

# KIC 008684570

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
008684570-01	OBS	No	377.390155	168.057511	1078.2	31.197	8.6	10.3	0.92	5321	3.92	0.62

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
008684570-01	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_MARSHALL_SKYE—ALL_TRANS_CHASES—INCONSISTENT_TRANS—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.

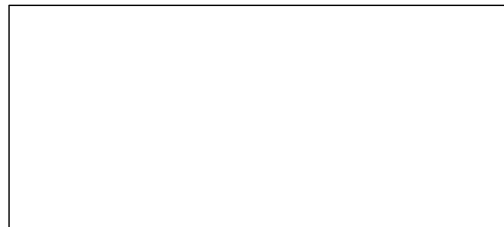
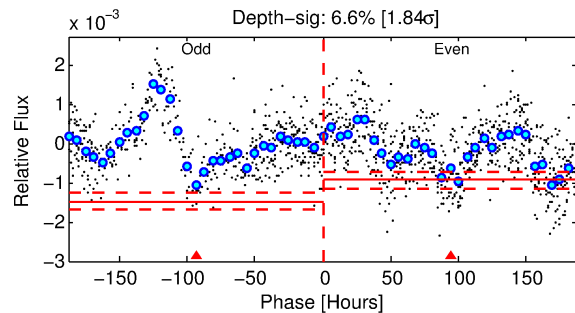
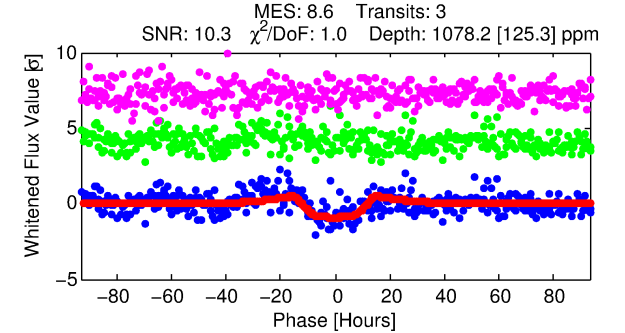
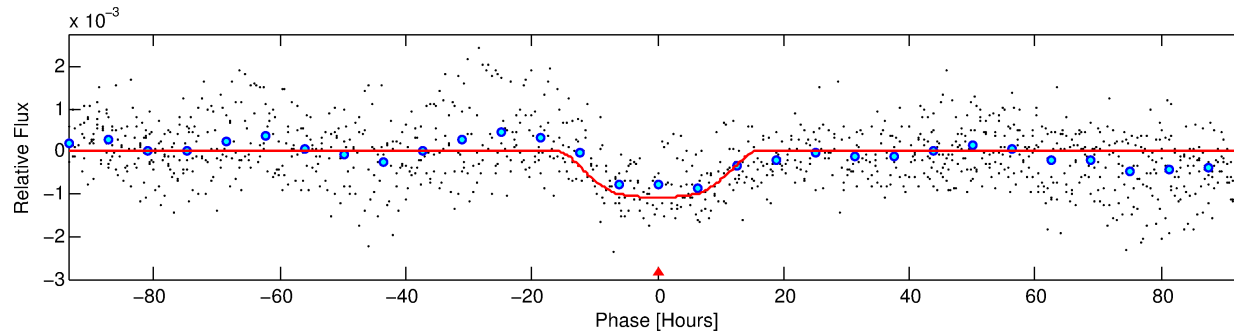
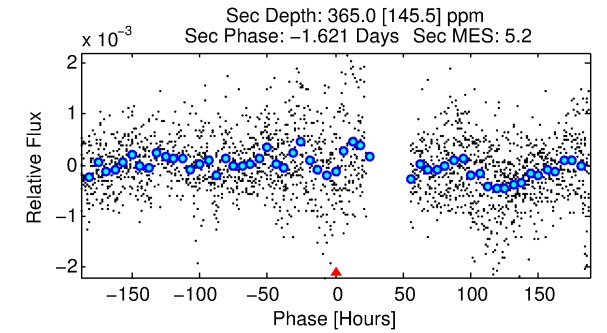
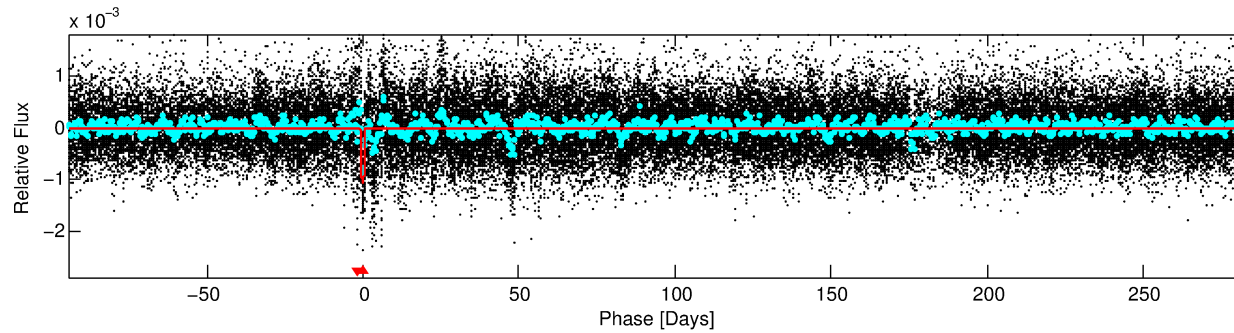
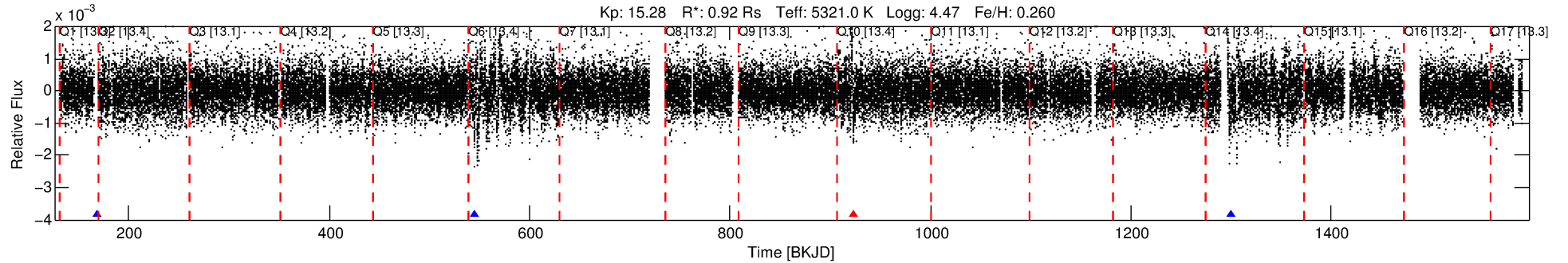
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

## Ephemeris Match Information For 008684570-01

No Significant Match Found

# DV One-Page Summary

KIC: 8684570 Candidate: 1 of 1 Period: 377.390 d



## DV Fit Results:

Period = 377.39015 [0.03710] d  
Epoch = 168.0575 [0.0769] BKJD  
Rp/R\* = 0.0389 [0.0031]  
a/R\* = 39.96 [6.25]  
b = 0.94 [0.02]  
Seff = 0.62 [0.18]  
Teq = 227 [16] K  
Rp = 3.92 [0.83] Re  
a = 0.9916 [0.1692] AU  
Ag = 12819.27 [6401.22] [2.00σ]  
Teffp = 3728 [418] K [8.36σ]

