

# KIC 007538124

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
007538124-01	OBS	No	589.404988	374.189999	1396.7	17.678	7.3	7.7	0.84	5461	4.58	0.35

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
007538124-01	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL_SKYE—ALL_TRANS_CHASES—MOD_NONUNIQ_ALT—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.

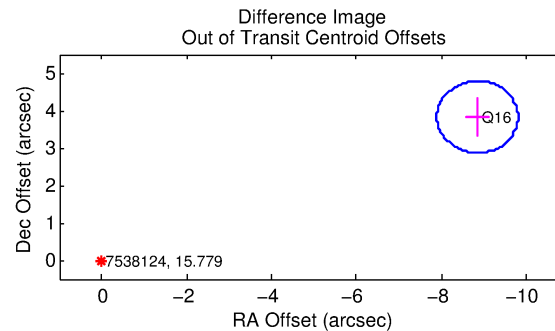
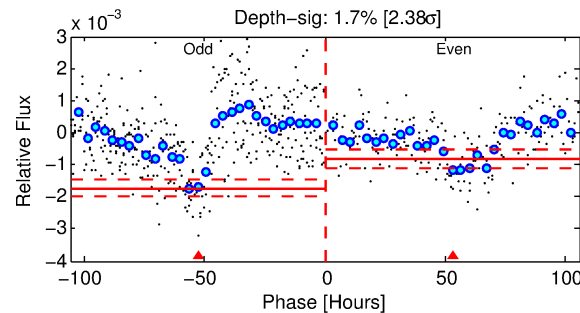
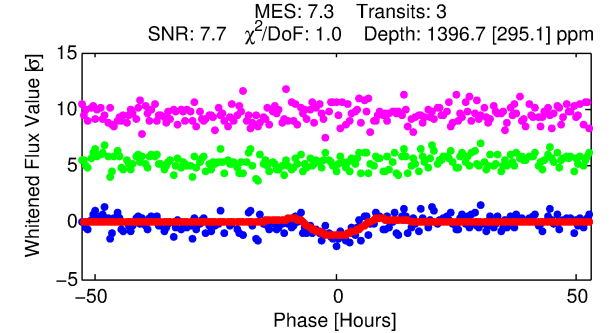
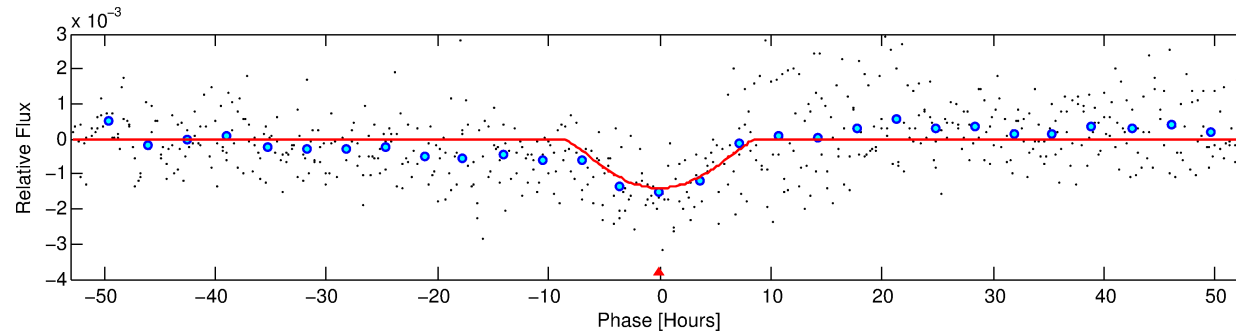
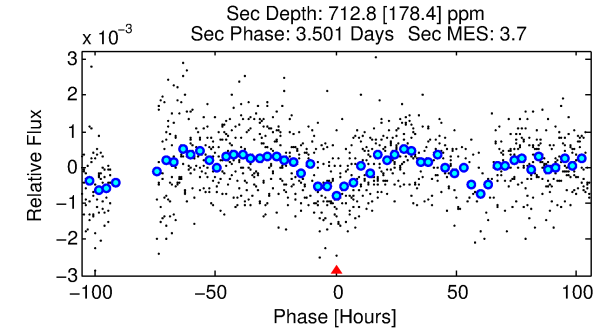
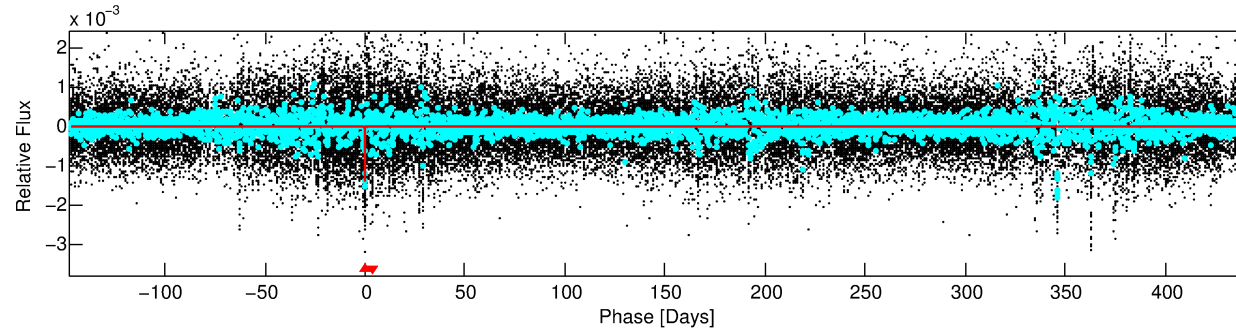
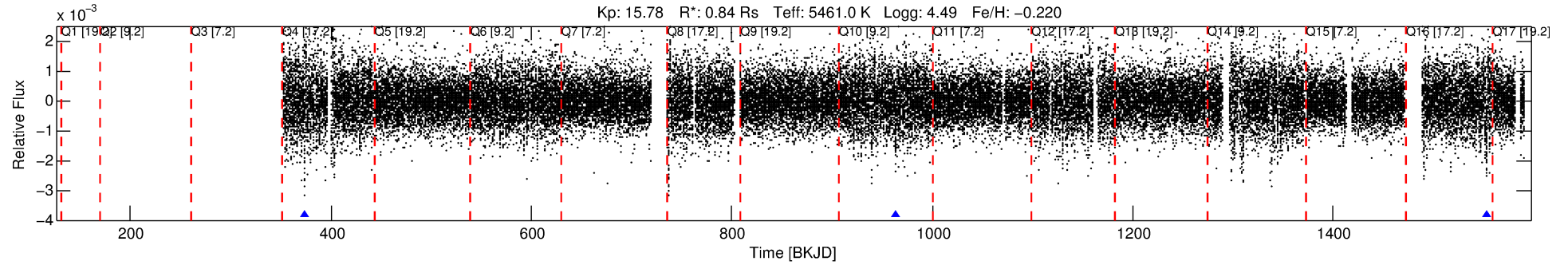
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

## Ephemeris Match Information For 007538124-01

No Significant Match Found

# DV One-Page Summary

KIC: 7538124 Candidate: 1 of 1 Period: 589.405 d



## DV Fit Results:

Period = 589.40499 [0.02938] d  
Epoch = 374.1900 [0.0410] BKJD  
Rp/R\* = 0.0497 [0.0430]  
a/R\* = 101.93 [40.26]  
b = 0.97 [0.09]  
Seff = 0.35 [0.10]  
Teq = 196 [14] K  
Rp = 4.58 [4.08] Re  
a = 1.2830 [0.2257] AU  
Ag = 30709.15 [54185.12] [0.57σ]  
Teff = 4002 [1752] K [2.17σ]

