

# KIC 002574338

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
002574338-01	OBS	1030.01	9.229583	138.443486	463.4	2.421	16.4	17.9	1.25	6320	3.17	257.39

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
002574338-01	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 002574338-01

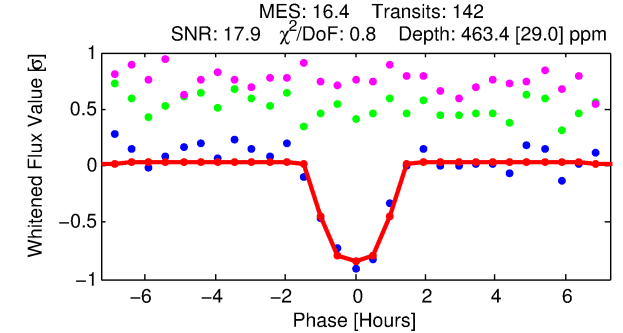
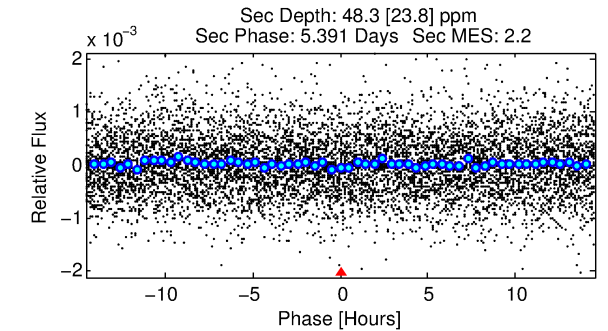
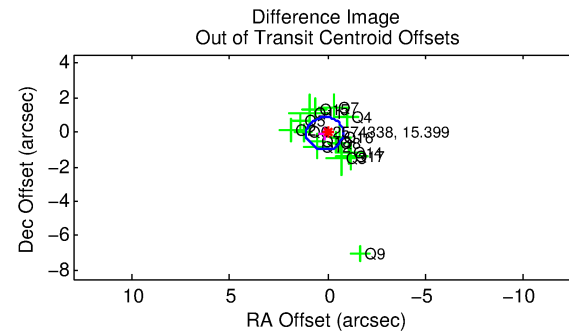
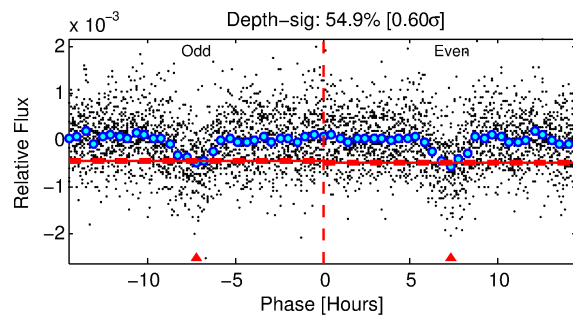
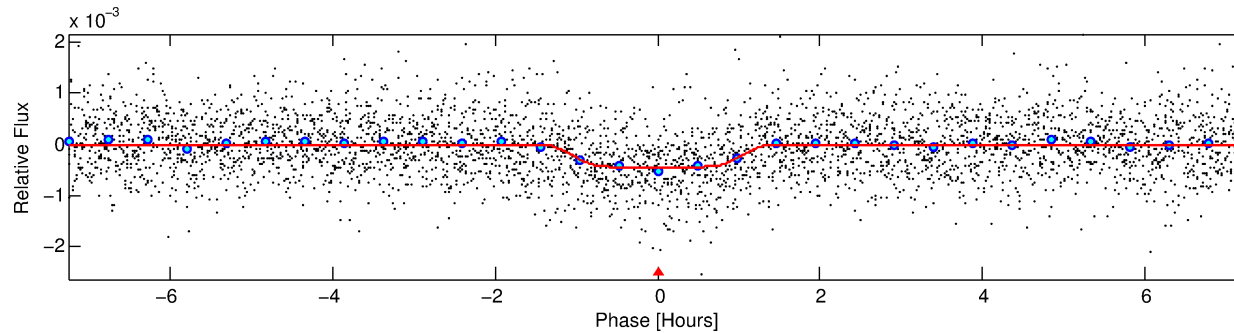
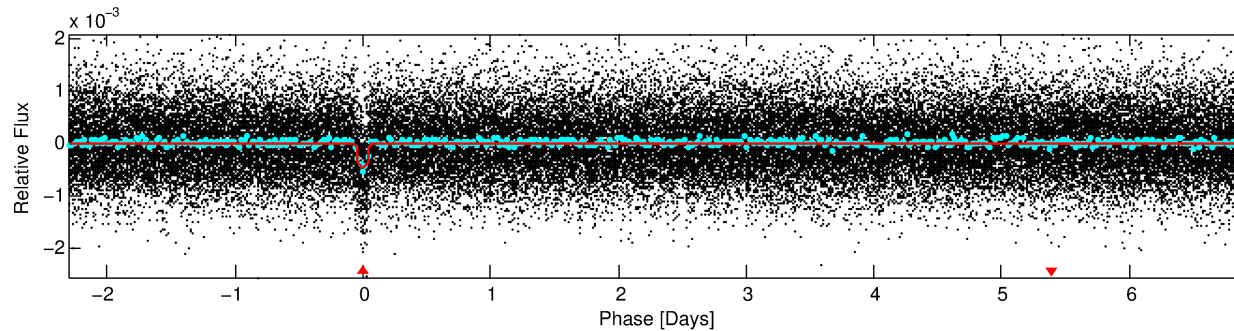
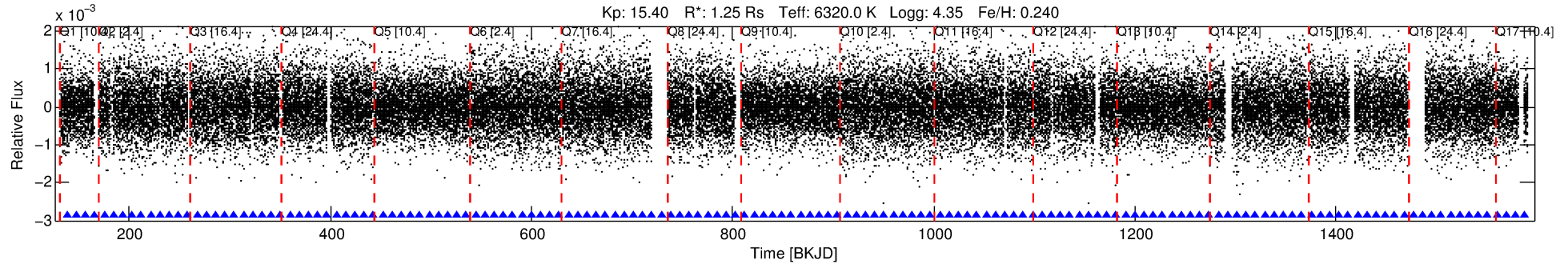
No Significant Match Found

# DV One-Page Summary

KIC: 2574338 Candidate: 1 of 1 Period: 9.230 d

KOI: K01030.01 Corr: 0.973

Kp: 15.40 R\*: 1.25 Rs Teff: 6320.0 K Logg: 4.35 Fe/H: 0.240



## DV Fit Results:

Period = 9.22958 [0.00004] d  
Epoch = 138.4435 [0.0032] BKJD  
Rp/R\* = 0.0232 [0.0050]  
a/R\* = 14.28 [15.58]  
b = 0.90 [0.24]  
Seff = 257.39 [57.43]  
Teq = 1021 [57] K  
Rp = 3.17 [0.87] Re  
a = 0.0933 [0.0136] AU  
Ag = 22.98 [15.87] [1.39σ]  
Teffp = 3458 [569] K [4.26σ]

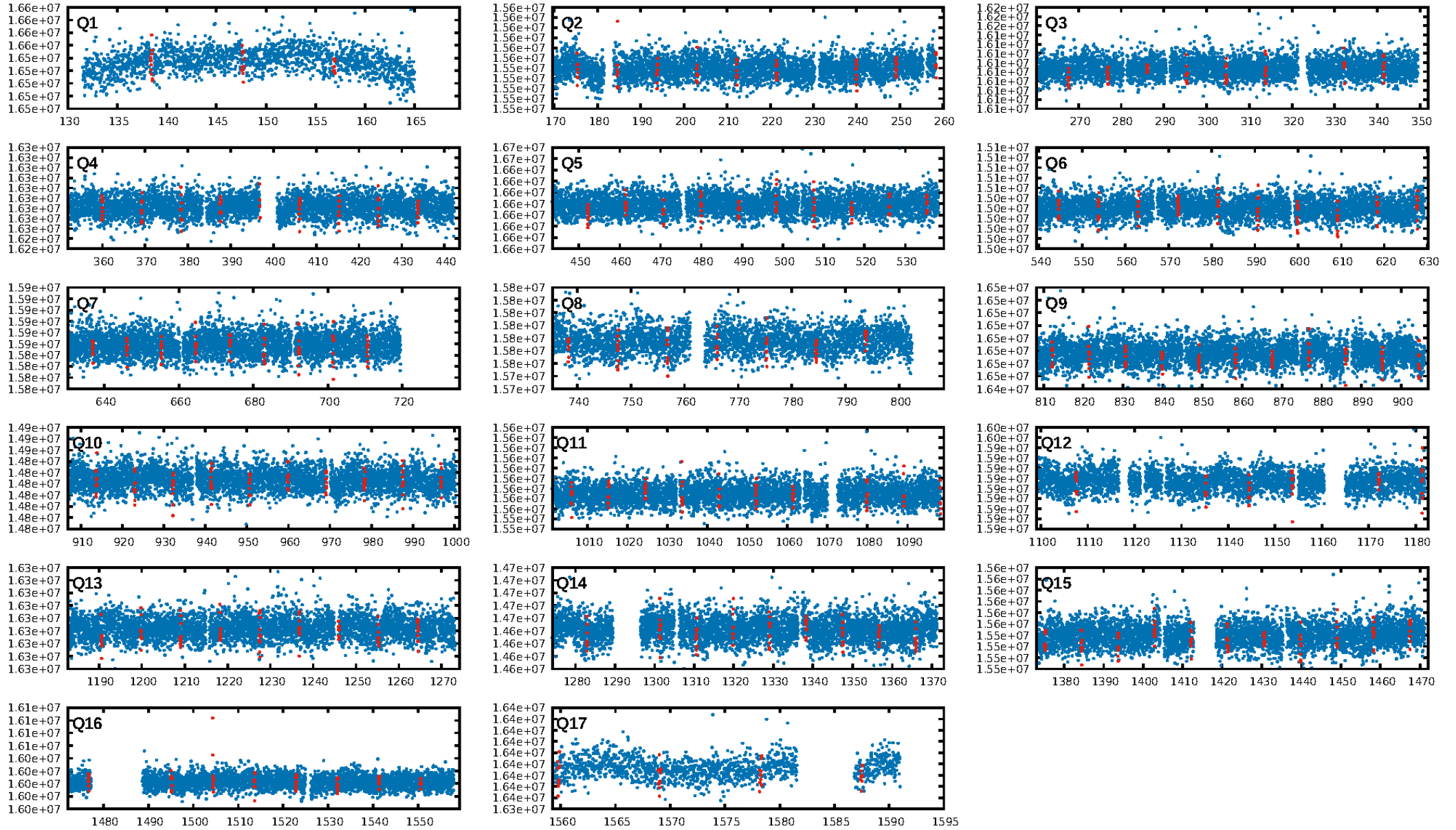
## DV Diagnostic Results:

ShortPeriod-sig: N/A  
LongPeriod-sig: N/A  
ModelChiSquare2-sig: 100.0%  
ModelChiSquareGof-sig: 100.0%  
Bootstrap-pfa: 2.01e-60  
RollingBand-fgt: 1.00 [135/135]  
GhostDiagnostic-chr: 1.888  
Centroid-sig: 8.7%  
Centroid-so: 1.449 arcsec [1.83σ]  
OotOffset-rm: 0.164 arcsec [0.52σ]  
KicOffset-rm: 0.188 arcsec [0.60σ]  
OotOffset-st: 3/4/4/4 [15]  
KicOffset-st: 3/4/4/4 [15]  
DiffImageQuality-fgm: 0.73 [11/15]  
DiffImageOverlap-fno: 1.00 [17/17]

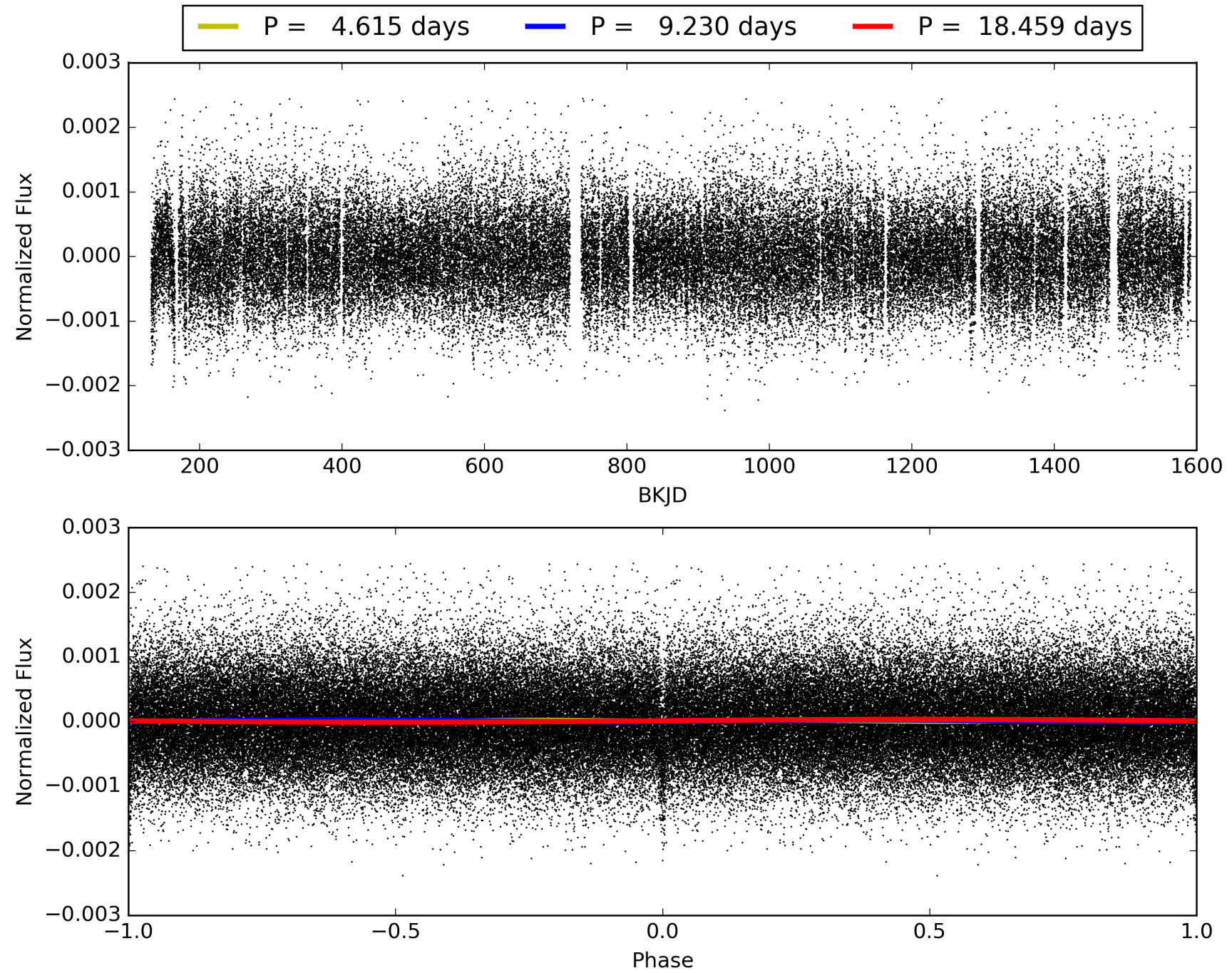
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 31-Jan-2016 15:48:39 Z

