

# KIC 007687325

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
007687325-01	OBS	No	539.944811	375.488353	635.5	13.355	8.8	9.0	1.12	6321	2.89	0.95

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
007687325-01	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_MARSHALL—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.

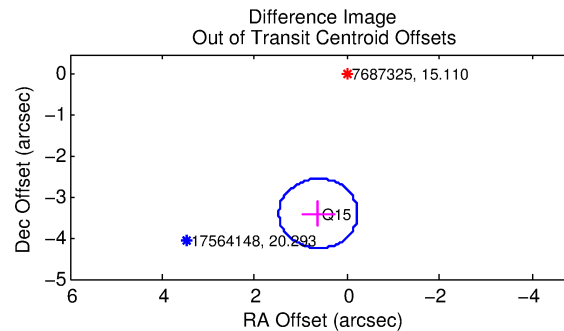
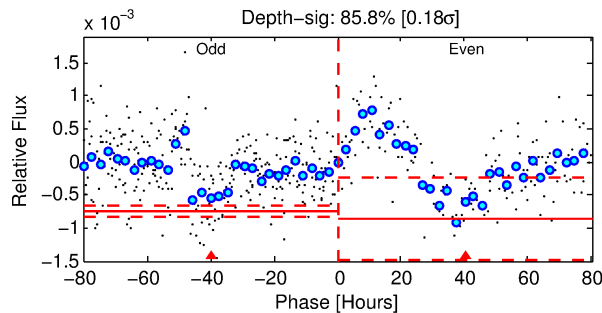
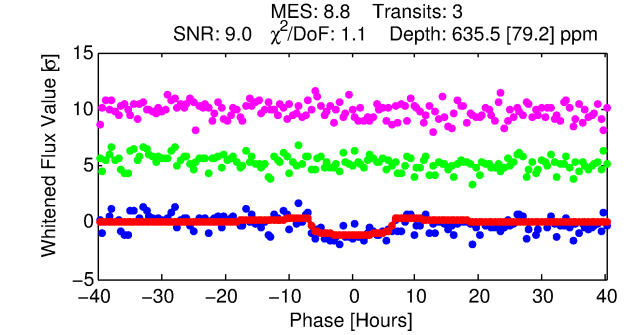
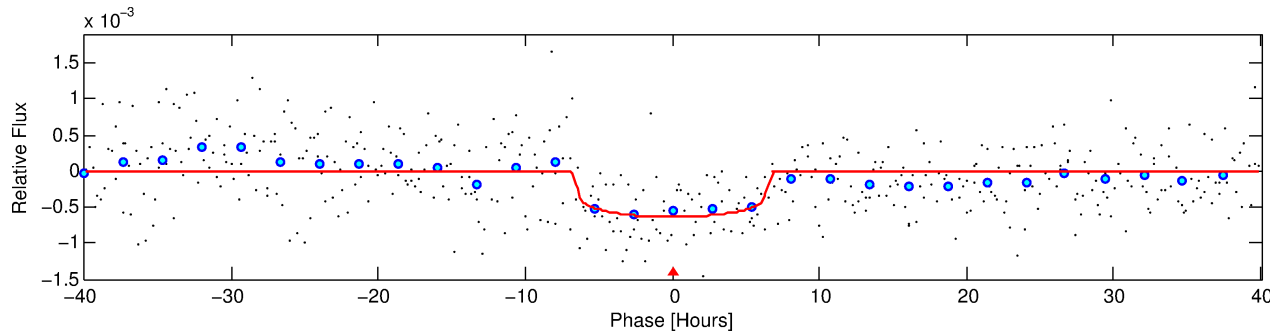
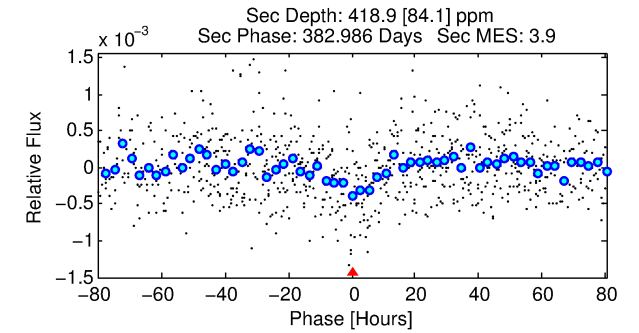
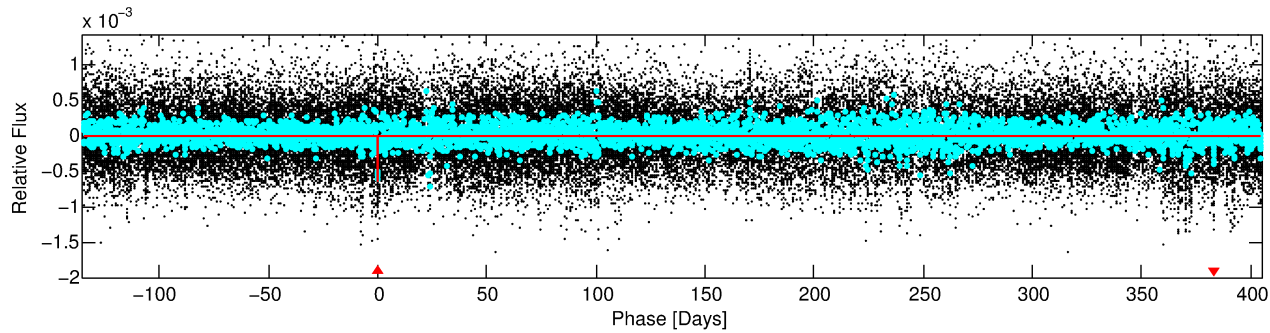
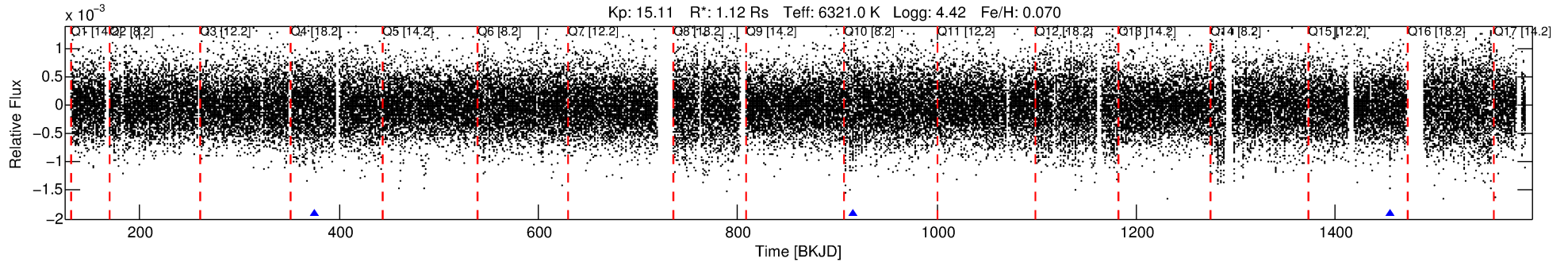
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

## Ephemeris Match Information For 007687325-01

No Significant Match Found

# DV One-Page Summary

KIC: 7687325 Candidate: 1 of 1 Period: 539.945 d



## DV Fit Results:

Period = 539.94481 [0.01189] d  
Epoch = 375.4884 [0.0158] BKJD  
Rp/R\* = 0.0235 [0.0155]  
a/R\* = 289.22 [949.65]  
b = 0.41 [6.61]  
Seff = 0.95 [0.38]  
Teq = 252 [25] K  
Rp = 2.89 [2.08] Re  
a = 1.3815 [0.3481] AU  
Ag = 52669.79 [72794.67] [0.72σ]  
Teffp = 5894 [1971] K [2.86σ]

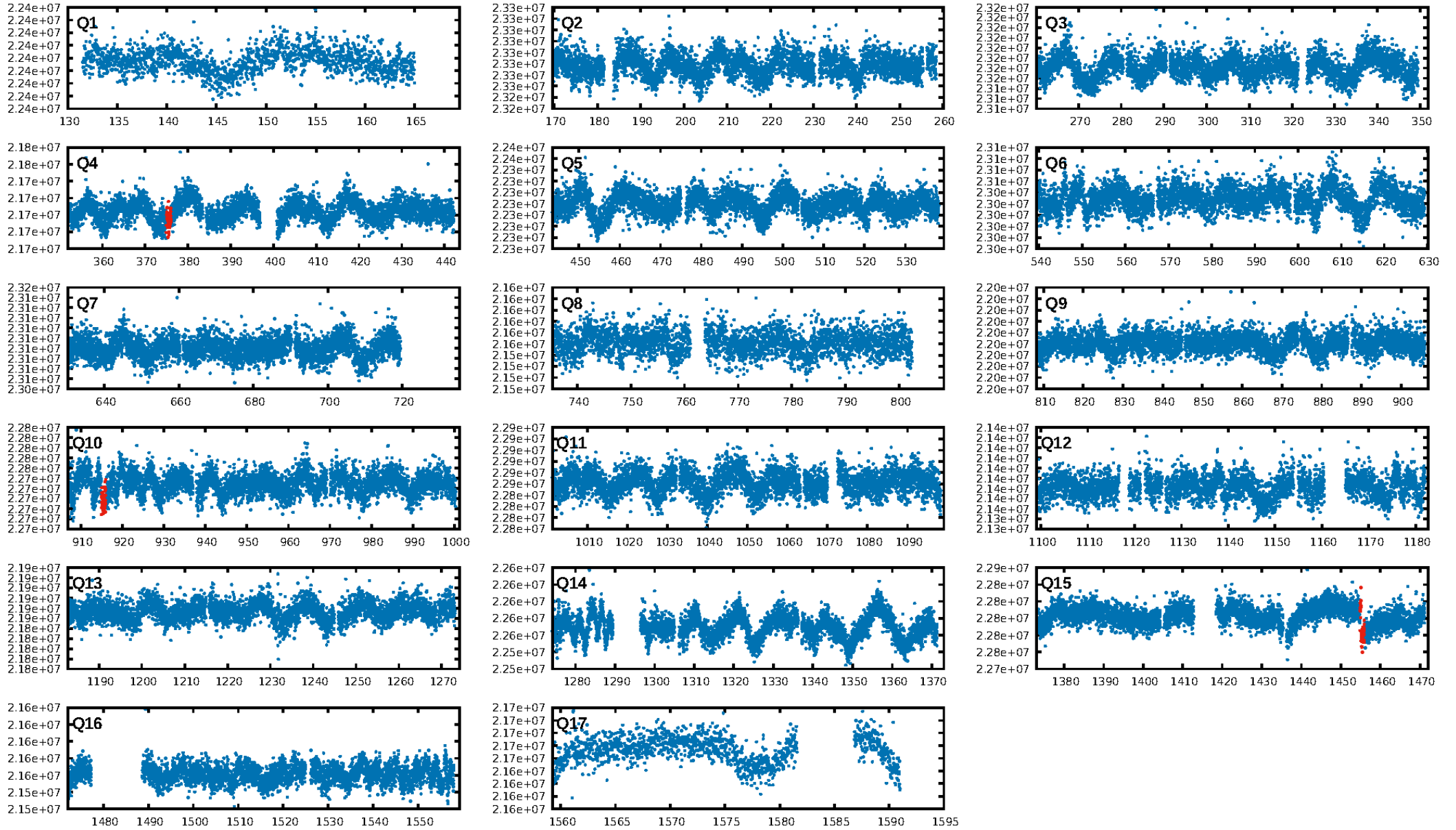
## DV Diagnostic Results:

