

# KIC 008167504

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
008167504-01	OBS	6983.01	7.702446	138.399339	80.7	3.628	7.8	8.6	0.97	5618	1.00	147.43

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
008167504-01	OBS	PC	0.99	0	0	0	0	NO_COMMENT

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

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

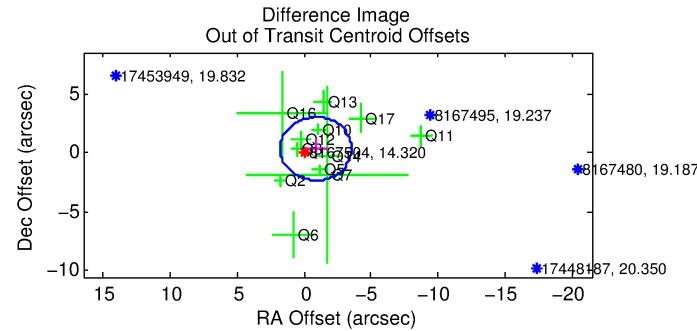
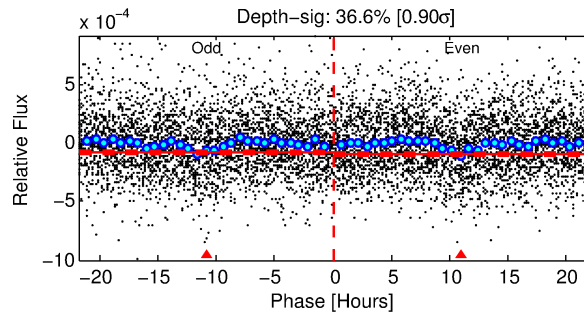
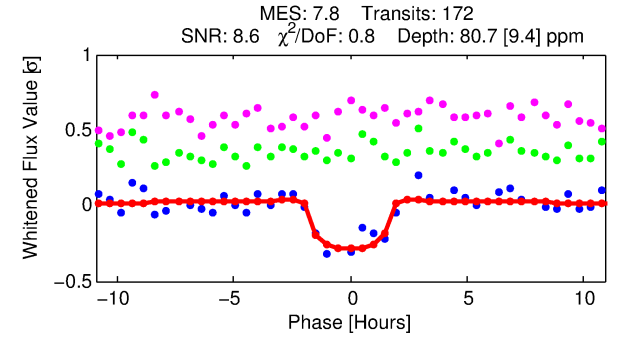
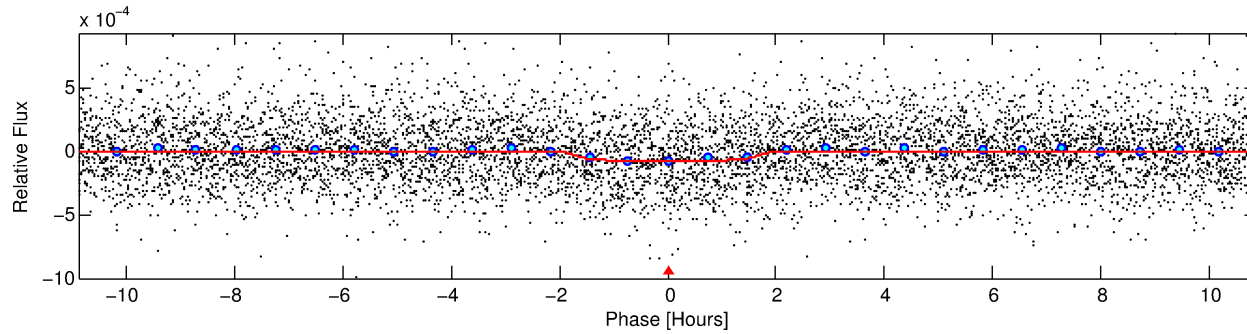
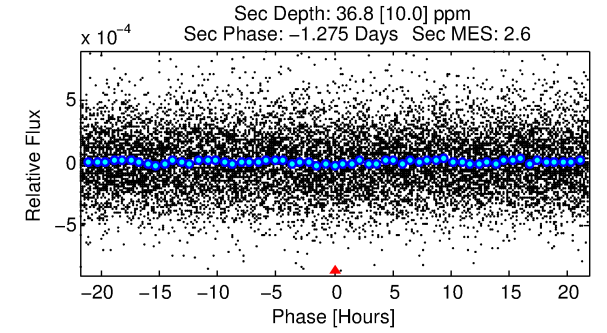
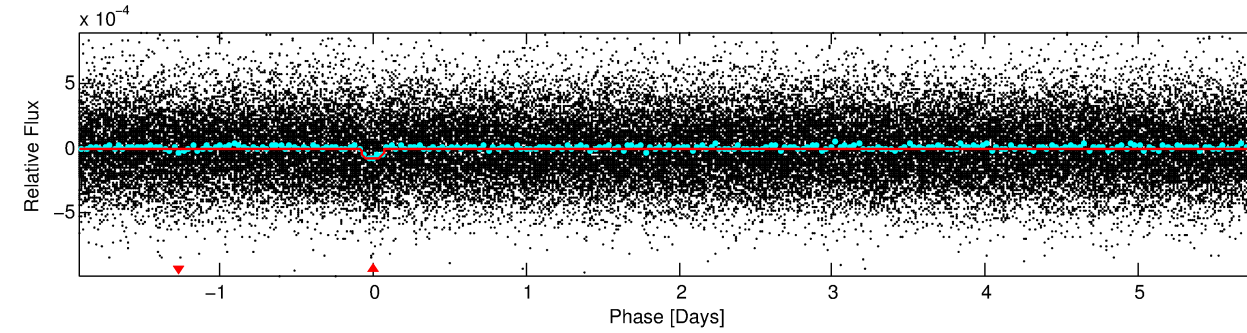
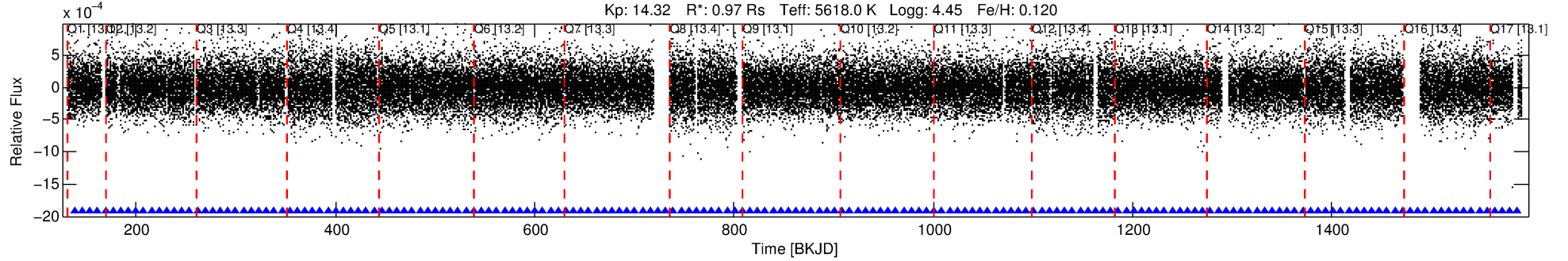
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

## Ephemeris Match Information For 008167504-01

No Significant Match Found

# DV One-Page Summary

KIC: 8167504 Candidate: 1 of 1 Period: 7.702 d  
KOI: K06983.01 Corr: 0.904



## DV Fit Results:

Period = 7.70245 [0.00007] d  
Epoch = 138.3993 [0.0074] BKJD  
Rp/R\* = 0.0095 [0.0063]  
a/R\* = 8.71 [25.32]  
b = 0.86 [0.93]  
Seff = 147.43 [29.28]  
Teq = 889 [44] K  
Rp = 1.00 [0.68] Re  
a = 0.0754 [0.0093] AU  
Ag = 114.47 [157.82] [0.72σ]  
Teffp = 4494 [1535] K [2.35σ]

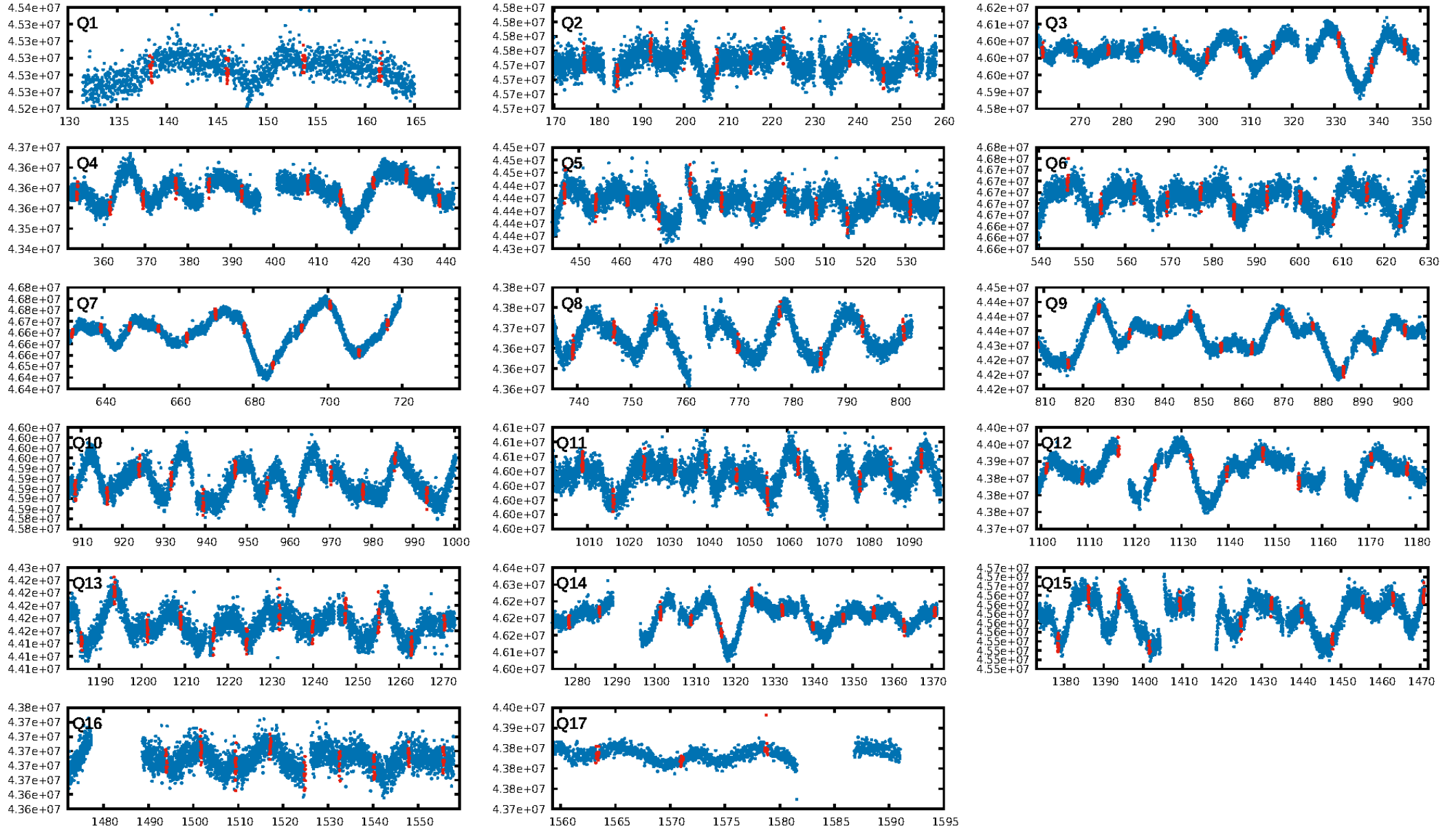
## DV Diagnostic Results:

ShortPeriod-sig: N/A  
LongPeriod-sig: N/A  
ModelChiSquare2-sig: 100.0%  
ModelChiSquareGof-sig: 100.0%  
Bootstrap-pfa: 1.77e-14  
RollingBand-fgt: 1.00 [165/165]  
GhostDiagnostic-chr: 26.73  
Centroid-sig: 9.9%  
Centroid-so: 1.891 arcsec [1.42σ]  
OotOffset-rm: 0.932 arcsec [1.05σ]  
KicOffset-rm: 0.870 arcsec [0.97σ]  
OotOffset-st: 4/3/2/3 [12]  
KicOffset-st: 4/3/2/3 [12]  
DiffImageQuality-fgm: 0.50 [6/12]  
DiffImageOverlap-fno: 1.00 [17/17]

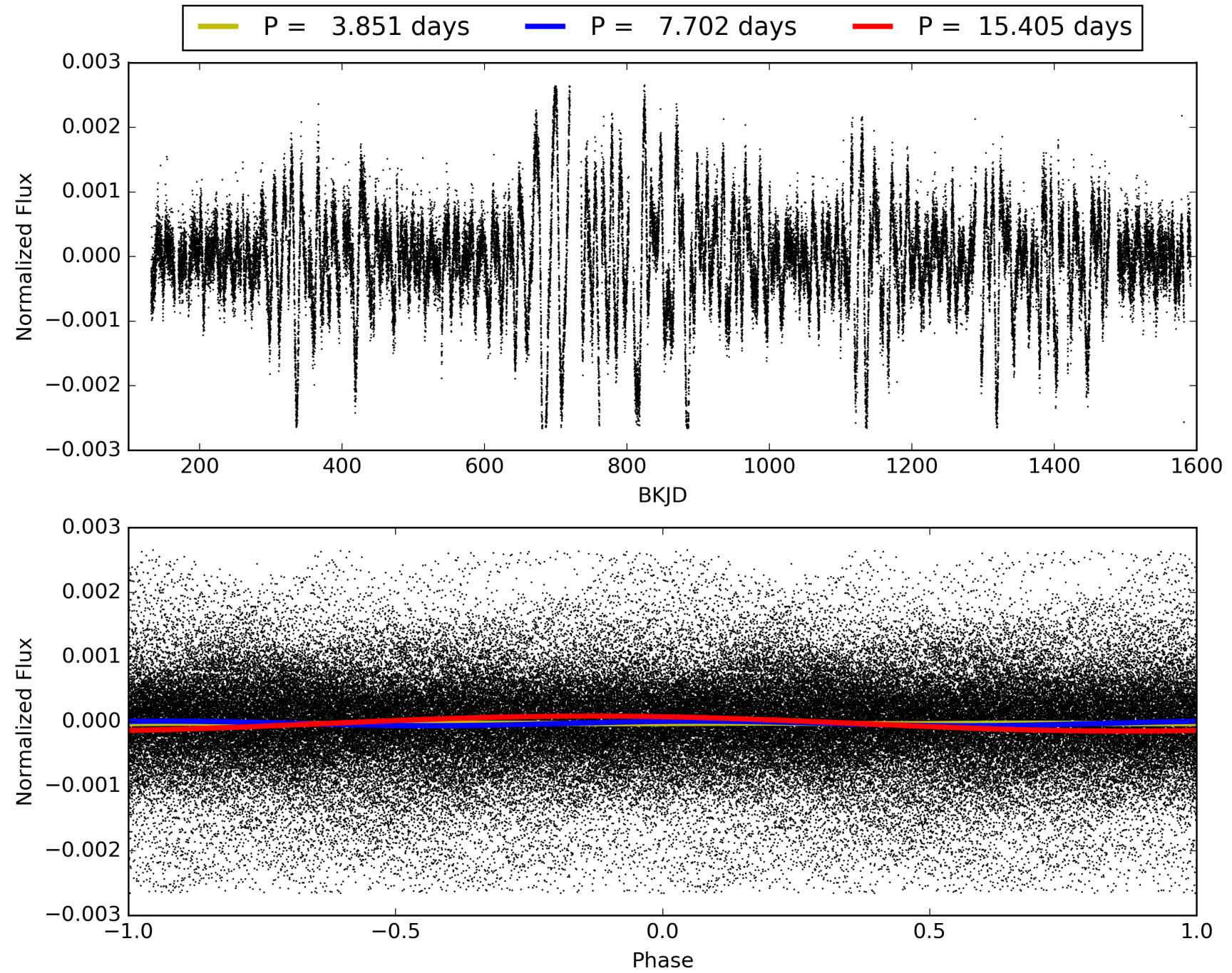
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 31-Jan-2016 08:49:43 Z

