

# KIC 003539331

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
003539331-01	OBS	No	0.580832	131.704810	91.4	6.970	14.8	5.6	0.65	4338	1.05	971.59

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
003539331-01	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT

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

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

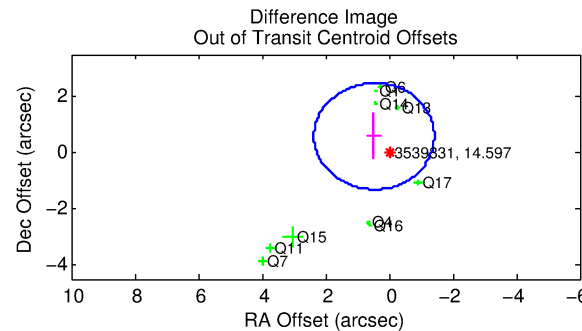
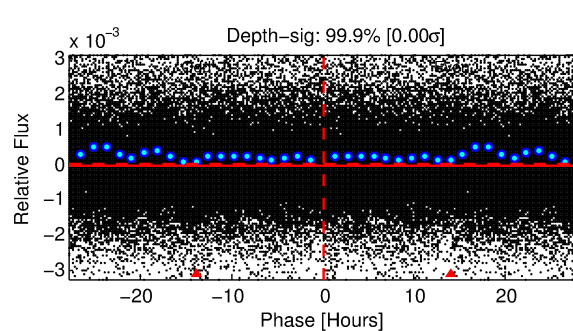
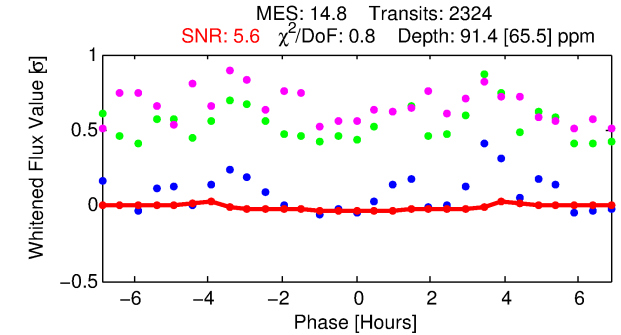
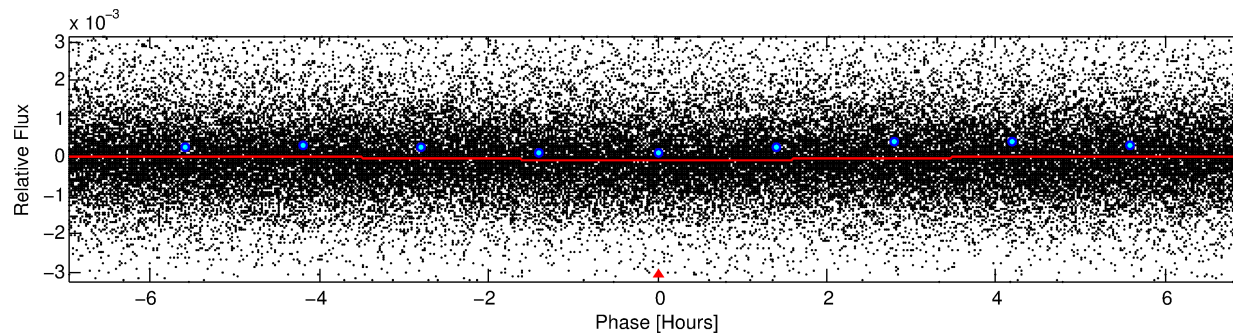
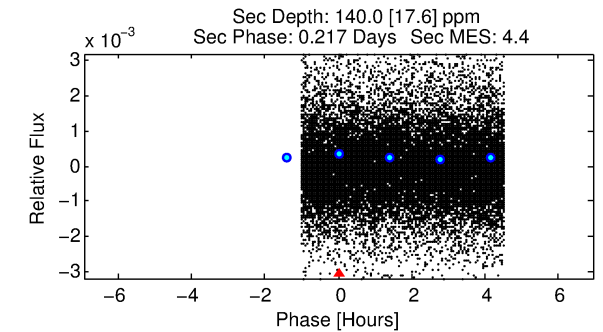
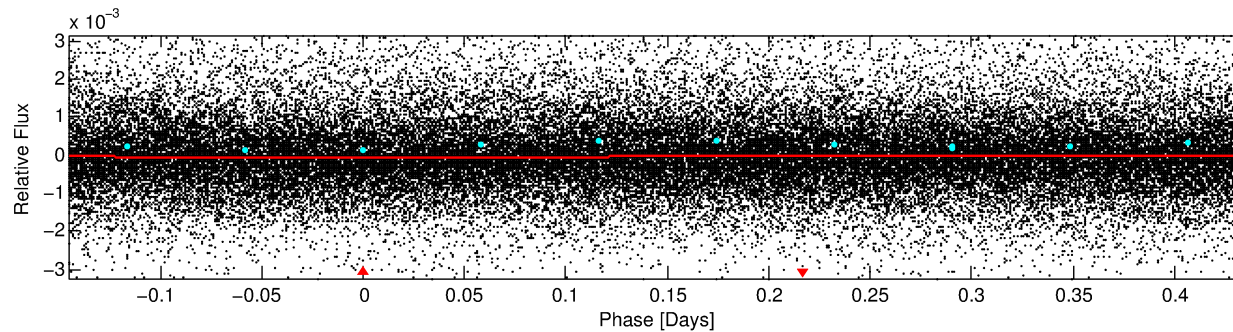
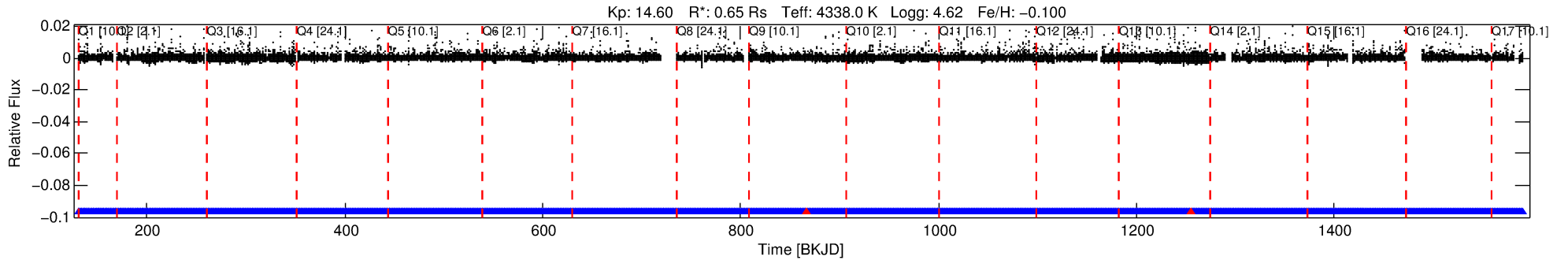
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

## Ephemeris Match Information For 003539331-01

No Significant Match Found

# DV One-Page Summary

KIC: 3539331 Candidate: 1 of 1 Period: 0.581 d



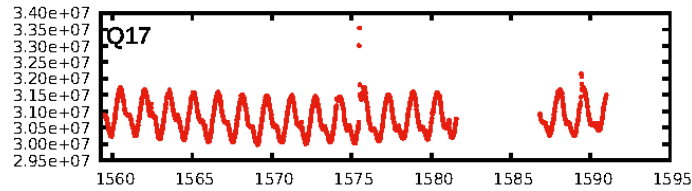
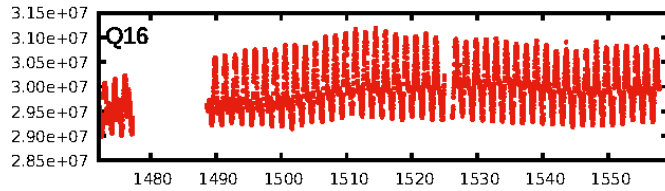
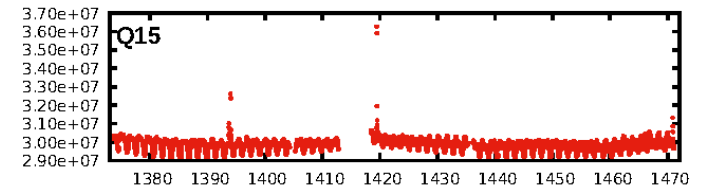
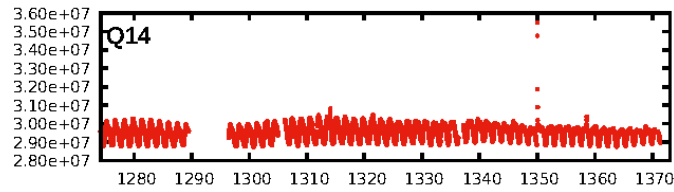
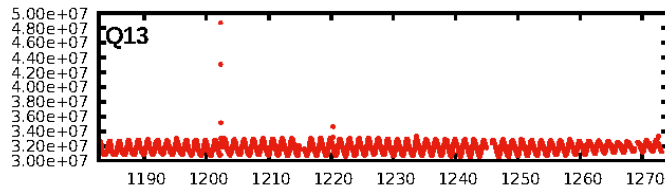
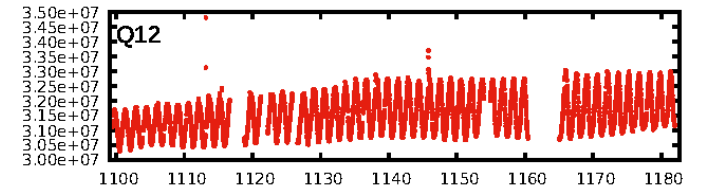
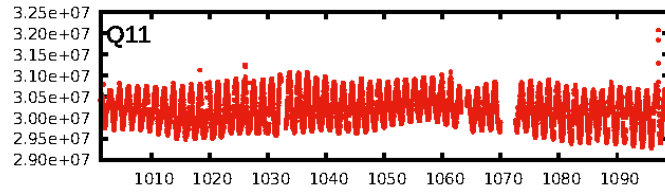
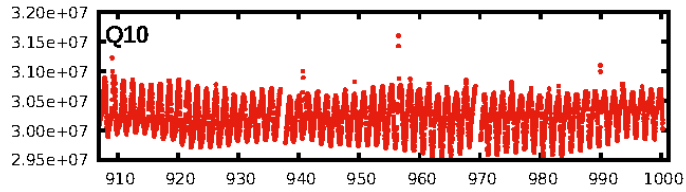
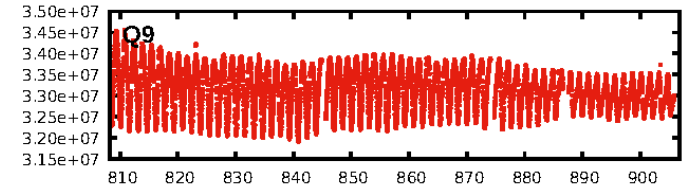
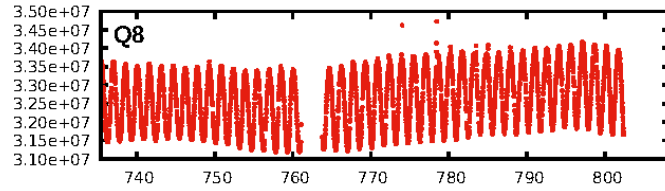
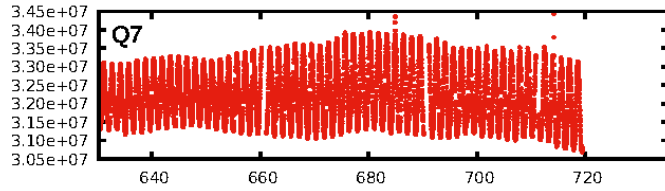
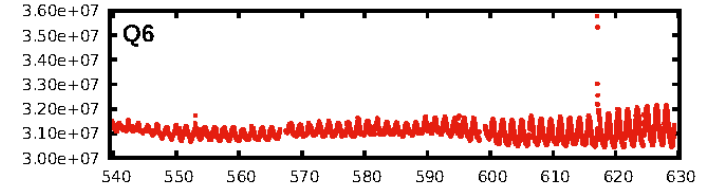
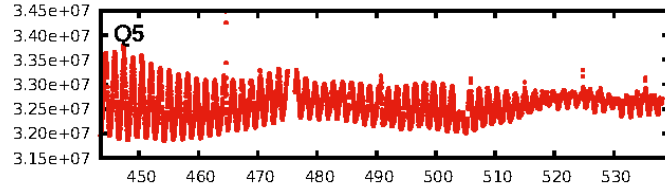
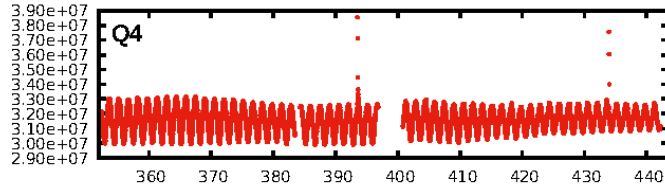
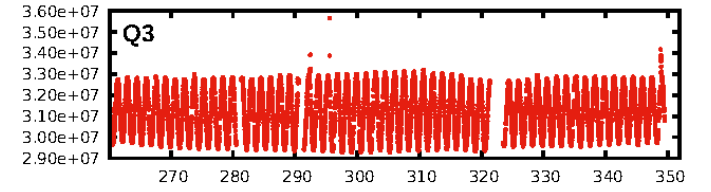
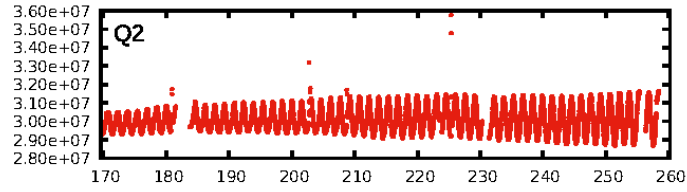
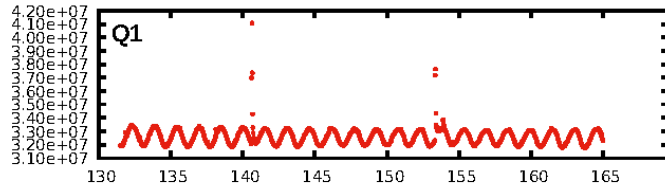
## DV Fit Results:

Period = 0.58083 [0.00002] d  
Epoch = 131.7048 [0.0039] BKJD  
Rp/R\* = 0.0149 [0.0159]  
a/R\* = 1.00 [0.02]  
b = 0.99 [0.04]  
Seff = 971.59 [100.32]  
Teff = 1424 [37] K  
Rp = 1.05 [1.13] Re  
a = 0.0117 [0.0005] AU  
Ag = 9.54 [20.41] [0.42 $\sigma$ ]  
Teffp = 3868 [2069] K [1.18 $\sigma$ ]

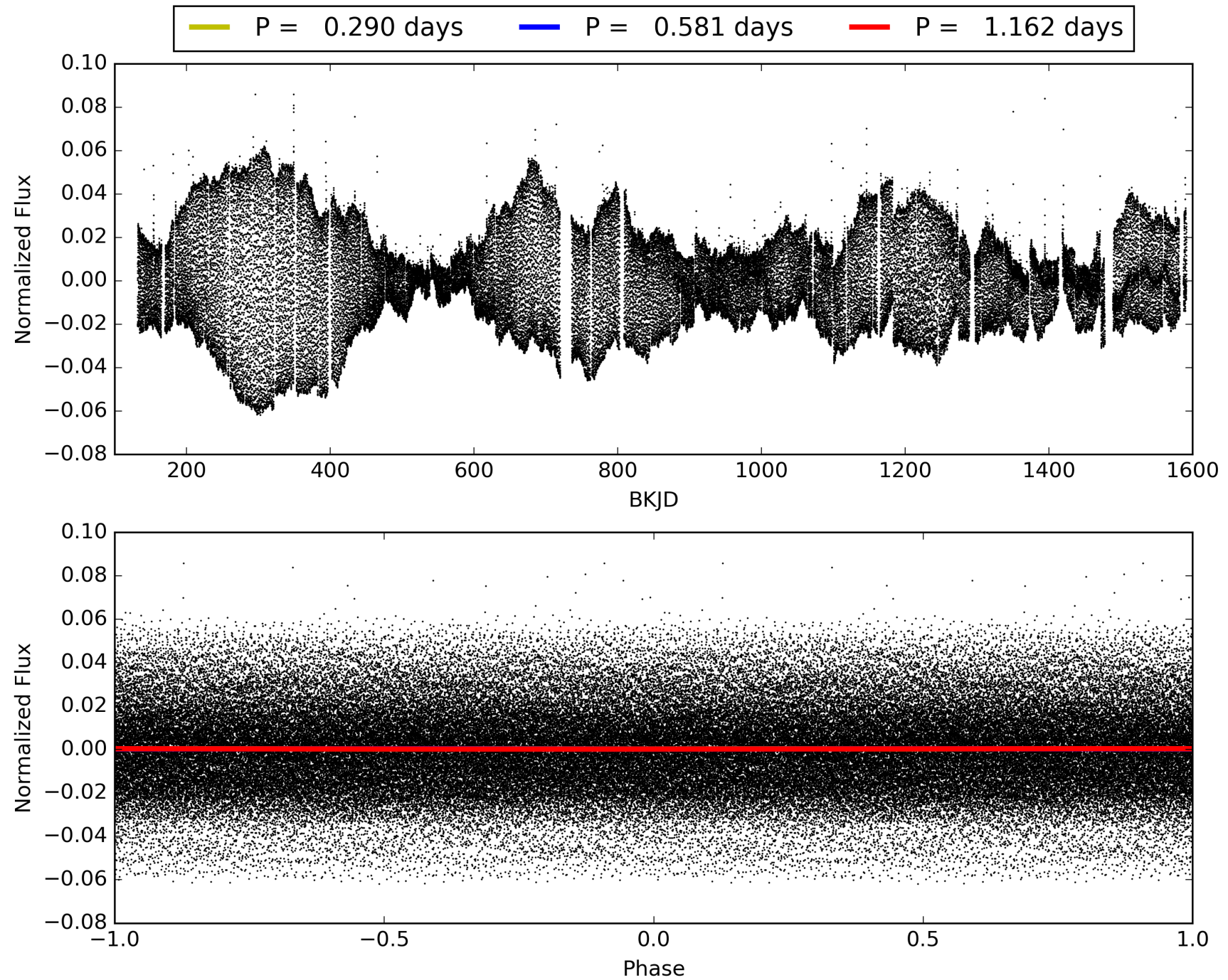
## DV Diagnostic Results:

ShortPeriod-sig: N/A  
LongPeriod-sig: N/A  
ModelChiSquare2-sig: N/A  
ModelChiSquareGof-sig: N/A  
Bootstrap-pfa: N/A  
RollingBand-fgt: 1.00 [2217/2219]  
**GhostDiagnostic-chr: 9.828**  
Centroid-sig: 89.0%  
Centroid-so: 0.271 arcsec [0.67 $\sigma$ ]  
OotOffset-rm: 0.750 arcsec [1.19 $\sigma$ ]  
KicOffset-rm: 0.729 arcsec [1.03 $\sigma$ ]  
OotOffset-st: 2/3/2/3 [10]  
KicOffset-st: 2/3/2/3 [10]  
DiffImageQuality-fgm: 0.70 [7/10]  
DiffImageOverlap-fno: 1.00 [17/17]

