

# KIC 010198757

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
010198757-01	OBS	No	126.640409	138.042062	373.9	7.309	7.4	7.0	0.99	5895	2.20	4.08

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
010198757-01	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_SKYE—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.

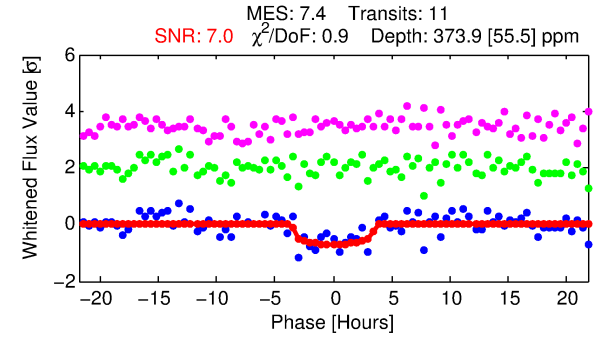
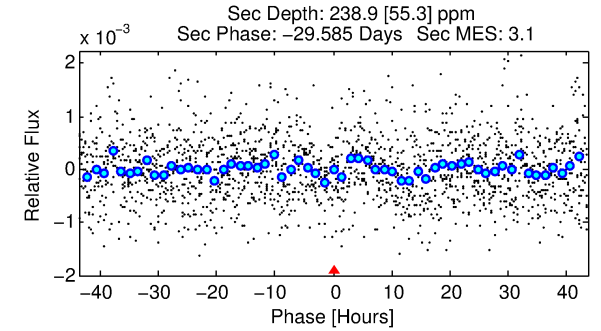
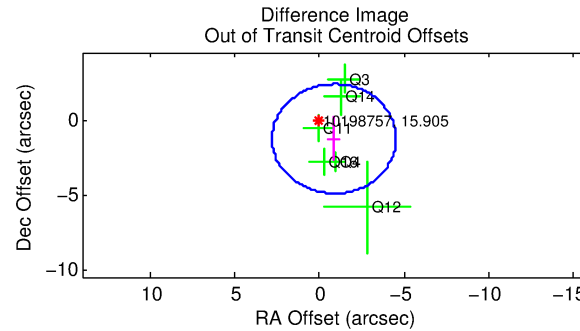
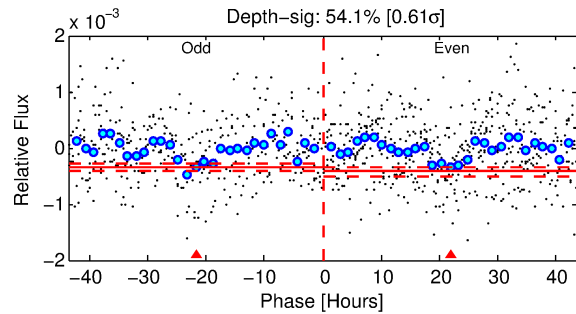
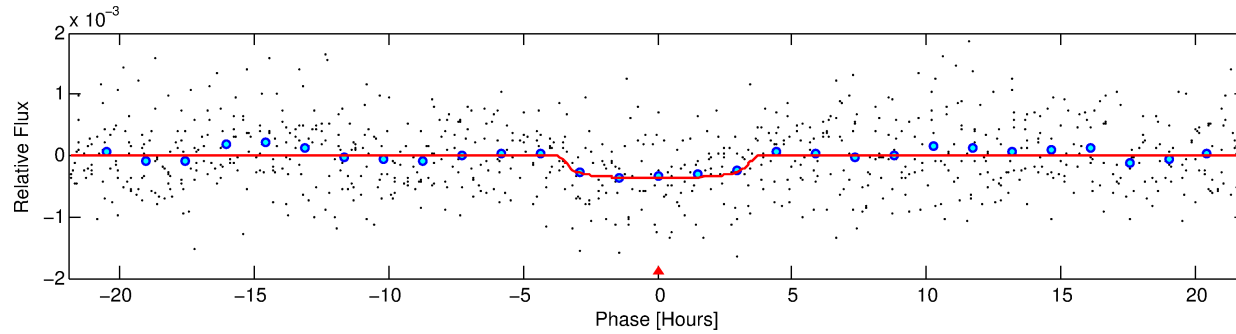
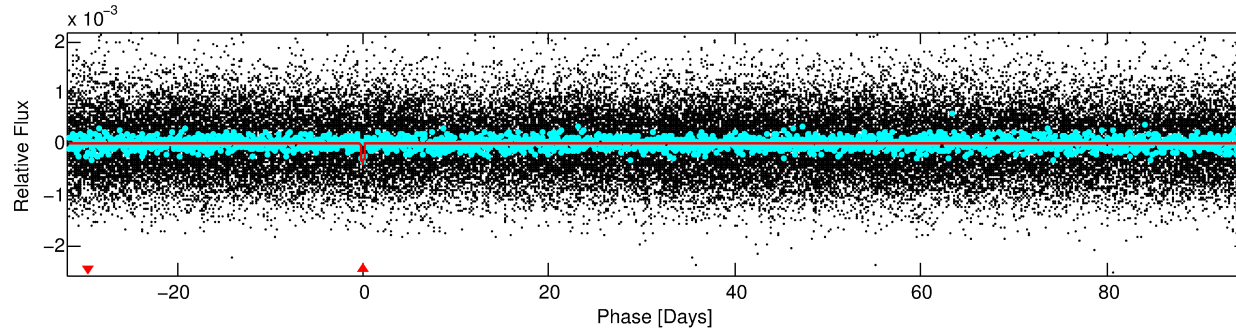
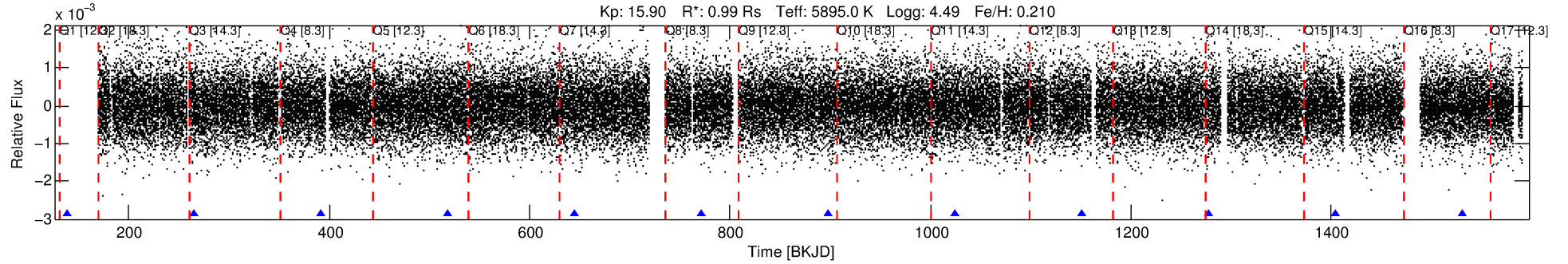
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

## Ephemeris Match Information For 010198757-01

No Significant Match Found

# DV One-Page Summary

KIC: 10198757 Candidate: 1 of 1 Period: 126.640 d



## DV Fit Results:

Period = 126.64041 [0.00334] d  
Epoch = 138.0421 [0.0228] BKJD  
Rp/R\* = 0.0204 [0.0092]  
a/R\* = 72.98 [150.54]  
b = 0.86 [0.64]  
Seff = 4.08 [1.71]  
Teq = 362 [38] K  
Rp = 2.20 [1.21] Re  
a = 0.5103 [0.1358] AU  
Ag = 7065.00 [7192.38] [0.98 $\sigma$ ]  
Teffp = 5137 [1217] K [3.92 $\sigma$ ]

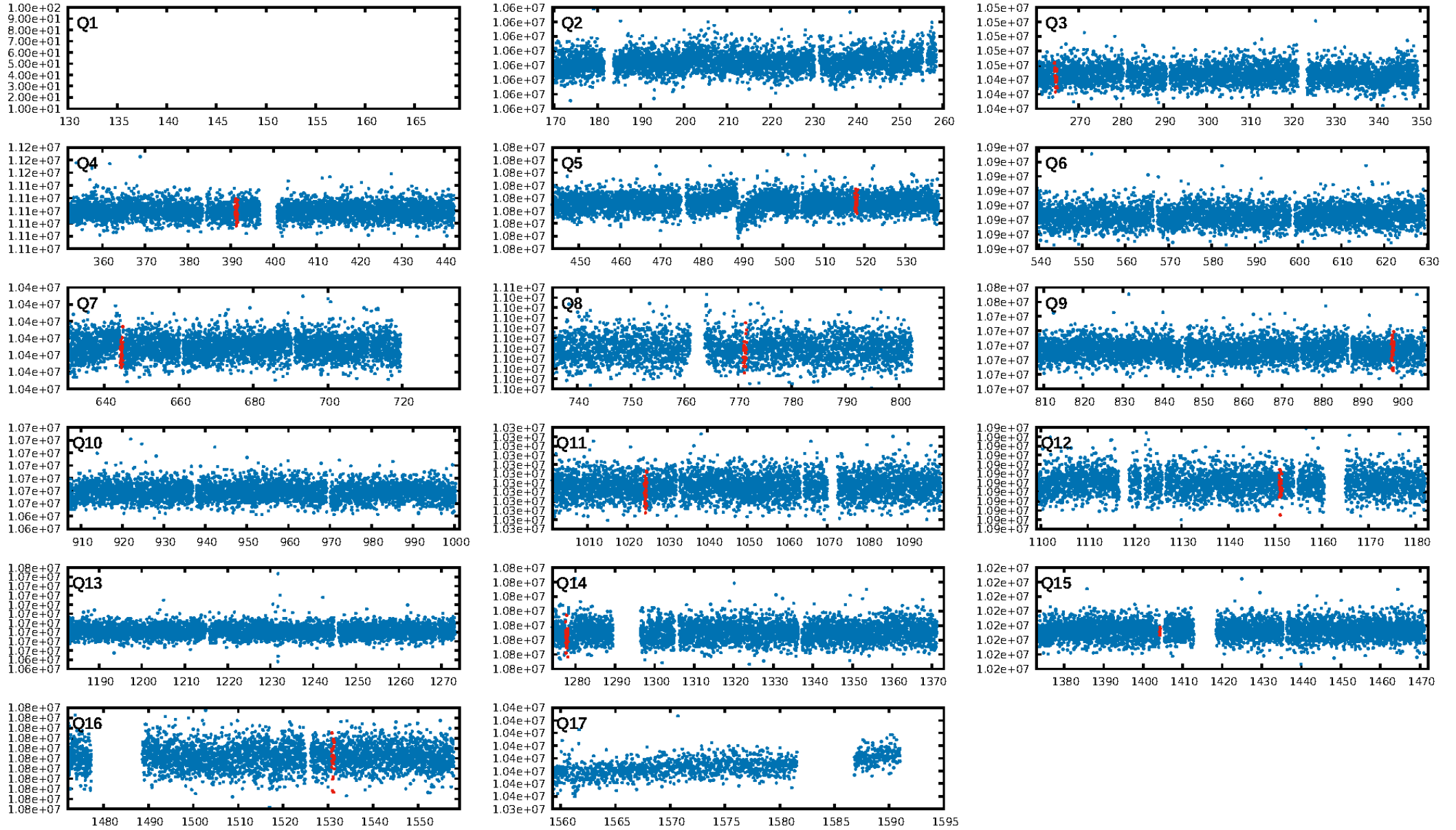
## DV Diagnostic Results:

ShortPeriod-sig: N/A  
LongPeriod-sig: N/A  
ModelChiSquare2-sig: 72.5%  
ModelChiSquareGof-sig: 100.0%  
Bootstrap-pfa: 6.60e-13  
RollingBand-fgt: 1.00 [11/11]  
**GhostDiagnostic-chr: 0.7786**  
Centroid-sig: 7.4%  
Centroid-so: 4.156 arcsec [1.78 $\sigma$ ]  
OotOffset-rm: 1.533 arcsec [1.26 $\sigma$ ]  
KicOffset-rm: 1.804 arcsec [1.57 $\sigma$ ]  
OotOffset-st: 1/2/3/0 [6]  
KicOffset-st: 1/2/3/0 [6]  
DiffImageQuality-fgm: 0.17 [1/6]  
DiffImageOverlap-fno: 1.00 [9/9]

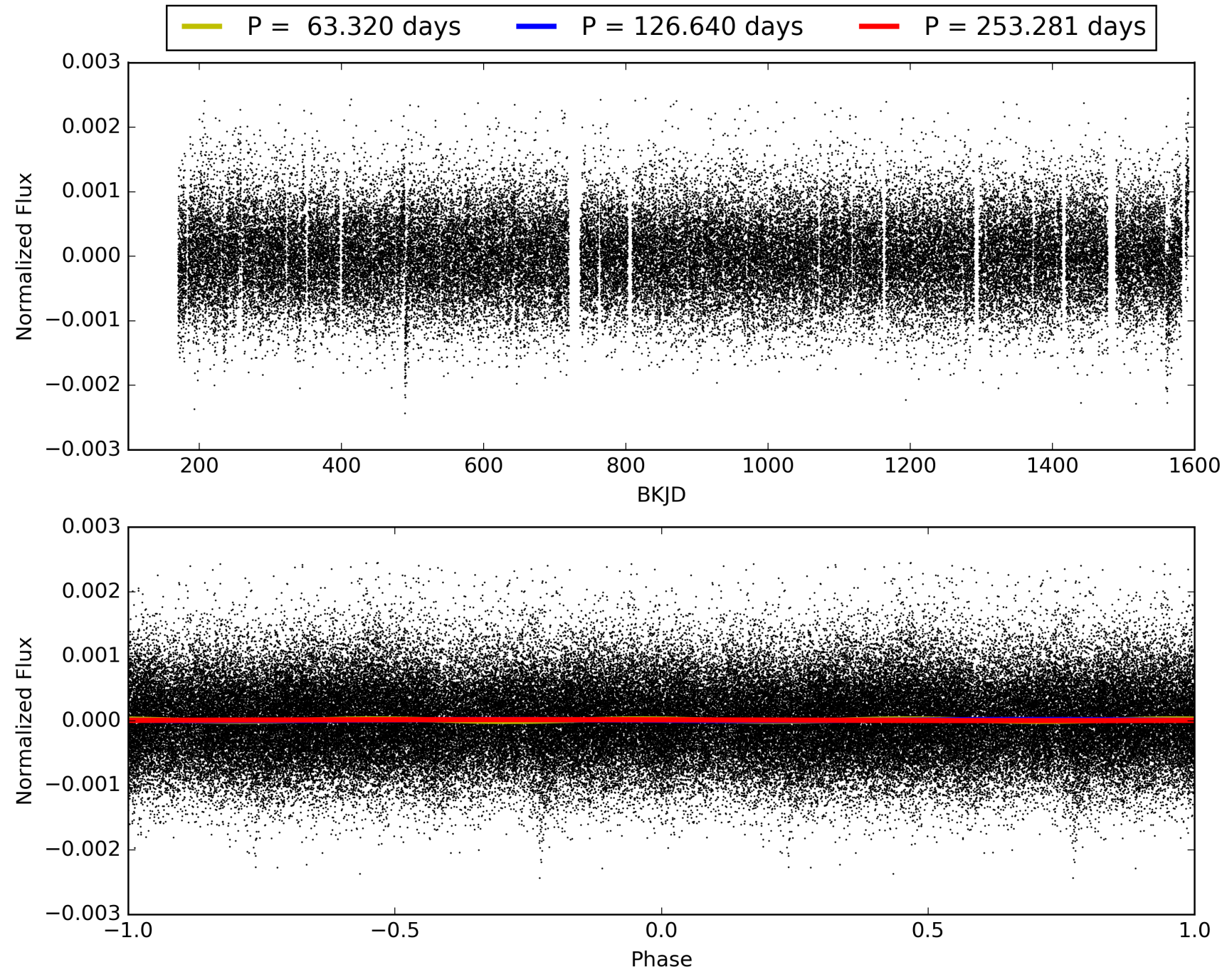
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 28-Jan-2016 22:14:49 Z