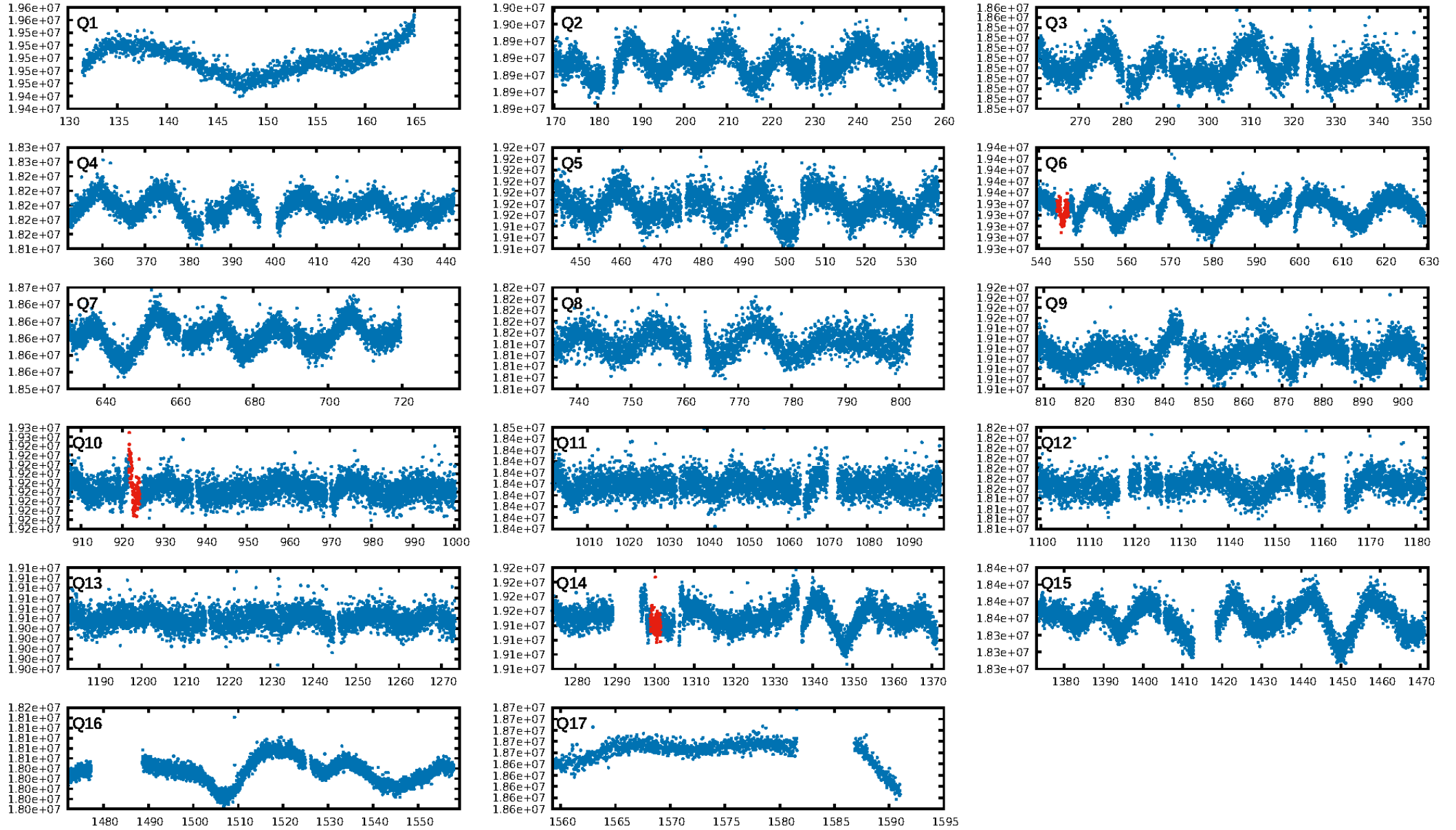
## DV Diagnostic Results:

ShortPeriod-sig: N/A  
LongPeriod-sig: N/A  
ModelChiSquare2-sig: 14.4%  
ModelChiSquareGoF-sig: 100.0%  
Bootstrap-pfa: 3.21e-11  
RollingBand-fgt: 0.67 [2/3]  
GhostDiagnostic-chr: 5.09  
Centroid-sig: 0.0%  
Centroid-so: 5.771 arcsec [4.25σ]  
OotOffset-rm: N/A  
KicOffset-rm: N/A  
OotOffset-st: 0/0/0 [0]  
KicOffset-st: 0/0/0 [0]  
DiffImageQuality-fgm: N/A  
DiffImageOverlap-fno: 1.00 [3/3]

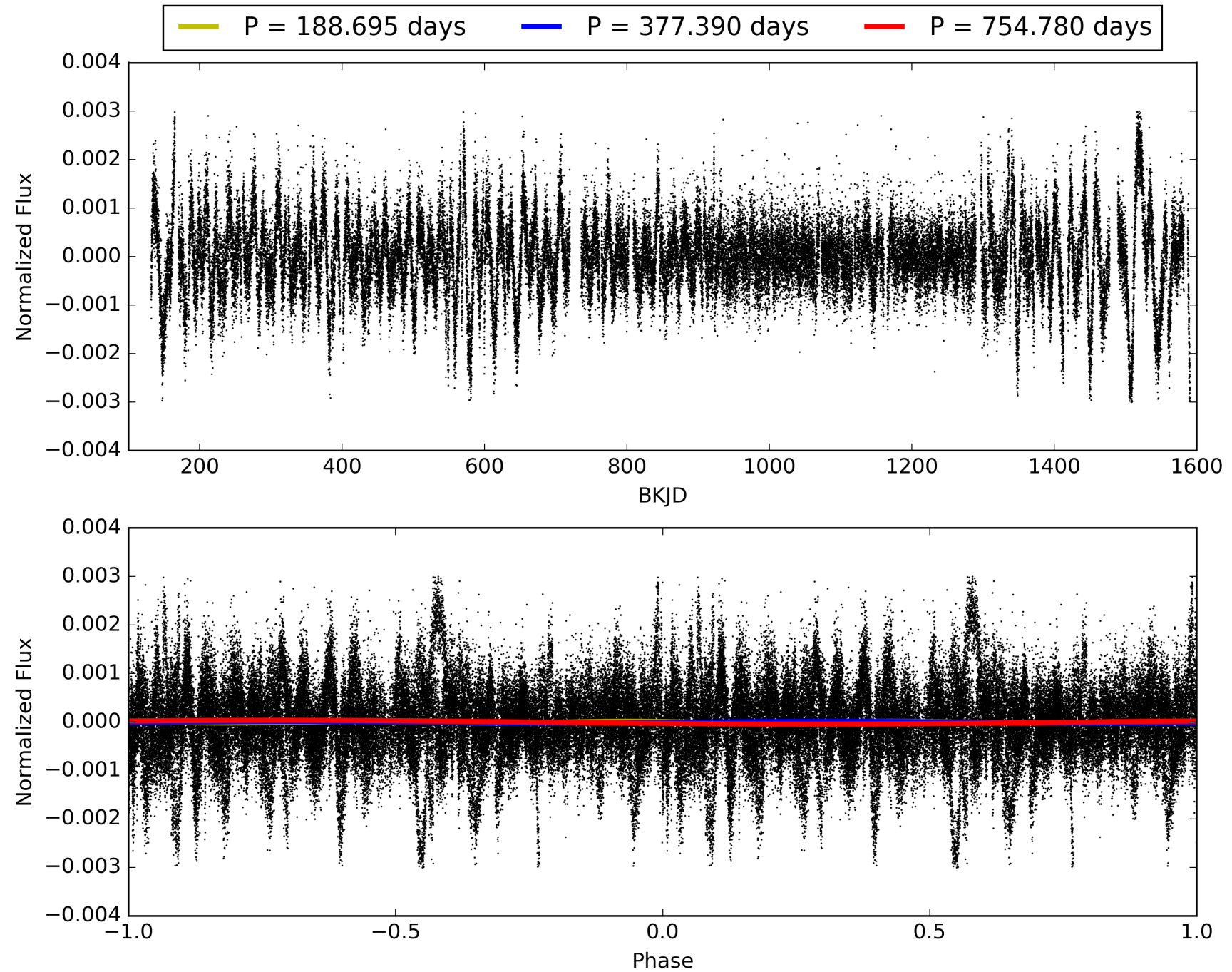
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 14:44:23 Z

