

# KIC 008556233

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
008556233-01	OBS	No	622.531141	304.534609	431.7	5.957	7.7	7.1	2.33	7507	5.29	5.24

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
008556233-01	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_SKYE—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_TER_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT— INCONSISTENT_TRANS—CENT_SATURATED

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

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

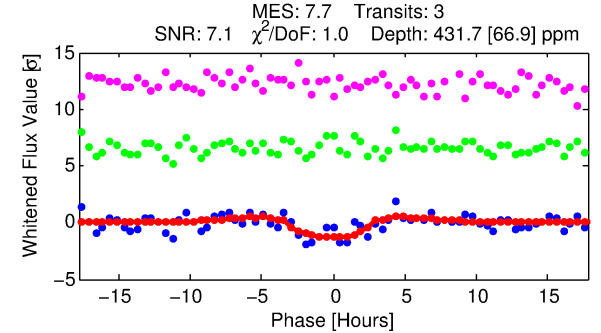
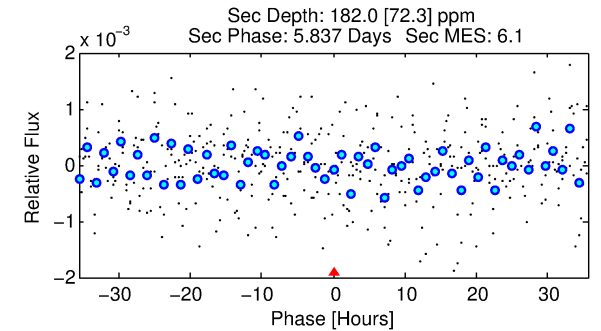
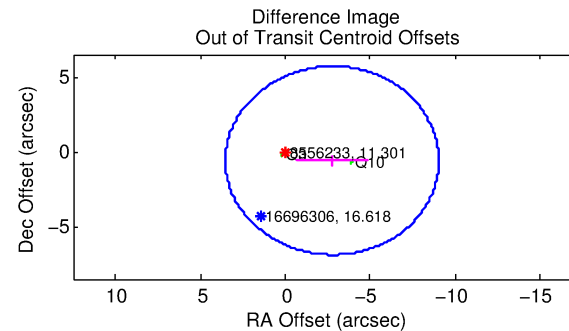
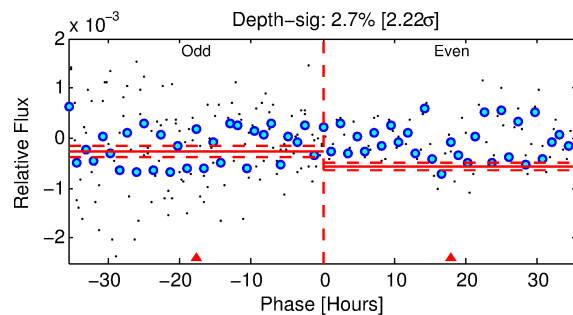
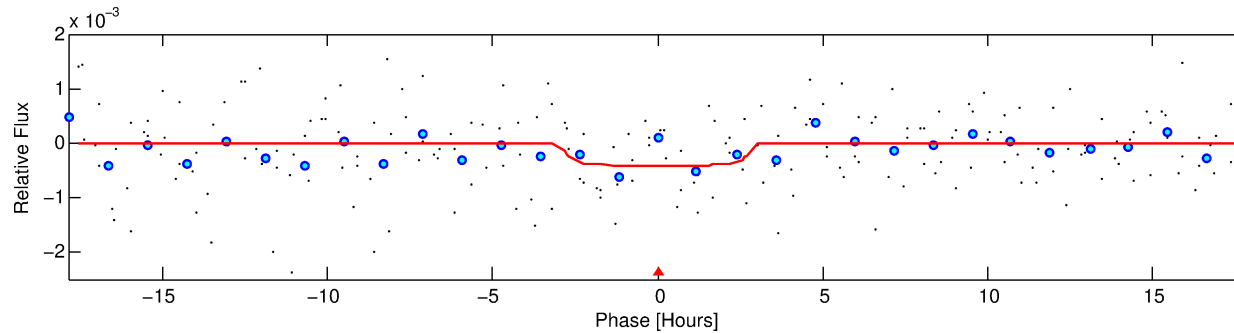
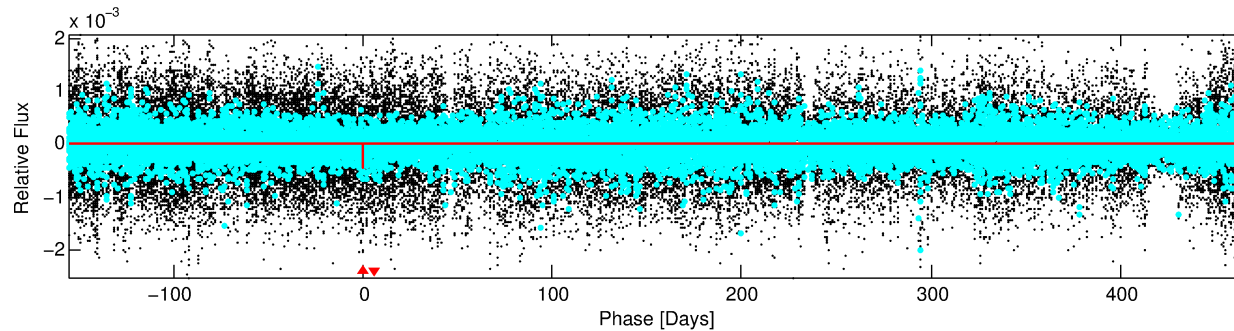
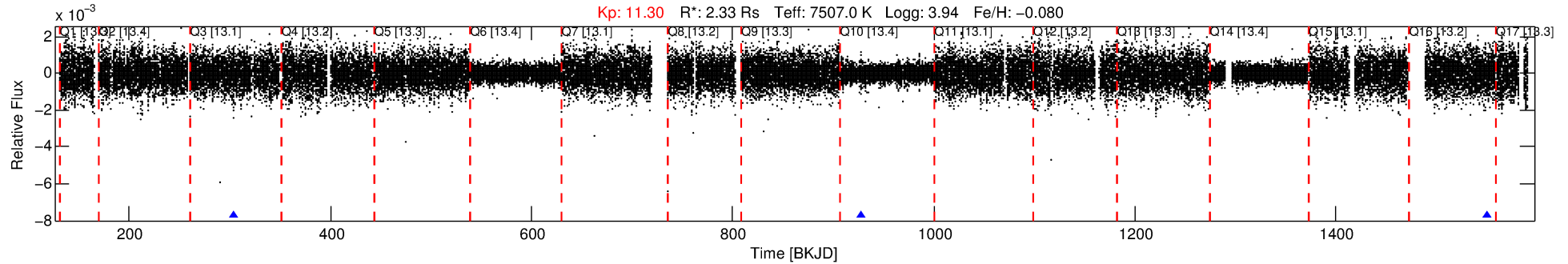
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

## Ephemeris Match Information For 008556233-01

No Significant Match Found

# DV One-Page Summary

KIC: 8556233 Candidate: 1 of 1 Period: 622.531 d



## DV Fit Results:

Period = 622.53114 [0.01687] d  
Epoch = 304.5346 [0.0188] BKJD  
Rp/R\* = 0.0208 [0.0209]  
a/R\* = 535.55 [3417.46]  
b = 0.77 [3.38]  
Seff = 5.24 [2.48]  
Teq = 386 [46] K  
Rp = 5.29 [5.58] Re  
a = 1.7191 [0.4936] AU  
Ag = 10583.82 [22208.85] [0.48 $\sigma$ ]  
Teffp = 6049 [3112] K [1.82 $\sigma$ ]

