

# KIC 004385329

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
004385329-01	OBS	No	424.035786	156.093390	588.3	8.490	7.8	7.3	1.07	6067	2.82	1.24

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
004385329-01	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES—ALL_TRANS_CHASES—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.

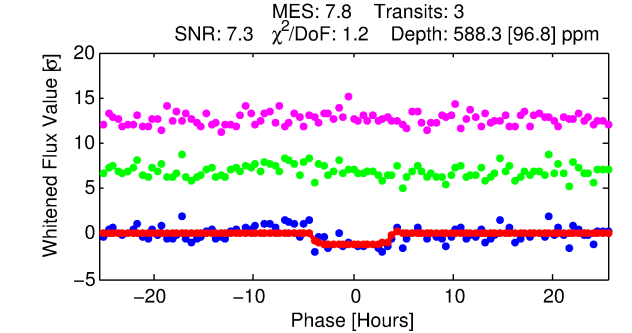
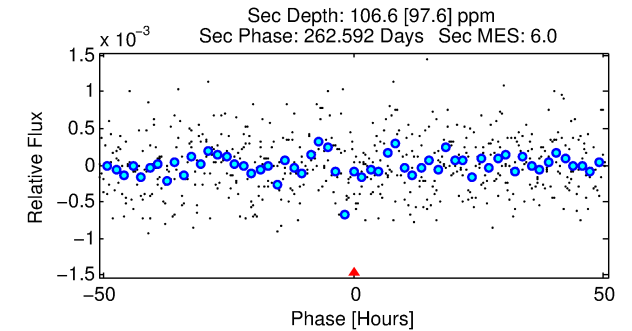
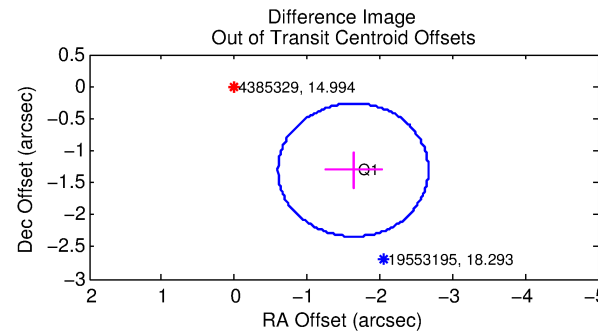
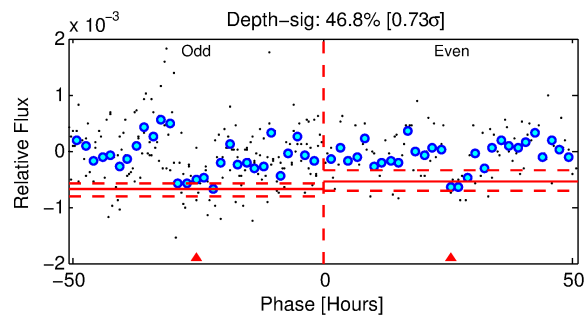
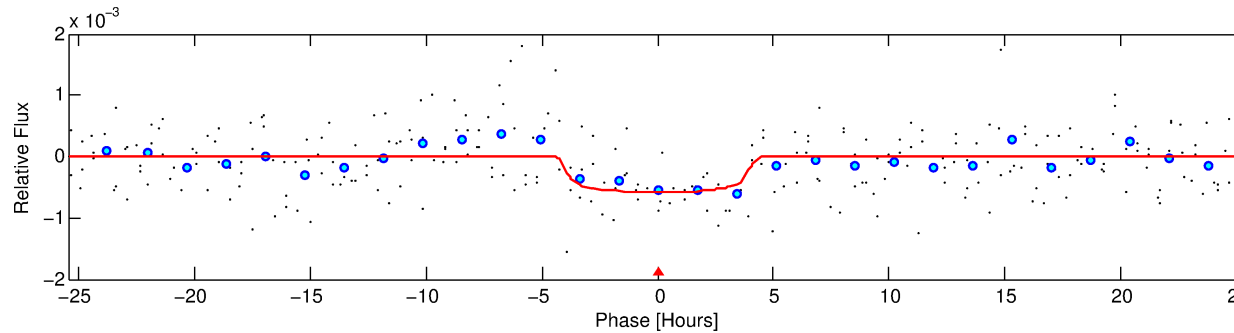
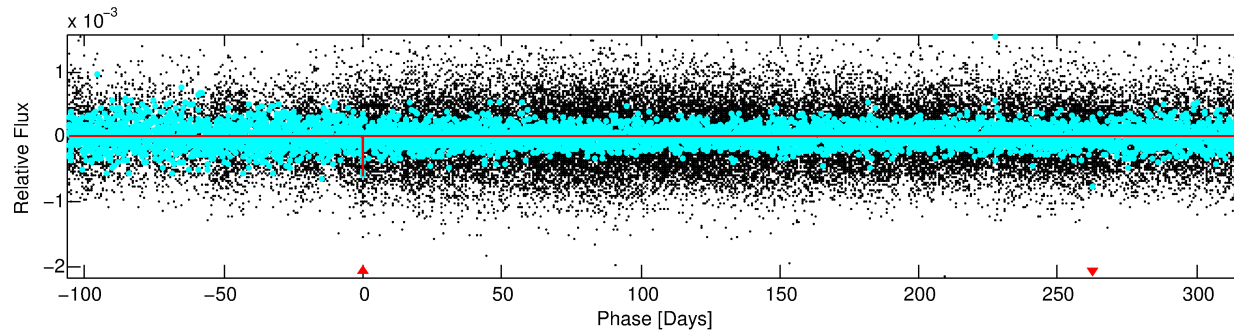
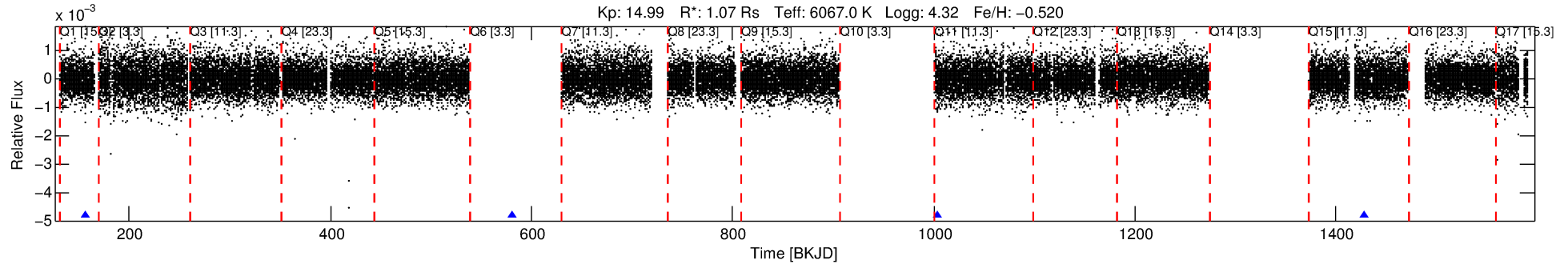
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

## Ephemeris Match Information For 004385329-01

No Significant Match Found

# DV One-Page Summary

KIC: 4385329 Candidate: 1 of 1 Period: 424.036 d



## DV Fit Results:

Period = 424.03579 [0.00880] d  
Epoch = 156.0934 [0.0174] BKJD  
Rp/R\* = 0.0243 [0.0120]  
a/R\* = 259.38 [657.00]  
b = 0.77 [1.38]  
Seff = 1.24 [0.44]  
Teq = 269 [24] K  
Rp = 2.82 [1.61] Re  
a = 1.0563 [0.2461] AU  
Ag = 8217.29 [11417.26] [0.72 $\sigma$ ]  
Teff = 3958 [1341] K [2.75 $\sigma$ ]

