

# KIC 003851134

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
003851134-01	OBS	6366.01	0.918464	131.867065	22.3	3.091	9.0	7.0	1.19	6469	0.66	5596.55

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
003851134-01	OBS	FP	0.00	1	0	0	1	LPP_DV—CENT_KIC_POS—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.

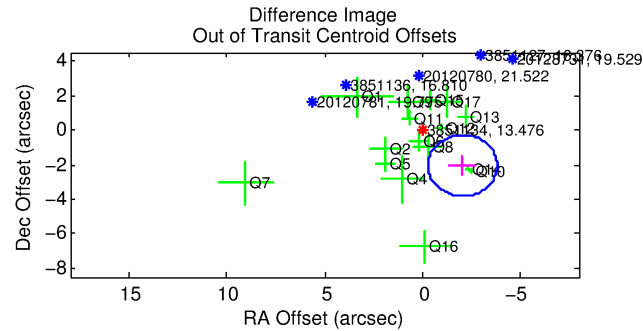
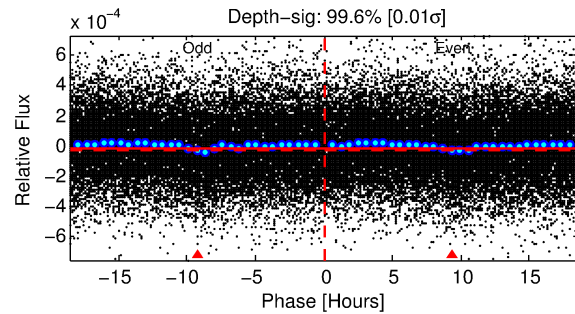
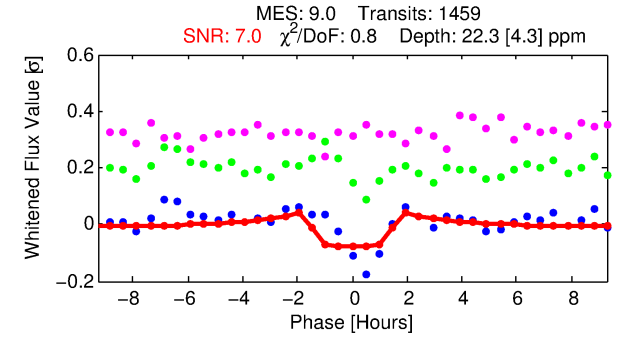
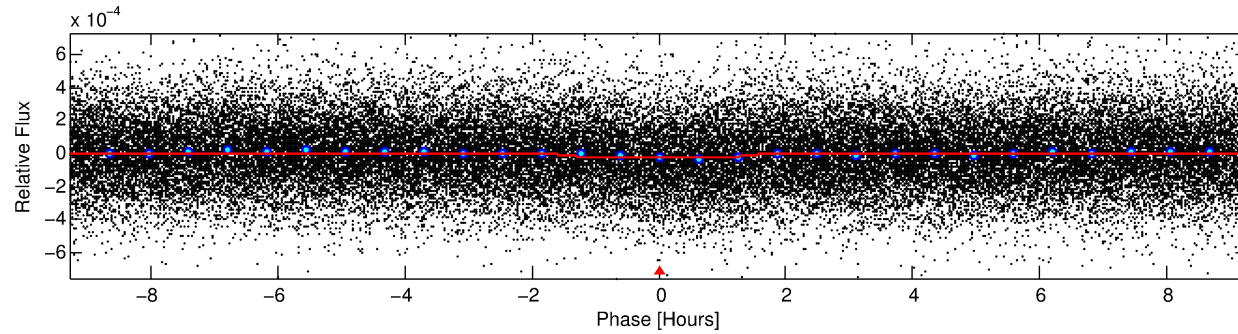
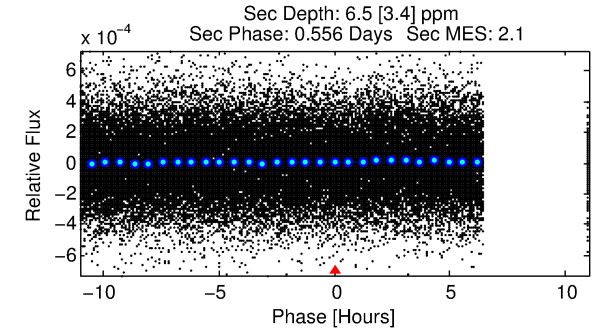
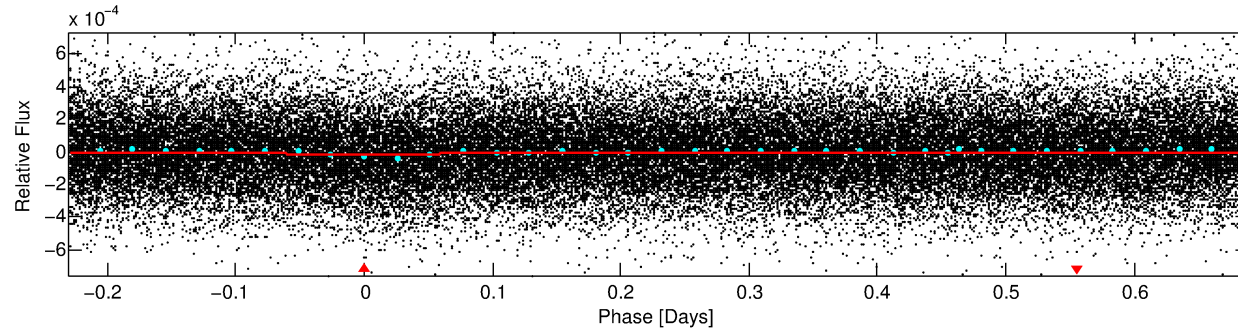
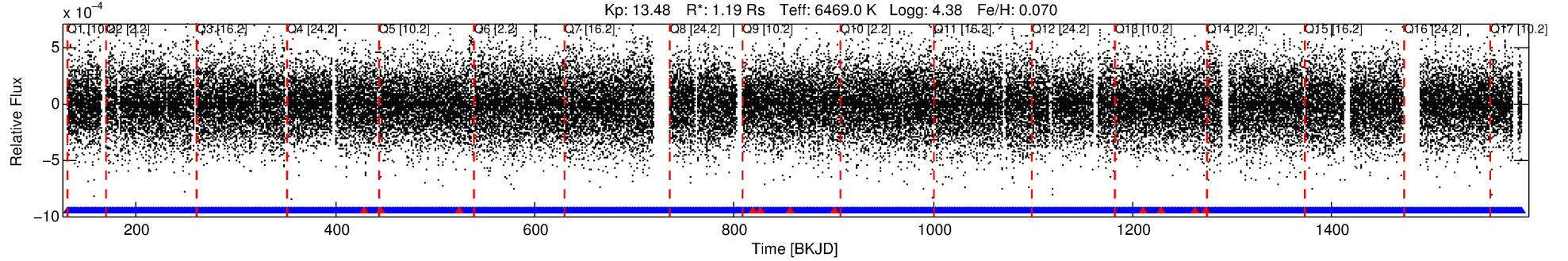
## Ephemeris Match Information For 003851134-01

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	$\sigma_P$	$\sigma_T$
003851134-01	3851134	003954798-pri	3954798	1:1	221.1	56	-1	13.61	13.48	33850.00	Col-Anomaly	0	1.65	0.28

**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: 3851134 Candidate: 1 of 1 Period: 0.918 d  
KOI: K06366.01 Corr: 0.864



## DV Fit Results:

Period = 0.91846 [0.00001] d  
Epoch = 131.8671 [0.0036] BKJD  
Rp/R\* = 0.0051 [0.0018]  
a/R\* = 1.38 [1.29]  
b = 0.90 [0.42]  
Seff = 5596.55 [2556.51]  
Teff = 2205 [252] K  
Rp = 0.66 [0.34] Re  
a = 0.0200 [0.0060] AU  
Ag = 3.29 [3.26] [0.70σ]  
Teffp = 4594 [1031] K [2.25σ]

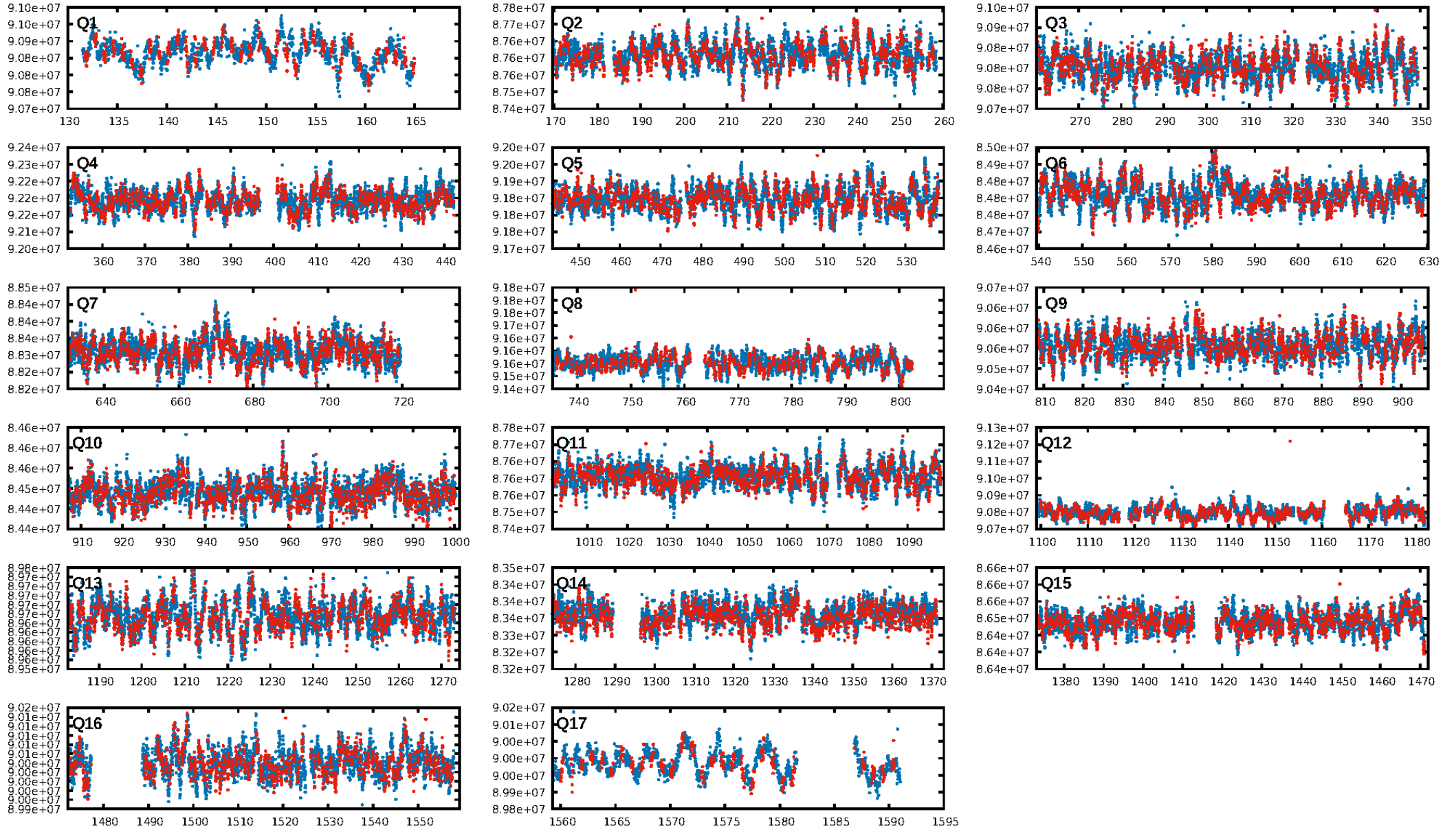
## DV Diagnostic Results:

ShortPeriod-sig: N/A  
LongPeriod-sig: N/A  
ModelChiSquare2-sig: N/A  
ModelChiSquareGof-sig: N/A  
Bootstrap-pfa: 1.12e-18  
RollingBand-fgt: 0.99 [1382/1394]  
GhostDiagnostic-chr: 2.388  
Centroid-sig: 0.0%  
Centroid-so: 4.234 arcsec [3.59σ]  
OotOffset-rm: 2.894 arcsec [4.92σ]  
KicOffset-rm: 2.554 arcsec [4.25σ]  
OotOffset-st: 4/3/4/5 [16]  
KicOffset-st: 4/3/4/5 [16]  
DiffImageQuality-fgm: 0.69 [11/16]  
DiffImageOverlap-fno: 1.00 [17/17]

Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 31-Jan-2016 01:22:03 Z

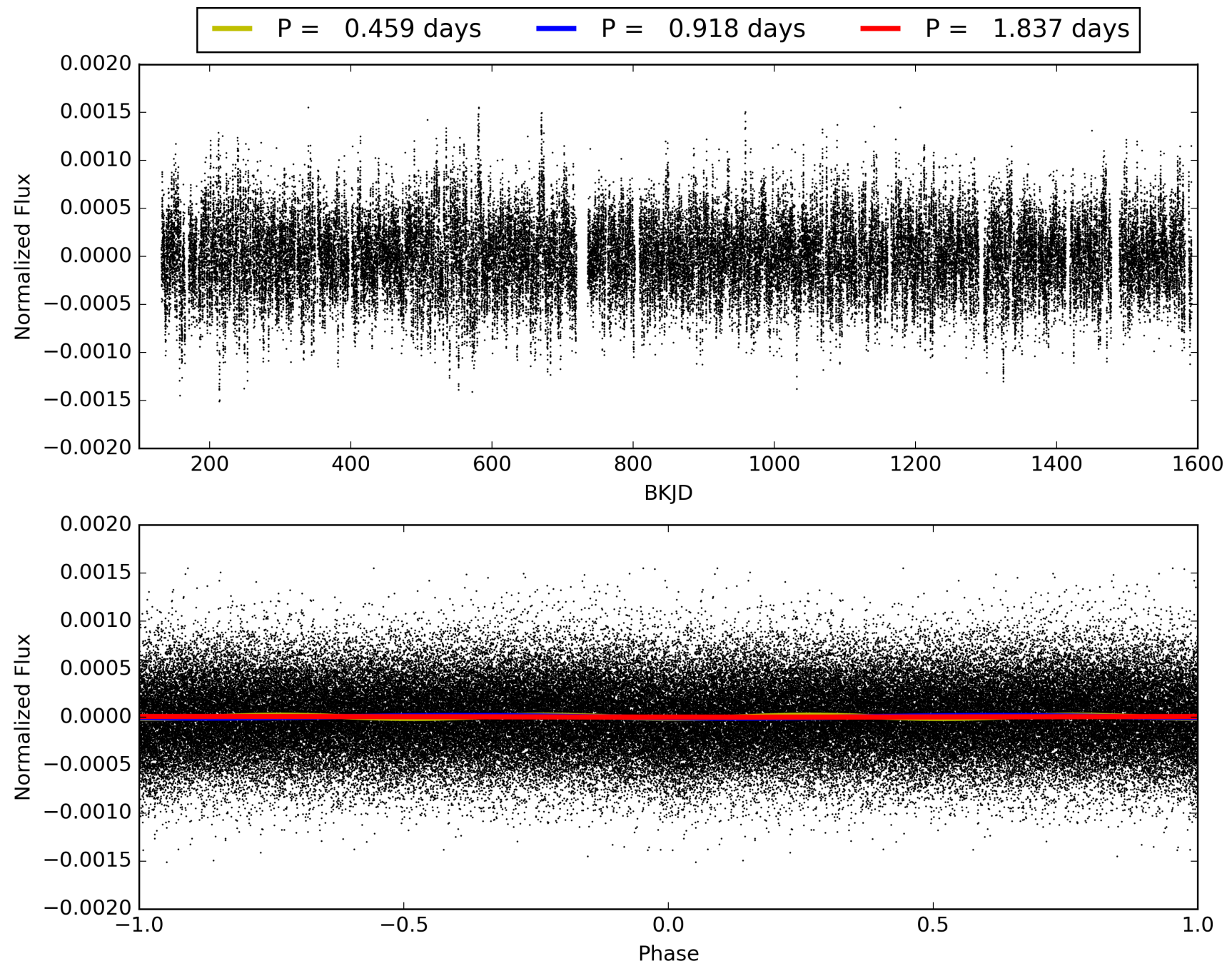
This Data Validation Report Summary was produced in the Kepler Science Operations Center Pipeline at NASA Ames Research Center

