

# KIC 012300524

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
012300524-01	OBS	5964.01	32.033131	146.817421	74.9	5.416	7.1	7.6	1.00	6039	1.00	28.84

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
012300524-01	OBS	PC	0.83	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.

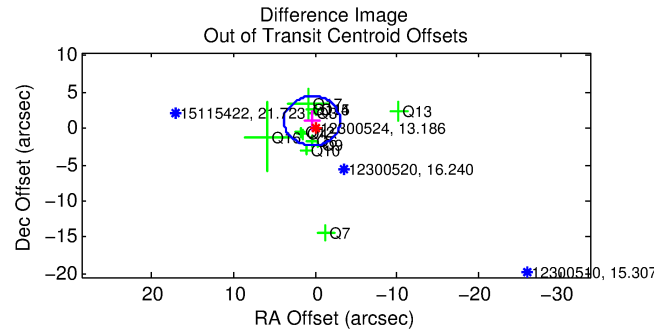
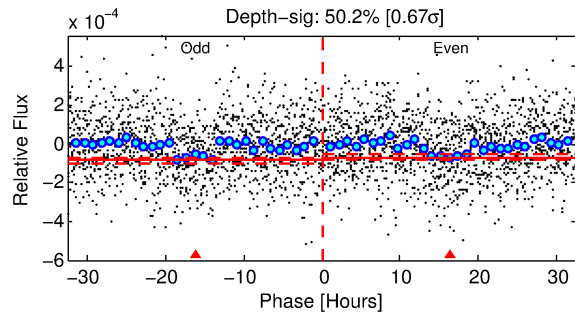
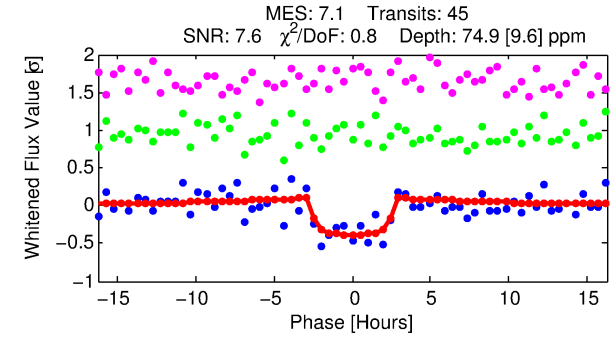
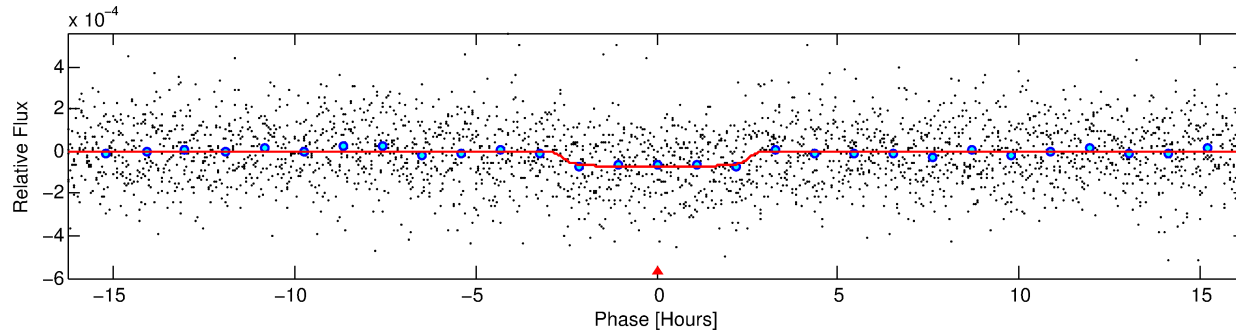
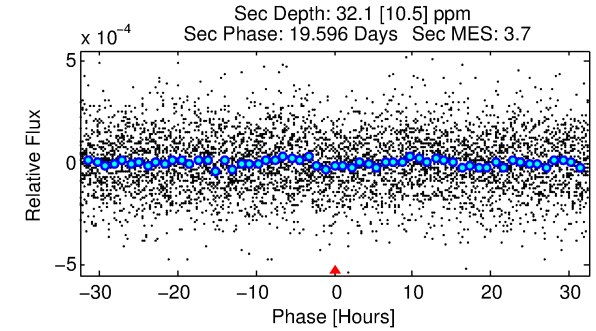
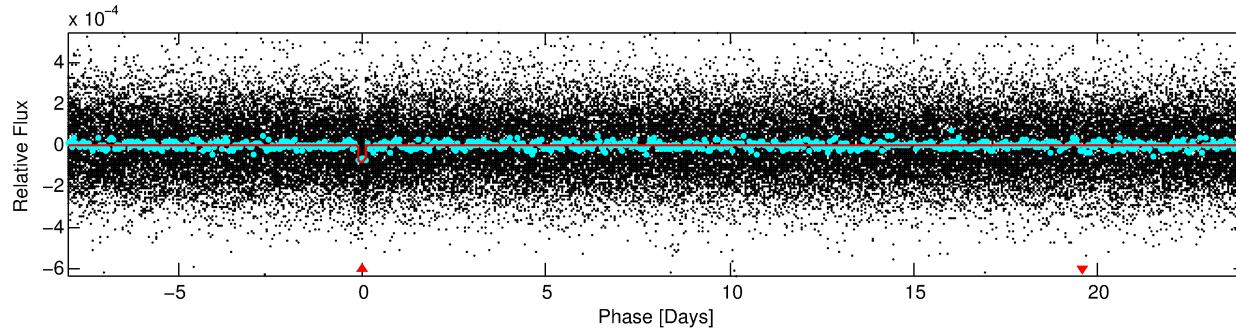
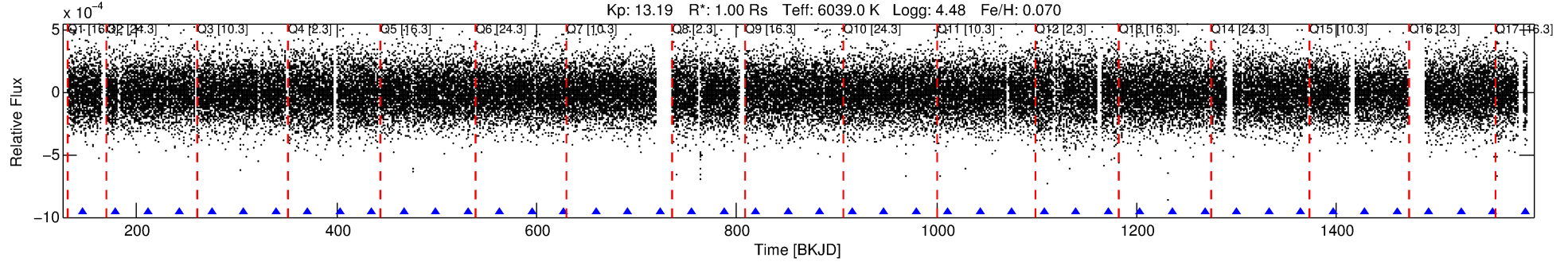
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

## Ephemeris Match Information For 012300524-01

No Significant Match Found

# DV One-Page Summary

KIC: 12300524 Candidate: 1 of 1 Period: 32.033 d  
KOI: K05964.01 Corr: 0.981



## DV Fit Results:

Period = 32.03313 [0.00044] d  
Epoch = 146.8174 [0.0116] BKJD  
Rp/R\* = 0.0091 [0.0051]  
a/R\* = 23.10 [63.88]  
b = 0.87 [0.78]  
Seff = 28.84 [12.29]  
Teq = 591 [63] K  
Rp = 1.00 [0.65] Re  
a = 0.2043 [0.0570] AU  
Ag = 733.53 [904.39] [0.81σ]  
Teffp = 4755 [1393] K [2.99σ]

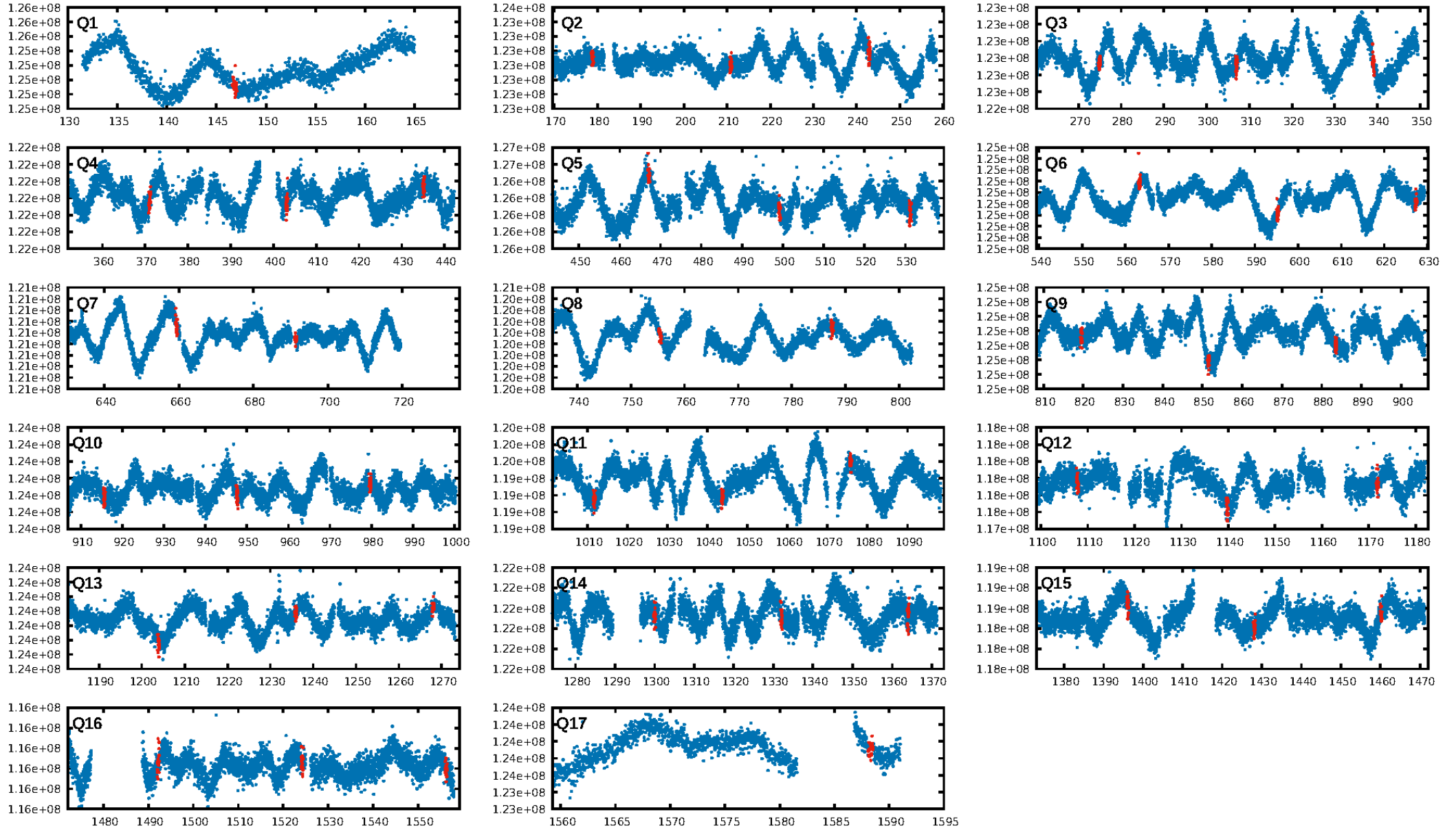
## DV Diagnostic Results:

ShortPeriod-sig: N/A  
LongPeriod-sig: N/A  
ModelChiSquare2-sig: 98.6%  
ModelChiSquareGof-sig: 100.0%  
**Bootstrap-pfa: 1.59e-12**  
RollingBand-fgt: 1.00 [43/43]  
**GhostDiagnostic-chr: 0.8153**  
Centroid-sig: 0.7%  
Centroid-so: 2.905 arcsec [2.17σ]  
OotOffset-rm: 1.107 arcsec [0.97σ]  
KicOffset-rm: 1.287 arcsec [1.02σ]  
OotOffset-st: 3/4/3/3 [13]  
KicOffset-st: 3/4/3/3 [13]  
DiffImageQuality-fgm: 0.54 [7/13]  
DiffImageOverlap-fno: 1.00 [17/17]

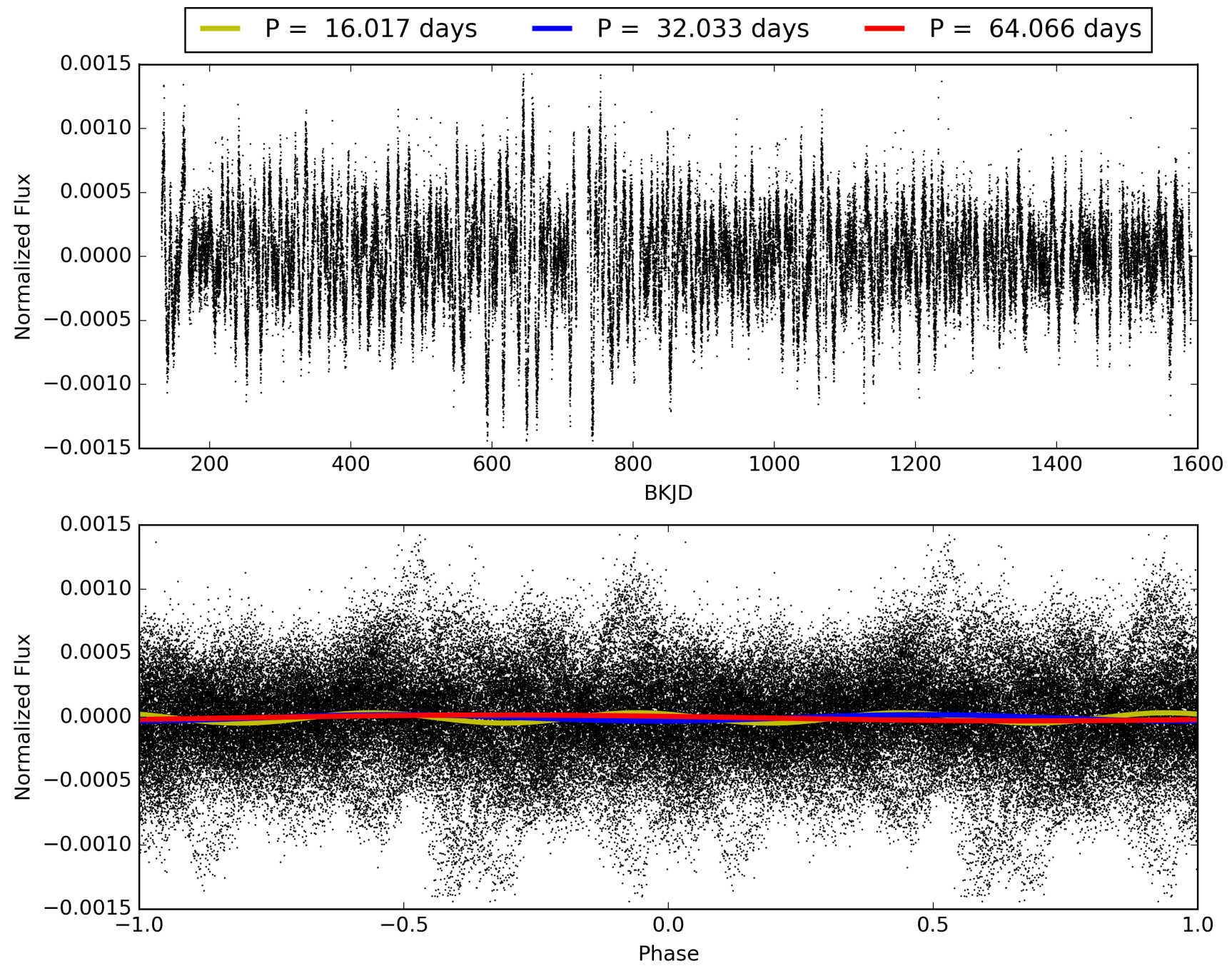
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 28-Jan-2016 18:43:45 Z