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

# TCE 008167504-01, PDC Light Curves

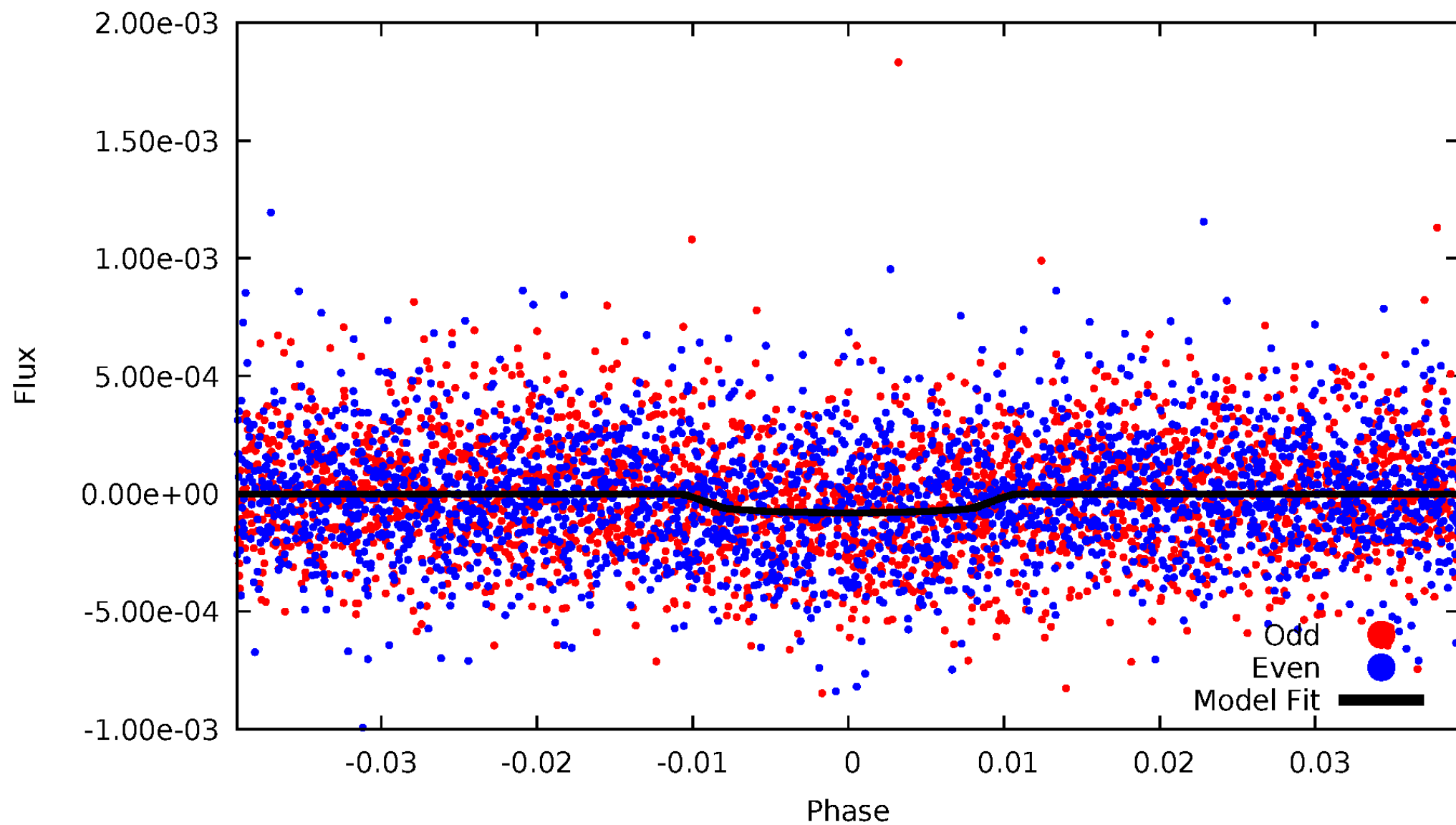


TCE 008167504-01



# DV Odd/Even

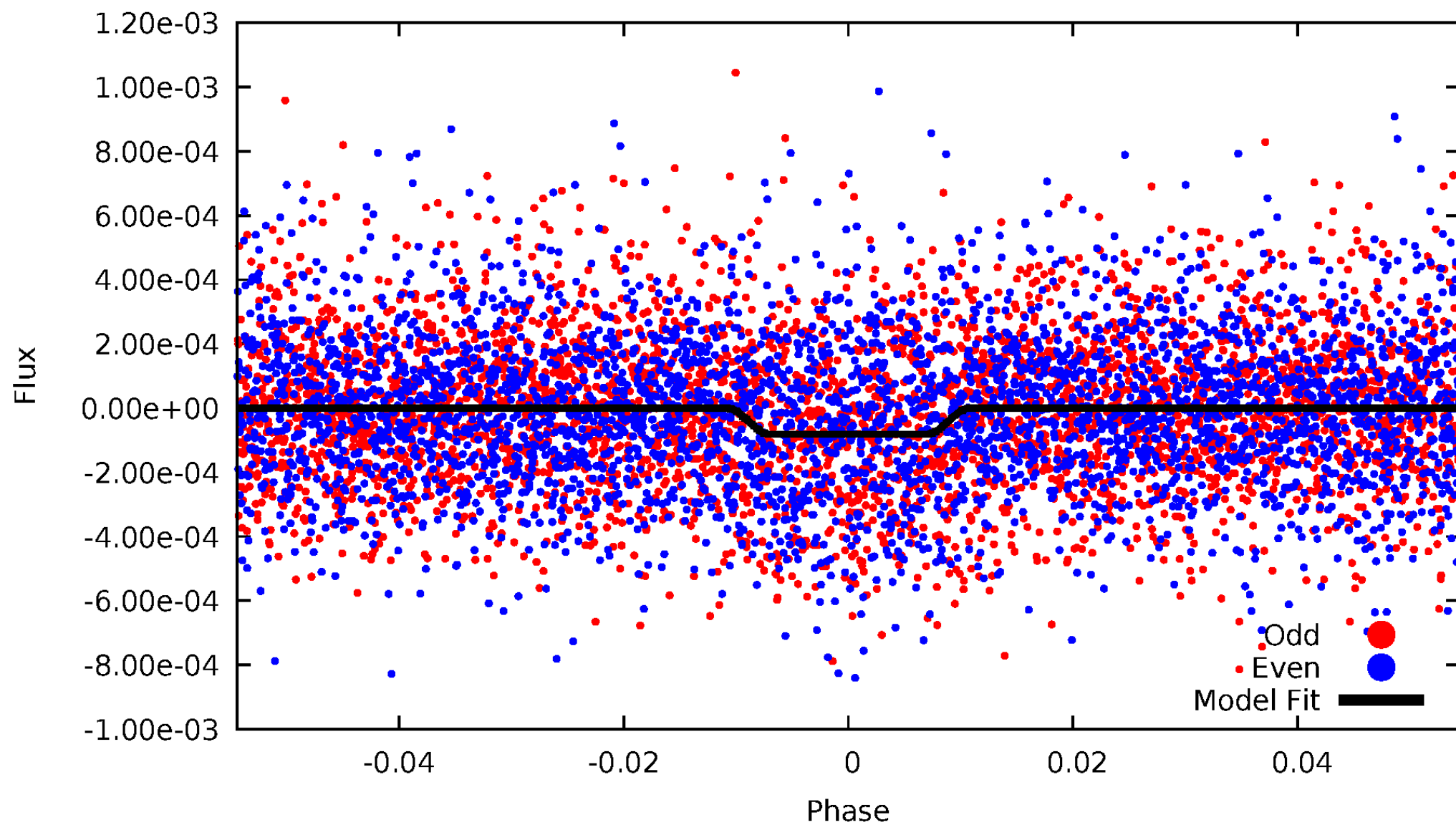
TCE 008167504-01



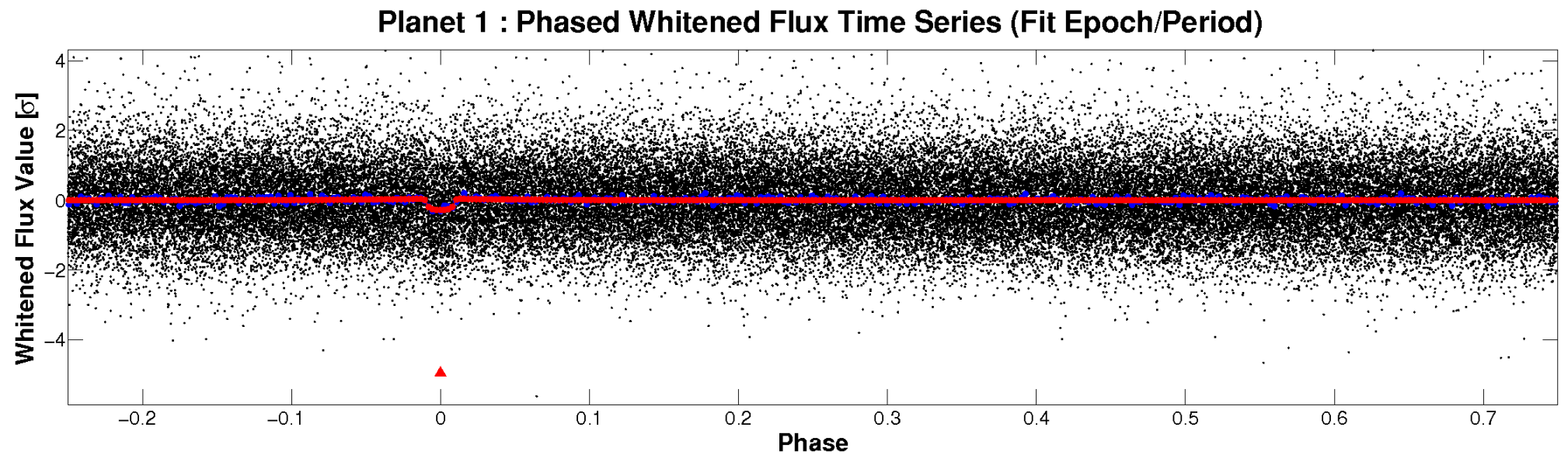
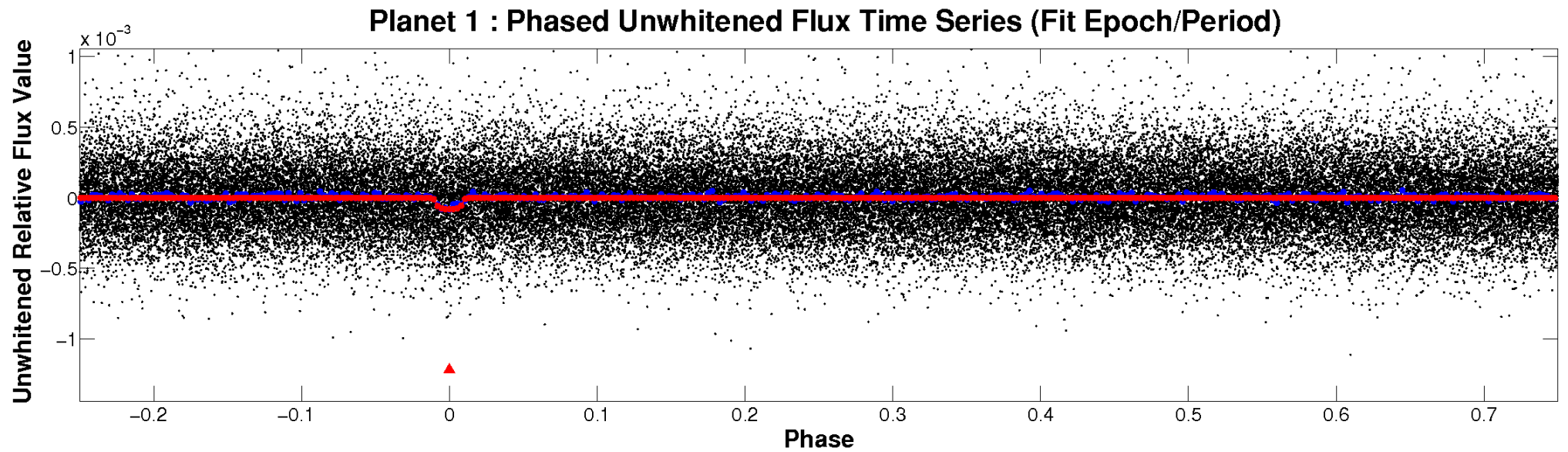