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

# TCE 010198757-01, PDC Light Curves

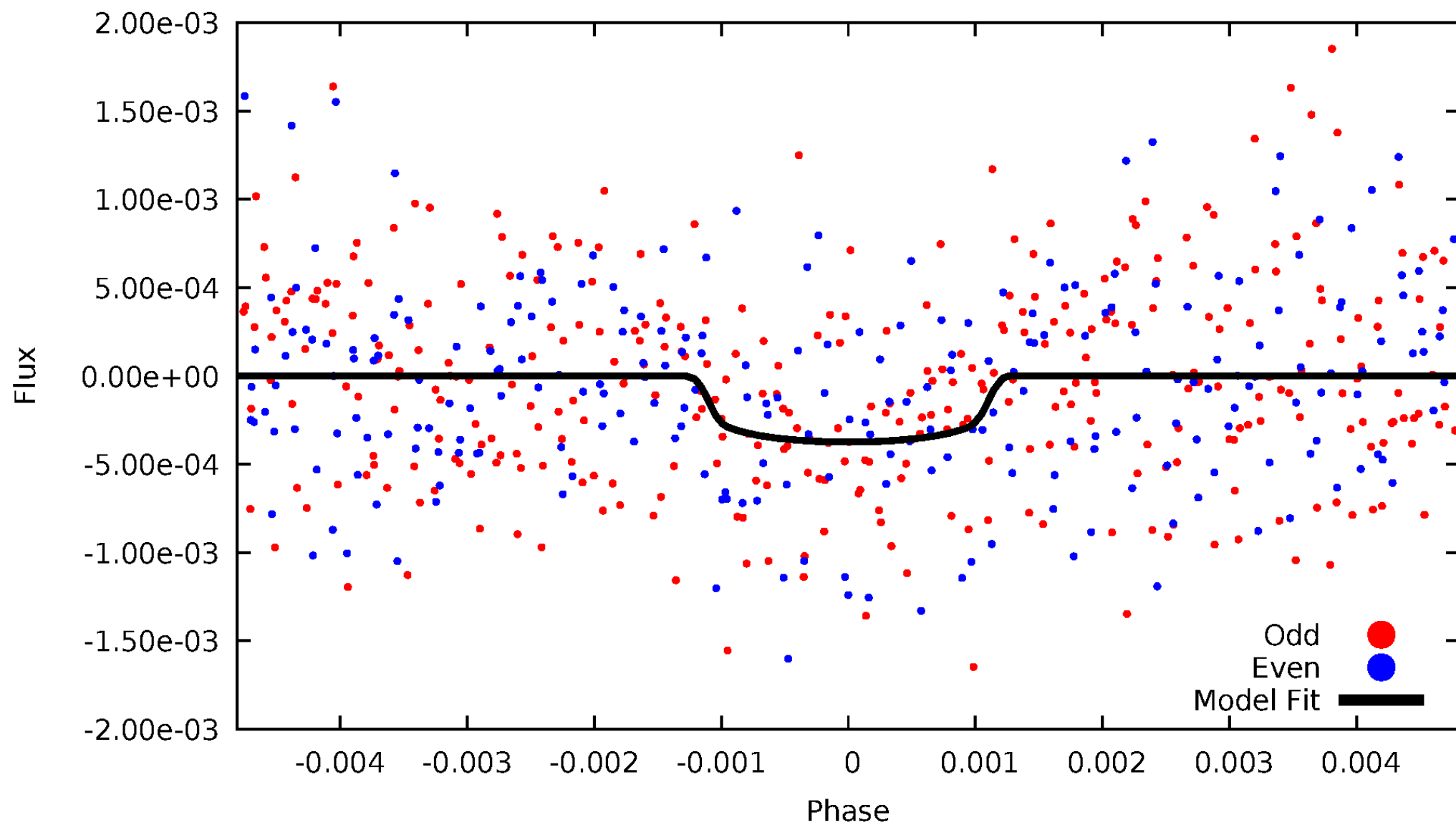


TCE 010198757-01



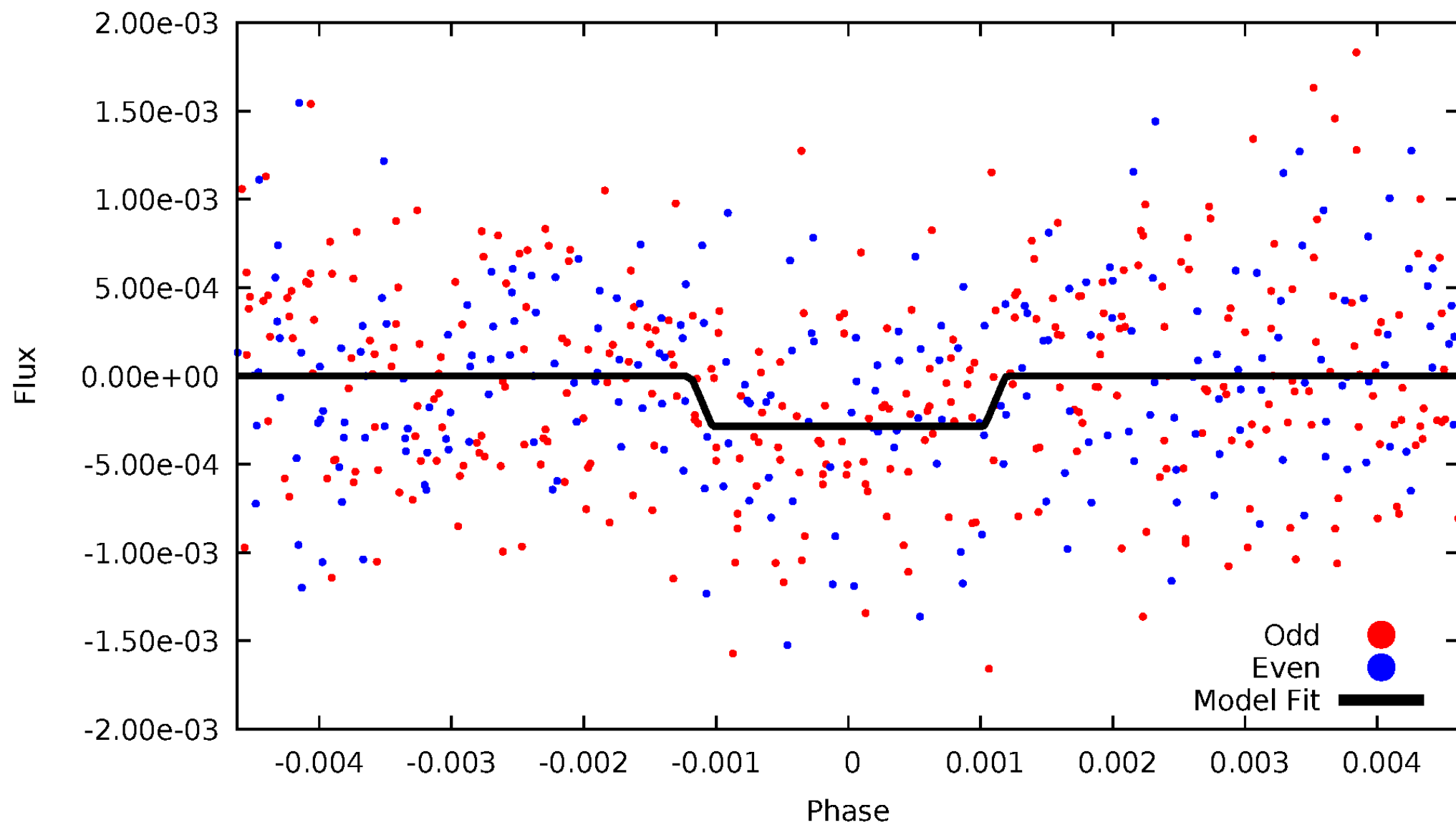
# DV Odd/Even

TCE 010198757-01



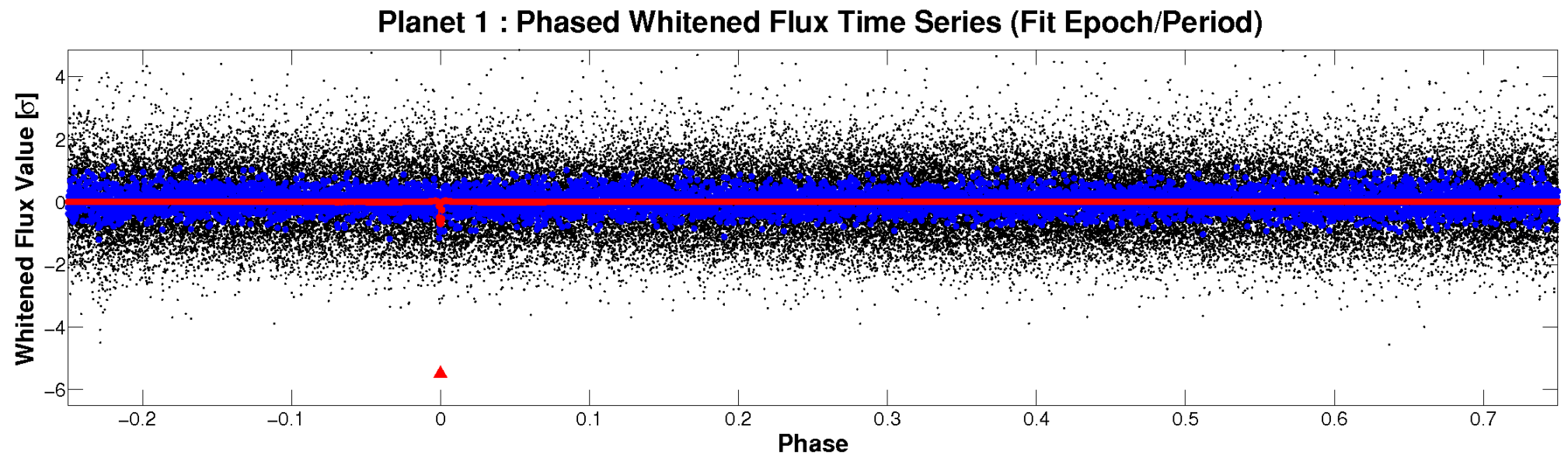
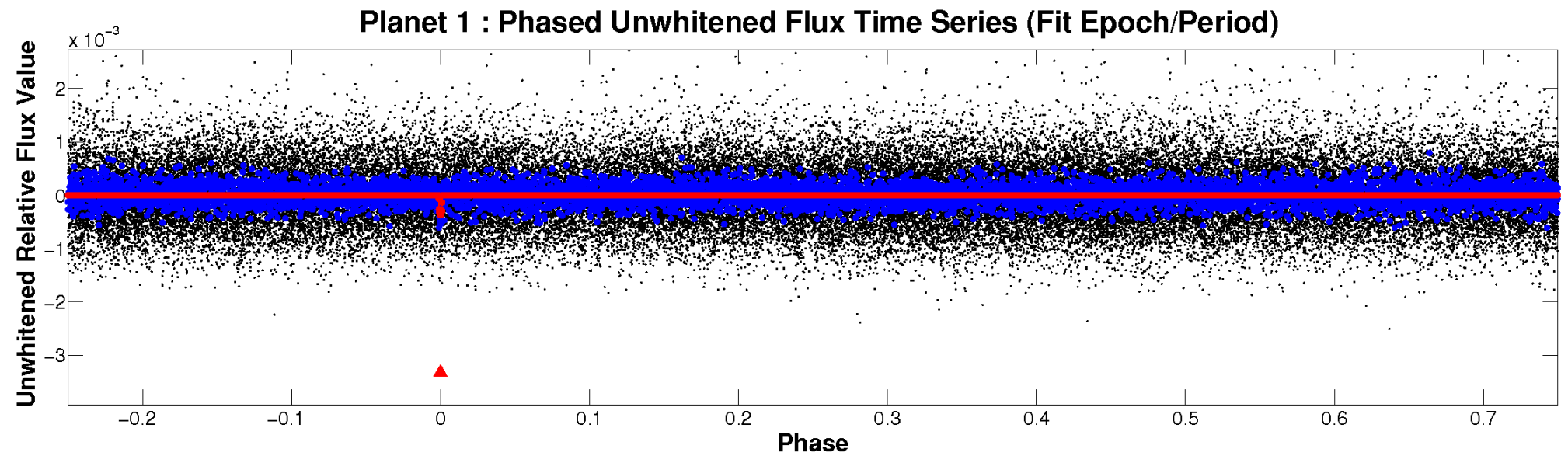
# ALT Odd/Even