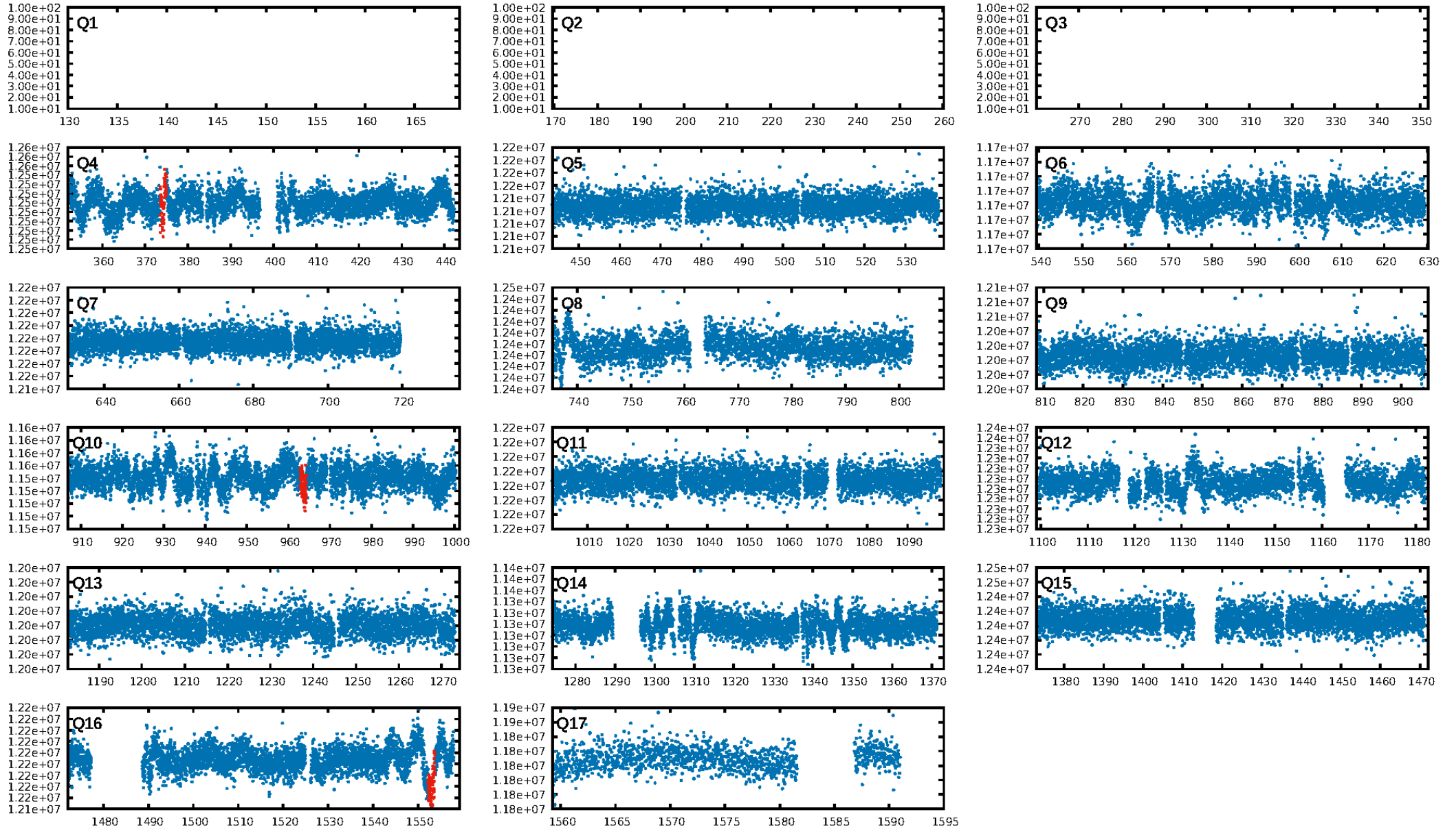
## DV Diagnostic Results:

ShortPeriod-sig: N/A  
LongPeriod-sig: N/A  
ModelChiSquare2-sig: 3.8%  
ModelChiSquareGof-sig: 99.8%  
**Bootstrap-pfa: 3.69e-07**  
RollingBand-fgt: 1.00 [3/3]  
GhostDiagnostic-chr: 16.33  
Centroid-sig: 2.1%  
Centroid-so: 4.950 arcsec [2.25σ]  
**OotOffset-rm: 9.648 arcsec [30.23σ]**  
**KicOffset-rm: 9.479 arcsec [30.28σ]**  
OotOffset-st: 0/0/1/0 [1]  
KicOffset-st: 0/0/1/0 [1]  
DiffImageQuality-fgm: 0.00 [0/1]  
DiffImageOverlap-fno: 1.00 [2/2]

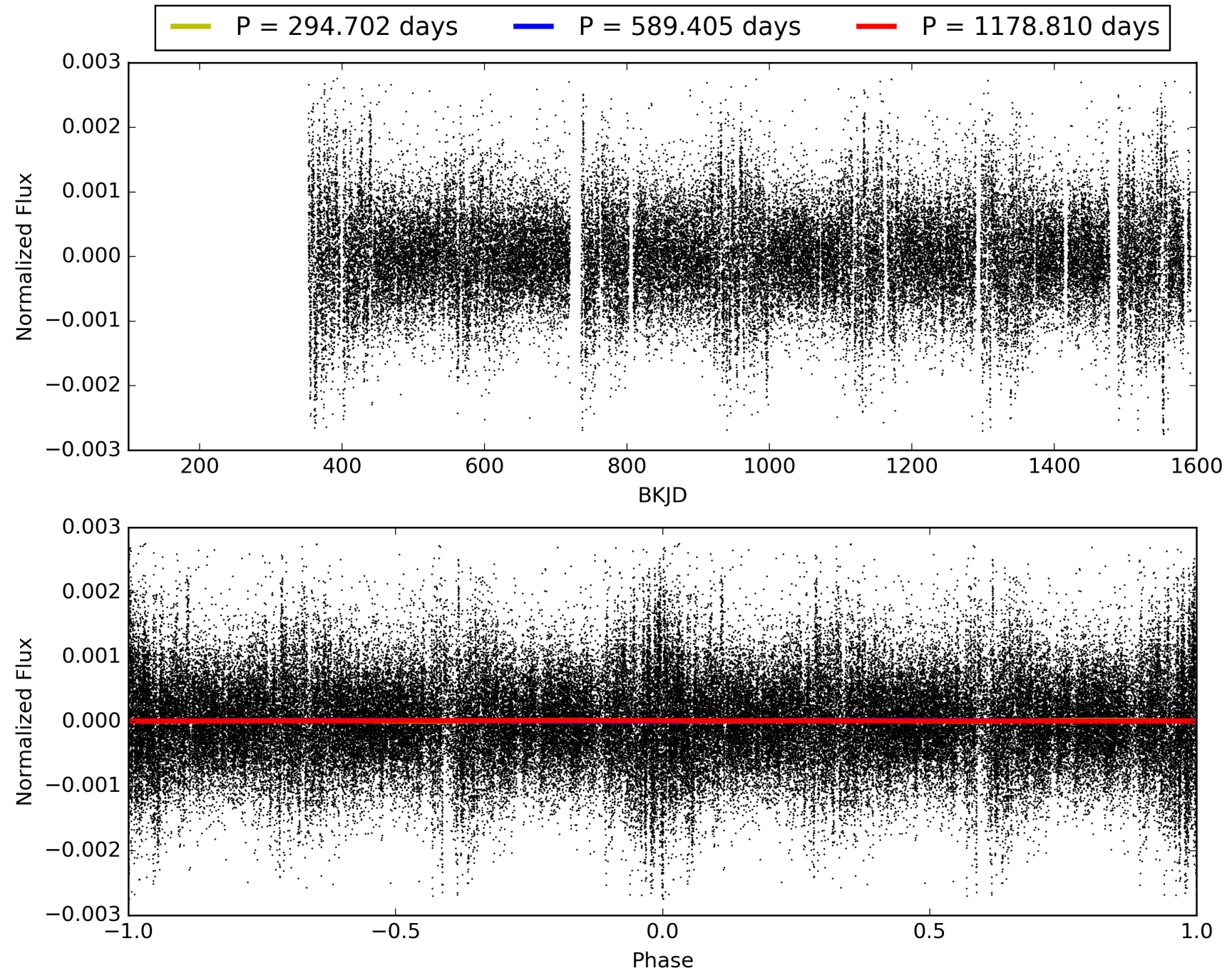
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 29-Jan-2016 00:11:35 Z

