

# KIC 003540171

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
003540171-01	OBS	No	0.774841	132.071232	38.9	8.411	7.4	9.4	1.03	6241	0.64	4994.20

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
003540171-01	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_ALT—CENT_FEW_DIFFS

**Notes:** OBS = Observed. INJ = Injected. INV = Inverted. SCR = Scrambled.

N = Not Transit-Like. S = Stellar Eclipse. C = Centroid Offset. E = Ephemeris Match.

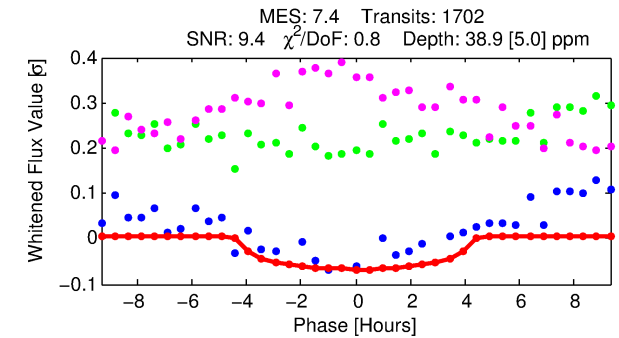
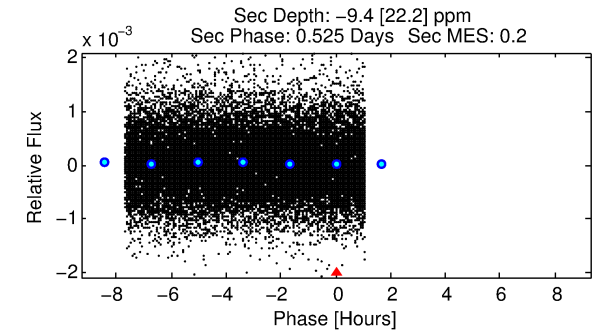
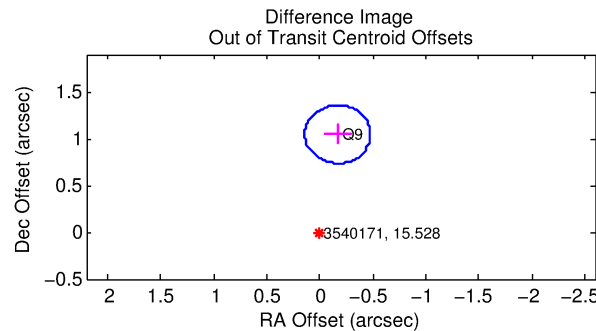
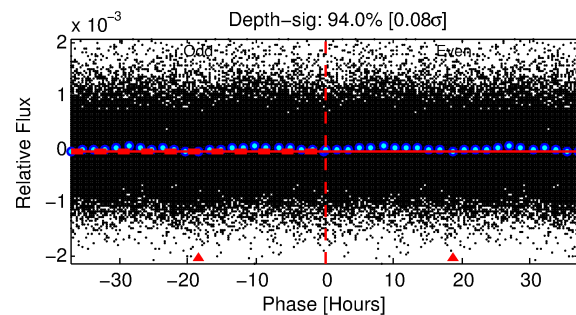
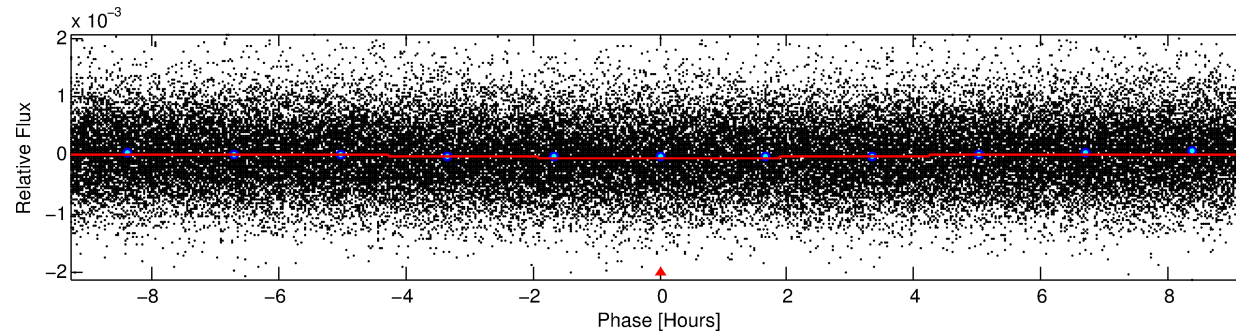
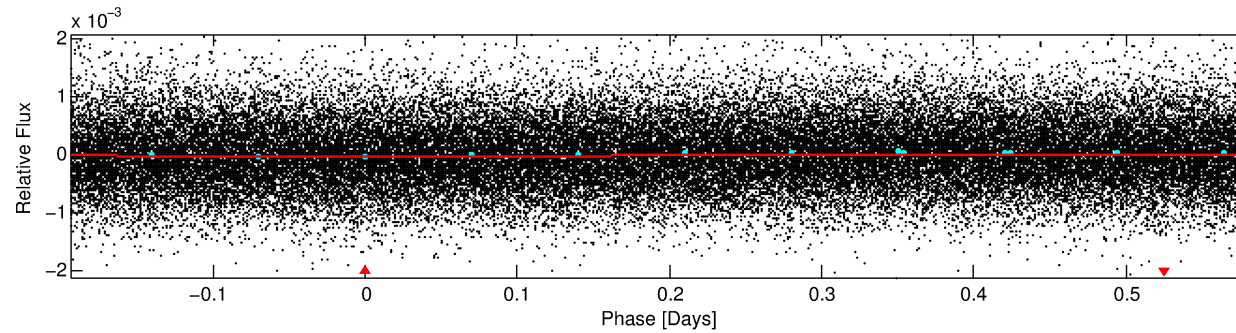
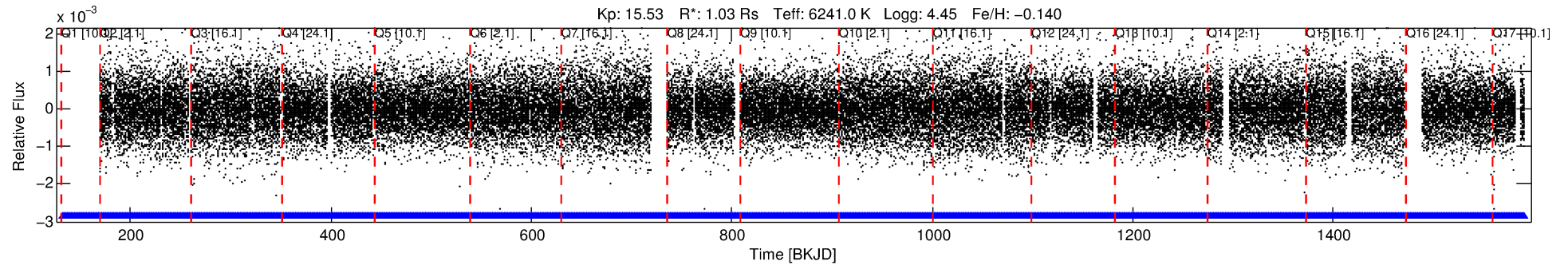
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

## Ephemeris Match Information For 003540171-01

No Significant Match Found

# DV One-Page Summary

KIC: 3540171 Candidate: 1 of 1 Period: 0.775 d



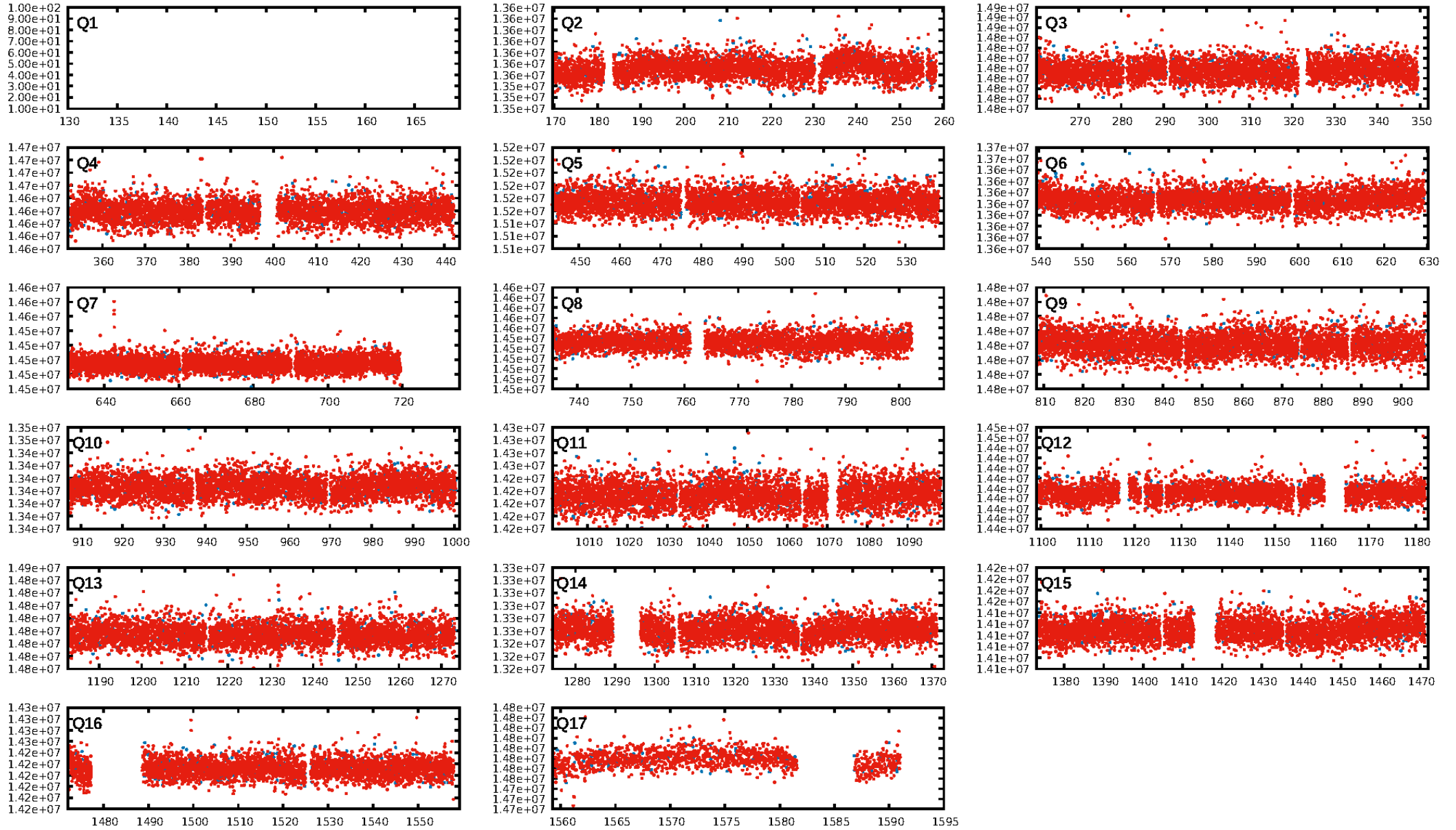
## DV Fit Results:

