

# KIC 004570555

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
004570555-01	OBS	5072.01	4.750262	134.638261	374.2	2.458	29.8	32.2	5.75	5161	15.51	4516.51

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
004570555-01	OBS	FP	0.00	0	0	1	0	CENT_RESOLVED_OFFSET

**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.

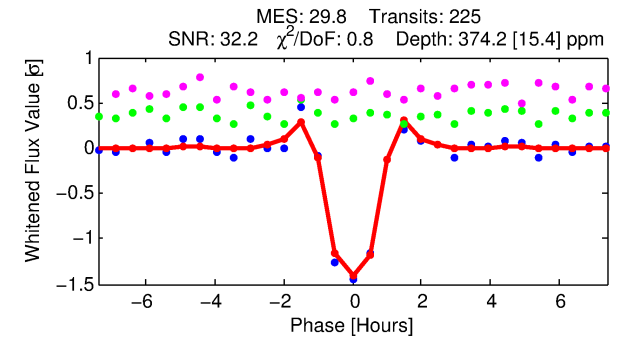
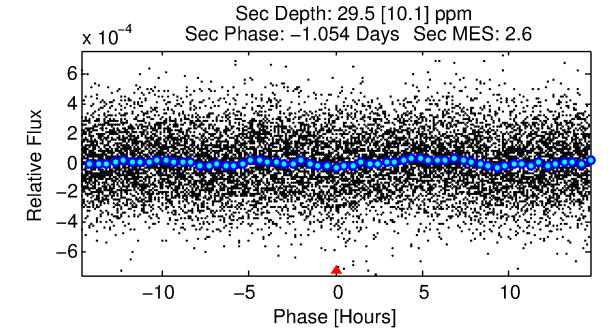
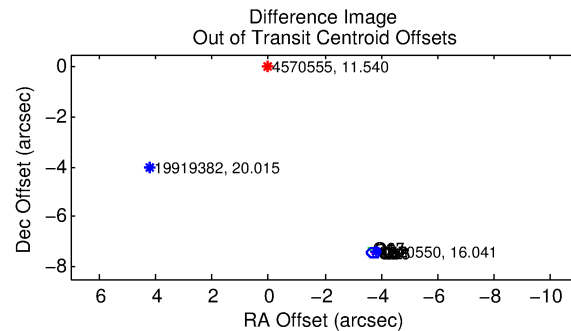
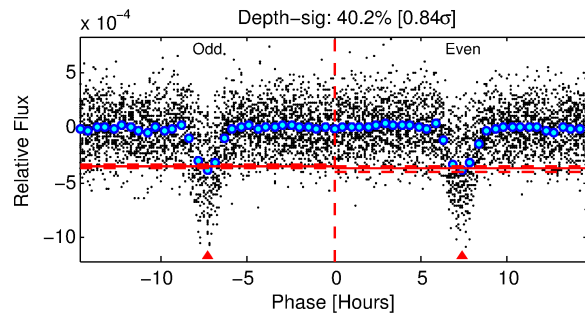
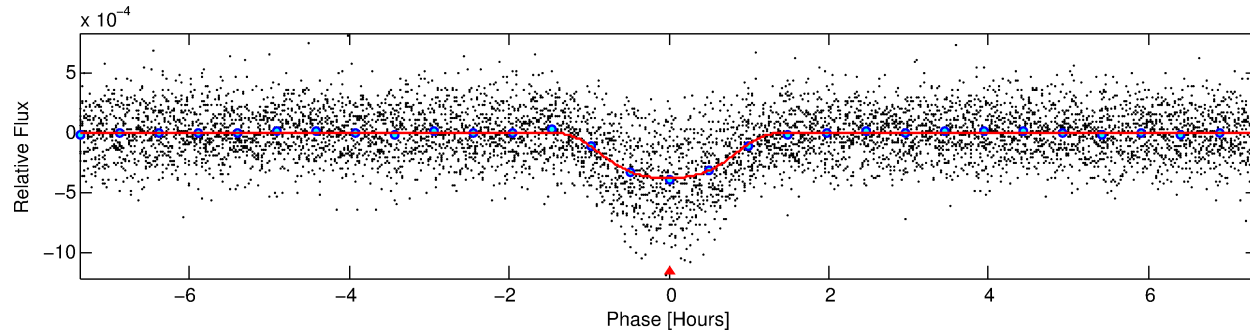
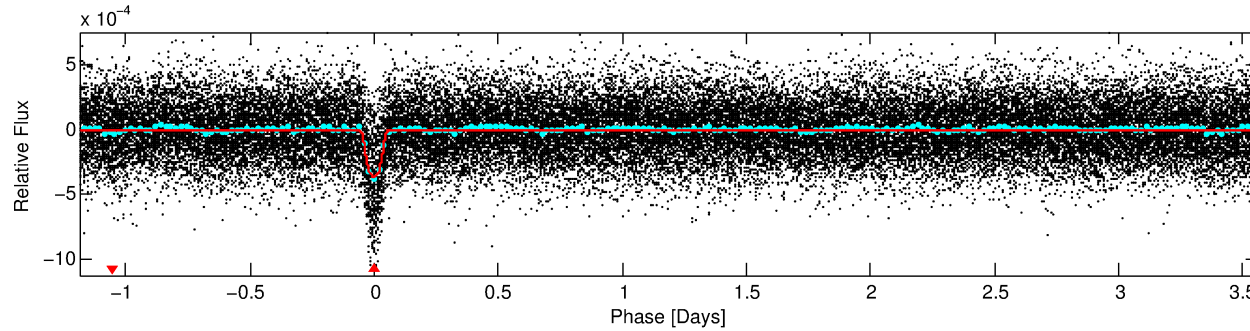
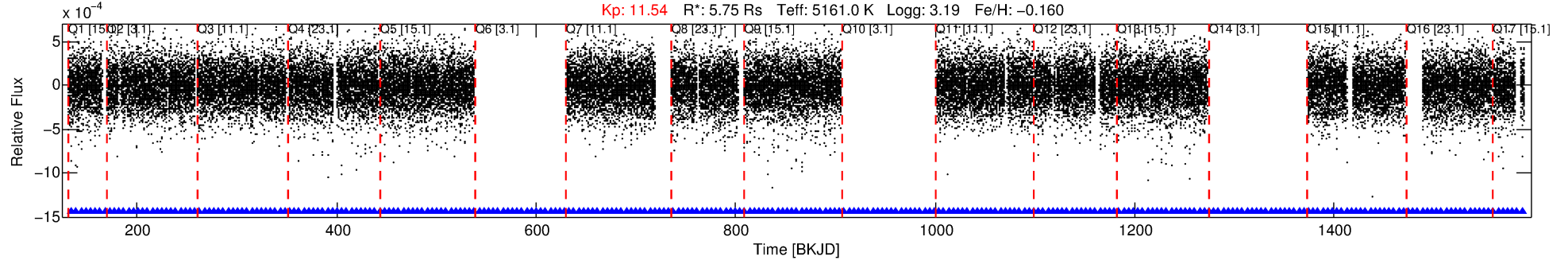
## Ephemeris Match Information For 004570555-01

No Significant Match Found

# DV One-Page Summary

KIC: 4570555 Candidate: 1 of 1 Period: 4.750 d  
KOI: K05072.01 Corr: 0.907

Kp: 11.54 R\*: 5.75 Rs Teff: 5161.0 K Logg: 3.19 Fe/H: -0.160



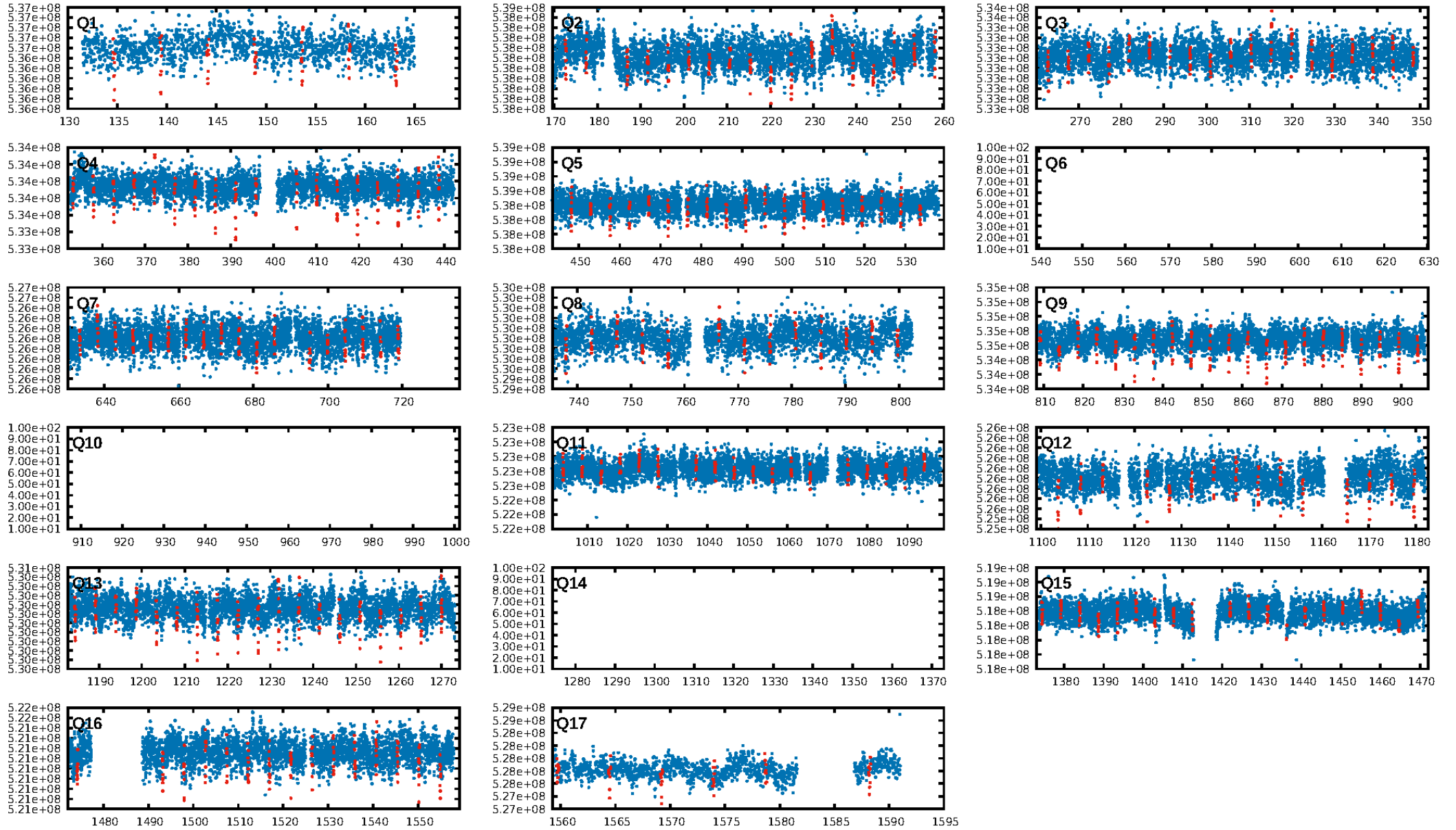
## DV Fit Results:

Period = 4.75026 [0.00001] d  
Epoch = 134.6383 [0.0010] BKJD  
Rp/R\* = 0.0247 [0.0007]  
a/R\* = 4.82 [0.24]  
b = 0.97 [0.00]  
Seff = 4516.51 [881.50]  
Teq = 2090 [102] K  
Rp = 15.51 [3.47] Re  
a = 0.0683 [0.0102] AU  
Ag = 0.31 [0.12] [-5.71σ]  
Teffp = 2421 [222] K [1.35σ]

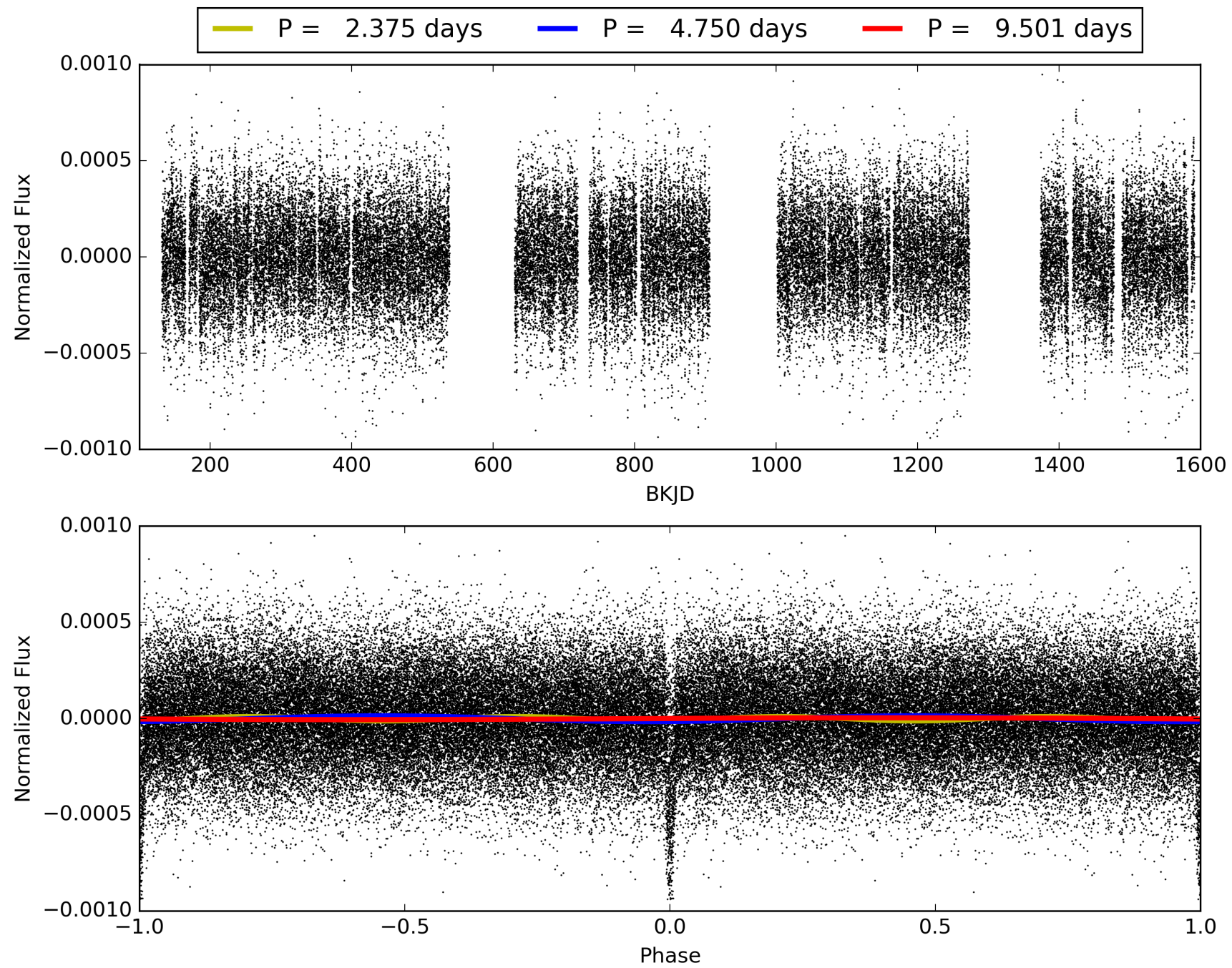
## DV Diagnostic Results:

ShortPeriod-sig: N/A  
LongPeriod-sig: N/A  
ModelChiSquare2-sig: N/A  
ModelChiSquareGof-sig: N/A  
Bootstrap-pfa: 2.37e-176  
RollingBand-fgt: 1.00 [212/212]  
GhostDiagnostic-chr: -0.3052  
Centroid-sig: 0.0%  
Centroid-so: 57.571 arcsec [510.92σ]  
OotOffset-rm: 8.331 arcsec [111.75σ]  
KicOffset-rm: 8.288 arcsec [109.32σ]  
OotOffset-st: 1/4/4/5 [14]  
KicOffset-st: 1/4/4/5 [14]  
DiffImageQuality-fgm: 1.00 [14/14]  
DiffImageOverlap-fno: 1.00 [14/14]