# ALT Odd/Even

TCE 008167504-01

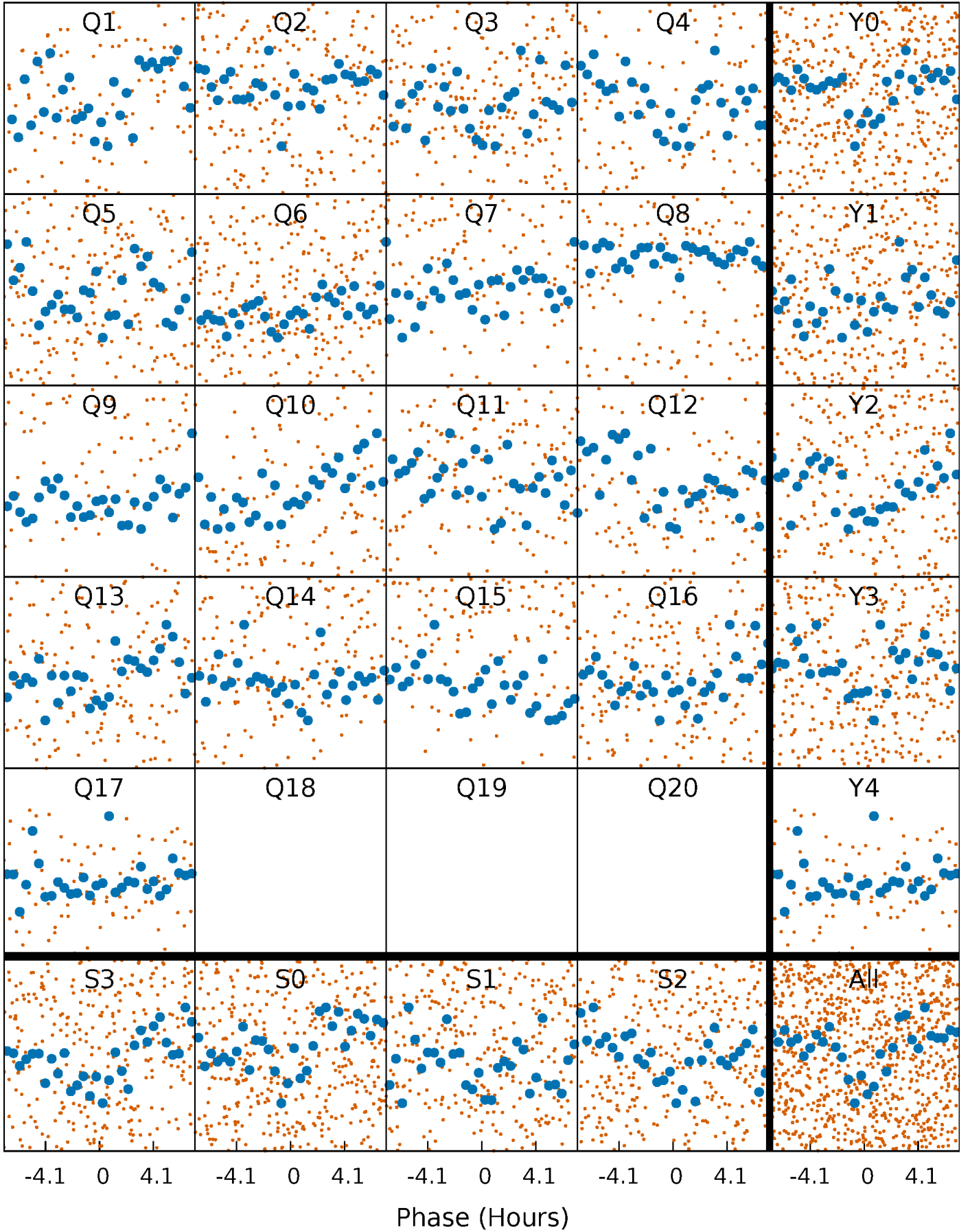


# Non-Whitened Vs. Whitened Light Curve



# PDC Quarter-Phased Transit Curves

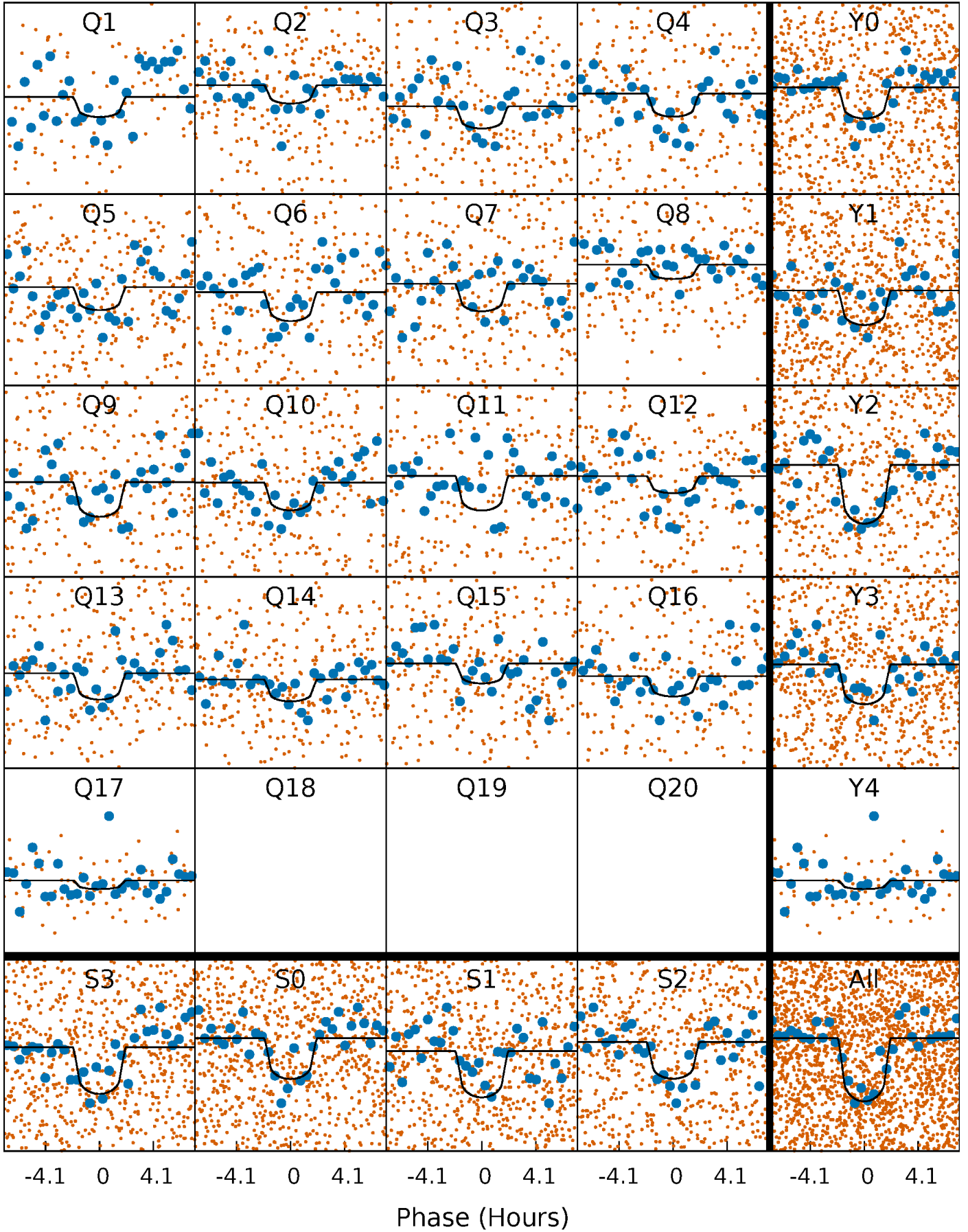
TCE 008167504-01   P= 7.702446 Days    $T_0=138.399339$  (BKJD)





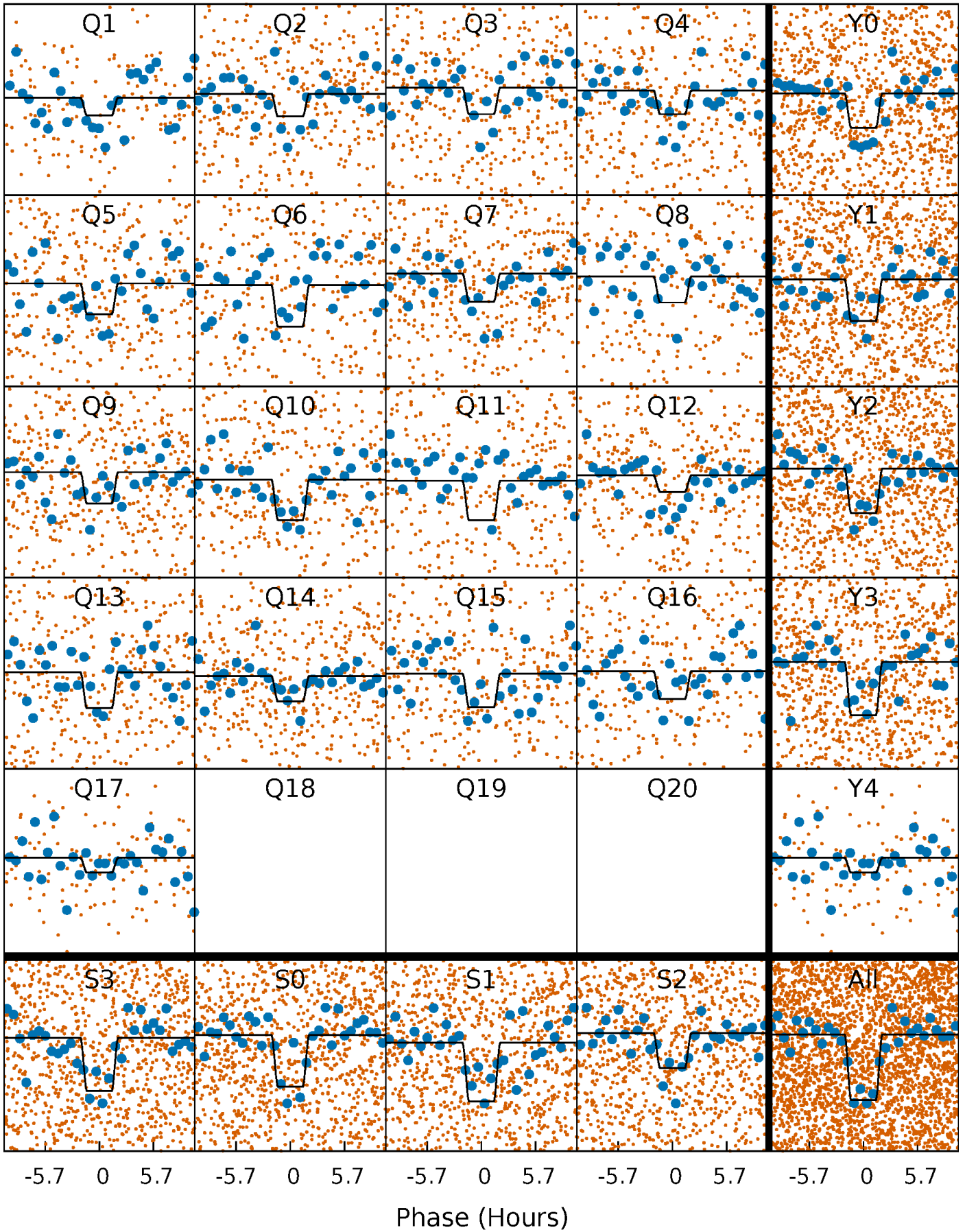
# DV Quarter-Phased Transit Curves

TCE 008167504-01 P= 7.702446 Days  $T_0=138.399339$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