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

# TCE 002574338-01, PDC Light Curves



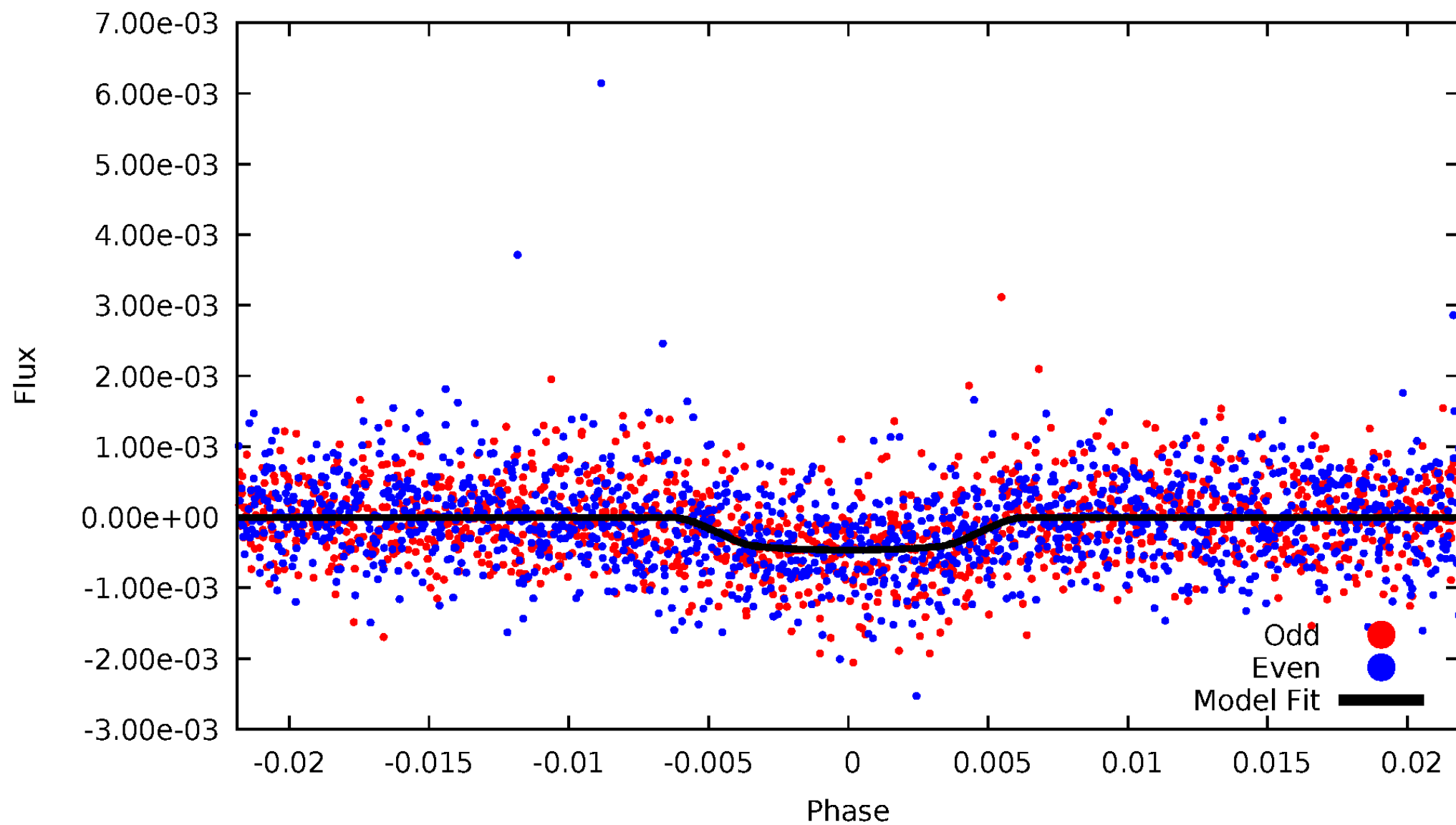
TCE 002574338-01





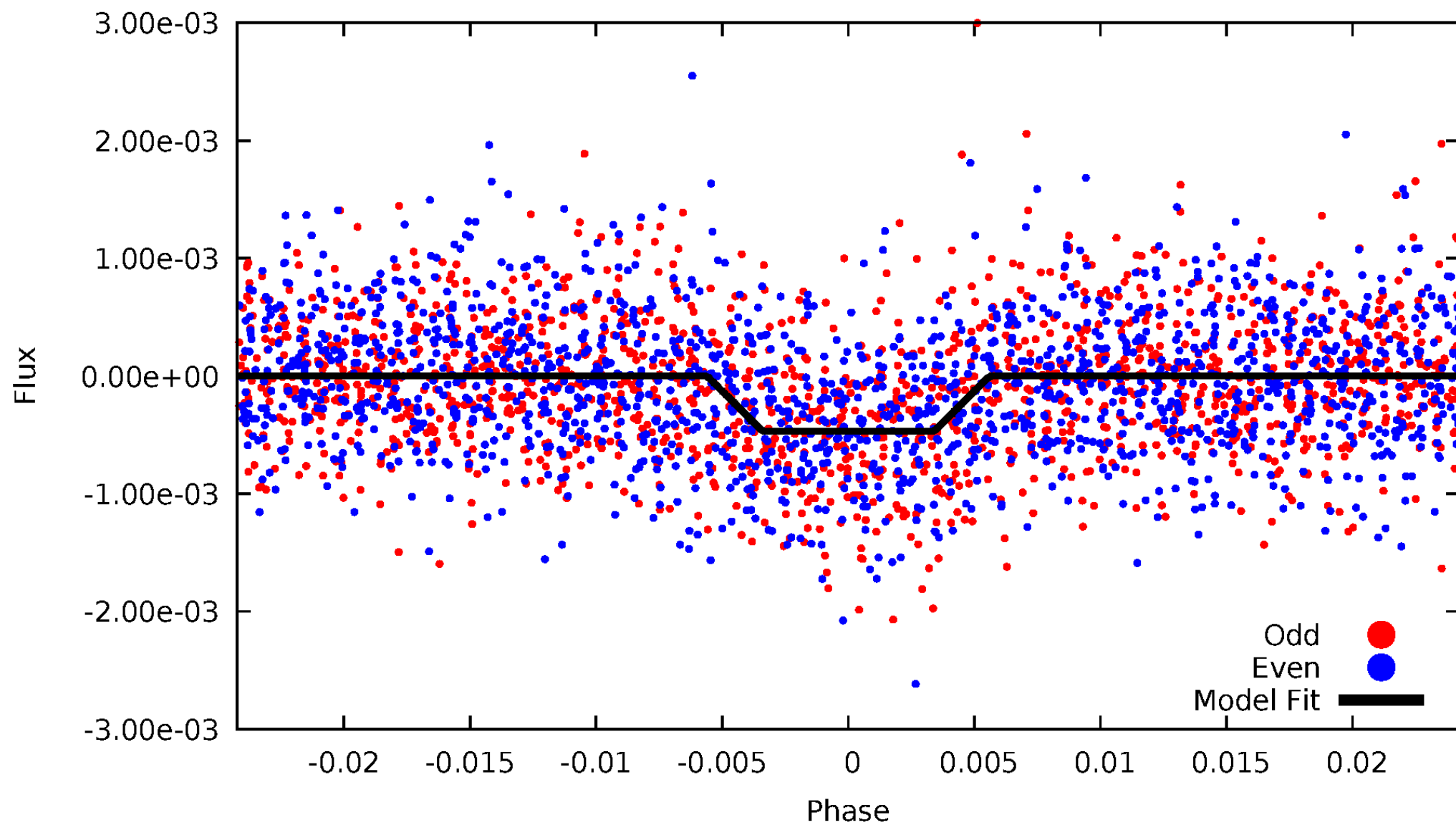
# DV Odd/Even

TCE 002574338-01



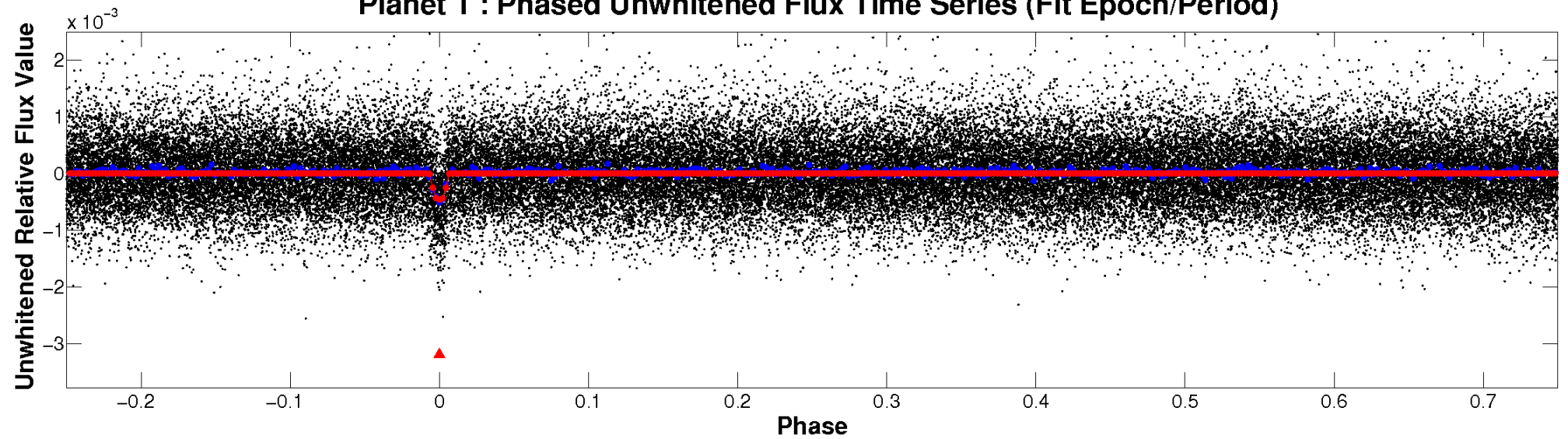
# ALT Odd/Even

TCE 002574338-01

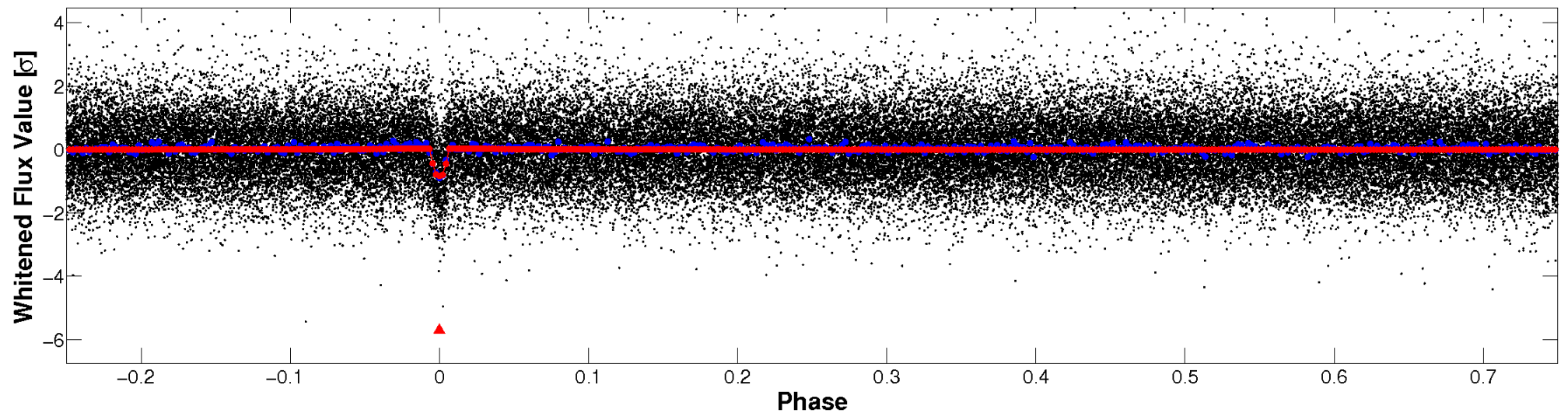


# Non-Whitened Vs. Whitened Light Curve

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

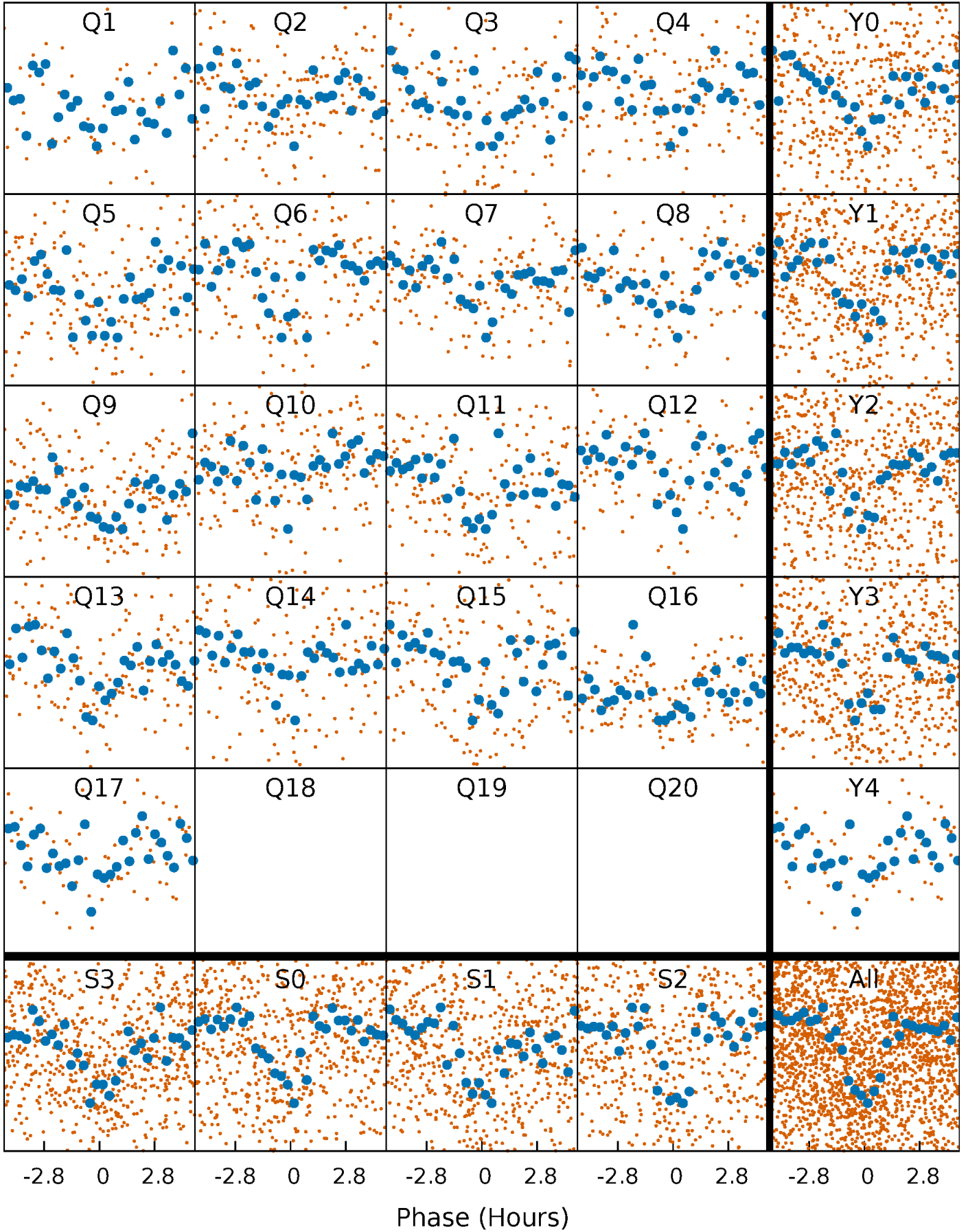


**Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)**



# PDC Quarter-Phased Transit Curves

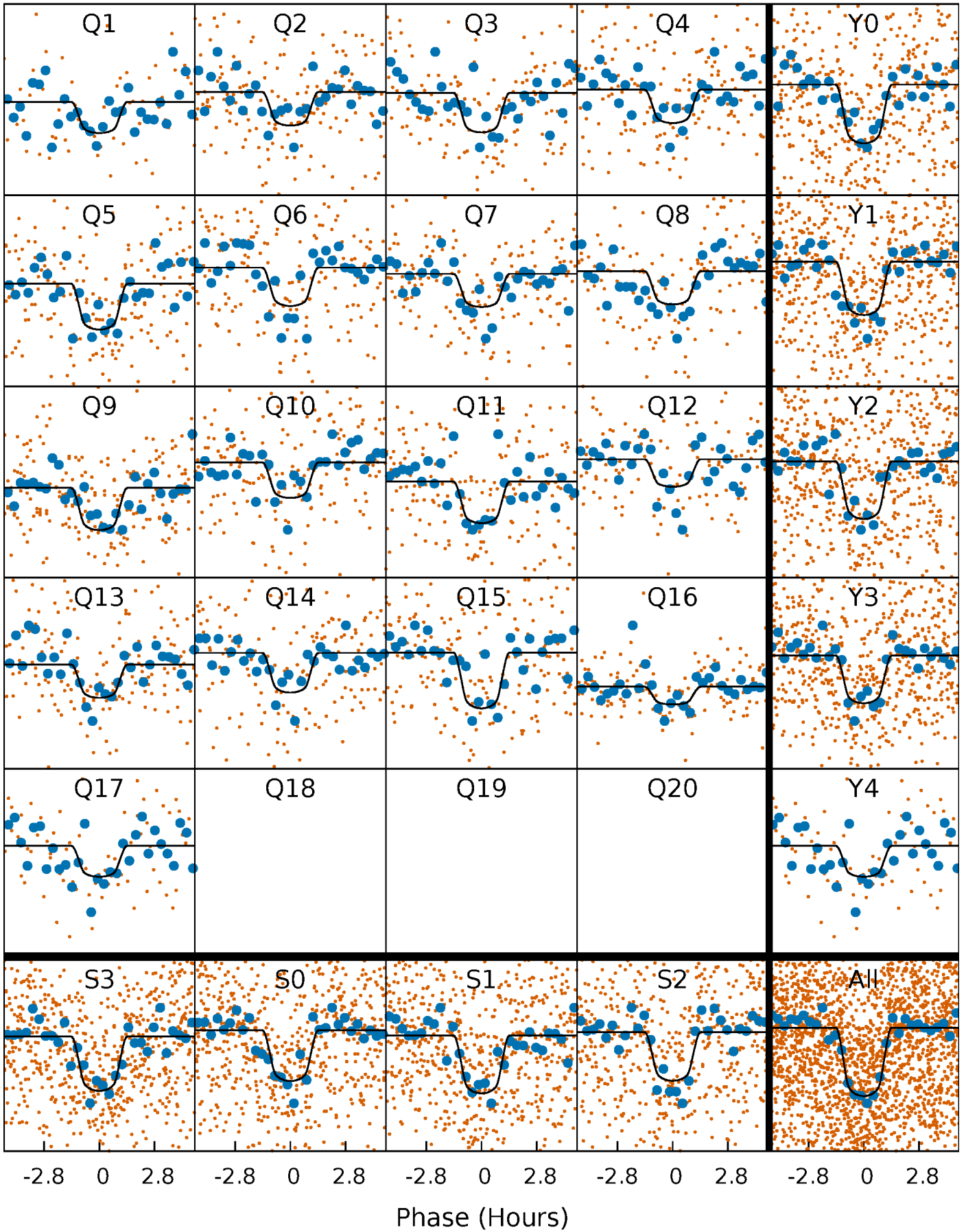
TCE 002574338-01   P= 9.229583 Days    $T_0=138.443486$  (BKJD)





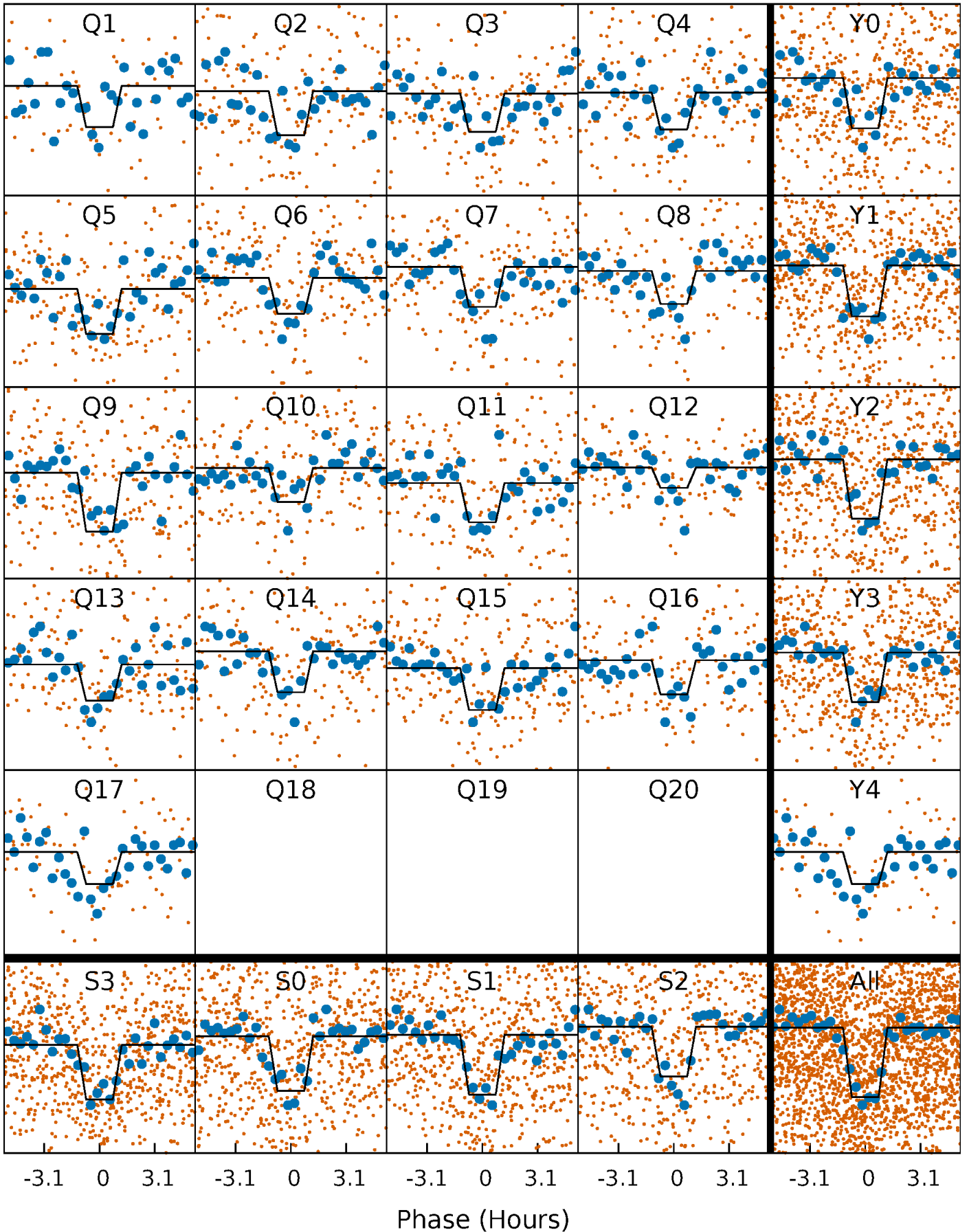
# DV Quarter-Phased Transit Curves

TCE 002574338-01 P= 9.229583 Days  $T_0=138.443486$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

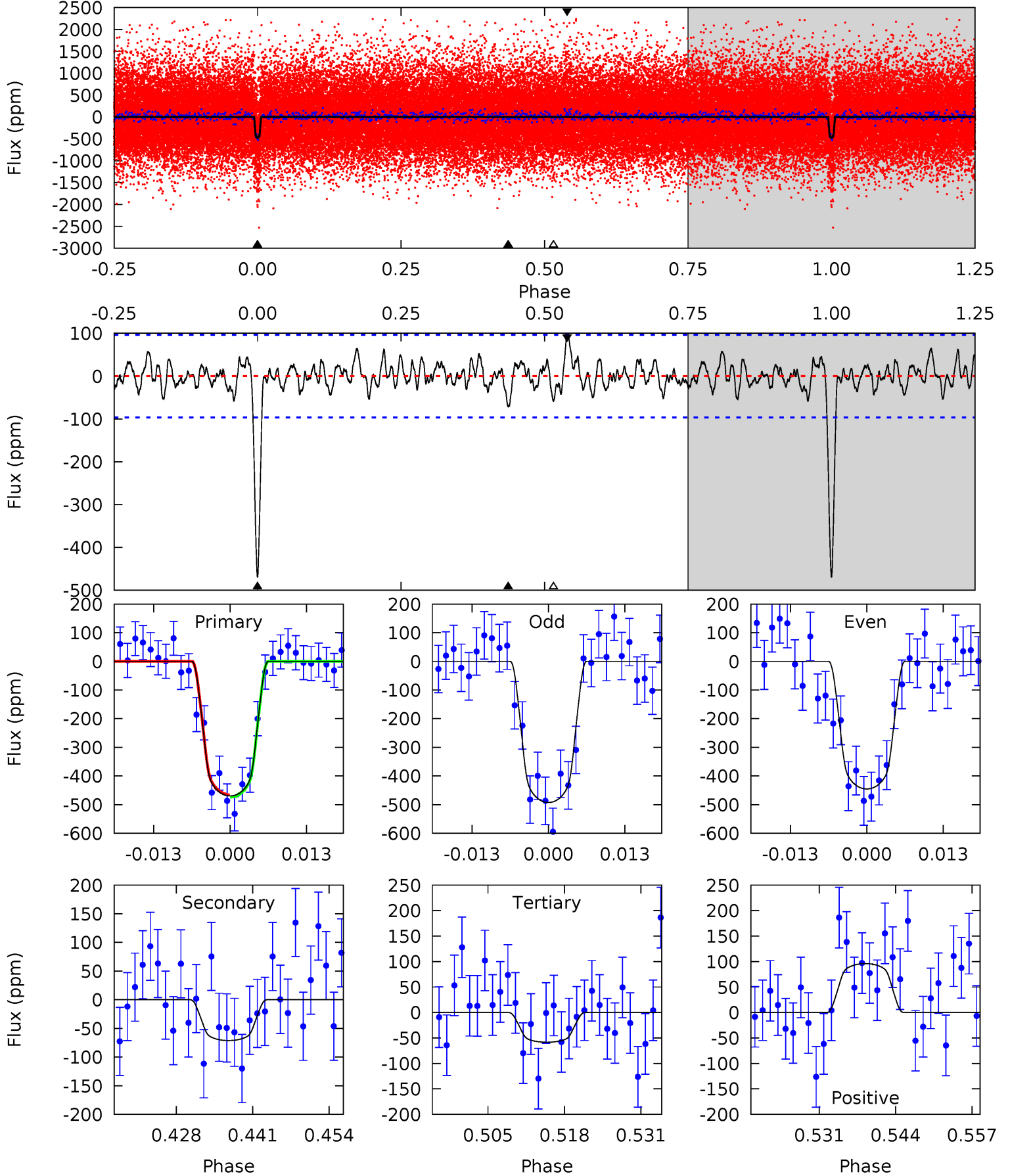
TCE 002574338-01 P= 9.229531 Days  $T_0=138.447030$  (BKJD)