Period = 0.77484 [0.00002] d  
Epoch = 132.0712 [0.0096] BKJD  
Rp/R\* = 0.0057 [0.0067]  
a/R\* = 1.02 [0.19]  
b = 0.05 [115.76]  
Seff = 4994.21 [1919.87]  
Teq = 2144 [206] K  
Rp = 0.64 [0.78] Re  
a = 0.0170 [0.0042] AU  
Ag = N/A  
Teffp = N/A

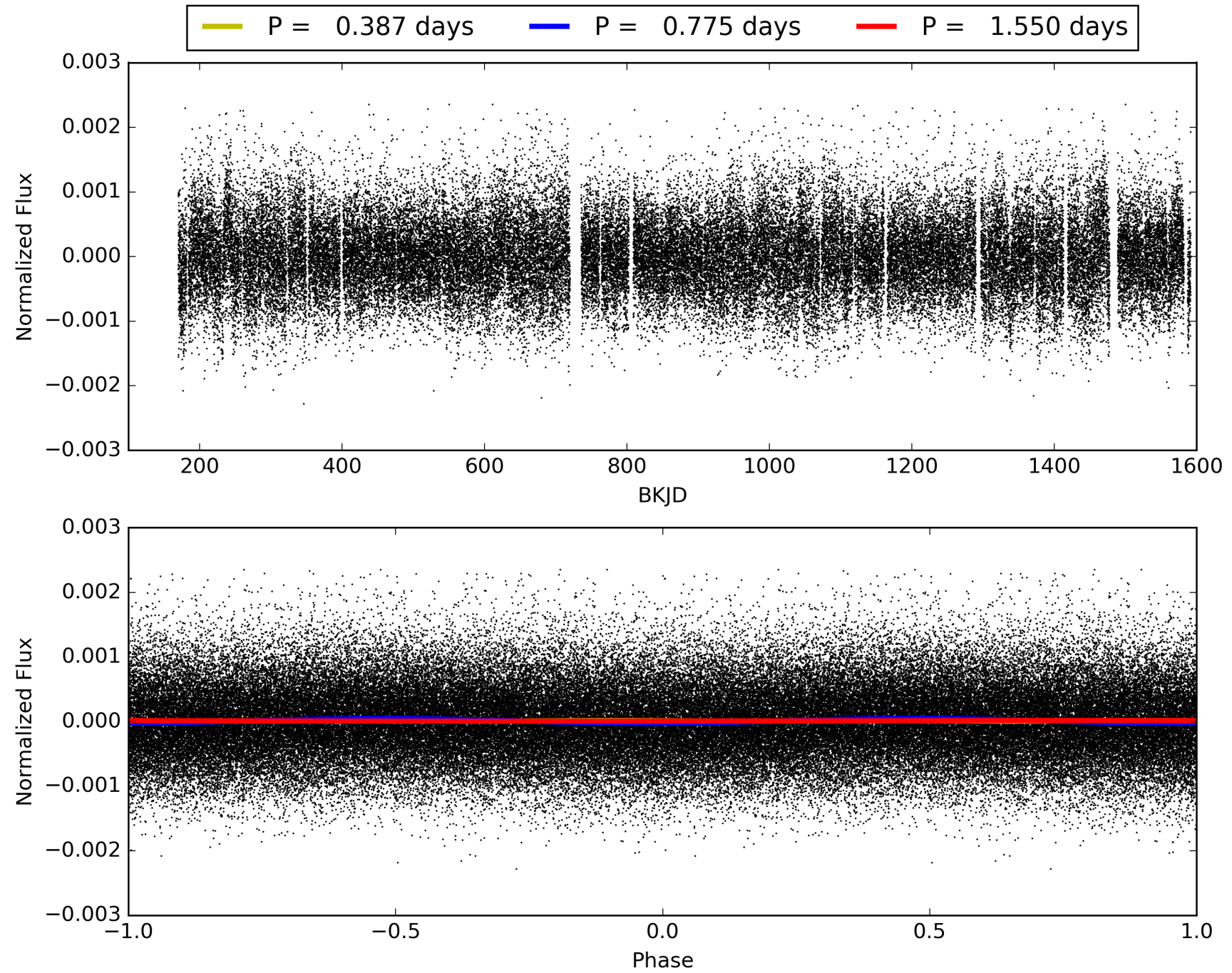
## DV Diagnostic Results:

ShortPeriod-sig: N/A  
LongPeriod-sig: N/A  
ModelChiSquare2-sig: N/A  
ModelChiSquareGof-sig: N/A  
Bootstrap-pfa: N/A  
RollingBand-fgt: 1.00 [1667/1667]  
GhostDiagnostic-chr: 2.486  
Centroid-sig: 9.0%  
Centroid-so: 1.928 arcsec [1.22 $\sigma$ ]  
OotOffset-rm: 1.059 arcsec [10.25 $\sigma$ ]  
KicOffset-rm: 1.059 arcsec [10.27 $\sigma$ ]  
OotOffset-st: 0/0/0/1 [1]  
KicOffset-st: 0/0/0/1 [1]  
DiffImageQuality-fgm: 1.00 [1/1]  
DiffImageOverlap-fno: 1.00 [16/16]

