

# KIC 009849888

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
009849888-01	OBS	No	275.555285	183.482439	572.7	14.518	7.2	7.6	0.98	5570	2.57	1.21

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
009849888-01	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_SKYE—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.

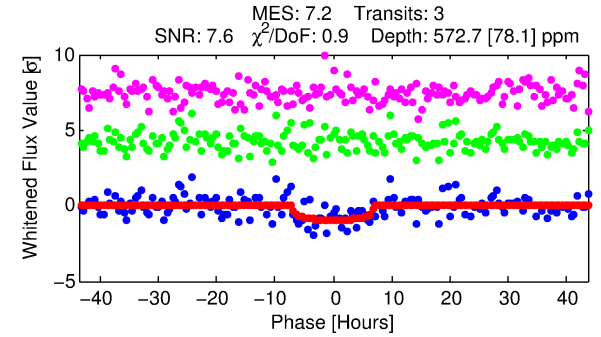
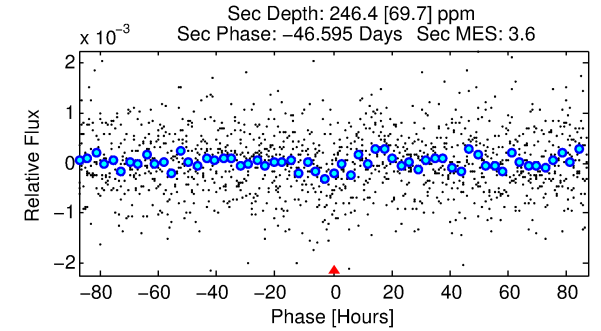
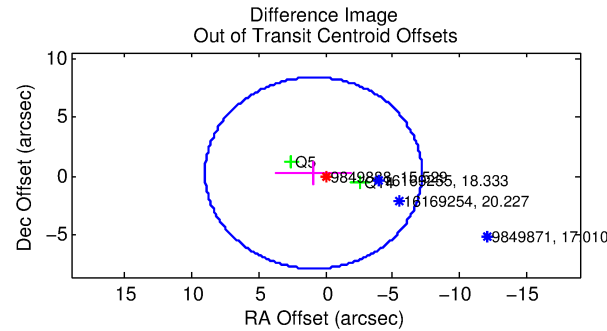
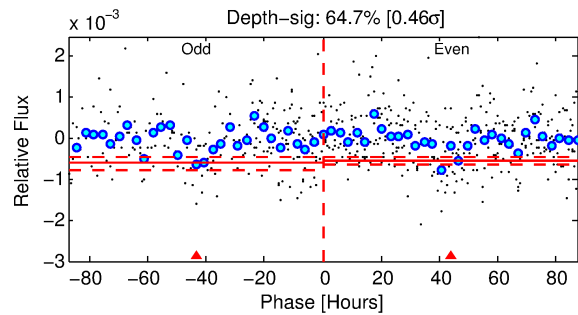
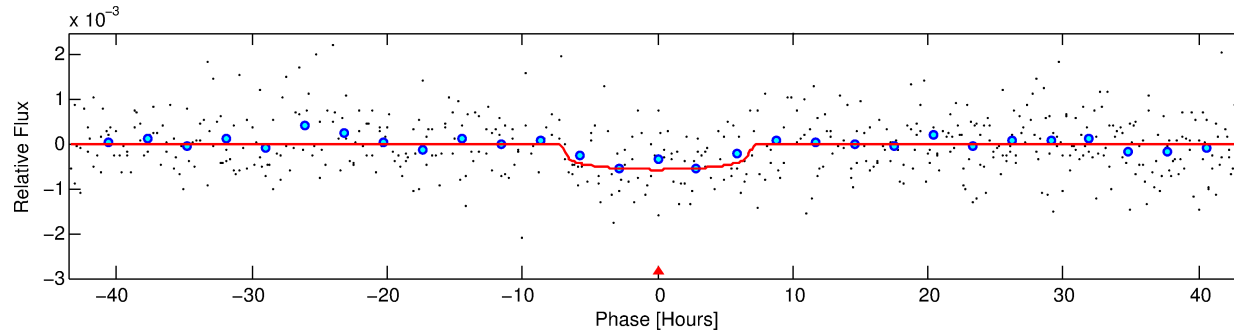
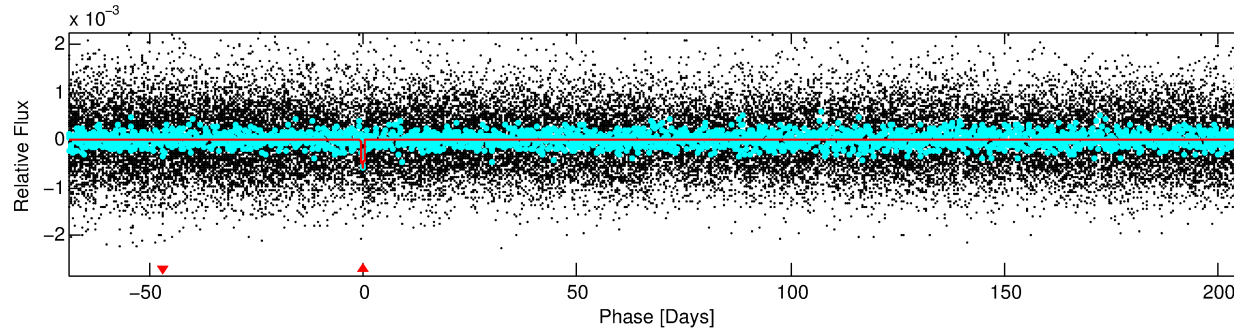
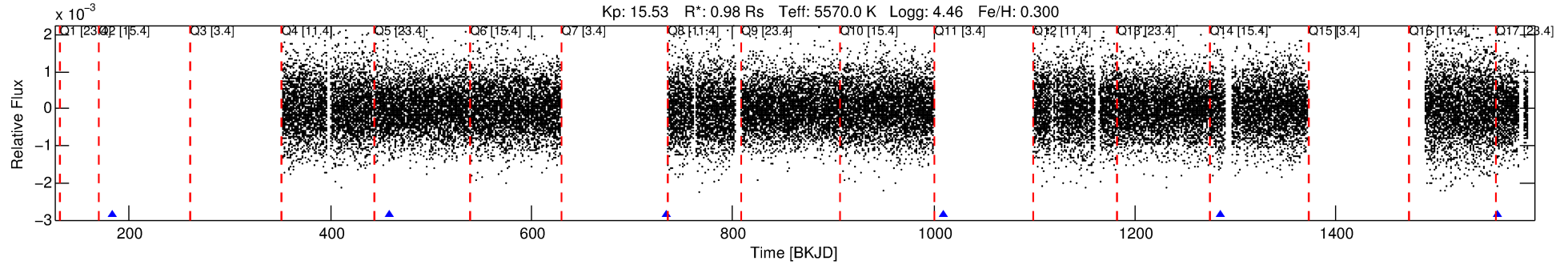
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

## Ephemeris Match Information For 009849888-01

No Significant Match Found

# DV One-Page Summary

KIC: 9849888 Candidate: 1 of 1 Period: 275.555 d



## DV Fit Results:

Period = 275.55528 [0.01072] d  
Epoch = 183.4824 [0.0387] BKJD  
Rp/R\* = 0.0240 [0.0121]  
a/R\* = 99.08 [200.72]  
b = 0.76 [1.13]  
Seff = 1.21 [0.46]  
Teq = 267 [25] K  
Rp = 2.57 [1.49] Re  
a = 0.8308 [0.1990] AU  
Ag = 14119.81 [15658.99] [0.90 $\sigma$ ]  
Teffp = 4507 [1194] K [3.55 $\sigma$ ]