ShortPeriod-sig: N/A  
LongPeriod-sig: N/A  
ModelChiSquare2-sig: 0.8%  
ModelChiSquareGof-sig: 99.9%  
**Bootstrap-pfa: 4.19e-10**  
RollingBand-fgt: 1.00 [3/3]  
GhostDiagnostic-chr: 1.766  
Centroid-sig: 9.1%  
Centroid-so: 1.695 arcsec [1.29σ]  
**OotOffset-rm: 3.454 arcsec [12.19σ]**  
**KicOffset-rm: 3.395 arcsec [11.96σ]**  
OotOffset-st: 0/1/0/0 [1]  
KicOffset-st: 0/1/0/0 [1]  
DiffImageQuality-fgm: 1.00 [1/1]  
DiffImageOverlap-fno: 1.00 [3/3]

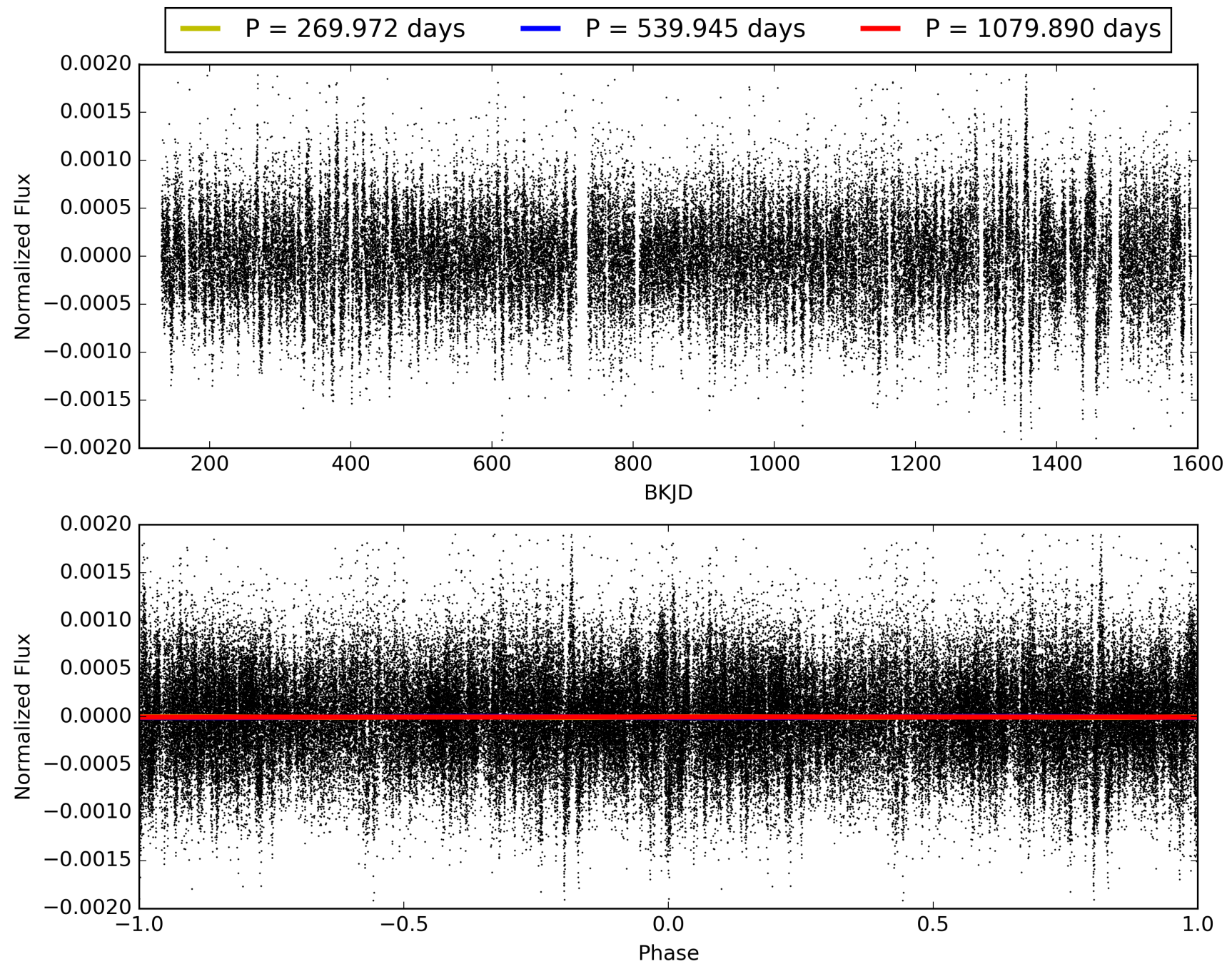
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 31-Jan-2016 04:13:26 Z

