

# KIC 005557821

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
005557821-01	OBS	1571.01	2.928766	133.705655	400.1	4.211	32.3	33.6	0.88	5955	3.06	557.38

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
005557821-01	OBS	FP	0.00	0	0	1	0	CENT_RESOLVED_OFFSET

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

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

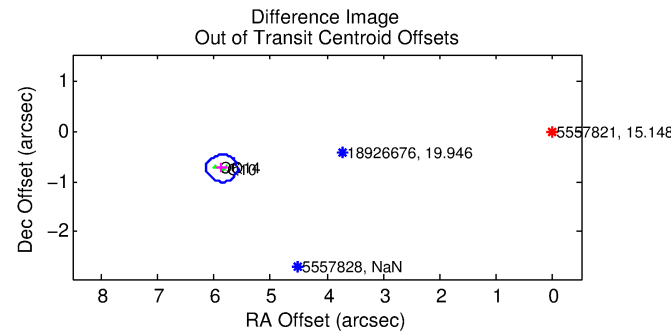
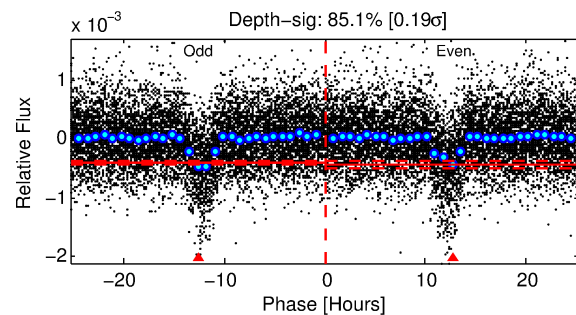
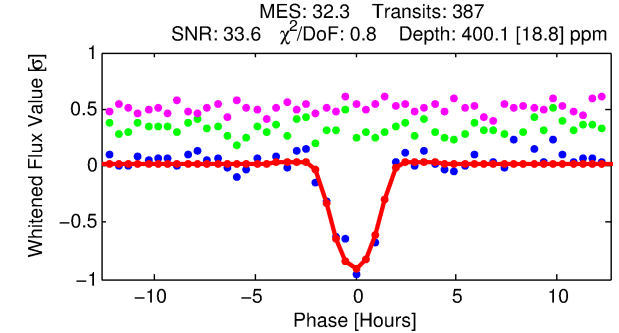
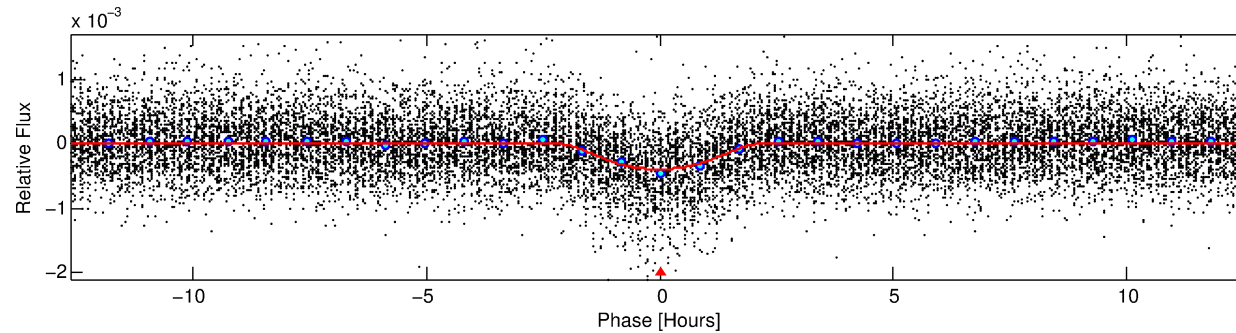
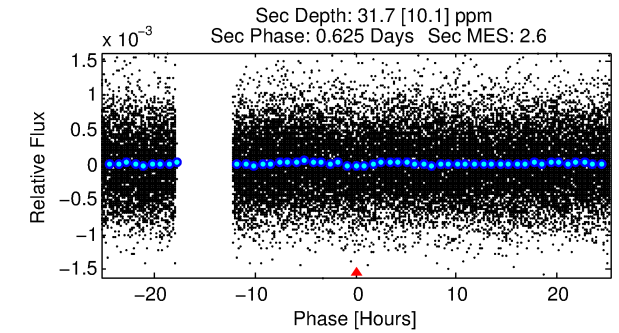
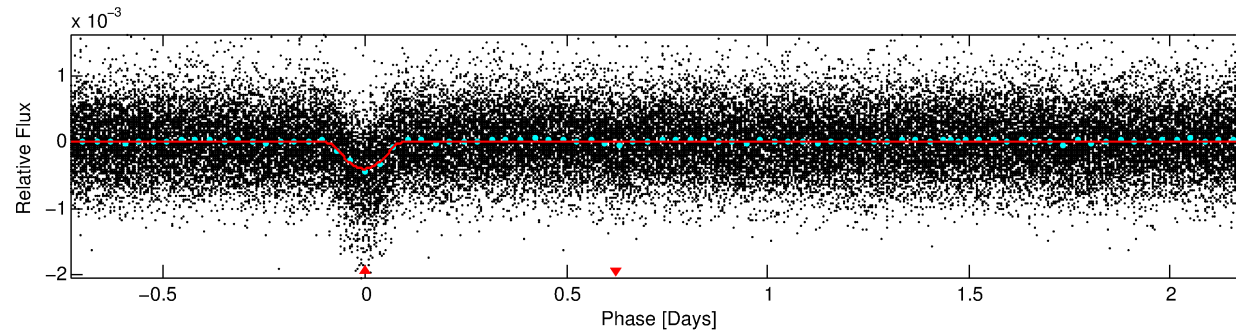
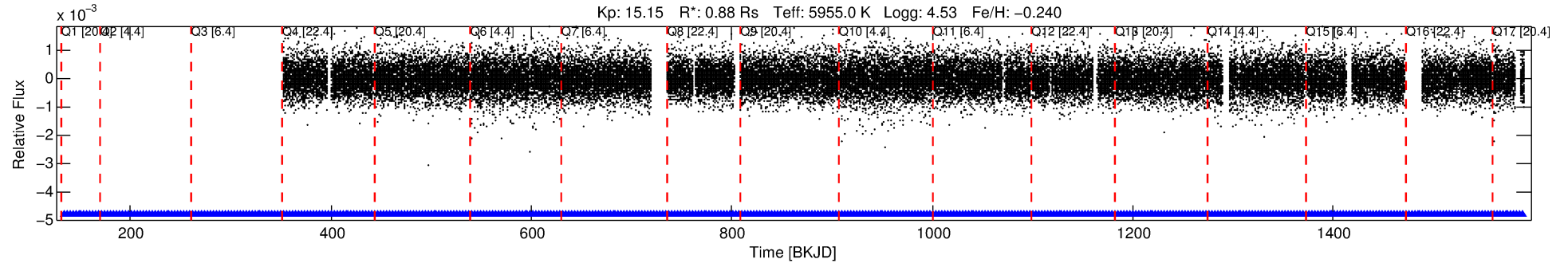
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

## Ephemeris Match Information For 005557821-01

No Significant Match Found

# DV One-Page Summary

KIC: 5557821 Candidate: 1 of 1 Period: 2.929 d  
KOI: K01571.01 Corr: 0.961



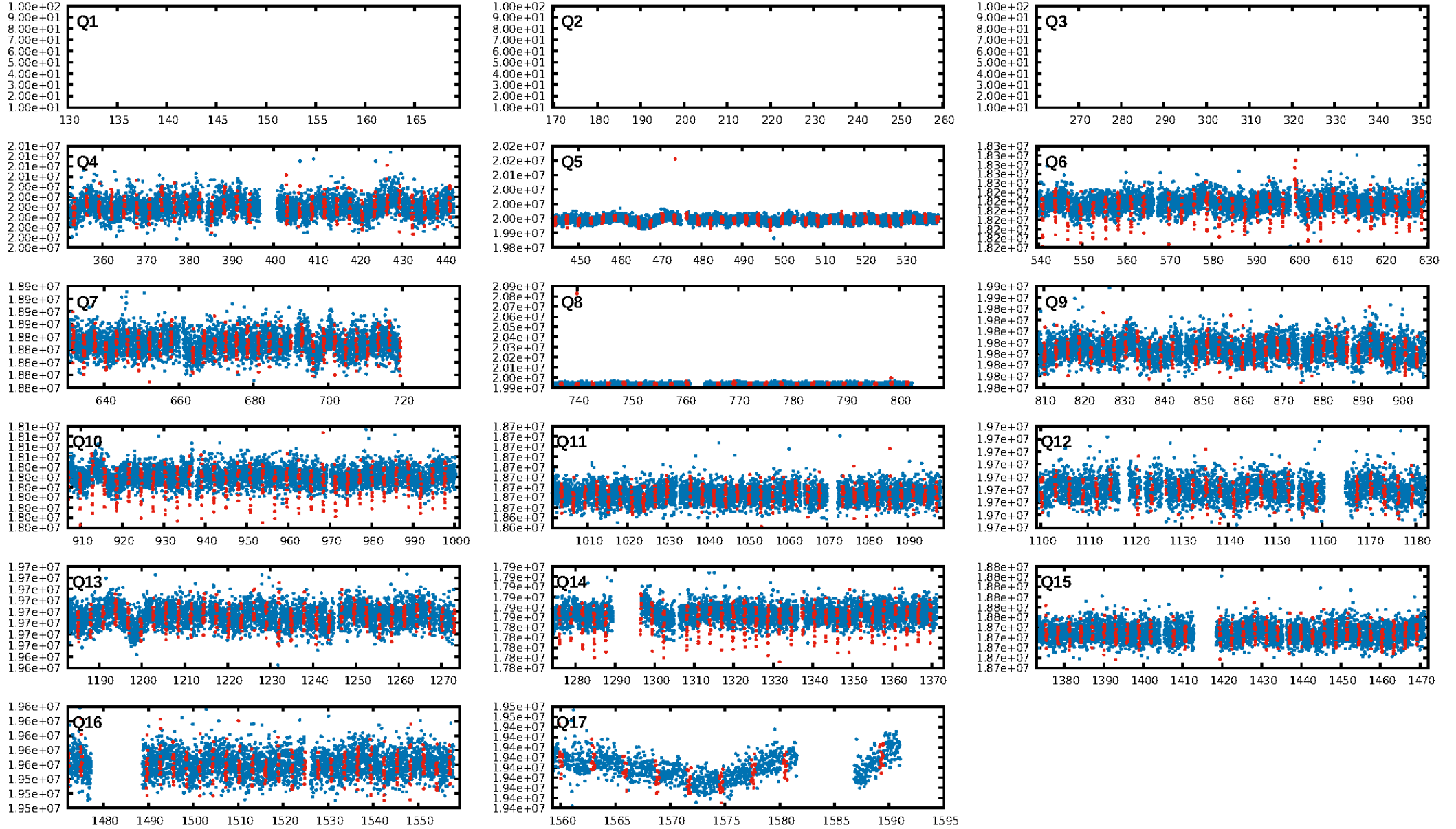
## DV Fit Results:

Period = 2.92877 [0.00001] d  
Epoch = 133.7057 [0.0030] BKJD  
Rp/R\* = 0.0318 [0.0234]  
a/R\* = 1.80 [0.28]  
b = 0.99 [0.04]  
Seff = 557.38 [227.97]  
Teq = 1239 [127] K  
Rp = 3.06 [2.44] Re  
a = 0.0397 [0.0104] AU  
Ag = 2.93 [4.55] [0.42σ]  
Teffp = 2506 [946] K [1.33σ]

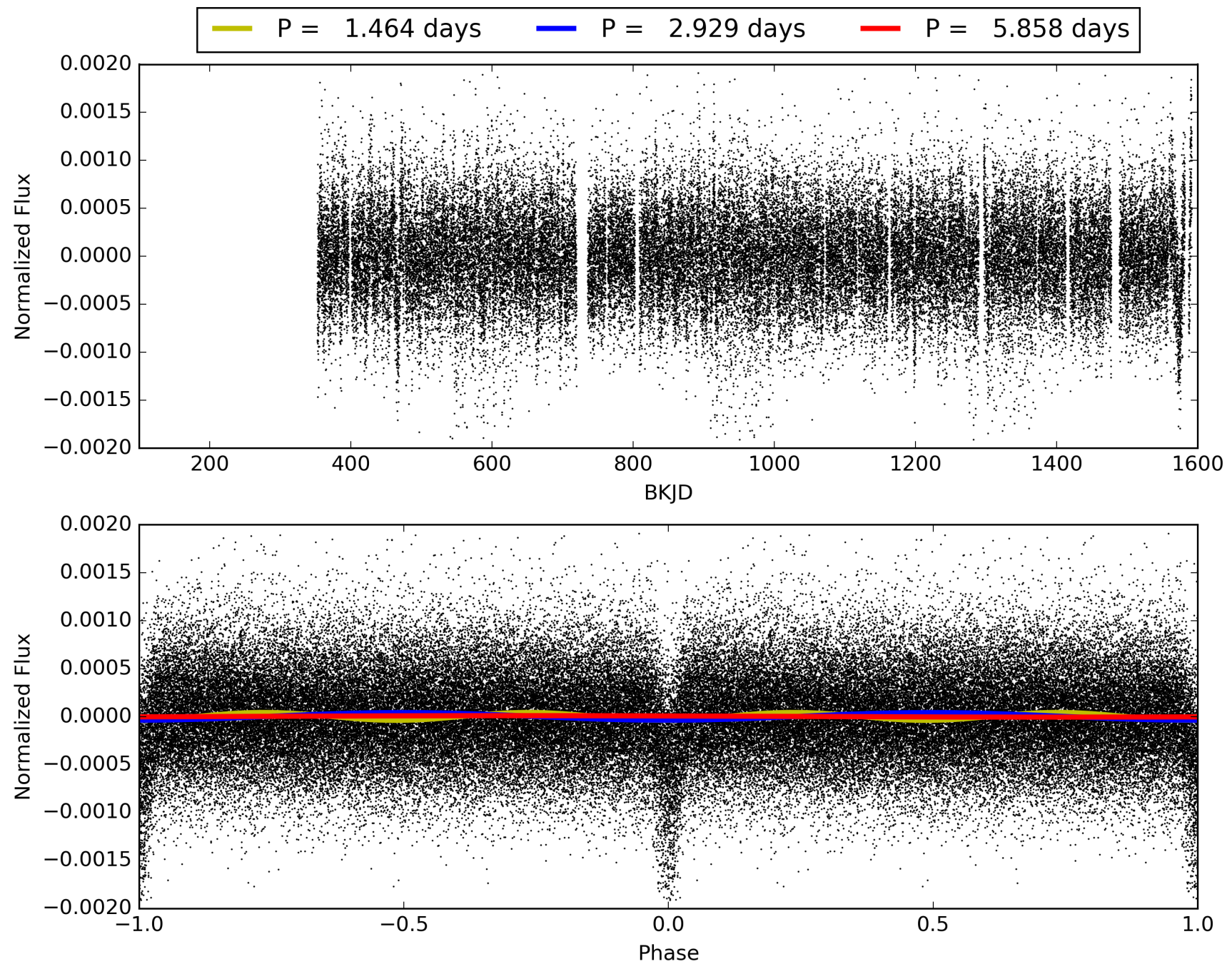
## DV Diagnostic Results:

ShortPeriod-sig: N/A  
LongPeriod-sig: N/A  
ModelChiSquare2-sig: N/A  
ModelChiSquareGof-sig: N/A  
Bootstrap-pfa: 6.18e-222  
RollingBand-fgt: 1.00 [378/378]  
GhostDiagnostic-chr: -0.3413  
Centroid-sig: 0.0%  
Centroid-so: 33.410 arcsec [84.28σ]  
OotOffset-rm: 5.900 arcsec [64.96σ]  
KicOffset-rm: 5.757 arcsec [55.02σ]  
OotOffset-st: 3/0/0/0 [3]  
KicOffset-st: 3/0/0/0 [3]  
DiffImageQuality-fgm: 1.00 [3/3]  
DiffImageOverlap-fno: 1.00 [14/14]