# TCE 004570555-01, PDC Light Curves



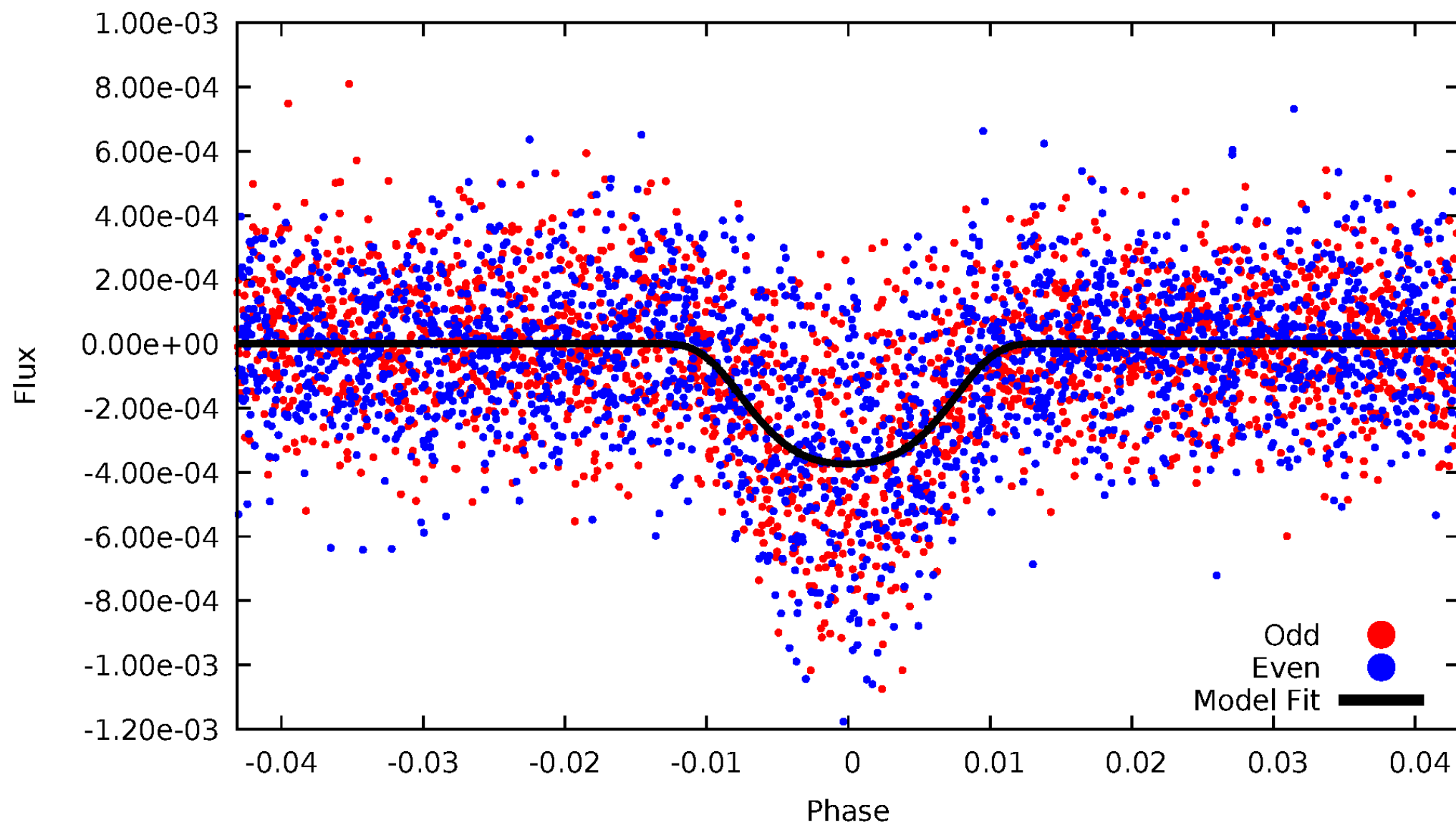
TCE 004570555-01





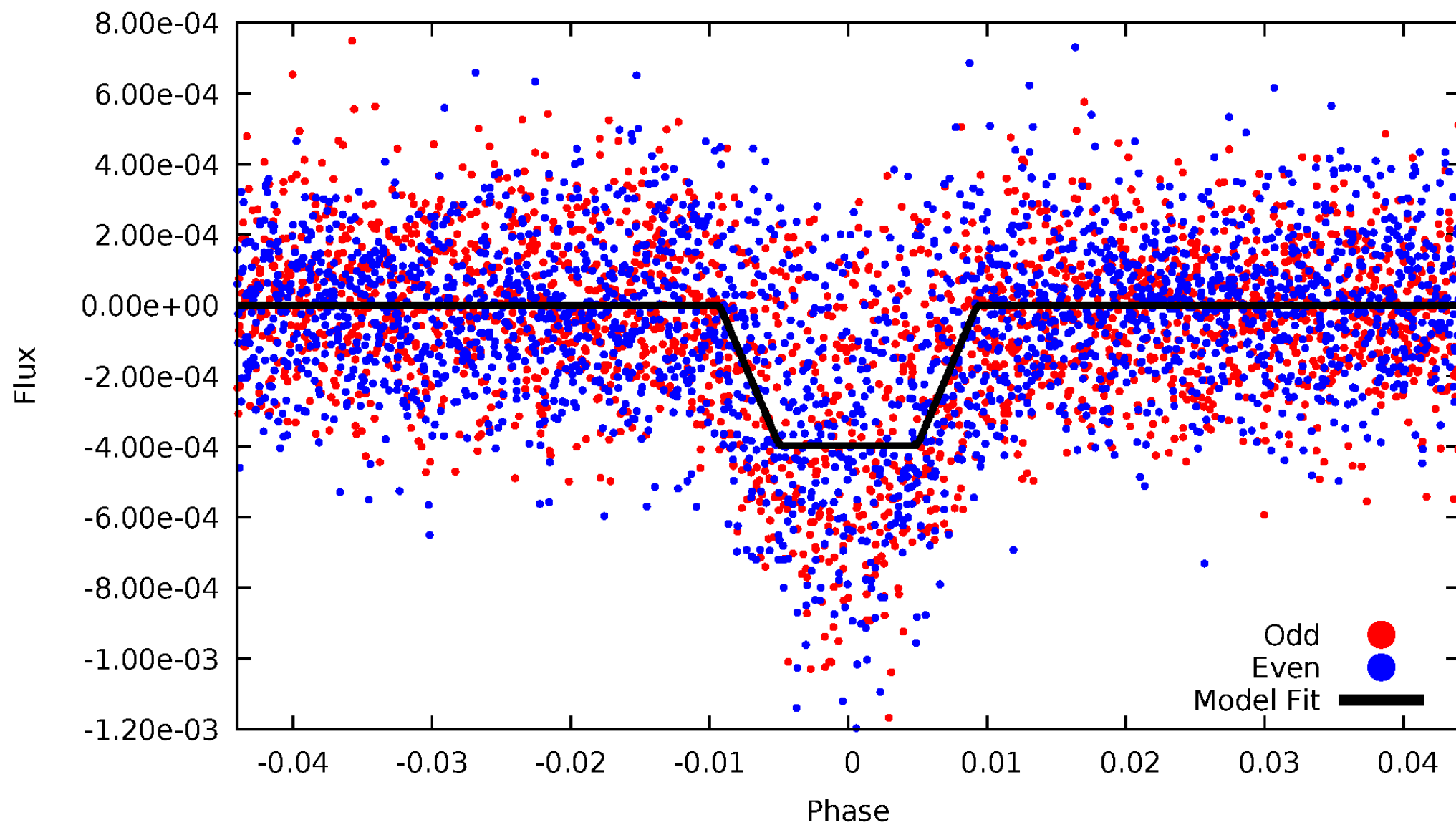
# DV Odd/Even

TCE 004570555-01

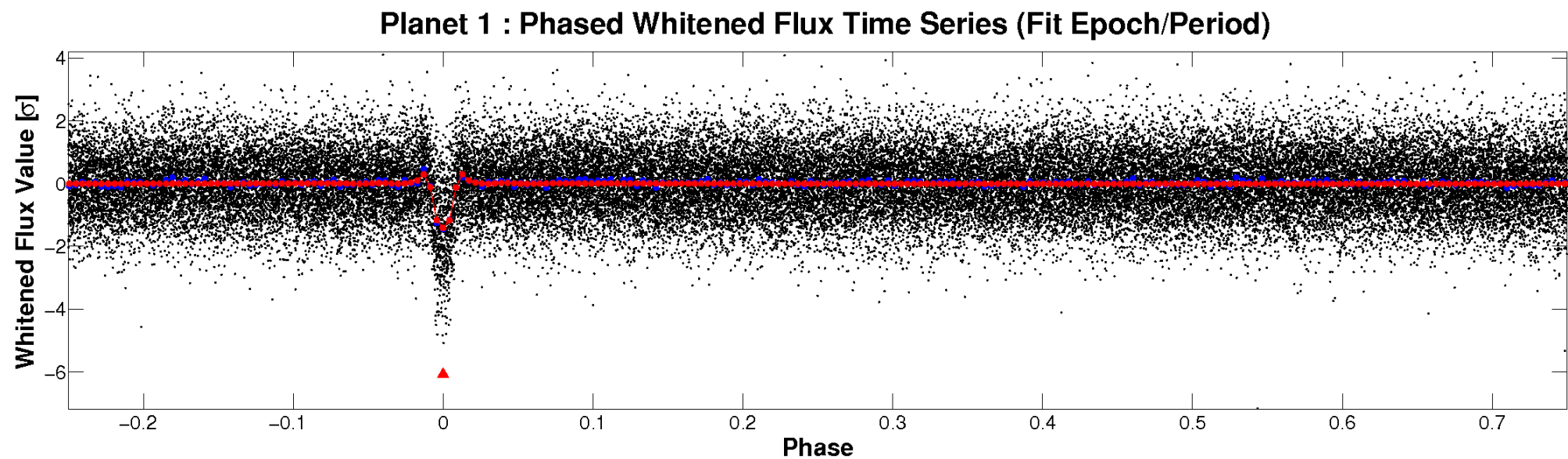
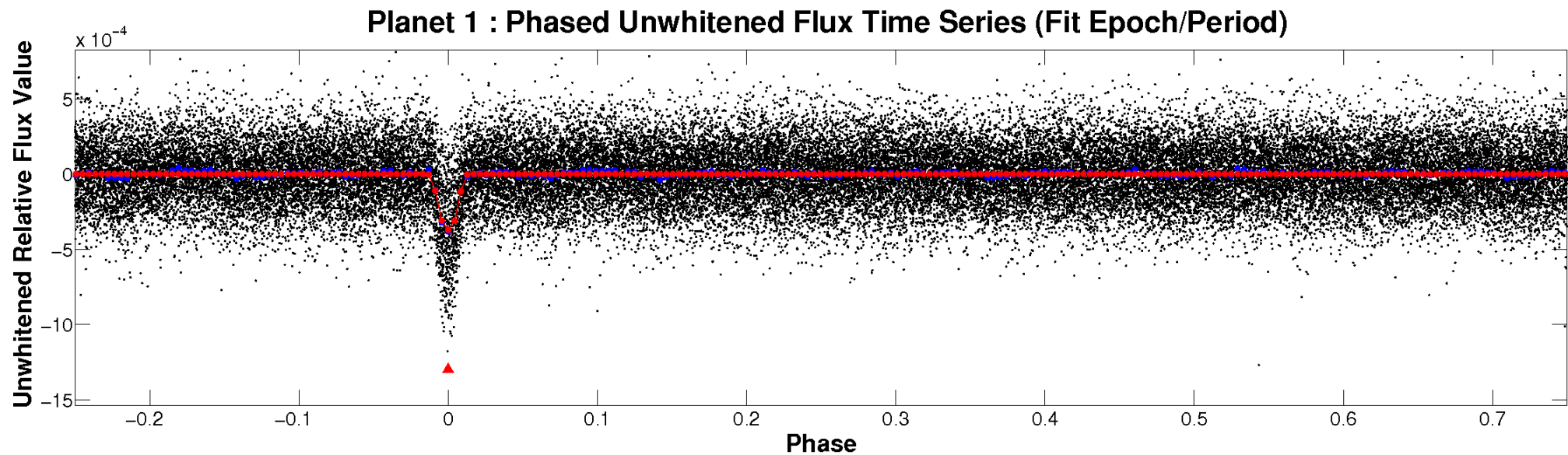


