

# KIC 007504778

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
007504778-01	OBS	2316.01	17.136878	141.019351	362.2	6.753	22.7	23.7	1.08	6218	2.39	85.32

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
007504778-01	OBS	PC	1.00	0	0	0	0	NO_COMMENT

**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.

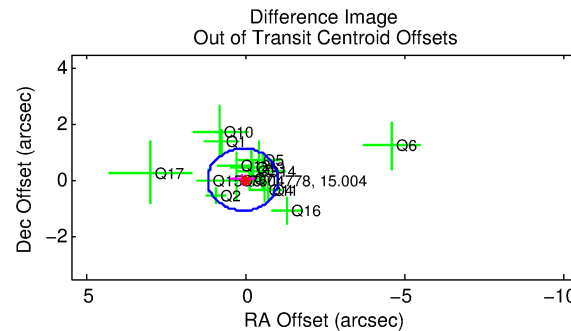
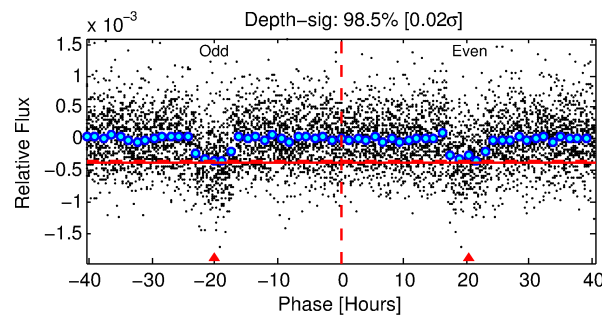
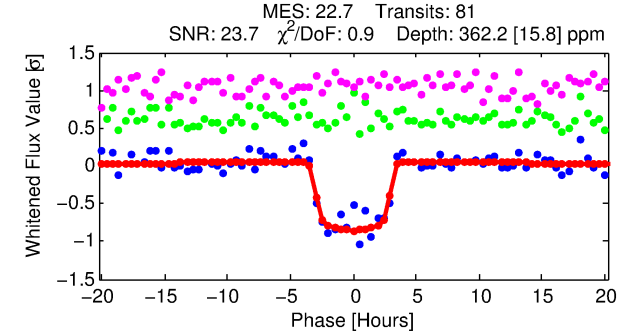
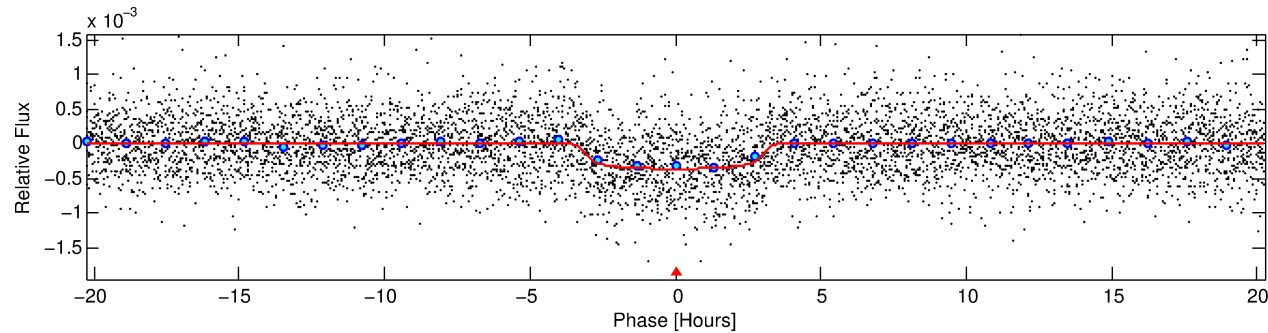
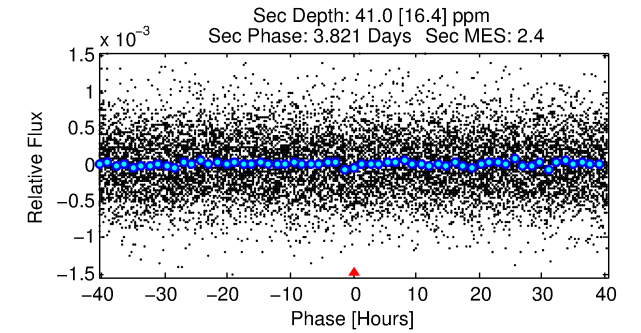
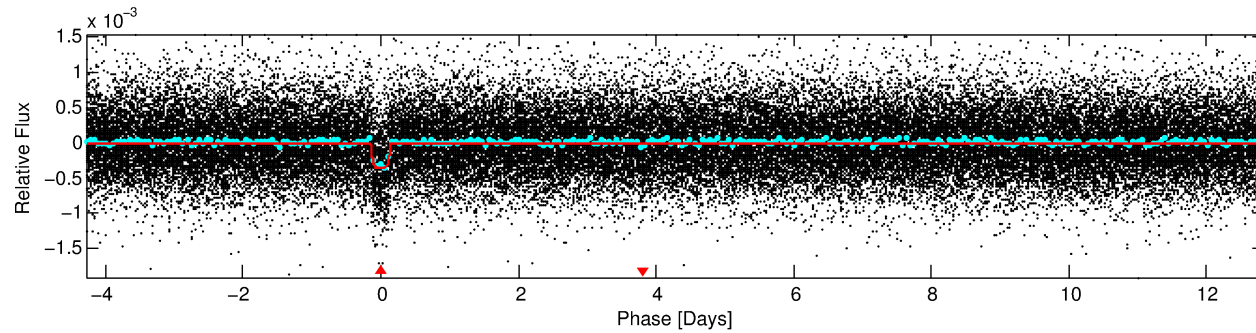
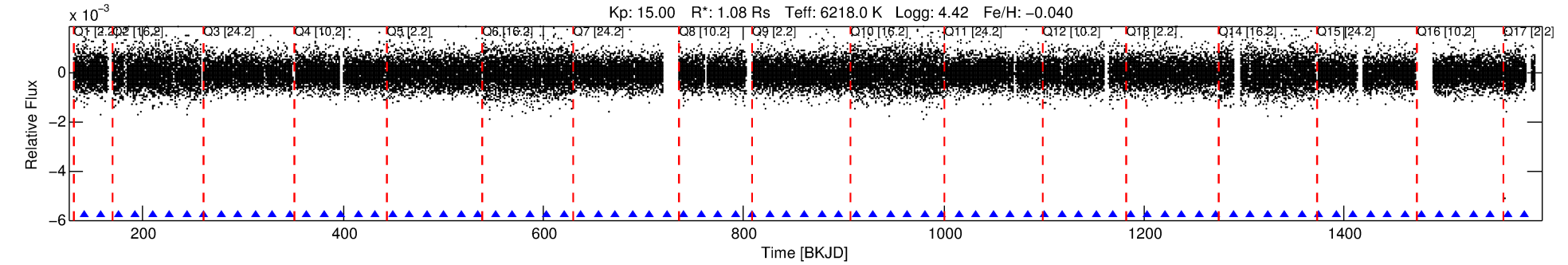
## Ephemeris Match Information For 007504778-01

No Significant Match Found

# DV One-Page Summary

KIC: 7504778 Candidate: 1 of 1 Period: 17.137 d

KOI: K02316.01 Corr: 0.969



## DV Fit Results:

Period = 17.13688 [0.00011] d  
Epoch = 141.0194 [0.0056] BKJD  
Rp/R\* = 0.0203 [0.0016]  
a/R\* = 9.69 [3.68]  
b = 0.89 [0.09]  
Seff = 85.32 [36.14]  
Teff = 775 [82] K  
Rp = 2.39 [0.82] Re  
a = 0.1349 [0.0374] AU  
Ag = 71.79 [42.08] [1.68σ]  
Teffp = 3488 [393] K [6.76σ]

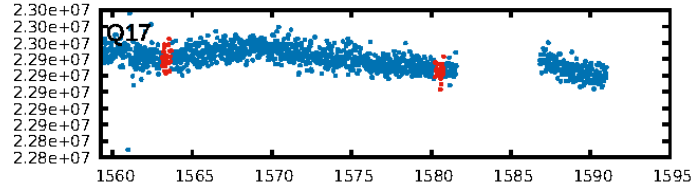
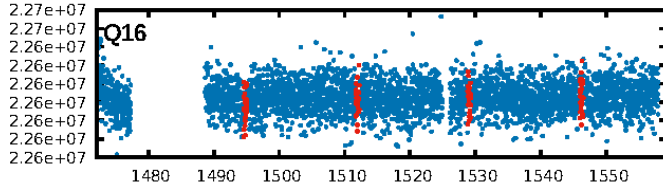
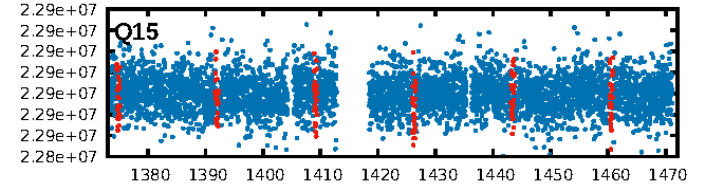
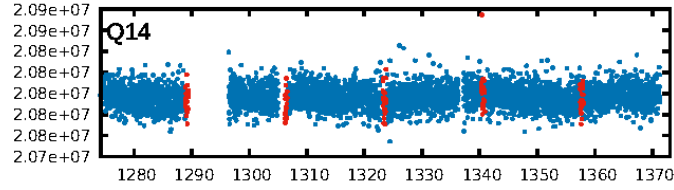
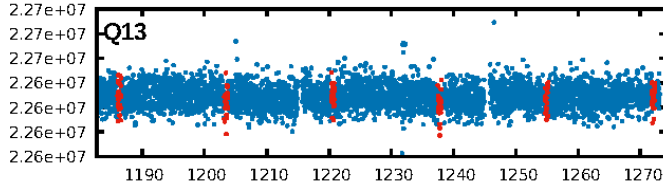
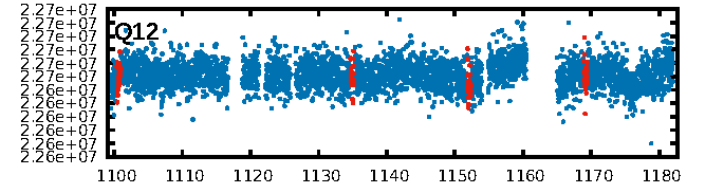
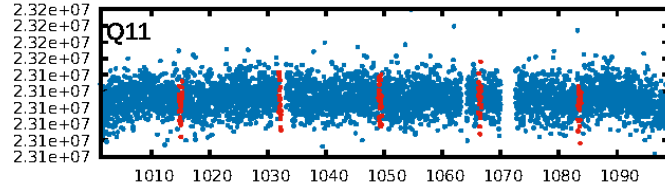
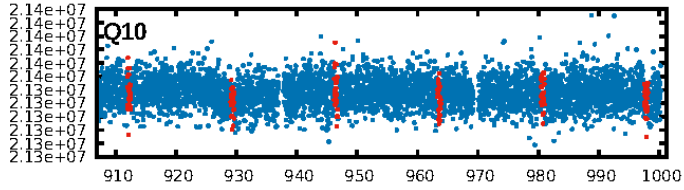
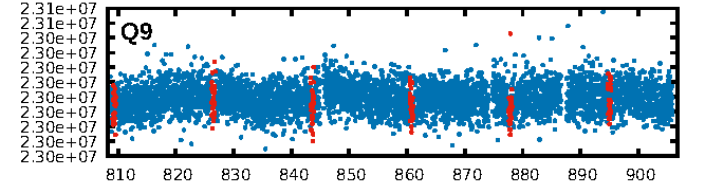
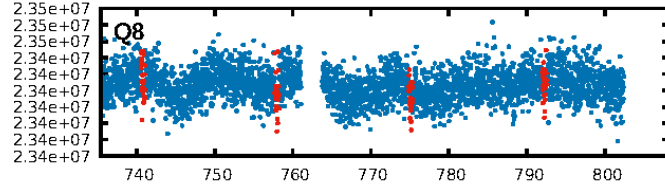
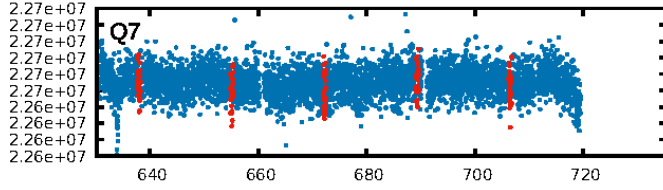
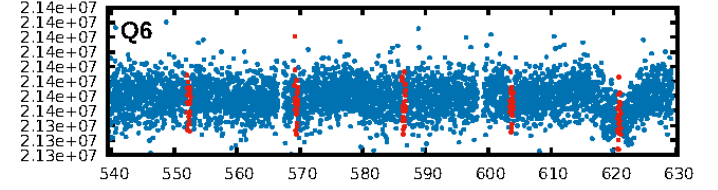
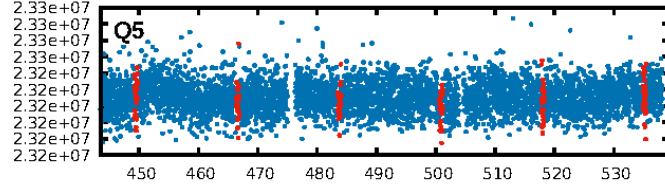
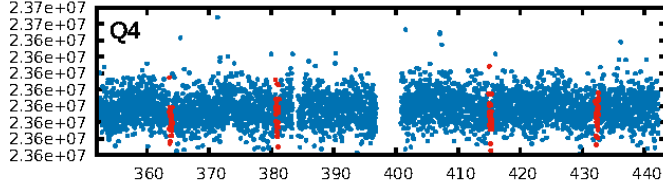
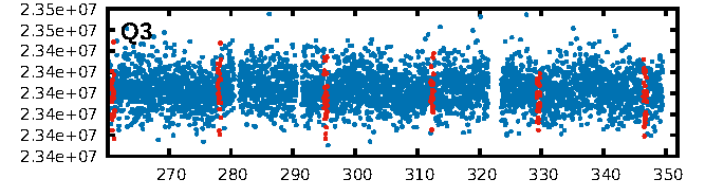
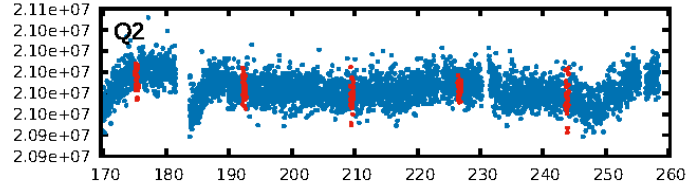
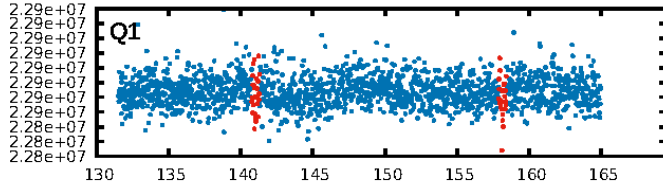
## DV Diagnostic Results:

ShortPeriod-sig: N/A  
LongPeriod-sig: N/A  
ModelChiSquare2-sig: 74.2%  
ModelChiSquareGof-sig: 100.0%  
Bootstrap-pfa: 1.72e-111  
RollingBand-fgt: 1.00 [77/77]  
GhostDiagnostic-chr: 14.51  
Centroid-sig: 41.5%  
Centroid-so: 0.148 arcsec [0.25σ]  
OotOffset-rm: 0.105 arcsec [0.29σ]  
KicOffset-rm: 0.238 arcsec [0.87σ]  
OotOffset-st: 4/4/3/5 [16]  
KicOffset-st: 4/4/3/5 [16]  
DiffImageQuality-fgm: 0.75 [12/16]  
DiffImageOverlap-fno: 1.00 [17/17]

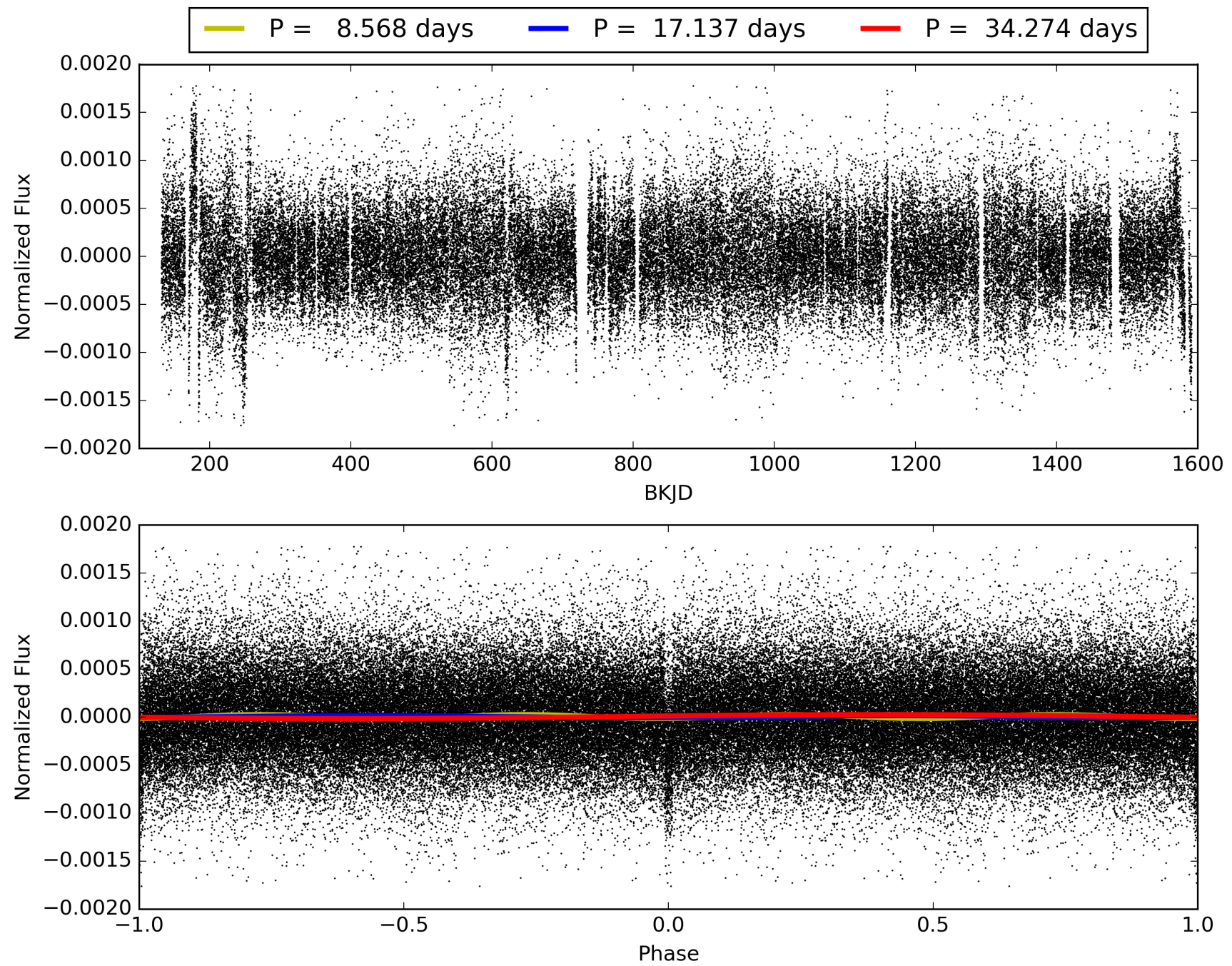
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 31-Jan-2016 23:26:50 Z