# TCE 003851134-01, PDC Light Curves



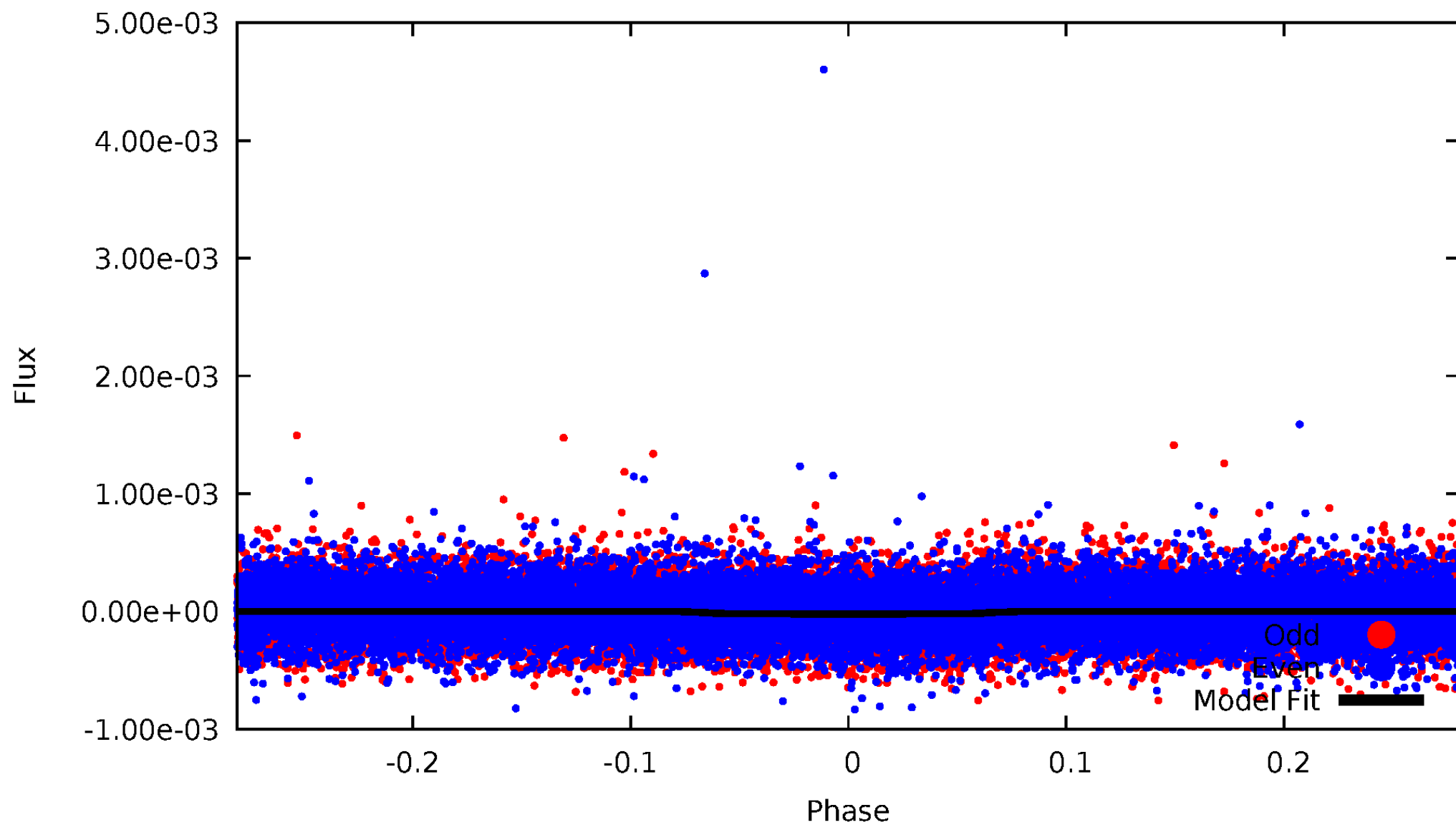


TCE 003851134-01



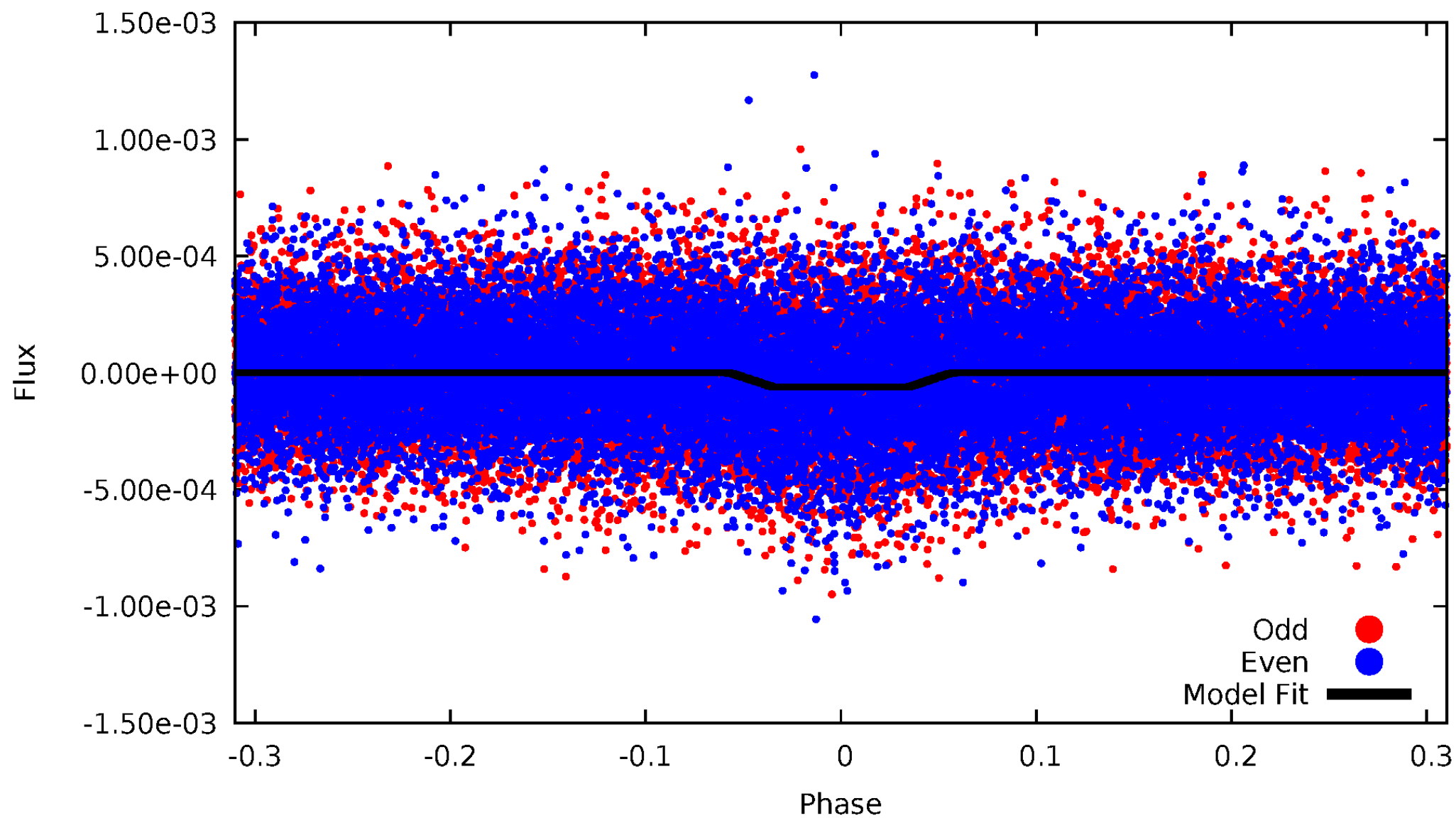
# DV Odd/Even

TCE 003851134-01



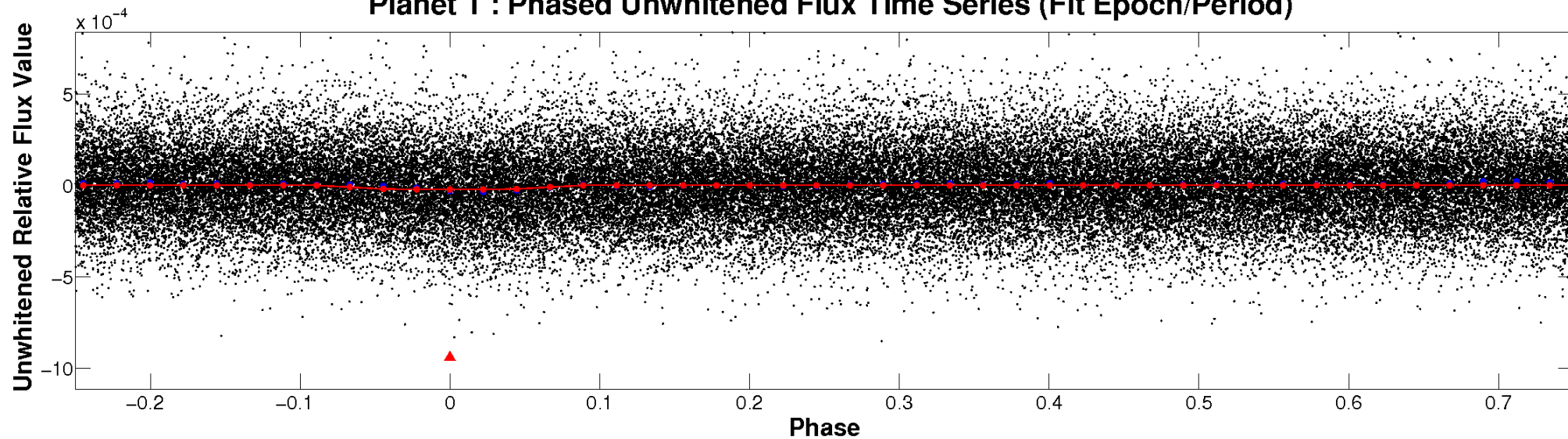
# ALT Odd/Even

TCE 003851134-01

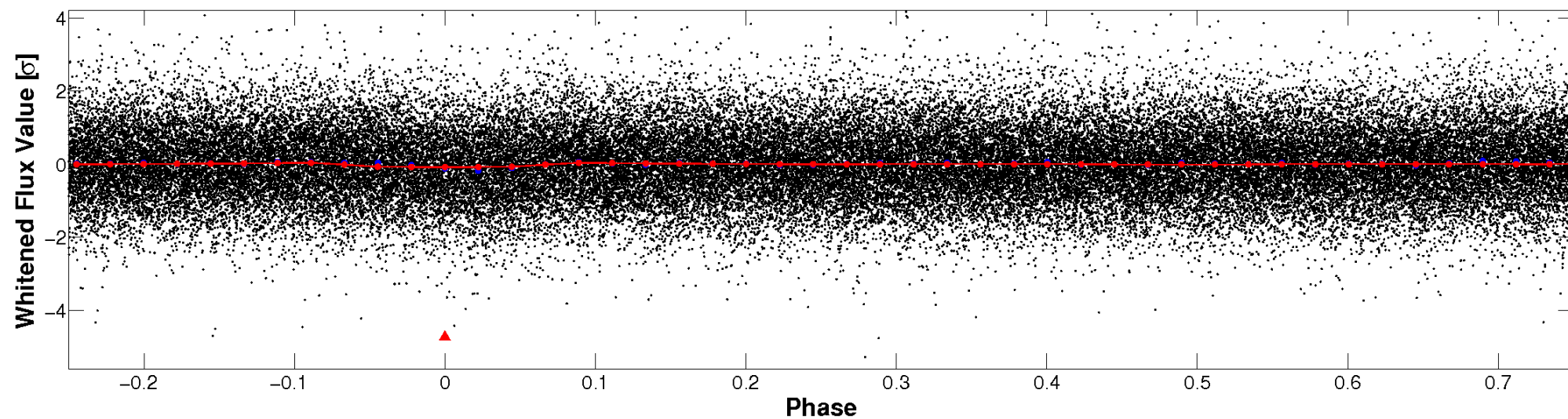


# Non-Whitened Vs. Whitened Light Curve

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



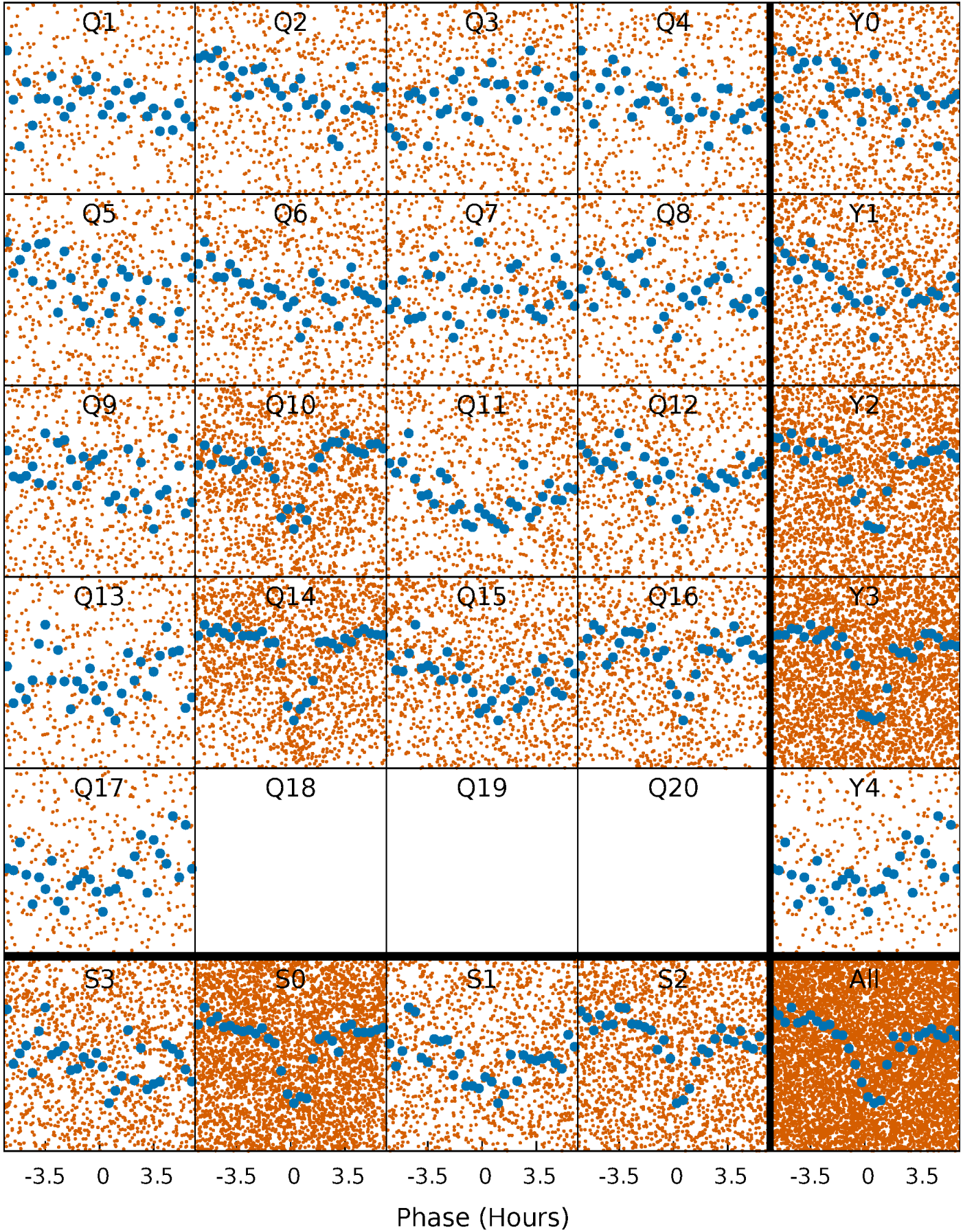
**Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)**





# PDC Quarter-Phased Transit Curves

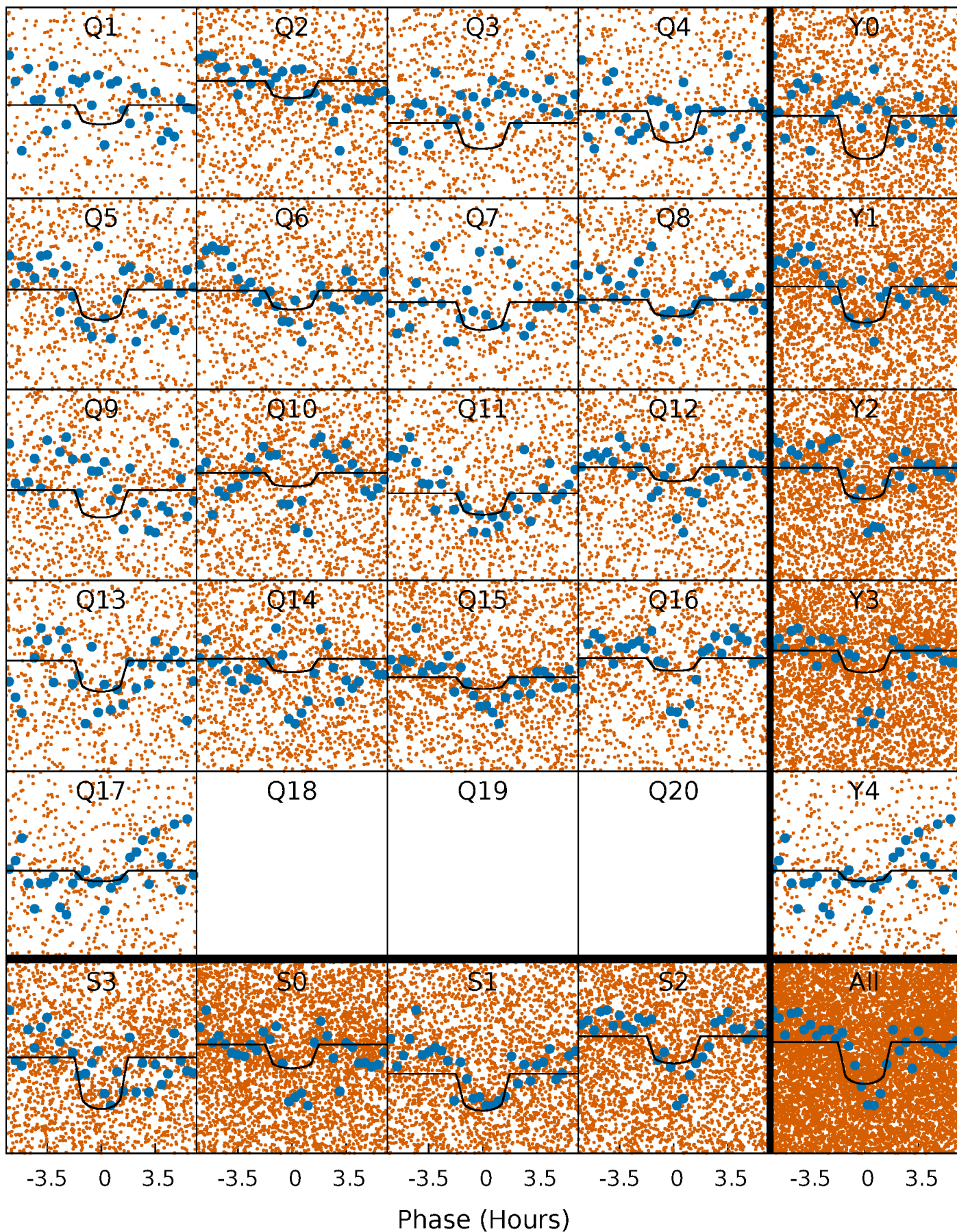
TCE 003851134-01 P= 0.918464 Days  $T_0=131.867065$  (BKJD)





