

# KIC 008128247

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
008128247-01	OBS	4094.01	3.570168	134.443355	67.6	5.236	19.4	20.5	69.00	3812	71.45	0.00

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
008128247-01	OBS	FP	0.00	0	1	0	1	PLANET_IN_STAR—MOD_ODDEVEN_ALT—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.

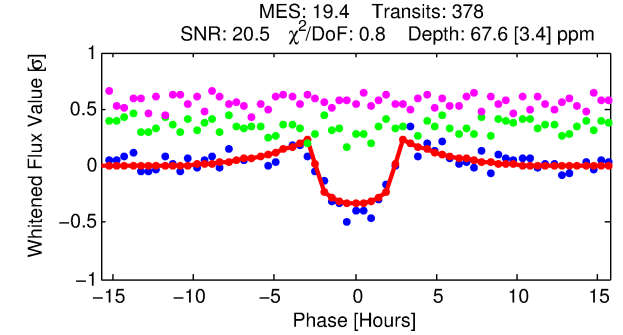
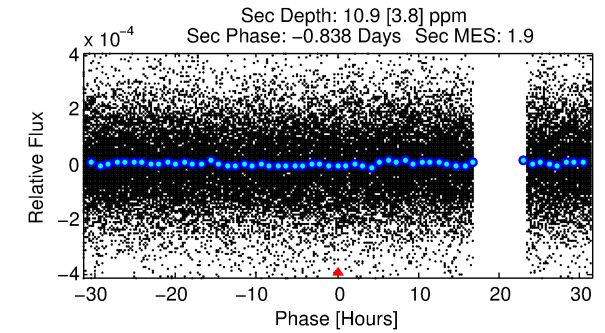
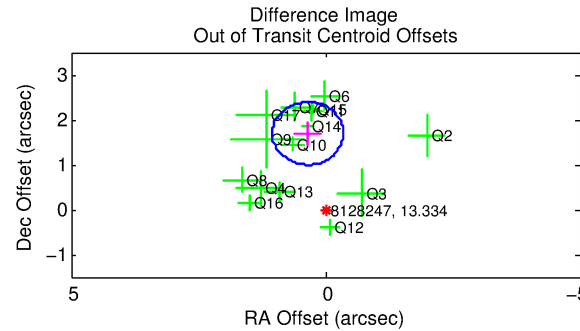
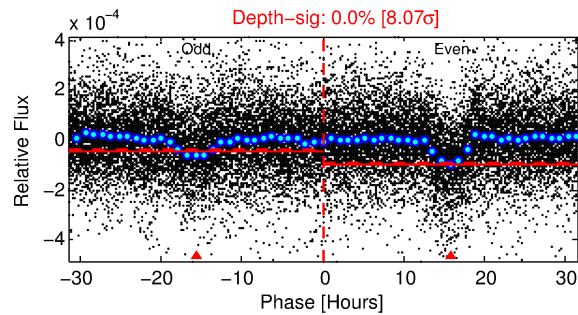
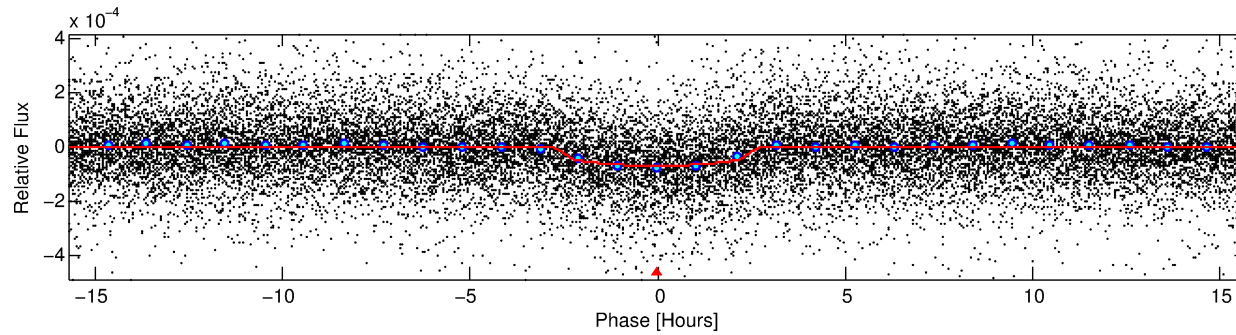
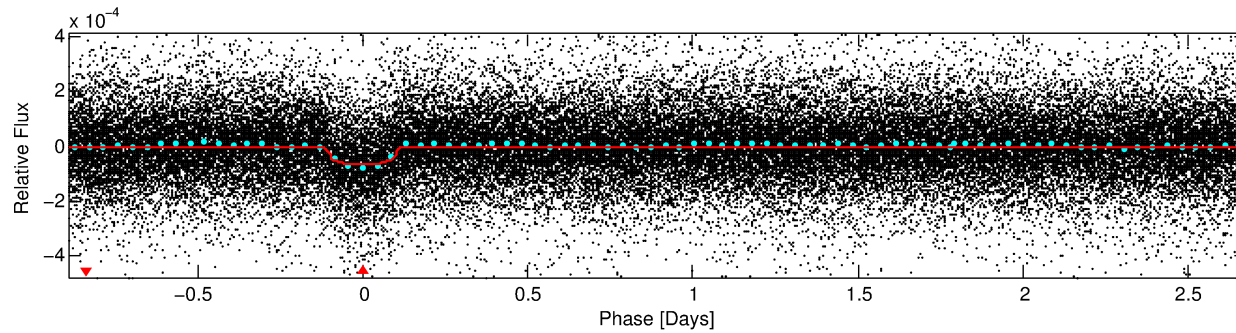
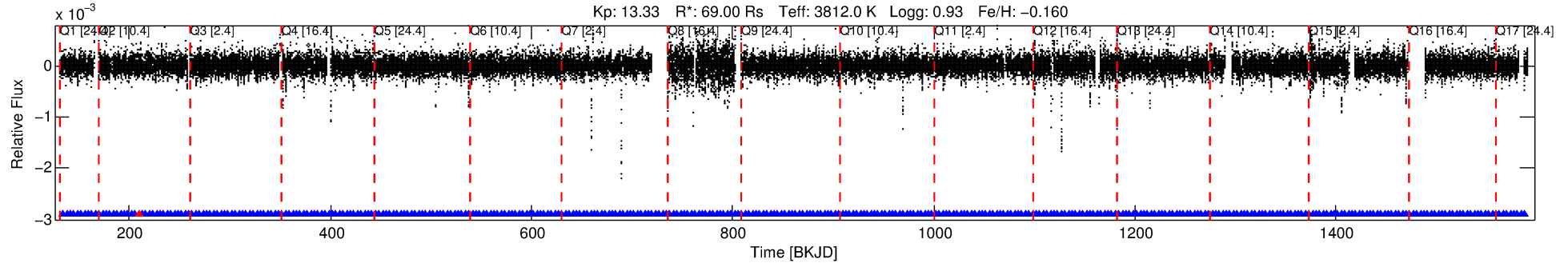
## Ephemeris Match Information For 008128247-01

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	$\sigma_P$	$\sigma_T$
008128247-01	8128247	008128965-pri	8128965	1:2	486.9	122	0	13.23	13.33	3100.00	Col-Anomaly	0	0.68	0.31

**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: 8128247 Candidate: 1 of 1 Period: 3.570 d  
KOI: K04094.01 Corr: 0.964



## DV Fit Results:

Period = 3.57017 [0.00001] d  
Epoch = 134.4434 [0.0025] BKJD  
Rp/R\* = 0.0095 [0.0018]  
a/R\* = 2.61 [1.38]  
b = 0.89 [0.14]  
Seff = N/A  
Teq = N/A  
Rp = 71.45 [18.13] Re  
a = N/A  
Ag = N/A  
Teffp = N/A

