

# KIC 003757951

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
003757951-01	OBS	No	0.572441	131.942039	54.1	6.869	9.5	3.2	0.74	5345	0.68	2825.12

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
003757951-01	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_ALT

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

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

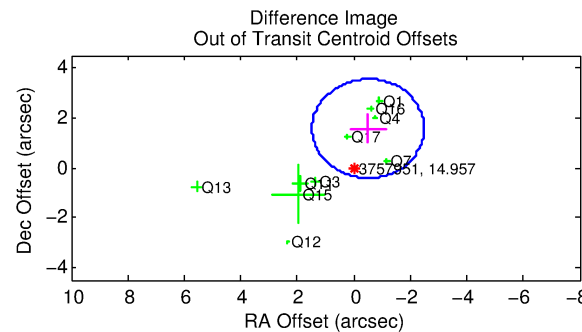
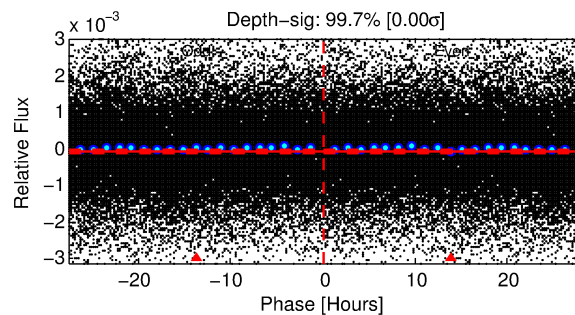
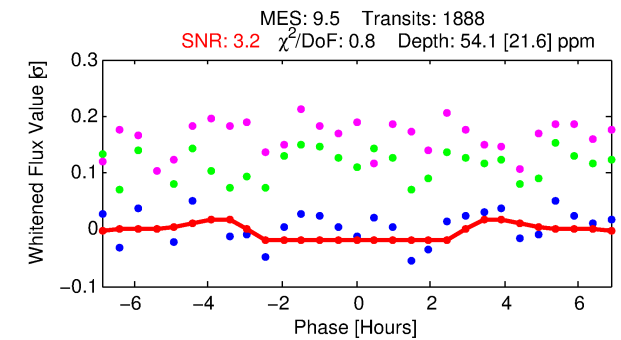
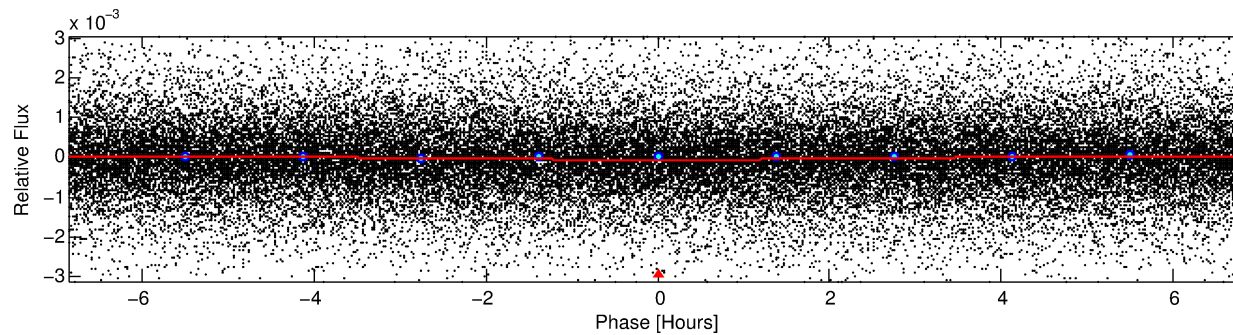
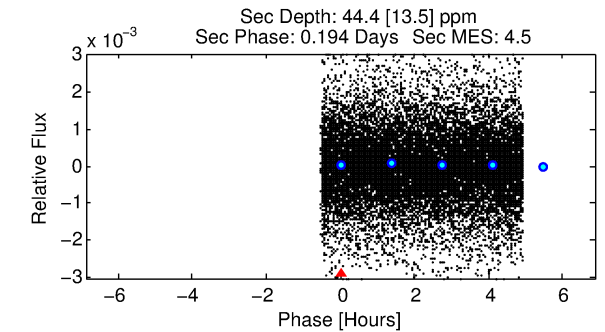
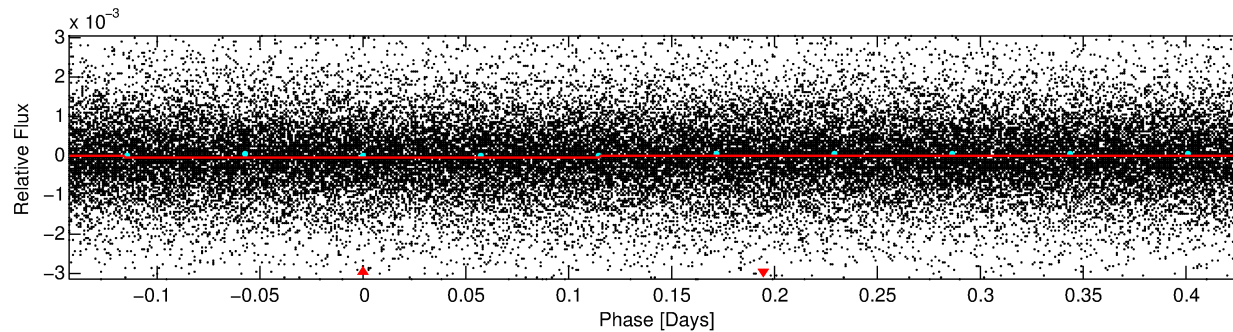
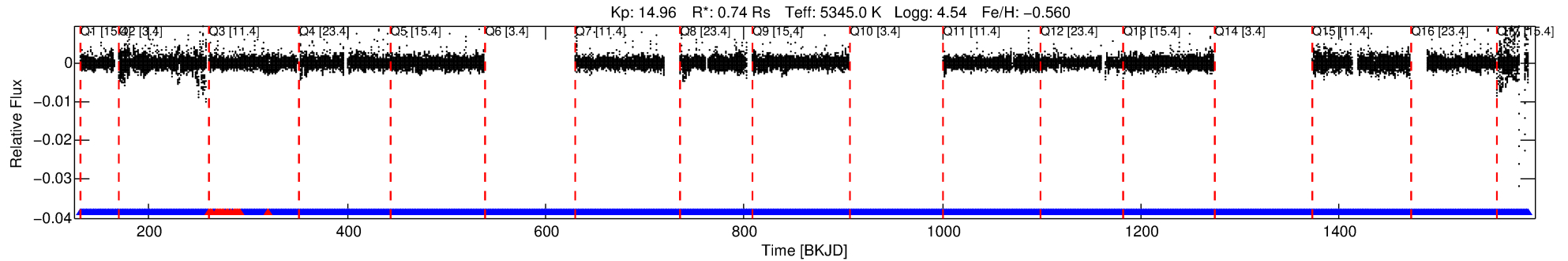
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

## Ephemeris Match Information For 003757951-01

No Significant Match Found

# DV One-Page Summary

KIC: 3757951 Candidate: 1 of 1 Period: 0.572 d



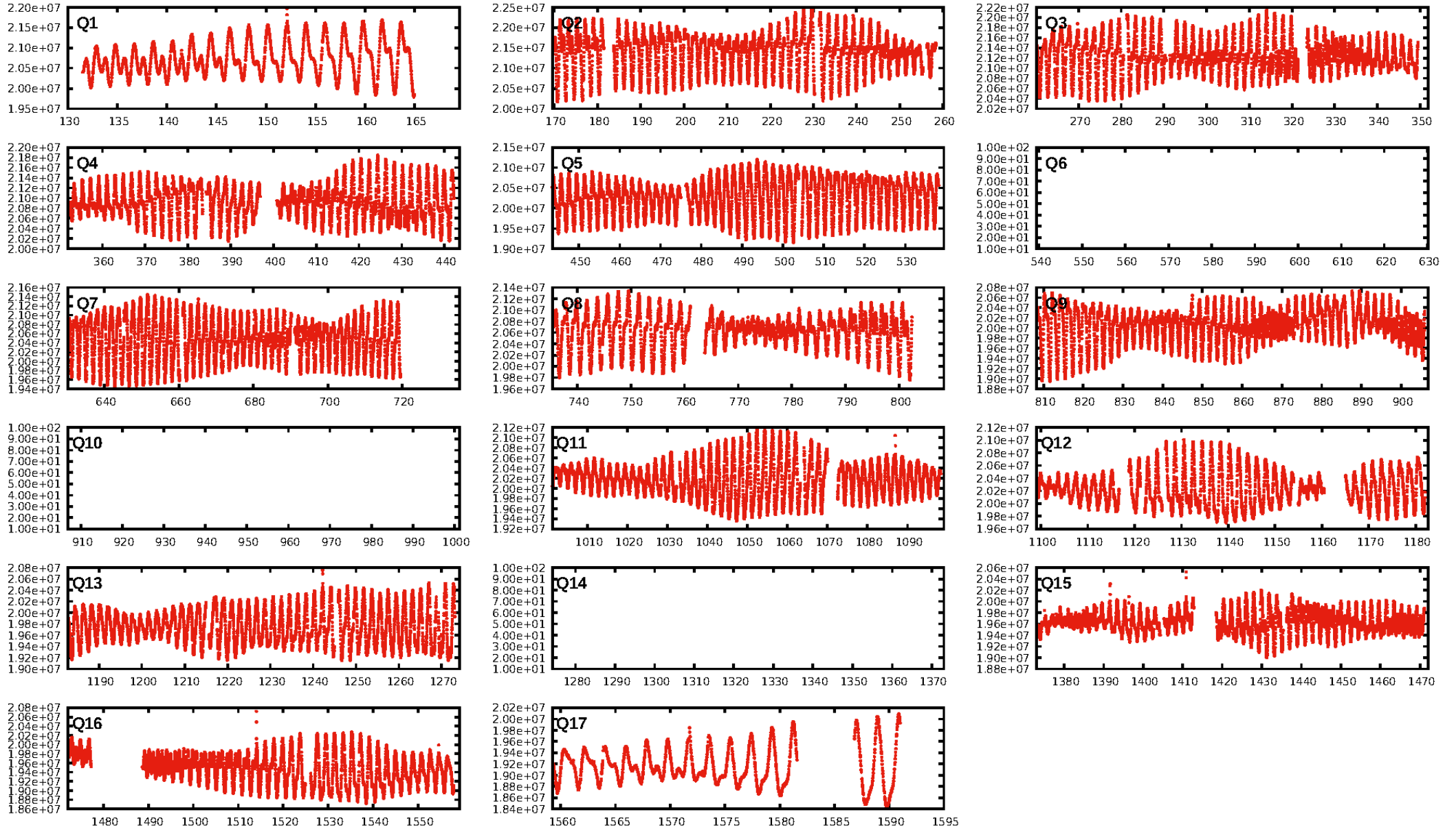
## DV Fit Results:

Period = 0.57244 [0.00003] d  
Epoch = 131.9420 [0.0099] BKJD  
Rp/R\* = 0.0083 [0.0020]  
a/R\* = 1.00 [0.00]  
b = 0.93 [0.09]  
Seff = 2825.12 [597.28]  
Teff = 1859 [98] K  
Rp = 0.68 [0.18] Re  
a = 0.0120 [0.0014] AU  
Ag = 7.65 [4.48] [1.48σ]  
Teffp = 4780 [684] K [4.23σ]

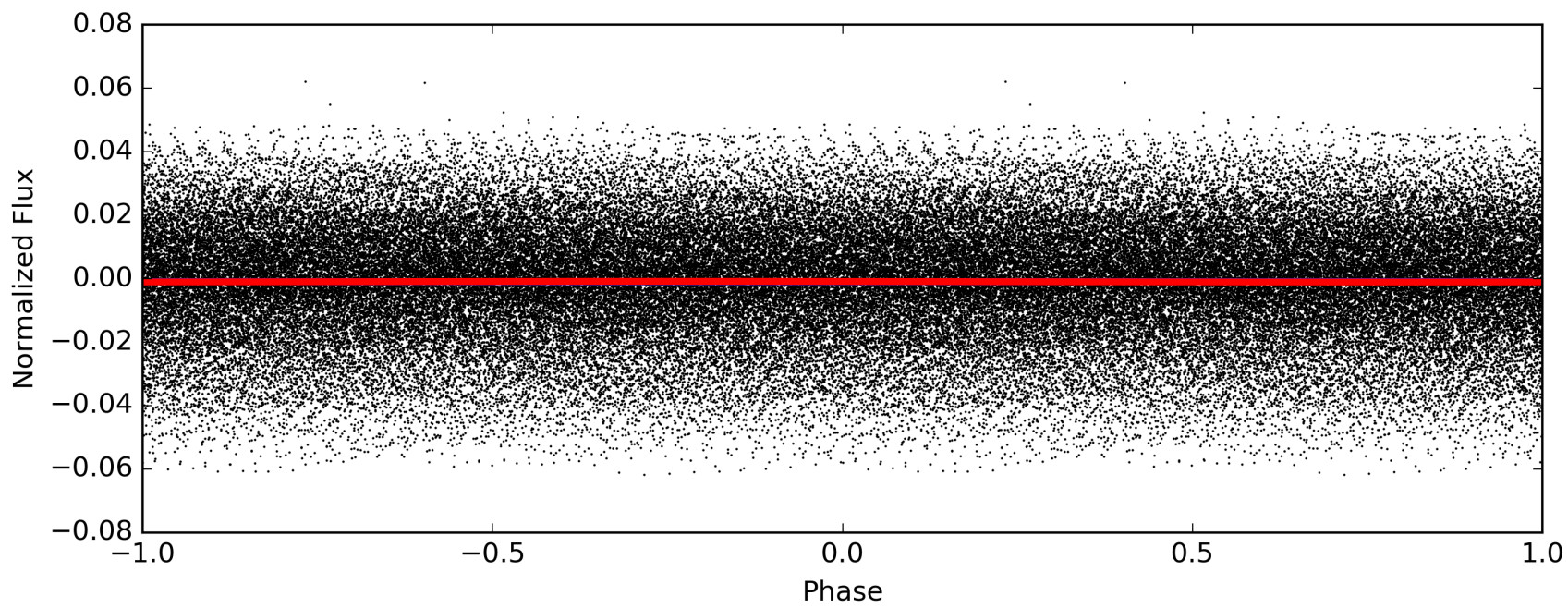
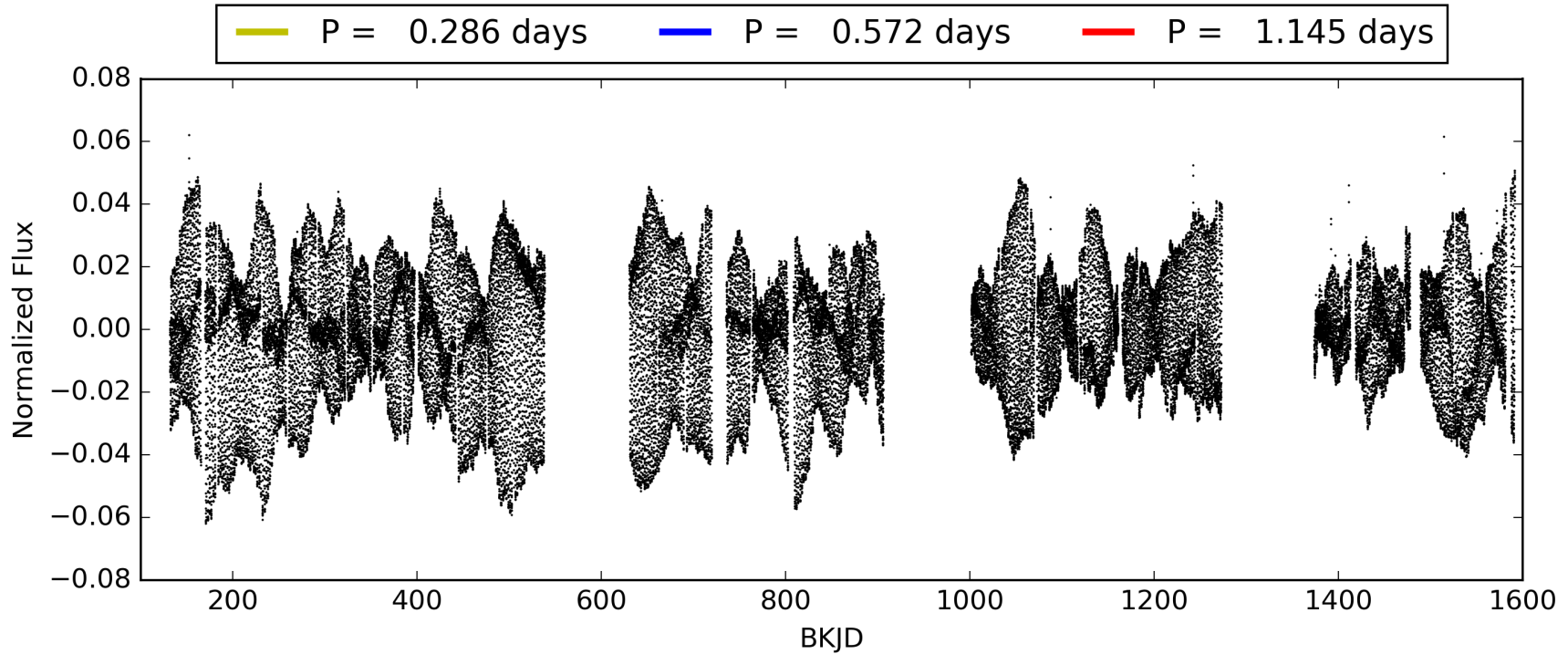
## DV Diagnostic Results:

ShortPeriod-sig: N/A  
LongPeriod-sig: N/A  
ModelChiSquare2-sig: N/A  
ModelChiSquareGof-sig: N/A  
Bootstrap-pfa: N/A  
RollingBand-fgt: 0.98 [1753/1782]  
GhostDiagnostic-chr: -0.4013  
Centroid-sig: 29.2%  
Centroid-so: 1.100 arcsec [1.06σ]  
OotOffset-rm: 1.645 arcsec [2.49σ]  
KicOffset-rm: 1.687 arcsec [2.53σ]  
OotOffset-st: 0/4/3/3 [10]  
KicOffset-st: 0/4/3/3 [10]  
DiffImageQuality-fgm: 0.30 [3/10]  
DiffImageOverlap-fno: 1.00 [14/14]