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

# TCE 007538124-01, PDC Light Curves

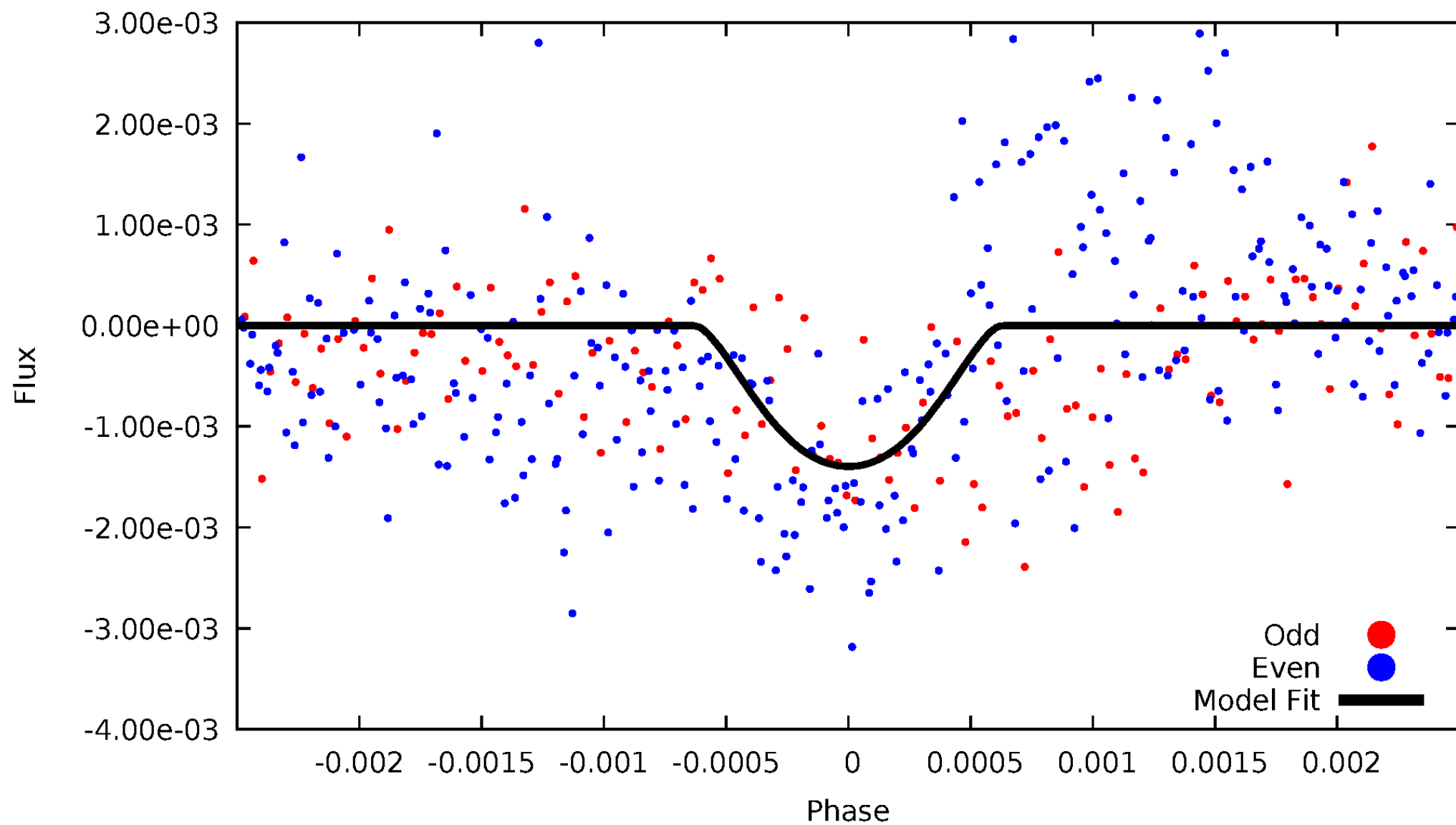


TCE 007538124-01



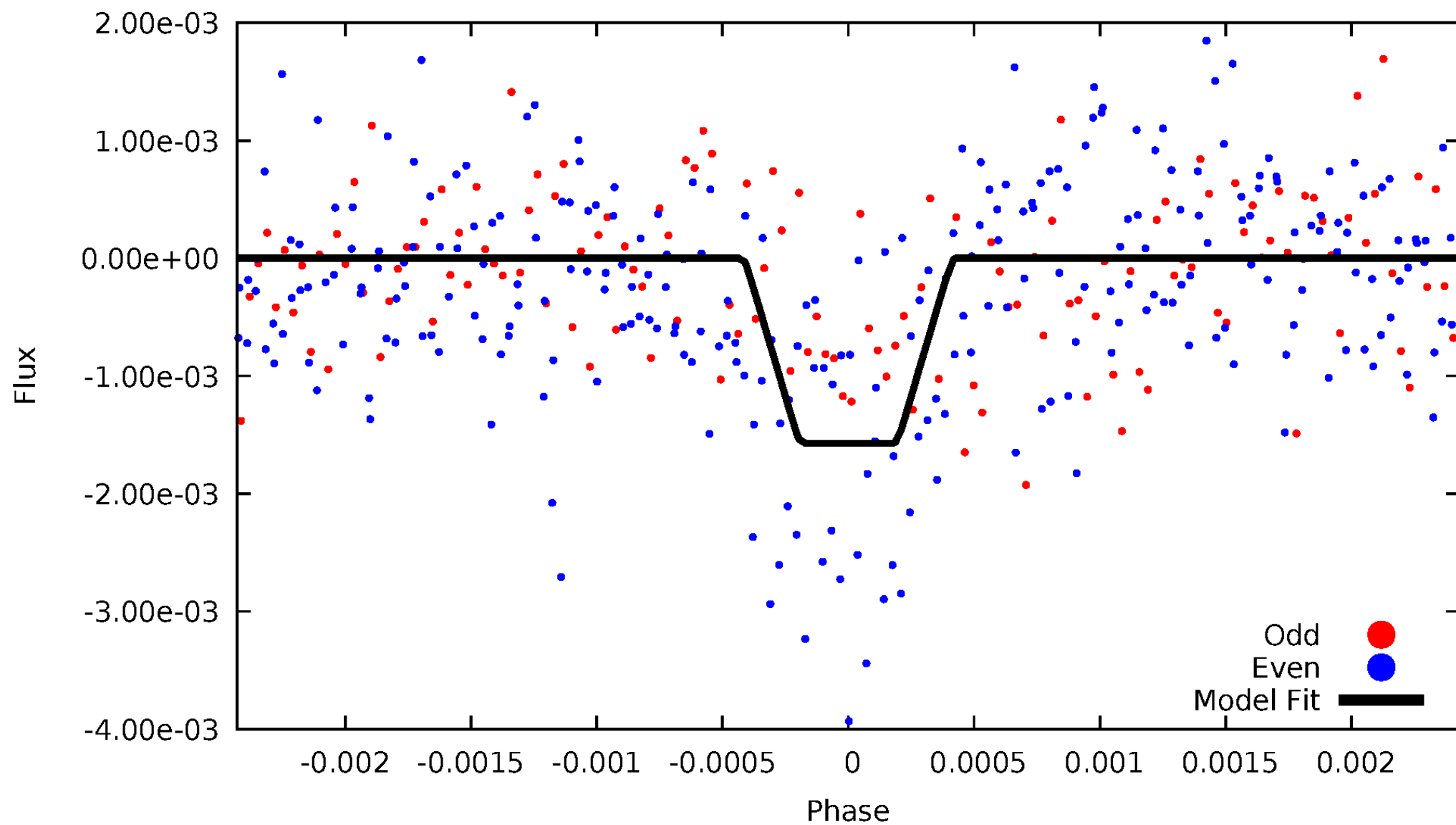
# DV Odd/Even

TCE 007538124-01



# ALT Odd/Even

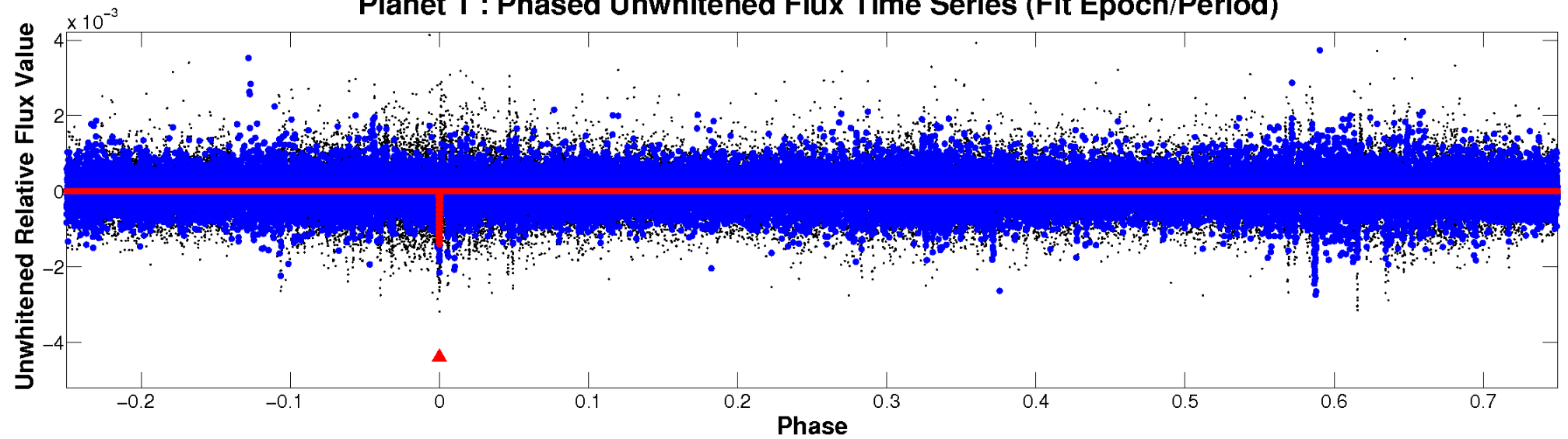
TCE 007538124-01



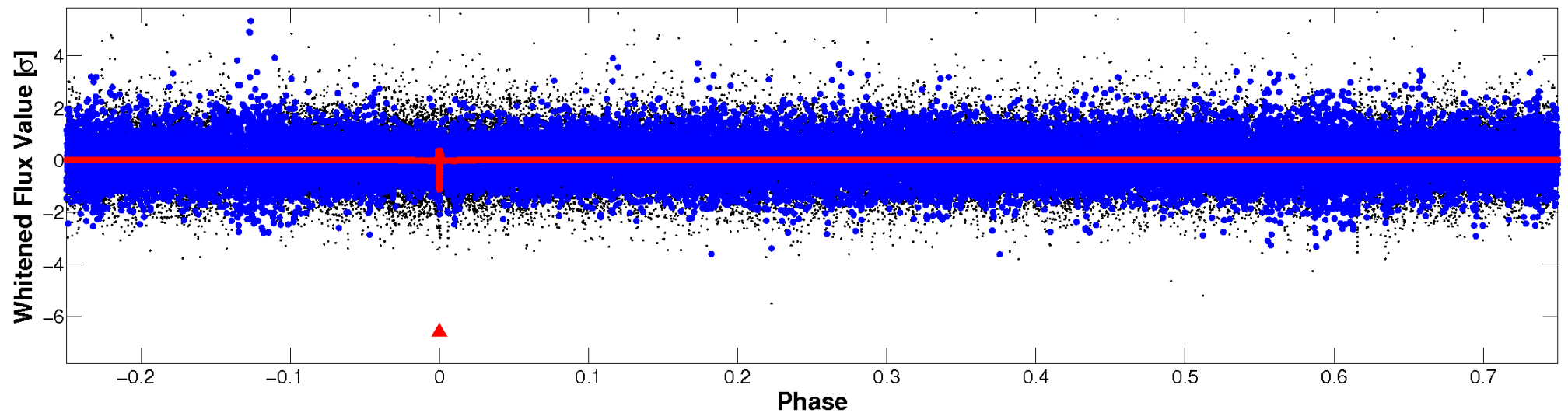