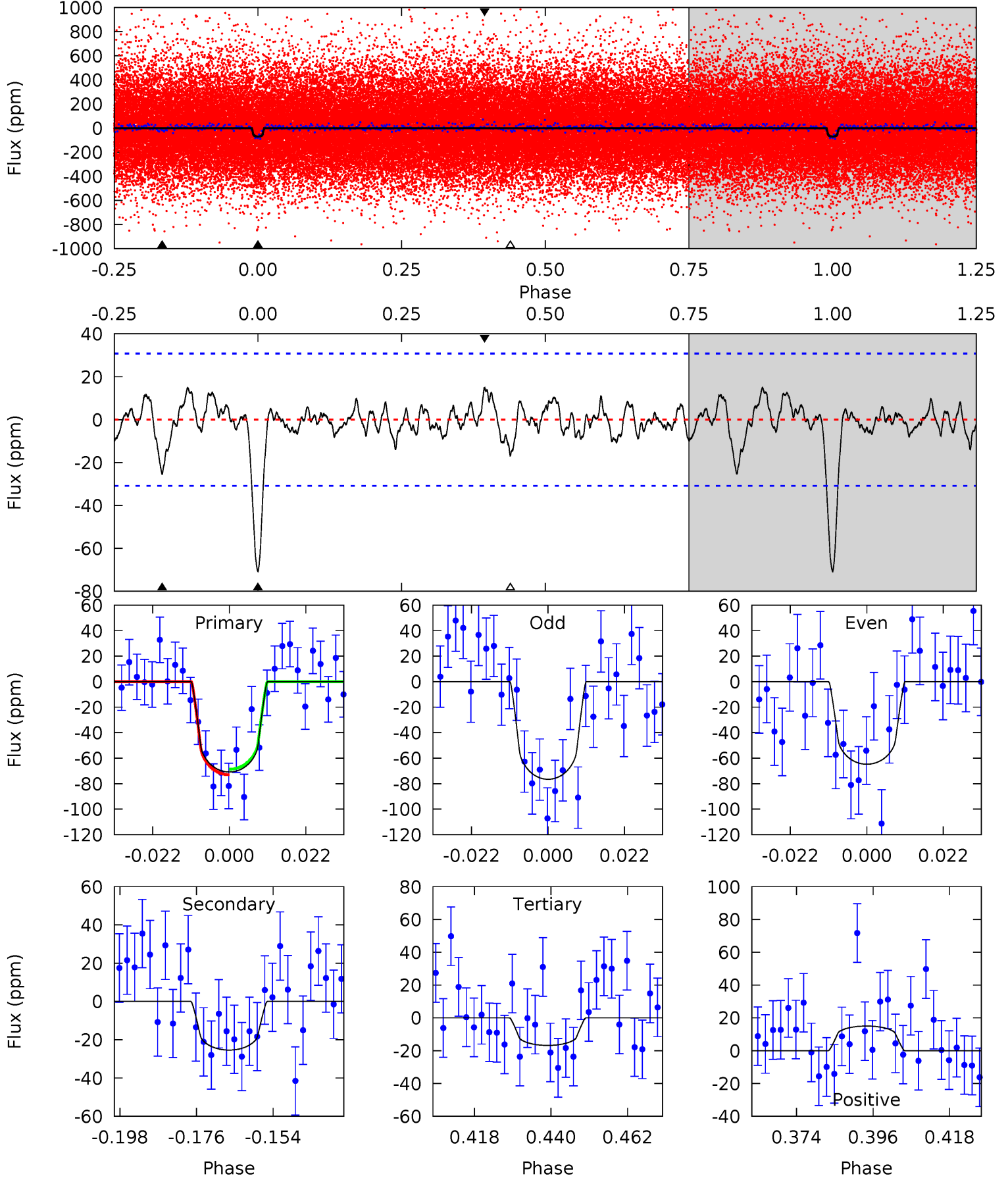
TCE 008167504-01 P= 7.702465 Days  $T_0=138.396531$  (BKJD)



# DV Model-Shift Uniqueness Test

008167504-01, P = 7.702446 Days, E = 130.696893 Days

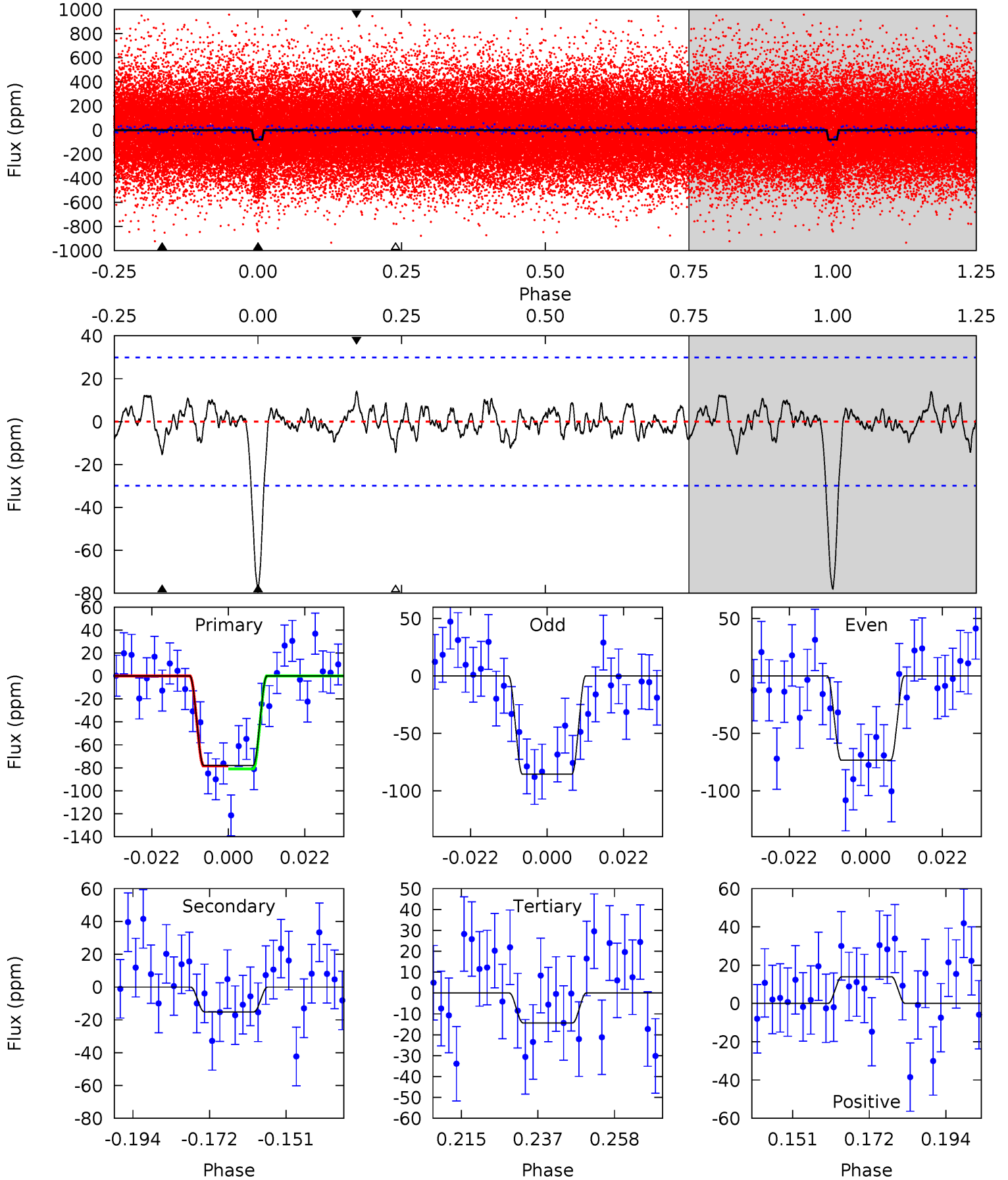
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
11.2	4.02	2.66	2.37	4.87	2.29	0.89	8.54	8.82	1.36	1.64	0.93	1.08	0.17	0.34



# Alt Model-Shift Uniqueness Test

008167504-01, P = 7.702465 Days, E = 130.694066 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
12.7	2.47	2.33	2.28	4.88	2.30	0.80	10.4	10.4	0.14	0.19	0.99	0.93	0.15	0.21



### Stellar Parameters For KIC 008167504

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (g \cdot \text{cm}^{-3})$
	$5618^{+76}_{-76}$	$4.449^{+0.068}_{-0.110}$	$0.120^{+0.150}_{-0.150}$	$0.969^{+0.130}_{-0.070}$	$0.962^{+0.054}_{-0.054}$	$1.489^{+0.383}_{-0.462}$
	+1%/-1%	+2%/-2%	+125%/-125%	+13%/-7%	+6%/-6%	+26%/-31%
Source	SPE90	SPE90	SPE90	DSEP		

