

# KIC 002437804

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
002437804-01	OBS	6269.01	7.453181	131.760177	552.0	5.098	13.4	13.7	16.75	4475	85.30	10740.90

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
002437804-01	OBS	FP	0.00	0	1	1	1	DEEP_V_SHAPED—CENT_RESOLVED_OFFSET—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 002437804-01

TCE (1)	KIC	Parent (2)	Parent KIC	P <sub>1</sub> :P <sub>2</sub>	Dist (″)	$\Delta$ Row	$\Delta$ Col	m <sub>2</sub>	m <sub>1</sub>	D <sub>2</sub> /D <sub>1</sub>	Mechanism	Flag	$\sigma_P$	$\sigma_T$
002437804-01	2437804	002437783-01	2437783	1:1	14.4	4	-1	17.30	14.16	142.25	Direct-PRF	0	1.42	0.83

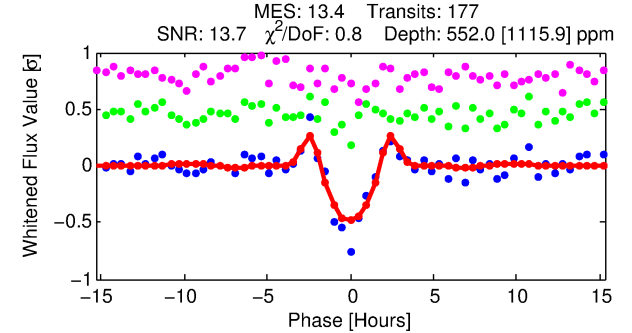
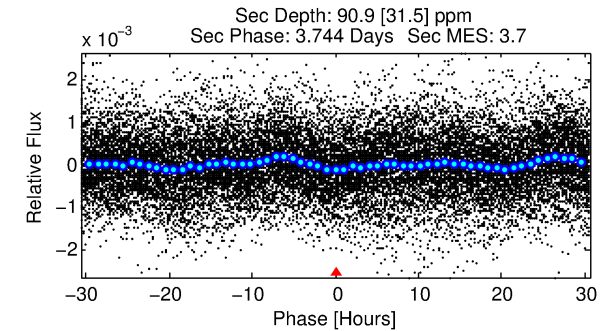
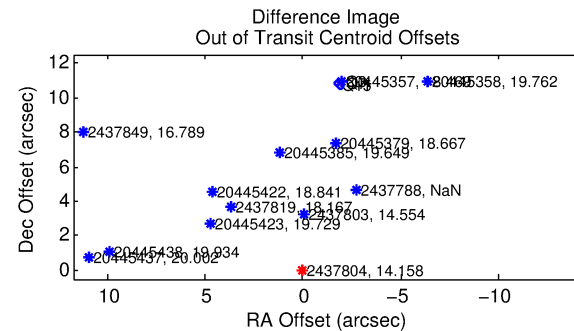
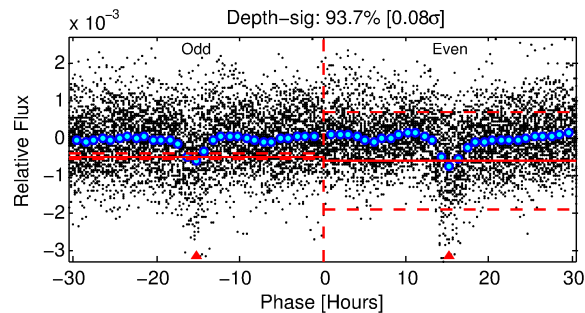
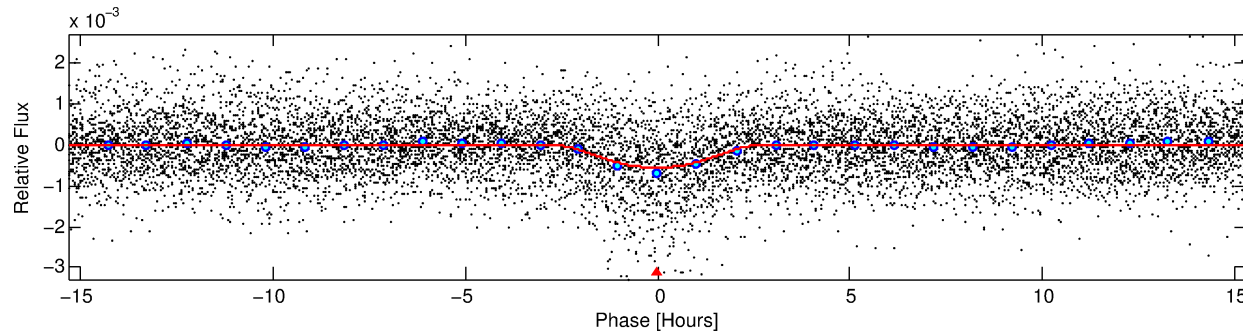
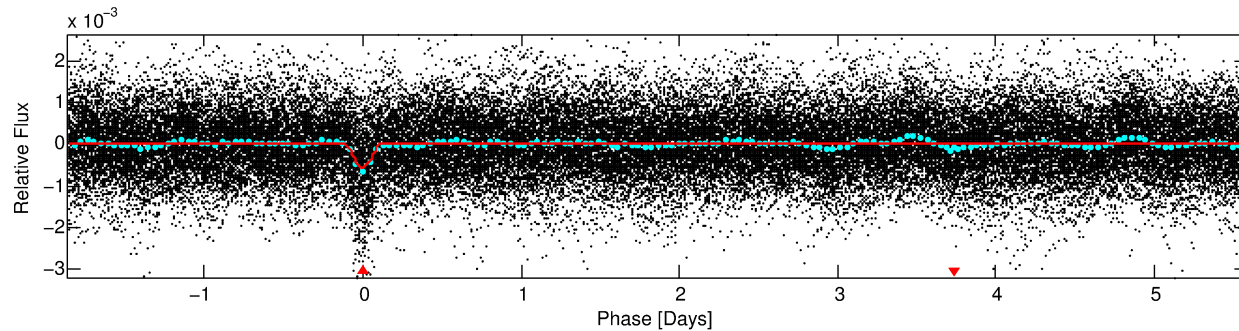
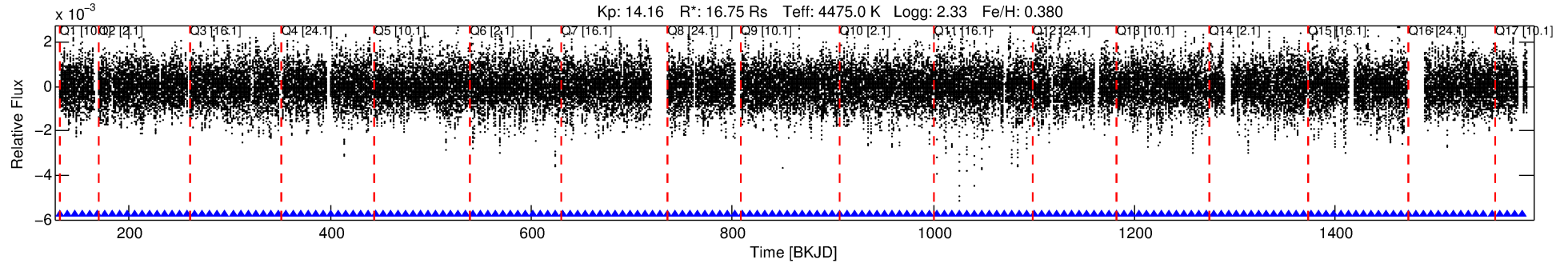
**Notes:** P<sub>1</sub>:P<sub>2</sub> is the period ratio. Dist is the distance in arcseconds.  $\Delta$ Row and  $\Delta$ Col are the number of pixels apart in row and column. m<sub>2</sub> and m<sub>1</sub> are the magnitudes of the parent and child. D<sub>2</sub>/D<sub>1</sub> is the parent's transit depth divided by the child's.  $\sigma_P$  and  $\sigma_T$  are the significance of the match in period and epoch. For a match to be considered significant  $\sigma_P < 5.0$  and  $\sigma_T < 5.0$ . Matches which have  $\sigma_P$  and  $\sigma_T$  very close to this cutoff should receive extra scrutiny, especially if the period ratio is very large.

