

# KIC 010320552

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
010320552-01	OBS	No	498.115982	548.045805	927.7	3.005	10.5	6.4	0.56	3990	1.78	0.07

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
010320552-01	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—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.

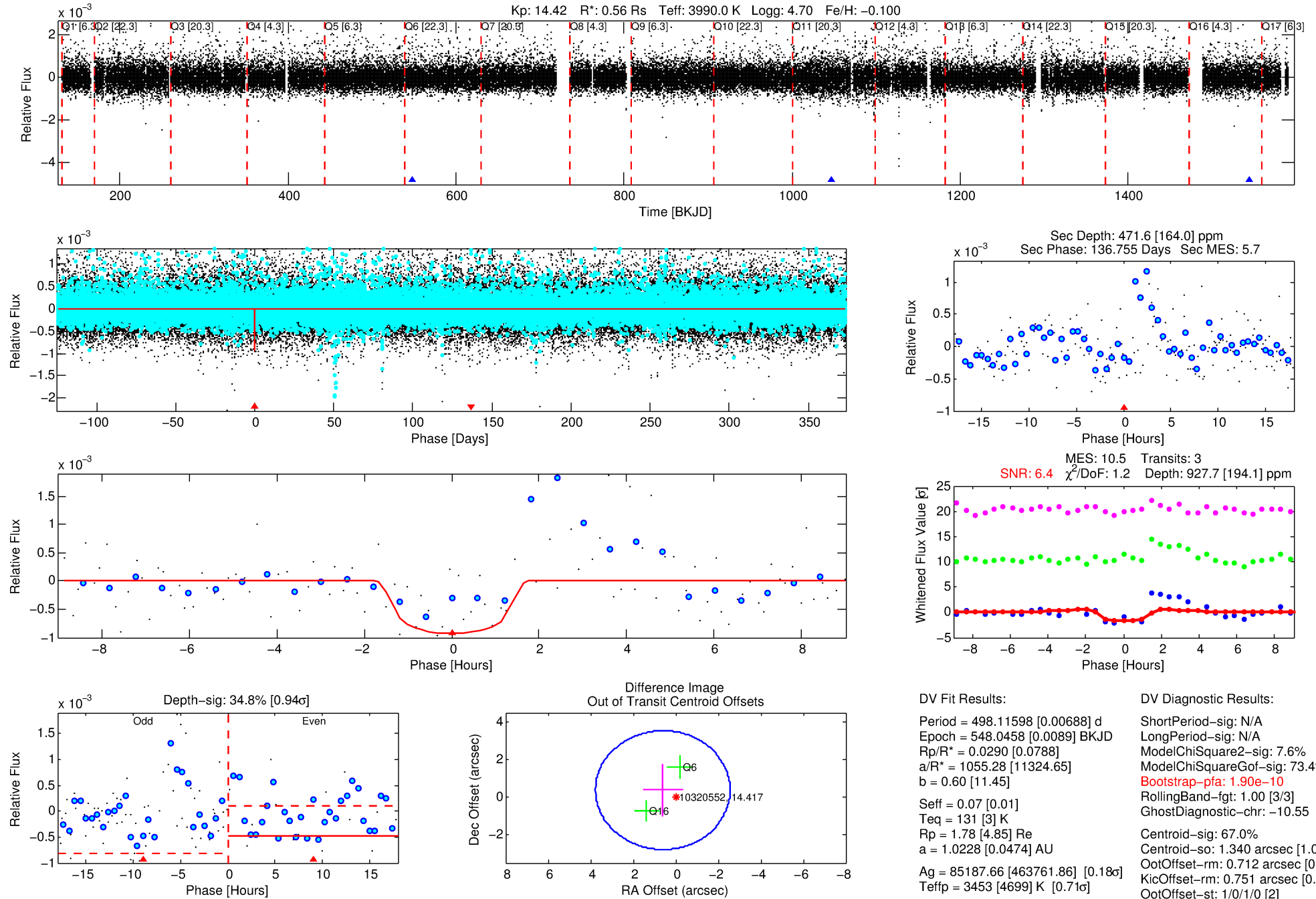
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

## Ephemeris Match Information For 010320552-01

No Significant Match Found

# DV One-Page Summary

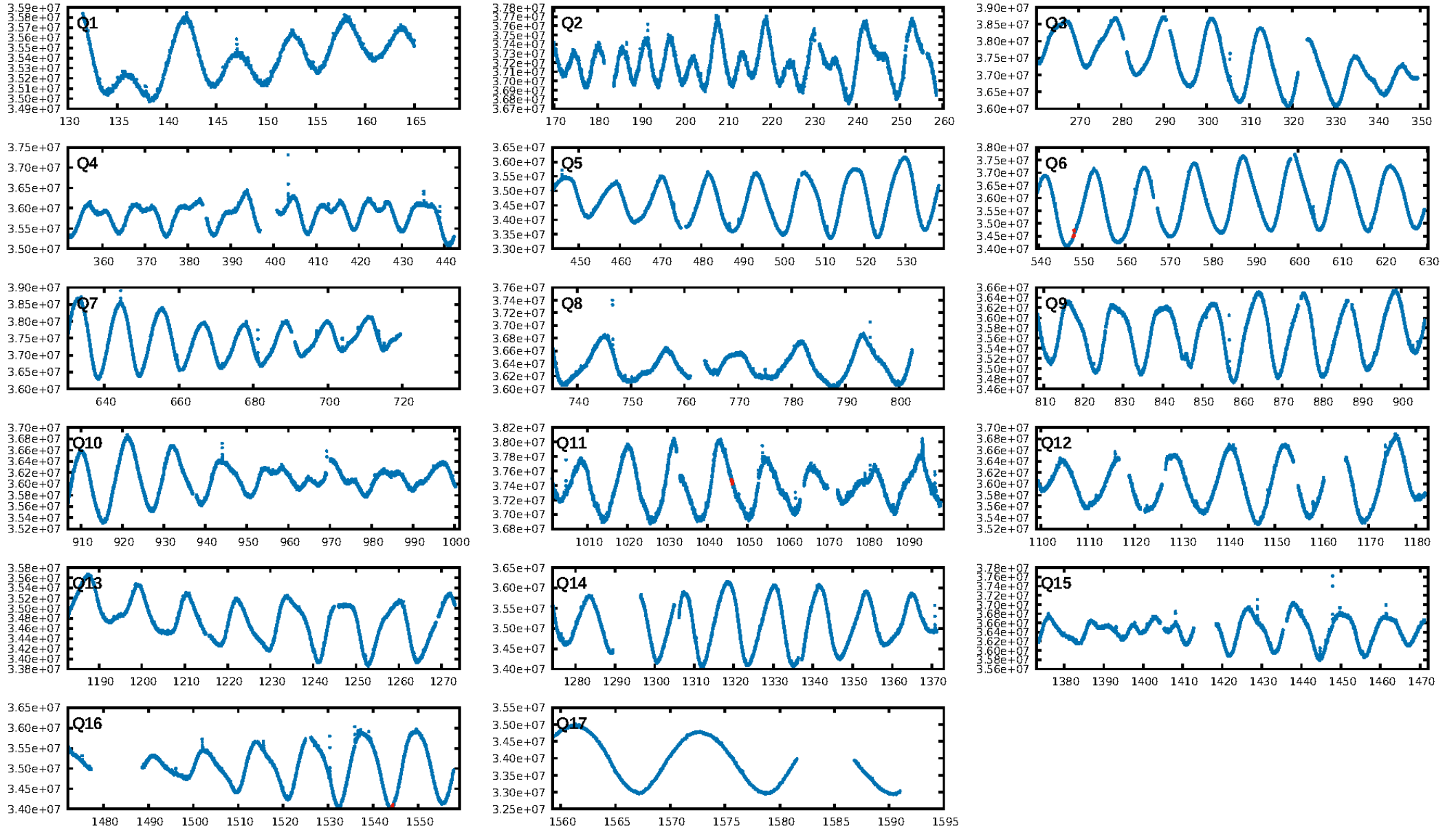
KIC: 10320552 Candidate: 1 of 1 Period: 498.116 d