# ALT Odd/Even

TCE 004570555-01

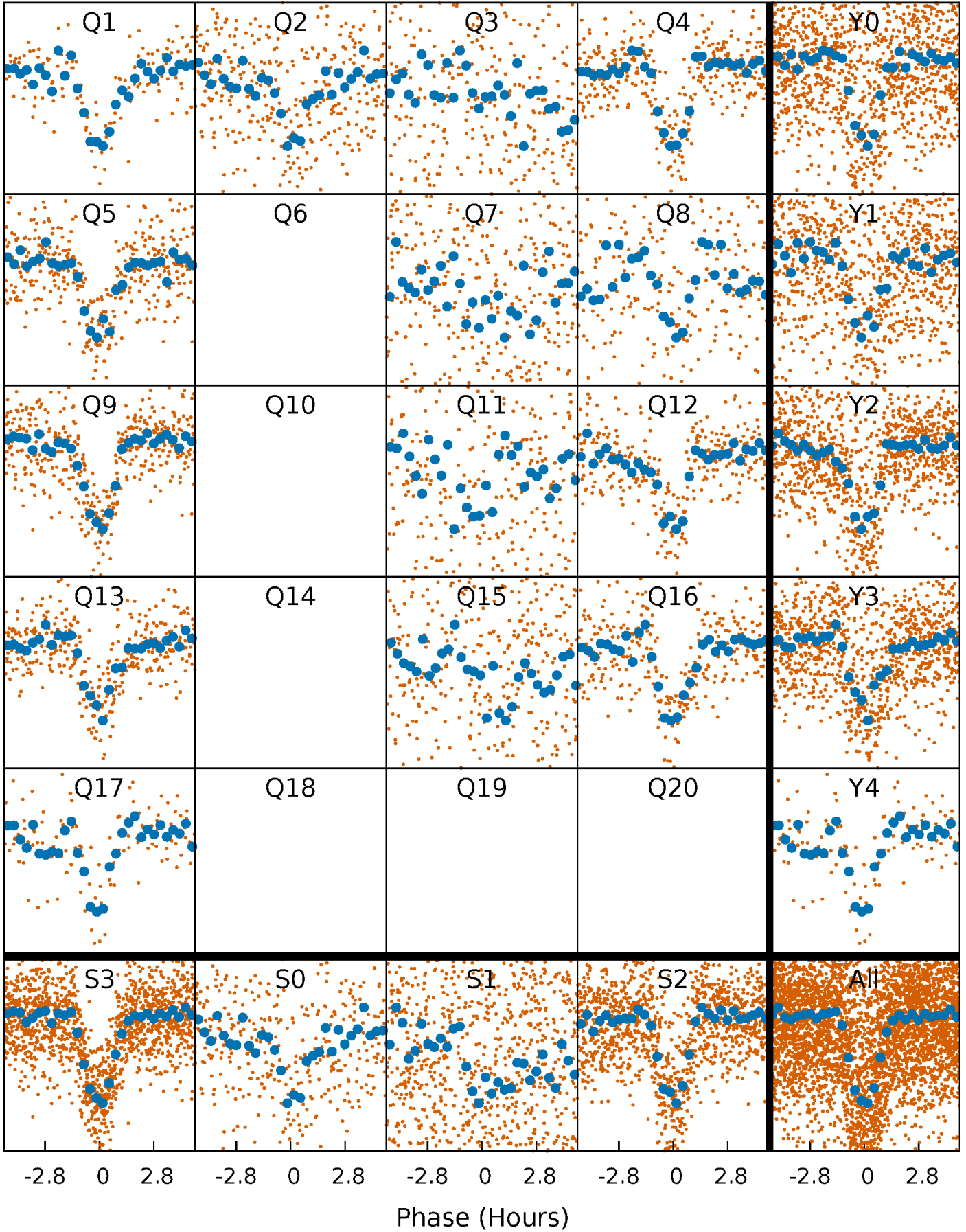


# Non-Whitened Vs. Whitened Light Curve



# PDC Quarter-Phased Transit Curves

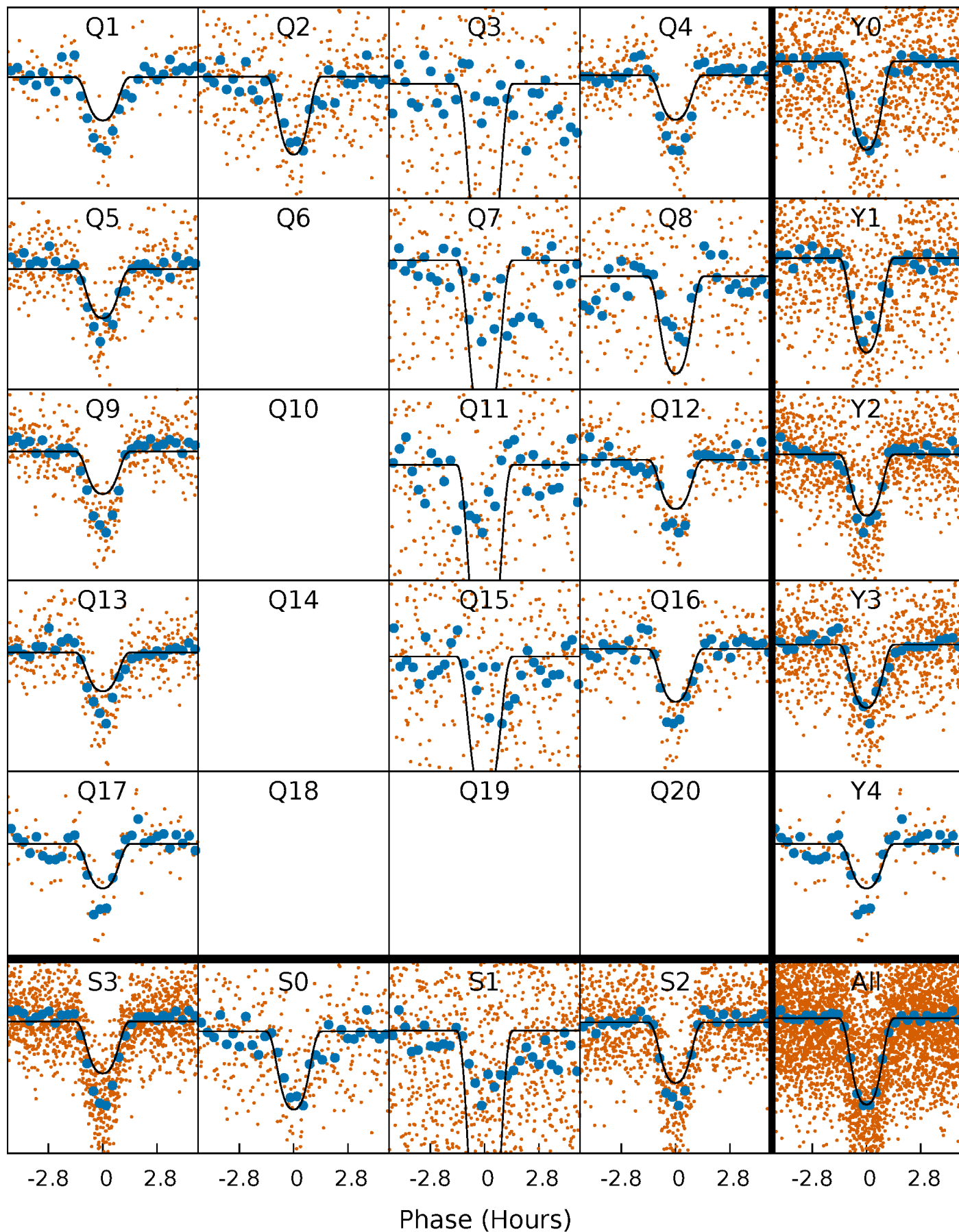
TCE 004570555-01 P= 4.750262 Days  $T_0=134.638261$  (BKJD)





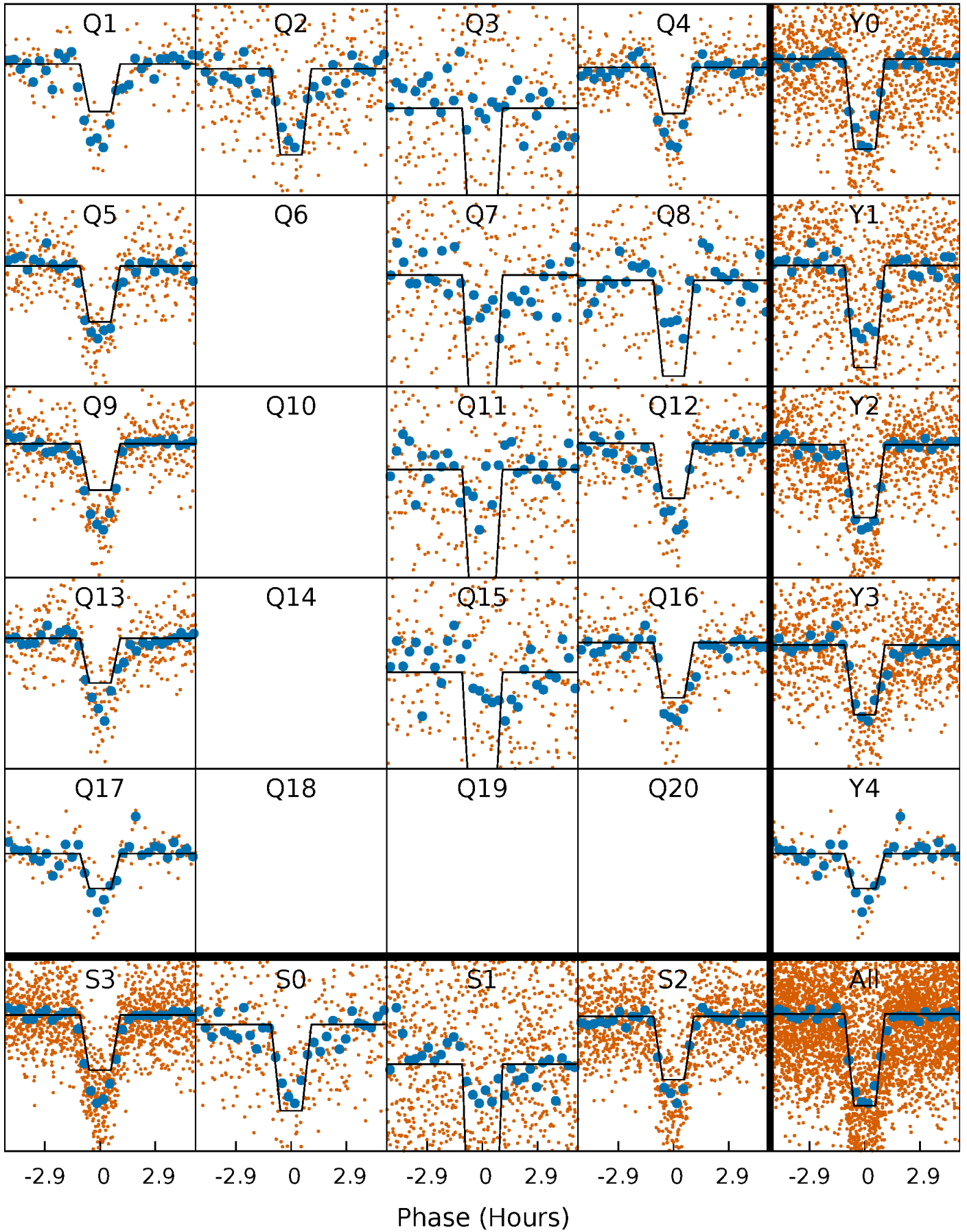
# DV Quarter-Phased Transit Curves

TCE 004570555-01 P= 4.750262 Days  $T_0=134.638261$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

