

# KIC 010659654

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
010659654-01	OBS	No	0.889969	131.810034	52.0	10.680	12.8	23.5	2.12	8982	1.94	48512.48

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
010659654-01	OBS	FP	0.00	1	0	0	0	LPP_DV—CENT_SATURATED

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

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

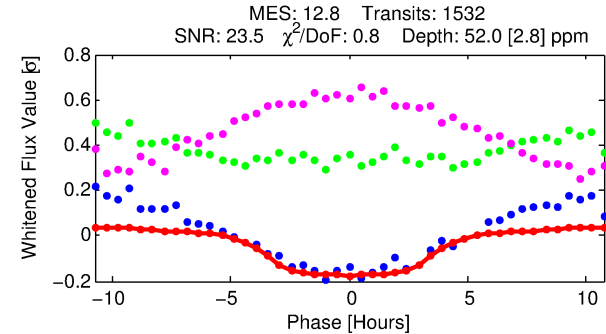
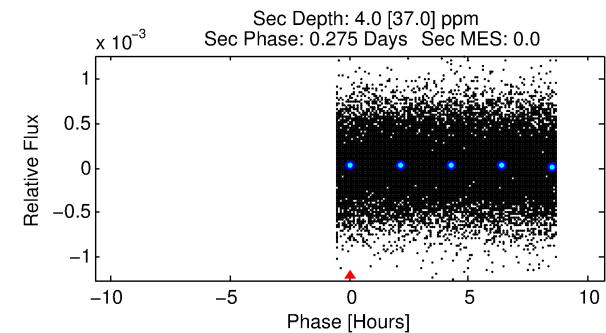
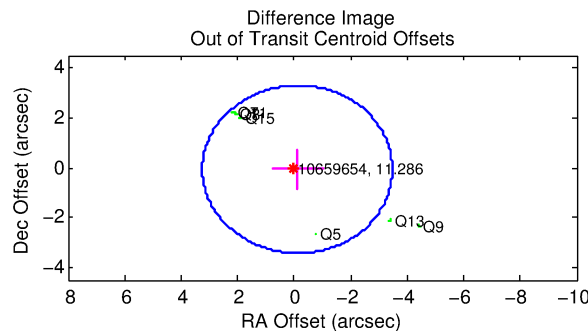
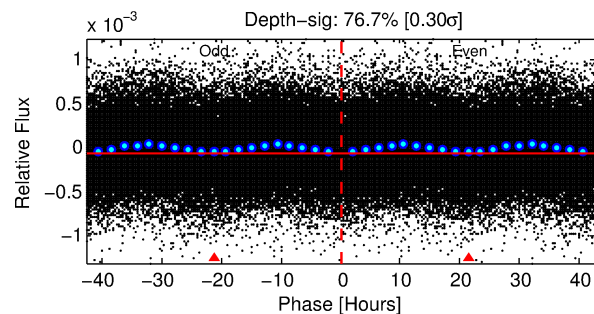
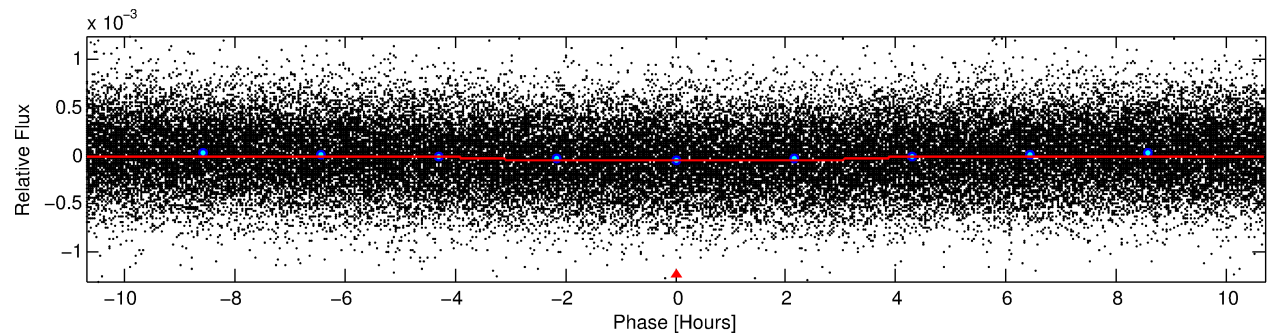
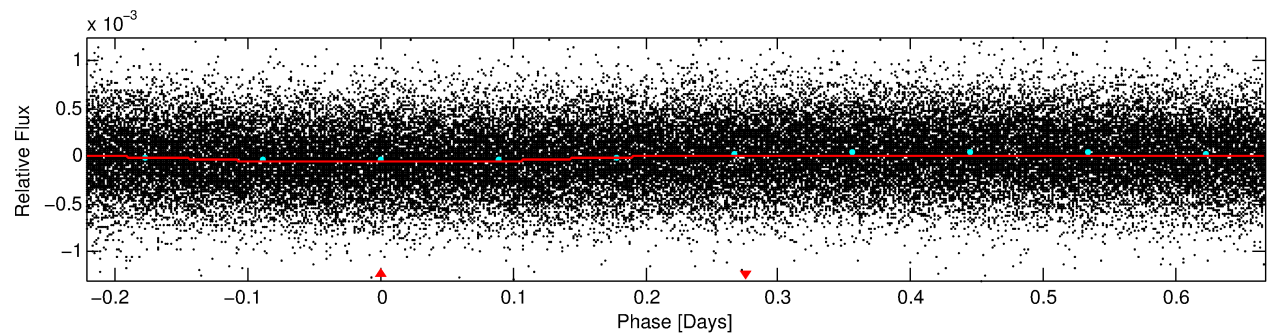
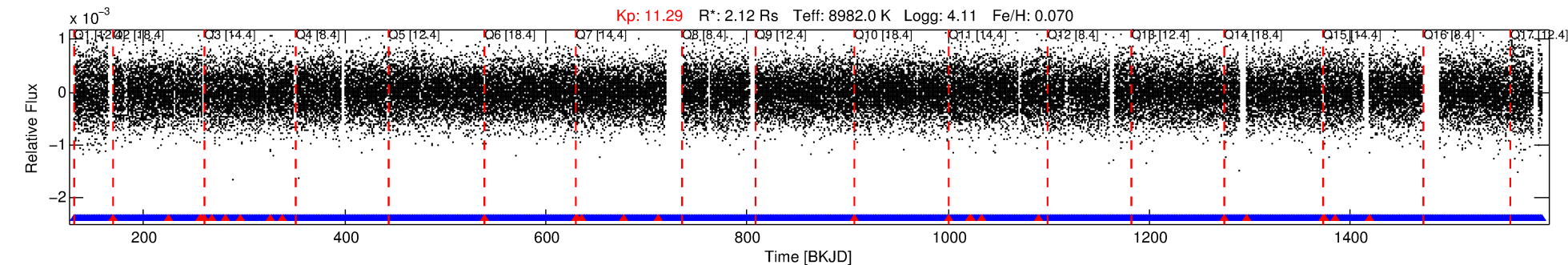
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

## Ephemeris Match Information For 010659654-01

No Significant Match Found

# DV One-Page Summary

KIC: 10659654 Candidate: 1 of 1 Period: 0.890 d



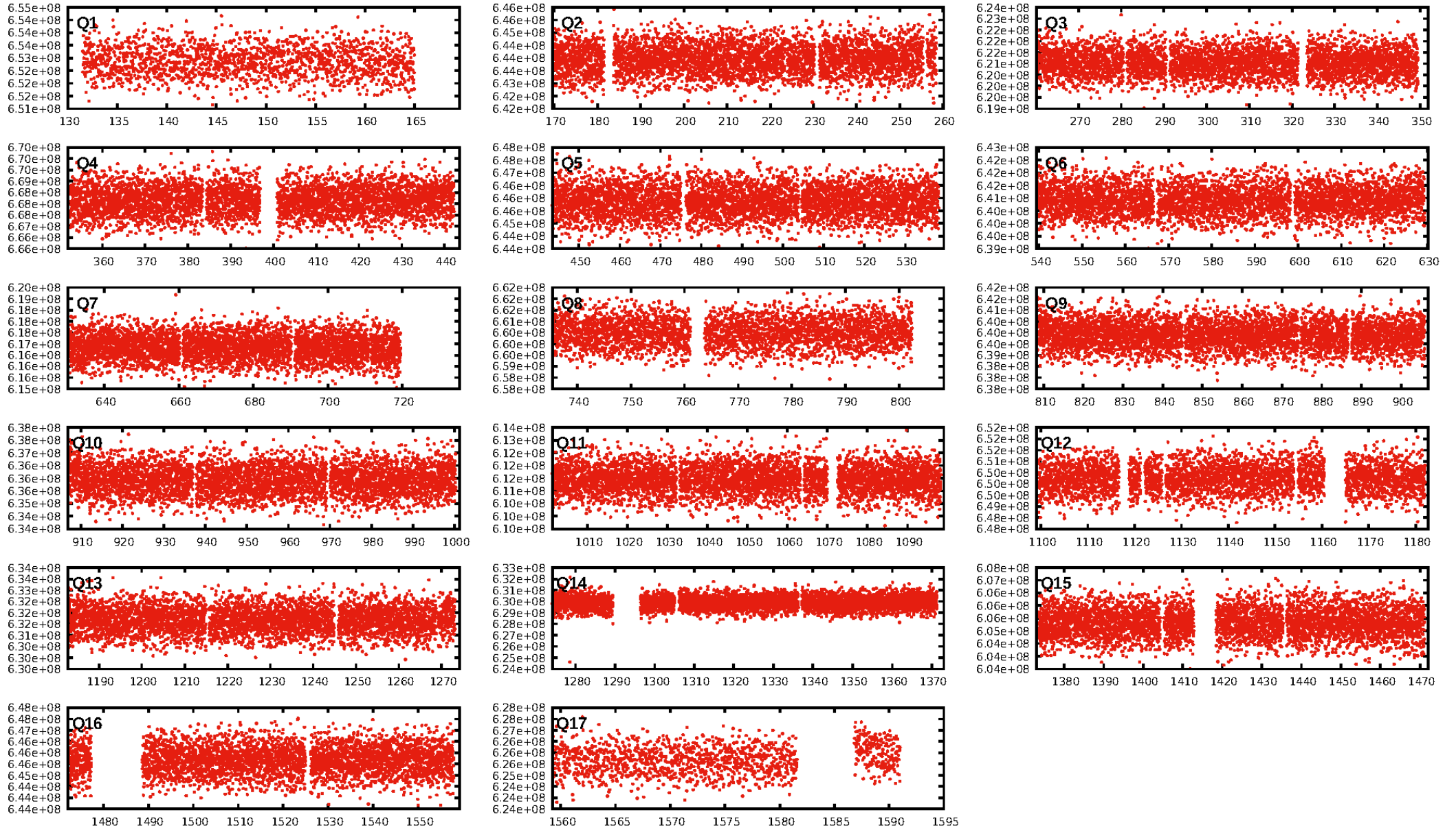
## DV Fit Results:

Period = 0.88997 [0.00001] d  
Epoch = 131.8100 [0.0072] BKJD  
Rp/R\* = 0.0084 [0.0003]  
a/R\* = 1.01 [0.00]  
b = 0.98 [0.01]  
Seff = 48512.48 [20158.32]  
Teff = 3784 [393] K  
Rp = 1.94 [0.69] Re  
a = 0.0233 [0.0064] AU  
Ag = 0.32 [2.92] [-0.23 $\sigma$ ]  
Teffp = 4397 [10053] K [0.06 $\sigma$ ]

