

# KIC 010857519

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
010857519-01	OBS	2075.01	2.053341	132.462555	66.7	2.446	27.2	34.4	1.36	6084	1.33	2155.94

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
010857519-01	OBS	PC	1.00	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.

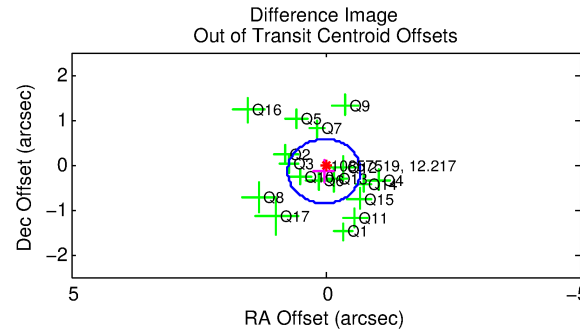
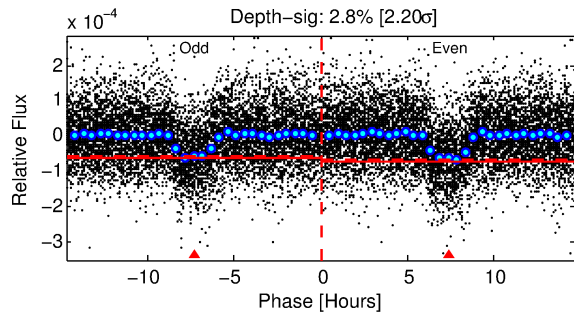
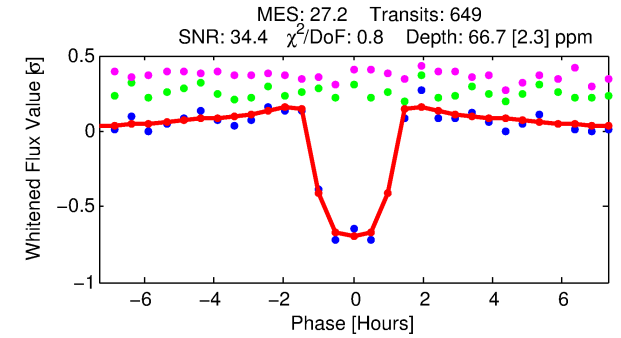
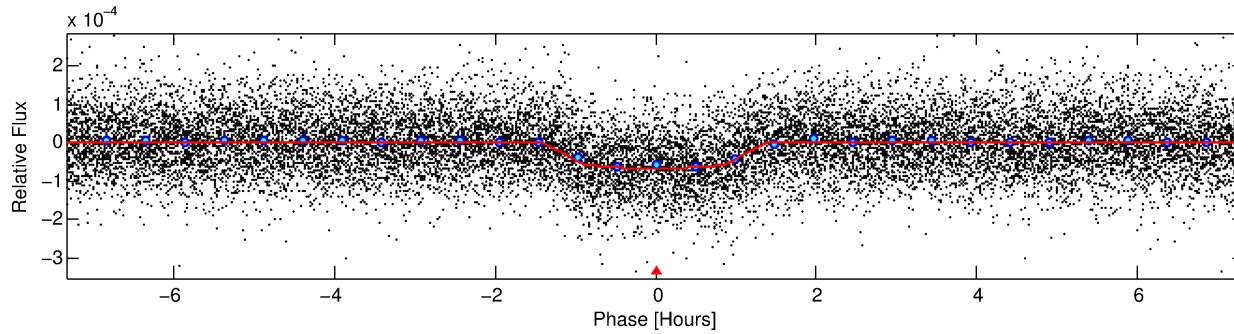
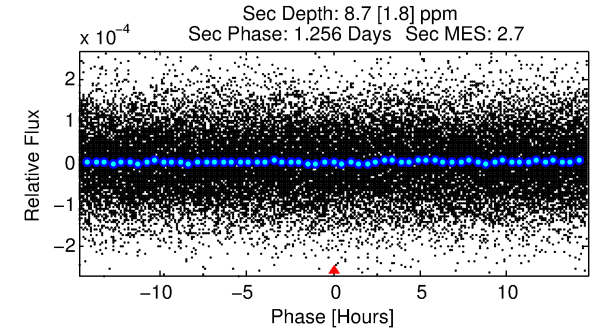
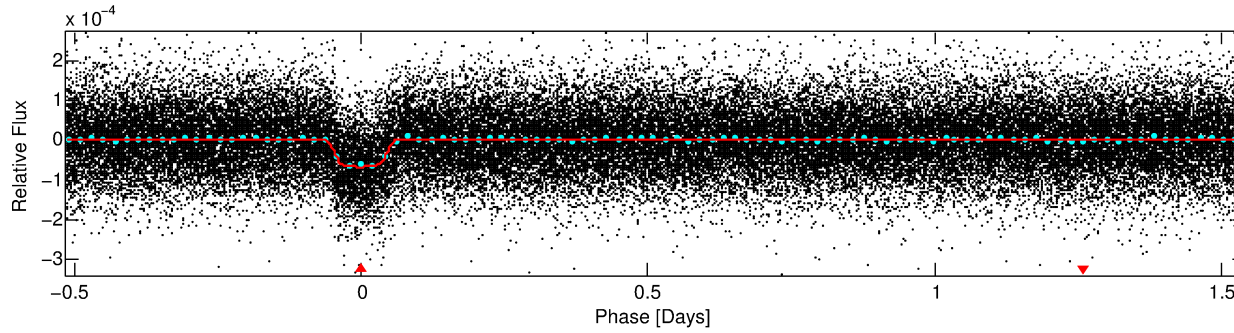
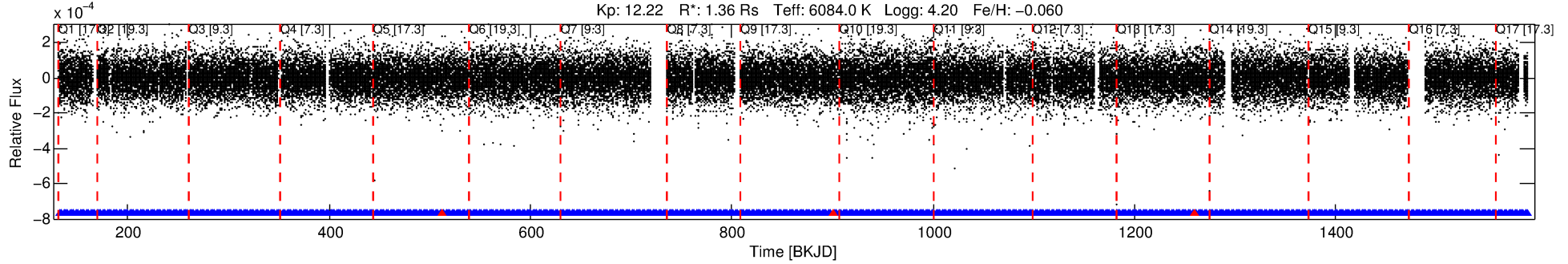
## Ephemeris Match Information For 010857519-01

No Significant Match Found

# DV One-Page Summary

KIC: 10857519 Candidate: 1 of 1 Period: 2.053 d  
KOI: K02075.01 Corr: 0.985

Kp: 12.22 R\*: 1.36 Rs Teff: 6084.0 K Logg: 4.20 Fe/H: -0.060



## DV Fit Results:

Period = 2.05334 [0.00000] d  
Epoch = 132.4626 [0.0009] BKJD  
Rp/R\* = 0.0090 [0.0012]  
a/R\* = 2.84 [1.70]  
b = 0.92 [0.12]  
Seff = 2155.94 [640.53]  
Teq = 1738 [129] K  
Rp = 1.33 [0.29] Re  
a = 0.0324 [0.0056] AU  
Ag = 2.84 [1.24] [1.48σ]  
Teffp = 3486 [300] K [5.36σ]

