

# KIC 004677140

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
004677140-01	OBS	No	2.455793	132.004805	239.2	5.000	8.2	-1.0	3.53	5691	5.43	7142.12

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
004677140-01	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_ALT—CENT_NOFITS

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

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

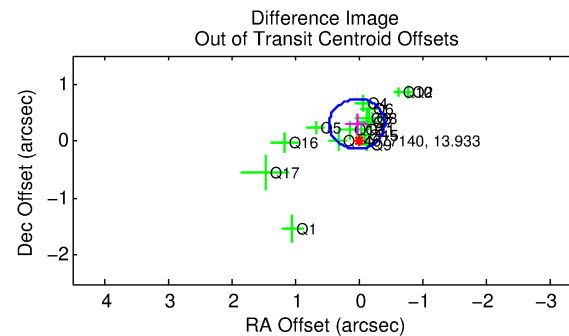
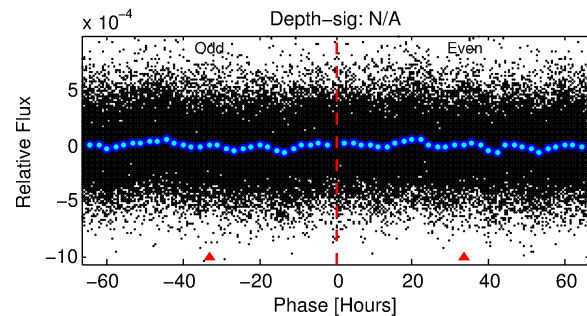
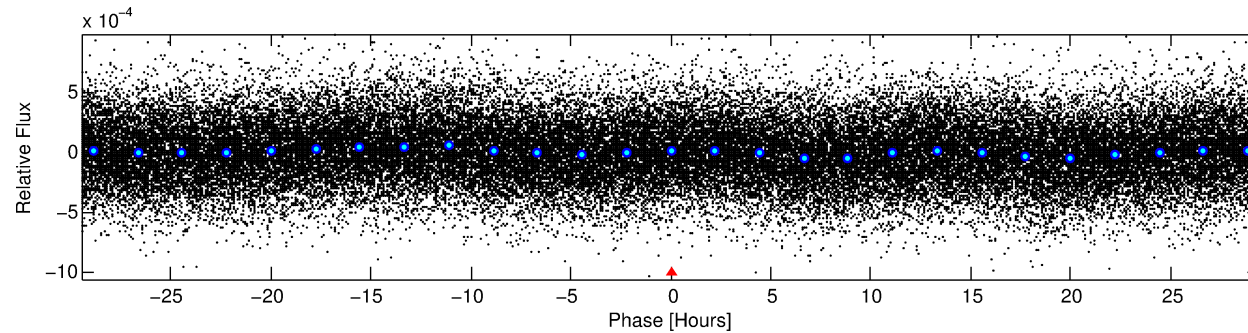
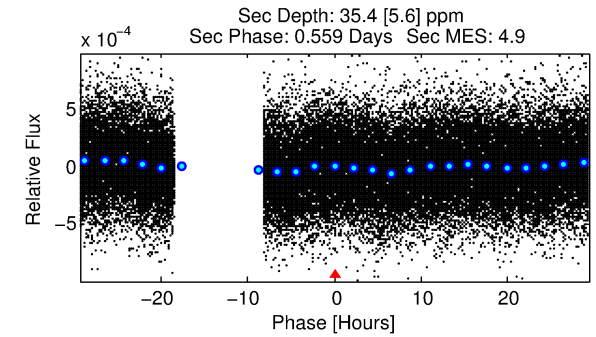
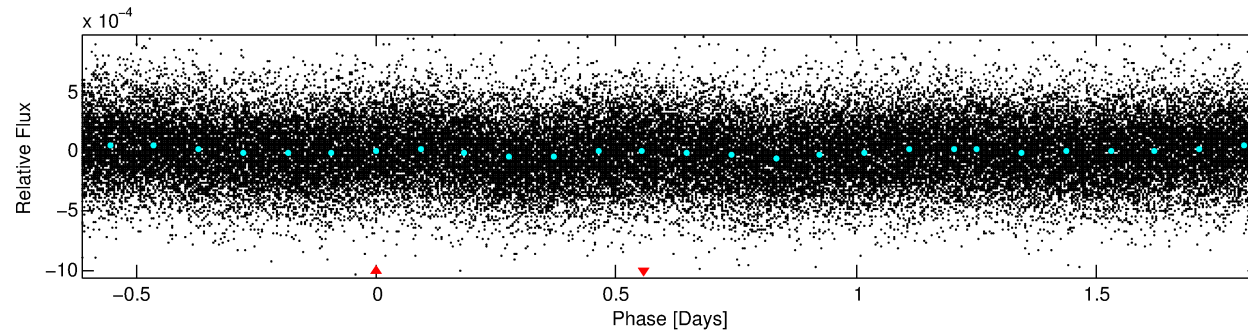
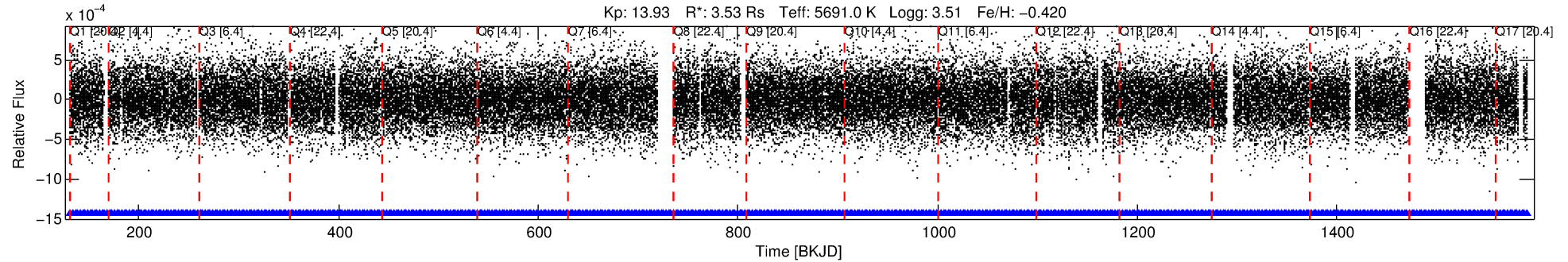
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

Ephemeris Match Information For 004677140-01

No Significant Match Found

# DV One-Page Summary

KIC: 4677140 Candidate: 1 of 1 Period: 2.456 d



## TPS TCE Results:

Period = 2.45579 d  
Epoch = 132.0048 BKJD

DV fit results are unavailable

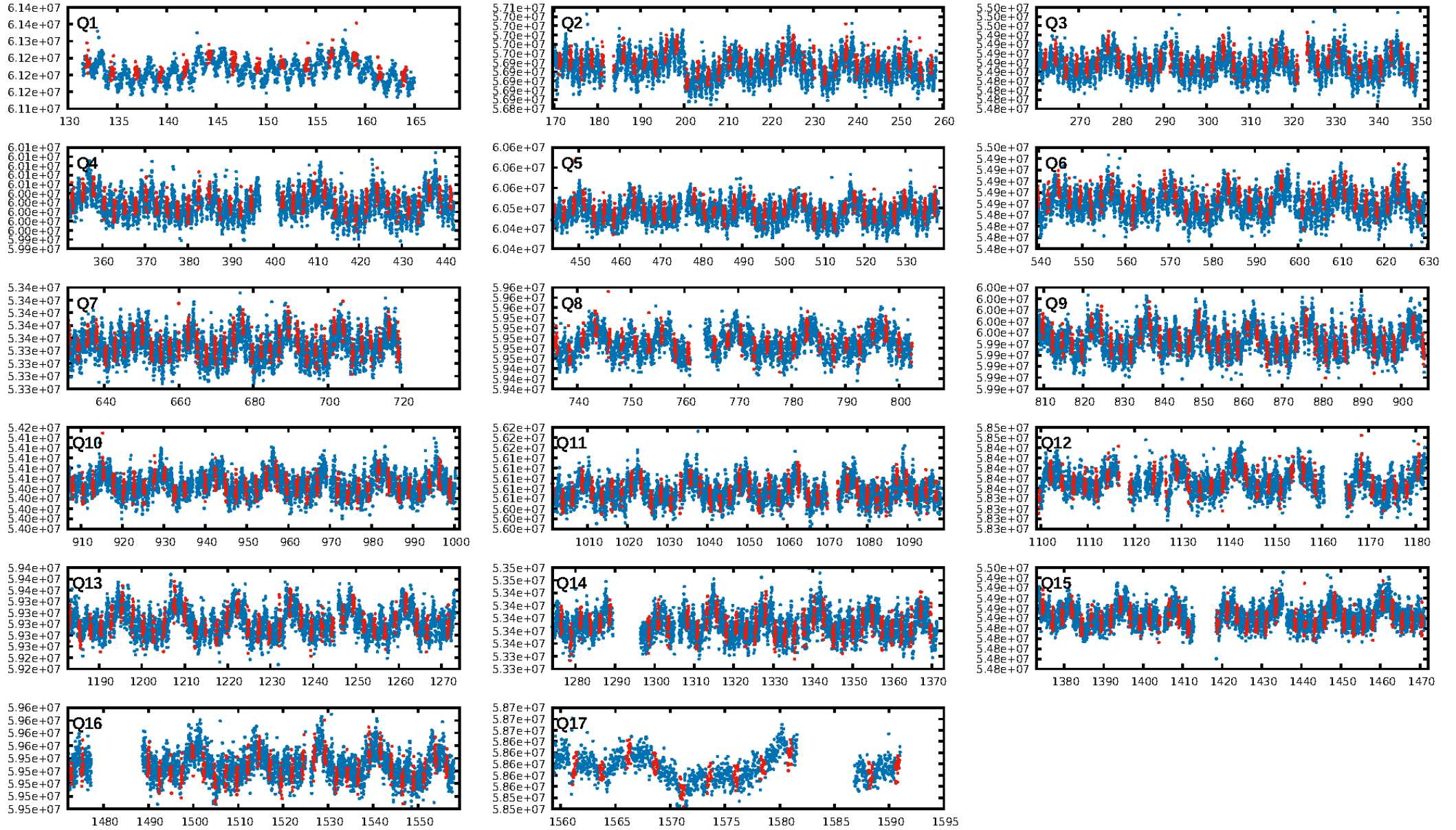
## DV Diagnostic Results:

ShortPeriod-sig: N/A  
LongPeriod-sig: N/A  
ModelChiSquare2-sig: N/A  
ModelChiSquareGof-sig: N/A  
Bootstrap-pfa: 4.35e-14  
RollingBand-fgt: 1.00 [530/530]  
GhostDiagnostic-chr: -0.5535  
Centroid-sig: 77.4%  
Centroid-so: 0.307 arcsec [0.66 $\sigma$ ]  
OotOffset-rm: 0.302 arcsec [2.06 $\sigma$ ]  
KicOffset-rm: 0.278 arcsec [1.74 $\sigma$ ]  
OotOffset-st: 4/4/4/5 [17]  
KicOffset-st: 4/4/4/5 [17]  
DiffImageQuality-fgm: 1.00 [17/17]  
DiffImageOverlap-fno: 1.00 [17/17]

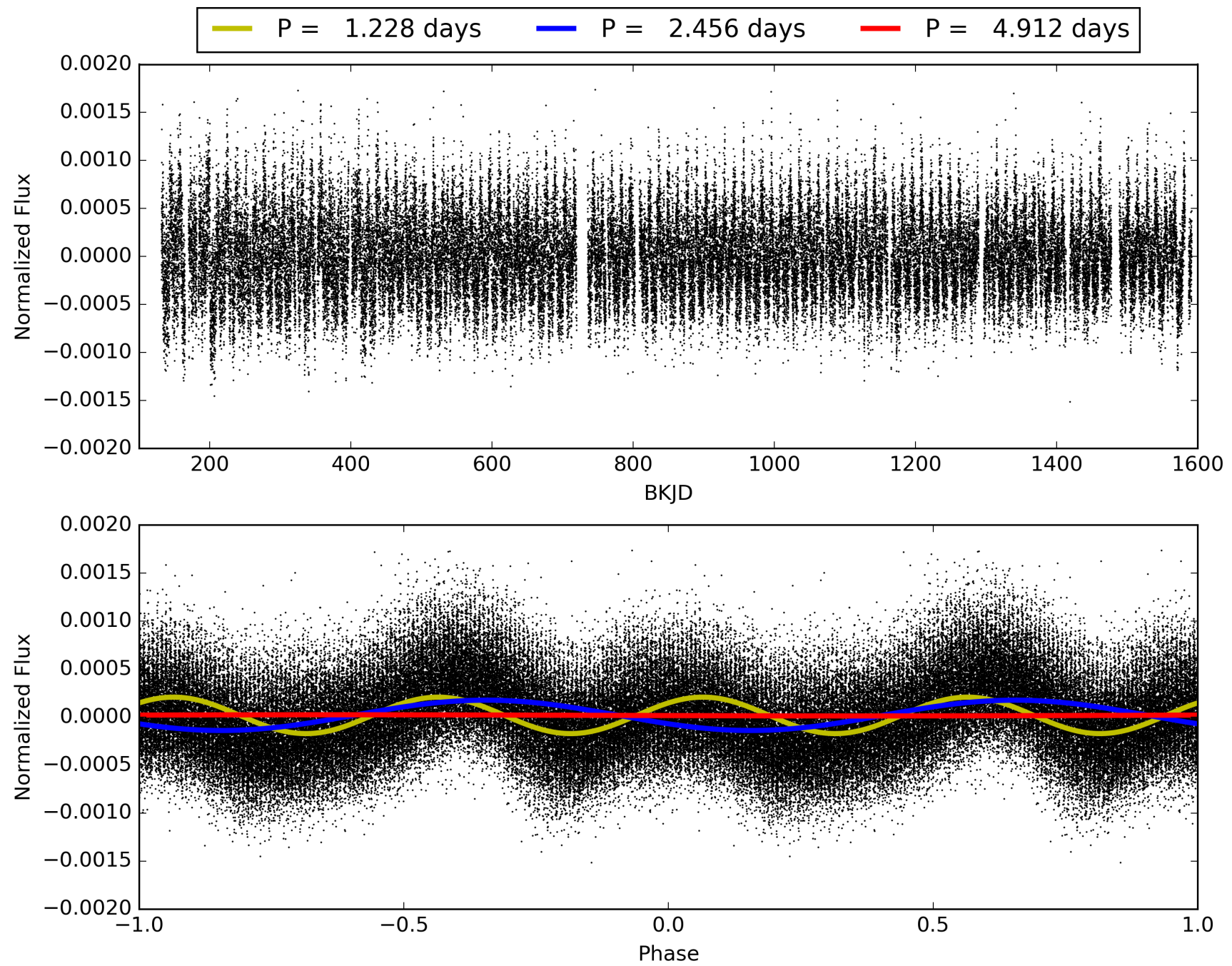
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 29-Jan-2016 08:23:05 Z

