

# KIC 005389110

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
005389110-01	OBS	No	3.428770	132.421890	57.0	27.734	7.8	7.0	0.90	5733	0.93	395.99

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
005389110-01	OBS	FP	0.00	1	0	1	0	LPP_DV—CENT_UNRESOLVED_OFFSET

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

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

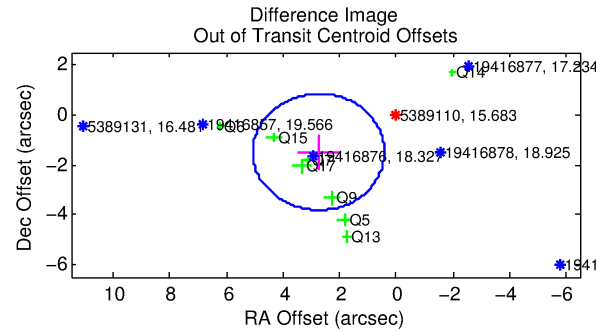
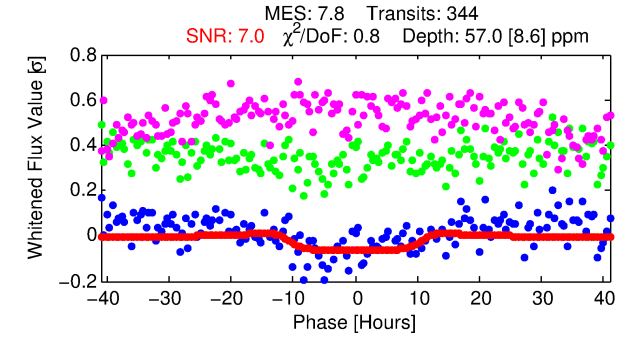
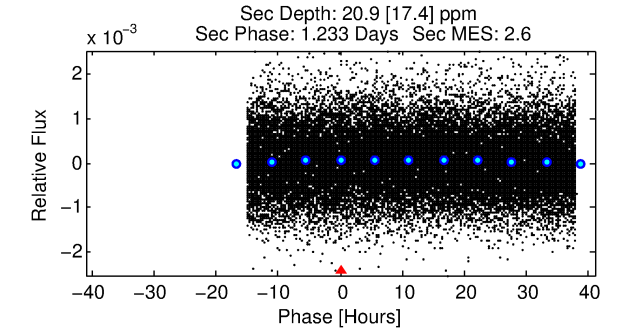
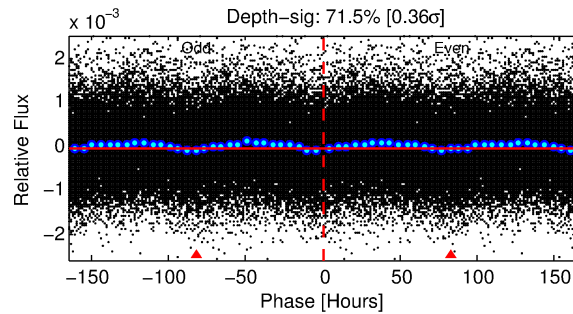
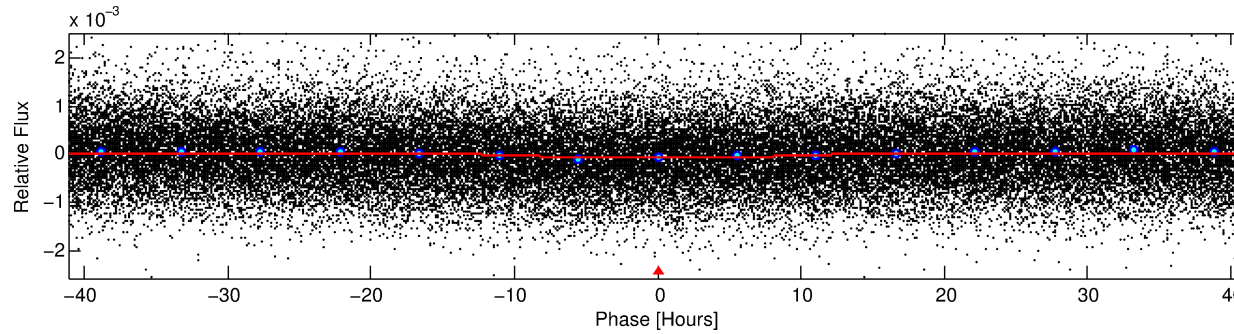
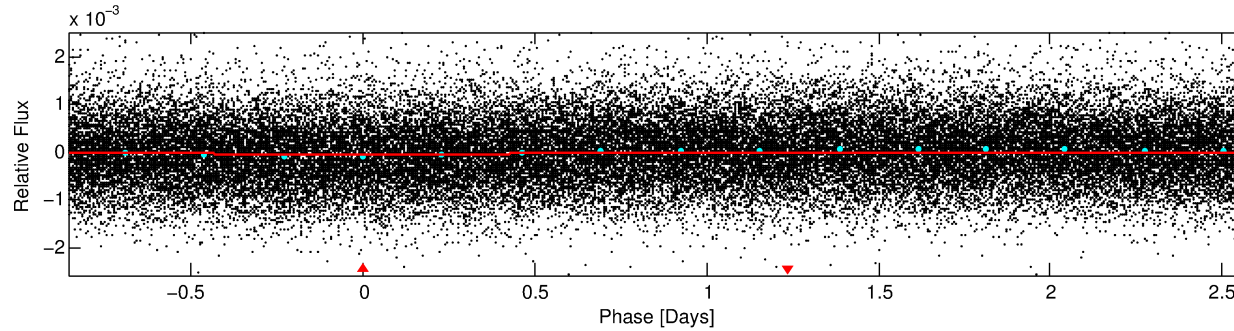
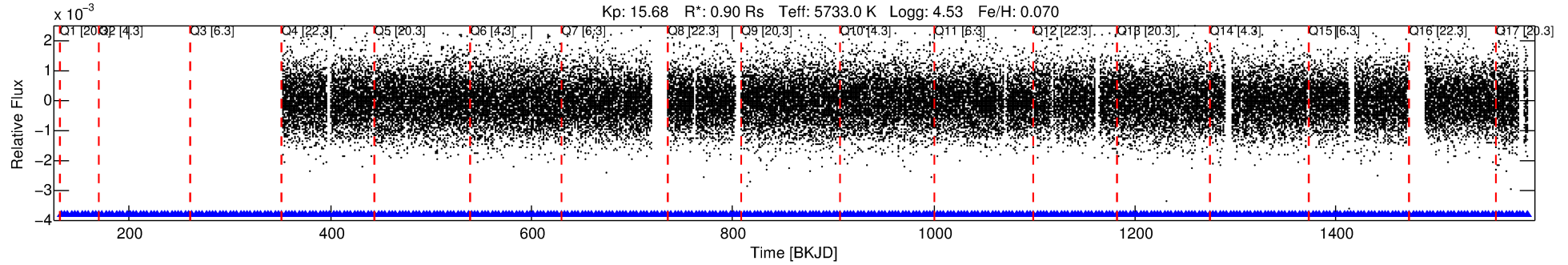
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

## Ephemeris Match Information For 005389110-01

No Significant Match Found

# DV One-Page Summary

KIC: 5389110 Candidate: 1 of 1 Period: 3.429 d



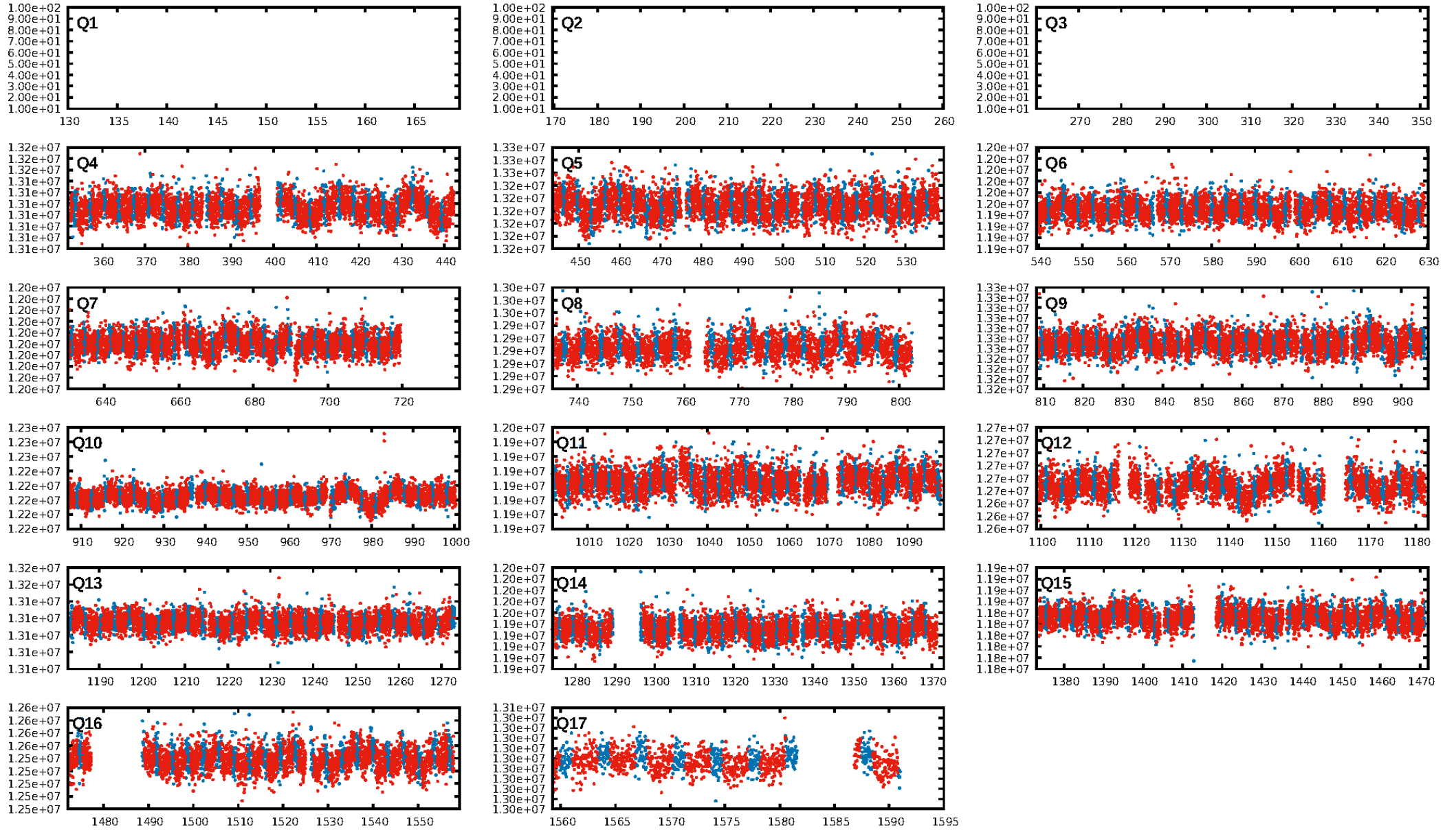
## DV Fit Results:

Period = 3.42877 [0.00037] d  
Epoch = 132.4219 [0.0947] BKJD  
Rp/R\* = 0.0094 [0.0011]  
a/R\* = 1.02 [0.02]  
b = 0.98 [0.02]  
Seff = 395.99 [156.12]  
Teq = 1137 [112] K  
Rp = 0.92 [0.29] Re  
a = 0.0447 [0.0112] AU  
Ag = 26.90 [25.14] [1.03 $\sigma$ ]  
Teffp = 4005 [871] K [3.27 $\sigma$ ]

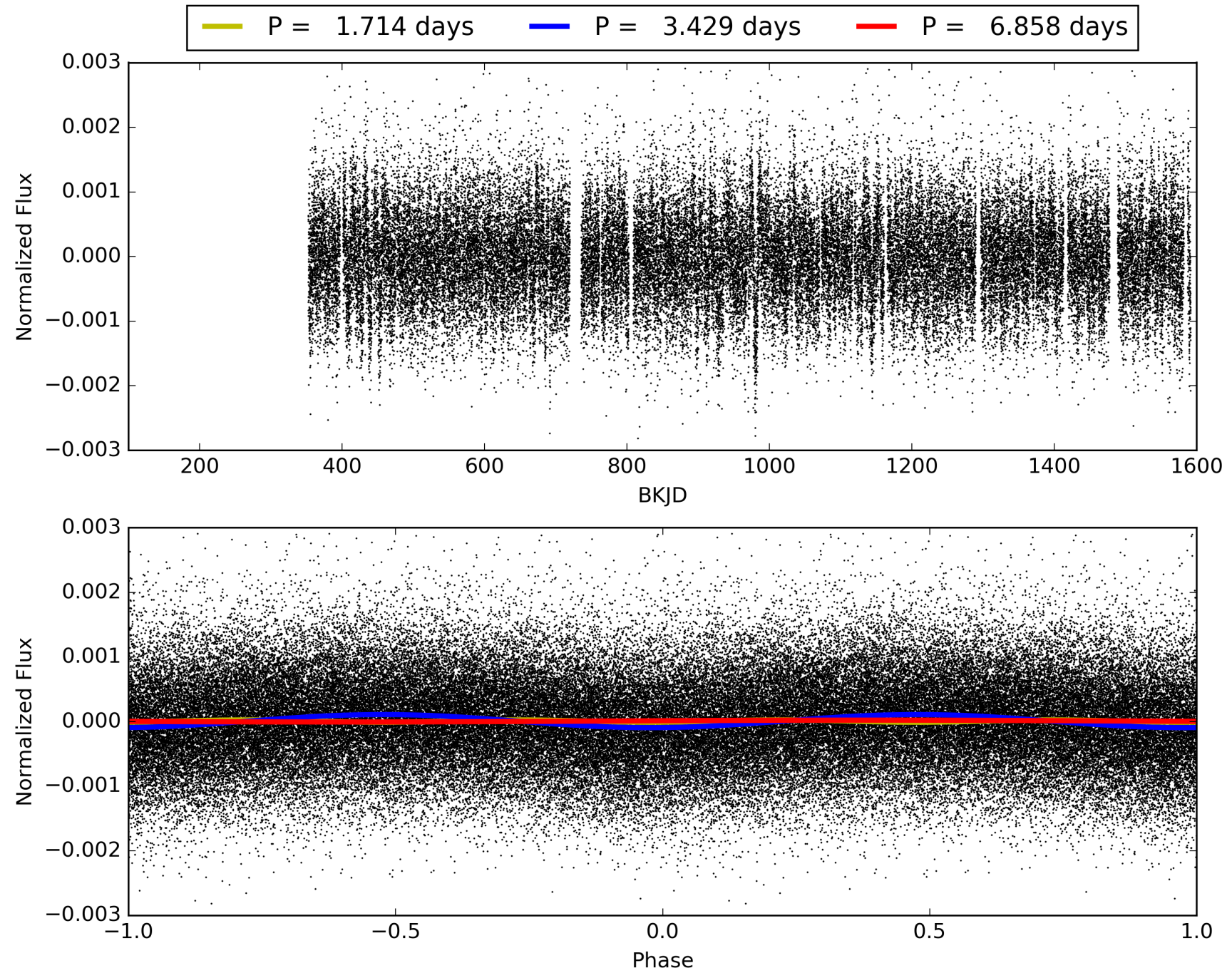
## DV Diagnostic Results:

ShortPeriod-sig: N/A  
LongPeriod-sig: N/A  
ModelChiSquare2-sig: N/A  
ModelChiSquareGof-sig: N/A  
Bootstrap-pfa: N/A  
RollingBand-fgt: 1.00 [336/336]  
GhostDiagnostic-chr: 0.384  
Centroid-sig: 0.0%  
Centroid-so: 6.780 arcsec [4.21 $\sigma$ ]  
OotOffset-rm: 3.126 arcsec [4.03 $\sigma$ ]  
KicOffset-rm: 2.917 arcsec [3.78 $\sigma$ ]  
OotOffset-st: 2/2/0/4 [8]  
KicOffset-st: 2/2/0/4 [8]  
DiffImageQuality-fgm: 0.62 [5/8]  
DiffImageOverlap-fno: 1.00 [14/14]