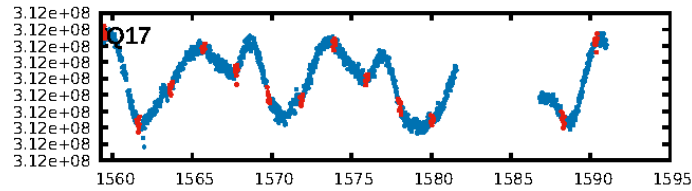
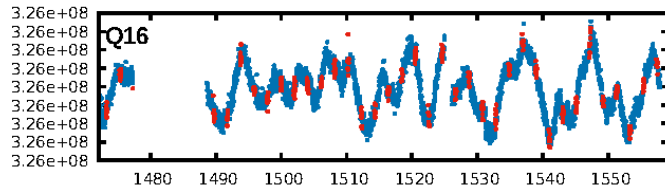
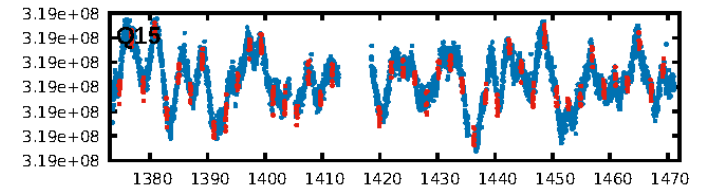
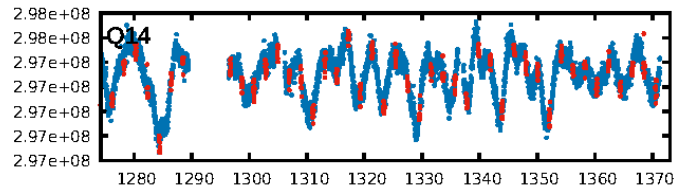
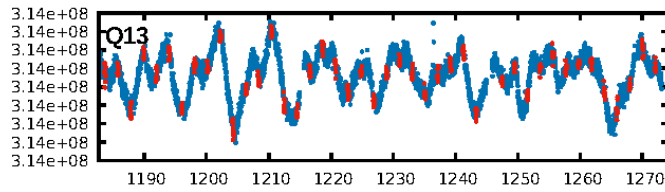
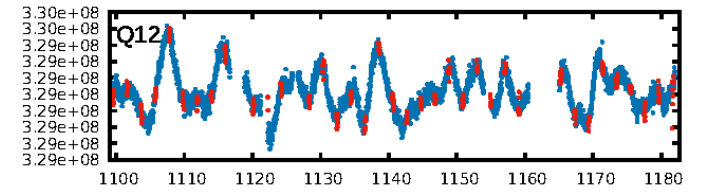
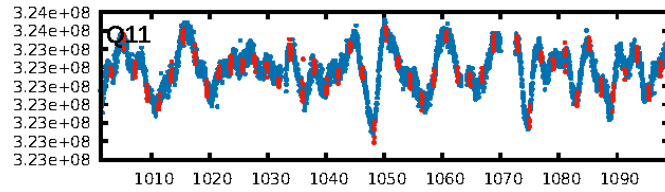
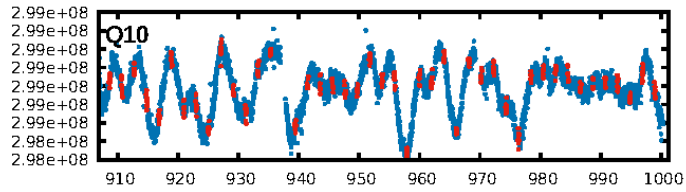
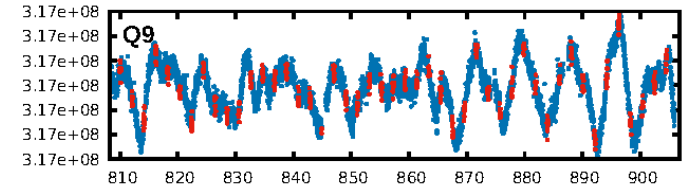
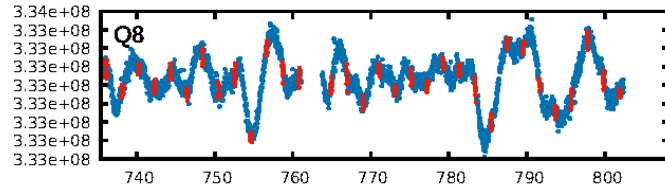
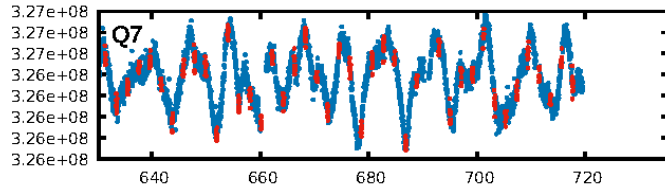
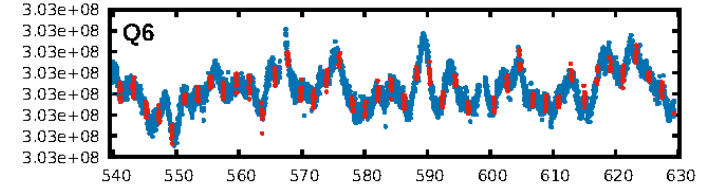
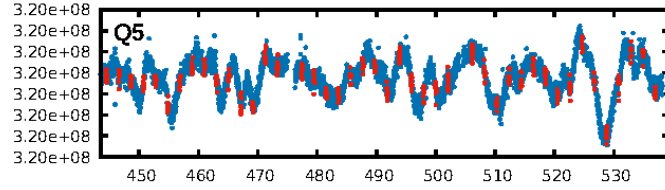
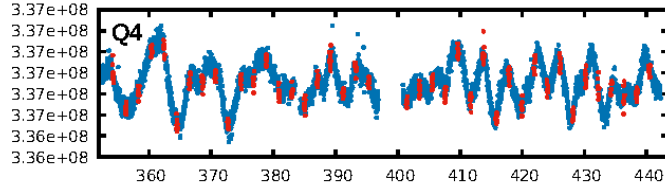
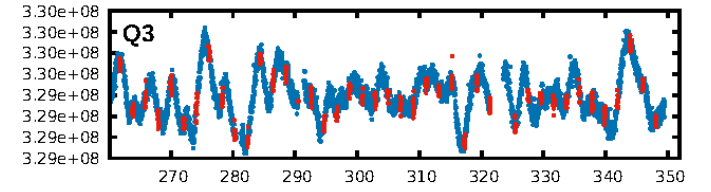
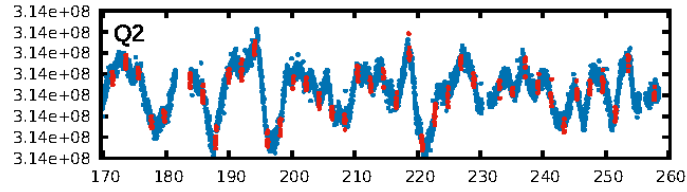
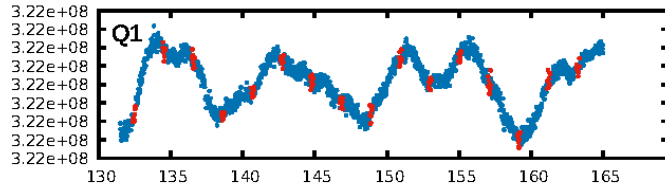
## DV Diagnostic Results:

ShortPeriod-sig: N/A  
LongPeriod-sig: N/A  
ModelChiSquare2-sig: N/A  
ModelChiSquareGof-sig: N/A  
Bootstrap-pfa: 2.17e-147  
RollingBand-fgt: 1.00 [617/620]  
GhostDiagnostic-chr: 5.54  
Centroid-sig: 26.6%  
Centroid-so: 0.320 arcsec [1.41σ]  
OotOffset-rm: 0.150 arcsec [0.63σ]  
KicOffset-rm: 0.237 arcsec [1.01σ]  
OotOffset-st: 4/4/4/5 [17]  
KicOffset-st: 4/4/4/5 [17]  
DiffImageQuality-fgm: 1.00 [17/17]  
DiffImageOverlap-fno: 1.00 [17/17]

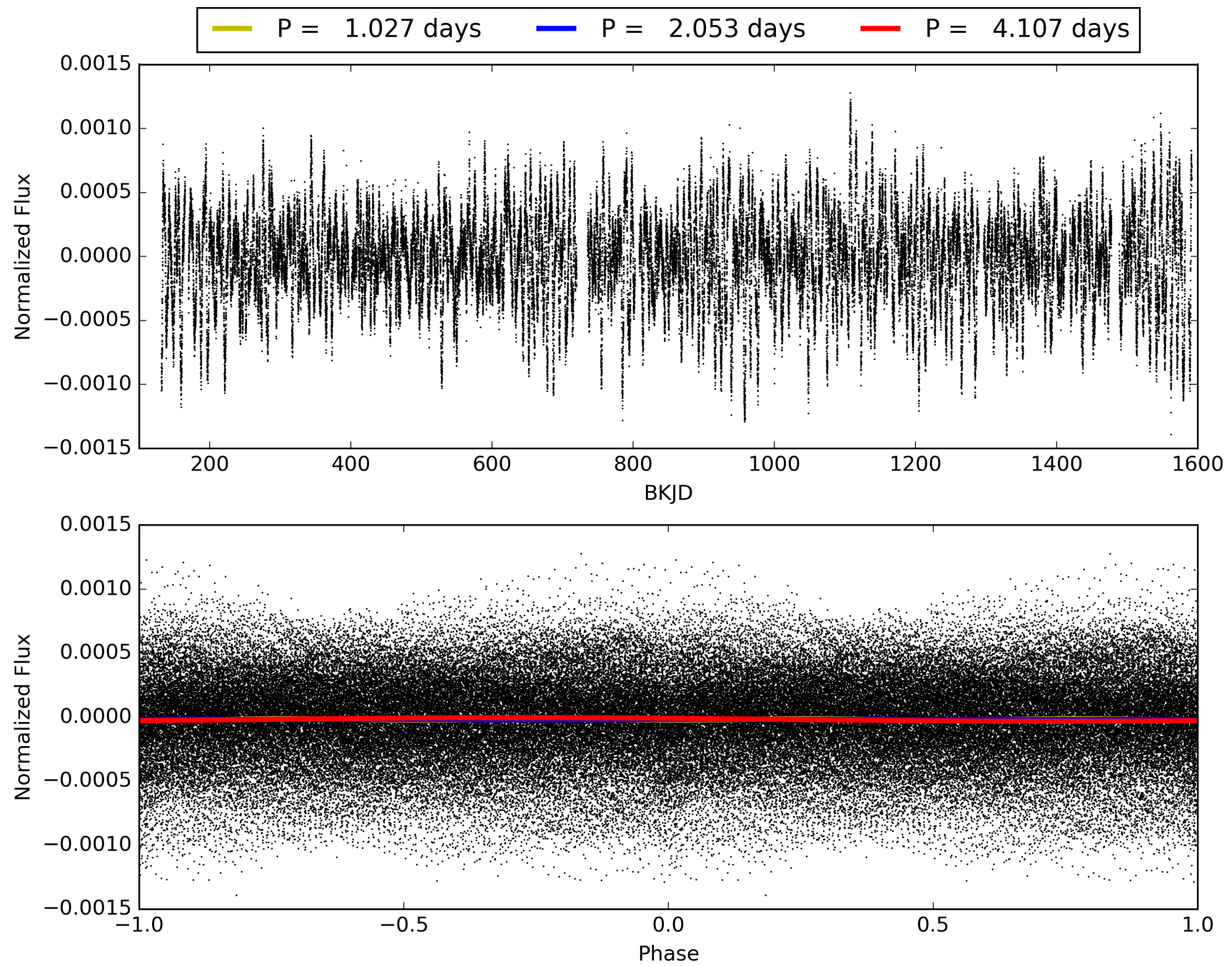
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 29-Jan-2016 00:15:18 Z

