

# KIC 003324986

## Q1-17 DR25 TCE Parameters

TCE	Run Type	KOI?	Period (Days)	Epoch (BKJD)	Depth (ppm)	Duration (Hours)	MES	SNR	R <sub>★</sub> (R <sub>☉</sub> )	T <sub>★</sub> (K)	R <sub>p</sub> (R <sub>⊕</sub> )	S <sub>p</sub> (S <sub>⊕</sub> )
003324986-01	OBS	3084.01	1.540422	131.990052	117.5	1.680	10.7	13.2	0.81	5769	1.04	1034.70

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
003324986-01	OBS	FP	0.00	0	0	1	1	CENT_UNRESOLVED_OFFSET—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.

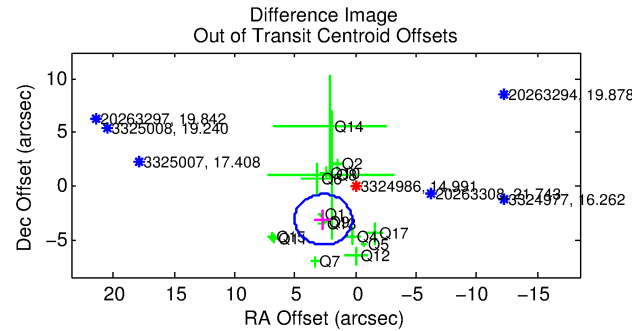
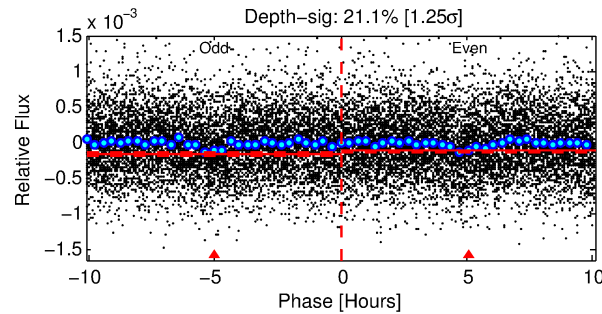
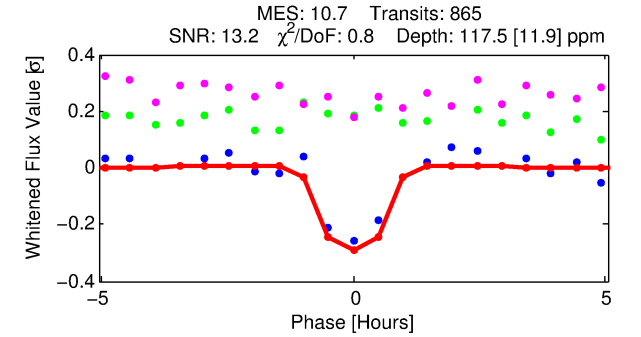
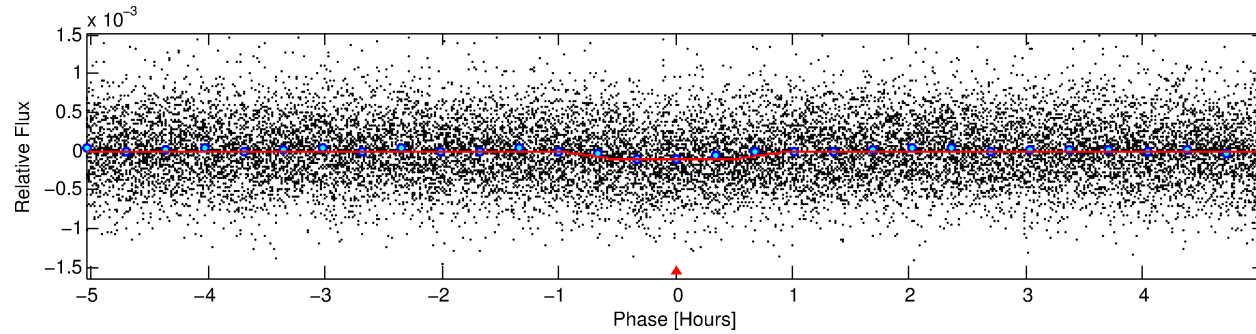
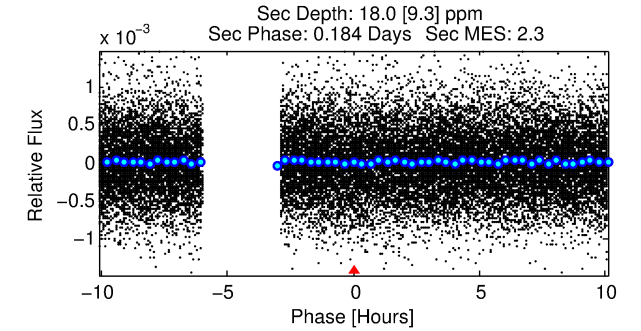
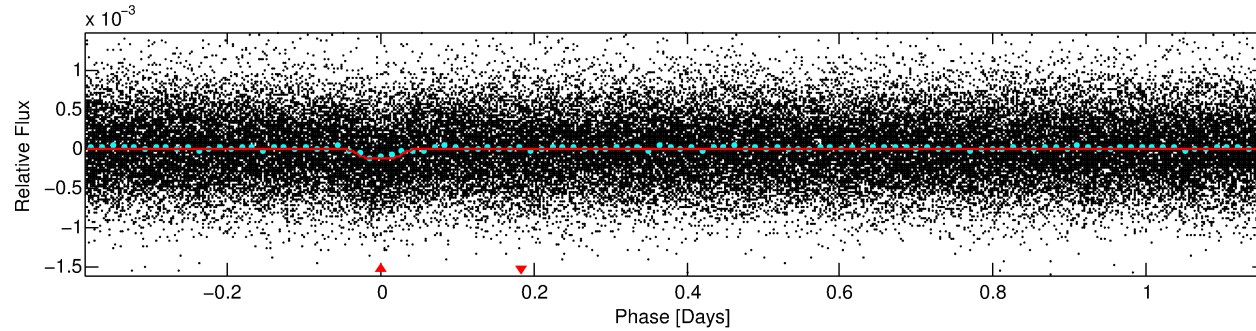
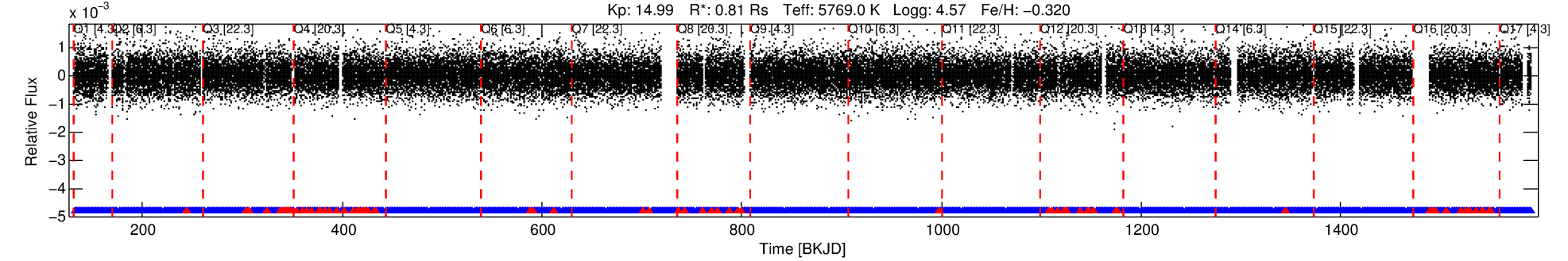
## Ephemeris Match Information For 003324986-01

TCE (1)	KIC	Parent (2)	Parent KIC	P <sub>1</sub> :P <sub>2</sub>	Dist (″)	ΔRow	ΔCol	m <sub>2</sub>	m <sub>1</sub>	D <sub>2</sub> /D <sub>1</sub>	Mechanism	Flag	σ <sub>P</sub>	σ <sub>T</sub>
003324986-01	3324986	807.01	3836375	1:1	3150.4	-302	1	15.97	14.99	10.91	Col-Anomaly	1	1.31	0.35

**Notes:** P<sub>1</sub>:P<sub>2</sub> is the period ratio. Dist is the distance in arcseconds. ΔRow and ΔCol are the number of pixels apart in row and column. m<sub>2</sub> and m<sub>1</sub> are the magnitudes of the parent and child. D<sub>2</sub>/D<sub>1</sub> is the parent's transit depth divided by the child's. σ<sub>P</sub> and σ<sub>T</sub> are the significance of the match in period and epoch. For a match to be considered significant σ<sub>P</sub> < 5.0 and σ<sub>T</sub> < 5.0. Matches which have σ<sub>P</sub> and σ<sub>T</sub> very close to this cutoff should receive extra scrutiny, especially if the period ratio is very large.

# DV One-Page Summary

KIC: 3324986 Candidate: 1 of 1 Period: 1.540 d  
KOI: K03084.01 Corr: 0.958



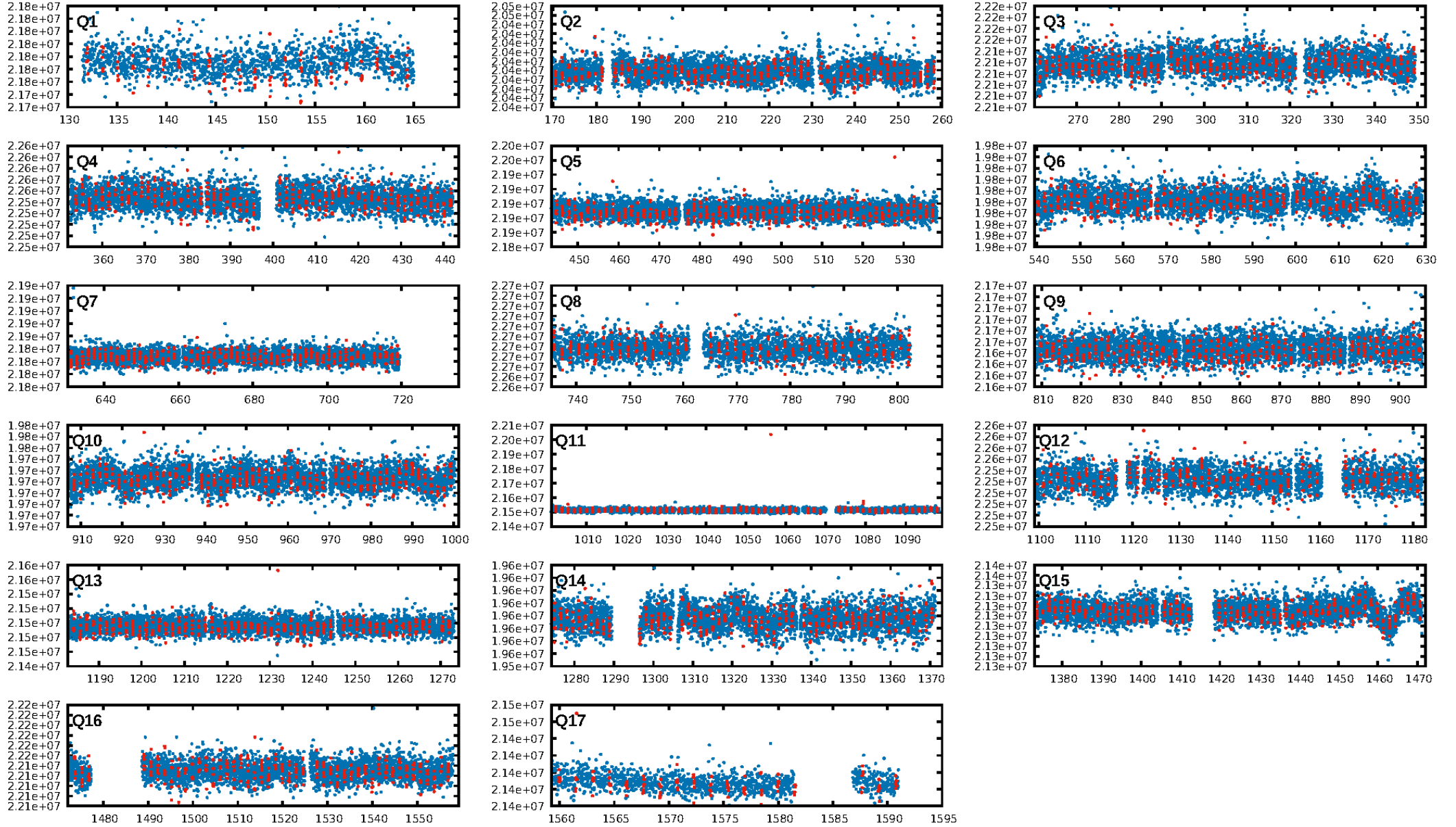
## DV Fit Results:

Period = 1.54042 [0.00001] d  
Epoch = 131.9901 [0.0020] BKJD  
Rp/R\* = 0.0118 [0.0067]  
a/R\* = 3.41 [8.86]  
b = 0.90 [0.63]  
Seff = 1034.70 [358.46]  
Teff = 1446 [125] K  
Rp = 1.04 [0.66] Re  
a = 0.0251 [0.0056] AU  
Ag = 5.79 [7.51] [0.64σ]  
Teffp = 3468 [1095] K [1.83σ]

## DV Diagnostic Results:

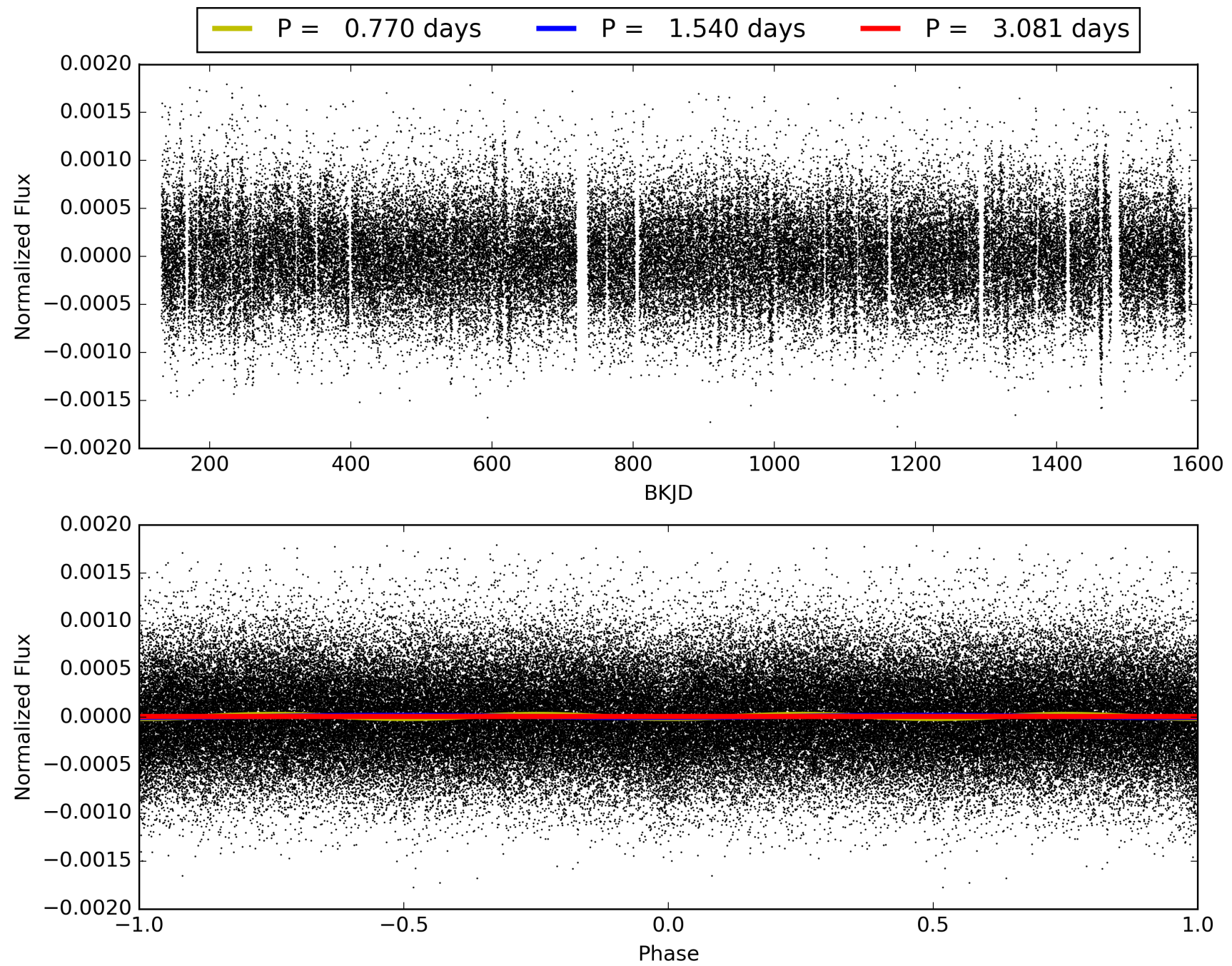
ShortPeriod-sig: N/A  
LongPeriod-sig: N/A  
ModelChiSquare2-sig: N/A  
ModelChiSquareGof-sig: N/A  
Bootstrap-pfa: 7.22e-27  
RollingBand-fgt: 0.91 [754/825]  
GhostDiagnostic-chr: 21.86  
Centroid-sig: 84.3%  
Centroid-so: 0.951 arcsec [0.89σ]  
OotOffset-rm: 4.133 arcsec [5.23σ]  
KicOffset-rm: 4.006 arcsec [4.90σ]  
OotOffset-st: 4/3/3/5 [15]  
KicOffset-st: 4/3/3/5 [15]  
DiffImageQuality-fgm: 0.20 [3/15]  
DiffImageOverlap-fno: 1.00 [17/17]

