

*Kepler*



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Archive for  
Space  
Telescopes

# Kepler Data and Tools

Kepler Science Conference II  
November 5, 2013

# Agenda

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- Current and legacy data products (S. Thompson)
- Kepler Science Center tools (M. Still)
- MAST Kepler Archive (S. Fleming)
- NASA Exoplanet Archive (R. Akeson)
- Community Follow-up Observing Program - CFOP (D. Ciardi)
- Questions and discussion

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# Current and legacy data products

Susan Thompson  
SETI/Kepler Science Office

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# Archive Overview

## Kepler Project Products

- Target Pixel Files
- Light Curve Files
- Ancillary Files (CBVs, Background, Collateral)
- Data Release Notes
- FFIs
- TCE Tables (transit looking events)
- KOI Tables (planet candidates and false positives)
- (Stellar Table)



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# Quarterly Deliveries



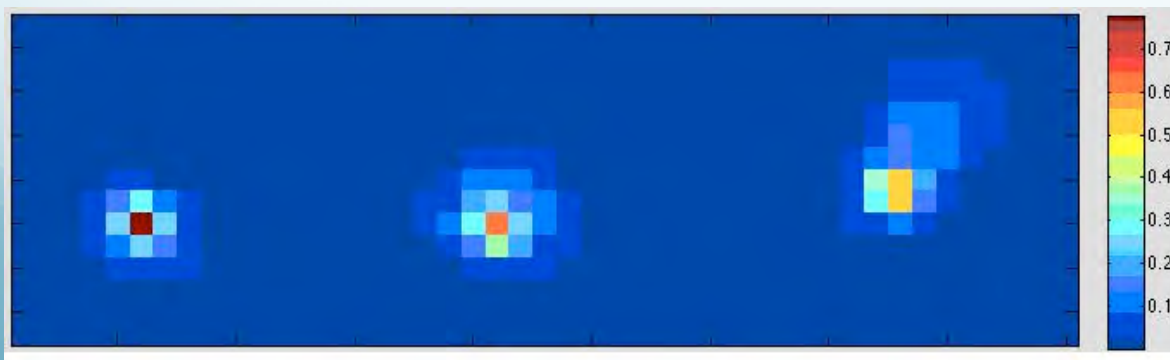
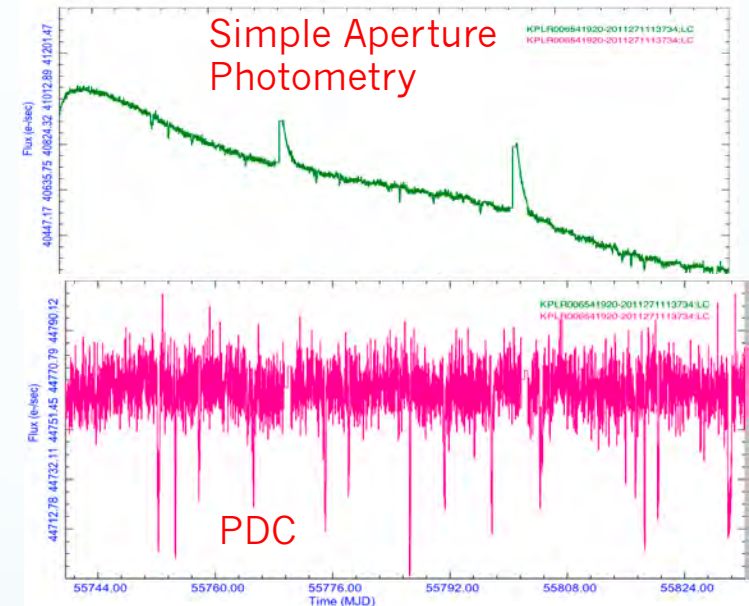
Q&type	CAL/PA SOCv	PDC SOCv	DRN	Time Corr.	ms MAP	Cosmic Ray	new Flags
0-4 LC	8.0	8.3	21	<b>Yes</b>	<b>-keywords</b>	<b>No</b>	<b>No</b>
TPF	8.0		14	<b>No</b>	<b>No</b>	<b>No</b>	<b>No</b>
5-8 LC	8.1	8.3	21	<b>Yes</b>	<b>-keywords</b>	<b>No</b>	<b>No</b>
TPF	8.1		16	<b>No</b>	<b>No</b>	<b>No</b>	<b>No</b>
9 LC	8.0	8.3	21	<b>Yes</b>	<b>-keywords</b>	<b>No</b>	<b>No</b>
TPF	8.0		12	<b>No</b>	<b>No</b>	<b>No</b>	<b>No</b>
10 LC	8.0	8.3	21	<b>Yes</b>	<b>-keywords</b>	<b>No</b>	<b>No</b>
TPF	8.0		13	<b>No</b>	<b>No</b>	<b>No</b>	<b>No</b>
11 LC	8.0	8.3	21	<b>Yes</b>	<b>-keywords</b>	<b>No</b>	<b>No</b>
TPF	8.0		15	<b>No</b>	<b>No</b>	<b>No</b>	<b>No</b>
12 LC	8.1	8.3	21	<b>Yes</b>	<b>-keywords</b>	<b>No</b>	<b>No</b>
TPF	8.1		17	<b>No</b>	<b>No</b>	<b>No</b>	<b>No</b>
13 LC	8.2	8.3	21	<b>Yes</b>	<b>-keywords</b>	<b>No</b>	<b>No</b>
TPF	8.2		18	<b>No</b>	<b>No</b>	<b>No</b>	<b>No</b>
14 LC	8.3	8.3	21	<b>Yes</b>	<b>-keywords</b>	<b>Yes</b>	<b>No</b>
TPF	8.3		19	<b>No</b>	<b>No</b>	<b>Yes</b>	<b>No</b>
15 LC	9.0	9.0	20	<b>Yes</b>	<b>Yes</b>	<b>Yes</b>	<b>No</b>
TPF	9.0		20	<b>Yes</b>	<b>Yes</b>	<b>Yes</b>	<b>No</b>
16 LC	9.0	9.0	22	<b>Yes</b>	<b>Yes</b>	<b>Yes</b>	<b>No</b>
TPF	9.0		22	<b>Yes</b>	<b>Yes</b>	<b>Yes</b>	<b>No</b>
17 LC	9.1	9.1	23	<b>Yes</b>	<b>Yes</b>	<b>Yes</b>	<b>Yes</b>
TPF	9.1		23	<b>Yes</b>	<b>Yes</b>	<b>Yes</b>	<b>Yes</b>

The data archive is **not** complete.

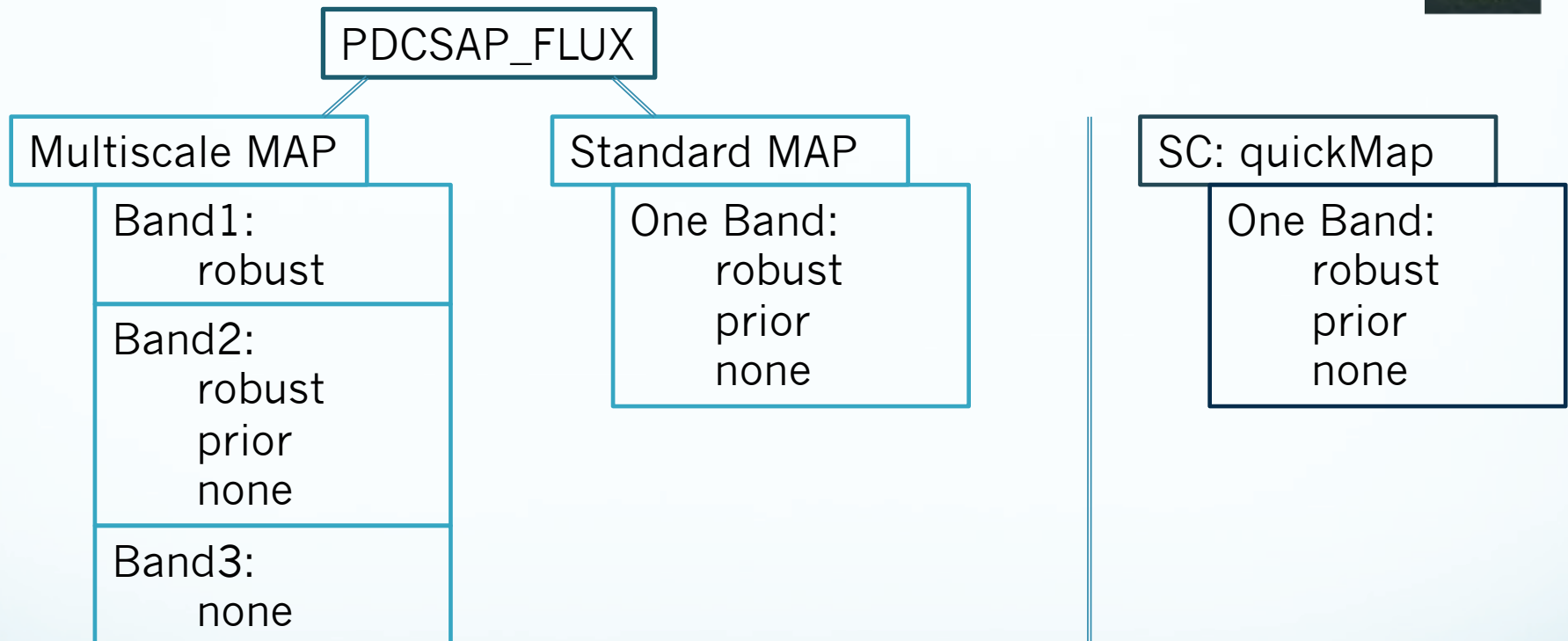
# Which light curve are you using?



- Light Curve Options:
  - SAP\_FLUX
  - PDCSAP\_FLUX
  - SAP\_FLUX + CBVs
  - Go to the Pixels (TPFs)
    - Customized Simple Aperture Photometry
    - PRF photometry



# PDC msMAP



Header Keywords:

- PDCMTHD : Which MAP algorithm was used (multiScaleMAP, regularMAP)
- FITTYPE $j$  : Describe how the  $j^{\text{th}}$  band is treated (robust, prior, none)

# PDC msMAP



- 4 Goodness metrics given as absolute values (0—1) and percentiles compared to other targets
  - Variability (was variability removed?)
  - Noise (was noise added?)
  - Earth Point (was earth point recoveries corrected well?)
  - Correlation (are correlated systematics remaining?)

Full Header Keywords are currently only available in Q15—Q17.



# Quality Flags



• Quality Flags, which actually mean the data is bad?

Bit	Value	Explanation
1	1	Attitude Tweak
2	2	Safe Mode
3	4	Spacecraft is in Coarse Point
4	8	Spacecraft is in Earth Point
5	16	Reaction wheel zero crossing
6	32	Reaction Wheel Desaturation Event
7	64	Argabrightening detected across multiple channels
8	128	Cosmic Ray in Optimal Aperture pixel
9	256	Manual Exclude. The cadence was excluded because of an anomaly.
10	512	Reserved
11	1024	SPSD detected. This bit is flagged on the last non-gapped cadence before the maximum positive change due to the detected SPSPD.
12	2048	Impulsive outlier removed before cotrending
13	4096	Argabrightening event on specified CCD mod/out detected
14	8192	Cosmic Ray detected on collateral pixel row or column in optimal aperture
15	16385	Single event functional interrupt in accumulation memory General Detector Anomaly
16	32768	Not in Fine Point
176	3276865536	Single event functional interrupt in cadence memory No Data Collected