# TCE 003539331-01, PDC Light Curves

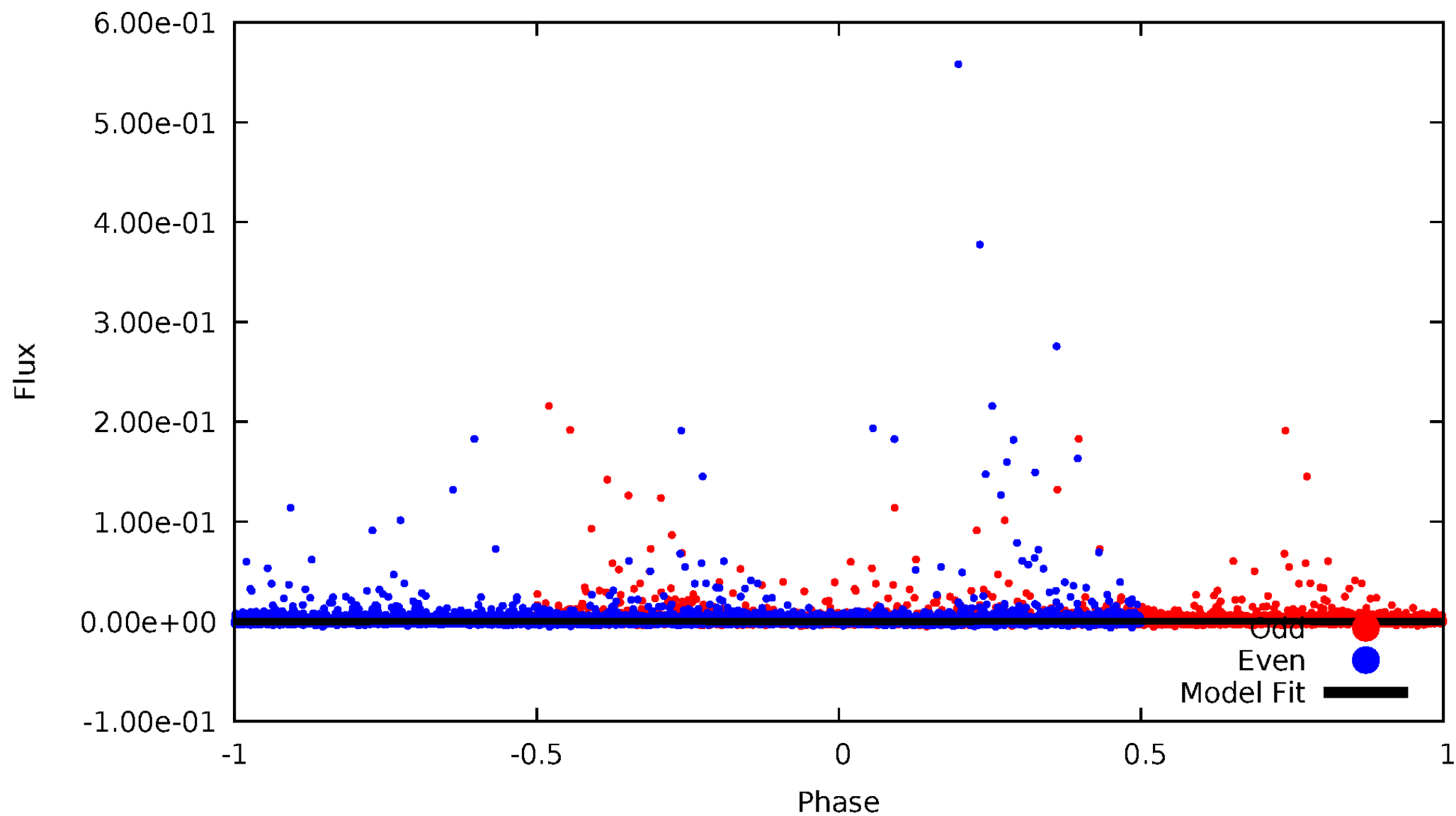


TCE 003539331-01



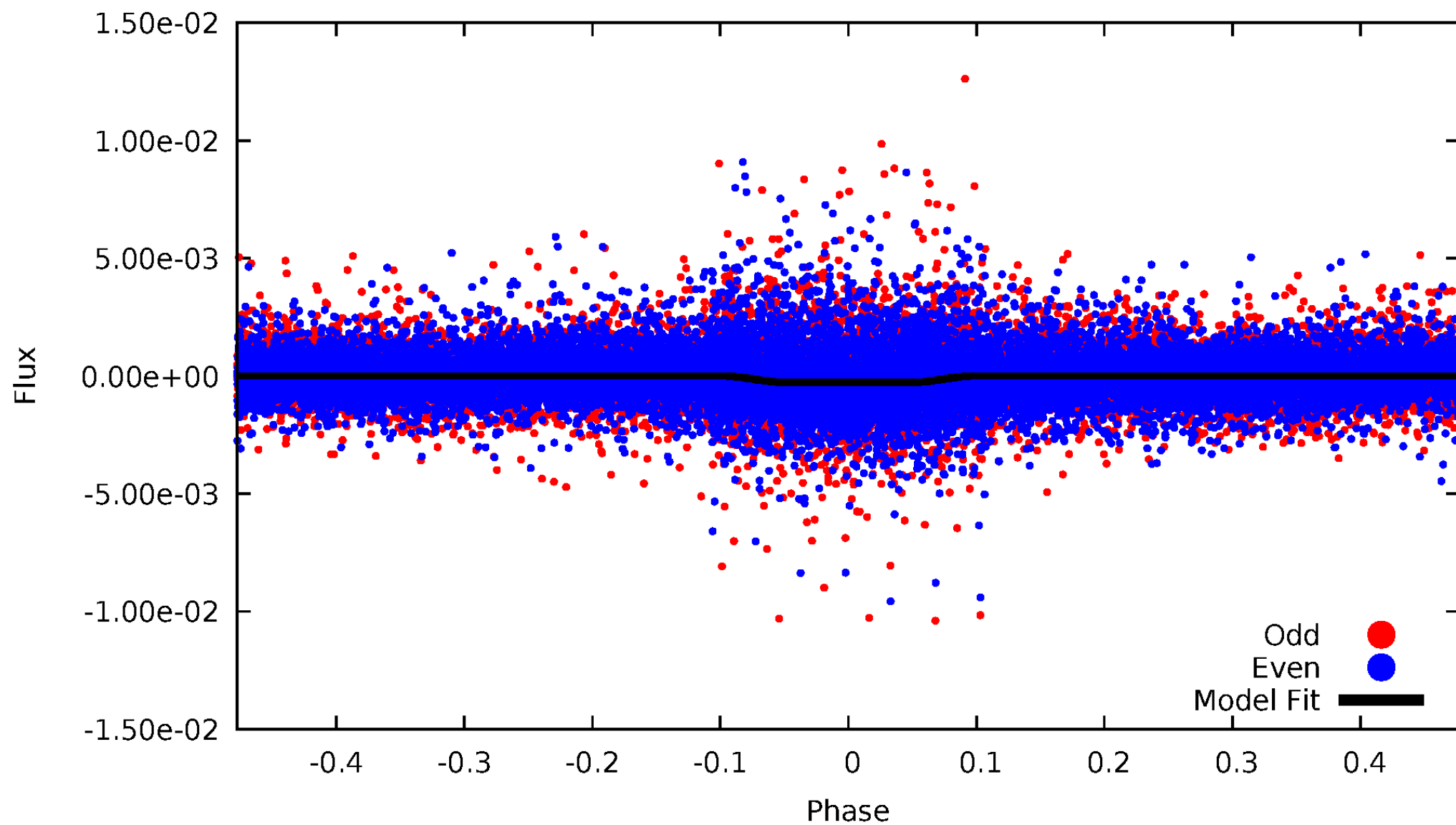
# DV Odd/Even

TCE 003539331-01



# ALT Odd/Even

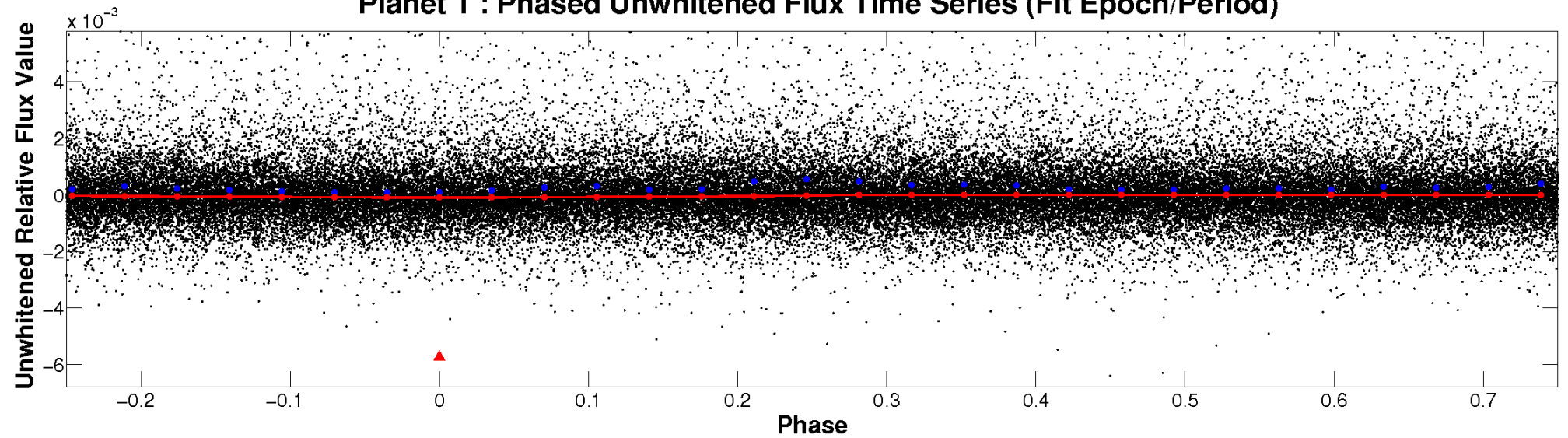
TCE 003539331-01



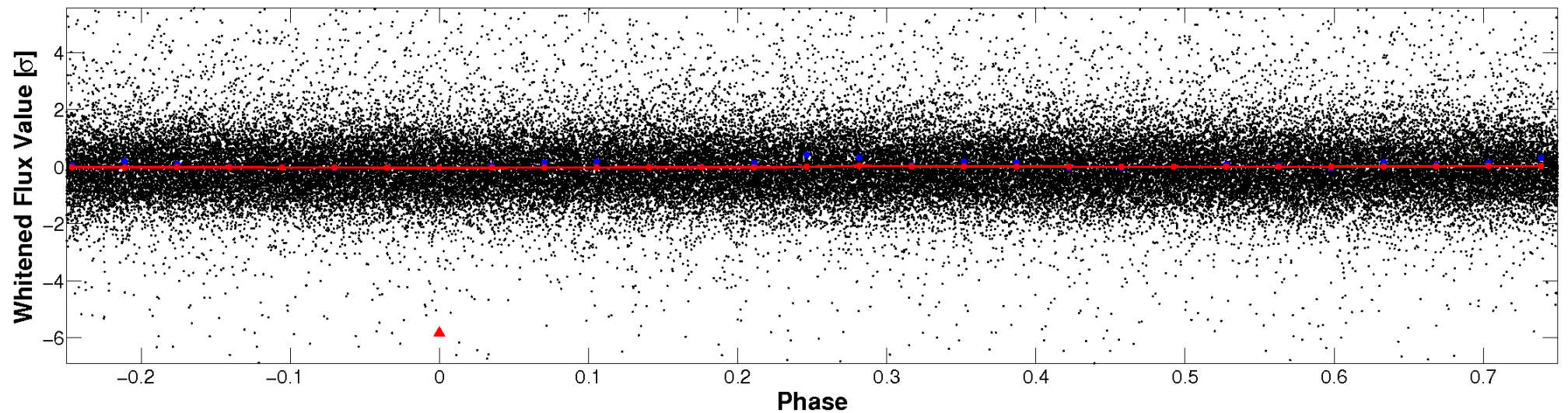


# Non-Whitened Vs. Whitened Light Curve

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

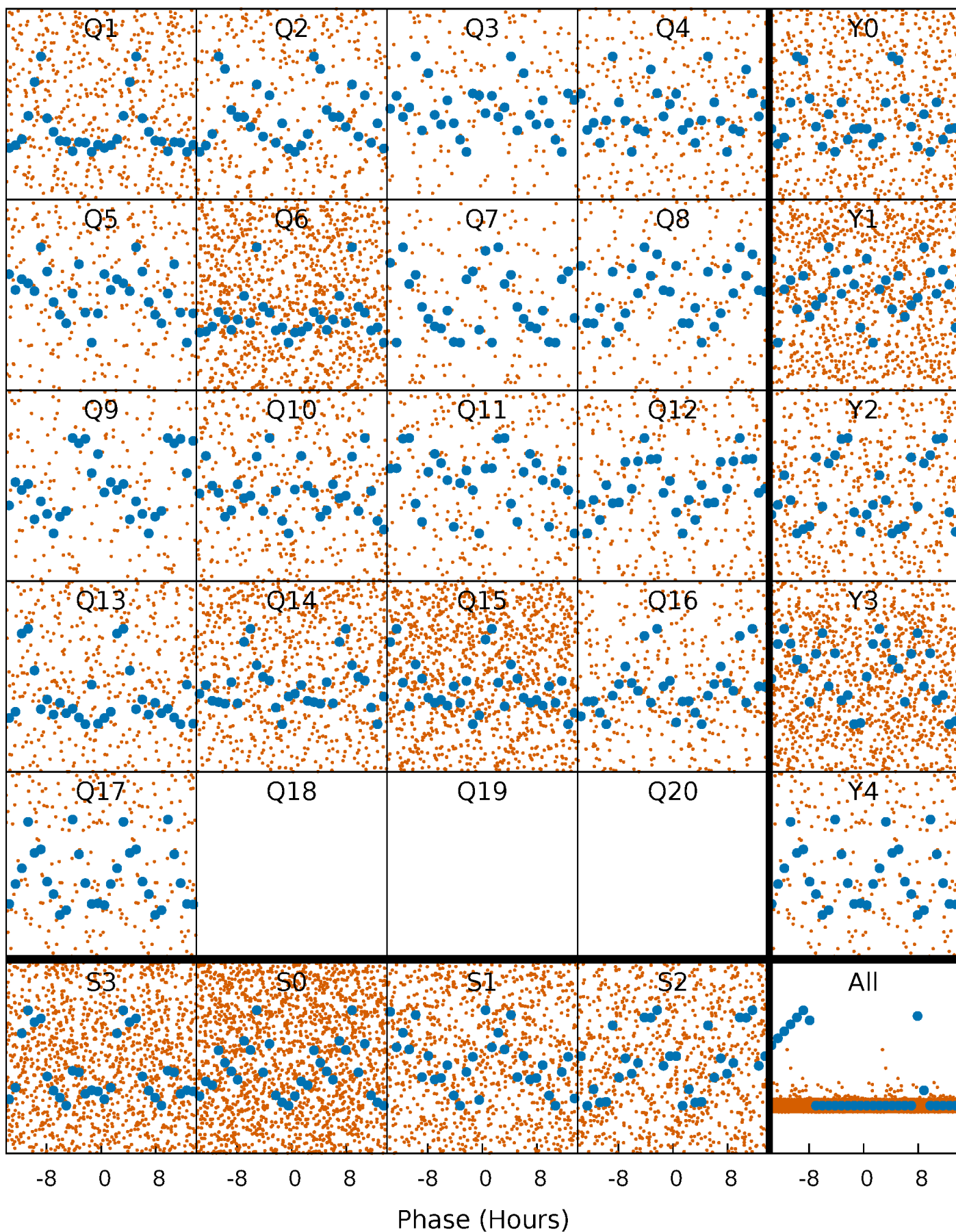


**Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)**



# PDC Quarter-Phased Transit Curves

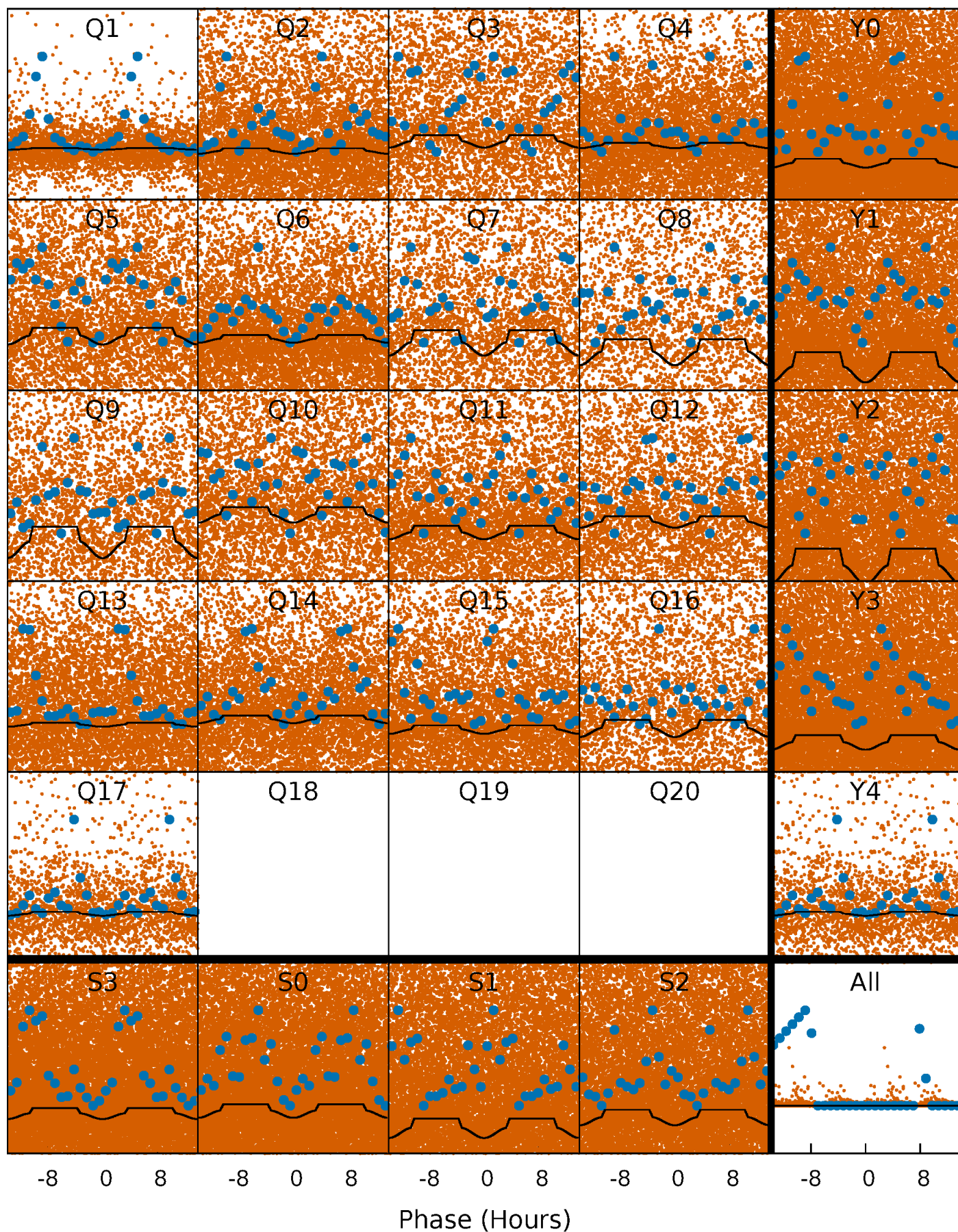