# TCE 003757951-01, PDC Light Curves

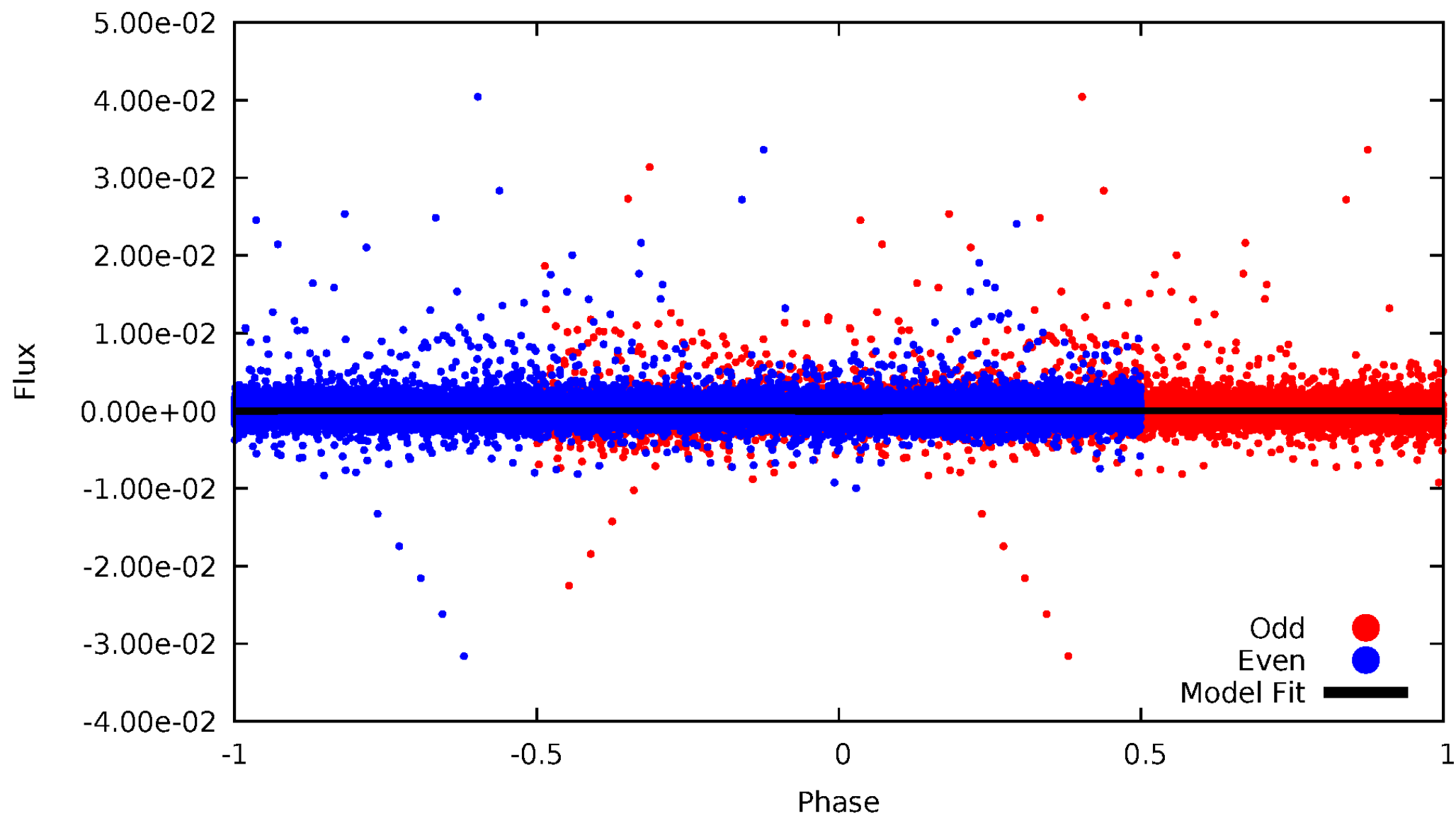


TCE 003757951-01



# DV Odd/Even

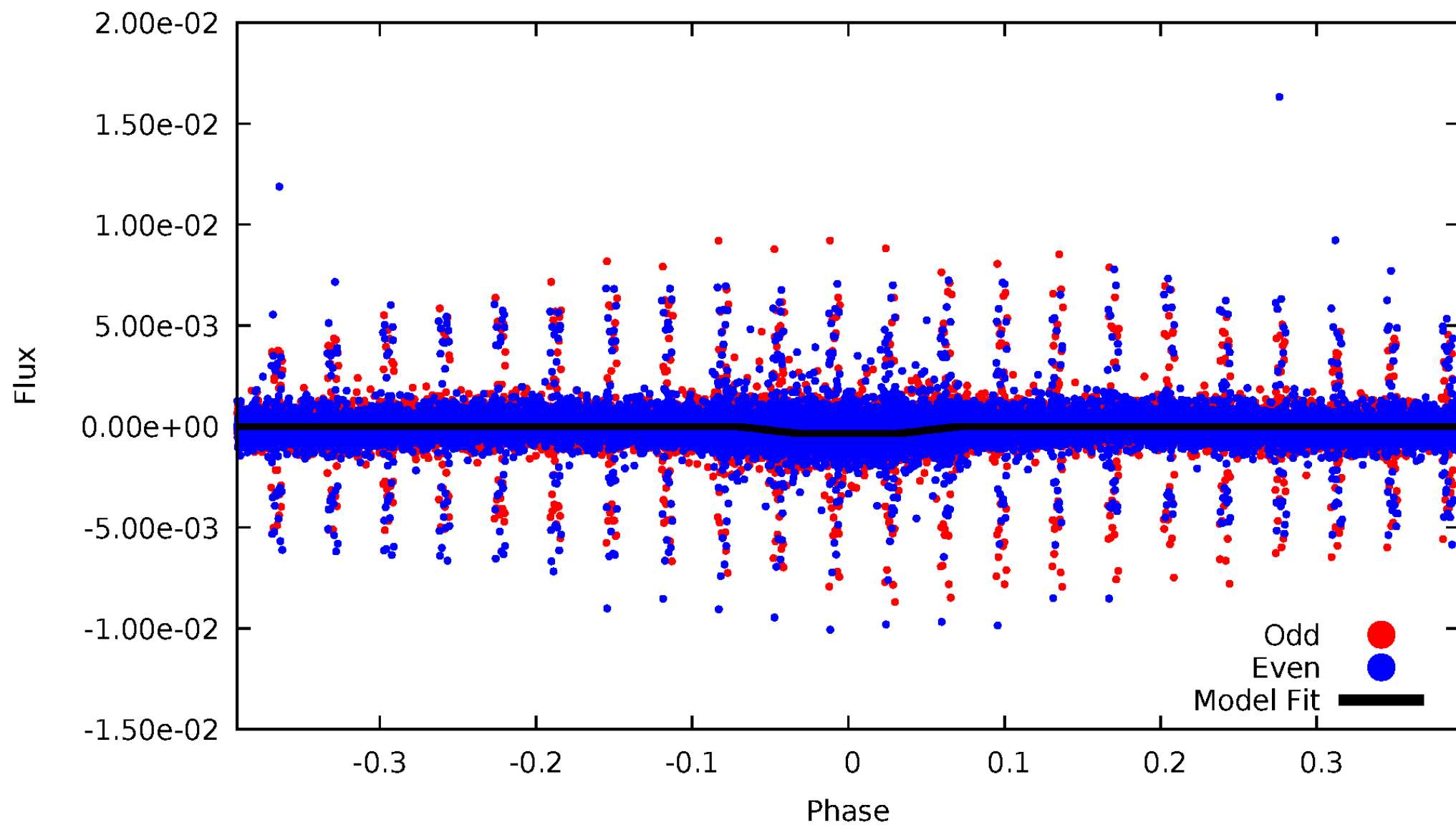
TCE 003757951-01





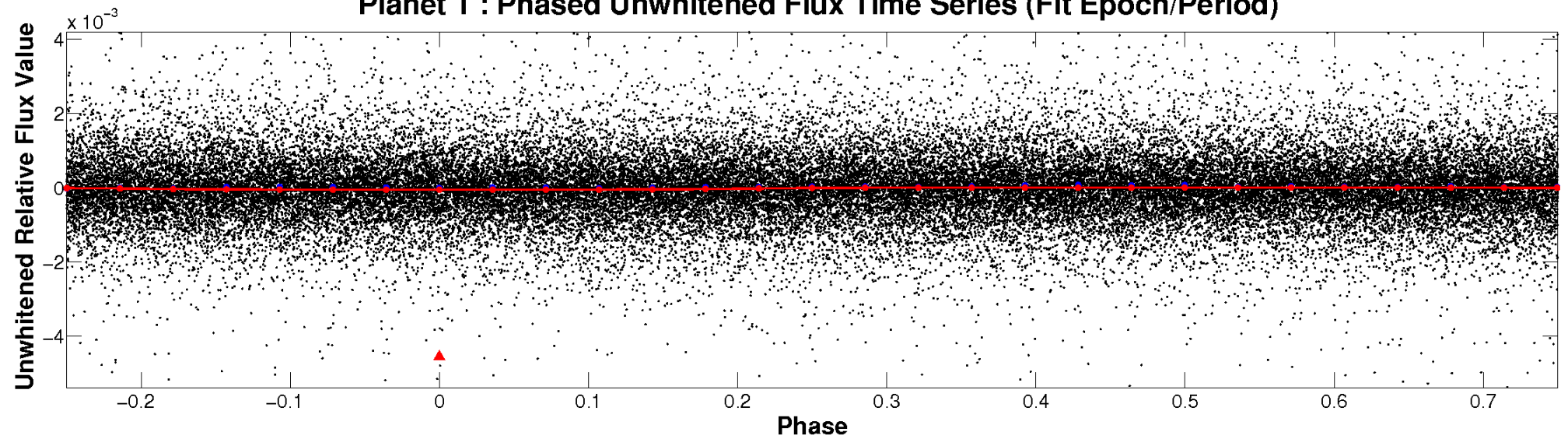
# ALT Odd/Even

TCE 003757951-01

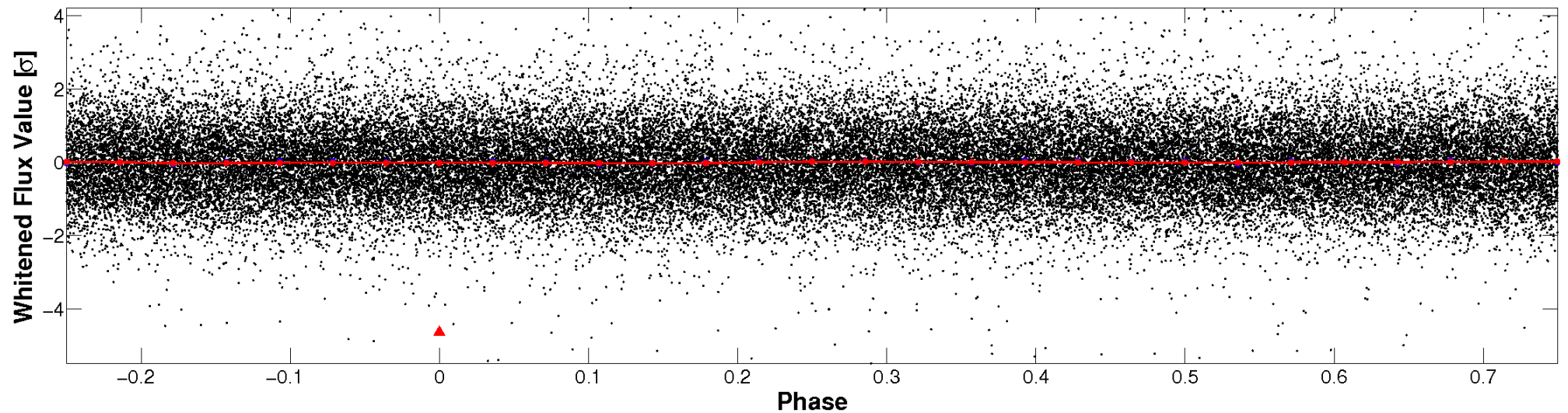


# Non-Whitened Vs. Whitened Light Curve

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