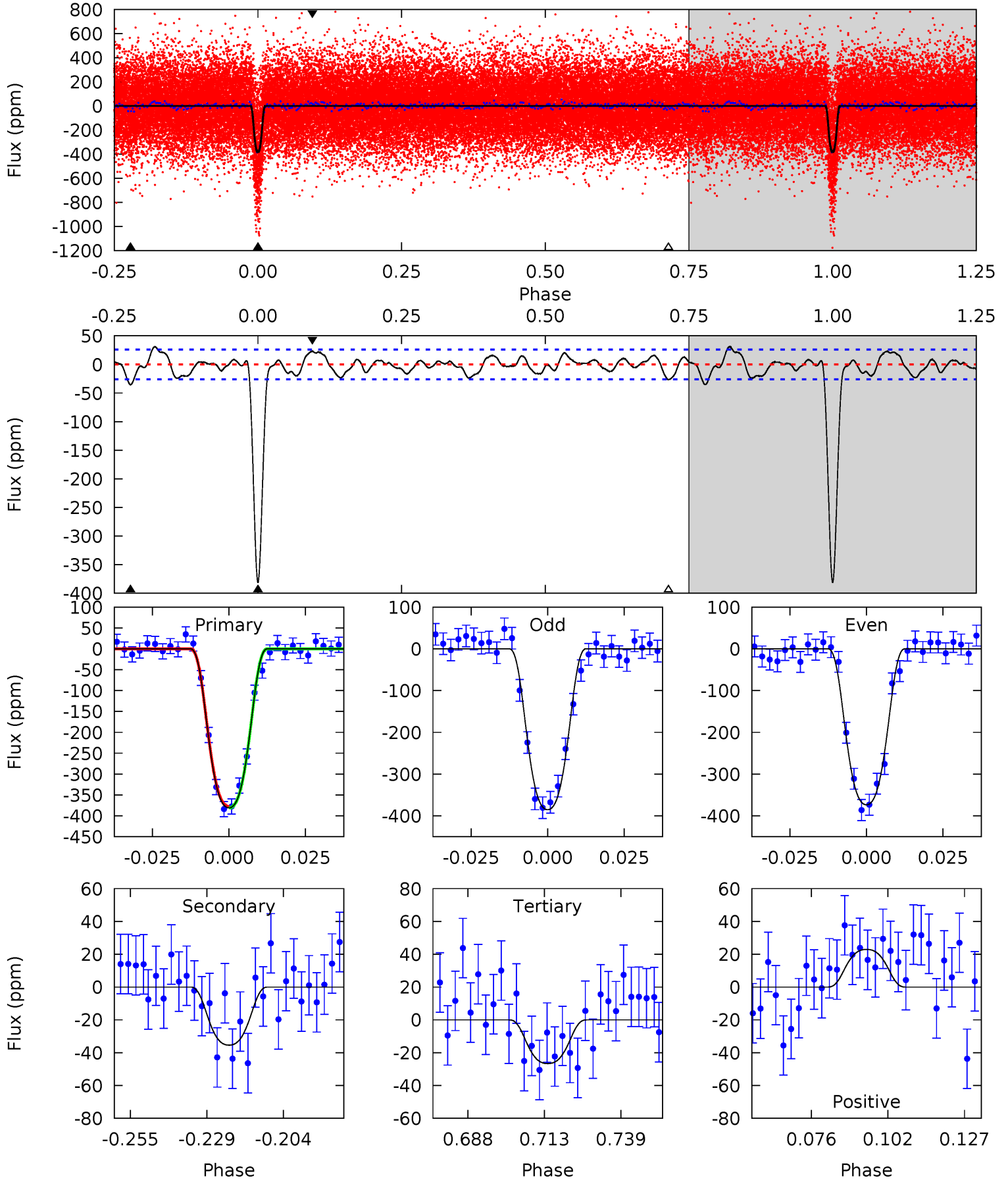
TCE 004570555-01 P= 4.750227 Days  $T_0=134.643637$  (BKJD)



# DV Model-Shift Uniqueness Test

004570555-01, P = 4.750262 Days, E = 129.887999 Days

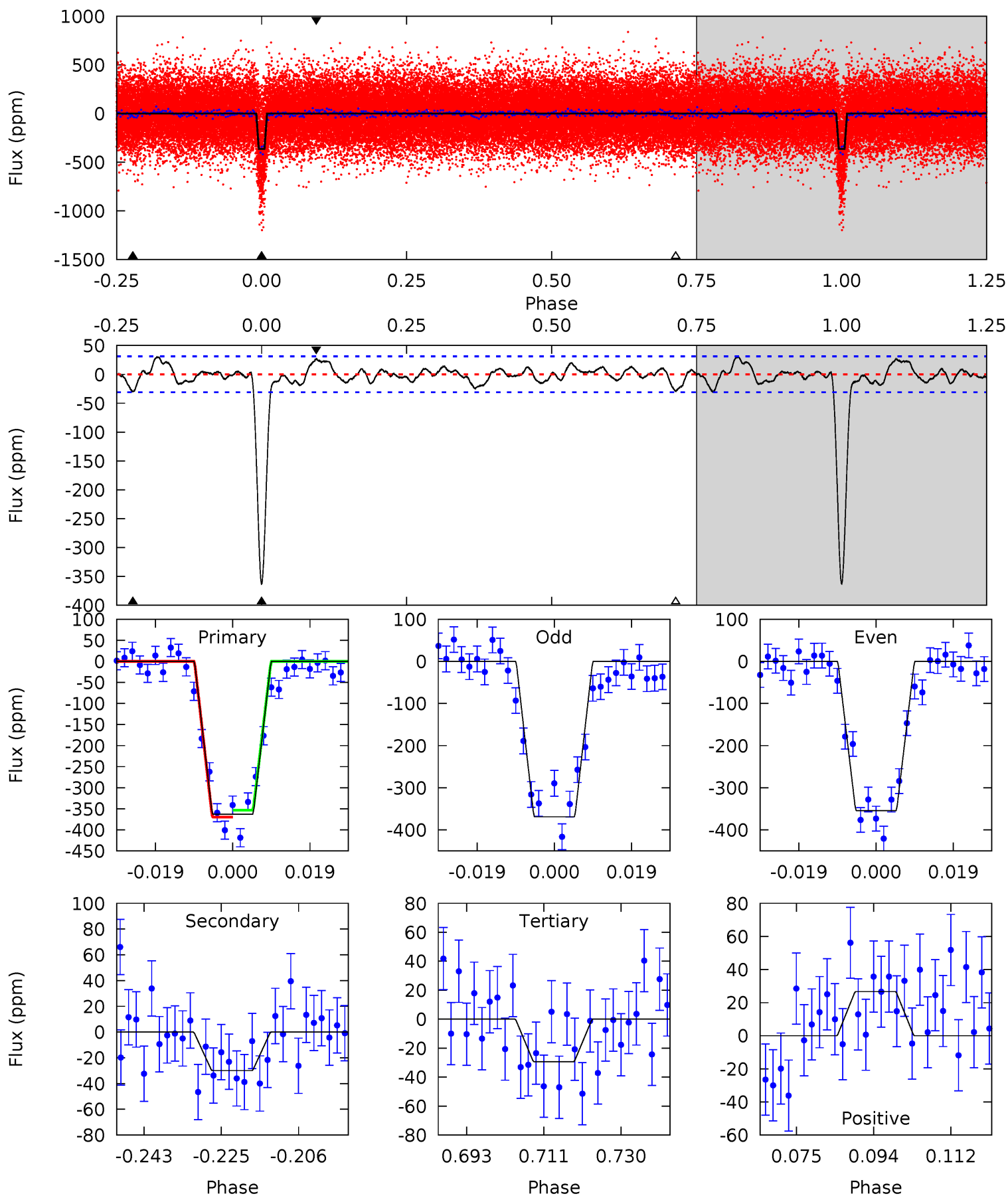
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
71.0	6.61	4.97	4.28	4.84	2.23	2.15	66.1	66.7	1.63	2.33	1.10	0.95	0.08	0.32



# Alt Model-Shift Uniqueness Test

004570555-01, P = 4.750227 Days, E = 129.893410 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
57.4	4.73	4.63	4.22	4.90	2.35	1.71	52.7	53.2	0.10	0.52	1.16	0.96	0.08	1.27





### Stellar Parameters For KIC 004570555

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R$ ( $R_{\odot}$ )	$M$ ( $M_{\odot}$ )	$p_{\star}$ ( $\text{g}\cdot\text{cm}^{-3}$ )
	$5161^{+50}_{-151}$	$3.192^{+0.033}_{-0.027}$	$-0.160^{+0.100}_{-0.200}$	$5.753^{+0.300}_{-1.275}$	$1.880^{+0.124}_{-0.704}$	$0.014^{+0.004}_{-0.001}$
	+1%/-3%	+1%/-1%	+62%/-125%	+5%/-22%	+7%/-37%	+32%/-7%
Source	PHO55	AST55	SPE55	DSEP		

