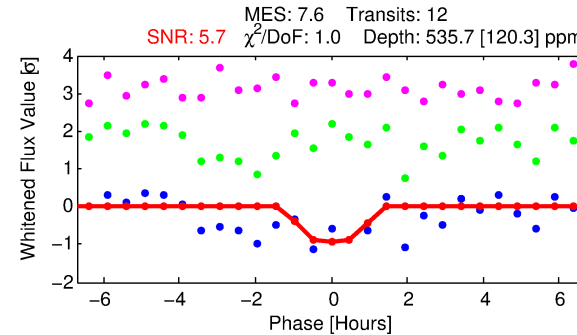
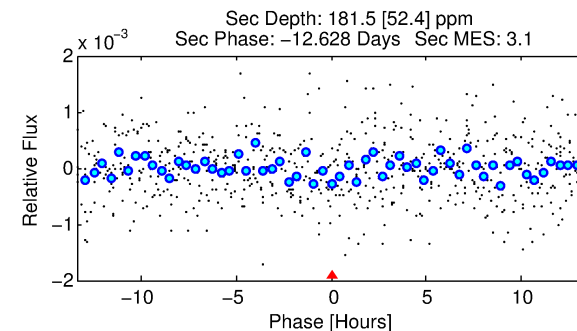
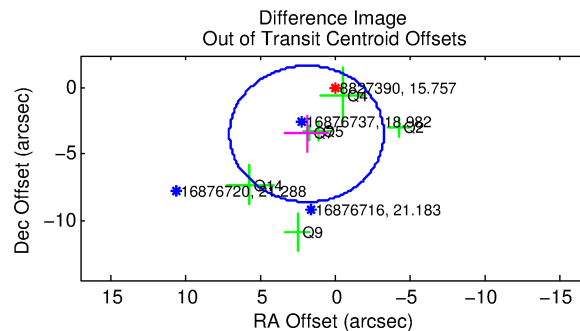
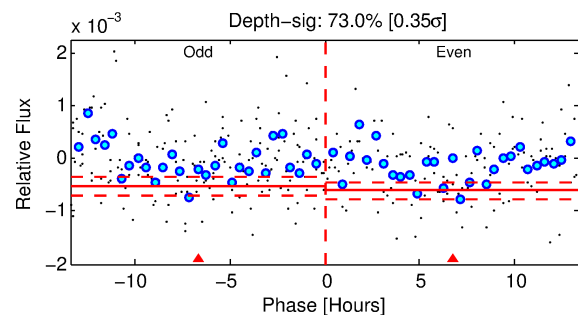
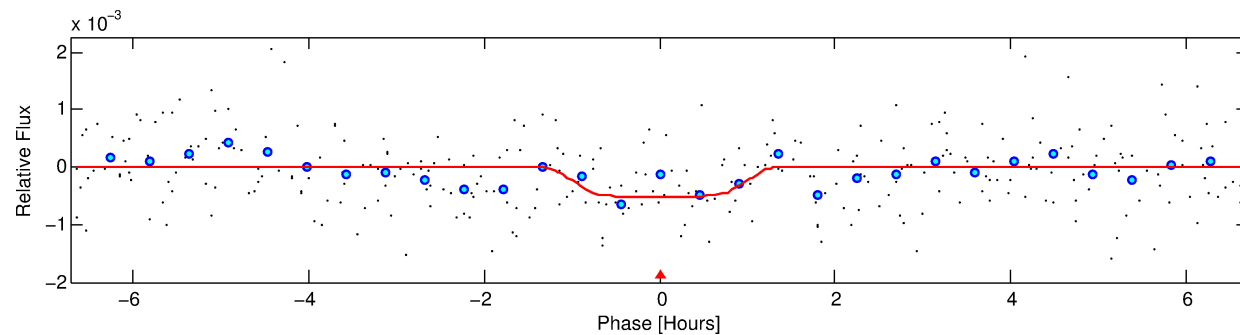
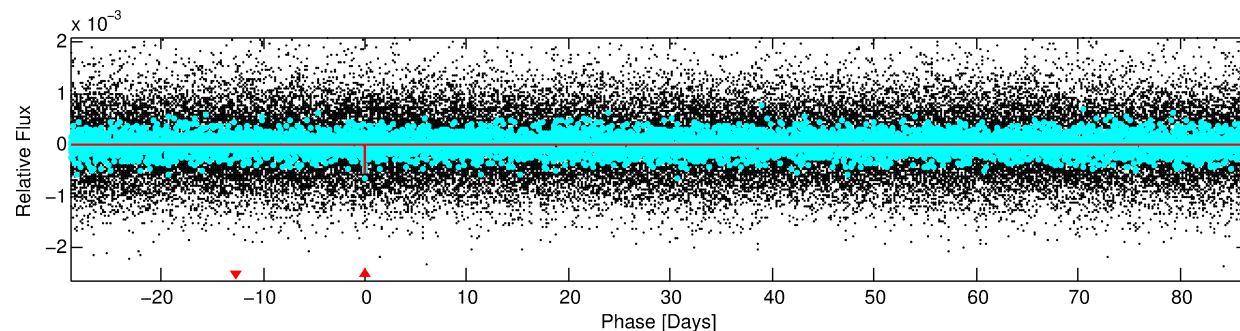
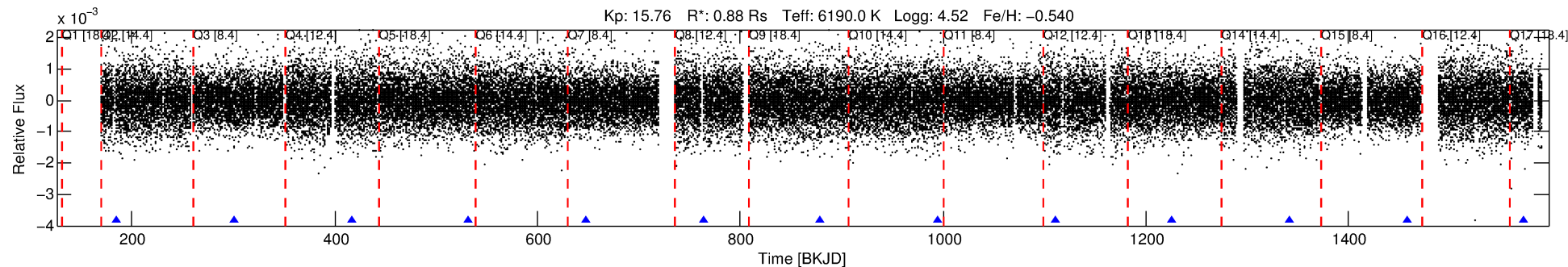


**WARNING: THIS DATA IS  
SIMULATED, NOT OBSERVED**

## DV One-Page Summary

KIC: 8827390 Candidate: 1 of 1 Period: 115.640 d

**WARNING: THIS DATA IS  
SIMULATED, NOT OBSERVED**



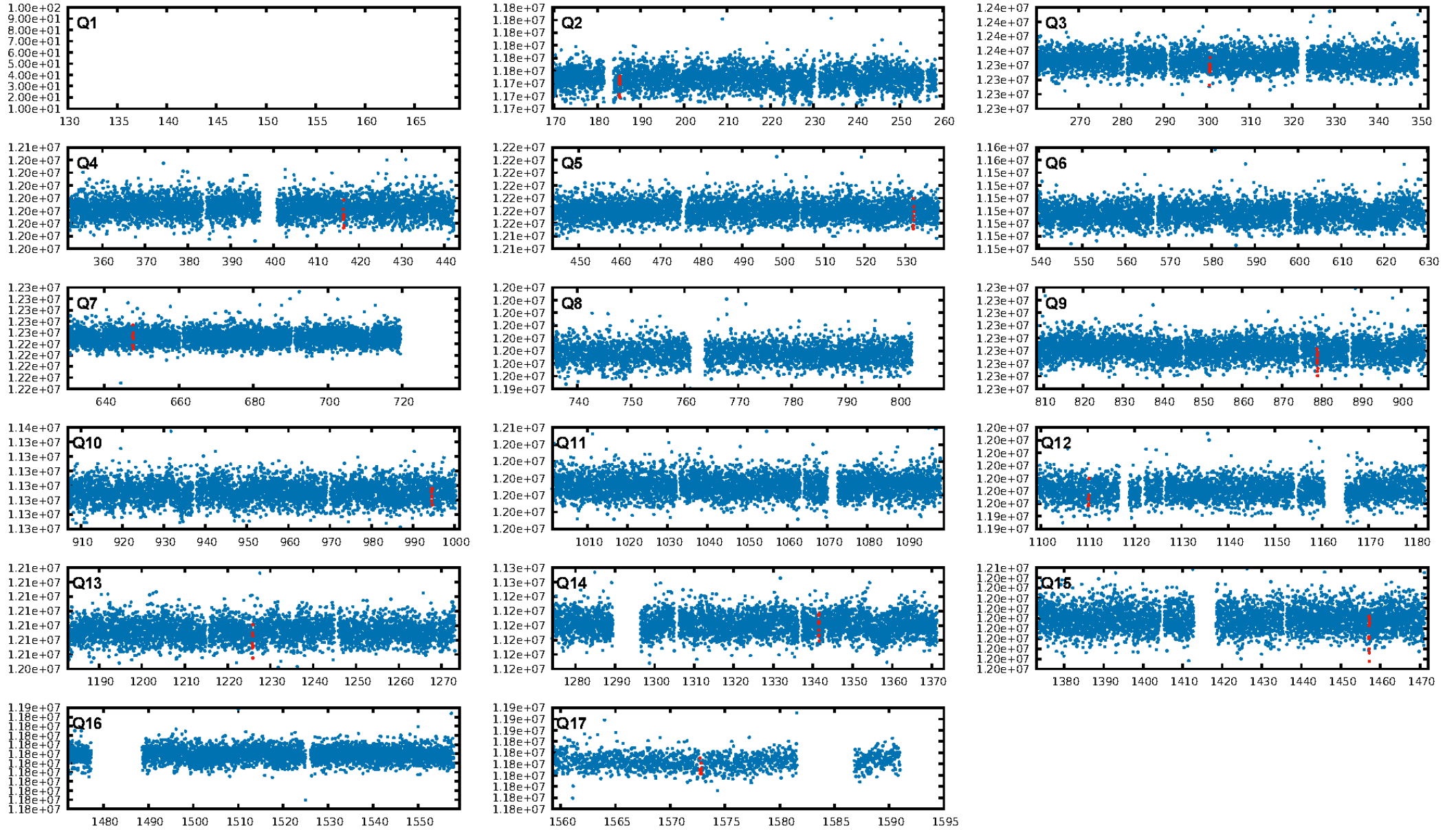
### DV Fit Results:

Period = 115.63962 [0.00141] d  
Epoch = 185.1218 [0.0108] BKJD  
Rp/R\* = 0.0241 [0.0278]  
a/R\* = 224.38 [1393.18]  
b = 0.85 [2.02]  
Seff = 4.95 [1.99]  
Teq = 380 [38] K  
Rp = 2.32 [2.77] Re  
a = 0.4547 [0.1167] AU  
Ag = 3847.44 [9076.01] [0.42 $\sigma$ ]  
Teff = 4631 [2701] K [1.57 $\sigma$ ]