# DV One-Page Summary

KIC: 2437804 Candidate: 1 of 1 Period: 7.453 d

KOI: K06269.01 Corr: 0.852

Kp: 14.16 R\*: 16.75 Rs Teff: 4475.0 K Logg: 2.33 Fe/H: 0.380



## DV Fit Results:

Period = 7.45318 [0.00004] d  
Epoch = 131.7602 [0.0047] BKJD  
Rp/R\* = 0.0467 [0.0402]  
a/R\* = 3.60 [0.66]  
b = 1.00 [0.12]  
Seff = 10740.90 [1742.20]  
Teq = 2596 [105] K  
Rp = 85.30 [75.20] Re  
a = 0.0969 [0.0125] AU  
Ag = 0.06 [0.11] [-8.22σ]  
Teffp = 2023 [889] K [-0.64σ]

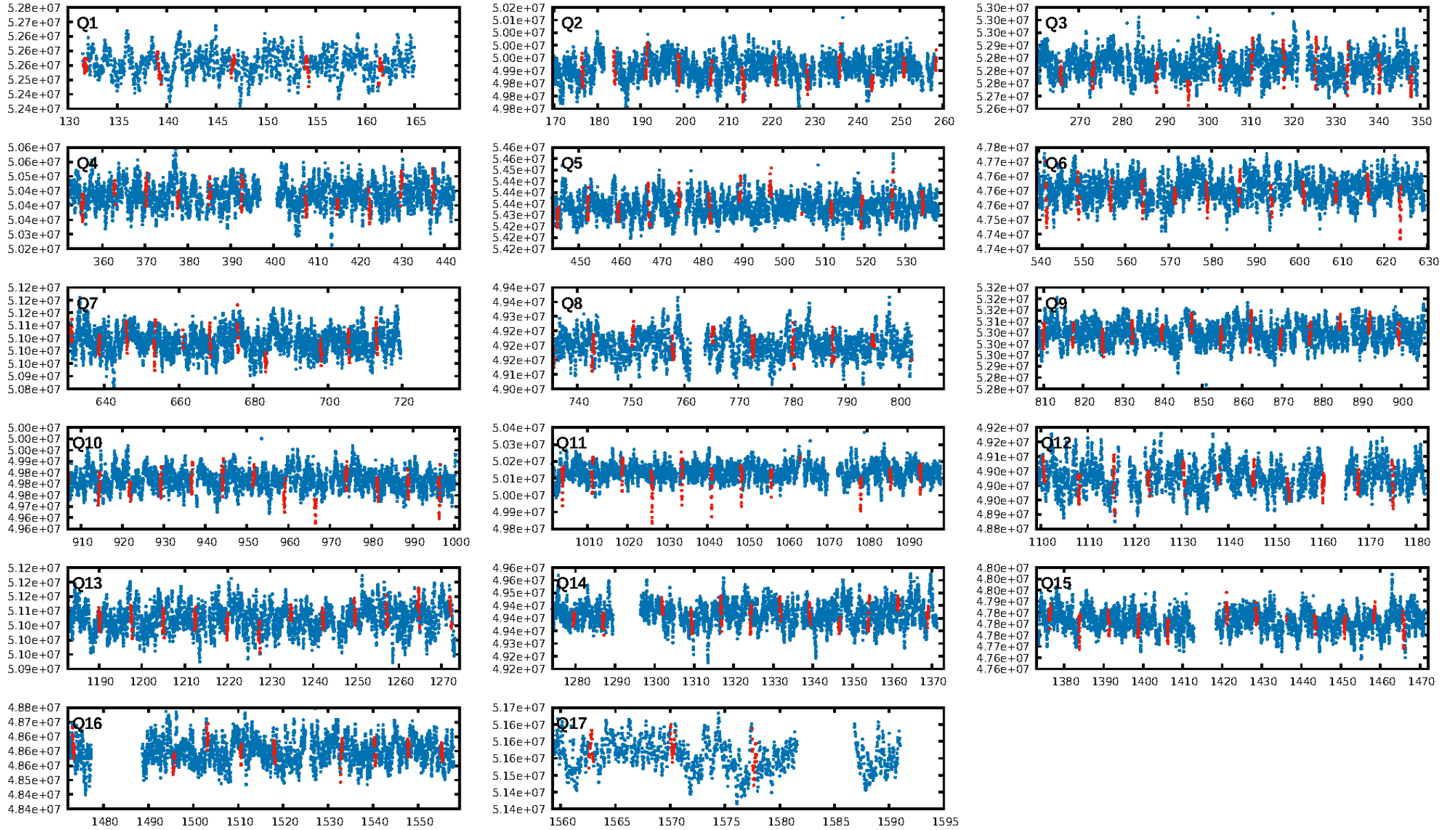
## DV Diagnostic Results:

ShortPeriod-sig: N/A  
LongPeriod-sig: N/A  
ModelChiSquare2-sig: 0.1%  
ModelChiSquareGof-sig: 100.0%  
Bootstrap-pfa: 1.83e-38  
RollingBand-fgt: 1.00 [169/169]  
GhostDiagnostic-chr: -0.2319  
Centroid-sig: 0.0%  
Centroid-so: 30.951 arcsec [113.15σ]  
OotOffset-rm: 10.961 arcsec [124.47σ]  
KicOffset-rm: 10.974 arcsec [131.82σ]  
OotOffset-st: 0/4/0/0 [4]  
KicOffset-st: 0/4/0/0 [4]  
DiffImageQuality-fgm: 1.00 [4/4]  
DiffImageOverlap-fno: 1.00 [17/17]

Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 16:32:48 Z

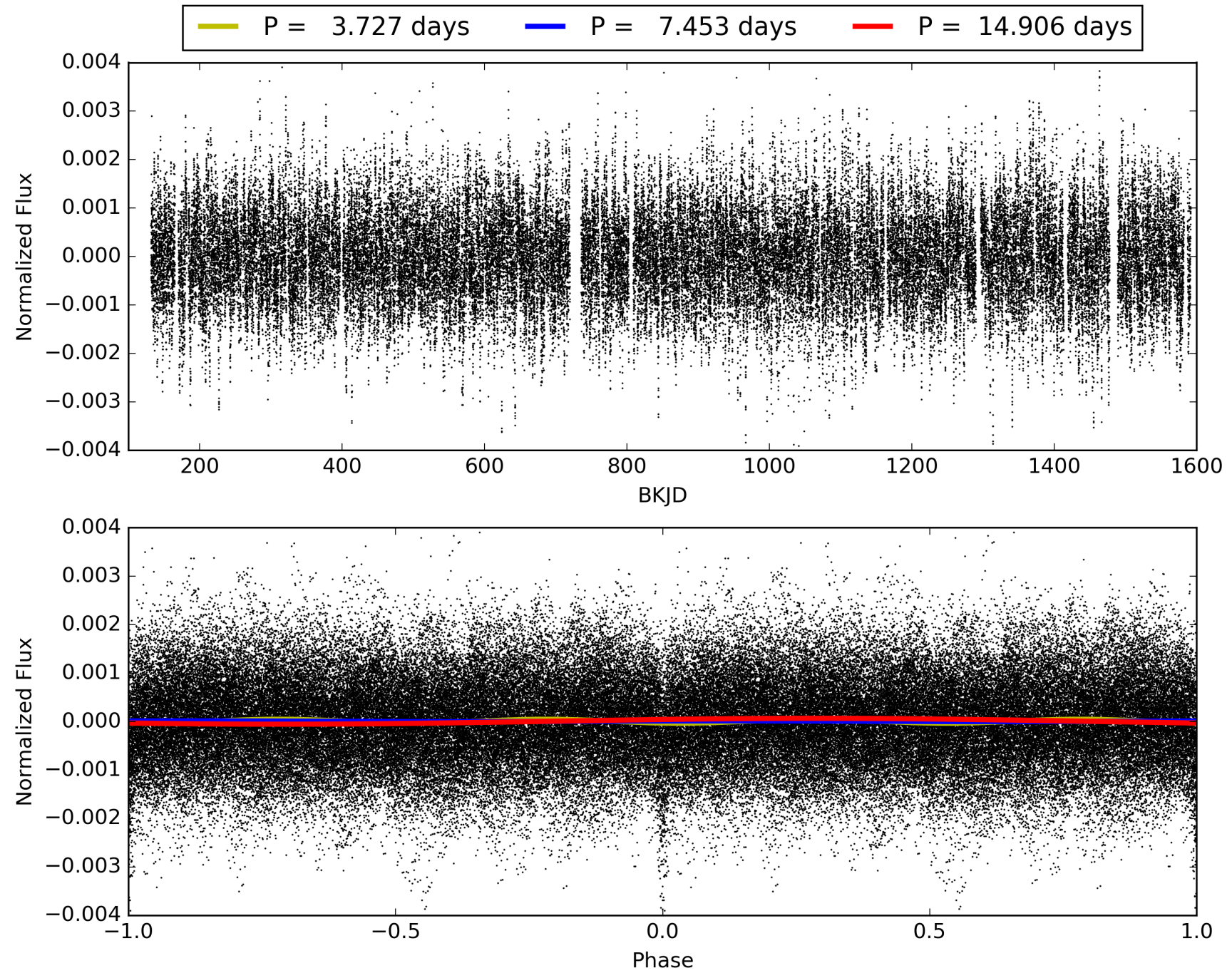
This Data Validation Report Summary was produced in the Kepler Science Operations Center Pipeline at NASA Ames Research Center

