

# KIC 009177629

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
009177629-01	OBS	2522.01	5.604022	133.825862	215.1	1.085	15.0	20.3	0.74	4847	1.34	84.94

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
009177629-01	OBS	PC	1.00	0	0	0	0	CENT_KIC_POS

**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.

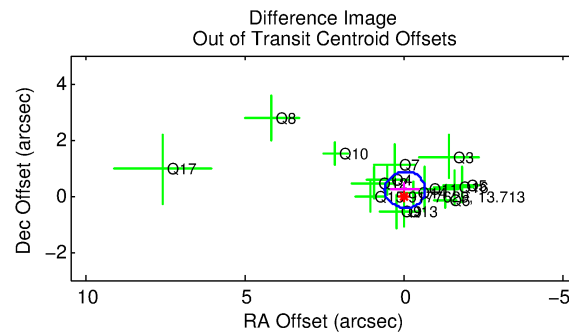
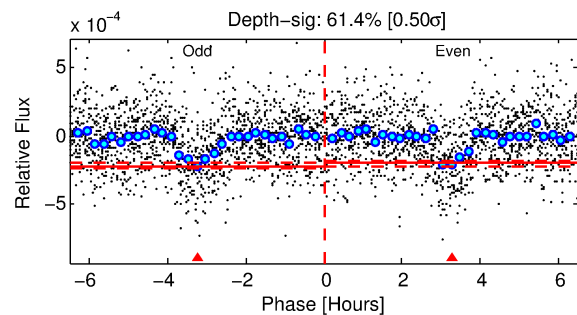
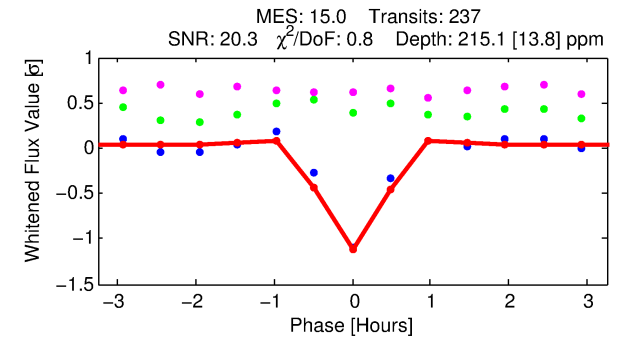
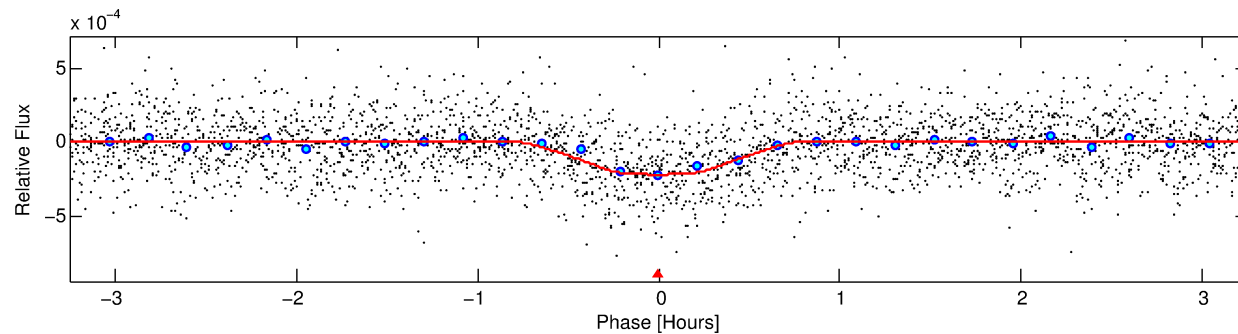
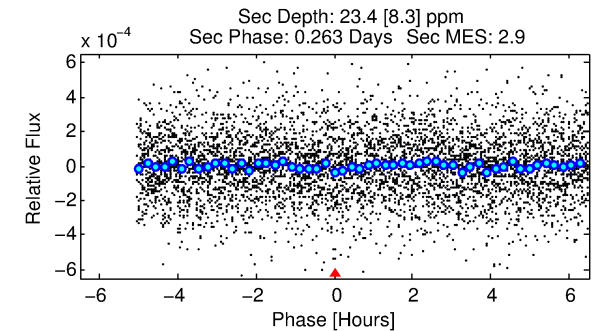
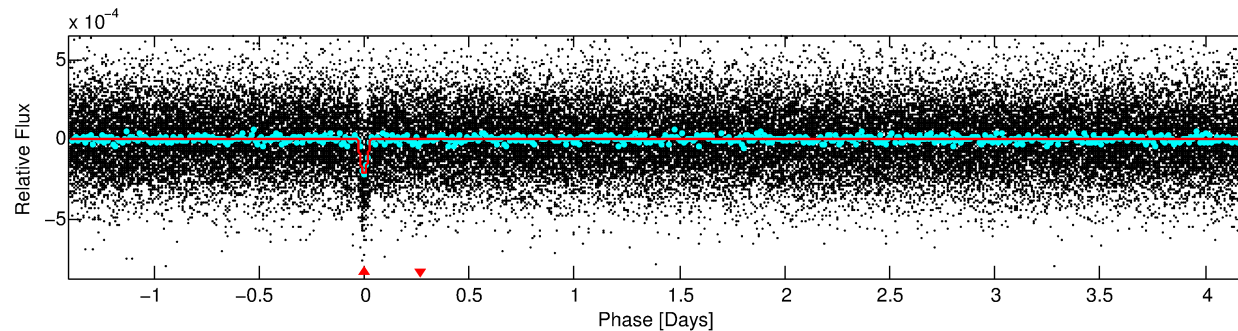
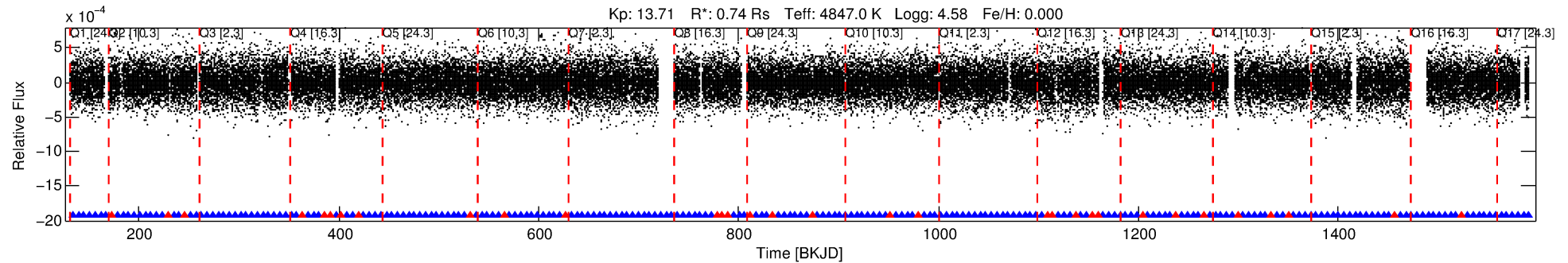
## Ephemeris Match Information For 009177629-01

No Significant Match Found

# DV One-Page Summary

KIC: 9177629 Candidate: 1 of 1 Period: 5.604 d

KOI: K02522.01 Corr: 0.967



## DV Fit Results:

Period = 5.60402 [0.00001] d  
Epoch = 133.8259 [0.0012] BKJD  
Rp/R\* = 0.0166 [0.0071]  
a/R\* = 18.69 [30.38]  
b = 0.90 [0.36]  
Seff = 84.94 [8.53]  
Teq = 774 [19] K  
Rp = 1.34 [0.57] Re  
a = 0.0562 [0.0024] AU  
Ag = 22.77 [21.03] [1.04σ]  
Teffp = 2615 [605] K [3.04σ]

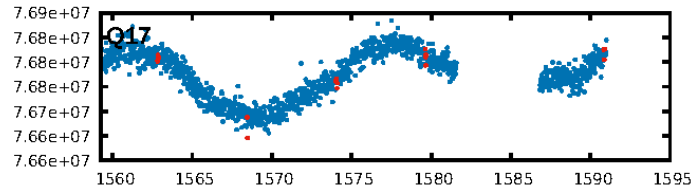
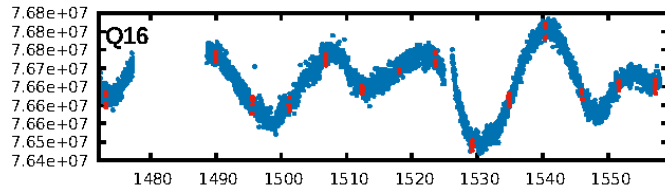
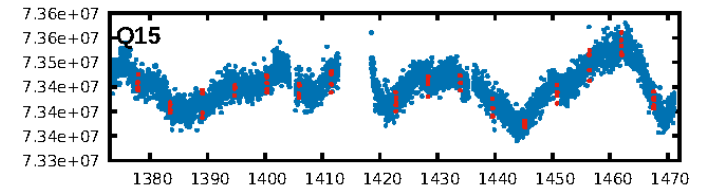
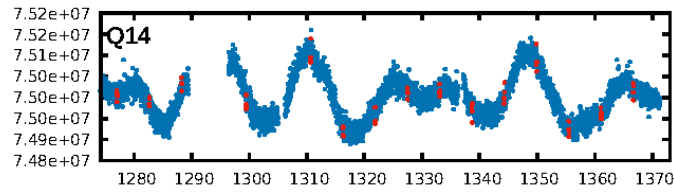
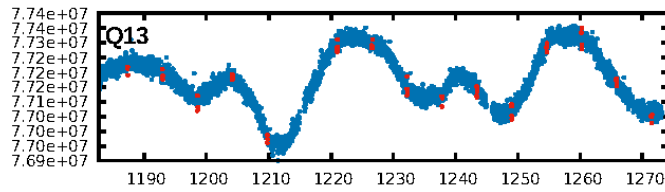
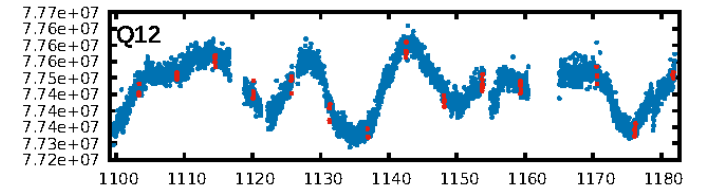
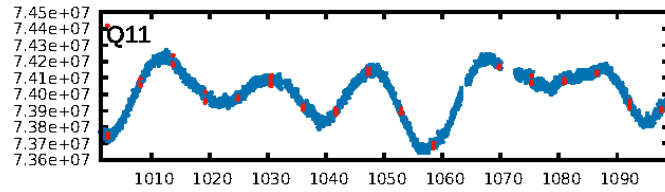
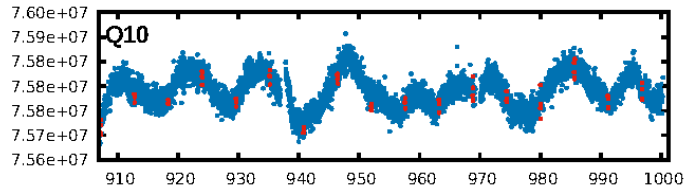
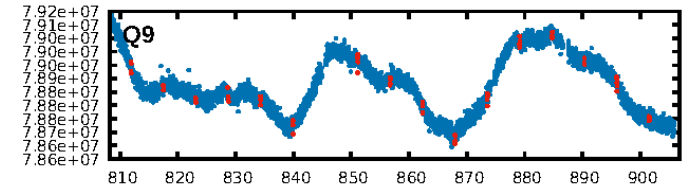
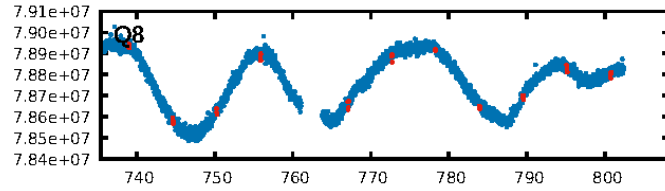
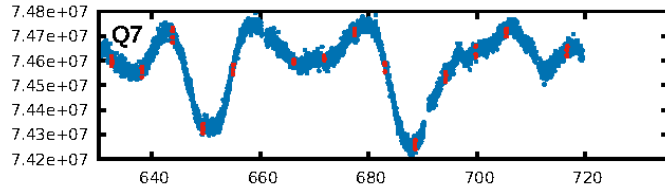
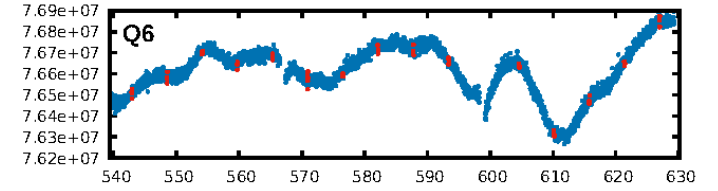
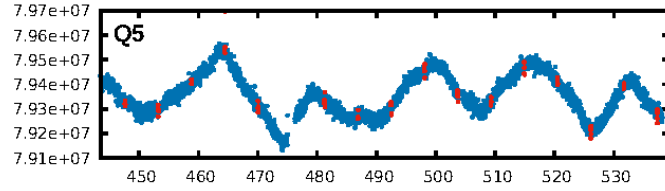
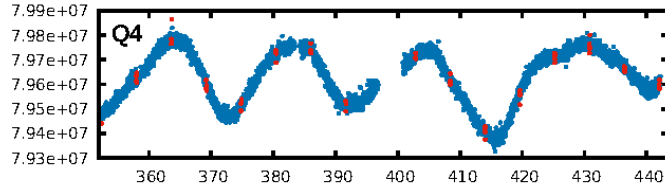
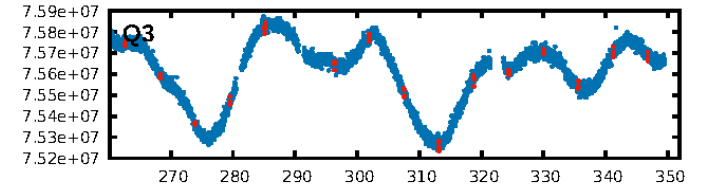
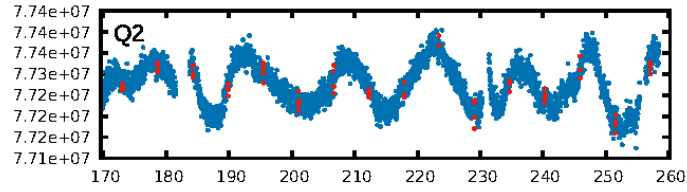
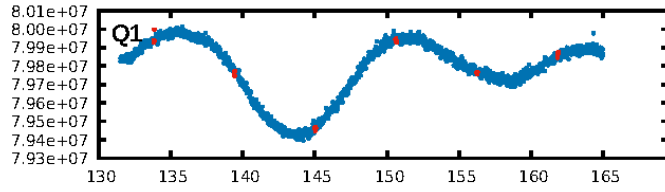
## DV Diagnostic Results:

ShortPeriod-sig: N/A  
LongPeriod-sig: N/A  
ModelChiSquare2-sig: N/A  
ModelChiSquareGof-sig: N/A  
Bootstrap-pfa: 6.86e-51  
RollingBand-fgt: 0.86 [194/226]  
GhostDiagnostic-chr: 5.812  
Centroid-sig: 0.5%  
Centroid-so: 1.393 arcsec [1.76σ]  
OotOffset-rm: 0.214 arcsec [1.00σ]  
OotOffset-st: 3/4/4/4 [15]  
KicOffset-rm: 0.240 arcsec [0.37σ]  
KicOffset-st: 3/4/4/4 [15]  
DiffImageQuality-fgm: 0.80 [12/15]  
DiffImageOverlap-fno: 1.00 [17/17]

Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 31-Jan-2016 04:55:26 Z

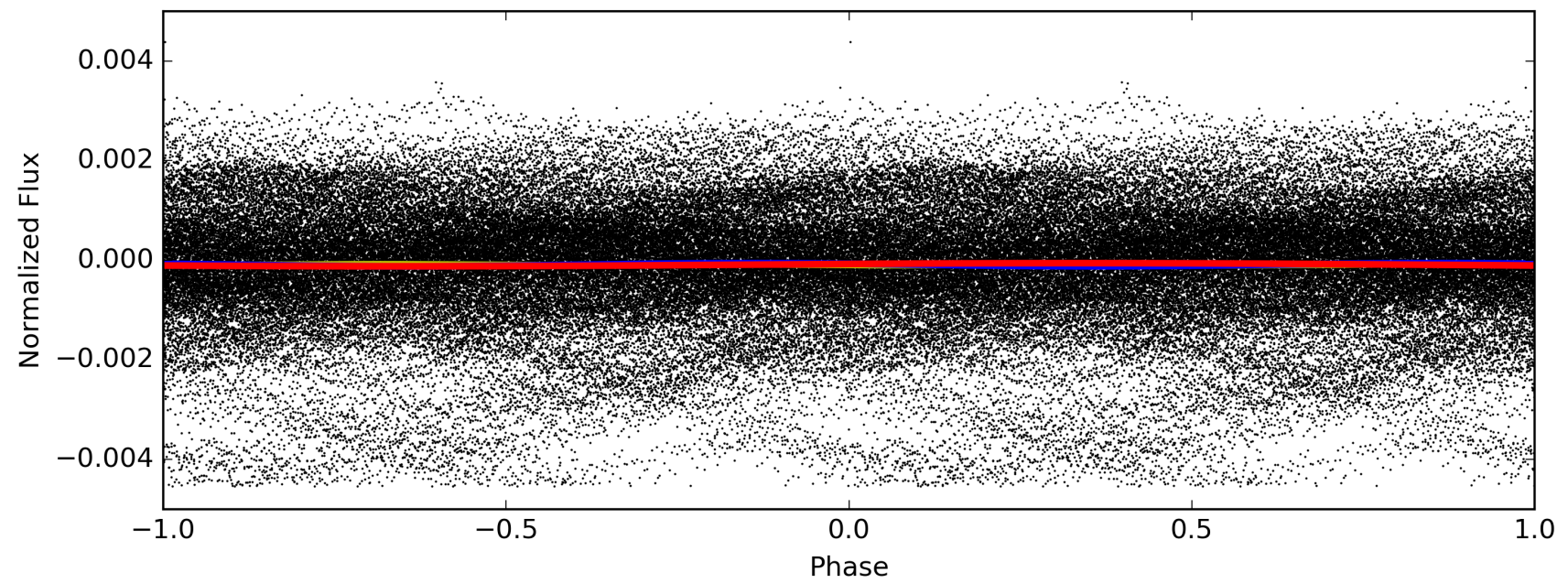
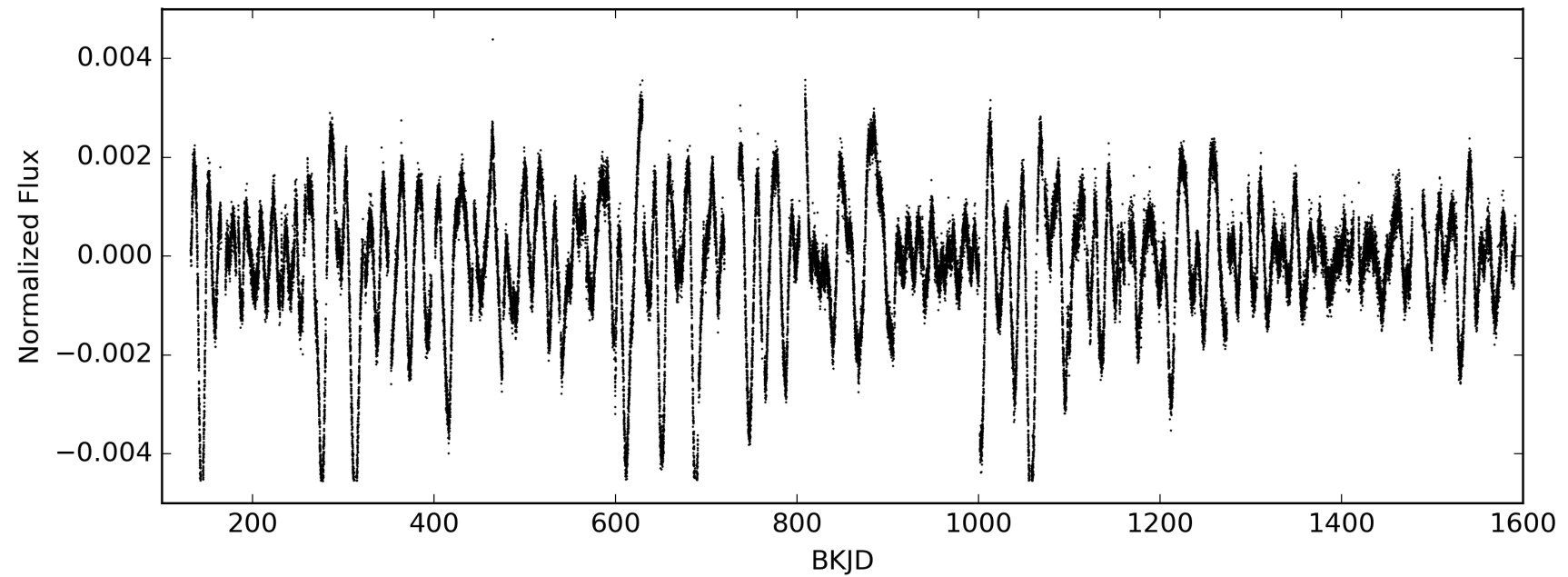
This Data Validation Report Summary was produced in the Kepler Science Operations Center Pipeline at NASA Ames Research Center