# TCE 005389110-01, PDC Light Curves



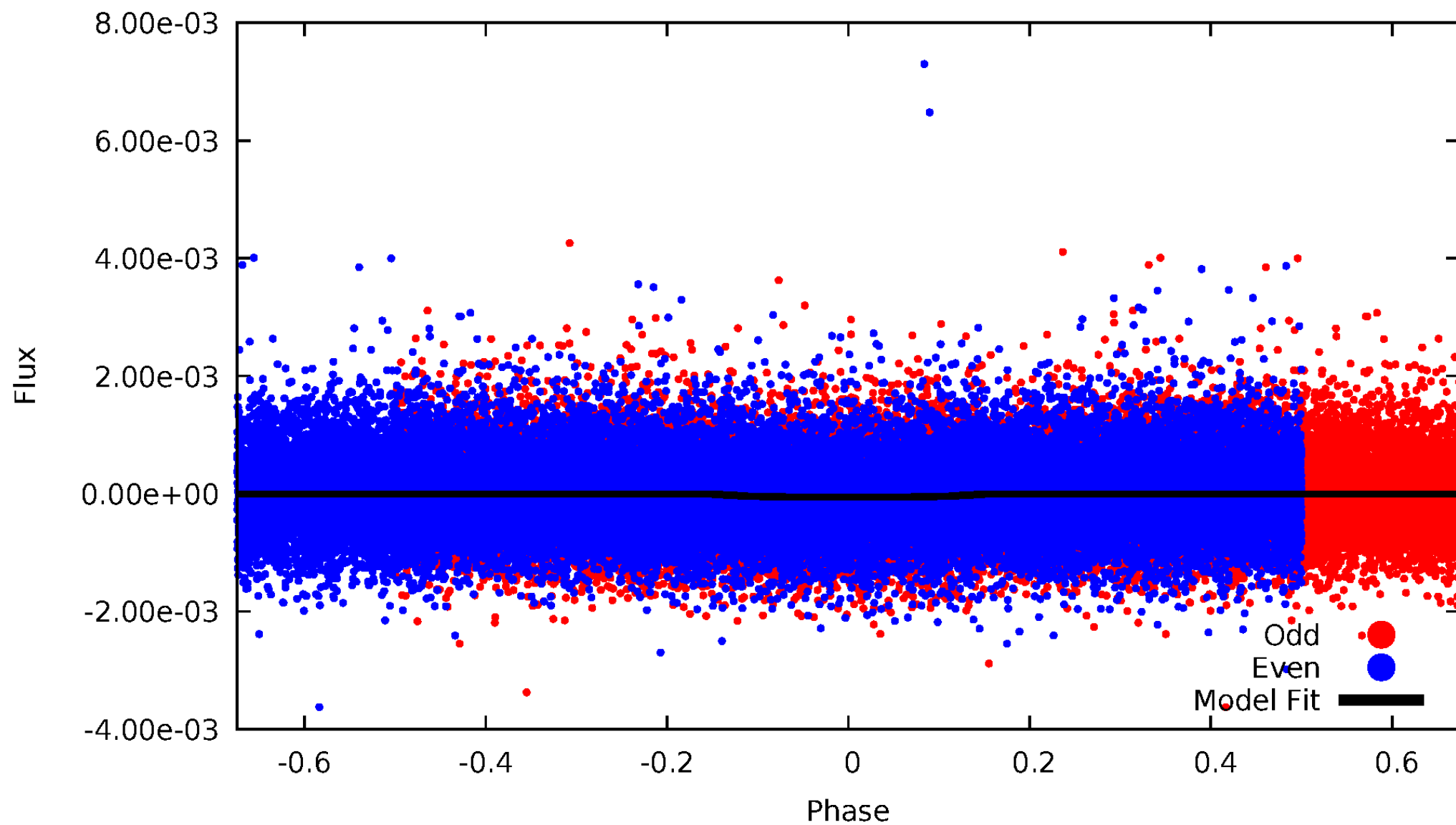
TCE 005389110-01





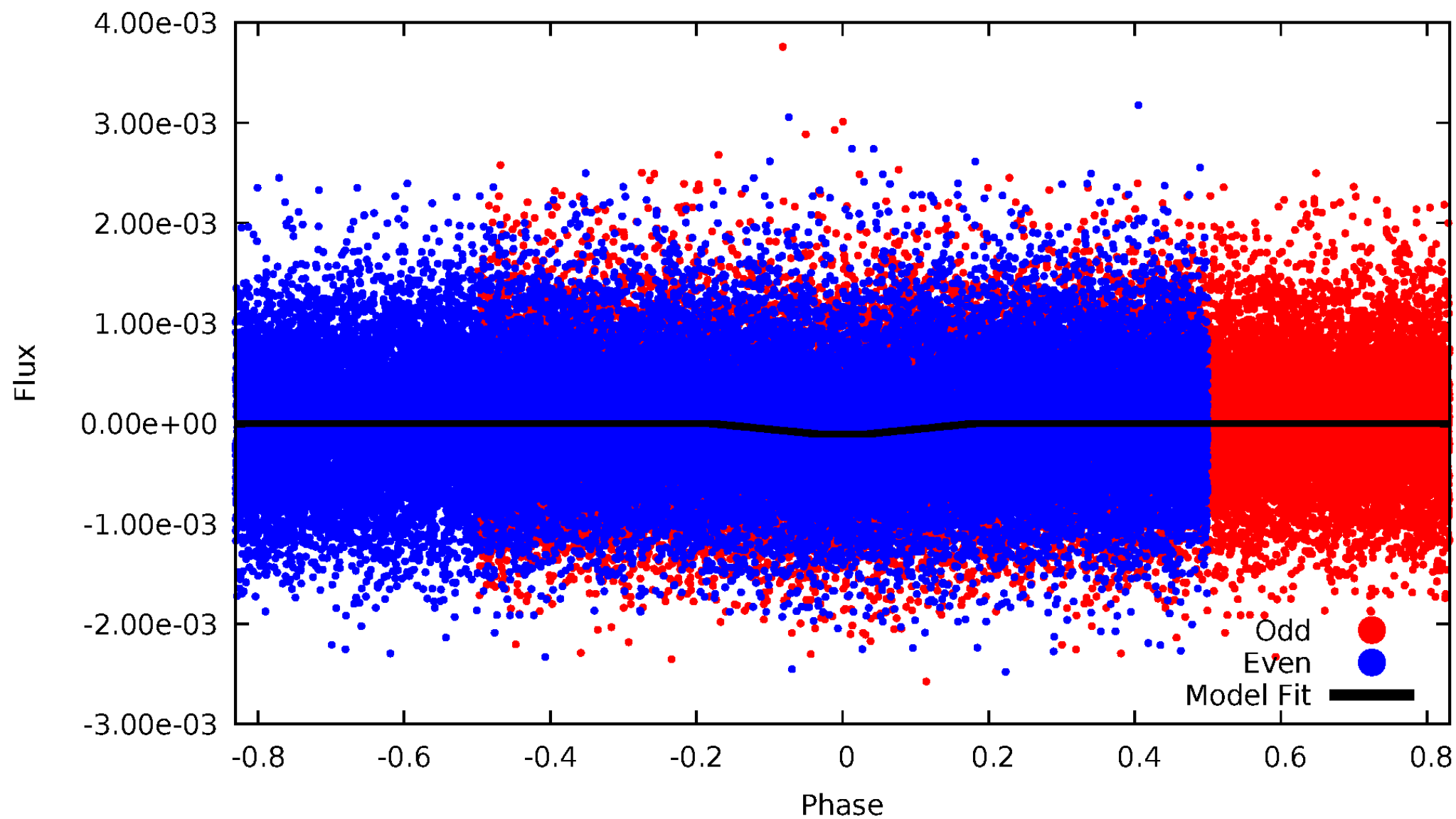
# DV Odd/Even

TCE 005389110-01



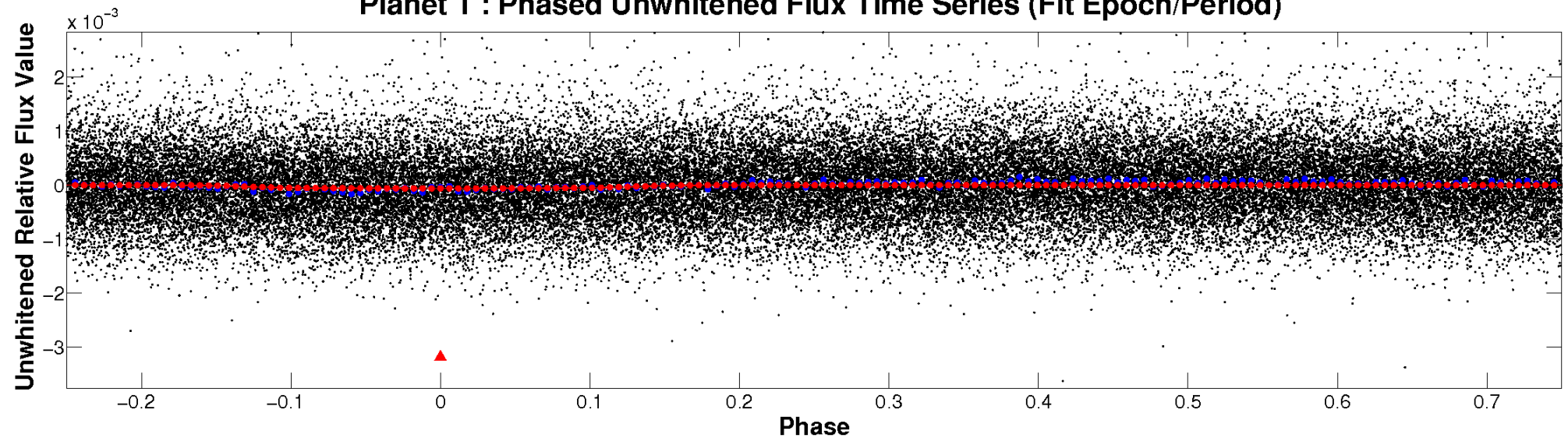
# ALT Odd/Even

TCE 005389110-01

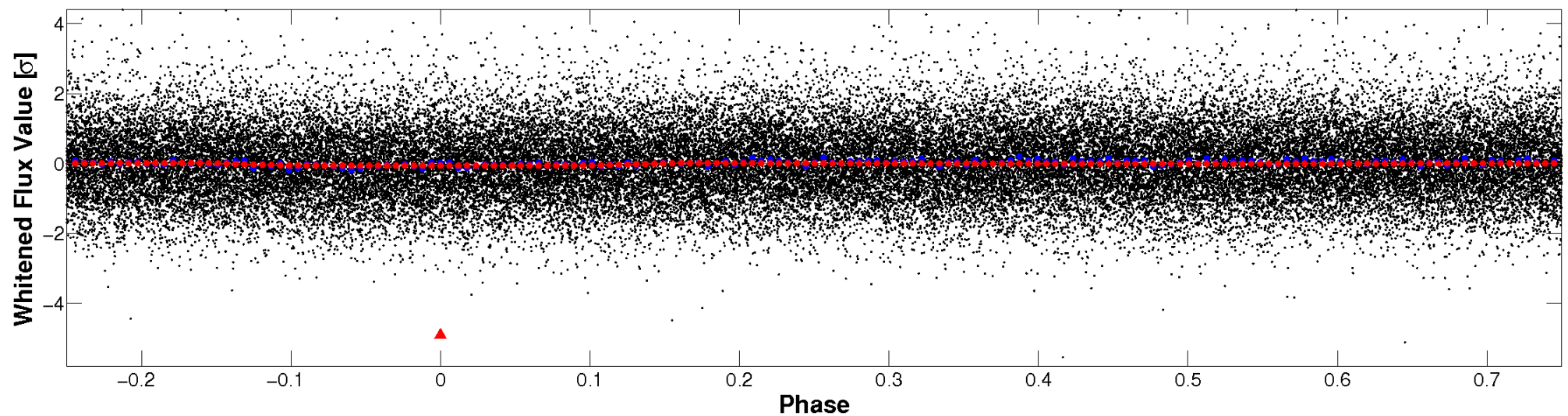


# Non-Whitened Vs. Whitened Light Curve

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

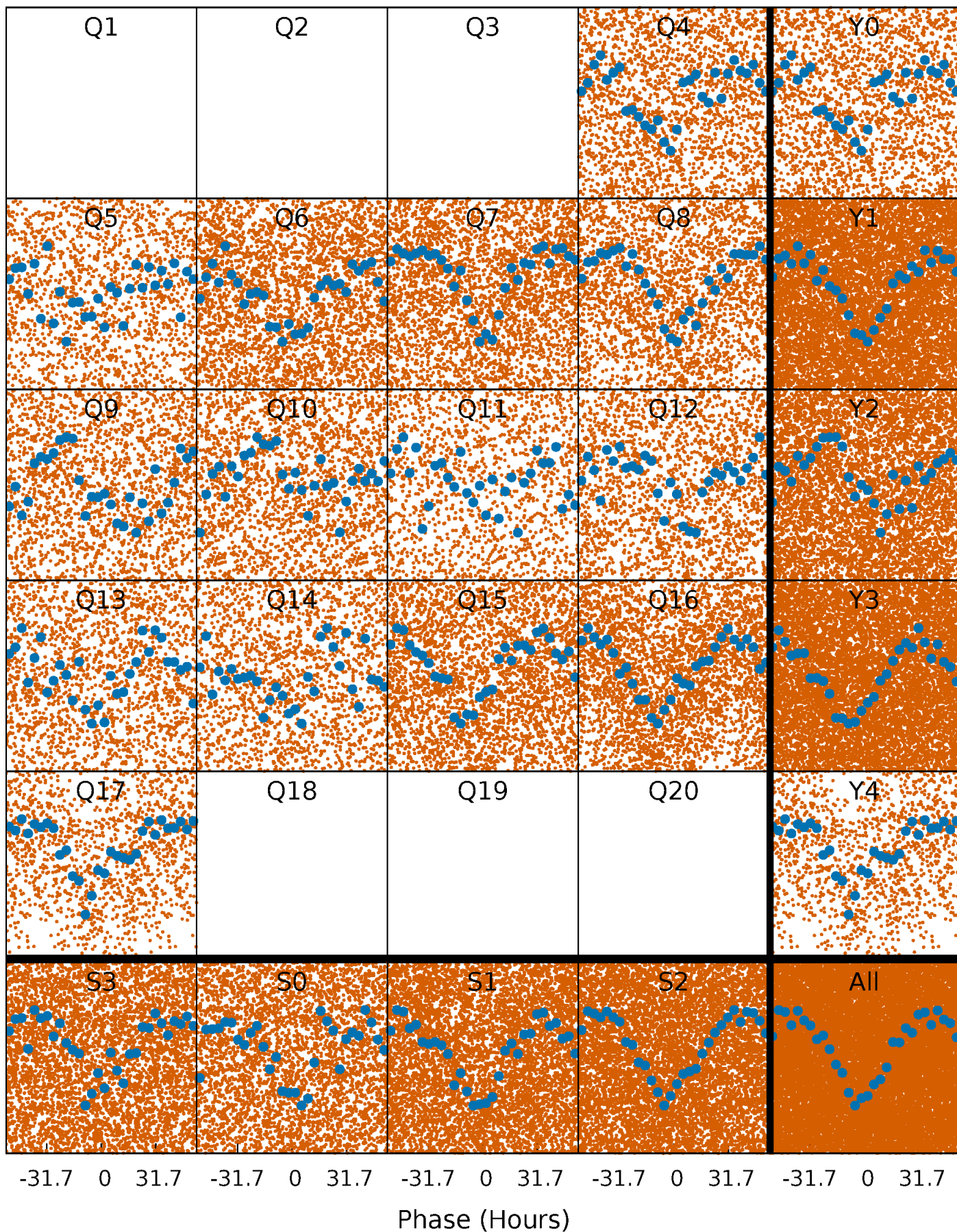


**Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)**



# PDC Quarter-Phased Transit Curves

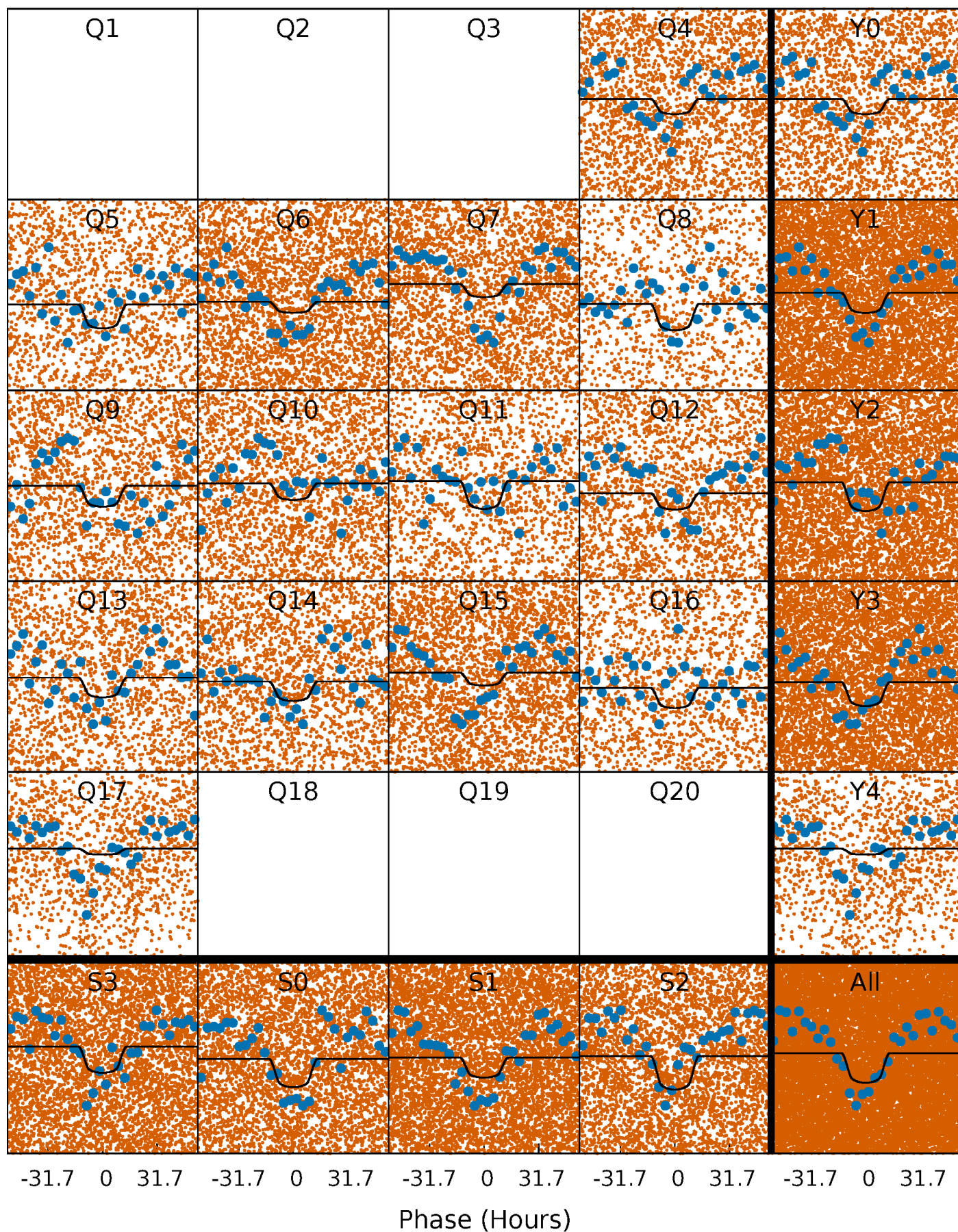
TCE 005389110-01 P= 3.428770 Days  $T_0=132.421890$  (BKJD)





# DV Quarter-Phased Transit Curves

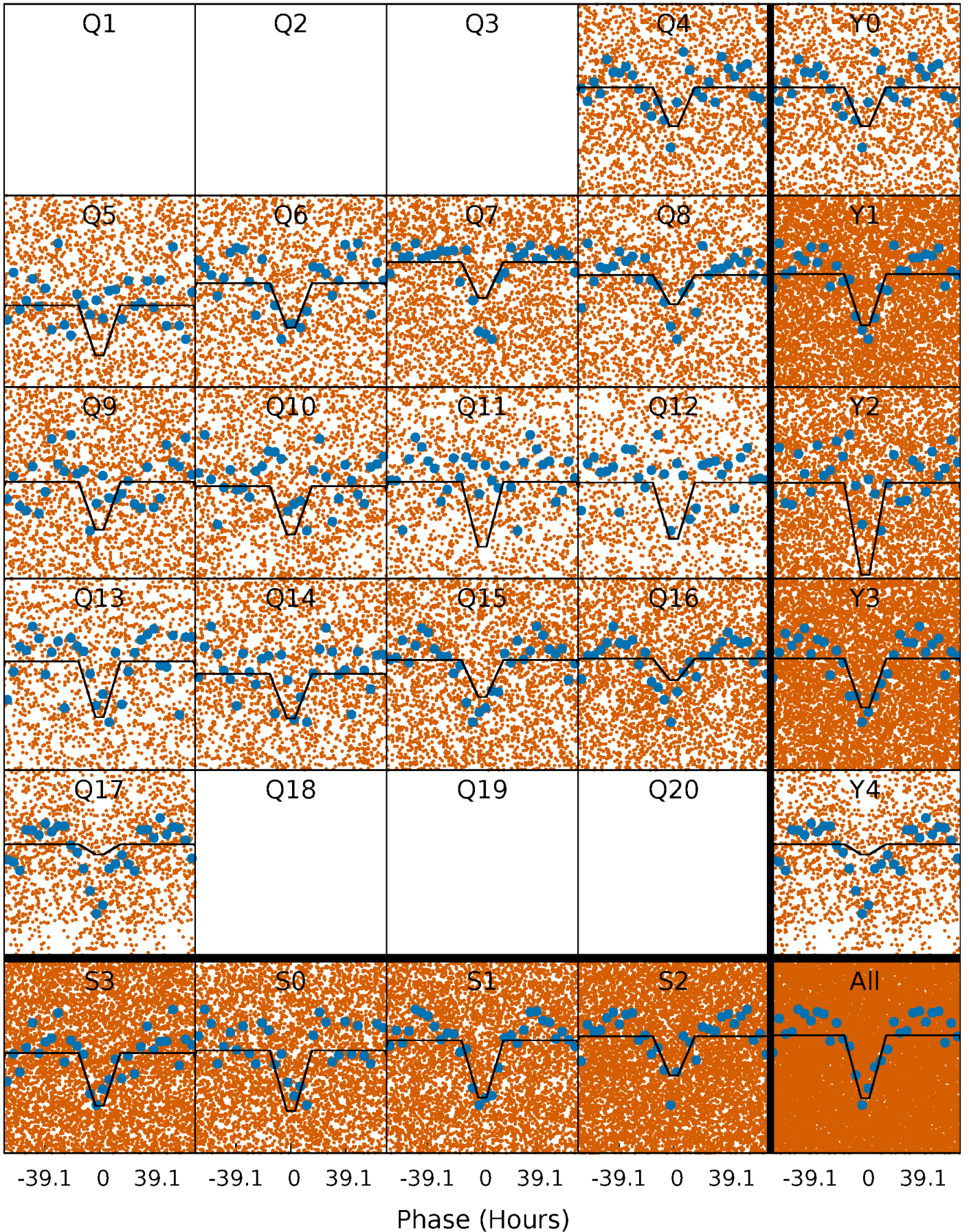
TCE 005389110-01 P= 3.428770 Days  $T_0=132.421890$  (BKJD)





# Alt. Detrend Quarter-Phased Transit Curves

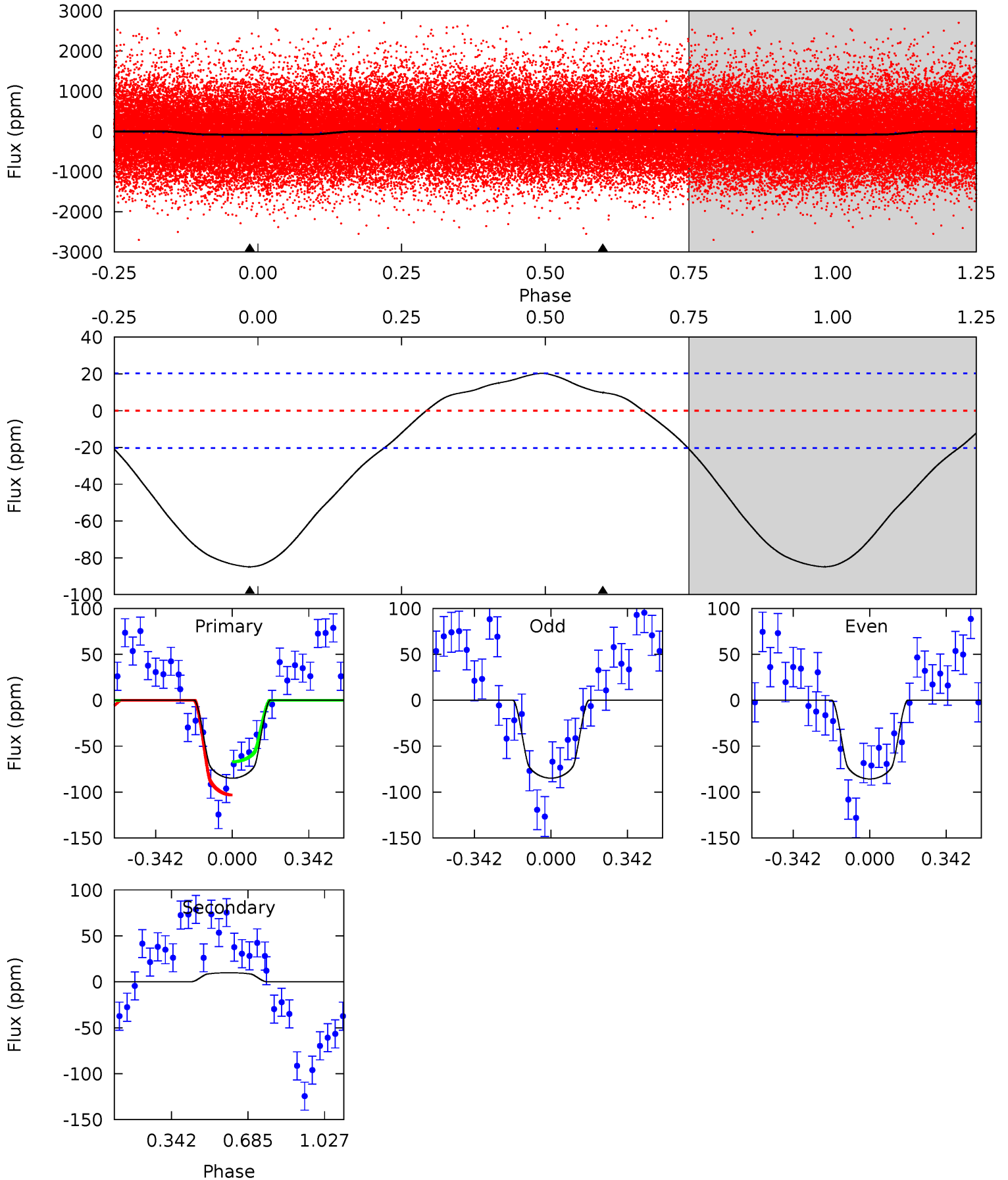
TCE 005389110-01   P= 3.427947 Days    $T_0=132.495122$  (BKJD)