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

# TCE 004677140-01, PDC Light Curves



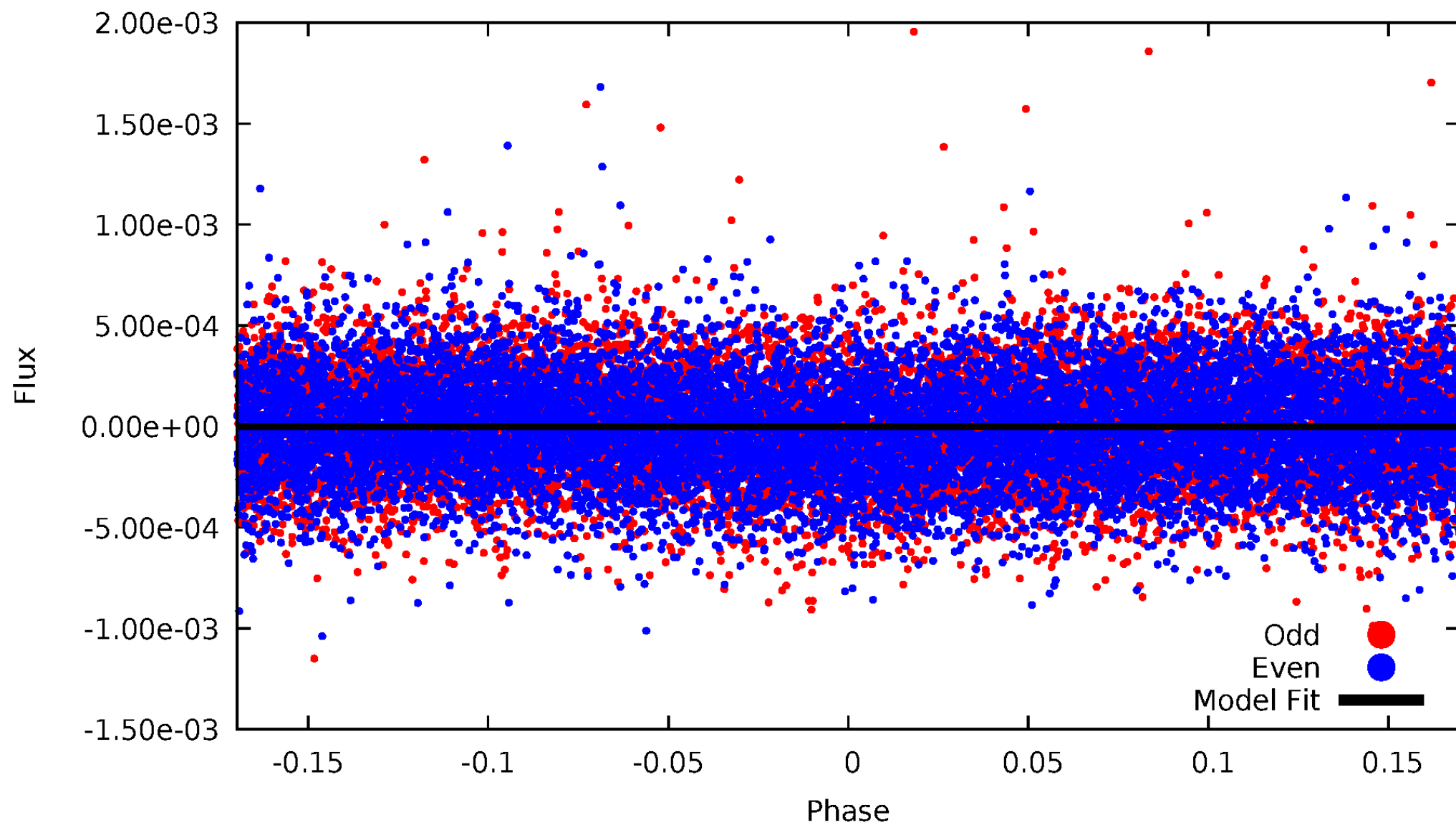
TCE 004677140-01





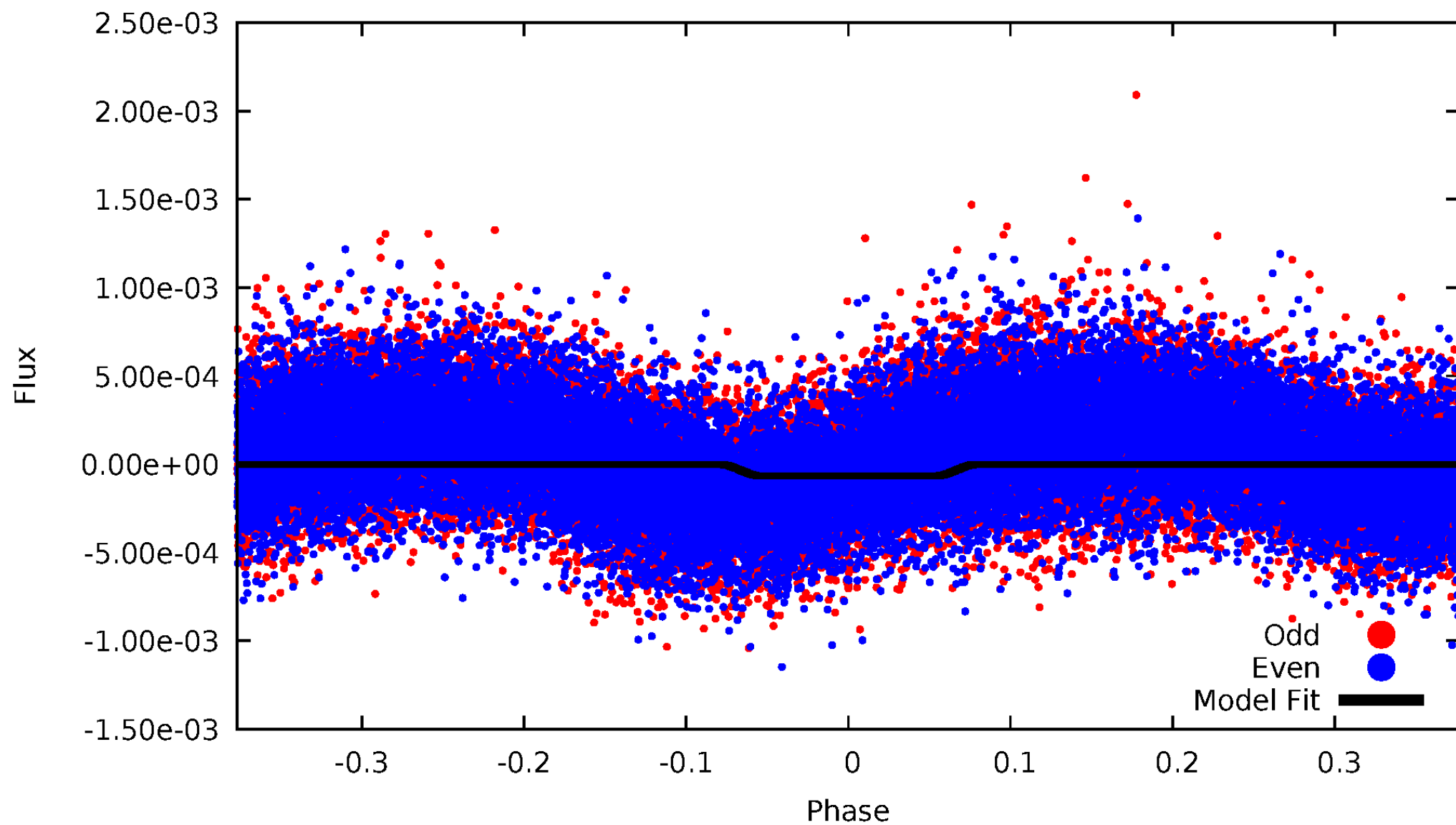
# DV Odd/Even

TCE 004677140-01

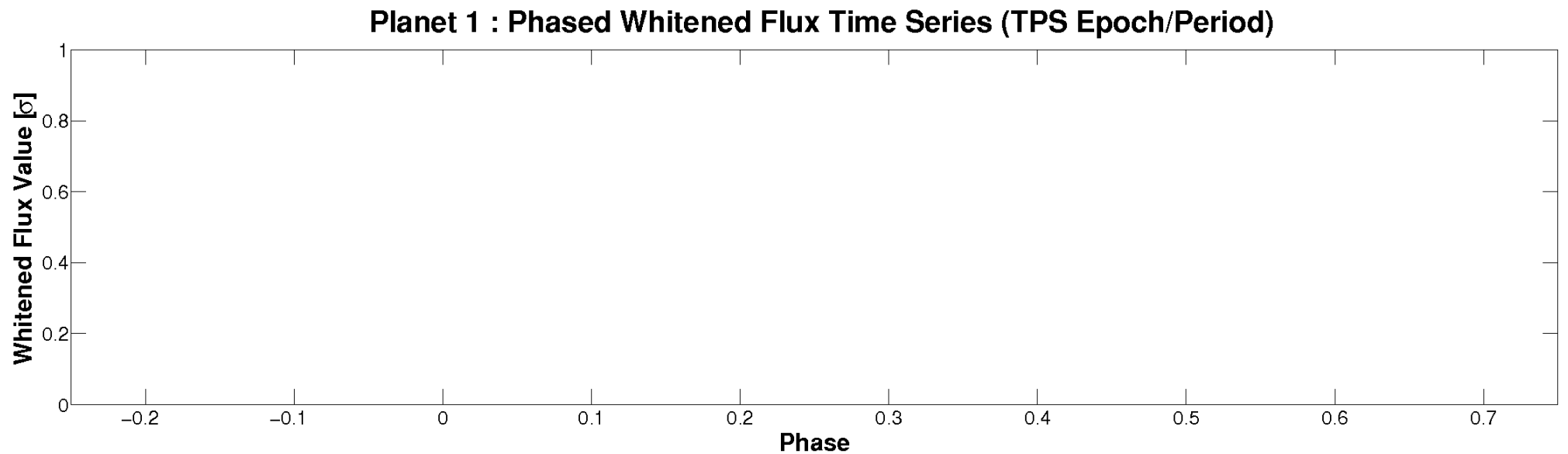
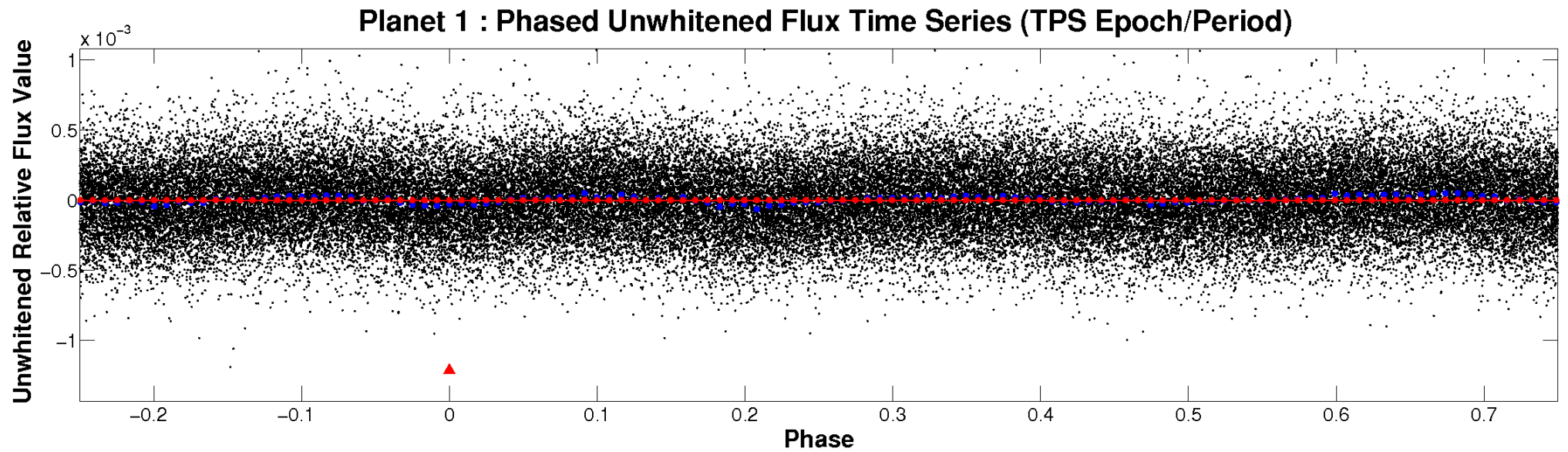