# TCE 009177629-01, PDC Light Curves



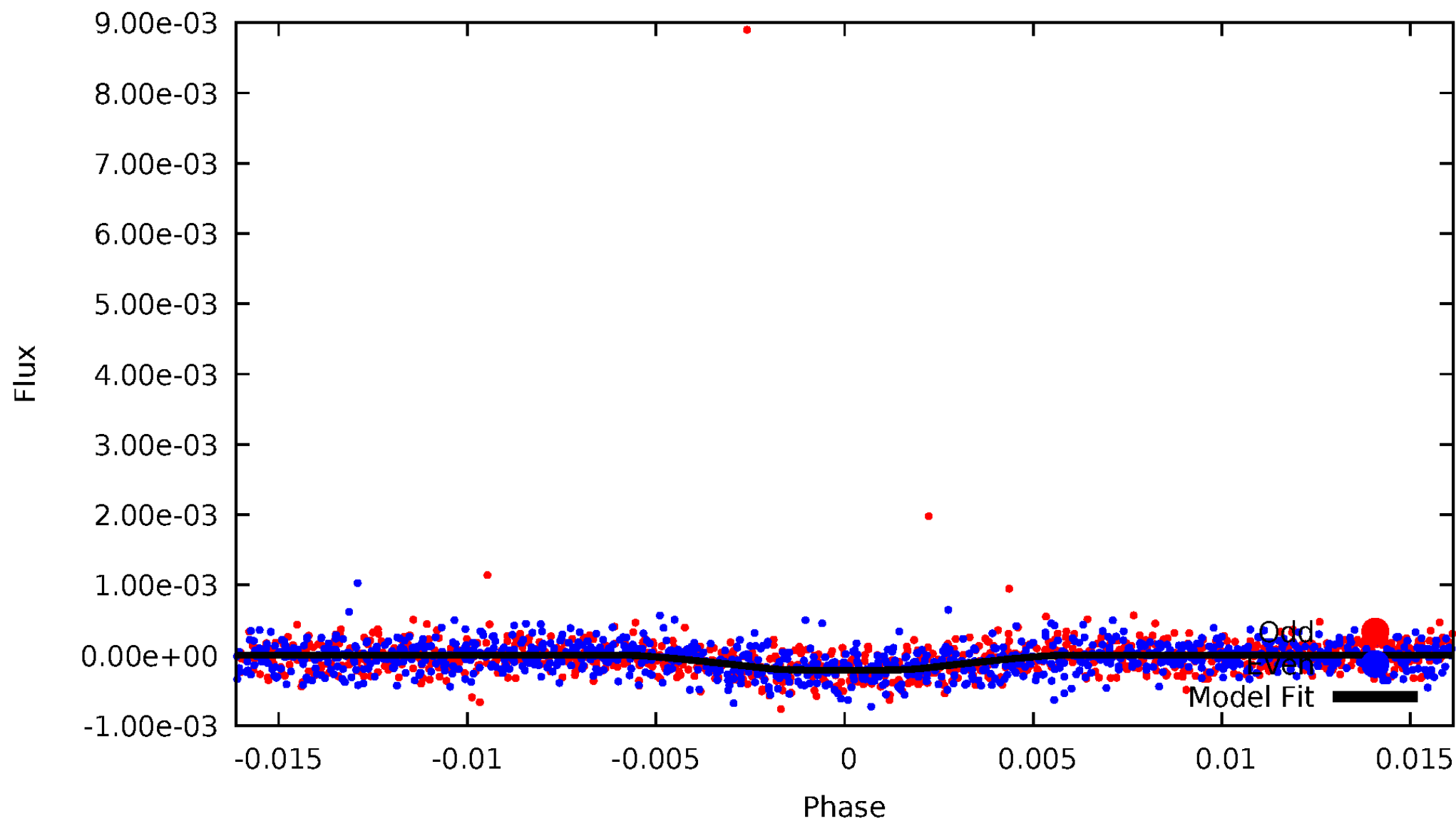
TCE 009177629-01

— P = 2.802 days    — P = 5.604 days    — P = 11.208 days



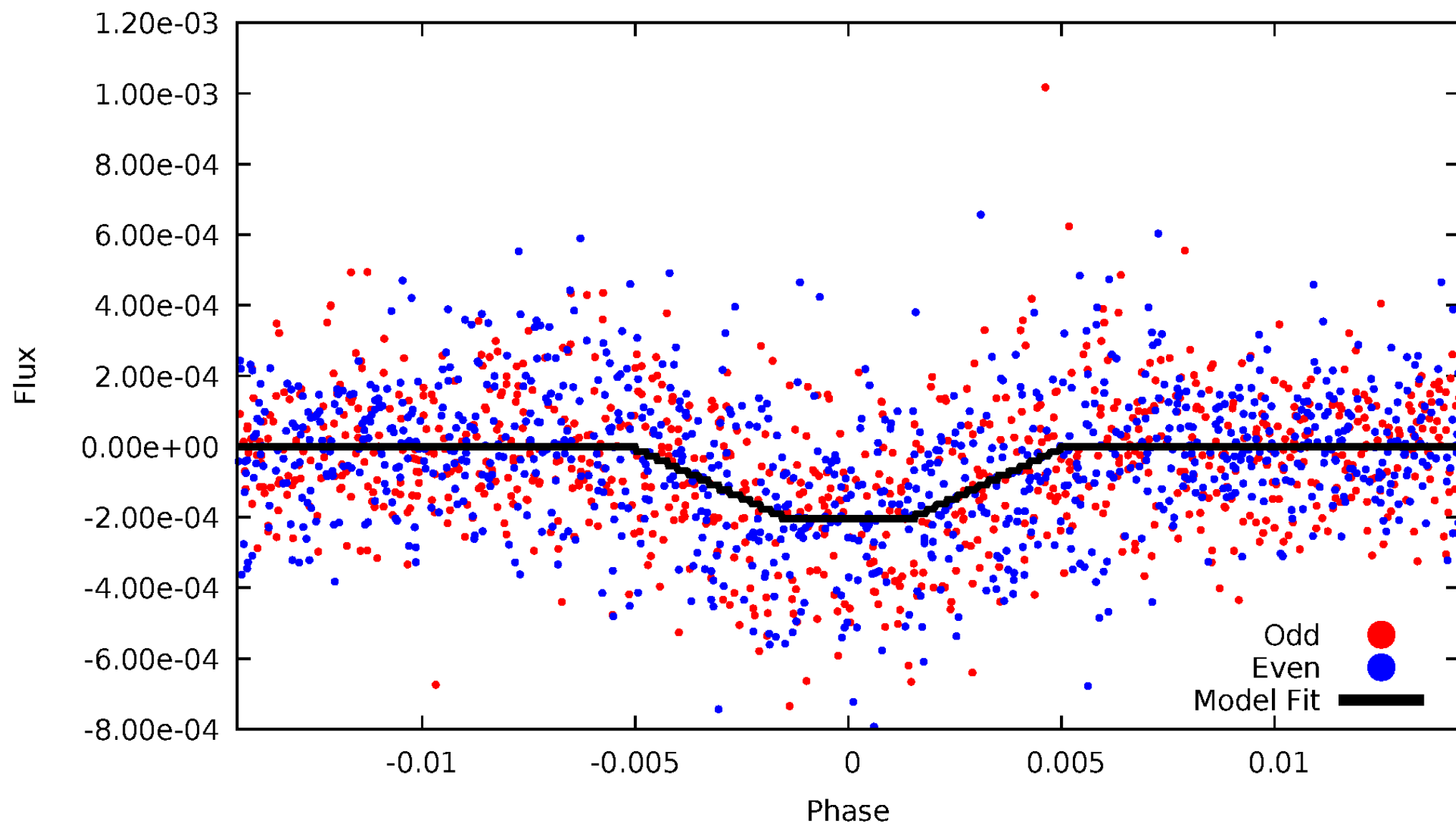
# DV Odd/Even

TCE 009177629-01



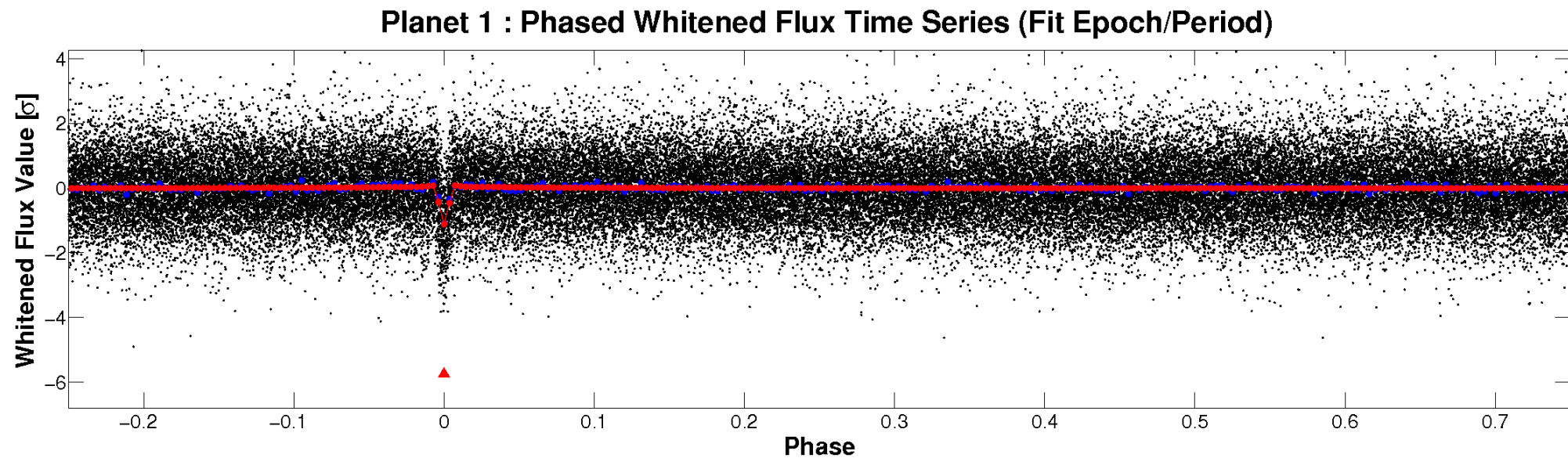
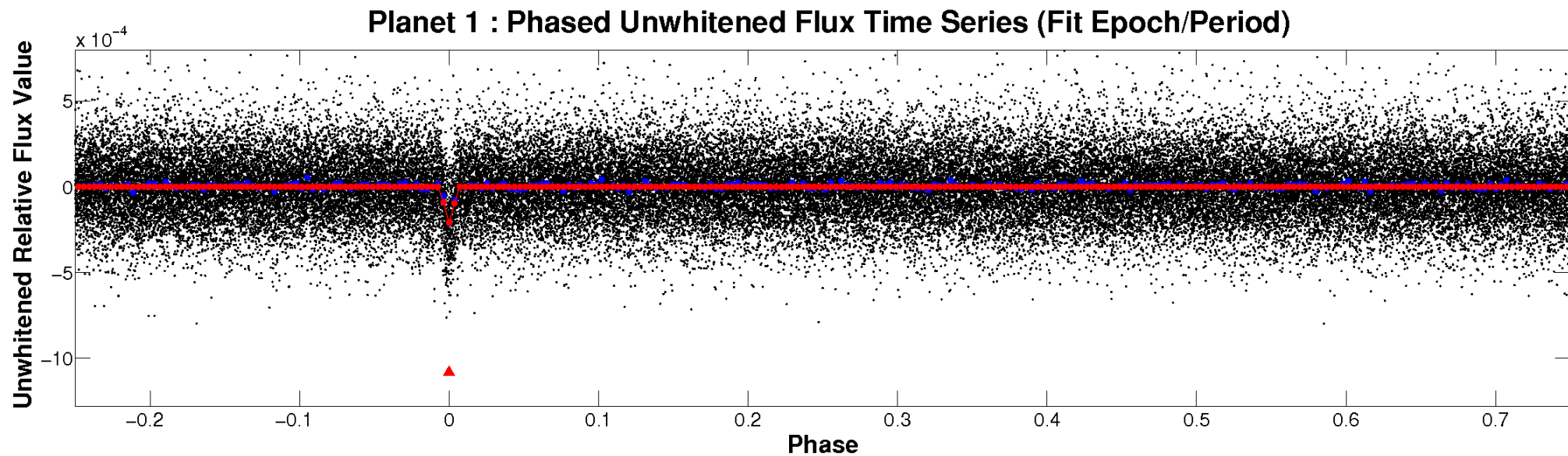
# ALT Odd/Even

