is a query to SIMBAD that returns a coordinate, and that coordinate is then used to search YSOC.

- Object Coordinate

Search by **Object** Association Data Availability Query on Data Values Clear Search Form

Name	RA Dec	Cone Radius	Unit
<input type="checkbox"/> Single Coordinate	88.426 -10.398	2	arcmin
<input type="checkbox"/> Multiple Coordinates			

An Object/Single Coordinate search can take either decimal or sexagesimal coordinate formats.

- Multiple Coordinates

Search by **Object** Association Data Availability Query on Data Values Clear Search Form

Name	File of RA Dec	Cone Radius (arcsec)
<input type="checkbox"/> Single Coordinate	decimal.txt <input type="button" value="Browse"/>	2
<input type="checkbox"/> Multiple Coordinates		

Examples:

- Decimal Coordinates
- Sexagesimal Coordinates 1
- Sexagesimal Coordinates 2

Search by Association

We have organized the database by stellar associations, divided into categories of: Star Forming Regions, Young Moving Groups, Open Clusters, and Other (Unassociated). You can jump between categories using the blue tabs towards the left.

Clicking on an association takes you to the cluster_details page which provides information on the individual star forming region, moving group, or open cluster, as well as a listing of all of the stars in YSOC that are associated with the particular region.

Search by **Object** Association Data Availability Query on Data Values Clear Search Form

Star Forming Regions

- Ophi Core
- L 1689
- L 1348
- L 1709

Other Categories

- Sco-Cen
- UCL
- Upper Sco
- HD 141569

Perseus

- NGC 1333
- IC 348
- Per OB2

North America-Pelican

- North America
- Gulf of Mexico
- Lkha 188
- Pelican

- Cha I
- Cha II
- Cha III
- Cha IV
- Cha V
- Cha VI
- Cha VII
- Cha VIII
- Cha IX
- Cha X
- Cha XI
- Cha XII
- Cha XIII
- Cha XIV
- Cha XV
- Cha XVI
- Cha XVII
- Cha XVIII
- Cha XIX
- Cha XX
- Cha XXI
- Cha XXII
- Cha XXIII
- Cha XXIV
- Cha XXV
- Cha XXVI
- Cha XXVII
- Cha XXVIII
- Cha XXIX
- Cha XXX
- Cha XXXI
- Cha XXXII
- Cha XXXIII
- Cha XXXIV
- Cha XXXV
- Cha XXXVI
- Cha XXXVII
- Cha XXXVIII
- Cha XXXIX
- Cha XL
- Cha XLI
- Cha XLII
- Cha XLIII
- Cha XLIV
- Cha XLV
- Cha XLVI
- Cha XLVII
- Cha XLVIII
- Cha XLIX
- Cha L

COLLABORATORS WANTED

If you are a young stars researcher with expertise in one or more particular regions and want to help populate YSOC, please get in touch! We need more dedicated, YSO-cognizant personnel to make YSOC blossom into a database for everyone.

Here is some plotted output. In addition to the default Declination vs Right Ascension plot, we have requested an *r vs r-K* color-magnitude diagram.

Star Page

This is an example of an individual star page, with links in the top section to YSOC content on the parent cluster (MonR2 in this case), various external databases/resources, and a dozen multi-wavelength image services.

Additional sections provide Fiducial Data (one value per YSOC column that we have determined is "the best") as well as Nonfiducial Data, essentially all other collected literature values.

Star - GDR1 3011245242456702976

Cluster Mon R2	Visual SED View Data GDR Portal	
Alternate Names V1178-04 COND 3011245242456702976 J204659.200324361 1040609 HIP 505342.556 102400.340 GDR1 3011245242456702976 WISEA_505342.541 102400.5	Similar Search TDSA Findstart ZTF/PTF Images ZTF Light Curves ZTF Light Curves SIP Output	

Parameter	Value	Error	Unit	Reference
cluster_name	Mon R2		[none]	clharg2015
ra	08 53 43.5447		h m s	generalcollaborator03...

Search Data Availability

Here one can restrict the search to only stars with (or without) specific kinds of data ingested in YSOC. You can either type column names if you know them, or click among the options. Use the x's in the yellow boxes to remove columns, or the "Clear Columns" button to the right to clear all.

