

# KIC 008178778

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
008178778-01	OBS	No	0.957169	131.971340	22.6	8.523	9.9	5.1	9.21	7022	4.43	0.00

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
008178778-01	OBS	FP	0.00	1	0	0	0	LPP_DV—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.

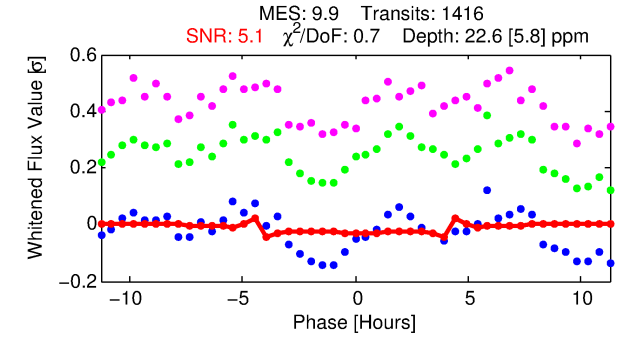
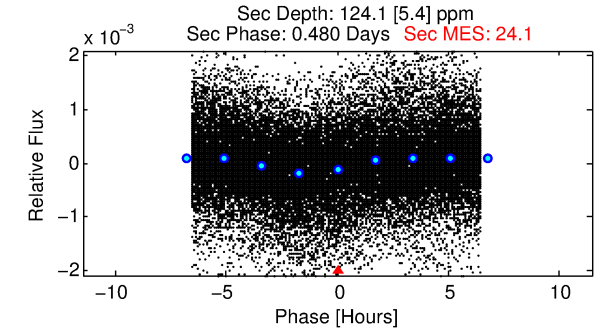
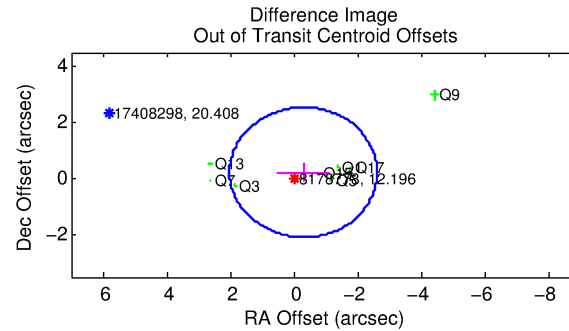
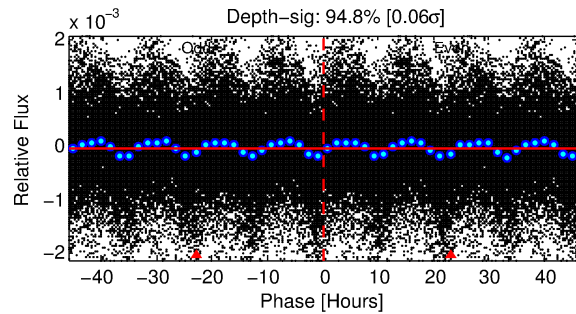
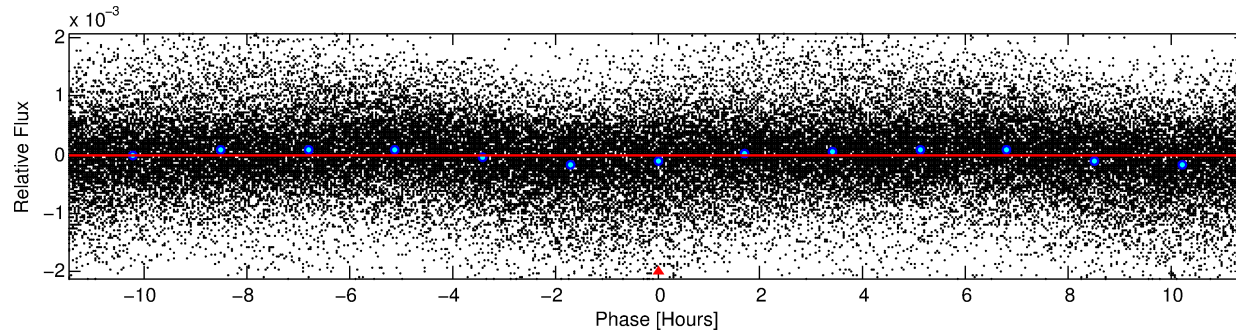
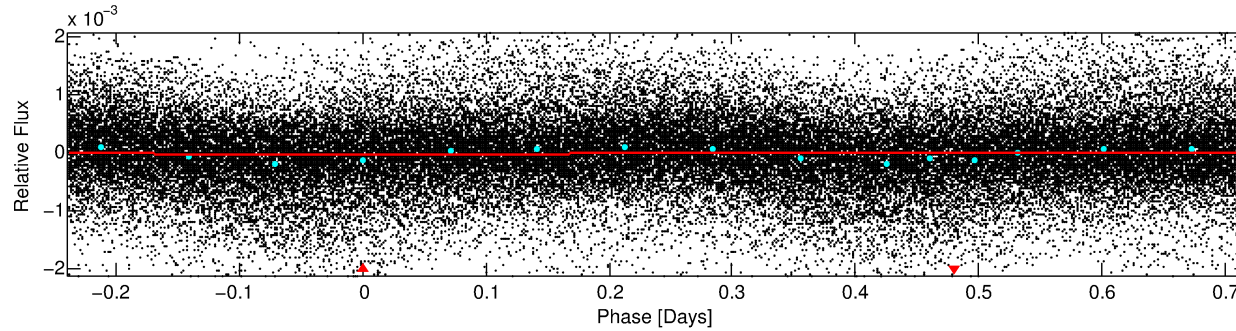
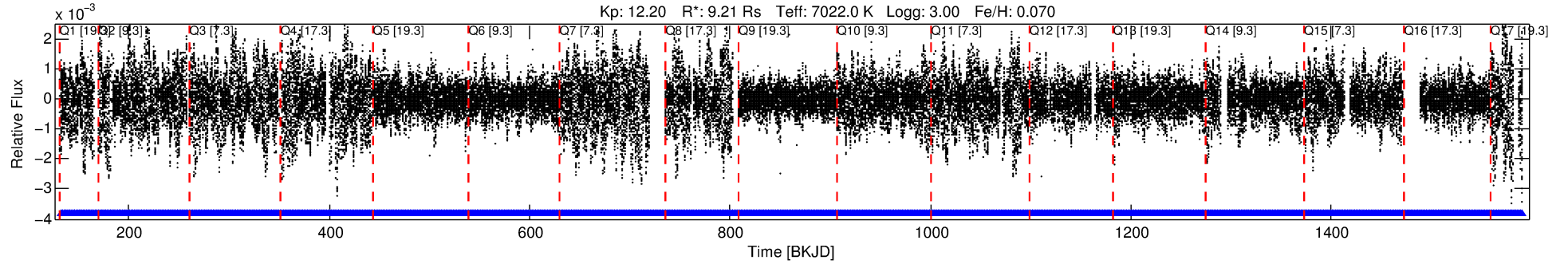
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

## Ephemeris Match Information For 008178778-01

No Significant Match Found

# DV One-Page Summary

KIC: 8178778 Candidate: 1 of 1 Period: 0.957 d



## DV Fit Results:

Period = 0.95717 [0.00002] d  
Epoch = 131.9713 [0.0036] BKJD  
Rp/R\* = 0.0044 [0.0033]  
a/R\* = 1.09 [0.71]  
b = 0.26 [15.27]  
Seff = N/A  
Teq = N/A  
Rp = 4.43 [4.27] Re  
a = N/A  
Ag = N/A  
Teffp = N/A

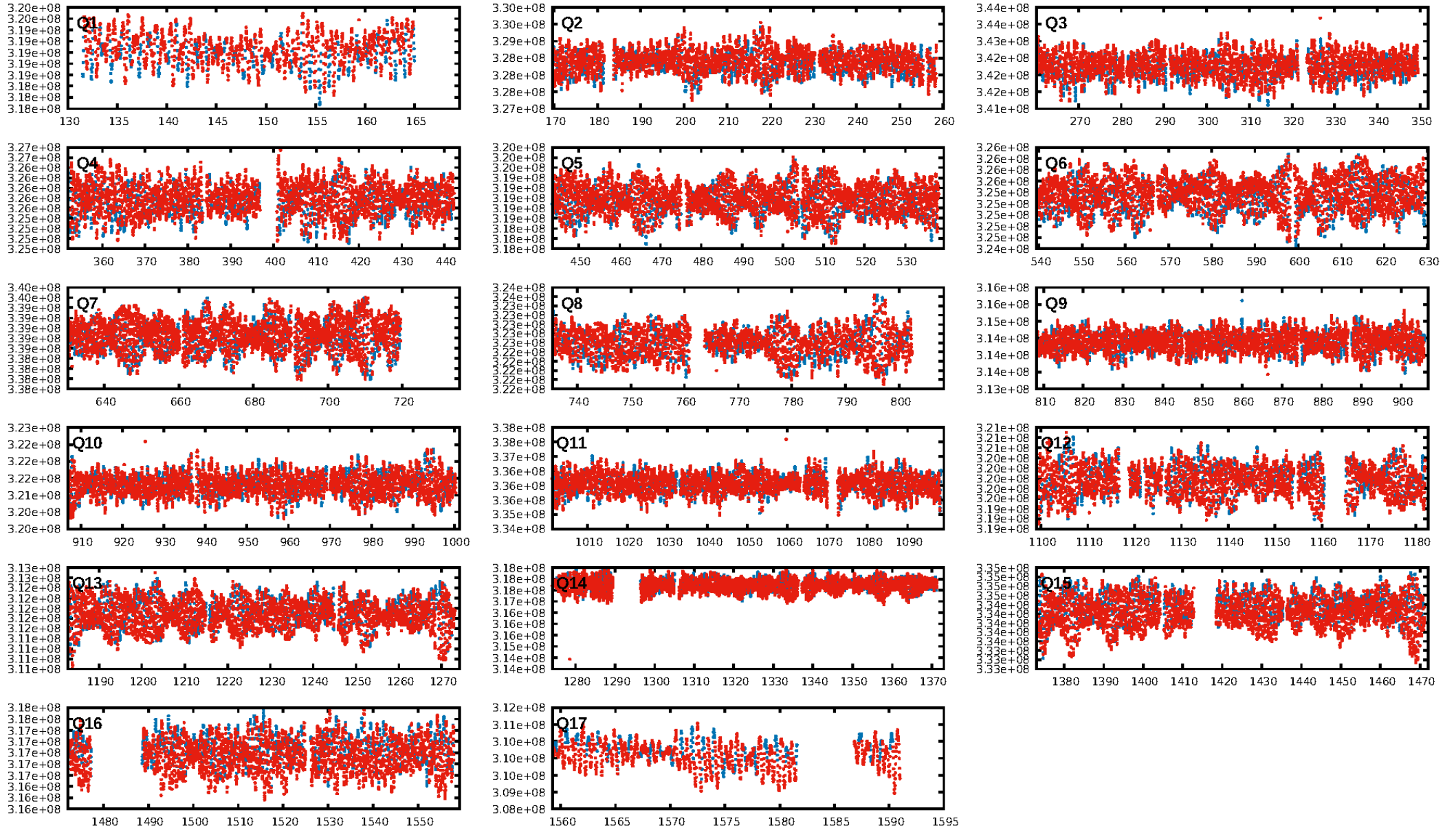
## DV Diagnostic Results:

ShortPeriod-sig: N/A  
LongPeriod-sig: N/A  
ModelChiSquare2-sig: N/A  
ModelChiSquareGof-sig: N/A  
Bootstrap-pfa: N/A  
RollingBand-fgt: 1.00 [1352/1352]  
GhostDiagnostic-chr: 8.805  
Centroid-sig: 39.2%  
Centroid-so: 0.221 arcsec [0.85 $\sigma$ ]  
OotOffset-rm: 0.376 arcsec [0.49 $\sigma$ ]  
KicOffset-rm: 0.474 arcsec [0.49 $\sigma$ ]  
OotOffset-st: 0/3/0/5 [8]  
KicOffset-st: 0/3/0/5 [8]  
DiffImageQuality-fgm: 0.50 [4/8]  
DiffImageOverlap-fno: 1.00 [17/17]

Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 18:14:00 Z

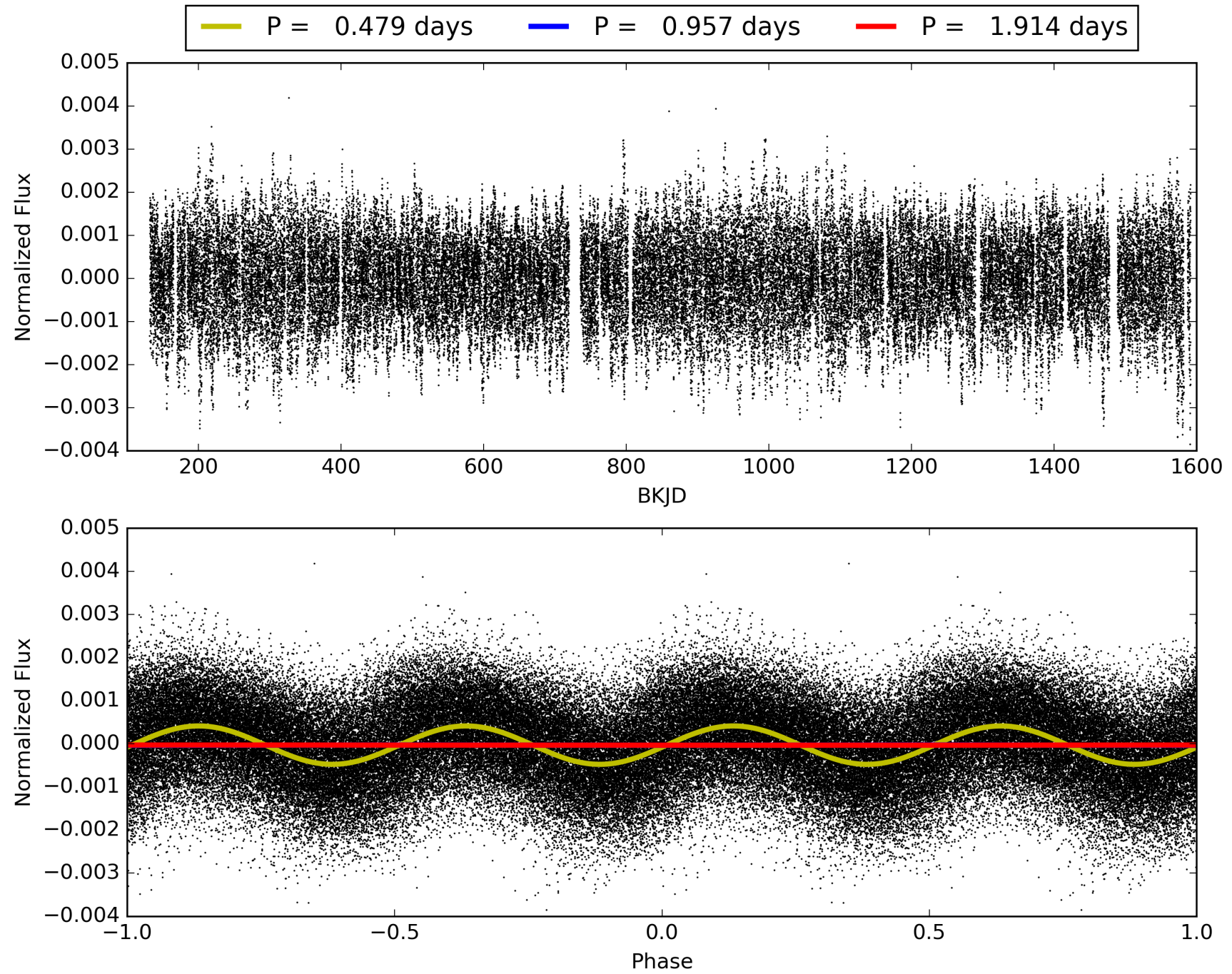
This Data Validation Report Summary was produced in the Kepler Science Operations Center Pipeline at NASA Ames Research Center

