

# KIC 006389421

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
006389421-01	OBS	No	573.132177	319.171182	581.6	5.869	8.1	7.9	3.66	5014	9.74	4.61

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
006389421-01	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_MARSHALL—LPP_DV—INCONSISTENT_TRANS

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

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

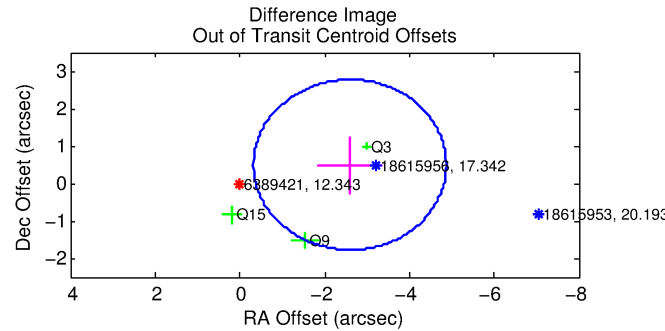
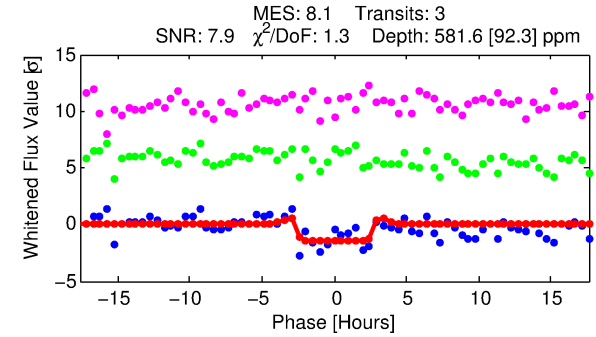
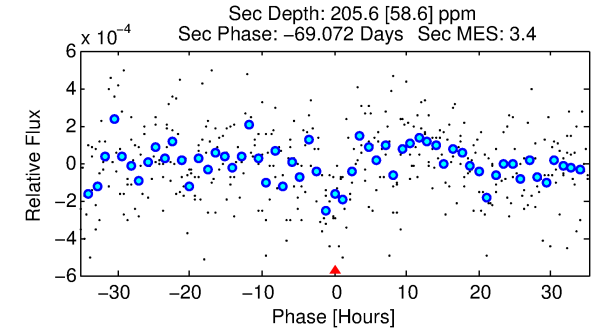
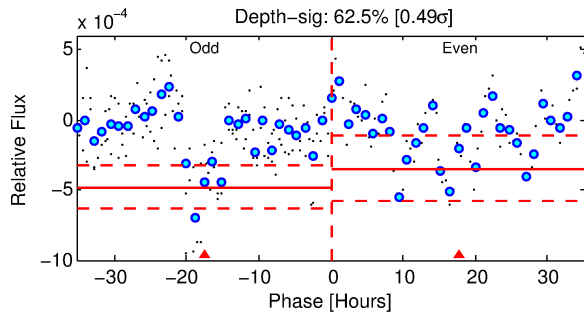
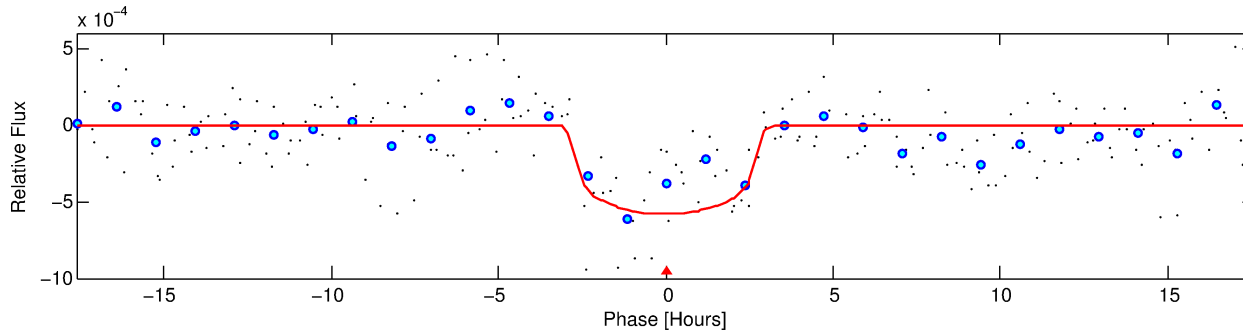
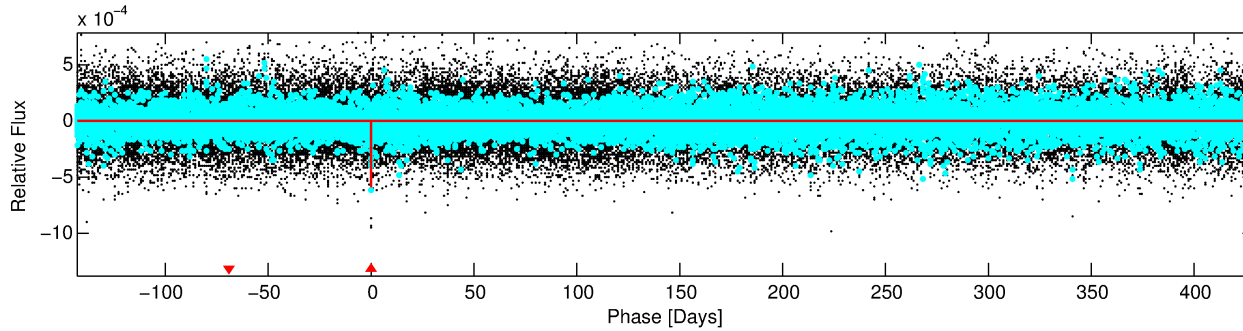
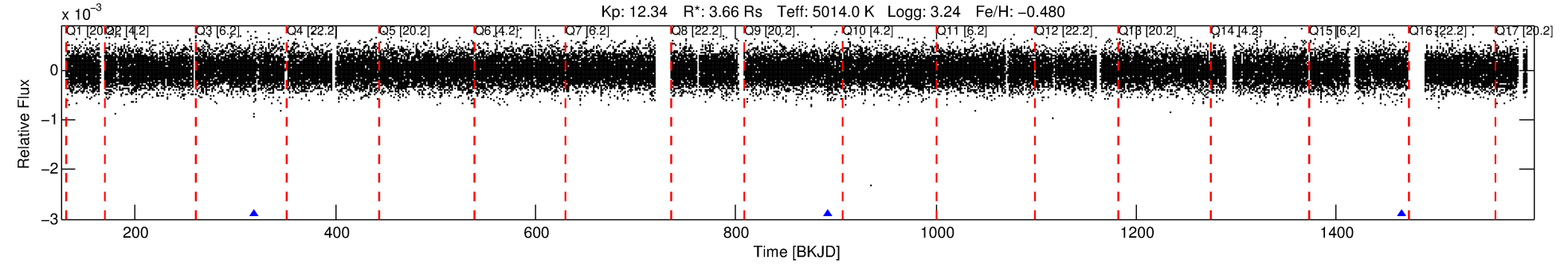
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

## Ephemeris Match Information For 006389421-01

No Significant Match Found

# DV One-Page Summary

KIC: 6389421 Candidate: 1 of 1 Period: 573.132 d



## DV Fit Results:

Period = 573.13218 [0.00828] d  
Epoch = 319.1712 [0.0102] BKJD  
Rp/R\* = 0.0244 [0.0104]  
a/R\* = 495.89 [772.21]  
b = 0.78 [0.80]  
Seff = 4.61 [1.82]  
Teq = 374 [37] K  
Rp = 9.74 [5.25] Re  
a = 1.2831 [0.3461] AU  
Ag = 1961.40 [1911.80] [1.03σ]  
Teffp = 3844 [868] K [4.00σ]