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

# TCE 007504778-01, PDC Light Curves



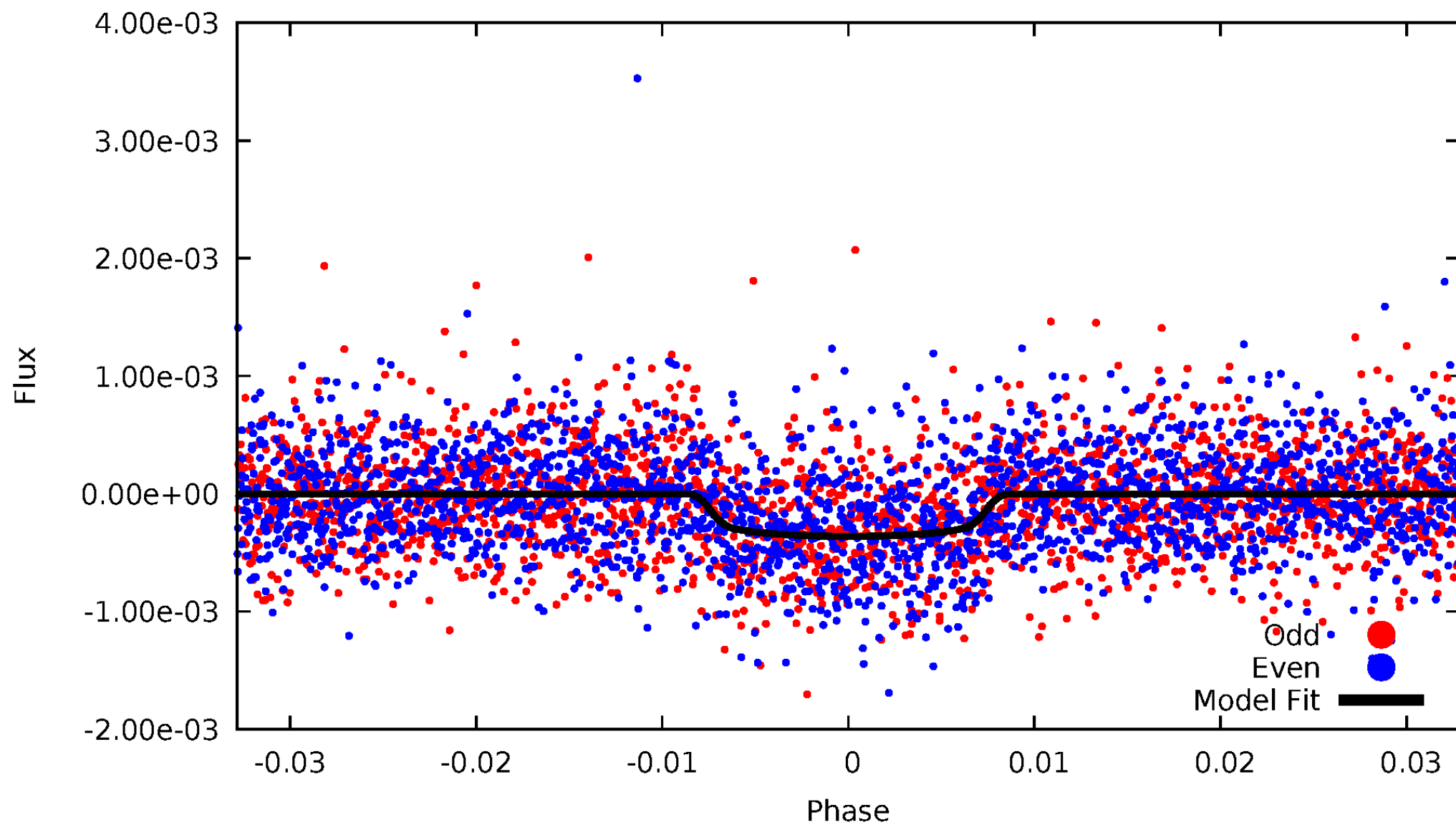
TCE 007504778-01





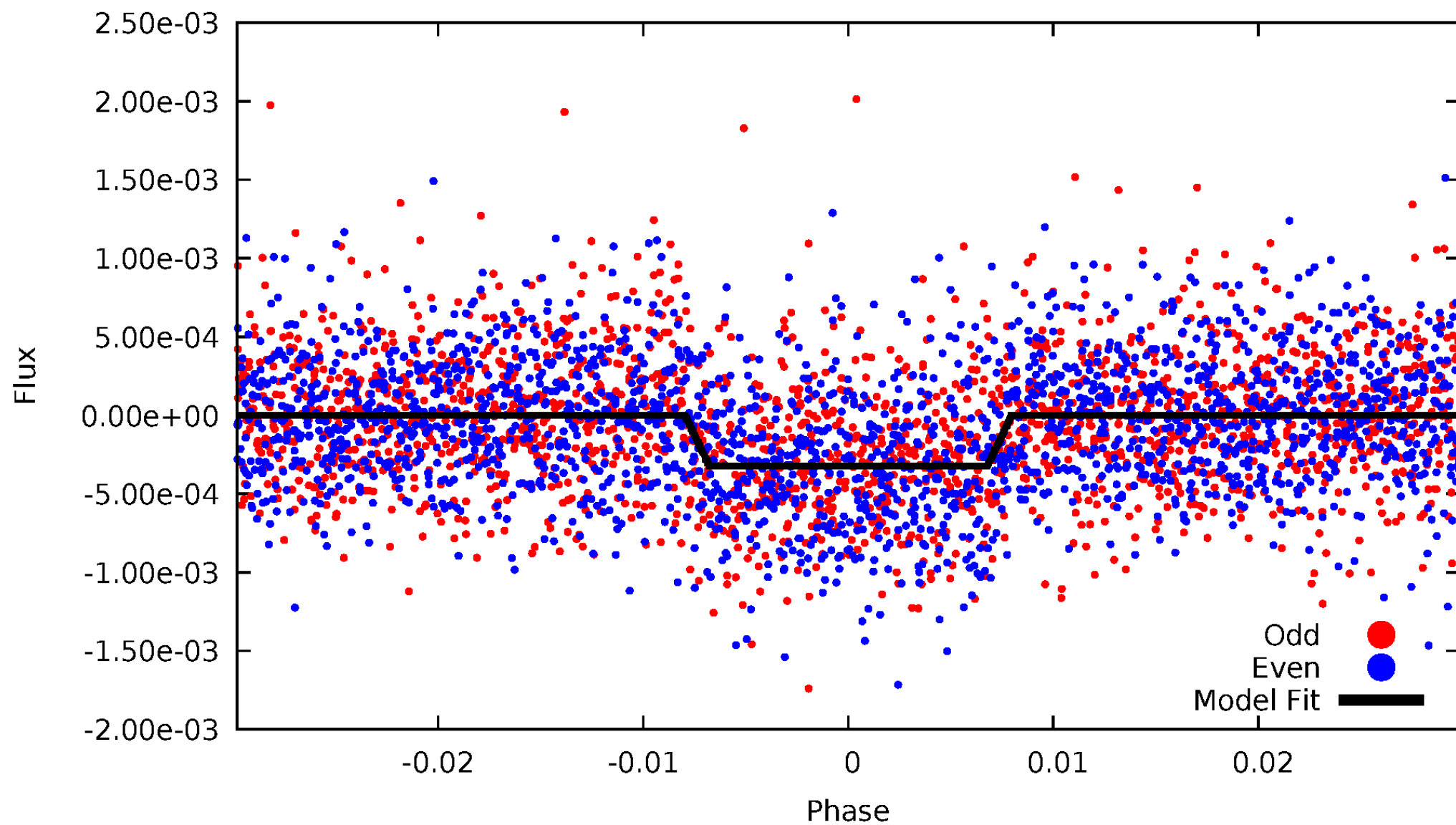
# DV Odd/Even

TCE 007504778-01

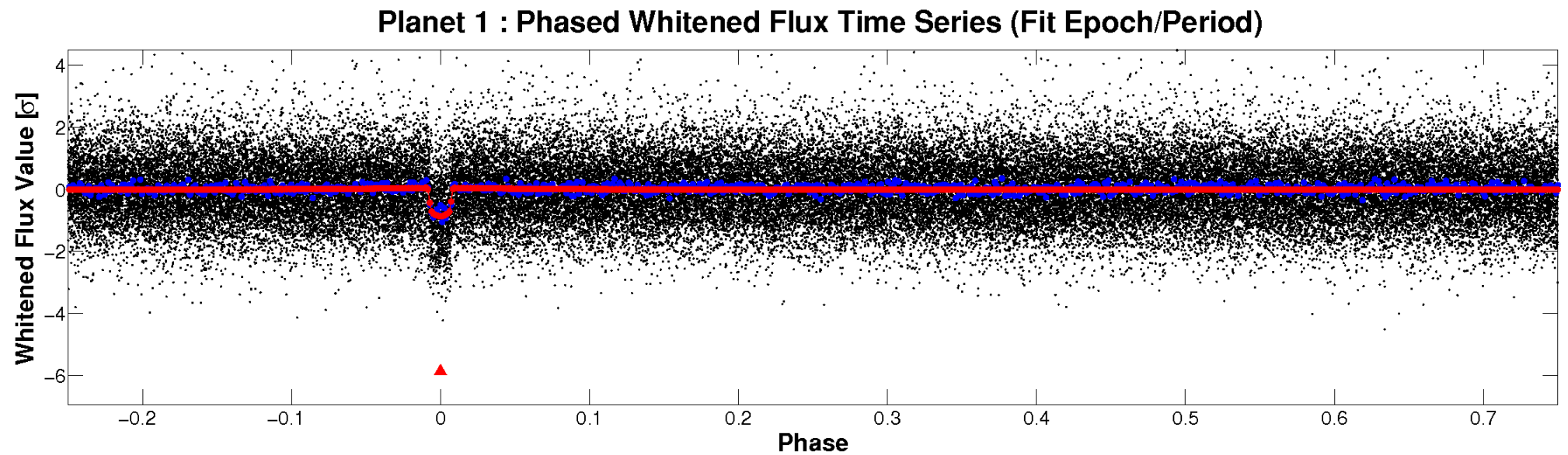
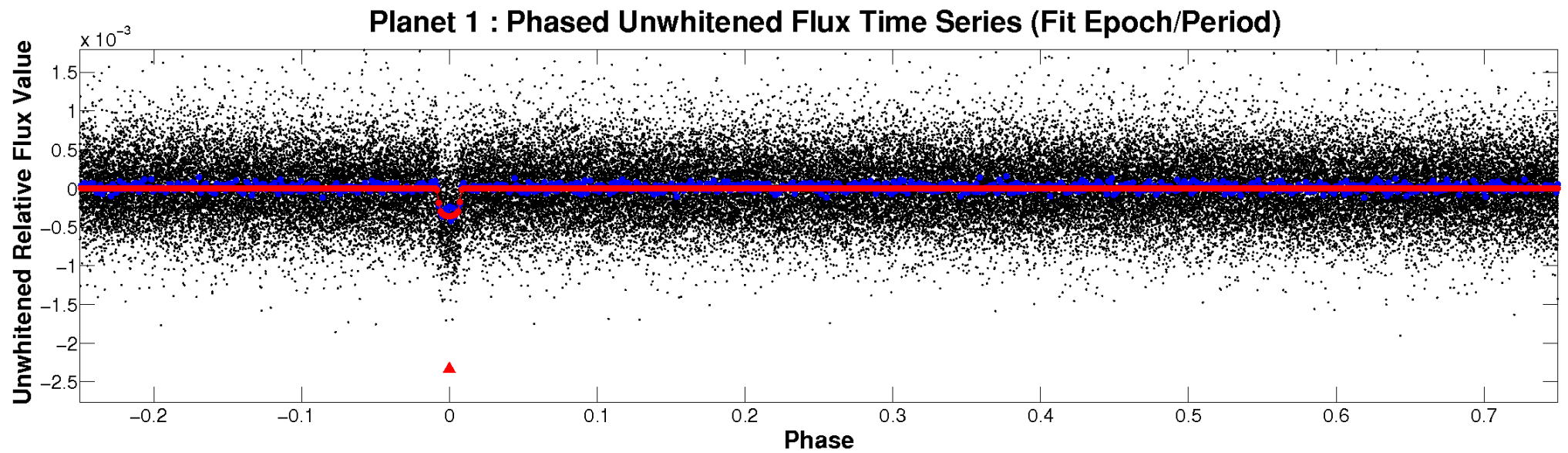


