

# KIC 005729898

## Q1-17 DR25 TCE Parameters

TCE	Run Type	KOI?	Period (Days)	Epoch (BKJD)	Depth (ppm)	Duration (Hours)	MES	SNR	$R_{\star}$ ( $R_{\odot}$ )	$T_{\star}$ (K)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
005729898-01	OBS	No	399.850373	371.612899	2049.7	8.174	11.9	8.7	0.69	4319	2.94	0.17

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
005729898-01	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_CHASES_MARSHALL_SKYE—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—INCONSISTENT_TRANS—HALO_GHOST

**Notes:** OBS = Observed. INJ = Injected. INV = Inverted. SCR = Scrambled.

N = Not Transit-Like. S = Stellar Eclipse. C = Centroid Offset. E = Ephemeris Match.

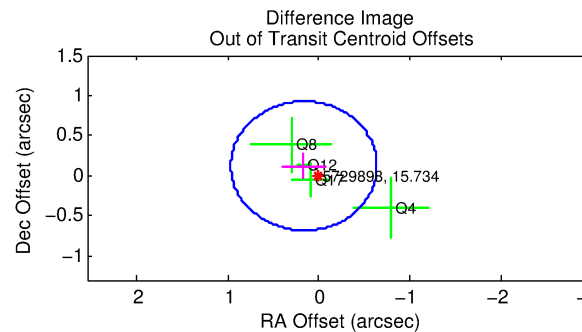
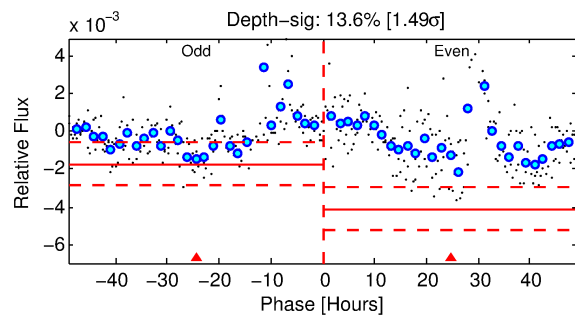
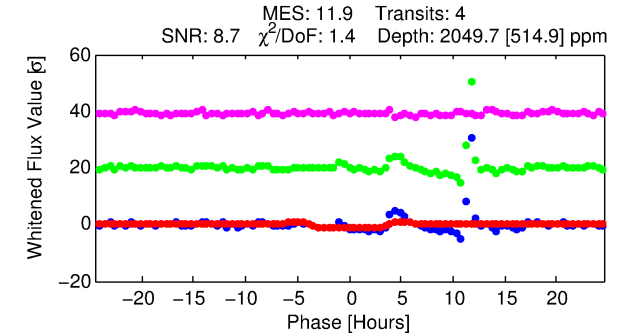
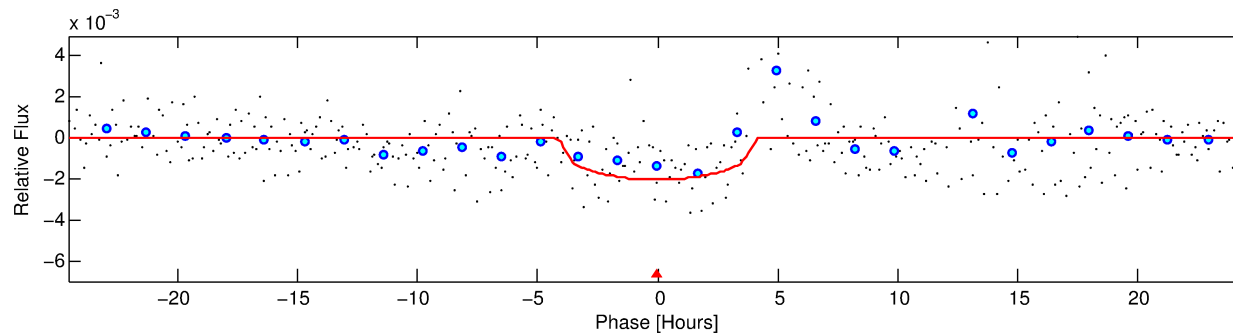
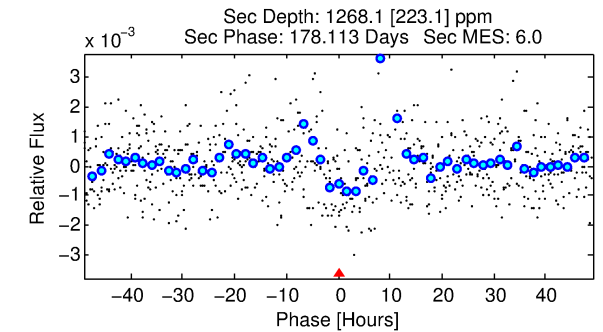
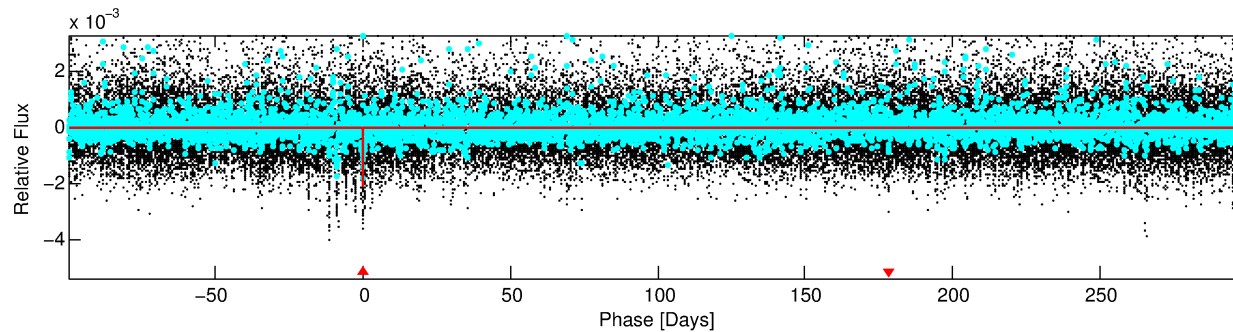
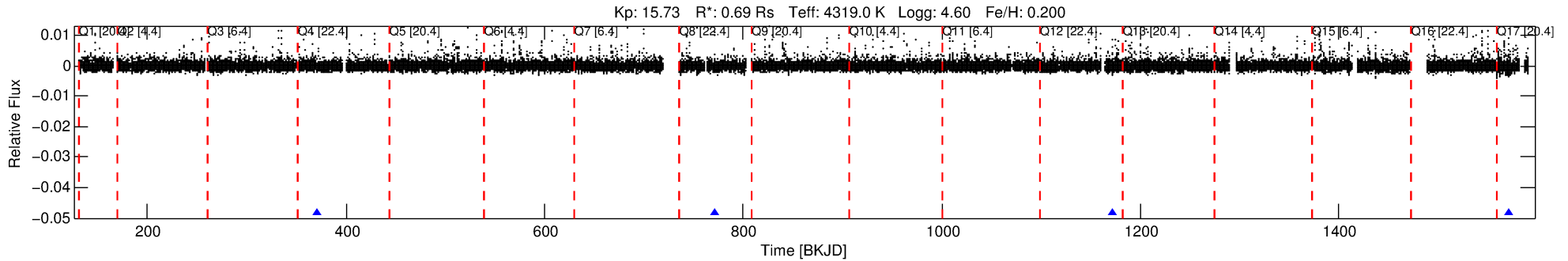
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

## Ephemeris Match Information For 005729898-01

No Significant Match Found

# DV One-Page Summary

KIC: 5729898 Candidate: 1 of 1 Period: 399.850 d



## DV Fit Results:

Period = 399.85037 [0.00995] d  
Epoch = 371.6129 [0.0196] BKJD  
Rp/R\* = 0.0393 [0.0604]  
a/R\* = 388.37 [1641.13]  
b = 0.01 [499.57]  
Seff = 0.17 [0.03]  
Teq = 163 [8] K  
Rp = 2.95 [4.53] Re  
a = 0.9379 [0.0666] AU  
Ag = 70751.35 [217836.33] [0.32σ]  
Teffp = 4109 [3165] K [1.25σ]