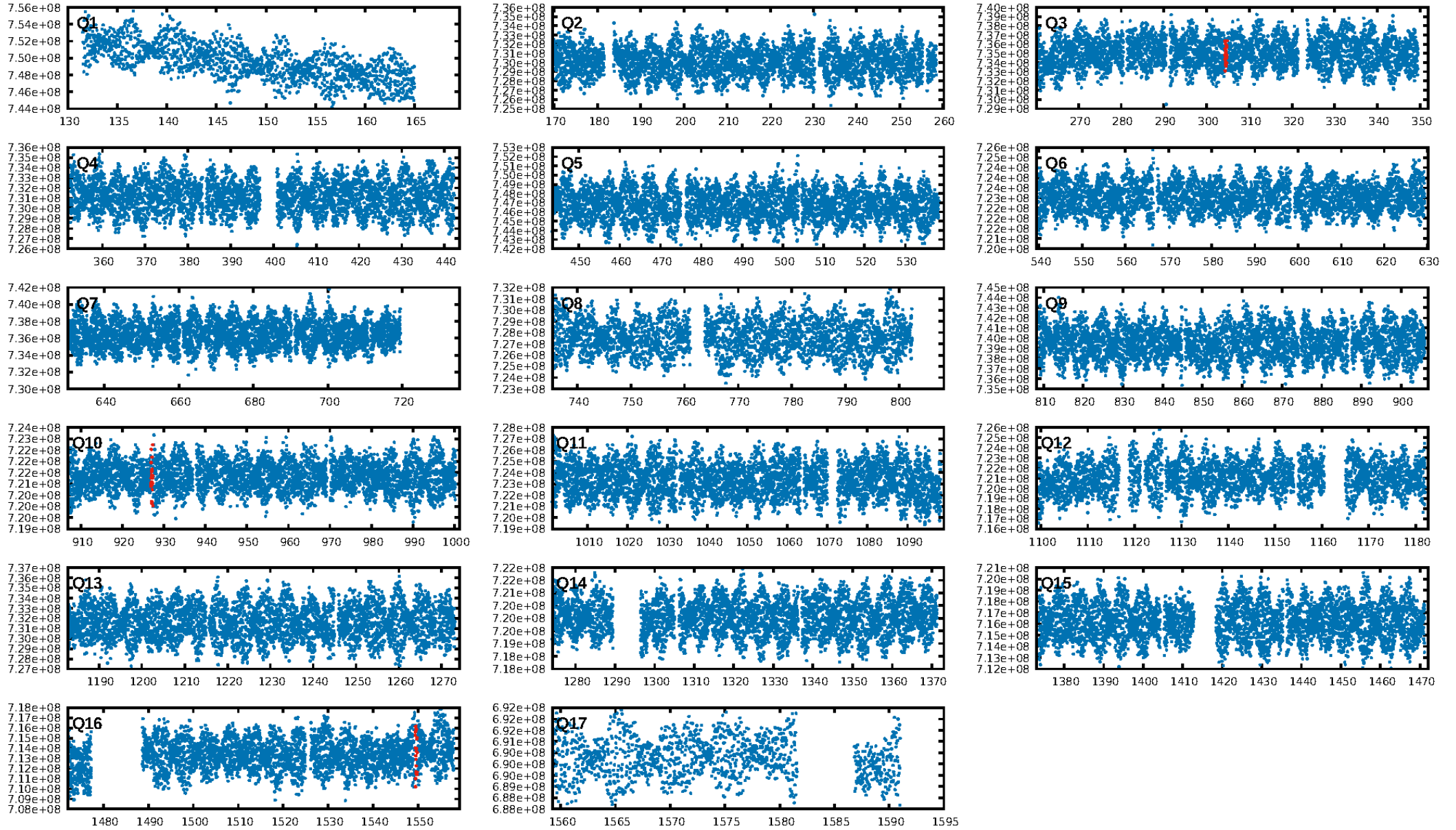
## DV Diagnostic Results:

ShortPeriod-sig: N/A  
LongPeriod-sig: N/A  
ModelChiSquare2-sig: 33.5%  
ModelChiSquareGof-sig: 95.8%  
**Bootstrap-pfa: 2.40e-10**  
RollingBand-fgt: 1.00 [3/3]  
GhostDiagnostic-chr: 8.567  
Centroid-sig: 23.9%  
Centroid-so: 0.540 arcsec [1.33 $\sigma$ ]  
OotOffset-rm: 2.838 arcsec [1.35 $\sigma$ ]  
OotOffset-st: 1/1/0/0 [2]  
KicOffset-rm: 2.793 arcsec [1.33 $\sigma$ ]  
KicOffset-st: 1/1/0/0 [2]  
DiffImageQuality-fgm: 0.50 [1/2]  
DiffImageOverlap-fno: 1.00 [2/2]

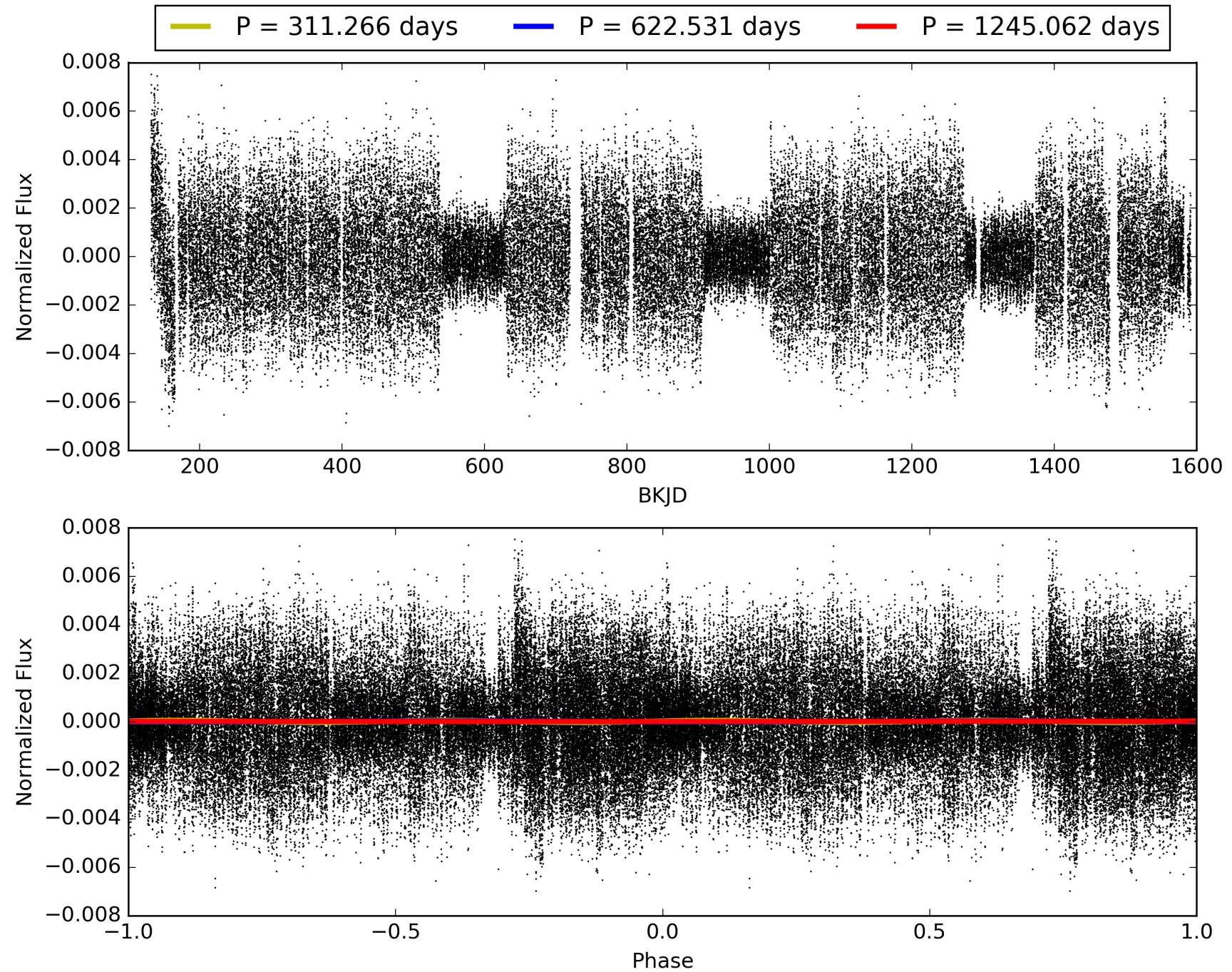
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 21:56:41 Z