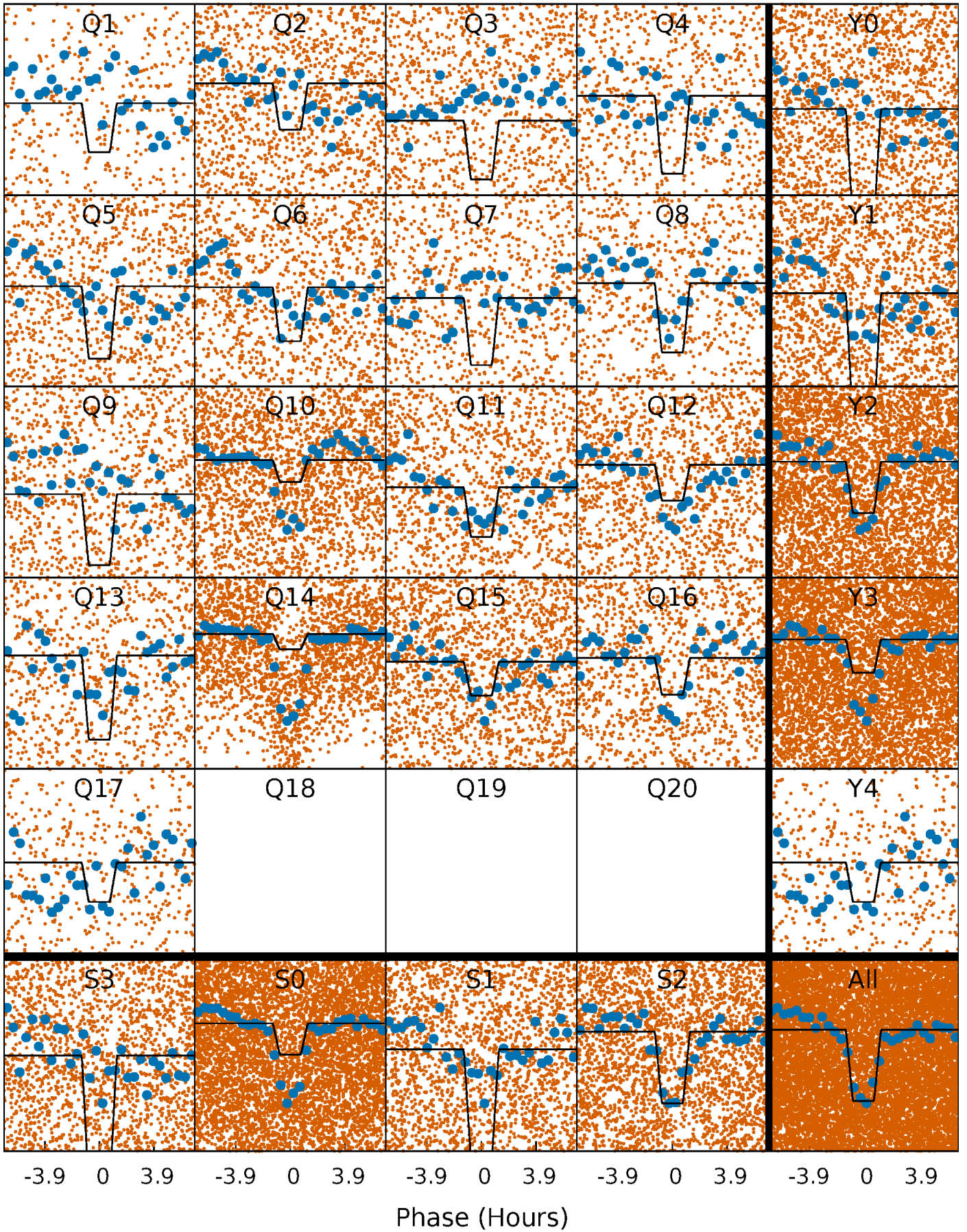
# DV Quarter-Phased Transit Curves

TCE 003851134-01 P= 0.918464 Days  $T_0=131.867065$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

TCE 003851134-01 P= 0.918479 Days  $T_0=131.866966$  (BKJD)

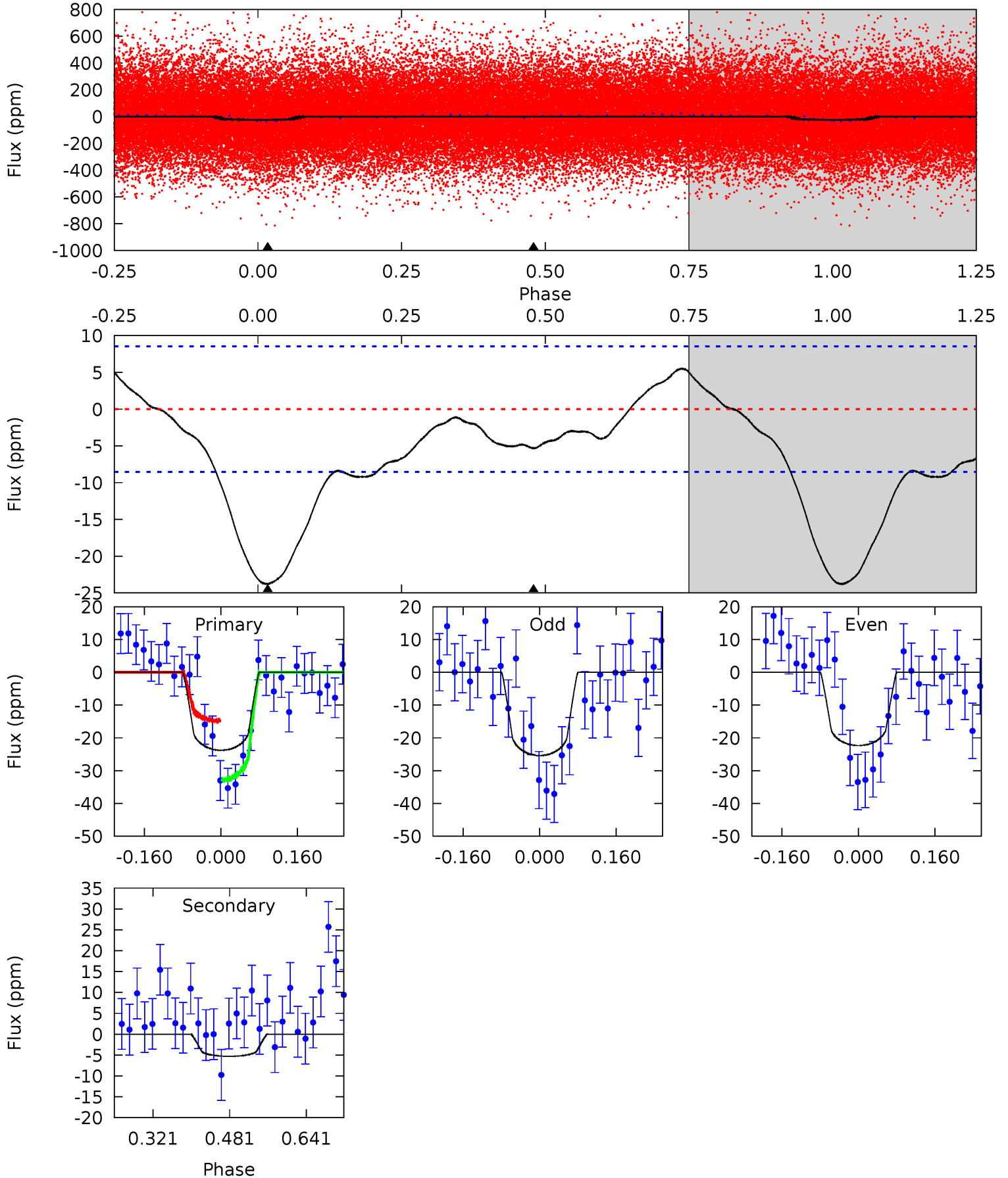




# DV Model-Shift Uniqueness Test

003851134-01, P = 0.918464 Days, E = 130.948601 Days

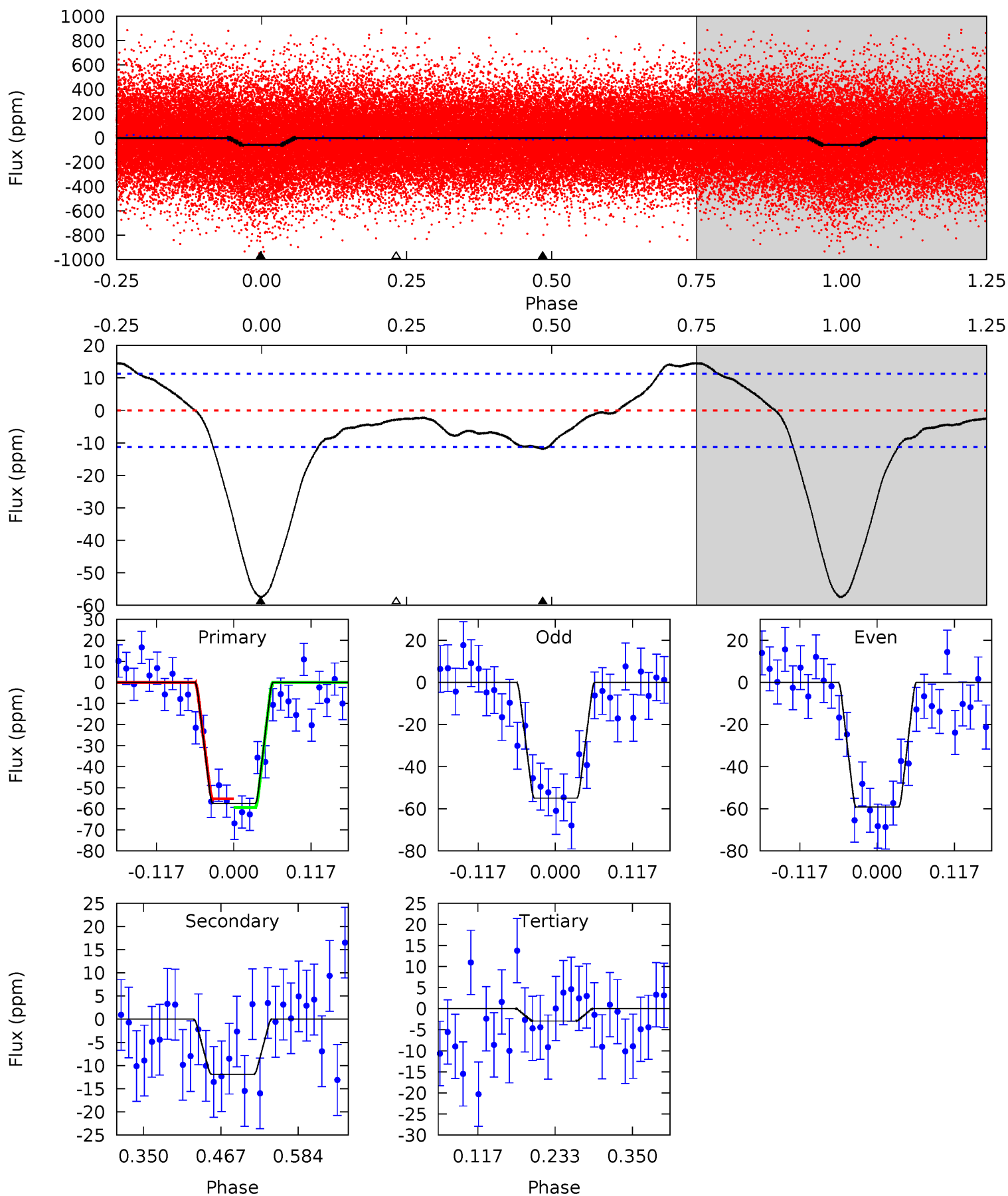
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
12.4	2.78	0	0	4.46	1.40	2.43	12.4	12.4	2.78	2.78	0.80	1.06	0.19	4.70