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

### Secondary Eclipse Parameters for KIC 008167504-01 / KOI 6983.01

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	$A_{obs}$
DV	$-25 \pm 6$	$1.04^{+0.67}_{-0.57}$	$1246^{+42}_{-37}$	$4272^{+1561}_{-720}$	$70^{+248}_{-45}$
Alt.	$-15 \pm 6$	$1.03^{+0.62}_{-0.55}$	$1246^{+45}_{-36}$	$3900^{+1425}_{-628}$	$44^{+179}_{-29}$

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



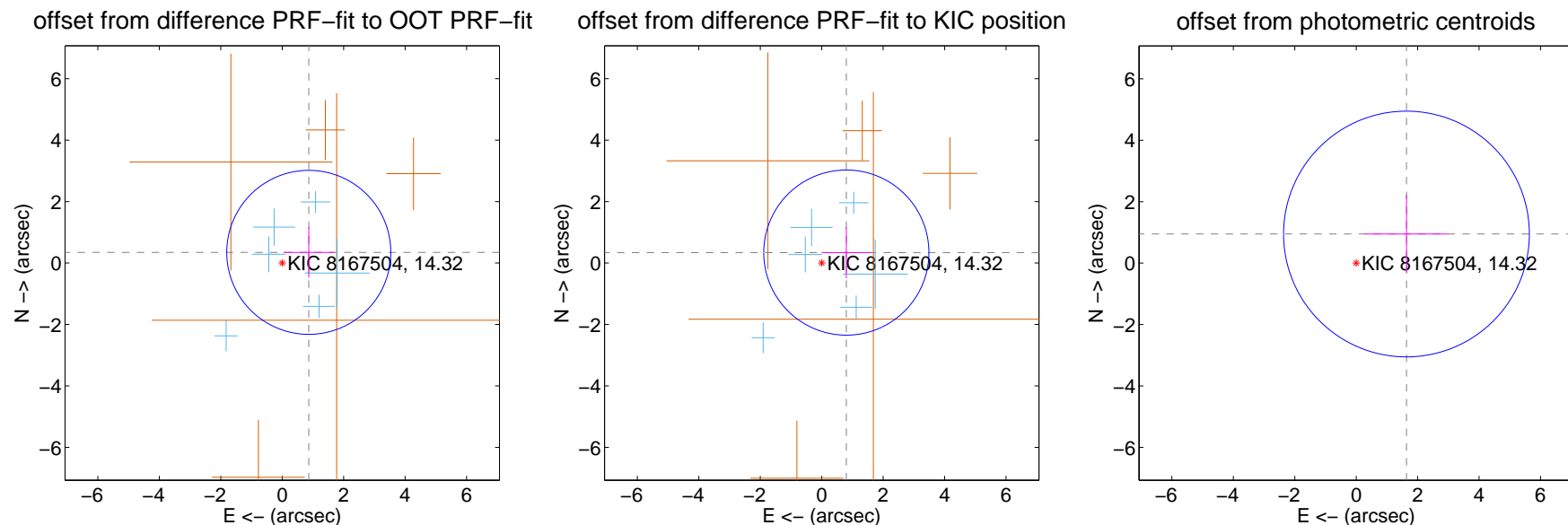
## DV Centroid Data

Supplemental centroid analysis for 008167504-01. Kepler magnitude: 14.32. Transit SNR 8.65

There are 6 quarters with good PRF difference image offsets

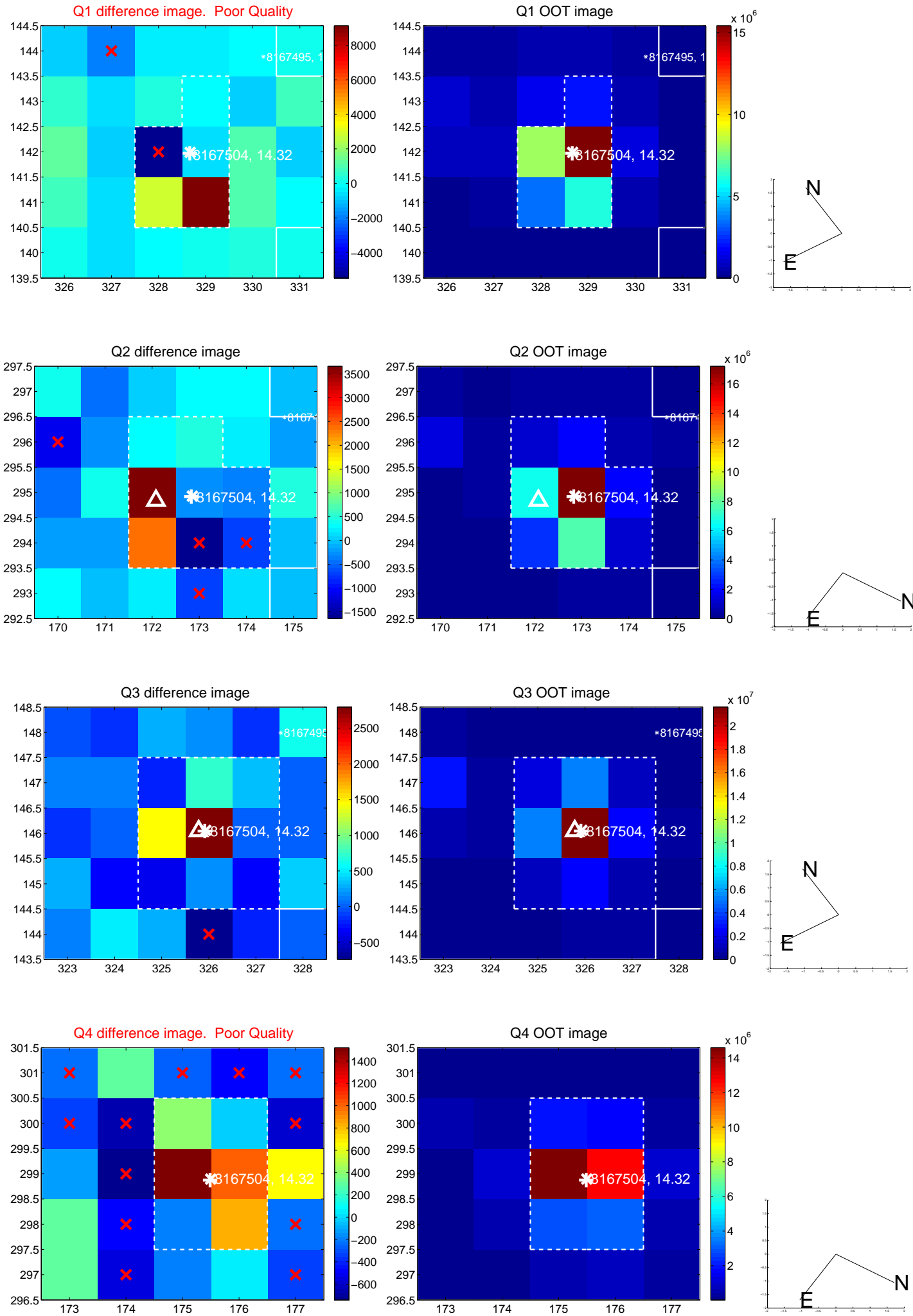
The direct PRF centroid is offset from the target star catalog position by about 0.10 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$0.932 \pm 0.890$	1.05	$-0.864 \pm 0.827$	$0.348 \pm 0.822$
PRF-fit source offset from KIC position	$0.870 \pm 0.896$	0.97	$-0.801 \pm 0.807$	$0.340 \pm 0.837$
photometric centroid source offset	$1.89 \pm 1.33$	1.42	$-1.64 \pm 1.35$	$0.95 \pm 1.27$

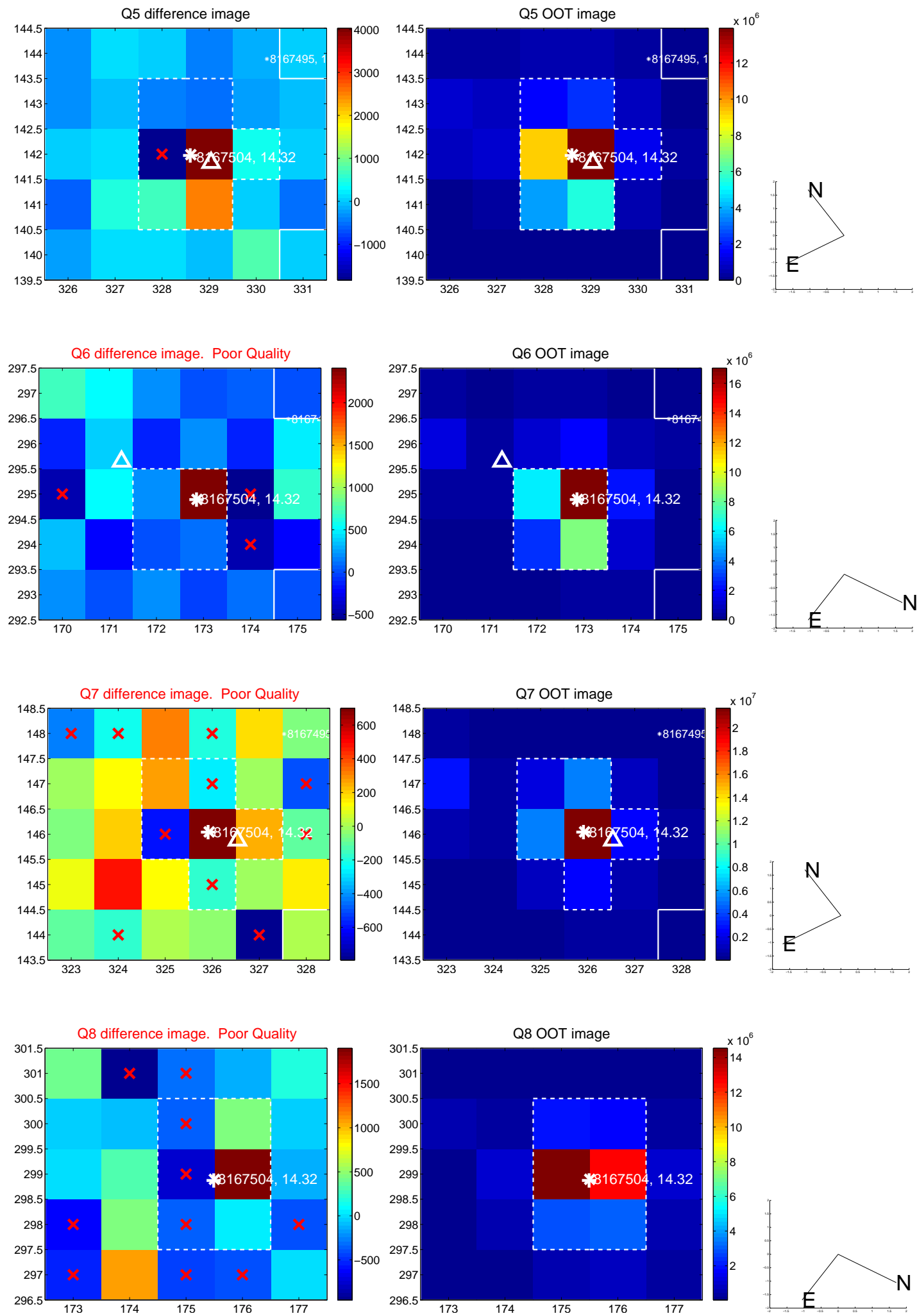


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets**; **Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: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