# TCE 003324986-01, PDC Light Curves



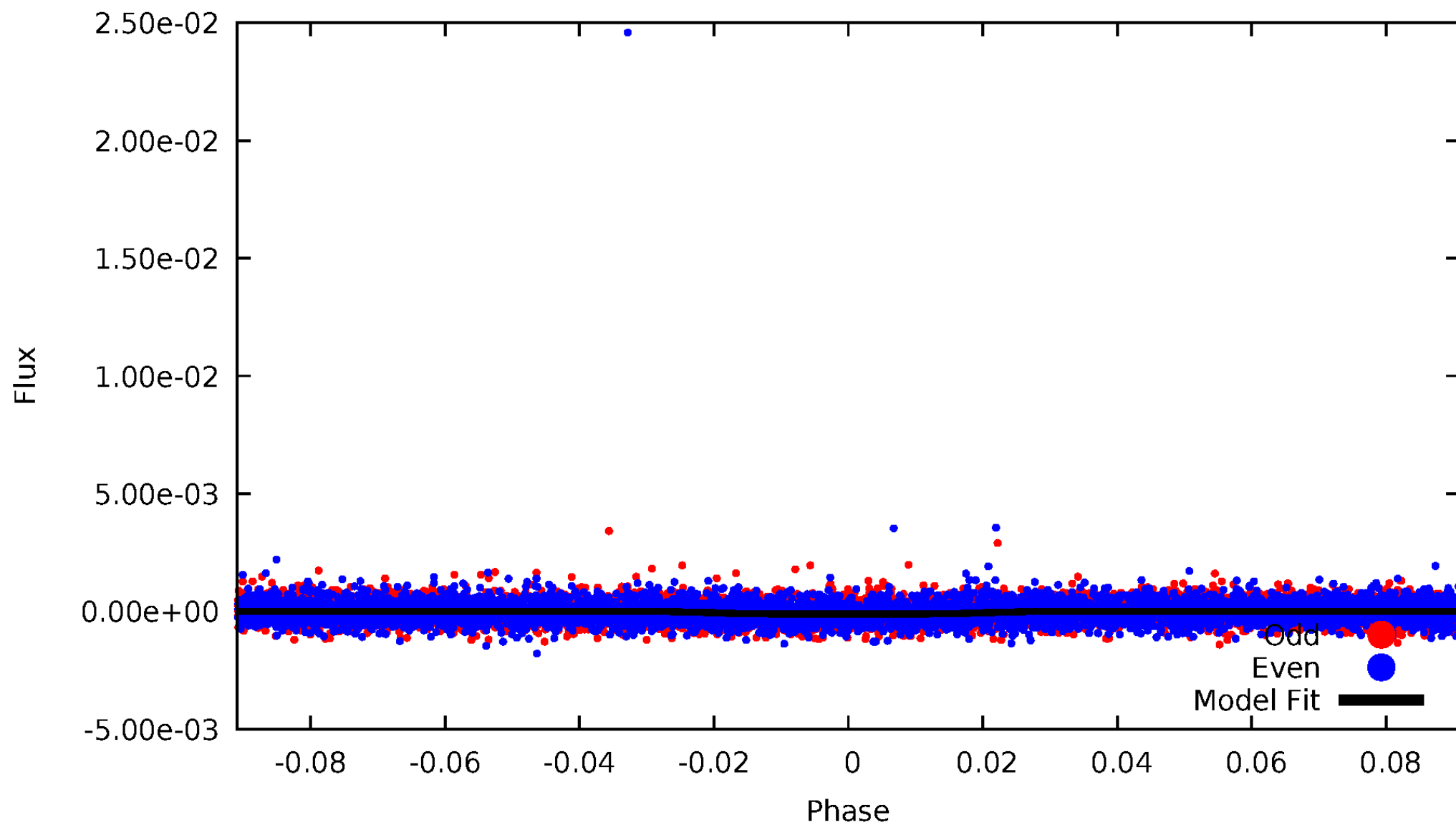


TCE 003324986-01



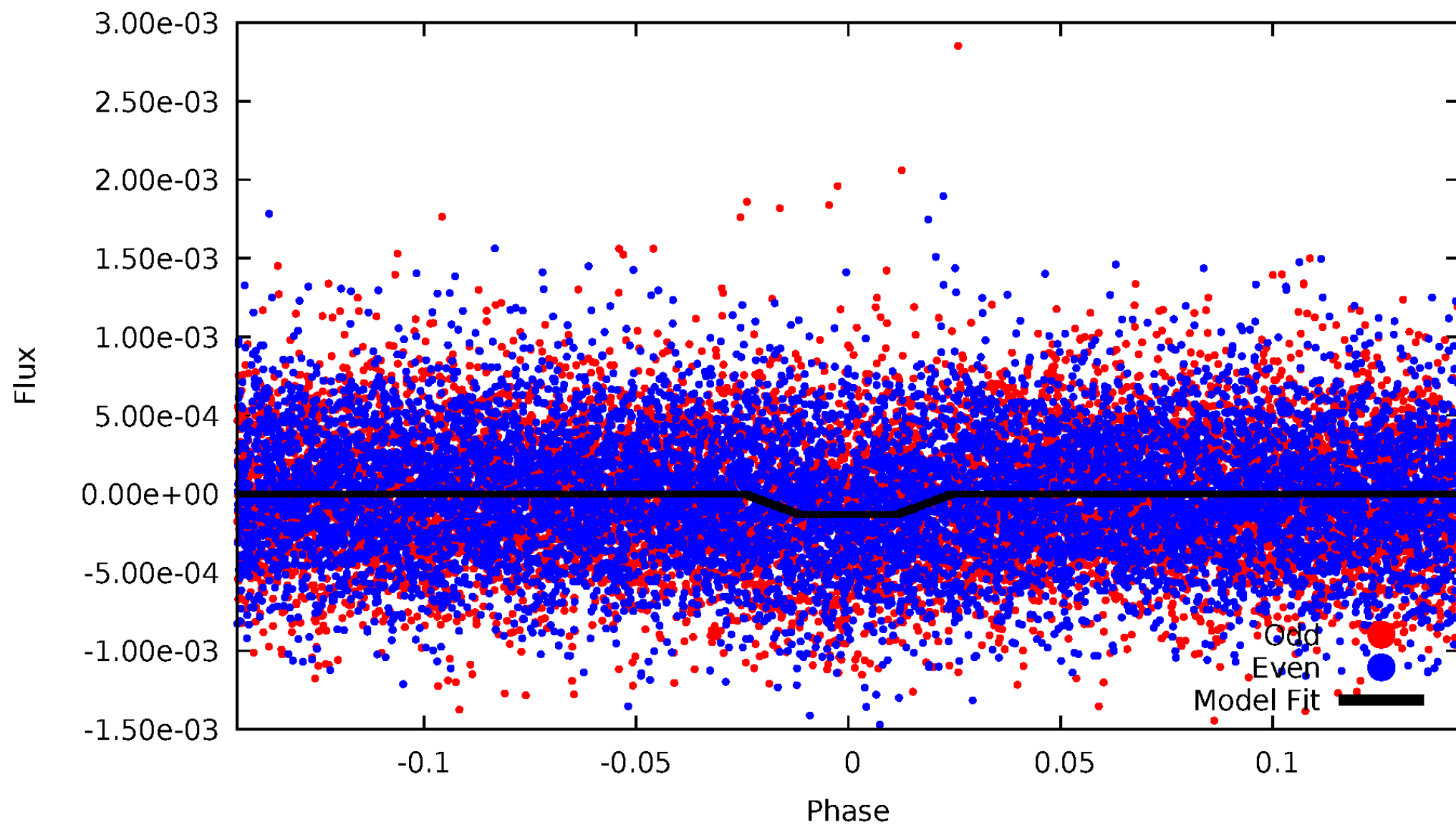
# DV Odd/Even

TCE 003324986-01



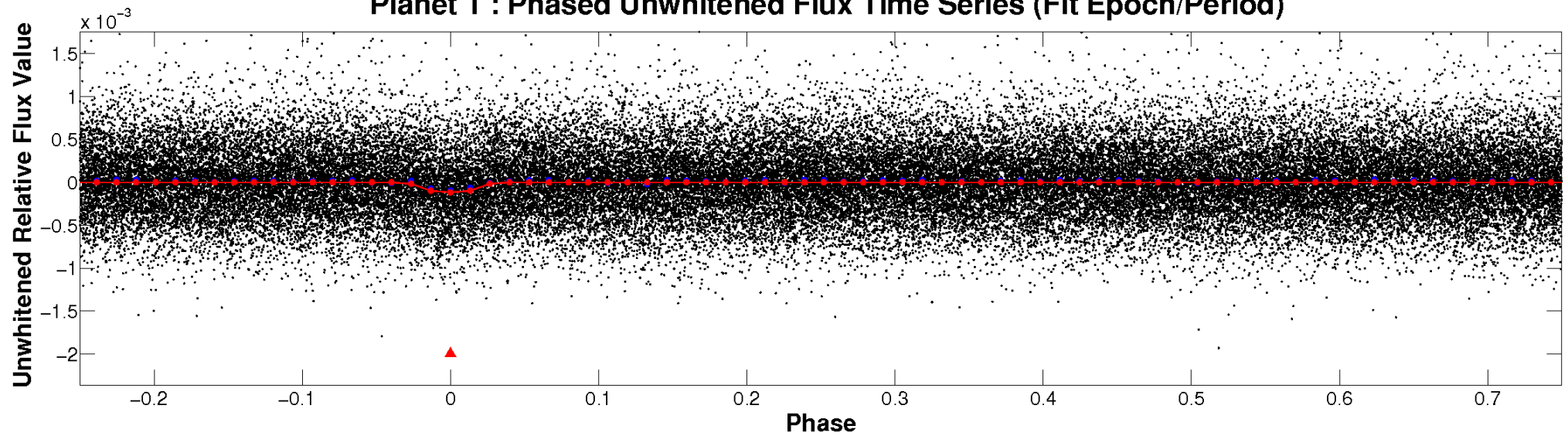
# ALT Odd/Even

TCE 003324986-01

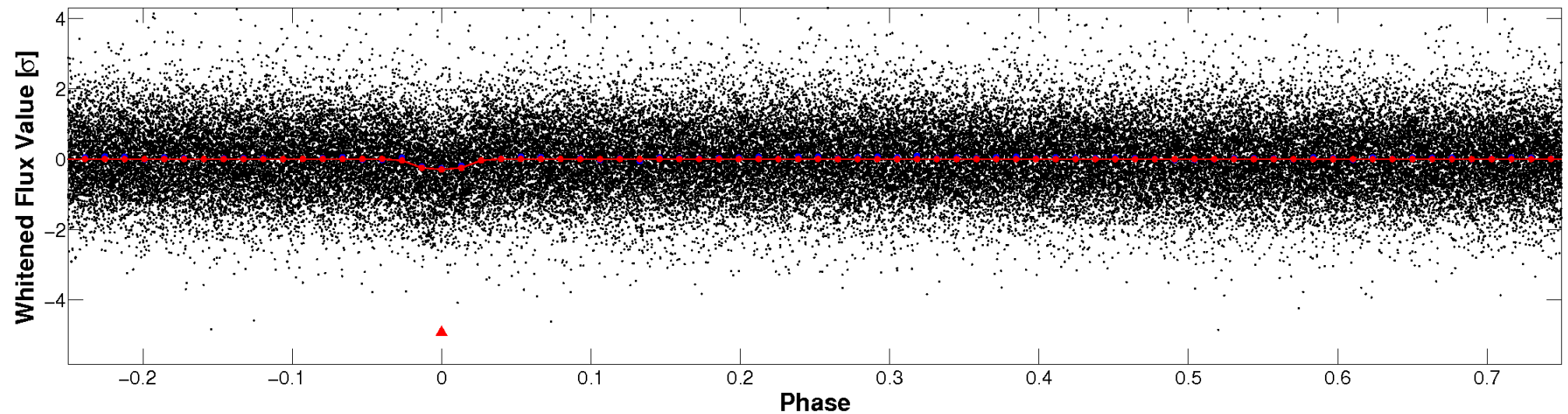


# Non-Whitened Vs. Whitened Light Curve

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



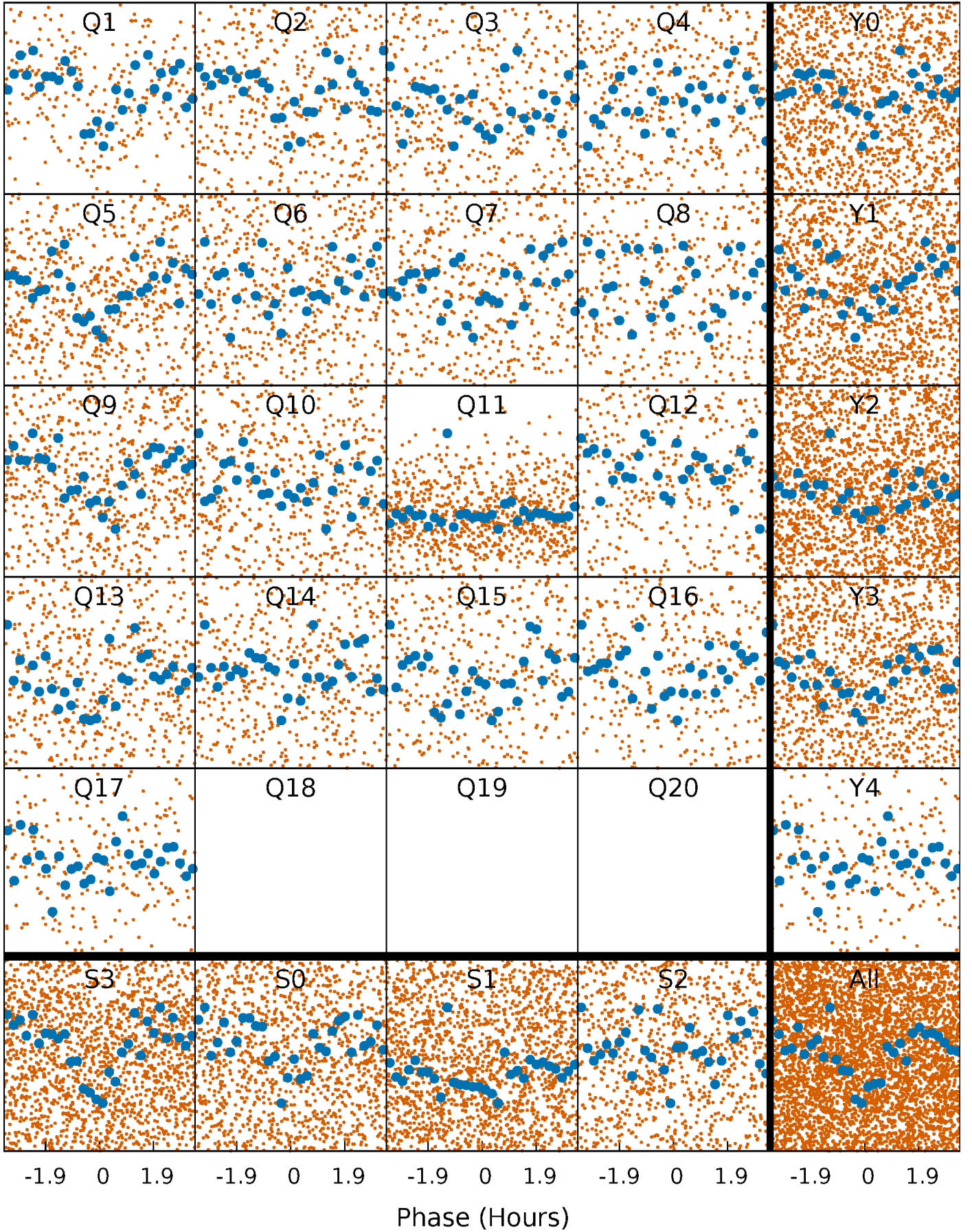
**Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)**





