

# KIC 010593535

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
010593535-01	OBS	4204.01	20.925555	134.892229	106.6	6.709	11.4	13.2	1.21	5821	1.41	67.07

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
010593535-01	OBS	PC	0.97	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.

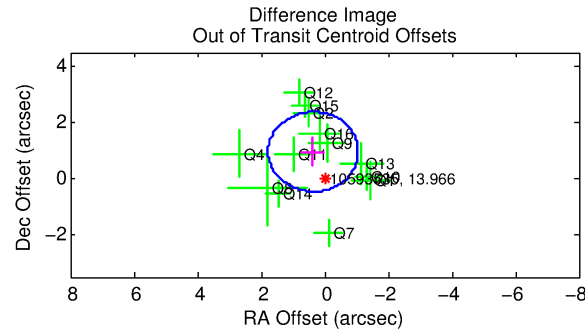
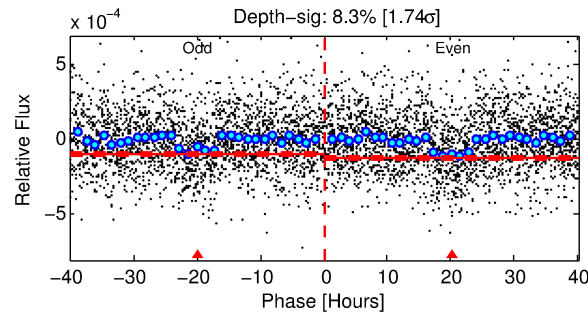
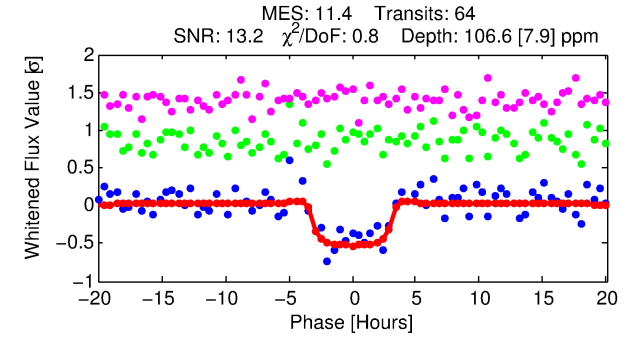
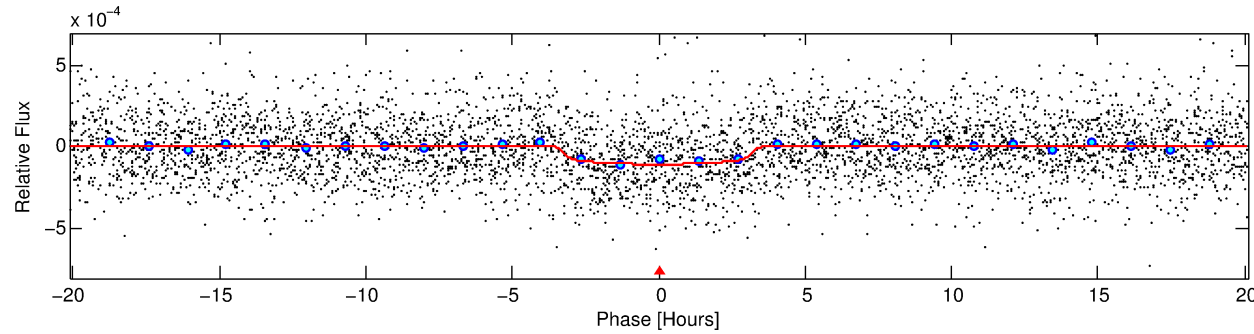
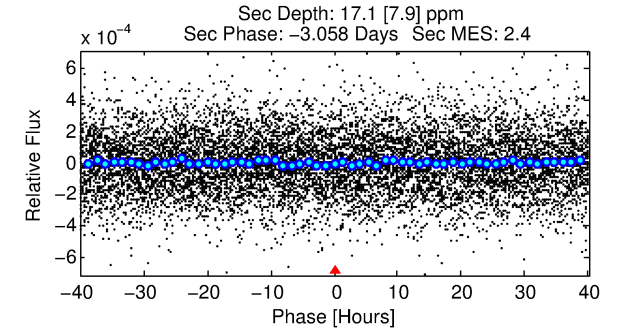
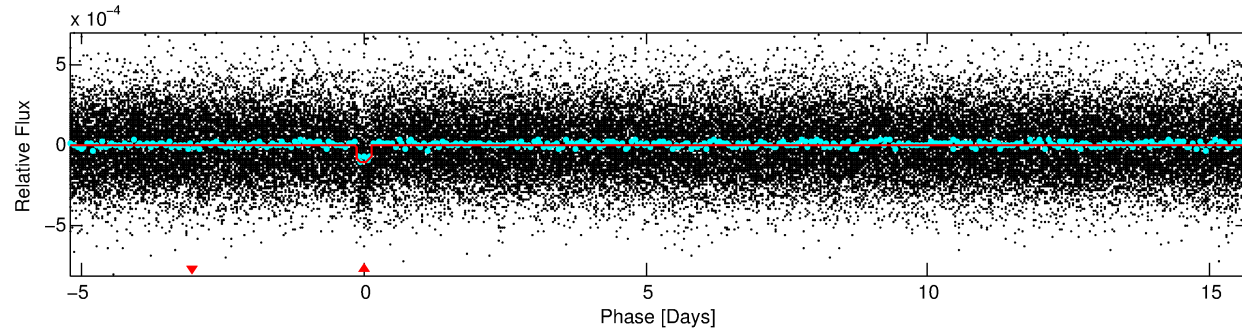
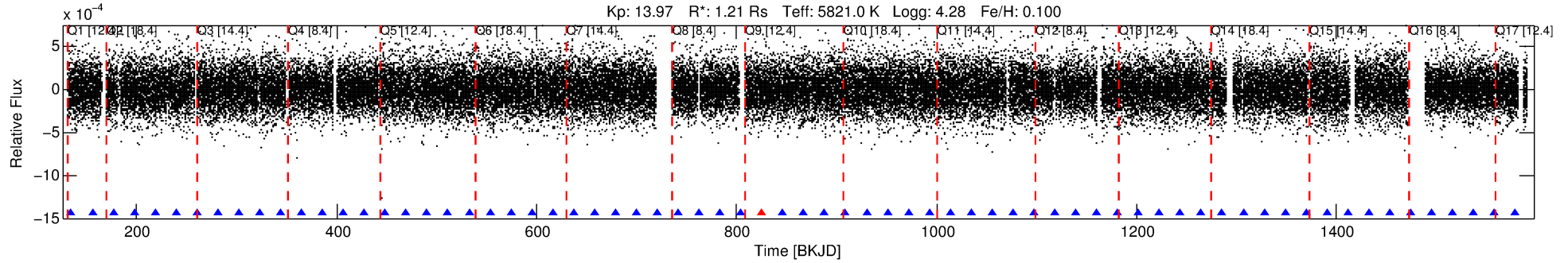
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

## Ephemeris Match Information For 010593535-01

No Significant Match Found

# DV One-Page Summary

KIC: 10593535 Candidate: 1 of 1 Period: 20.926 d  
KOI: K04204.01 Corr: 0.986



## DV Fit Results:

Period = 20.92556 [0.00022] d  
Epoch = 134.8922 [0.0088] BKJD  
Rp/R\* = 0.0107 [0.0046]  
a/R\* = 13.65 [27.07]  
b = 0.83 [0.74]  
Seff = 67.07 [16.72]  
Teff = 730 [45] K  
Rp = 1.41 [0.65] Re  
a = 0.1499 [0.0225] AU  
Ag = 106.06 [106.74] [0.98σ]  
Teffp = 3621 [889] K [3.25σ]