TCE 003539331-01 P= 0.580832 Days  $T_0=131.704810$  (BKJD)





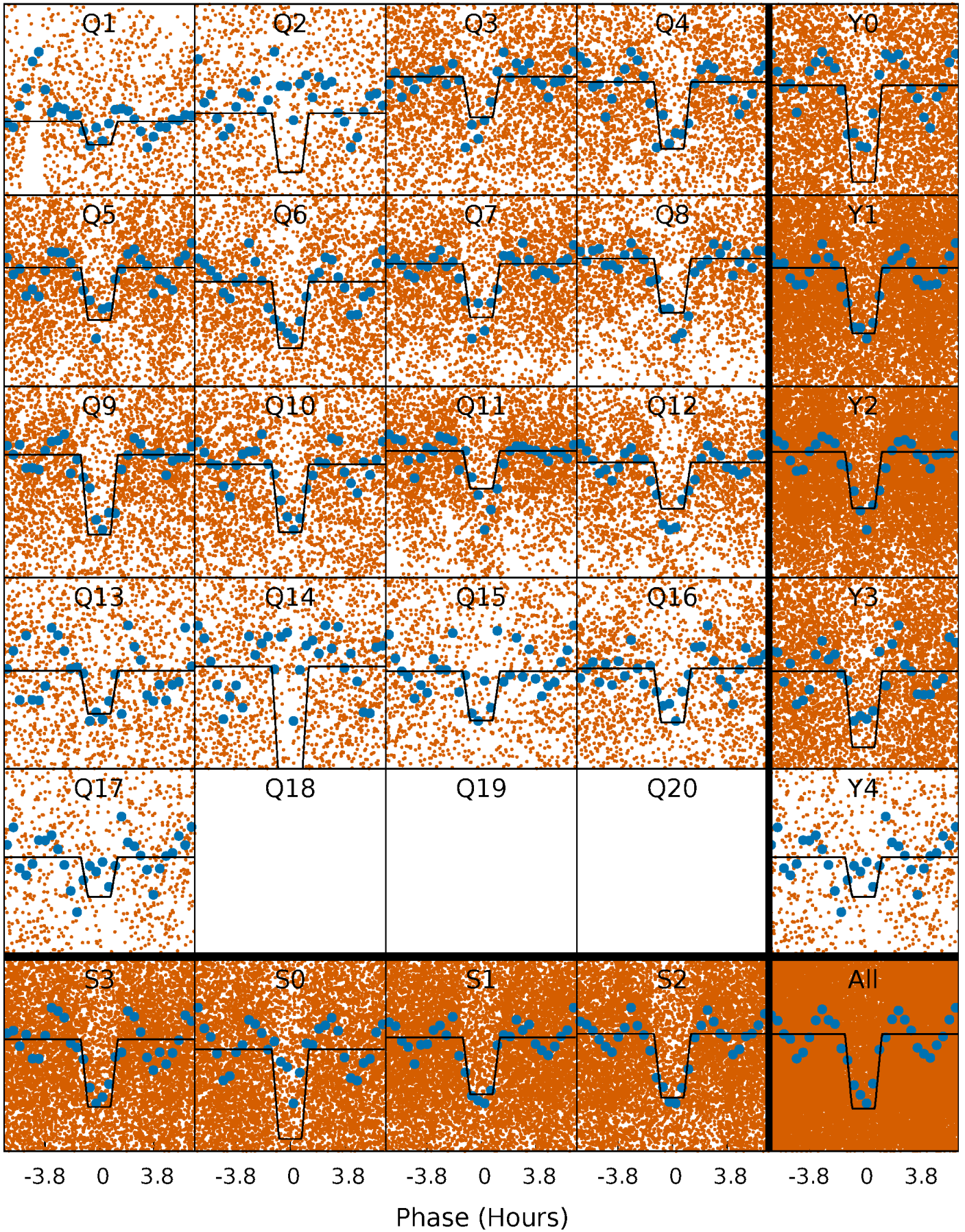
# DV Quarter-Phased Transit Curves

TCE 003539331-01 P= 0.580832 Days  $T_0=131.704810$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

TCE 003539331-01 P= 0.581079 Days  $T_0=131.512591$  (BKJD)

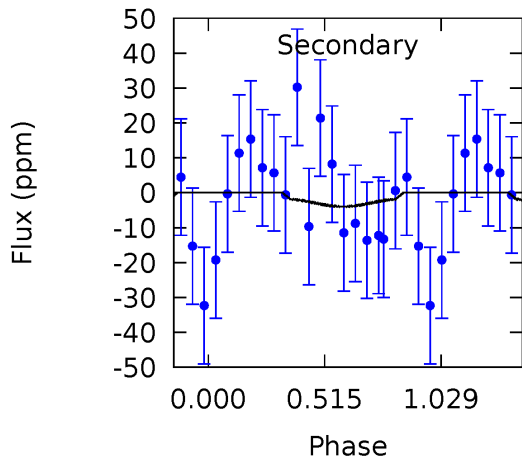
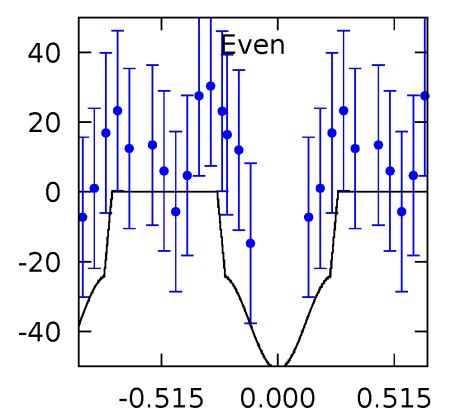
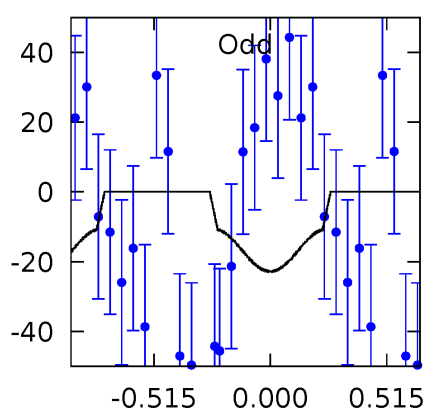
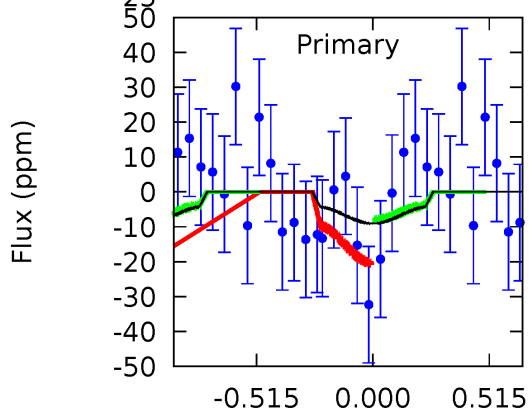
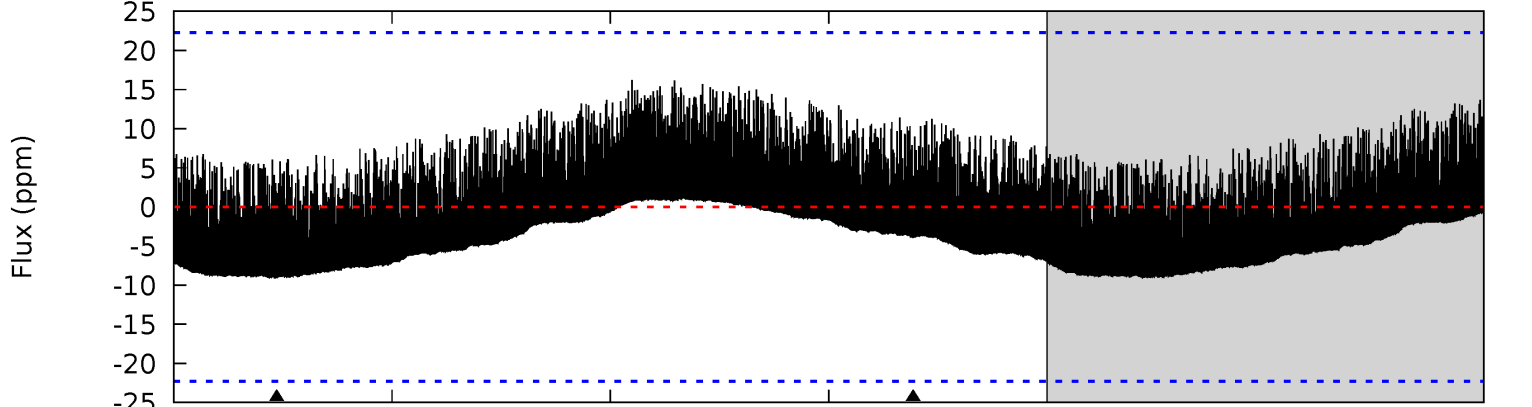
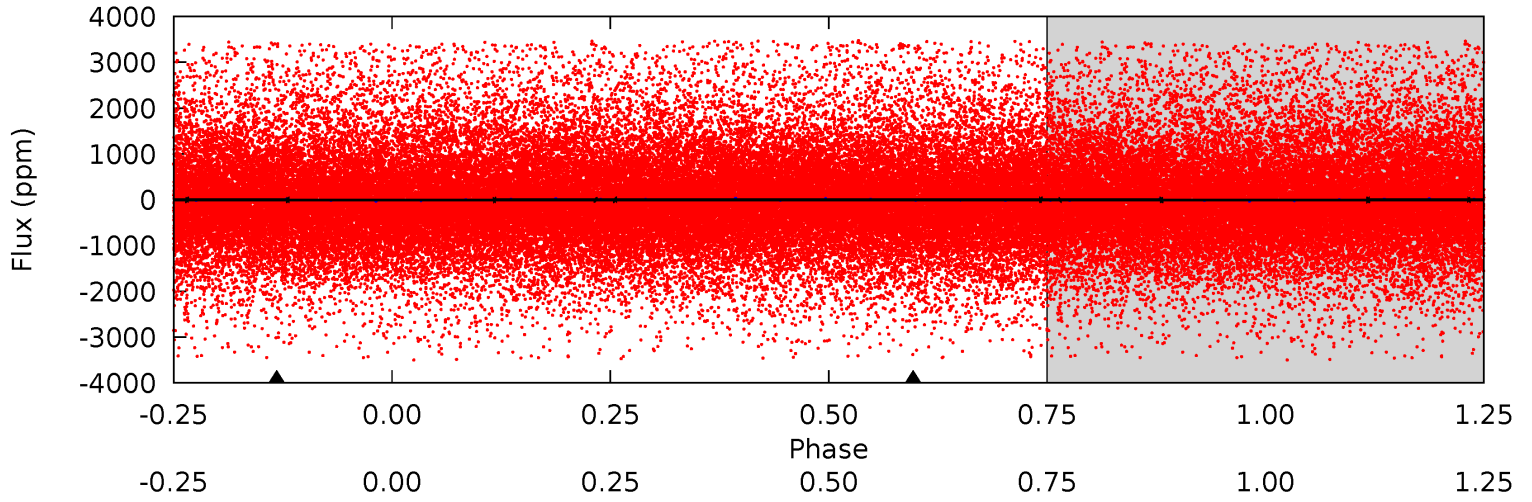