# TCE 005557821-01, PDC Light Curves

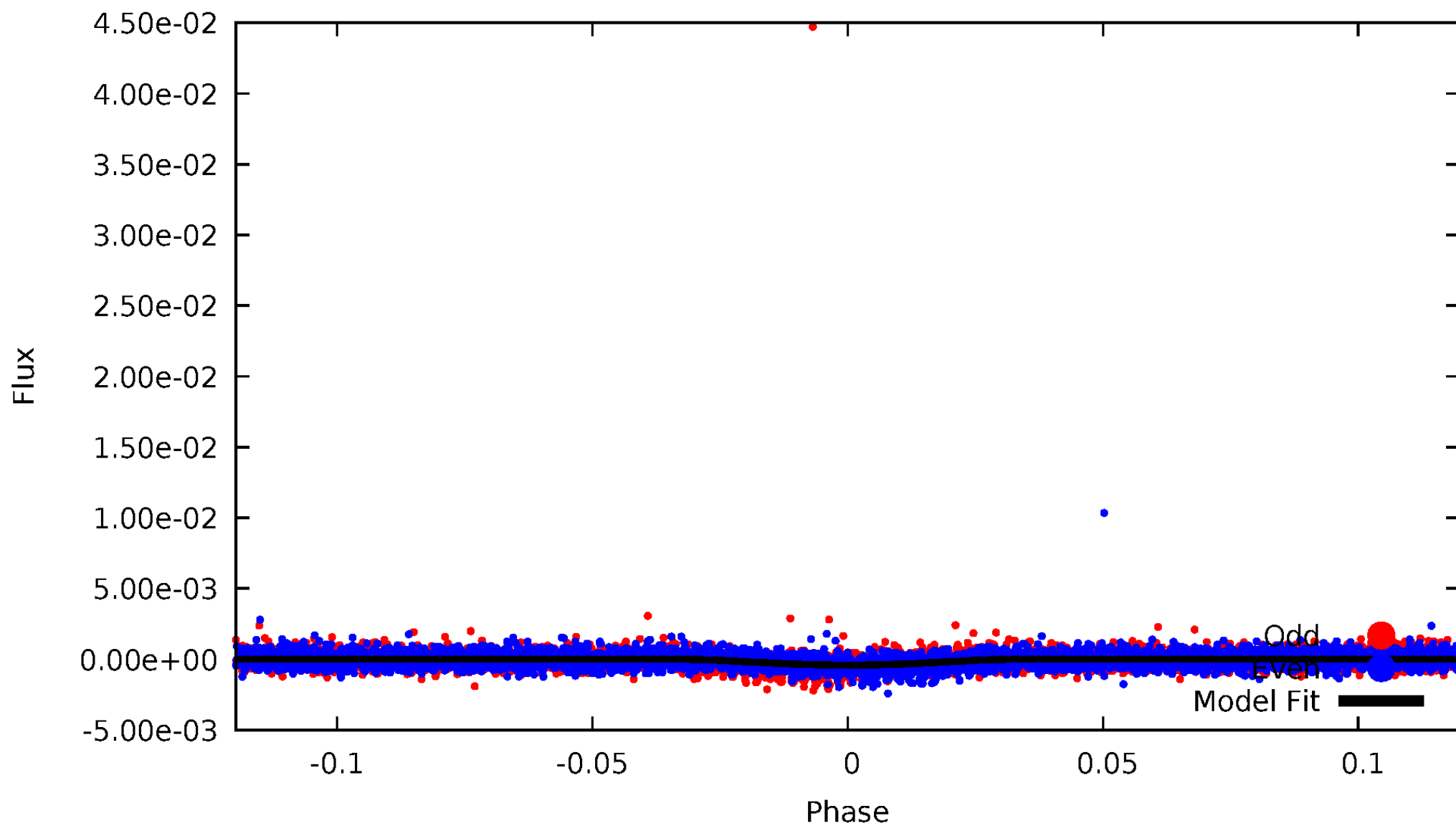


TCE 005557821-01



# DV Odd/Even

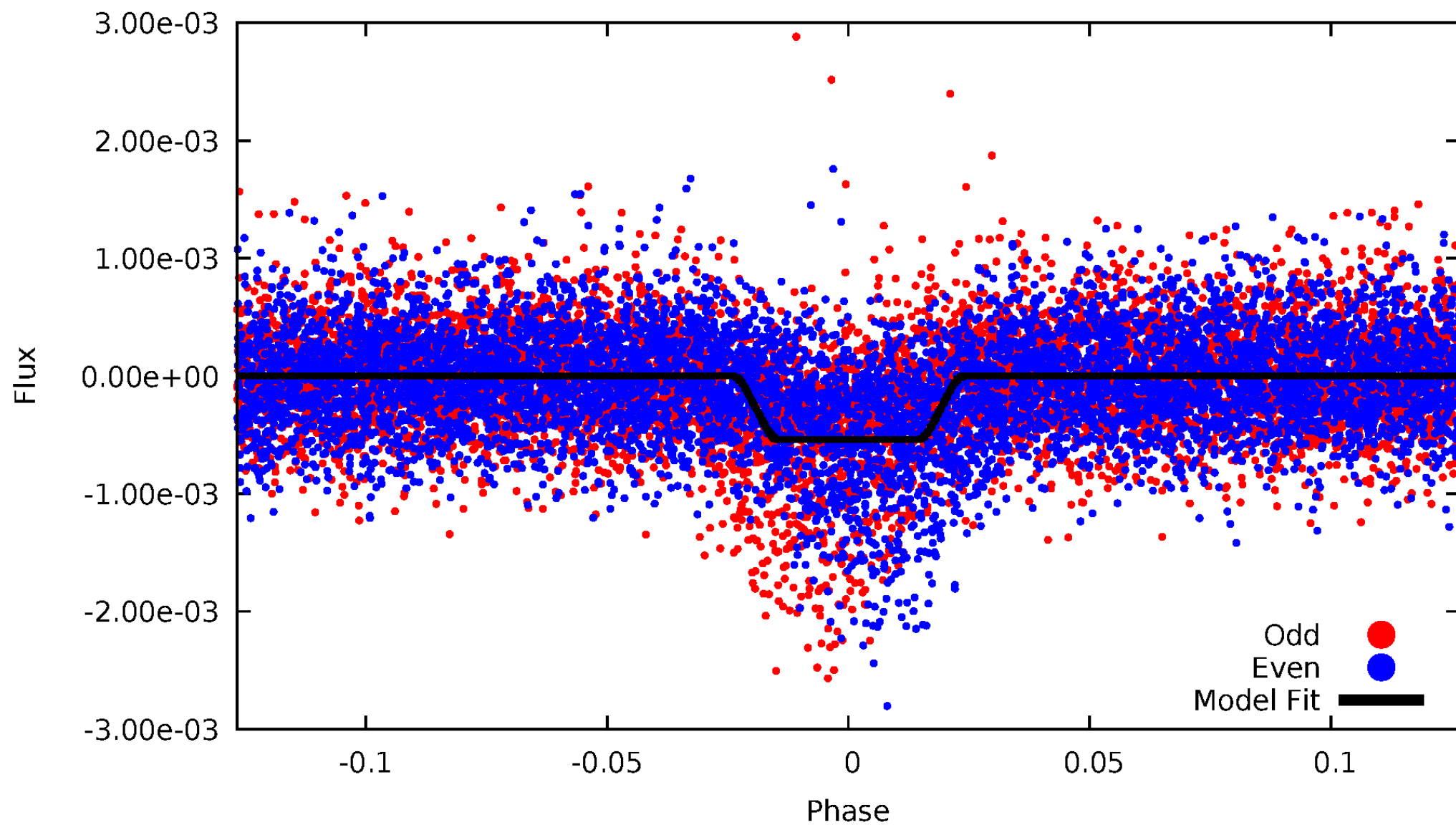
TCE 005557821-01





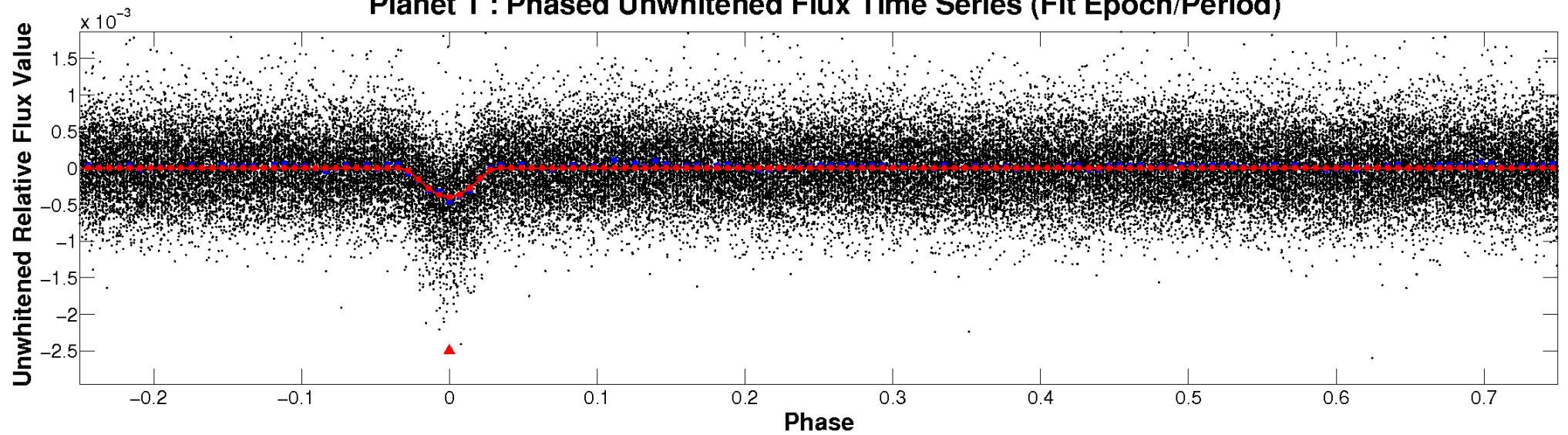
# ALT Odd/Even

TCE 005557821-01

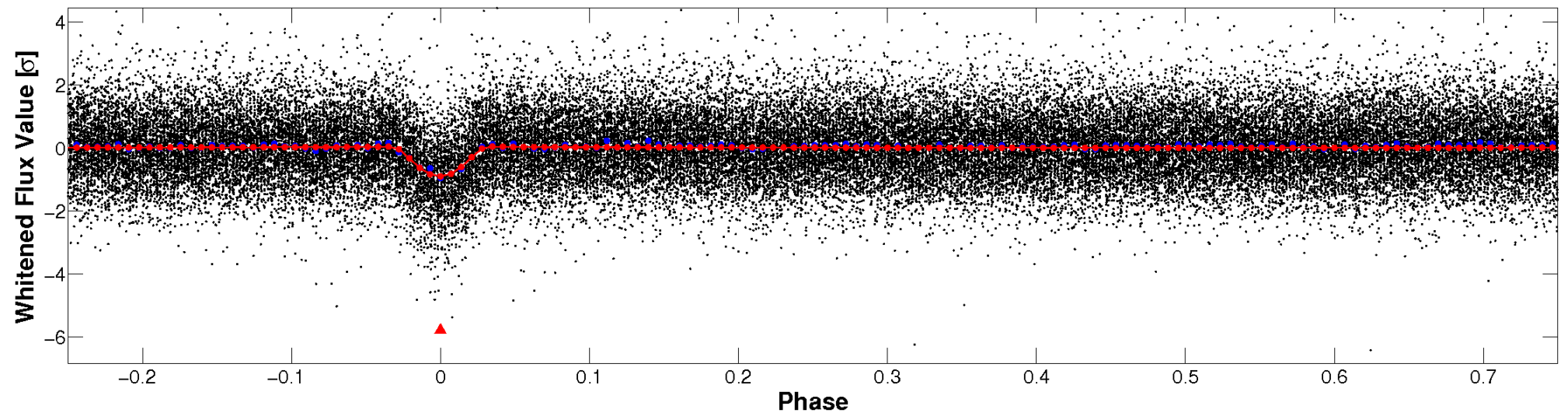


# Non-Whitened Vs. Whitened Light Curve

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

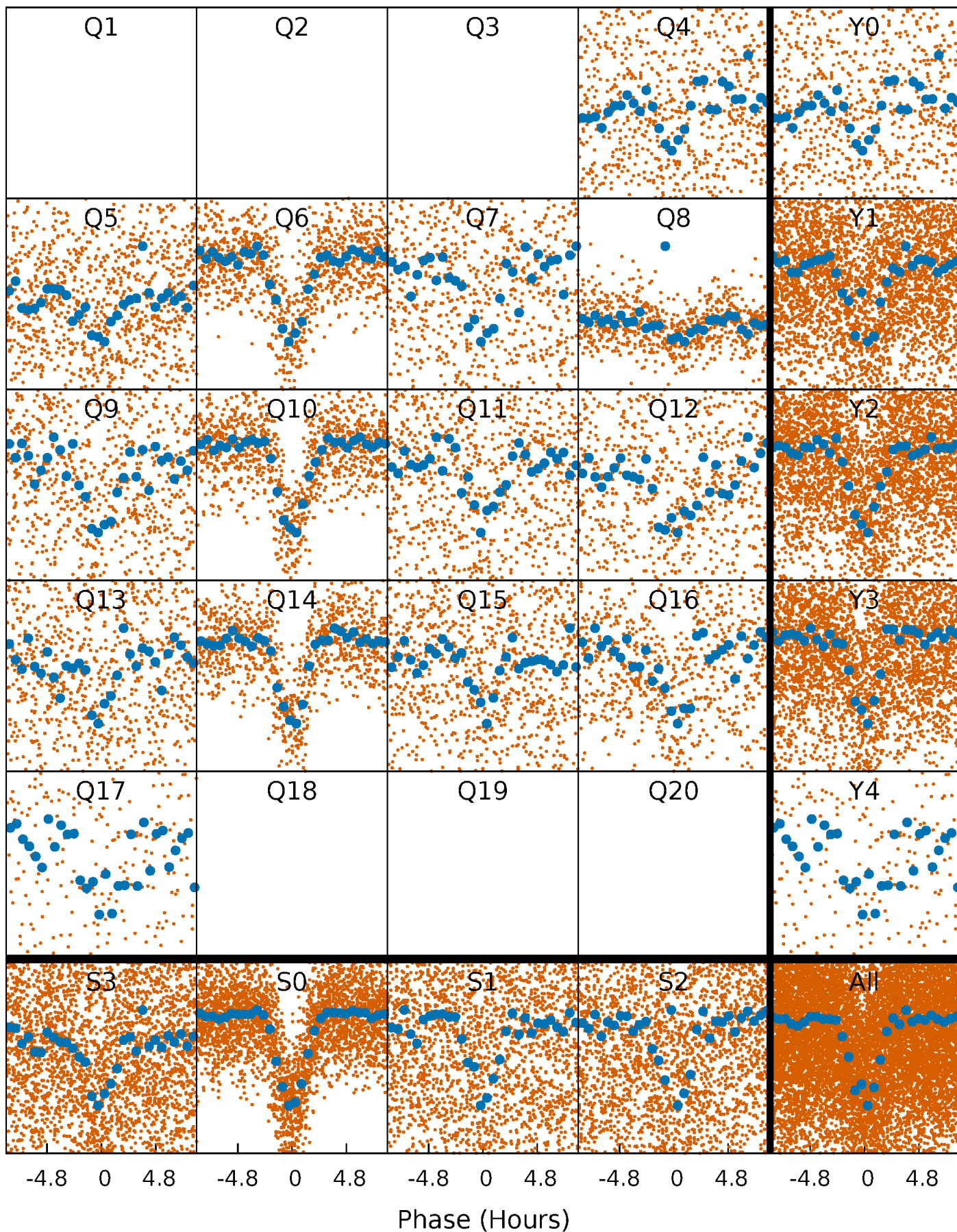


**Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)**



# PDC Quarter-Phased Transit Curves

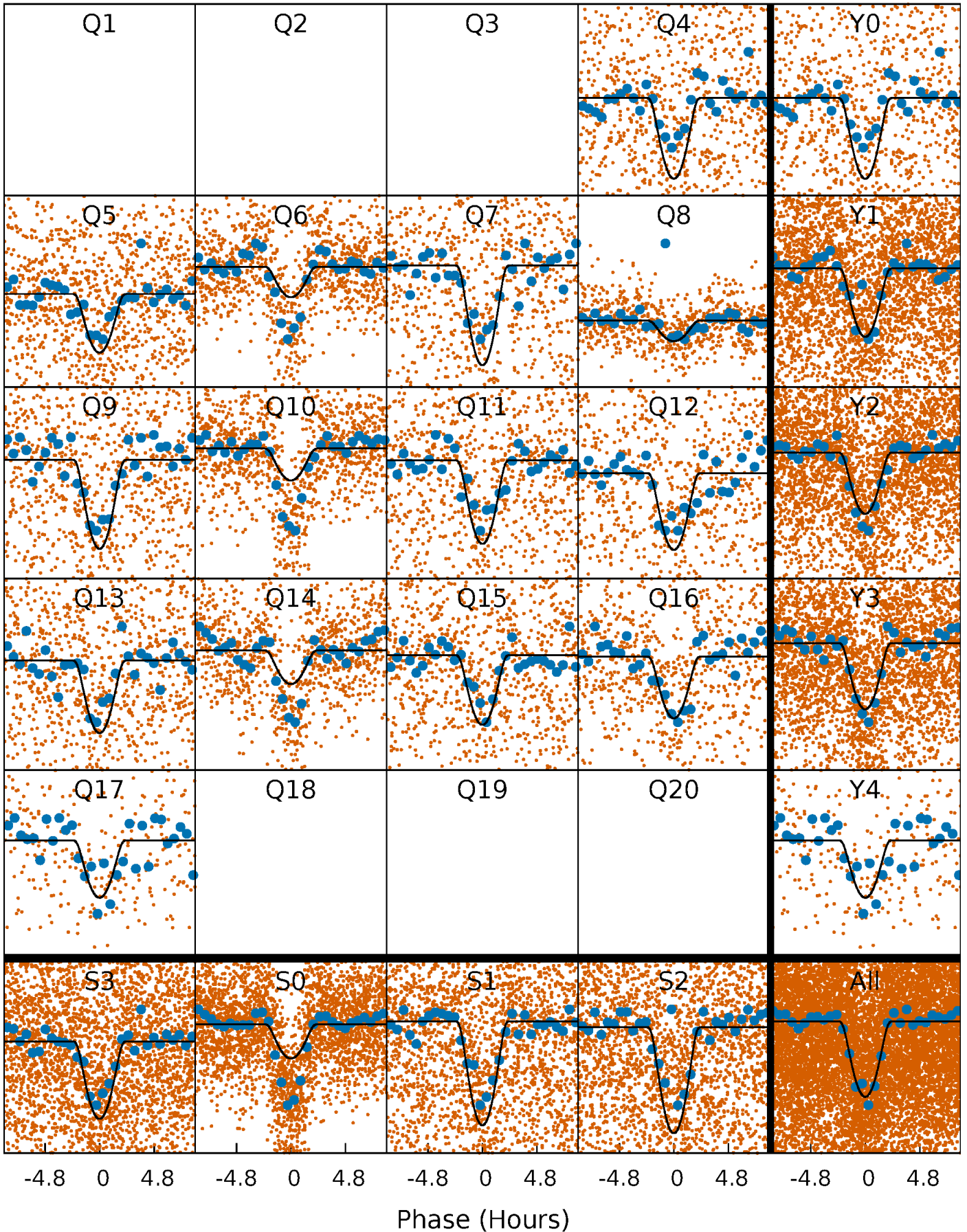
TCE 005557821-01 P= 2.928766 Days  $T_0=133.705655$  (BKJD)





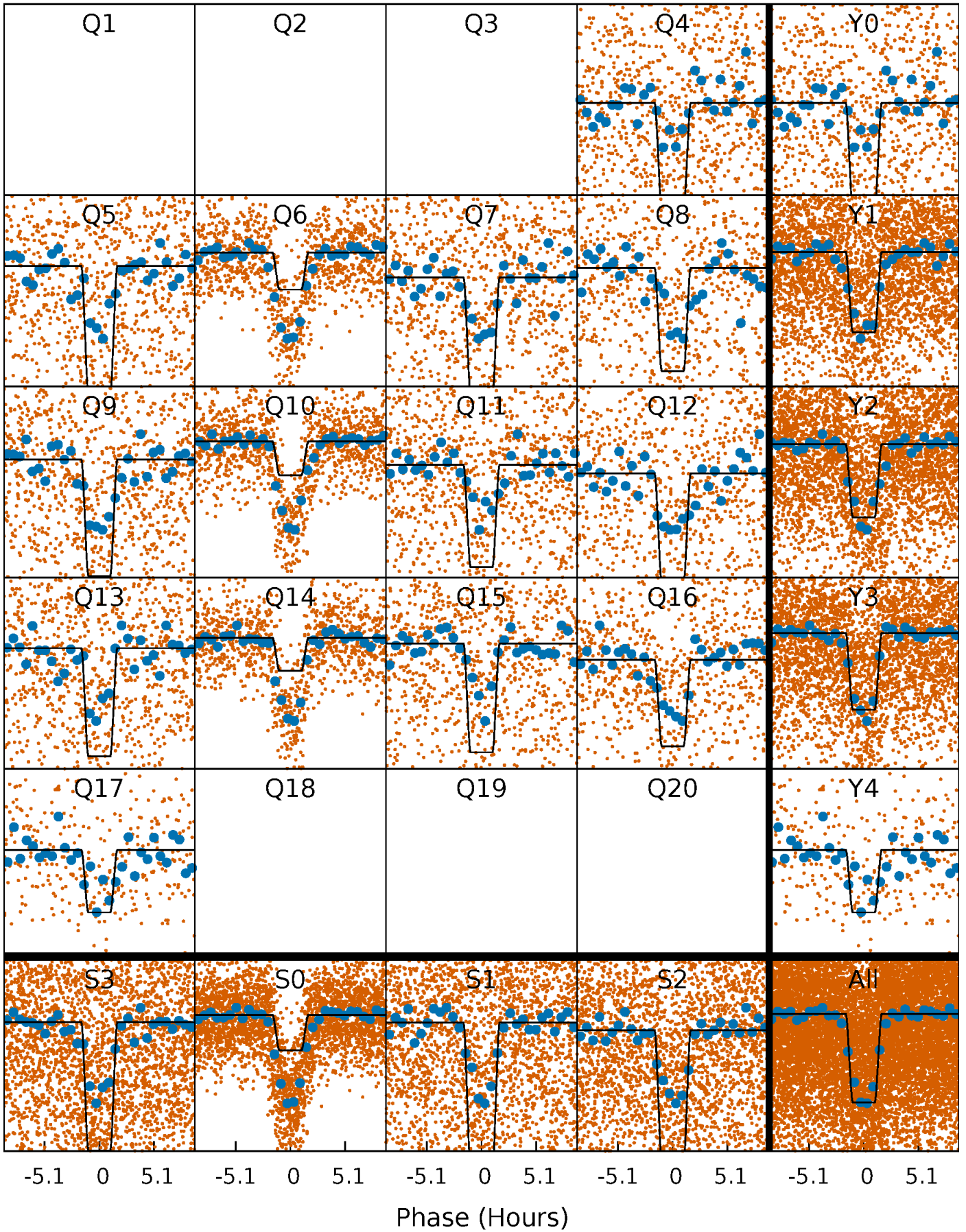
# DV Quarter-Phased Transit Curves

TCE 005557821-01 P= 2.928766 Days  $T_0=133.705655$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

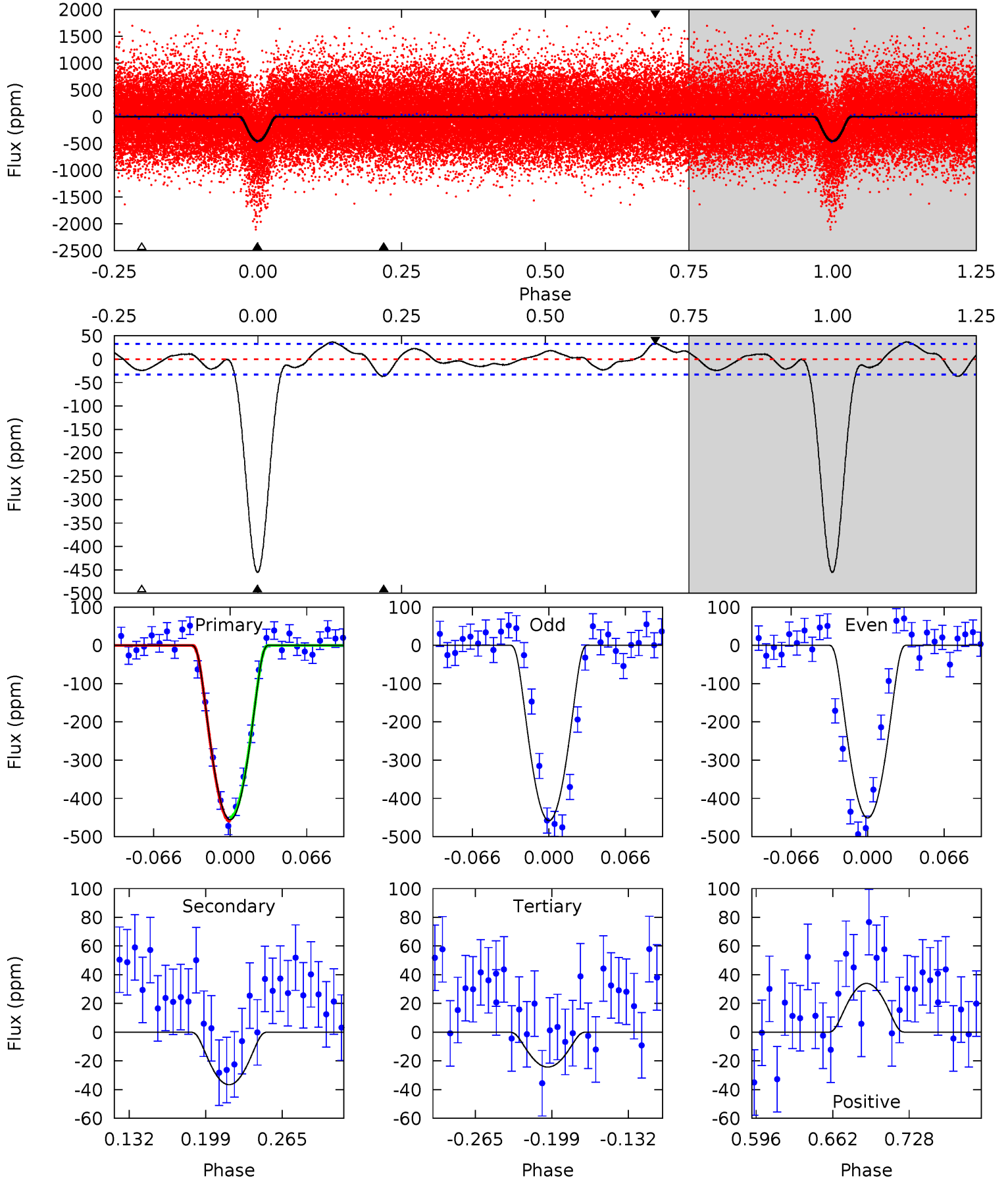
TCE 005557821-01 P= 2.928779 Days  $T_0=133.701517$  (BKJD)