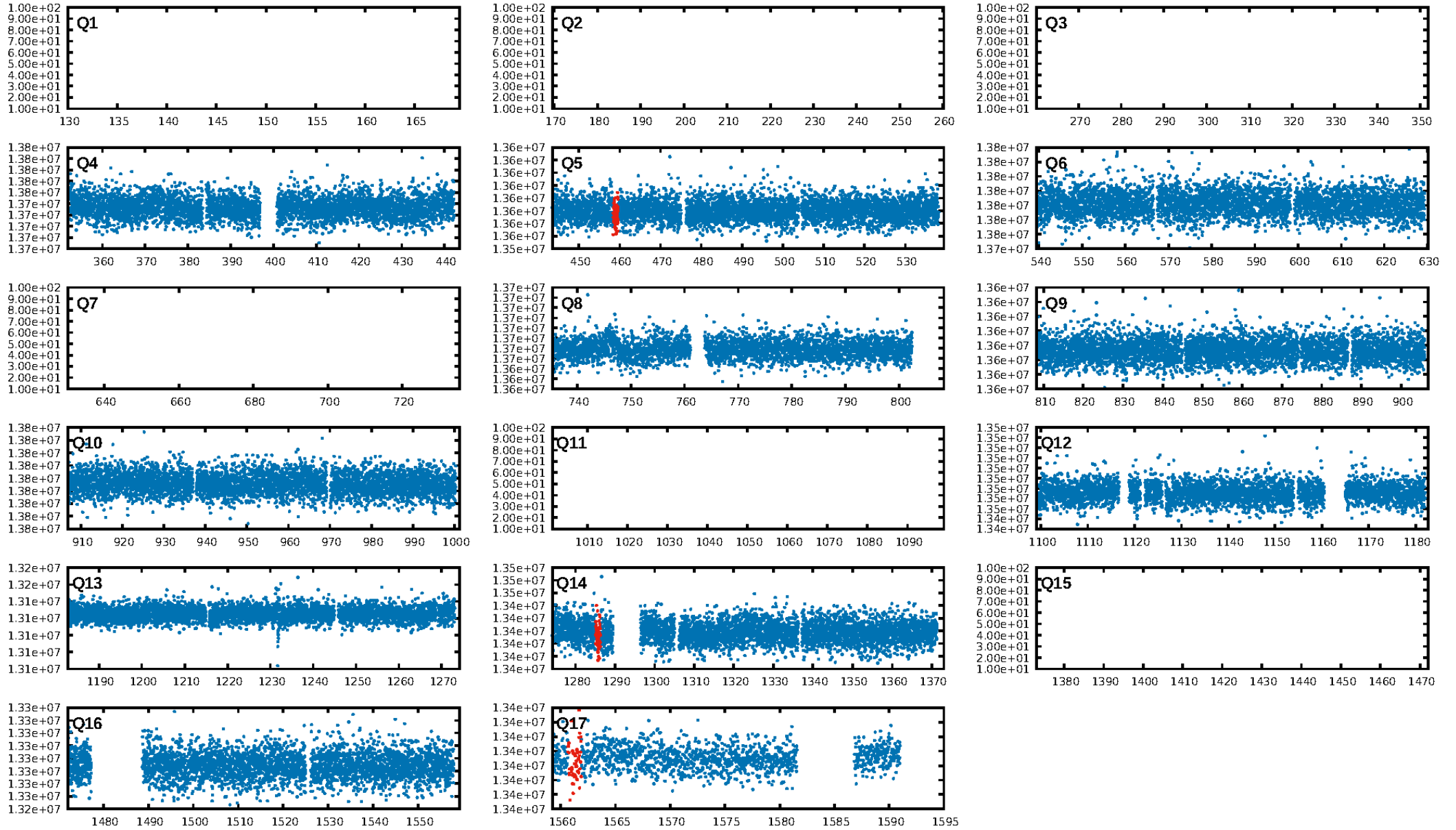
## DV Diagnostic Results:

ShortPeriod-sig: N/A  
LongPeriod-sig: N/A  
ModelChiSquare2-sig: 62.5%  
ModelChiSquareGof-sig: 100.0%  
Bootstrap-pfa: 5.51e-14  
RollingBand-fgt: 1.00 [2/2]  
GhostDiagnostic-chr: -5.223  
Centroid-sig: 59.9%  
Centroid-so: 1.797 arcsec [1.02 $\sigma$ ]  
OotOffset-rm: 0.942 arcsec [0.35 $\sigma$ ]  
OotOffset-st: 1/0/0/1 [2]  
KicOffset-rm: 0.798 arcsec [0.31 $\sigma$ ]  
KicOffset-st: 1/0/0/1 [2]  
DiffImageQuality-fgm: 1.00 [2/2]  
DiffImageOverlap-fno: 1.00 [2/2]

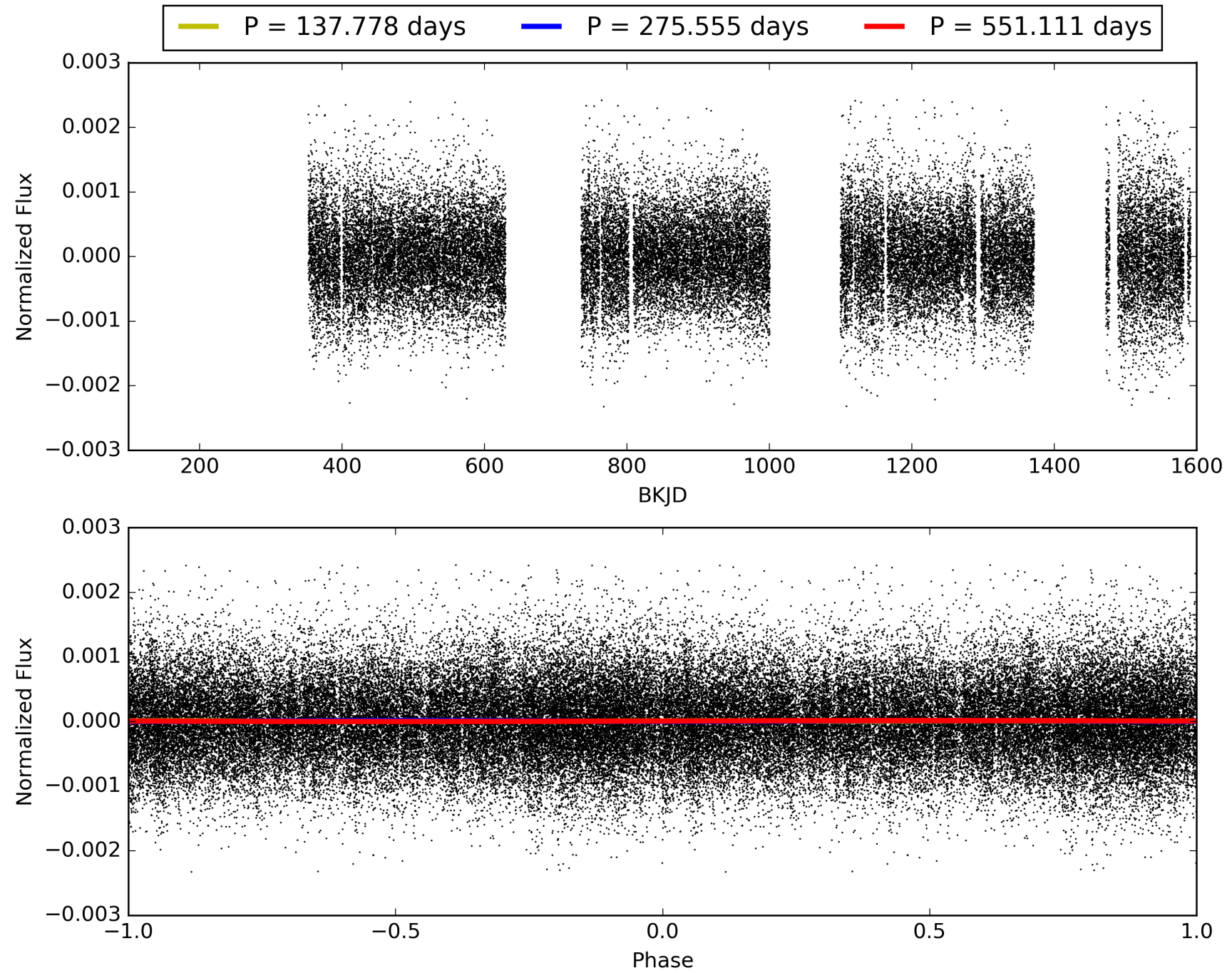
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 31-Jan-2016 07:46:15 Z

