

# KIC 003112869

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
003112869-01	OBS	No	429.571017	483.298621	470.3	21.310	7.3	7.9	0.80	5646	1.80	0.56

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
003112869-01	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_MARSHALL_SKYE—LPP_DV—ALL_TRANS_CHASES—CENT_FEW_DIFFS

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

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

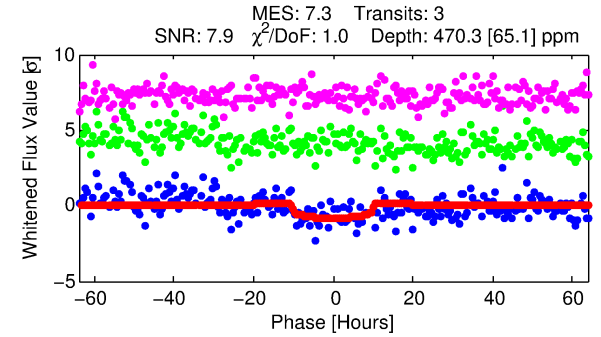
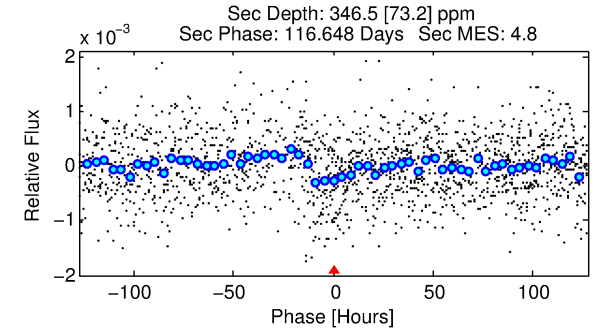
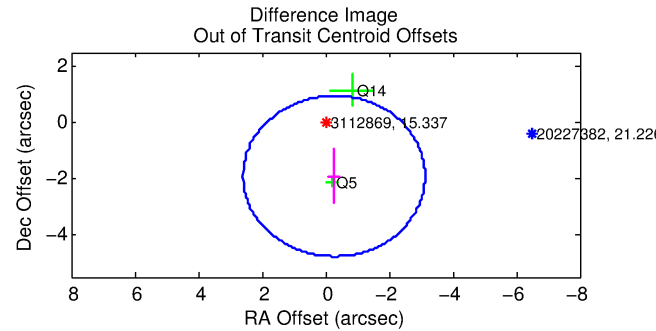
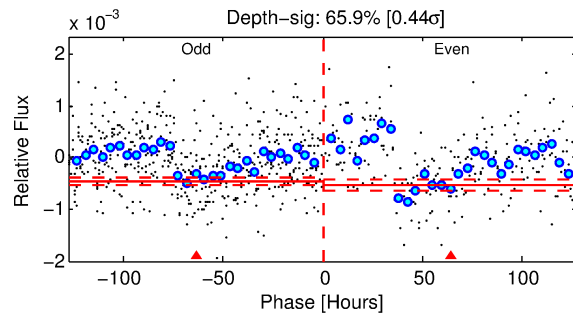
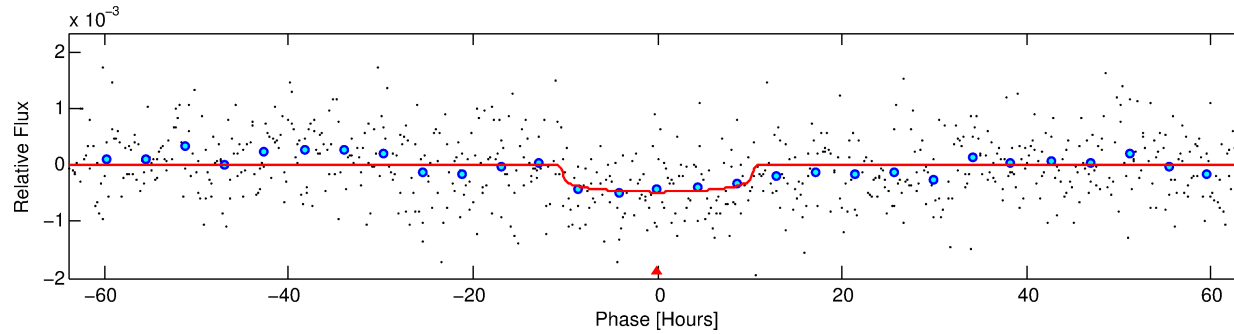
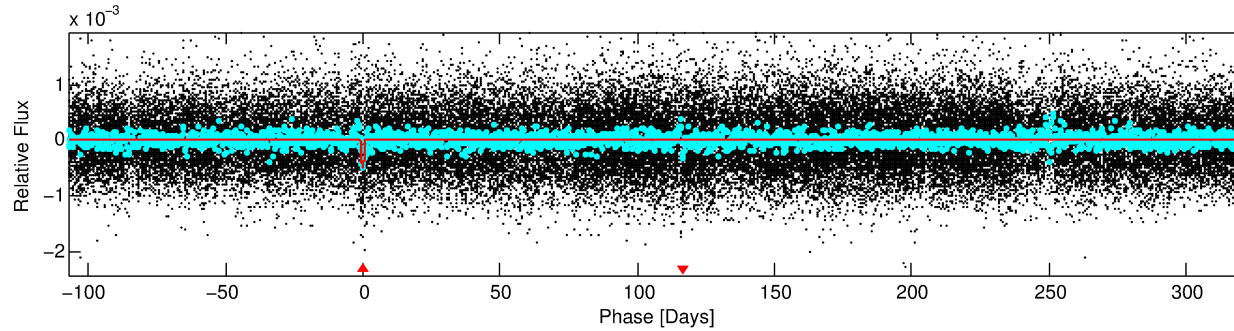
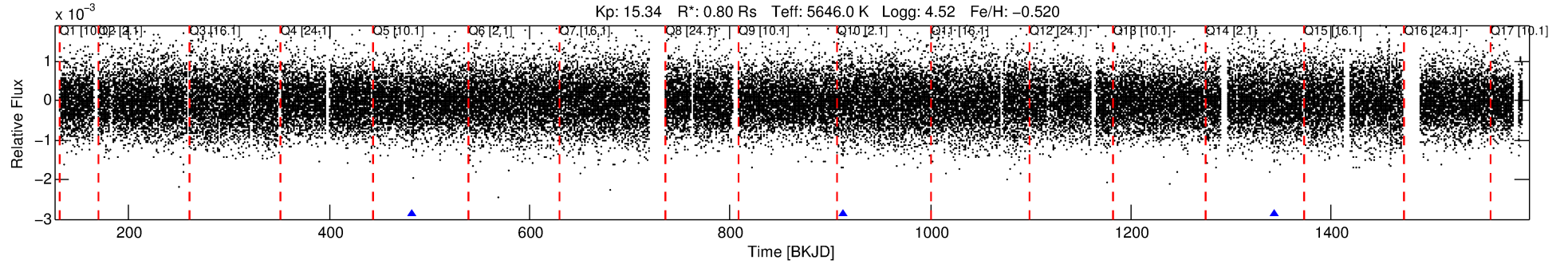
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

## Ephemeris Match Information For 003112869-01

No Significant Match Found

# DV One-Page Summary

KIC: 3112869 Candidate: 1 of 1 Period: 429.571 d



## DV Fit Results:

Period = 429.57102 [0.02632] d  
Epoch = 483.2986 [0.0293] BKJD  
Rp/R\* = 0.0205 [0.0118]  
a/R\* = 132.36 [348.57]  
b = 0.55 [3.36]  
Seff = 0.56 [0.16]  
Teq = 221 [15] K  
Rp = 1.80 [1.11] Re  
a = 1.0230 [0.1806] AU  
Ag = 61590.68 [73893.76] [0.83 $\sigma$ ]  
Teffp = 5378 [1585] K [3.25 $\sigma$ ]

