

# KIC 008702537

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
008702537-01	OBS	7905.01	7.475192	137.184774	30.3	5.284	7.9	8.6	1.60	5616	1.02	440.10

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
008702537-01	OBS	PC	0.92	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.

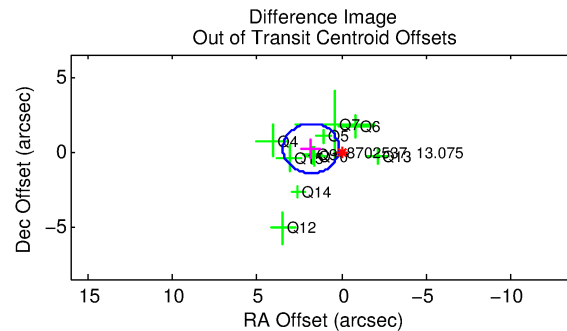
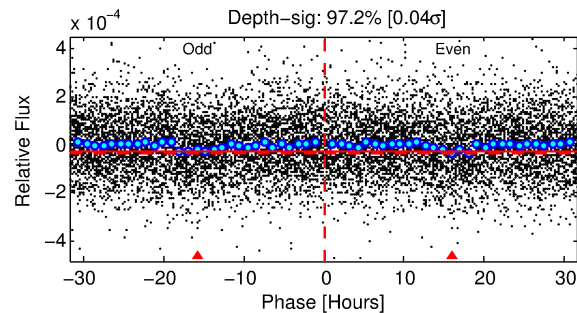
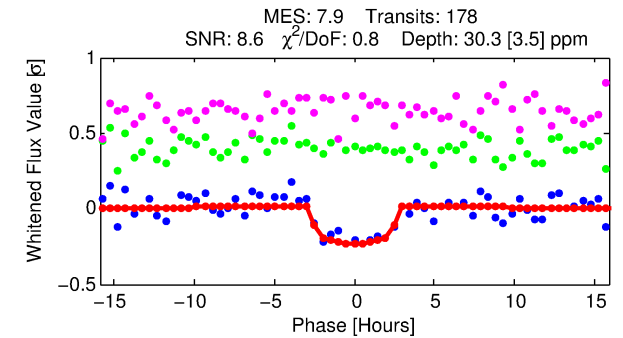
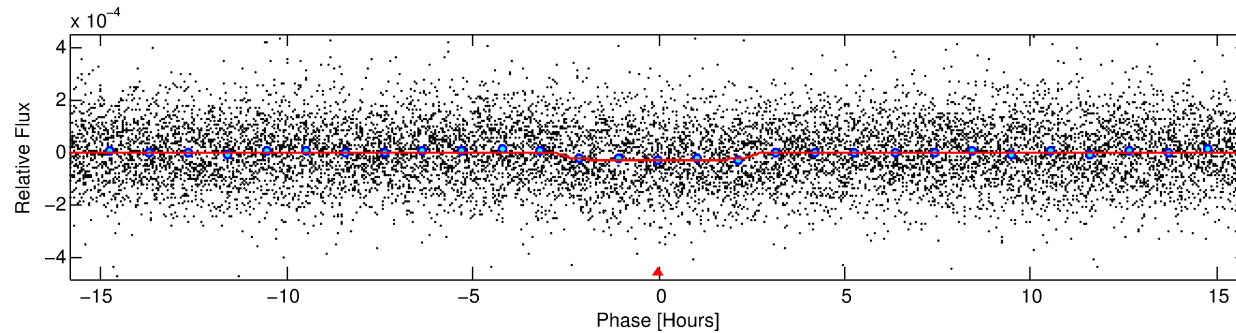
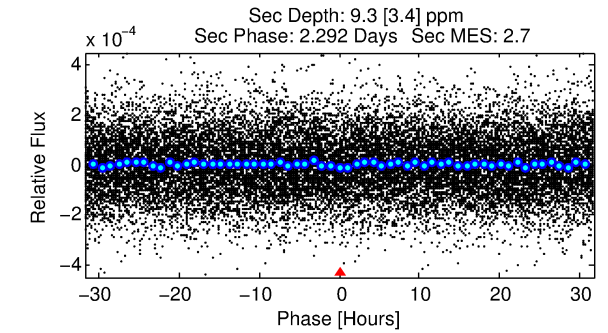
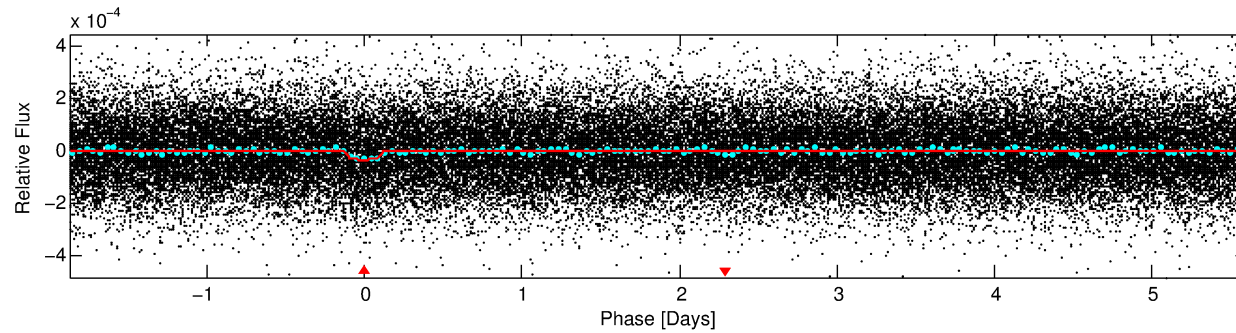
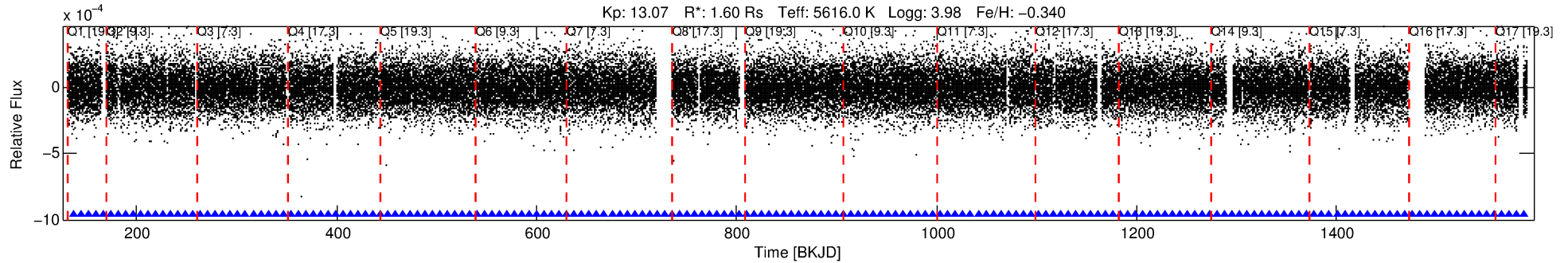
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

## Ephemeris Match Information For 008702537-01

No Significant Match Found

# DV One-Page Summary

KIC: 8702537 Candidate: 1 of 1 Period: 7.475 d



## DV Fit Results:

Period = 7.47519 [0.00010] d  
Epoch = 137.1848 [0.0101] BKJD  
Rp/R\* = 0.0058 [0.0026]  
a/R\* = 5.57 [11.60]  
b = 0.87 [0.62]  
Seff = 440.10 [252.08]  
Teff = 1168 [167] K  
Rp = 1.02 [0.56] Re  
a = 0.0721 [0.0241] AU  
Ag = 25.61 [28.80] [0.85σ]  
Teffp = 4062 [1001] K [2.85σ]

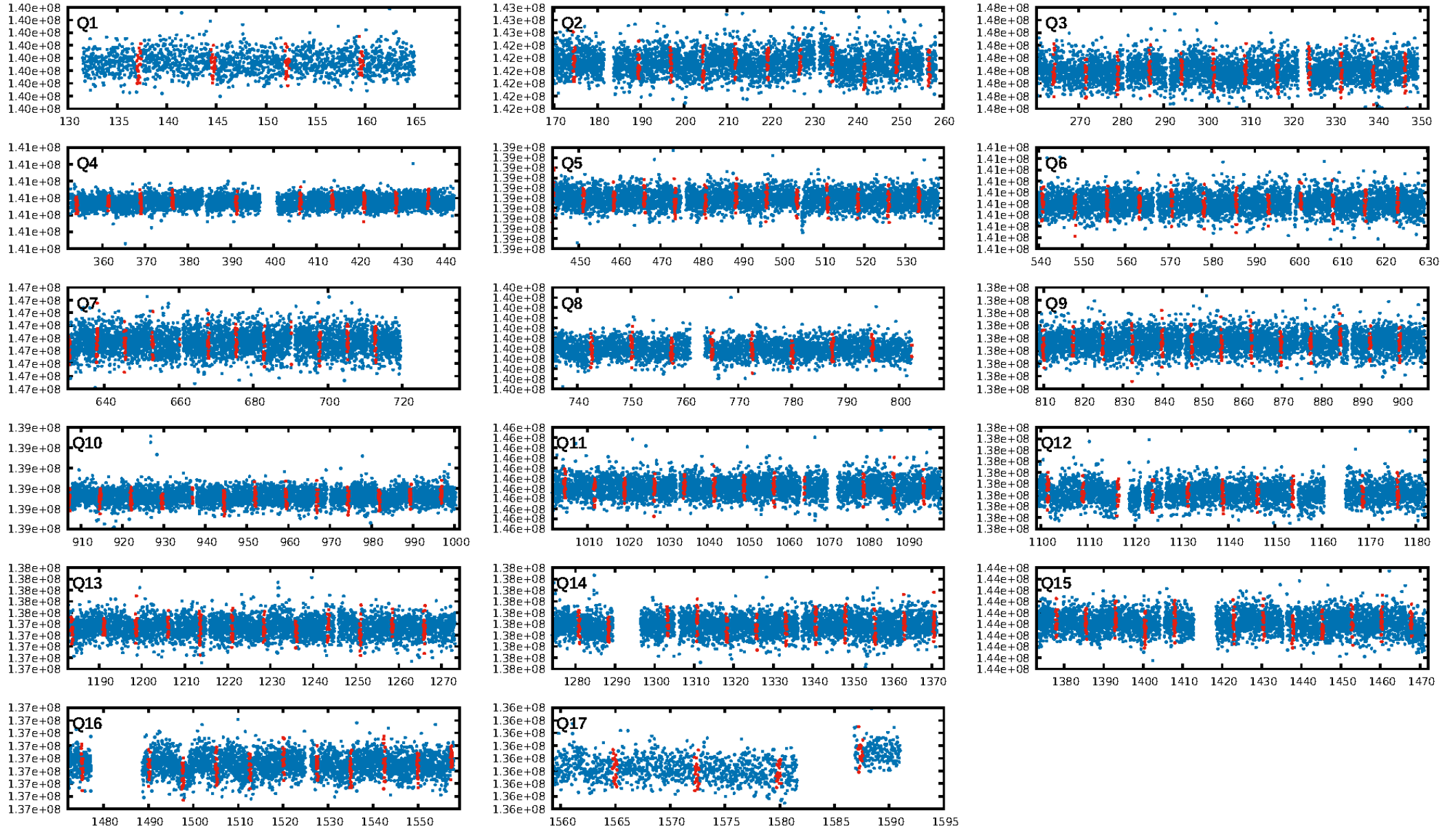
## DV Diagnostic Results:

ShortPeriod-sig: N/A  
LongPeriod-sig: N/A  
ModelChiSquare2-sig: 100.0%  
ModelChiSquareGof-sig: 100.0%  
Bootstrap-pfa: 2.69e-15  
RollingBand-fgt: 1.00 [170/170]  
GhostDiagnostic-chr: -29.34  
Centroid-sig: 29.8%  
Centroid-so: 1.041 arcsec [0.90σ]  
OotOffset-rm: 1.828 arcsec [3.31σ]  
KicOffset-rm: 1.906 arcsec [3.42σ]  
OotOffset-st: 3/2/2/3 [10]  
KicOffset-st: 3/2/2/3 [10]  
DiffImageQuality-fgm: 0.50 [5/10]  
DiffImageOverlap-fno: 1.00 [17/17]

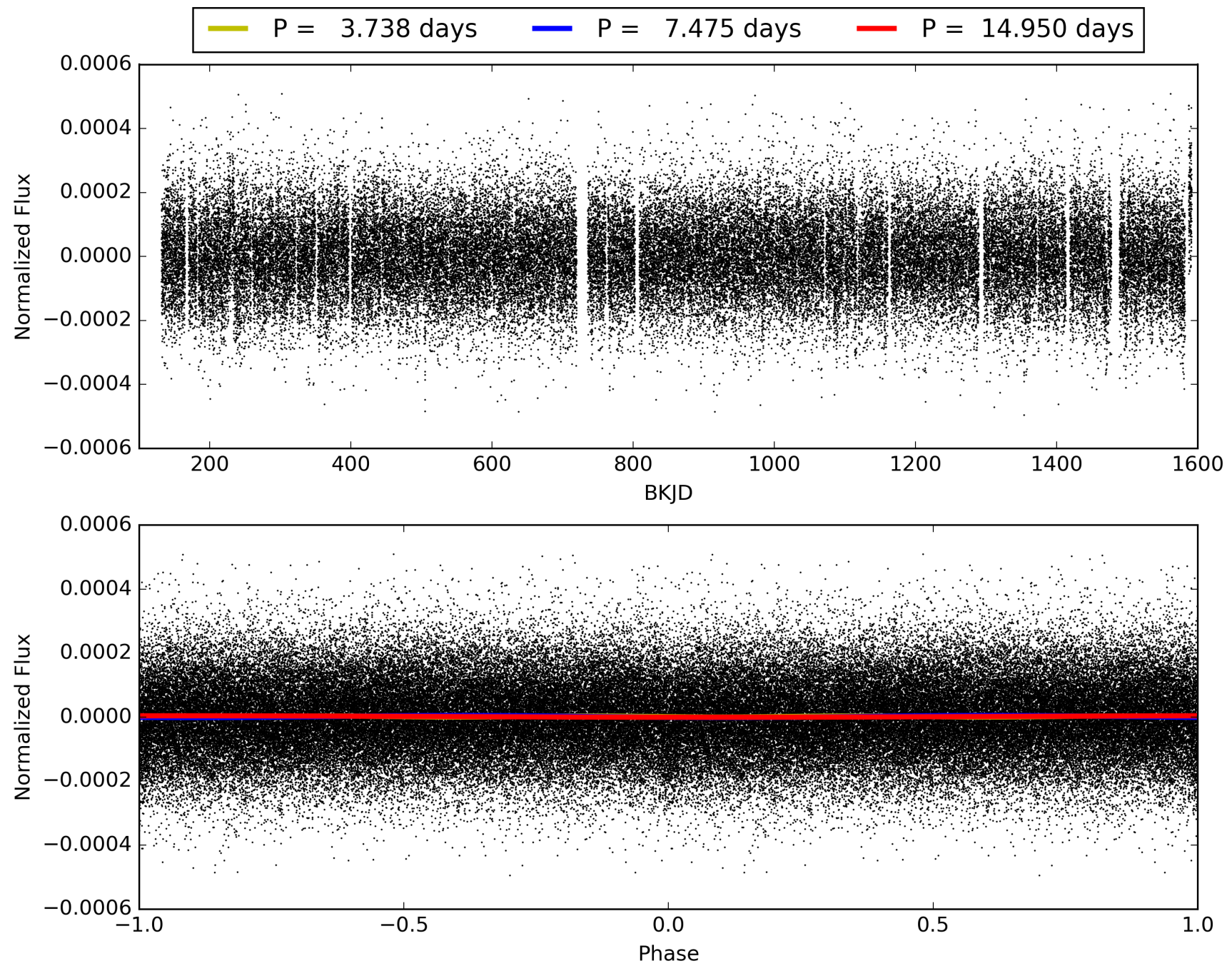
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 13:09:26 Z