# Non-Whitened Vs. Whitened Light Curve

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

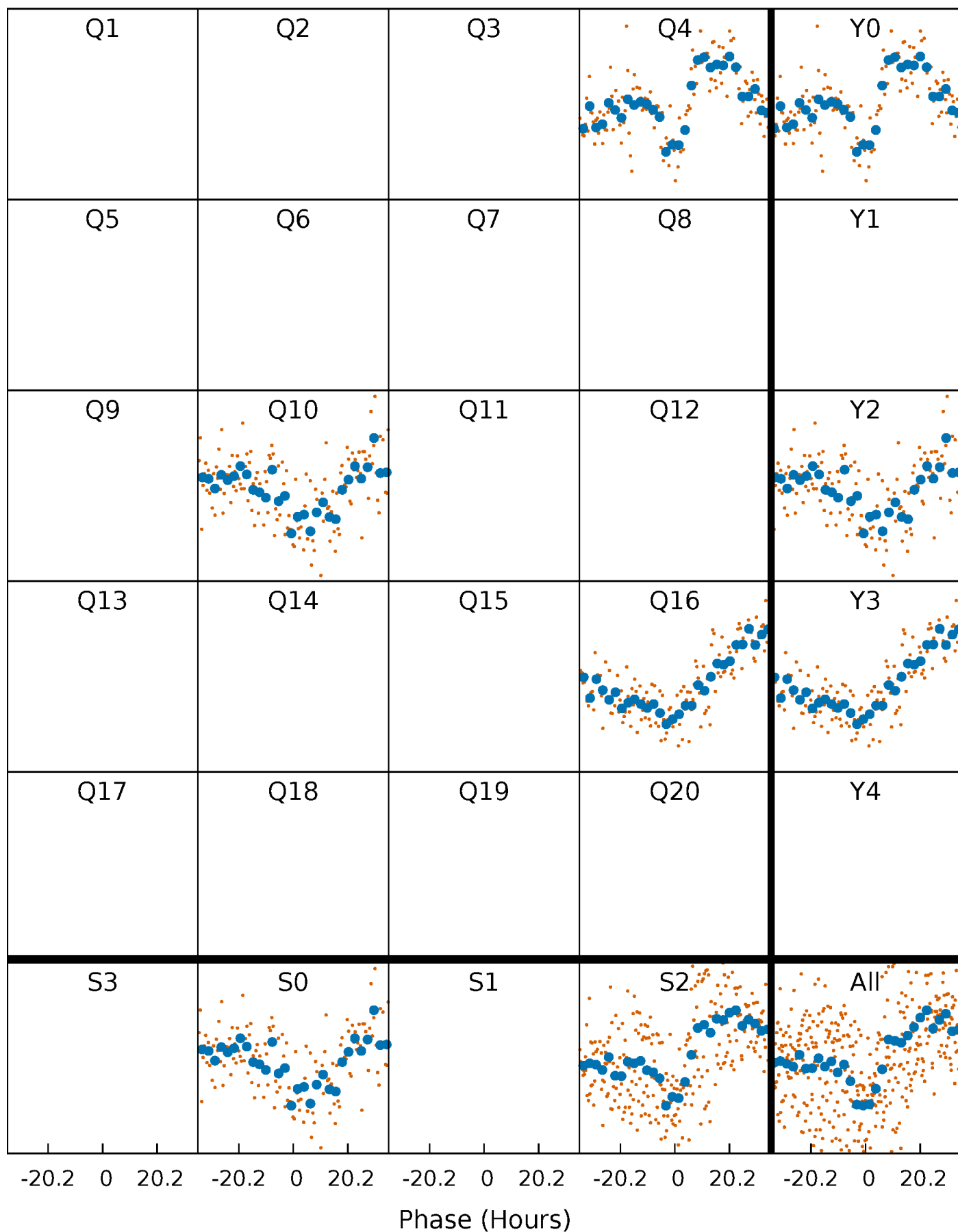


Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)



# PDC Quarter-Phased Transit Curves

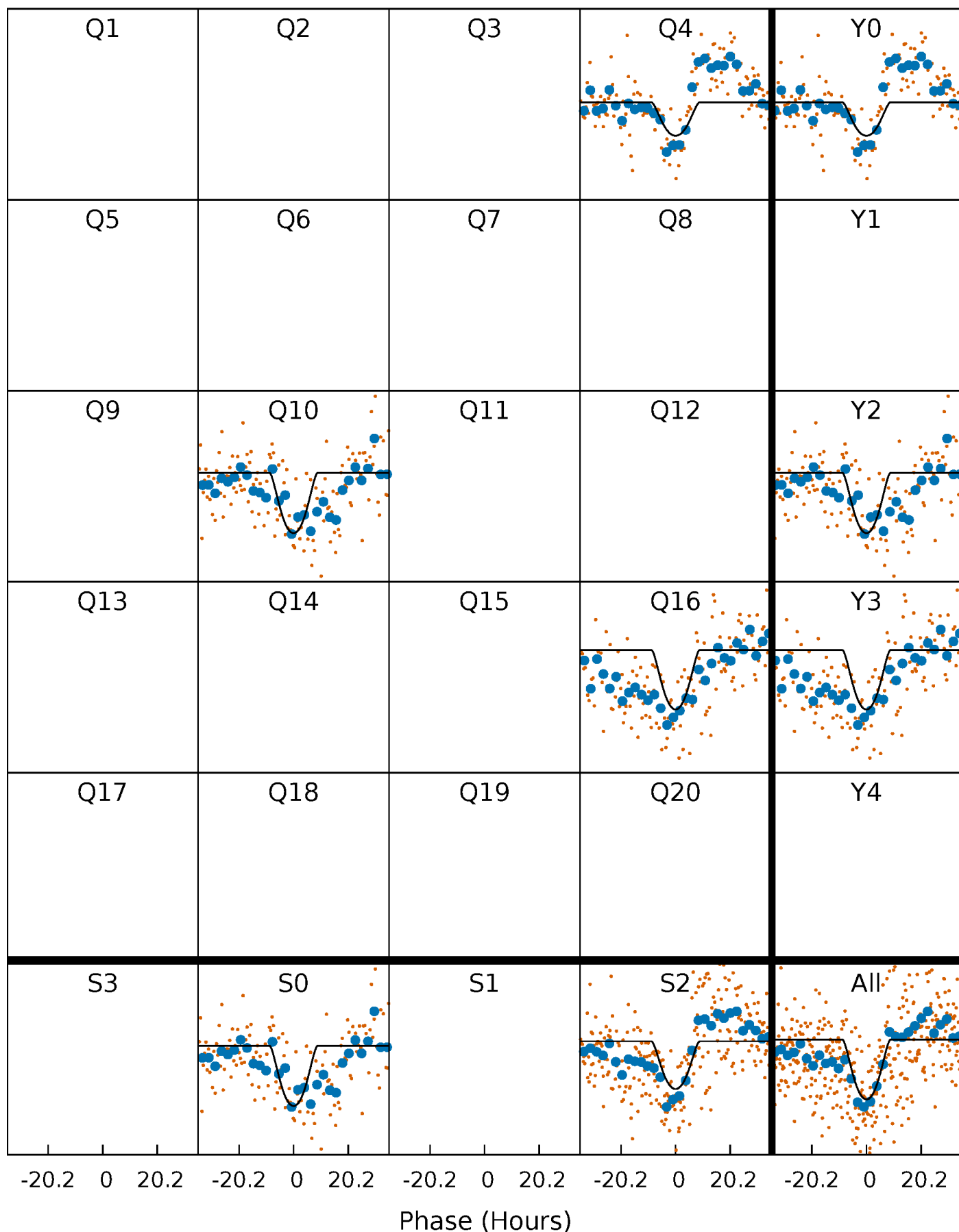
TCE 007538124-01 P=589.404988 Days  $T_0=374.189999$  (BKJD)





