

# KIC 010425482

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
010425482-01	OBS	No	0.554493	131.732970	39.7	5.493	8.4	11.7	1.10	5791	0.69	7017.54

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
010425482-01	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_ALT—CENT_FEW_DIFFS

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

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

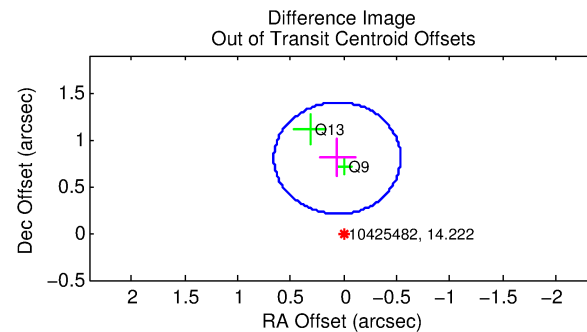
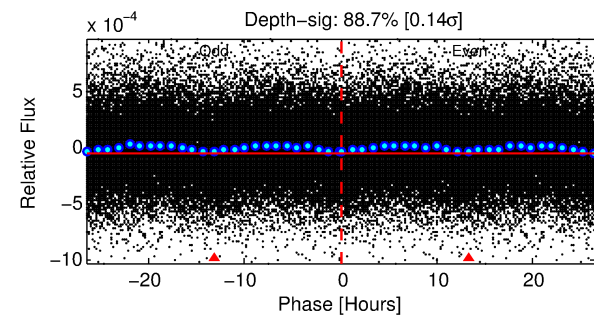
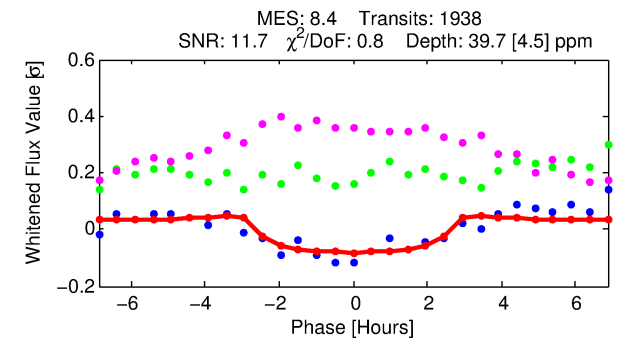
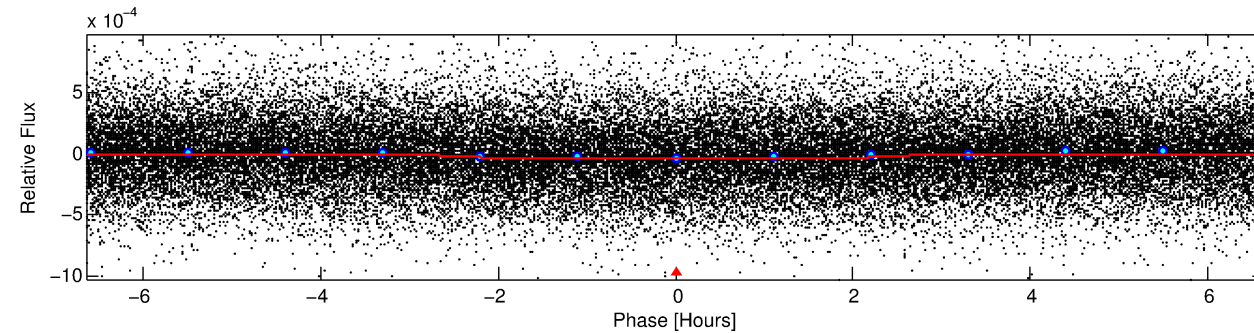
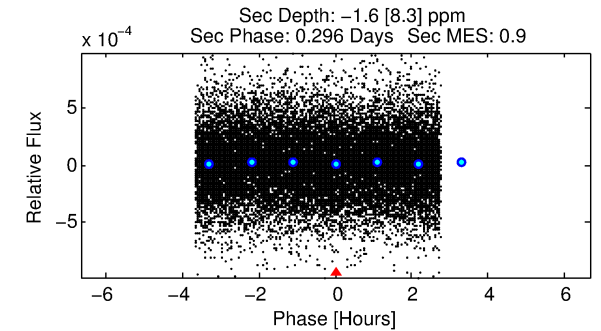
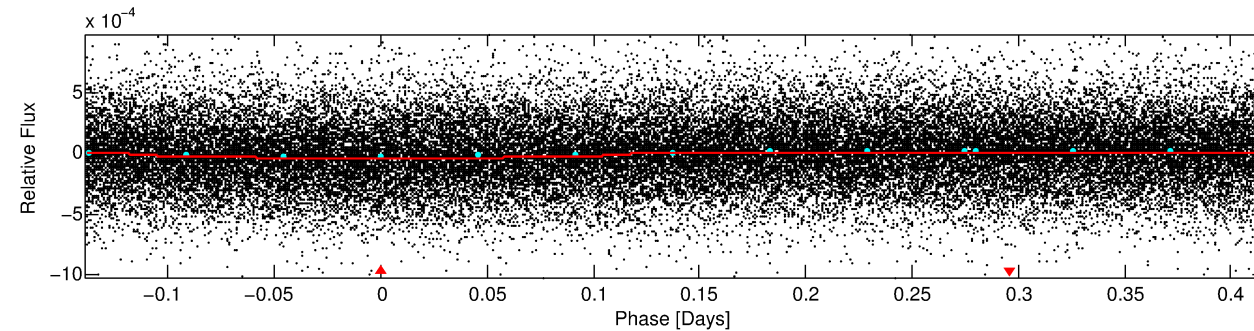
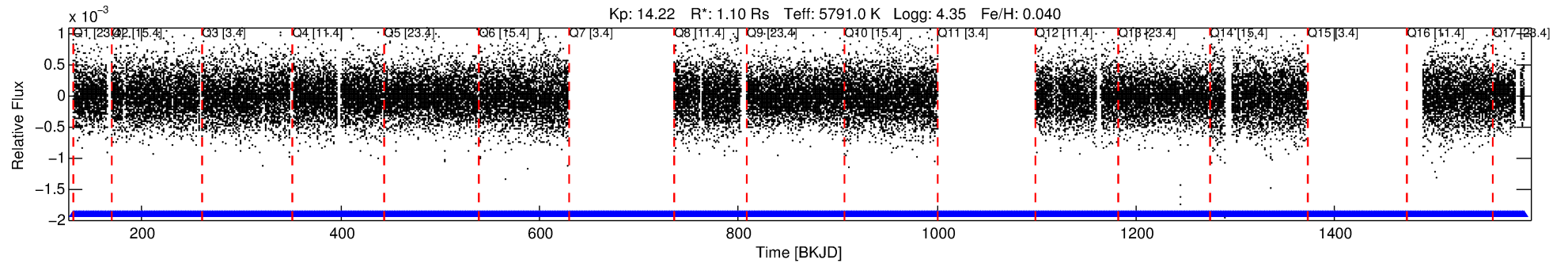
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

## Ephemeris Match Information For 010425482-01

No Significant Match Found

# DV One-Page Summary

KIC: 10425482 Candidate: 1 of 1 Period: 0.554 d



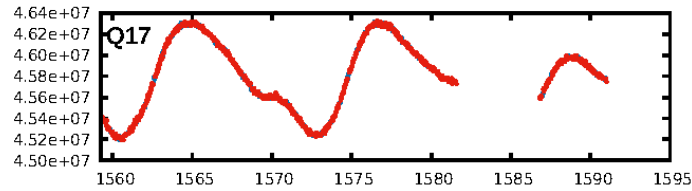
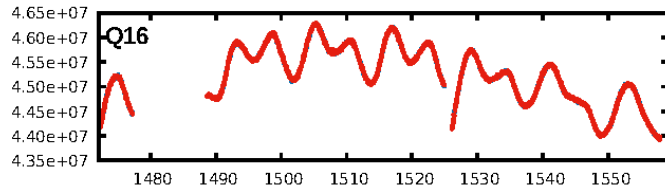
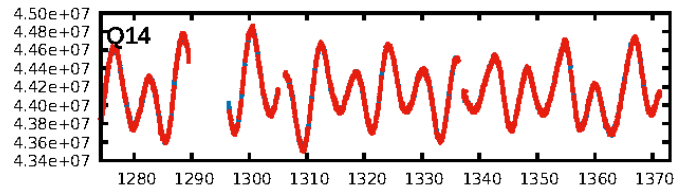
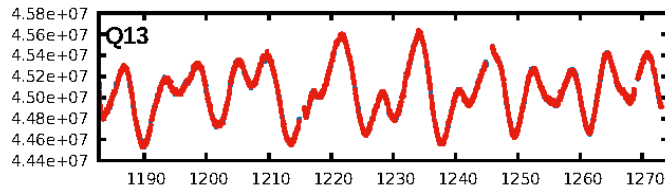
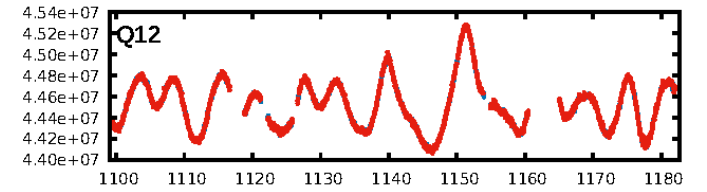
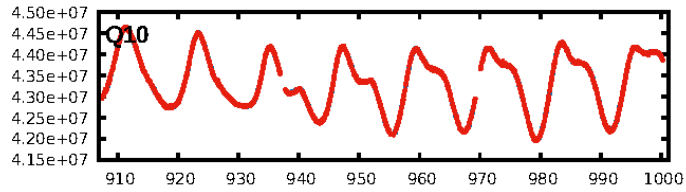
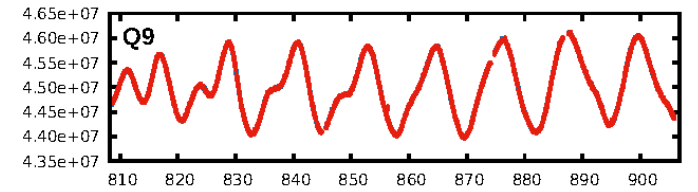
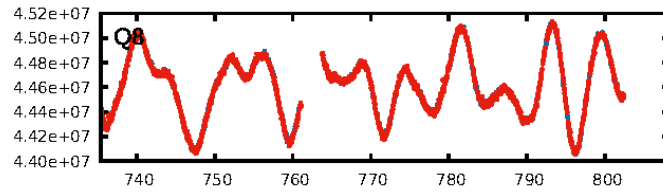
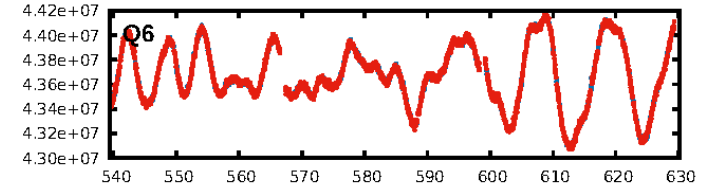
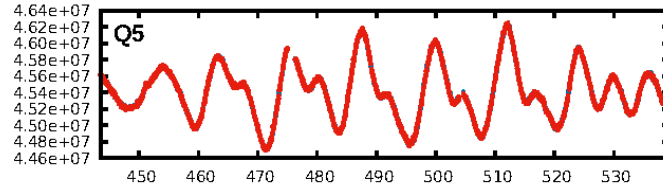
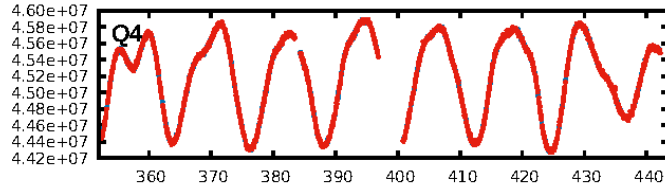
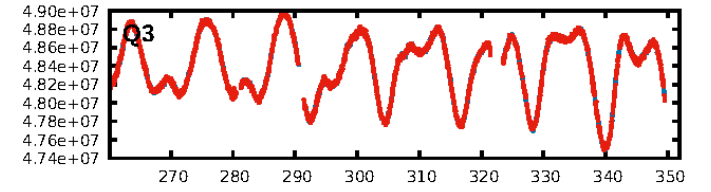
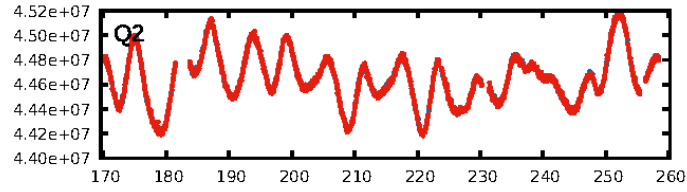
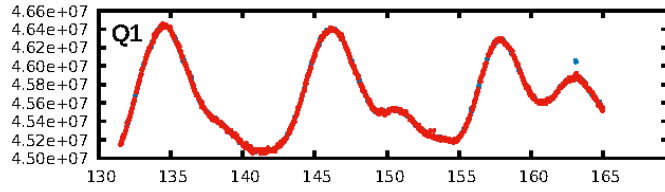
## DV Fit Results:

Period = 0.55449 [0.00001] d  
Epoch = 131.7330 [0.0038] BKJD  
Rp/R\* = 0.0057 [0.0049]  
a/R\* = 1.04 [0.31]  
b = 0.09 [43.96]  
Seff = 7017.54 [2482.36]  
Teq = 2334 [206] K  
Rp = 0.68 [0.61] Re  
a = 0.0131 [0.0030] AU  
Ag = N/A  
Teffp = N/A

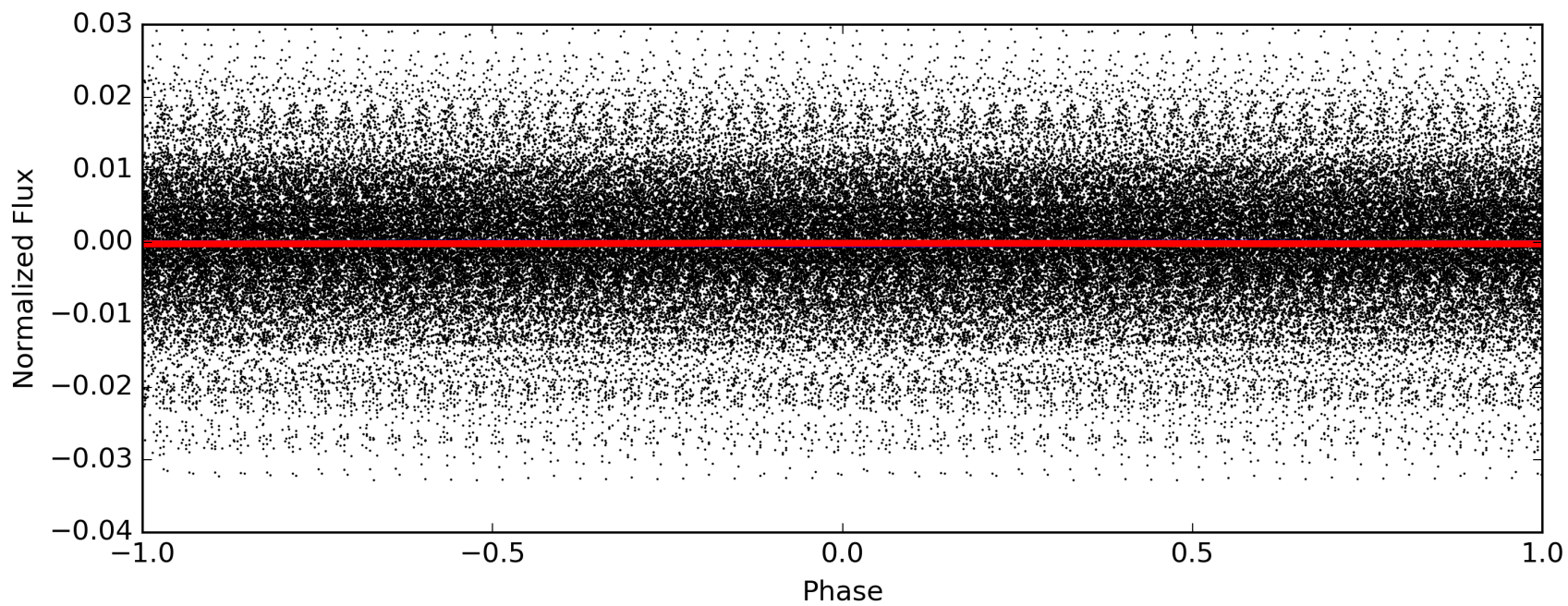
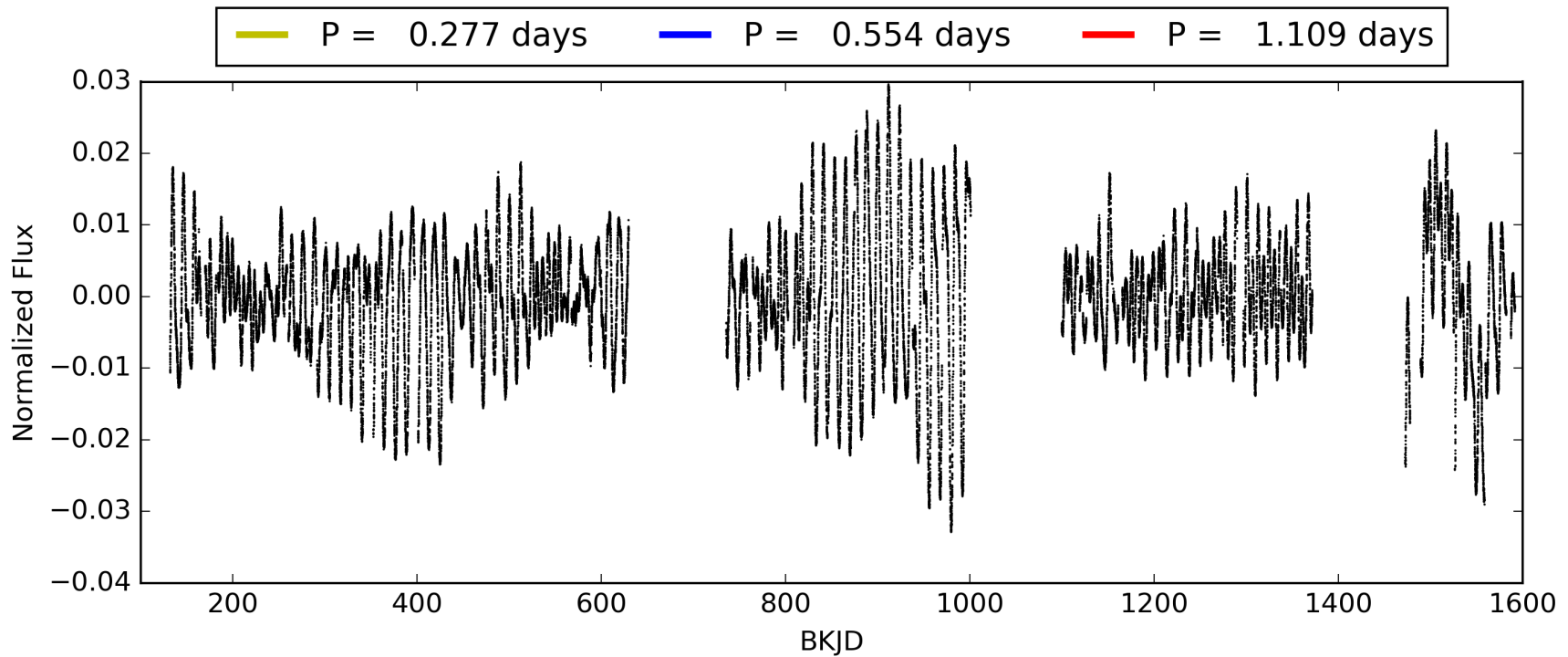
## DV Diagnostic Results:

ShortPeriod-sig: N/A  
LongPeriod-sig: N/A  
ModelChiSquare2-sig: N/A  
ModelChiSquareGof-sig: N/A  
Bootstrap-pfa: N/A  
RollingBand-fgt: 1.00 [1829/1829]  
GhostDiagnostic-chr: 2.512  
Centroid-sig: 0.0%  
Centroid-so: 2.601 arcsec [2.94σ]  
OotOffset-rm: 0.803 arcsec [4.04σ]  
KicOffset-rm: 0.695 arcsec [3.38σ]  
OotOffset-st: 0/0/0/2 [2]  
KicOffset-st: 0/0/0/2 [2]  
DiffImageQuality-fgm: 1.00 [2/2]  
DiffImageOverlap-fno: 1.00 [14/14]