# DV Model-Shift Uniqueness Test

005389110-01, P = 3.428770 Days, E = 132.421890 Days

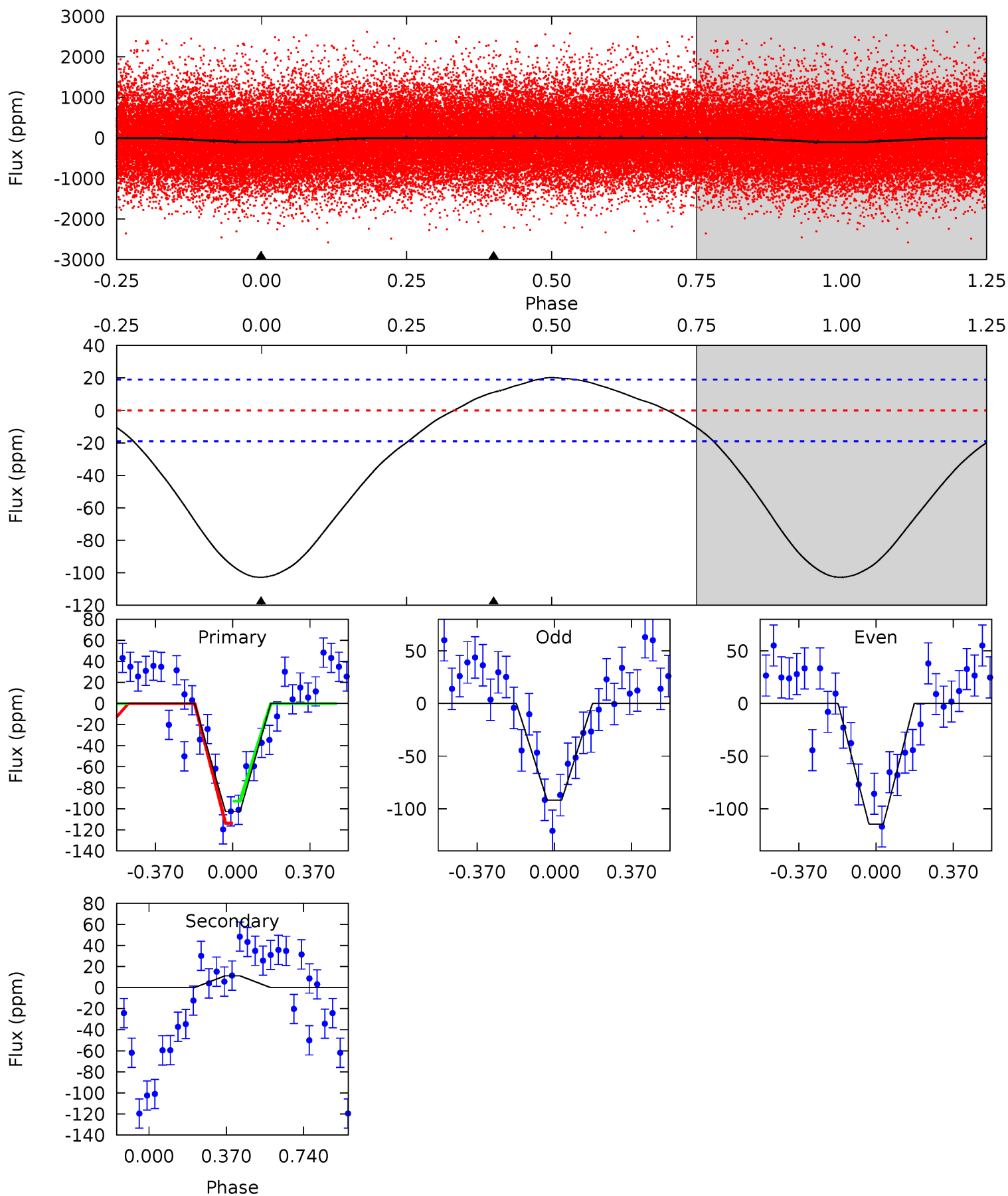
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
18.0	-2.09	0	0	4.30	0.95	1.51	18.0	18.0	-2.09	-2.09	0.10	0.45	0.19	3.82



# Alt Model-Shift Uniqueness Test

005389110-01, P = 3.427947 Days, E = 132.495122 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
23.2	-2.52	0	0	4.28	0.90	1.17	23.2	23.2	-2.52	-2.52	2.56	1.19	0.16	2.30





### Stellar Parameters For KIC 005389110

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	$5733^{+160}_{-200}$	$4.531^{+0.036}_{-0.204}$	$0.070^{+0.250}_{-0.300}$	$0.904^{+0.264}_{-0.088}$	$1.013^{+0.100}_{-0.122}$	$1.931^{+0.374}_{-0.974}$
	+3%/-3%	+1%/-5%	+357%/-429%	+29%/-10%	+10%/-12%	+19%/-50%
Source	KIC0	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 005389110-01 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	$A_{\text{obs}}$
DV	$10 \pm 5$	$0.97^{+0.17}_{-0.15}$	$1629^{+113}_{-78}$	$-3715^{+379}_{-320}$	$-10.448^{+5.196}_{-7.784}$
Alt.	$11 \pm 4$	$1.07^{+0.19}_{-0.14}$	$1622^{+125}_{-76}$	$-3681^{+292}_{-273}$	$-10.198^{+4.583}_{-5.661}$

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

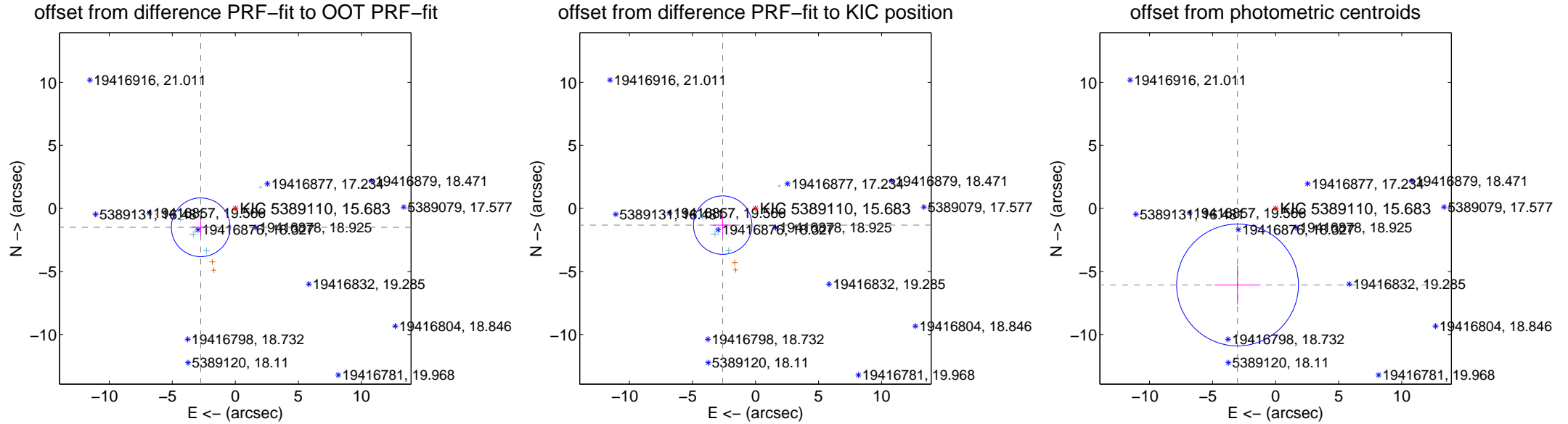
## DV Centroid Data

Supplemental centroid analysis for 005389110-01. Kepler magnitude: 15.68. Transit SNR 6.97

There are 5 quarters with good PRF difference image offsets

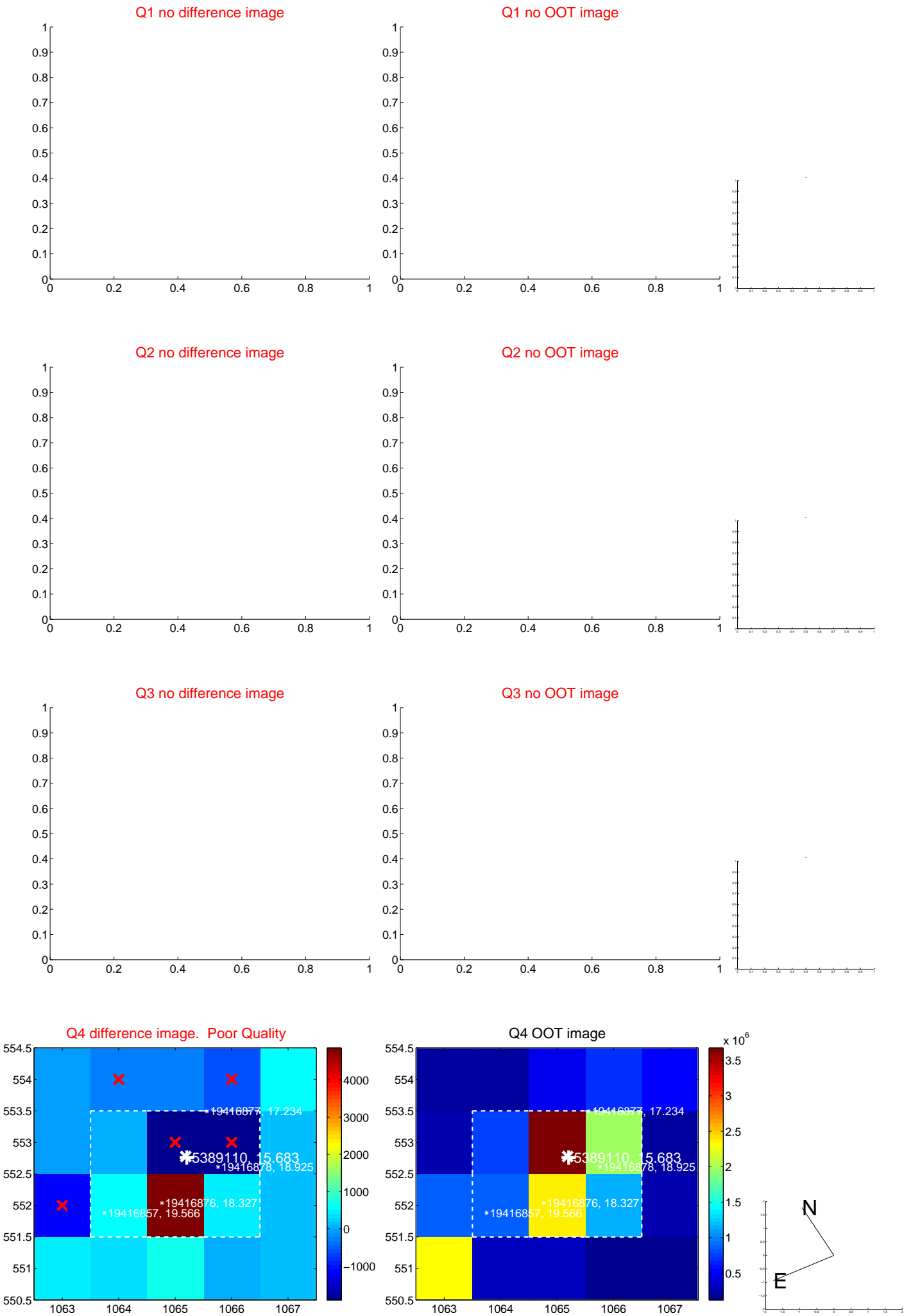
The direct PRF centroid is offset from the target star catalog position by about 0.13 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$3.126 \pm 0.776$	4.03	$2.746 \pm 0.721$	$-1.493 \pm 0.682$
PRF-fit source offset from KIC position	$2.917 \pm 0.773$	3.78	$2.600 \pm 0.743$	$-1.322 \pm 0.753$
photometric centroid source offset	$6.78 \pm 1.61$	4.21	$3.02 \pm 1.82$	$-6.07 \pm 1.55$