## DV Diagnostic Results:

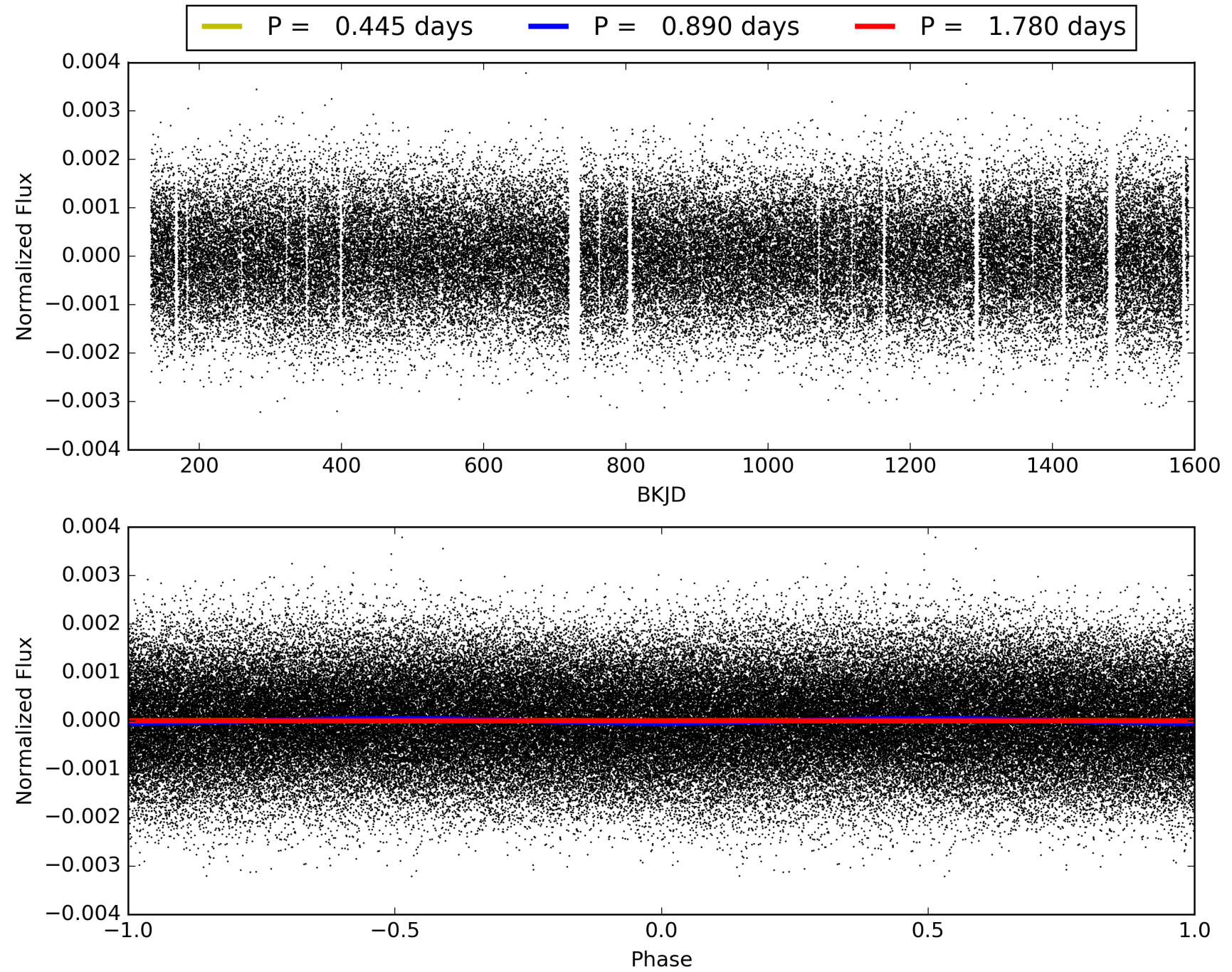
ShortPeriod-sig: N/A  
LongPeriod-sig: N/A  
ModelChiSquare2-sig: N/A  
ModelChiSquareGof-sig: N/A  
Bootstrap-pfa: N/A  
RollingBand-fgt: 0.98 [1432/1463]  
GhostDiagnostic-chr: 3.775  
Centroid-sig: 0.0%  
Centroid-so: 0.298 arcsec [2.57 $\sigma$ ]  
OotOffset-rm: 0.131 arcsec [0.12 $\sigma$ ]  
KicOffset-rm: 0.106 arcsec [0.10 $\sigma$ ]  
OotOffset-st: 0/4/0/3 [7]  
KicOffset-st: 0/4/0/3 [7]  
DiffImageQuality-fgm: 0.00 [0/7]  
DiffImageOverlap-fno: 1.00 [17/17]

