

# KIC 010922506

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
010922506-01	OBS	No	8.880587	136.302111	44.5	15.369	8.2	8.3	0.86	5465	0.68	101.31

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
010922506-01	OBS	FP	0.00	1	0	0	0	LPP_DV

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

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

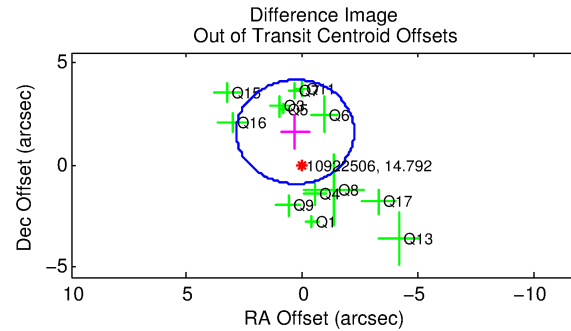
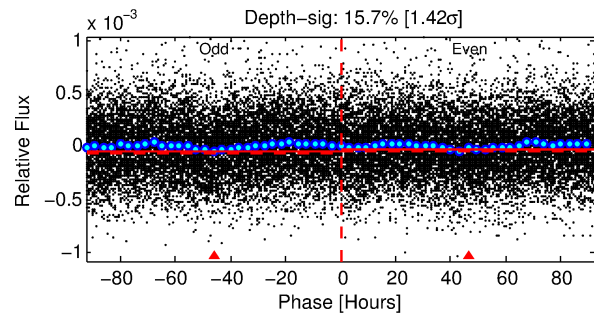
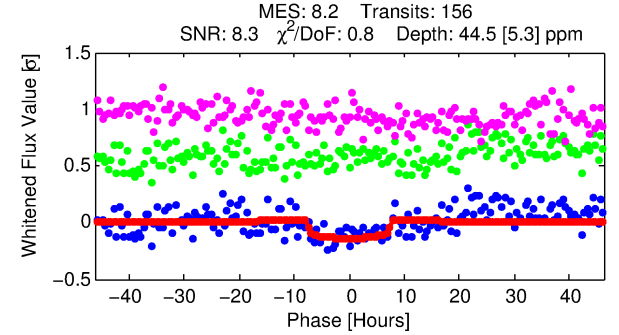
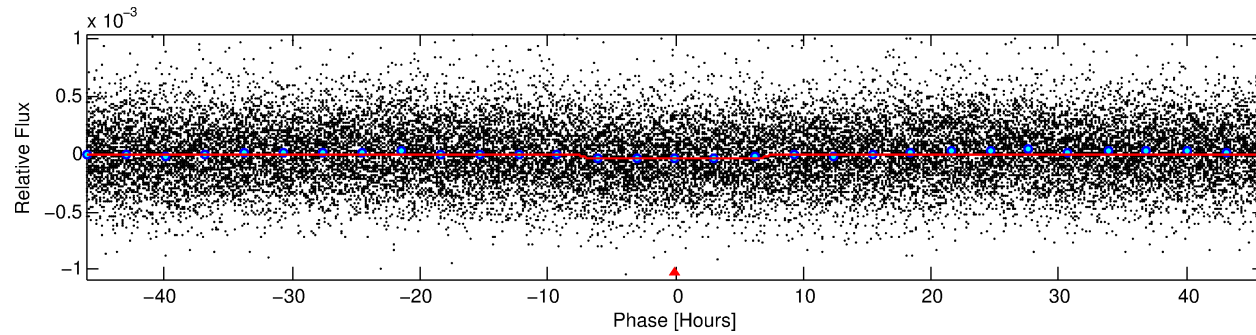
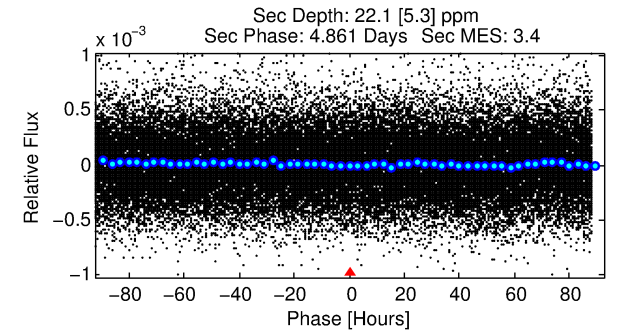
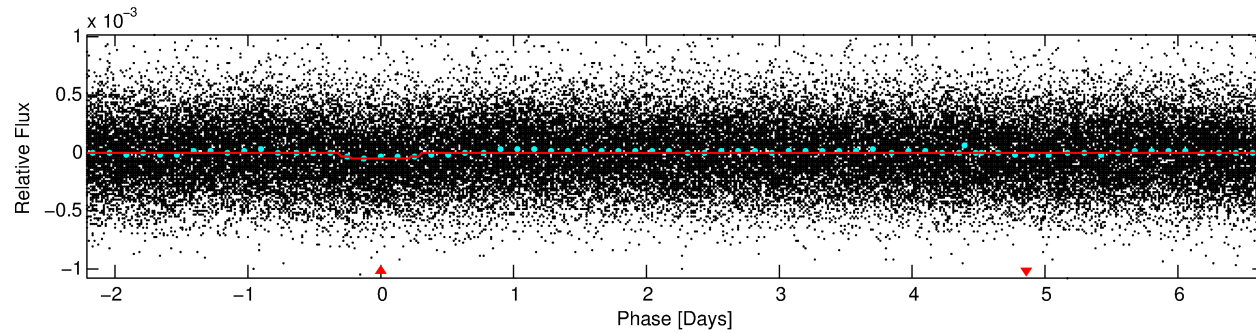
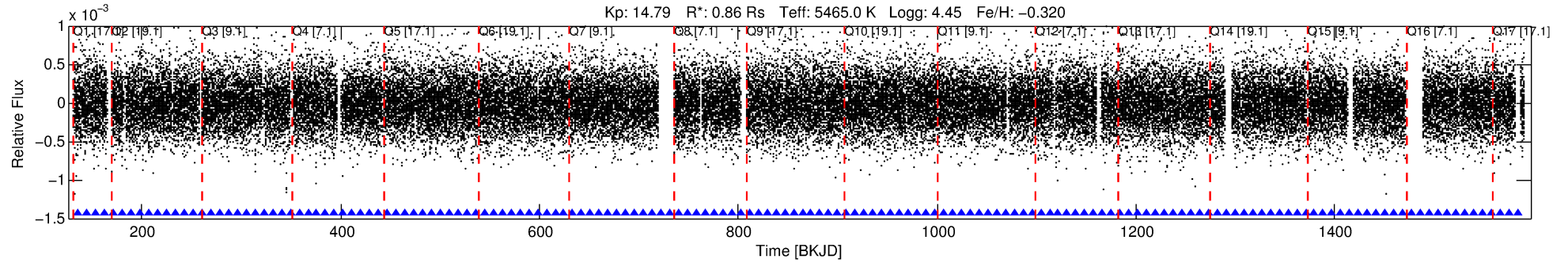
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

Ephemeris Match Information For 010922506-01

No Significant Match Found

# DV One-Page Summary

KIC: 10922506 Candidate: 1 of 1 Period: 8.881 d



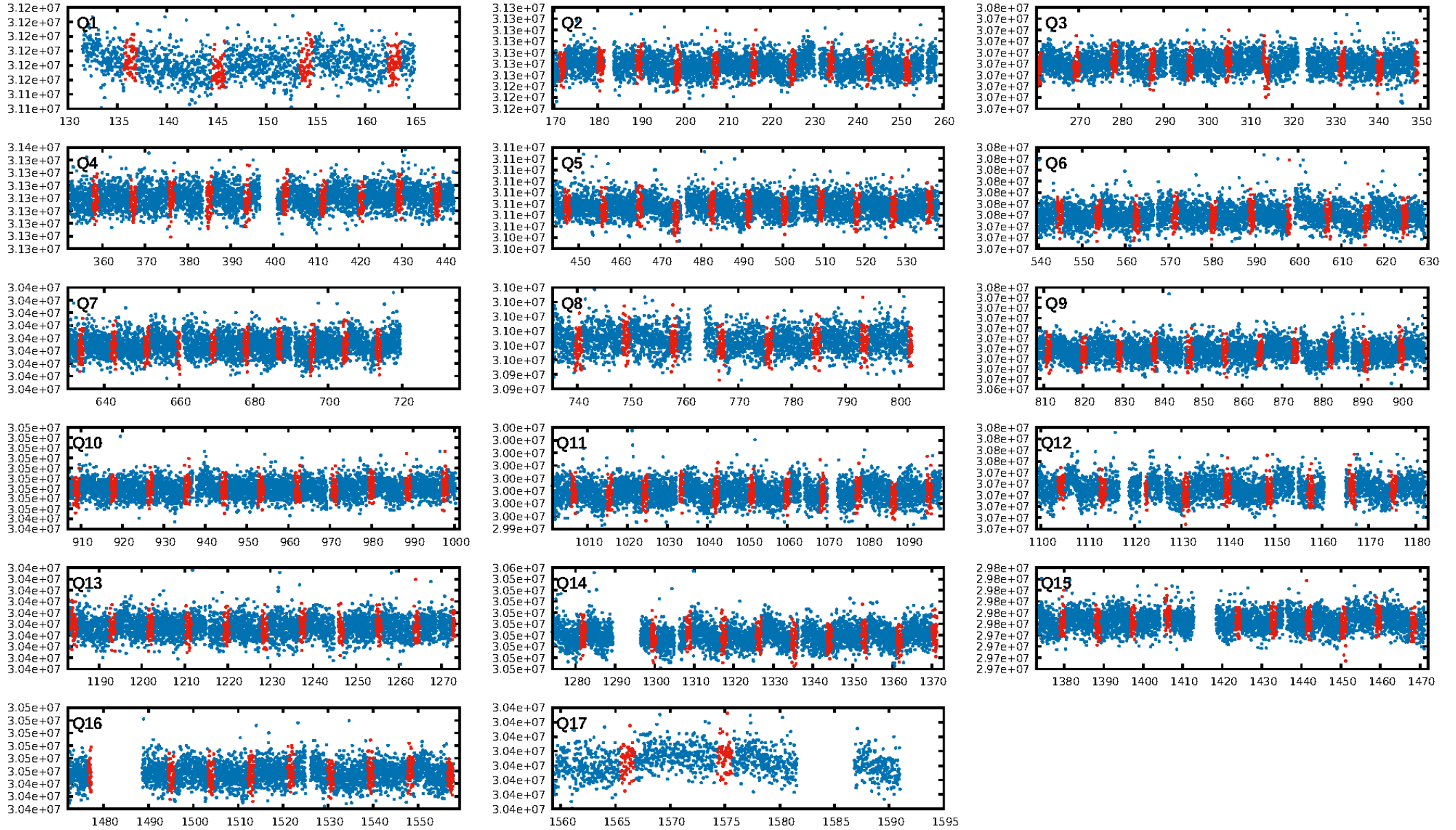
## DV Fit Results:

Period = 8.88059 [0.00027] d  
Epoch = 136.3021 [0.0235] BKJD  
Rp/R\* = 0.0072 [0.0021]  
a/R\* = 2.34 [2.48]  
b = 0.88 [0.33]  
Seff = 101.32 [32.60]  
Teff = 809 [65] K  
Rp = 0.68 [0.24] Re  
a = 0.0767 [0.0149] AU  
Ag = 156.23 [107.98] [1.44 $\sigma$ ]  
Teffp = 4422 [701] K [5.13 $\sigma$ ]