# ALT Odd/Even

TCE 007504778-01

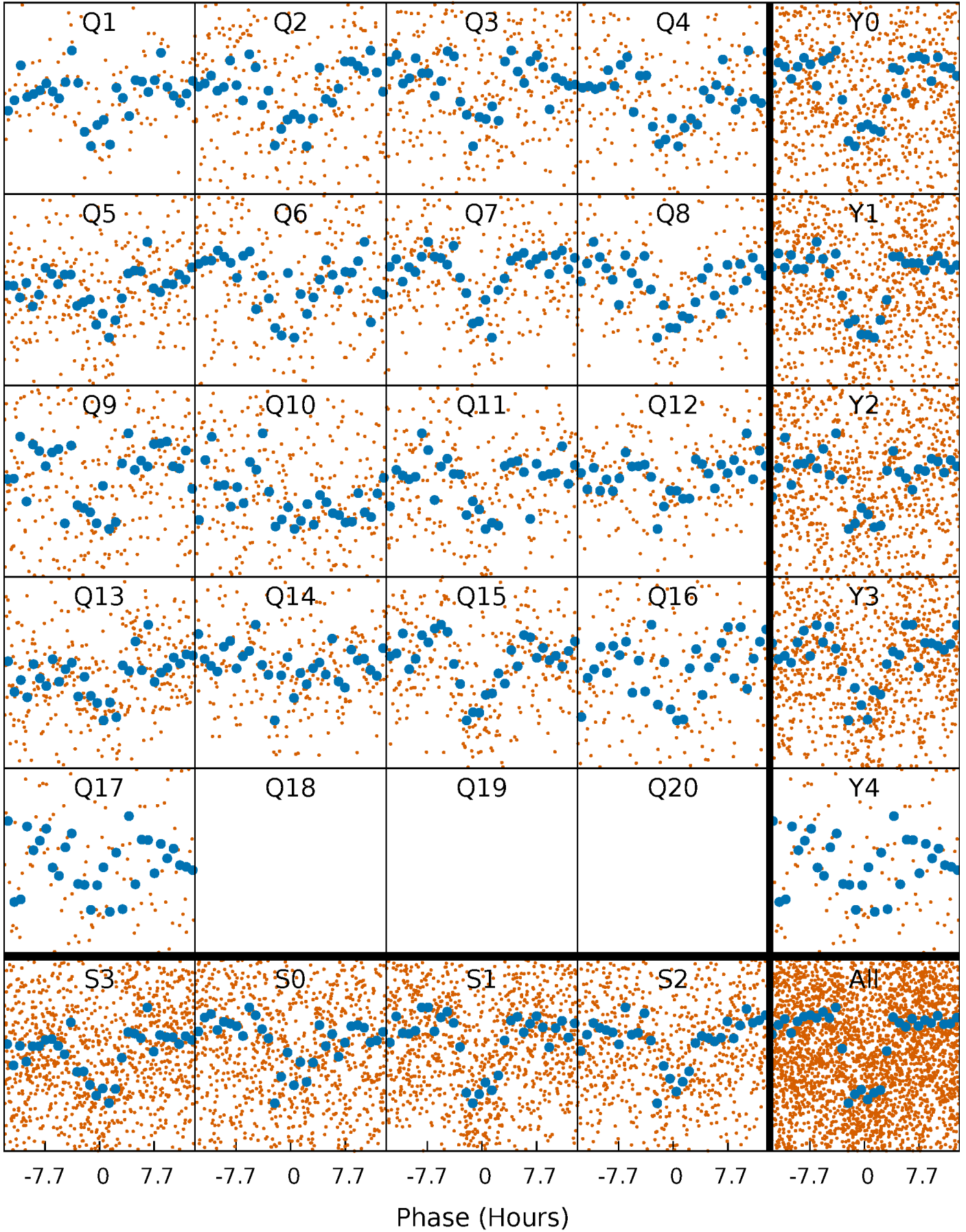


# Non-Whitened Vs. Whitened Light Curve



# PDC Quarter-Phased Transit Curves

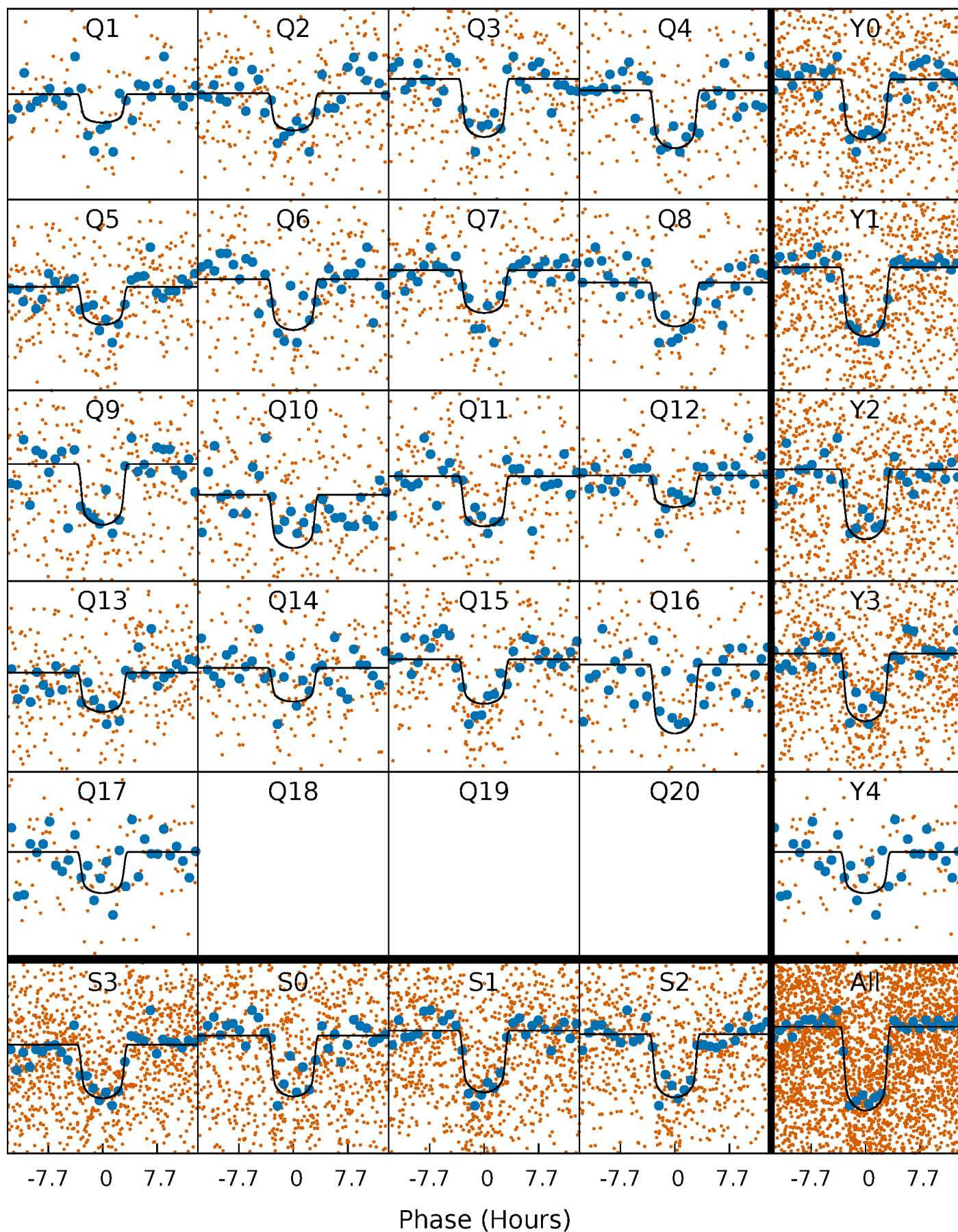
TCE 007504778-01 P= 17.136878 Days  $T_0=141.019351$  (BKJD)





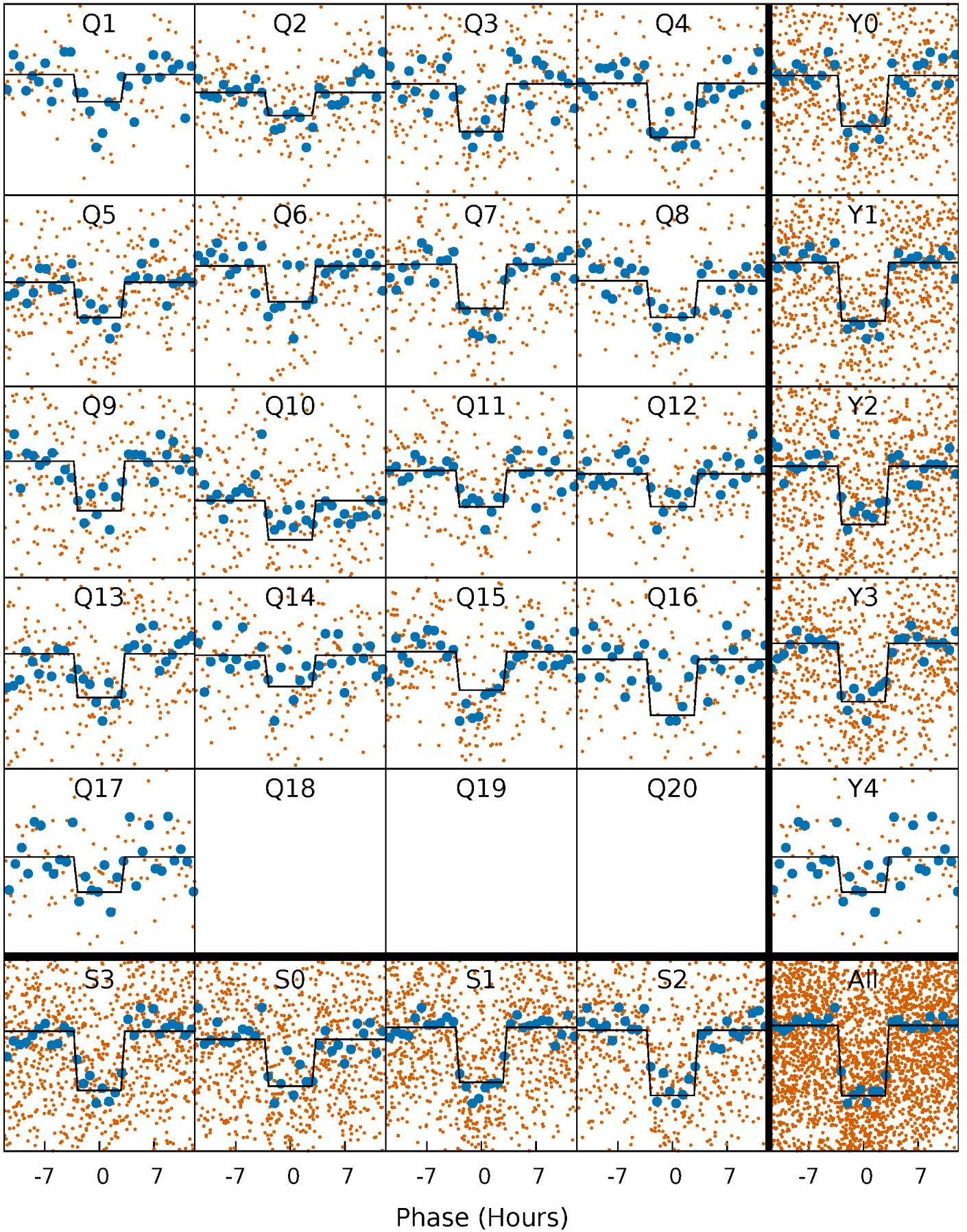
# DV Quarter-Phased Transit Curves

TCE 007504778-01 P= 17.136878 Days  $T_0=141.019351$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

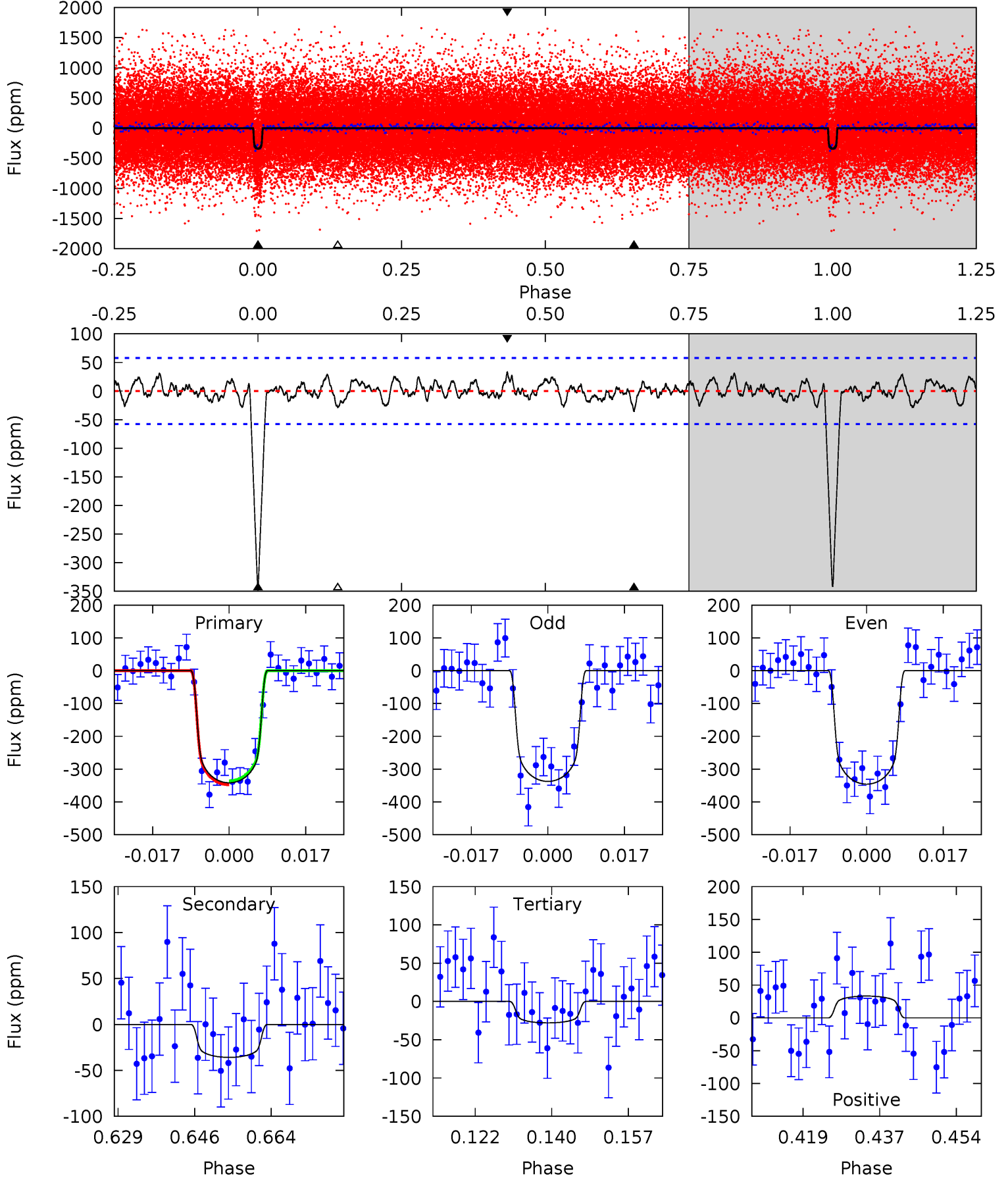
TCE 007504778-01 P= 17.136985 Days  $T_0=141.014397$  (BKJD)