Quality Flag bit&  
10010110100010111

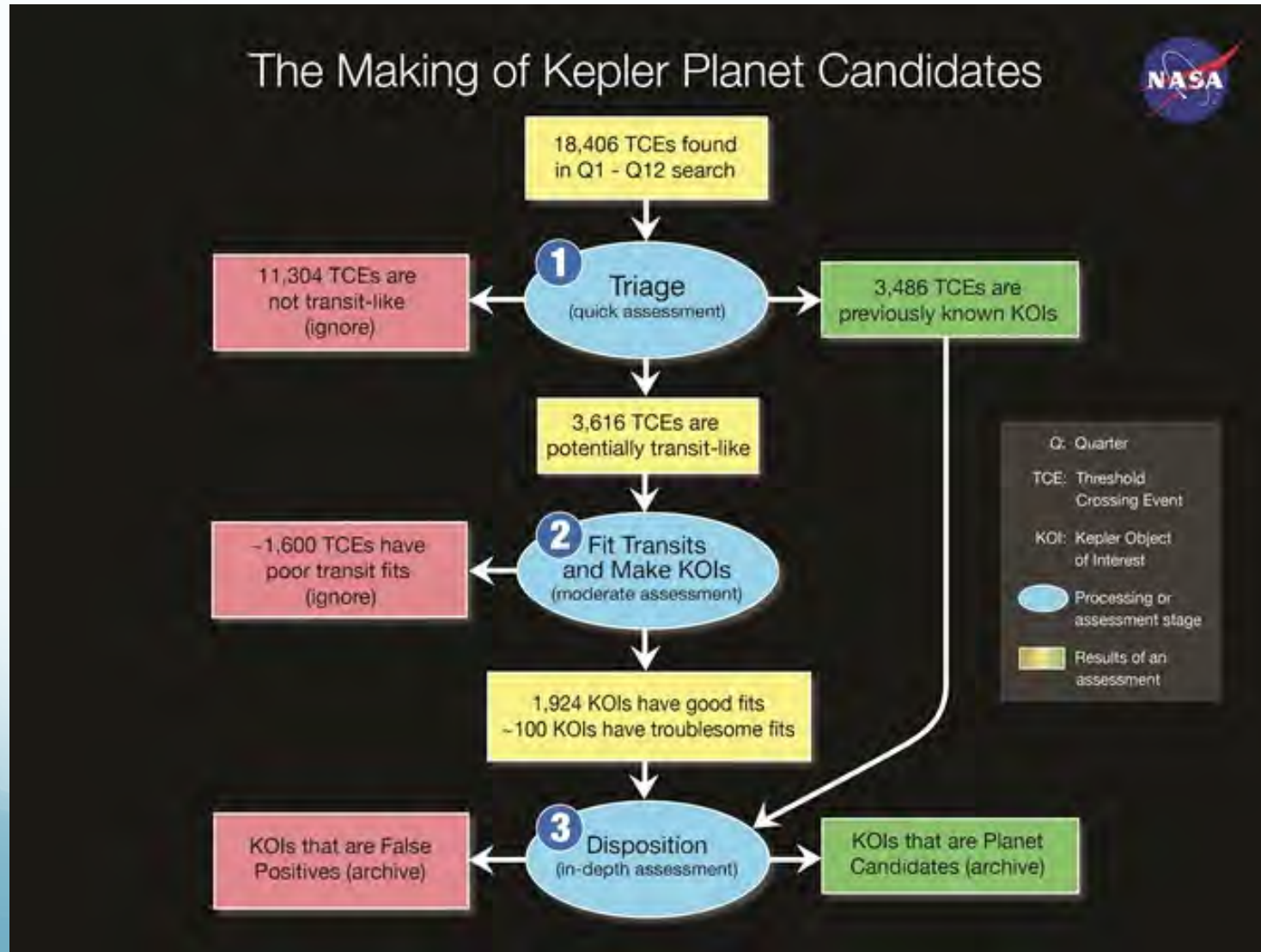
# Delivering Transits to the Exoplanet Archive

Kepler

NASA Exoplanet Archive



Barbara A. Mikulski Archive for Space Telescopes



# Exoplanet Archive: Status Report



- Q1-Q8 KOI Table
  - Data is **almost** DONE. Paper submitted. Values can change until table is closed.
- Q1-Q12 KOI Table
  - First pass at Giving Dispositions (PC/FP) is done.
  - We will improve the fits to the transits
  - Provide fits for those KOIs not found by the Q1-Q12 TPS/DV planet search.
- Q1-Q16 Activity
  - TCEs have been delivered.
  - We will deliver a Q1-Q16 KOI table, including new KOIs found from the TCEs and provide dispositions as the work is done.
  - Deliver Stellar Table from the Stellar WG. Table gives parameters used by the Q1-Q16 planet search for all targets searched.
- Cumulative Table
  - Pulls together information from the other KOI Activity Tables. Gives most recent disposition and best fit.

The logo for the Kepler mission, featuring the word "Kepler" in a stylized blue font with a yellow orbital path and a small planet icon.

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# Kepler Science Center Tools

Martin Still

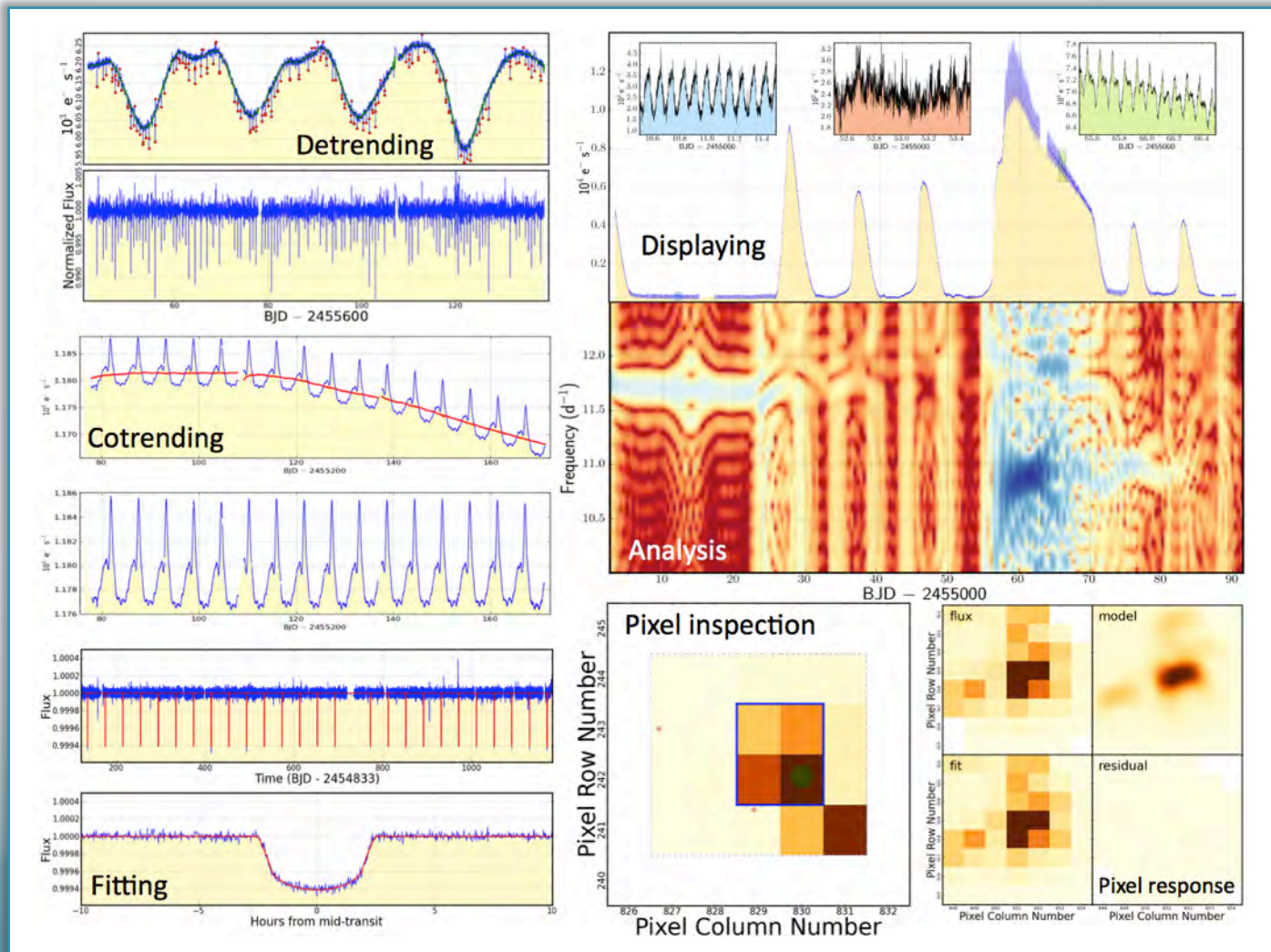
Kepler Project, NASA Ames Research Center

# PyKE

[keplerscience.arc.nasa.gov/PyKE.shtml](http://keplerscience.arc.nasa.gov/PyKE.shtml)



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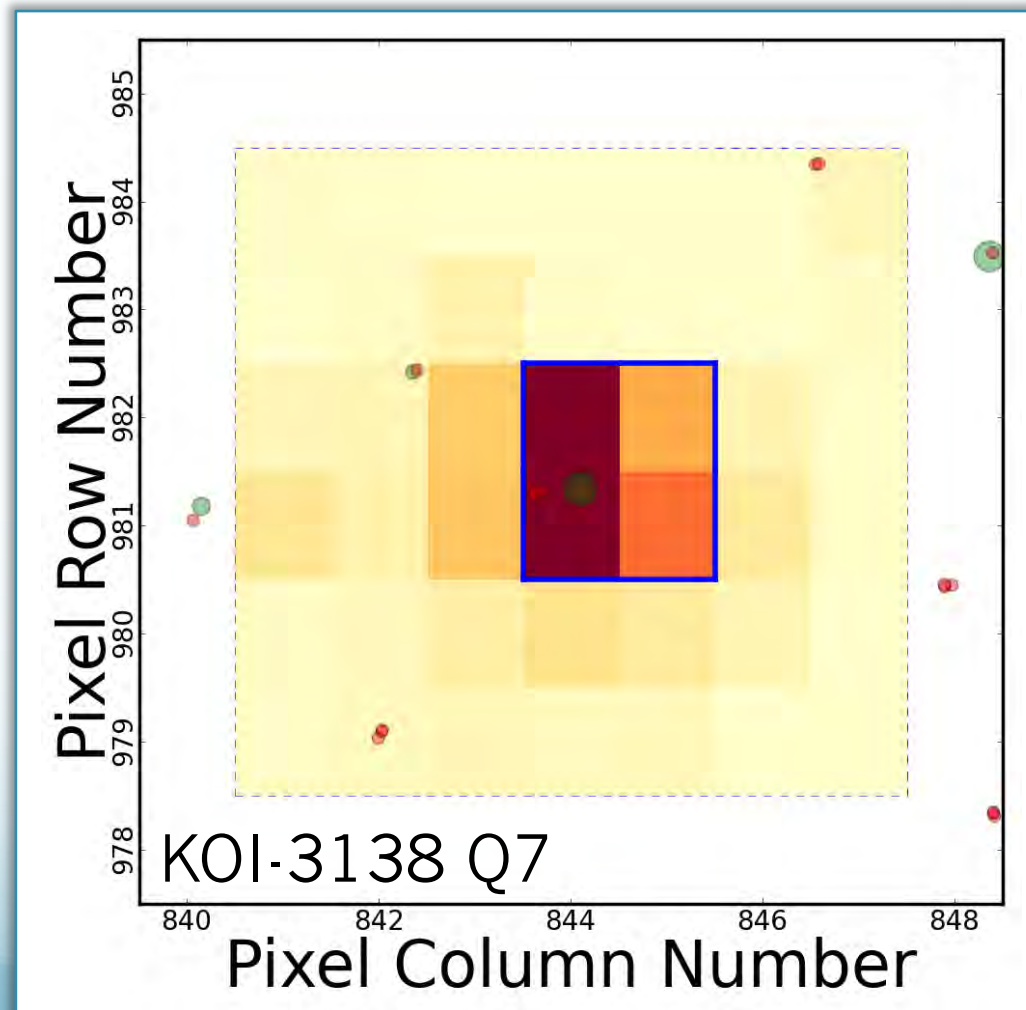
play with your pixels –  
reap the rewards