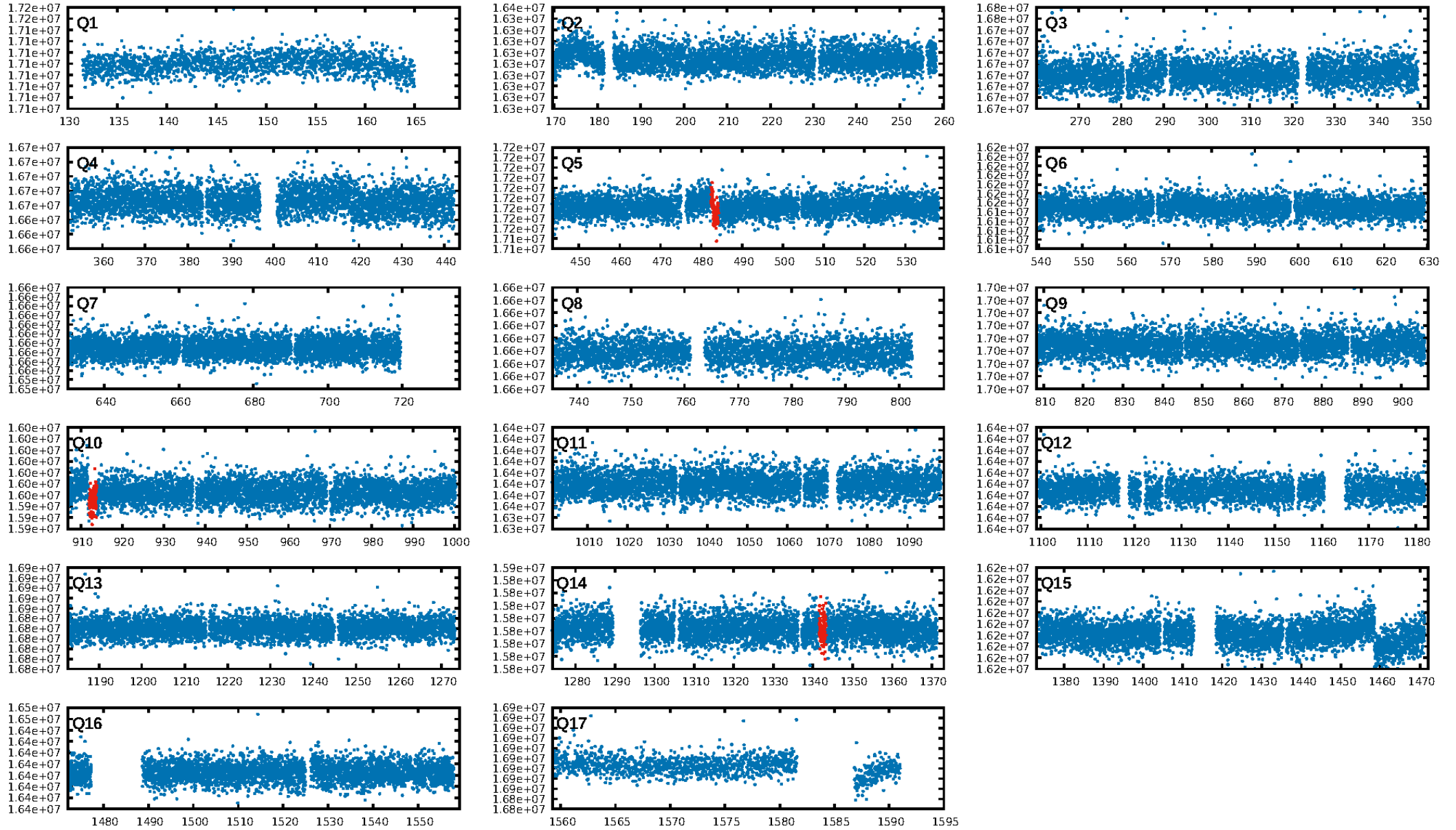
## DV Diagnostic Results:

ShortPeriod-sig: N/A  
LongPeriod-sig: N/A  
ModelChiSquare2-sig: 4.4%  
ModelChiSquareGof-sig: 100.0%  
**Bootstrap-pfa: 4.15e-09**  
RollingBand-fgt: 1.00 [3/3]  
GhostDiagnostic-chr: -0.9433  
Centroid-sig: 3.6%  
Centroid-so: 2.879 arcsec [1.82 $\sigma$ ]  
OotOffset-rm: 1.927 arcsec [2.02 $\sigma$ ]  
OotOffset-st: 1/0/0/1 [2]  
KicOffset-rm: 1.970 arcsec [1.63 $\sigma$ ]  
KicOffset-st: 1/0/0/1 [2]  
DiffImageQuality-fgm: 1.00 [2/2]  
DiffImageOverlap-fno: 1.00 [3/3]

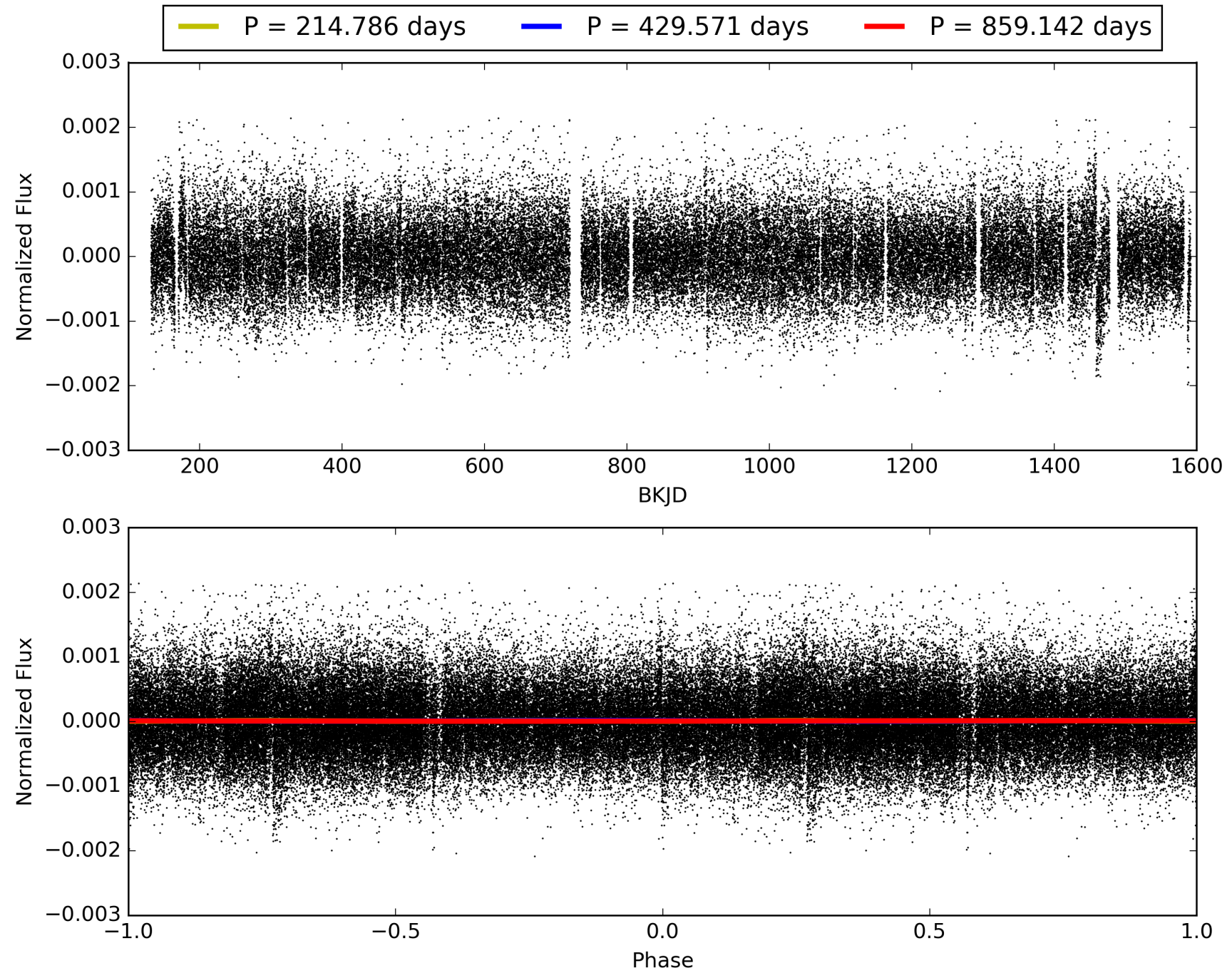
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 13:48:50 Z