# DV Model-Shift Uniqueness Test

005557821-01, P = 2.928766 Days, E = 133.705655 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
64.5	5.19	3.45	4.81	4.65	1.84	2.15	61.1	59.7	1.74	0.37	0.52	1.08	0.08	0.70

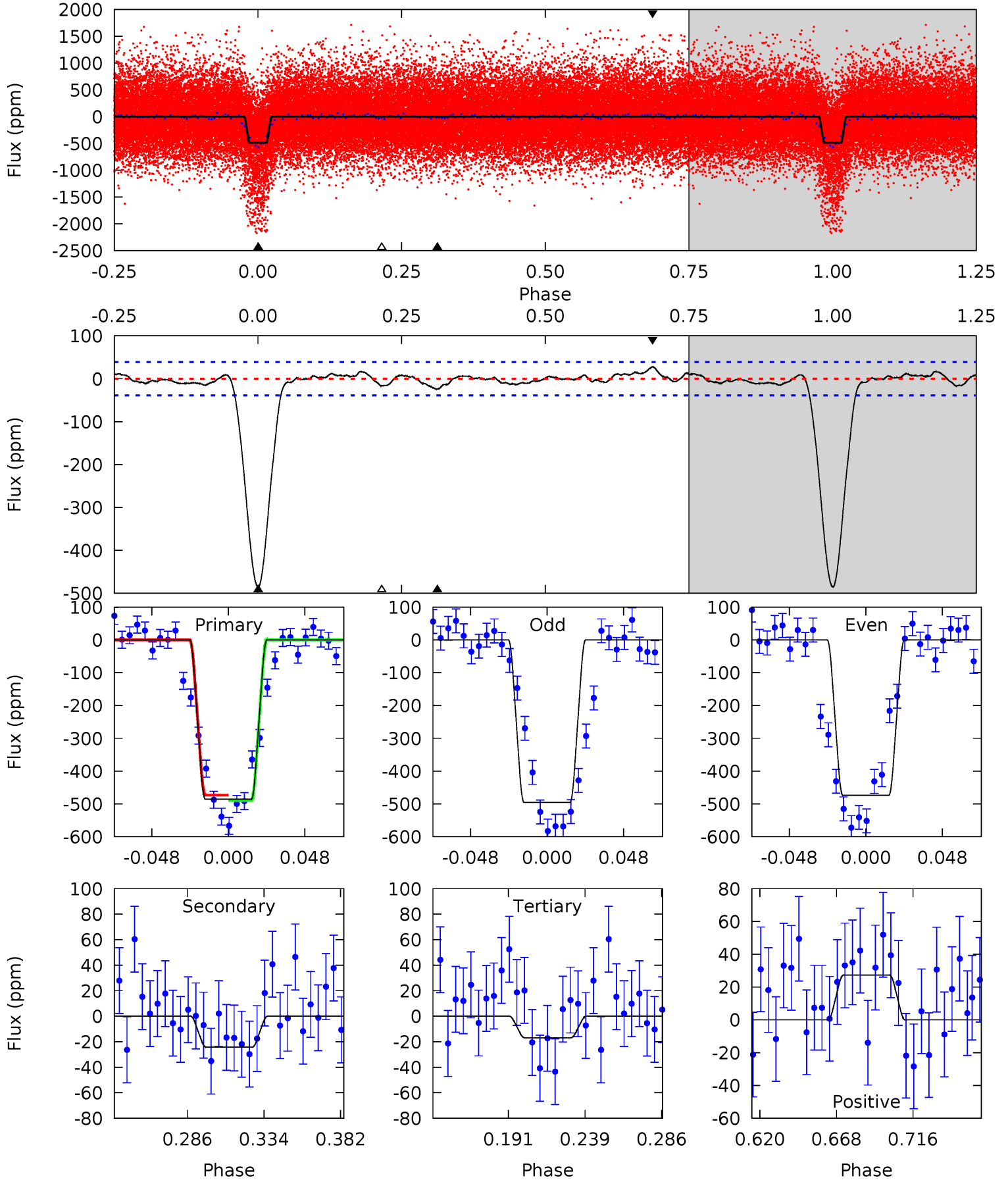




# Alt Model-Shift Uniqueness Test

005557821-01, P = 2.928779 Days, E = 133.701517 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
58.9	2.94	2.05	3.31	4.72	1.98	1.05	56.8	55.6	0.89	-0.36	1.29	1.37	0.05	0.99





### Stellar Parameters For KIC 005557821

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	$5955^{+187}_{-208}$	$4.534^{+0.037}_{-0.212}$	$-0.240^{+0.300}_{-0.300}$	$0.883^{+0.271}_{-0.090}$	$0.972^{+0.115}_{-0.128}$	$1.987^{+0.424}_{-1.071}$
	+3%/-3%	+1%/-5%	+125%/-125%	+31%/-10%	+12%/-13%	+21%/-54%
Source	KIC0	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 005557821-01 / KOI 1571.01

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	$A_{\text{obs}}$
DV	$-37 \pm 7$	$3.47^{+2.40}_{-1.92}$	$1783^{+126}_{-85}$	$3065^{+910}_{-513}$	$2.508^{+9.553}_{-1.647}$
Alt.	$-24 \pm 8$	$2.90^{+2.18}_{-1.84}$	$1779^{+133}_{-89}$	$3022^{+1266}_{-570}$	$2.377^{+15.224}_{-1.664}$

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

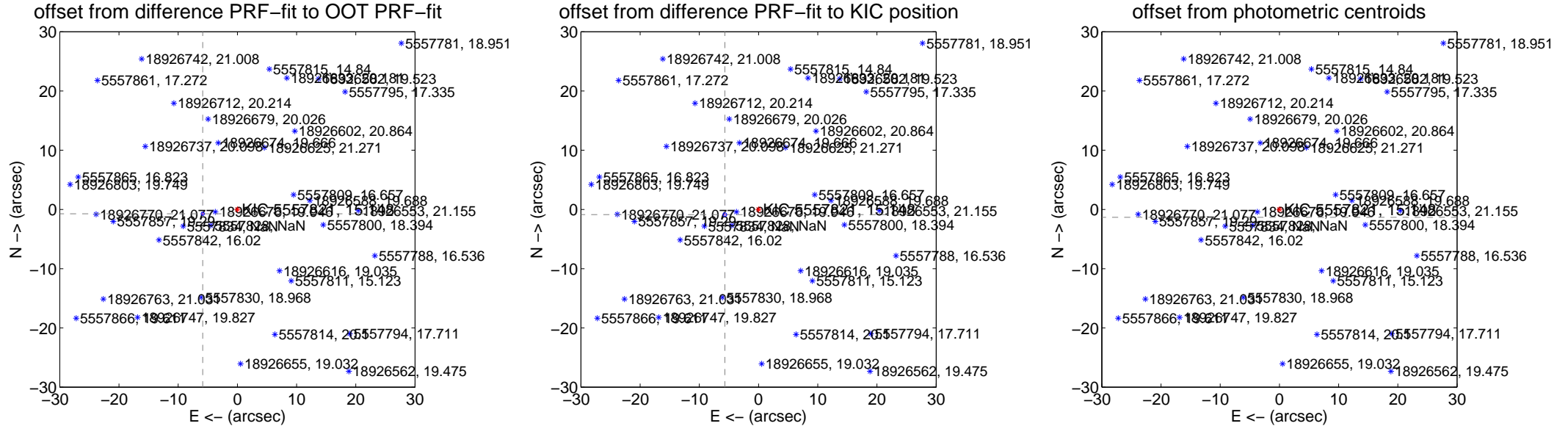
## DV Centroid Data

Supplemental centroid analysis for 005557821-01. Kepler magnitude: 15.15. Transit SNR 33.64

There are 3 quarters with good PRF difference image offsets

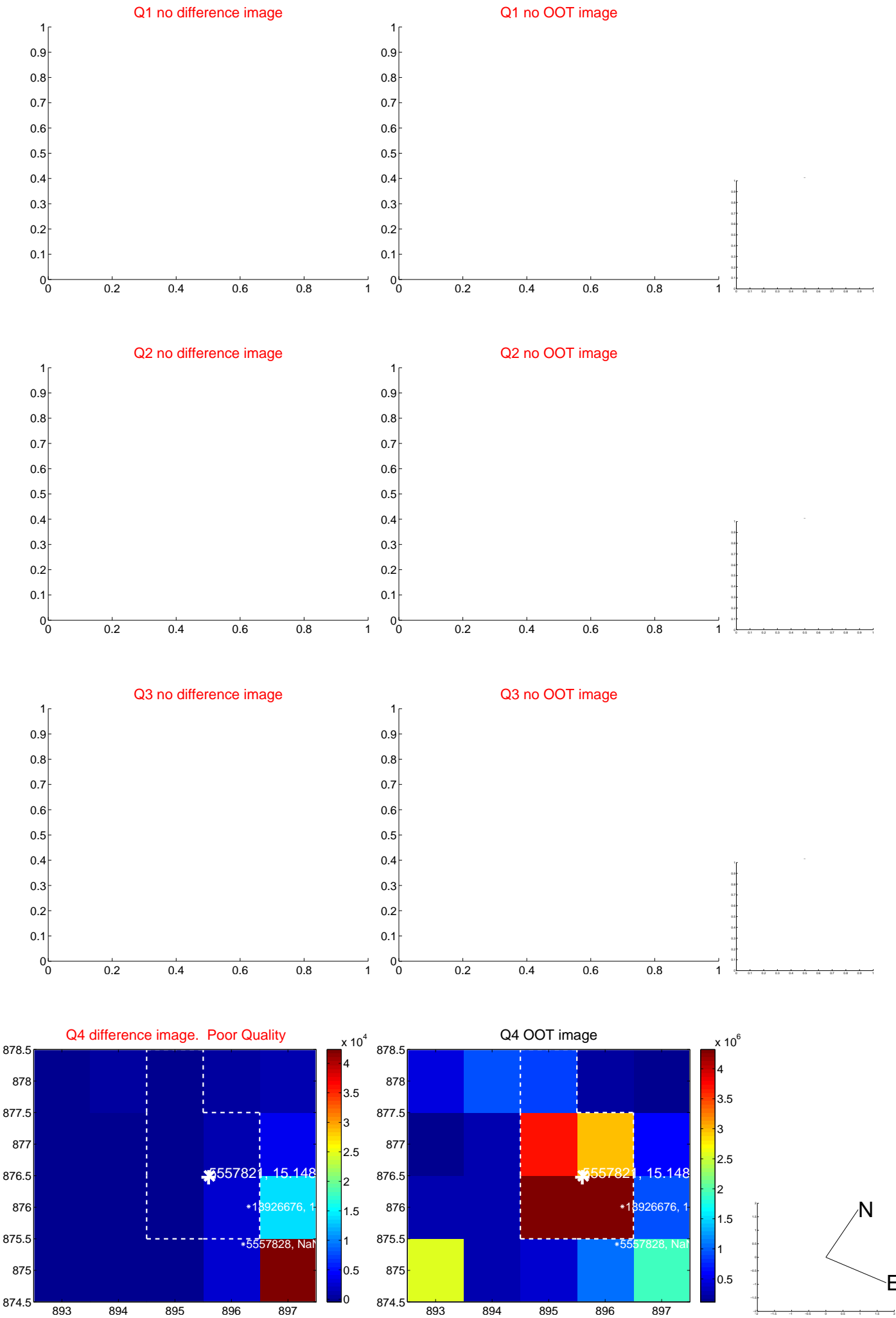
The direct PRF centroid is offset from the target star catalog position by about 0.24 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	5.900 $\pm$ 0.091	64.96	5.855 $\pm$ 0.092	-0.731 $\pm$ 0.069
PRF-fit source offset from KIC position	5.757 $\pm$ 0.105	55.02	5.690 $\pm$ 0.105	-0.875 $\pm$ 0.072
photometric centroid source offset	33.41 $\pm$ 0.40	84.28	33.38 $\pm$ 0.40	-1.32 $\pm$ 0.37

