

# KIC 007504239

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
007504239-01	OBS	No	419.157106	530.909397	549.3	12.578	7.5	6.1	1.01	5688	2.58	0.76

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
007504239-01	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—ALL_TRANS_CHASES—INCONSISTENT_TRANS

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

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

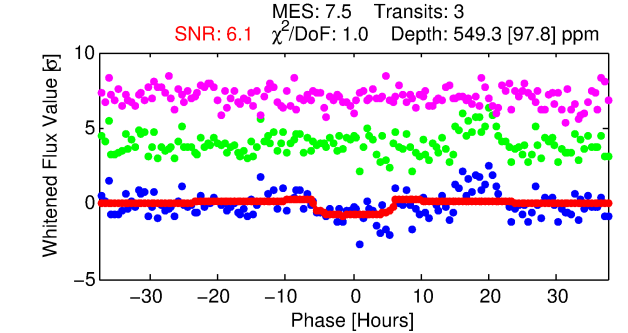
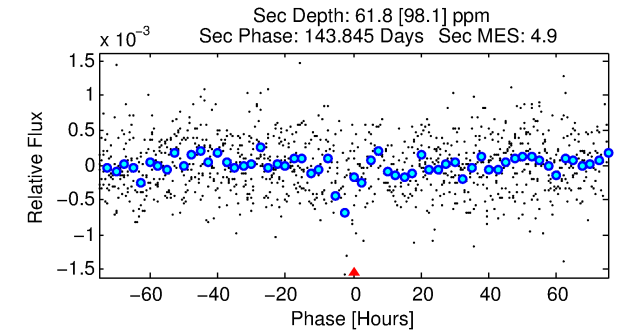
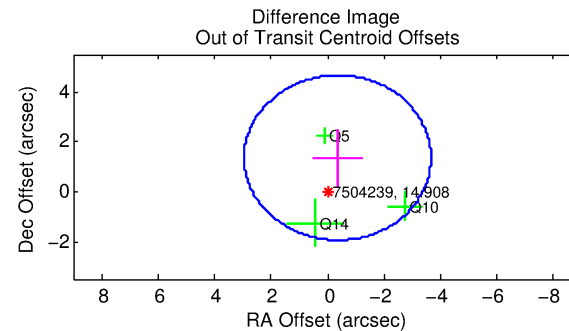
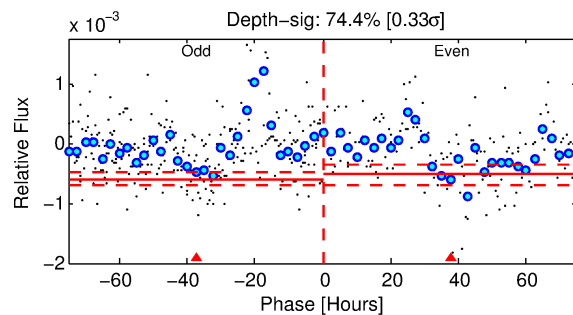
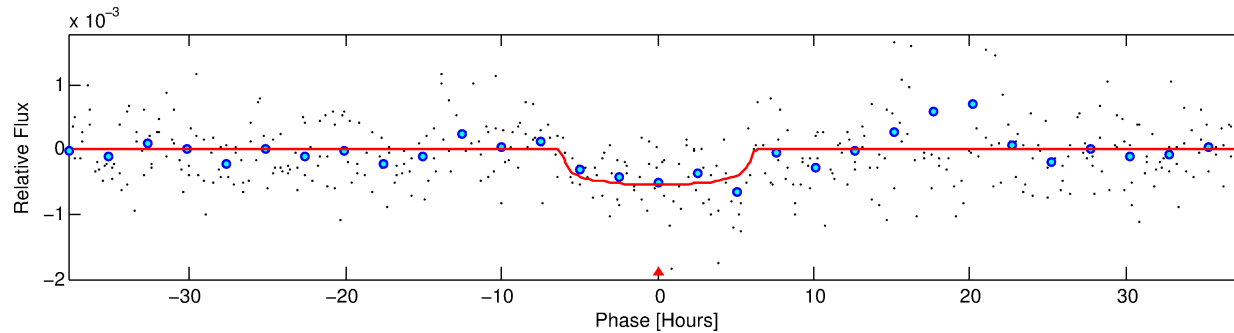
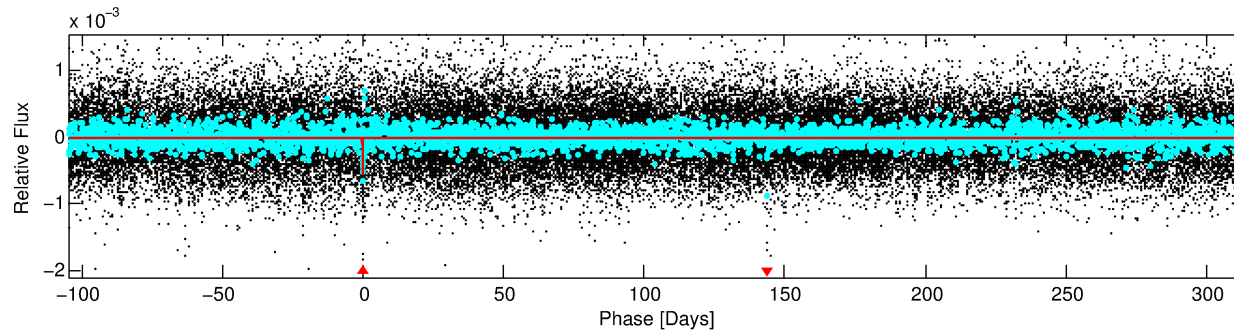
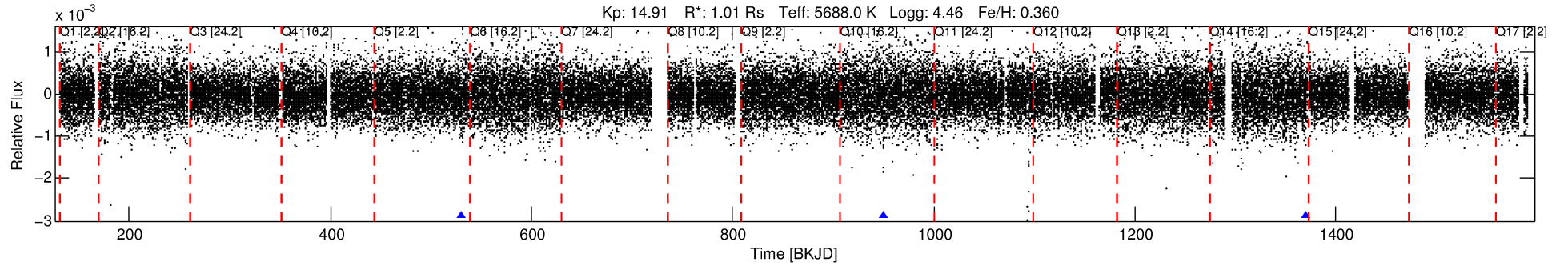
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

## Ephemeris Match Information For 007504239-01

No Significant Match Found

# DV One-Page Summary

KIC: 7504239 Candidate: 1 of 1 Period: 419.157 d



## DV Fit Results:

Period = 419.15711 [0.01780] d  
Epoch = 530.9094 [0.0214] BKJD  
Rp/R\* = 0.0234 [0.0107]  
a/R\* = 175.51 [324.64]  
b = 0.76 [1.05]  
Seff = 0.76 [0.30]  
Teq = 238 [24] K  
Rp = 2.58 [1.40] Re  
a = 1.1207 [0.2822] AU  
Ag = 6418.58 [12003.28] [0.53 $\sigma$ ]  
Teffp = 3297 [1514] K [2.02 $\sigma$ ]

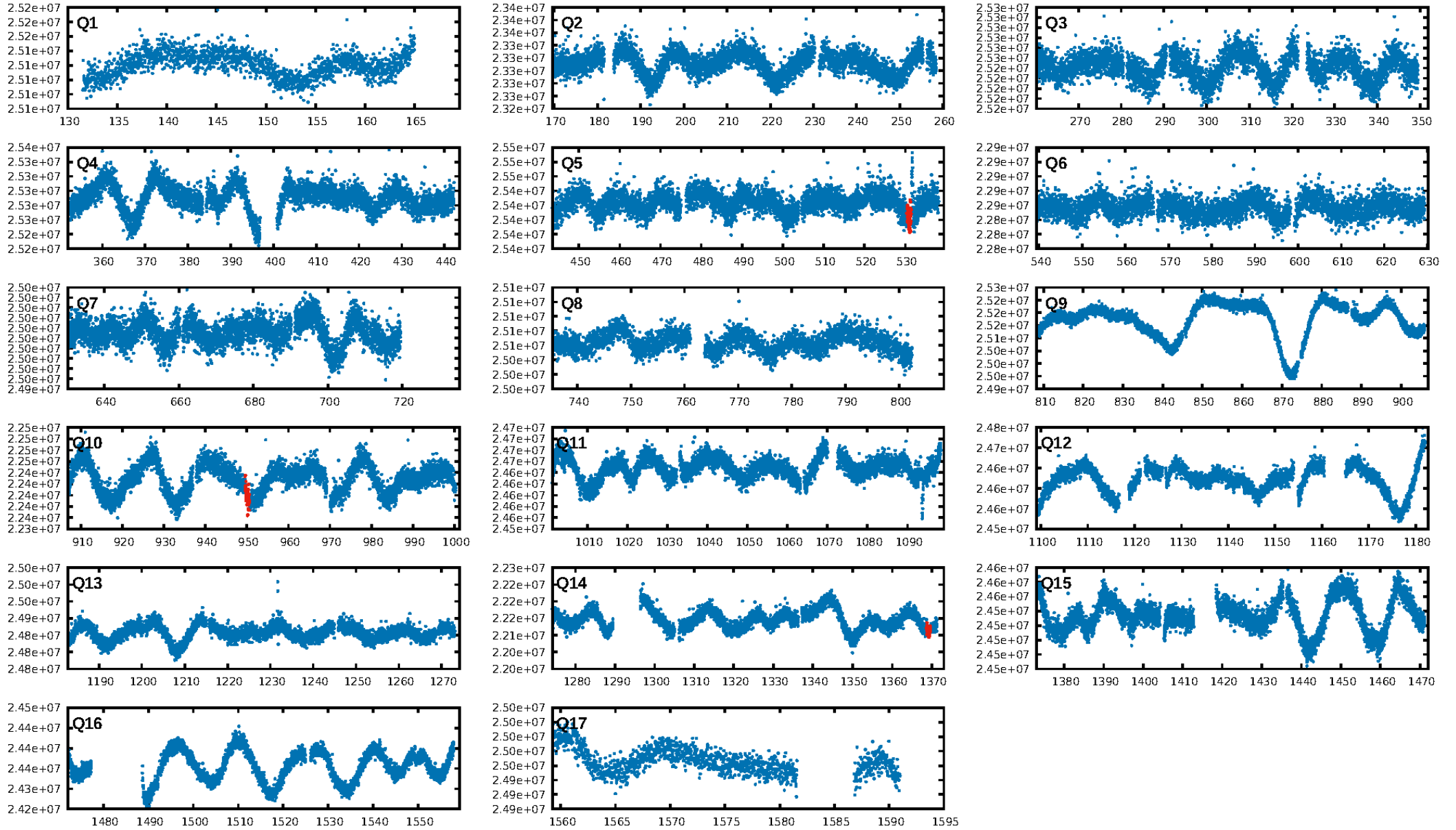
## DV Diagnostic Results:

ShortPeriod-sig: N/A  
LongPeriod-sig: N/A  
ModelChiSquare2-sig: 36.8%  
ModelChiSquareGof-sig: 98.5%  
**Bootstrap-pfa: 5.53e-10**  
RollingBand-fgt: 1.00 [3/3]  
GhostDiagnostic-chr: 1.516  
Centroid-sig: 36.6%  
Centroid-so: 1.457 arcsec [0.80 $\sigma$ ]  
OotOffset-rm: 1.403 arcsec [1.27 $\sigma$ ]  
KicOffset-rm: 1.615 arcsec [1.58 $\sigma$ ]  
OotOffset-st: 2/0/0/1 [3]  
KicOffset-st: 2/0/0/1 [3]  
DiffImageQuality-fgm: 0.33 [1/3]  
DiffImageOverlap-fno: 1.00 [3/3]

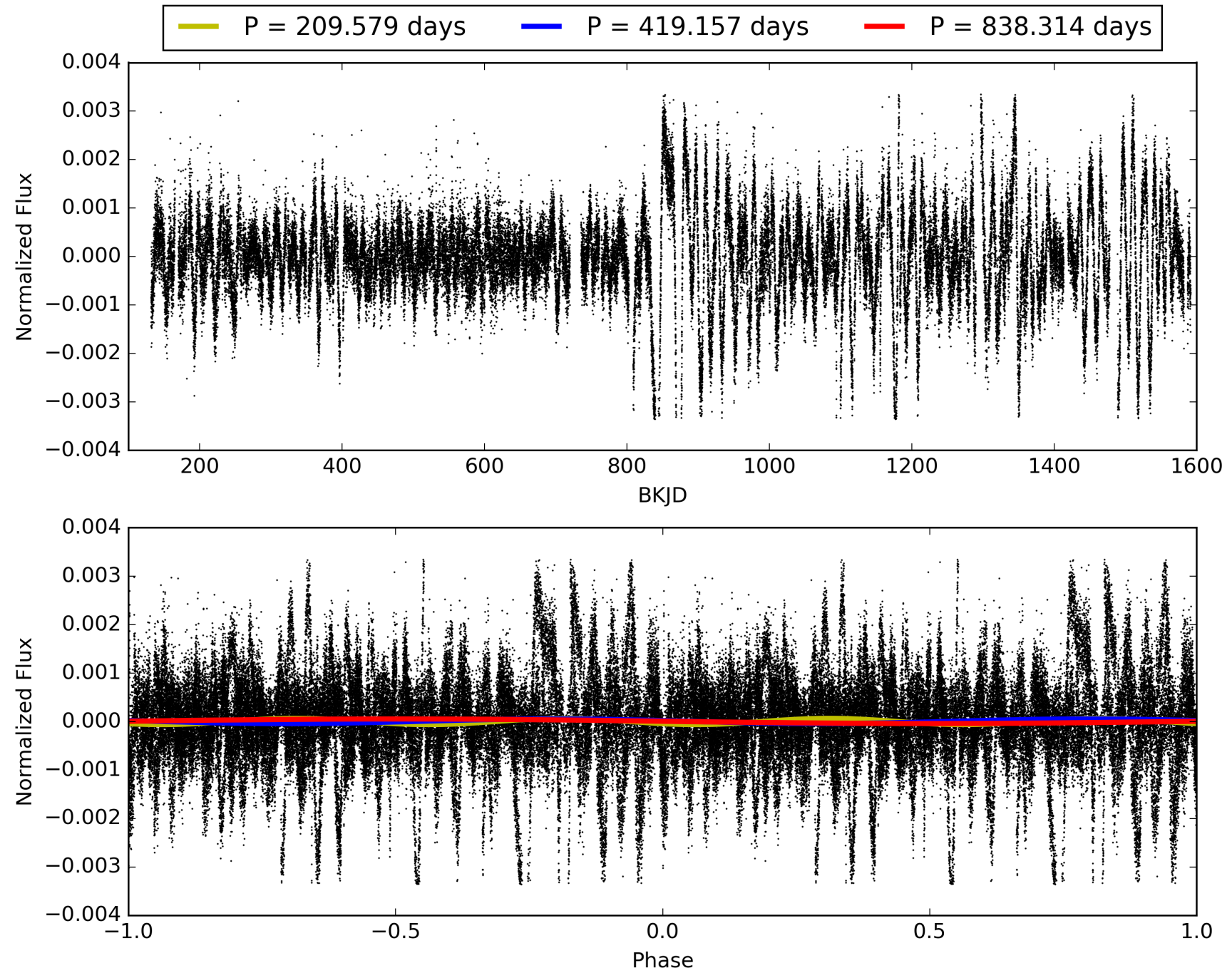
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 31-Jan-2016 23:38:13 Z