# DV Model-Shift Uniqueness Test

002574338-01, P = 9.229583 Days, E = 129.213903 Days

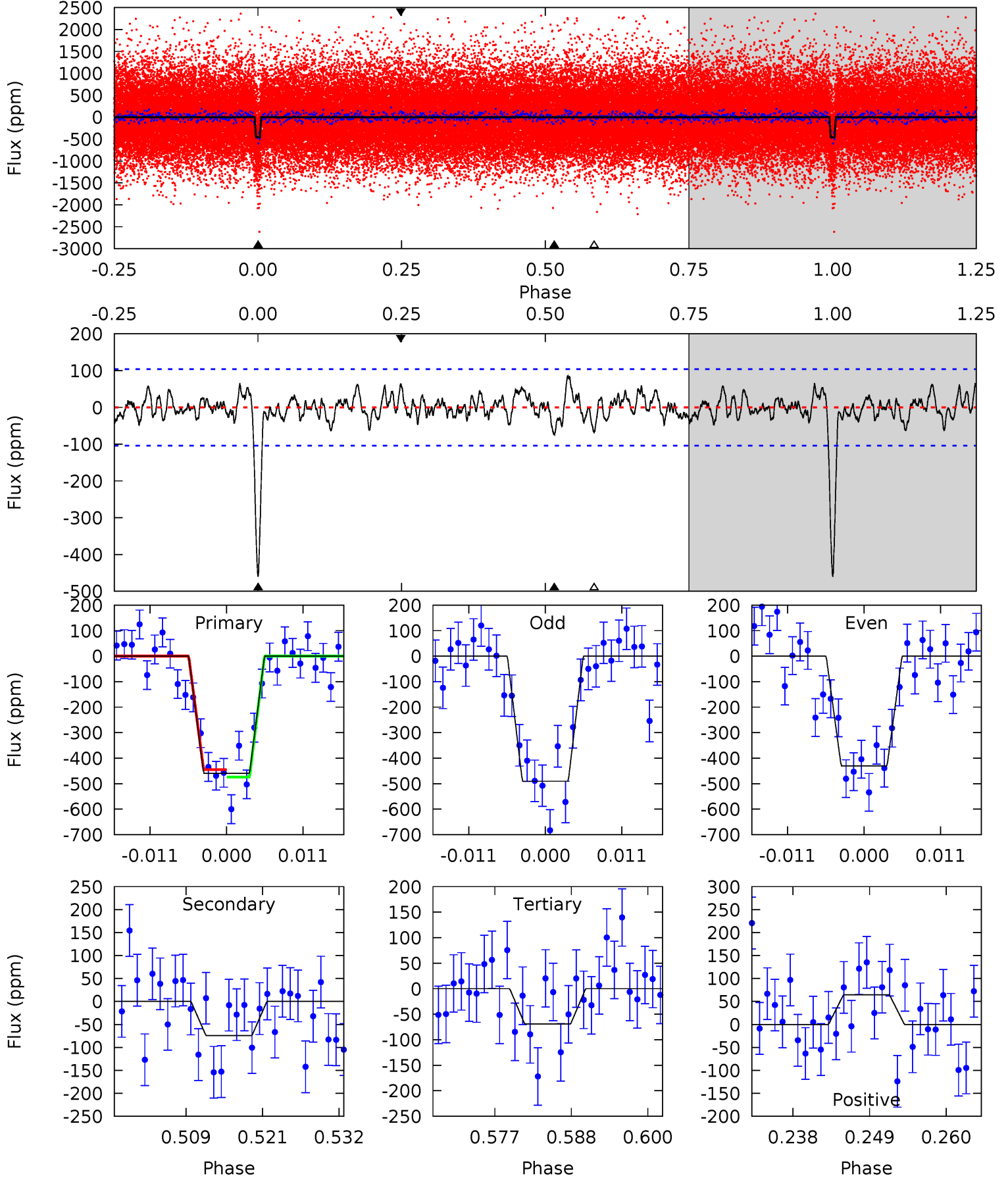
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
24.3	3.68	3.02	4.96	4.98	2.48	1.27	21.3	19.3	0.66	-1.28	1.22	1.01	0.17	0.19



# Alt Model-Shift Uniqueness Test

002574338-01, P = 9.229531 Days, E = 129.217499 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
22.1	3.58	3.33	3.11	5.00	2.53	1.24	18.8	19.0	0.25	0.47	1.44	1.00	0.16	0.69



### Stellar Parameters For KIC 002574338

	$T_{\text{eff}}(K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R$ ( $R_{\odot}$ )	$M$ ( $M_{\odot}$ )	$p_{\star}$ ( $\text{g}\cdot\text{cm}^{-3}$ )
	$6320^{+75}_{-88}$	$4.347^{+0.032}_{-0.120}$	$0.240^{+0.150}_{-0.200}$	$1.252^{+0.212}_{-0.085}$	$1.273^{+0.077}_{-0.085}$	$0.914^{+0.141}_{-0.319}$
	+1%/-1%	+1%/-3%	+62%/-83%	+17%/-7%	+6%/-7%	+15%/-35%
Source	SPE68	SPE68	SPE68	DSEP		

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

### Secondary Eclipse Parameters for KIC 002574338-01 / KOI 1030.01

Detrend	Depth (ppm)	$R_p$ ( $R_{\oplus}$ )	$T_{\text{max}}$ (K)	$T_{\text{obs}}$ (K)	$A_{\text{obs}}$
DV	$-71 \pm 19$	$3.25^{+0.74}_{-0.68}$	$1442^{+63}_{-35}$	$4113^{+412}_{-367}$	$33^{+22}_{-14}$
Alt.	$-74 \pm 21$	$3.04^{+0.72}_{-0.74}$	$1441^{+62}_{-36}$	$4224^{+525}_{-390}$	$38^{+30}_{-16}$

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



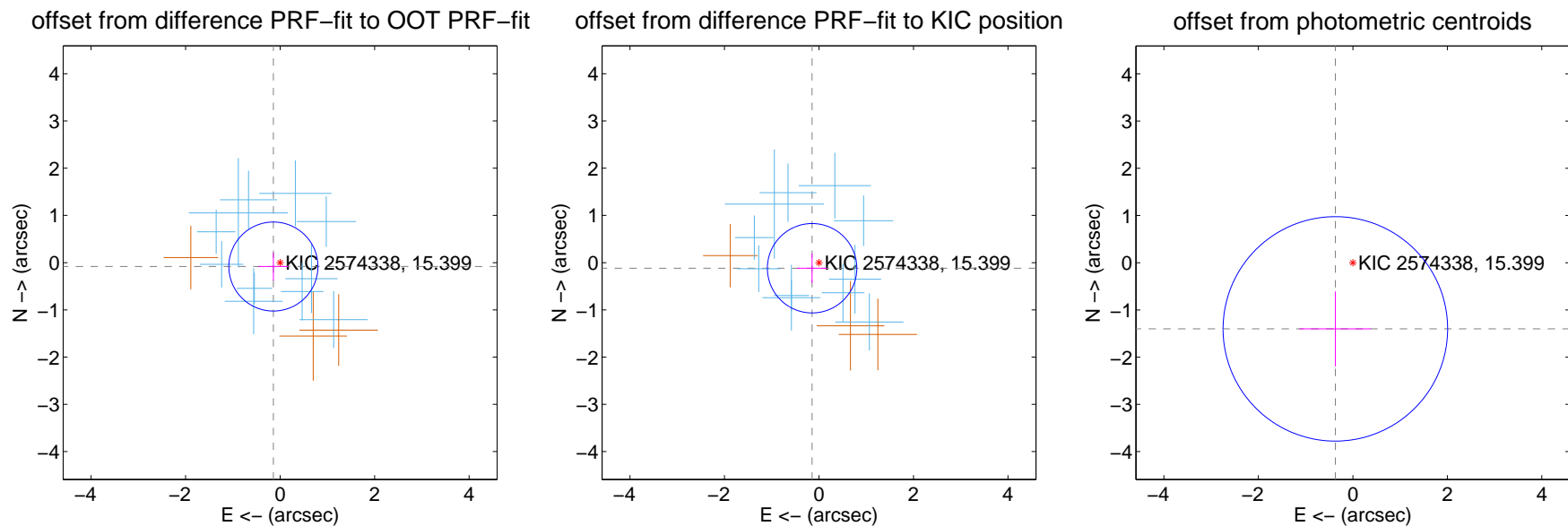
## DV Centroid Data

Supplemental centroid analysis for 002574338-01. Kepler magnitude: 15.40. Transit SNR 17.86