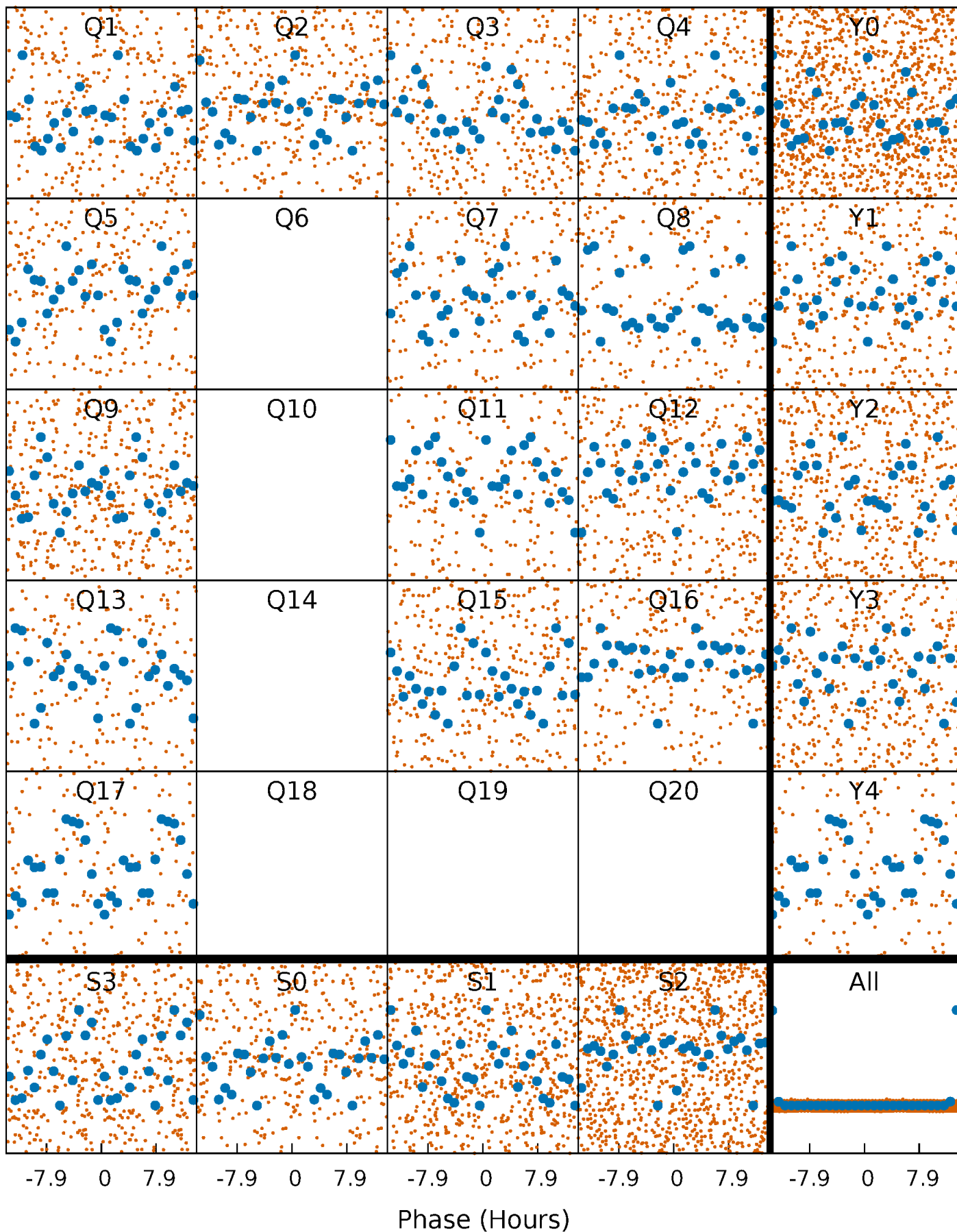


**Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)**



# PDC Quarter-Phased Transit Curves

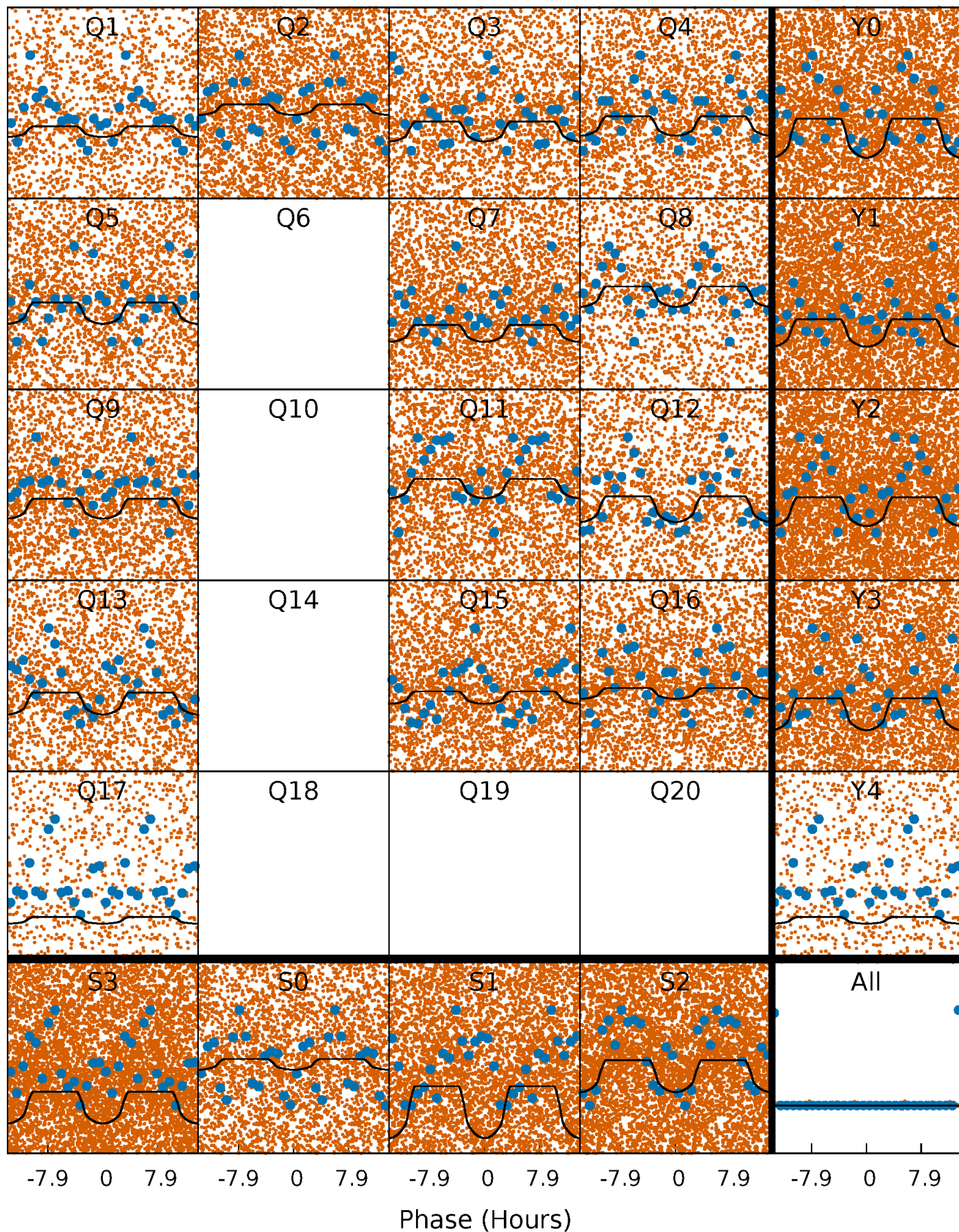
TCE 003757951-01   P= 0.572441 Days    $T_0=131.942039$  (BKJD)





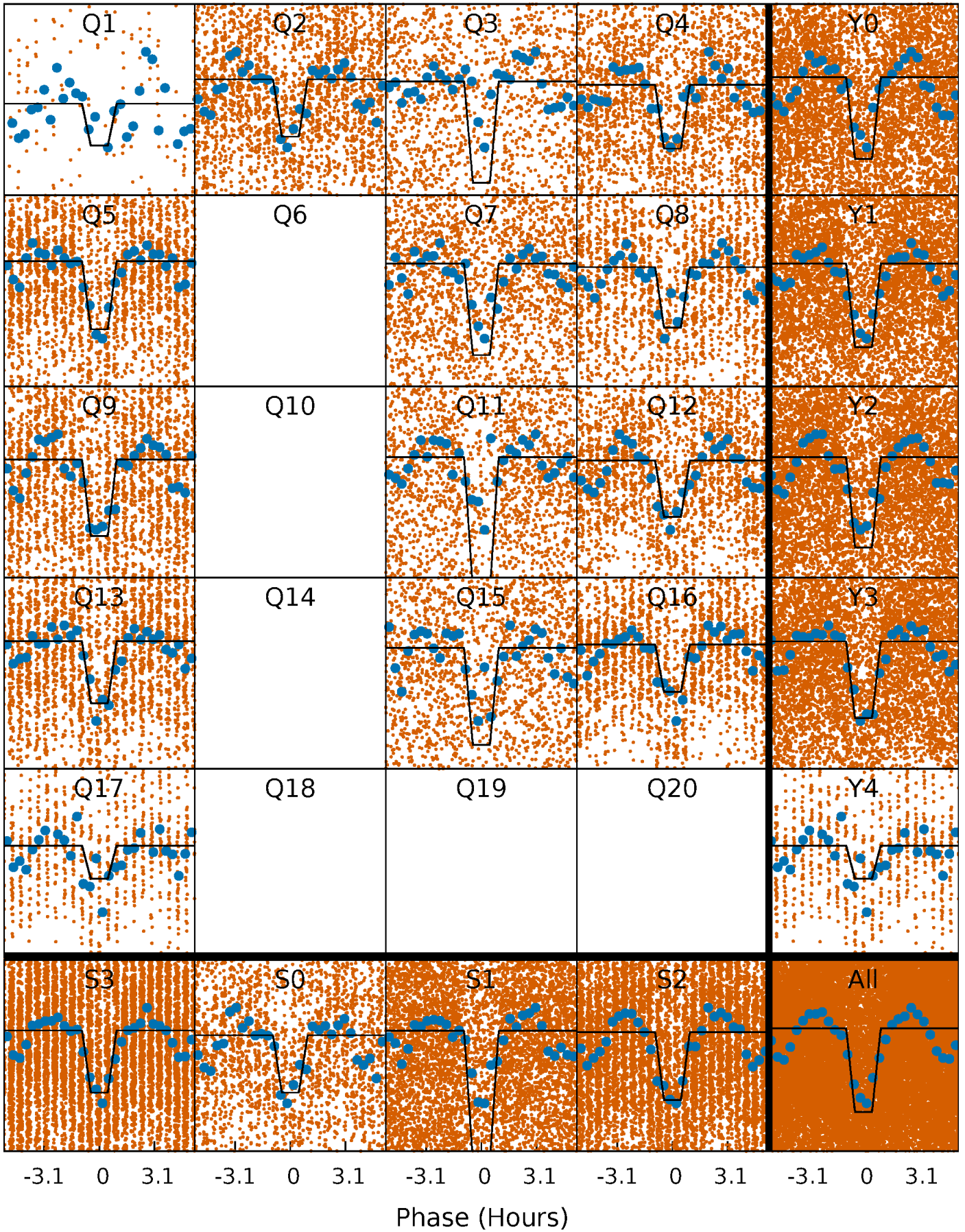
# DV Quarter-Phased Transit Curves

TCE 003757951-01 P= 0.572441 Days  $T_0=131.942039$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

