

# KIC 006691558

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
006691558-01	OBS	No	538.660416	147.407347	214.5	6.344	7.3	7.1	0.84	5755	1.30	0.44

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
006691558-01	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—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.

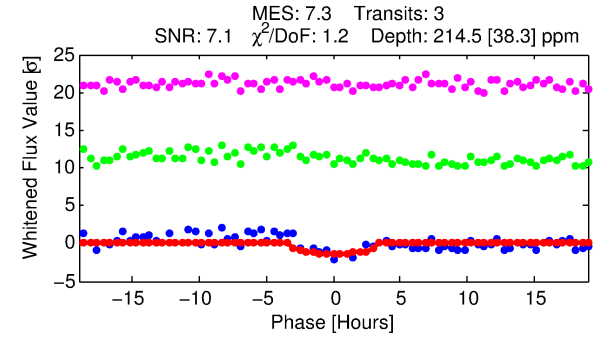
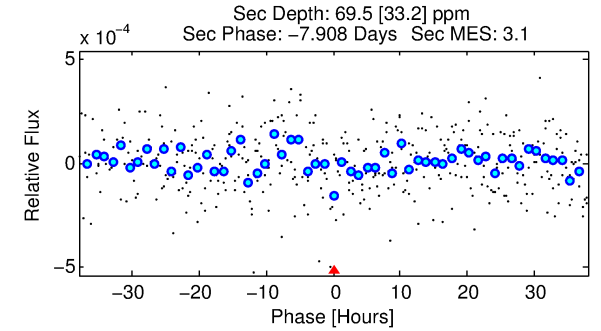
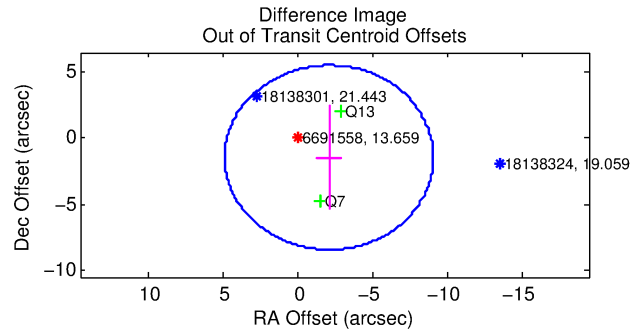
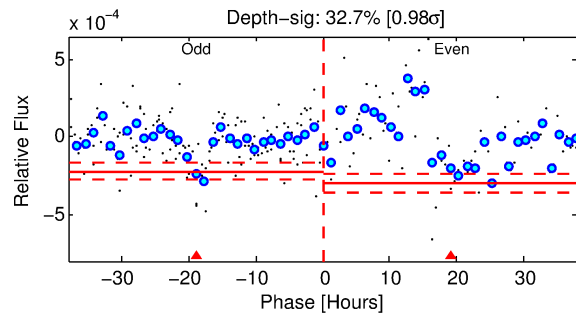
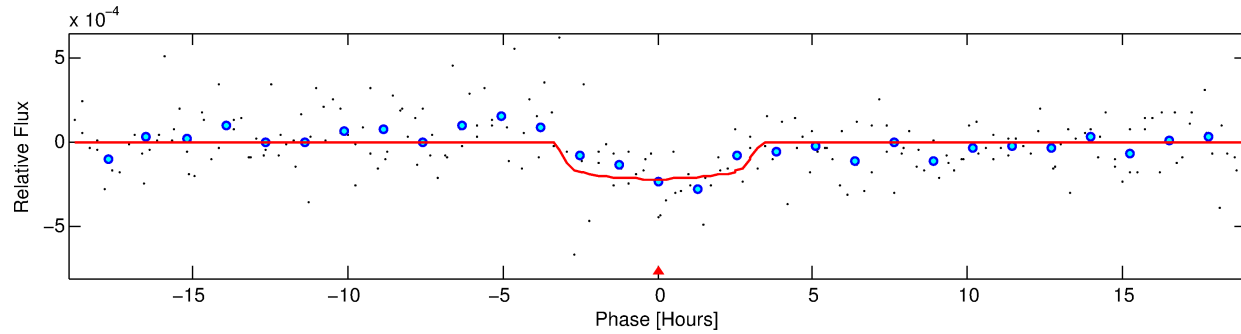
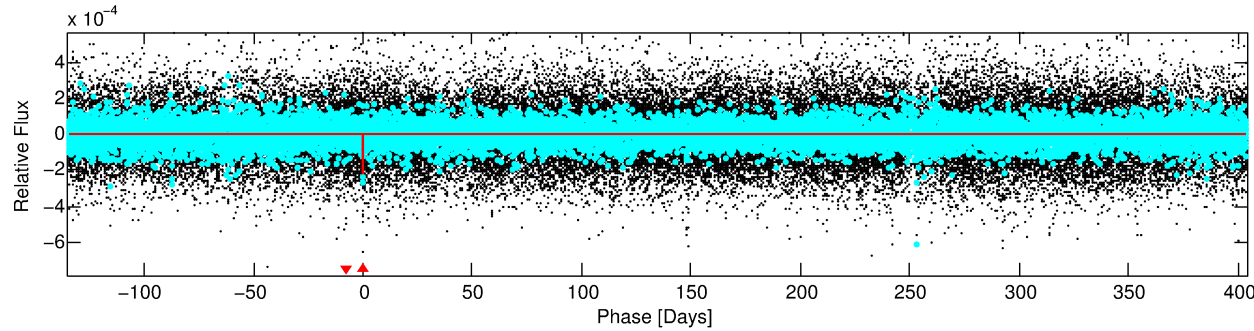
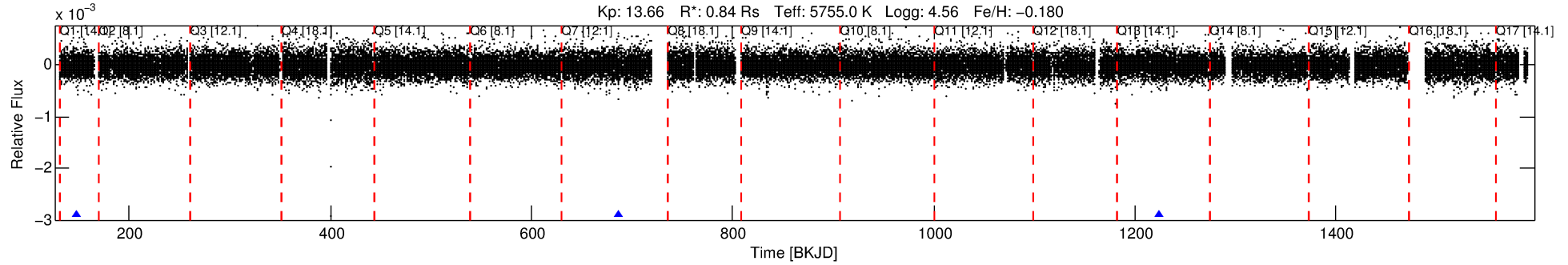
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

## Ephemeris Match Information For 006691558-01

No Significant Match Found

# DV One-Page Summary

KIC: 6691558 Candidate: 1 of 1 Period: 538.660 d



## DV Fit Results:

Period = 538.66042 [0.01147] d  
Epoch = 147.4073 [0.0160] BKJD  
Rp/R\* = 0.0141 [0.0325]  
a/R\* = 506.81 [5271.53]  
b = 0.65 [9.45]  
Seff = 0.44 [0.16]  
Teq = 207 [19] K  
Rp = 1.30 [3.02] Re  
a = 1.2681 [0.3035] AU  
Ag = 36248.79 [168408.54] [0.22 $\sigma$ ]  
Teffp = 4421 [5122] K [0.82 $\sigma$ ]