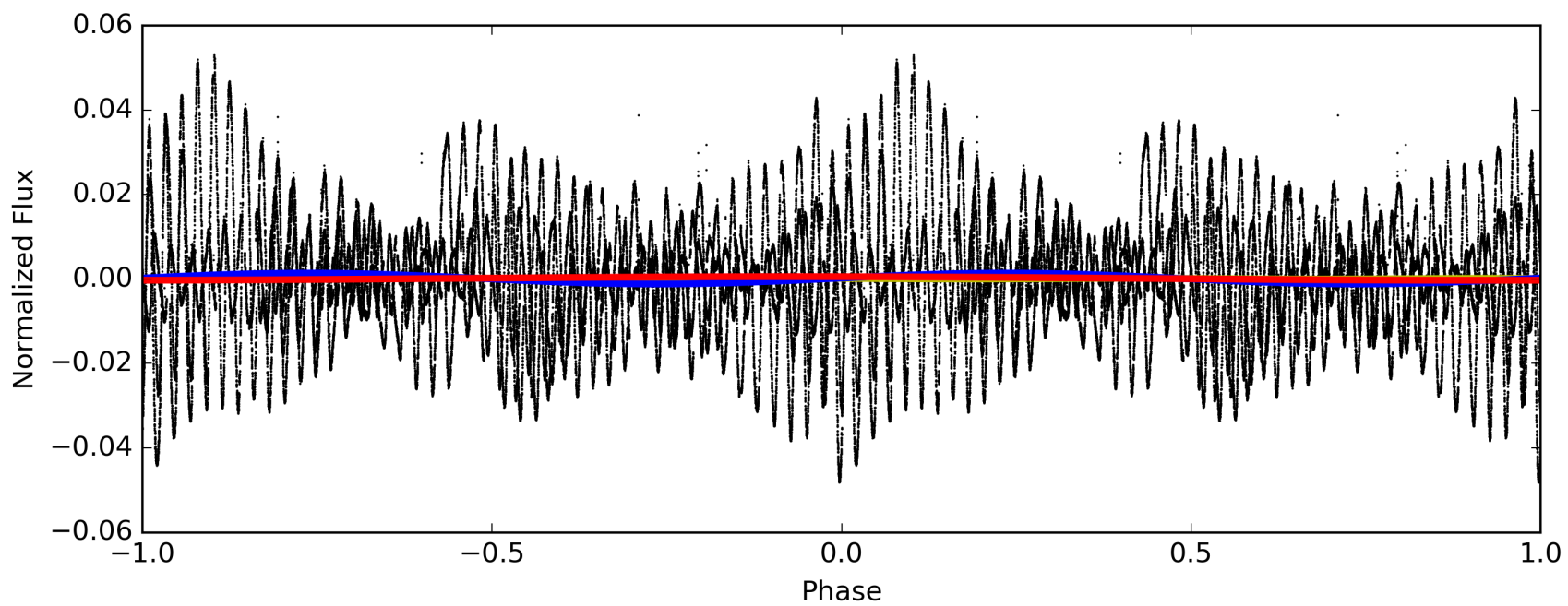
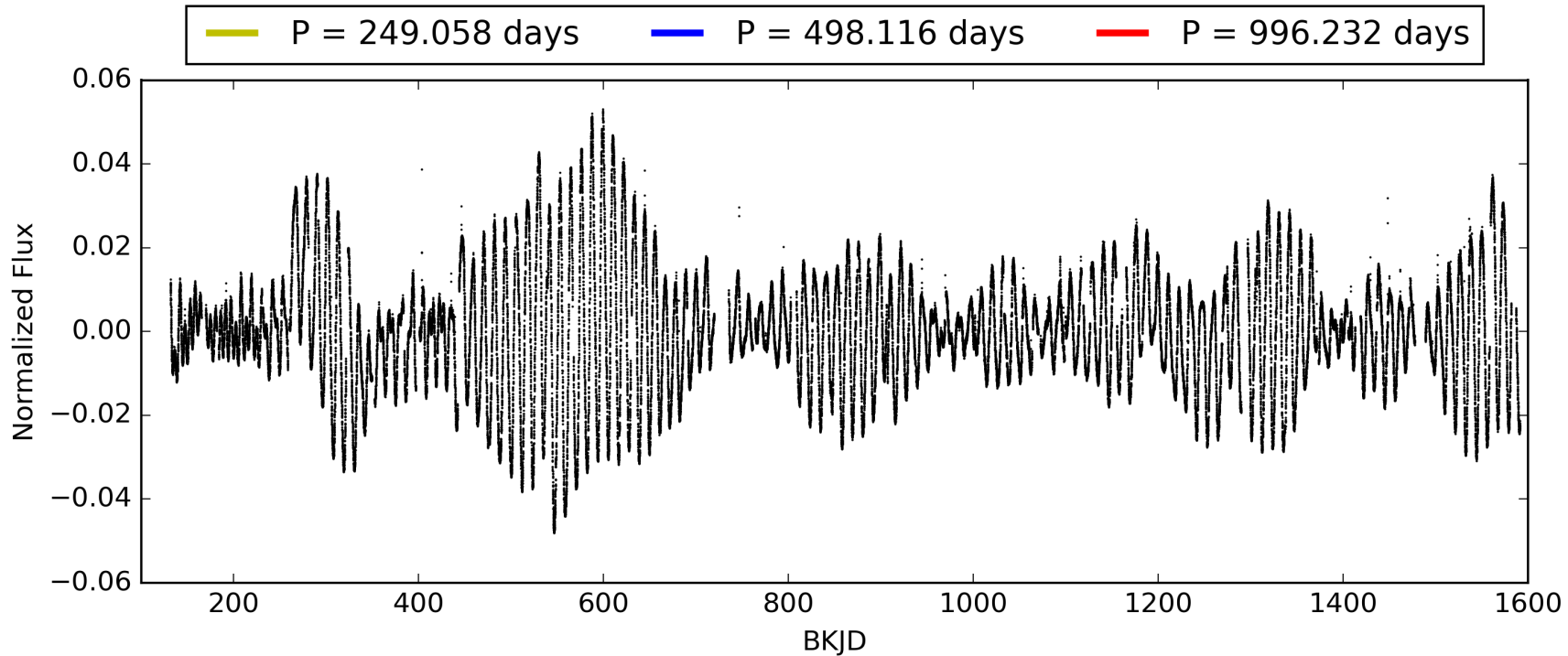
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 17:13:41 Z