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

# TCE 003112869-01, PDC Light Curves

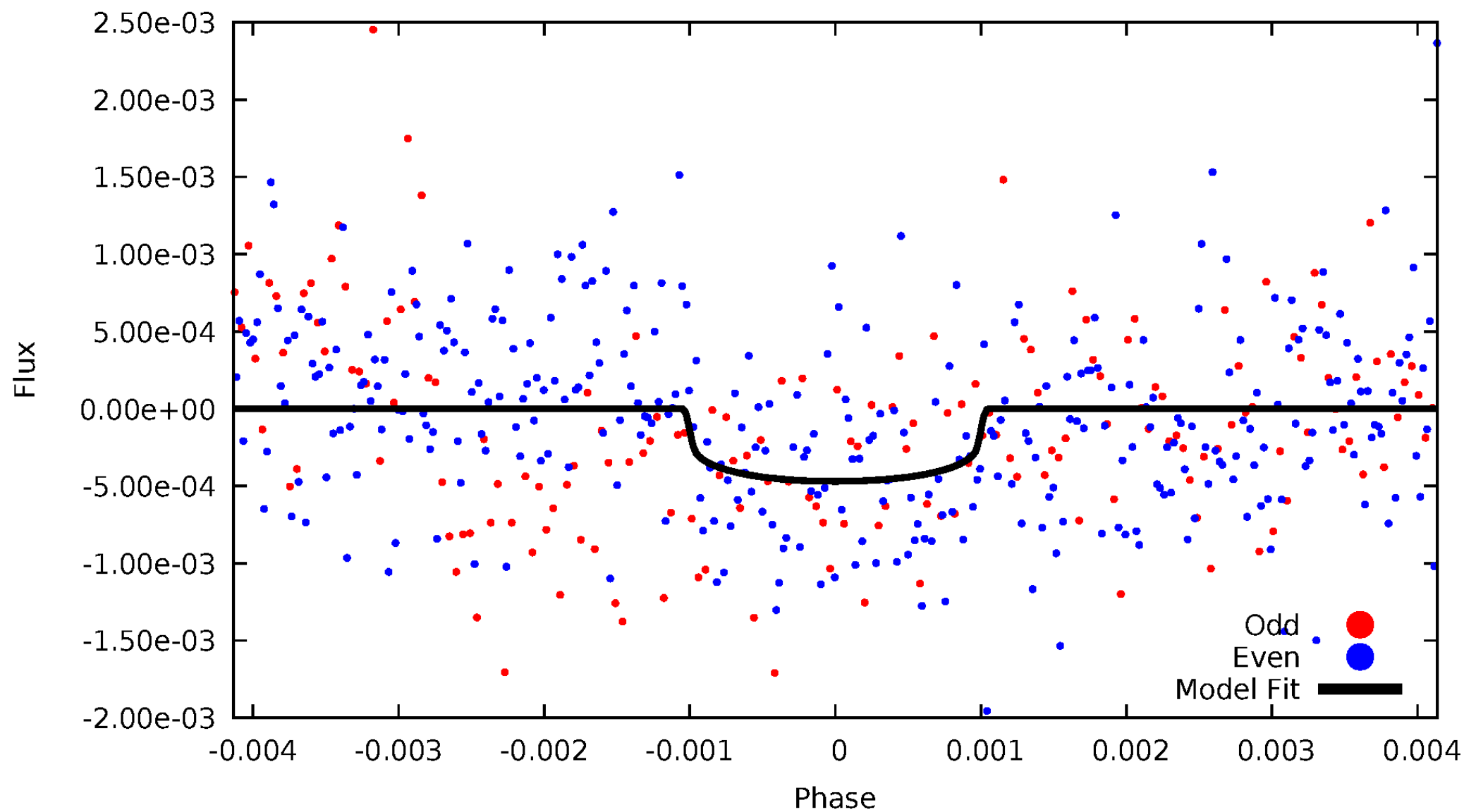


TCE 003112869-01



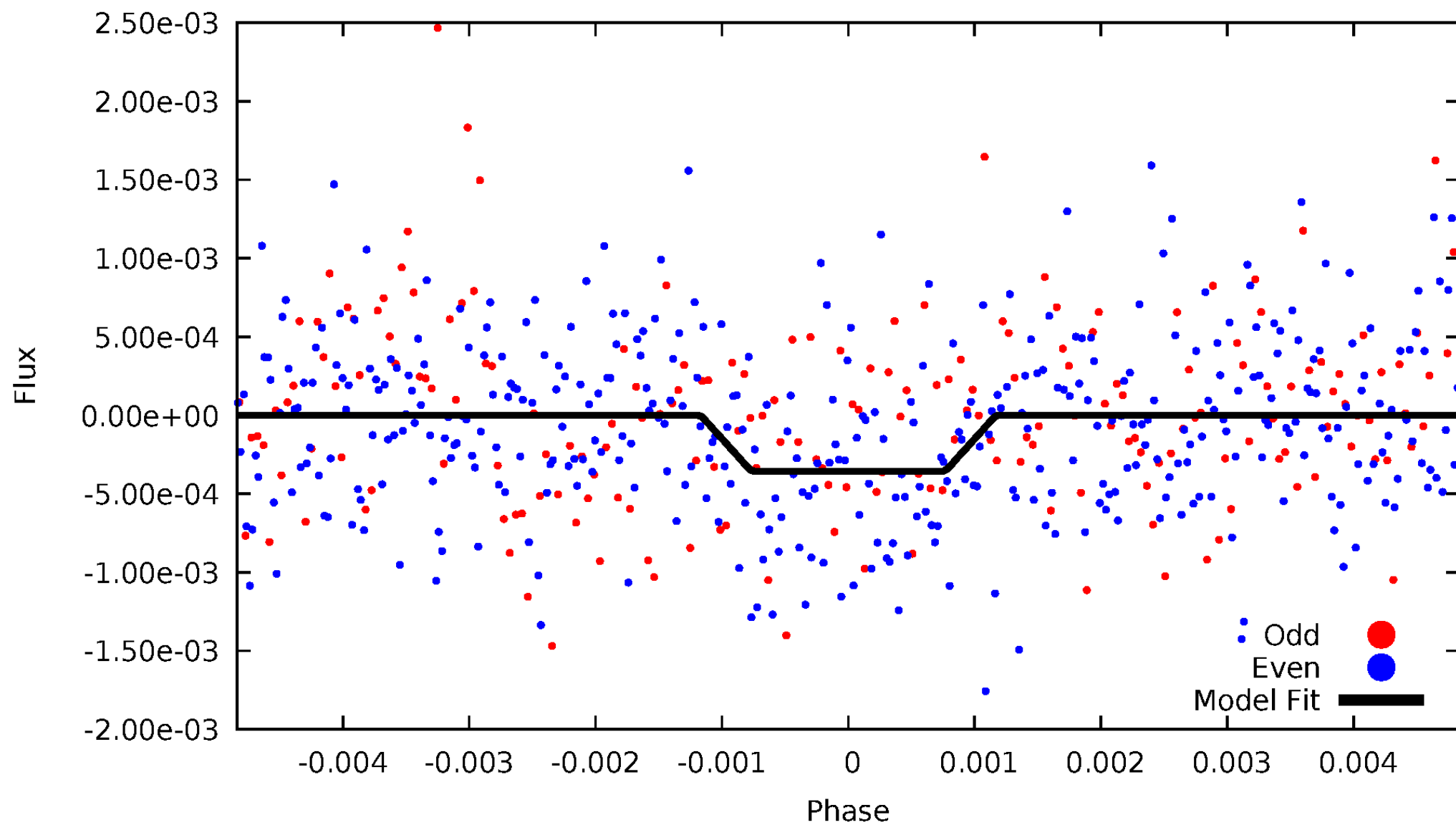
# DV Odd/Even

TCE 003112869-01



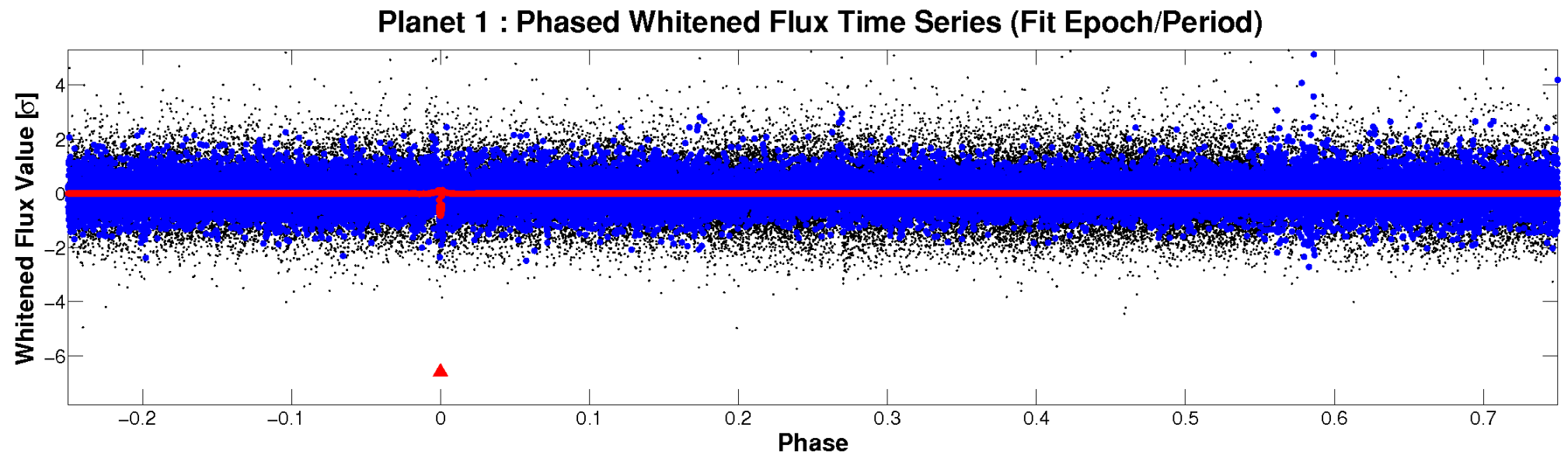
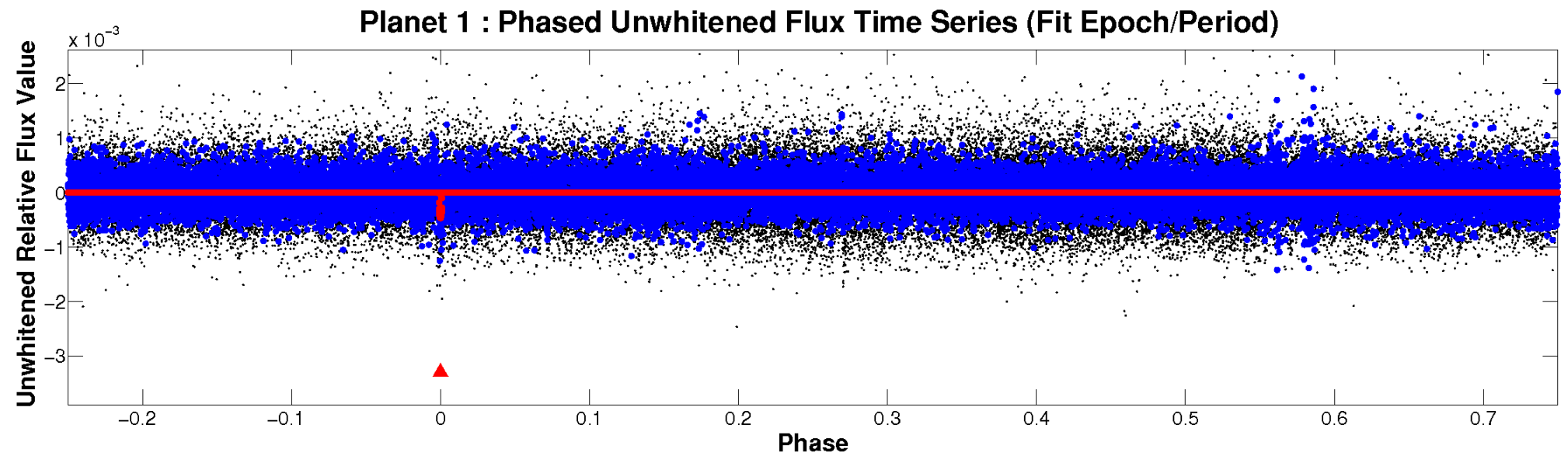
# ALT Odd/Even