TCE 009177629-01



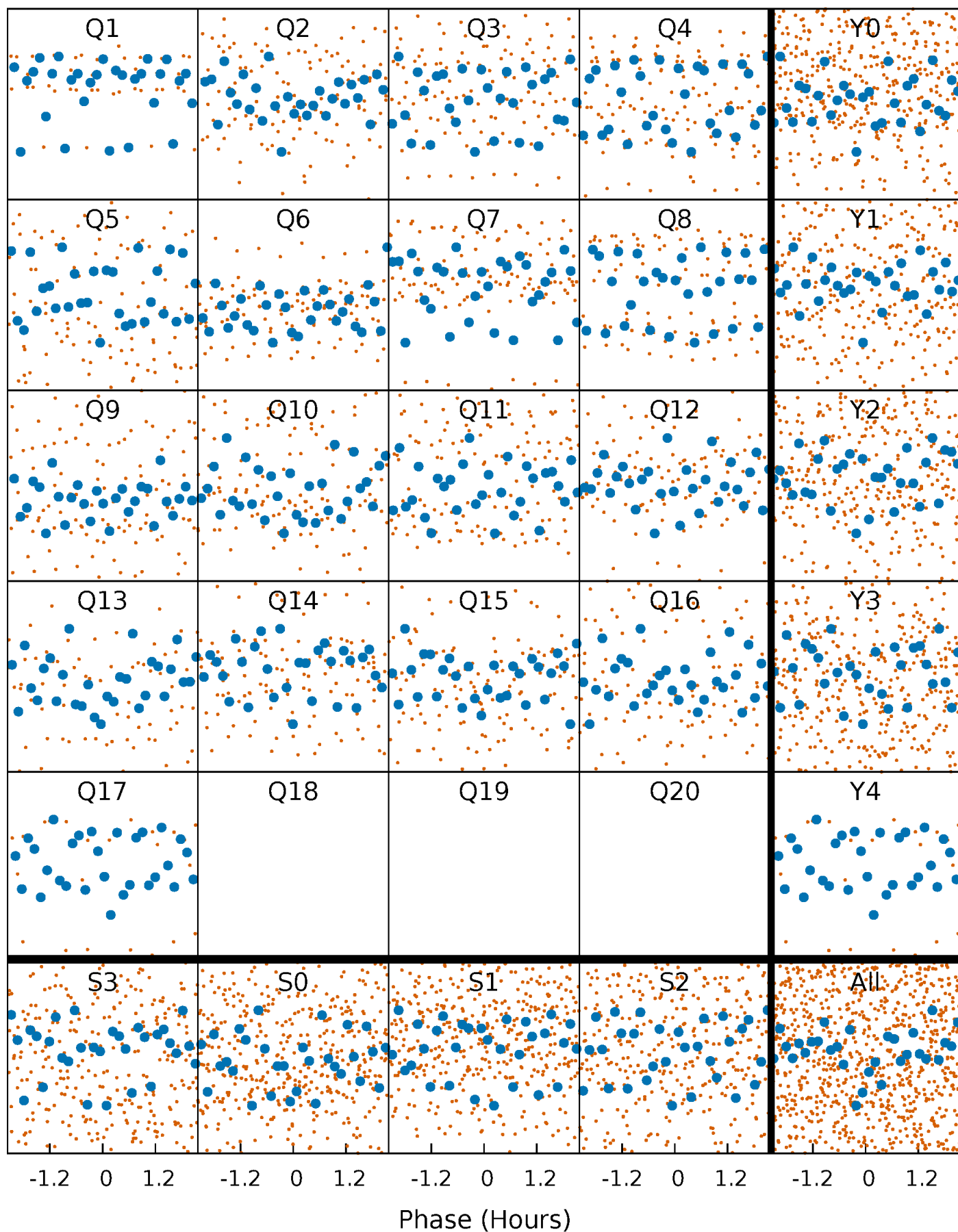


# Non-Whitened Vs. Whitened Light Curve



# PDC Quarter-Phased Transit Curves

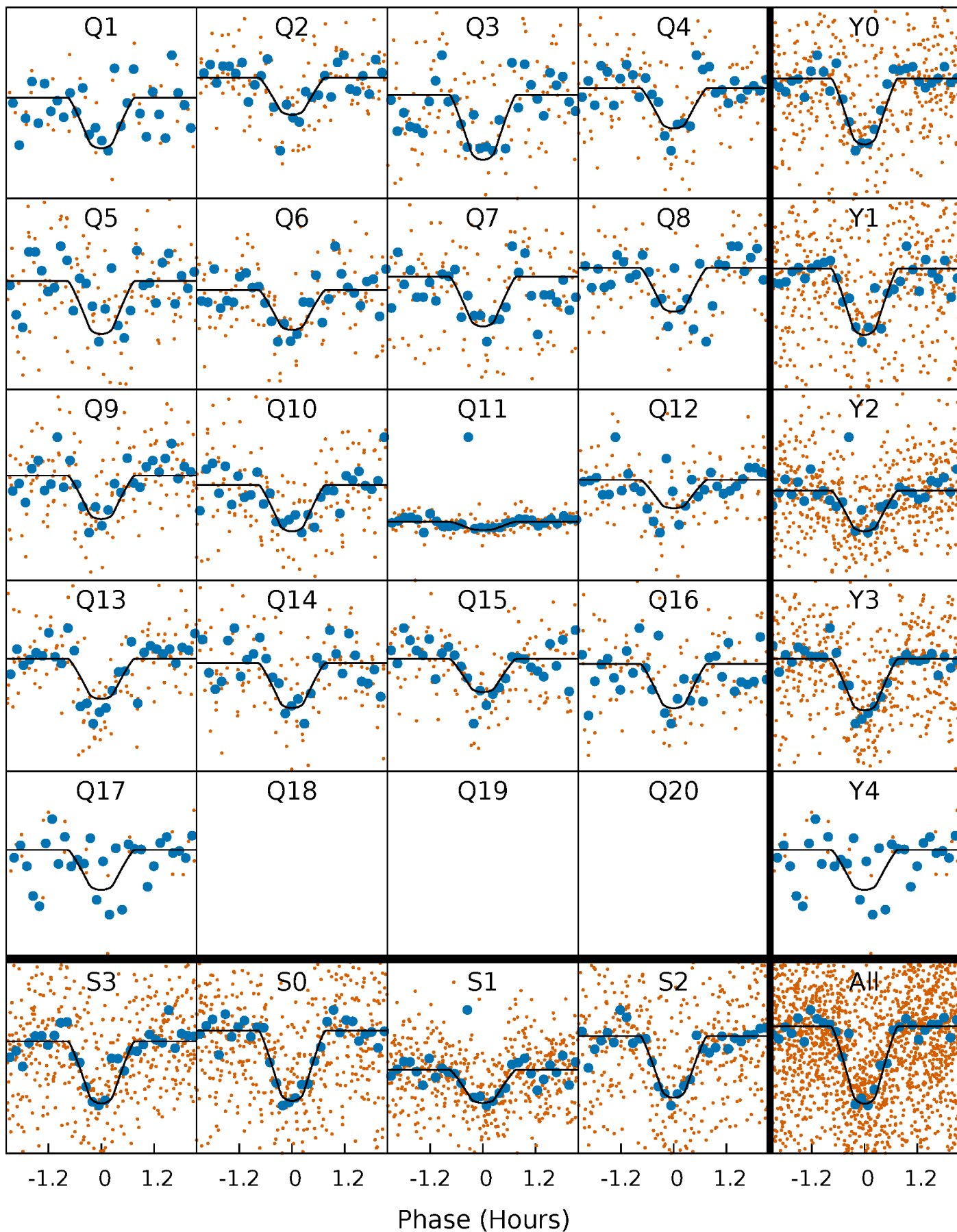
TCE 009177629-01 P= 5.604022 Days  $T_0=133.825862$  (BKJD)





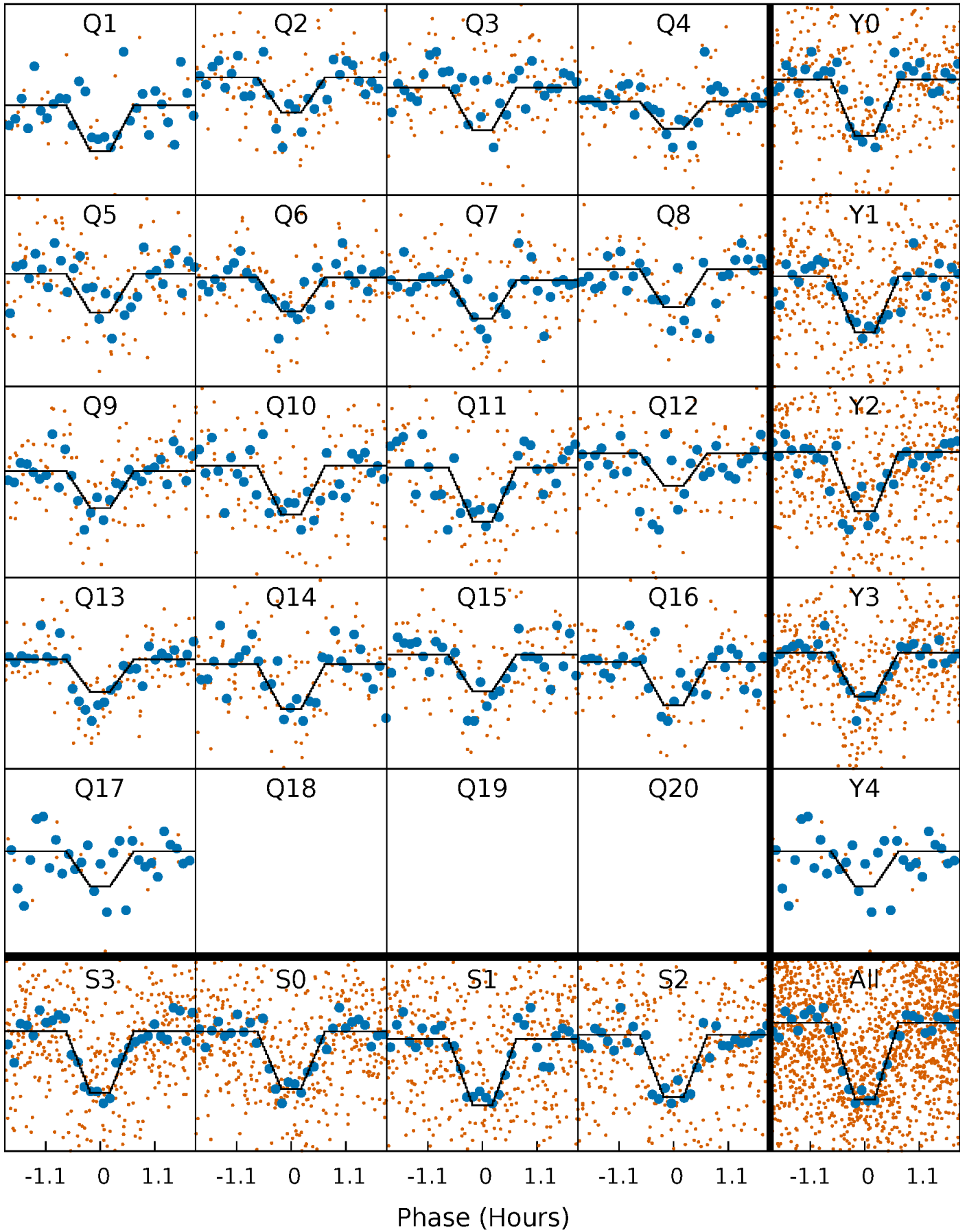
# DV Quarter-Phased Transit Curves

TCE 009177629-01 P= 5.604022 Days  $T_0=133.825862$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

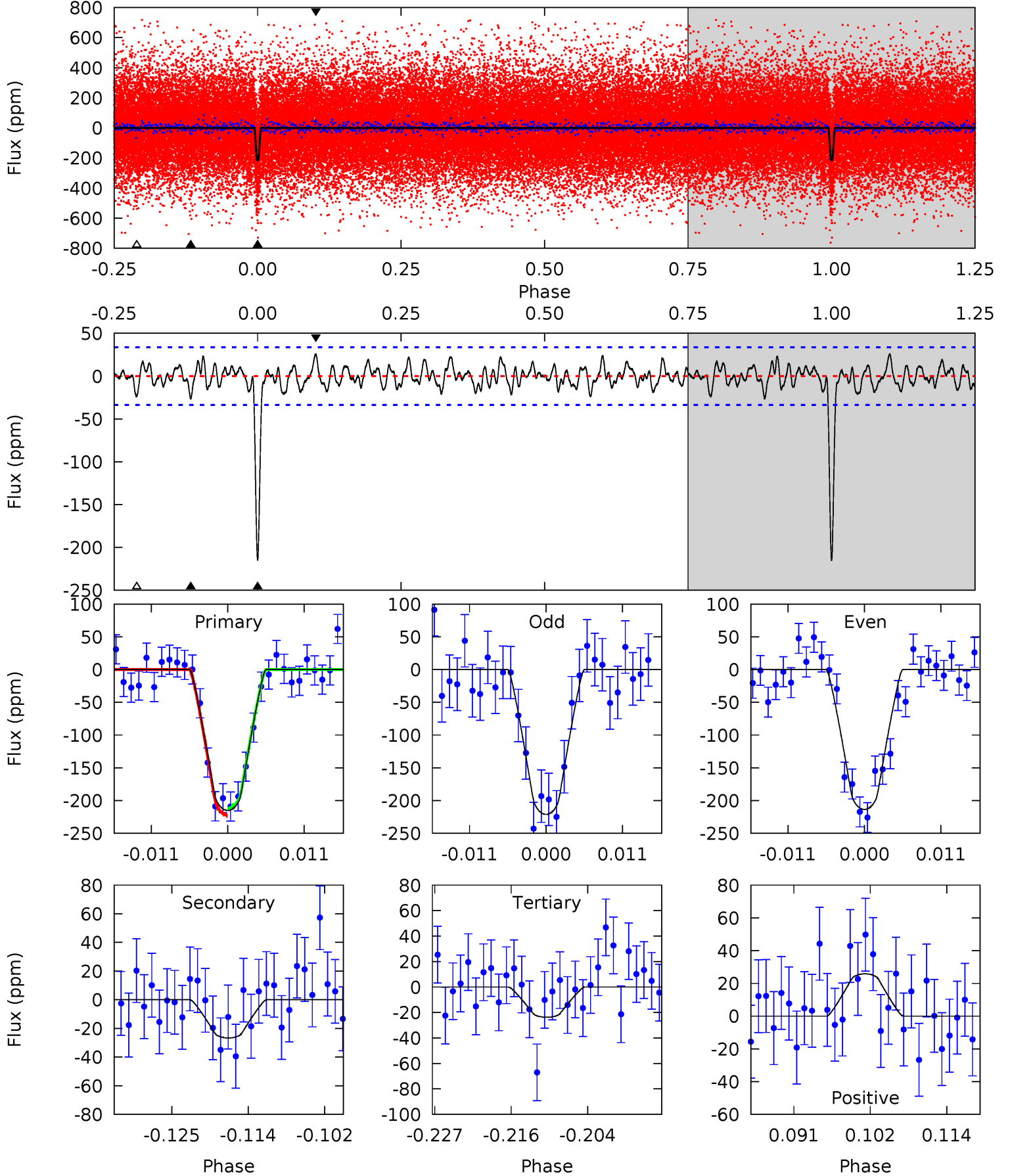
TCE 009177629-01 P= 5.604037 Days  $T_0=133.823830$  (BKJD)