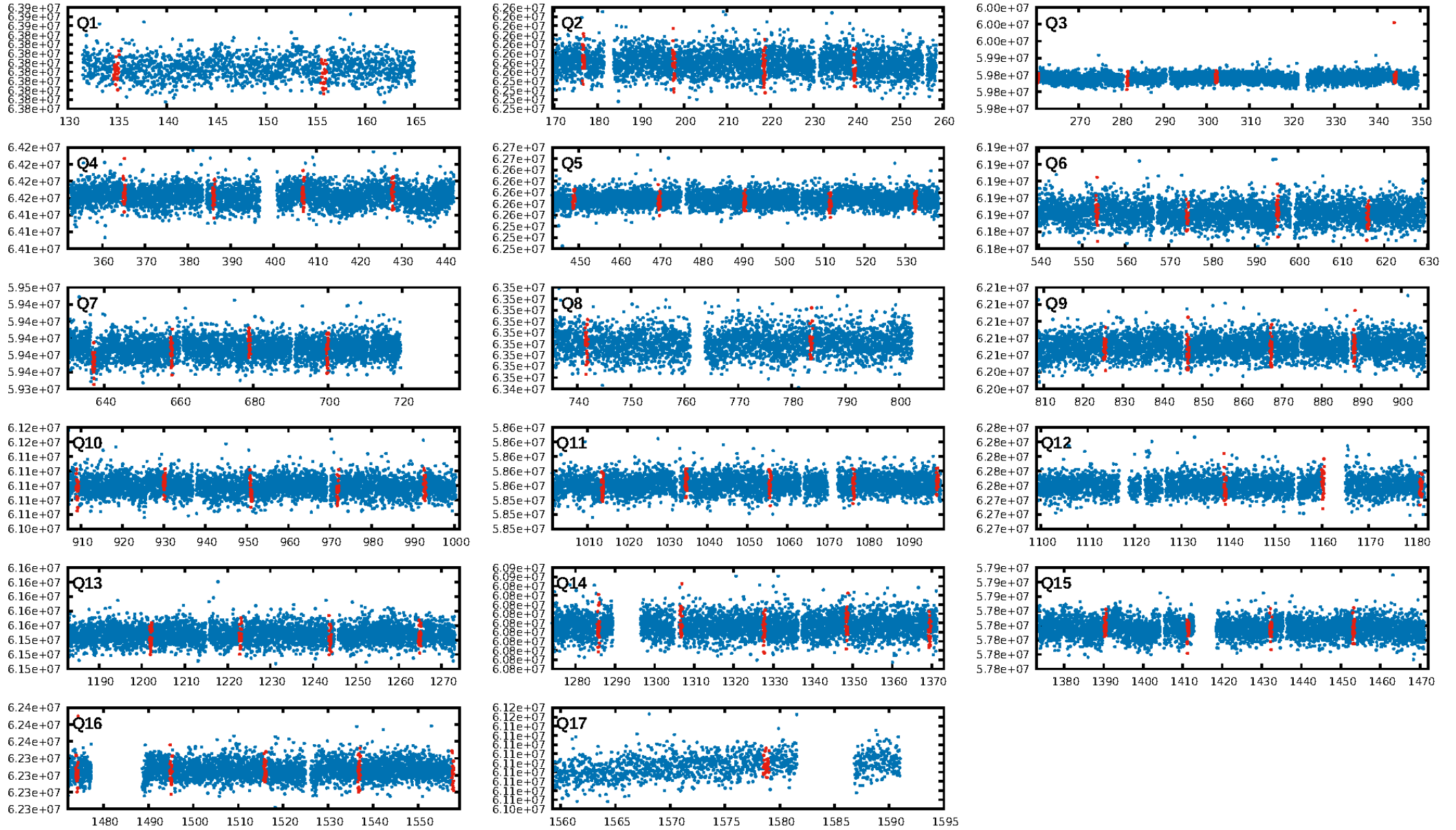
## DV Diagnostic Results:

ShortPeriod-sig: N/A  
LongPeriod-sig: N/A  
ModelChiSquare2-sig: 61.6%  
ModelChiSquareGof-sig: 100.0%  
Bootstrap-pfa: 1.09e-30  
RollingBand-fgt: 0.98 [60/61]  
GhostDiagnostic-chr: 3.141  
Centroid-sig: 27.6%  
Centroid-so: 1.369 arcsec [1.35σ]  
OotOffset-rm: 1.026 arcsec [2.17σ]  
KicOffset-rm: 0.973 arcsec [2.06σ]  
OotOffset-st: 3/3/4/3 [13]  
KicOffset-st: 3/3/4/3 [13]  
DiffImageQuality-fgm: 0.85 [11/13]  
DiffImageOverlap-fno: 1.00 [17/17]

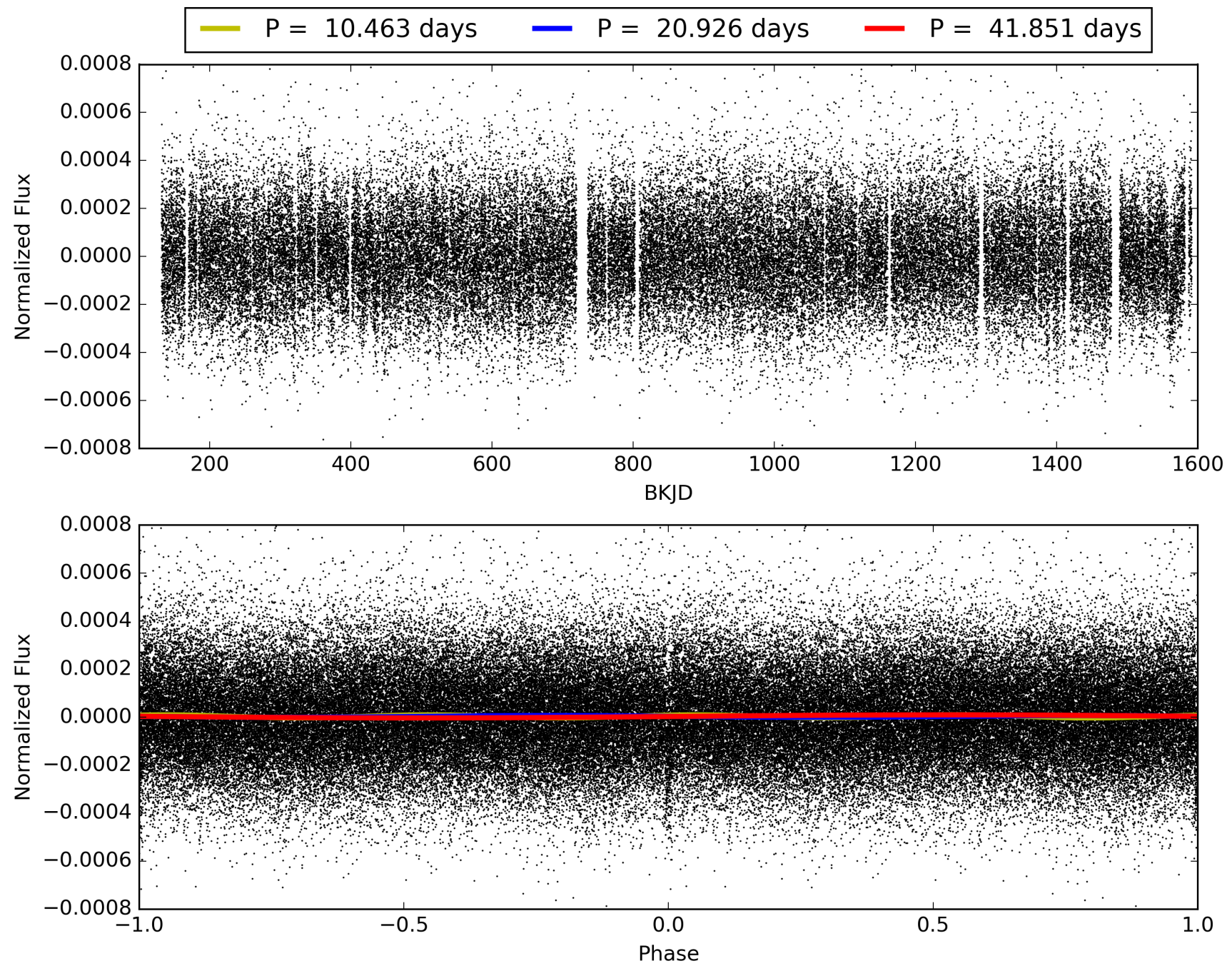
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 28-Jan-2016 22:02:56 Z