# TCE 010659654-01, PDC Light Curves



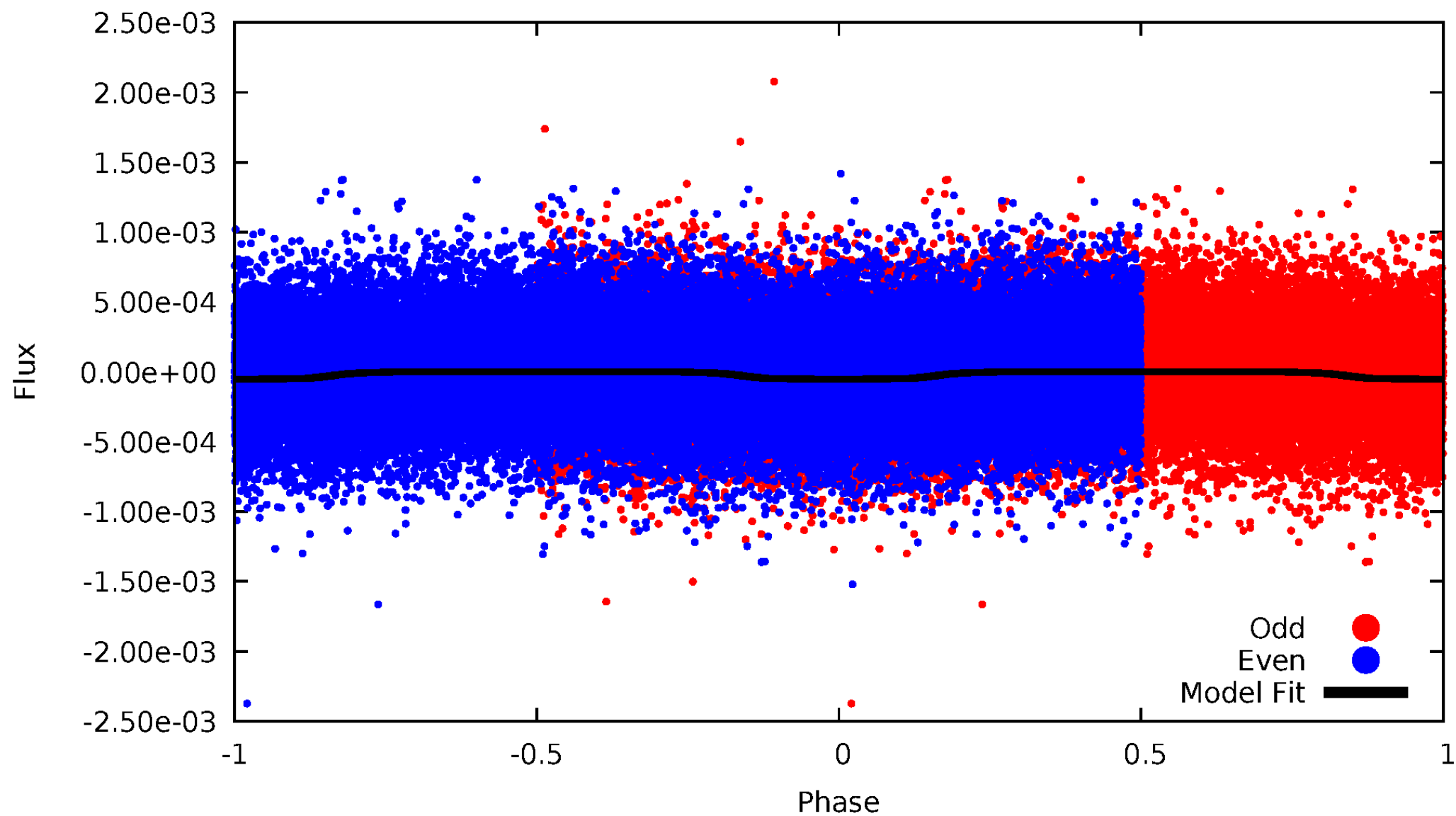


# TCE 010659654-01



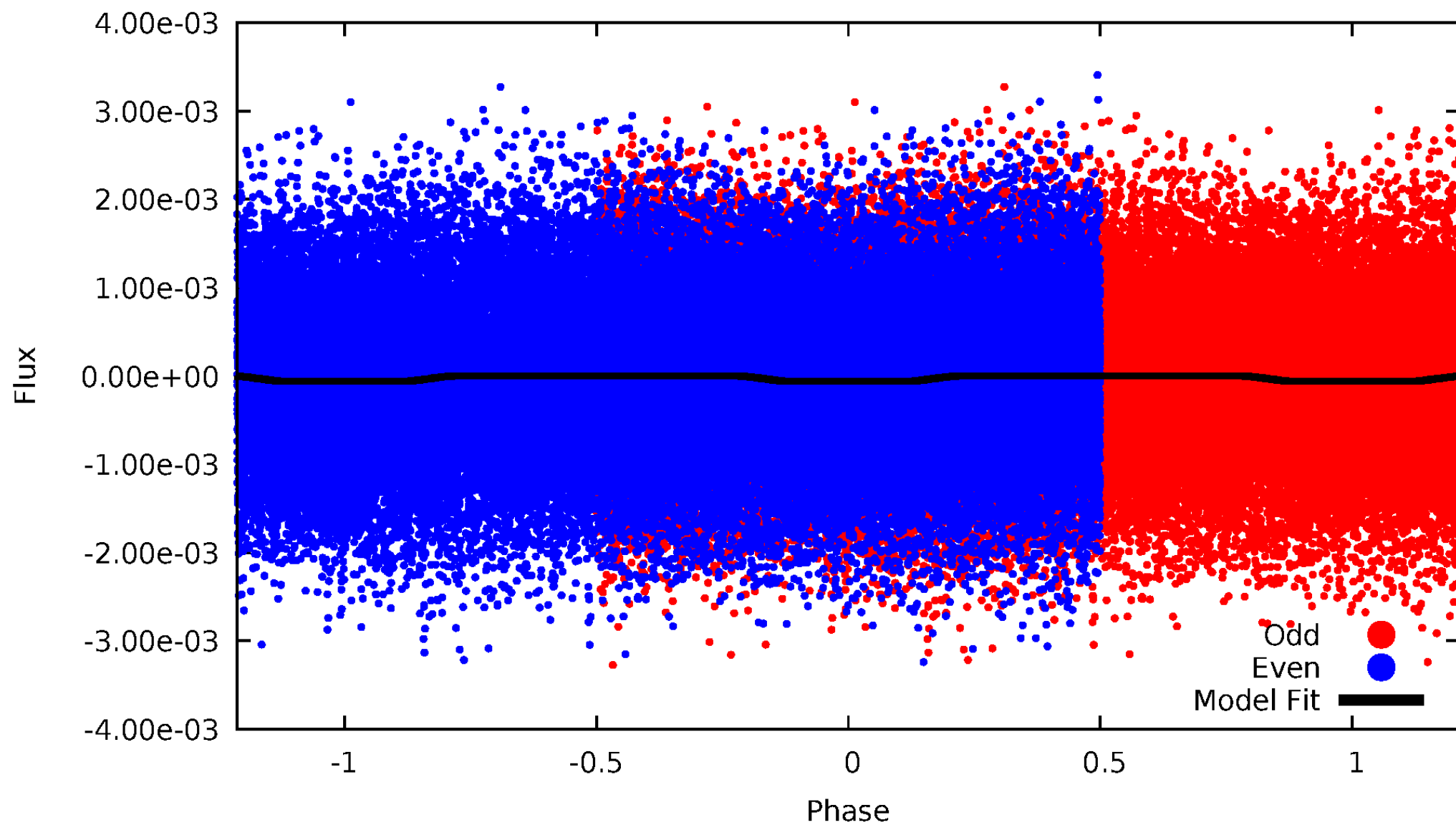
# DV Odd/Even

TCE 010659654-01

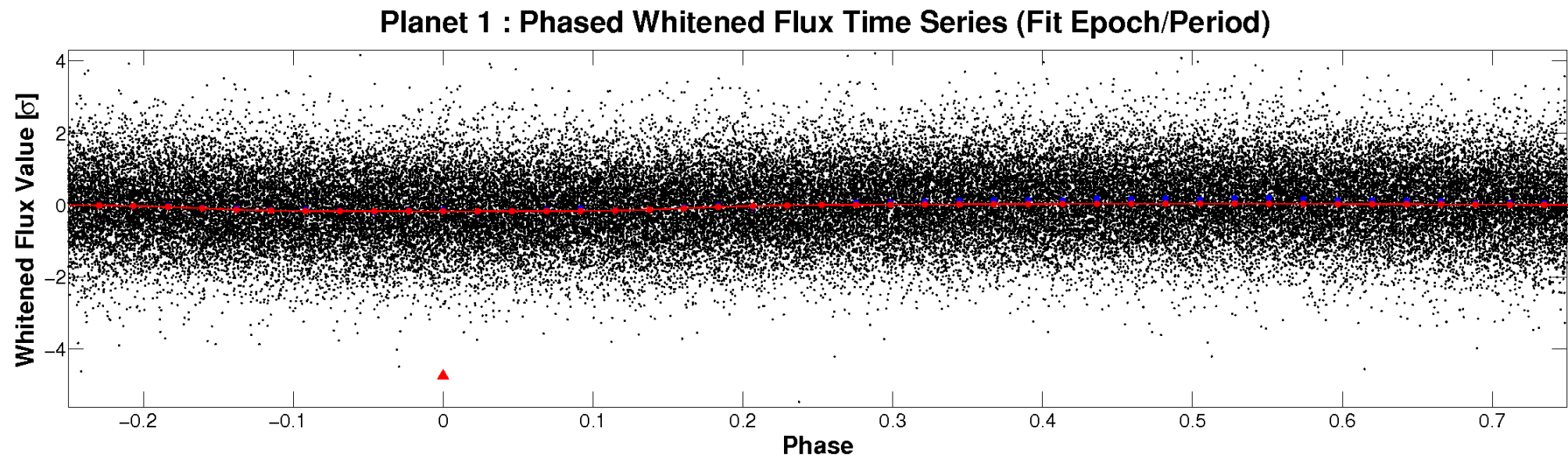
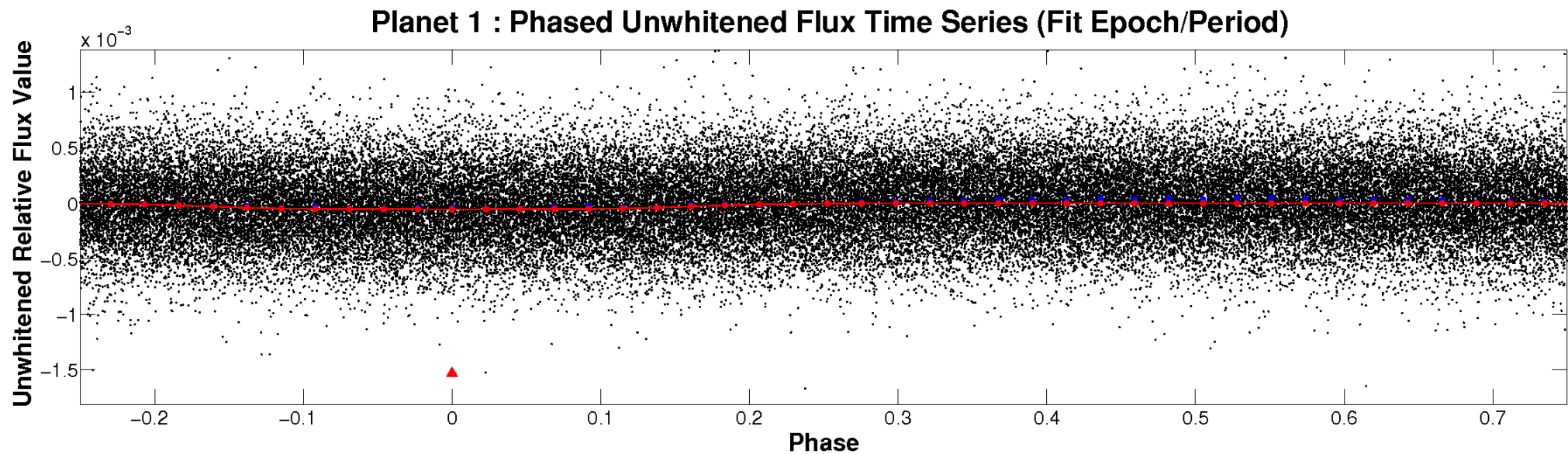