# TCE 010425482-01, PDC Light Curves

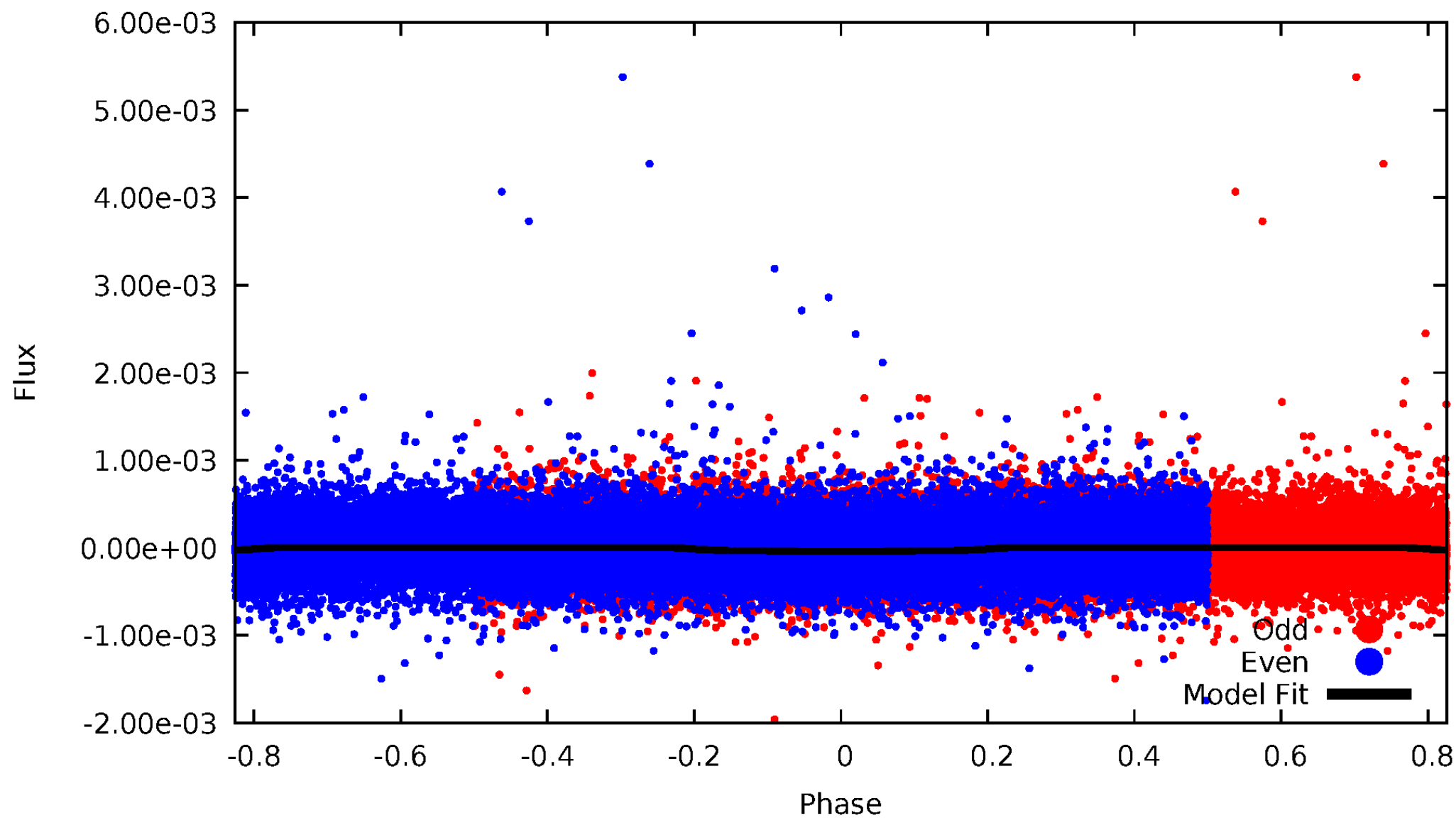


TCE 010425482-01



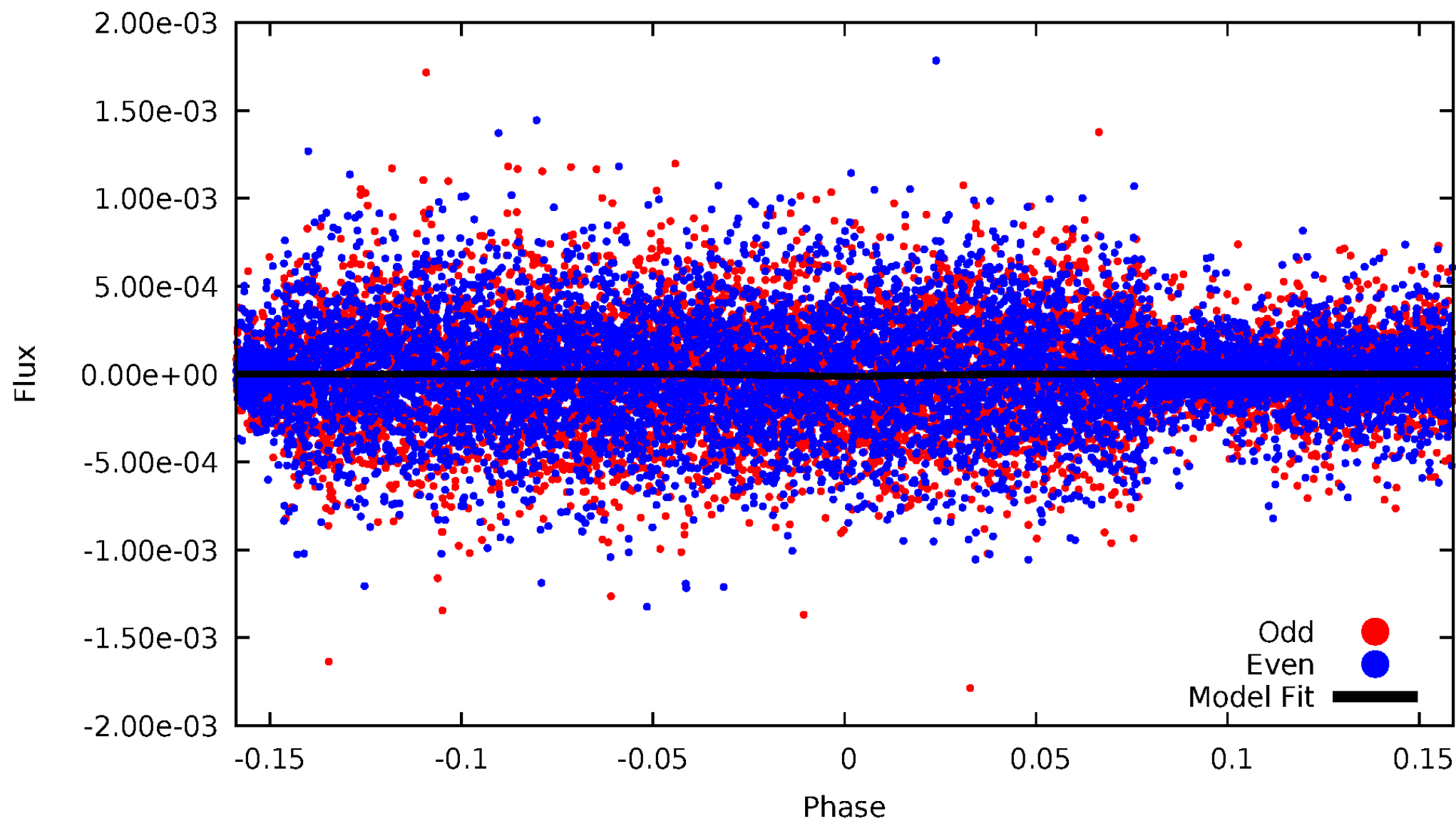
# DV Odd/Even

TCE 010425482-01



# ALT Odd/Even

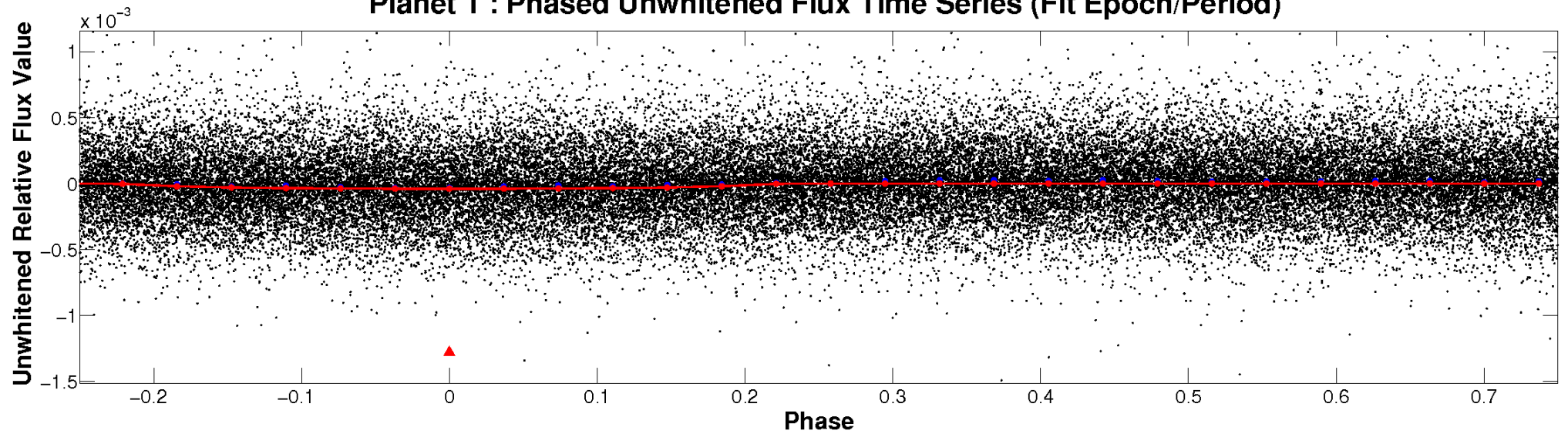
TCE 010425482-01



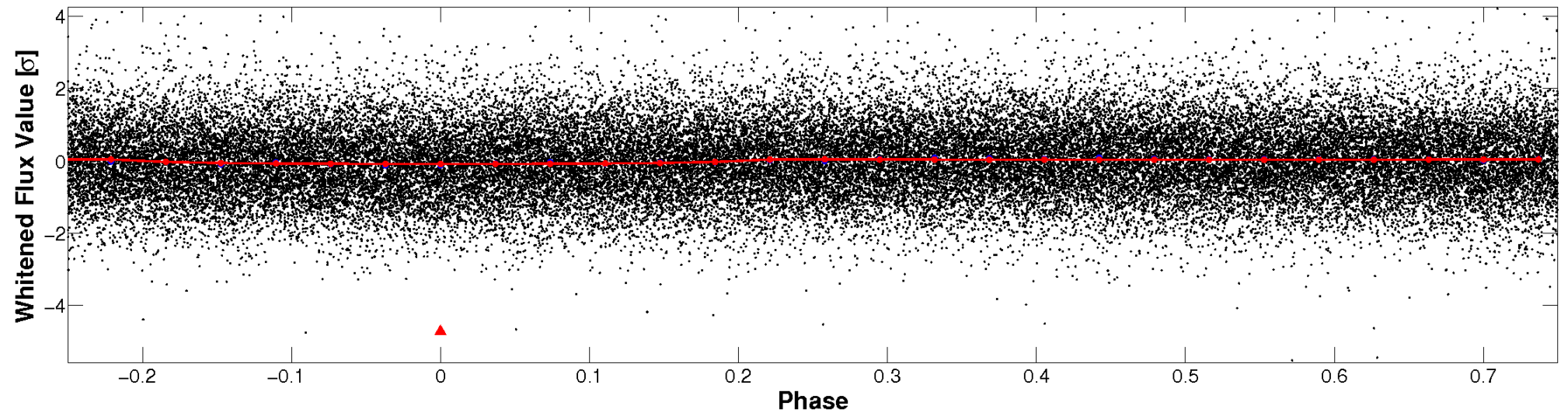


# Non-Whitened Vs. Whitened Light Curve

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

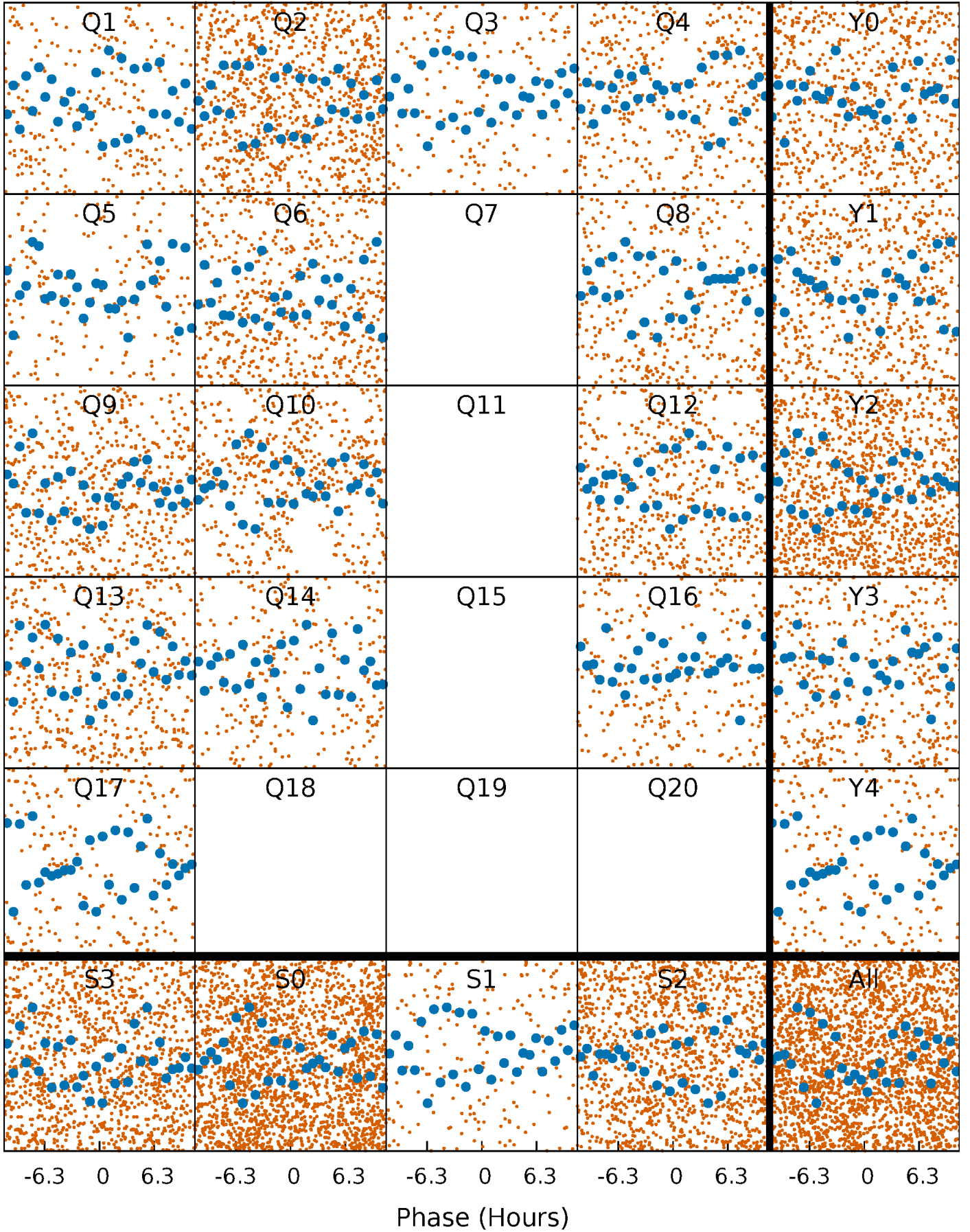


**Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)**



# PDC Quarter-Phased Transit Curves

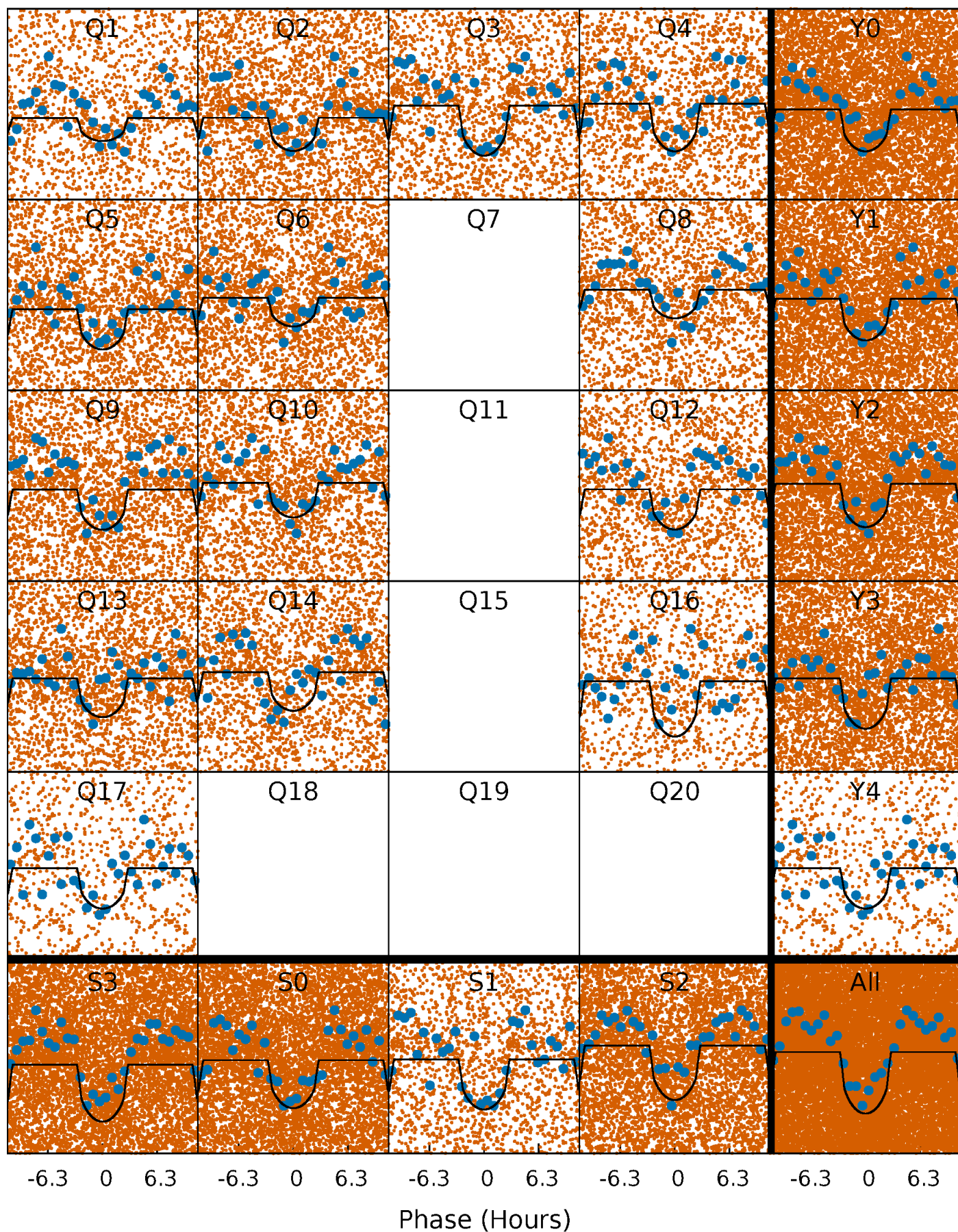
TCE 010425482-01 P= 0.554493 Days  $T_0=131.732970$  (BKJD)





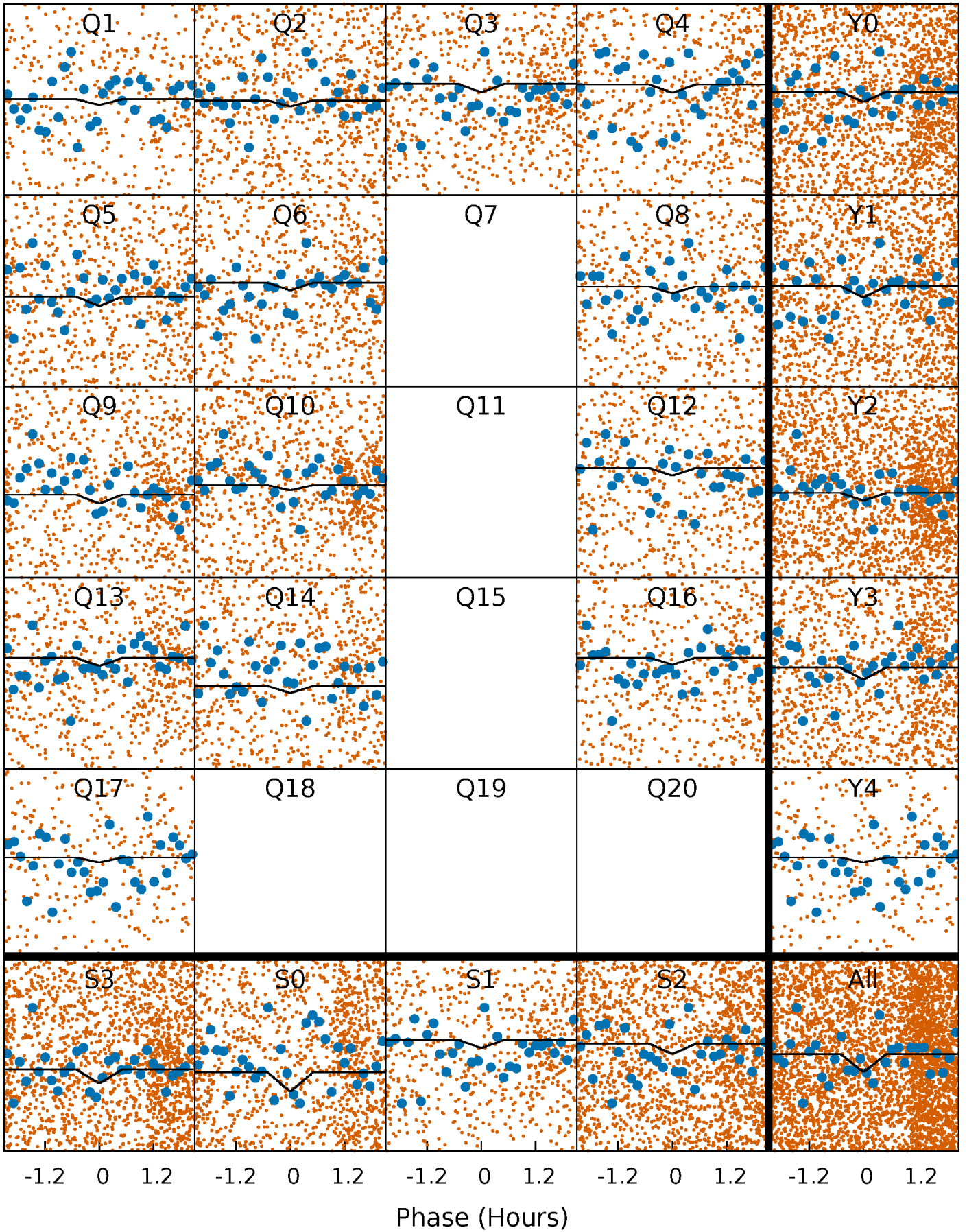
# DV Quarter-Phased Transit Curves

TCE 010425482-01   P= 0.554493 Days    $T_0=131.732970$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

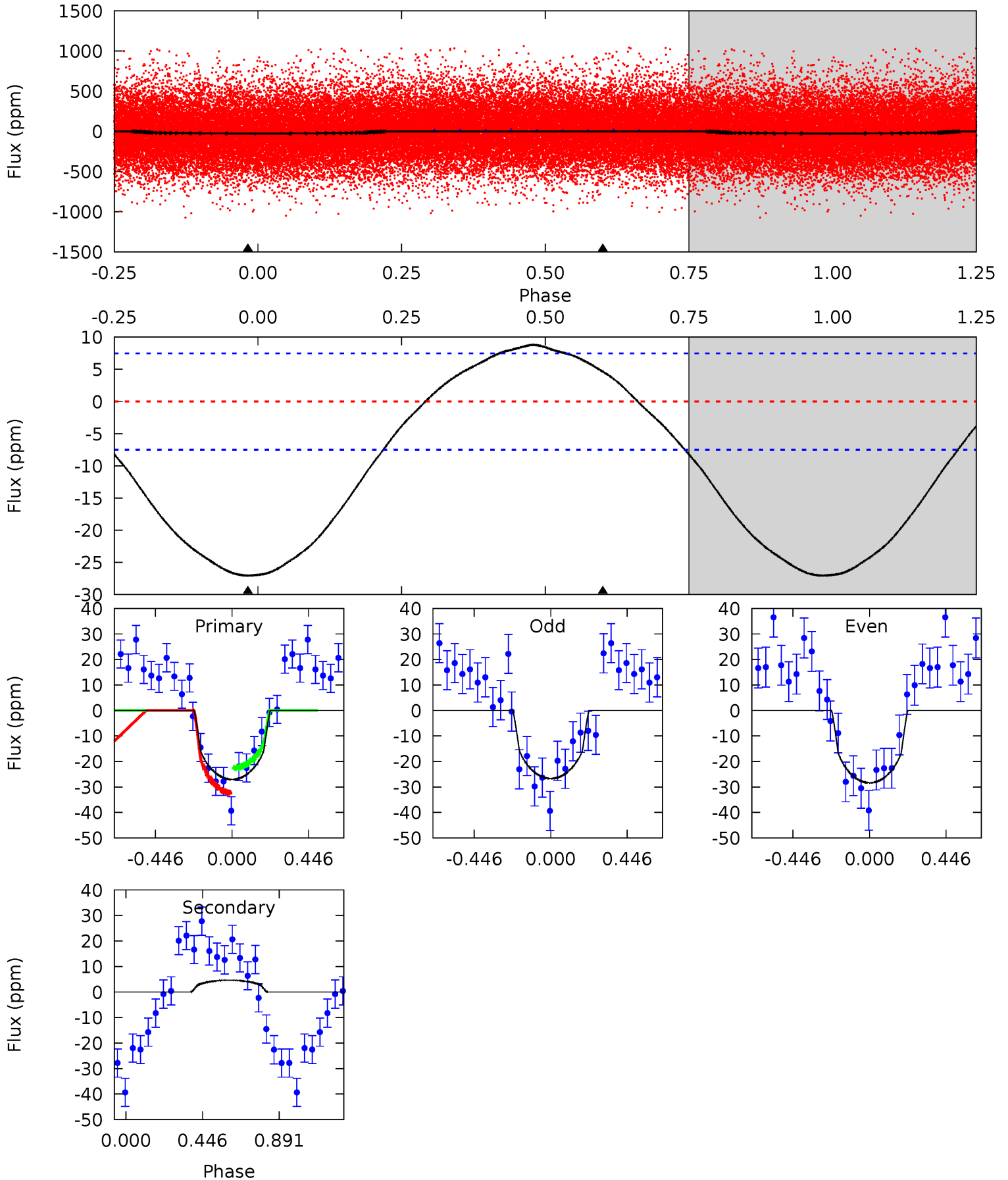
TCE 010425482-01   P= 0.554467 Days    $T_0=131.775606$  (BKJD)