# DV Model-Shift Uniqueness Test

009177629-01, P = 5.604022 Days, E = 128.221840 Days

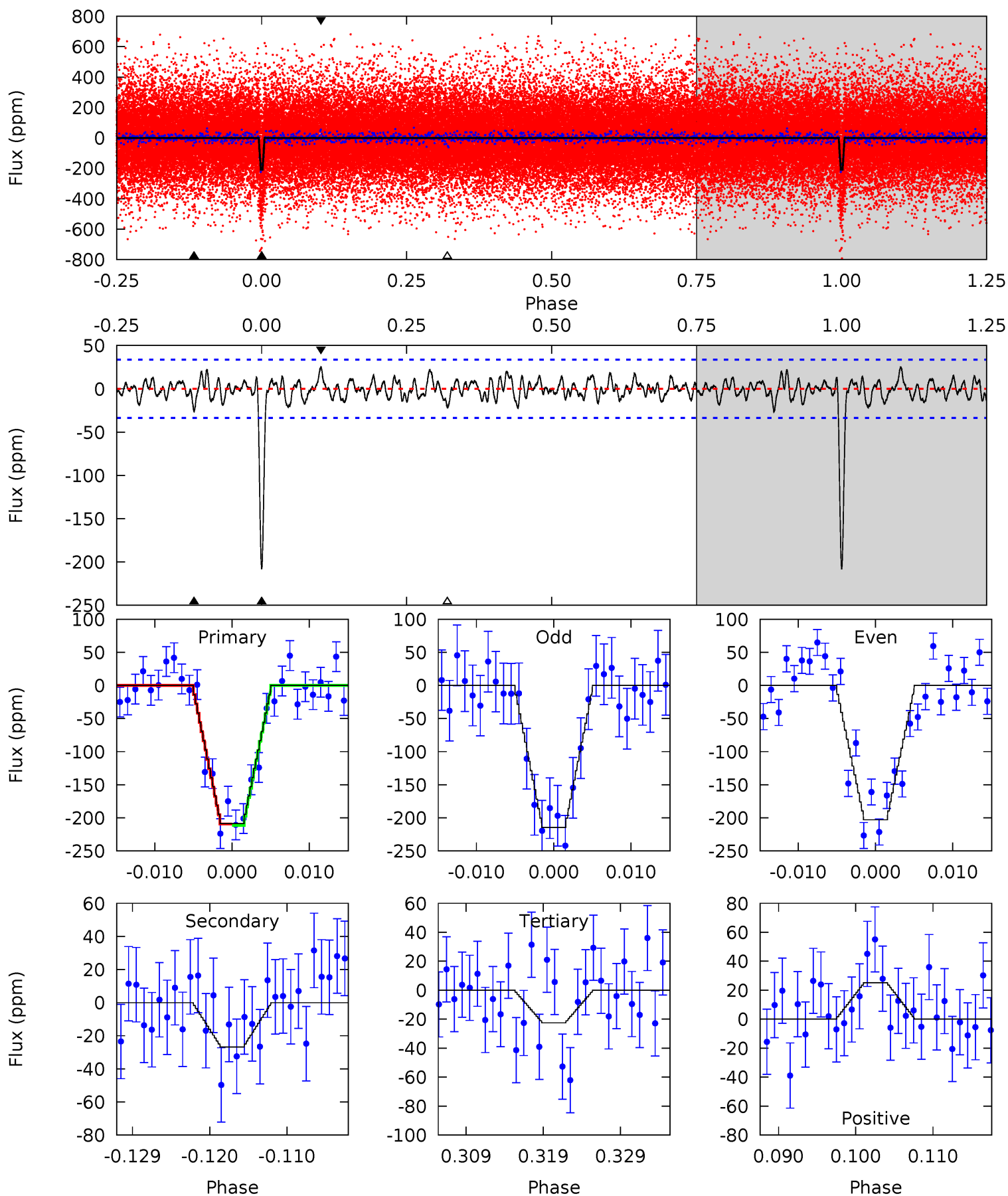
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
31.9	3.96	3.52	3.83	5.00	2.53	1.43	28.4	28.1	0.43	0.12	0.56	0.89	0.11	0.78



# Alt Model-Shift Uniqueness Test

009177629-01, P = 5.604037 Days, E = 128.219793 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
31.1	4.00	3.37	3.76	5.03	2.58	1.28	27.8	27.4	0.63	0.23	0.88	0.95	0.11	0.17



### Stellar Parameters For KIC 009177629

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R$ ( $R_{\odot}$ )	$M$ ( $M_{\odot}$ )	$p_{\star}$ ( $\text{g}\cdot\text{cm}^{-3}$ )
	$4847^{+97}_{-97}$	$4.581^{+0.033}_{-0.030}$	$0.000^{+0.150}_{-0.150}$	$0.737^{+0.037}_{-0.037}$	$0.756^{+0.042}_{-0.034}$	$2.660^{+0.396}_{-0.285}$
	+2%/-2%	+1%/-1%	+inf%/-inf%	+5%/-5%	+6%/-4%	+15%/-11%
Source	SPE57	SPE57	SPE57	DSEP		

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

### Secondary Eclipse Parameters for KIC 009177629-01 / KOI 2522.01

Detrend	Depth (ppm)	$R_p$ ( $R_{\oplus}$ )	$T_{max}$ (K)	$T_{obs}$ (K)	$A_{obs}$
DV	$-27 \pm 7$	$1.32^{+0.59}_{-0.56}$	$1080^{+26}_{-25}$	$3225^{+640}_{-350}$	$26^{+54}_{-14}$
Alt.	$-27 \pm 7$	$1.17^{+0.58}_{-0.54}$	$1081^{+24}_{-23}$	$3358^{+773}_{-394}$	$35^{+86}_{-20}$

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

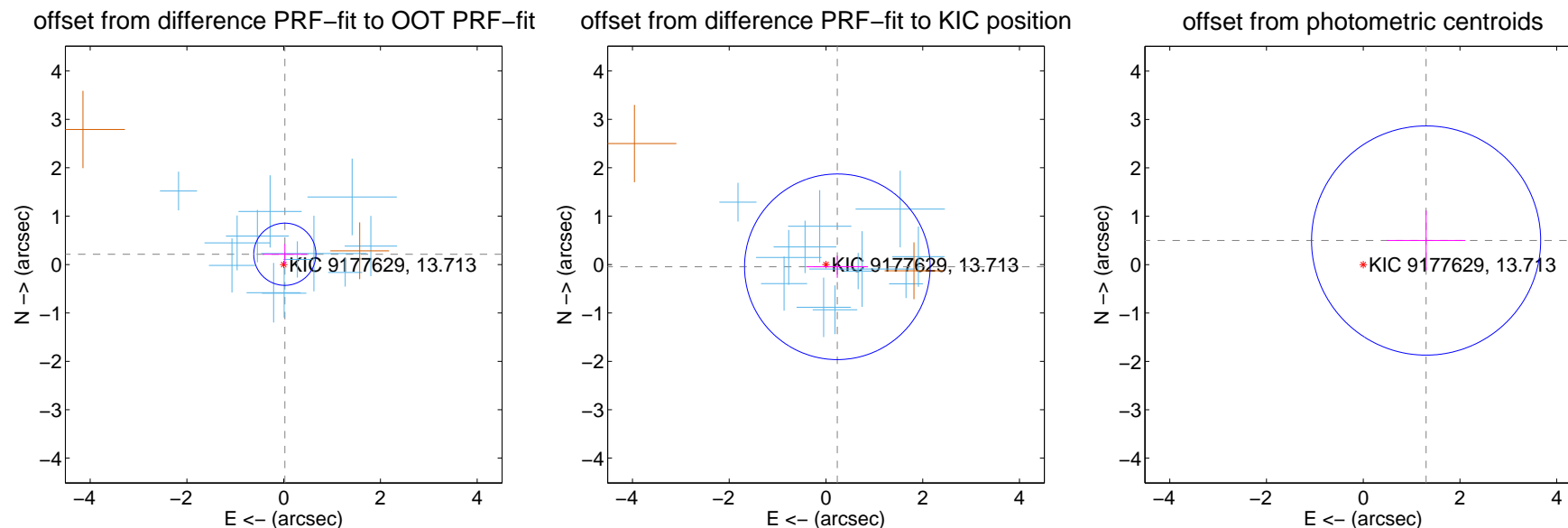
## DV Centroid Data

Supplemental centroid analysis for 009177629-01. Kepler magnitude: 13.71. Transit SNR 20.26

There are 12 quarters with good PRF difference image offsets

The direct PRF centroid is offset from the target star catalog position by about 0.41 arcsec