# ALT Odd/Even

TCE 010659654-01



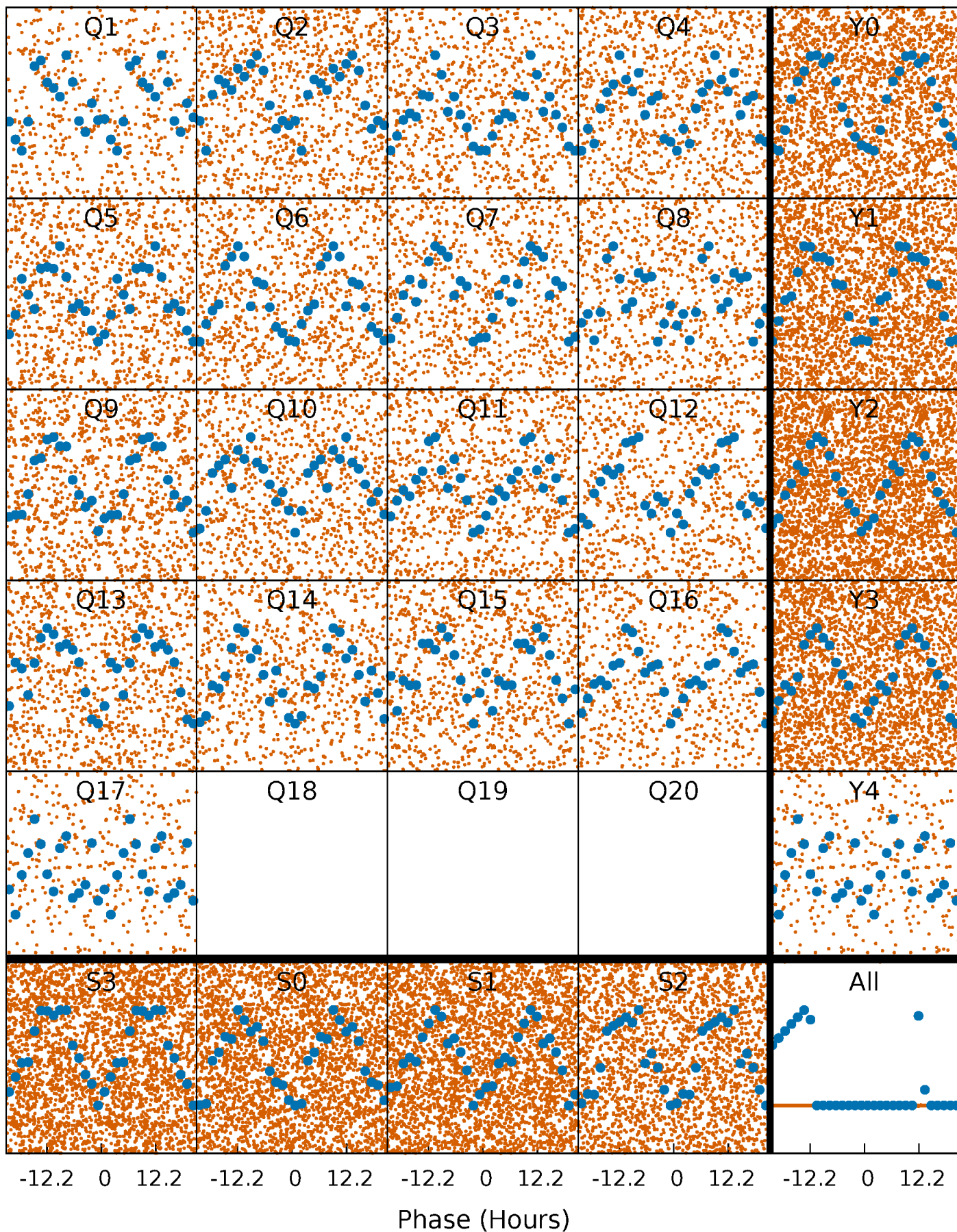
# Non-Whitened Vs. Whitened Light Curve





# PDC Quarter-Phased Transit Curves

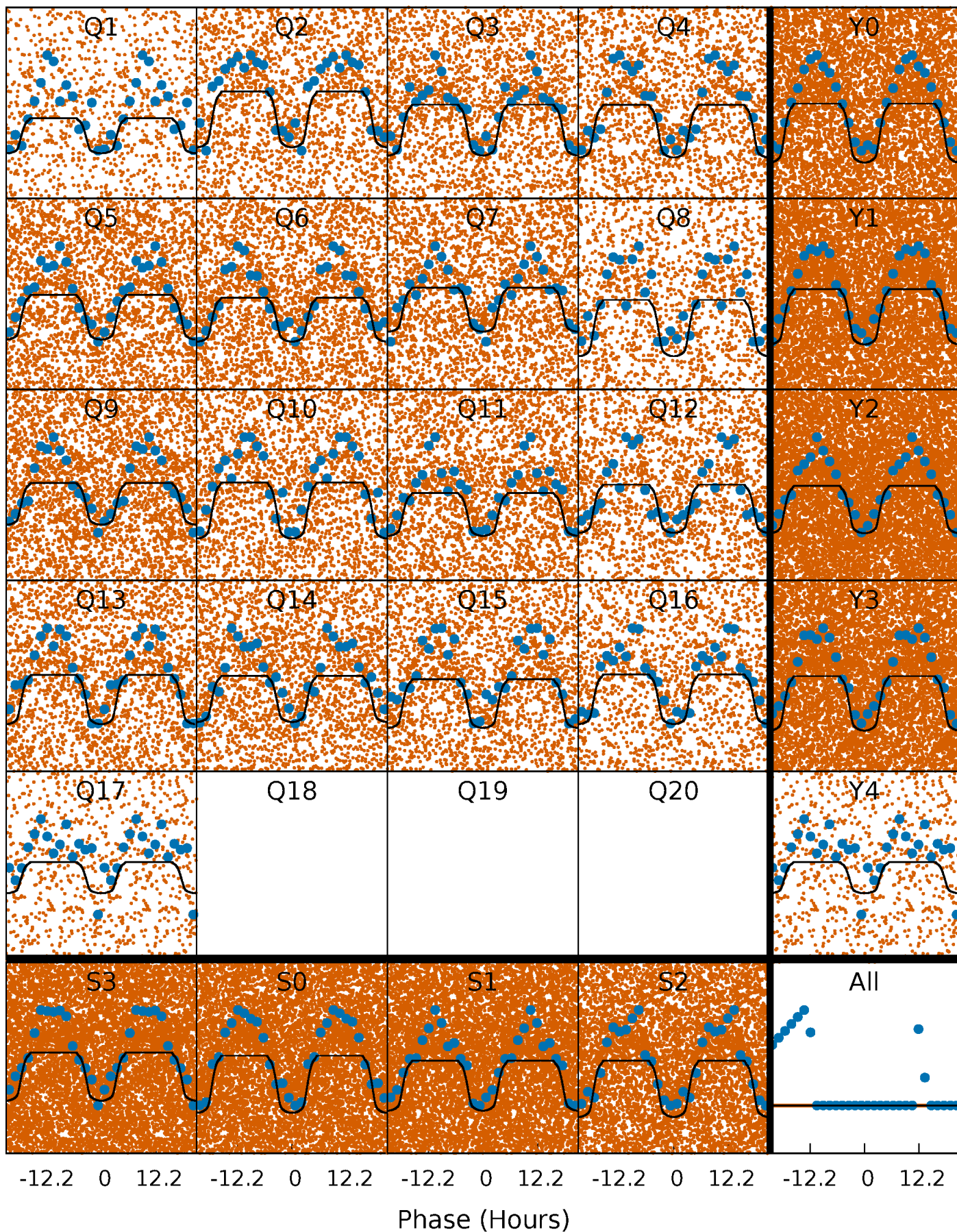
TCE 010659654-01 P= 0.889969 Days  $T_0=131.810034$  (BKJD)





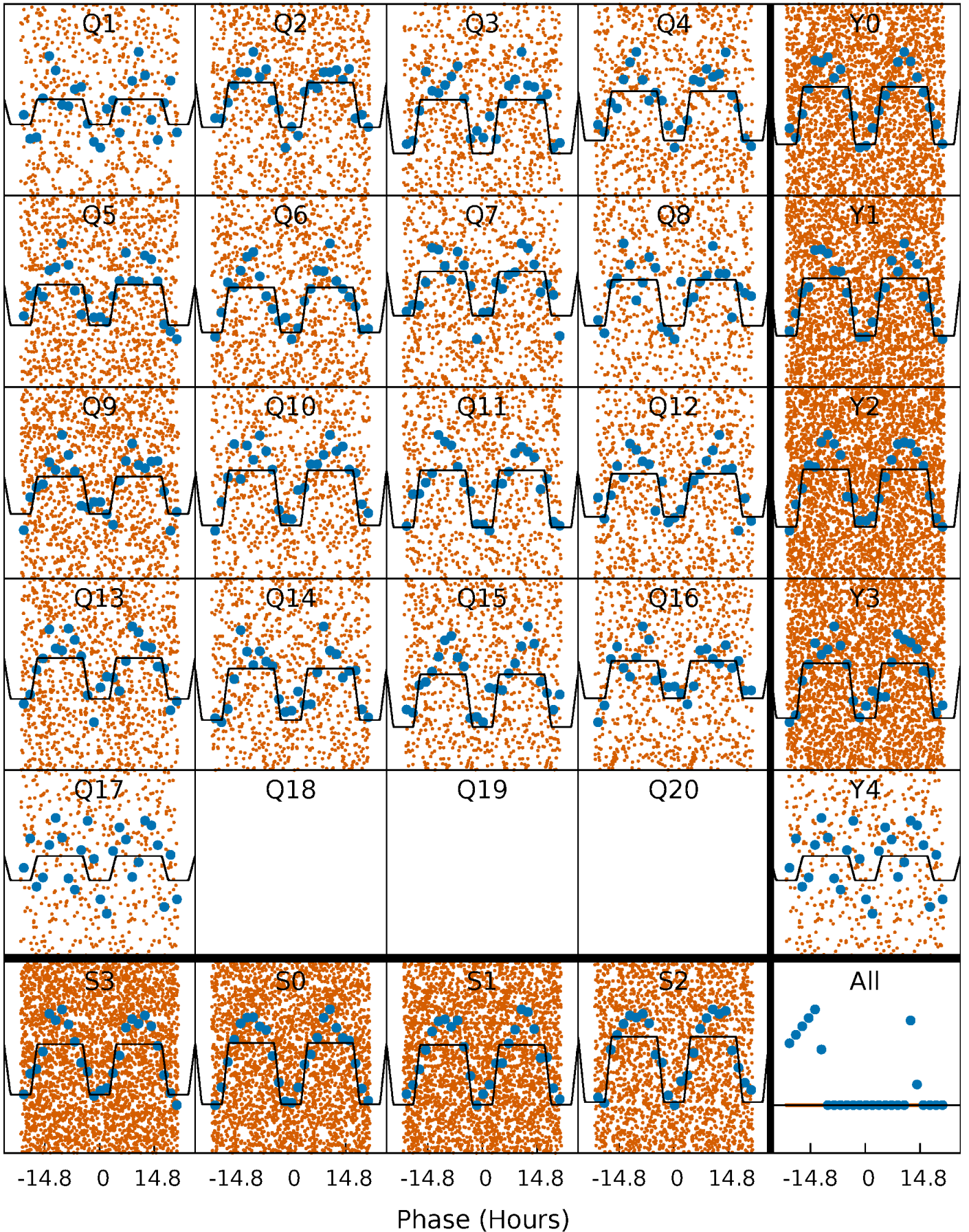
# DV Quarter-Phased Transit Curves

TCE 010659654-01 P= 0.889969 Days  $T_0=131.810034$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

TCE 010659654-01   P= 0.889958 Days    $T_0=131.810338$  (BKJD)