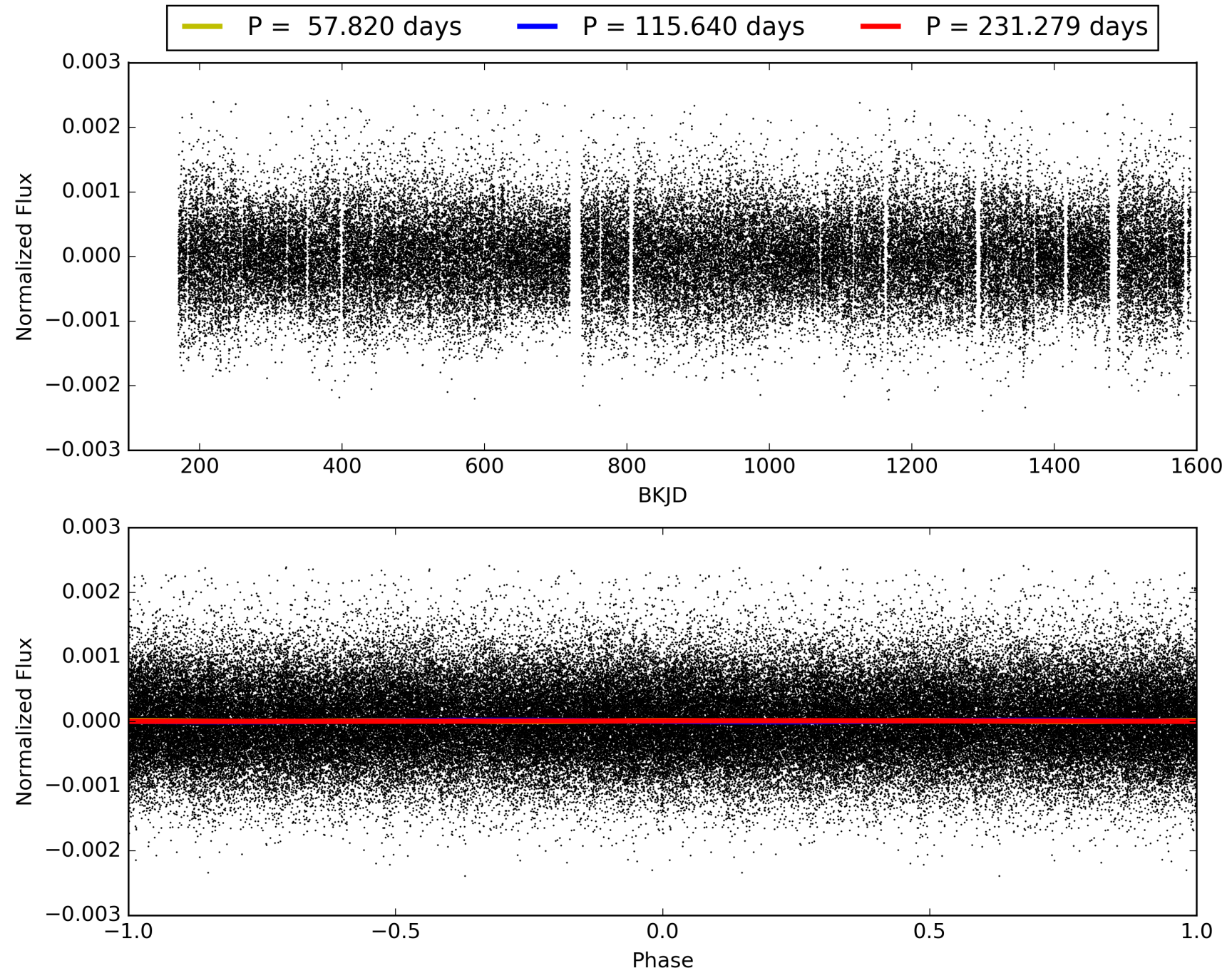
### DV Diagnostic Results:

ShortPeriod-sig: N/A  
LongPeriod-sig: N/A  
ModelChiSquare2-sig: 91.4%  
ModelChiSquareGof-sig: 99.9%  
Bootstrap-pfa: 6.70e-15  
RollingBand-fgt: 1.00 [11/11]  
**GhostDiagnostic-chr: 0.9945**  
Centroid-sig: 27.2%  
Centroid-so: 2.091 arcsec [0.73 $\sigma$ ]  
OotOffset-rm: 3.915 arcsec [2.28 $\sigma$ ]  
KicOffset-rm: 3.939 arcsec [2.15 $\sigma$ ]  
OotOffset-st: 2/1/1/2 [6]  
KicOffset-st: 2/1/1/2 [6]  
DiffImageQuality-fgm: 0.17 [1/6]  
DiffImageOverlap-fno: 1.00 [11/11]