# DV Model-Shift Uniqueness Test

003539331-01, P = 0.580832 Days, E = 131.123978 Days

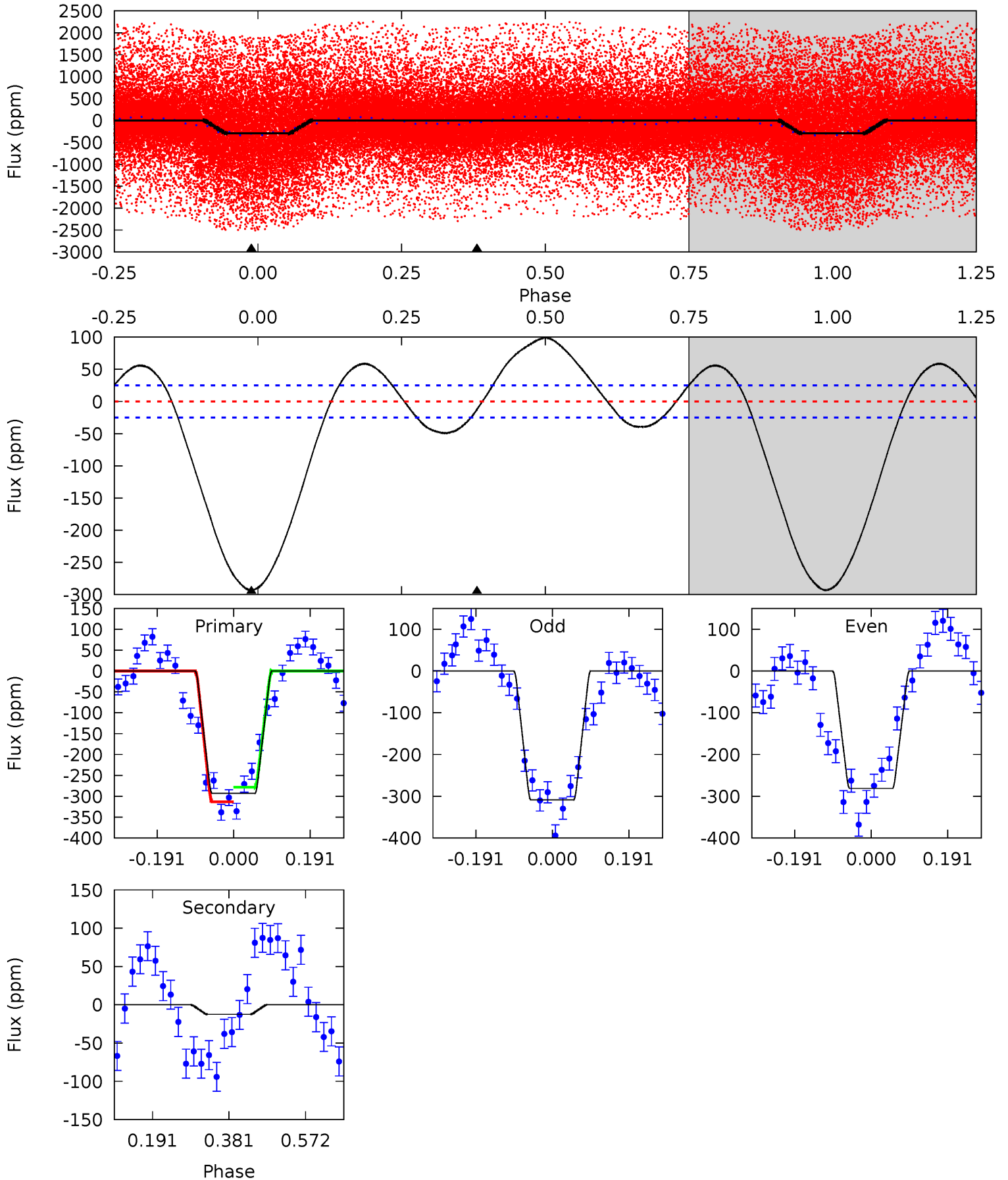
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
1.71	0.75	0	0	4.21	0.65	0.43	1.71	1.71	0.75	0.75	2.69	4.28	0.64	1.19



# Alt Model-Shift Uniqueness Test

003539331-01, P = 0.581079 Days, E = 131.512591 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
51.9	2.22	0	0	4.43	1.31	5.92	51.9	51.9	2.22	2.22	2.46	0.77	0.25	3.07



### Stellar Parameters For KIC 003539331

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R$ ( $R_{\odot}$ )	$M(M_{\odot})$	$p_{\star}$ ( $\text{g}\cdot\text{cm}^{-3}$ )
	$4338^{+77}_{-85}$	$4.618^{+0.037}_{-0.012}$	$-0.100^{+0.150}_{-0.150}$	$0.649^{+0.022}_{-0.035}$	$0.637^{+0.038}_{-0.025}$	$3.285^{+0.512}_{-0.198}$
	+2%/-2%	+1%/-0%	+150%/-150%	+3%/-5%	+6%/-4%	+16%/-6%
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 003539331-01 / KOI

Detrend	Depth (ppm)	$R_p$ ( $R_{\oplus}$ )	$T_{\text{max}}$ (K)	$T_{\text{obs}}$ (K)	$A_{\text{obs}}$
DV	$-4 \pm 5$	$1.32^{+1.06}_{-0.82}$	$1979^{+36}_{-42}$	$-2271^{+5072}_{-177}$	$0.123^{+1.118}_{-0.160}$
Alt.	$-13 \pm 6$	$1.39^{+1.08}_{-0.89}$	$1977^{+38}_{-43}$	$2267^{+1036}_{-4533}$	$0.471^{+2.980}_{-0.343}$

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



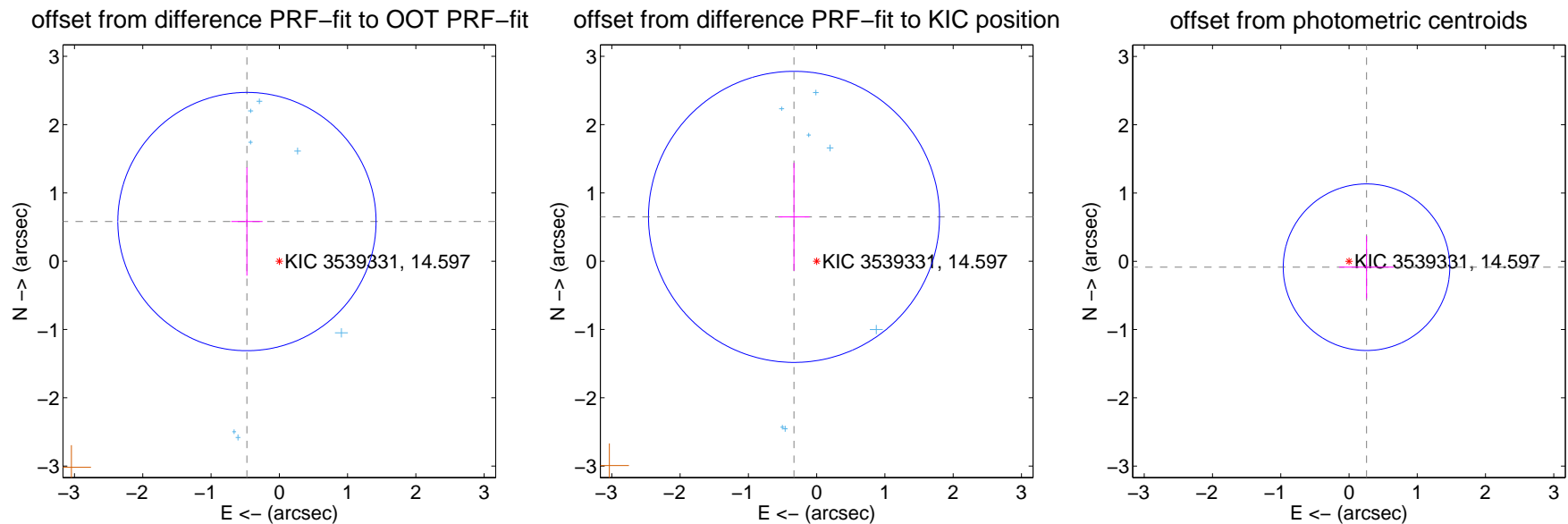
## DV Centroid Data

Supplemental centroid analysis for 003539331-01. Kepler magnitude: 14.60. Transit SNR 5.64

