

# KIC 002570767

## Q1-17 DR25 TCE Parameters

TCE	Run Type	KOI?	Period (Days)	Epoch (BKJD)	Depth (ppm)	Duration (Hours)	MES	SNR	R <sub>★</sub> (R <sub>☉</sub> )	T <sub>★</sub> (K)	R <sub>p</sub> (R <sub>⊕</sub> )	S <sub>p</sub> (S <sub>⊕</sub> )
002570767-01	OBS	6280.01	1.891212	132.703701	26.6	5.306	13.8	14.4	1.98	5850	1.18	5553.10

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
002570767-01	OBS	FP	0.00	0	0	1	1	CENT_CROWDED—HALO_GHOST—EPHEM_MATCH

**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.

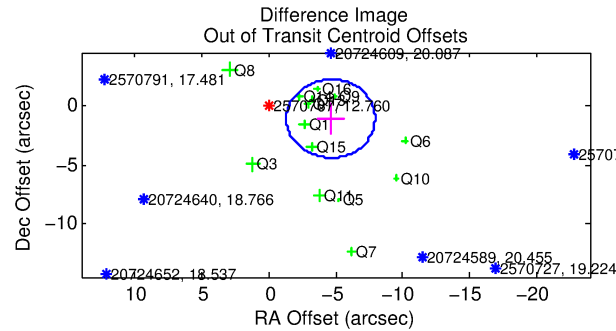
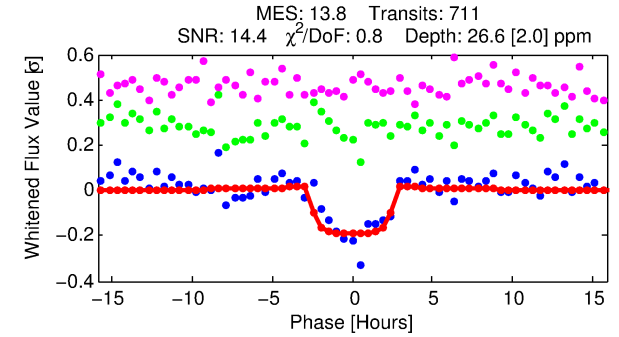
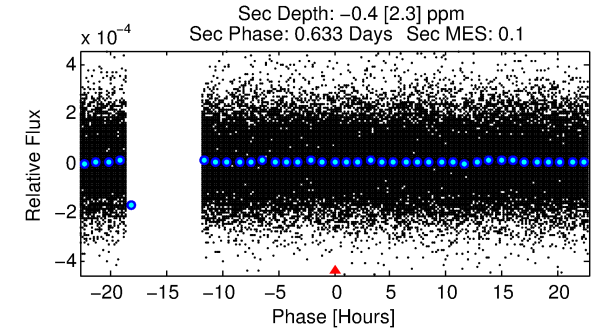
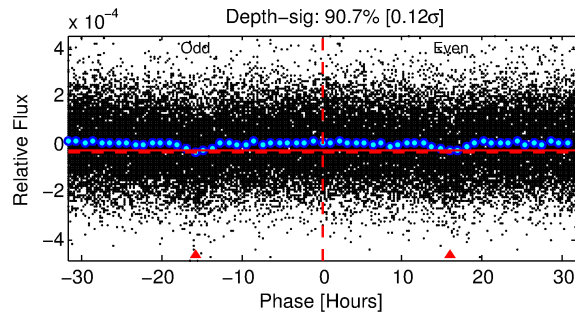
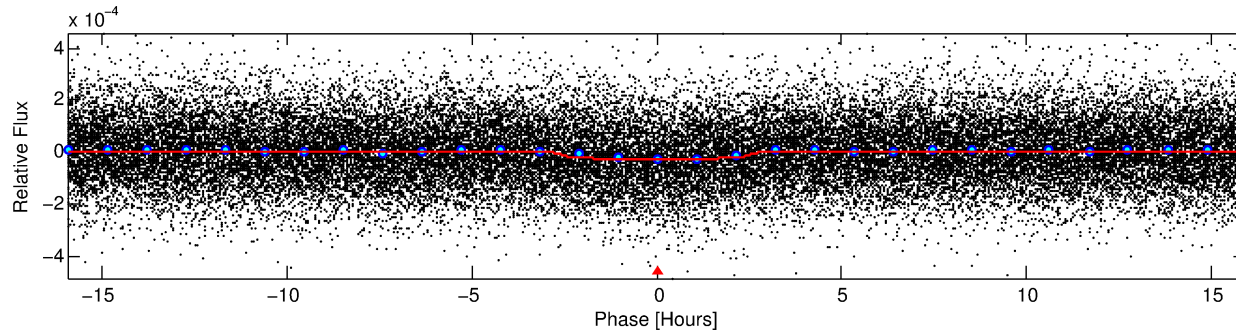
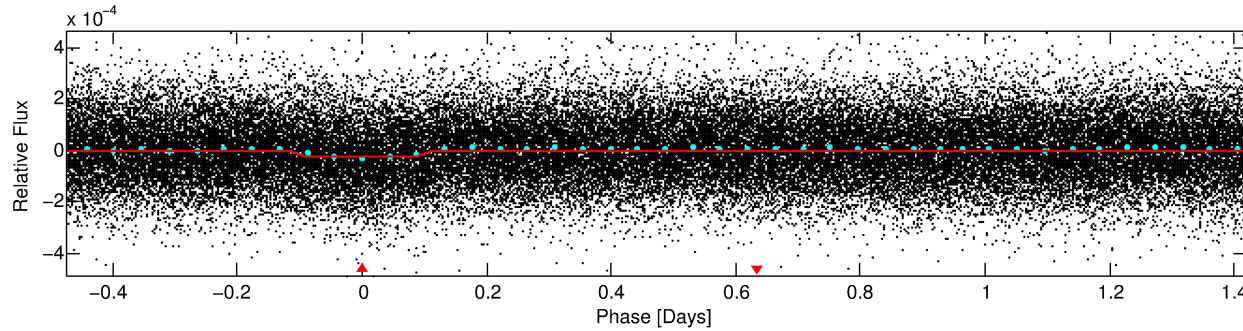
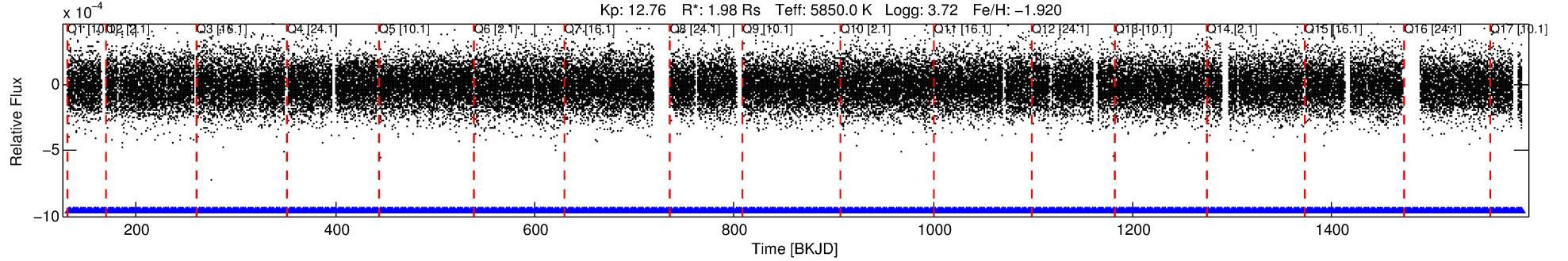
## Ephemeris Match Information For 002570767-01

TCE (1)	KIC	Parent (2)	Parent KIC	P <sub>1</sub> :P <sub>2</sub>	Dist (″)	ΔRow	ΔCol	m <sub>2</sub>	m <sub>1</sub>	D <sub>2</sub> /D <sub>1</sub>	Mechanism	Flag	σ <sub>P</sub>	σ <sub>T</sub>
002570767-01	2570767	6286.01	2708156	1:1	204.1	51	4	10.67	12.76	23737.00	Direct-PRF	0	2.17	1.18

**Notes:** P<sub>1</sub>:P<sub>2</sub> is the period ratio. Dist is the distance in arcseconds. ΔRow and ΔCol are the number of pixels apart in row and column. m<sub>2</sub> and m<sub>1</sub> are the magnitudes of the parent and child. D<sub>2</sub>/D<sub>1</sub> is the parent's transit depth divided by the child's. σ<sub>P</sub> and σ<sub>T</sub> are the significance of the match in period and epoch. For a match to be considered significant σ<sub>P</sub> < 5.0 and σ<sub>T</sub> < 5.0. Matches which have σ<sub>P</sub> and σ<sub>T</sub> very close to this cutoff should receive extra scrutiny, especially if the period ratio is very large.