TCE 003757951-01 P= 0.572236 Days  $T_0=131.944572$  (BKJD)

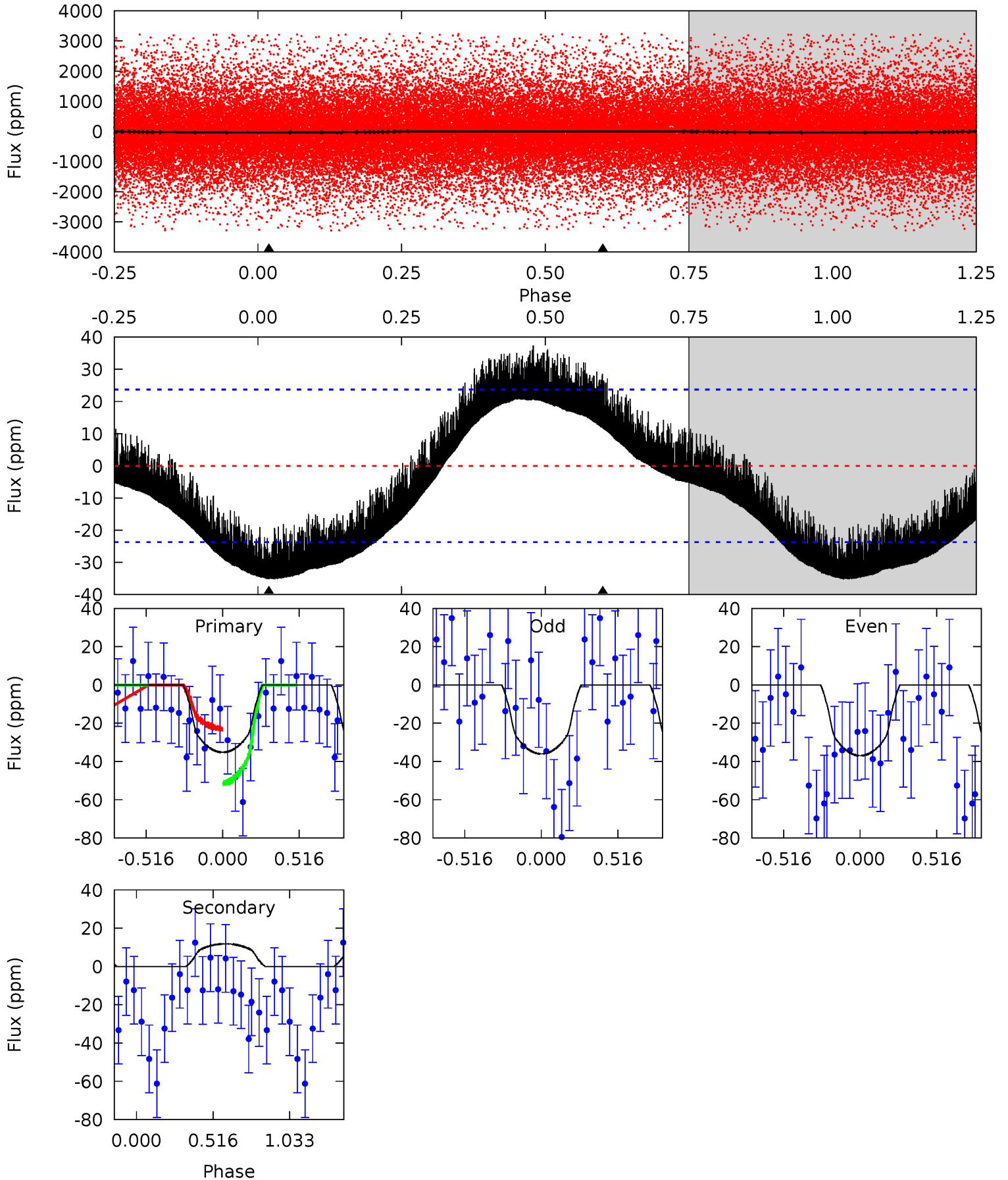




# DV Model-Shift Uniqueness Test

003757951-01, P = 0.572441 Days, E = 131.369598 Days

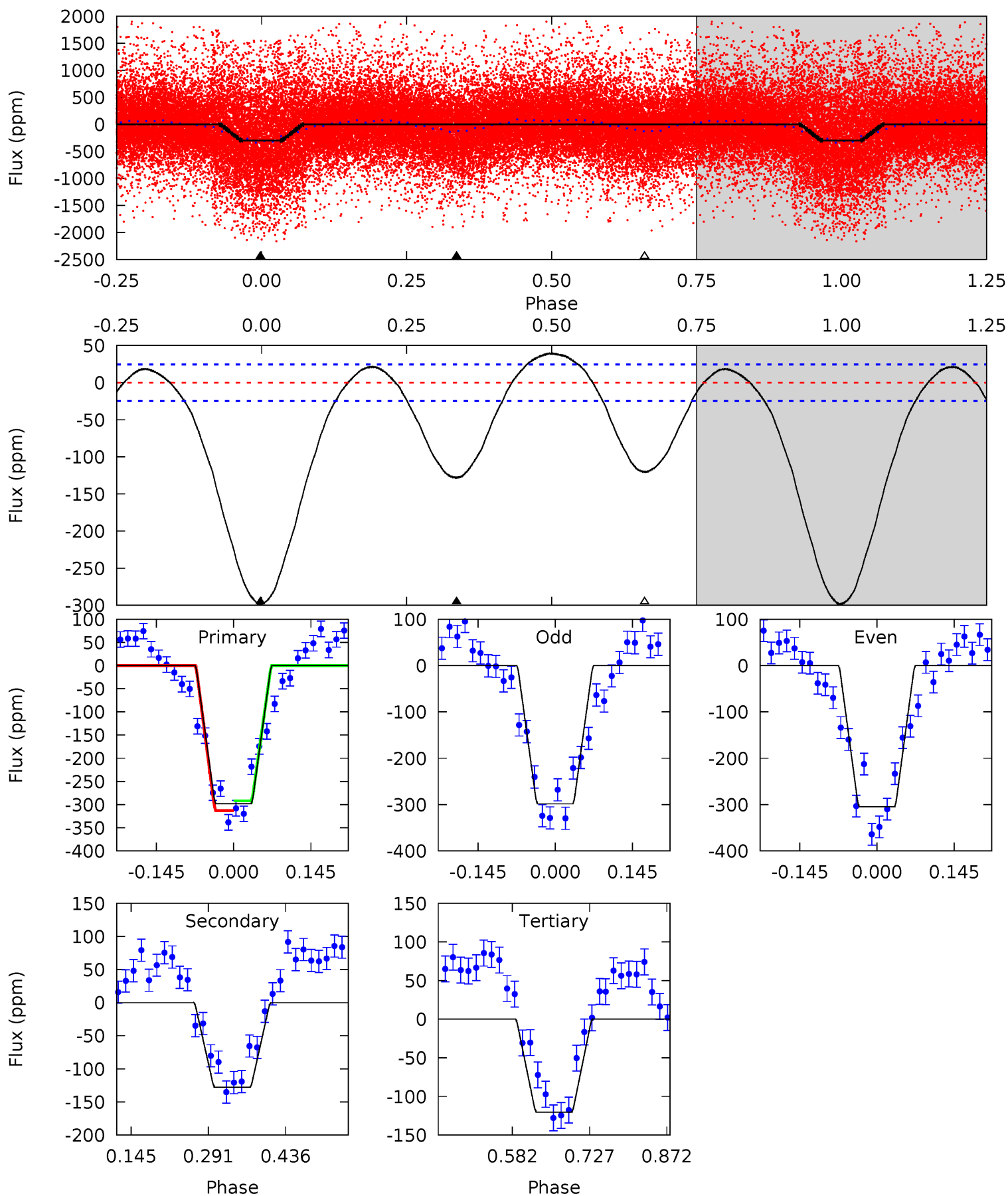
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
6.26	-2.11	0	0	4.21	0.65	1.33	6.26	6.26	-2.11	-2.11	0.08	-0.06	0.52	2.63



# Alt Model-Shift Uniqueness Test

003757951-01, P = 0.572236 Days, E = 131.372336 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
54.8	23.5	22.1	0	4.49	1.46	9.54	32.7	54.8	1.40	23.5	0.56	0.93	0.12	1.92



### Stellar Parameters For KIC 003757951

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R$ ( $R_{\odot}$ )	$M(M_{\odot})$	$p_{\star}$ ( $\text{g}\cdot\text{cm}^{-3}$ )
	$5345^{+160}_{-160}$	$4.538^{+0.099}_{-0.072}$	$-0.560^{+0.350}_{-0.300}$	$0.743^{+0.095}_{-0.086}$	$0.695^{+0.097}_{-0.039}$	$2.384^{+0.976}_{-0.584}$
	+3%/-3%	+2%/-2%	+62%/-54%	+13%/-12%	+14%/-6%	+41%/-24%
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 003757951-01 / KOI

Detrend	Depth (ppm)	$R_p$ ( $R_{\oplus}$ )	$T_{\text{max}}$ (K)	$T_{\text{obs}}$ (K)	$A_{\text{obs}}$
DV	$12 \pm 6$	$0.68^{+0.16}_{-0.15}$	$2589^{+110}_{-116}$	$-3857^{+346}_{-440}$	$-2.023^{+0.993}_{-1.877}$
Alt.	$-128 \pm 5$	$1.47^{+0.21}_{-0.18}$	$2593^{+114}_{-116}$	$4350^{+227}_{-223}$	$4.684^{+1.447}_{-1.010}$