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

# TCE 008556233-01, PDC Light Curves

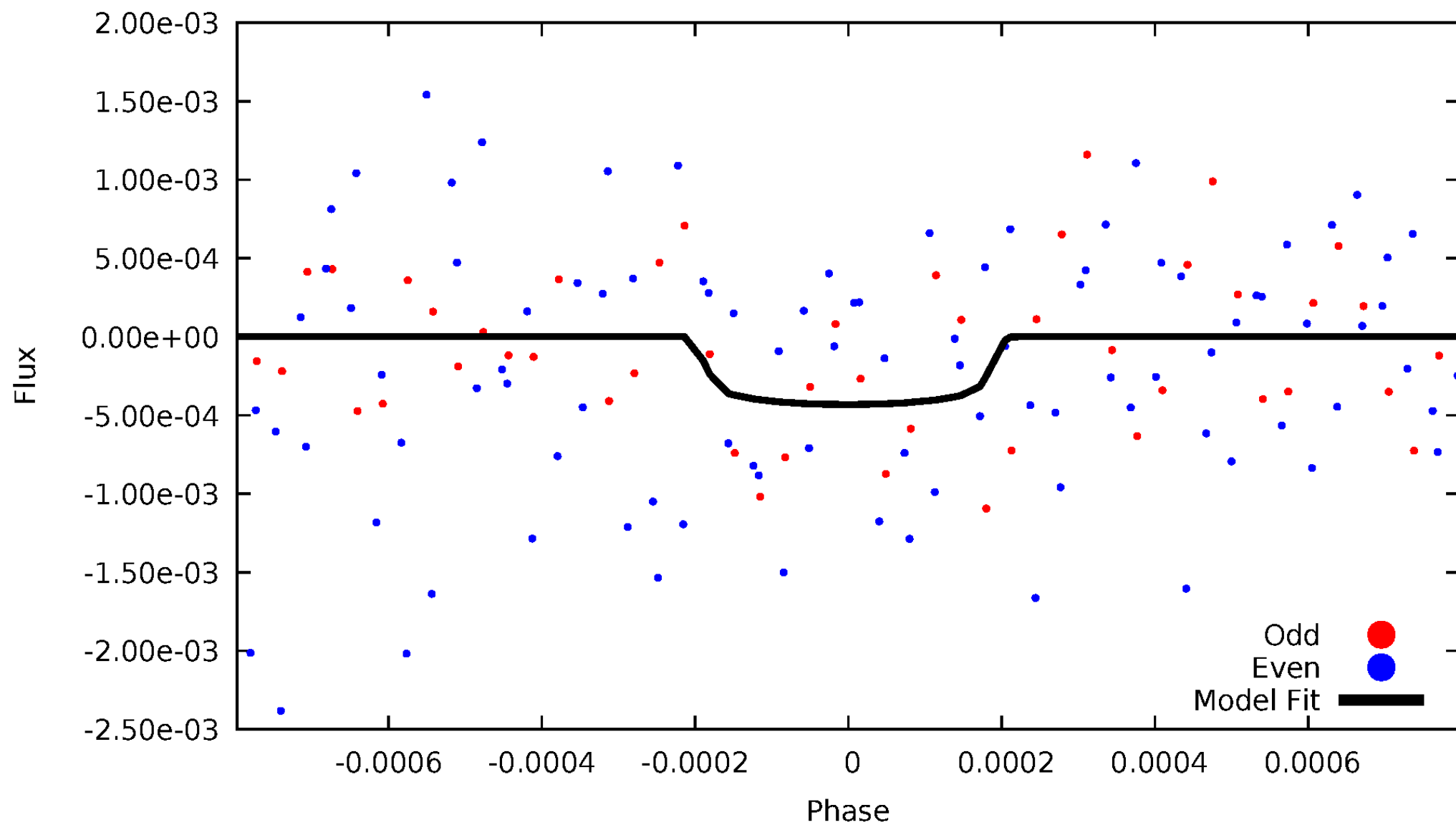


TCE 008556233-01



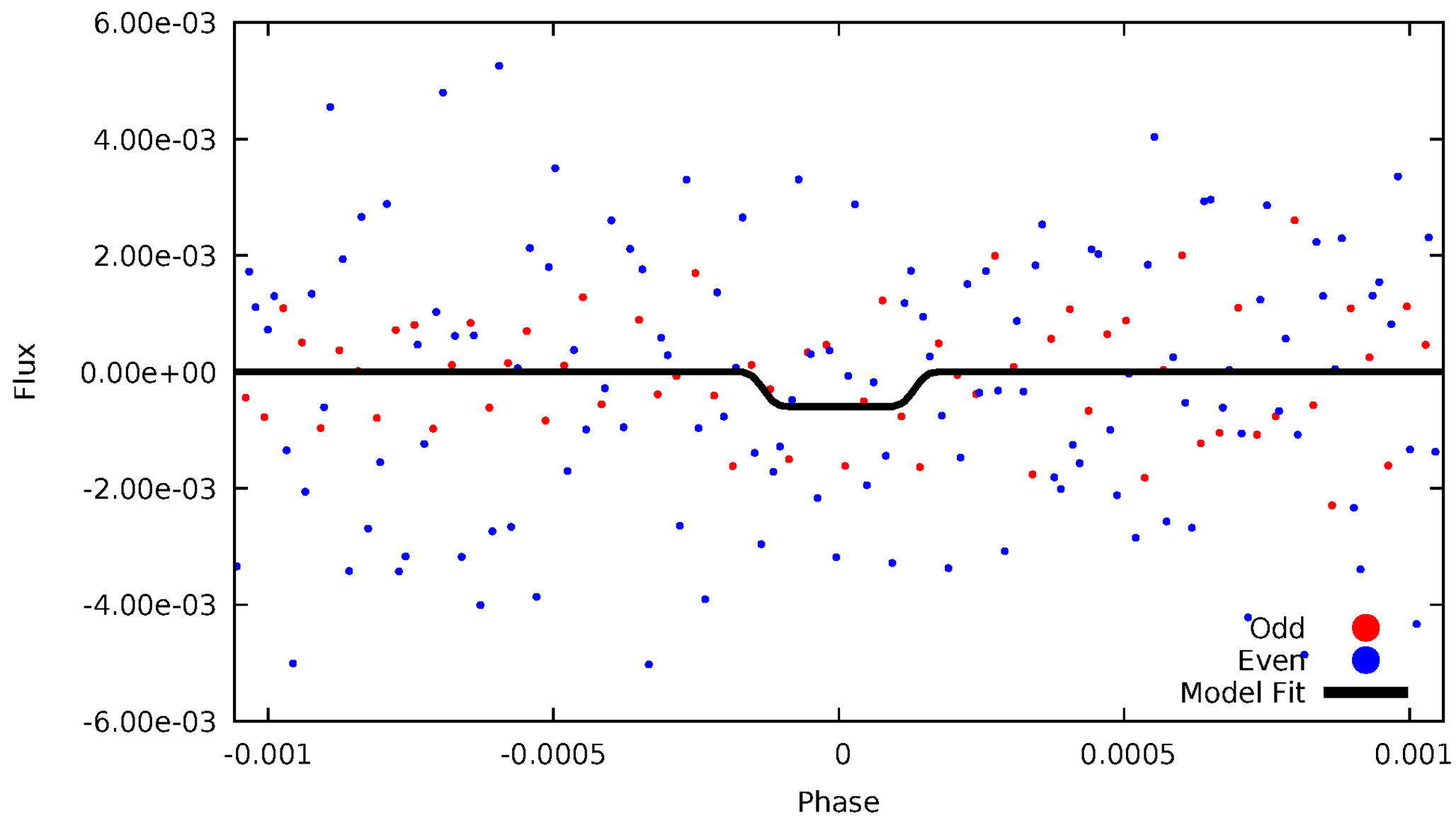
# DV Odd/Even

TCE 008556233-01



# ALT Odd/Even

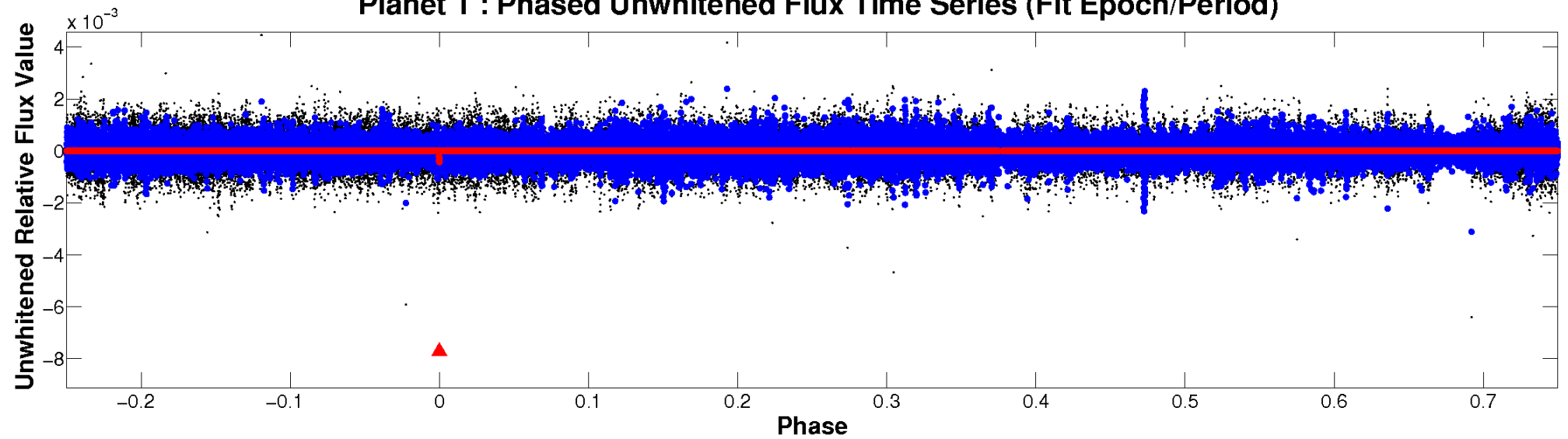
TCE 008556233-01



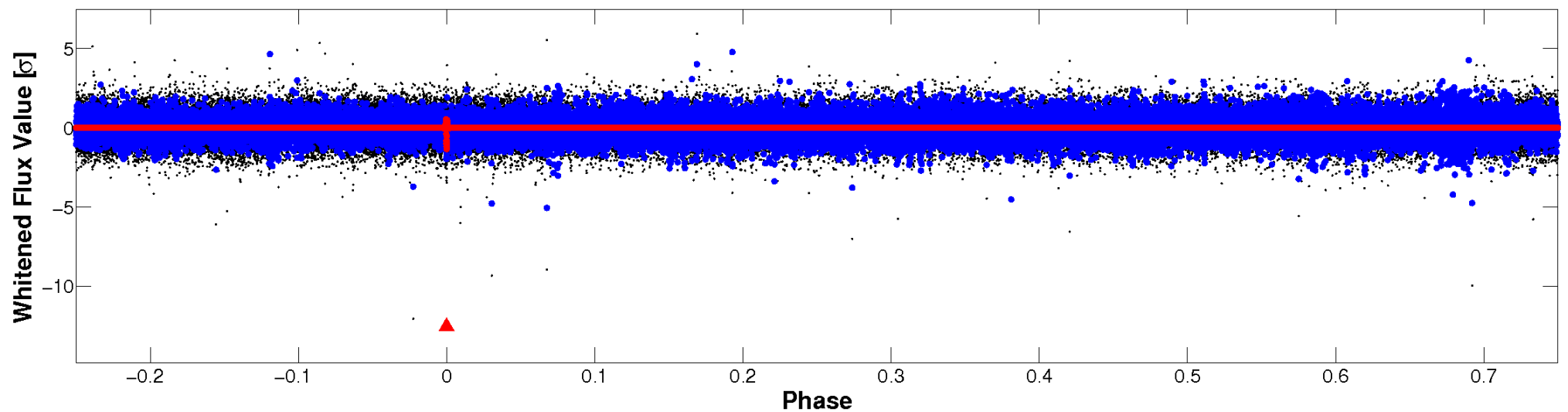


# Non-Whitened Vs. Whitened Light Curve

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