# DV One-Page Summary

KIC: 2570767 Candidate: 1 of 1 Period: 1.891 d  
KOI: K06280.01 Corr: 0.945



## DV Fit Results:

Period = 1.89121 [0.00001] d  
Epoch = 132.7037 [0.0039] BKJD  
Rp/R\* = 0.0055 [0.0015]  
a/R\* = 1.56 [1.44]  
b = 0.89 [0.36]  
Seff = 5553.10 [2016.55]  
Teq = 2201 [200] K  
Rp = 1.18 [0.50] Re  
a = 0.0272 [0.0068] AU  
Ag = N/A  
Teffp = N/A

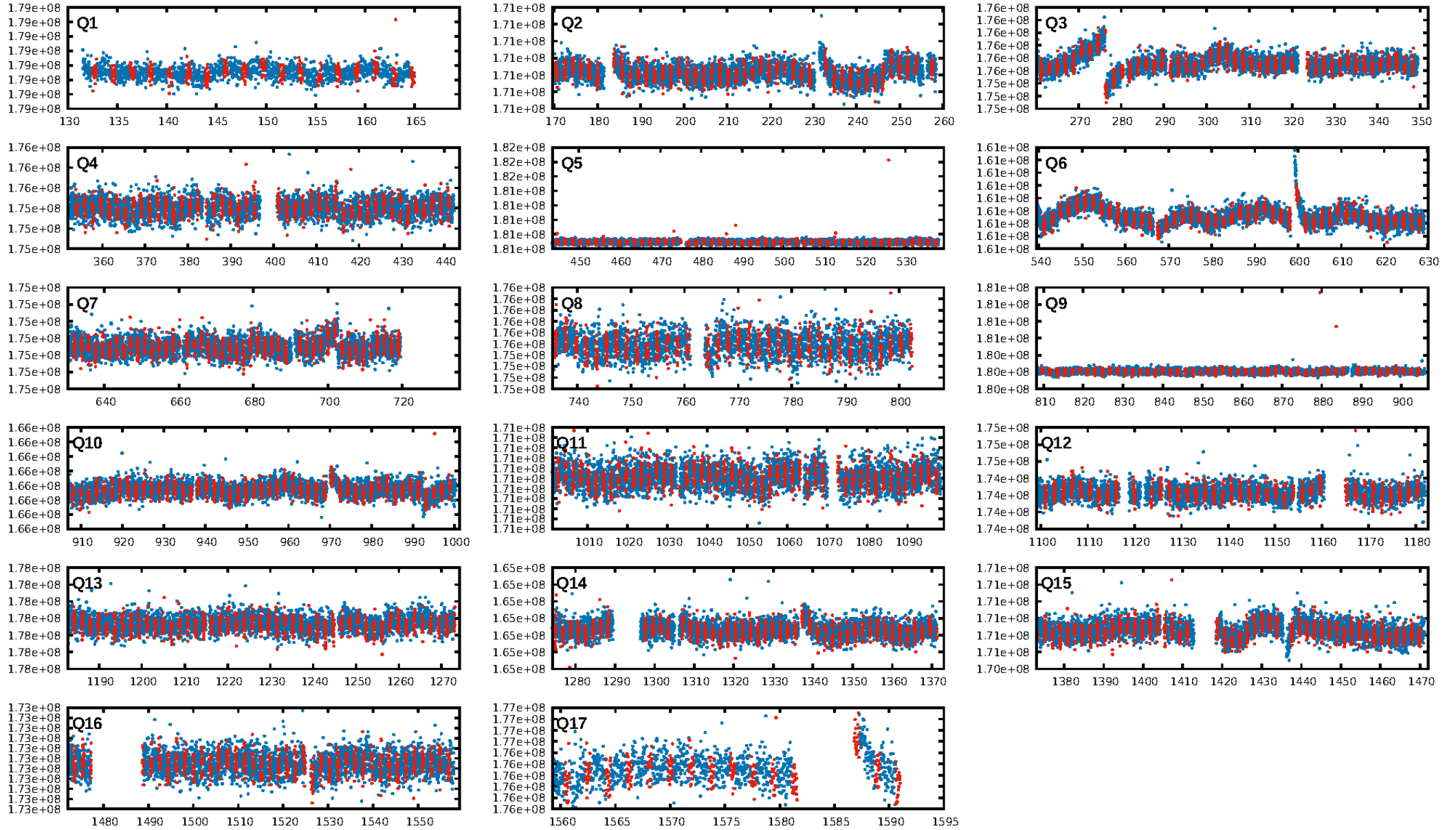
## DV Diagnostic Results:

ShortPeriod-sig: N/A  
LongPeriod-sig: N/A  
ModelChiSquare2-sig: N/A  
ModelChiSquareGof-sig: N/A  
Bootstrap-pfa: 7.16e-40  
RollingBand-fgt: 1.00 [678/678]  
GhostDiagnostic-chr: 0.01247  
Centroid-sig: 0.0%  
Centroid-so: 2.676 arcsec [3.22 $\sigma$ ]  
OotOffset-rm: 4.763 arcsec [4.31 $\sigma$ ]  
KicOffset-rm: 4.827 arcsec [4.30 $\sigma$ ]  
OotOffset-st: 3/4/2/5 [14]  
KicOffset-st: 3/4/2/5 [14]  
DiffImageQuality-fgm: 0.21 [3/14]  
DiffImageOverlap-fno: 1.00 [17/17]

Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 15:43:07 Z

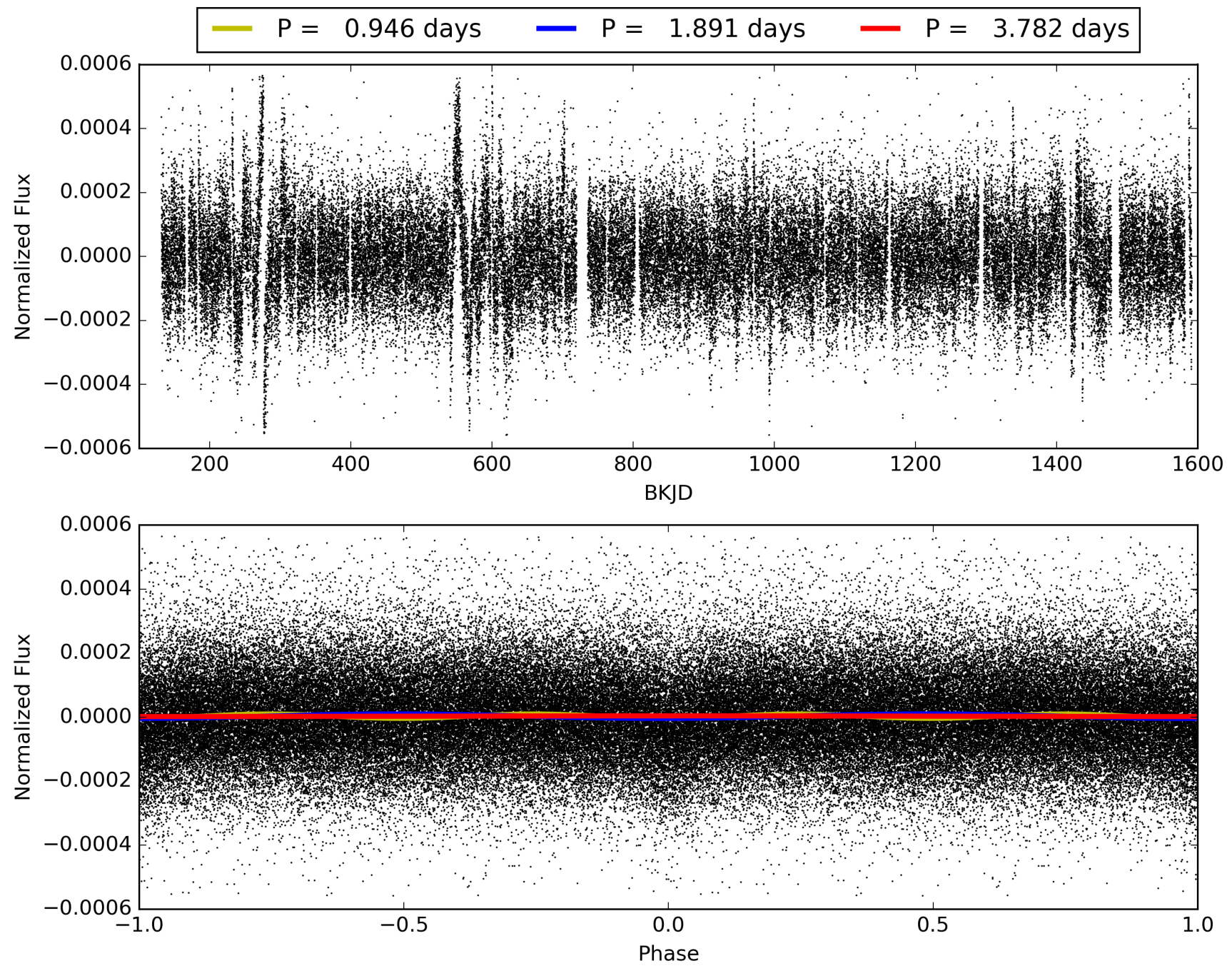
This Data Validation Report Summary was produced in the Kepler Science Operations Center Pipeline at NASA Ames Research Center