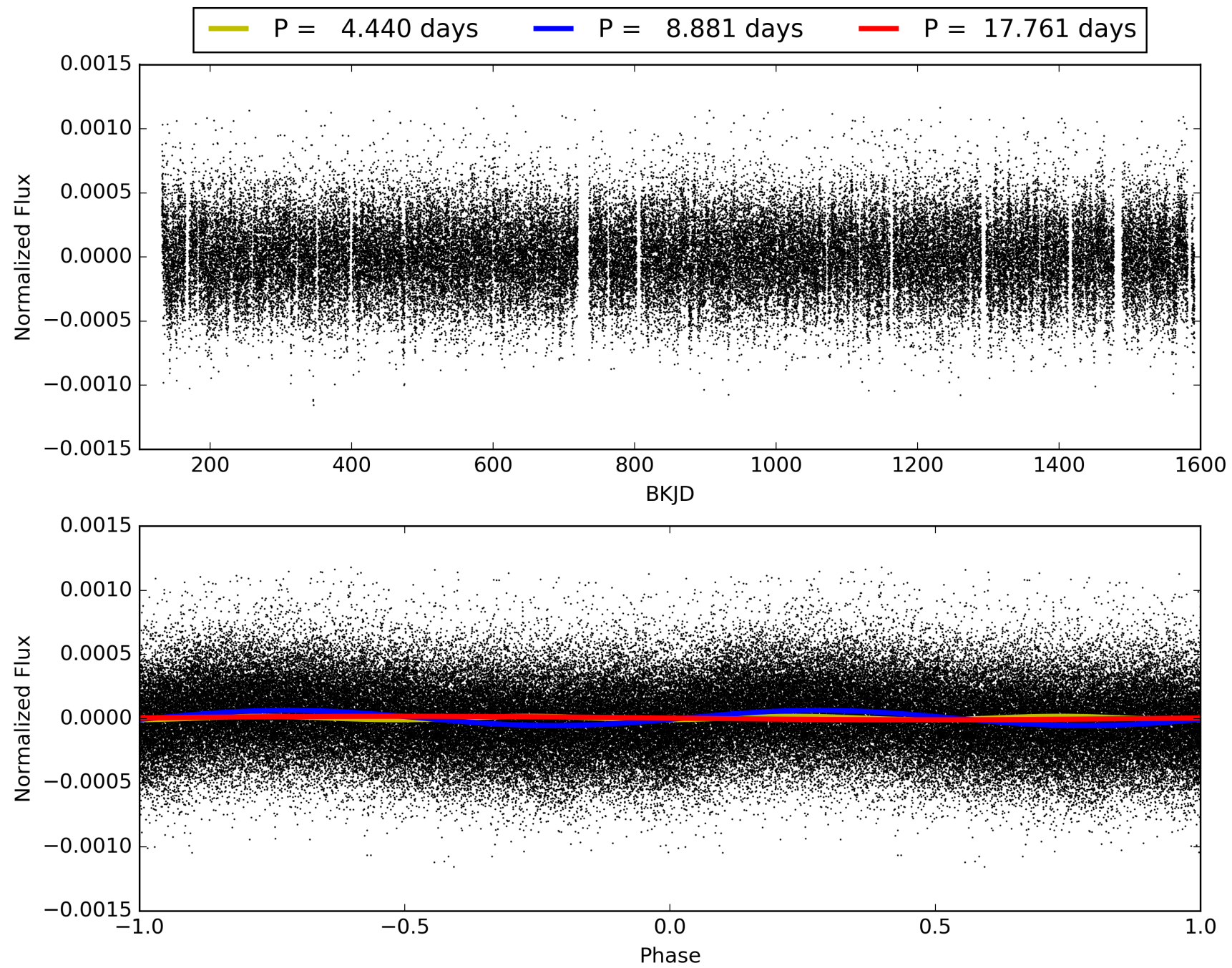
## DV Diagnostic Results:

ShortPeriod-sig: N/A  
LongPeriod-sig: N/A  
ModelChiSquare2-sig: 100.0%  
ModelChiSquareGof-sig: 100.0%  
Bootstrap-pfa: 1.19e-16  
RollingBand-fgt: 1.00 [150/150]  
GhostDiagnostic-chr: 2.336  
Centroid-sig: 27.3%  
Centroid-so: 1.618 arcsec [1.22 $\sigma$ ]  
OotOffset-rm: 1.631 arcsec [1.92 $\sigma$ ]  
KicOffset-rm: 1.488 arcsec [2.02 $\sigma$ ]  
OotOffset-st: 1/4/3/5 [13]  
KicOffset-st: 1/4/3/5 [13]  
DiffImageQuality-fgm: 0.38 [5/13]  
DiffImageOverlap-fno: 1.00 [17/17]