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NASA  
Exoplanet  
Archive

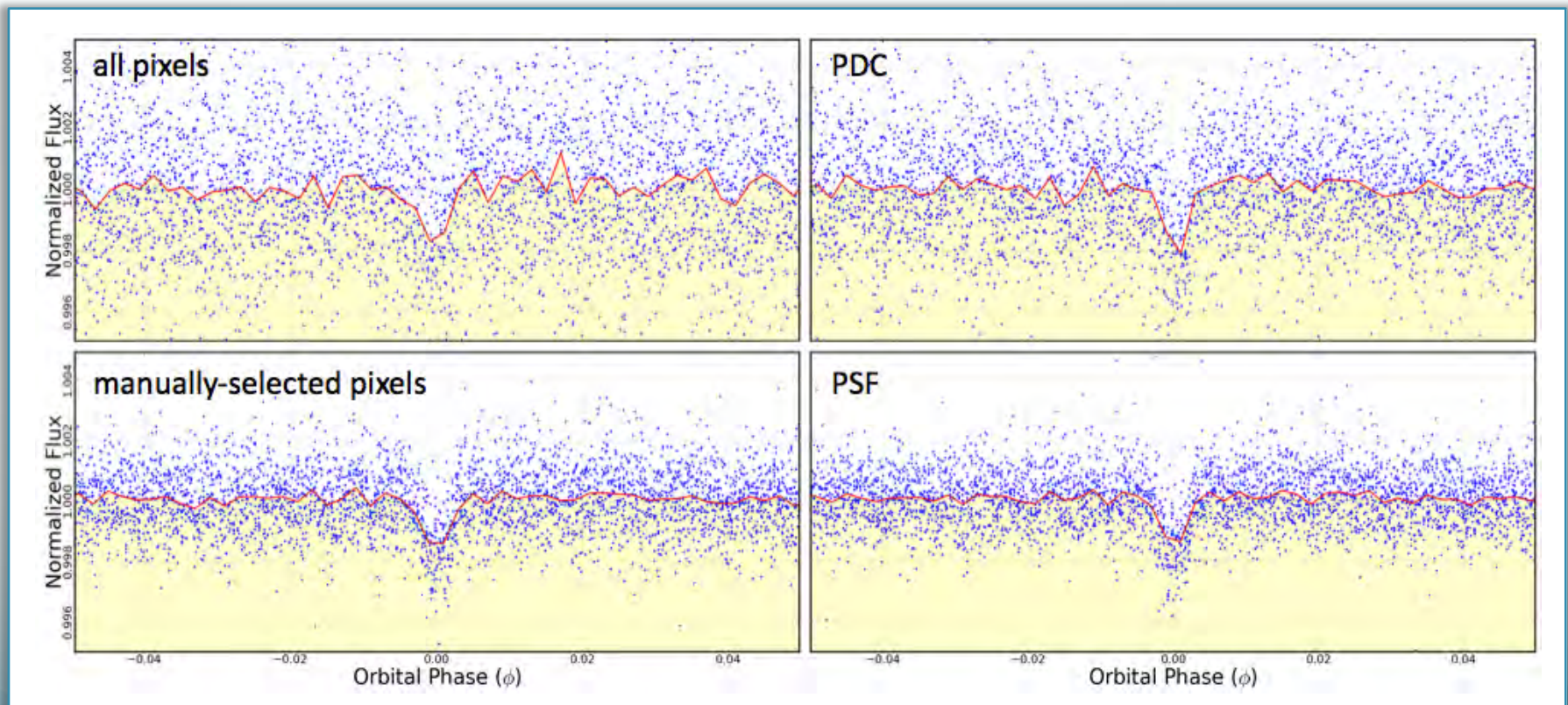


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Tools used: keffield

# play with your pixels – reap the rewards



Tools used: kepmask, kepextract, kepprfphot, kepflatten, kepfold, kepdraw

# play with your pixels – reap the rewards

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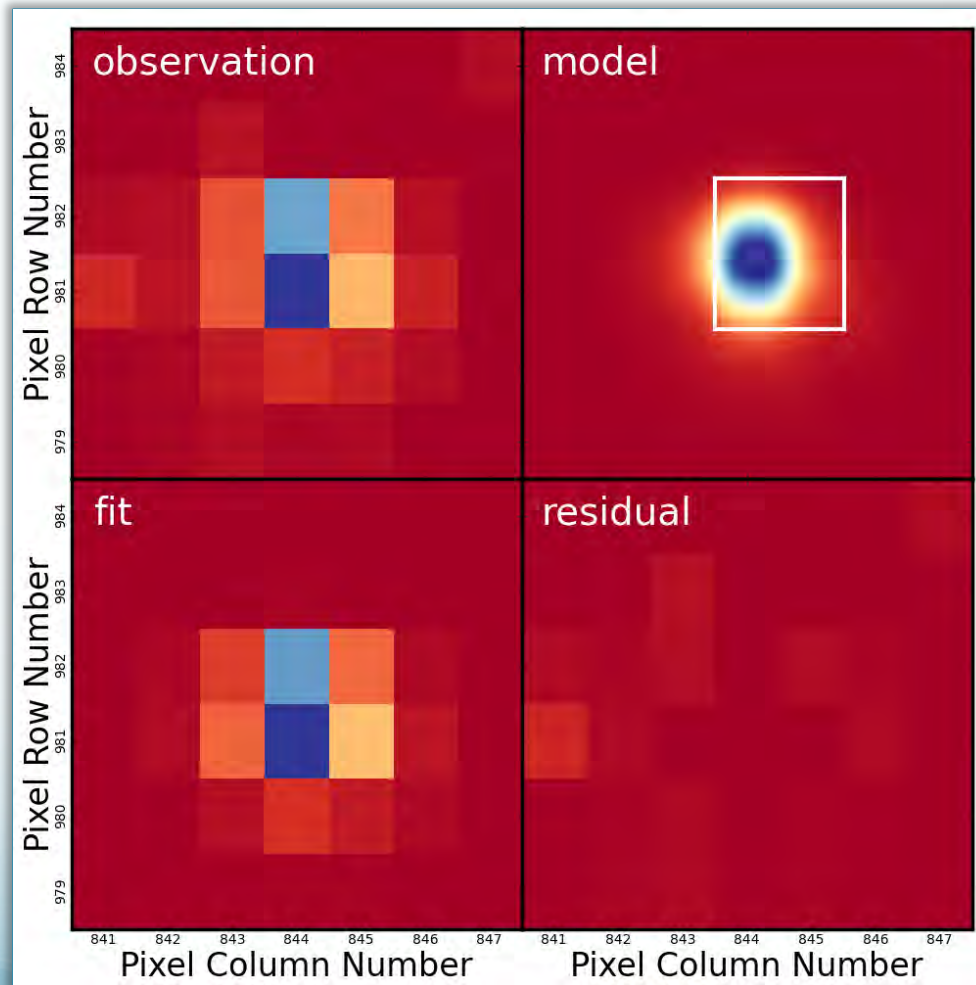
[keplerscience.arc.nasa.gov/  
PyKEprimer.shtml](http://keplerscience.arc.nasa.gov/PyKEprimer.shtml)

or

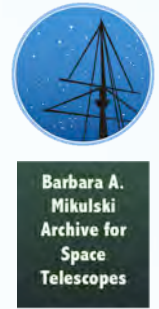
Kinemuchi et al. (2012)  
PASP 124 963



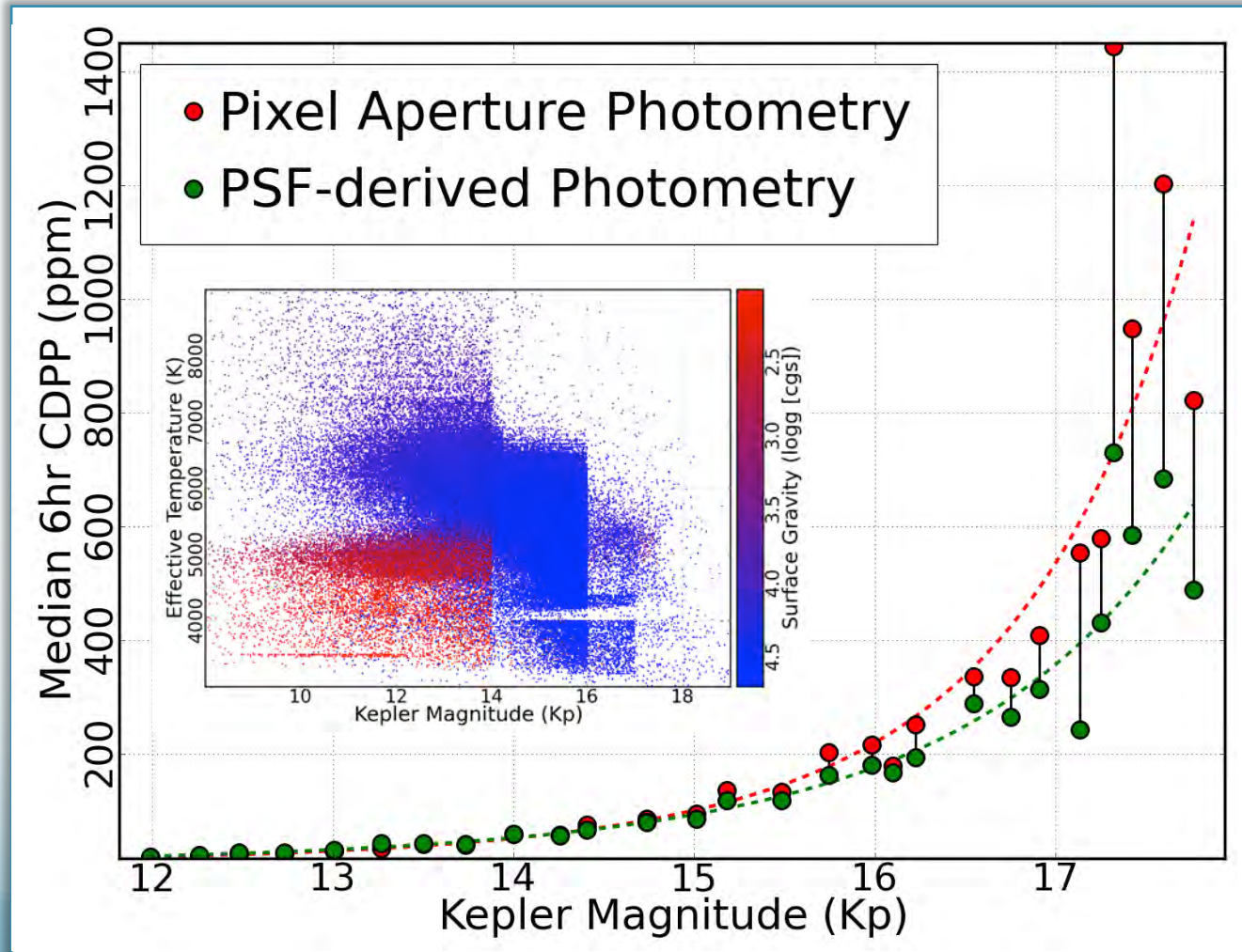
# play with your pixels – reap the rewards



# play with your pixels – reap the rewards



## SIGNAL-TO-NOISE



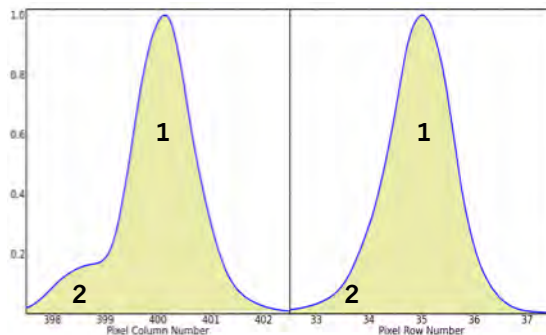
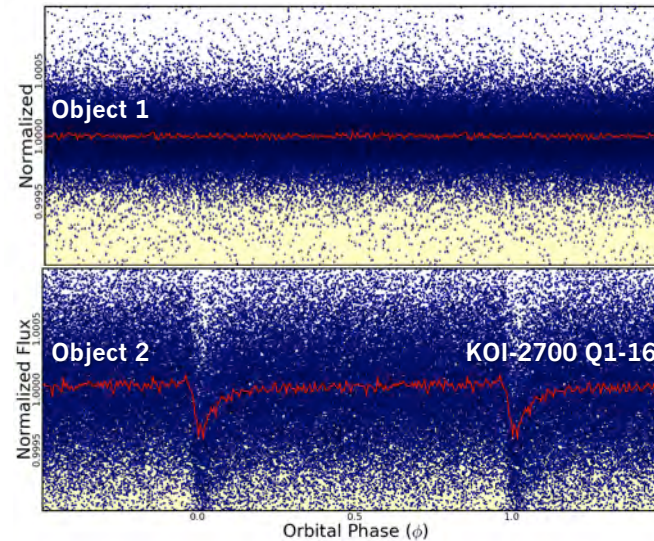
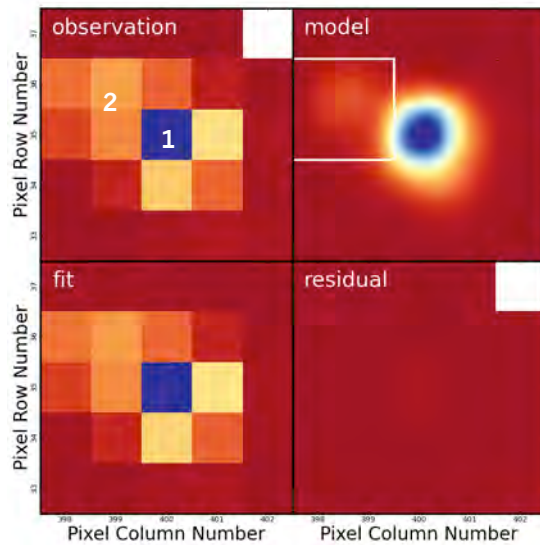
Tools used: kepprf, kepflatten, kepstddev