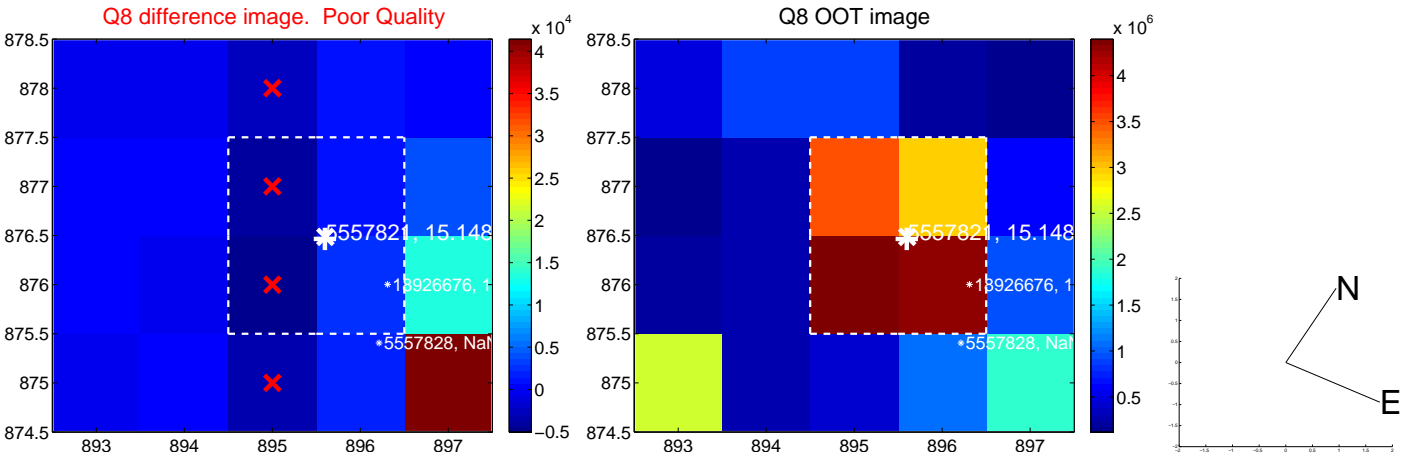
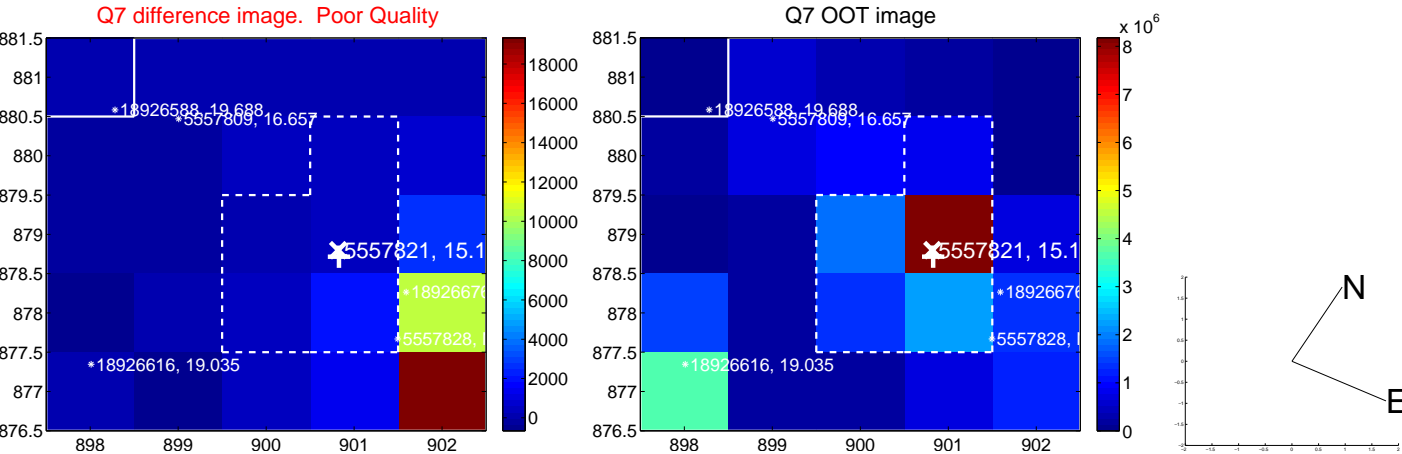
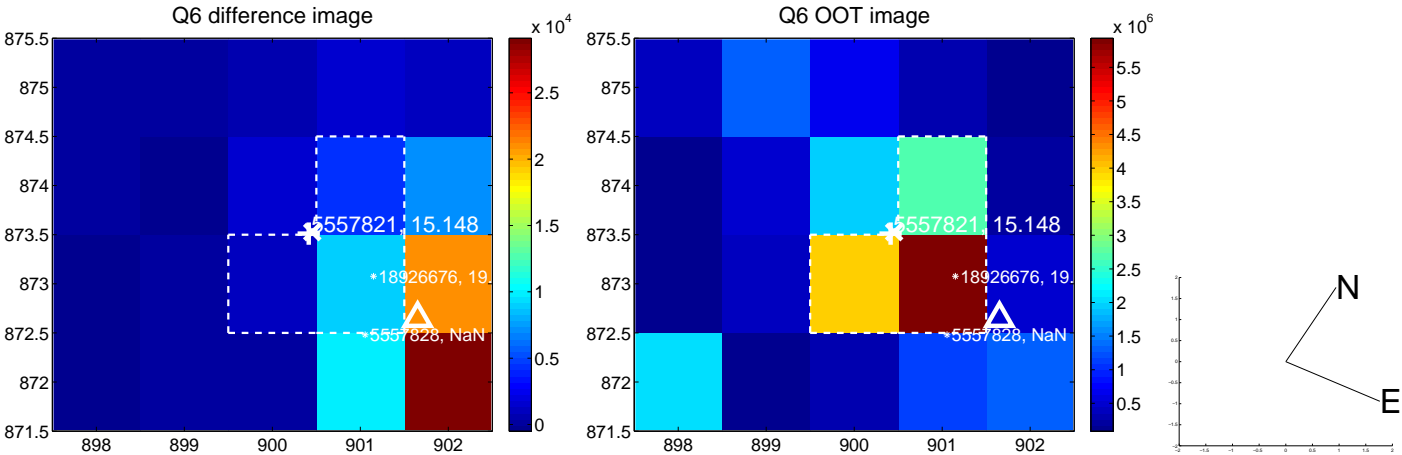
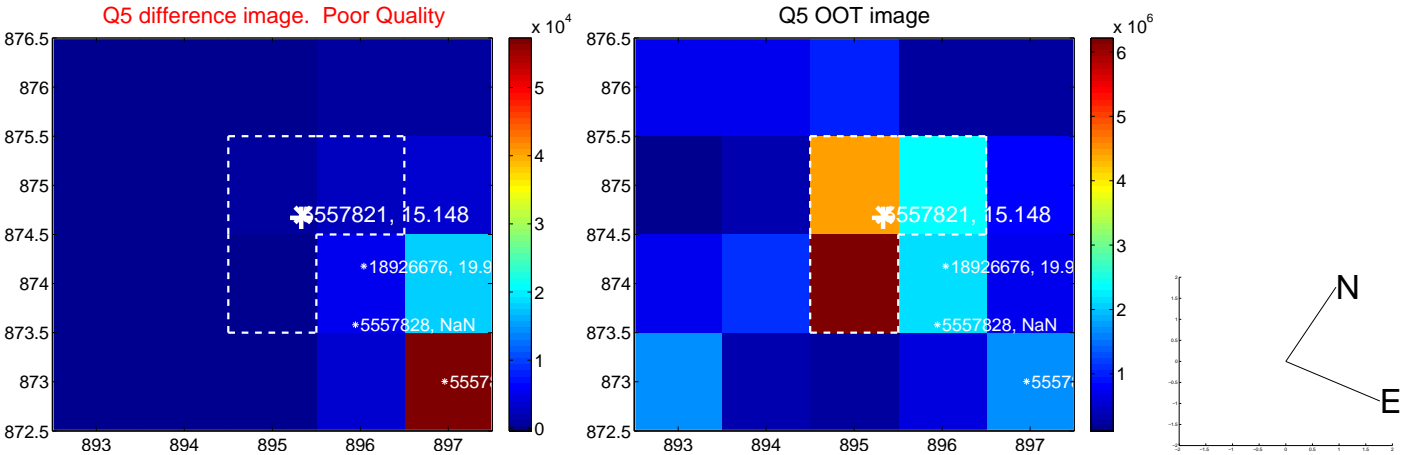


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: three-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