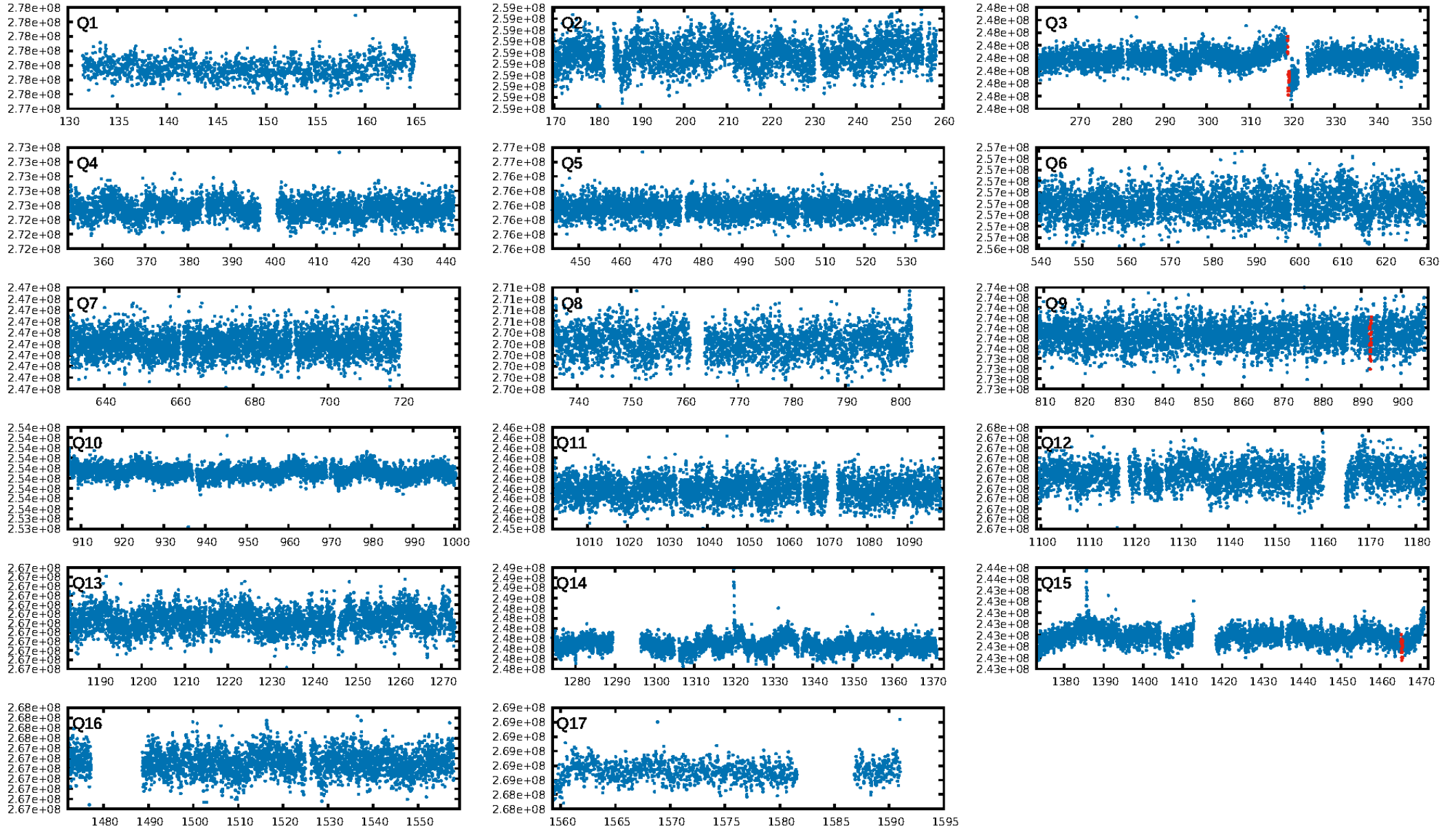
## DV Diagnostic Results:

ShortPeriod-sig: N/A  
LongPeriod-sig: N/A  
ModelChiSquare2-sig: 5.6%  
ModelChiSquareGof-sig: 56.9%  
Bootstrap-pfa: 1.44e-13  
RollingBand-fgt: 1.00 [3/3]  
GhostDiagnostic-chr: 2.673  
Centroid-sig: 5.1%  
Centroid-so: 1.303 arcsec [2.41σ]  
OotOffset-rm: 2.642 arcsec [3.49σ]  
KicOffset-rm: 2.553 arcsec [3.40σ]  
OotOffset-st: 0/2/0/1 [3]  
KicOffset-st: 0/2/0/1 [3]  
DiffImageQuality-fgm: 1.00 [3/3]  
DiffImageOverlap-fno: 1.00 [3/3]

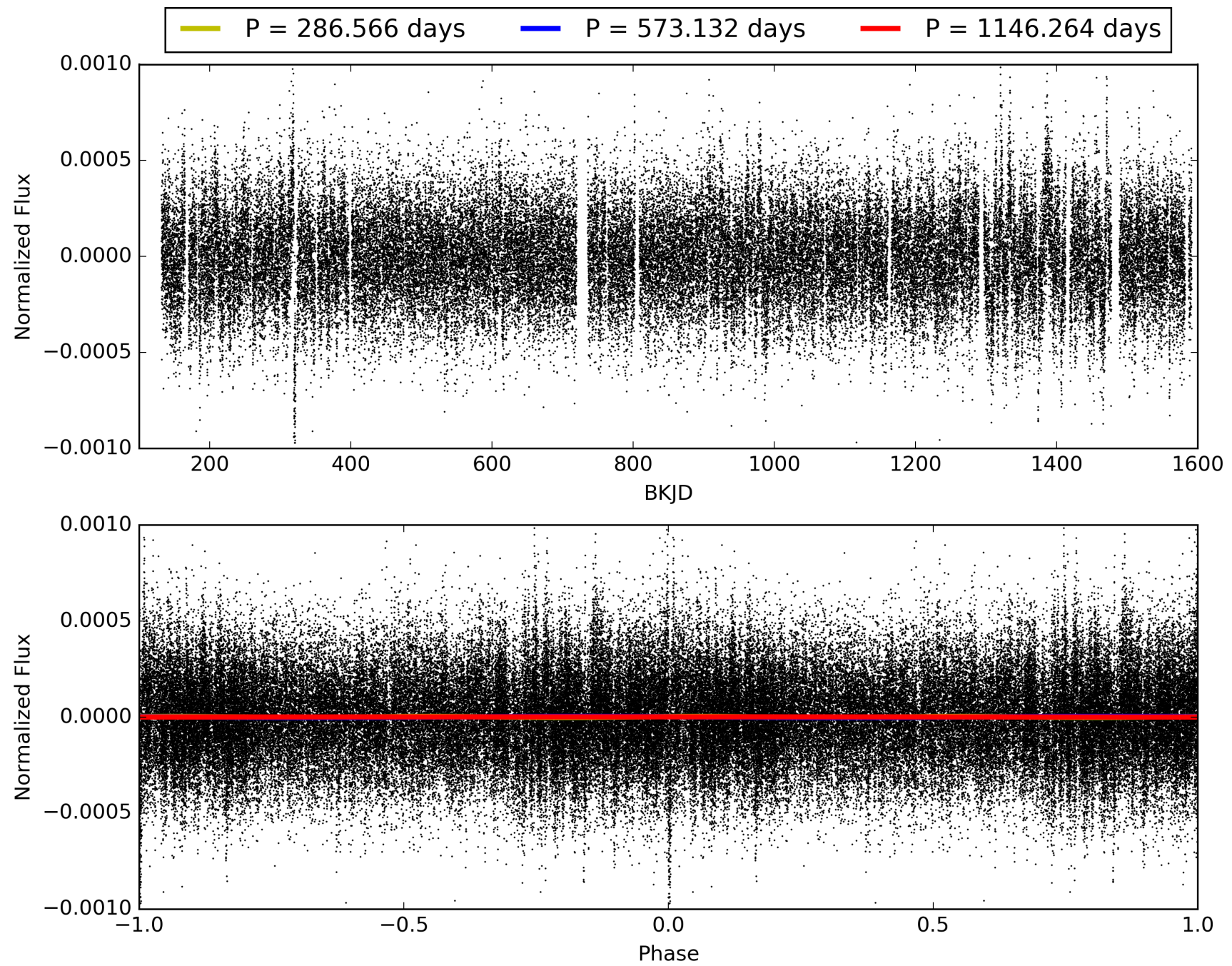
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 29-Jan-2016 19:22:16 Z