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

# TCE 007504239-01, PDC Light Curves

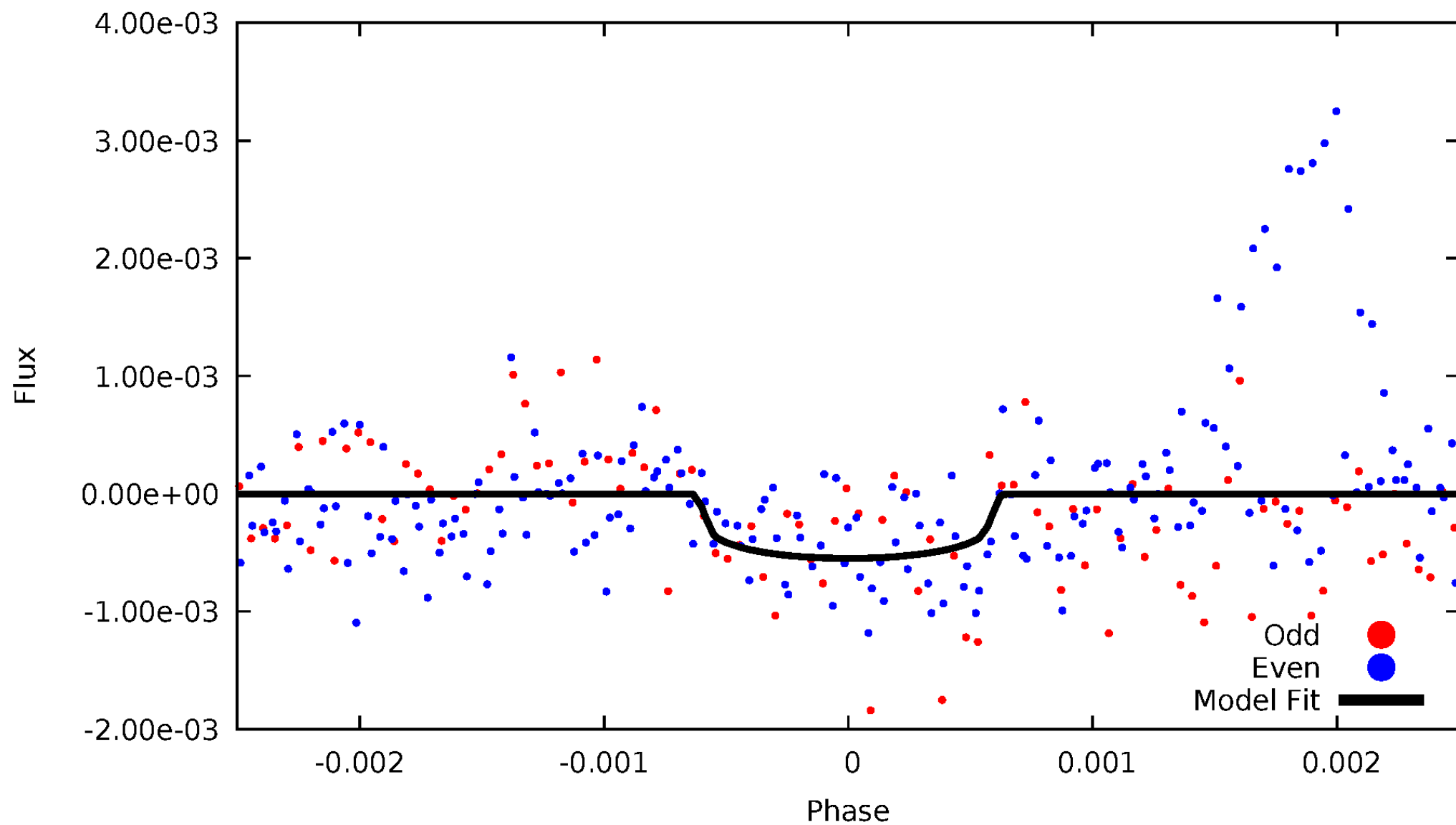


TCE 007504239-01



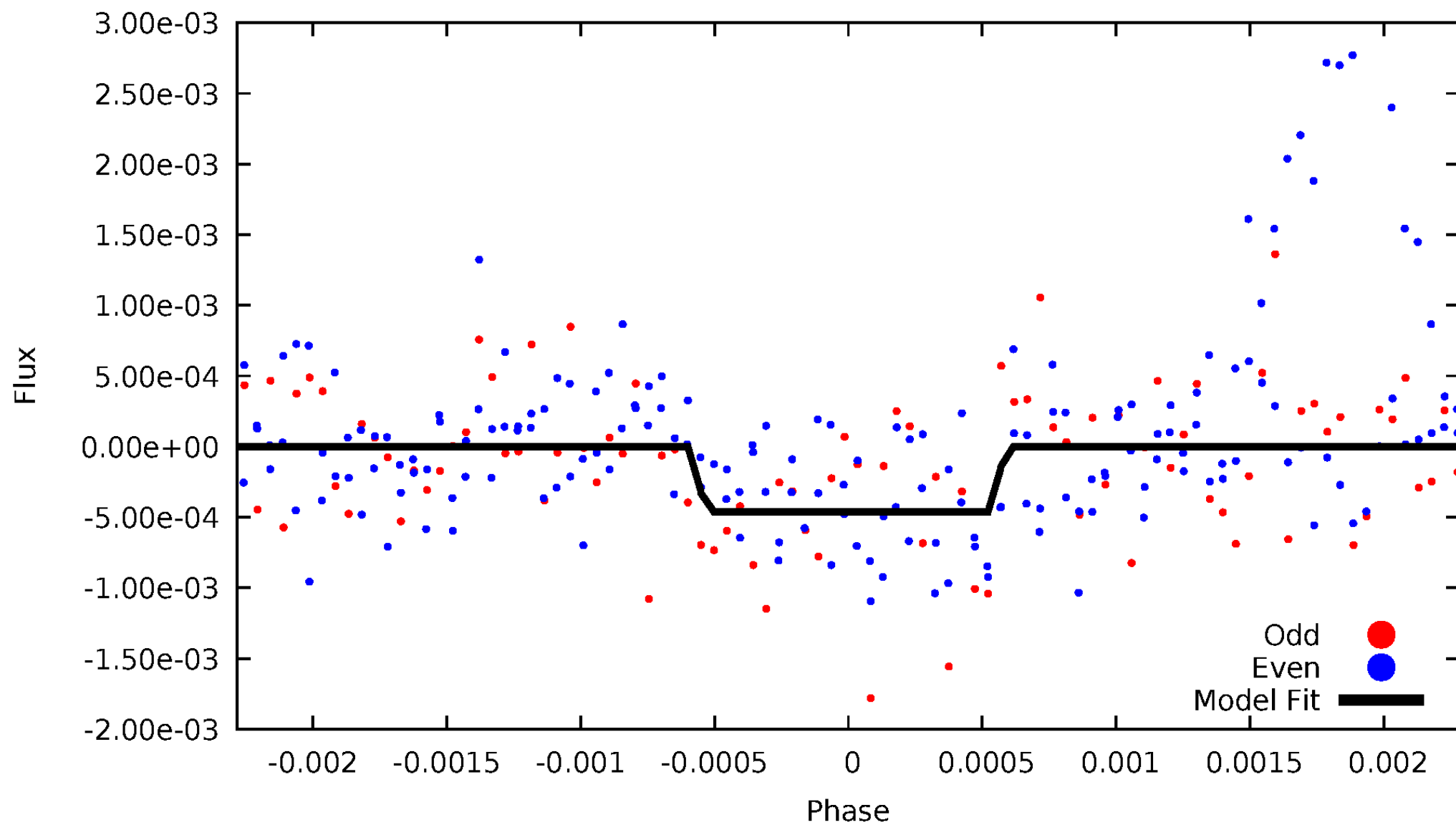
# DV Odd/Even

TCE 007504239-01



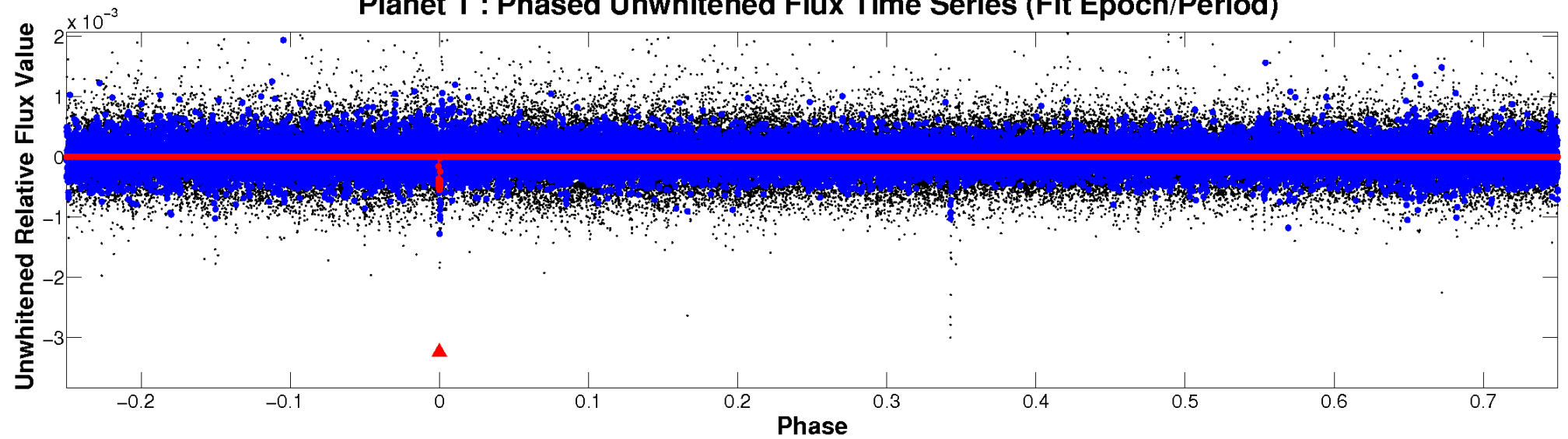
# ALT Odd/Even

TCE 007504239-01

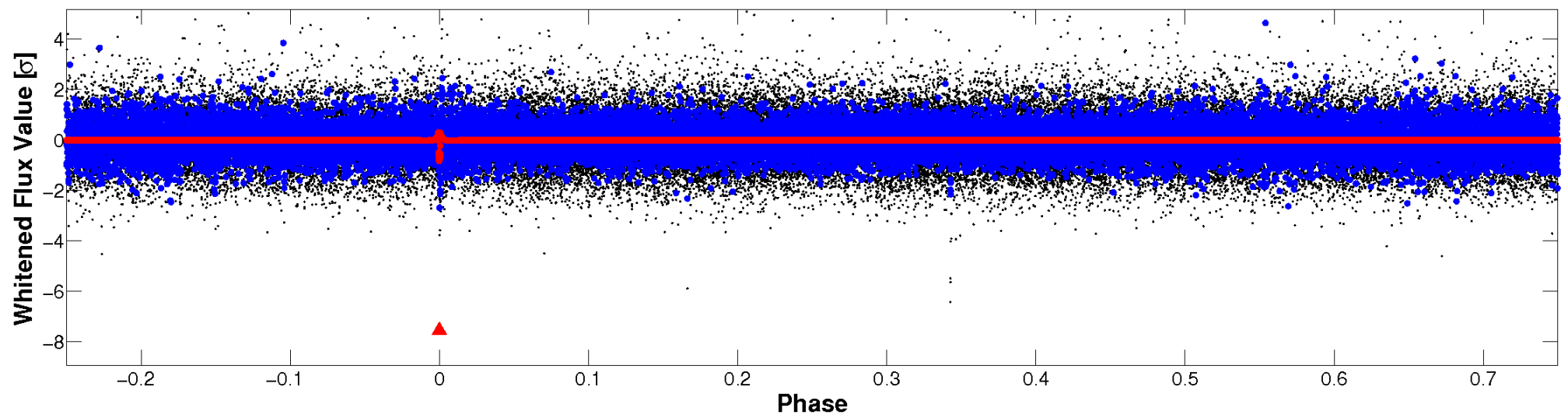


# Non-Whitened Vs. Whitened Light Curve

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



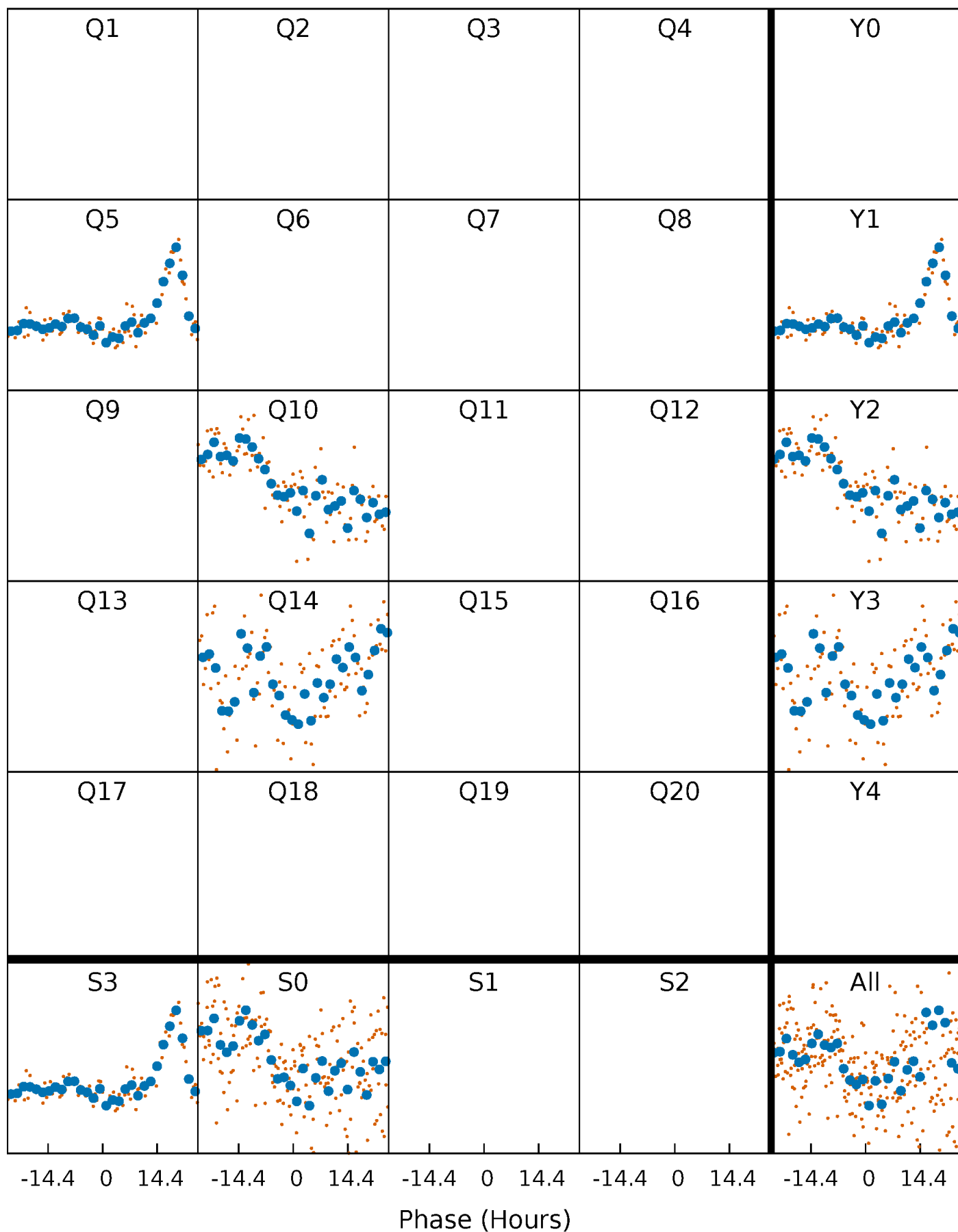
**Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)**





# PDC Quarter-Phased Transit Curves

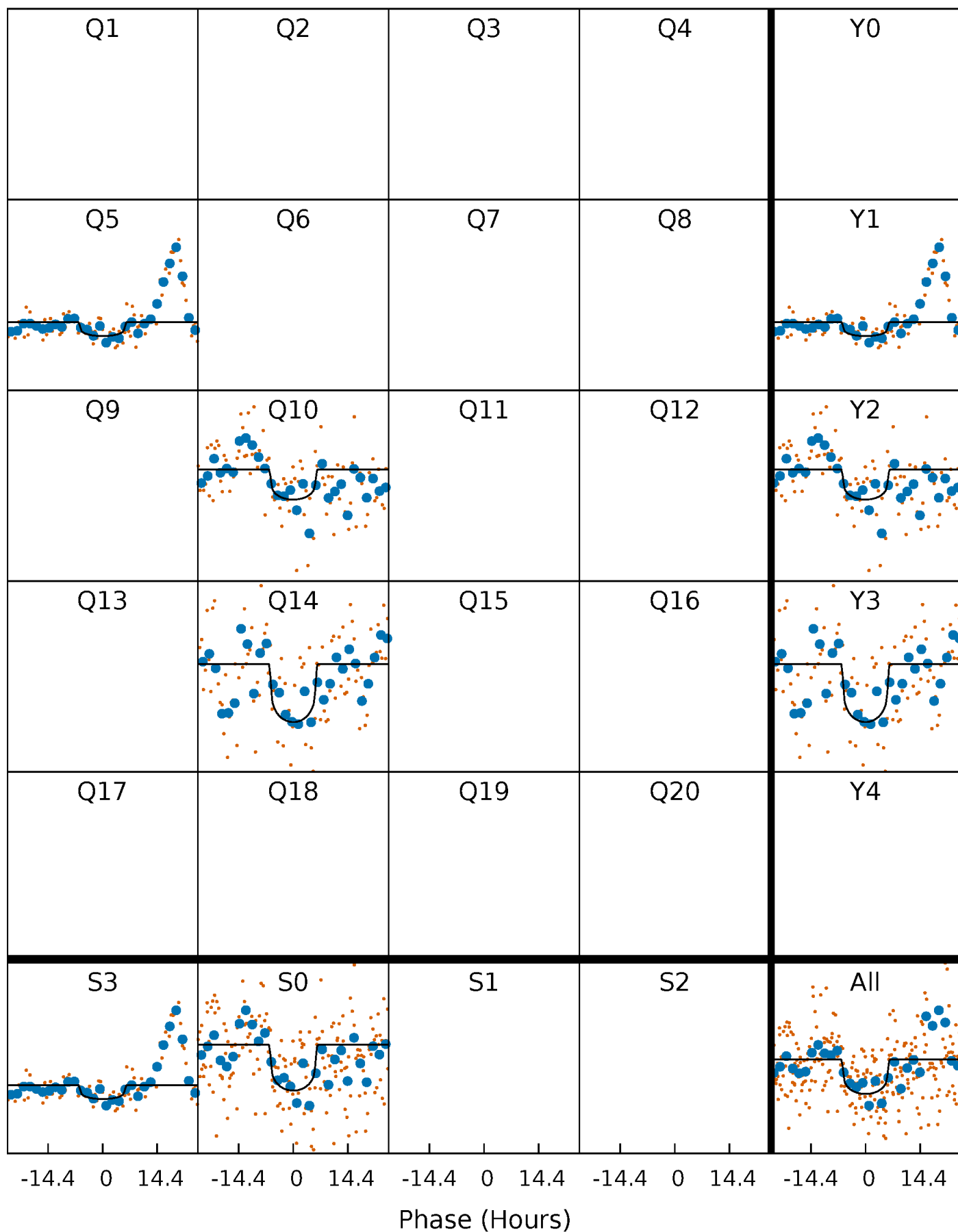
TCE 007504239-01 P=419.157106 Days  $T_0=530.909397$  (BKJD)





# DV Quarter-Phased Transit Curves

TCE 007504239-01 P=419.157106 Days  $T_0=530.909397$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

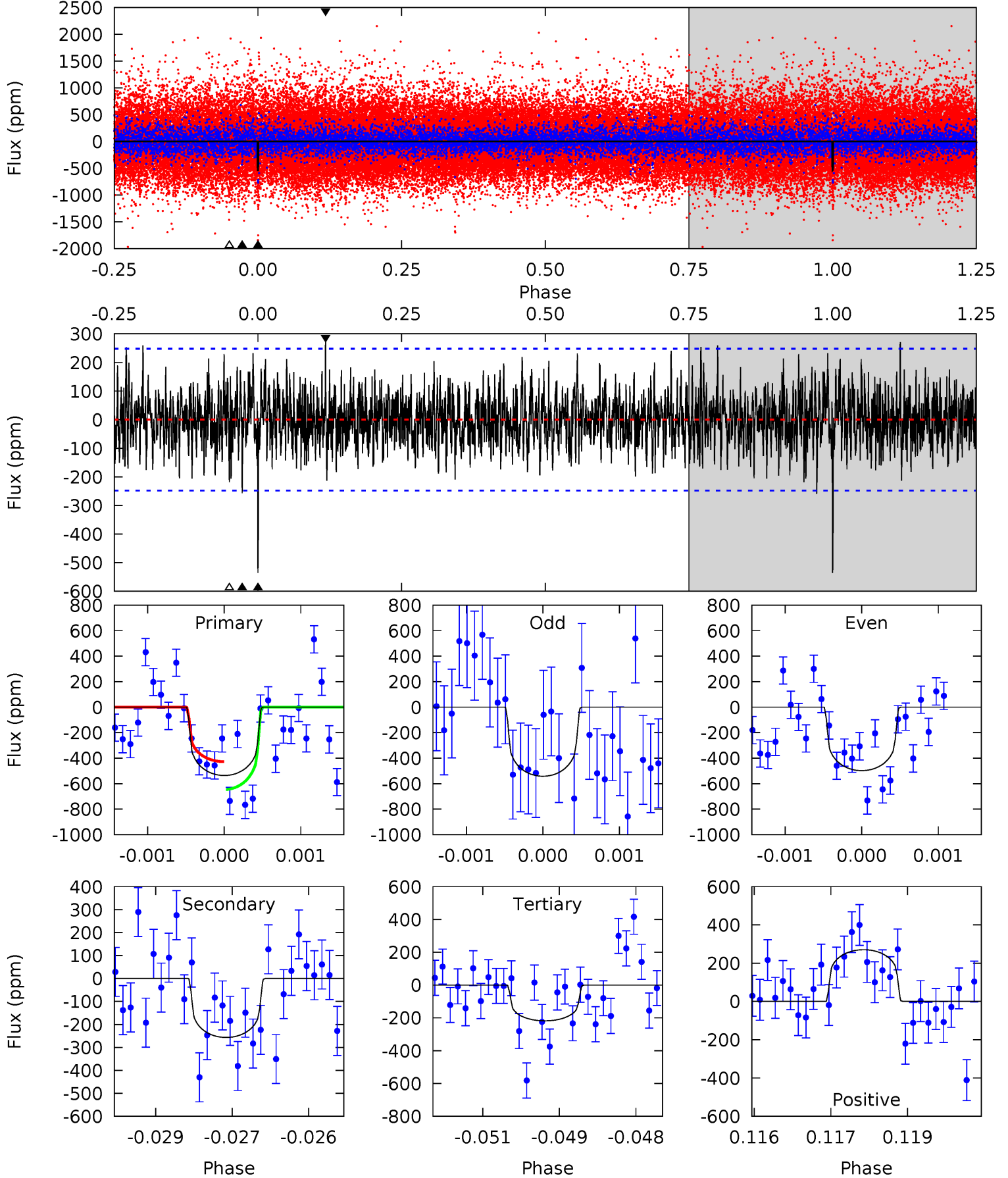
TCE 007504239-01 P=419.153616 Days  $T_0=530.916113$  (BKJD)