# ALT Odd/Even

TCE 004677140-01

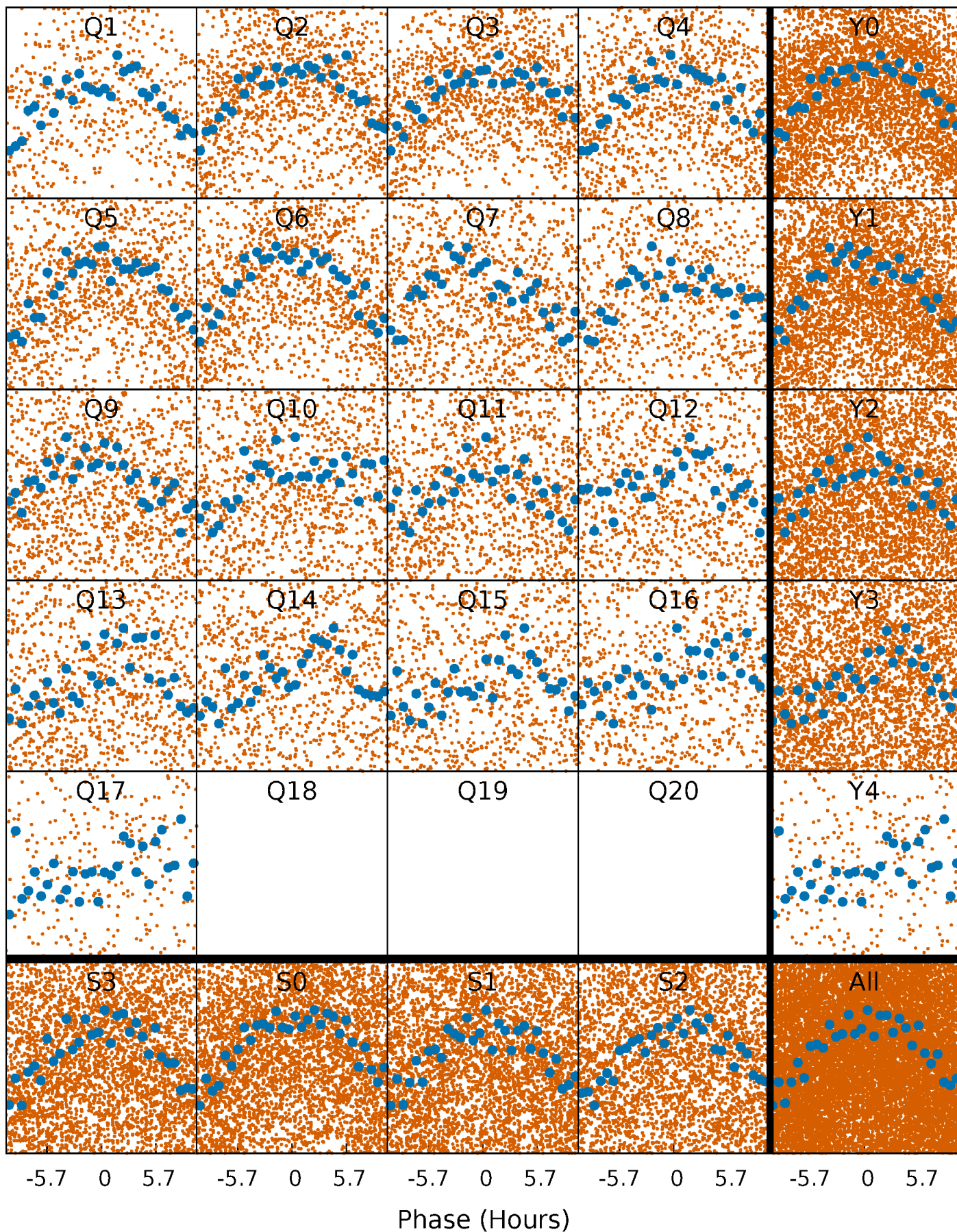


# Non-Whitened Vs. Whitened Light Curve



# PDC Quarter-Phased Transit Curves

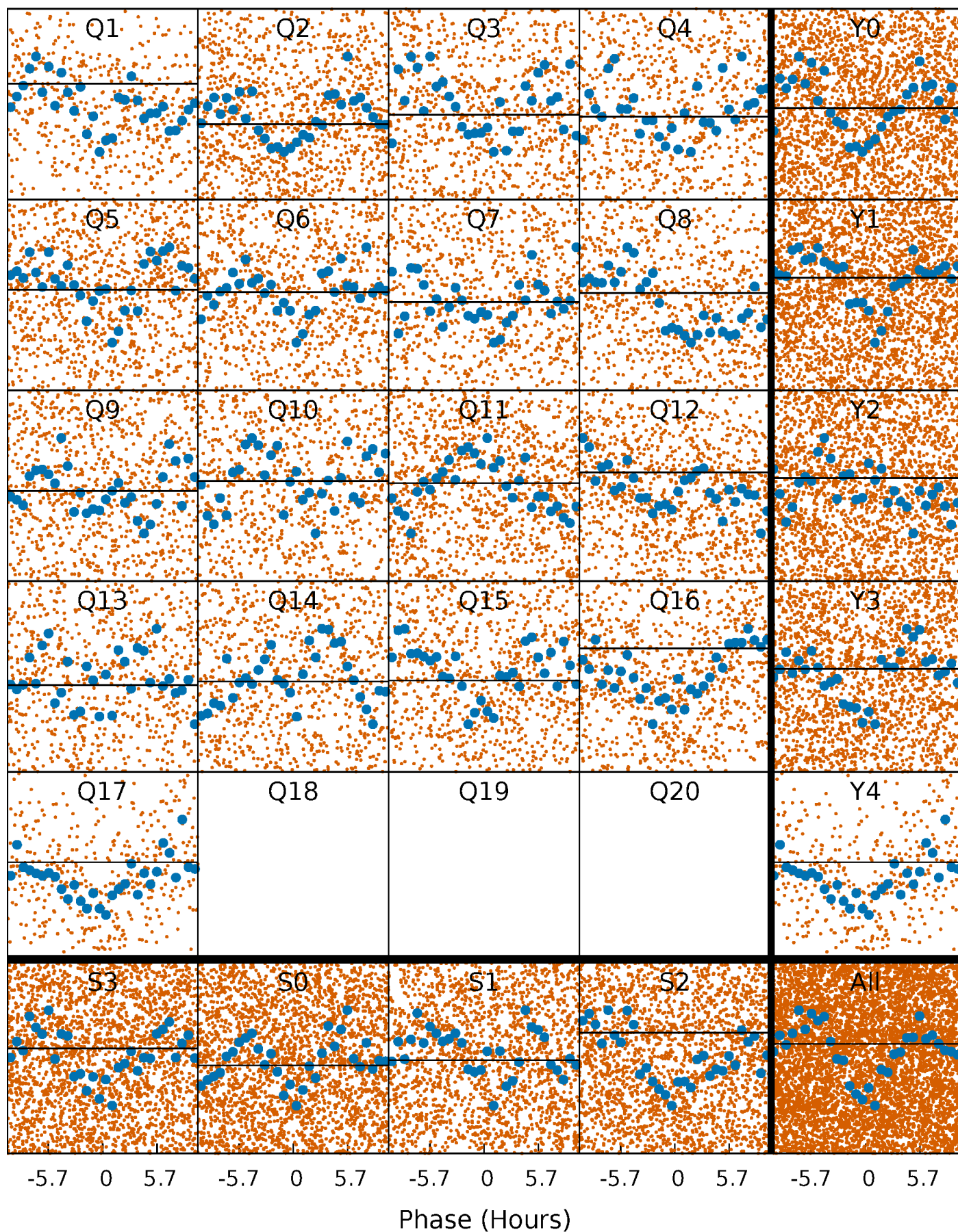
TCE 004677140-01 P= 2.455793 Days  $T_0=132.004805$  (BKJD)