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

# TCE 006389421-01, PDC Light Curves

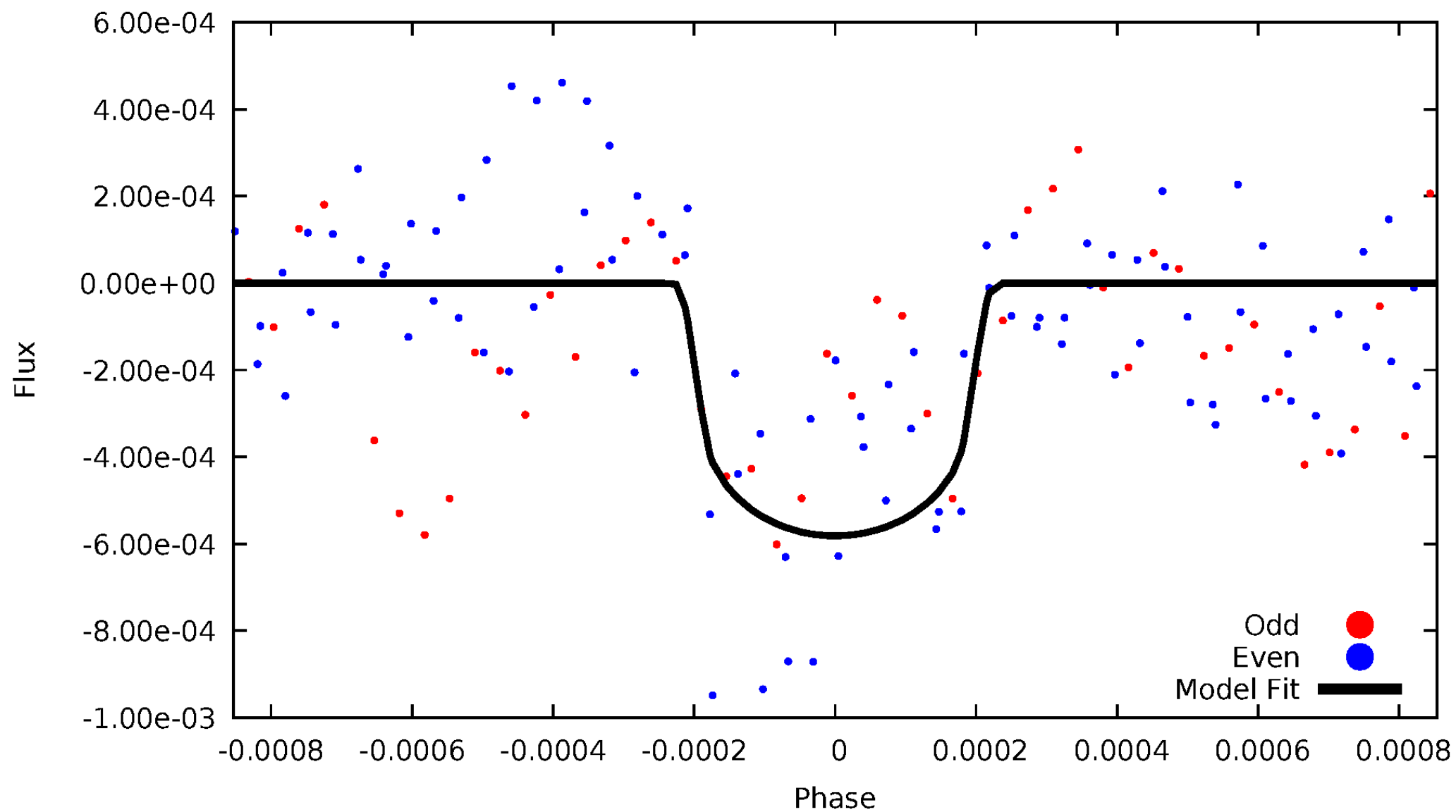


TCE 006389421-01



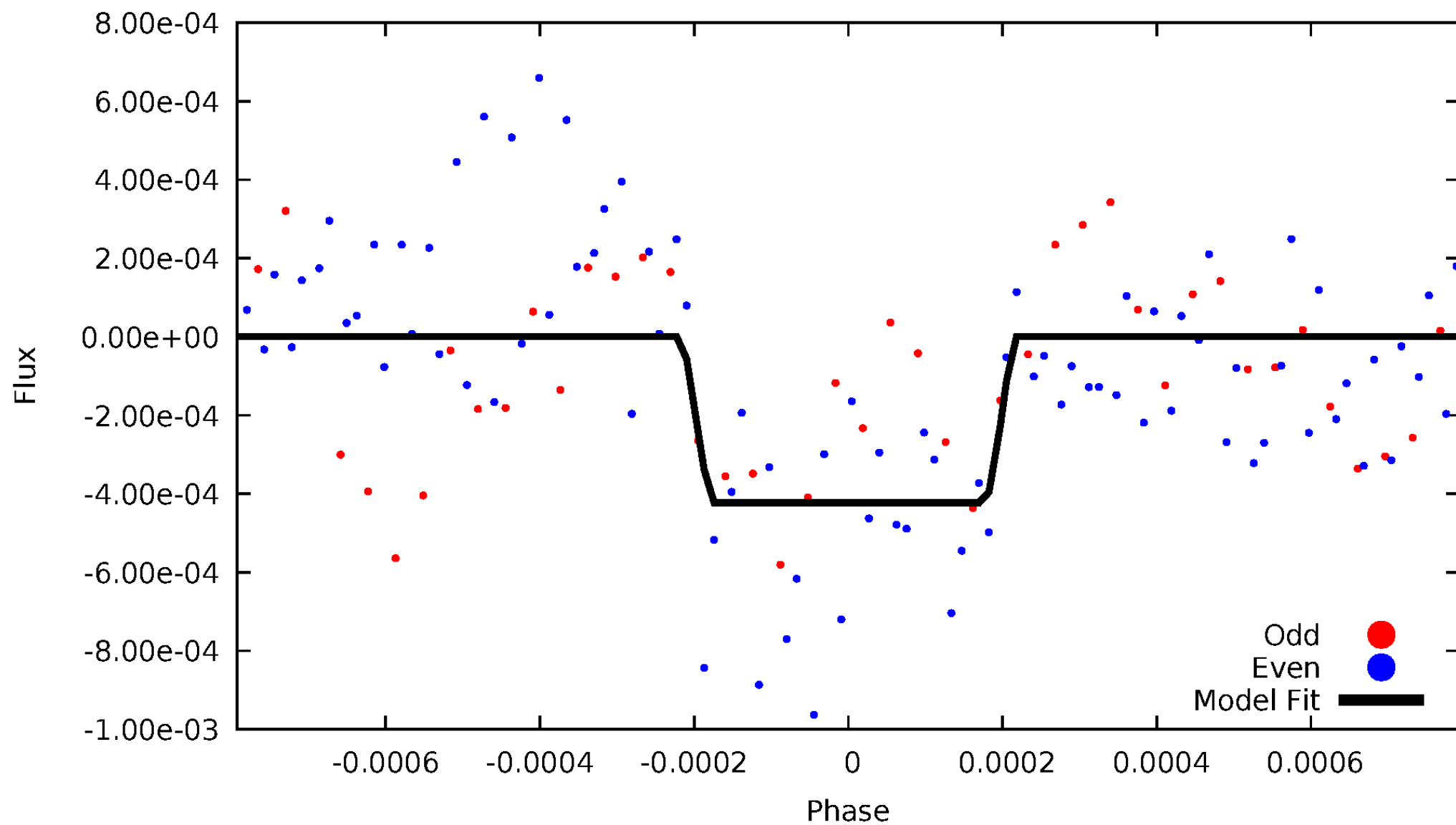
# DV Odd/Even

TCE 006389421-01



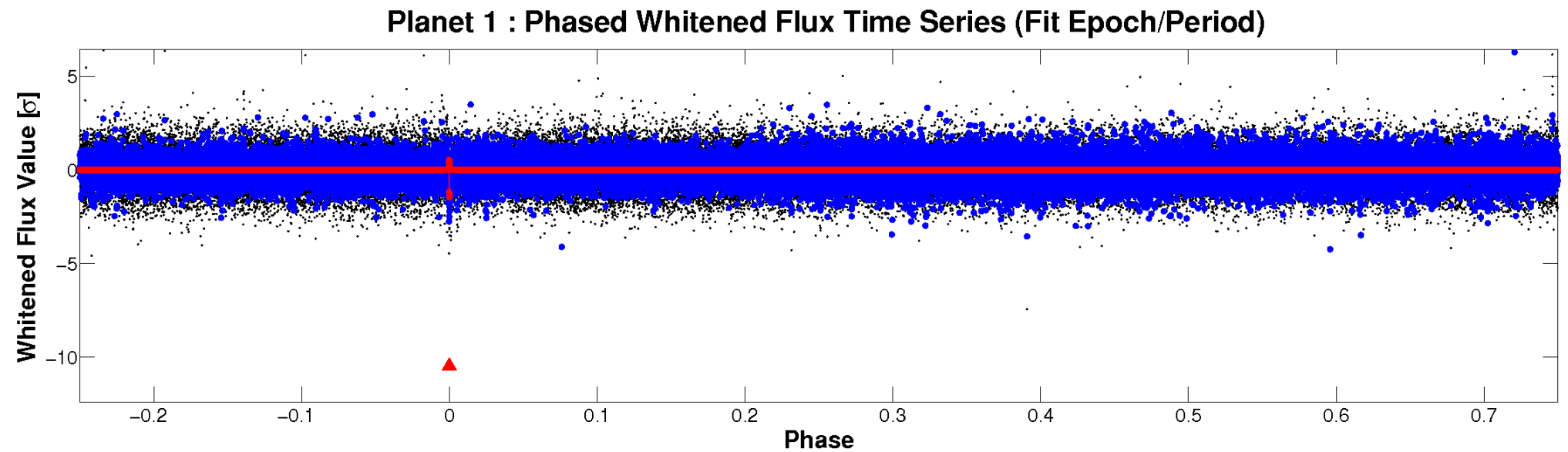