# Alt Model-Shift Uniqueness Test

003851134-01, P = 0.918479 Days, E = 130.948487 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
23.1	4.77	1.18	0	4.53	1.57	3.05	21.9	23.1	3.59	4.77	0.85	1.09	0.20	0.84





### Stellar Parameters For KIC 003851134

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	$6469^{+154}_{-212}$	$4.385^{+0.056}_{-0.238}$	$0.070^{+0.250}_{-0.300}$	$1.193^{+0.431}_{-0.144}$	$1.260^{+0.184}_{-0.184}$	$1.047^{+0.249}_{-0.596}$
	+2%/-3%	+1%/-5%	+357%/-429%	+36%/-12%	+15%/-15%	+24%/-57%
Source	PHO1	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 003851134-01 / KOI 6366.01

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	$A_{obs}$
DV	$-5 \pm 2$	$0.71^{+0.28}_{-0.26}$	$3161^{+291}_{-173}$	$4357^{+1097}_{-674}$	$2.192^{+3.598}_{-1.185}$
Alt.	$-12 \pm 2$	$1.09^{+0.31}_{-0.27}$	$3154^{+285}_{-156}$	$4306^{+586}_{-450}$	$2.054^{+1.748}_{-0.853}$

$T_{max}$  = 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

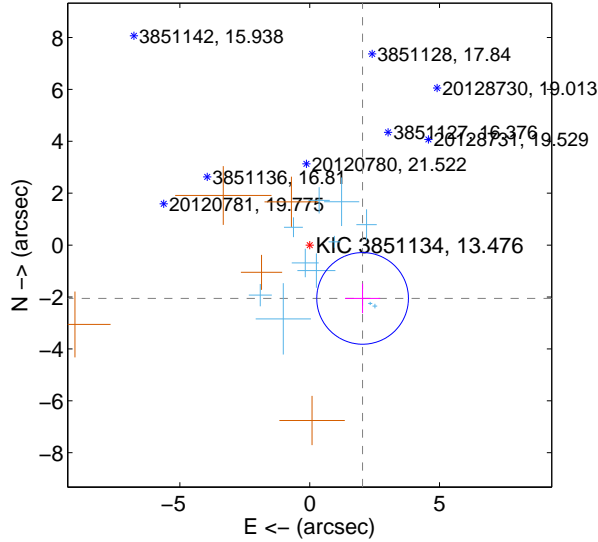
Supplemental centroid analysis for 003851134-01. Kepler magnitude: 13.48. Transit SNR 7.00

There are 11 quarters with good PRF difference image offsets

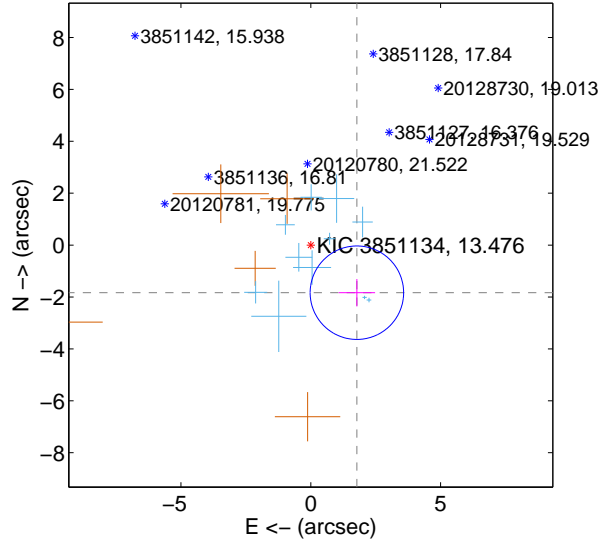
The direct PRF centroid is offset from the target star catalog position by about 0.26 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$2.894 \pm 0.589$	4.92	$-2.039 \pm 0.679$	$-2.054 \pm 0.568$
PRF-fit source offset from KIC position	$2.554 \pm 0.600$	4.25	$-1.777 \pm 0.701$	$-1.834 \pm 0.527$
photometric centroid source offset	$4.23 \pm 1.18$	3.59	$-1.73 \pm 1.11$	$-3.86 \pm 1.19$

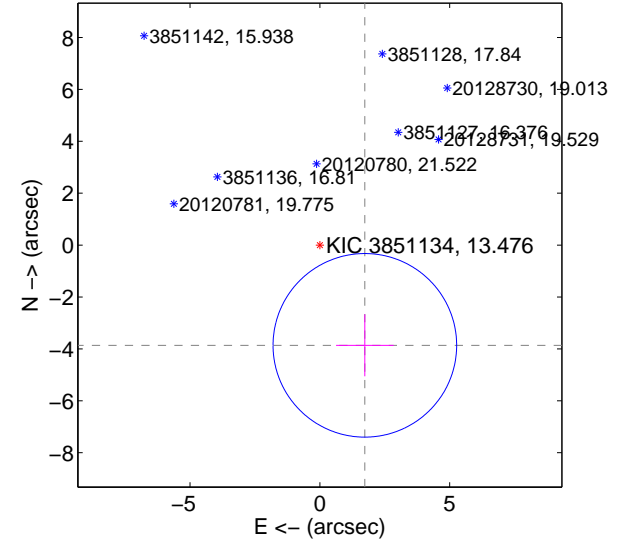
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position

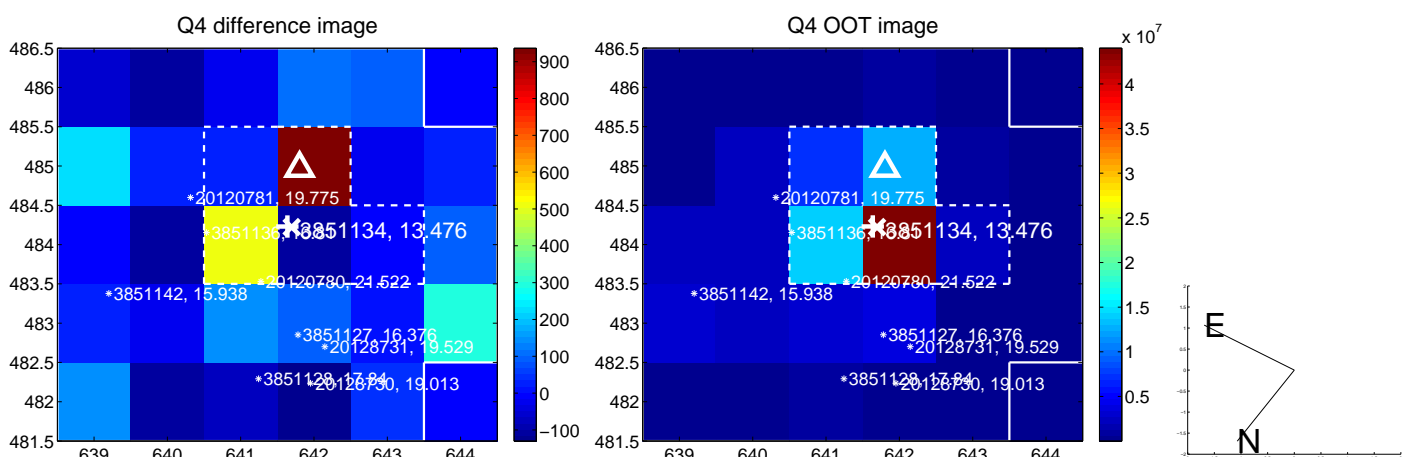
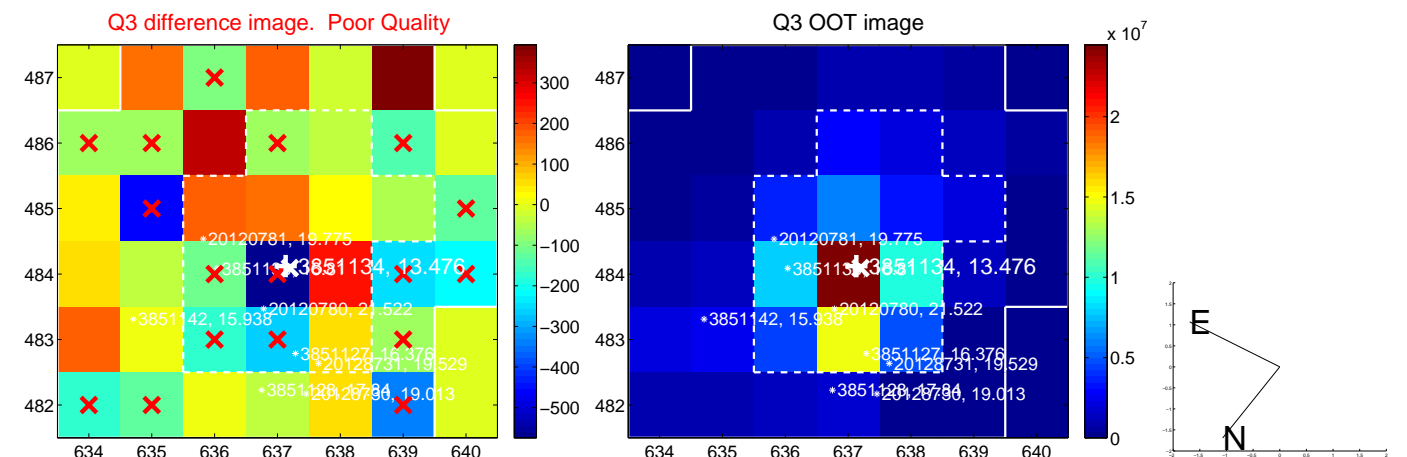
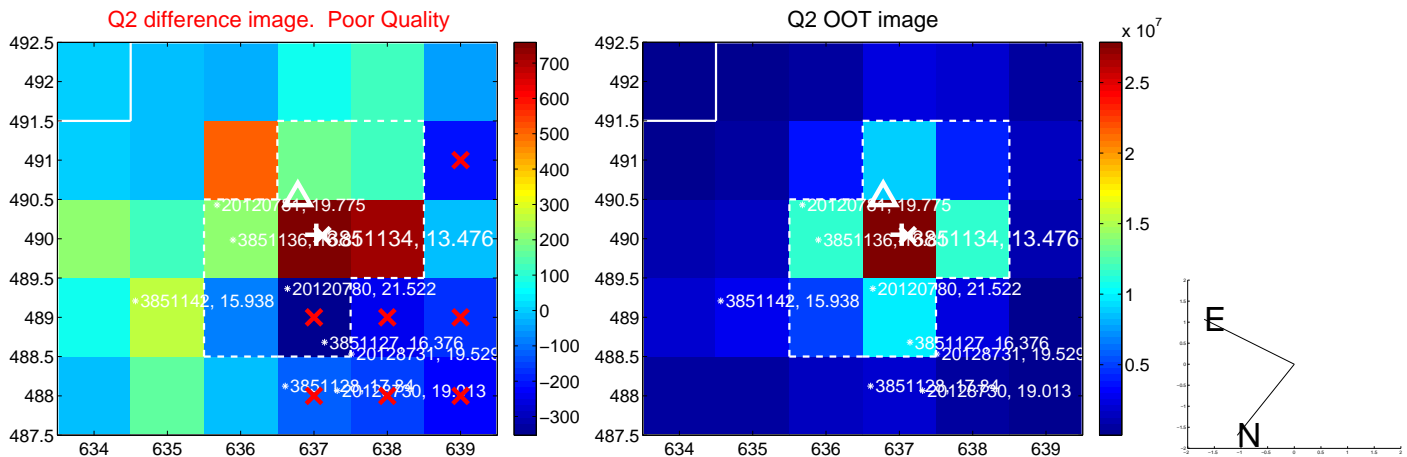
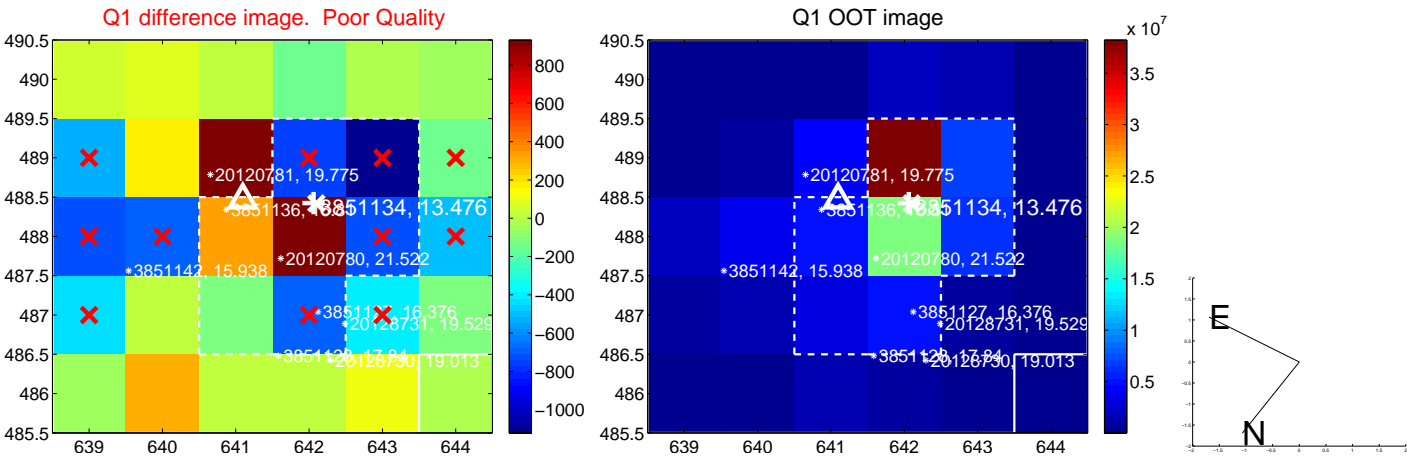