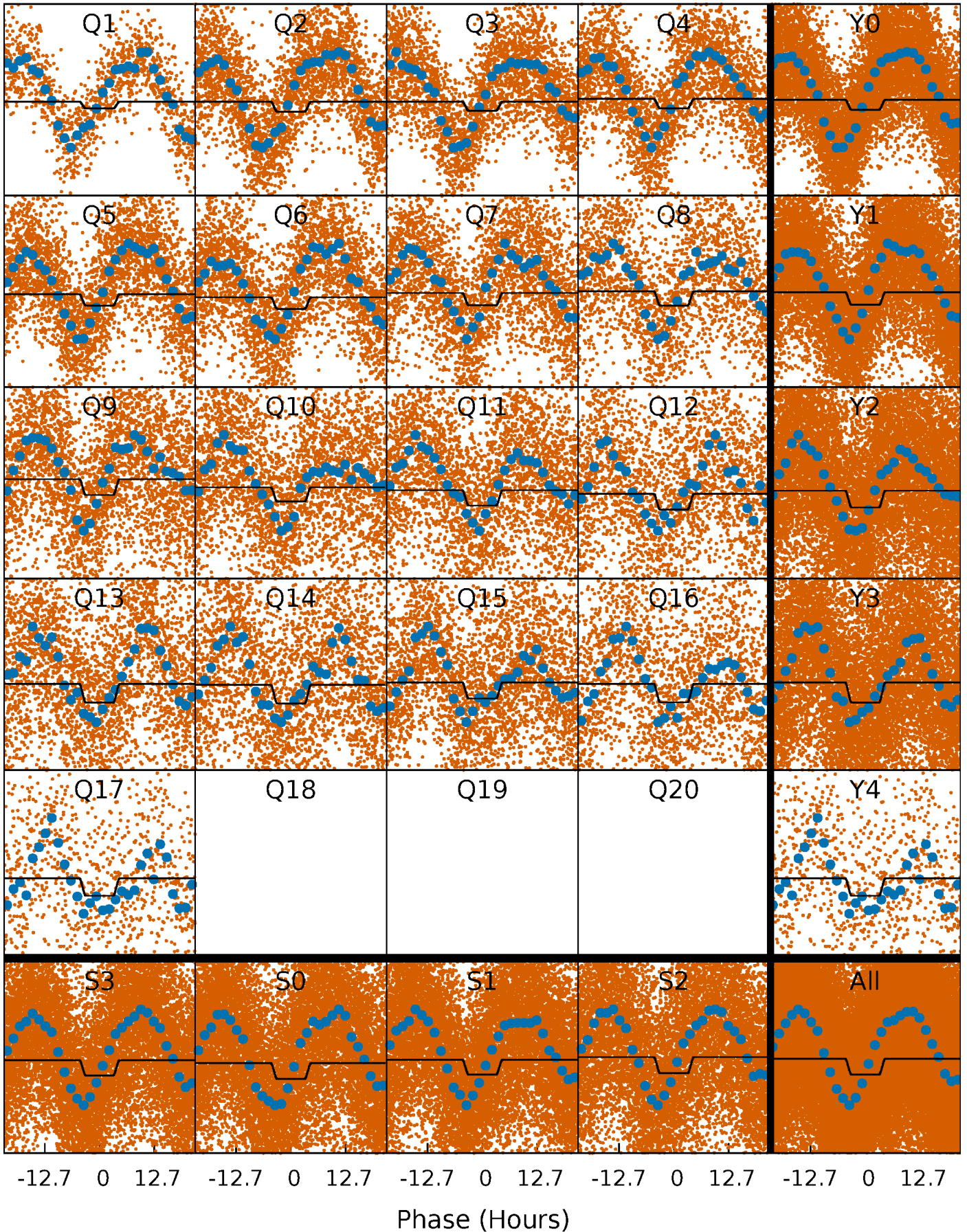
# DV Quarter-Phased Transit Curves

TCE 004677140-01 P= 2.455793 Days  $T_0=132.004805$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

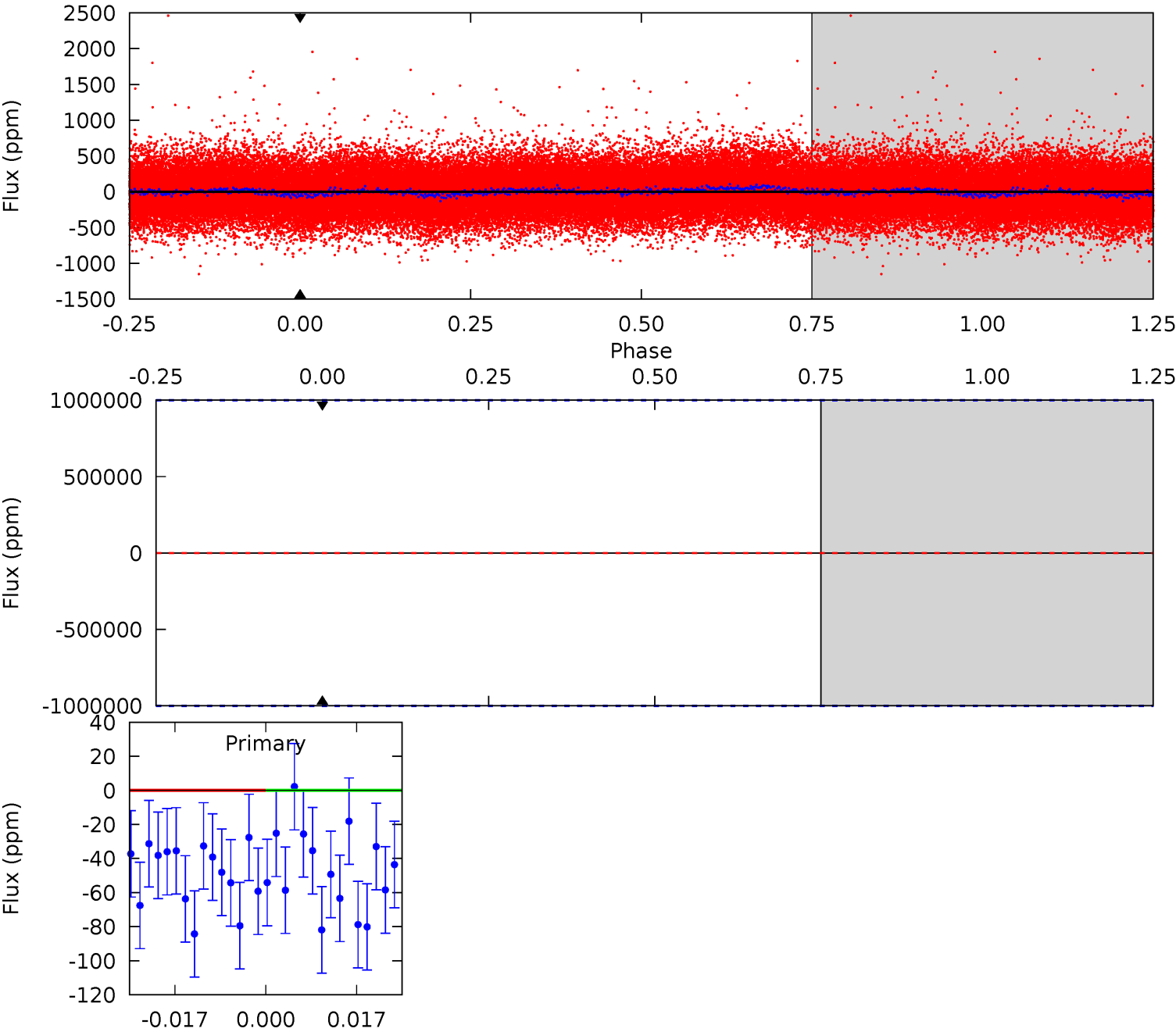
TCE 004677140-01 P= 2.455793 Days  $T_0=131.690078$  (BKJD)