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

# TCE 008684570-01, PDC Light Curves

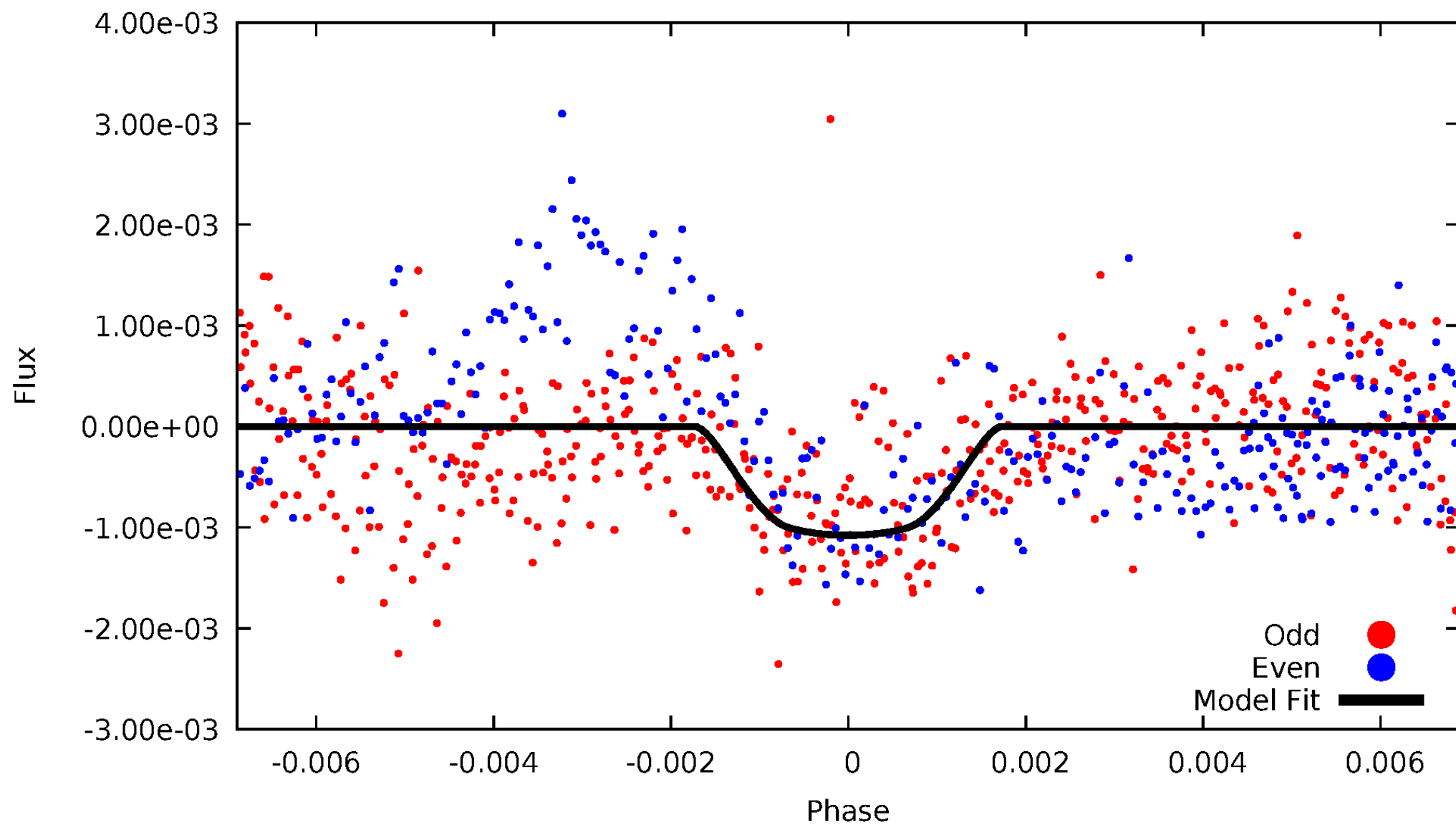


TCE 008684570-01



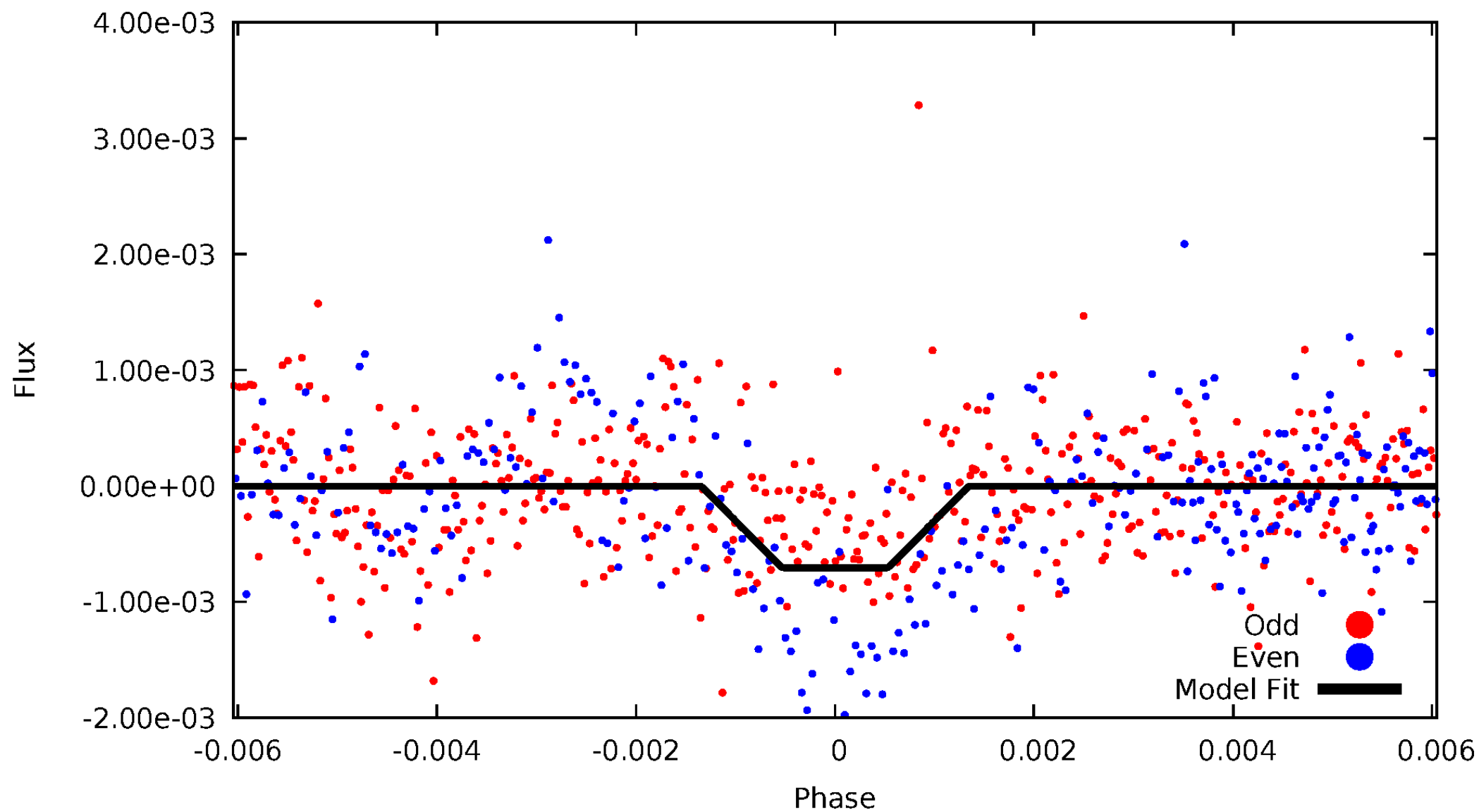
# DV Odd/Even

TCE 008684570-01



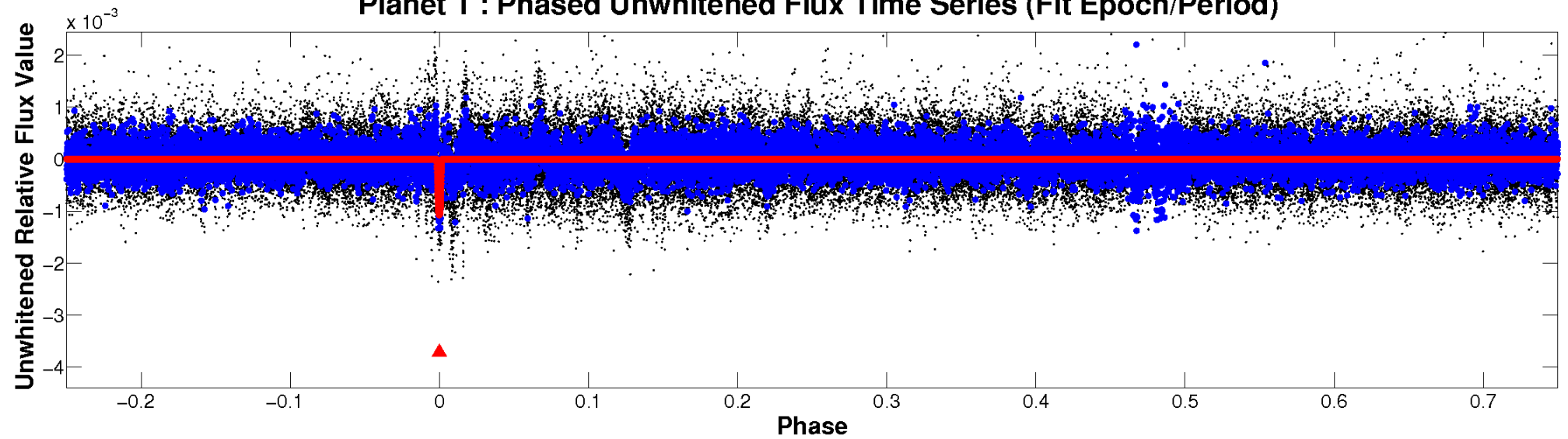
# ALT Odd/Even

TCE 008684570-01

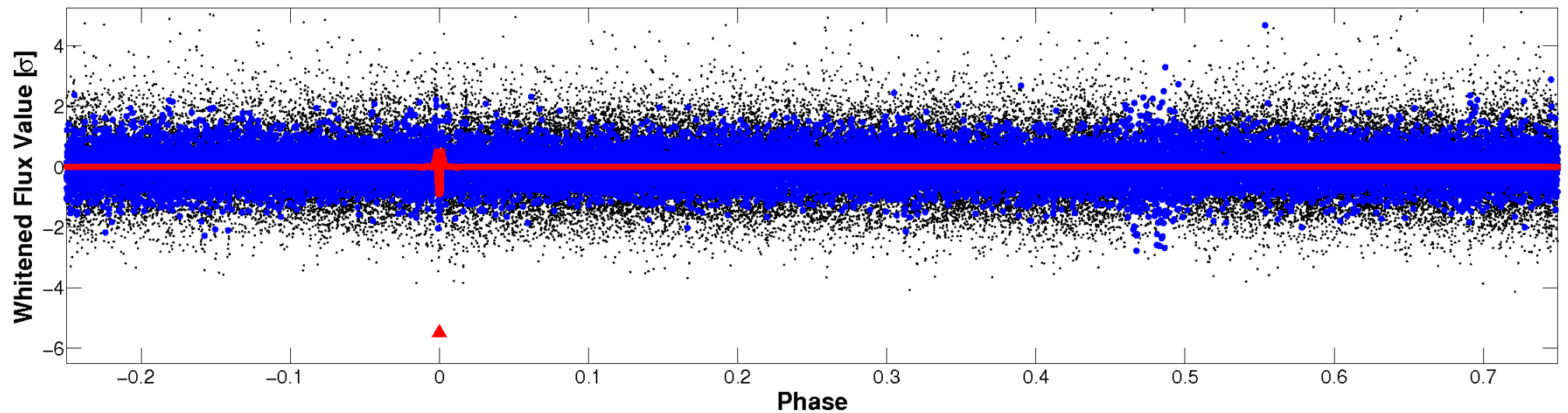