# TCE 010922506-01, PDC Light Curves



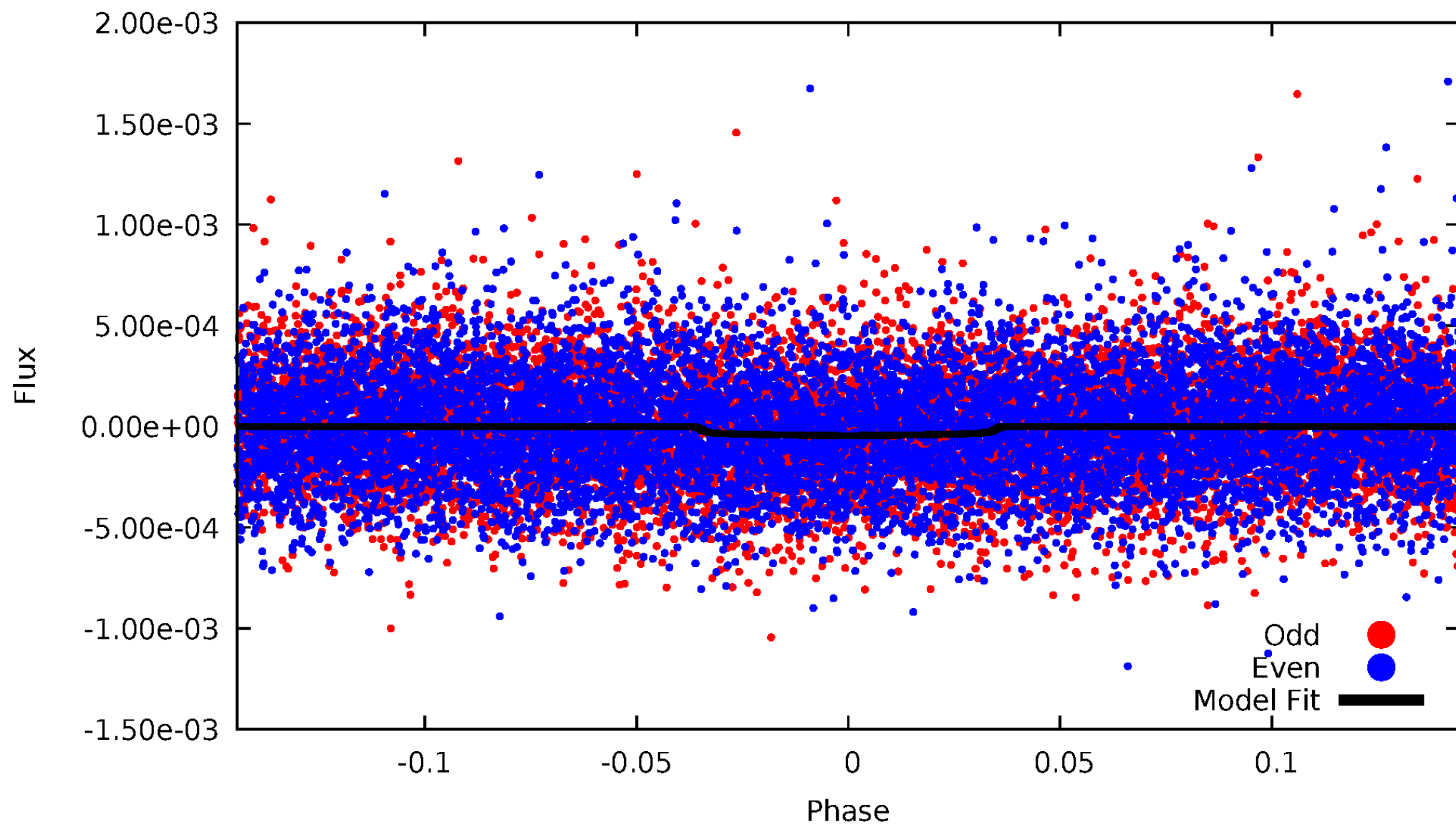
TCE 010922506-01





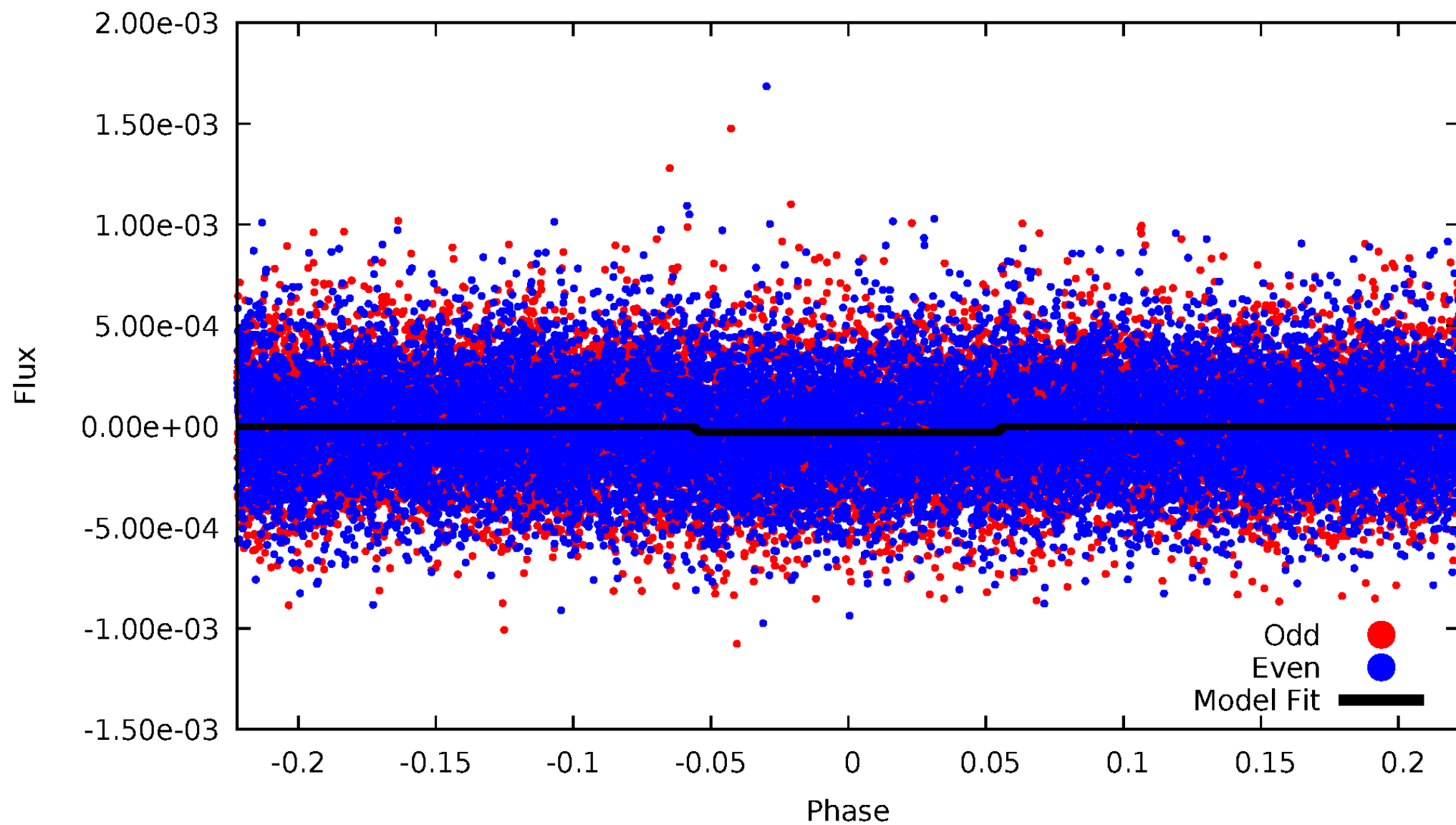
# DV Odd/Even

TCE 010922506-01



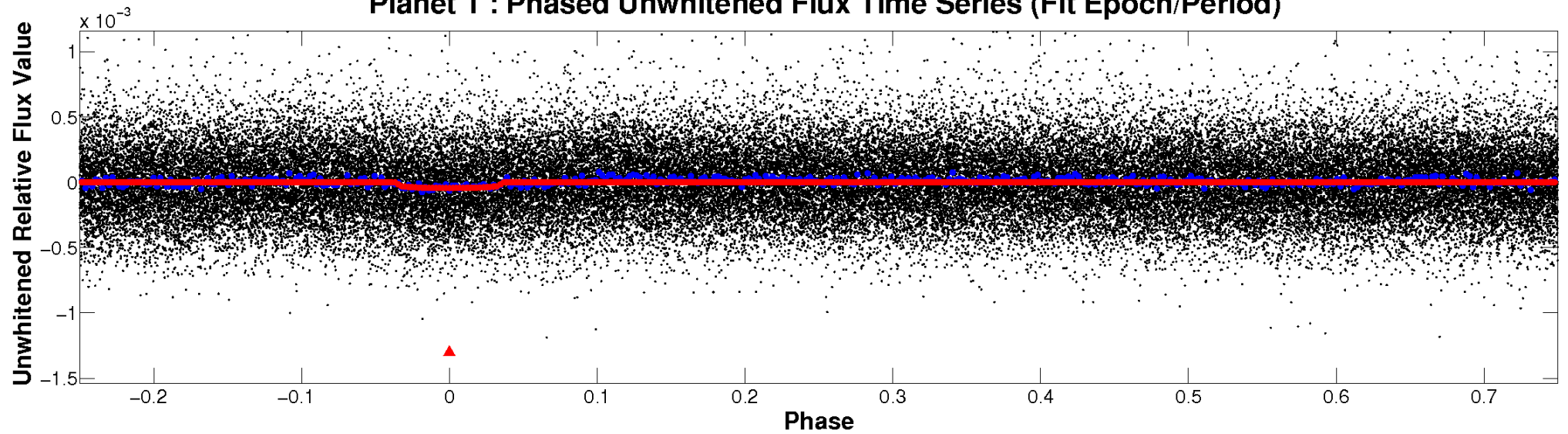
# ALT Odd/Even

TCE 010922506-01

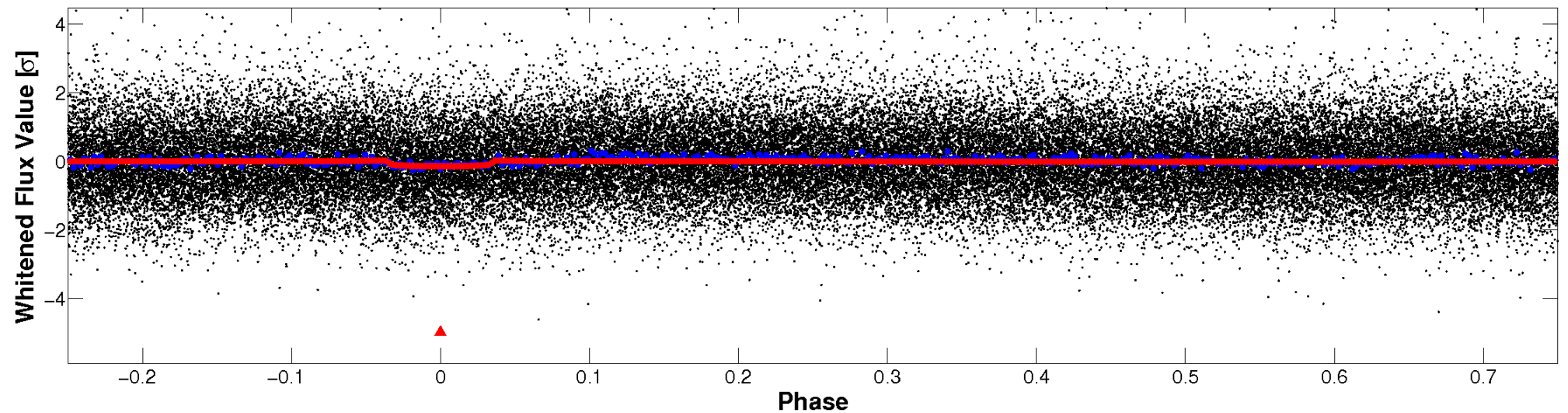


# Non-Whitened Vs. Whitened Light Curve

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

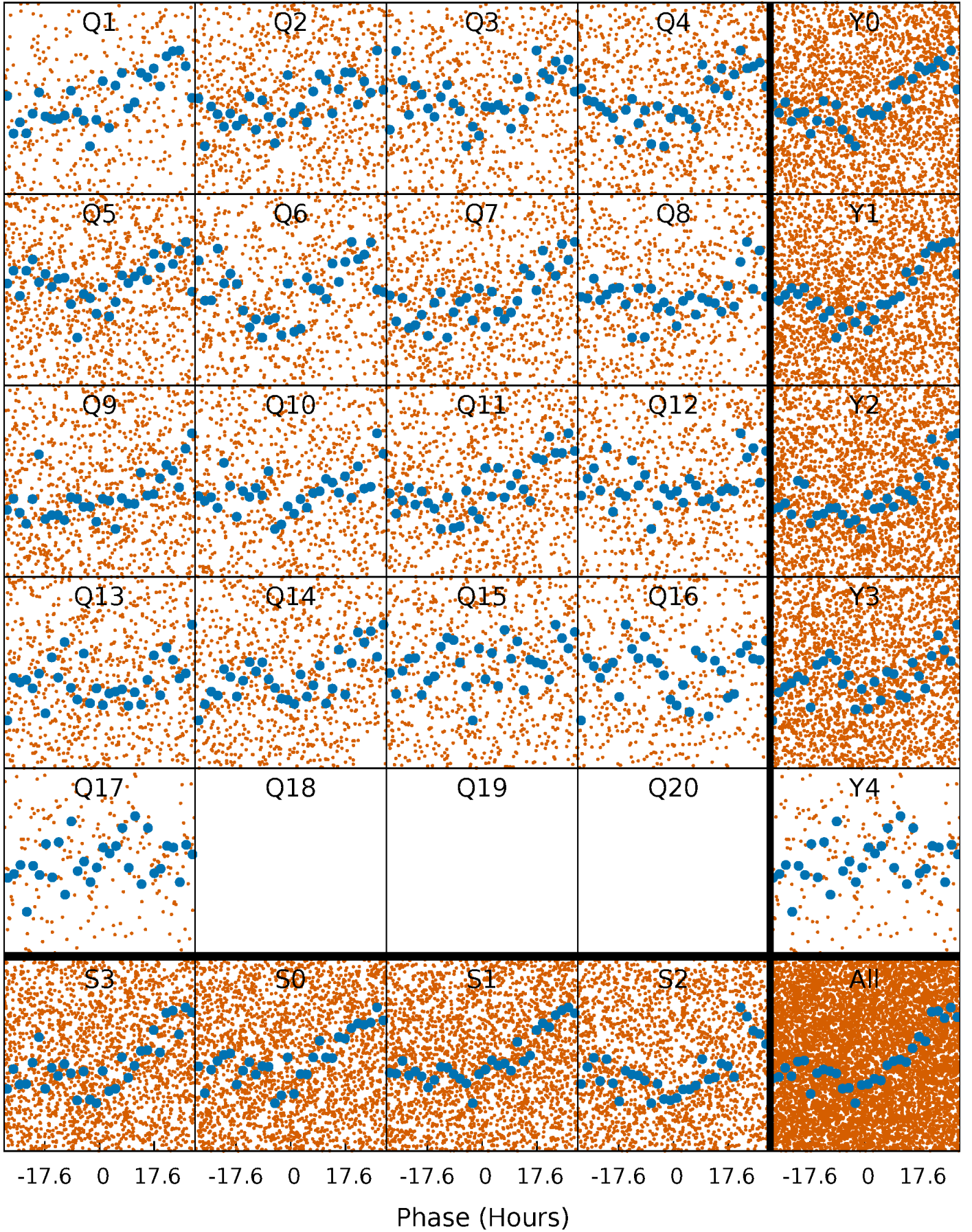


**Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)**



# PDC Quarter-Phased Transit Curves

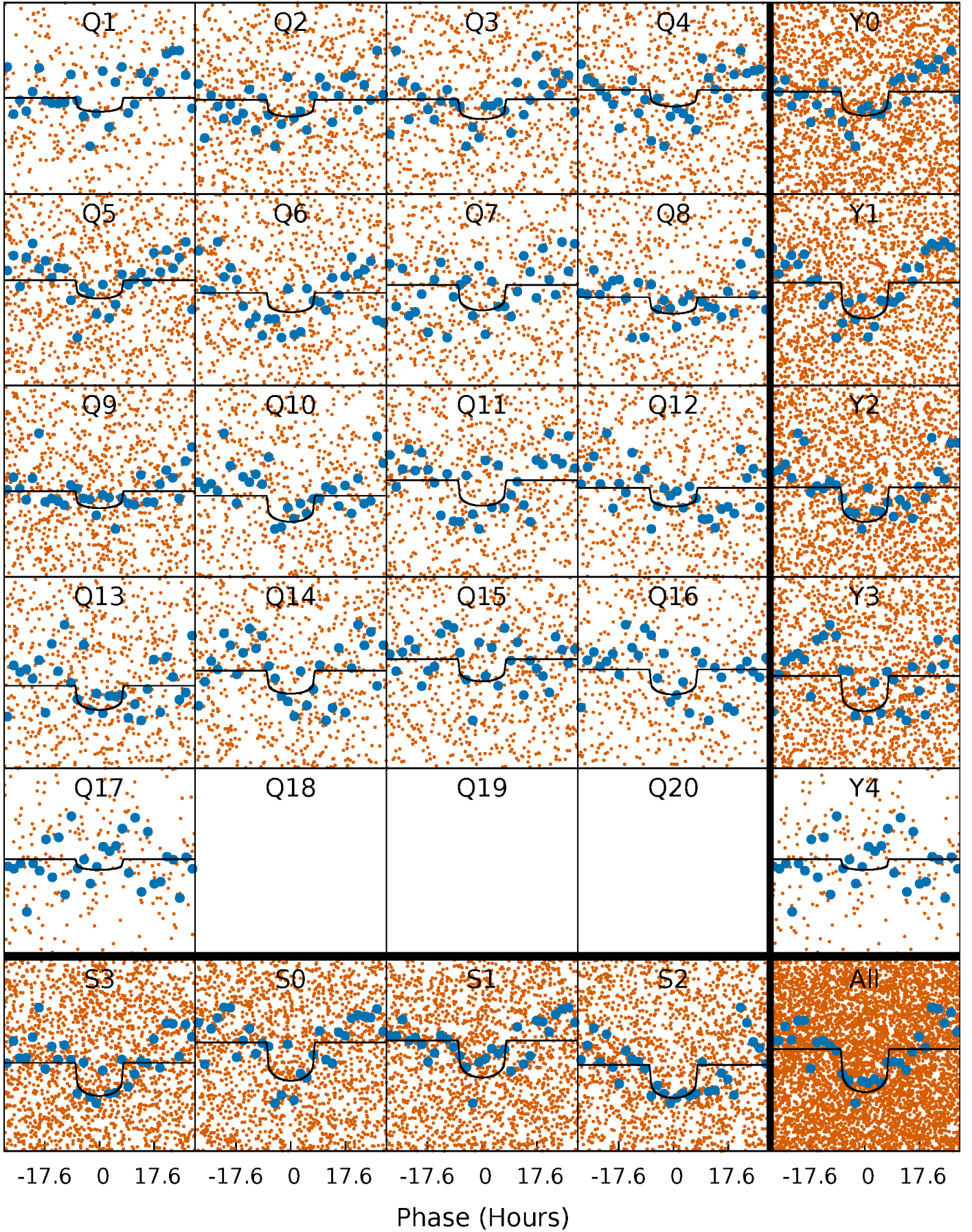
TCE 010922506-01   P= 8.880587 Days    $T_0=136.302111$  (BKJD)