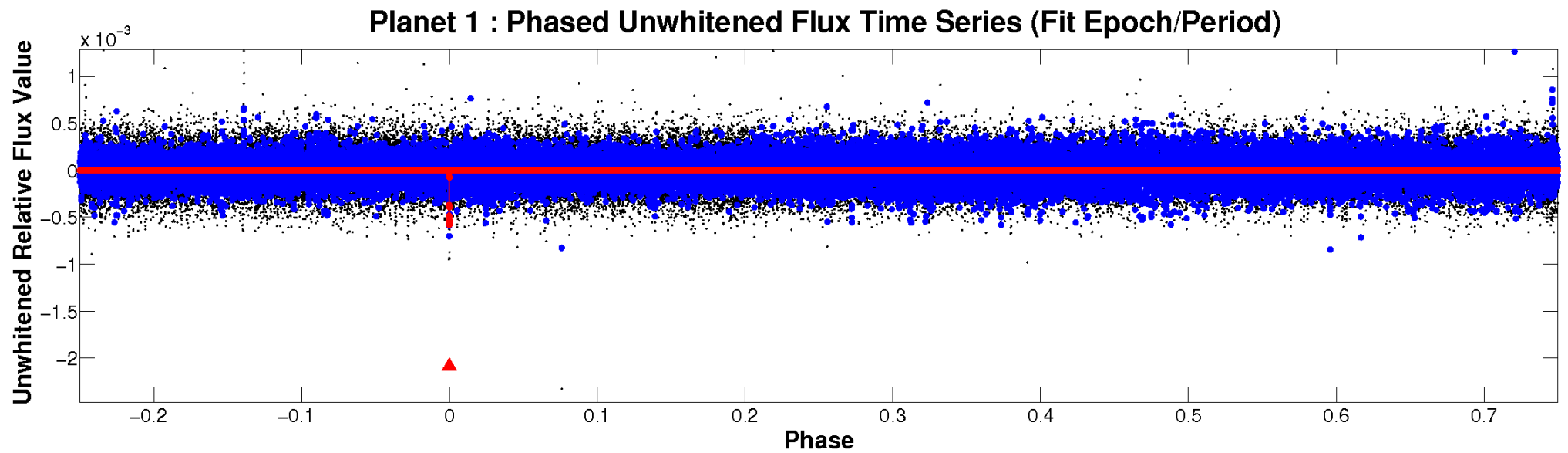
# ALT Odd/Even

TCE 006389421-01



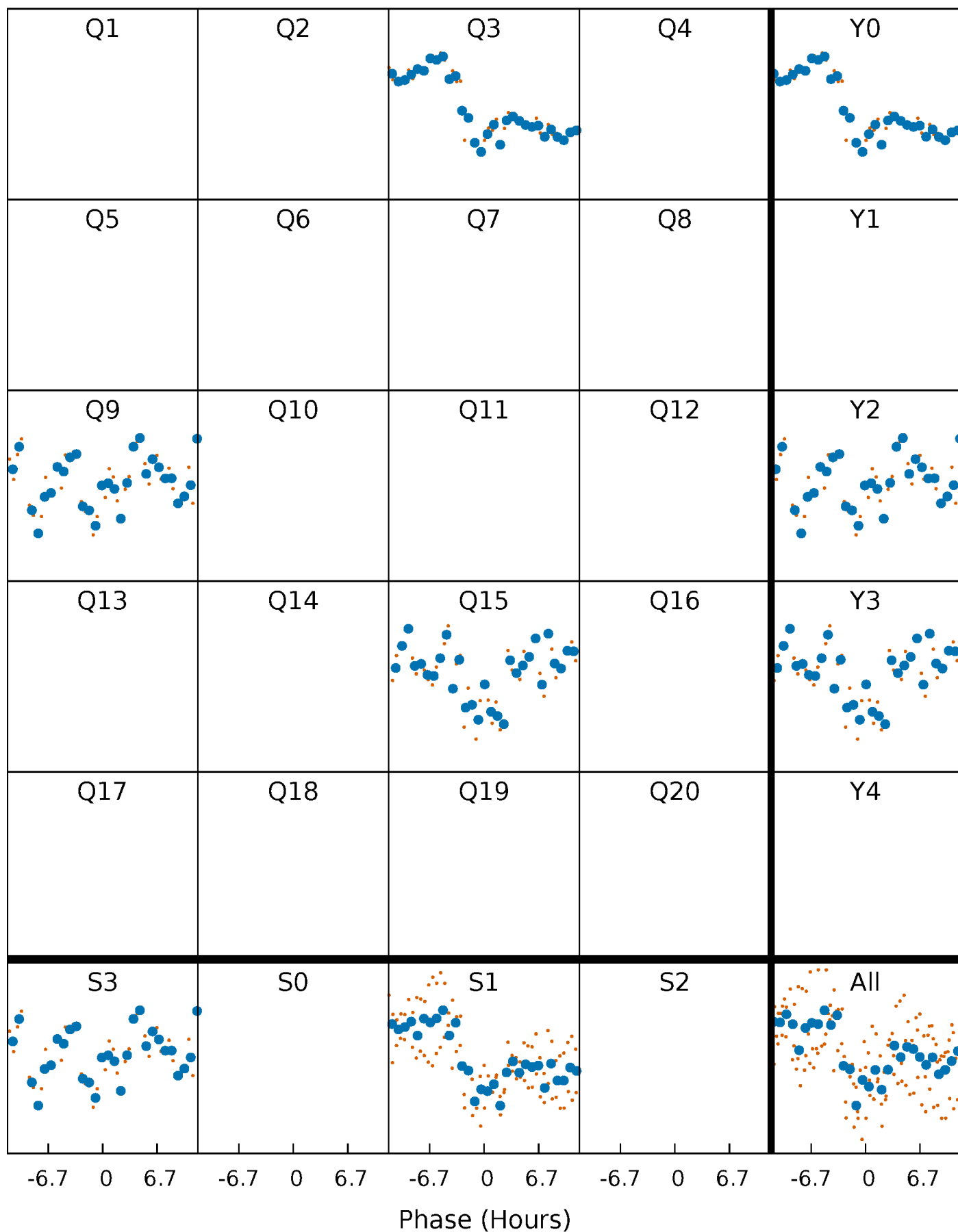


# Non-Whitened Vs. Whitened Light Curve



# PDC Quarter-Phased Transit Curves

TCE 006389421-01 P=573.132177 Days  $T_0=319.171182$  (BKJD)