TCE 003112869-01



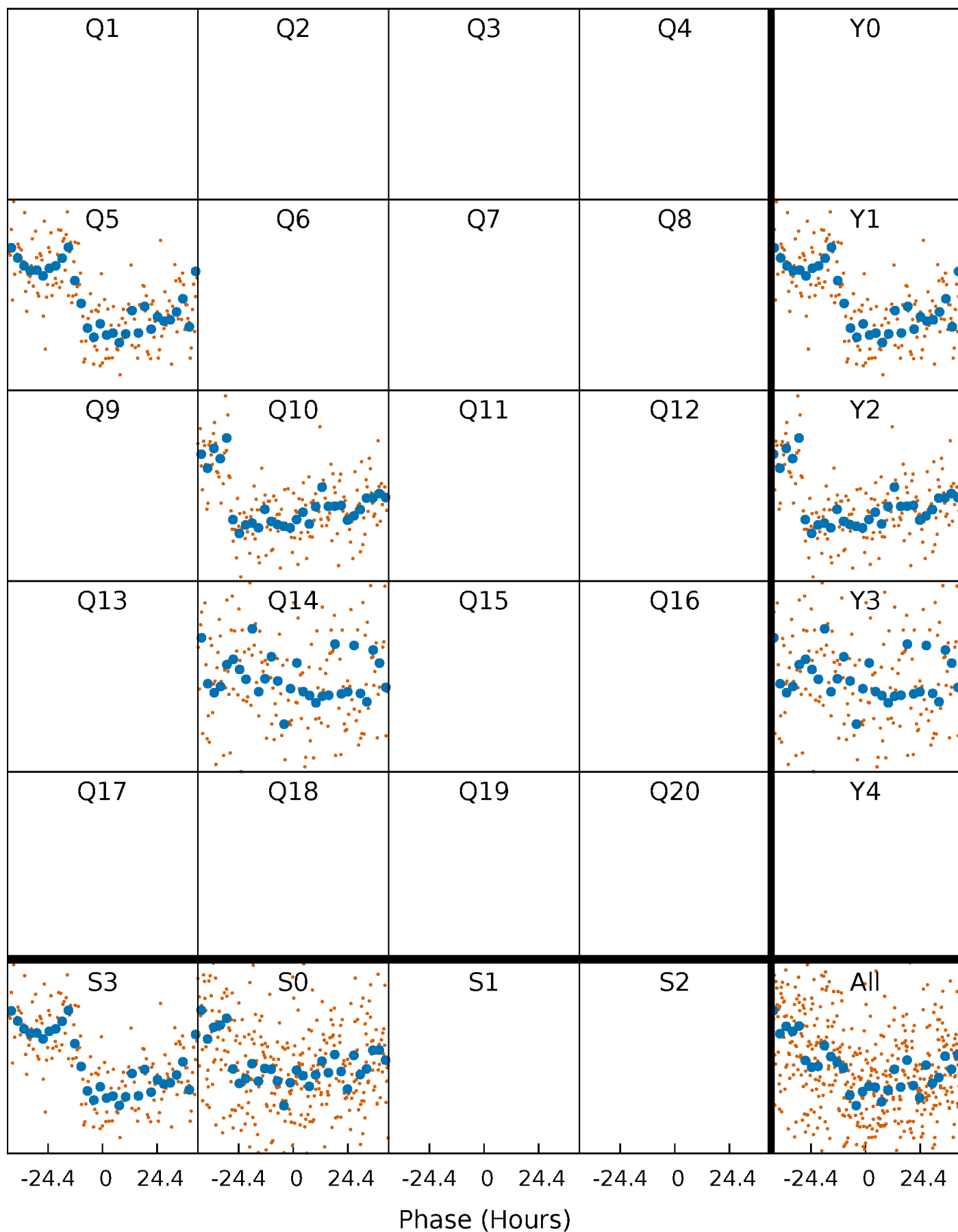


# Non-Whitened Vs. Whitened Light Curve



# PDC Quarter-Phased Transit Curves

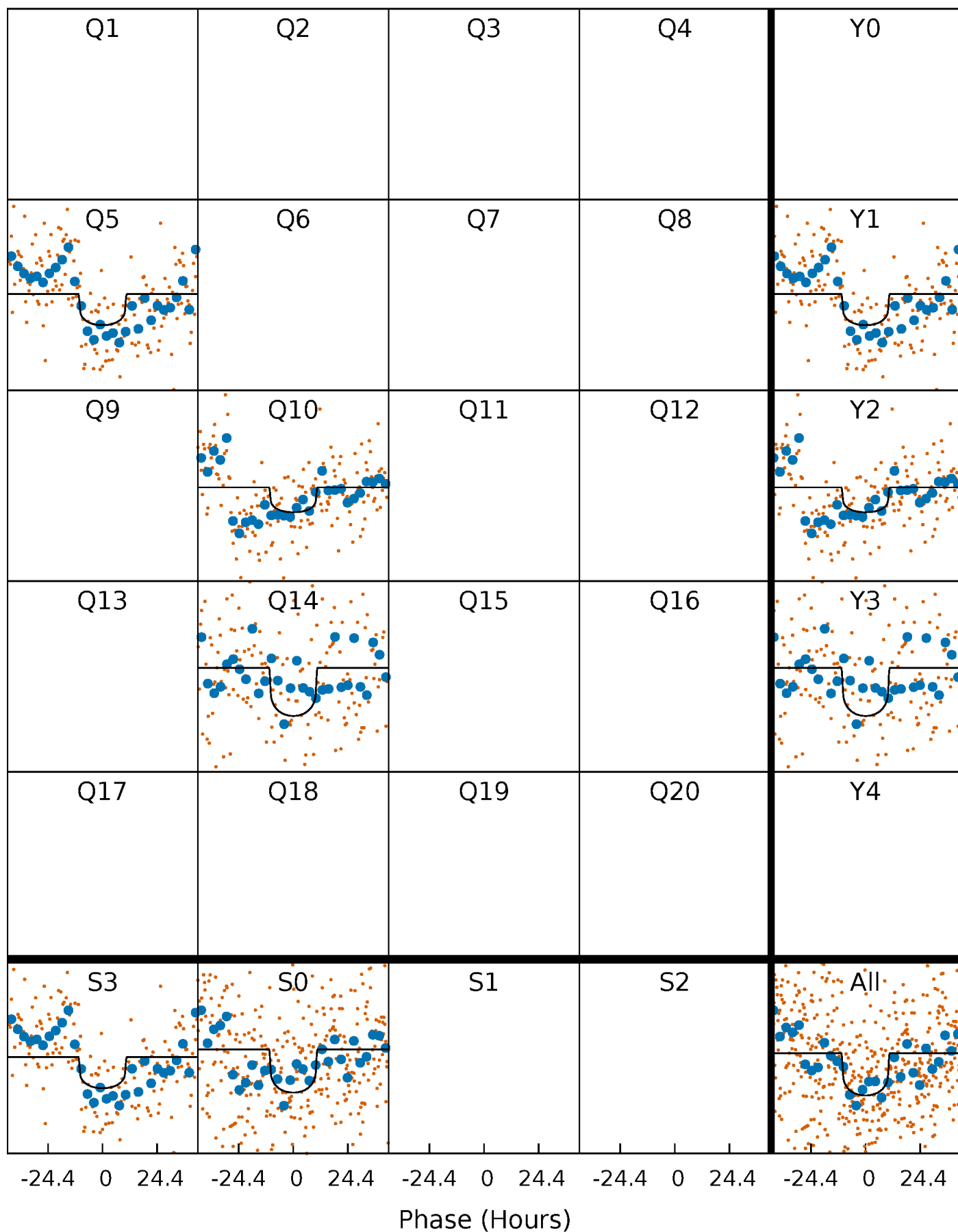
TCE 003112869-01 P=429.571017 Days  $T_0=483.298621$  (BKJD)





