

# KIC 008625813

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
008625813-01	OBS	3285.01	45.396634	136.943966	1111.5	4.509	13.7	14.4	0.64	4266	2.85	2.67

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
008625813-01	OBS	FP	0.00	0	0	1	1	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.

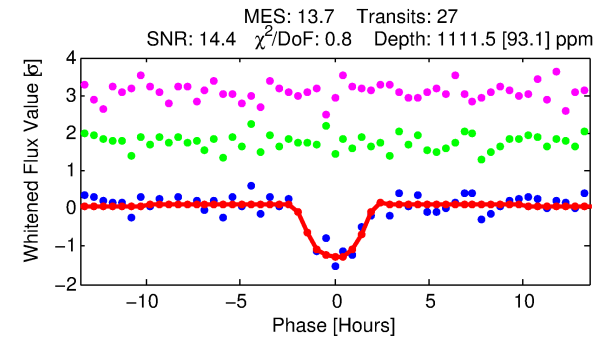
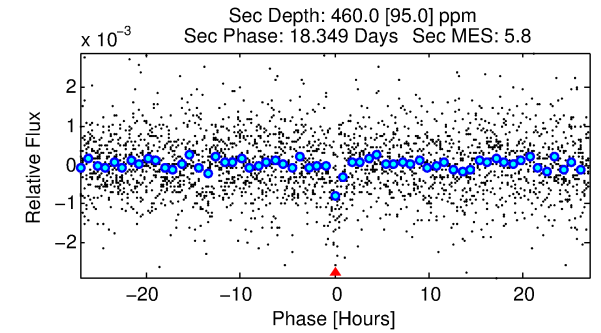
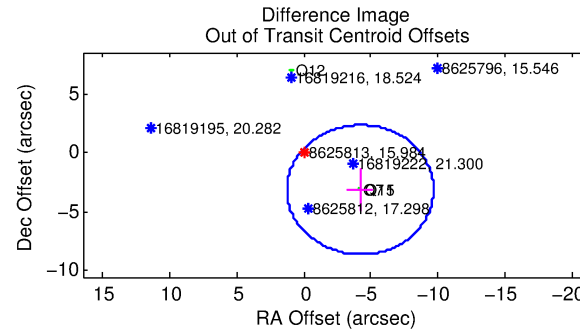
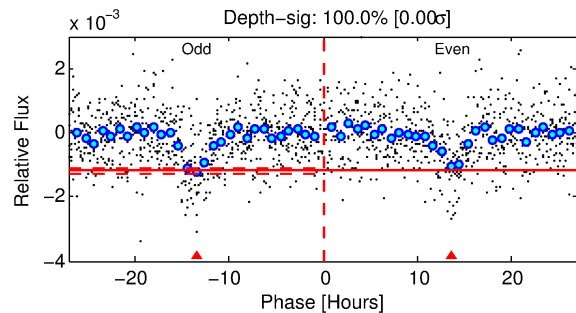
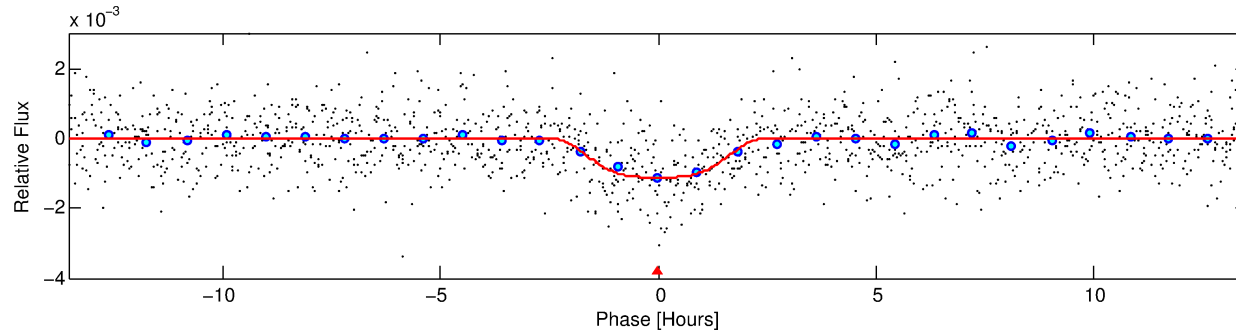
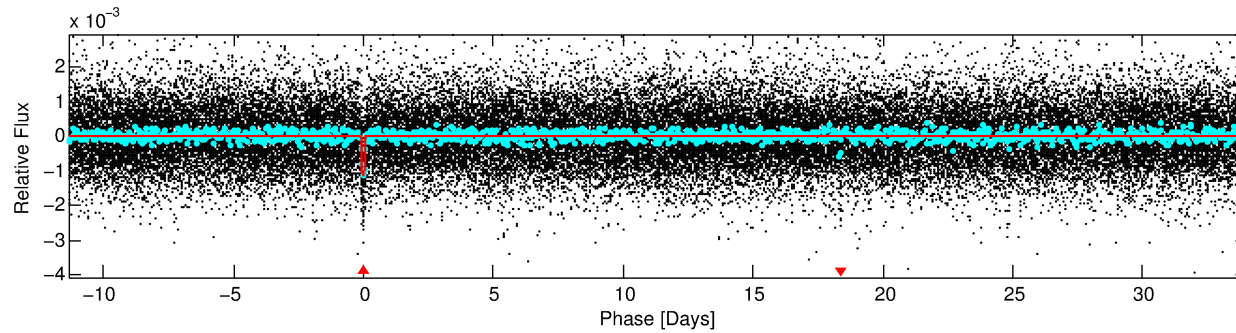
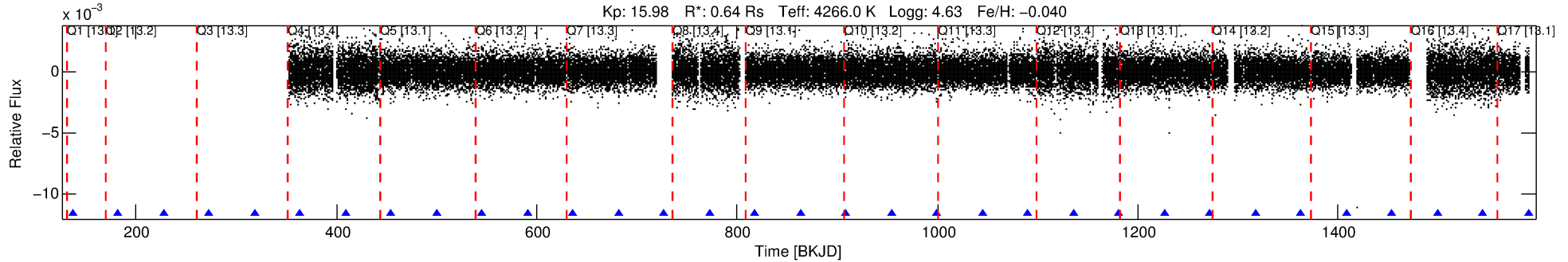
## Ephemeris Match Information For 008625813-01

TCE (1)	KIC	Parent (2)	Parent KIC	$P_1:P_2$	Dist ( $''$ )	$\Delta$ Row	$\Delta$ Col	$m_2$	$m_1$	$D_2/D_1$	Mechanism	Flag	$\sigma_P$	$\sigma_T$
008625813-01	8625813	1859.01	8625821	1:1	10.8	3	-1	15.02	15.98	1.30	Direct-PRF	0	0.10	0.09

**Notes:**  $P_1:P_2$  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.  $m_2$  and  $m_1$  are the magnitudes of the parent and child.  $D_2/D_1$  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: 8625813 Candidate: 1 of 1 Period: 45.397 d  
KOI: K03285.01 Corr: 0.921



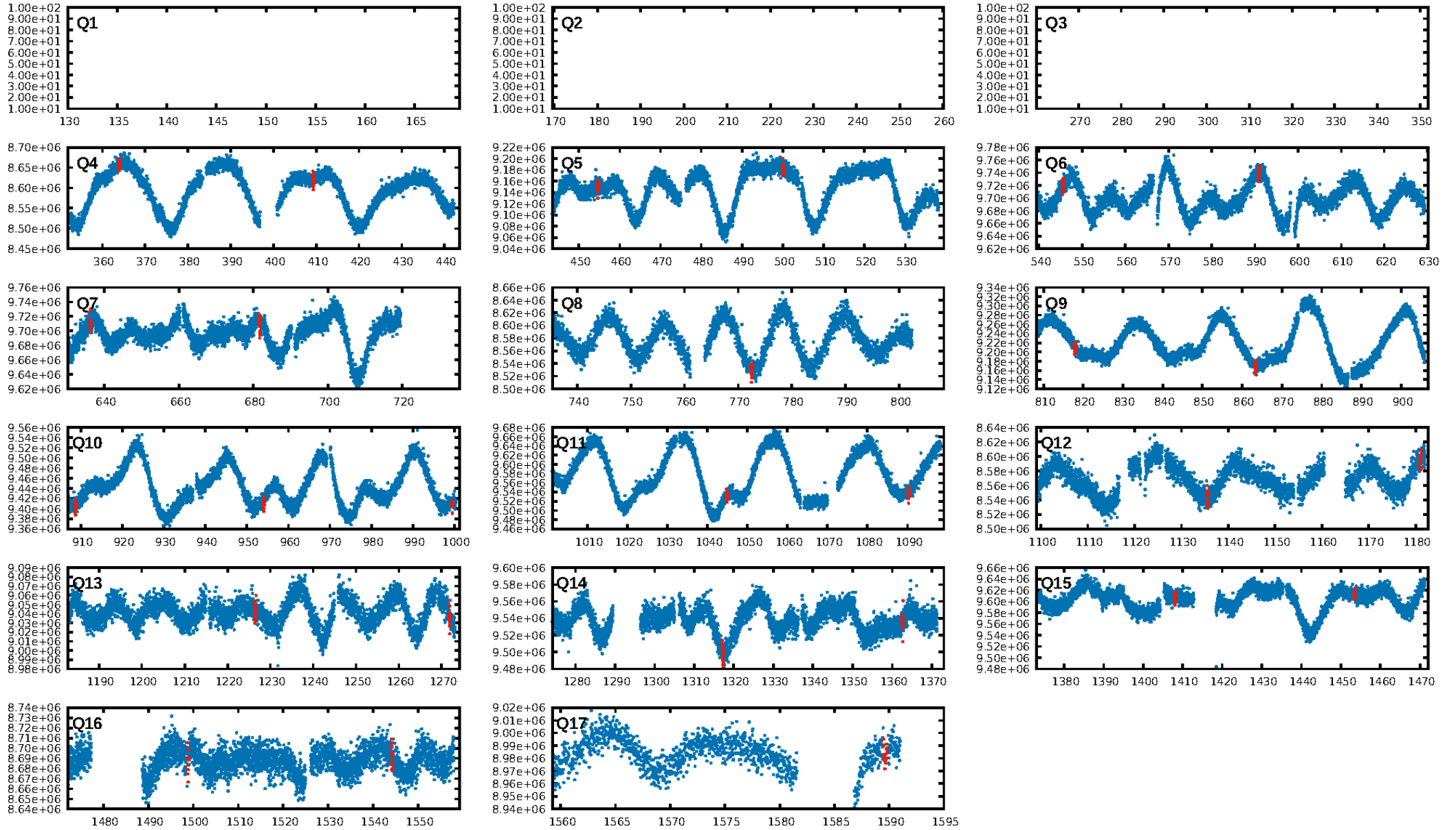
## DV Fit Results:

Period = 45.39663 [0.00044] d  
Epoch = 136.9440 [0.0089] BKJD  
Rp/R\* = 0.0406 [0.0032]  
a/R\* = 33.31 [5.76]  
b = 0.95 [0.02]  
Seff = 2.67 [0.49]  
Teq = 326 [15] K  
Rp = 2.85 [0.35] Re  
a = 0.2144 [0.0158] AU  
Ag = 1430.70 [396.17] [3.61 $\sigma$ ]  
Teffp = 3099 [233] K [11.86 $\sigma$ ]

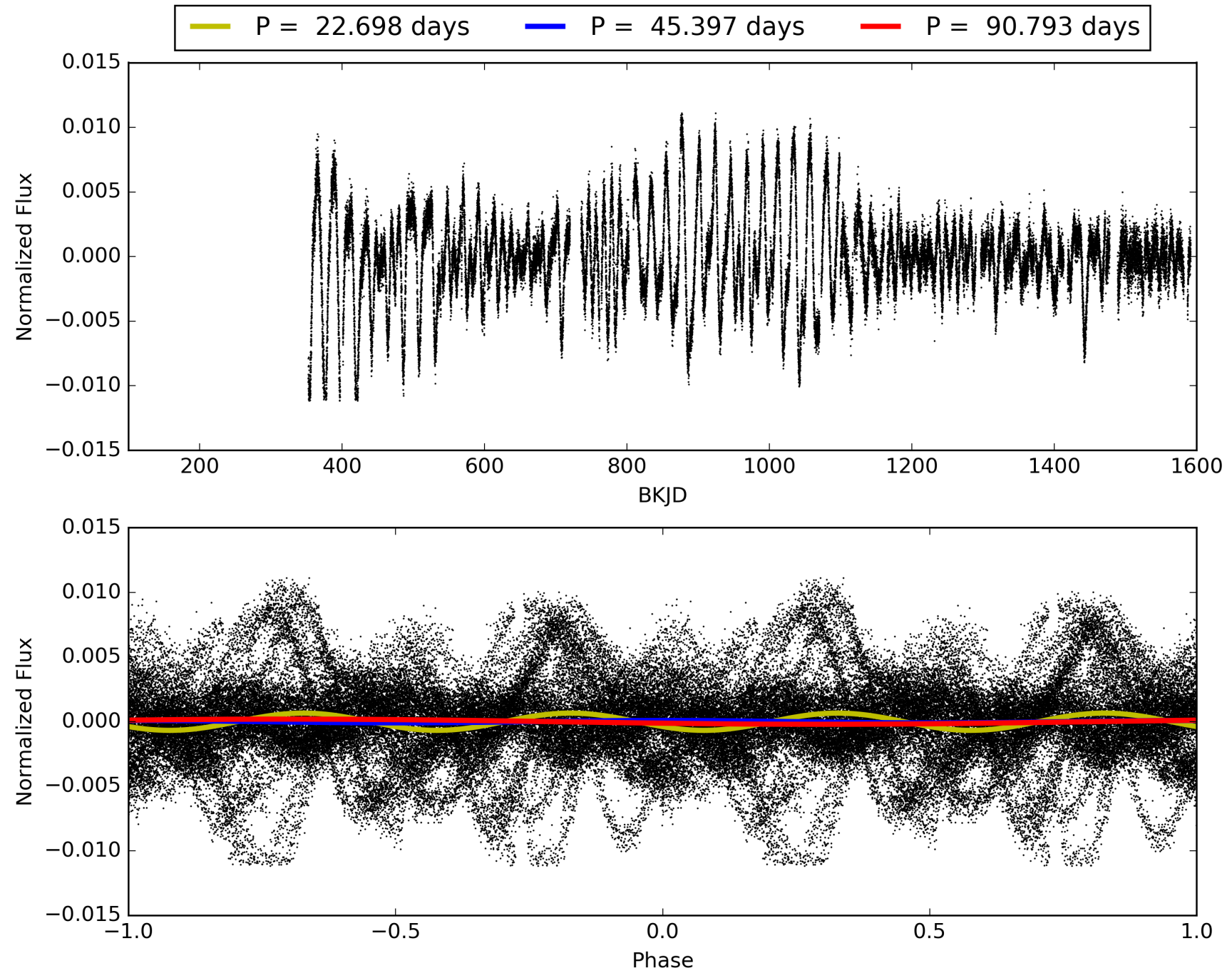
## DV Diagnostic Results:

ShortPeriod-sig: N/A  
LongPeriod-sig: N/A  
ModelChiSquare2-sig: 91.0%  
ModelChiSquareGof-sig: 100.0%  
Bootstrap-pfa: 2.03e-39  
RollingBand-fgt: 1.00 [26/26]  
GhostDiagnostic-chr: -0.1954  
Centroid-sig: 0.0%  
Centroid-so: 14.092 arcsec [24.89 $\sigma$ ]  
OotOffset-rm: 5.237 arcsec [2.87 $\sigma$ ]  
KicOffset-rm: 6.455 arcsec [78.73 $\sigma$ ]  
OotOffset-st: 0/3/1/0 [4]  
KicOffset-st: 0/3/1/0 [4]  
DiffImageQuality-fgm: 1.00 [4/4]  
DiffImageOverlap-fno: 1.00 [14/14]