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

### Secondary Eclipse Parameters for KIC 004570555-01 / KOI 5072.01

Detrend	Depth (ppm)	$R_p$ ( $R_{\oplus}$ )	$T_{max}$ (K)	$T_{obs}$ (K)	$A_{obs}$
DV	$-35 \pm 5$	$15.73^{+0.70}_{-1.06}$	$2909^{+52}_{-93}$	$2527^{+207}_{-423}$	$0.380^{+0.069}_{-0.063}$
Alt.	$-30 \pm 6$	$12.71^{+0.62}_{-0.78}$	$2916^{+53}_{-94}$	$2831^{+186}_{-261}$	$0.493^{+0.111}_{-0.102}$

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

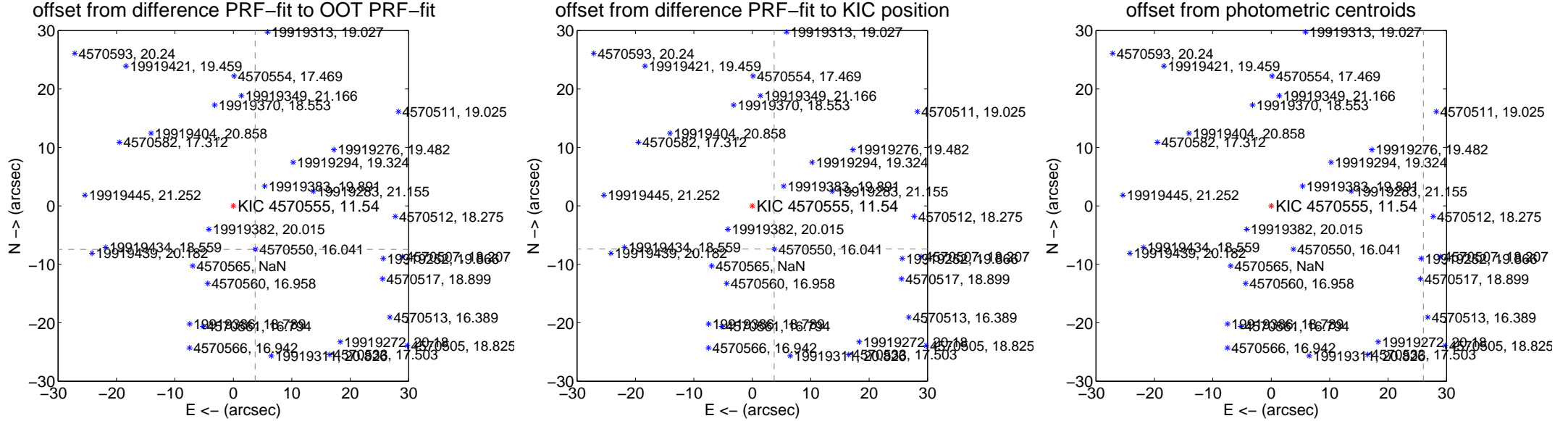
## DV Centroid Data

Supplemental centroid analysis for 004570555-01. **Kepler magnitude: 11.54.** Transit SNR 32.16

There are 14 quarters with good PRF difference image offsets

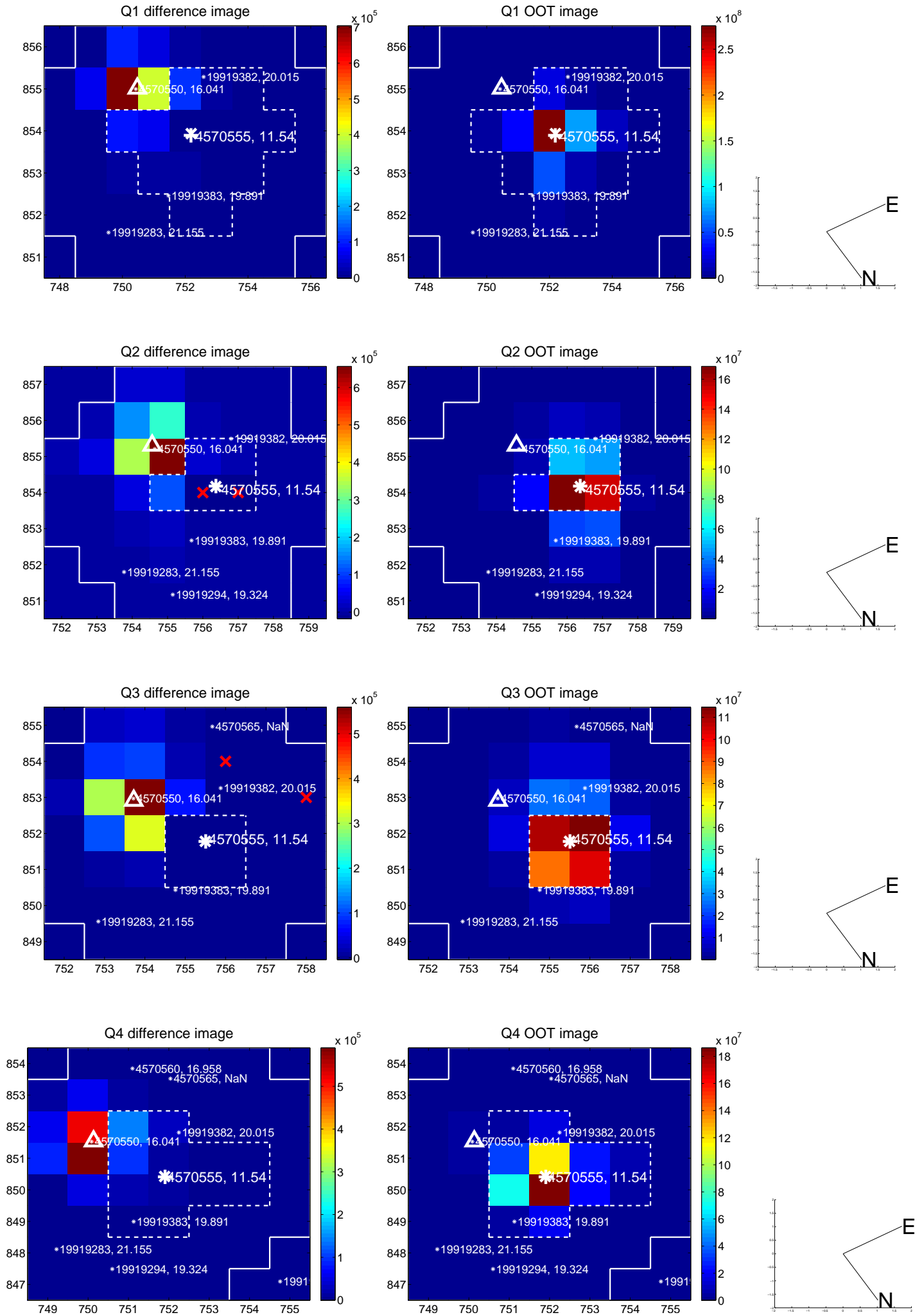
The direct PRF centroid is offset from the target star catalog position by about 0.13 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	<b><math>8.331 \pm 0.075</math></b>	<b>111.75</b>	$-3.726 \pm 0.072$	$-7.451 \pm 0.071$
PRF-fit source offset from KIC position	<b><math>8.288 \pm 0.076</math></b>	<b>109.32</b>	$-3.739 \pm 0.068$	$-7.397 \pm 0.075$
photometric centroid source offset	<b><math>57.57 \pm 0.11</math></b>	<b>510.94</b>	$-26.03 \pm 0.09$	$-51.35 \pm 0.12$