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

# TCE 009849888-01, PDC Light Curves

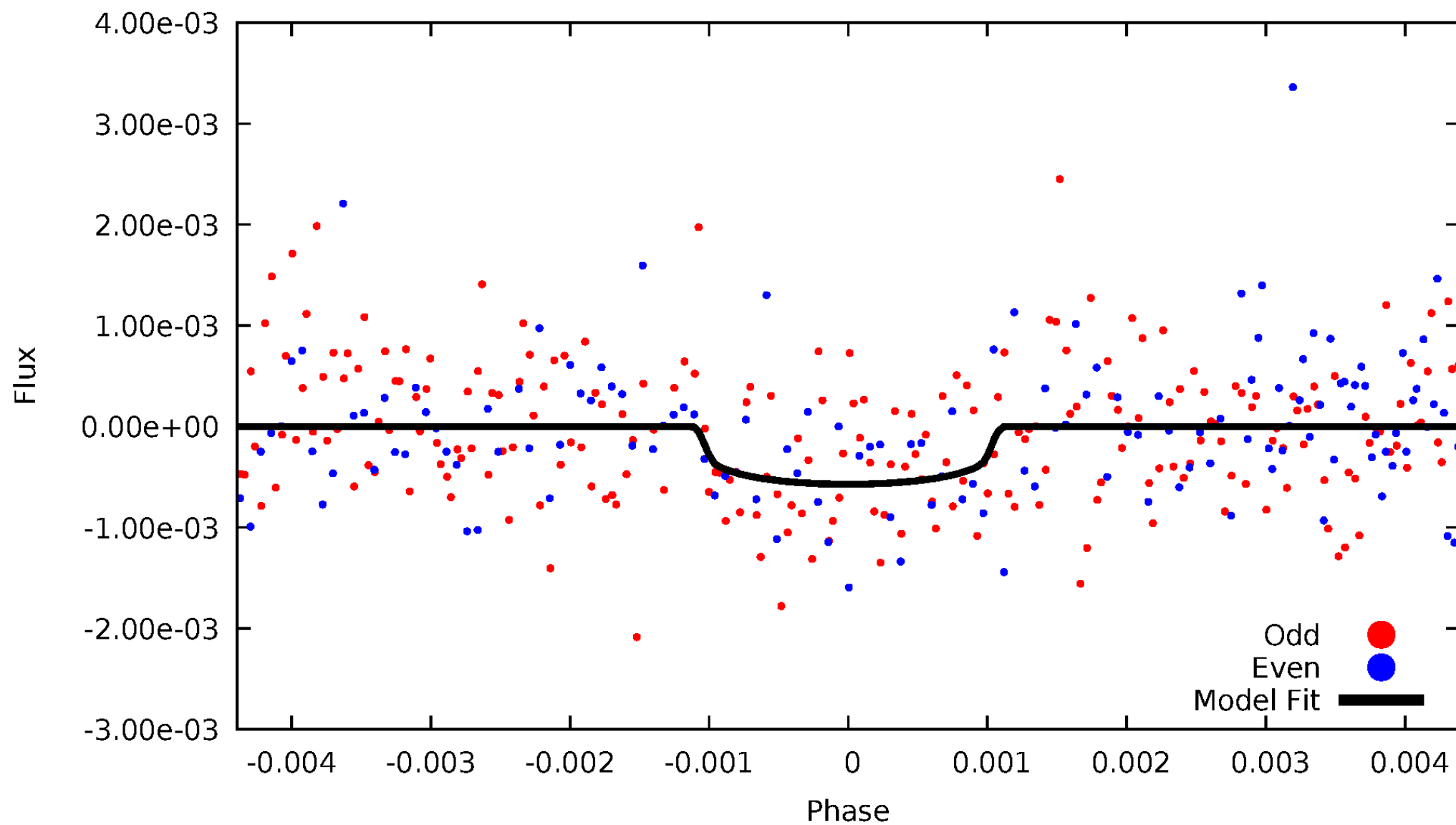


TCE 009849888-01



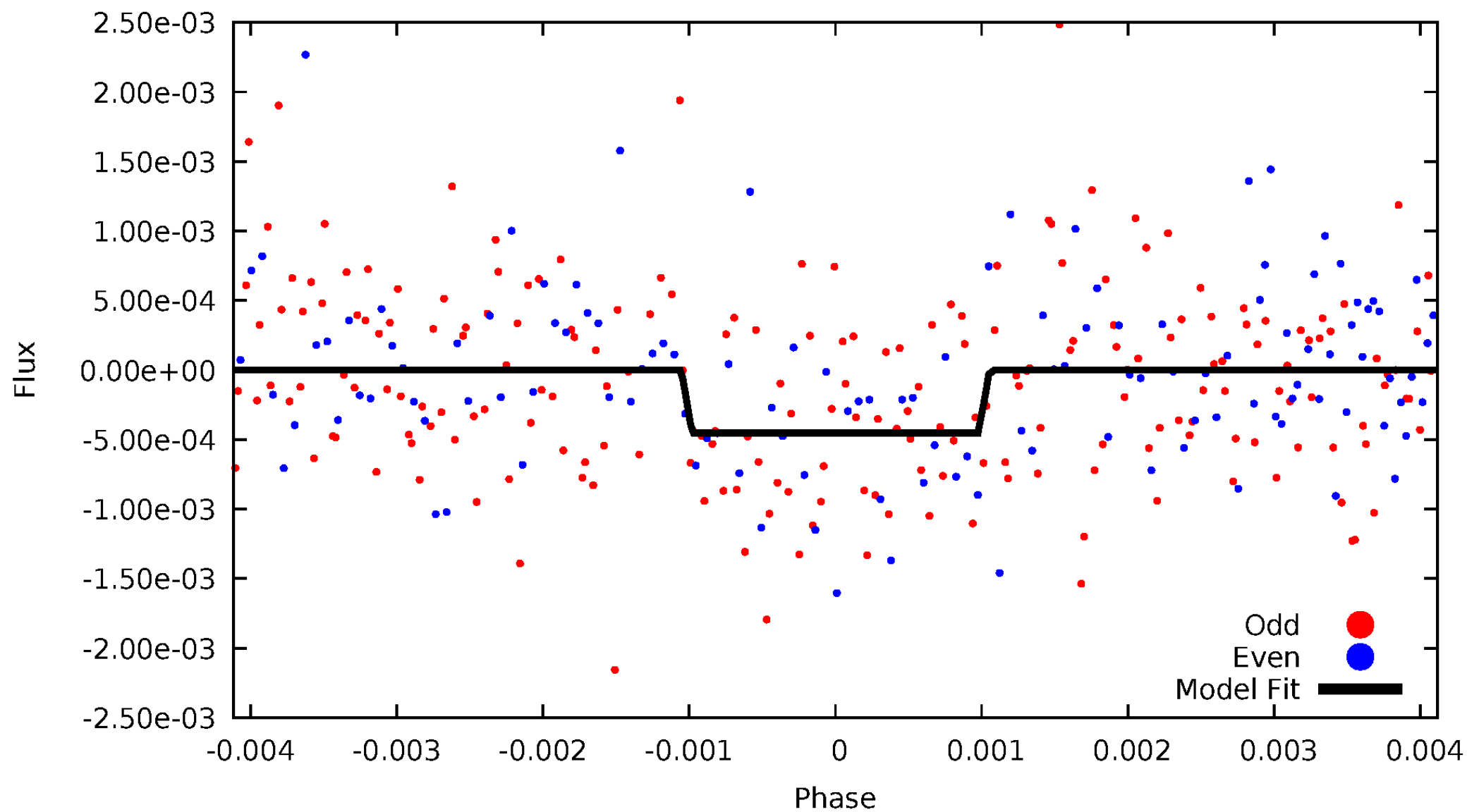
# DV Odd/Even

TCE 009849888-01



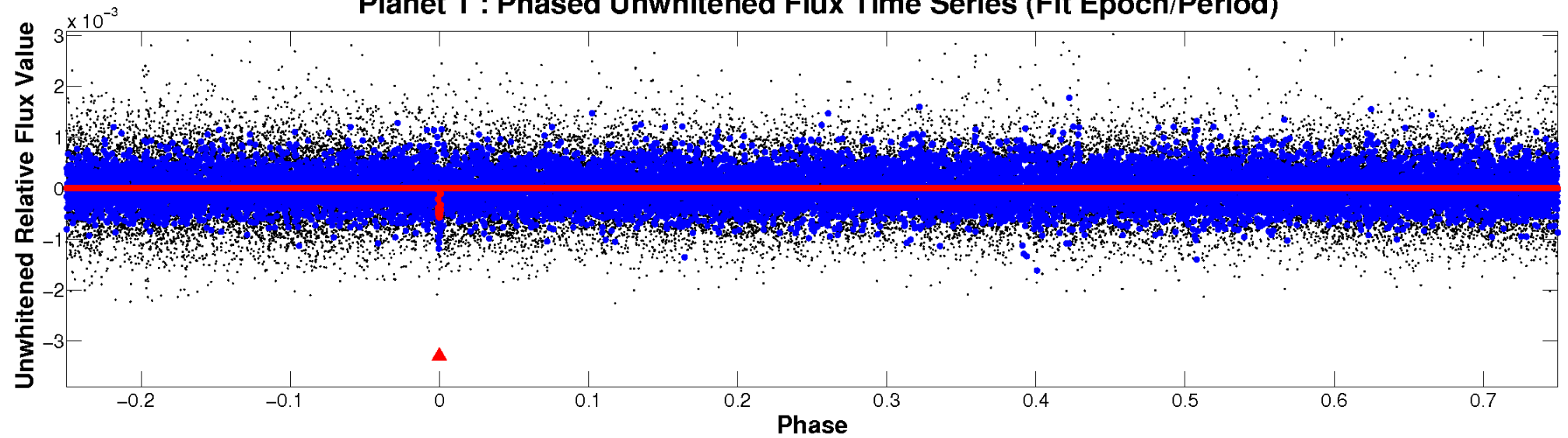