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

# TCE 010320552-01, PDC Light Curves

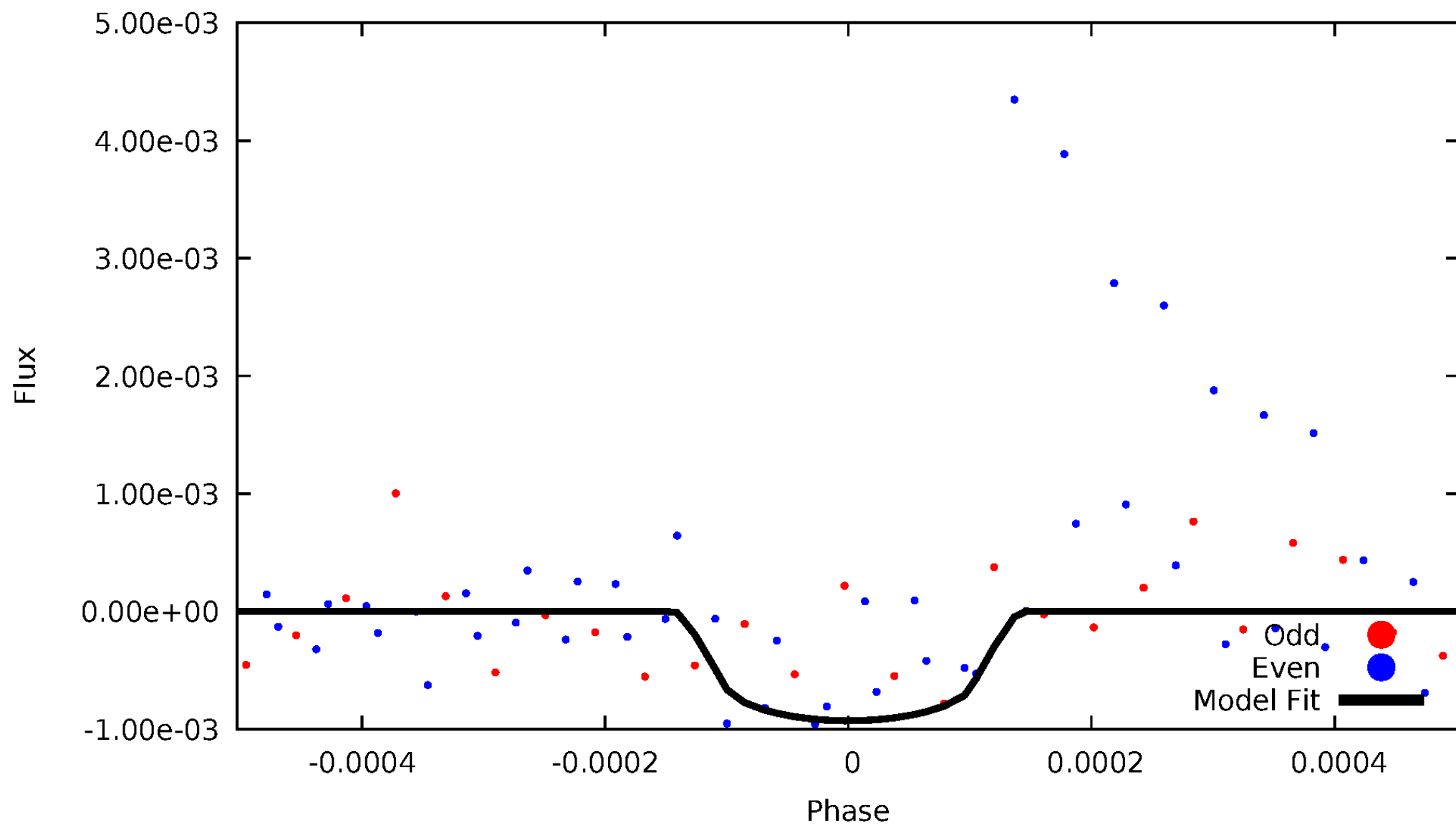


TCE 010320552-01



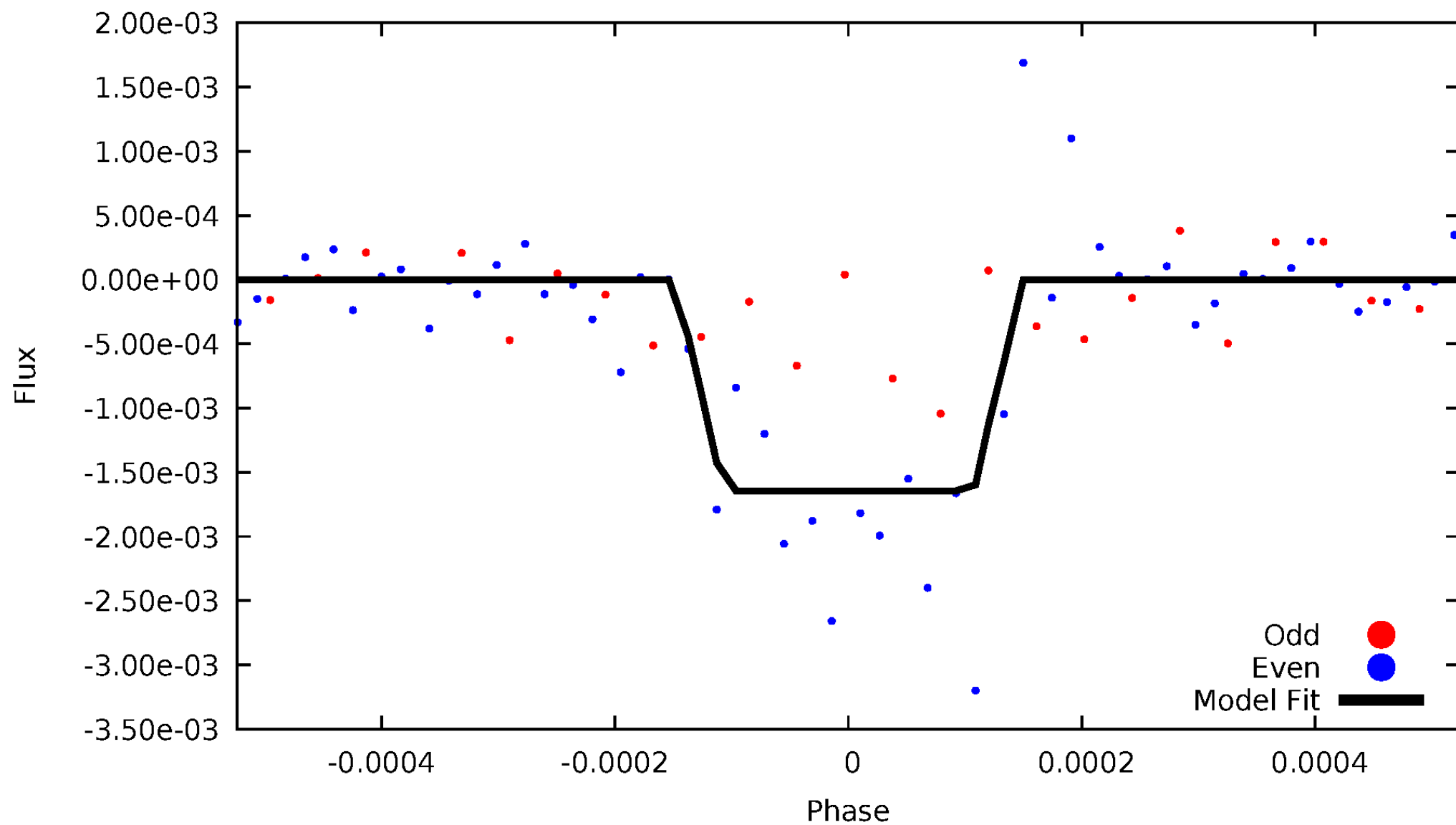
# DV Odd/Even

TCE 010320552-01



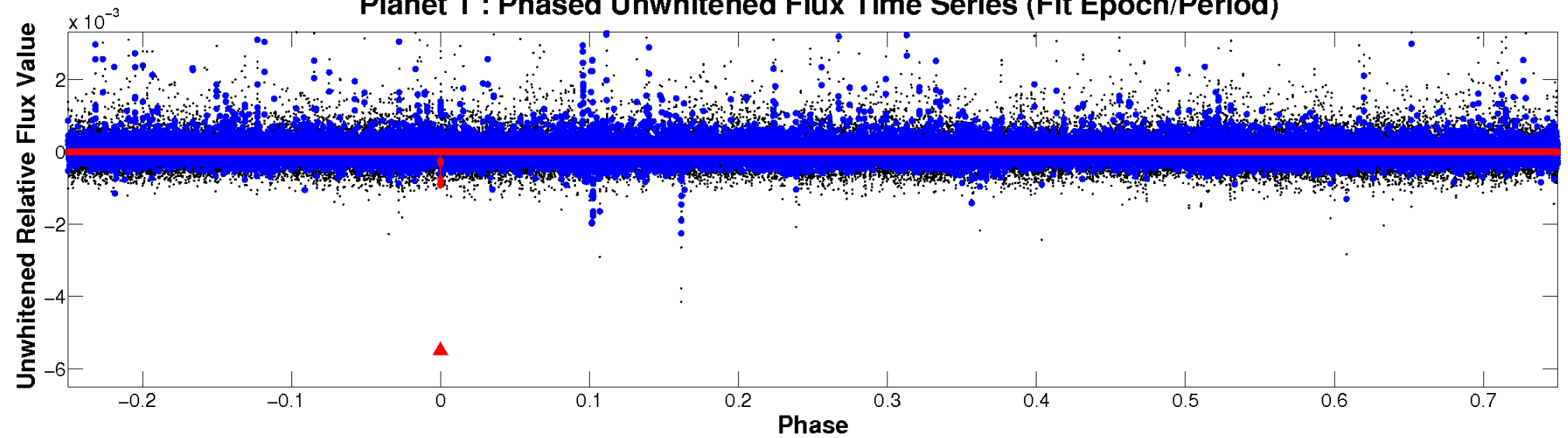
# ALT Odd/Even

TCE 010320552-01