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

# TCE 012300524-01, PDC Light Curves

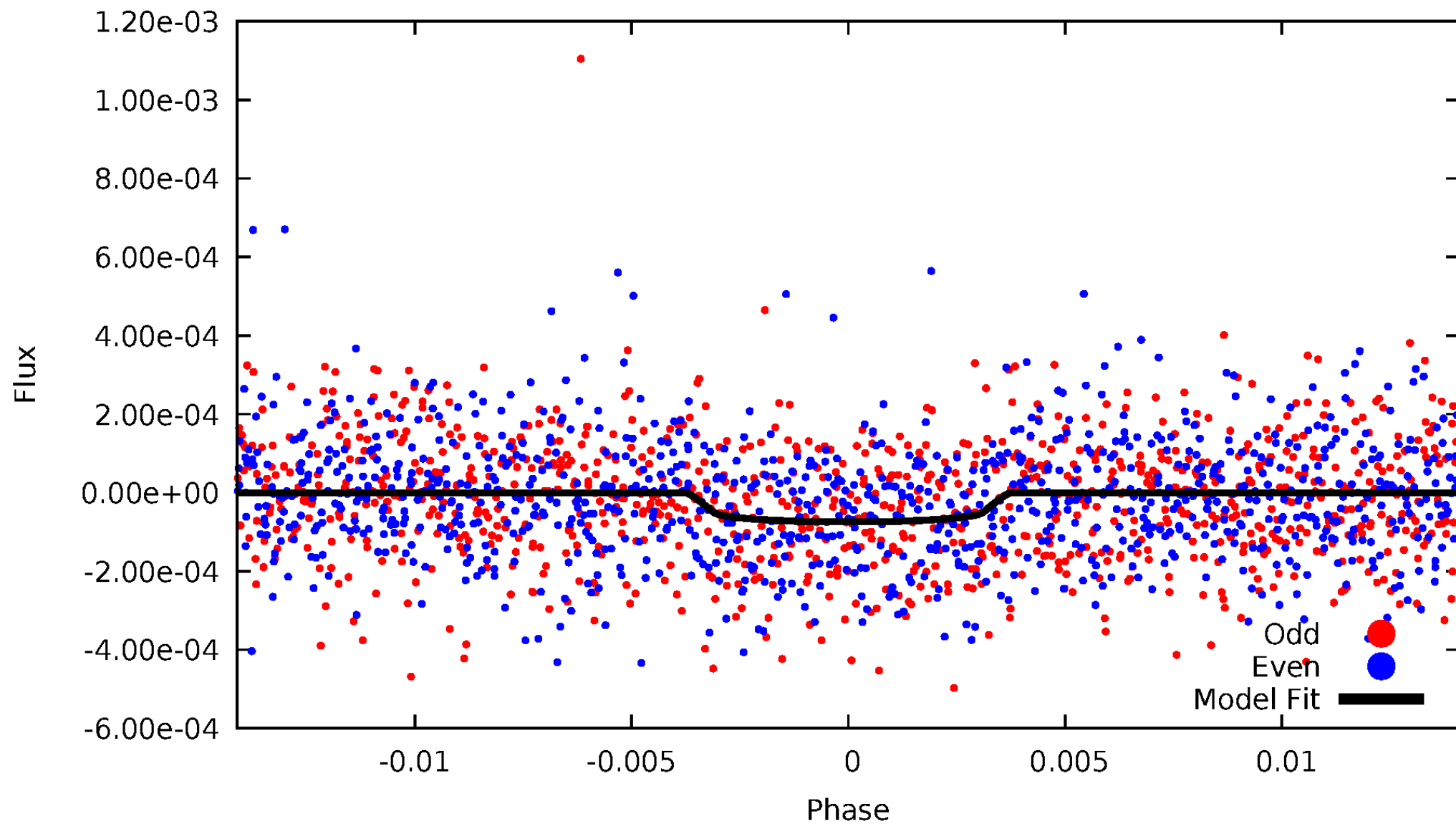


TCE 012300524-01



# DV Odd/Even

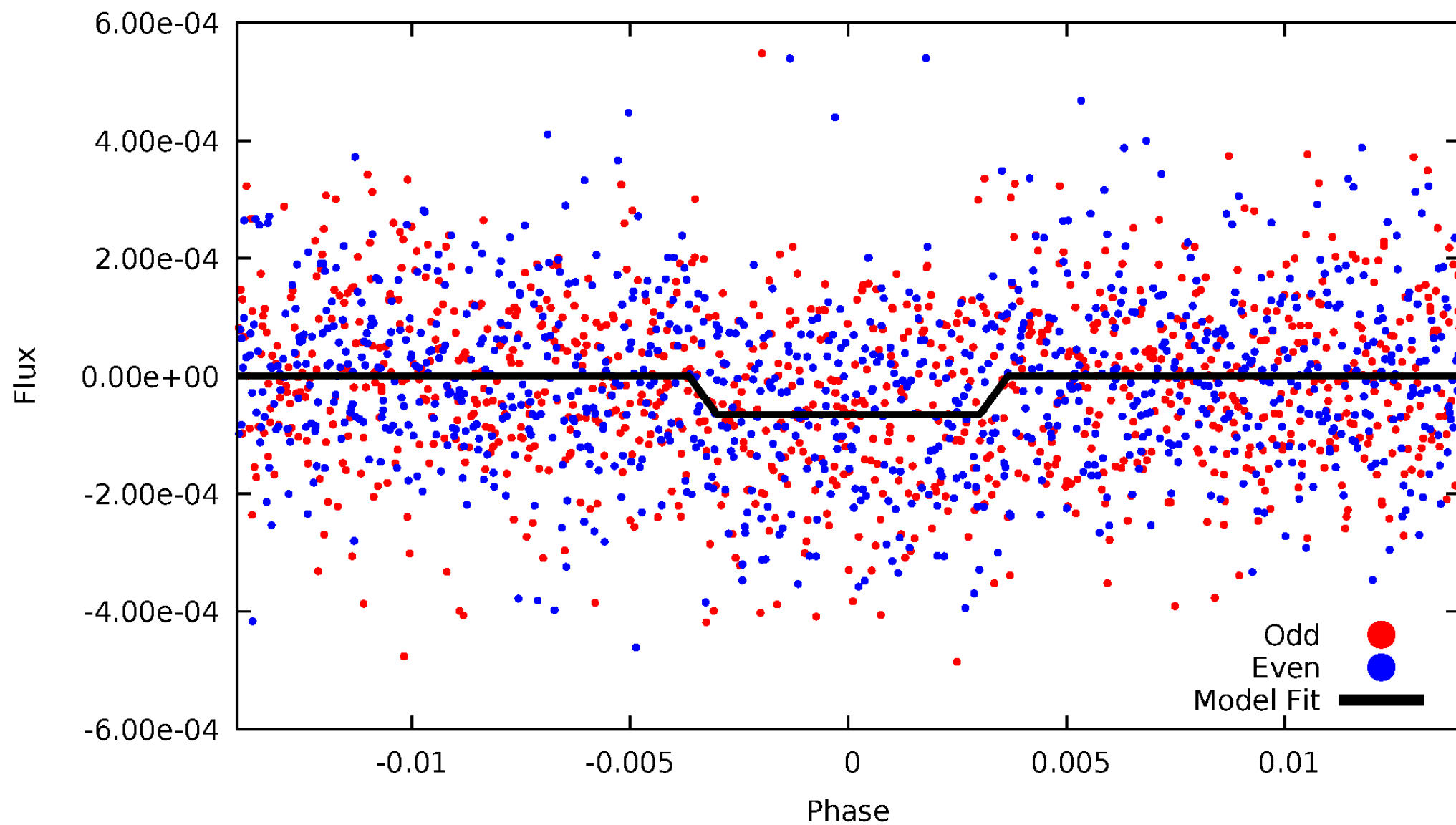
TCE 012300524-01





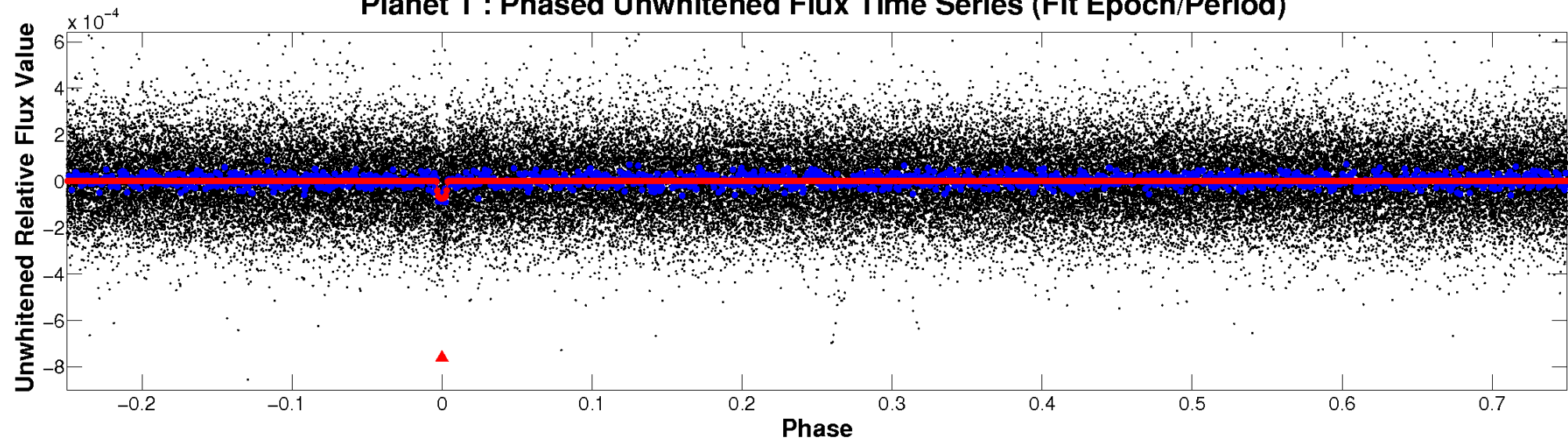
# ALT Odd/Even

TCE 012300524-01

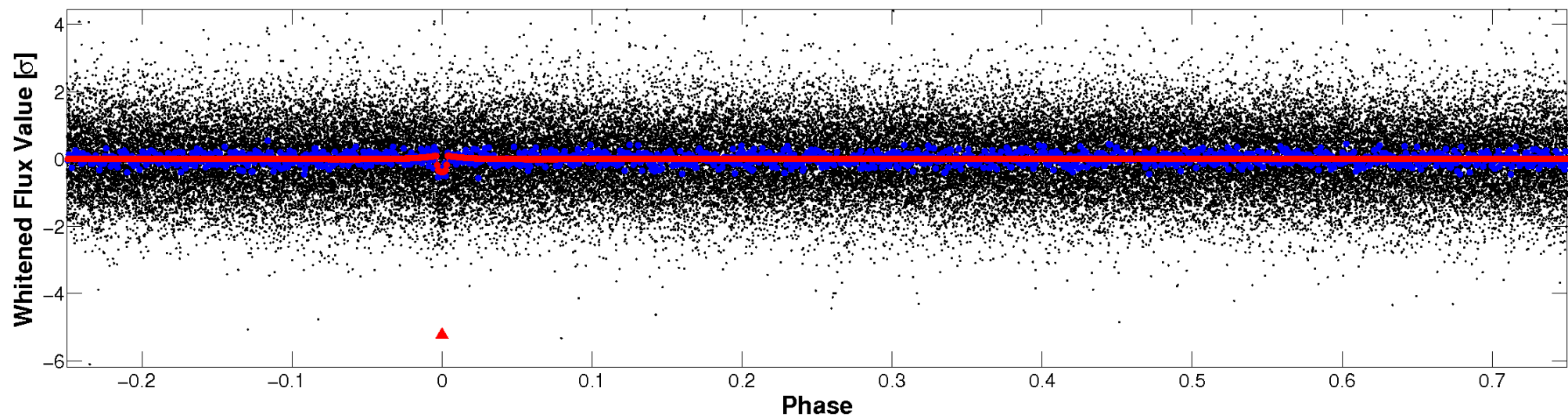


# Non-Whitened Vs. Whitened Light Curve

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

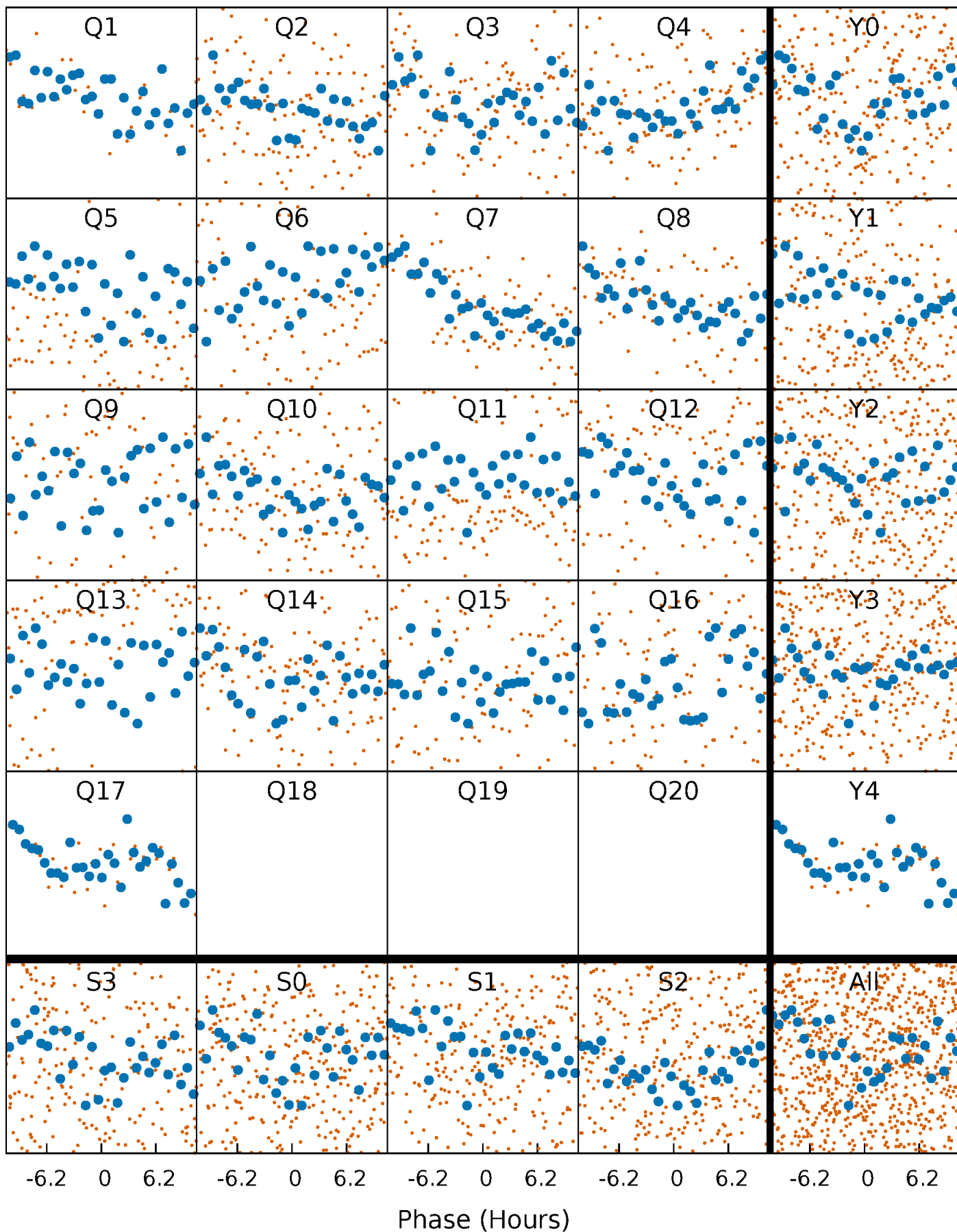


Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)