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



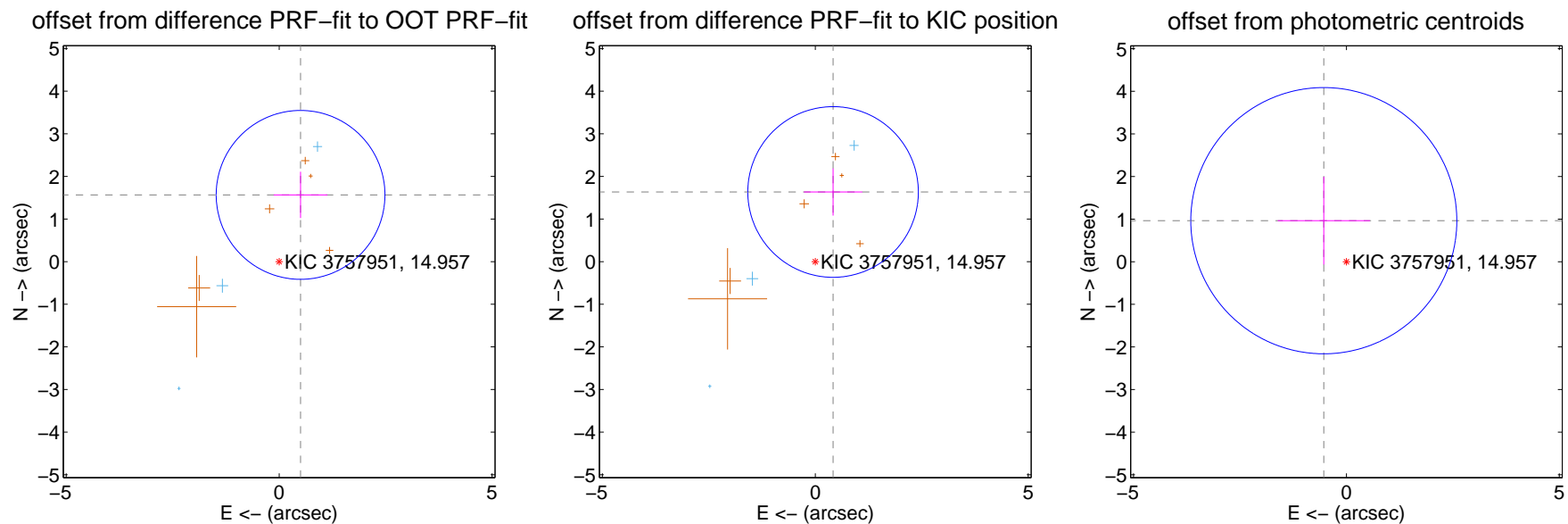
## DV Centroid Data

Supplemental centroid analysis for 003757951-01. Kepler magnitude: 14.96. Transit SNR 3.22

There are 3 quarters with good PRF difference image offsets

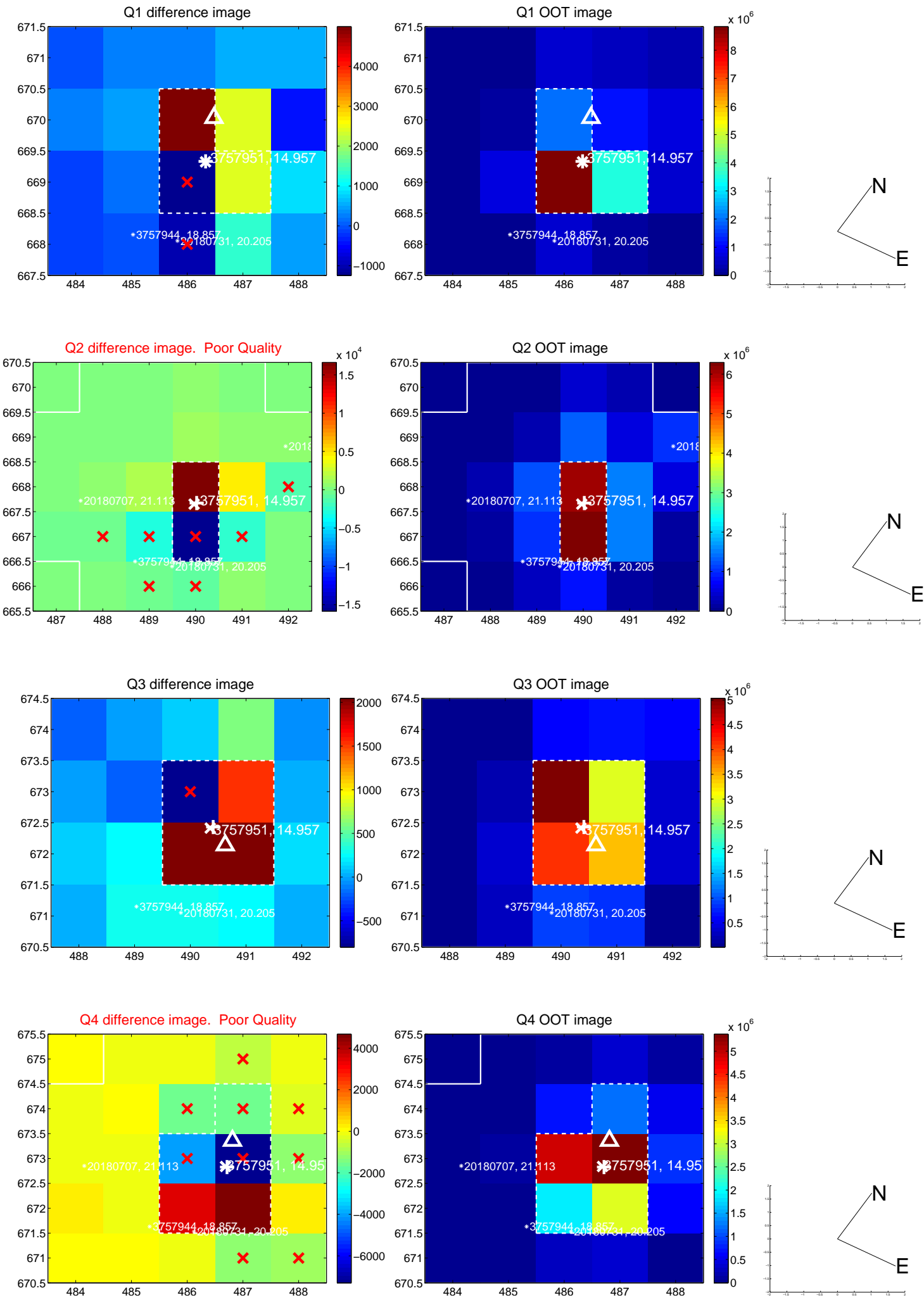
The direct PRF centroid is offset from the target star catalog position by about 0.12 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$1.645 \pm 0.660$	2.49	$-0.503 \pm 0.628$	$1.567 \pm 0.544$
PRF-fit source offset from KIC position	$1.687 \pm 0.668$	2.53	$-0.418 \pm 0.686$	$1.635 \pm 0.554$
photometric centroid source offset	$1.10 \pm 1.04$	1.06	$0.53 \pm 1.08$	$0.96 \pm 1.03$

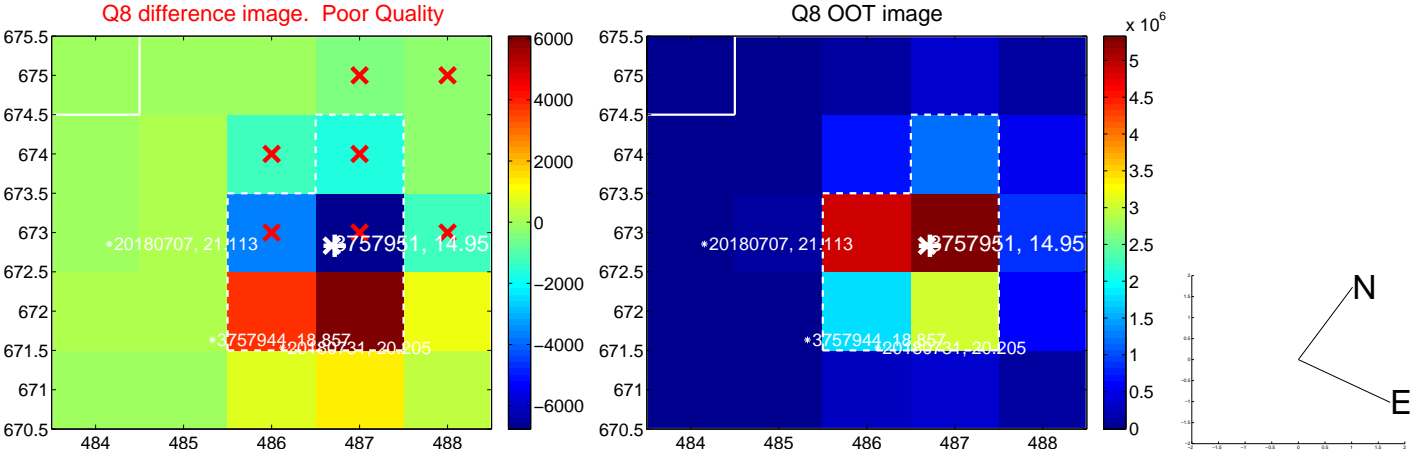
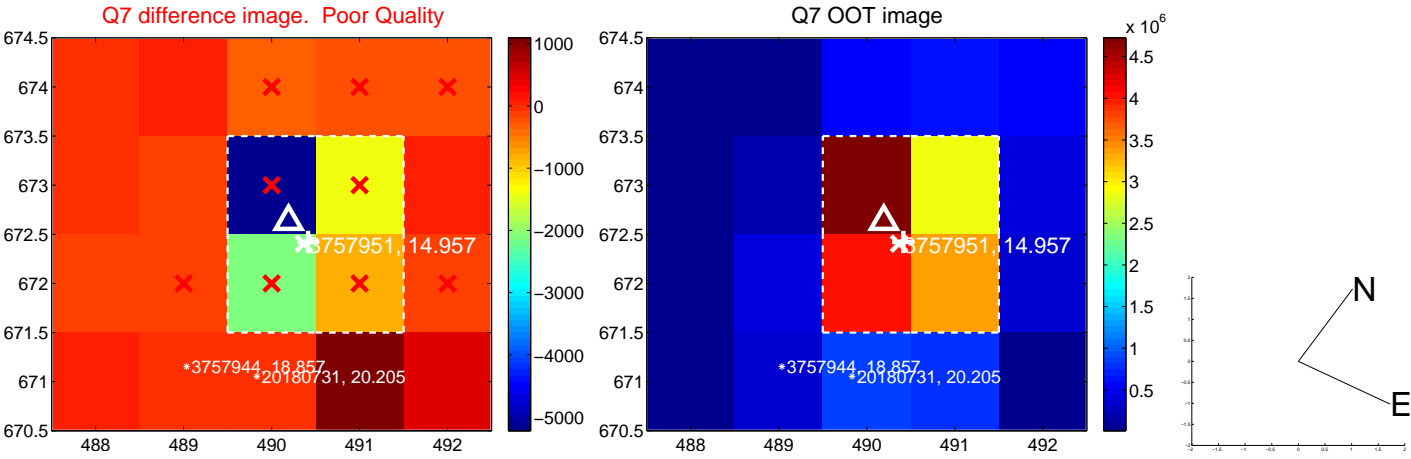
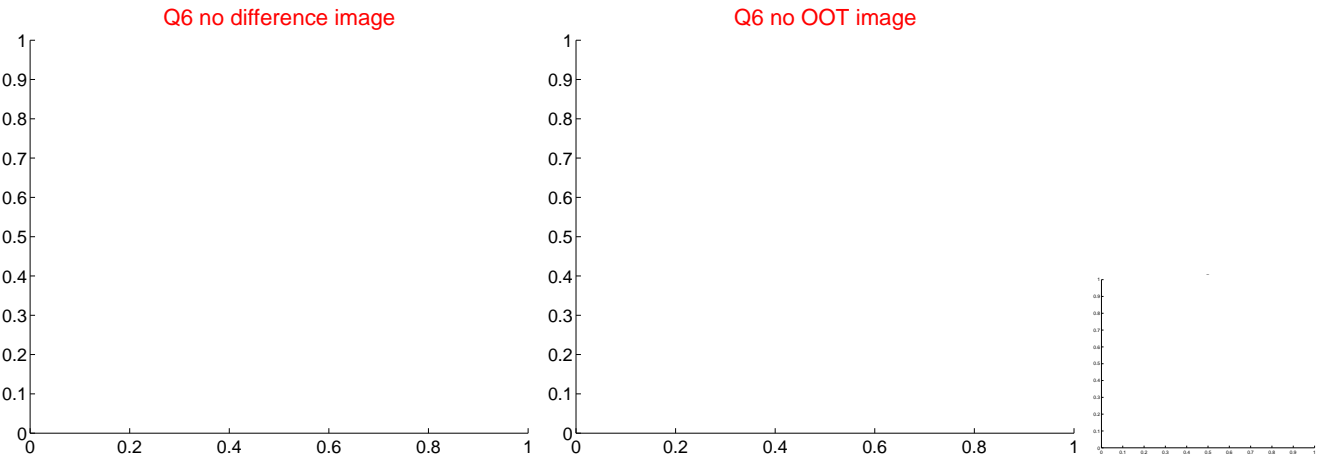
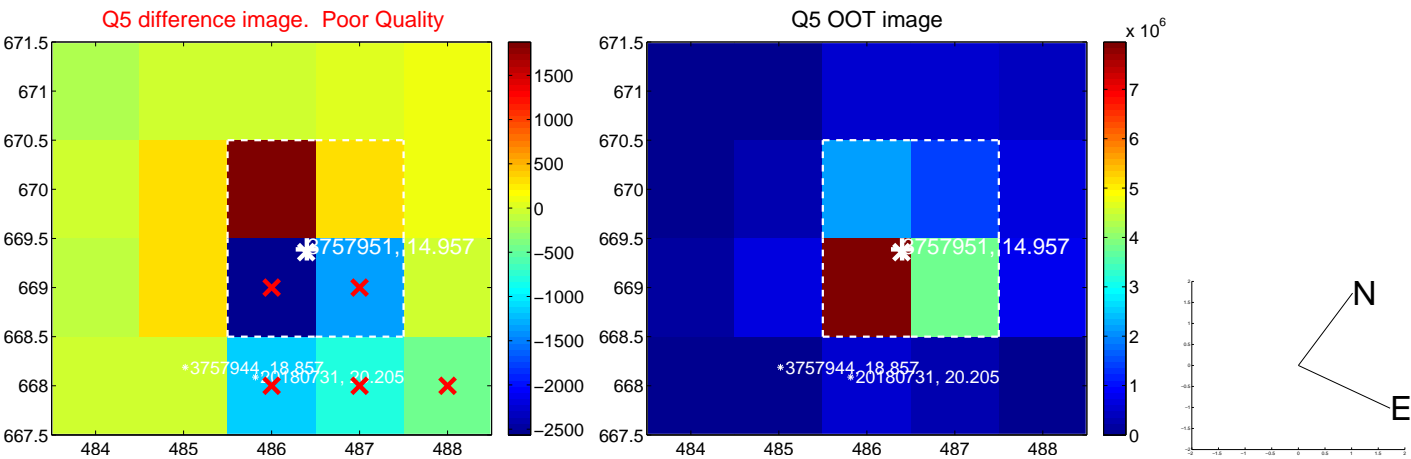