# ALT Odd/Even

TCE 009849888-01

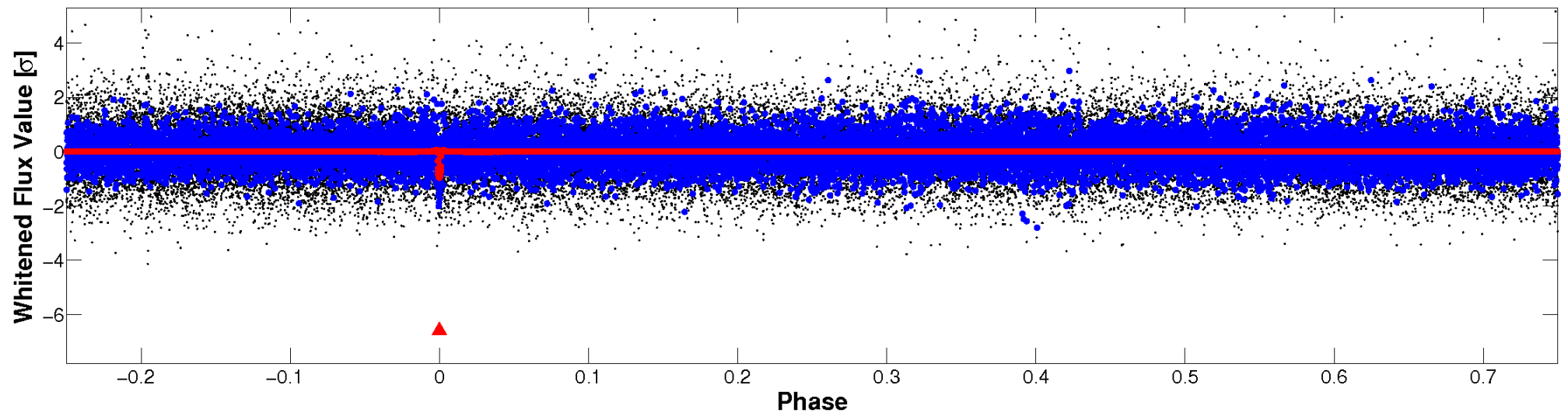


# Non-Whitened Vs. Whitened Light Curve

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



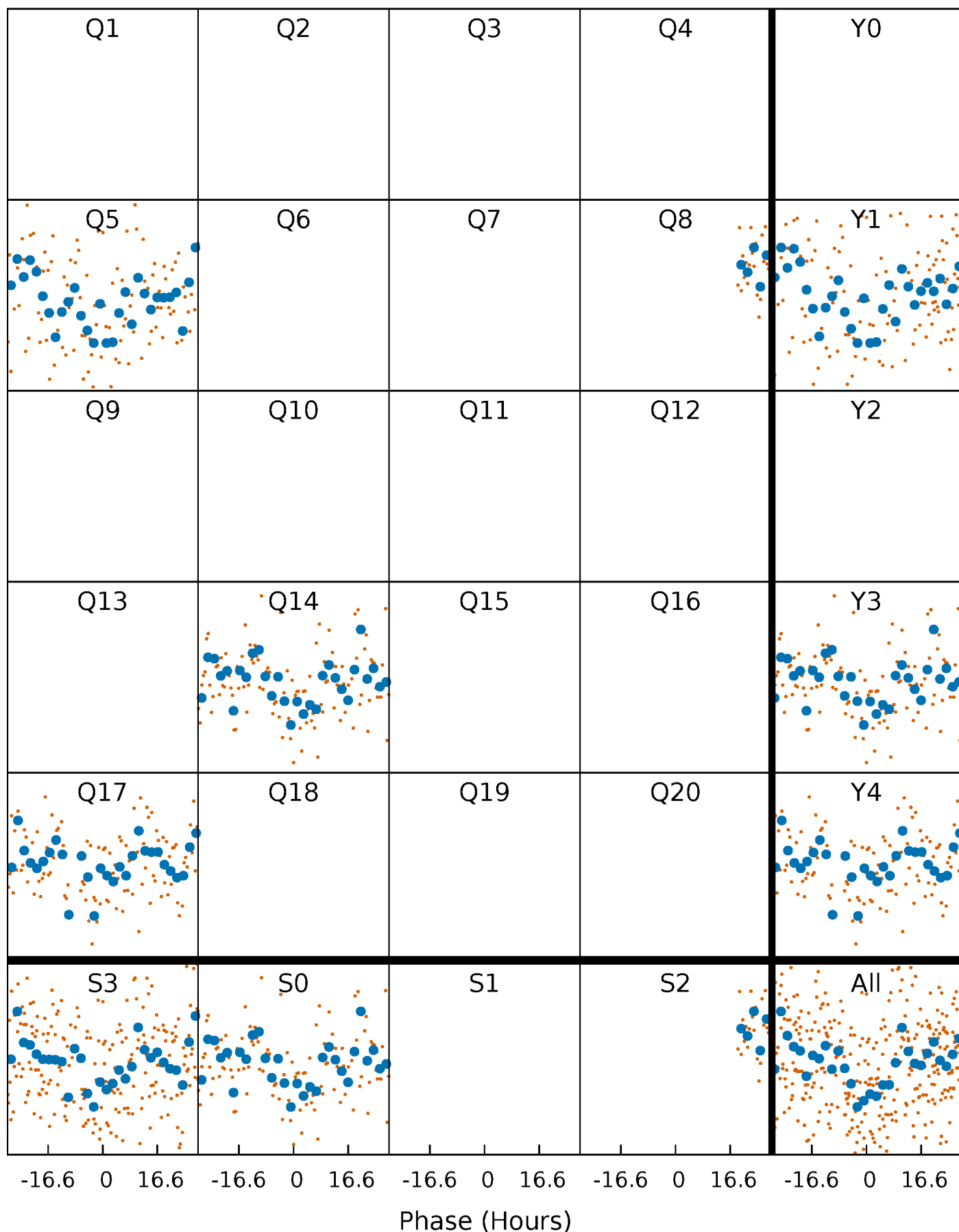
**Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)**