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

# TCE 008702537-01, PDC Light Curves



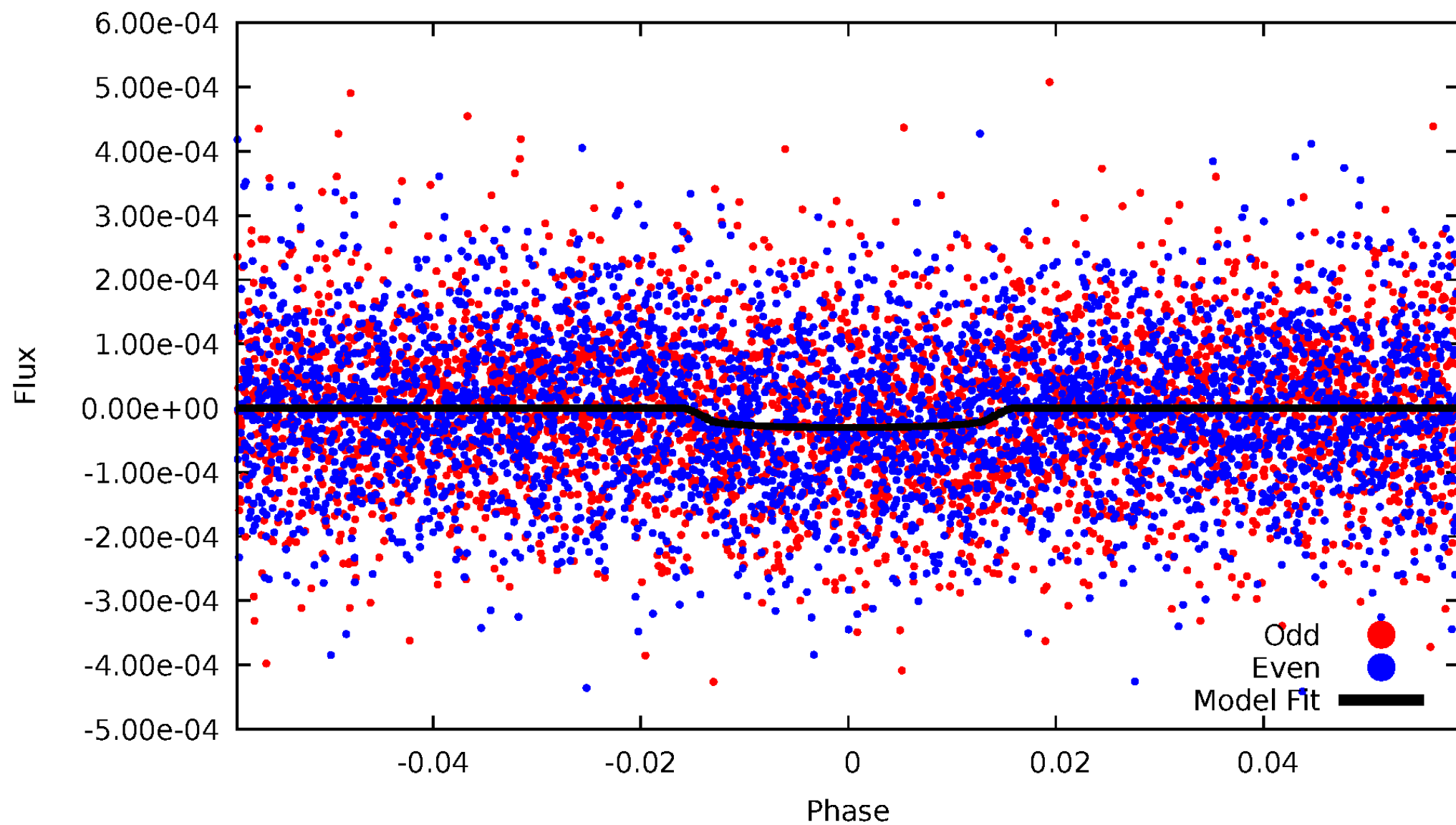
TCE 008702537-01





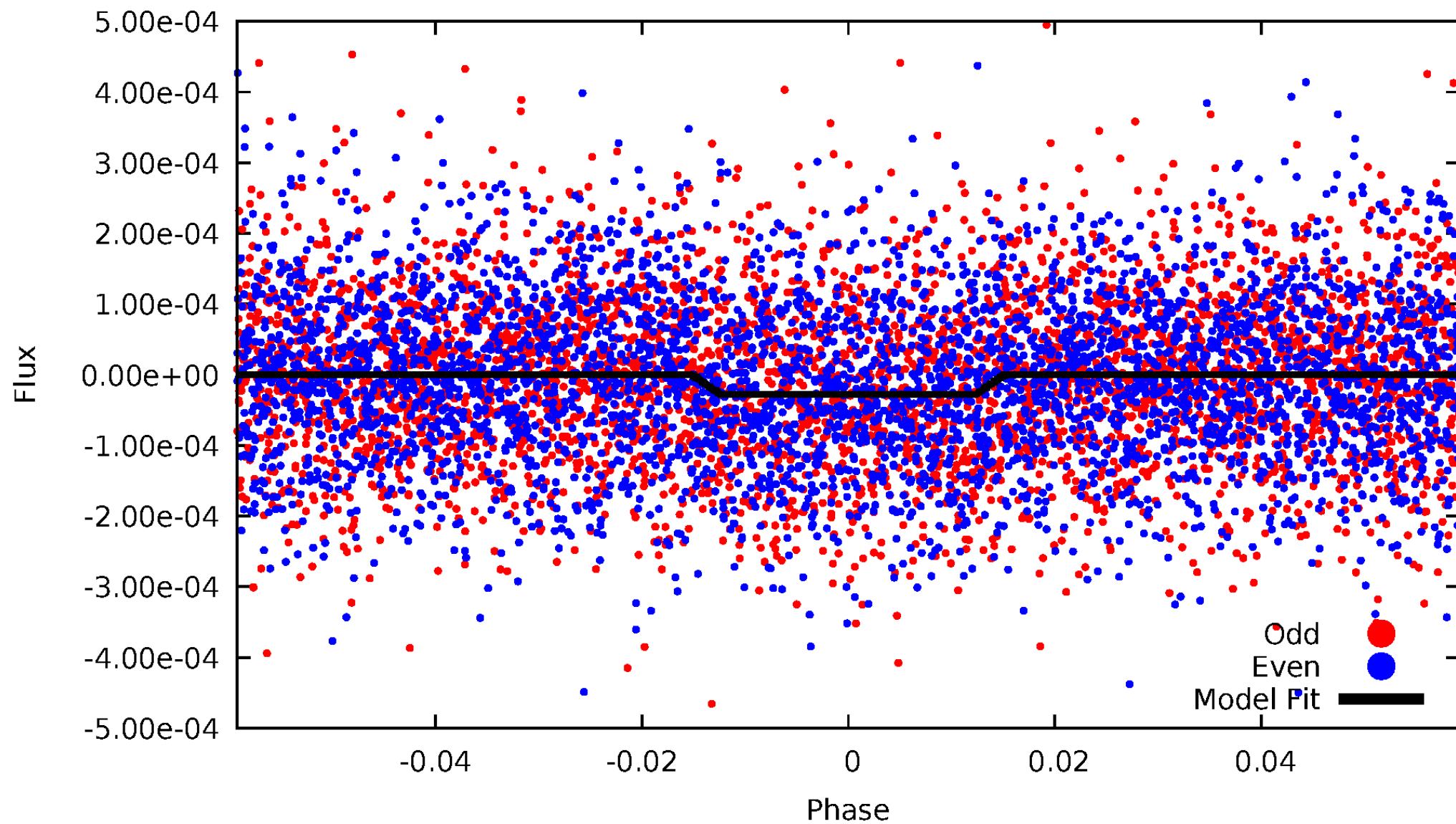
# DV Odd/Even

TCE 008702537-01



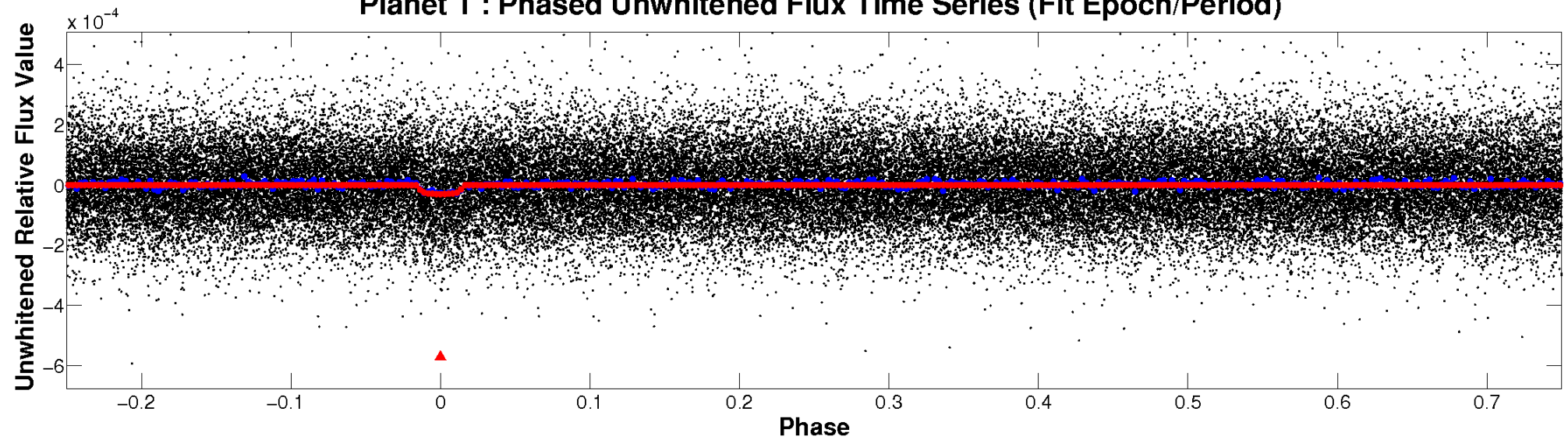
# ALT Odd/Even

TCE 008702537-01

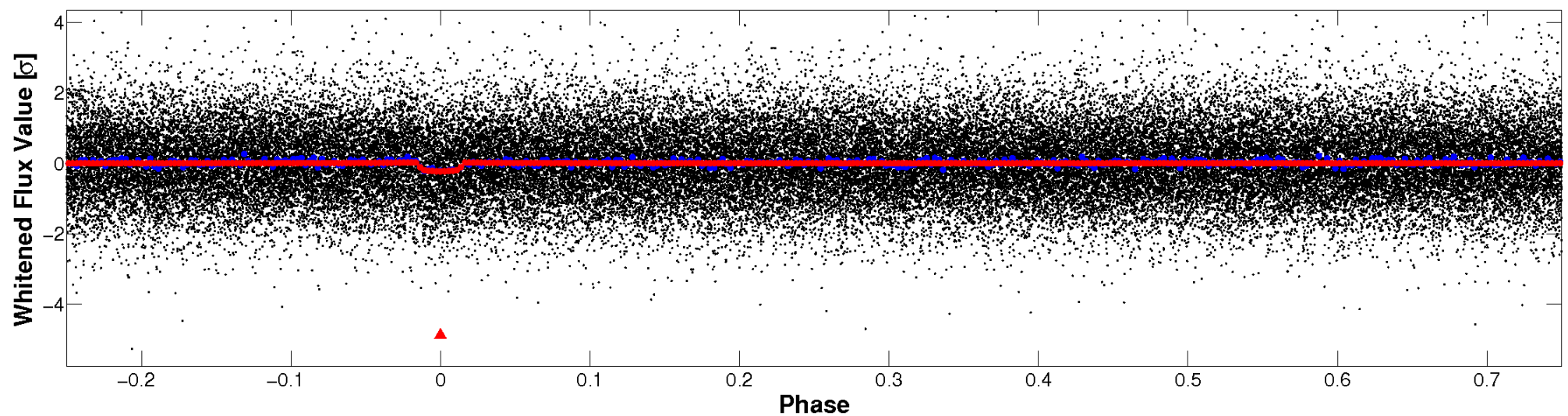


# Non-Whitened Vs. Whitened Light Curve

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

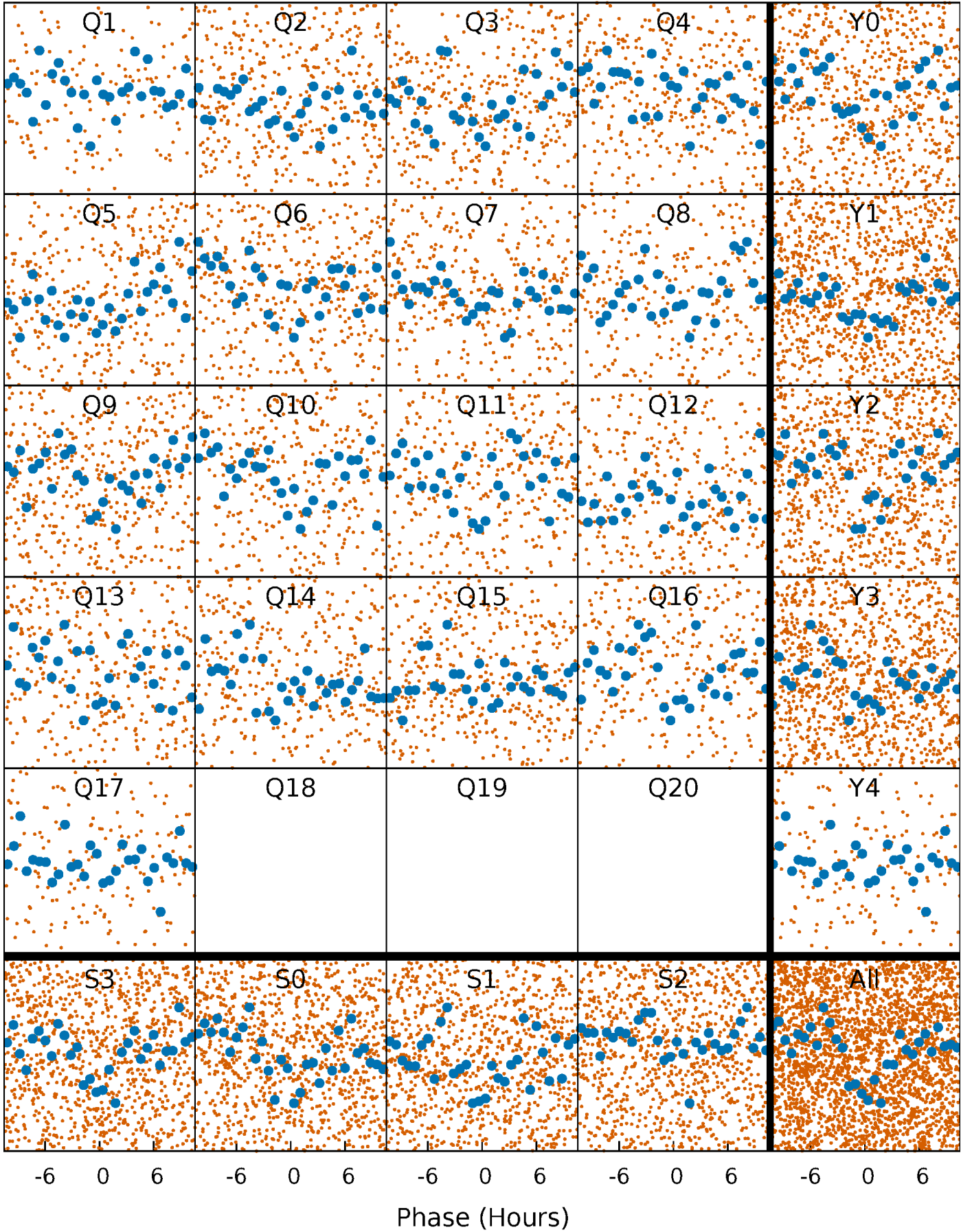


**Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)**



# PDC Quarter-Phased Transit Curves

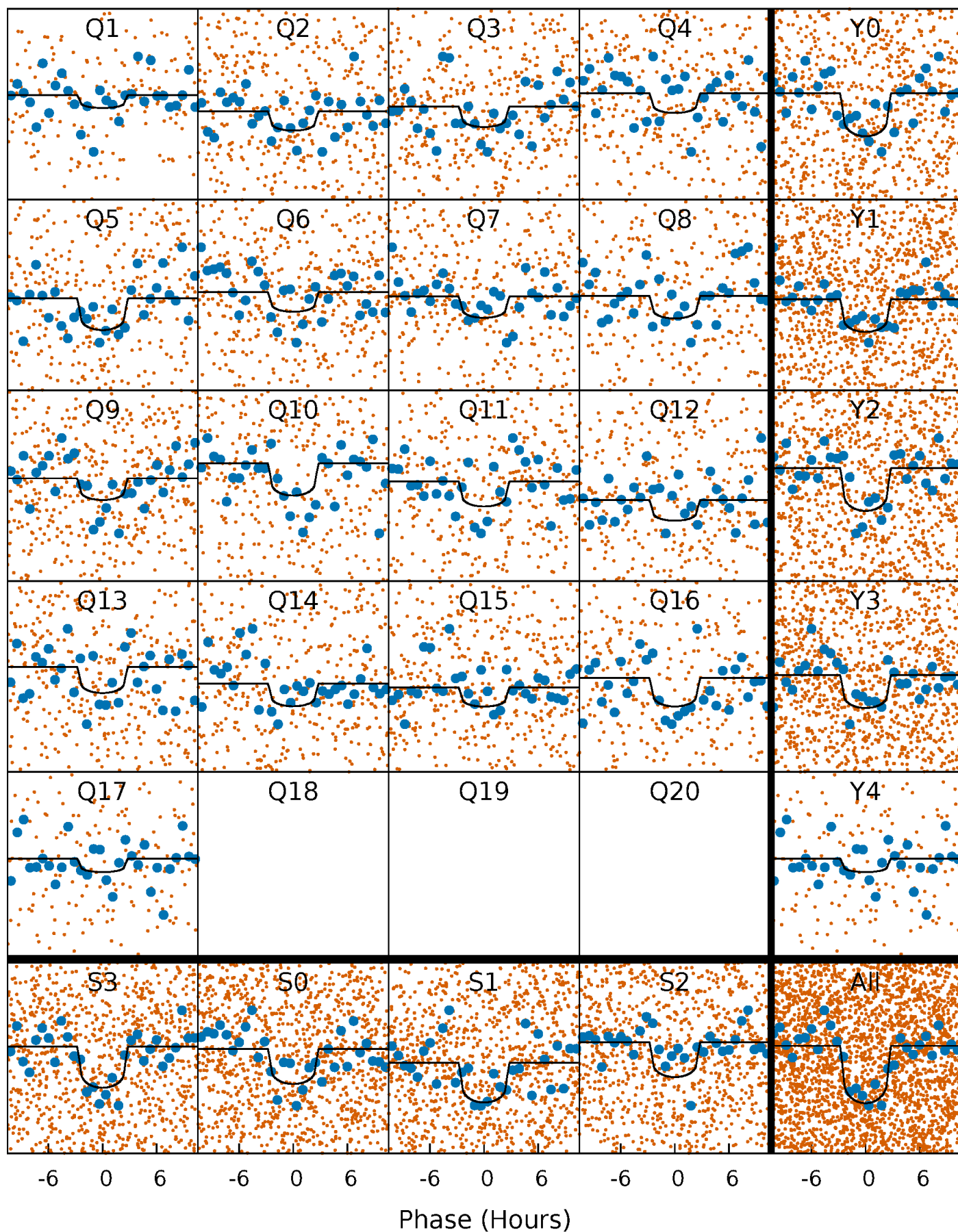
TCE 008702537-01   P= 7.475192 Days    $T_0=137.184774$  (BKJD)