# TCE 002570767-01, PDC Light Curves



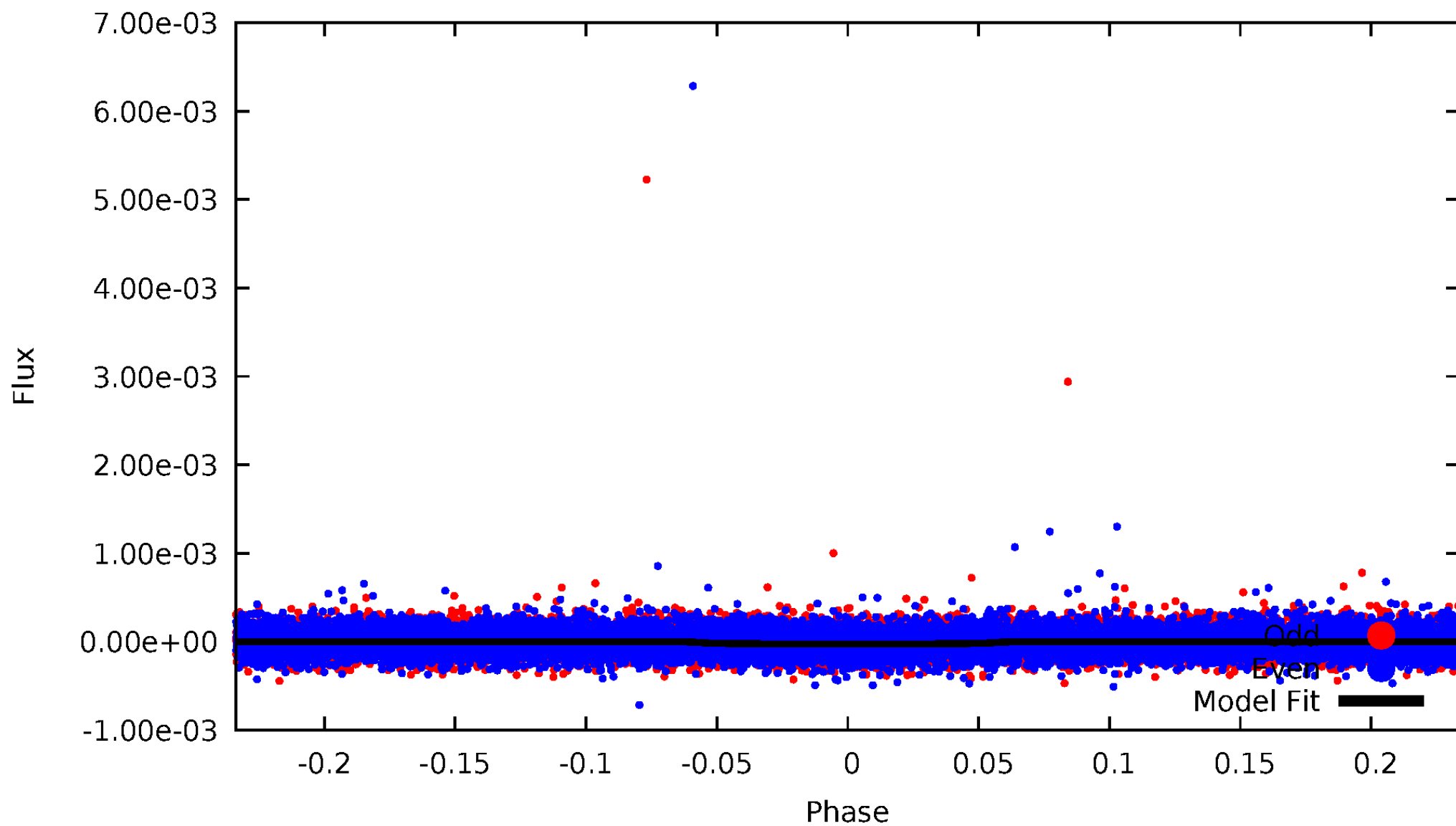


TCE 002570767-01



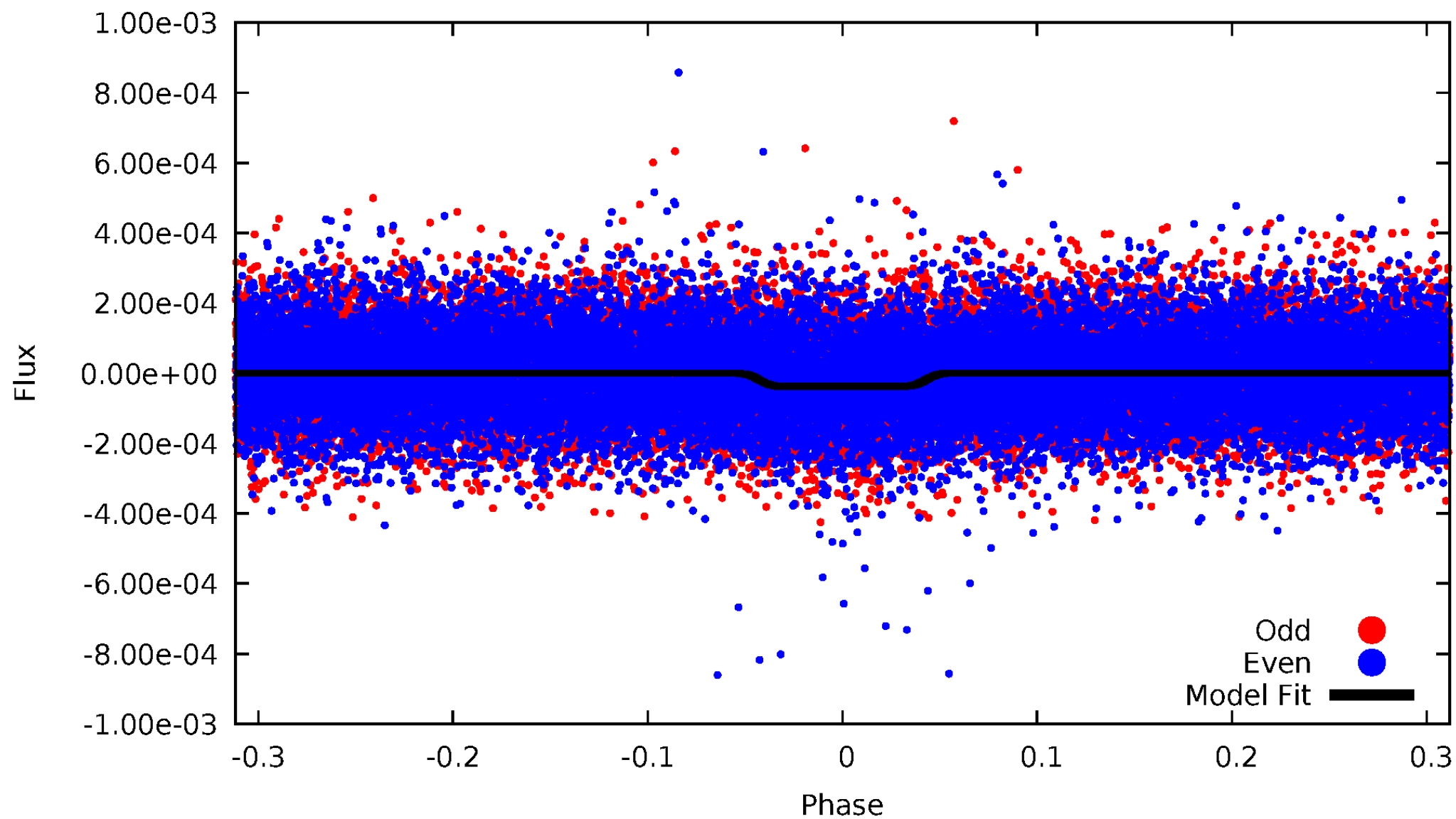
# DV Odd/Even

TCE 002570767-01



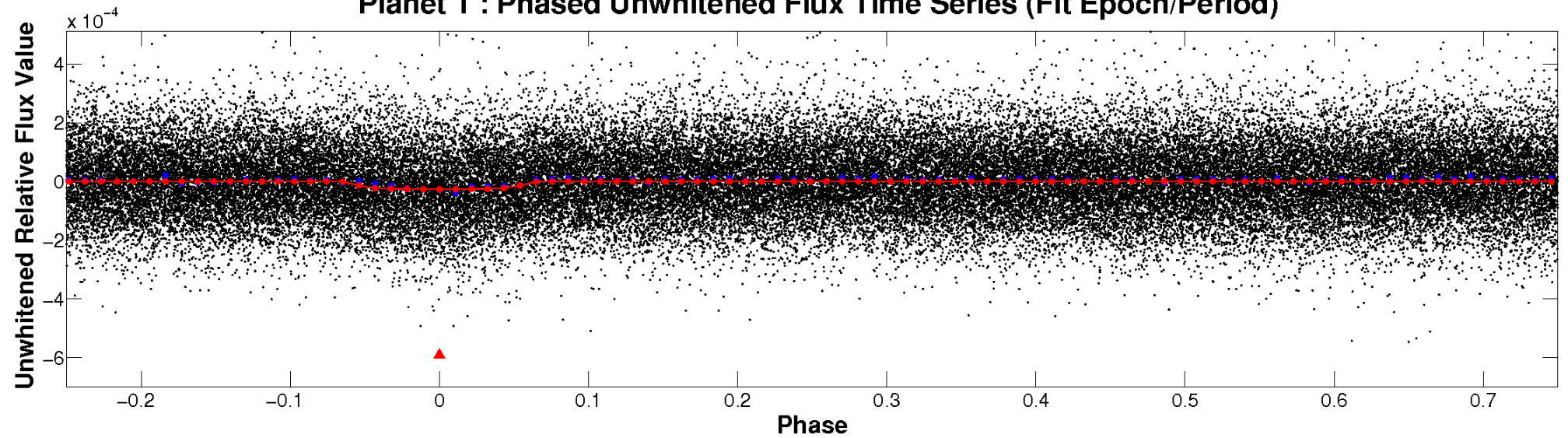
# ALT Odd/Even

TCE 002570767-01

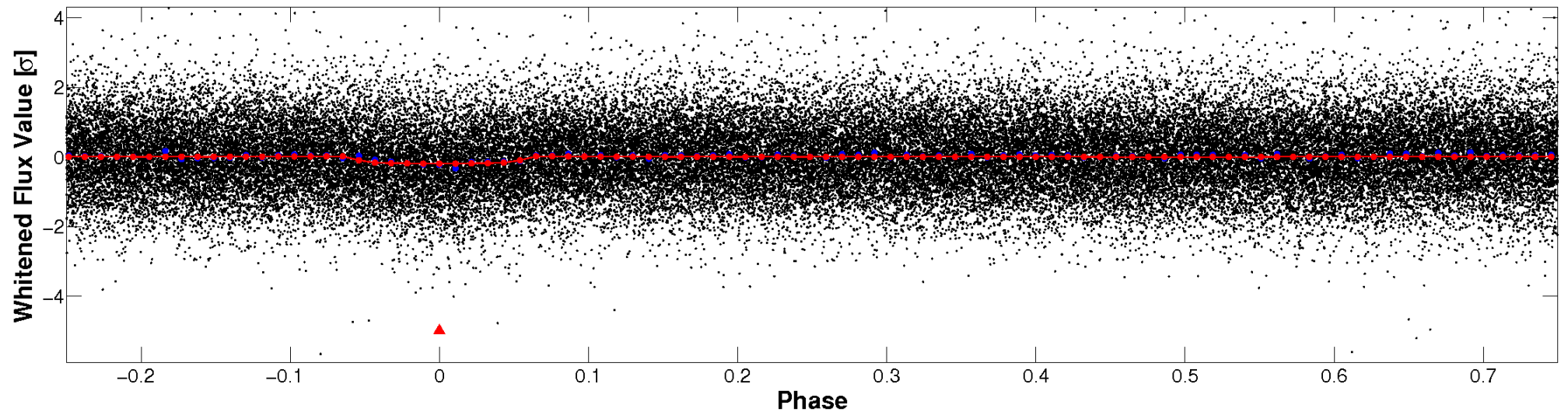