# TCE 003540171-01, PDC Light Curves

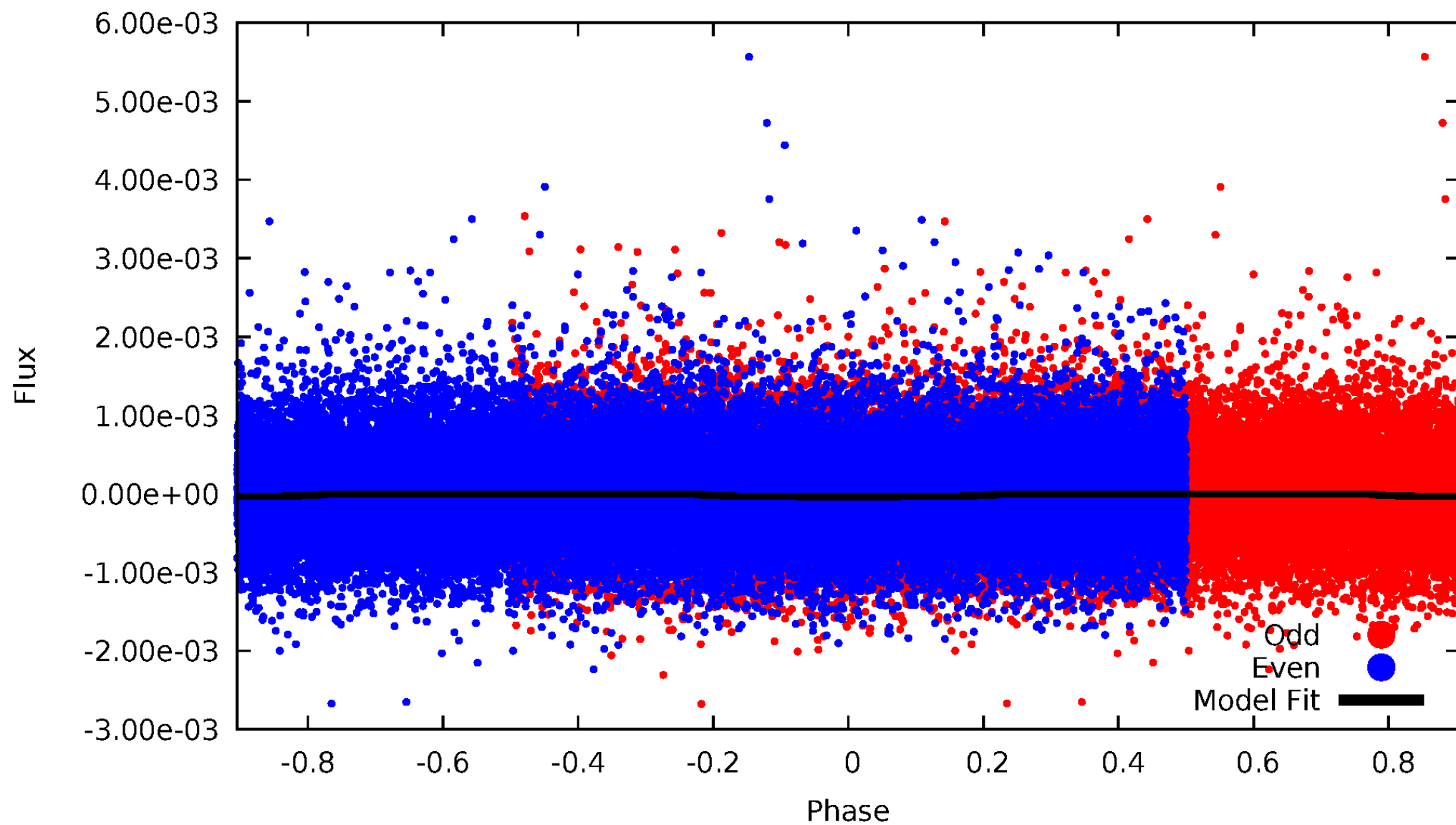


TCE 003540171-01



# DV Odd/Even

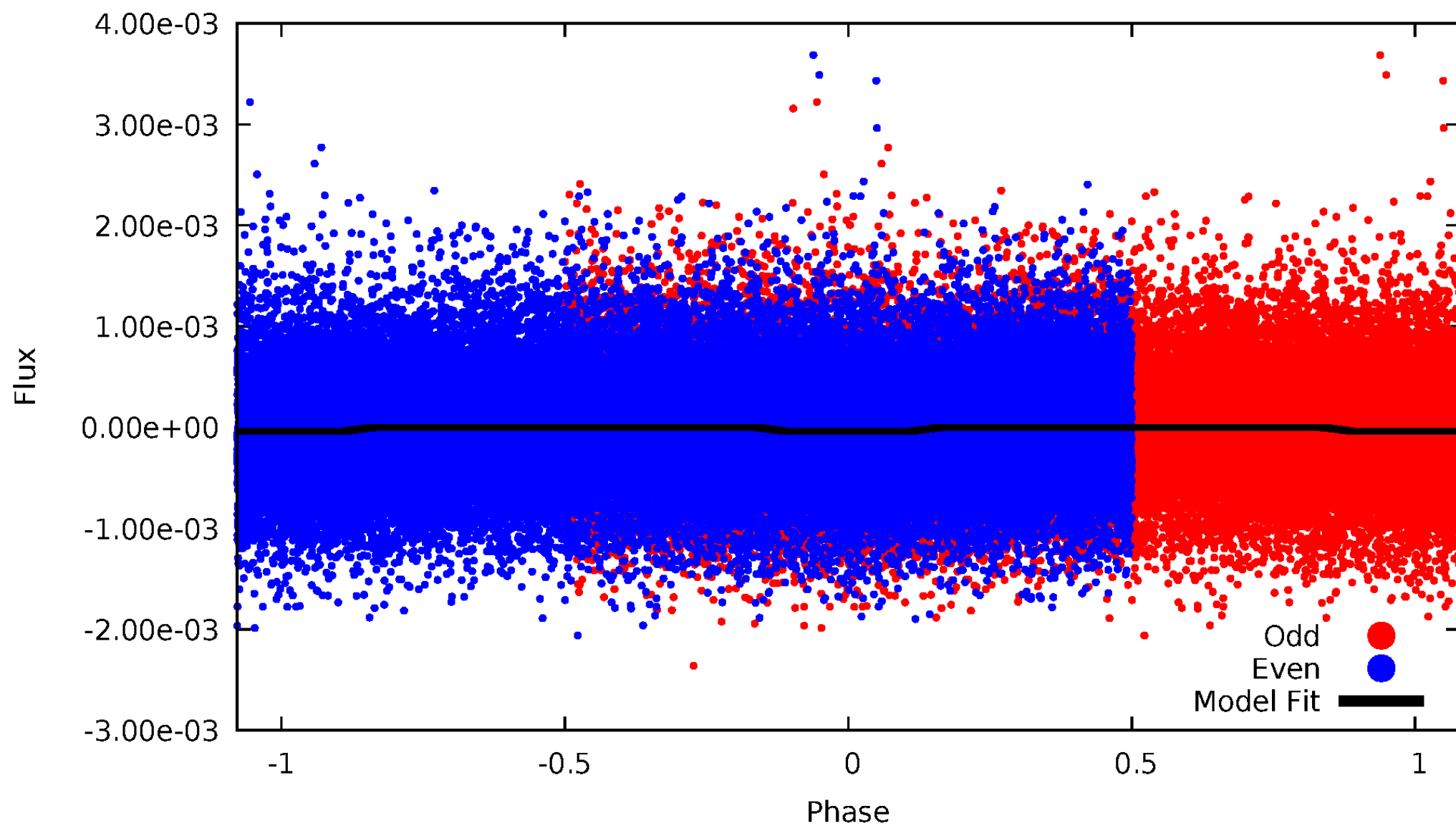
TCE 003540171-01





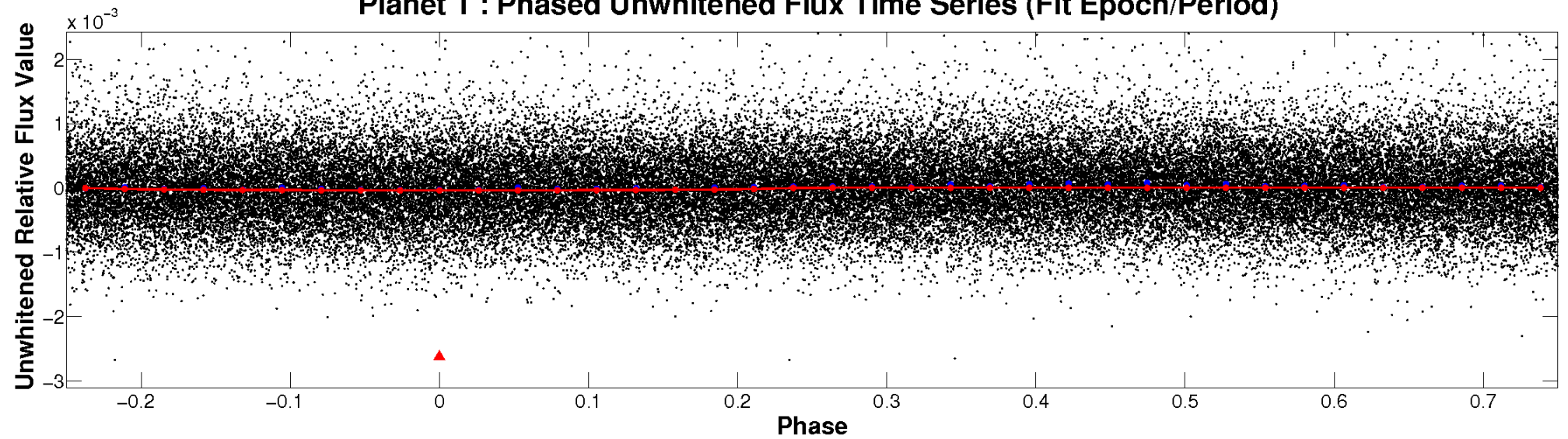
# ALT Odd/Even

TCE 003540171-01

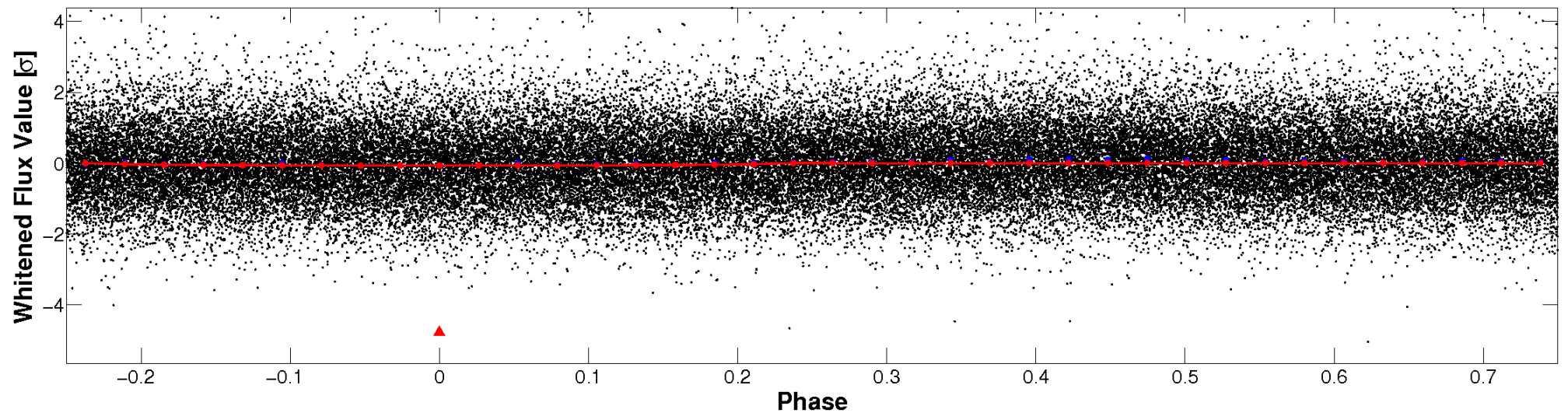


# Non-Whitened Vs. Whitened Light Curve

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