# DV Quarter-Phased Transit Curves

TCE 003112869-01 P=429.571017 Days  $T_0=483.298621$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

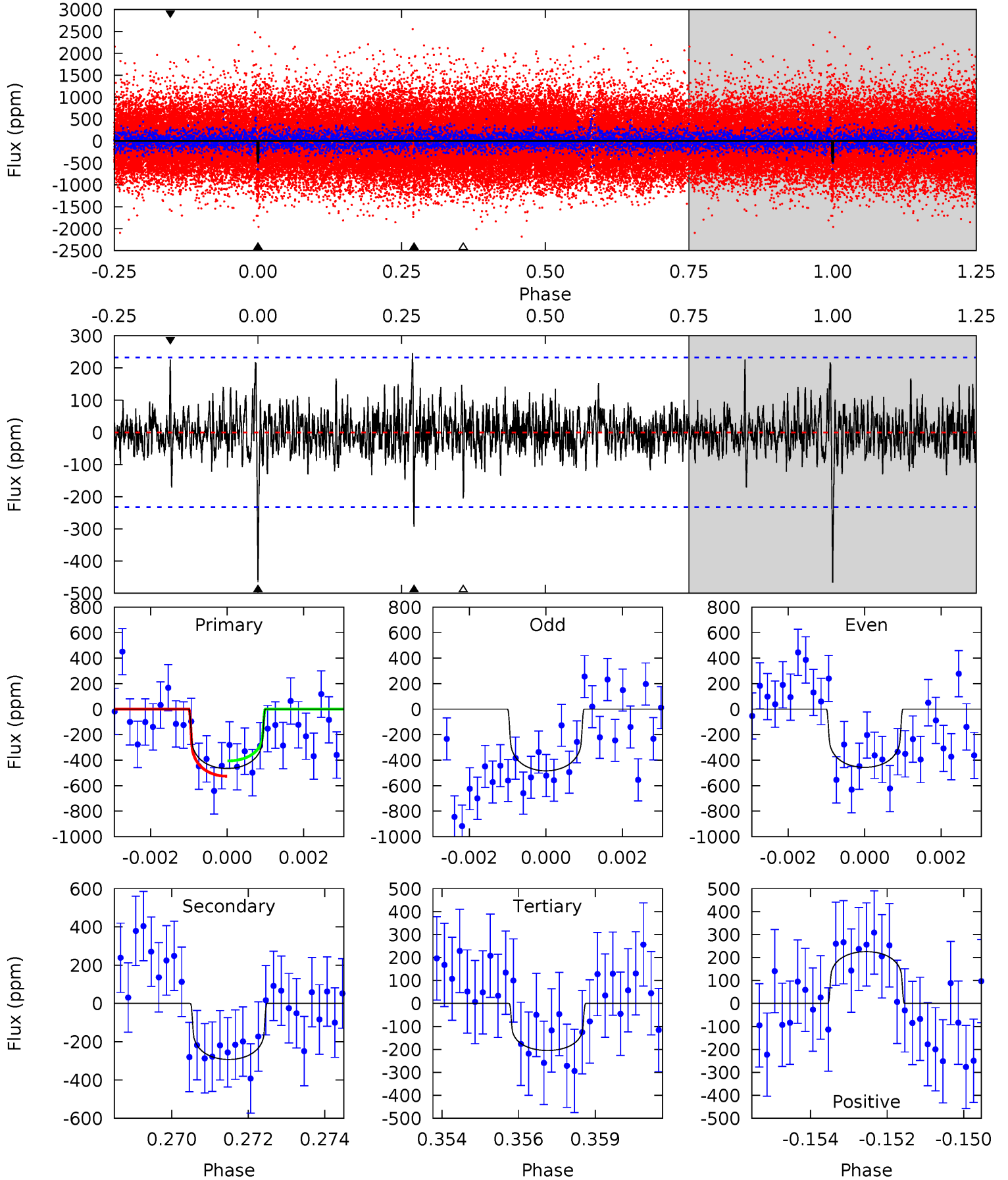
TCE 003112869-01 P=429.622410 Days  $T_0=483.279057$  (BKJD)



# DV Model-Shift Uniqueness Test

003112869-01,  $P = 429.571017$  Days,  $E = 53.727604$  Days

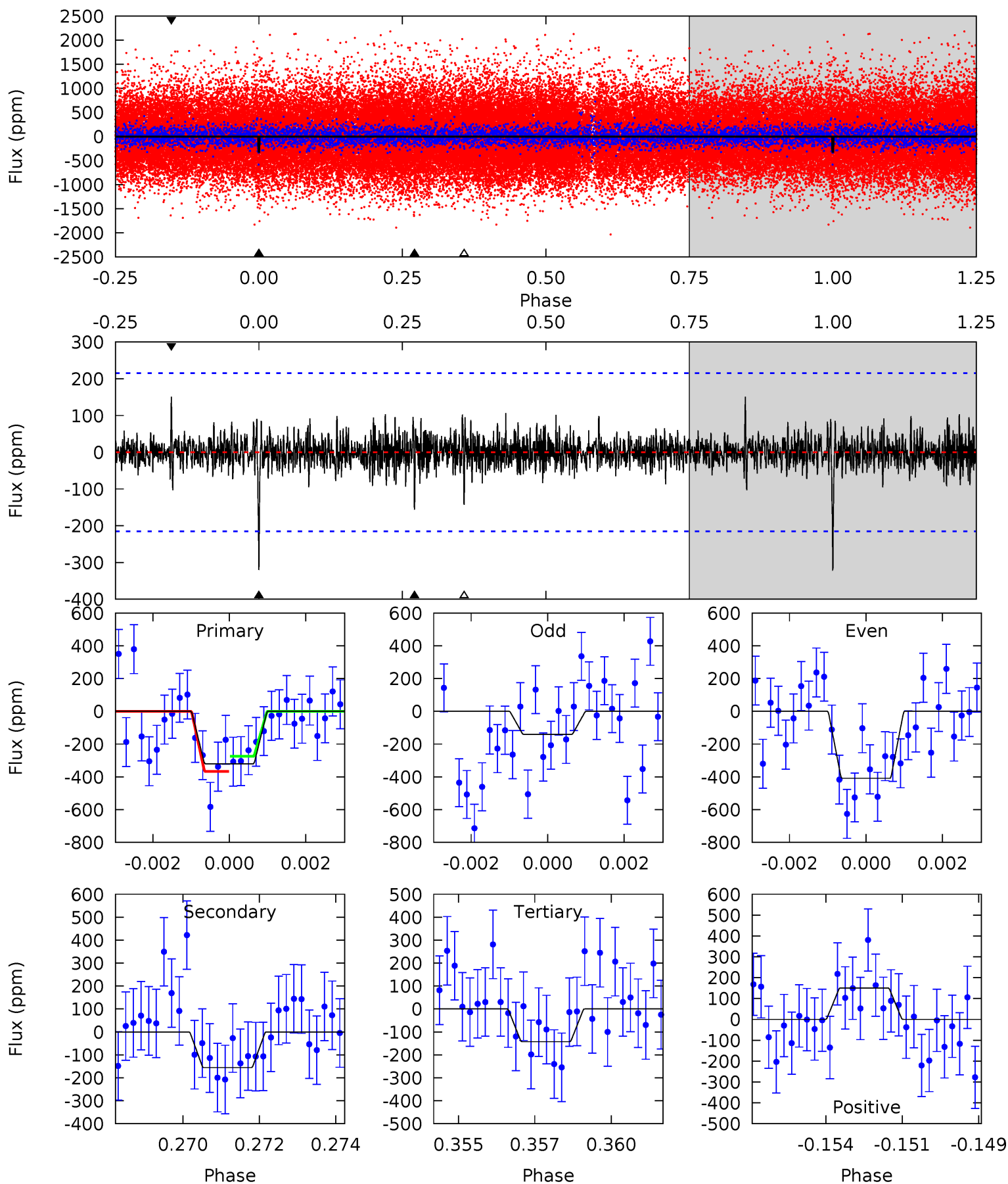
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
10.6	6.69	4.68	5.16	5.32	3.07	1.15	5.96	5.48	2.01	1.53	0.29	0.96	0.35	1.37



# Alt Model-Shift Uniqueness Test

003112869-01, P = 429.622410 Days, E = 53.656647 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
7.88	3.82	3.51	3.71	5.30	3.04	0.75	4.37	4.17	0.31	0.11	3.10	1.70	0.32	1.15