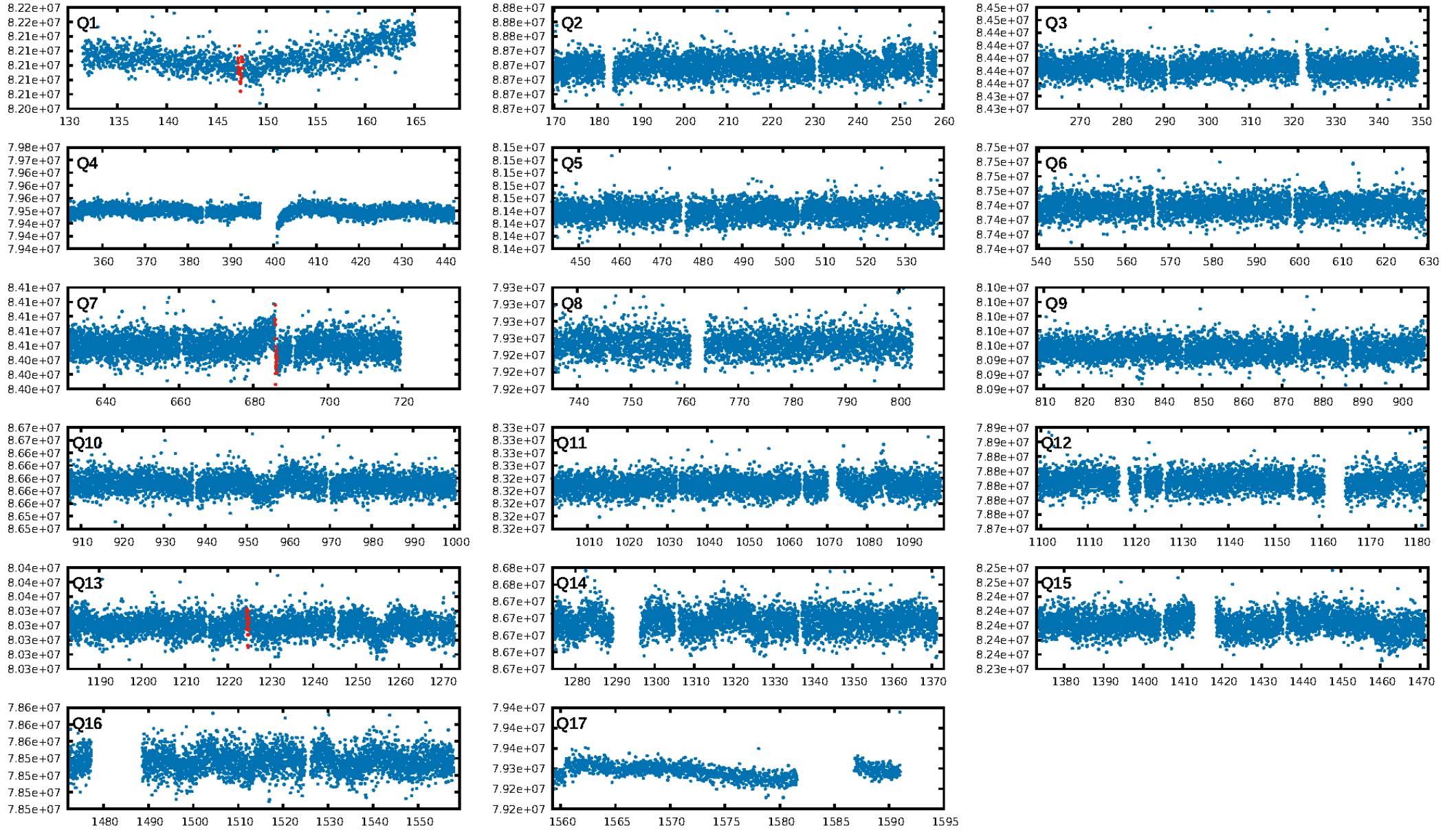
## DV Diagnostic Results:

ShortPeriod-sig: N/A  
LongPeriod-sig: N/A  
ModelChiSquare2-sig: 6.0%  
ModelChiSquareGof-sig: 85.0%  
Bootstrap-pfa: 3.75e-13  
RollingBand-fgt: 1.00 [2/2]  
GhostDiagnostic-chr: -3.325  
Centroid-sig: 45.2%  
Centroid-so: 1.958 arcsec [1.12 $\sigma$ ]  
OotOffset-rm: 2.580 arcsec [1.11 $\sigma$ ]  
KicOffset-rm: 3.037 arcsec [1.16 $\sigma$ ]  
OotOffset-st: 0/1/0/1 [2]  
KicOffset-st: 0/1/0/1 [2]  
DiffImageQuality-fgm: 1.00 [2/2]  
DiffImageOverlap-fno: 1.00 [3/3]

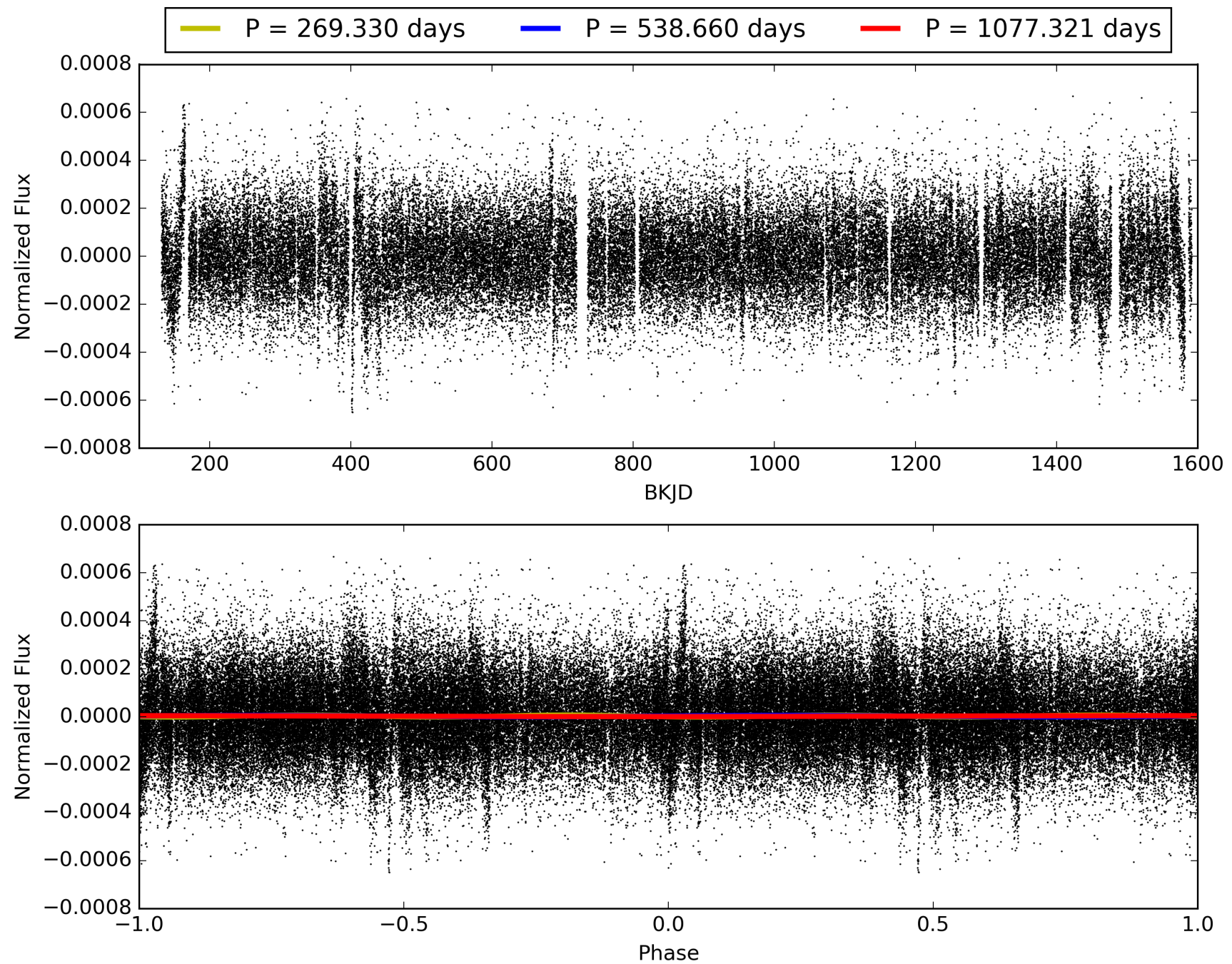
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 29-Jan-2016 04:09:01 Z