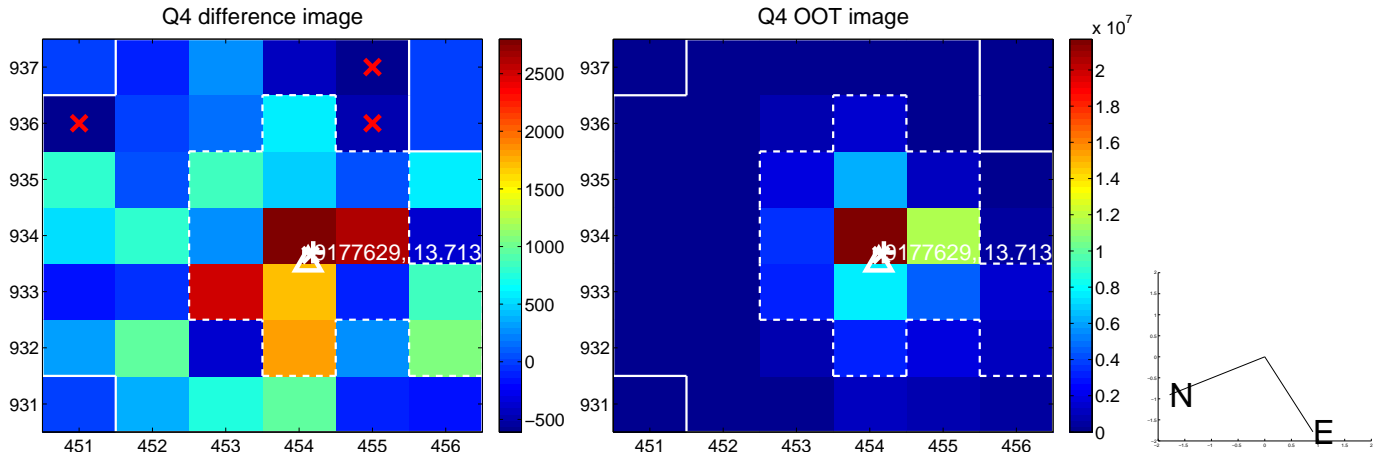
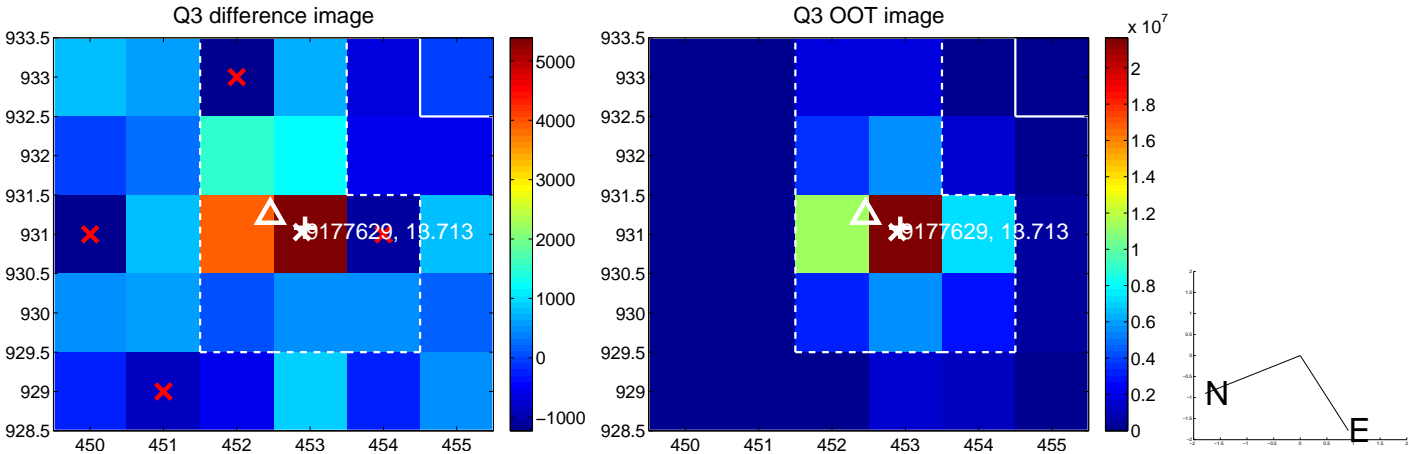
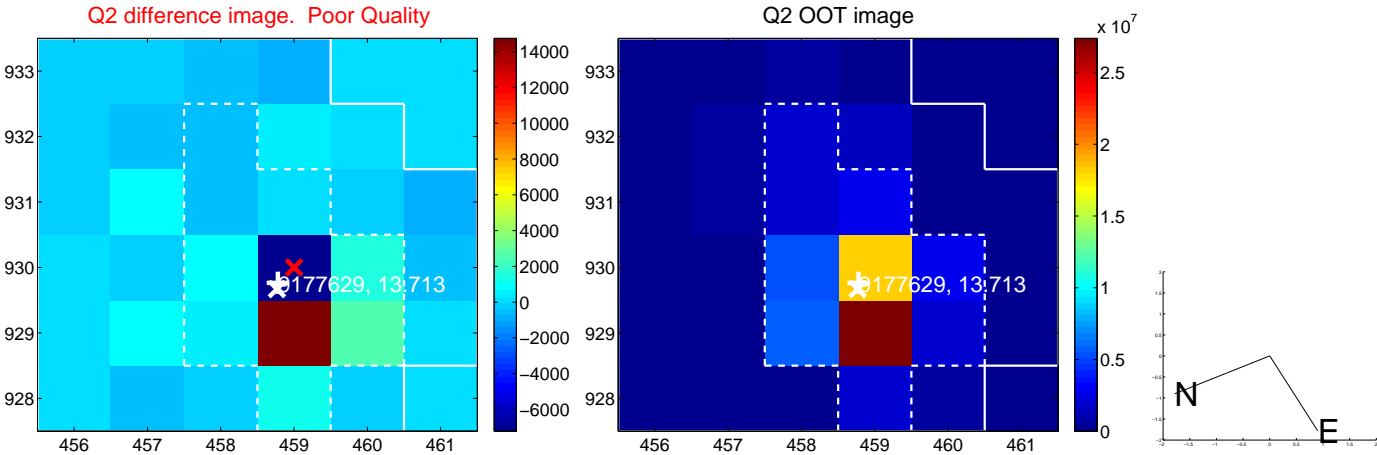
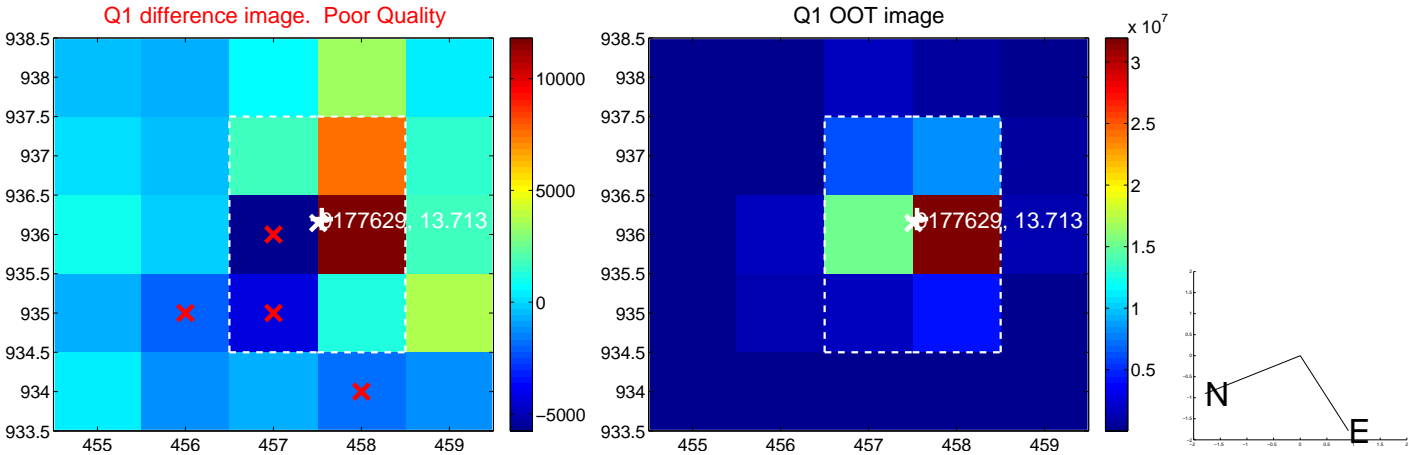
	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$0.214 \pm 0.214$	1.00	$-0.024 \pm 0.456$	$0.213 \pm 0.210$
PRF-fit source offset from KIC position	$0.240 \pm 0.639$	0.37	$-0.235 \pm 0.633$	$-0.047 \pm 0.227$
photometric centroid source offset	$1.39 \pm 0.79$	1.76	$-1.30 \pm 0.81$	$0.50 \pm 0.62$



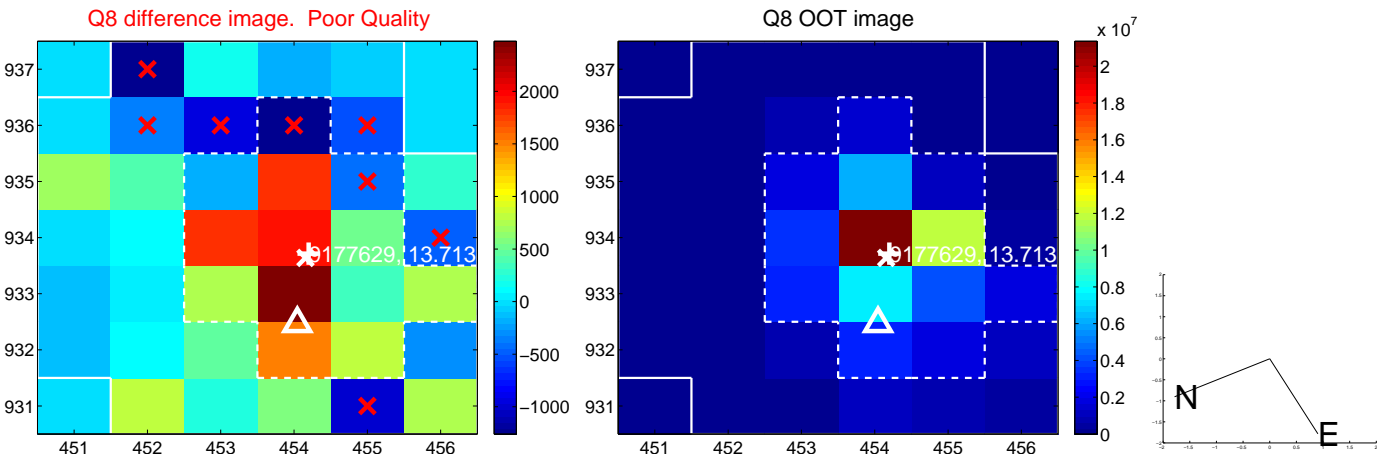
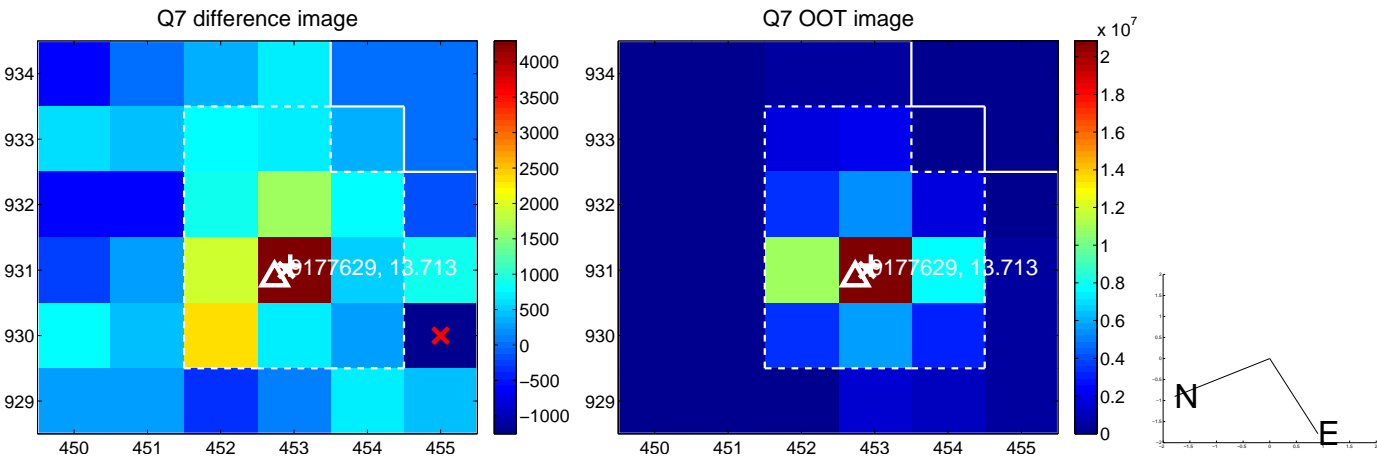
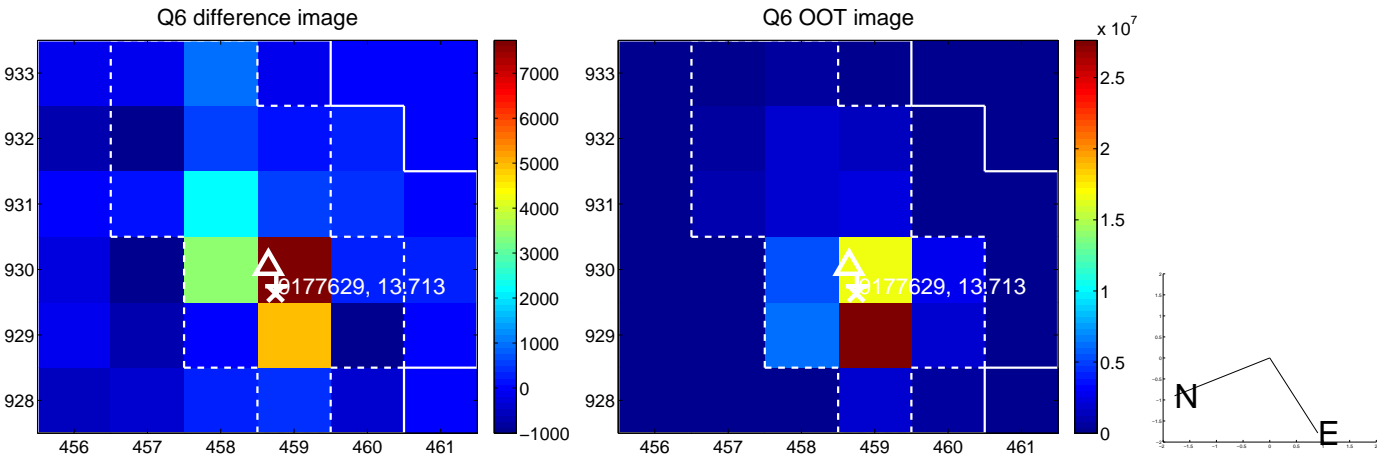
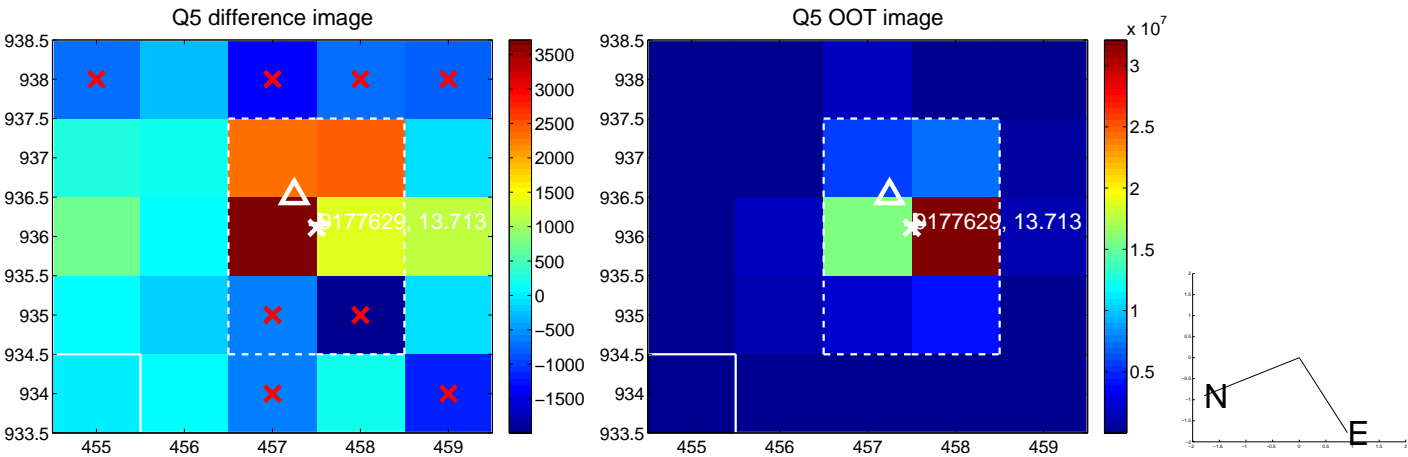
Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses:** good quarterly centroid offsets; **Vermillion crosses:** bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: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