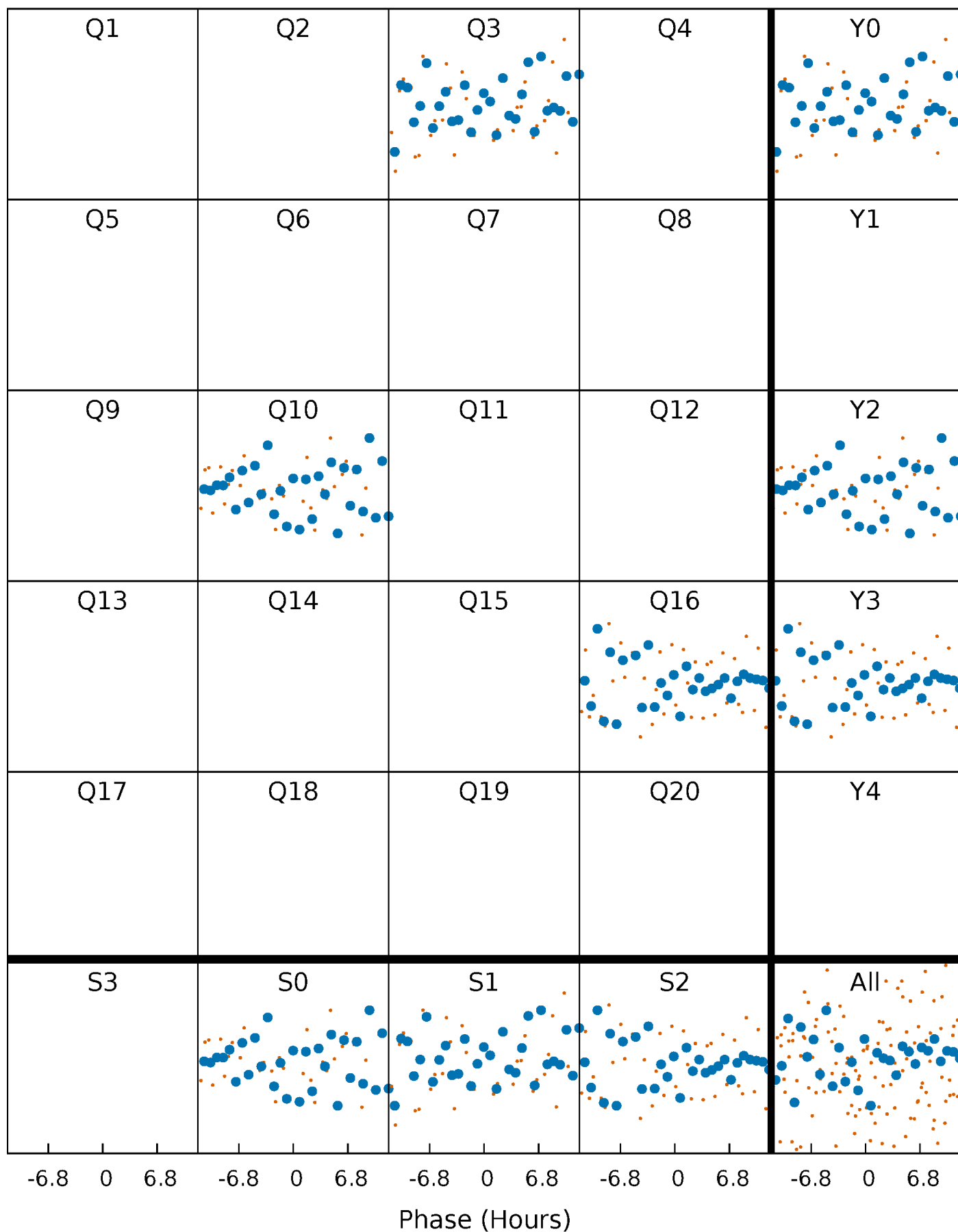


**Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)**



# PDC Quarter-Phased Transit Curves

TCE 008556233-01 P=622.531141 Days  $T_0=304.534609$  (BKJD)





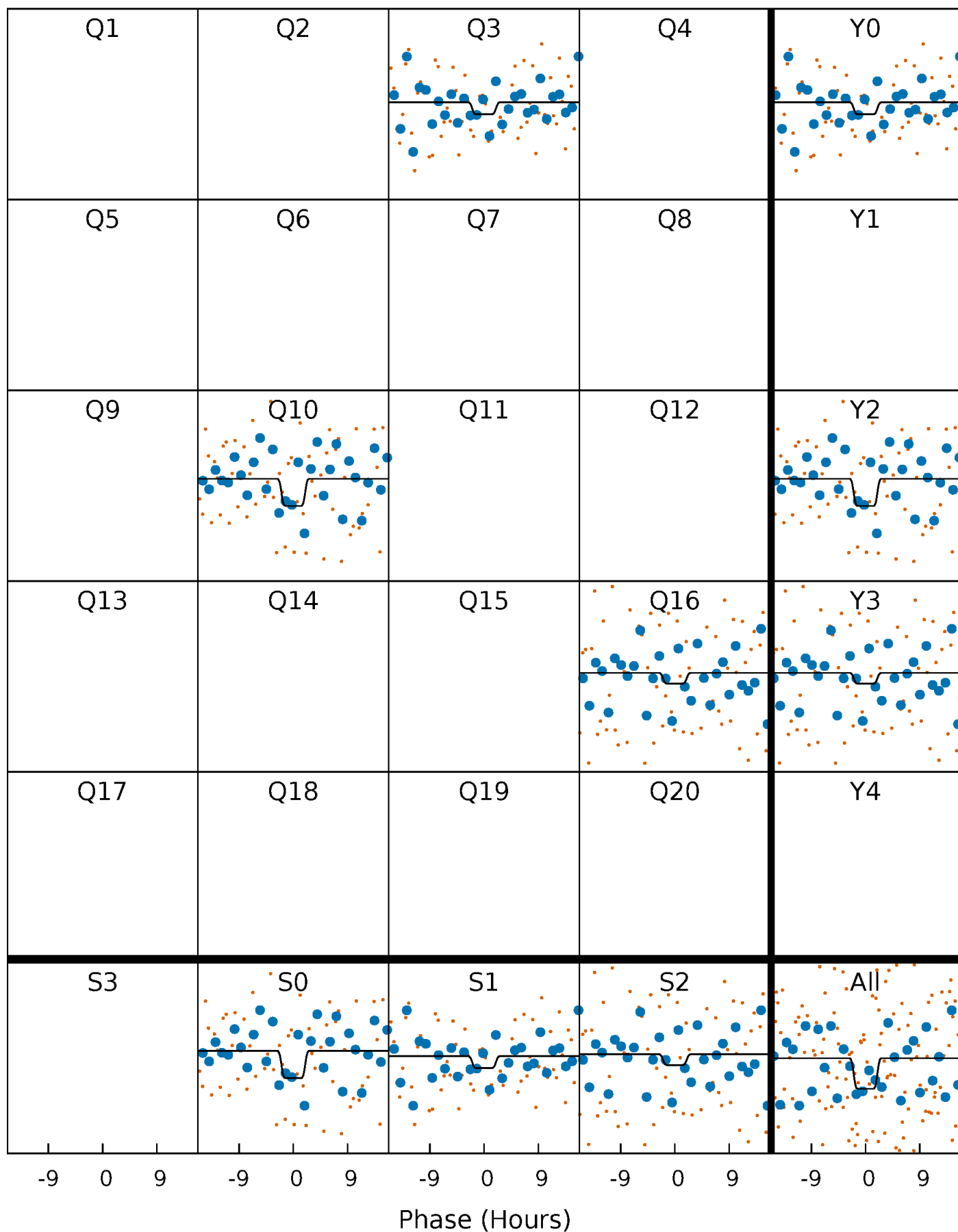
# DV Quarter-Phased Transit Curves

TCE 008556233-01 P=622.531141 Days  $T_0=304.534609$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

