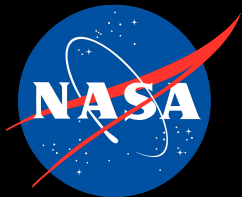# The Starchive: An Open Access, Open Source Database of Nearby and Young Stars

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Mississippi State Univ.

Will Maxcy
Mario Elfeki
Chris Gelino
Donna Reece
A postdoc
You?

THE STARCHIVE

Some background: An AO image only archive was first discussed at the Spirit of Lyot in 2007.

STARGATE

IMAGES: an Image Archive Generated for Exoplanet Surveys

SUCCESS!

Starchive.org

THE STARCHIVE

INITIAL STELLAR CONTENT

Nearby: >3000 stars, brown dwarfs and planets within 25 parsecs as cataloged by RECONS (June 2015)

Young: >500 young stars within 50-100 parsecs (multiple surveys)

METADATA

| Observational Property	Physical or Derived Property
Photometry	Stellar Radius
Radial Velocity, multi epoch	Age
RA/Dec	Distance
Proper motion	Luminosity/SEDs
Rotational Velocity	Mass
Metallicity	Spectral Type
Activity (RHK, S)	Habitable Zone
Infrared Excess	Transit Times
Parallax	Planet orbit properties
Multiplicity	Insolation zone
Observed Radius	

Multiple measurements & varying precisions
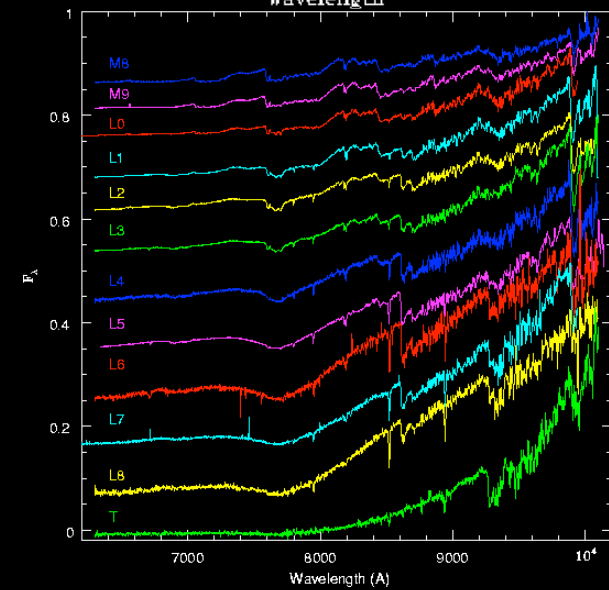
RESOURCES
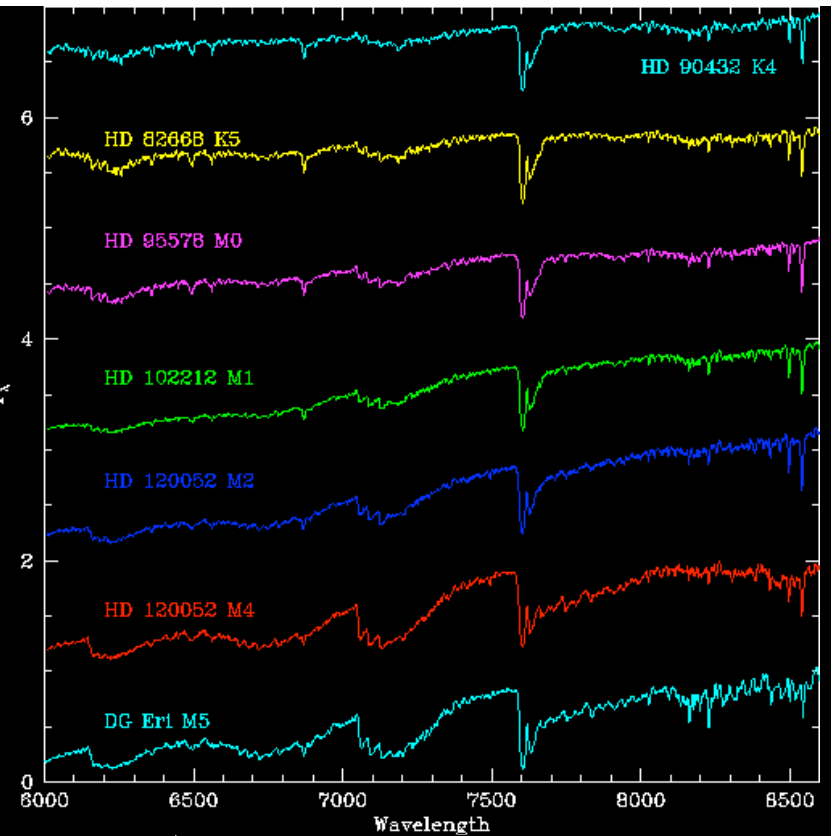
- ★ SIMBAD/Vizier
- ★ Exoplanets.org et al.
- ★ NASA Exoplanet Archive
- ★ Published surveys
- ★ RECONS
- ★ Dwarfarchives.org
- ★ The Community