# Non-Whitened Vs. Whitened Light Curve

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

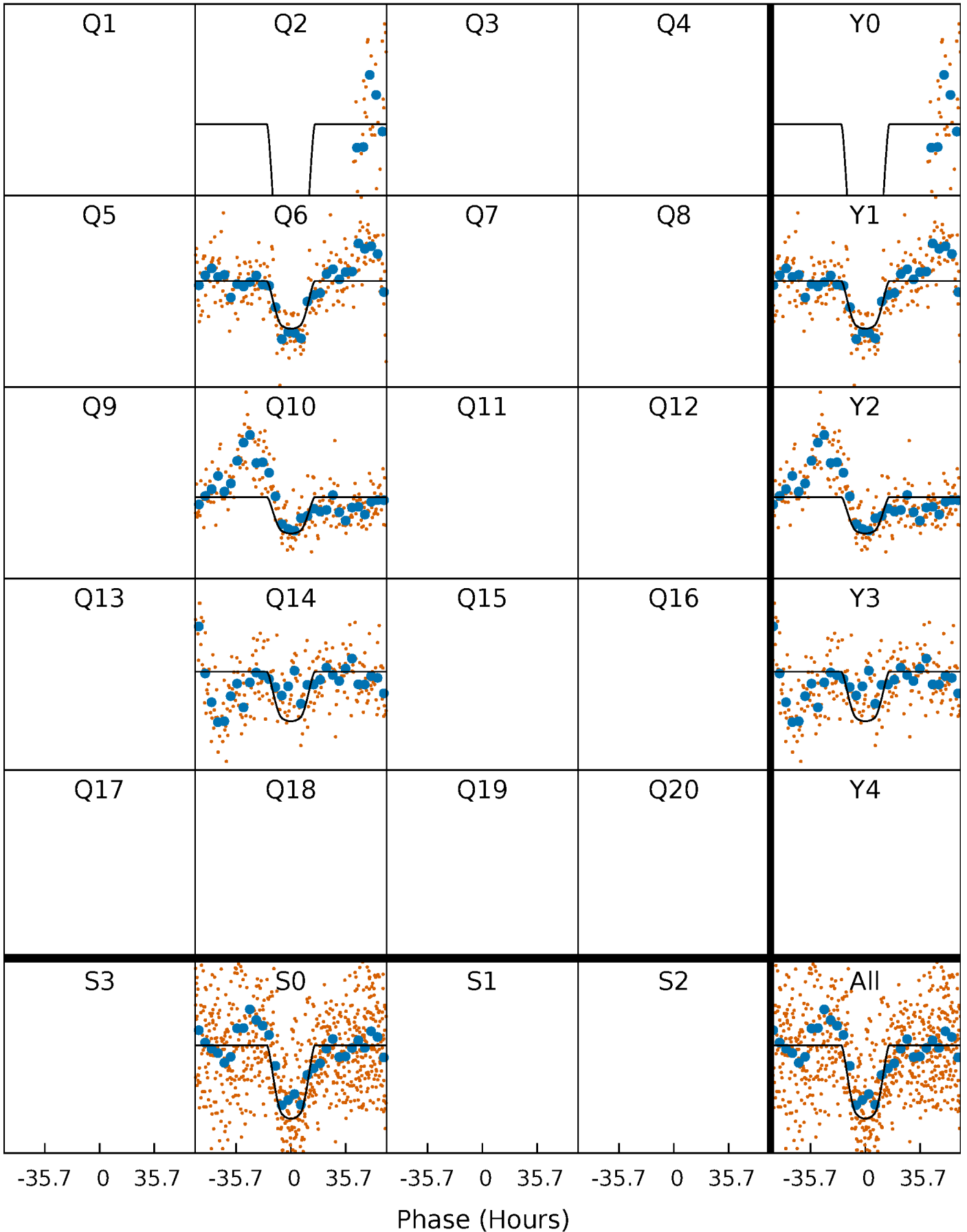
TCE 008684570-01 P=377.390155 Days  $T_0=168.057511$  (BKJD)





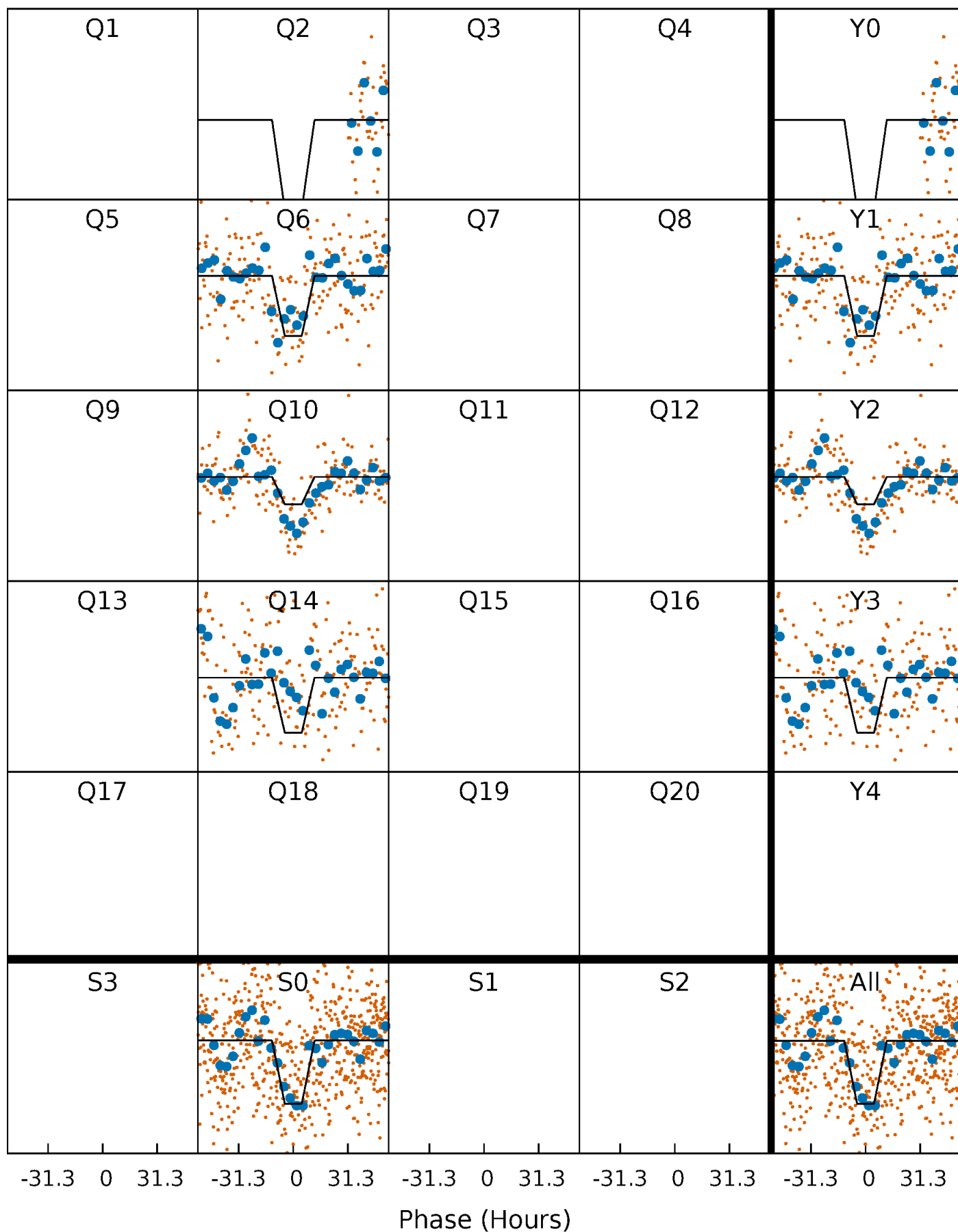
# DV Quarter-Phased Transit Curves

TCE 008684570-01     $P=377.390155$  Days     $T_0=168.057511$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