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

# TCE 010593535-01, PDC Light Curves



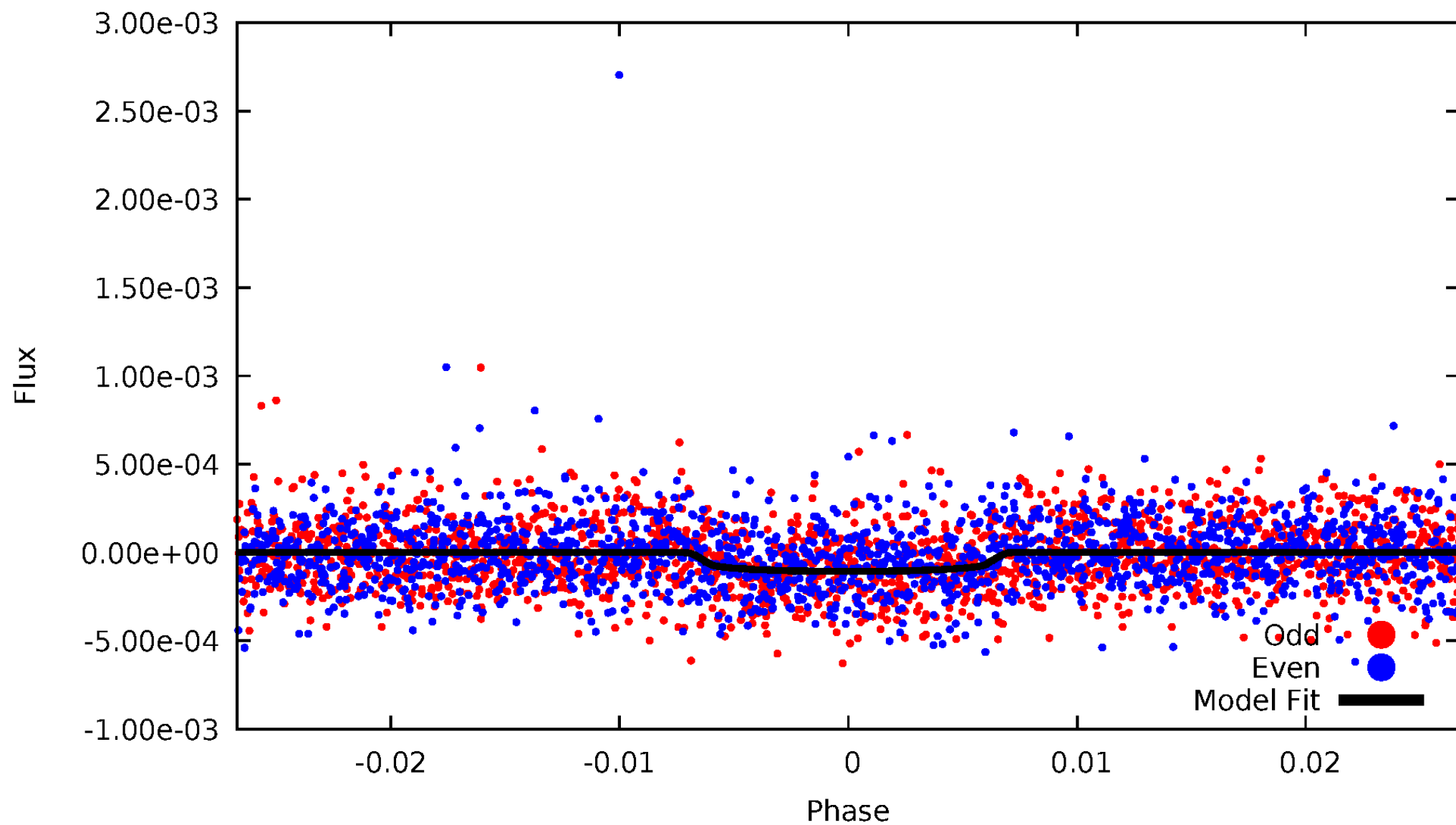
TCE 010593535-01