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

# TCE 007687325-01, PDC Light Curves

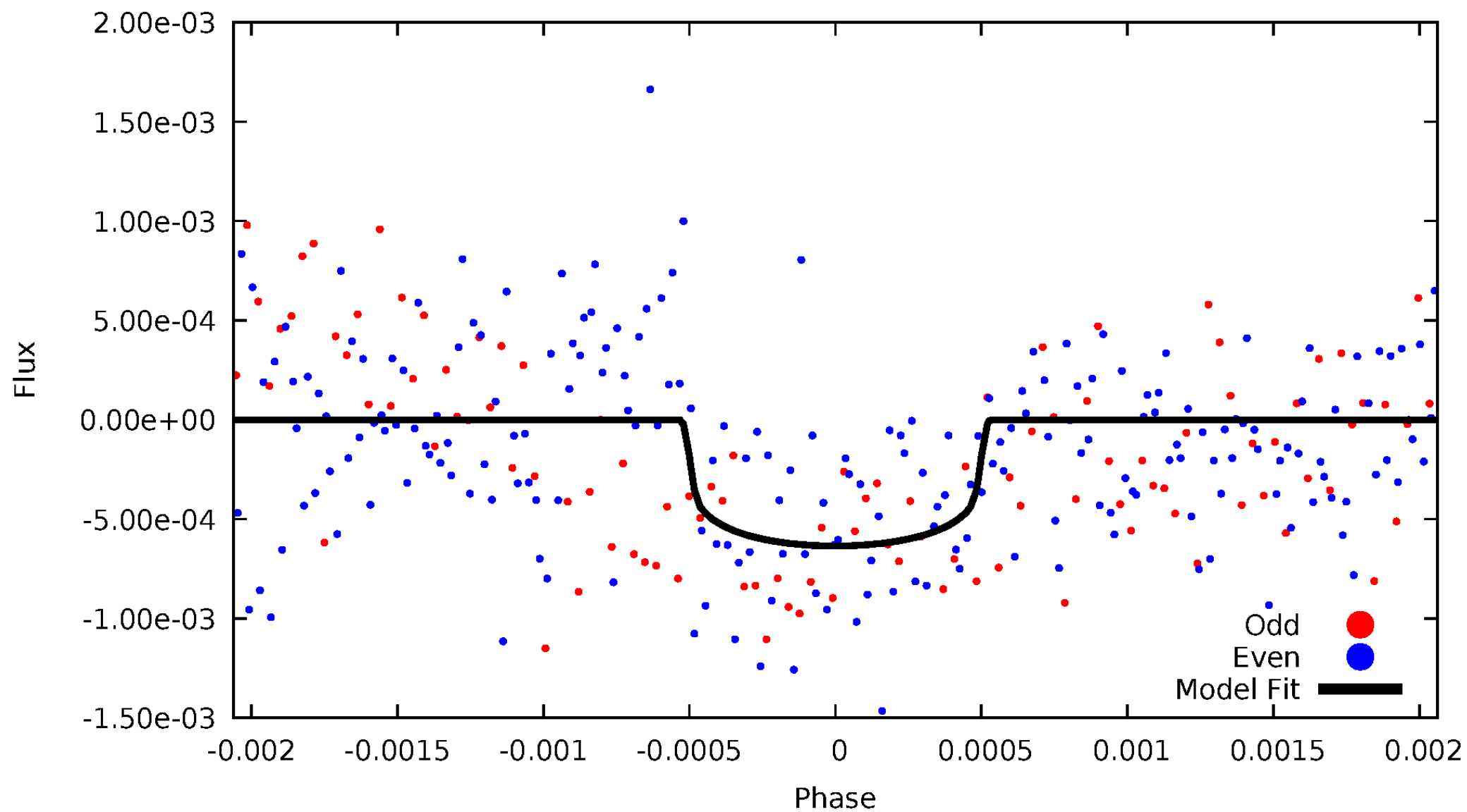


# TCE 007687325-01



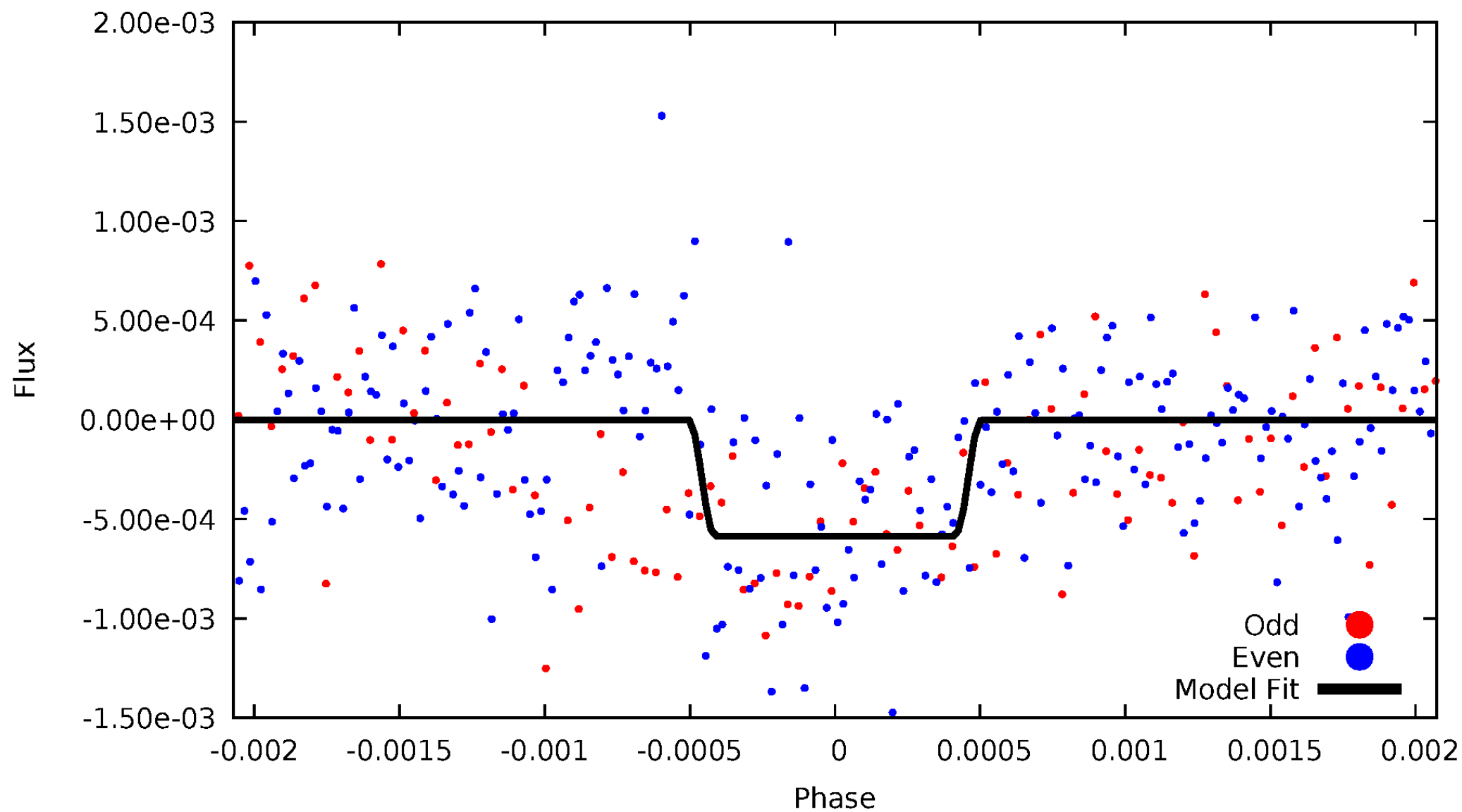
# DV Odd/Even

TCE 007687325-01



# ALT Odd/Even

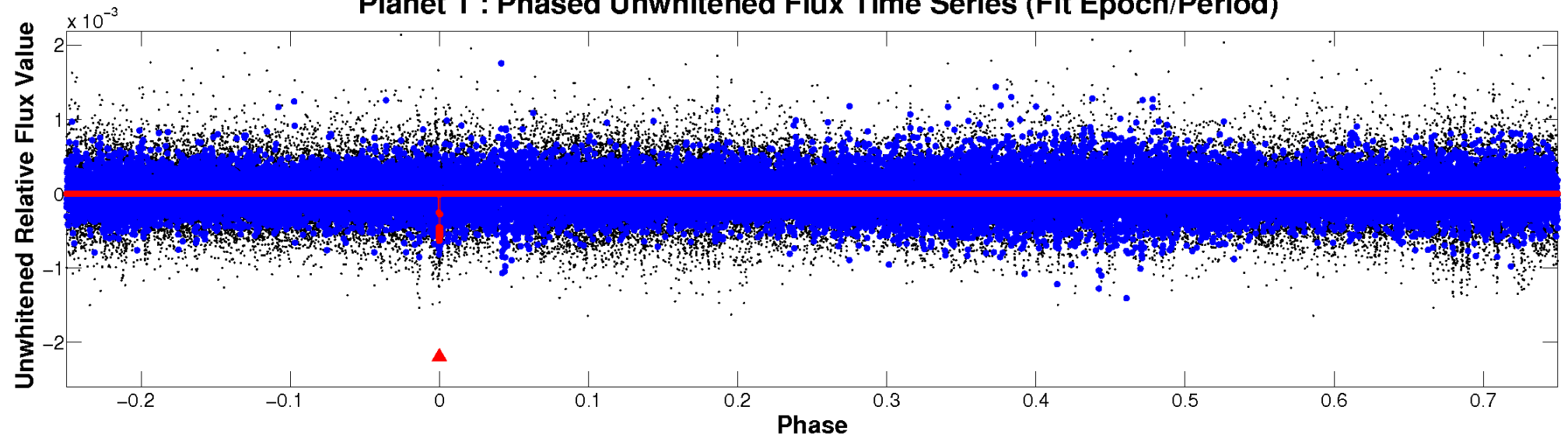
TCE 007687325-01



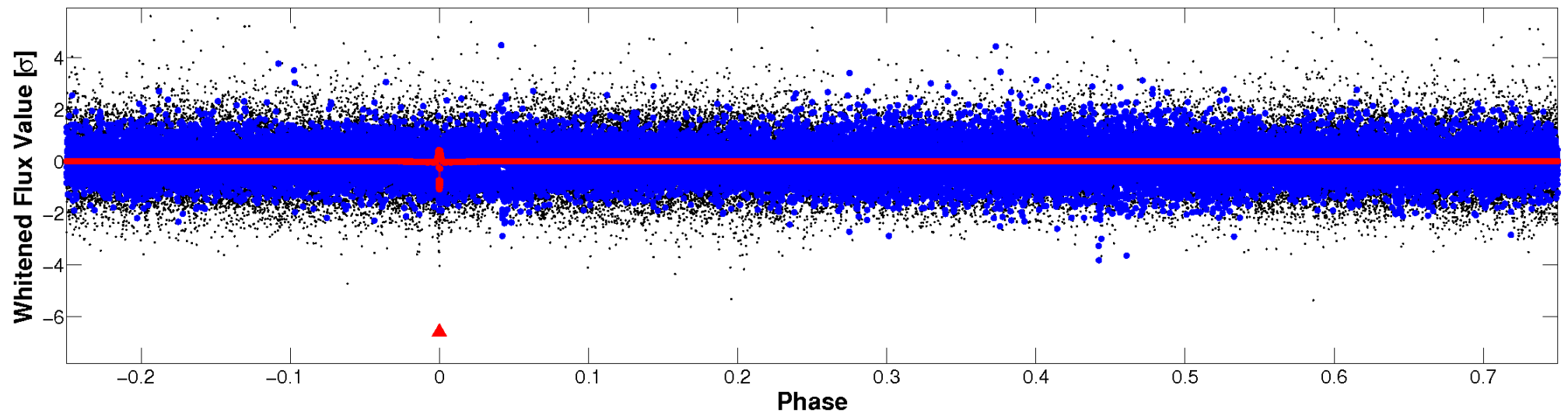


# Non-Whitened Vs. Whitened Light Curve

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