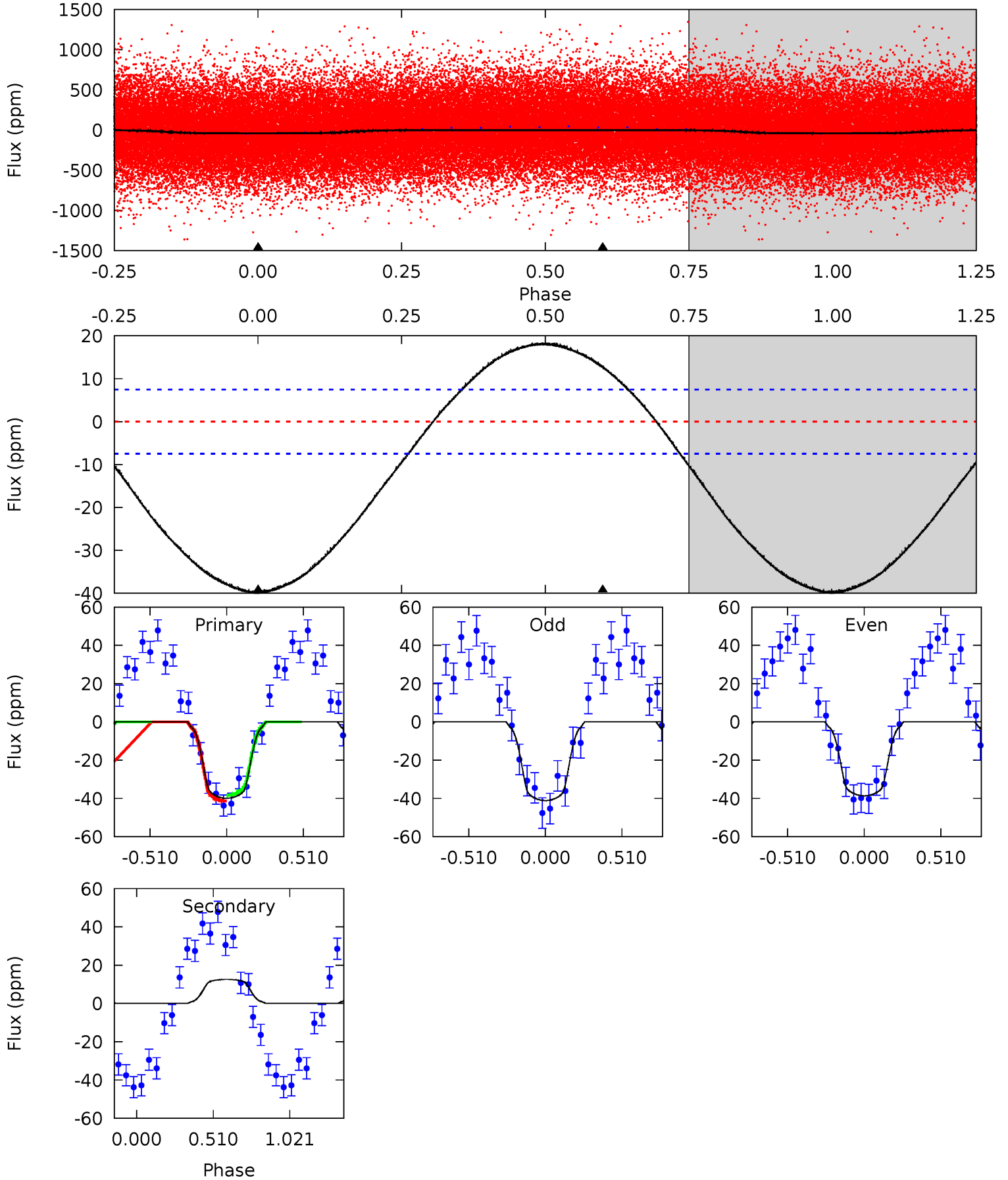




# DV Model-Shift Uniqueness Test

010659654-01, P = 0.889969 Days, E = 130.920065 Days

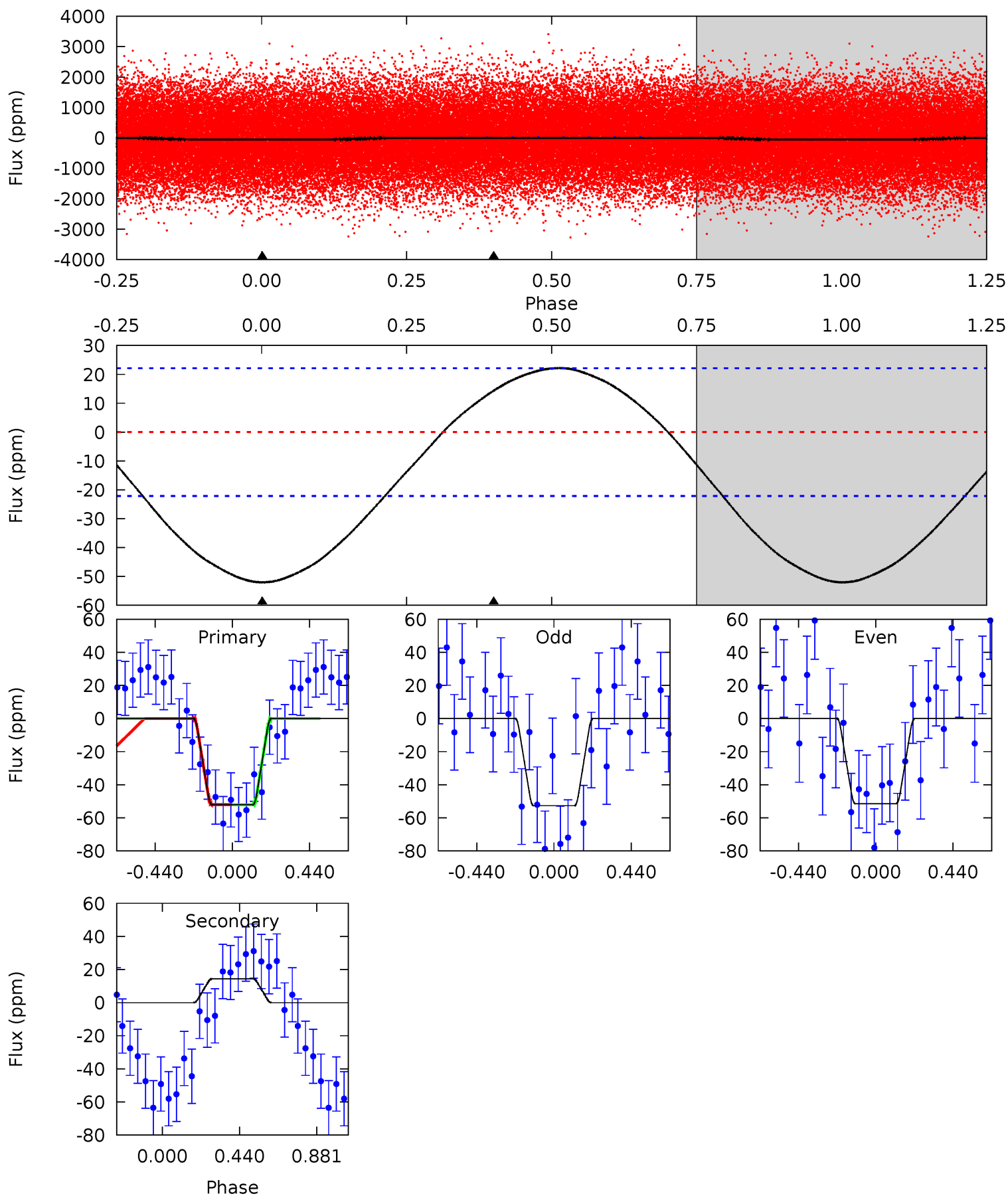
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
22.4	-7.07	0	0	4.21	0.66	2.77	22.4	22.4	-7.07	-7.07	0.70	1.47	0.32	0.85



# Alt Model-Shift Uniqueness Test

010659654-01, P = 0.889958 Days, E = 130.920380 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
9.98	-2.74	0	0	4.24	0.77	1.21	9.98	9.98	-2.74	-2.74	0.12	0.95	0.30	0.01





### Stellar Parameters For KIC 010659654

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	$8982^{+283}_{-425}$	$4.111^{+0.124}_{-0.186}$	$0.070^{+0.200}_{-0.600}$	$2.123^{+0.749}_{-0.437}$	$2.122^{+0.397}_{-0.486}$	$0.312^{+0.203}_{-0.166}$
	+3%/-5%	+3%/-5%	+286%/-857%	+35%/-21%	+19%/-23%	+65%/-53%
Source	PHO54	PHO54	PHO54	DSEP		

KIC = Kepler Input Catalog; PHO = Photometry; SPE = Spectroscopy; AST = Asteroseismology  
 TRA = Transits; DESP = Dartmouth Models; MULT = Multiple Models

### Secondary Eclipse Parameters for KIC 010659654-01 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	$A_{obs}$
DV	$13 \pm 2$	$1.96^{+0.33}_{-0.24}$	$5310^{+398}_{-361}$	$-5916^{+255}_{-250}$	$-0.939^{+0.257}_{-0.312}$
Alt.	$14 \pm 5$	$1.80^{+0.32}_{-0.23}$	$5318^{+411}_{-357}$	$-6299^{+542}_{-530}$	$-1.284^{+0.546}_{-0.610}$

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

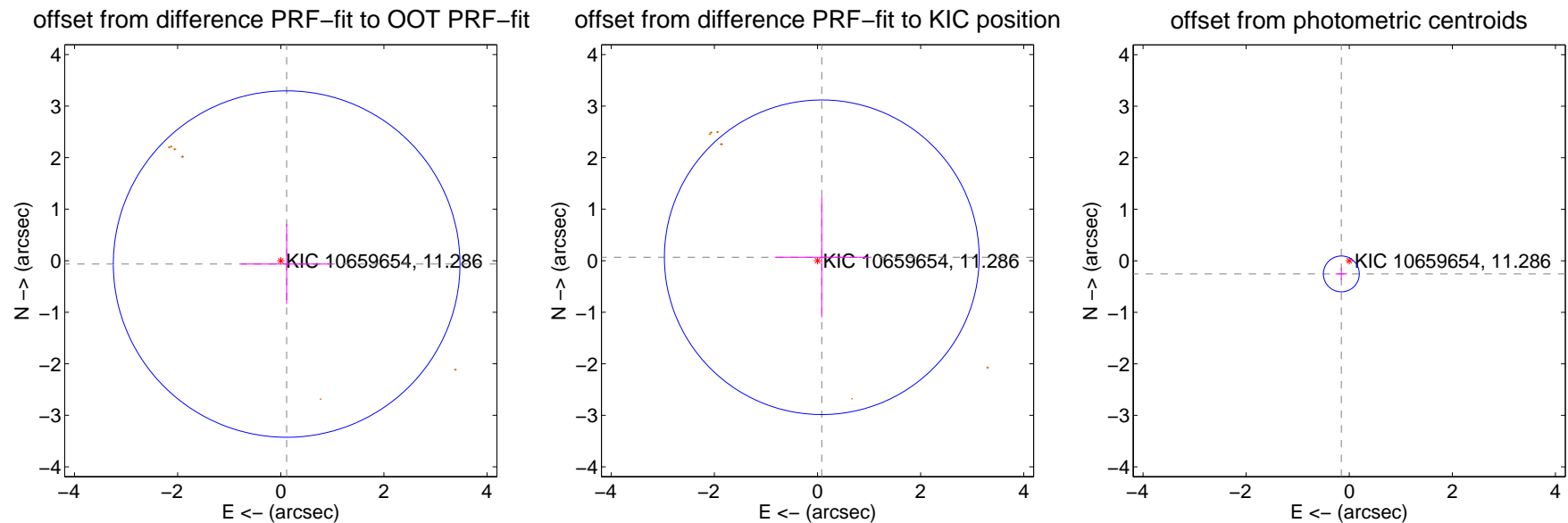
## DV Centroid Data

Supplemental centroid analysis for 010659654-01. **Kepler magnitude: 11.29.** Transit SNR 23.47

**There are 0 quarters with good PRF difference image offsets**

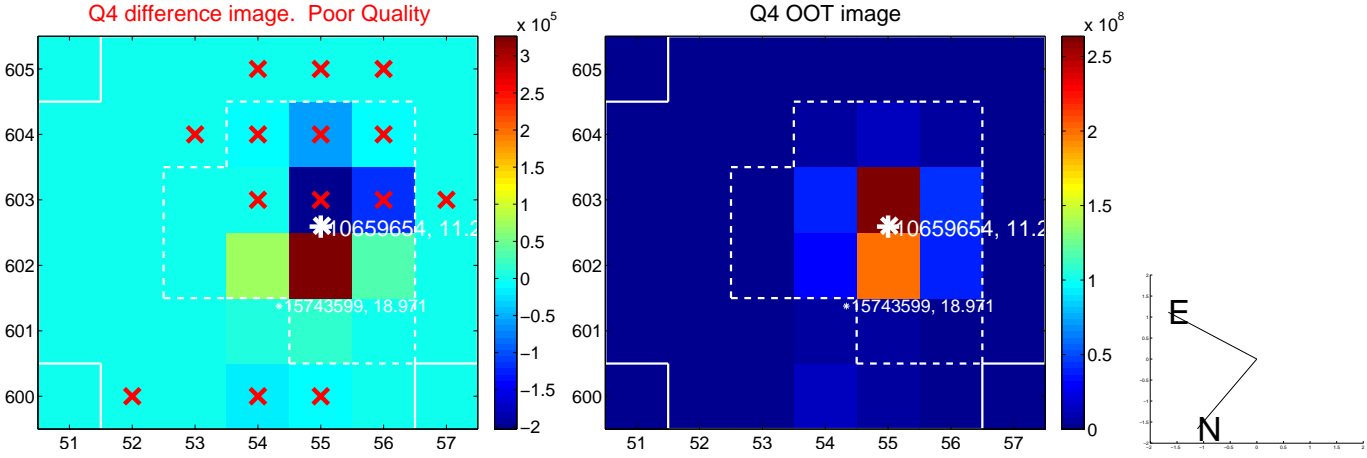
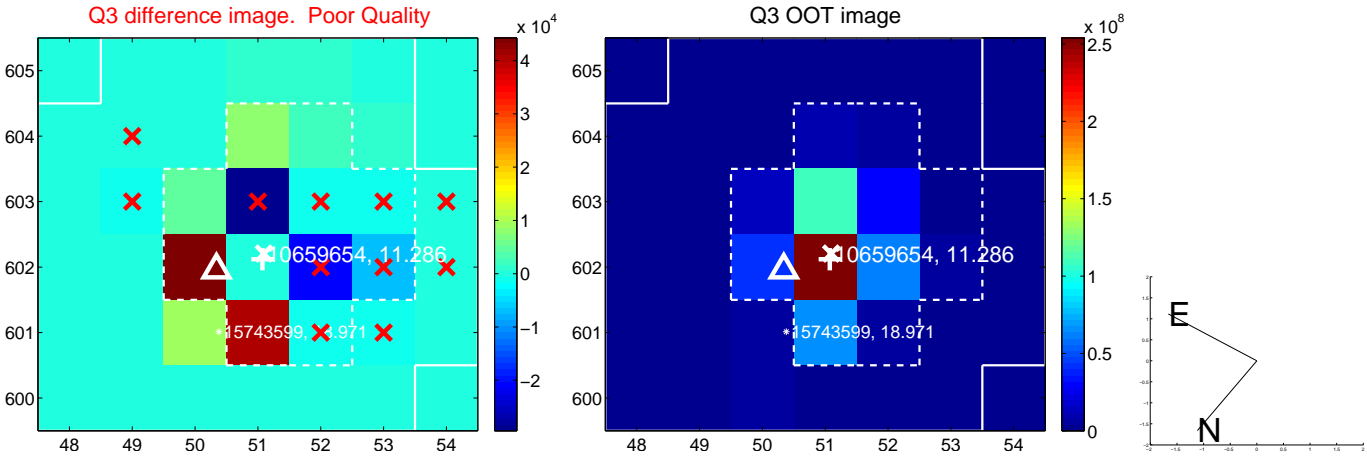
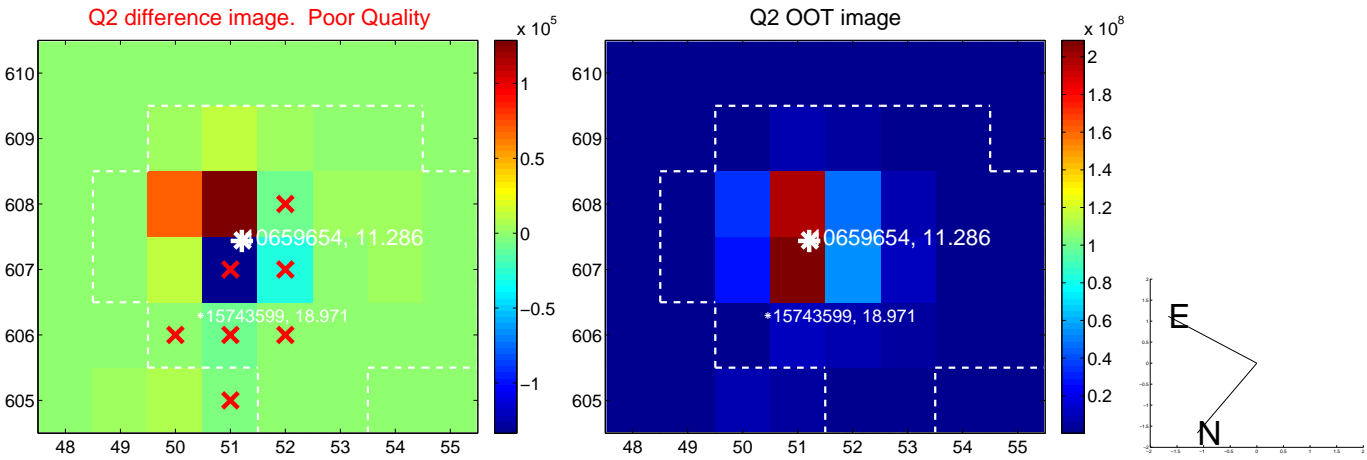
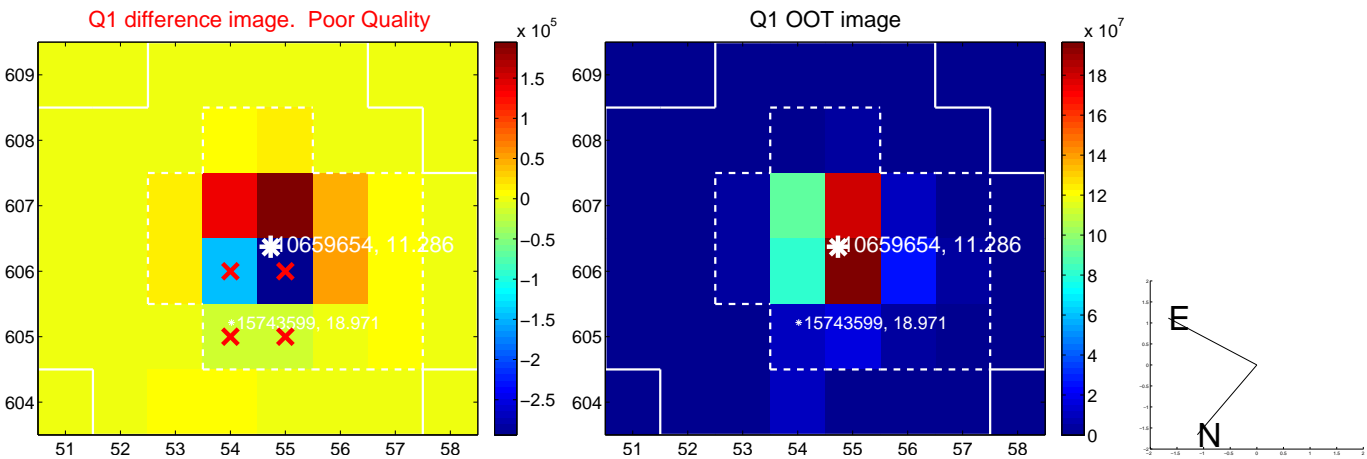
The direct PRF centroid is offset from the target star catalog position by about 0.25 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$0.131 \pm 1.121$	0.12	$-0.114 \pm 0.887$	$-0.065 \pm 0.776$
PRF-fit source offset from KIC position	$0.106 \pm 1.017$	0.10	$-0.083 \pm 0.910$	$0.066 \pm 1.164$
photometric centroid source offset	$0.30 \pm 0.12$	2.57	$0.15 \pm 0.11$	$-0.26 \pm 0.12$