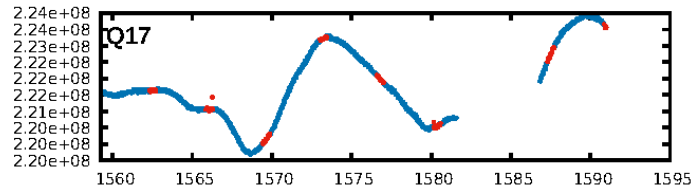
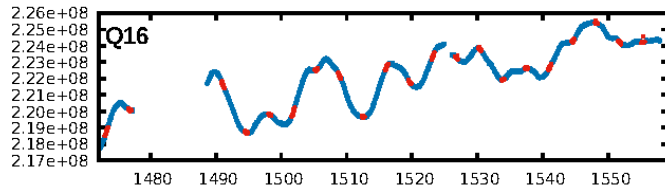
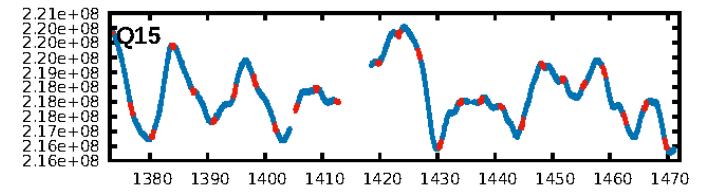
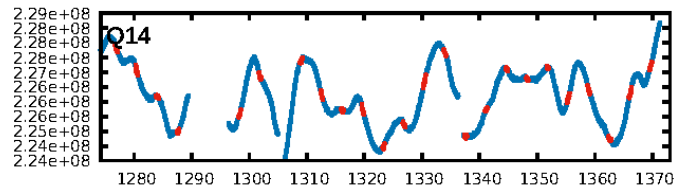
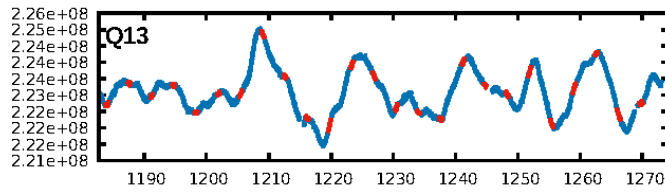
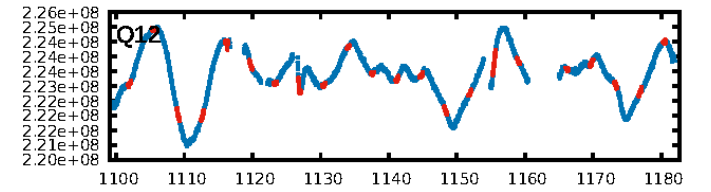
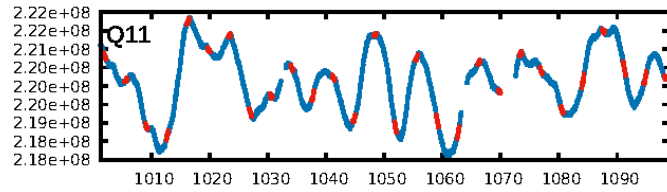
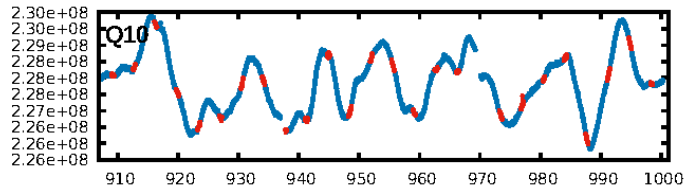
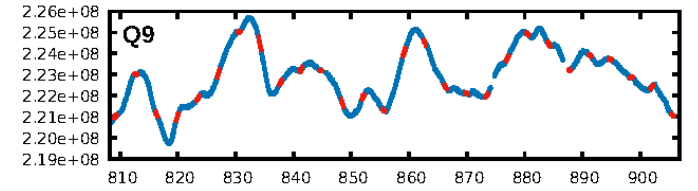
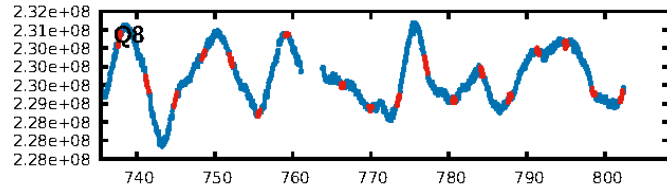
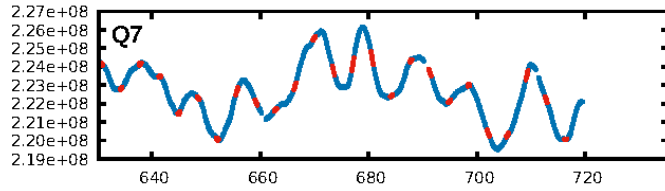
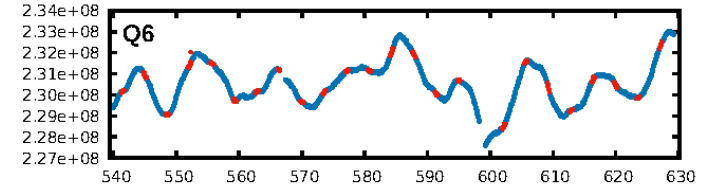
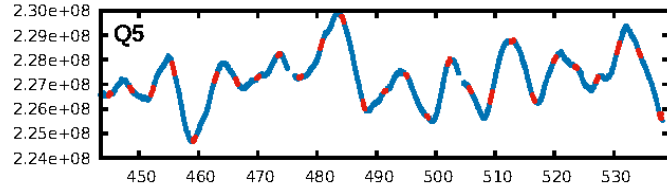
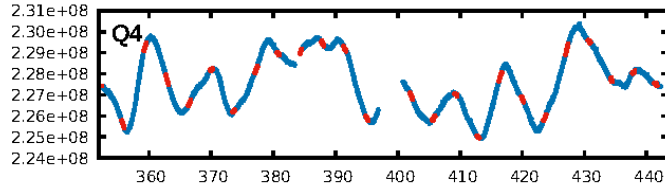
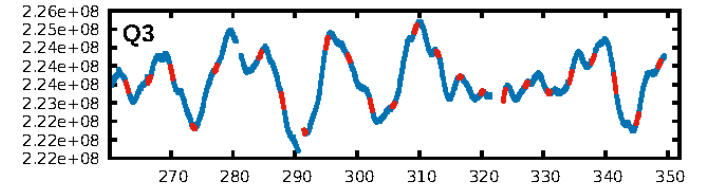
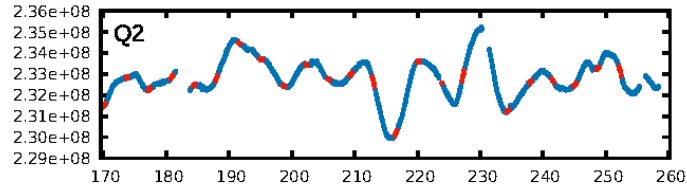
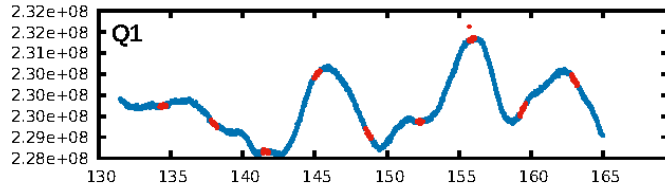
## DV Diagnostic Results:

ShortPeriod-sig: N/A  
LongPeriod-sig: N/A  
ModelChiSquare2-sig: N/A  
ModelChiSquareGof-sig: N/A  
Bootstrap-pfa: 8.49e-80  
RollingBand-fgt: 1.00 [360/361]  
GhostDiagnostic-chr: -2.223  
Centroid-sig: 0.1%  
Centroid-so: 1.202 arcsec [2.65σ]  
OotOffset-rm: 1.730 arcsec [7.44σ]  
KicOffset-rm: 1.602 arcsec [6.71σ]  
OotOffset-st: 4/4/4/3 [15]  
KicOffset-st: 4/4/4/3 [15]  
DiffImageQuality-fgm: 1.00 [15/15]  
DiffImageOverlap-fno: 1.00 [17/17]

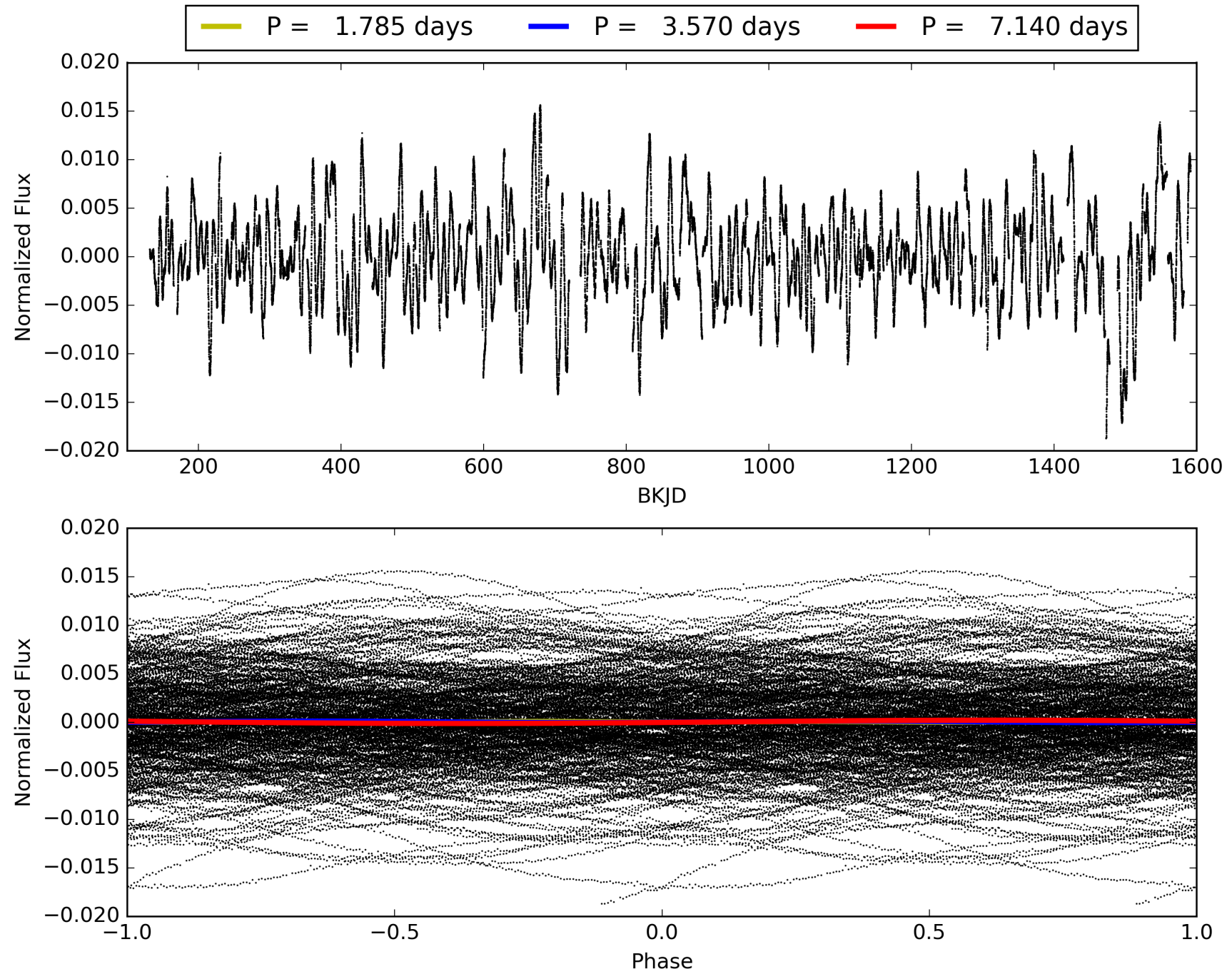
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This Data Validation Report Summary was produced in the Kepler Science Operations Center Pipeline at NASA Ames Research Center