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

# TCE 006691558-01, PDC Light Curves

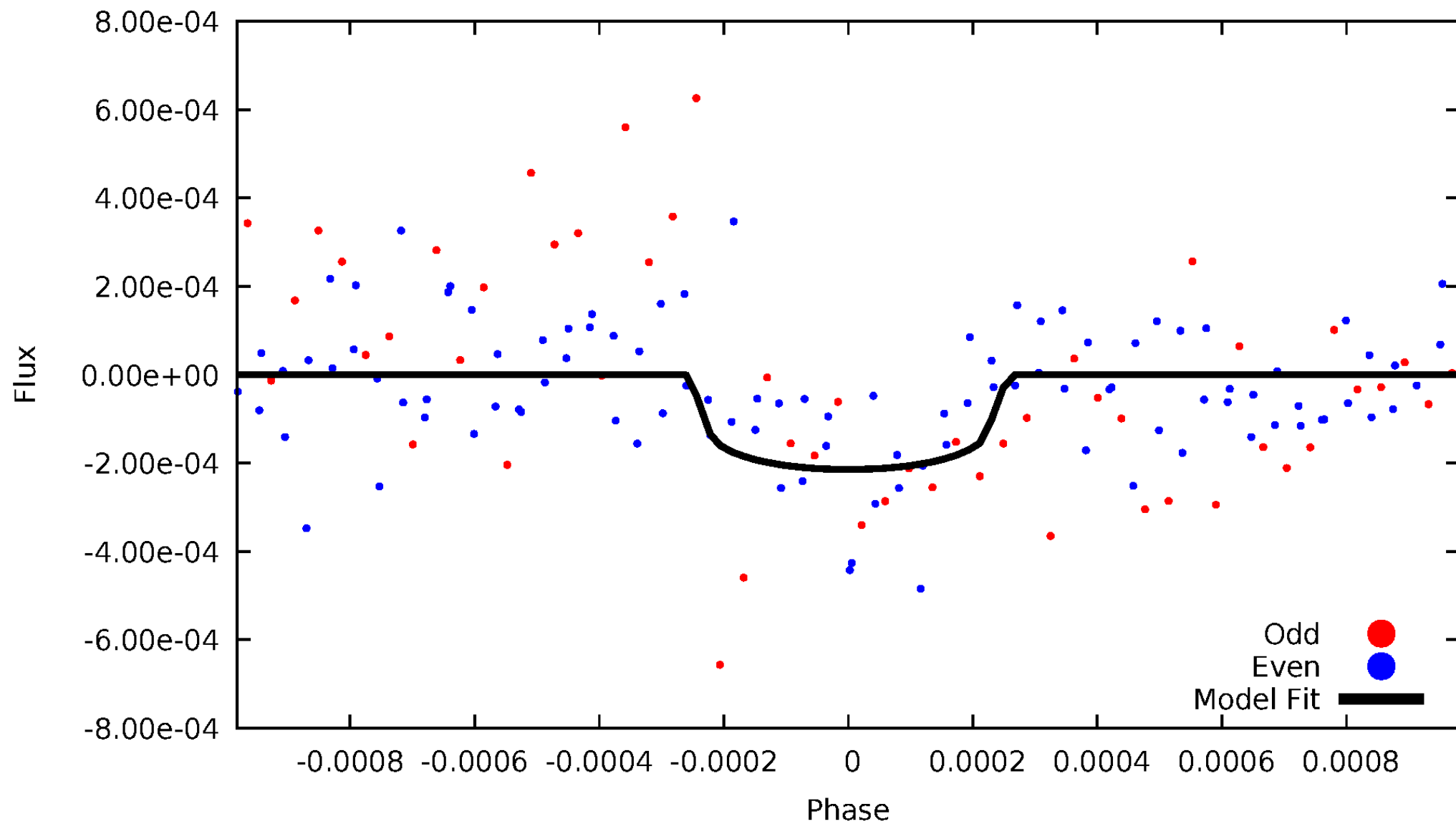


# TCE 006691558-01



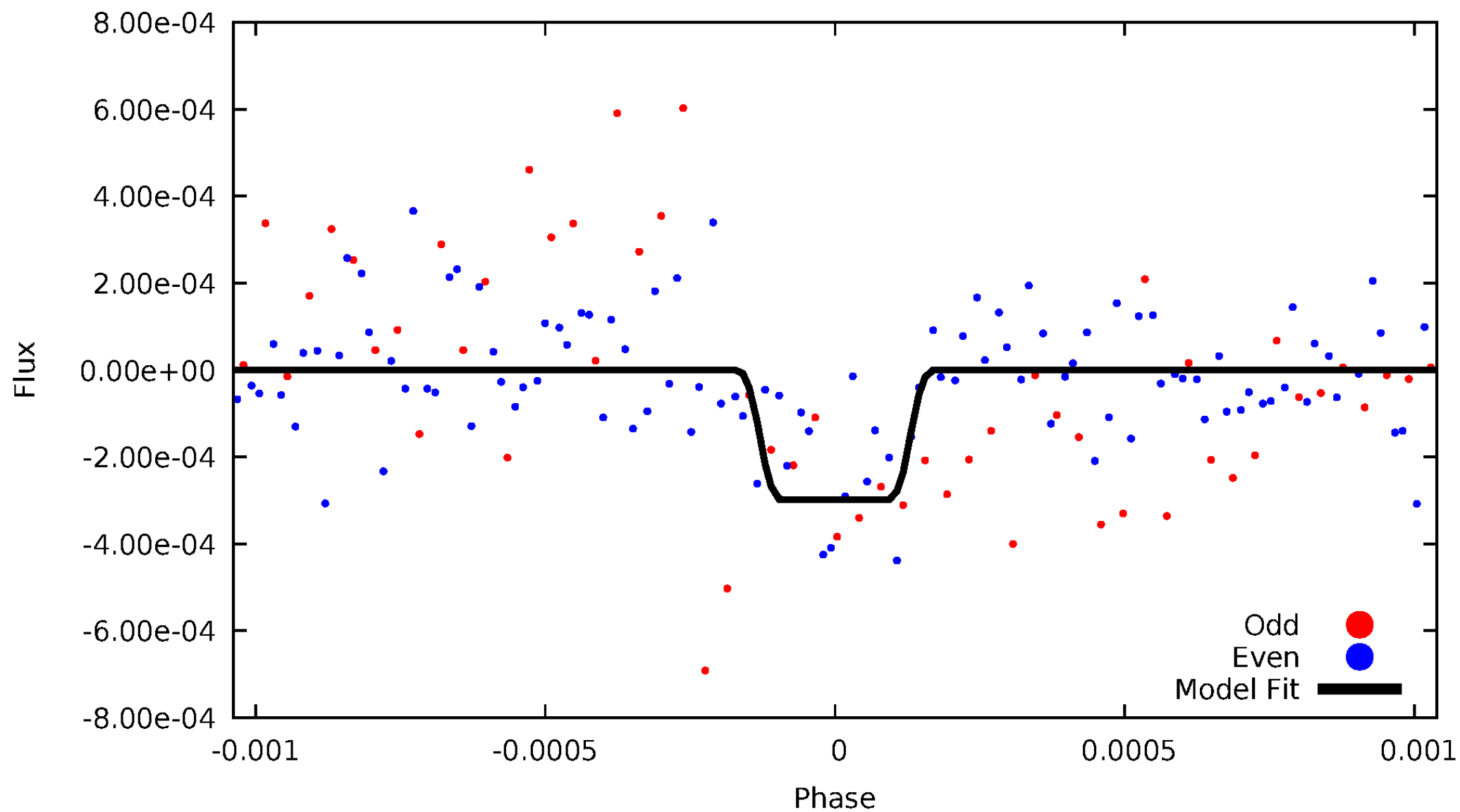
# DV Odd/Even

TCE 006691558-01



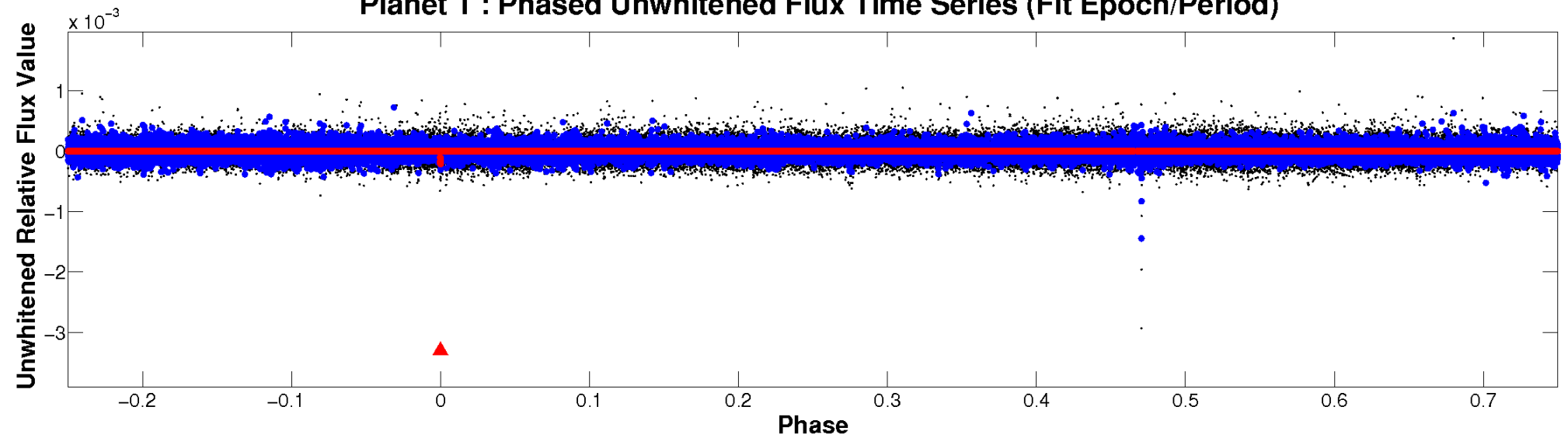
# ALT Odd/Even

TCE 006691558-01