HIGH CONTRAST IMAGES

Robo-AO image
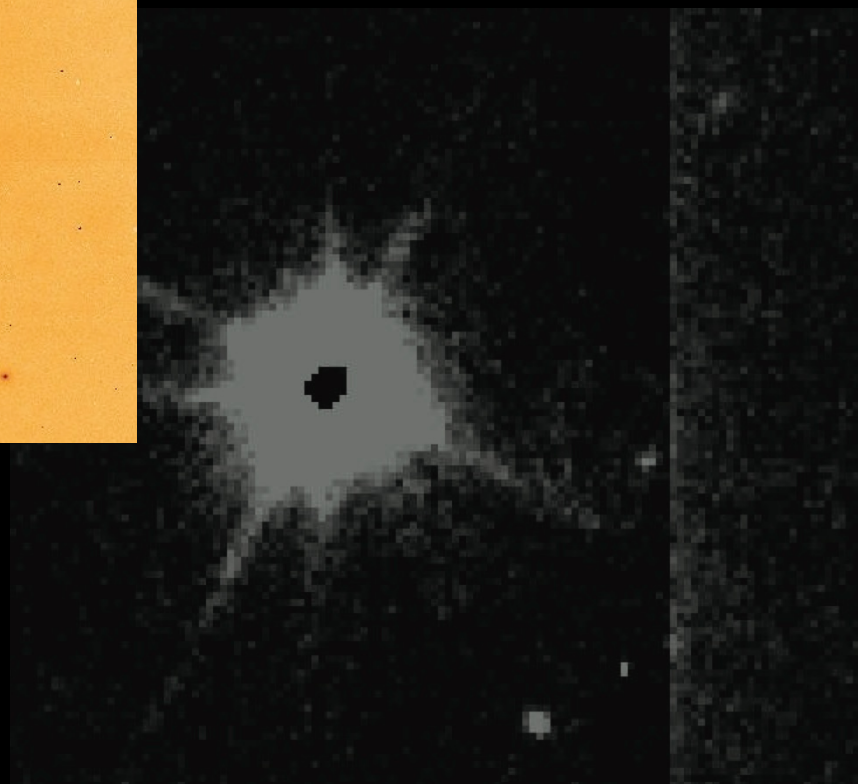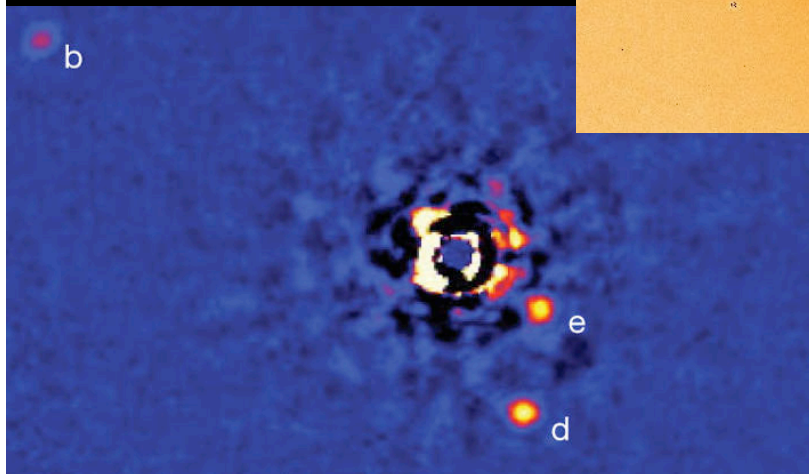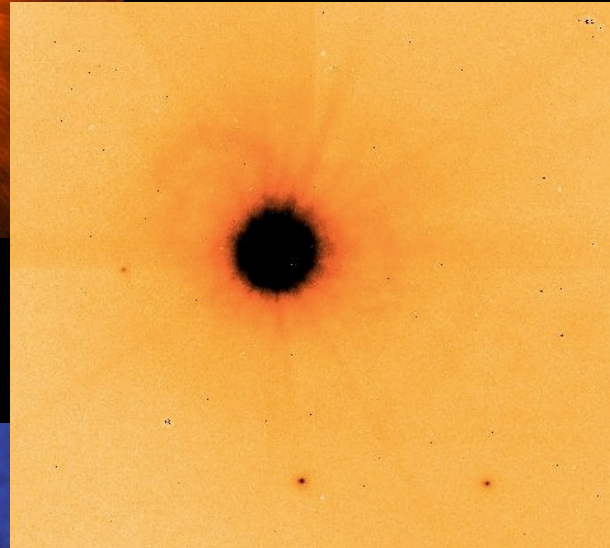