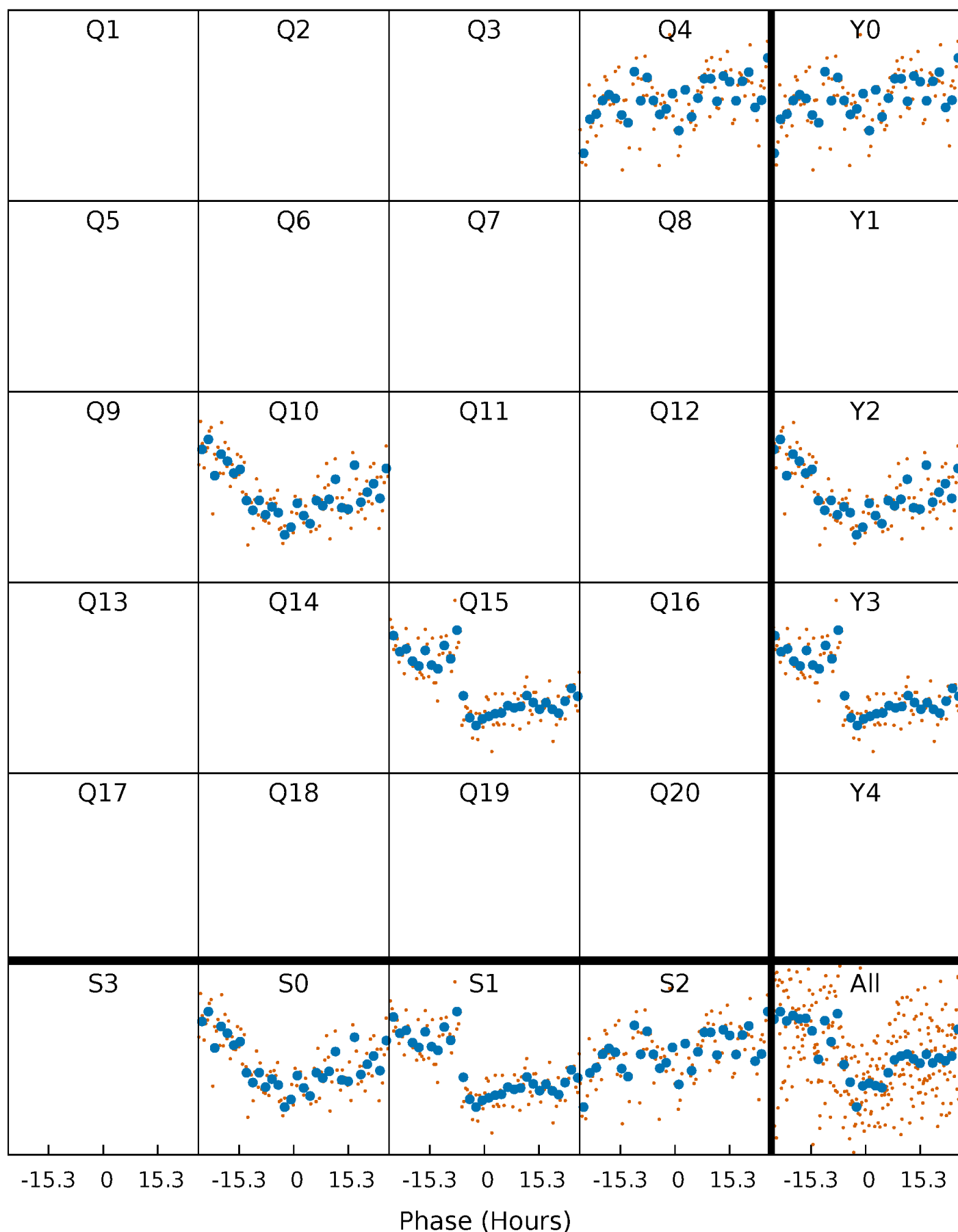


**Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)**



# PDC Quarter-Phased Transit Curves

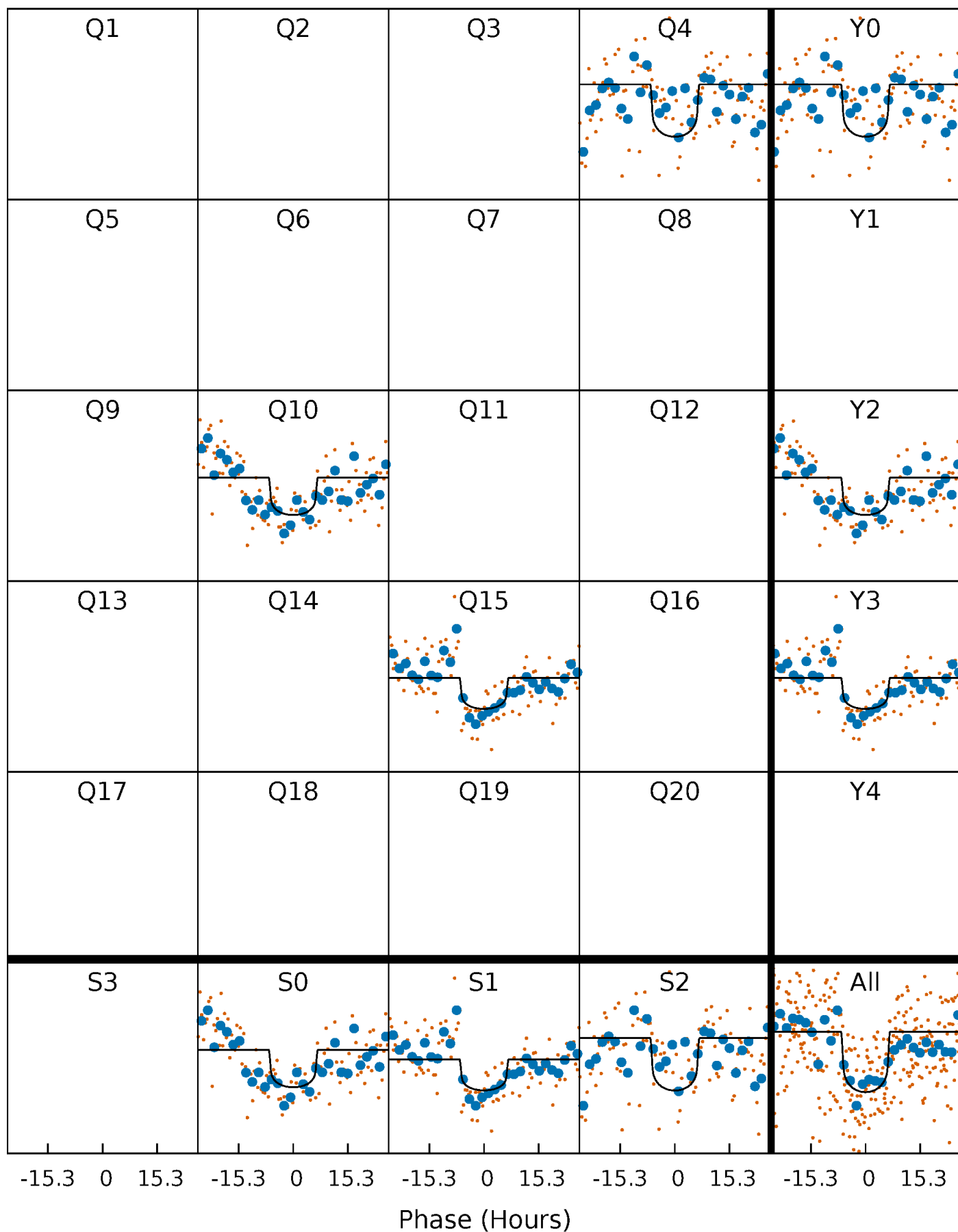
TCE 007687325-01 P=539.944811 Days  $T_0=375.488353$  (BKJD)





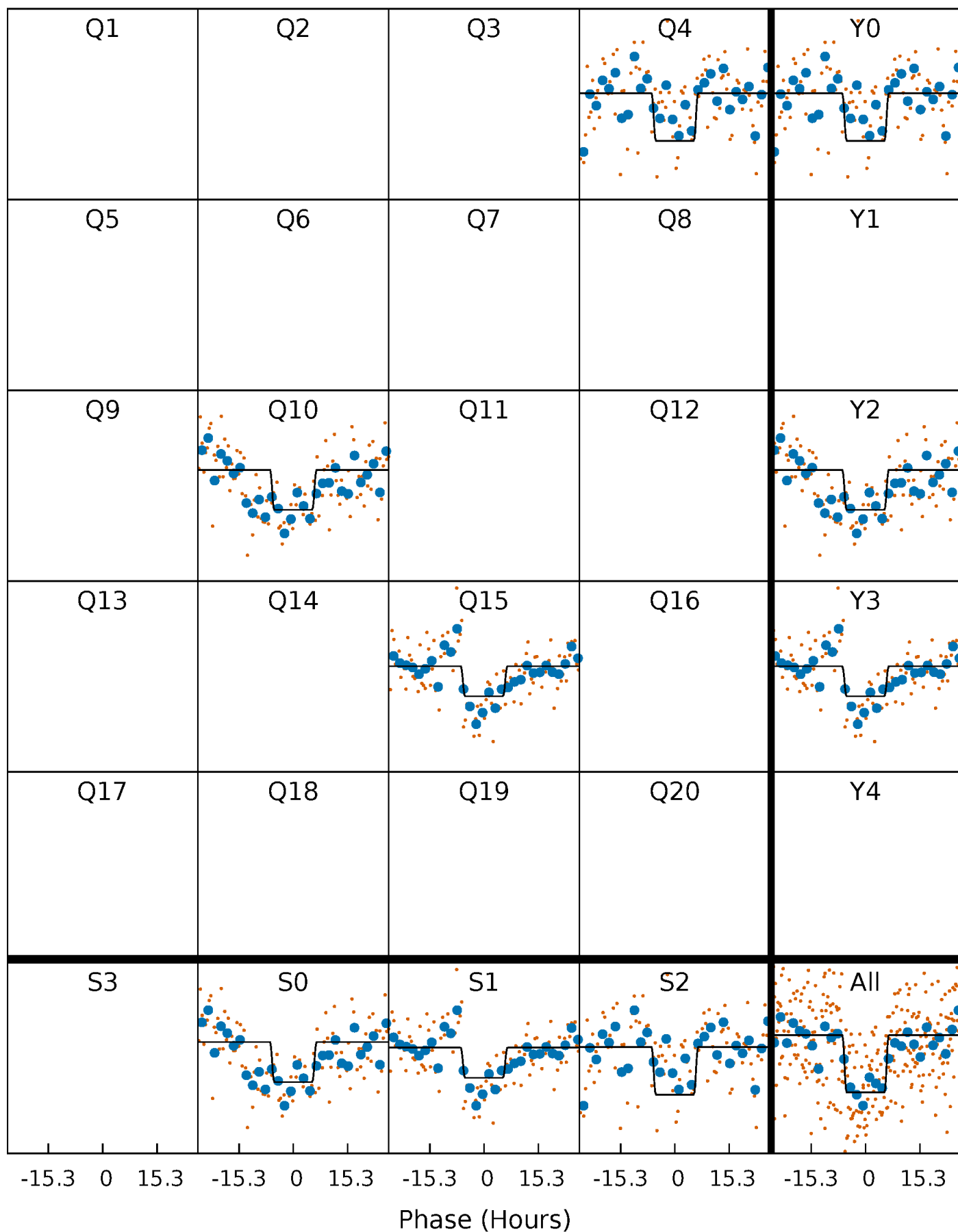
# DV Quarter-Phased Transit Curves

TCE 007687325-01 P=539.944811 Days  $T_0=375.488353$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