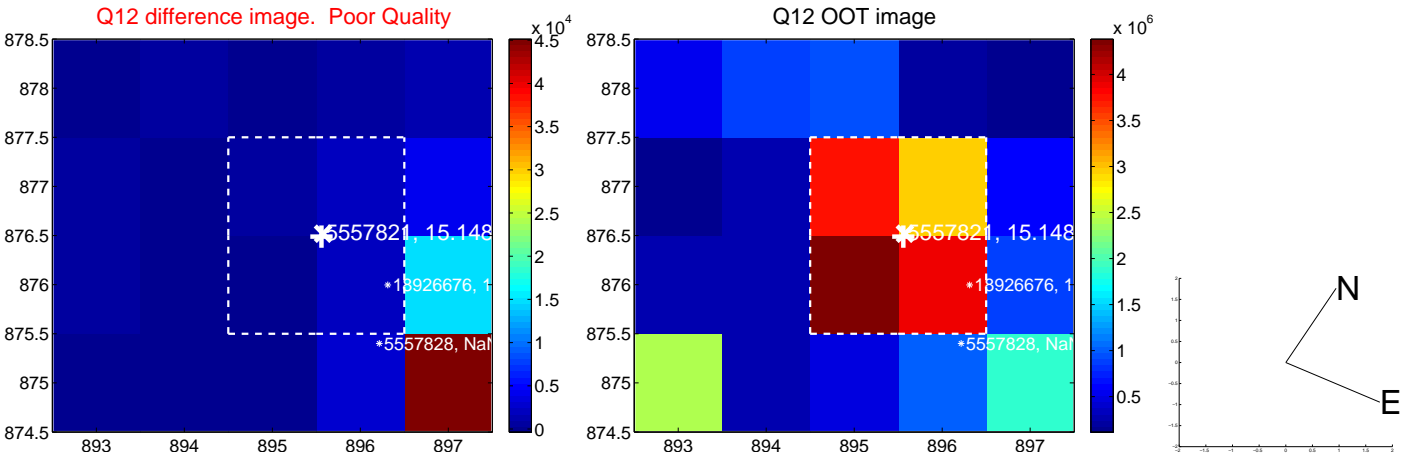
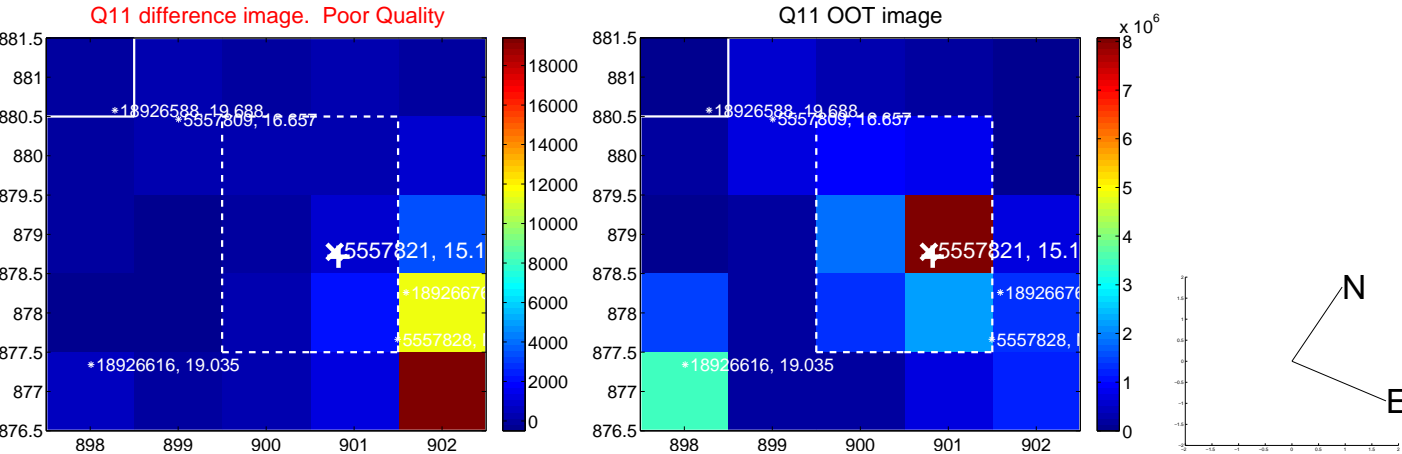
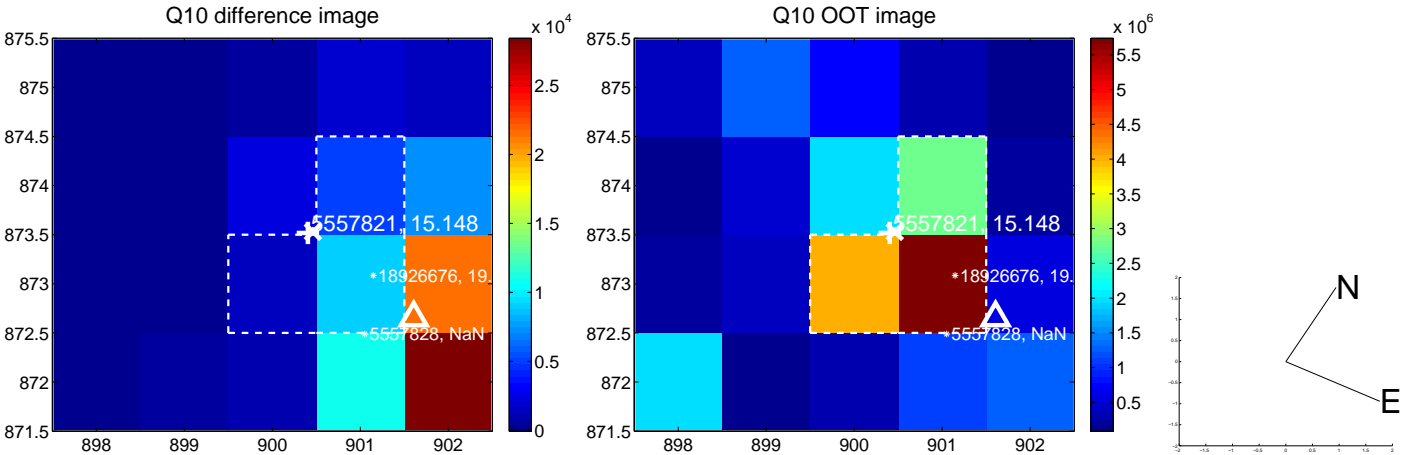
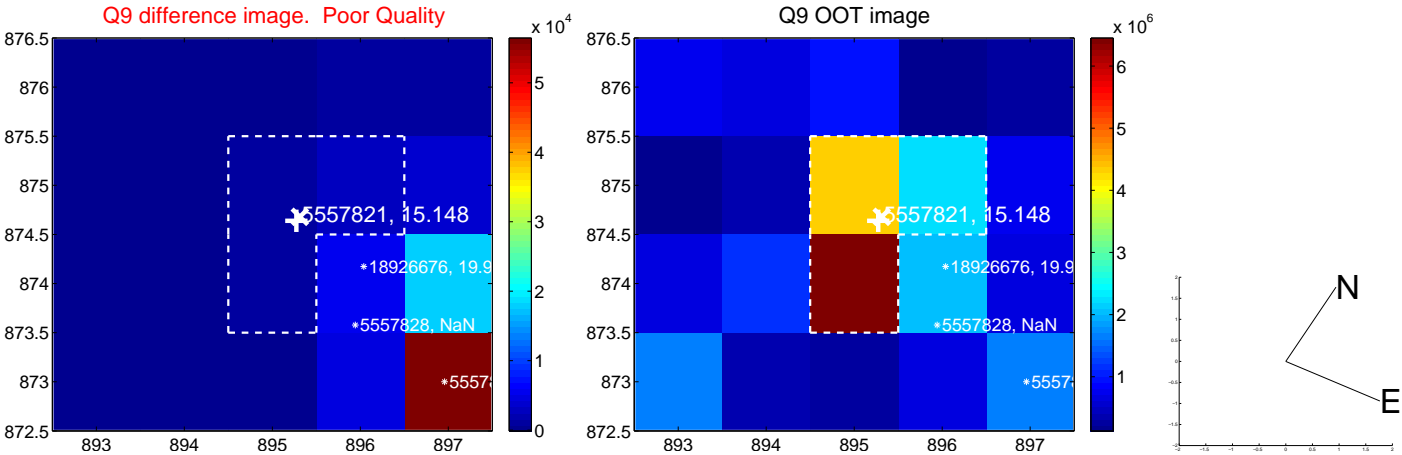


white ×: KIC target position; +: OOT centroid; △: difference centroid. red ×: large negative pixel value.