# TCE 008128247-01, PDC Light Curves

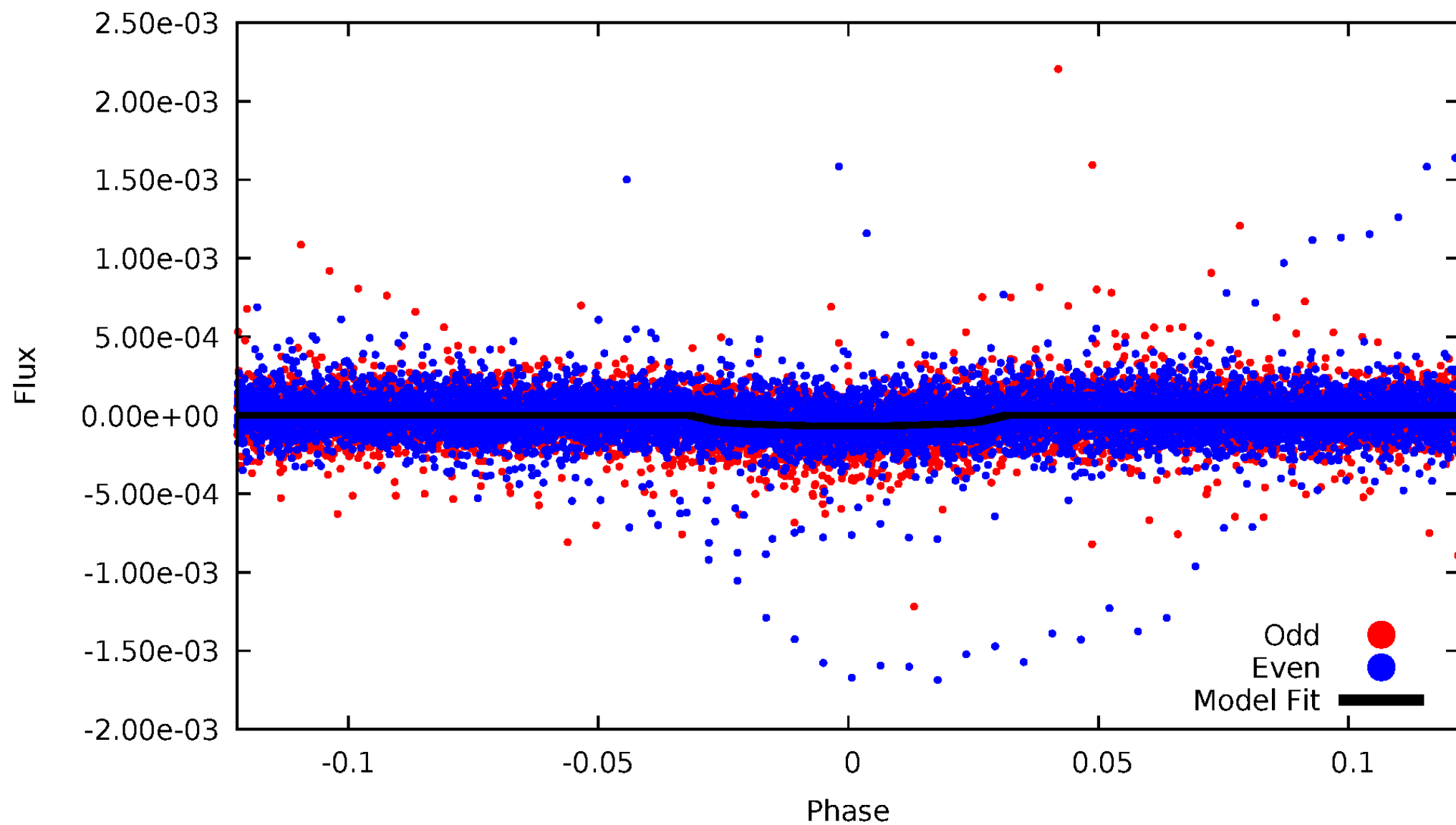


TCE 008128247-01



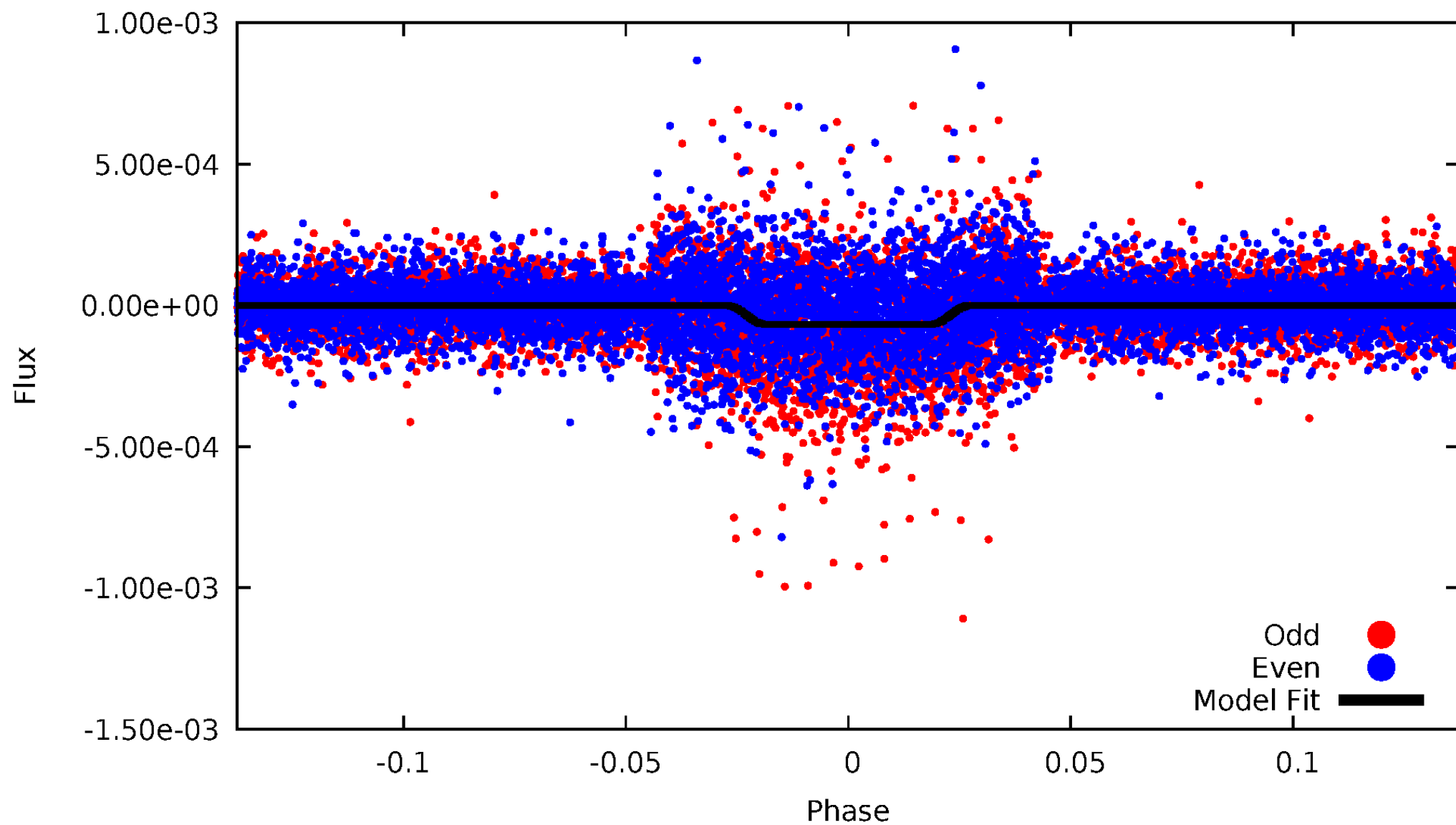
# DV Odd/Even

TCE 008128247-01



# ALT Odd/Even

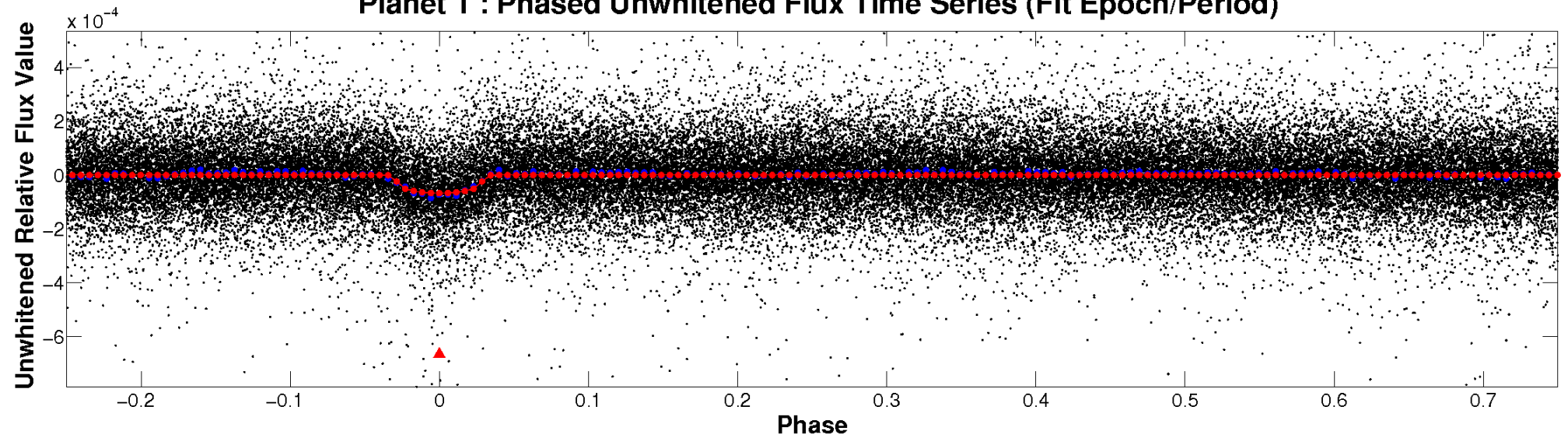
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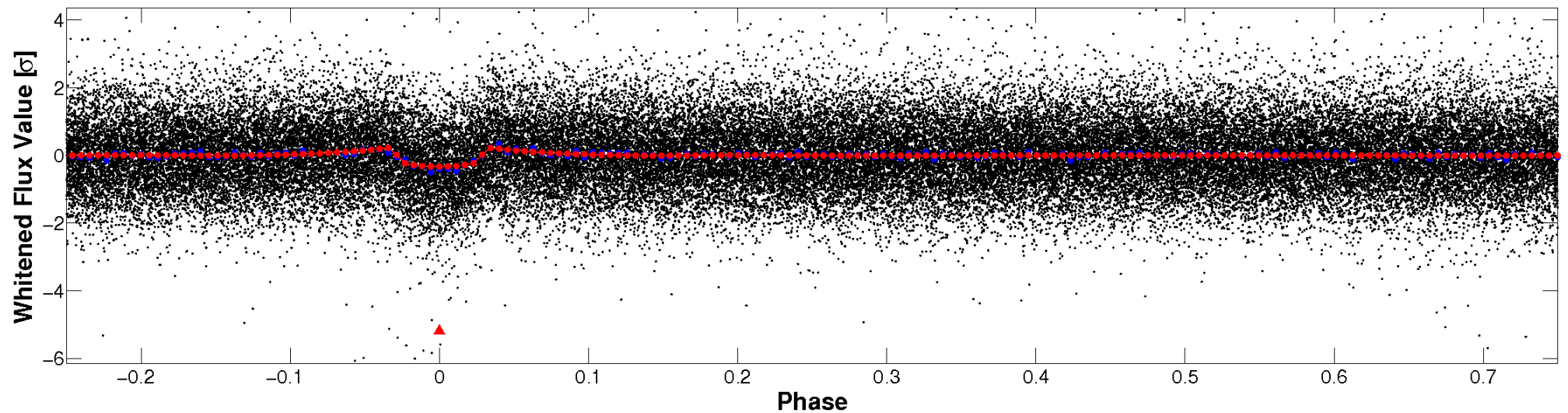