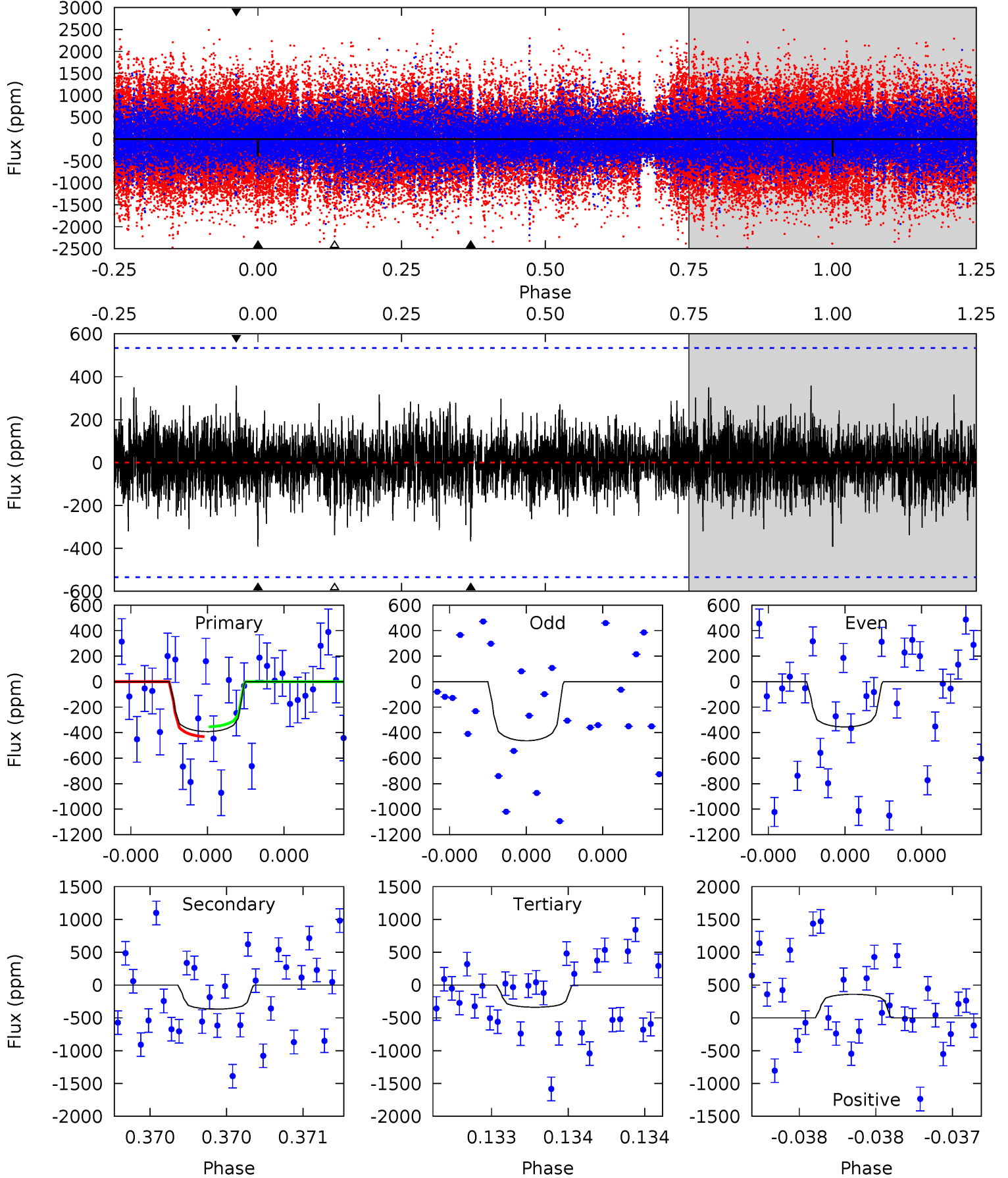
TCE 008556233-01 P=622.535650 Days  $T_0=304.553664$  (BKJD)