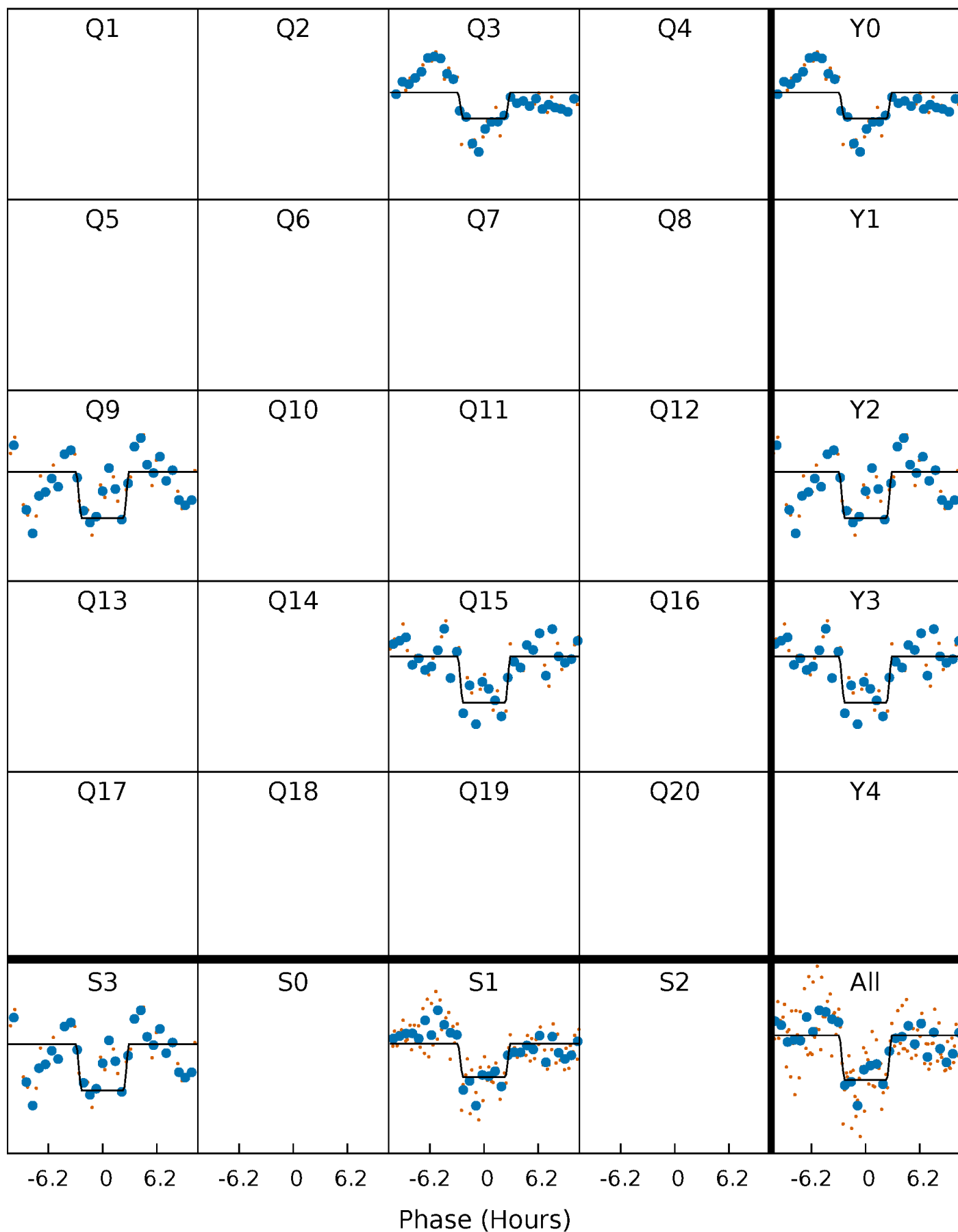
# DV Quarter-Phased Transit Curves

TCE 006389421-01 P=573.132177 Days  $T_0=319.171182$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

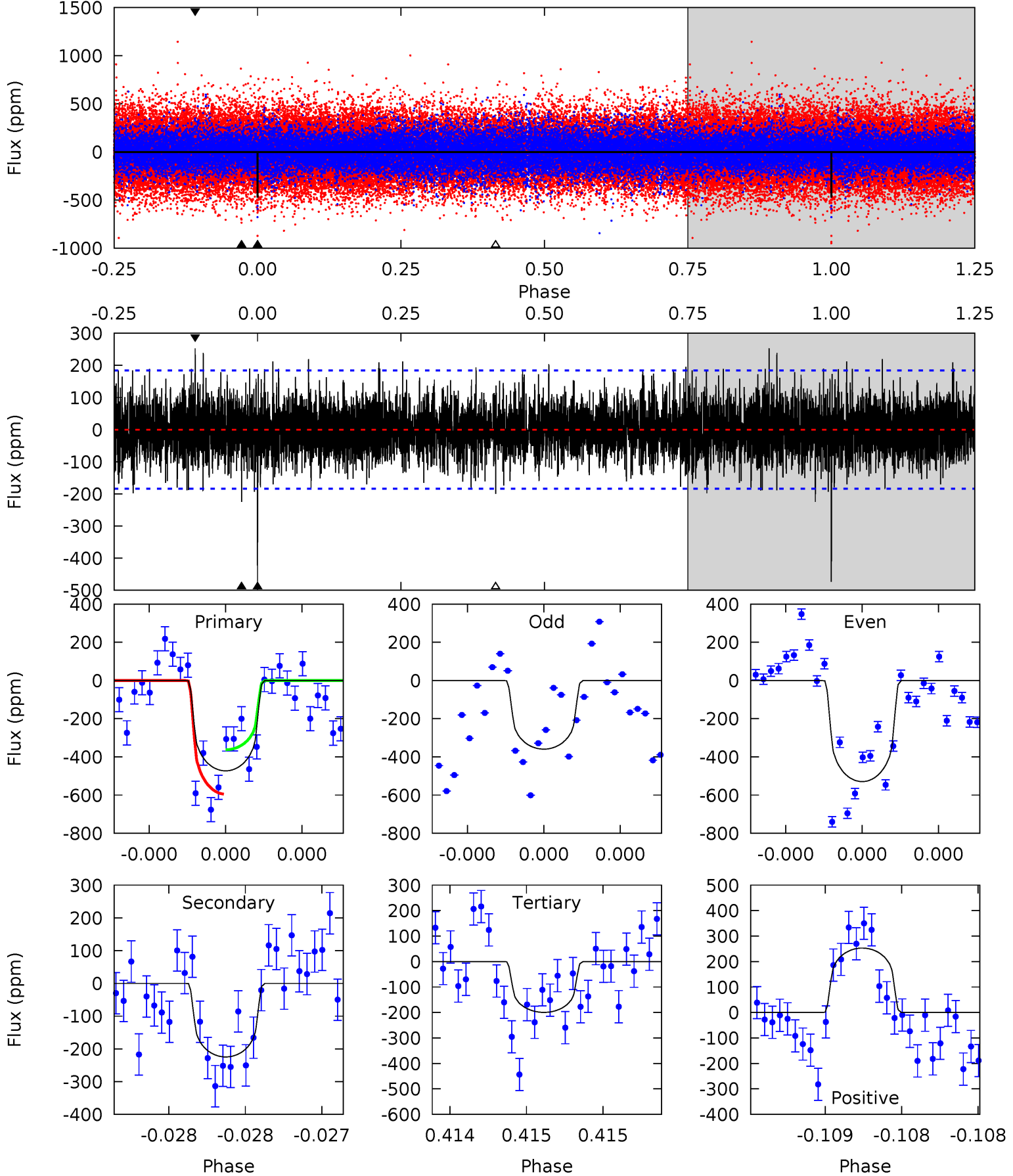
TCE 006389421-01 P=573.127302 Days  $T_0=319.178862$  (BKJD)