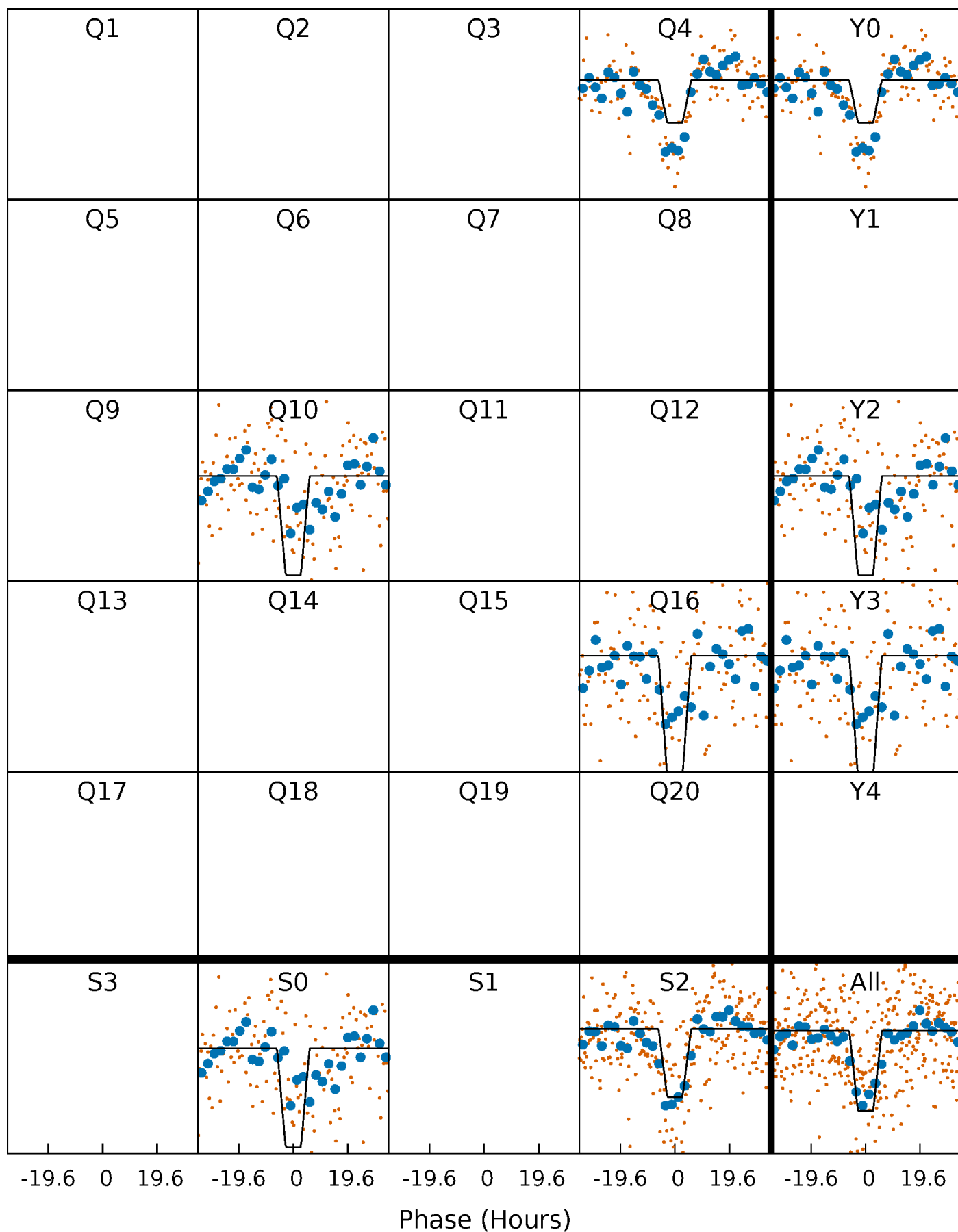
# DV Quarter-Phased Transit Curves

TCE 007538124-01 P=589.404988 Days  $T_0=374.189999$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

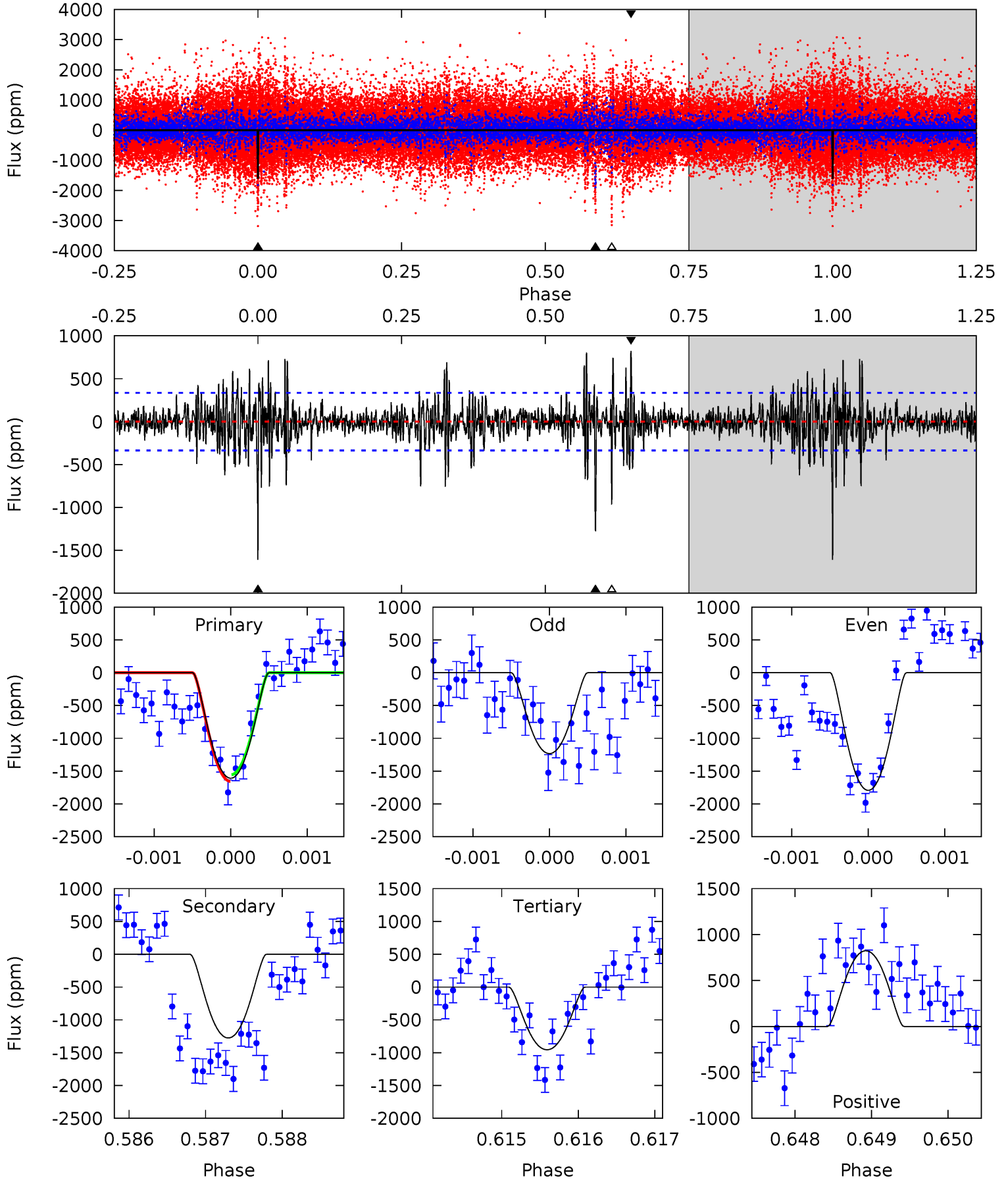
TCE 007538124-01 P=589.406038 Days  $T_0=374.197943$  (BKJD)