# DV Model-Shift Uniqueness Test

008556233-01, P = 622.531141 Days, E = 304.534609 Days

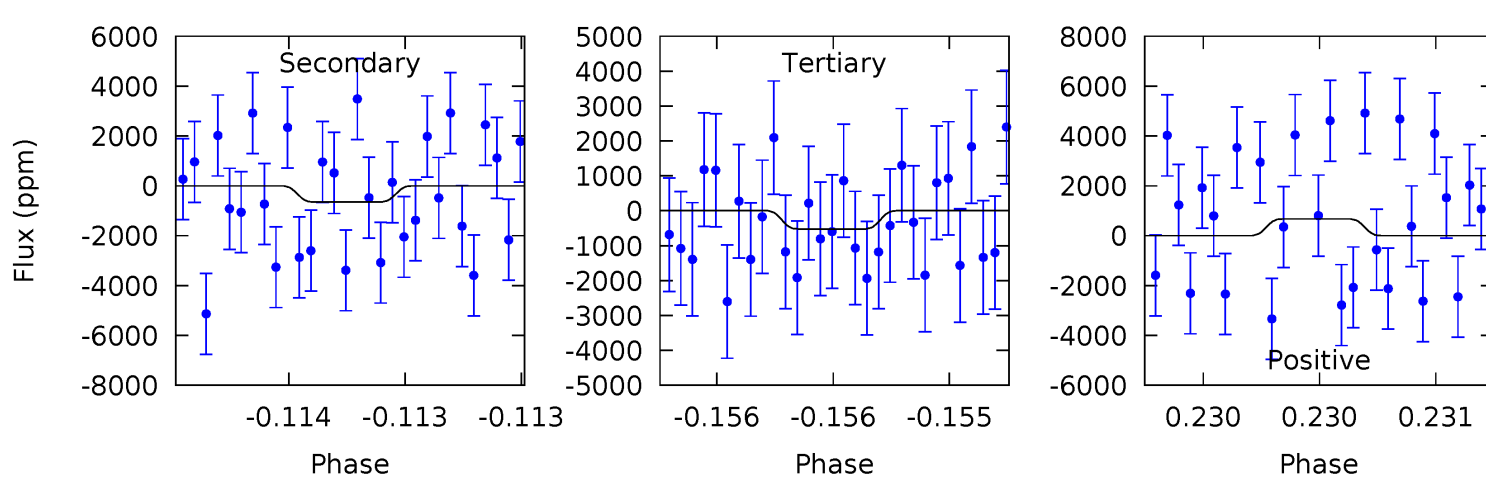
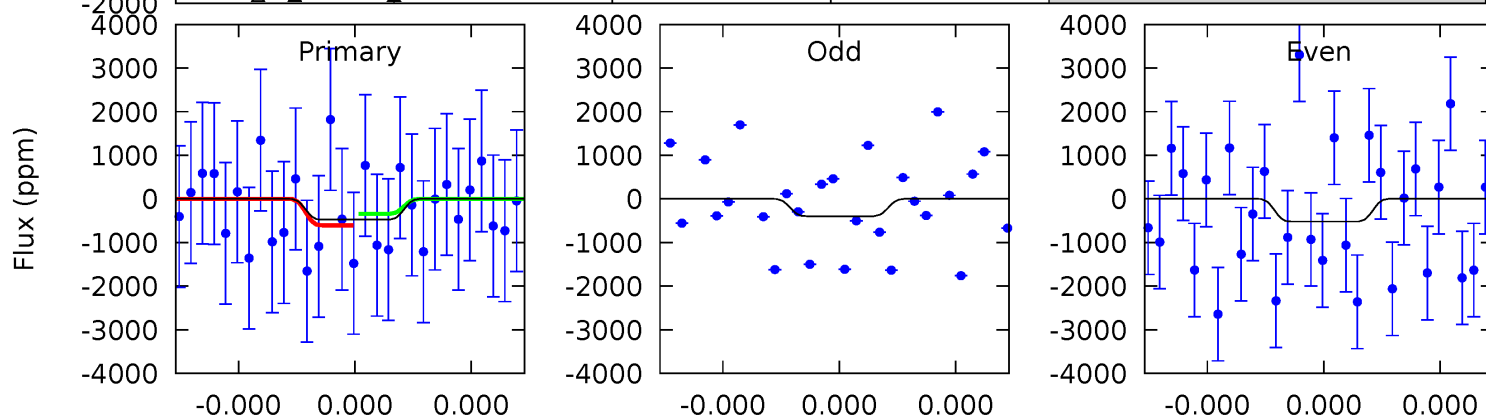
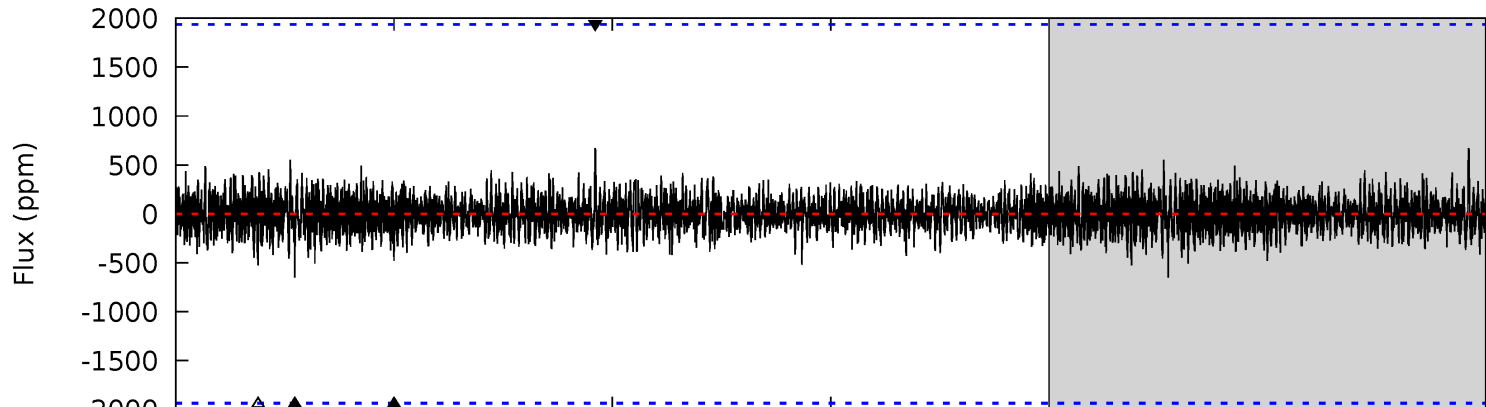
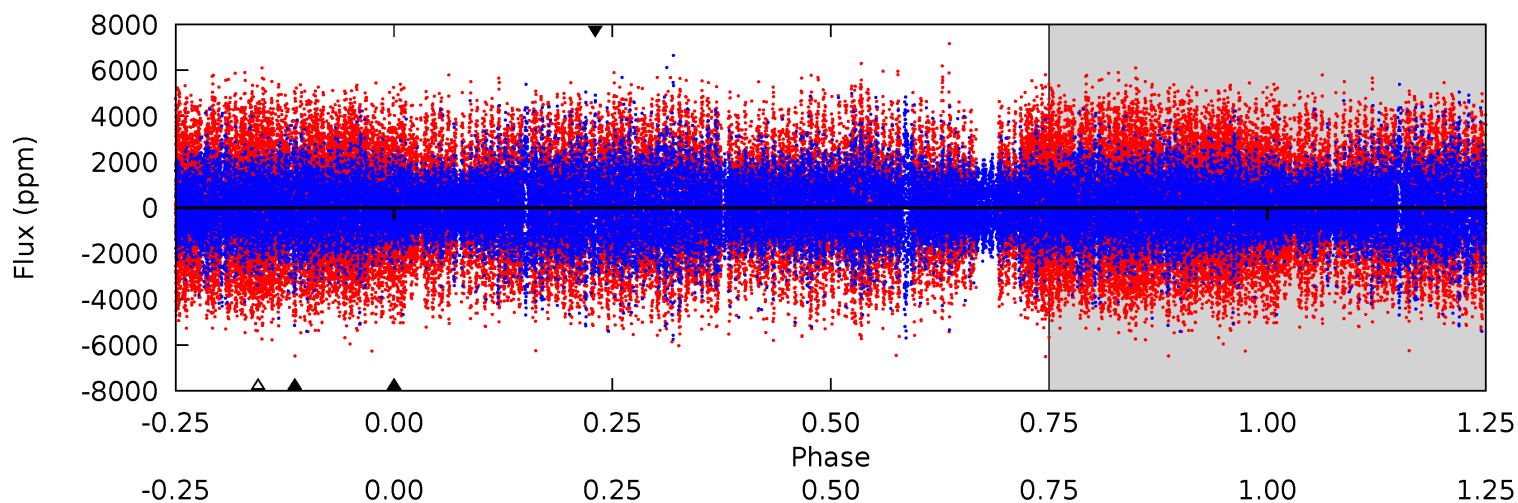
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
4.10	3.85	3.54	3.76	5.60	3.52	0.90	0.56	0.34	0.30	0.08	0.54	0.84	0.48	0.41



# Alt Model-Shift Uniqueness Test

008556233-01, P = 622.535650 Days, E = 304.553664 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
1.40	1.90	1.53	1.97	5.65	3.60	0.39	-0.13	-0.57	0.37	-0.06	0.17	0.94	0.51	0.39



### Stellar Parameters For KIC 008556233

	$T_{\text{eff}} (K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R (R_{\odot})$	$M (M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	$7507^{+209}_{-314}$	$3.945^{+0.253}_{-0.136}$	$-0.080^{+0.200}_{-0.350}$	$2.332^{+0.493}_{-0.740}$	$1.746^{+0.185}_{-0.344}$	$0.194^{+0.291}_{-0.082}$
	+3%/-4%	+6%/-3%	+250%/-438%	+21%/-32%	+11%/-20%	+150%/-42%
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 008556233-01 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	$A_{\text{obs}}$
DV	$-367 \pm 95$	$5.78^{+4.98}_{-3.54}$	$529^{+38}_{-44}$	$6493^{+5789}_{-1621}$	$17548^{+92888}_{-12685}$
Alt.	$-651 \pm 342$	$6.58^{+5.00}_{-3.97}$	$532^{+39}_{-46}$	$7119^{+6153}_{-2054}$	$23447^{+124176}_{-18096}$

$T_{\text{max}}$  = 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

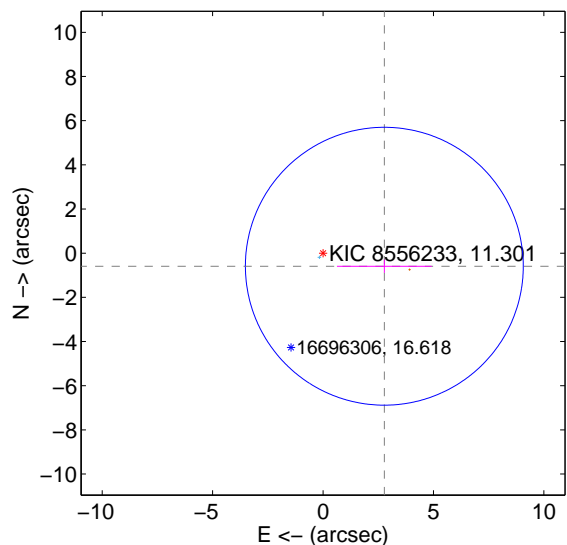
Supplemental centroid analysis for 008556233-01. **Kepler magnitude: 11.30.** Transit SNR 7.11