# DV Model-Shift Uniqueness Test

006389421-01, P = 573.132177 Days, E = 319.171182 Days

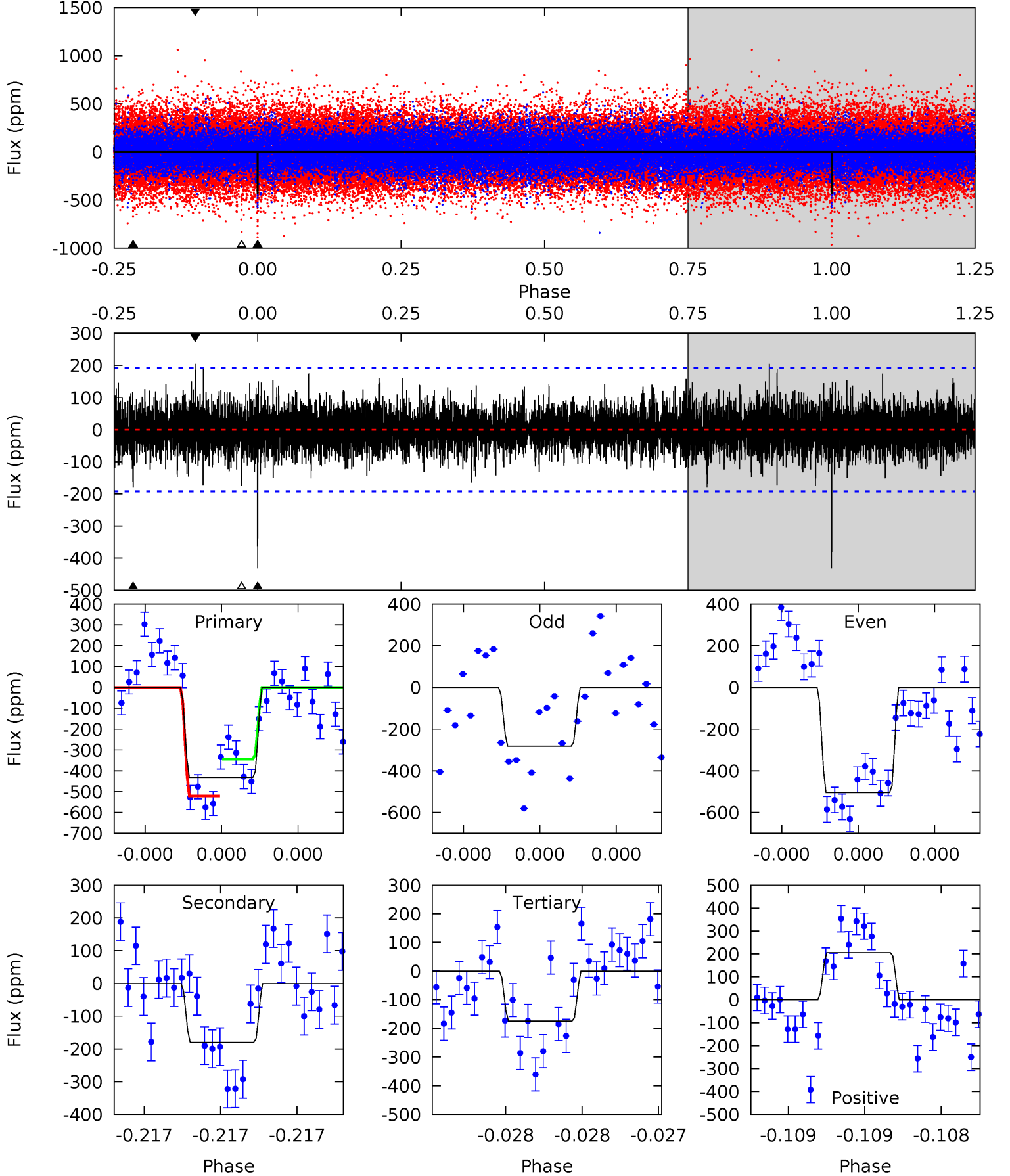
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
14.4	6.82	6.06	7.68	5.59	3.50	1.84	8.30	6.69	0.76	-0.86	2.40	1.08	0.35	3.52



# Alt Model-Shift Uniqueness Test

006389421-01, P = 573.127302 Days, E = 319.178862 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
12.6	5.26	5.09	5.99	5.61	3.53	1.36	7.52	6.62	0.17	-0.73	3.05	1.11	0.32	2.58



### Stellar Parameters For KIC 006389421

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R$ ( $R_{\odot}$ )	$M(M_{\odot})$	$p_{\star}$ ( $\text{g}\cdot\text{cm}^{-3}$ )
	$5014^{+127}_{-88}$	$3.244^{+0.203}_{-0.185}$	$-0.480^{+0.300}_{-0.200}$	$3.661^{+1.209}_{-0.651}$	$0.857^{+0.323}_{-0.034}$	$0.025^{+0.020}_{-0.013}$
	+3%/-2%	+6%/-6%	+62%/-42%	+33%/-18%	+38%/-4%	+81%/-52%
Source	PHO1	FLK73	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 006389421-01 / KOI

Detrend	Depth (ppm)	$R_p$ ( $R_{\oplus}$ )	$T_{max}$ (K)	$T_{obs}$ (K)	$A_{obs}$
DV	$-225 \pm 33$	$10.18^{+4.85}_{-4.33}$	$522^{+42}_{-34}$	$4119^{+1031}_{-485}$	$2088^{+4578}_{-1142}$
Alt.	$-180 \pm 34$	$8.46^{+4.74}_{-4.00}$	$519^{+43}_{-33}$	$4198^{+1161}_{-570}$	$2281^{+6156}_{-1319}$

$T_{max}$  = 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  $A_{obs} \gg 1.0$

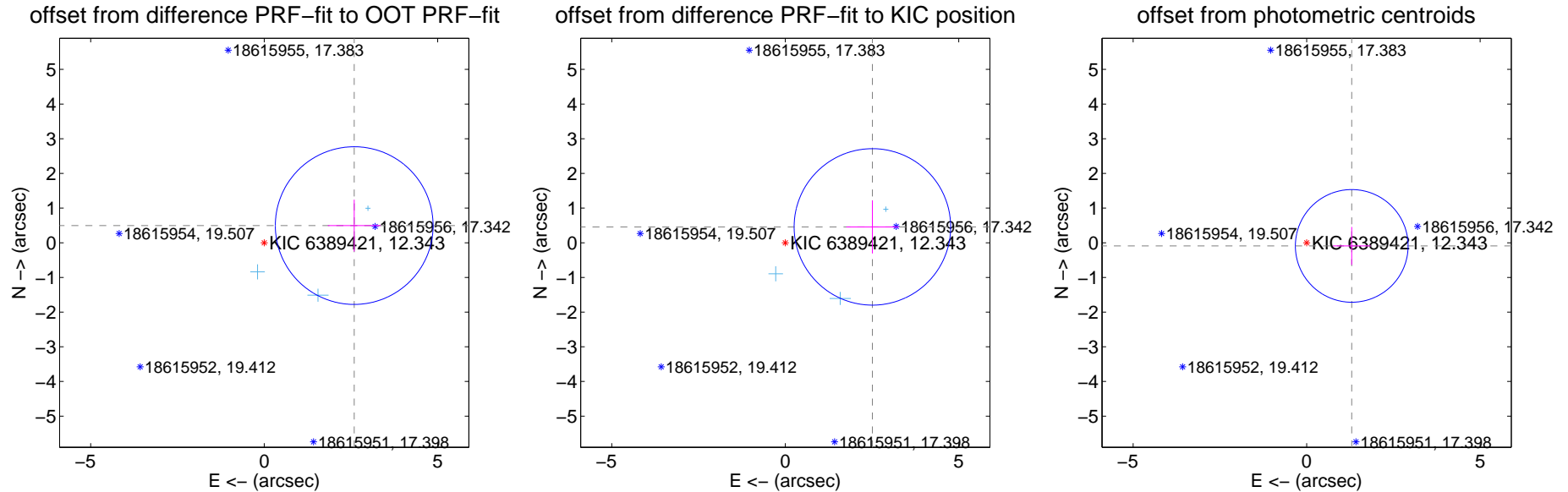
## DV Centroid Data

Supplemental centroid analysis for 006389421-01. Kepler magnitude: 12.34. Transit SNR 7.93