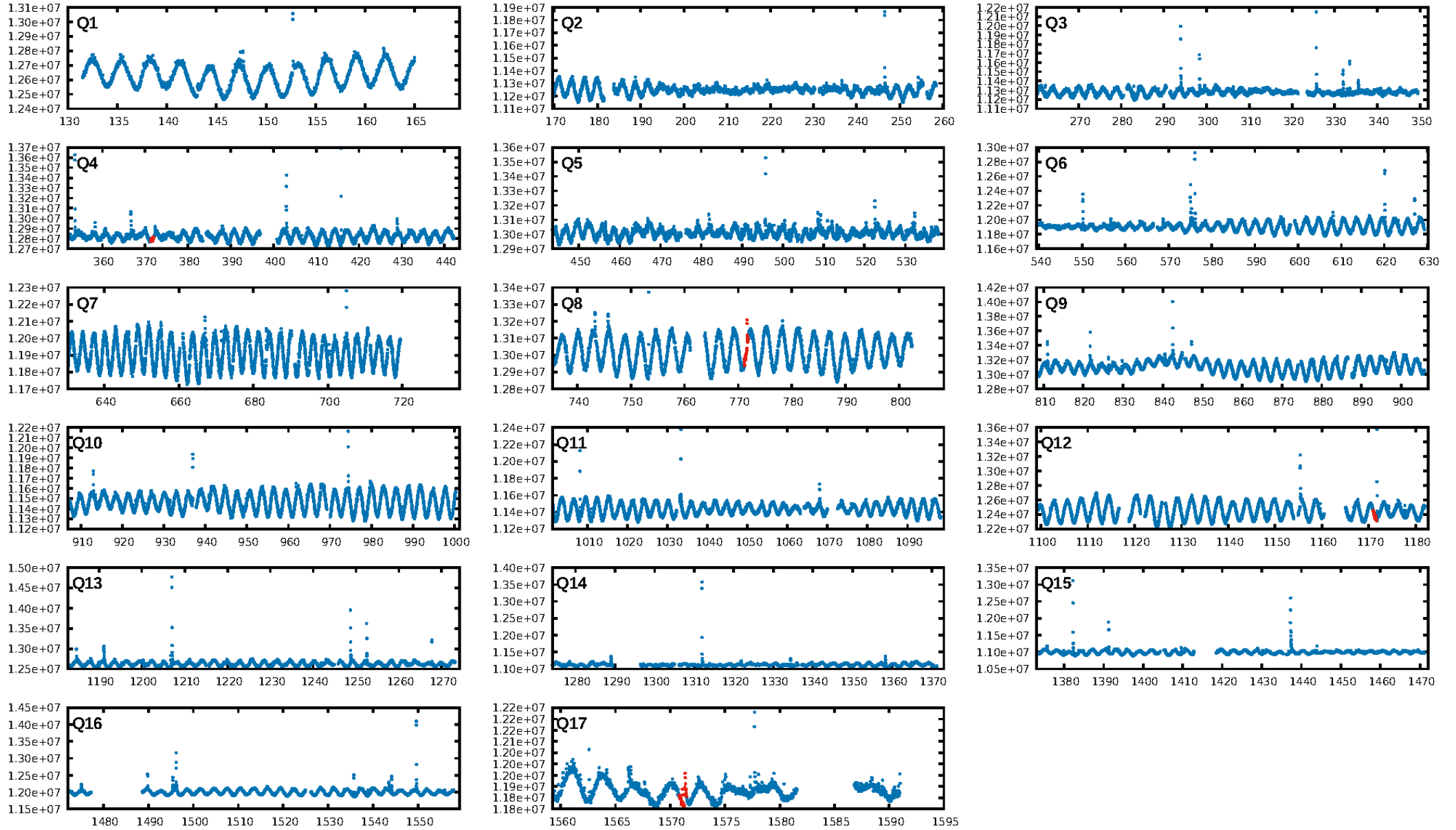
## DV Diagnostic Results:

ShortPeriod-sig: N/A  
LongPeriod-sig: N/A  
ModelChiSquare2-sig: 0.0%  
ModelChiSquareGof-sig: 58.9%  
Bootstrap-pfa: 1.14e-10  
RollingBand-fgt: 1.00 [3/3]  
GhostDiagnostic-chr: -0.0163  
Centroid-sig: 68.6%  
Centroid-so: 0.605 arcsec [0.88σ]  
OotOffset-rm: 0.204 arcsec [0.76σ]  
KicOffset-rm: 0.197 arcsec [1.01σ]  
OotOffset-st: 0/0/3/1 [4]  
KicOffset-st: 0/0/3/1 [4]  
DiffImageQuality-fgm: 1.00 [4/4]  
DiffImageOverlap-fno: 1.00 [4/4]

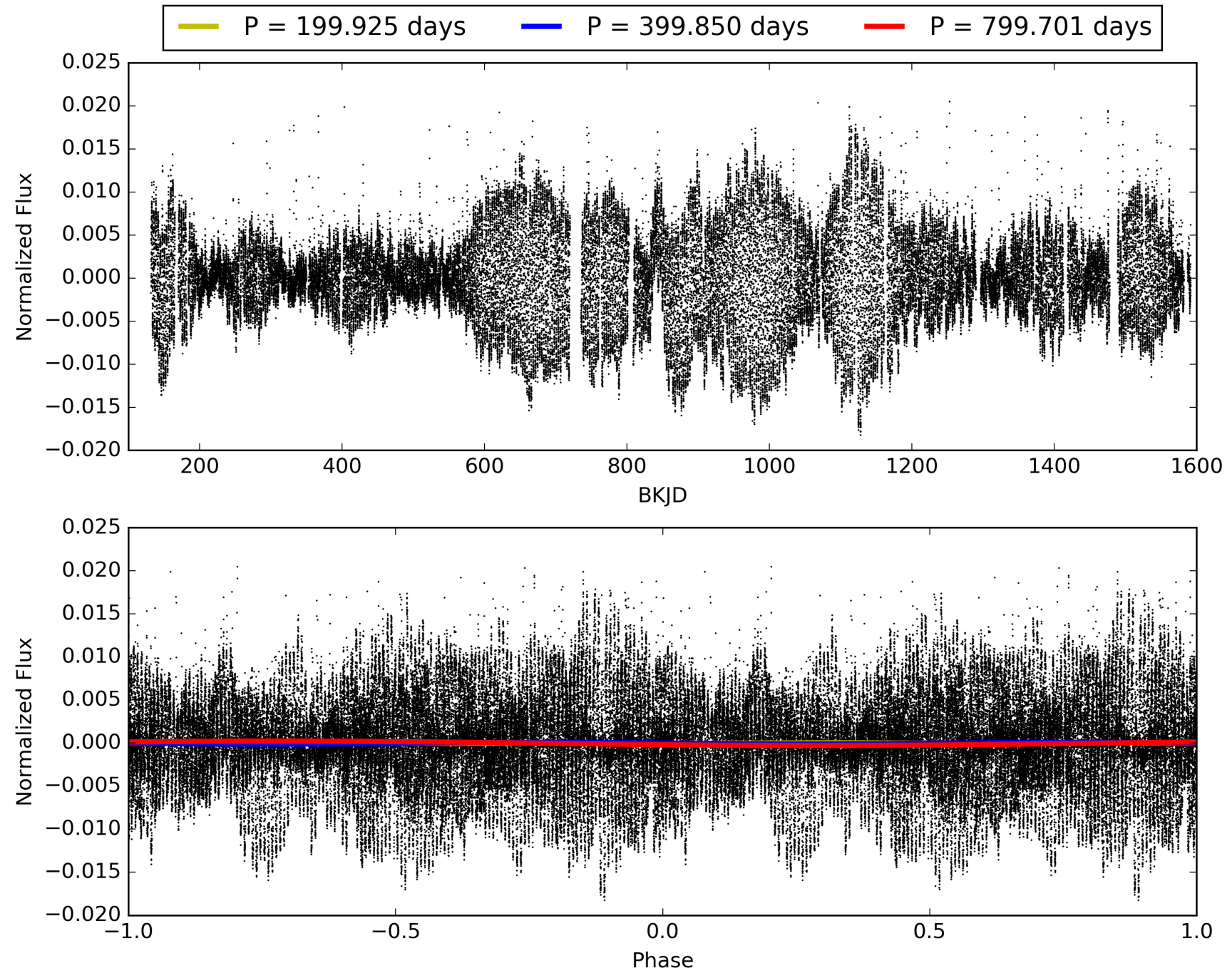
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 29-Jan-2016 15:49:45 Z