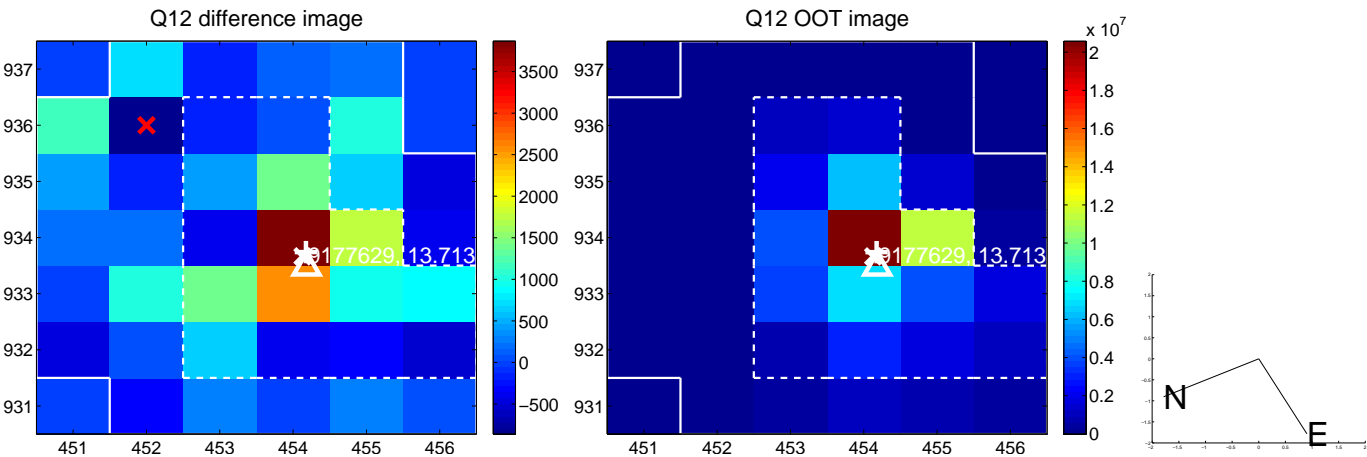
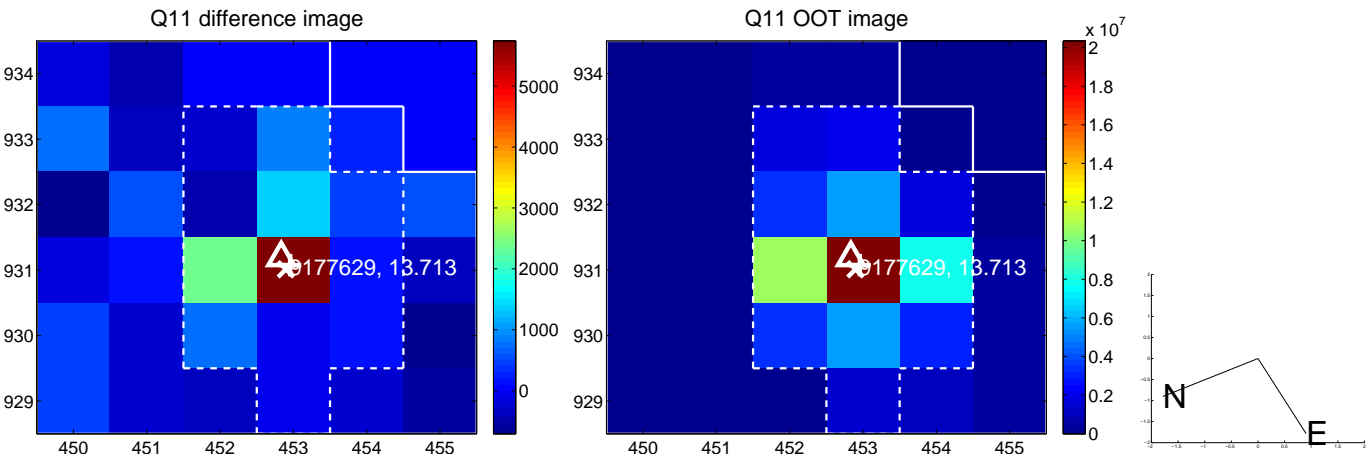
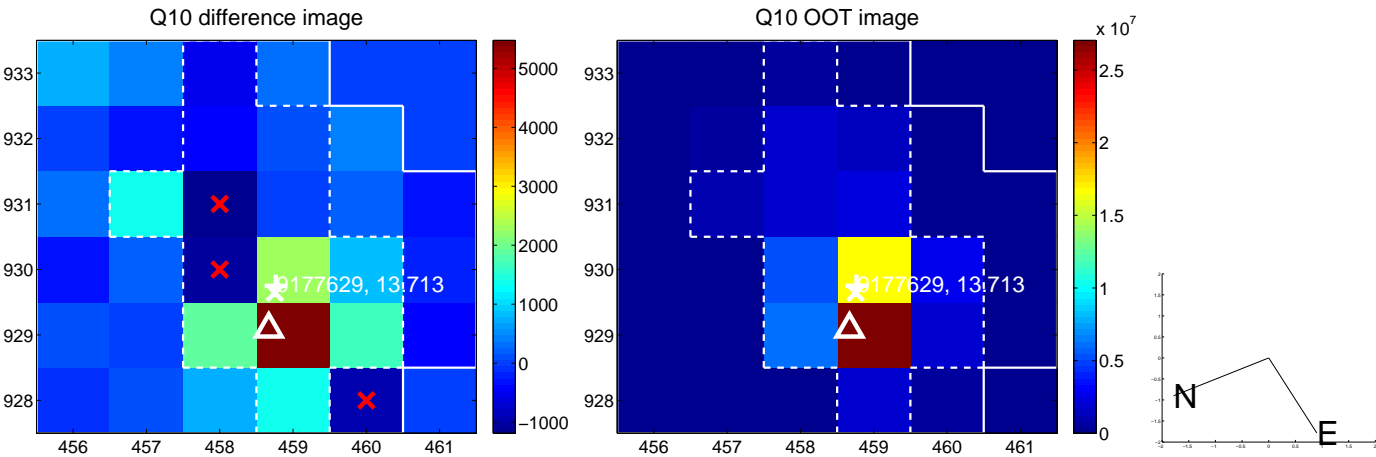
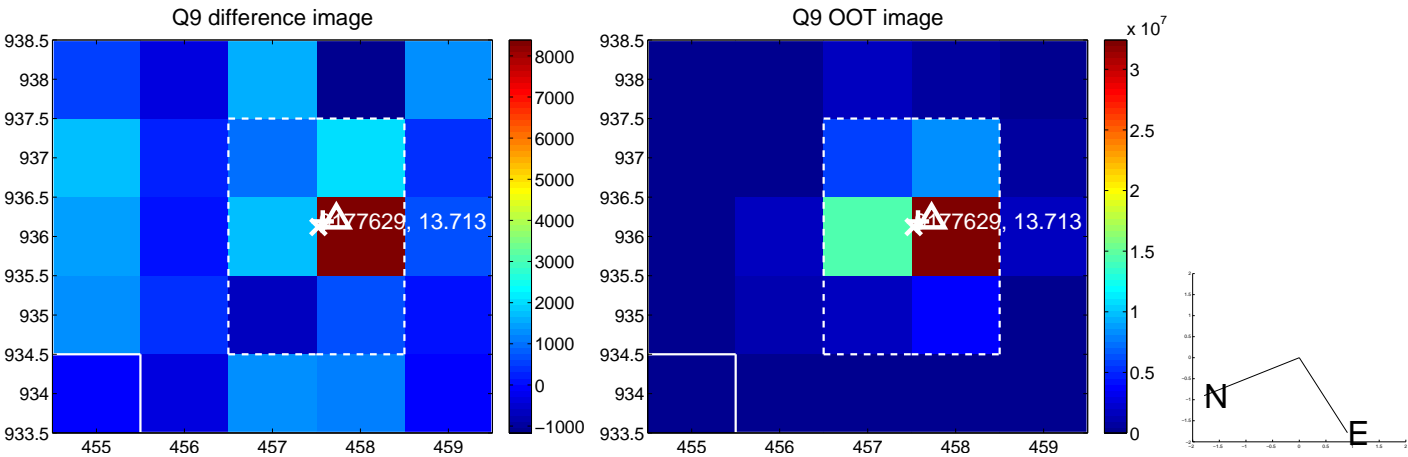
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