There are 11 quarters with good PRF difference image offsets

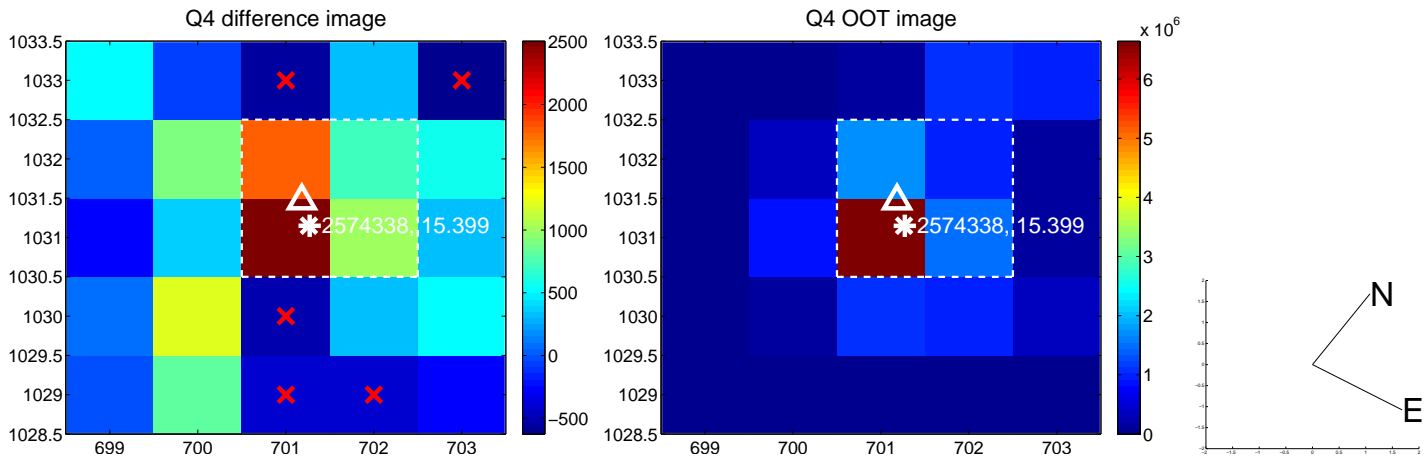
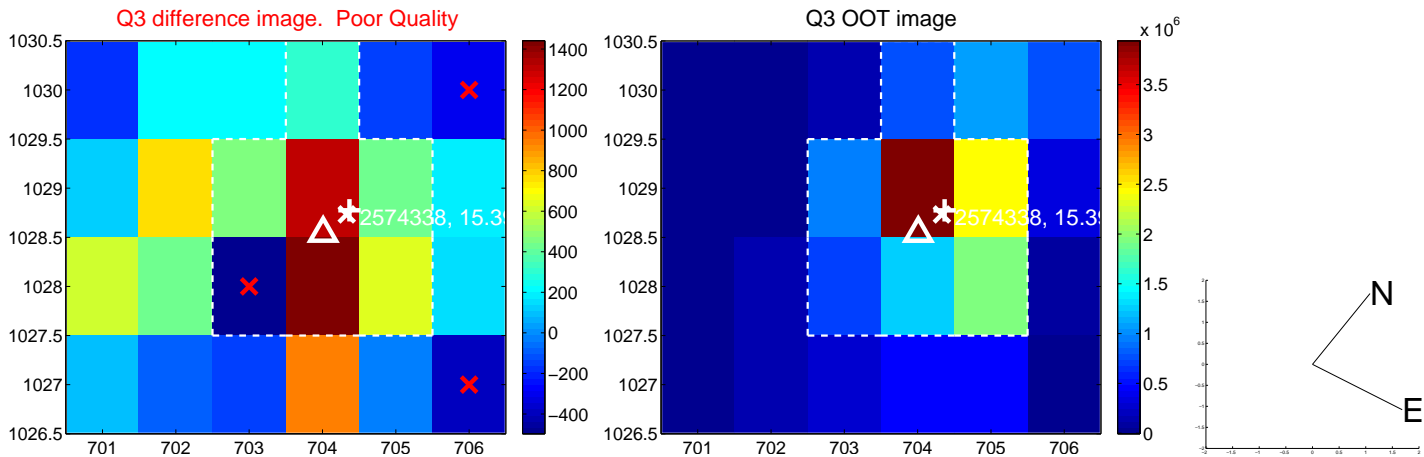
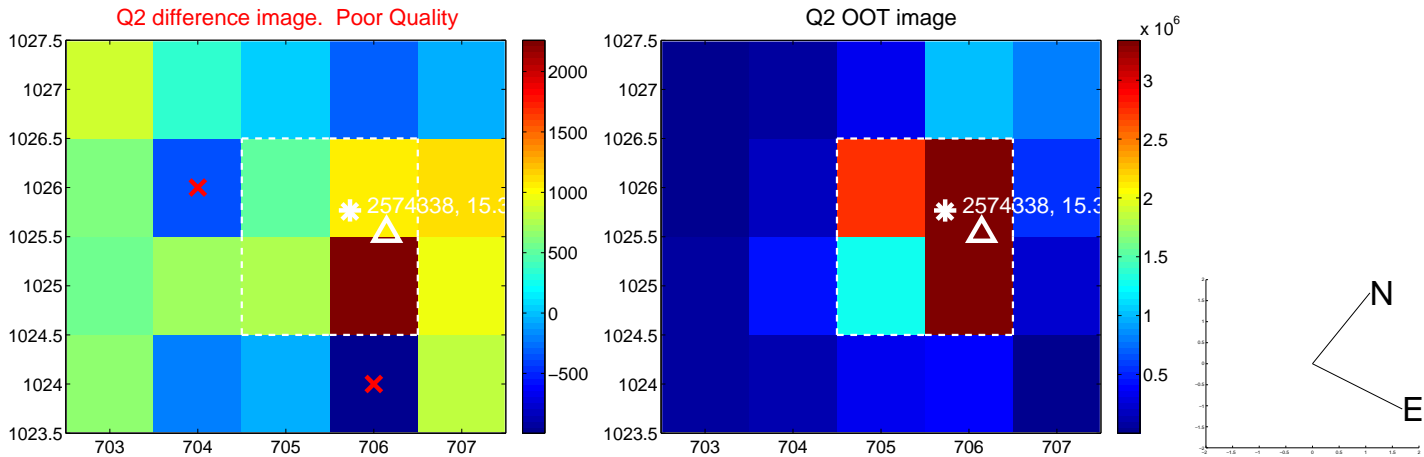
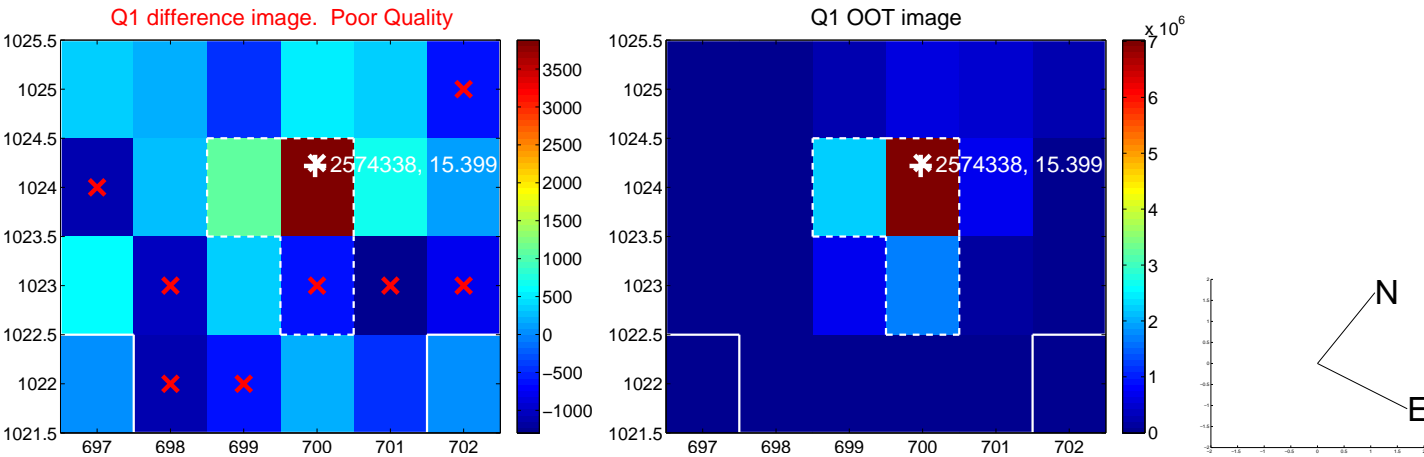
The direct PRF centroid is offset from the target star catalog position by about 0.09 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$0.164 \pm 0.314$	0.52	$0.142 \pm 0.320$	$-0.082 \pm 0.297$
PRF-fit source offset from KIC position	$0.188 \pm 0.315$	0.60	$0.146 \pm 0.318$	$-0.118 \pm 0.312$
photometric centroid source offset	$1.45 \pm 0.79$	1.83	$0.37 \pm 0.76$	$-1.40 \pm 0.79$