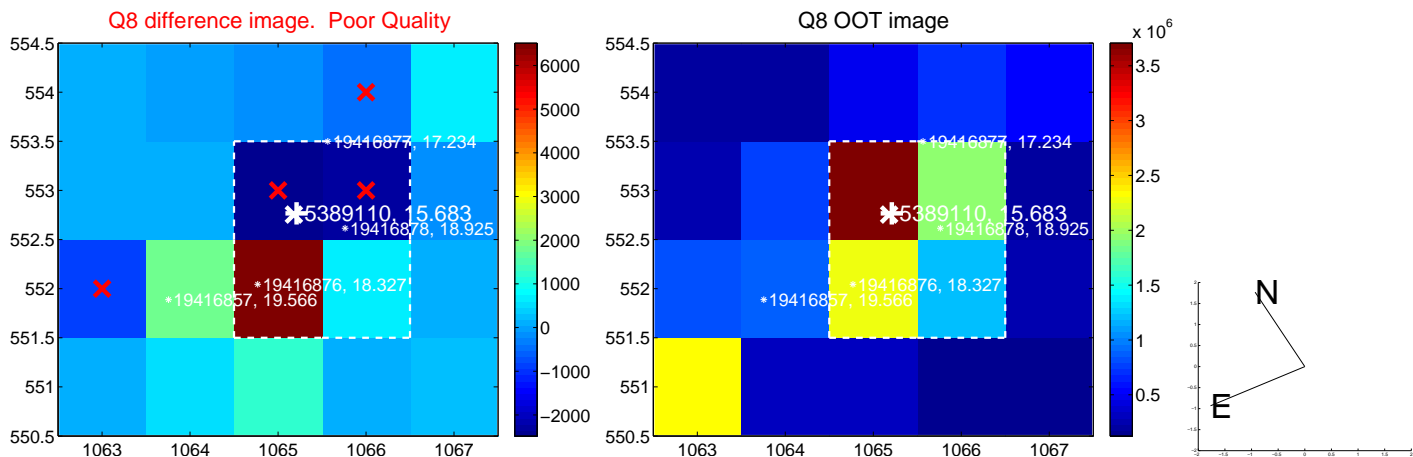
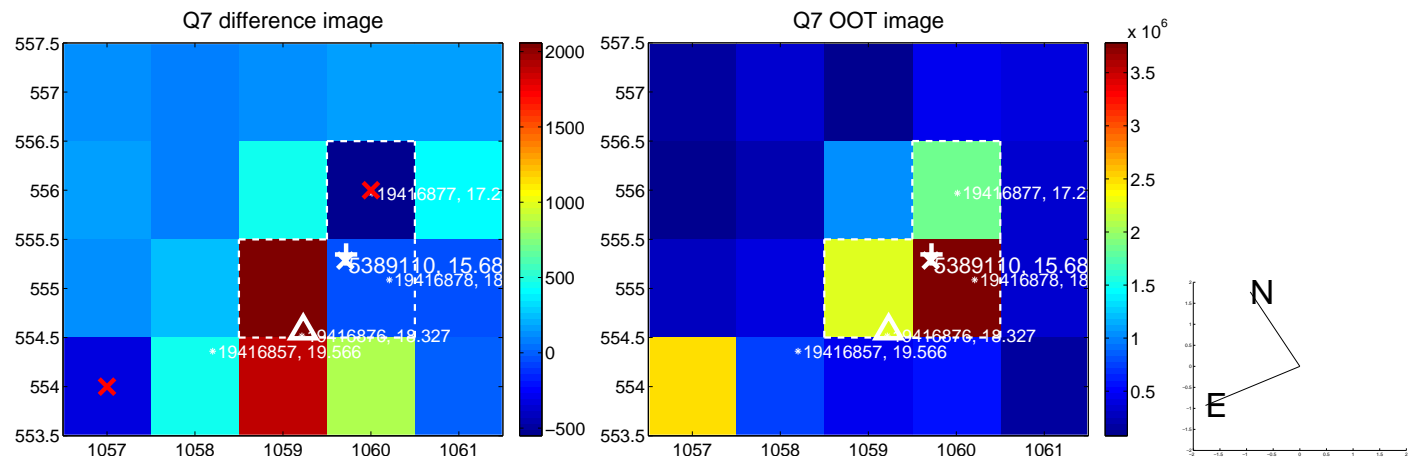
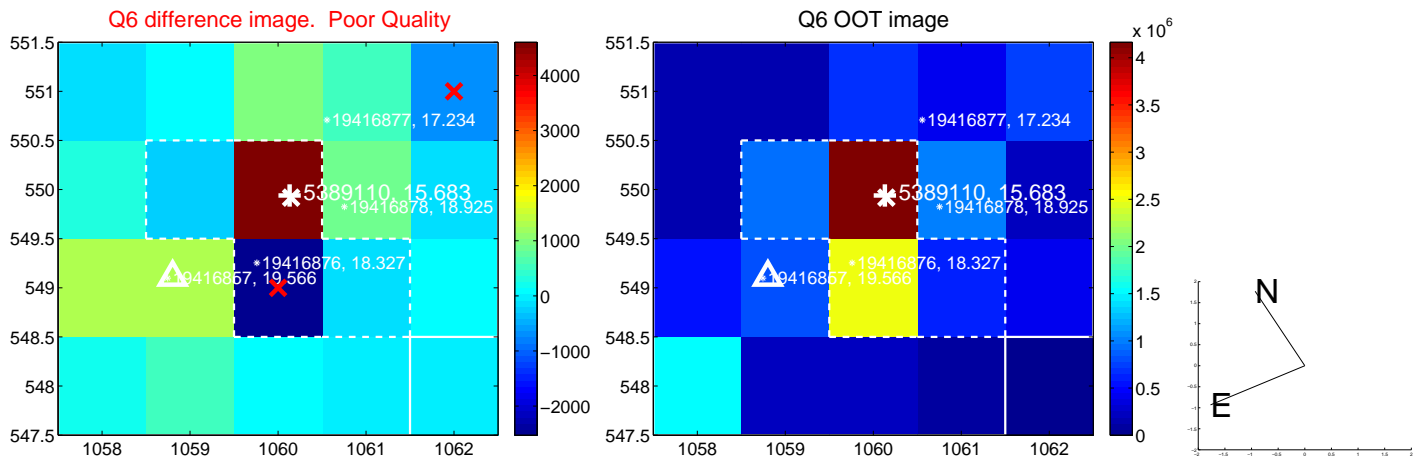
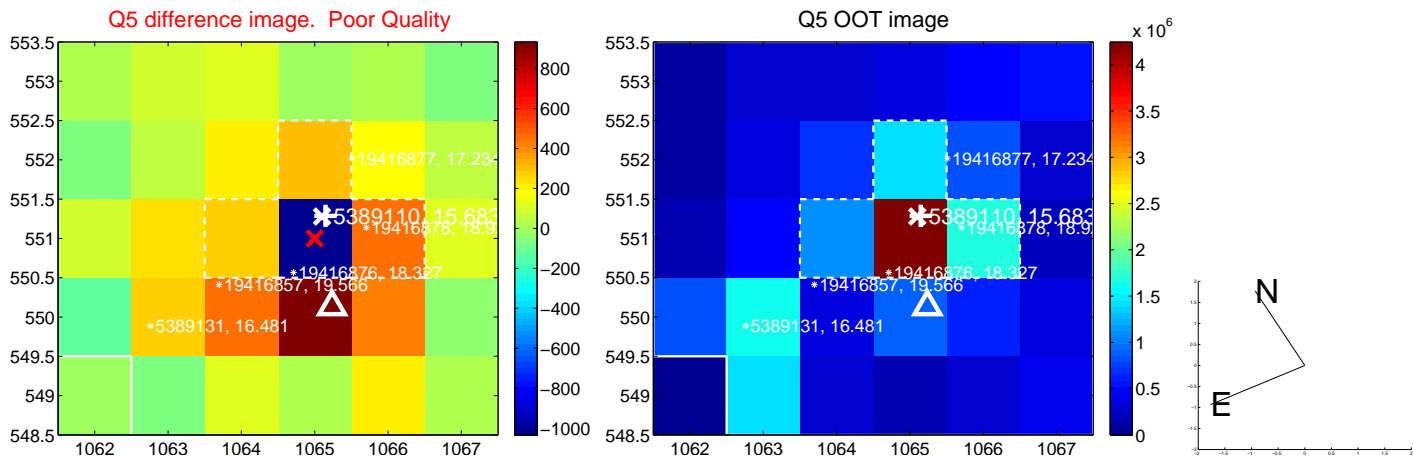


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets;** magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: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