# TCE 008178778-01, PDC Light Curves



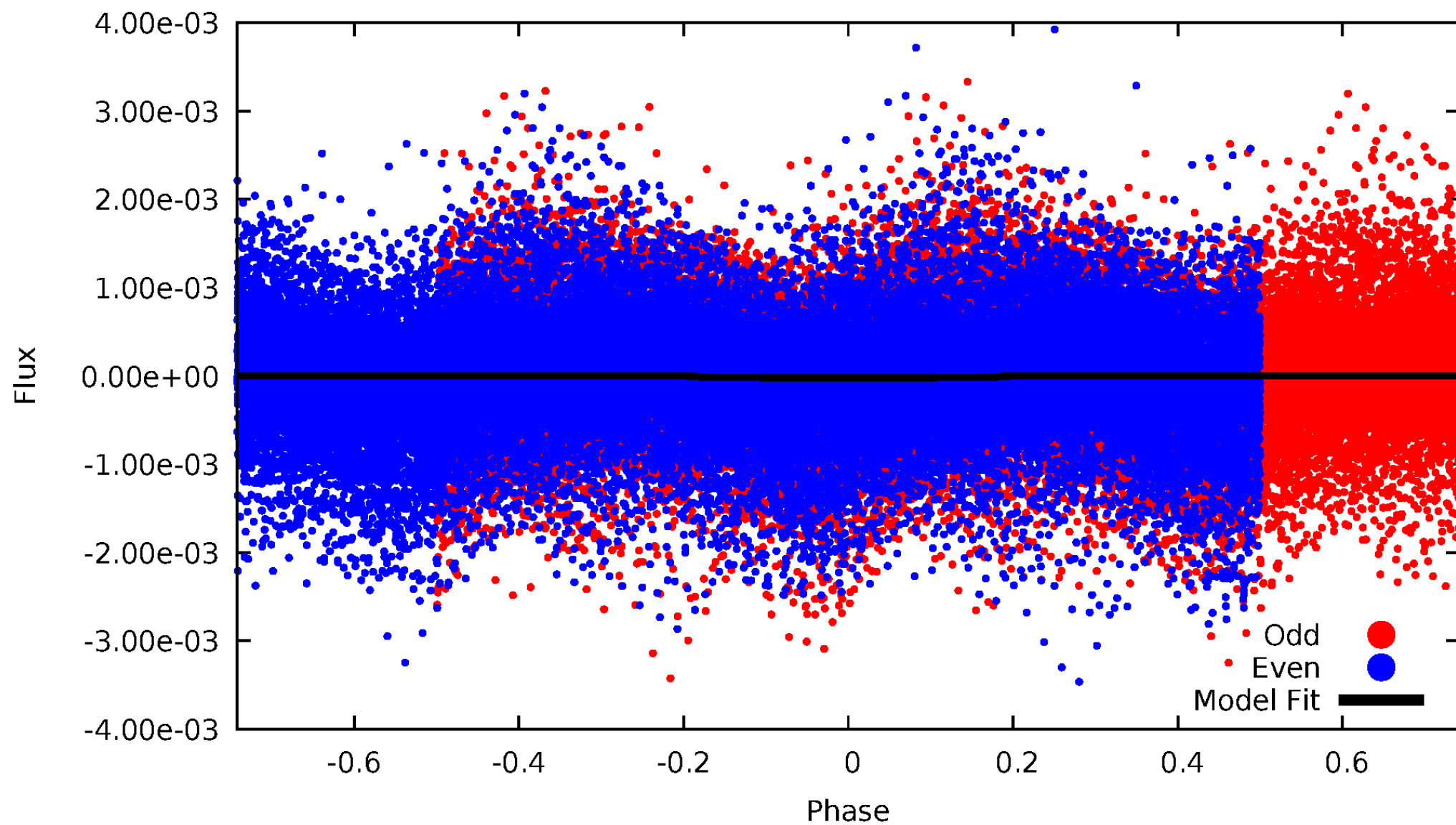


# TCE 008178778-01



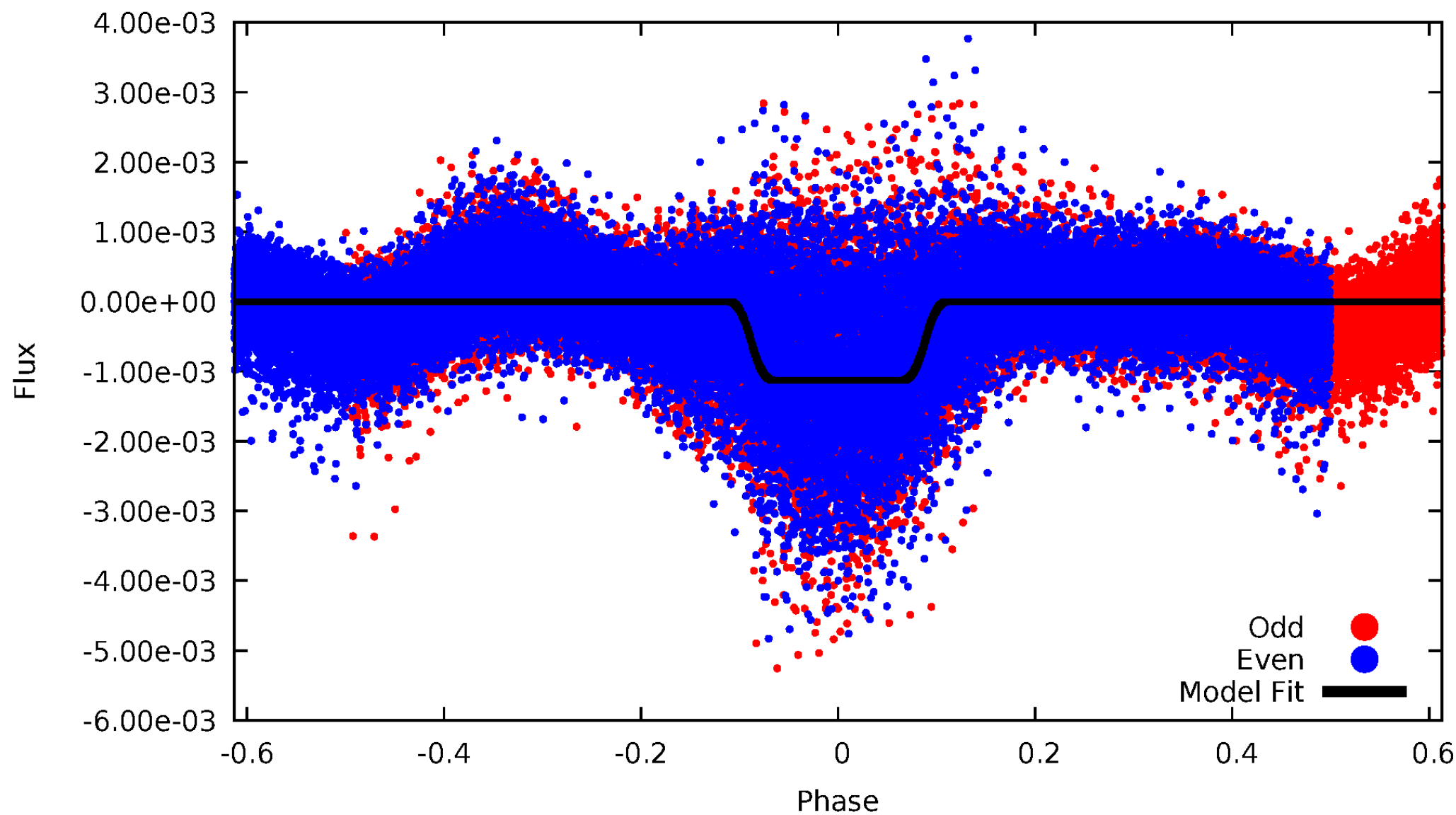
# DV Odd/Even

TCE 008178778-01

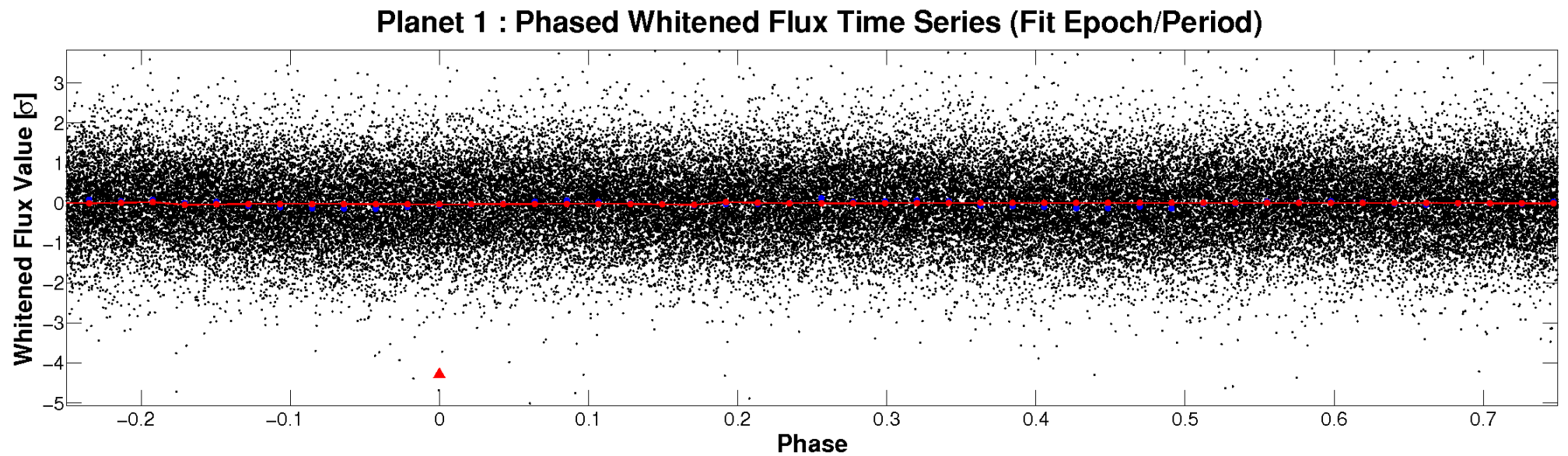
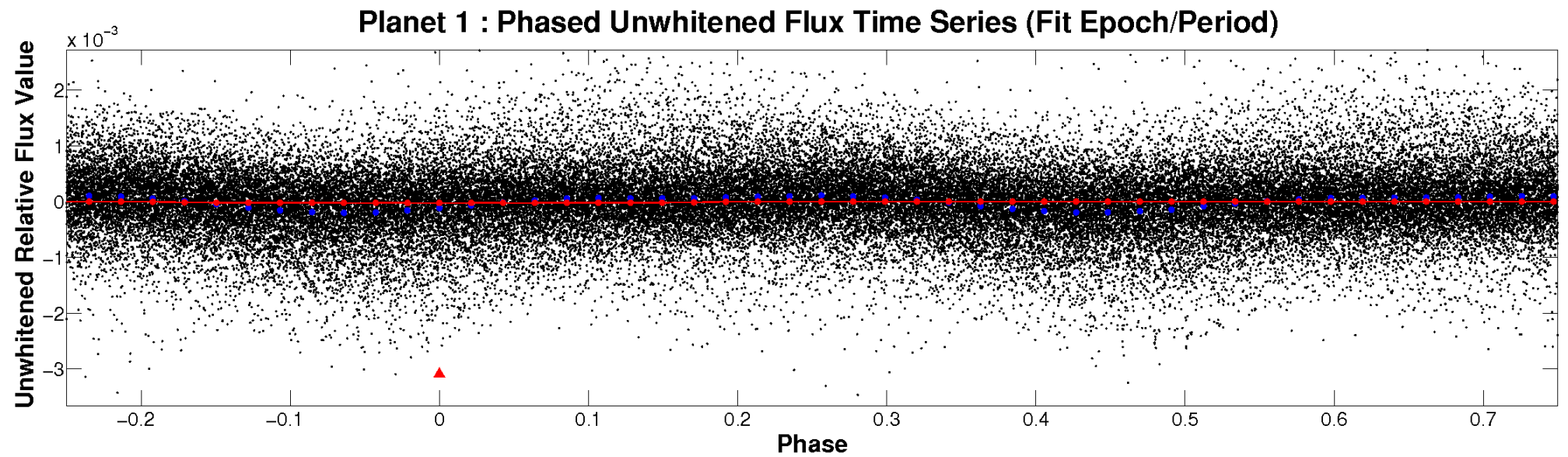


# ALT Odd/Even

TCE 008178778-01



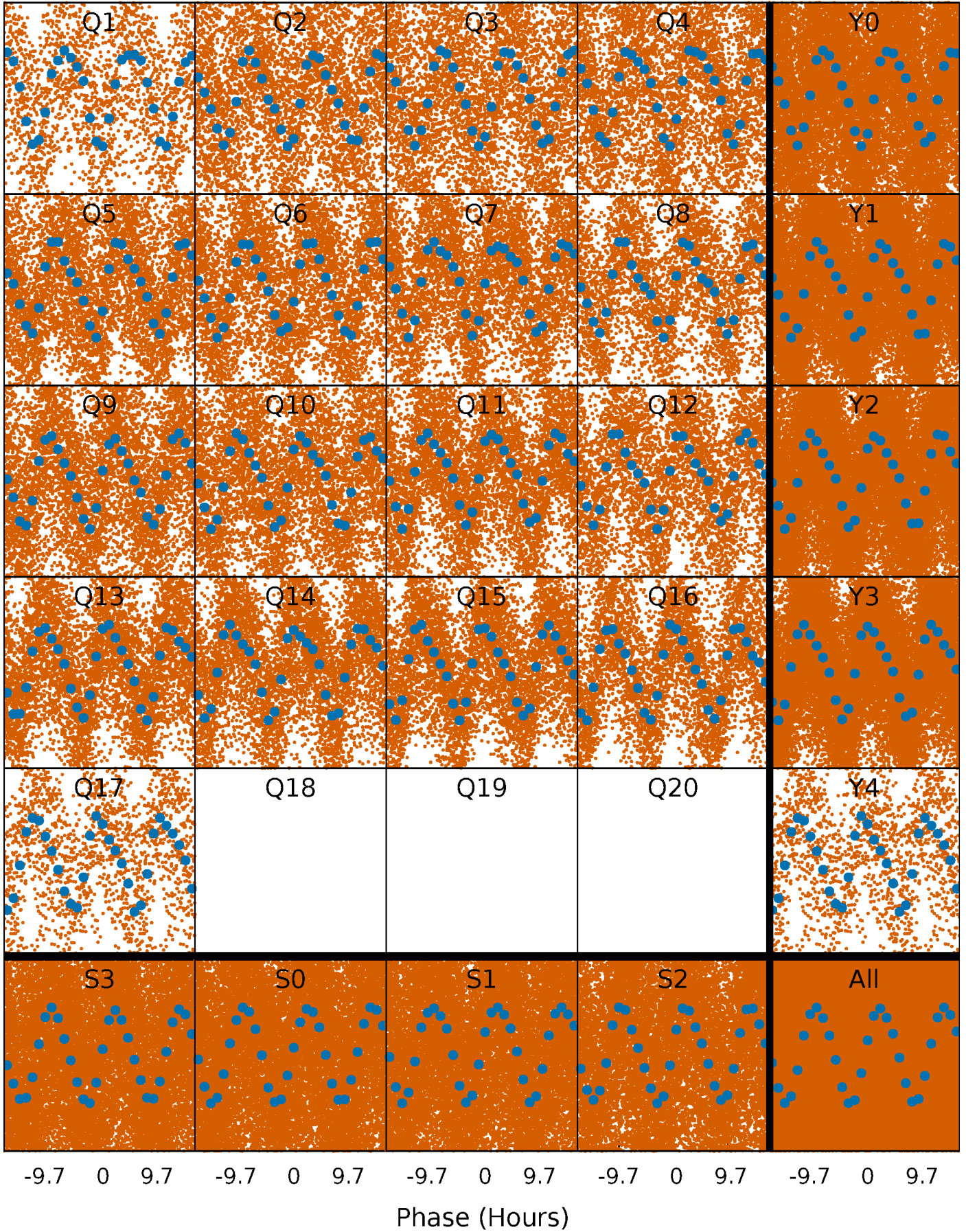
# Non-Whitened Vs. Whitened Light Curve





# PDC Quarter-Phased Transit Curves

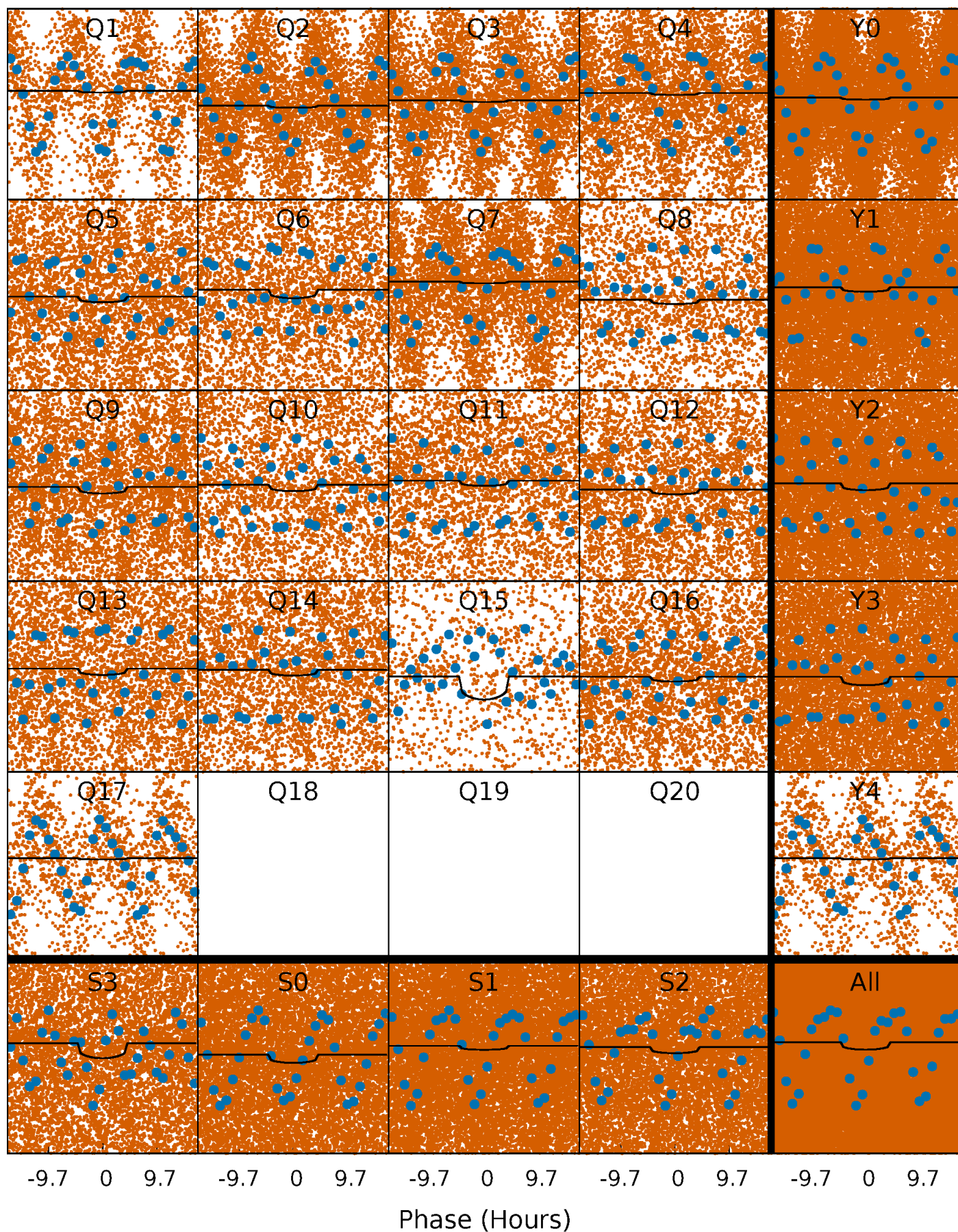
TCE 008178778-01 P= 0.957169 Days  $T_0=131.971340$  (BKJD)