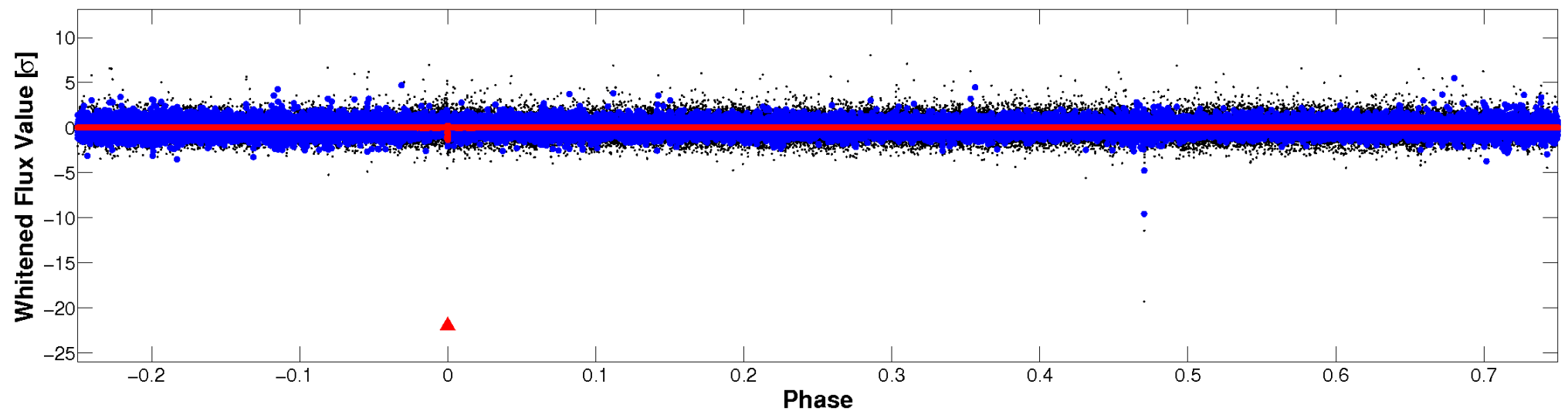


# Non-Whitened Vs. Whitened Light Curve

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

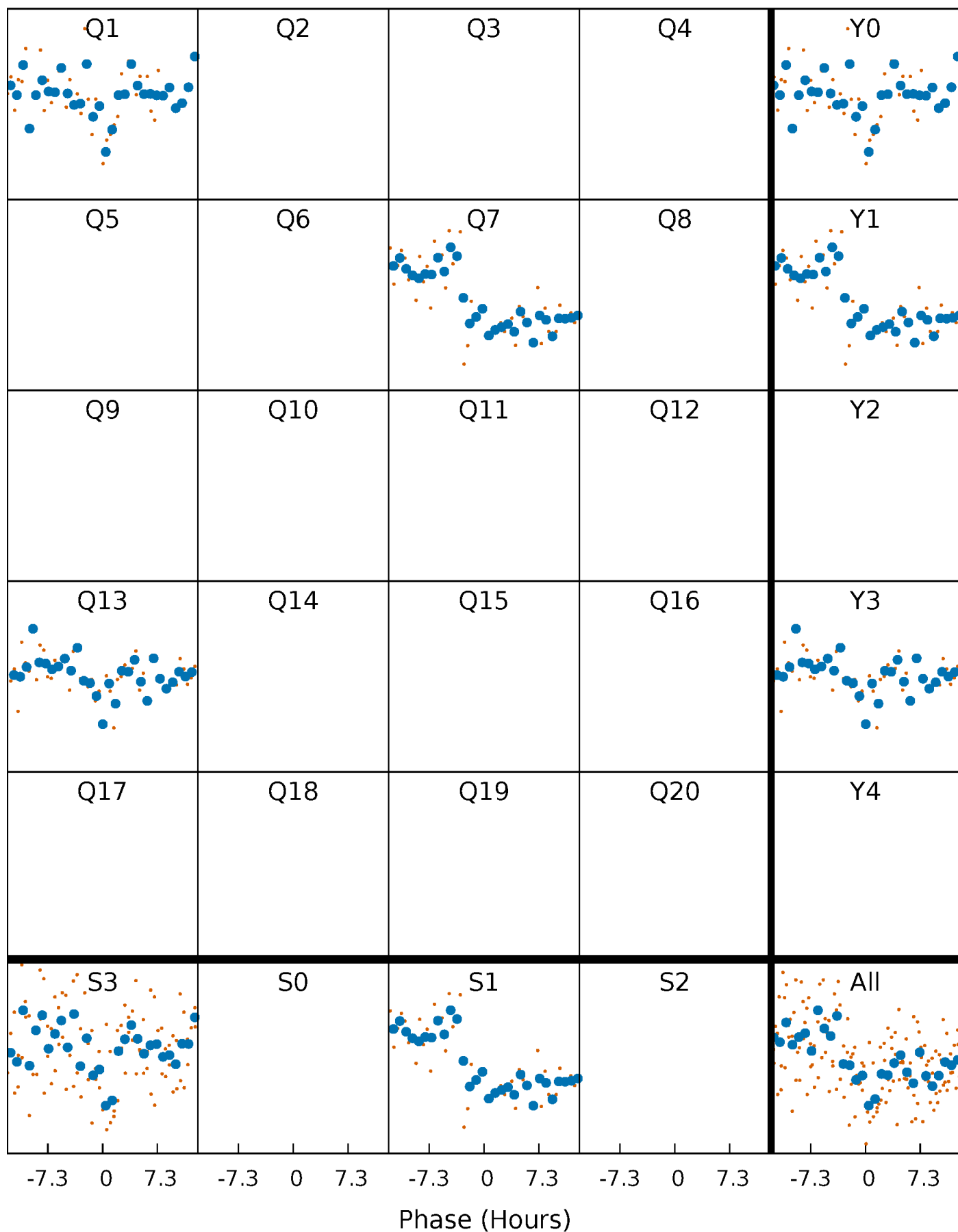


**Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)**



# PDC Quarter-Phased Transit Curves

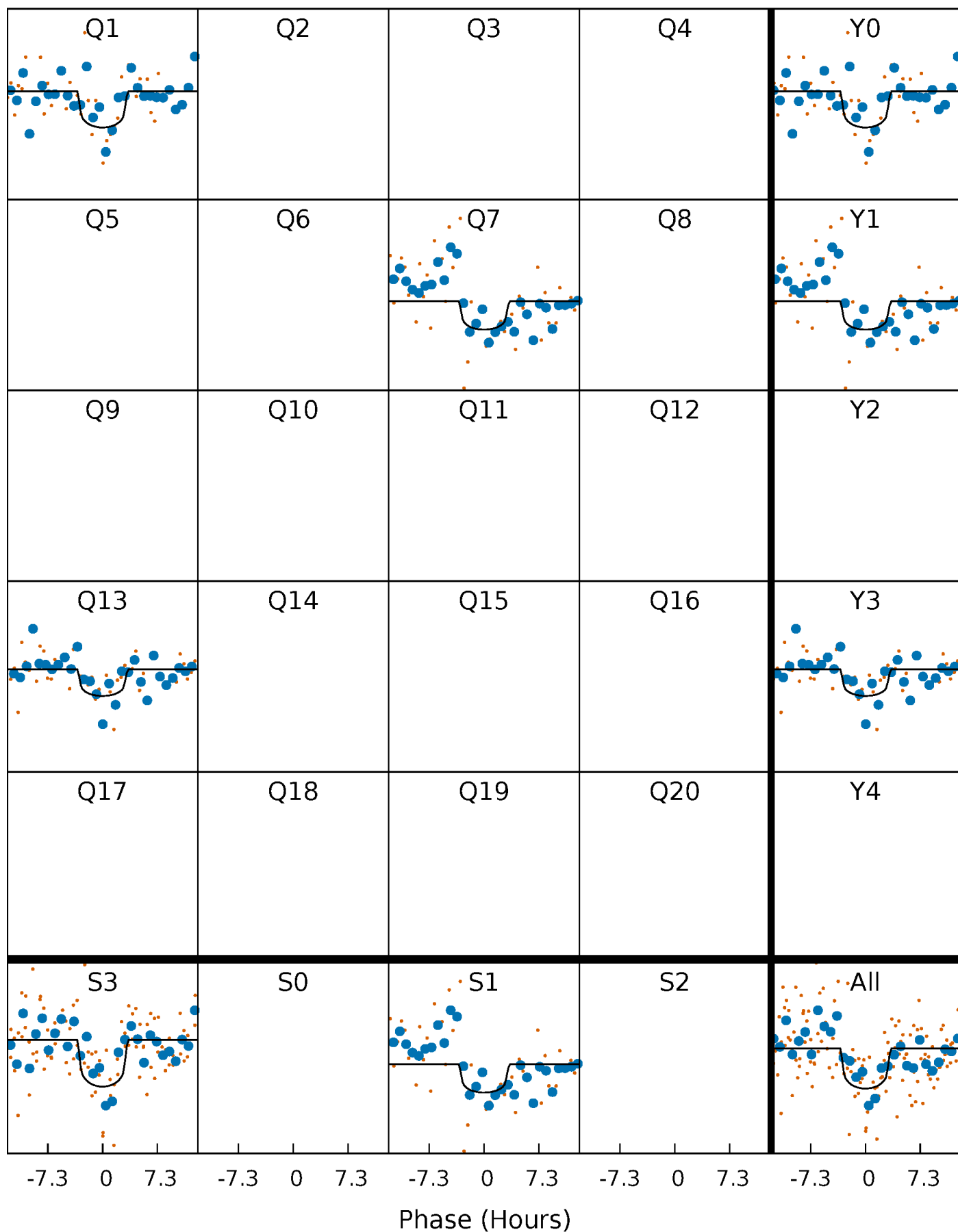