The blue tabs towards the left let you jump between selecting for Populated and Unpopulated columns. The search will return only stars meeting the criteria, and the selected columns are also added to the return display.

Search by **Object** Association Data Availability Query on Data Values Clear Search Form

Populated Columns	<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th>Required Populated Columns</th> <th>Unpopulated Columns</th> </tr> </thead> <tbody> <tr> <td><input type="checkbox"/> Name</td> <td><input type="checkbox"/> Parallax</td> </tr> <tr> <td><input type="checkbox"/> Single Coordinate</td> <td><input type="checkbox"/> Proper Motion</td> </tr> <tr> <td><input type="checkbox"/> Multiple Coordinates</td> <td><input type="checkbox"/> Membership</td> </tr> <tr> <td></td> <td><input type="checkbox"/> Metallicity</td> </tr> <tr> <td></td> <td><input type="checkbox"/> Mass</td> </tr> </tbody> </table>	Required Populated Columns	Unpopulated Columns	<input type="checkbox"/> Name	<input type="checkbox"/> Parallax	<input type="checkbox"/> Single Coordinate	<input type="checkbox"/> Proper Motion	<input type="checkbox"/> Multiple Coordinates	<input type="checkbox"/> Membership		<input type="checkbox"/> Metallicity		<input type="checkbox"/> Mass
Required Populated Columns	Unpopulated Columns												
<input type="checkbox"/> Name	<input type="checkbox"/> Parallax												
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	<input type="checkbox"/> Metallicity												
	<input type="checkbox"/> Mass												

An Example of YSOC Query/Return

Below is an example query.

We have set up a search for all YSOC content within 20' of the young star Lkha 188. This star is located in the dark cloud associated with the North America / Pelican Nebulae region. The columns to be returned are the rband and Kband photometry, in addition to the default columns.

Search by **Object** Association Data Availability Query on Data Values Clear Search Form

Name	Name	Cone Radius	Unit
<input type="checkbox"/> Single Coordinate	Lkha 188	20	arcmin
<input type="checkbox"/> Multiple Coordinates			

Here is the first several lines of tabular return, with links to the individual star pages.

Star Name	RA	Dec	r_Cen	int_K	int_r-m	int_m	Cluster	Info
JM4659_204074398-0622801	314.62282000	-43.56875500	12.246	3.762	None	None	North America Pelican	feewebing2016.com2003
JM4659_204074398-0622801	314.62282000	-43.56875500	None	14.297	None	None	North America Pelican	feewebing2016.com2003
WISEA_505342.541 102400.5	314.61529800	-43.64285000	None	None	2	None	Gulf of Mexico	feewebing2016.com2003
GDR1_3142072296139289280	314.63537944	-43.46991462	20.45	14.740	None	None	North America Pelican	feewebing2016.com2003
GDR1_314207462497730658	314.63197843	-43.45029375	14.264	10.488	None	None	North America Pelican	feewebing2016.com2003
JM4659_204074398-0622801	314.61529800	-43.64285000	21.814	13.138	2	None	North America	feewebing2016.com2003
GDR1_3142185720363066090	314.77314450	-43.66527390	14.728	12.237	None	None	North America Pelican	feewebing2016.com2003
WISEA_505342.541 102400.5	314.26447450	-43.62244650	21.983	None	1	None	Gulf of Mexico	feewebing2016.com2003
GDR1_3142188038106429164	314.61728640	-43.67983330	15.574	11.748	None	None	North America	feewebing2016.com2003
jdms0220114	314.63227020	-43.61689000	None	None	0	None	Gulf of Mexico	feewebing2016.com2003
GDR1_3142122044775730848	314.58968675	-43.67491190	20.326	14.502	None	None	North America Pelican	feewebing2016.com2003
GDR1_3142076530468229120	314.58744630	-43.67548500	14.972	12.645	None	None	North America	feewebing2016.com2003
HR 594	314.25945400	-43.67714450	None	None	0	None	Gulf of Mexico	feewebing2016.com2003
WISEA_522976.574 434042.2	314.67222840	-43.67865000	19.817	None	2	None	Gulf of Mexico	feewebing2016.com2003
GDR1_31422644776705680	314.30208840	-43.48223231	18.329	13.288	4	None	Gulf of Mexico	feewebing2016.com2003