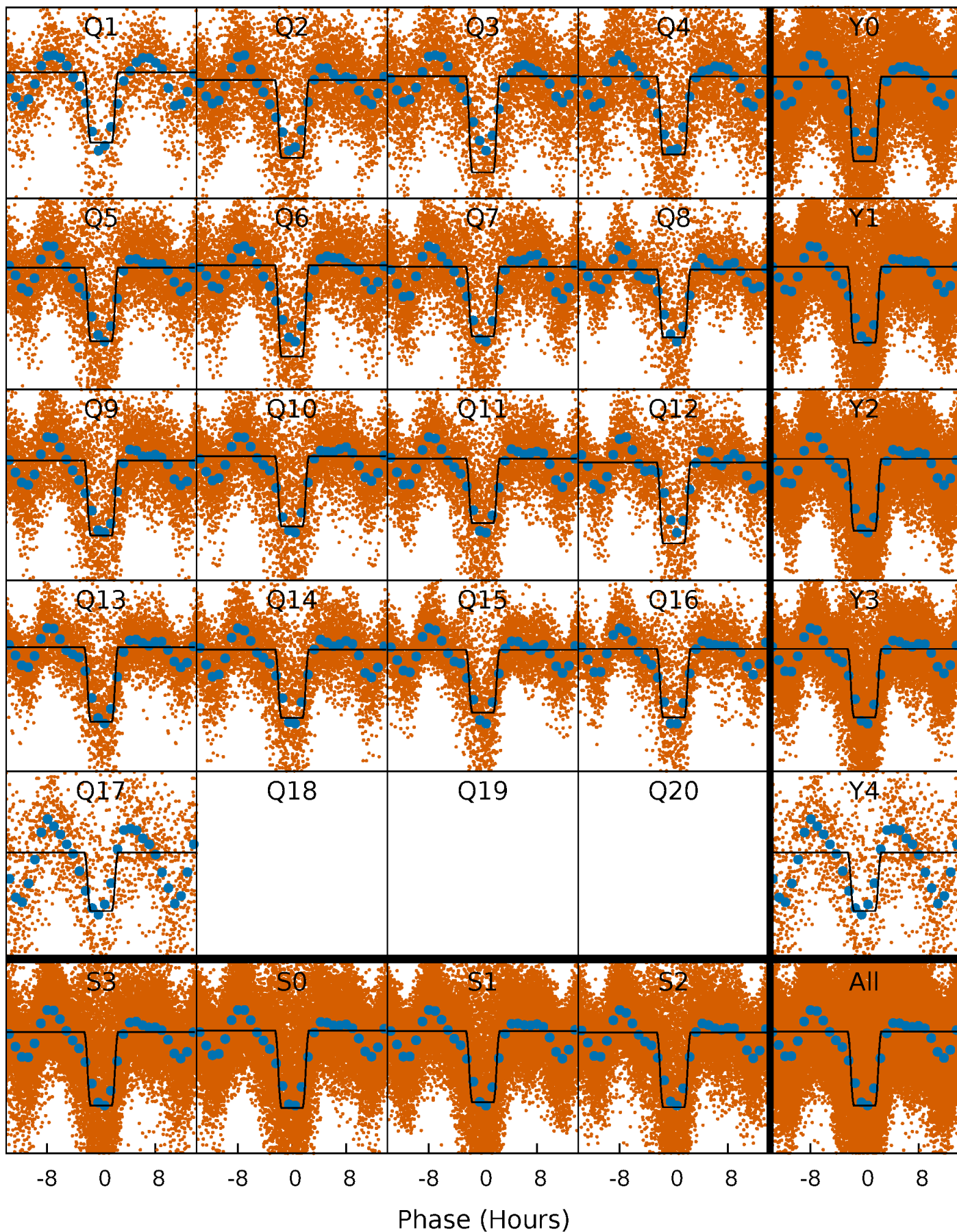
# DV Quarter-Phased Transit Curves

TCE 008178778-01 P= 0.957169 Days  $T_0=131.971340$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

TCE 008178778-01 P= 0.957045 Days  $T_0=131.975768$  (BKJD)

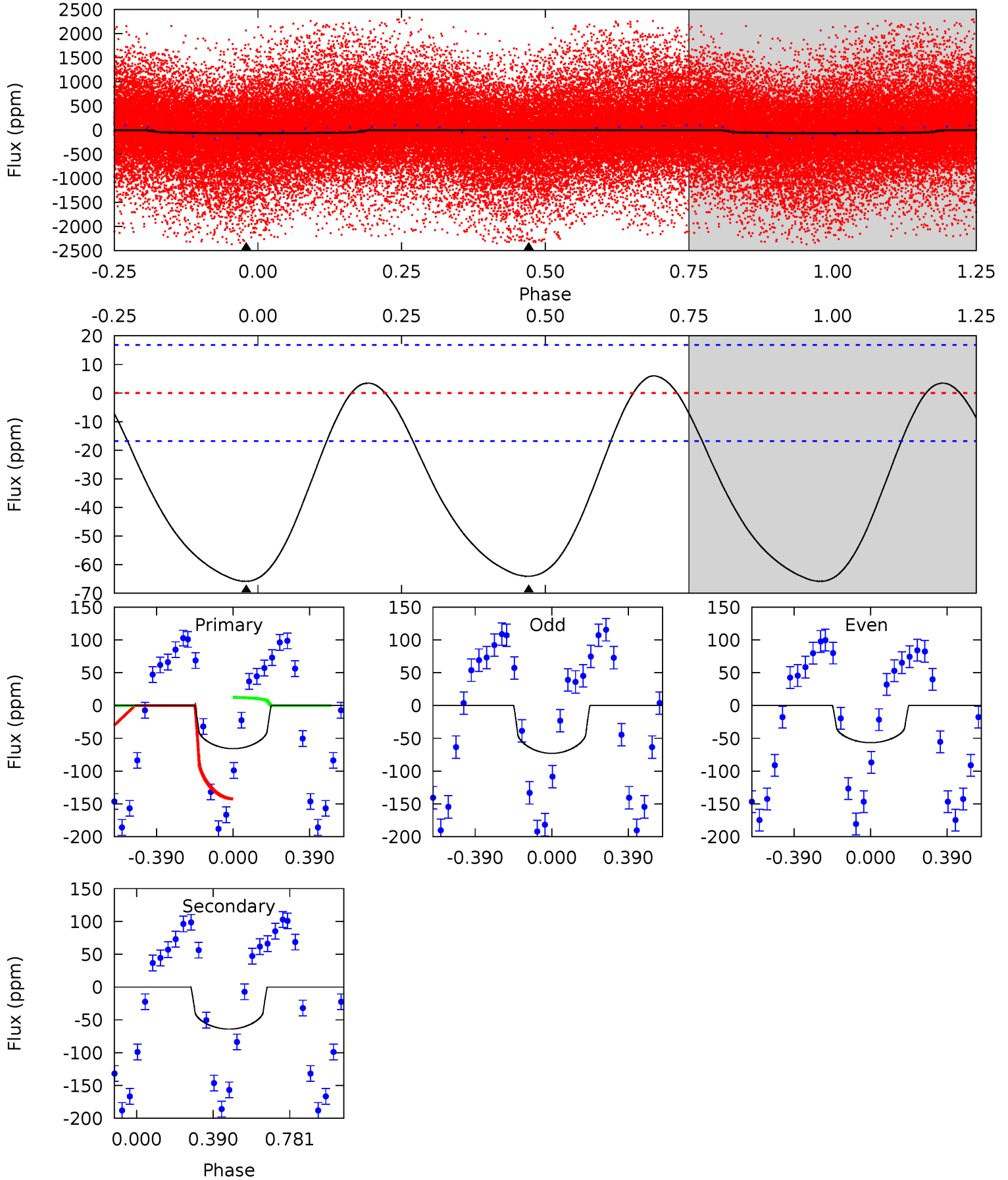




# DV Model-Shift Uniqueness Test

008178778-01, P = 0.957169 Days, E = 131.014171 Days

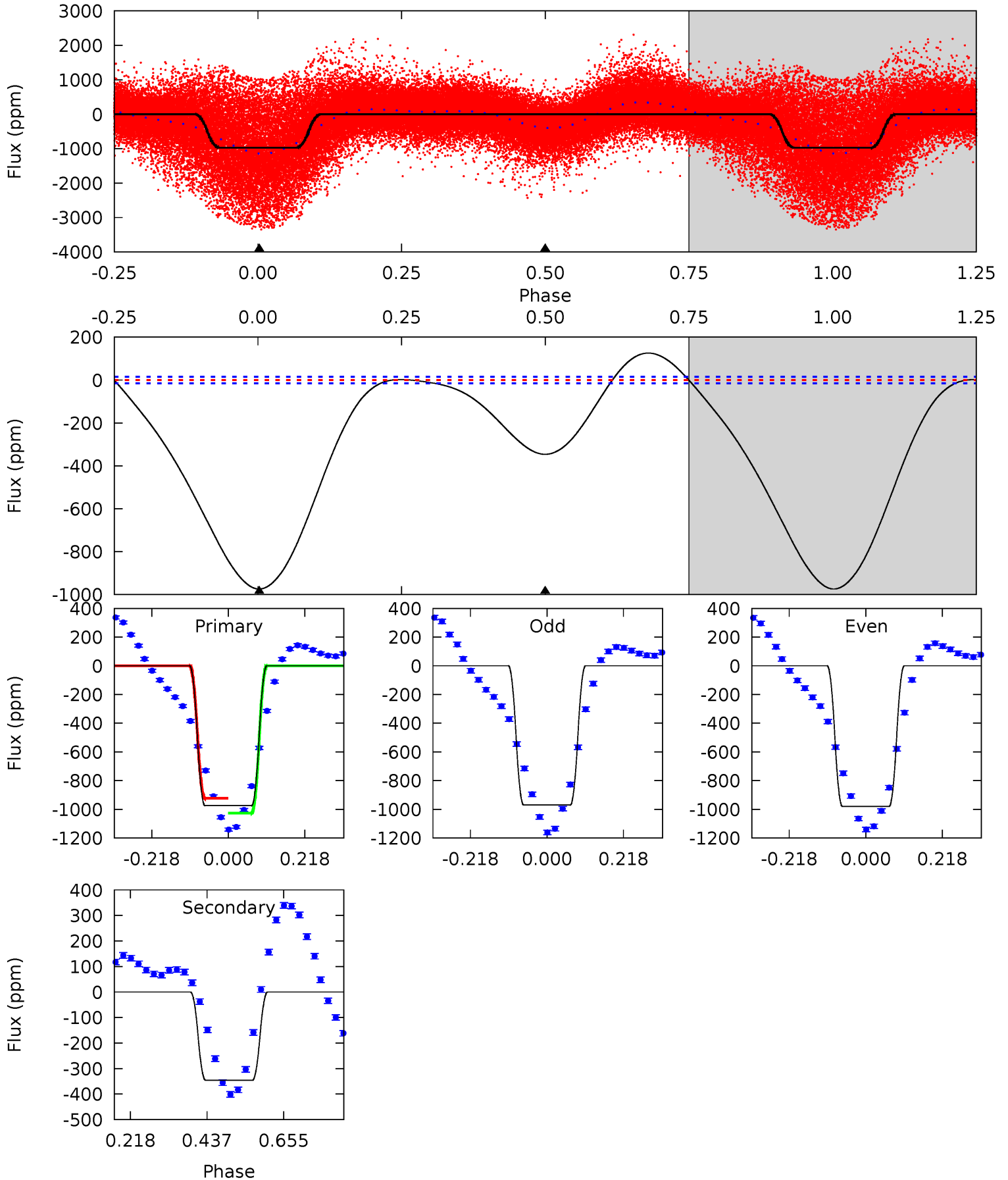
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
16.7	16.3	0	0	4.27	0.86	1.02	16.7	16.7	16.3	16.3	2.07	1.56	0.08	16.7