# TCE 002437804-01, PDC Light Curves



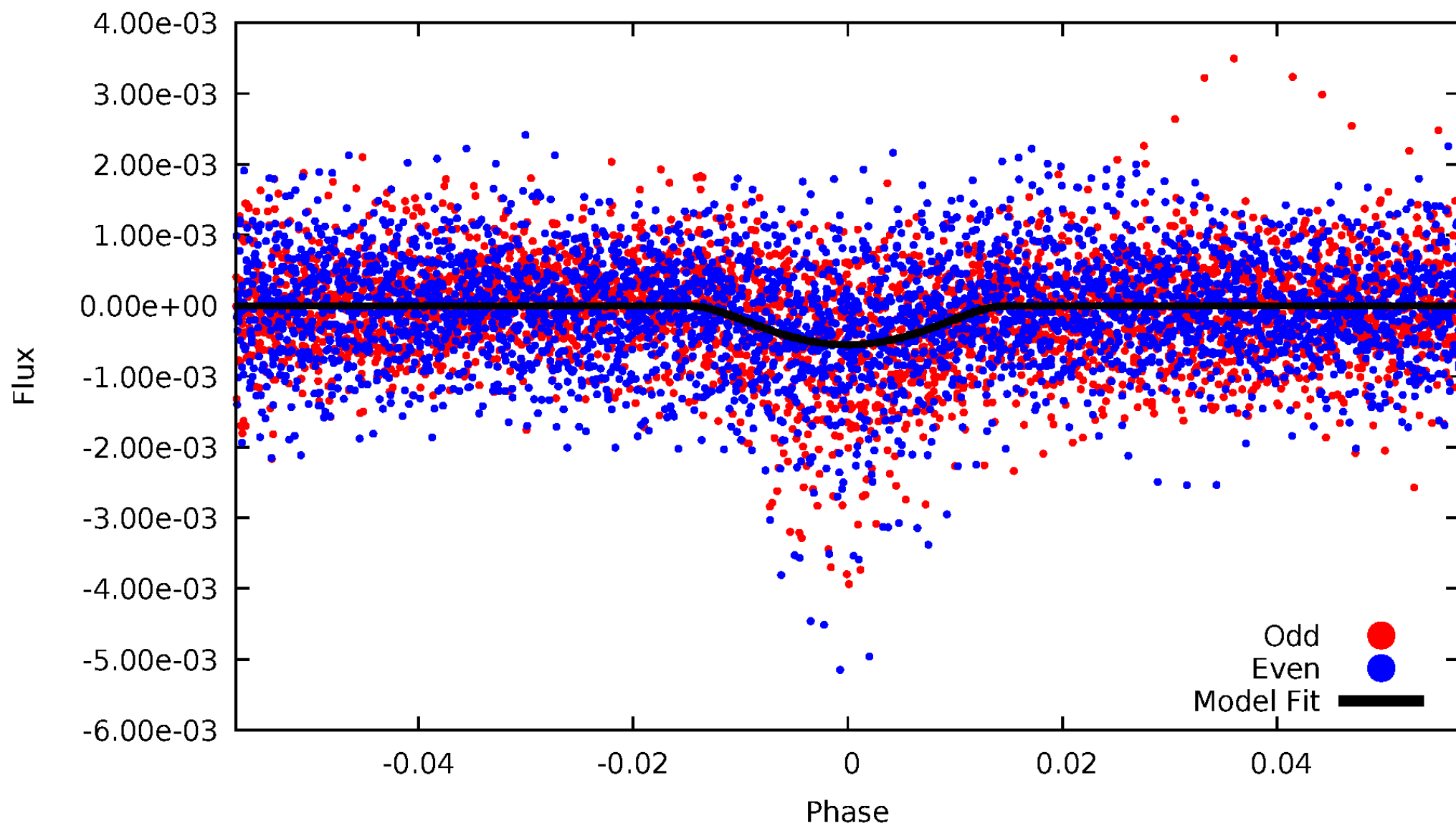


TCE 002437804-01



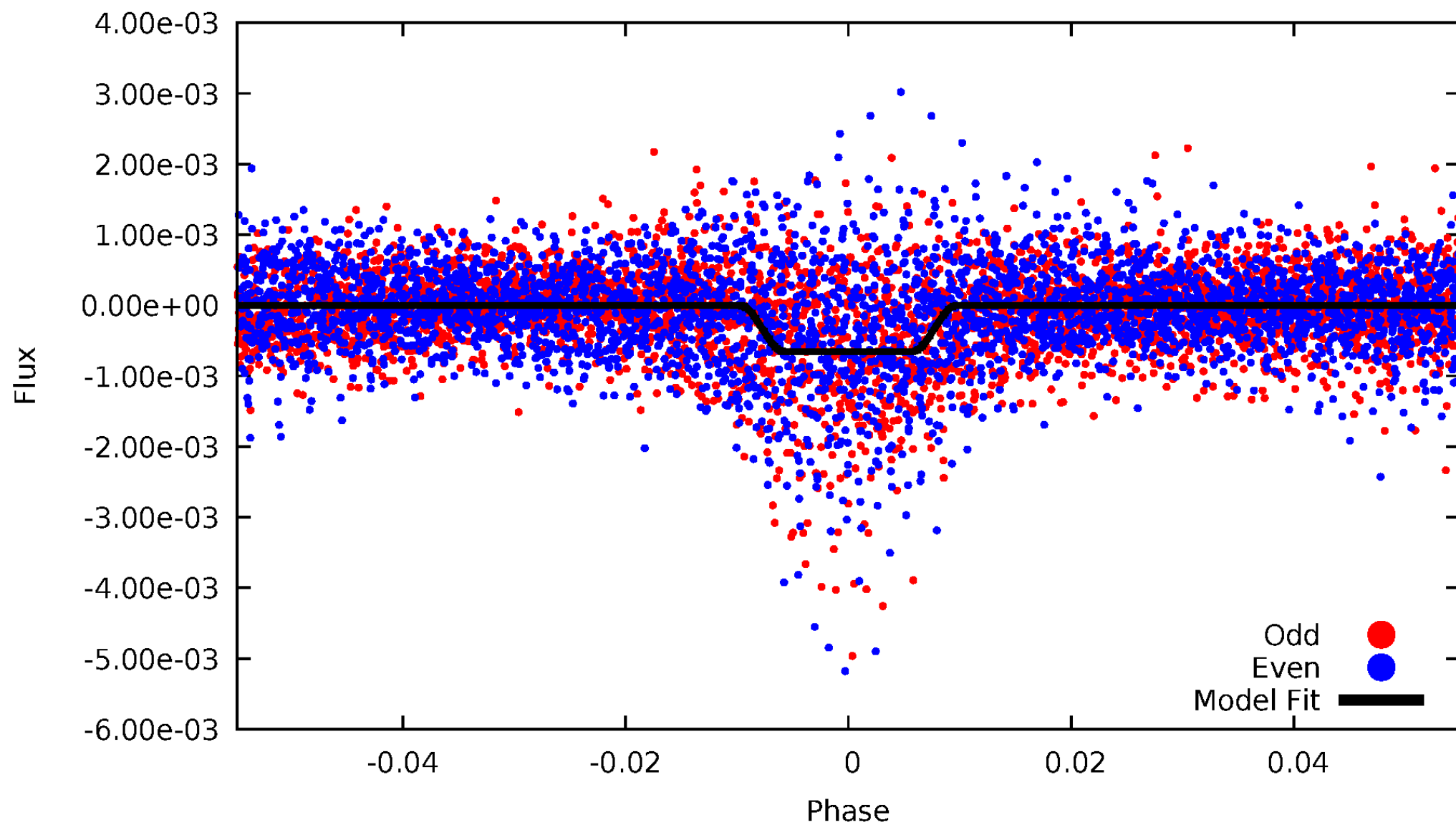
# DV Odd/Even

TCE 002437804-01



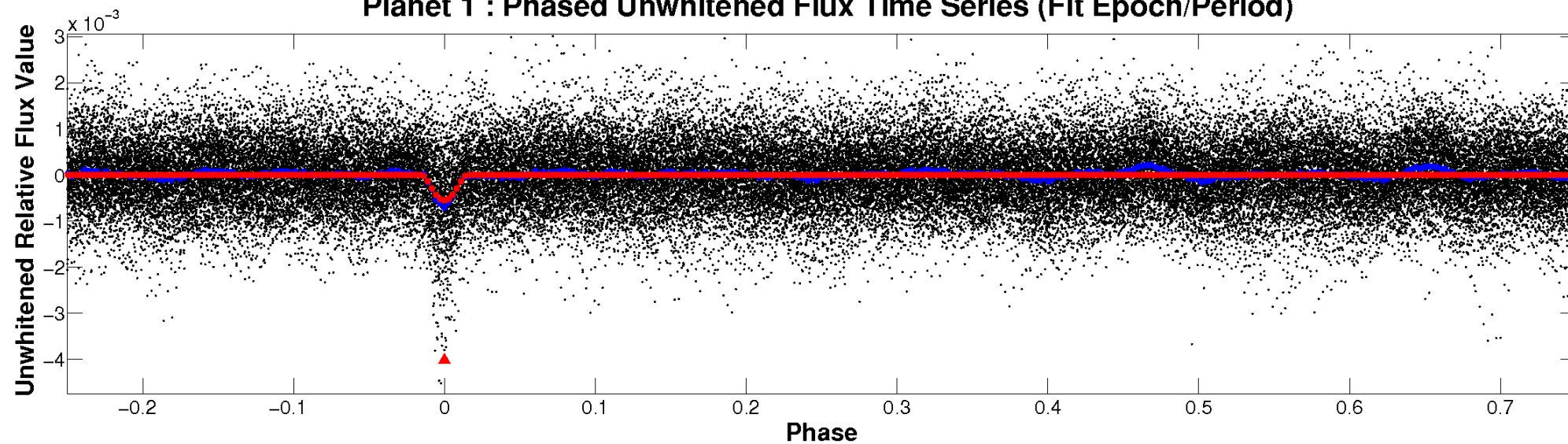
# ALT Odd/Even

TCE 002437804-01

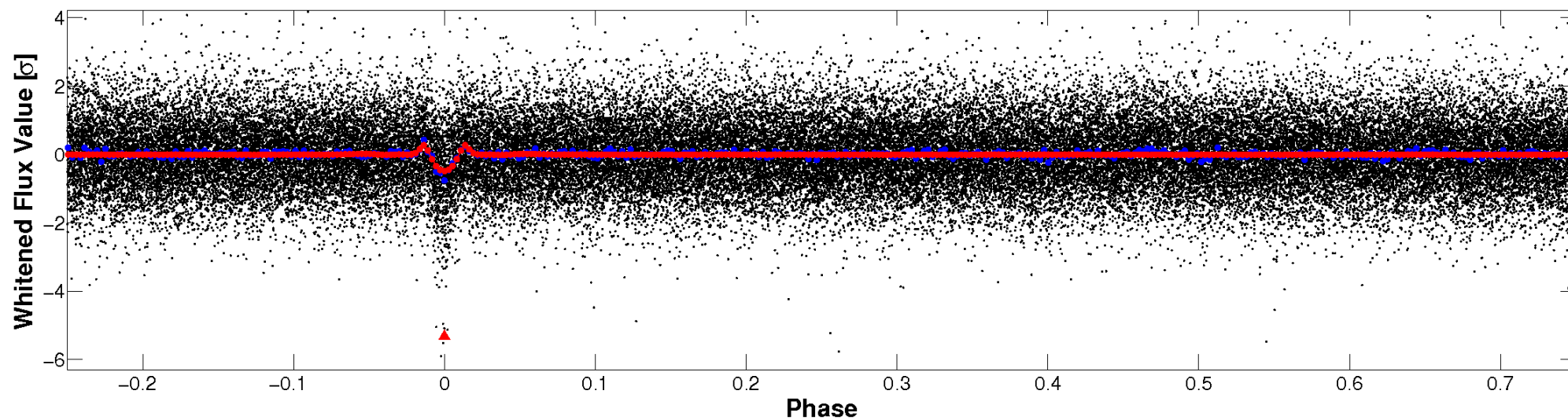