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

# TCE 010857519-01, PDC Light Curves

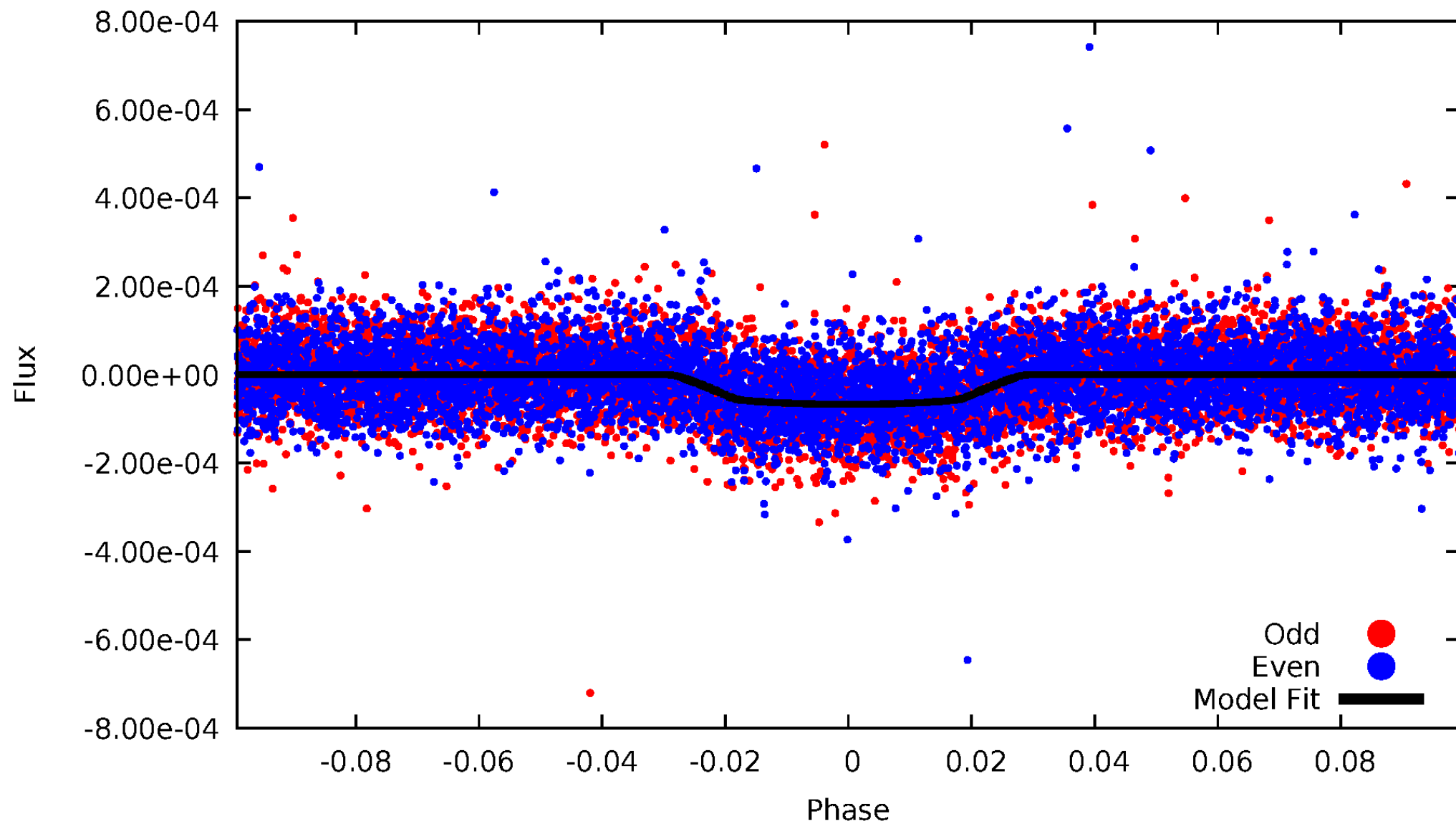


TCE 010857519-01



# DV Odd/Even

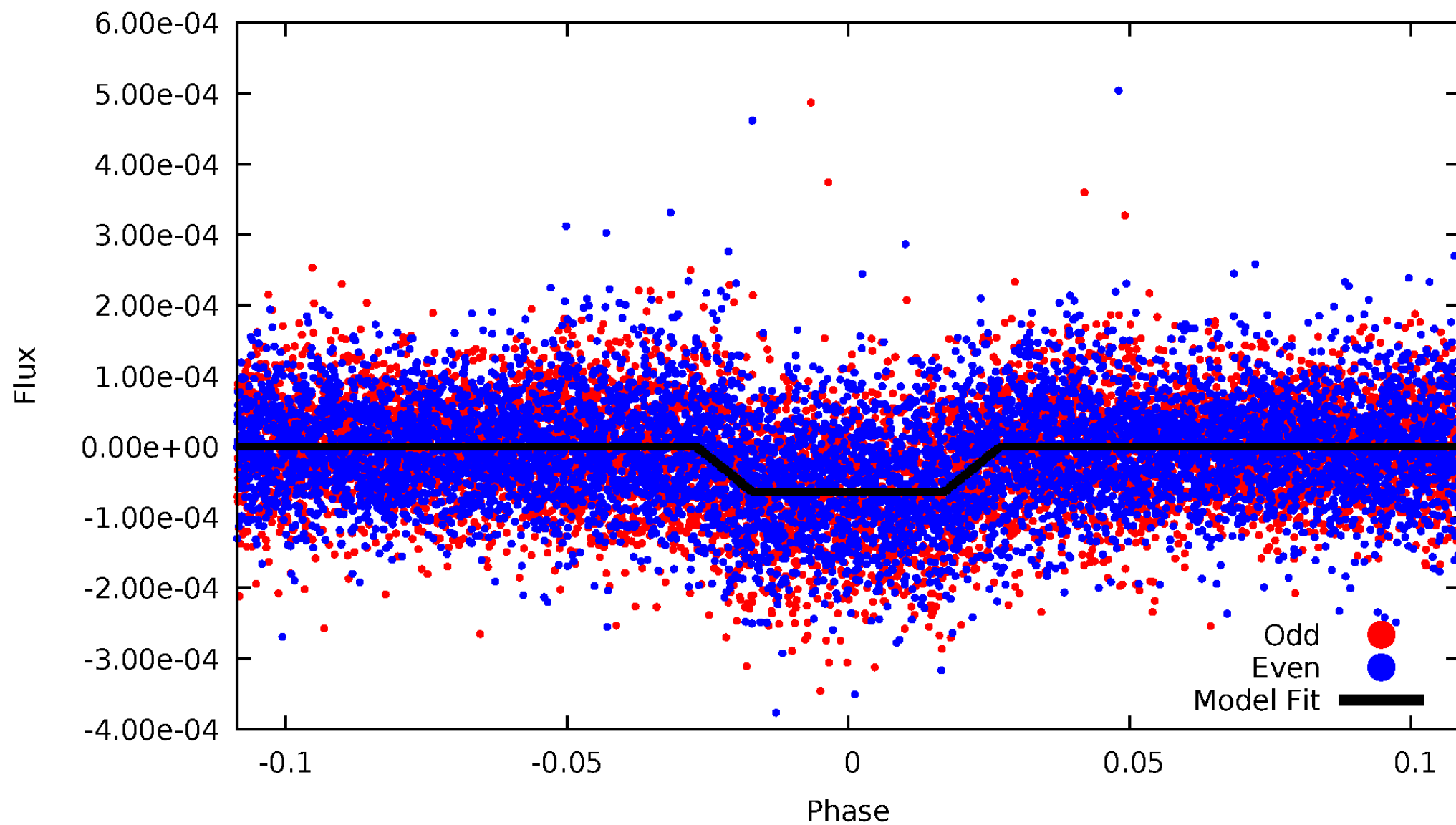
TCE 010857519-01





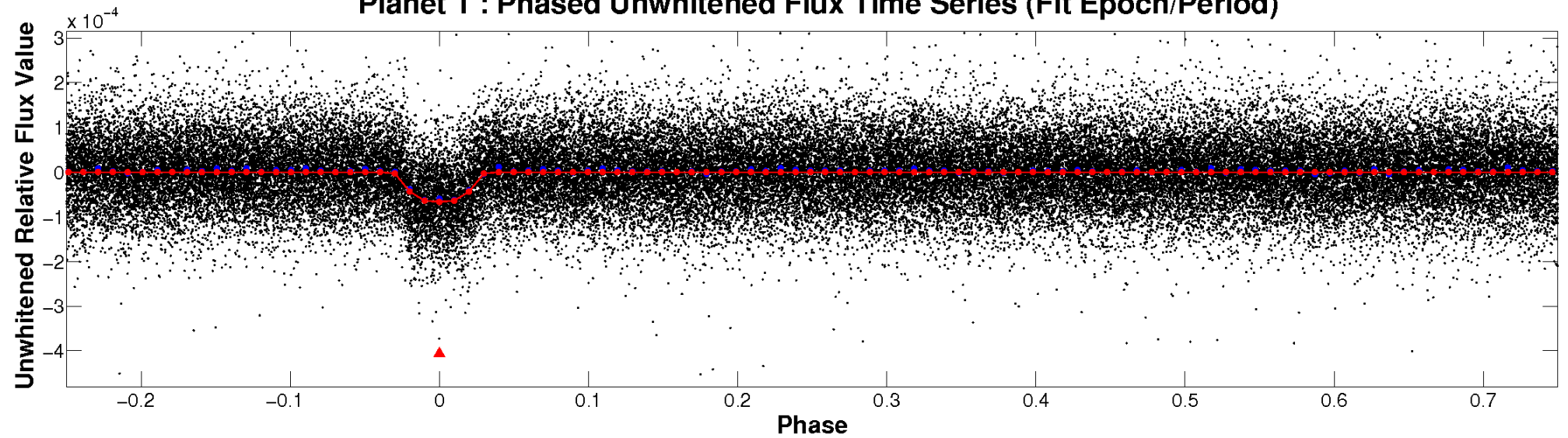
# ALT Odd/Even

TCE 010857519-01

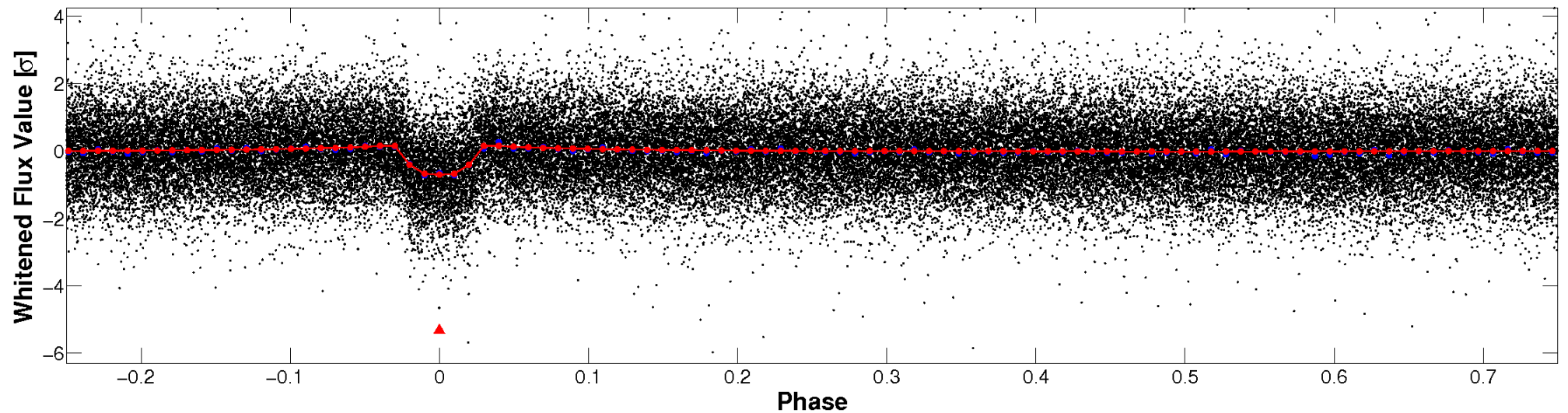