# PDC Quarter-Phased Transit Curves

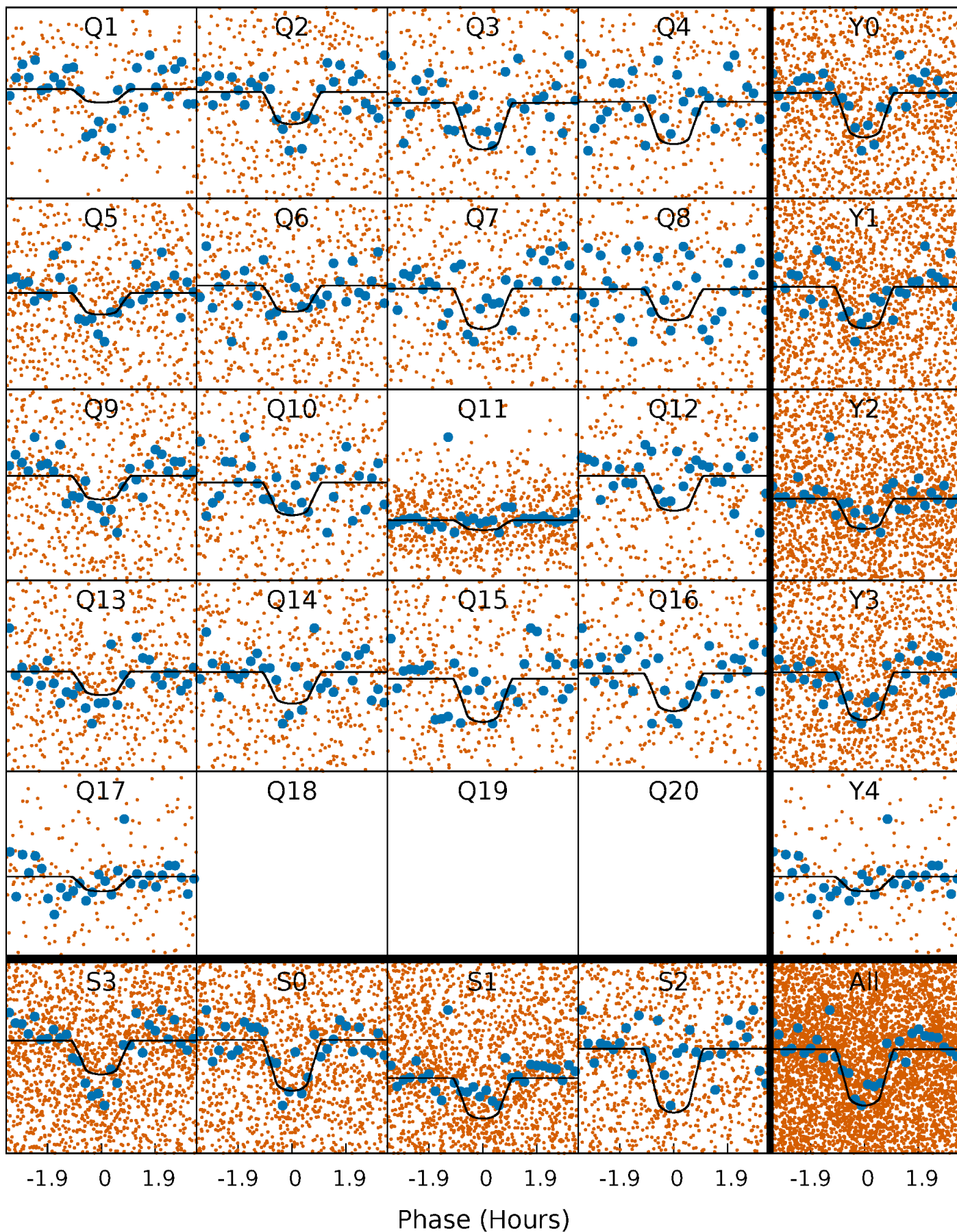
TCE 003324986-01   P= 1.540422 Days    $T_0=131.990052$  (BKJD)





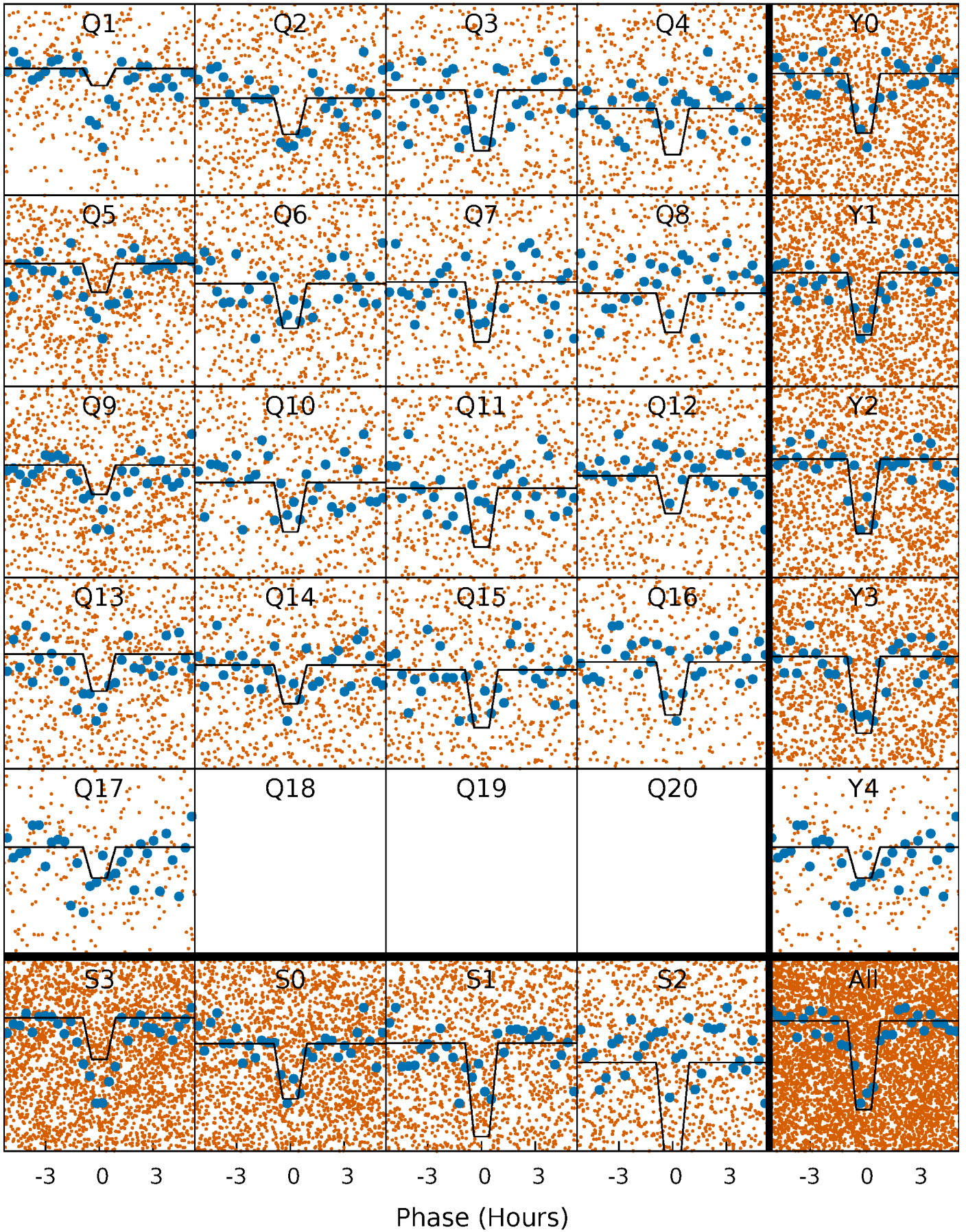
# DV Quarter-Phased Transit Curves

TCE 003324986-01 P= 1.540422 Days  $T_0=131.990052$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

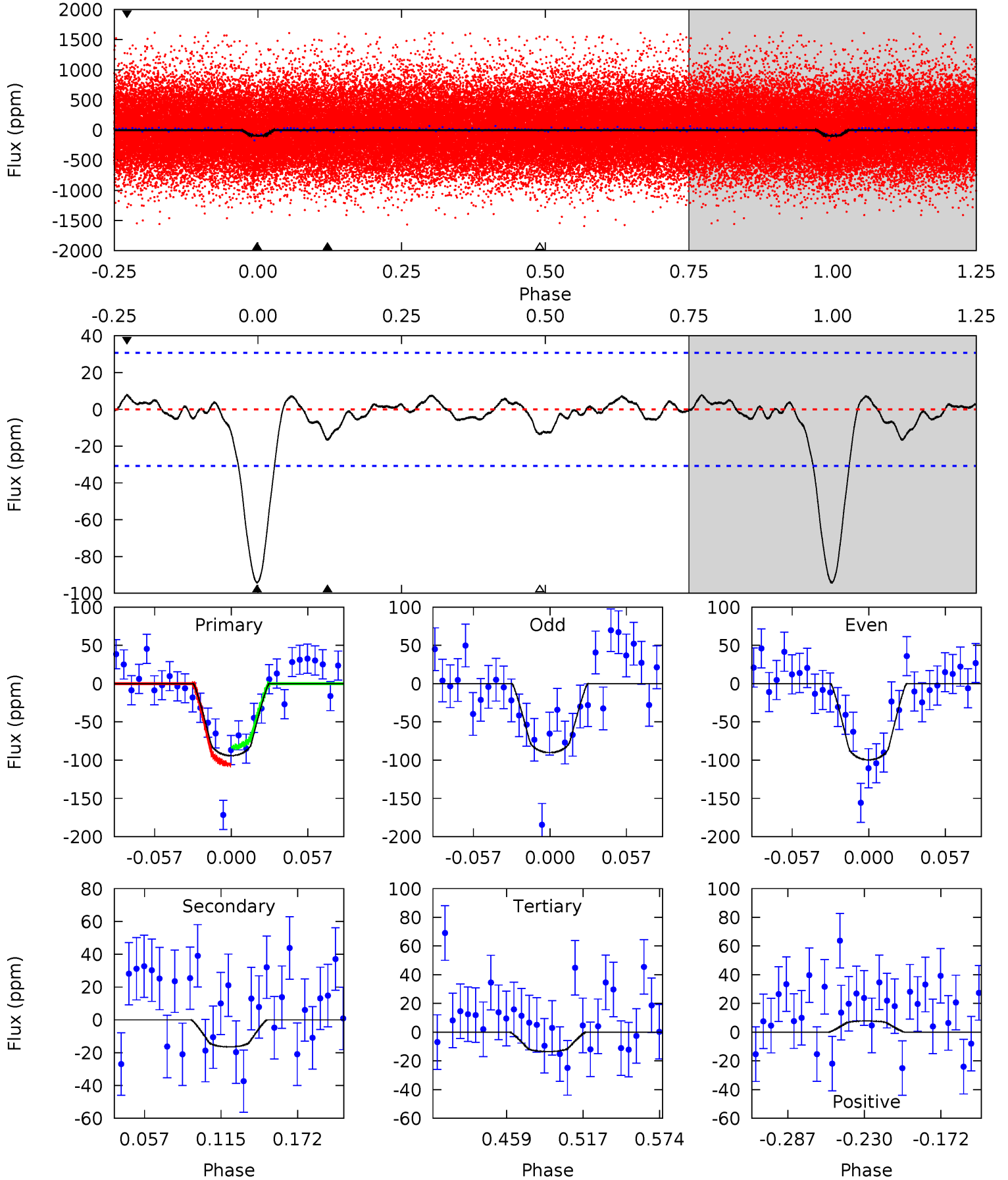
TCE 003324986-01 P= 1.540414 Days  $T_0=131.989410$  (BKJD)



# DV Model-Shift Uniqueness Test

003324986-01, P = 1.540422 Days, E = 130.449630 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
14.3	2.51	2.06	1.19	4.68	1.90	0.66	12.3	13.1	0.45	1.32	0.72	0.95	0.08	1.69