# DV Model-Shift Uniqueness Test

007504239-01, P = 419.157106 Days, E = 111.752291 Days

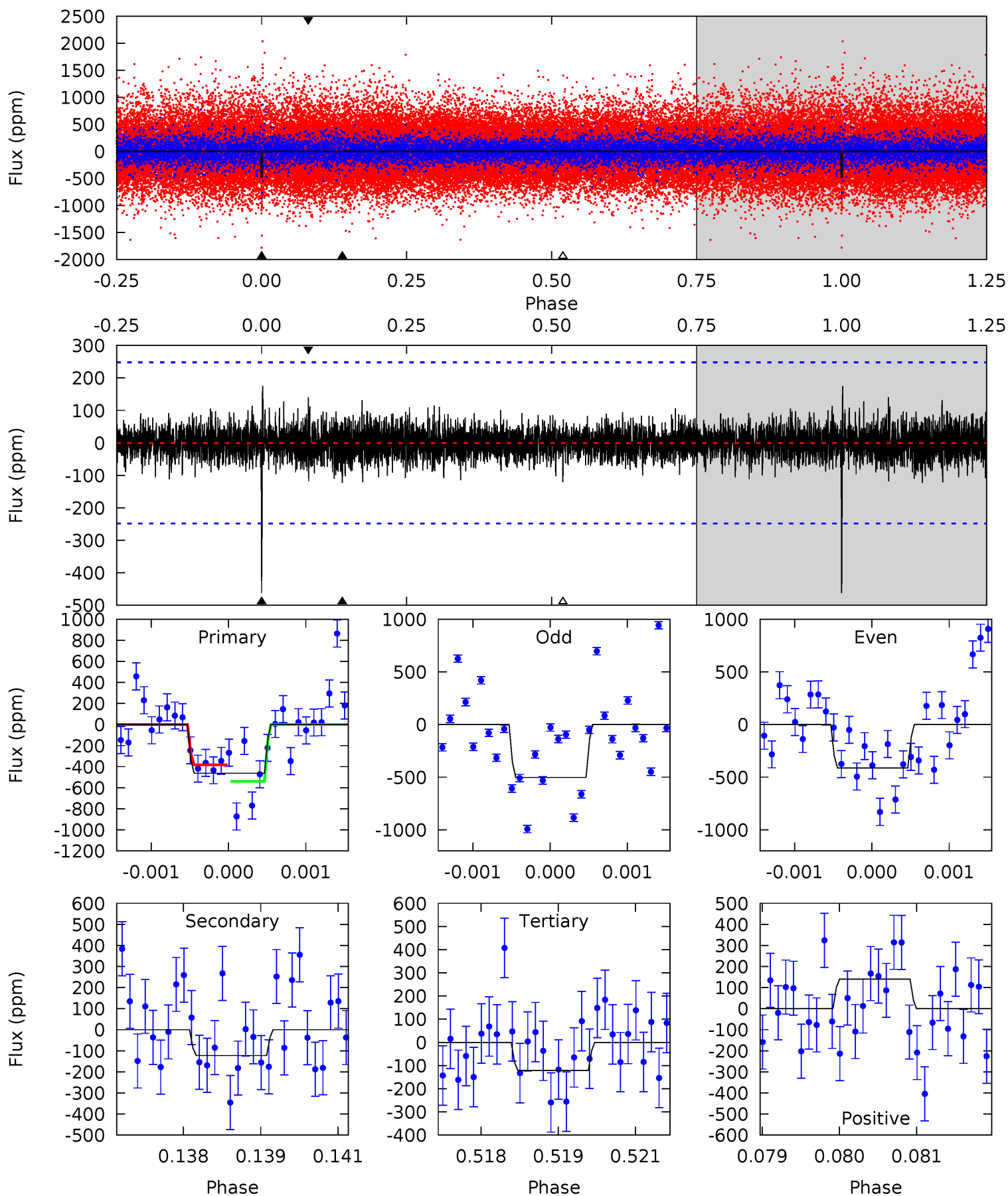
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
11.7	5.60	4.76	5.89	5.40	3.22	1.59	6.92	5.79	0.84	-0.30	0.45	1.01	0.34	2.37



# Alt Model-Shift Uniqueness Test

007504239-01, P = 419.153616 Days, E = 111.762497 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
10.1	2.69	2.65	3.08	5.43	3.26	0.73	7.46	7.04	0.03	-0.39	0.92	0.94	0.28	1.70



### Stellar Parameters For KIC 007504239

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R$ ( $R_{\odot}$ )	$M(M_{\odot})$	$p_{\star}$ ( $\text{g}\cdot\text{cm}^{-3}$ )
	$5688^{+154}_{-188}$	$4.458^{+0.052}_{-0.208}$	$0.360^{+0.100}_{-0.300}$	$1.010^{+0.295}_{-0.098}$	$1.069^{+0.097}_{-0.122}$	$1.460^{+0.381}_{-0.727}$
	+3%/-3%	+1%/-5%	+28%/-83%	+29%/-10%	+9%/-11%	+26%/-50%
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 007504239-01 / KOI

Detrend	Depth (ppm)	$R_p$ ( $R_{\oplus}$ )	$T_{\text{max}}$ (K)	$T_{\text{obs}}$ (K)	$A_{\text{obs}}$
DV	$-257 \pm 46$	$2.64^{+1.32}_{-1.20}$	$339^{+23}_{-16}$	$4812^{+1595}_{-646}$	$24234^{+58594}_{-12737}$
Alt.	$-123 \pm 46$	$2.49^{+1.33}_{-1.14}$	$339^{+25}_{-16}$	$4263^{+1252}_{-661}$	$12659^{+33352}_{-7993}$

$T_{\text{max}}$  = 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

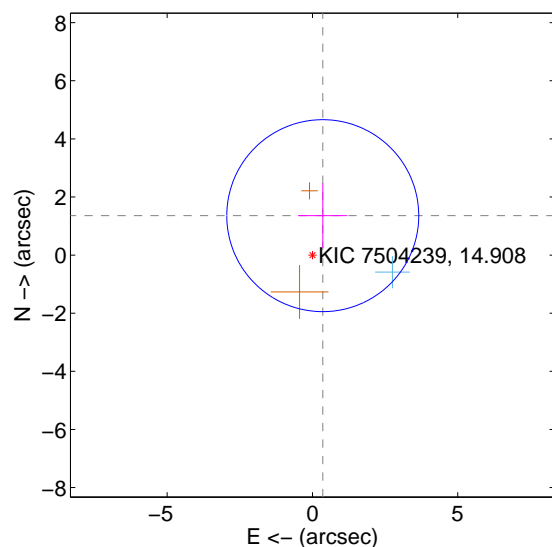
Supplemental centroid analysis for 007504239-01. Kepler magnitude: 14.91. Transit SNR 6.11

There are 1 quarters with good PRF difference image offsets

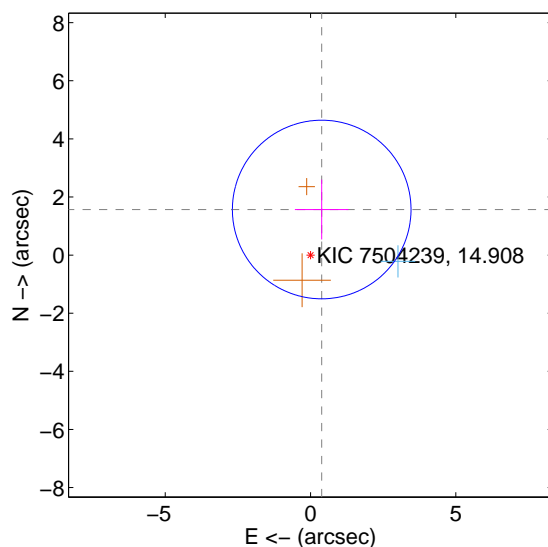
The direct PRF centroid is offset from the target star catalog position by about 0.43 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$1.403 \pm 1.101$	1.27	$-0.355 \pm 0.851$	$1.357 \pm 1.116$
PRF-fit source offset from KIC position	$1.615 \pm 1.025$	1.58	$-0.385 \pm 0.924$	$1.569 \pm 1.030$
photometric centroid source offset	$1.46 \pm 1.83$	0.80	$0.31 \pm 1.60$	$-1.42 \pm 1.84$