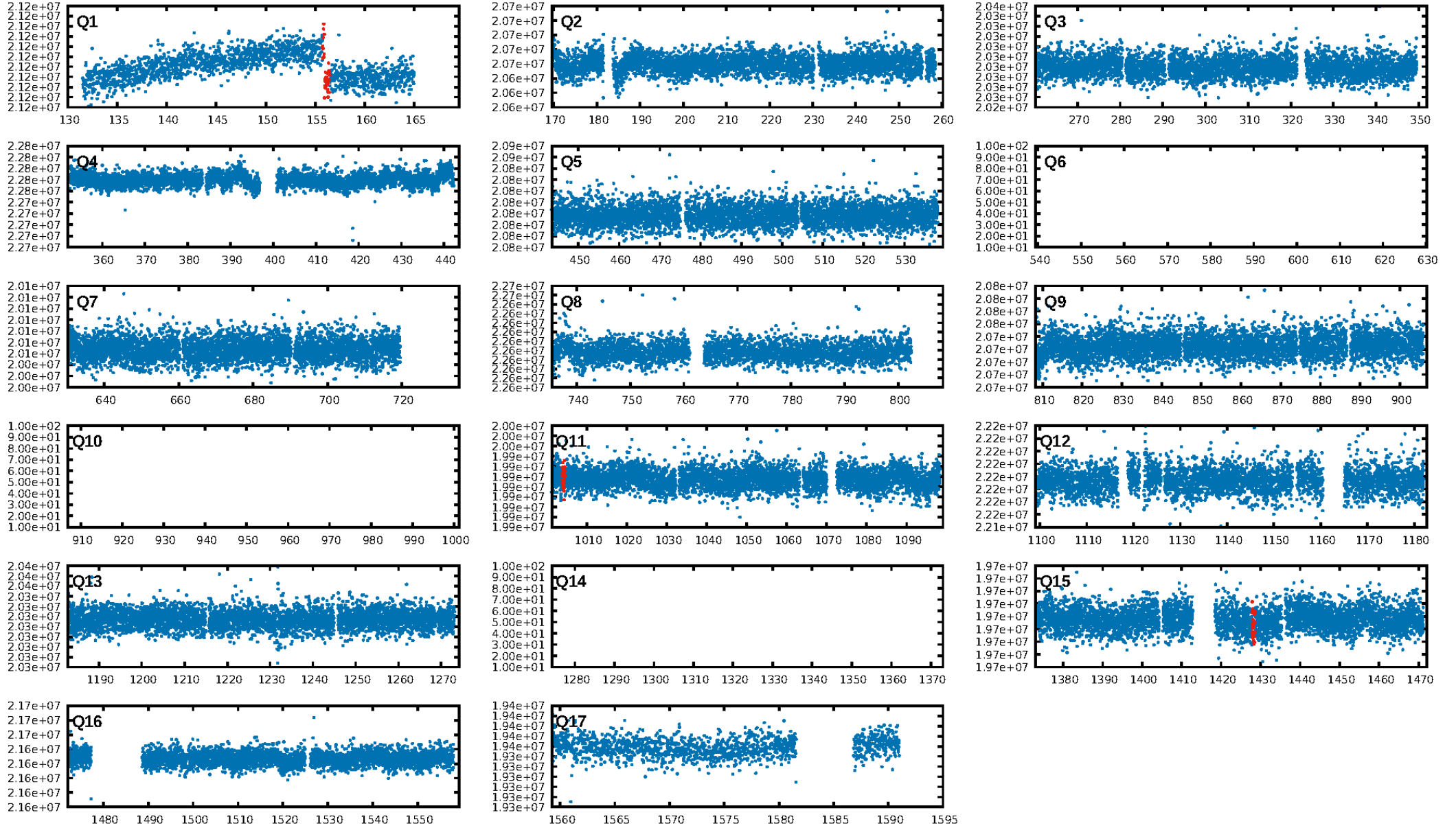
## DV Diagnostic Results:

ShortPeriod-sig: N/A  
LongPeriod-sig: N/A  
ModelChiSquare2-sig: 12.1%  
ModelChiSquareGof-sig: 99.9%  
**Bootstrap-pfa: 4.95e-09**  
RollingBand-fgt: 1.00 [2/2]  
GhostDiagnostic-chr: 3.634  
Centroid-sig: 42.3%  
Centroid-so: 1.902 arcsec [0.86 $\sigma$ ]  
**OotOffset-rm: 2.089 arcsec [6.05 $\sigma$ ]**  
**KicOffset-rm: 2.260 arcsec [6.35 $\sigma$ ]**  
OotOffset-st: 0/0/0/1 [1]  
KicOffset-st: 0/0/0/1 [1]  
DiffImageQuality-fgm: 0.00 [0/1]  
DiffImageOverlap-fno: 1.00 [2/2]

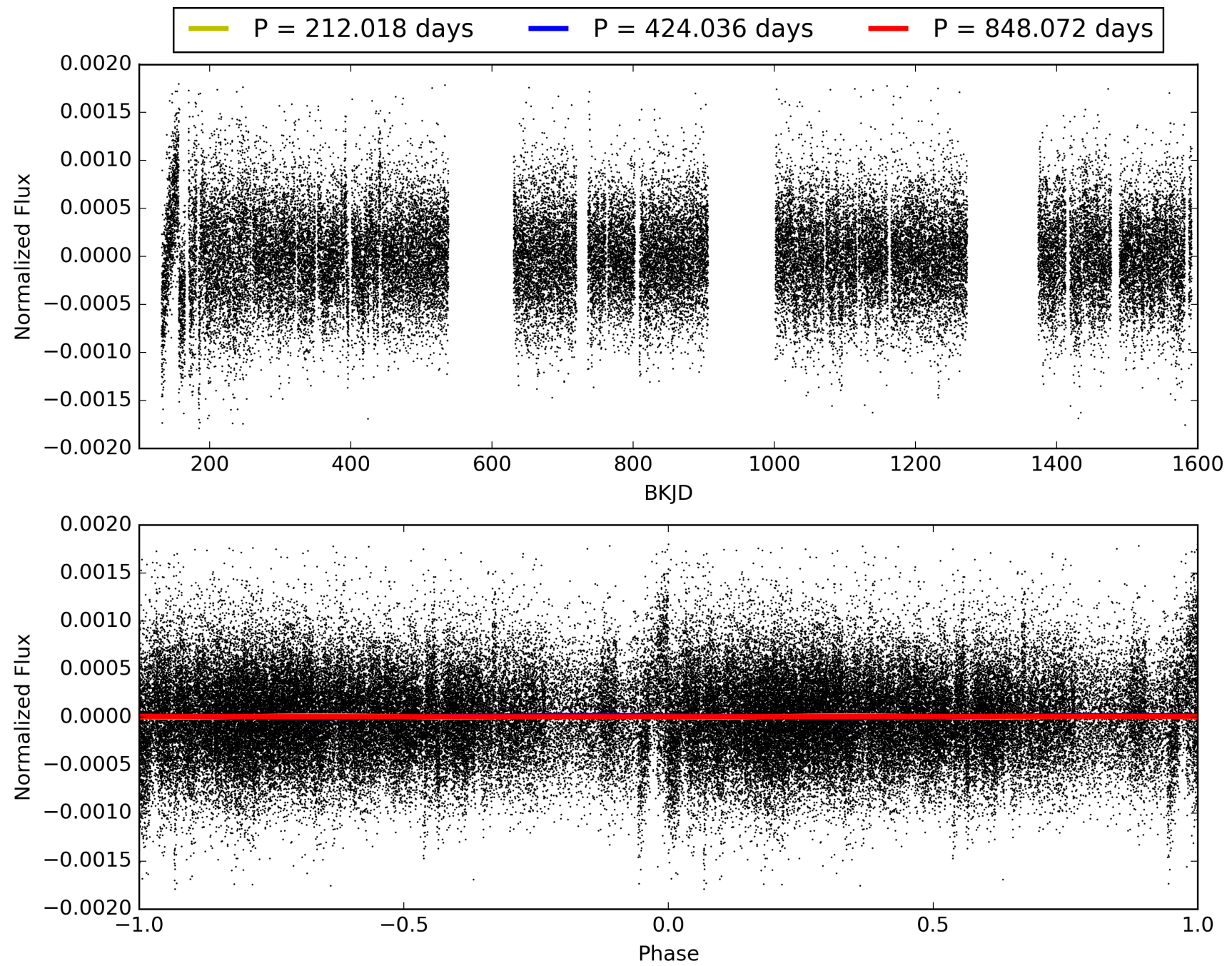
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 29-Jan-2016 19:48:15 Z