TCE 010198757-01



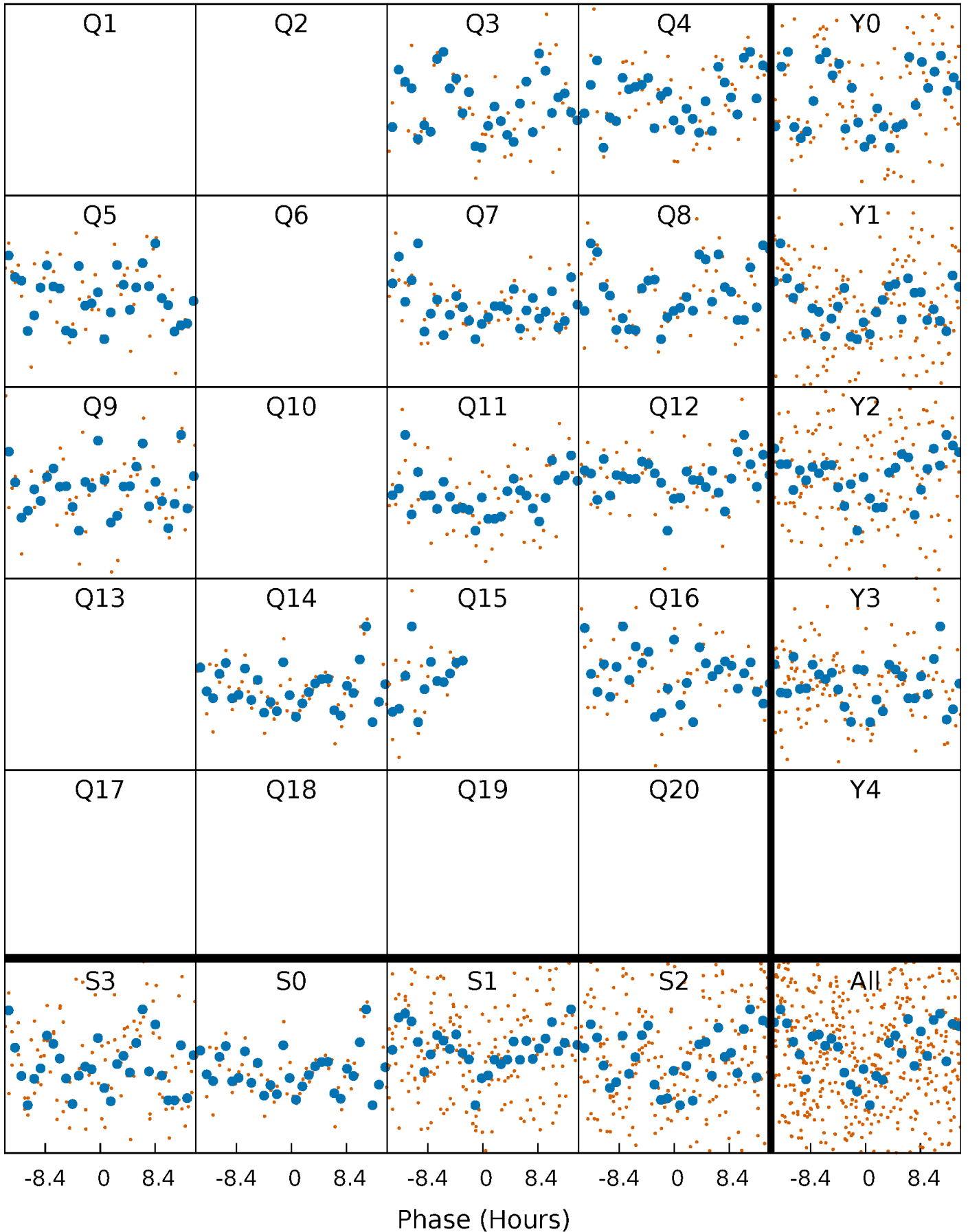


# Non-Whitened Vs. Whitened Light Curve



# PDC Quarter-Phased Transit Curves

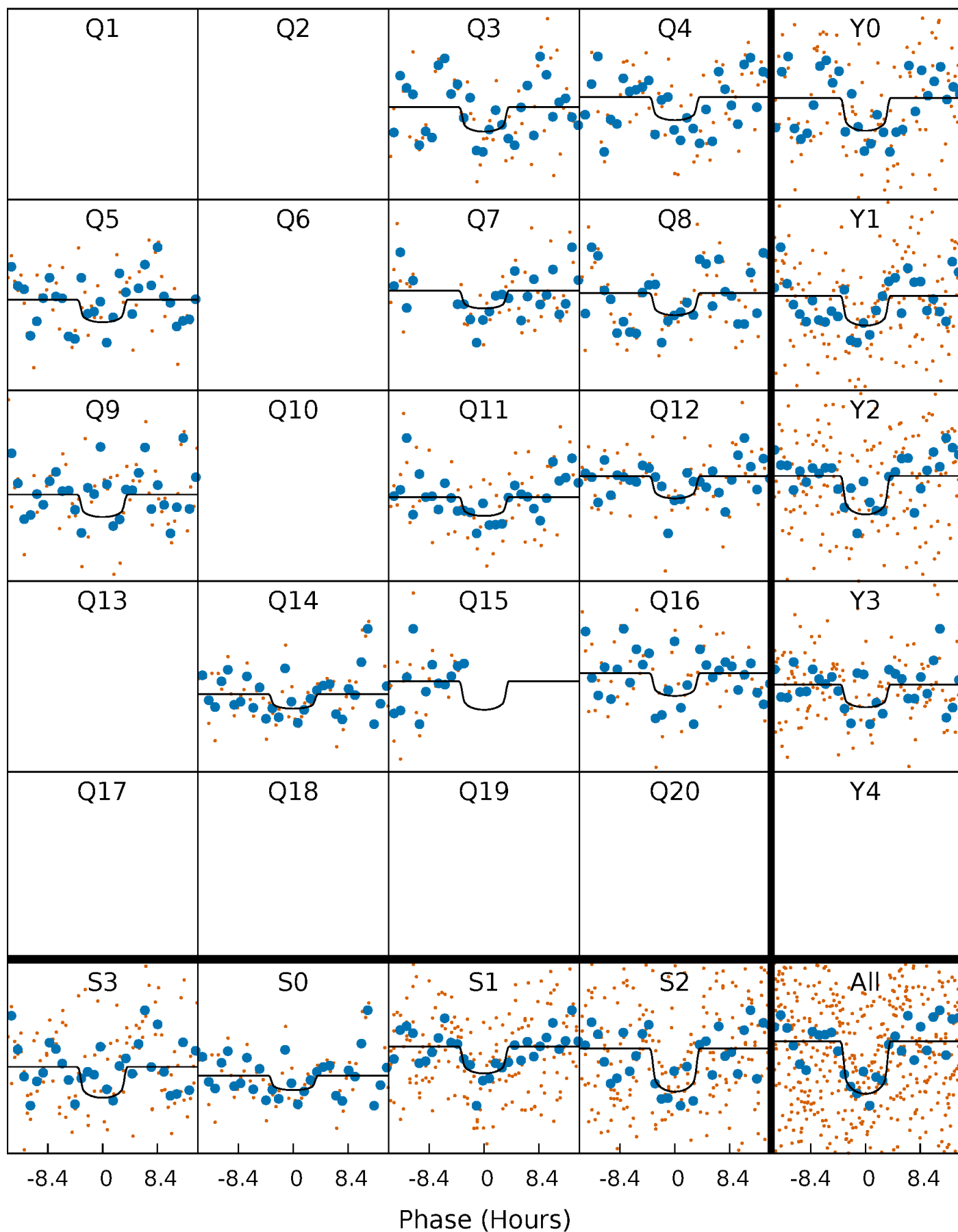
TCE 010198757-01 P=126.640409 Days  $T_0=138.042062$  (BKJD)





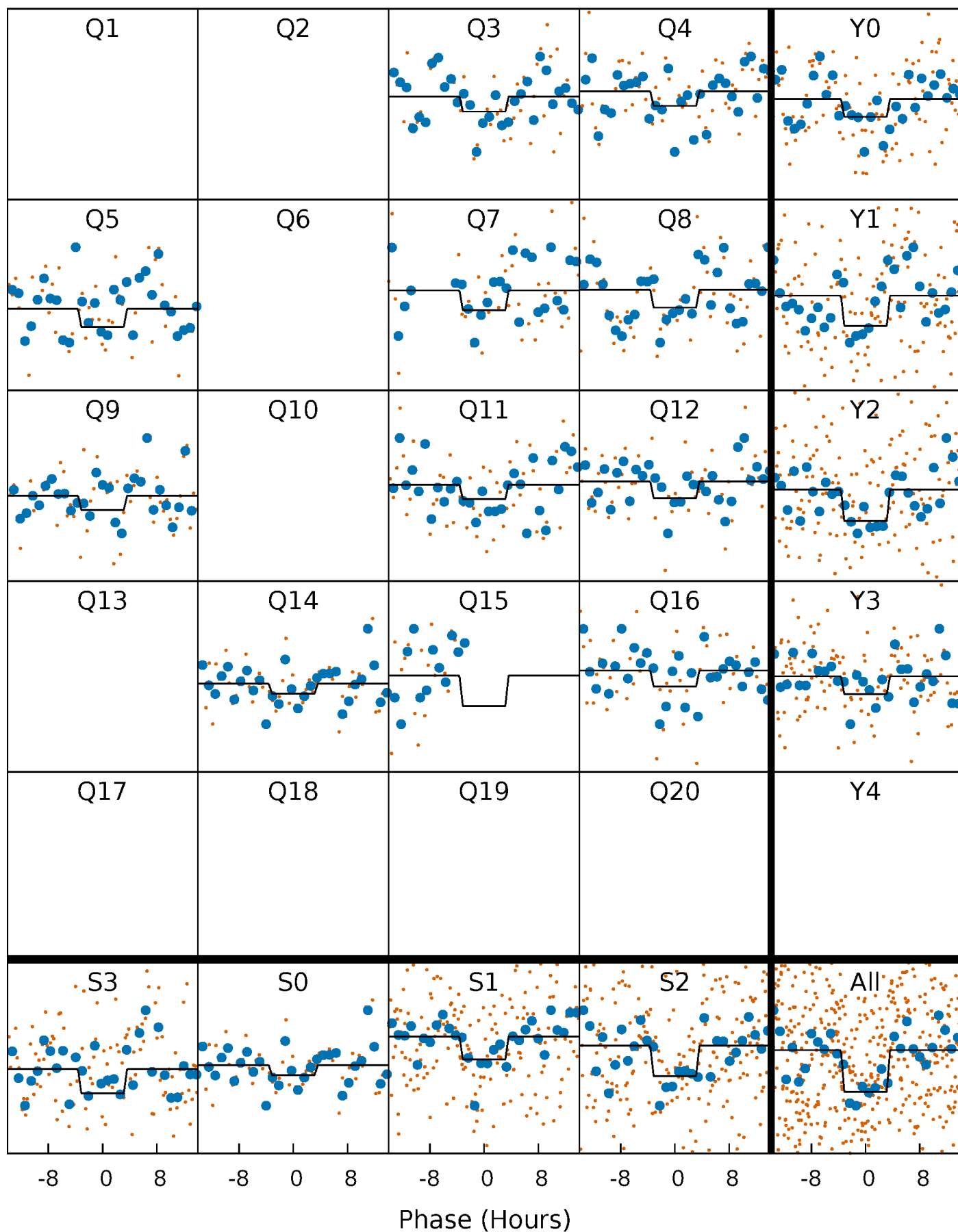
# DV Quarter-Phased Transit Curves

TCE 010198757-01 P=126.640409 Days  $T_0=138.042062$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