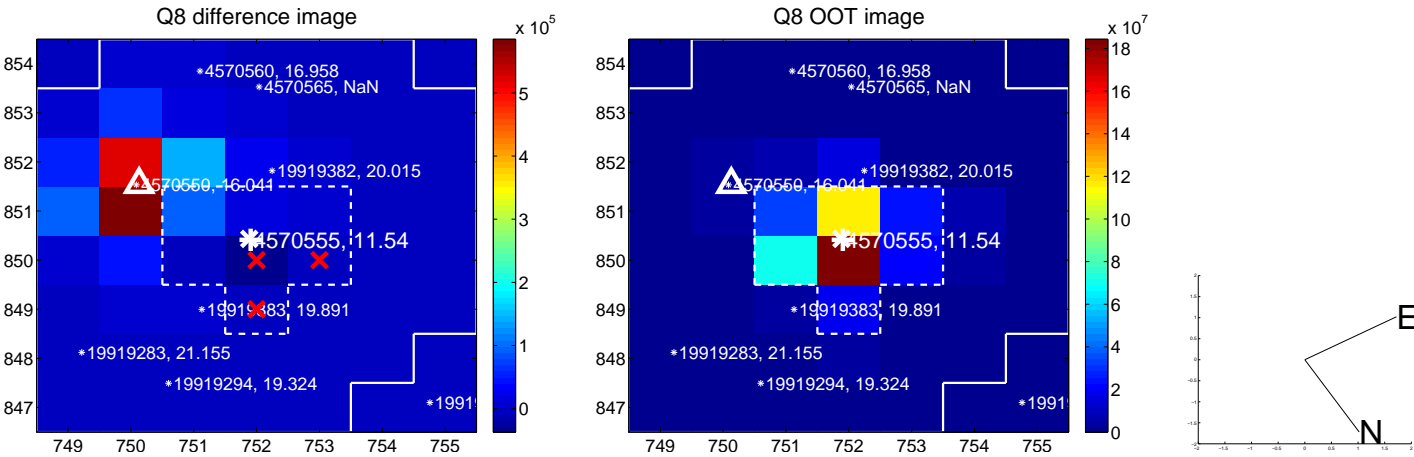
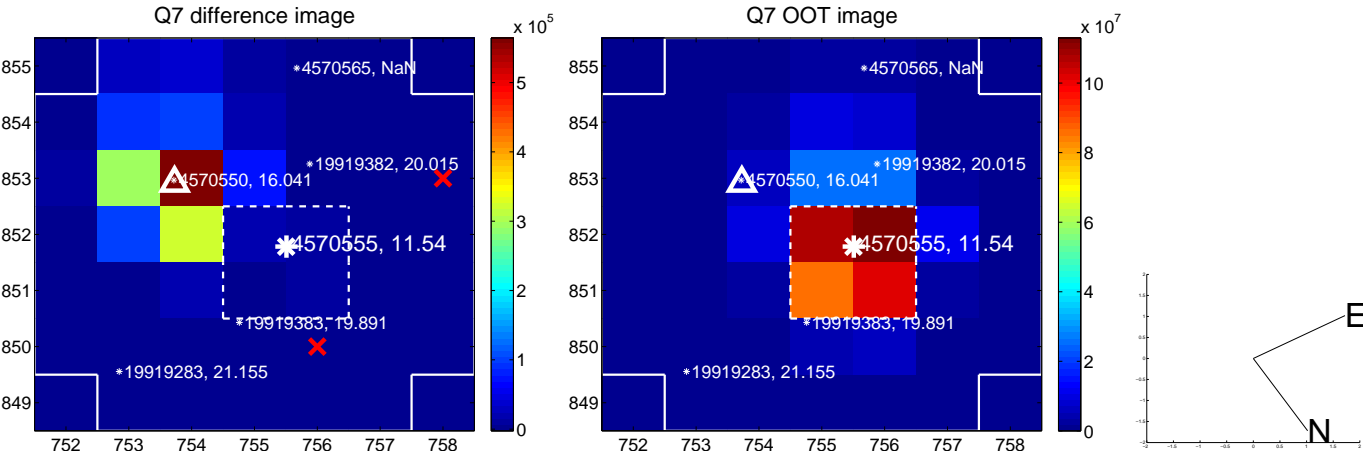
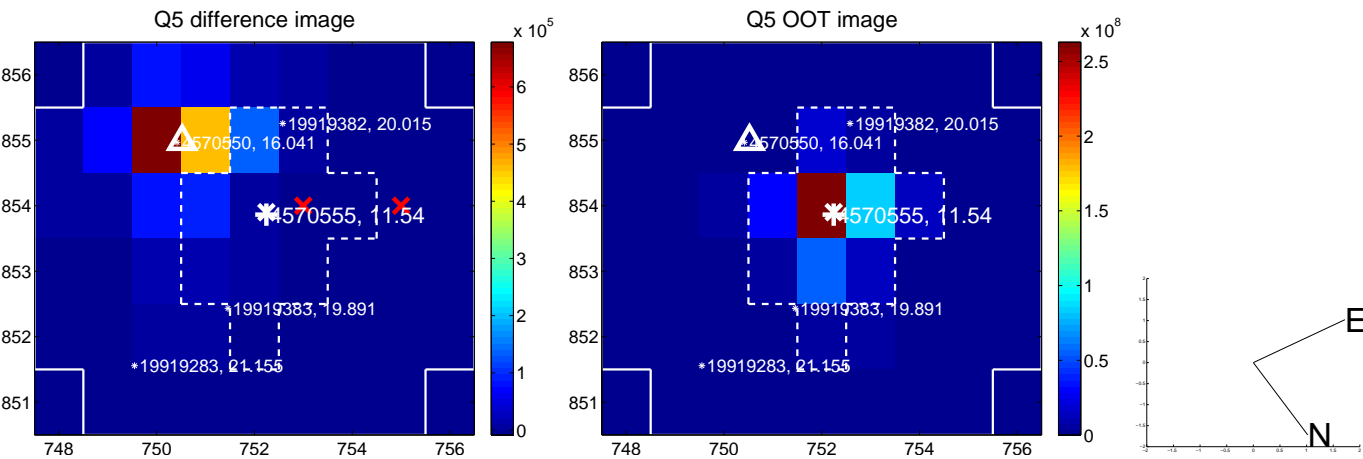


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets;** magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: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

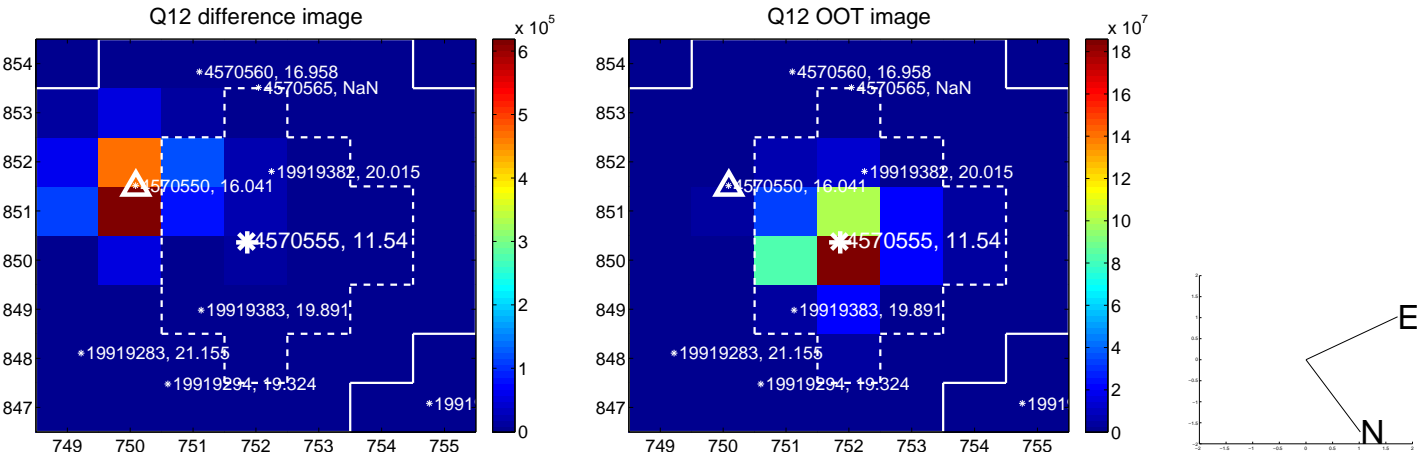
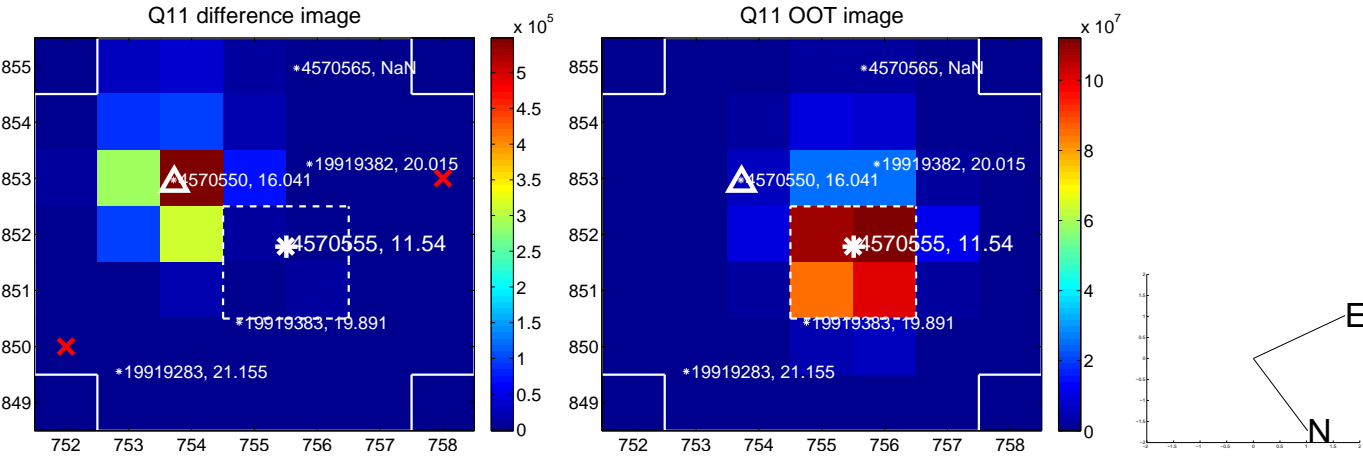
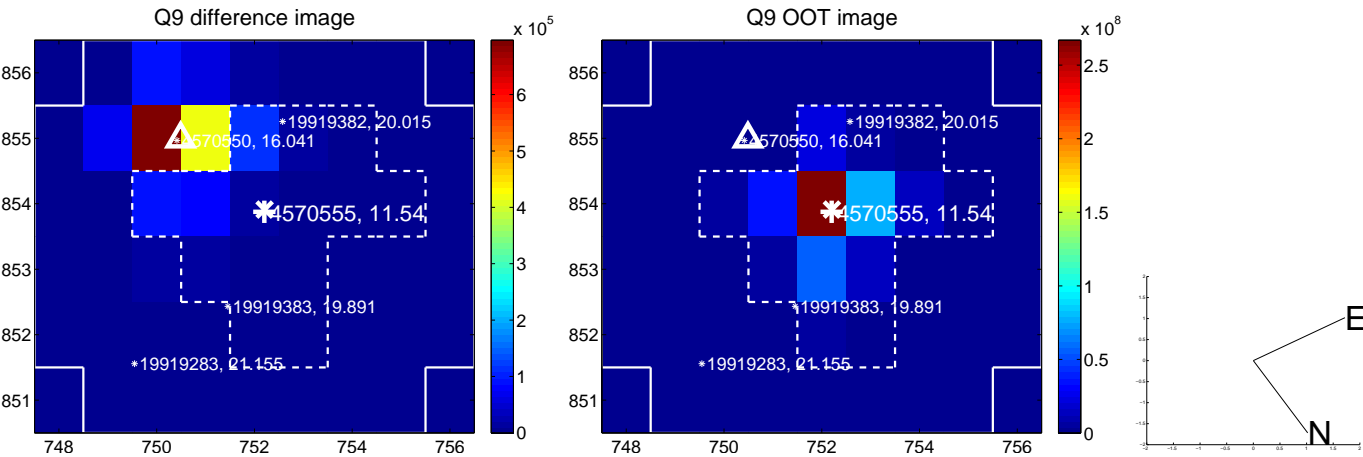


white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.