# TCE 008625813-01, PDC Light Curves

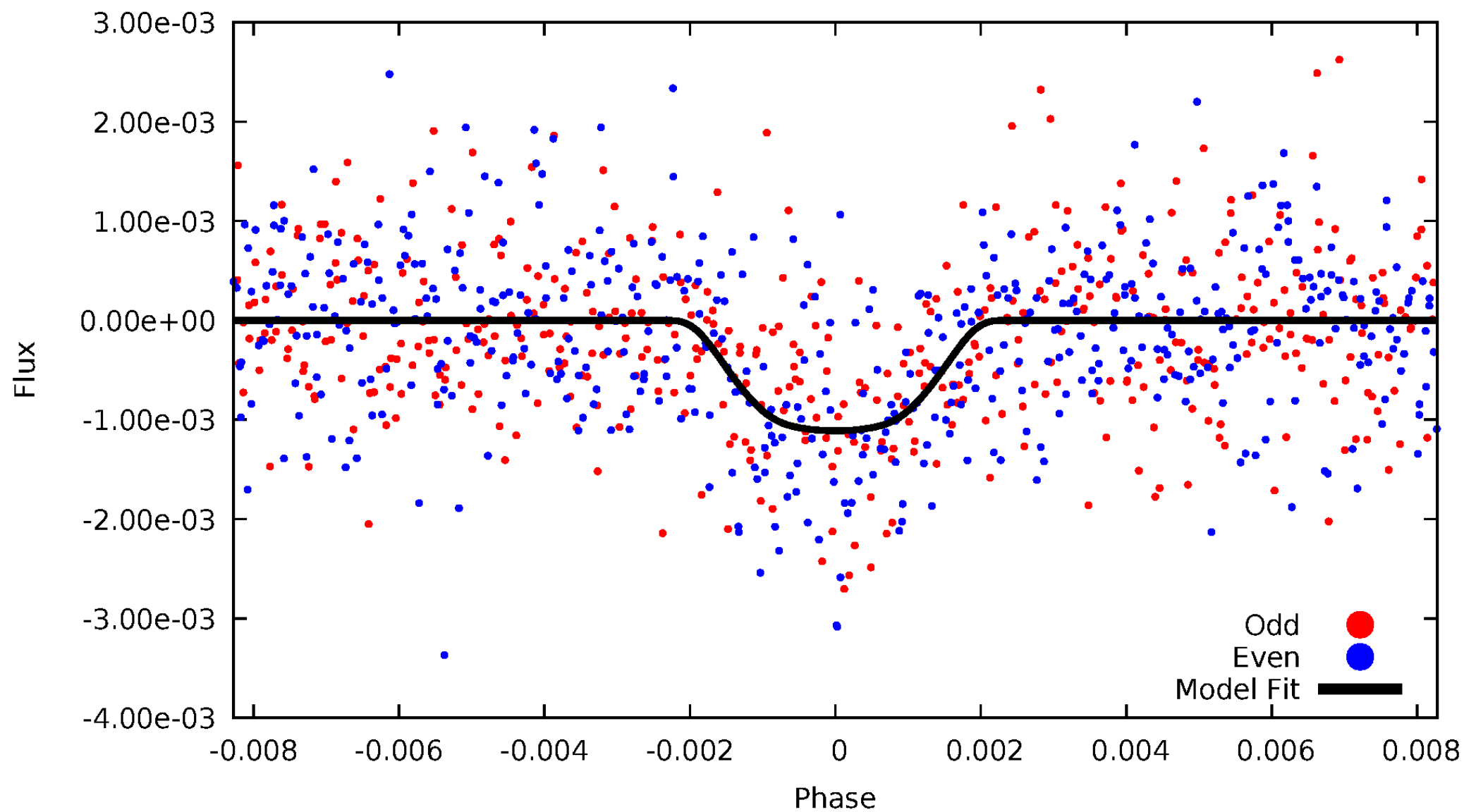


TCE 008625813-01



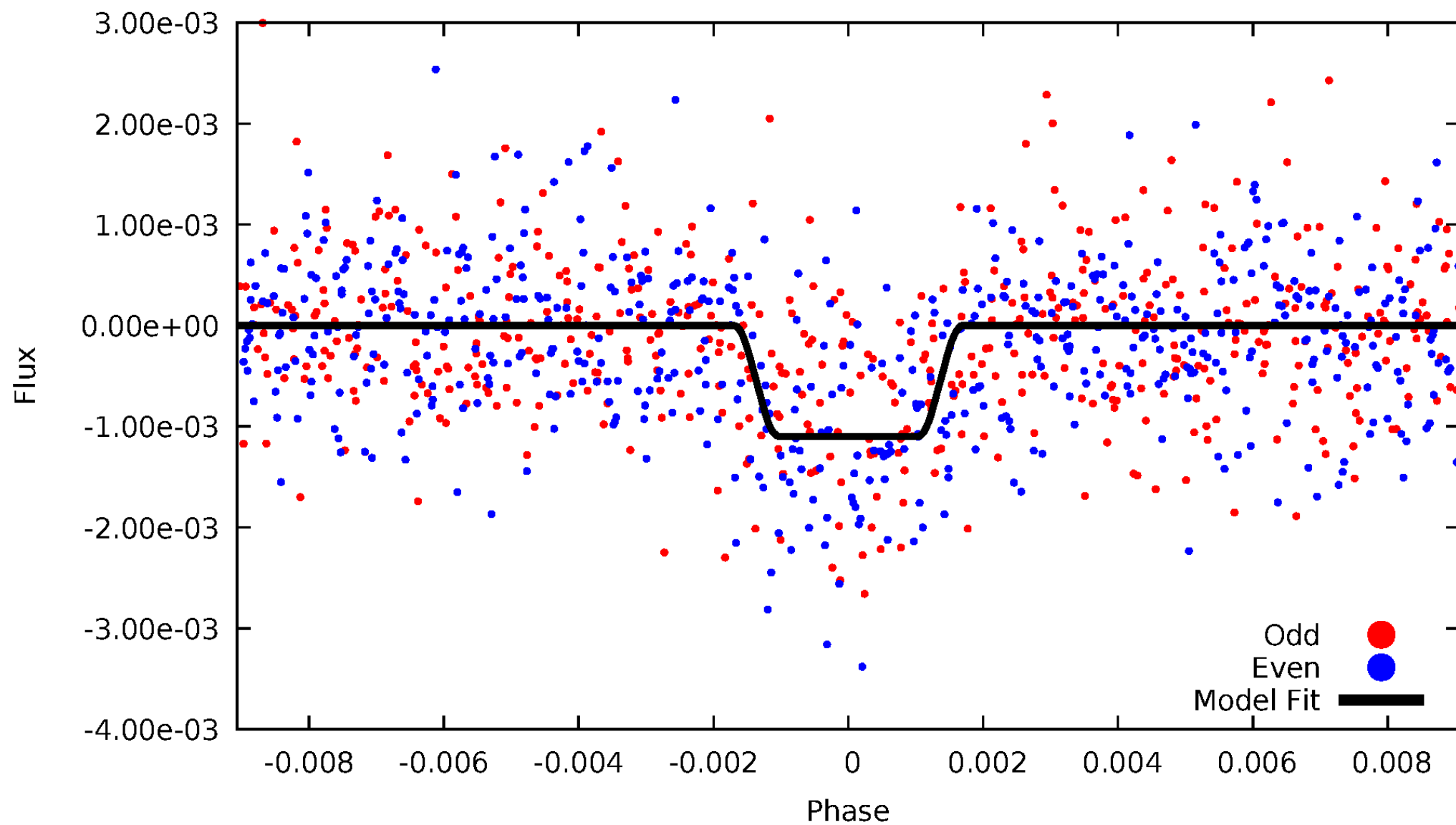
# DV Odd/Even

TCE 008625813-01



# ALT Odd/Even

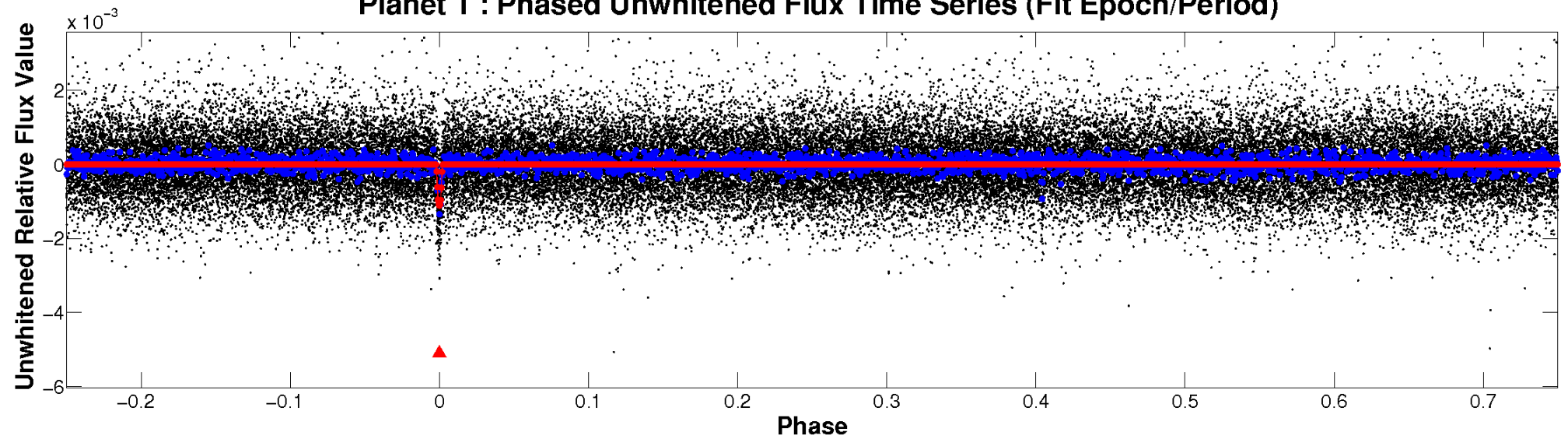
TCE 008625813-01



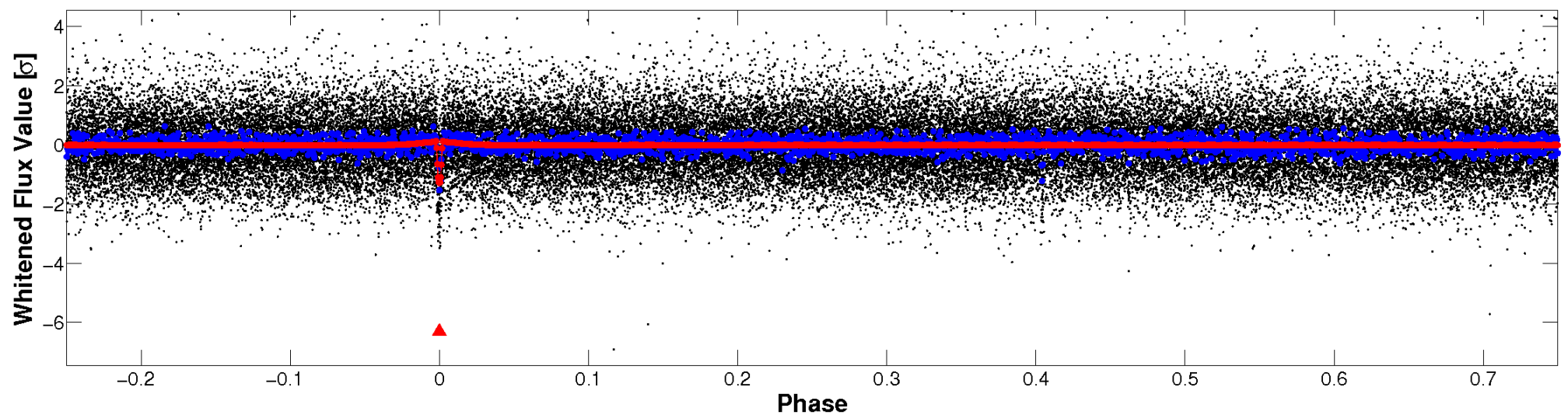


# Non-Whitened Vs. Whitened Light Curve

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

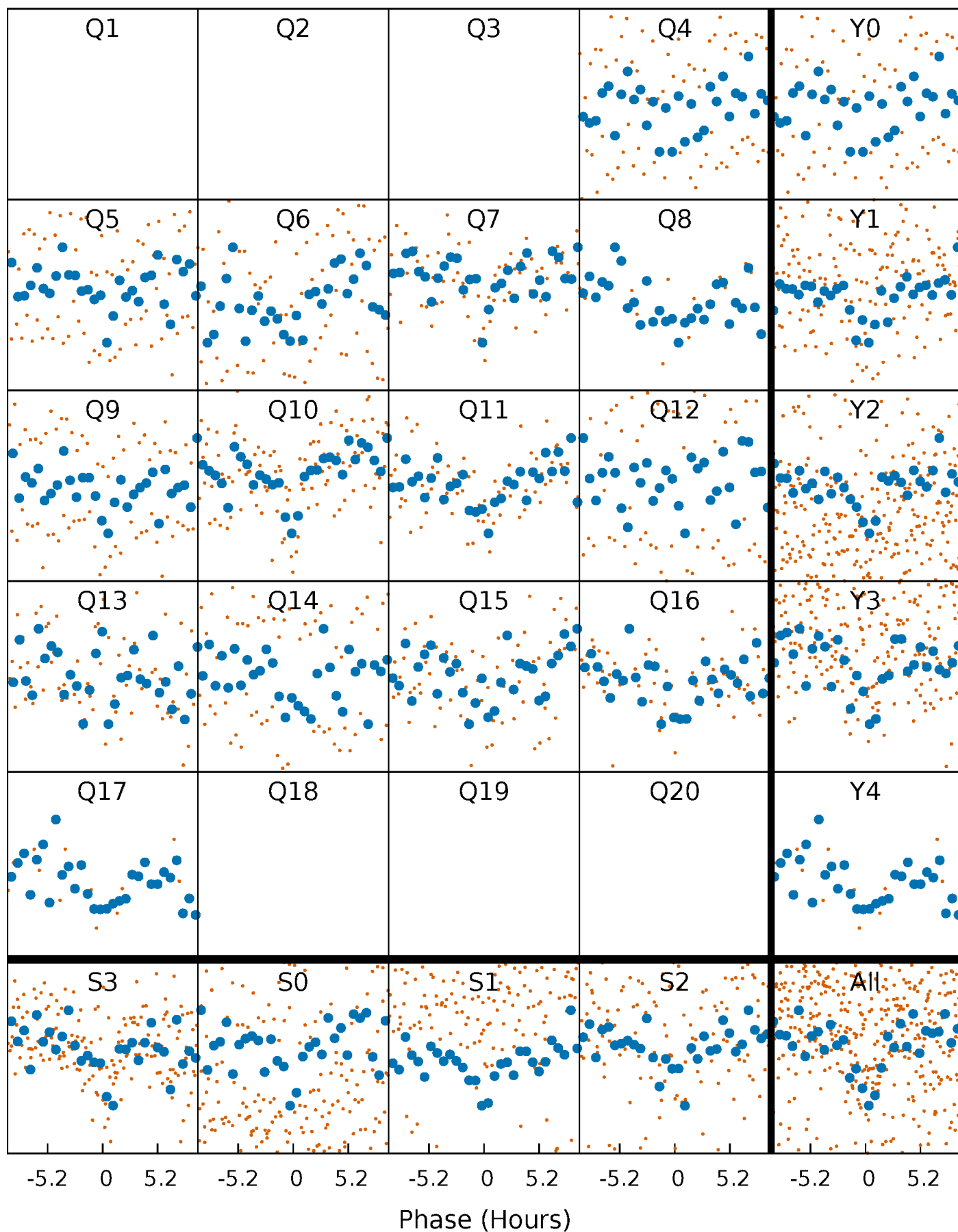


**Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)**



# PDC Quarter-Phased Transit Curves

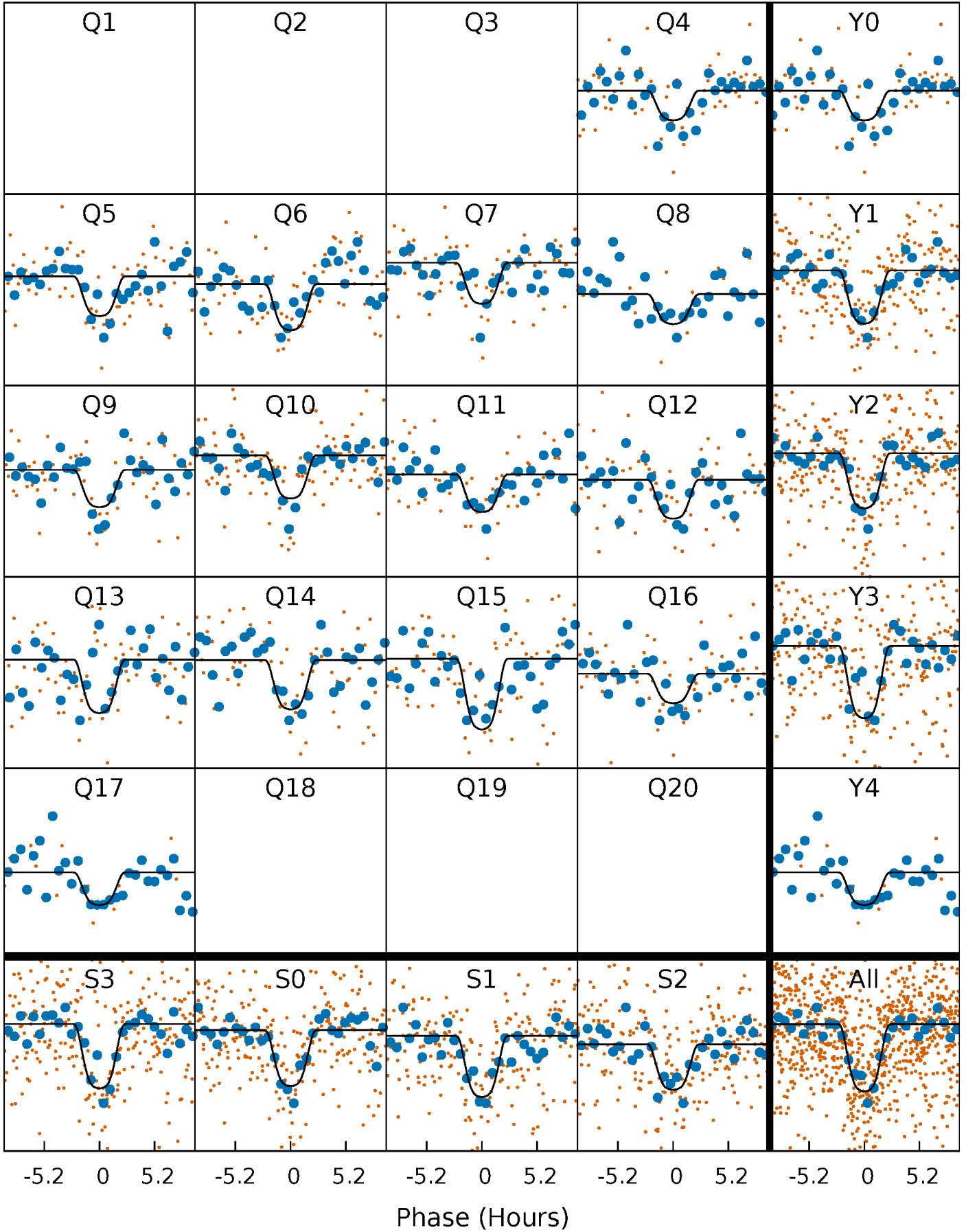
TCE 008625813-01 P= 45.396634 Days  $T_0=136.943966$  (BKJD)





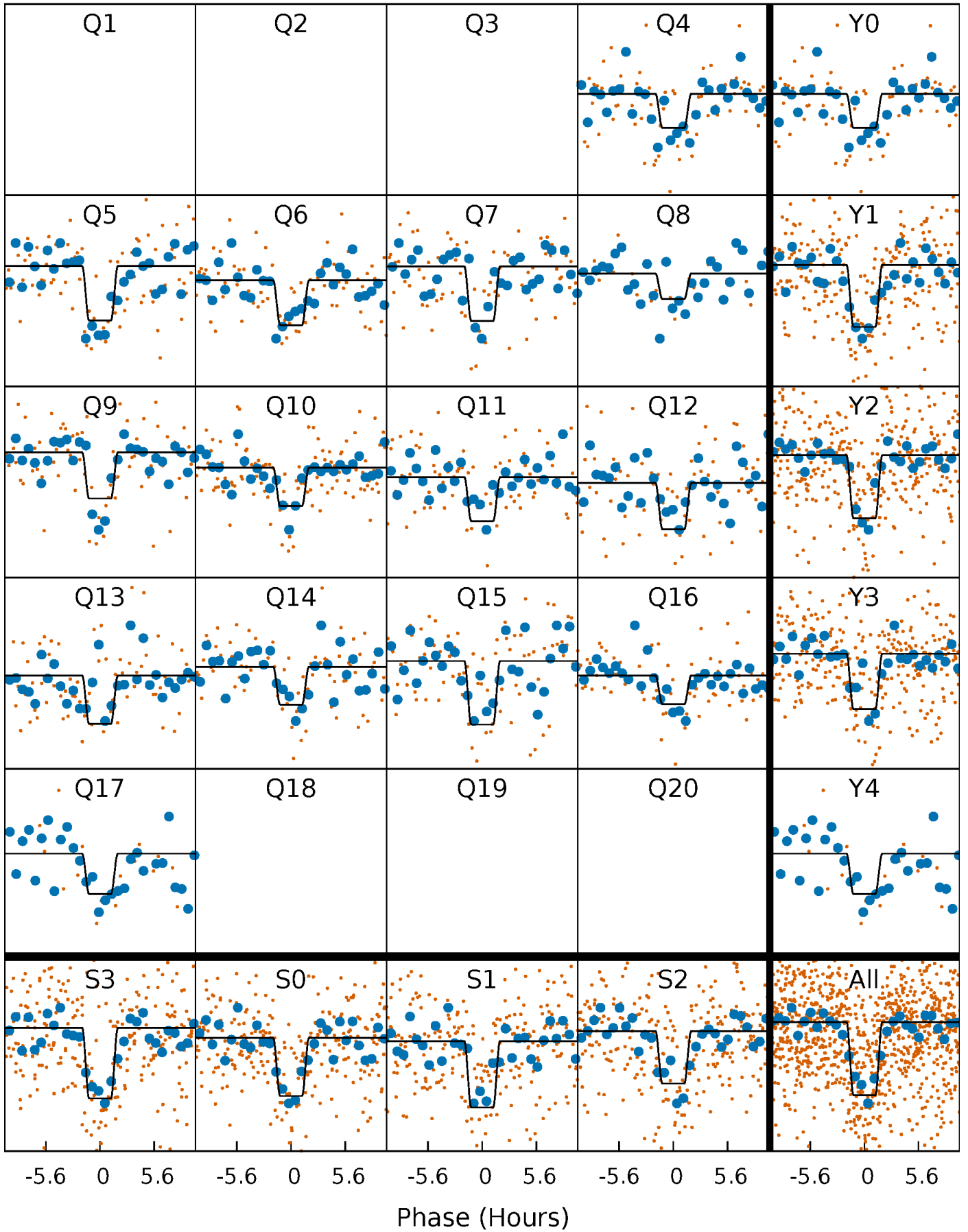
# DV Quarter-Phased Transit Curves

TCE 008625813-01 P= 45.396634 Days  $T_0=136.943966$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

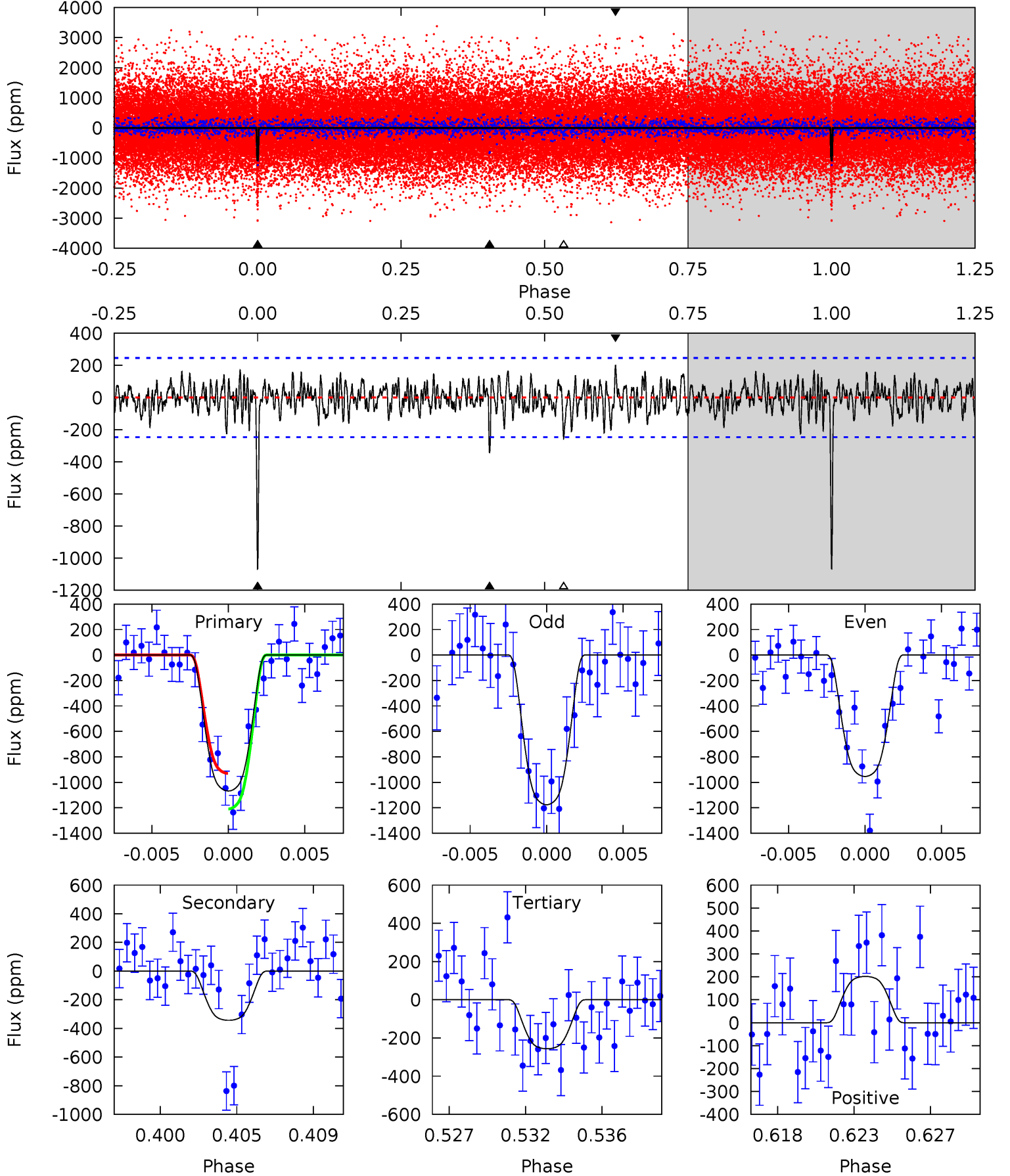
TCE 008625813-01 P= 45.395660 Days  $T_0=136.964968$  (BKJD)