# PDC Quarter-Phased Transit Curves

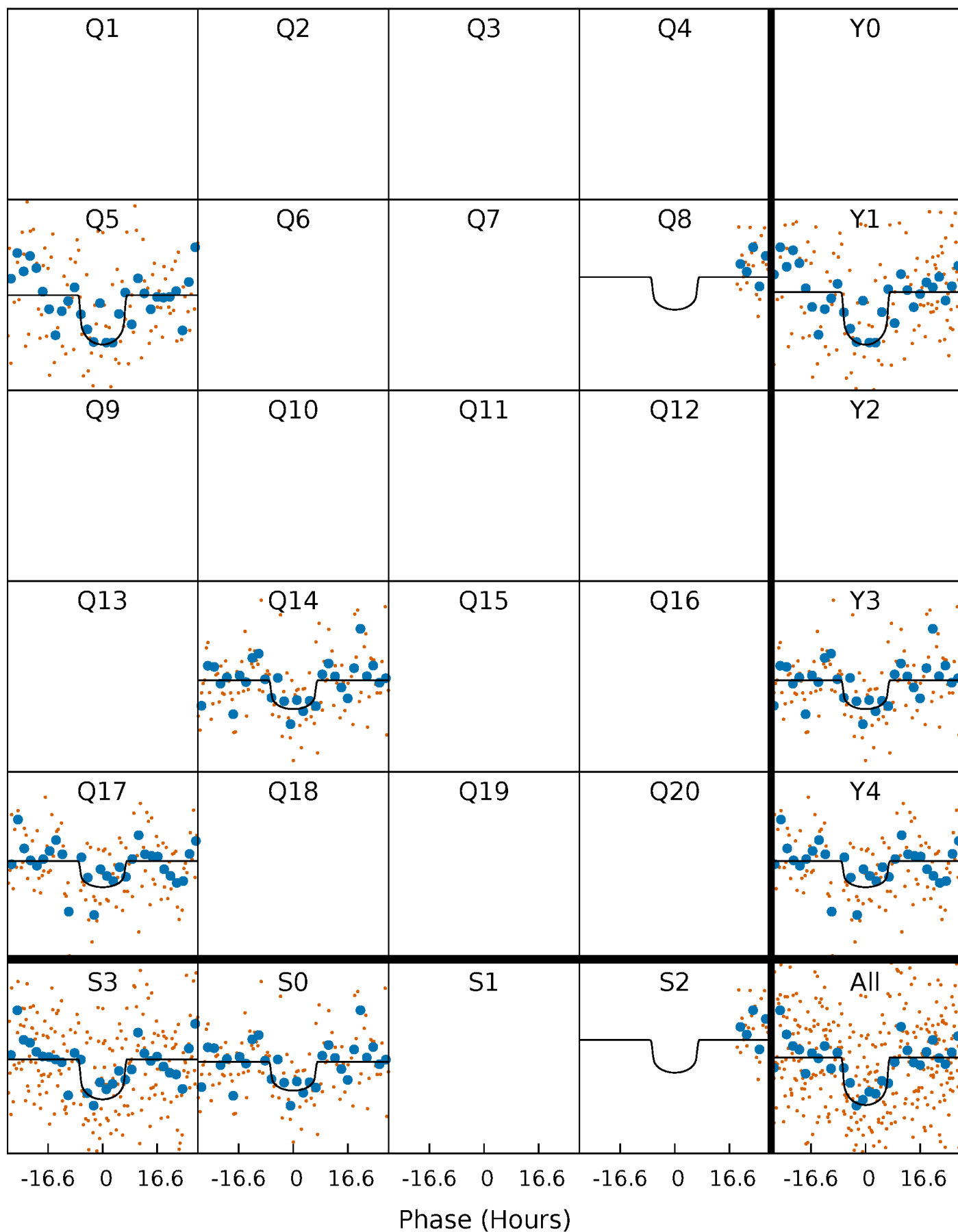
TCE 009849888-01 P=275.555285 Days  $T_0=183.482439$  (BKJD)





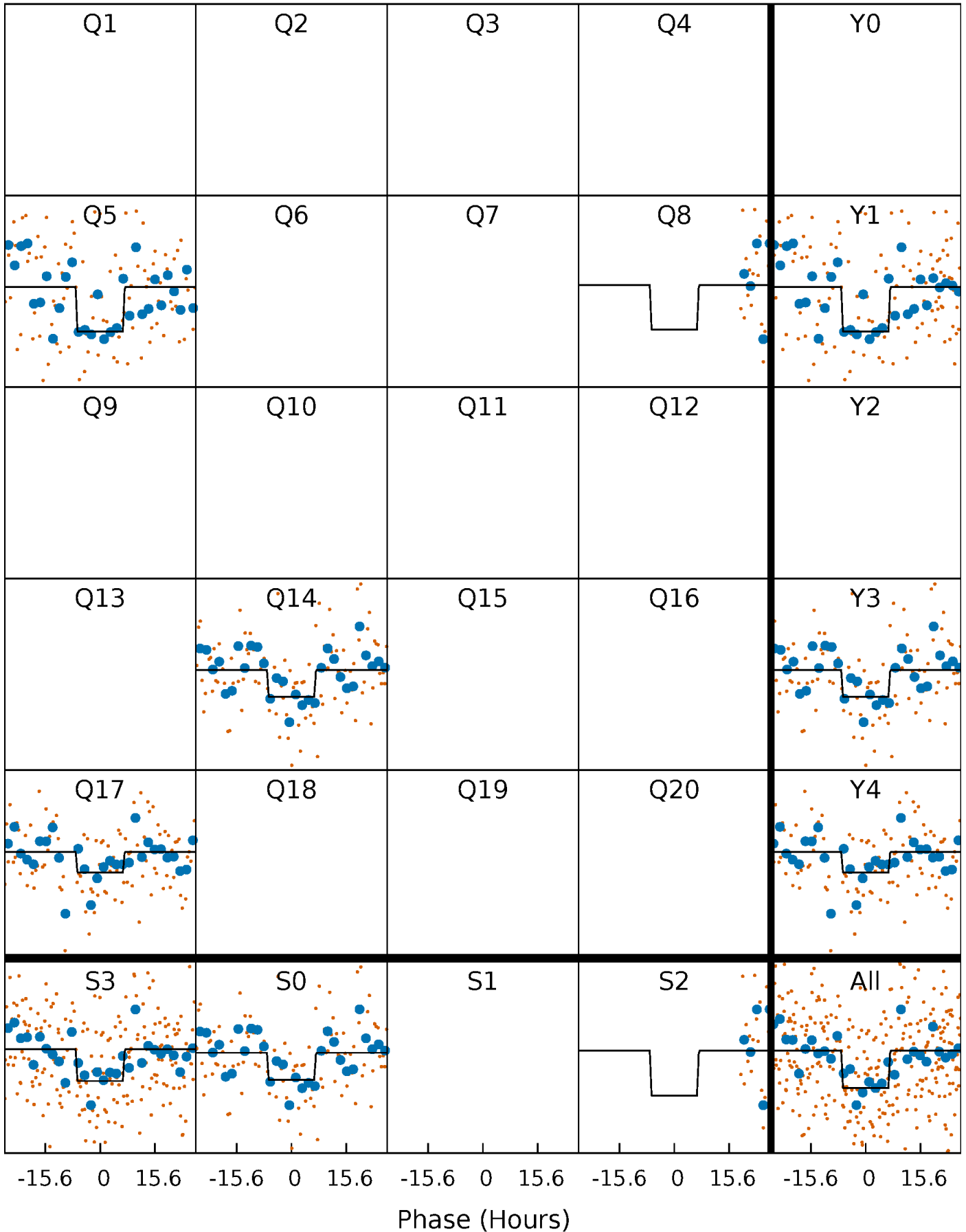
# DV Quarter-Phased Transit Curves

TCE 009849888-01 P=275.555285 Days  $T_0=183.482439$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

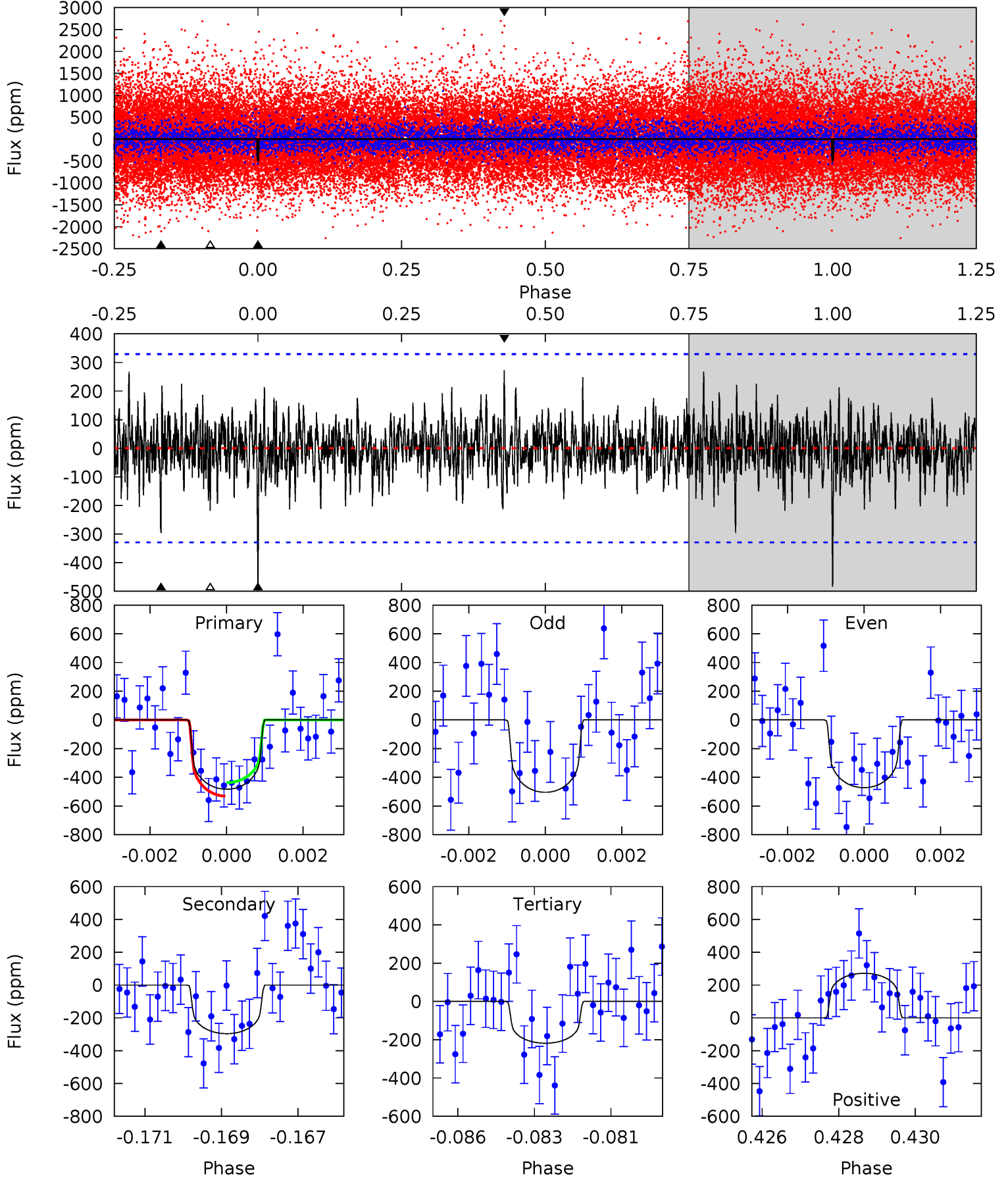
TCE 009849888-01 P=275.553368 Days  $T_0=183.488720$  (BKJD)