# DV Model-Shift Uniqueness Test

007504778-01, P = 17.136878 Days, E = 123.882473 Days

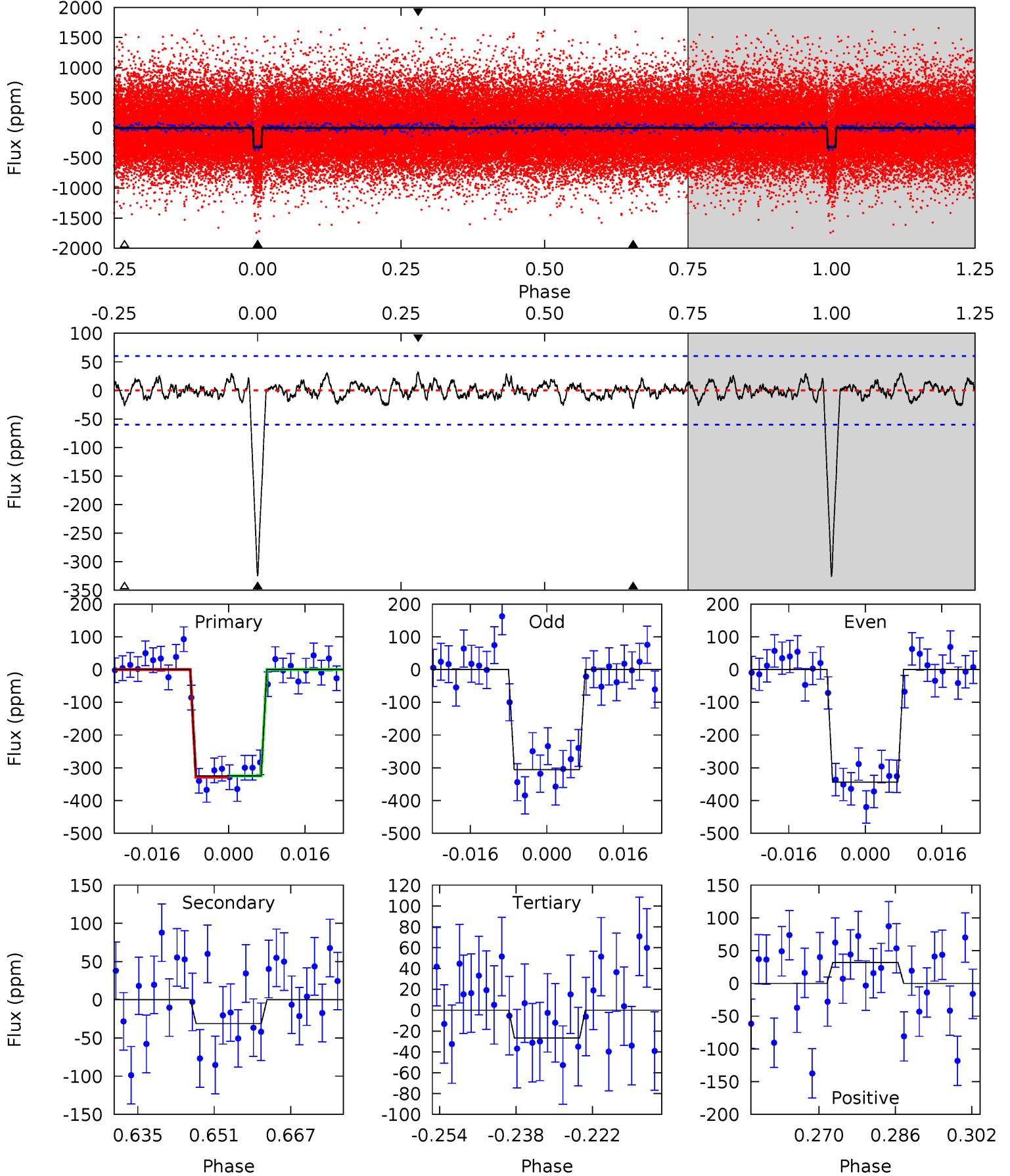
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
29.2	3.06	2.39	2.83	4.92	2.38	1.00	26.8	26.3	0.67	0.23	0.36	0.96	0.09	0.51



# Alt Model-Shift Uniqueness Test

007504778-01,  $P = 17.136985$  Days,  $E = 123.877412$  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
26.7	2.56	2.19	2.61	4.94	2.41	0.87	24.5	24.1	0.37	-0.05	1.56	0.93	0.09	0.15



### Stellar Parameters For KIC 007504778

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	$6218^{+172}_{-216}$	$4.421^{+0.058}_{-0.217}$	$-0.040^{+0.250}_{-0.300}$	$1.077^{+0.358}_{-0.128}$	$1.114^{+0.164}_{-0.148}$	$1.256^{+0.381}_{-0.689}$
	+3%/-3%	+1%/-5%	+625%/-750%	+33%/-12%	+15%/-13%	+30%/-55%
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 007504778-01 / KOI 2316.01

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	$A_{obs}$
DV	$-36 \pm 12$	$2.47^{+0.45}_{-0.28}$	$1104^{+81}_{-59}$	$3749^{+252}_{-281}$	$56^{+28}_{-22}$
Alt.	$-31 \pm 12$	$2.18^{+0.40}_{-0.27}$	$1101^{+89}_{-55}$	$3837^{+260}_{-312}$	$63^{+34}_{-27}$

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



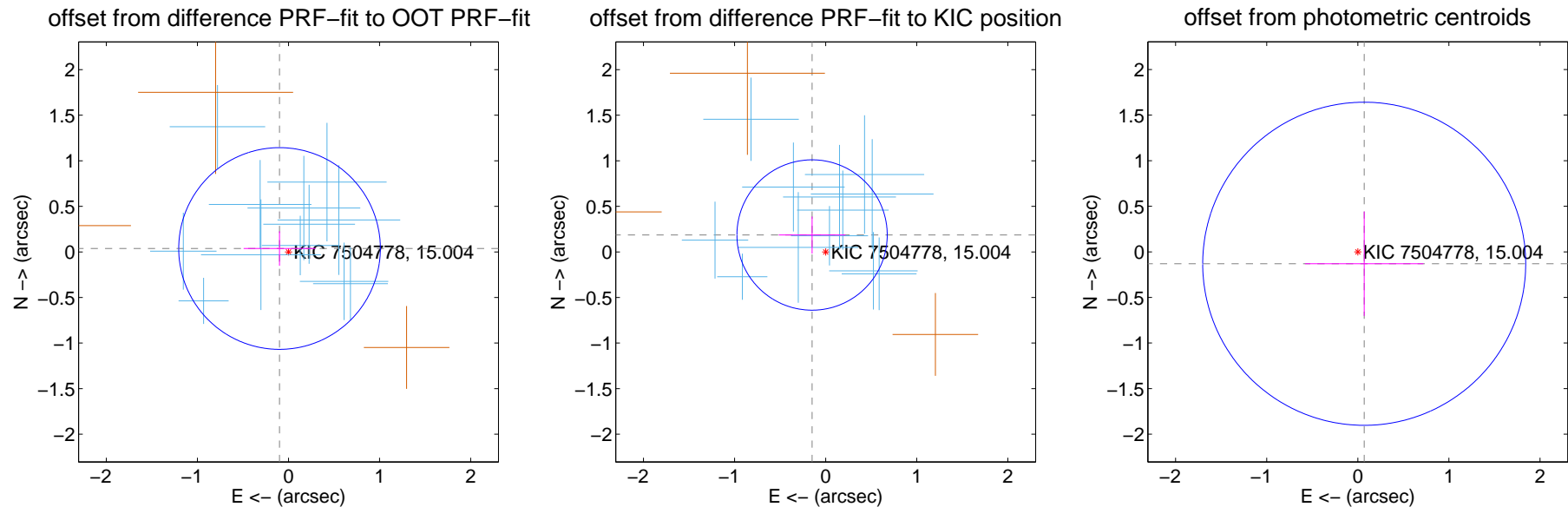
## DV Centroid Data

Supplemental centroid analysis for 007504778-01. Kepler magnitude: 15.00. Transit SNR 23.72