# PDC Quarter-Phased Transit Curves

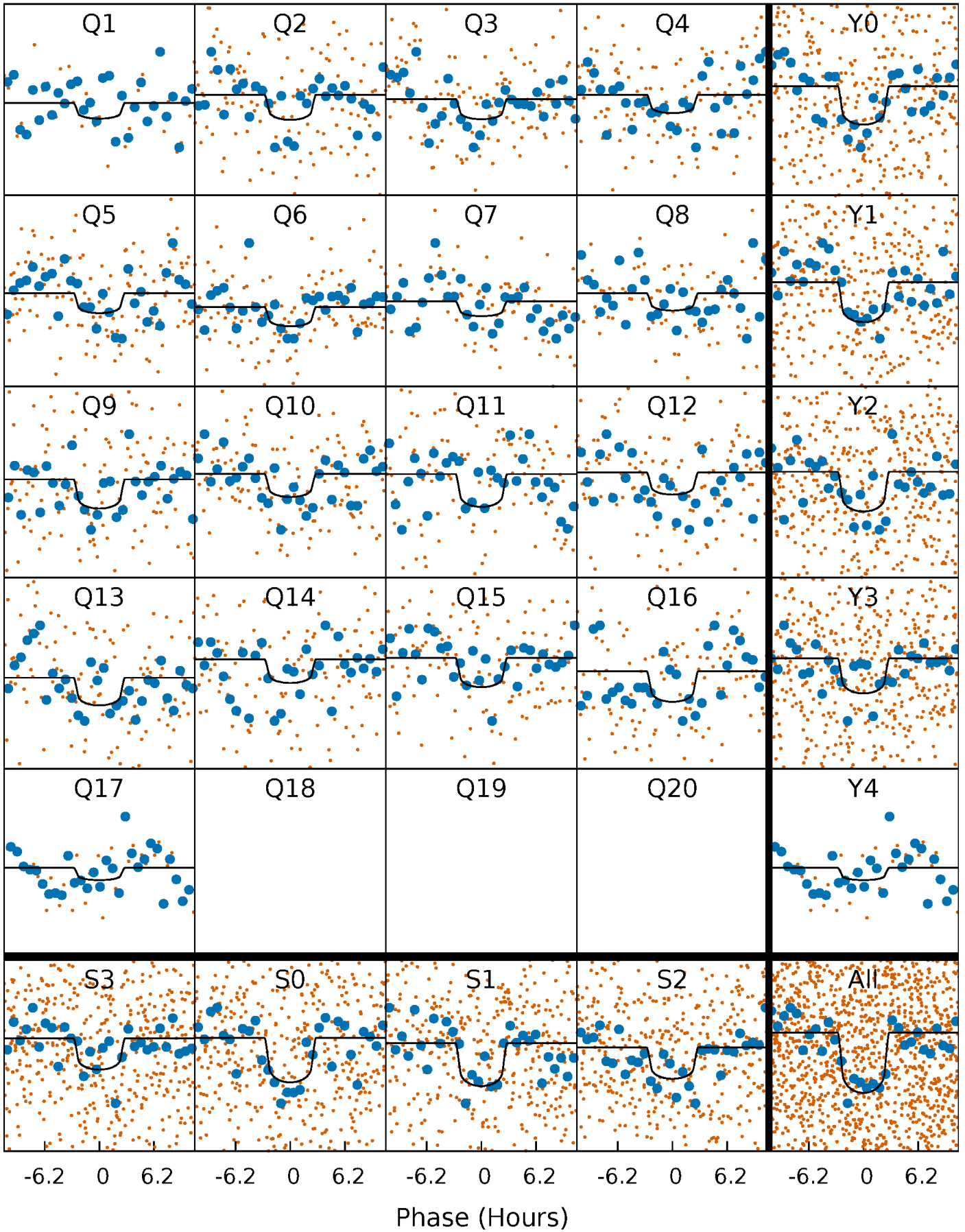
TCE 012300524-01 P= 32.033131 Days  $T_0=146.817421$  (BKJD)





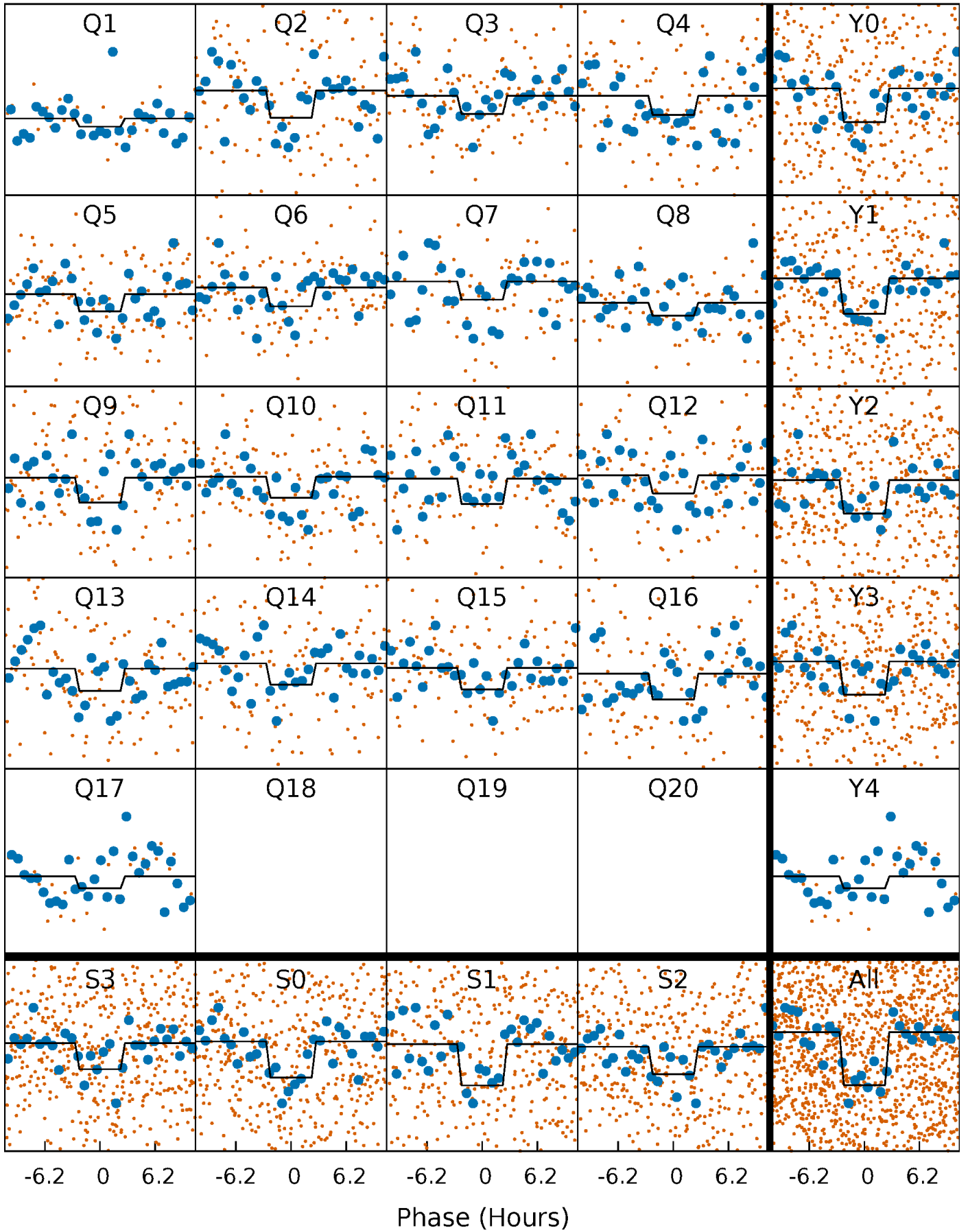
# DV Quarter-Phased Transit Curves

TCE 012300524-01 P= 32.033131 Days  $T_0=146.817421$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