This Data Validation Report Summary was produced in the Kepler Science Operations Center Pipeline at NASA Ames Research Center

# TCE 005729898-01, PDC Light Curves

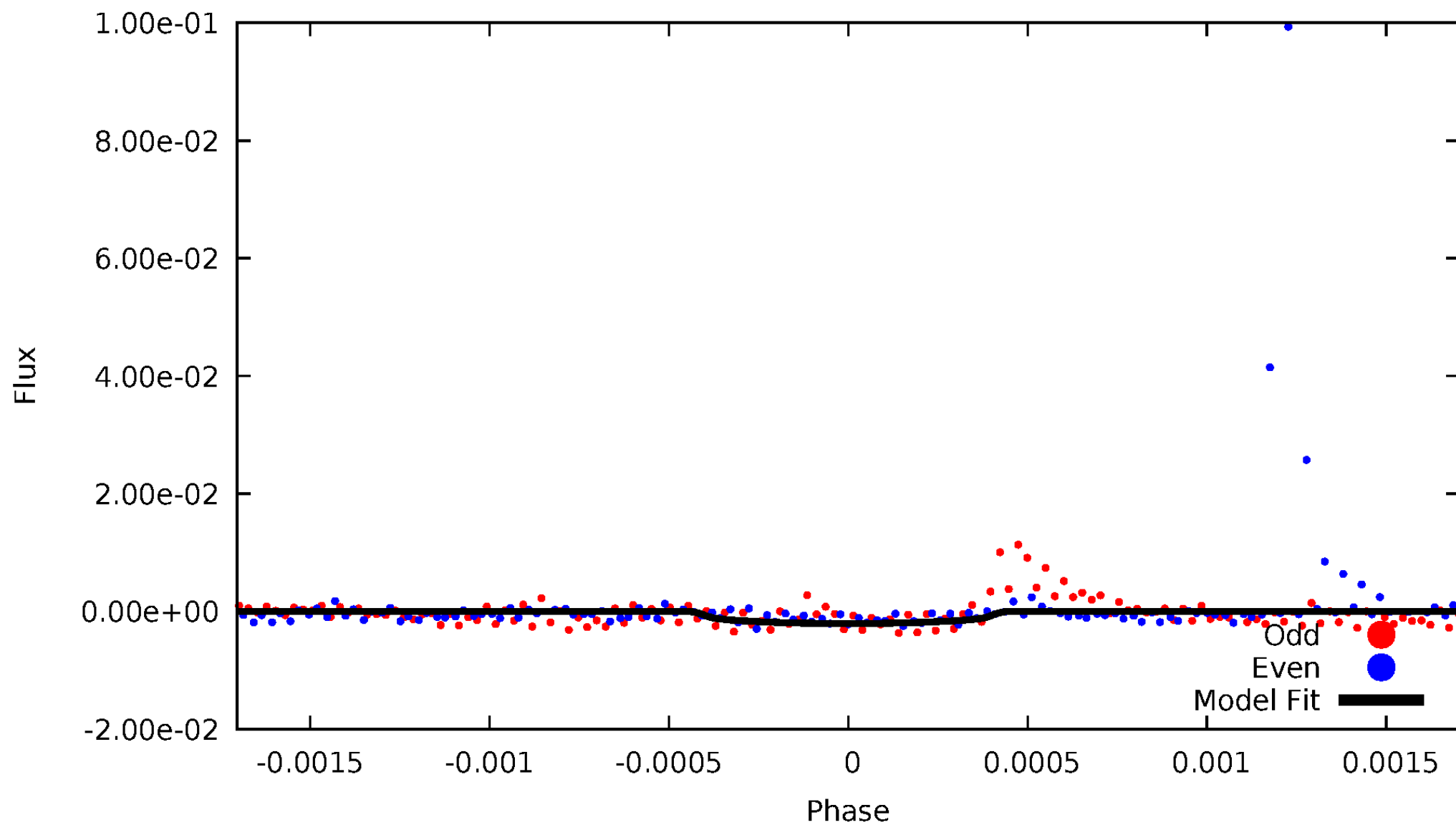


# TCE 005729898-01



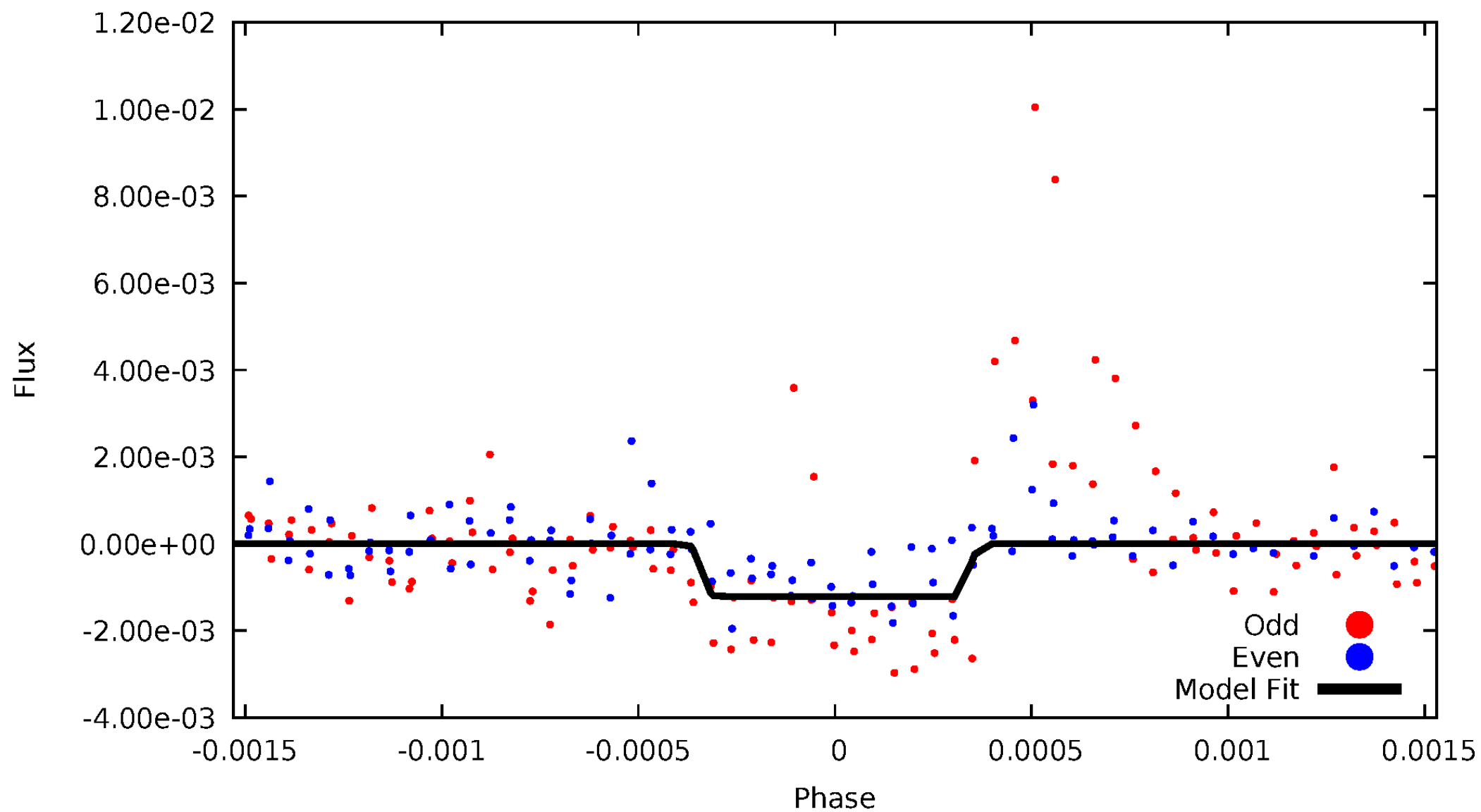
# DV Odd/Even

TCE 005729898-01



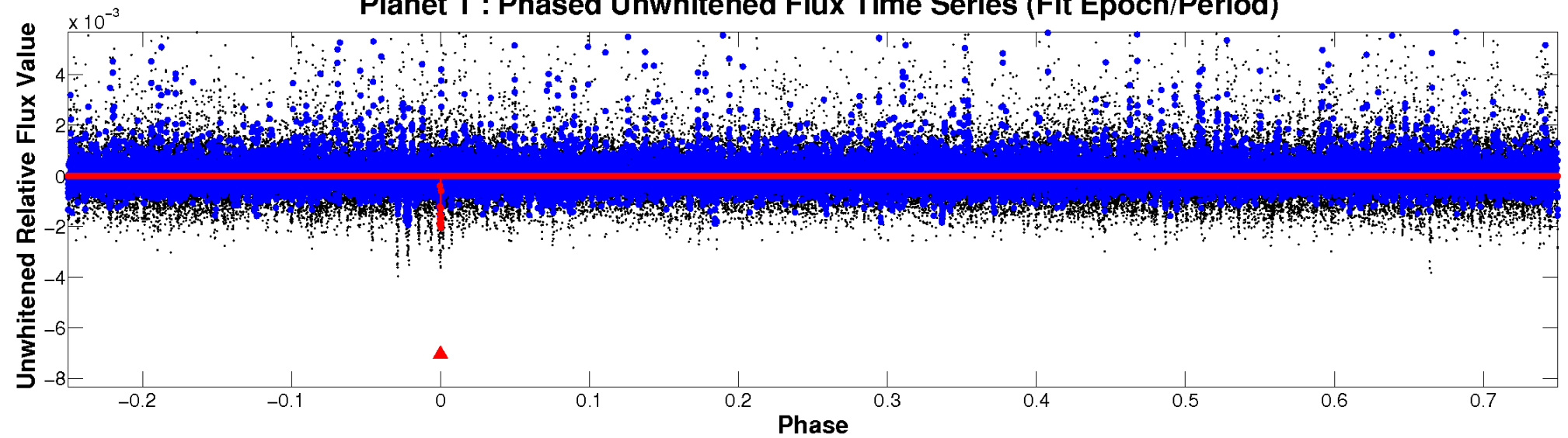