There are 3 quarters with good PRF difference image offsets

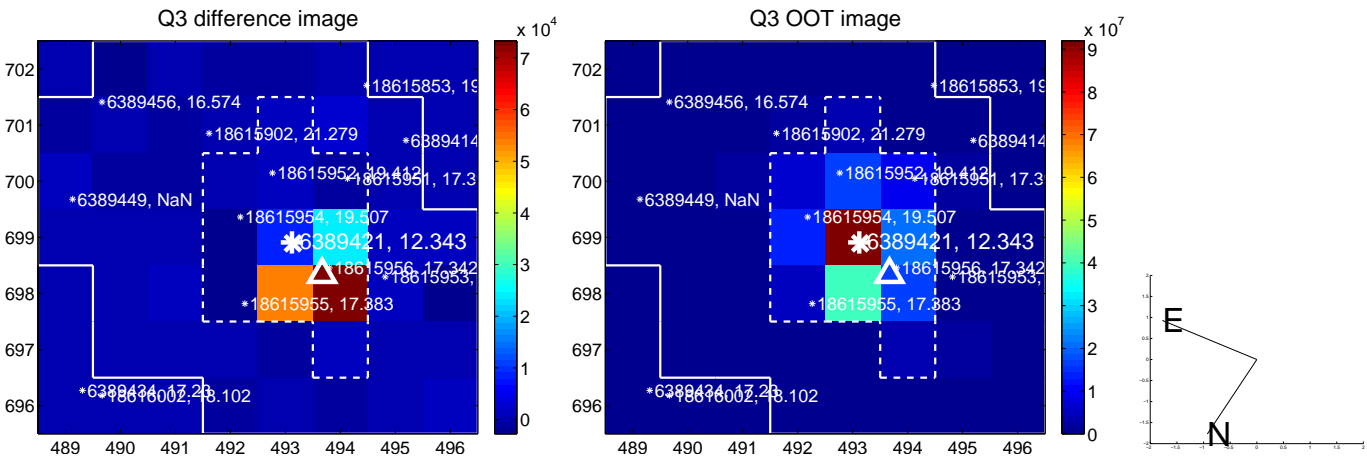
The direct PRF centroid is offset from the target star catalog position by about 0.10 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$2.642 \pm 0.758$	3.49	$-2.595 \pm 0.758$	$0.496 \pm 0.749$
PRF-fit source offset from KIC position	$2.553 \pm 0.752$	3.40	$-2.512 \pm 0.752$	$0.457 \pm 0.766$
photometric centroid source offset	$1.30 \pm 0.54$	2.41	$-1.30 \pm 0.54$	$-0.09 \pm 0.55$



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.