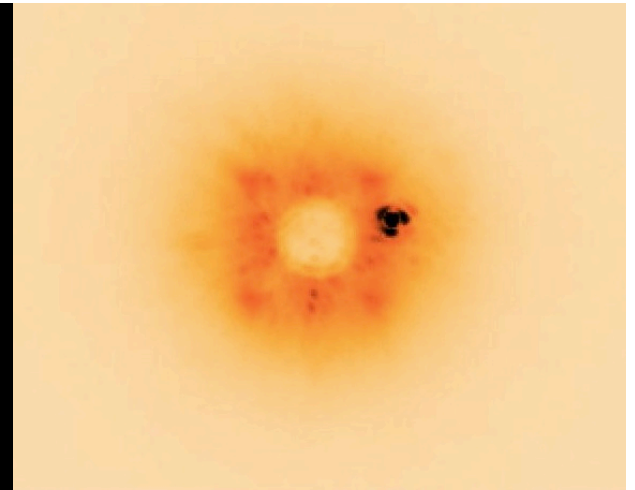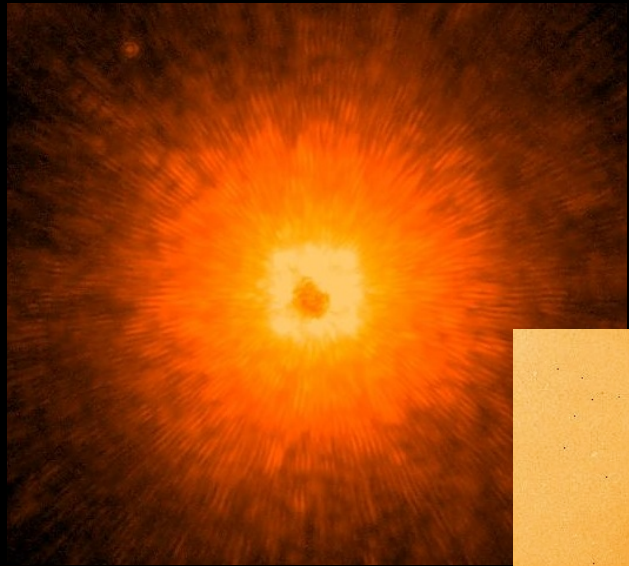
SPECTRA – O/IR
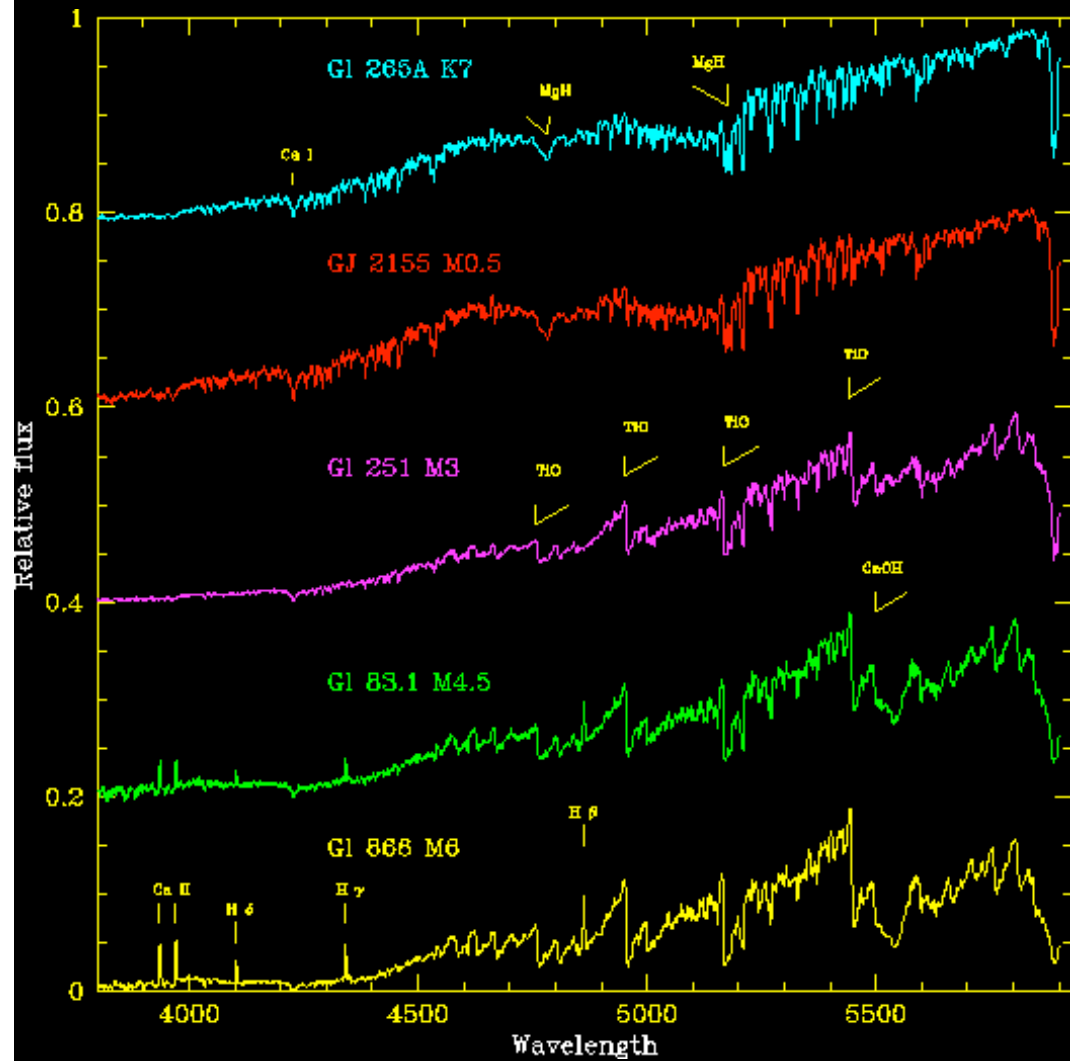