# DV Model-Shift Uniqueness Test

008625813-01,  $P = 45.396634$  Days,  $E = 136.943966$  Days

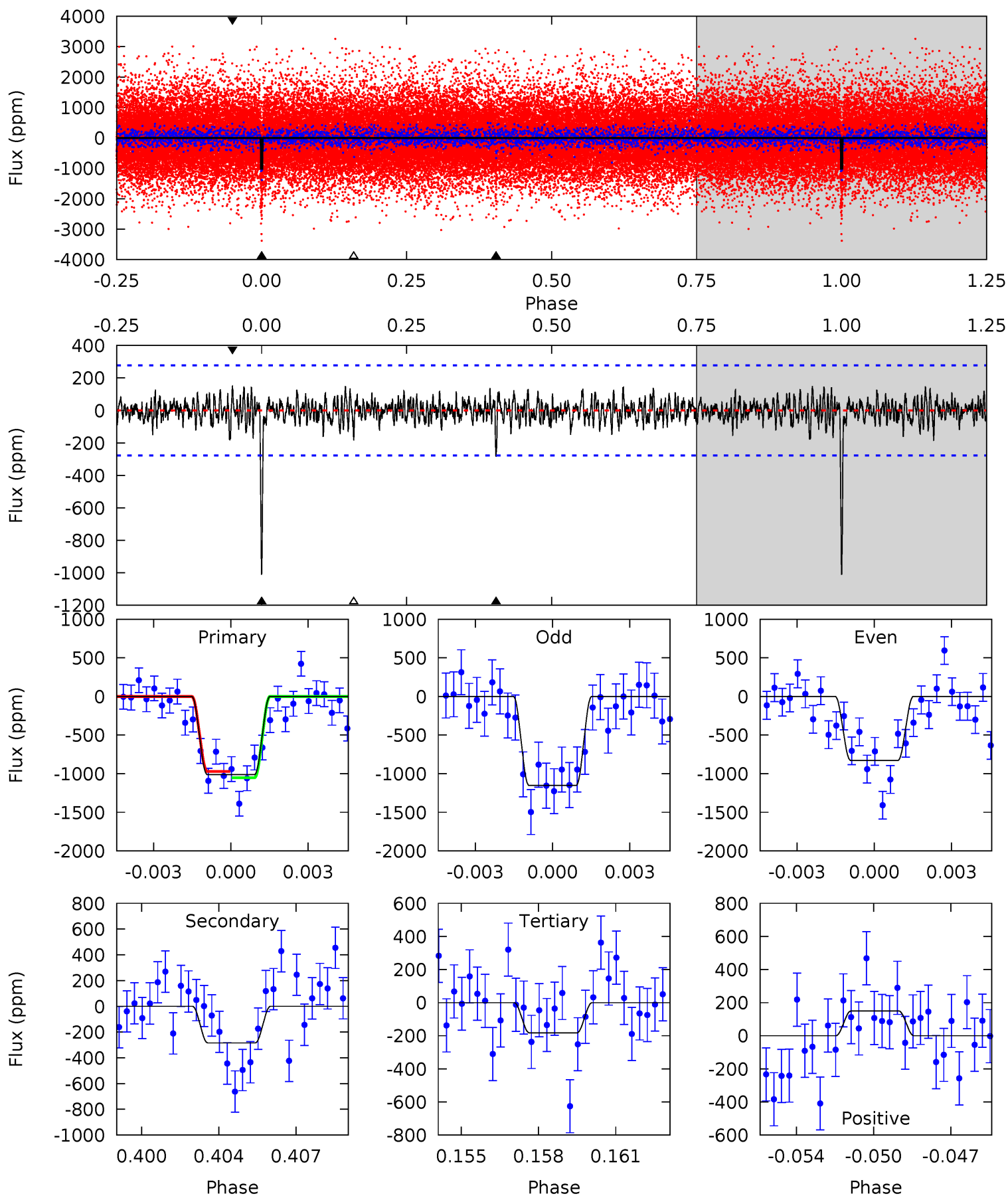
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
22.4	7.21	5.39	4.23	5.18	2.84	1.48	17.0	18.2	1.83	2.98	2.33	0.99	0.16	2.93



# Alt Model-Shift Uniqueness Test

008625813-01, P = 45.395660 Days, E = 136.964968 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
19.1	5.36	3.44	2.83	5.23	2.93	0.99	15.6	16.2	1.92	2.53	3.05	0.93	0.13	0.77



### Stellar Parameters For KIC 008625813

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (g \cdot \text{cm}^{-3})$
	$4266^{+149}_{-164}$	$4.626^{+0.049}_{-0.021}$	$-0.040^{+0.300}_{-0.300}$	$0.643^{+0.041}_{-0.061}$	$0.638^{+0.063}_{-0.056}$	$3.378^{+0.784}_{-0.359}$
	+3%/-4%	+1%/-0%	+750%/-750%	+6%/-9%	+10%/-9%	+23%/-11%
Source	KIC0	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 008625813-01 / KOI 3285.01

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	$A_{obs}$
DV	$-344 \pm 48$	$2.83^{+0.25}_{-0.27}$	$451^{+19}_{-19}$	$3280^{+141}_{-147}$	$1106^{+261}_{-216}$
Alt.	$-285 \pm 53$	$2.30^{+0.26}_{-0.24}$	$454^{+17}_{-21}$	$3397^{+179}_{-172}$	$1375^{+442}_{-337}$

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

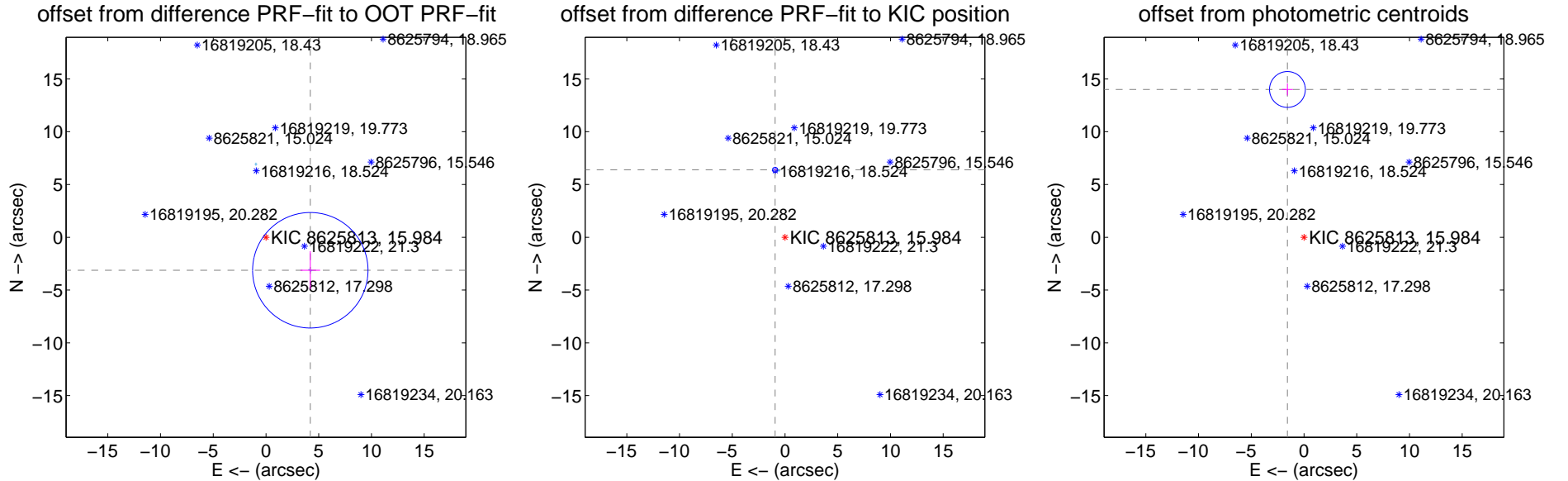
## DV Centroid Data

Supplemental centroid analysis for 008625813-01. Kepler magnitude: 15.98. Transit SNR 14.43

There are 4 quarters with good PRF difference image offsets

The OOT PRF centroid is offset from the target star catalog position by about 10.85 arcsec so the offset from difference PRF-fit to OOT-fit may be invalid.

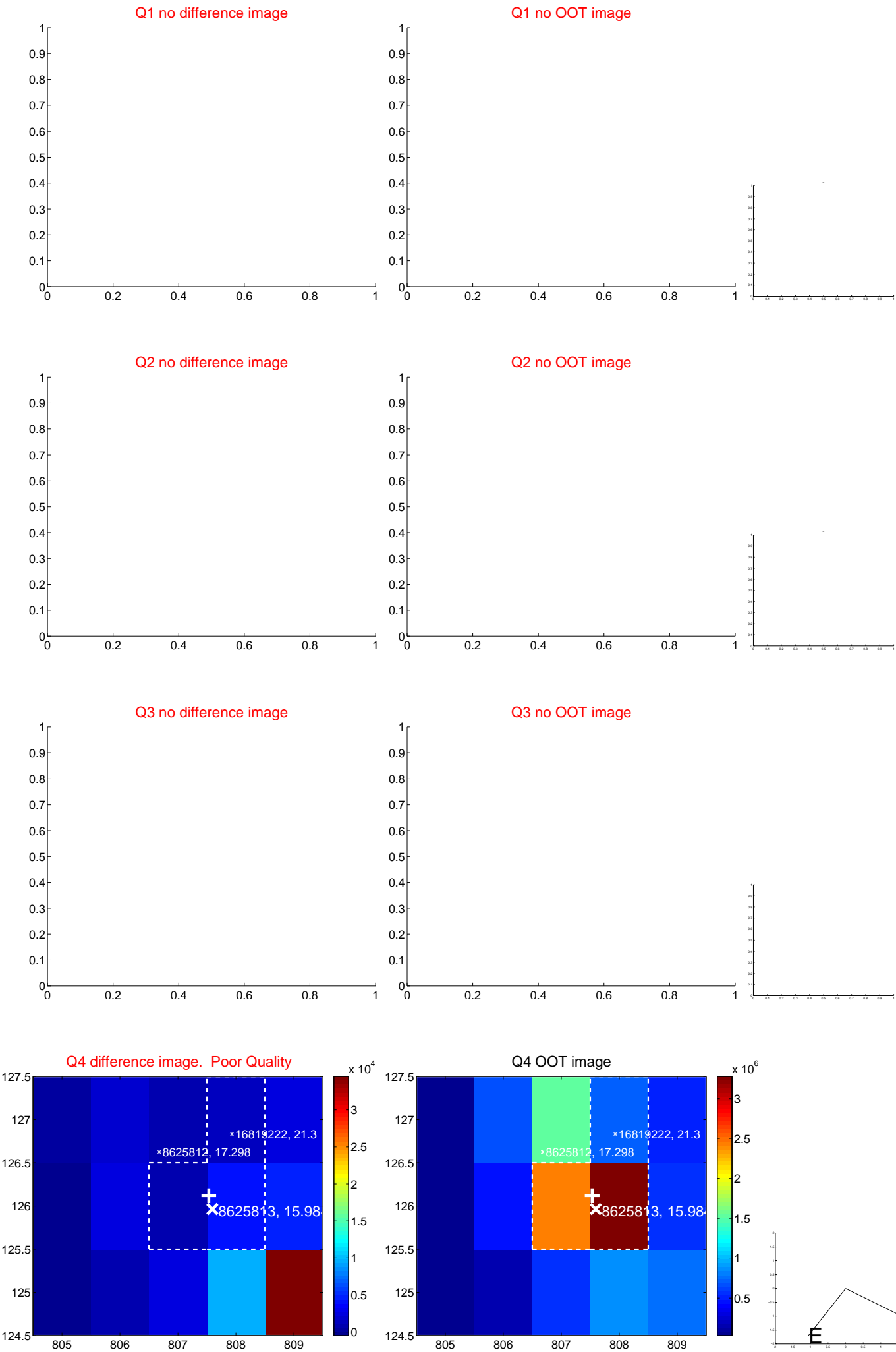
	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$5.237 \pm 1.824$	2.87	$-4.203 \pm 0.930$	$-3.125 \pm 1.808$
PRF-fit source offset from KIC position	$6.455 \pm 0.082$	78.73	$0.941 \pm 0.085$	$6.386 \pm 0.082$
photometric centroid source offset	$14.09 \pm 0.57$	24.89	$1.57 \pm 0.51$	$14.00 \pm 0.57$