# ALT Odd/Even

TCE 005729898-01

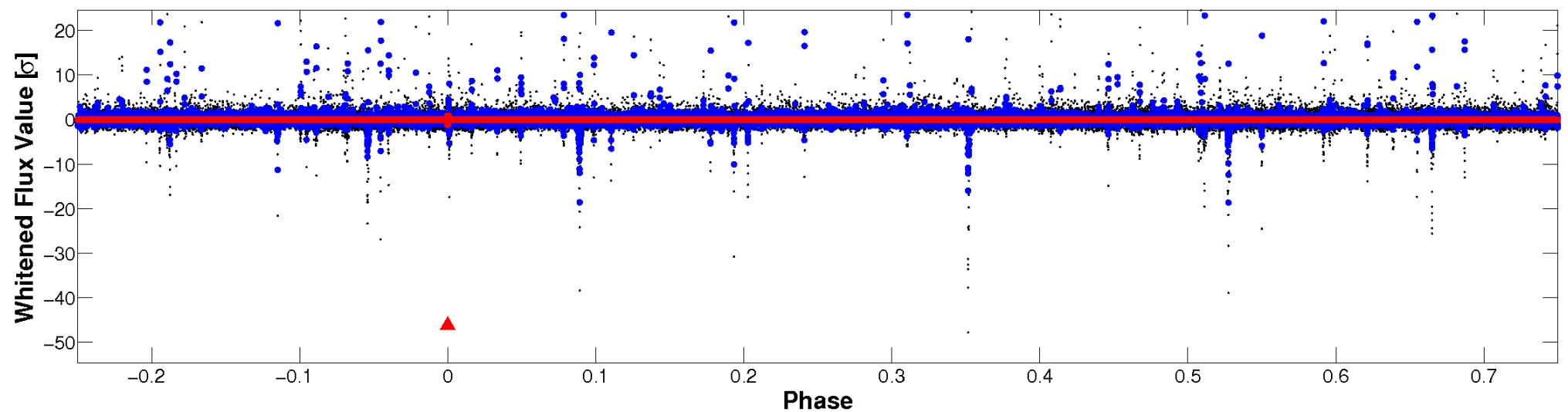


# Non-Whitened Vs. Whitened Light Curve

**Planet 1 : Phased Unwhitened Flux Time Series (Fit Epoch/Period)**

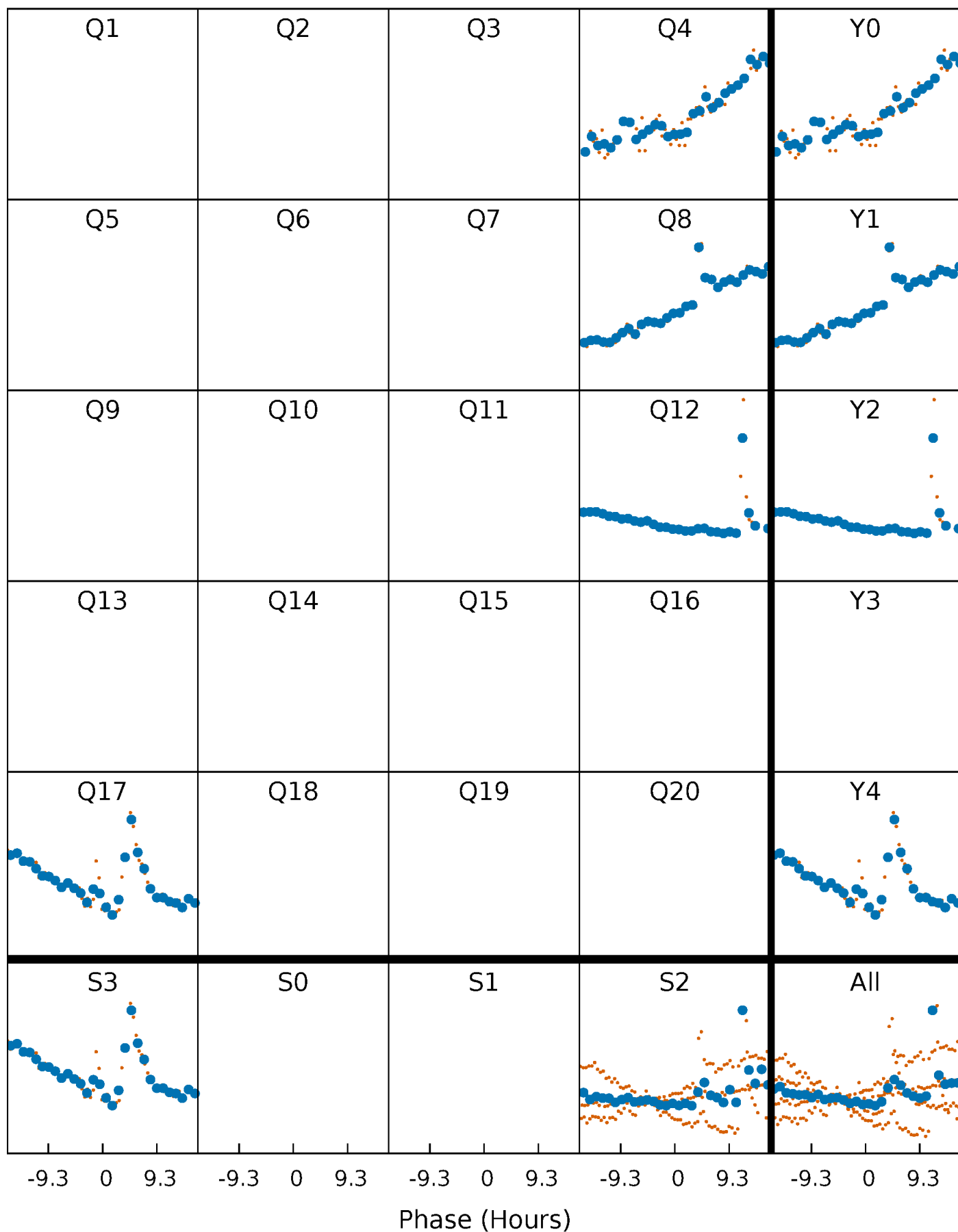


**Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)**



# PDC Quarter-Phased Transit Curves

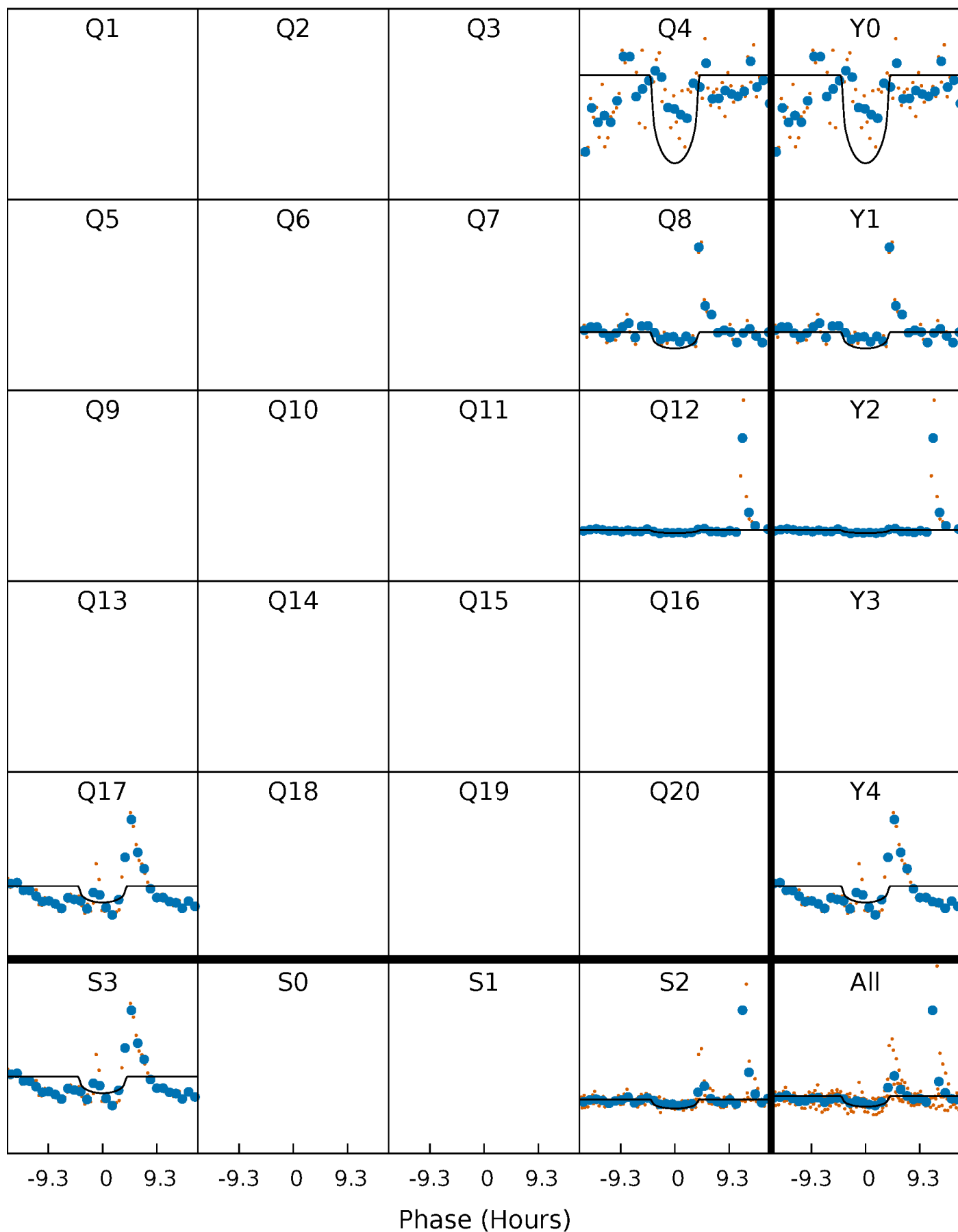