### Stellar Parameters For KIC 003112869

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R$ ( $R_{\odot}$ )	$M(M_{\odot})$	$p_{\star}$ ( $\text{g}\cdot\text{cm}^{-3}$ )
	$5646^{+169}_{-169}$	$4.516^{+0.084}_{-0.137}$	$-0.520^{+0.300}_{-0.300}$	$0.804^{+0.171}_{-0.092}$	$0.774^{+0.101}_{-0.058}$	$2.096^{+0.787}_{-0.793}$
	+3%/-3%	+2%/-3%	+58%/-58%	+21%/-11%	+13%/-7%	+38%/-38%
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 003112869-01 / KOI

Detrend	Depth (ppm)	$R_p$ ( $R_{\oplus}$ )	$T_{\text{max}}$ (K)	$T_{\text{obs}}$ (K)	$A_{\text{obs}}$
DV	$-293 \pm 44$	$1.94^{+0.99}_{-1.03}$	$312^{+18}_{-15}$	$5148^{+2411}_{-881}$	$47569^{+165850}_{-28666}$
Alt.	$-155 \pm 41$	$1.79^{+1.02}_{-0.89}$	$311^{+18}_{-15}$	$4590^{+1743}_{-744}$	$27243^{+83868}_{-17019}$

$T_{\text{max}}$  = Theoretical Maximum Planetary Temperature

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

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

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

## DV Centroid Data

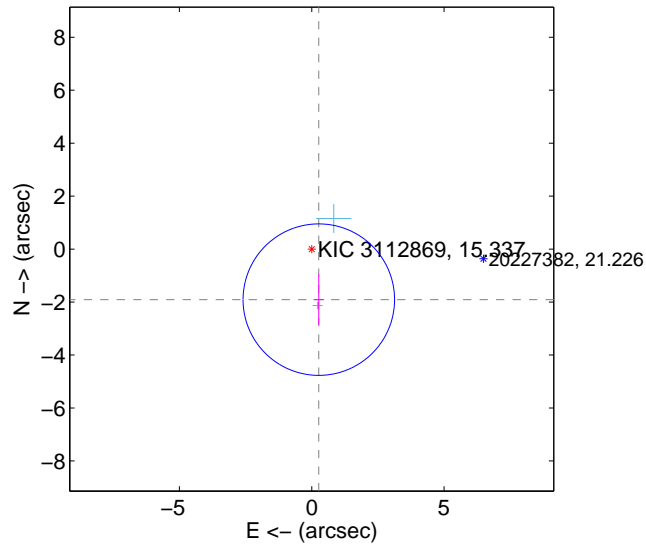
Supplemental centroid analysis for 003112869-01. Kepler magnitude: 15.34. Transit SNR 7.93

There are 2 quarters with good PRF difference image offsets

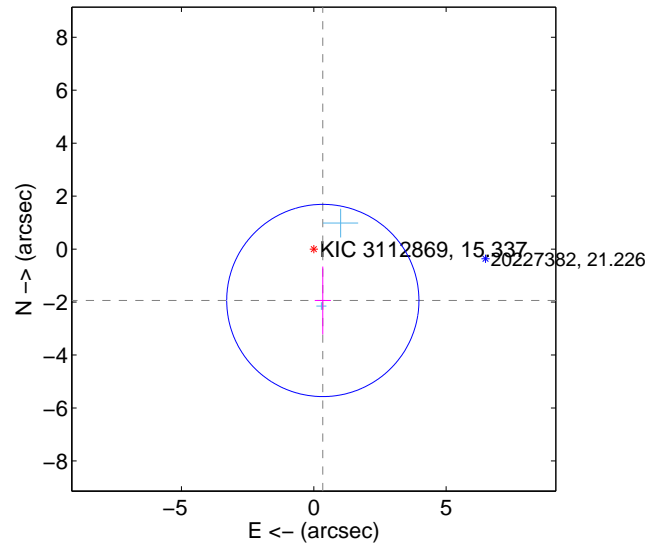
The direct PRF centroid is offset from the target star catalog position by about 0.25 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$1.927 \pm 0.953$	2.02	$-0.268 \pm 0.199$	$-1.909 \pm 0.962$
PRF-fit source offset from KIC position	$1.970 \pm 1.210$	1.63	$-0.342 \pm 0.304$	$-1.940 \pm 1.280$
photometric centroid source offset	$2.88 \pm 1.58$	1.82	$-2.52 \pm 1.58$	$-1.39 \pm 1.57$

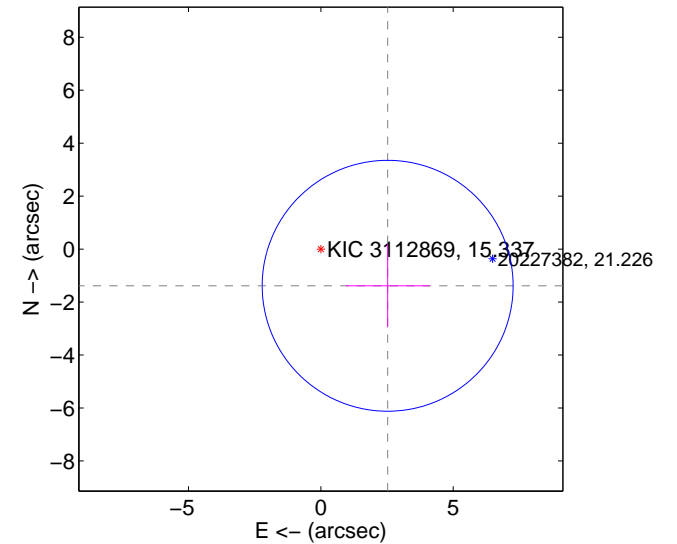
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position



offset from photometric centroids



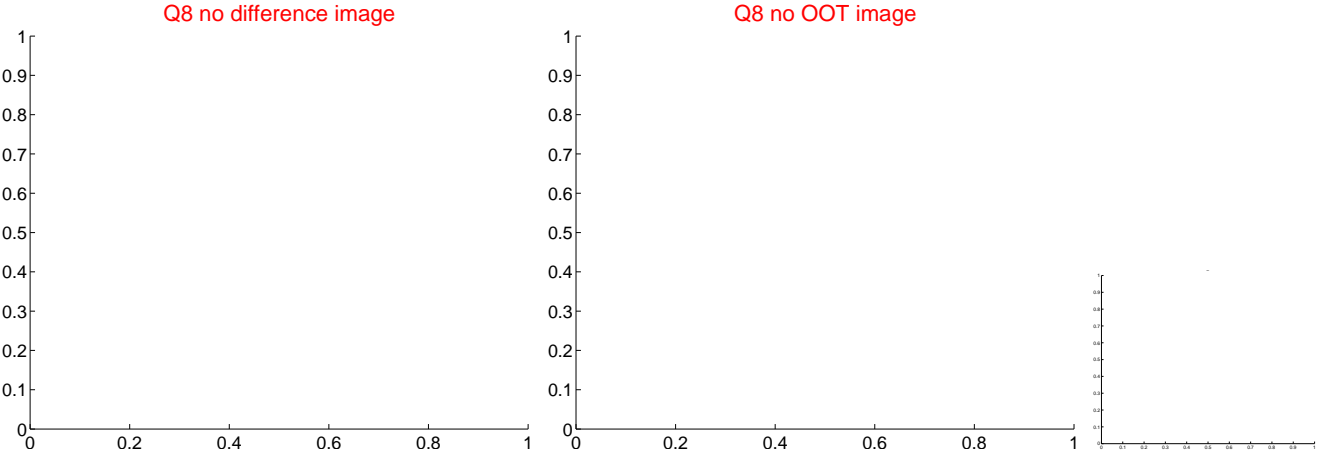
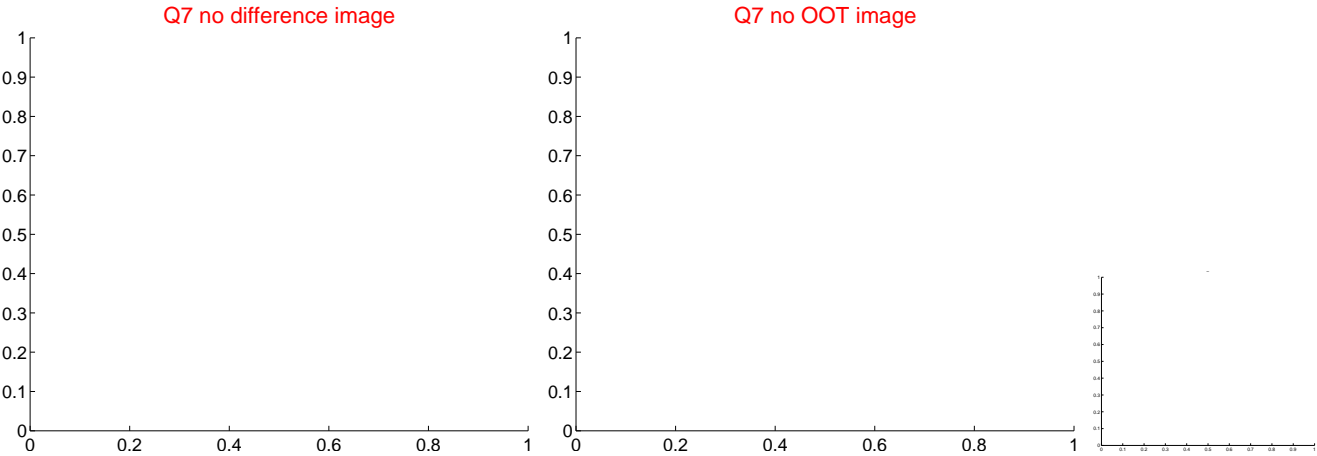
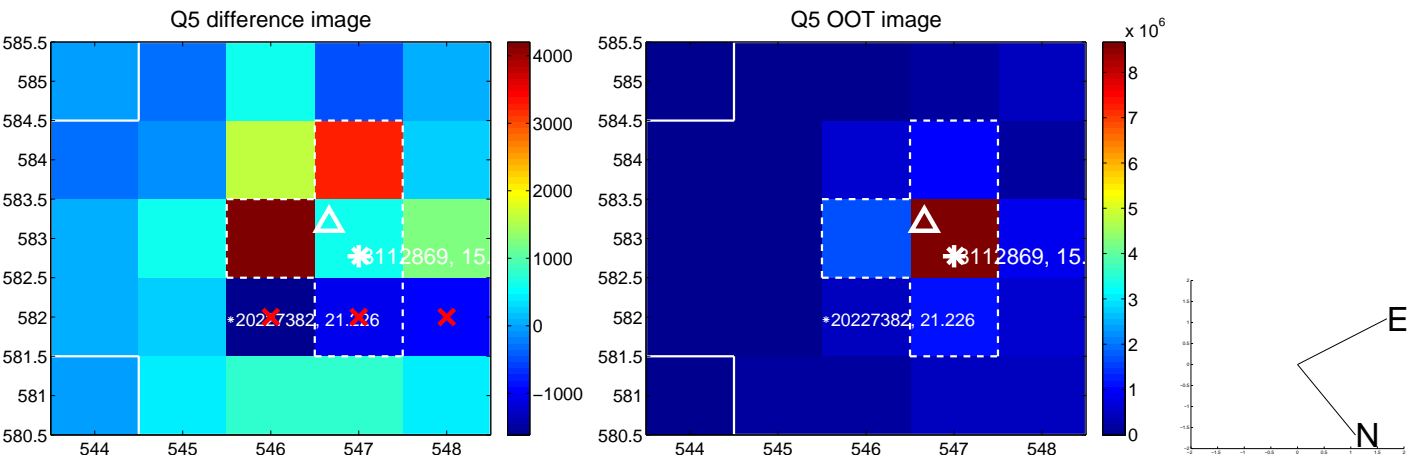
Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: three- $\sigma$ . 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.