There are 7 quarters with good PRF difference image offsets

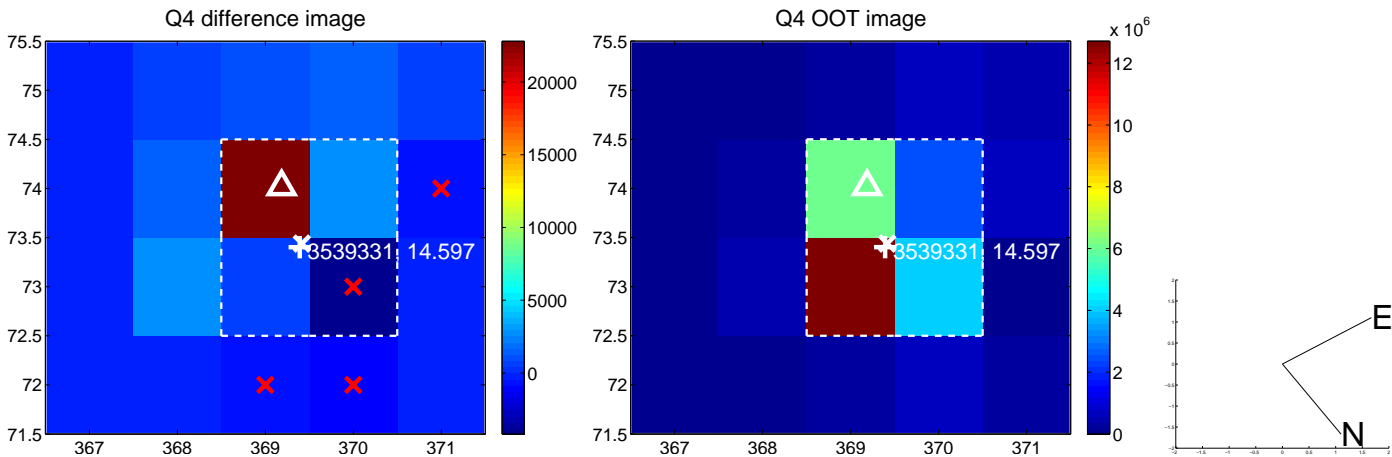
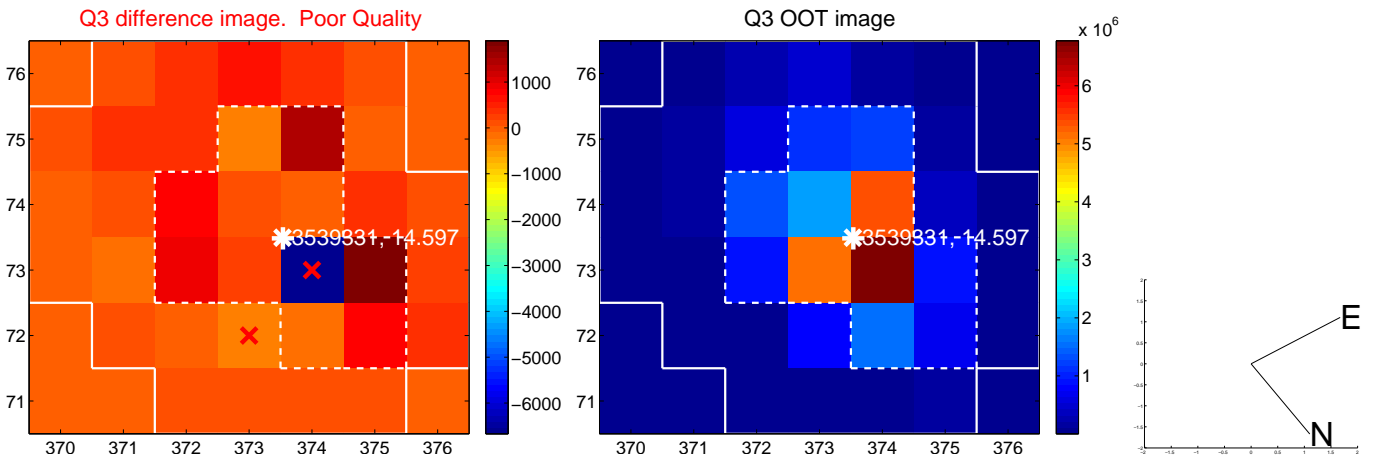
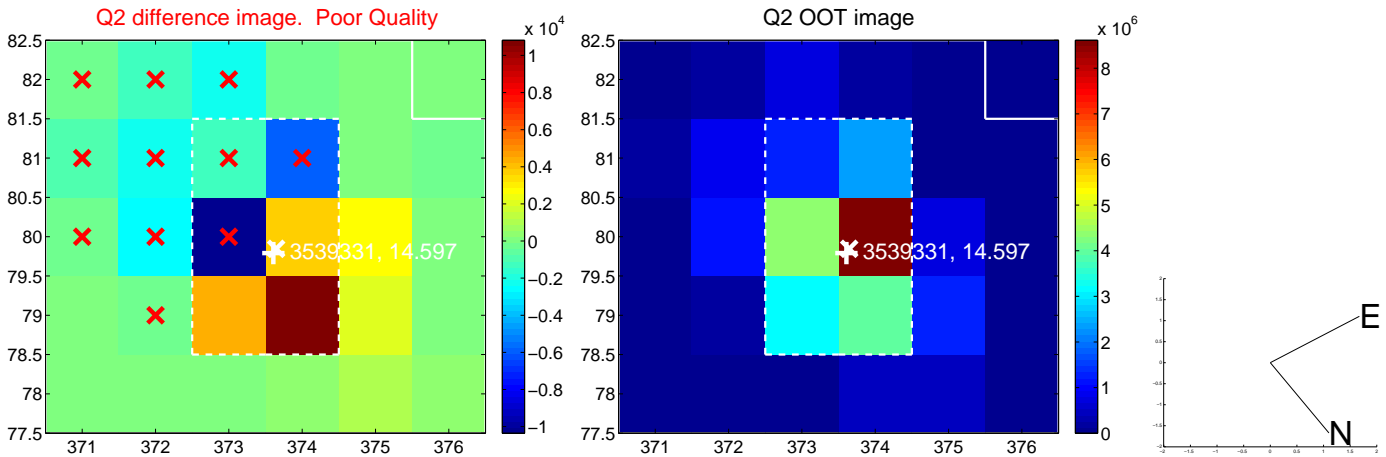
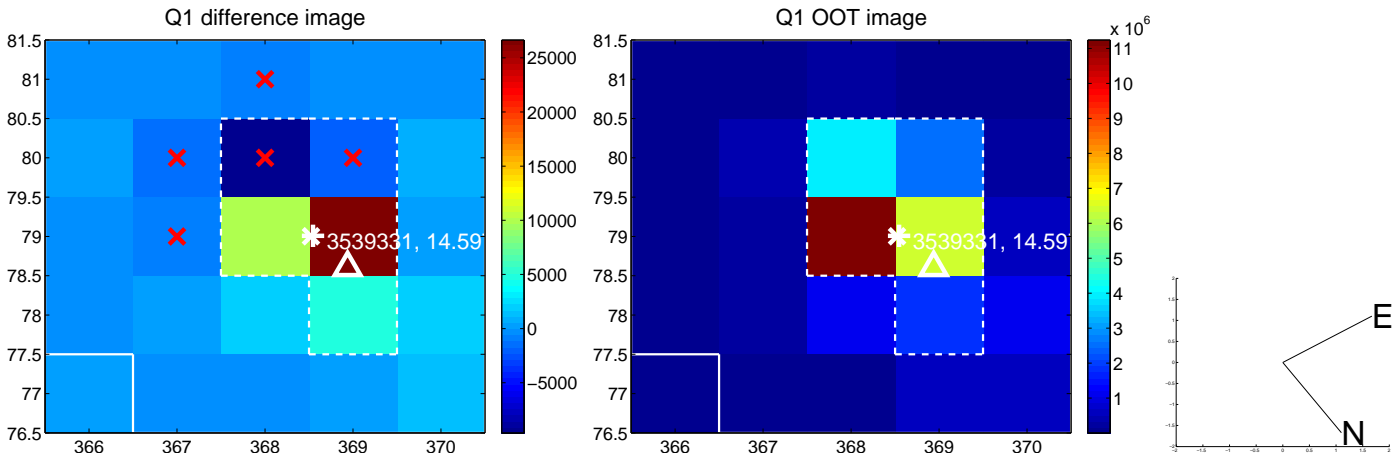
The direct PRF centroid is offset from the target star catalog position by about 0.06 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$0.750 \pm 0.630$	1.19	$0.474 \pm 0.229$	$0.581 \pm 0.792$
PRF-fit source offset from KIC position	$0.729 \pm 0.711$	1.03	$0.332 \pm 0.228$	$0.649 \pm 0.789$
photometric centroid source offset	$0.27 \pm 0.41$	0.67	$-0.26 \pm 0.40$	$-0.09 \pm 0.46$

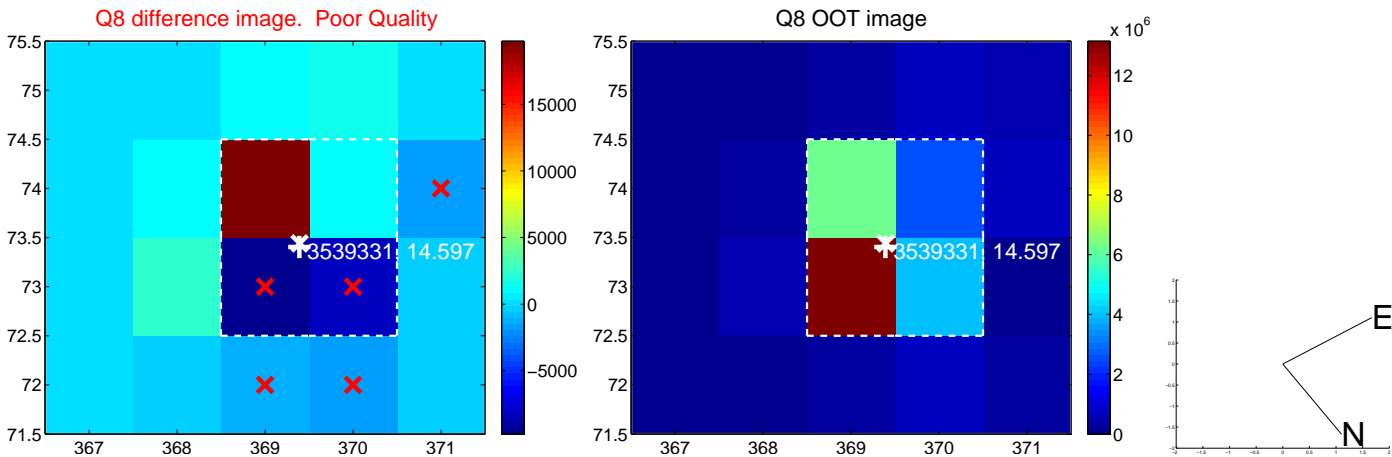
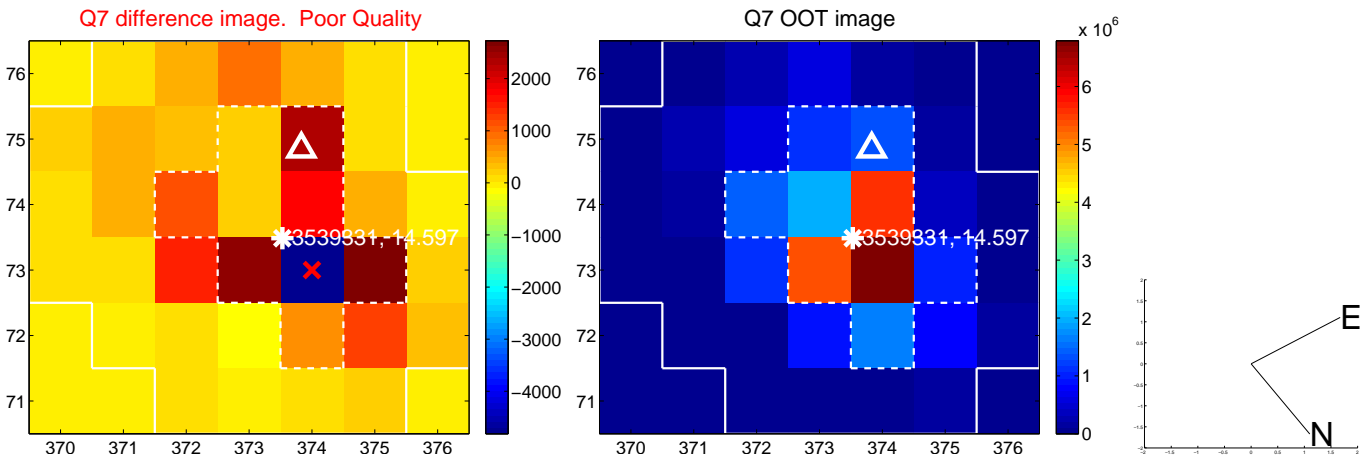
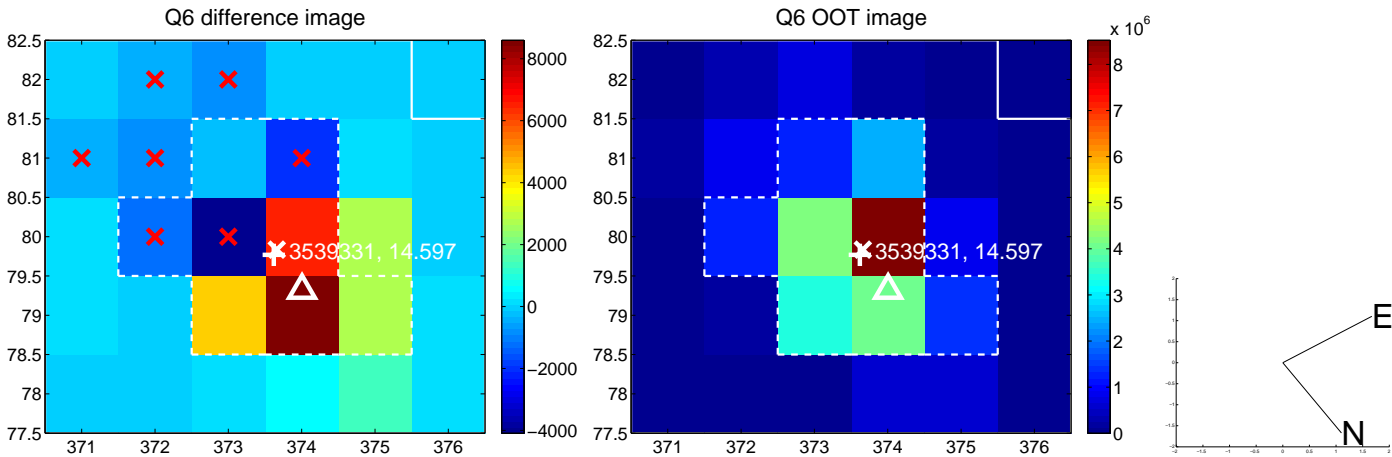
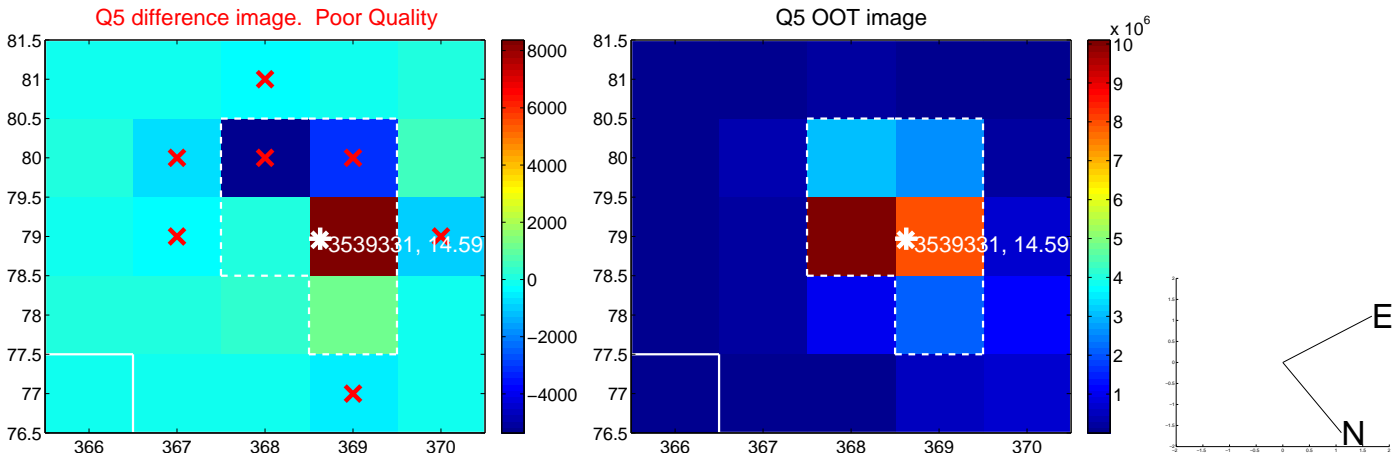