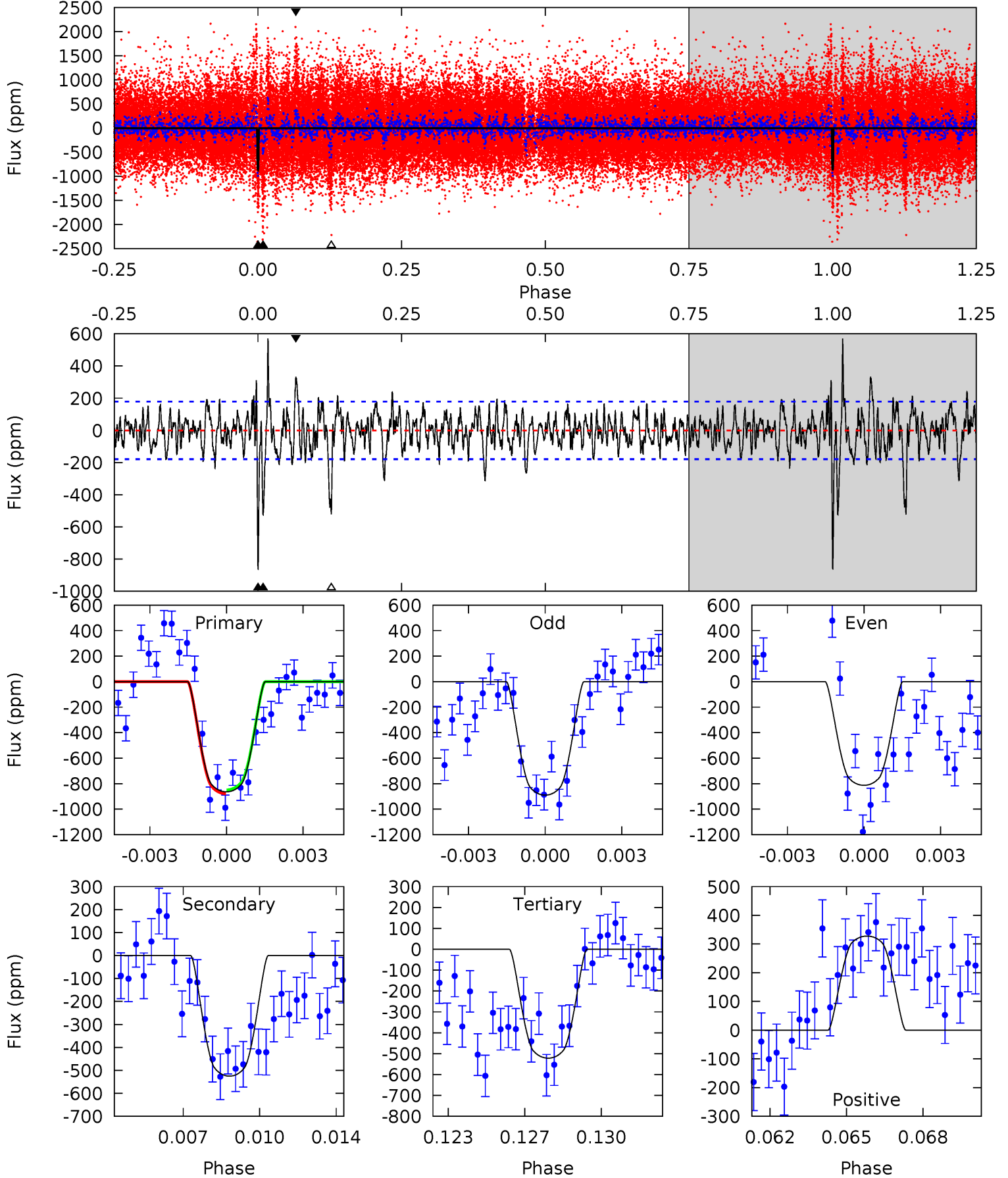
TCE 008684570-01 P=377.128595 Days  $T_0=168.449605$  (BKJD)



# DV Model-Shift Uniqueness Test

008684570-01,  $P = 377.390155$  Days,  $E = 168.057511$  Days

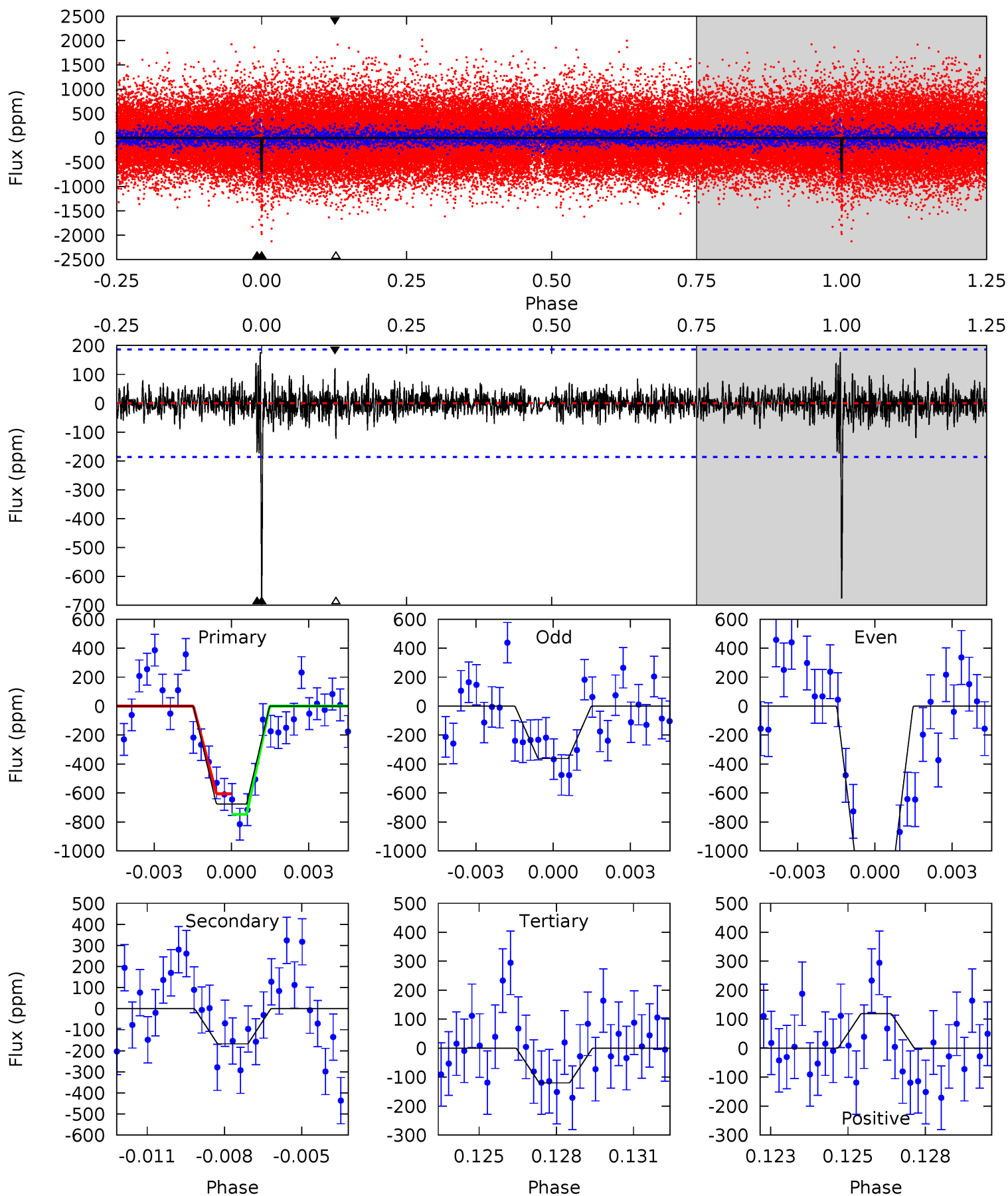
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
25.3	15.4	15.3	9.59	5.23	2.93	2.89	10.0	15.7	0.10	5.77	1.07	1.02	0.40	0.45



# Alt Model-Shift Uniqueness Test

008684570-01, P = 377.128595 Days, E = 168.449605 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
19.1	4.74	3.39	3.37	5.27	3.00	0.83	15.7	15.8	1.34	1.37	12.6	1.23	0.21	2.02



### Stellar Parameters For KIC 008684570

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R$ ( $R_{\odot}$ )	$M(M_{\odot})$	$p_{\star}$ ( $\text{g}\cdot\text{cm}^{-3}$ )
	$5321^{+175}_{-159}$	$4.467^{+0.077}_{-0.143}$	$0.260^{+0.200}_{-0.250}$	$0.924^{+0.181}_{-0.105}$	$0.911^{+0.071}_{-0.079}$	$1.629^{+0.545}_{-0.674}$
	+3%/-3%	+2%/-3%	+77%/-96%	+20%/-11%	+8%/-9%	+33%/-41%
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 008684570-01 / KOI

Detrend	Depth (ppm)	$R_p$ ( $R_{\oplus}$ )	$T_{\text{max}}$ (K)	$T_{\text{obs}}$ (K)	$A_{\text{obs}}$
DV	$-525 \pm 34$	$3.99^{+0.48}_{-0.41}$	$320^{+18}_{-15}$	$4278^{+183}_{-162}$	$17603^{+4486}_{-3574}$
Alt.	$-167 \pm 35$	$2.69^{+0.44}_{-0.37}$	$320^{+17}_{-15}$	$4022^{+233}_{-235}$	$12317^{+5395}_{-3605}$

$T_{\text{max}}$  = 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

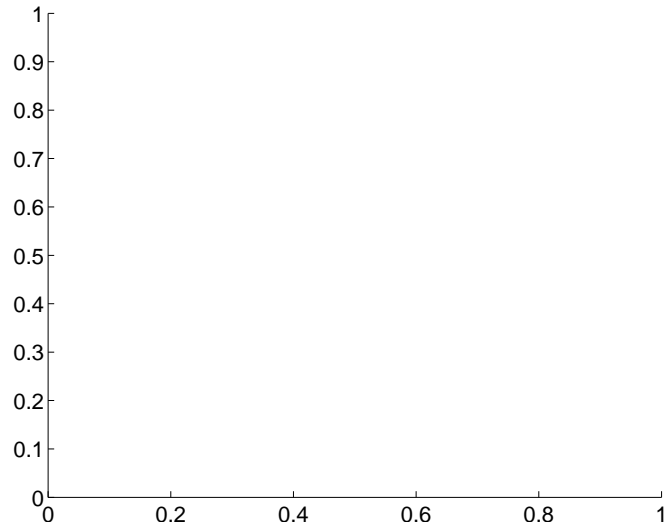
Supplemental centroid analysis for 008684570-01. Kepler magnitude: 15.28. Transit SNR 10.26