TCE 006691558-01 P=538.660416 Days  $T_0=147.407347$  (BKJD)





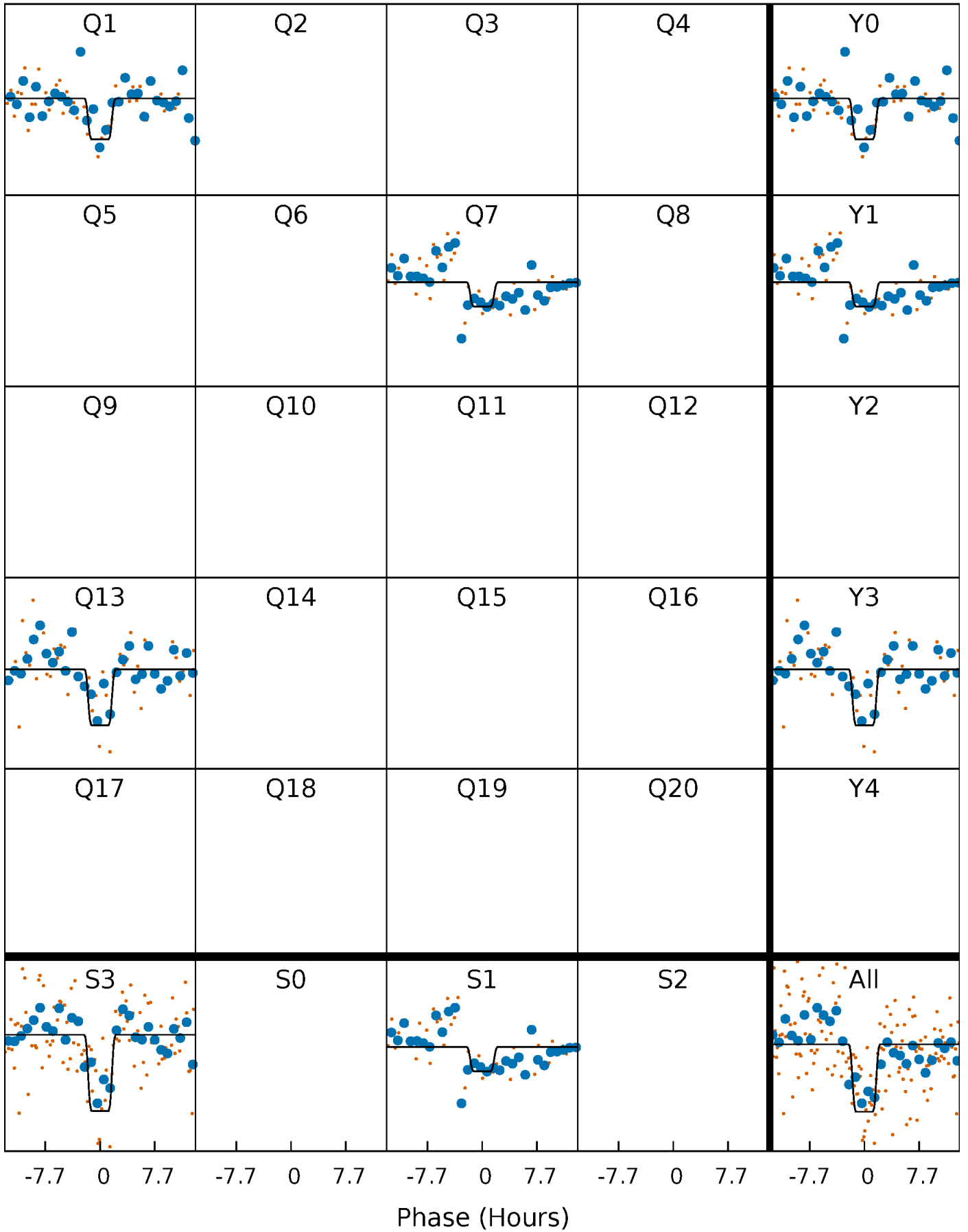
# DV Quarter-Phased Transit Curves

TCE 006691558-01 P=538.660416 Days  $T_0=147.407347$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