# Non-Whitened Vs. Whitened Light Curve

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

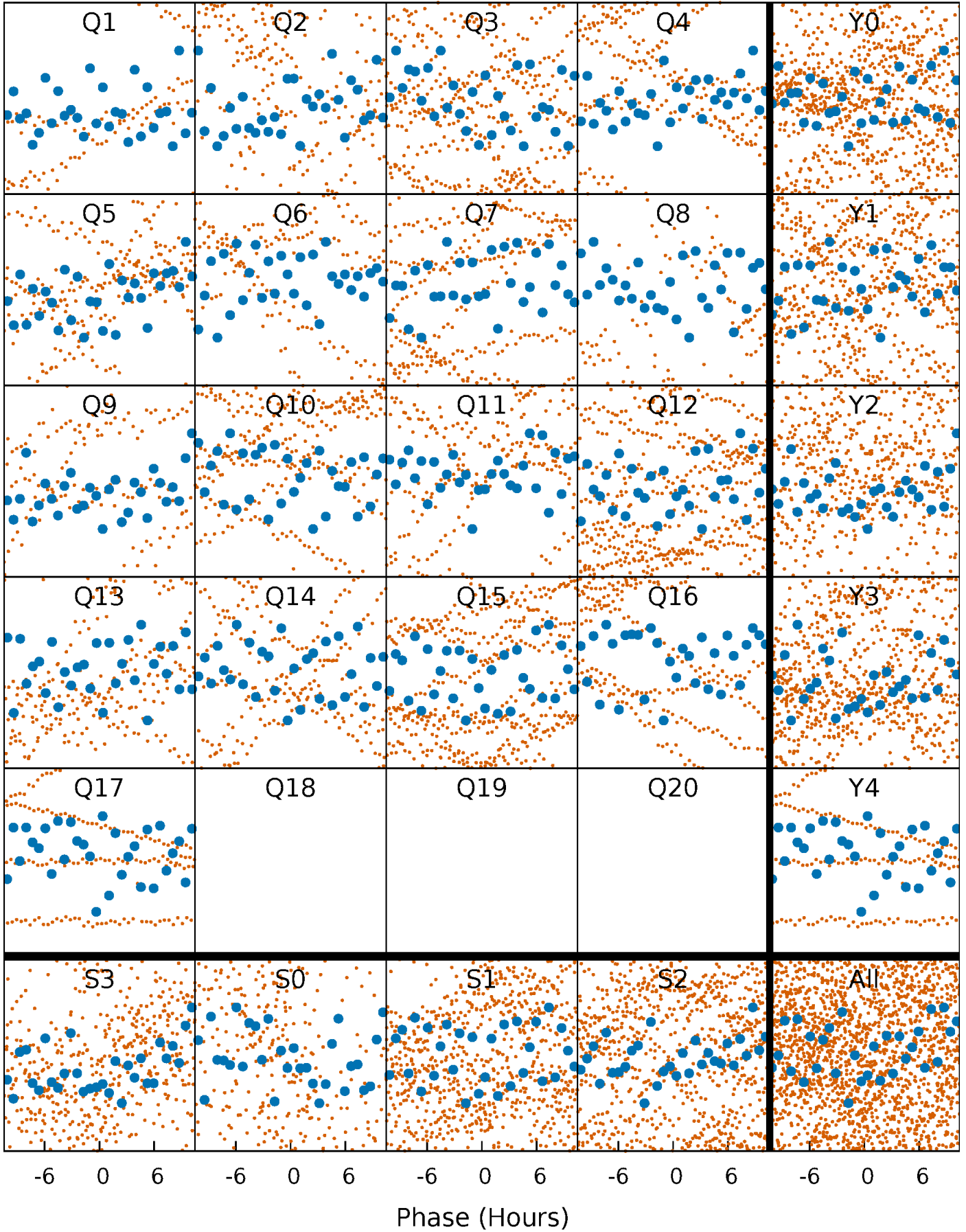


**Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)**



# PDC Quarter-Phased Transit Curves

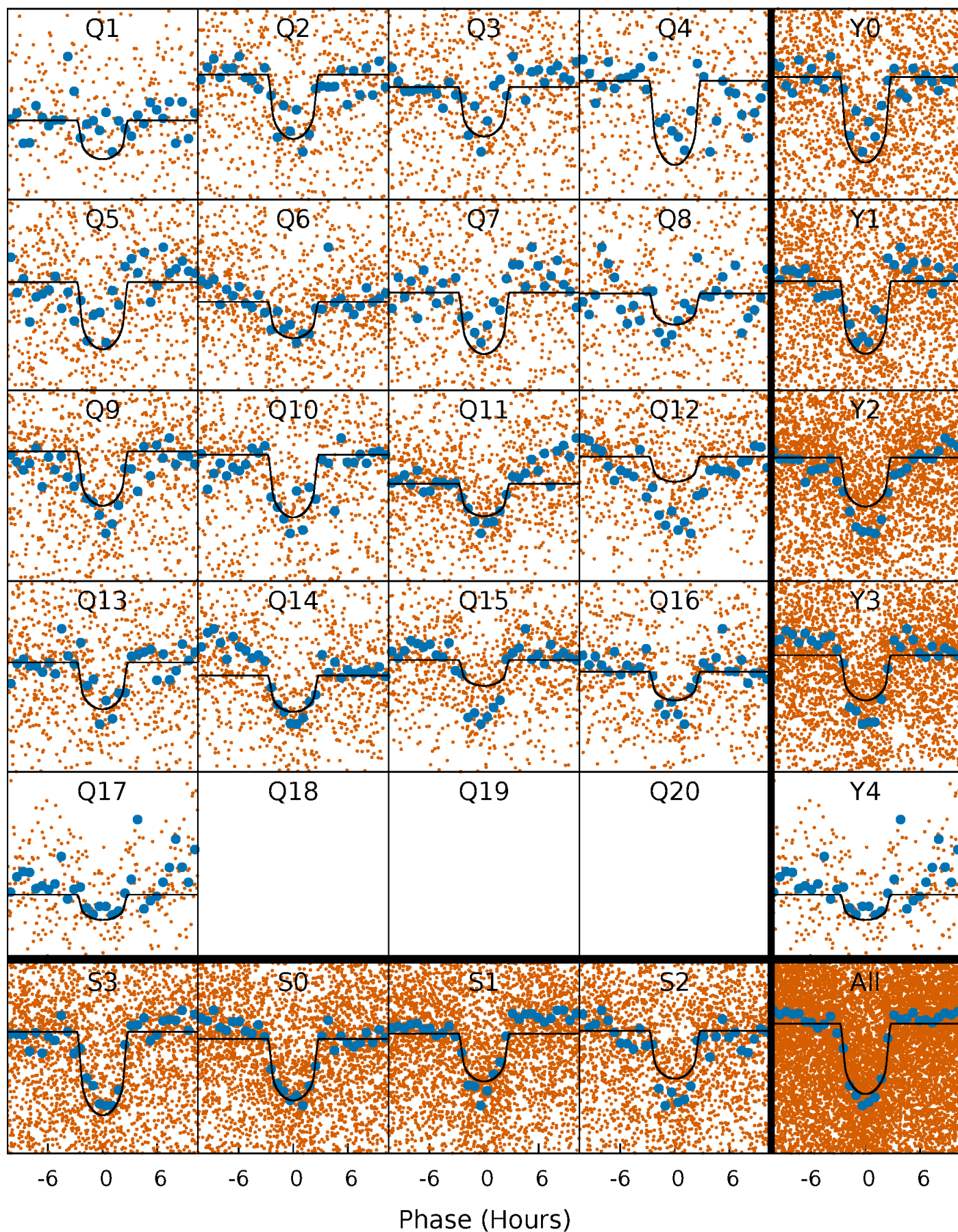
TCE 008128247-01 P= 3.570168 Days  $T_0=134.443355$  (BKJD)





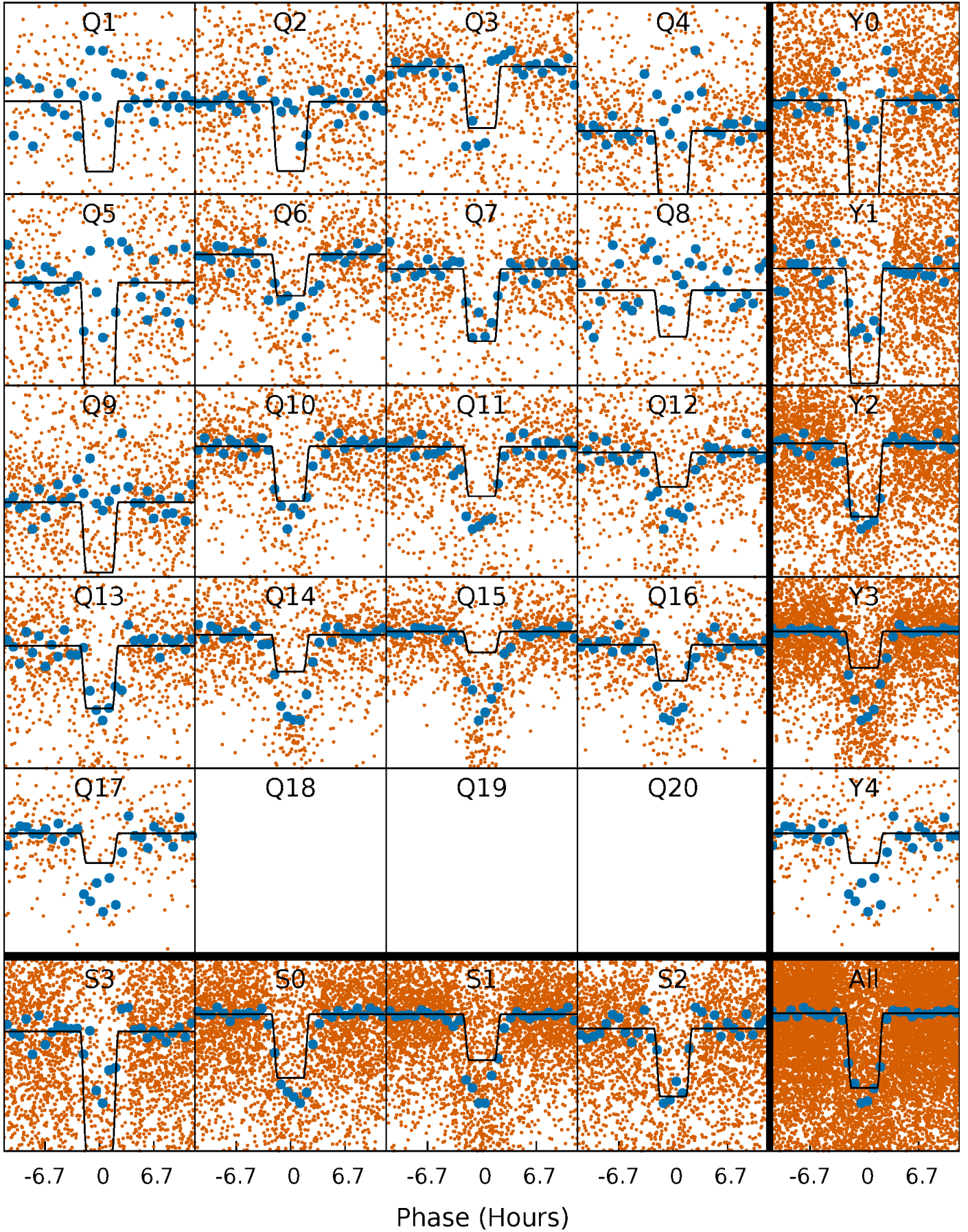
# DV Quarter-Phased Transit Curves

TCE 008128247-01 P= 3.570168 Days  $T_0=134.443355$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