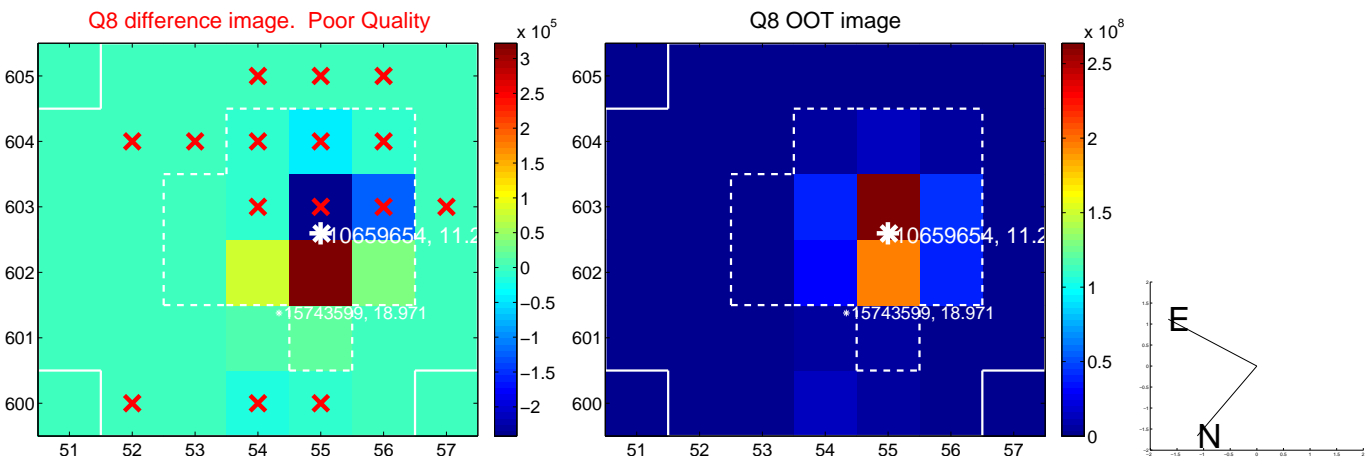
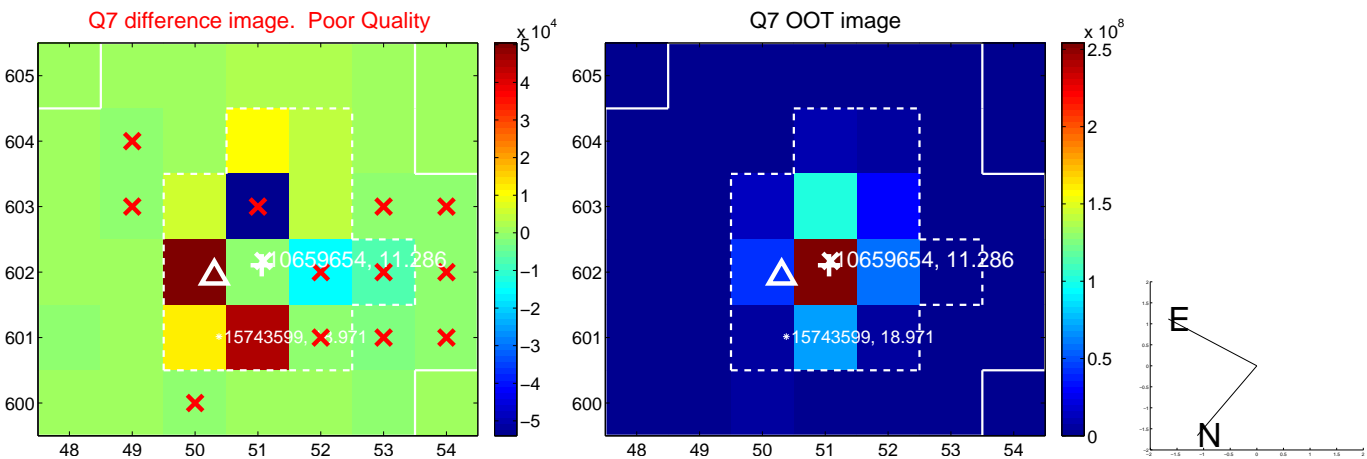
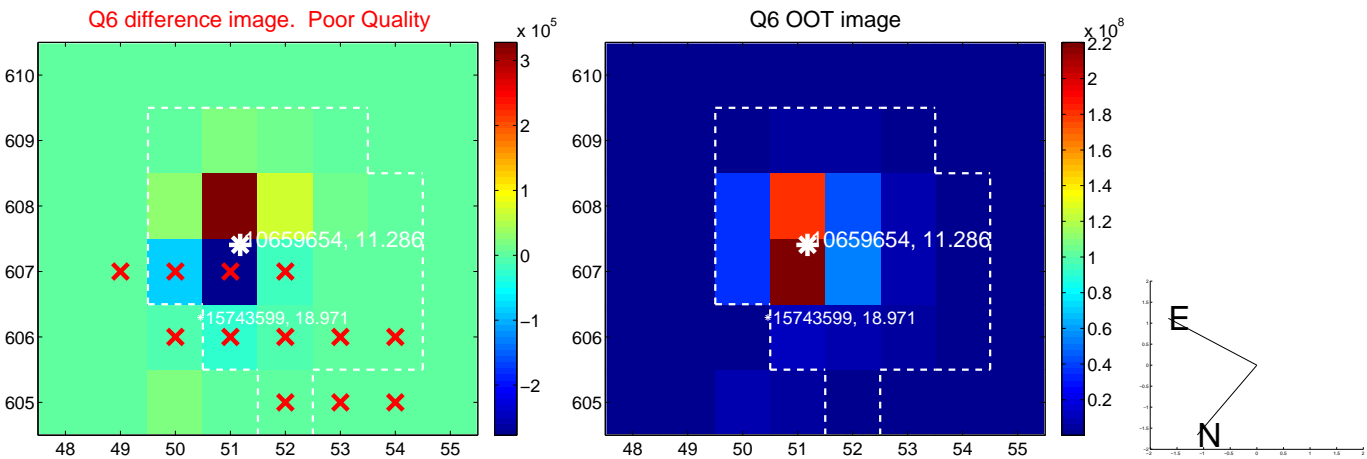
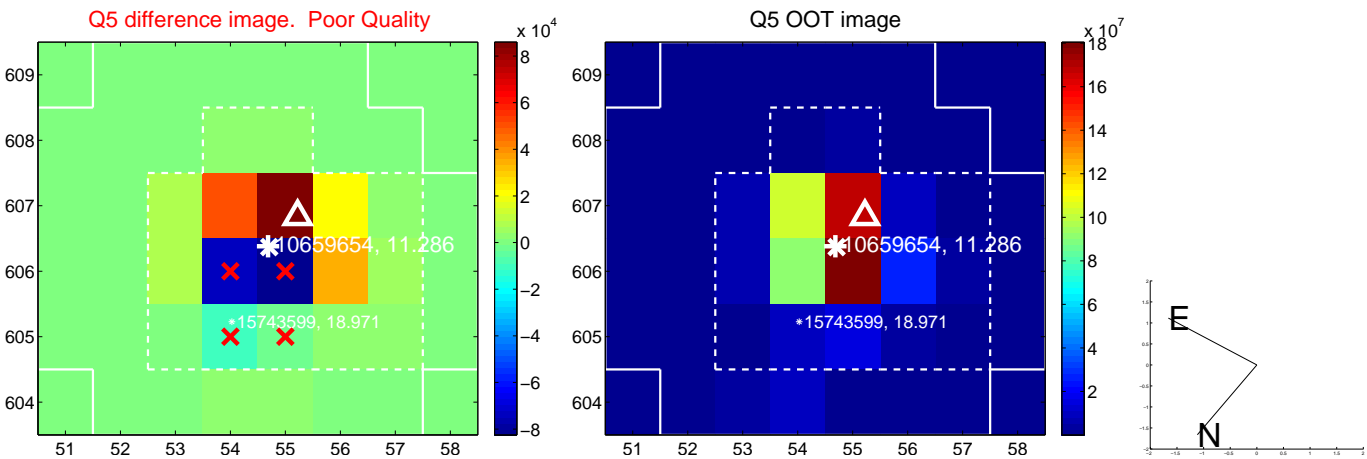