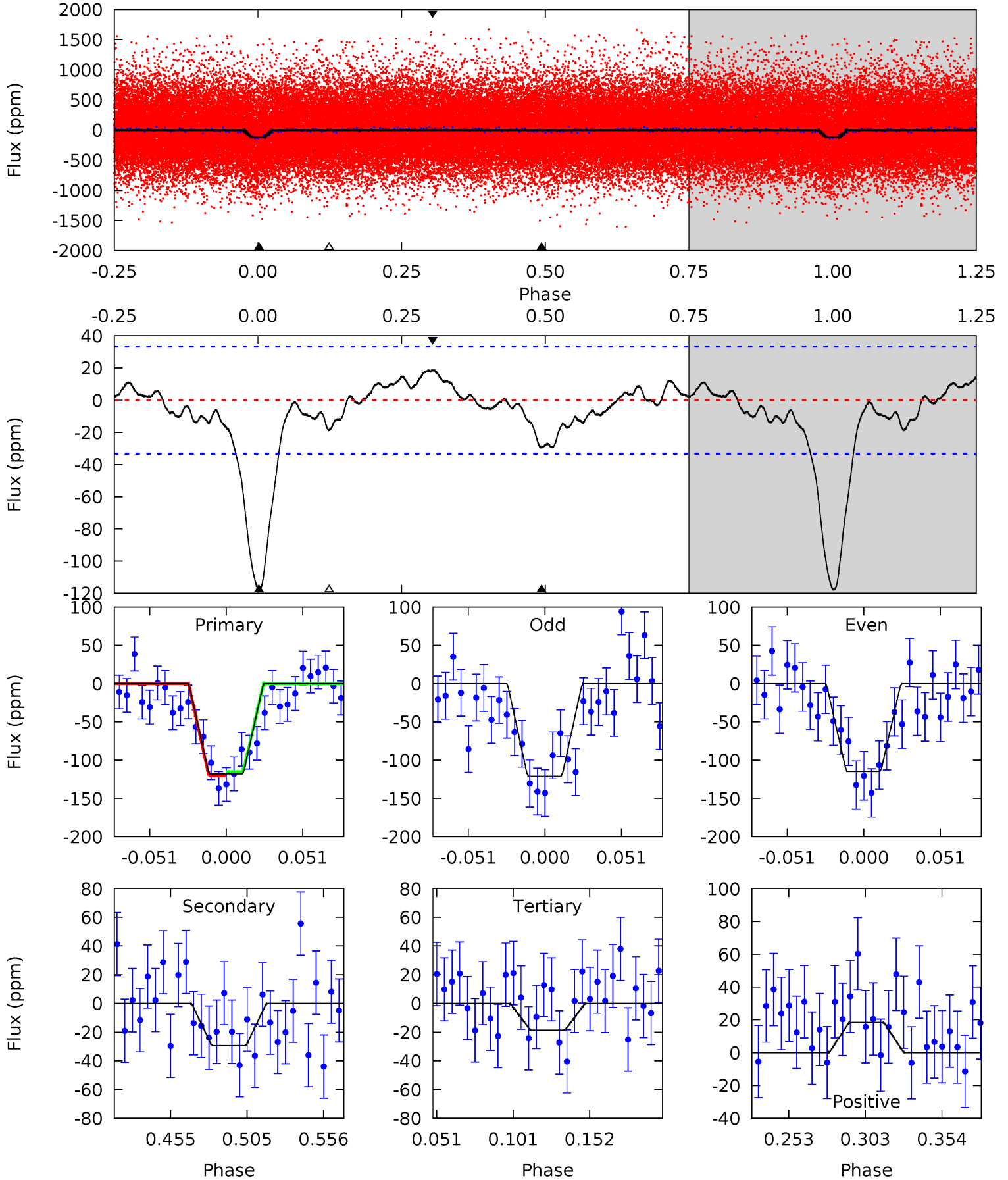




# Alt Model-Shift Uniqueness Test

003324986-01, P = 1.540414 Days, E = 130.448996 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
16.6	4.15	2.63	2.63	4.71	1.96	1.25	14.0	14.0	1.51	1.52	0.43	0.99	0.14	0.37





### Stellar Parameters For KIC 003324986

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R$ ( $R_{\odot}$ )	$M$ ( $M_{\odot}$ )	$p_{\star}$ ( $\text{g}\cdot\text{cm}^{-3}$ )
	$5769^{+155}_{-172}$	$4.570^{+0.032}_{-0.179}$	$-0.320^{+0.300}_{-0.300}$	$0.812^{+0.212}_{-0.071}$	$0.900^{+0.090}_{-0.110}$	$2.366^{+0.416}_{-1.130}$
	+3%/-3%	+1%/-4%	+94%/-94%	+26%/-9%	+10%/-12%	+18%/-48%
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 003324986-01 / KOI 3084.01

Detrend	Depth (ppm)	$R_p$ ( $R_{\oplus}$ )	$T_{\text{max}}$ (K)	$T_{\text{obs}}$ (K)	$A_{\text{obs}}$
DV	$-16 \pm 7$	$1.15^{+0.60}_{-0.57}$	$2069^{+121}_{-79}$	$3616^{+1140}_{-578}$	$3.961^{+13.057}_{-2.572}$
Alt.	$-29 \pm 7$	$1.14^{+0.63}_{-0.62}$	$2071^{+135}_{-89}$	$4034^{+1743}_{-592}$	$7.388^{+31.924}_{-4.378}$

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

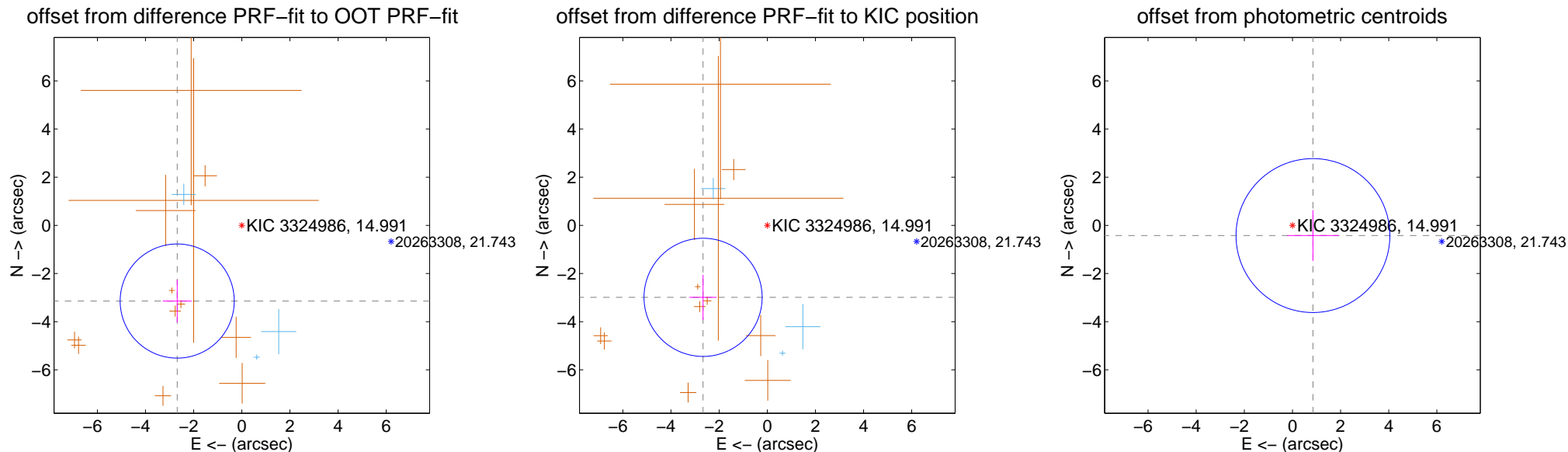
## DV Centroid Data

Supplemental centroid analysis for 003324986-01. Kepler magnitude: 14.99. Transit SNR 13.20

There are 3 quarters with good PRF difference image offsets

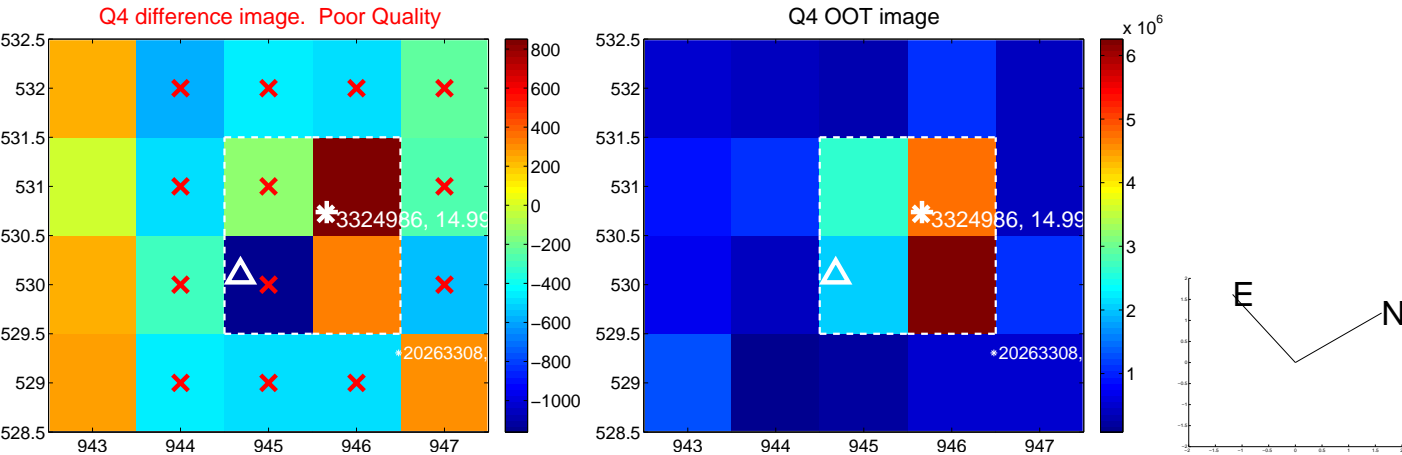
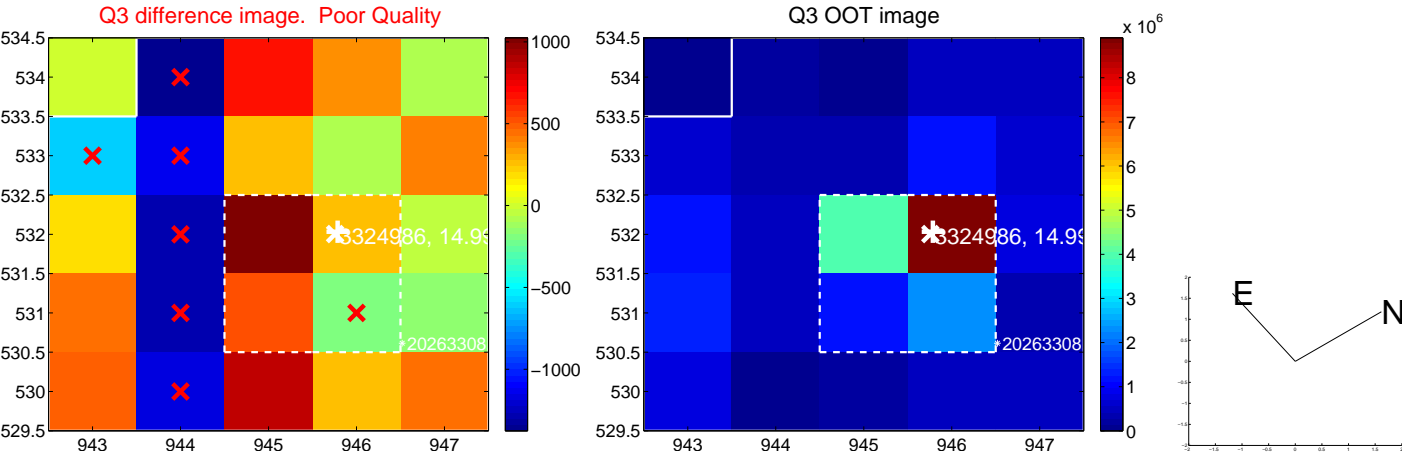
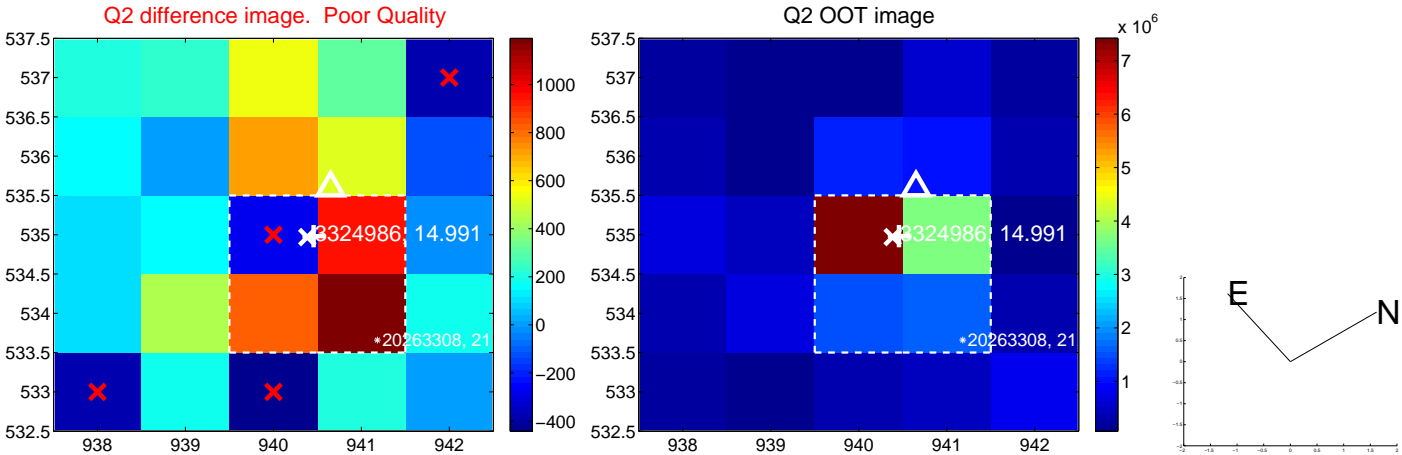
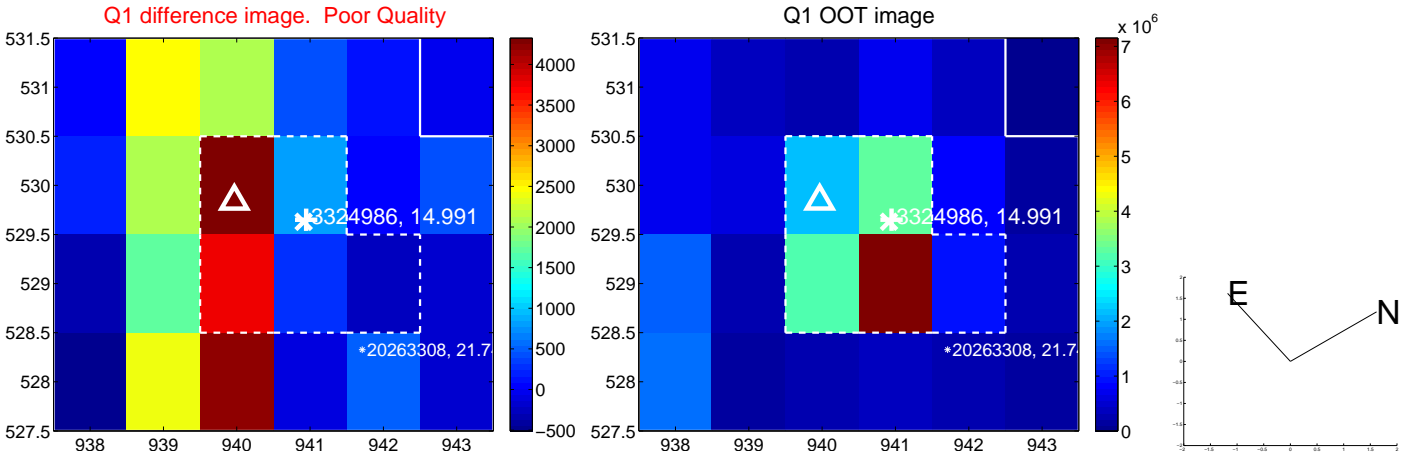
The direct PRF centroid is offset from the target star catalog position by about 0.21 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$4.133 \pm 0.790$	5.23	$2.683 \pm 0.598$	$-3.143 \pm 0.884$
PRF-fit source offset from KIC position	$4.006 \pm 0.818$	4.90	$2.667 \pm 0.565$	$-2.990 \pm 0.933$
photometric centroid source offset	$0.95 \pm 1.07$	0.89	$-0.85 \pm 1.07$	$-0.42 \pm 1.06$