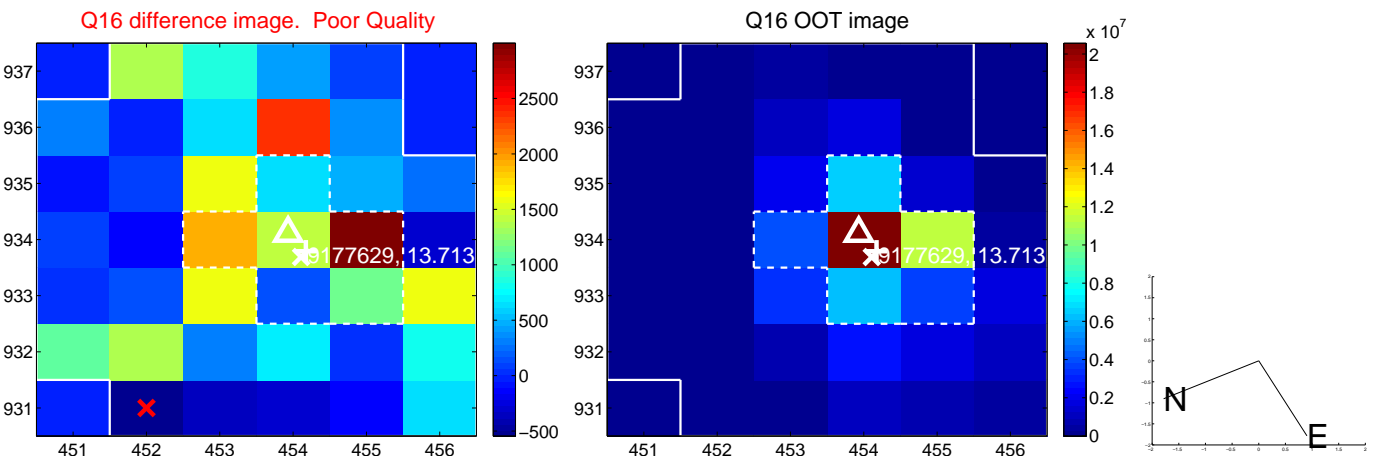
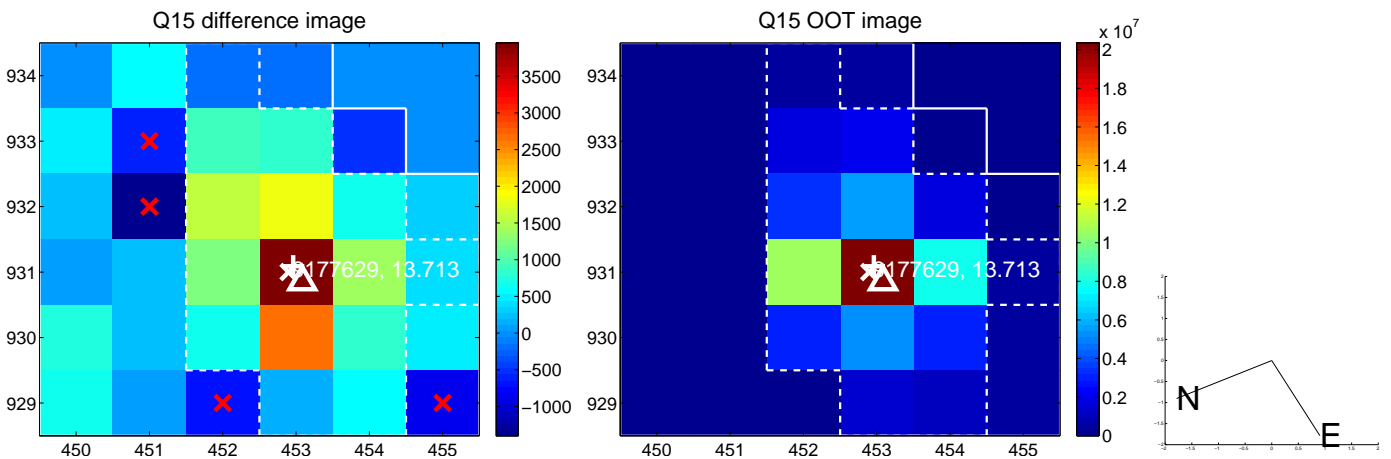
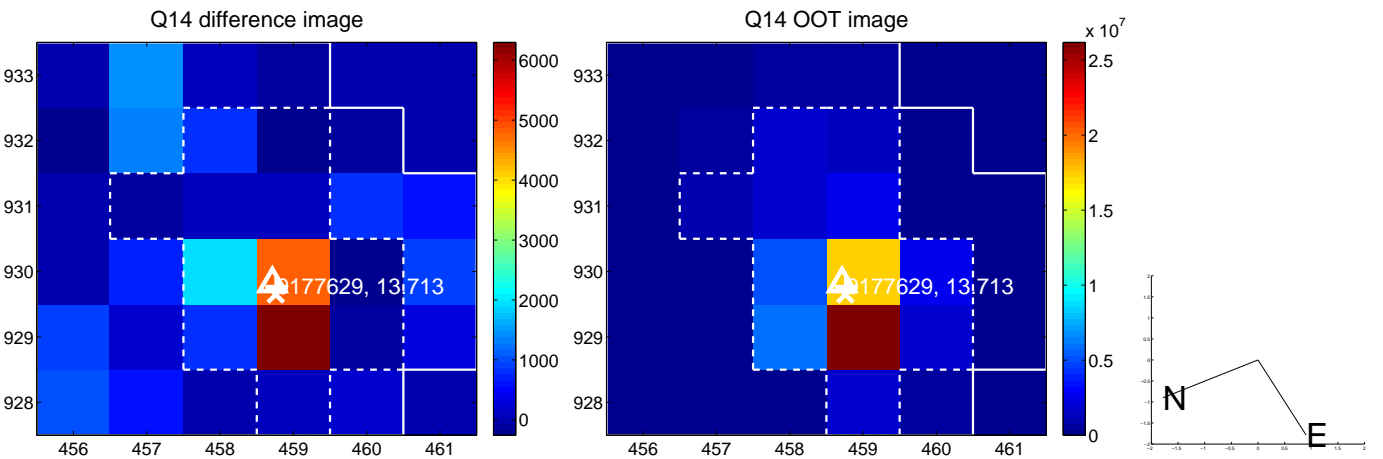
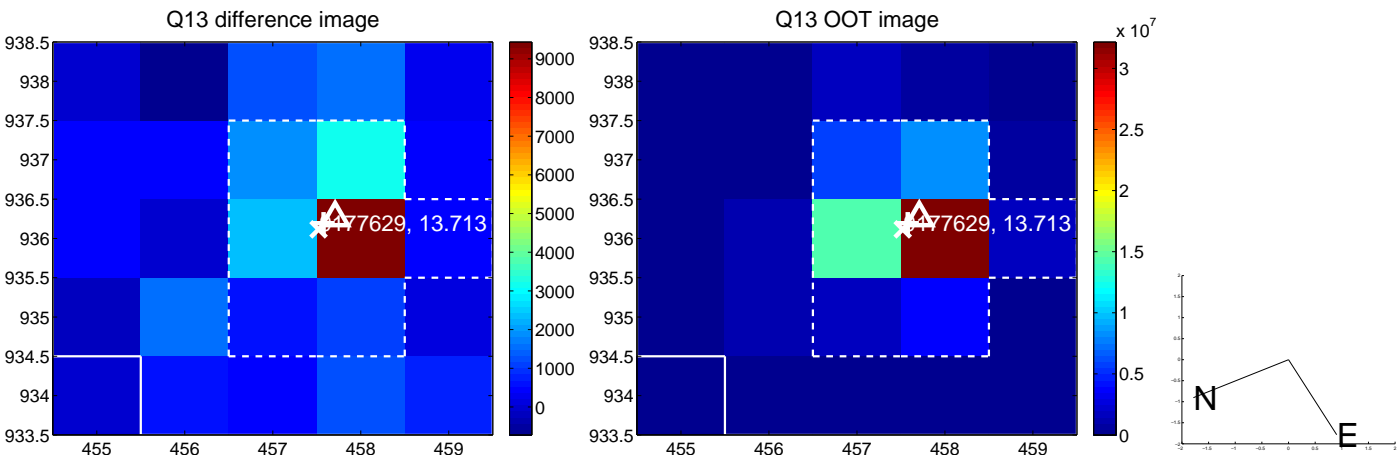
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



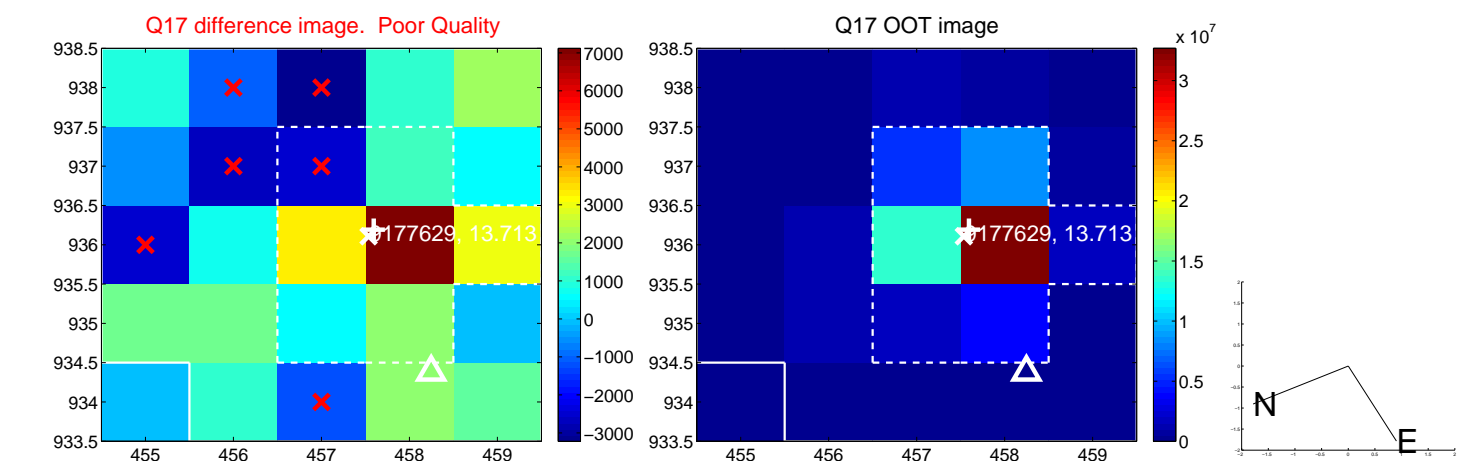
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



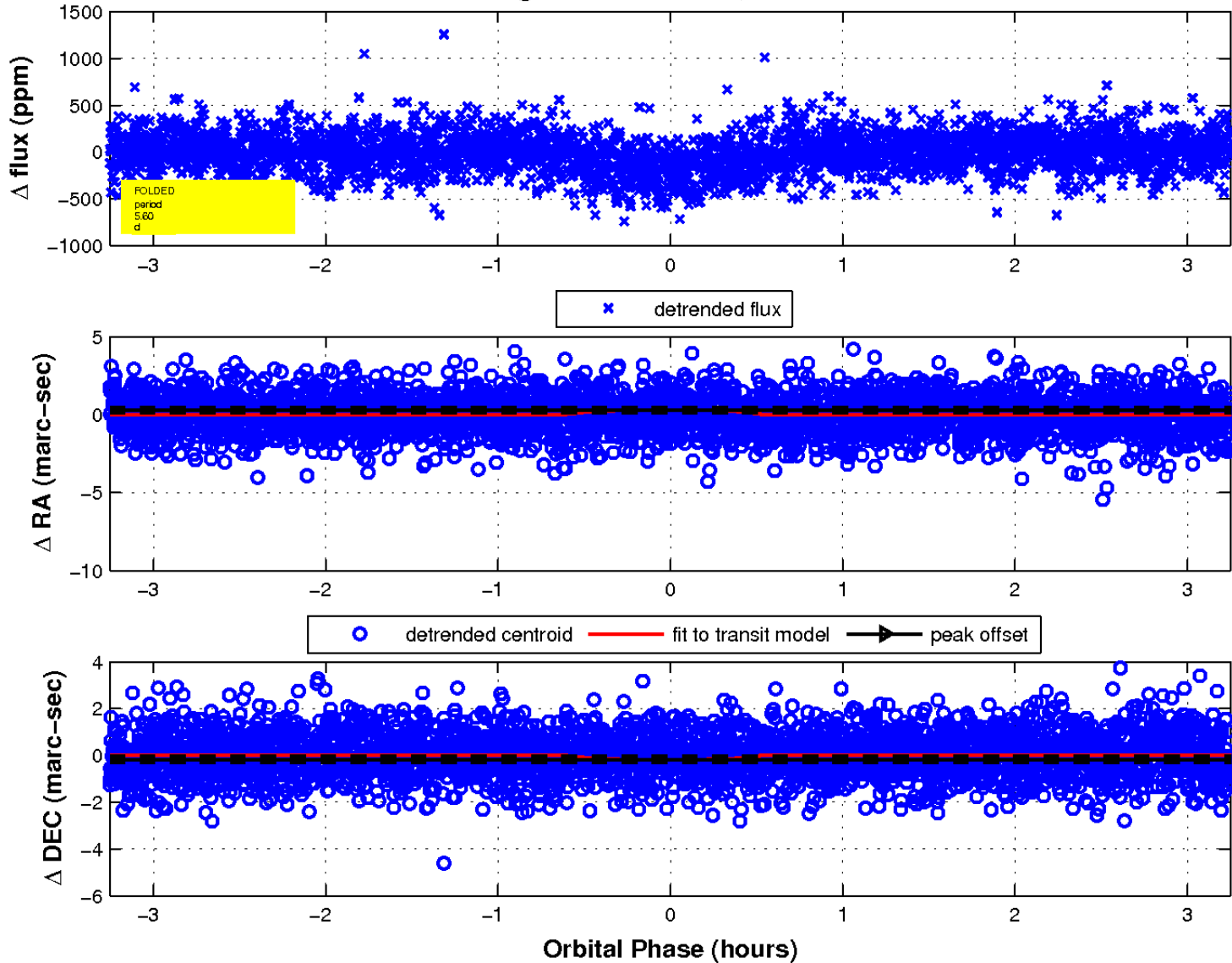
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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



fluxWeightedCentroids, Planet 1 of 1



UKIRT Image

Declination