# Non-Whitened Vs. Whitened Light Curve

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



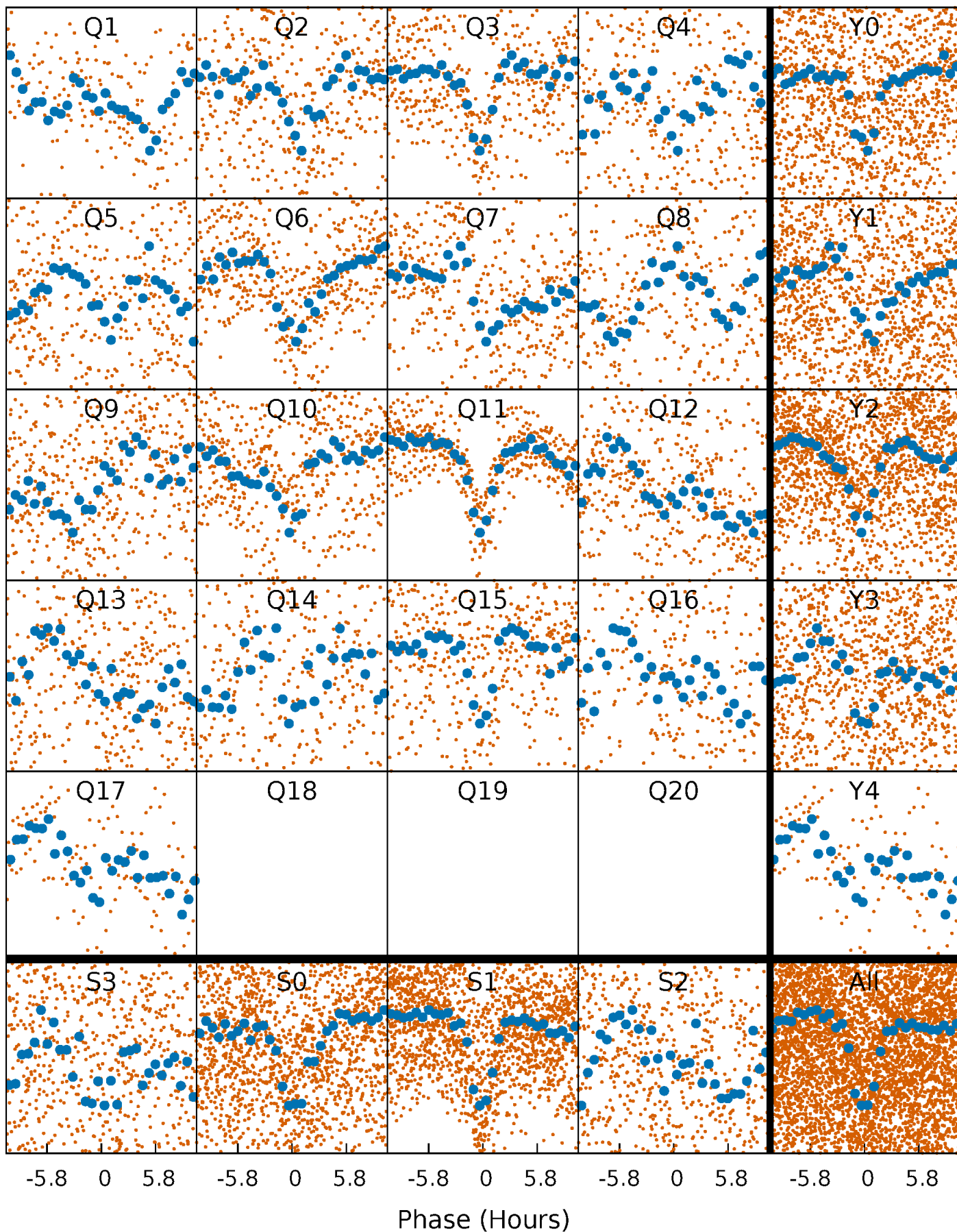
**Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)**





# PDC Quarter-Phased Transit Curves

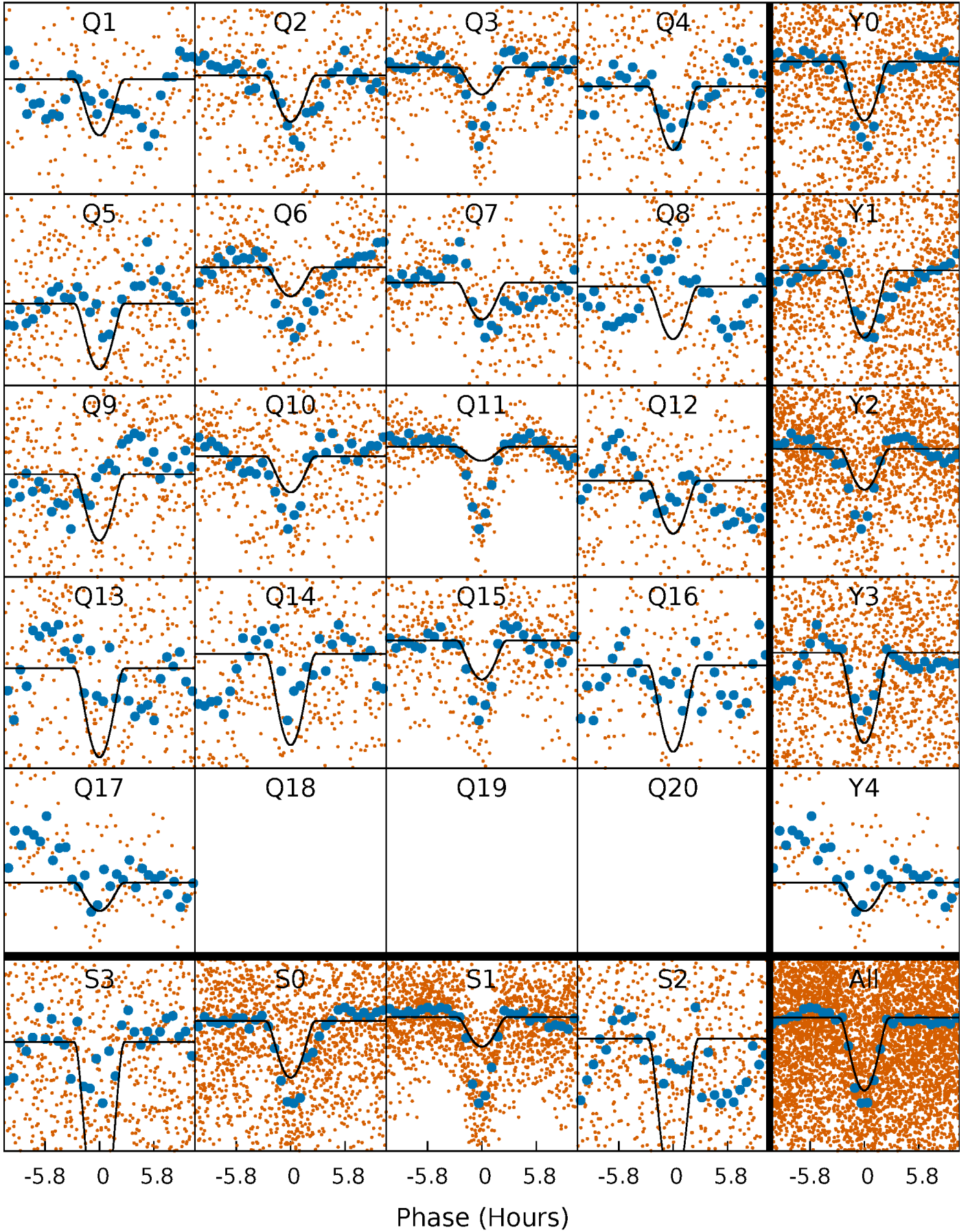
TCE 002437804-01 P= 7.453181 Days  $T_0=131.760177$  (BKJD)