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: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

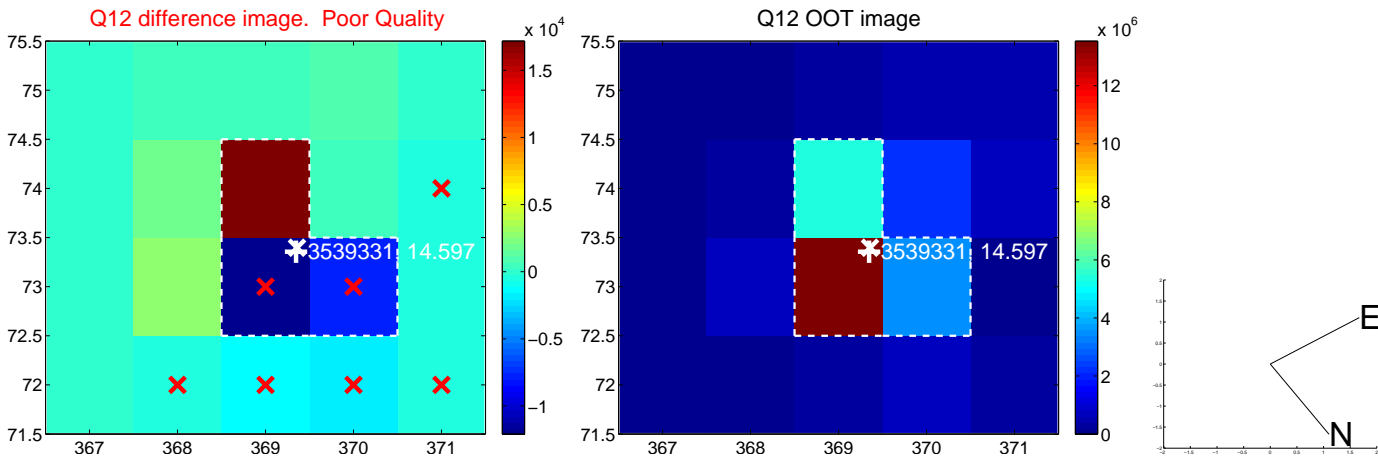
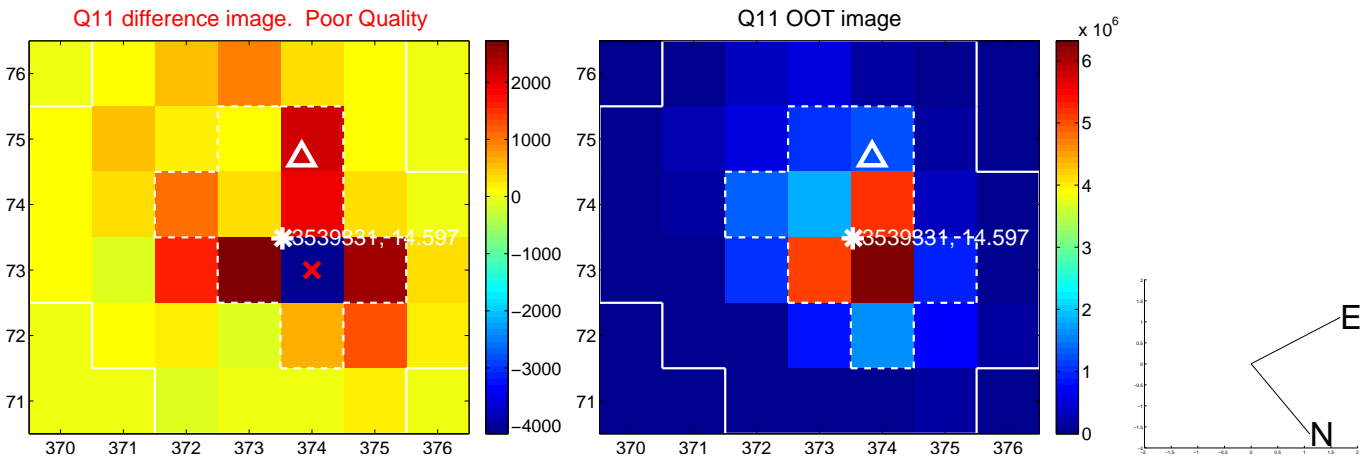
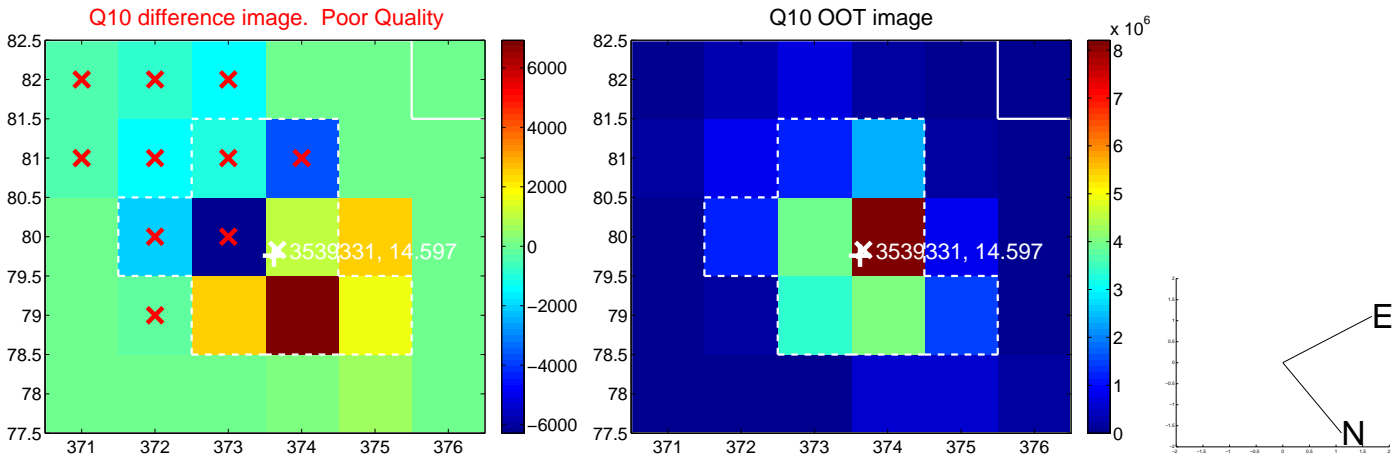
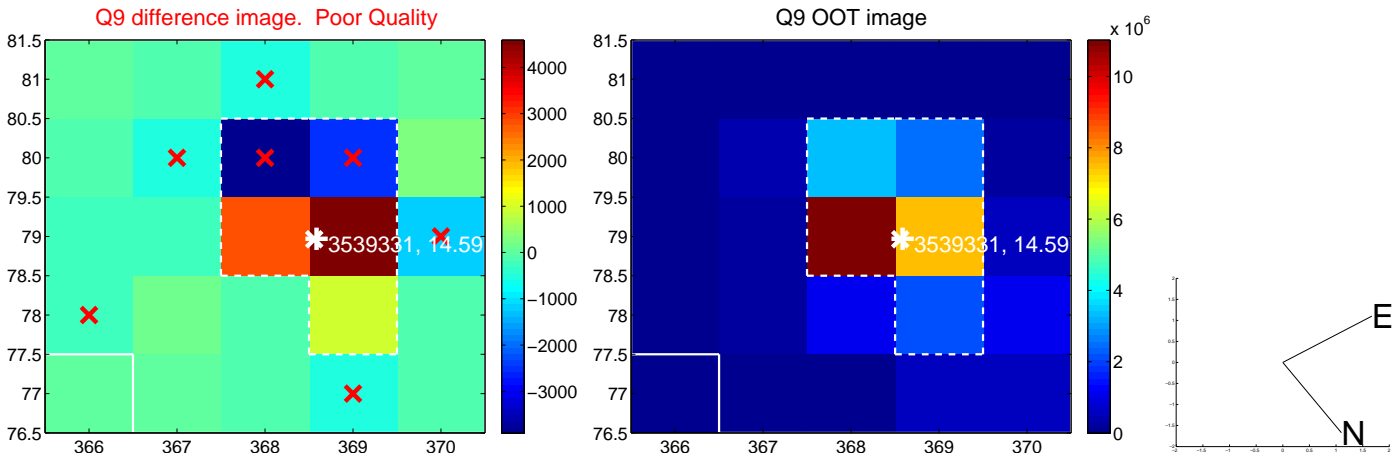
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