There are 0 quarters with good PRF difference image offsets

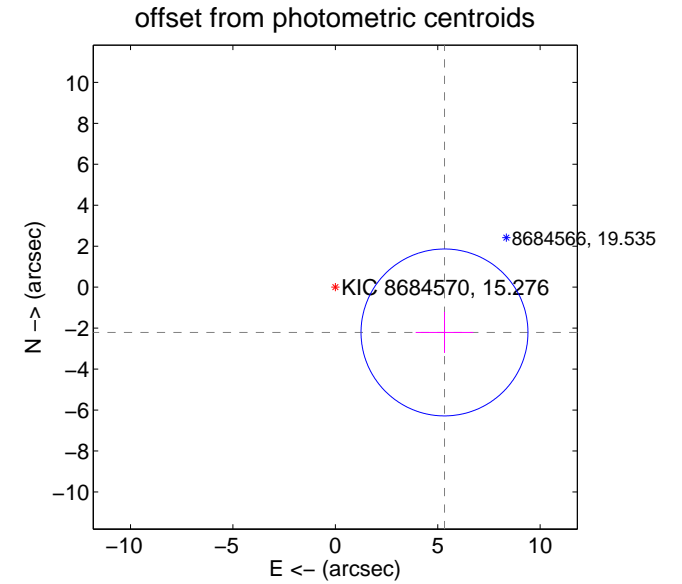
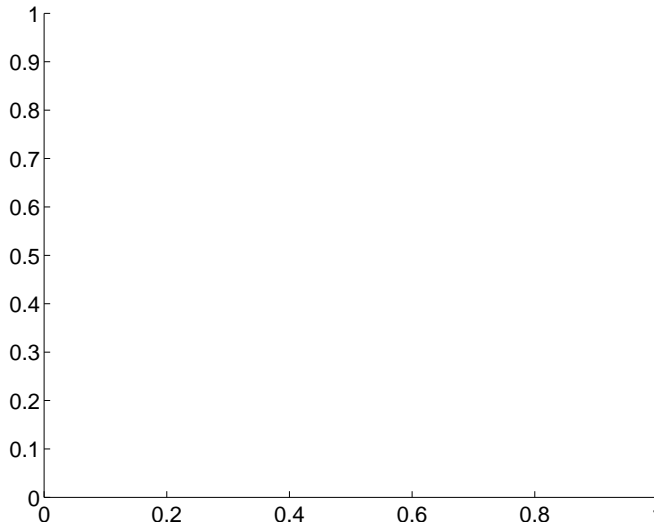
The direct PRF centroid is offset from the target star catalog position by about NaN arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	—	—	—	—
PRF-fit source offset from KIC position	—	—	—	—
photometric centroid source offset	$5.77 \pm 1.36$	4.25	$-5.33 \pm 1.41$	$-2.21 \pm 1.00$

There is no PRF-fit offset from OOT-fit



There is no PRF-fit offset from KIC



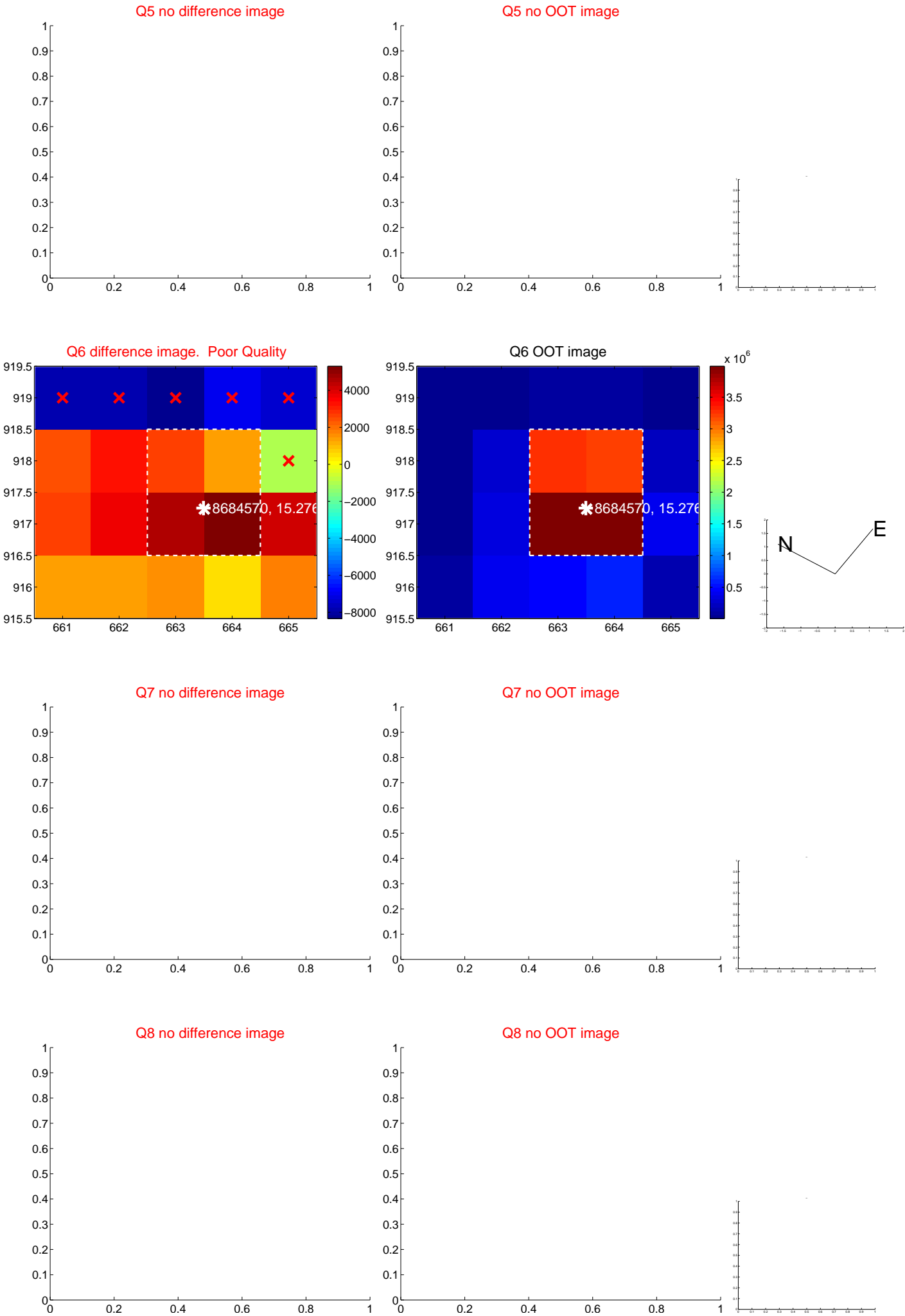
Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: three-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