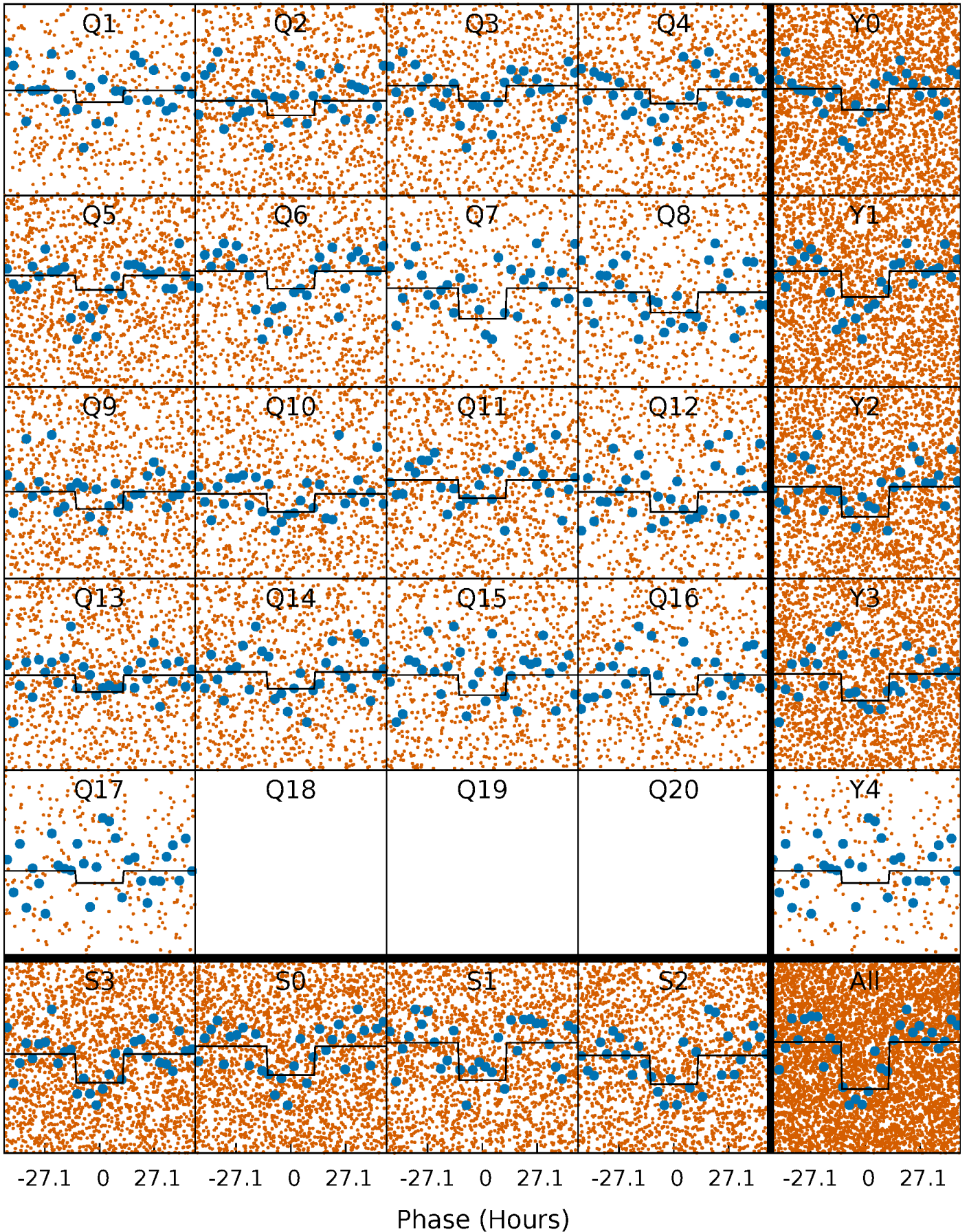
# DV Quarter-Phased Transit Curves

TCE 010922506-01   P= 8.880587 Days    $T_0=136.302111$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

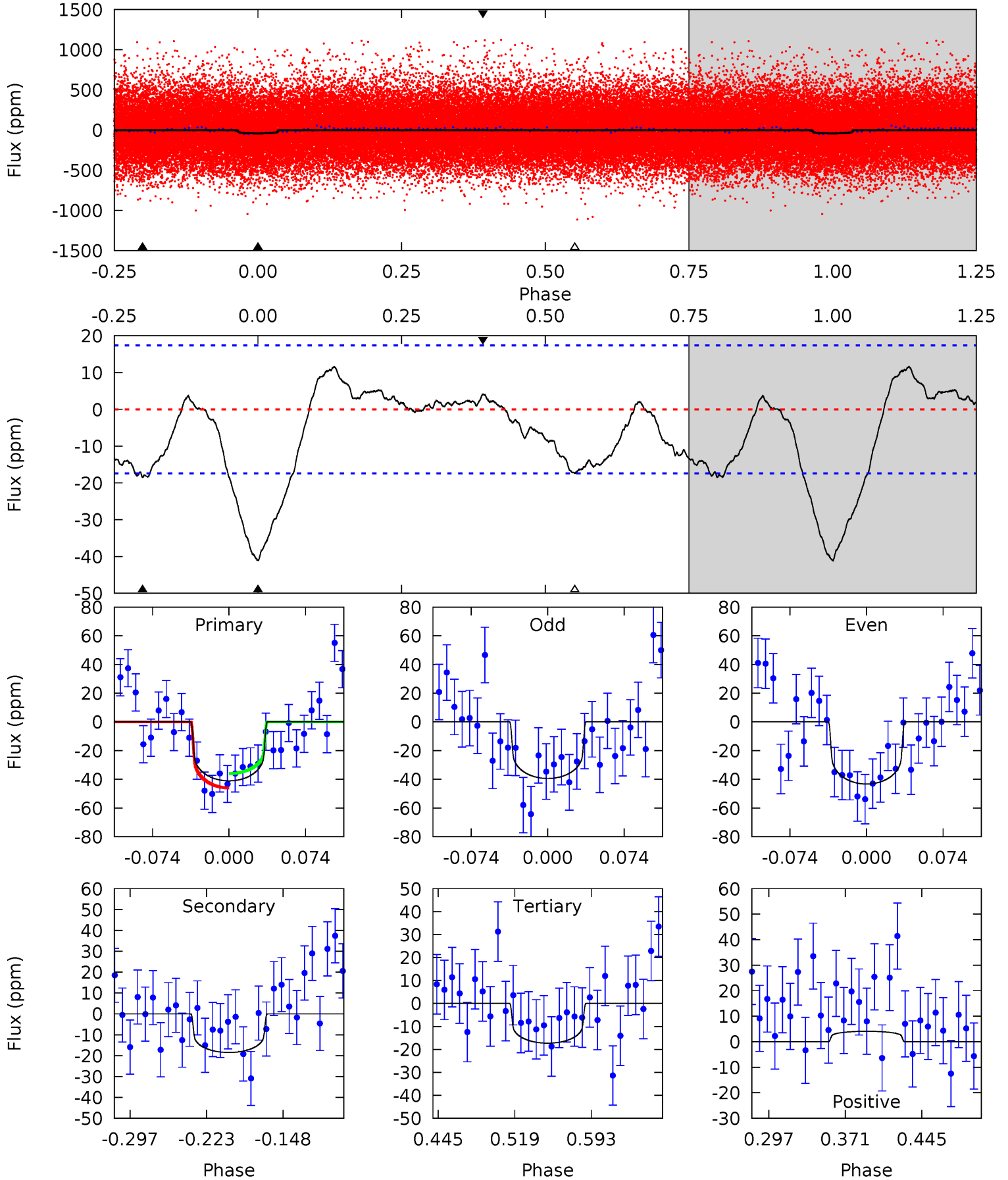
TCE 010922506-01 P= 8.880044 Days  $T_0=136.514707$  (BKJD)



# DV Model-Shift Uniqueness Test

010922506-01, P = 8.880587 Days, E = 127.421524 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
10.9	4.92	4.61	1.09	4.63	1.79	1.89	6.33	9.85	0.32	3.83	0.52	0.94	0.22	1.33

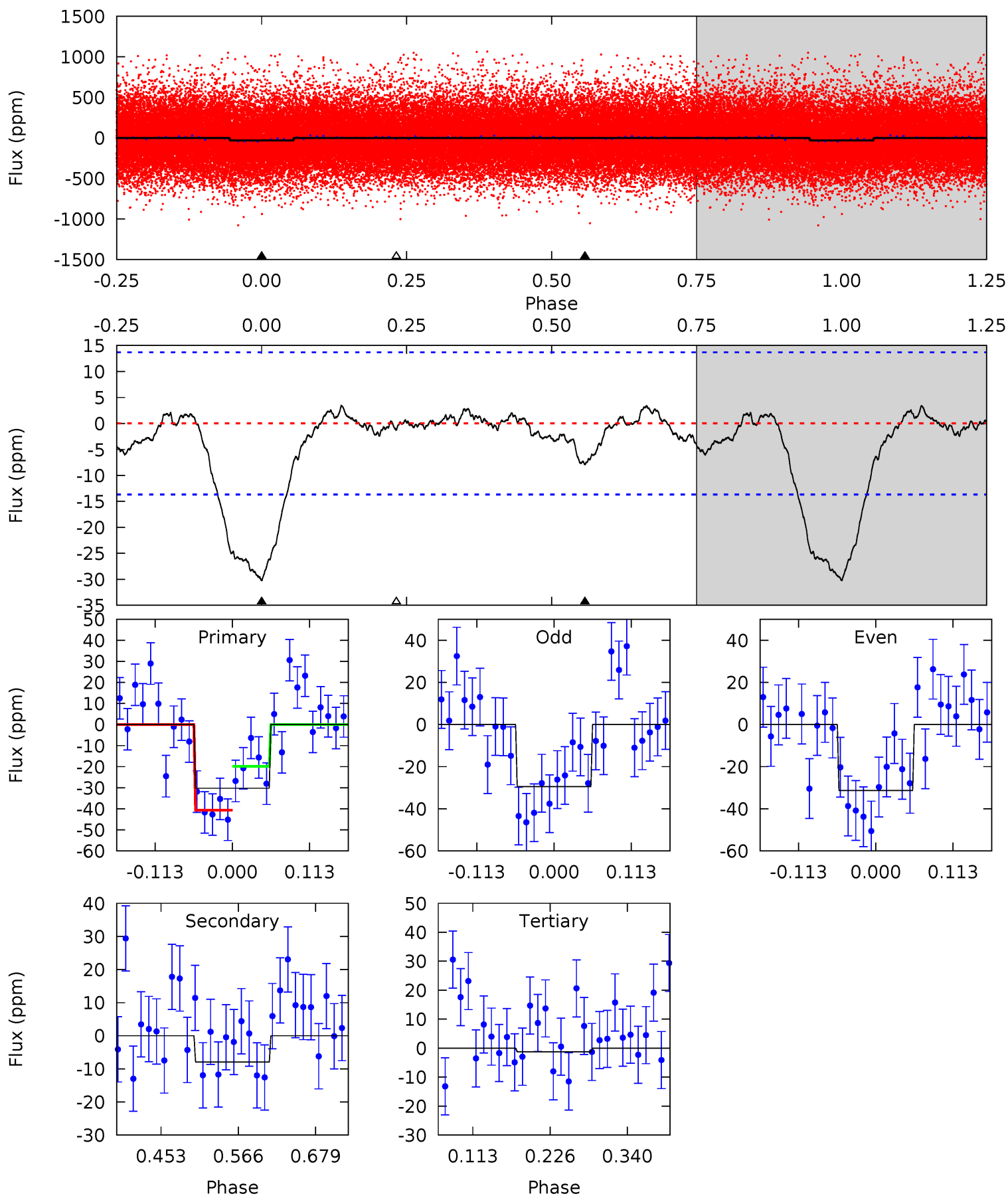




# Alt Model-Shift Uniqueness Test

010922506-01, P = 8.880044 Days, E = 127.634663 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
10.0	2.63	0.41	0	4.54	1.58	0.65	9.62	10.0	2.22	2.63	0.32	1.15	0.10	3.45