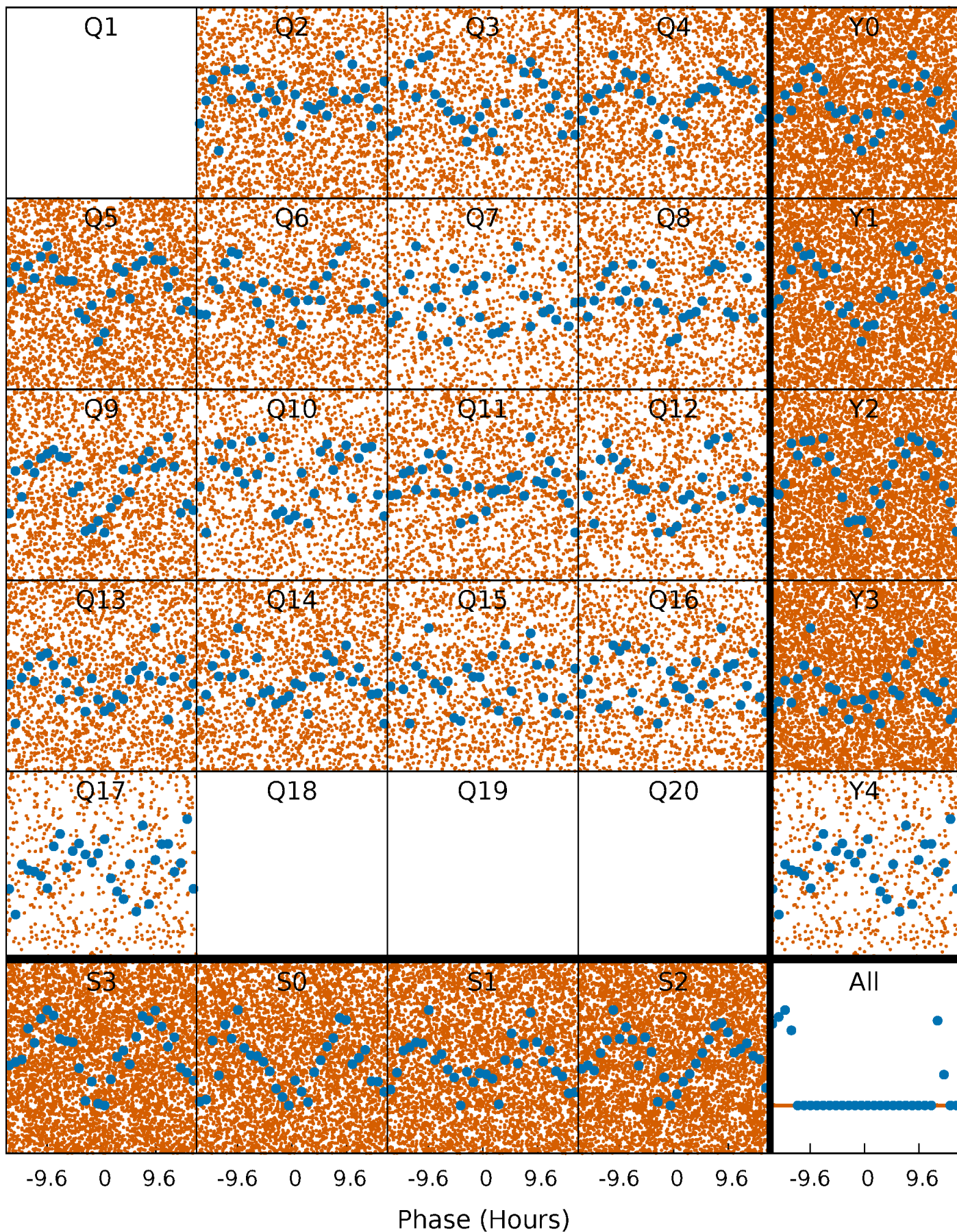


**Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)**



# PDC Quarter-Phased Transit Curves

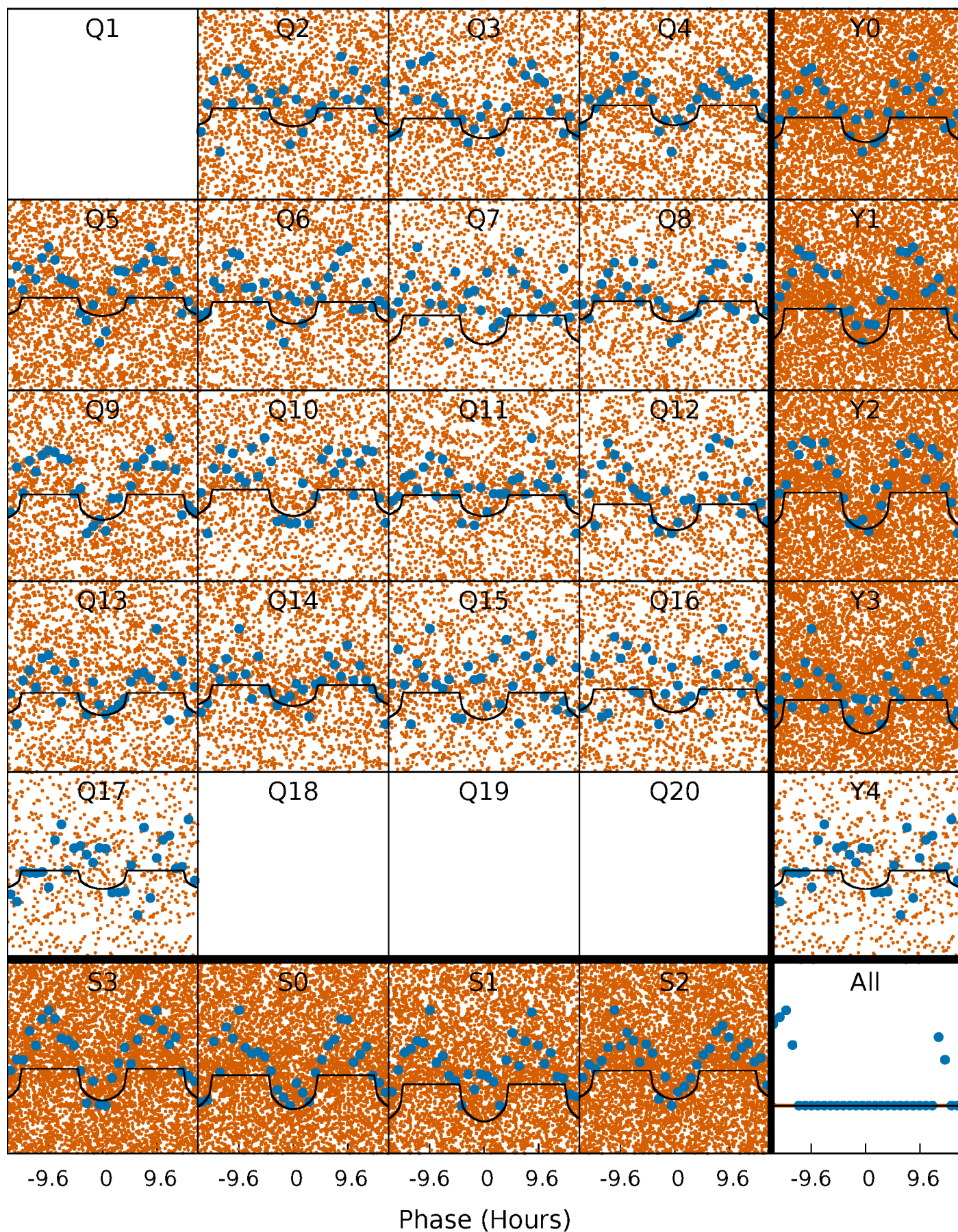
TCE 003540171-01 P= 0.774841 Days  $T_0=132.071232$  (BKJD)





# DV Quarter-Phased Transit Curves

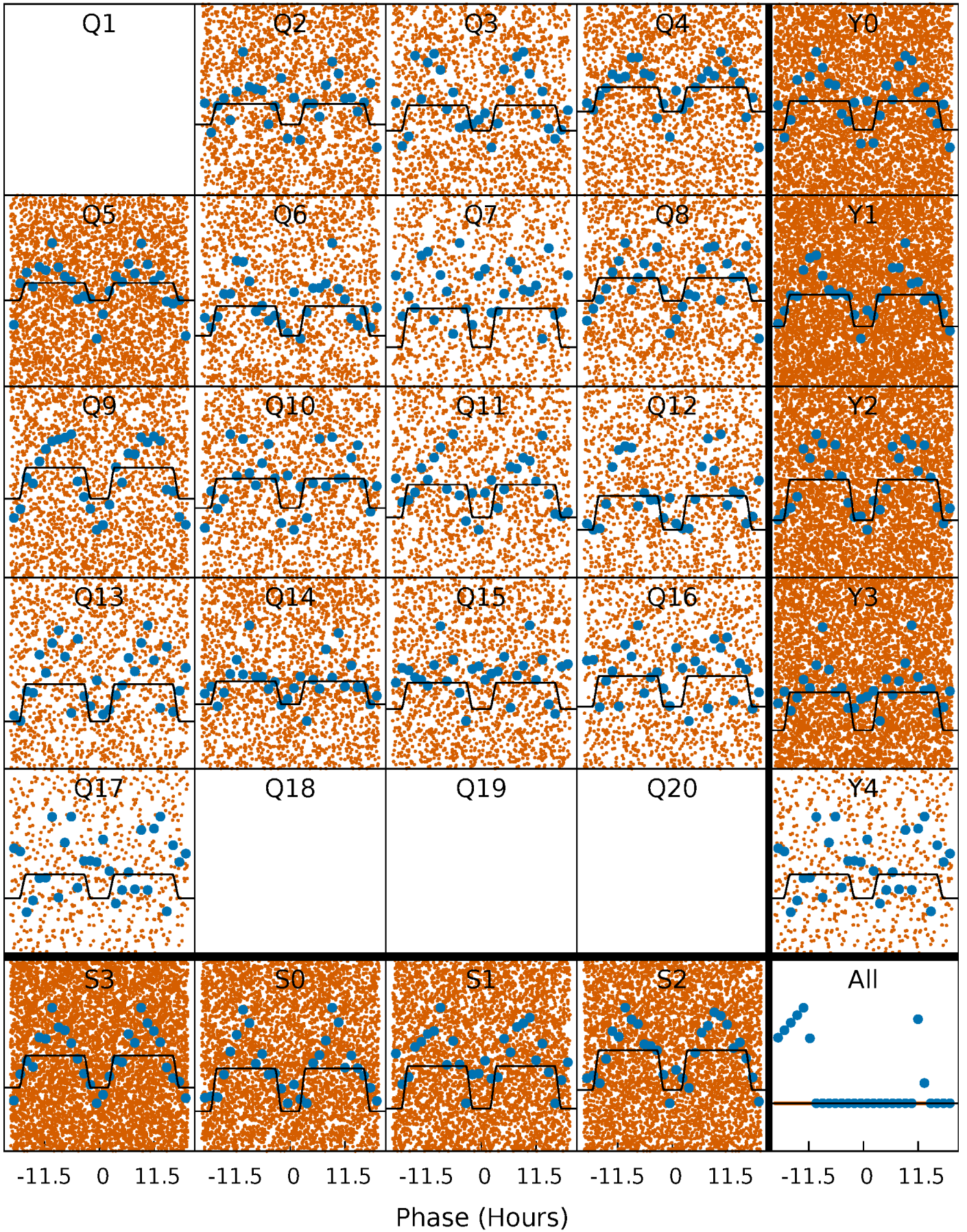
TCE 003540171-01 P= 0.774841 Days  $T_0=132.071232$  (BKJD)