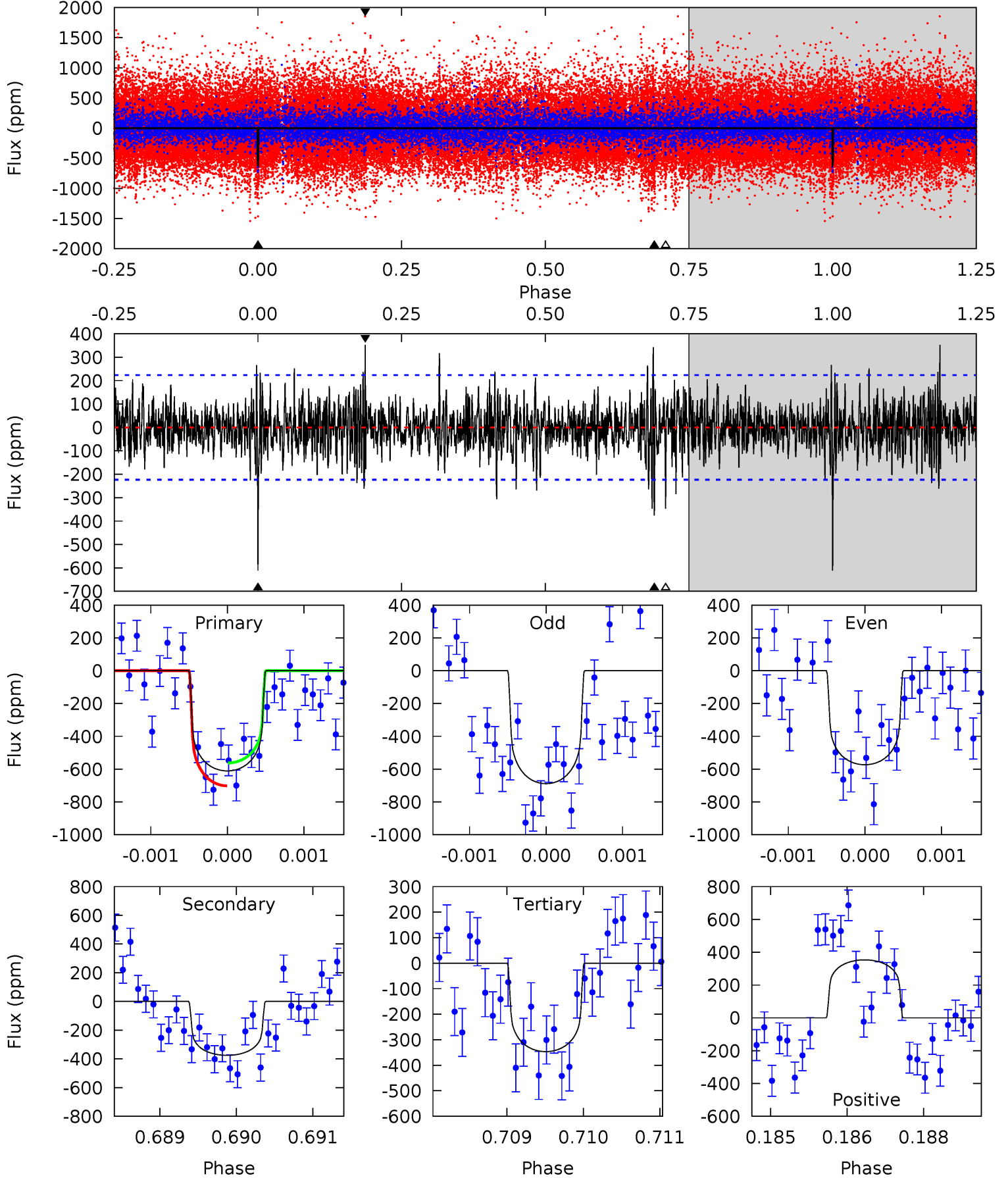
TCE 007687325-01 P=539.922767 Days  $T_0=375.512046$  (BKJD)



# DV Model-Shift Uniqueness Test

007687325-01, P = 539.944811 Days, E = 375.488353 Days

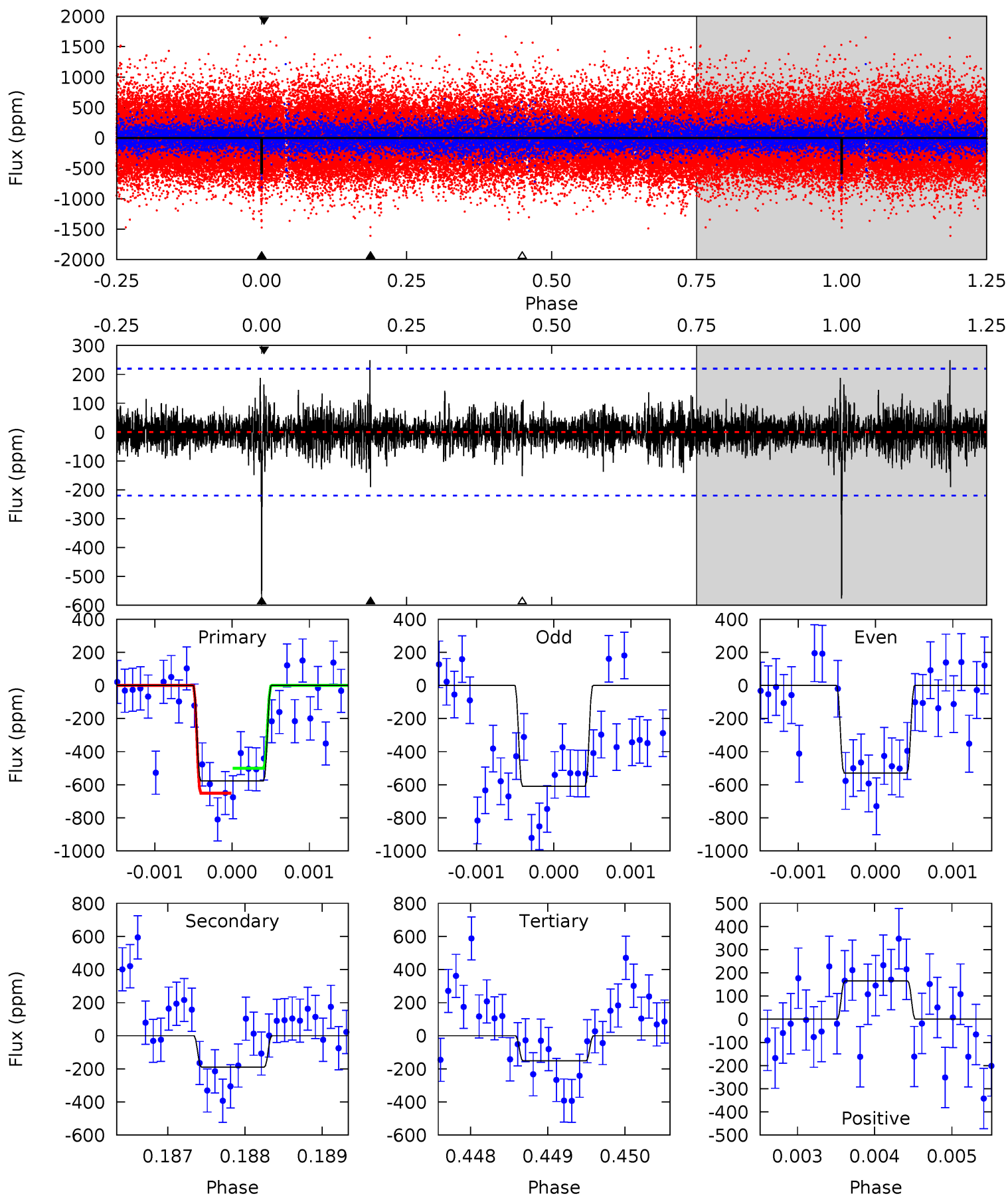
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
14.9	9.14	8.43	8.60	5.44	3.27	1.88	6.44	6.27	0.70	0.54	1.31	0.89	0.37	1.68



# Alt Model-Shift Uniqueness Test

007687325-01, P = 539.922767 Days, E = 375.512046 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
14.3	4.71	3.77	4.09	5.45	3.29	0.97	10.5	10.2	0.93	0.62	0.92	0.91	0.30	1.86