# Non-Whitened Vs. Whitened Light Curve

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



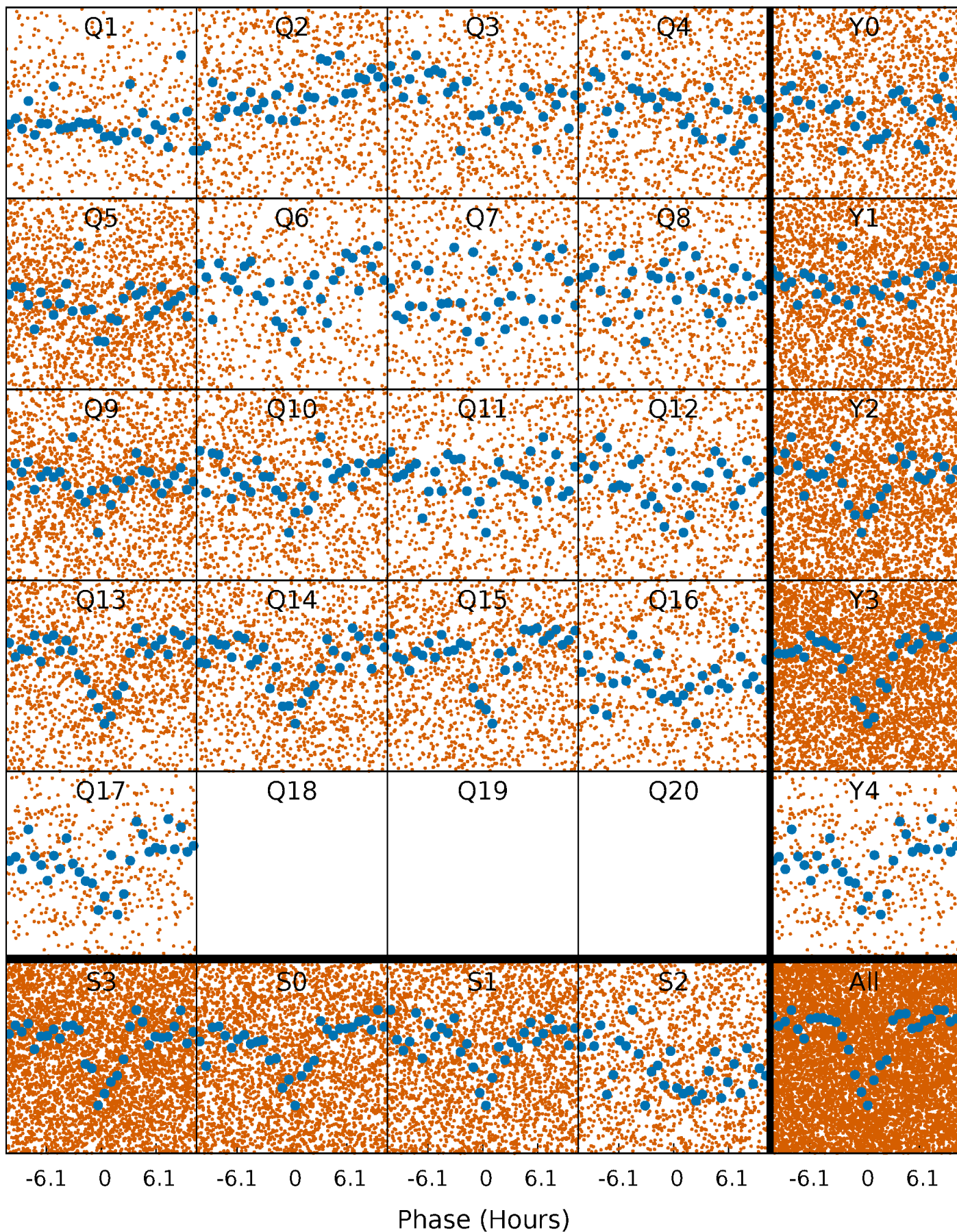
**Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)**





# PDC Quarter-Phased Transit Curves

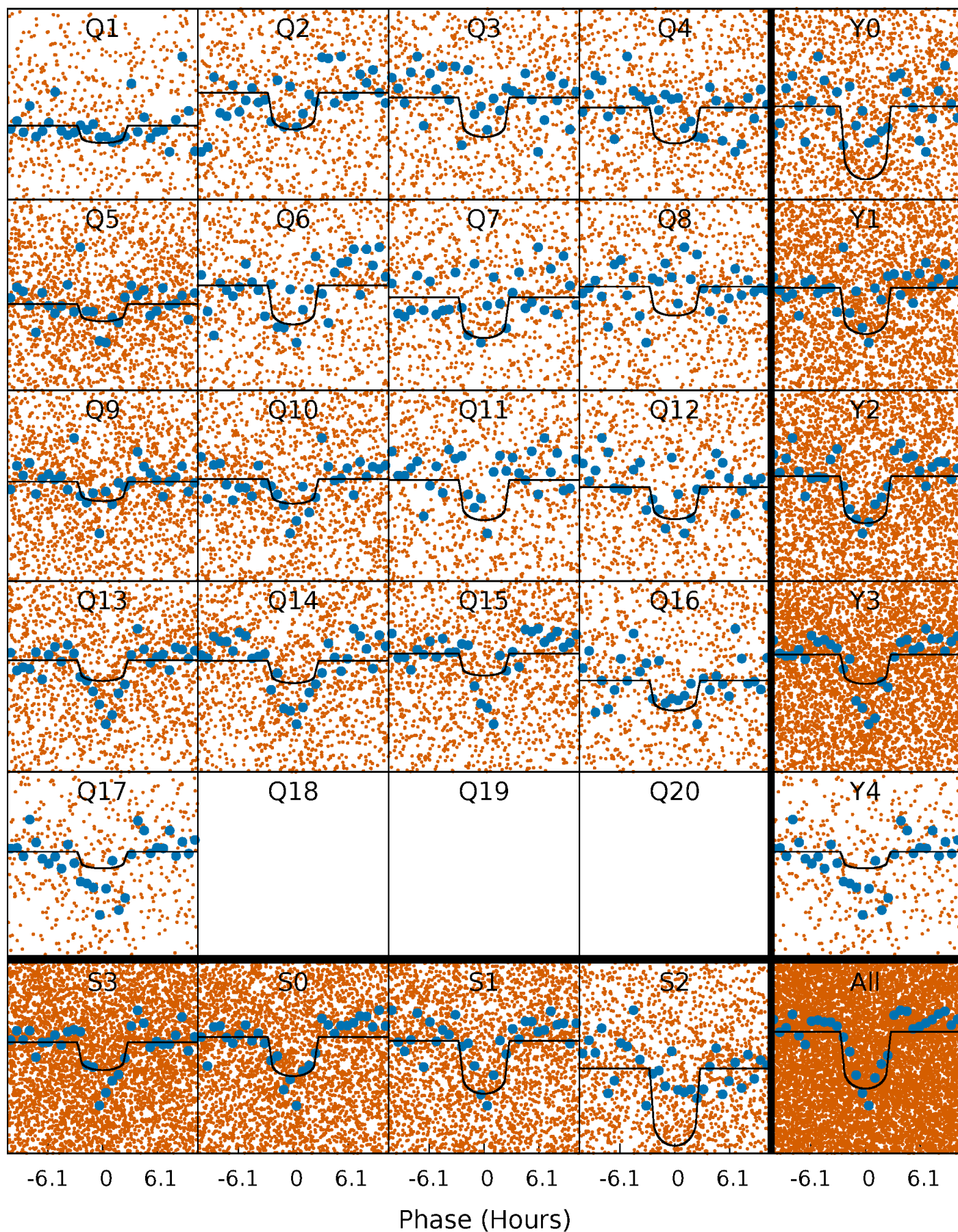
TCE 002570767-01 P= 1.891212 Days  $T_0=132.703701$  (BKJD)