# Non-Whitened Vs. Whitened Light Curve

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

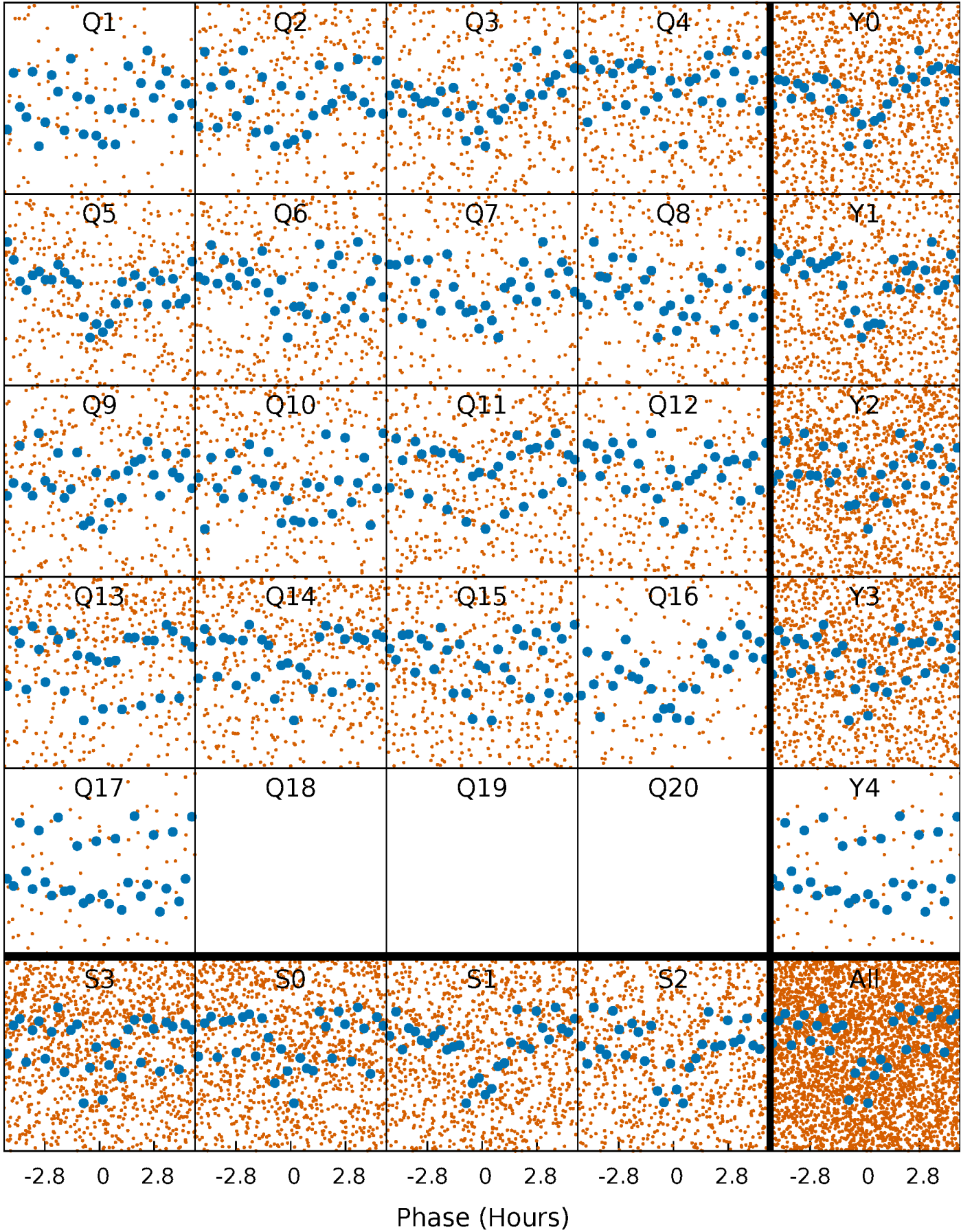


**Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)**



# PDC Quarter-Phased Transit Curves

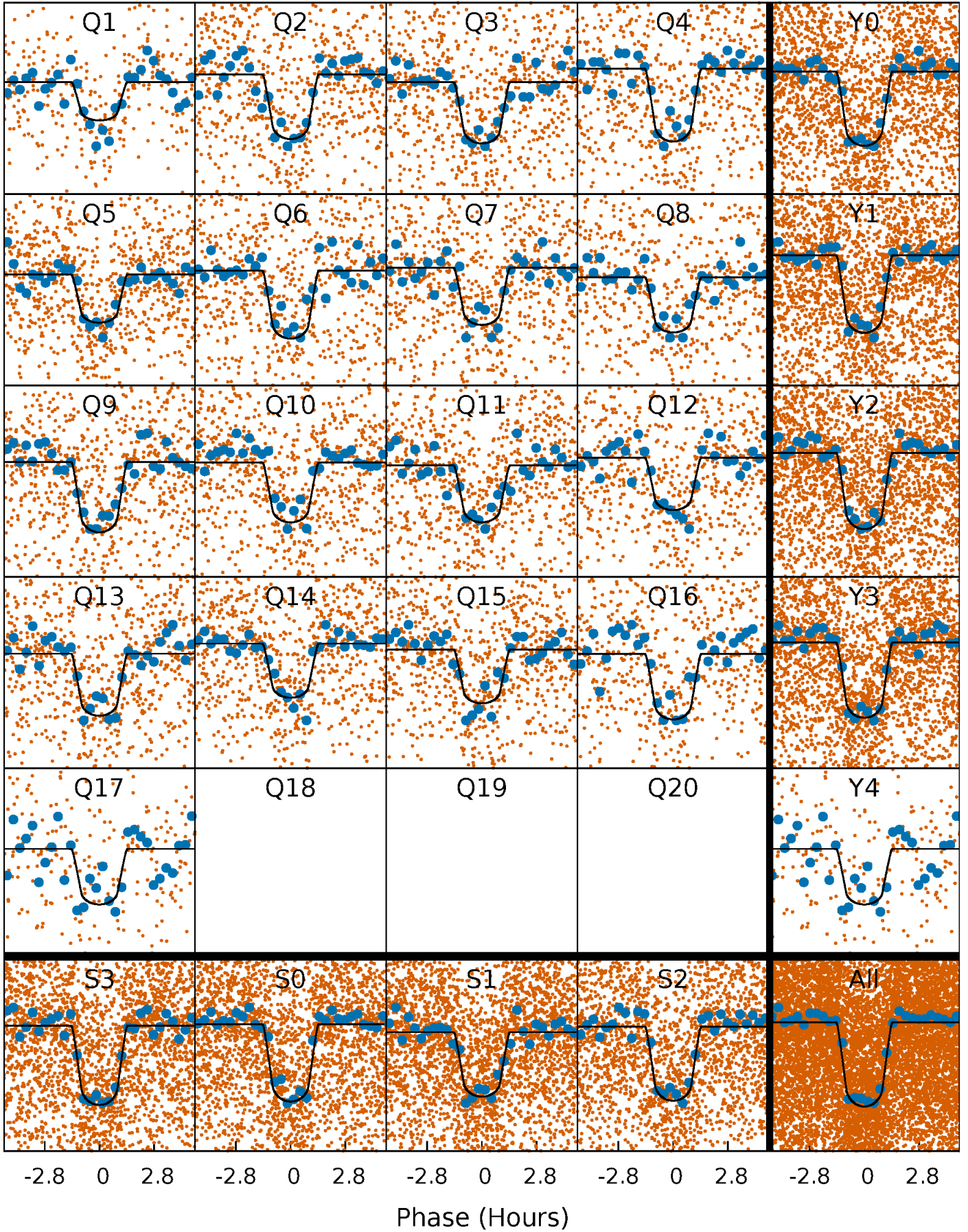
TCE 010857519-01 P= 2.053341 Days  $T_0=132.462556$  (BKJD)