# Alt Model-Shift Uniqueness Test

008178778-01, P = 0.957045 Days, E = 131.018723 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
279.0	99.2	0	0	4.40	1.23	11.5	279.0	279.0	99.2	99.2	1.51	0.95	0.11	14.7





### Stellar Parameters For KIC 008178778

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R$ ( $R_{\odot}$ )	$M(M_{\odot})$	$p_{\star}$ ( $\text{g}\cdot\text{cm}^{-3}$ )
	$7022^{+167}_{-251}$	$2.998^{+0.620}_{-0.073}$	$0.070^{+0.200}_{-0.350}$	$9.213^{+1.036}_{-5.528}$	$3.080^{+0.211}_{-1.198}$	$0.006^{+0.062}_{-0.001}$
	+2%/-4%	+21%/-2%	+286%/-500%	+11%/-60%	+7%/-39%	+1123%/-25%
Source	PHO1	FLK73	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 008178778-01 / KOI

Detrend	Depth (ppm)	$R_p$ ( $R_{\oplus}$ )	$T_{\text{max}}$ (K)	$T_{\text{obs}}$ (K)	$A_{\text{obs}}$
DV	$-64 \pm 4$	$4.01^{+3.14}_{-2.56}$	$7594^{+479}_{-1262}$	$8963^{+13517}_{-3419}$	$1.607^{+10.277}_{-1.092}$
Alt.	$-346 \pm 3$	$30.44^{+6.55}_{-9.37}$	$7597^{+519}_{-1162}$	$-5225^{+2059}_{-604}$	$0.157^{+0.128}_{-0.048}$

$T_{\text{max}}$  = 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

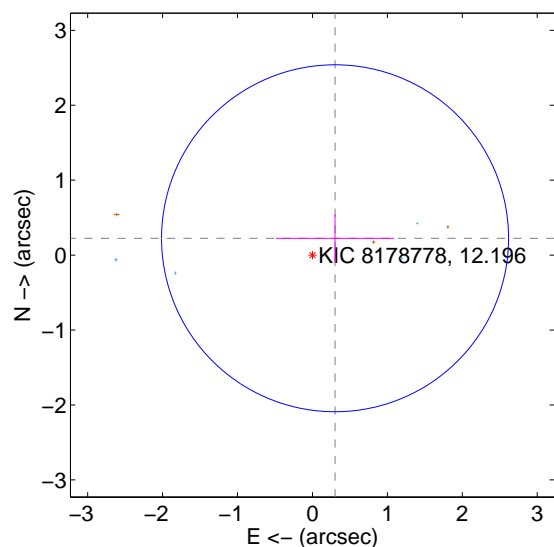
Supplemental centroid analysis for 008178778-01. Kepler magnitude: 12.20. Transit SNR 5.08

There are 4 quarters with good PRF difference image offsets

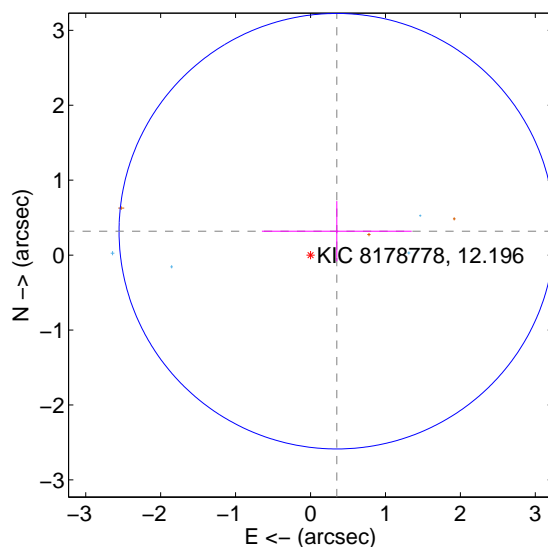
The direct PRF centroid is offset from the target star catalog position by about 0.15 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$0.376 \pm 0.772$	0.49	$-0.302 \pm 0.791$	$0.225 \pm 0.320$
PRF-fit source offset from KIC position	$0.474 \pm 0.969$	0.49	$-0.351 \pm 1.000$	$0.319 \pm 0.402$
photometric centroid source offset	$0.22 \pm 0.26$	0.85	$-0.20 \pm 0.25$	$-0.09 \pm 0.29$

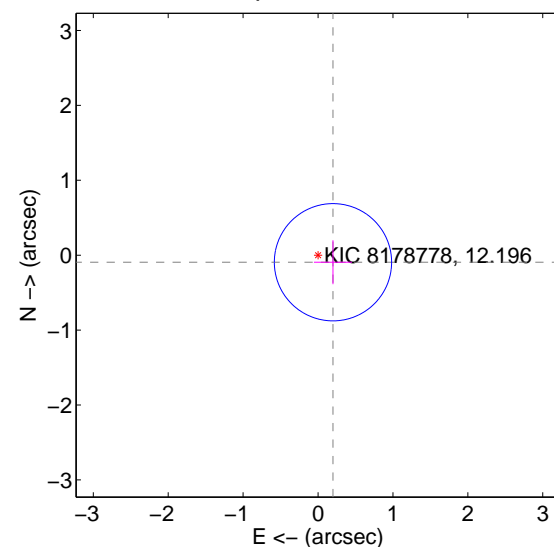
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position

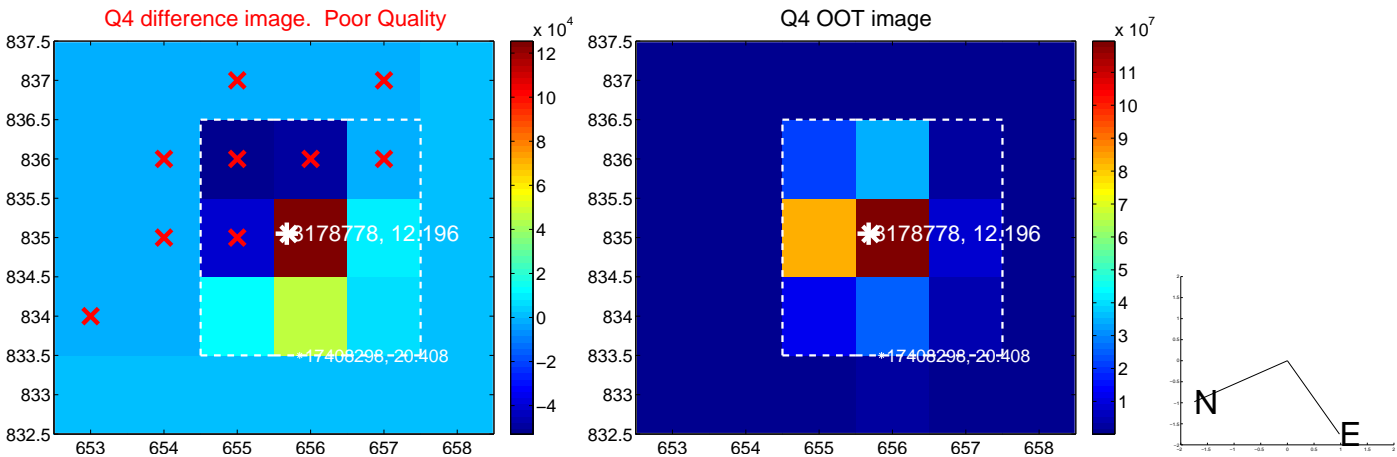
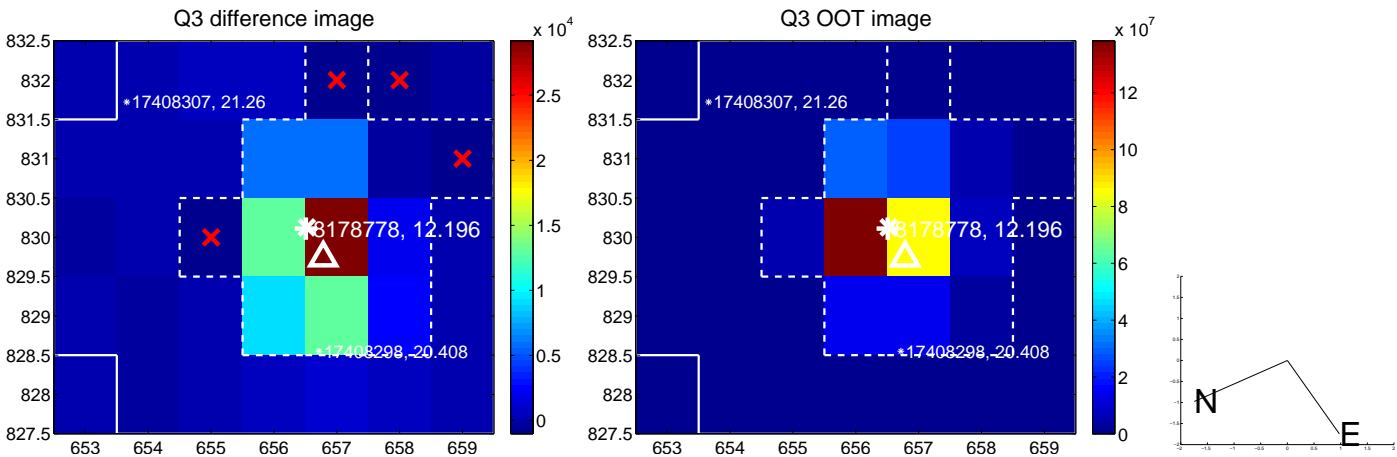
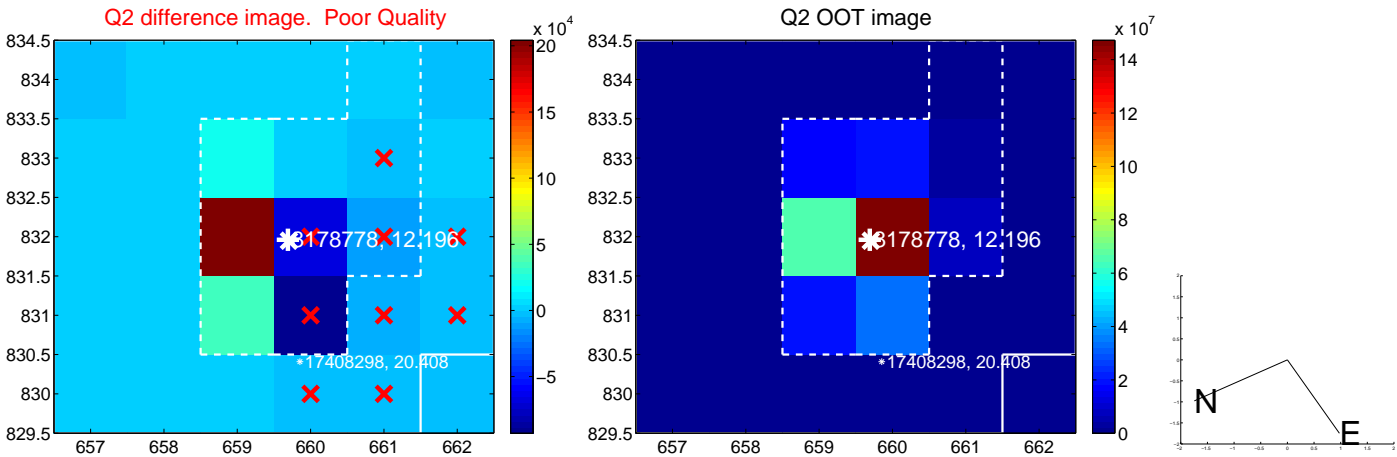
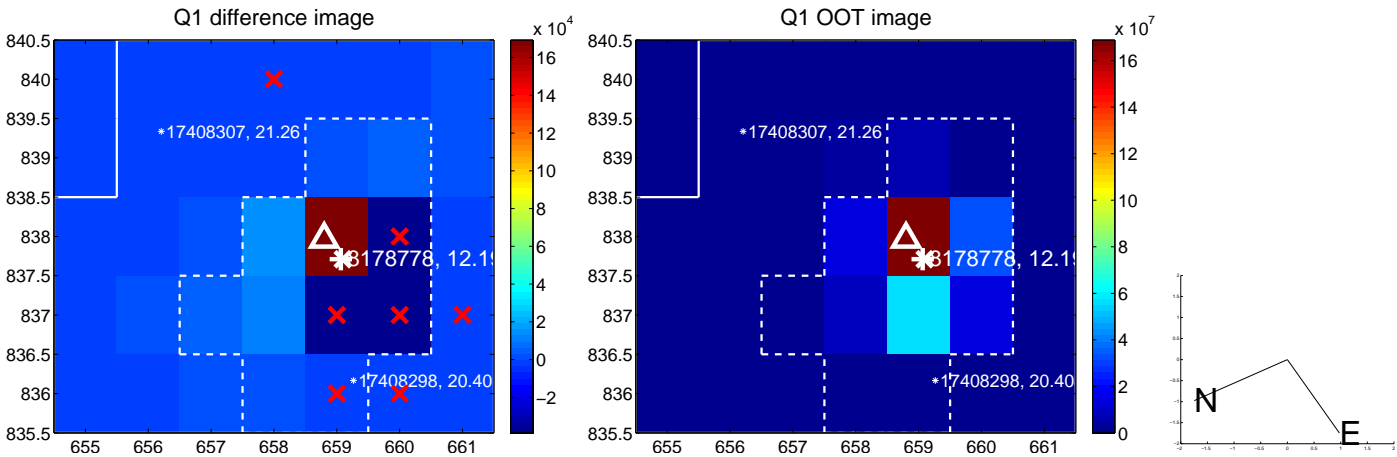