# Alt. Detrend Quarter-Phased Transit Curves

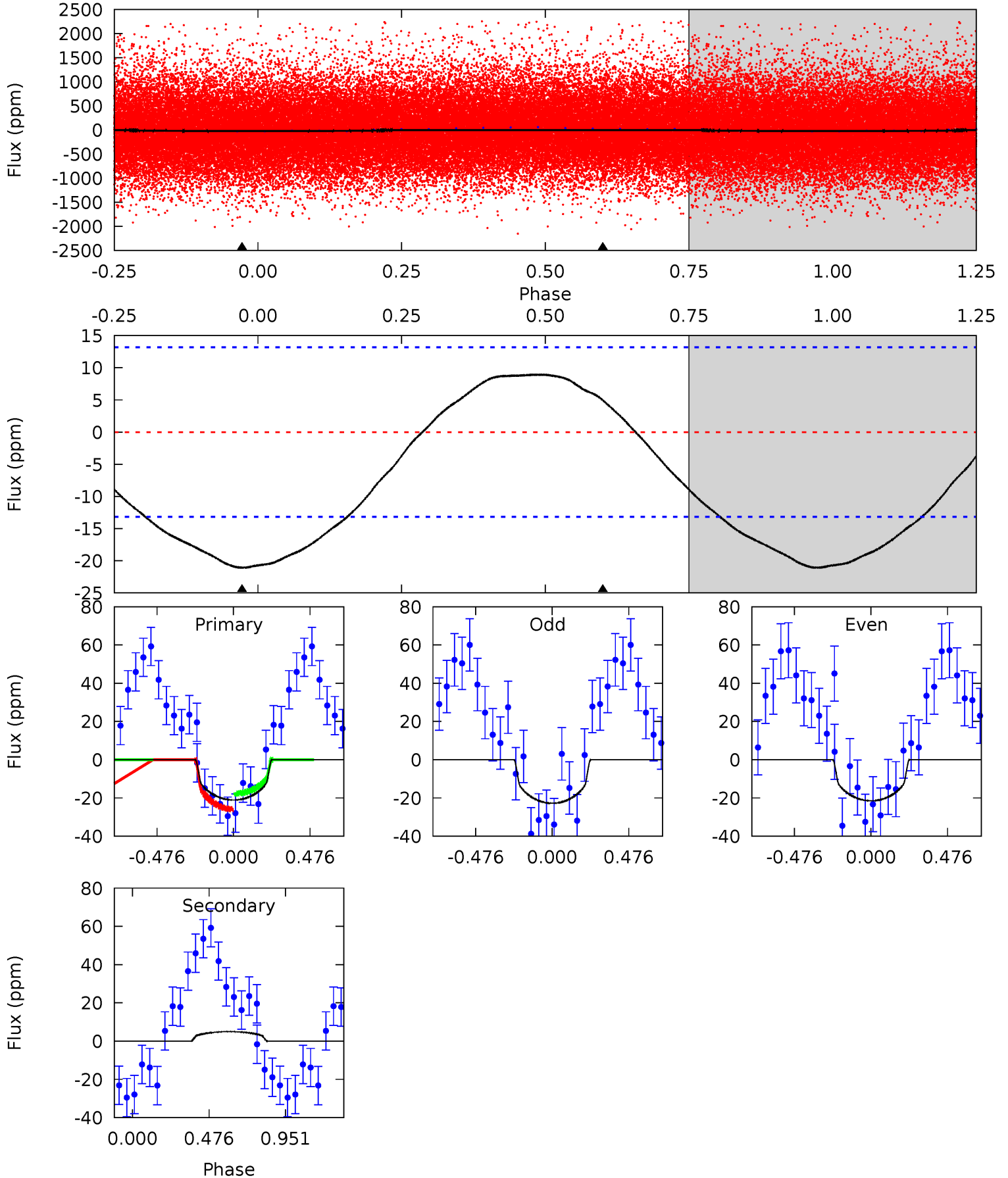
TCE 003540171-01 P= 0.774811 Days  $T_0=132.078747$  (BKJD)



# DV Model-Shift Uniqueness Test

003540171-01, P = 0.774841 Days, E = 132.071232 Days

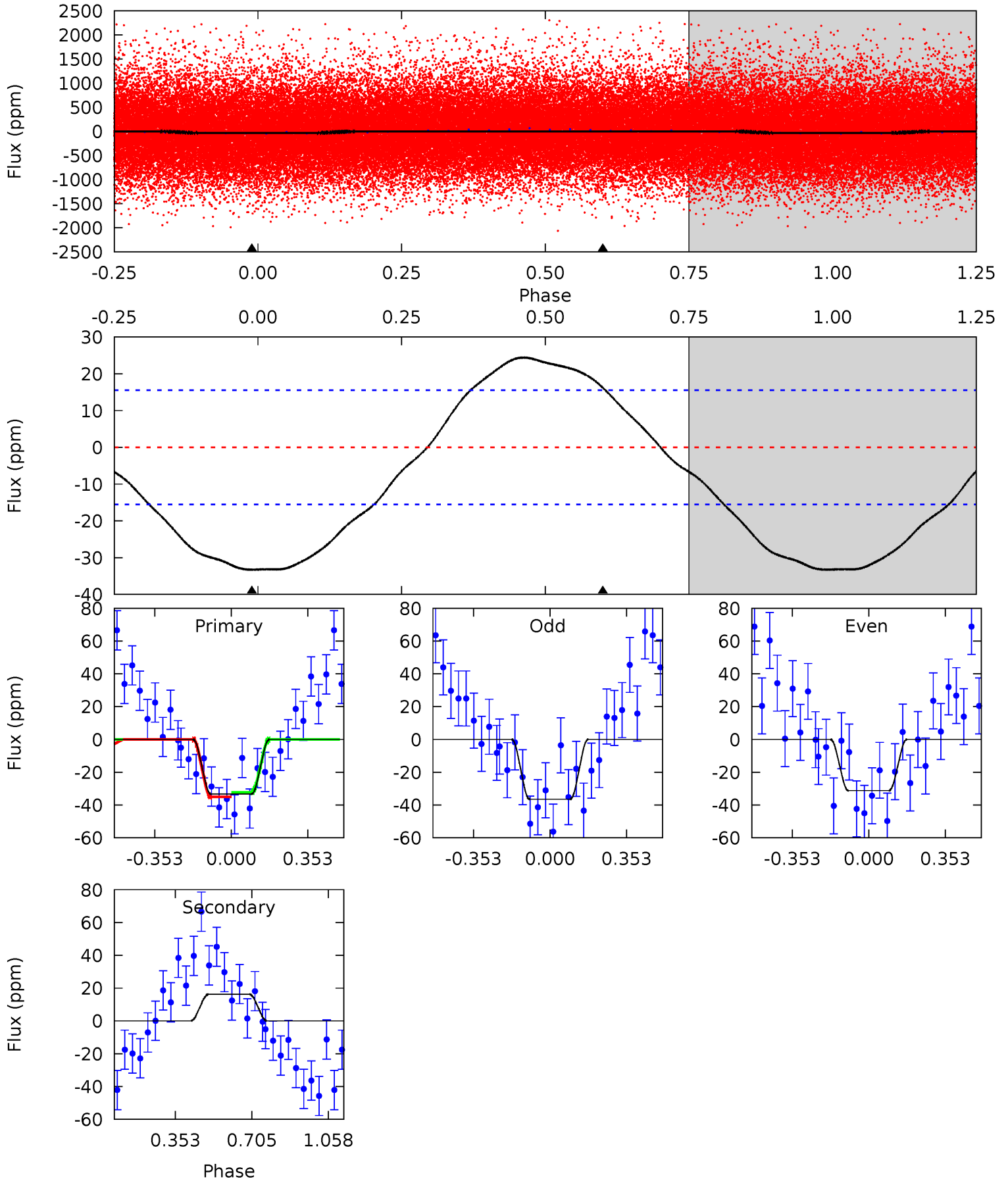
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
6.76	-1.59	0	0	4.23	0.71	0.92	6.76	6.76	-1.59	-1.59	0.21	0.90	0.30	1.29



# Alt Model-Shift Uniqueness Test

003540171-01, P = 0.774811 Days, E = 132.078747 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
9.20	-4.49	0	0	4.29	0.93	1.49	9.20	9.20	-4.49	-4.49	0.72	0.95	0.42	0.37





### Stellar Parameters For KIC 003540171

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	$6241^{+169}_{-225}$	$4.450^{+0.052}_{-0.195}$	$-0.140^{+0.250}_{-0.300}$	$1.031^{+0.299}_{-0.107}$	$1.088^{+0.144}_{-0.144}$	$1.400^{+0.374}_{-0.712}$
	+3%/-4%	+1%/-4%	+179%/-214%	+29%/-10%	+13%/-13%	+27%/-51%
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 003540171-01 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	$A_{obs}$
DV	$5 \pm 3$	$0.86^{+0.78}_{-0.56}$	$3057^{+208}_{-158}$	$-3885^{+516}_{-1725}$	$-0.869^{+0.687}_{-6.804}$
Alt.	$16 \pm 4$	$0.91^{+0.79}_{-0.59}$	$3060^{+216}_{-158}$	$-4704^{+831}_{-3196}$	$-2.893^{+2.053}_{-23.893}$

$T_{max}$  = 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

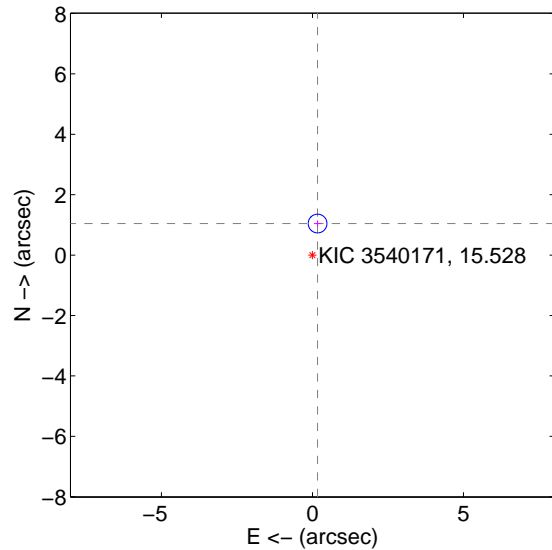
Supplemental centroid analysis for 003540171-01. Kepler magnitude: 15.53. Transit SNR 9.38