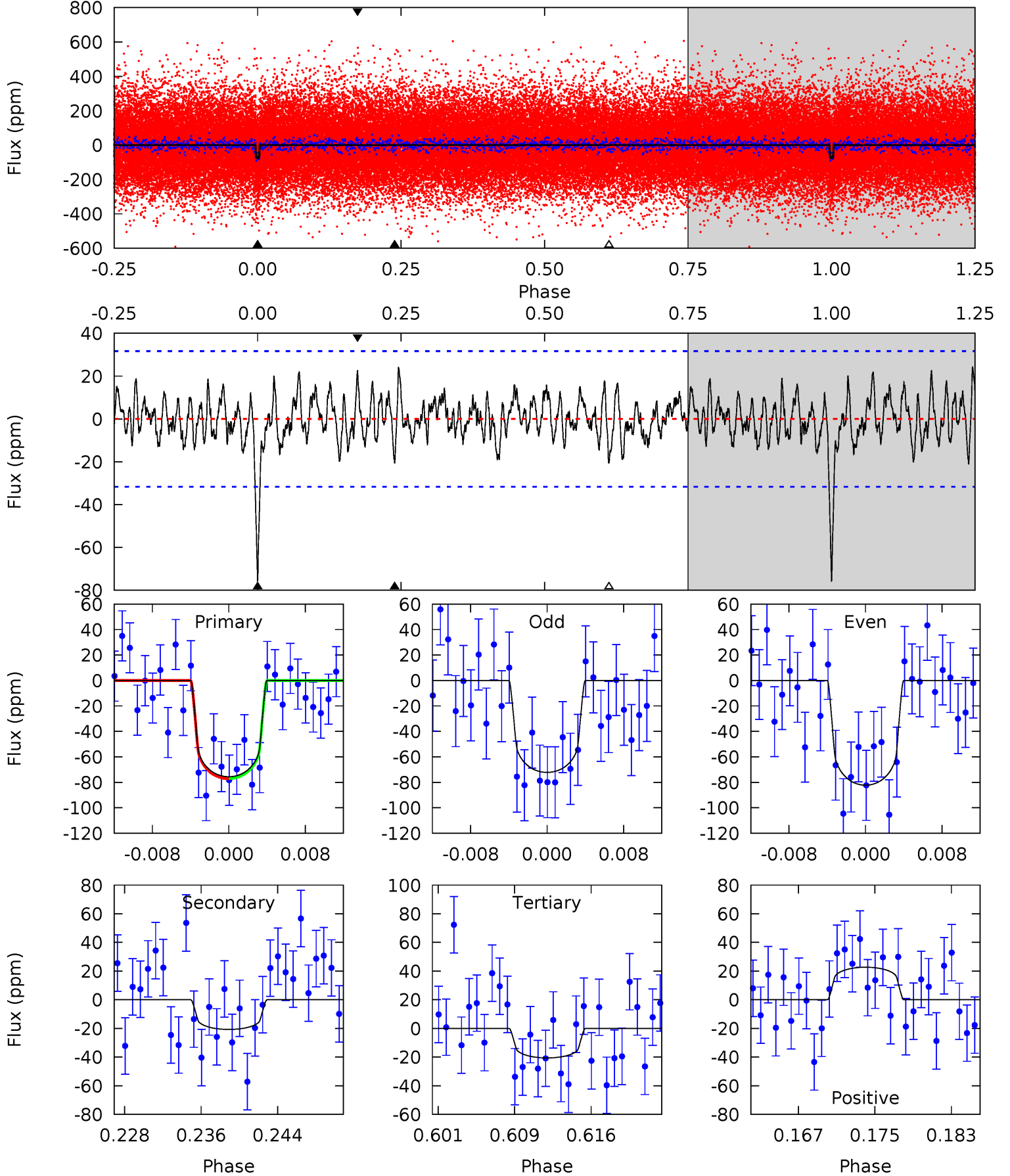
TCE 012300524-01 P= 32.032955 Days  $T_0=146.821710$  (BKJD)



# DV Model-Shift Uniqueness Test

012300524-01, P = 32.033131 Days, E = 114.784290 Days

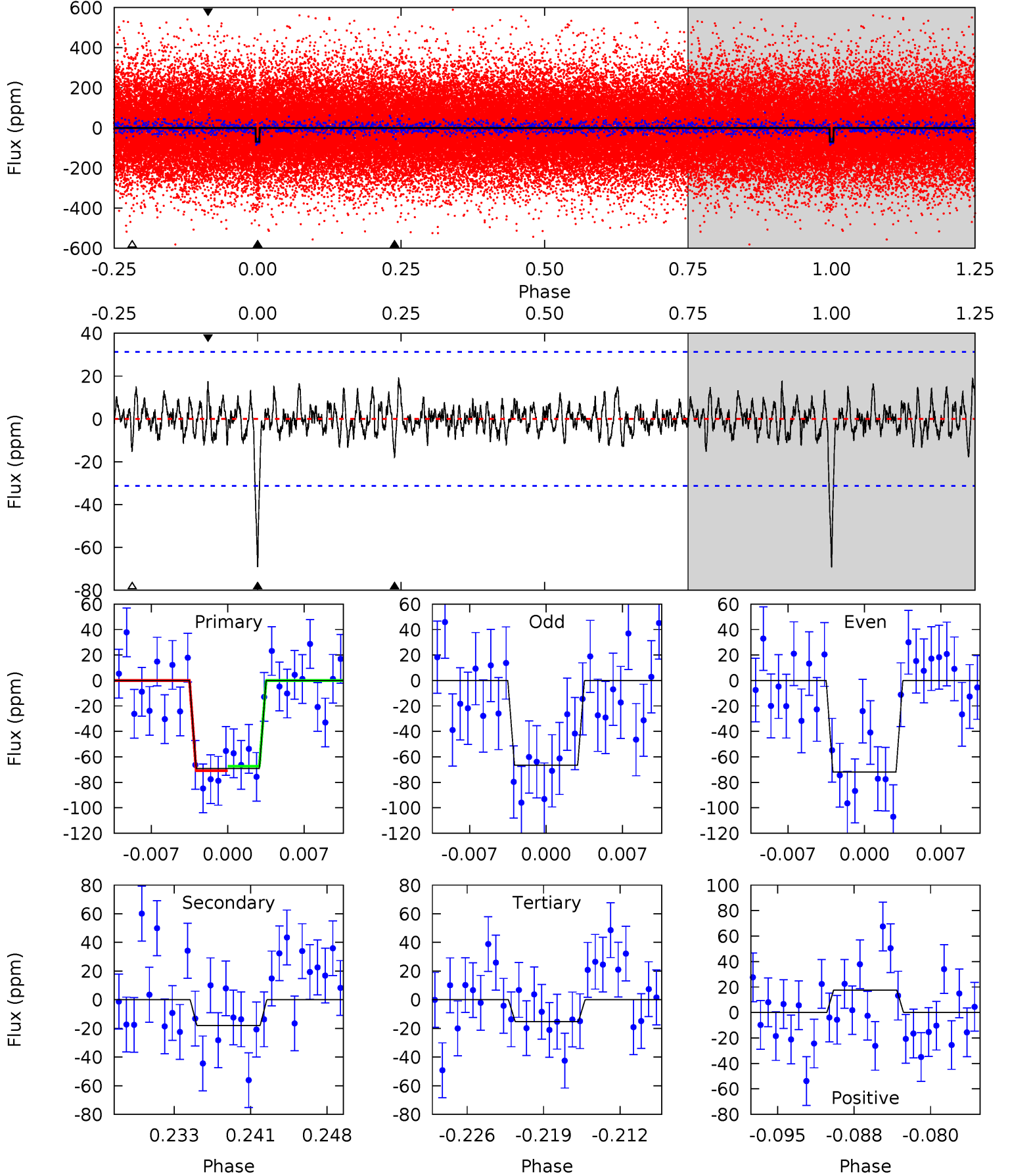
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
12.1	3.32	3.30	3.64	5.08	2.67	1.26	8.82	8.48	0.02	-0.32	0.80	0.99	0.24	0.01



# Alt Model-Shift Uniqueness Test

012300524-01,  $P = 32.032955$  Days,  $E = 114.788755$  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
11.2	2.92	2.48	2.85	5.09	2.68	0.88	8.76	8.39	0.44	0.07	0.43	1.05	0.22	0.28



### Stellar Parameters For KIC 012300524

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	$6039^{+163}_{-199}$	$4.478^{+0.052}_{-0.221}$	$0.070^{+0.250}_{-0.300}$	$1.005^{+0.334}_{-0.089}$	$1.108^{+0.138}_{-0.152}$	$1.537^{+0.338}_{-0.844}$
	+3%/-3%	+1%/-5%	+357%/-429%	+33%/-9%	+12%/-14%	+22%/-55%
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 012300524-01 / KOI 5964.01

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	$A_{obs}$
DV	$-21 \pm 6$	$1.06^{+0.58}_{-0.56}$	$843^{+67}_{-40}$	$4412^{+1752}_{-680}$	$396^{+1425}_{-240}$
Alt.	$-18 \pm 6$	$0.97^{+0.58}_{-0.51}$	$841^{+68}_{-38}$	$4434^{+1809}_{-713}$	$396^{+1584}_{-246}$

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



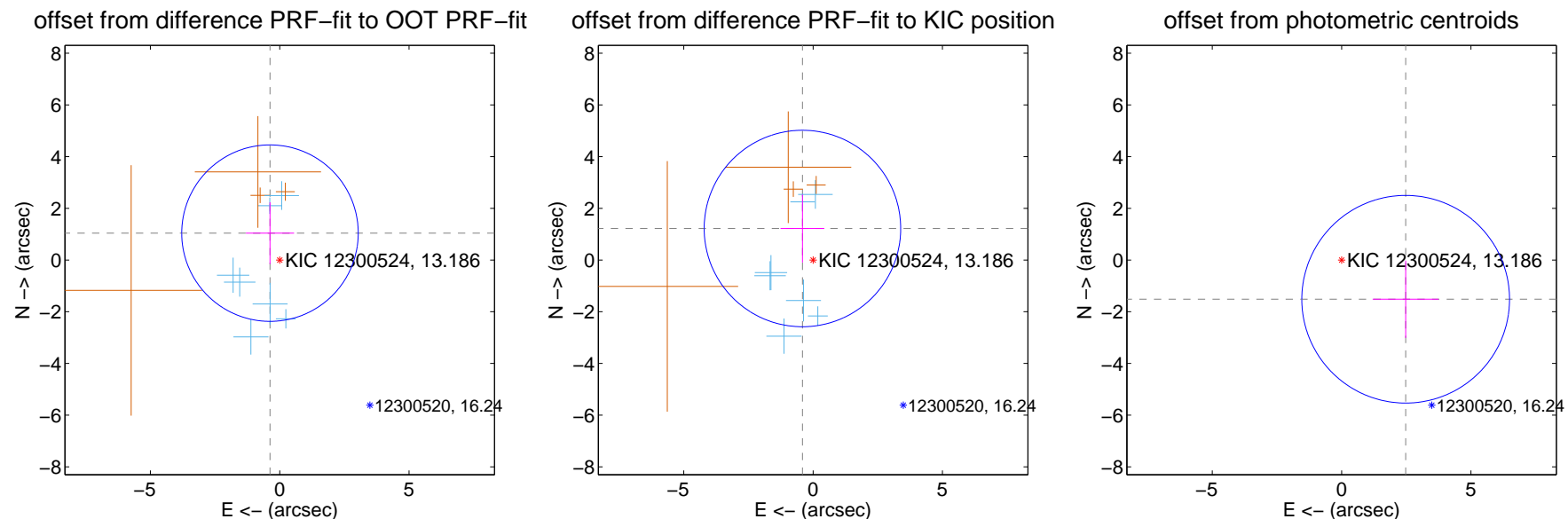
## DV Centroid Data

Supplemental centroid analysis for 012300524-01. Kepler magnitude: 13.19. Transit SNR 7.63