offset from photometric centroids

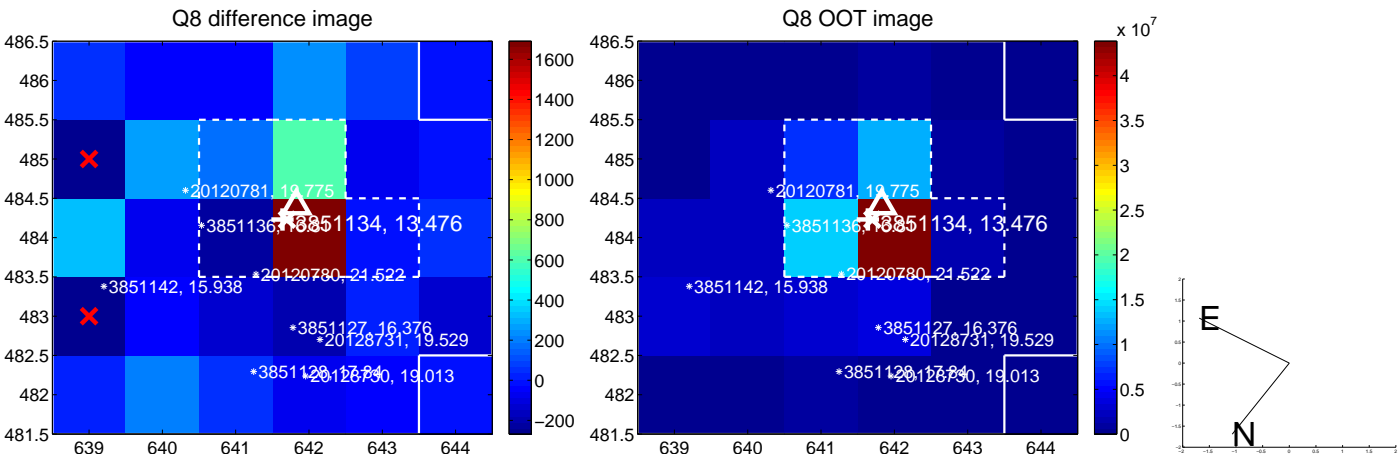
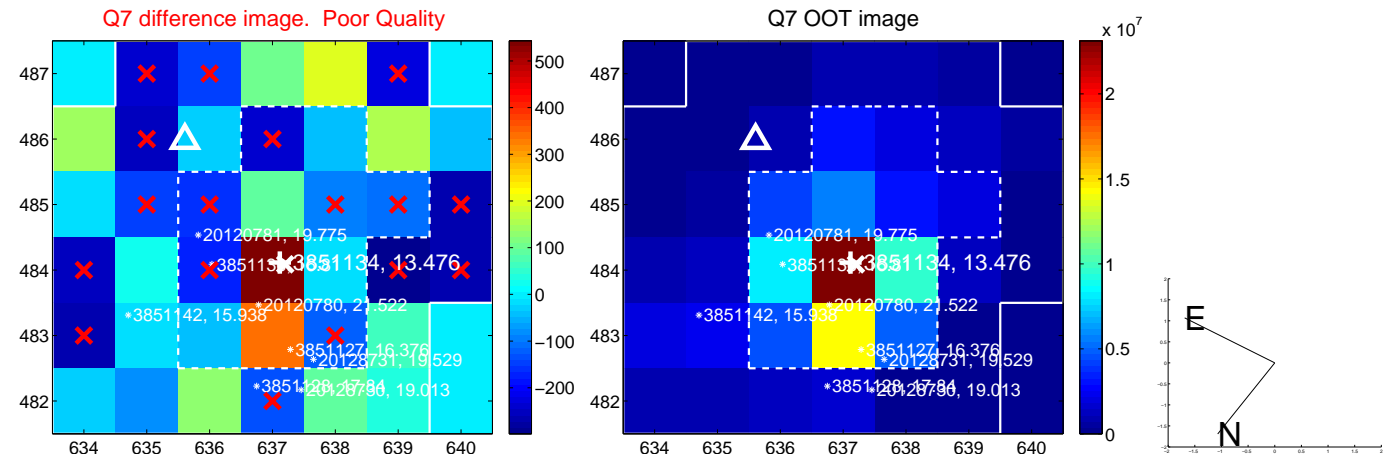
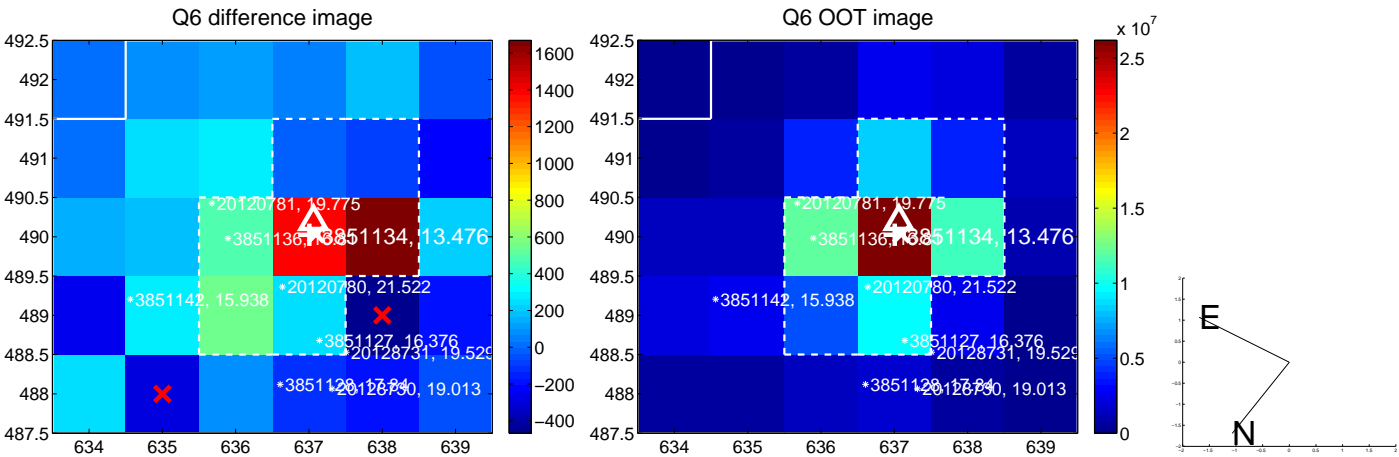
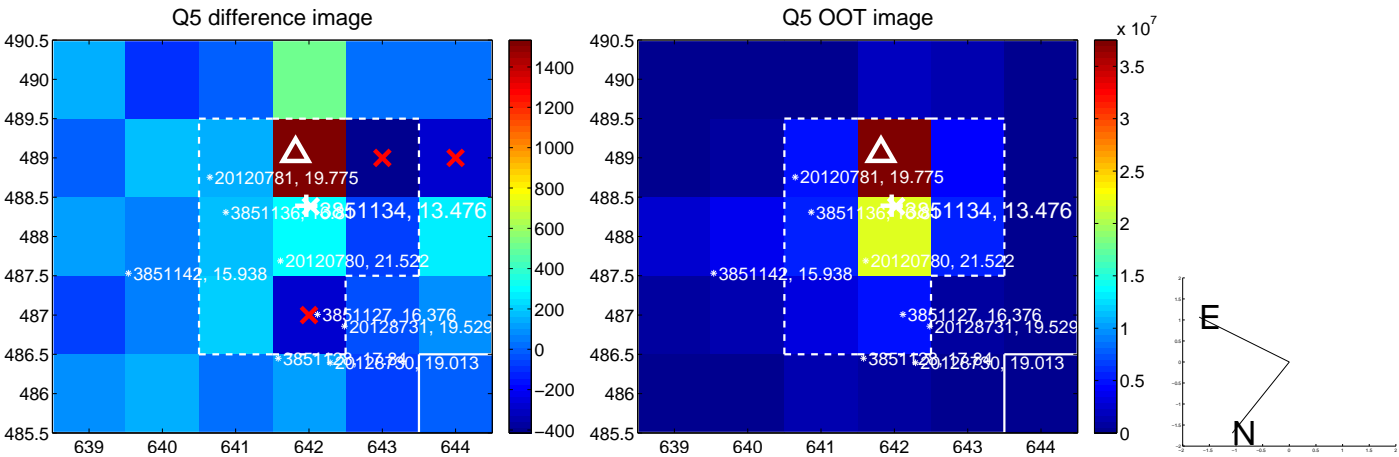