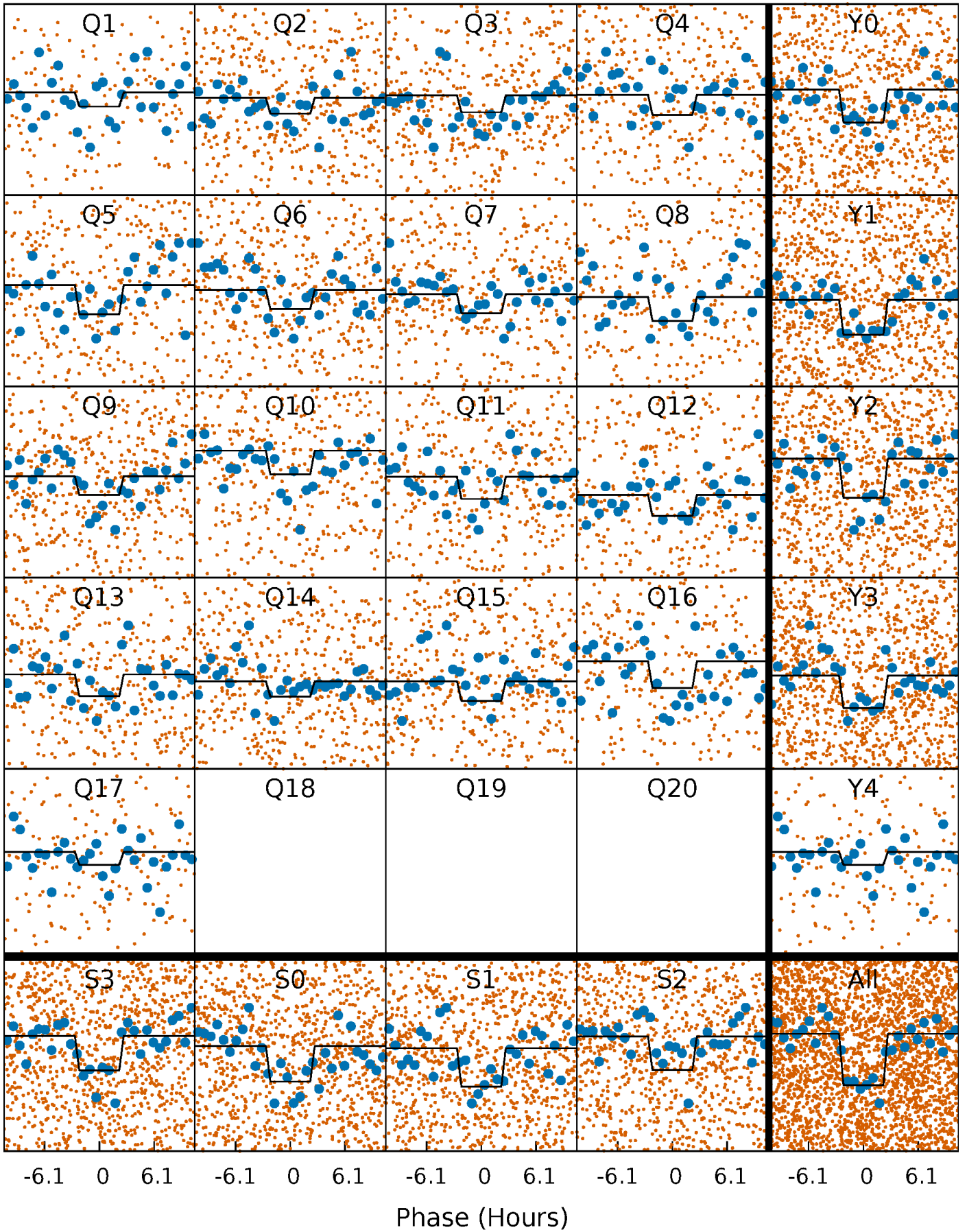
# DV Quarter-Phased Transit Curves

TCE 008702537-01 P= 7.475192 Days  $T_0=137.184774$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

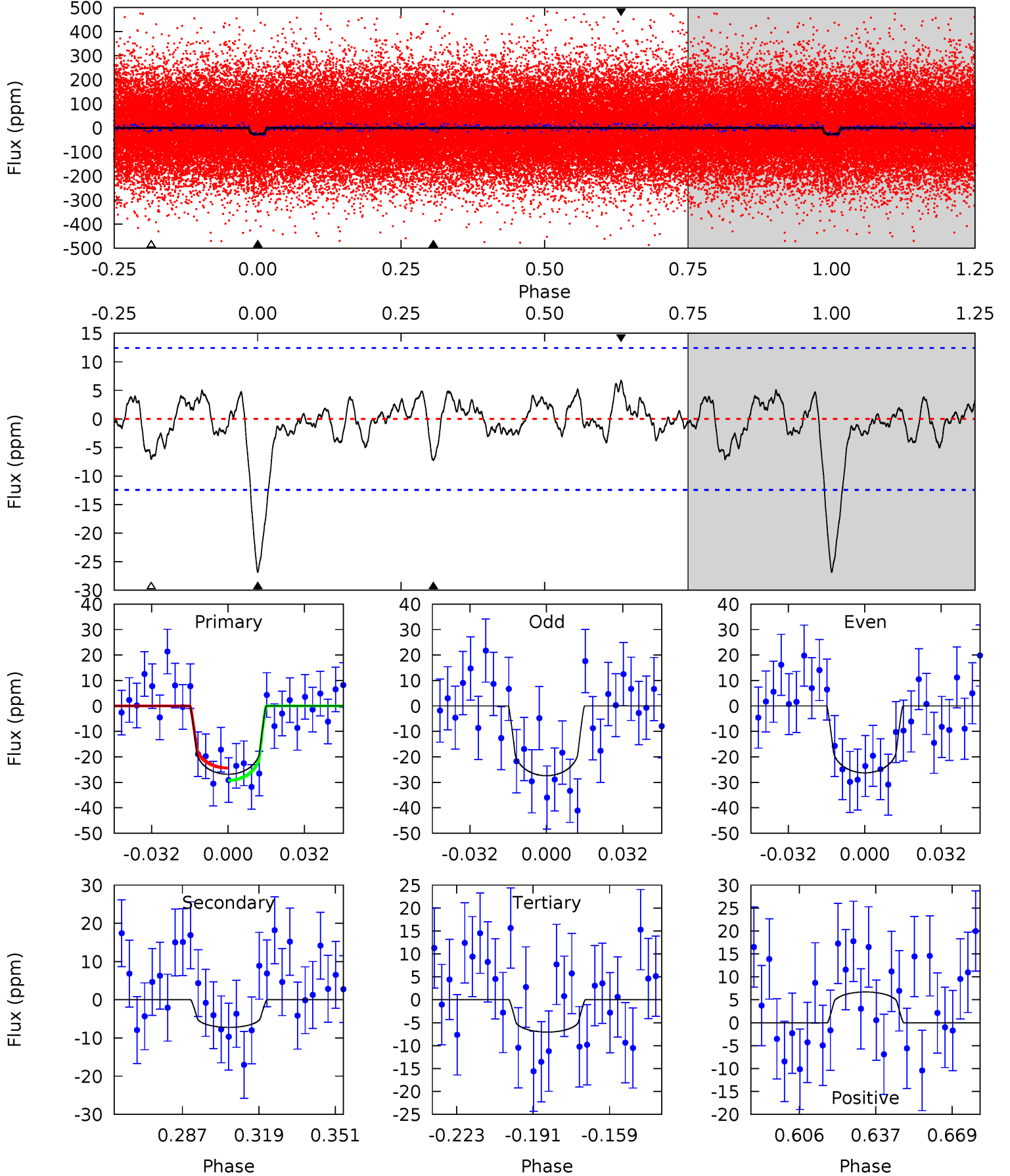
TCE 008702537-01 P= 7.475177 Days  $T_0=137.188070$  (BKJD)



# DV Model-Shift Uniqueness Test

008702537-01,  $P = 7.475192$  Days,  $E = 129.709582$  Days

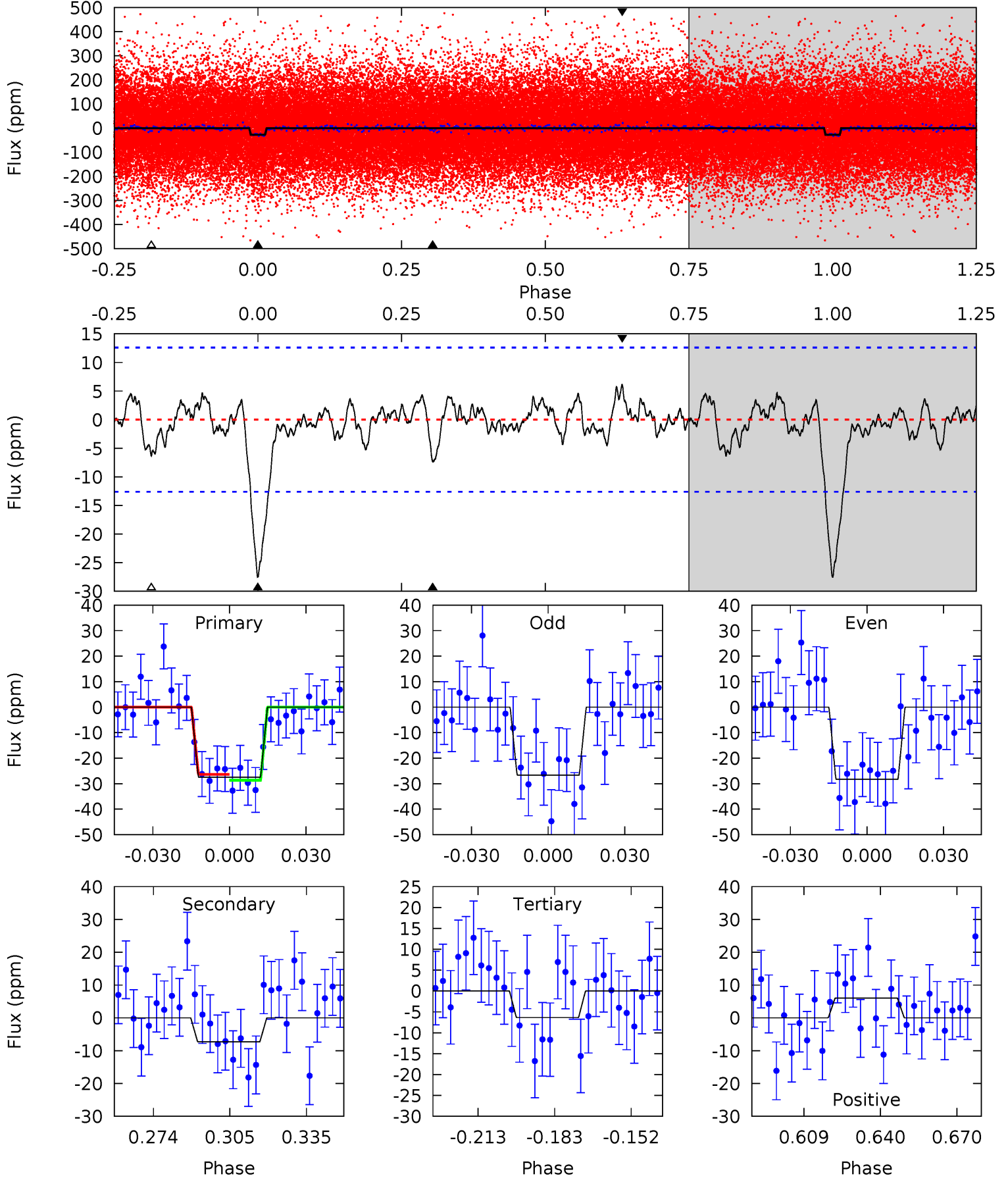
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
10.4	2.80	2.73	2.59	4.80	2.15	0.97	7.65	7.79	0.07	0.21	0.21	1.02	0.20	0.95