# play with your pixels – reap the rewards



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## SOURCE CONFUSION



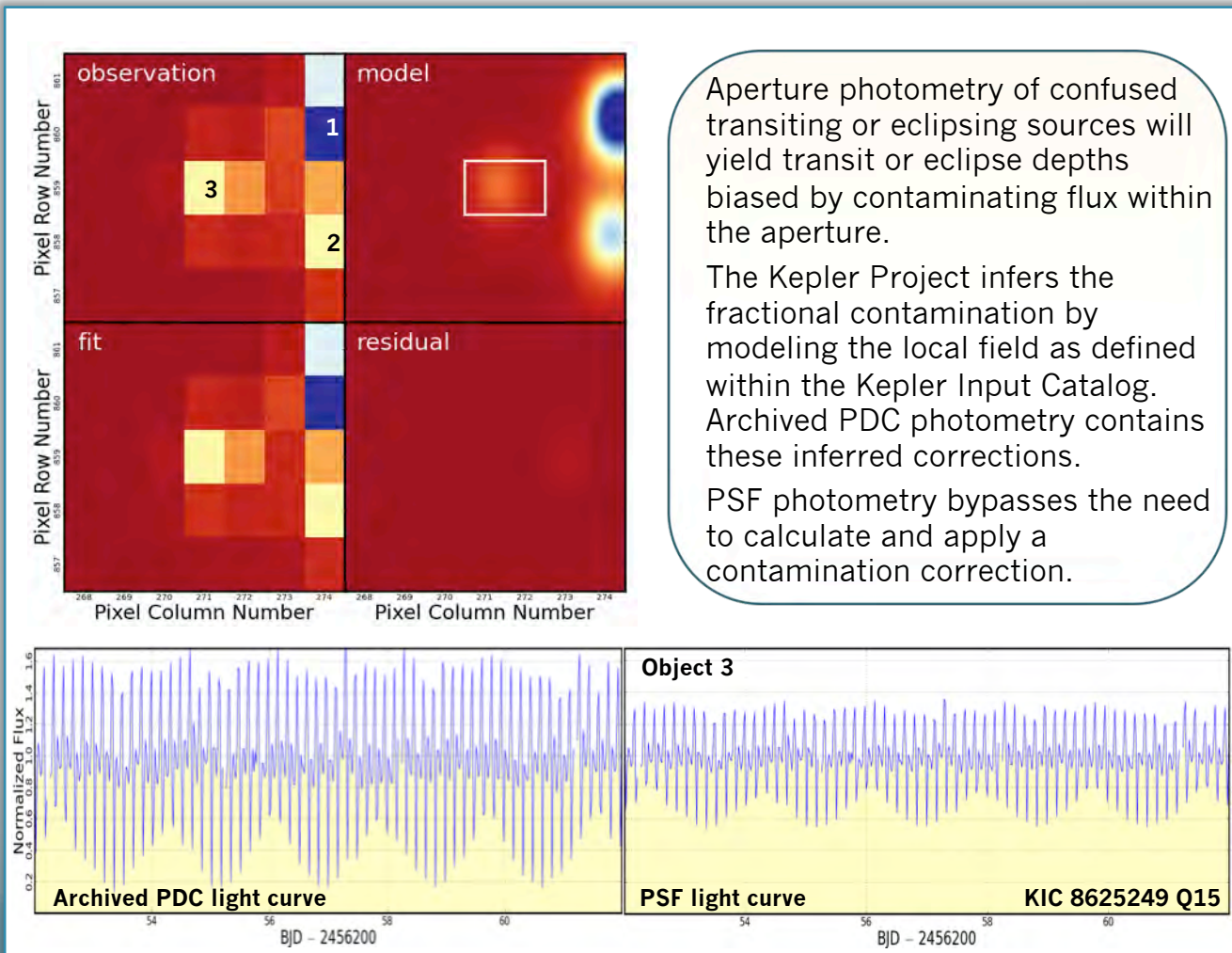
Confused sources can be disentangled by fitting a PSF model to calibrated pixel data. Transits can be localized to a single component within a confused source and false positive and planet likelihoods determined.

# play with your pixels – reap the rewards



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## TRANSIT AND ECLIPSE DEPTHS

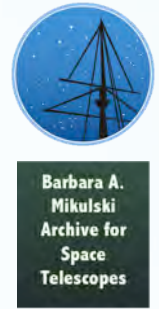


Aperture photometry of confused transiting or eclipsing sources will yield transit or eclipse depths biased by contaminating flux within the aperture.

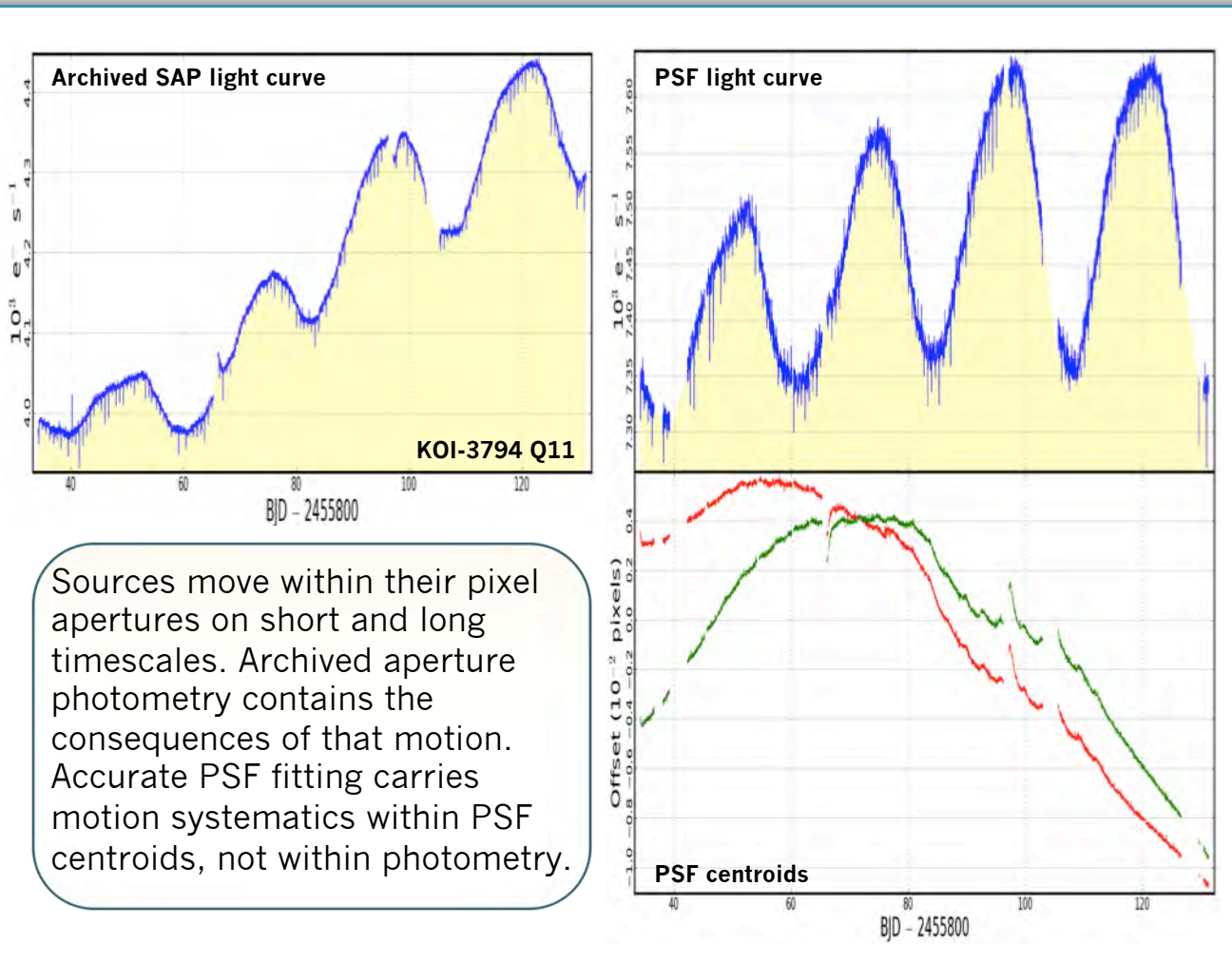
The Kepler Project infers the fractional contamination by modeling the local field as defined within the Kepler Input Catalog. Archived PDC photometry contains these inferred corrections.

PSF photometry bypasses the need to calculate and apply a contamination correction.

# play with your pixels – reap the rewards



## SYSTEMATIC ARTIFACTS



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# MAST Kepler Archive

Scott Fleming  
Space Telescope Science Institute

# MAST Discovery Portal

## Arriving Winter 2013; archive.stsci.edu



Start Page MAST: 19:09:53.618 +48:46:32.56 r=1.0d MAST: 19:09:53.618 +48:46:32.56 r=1.0d MAST: 19:09:53.618 +48:46:32.56 r=1.0d

Displaying 2626 of 2887 Total Rows

Equatorial Coord 19:09:53.618 ++48:46:32.56 J2000 Footprints: All

**Filters**

Clear Filters Edit Facets... Help...

All  Checked  Unchecked

Filter All Record Fields

**Product Type**

Order Values by Count

- Lightcurve (2626 of 2626)

**Mission**

Order Values by Count

- GALEX (0 of 28)
- HST (0 of 222)
- Kepler (2626 of 2626)
- KeplerFFI (0 of 5)
- SWIFT (0 of 6)

**Instrument**

Order Values by Count

- GALEX (0 of 28)
- Kepler (2626 of 2626)
- KeplerFFI (0 of 5)
- WPC/UVIS (0 of 216)
- WPC/UVIS (0 of 6)

**Filters**

Order Values by Count

- RESPT (0 of 2)
- RESST (0 of 3)
- RESST (0 of 3)
- RESST (0 of 10)
- RESST (0 of 214)
- RESST (0 of 18)
- RESST (0 of 2)
- RESST (0 of 3)
- RESST (0 of 1)

**Waveband**

Order Values by Count

- INFRARED (0 of 216)
- OPTICAL (0 of 10)
- UV (0 of 34)

**Principal Investigator**

Order Values by Count

Actions	Preview	Target Name	Instrument	Filters	Waveband	Observation ID
1		kplr011129153	KEPLER			kplr011129153_Jc
2		kplr011129134	KEPLER			kplr011129134_Jc
3		kplr011129191	KEPLER			kplr011129191_Jc
4		kplr011129171	KEPLER			kplr011129171_Jc
5		kplr011129145	KEPLER			kplr011129145_Jc
6		kplr011129112	KEPLER			kplr011129112_Jc
7		kplr011129198	KEPLER			kplr011129198_Jc
8		kplr0111292611	KEPLER			kplr0111292611_Jc

**AstroView**

19:10:34.111 +48:39:55.875 RA DEC  
19:09:53.618 +48:46:32.560

# MAST Discovery Portal

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Start Page VO: kepler 16 r=0.001d

60 Total Rows NAME Kepler-16

Filters	Actions	Short Name	Type	Title	Waveband	Records Found	FITS Images
		Spitzer Level 1		Spitzer Level 1 / Basic Calibrated Data	Infrared	392	392
		WISE All-Sky L1B		WISE All-Sky 4-band Single-Exposure Images	Infrared	180	180
		ADS		Astrophysics Data System	Radio, Millim...	66	0
		KTC		Kepler Data Search	Visible	38	0
		DSS ESO		Digitized Sky Survey		16	8
		2MASS QL		2MASS All-Sky Quicklook Image Service	Infrared	12	6
		2MASS ASKY AT		2MASS All-Sky Atlas Image Service	Infrared	12	6
		SuperCOSMOS [1]		SuperCOSMOS Science Archive (SSA)	Optical	12	0
		IRTS		The Infrared Telescope in Space Data Atlas	Infrared	11	11
		ROSAT SIA		SIA Service for ROSAT Archive	X-ray	8	8
		CADC		CADC Image Search	Millimeter, In...	5	5
		CADC/CFHT		CADC/CFHT Image Search	Infrared, Opt...	5	5
		HEAVENS @ ISDC		Mining the HEAVENS with the Virtual Observatory	X-ray, Gamm...	5	0
		ISSA		The IRAS Sky Survey Atlas	Infrared	4	4
		GALEX		Galaxy Evolution Explorer	UV	4	2
		HEAVENS @ ISDC		Mining the HEAVENS with the Virtual Observatory	X-ray, Gamm...	4	4
		WISE All-Sky L3A		WISE All-Sky 4-band Atlas Coadded Images	Infrared	4	4
		GALEX		Galaxy Evolution Explorer	UV	3	0
		SuperCOSMOS [2]		SuperCOSMOS Science Archive (SSA)	Optical	3	0

AstroView



# MAST Discovery Portal

## Arriving Winter 2013; archive.stsci.edu



Start Page | circumbinary.txt | CDS Crossmatch [WISE]