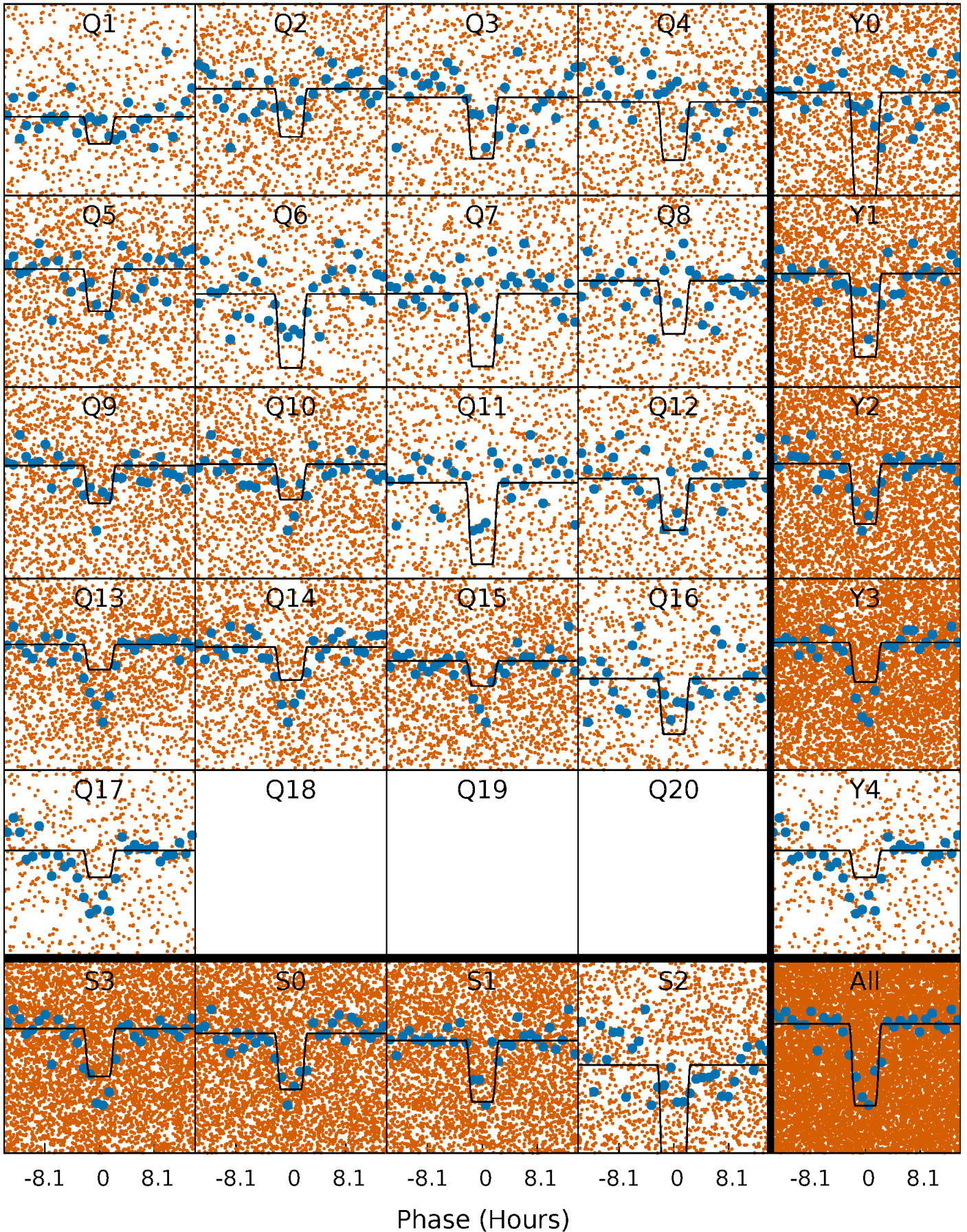
# DV Quarter-Phased Transit Curves

TCE 002570767-01 P= 1.891212 Days  $T_0=132.703701$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

TCE 002570767-01 P= 1.891298 Days  $T_0=132.667888$  (BKJD)