# Alt Model-Shift Uniqueness Test

008702537-01, P = 7.475177 Days, E = 129.712893 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
10.5	2.79	2.42	2.31	4.81	2.16	0.84	8.07	8.18	0.37	0.48	0.31	1.01	0.18	0.44





### Stellar Parameters For KIC 008702537

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	$5616^{+184}_{-127}$	$3.980^{+0.336}_{-0.144}$	$-0.340^{+0.350}_{-0.200}$	$1.602^{+0.370}_{-0.509}$	$0.894^{+0.141}_{-0.061}$	$0.306^{+0.688}_{-0.120}$
	+3%/-2%	+8%/-4%	+103%/-59%	+23%/-32%	+16%/-7%	+225%/-39%
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 008702537-01 / KOI 7905.01

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	$A_{obs}$
DV	$-7 \pm 3$	$0.98^{+0.50}_{-0.44}$	$1627^{+113}_{-150}$	$4079^{+1076}_{-575}$	$21^{+50}_{-13}$
Alt.	$-7 \pm 3$	$0.87^{+0.44}_{-0.42}$	$1604^{+118}_{-143}$	$4233^{+1206}_{-627}$	$27^{+77}_{-17}$

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

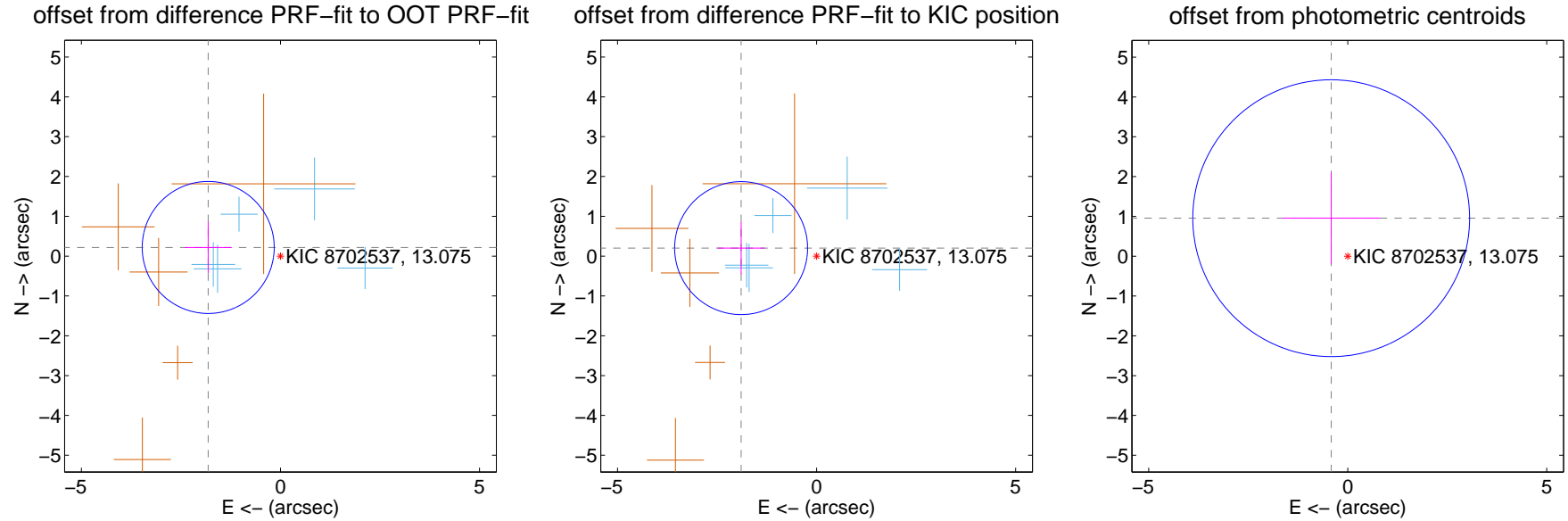
## DV Centroid Data

Supplemental centroid analysis for 008702537-01. Kepler magnitude: 13.07. Transit SNR 8.61

There are 5 quarters with good PRF difference image offsets

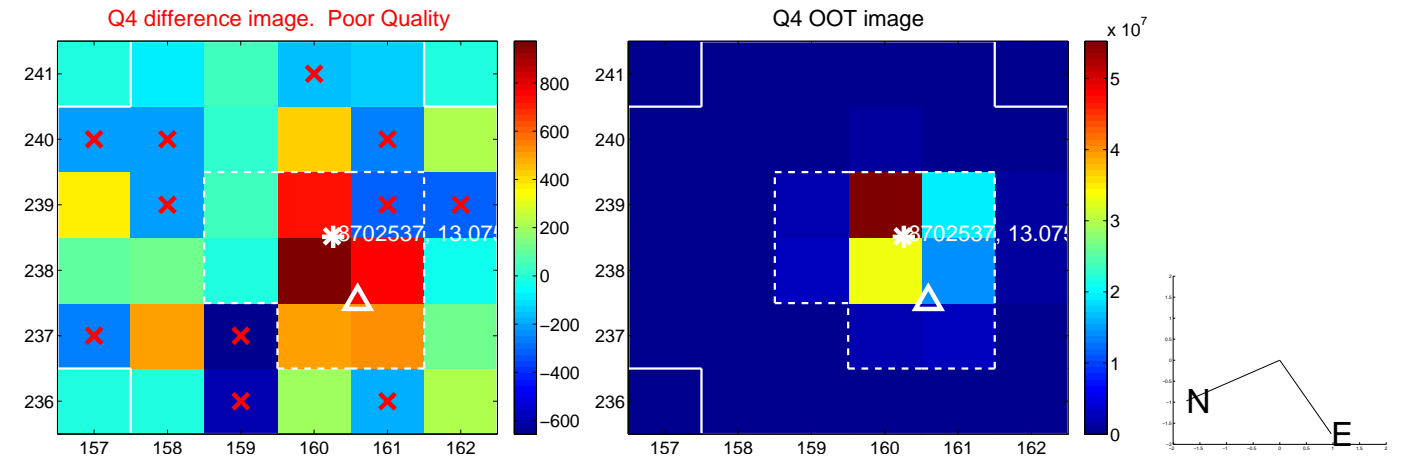
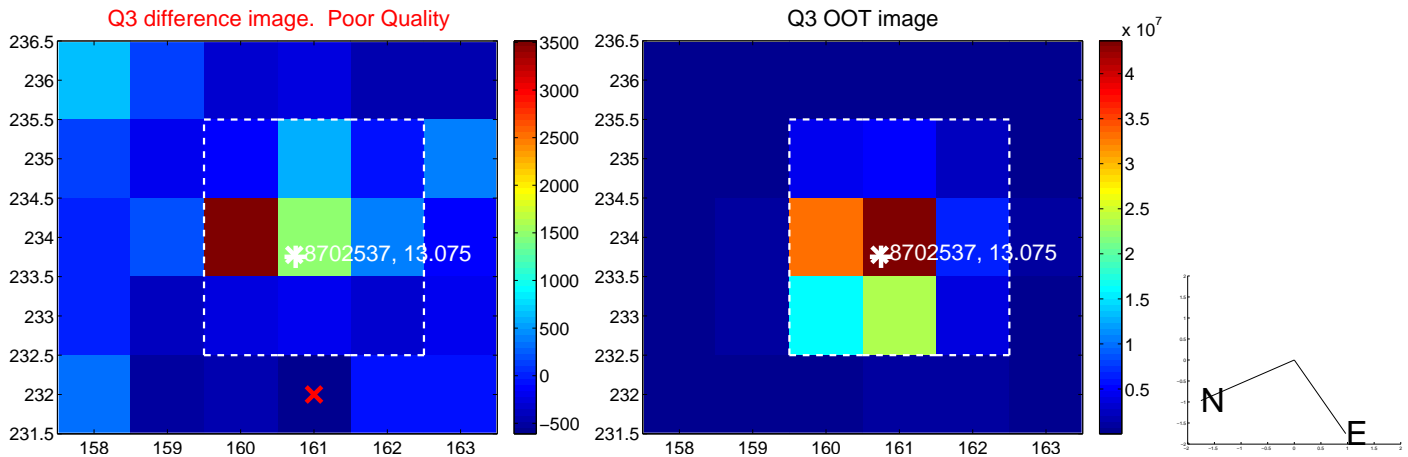
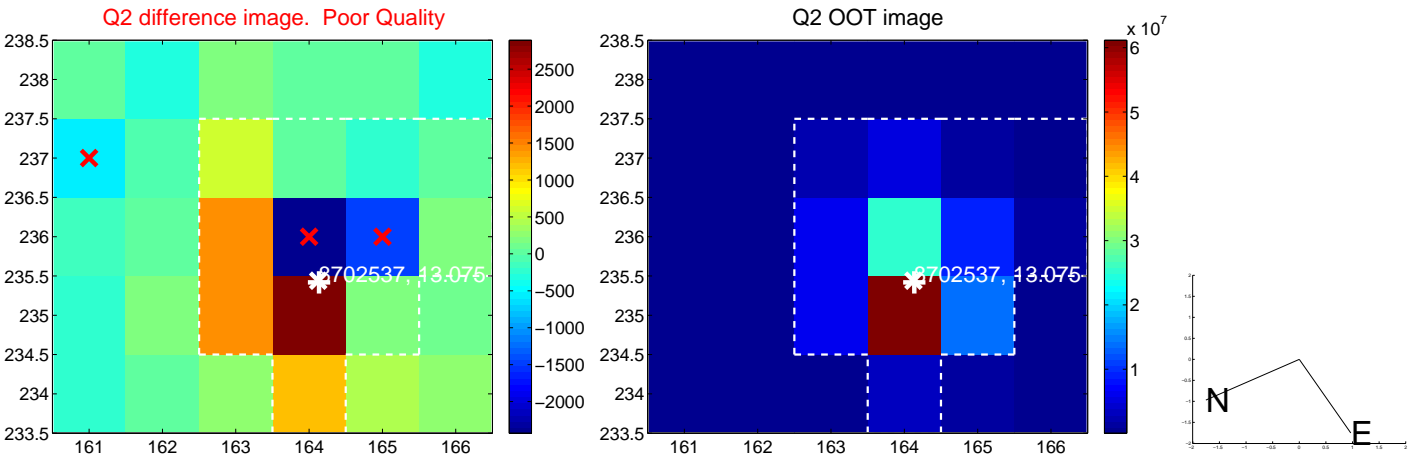
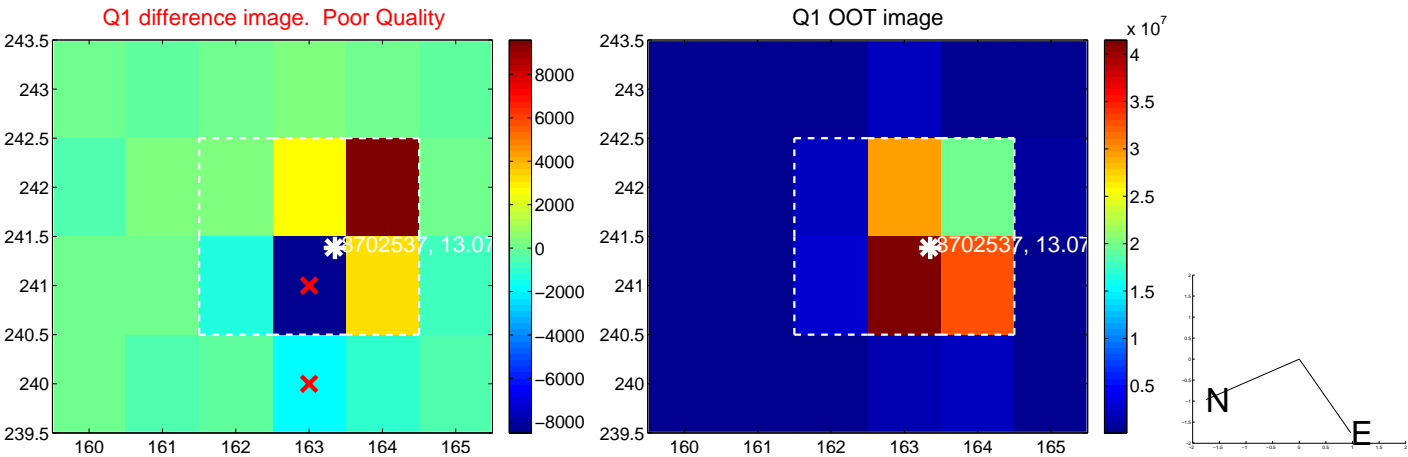
The direct PRF centroid is offset from the target star catalog position by about 0.12 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$1.828 \pm 0.553$	$3.31$	$1.815 \pm 0.588$	$0.218 \pm 0.647$
PRF-fit source offset from KIC position	$1.906 \pm 0.557$	$3.42$	$1.895 \pm 0.588$	$0.202 \pm 0.659$
photometric centroid source offset	$1.04 \pm 1.16$	$0.90$	$0.42 \pm 1.23$	$0.95 \pm 1.15$