# DV Model-Shift Uniqueness Test

007538124-01, P = 589.404988 Days, E = 374.189999 Days

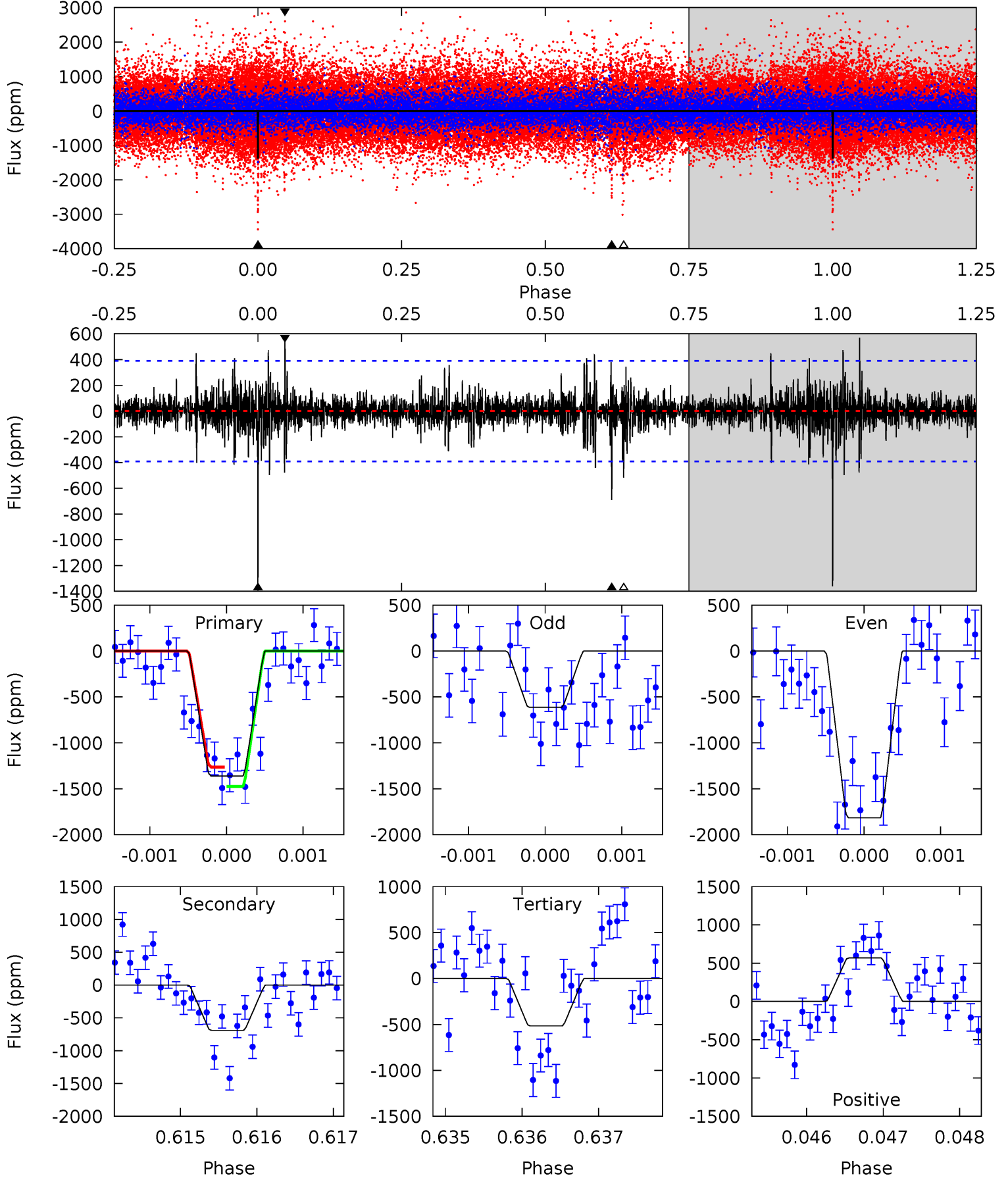
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
26.0	20.6	15.4	13.3	5.41	3.22	2.89	10.5	12.7	5.16	7.30	4.30	0.92	0.34	0.82



# Alt Model-Shift Uniqueness Test

007538124-01, P = 589.406038 Days, E = 374.197943 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	9.68	7.24	7.98	5.48	3.34	1.33	11.8	11.1	2.45	1.70	7.99	1.65	0.30	1.47



### Stellar Parameters For KIC 007538124

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R$ ( $R_{\odot}$ )	$M(M_{\odot})$	$p_{\star}$ ( $\text{g}\cdot\text{cm}^{-3}$ )
	$5461^{+189}_{-189}$	$4.493^{+0.081}_{-0.138}$	$-0.220^{+0.300}_{-0.300}$	$0.845^{+0.178}_{-0.110}$	$0.810^{+0.108}_{-0.069}$	$1.893^{+0.708}_{-0.714}$
	+3%/-3%	+2%/-3%	+136%/-136%	+21%/-13%	+13%/-9%	+37%/-38%
Source	KIC0	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 007538124-01 / KOI

Detrend	Depth (ppm)	$R_p$ ( $R_{\oplus}$ )	$T_{max}$ (K)	$T_{obs}$ (K)	$A_{obs}$
DV	$-1276 \pm 62$	$5.46^{+3.80}_{-3.38}$	$275^{+18}_{-14}$	$4441^{+2540}_{-729}$	$39745^{+225315}_{-26008}$
Alt.	$-690 \pm 71$	$4.65^{+3.63}_{-2.93}$	$276^{+15}_{-14}$	$4226^{+2197}_{-776}$	$29701^{+171488}_{-20897}$

$T_{max}$  = 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

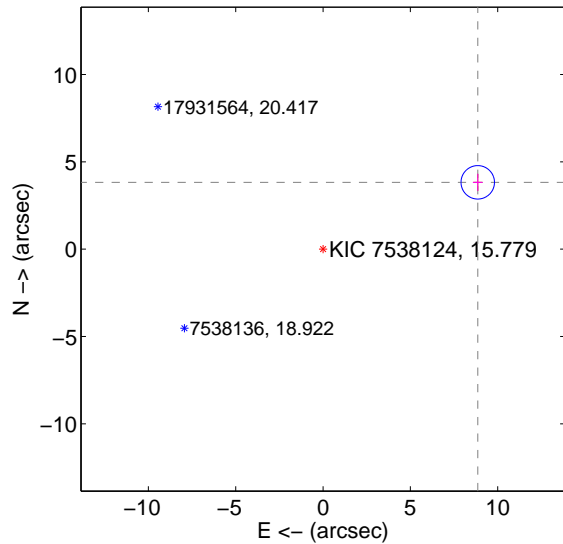
Supplemental centroid analysis for 007538124-01. Kepler magnitude: 15.78. Transit SNR 7.66

There are 0 quarters with good PRF difference image offsets

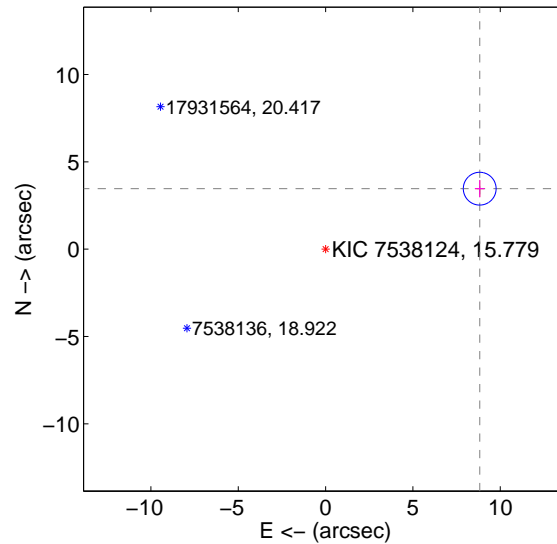
The direct PRF centroid is offset from the target star catalog position by about 0.36 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$9.648 \pm 0.319$	30.23	$-8.857 \pm 0.276$	$3.827 \pm 0.490$
PRF-fit source offset from KIC position	$9.479 \pm 0.313$	30.28	$-8.824 \pm 0.276$	$3.464 \pm 0.490$
photometric centroid source offset	$4.95 \pm 2.20$	2.25	$-4.95 \pm 2.20$	$-0.03 \pm 2.68$

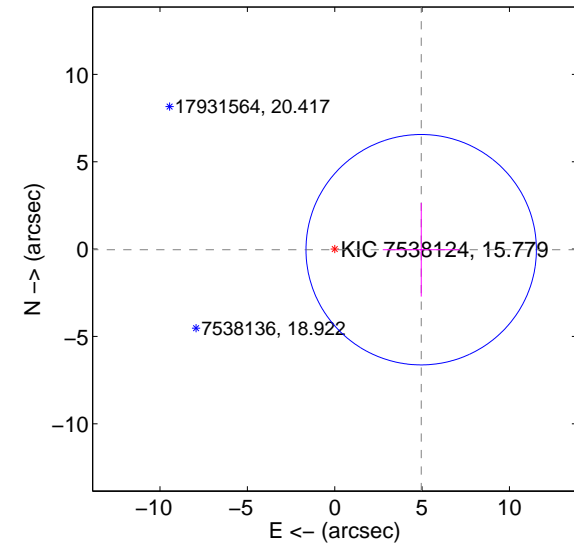
offset from difference PRF-fit to OOT PRF-fit



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.