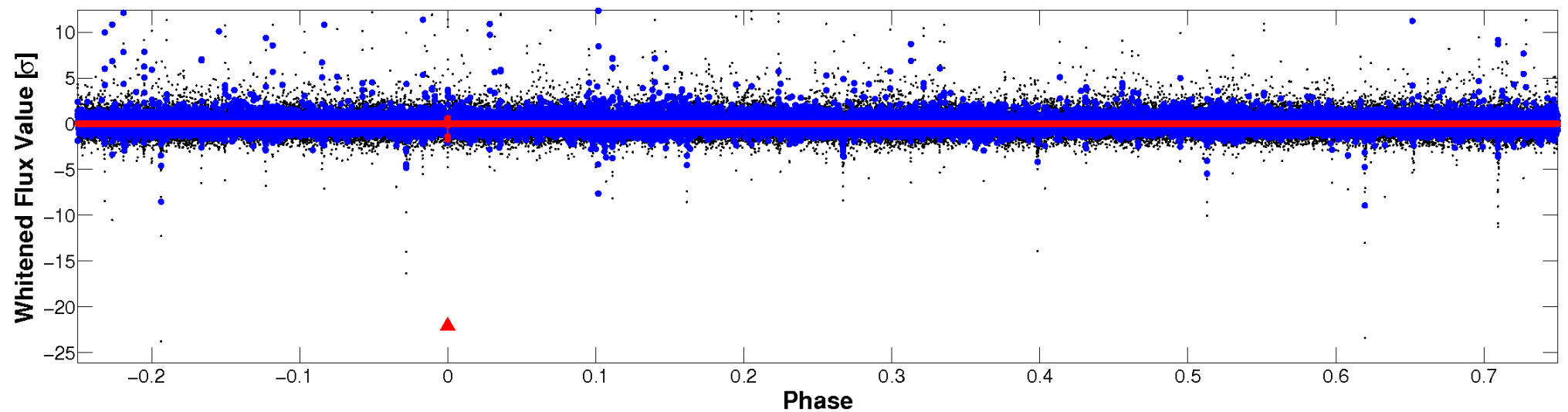


# Non-Whitened Vs. Whitened Light Curve

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

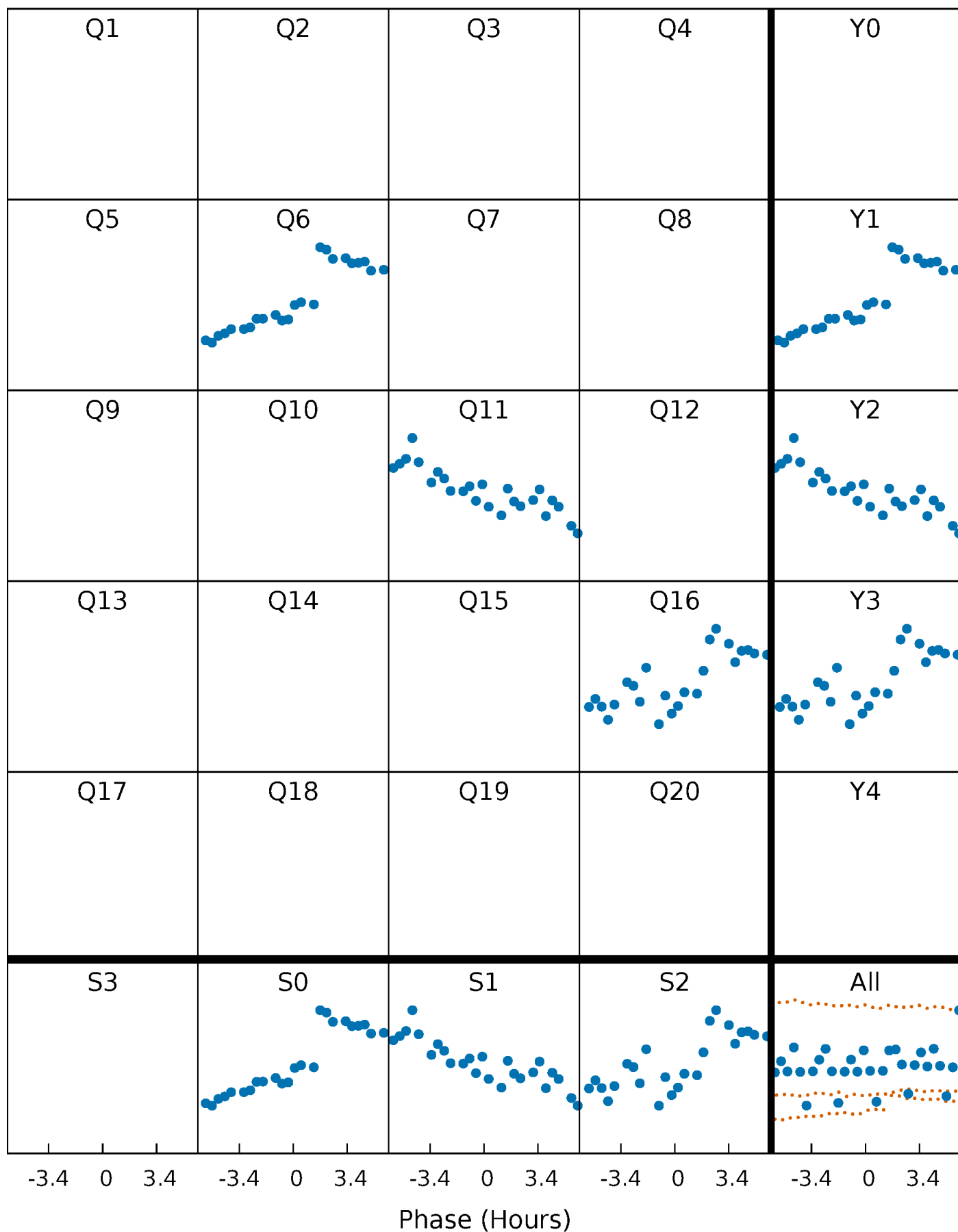


**Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)**



# PDC Quarter-Phased Transit Curves

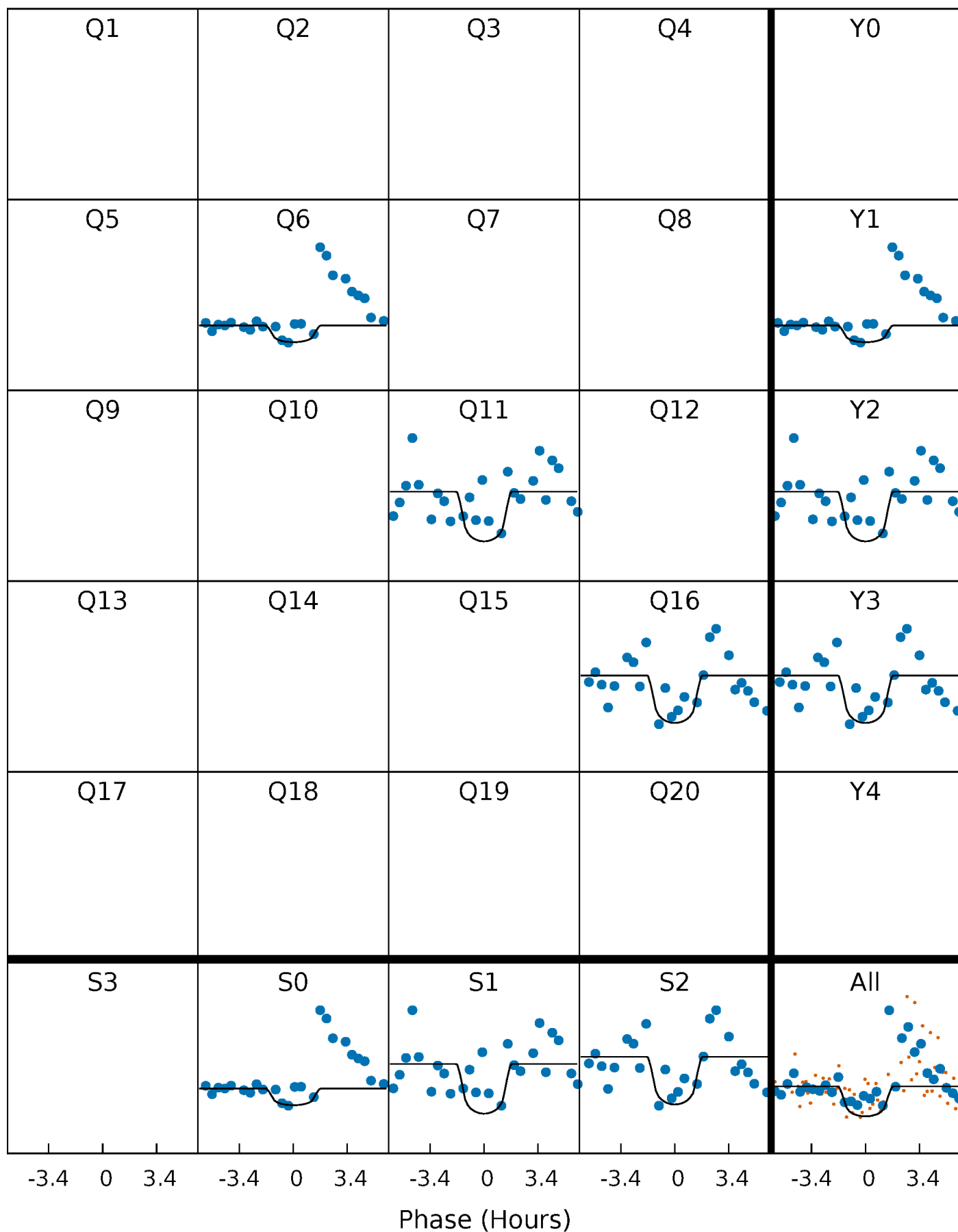