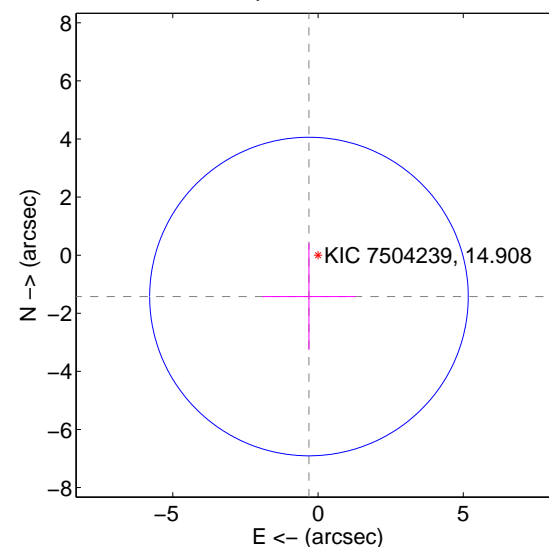
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position



offset from photometric centroids



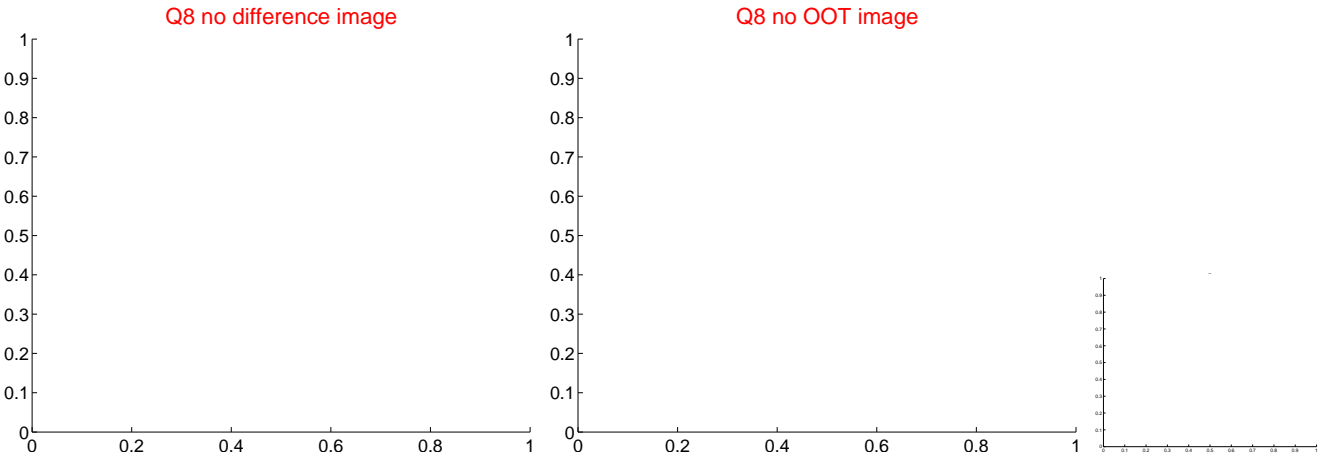
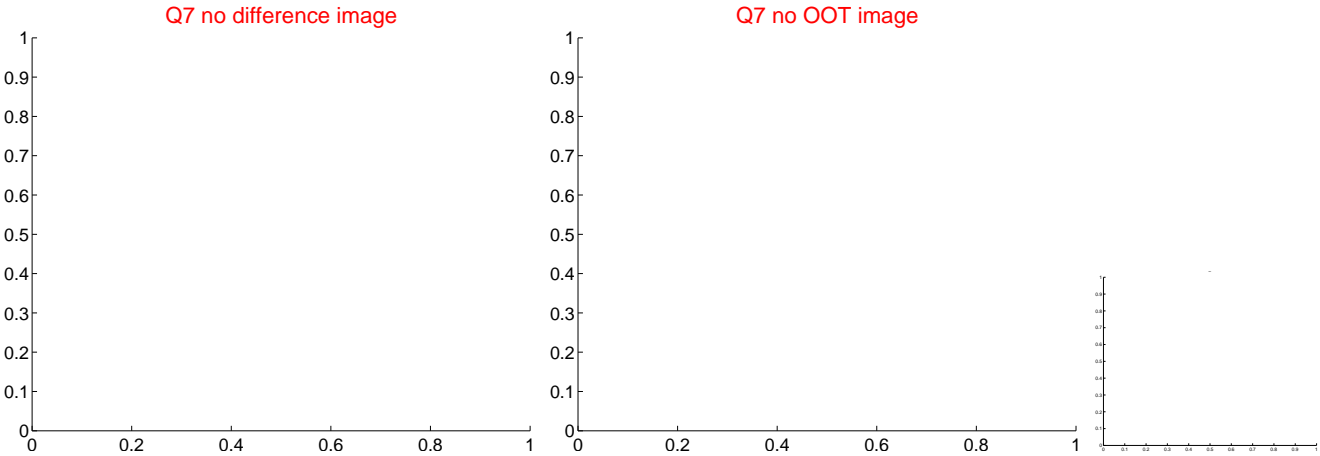
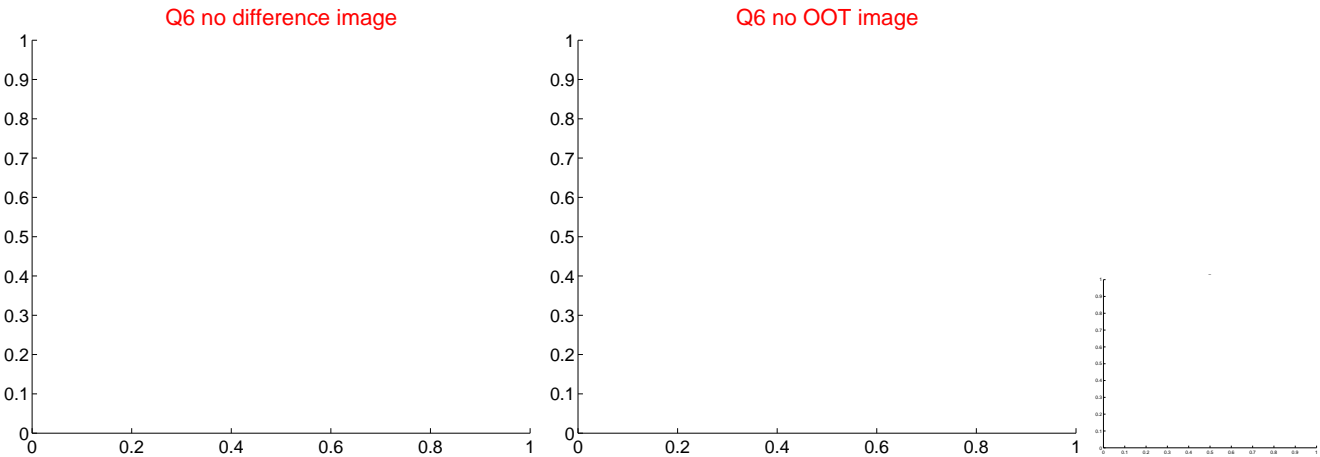
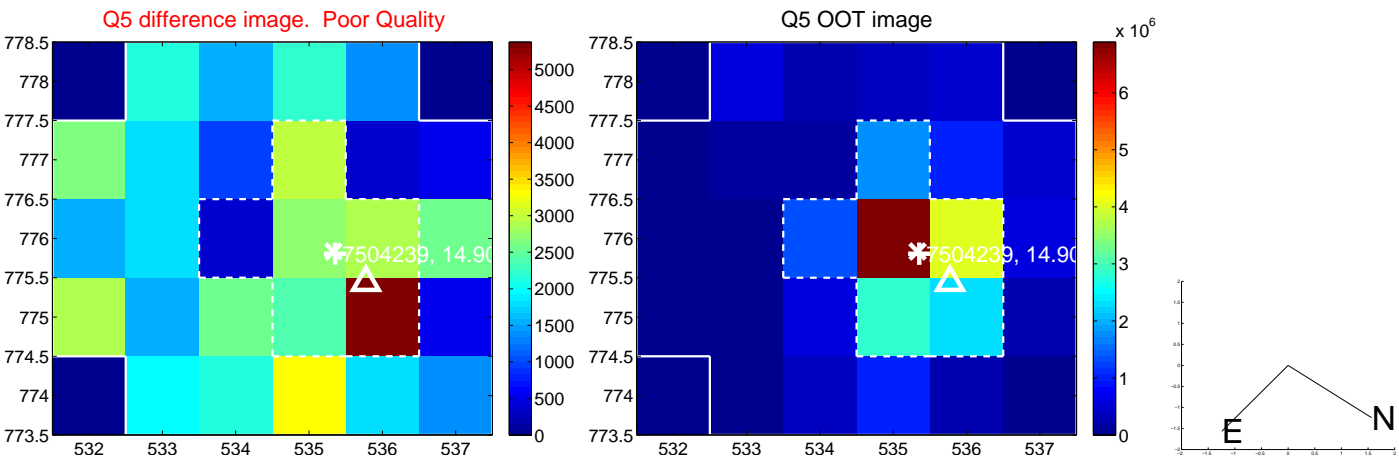
Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: three-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