6 Total Rows

Footprints: All

Actions	angDist	ID	RA	DEC	JNAME	W1mag	W2mag	W3mag	W4mag	Jmag	Hmag	Kmag
	0.482503	Kepler 16	289.07571	51.75744	J191618.18+...	8.877	8.93	8.847	8.909	9.815	9.137	8.996
	0.184712	Kepler 34	296.43582	44.64156	J194544.58+...	13.187	13.264	12.993	9.489	13.605	13.301	13.238
	0.439832	Kepler 35	294.49698	46.68976	J193759.27+...	13.711	13.776	13.575	9.895	14.425	14.036	13.875
	0.191354	Kepler 38	286.83036	42.2792	J190719.26+...	12.218	12.273	12.607	9.545	12.73	12.412	12.342
	0.068216	Kepler 47	295.29792	46.92047	J194111.49+...	13.529	13.604	12.863	9.224	13.97	13.639	13.535
	0.089479	Kepler 64	298.215101	39.9551	J195251.62+...	12.298	12.309	12.55	9.708	12.714	12.461	12.395

**Cross-Match (Select catalog from list below)**

Catalog	Description
MAST	Mikulski Archive For Space Telescopes
CAOM	Combined Observations across all MAST Missions
CDS	Strasbourg astronomical Data Center
SIMBAD	SIMBAD Astronomical Database
2MASS	2MASS All-Sky Catalog of Point Sources (Cutri+ 2003)
2MASS6X	2MASS 6X Point Source Working Database / Catalog (Cutri+ 2006)
CFHTLS Deep	The CFHTLS Deep Survey, fields D1--D4: (T0007 release) (Hudelot+ 2012)
CFHTLS Wide	The CFHTLS Wide Survey, fields W1--W4: (T0007 release) (Hudelot+ 2012)
CMC14	Carlsberg Meridian Catalog 14 (CMC14) (CMC, 2006)
DENIS	The DENIS database, 3rd release (DENIS Consortium, 2005)
GALEX GR5 AIS	GALEX-DR5 (GR5) sources from AIS (All-sky Imaging Survey) (Bianchi+ 2011)
GALEX GR5 MIS	GALEX-DR5 (GR5) sources from MIS (Medium-depth Imaging Survey) (Bianchi+ 2011)
GLIMPSE	GLIMPSE Source Catalog (I + II + 3D) (IPAC 2008)
GSC 2.2	The GSC 2.2 Catalogue (STScI, 2001)
GSC 2.3	The Guide Star Catalog, Version 2.3.2 (GSC2.3) (STScI, 2006)
GSC ACT	The HST Guide Star Catalog, Version GSC-ACT (Lasker+ 1996-99)
IRSE MCDS	IRSE Magellanic Clouds Point Source Catalog (Kato+ 2007)

Catalog:

Radius ("):

# Kepler CasJobs / Previews

<http://mastweb.stsci.edu/kplrcasjobs/>



MAST Query / CasJobs

Home Help GOHelp Tools Query History MyDB Import Groups Output Profile Admin Logout scfleming

Context: Table (optional) Task Name  
 kepler MyTable My Query

Samples Recent Clear [1 s] Query complete! Syntax Plan Quick Submit

```

select distinct sci_kepler_id as kepler_id from science
where
sci_archive_class = 'CSC'
and
sci_data_quarter >= 12
and
sci_crowdsap >= 0.95
order by sci_kepler_id
    
```

624 row(s)

kepler_id
1161345
1294756
1435467
1871056
2162635
2167444
2306756
2309719
2439660
2444412
2571238
2573108
2692377
2693092
2694337
2707479
2708156
2837475
2854698
2859567
3102384
3109550
3128793
3217264

Plot Save As HTML

Contact MAST  
 CASJobs is made possible by the Sloan Digital Sky Survey Collaboration  
 Name: v1\_5\_16 \$ (Revision: 1.70 \$, Last modified: Wednesday, September 17, 2008 at 4:35:22 PM)

Mission Search / Missions / Contacts / STScI / MAST Columns Help / Archive Status

## Kepler Data Search Results

Edit Query

Display numeric columns graphically using VOPlot

Object name **kepler 16** resolved by **Simbad (via SANTA cache)** to NAME **Kepler-16 (AB) (EB\*Algol)**  
**RA: 19 16 18.17 Dec: 51 45 26.76 (J2000)**

number of rows returned = 38  
 note: reload page if no results are shown

Click on top column headers to sort the table on the column contents.  
 Click on bottom column headers for more information about the data in that column.  
 Click on Ref entries to display list of published papers.  
 Click on Condition Flag entries for more information on flag definitions.  
 Click on Dataset Name entries to preview information on data set.

Plot marked Light Curves Submit marked data for retrieval from STDADS

Mark all Unmark all Mark public Unmark public Mark proprietary Unmark proprietary

Mark	Kepler ID	Investigation ID	Dataset Name	Quarter	RA (J2000)	Dec (J2000)	Target Type
<input type="checkbox"/>	12644769	EX	<a href="#">KPLR012644769-2009131105131</a>	0	19 16 18.170	+51 45 26.78	LC
<input type="checkbox"/>	12644769	EX	<a href="#">KPLR012644769-2009166043257</a>	1	19 16 18.170	+51 45 26.78	LC
<input type="checkbox"/>	12644769	STKS	<a href="#">KPLR012644769-2009231120729</a>	2	19 16 18.170	+51 45 26.78	SC
<input type="checkbox"/>	12644769	EX_STKS	<a href="#">KPLR012644769-2009259160929</a>	2	19 16 18.170	+51 45 26.78	LC
<input type="checkbox"/>	12644769	EX	<a href="#">KPLR012644769-2009350155506</a>	3	19 16 18.170	+51 45 26.78	LC
<input type="checkbox"/>	12644769	EX	<a href="#">KPLR012644769-2010078095331</a>	4	19 16 18.170	+51 45 26.78	LC
<input type="checkbox"/>	12644769	EX	<a href="#">KPLR012644769-2010174085026</a>	5	19 16 18.170	+51 45 26.78	LC
<input type="checkbox"/>	12644769	EX	<a href="#">KPLR012644769-2010265121752</a>	6	19 16 18.170	+51 45 26.78	LC
<input type="checkbox"/>	12644769	EX	<a href="#">KPLR012644769-2010355172524</a>	7	19 16 18.170	+51 45 26.78	LC
<input type="checkbox"/>	12644769	EX	<a href="#">KPLR012644769-2011073133259</a>	8	19 16 18.170	+51 45 26.78	LC
<input type="checkbox"/>	12644769	EX	<a href="#">KPLR012644769-2011177032512</a>	9	19 16 18.170	+51 45 26.78	LC
<input type="checkbox"/>	12644769	EX	<a href="#">KPLR012644769-2011208035123</a>	10	19 16 18.170	+51 45 26.78	SC
<input type="checkbox"/>	12644769	EX	<a href="#">KPLR012644769-2011240104155</a>	10	19 16 18.170	+51 45 26.78	SC
<input type="checkbox"/>	12644769	EX	<a href="#">KPLR012644769-2011271113734</a>	10	19 16 18.170	+51 45 26.78	LC

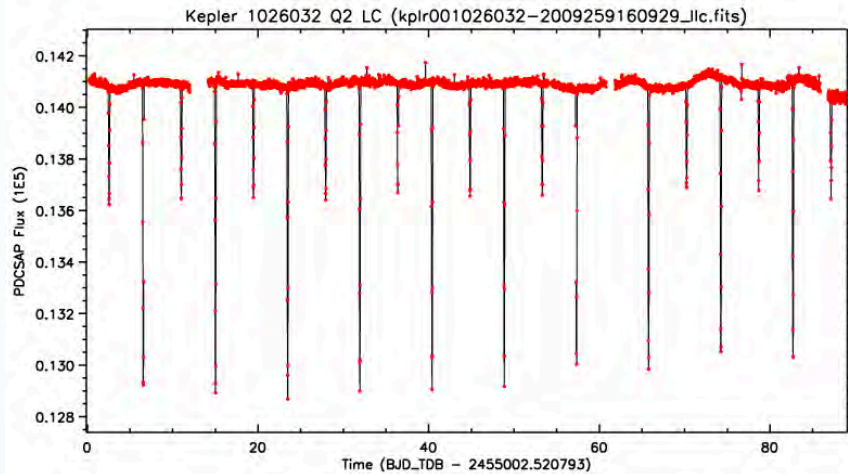
# Variability Stats

Available In CasJobs / Previews Soon



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kplr001026032-2009259160929\_llc



PREV	STATS	NEXT
KEPLER_ID	QUARTER	CADENCE
1026032	2	LC
KOI?	EB?	Red Giant?
NO	YES	NO
PARAMETER	VALUE	PERCENTILE
RVAR_10	3.299296	80
RVAR_30	3.408074	80
MDV	0.247050	75
NZC_0	1043.	40
NZC_10	89.	30
SIGMA_OVER_MU_%	0.850057	95
SKEWNESS	-7.018317	0
KURTOSIS	54.059169	95
CON_STAT	1.016314	80
ETA	0.119165	20
STETSON_J / 1000	22.622047	85
STETSON_K	0.339319	0
N_3SIGMA_SEGS	18.	100

DATASET COMPARISON (same star, diff. dataset, current dataset in red)			
Plots vs. Quarter	Dataset, Q, SC/LC, Value	Plots vs. Quarter	Dataset, Q, SC/LC, Value
<b>RVAR_10 (Machine Readable)</b>		<b>RVAR_30 (Machine Readable)</b>	
	2009166043257 1 LC 4.579782 2009259160929 2 LC 3.299296 2009350155506 3 LC 9.989560 2010078095331 4 LC 6.497979 2010174085026 5 LC 3.348231 2010265121752 6 LC 11.410952 2010355172524 7 LC 4.462838 2011073133259 8 LC 3.730595 2011177032512 9 LC 2.492428 2011271113734 10 LC 8.368671 2012004120508 11 LC 11.773169 2012179063303 13 LC 7.364810 2012277125453 14 LC 4.907012 2013011073258 15 LC 5.885661 2013098041711 16 LC 2.092779		2009166043257 1 LC 5.318046 2009259160929 2 LC 3.408074 2009350155506 3 LC 4.426360 2010078095331 4 LC 3.077090 2010174085026 5 LC 3.907382 2010265121752 6 LC 6.015182 2010355172524 7 LC 4.464388 2011073133259 8 LC 4.700363 2011177032512 9 LC 2.668798 2011271113734 10 LC 4.241288 2012004120508 11 LC 9.049296 2012179063303 13 LC 3.86732 2012277125453 14 LC 8.348525 2013011073258 15 LC 6.003737 2013098041711 16 LC 3.499448
<b>MDV (Machine Readable)</b>		<b>NZC_0 (Machine Readable)</b>	
	2009166043257 1 LC 0.288047 2009259160929 2 LC 0.247050 2009350155506 3 LC 0.208350 2010078095331 4 LC 0.207651 2010174085026 5 LC 0.246006 2010265121752 6 LC 0.264860 2010355172524 7 LC 0.274427 2011073133259 8 LC 0.221463 2011177032512 9 LC 0.189889 2011271113734 10 LC 0.259716 2012004120508 11 LC 0.439425 2012179063303 13 LC 0.190044 2012277125453 14 LC 0.351814 2013011073258 15 LC 0.251668 2013098041711 16 LC 0.279234		2009166043257 1 LC 125. 2009259160929 2 LC 1043. 2009350155506 3 LC 973. 2010078095331 4 LC 724. 2010174085026 5 LC 531. 2010265121752 6 LC 878. 2010355172524 7 LC 750. 2011073133259 8 LC 529. 2011177032512 9 LC 1204. 2011271113734 10 LC 927. 2012004120508 11 LC 553. 2012179063303 13 LC 741. 2012277125453 14 LC 875. 2013011073258 15 LC 293. 2013098041711 16 LC 832.
<b>NZC_10 (Machine Readable)</b>		<b>(SIGMA / MU) (percent) (Machine Readable)</b>	
	2009166043257 1 LC 13. 2009259160929 2 LC 89. 2009350155506 3 LC 67. 2010078095331 4 LC 67. 2010174085026 5 LC 56. 2010265121752 6 LC 73. 2010355172524 7 LC 70. 2011073133259 8 LC 44. 2011177032512 9 LC 108. 2011271113734 10 LC 72. 2012004120508 11 LC 61. 2012179063303 13 LC 70. 2012277125453 14 LC 53. 2013011073258 15 LC 70. 2013098041711 16 LC 54.		2009166043257 1 LC 0.867956 2009259160929 2 LC 0.850057 2009350155506 3 LC 0.952804 2010078095331 4 LC 0.905103 2010174085026 5 LC 0.849184 2010265121752 6 LC 0.843387 2010355172524 7 LC 0.958372 2011073133259 8 LC 0.905838 2011177032512 9 LC 0.847362 2011271113734 10 LC 0.819732 2012004120508 11 LC 0.990155 2012179063303 13 LC 0.881602 2012277125453 14 LC 0.858505 2013011073258 15 LC 0.979086 2013098041711 16 LC 0.857207

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Kepler



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Kepler Front Page: [archive.stsci.edu/kepler](http://archive.stsci.edu/kepler)



Please take our survey: <http://archive.stsci.edu/survey2013.html>

Visit my poster 2-314 for more details, new data planned for release.