There are 1 quarters with good PRF difference image offsets

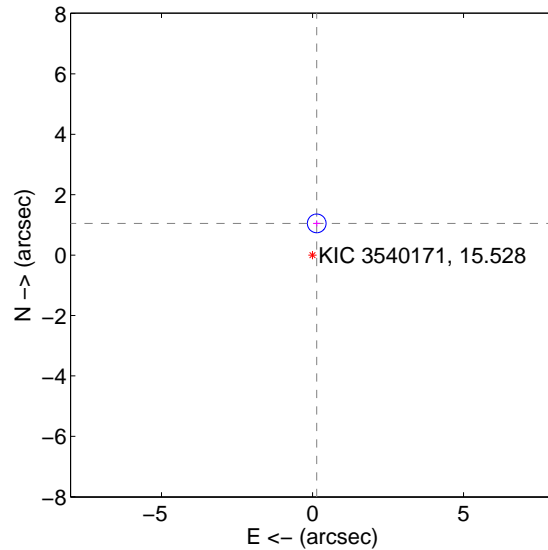
The direct PRF centroid is offset from the target star catalog position by about 0.03 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$1.059 \pm 0.103$	10.25	$-0.170 \pm 0.120$	$1.045 \pm 0.103$
PRF-fit source offset from KIC position	$1.059 \pm 0.103$	10.27	$-0.139 \pm 0.120$	$1.050 \pm 0.103$
photometric centroid source offset	$1.93 \pm 1.58$	1.22	$1.50 \pm 1.62$	$-1.21 \pm 1.53$

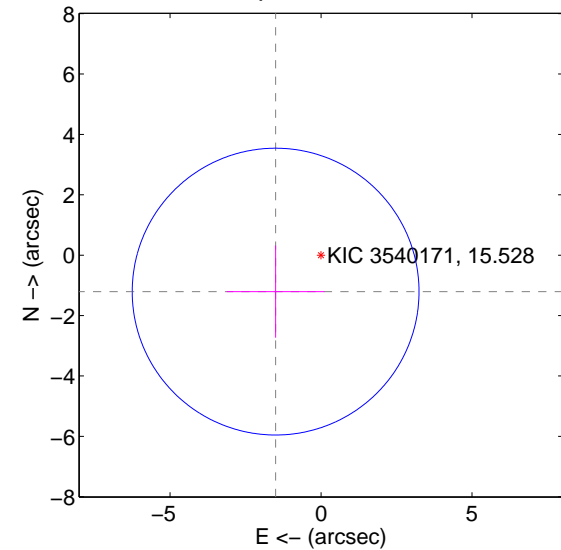
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position