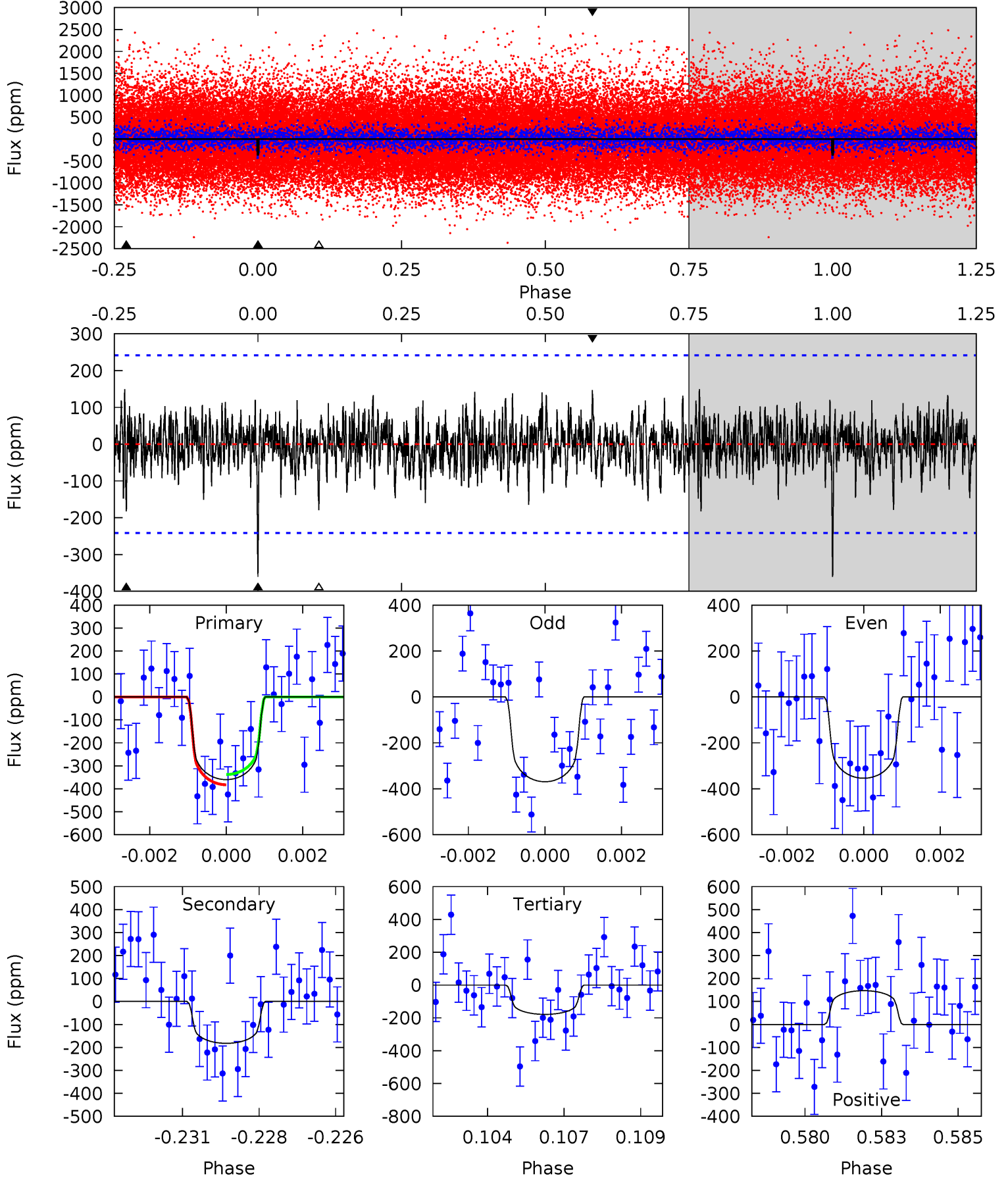
TCE 010198757-01 P=126.637659 Days  $T_0=138.062398$  (BKJD)



# DV Model-Shift Uniqueness Test

010198757-01,  $P = 126.640409$  Days,  $E = 138.042062$  Days

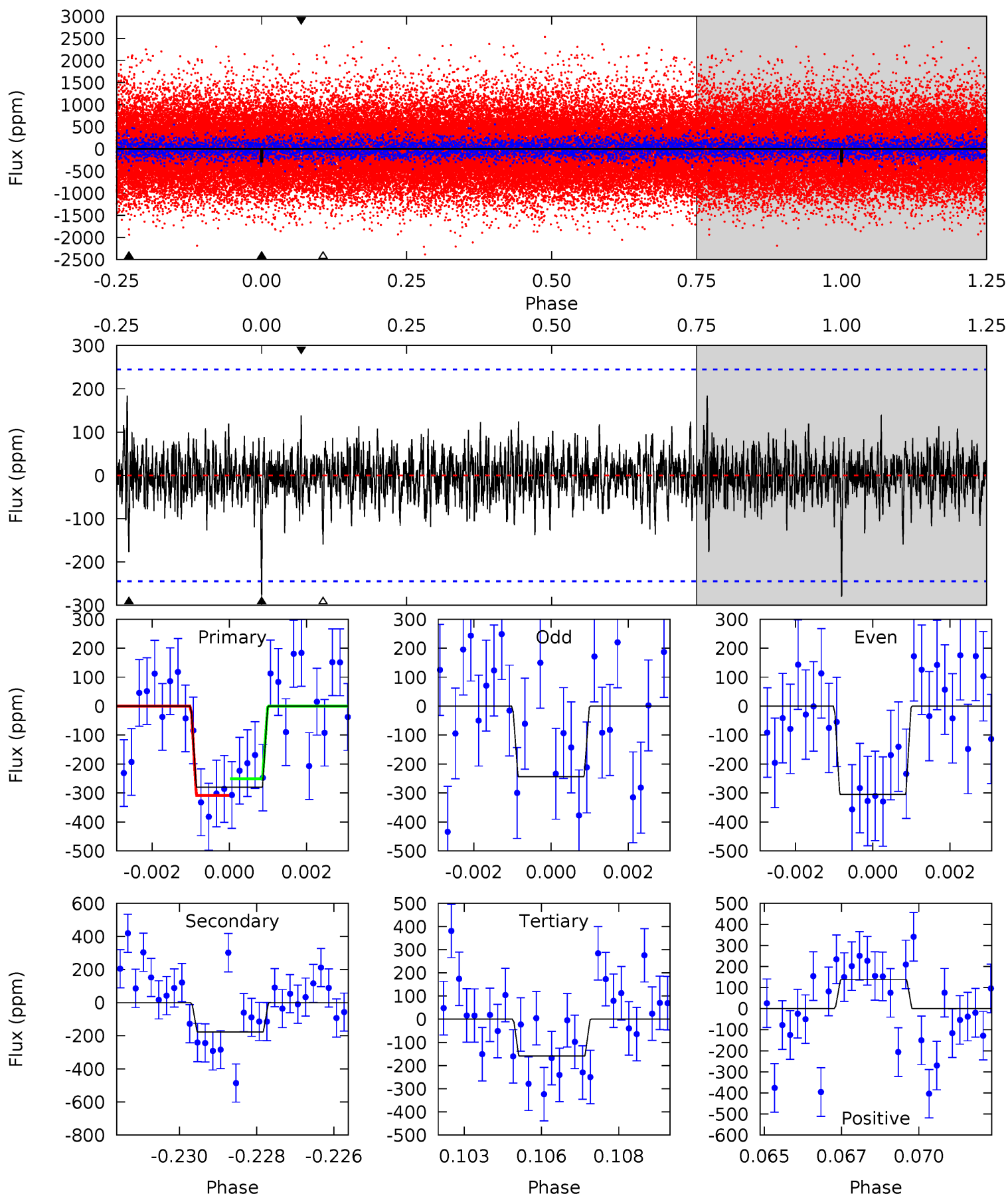
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
7.88	3.99	3.91	3.22	5.29	3.03	1.08	3.97	4.67	0.08	0.78	0.16	0.94	0.29	0.49



# Alt Model-Shift Uniqueness Test

010198757-01, P = 126.637659 Days, E = 138.062398 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
6.06	3.83	3.44	2.99	5.29	3.04	0.90	2.62	3.08	0.38	0.84	0.65	0.95	0.40	0.62



### Stellar Parameters For KIC 010198757

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	$5895^{+182}_{-203}$	$4.489^{+0.039}_{-0.221}$	$0.210^{+0.200}_{-0.300}$	$0.991^{+0.305}_{-0.102}$	$1.105^{+0.122}_{-0.150}$	$1.597^{+0.335}_{-0.847}$
	+3%/-3%	+1%/-5%	+95%/-143%	+31%/-10%	+11%/-14%	+21%/-53%
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 010198757-01 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	$A_{obs}$
DV	$-182 \pm 46$	$2.35^{+1.07}_{-1.06}$	$519^{+38}_{-27}$	$4855^{+1536}_{-674}$	$4457^{+10189}_{-2356}$
Alt.	$-177 \pm 46$	$1.95^{+1.25}_{-0.98}$	$521^{+38}_{-28}$	$5197^{+2201}_{-953}$	$6286^{+20247}_{-4041}$

$T_{max}$  = 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

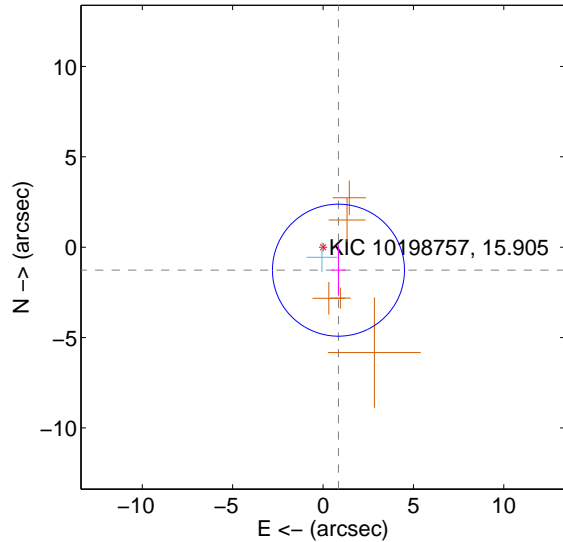
Supplemental centroid analysis for 010198757-01. Kepler magnitude: 15.90. Transit SNR 7.04