There are 7 quarters with good PRF difference image offsets

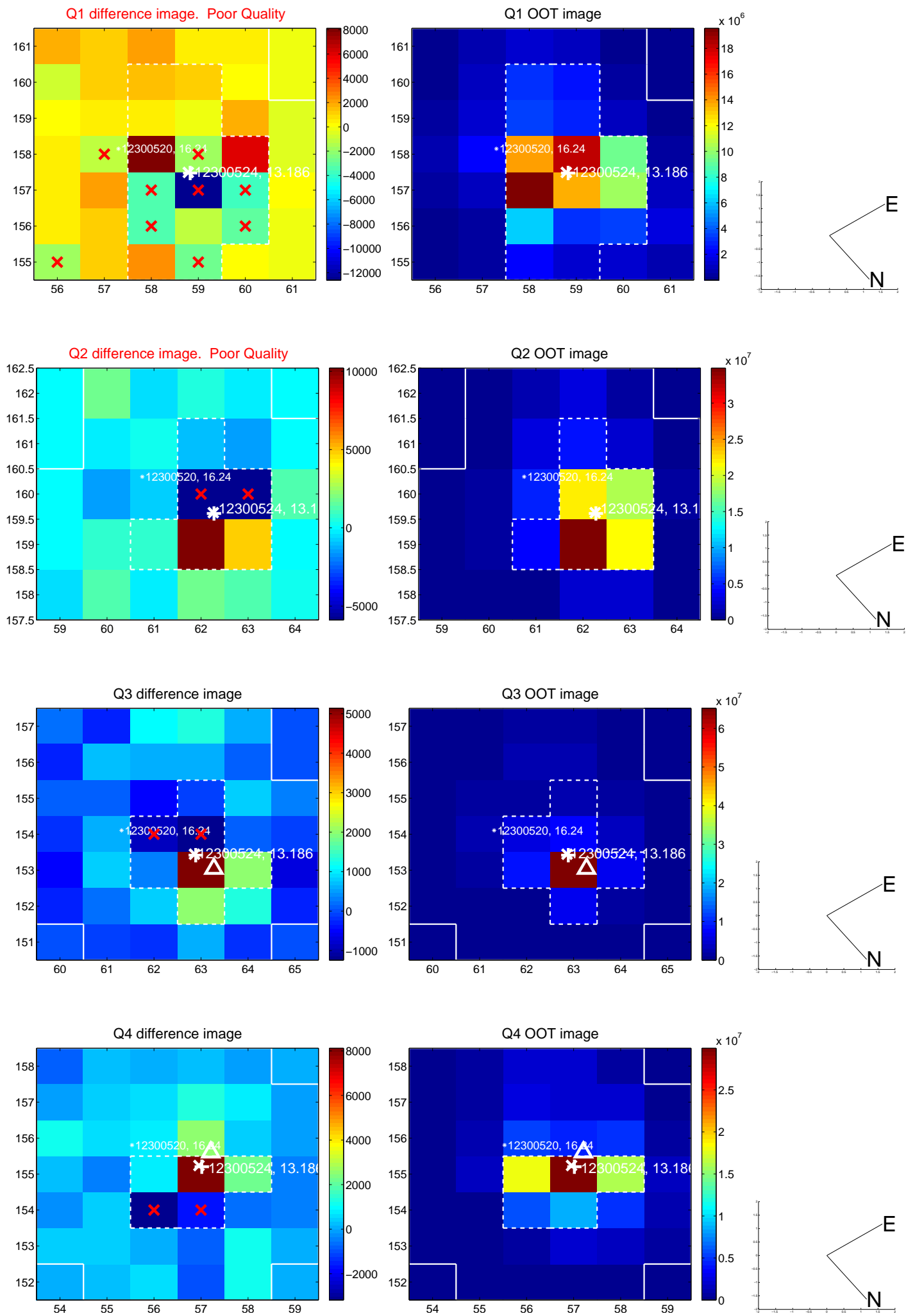
The direct PRF centroid is offset from the target star catalog position by about 0.22 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$1.107 \pm 1.138$	0.97	$0.376 \pm 0.931$	$1.041 \pm 1.195$
PRF-fit source offset from KIC position	$1.287 \pm 1.267$	1.02	$0.413 \pm 0.846$	$1.220 \pm 1.315$
photometric centroid source offset	$2.90 \pm 1.34$	2.17	$-2.48 \pm 1.27$	$-1.52 \pm 1.50$

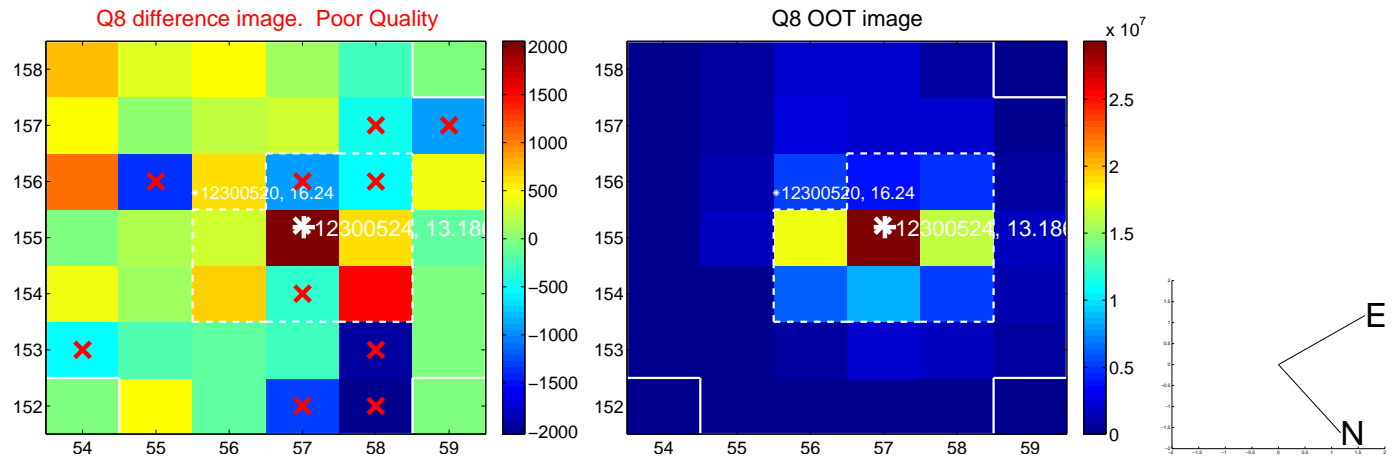
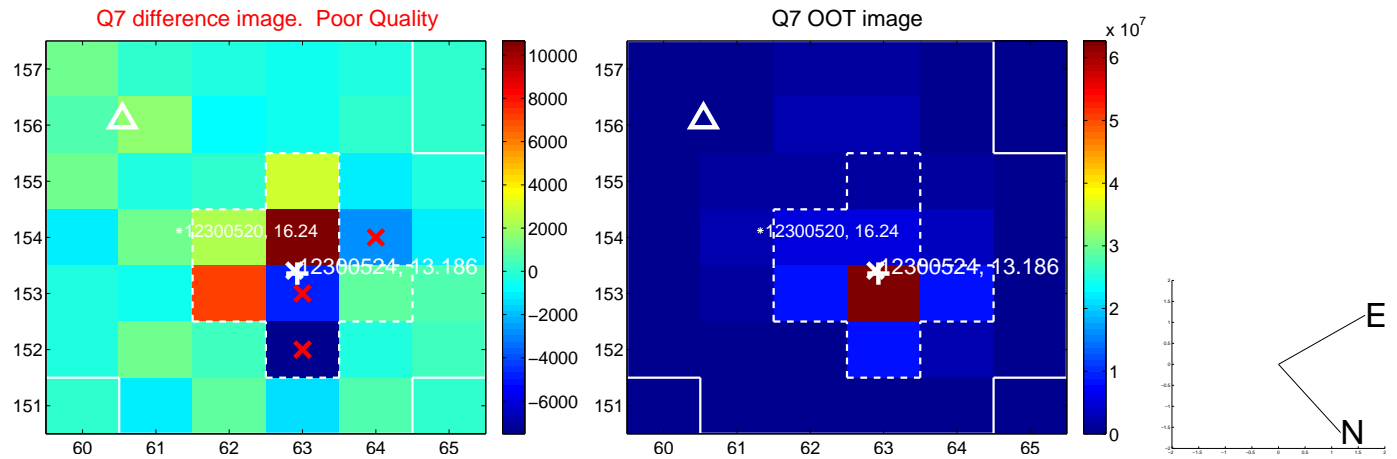
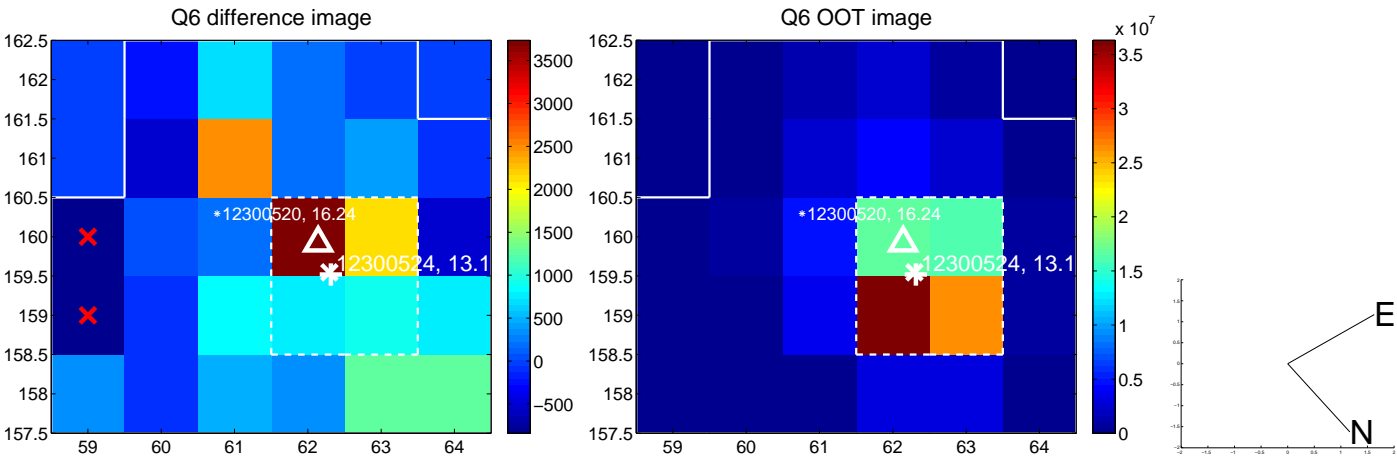
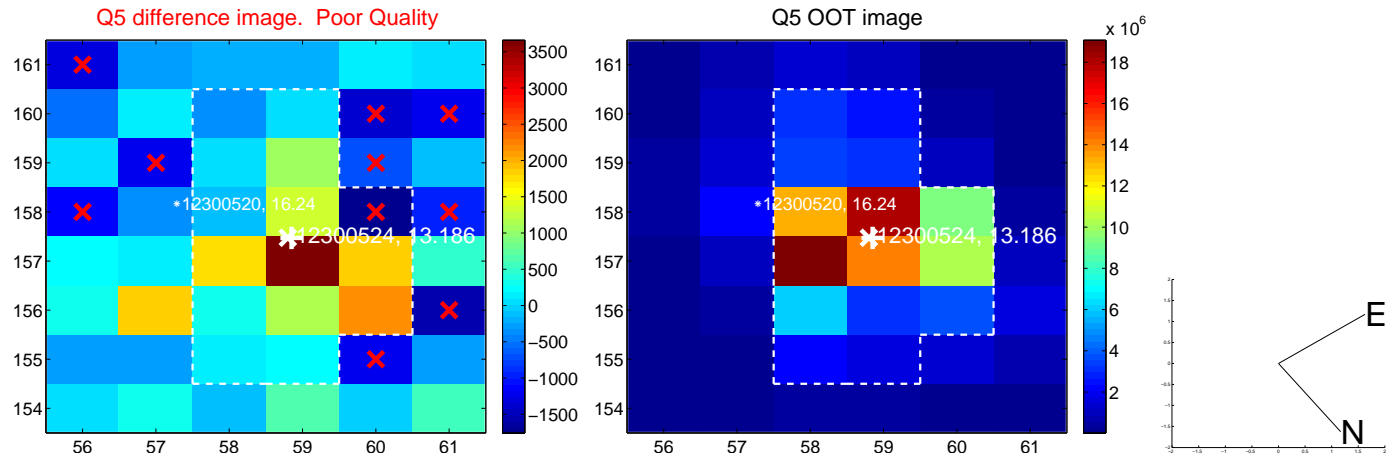