# TCE 008827390-01, PDC Light Curves

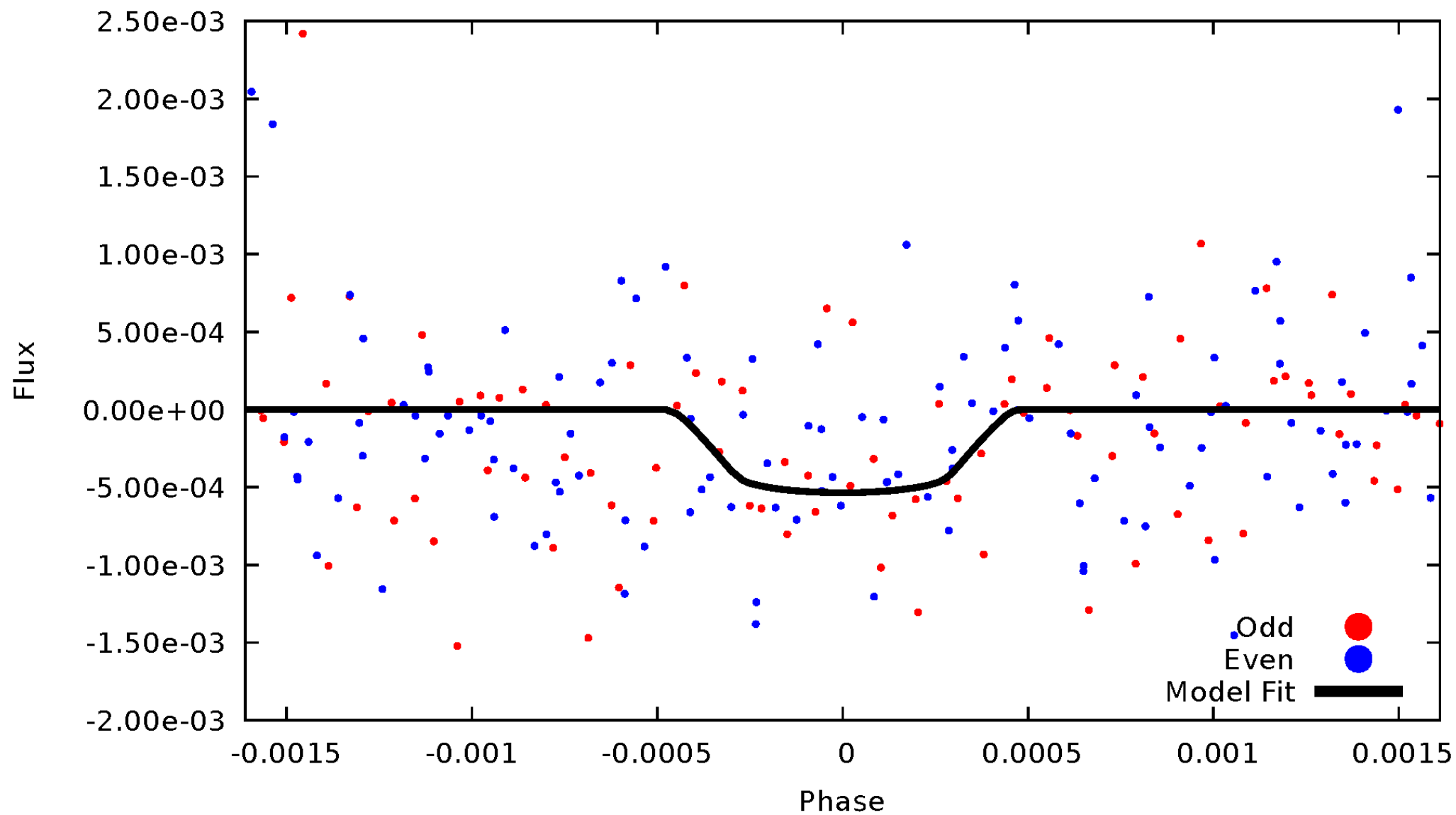


TCE 008827390-01



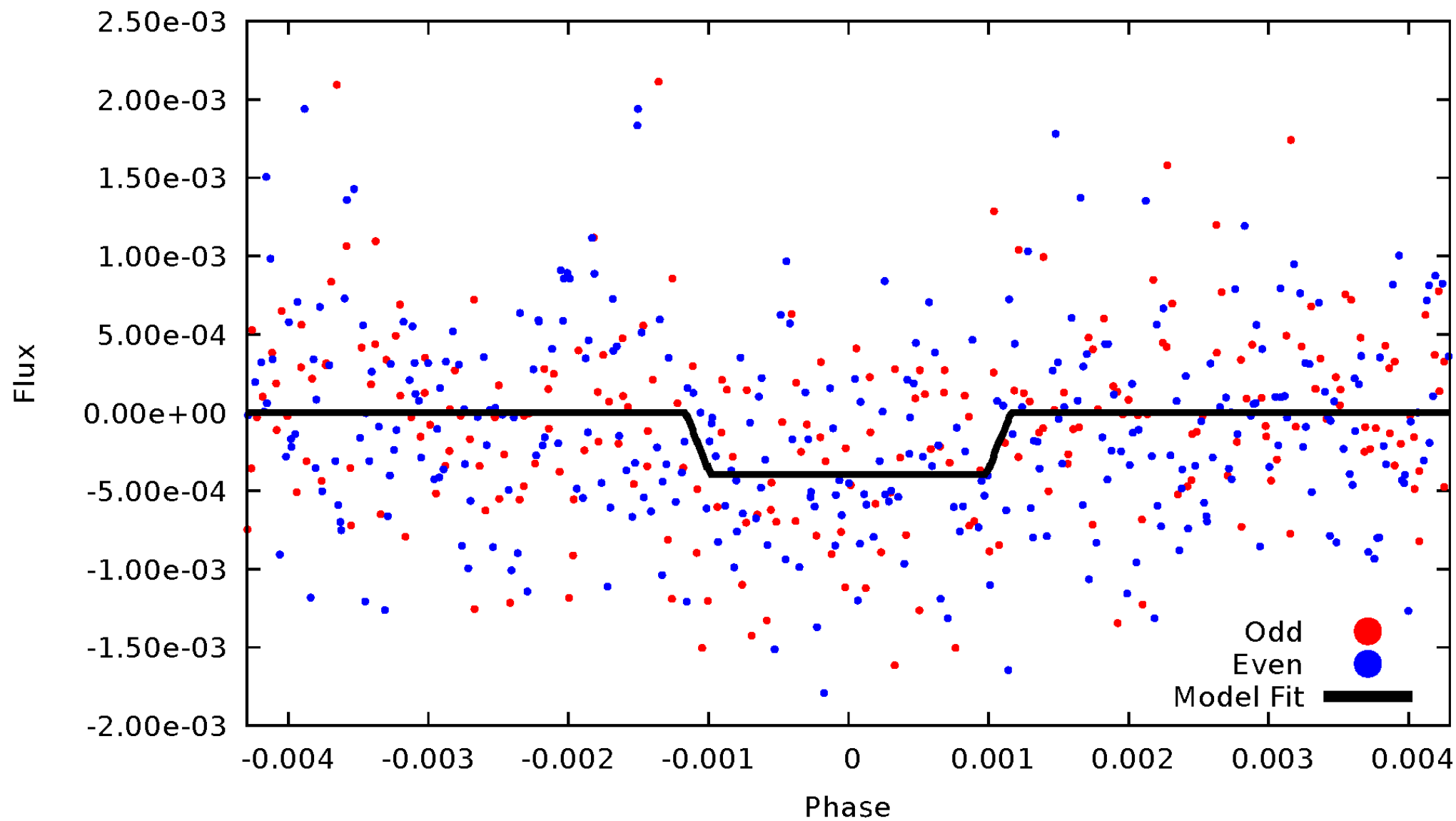
# DV Odd/Even

TCE 008827390-01



# ALT Odd/Even

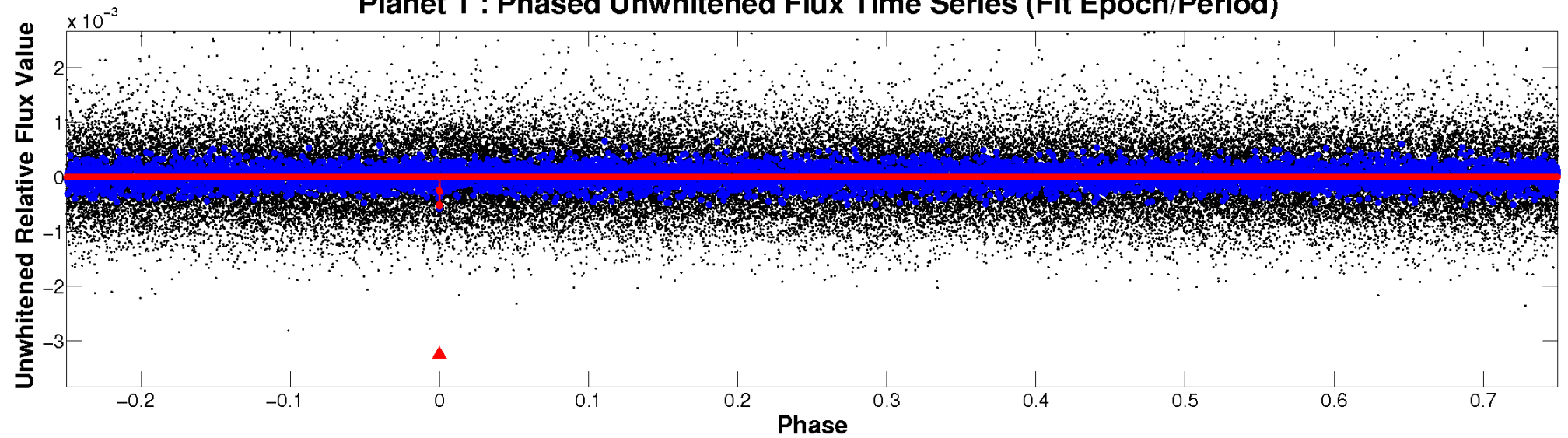
TCE 008827390-01



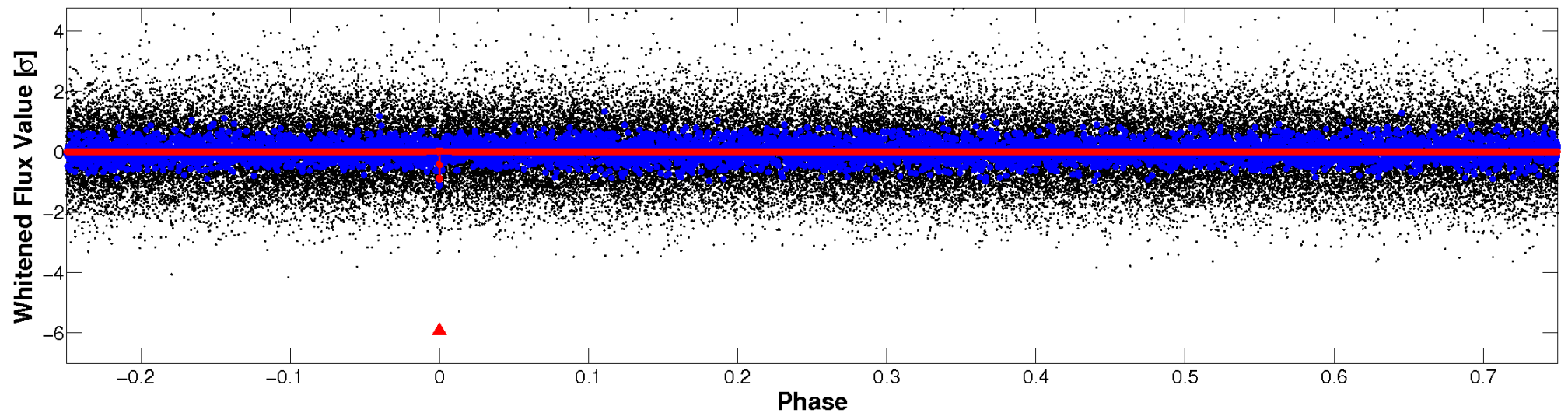


# Non-Whitened Vs. Whitened Light Curve

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

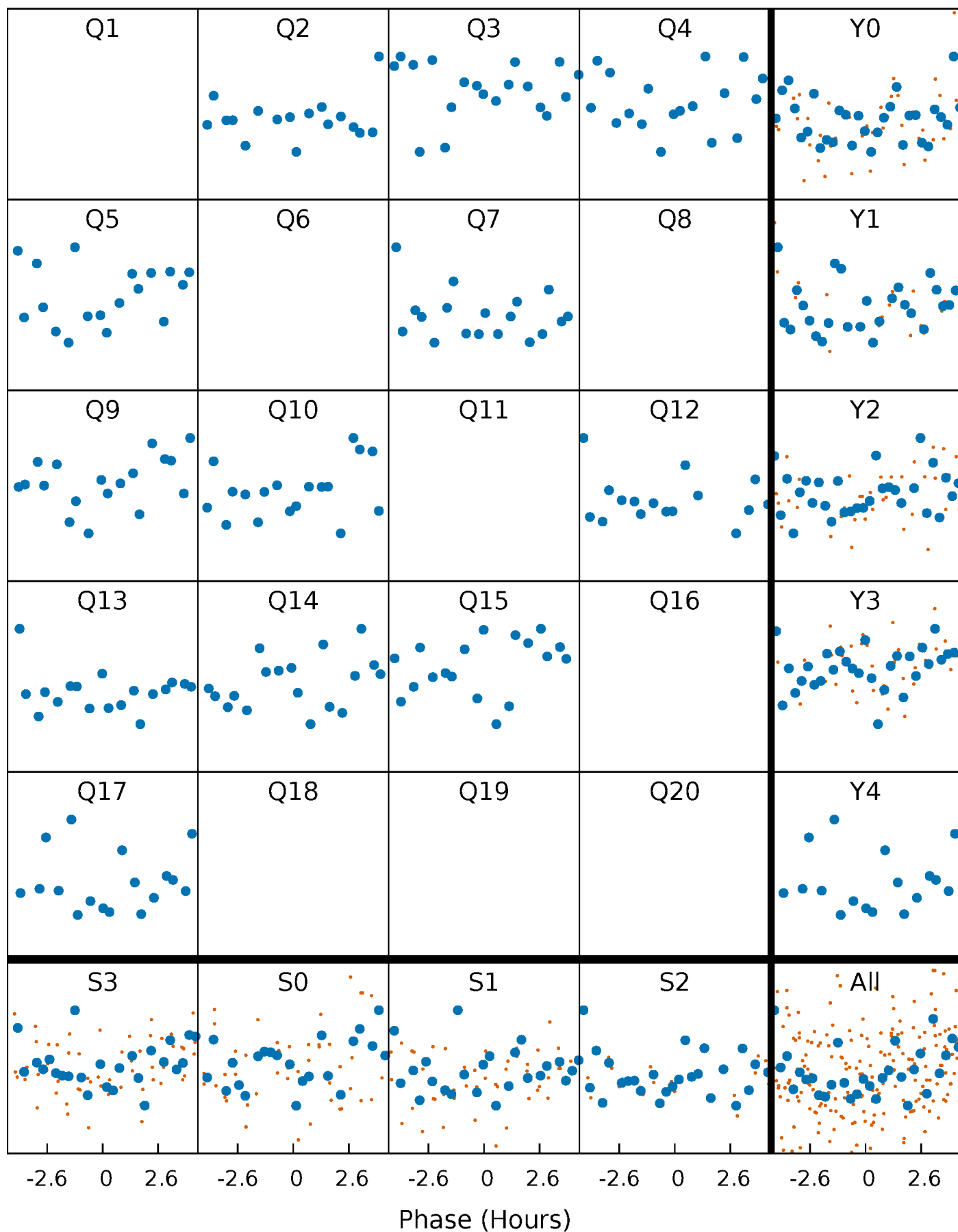


**Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)**



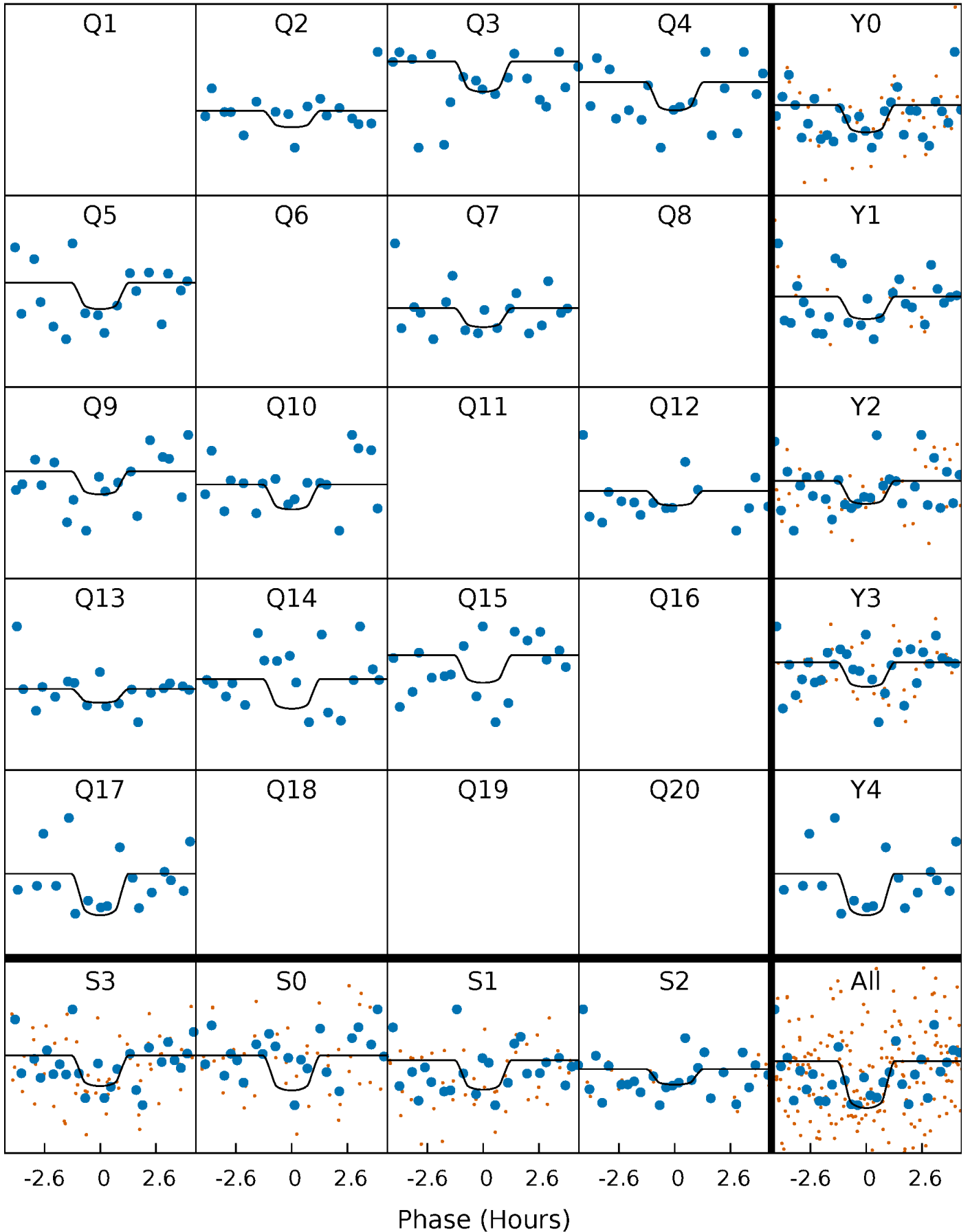
# PDC Quarter-Phased Transit Curves

TCE 008827390-01 P=115.639617 Days  $T_0=185.121847$  (BKJD)