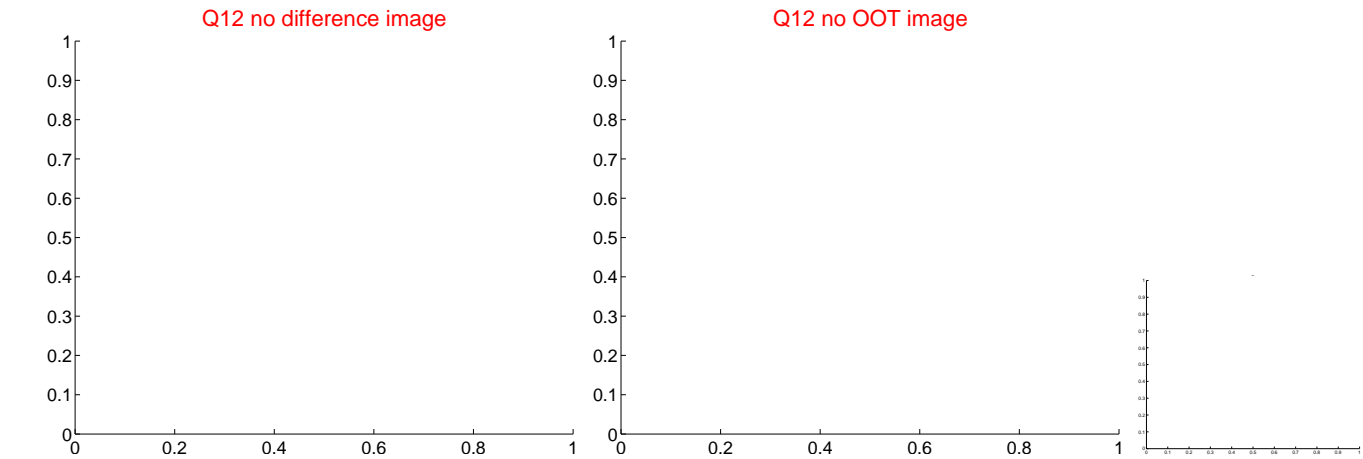
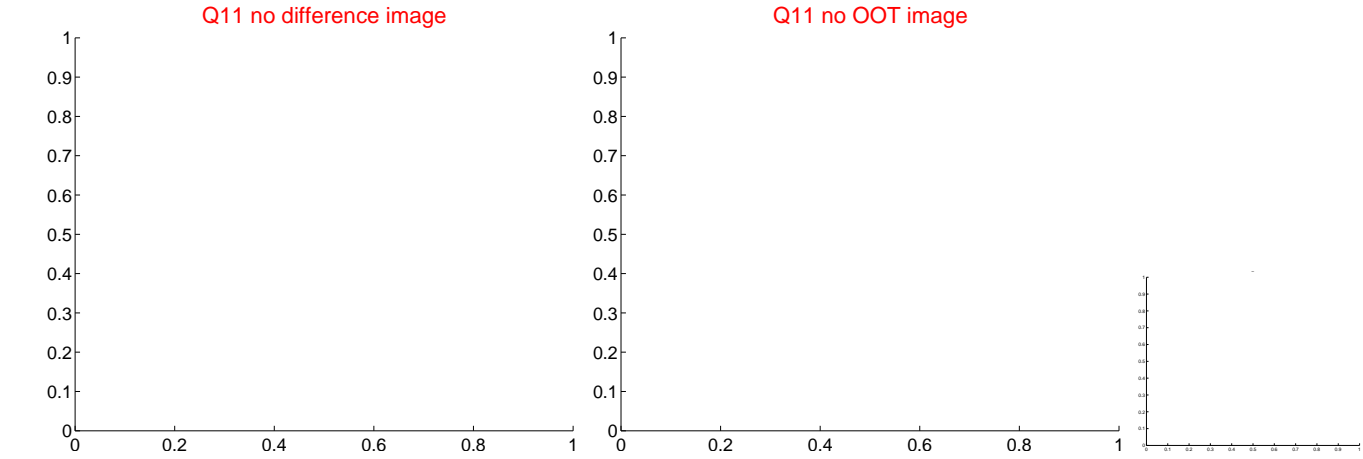
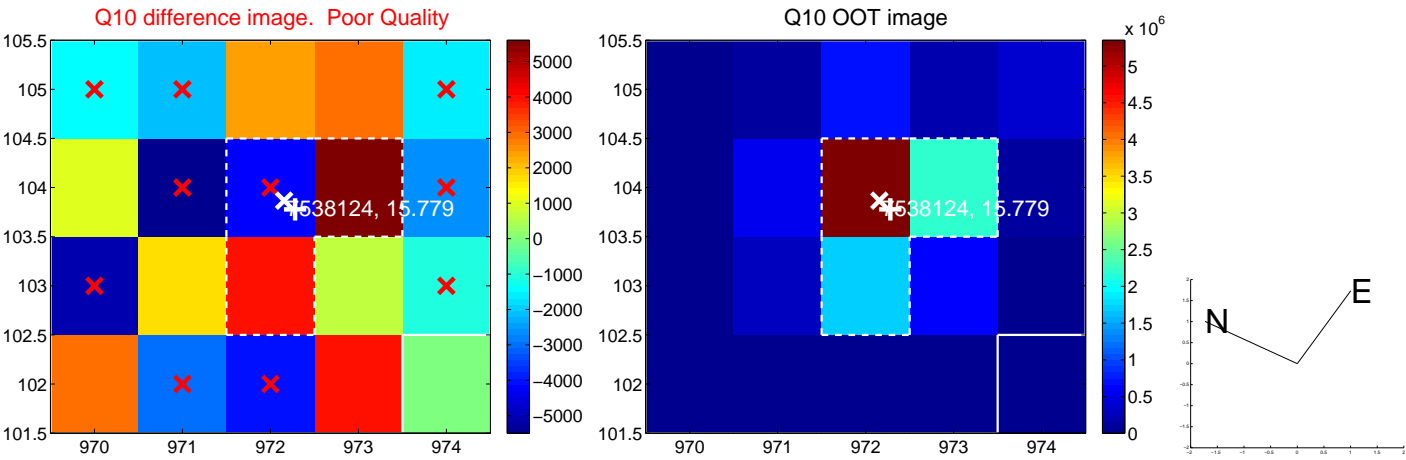
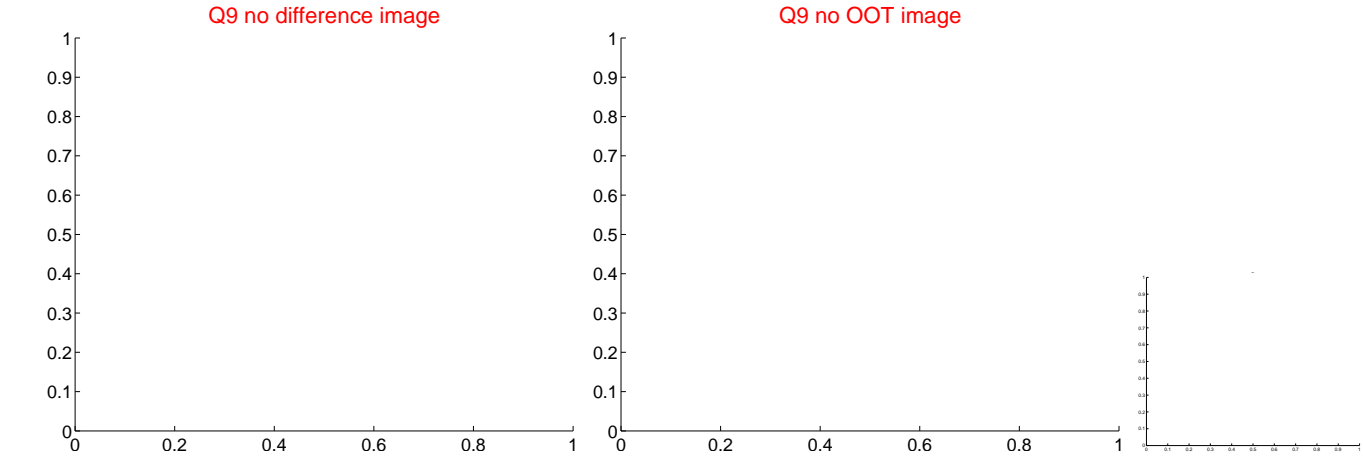