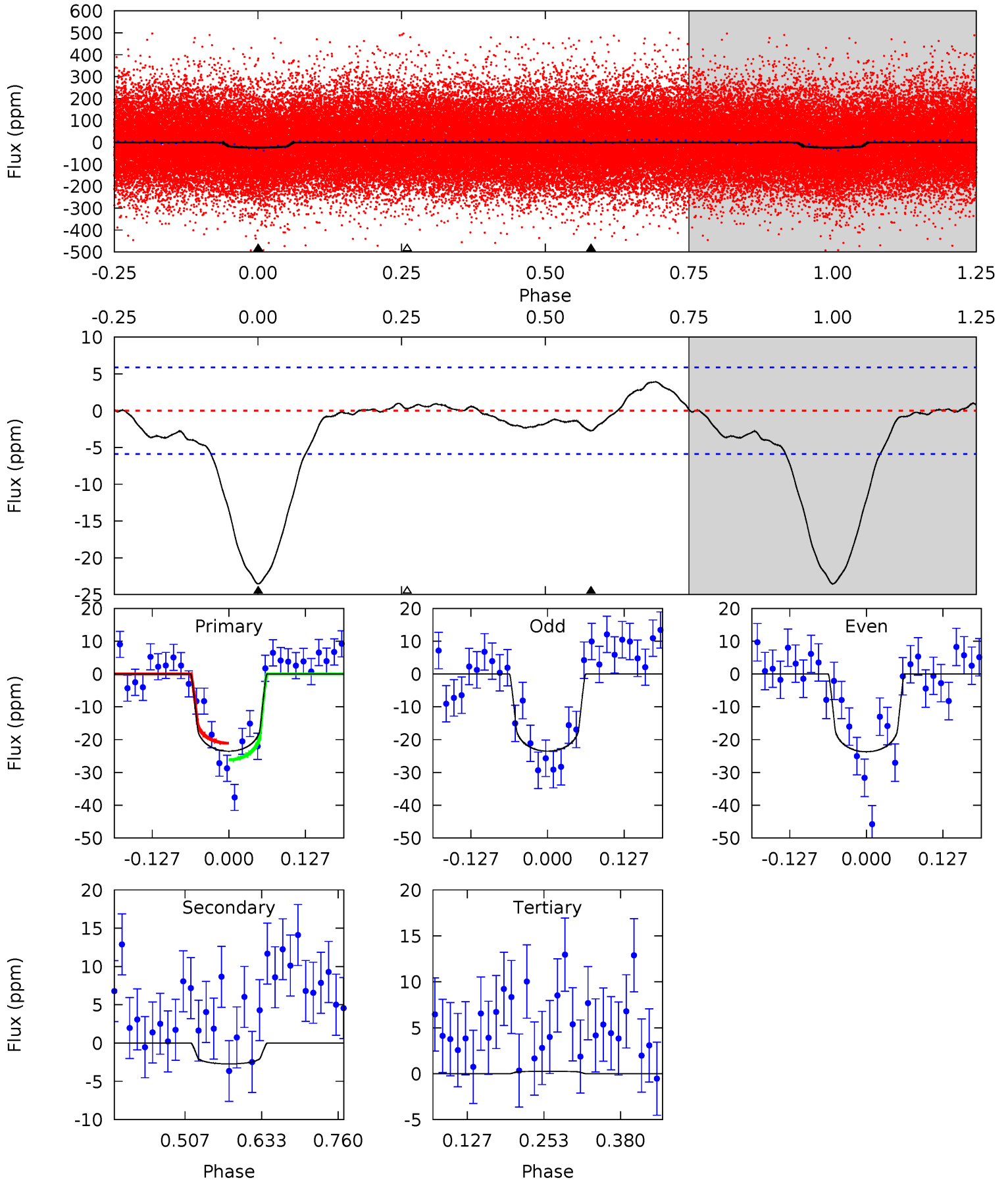




# DV Model-Shift Uniqueness Test

002570767-01, P = 1.891212 Days, E = 130.812489 Days

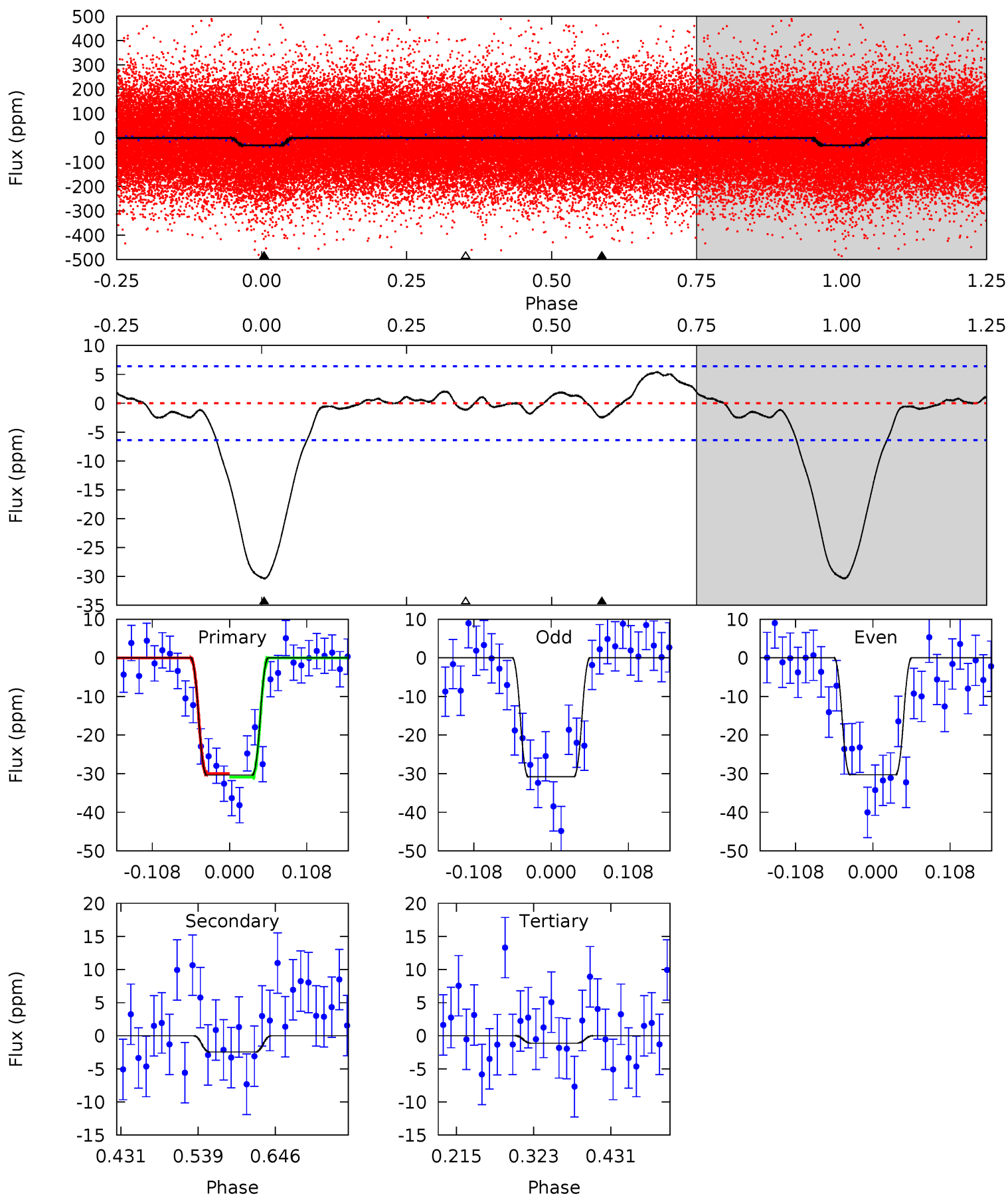
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
18.1	2.09	-0.20	0	4.51	1.53	1.19	18.3	18.1	2.29	2.09	0.07	1.01	0.14	1.94



# Alt Model-Shift Uniqueness Test

002570767-01, P = 1.891298 Days, E = 130.776590 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
21.6	1.75	0.80	0	4.55	1.61	1.15	20.8	21.6	0.94	1.75	0.19	0.99	0.15	0.33





### Stellar Parameters For KIC 002570767

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	$5850^{+175}_{-158}$	$3.720^{+0.095}_{-0.176}$	$-1.920^{+0.350}_{-0.050}$	$1.977^{+0.626}_{-0.209}$	$0.749^{+0.116}_{-0.008}$	$0.137^{+0.049}_{-0.070}$
	+3%/-3%	+3%/-5%	+18%/-3%	+32%/-11%	+15%/-1%	+36%/-51%
Source	PHO1	FLK73	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 002570767-01 / KOI 6280.01

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	$A_{obs}$
DV	$-3 \pm 1$	$1.22^{+0.38}_{-0.34}$	$3084^{+225}_{-142}$	$3338^{+616}_{-1153}$	$0.754^{+0.868}_{-0.440}$
Alt.	$-2 \pm 1$	$1.35^{+0.40}_{-0.36}$	$3088^{+198}_{-154}$	$3051^{+642}_{-5640}$	$0.530^{+0.613}_{-0.305}$

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

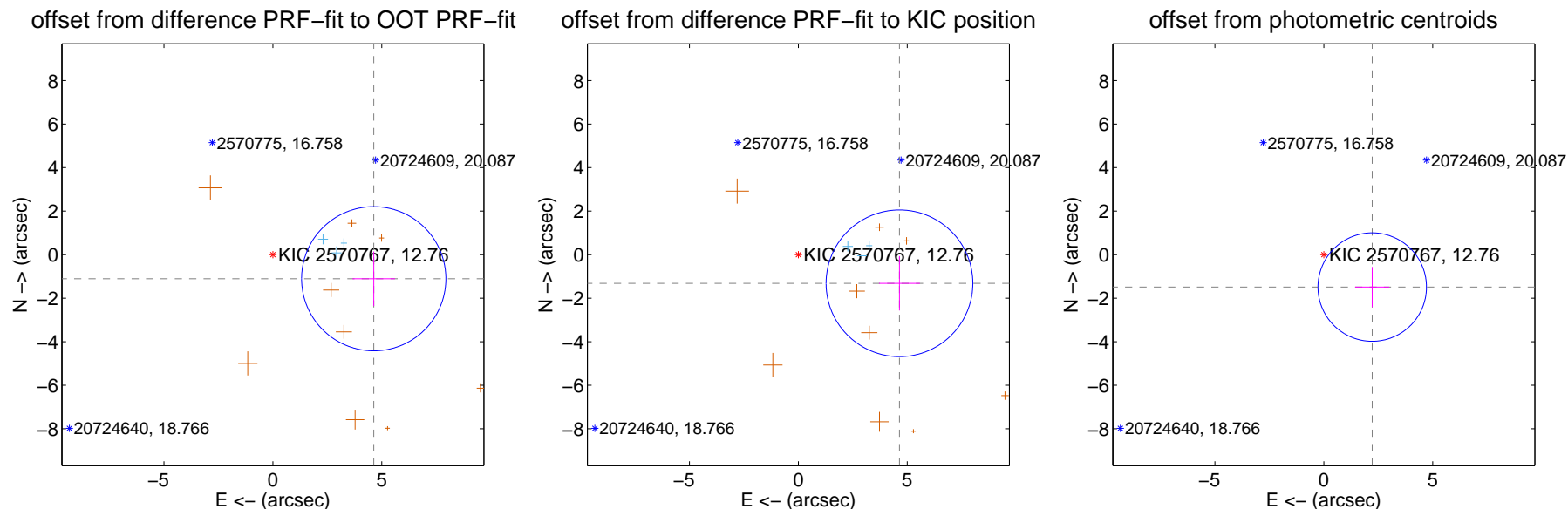
## DV Centroid Data

Supplemental centroid analysis for 002570767-01. Kepler magnitude: 12.76. Transit SNR 14.38

There are 3 quarters with good PRF difference image offsets

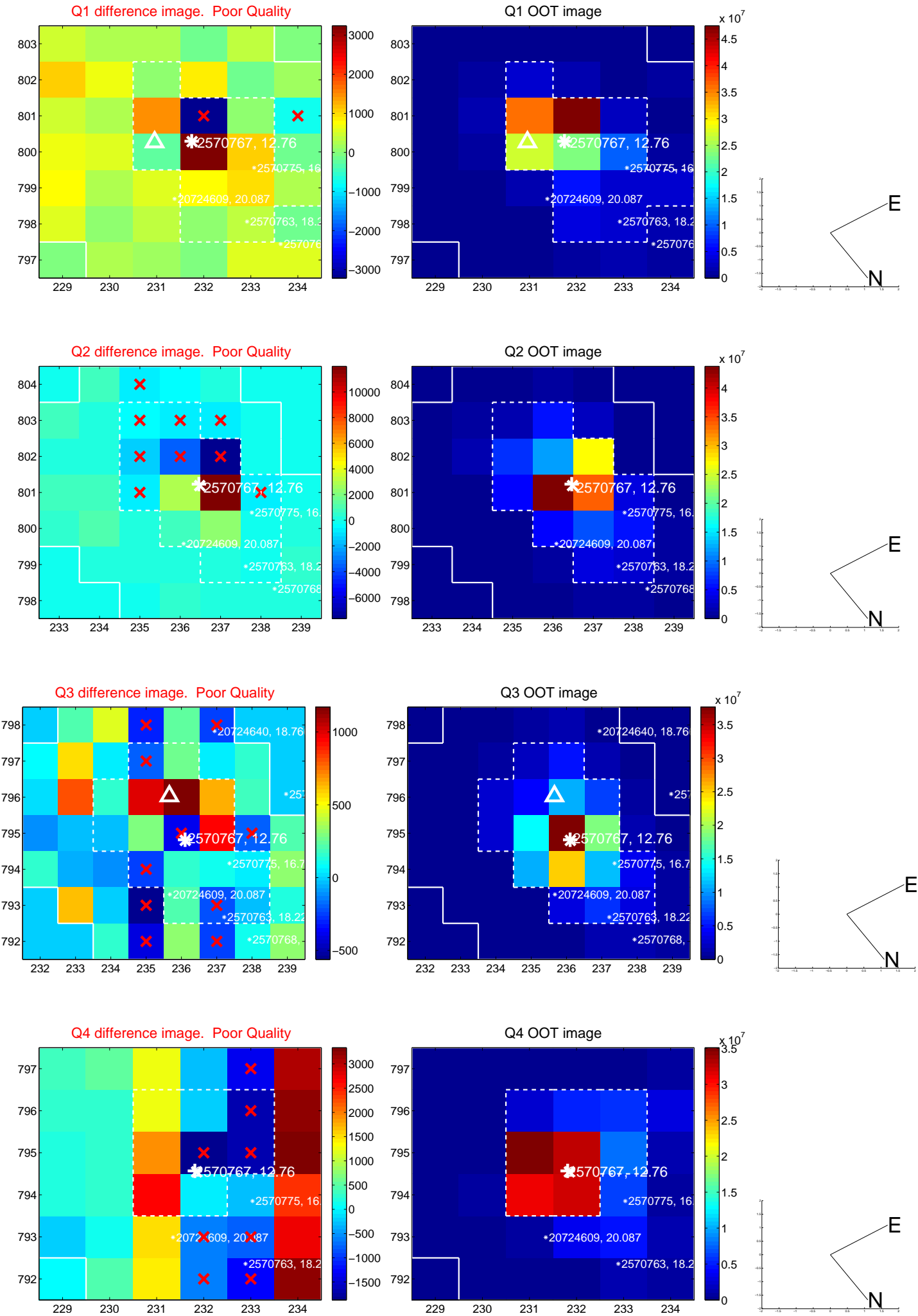
The direct PRF centroid is offset from the target star catalog position by about 0.14 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$4.763 \pm 1.104$	4.31	$-4.633 \pm 0.974$	$-1.107 \pm 1.253$
PRF-fit source offset from KIC position	$4.827 \pm 1.123$	4.30	$-4.644 \pm 0.942$	$-1.317 \pm 1.252$
photometric centroid source offset	$2.68 \pm 0.83$	3.22	$-2.22 \pm 0.79$	$-1.49 \pm 0.92$