# DV Quarter-Phased Transit Curves

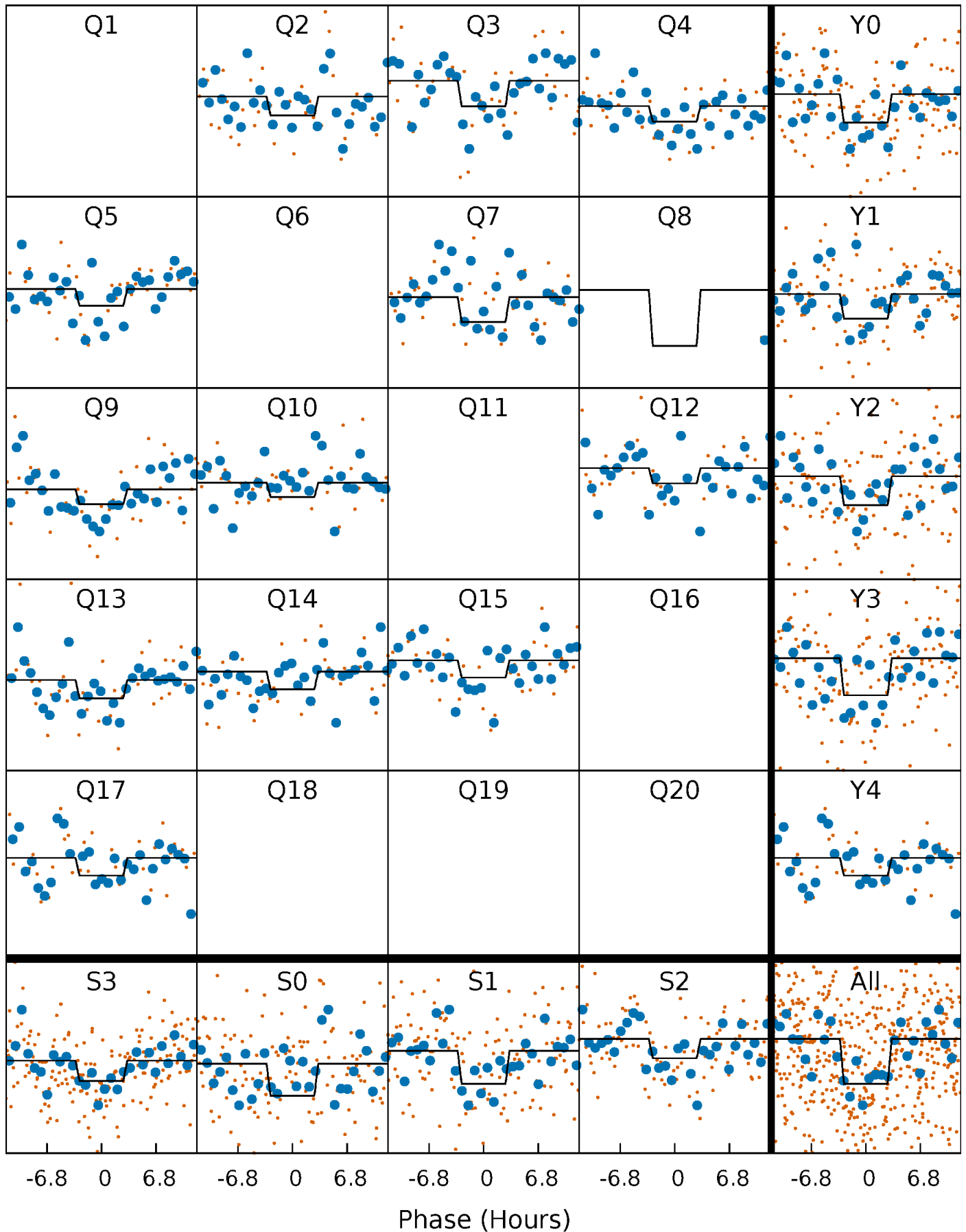
TCE 008827390-01 P=115.639617 Days  $T_0=185.121847$  (BKJD)





# Alt. Detrend Quarter-Phased Transit Curves

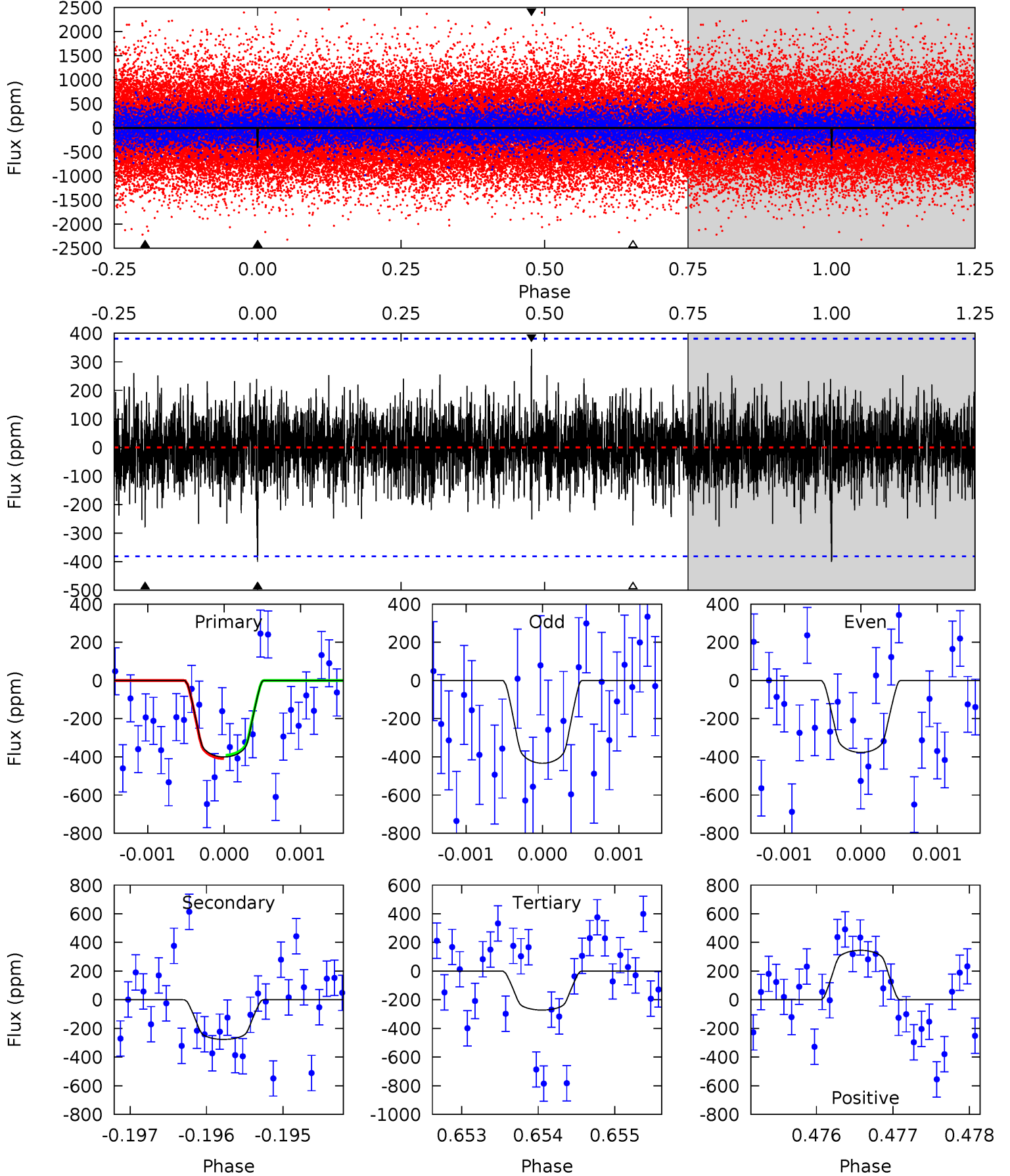
TCE 008827390-01 P=115.638102 Days  $T_0=185.123963$  (BKJD)



# DV Model-Shift Uniqueness Test

008827390-01,  $P = 115.639617$  Days,  $E = 69.482230$  Days

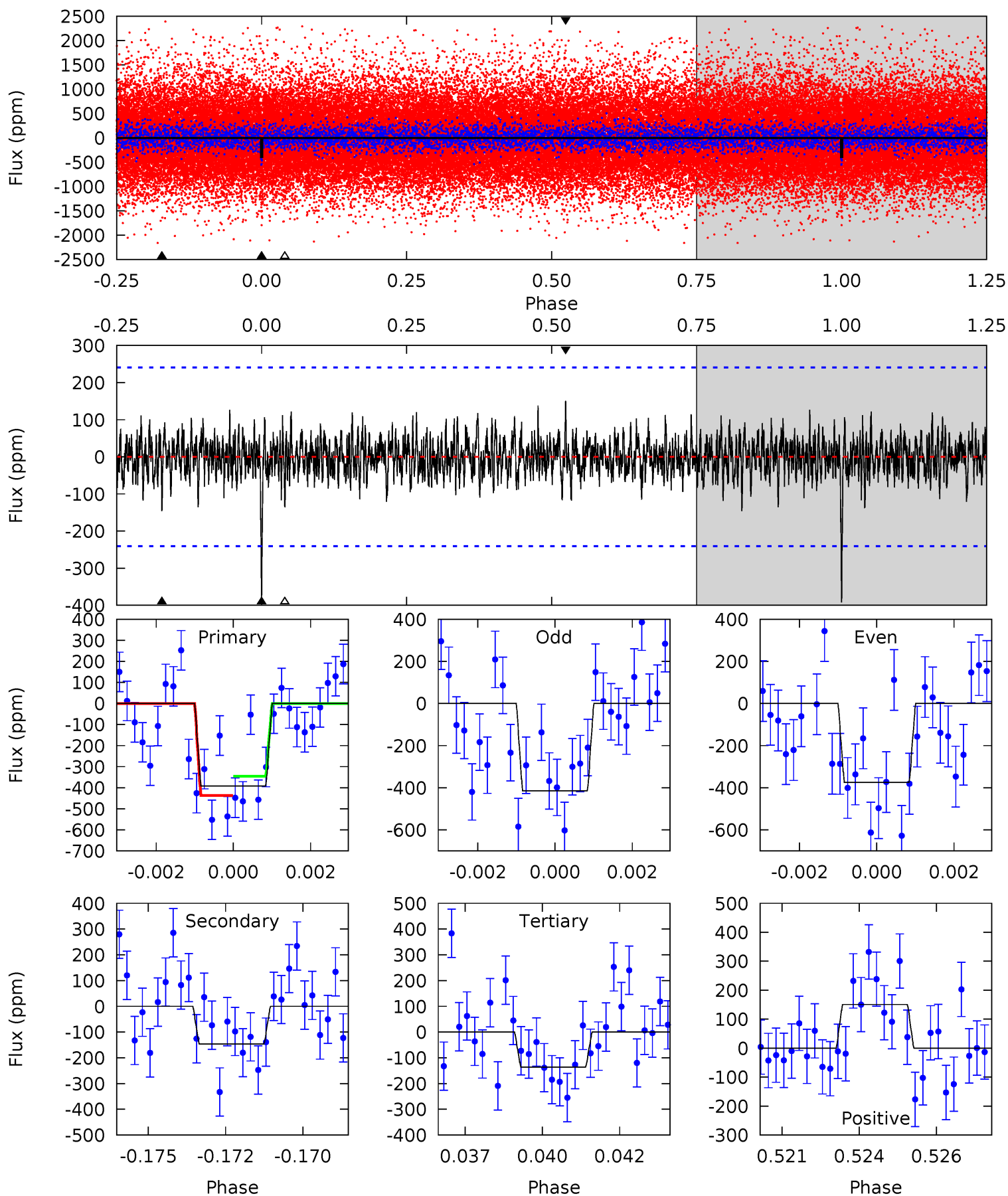
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
5.74	3.97	3.90	4.95	5.46	3.31	1.18	1.84	0.80	0.07	-0.98	0.40	0.95	0.46	0.12