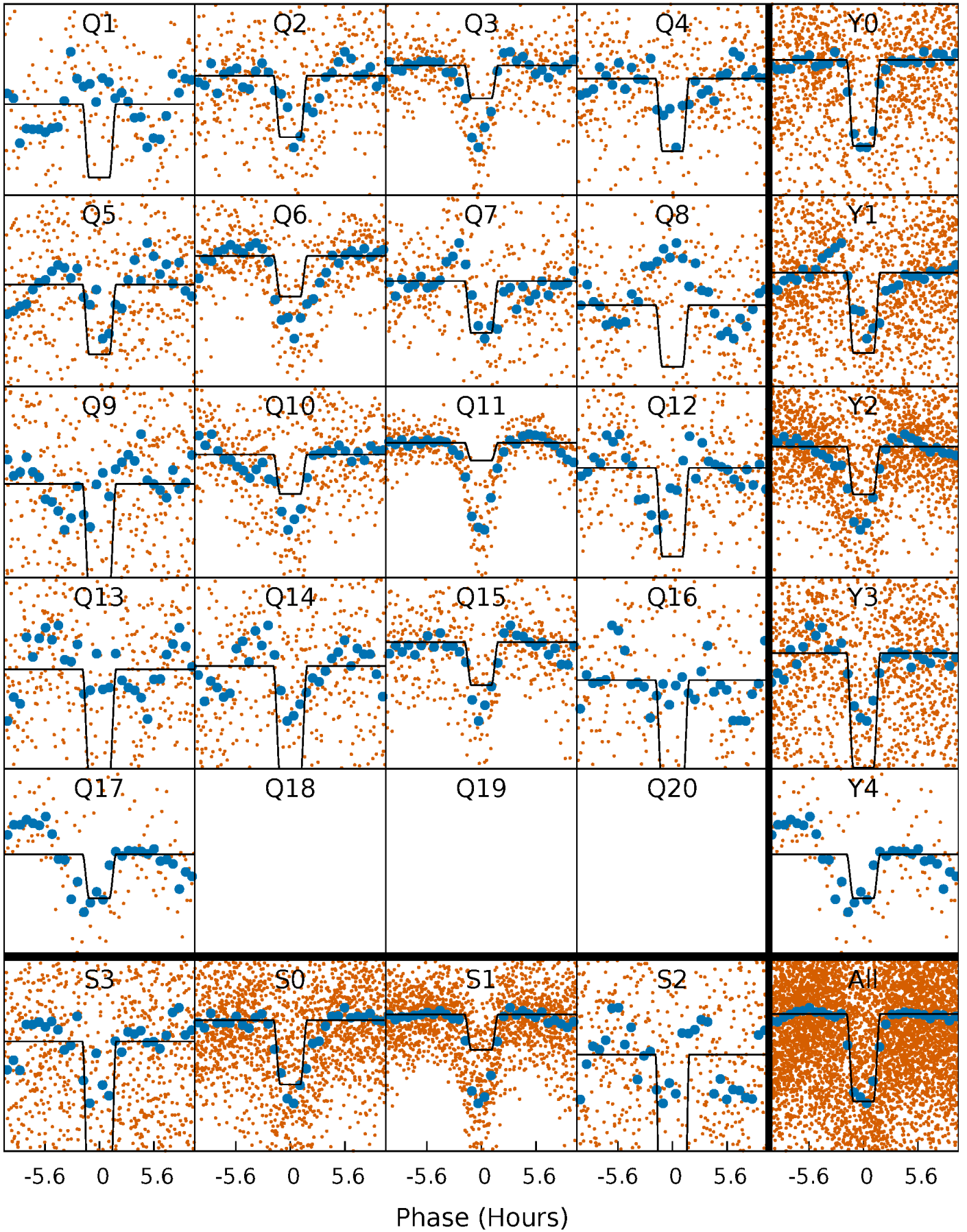
# DV Quarter-Phased Transit Curves

TCE 002437804-01   P= 7.453181 Days    $T_0=131.760177$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

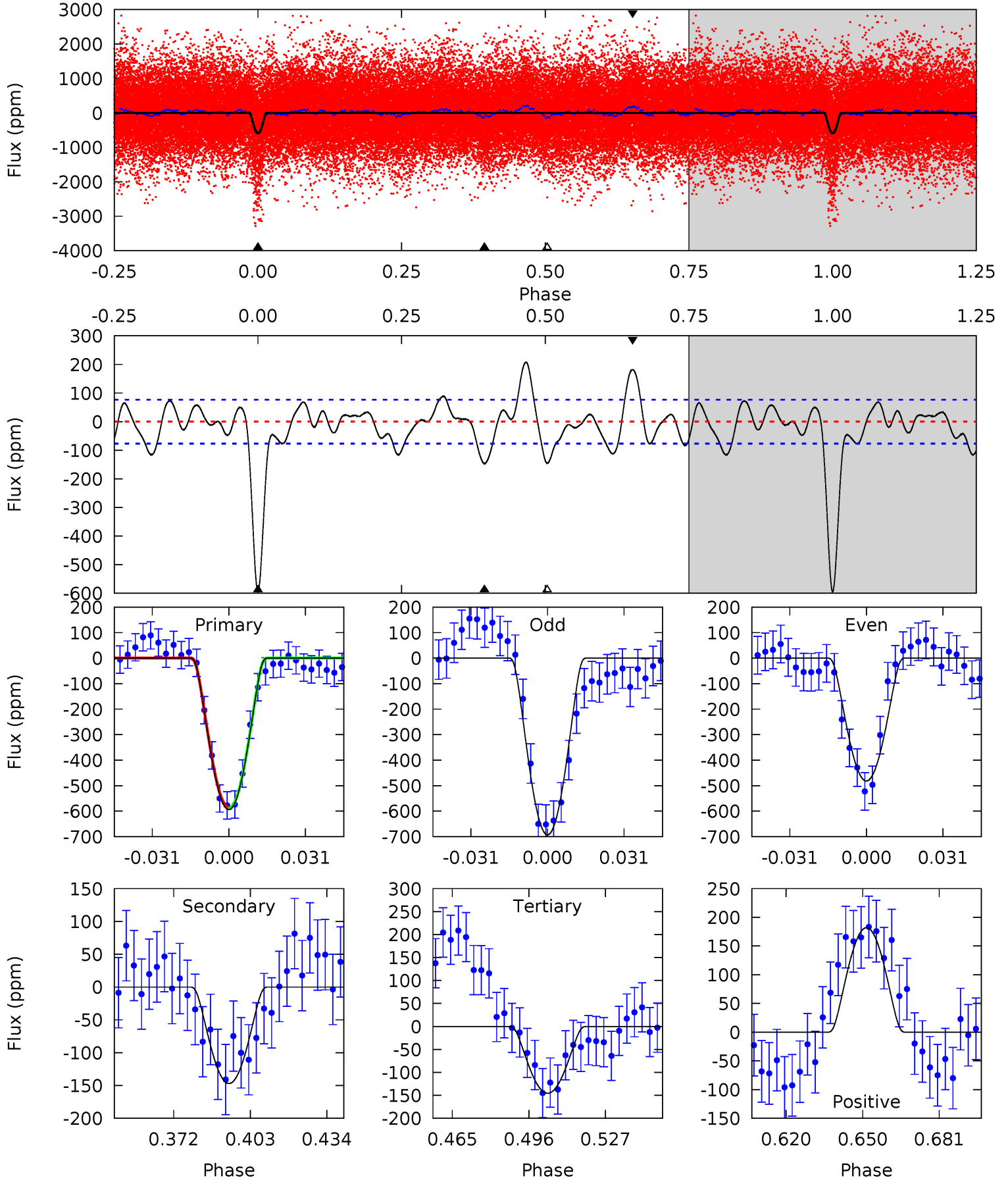
TCE 002437804-01 P= 7.453130 Days  $T_0=131.763081$  (BKJD)