TCE 005729898-01 P=399.850373 Days  $T_0=371.612899$  (BKJD)





# DV Quarter-Phased Transit Curves

TCE 005729898-01     $P=399.850373$  Days     $T_0=371.612899$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

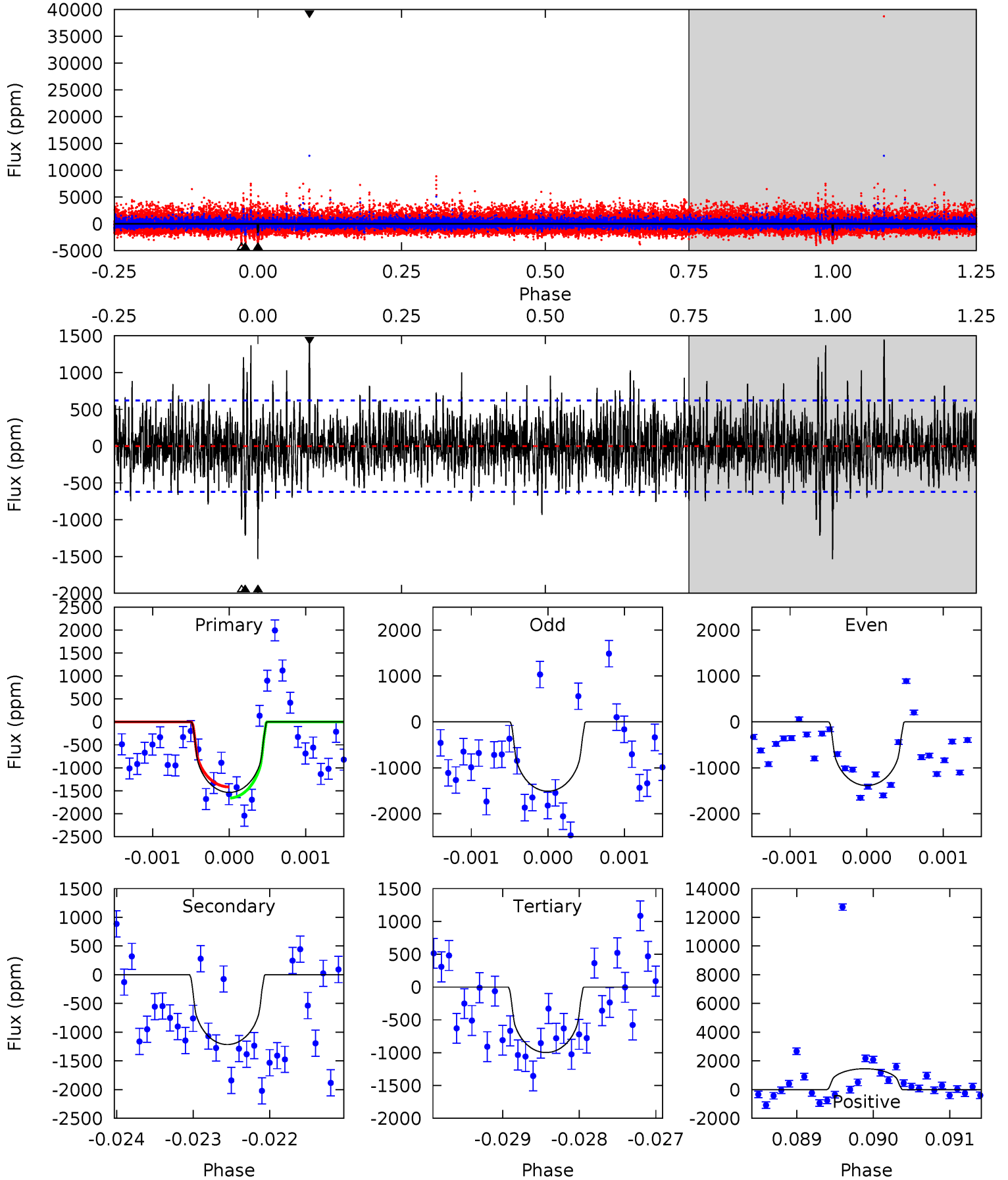
TCE 005729898-01 P=399.843902 Days  $T_0=371.628307$  (BKJD)