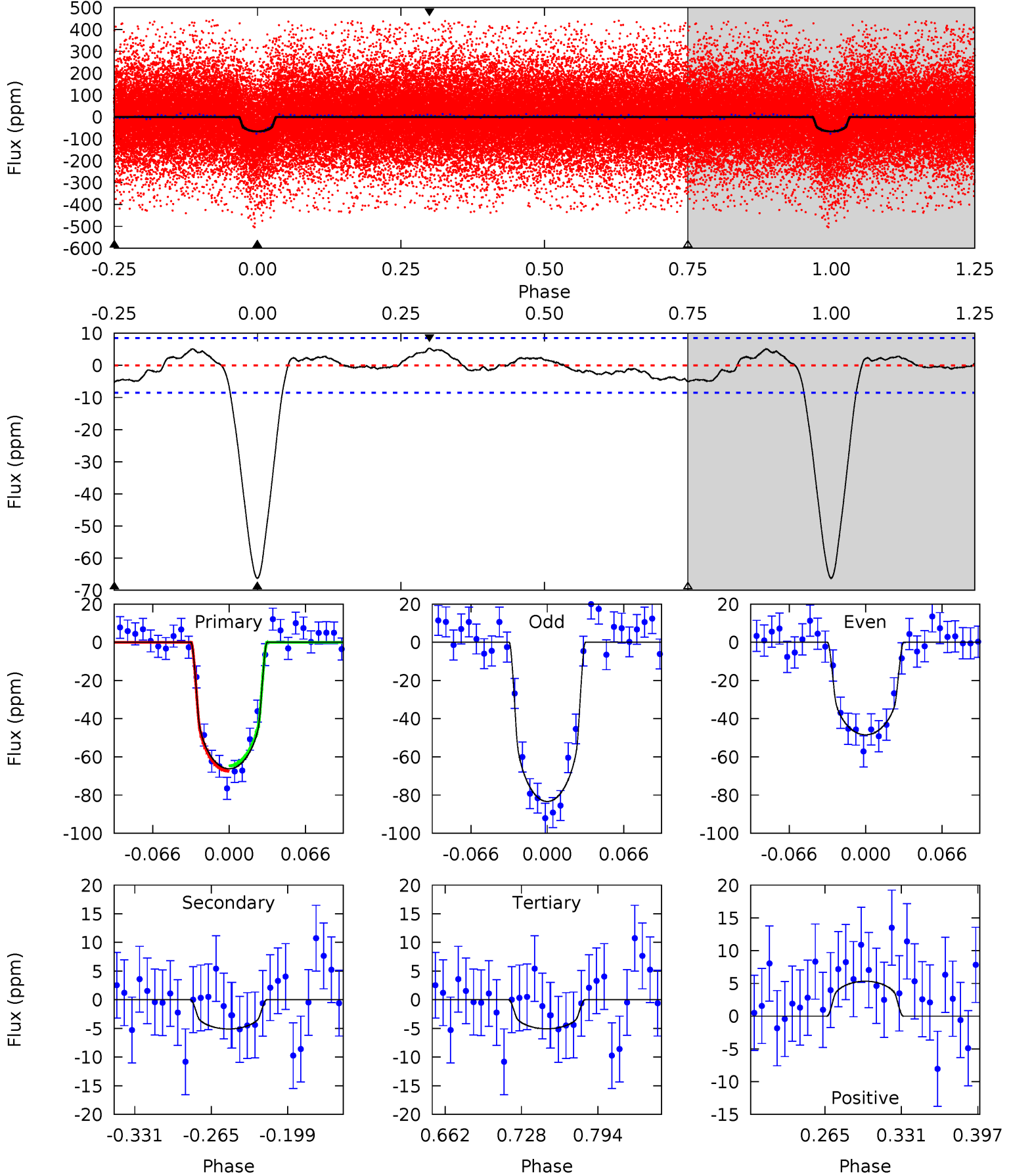
TCE 008128247-01 P= 3.570188 Days  $T_0=134.437390$  (BKJD)



# DV Model-Shift Uniqueness Test

008128247-01, P = 3.570168 Days, E = 130.873187 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
36.3	2.79	2.78	2.92	4.65	1.84	1.34	33.5	33.4	0.01	-0.13	9.63	1.12	0.07	0.75

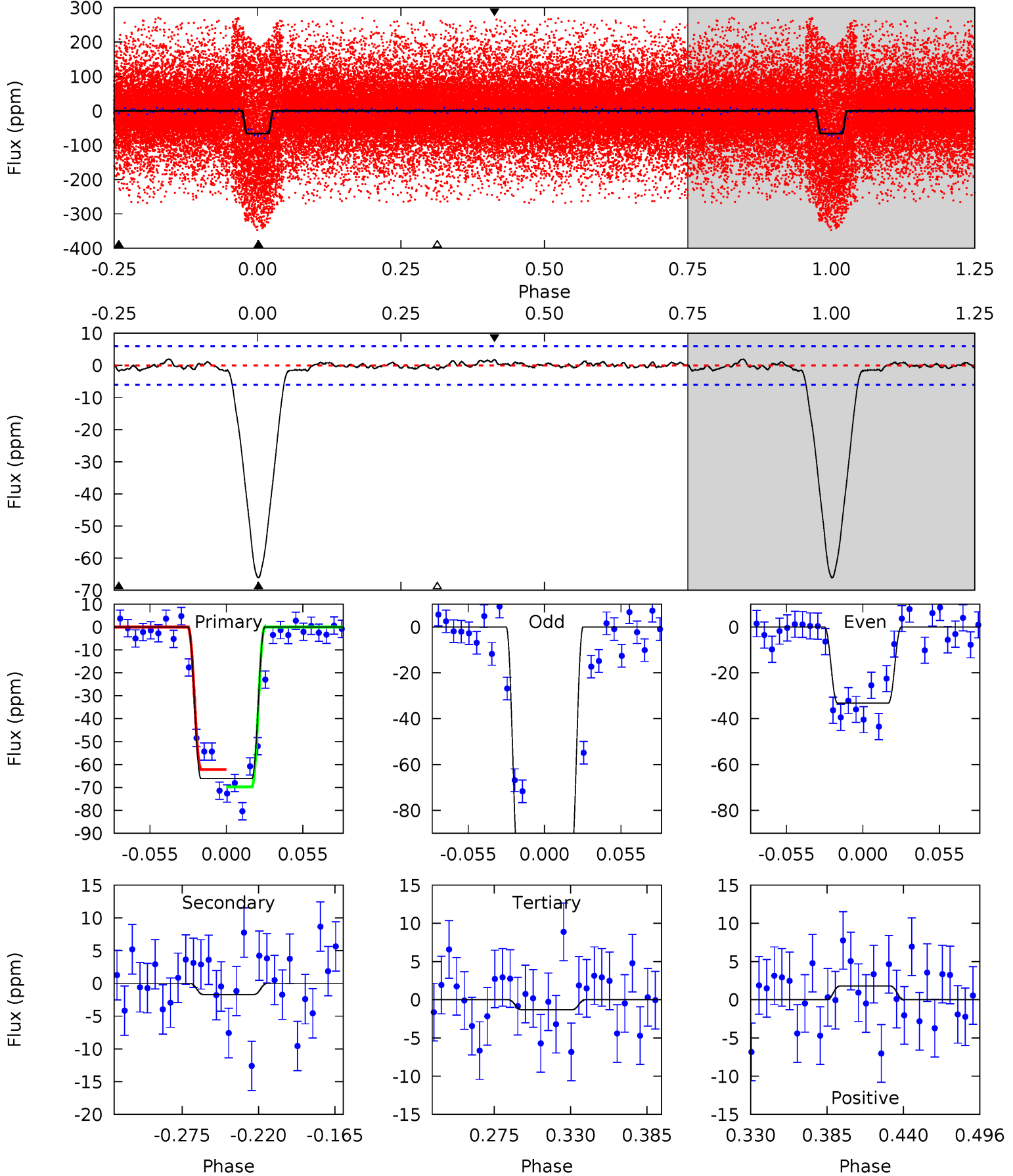




# Alt Model-Shift Uniqueness Test

008128247-01, P = 3.570188 Days, E = 130.867202 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
51.7	1.33	1.01	1.40	4.69	1.92	0.56	50.7	50.3	0.32	-0.07	29.9	1.09	0.03	2.96



### Stellar Parameters For KIC 008128247

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	$3812^{+87}_{-96}$	$0.930^{+0.030}_{-0.030}$	$-0.160^{+0.200}_{-0.200}$	$69.001^{+5.241}_{-11.232}$	$1.479^{+0.224}_{-0.416}$	$0.000^{+0.000}_{-0.000}$
	+2%/-3%	+3%/-3%	+125%/-125%	+8%/-16%	+15%/-28%	+21%/-10%
Source	PHO54	AST54	PHO54	DSEP		

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

### Secondary Eclipse Parameters for KIC 008128247-01 / KOI 4094.01

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	$A_{obs}$
DV	$-5 \pm 2$	$71.89^{+14.98}_{-14.82}$	$8561^{+243}_{-254}$	$-6312^{+264}_{-246}$	$0.001^{+0.001}_{-0.001}$
Alt.	$-2 \pm 1$	$62.23^{+14.91}_{-14.64}$	$8564^{+245}_{-264}$	$-6305^{+254}_{-256}$	$0.001^{+0.001}_{-0.000}$

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



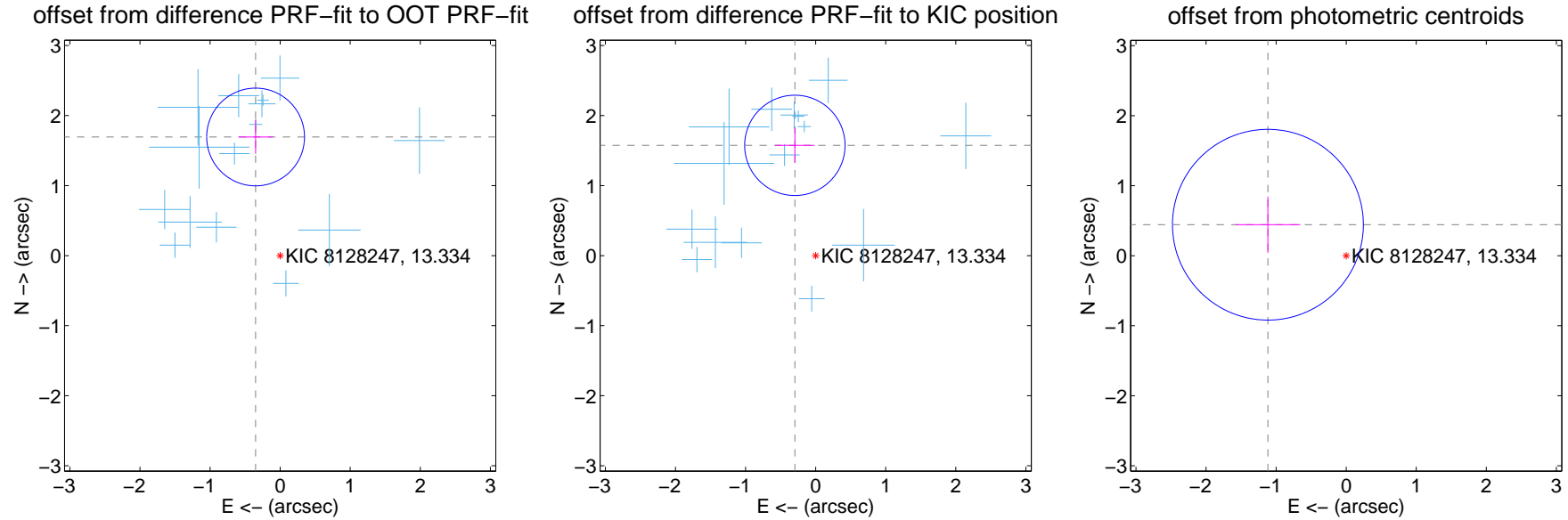
## DV Centroid Data

Supplemental centroid analysis for 008128247-01. Kepler magnitude: 13.33. Transit SNR 20.50