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets;** magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: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

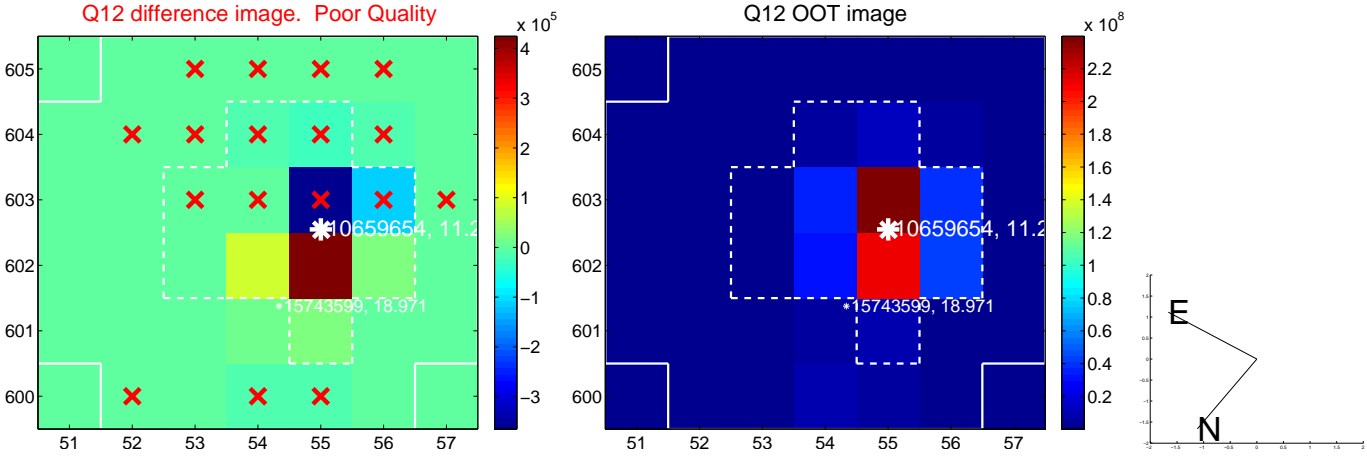
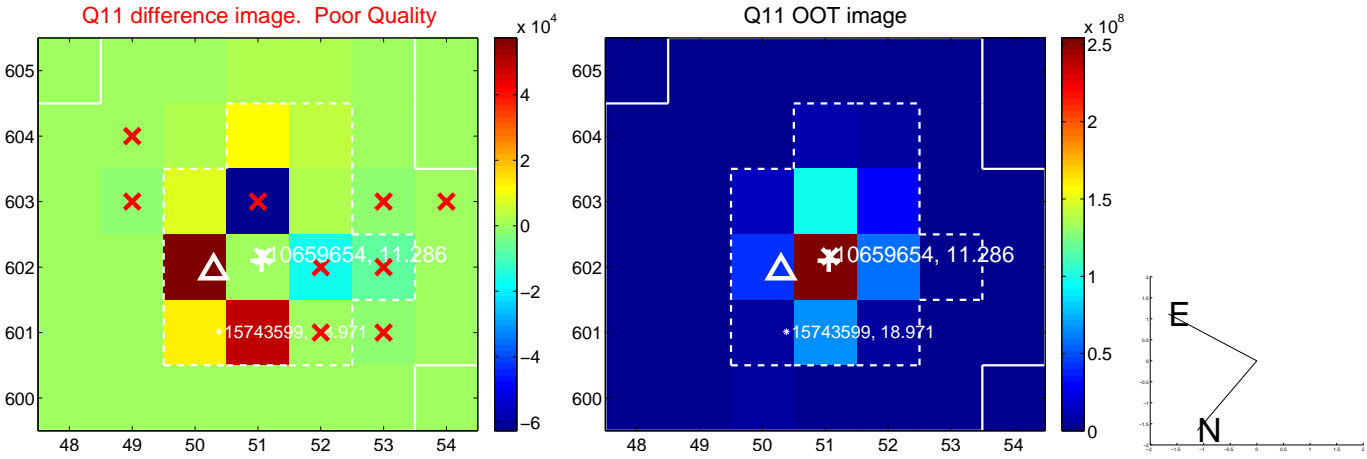
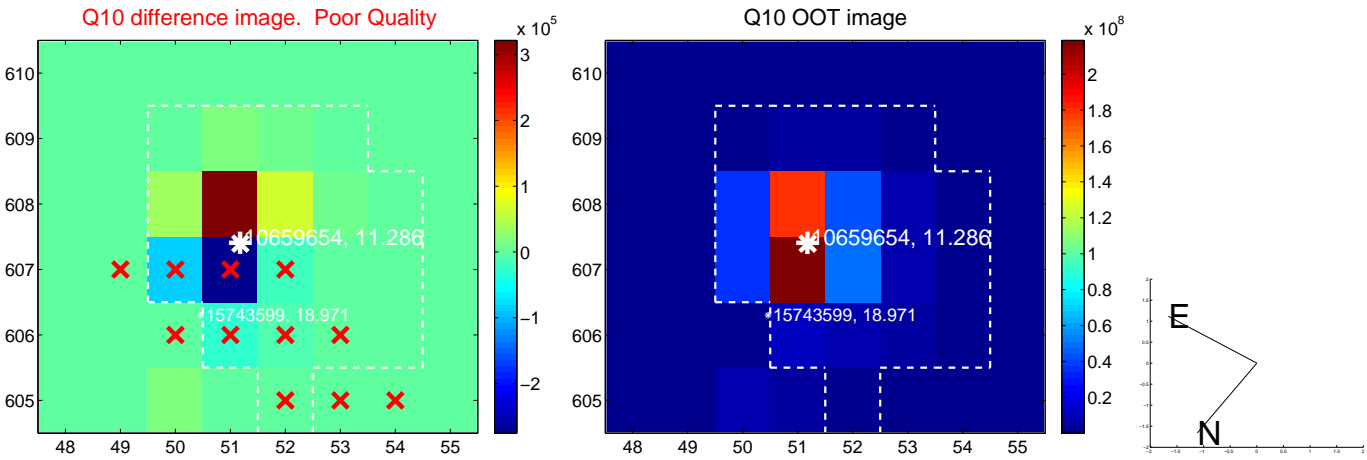
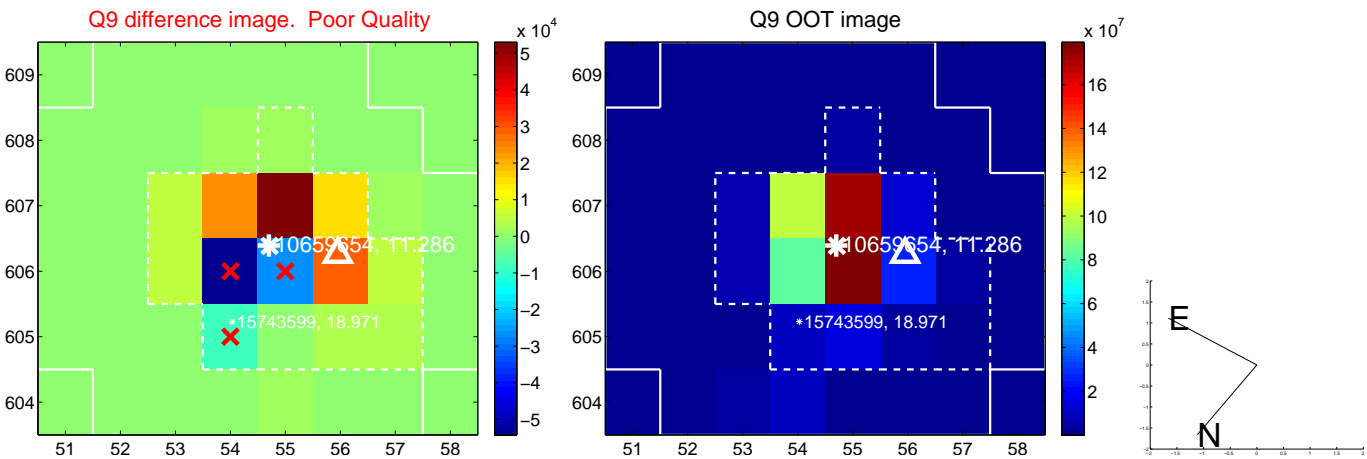


white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.