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: three-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

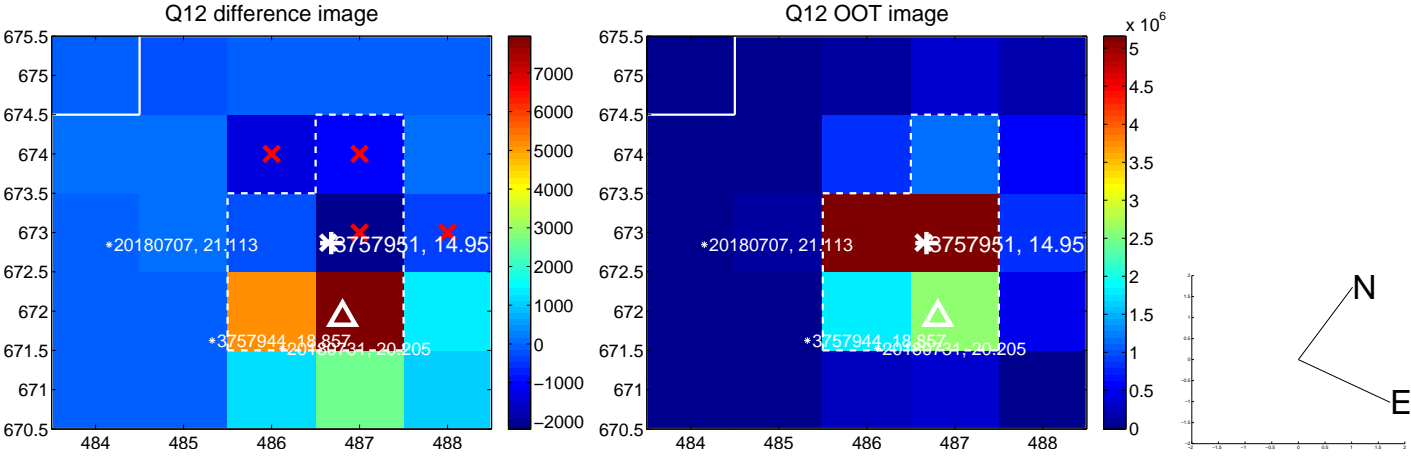
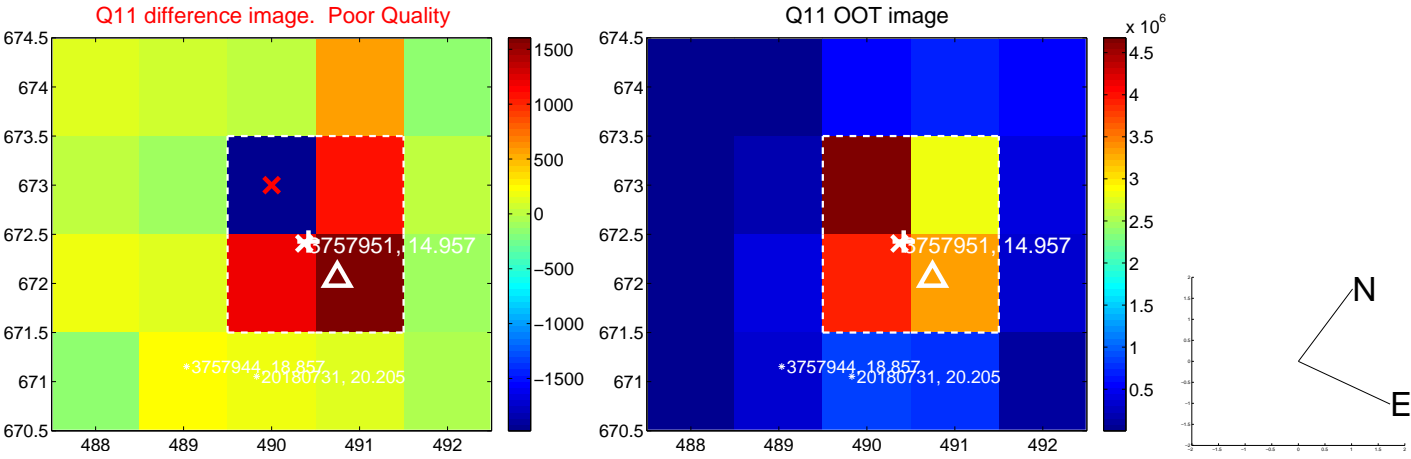
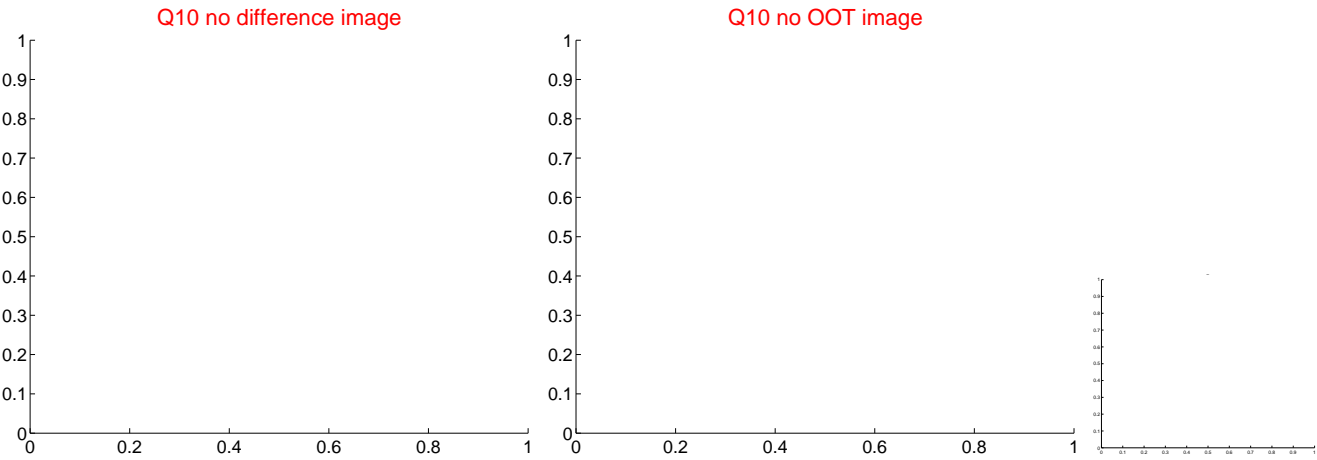
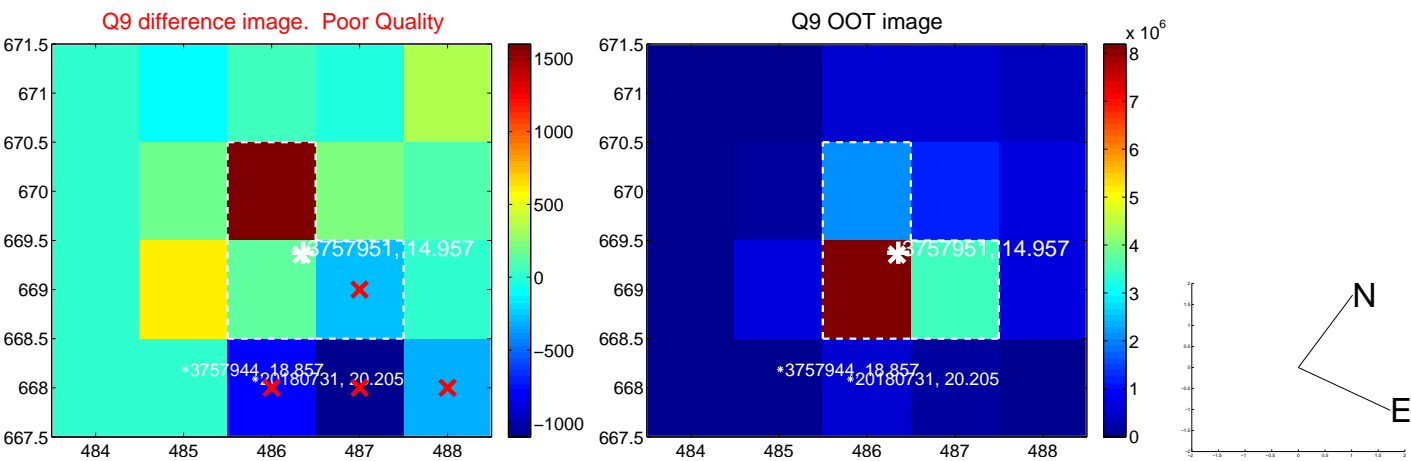
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