# DV Model-Shift Uniqueness Test

002437804-01, P = 7.453181 Days, E = 124.306996 Days

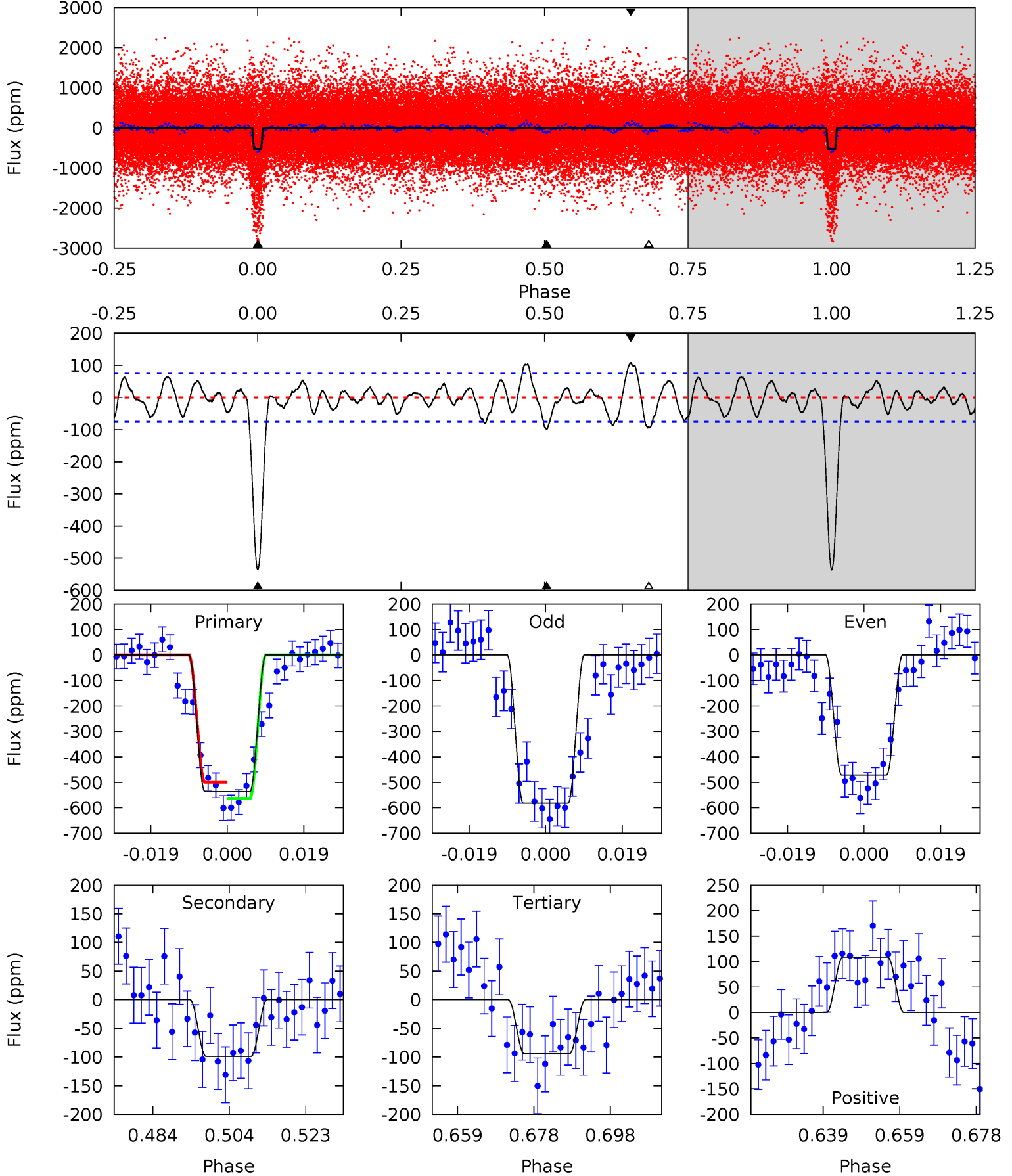
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
37.3	9.22	9.13	11.4	4.80	2.16	3.99	28.1	25.9	0.10	-2.19	6.61	1.31	0.26	0.05



# Alt Model-Shift Uniqueness Test

002437804-01, P = 7.453130 Days, E = 124.309951 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
34.6	6.37	6.09	7.00	4.90	2.34	2.45	28.5	27.6	0.28	-0.63	3.56	1.14	0.17	2.03





### Stellar Parameters For KIC 002437804

	$T_{\text{eff}} (K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R (R_{\odot})$	$M (M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	$4475^{+62}_{-98}$	$2.329^{+0.033}_{-0.027}$	$0.380^{+0.100}_{-0.150}$	$16.755^{+3.186}_{-2.868}$	$2.185^{+0.844}_{-0.691}$	$0.001^{+0.000}_{-0.000}$
	+1%/-2%	+1%/-1%	+26%/-39%	+19%/-17%	+39%/-32%	+29%/-19%
Source	SPE74	AST9	SPE74	DSEP		

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

### Secondary Eclipse Parameters for KIC 002437804-01 / KOI 6269.01

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	$A_{\text{obs}}$
DV	$-147 \pm 16$	$95.58^{+72.66}_{-55.28}$	$3612^{+109}_{-106}$	$-3184^{+6239}_{-152}$	$0.086^{+0.378}_{-0.057}$
Alt.	$-99 \pm 15$	$73.20^{+62.99}_{-49.69}$	$3616^{+107}_{-109}$	$-3147^{+6978}_{-181}$	$0.098^{+0.846}_{-0.070}$

$T_{\text{max}}$  = Theoretical Maximum Planetary Temperature

$T_{\text{obs}}$  = Observed Planetary Temperature (Assuming  $A=0.3$ )

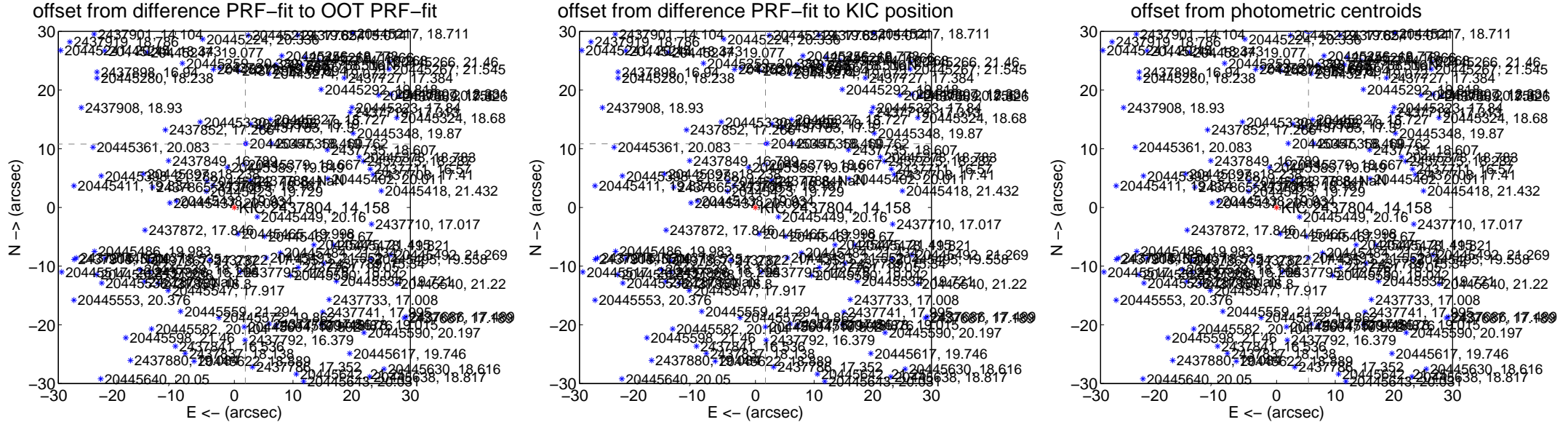
$A_{\text{obs}}$  = Observed Albedo (Assuming  $T=0$ )

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

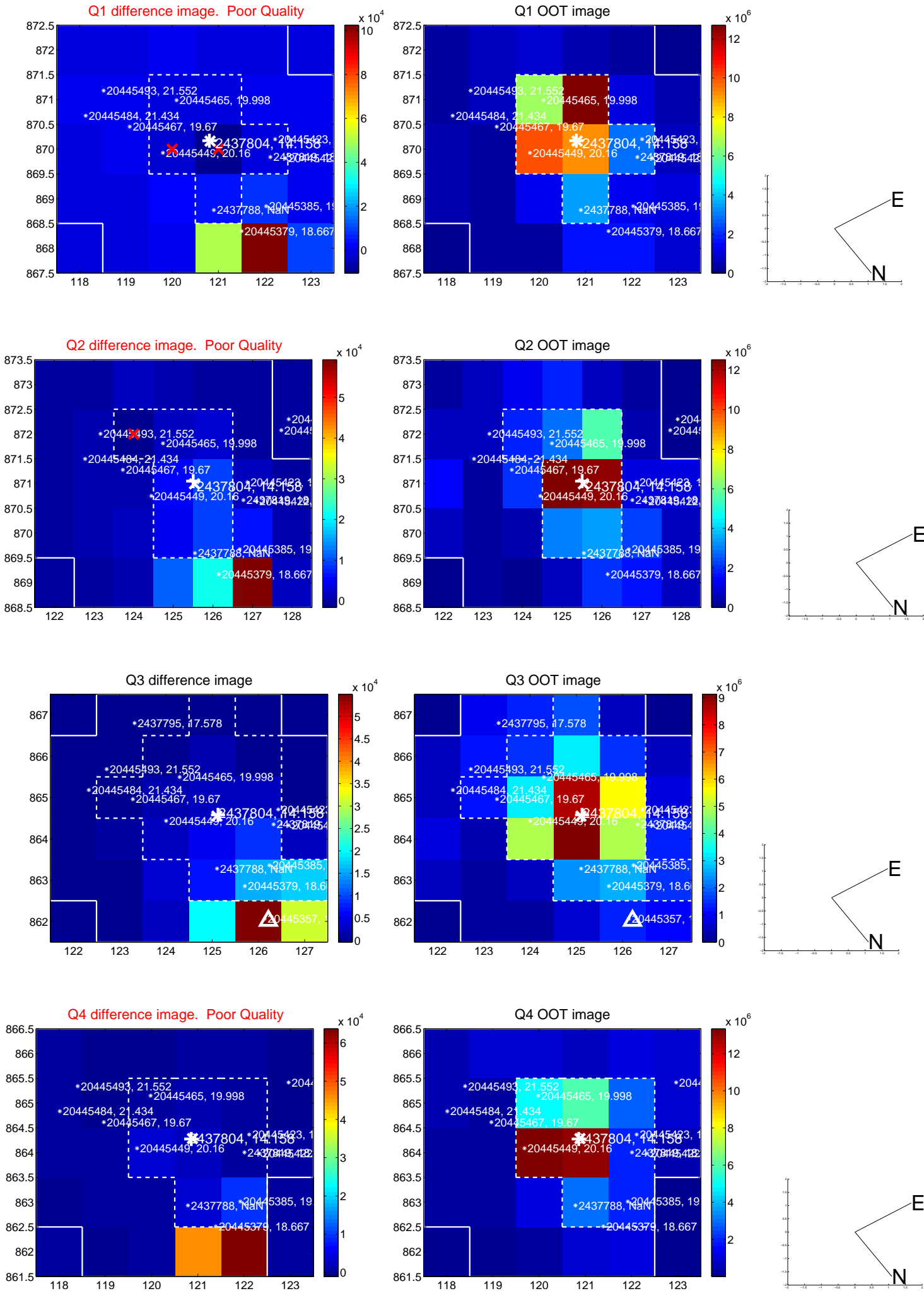
Supplemental centroid analysis for 002437804-01. Kepler magnitude: 14.16. Transit SNR 13.65  
 There are 4 quarters with good PRF difference image offsets  
 The direct PRF centroid is offset from the target star catalog position by about 0.24 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	10.961 $\pm$ 0.088	124.47	-1.884 $\pm$ 0.082	10.798 $\pm$ 0.088
PRF-fit source offset from KIC position	10.974 $\pm$ 0.083	131.82	-1.710 $\pm$ 0.087	10.840 $\pm$ 0.083
photometric centroid source offset	30.95 $\pm$ 0.27	113.15	-5.44 $\pm$ 0.22	30.47 $\pm$ 0.27