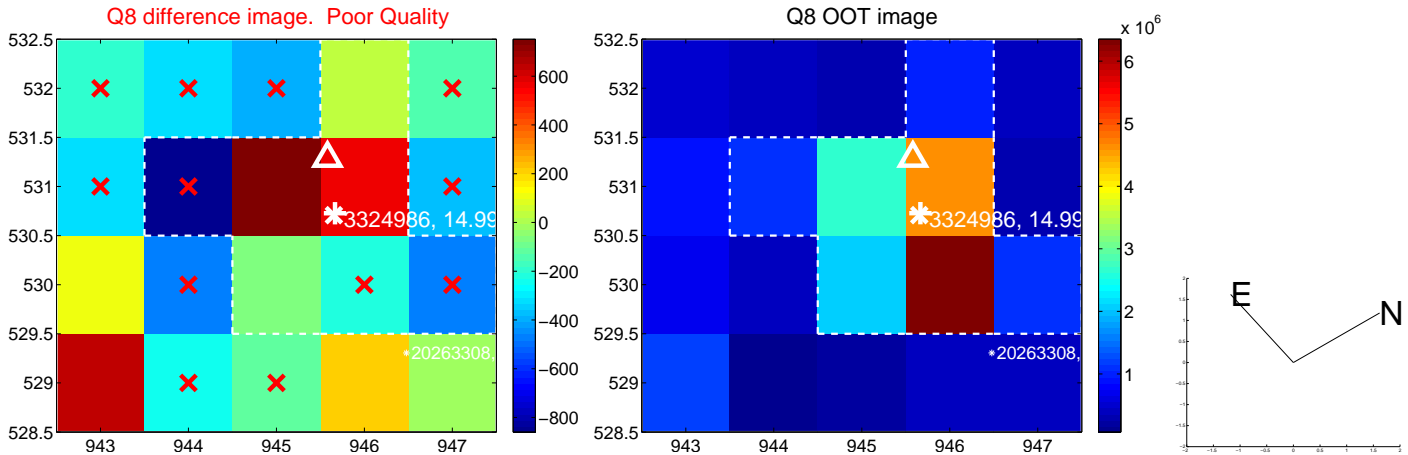
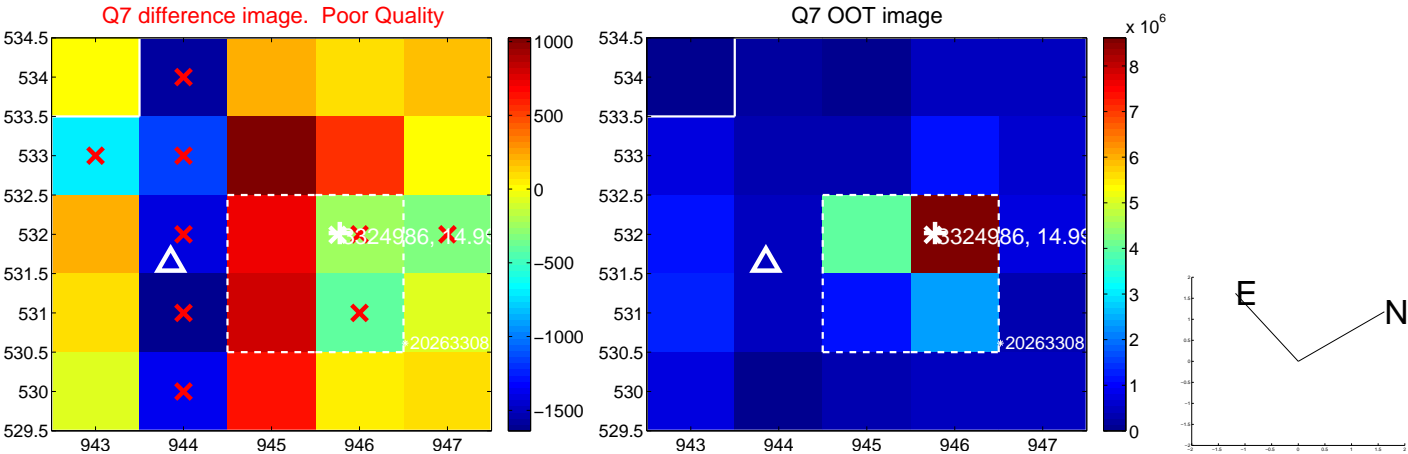
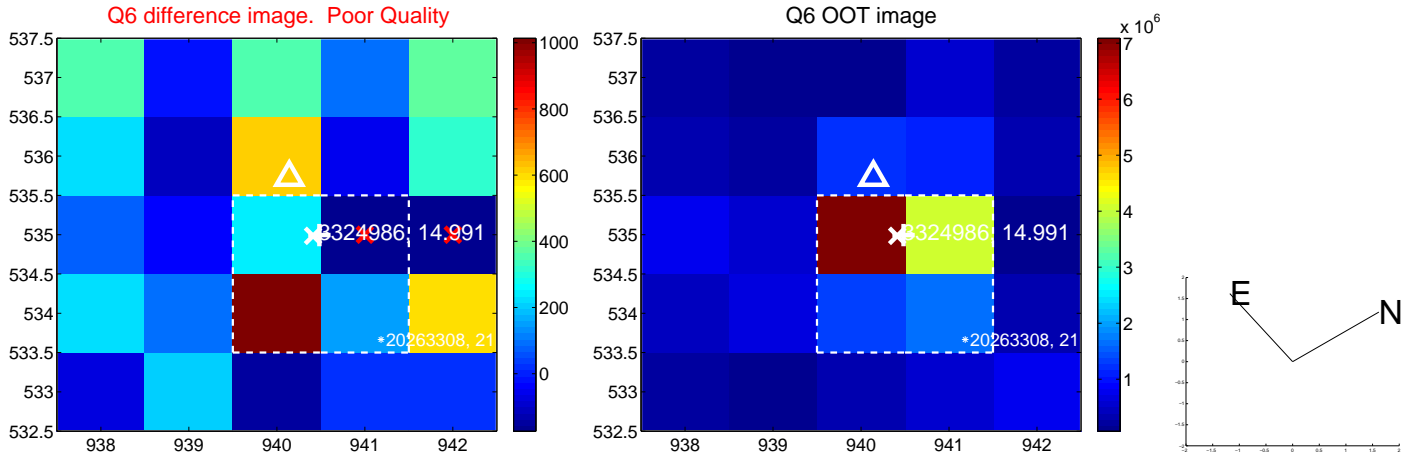
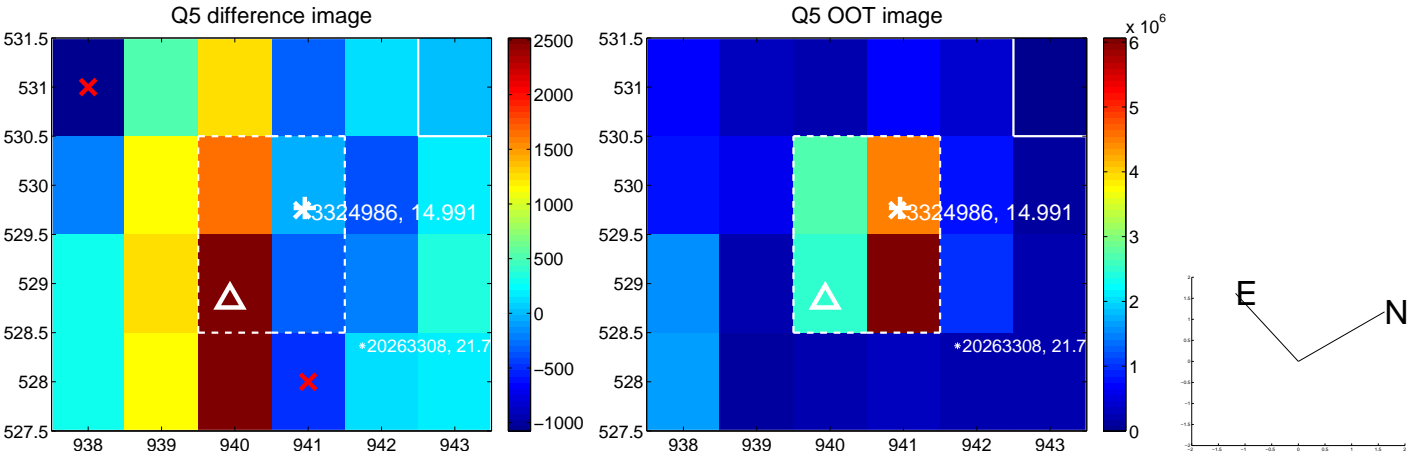