# DV Model-Shift Uniqueness Test

009849888-01,  $P = 275.555285$  Days,  $E = 183.482439$  Days

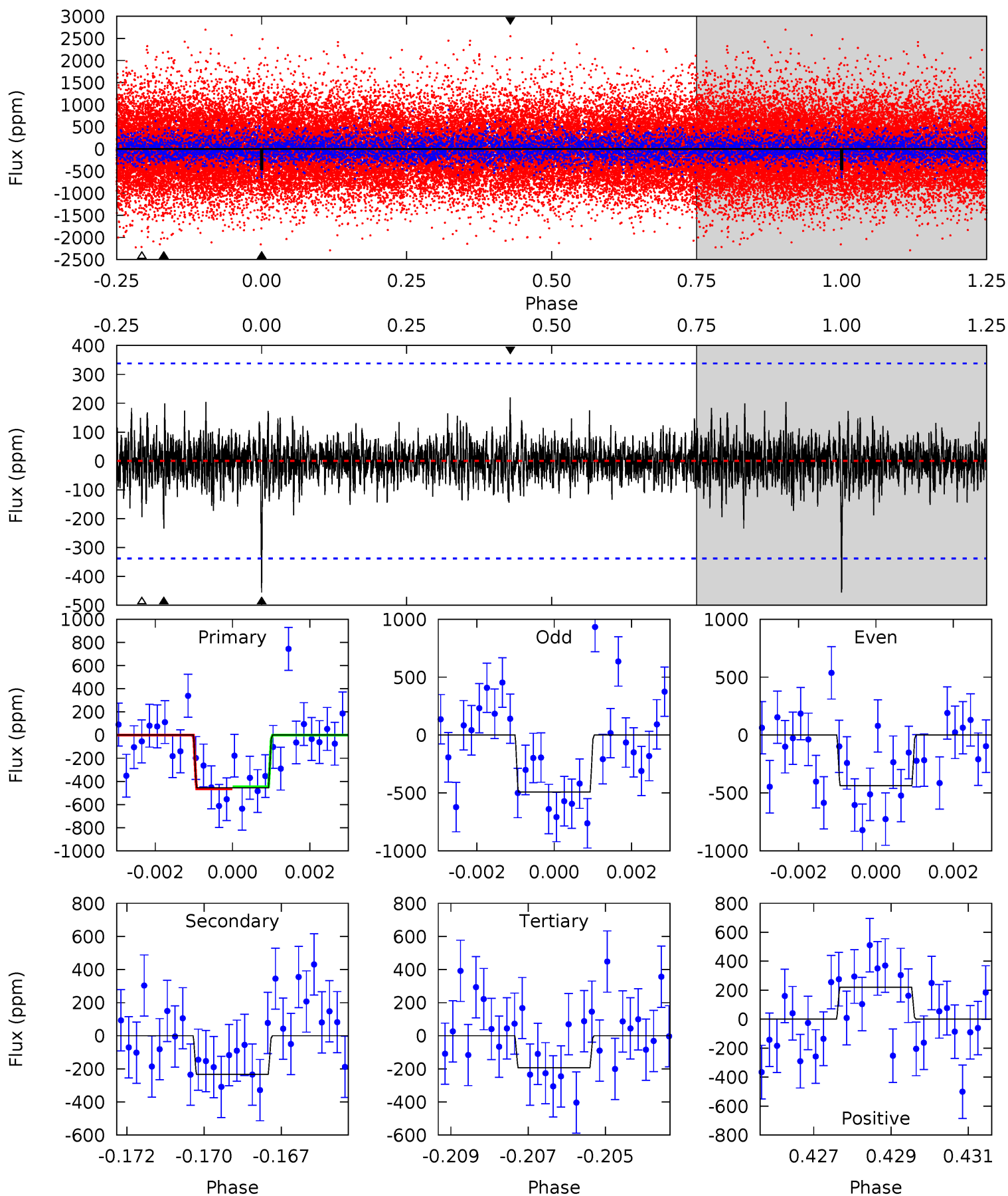
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
7.79	4.78	3.52	4.38	5.31	3.05	1.10	4.27	3.41	1.26	0.40	0.25	0.98	0.36	0.76



# Alt Model-Shift Uniqueness Test

009849888-01, P = 275.553368 Days, E = 183.488720 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
7.16	3.68	3.05	3.46	5.32	3.08	0.78	4.11	3.70	0.63	0.22	0.41	0.95	0.33	0.14



### Stellar Parameters For KIC 009849888

	$T_{\text{eff}} (K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R (R_{\odot})$	$M (M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	$5570^{+166}_{-183}$	$4.455^{+0.065}_{-0.195}$	$0.300^{+0.150}_{-0.300}$	$0.984^{+0.276}_{-0.118}$	$1.006^{+0.094}_{-0.105}$	$1.486^{+0.500}_{-0.731}$
	+3%/-3%	+1%/-4%	+50%/-100%	+28%/-12%	+9%/-10%	+34%/-49%
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 009849888-01 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	$A_{\text{obs}}$
DV	$-296 \pm 62$	$2.60^{+1.58}_{-1.21}$	$378^{+26}_{-17}$	$4832^{+1635}_{-814}$	$15870^{+39387}_{-9785}$
Alt.	$-234 \pm 64$	$2.40^{+1.39}_{-1.23}$	$380^{+25}_{-19}$	$4761^{+1864}_{-789}$	$14882^{+49362}_{-9327}$