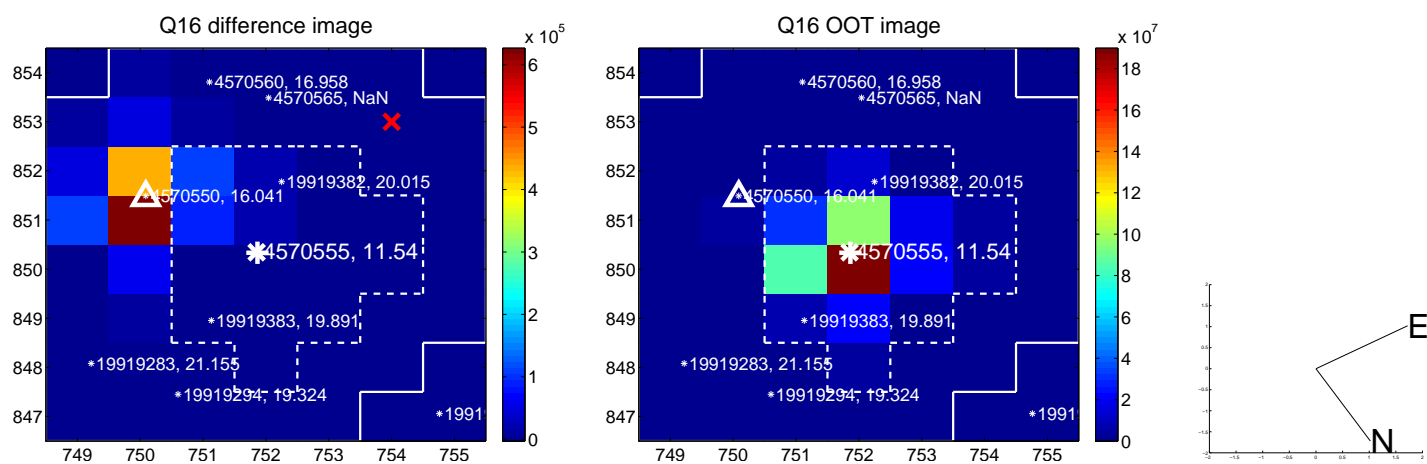
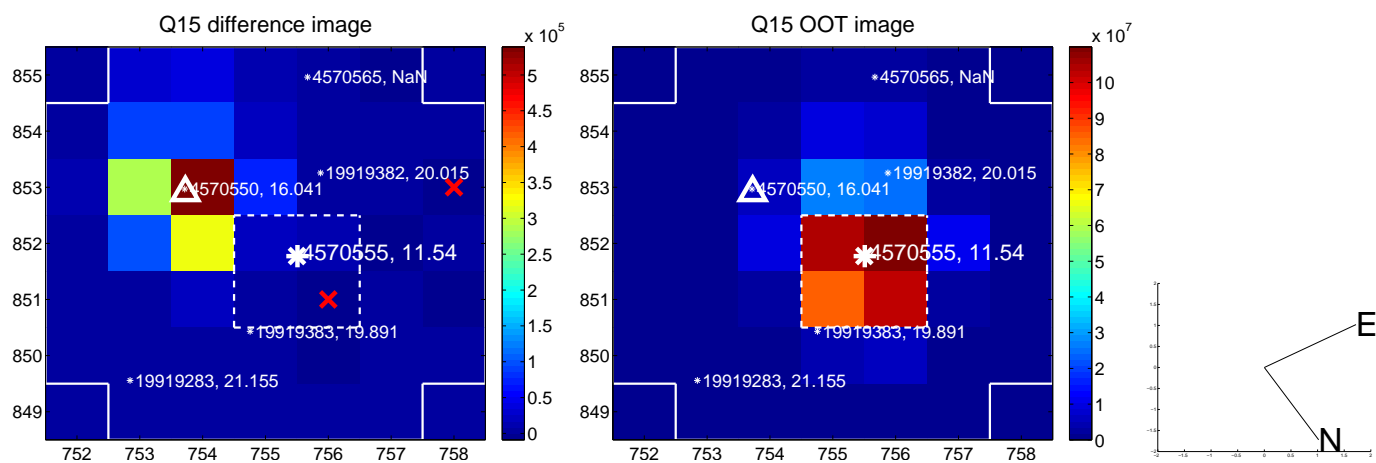
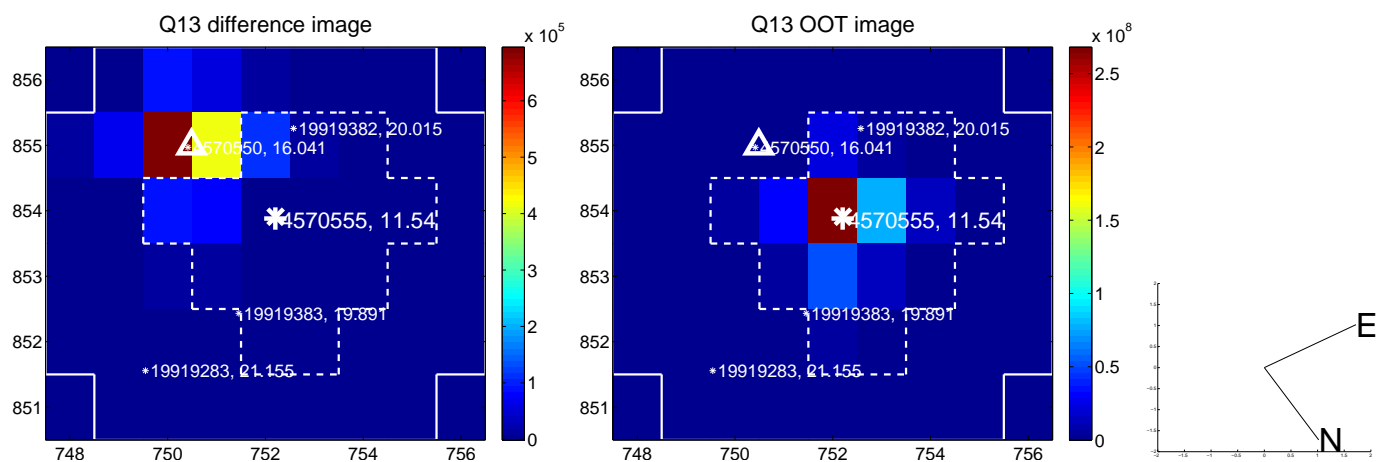




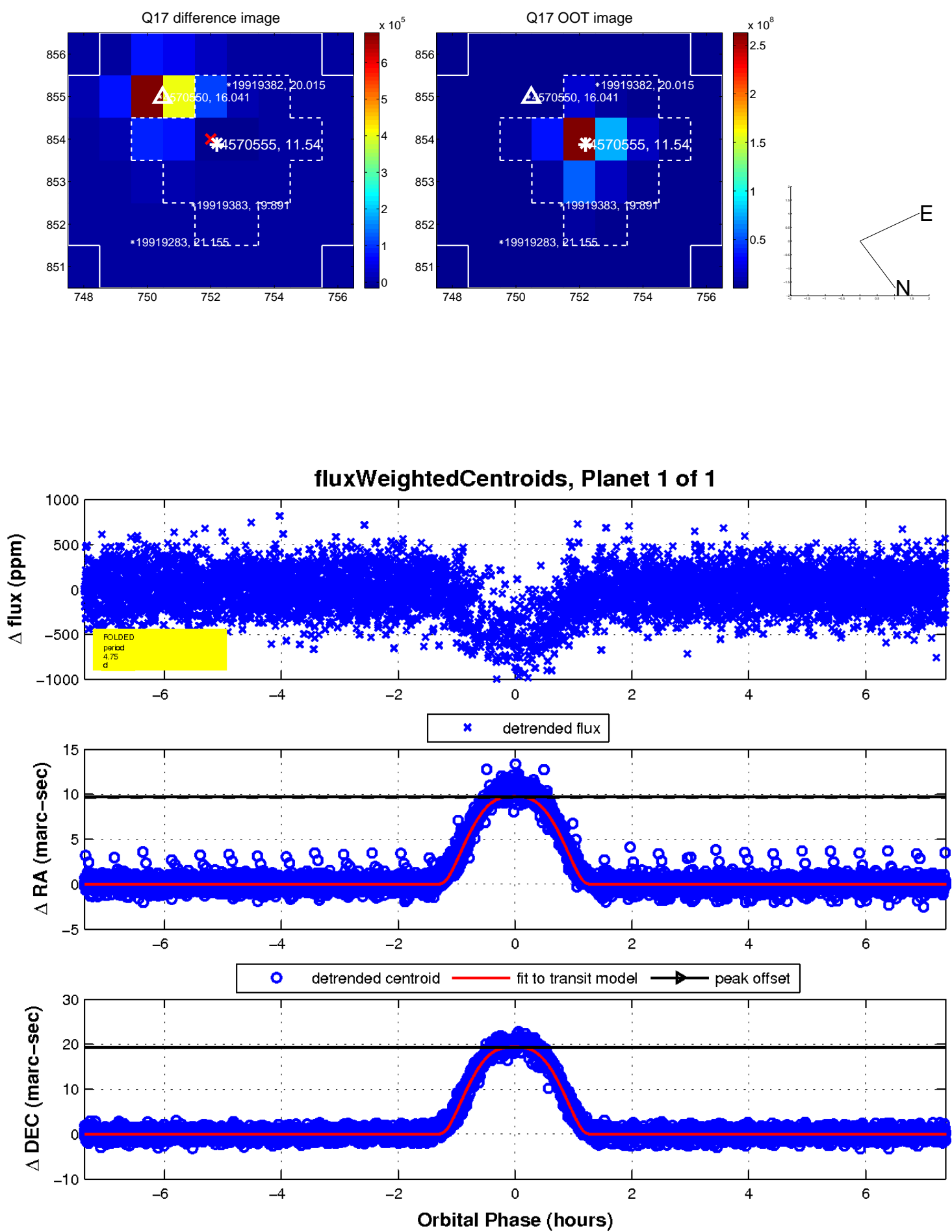
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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UKIRT Image

Declination