### Stellar Parameters For KIC 007687325

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	$6321^{+174}_{-217}$	$4.417^{+0.052}_{-0.208}$	$0.070^{+0.200}_{-0.350}$	$1.125^{+0.329}_{-0.141}$	$1.207^{+0.152}_{-0.186}$	$1.195^{+0.319}_{-0.602}$
	+3%/-3%	+1%/-5%	+286%/-500%	+29%/-13%	+13%/-15%	+27%/-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 007687325-01 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	$A_{obs}$
DV	$-376 \pm 41$	$3.15^{+2.06}_{-1.84}$	$360^{+24}_{-17}$	$5630^{+3704}_{-1053}$	$38995^{+197632}_{-24596}$
Alt.	$-190 \pm 40$	$3.19^{+2.11}_{-1.82}$	$360^{+26}_{-18}$	$4837^{+2337}_{-838}$	$19519^{+87844}_{-12691}$

$T_{max}$  = 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

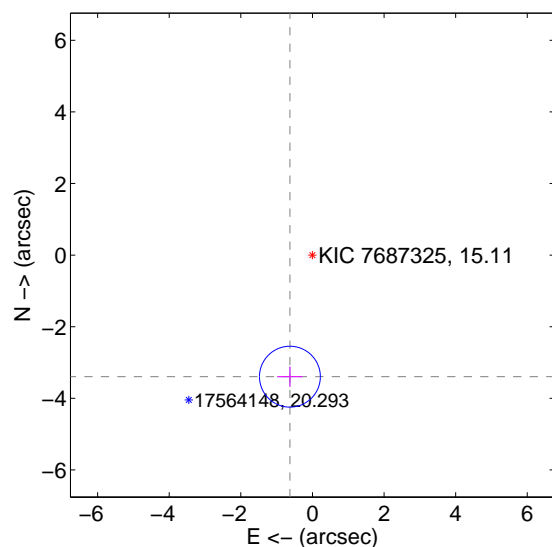
Supplemental centroid analysis for 007687325-01. Kepler magnitude: 15.11. Transit SNR 8.97

There are 1 quarters with good PRF difference image offsets

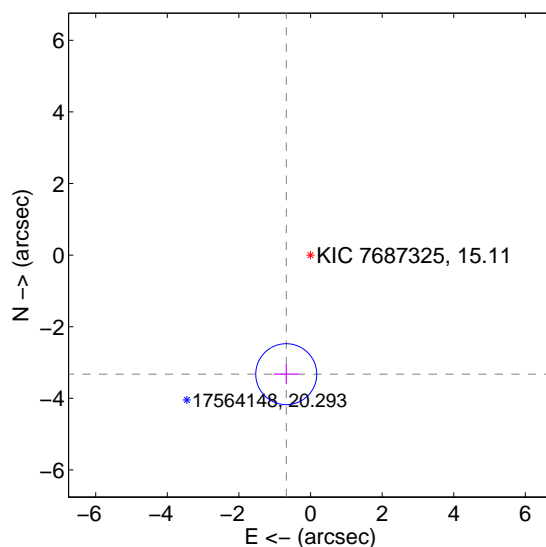
The direct PRF centroid is offset from the target star catalog position by about 0.09 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$3.454 \pm 0.283$	12.19	$0.629 \pm 0.351$	$-3.396 \pm 0.281$
PRF-fit source offset from KIC position	$3.395 \pm 0.284$	11.96	$0.678 \pm 0.351$	$-3.327 \pm 0.281$
photometric centroid source offset	$1.70 \pm 1.31$	1.29	$1.17 \pm 1.26$	$-1.22 \pm 1.36$

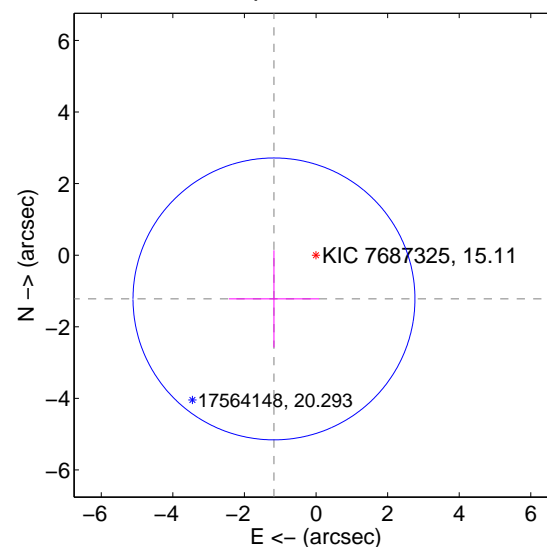
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position



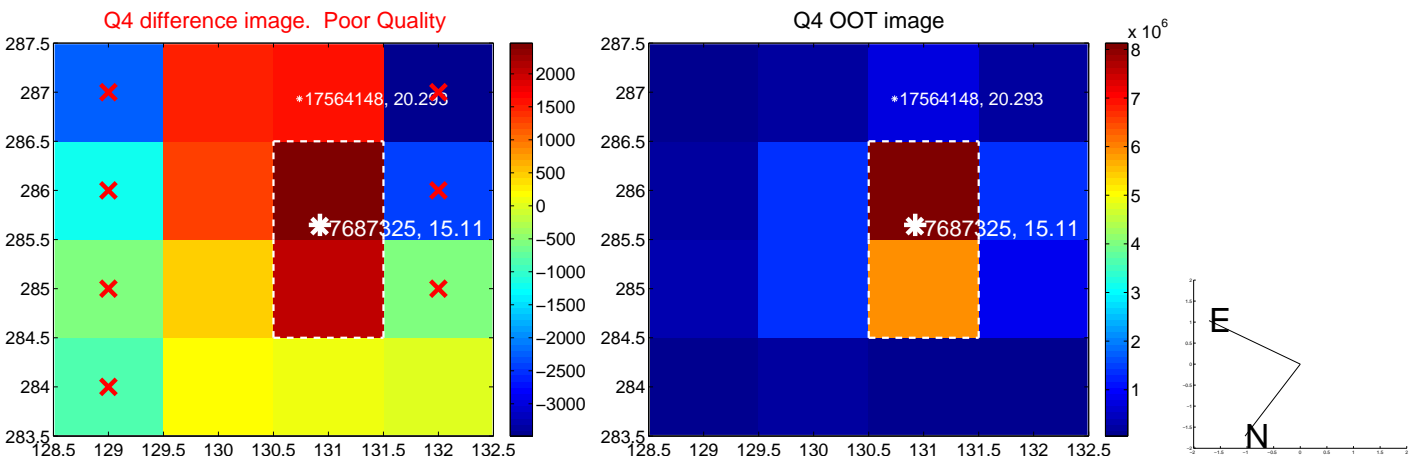
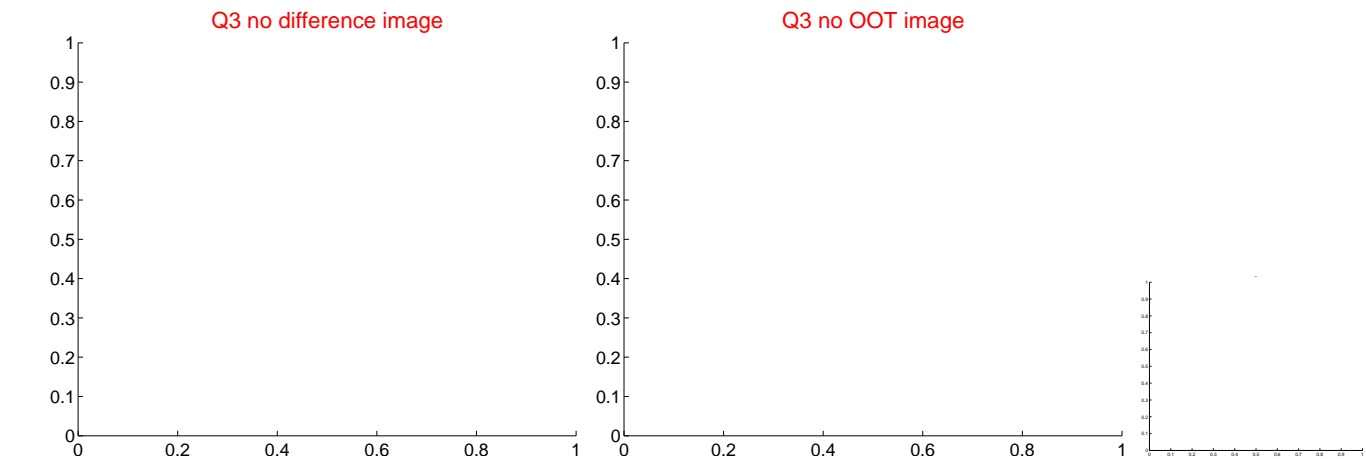
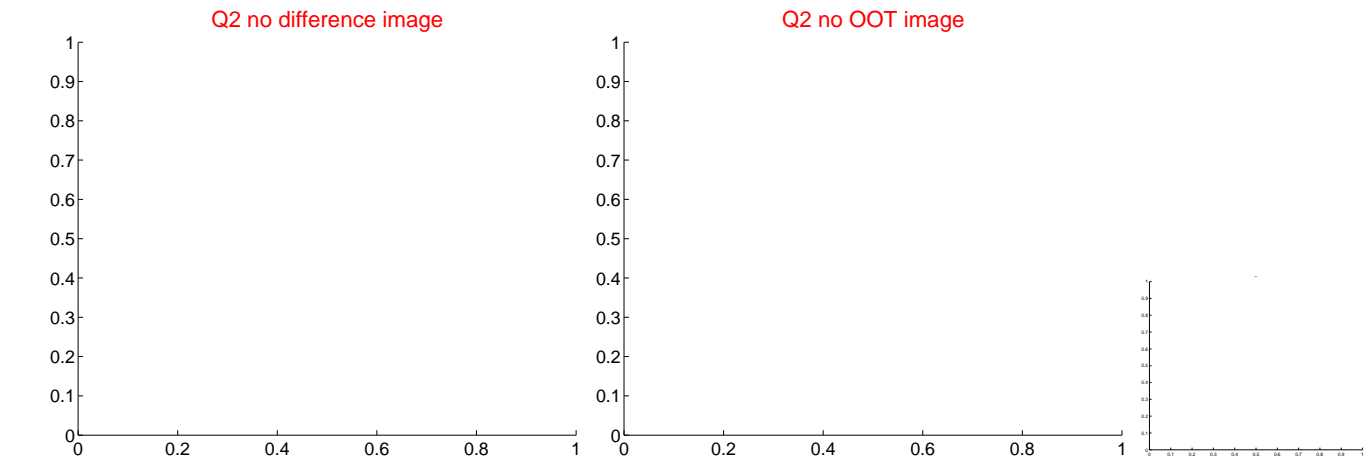
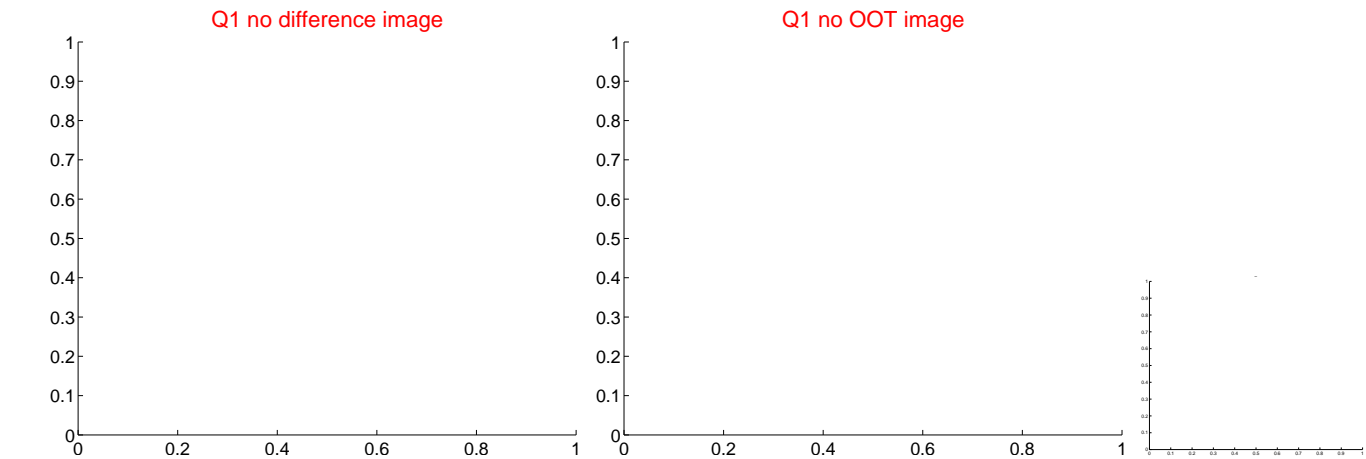
offset from photometric centroids