There are 1 quarters with good PRF difference image offsets

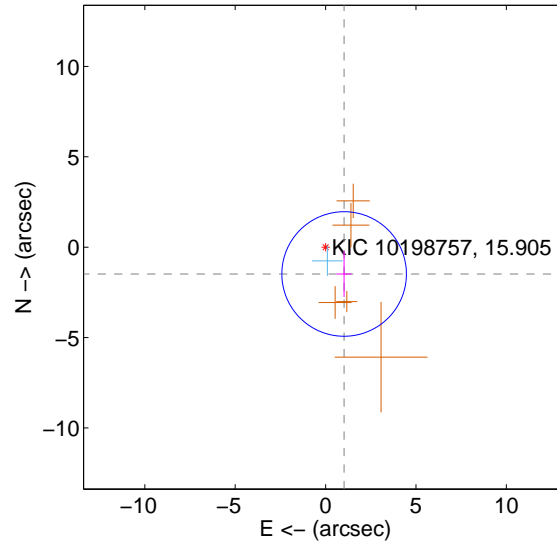
The direct PRF centroid is offset from the target star catalog position by about 0.31 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$1.533 \pm 1.218$	1.26	$-0.853 \pm 0.367$	$-1.273 \pm 1.410$
PRF-fit source offset from KIC position	$1.804 \pm 1.149$	1.57	$-1.026 \pm 0.410$	$-1.484 \pm 1.272$
photometric centroid source offset	$4.16 \pm 2.33$	1.78	$4.06 \pm 2.33$	$-0.88 \pm 2.43$

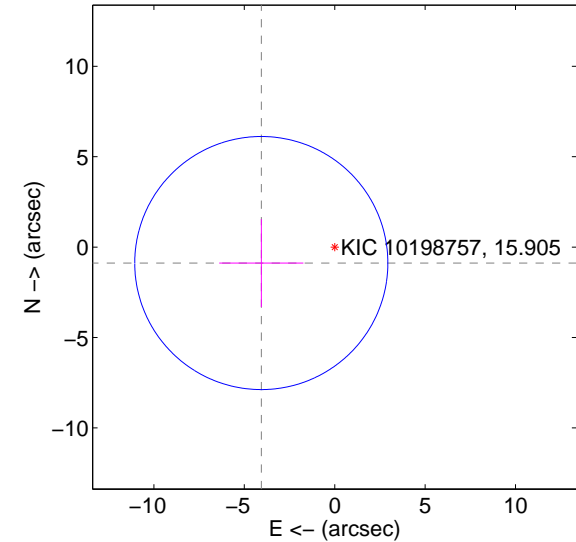
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position