There are 12 quarters with good PRF difference image offsets

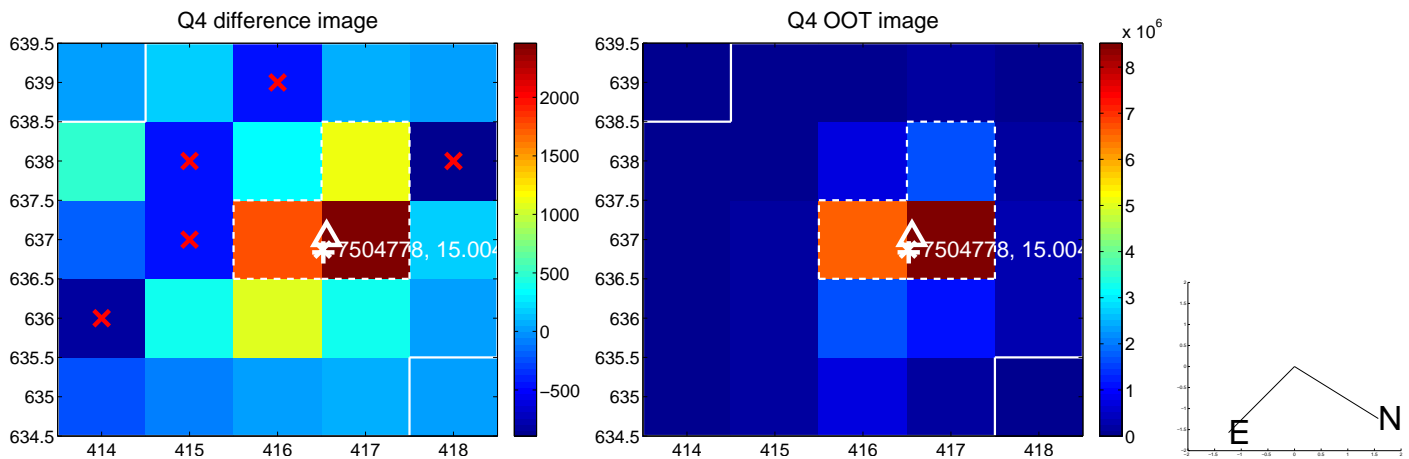
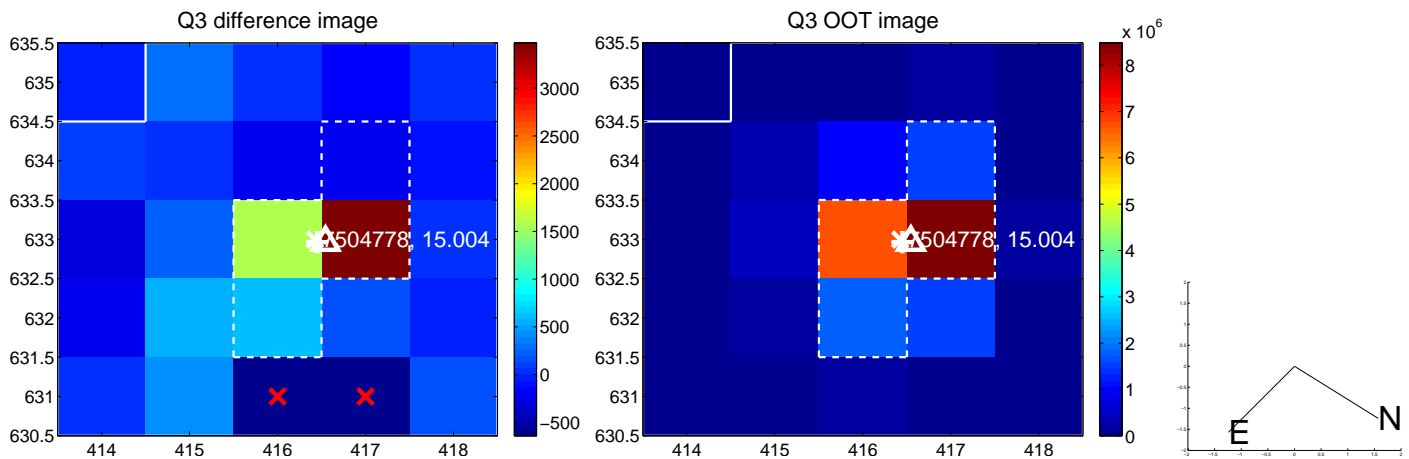
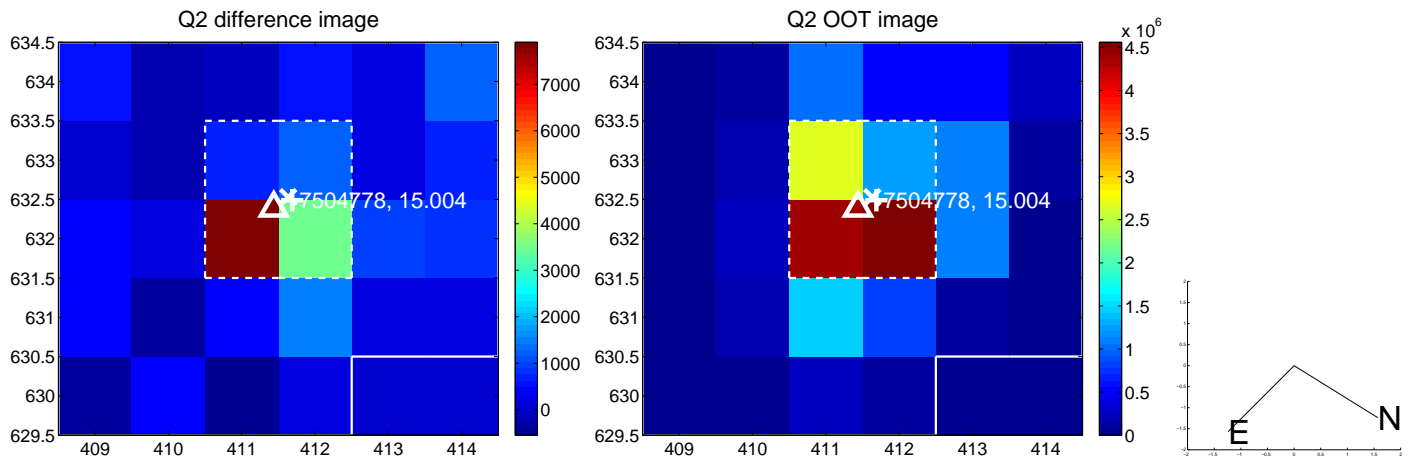
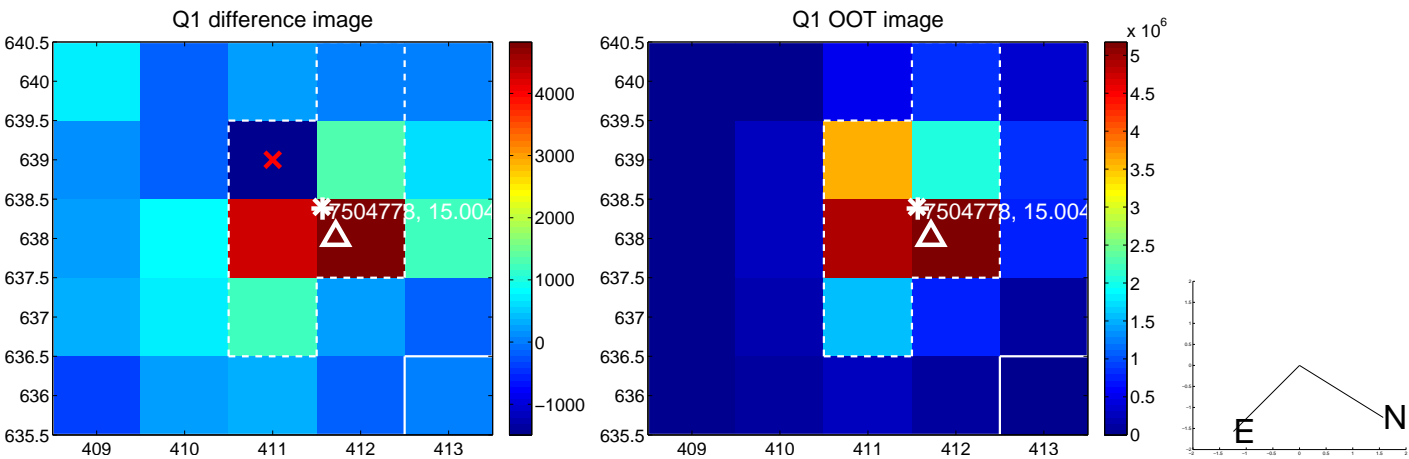
The direct PRF centroid is offset from the target star catalog position by about 0.17 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$0.105 \pm 0.369$	0.29	$0.098 \pm 0.395$	$0.037 \pm 0.189$
PRF-fit source offset from KIC position	$0.238 \pm 0.275$	0.87	$0.149 \pm 0.366$	$0.186 \pm 0.203$
photometric centroid source offset	$0.15 \pm 0.59$	0.25	$-0.07 \pm 0.65$	$-0.13 \pm 0.57$

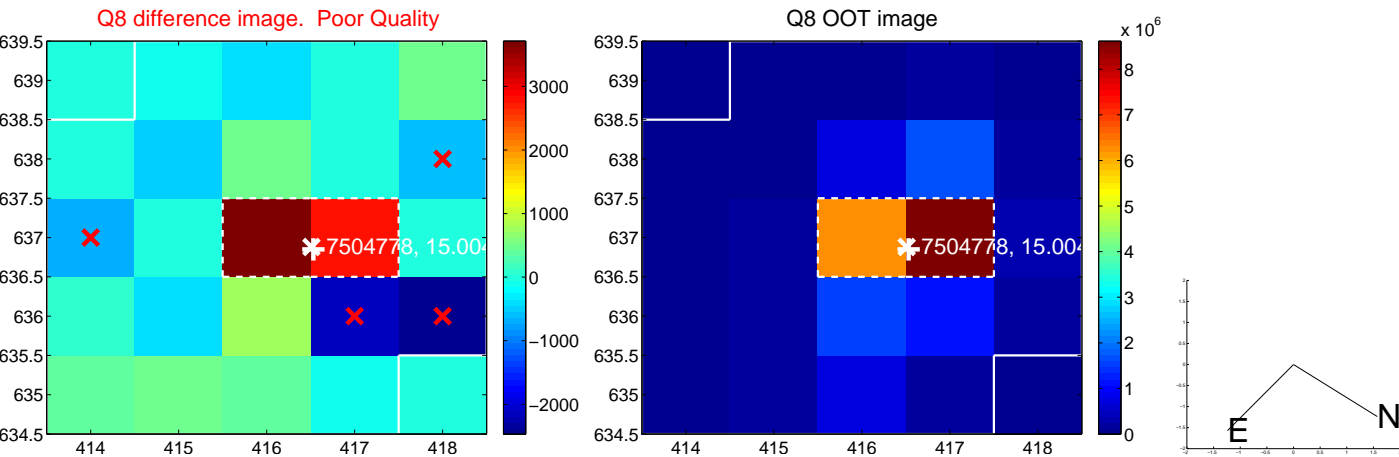
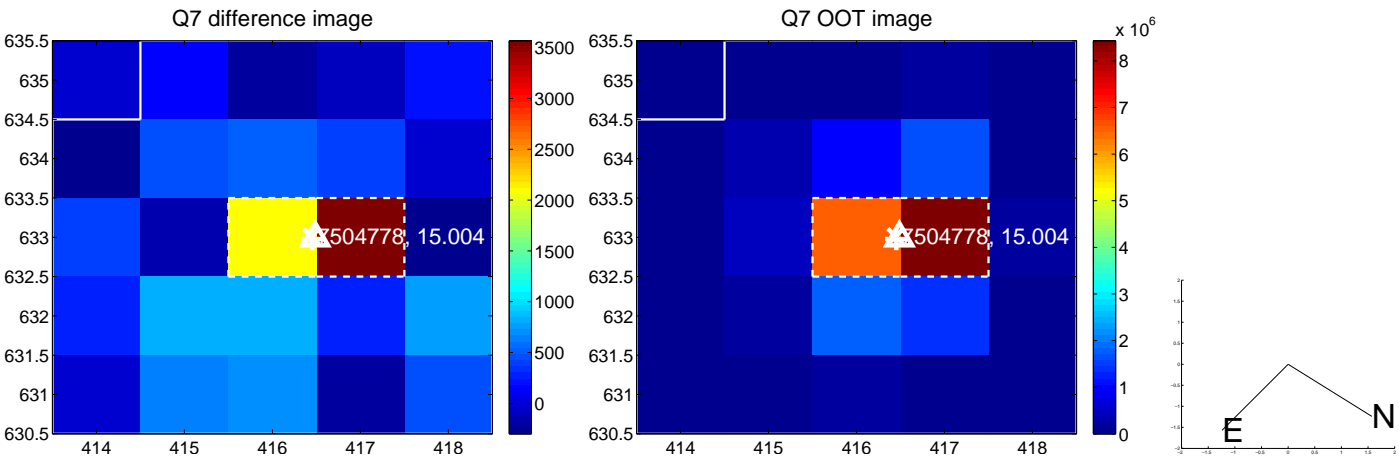
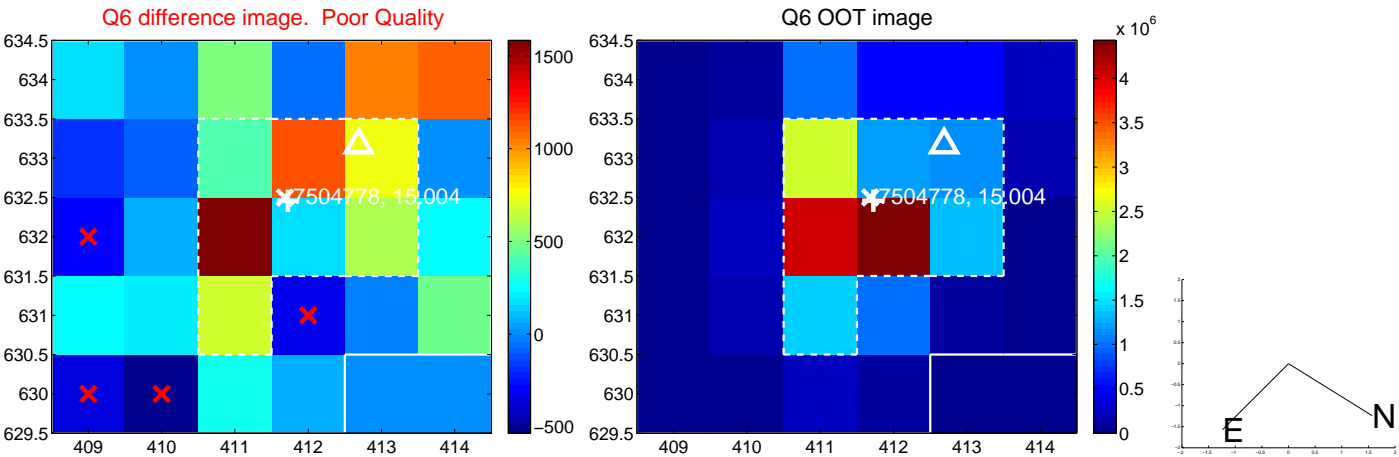
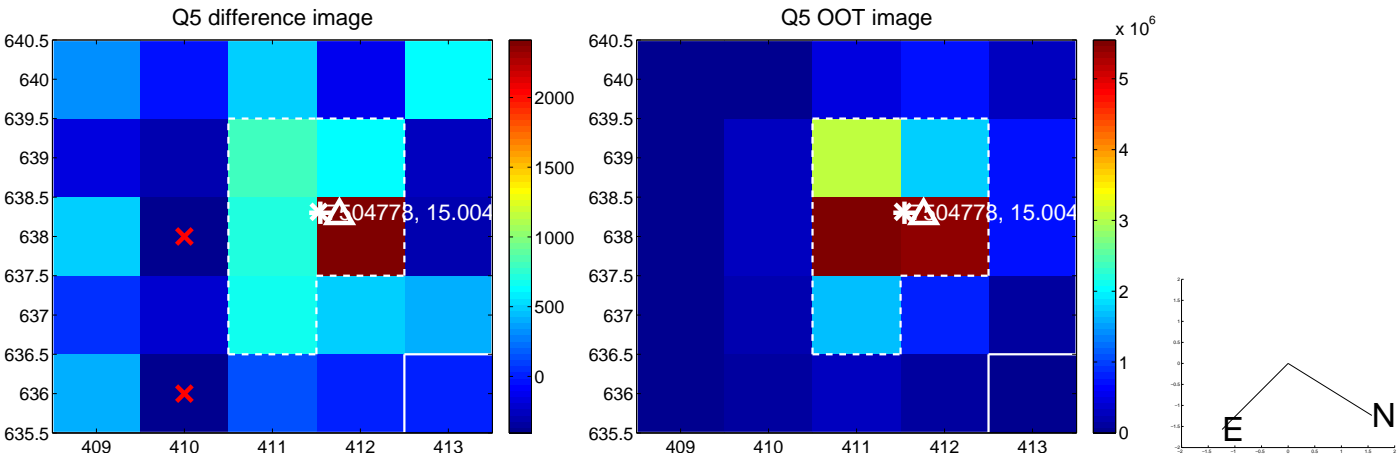