There are 15 quarters with good PRF difference image offsets

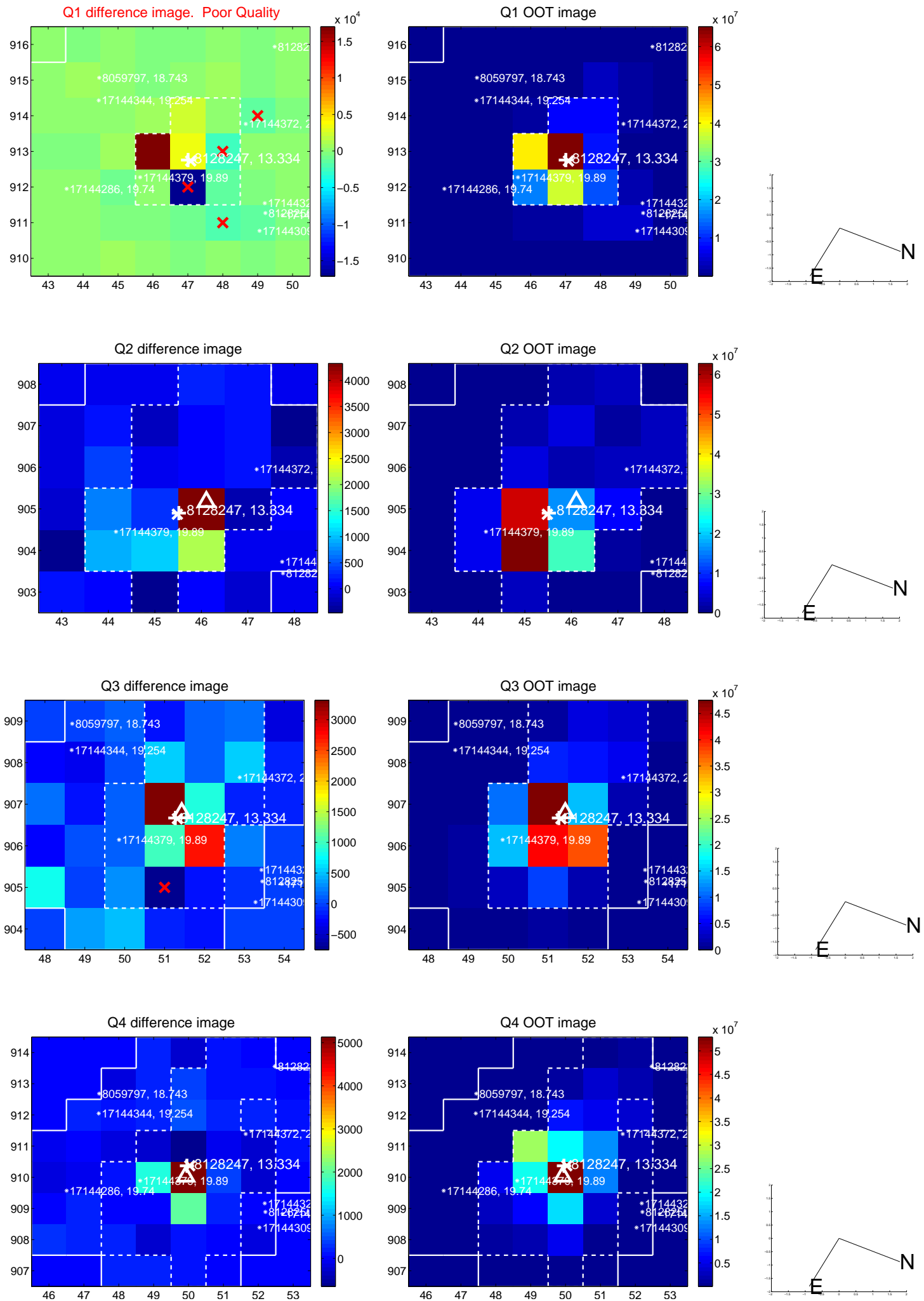
The direct PRF centroid is offset from the target star catalog position by about 0.29 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	<b><math>1.730 \pm 0.233</math></b>	<b>7.44</b>	$0.350 \pm 0.244$	$1.694 \pm 0.240$
PRF-fit source offset from KIC position	<b><math>1.602 \pm 0.239</math></b>	<b>6.71</b>	$0.297 \pm 0.279$	$1.574 \pm 0.248$
photometric centroid source offset	$1.20 \pm 0.45$	2.65	$1.12 \pm 0.46$	$0.44 \pm 0.40$

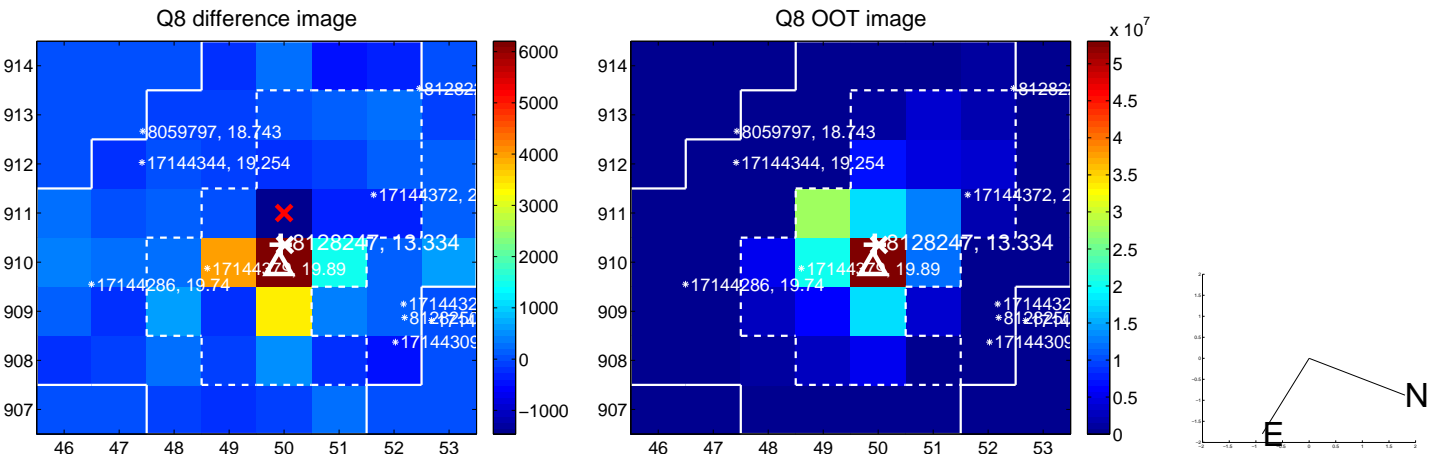
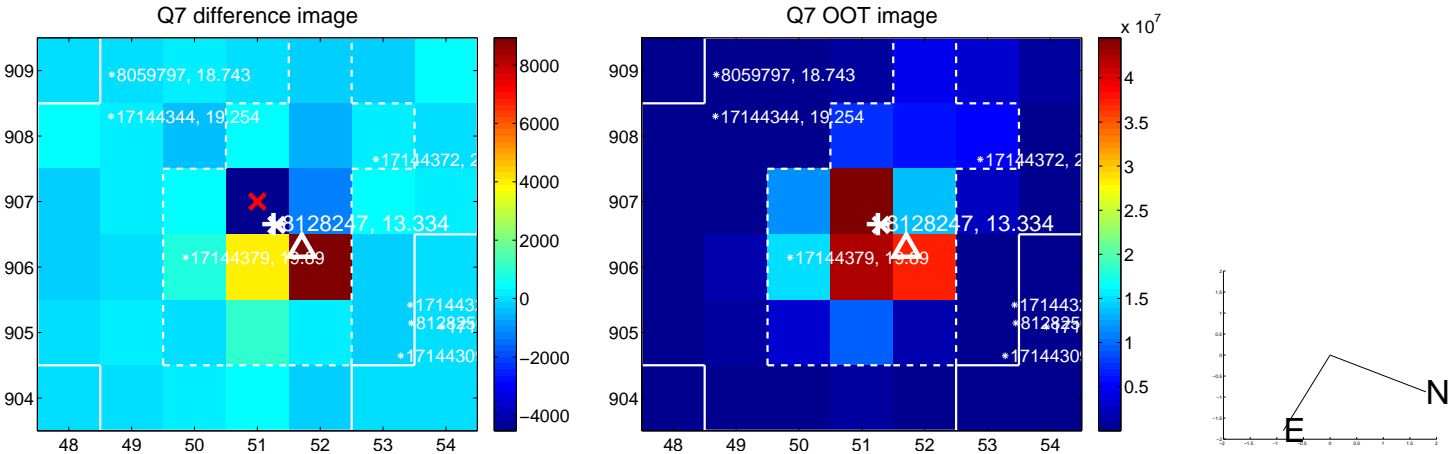
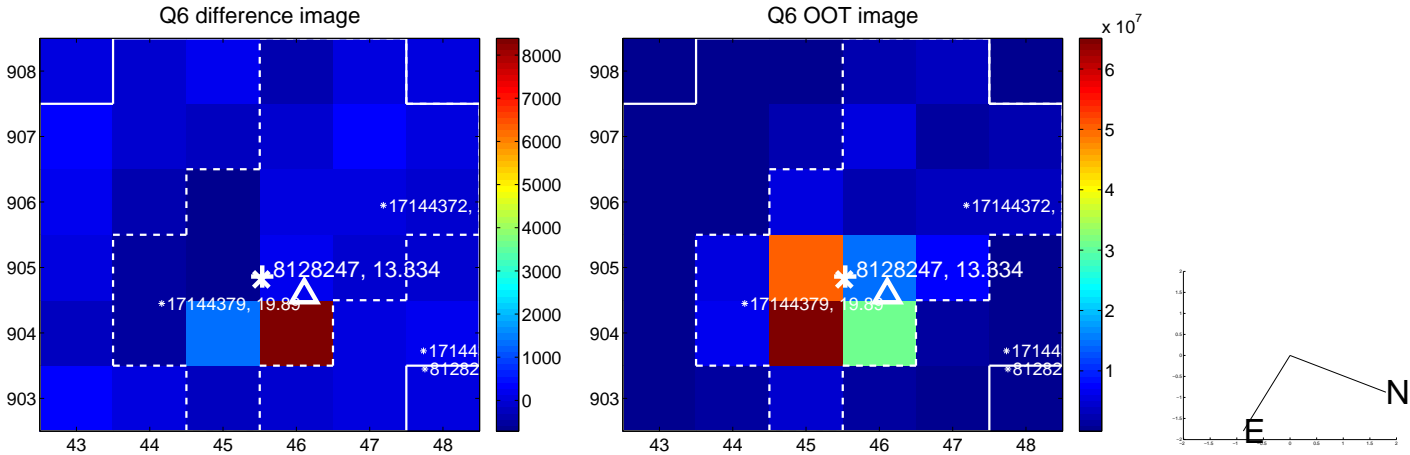
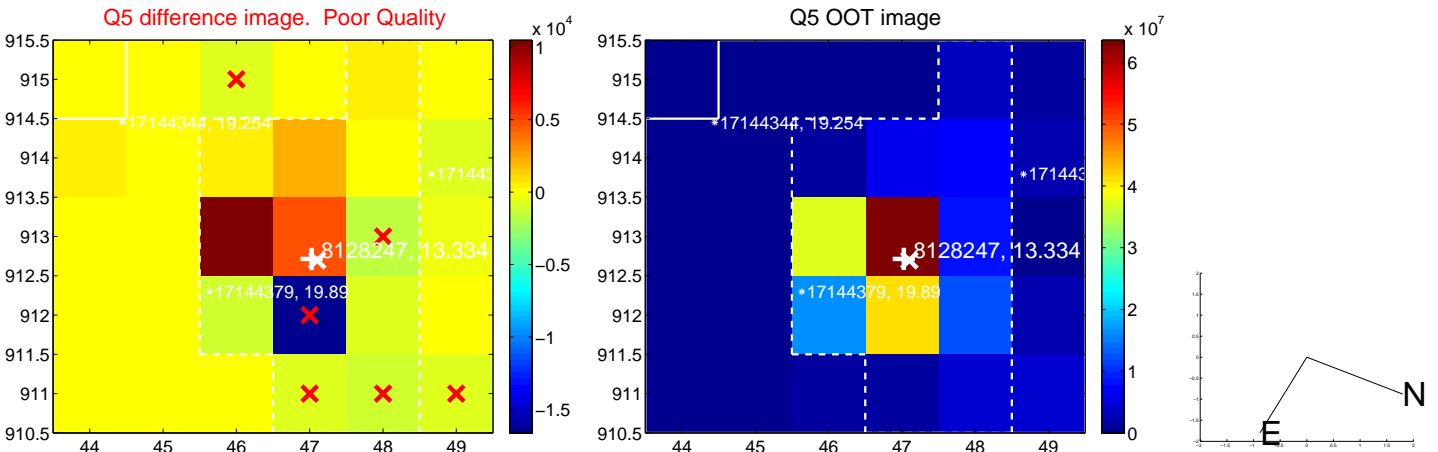