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

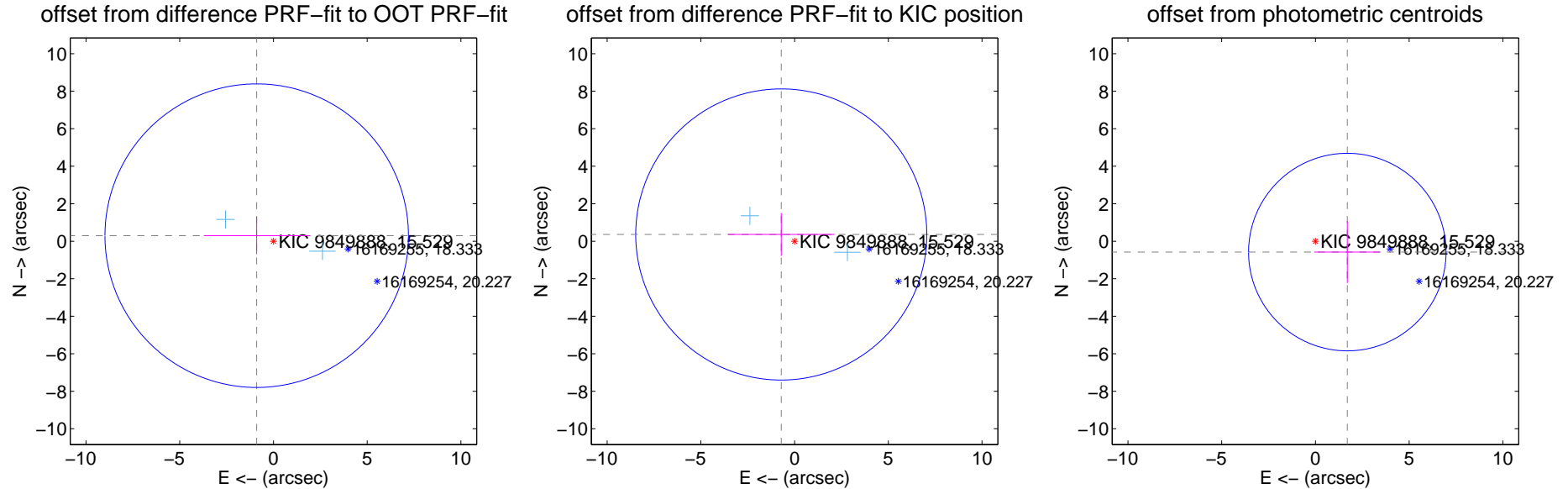
## DV Centroid Data

Supplemental centroid analysis for 009849888-01. Kepler magnitude: 15.53. Transit SNR 7.58

There are 2 quarters with good PRF difference image offsets

The direct PRF centroid is offset from the target star catalog position by about 0.21 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$0.942 \pm 2.698$	0.35	$0.894 \pm 2.823$	$0.296 \pm 0.991$
PRF-fit source offset from KIC position	$0.798 \pm 2.587$	0.31	$0.712 \pm 2.841$	$0.360 \pm 1.140$
photometric centroid source offset	$1.80 \pm 1.76$	1.02	$-1.70 \pm 1.77$	$-0.58 \pm 1.65$



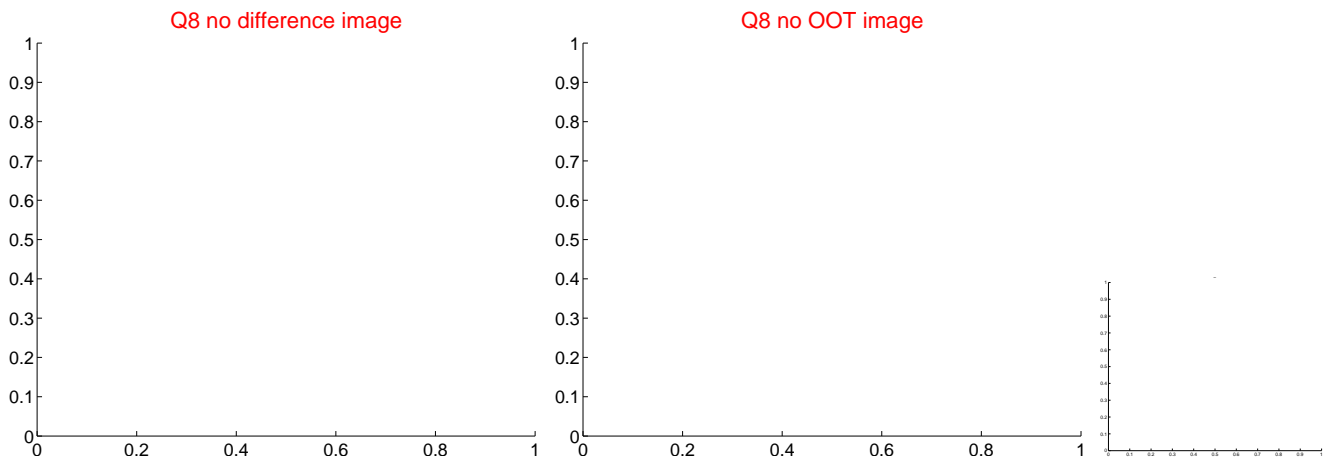
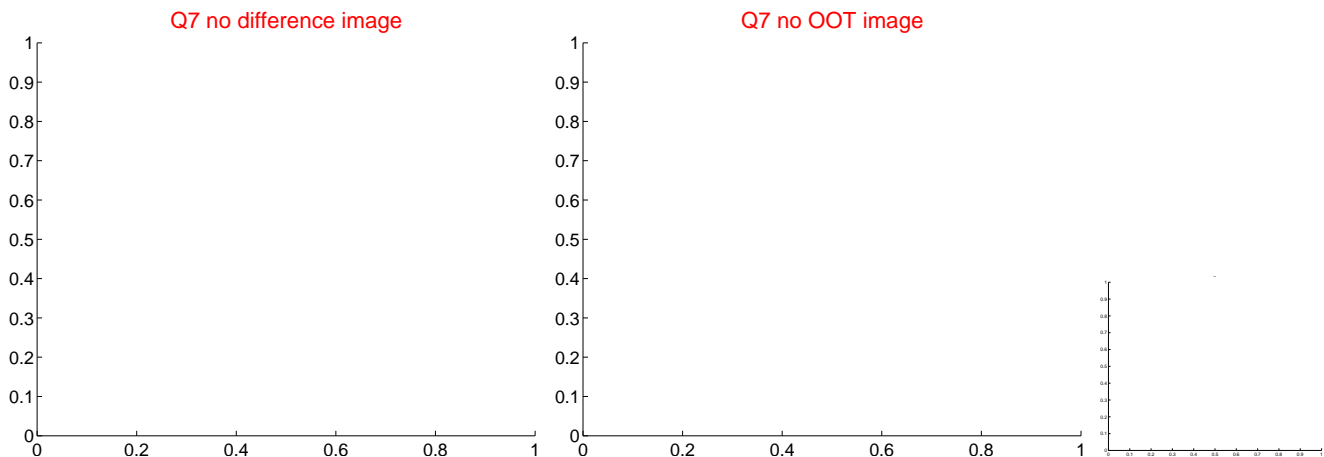
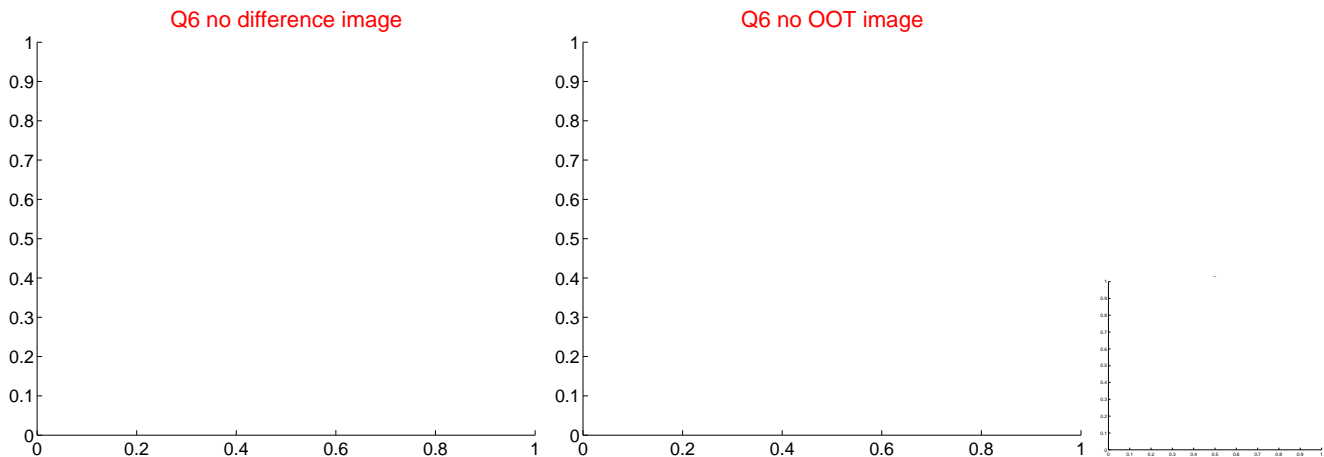
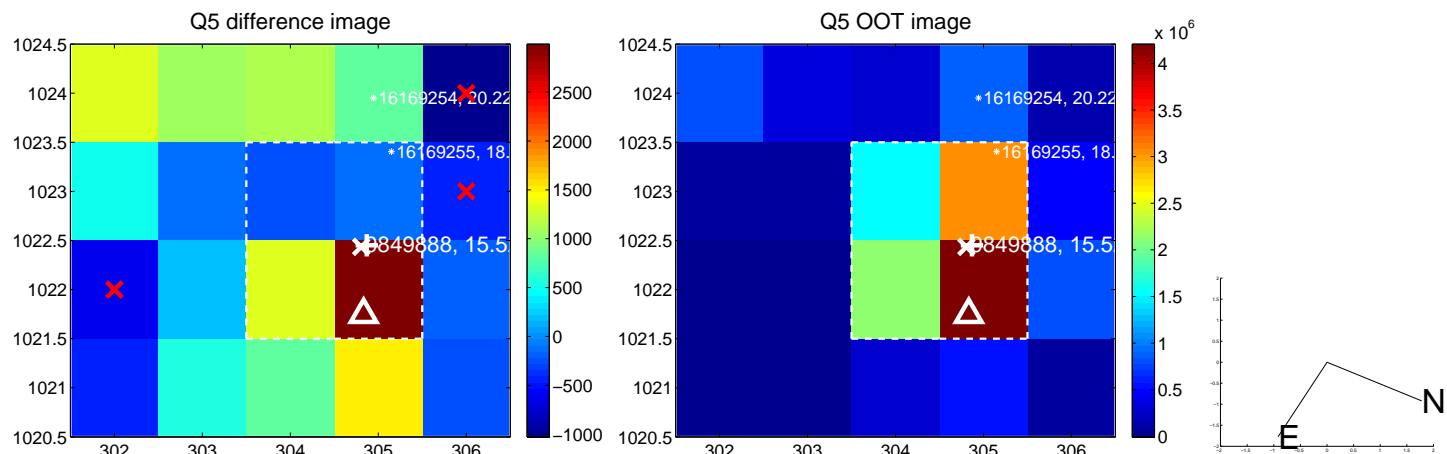
Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: three-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