### Stellar Parameters For KIC 010922506

	$T_{\text{eff}} (K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R (R_{\odot})$	$M (M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	$5465^{+163}_{-147}$	$4.448^{+0.140}_{-0.171}$	$-0.320^{+0.350}_{-0.300}$	$0.864^{+0.185}_{-0.124}$	$0.766^{+0.113}_{-0.057}$	$1.670^{+0.978}_{-0.723}$
	+3%/-3%	+3%/-4%	+109%/-94%	+21%/-14%	+15%/-7%	+59%/-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 010922506-01 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	$A_{\text{obs}}$
DV	$-19 \pm 4$	$0.68^{+0.21}_{-0.19}$	$1135^{+71}_{-64}$	$4455^{+609}_{-481}$	$133^{+124}_{-61}$
Alt.	$-8 \pm 3$	$0.52^{+0.21}_{-0.20}$	$1136^{+75}_{-64}$	$4154^{+889}_{-541}$	$93^{+152}_{-51}$

$T_{\text{max}}$  = 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

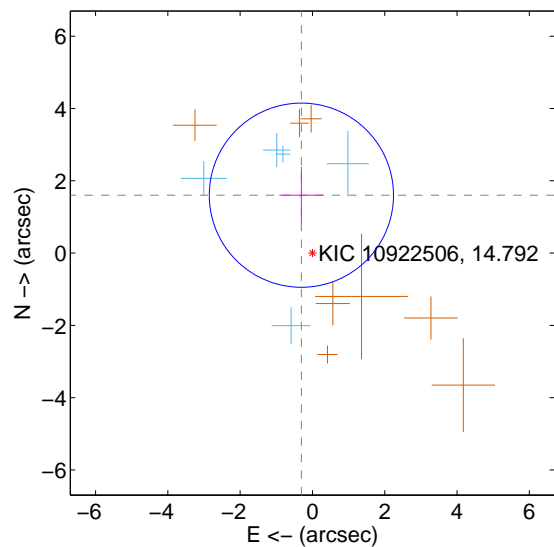
Supplemental centroid analysis for 010922506-01. Kepler magnitude: 14.79. Transit SNR 8.32

There are 5 quarters with good PRF difference image offsets

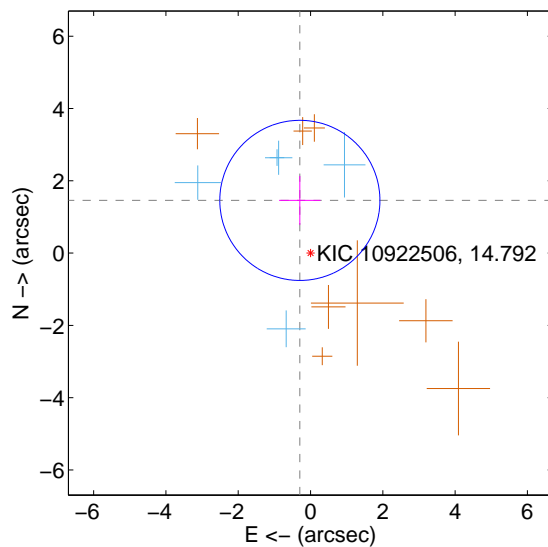
The direct PRF centroid is offset from the target star catalog position by about 0.11 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$1.631 \pm 0.849$	1.92	$0.306 \pm 0.612$	$1.602 \pm 0.787$
PRF-fit source offset from KIC position	$1.488 \pm 0.738$	2.02	$0.295 \pm 0.573$	$1.458 \pm 0.677$
photometric centroid source offset	$1.62 \pm 1.32$	1.22	$-1.28 \pm 1.30$	$0.99 \pm 1.36$

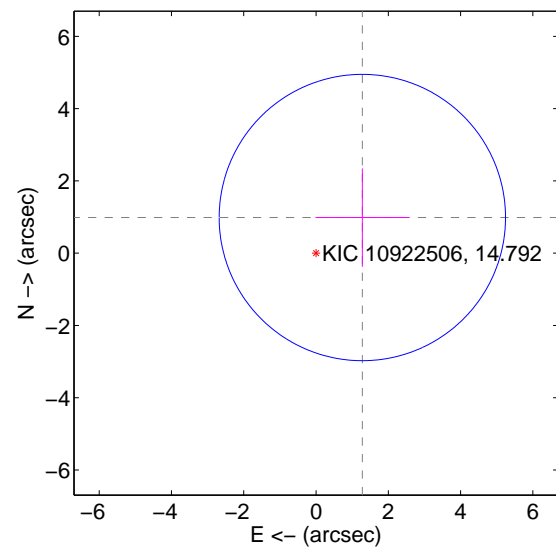
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position

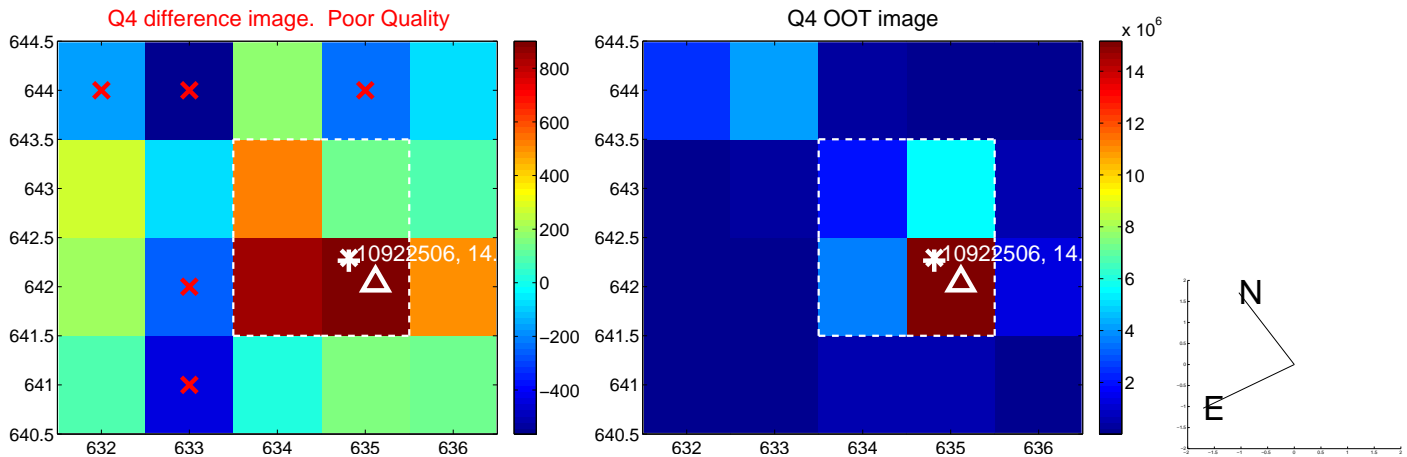
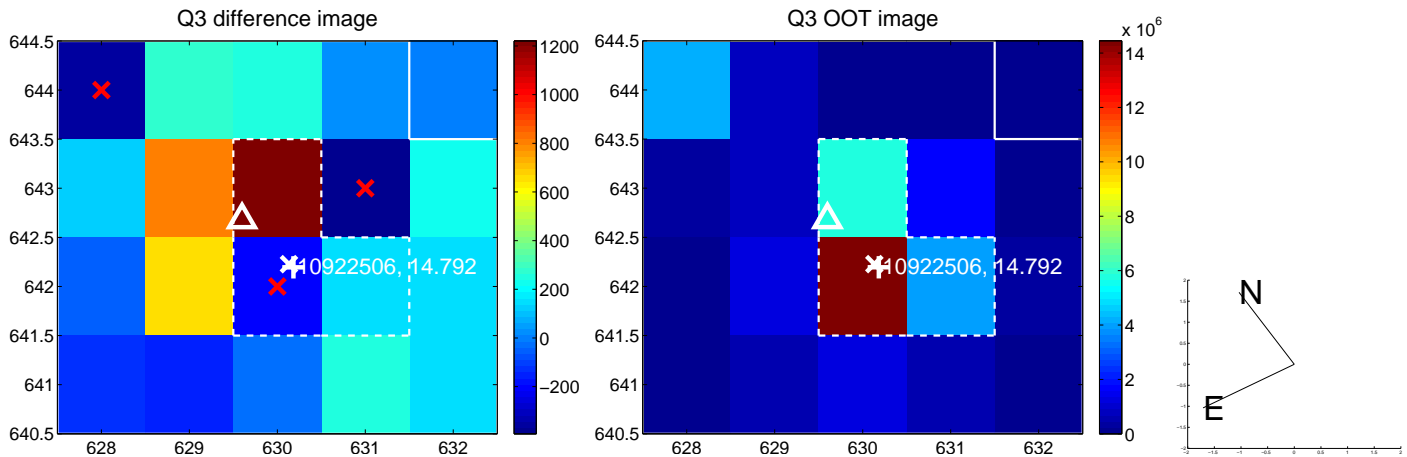
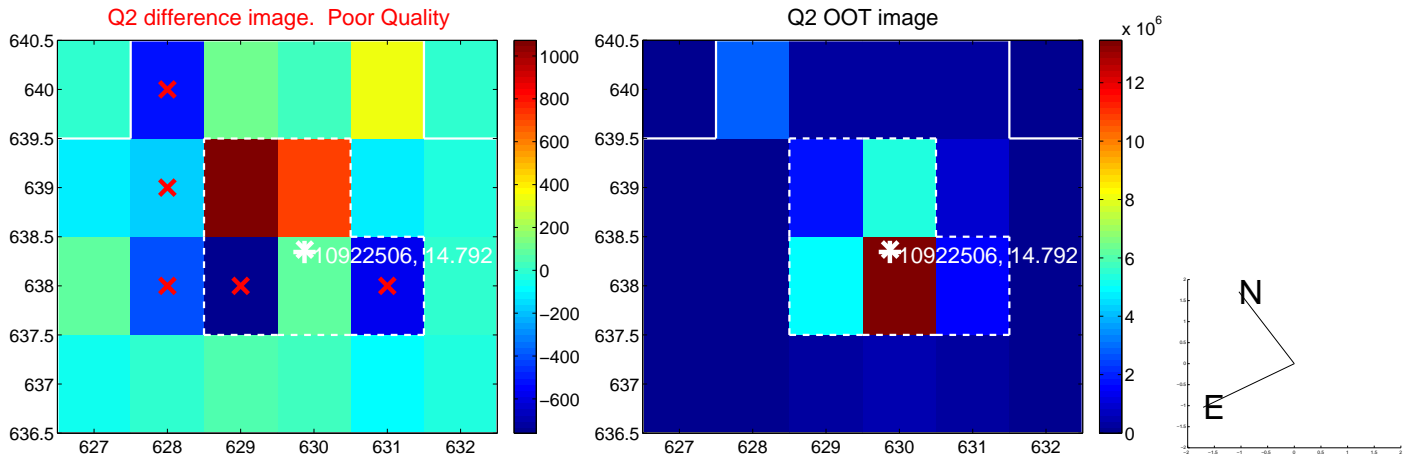
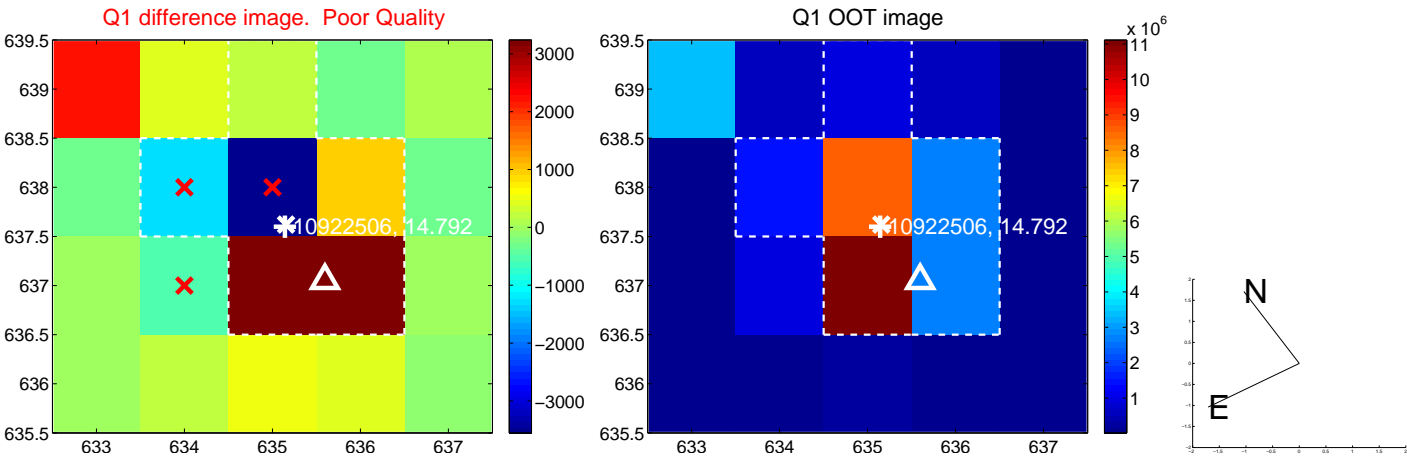