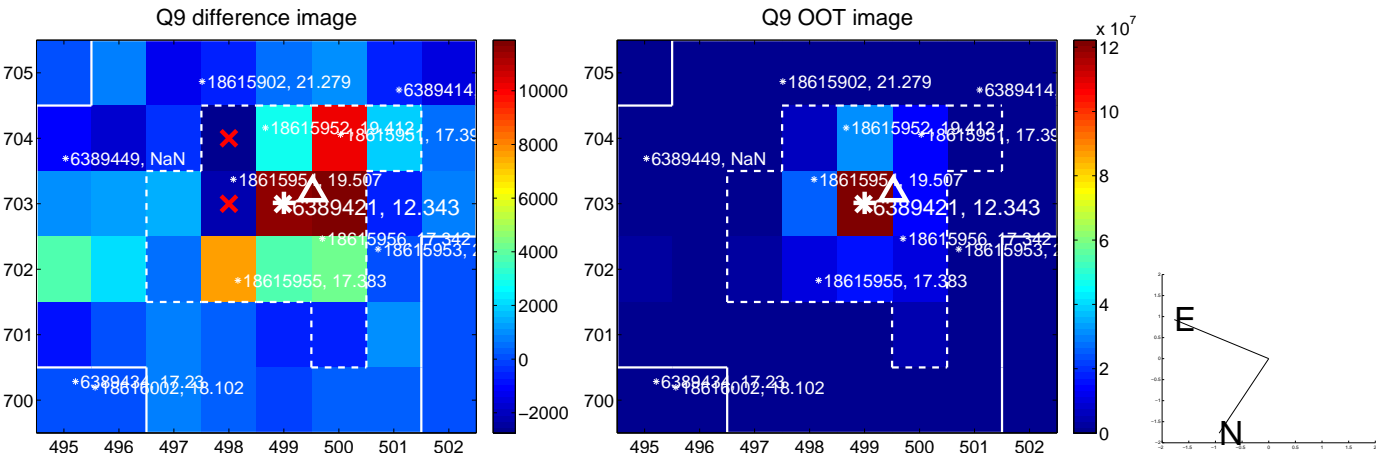




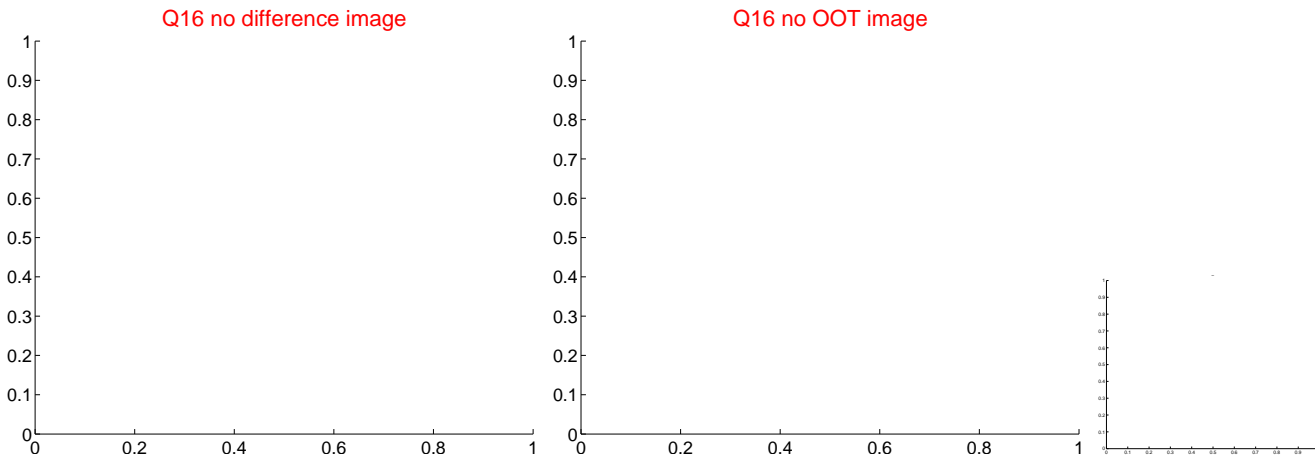
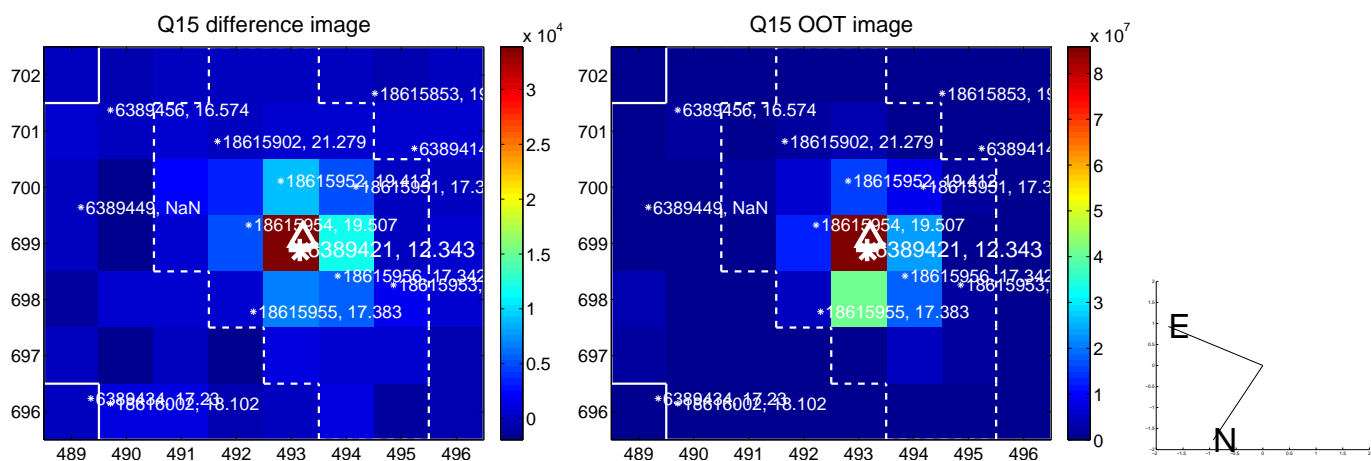
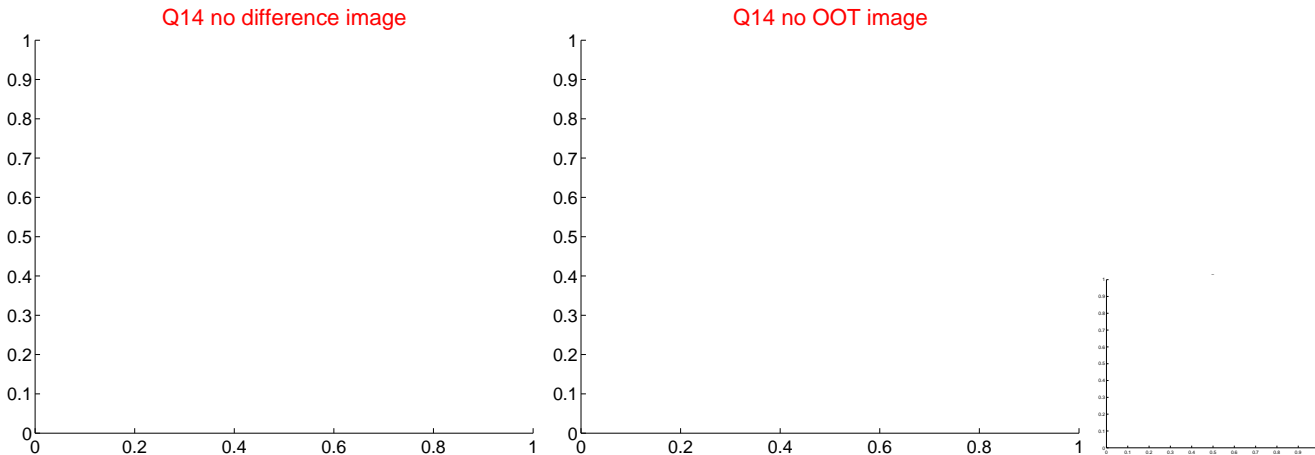
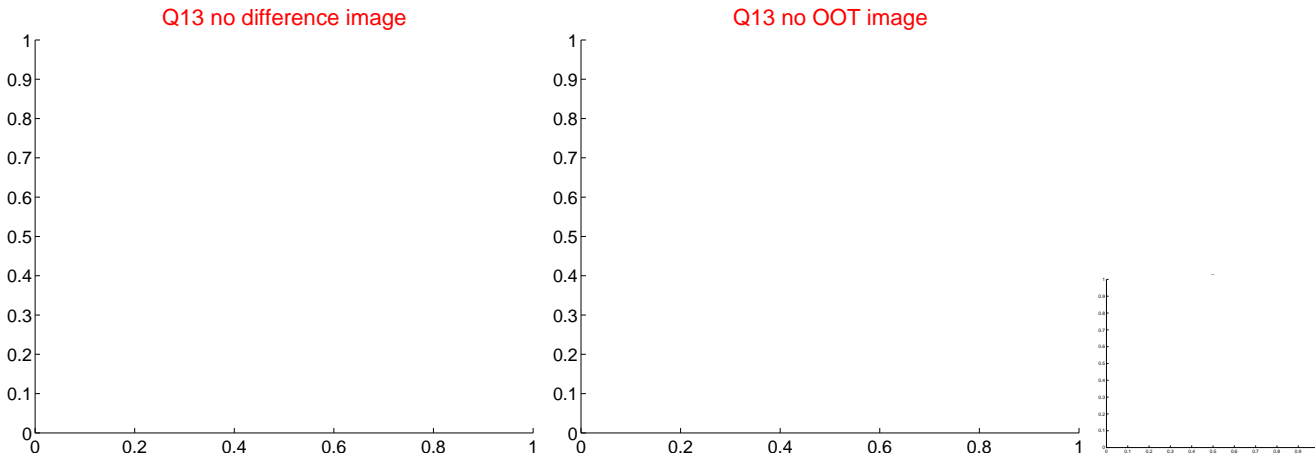
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



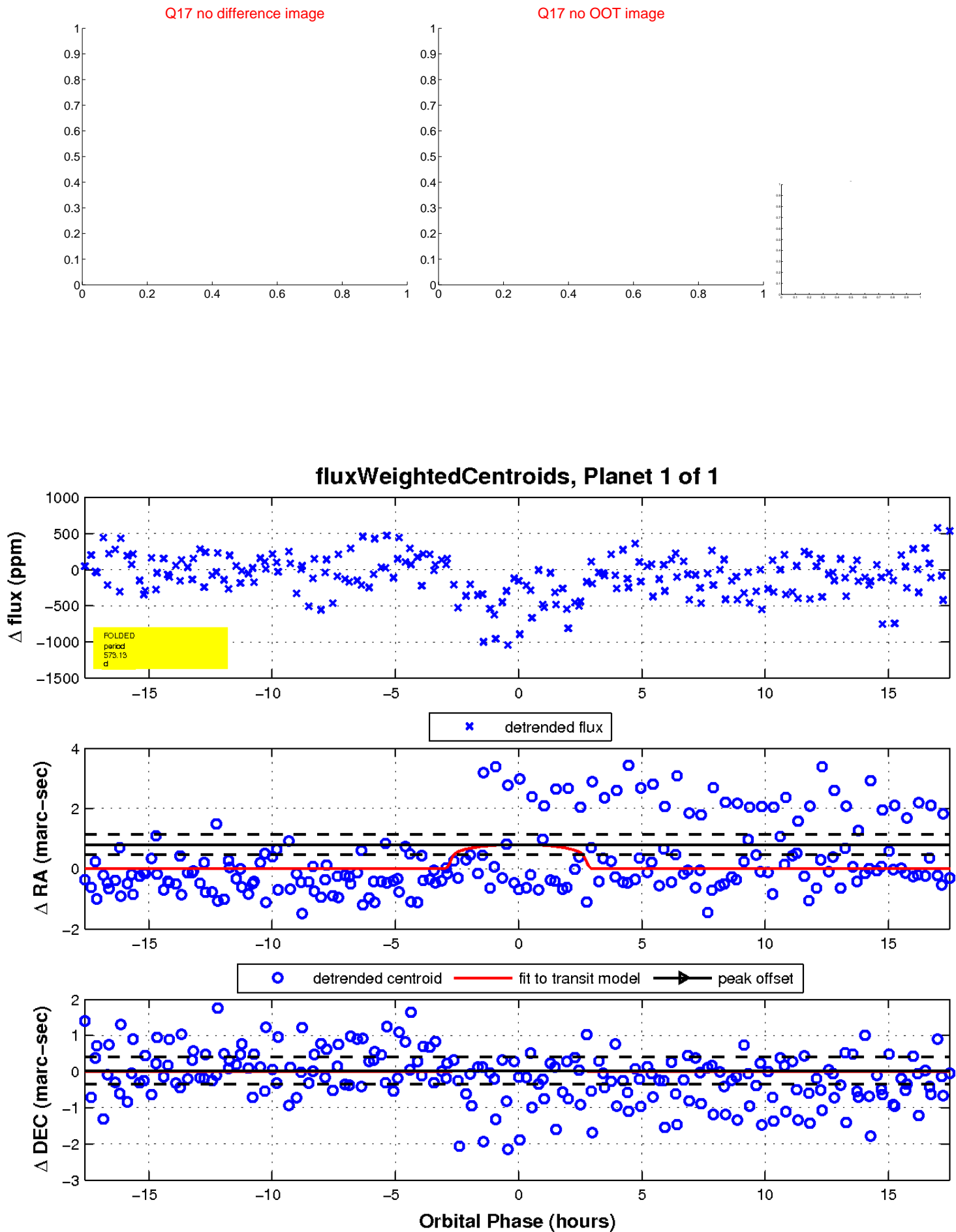
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white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



UKIRT Image

Declination