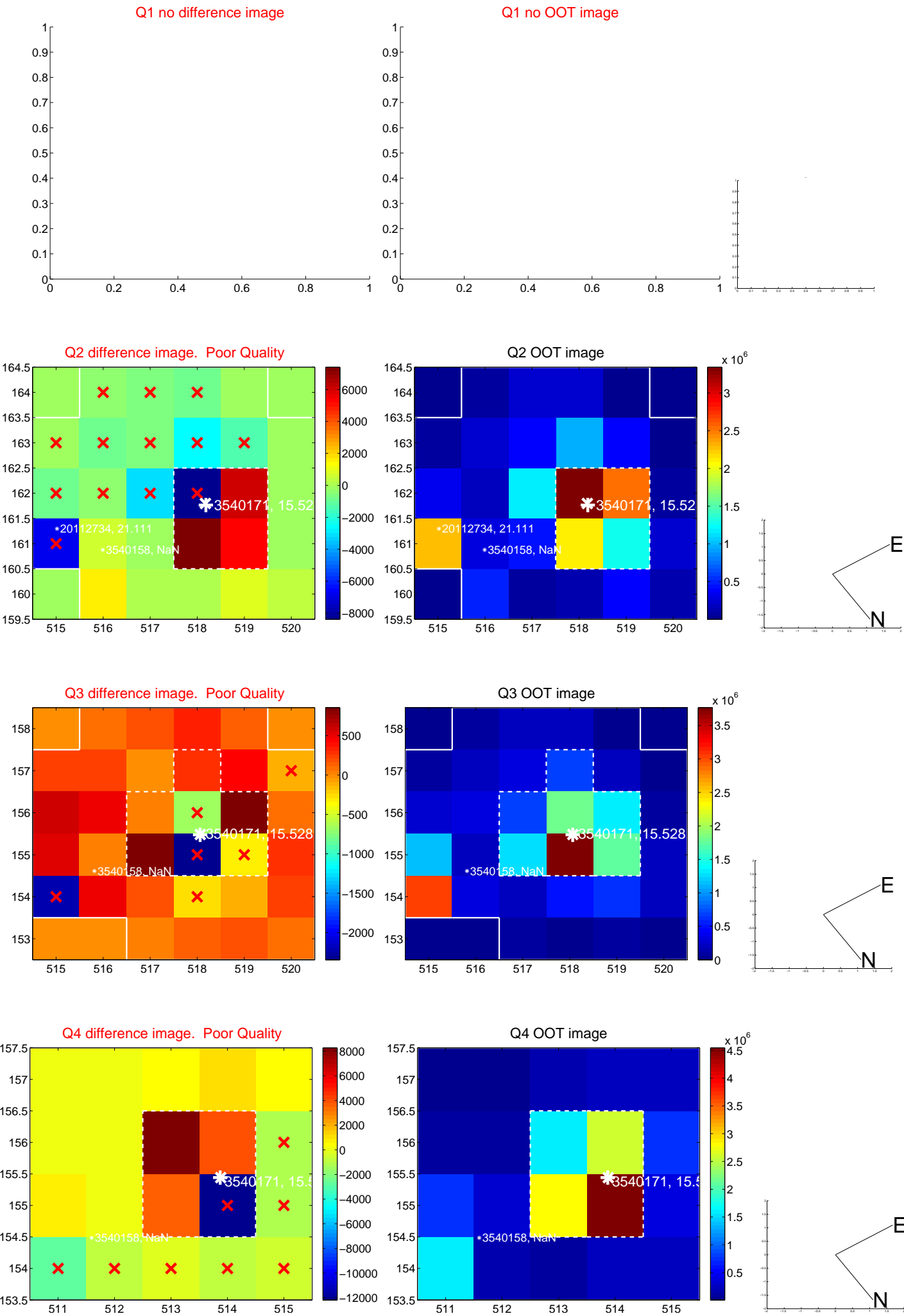


offset from photometric centroids

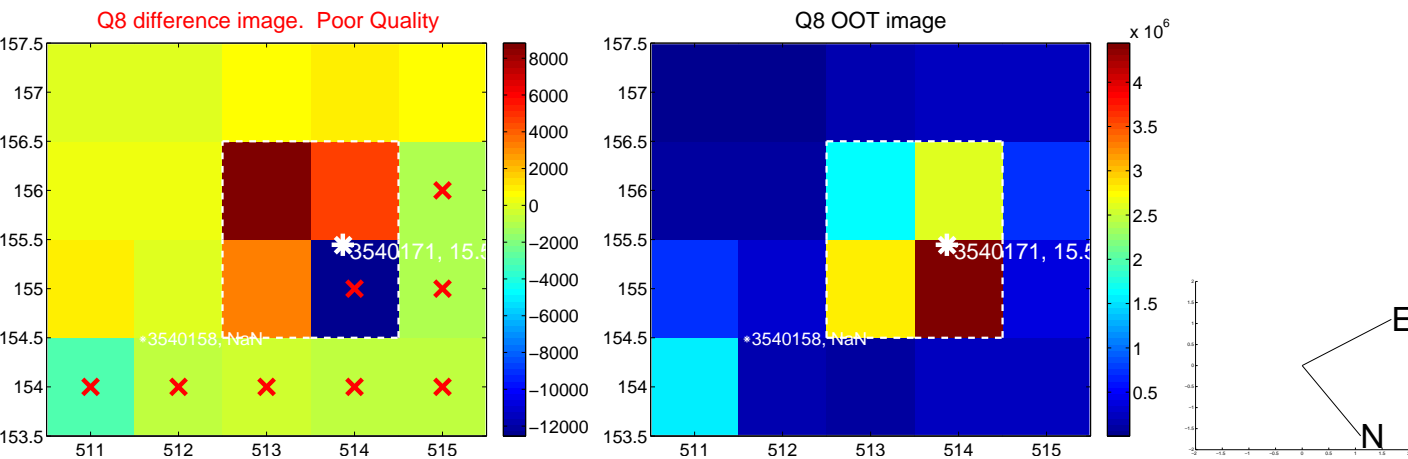
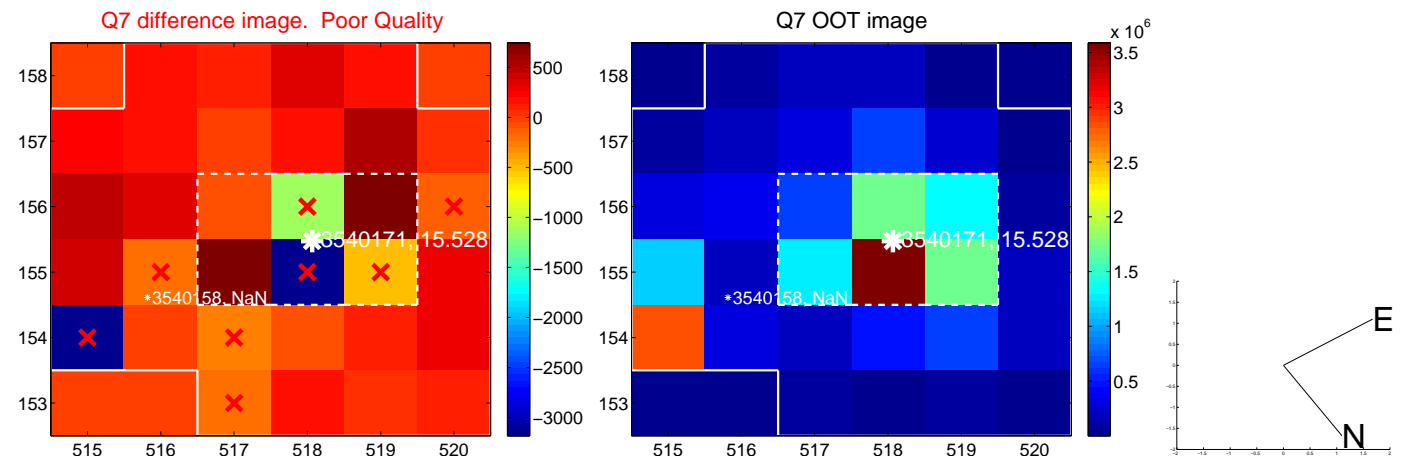
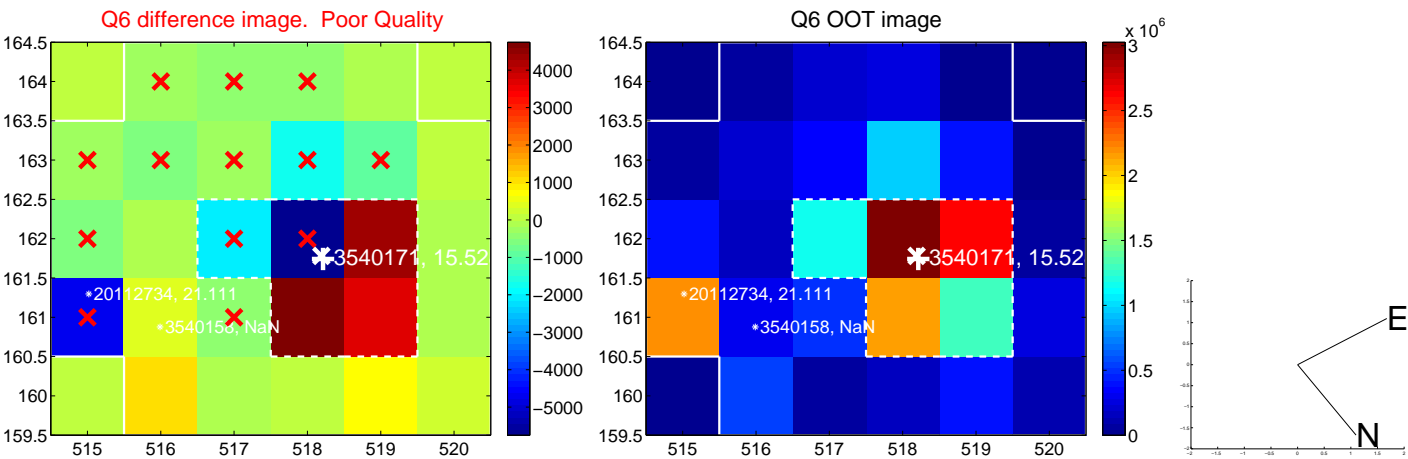
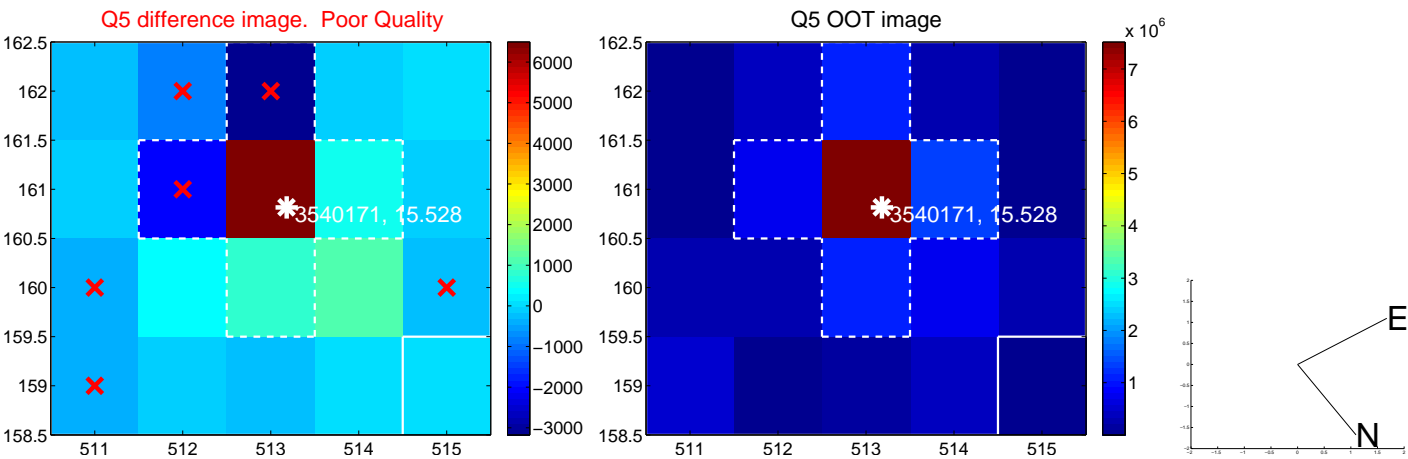


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: three-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

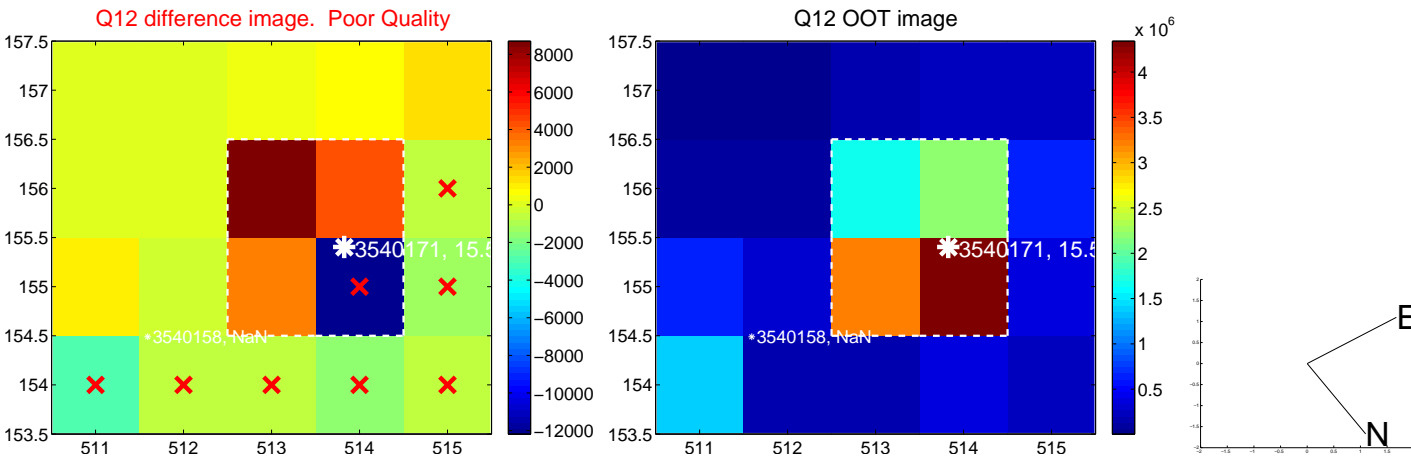
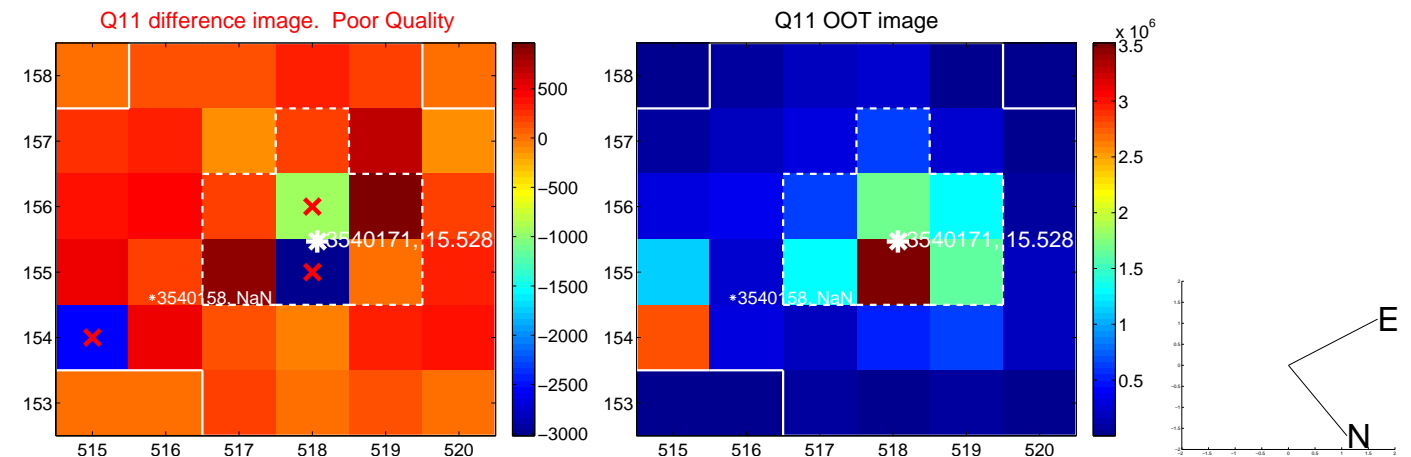
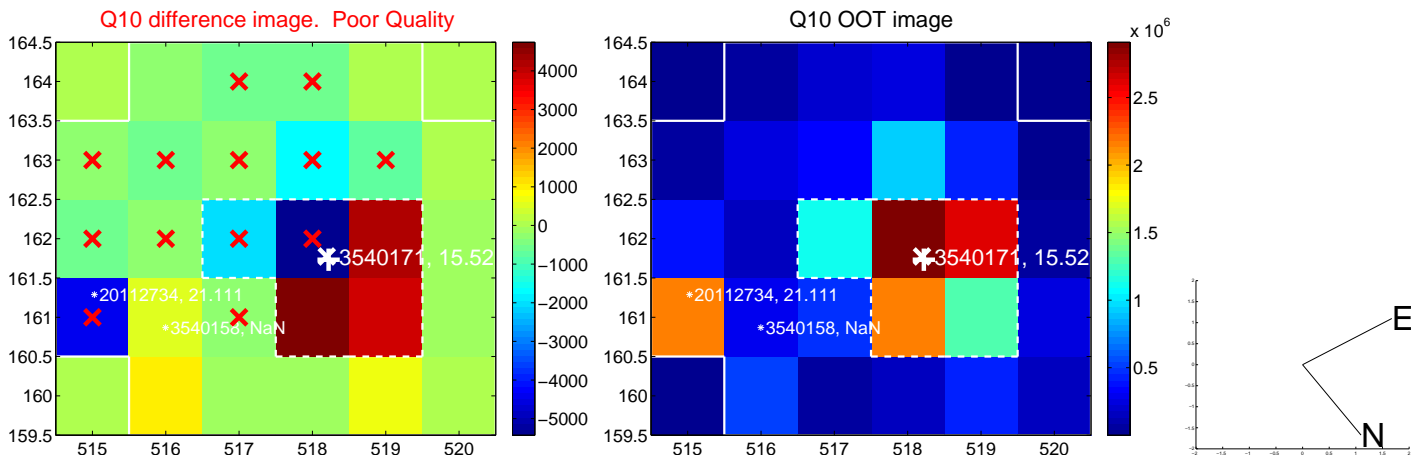
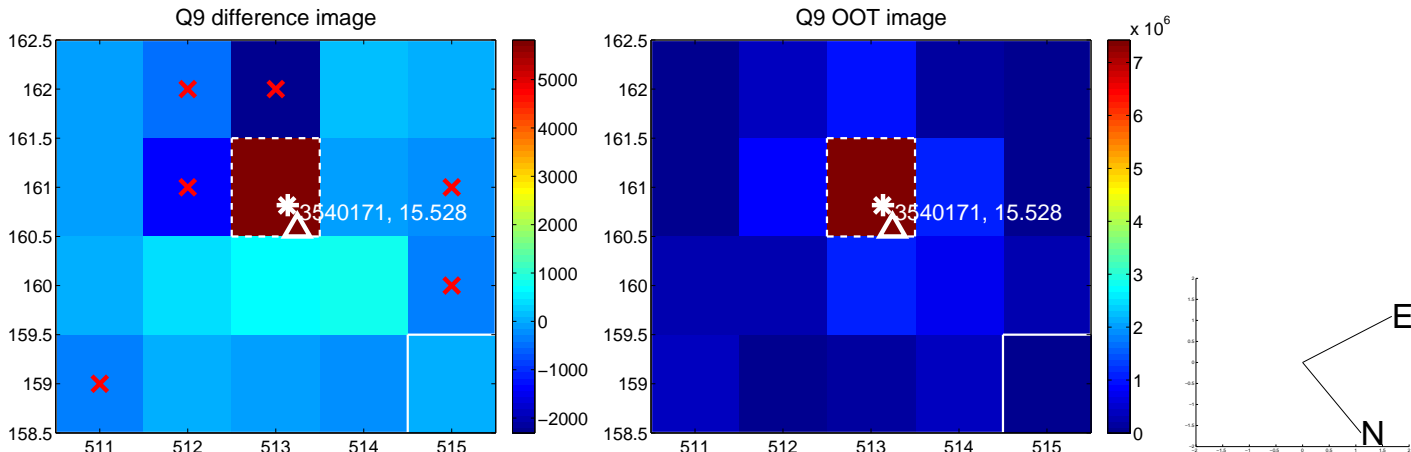