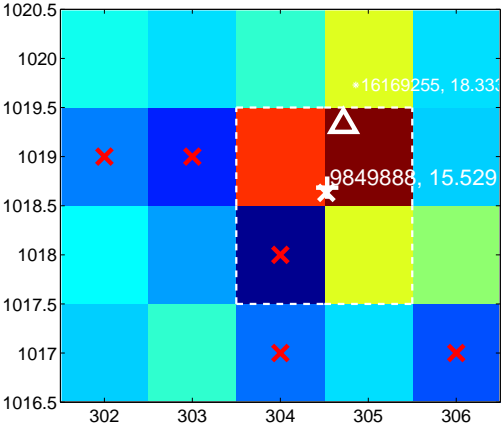
Q13 no difference image



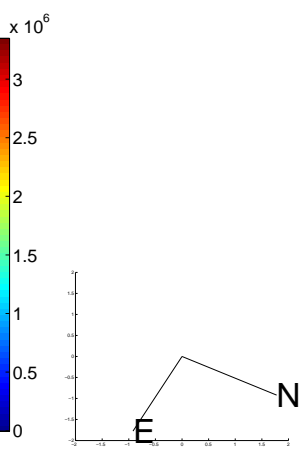
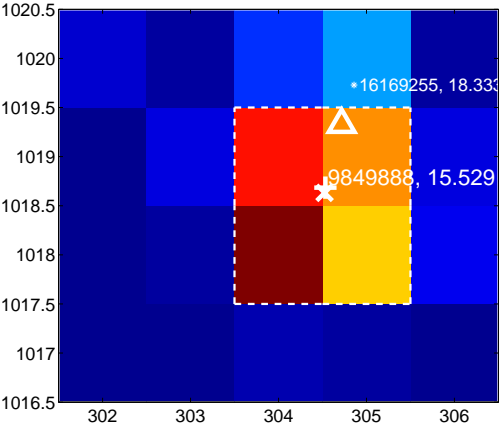
Q13 no OOT image



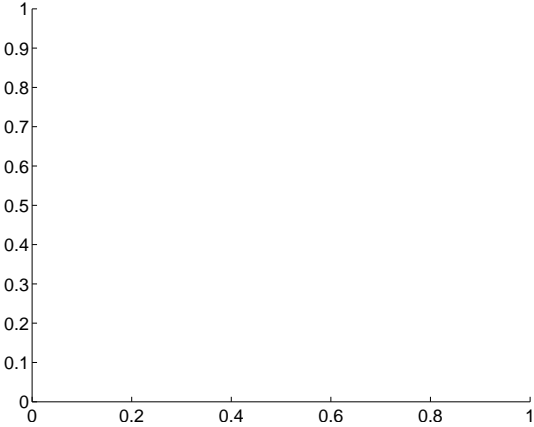
Q14 difference image



Q14 OOT image



Q15 no difference image



Q15 no OOT image



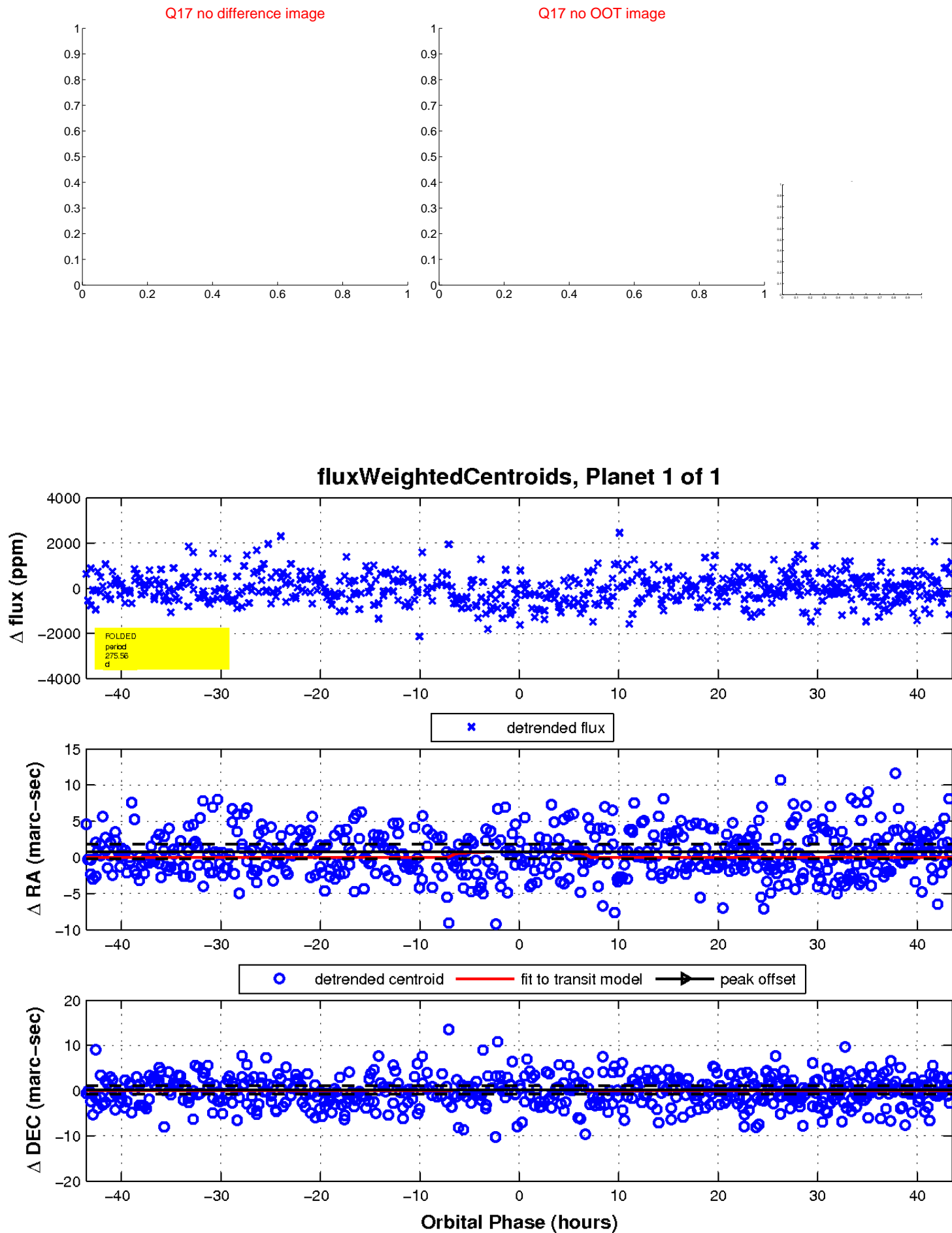
Q16 no difference image



Q16 no OOT image



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



UKIRT Image

Declination