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses:** good quarterly centroid offsets; **Vermillion crosses:** bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: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

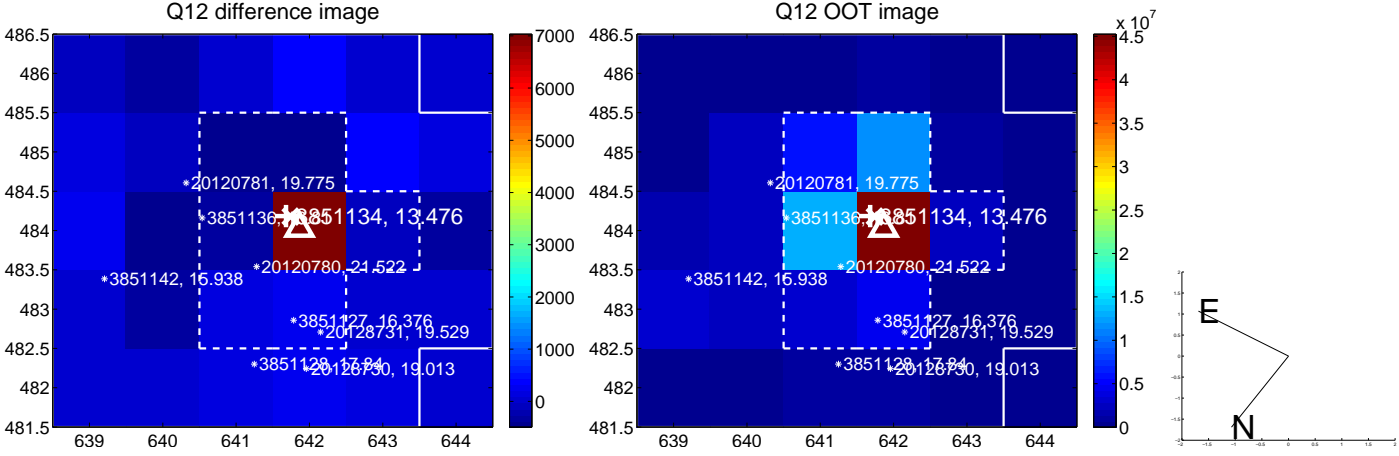
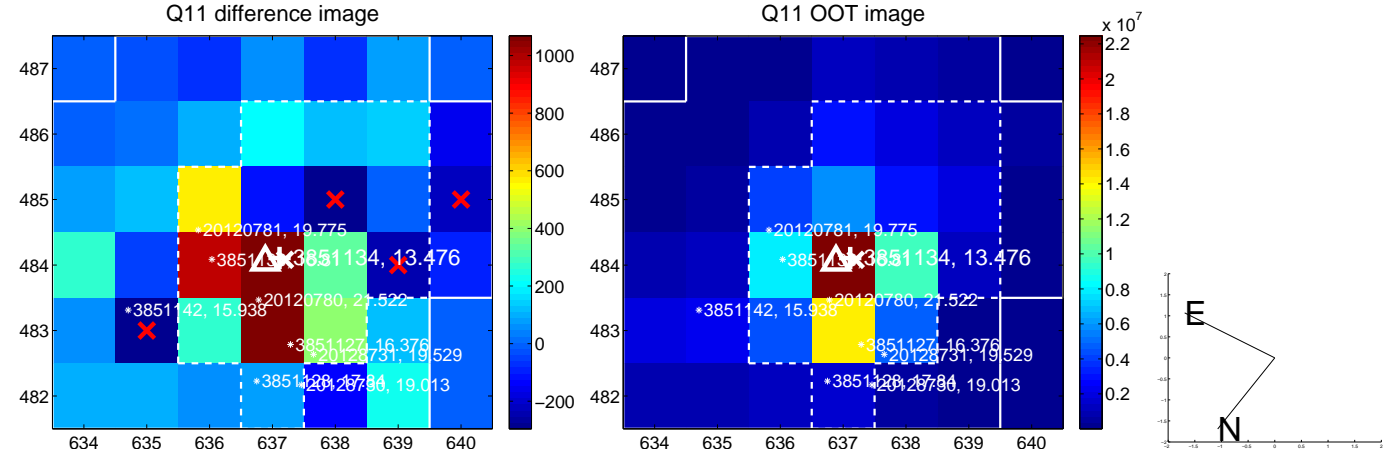
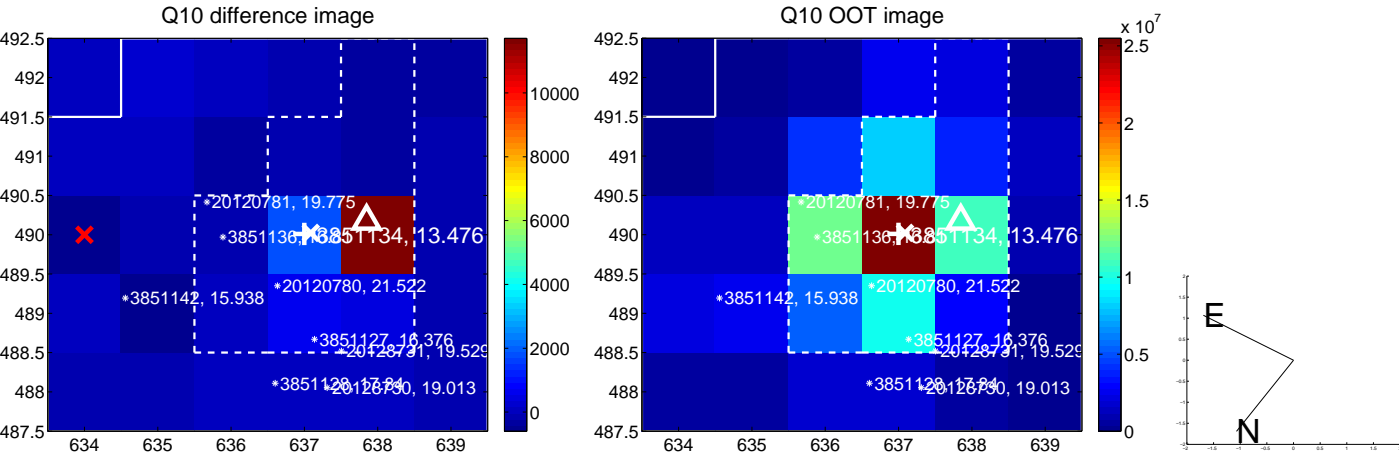
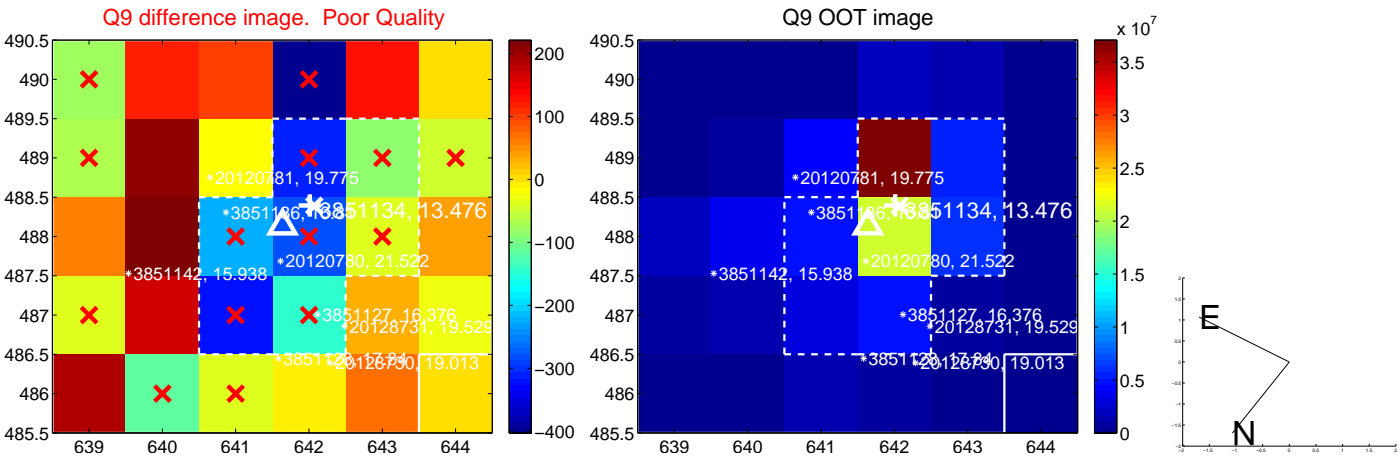