# Alt Model-Shift Uniqueness Test

008827390-01,  $P = 115.638102$  Days,  $E = 69.485861$  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
8.61	3.21	2.99	3.31	5.30	3.04	0.90	5.63	5.30	0.23	-0.10	0.44	0.82	0.28	1.01



### Stellar Parameters For KIC 008827390

	$T_{\text{eff}}(K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	$6190^{+174}_{-217}$	$4.519^{+0.052}_{-0.208}$	$-0.540^{+0.300}_{-0.300}$	$0.882^{+0.266}_{-0.089}$	$0.938^{+0.115}_{-0.115}$	$1.924^{+0.513}_{-0.978}$
	+3%/-4%	+1%/-5%	+56%/-56%	+30%/-10%	+12%/-12%	+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 008827390-01 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	$A_{obs}$
DV	$-277 \pm 70$	$3.10^{+2.62}_{-1.96}$	$542^{+35}_{-24}$	$4700^{+2930}_{-988}$	$3136^{+20370}_{-2255}$
Alt.	$-146 \pm 45$	$2.78^{+2.68}_{-1.89}$	$542^{+40}_{-28}$	$4273^{+2874}_{-858}$	$2010^{+17338}_{-1496}$

$T_{max}$  = 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

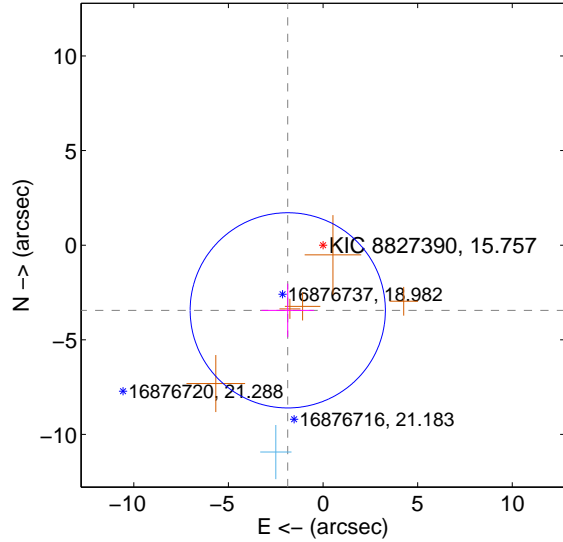
Supplemental centroid analysis for 008827390-01. Kepler magnitude: 15.76. Transit SNR 5.70

There are 1 quarters with good PRF difference image offsets

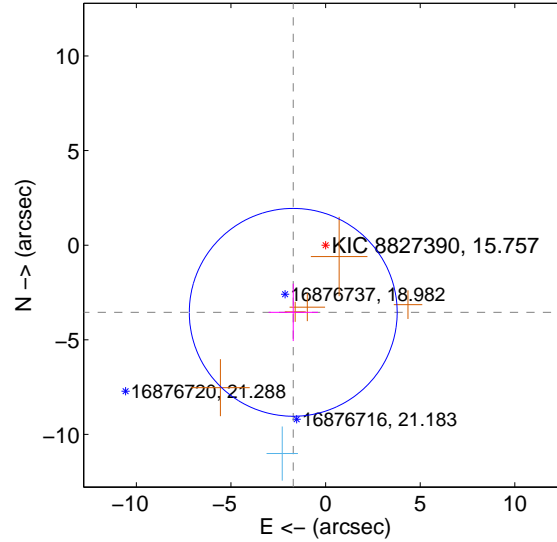
The direct PRF centroid is offset from the target star catalog position by about 0.24 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$3.915 \pm 1.719$	2.28	$1.864 \pm 1.387$	$-3.443 \pm 1.405$
PRF-fit source offset from KIC position	$3.939 \pm 1.830$	2.15	$1.709 \pm 1.304$	$-3.549 \pm 1.515$
photometric centroid source offset	$2.09 \pm 2.85$	0.73	$0.15 \pm 2.82$	$2.09 \pm 2.85$

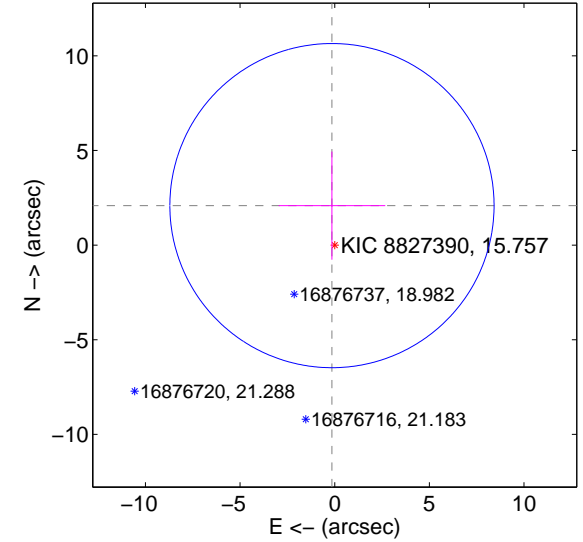
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position



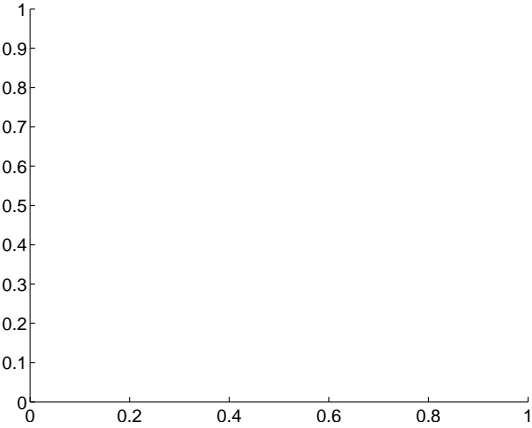
offset from photometric centroids



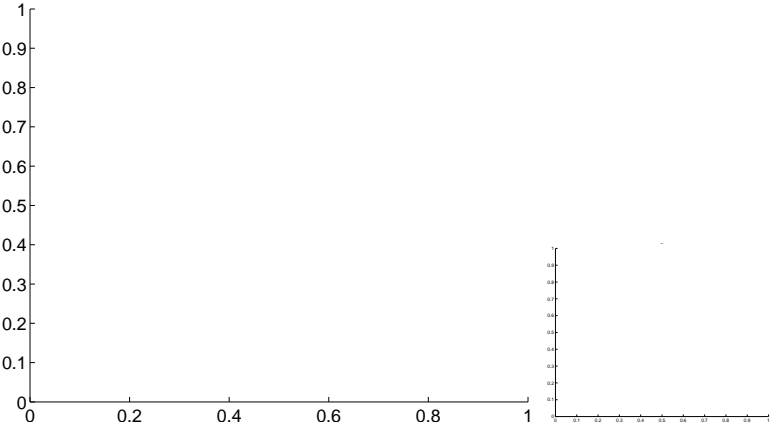
Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: three-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