# DV Model-Shift Uniqueness Test

010425482-01, P = 0.554493 Days, E = 131.178477 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
15.3	-2.63	0	0	4.24	0.76	1.41	15.3	15.3	-2.63	-2.63	0.48	0.87	0.25	2.77

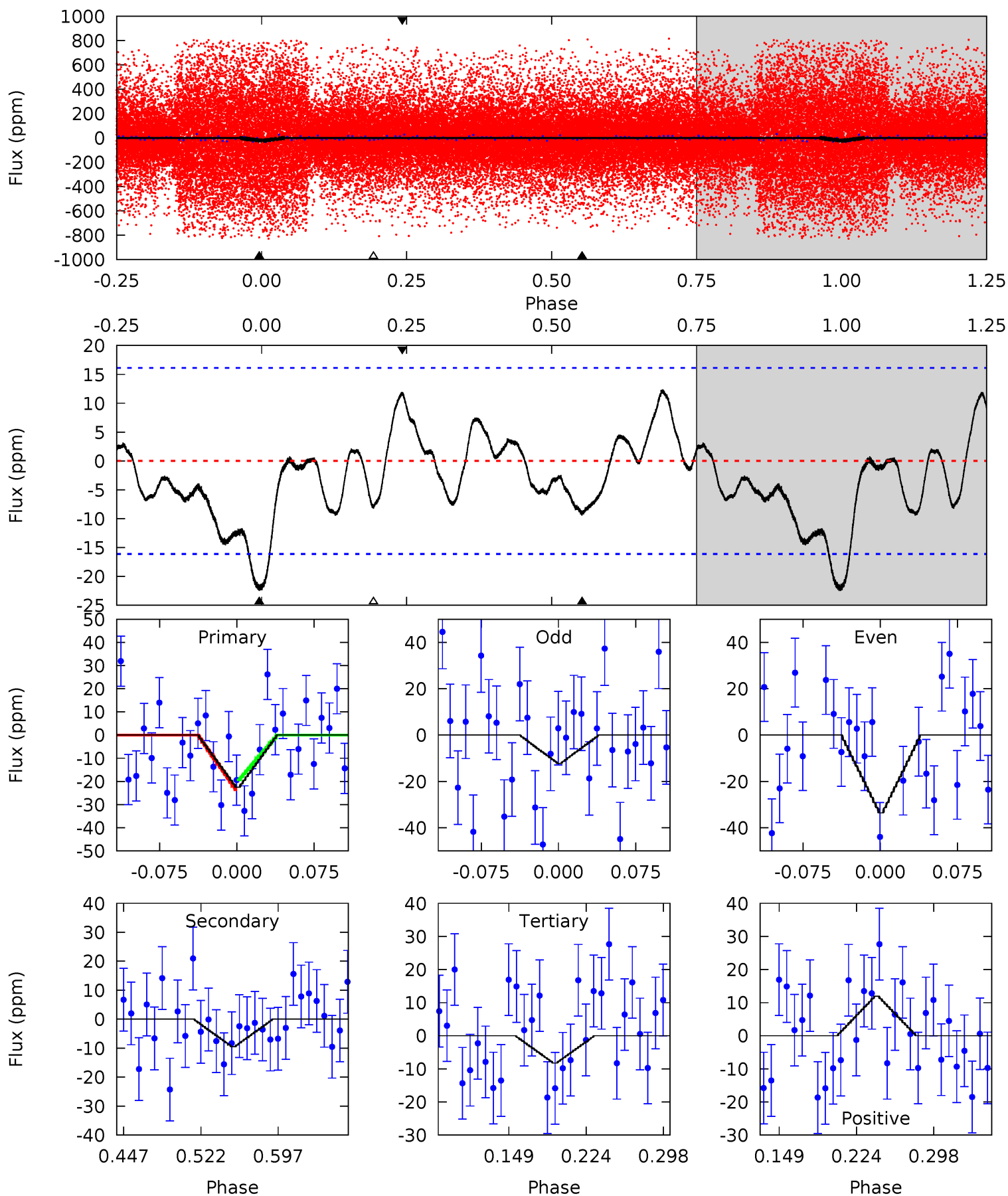




# Alt Model-Shift Uniqueness Test

010425482-01, P = 0.554467 Days, E = 131.221139 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
6.47	2.72	2.37	3.43	4.63	1.78	1.52	4.10	3.04	0.35	-0.70	3.07	1.24	0.35	0.63



### Stellar Parameters For KIC 010425482

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	$5791^{+156}_{-173}$	$4.351^{+0.132}_{-0.182}$	$0.040^{+0.250}_{-0.300}$	$1.097^{+0.298}_{-0.199}$	$0.983^{+0.125}_{-0.102}$	$1.049^{+0.645}_{-0.544}$
	+3%/-3%	+3%/-4%	+625%/-750%	+27%/-18%	+13%/-10%	+62%/-52%
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 010425482-01 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	$A_{obs}$
DV	$5 \pm 2$	$0.80^{+0.56}_{-0.50}$	$3290^{+240}_{-202}$	$-3979^{+432}_{-1562}$	$-0.689^{+0.483}_{-4.368}$
Alt.	$-9 \pm 3$	$0.62^{+0.53}_{-0.42}$	$3281^{+236}_{-192}$	$4464^{+3671}_{-1203}$	$2.334^{+22.001}_{-1.730}$

$T_{max}$  = 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

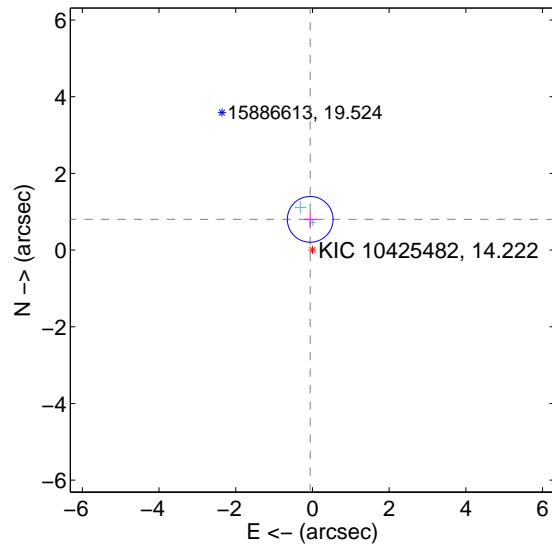
Supplemental centroid analysis for 010425482-01. Kepler magnitude: 14.22. Transit SNR 11.67

There are 2 quarters with good PRF difference image offsets

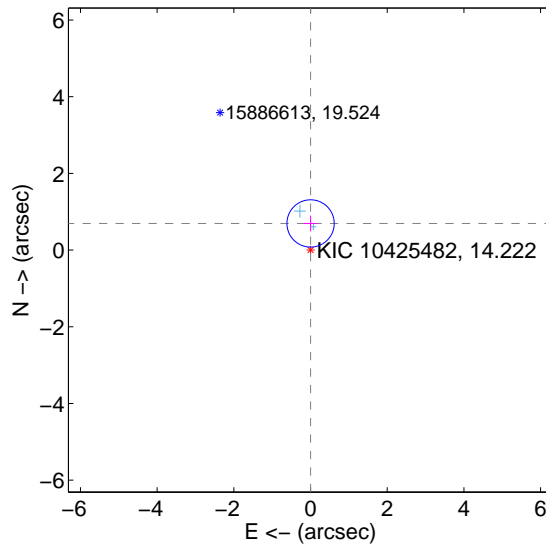
The direct PRF centroid is offset from the target star catalog position by about 0.10 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$0.803 \pm 0.199$	4.04	$0.058 \pm 0.165$	$0.801 \pm 0.199$
PRF-fit source offset from KIC position	$0.695 \pm 0.206$	3.38	$-0.001 \pm 0.177$	$0.695 \pm 0.206$
photometric centroid source offset	$2.60 \pm 0.89$	2.94	$2.45 \pm 0.87$	$-0.87 \pm 0.97$

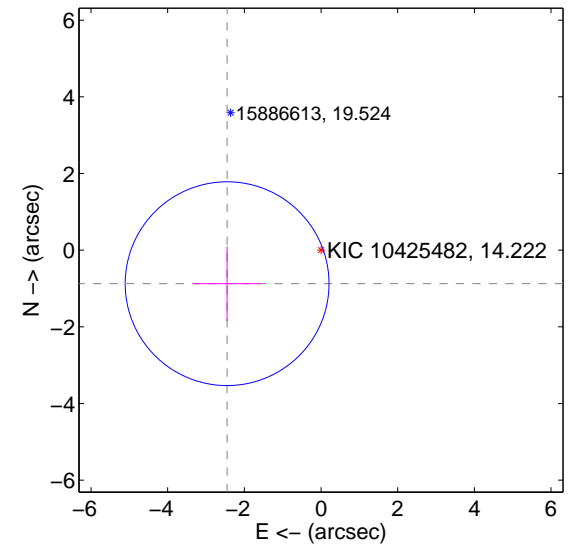
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position