LIGHT CURVES
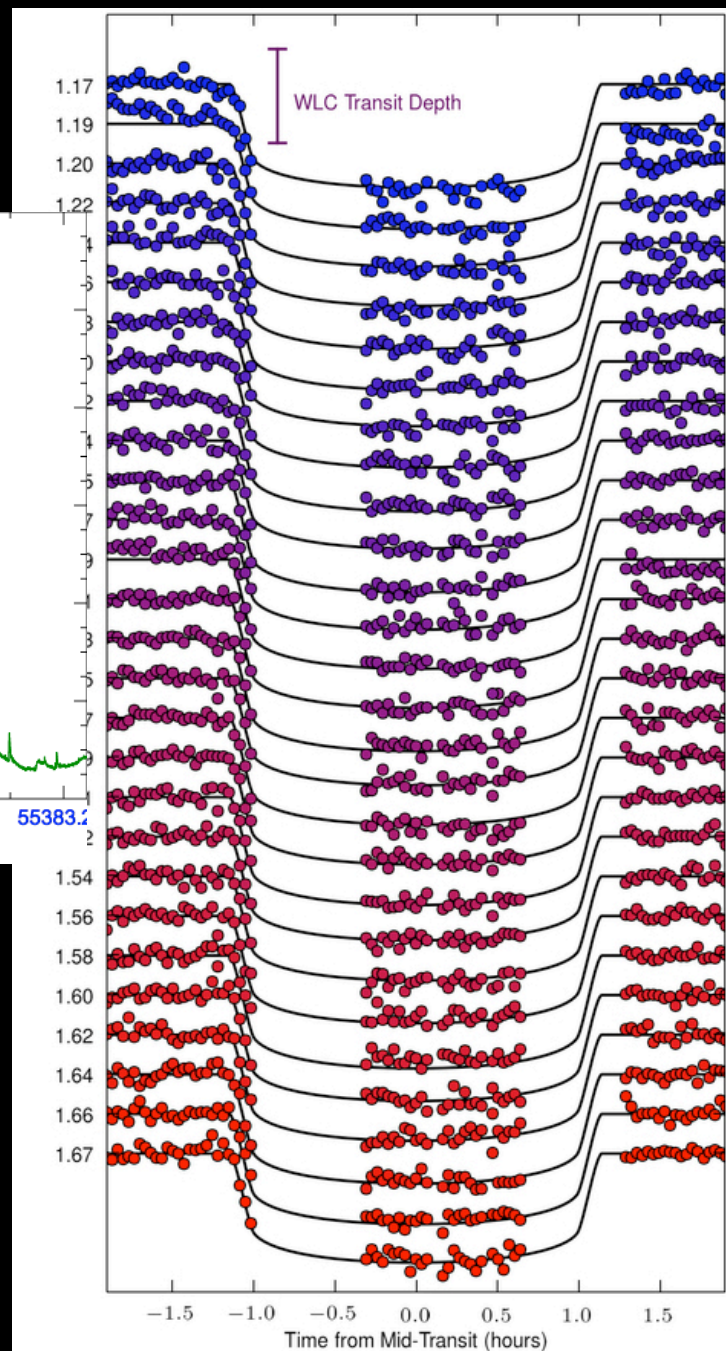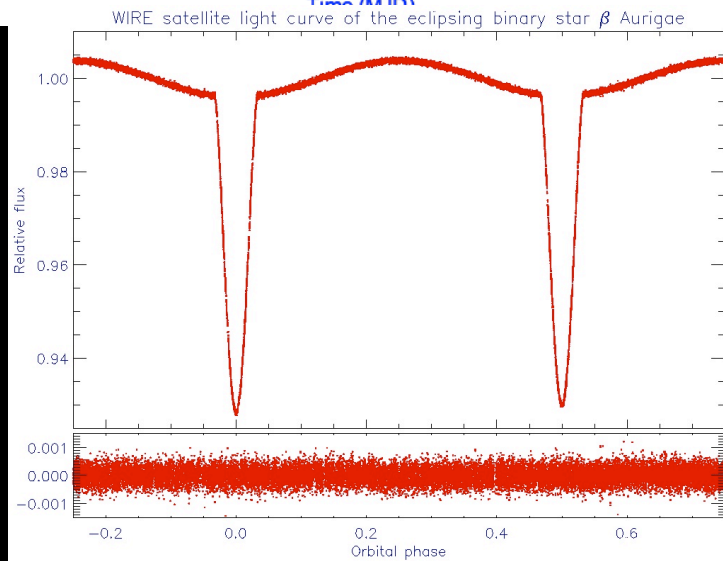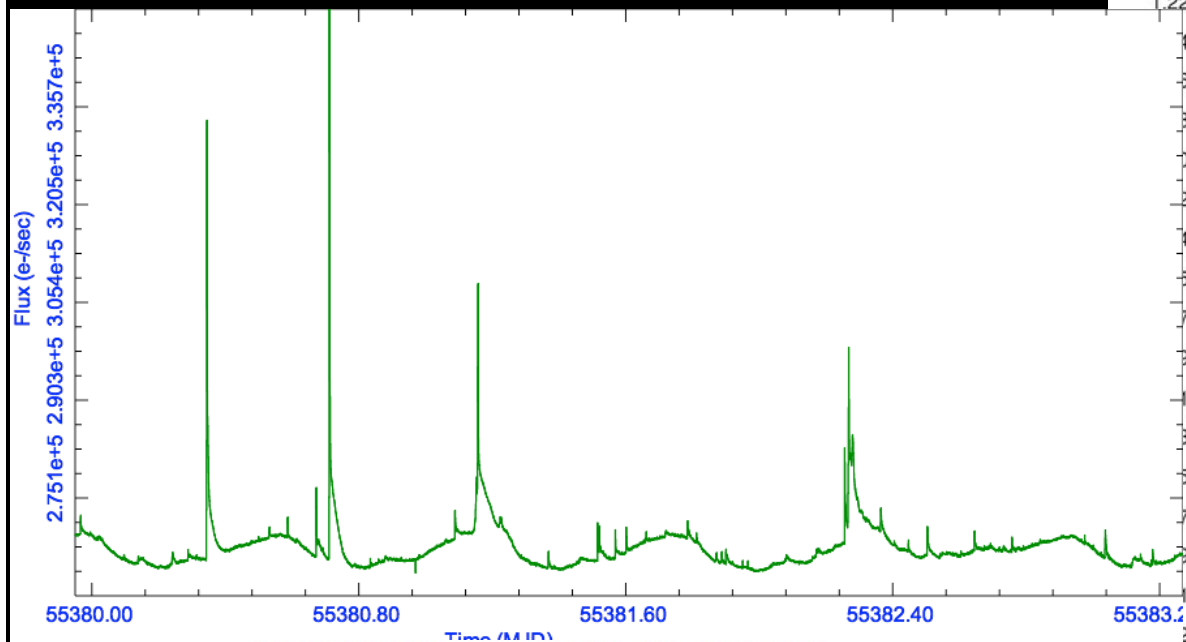
QUERIES