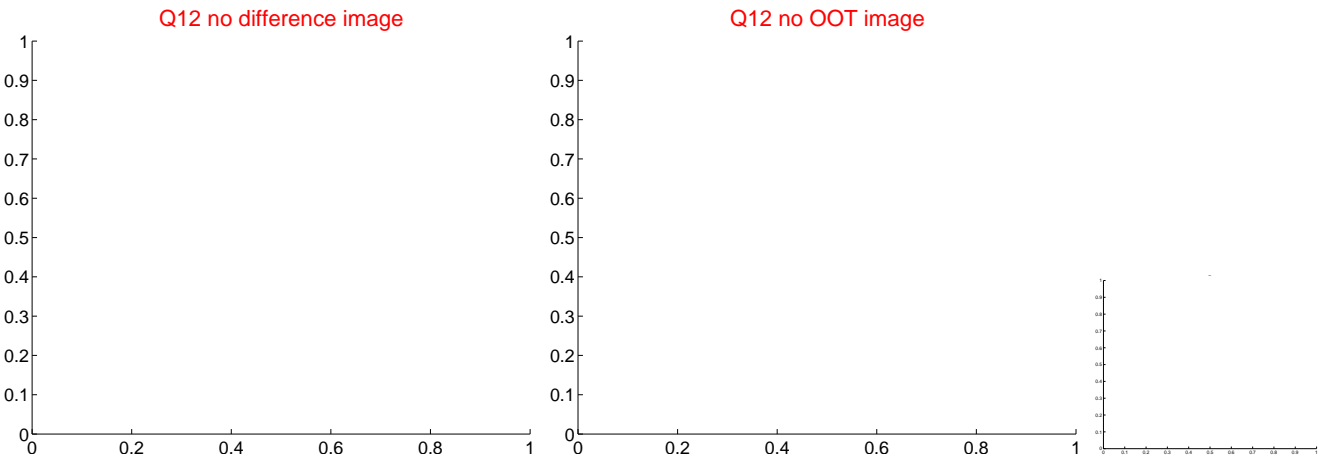
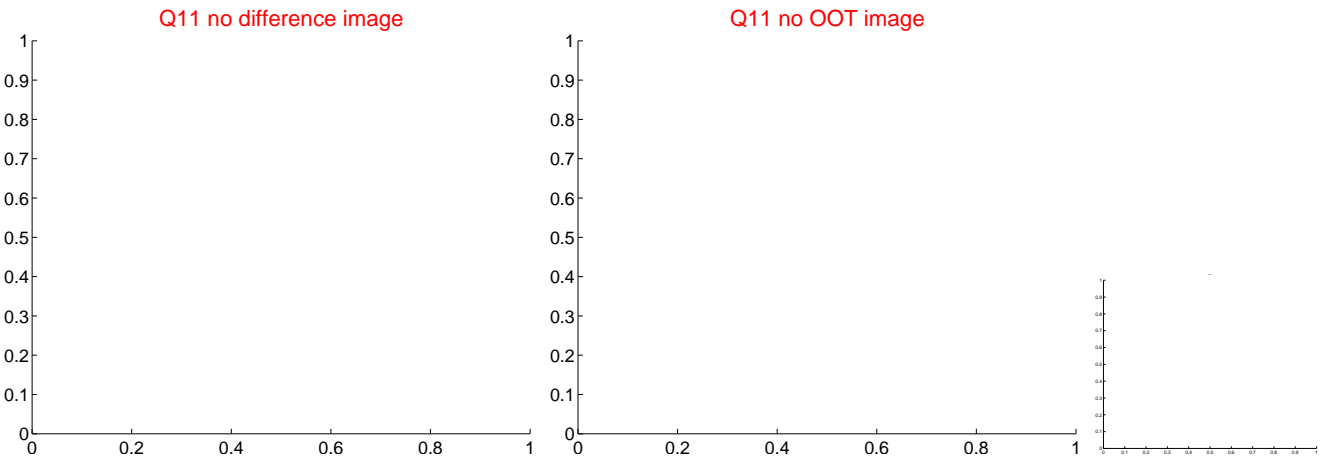
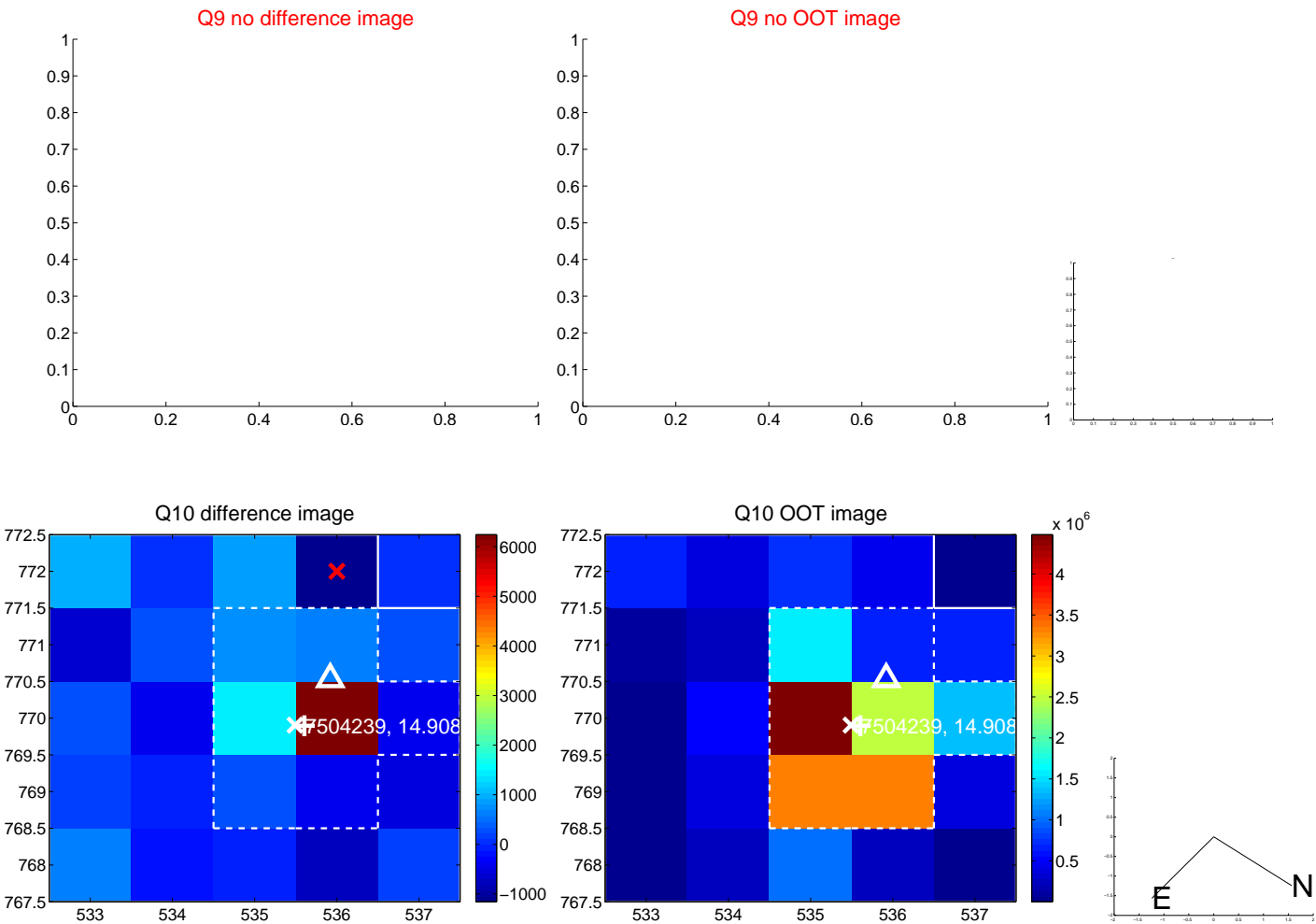