white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



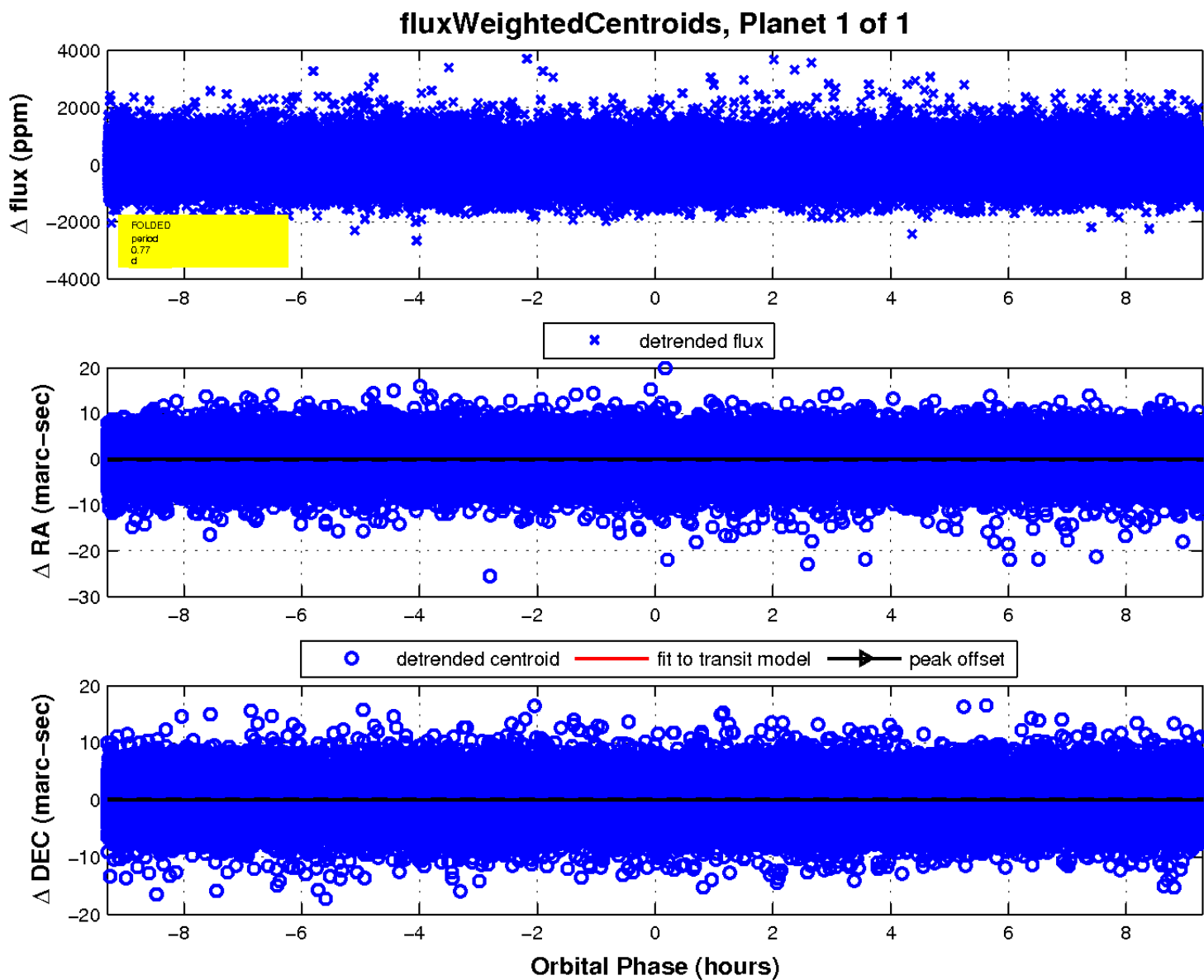
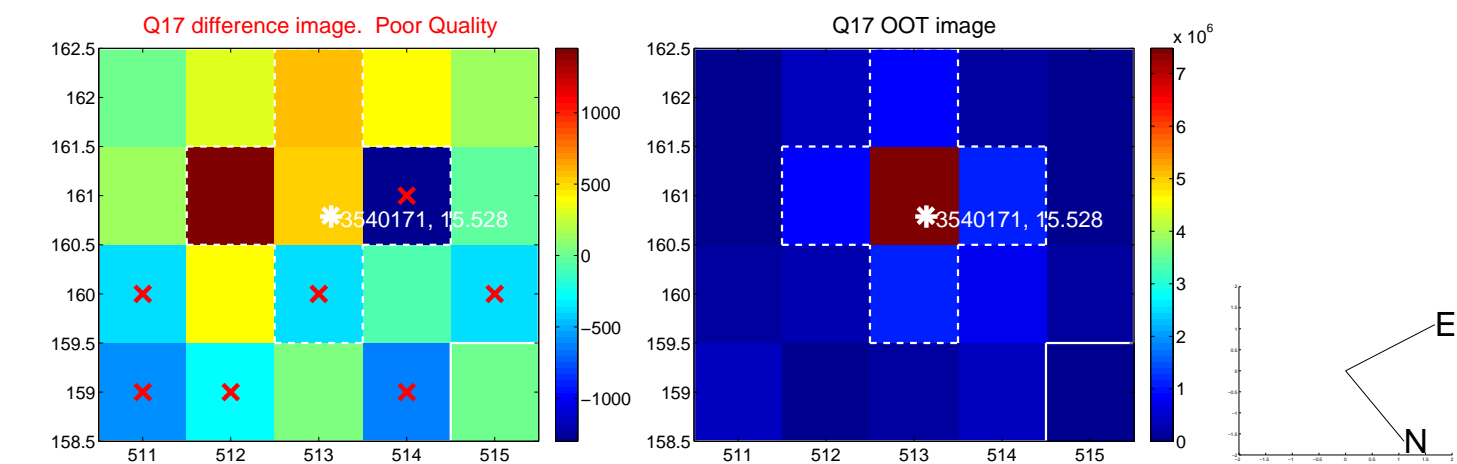


white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.





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



UKIRT Image

Declination