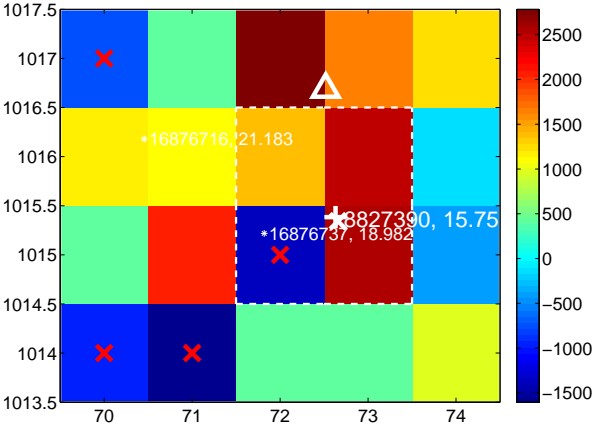
Q1 no difference image



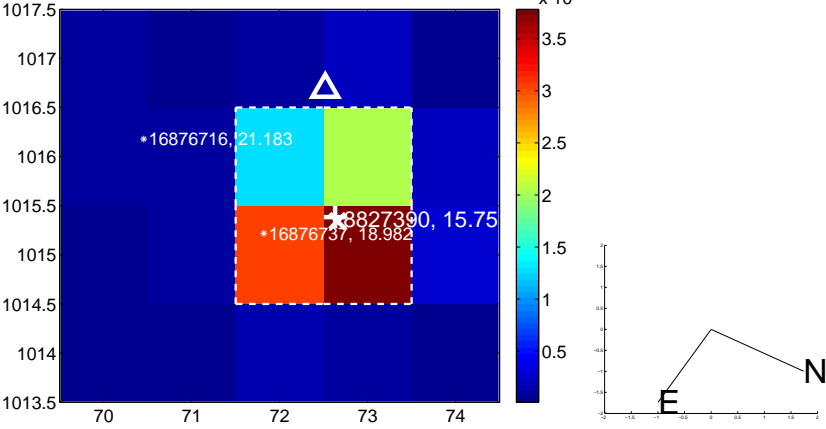
Q1 no OOT image



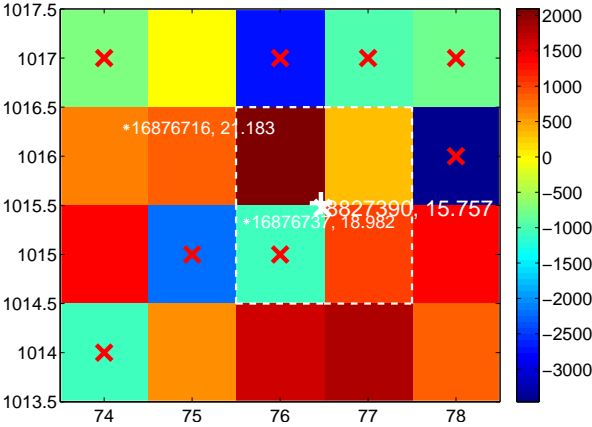
Q2 difference image. Poor Quality



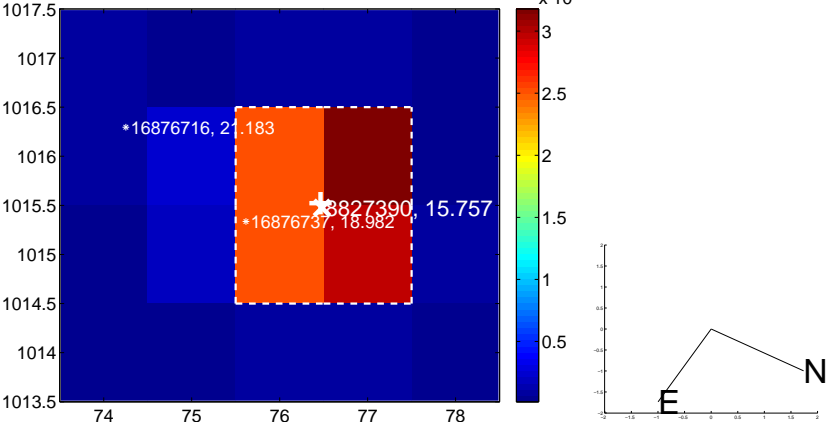
Q2 OOT image



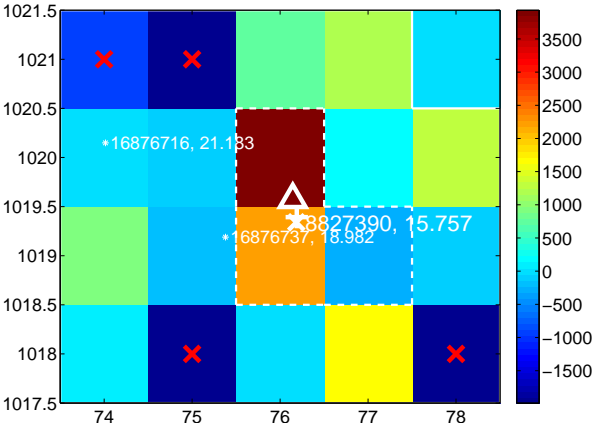
Q3 difference image. Poor Quality



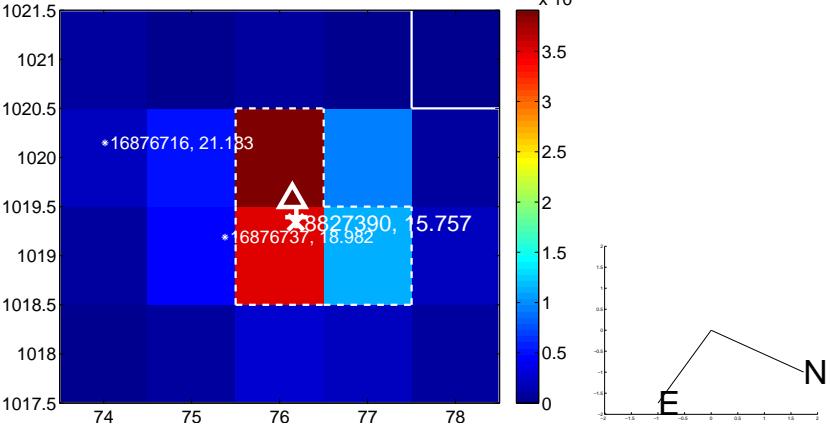
Q3 OOT image



Q4 difference image. Poor Quality

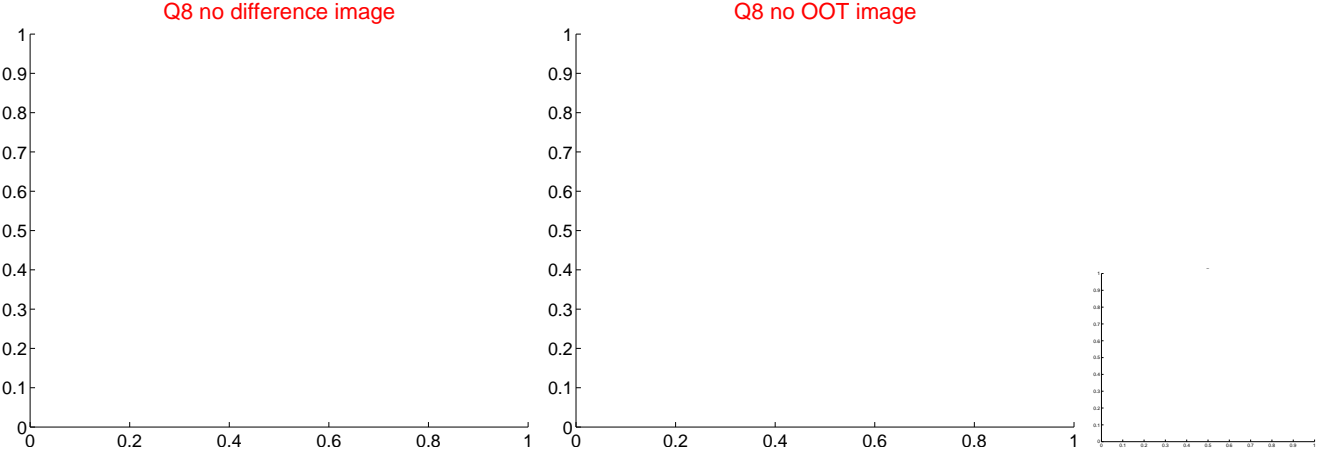
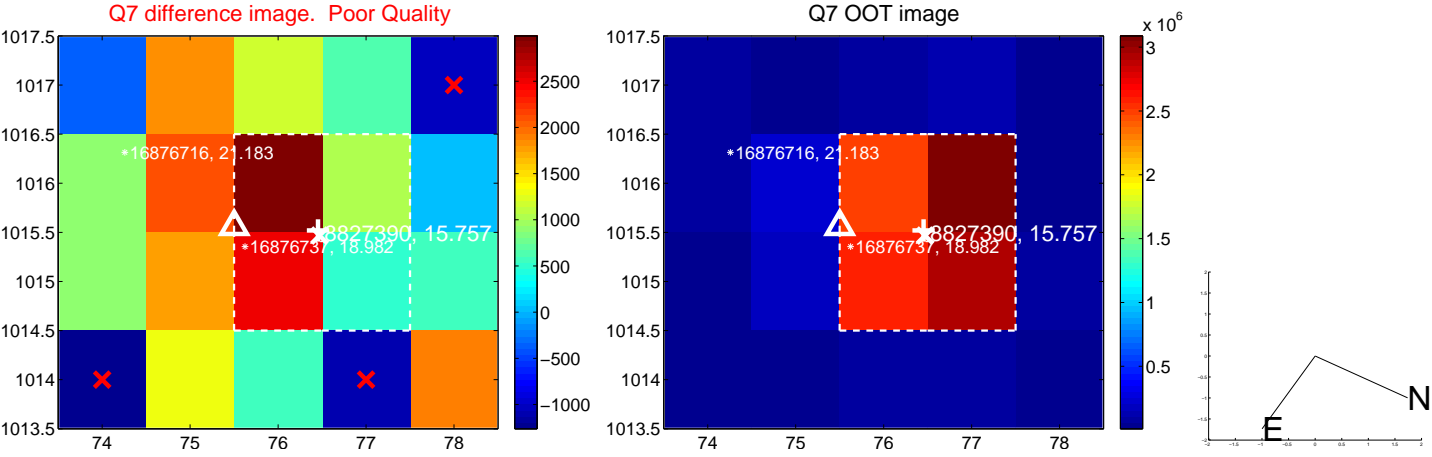
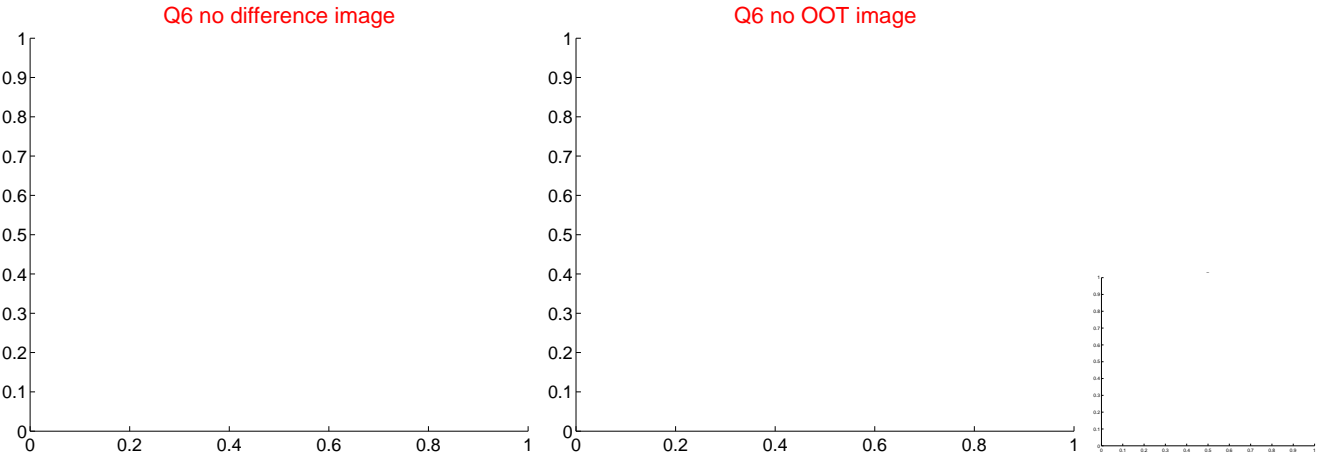
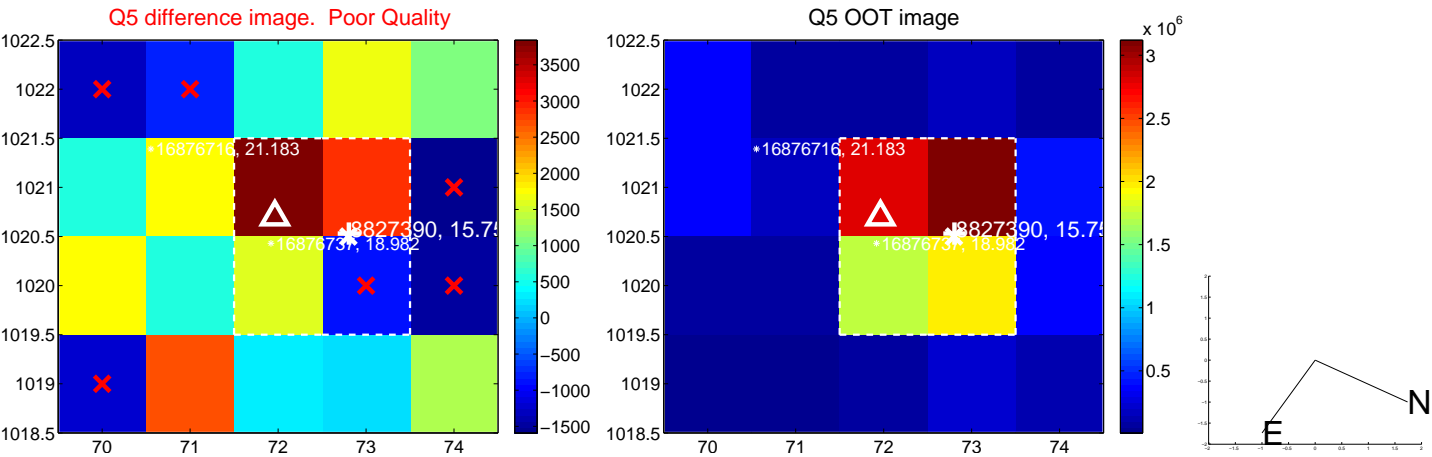