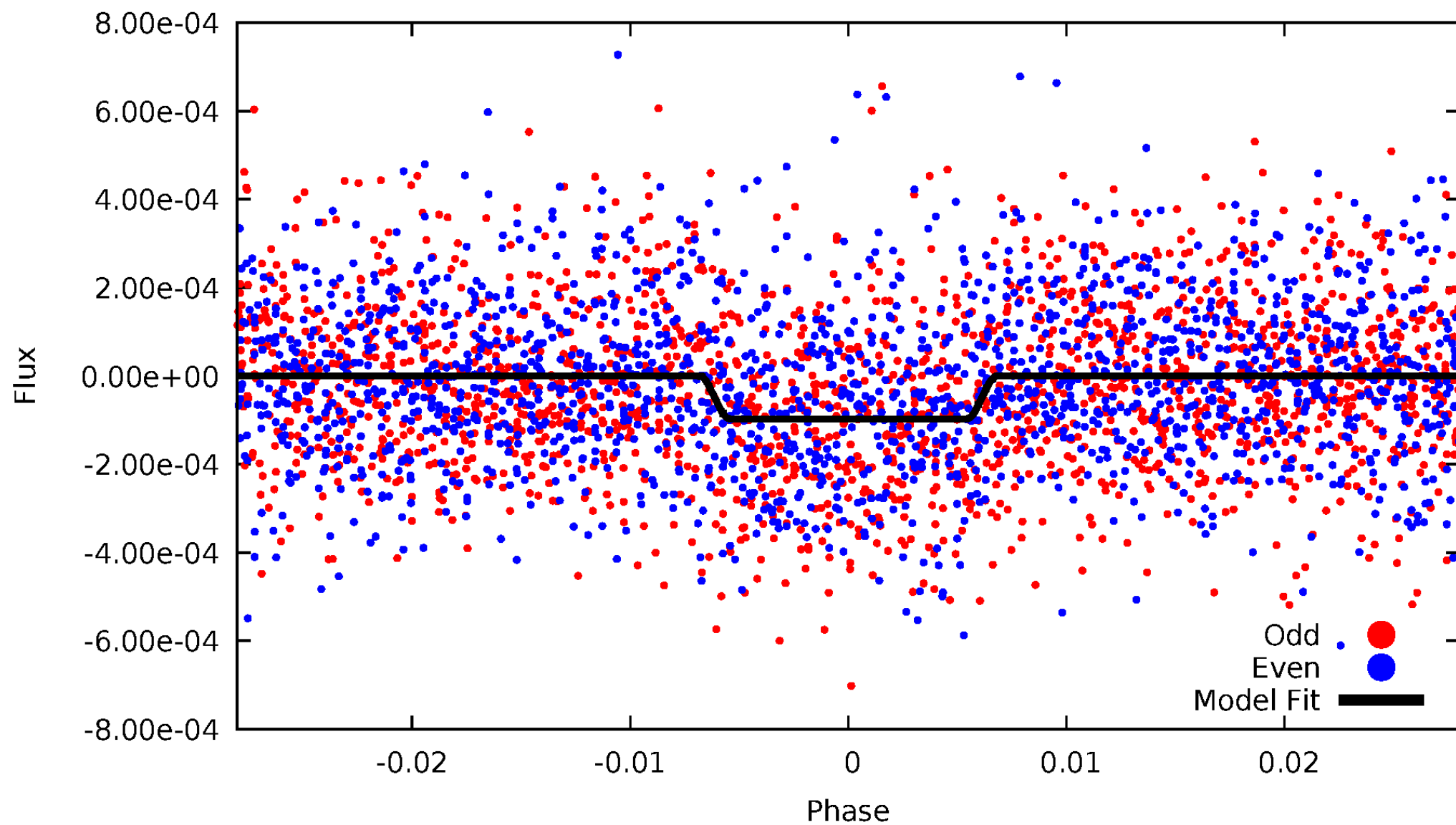
# DV Odd/Even

TCE 010593535-01

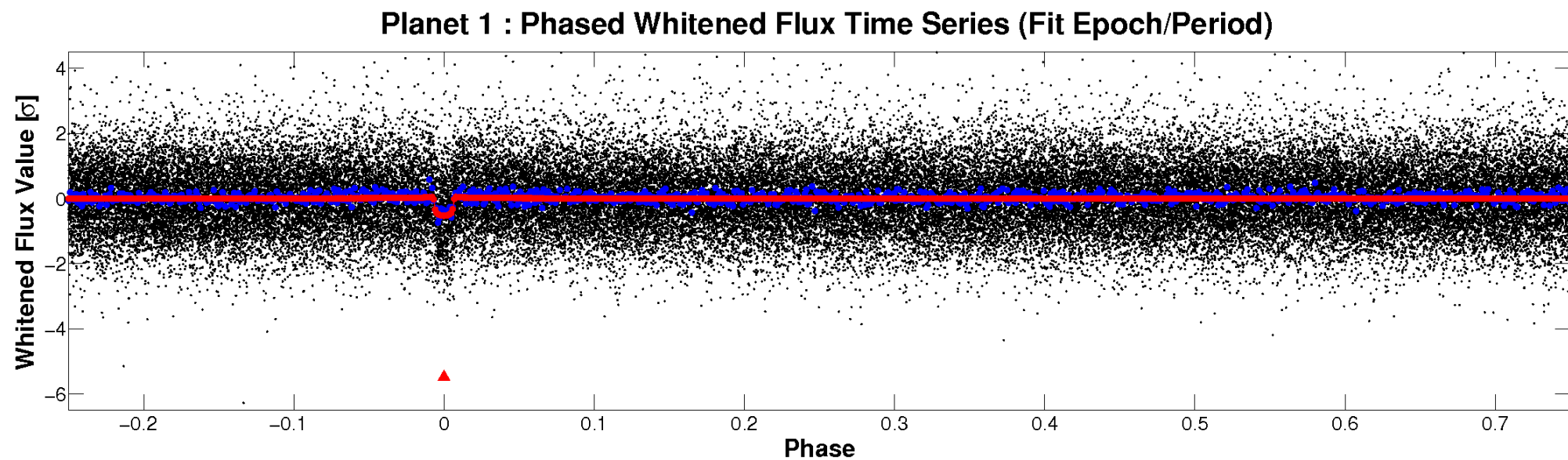
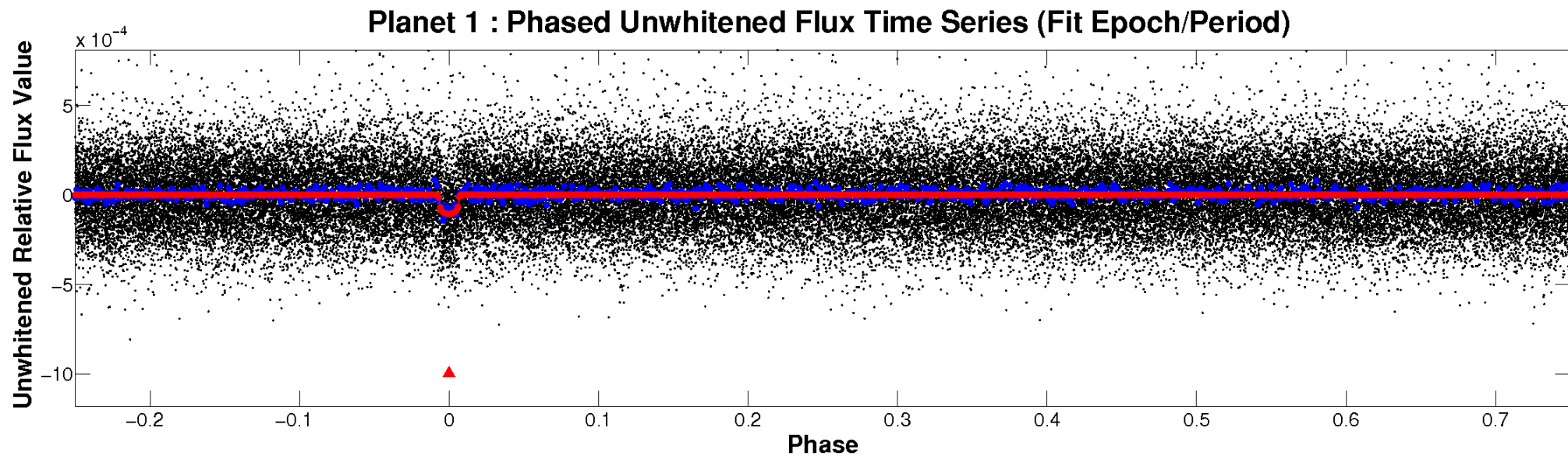