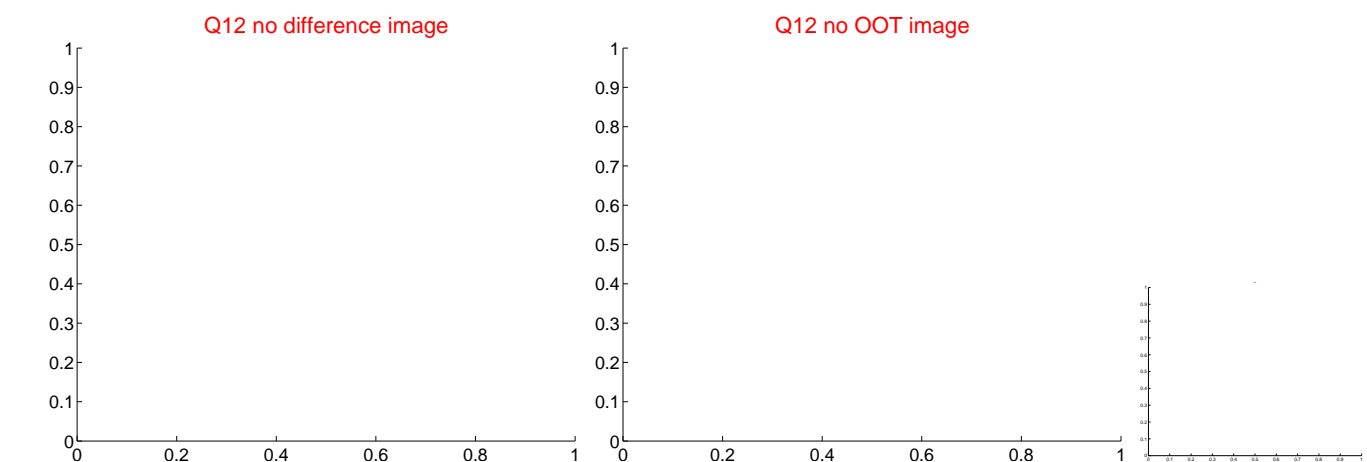
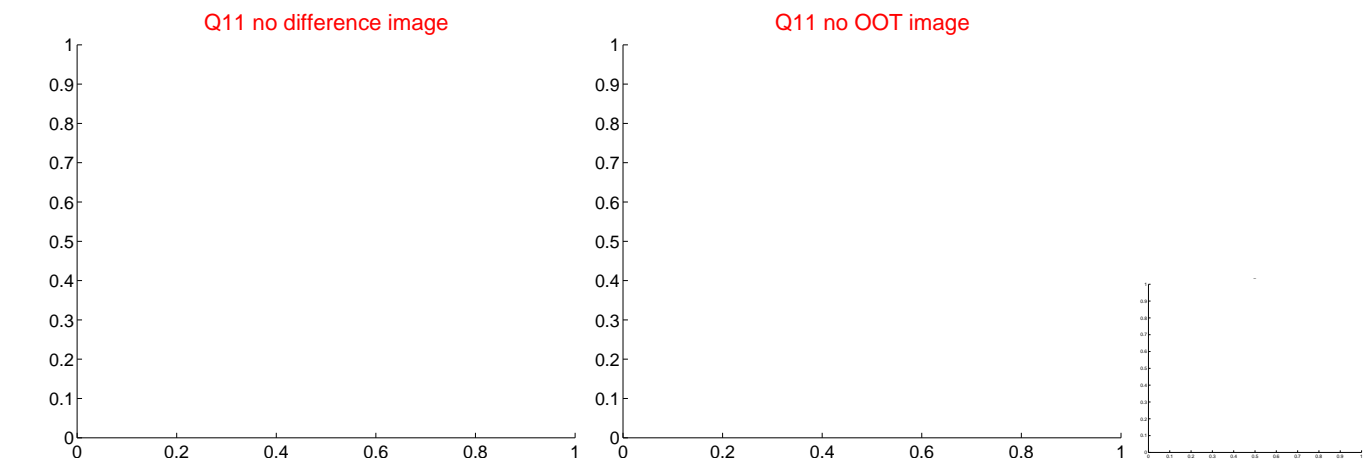
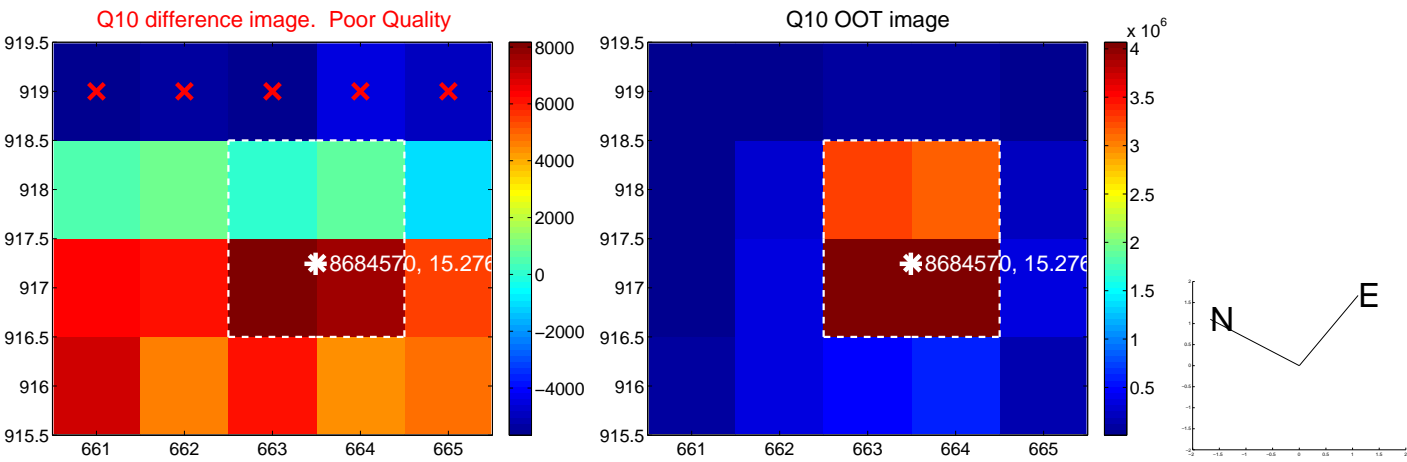
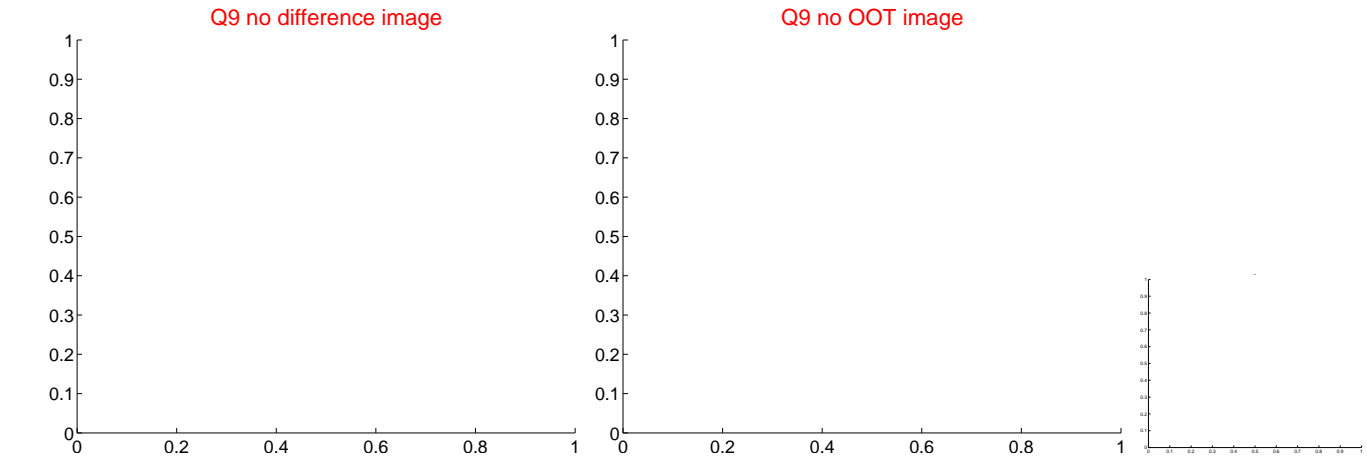