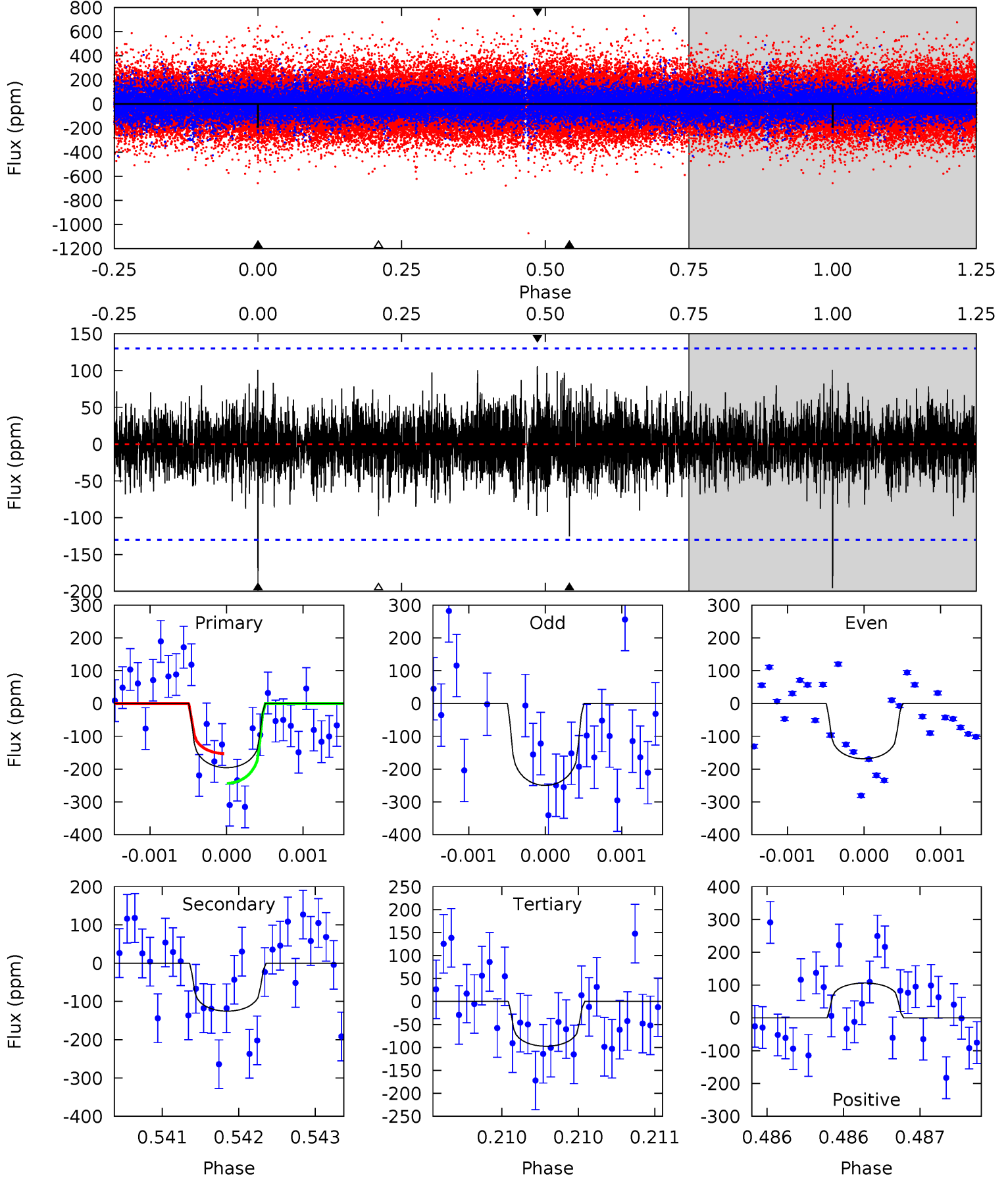
TCE 006691558-01 P=538.655886 Days  $T_0=147.421452$  (BKJD)



# DV Model-Shift Uniqueness Test

006691558-01, P = 538.660416 Days, E = 147.407347 Days

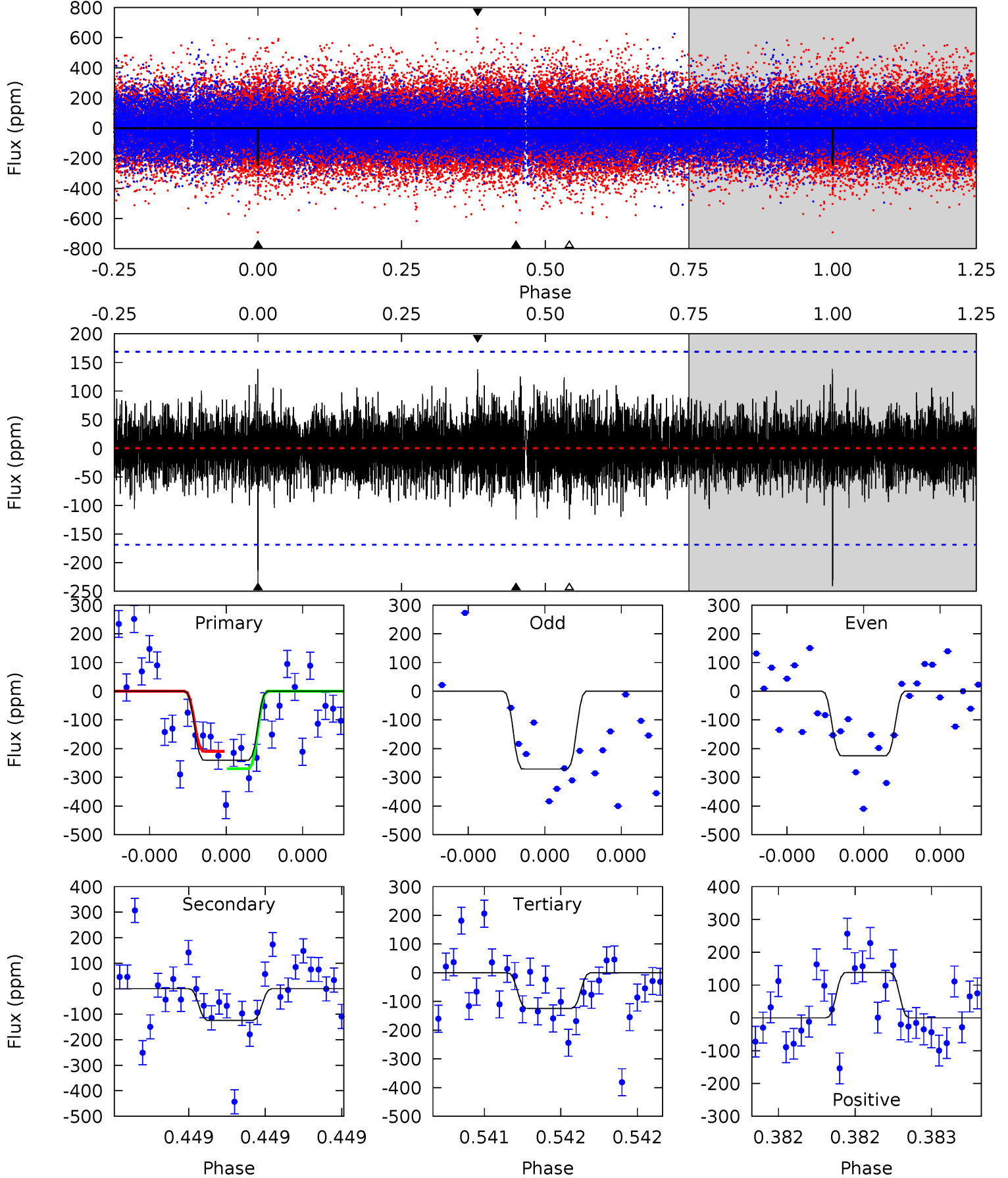
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
8.37	5.36	4.17	4.54	5.56	3.47	1.13	4.20	3.83	1.19	0.82	1.67	1.03	0.35	1.90



# Alt Model-Shift Uniqueness Test

006691558-01, P = 538.655886 Days, E = 147.421452 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
8.06	4.17	4.17	4.63	5.65	3.60	1.10	3.89	3.43	0.00	-0.46	0.73	1.02	0.37	1.02



### Stellar Parameters For KIC 006691558

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R$ ( $R_{\odot}$ )	$M$ ( $M_{\odot}$ )	$p_{\star}$ ( $\text{g}\cdot\text{cm}^{-3}$ )
	$5755^{+155}_{-155}$	$4.556^{+0.035}_{-0.196}$	$-0.180^{+0.300}_{-0.300}$	$0.845^{+0.236}_{-0.079}$	$0.940^{+0.100}_{-0.110}$	$2.192^{+0.407}_{-1.082}$
	+3%/-3%	+1%/-4%	+167%/-167%	+28%/-9%	+11%/-12%	+19%/-49%
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 006691558-01 / KOI