# ALT Odd/Even

TCE 010593535-01

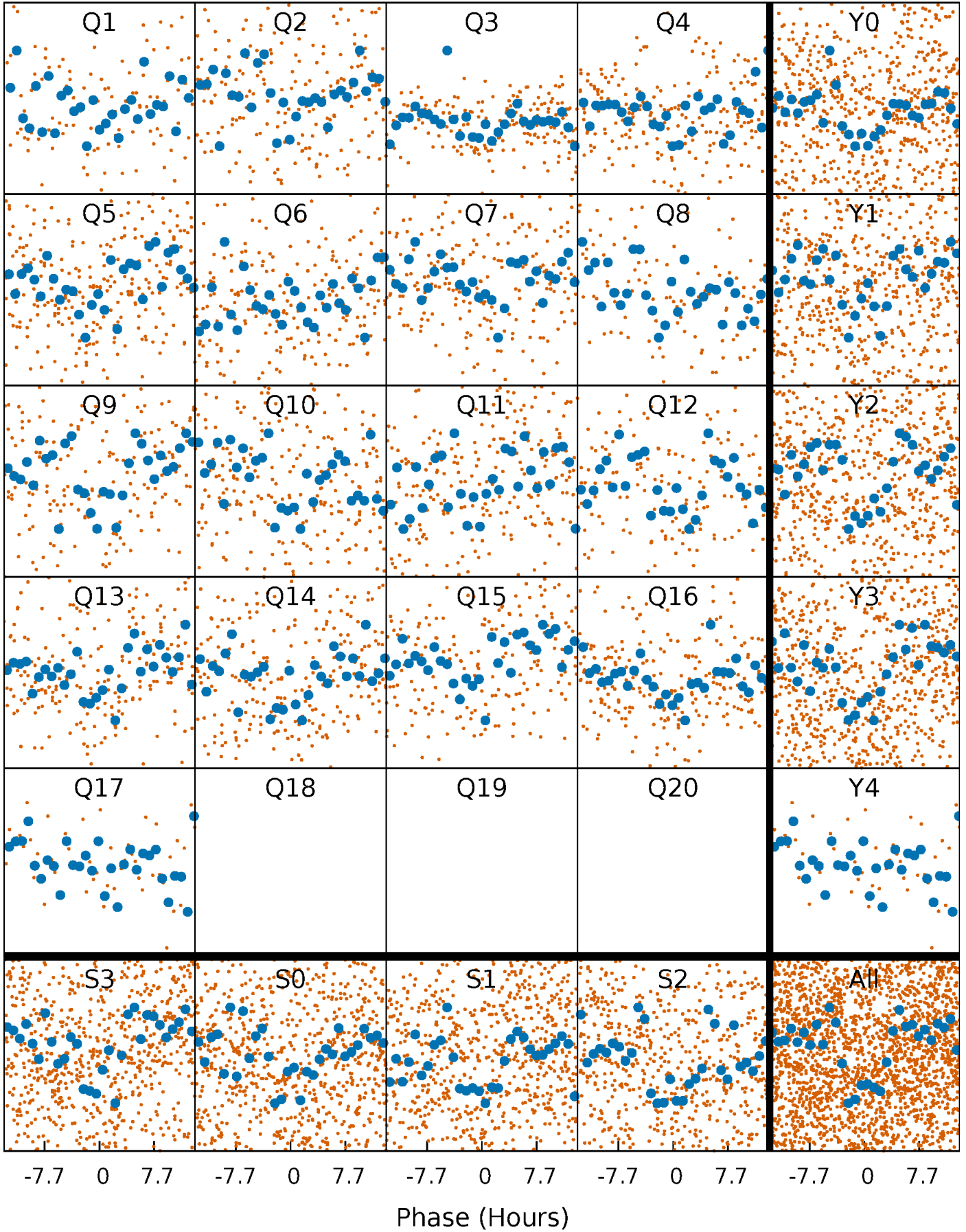


# Non-Whitened Vs. Whitened Light Curve



# PDC Quarter-Phased Transit Curves

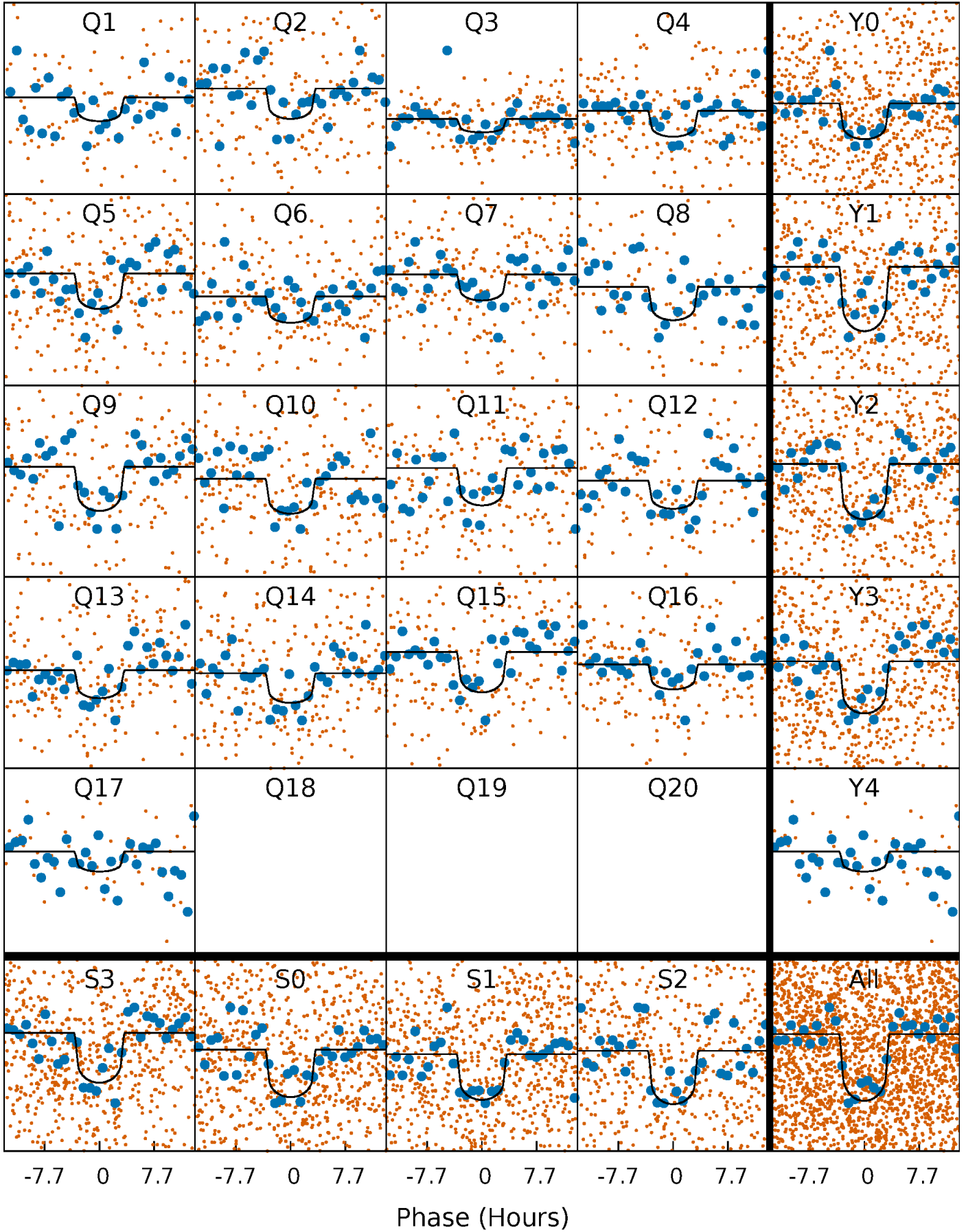
TCE 010593535-01 P= 20.925555 Days  $T_0=134.892229$  (BKJD)