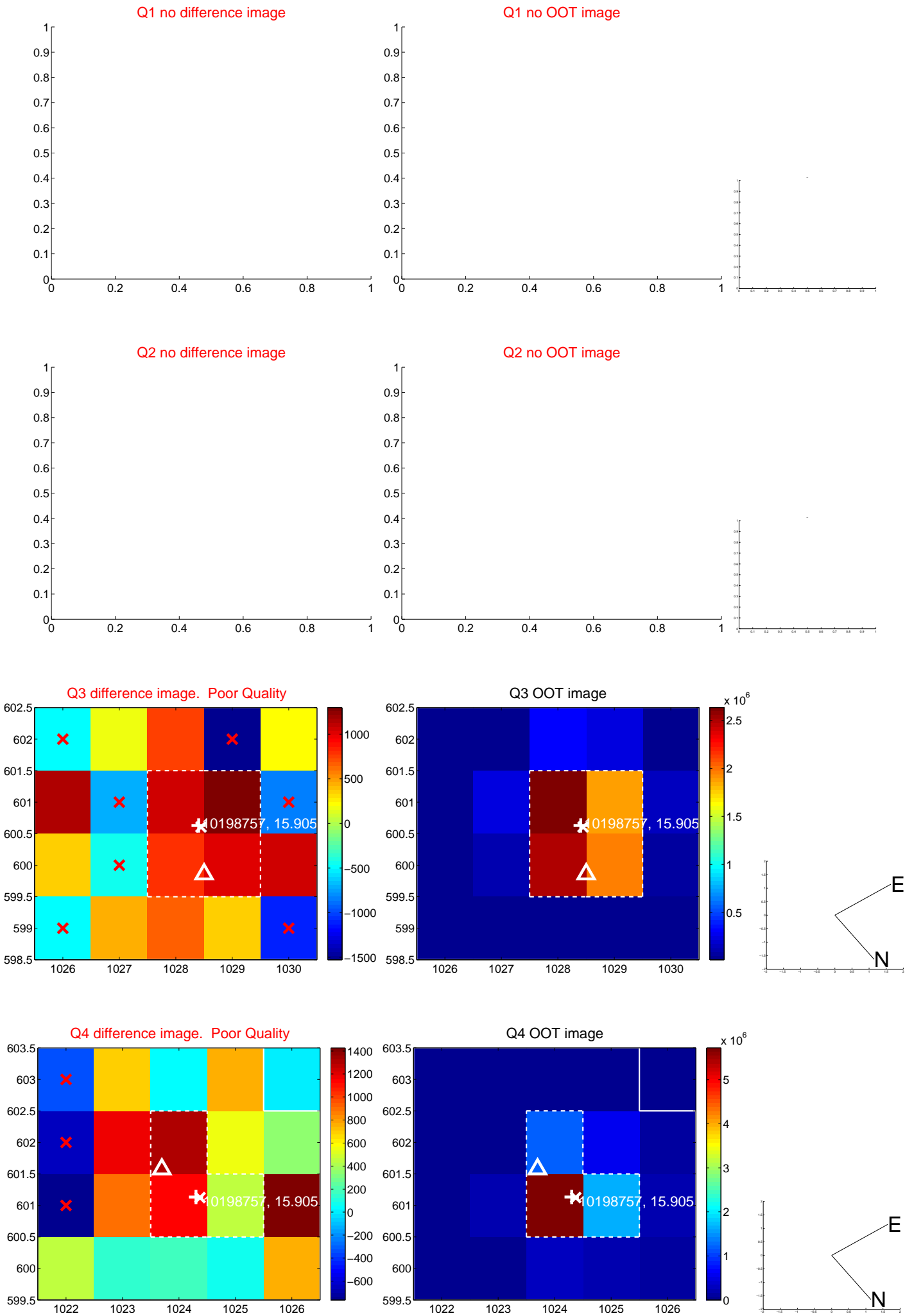
offset from photometric centroids



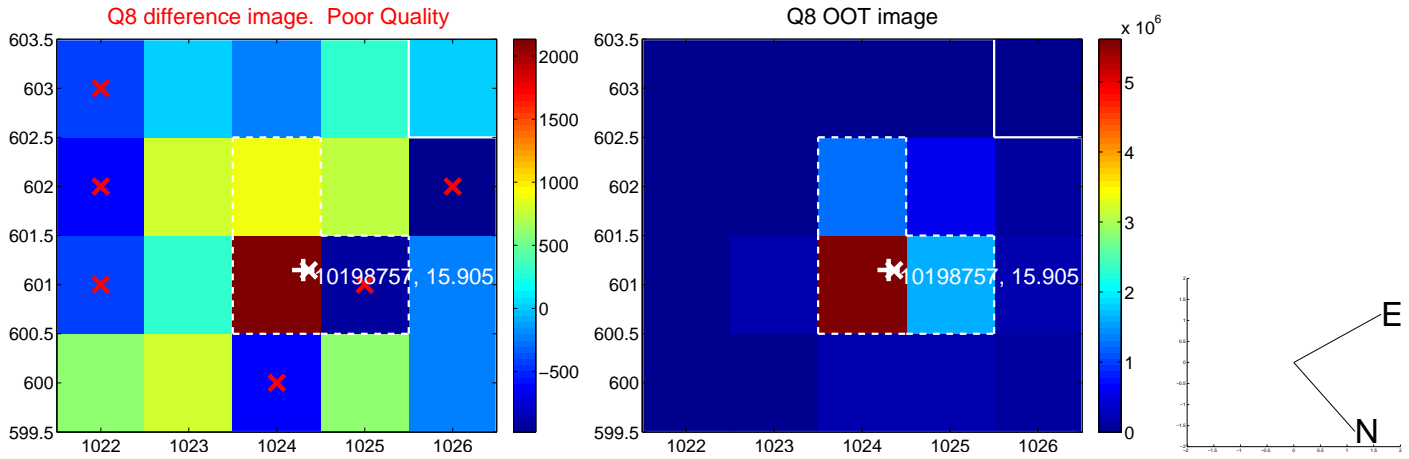
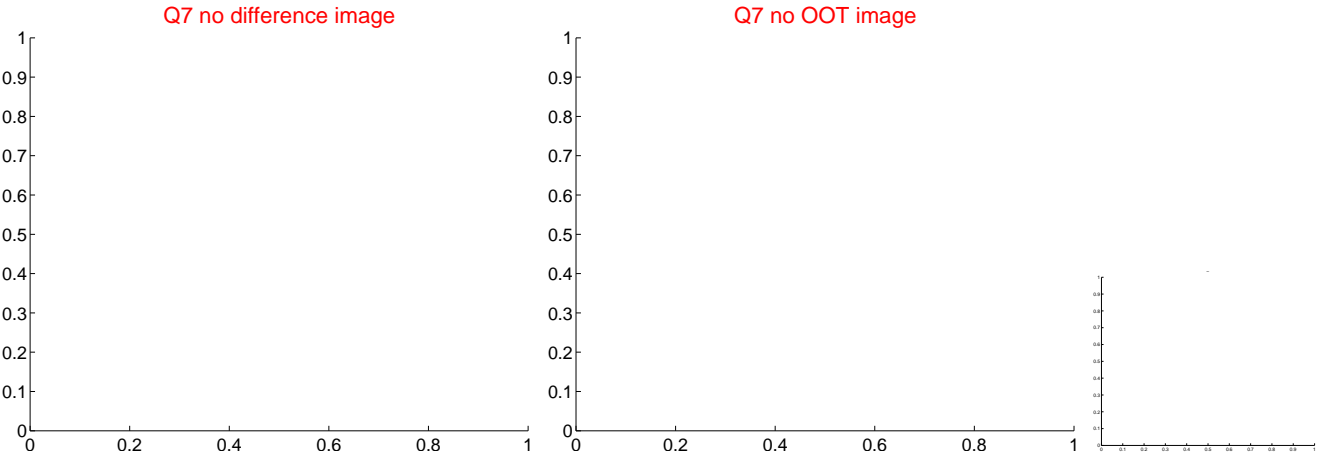
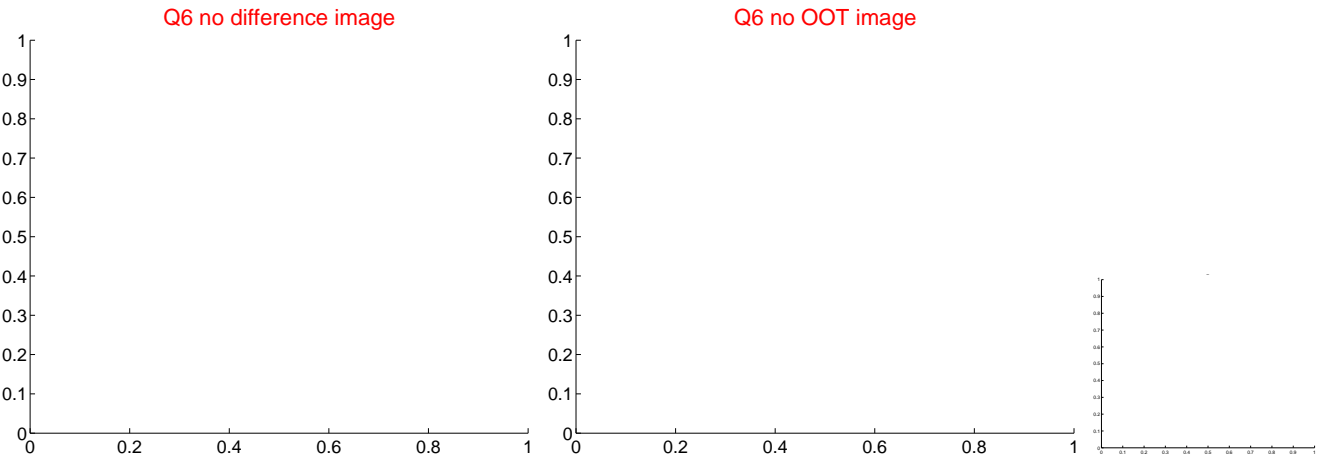
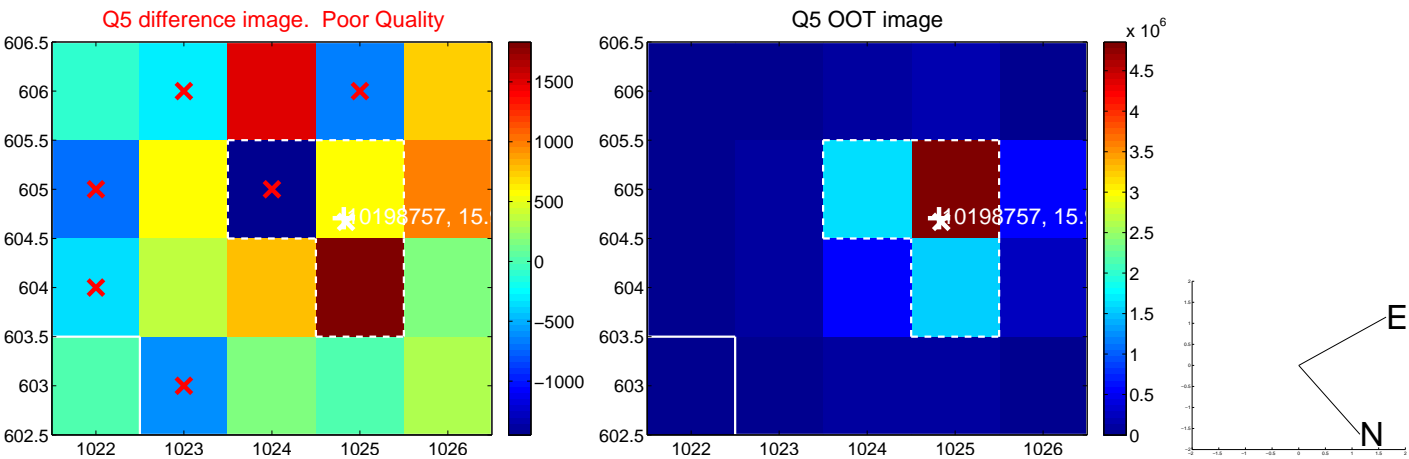
Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: three-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



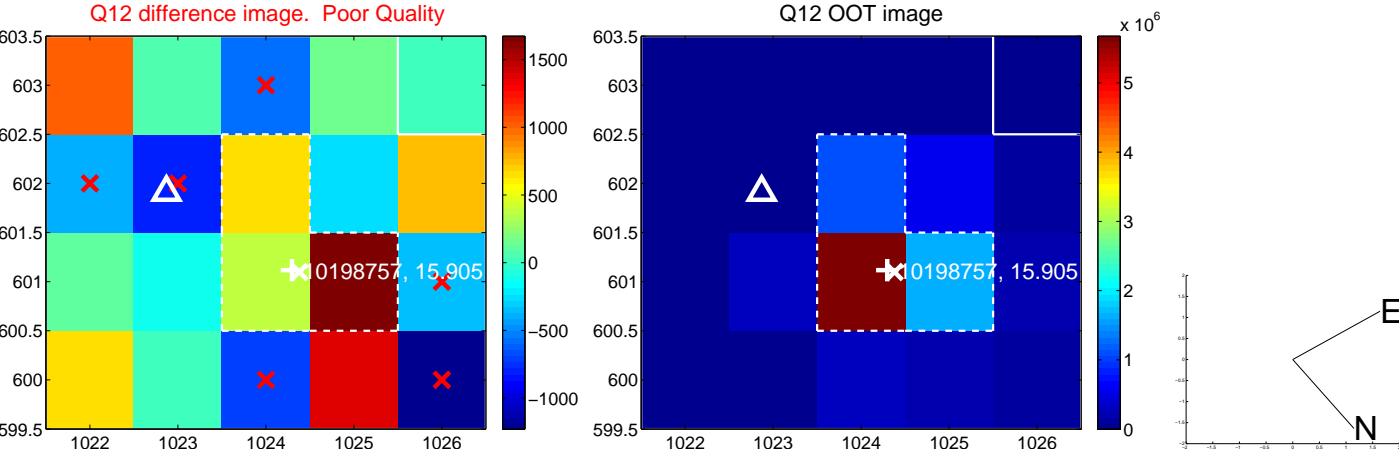
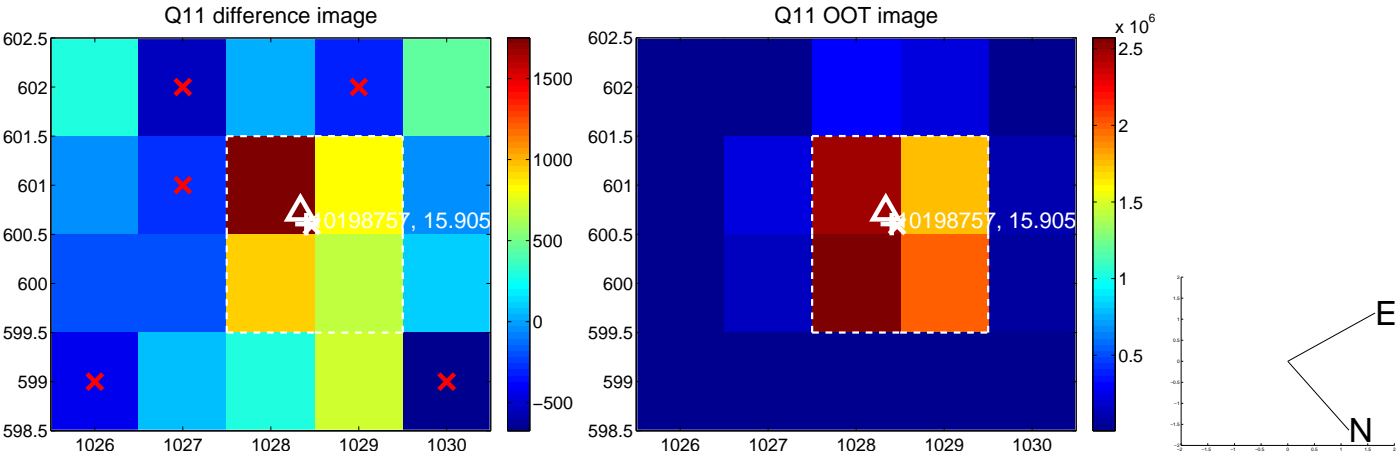
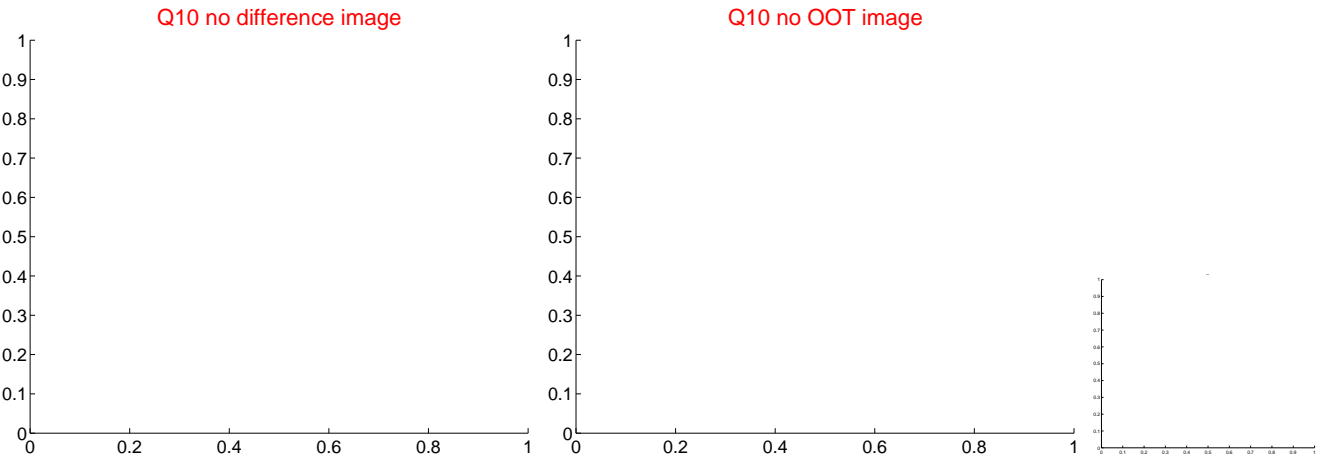
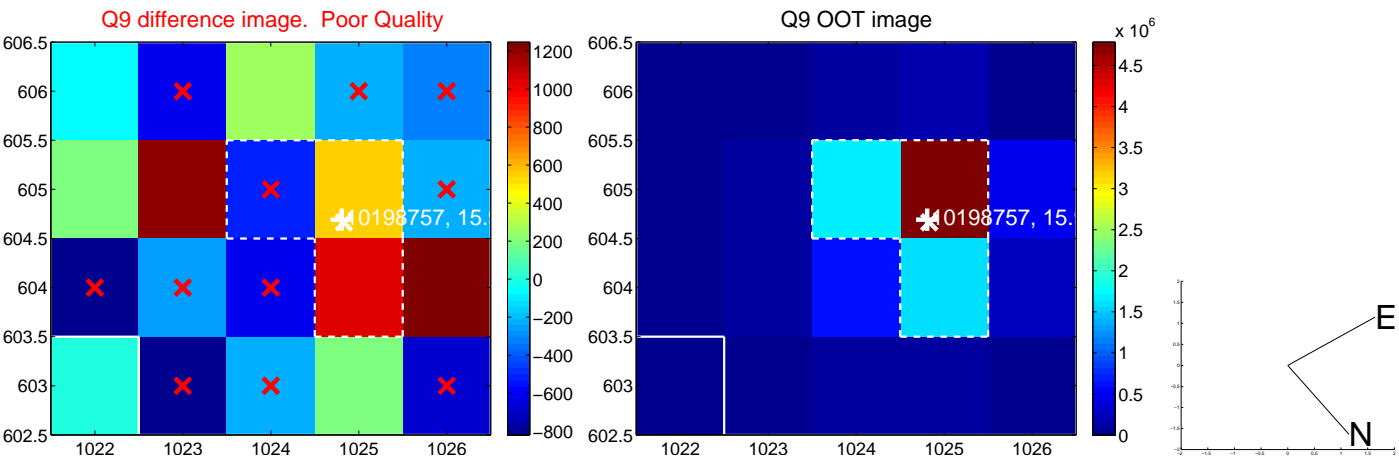
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