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: three-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

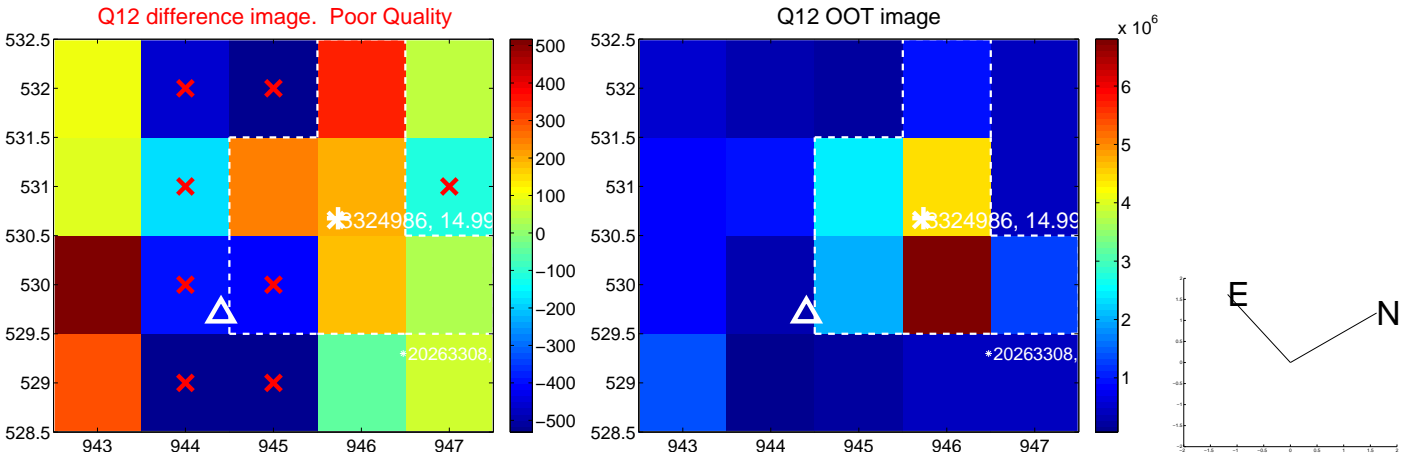
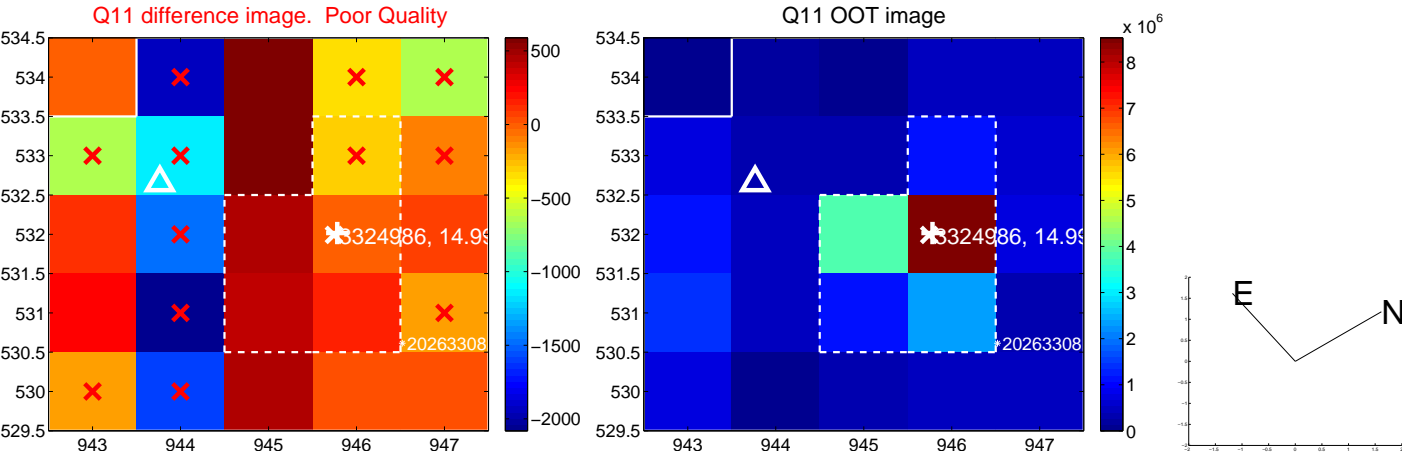
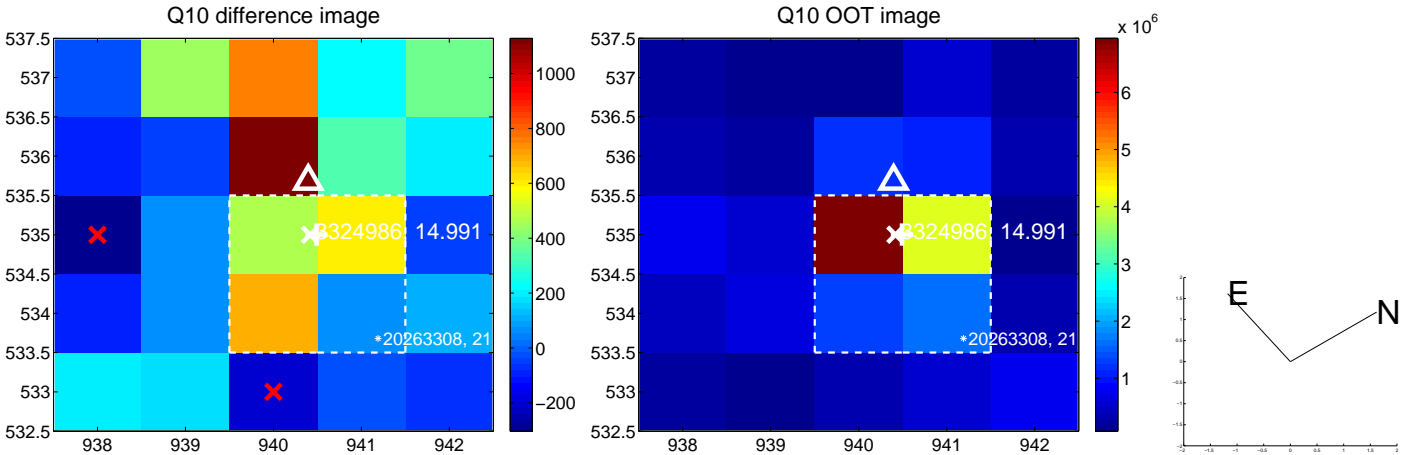
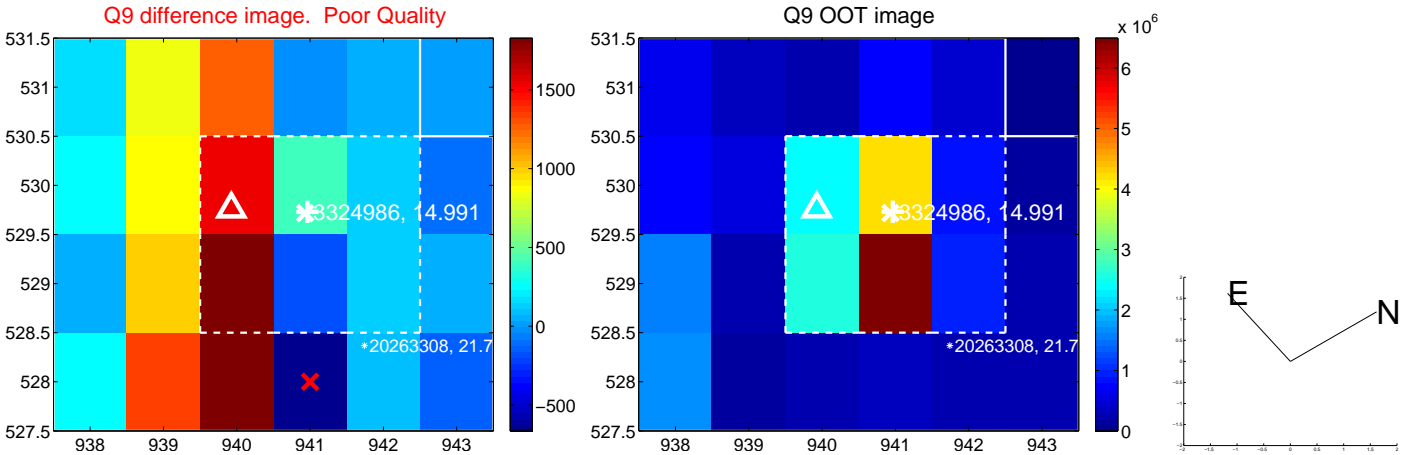


white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.