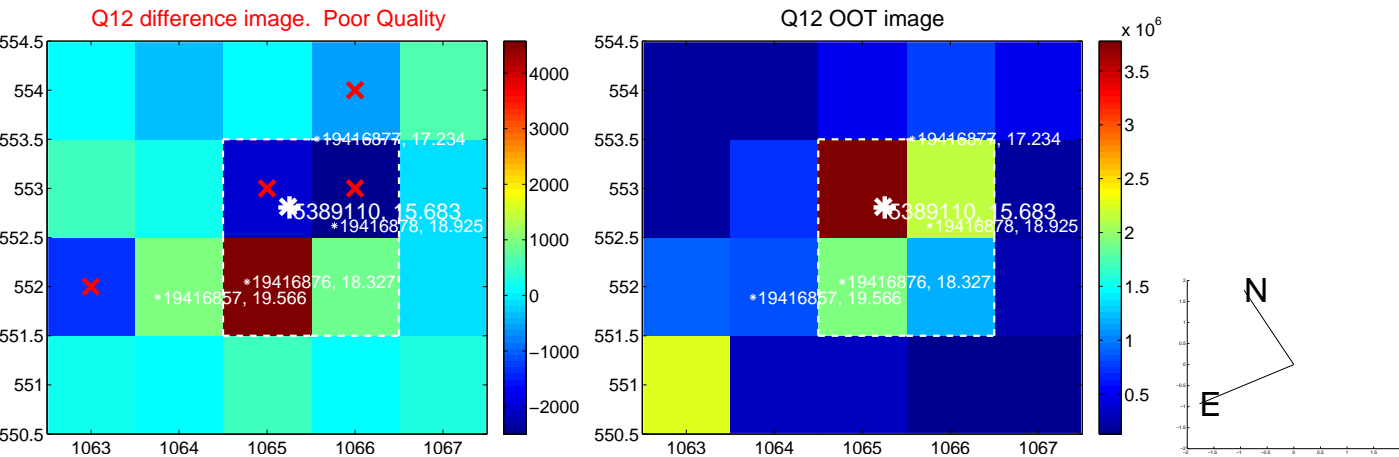
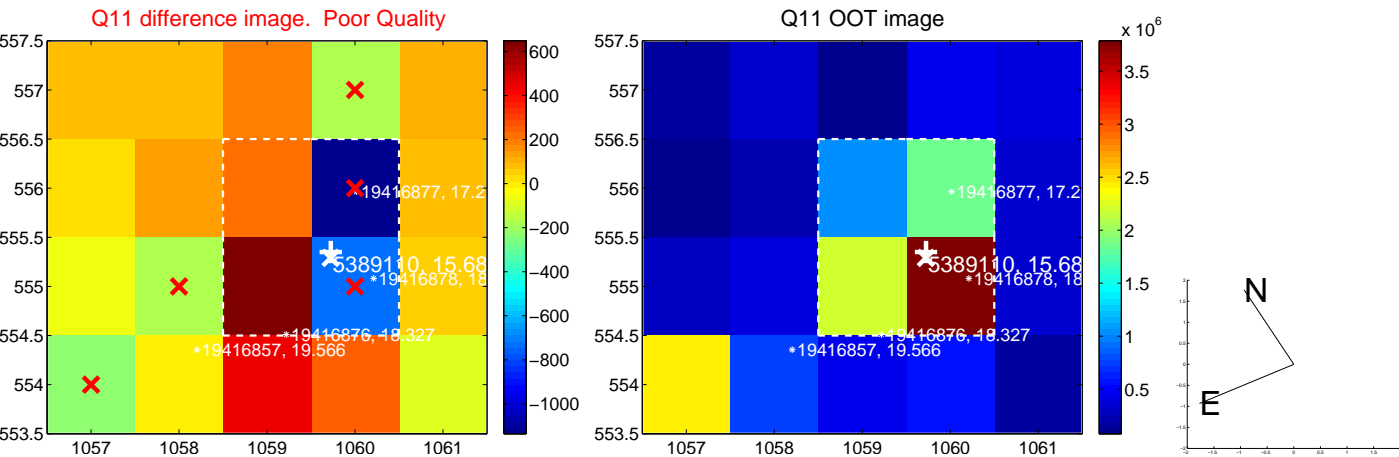
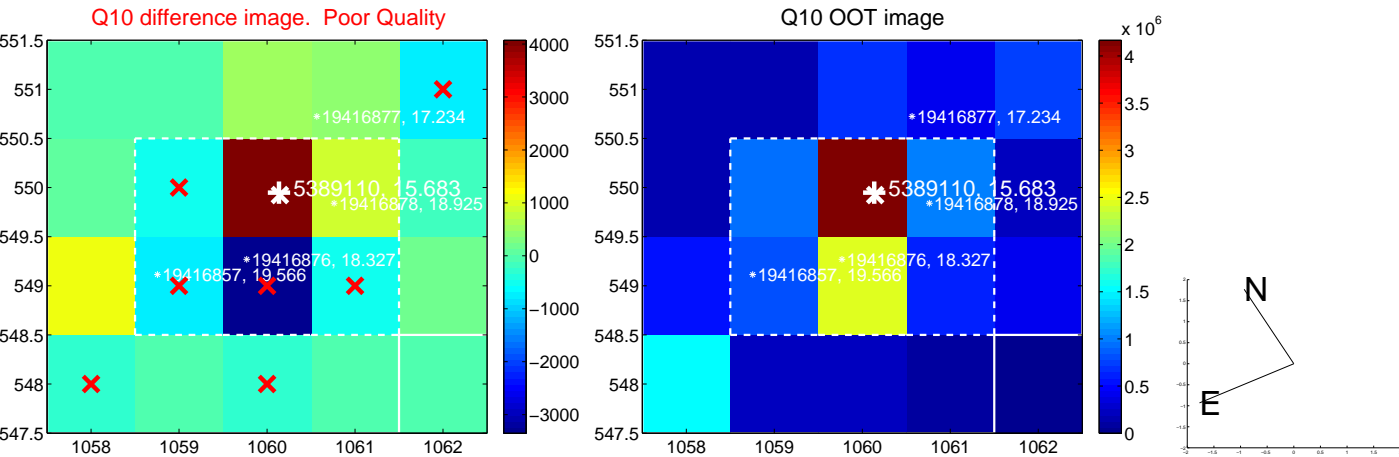
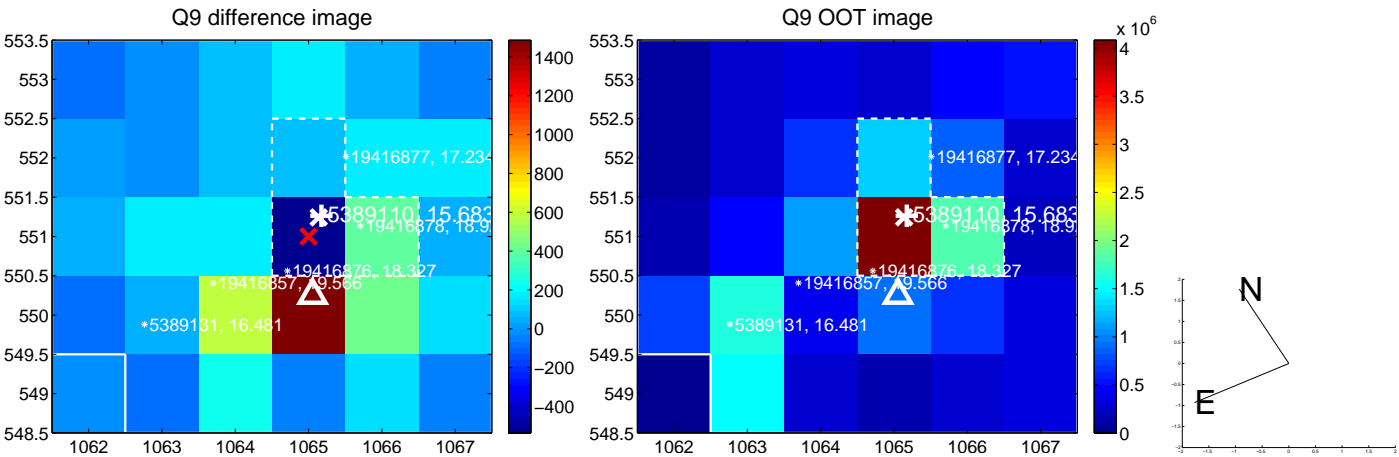


white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.