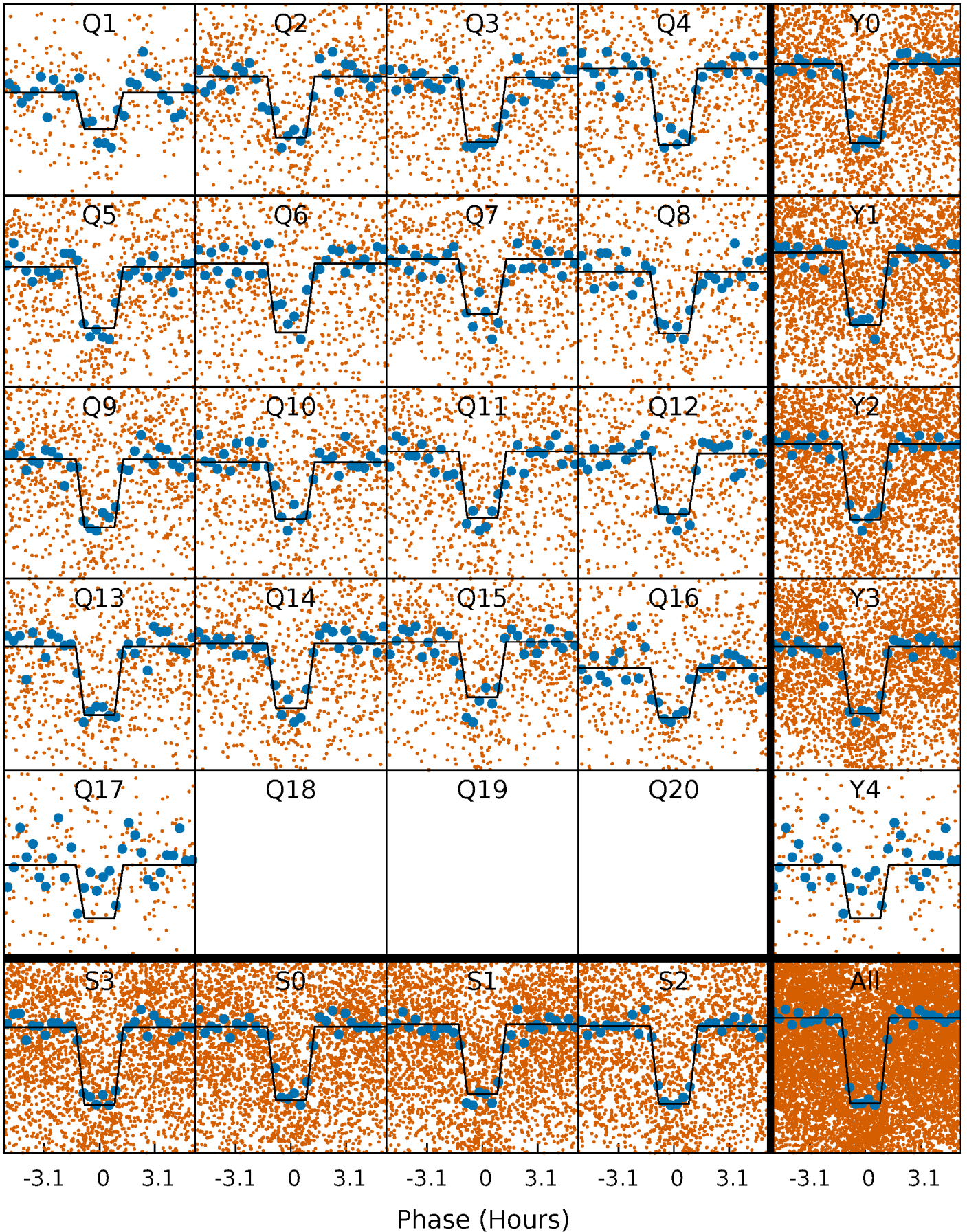
# DV Quarter-Phased Transit Curves

TCE 010857519-01 P= 2.053341 Days  $T_0=132.462556$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

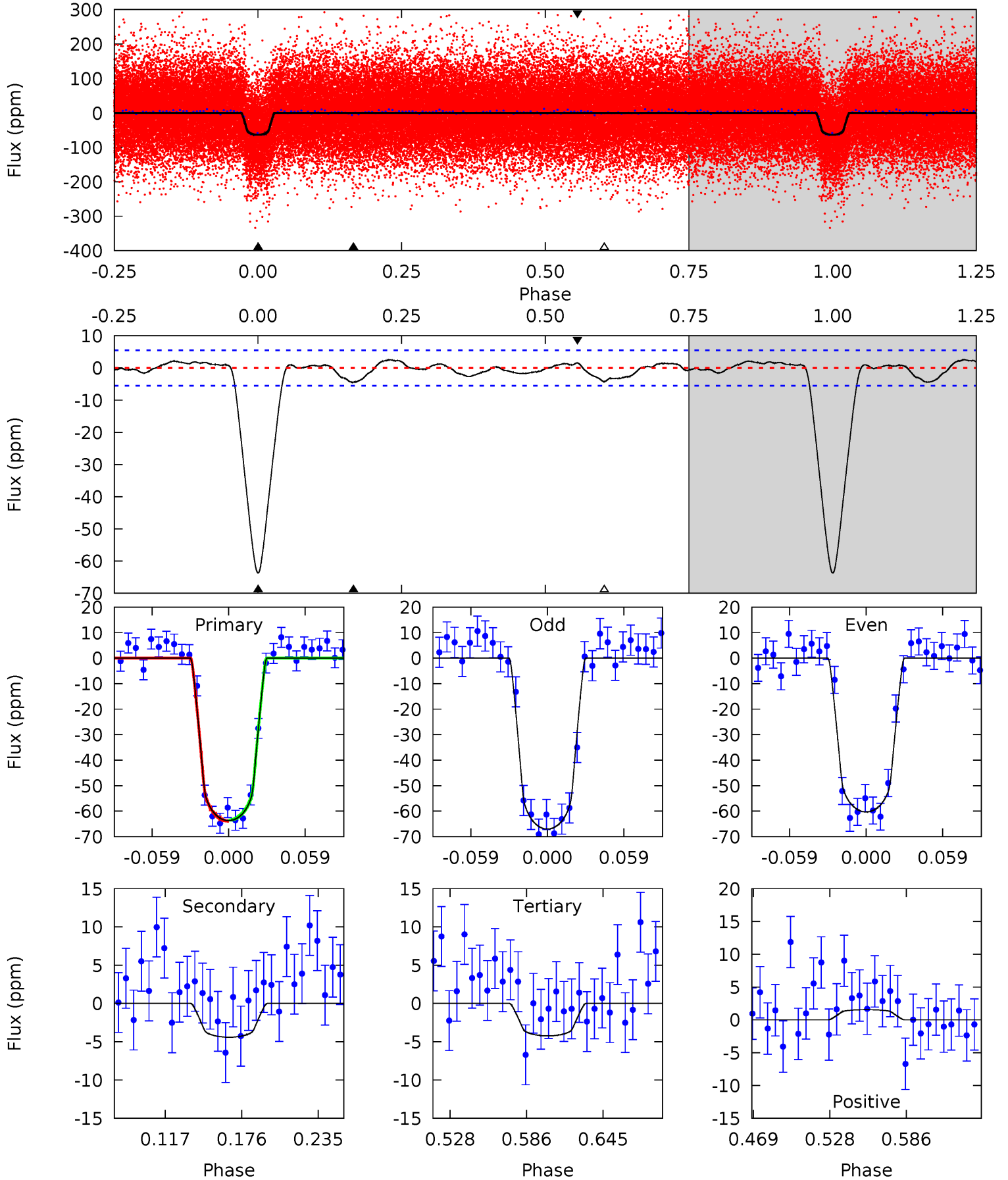
TCE 010857519-01 P= 2.053359 Days  $T_0=132.456199$  (BKJD)



# DV Model-Shift Uniqueness Test

010857519-01, P = 2.053341 Days, E = 130.409215 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
54.2	3.75	3.60	1.32	4.68	1.89	1.29	50.6	52.9	0.15	2.43	2.85	1.02	0.04	0.16

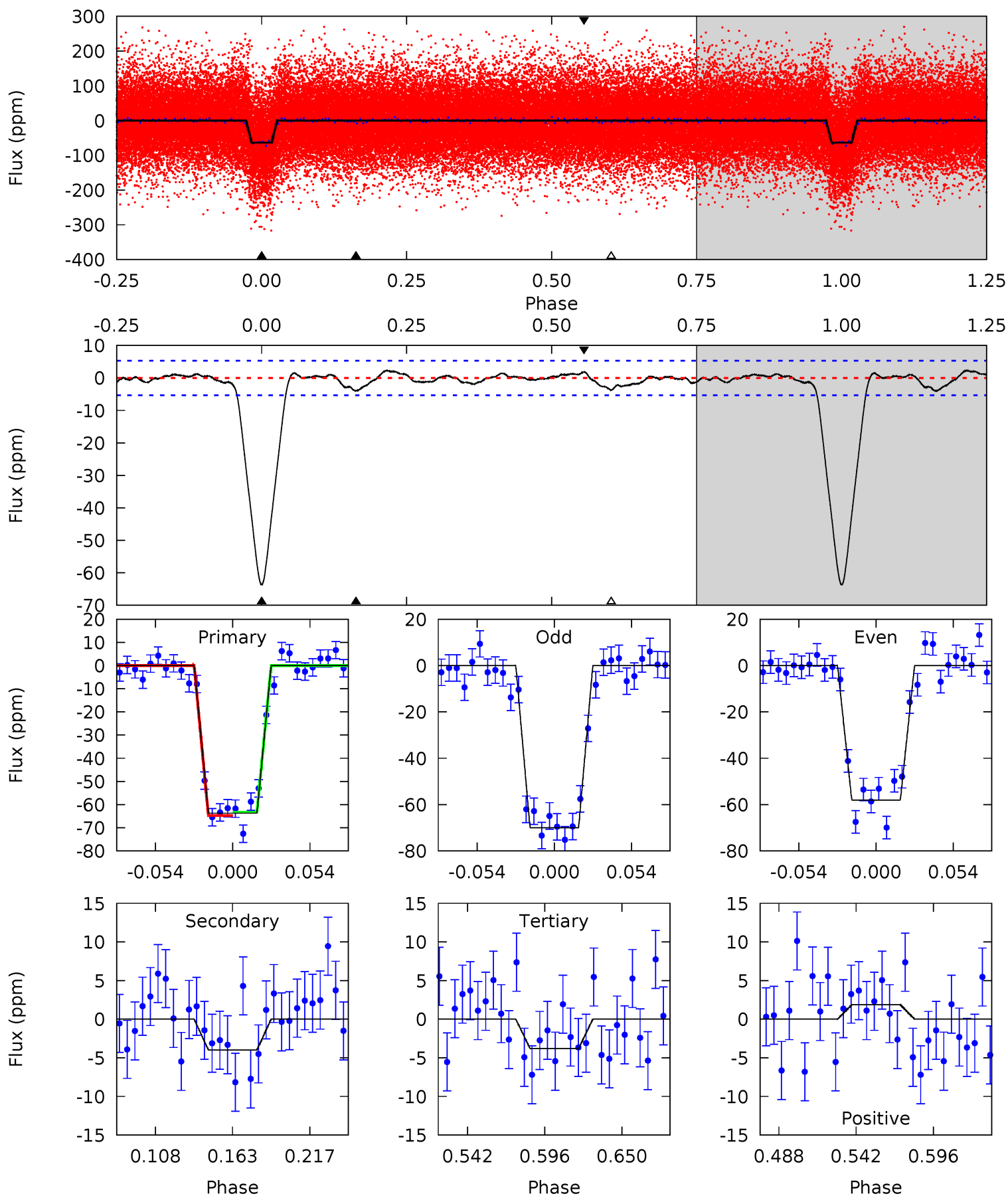




# Alt Model-Shift Uniqueness Test

010857519-01, P = 2.053359 Days, E = 130.402840 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
56.2	3.50	3.35	1.65	4.69	1.93	0.99	52.8	54.5	0.15	1.85	5.28	1.04	0.03	0.63