offset from photometric centroids

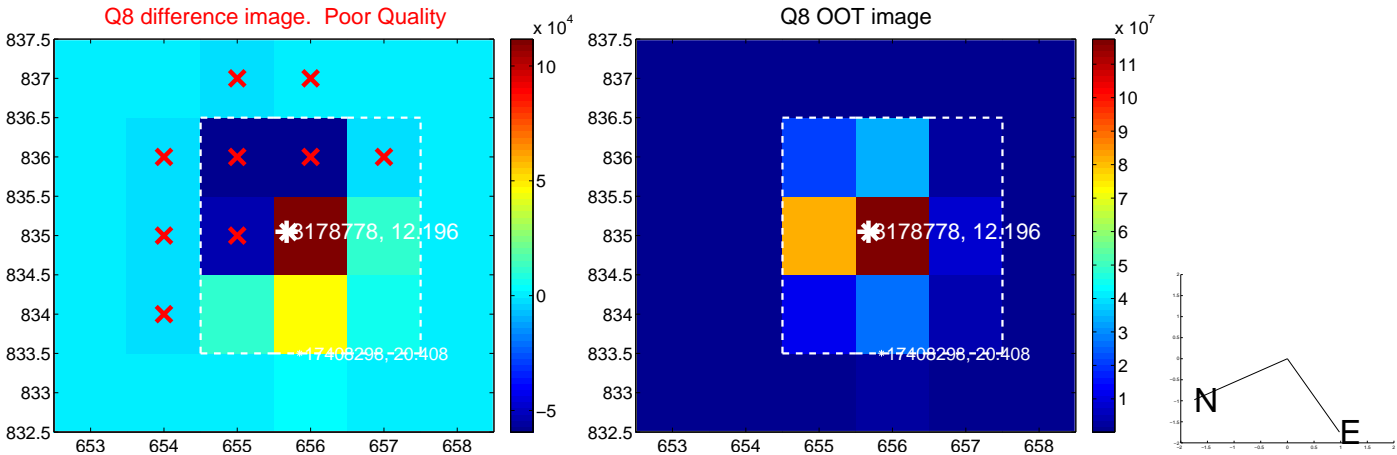
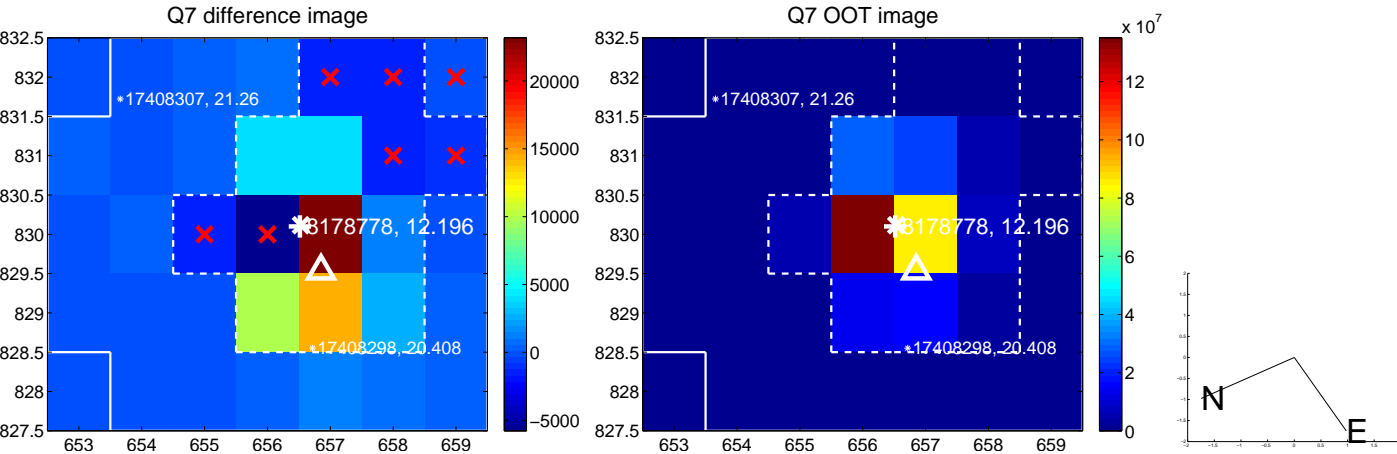
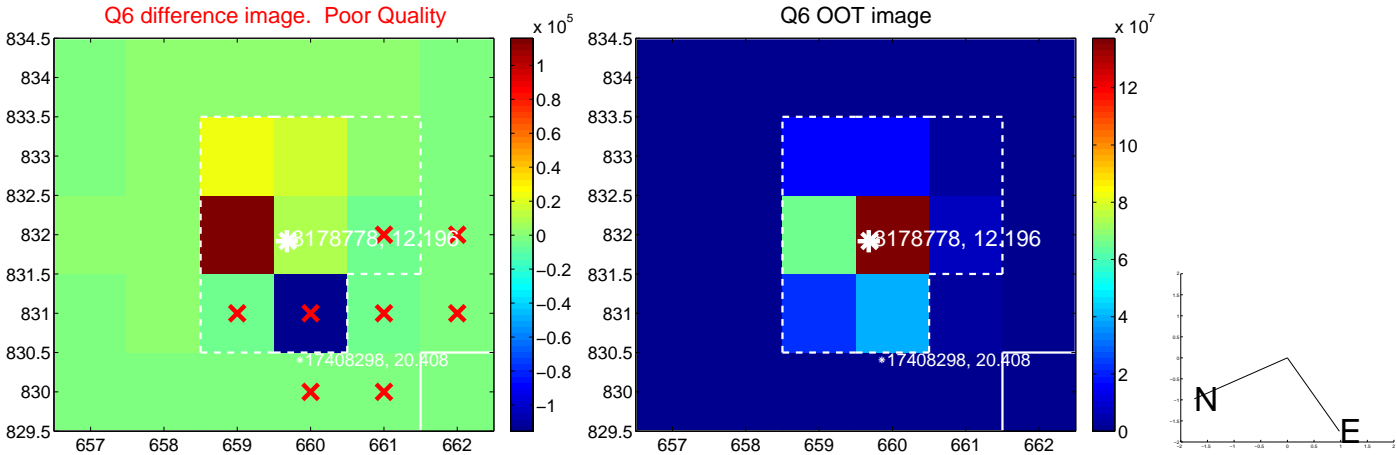
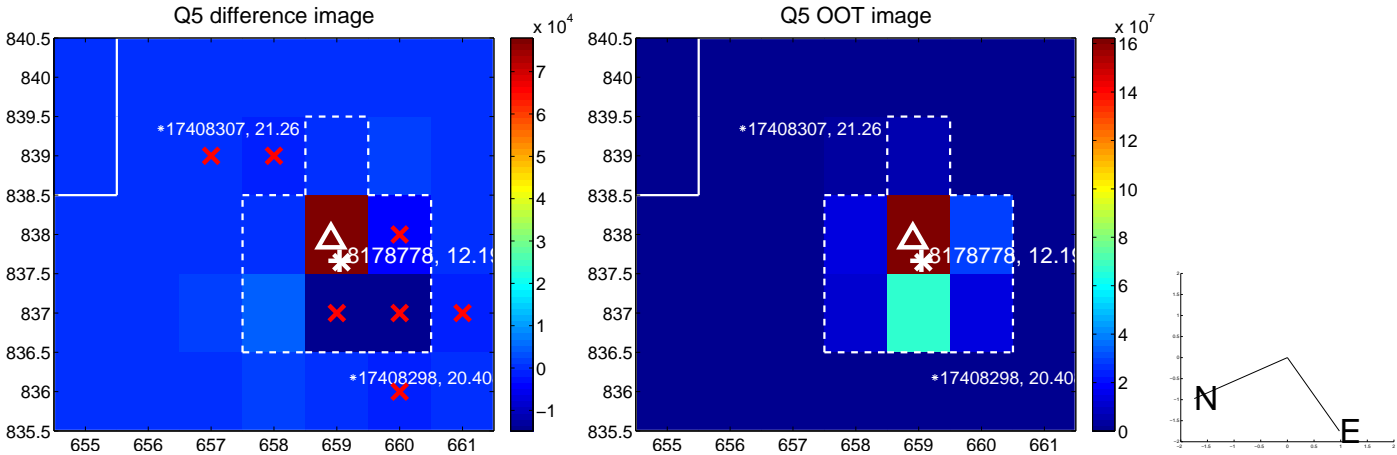