# DV Model-Shift Uniqueness Test

005729898-01, P = 399.850373 Days, E = 371.612899 Days

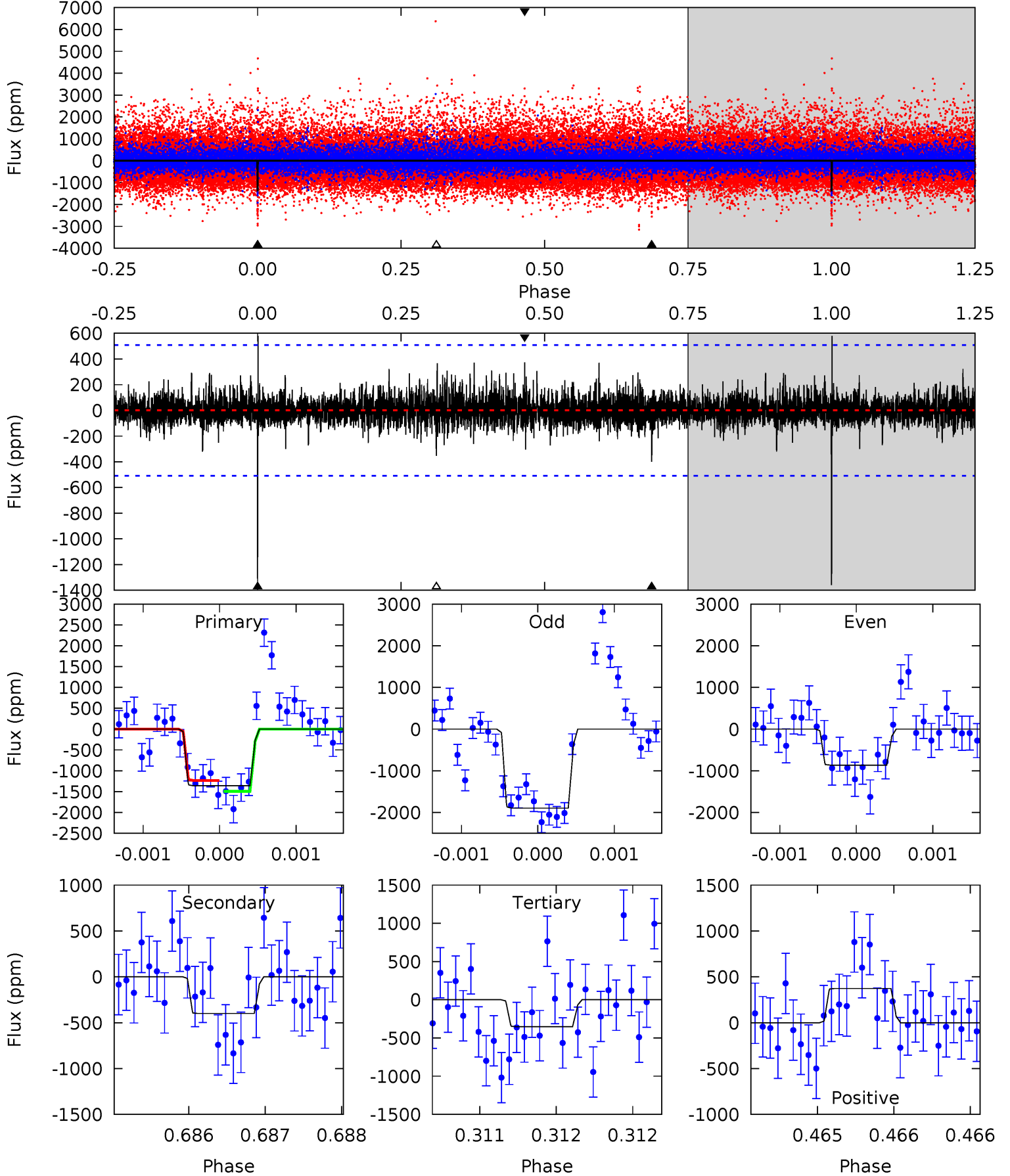
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
13.5	10.7	8.80	12.8	5.47	3.32	2.49	4.74	0.74	1.92	-2.09	0.44	0.99	0.49	1.07



# Alt Model-Shift Uniqueness Test

005729898-01, P = 399.843902 Days, E = 371.628307 Days

Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
14.7	4.32	3.81	4.03	5.50	3.36	0.85	10.9	10.7	0.52	0.29	5.51	0.92	0.30	1.42



### Stellar Parameters For KIC 005729898

	$T_{\text{eff}}(K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	$4319^{+155}_{-172}$	$4.603^{+0.049}_{-0.021}$	$0.200^{+0.200}_{-0.300}$	$0.686^{+0.033}_{-0.062}$	$0.689^{+0.047}_{-0.057}$	$2.999^{+0.694}_{-0.256}$
	+4%/-4%	+1%/-0%	+100%/-150%	+5%/-9%	+7%/-8%	+23%/-9%
Source	PHO1	KIC0	KIC0	DSEP		

KIC = Kepler Input Catalog; PHO = Photometry; SPE = Spectroscopy; AST = Asteroseismology  
 TRA = Transits; DESP = Dartmouth Models; MULT = Multiple Models

### Secondary Eclipse Parameters for KIC 005729898-01 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	$A_{obs}$
DV	$-1216 \pm 113$	$4.12^{+4.07}_{-2.78}$	$226^{+9}_{-11}$	$3663^{+1997}_{-687}$	$33660^{+291184}_{-24633}$
Alt.	$-400 \pm 92$	$4.21^{+4.09}_{-2.81}$	$226^{+9}_{-10}$	$3055^{+1386}_{-510}$	$10937^{+87221}_{-8180}$

$T_{max}$  = Theoretical Maximum Planetary Temperature

$T_{obs}$  = Observed Planetary Temperature (Assuming  $A=0.3$ )

$A_{obs}$  = Observed Albedo (Assuming  $T=0$ )

If a secondary eclipse is present, the system is likely an EB if  $T_{obs} \gg T_{max}$  AND  $A_{obs} \gg 1.0$