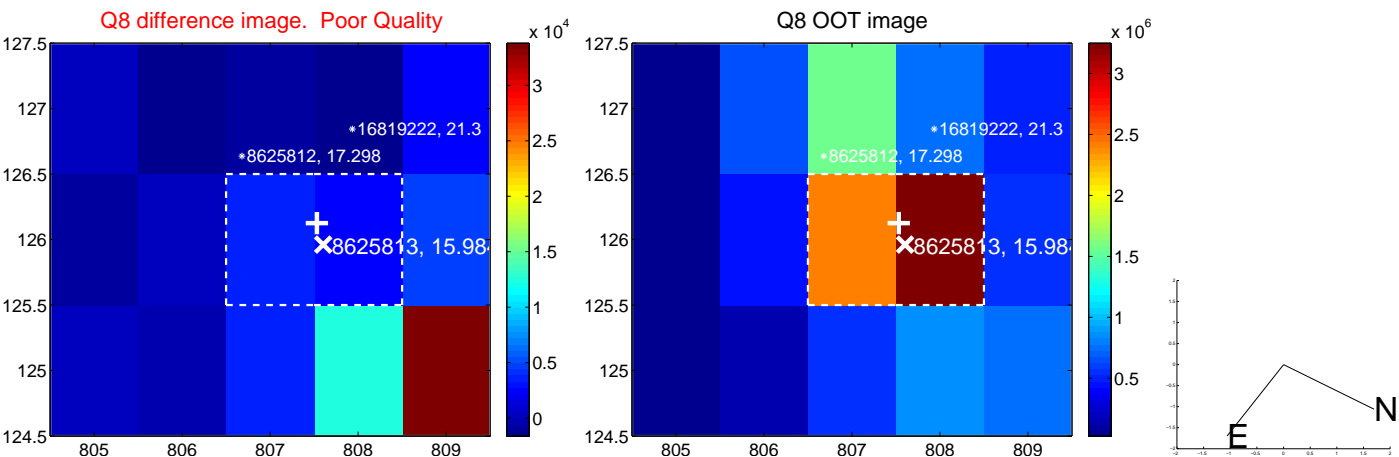
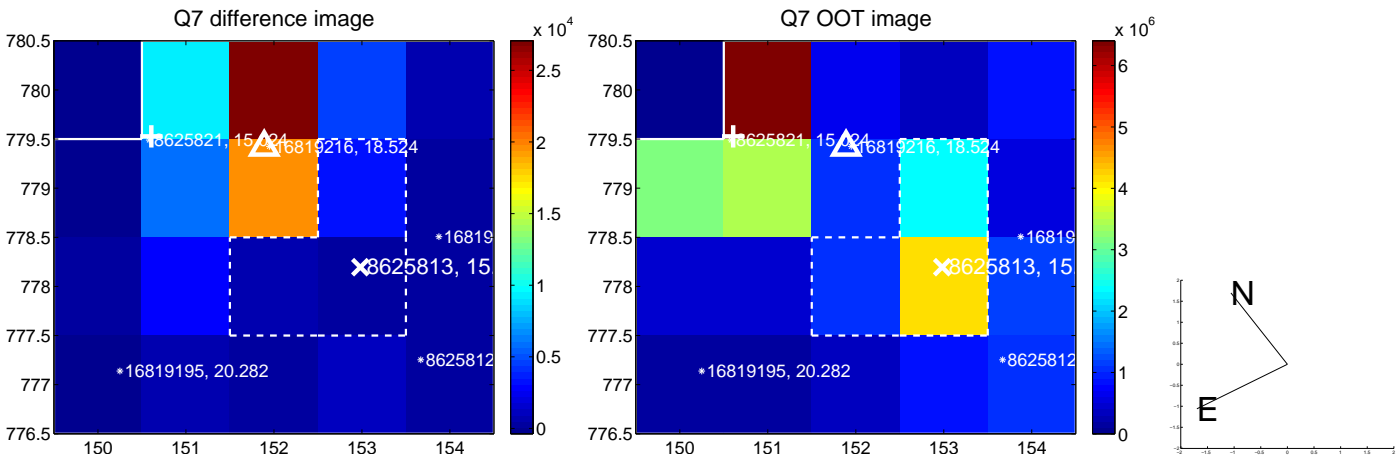
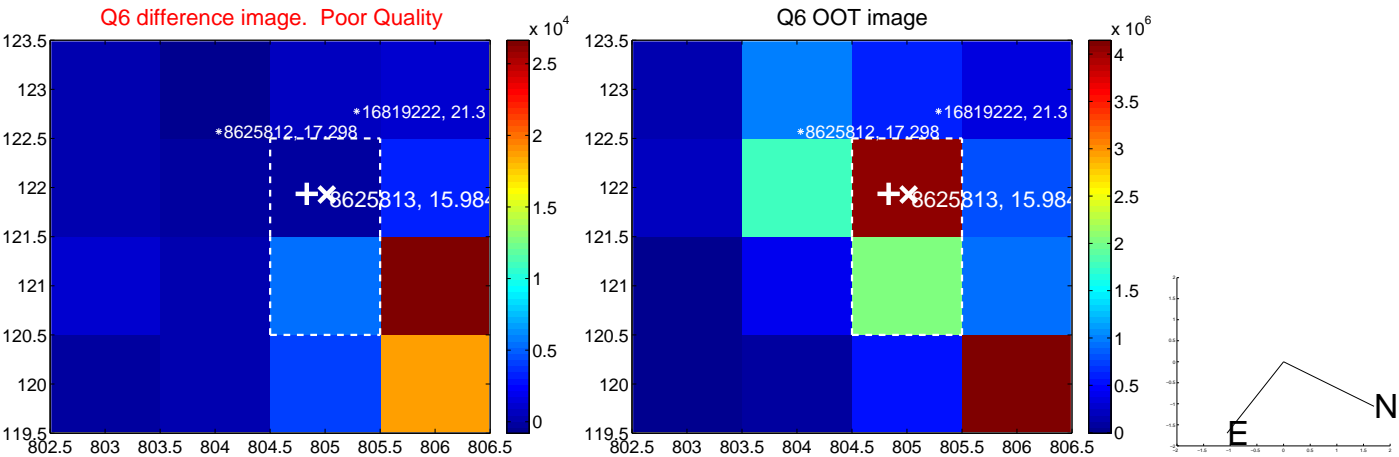
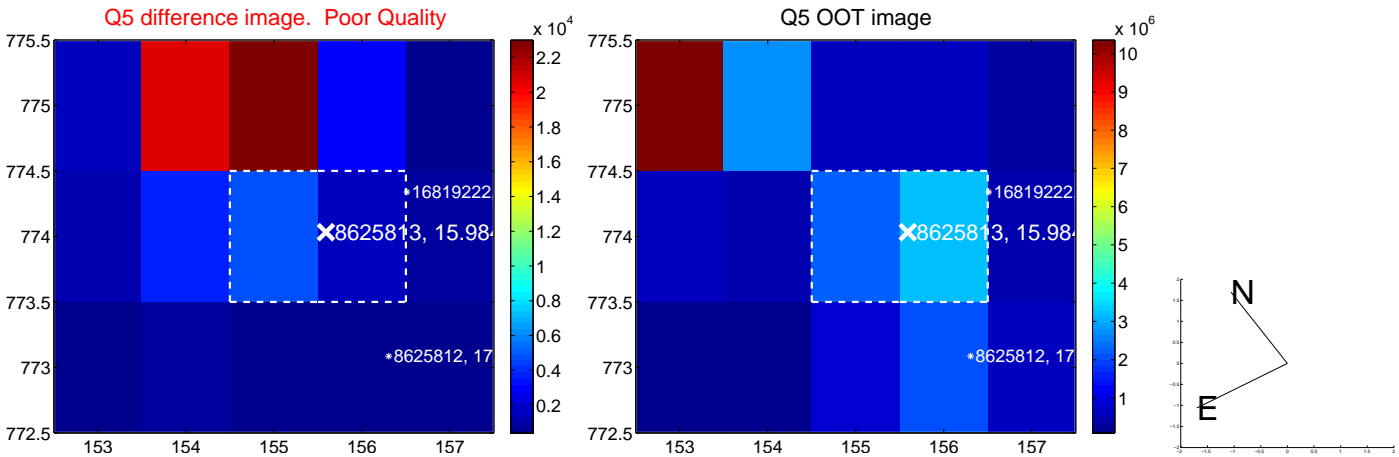
Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: three-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