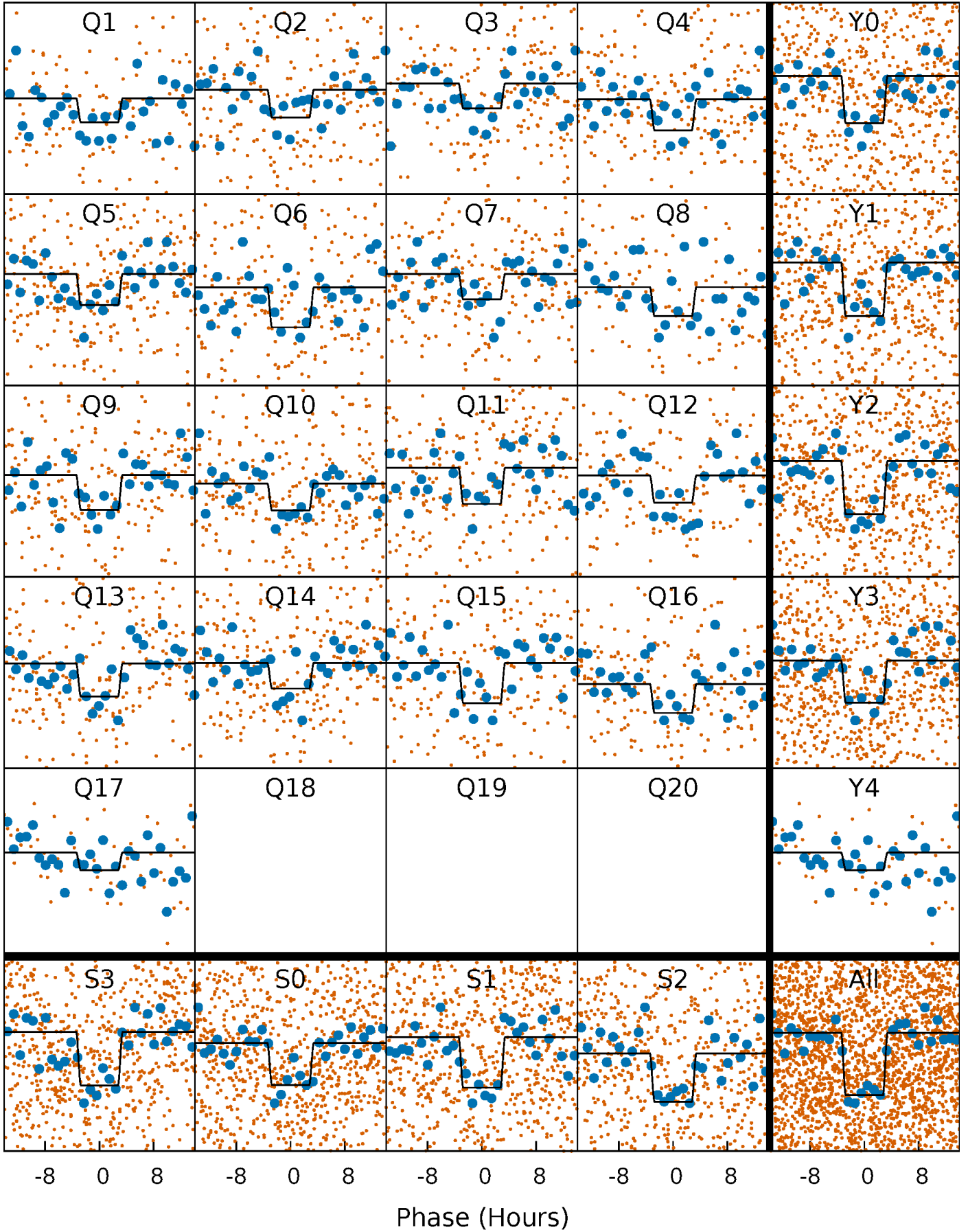
# DV Quarter-Phased Transit Curves

TCE 010593535-01 P= 20.925555 Days  $T_0=134.892229$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

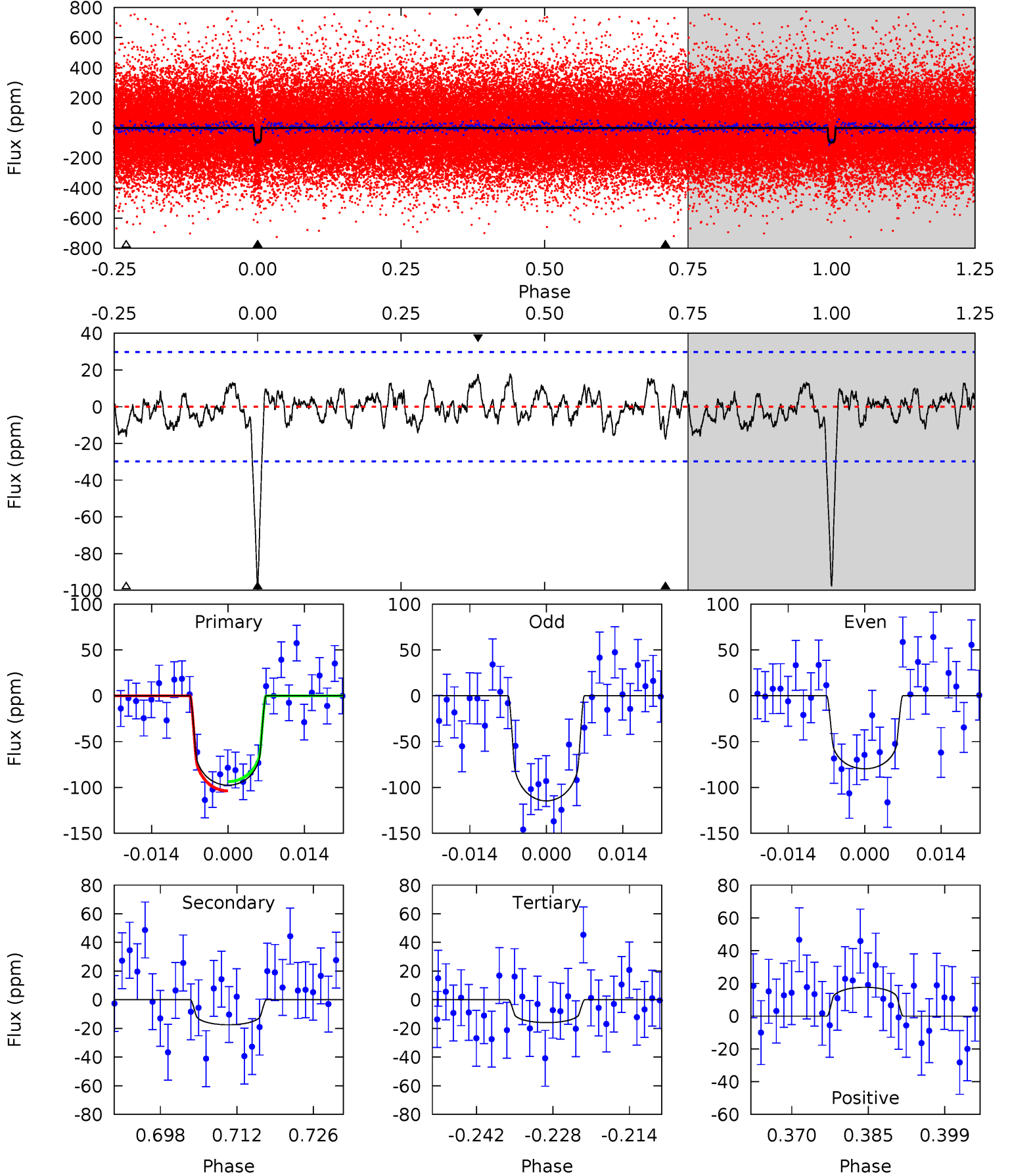
TCE 010593535-01 P= 20.924777 Days  $T_0=134.922338$  (BKJD)