### Stellar Parameters For KIC 010857519

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	$6084^{+136}_{-136}$	$4.204^{+0.168}_{-0.112}$	$-0.060^{+0.150}_{-0.150}$	$1.358^{+0.239}_{-0.239}$	$1.076^{+0.102}_{-0.081}$	$0.605^{+0.447}_{-0.202}$
	+2%/-2%	+4%/-3%	+250%/-250%	+18%/-18%	+9%/-8%	+74%/-33%
Source	SPE59	SPE59	SPE59	DSEP		

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

### Secondary Eclipse Parameters for KIC 010857519-01 / KOI 2075.01

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	$A_{\text{obs}}$
DV	$-4 \pm 1$	$1.30^{+0.23}_{-0.21}$	$2414^{+129}_{-133}$	$3327^{+253}_{-247}$	$1.496^{+0.813}_{-0.544}$
Alt.	$-4 \pm 1$	$1.18^{+0.22}_{-0.20}$	$2422^{+125}_{-144}$	$3408^{+268}_{-303}$	$1.665^{+0.966}_{-0.659}$

$T_{\text{max}}$  = Theoretical Maximum Planetary Temperature

$T_{\text{obs}}$  = Observed Planetary Temperature (Assuming  $A=0.3$ )

$A_{\text{obs}}$  = Observed Albedo (Assuming  $T=0$ )

If a secondary eclipse is present, the system is likely an EB if  $T_{\text{obs}} \gg T_{\text{max}}$  AND  $A_{\text{obs}} \gg 1.0$

## DV Centroid Data

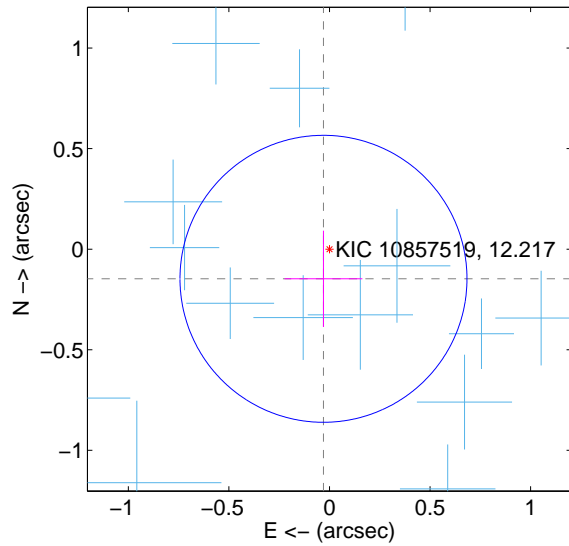
Supplemental centroid analysis for 010857519-01. Kepler magnitude: 12.22. Transit SNR 34.41

There are 17 quarters with good PRF difference image offsets

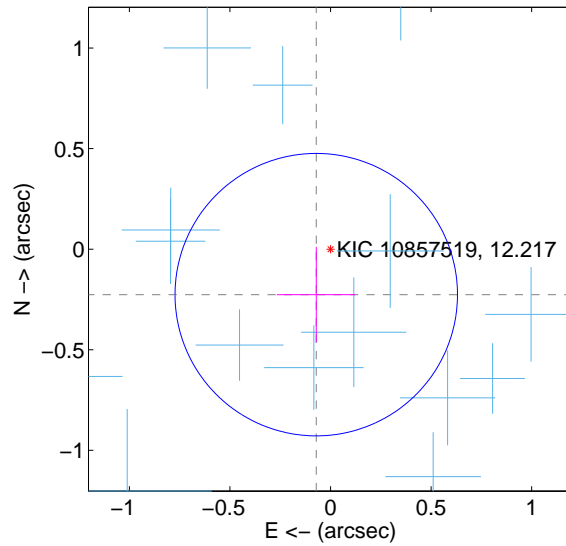
The direct PRF centroid is offset from the target star catalog position by about 0.07 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$0.150 \pm 0.238$	0.63	$0.030 \pm 0.193$	$-0.147 \pm 0.239$
PRF-fit source offset from KIC position	$0.237 \pm 0.234$	1.01	$0.071 \pm 0.195$	$-0.226 \pm 0.238$
photometric centroid source offset	$0.32 \pm 0.23$	1.41	$0.29 \pm 0.23$	$0.14 \pm 0.23$

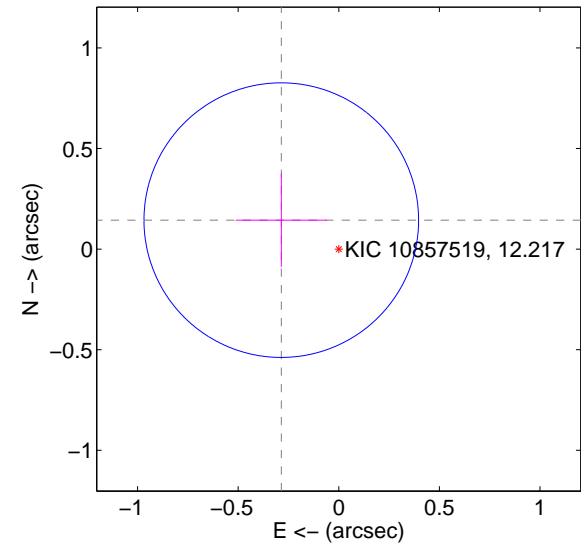
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position