TCE 010320552-01 P=498.115982 Days  $T_0=548.045805$  (BKJD)





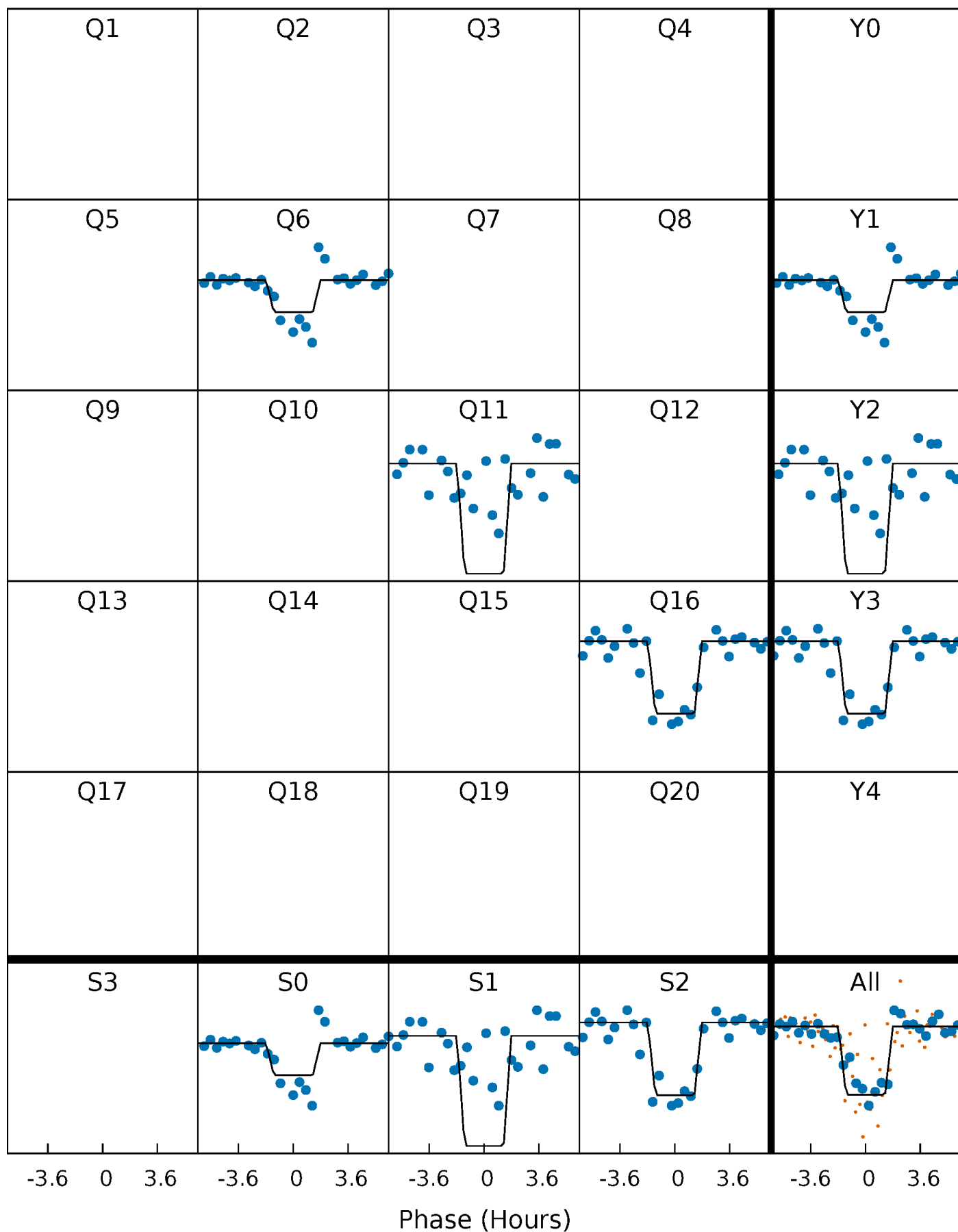
# DV Quarter-Phased Transit Curves

TCE 010320552-01 P=498.115982 Days  $T_0=548.045805$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