**There are 1 quarters with good PRF difference image offsets**

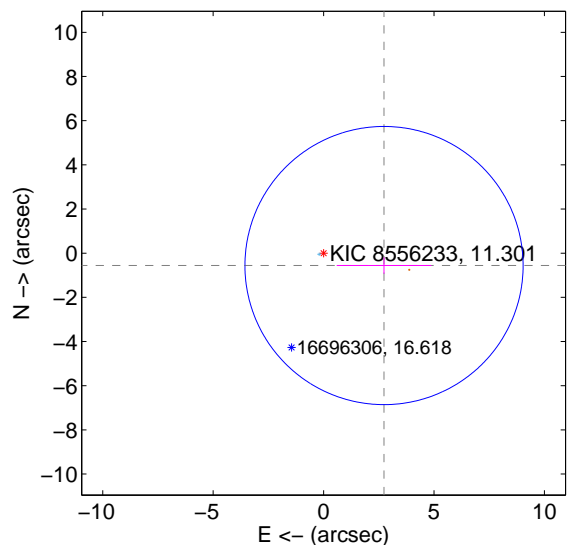
The direct PRF centroid is offset from the target star catalog position by about 0.04 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$2.838 \pm 2.097$	1.35	$-2.775 \pm 2.143$	$-0.592 \pm 0.296$
PRF-fit source offset from KIC position	$2.793 \pm 2.099$	1.33	$-2.737 \pm 2.141$	$-0.560 \pm 0.372$
photometric centroid source offset	$0.54 \pm 0.41$	1.33	$0.35 \pm 0.42$	$0.42 \pm 0.40$

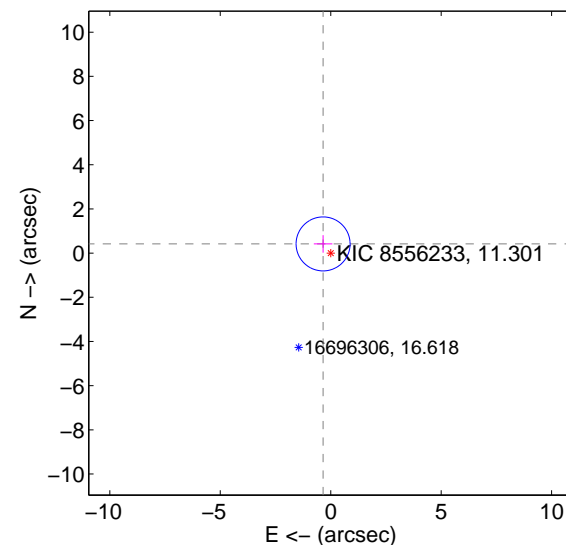
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position

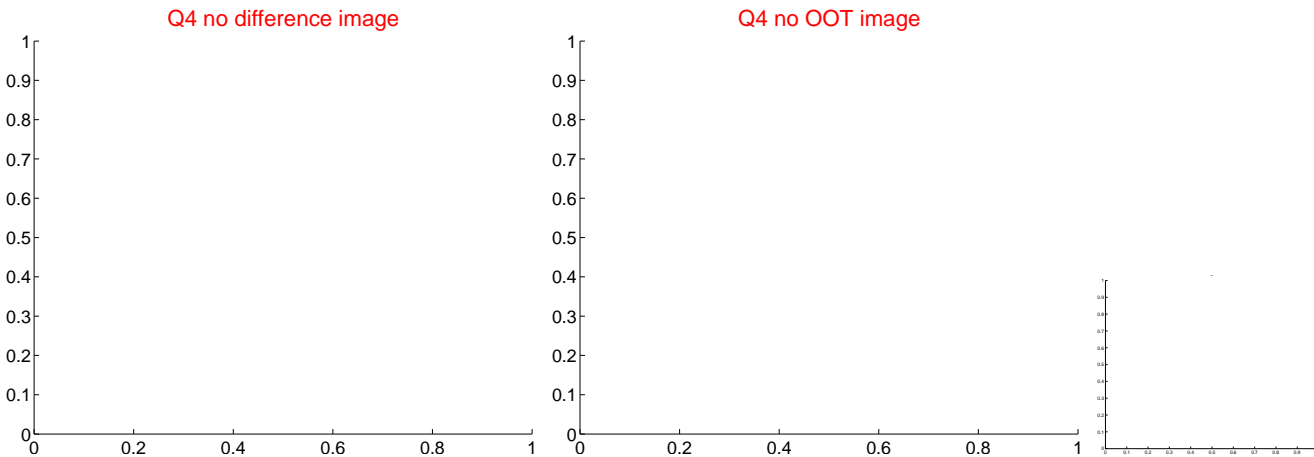
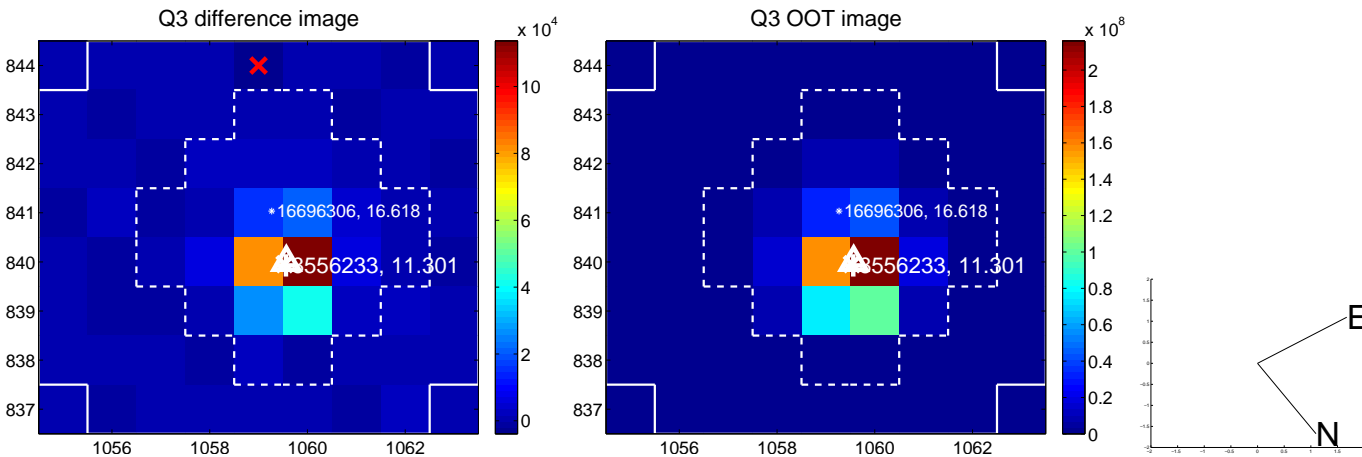
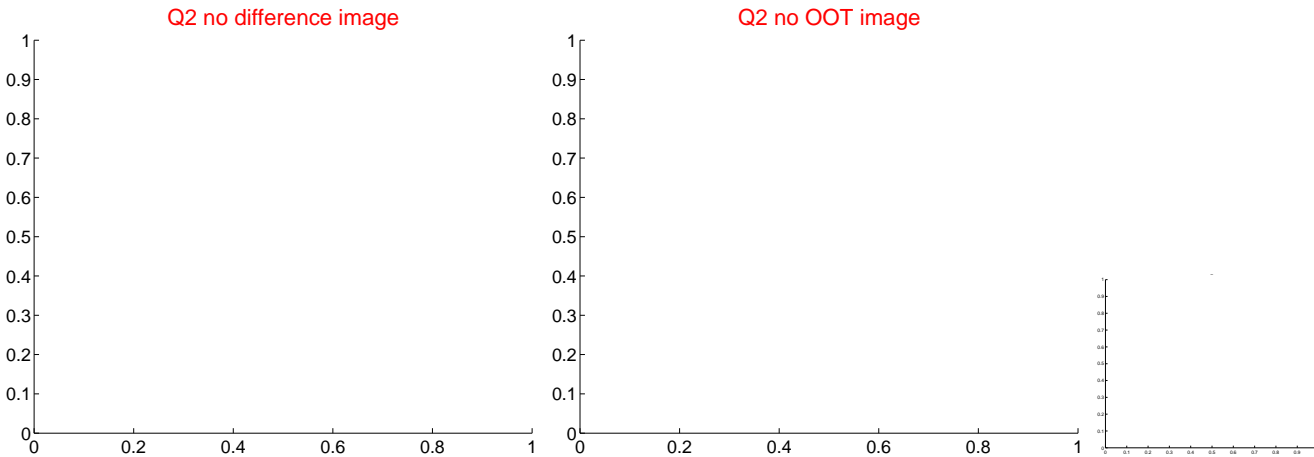
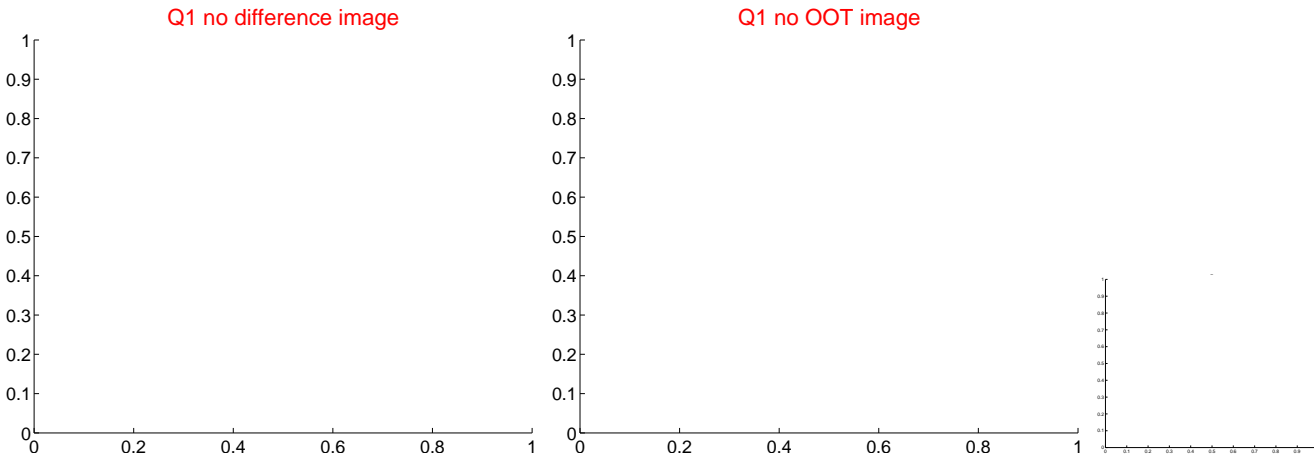