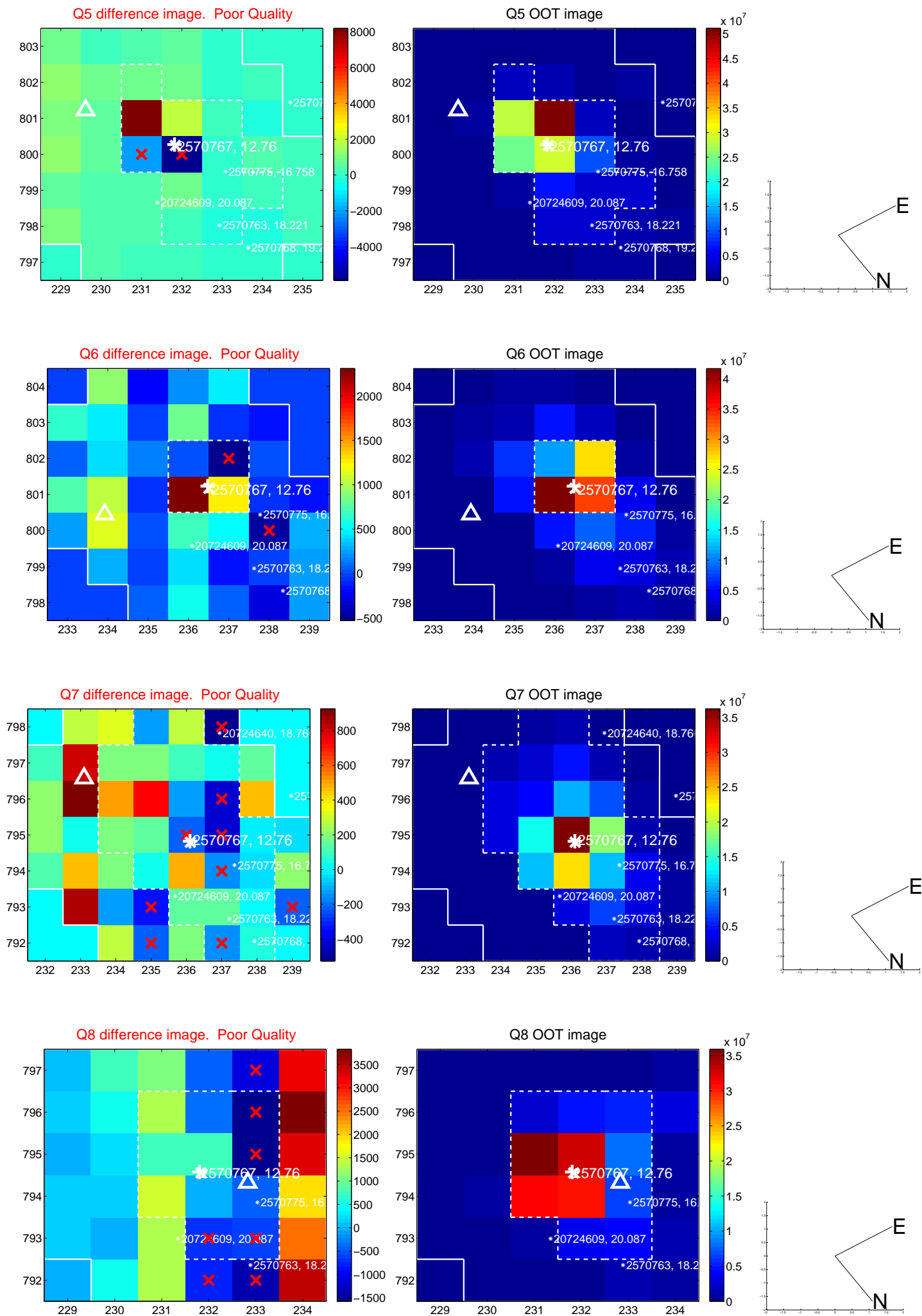


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: three-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

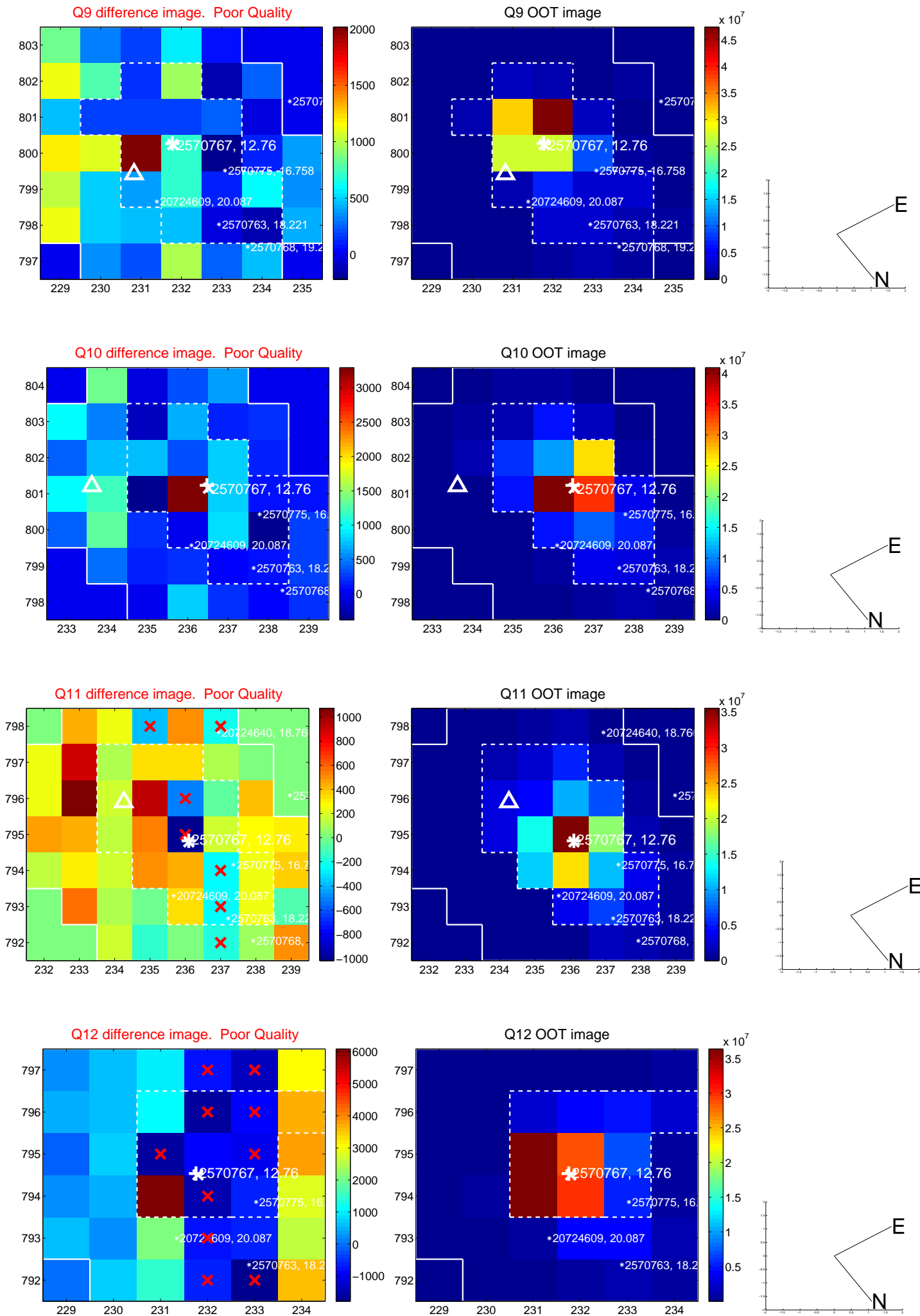


white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.