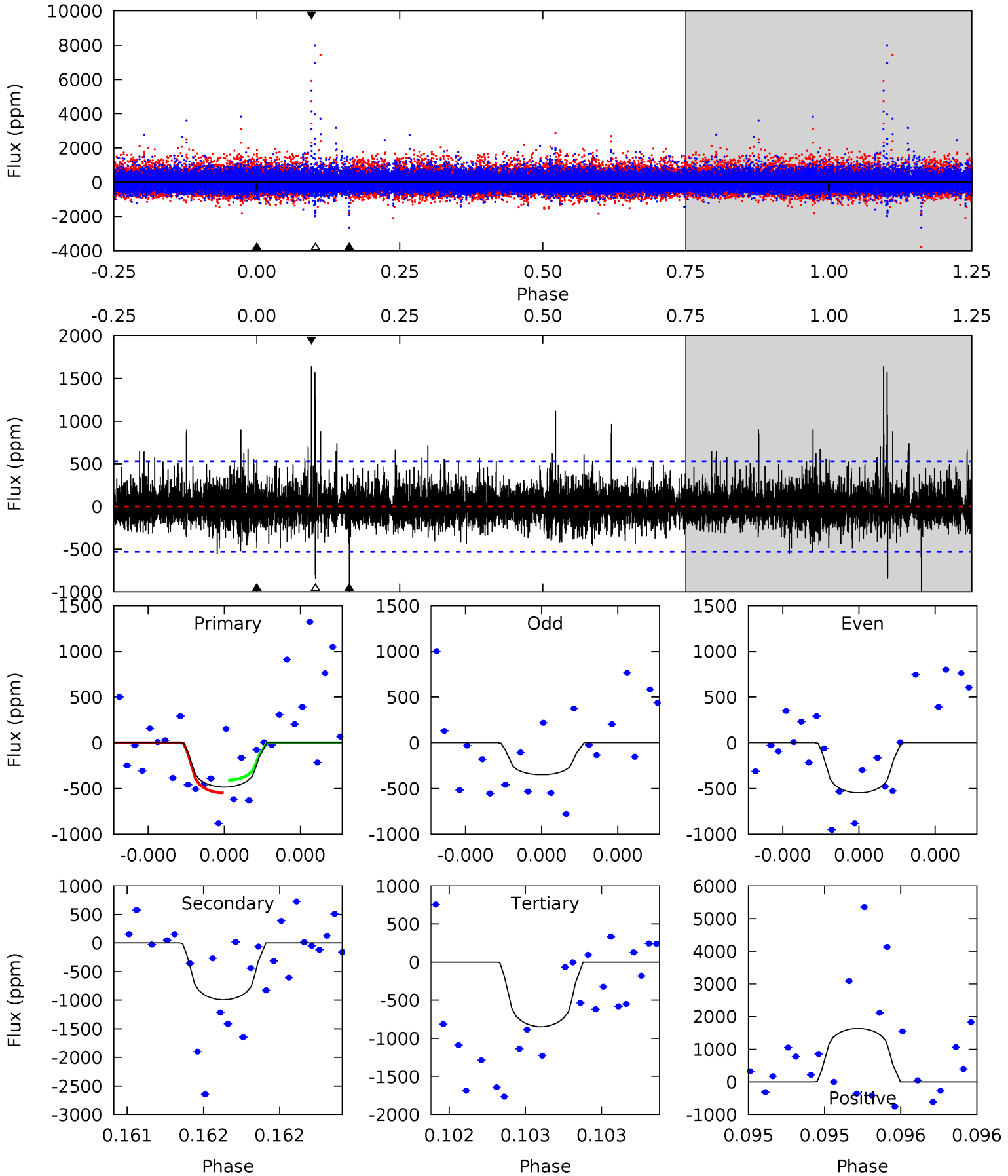
TCE 010320552-01 P=498.122515 Days  $T_0=548.039206$  (BKJD)



# DV Model-Shift Uniqueness Test

010320552-01, P = 498.115982 Days, E = 49.929823 Days

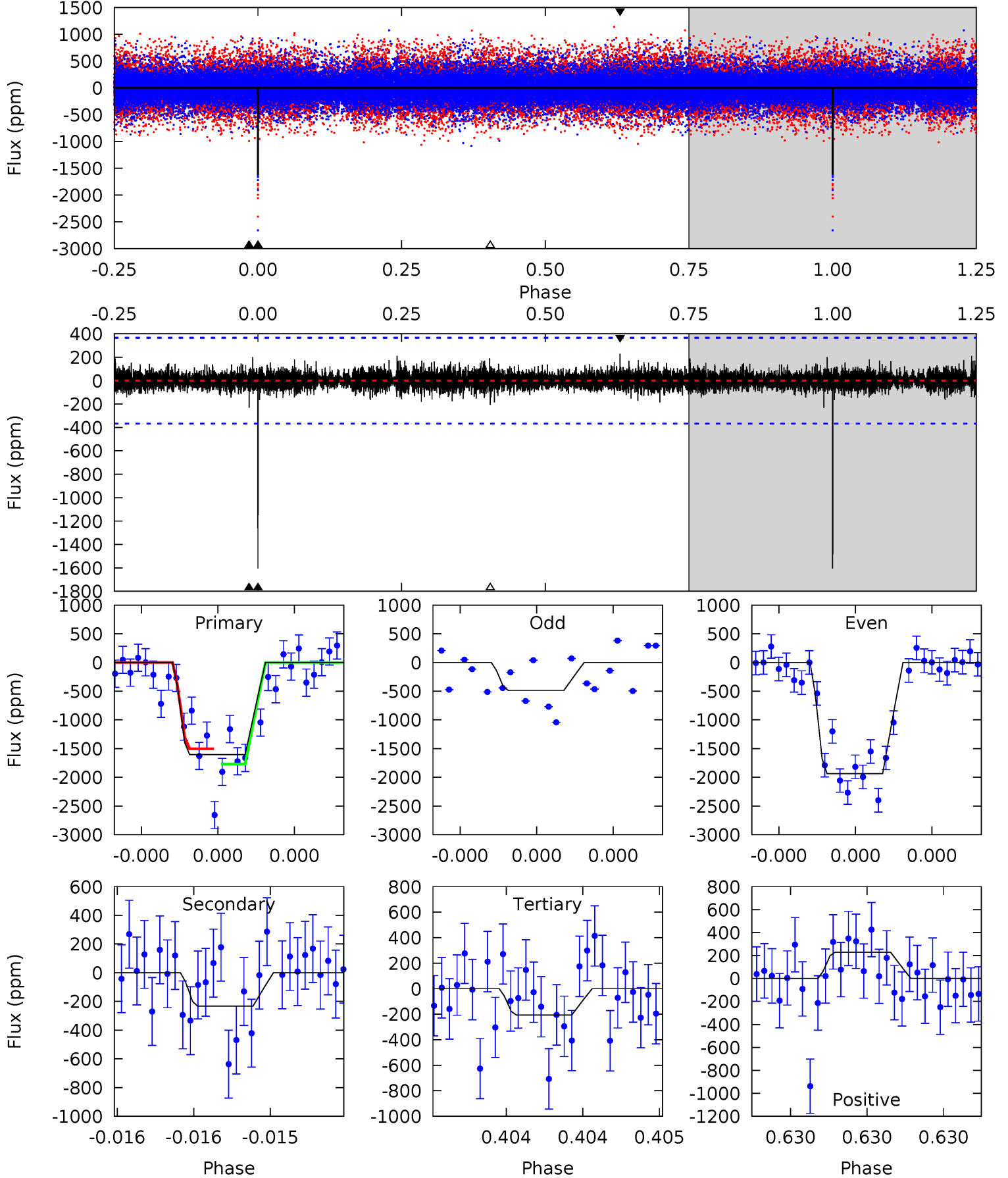
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
5.19	10.6	9.09	17.6	5.68	3.65	1.61	-3.90	-12.4	1.55	-6.94	0.88	1.25	0.62	0.75