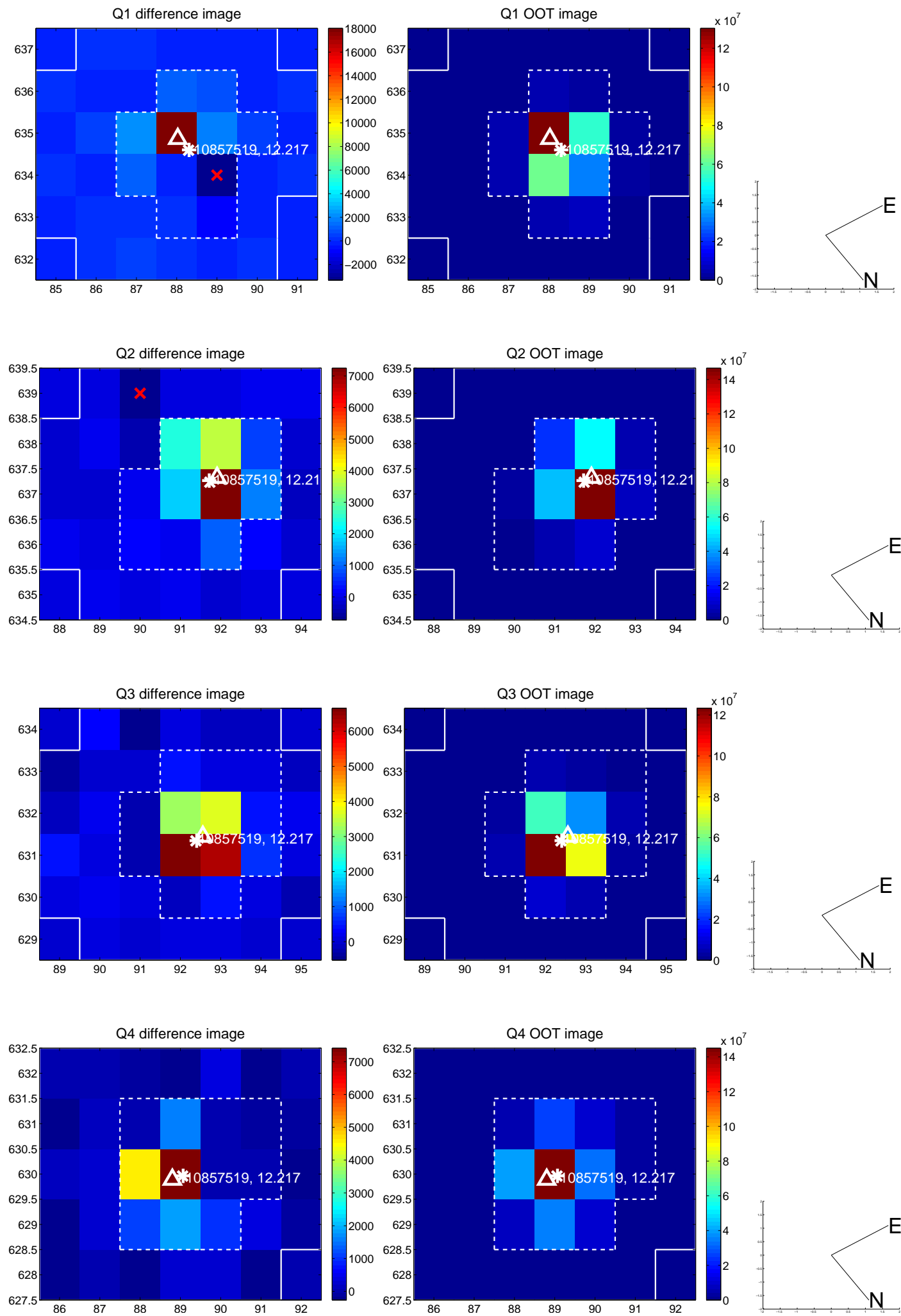


offset from photometric centroids

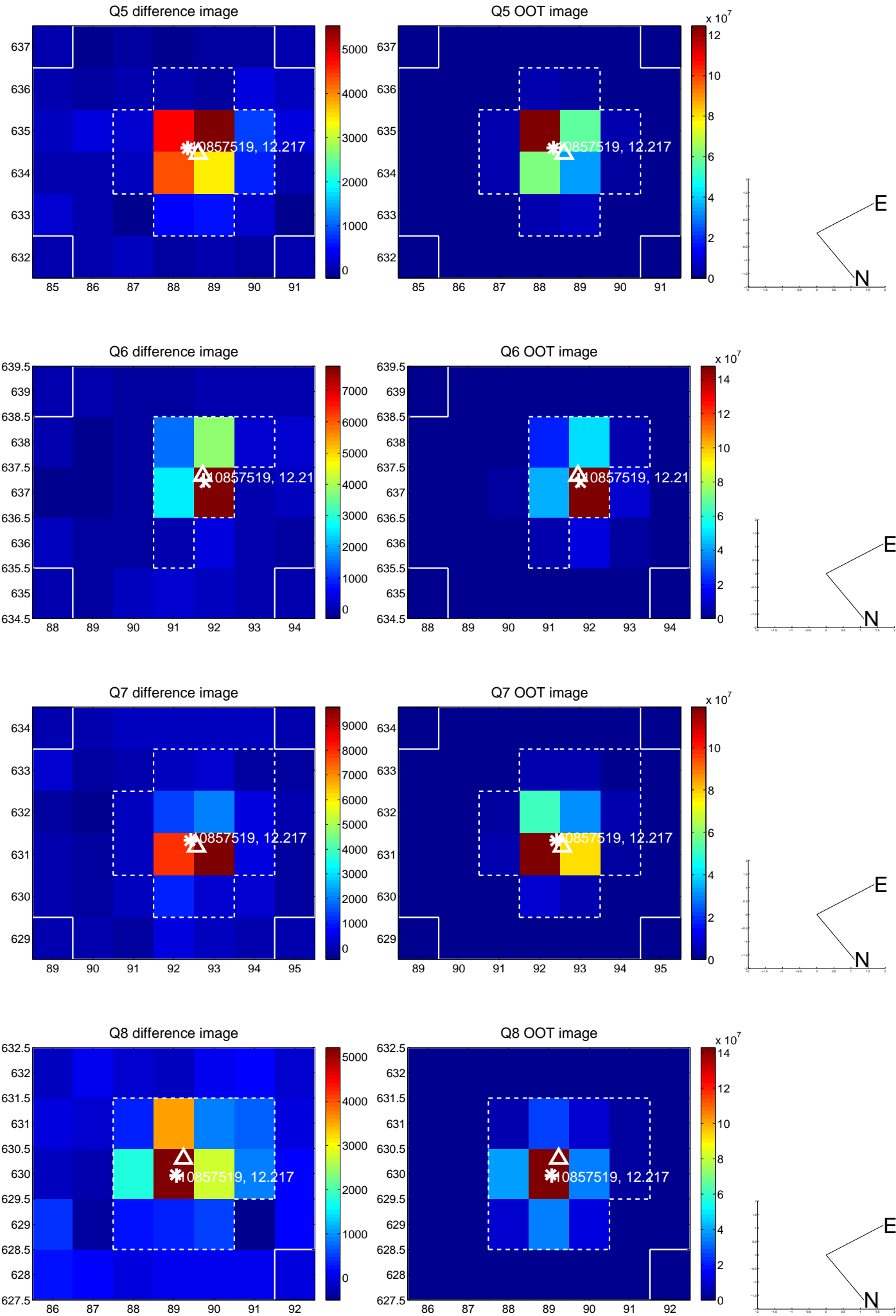


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses:** good quarterly centroid offsets; **Vermillion crosses:** bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: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

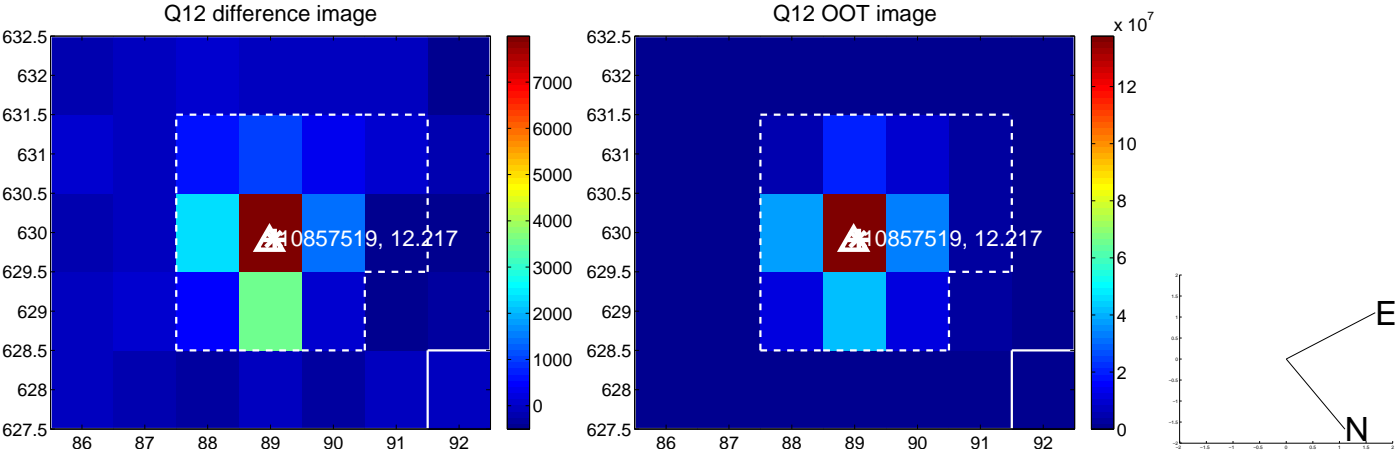
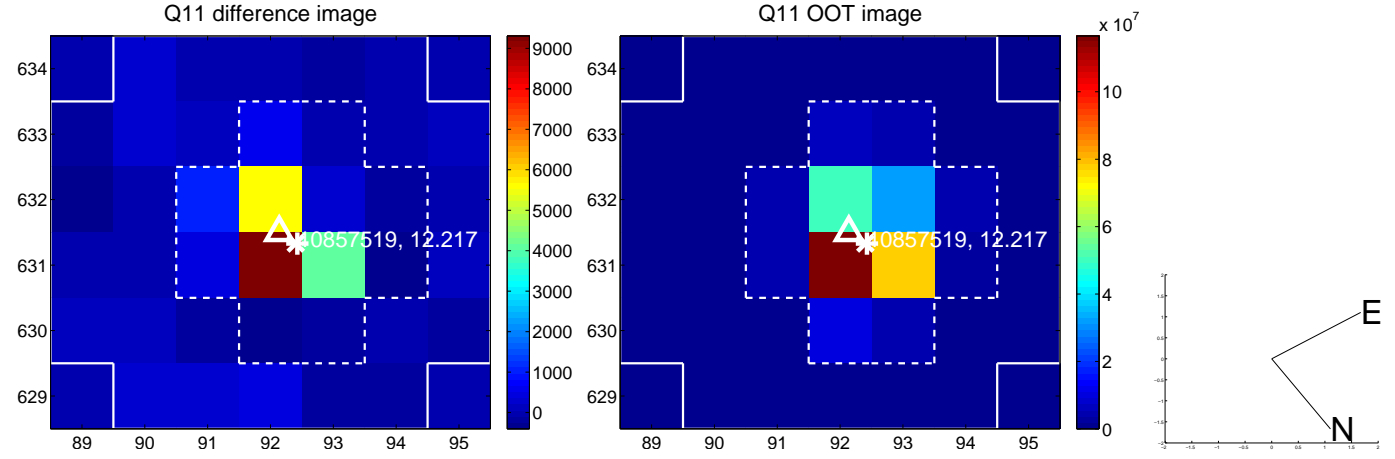
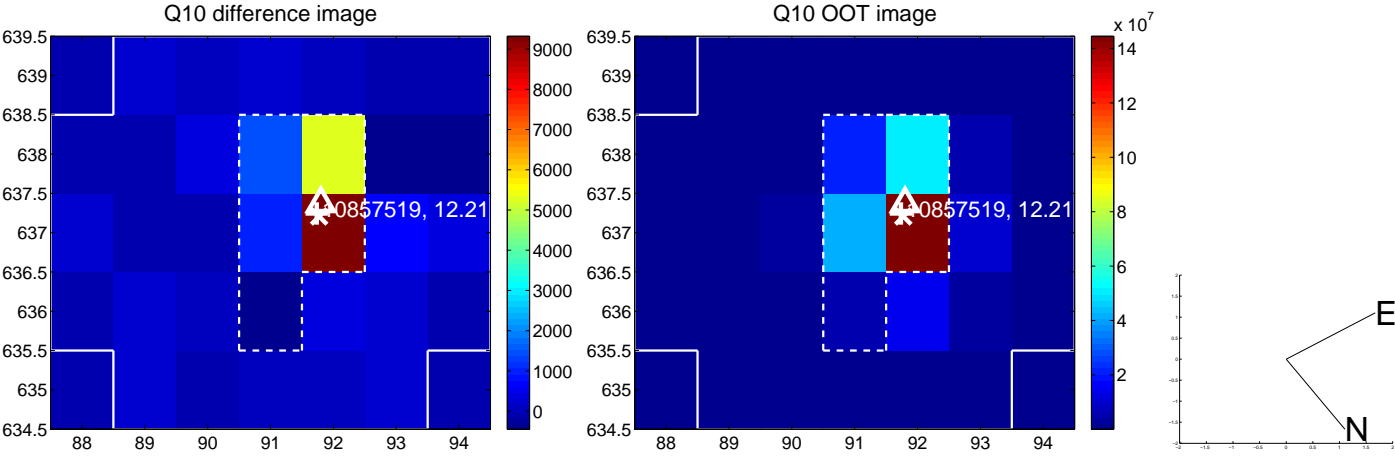
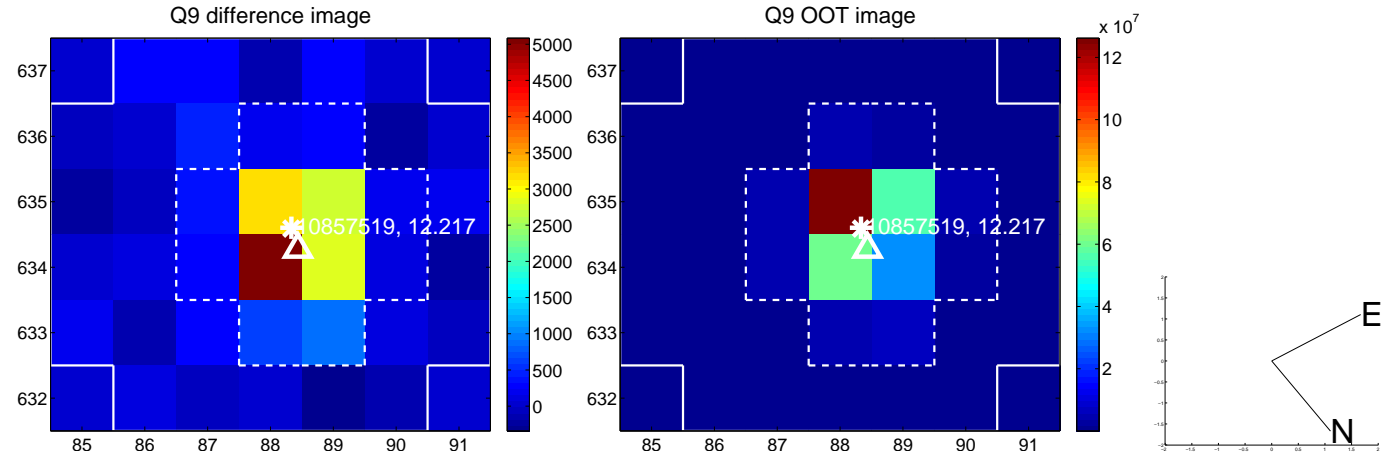


white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.