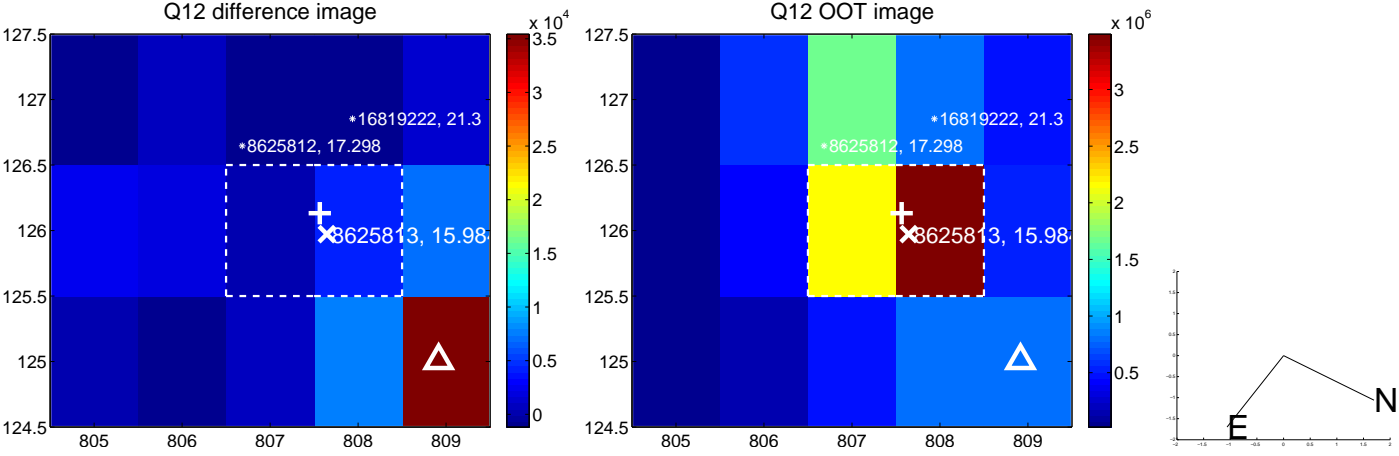
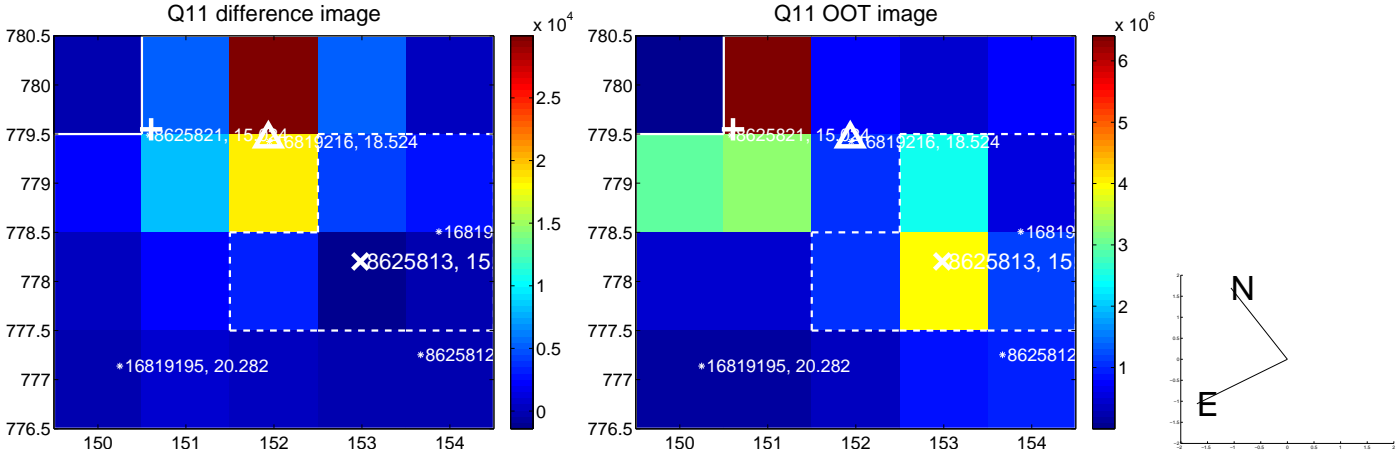
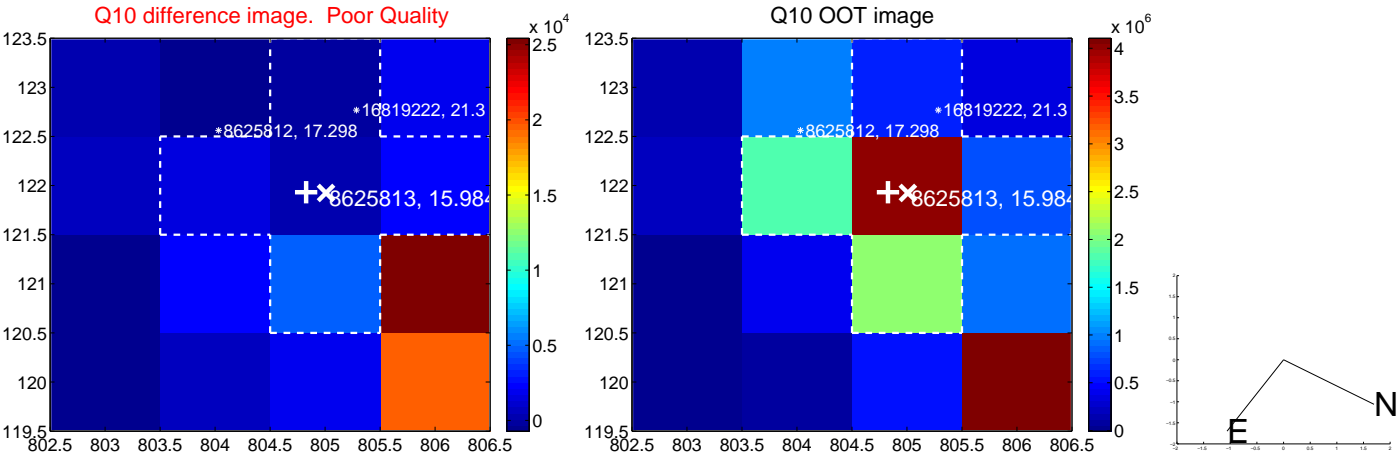
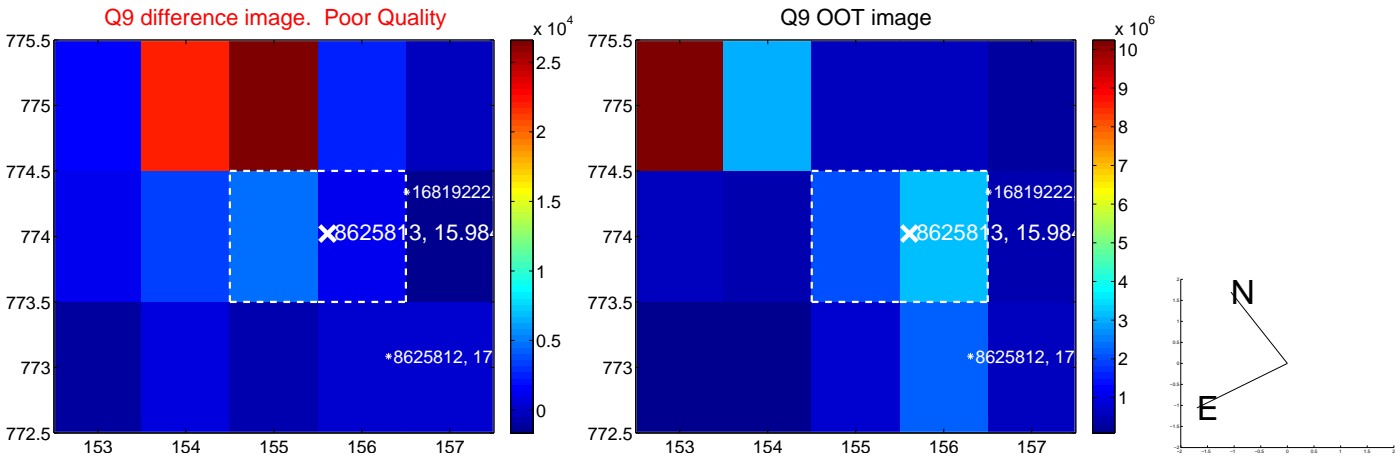
white ×: KIC target position; +: OOT centroid; △: difference centroid. red ✕: large negative pixel value.