Detrend	Depth (ppm)	$R_p$ ( $R_{\oplus}$ )	$T_{max}$ (K)	$T_{obs}$ (K)	$A_{obs}$
DV	$-125 \pm 23$	$2.90^{+2.49}_{-1.98}$	$297^{+20}_{-13}$	$3902^{+2370}_{-734}$	$13096^{+113841}_{-9570}$
Alt.	$-124 \pm 30$	$2.86^{+2.70}_{-1.96}$	$298^{+18}_{-14}$	$3878^{+2367}_{-736}$	$13143^{+103640}_{-9682}$

$T_{max}$  = 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

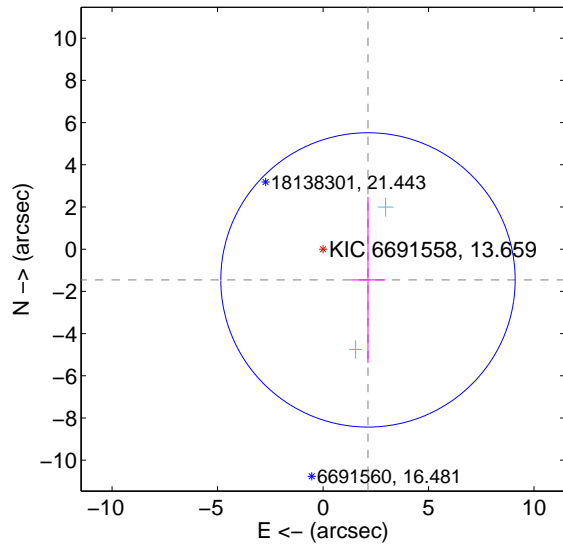
Supplemental centroid analysis for 006691558-01. Kepler magnitude: 13.66. Transit SNR 7.12

There are 2 quarters with good PRF difference image offsets

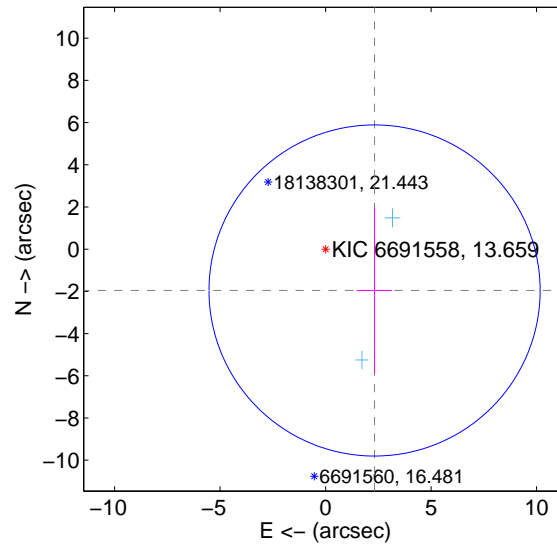
The direct PRF centroid is offset from the target star catalog position by about 0.55 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$2.580 \pm 2.325$	1.11	$-2.130 \pm 0.821$	$-1.456 \pm 3.940$
PRF-fit source offset from KIC position	$3.037 \pm 2.615$	1.16	$-2.322 \pm 0.837$	$-1.958 \pm 3.934$
photometric centroid source offset	$1.96 \pm 1.75$	1.12	$1.44 \pm 1.79$	$-1.33 \pm 1.70$

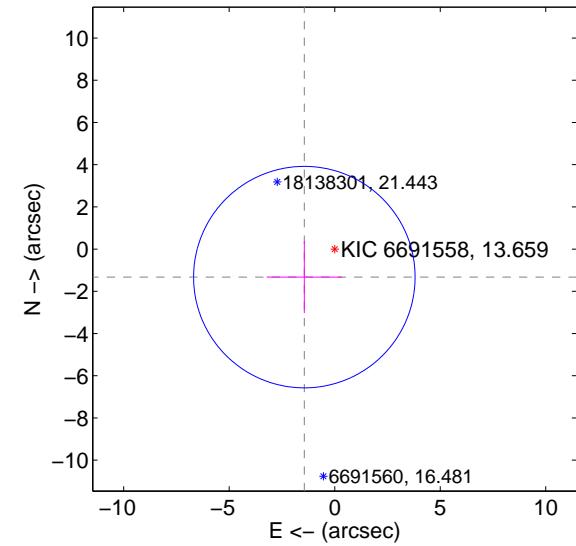
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position

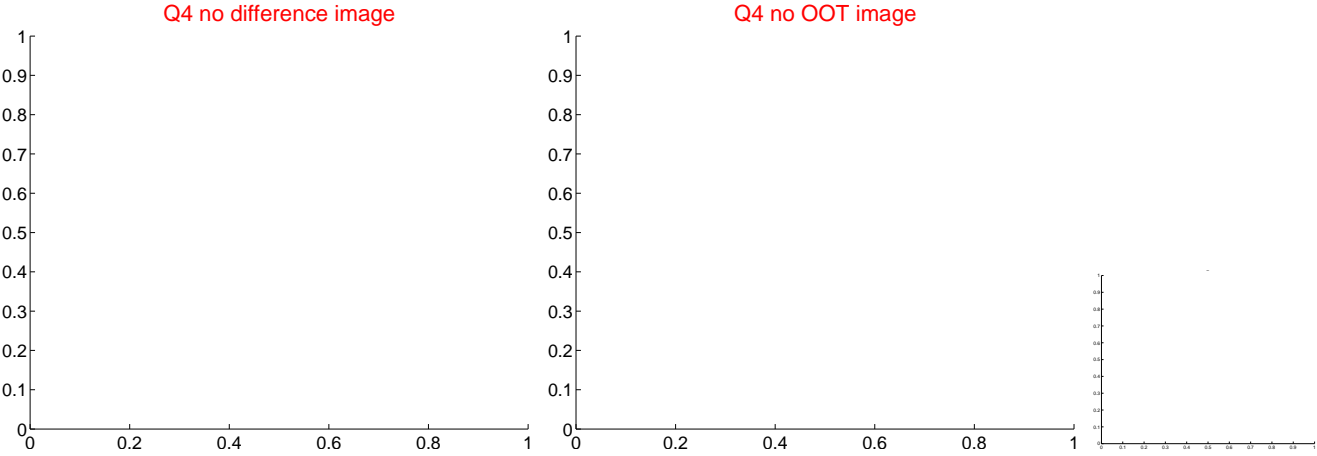
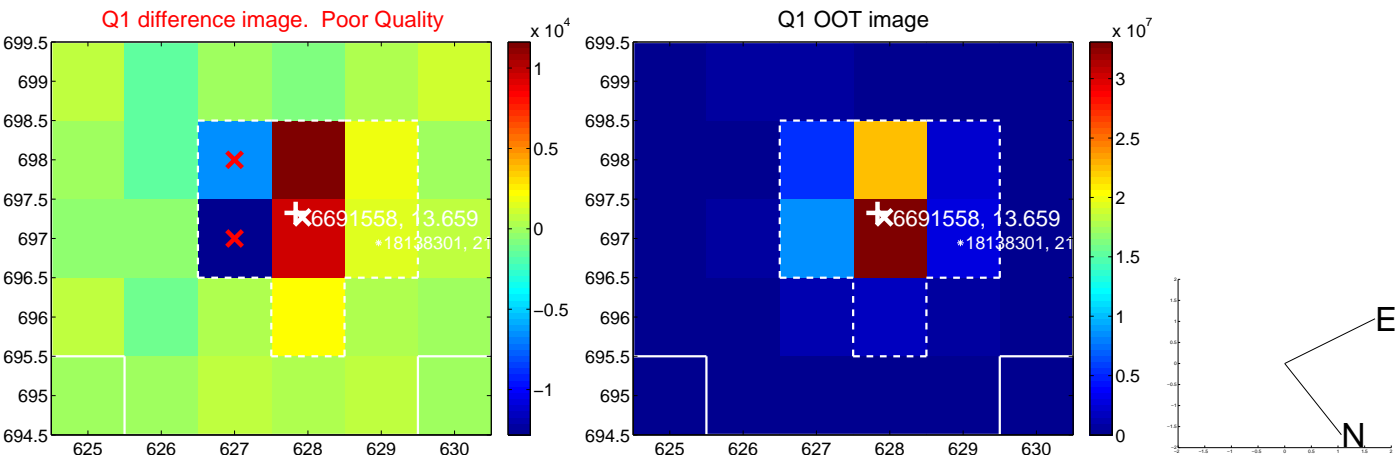


offset from photometric centroids



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 ×: 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.