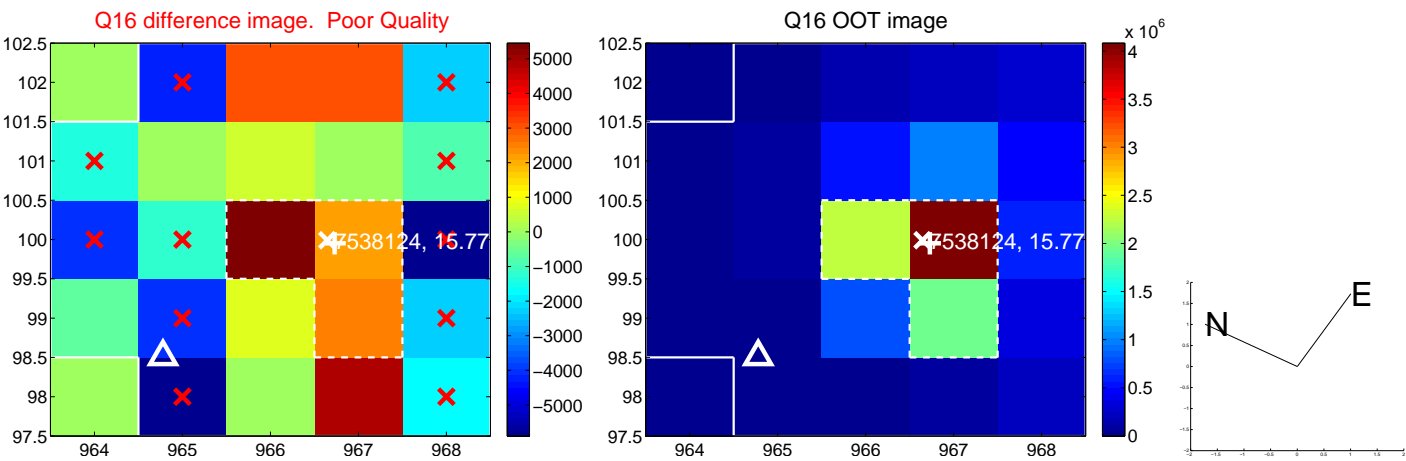
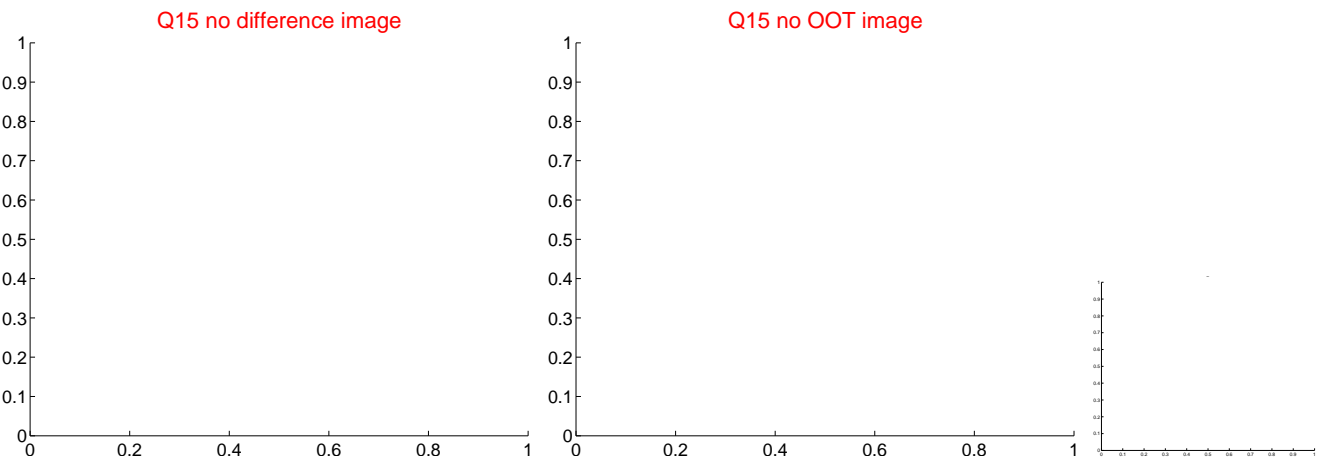
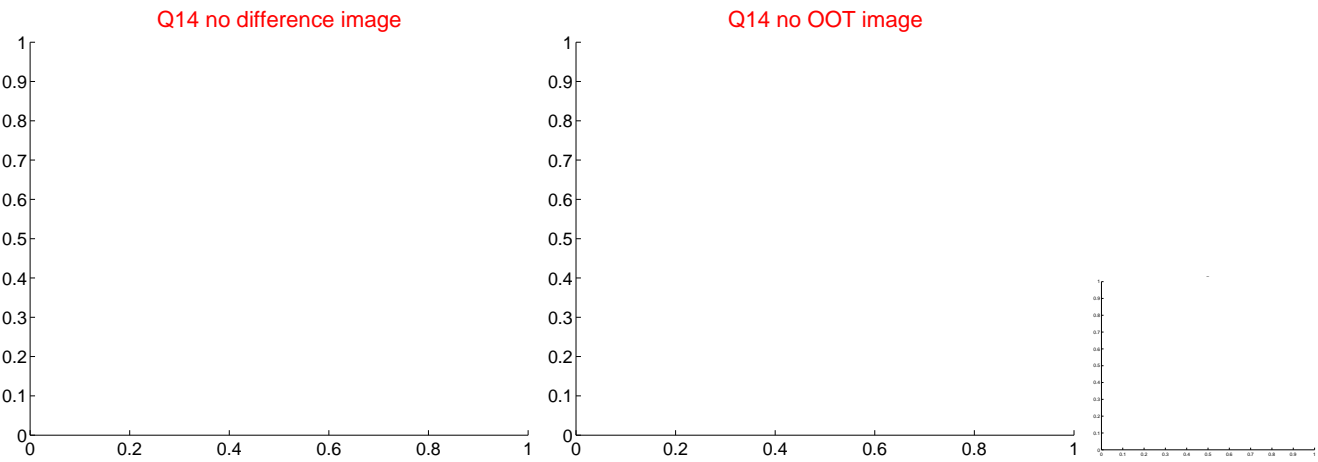
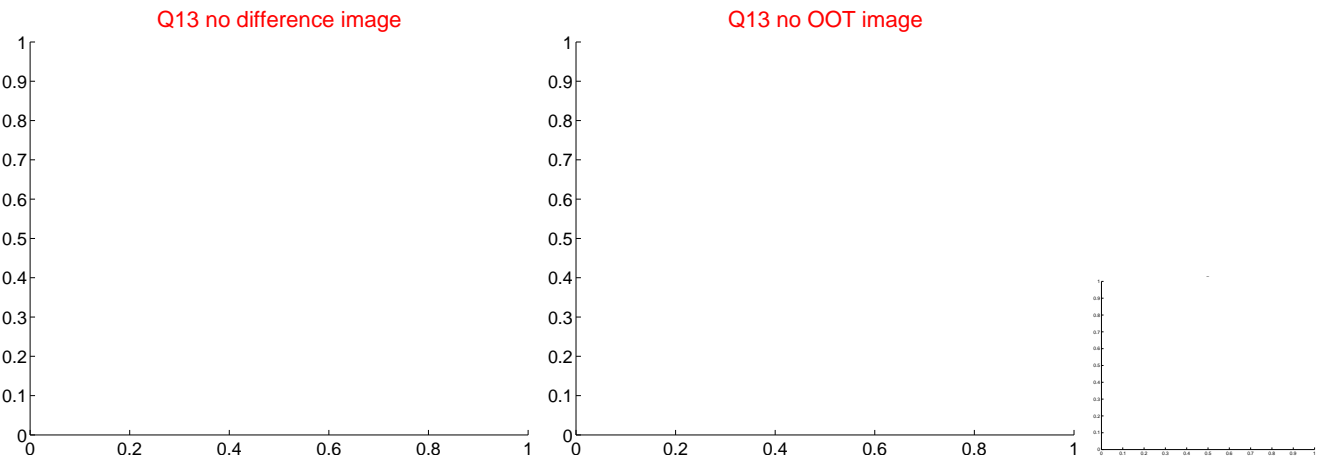
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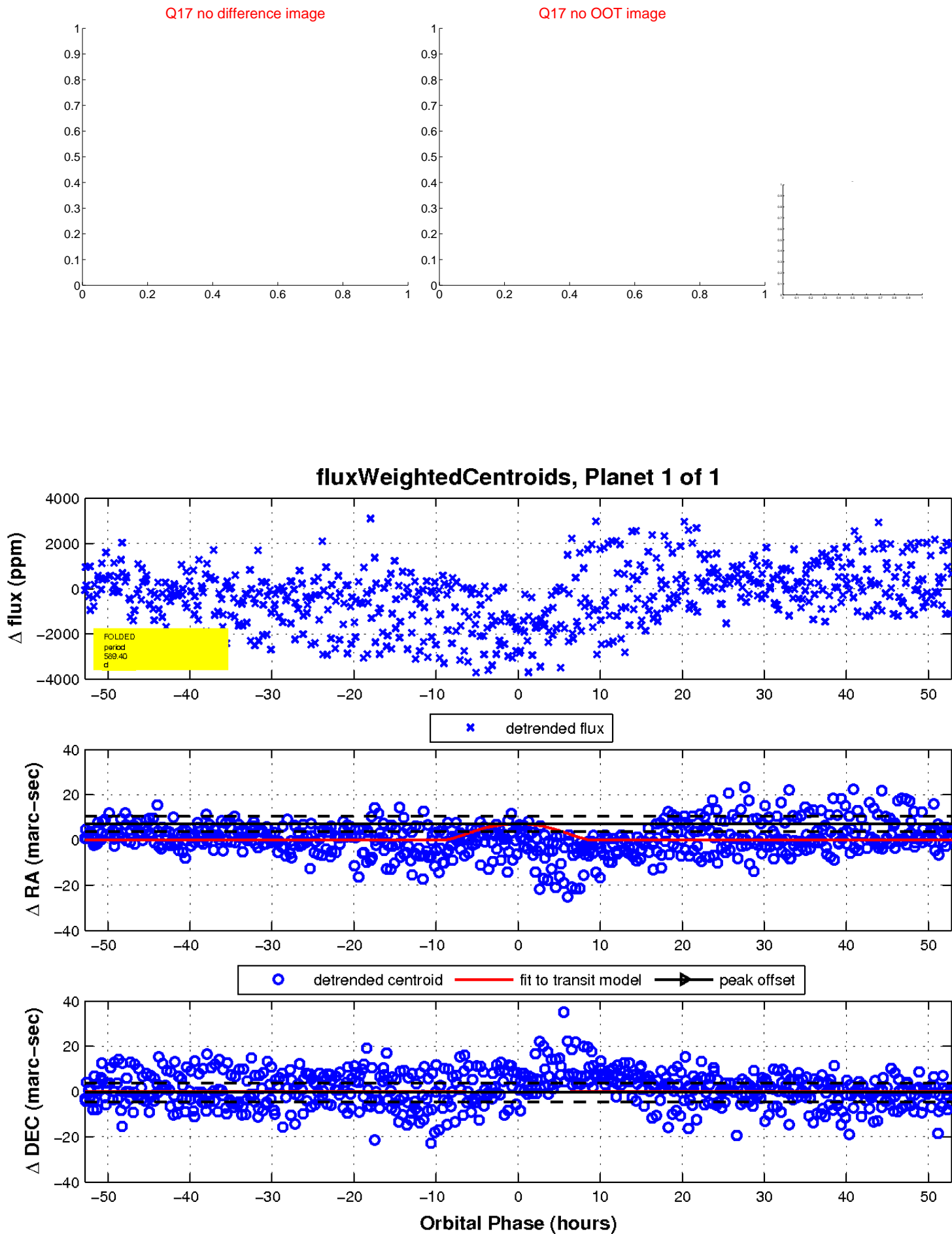
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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