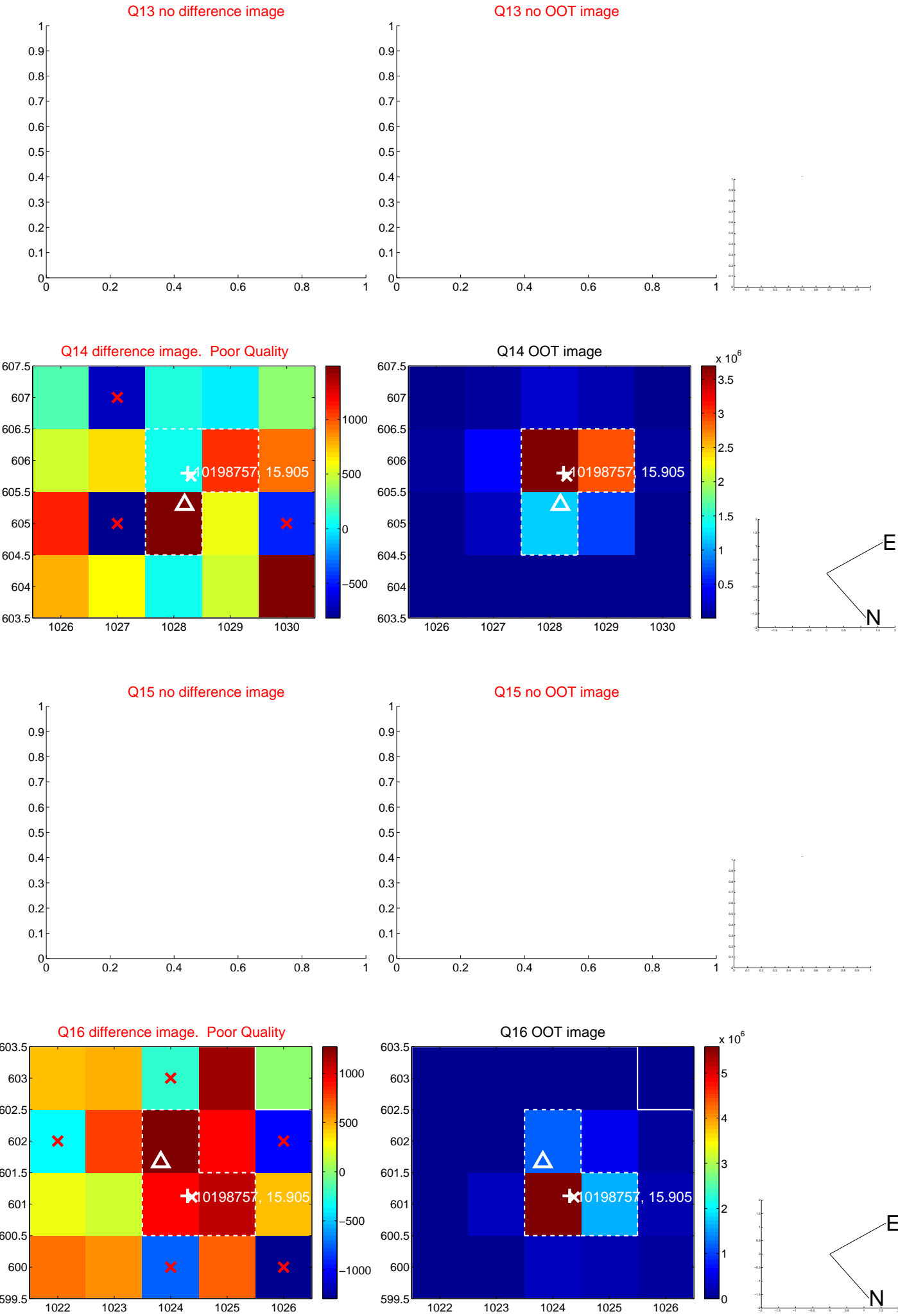
white ×: KIC target position; +: OOT centroid; △: difference centroid. red ×: large negative pixel value.



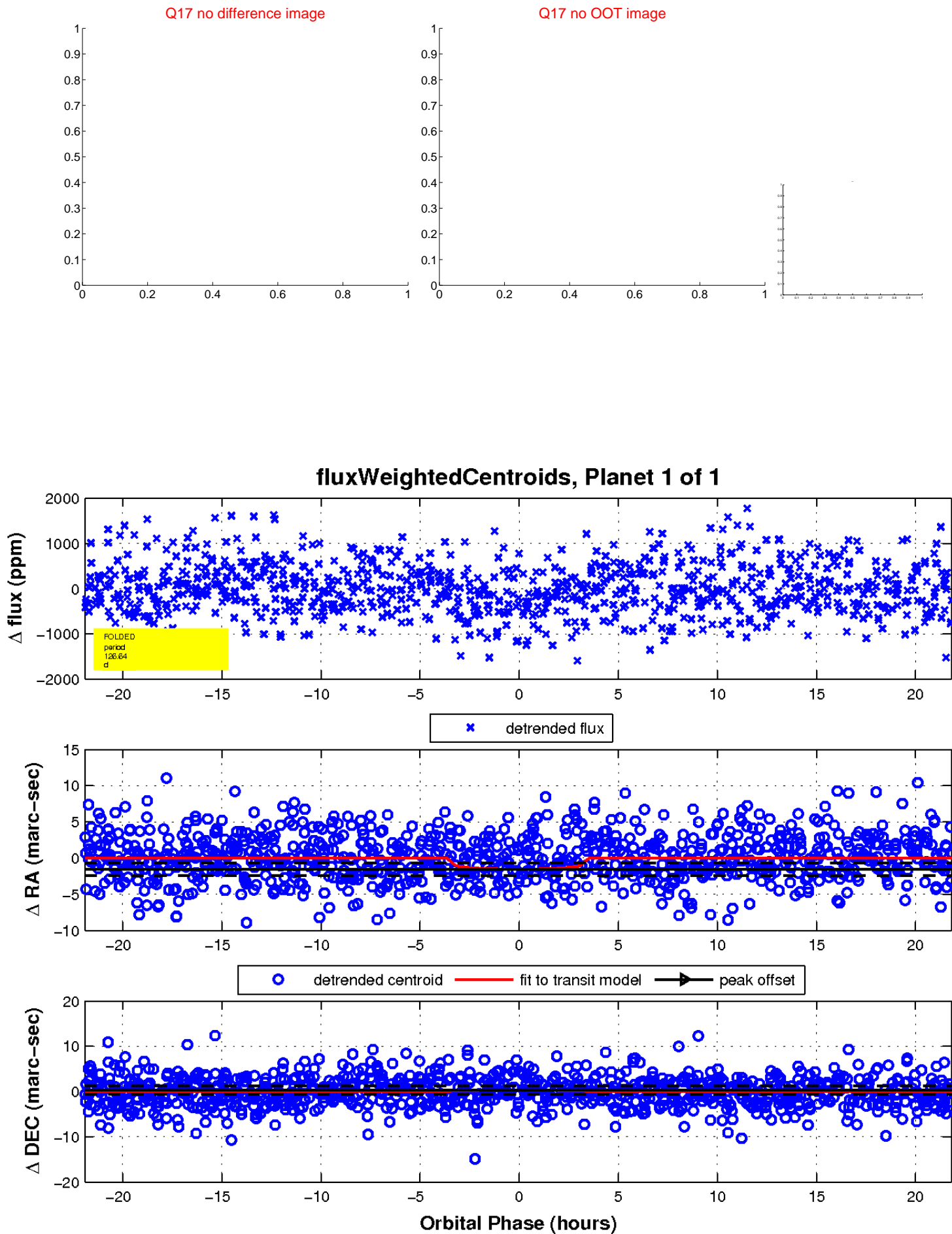
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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.



UKIRT Image

Declination