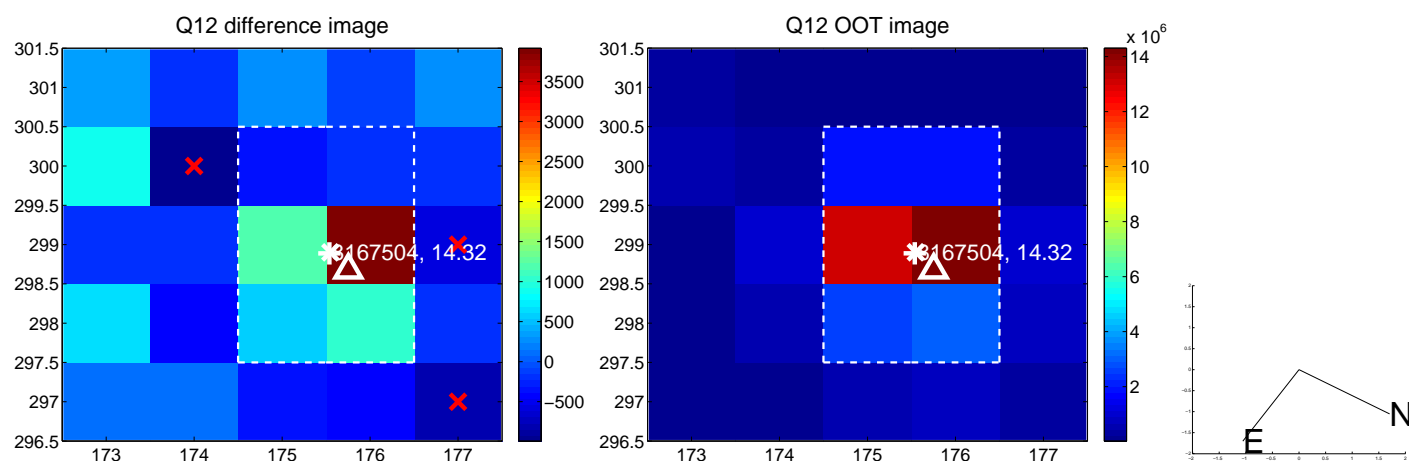
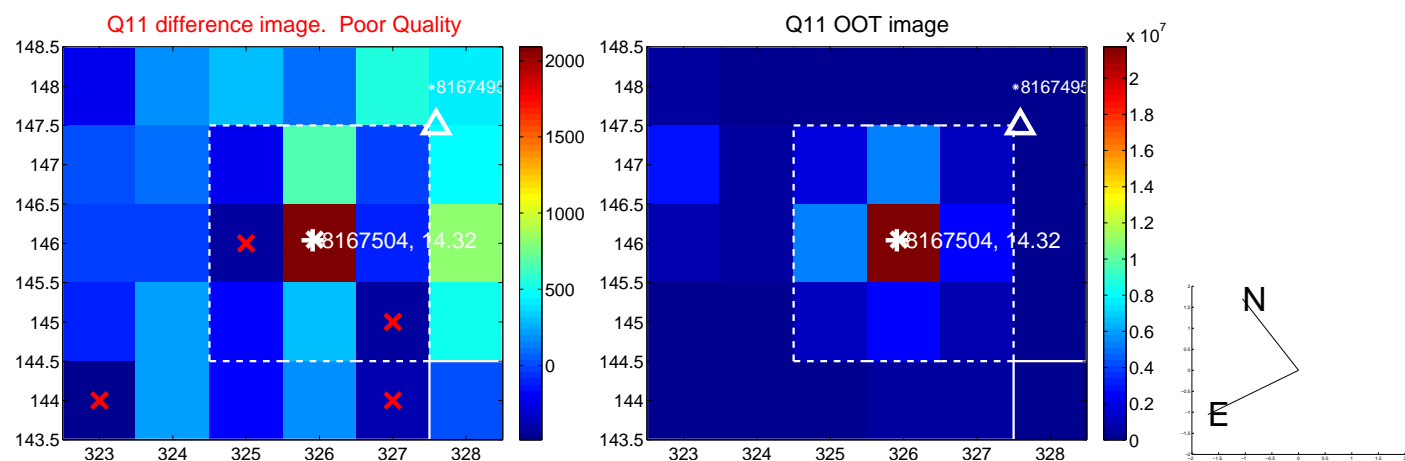
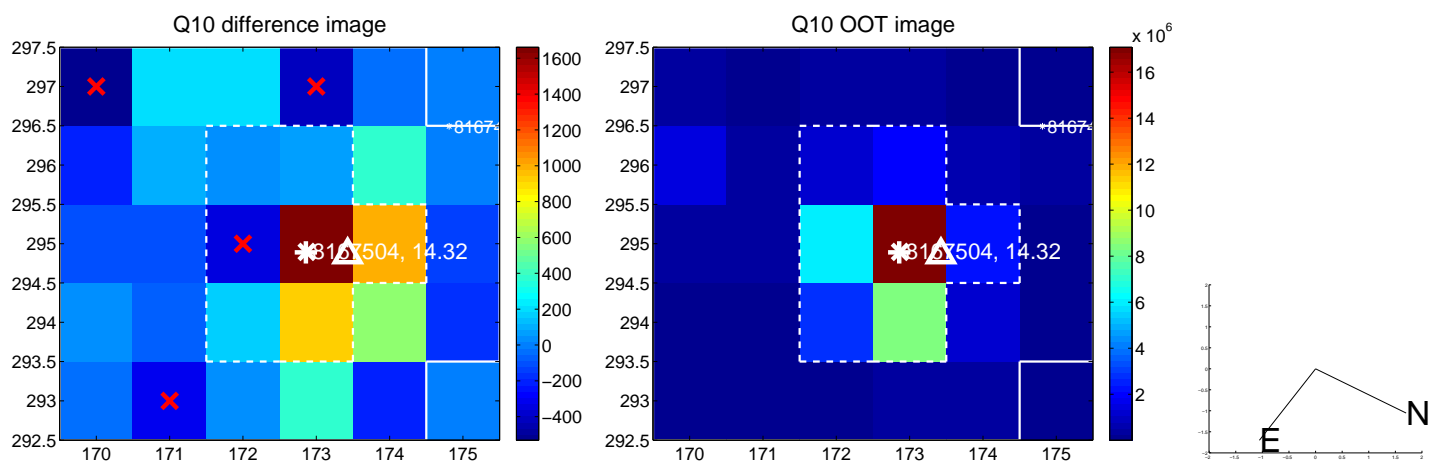
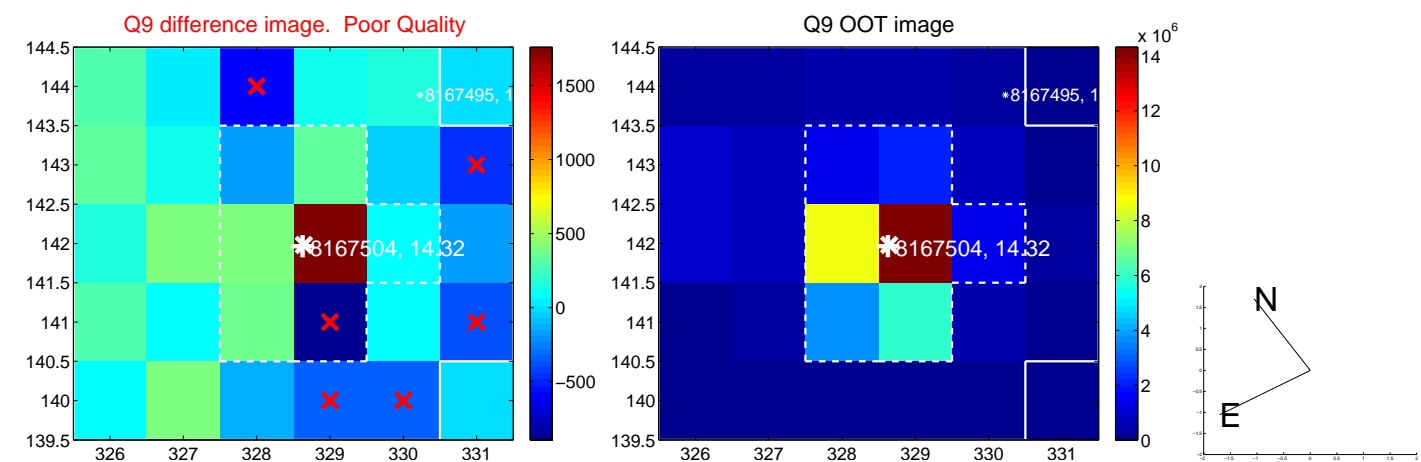
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