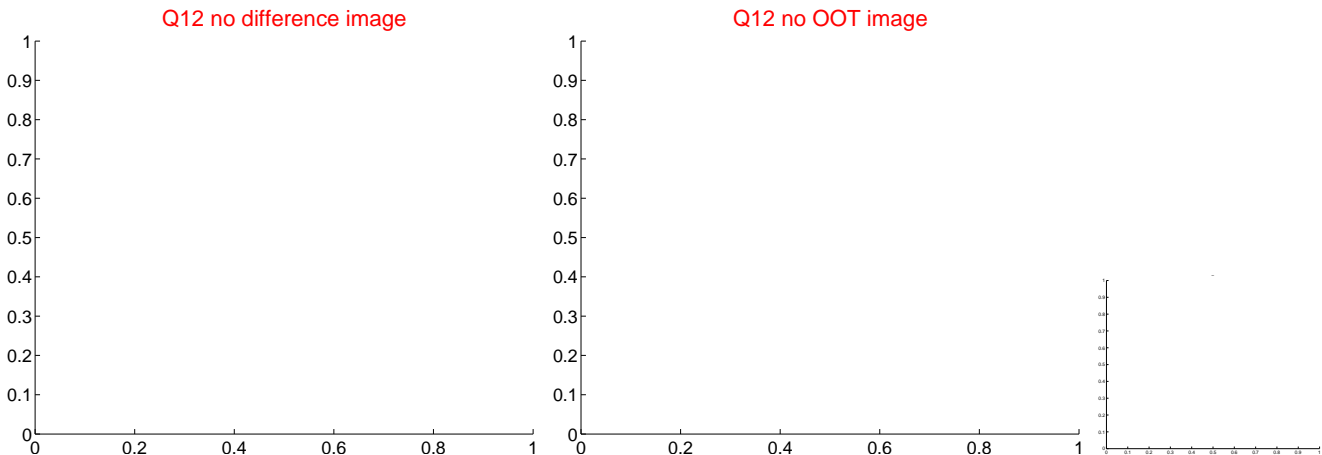
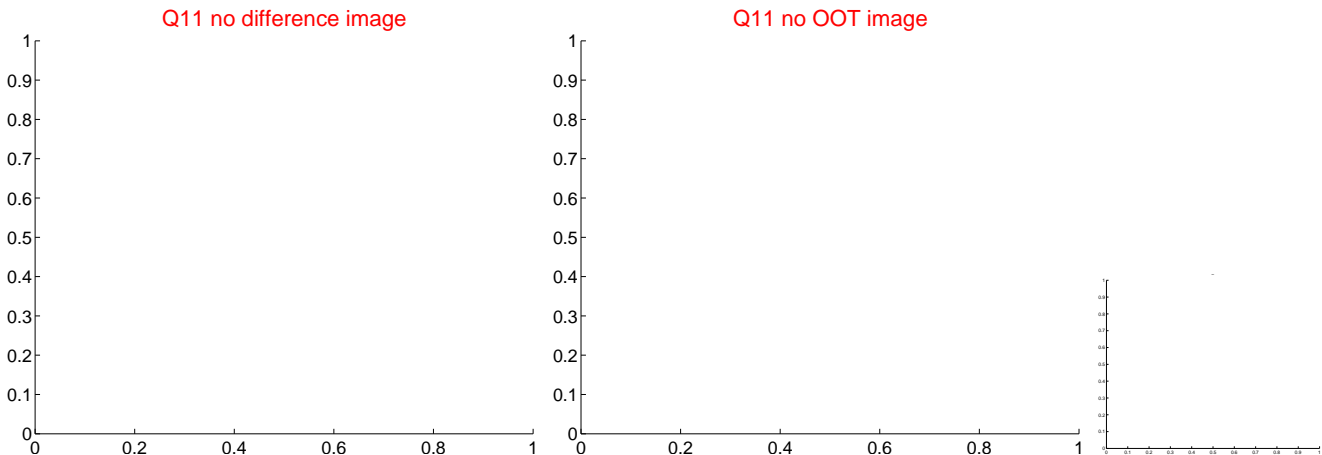
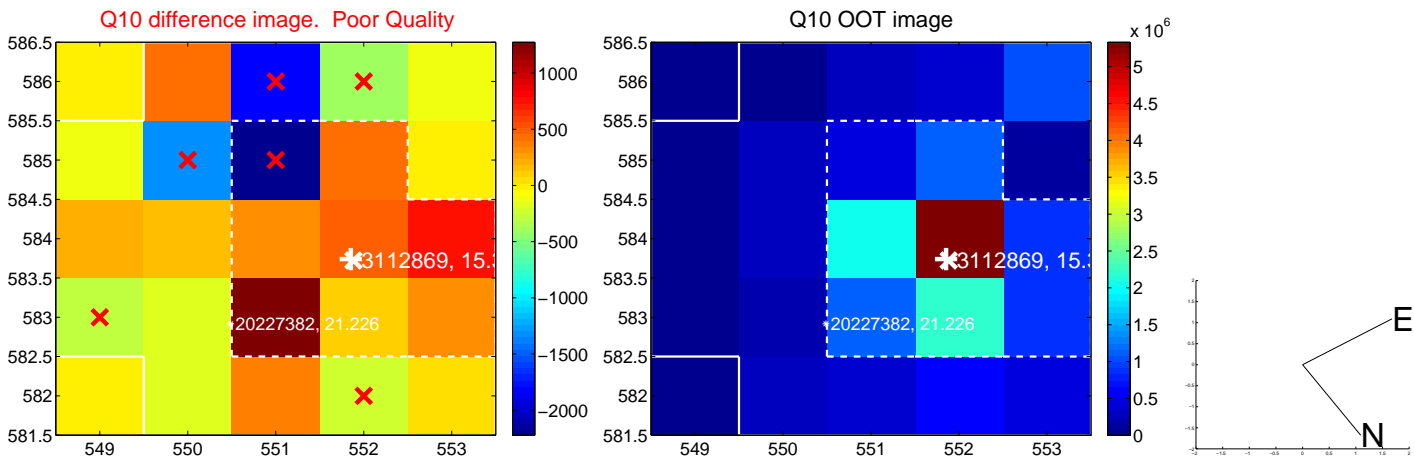
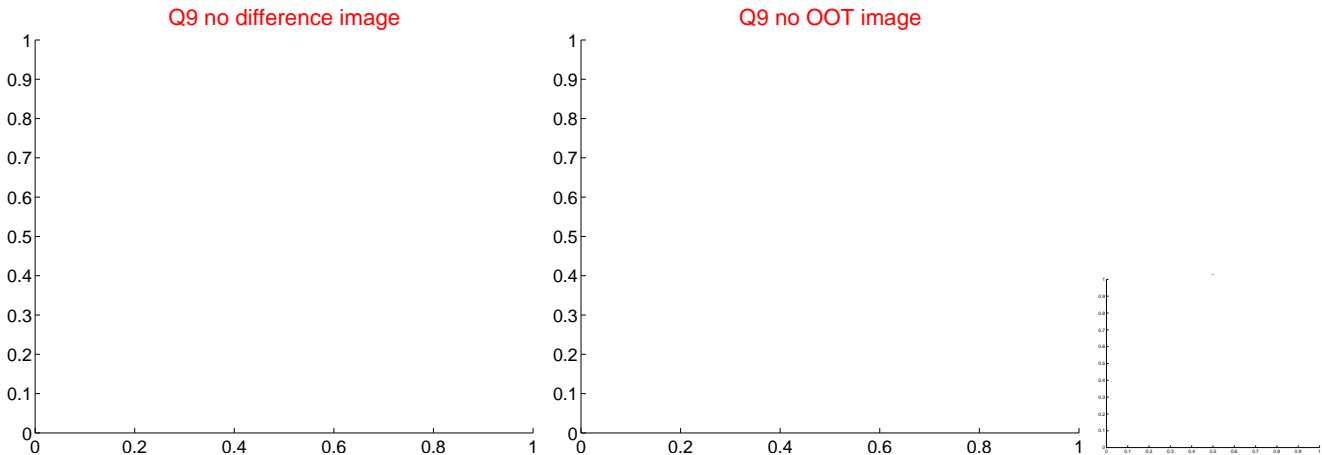