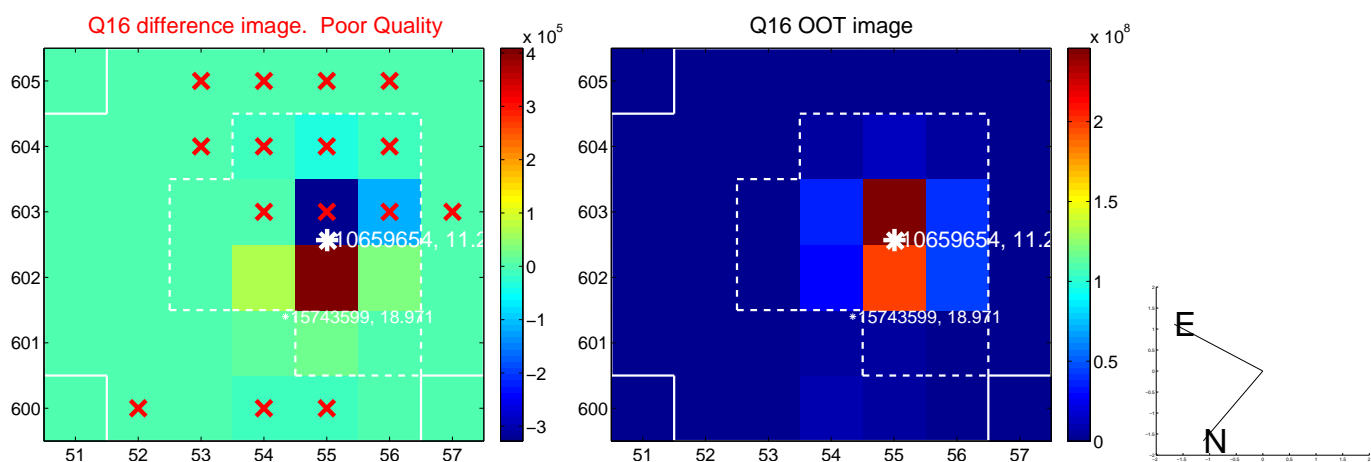
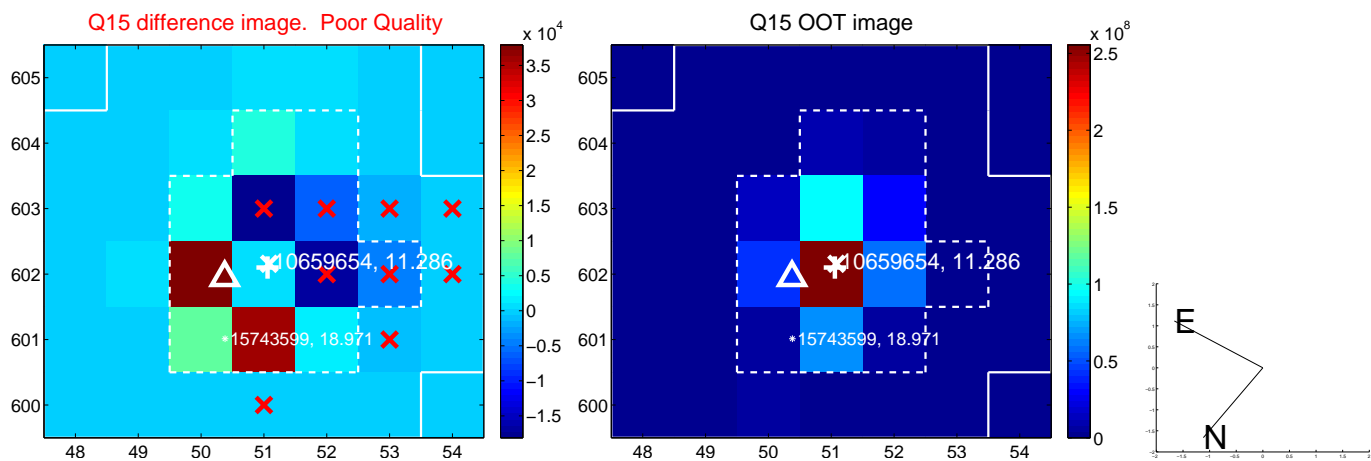
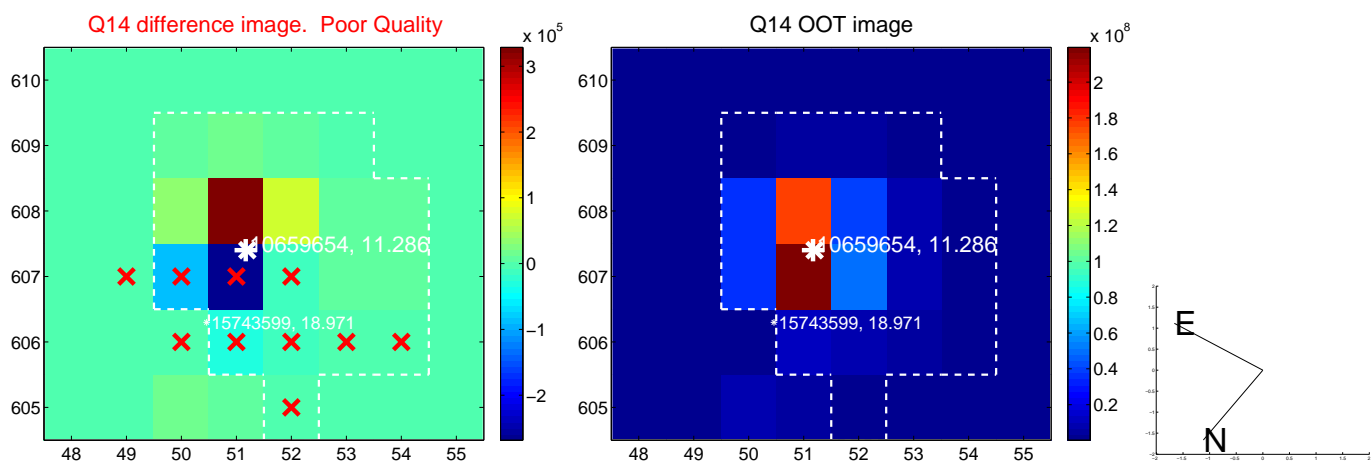
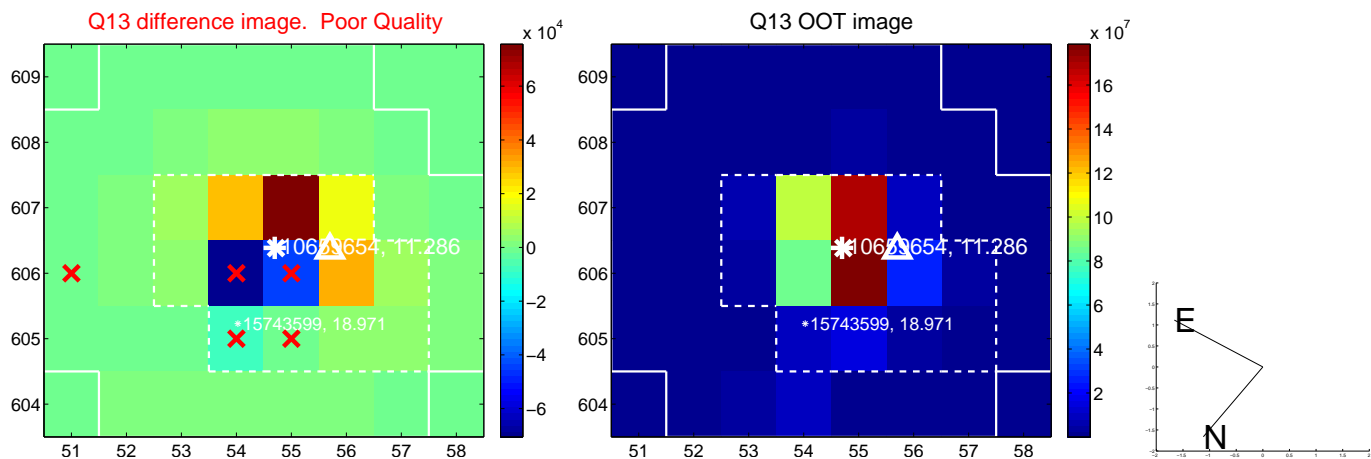




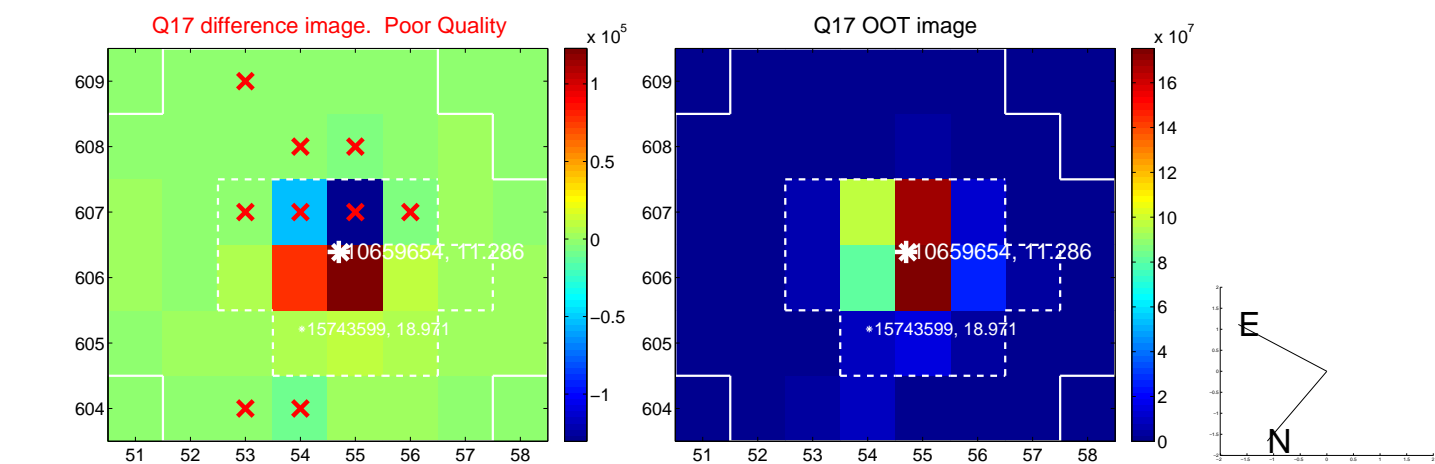
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



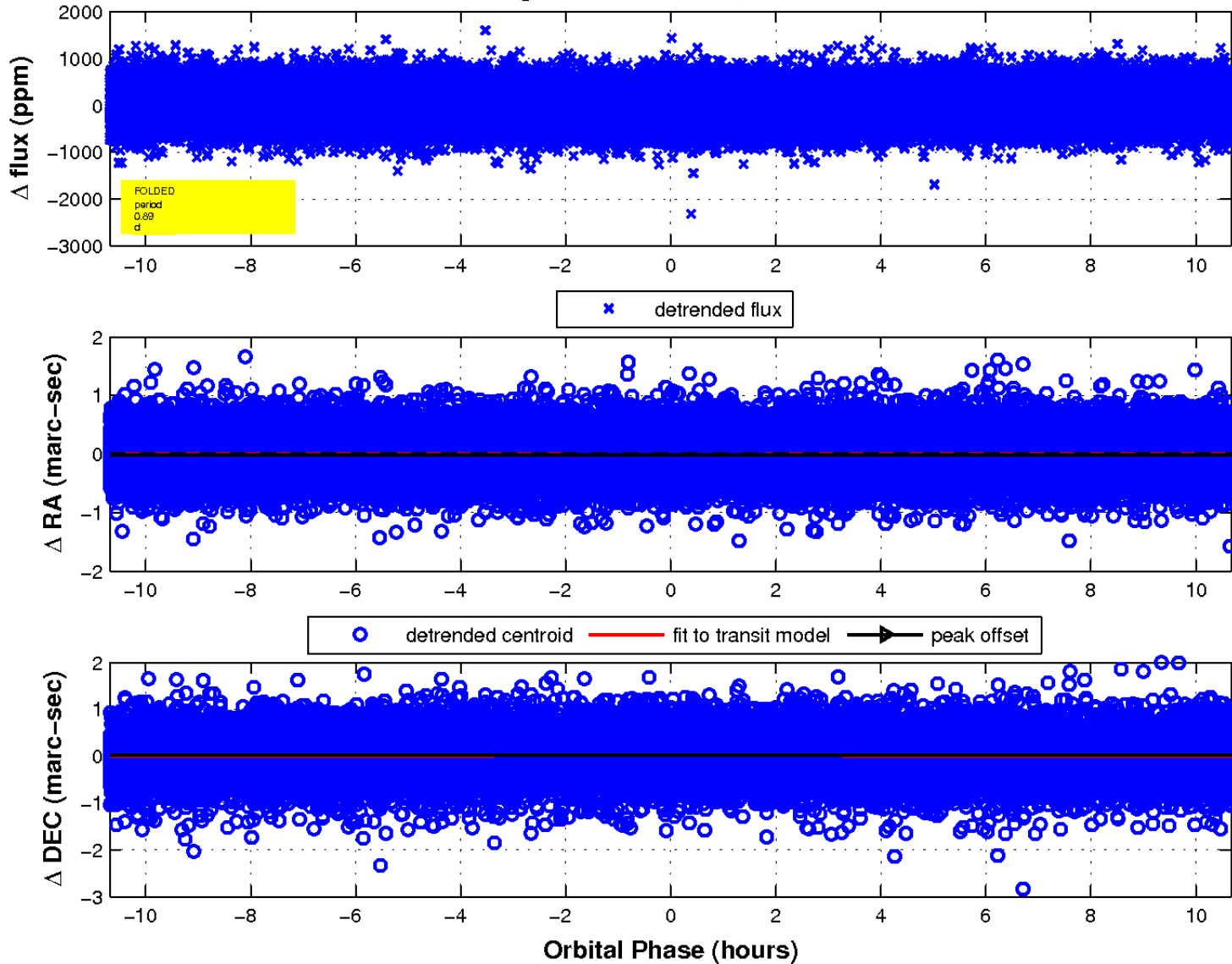
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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



fluxWeightedCentroids, Planet 1 of 1



UKIRT Image

Declination