Also, *ask Dorothy or myself for a personal demonstration of how the Discovery Portal can be used for your specific research needs.*

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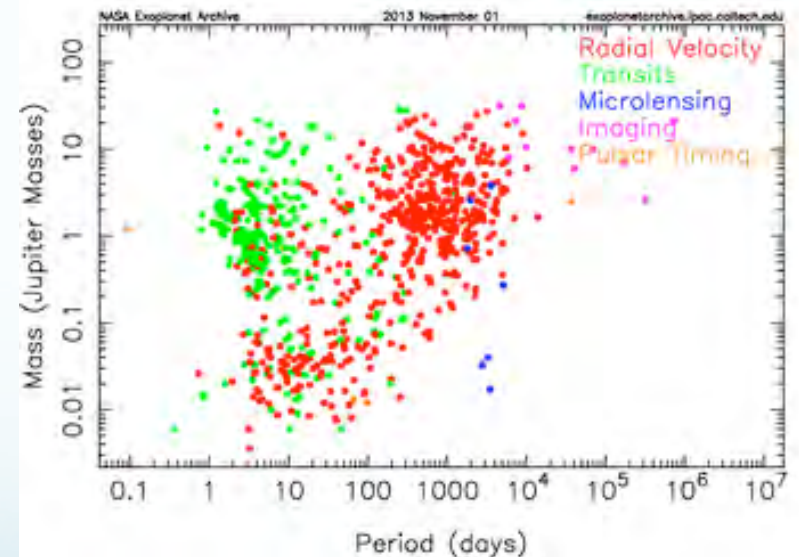
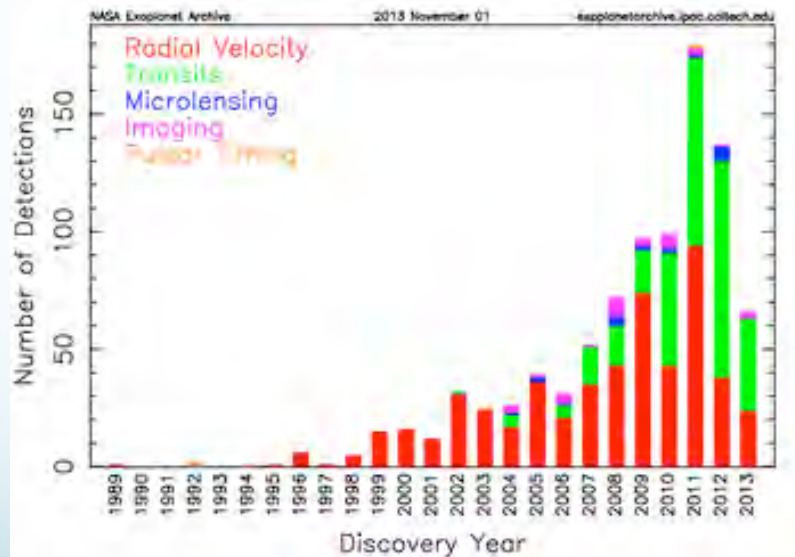
# NASA Exoplanet Archive

Rachel Akeson  
NASA Exoplanet Science Institute

# NASA Exoplanet Archive



- The NASA Exoplanet Archive collects and serves public data to support the search for and characterization of exoplanets and their host stars.



- Team members here: Rachel Akeson, Jessie Christiansen, David Ciardi, Peter Plavchan, Solange Ramirez

# Overview



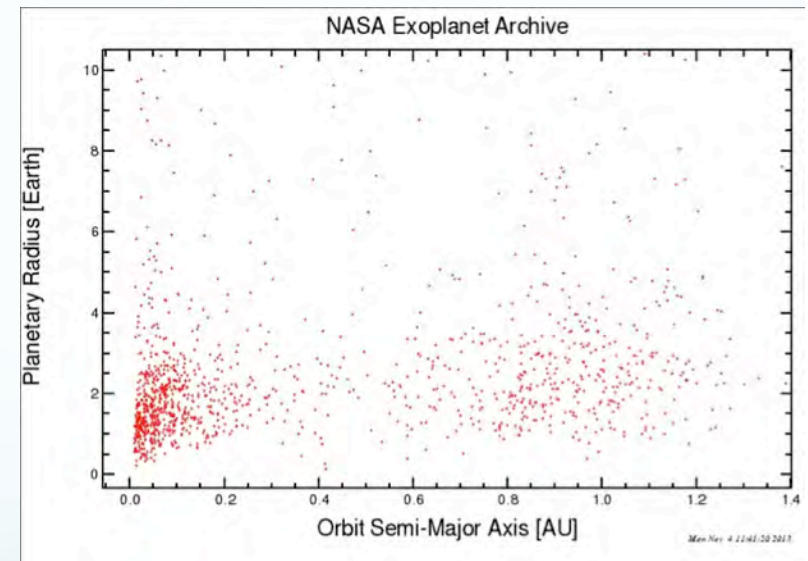
- Data
  - Confirmed planet and stellar host properties
  - Kepler pipeline data
    - TCE lists
    - KOI activity tables
    - Data validation files
    - Stellar properties of targets stars
    - Kepler/KOI/KepID names cross-matching
  - Time series/light curves
    - Kepler
    - CoRoT
    - SuperWASP
    - XO, HATNet, TrES, etc
- Tools
  - Interactive tables with sorting, filtering and plotting capabilities
  - Interactive visualization for Kepler and SuperWASP light curves
  - Periodogram tool
  - Transit prediction tool
  - API interface to data

<http://exoplanetarchive.ipac.caltech.edu>

# Kepler pipeline data: TCEs, data validation, stellar properties



- Interactive table with each TCE table available in a separate tab
  - Plotting available from table
- Data validation reports and summaries (Q1-12 and Q1-16)
- Links between objects, DV reports and light curves
- Stellar properties for target stars: Q1-12 (Q1-16 coming soon)



Q1-16 TCEs with  
SNR/MES > 0.6 and  
 $T_{\text{stellar}} < 5000 \text{ K}$



# KOIs and confirmed Kepler planets



- Interactive table for KOI activity tables: Q1-6, Q1-8, Q1-12, cumulative
- Kepler names: cross match between Kepler, KOI, KepID and published names for confirmed planets
  - Also links to policy for assignments of Kepler names
- Links between objects, DV reports and light curves

Kepler Names				
KepID	KOI Name	Kepler Name	Confirmed Name	2MASS Name
11448443	K00001.01	Kepler-1 b	TrES-2 b	2MASS J19071403+4918590
10666592	K00002.01	Kepler-2 b	HAT-P-7 b	2MASS J19285935+4758102
10748390	K00003.01	Kepler-3 b	HAT-P-11 b	2MASS J19505021+4804508
11853905	K00007.01	Kepler-4 b	Kepler-4 b	2MASS J19022767+5008087
8191672	K00016.01	Kepler-5 b	Kepler-5 b	2MASS J19573768+4402081
10874614	K00017.01	Kepler-6 b	Kepler-6 b	2MASS J19472094+4814238
5780885	K00097.01	Kepler-7 b	Kepler-7 b	2MASS J19141956+4105233
8922244	K00010.01	Kepler-8 b	Kepler-8 b	2MASS J18450914+4227038
3323887	K00377.01	Kepler-9 b	Kepler-9 b	2MASS J19021775+3824032
3323887	K00377.02	Kepler-9 c	Kepler-9 c	2MASS J19021775+3824032
3323887	K00377.03	Kepler-9 d	Kepler-9 d	2MASS J19021775+3824032
11904151	K00072.01	Kepler-10 b	Kepler-10 b	2MASS J19024305+5014286
11904151	K00072.02	Kepler-10 c	Kepler-10 c	2MASS J19024305+5014286
6541920	K00157.06	Kepler-11 b	Kepler-11 b	2MASS J19482762+4154328
6541920	K00157.01	Kepler-11 c	Kepler-11 c	2MASS J19482762+4154328
6541920	K00157.02	Kepler-11 d	Kepler-11 d	2MASS J19482762+4154328
6541920	K00157.03	Kepler-11 e	Kepler-11 e	2MASS J19482762+4154328
6541920	K00157.04	Kepler-11 f	Kepler-11 f	2MASS J19482762+4154328
6541920	K00157.05	Kepler-11 g	Kepler-11 g	2MASS J19482762+4154328
11804465	K00020.01	Kepler-12 b	Kepler-12 b	2MASS J19045842+5002253
9941662	K00013.01	Kepler-13 b	KOI-13 b	2MASS J19075308+4652061
10264660	K00098.01	Kepler-14 b	Kepler-14 b	2MASS J19105011+4719589
11359979	K00128.01	Kepler-15 b	Kepler-15 b	2MASS J19444814+4908244
12644769	K01611.02	Kepler-16 b	Kepler-16 b	2MASS J19181817+5145267
10619192	K00203.01	Kepler-17 b	Kepler-17 b	2MASS J19533486+4748540
8844288	K00137.03	Kepler-18 b	Kepler-18 b	2MASS J19521906+4444467
8844288	K00137.01	Kepler-18 c	Kepler-18 c	2MASS J19521906+4444467
8844288	K00137.02	Kepler-18 d	Kepler-18 d	2MASS J19521906+4444467

# NEW! SuperWASP data

Kepler

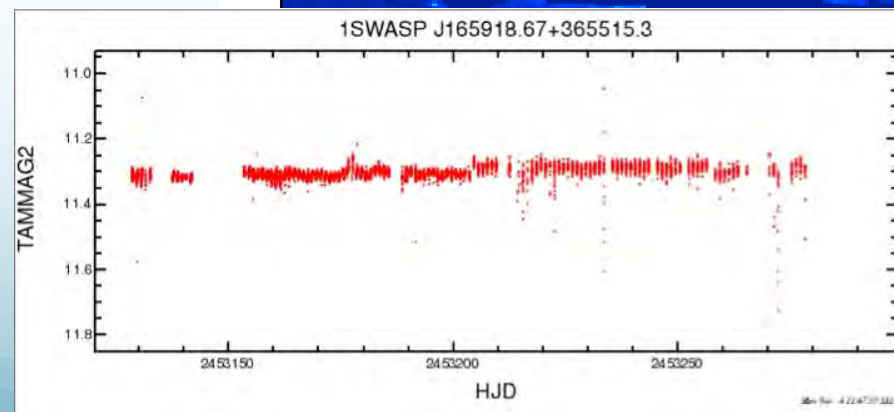
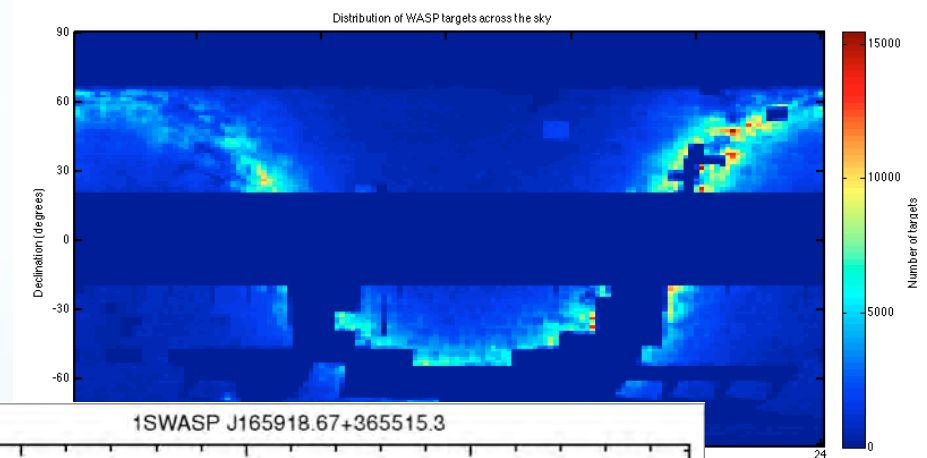
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- The WASP consortium has made data from the first WASP data release (2004-2008) available
- 18 million objects covering most of the sky