★ Single target – name or coord

★ List of targets – name or coord

★ Ranking tables via criteria

★ Area (circle/box) searches

★ Reference

★ Scripts

★ Map select
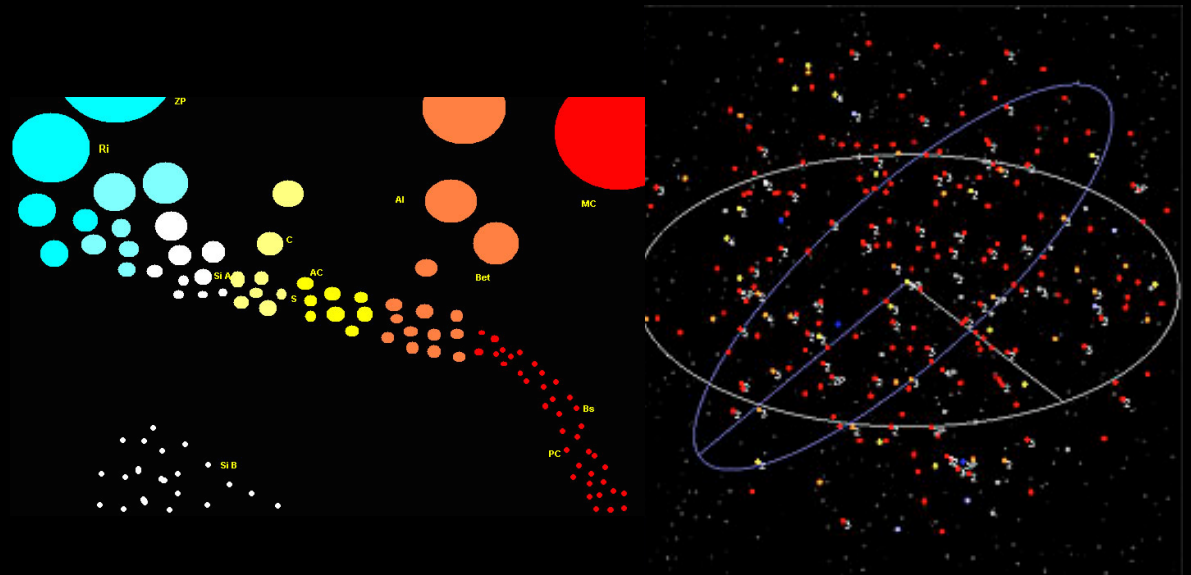
DOWNLOADS

★ Excel/CSV

★ Text

★ Images

★ Text spectral files

★ Text light curves

★ Tarballs

Anyone can download!

UPLOADS

★ Form entry by hand
★ Text upload
★ Excel/CSV upload
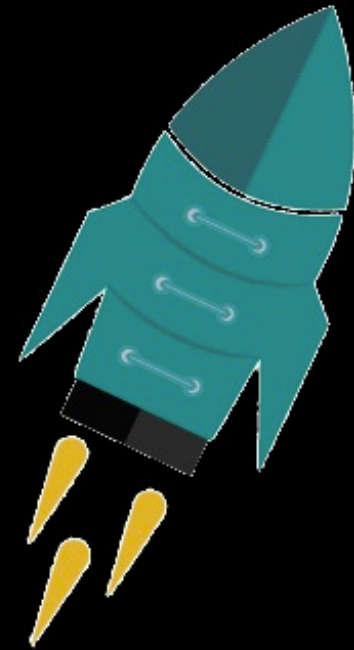
- Only certified members will be allowed to upload data

- Uploaded material will be verified by a verification team and the community

Learn from Kepler Community Follow Up Observing Program

Spectroscopied_table.php?table=spectroscopy&koi=1&tid=1)   ⬆ Top

Telescope	Instrument	Spectral resolution (R)	V Type c	Observation date (UT)	Notes	Date	User
Keck	HIRES	60000	3	2011-06-16 10:06:02	No Iodine	2014-02-06 14:25:28	isaacson

## Imagingd_table.php?table=imaging&koi=1&tid=1)   ⬆ Top

Telescope	Instrument	Filter	n	Notes	Date	User
Palomar 1.5-m	Robo-AO	i		http://arxiv.org/abs/1312.4958	2014-01-30 19:17:13	baranec
WIYN	DSSI	692 (40) nm		Speckle	2013-09-23 14:23:30	everett
WIYN	DSSI	880 (50) nm		Speckle	2013-09-23 14:23:30	everett
WIYN	DSSI	692 (40) nm		Speckle	2013-09-21 18:36:06	everett
WIYN	DSSI	880 (50) nm		Speckle	2013-09-21 18:36:06	everett
WIYN	DSSI	692 (40) nm		Speckle	2013-05-01 10:15:22	everett
WIYN	DSSI	880 (50) nm		Speckle	2013-05-01 10:15:22	everett

The Starchive team determines a "preferred value"

Stellar Parameters (5)   ↑ Top

| Teff (K)	log(g)	Radius (R_Sun)	Vsini (km/s)	Spectral Type	logR'HK	[Fe/H]	Dist (pc)	Mass (M_Sun)	Density (g/cm)	Notes (View codes)	Date	User	Preferred Value
4812.00 ±101.0	4.548 ±0.042	0.7550 ±0.0310				0.020 ±0.160	2.403 ±0.3781	0.7340 ±0.0480	2.403 ±0.3781	Q1-Q16 Stellar	2015-01-30 12:03:24	keplerproject	✔
5000 ±125	5.0 ±0.25		0 ±2							lick, HJD=2455046.793123, C=0.972	2013-03-22 10:14:36	quinn	
5000 ±125	5.0 ±0.25		0 ±2							lick, HJD=2455047.780478, C=0.970	2013-03-22 10:14:36	quinn	
4908 ±44	4.7 ±0.1					0.08 ±4				Keck HIRES decent fit, ipres=60000 B3	2013-03-22 10:14:36	marcy	
		1.863 ±0								KIC	2013-03-22 10:14:36	gautier	