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets**; **Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: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

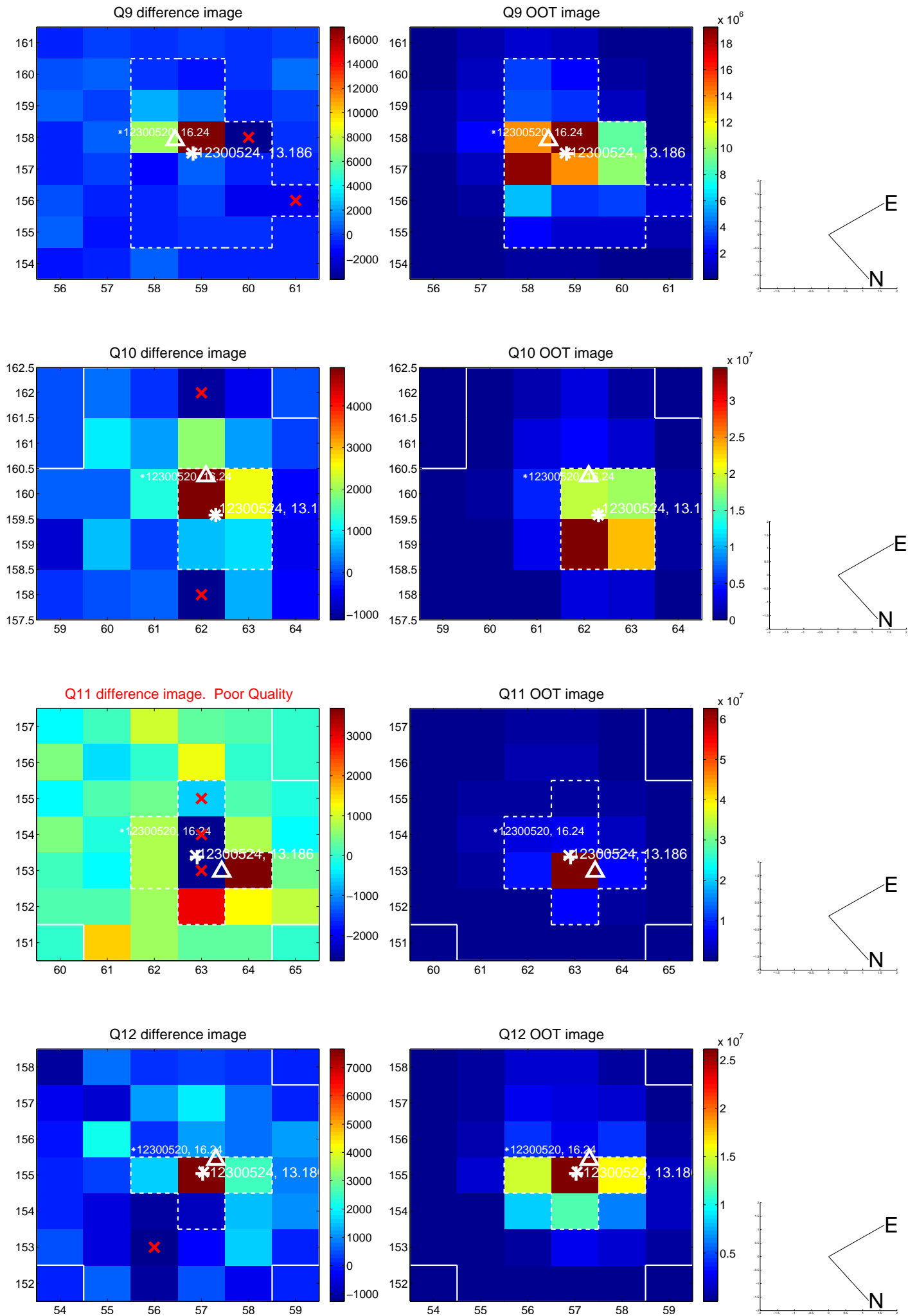
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