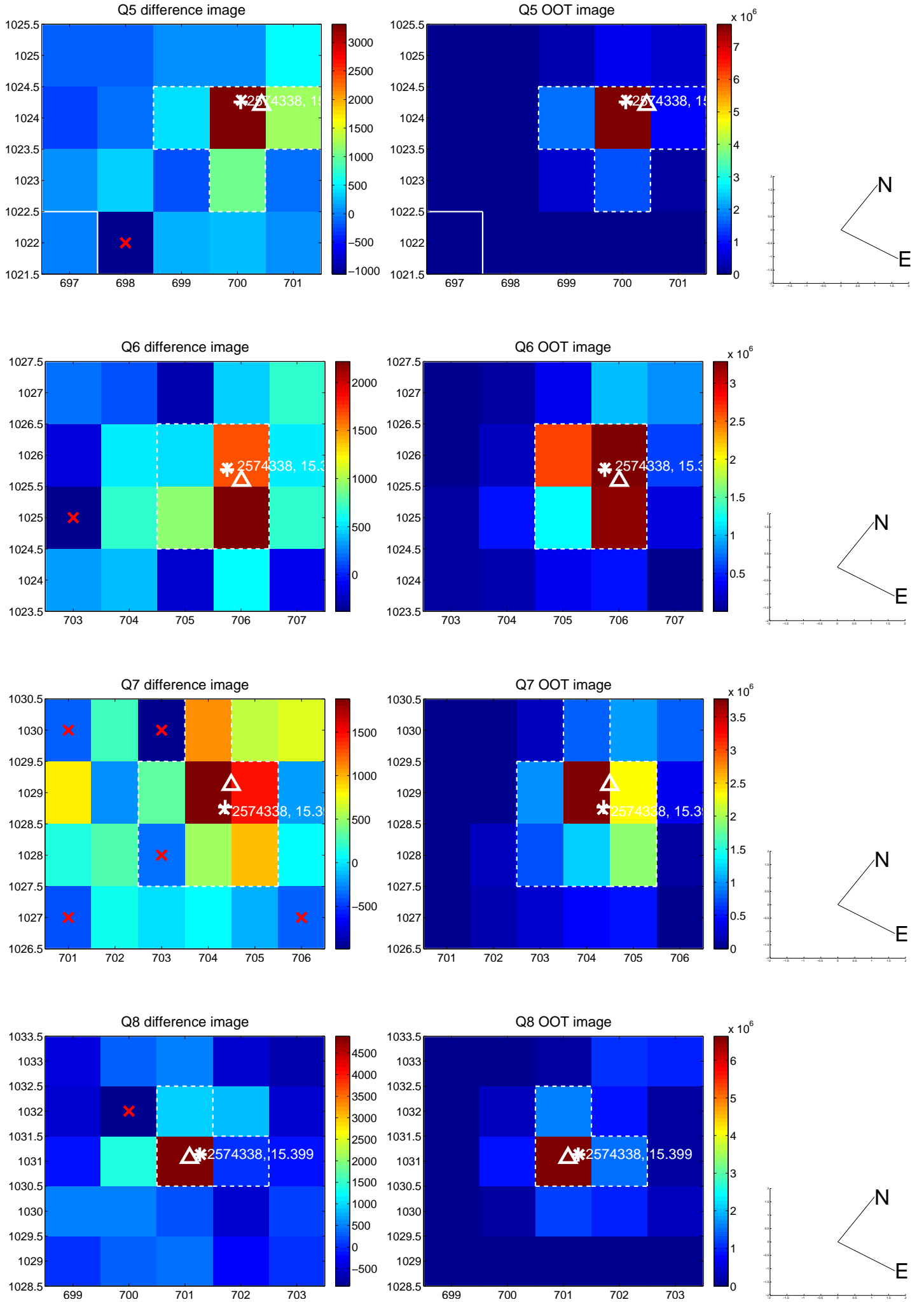


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses:** good quarterly centroid offsets; **Vermillion crosses:** bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: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

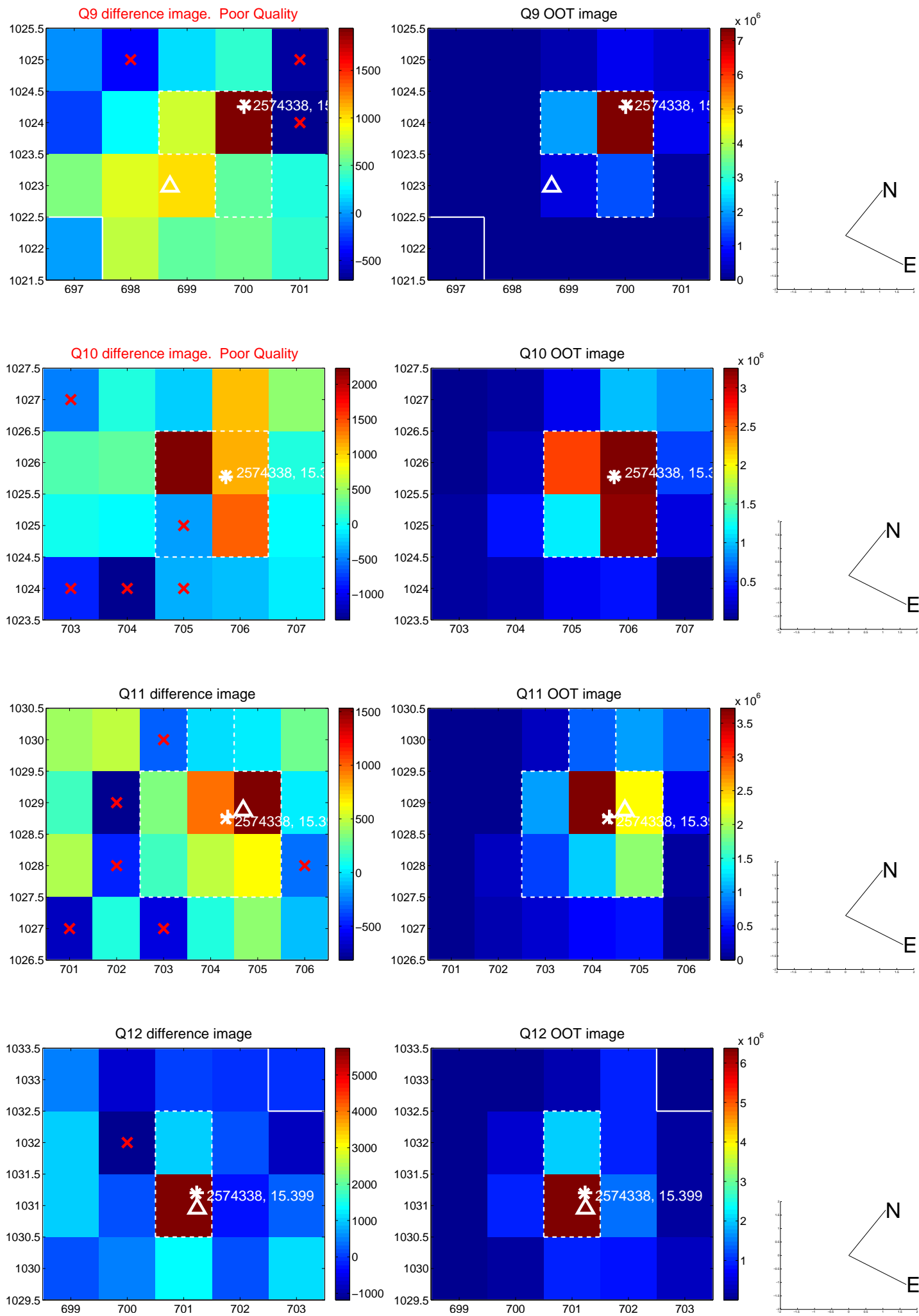
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