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

# TCE 004385329-01, PDC Light Curves

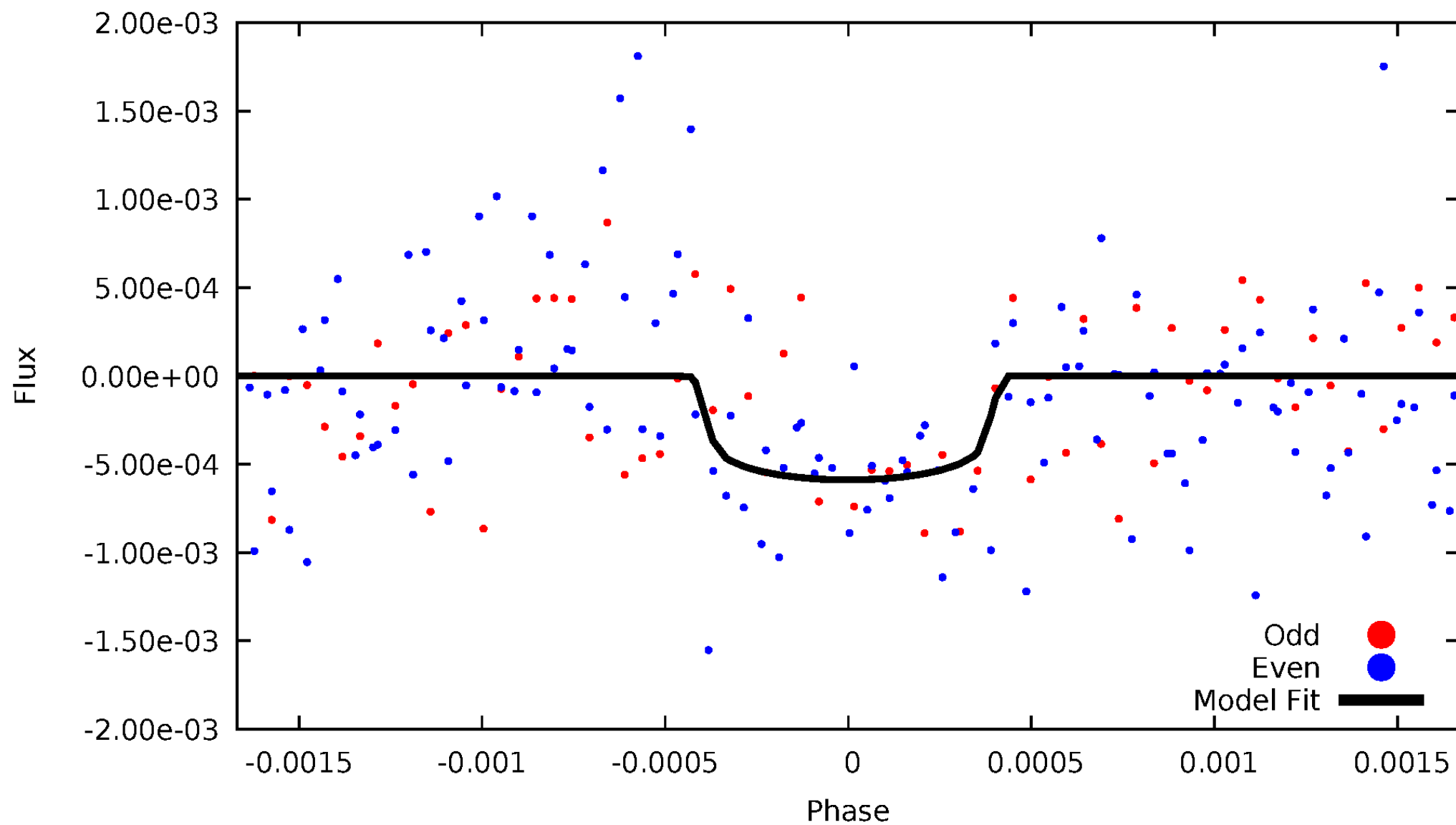


TCE 004385329-01



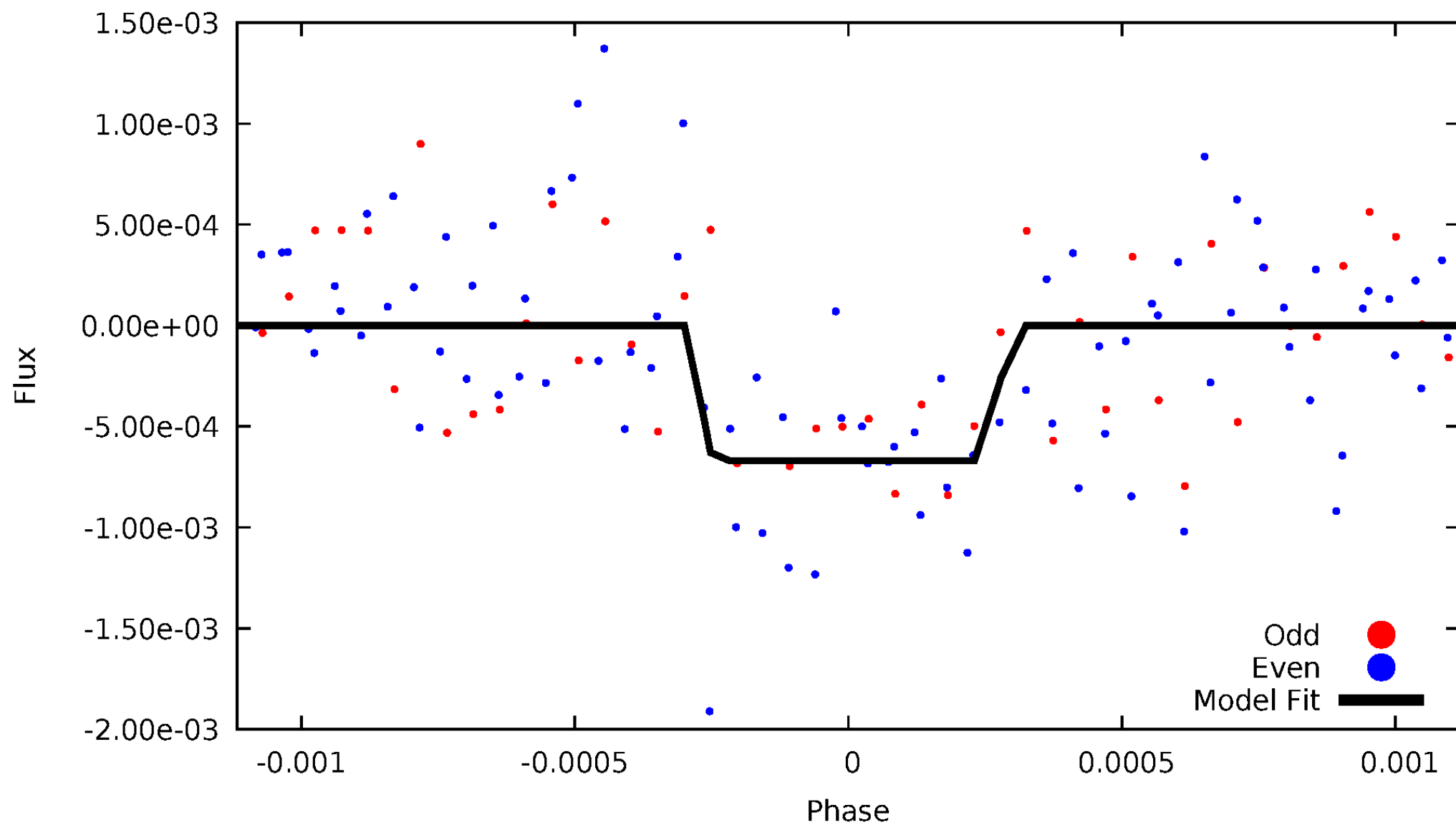
# DV Odd/Even

TCE 004385329-01



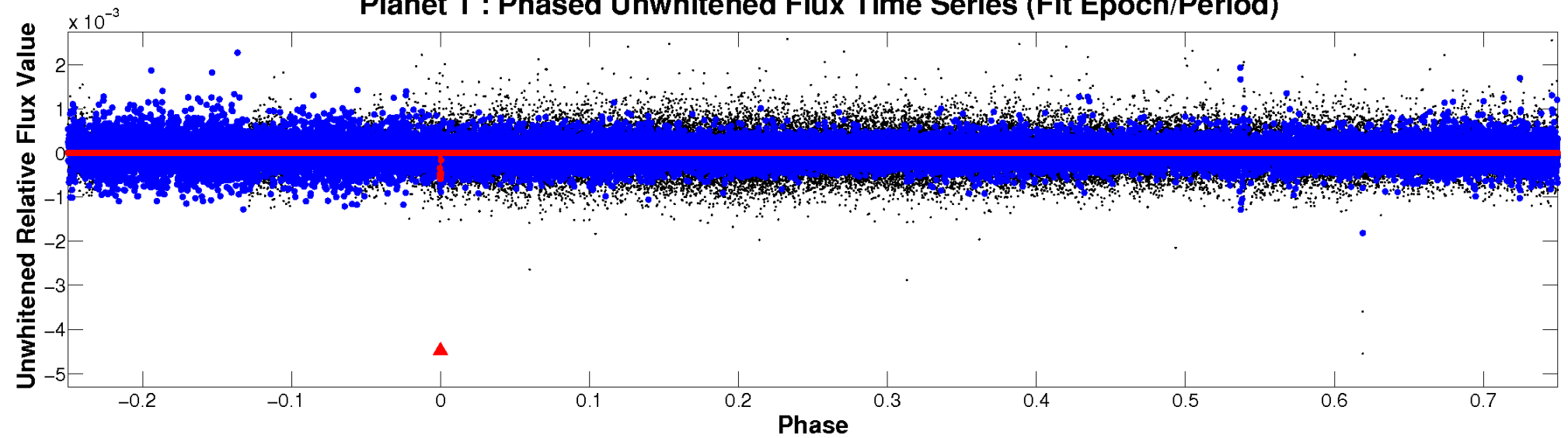