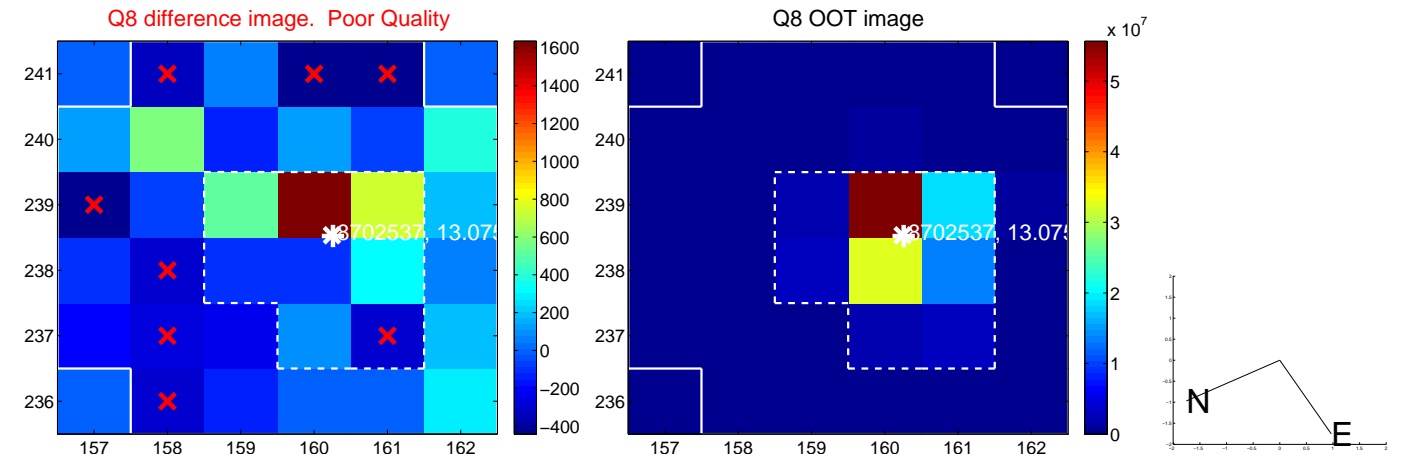
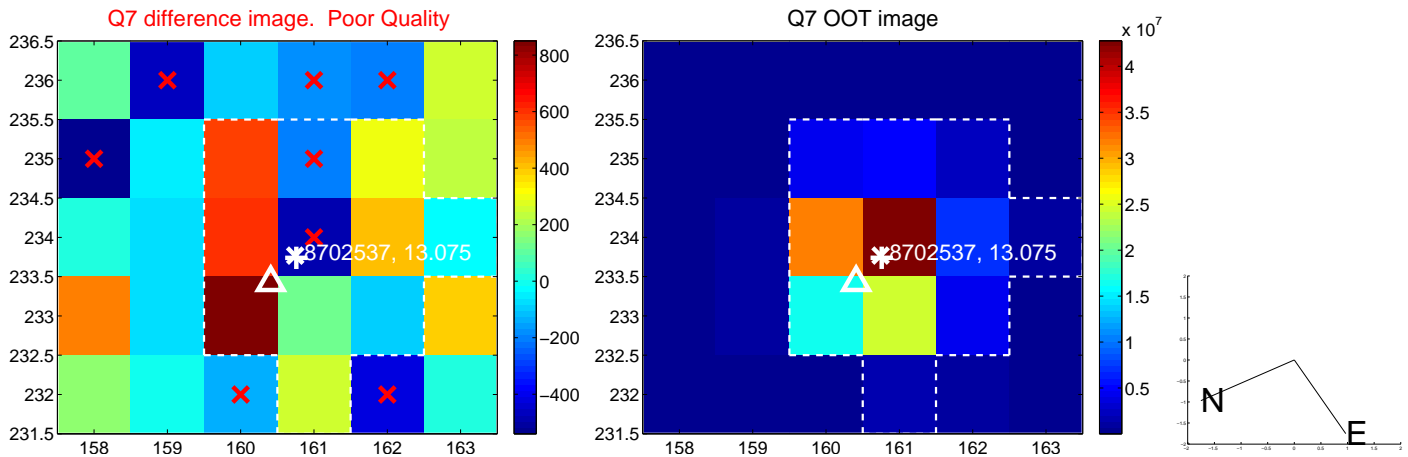
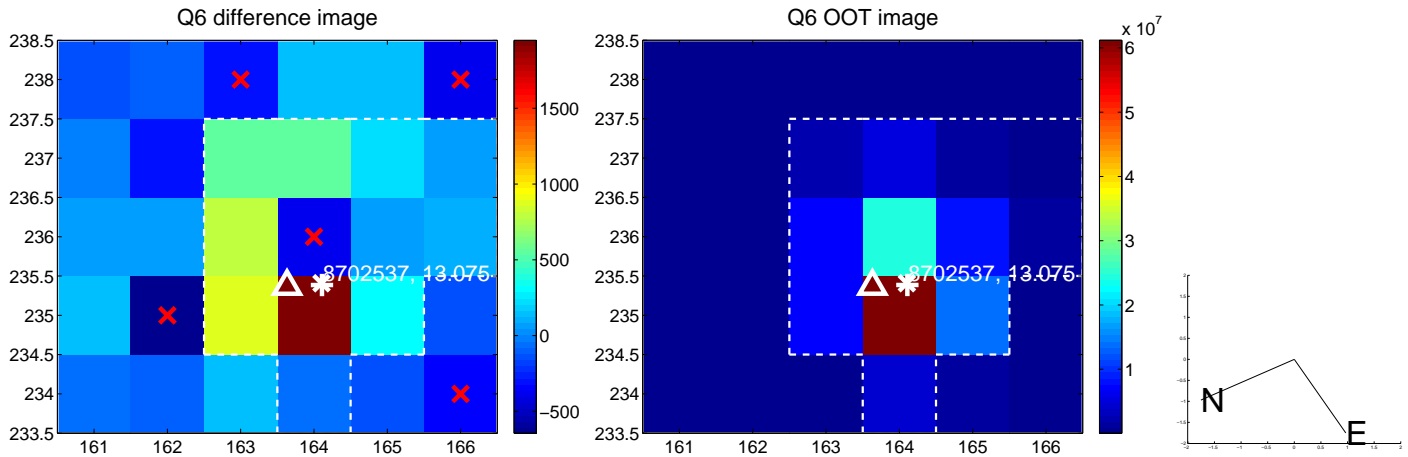
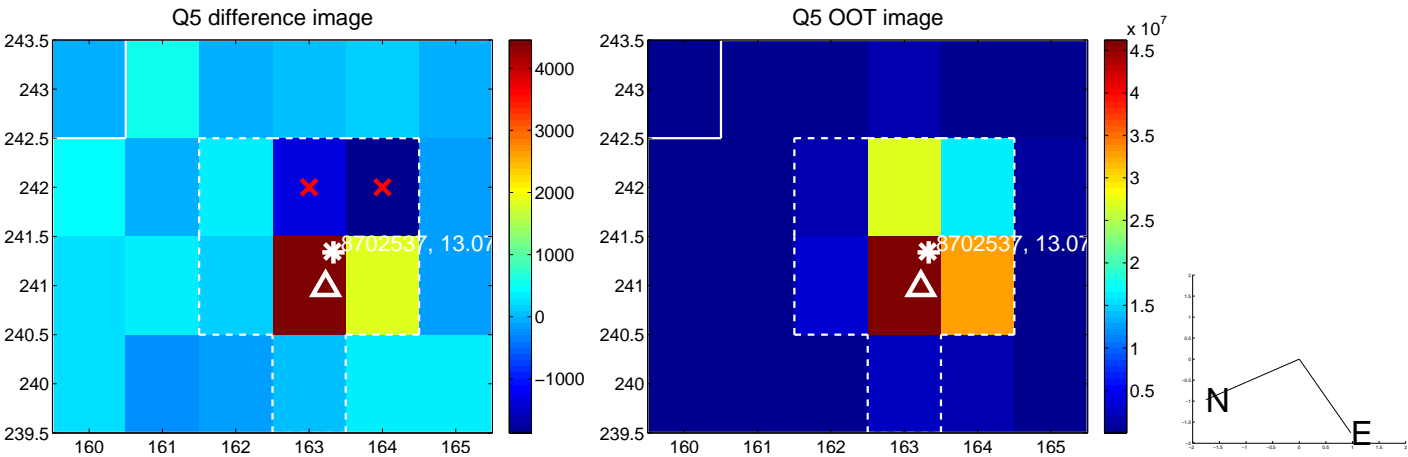