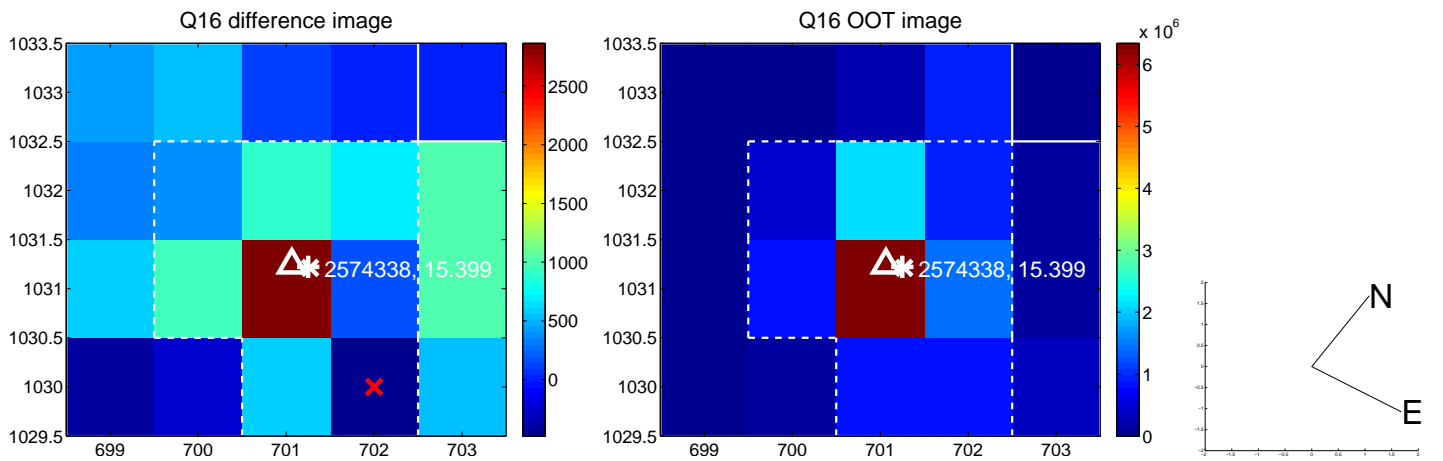
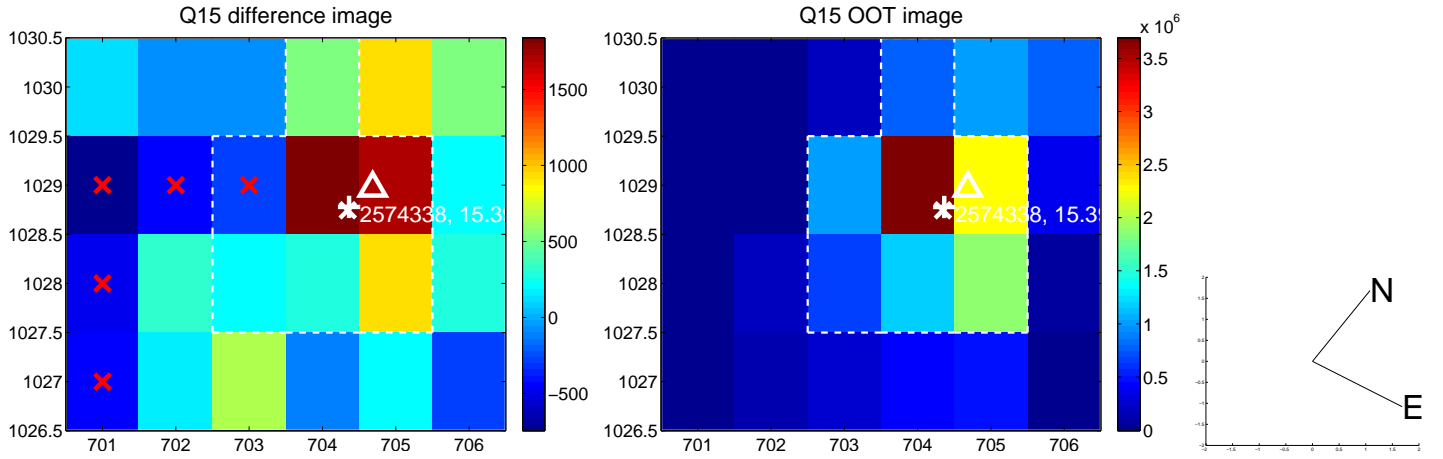
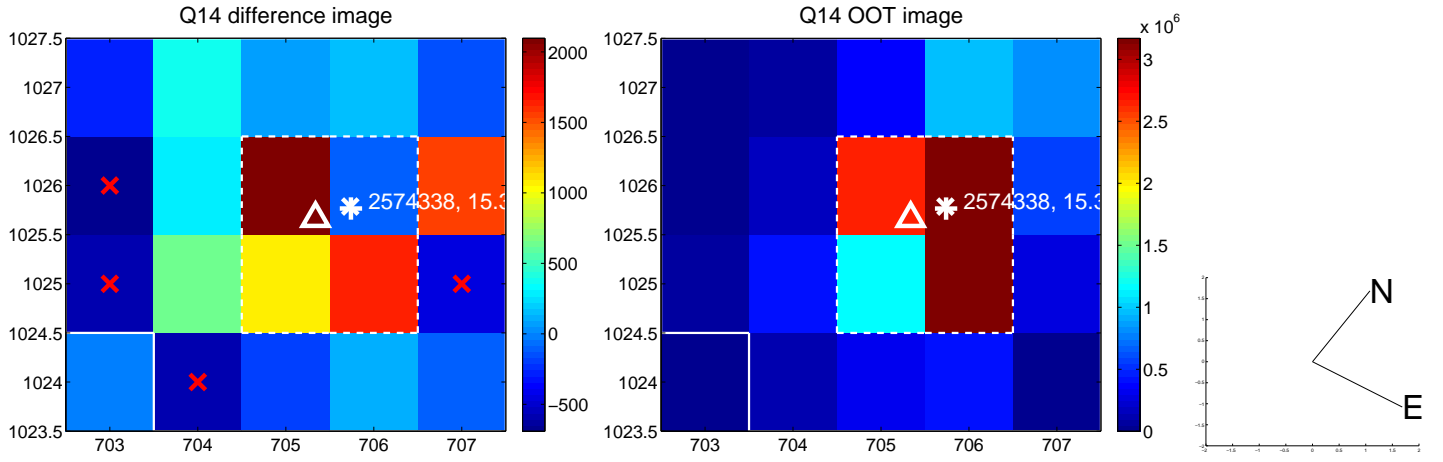
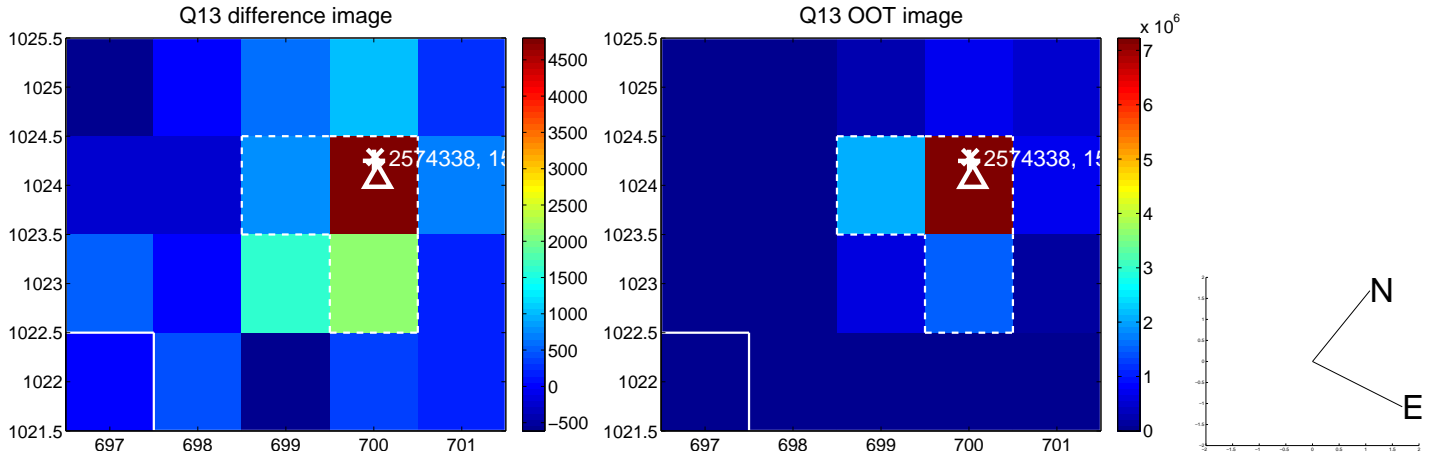
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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

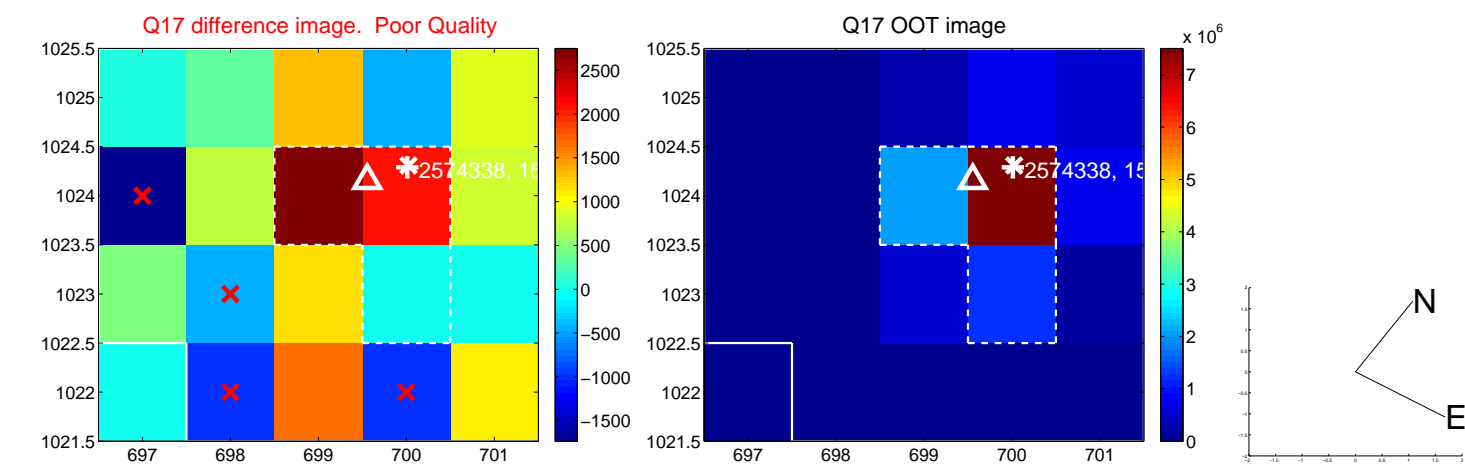


white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.

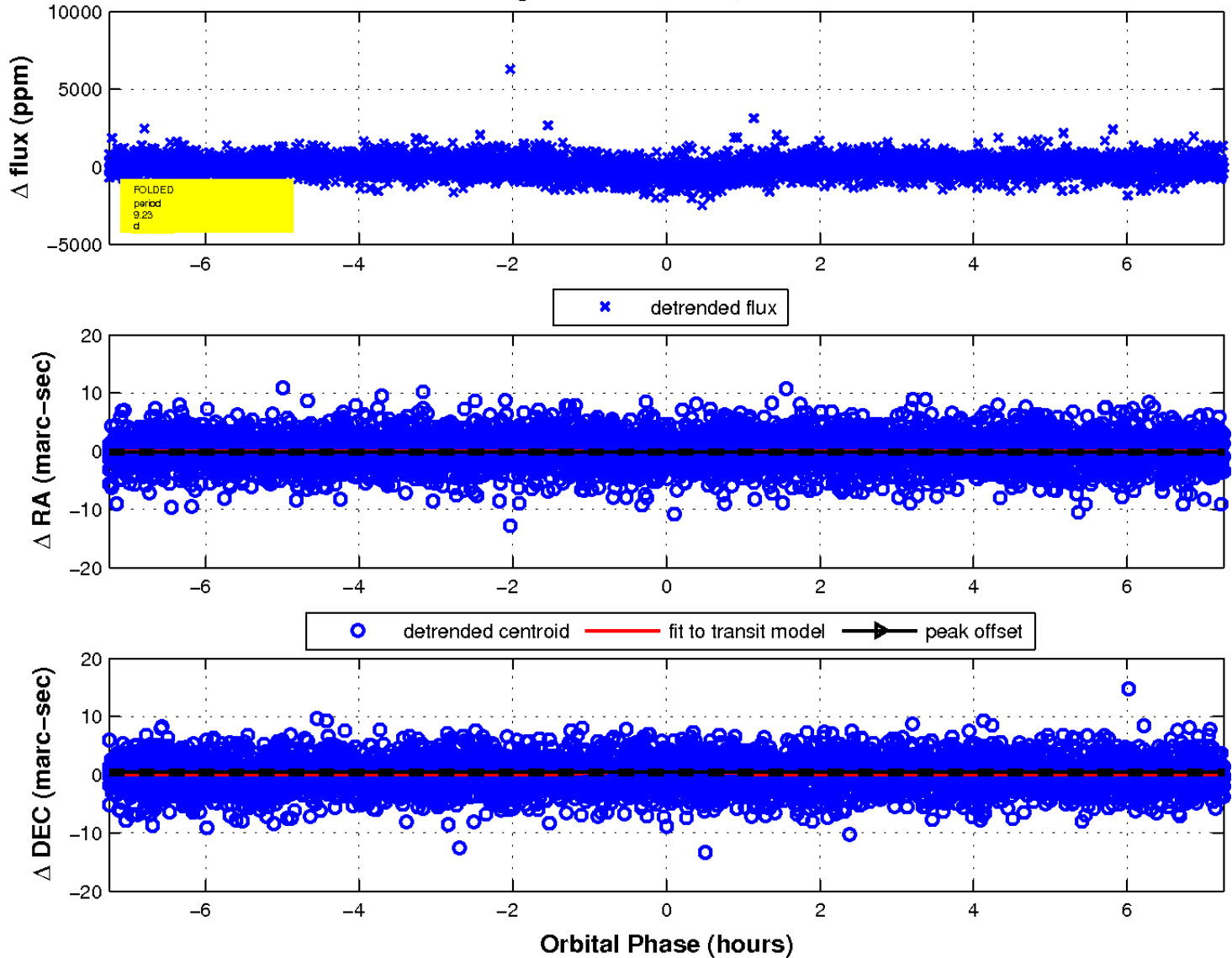




white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



fluxWeightedCentroids, Planet 1 of 1



UKIRT Image

Declination