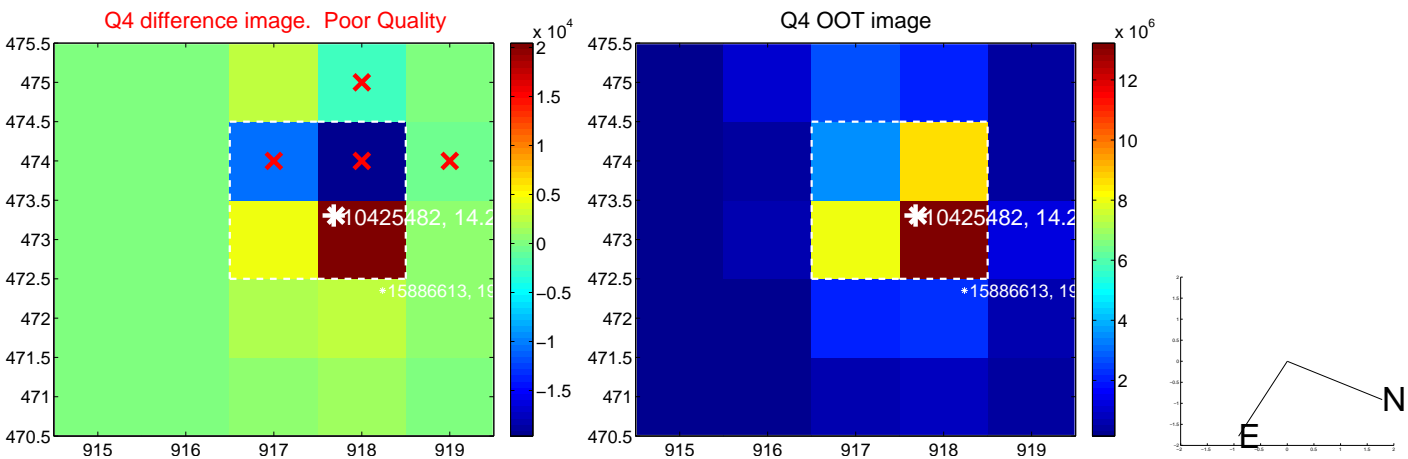
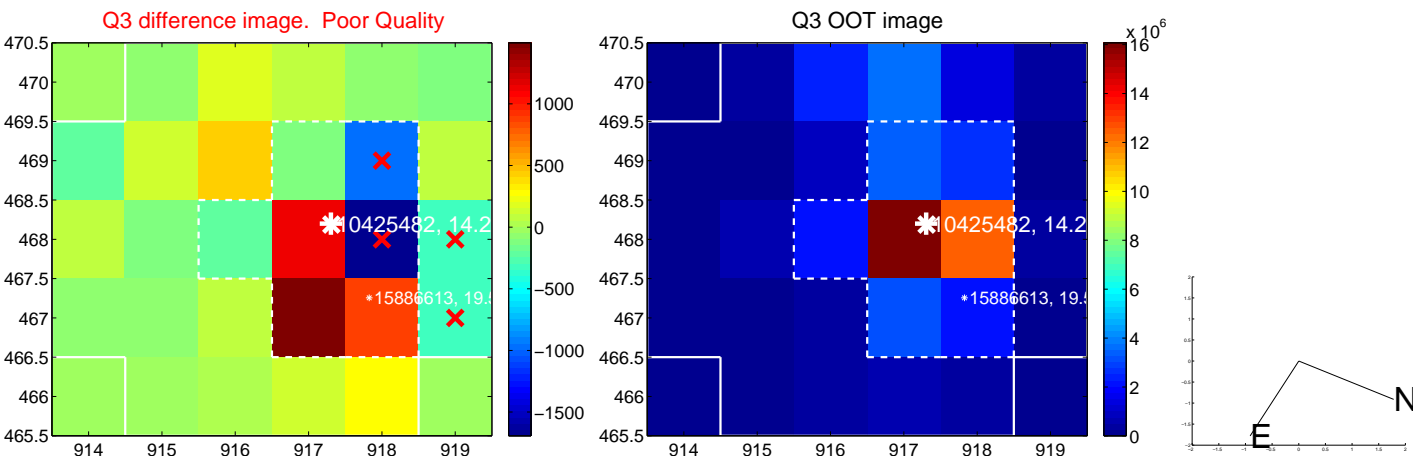
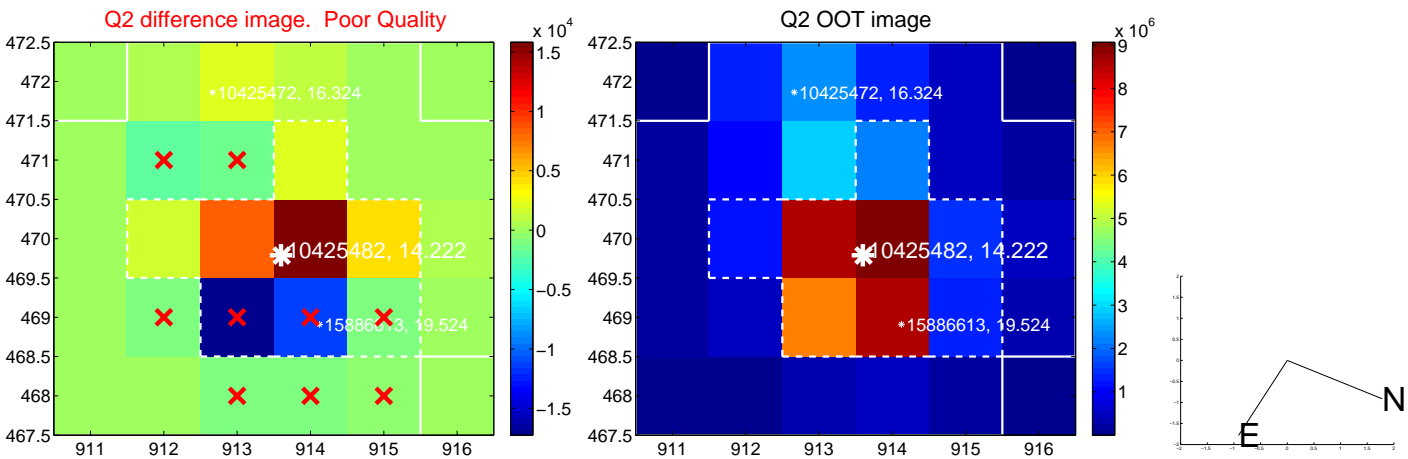
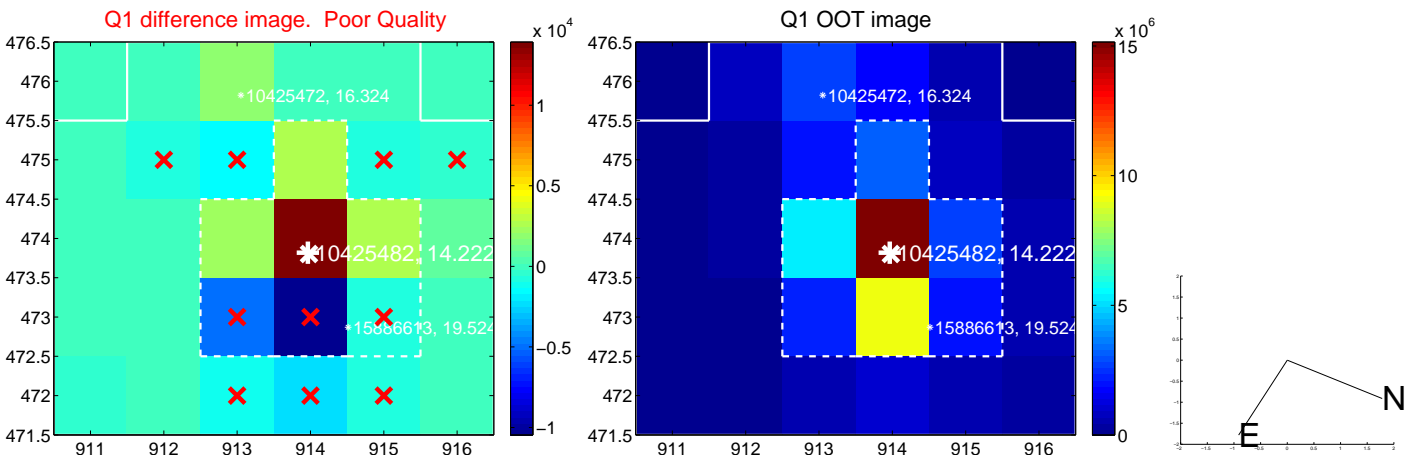


offset from photometric centroids

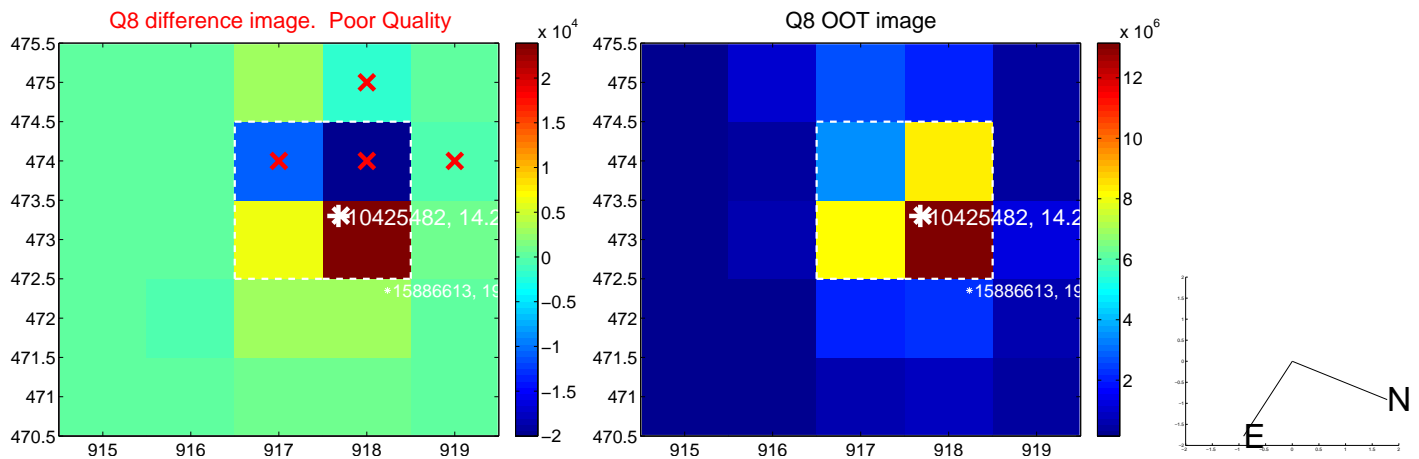
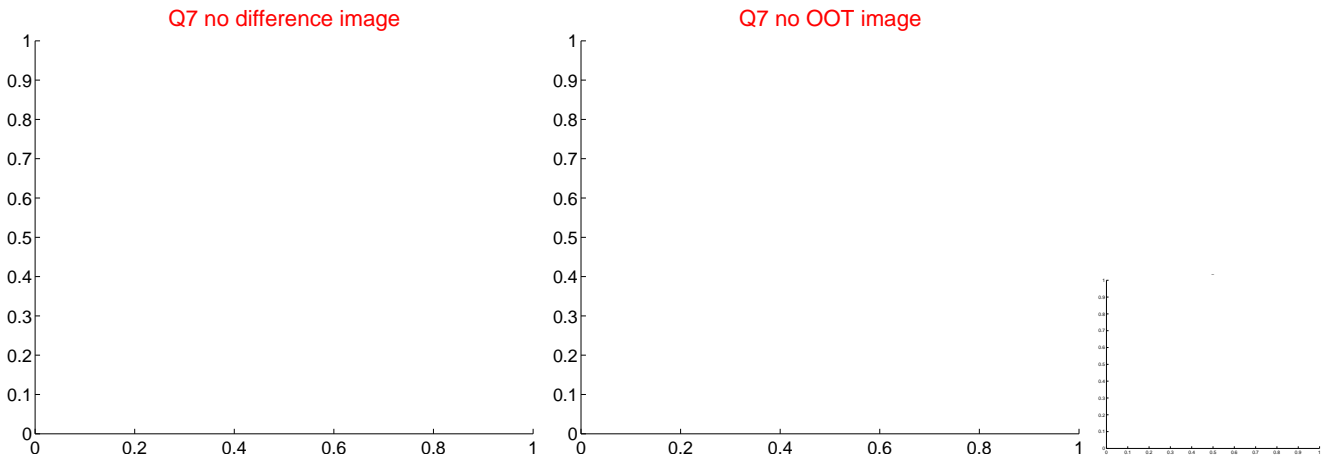
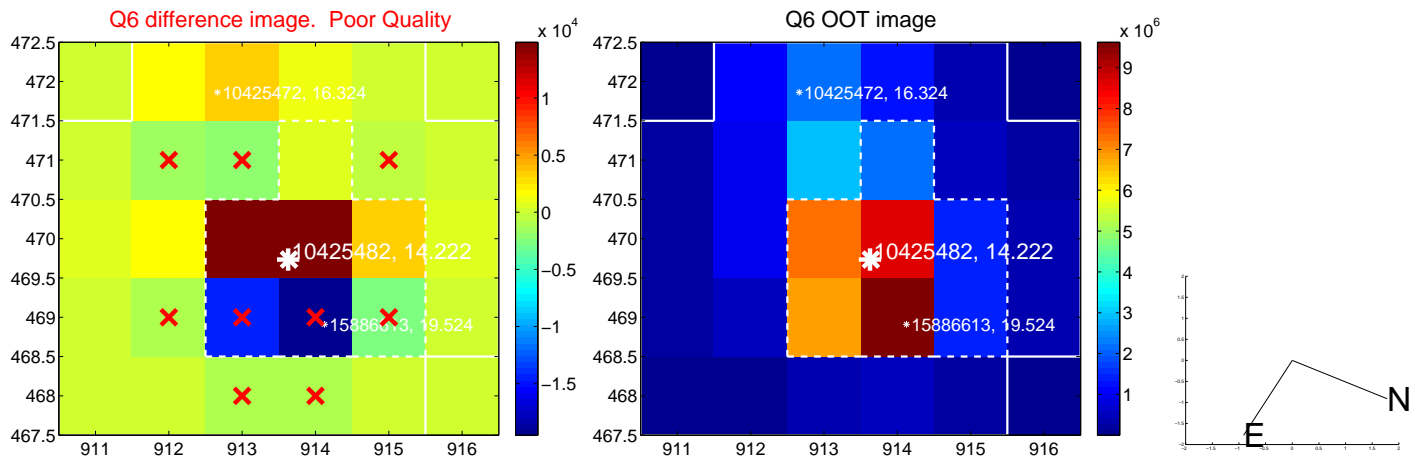
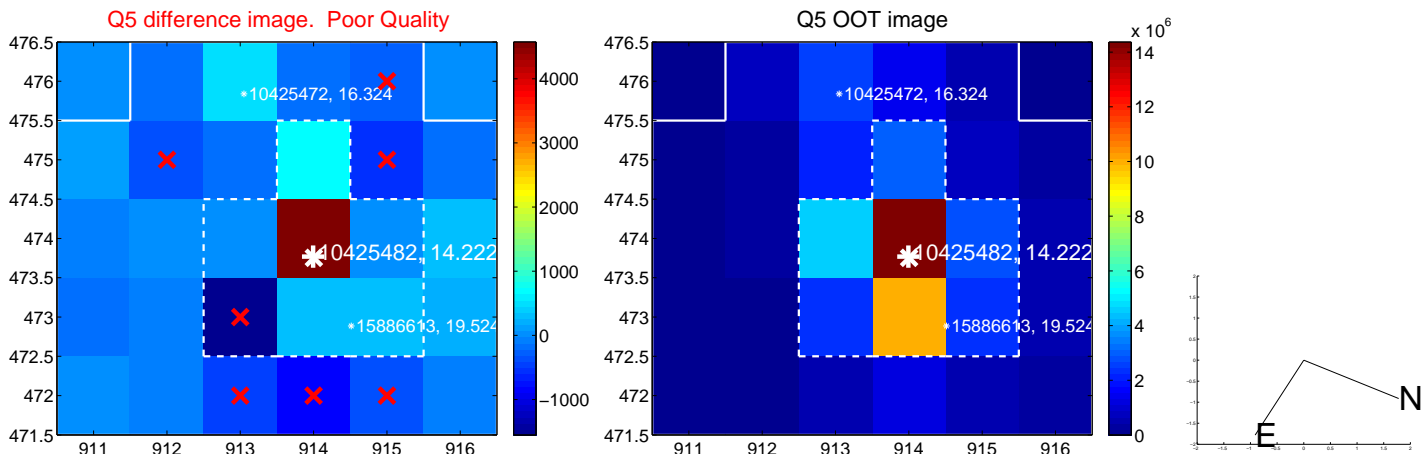