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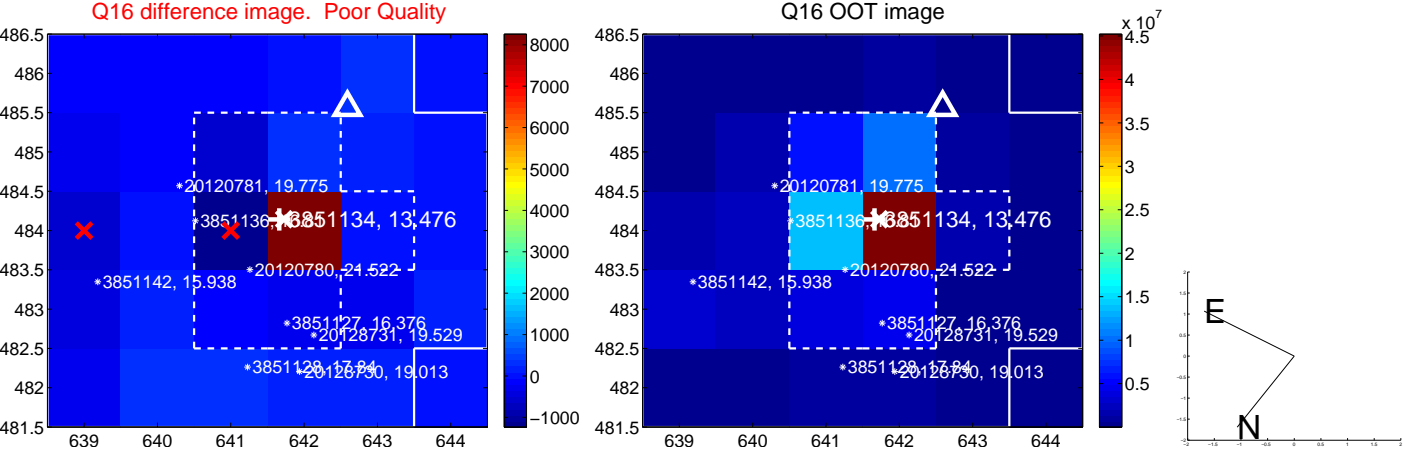
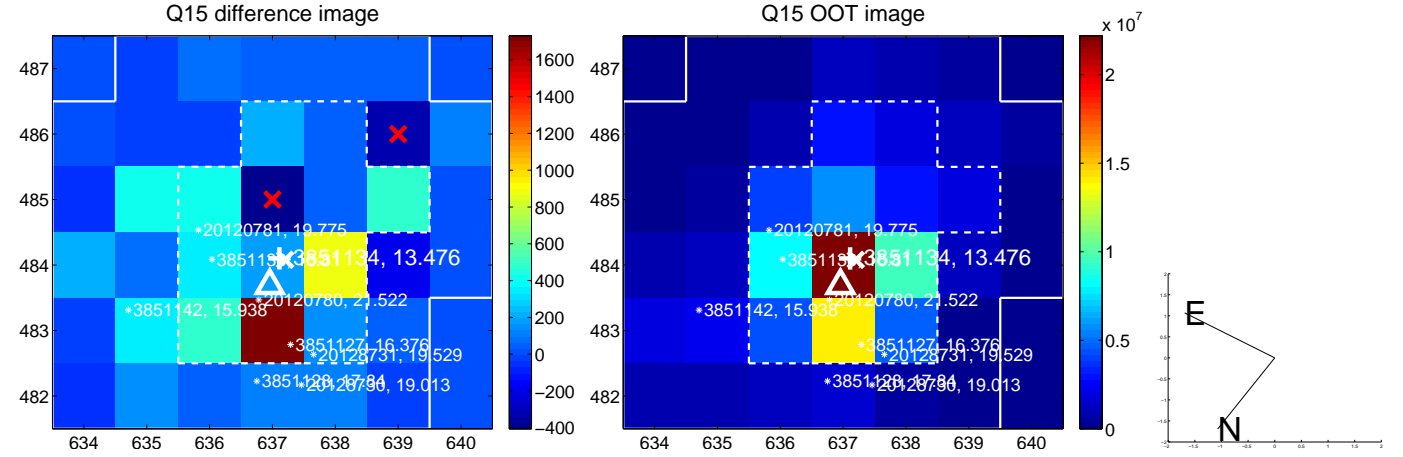
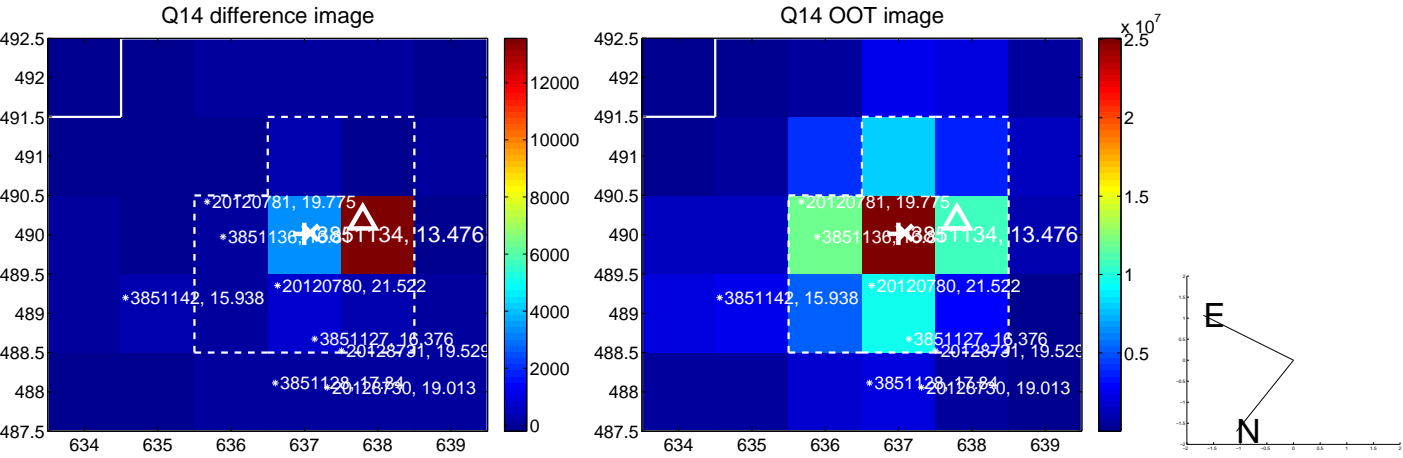
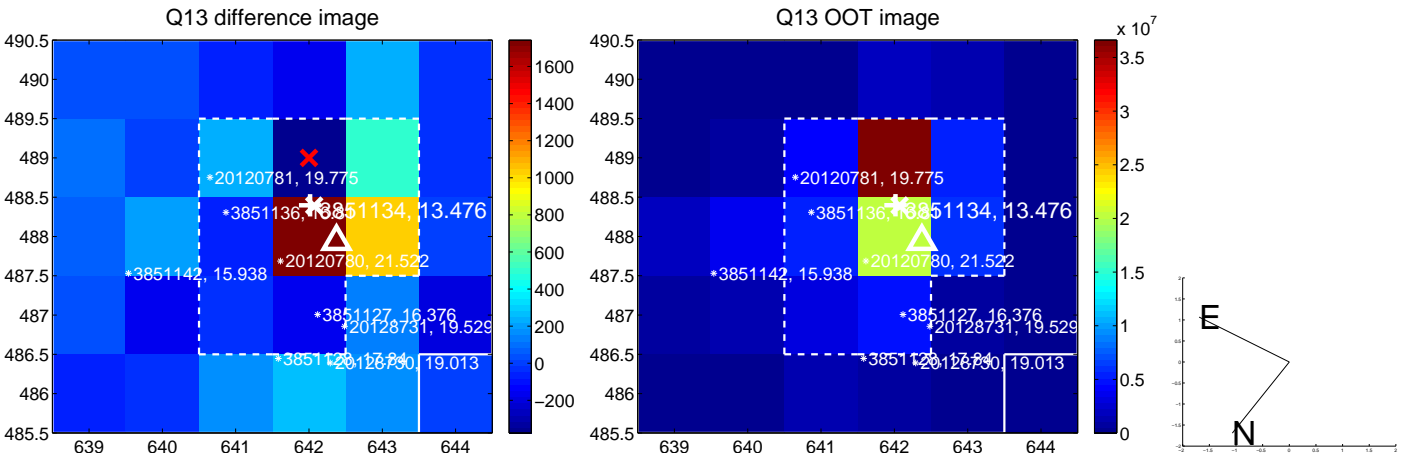




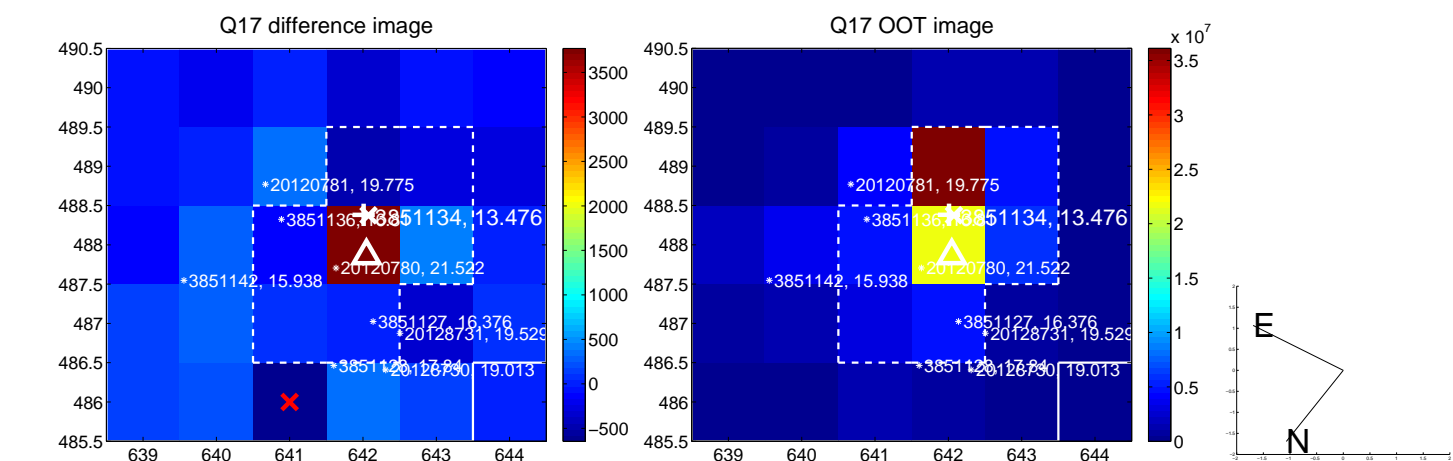
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



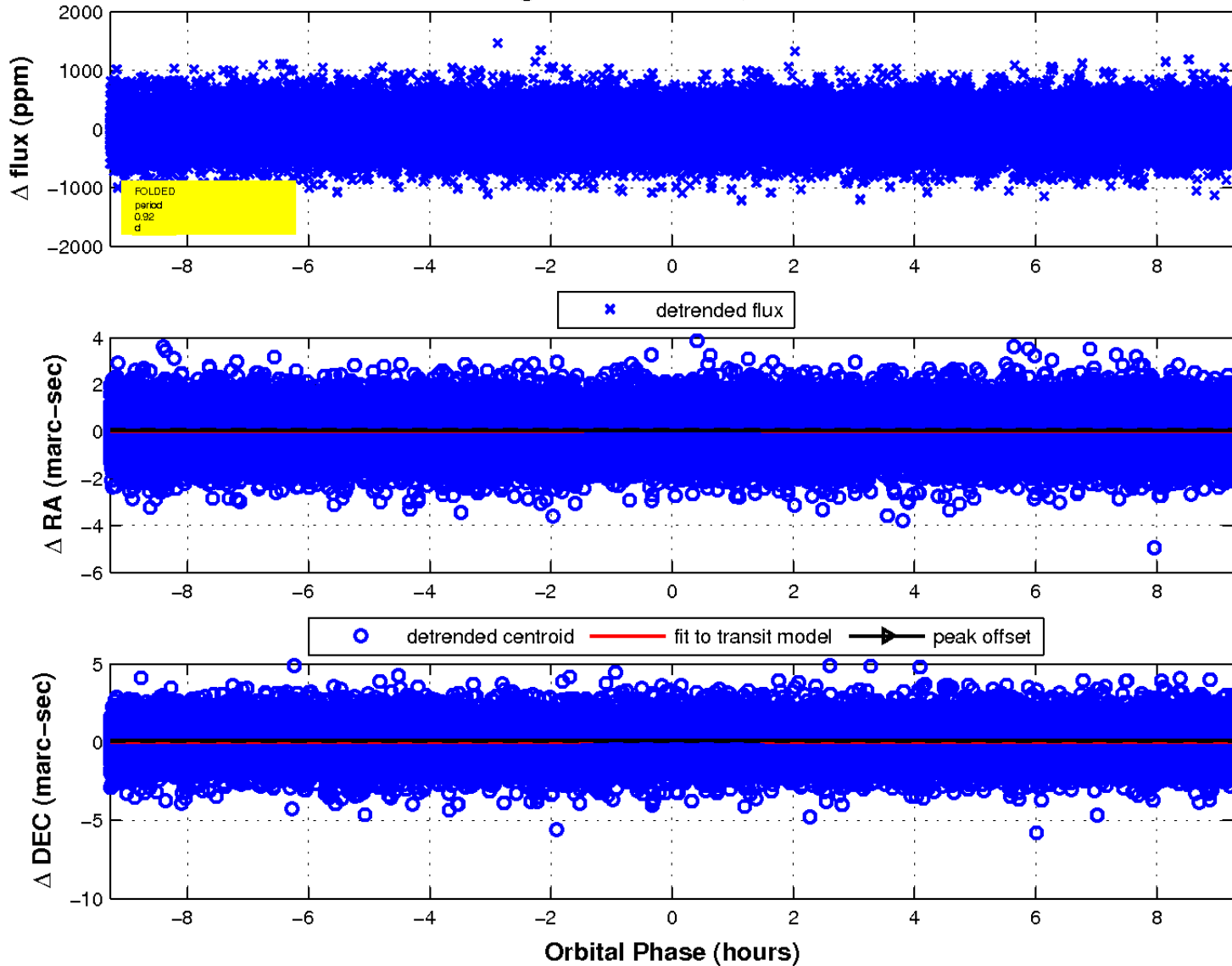
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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



fluxWeightedCentroids, Planet 1 of 1



UKIRT Image

Declination