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets**; **Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: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

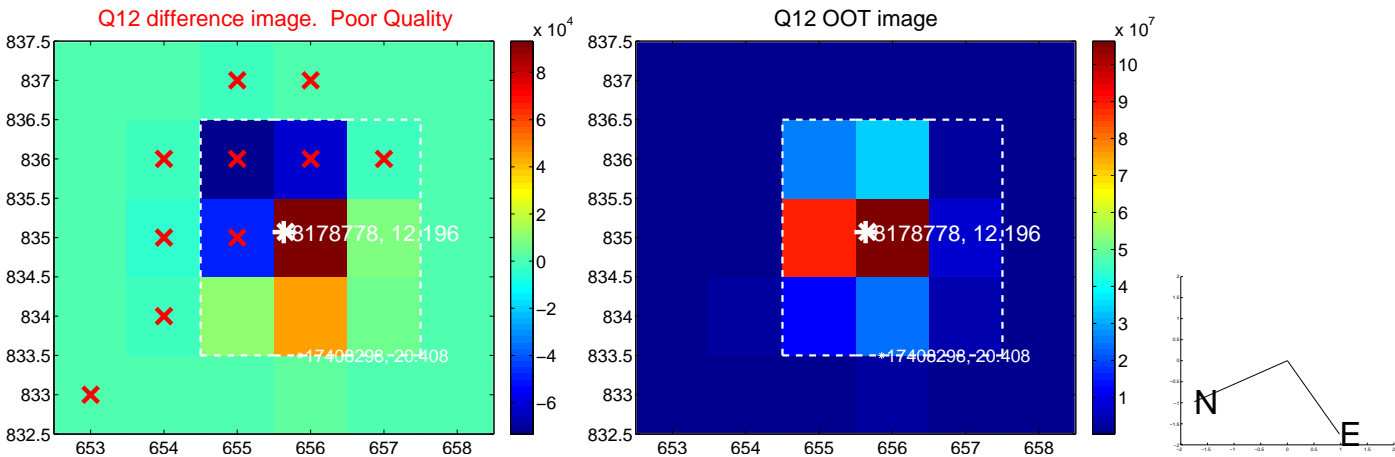
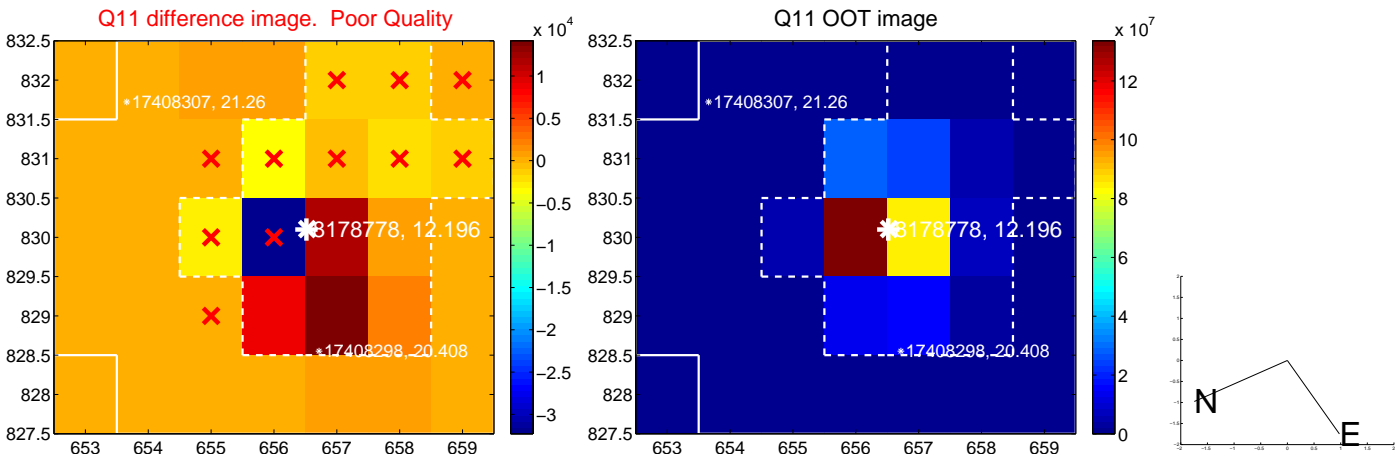
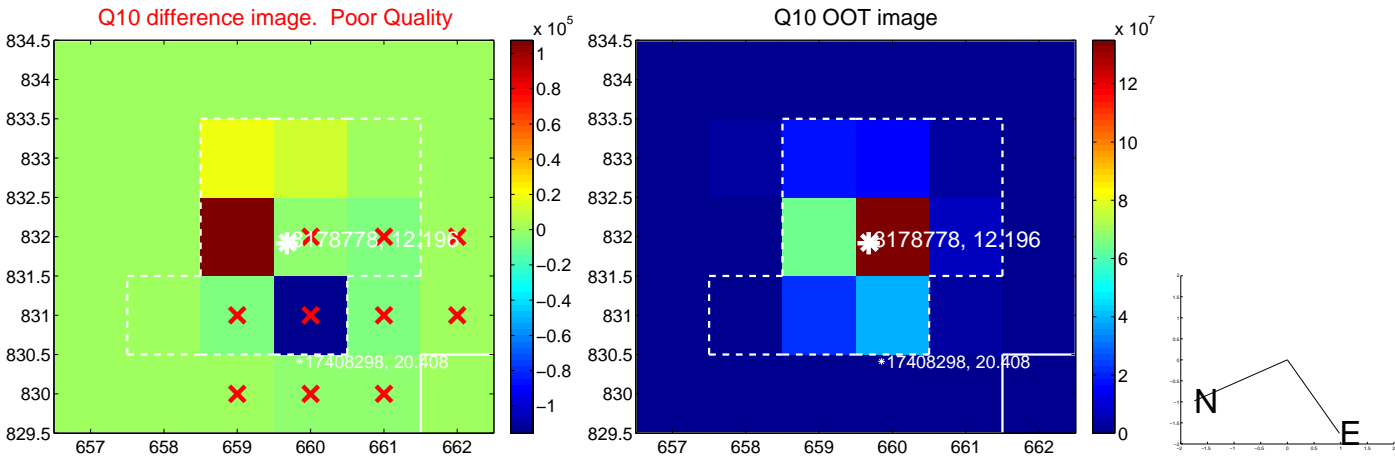
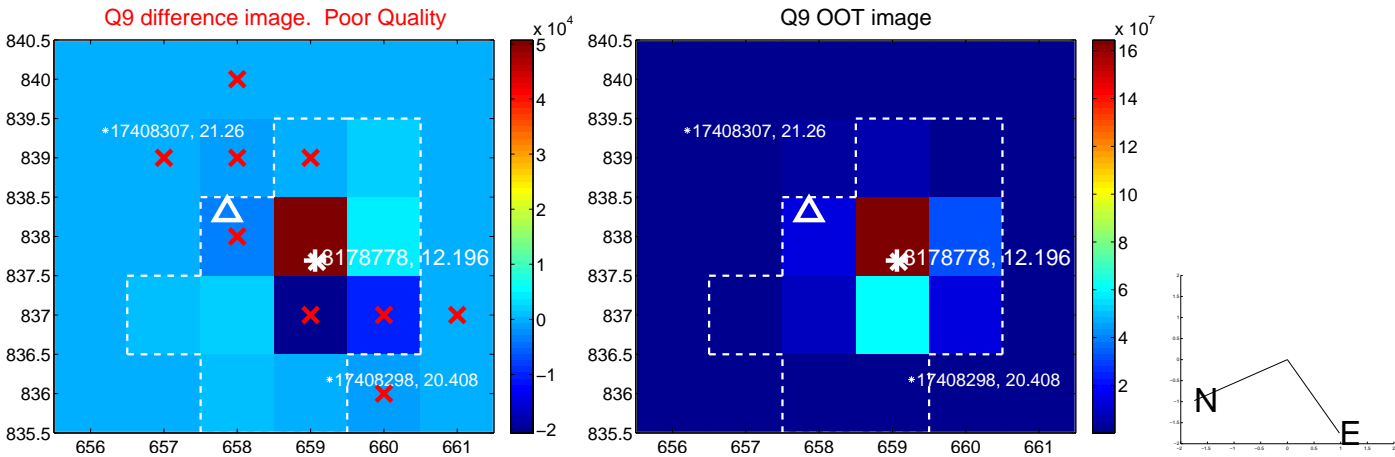