# ALT Odd/Even

TCE 004385329-01

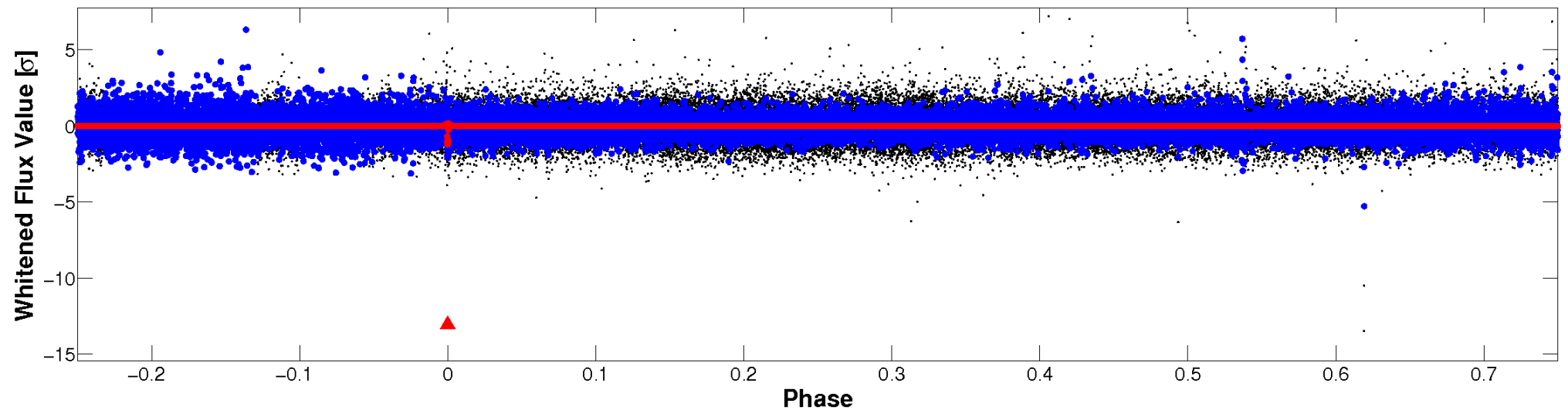


# Non-Whitened Vs. Whitened Light Curve

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



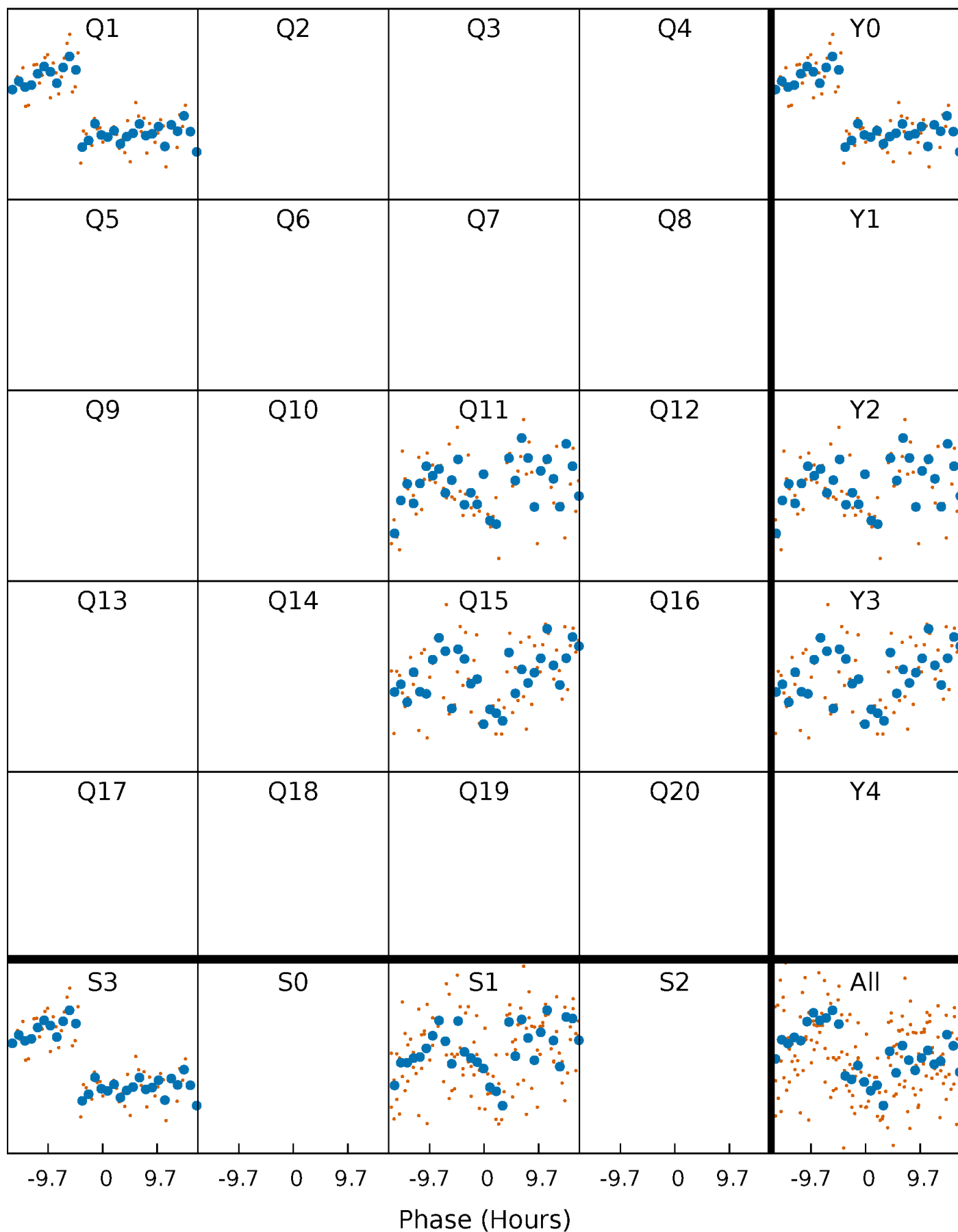
**Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)**