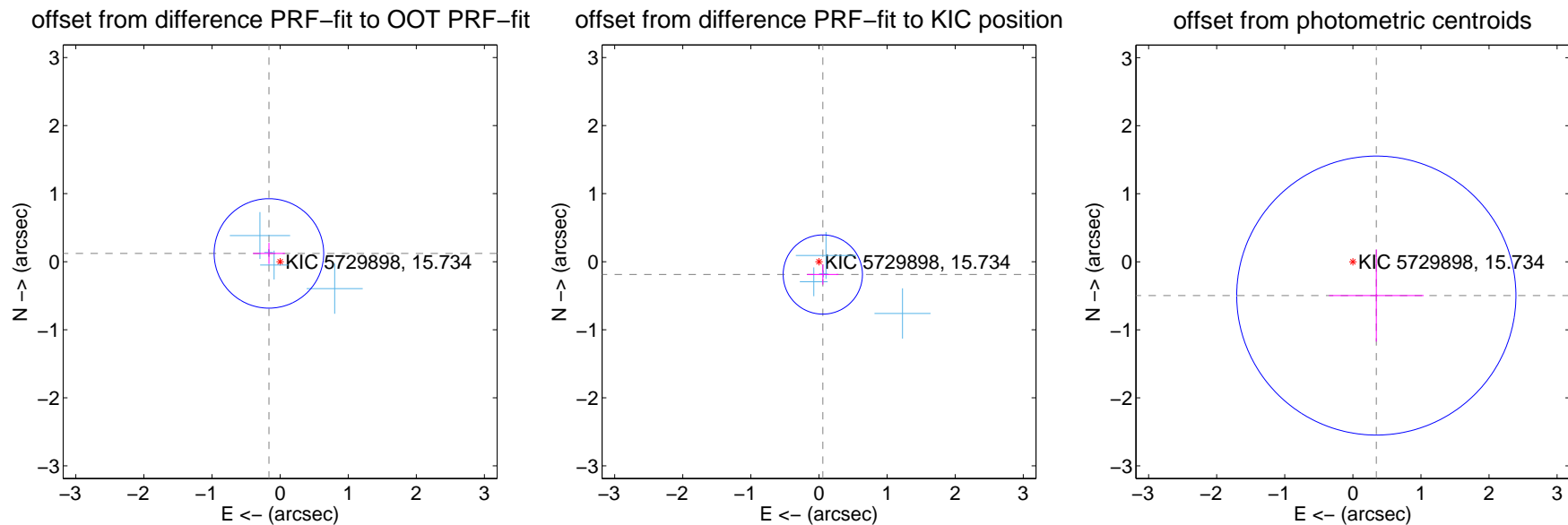
## DV Centroid Data

Supplemental centroid analysis for 005729898-01. Kepler magnitude: 15.73. Transit SNR 8.69

There are 4 quarters with good PRF difference image offsets

The direct PRF centroid is offset from the target star catalog position by about 0.25 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$0.204 \pm 0.268$	0.76	$0.164 \pm 0.234$	$0.122 \pm 0.155$
PRF-fit source offset from KIC position	$0.197 \pm 0.194$	1.01	$-0.056 \pm 0.230$	$-0.188 \pm 0.147$
photometric centroid source offset	$0.60 \pm 0.68$	0.88	$-0.34 \pm 0.70$	$-0.50 \pm 0.68$



Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: three- $\sigma$ . Red \*: target star. Blue \*: Other stars. Text next to a star gives its KIC ID and kepmag. KIC IDs > 15,000,000 are from the UKIRT catalog.

white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.

Q1 no difference image



Q1 no OOT image



Q2 no difference image



Q2 no OOT image



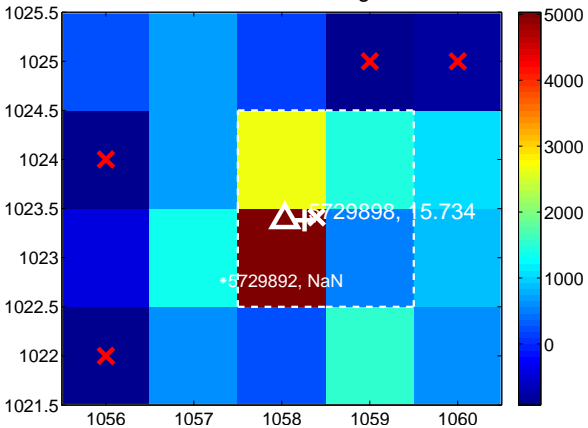
Q3 no difference image



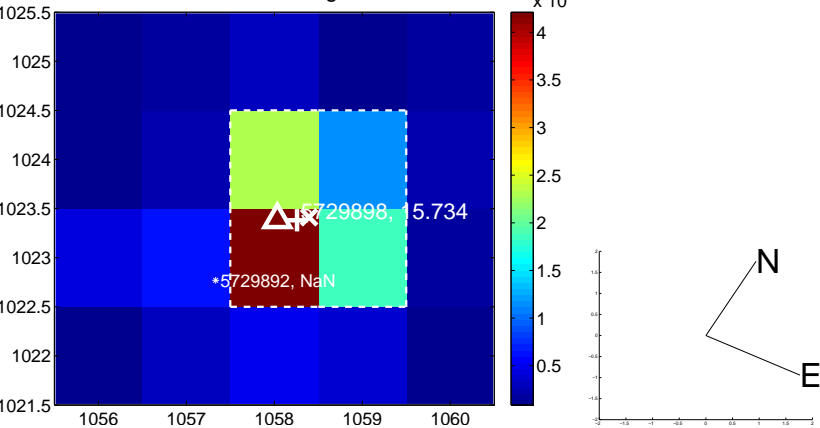
Q3 no OOT image



Q4 difference image



Q4 OOT image



white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.

Q5 no difference image



Q5 no OOT image



Q6 no difference image



Q6 no OOT image



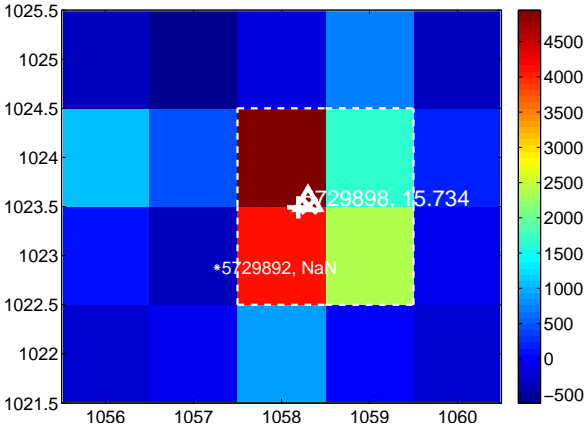
Q7 no difference image



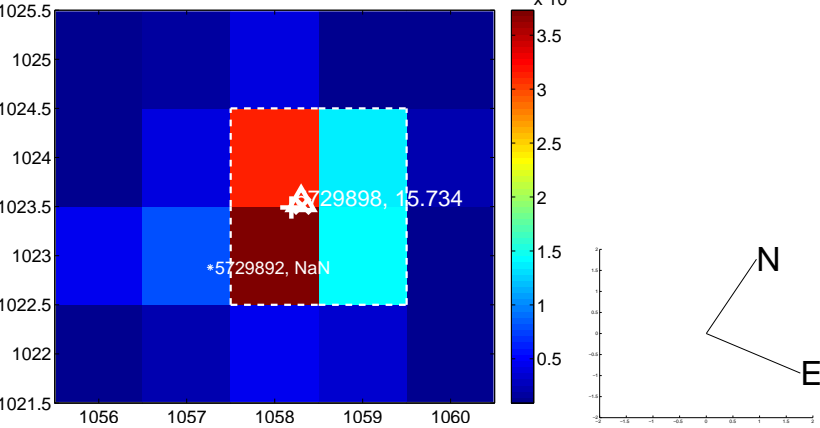
Q7 no OOT image



Q8 difference image



Q8 OOT image





white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.