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: three-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

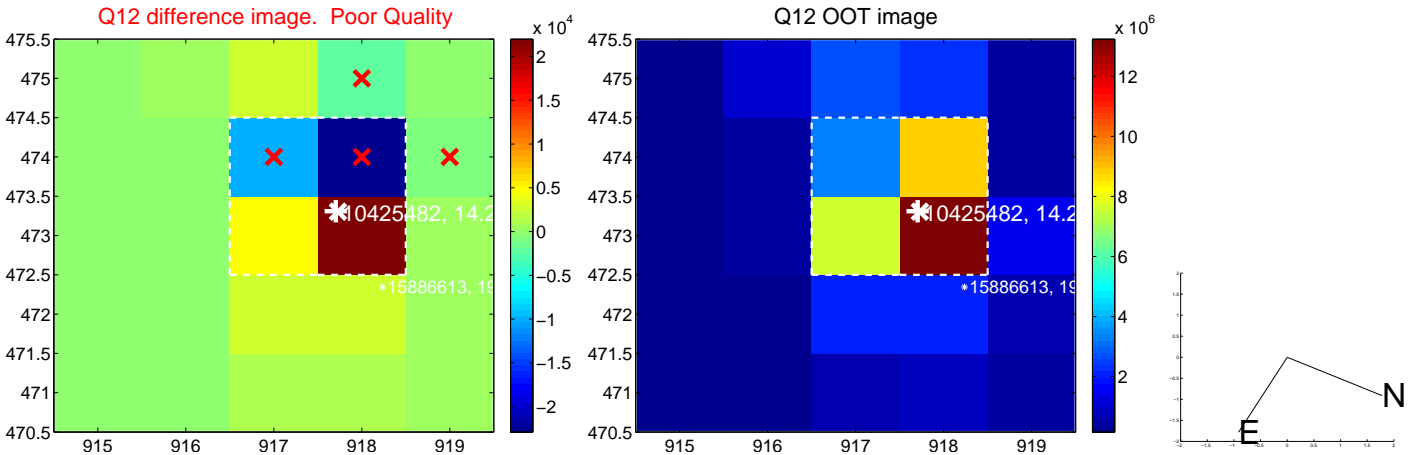
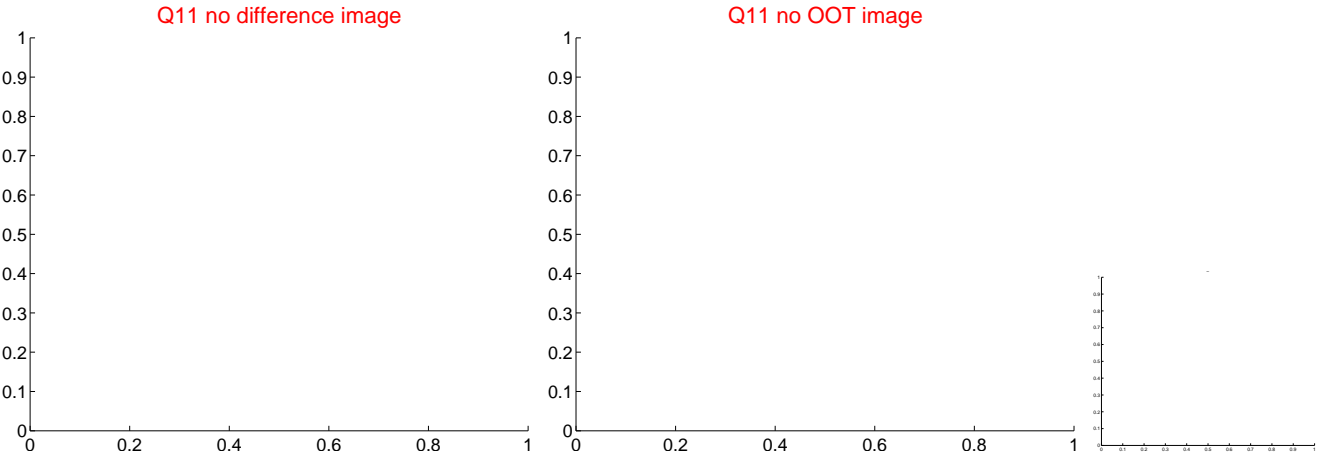
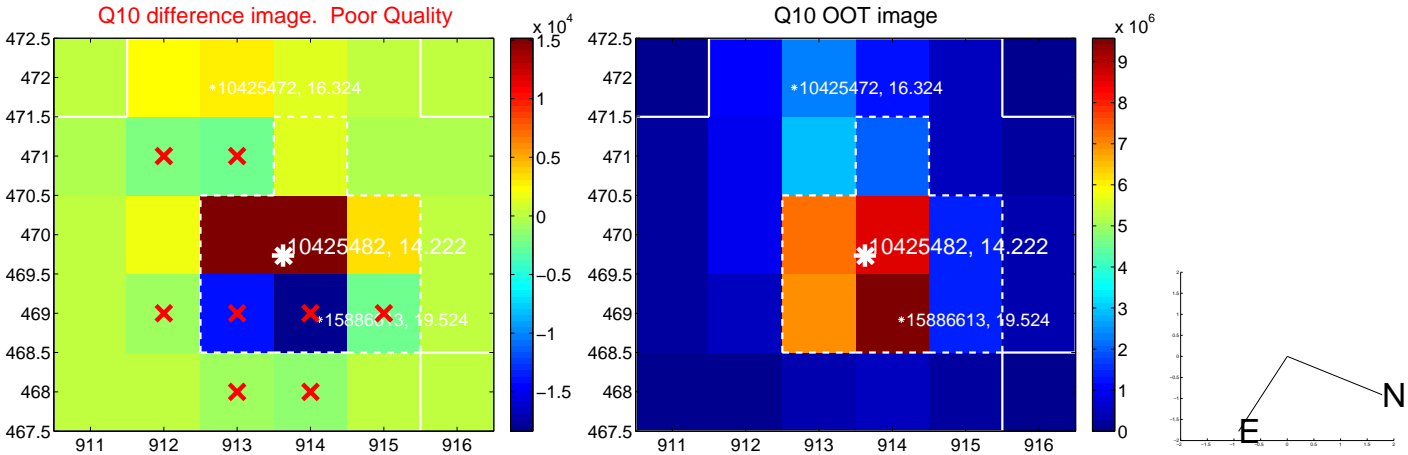
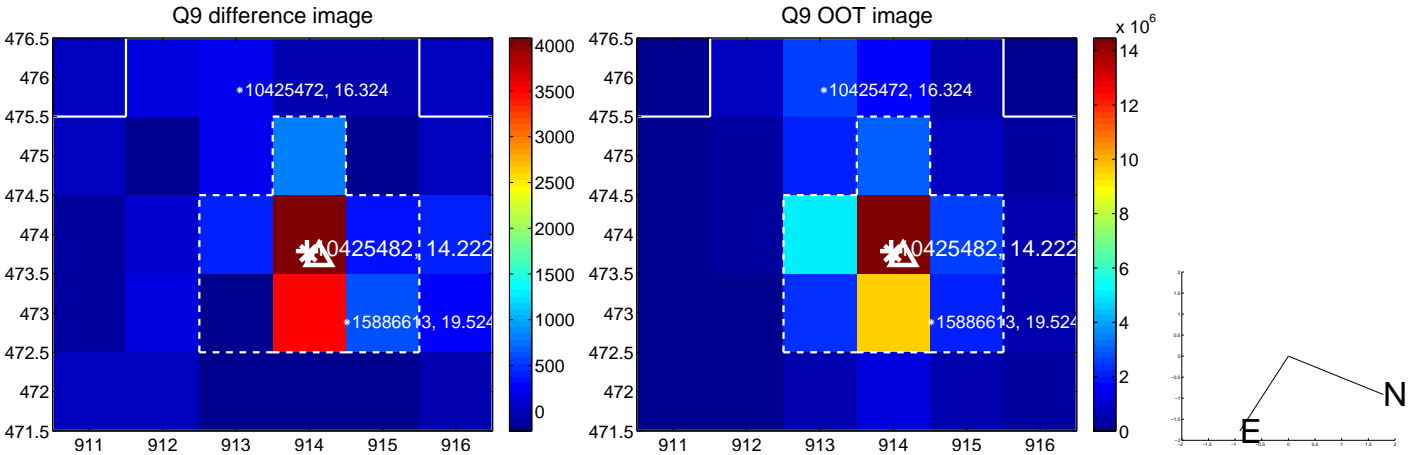
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