# PDC Quarter-Phased Transit Curves

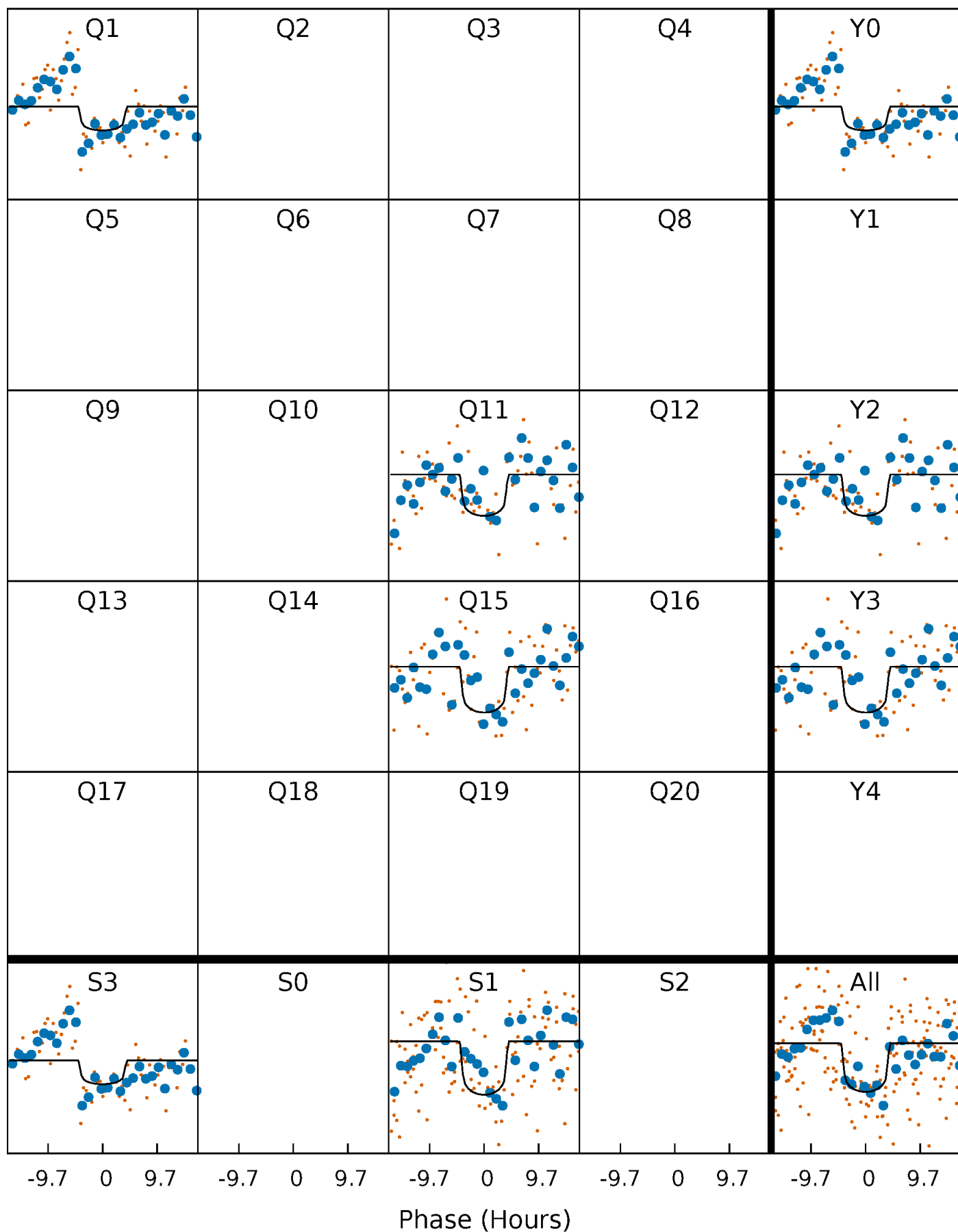
TCE 004385329-01 P=424.035786 Days  $T_0=156.093390$  (BKJD)