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: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

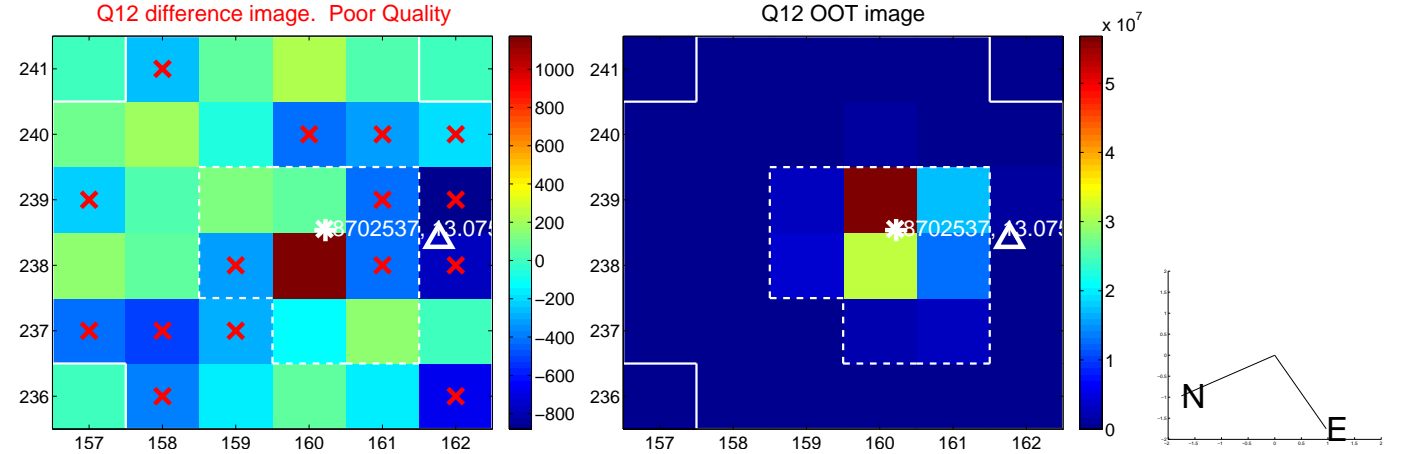
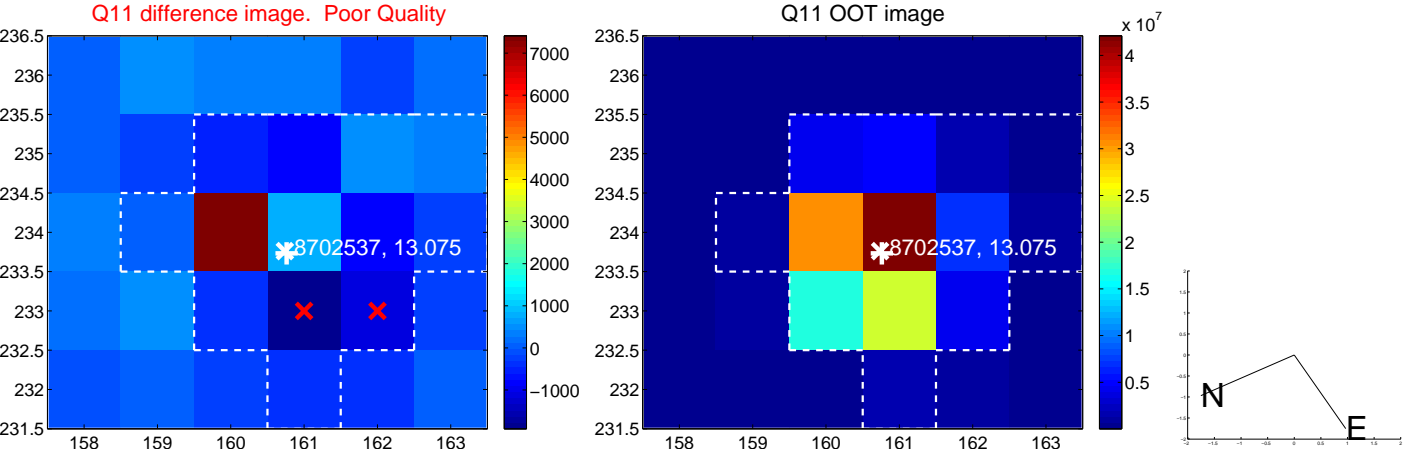
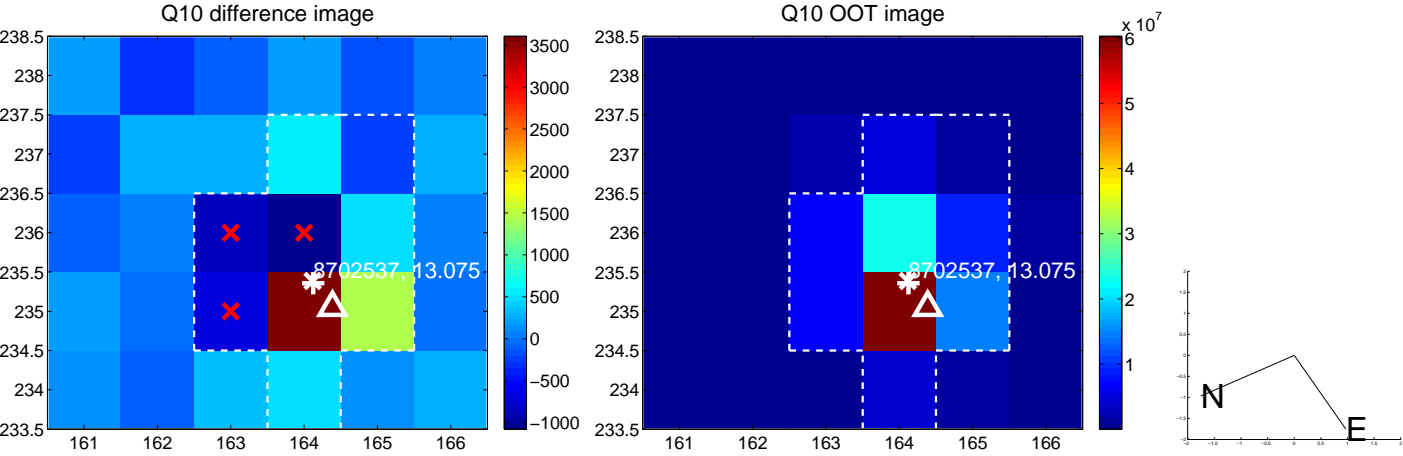
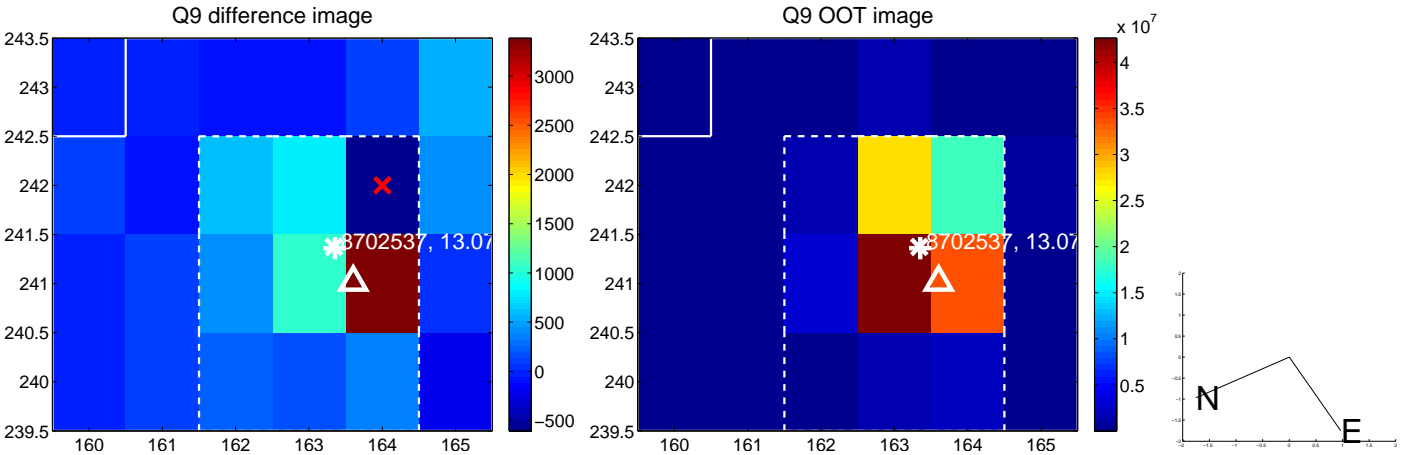


white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.