# Alt Model-Shift Uniqueness Test

010320552-01, P = 498.122515 Days, E = 49.916691 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
24.9	3.59	3.19	3.54	5.69	3.65	0.63	21.7	21.3	0.40	0.04	11.5	0.86	0.12	0



### Stellar Parameters For KIC 010320552

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	$3990^{+79}_{-79}$	$4.695^{+0.030}_{-0.025}$	$-0.100^{+0.200}_{-0.200}$	$0.564^{+0.034}_{-0.034}$	$0.576^{+0.036}_{-0.039}$	$4.522^{+0.609}_{-0.486}$
	+2%/-2%	+1%/-1%	+200%/-200%	+6%/-6%	+6%/-7%	+13%/-11%
Source	PHO2	PHO2	PHO2	DSEP		

KIC = Kepler Input Catalog; PHO = Photometry; SPE = Spectroscopy; AST = Asteroseismology  
 TRA = Transits; DESP = Dartmouth Models; MULT = Multiple Models

### Secondary Eclipse Parameters for KIC 010320552-01 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	$A_{obs}$
DV	$-992 \pm 93$	$4.07^{+3.55}_{-2.79}$	$182^{+4}_{-4}$	$3162^{+1496}_{-511}$	$34880^{+304549}_{-25331}$
Alt.	$-231 \pm 65$	$4.36^{+3.83}_{-2.90}$	$183^{+4}_{-4}$	$2524^{+878}_{-345}$	$6920^{+52094}_{-5064}$

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

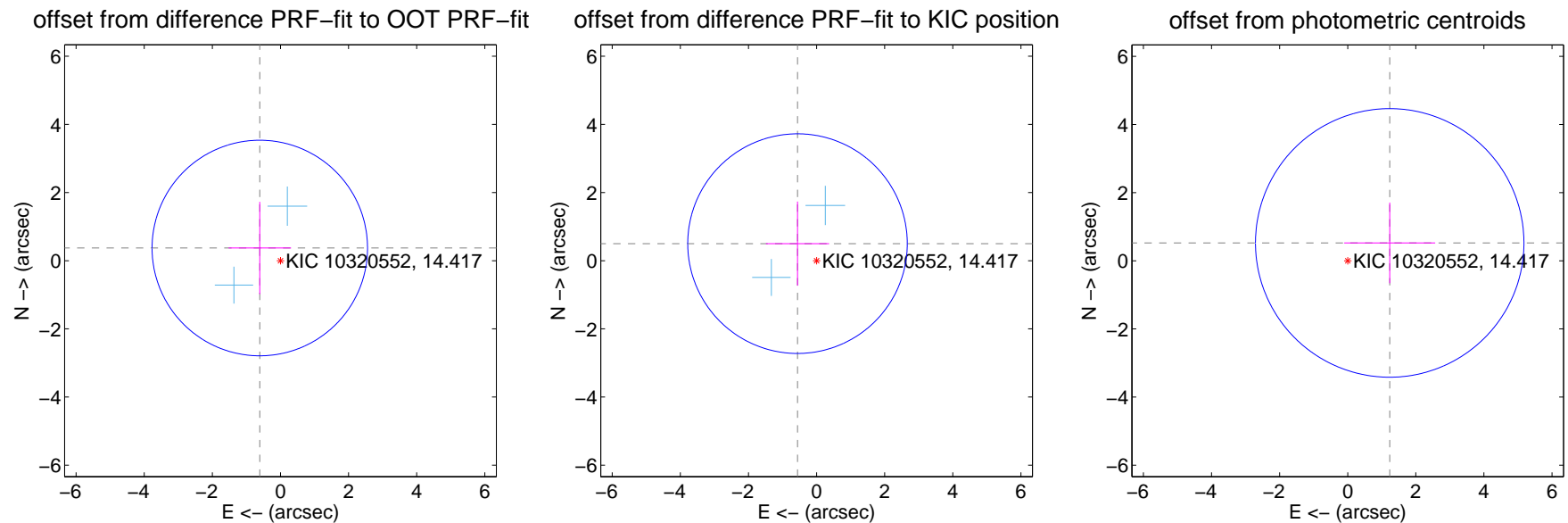
## DV Centroid Data

Supplemental centroid analysis for 010320552-01. Kepler magnitude: 14.42. Transit SNR 6.41

There are 2 quarters with good PRF difference image offsets

The direct PRF centroid is offset from the target star catalog position by about 0.23 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$0.712 \pm 1.054$	0.67	$0.607 \pm 0.917$	$0.372 \pm 1.353$
PRF-fit source offset from KIC position	$0.751 \pm 1.074$	0.70	$0.560 \pm 0.928$	$0.501 \pm 1.233$
photometric centroid source offset	$1.34 \pm 1.31$	1.02	$-1.23 \pm 1.34$	$0.52 \pm 1.18$



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.