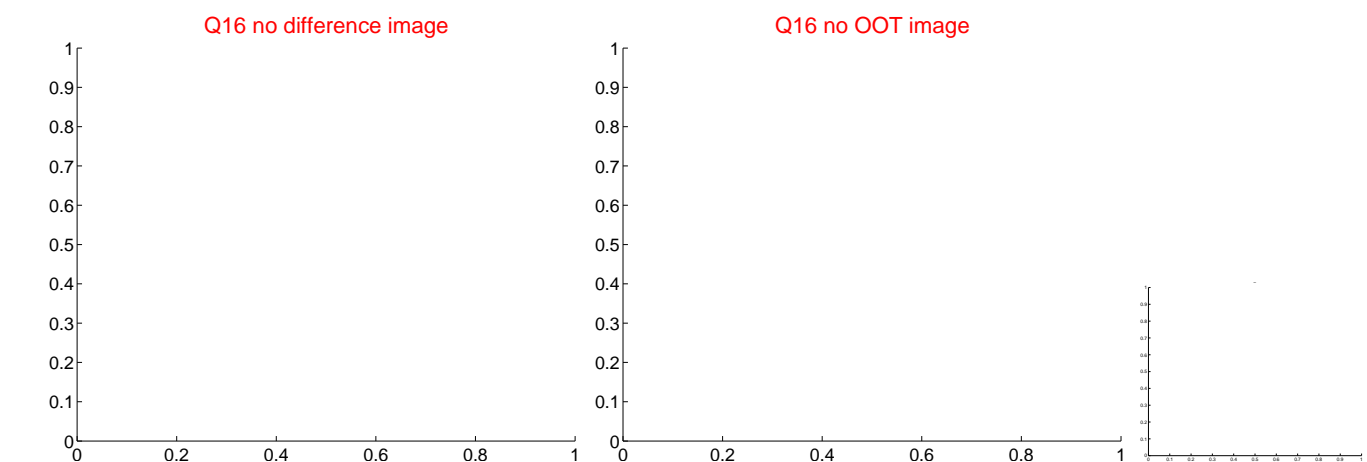
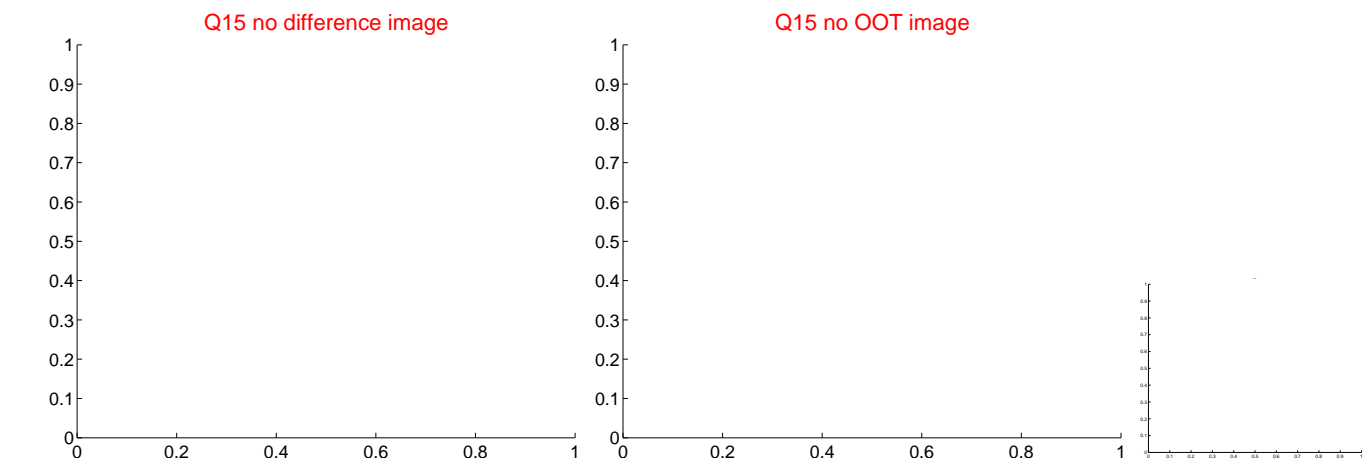
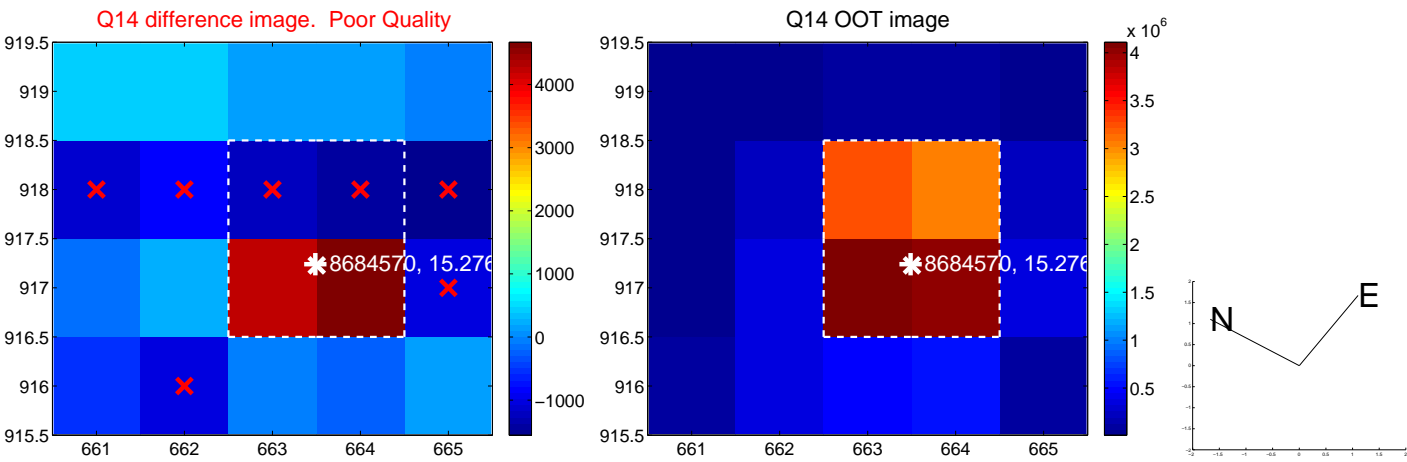
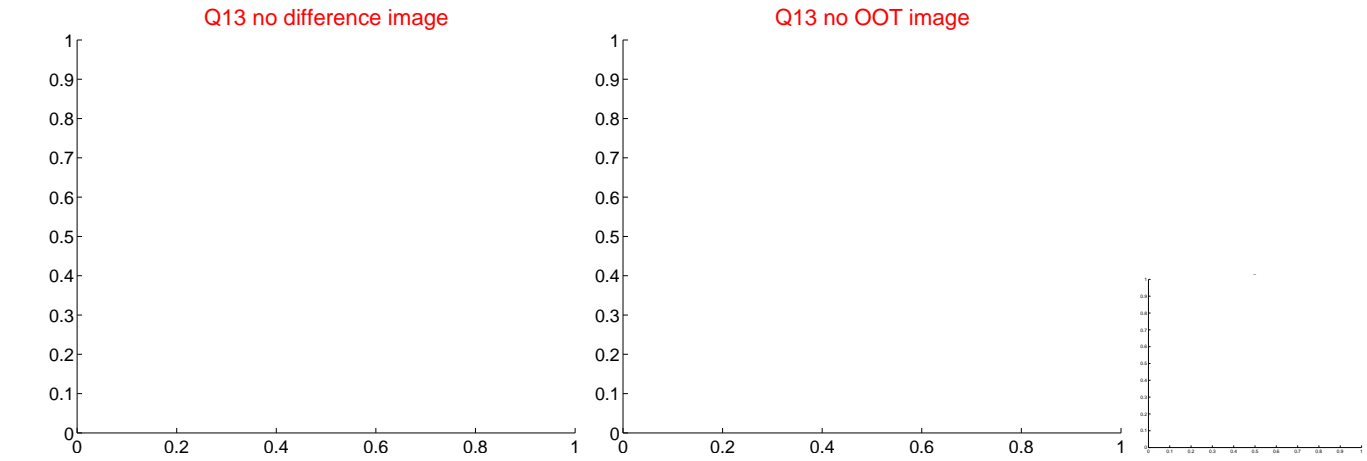
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



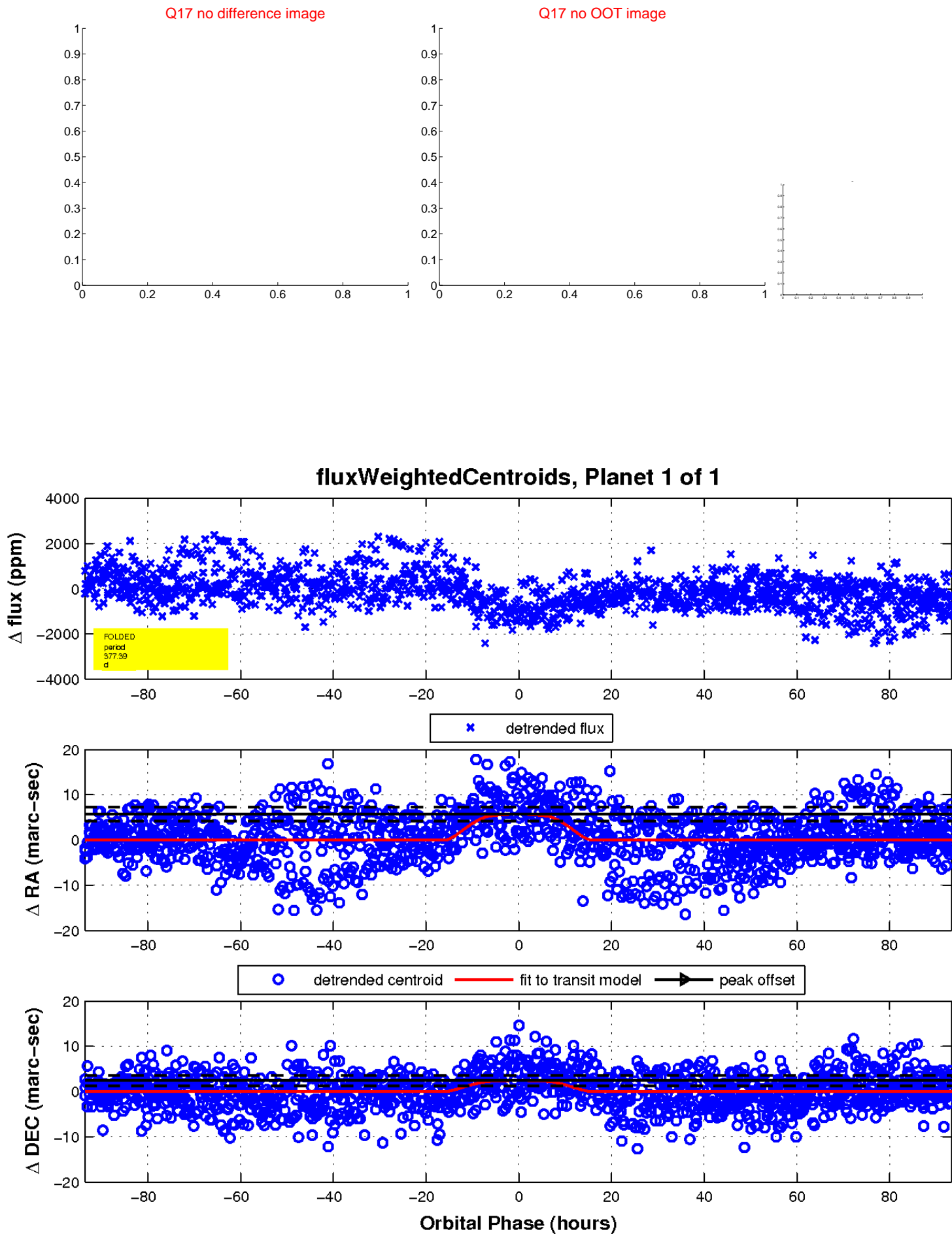
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



white  $\times$ : 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