DV Model-Shift Uniqueness Test

004677140-01, P = 2.455793 Days, E = 129.549012 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
0	0	0	0	1.00	1.00	1.00	0	0	0	0	0	0	0	0

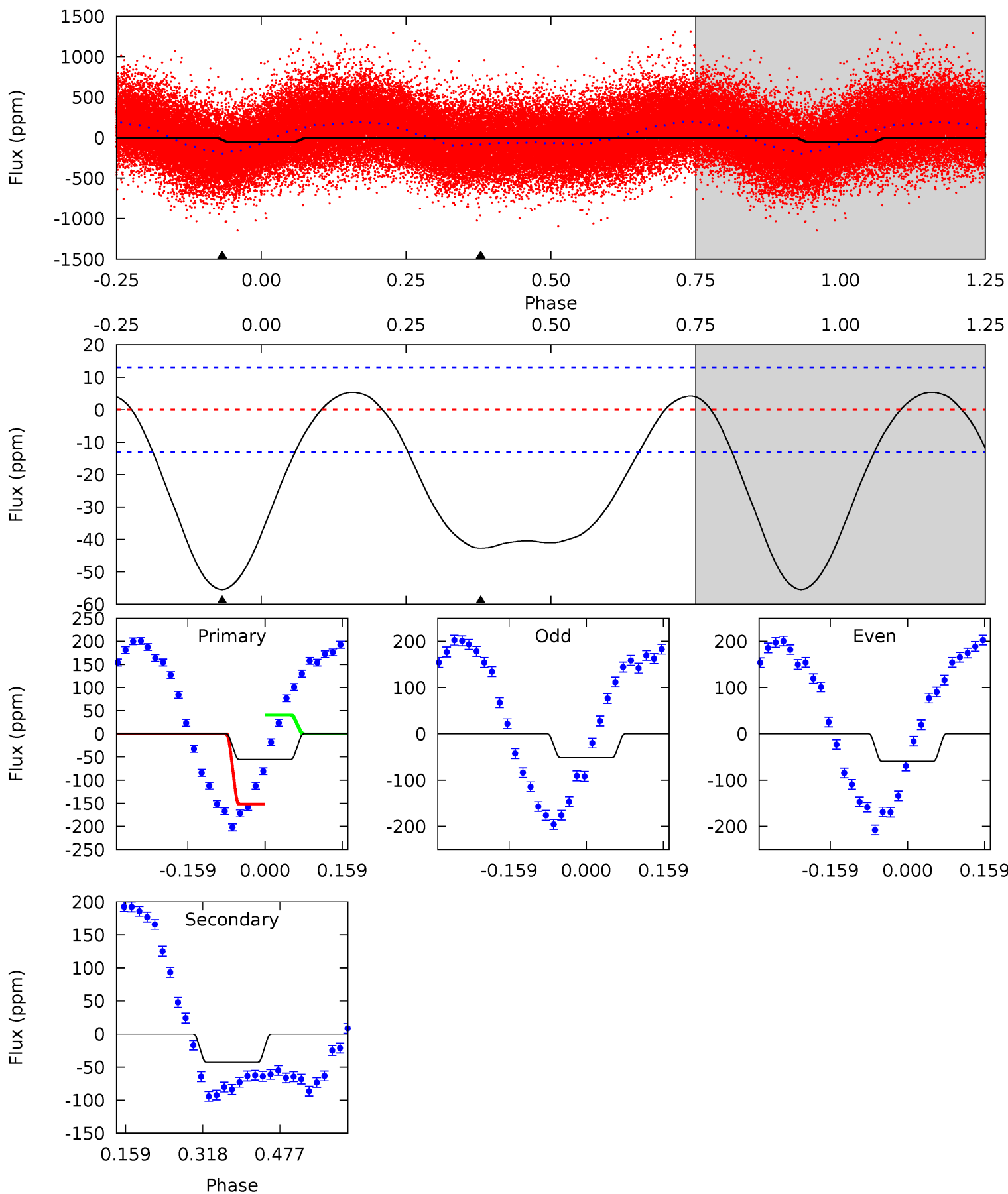




# Alt Model-Shift Uniqueness Test

004677140-01, P = 2.455793 Days, E = 129.234285 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
18.9	14.5	0	0	4.47	1.41	5.15	18.9	18.9	14.5	14.5	1.30	0.98	0.09	20.3





### Stellar Parameters For KIC 004677140

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R$ ( $R_{\odot}$ )	$M(M_{\odot})$	$p_{\star}$ ( $\text{g}\cdot\text{cm}^{-3}$ )
	$5691^{+202}_{-222}$	$3.509^{+0.867}_{-0.153}$	$-0.420^{+0.350}_{-0.250}$	$3.529^{+1.024}_{-2.561}$	$1.468^{+0.200}_{-0.600}$	$0.047^{+1.124}_{-0.020}$
	+4%/-4%	+25%/-4%	+83%/-60%	+29%/-73%	+14%/-41%	+2390%/-43%
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 004677140-01 / KOI

Detrend	Depth (ppm)	$R_p$ ( $R_{\oplus}$ )	$T_{\text{max}}$ (K)	$T_{\text{obs}}$ (K)	$A_{\text{obs}}$
DV	$0 \pm 1000000$	$24.23^{+29.89}_{-17.25}$	$3152^{+321}_{-613}$	$3289^{+16645}_{-21464}$	$0.630^{+276.560}_{-229.269}$
Alt.	$-43 \pm 3$	$22.35^{+27.97}_{-16.38}$	$3107^{+360}_{-601}$	$-2902^{+6274}_{-376}$	$0.076^{+0.905}_{-0.061}$

$T_{\text{max}}$  = 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

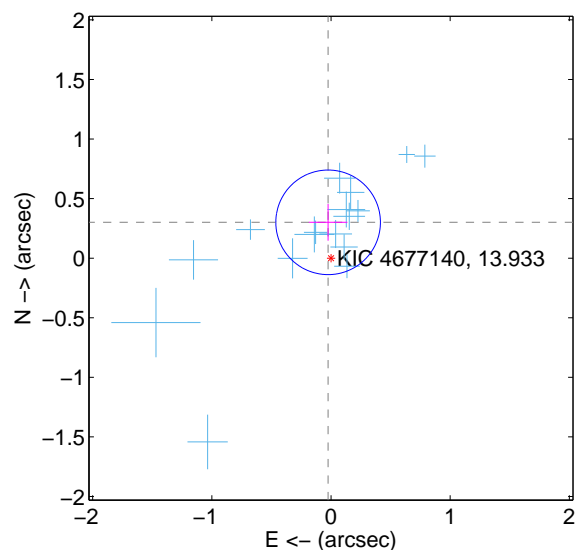
Supplemental centroid analysis for 004677140-01. Kepler magnitude: 13.93. Transit SNR -1.00

There are 17 quarters with good PRF difference image offsets

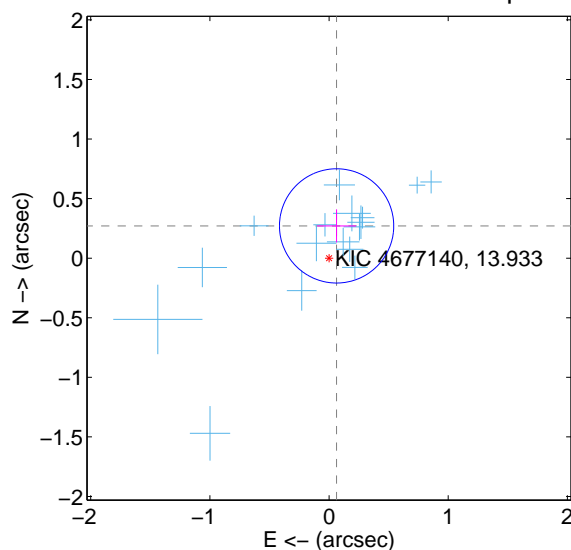
The direct PRF centroid is offset from the target star catalog position by about 0.04 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$0.302 \pm 0.146$	2.06	$0.024 \pm 0.162$	$0.301 \pm 0.155$
PRF-fit source offset from KIC position	$0.278 \pm 0.160$	1.74	$-0.063 \pm 0.164$	$0.271 \pm 0.139$
photometric centroid source offset	$0.31 \pm 0.46$	0.66	$0.11 \pm 0.47$	$-0.28 \pm 0.46$