offset from photometric centroids

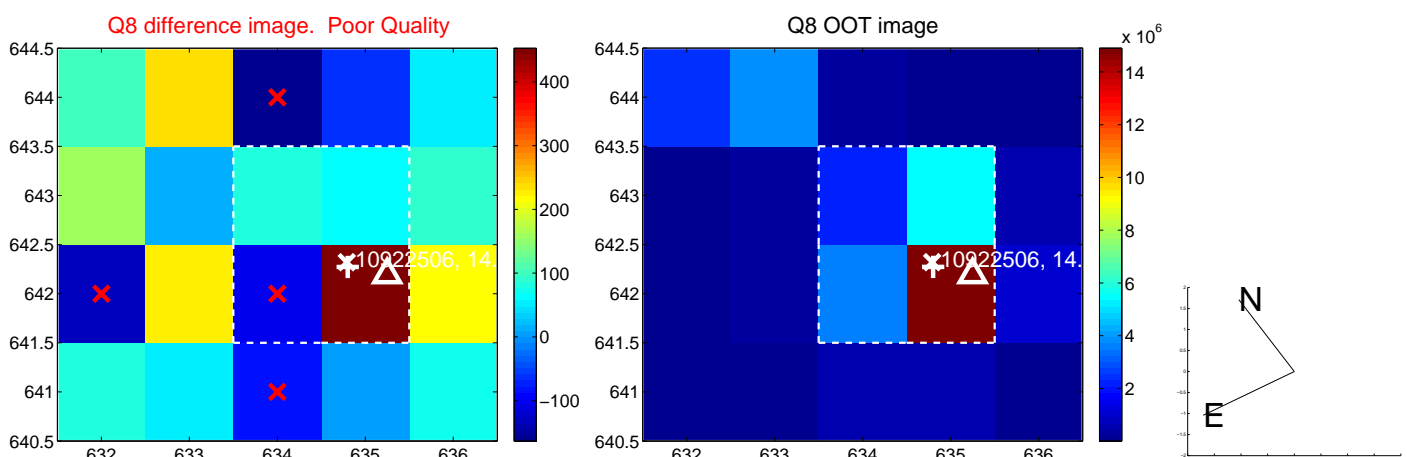
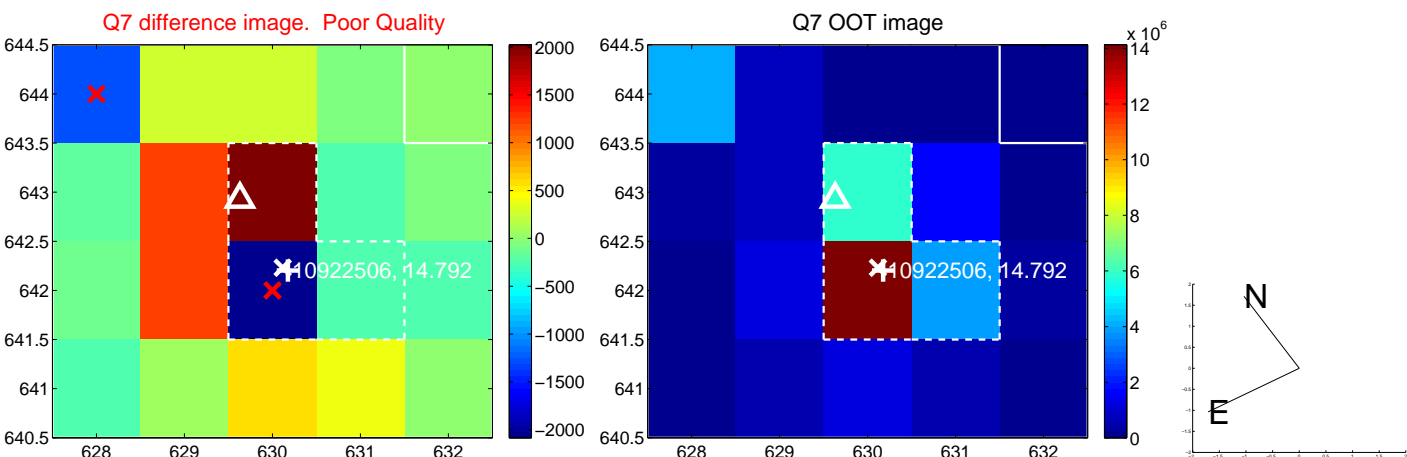
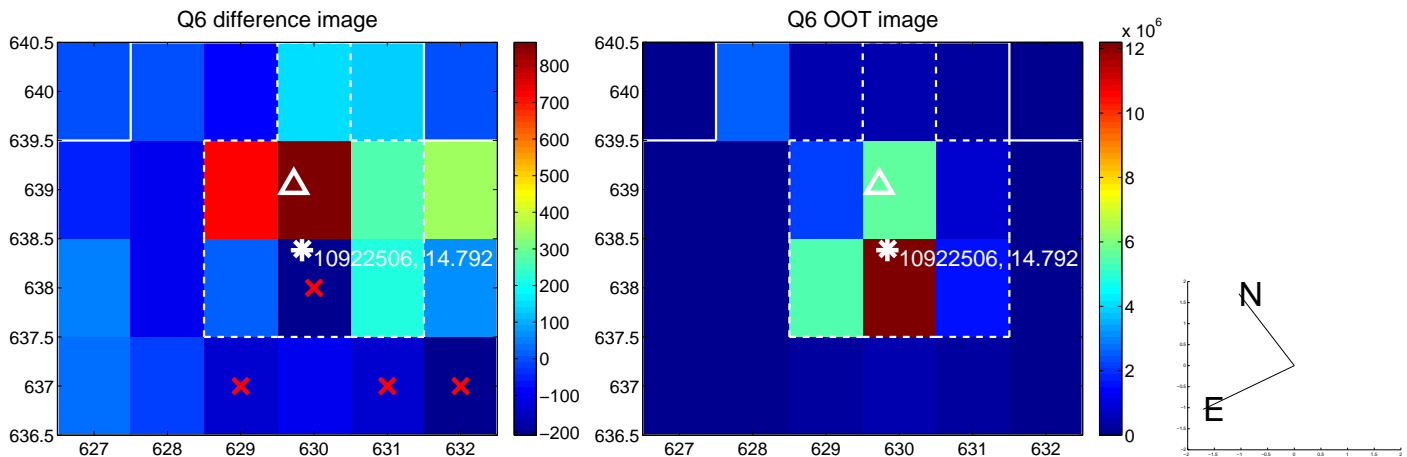
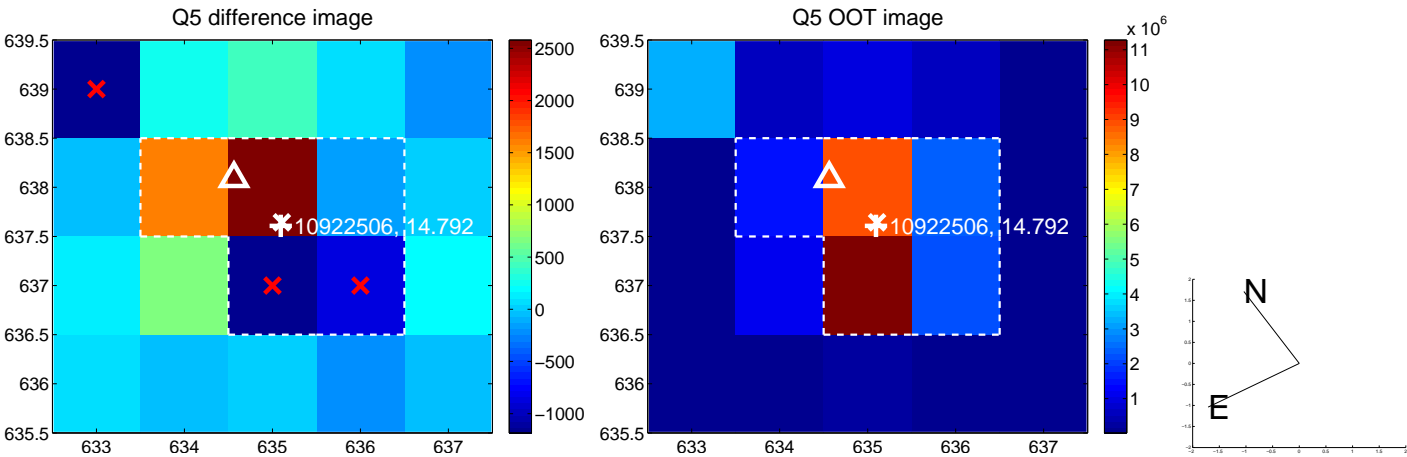