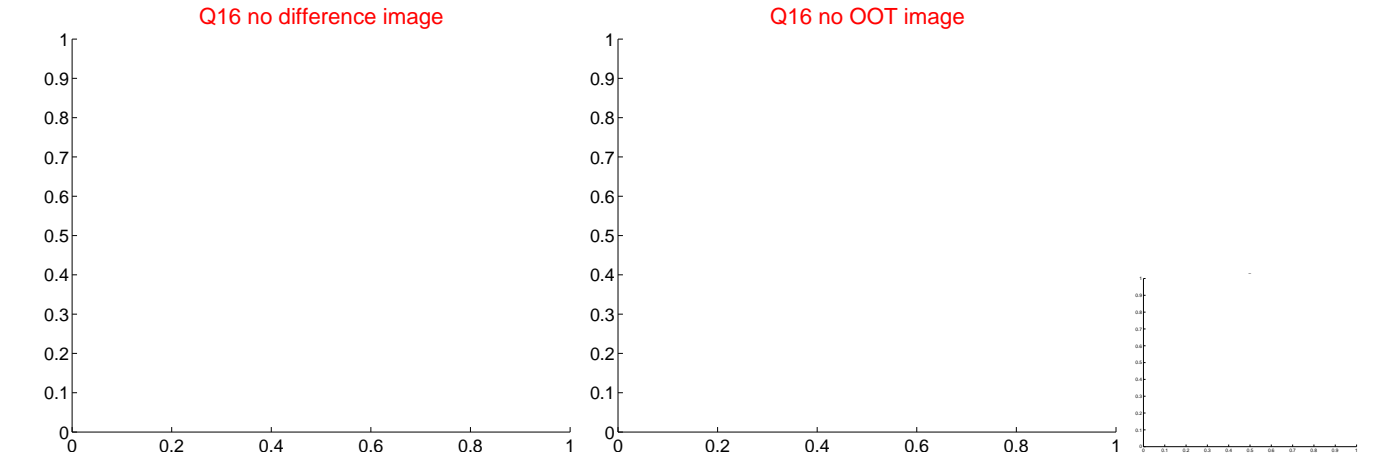
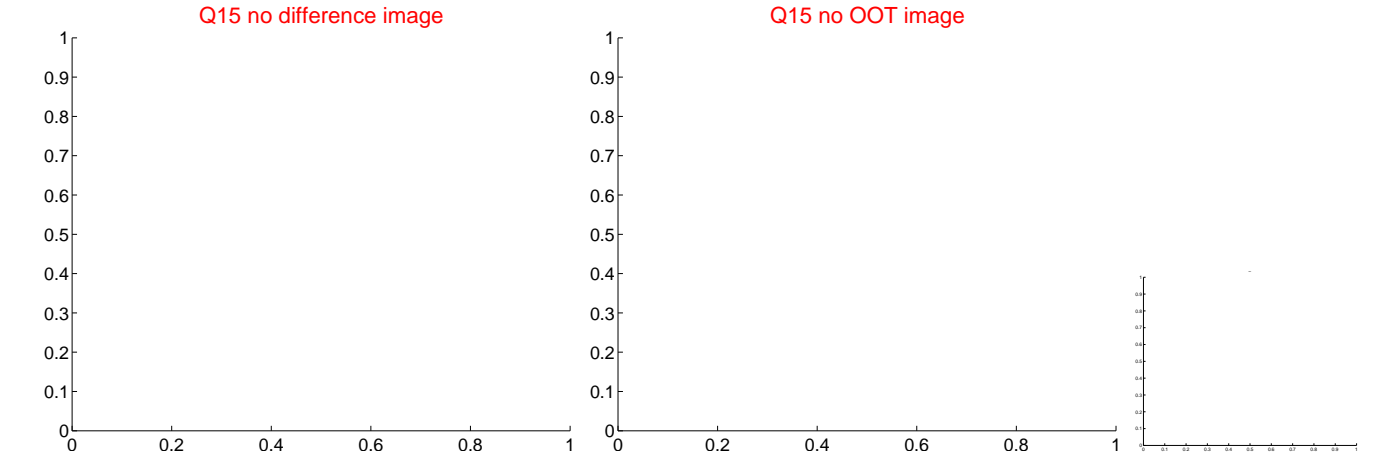
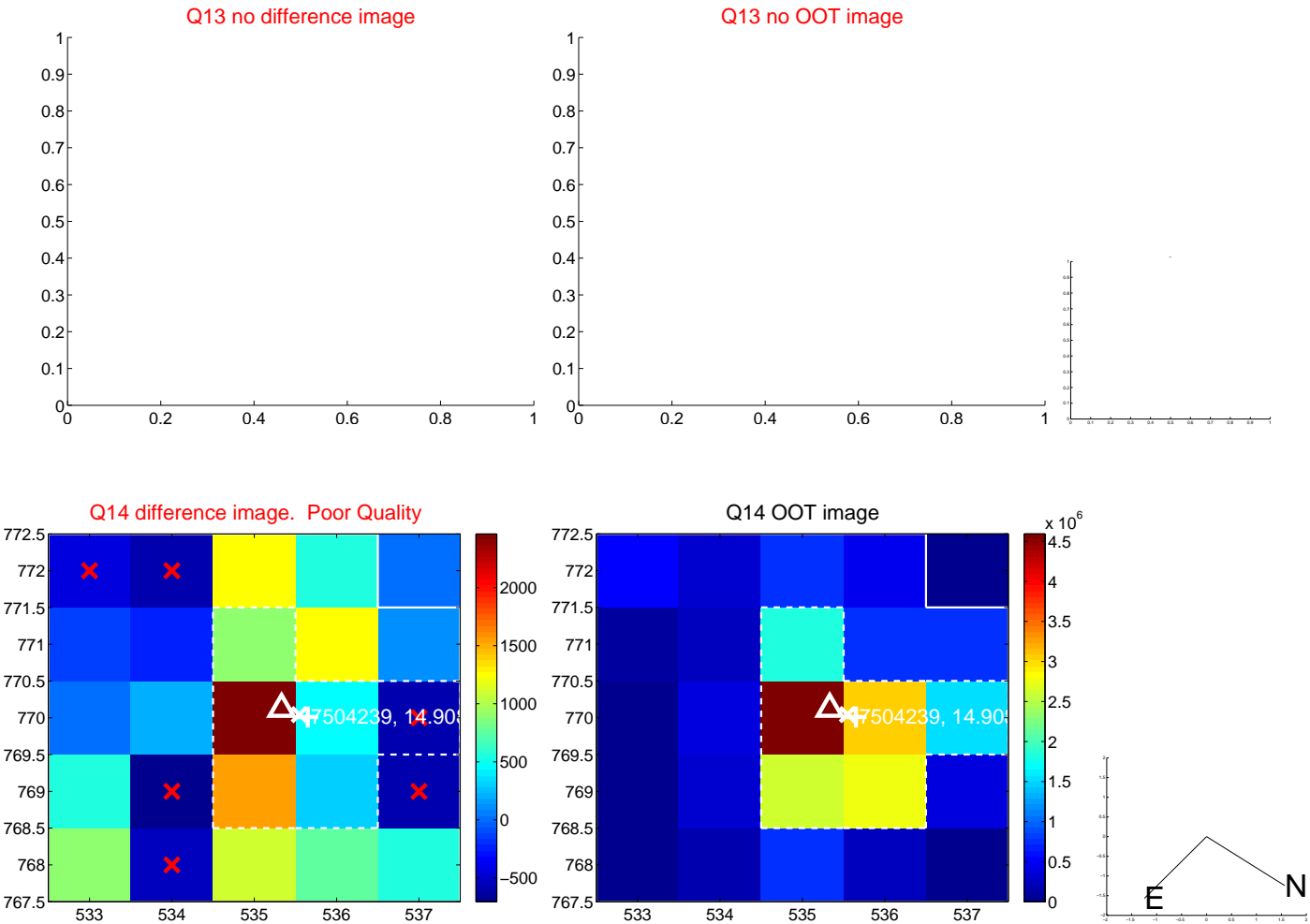
white ×: KIC target position; +: OOT centroid; △: difference centroid. red ×: large negative pixel value.



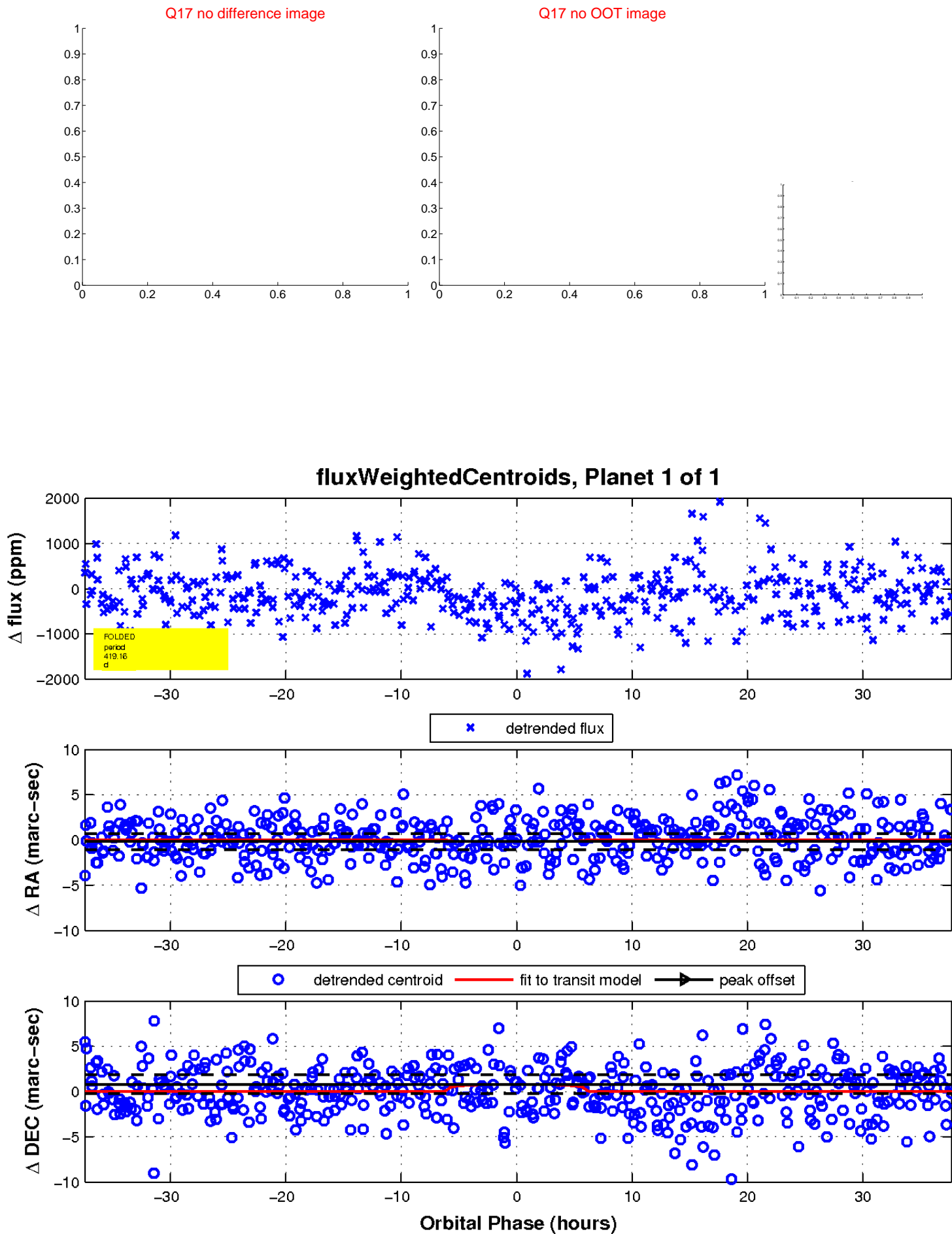
white ×: KIC target position; +: OOT centroid; △: difference centroid. red ✕: large negative pixel value.



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



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



UKIRT Image

Declination