Q9 no difference image



Q9 no OOT image



Q10 no difference image



Q10 no OOT image



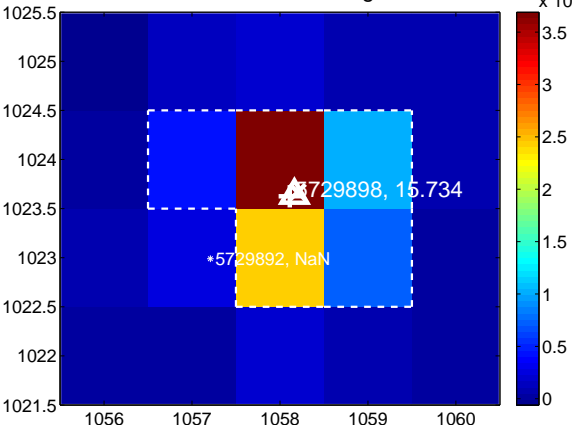
Q11 no difference image



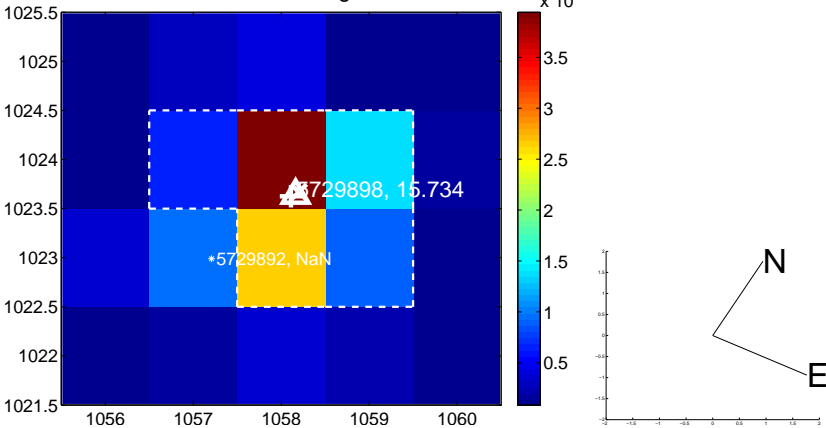
Q11 no OOT image



Q12 difference image



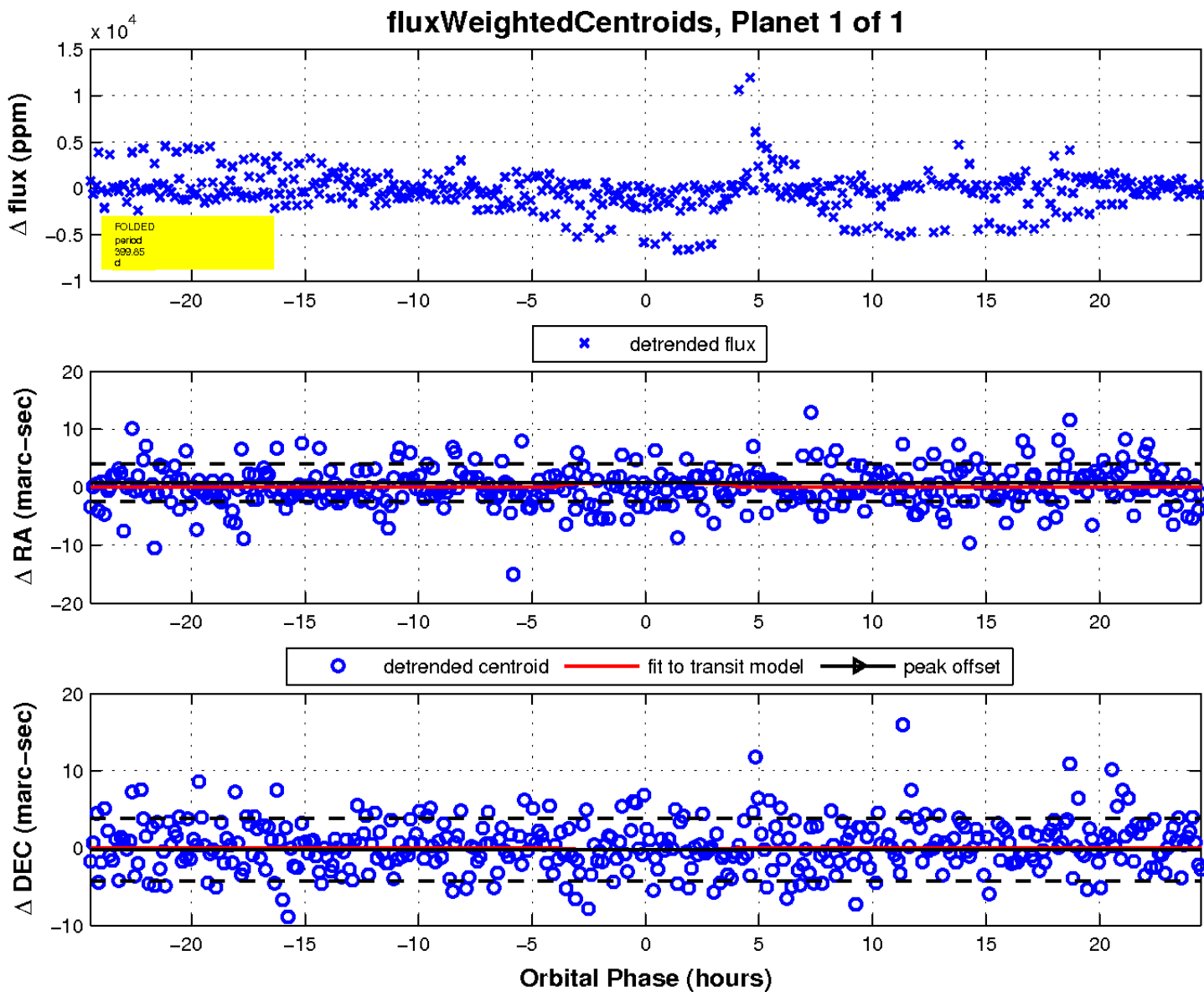
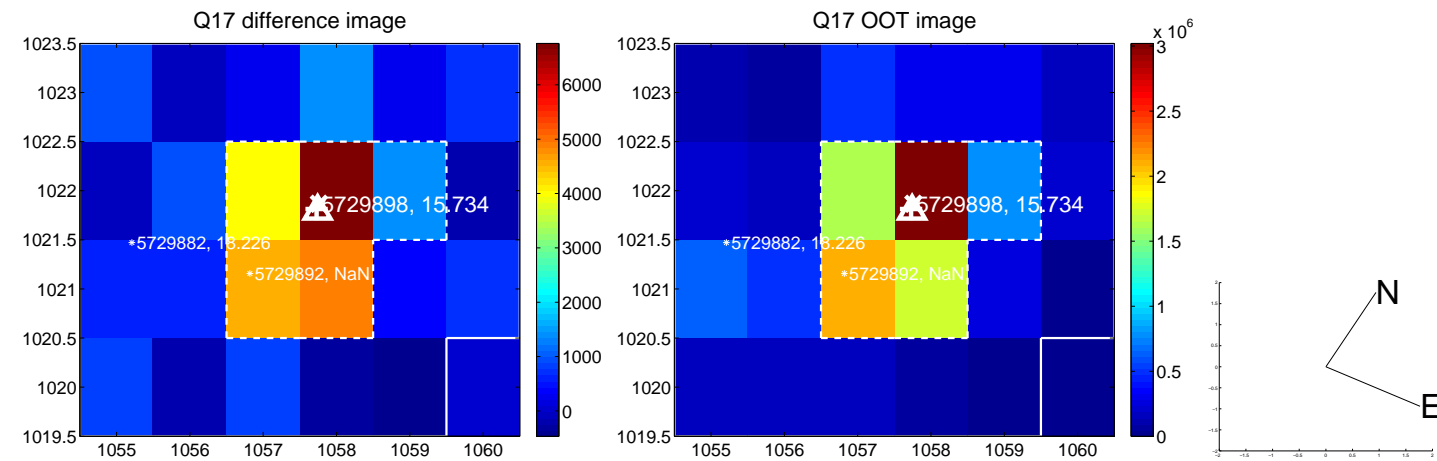
Q12 OOT image



white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



UKIRT Image

Declination