# DV Model-Shift Uniqueness Test

010593535-01, P = 20.925555 Days, E = 113.966674 Days

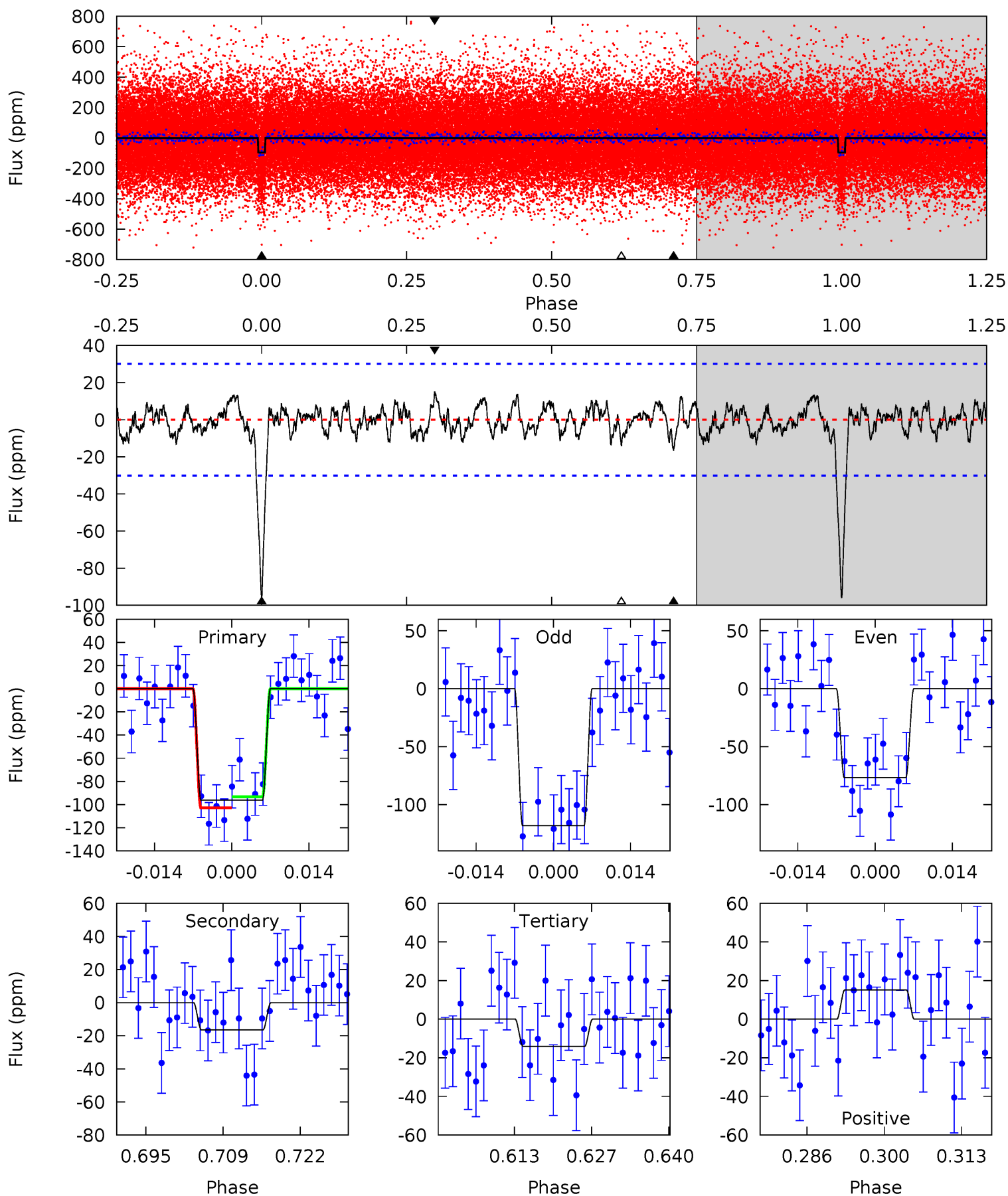
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
16.2	2.90	2.65	2.93	4.96	2.45	1.12	13.6	13.3	0.25	-0.03	2.91	1.06	0.15	0.85



# Alt Model-Shift Uniqueness Test

010593535-01,  $P = 20.924777$  Days,  $E = 113.997561$  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
15.9	2.71	2.32	2.50	4.97	2.47	0.97	13.5	13.4	0.39	0.21	3.43	1.01	0.14	0.77



### Stellar Parameters For KIC 010593535

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	$5821^{+105}_{-117}$	$4.283^{+0.137}_{-0.112}$	$0.100^{+0.150}_{-0.150}$	$1.210^{+0.194}_{-0.194}$	$1.025^{+0.086}_{-0.070}$	$0.816^{+0.498}_{-0.262}$
	+2%/-2%	+3%/-3%	+150%/-150%	+16%/-16%	+8%/-7%	+61%/-32%
Source	SPE12	SPE12	SPE12	DSEP		

KIC = Kepler Input Catalog; PHO = Photometry; SPE = Spectroscopy; AST = Asteroseismology  
 TRA = Transits; DESP = Dartmouth Models; MULT = Multiple Models

### Secondary Eclipse Parameters for KIC 010593535-01 / KOI 4204.01

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	$A_{obs}$
DV	$-17 \pm 6$	$1.39^{+0.64}_{-0.61}$	$1018^{+52}_{-48}$	$3962^{+899}_{-536}$	$108^{+219}_{-64}$
Alt.	$-16 \pm 6$	$1.28^{+0.62}_{-0.60}$	$1017^{+47}_{-48}$	$4013^{+1090}_{-551}$	$123^{+284}_{-73}$

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



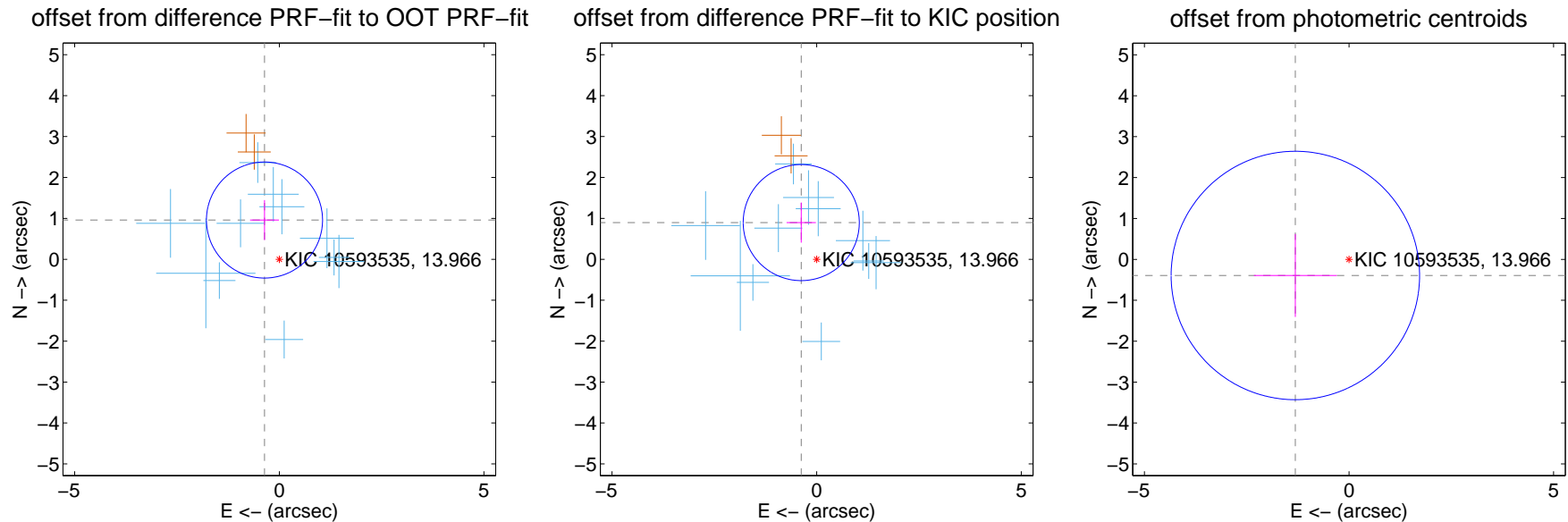
## DV Centroid Data

Supplemental centroid analysis for 010593535-01. Kepler magnitude: 13.97. Transit SNR 13.21