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses:** good quarterly centroid offsets; **Vermillion crosses:** bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: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

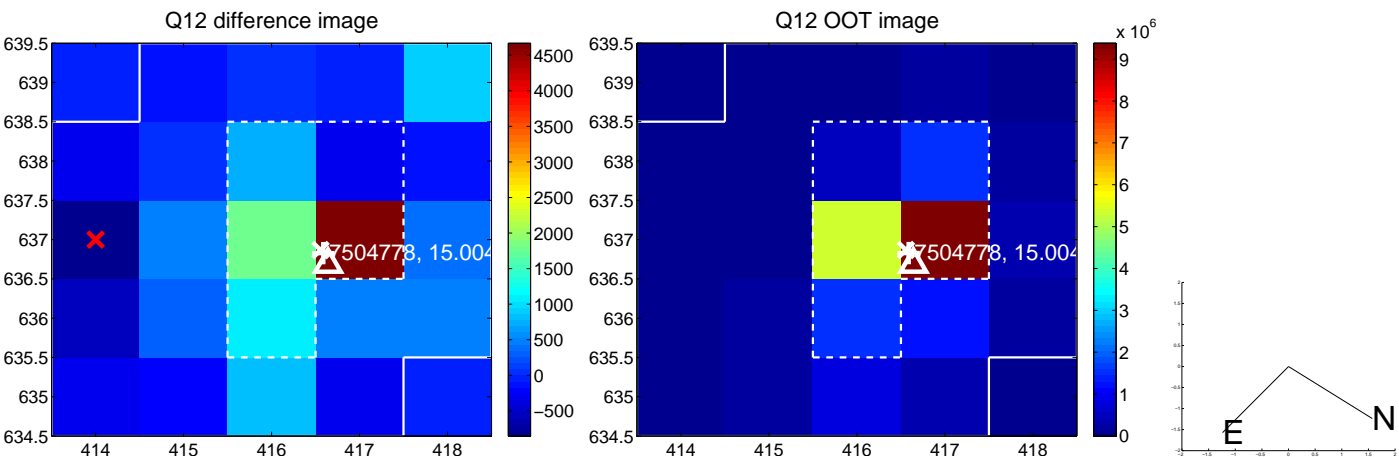
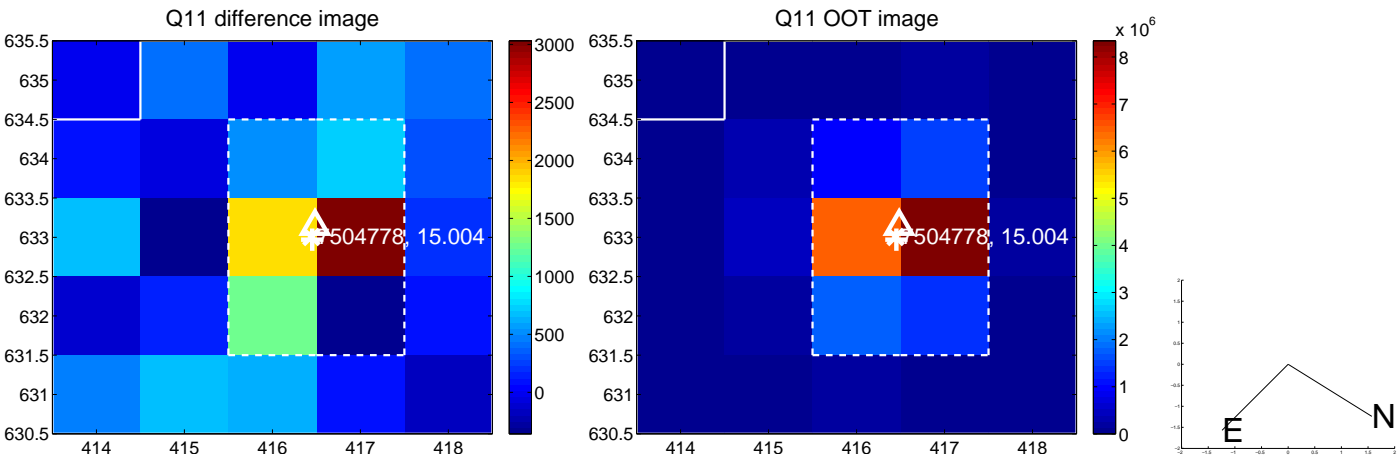
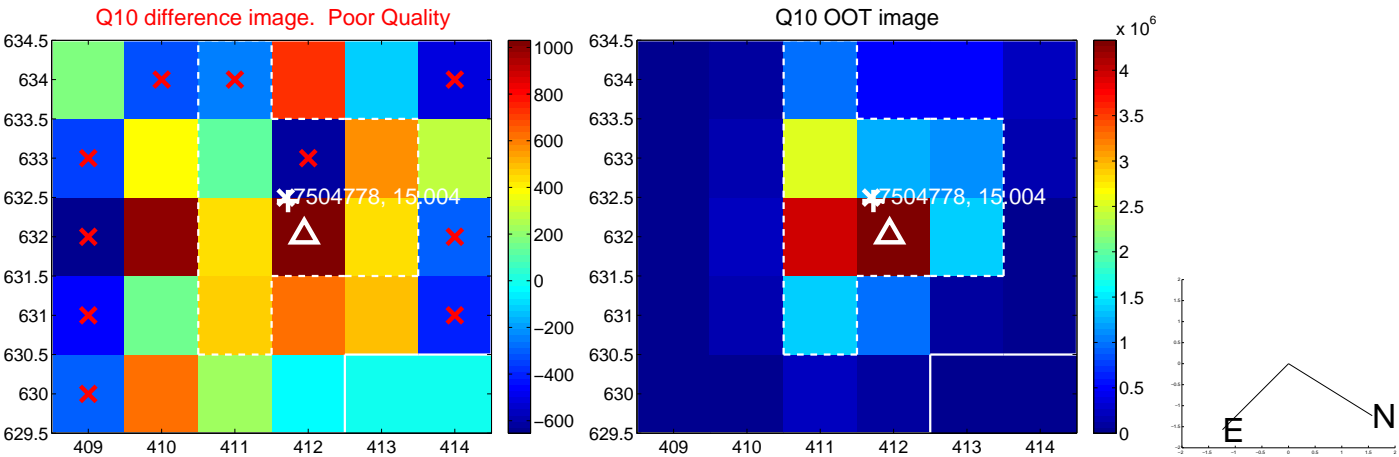
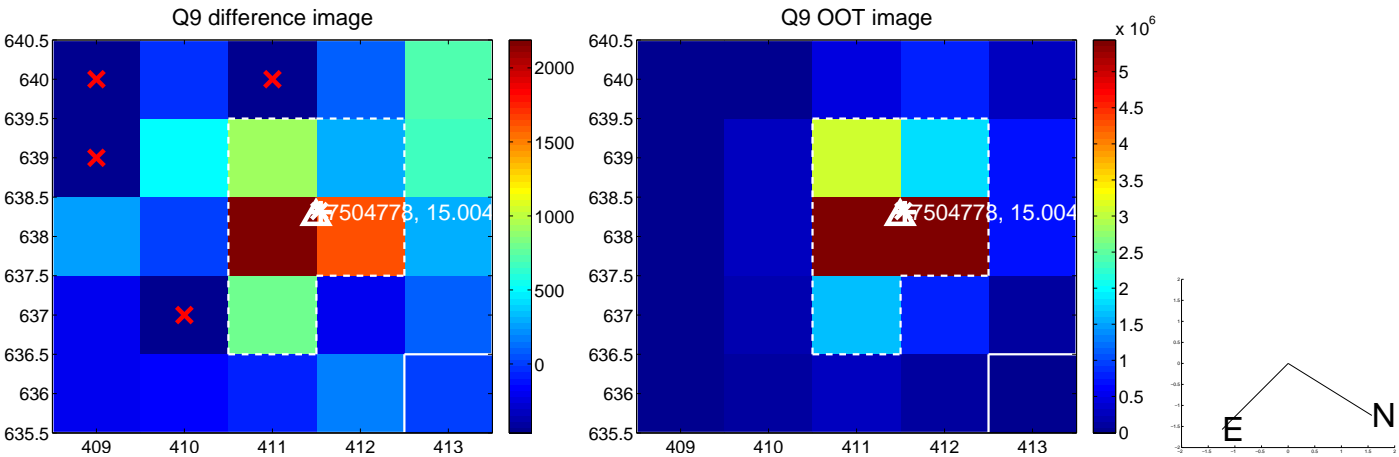
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