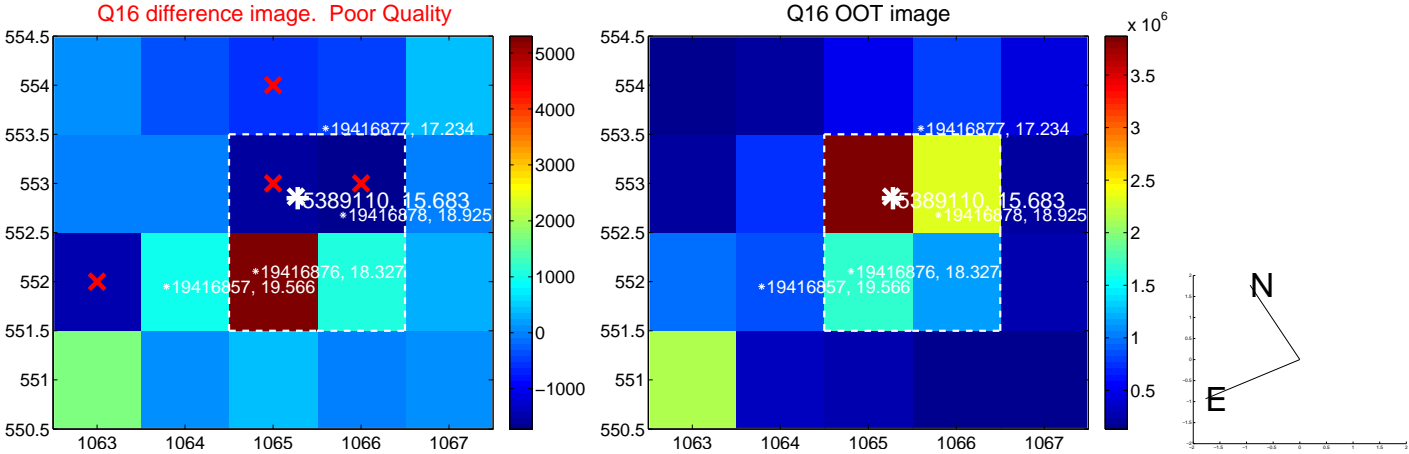
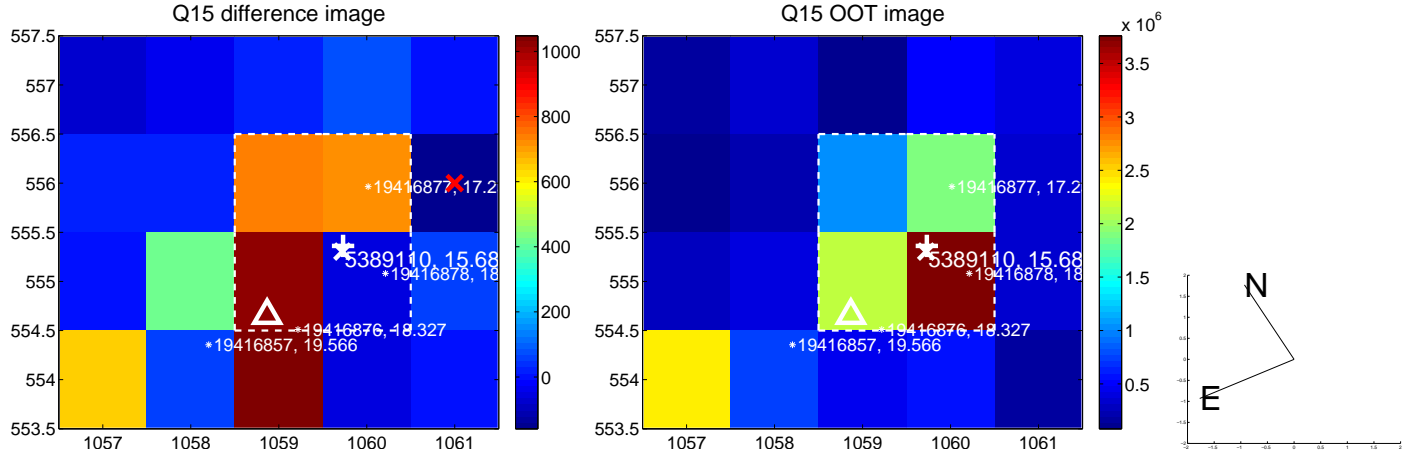
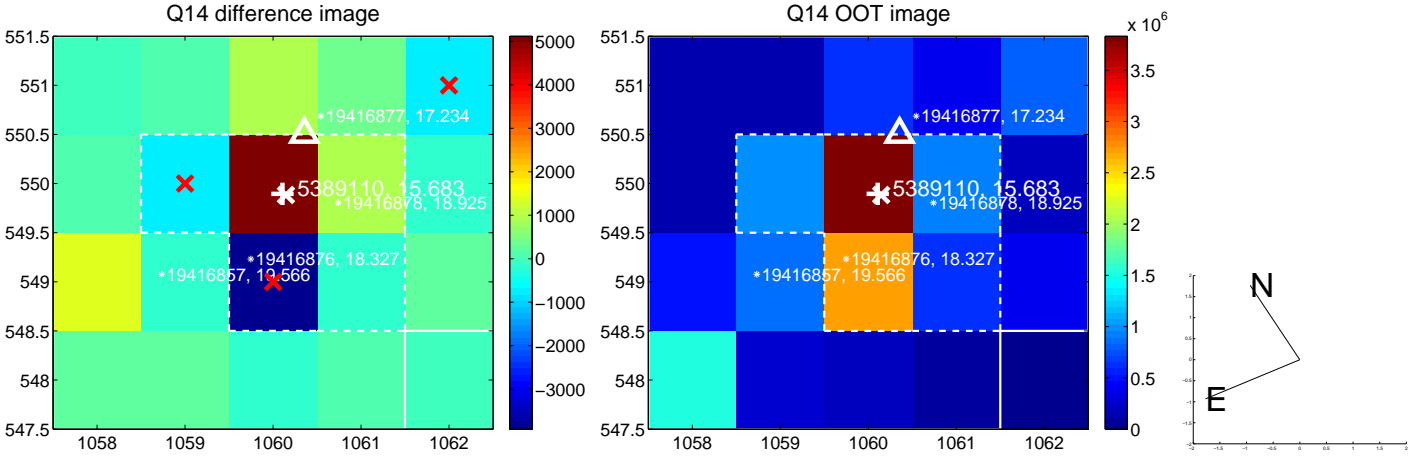
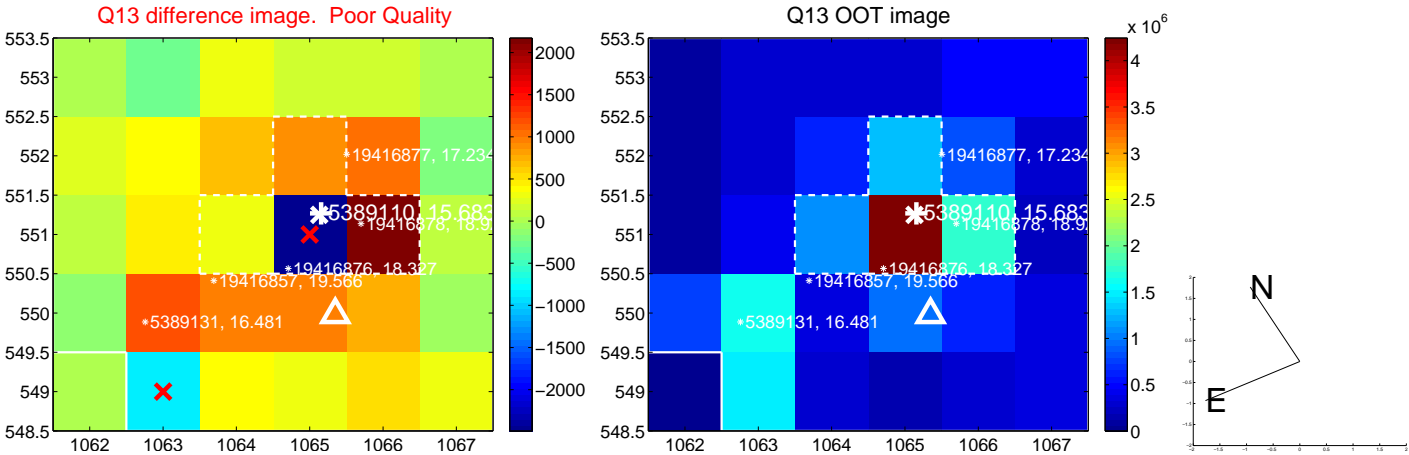




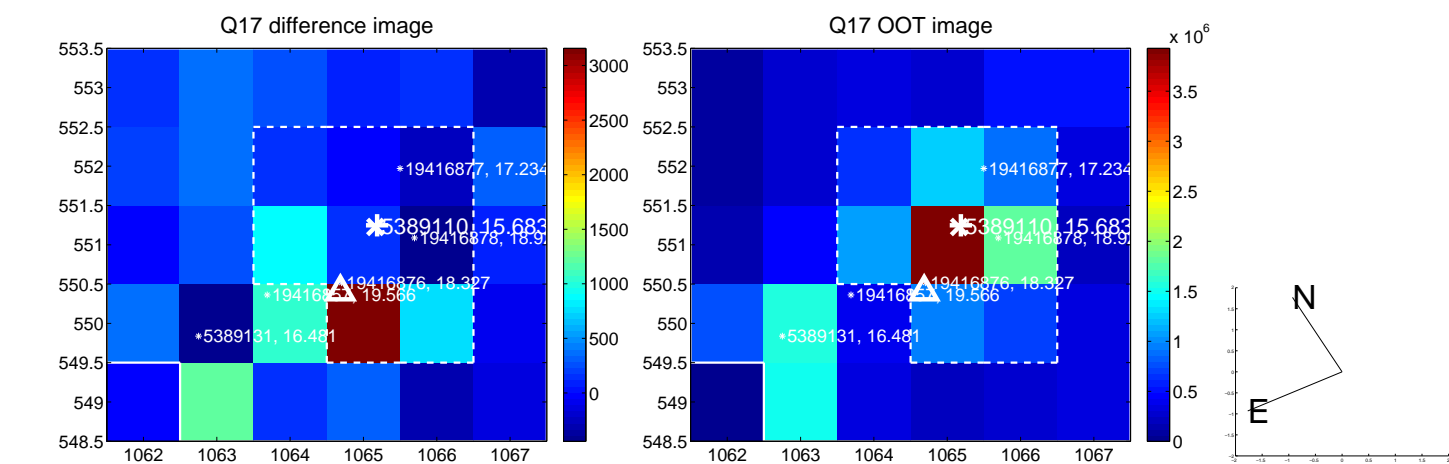
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



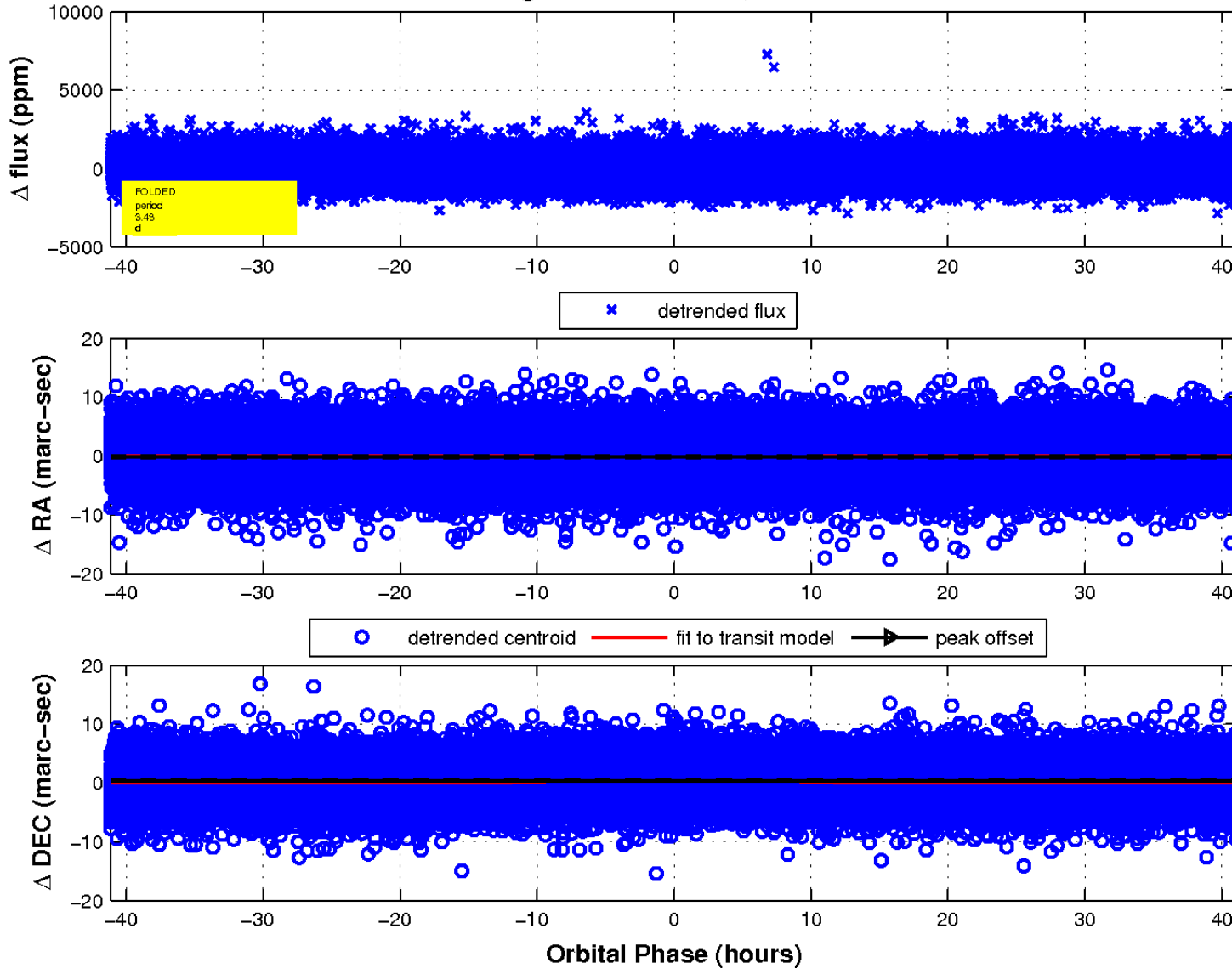
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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



fluxWeightedCentroids, Planet 1 of 1



UKIRT Image

Declination