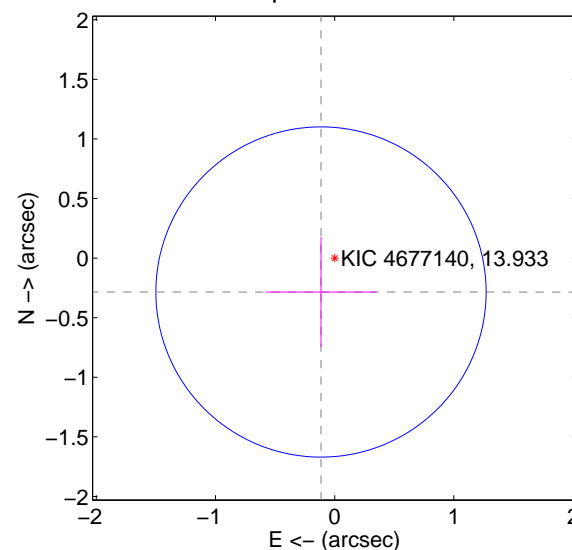
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position

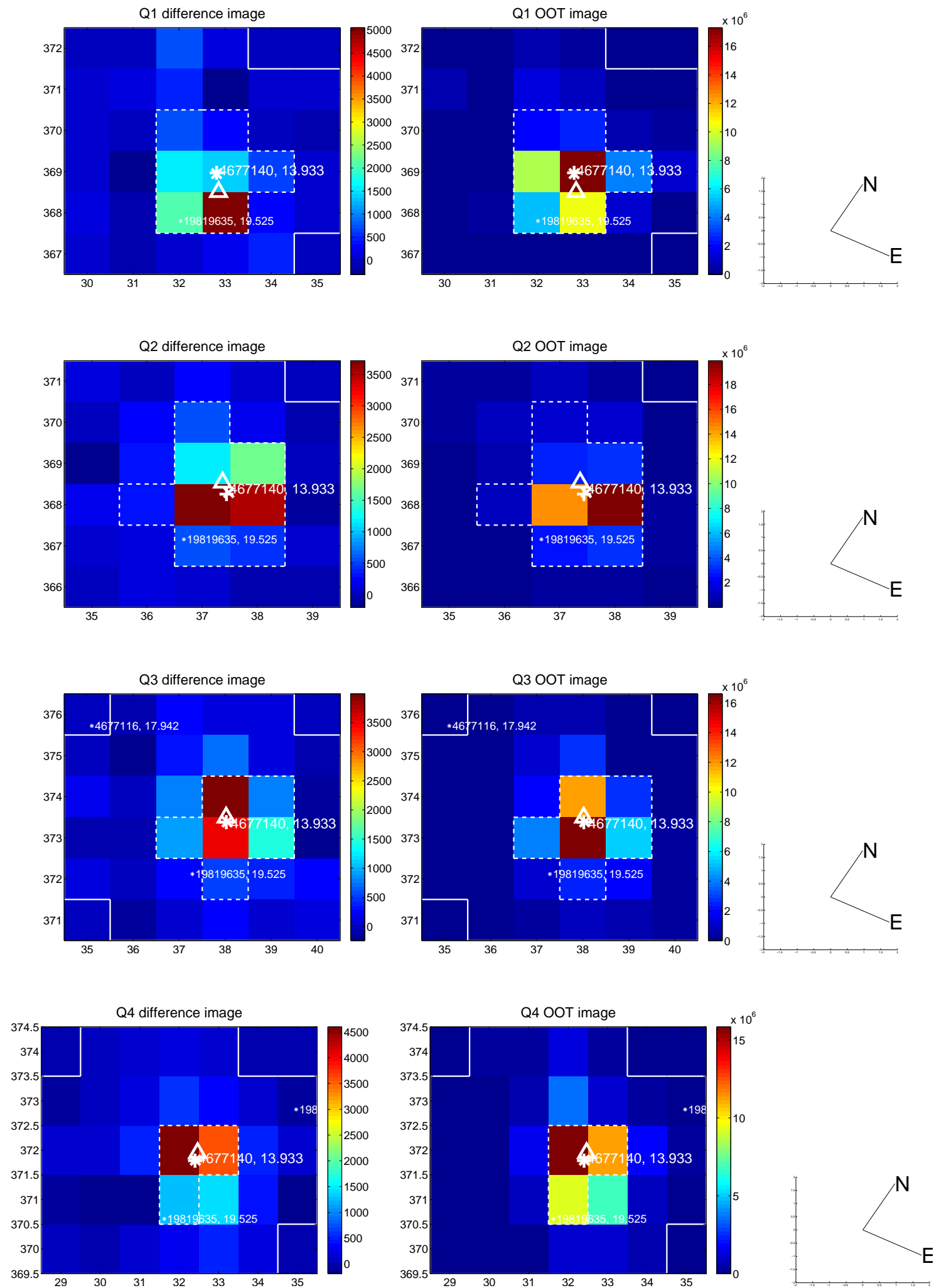


offset from photometric centroids

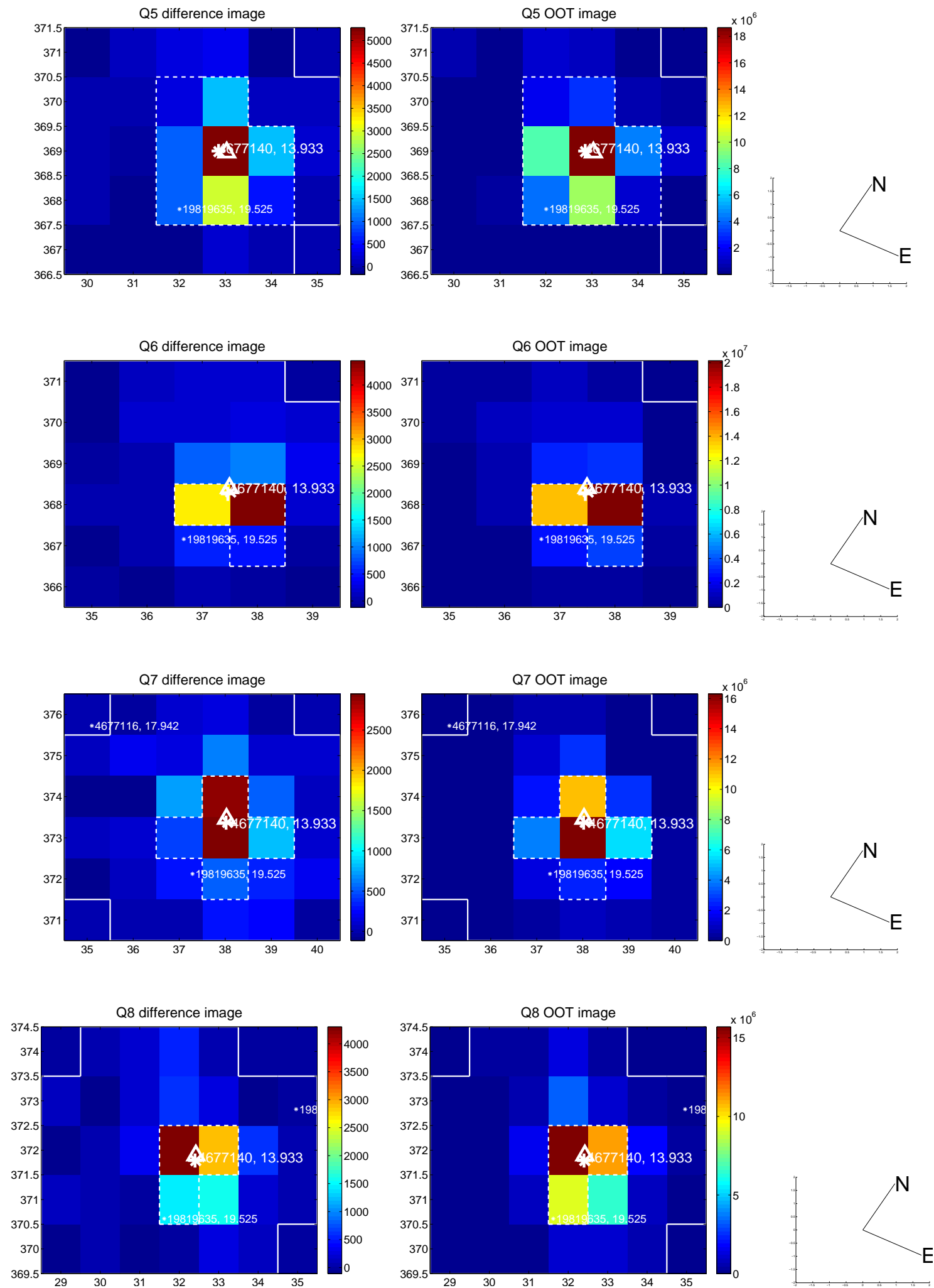


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses:** good quarterly centroid offsets; **Vermillion crosses:** bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: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