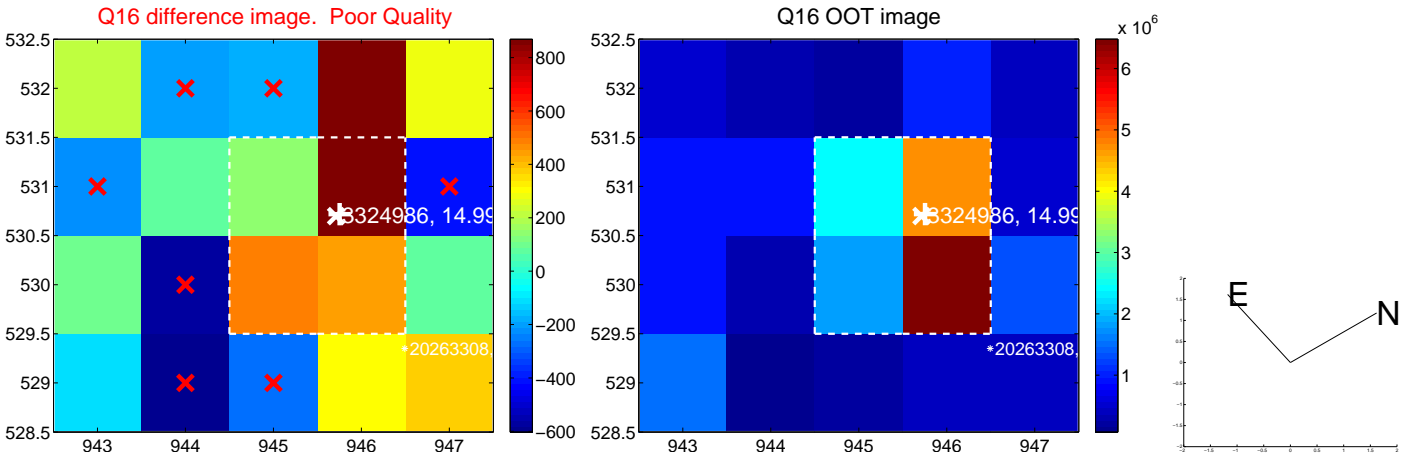
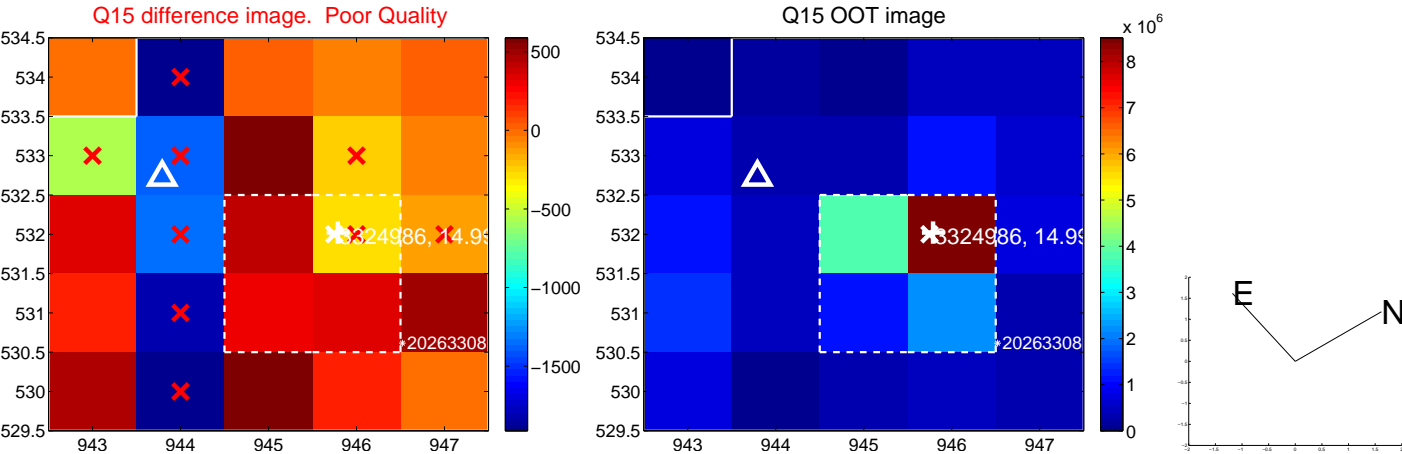
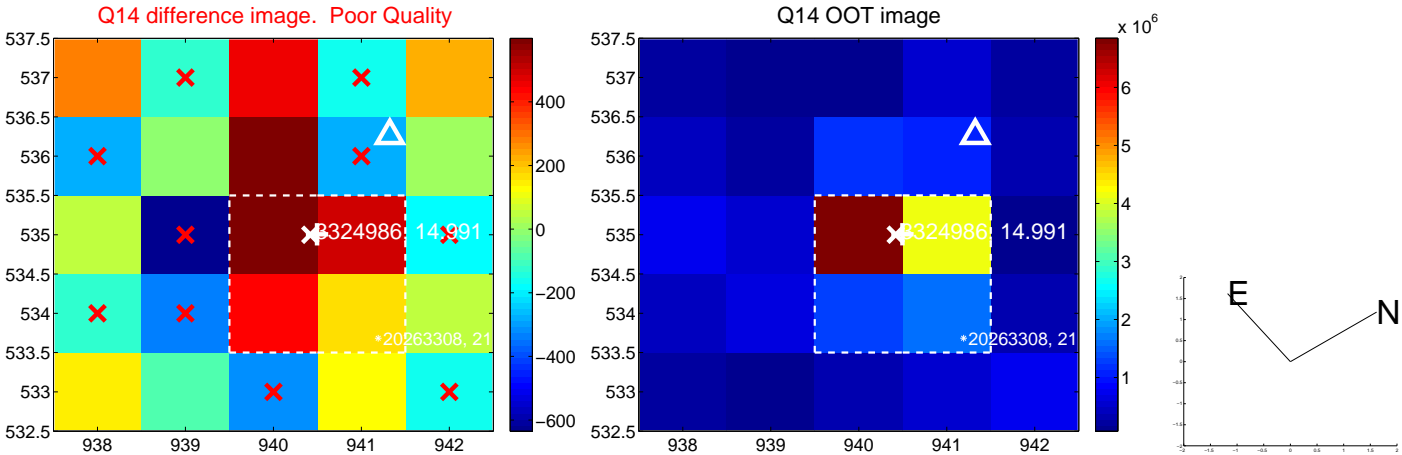
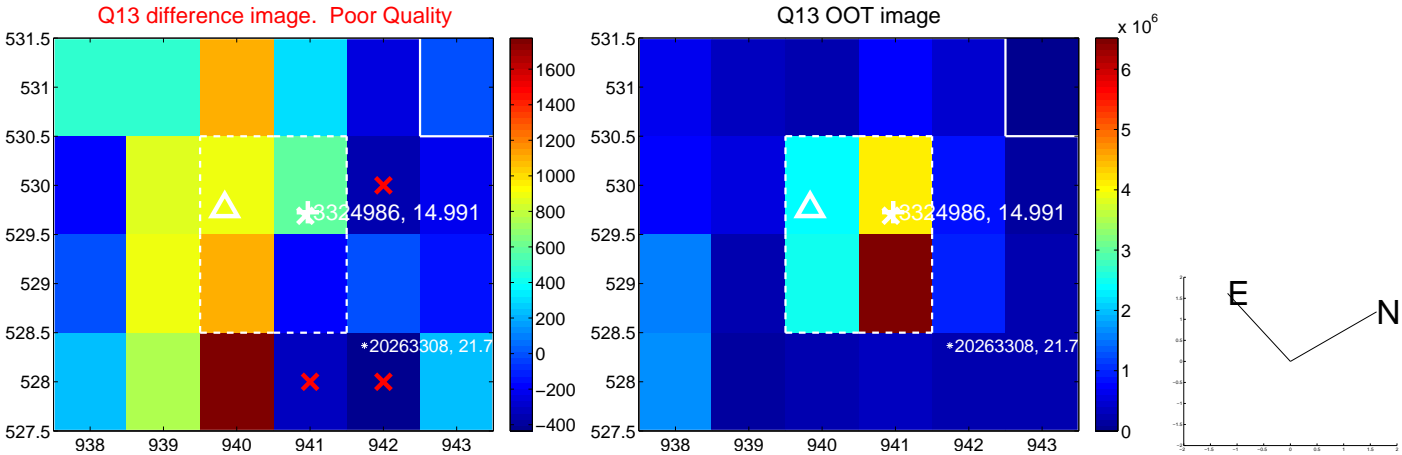




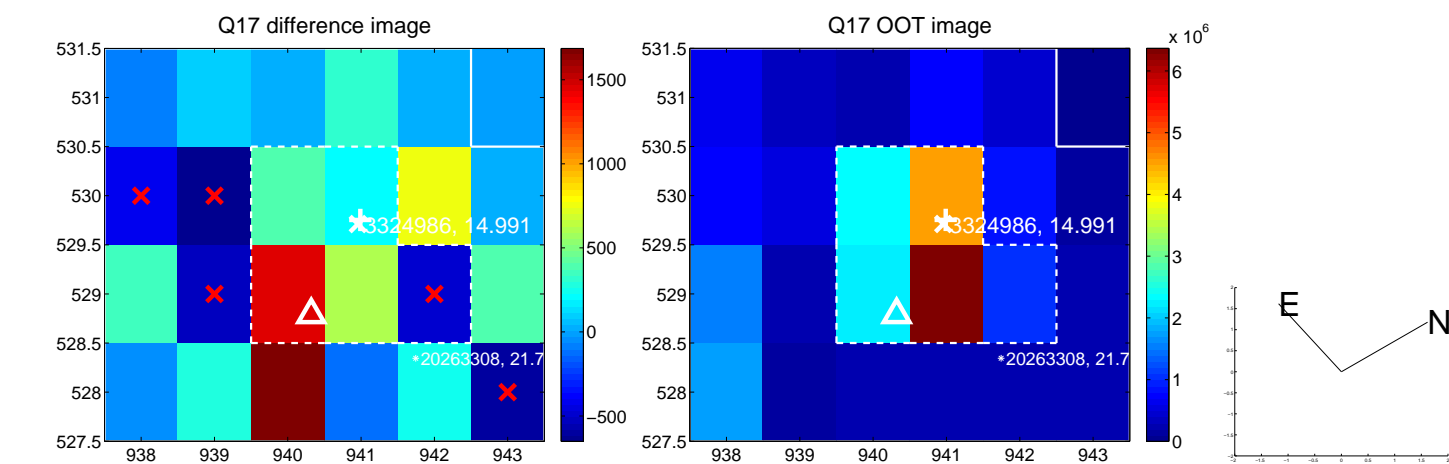
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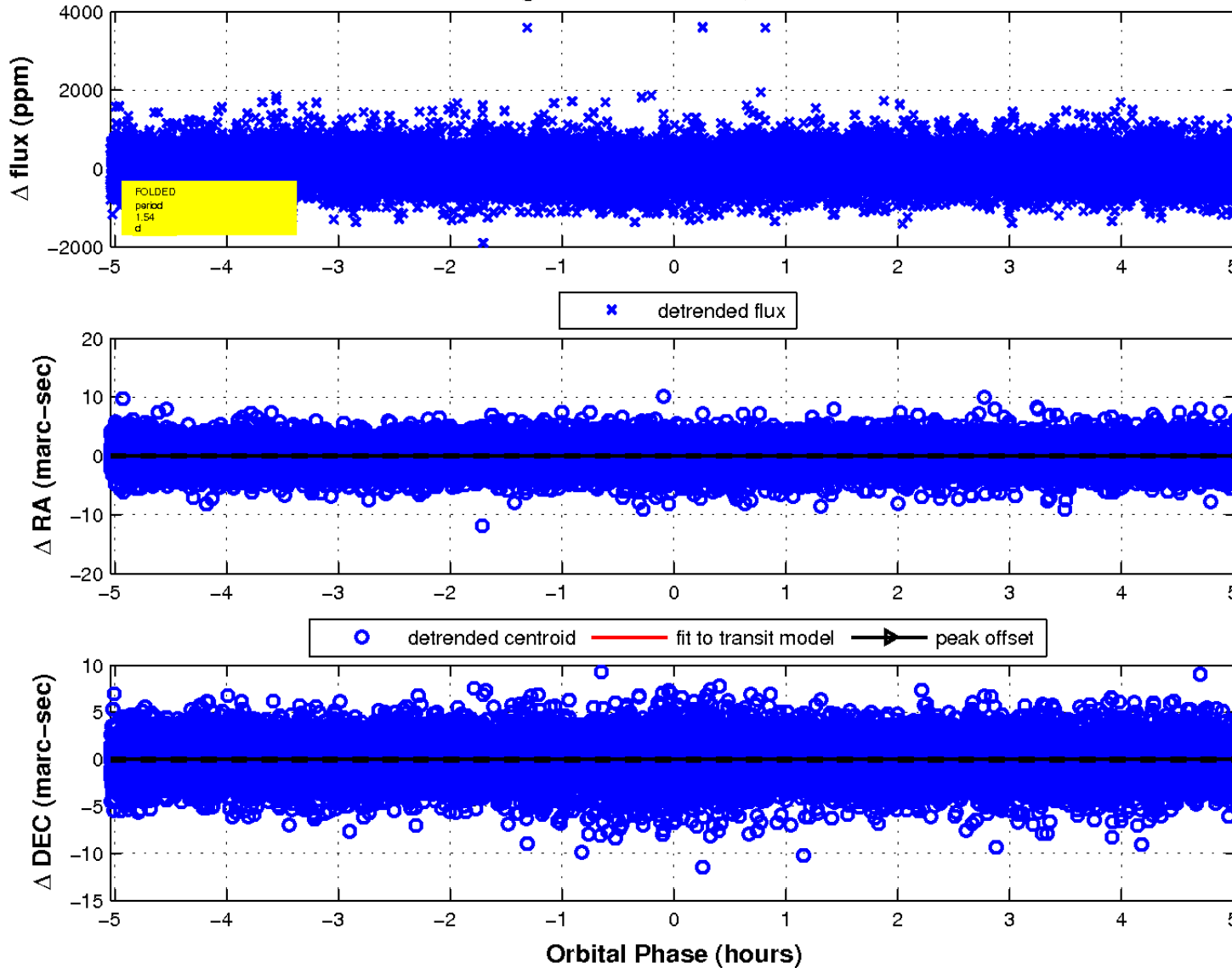
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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



fluxWeightedCentroids, Planet 1 of 1



UKIRT Image

Declination