Q4 OOT image

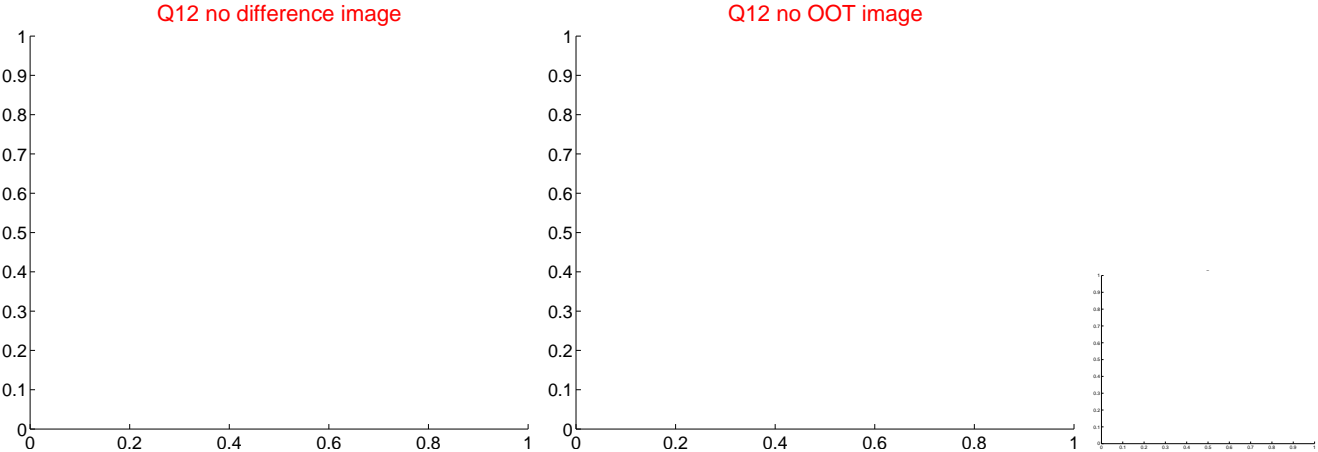
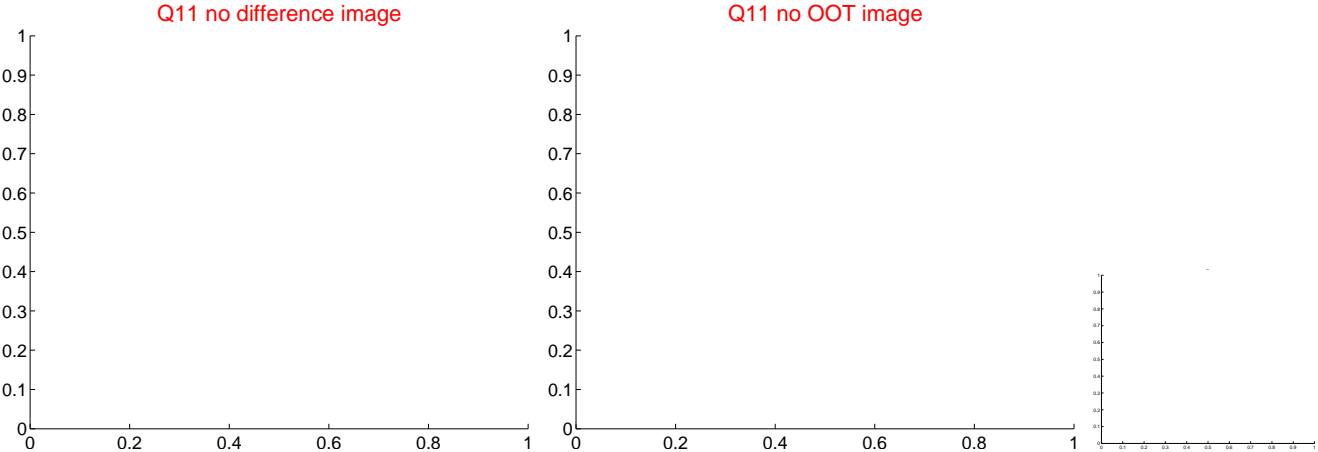
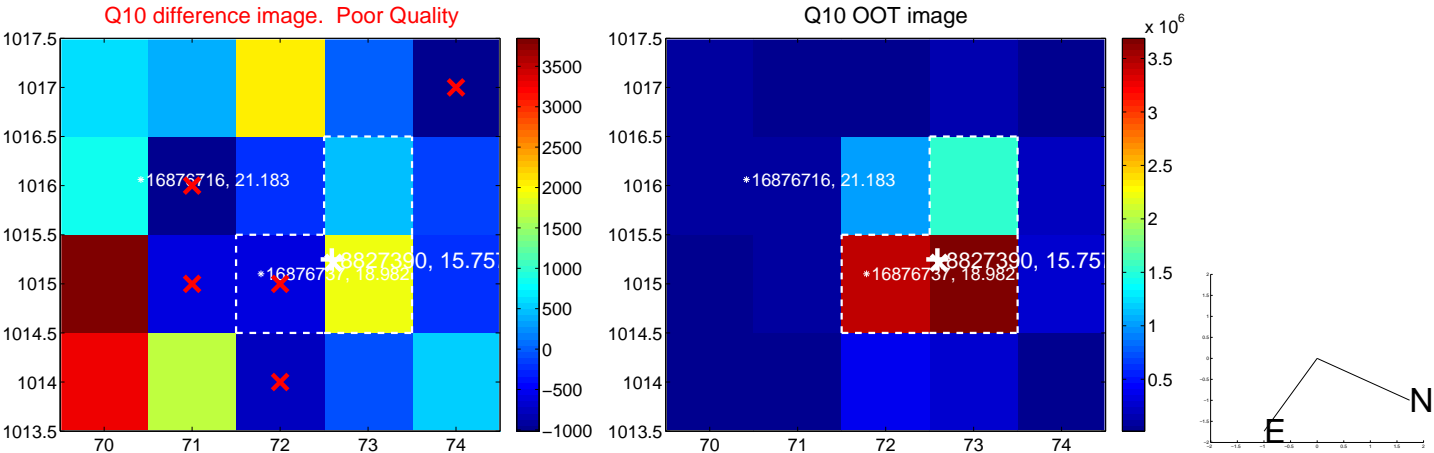
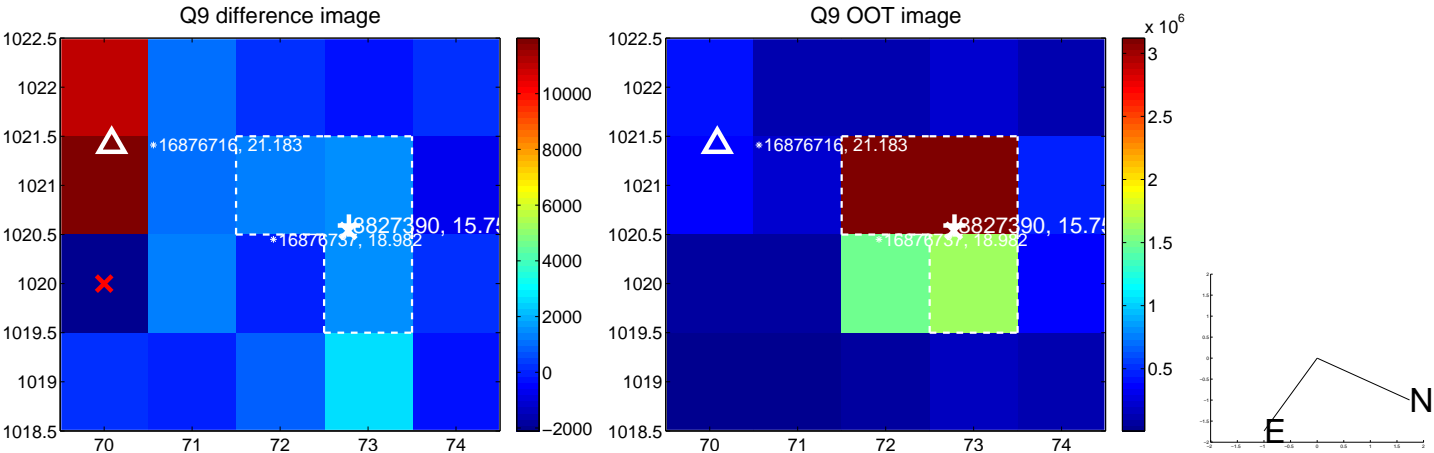