Q5 no difference image



Q5 no OOT image



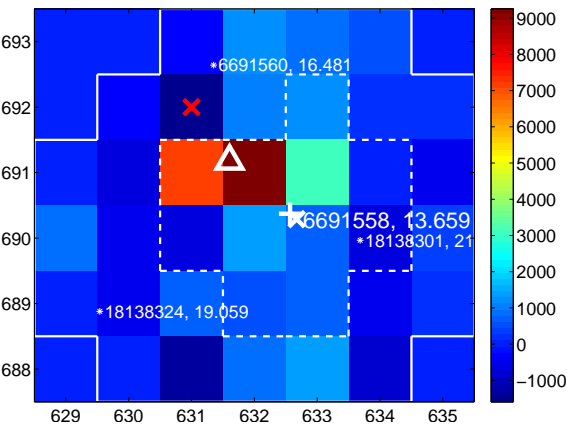
Q6 no difference image



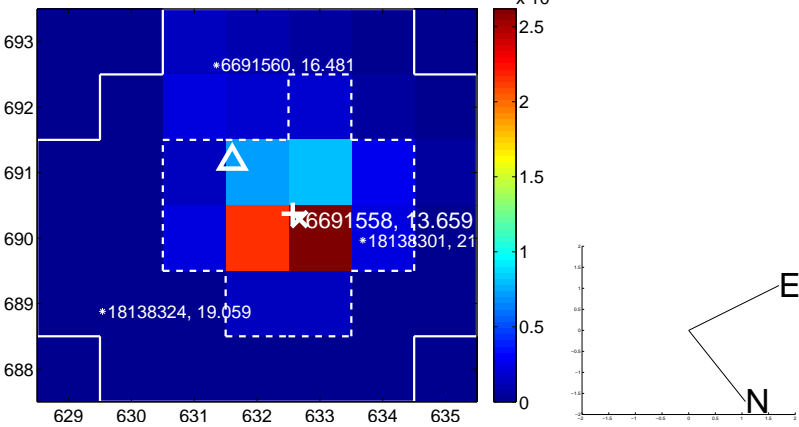
Q6 no OOT image



Q7 difference image



Q7 OOT image



Q8 no difference image



Q8 no OOT image

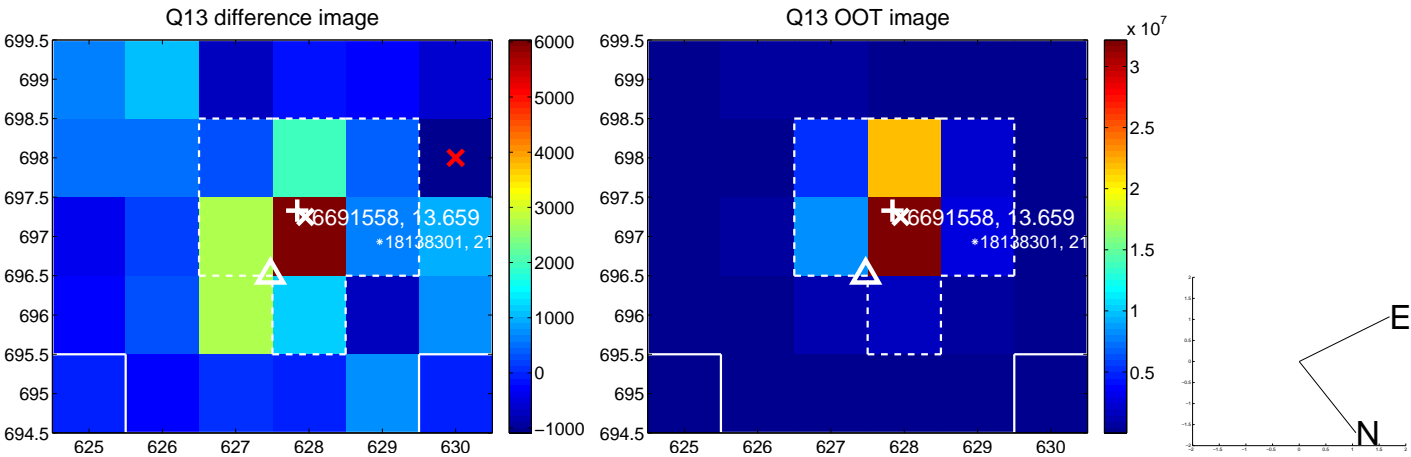




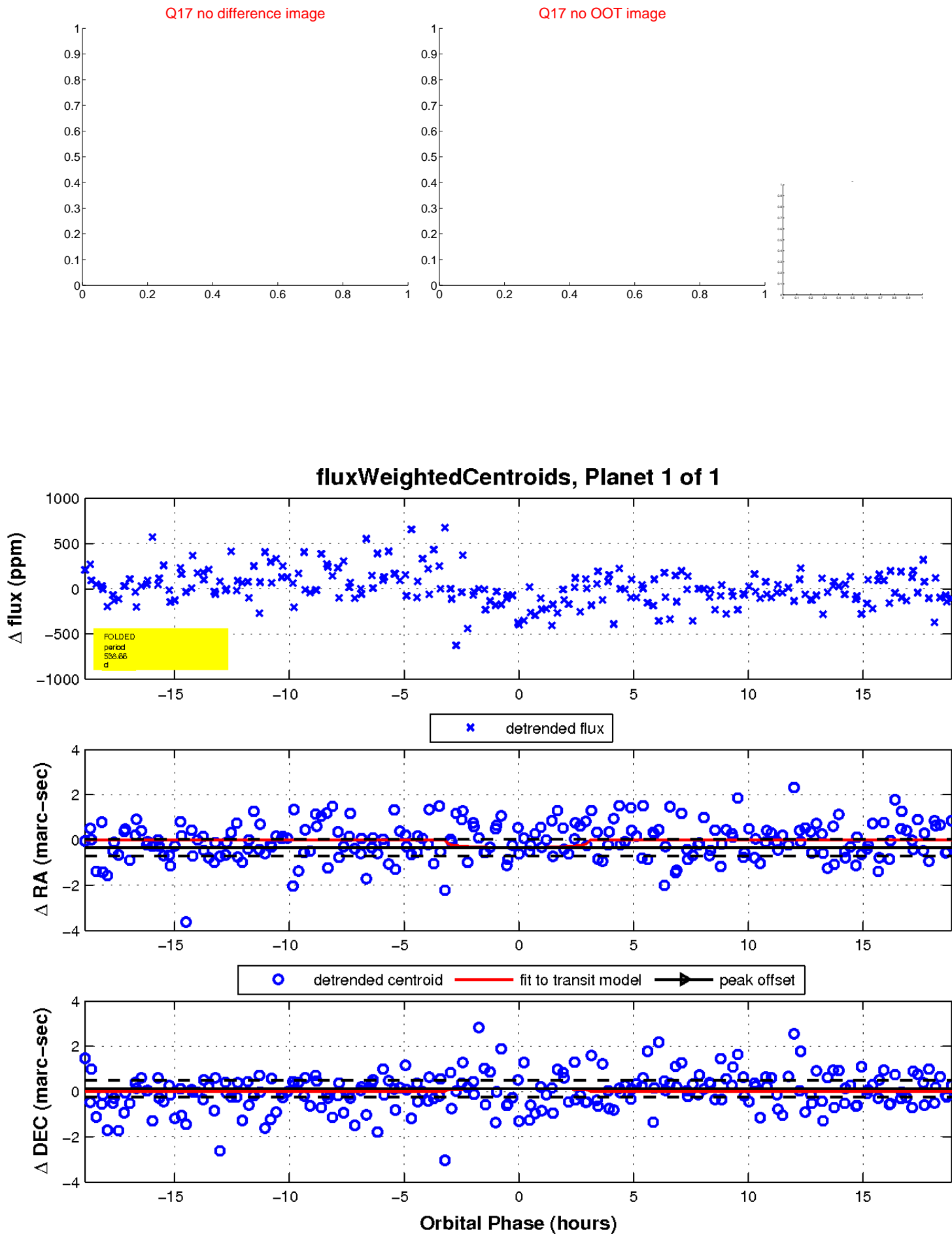
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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