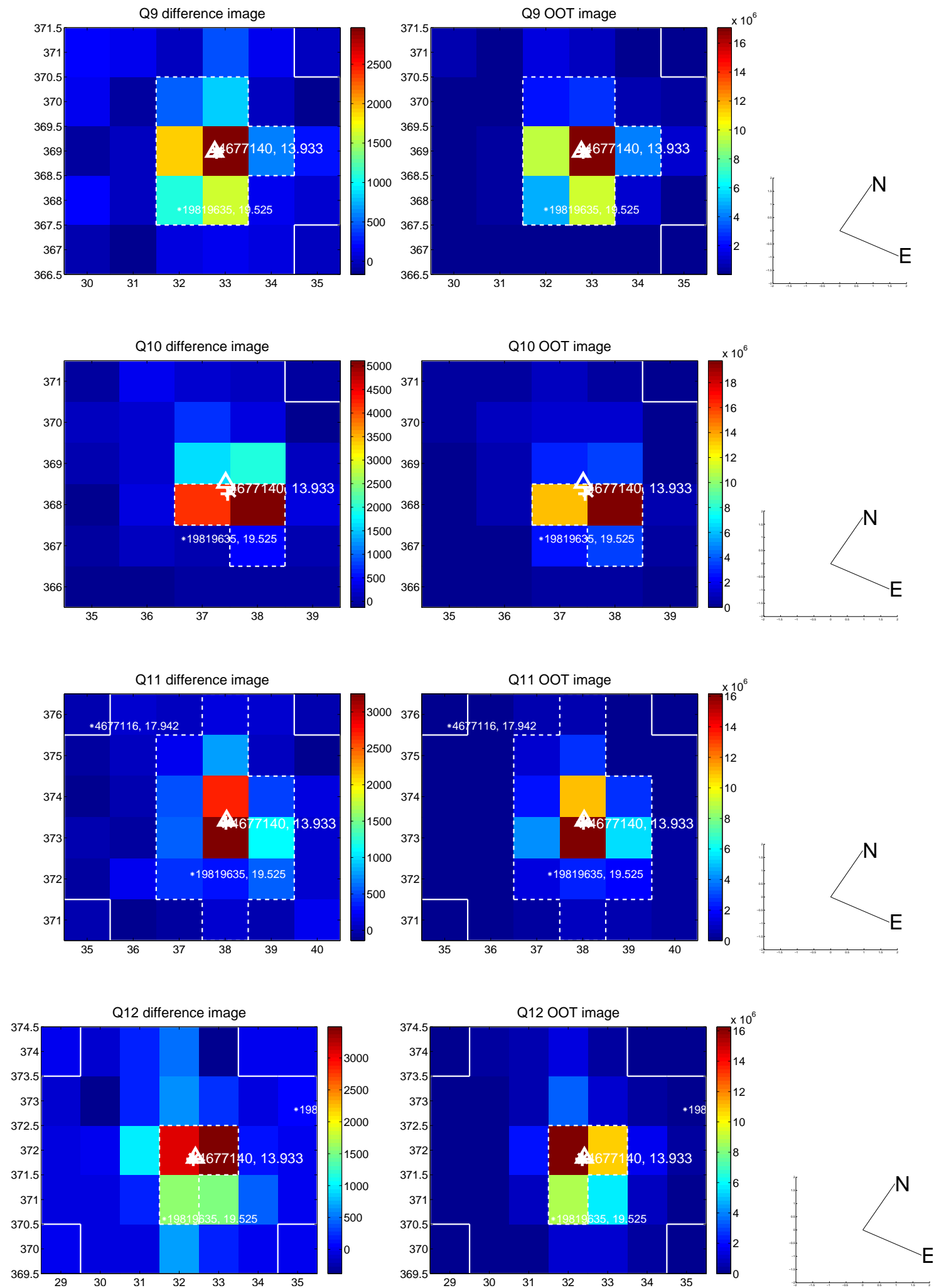


white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.

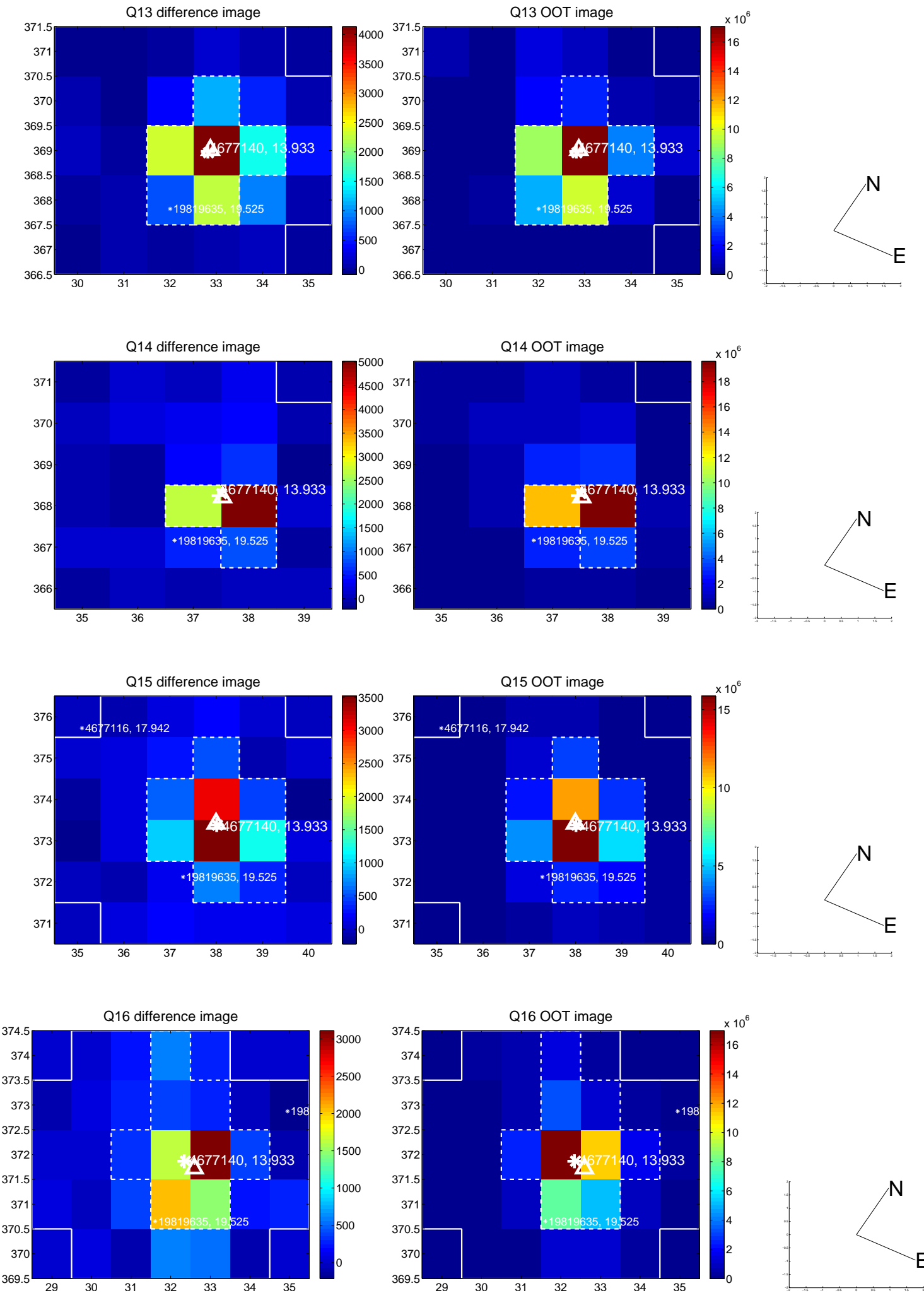




white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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





UKIRT Image

Declination