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.



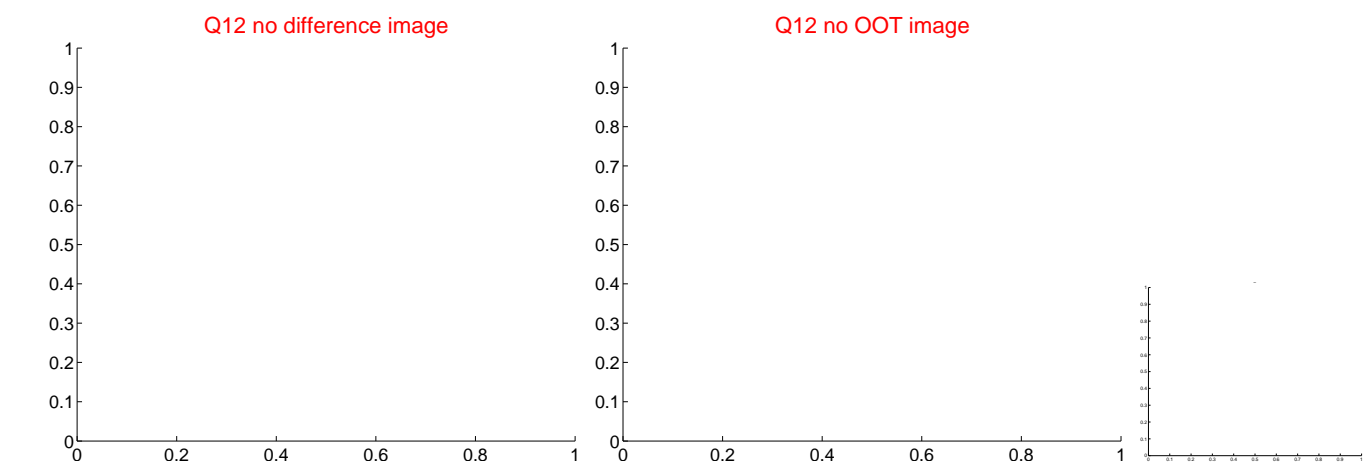
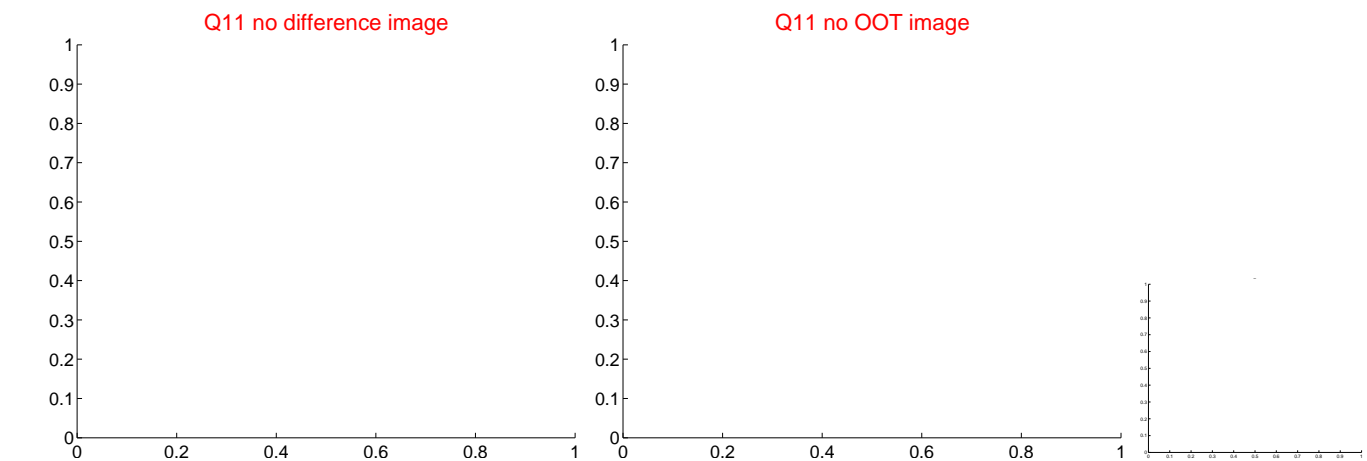
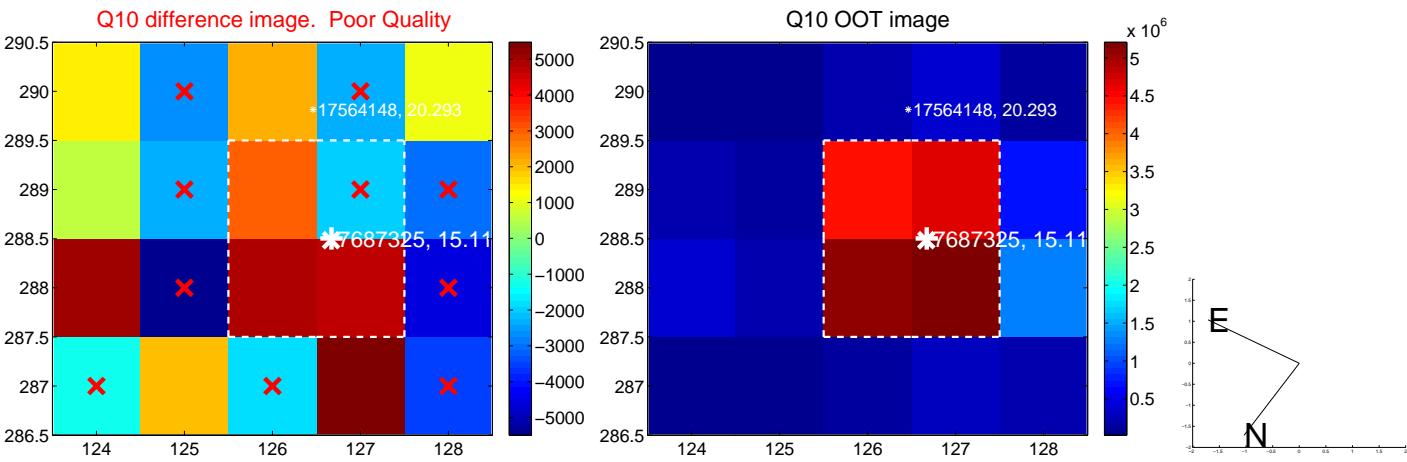
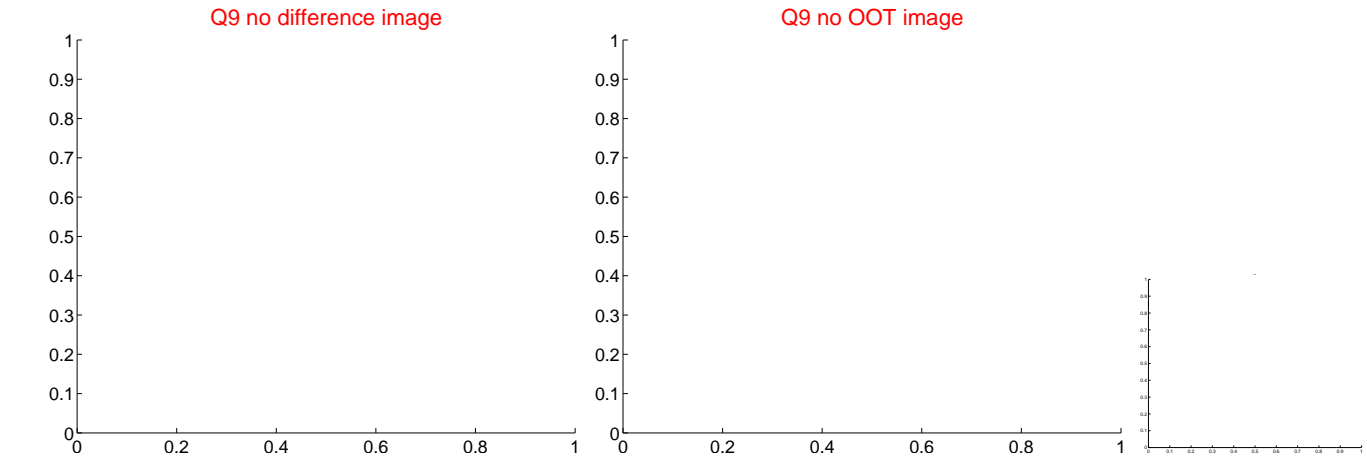
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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