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses:** good quarterly centroid offsets; **Vermillion crosses:** bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: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

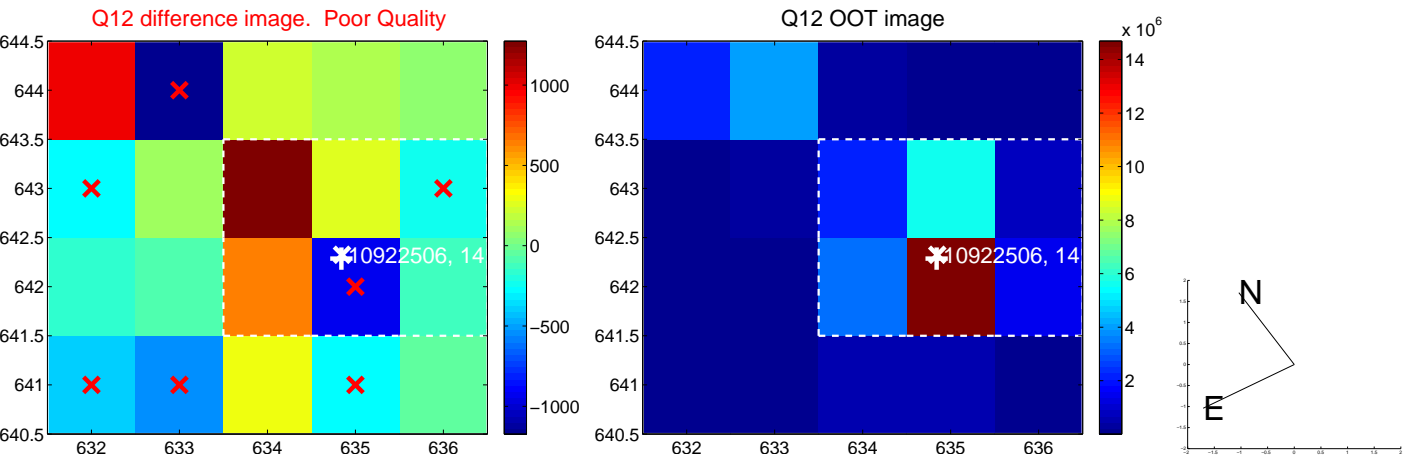
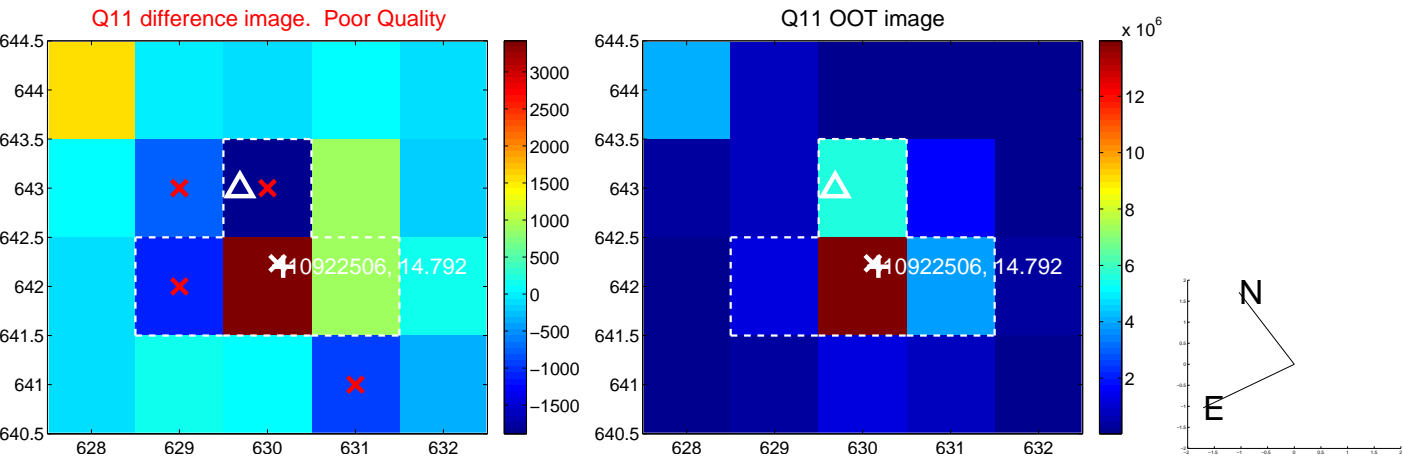
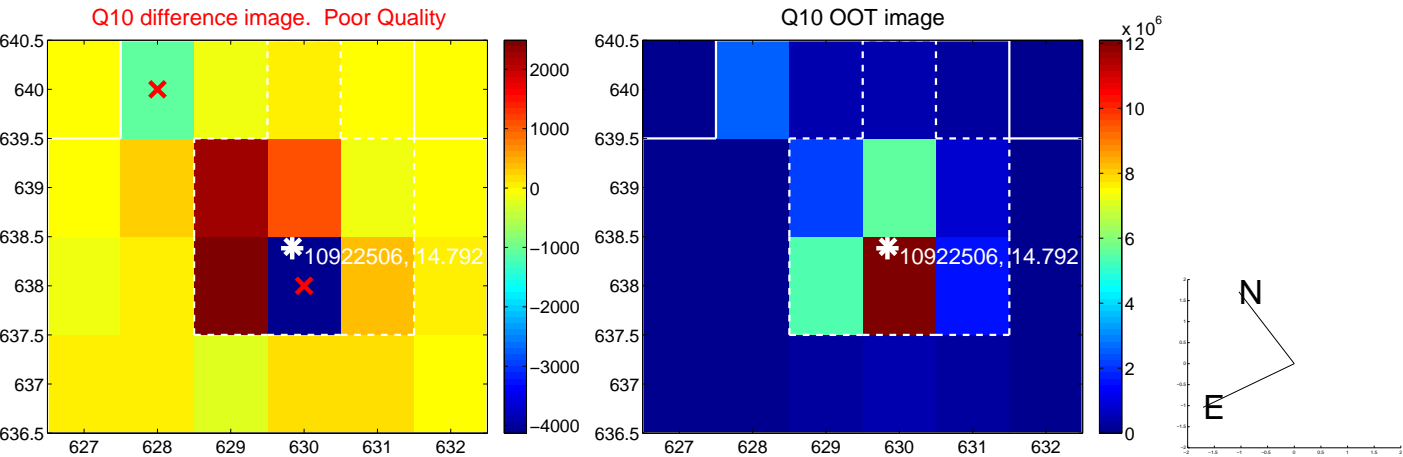
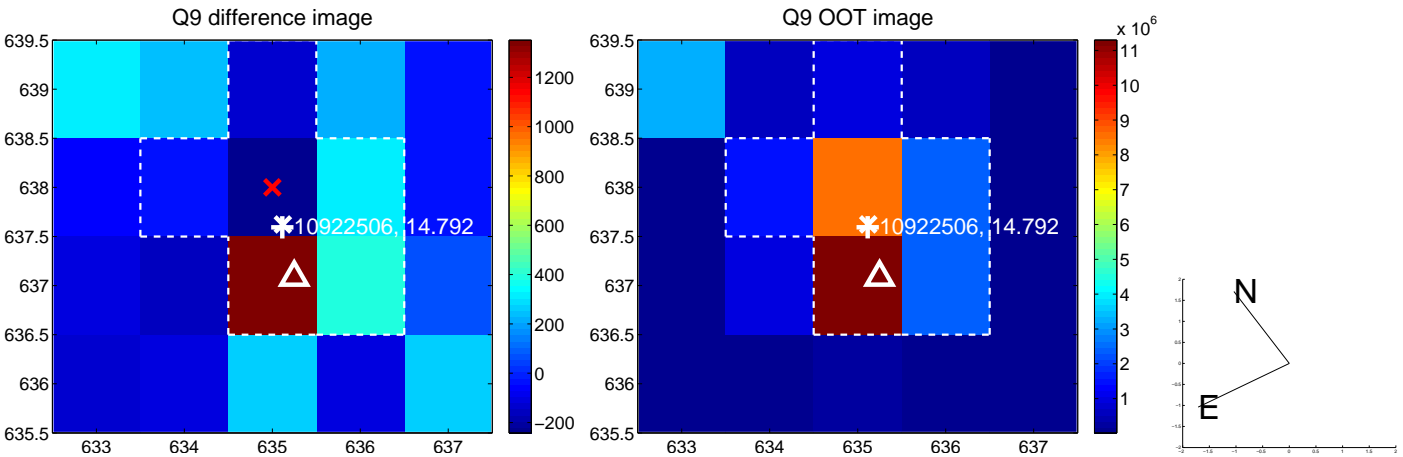


white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.