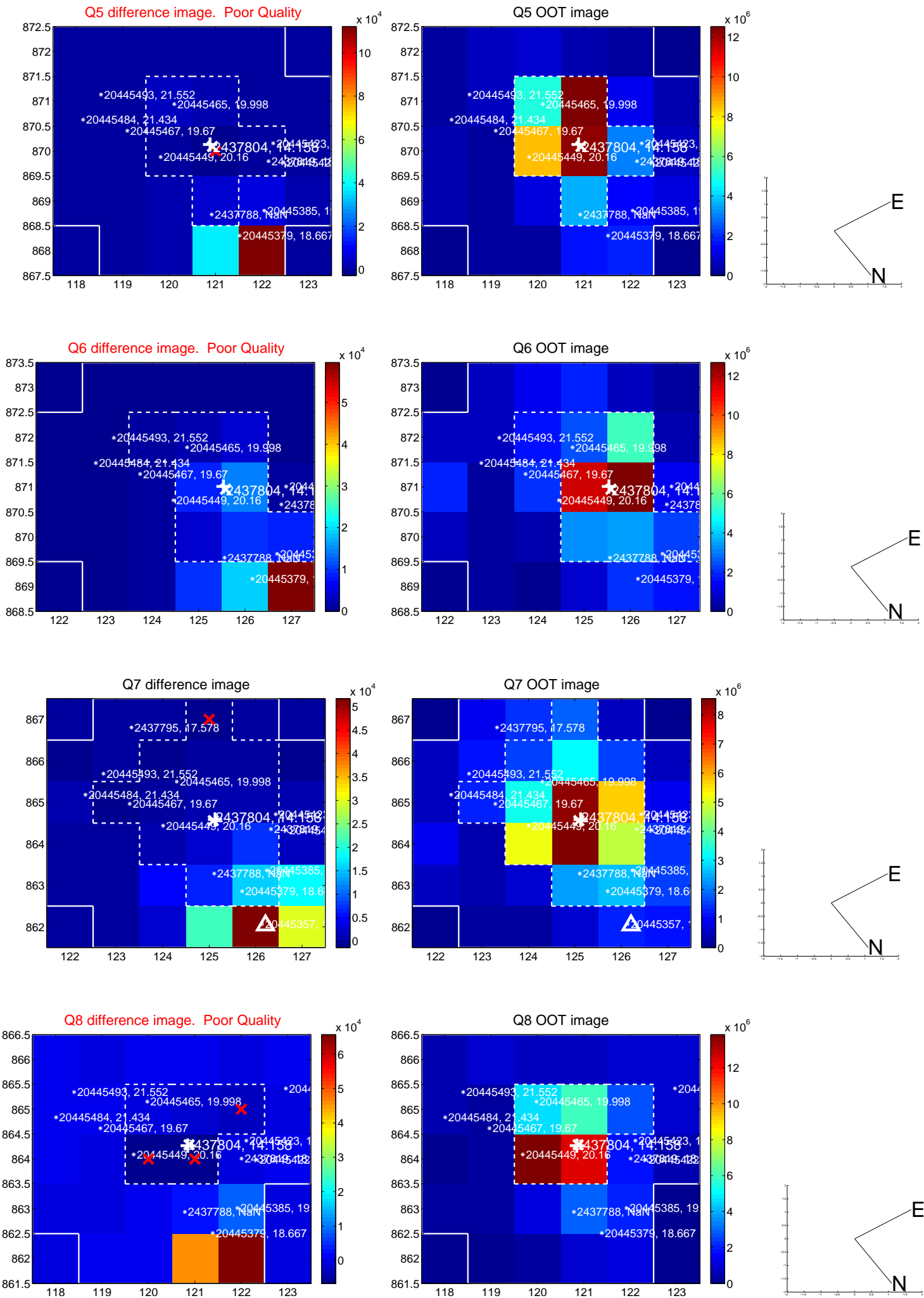


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: three-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

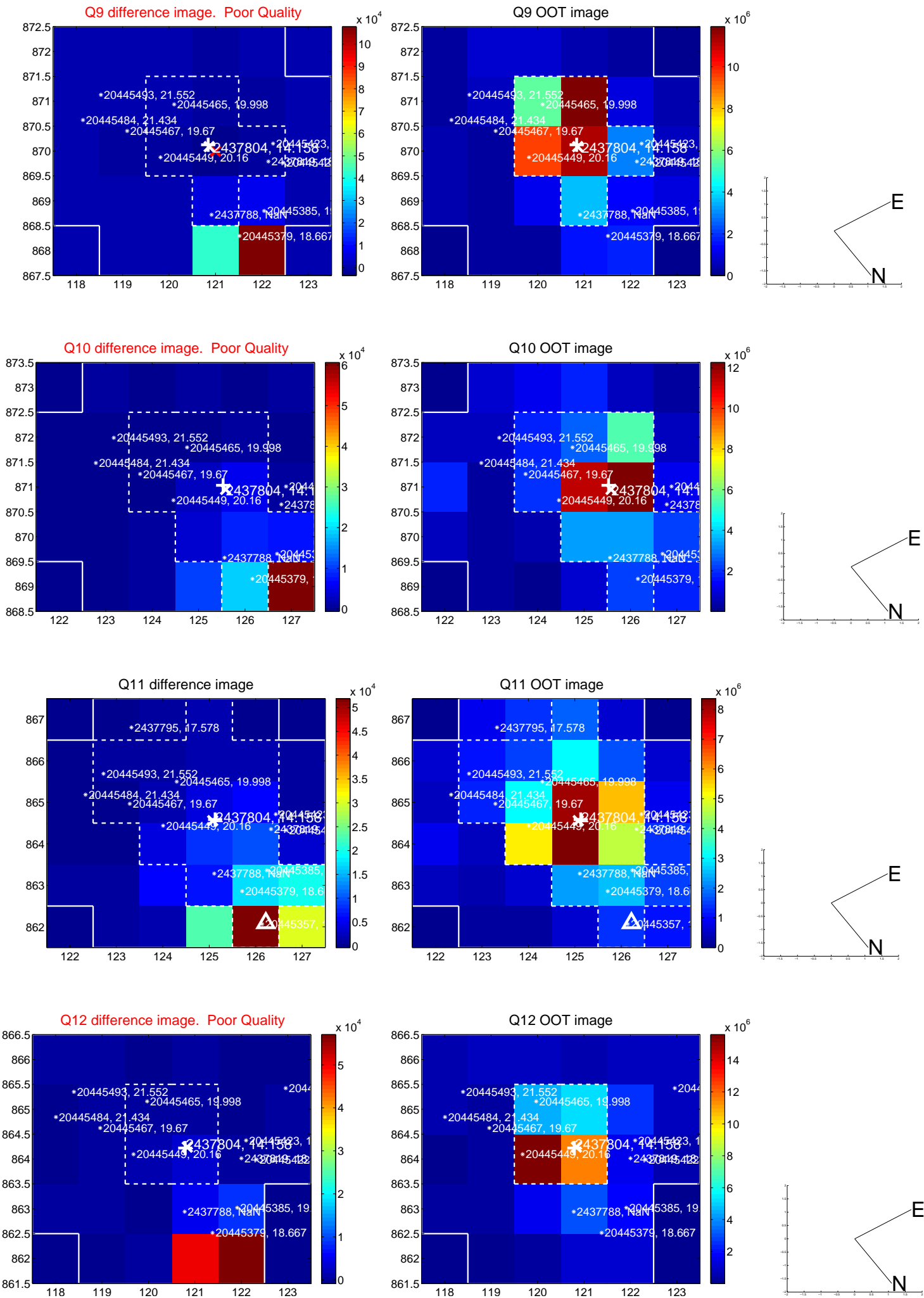


white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.