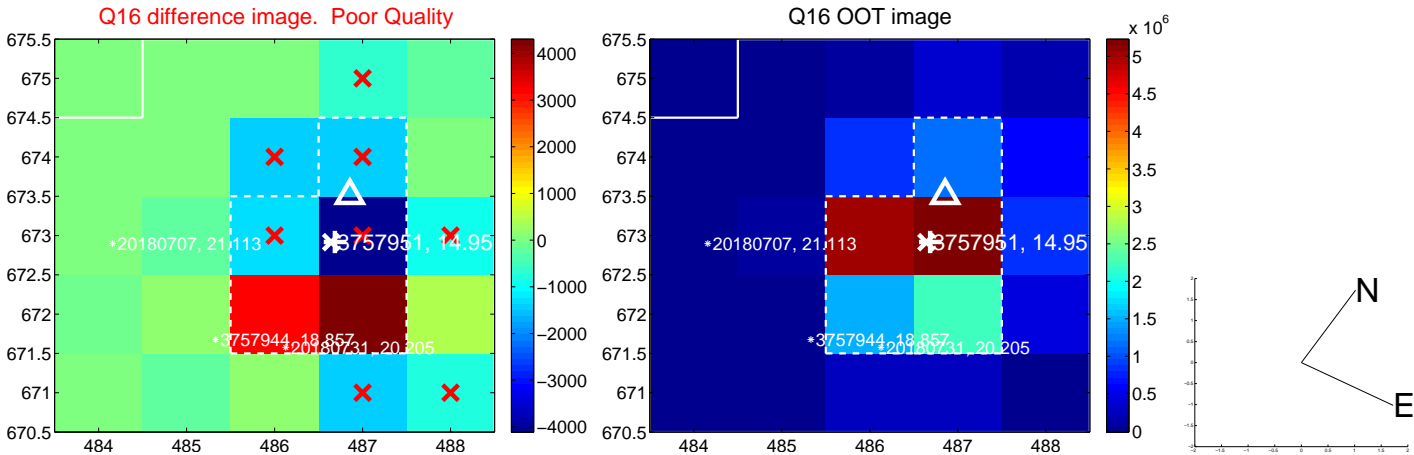
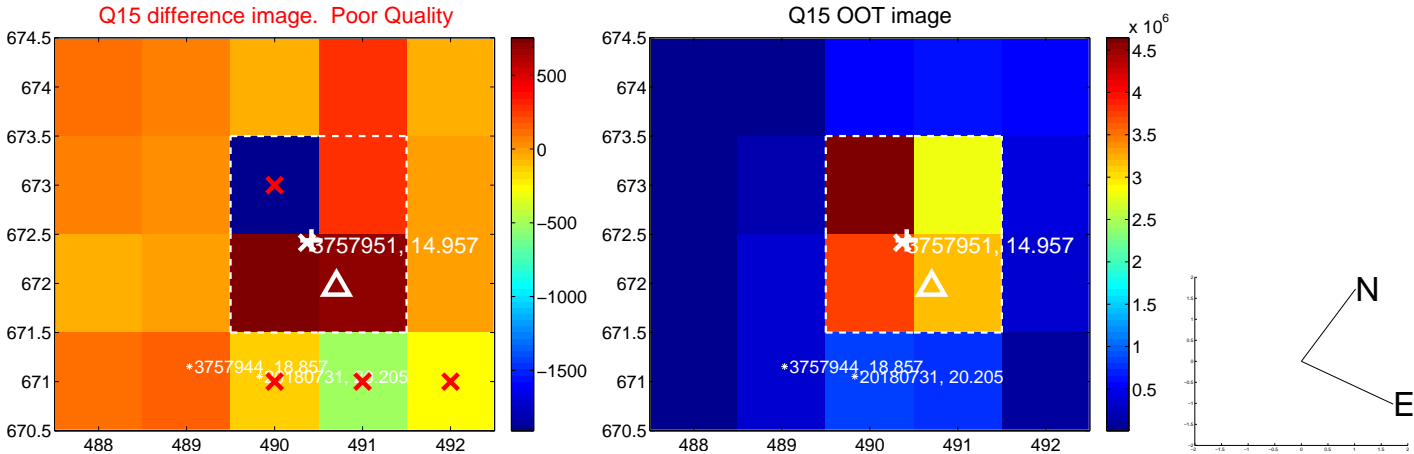
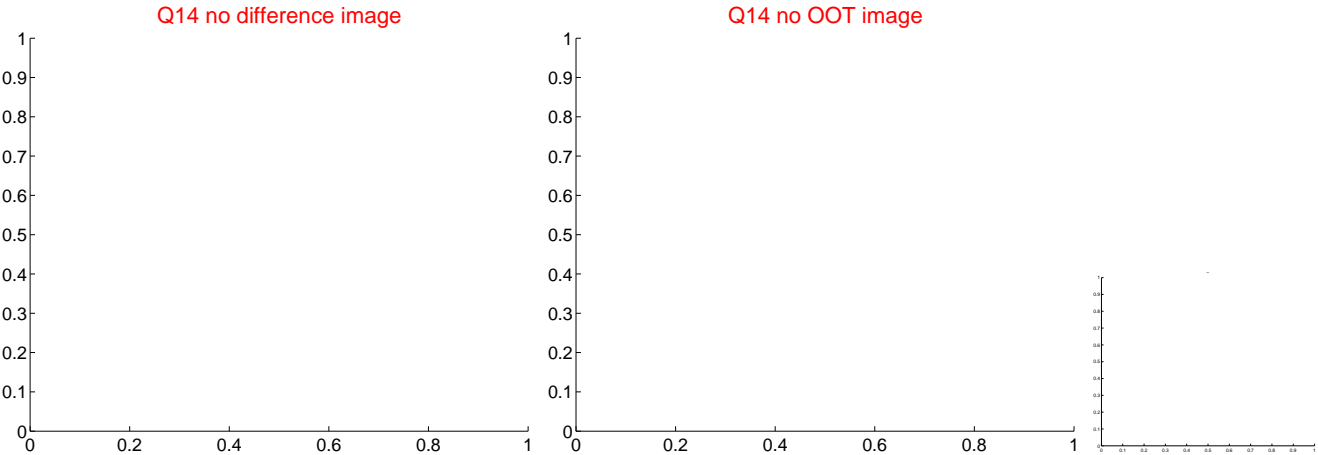
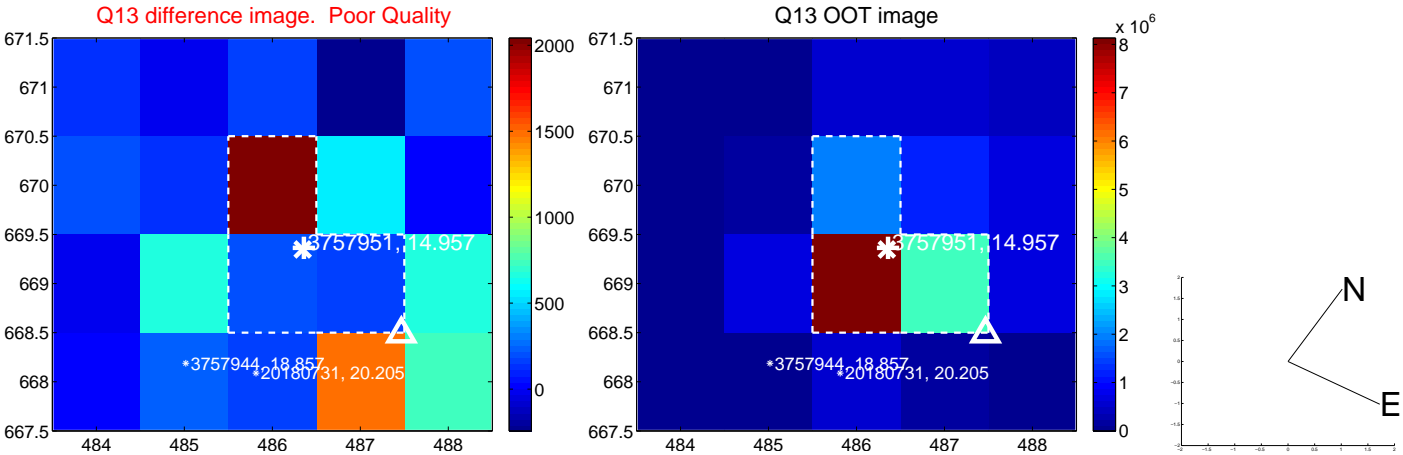
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



white ×: 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.







UKIRT Image

Declination