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: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

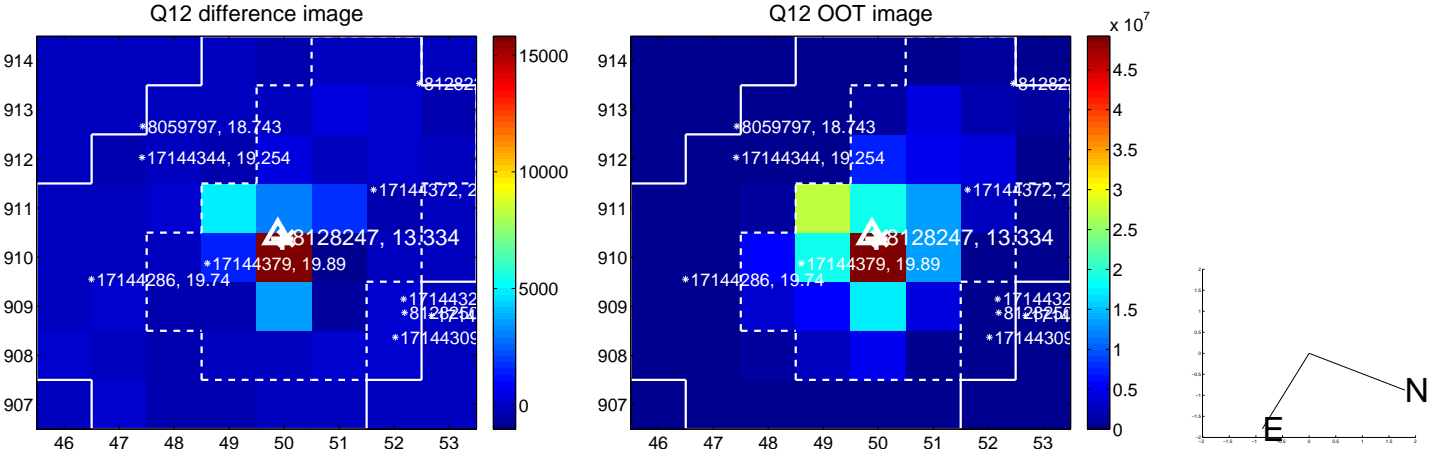
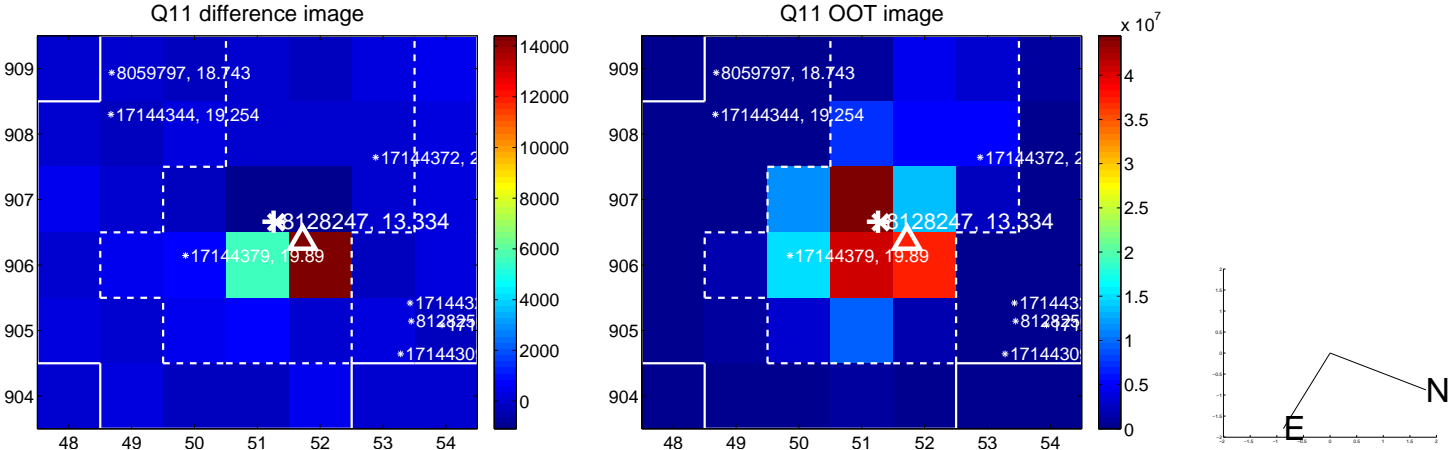
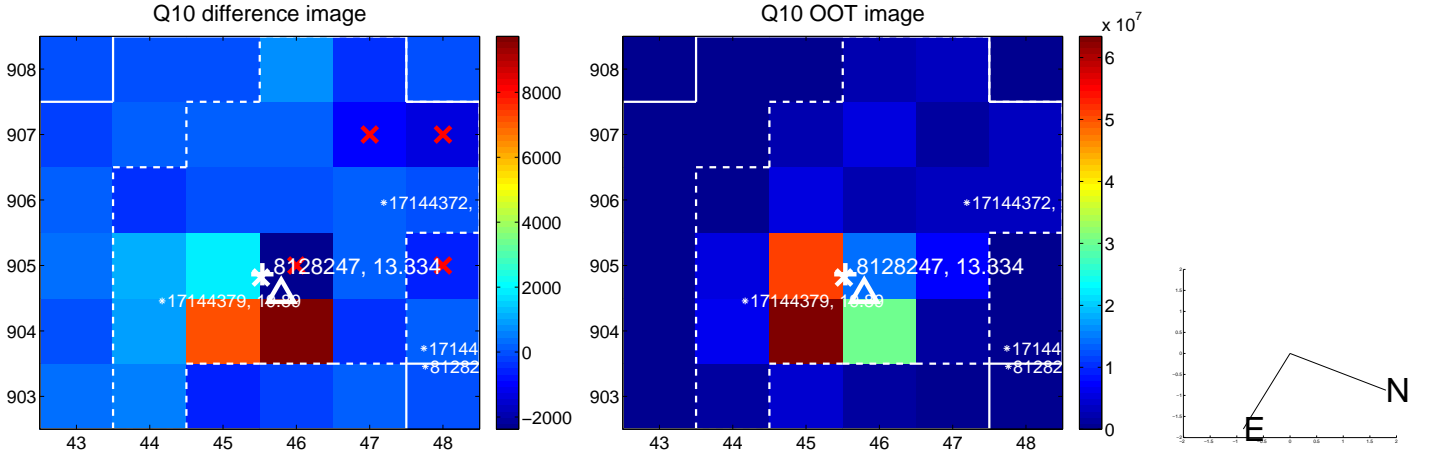
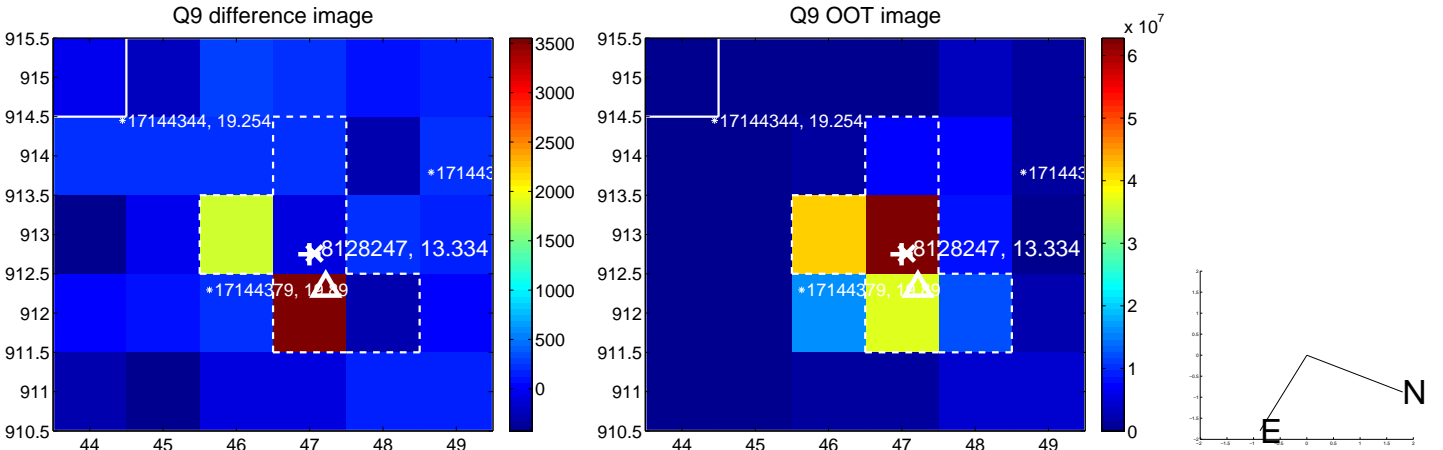
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