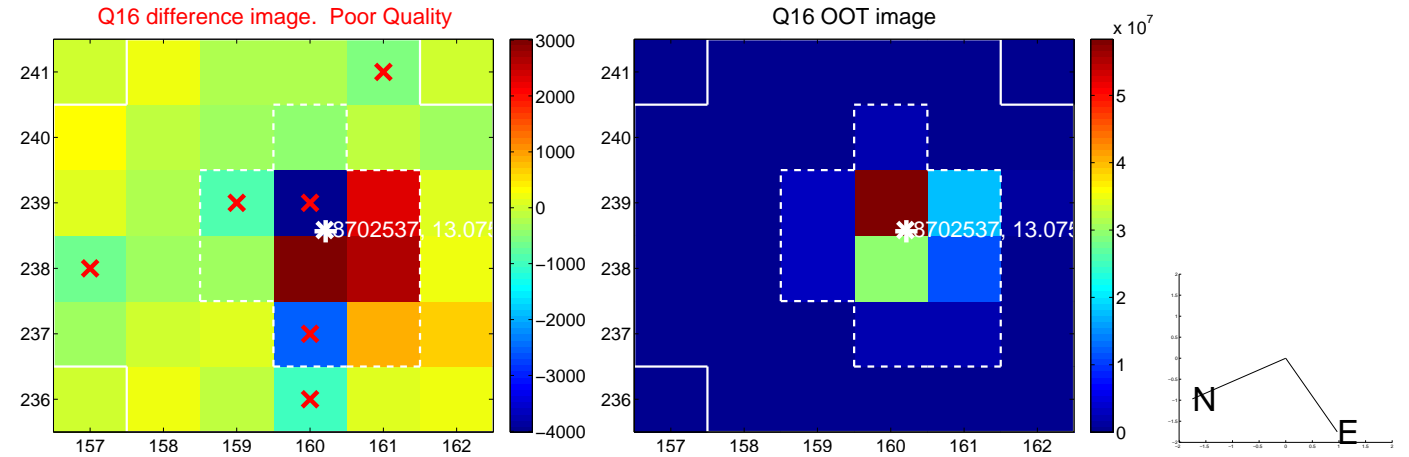
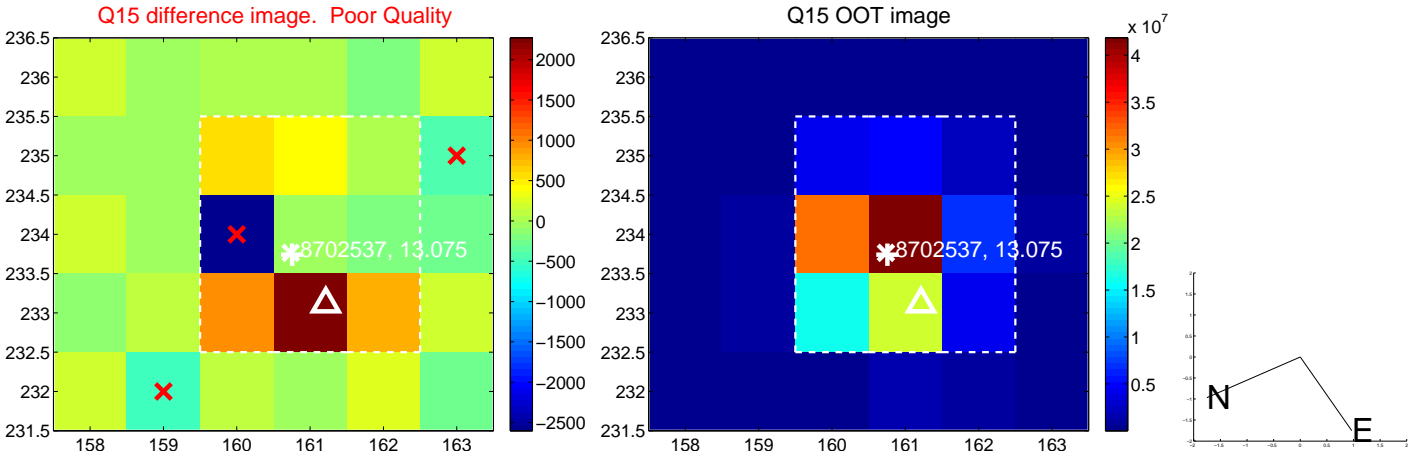
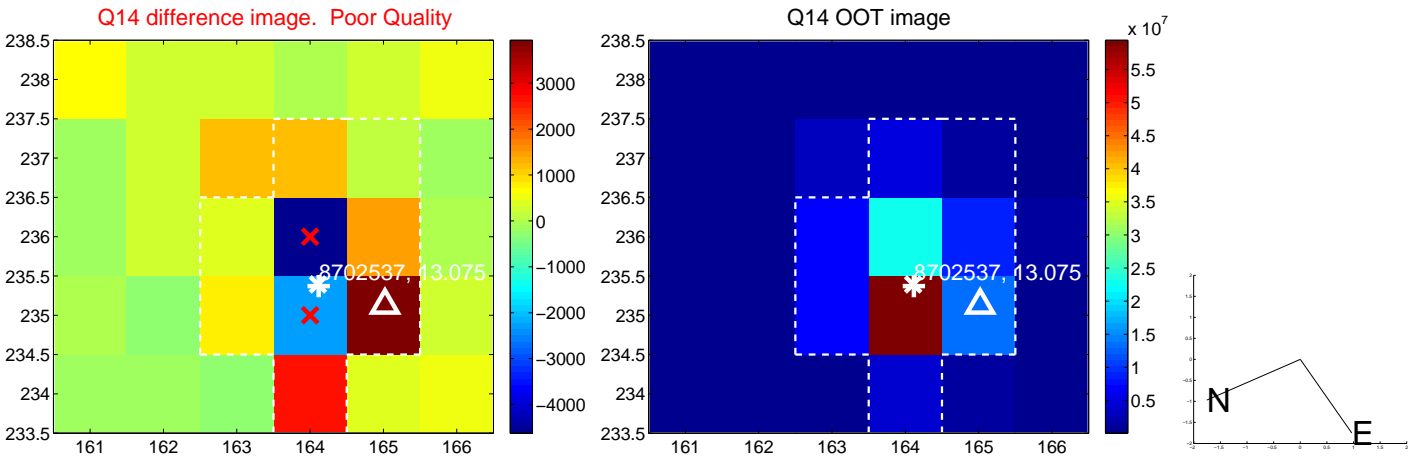
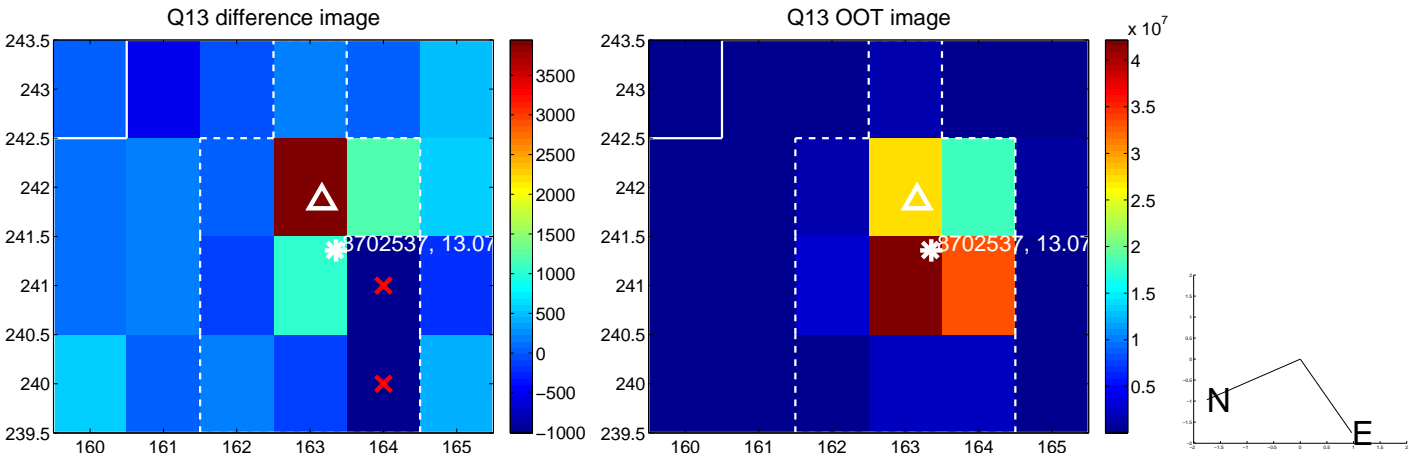




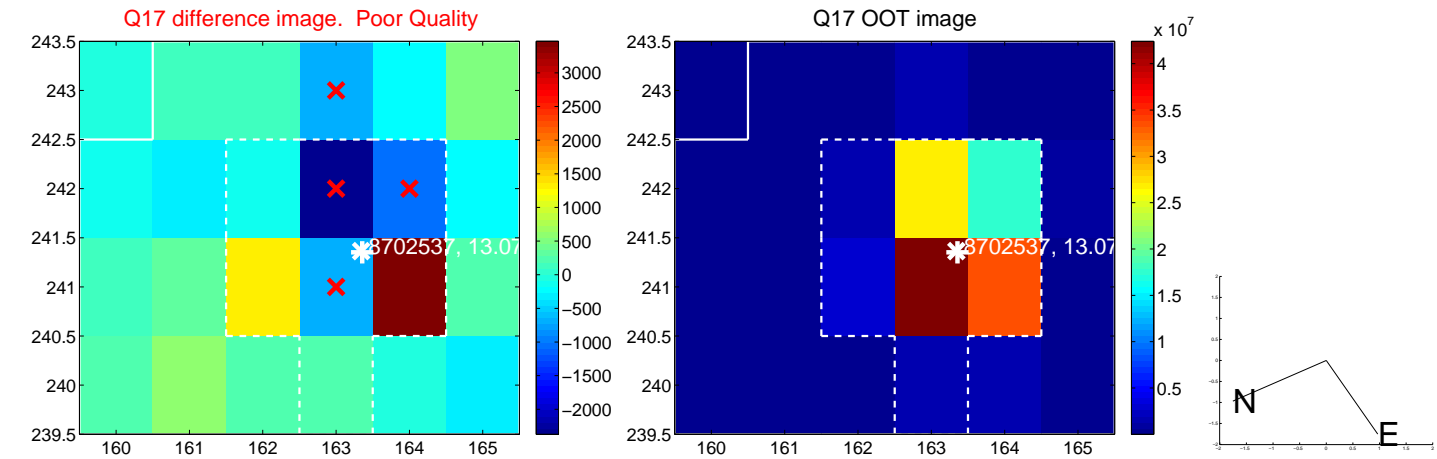
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



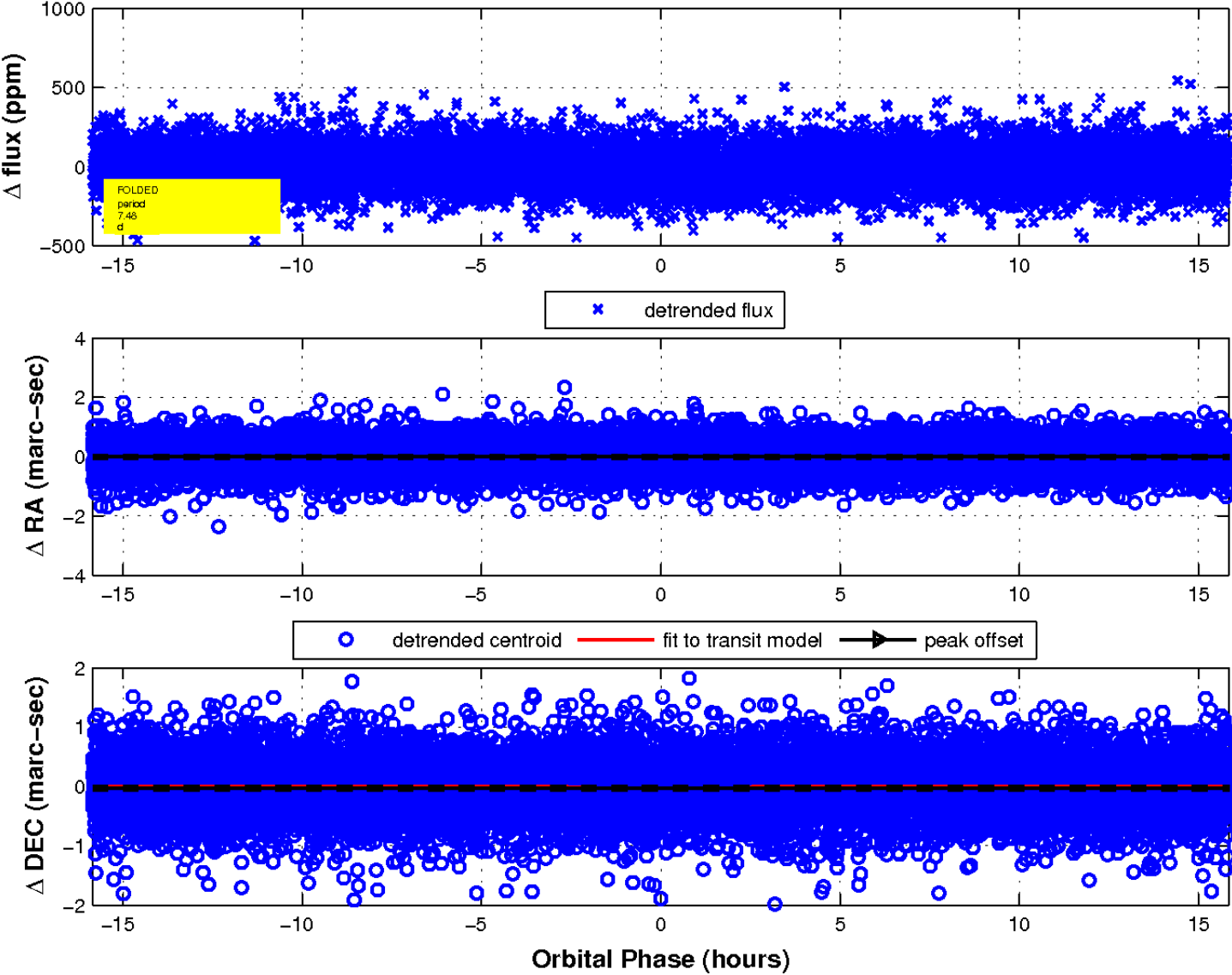
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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



fluxWeightedCentroids, Planet 1 of 1



UKIRT Image

Declination