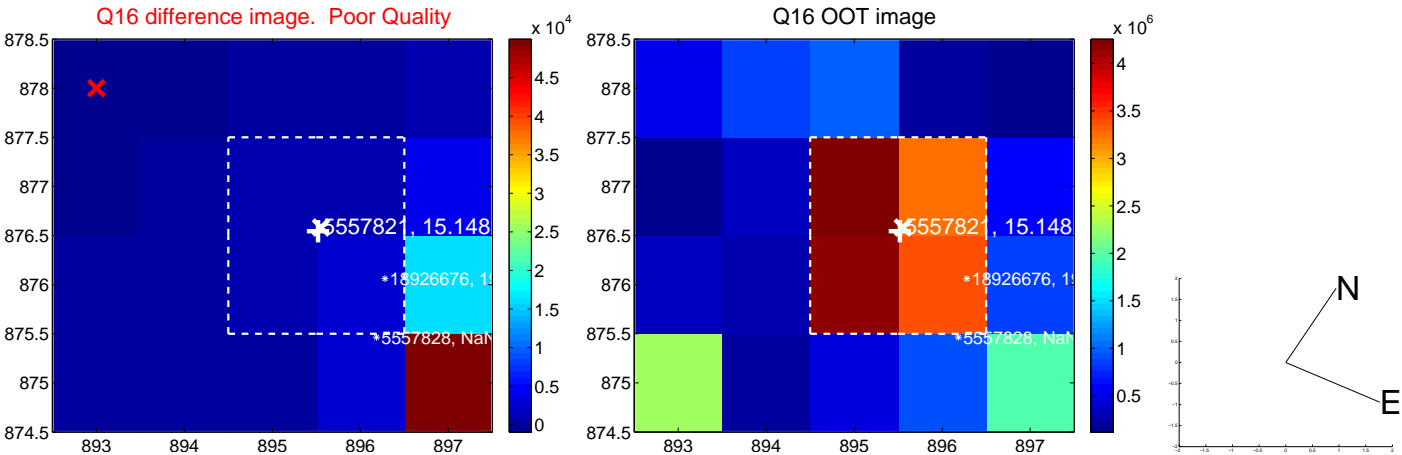
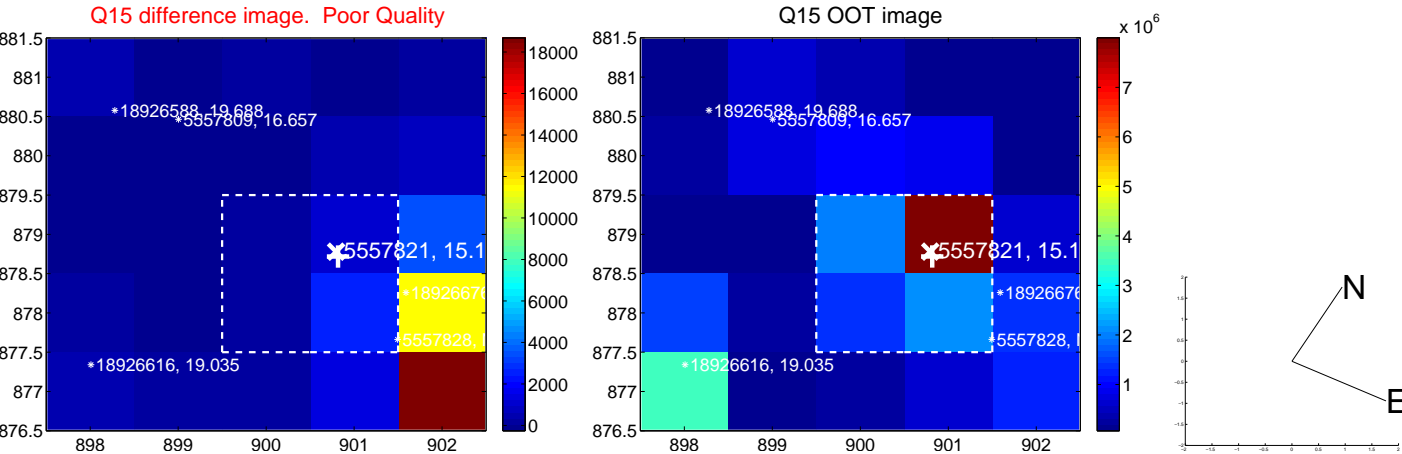
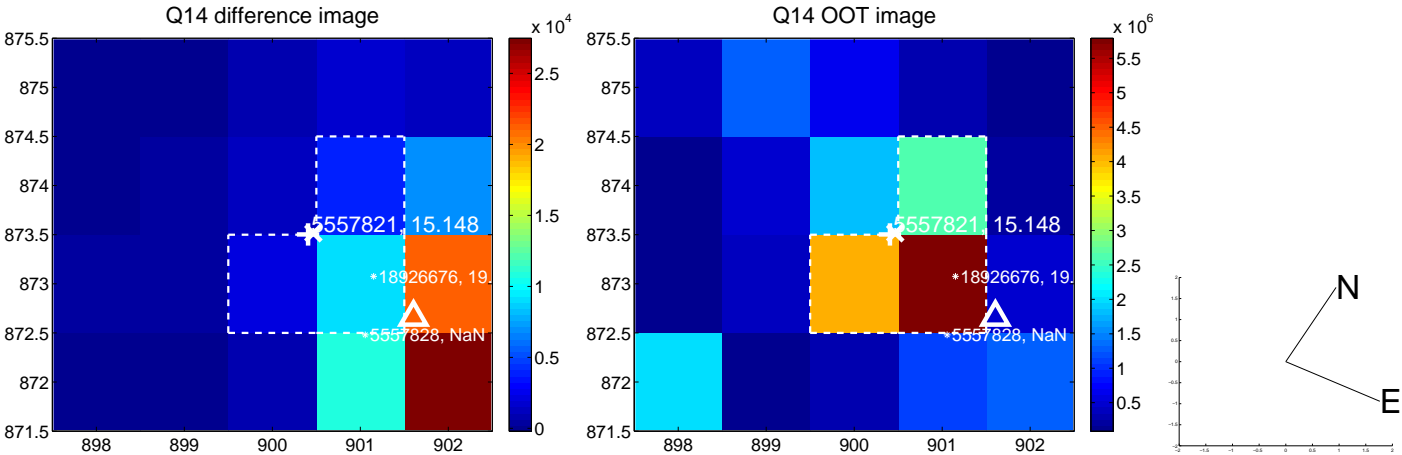
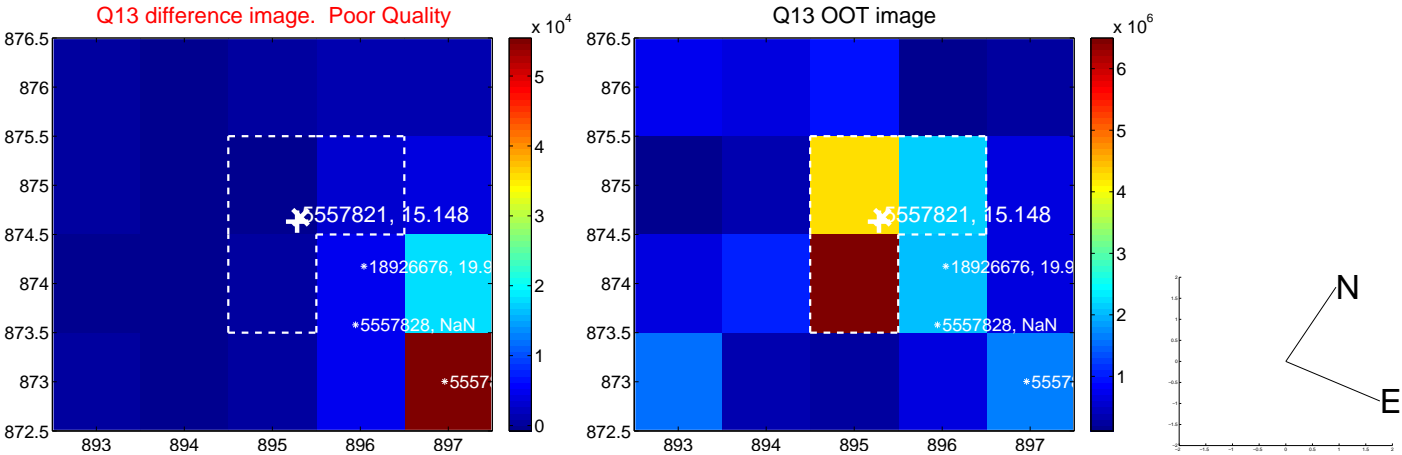




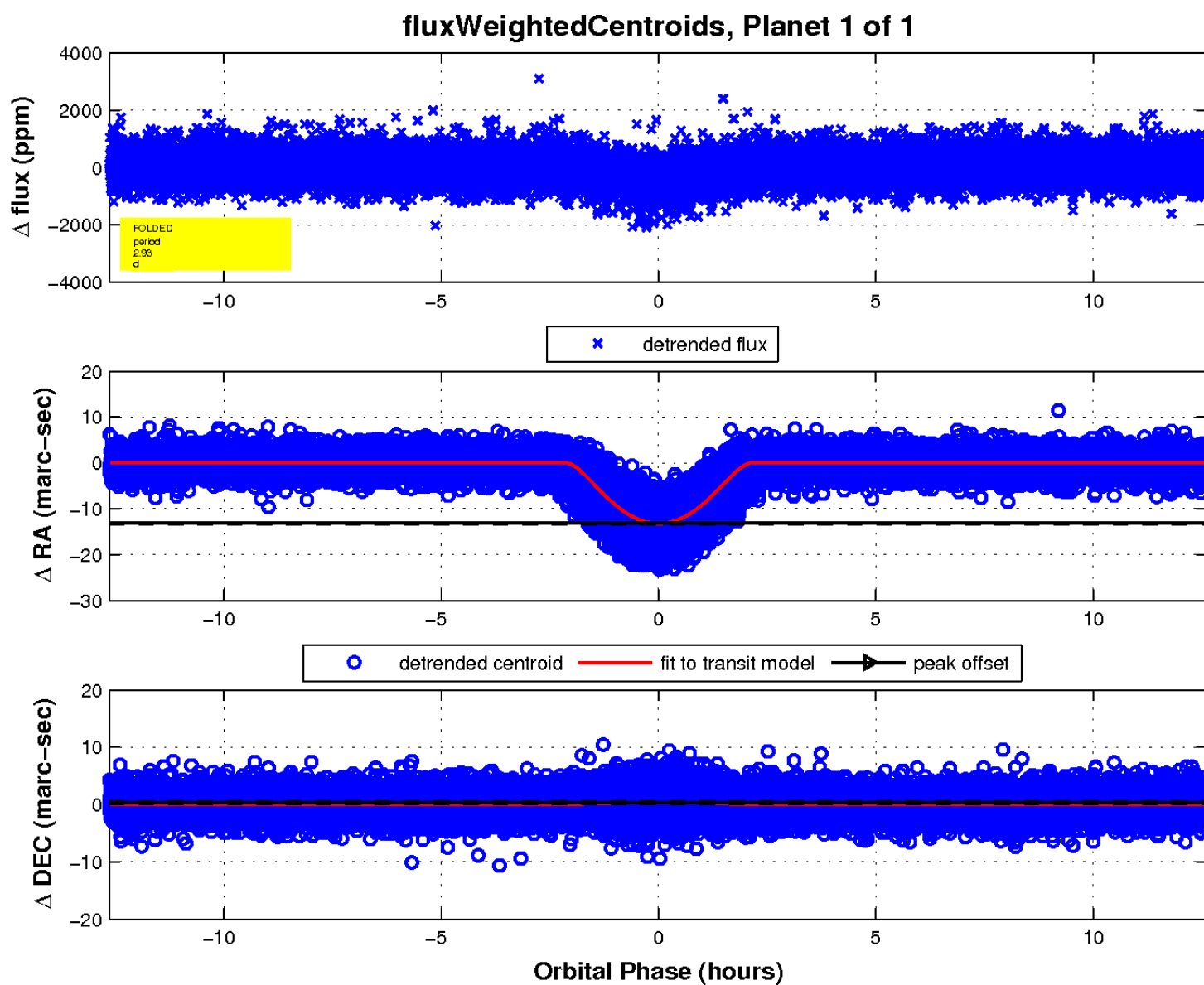
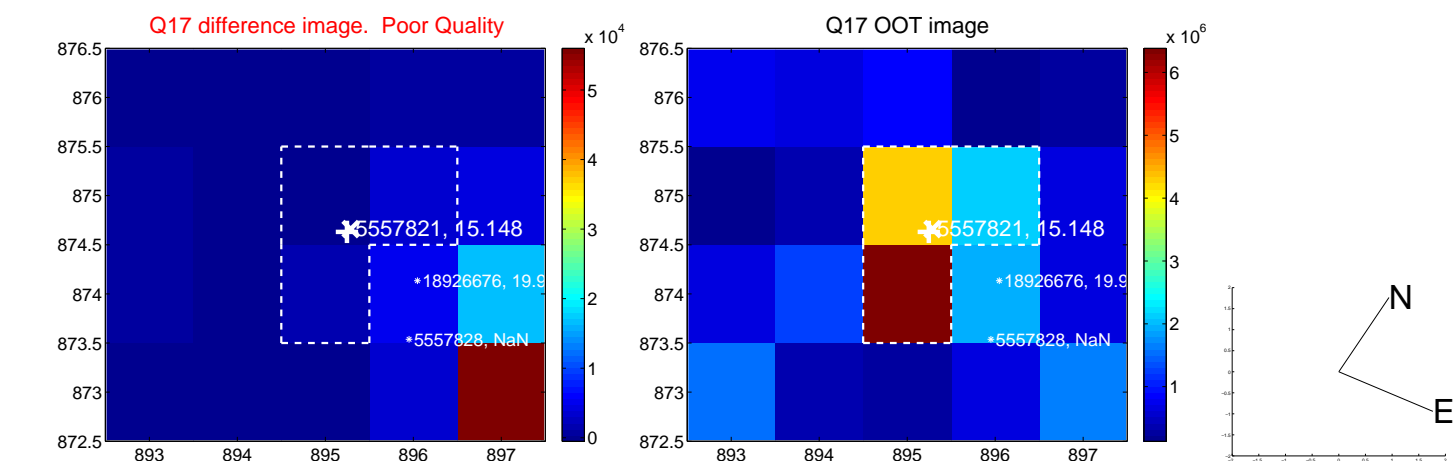
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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.



UKIRT Image

Declination