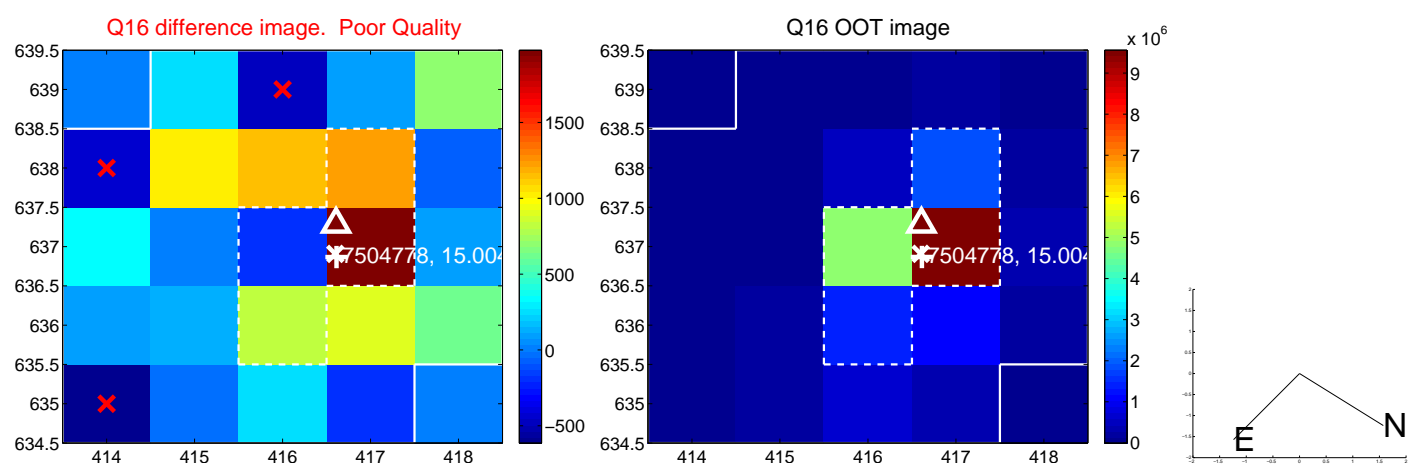
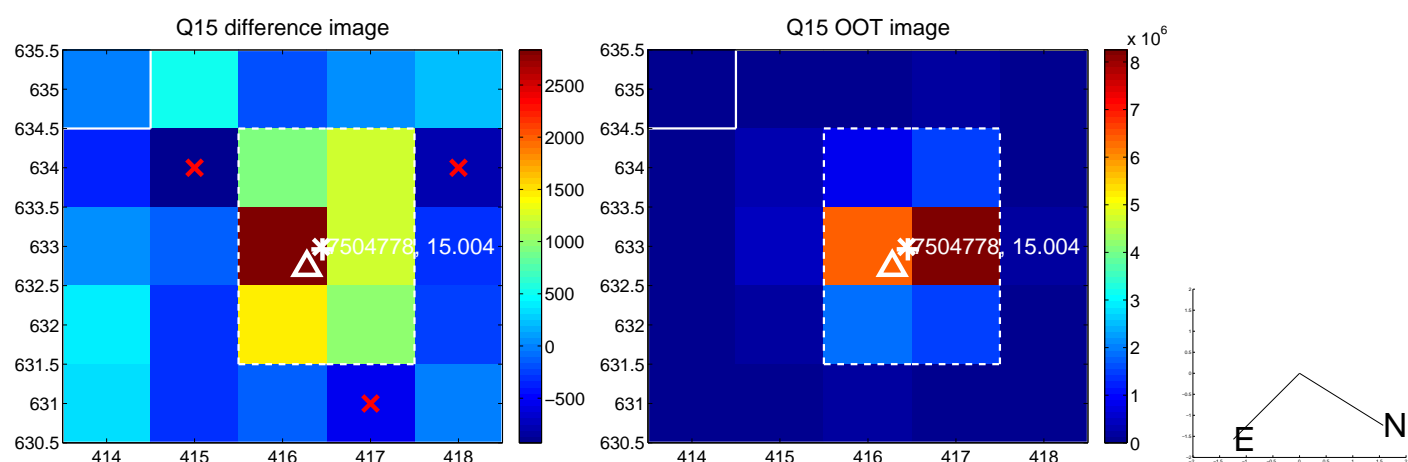
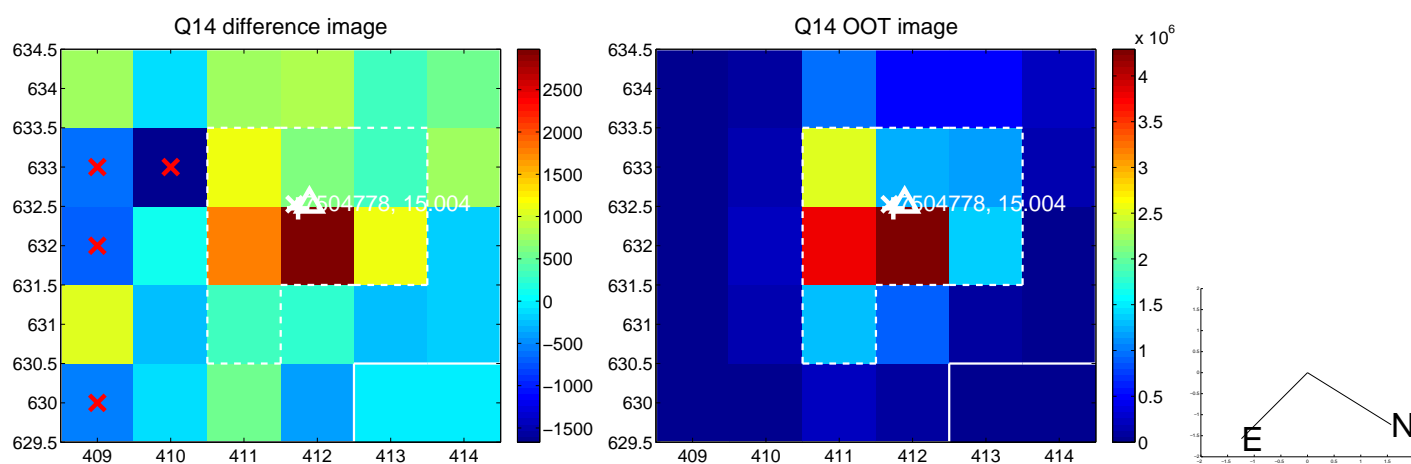
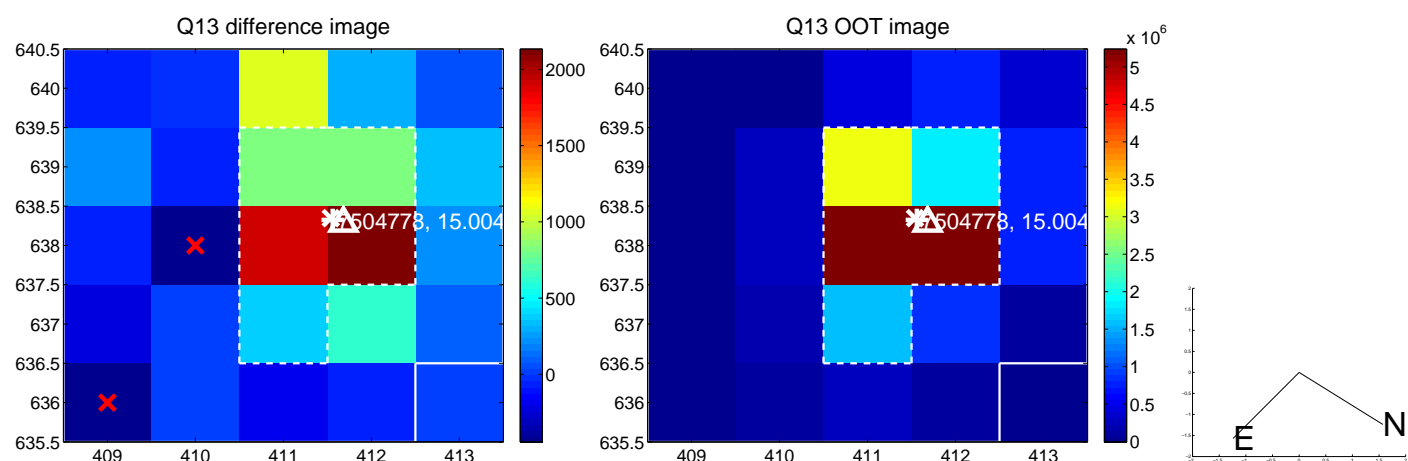
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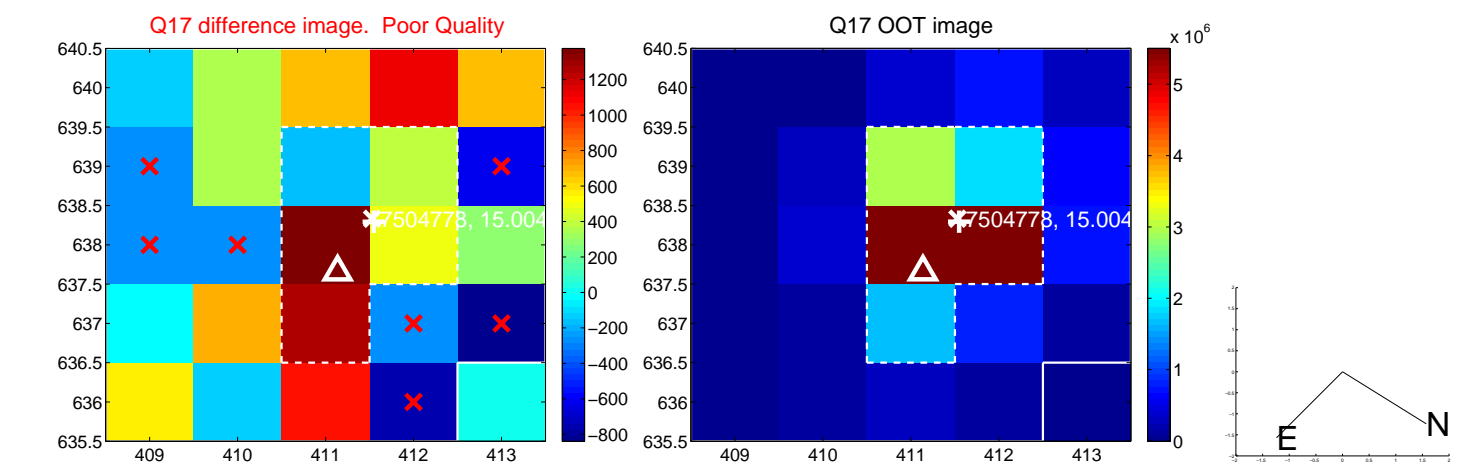


white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.

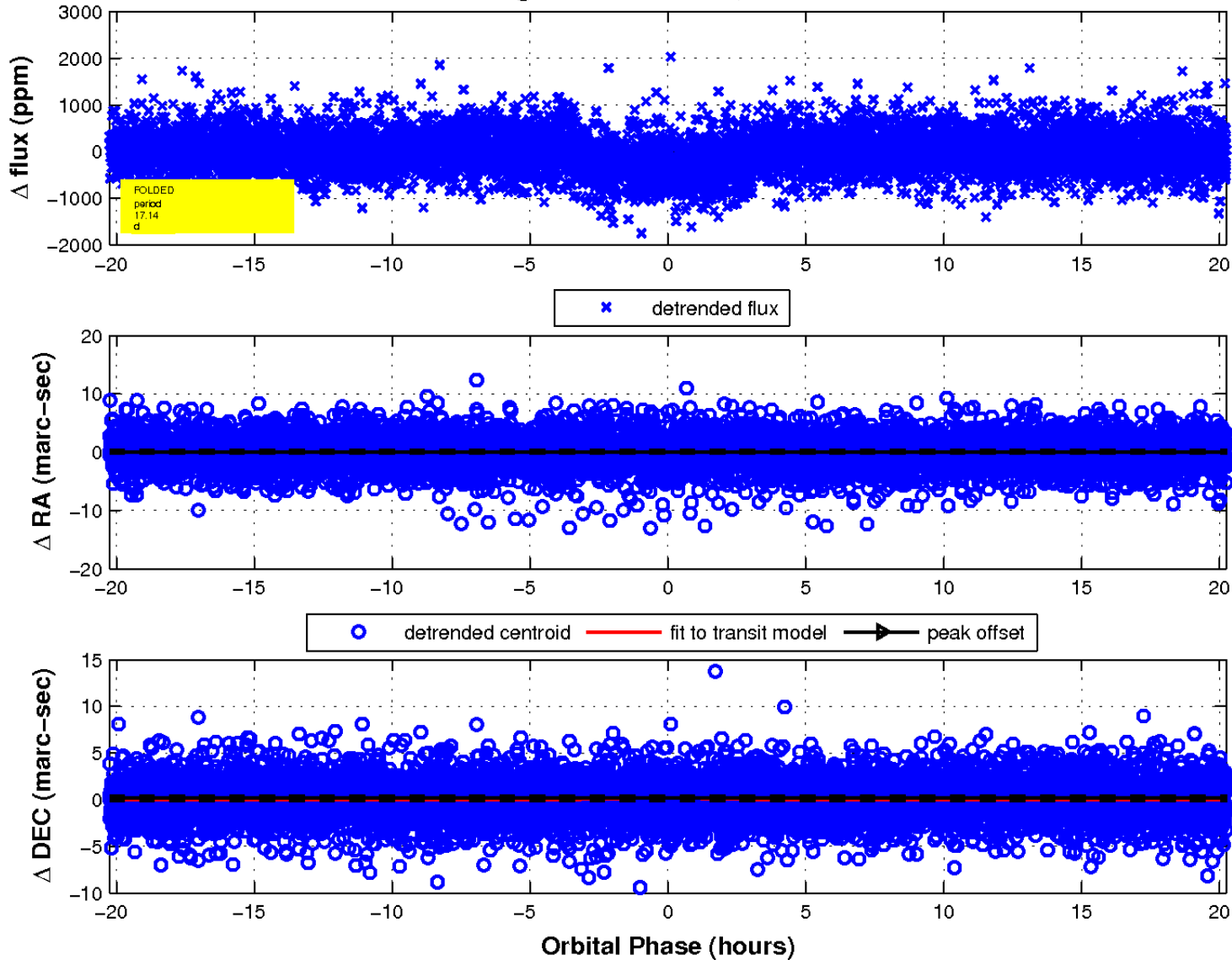




white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



fluxWeightedCentroids, Planet 1 of 1



# UKIRT Image

Declination