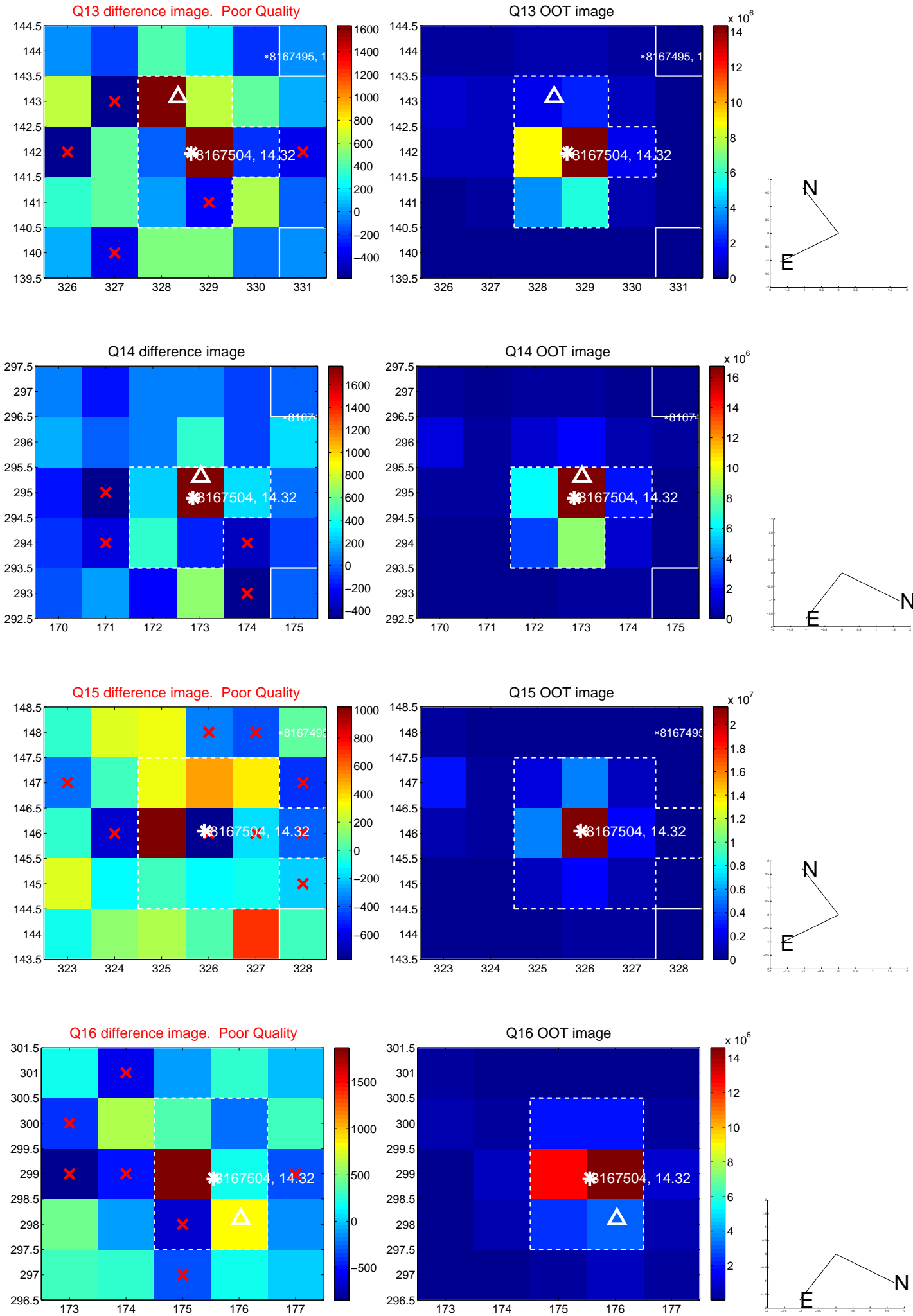
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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

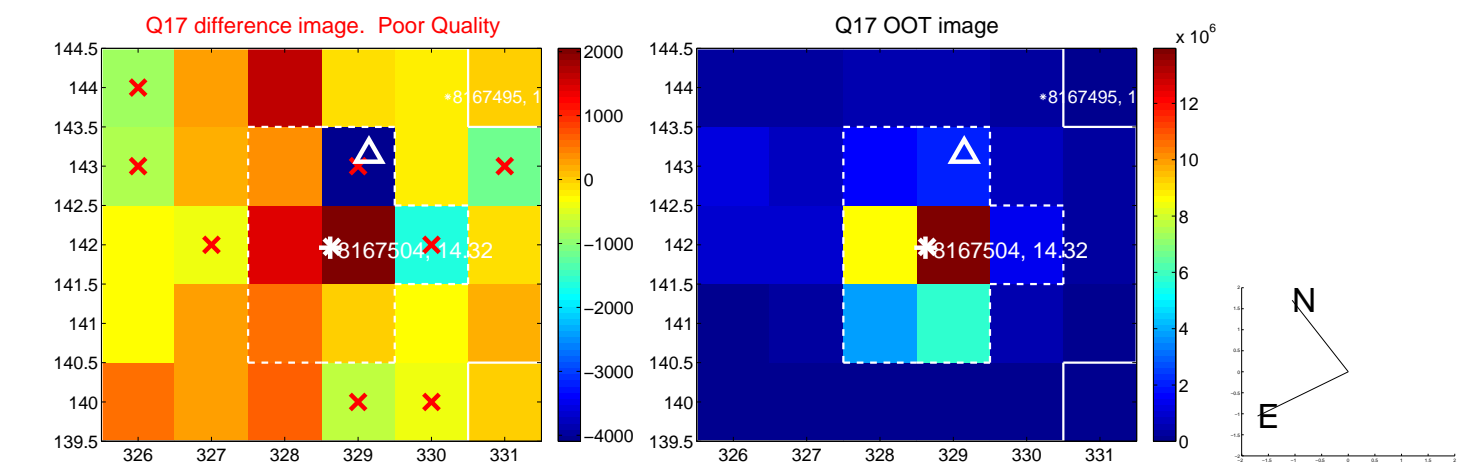


white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.

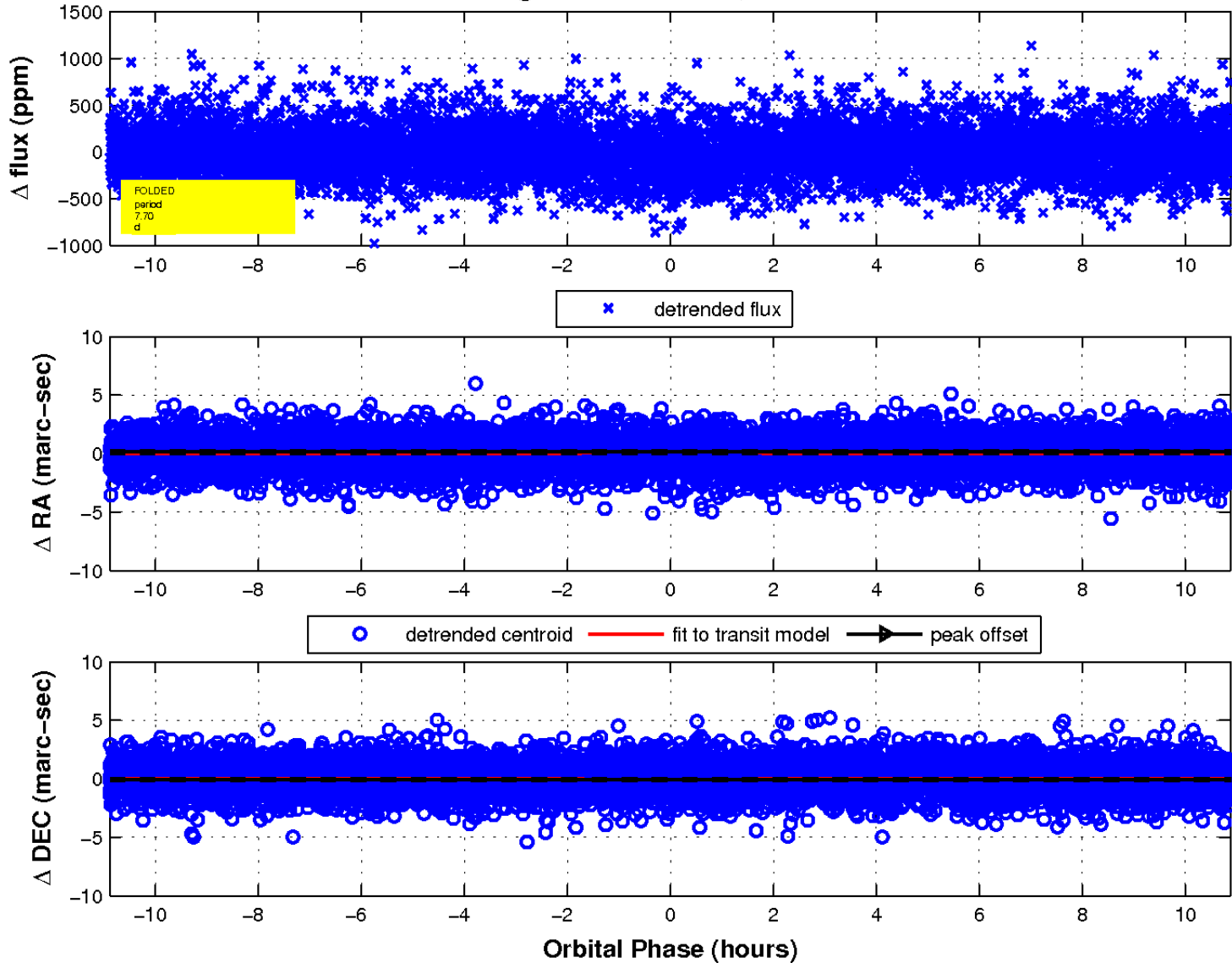




white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



fluxWeightedCentroids, Planet 1 of 1



UKIRT Image

Declination