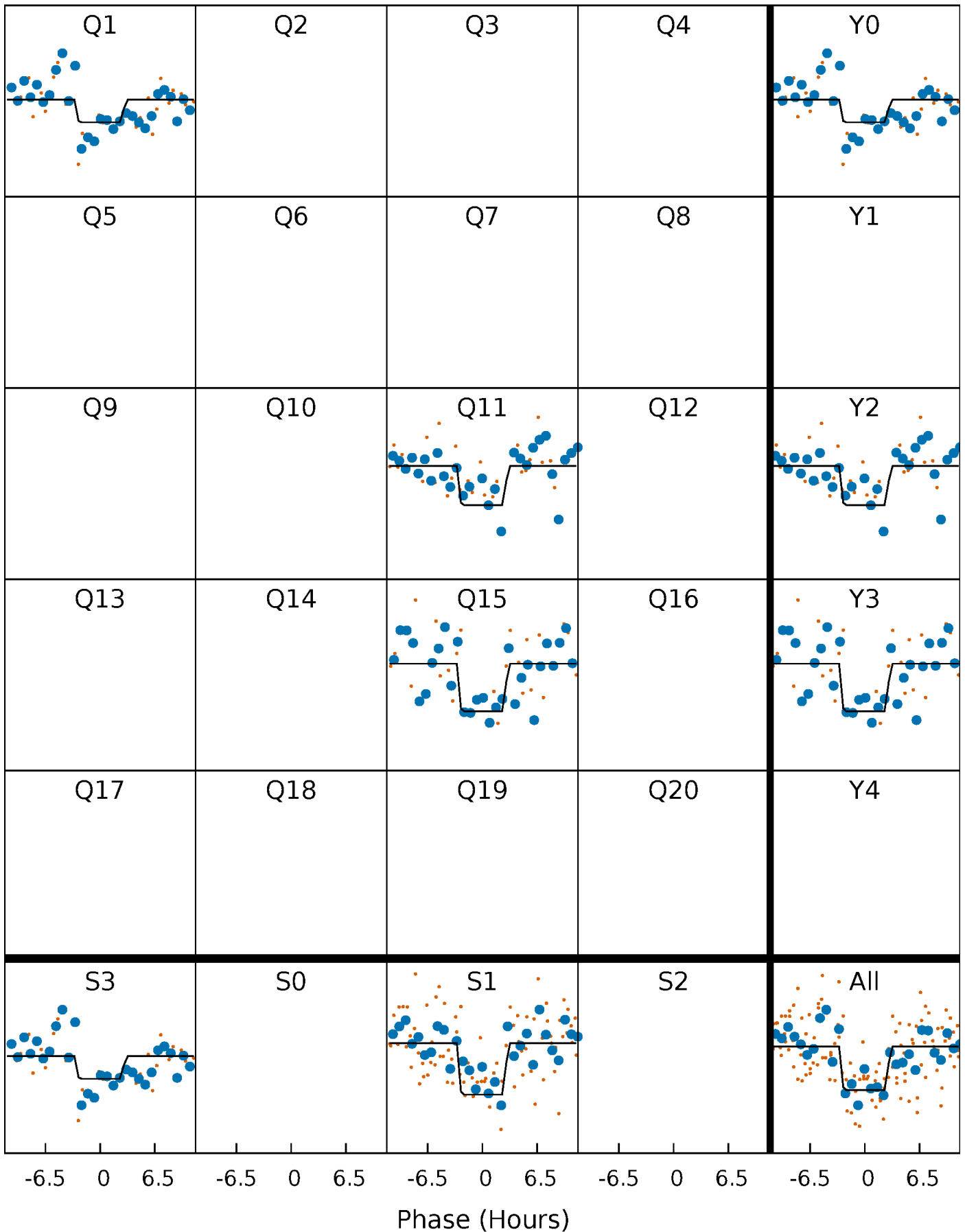
# DV Quarter-Phased Transit Curves

TCE 004385329-01 P=424.035786 Days  $T_0=156.093390$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

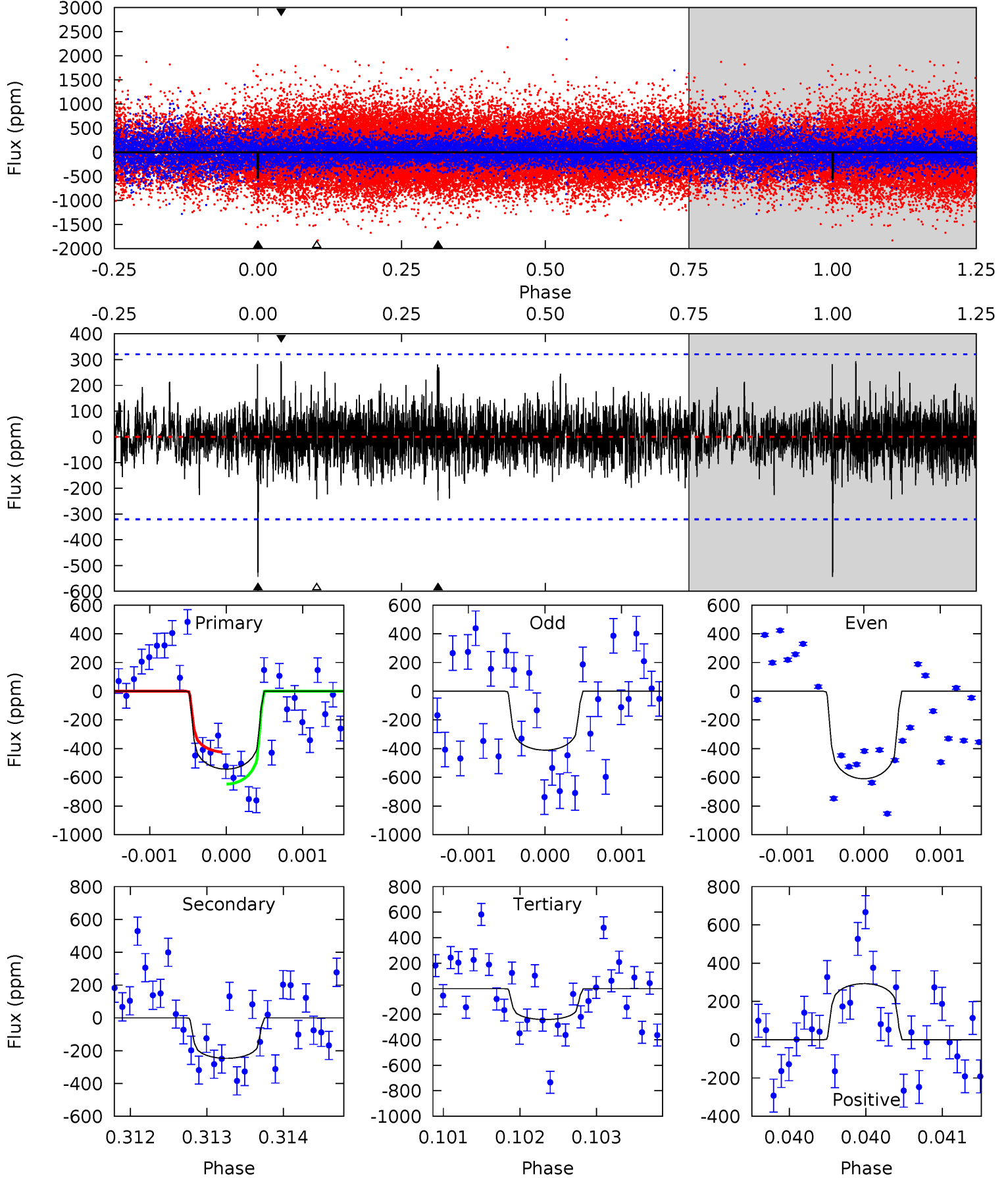
TCE 004385329-01 P=424.071293 Days  $T_0=156.039014$  (BKJD)



# DV Model-Shift Uniqueness Test

004385329-01, P = 424.035786 Days, E = 156.093390 Days

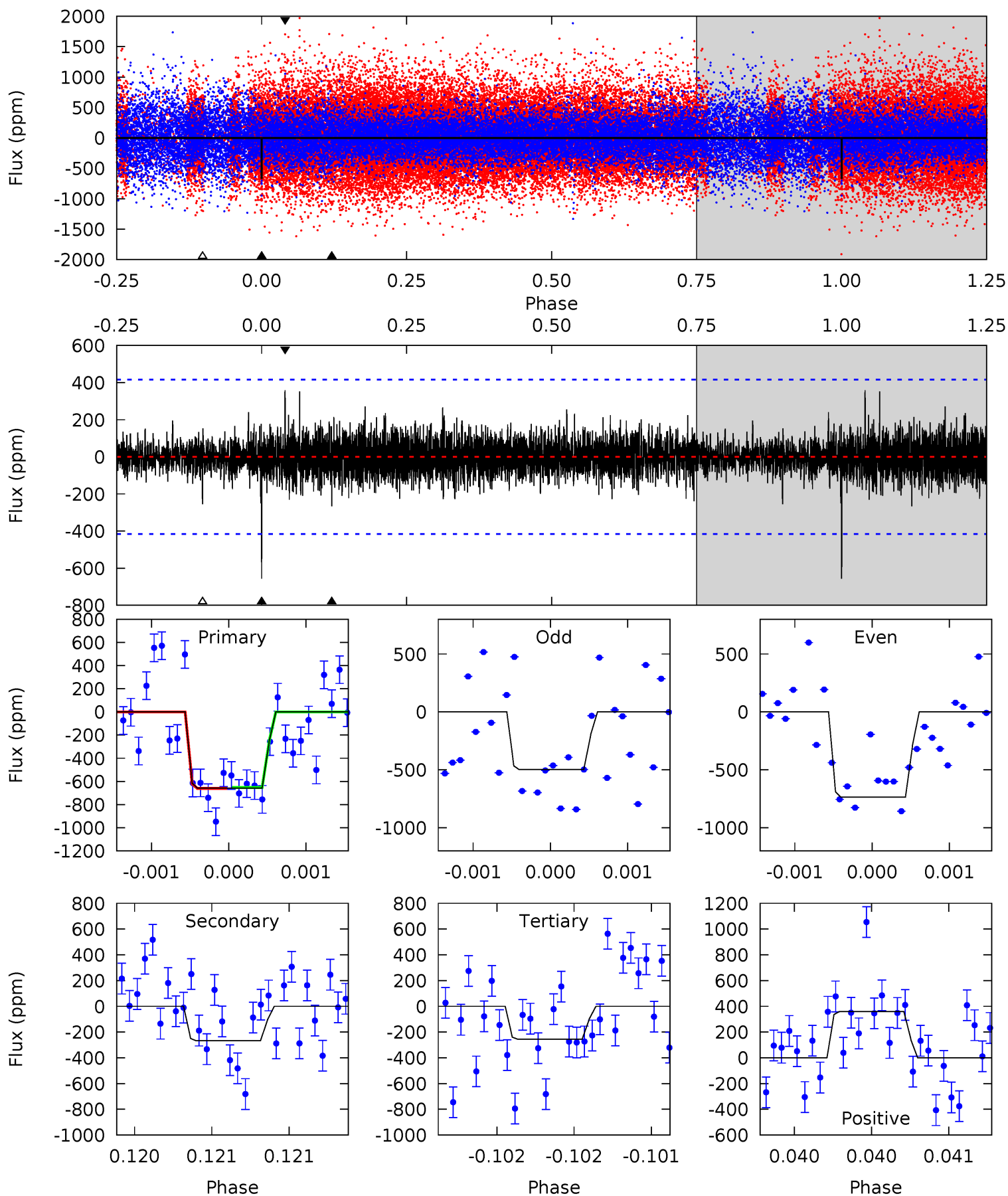
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
9.27	4.21	4.13	5.01	5.47	3.33	1.14	5.15	4.27	0.09	-0.79	1.63	1.26	0.35	1.92