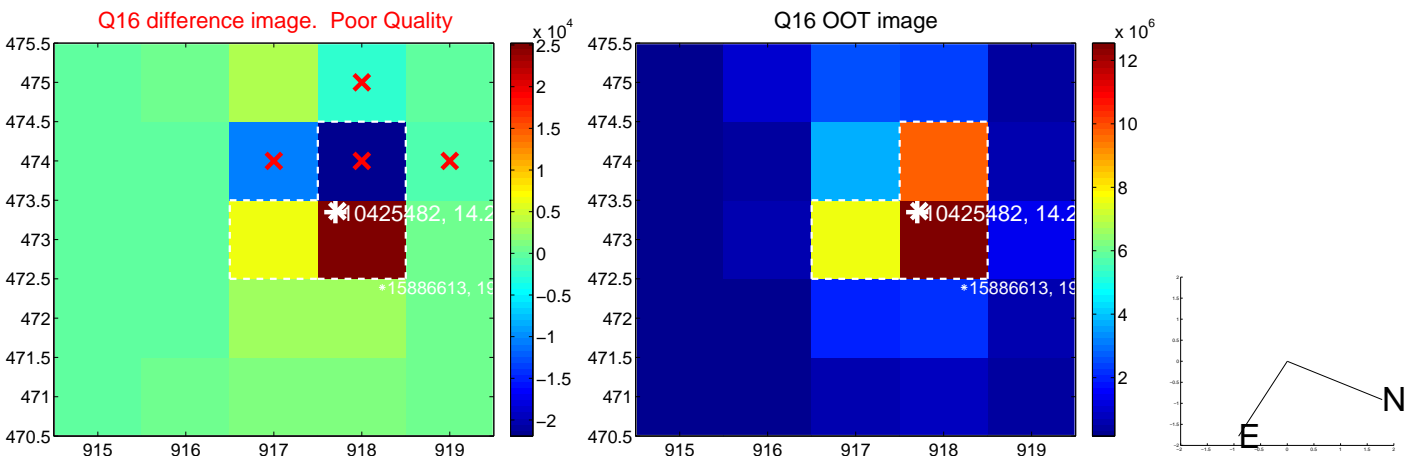
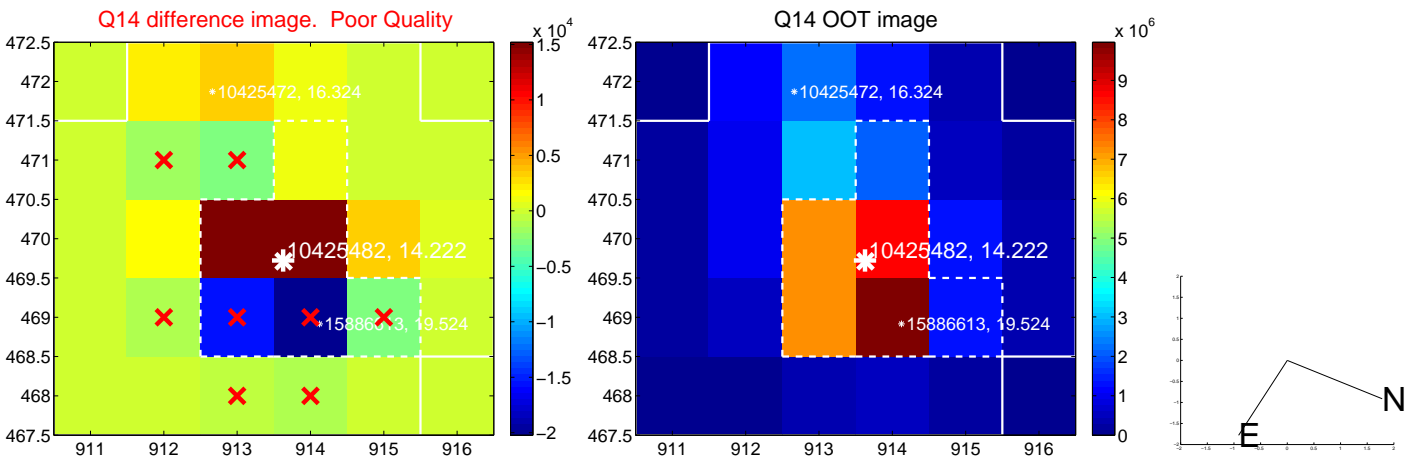
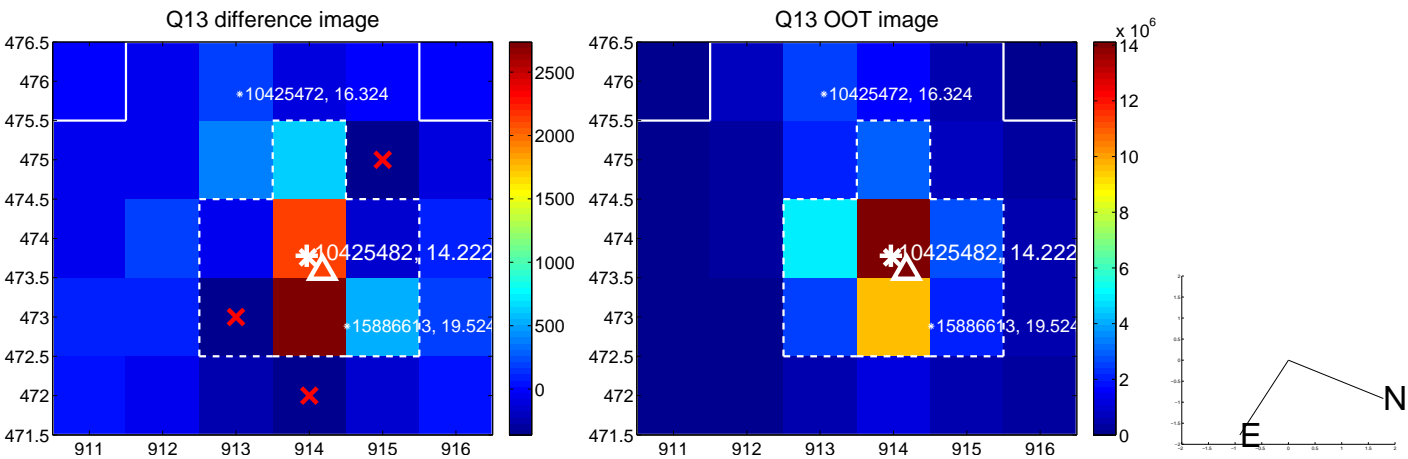
white ×: KIC target position; +: OOT centroid; △: difference centroid. red ×: large negative pixel value.



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

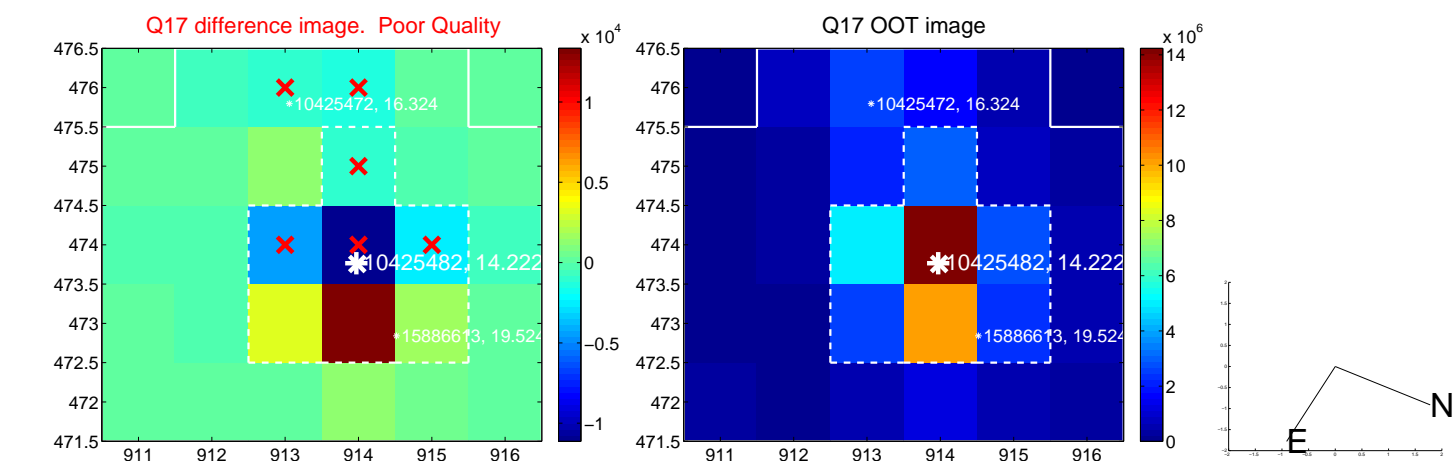


white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.

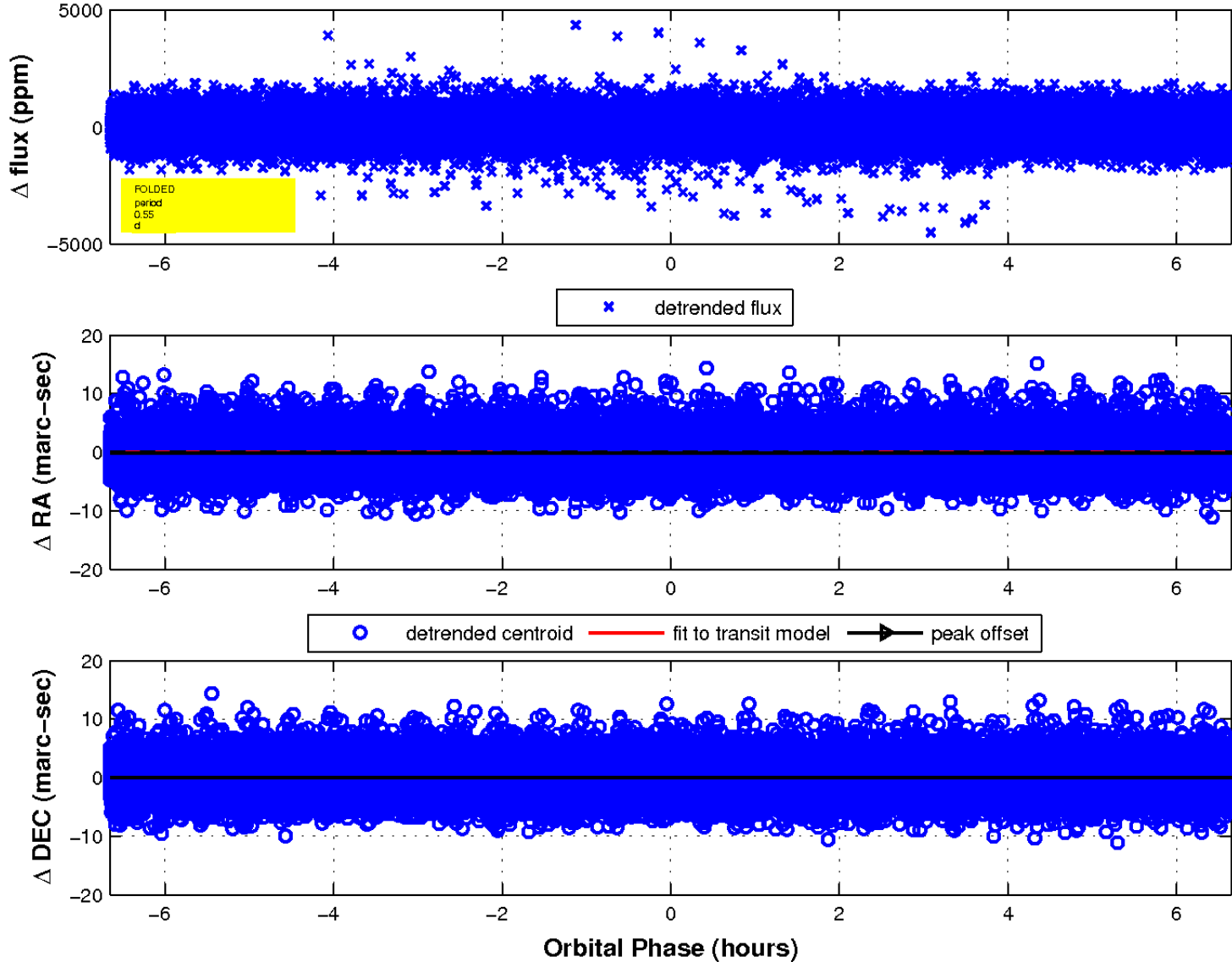




white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



fluxWeightedCentroids, Planet 1 of 1



UKIRT Image

Declination