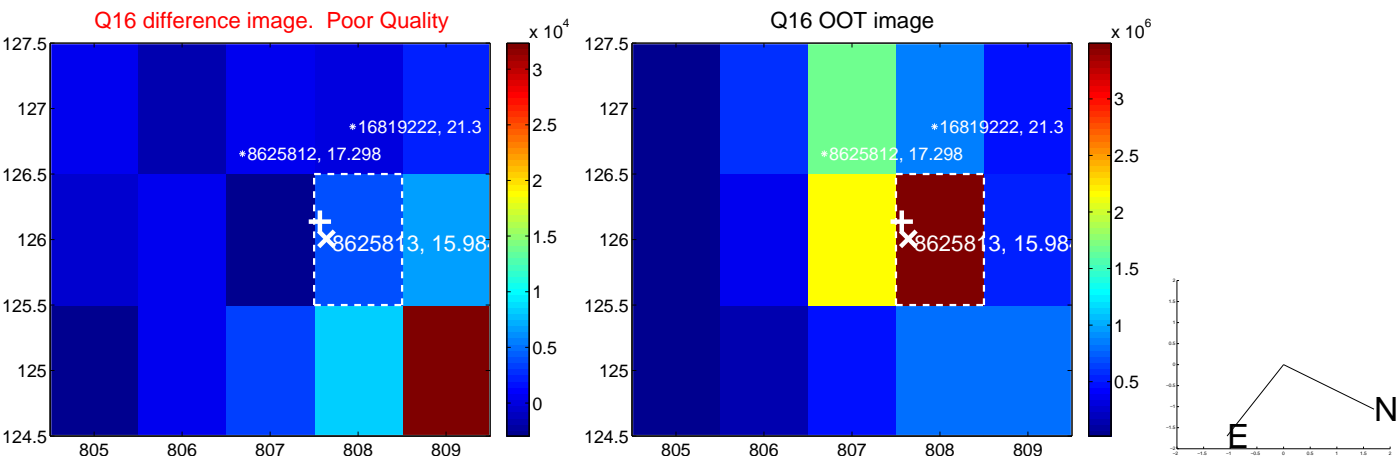
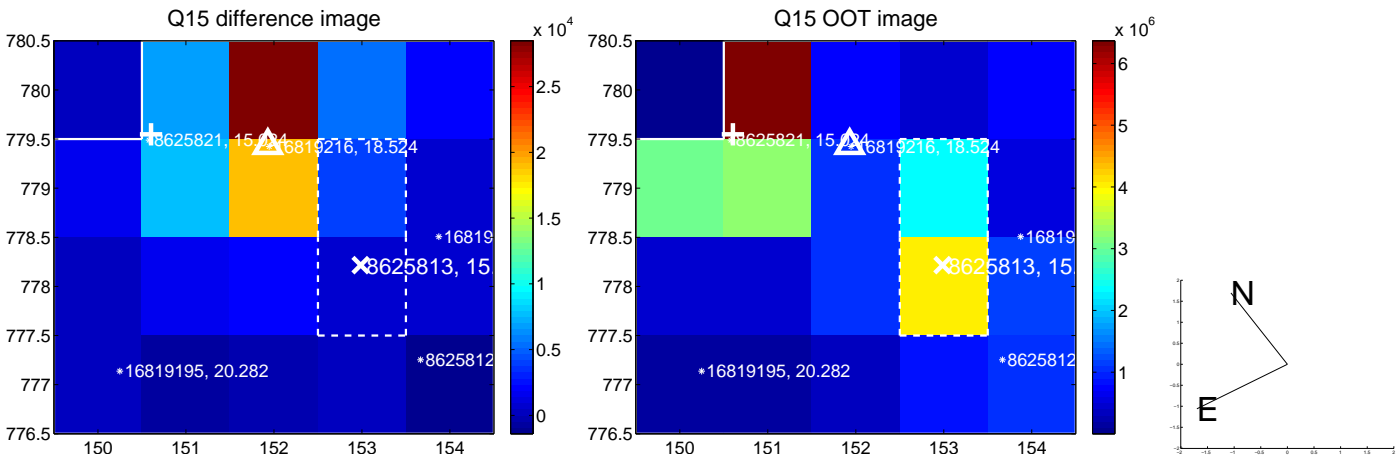
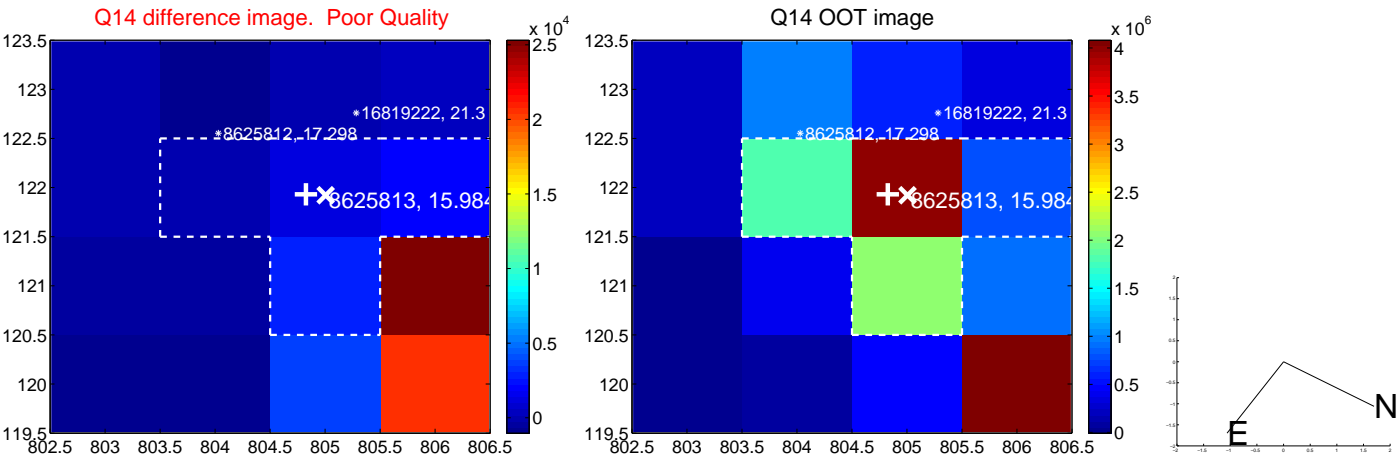
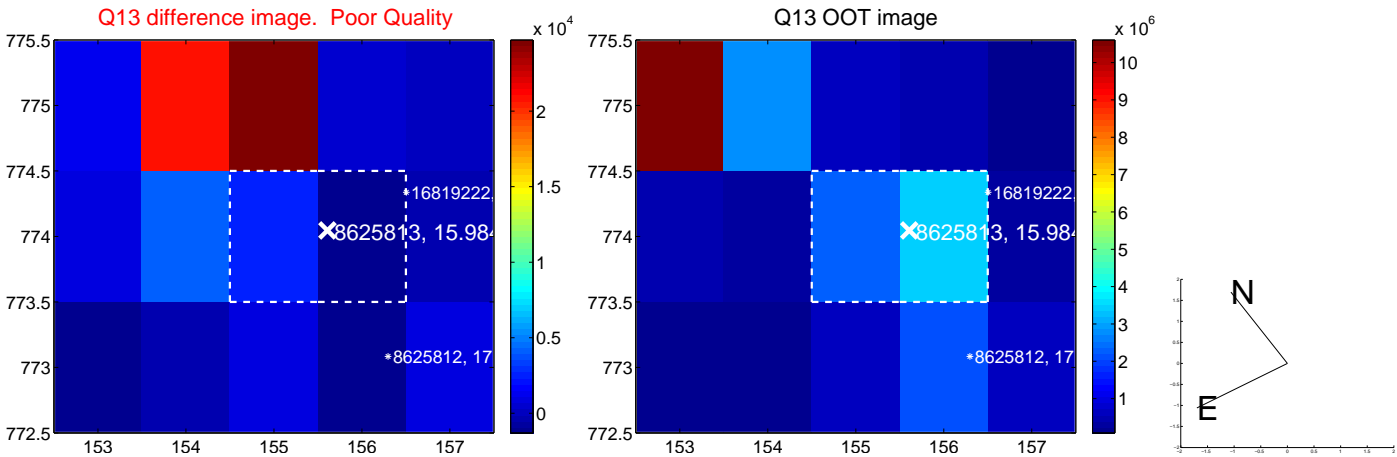
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



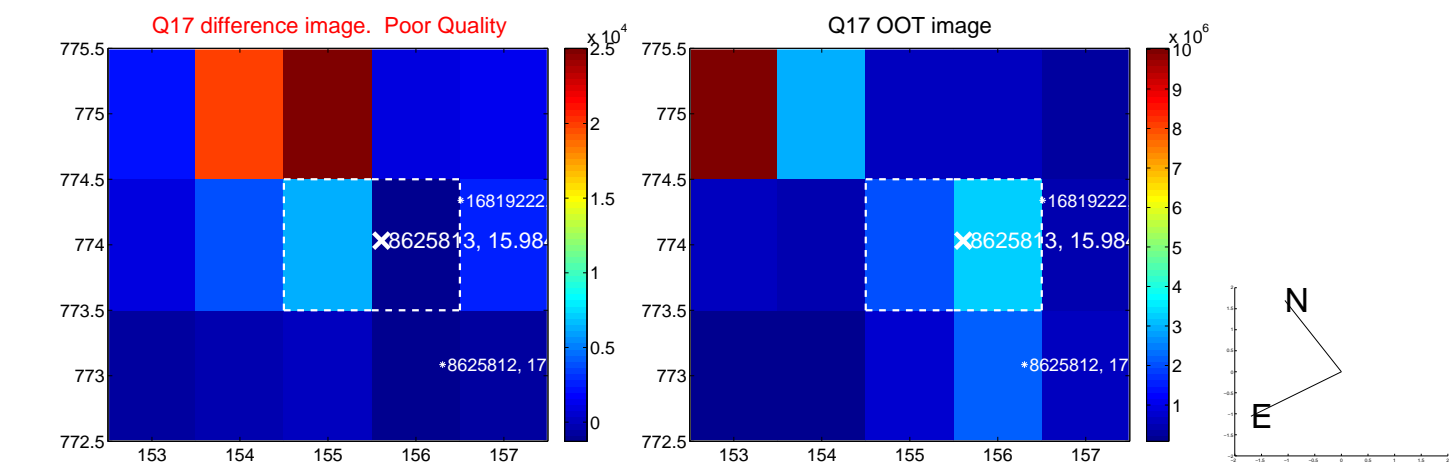
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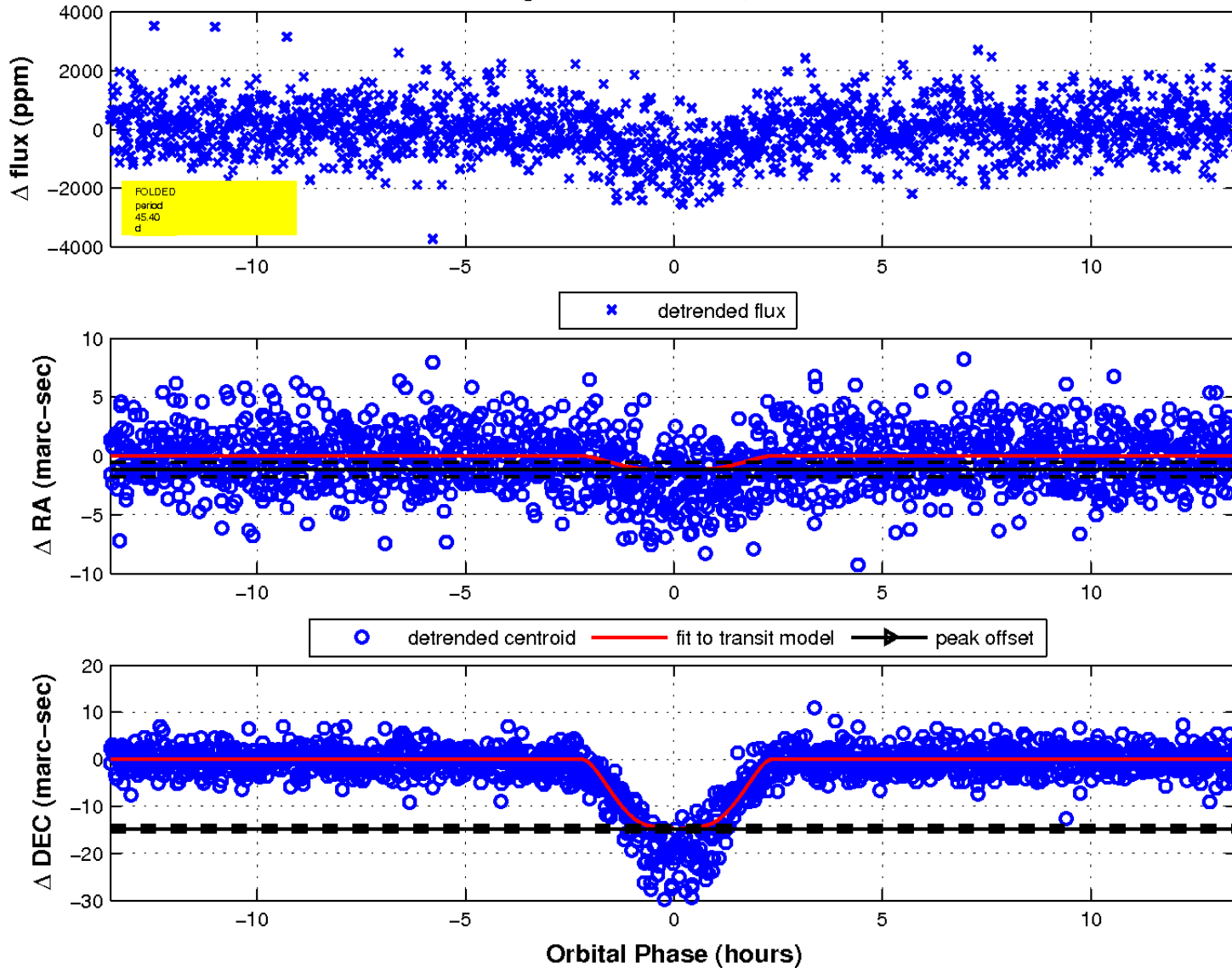
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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



fluxWeightedCentroids, Planet 1 of 1



UKIRT Image

Declination