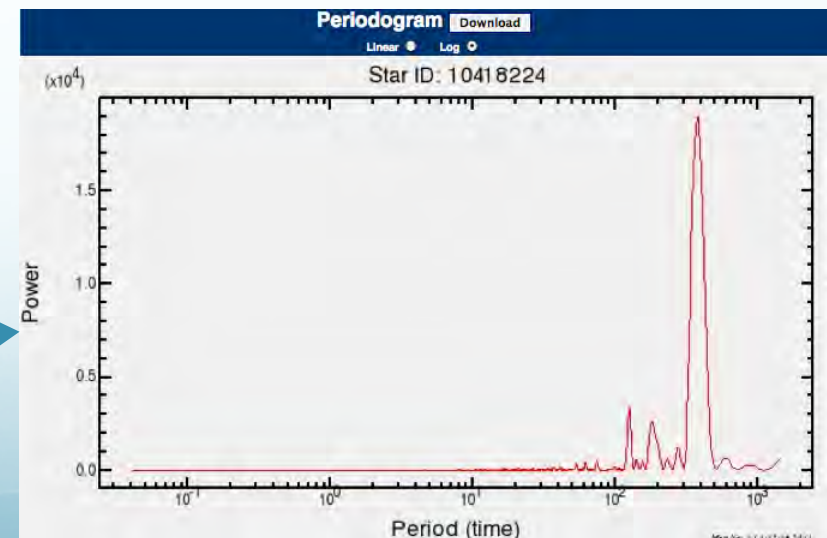
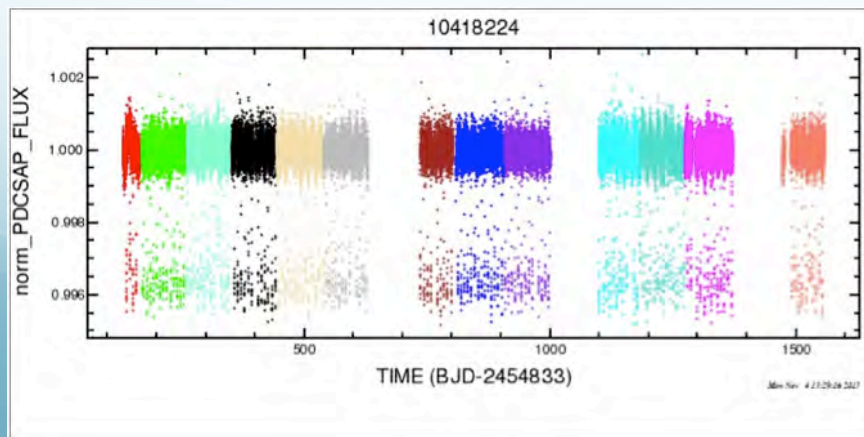
- Users can
  - Search light curve metadata
  - Download metadata or light curves directly
  - See magnitude and spatial distributions of targets



# Light curves and periodograms



- Interactive light curve viewer
  - Combine and normalize Kepler quarters
- Periodogram tool
  - For light curves in the archive or uploaded
  - Three algorithms available: BLS, Lomb-Scargle, Plavchan
- Folded light curves



# Transit services



- Predictions of transits based on planet/stellar parameters in archive or user supplied
  - For confirmed planet and KOIs
  - By object
  - By location

Observation window

f. Enter UT date & time, in calendar format as shown. eg. \*20 Jun 2006 12:54:00\* or \*20 Jun 2008\*

05 Nov 2013 22:38:30 to 06 Nov 2013 22:38:30

Observation Site

2. Select a location - either choose an observatory site from pulldown menu, or enter latitude (positive N) and longitude (positive E of Greenwich) in decimal degrees, eg. Los Angeles (34°05' N, 118°22' W) is (34.083,-118.367)

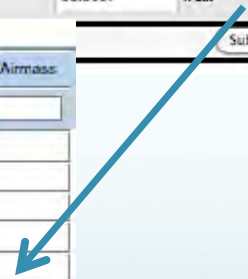
3. Click the 'Submit' button.

Palomar Observatory, California

33.3567 N Lat -116.8633 E Lon

Submit

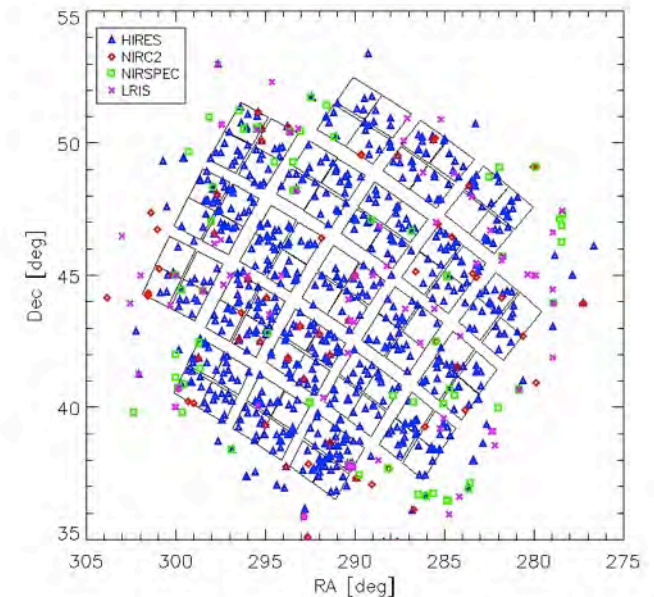
Viewable Transits - Confirmed Planets	Viewable Transits - KOIs				
Row ID	PlanetName	Phase	Event Midpoint Calendar UT	Event Midpoint JD UT	Event Midpoint Airmass
7	Kepler-24 b	0.00	11/06/2013 03:05	2456602.62890	1.24
8	Kepler-44 b	0.00	11/06/2013 05:38	2456602.73506	1.78
9	WASP-28 b	0.00	11/06/2013 07:16	2456602.80326	1.72
10	WASP-32 b	0.00	11/06/2013 07:38	2456602.81851	1.53
11	WASP-36 b	0.00	11/06/2013 10:43	2456602.94679	1.85
12	WASP-44 b	0.00	11/06/2013 03:35	2456602.64948	1.55
13	WASP-65 b	0.00	11/06/2013 12:30	2456603.02110	1.15
14	55 Cnc e	0.25	11/06/2013 13:17	2456603.05386	1.01
15	CoRoT-18 b	0.25	11/06/2013 08:18	2456602.84585	1.89
16	CoRoT-19 b	0.25	11/06/2013 10:12	2456602.92515	1.24
17	CoRoT-23 b	0.25	11/06/2013 02:09	2456602.58983	1.49
18	HAT-P-17 b	0.25	11/06/2013 03:46	2456602.85706	1.05
19	HAT-P-23 b	0.25	11/06/2013 06:13	2456602.75947	2.85
20	HAT-P-6 b	0.25	11/06/2013 05:26	2456602.72701	1.04



# Keck Observatory Archive



- Overview
  - Currently contains public data from HIRES, NIRSPEC, NIRC2, LRIS
  - All instruments will be included by early 2014
  - Operated by NExSci and WM Keck Observatory
- Kepler content
  - Keck has been used extensively for follow-up observations
  - Over 7000 science files from the Kepler field are available in the archive



<http://koa.ipac.caltech.edu>

*Kepler*



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# The Community Follow-Up Observation Program Website (CFOP)

<https://cfop.ipac.caltech.edu>

David Ciardi  
NASA Exoplanet Science Institute

# CFOP Purpose

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- Coordinated and Systematic spectroscopic and imaging program of the KOIs
  - To support the determination of the false positive probabilities
  - To determine the stellar properties of the host stars
  - To determine the photometric blending of the host stars
- Need to communicate and organize observing priorities and accomplishments
  - Make best efficient and effective use of the facilities available
  - Avoid duplication of effort
  - Avoid observing of false positives or already confirmed planets (unless, of course, you want to observe them)
- Sharing of data, notes, derived parameters, files, analysis ...

# Overall Content



- All KOIs identified by the Kepler Project
  - Candidates/Confirmed: 3602 planets around 2716 stars
  - False Positives: 2183 “planets” around 2140 stars
  - Synced with the Kepler pipeline output and Exoplanet Archive
- Uploaded content
  - Over 55,000 stellar parameters
  - Over 16,000 planetary parameters
  - Over 70,000 files
- For each KOI
  - Summary Page
  - Coordinates, magnitudes, transit parameters, stellar parameters, planet parameters
  - Free form observing notes
  - File upload
  - Observing summary table



# Summary KOI Page



## KOI Host Star #2626

Download all data  
 Download all files: tar | zip  
 View/Edit Observing Notes  
 Link to Exoplanet Archive overview page (includes 1-page DV summary)  
 Link to Exoplanet Archive transit predictor: 2626.01  
 Last modified: 2013-09-17 11:02:32 by everett

KIC ID	11768142
KOIs	2626.01 (Planetary Candidate)
Kepler Name	
Position (J2000)	RA: 19:37:27.86 DEC: 49:54:54.21
Kepler mag	15.931
Ks mag	12.635
Proper motion (arcsec/yr)	RA: 0.0000 Dec: 0.0000
Multiplicity (from UKIRT)	Within 4 arcsec: 2 sources Within 10 arcsec: 2 sources
Multiplicity (UBV)	Within 4 arcsec: 1 source Within 10 arcsec: 1 source

## Transit Parameters (1)

Epoch (BJD)	Period (days)	Depth (mmag)	
2626.01 (1)	2454972.99630000 ±0.00030000	38.098240000 ±0.000890000	0.88849566

## Orbital Parameters (1)

Period (days)	Semi-major Axis (AU)	Inclination (deg)	Eccen
2626.01 (1)	0.178	89.95	0

## Planet Parameters (1)

Radius (R_Earth)	Mass (M_Earth)	Msin(i) (M_Earth)
2626.01 (1)	1.39 ±0.63	

Remove from MyKOIs

## Magnitudes (10)

Value	Uncertainty	Notes	User
B (1)	18.249	0.033	Closest UBV source from Everett, Howell, Kinemuchi 2012; dist=0.261arcsec
g' (1)	17.596	0.000	keplerproject 2013-03-22 16:01:40
V (1)	16.890	0.021	Closest UBV source from Everett, Howell, Kinemuchi 2012; dist=0.261arcsec
r' (1)	16.218	0.000	keplerproject 2013-03-22 16:01:40
Keop (1)	15.931	0.000	keplerproject 2013-03-22 16:01:40
f' (1)	15.218	0.000	keplerproject 2013-03-22 16:01:40
z' (1)	14.761	0.000	keplerproject 2013-03-22 16:01:40
J (1)	13.454	0.022	keplerproject 2013-03-22 16:01:40
H (1)	12.784	0.021	keplerproject 2013-03-22 16:01:40
Ks (1)	12.635	0.024	keplerproject 2013-03-22 16:01:40

## Stellar Parameters (1)

Teff (K)	log(g)	Radius (R_Sun)	Vaini (km/s)	Spectral Type	logR'HK	[Fe/H]	Distance (pc)	Mass (M_Sun)	Density (g/cm3)	Rotation period (days)	Luminosity (L_Sun)	S-index	Notes (View codes)	US
3885.00	4.750	0.5020			-0.200		0.5200						Pinnaculum	20

## Spectroscopic Observations (1)

Telescope	Instrument	Spectral resolution (R)	Wavelength coverage	SNR/res	SNR wave	Flux Calibrated?	Wave Calibrated?	RV Type	Observation date (UT)	Notes	User
Keck I	HIRES	60000	364 to 480 nm			No	Yes		2012-09-09		isaacson 2013-07-16 03:48

## Imaging Observations (9)

Telescope	Instrument	Filter	Pixel scale (arcsec)	Estimated PSF	Estimated Contrast	Observation date (UT)	Notes	User
HST	WFC3	F555W: 8308 (1862) A	0.03333	0.08	Δ8.5 mag @ 0.5"	2013-31-07	Direct image	gilliland 2013-08-01 09:12:52
HST	WFC3	F775W: 7647 (1171) A	0.03333	0.08	Δ8.5 mag @ 0.5"	2013-31-07	triple within 0.2"	gilliland 2013-08-01 09:12:52
Gemini	DSSI	447 (80) nm	0.01	0.02	Δ6 mag @ 0.2"	2013-07-29	Speckle	everett 2013-07-20 23:15:19
Gemini	DSSI	562 (43) nm	0.01	0.02	Δ6 mag @ 0.2"	2013-07-29	Speckle	everett 2013-07-20 23:15:19
Gemini	DSSI	692 (40) nm	0.01	0.02	Δ6 mag @ 0.2"	2013-07-26	Speckle	everett 2013-07-27 06:05:14
Gemini	DSSI	880 (50) nm	0.01	0.02	Δ6 mag @ 0.2"	2013-07-26	Speckle	everett 2013-07-27 06:05:14
Gemini	DSSI	692 (40) nm	0.01	0.02	Δ6 mag @ 0.2"	2013-07-27	Speckle	everett 2013-07-27 06:05:14
Gemini	DSSI	800 (50) nm	0.01	0.02	Δ6 mag @ 0.2"	2013-07-27	Speckle	everett 2013-07-27 06:05:14
Keck	NIRC2	Kpome	0.01	5	Δ8 mag @ 0.5"	2013-07-06	NDS-AO	standi 2013-07-07 16:13:17