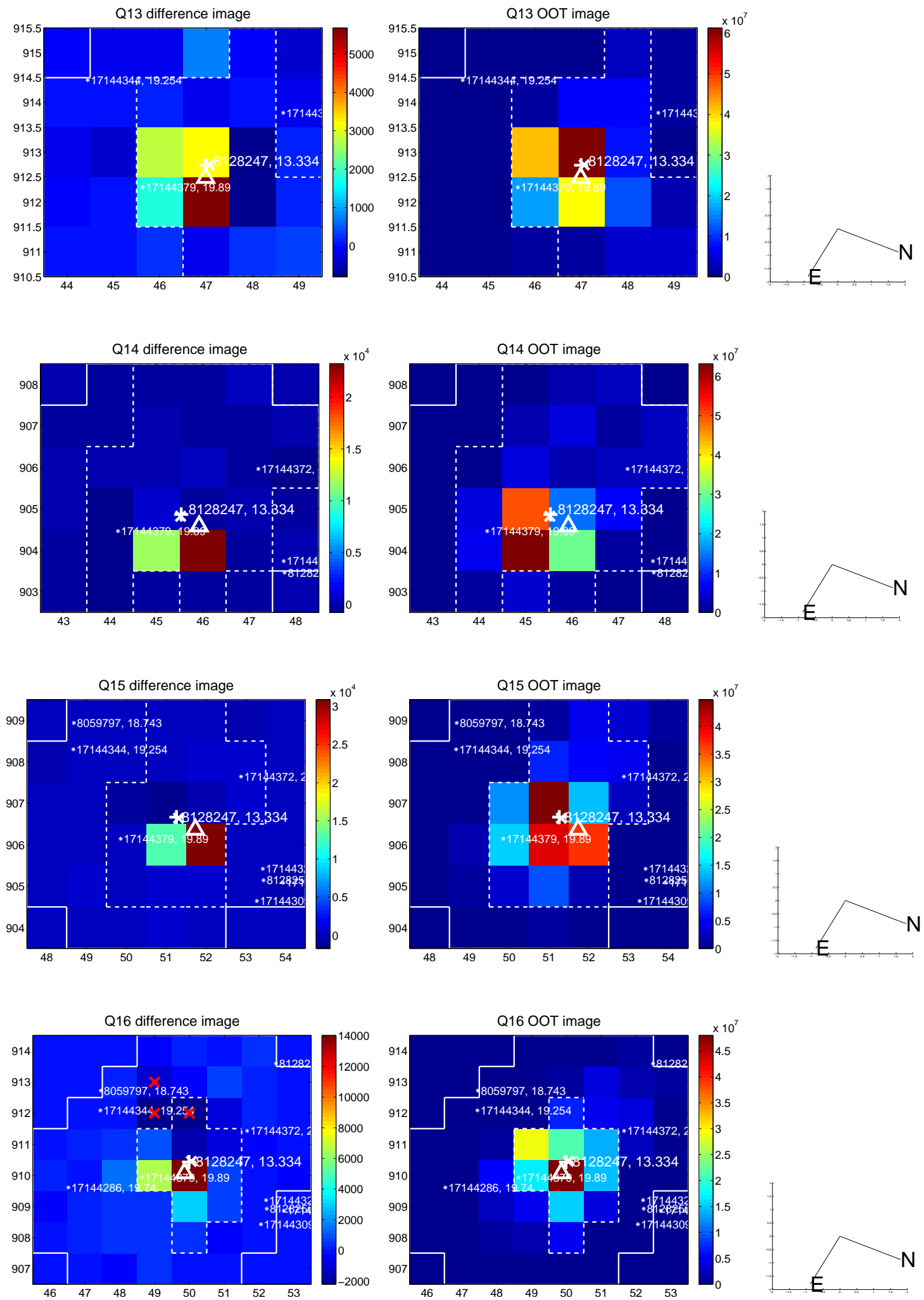
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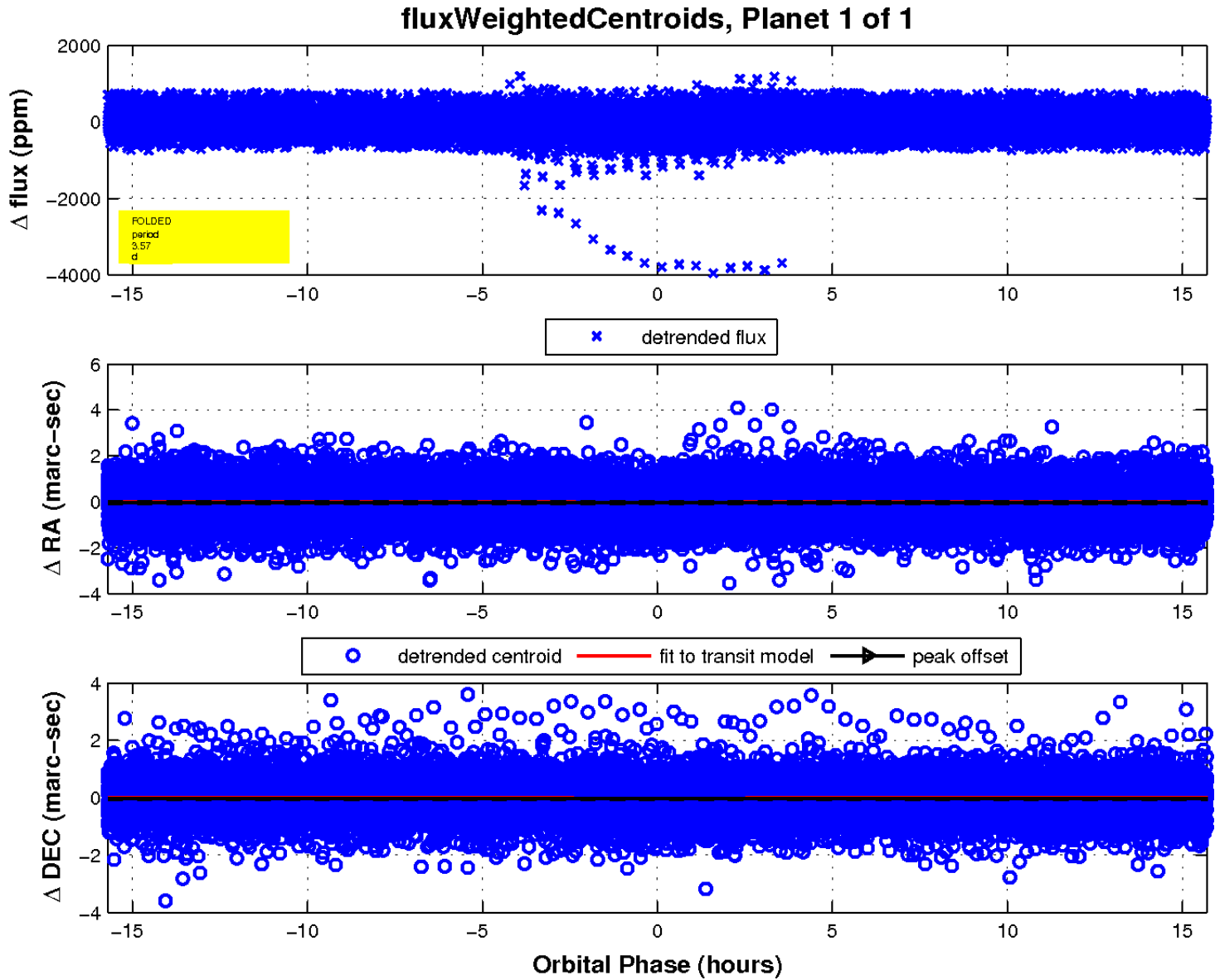
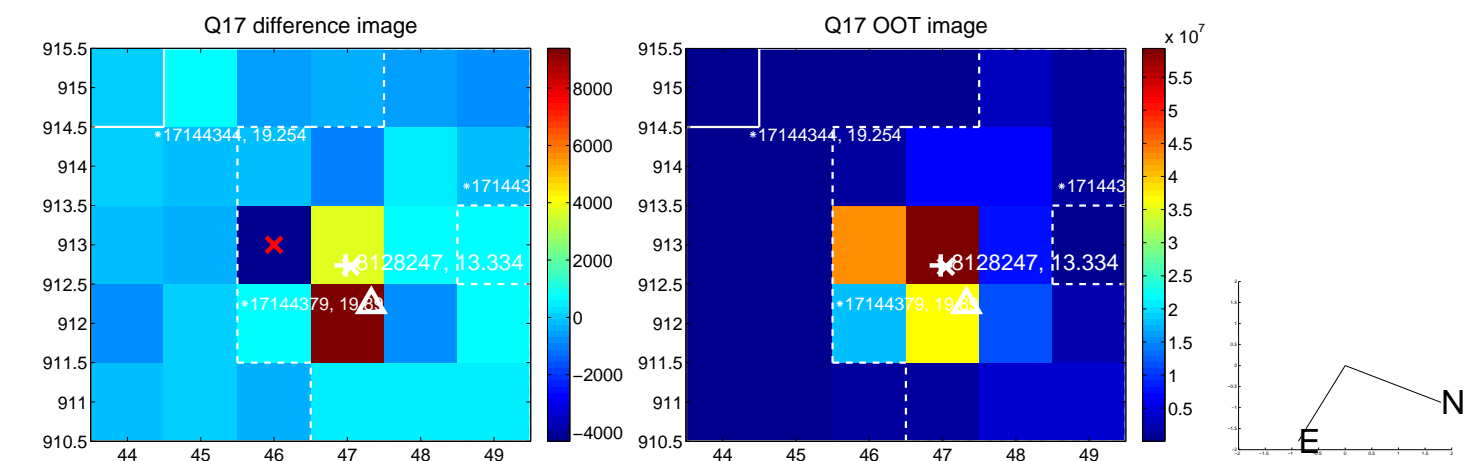


white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.





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



UKIRT Image

Declination