white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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



white ×: KIC target position; +: OOT centroid; △: difference centroid. red ✕: large negative pixel value.

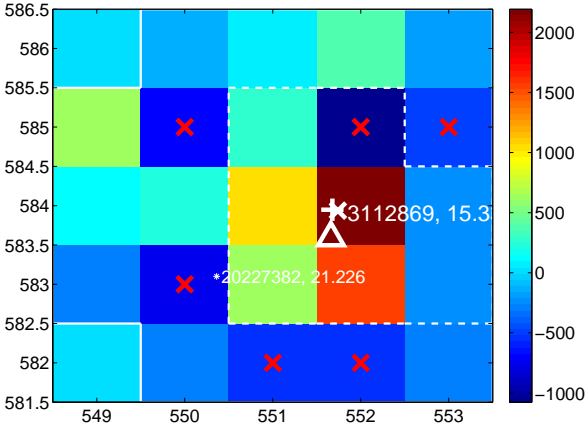
Q13 no difference image



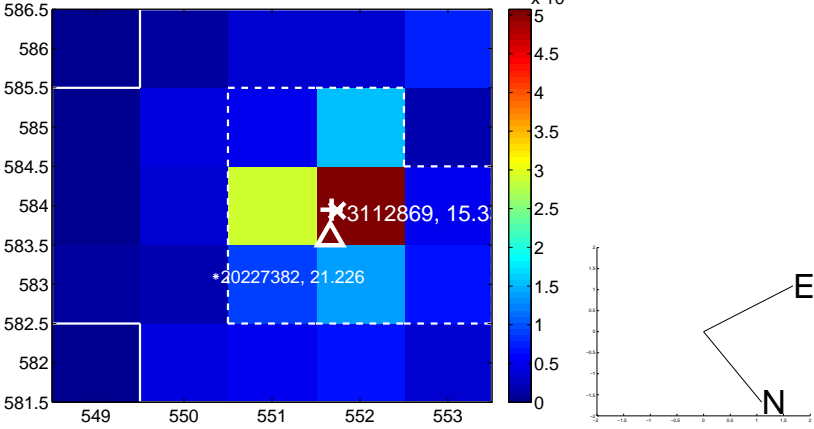
Q13 no OOT image



Q14 difference image



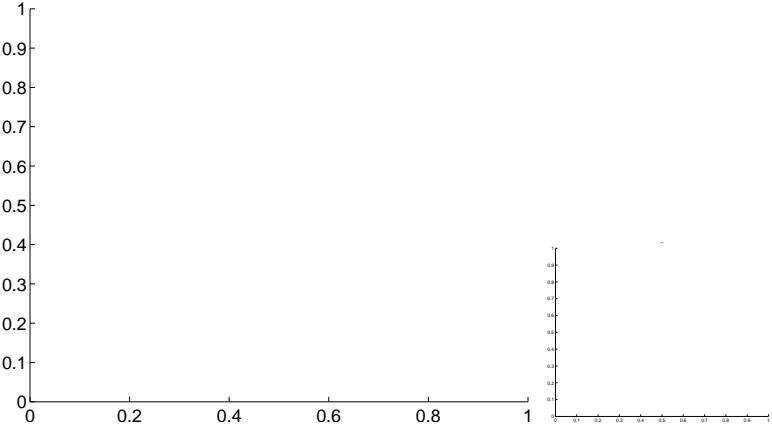
Q14 OOT image



Q15 no difference image



Q15 no OOT image



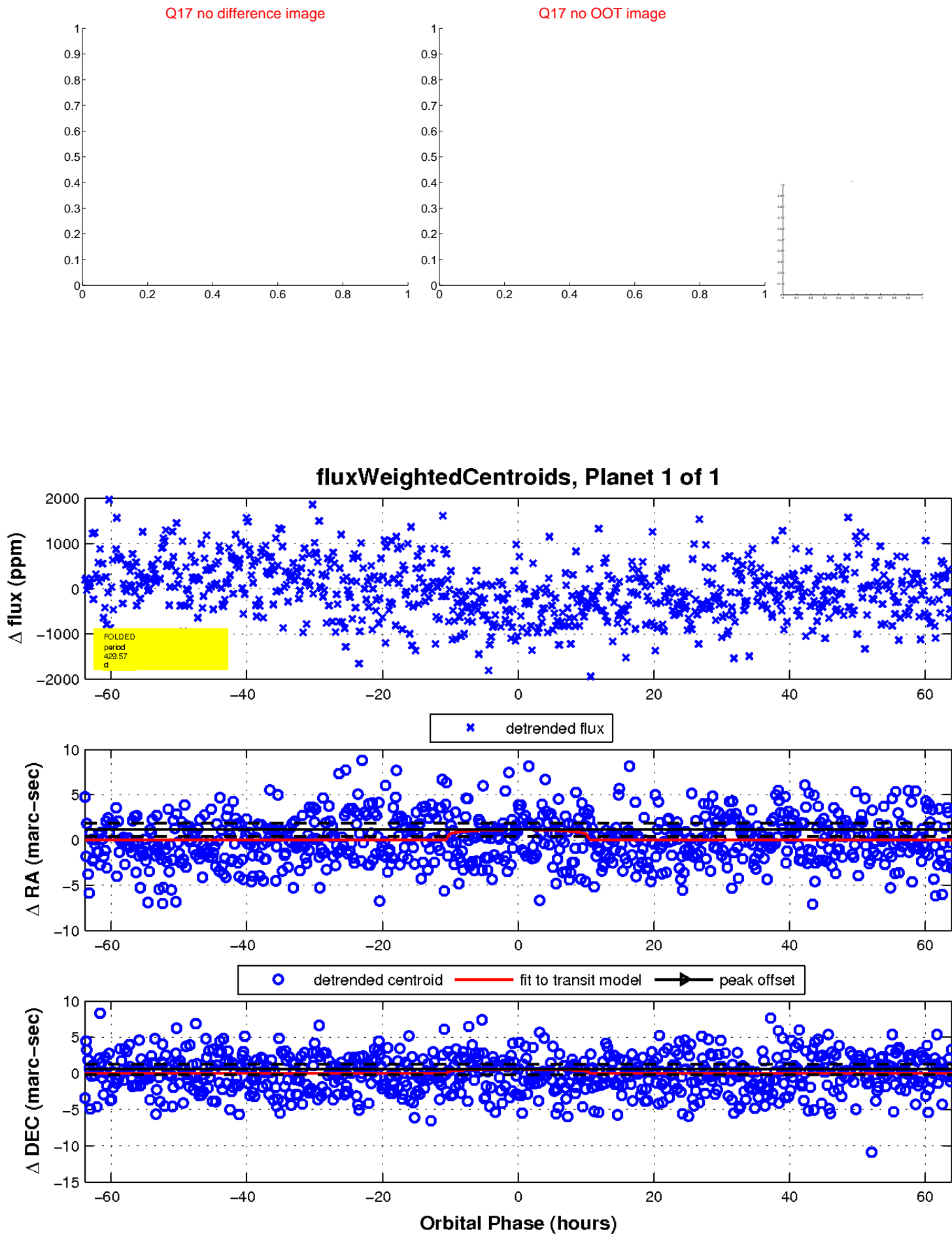
Q16 no difference image



Q16 no OOT image



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



UKIRT Image

Declination