Magnitudes (11)   ↑ Top

Band	Value	Notes	Date	User	Preferred Value
U	13.732 ± 0.021	Closest UBV source from Everett, Howell, Kinemuchi 2012;	2014-02-04 14:46:30	ciardi	✔
B	12.832 ± 0.024	Closest UBV source from Everett, Howell, Kinemuchi 2012;	2014-02-04 14:46:34	ciardi	✔
g'	12.289 ± 0.000		2013-12-19 17:00:40	keplerproject	✔
V	11.895 ± 0.020	Closest UBV source from Everett, Howell, Kinemuchi 2012;	2014-02-04 14:46:37	ciardi	✔
r'	11.428 ± 0.000		2013-12-19 17:00:40	keplerproject	✔
Kep	11.492 ± 0.000		2013-12-19 17:00:42	keplerproject	✔
i'	11.150 ± 0.000		2013-12-19 17:00:40	keplerproject	✔

PLOTTING - science
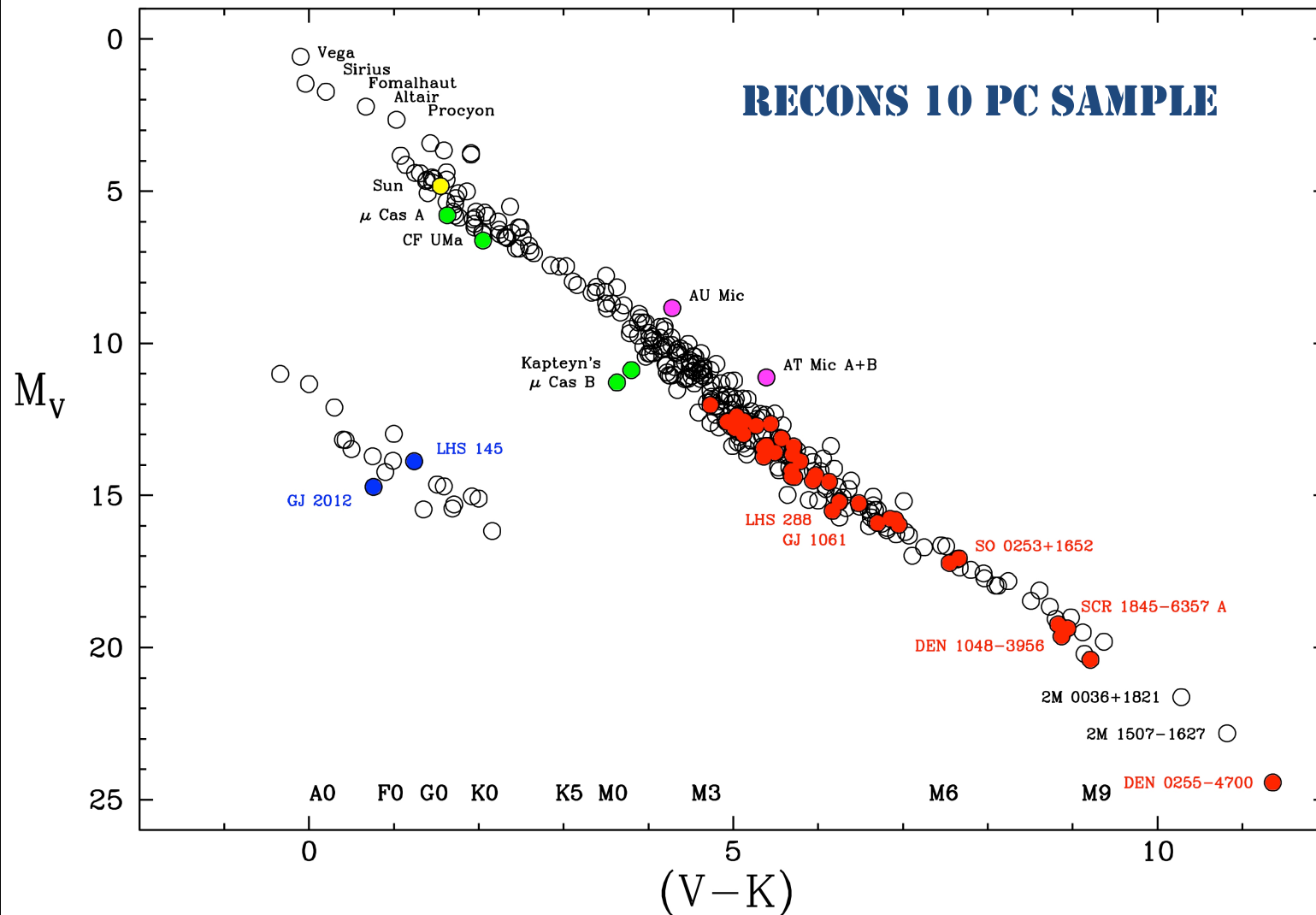
PLOTTING - presentations
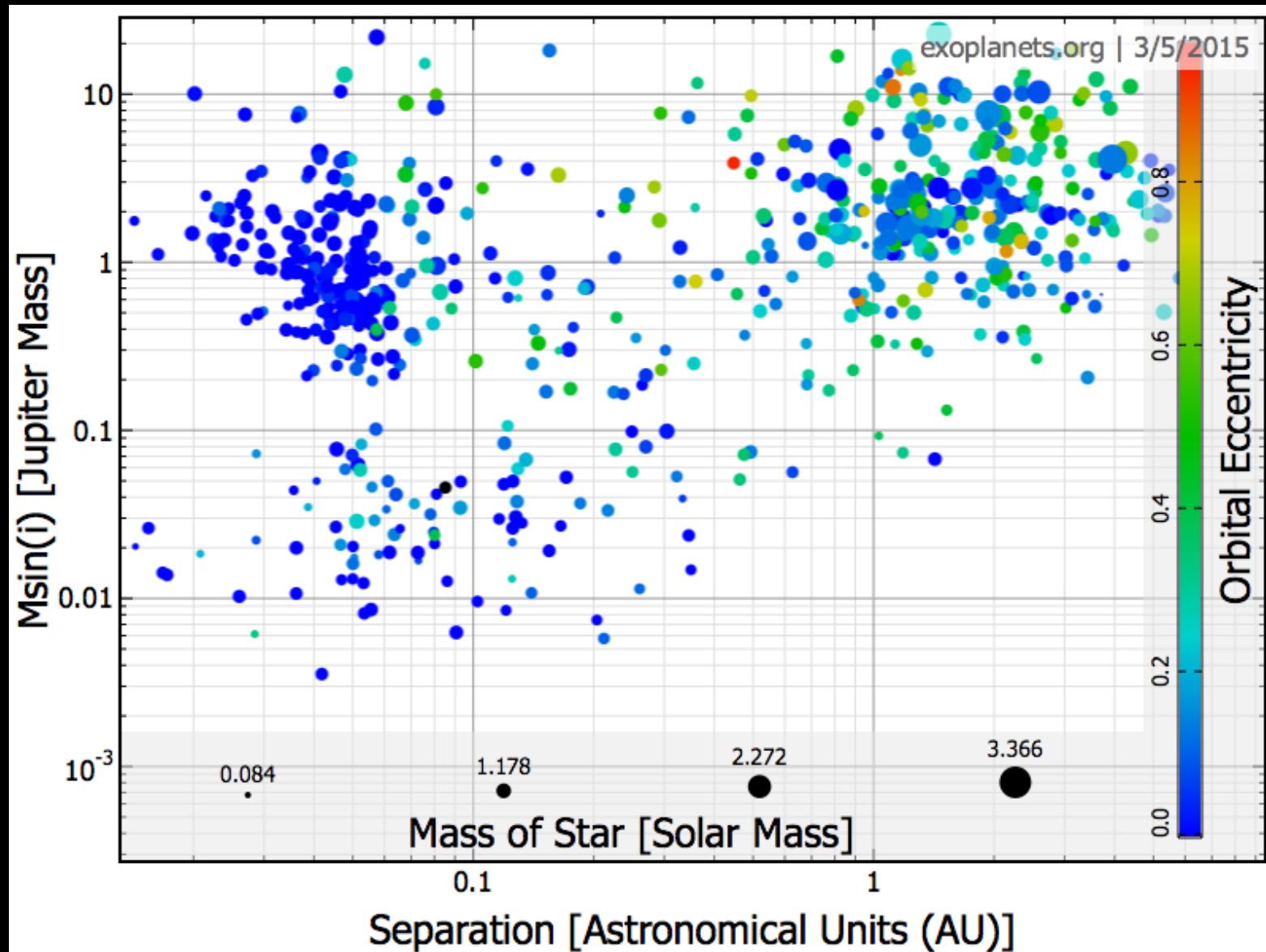
PLOTTING - infographics
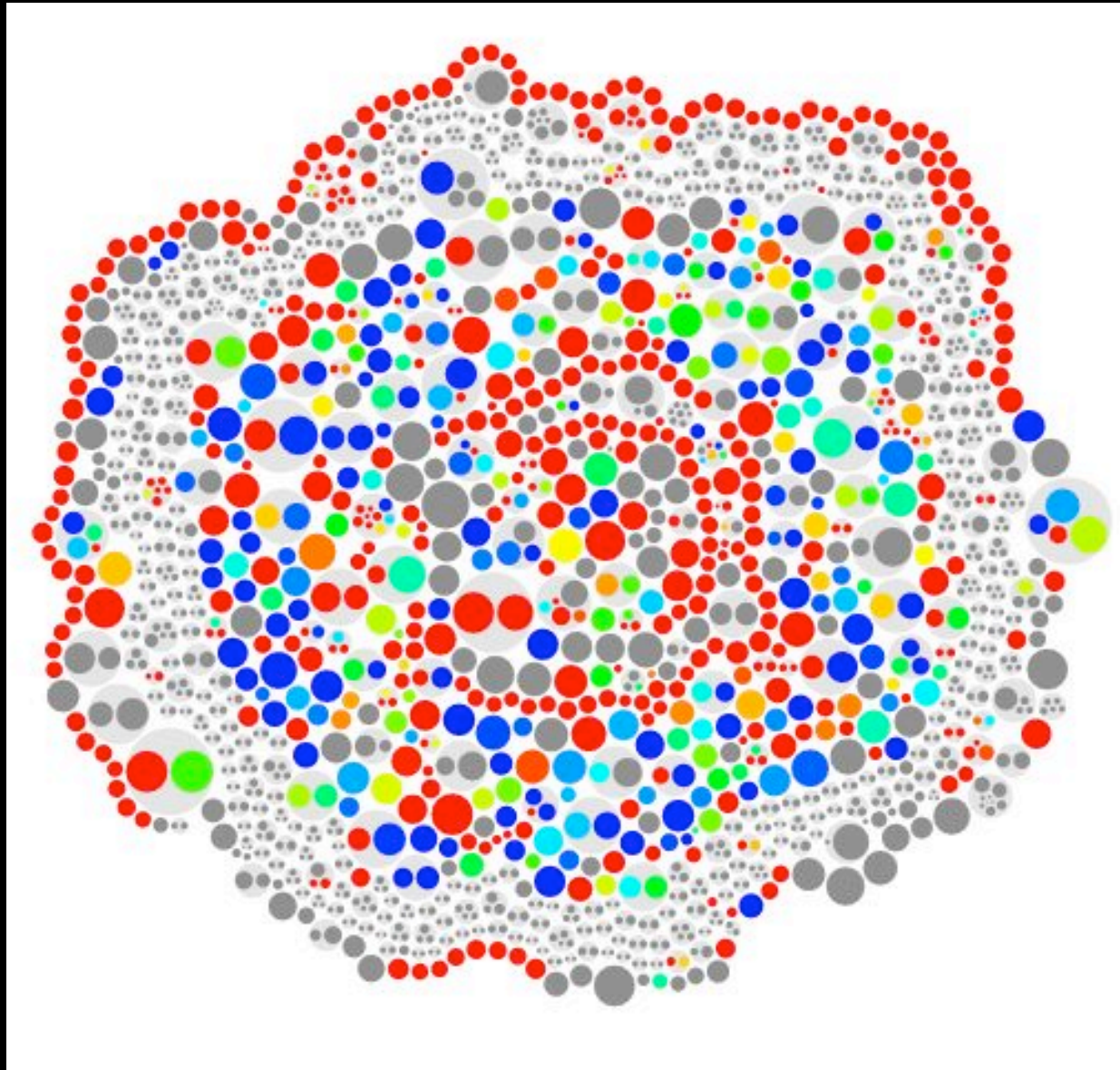
BASIC FRONT END