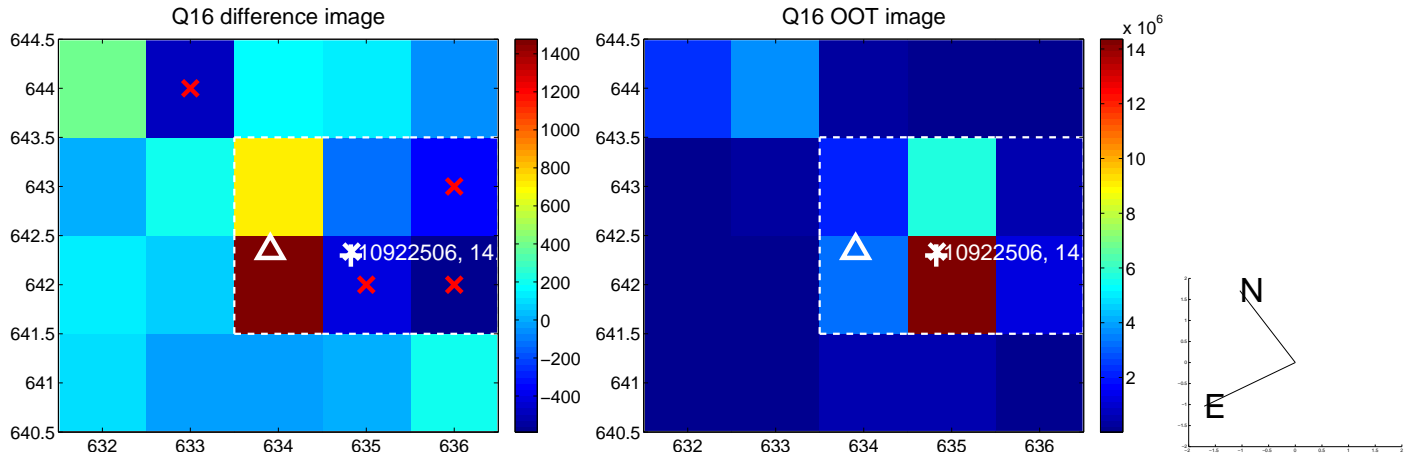
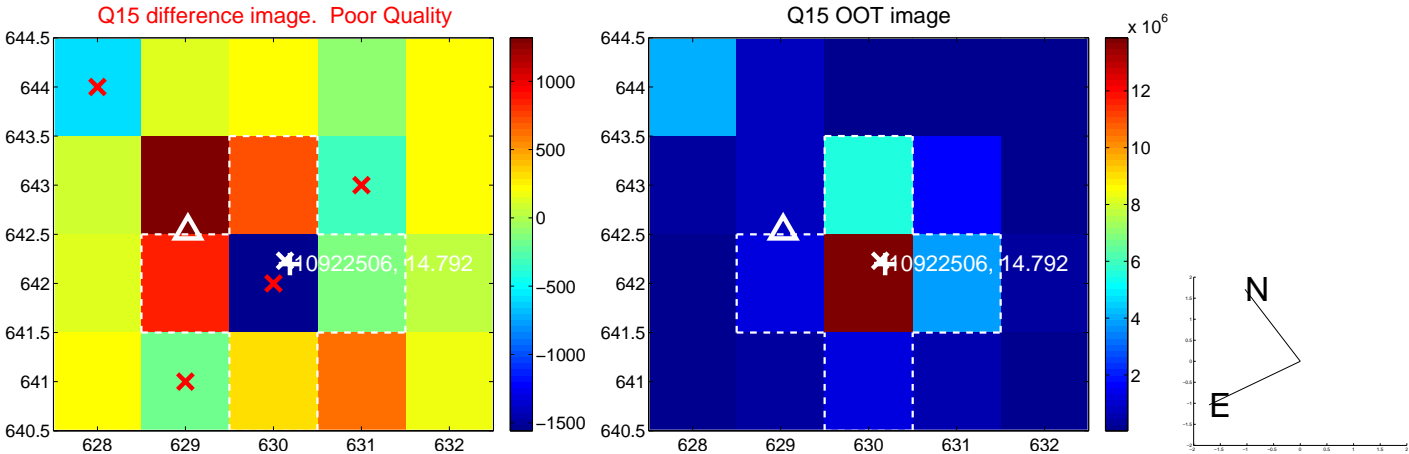
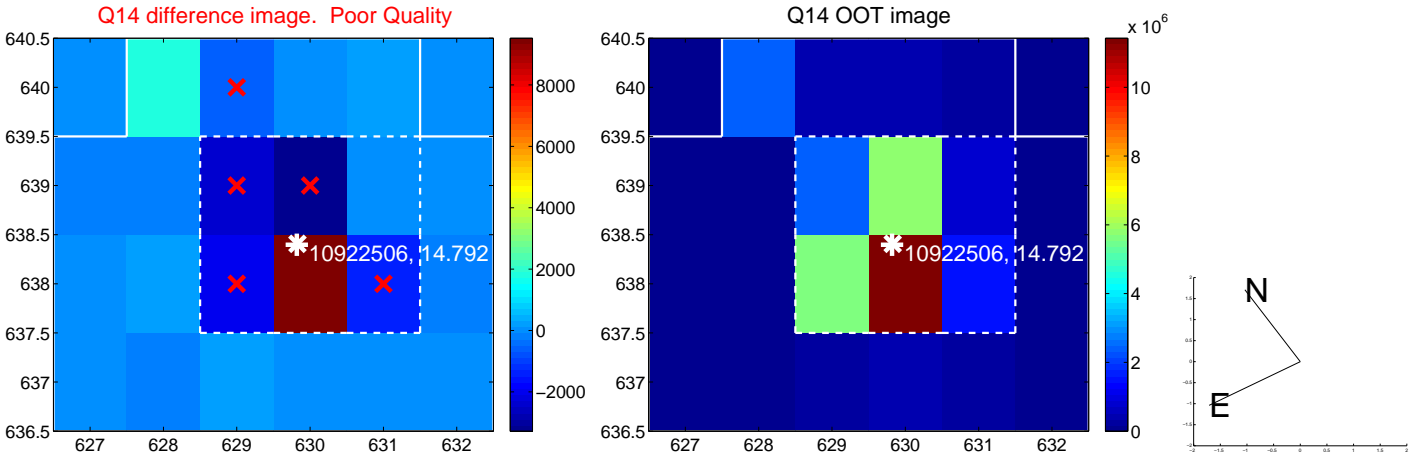
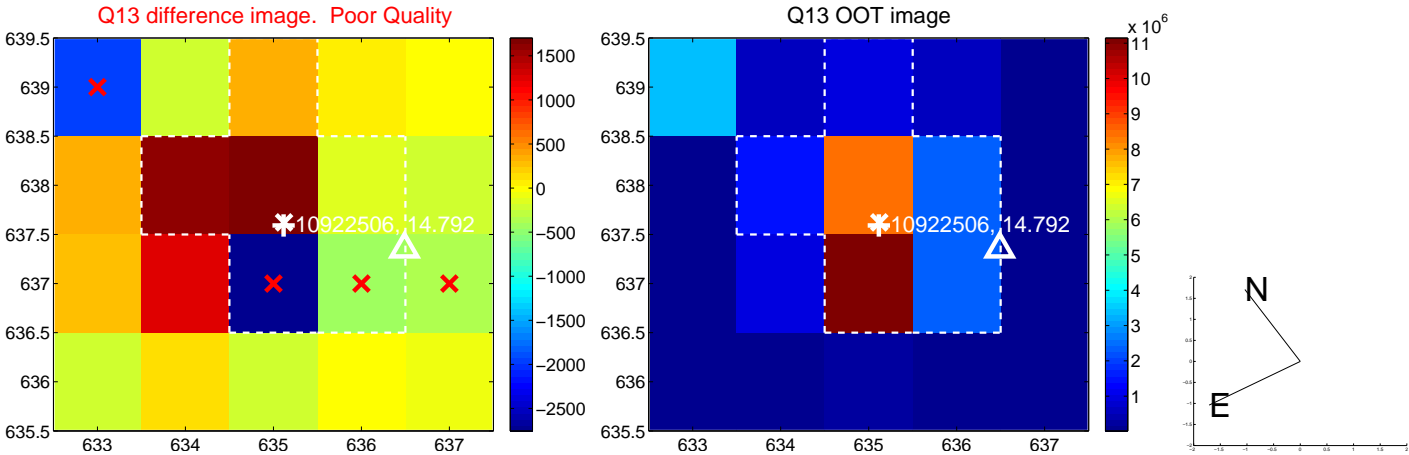




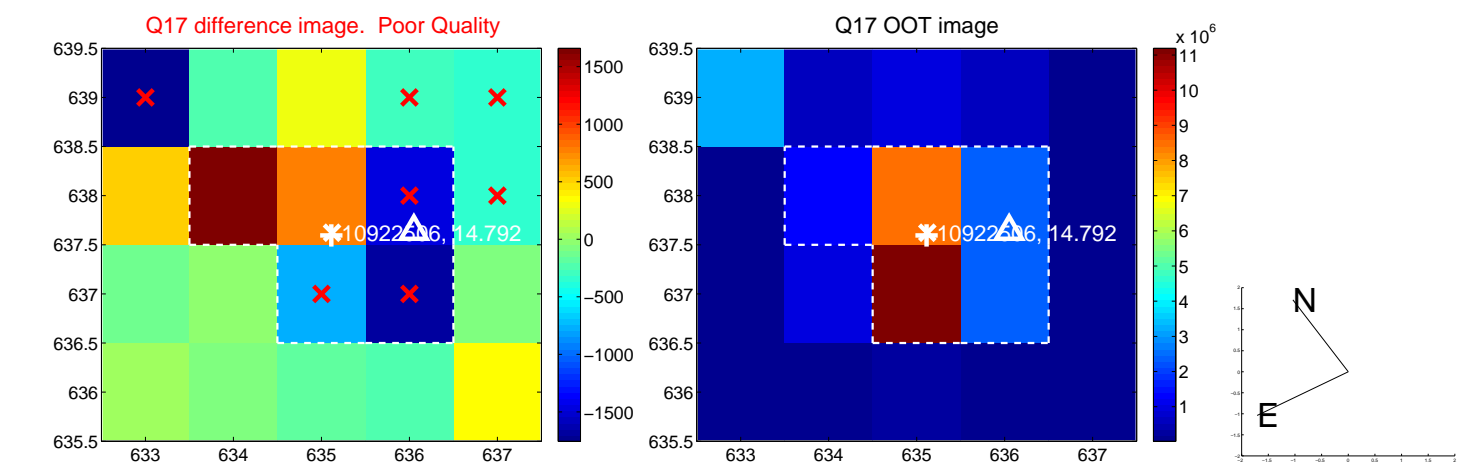
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



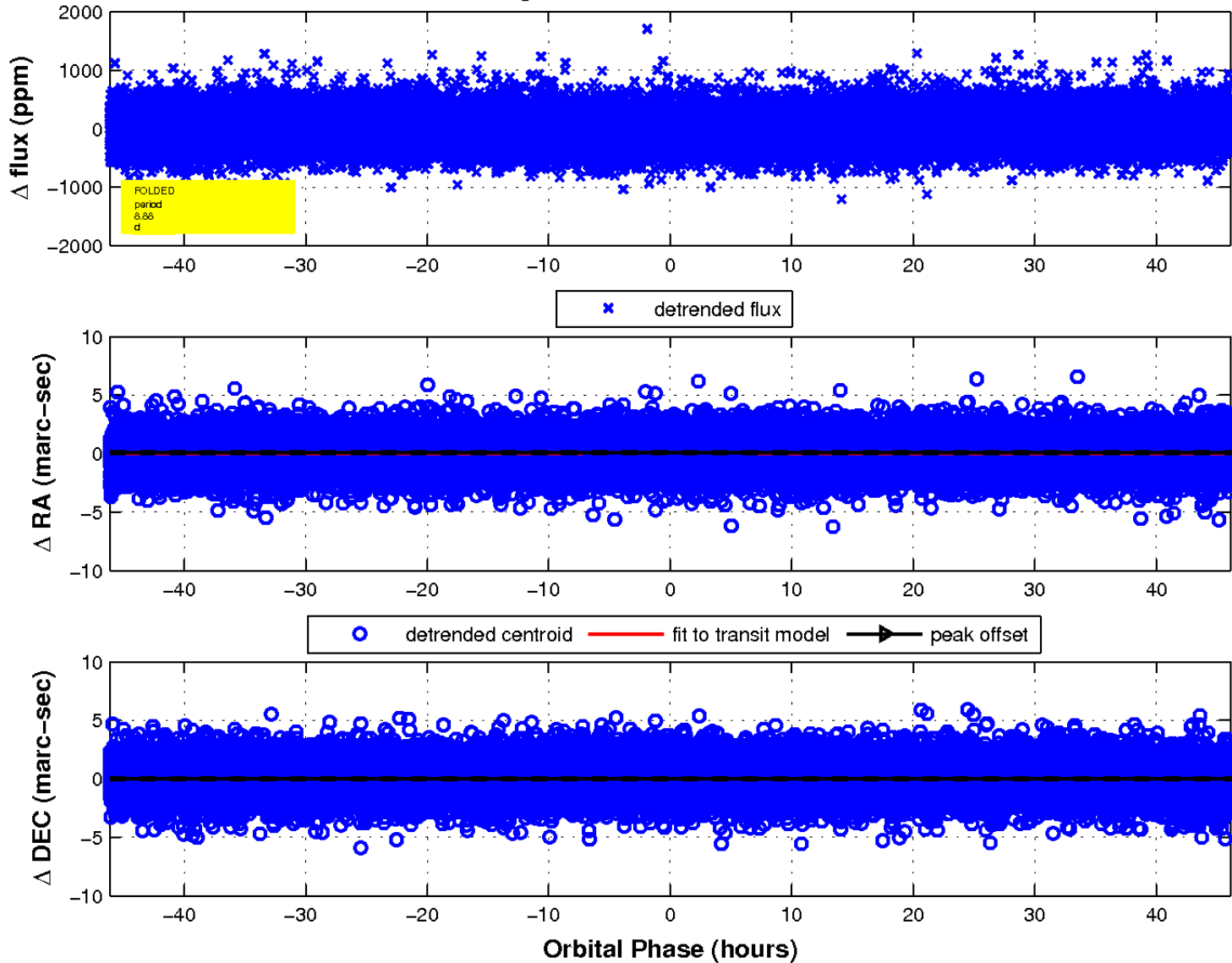
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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



fluxWeightedCentroids, Planet 1 of 1



UKIRT Image

Declination