offset from photometric centroids



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

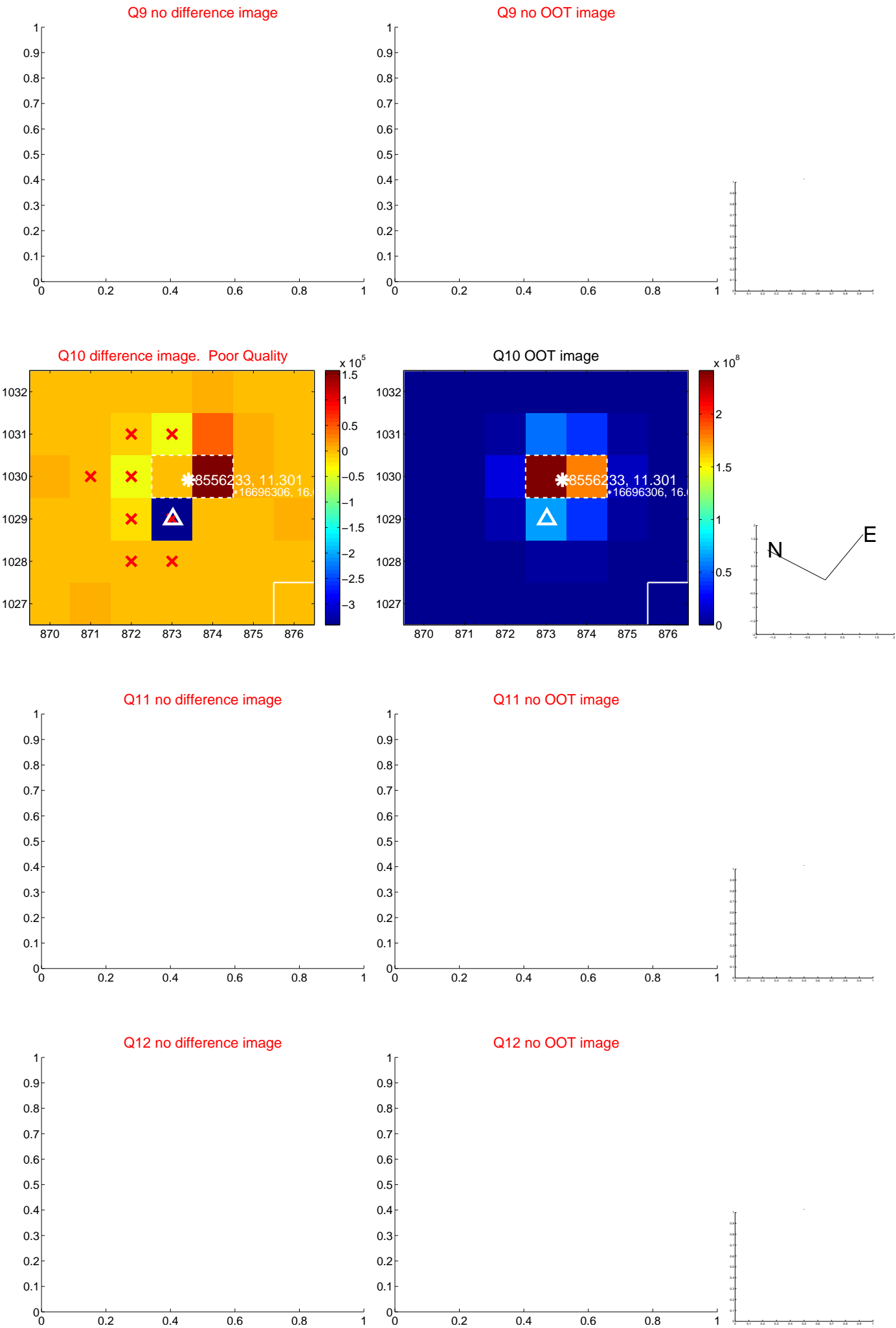




white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



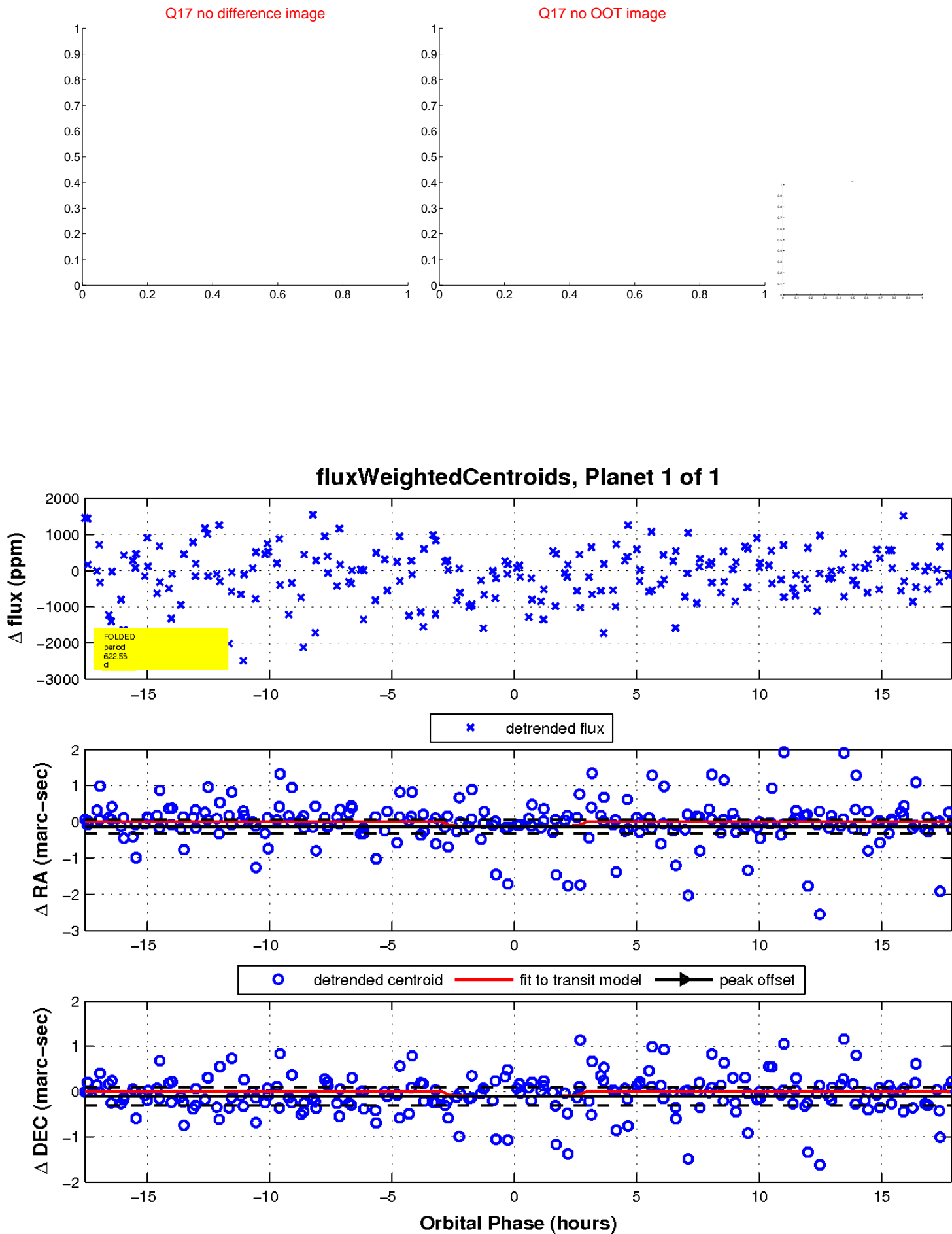
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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



UKIRT Image

Declination