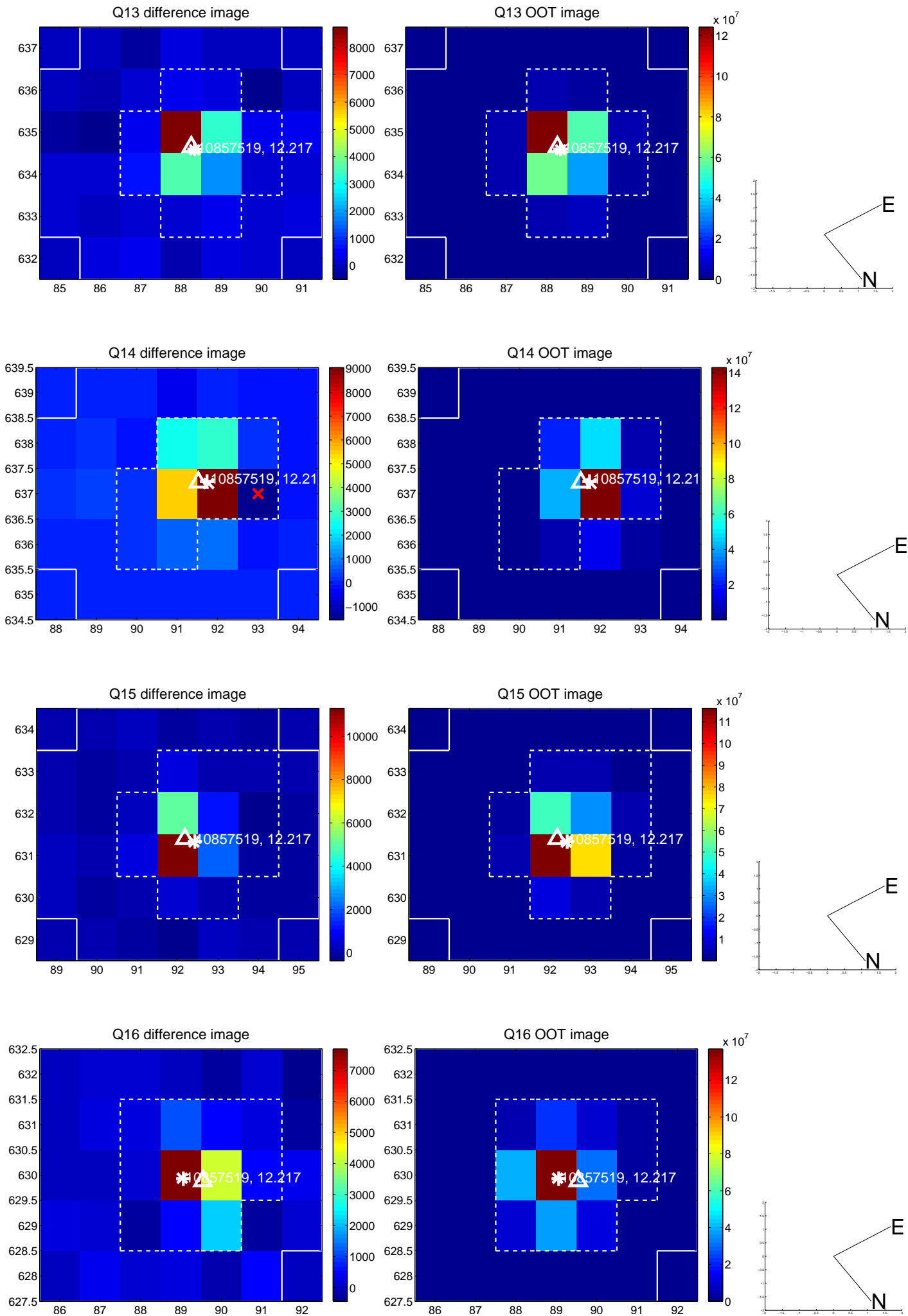




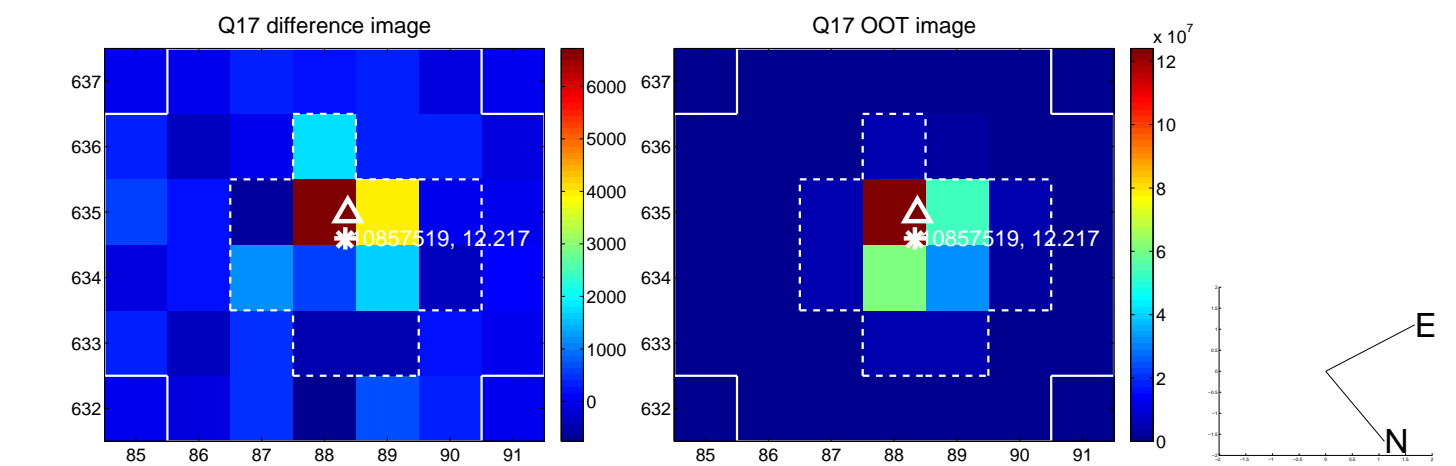
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



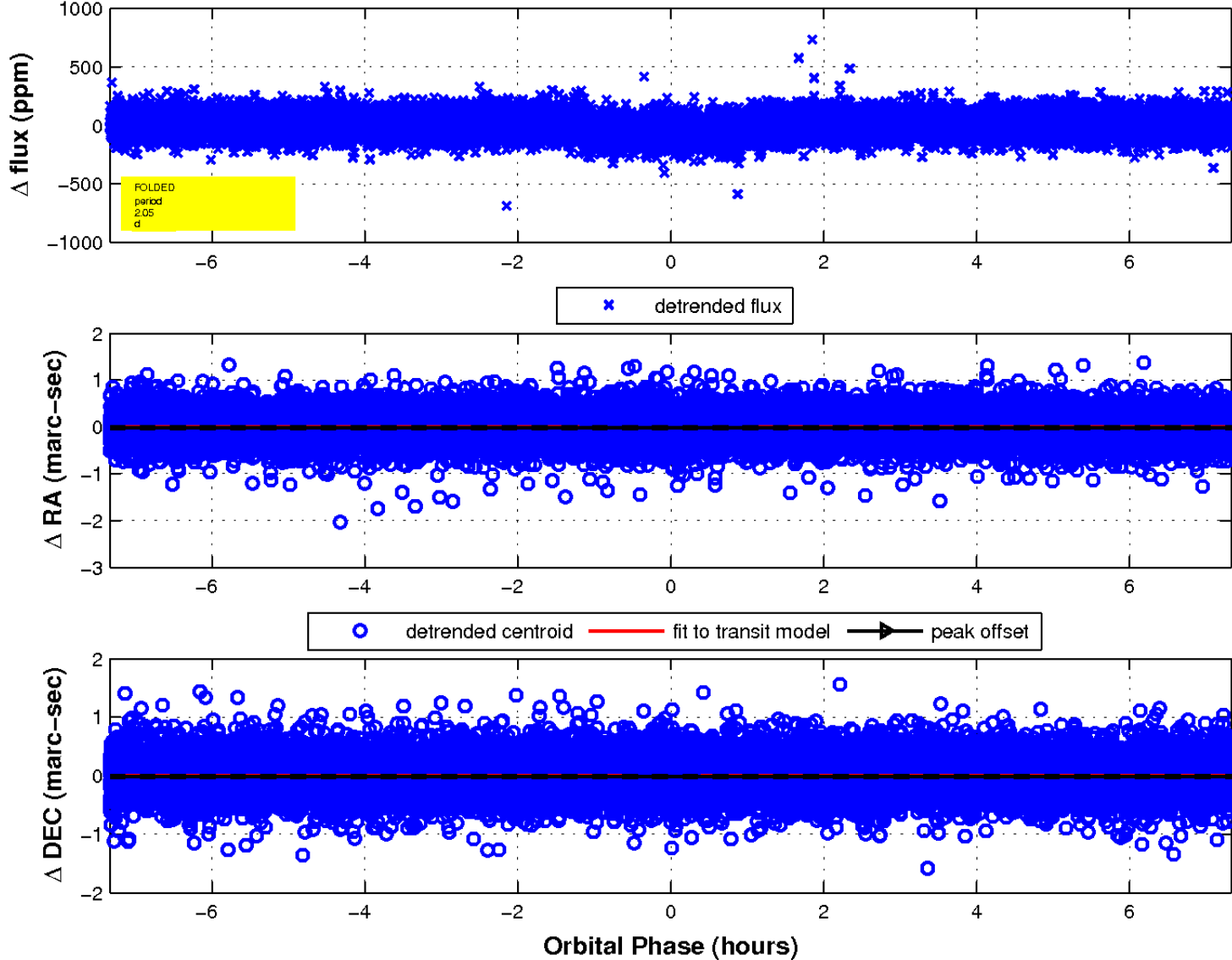
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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



fluxWeightedCentroids, Planet 1 of 1



UKIRT Image

Declination