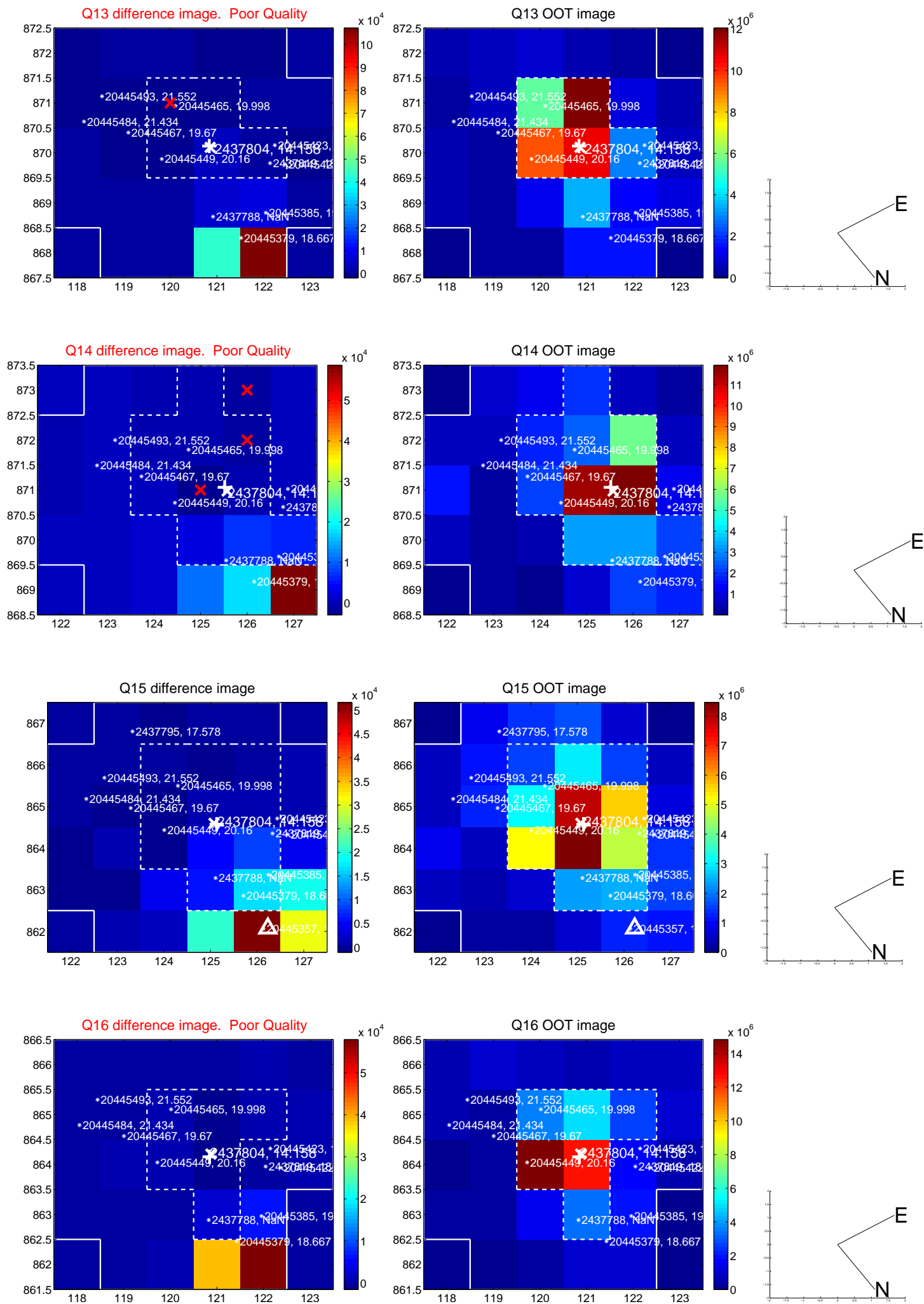




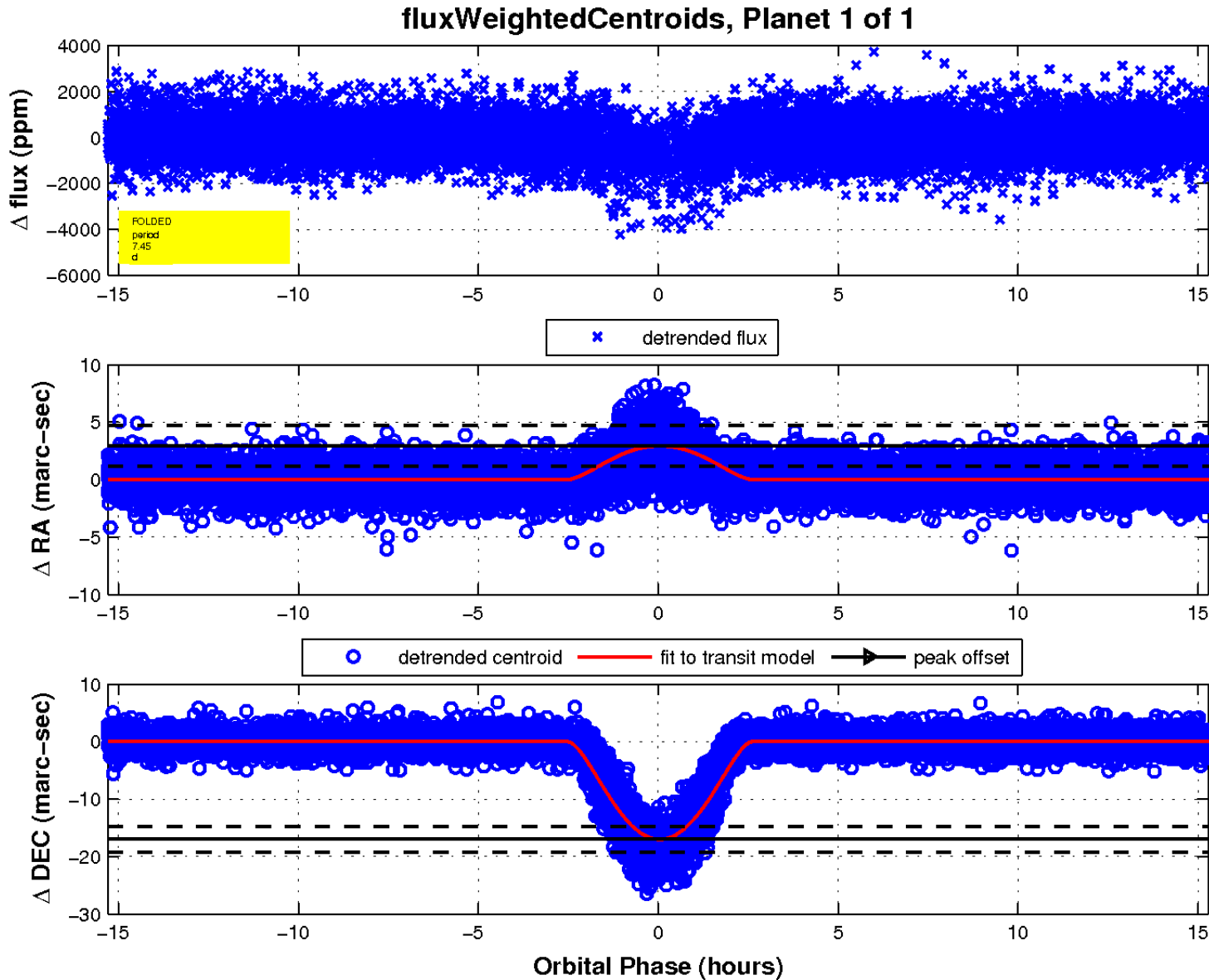
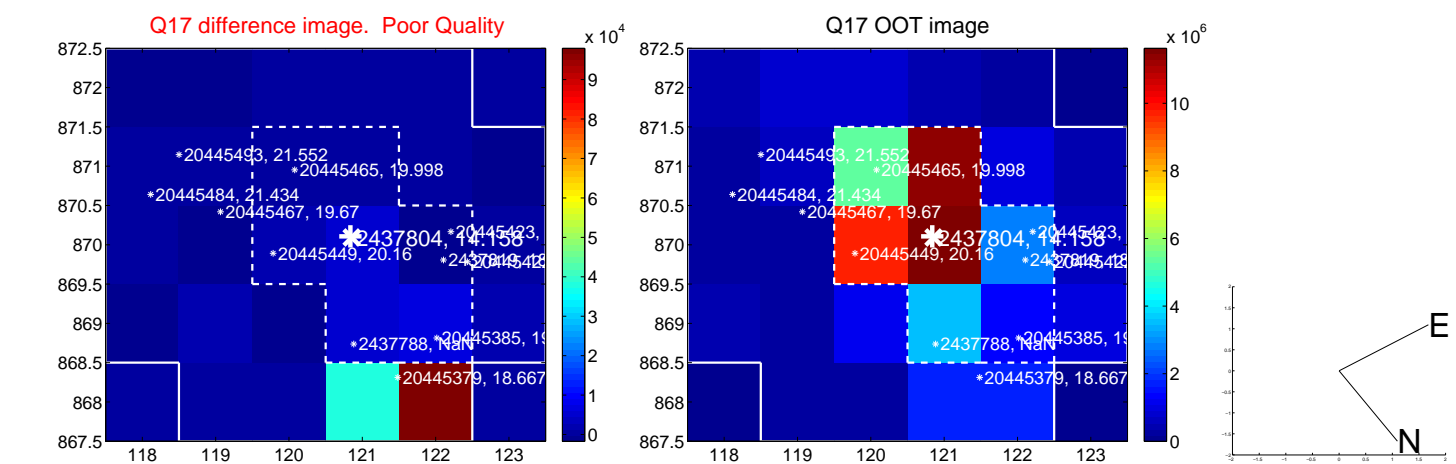
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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.



UKIRT Image

Declination