## Radial Velocities (0)

## UKIRT Multiplicity (32)

## UBV Catalog Multiplicity (19)

RA (dec deg)	Dec (dec deg)	RA (sexagesimal)	Dec (sexagesimal)	Distance PA (deg EofN)	U mag	B mag	V mag	Vkepmag	d_Kepmag	KIC	KIC_Kepmag	KIC_dKepmag	KIC_Dist	User
294.36604	49.915090	19:37:27.84	49:54:54.32	0.193	-41.38	18.249	16.890	16.57	0.64	11768142	15.93	0.00	0.261	ciardi 2013-06-18 14:13:24
294.37244	49.918516	19:37:29.38	49:55:06.65	26.05	49.807	17.928	16.509	16.18	0.25	11768156	16.24	0.31	0.222	ciardi 2013-06-18 14:13:24
294.35941	49.919692	19:37:26.25	49:55:10.89	29.24	-42.83	19.788	19.042	18.72	2.79	11768129	18.23	2.30	0.662	ciardi 2013-06-18 14:13:24
294.35846	49.918020	19:37:26.03	49:55:04.87	29.44	-58.09	18.122	18.151	17.538	1.28	11768128	17.33	1.40	0.495	ciardi 2013-06-18 14:13:24
294.37164	49.906971	19:37:29.04	49:54:25.09	34.14	158.45	20.501	19.084	18.76	2.83	11768154	18.38	2.45	0.528	ciardi 2013-06-18 14:13:24
294.35614	49.914007	19:37:25.49	49:54:50.42	35.63	-99.41	15.828	15.401	15.00	-0.65	11768124	15.27	-0.66	0.352	ciardi 2013-06-18 14:13:24
294.37687	49.913733	19:37:30.47	49:54:50.42	35.63	-99.41	15.828	15.401	15.00	-0.65	11768124	15.27	-0.66	0.352	ciardi 2013-06-18 14:13:24

## Files (46)

Type	Name	Description	User
specklegram	26261s-SH20130726a.fits	Gemini speckle image at 692nm	everett 2013-09-17
specklegram	26261s-SH20130726b.fits	Gemini speckle image at 880nm	everett 2013-09-17
specklegram	26261s-SH20130726c.fits	Gemini speckle image at 692nm 26-27 July 2013 combined	everett 2013-09-17
specklegram	26261s-SH20130726d.fits	Gemini speckle image at 880nm 26-27 July 2013 combined	everett 2013-09-17
specklegram	26261s-SH20130727a.fits	Gemini speckle image at 692nm	everett 2013-09-17
specklegram	26261s-SH20130727b.fits	Gemini speckle image at 880nm	everett 2013-09-17
specklegram	26261s-SH20130727c.fits	Gemini speckle image at 562nm	everett 2013-09-17
specklegram	26261s-SH20130729b.fits	Gemini speckle image at 447nm	everett 2013-09-17
calibrated	26261c-dc20130615K.fits	Keck NIRC2-AO Image (approx. 3arcsec x 3arcsec)	ciardi 2013-07-19
calibrated	26261c-dc20130615K.jpg	Keck NIRC2-AO JPO Preview (approx. 3arcsec x 3arcsec)	ciardi 2013-07-19
calibrated	26261c-dc20130615K.ps	Keck NIRC2-AO sensitivity plot as a function of radius from the KOI	ciardi 2013-07-19
calibrated	26261c-dc20130615K.tbl	Keck NIRC2-AO sensitivity table as a function of radius from the KOI	ciardi 2013-07-19
calibrated	26261c-dc20130615KUBV.arc	UBV source detections within 1 arcminute from Everett, Howell, Kinemuchi 2012	ciardi 2013-06-19
calibrated	26261c-dc20130615KUKJ.arc	Source Detections from UKIRT Survey: 1 arcmin search radius	ciardi 2013-06-19
calibrated	26261c-dc20130615KUKJ.jpg	UKIRT J-band Image: 1.0x1.0 arcmin	ciardi 2013-06-10
calibrated	26261c-dc20130615KUKJ.fits	UKIRT J-band Image: 1.0x1.0 arcmin	ciardi 2013-06-10
calibrated	26261c-dc20130615KUKJ.tbl	UKIRT J-band source sensitivity table as a function of radius from KOI	ciardi 2013-06-10
calibrated	26261c-dc20130615KUKJ.ps	UKIRT J-band source sensitivity plot as a function of radius from KOI	ciardi 2013-06-10
calibrated	26261c-SH20110626a.fits	WYV-0.9m U-band image: 0.43 arcsec/pixel up to 40"x40" in size	everett 2012-01-25
calibrated	26261c-SH20110626b.fits	WYV-0.9m V-band image: 0.43 arcsec/pixel up to 40"x40" in size	everett 2012-01-25
calibrated	26261c-SH20110626c.fits	WYV-0.9m I-band image: 0.43 arcsec/pixel up to 40"x40" in size	everett 2012-01-25
calibrated	ubv_k195_b.fits	UBV WYV survey image from Everett et al (268 MB)	everett 2013-01-10
calibrated	ubv_k195_u.fits	UBV WYV survey image from Everett et al (268 MB)	everett 2013-01-10
calibrated	ubv_k195_v.fits	UBV WYV survey image from Everett et al (268 MB)	everett 2013-01-10

Every datum and file connected to owner (and contact information)

# Observing Notes

- Free form page for notes for each KOI
- Can link directly to any file that is associated with that KOI

## Observing Notes for KOI #2626

KOI #2626 summary page

Optional: Insert link to uploaded file:

*everett*

2013-09-13 15:29:32

Speckle imaging at Gemini on 2013-07-26, 2013-07-27 and 2013-07-29 reveals KOI2626 to be a triple source. Dates of observation, separations, PA, delta magnitudes in three filters are listed below.

### Secondary Source

Date	Filter	Separation (")	PA (deg)	Delta m
2013-07-26	692nm	0.2100	209.10	2.05
2013-07-26	880nm	0.2102	213.57	1.35 **
2013-07-27	692nm	0.2178	215.41	2.86
2013-07-27	880nm	0.2110	215.67	2.01
2013-07-29	562nm	0.2132	211.36	1.91

### Tertiary Source

Date	Filter	Separation (")	PA (deg)	Delta m
2013-07-26	692nm	0.1561	193.31	2.91
2013-07-26	880nm	0.1665	186.80	1.48 **
2013-07-27	692nm	0.1580	191.42	2.87
2013-07-27	880nm	0.1820	186.31	2.31
2013-07-29	562nm	0.1760	177.83	1.95

\*\* Note that the 2013-07-26 observation in the 880nm filter was adversely affected by scattered light (so was noisy).

Because there are limitations to the quality of the data in 692 and 880nm on both nights (26th UT = noisy 880nm images and 27th UT = relatively few frames for a total of 9 minutes integration), a combined reduction of the data from these two nights was performed. These particular reductions were done using a lower resolution filter in the image reconstruction (which is used for the background limit calculation). This means there are relatively fewer points in the background limit plot and limiting magnitudes below 0.04 arcseconds are not reliable. The combined data photometry given below are probably the best numbers for others to use for most applications:

### Secondary Source

Filter	Separation (")	PA (deg)	Delta m
692nm	0.2074	214.12	1.63
880nm	0.2090	213.46	0.88

### Tertiary Source

Filter	Separation (")	PA (deg)	Delta m
692nm	0.1532	186.87	2.22
880nm	0.1647	185.69	1.28

Note, too, that KOI2626 was observed through a 447nm filter on 2013-07-29. The S/N was insufficient in this case to analyze the secondary and tertiary sources at 447nm.

*clardi*

2013-07-06 06:15:46



# Parameter Search Page *Kepler*



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### Search for KOIs + Help

Return FOP preferred values  
 Return all values

---

KOI Name/Coordinates/# KOIs
Transit/Planet Parameters
Stellar Parameters
Magnitudes
Files
Spectroscopy Data
Imaging Data
RV Data

---

KOI name:  Include in output  
 Kepler name:    
 KIC ID:    
 Upload list of targets:  No file selected. [Example file](#)  
 KOI disposition:
 

- Confirmed planets
- Planetary candidates
- False positives
- Not dispositioned (warning)

RA:   e.g. 19:30:18.49, 292.577026  
 Dec:

Number of total KOIs:   Include in output   
 Number of confirmed planets:     
 Number of planetary candidates:     
 Number of false positives:     
 Number of not dispositioned:

select targets.id, targets.koi, targets.ra, targets.dc, koi.koi as koikoi, koi.disp, planet.radius, mag\_kep.mag\_kep from targets LEFT JOIN mag\_kep on (targets.id = mag\_kep.tid) left join koi on (targets.id = koi.tid) left join planet on (planet.koi = koi.id) where planet.final = 'Y' AND mag\_kep.final = 'Y' AND mag\_kep.mag\_kep <= 11 AND (koi.disp = 'PC' OR koi.disp = 'Confirmed') order by cast(targets.koi as signed)

**Search Results**

57 results (41 unique stars; 57 unique planets)  
 If multiple rows are returned for a star or KOI, this indicates that there are multiple values for the searched parameters.  
 If fewer rows are returned than expected, try selecting the "Return all values" button at the top of the page.

<input type="checkbox"/>	KOI (star)	RA	Dec	KOI (planet)	KOI Disposition	Planet Radius (R_Earth)	Kep mag
<input type="checkbox"/>	2	19:28:59.35	47:58:10.28	2.01	Confirmed	22.3	10.463
<input type="checkbox"/>	3	19:50:50.24	48:04:51.07	3.01	Confirmed	4.68	9.174
<input type="checkbox"/>	13	19:07:53.09	46:52:06.09	13.01	Confirmed	23	9.958
<input type="checkbox"/>	42	18:52:36.17	45:08:23.4	42.01	PC	2.71	9.364
<input type="checkbox"/>	69	19:25:40.39	38:40:20.49	69.01	PC	1.5	9.931
<input type="checkbox"/>	72	19:02:43.05	50:14:28.68	72.02	Confirmed	2.19	10.961
<input type="checkbox"/>	72	19:02:43.05	50:14:28.68	72.01	Confirmed	1.37	10.961
<input type="checkbox"/>	75	19:25:59.33	42:43:42.53	75.01	PC	8.8	10.775
<input type="checkbox"/>	244	19:06:33.22	39:29:16.37	244.01	Confirmed	6.51	10.734
<input type="checkbox"/>	244	19:06:33.22	39:29:16.37	244.02	Confirmed	3.4	10.734
<input type="checkbox"/>	245	18:56:14.29	44:31:05.57	245.02	Confirmed	0.75	9.705
<input type="checkbox"/>	245	18:56:14.29	44:31:05.57	245.03	Confirmed	0.31	9.705

# Notes Search Page



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## Search Observing Notes

+ Help

KOI name:  *Star part of KOI (157), Kepler name (Kepler-2), or KIC ID (7582689)*

Upload list of KOIs:  No file selected. *Stars only, one per line*

KOI disposition:  
 Confirmed planets  
 Planetary candidates  
 False positives  
 Not dispositioned

Username:

Date range:  to

Keyword or phrase:

## Search Results

For checked KOIs:

*28 matched notes (27 unique stars)*

<input checked="" type="checkbox"/>	KOI	# Total Notes	# Matched Notes
<input checked="" type="checkbox"/>	72	38	1
<input checked="" type="checkbox"/>	75	14	1
<input checked="" type="checkbox"/>	87	24	1
<input checked="" type="checkbox"/>	98	21	1
<input checked="" type="checkbox"/>	108	24	1
<input checked="" type="checkbox"/>	111	15	1
<input checked="" type="checkbox"/>	117	10	1
<input checked="" type="checkbox"/>	123	17	1



# Summary



- CFOP is open to the public and is intended to enable collaborative efforts, sharing of data and results, and effective use of the facilities available to the general community
- All data on CFOP is available to the public - request users to contact the data owners if you wish to utilize the data that has been uploaded
- Two posters to go see
  - Summary of CFOP Functionality 1 – 105
  - Summary of CFOP Content 1 – 106
- Questions or issues
  - [cfop@ipac.caltech.edu](mailto:cfop@ipac.caltech.edu)
  - [ciardi@ipac.caltech.edu](mailto:ciardi@ipac.caltech.edu)

*Kepler*



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Questions, comments  
and discussion time