white ×: 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.

Q13 no difference image



Q13 no OOT image



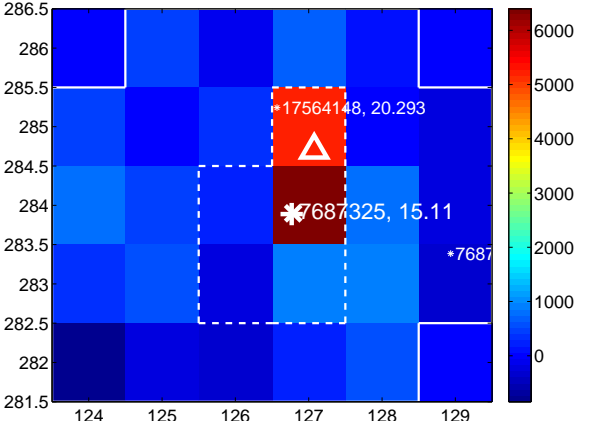
Q14 no difference image



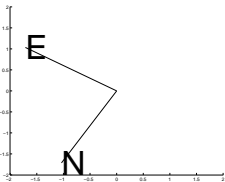
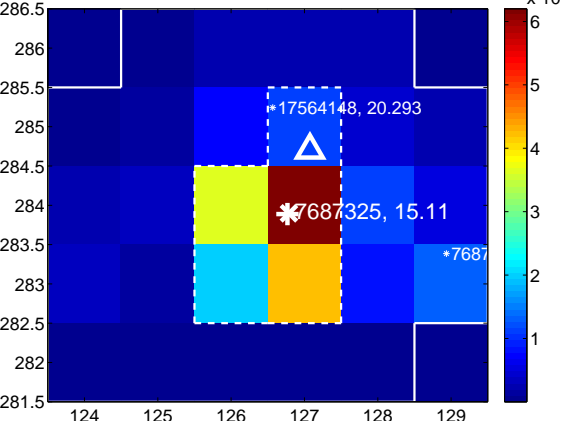
Q14 no OOT image



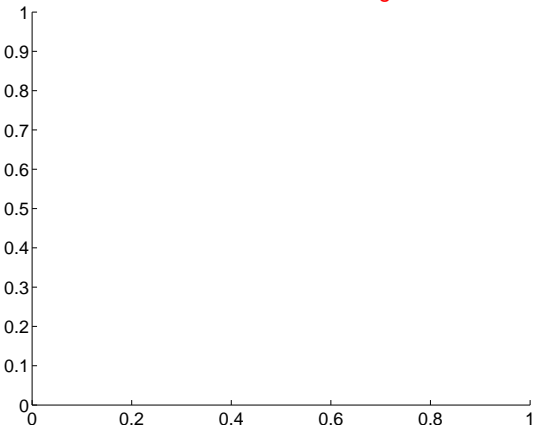
Q15 difference image



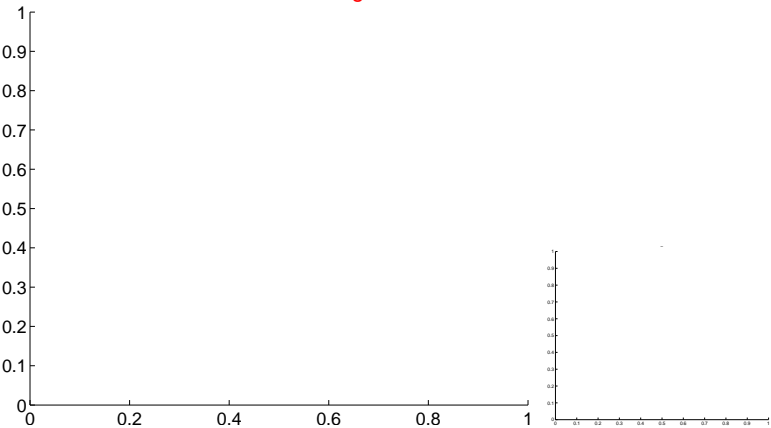
Q15 OOT image



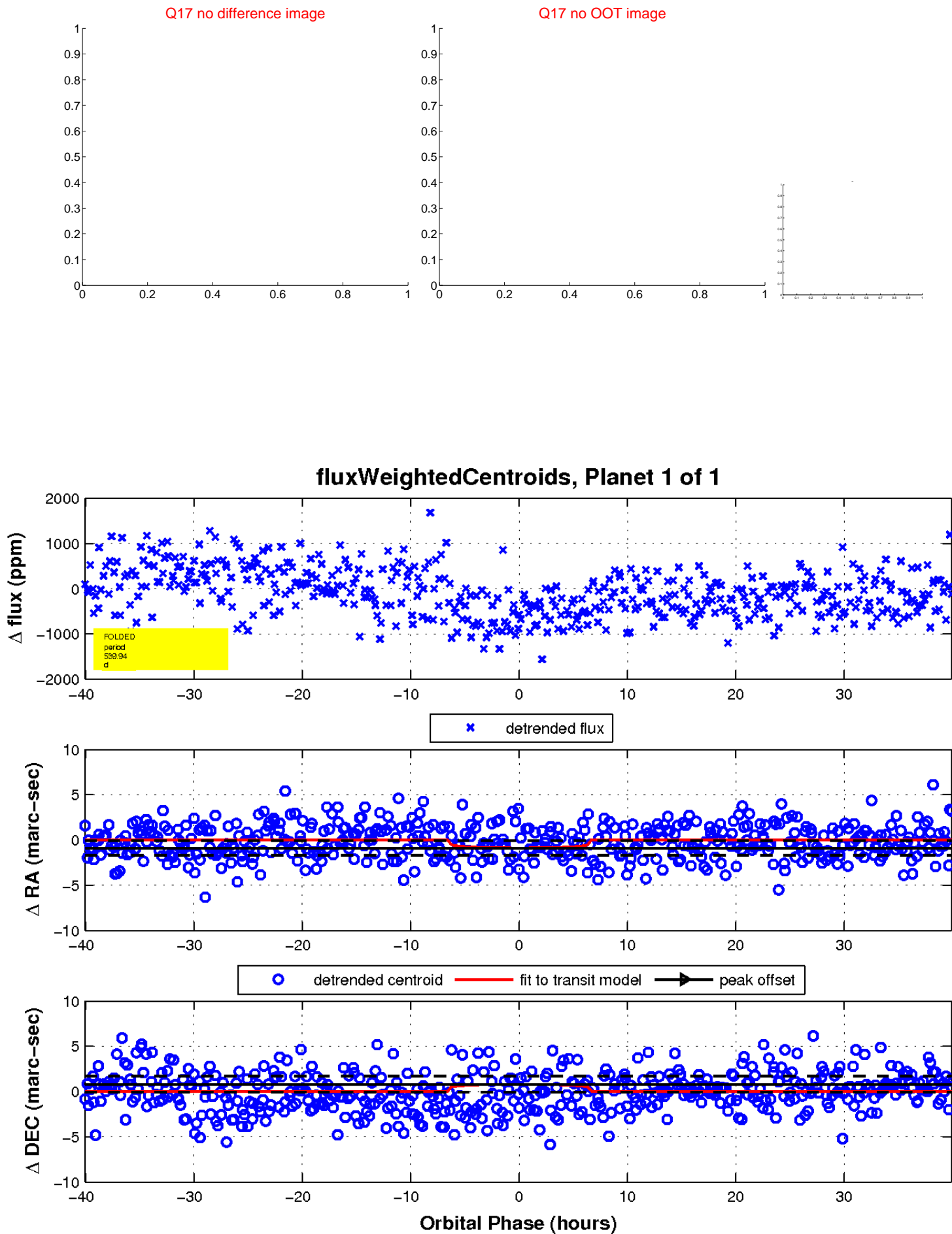
Q16 no difference image



Q16 no OOT image



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



# UKIRT Image

Declination