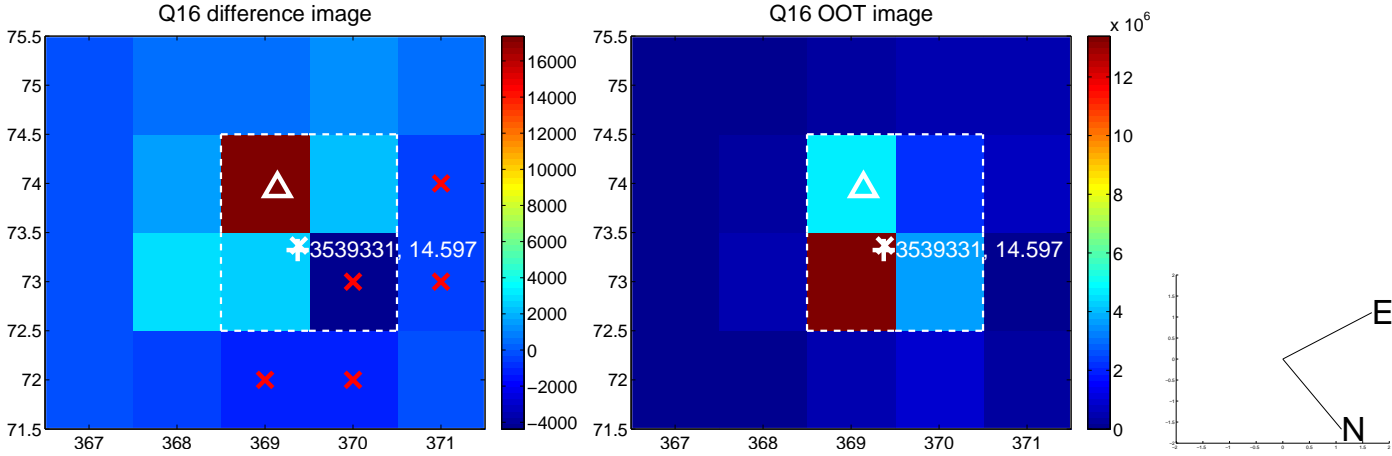
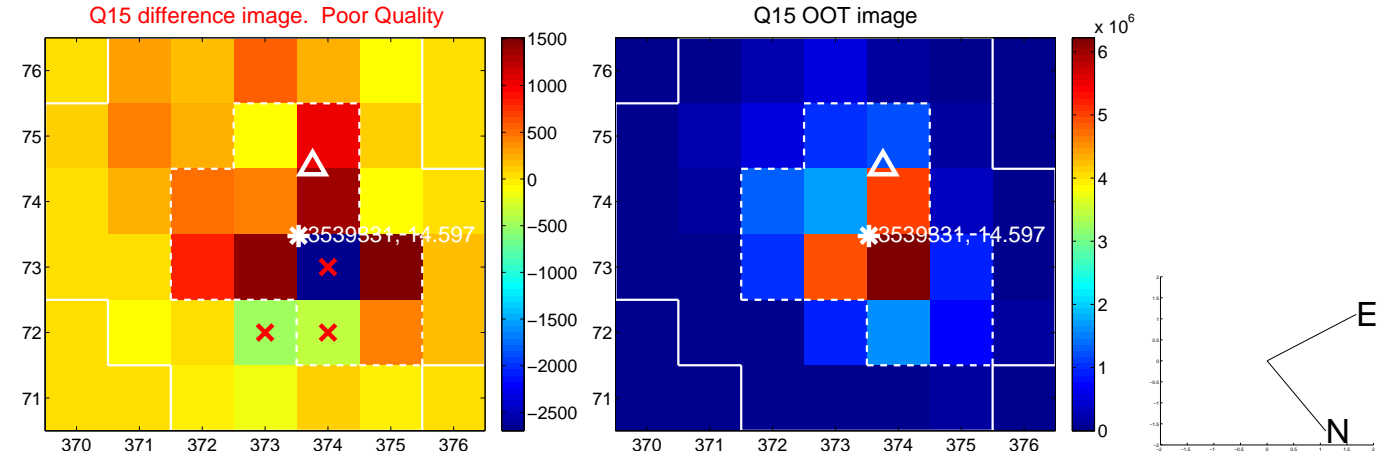
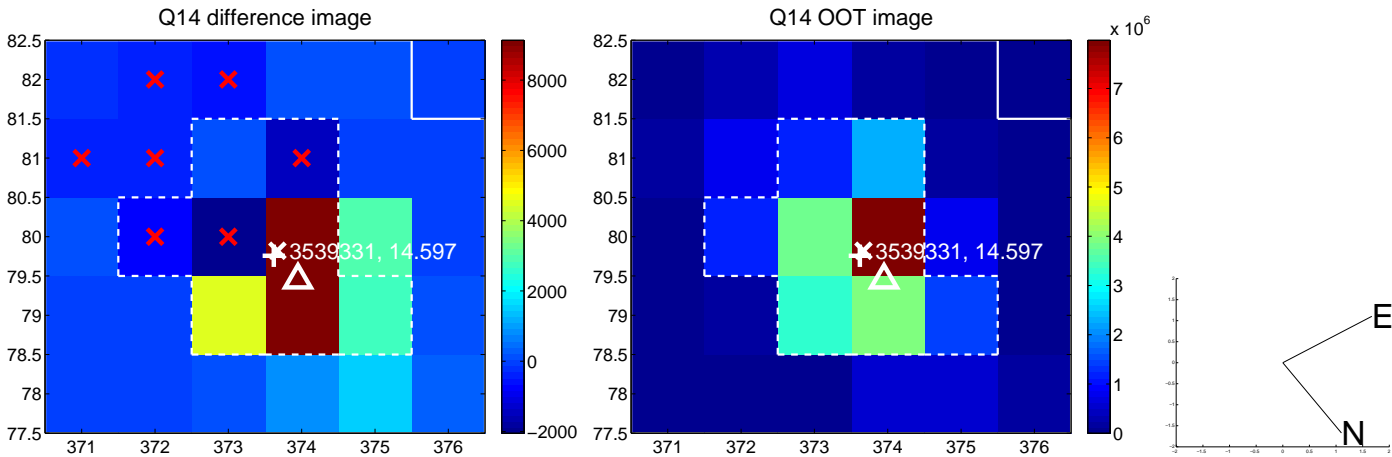
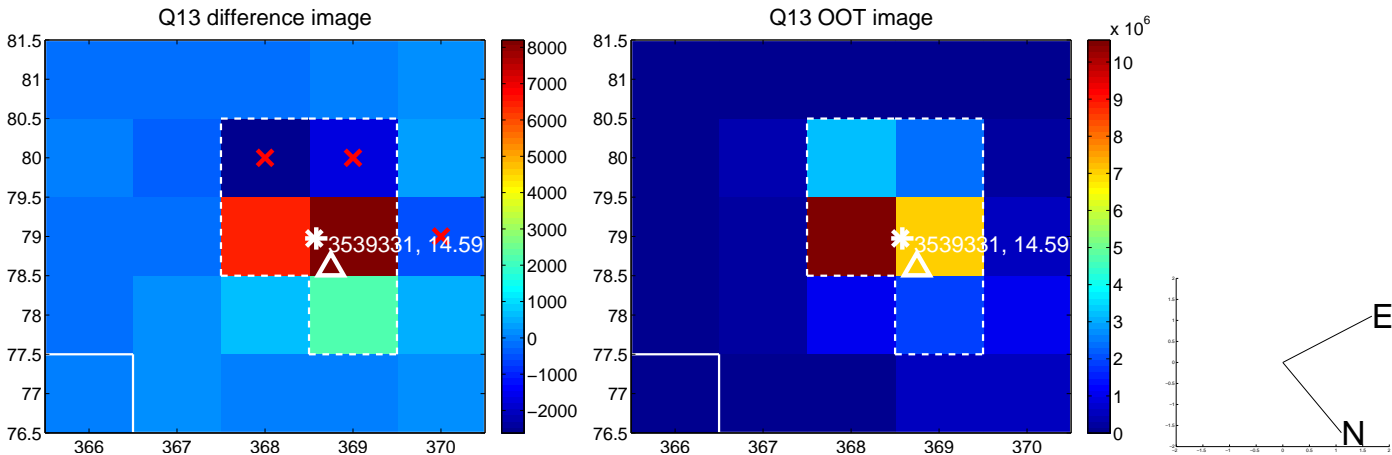
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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

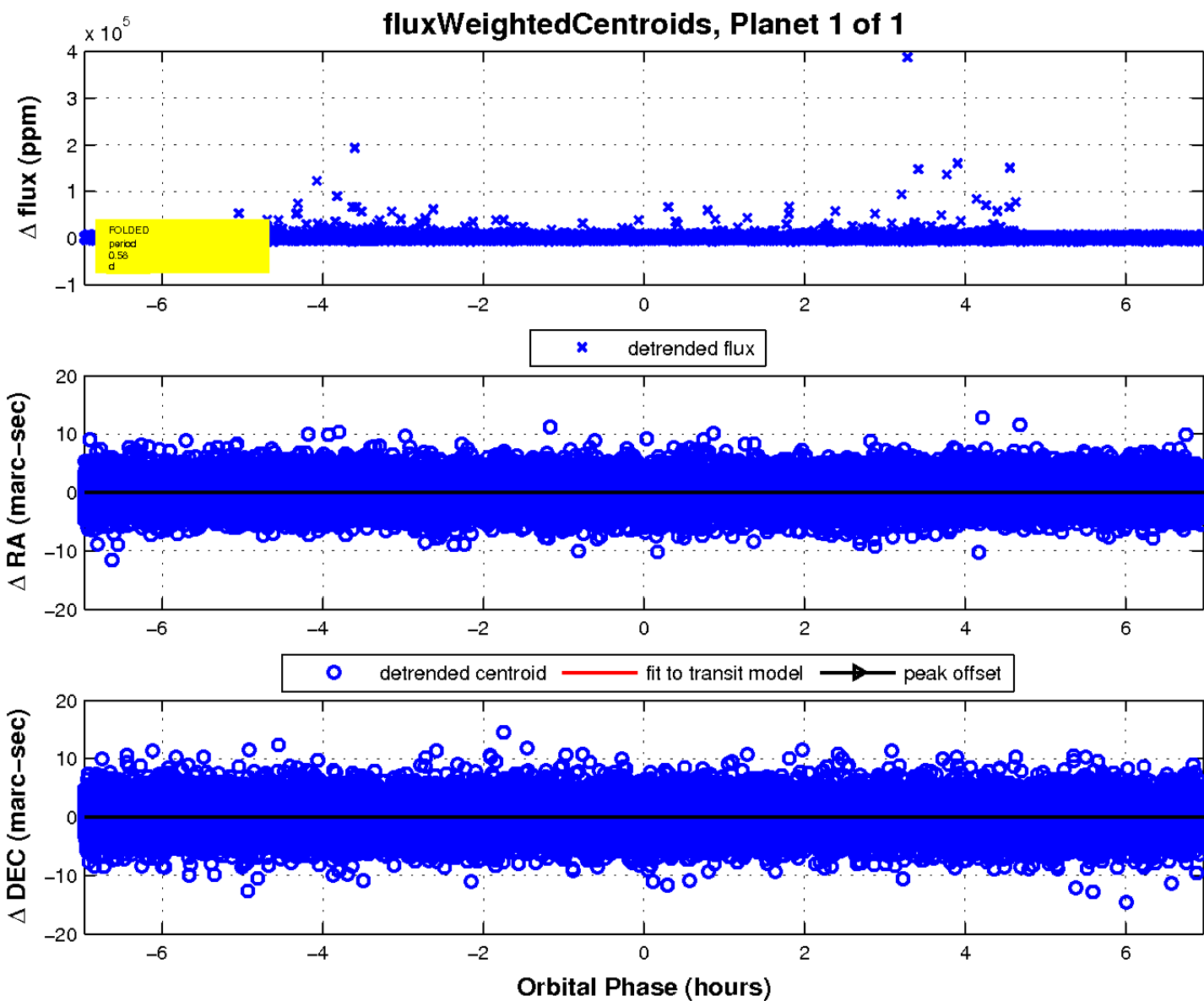
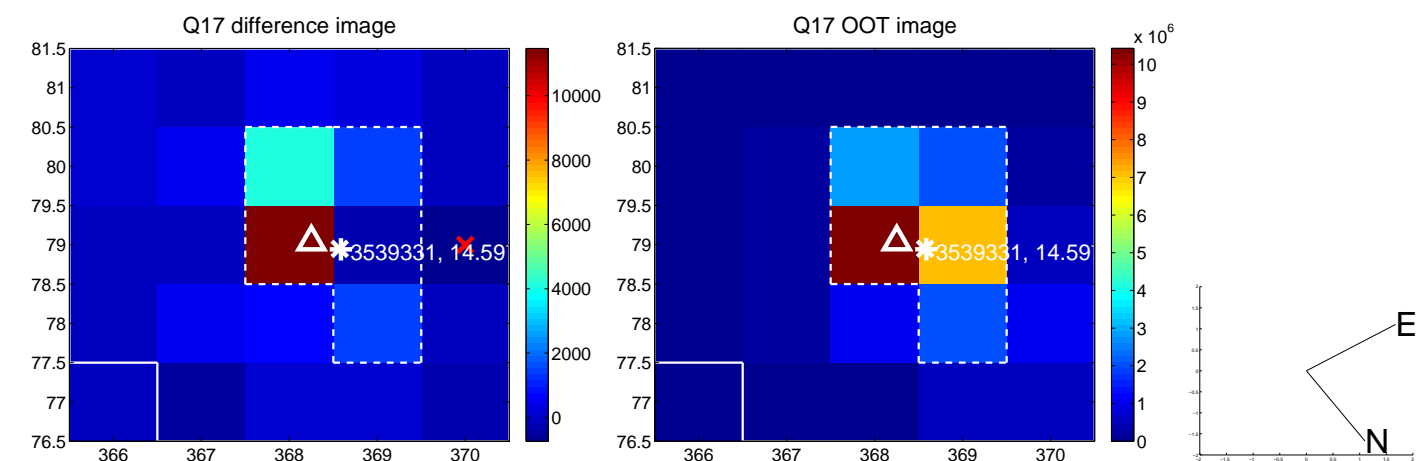


white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.





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



UKIRT Image

Declination