# Alt Model-Shift Uniqueness Test

004385329-01, P = 424.071293 Days, E = 156.039014 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
8.78	3.56	3.41	4.79	5.56	3.46	0.91	5.37	3.99	0.15	-1.23	1.52	1.30	0.35	0.05



### Stellar Parameters For KIC 004385329

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R$ ( $R_{\odot}$ )	$M(M_{\odot})$	$p_{\star}$ ( $\text{g}\cdot\text{cm}^{-3}$ )
	$6067^{+200}_{-200}$	$4.324^{+0.180}_{-0.180}$	$-0.520^{+0.300}_{-0.300}$	$1.066^{+0.300}_{-0.225}$	$0.874^{+0.119}_{-0.079}$	$1.016^{+0.961}_{-0.499}$
	+3%/-3%	+4%/-4%	+58%/-58%	+28%/-21%	+14%/-9%	+95%/-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 004385329-01 / KOI

Detrend	Depth (ppm)	$R_p$ ( $R_{\oplus}$ )	$T_{max}$ (K)	$T_{obs}$ (K)	$A_{obs}$
DV	$-247 \pm 59$	$2.82^{+1.61}_{-1.34}$	$376^{+27}_{-26}$	$4954^{+1862}_{-815}$	$18672^{+53440}_{-11350}$
Alt.	$-266 \pm 75$	$3.11^{+1.40}_{-1.35}$	$375^{+28}_{-25}$	$4809^{+1433}_{-683}$	$16145^{+36685}_{-8968}$

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

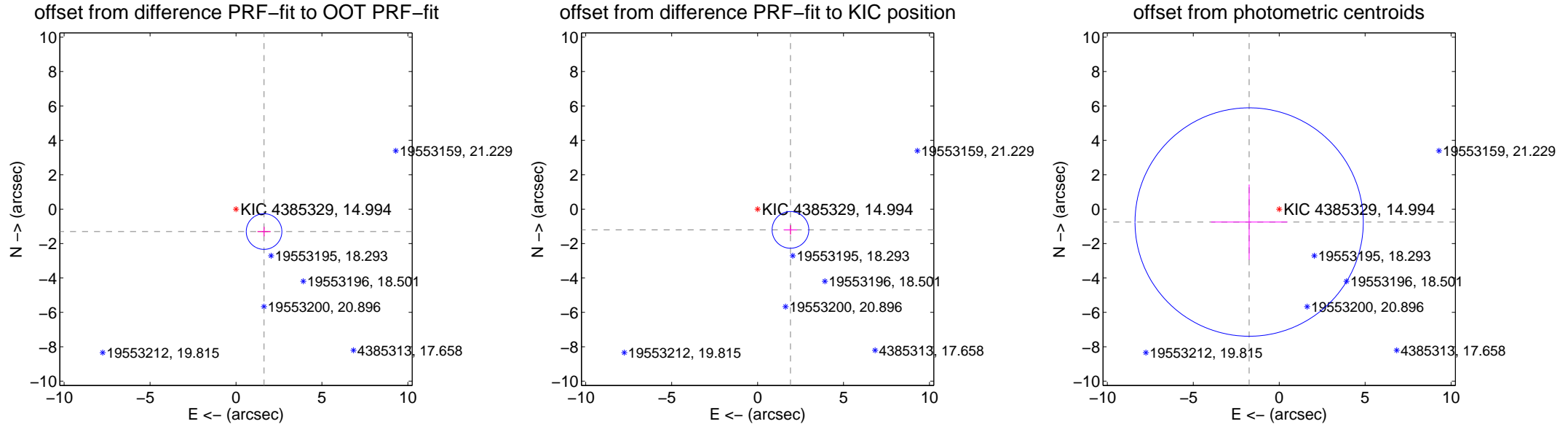
## DV Centroid Data

Supplemental centroid analysis for 004385329-01. Kepler magnitude: 14.99. Transit SNR 7.30

There are 0 quarters with good PRF difference image offsets

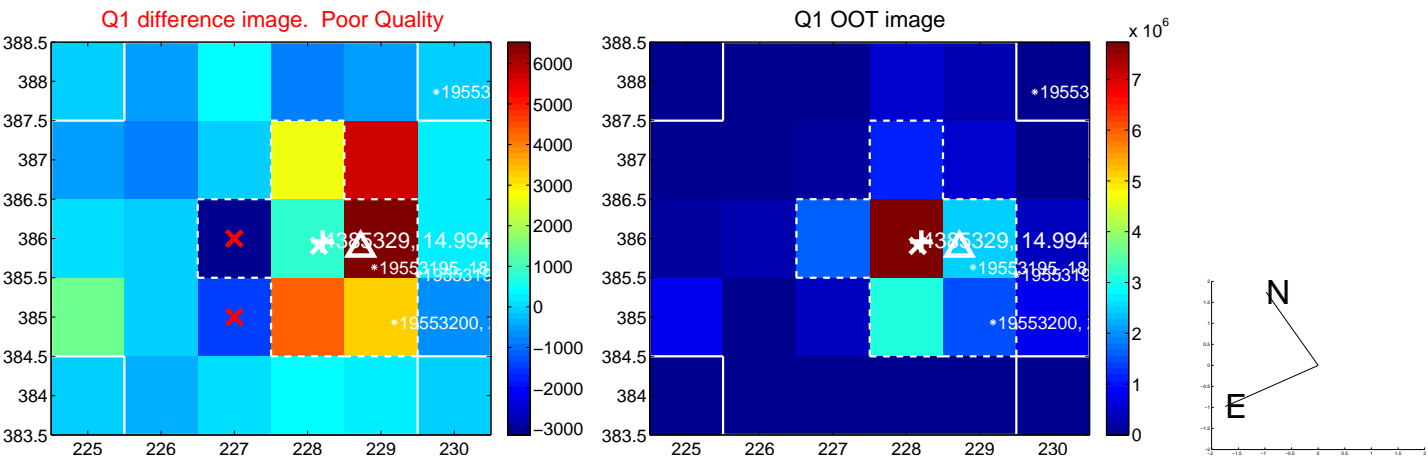
The direct PRF centroid is offset from the target star catalog position by about 0.30 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$2.089 \pm 0.345$	6.05	$-1.633 \pm 0.383$	$-1.302 \pm 0.276$
PRF-fit source offset from KIC position	$2.260 \pm 0.356$	6.35	$-1.912 \pm 0.383$	$-1.204 \pm 0.276$
photometric centroid source offset	$1.90 \pm 2.21$	0.86	$1.75 \pm 2.22$	$-0.75 \pm 2.18$