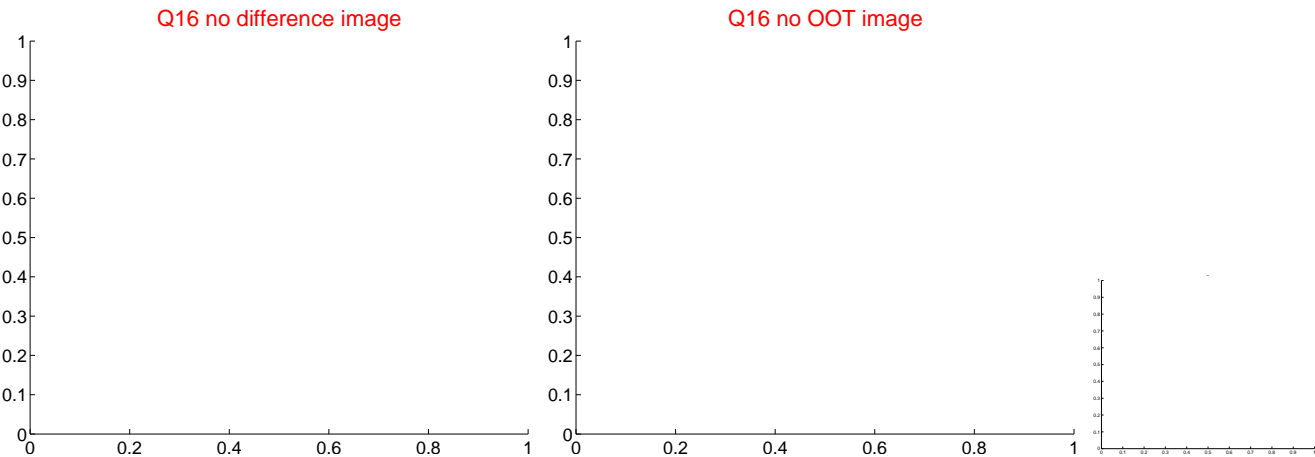
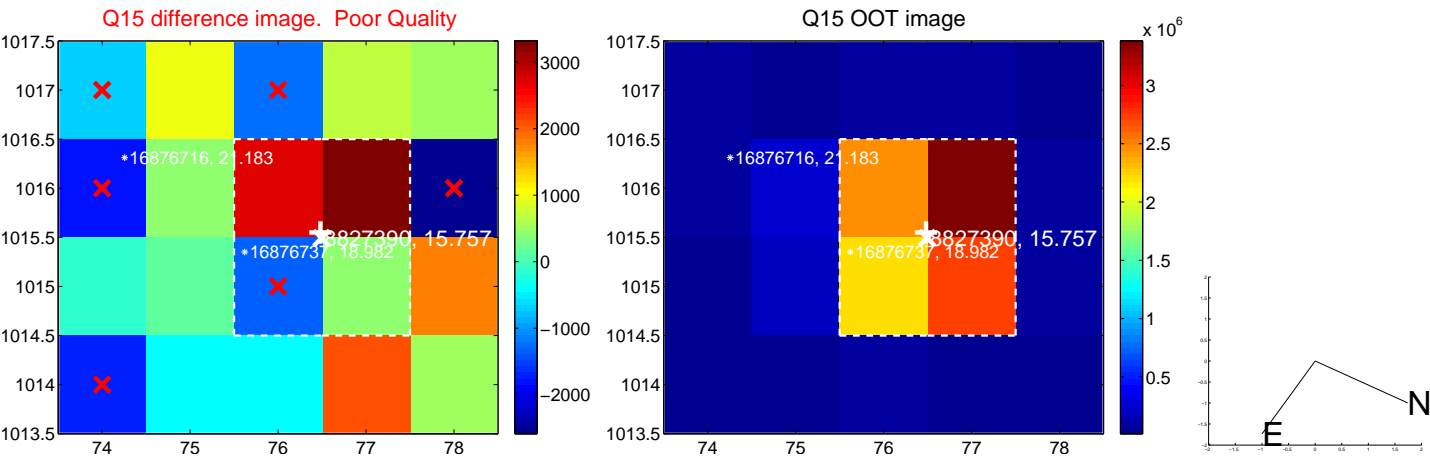
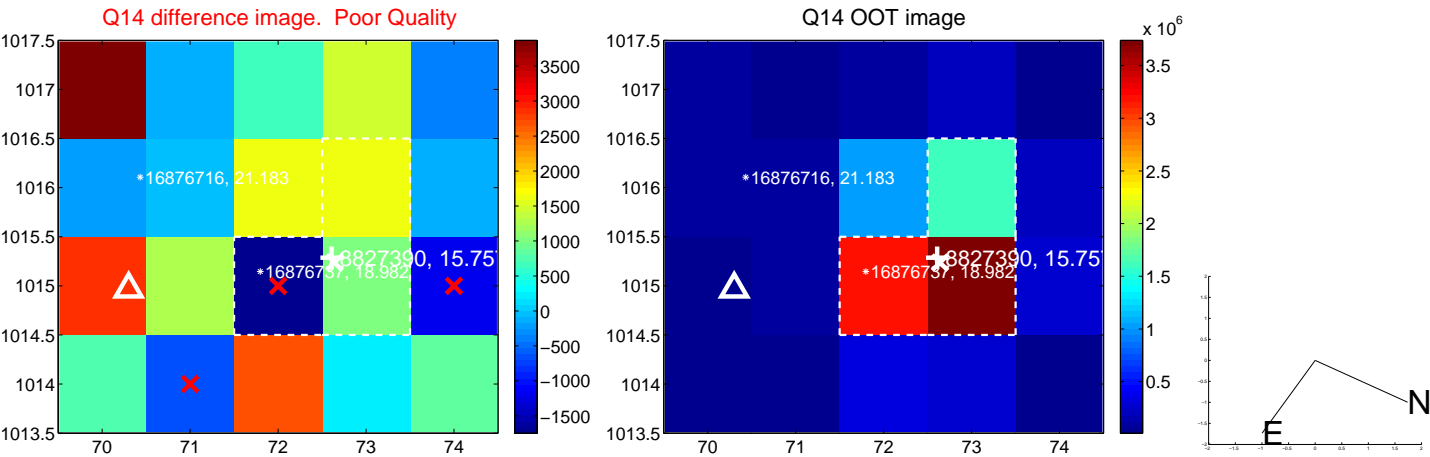
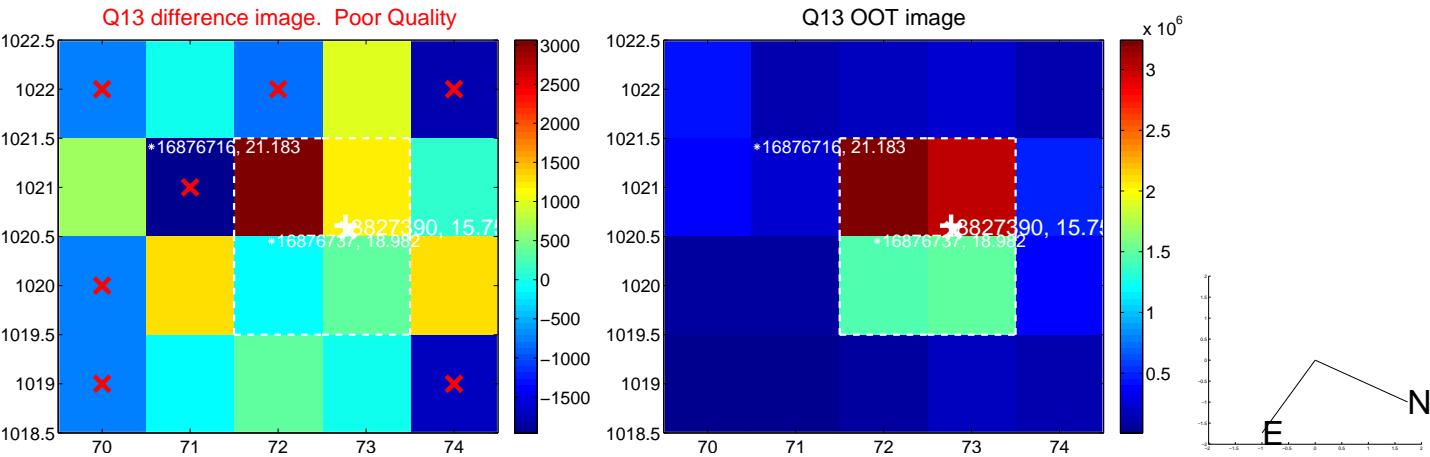
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



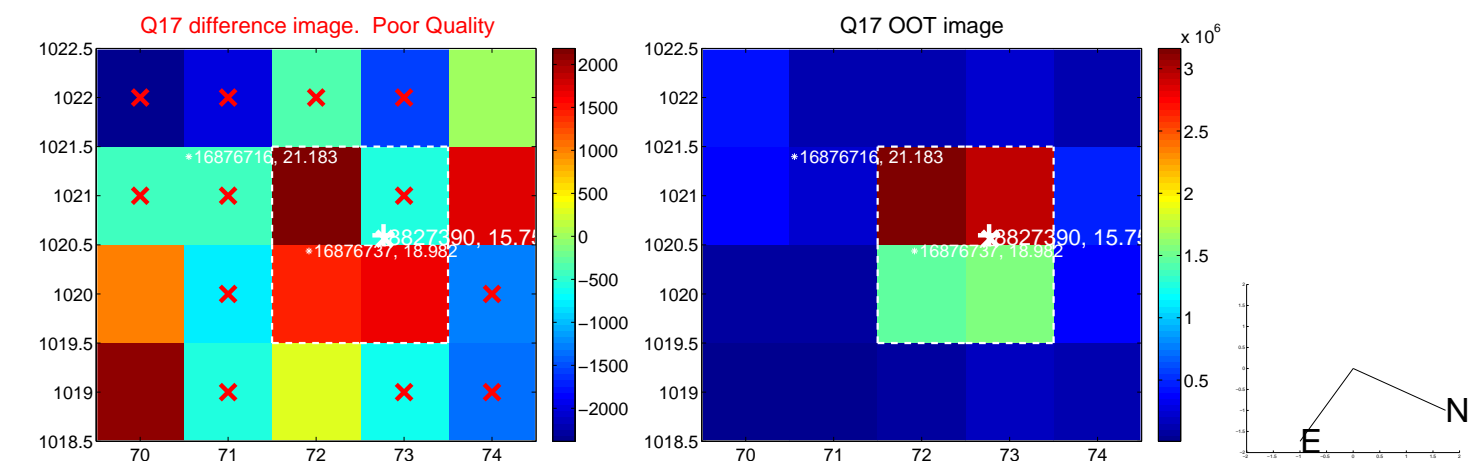
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



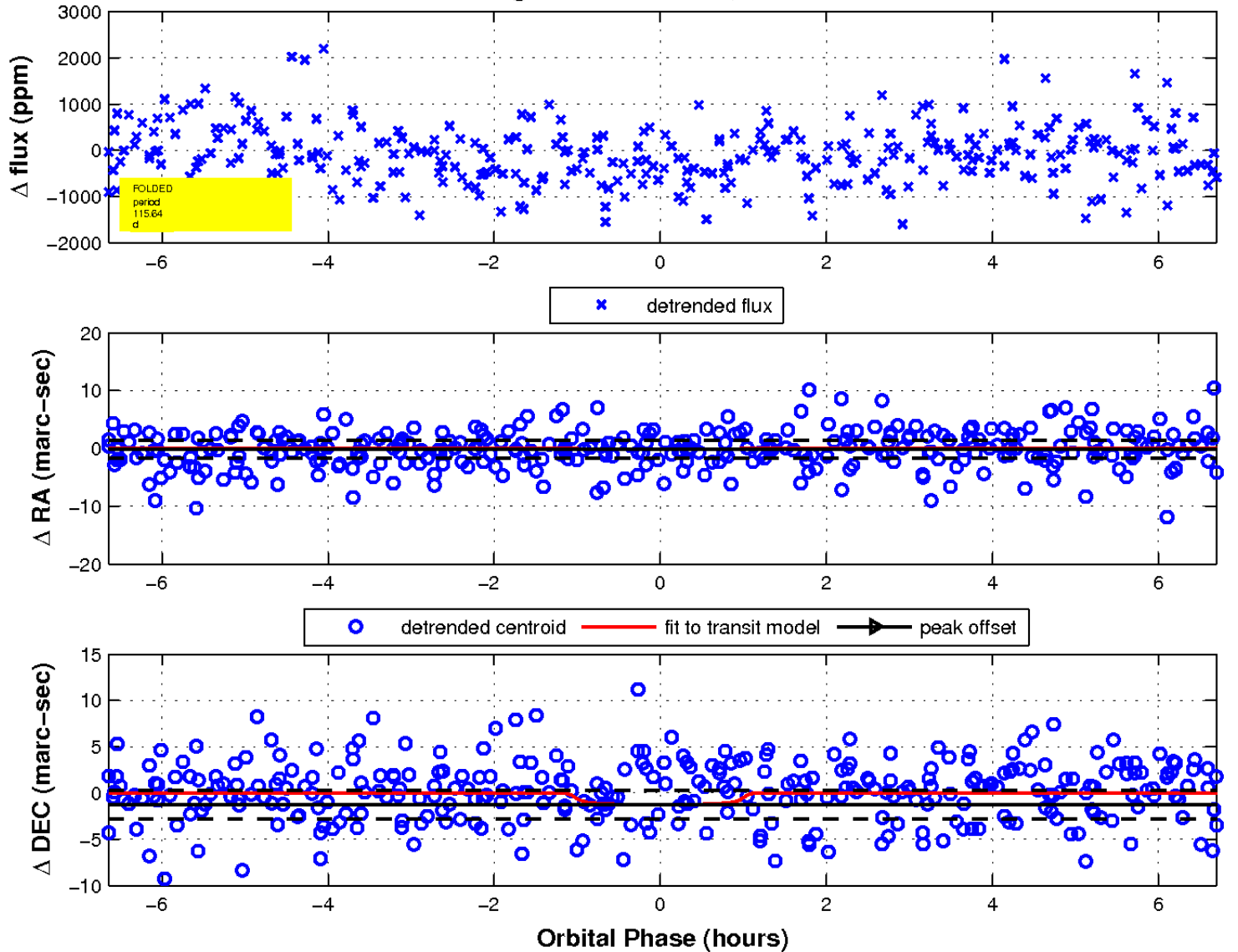
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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



fluxWeightedCentroids, Planet 1 of 1



# UKIRT Image

Declination