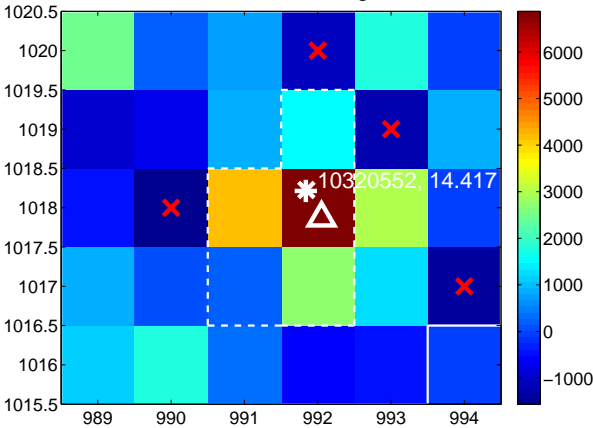
Q5 no difference image



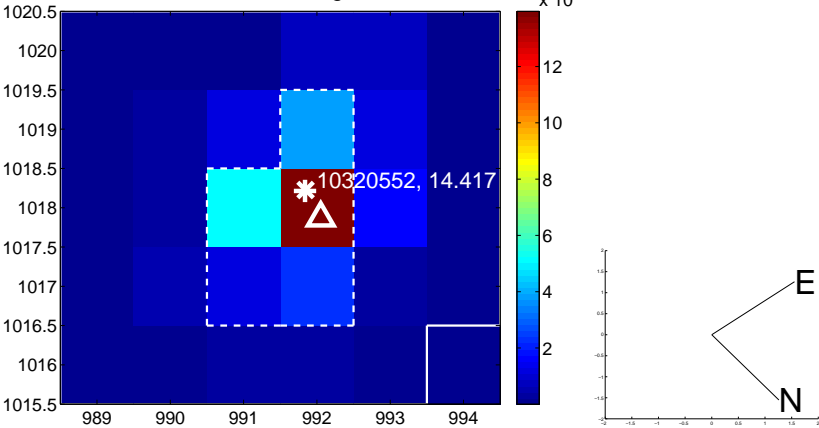
Q5 no OOT image



Q6 difference image



Q6 OOT image



Q7 no difference image



Q7 no OOT image



Q8 no difference image



Q8 no OOT image





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

Q9 no difference image



Q9 no OOT image



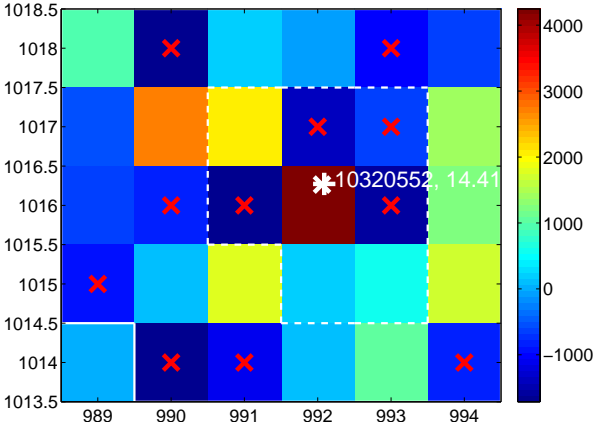
Q10 no difference image



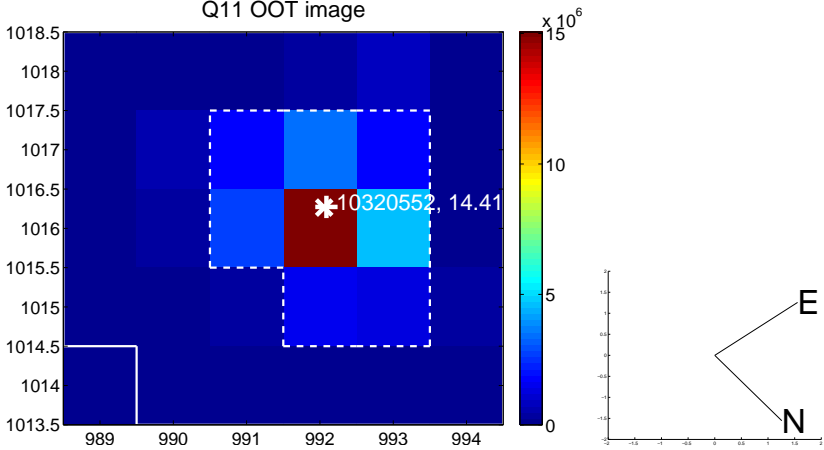
Q10 no OOT image



Q11 difference image. Poor Quality



Q11 OOT image



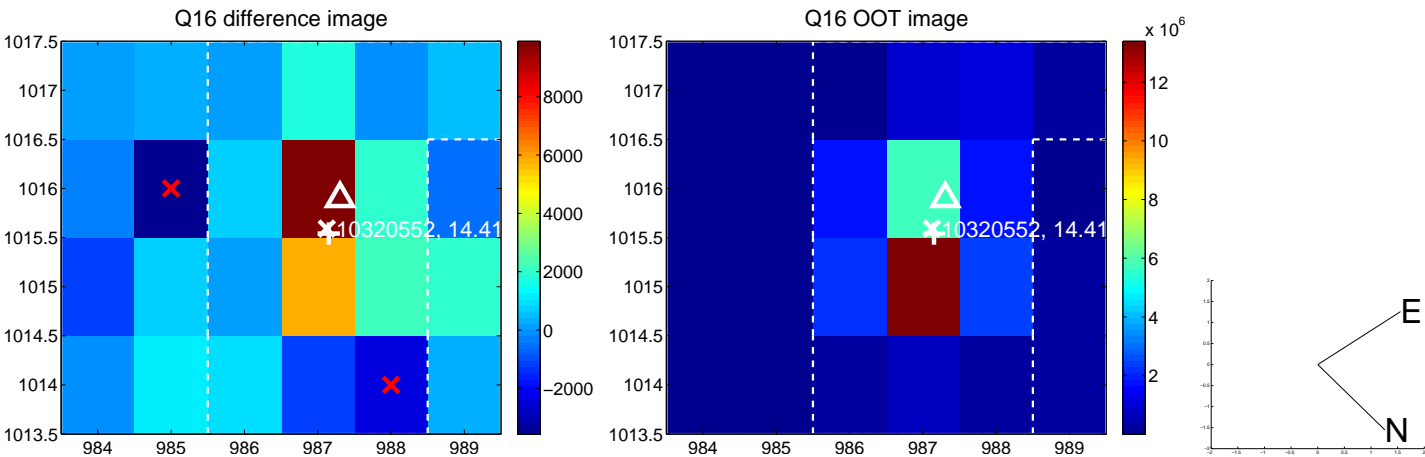
Q12 no difference image



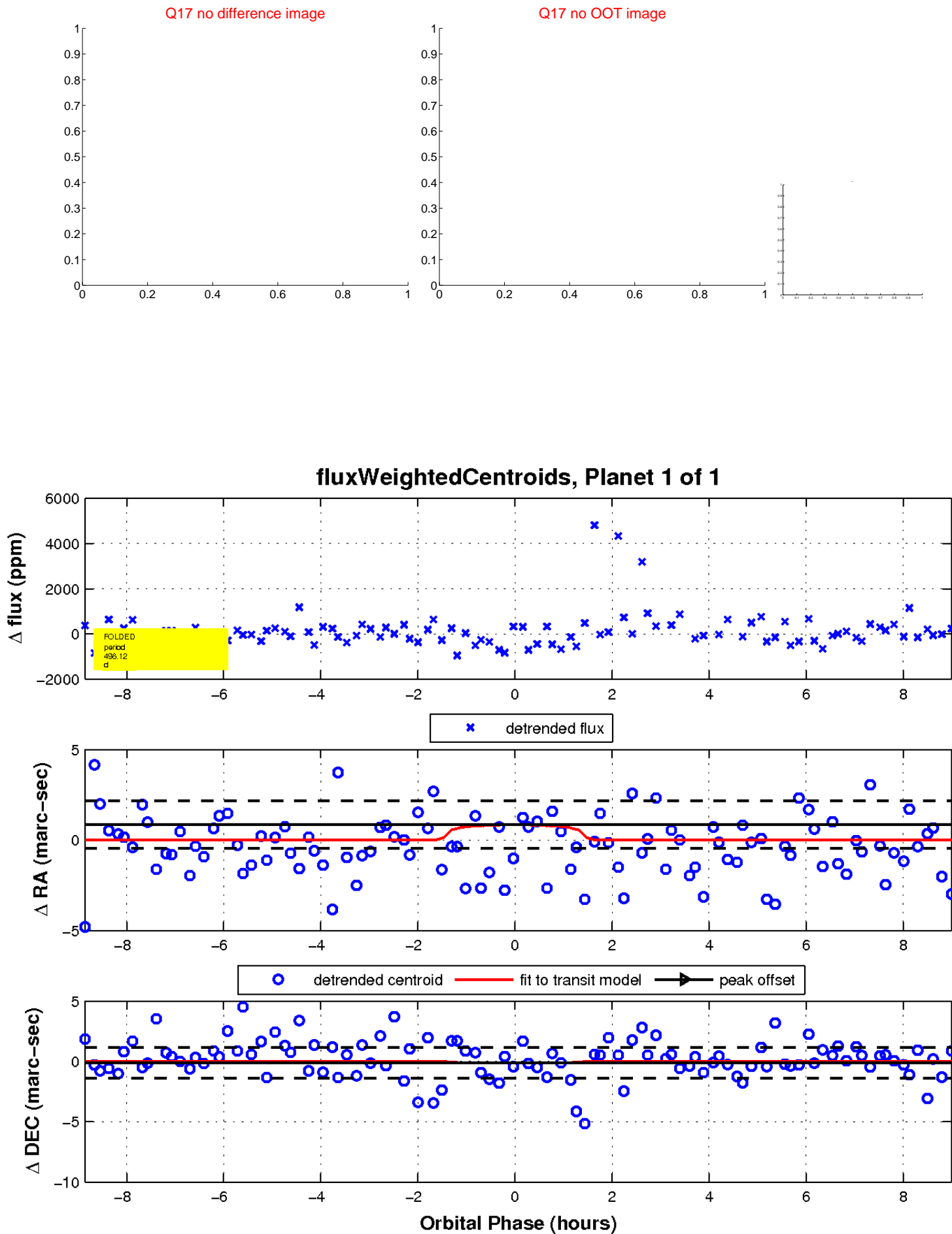
Q12 no OOT image



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