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





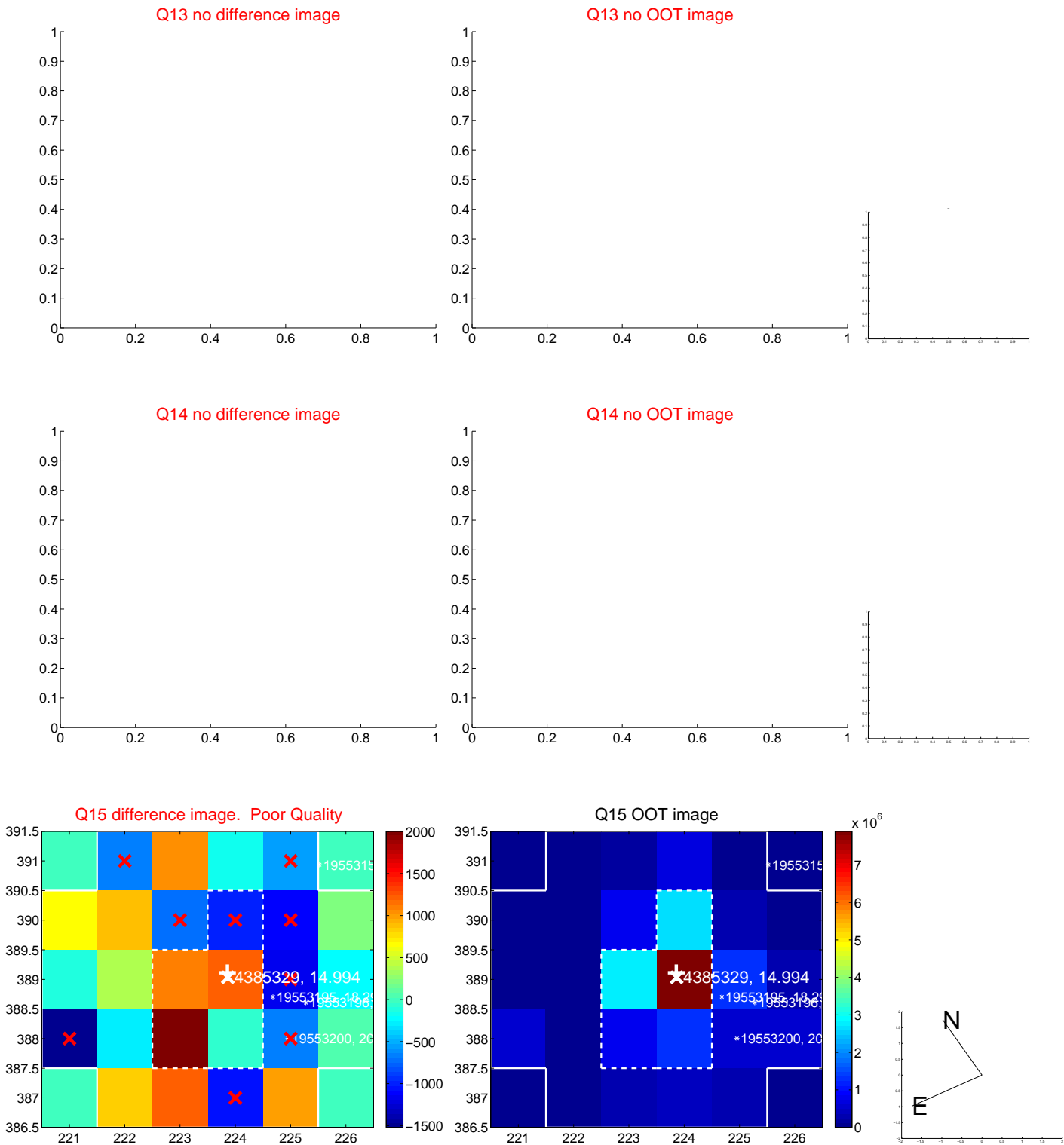
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



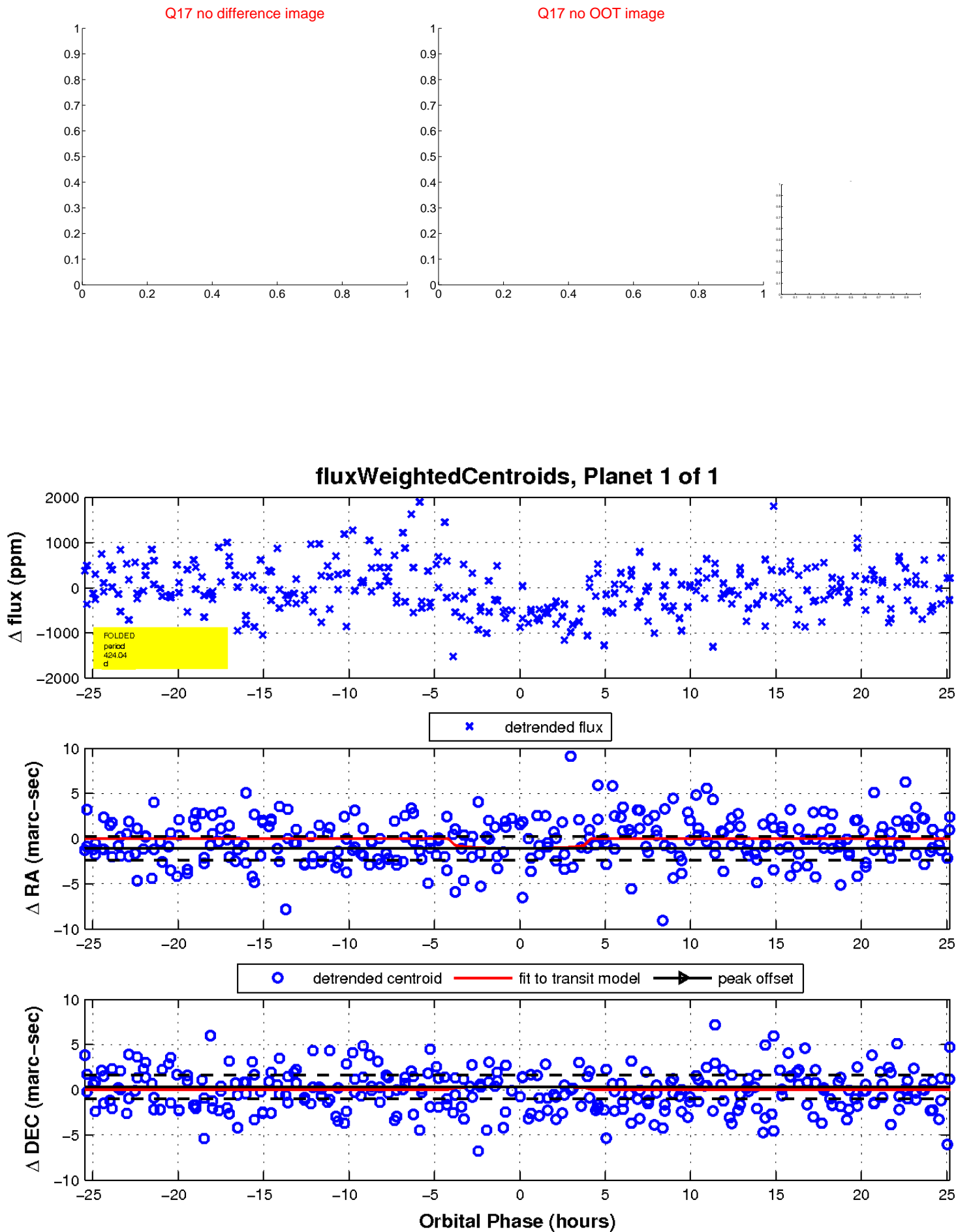
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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.



UKIRT Image

Declination