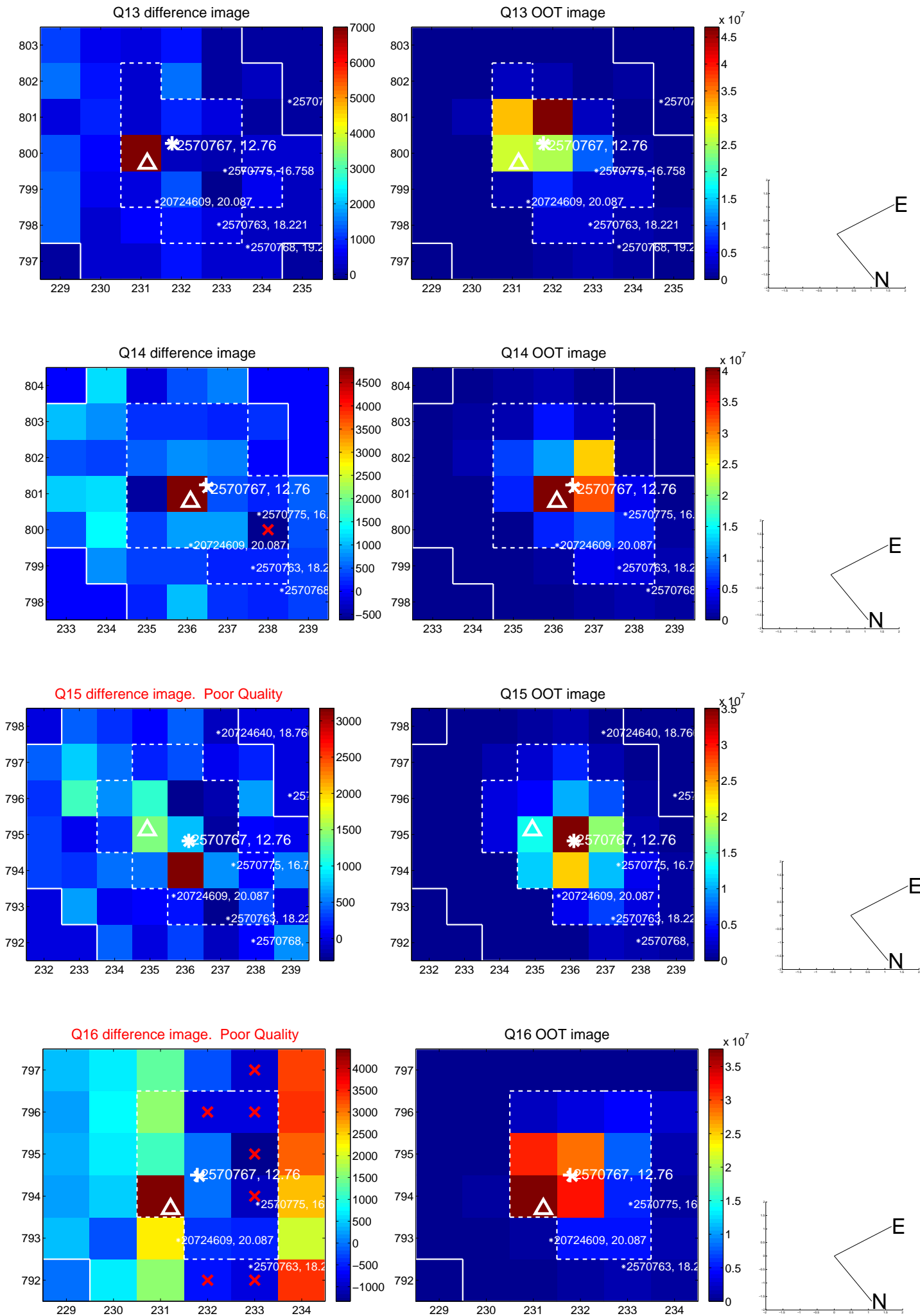




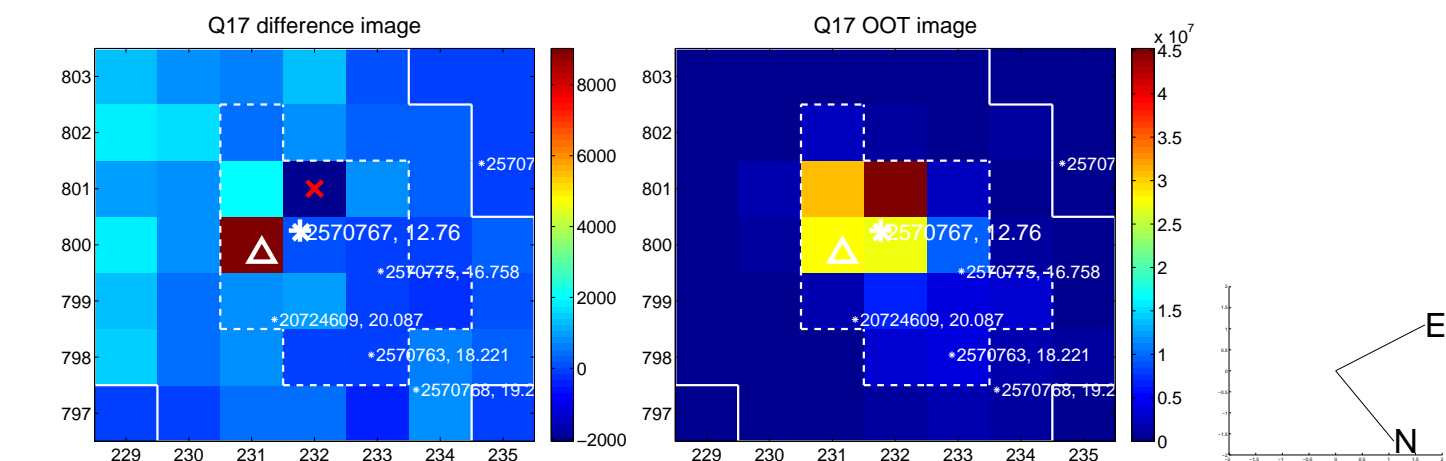
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



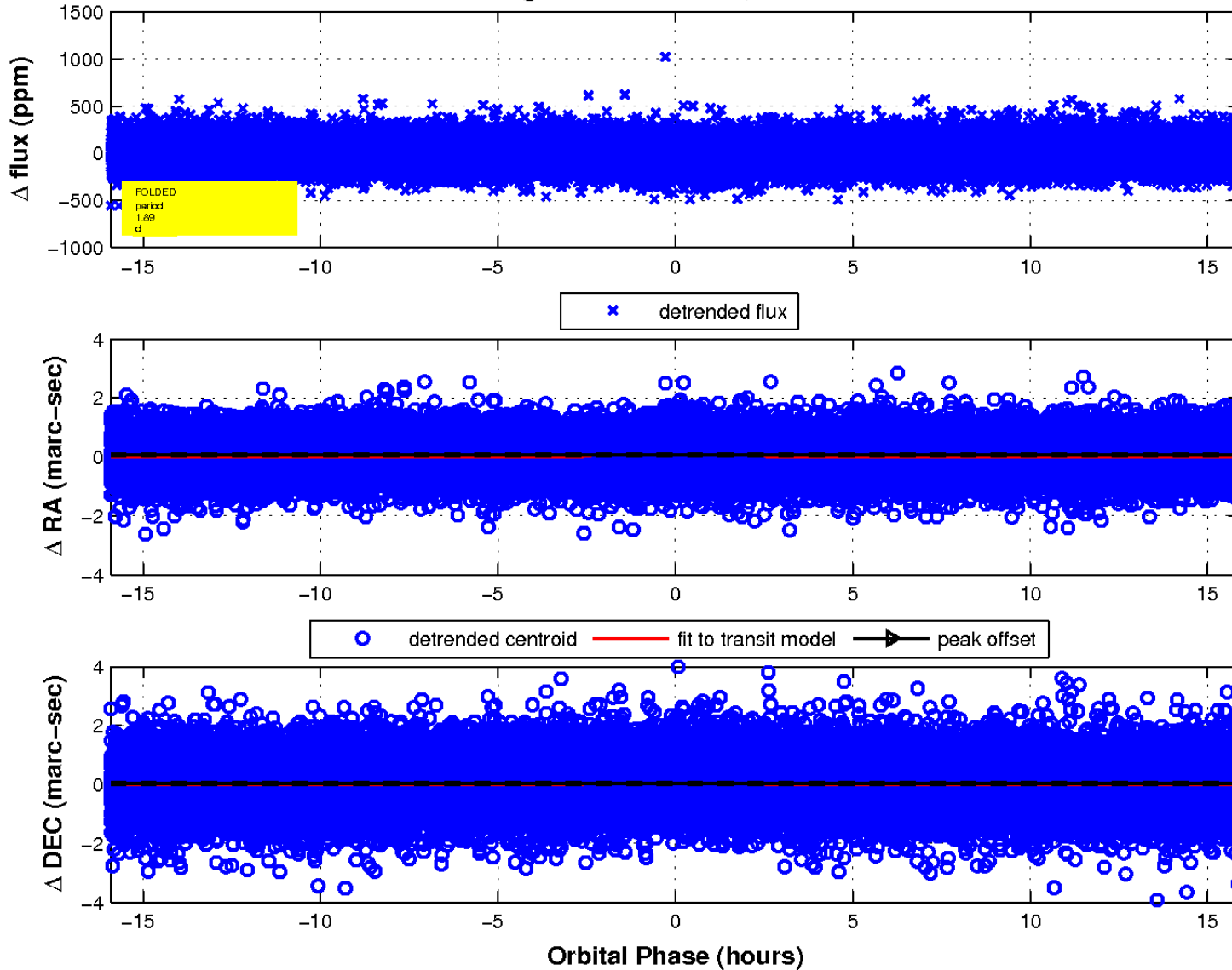
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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



fluxWeightedCentroids, Planet 1 of 1



UKIRT Image

Declination