Input

Batch Identifier	**Upload list here**
Batch Coordinate	**Upload list here**
Single Identifier	_____
Single Coordinate	_____
Rank Table Criteria	_____

List of identifiers

Format requirements

Criteria tutorial

Output

Choose Output Columns

Upload

Supplementary Data	**Format requirements**
Images	**Format requirements**
Spectra	**Format requirements**

News
New Datasets
Comments
Hall of Plots
Citation Criteria
Our Sponsors
Open old Session

STARCHIVE

An open access web database containing meta data, images
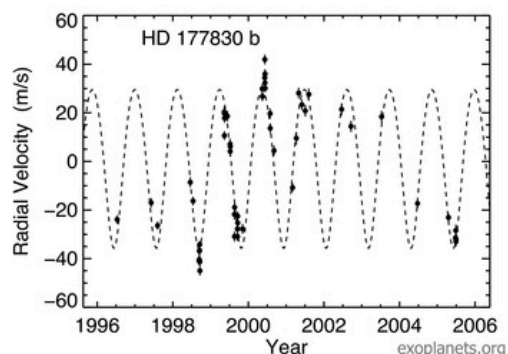and spectra of stars in our stellar neighborhood.

SINGLE STAR DISPLAY PAGE

HD 177830 b

Orbital Parameters

Msin(i)	[mjupiter]	1.320 ± 0.085
Planet Mass	[mjupiter]	1.320 ± 0.085
Semi-Major Axis	[au]	1.139 ± 0.033
Separation	[au]	1.139 ± 0.033
Orbital Period	[day]	410.1 ± 2.2
Velocity Semiamplitude	[m/s]	32.64 ± 0.98
Orbital Eccentricity		0.096 ± 0.048
Orbit Inclination	[deg]	Unavailable
Argument of Periastron	[deg]	189
BigΩ	[deg]	Unavailable
Time of Periastron	[jd]	2450254 ± 49
Velocity Slope	[m/s/day]	Unavailable
Spin-Orbit Misalignment	[deg]	Unavailable
Transit		✗

Orbital Fit Properties

Reduced Chi Squared	1
# of Observations	54
RMS of Velocities	6.2
Frozen Eccentricity Flag	✗
Flag for linear Trend	✗
Components	1

Stellar Properties

Star Name		HD 177830
Binary Flag		✓
Mass of Star	[msun]	1.17 ± 0.1
Radius of Star	[rsun]	3.99 ± 0.128
[Fe/H]		0.300 ± 0.05
T_{eff}	[k]	4752 ± 79
Density of star	[g/cm^3]	Unavailable
$\log_{10}(g)$		3.370 ± 0.02
Vsin(i)	[km/s]	2.54 ± 0.5
Gamma	[km/s]	-72.08 ± 0.153

Stellar Magnitudes

V mag	7.2
B-V	1.09
2MASS J	5.4
2MASS H	5
2MASS K_S	4.8
S_{HK}	0.125
log R_{HK}	-5.4
KP	Unavailable

Discovery and References
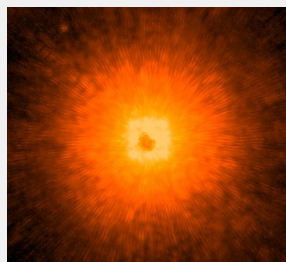
Other Name	Unavailable
First Publication Date	2000
Method of discovery for the planet	RV
Method of discovery of first planet in system	RV
Orbit Reference	Butler 2006
First Reference	Vogt 2000
EPE Link	HD 177830
ETD Link	Unavailable
Exoplanet Archive Link	HD 177830 b
SIMBAD Link	HD 177830
Kepler ID	Unavailable
KDE	✗
EOD	✓
Microlensing	✗
Imaging	✗
Timing	✗
Astrometry	✗

Coordinates and Catalogs

RA (h:m:s)		+19:05:20.80
DEC (d:m:s)		+25:55:14.83
Parallax	[marcsec]	16.94 ± 0.63
Distance to Star	[pc]	59.0 +2.3/-2.1
Hipparcos Catalog #		93746
HD #		177830
Gliese Catalog #		743
HR #		Unavailable

NASA Exoplanet archive

OPEN SOURCE

This IS the data you seek ....

Components of the front end will be made available on github

The community will be encouraged to contribute plotting functionality

We will document thoroughly!!!

COMMITTEES

Science: What can we DO with all this data?

User: How can we make the Starchive user friendly and useful?

Verification: Is the data correct?

STATUS

Logo – check
Domain – check - starchive.org
Funding - check
Postdoc - being sought
Single object query – check

Discussions with exoplanets.org and NEXSCI
for code sharing - check

THE STARCHIVE

STATUS

Logo – check
Domain – check - starchiv~~
Funding - check
Postdoc - being so~~
Single object ~~

Discussi~~ ~~planets.org and NExScI
for c~~ ~~ - check

STAY TUNED!!!

THE STARCHIVE

Starchive.org