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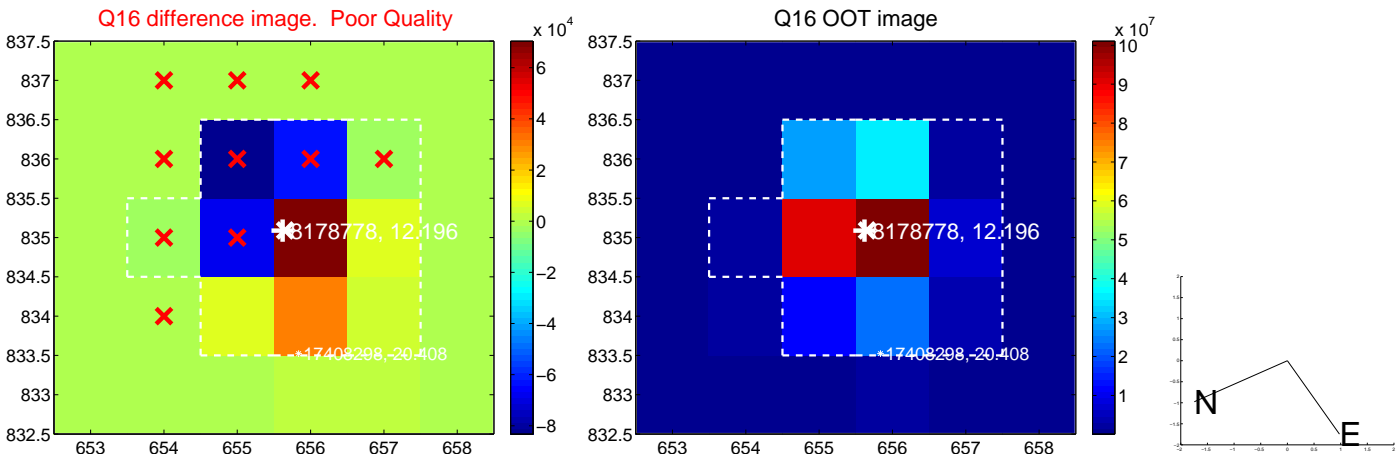
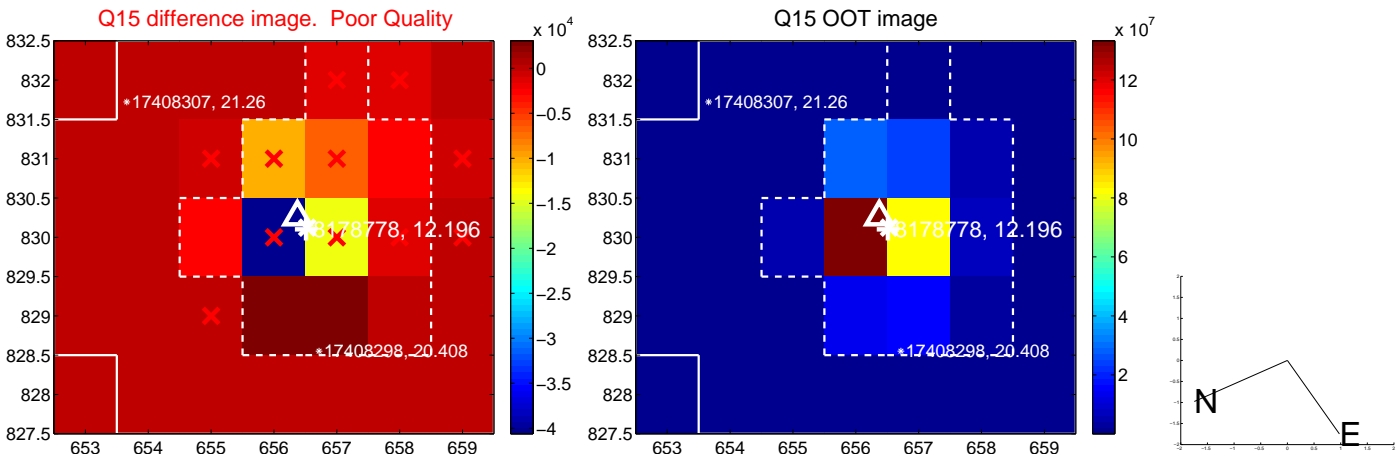
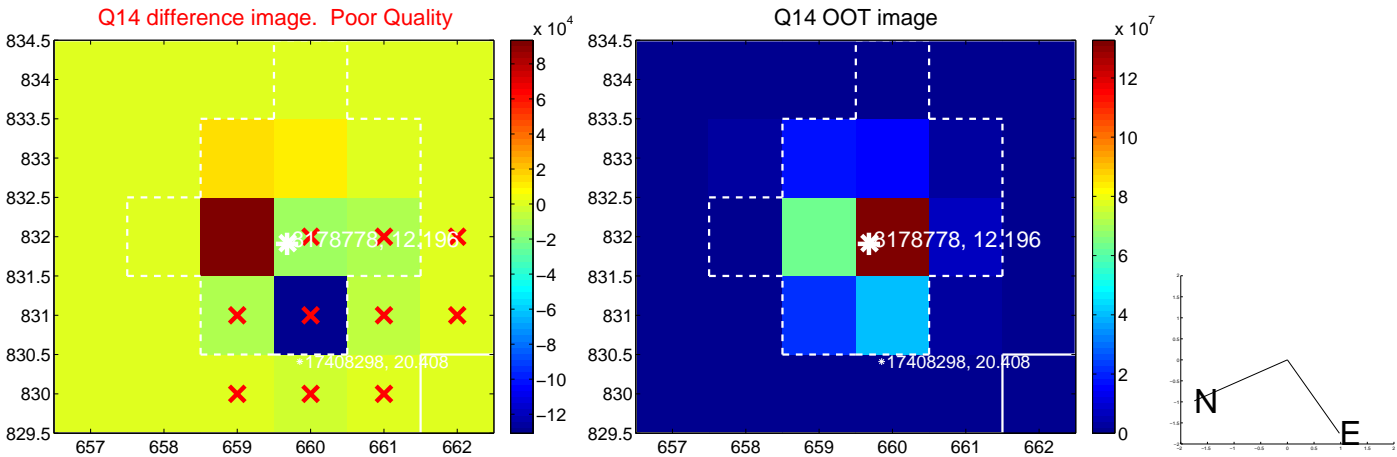
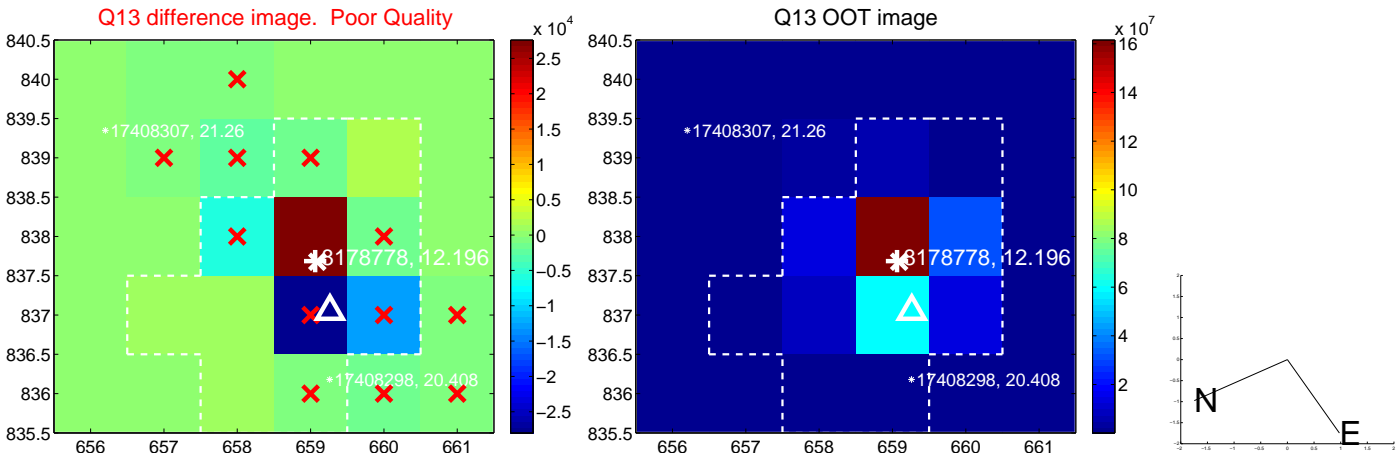




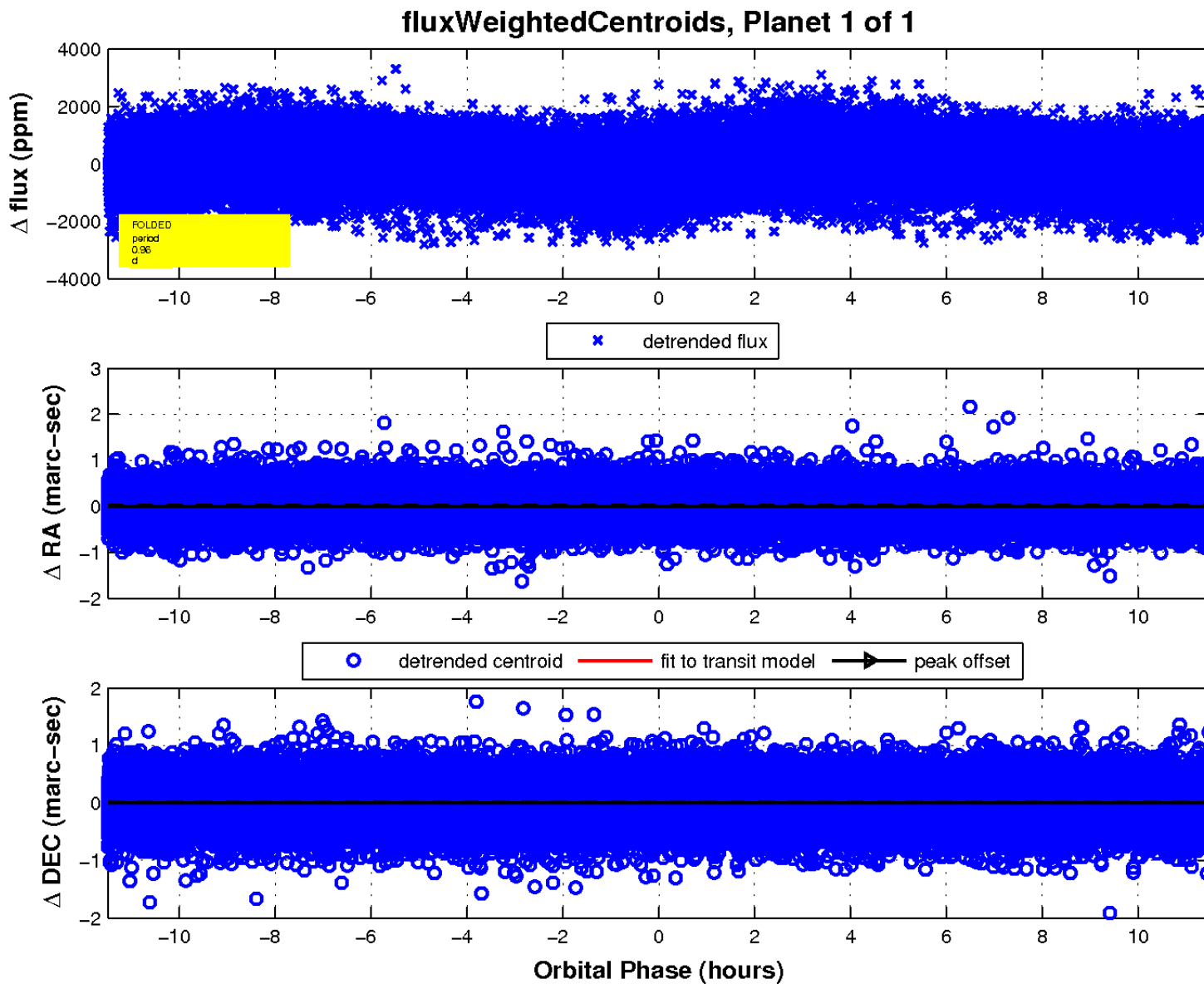
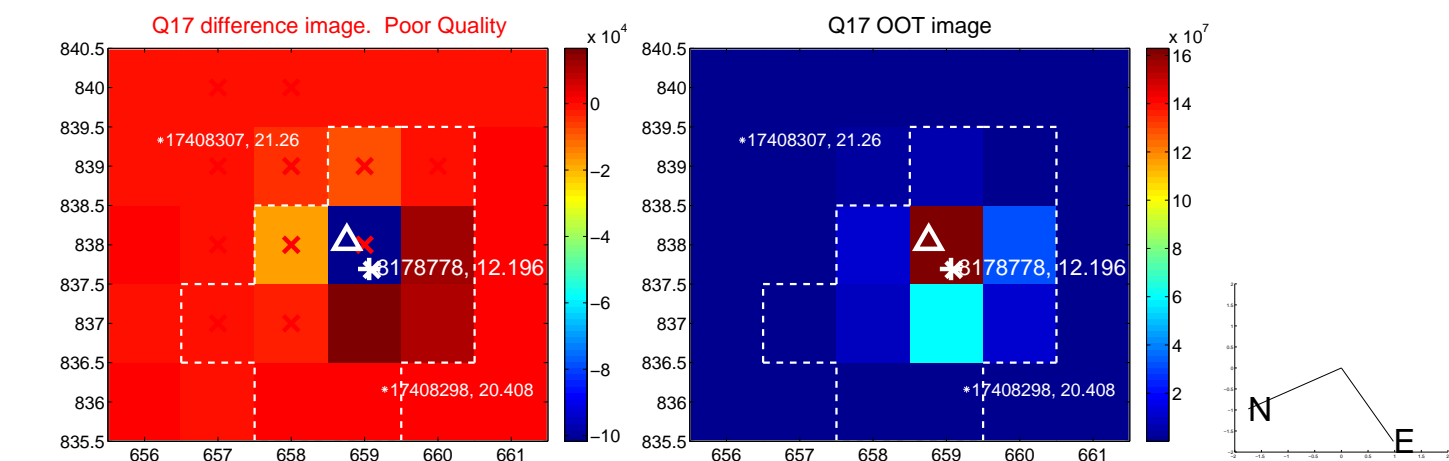
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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



UKIRT Image

Declination