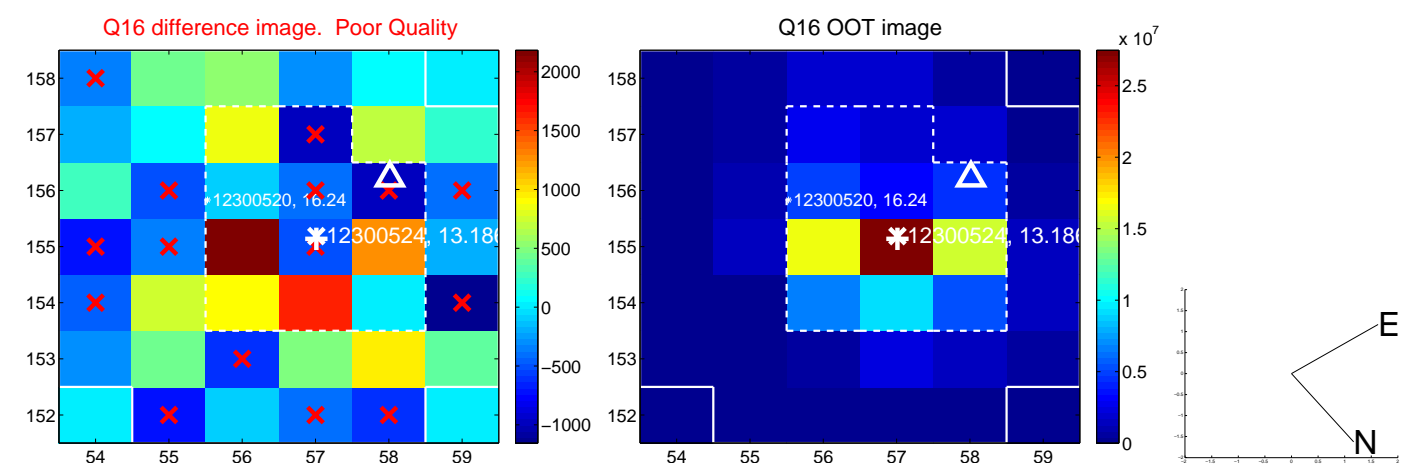
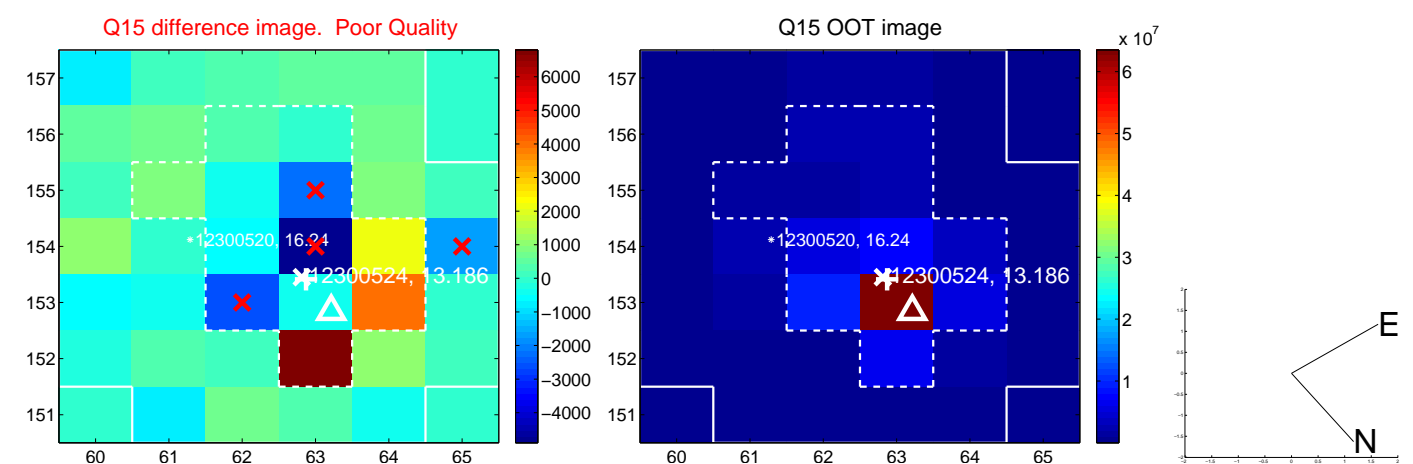
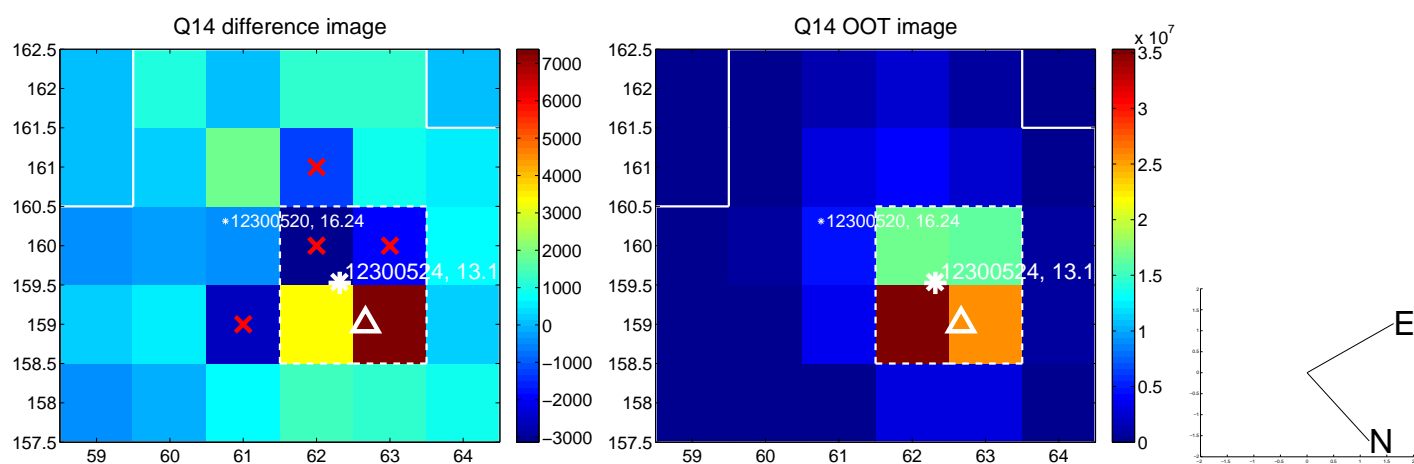
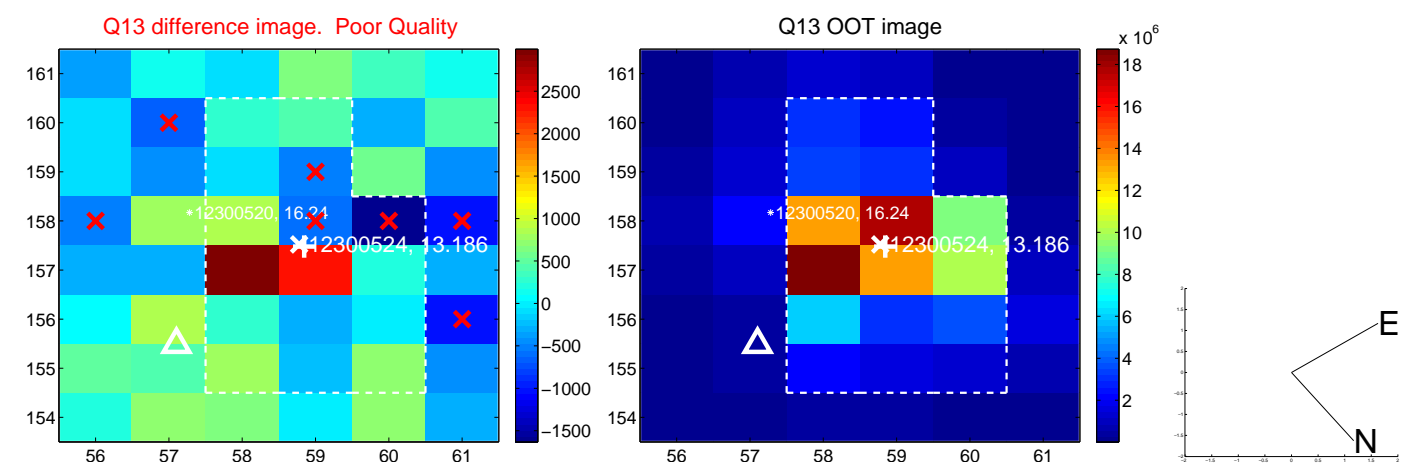
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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

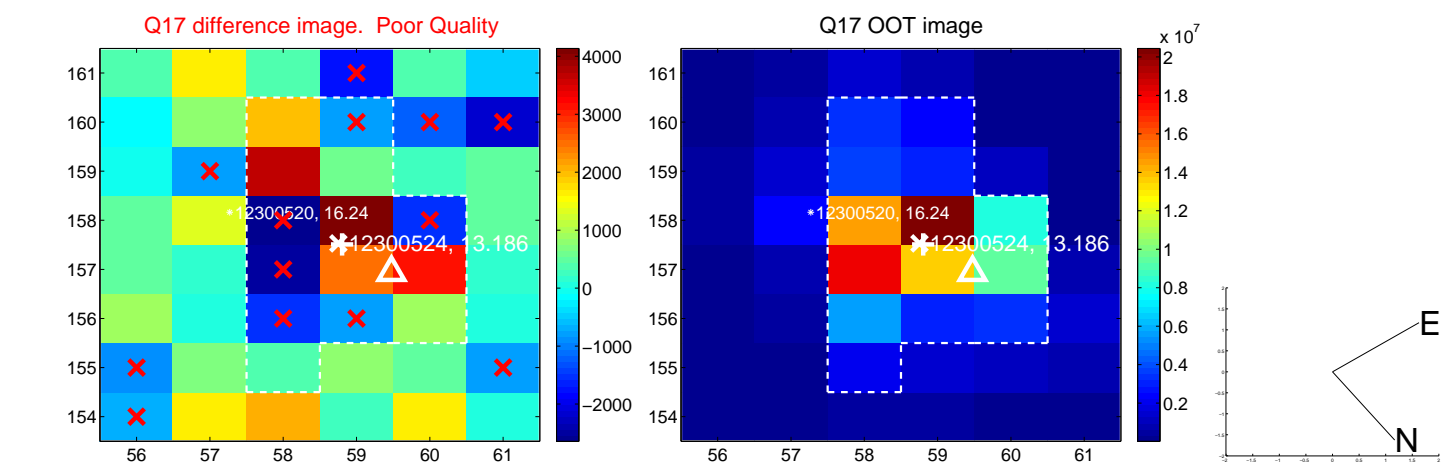


white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.

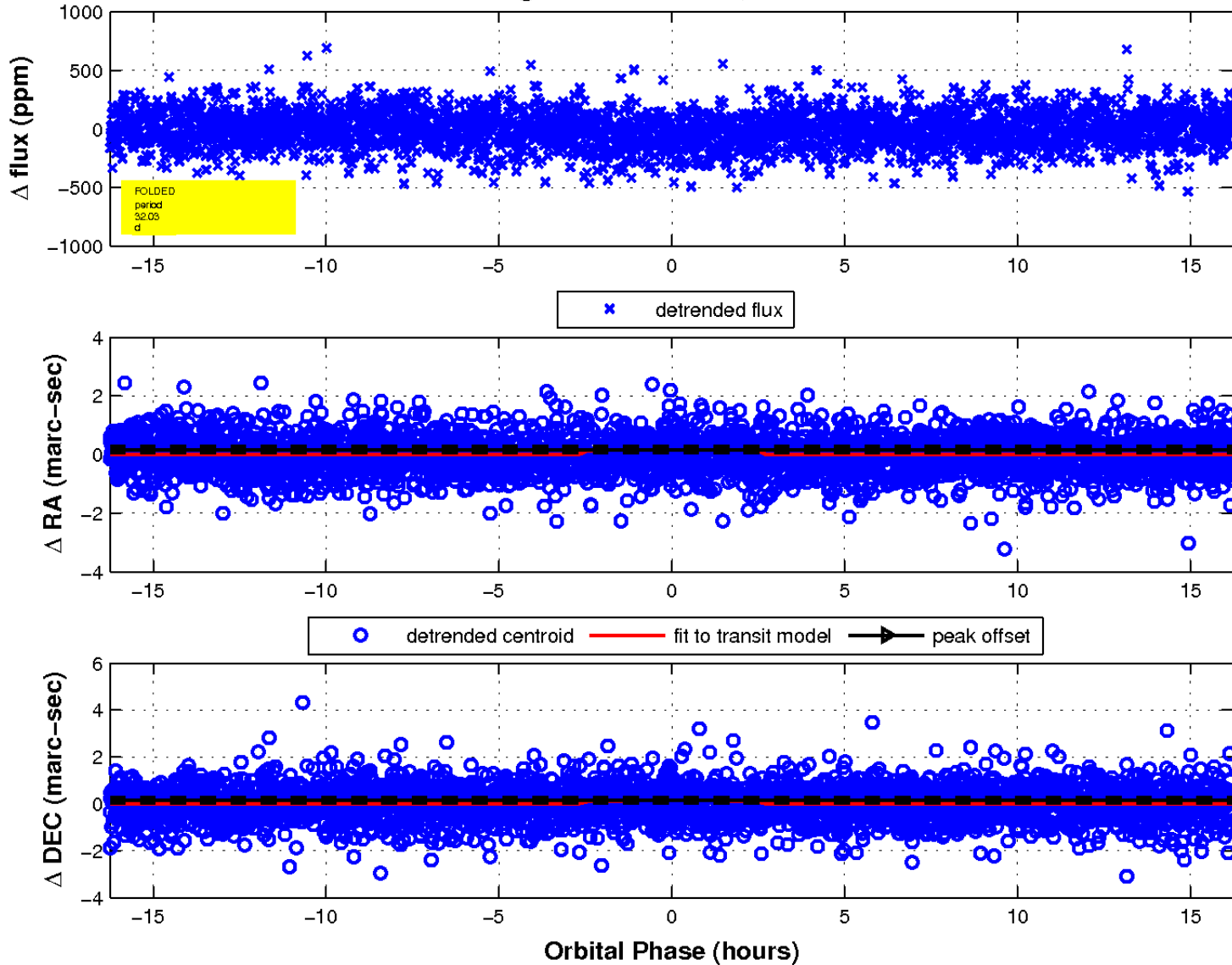




white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



fluxWeightedCentroids, Planet 1 of 1



UKIRT Image