There are 11 quarters with good PRF difference image offsets

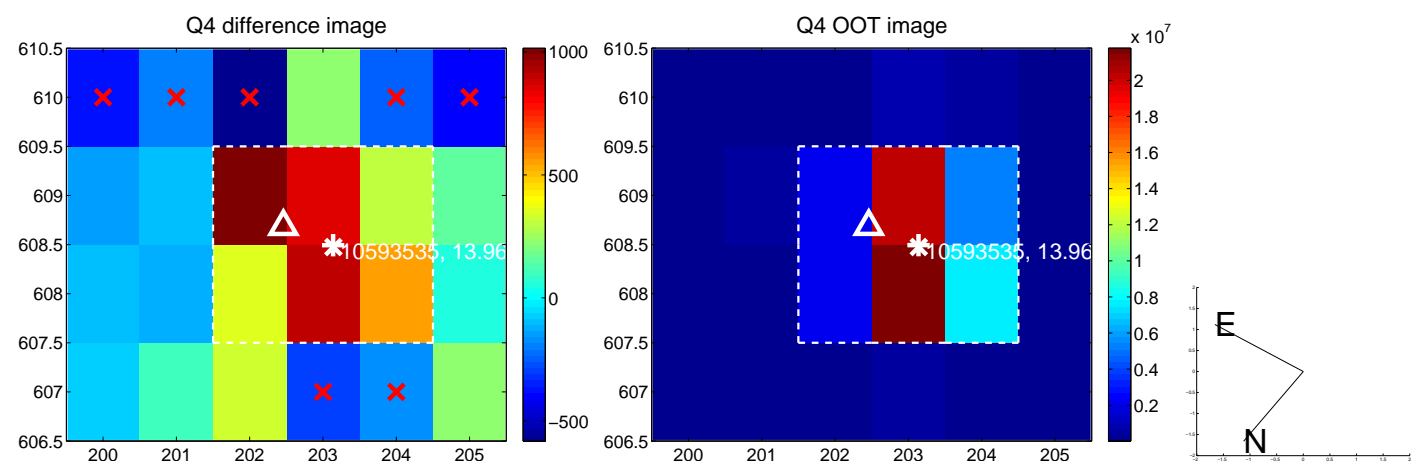
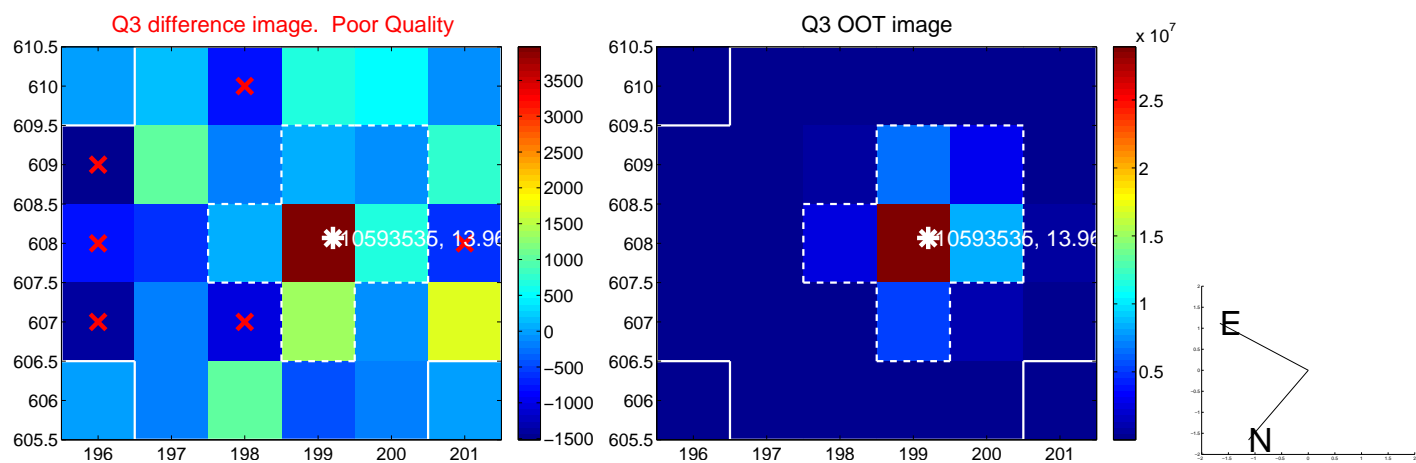
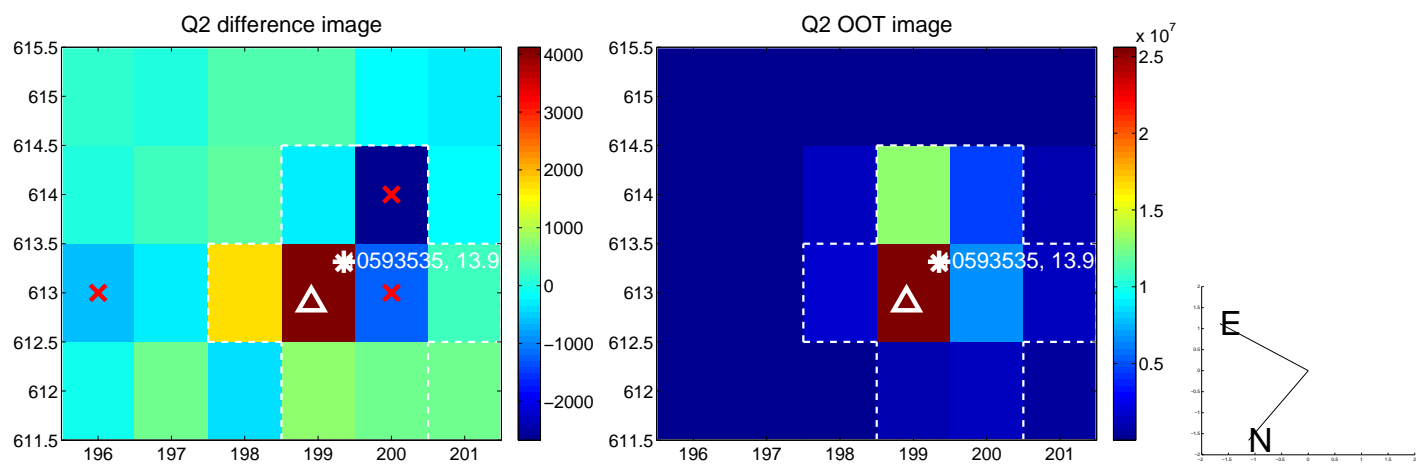
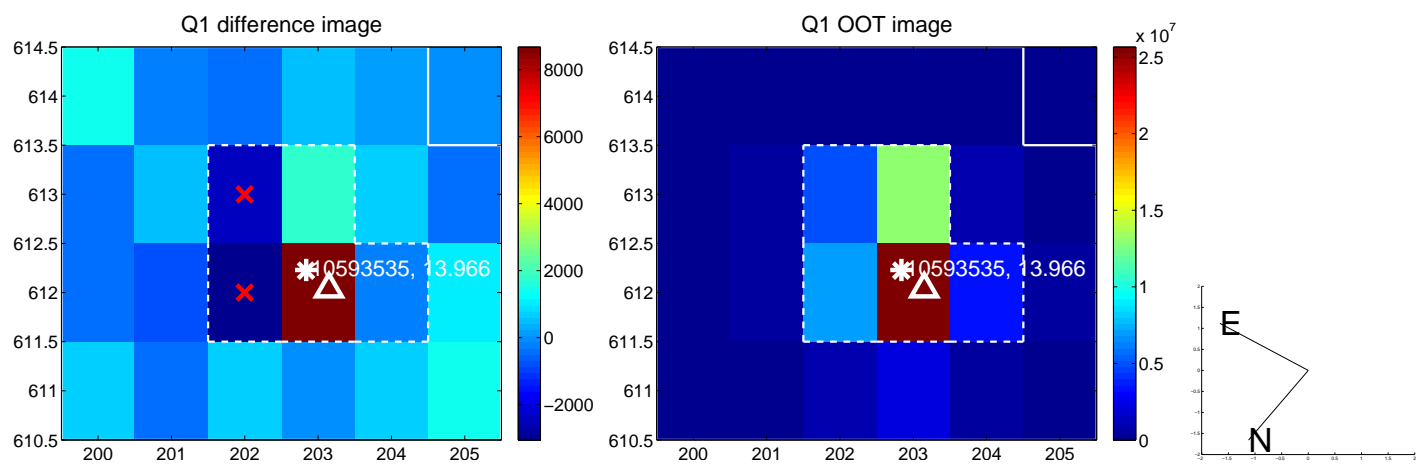
The direct PRF centroid is offset from the target star catalog position by about 0.10 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$1.026 \pm 0.473$	2.17	$0.362 \pm 0.352$	$0.960 \pm 0.487$
PRF-fit source offset from KIC position	$0.973 \pm 0.473$	2.06	$0.376 \pm 0.358$	$0.897 \pm 0.490$
photometric centroid source offset	$1.37 \pm 1.01$	1.35	$1.31 \pm 1.01$	$-0.39 \pm 1.01$

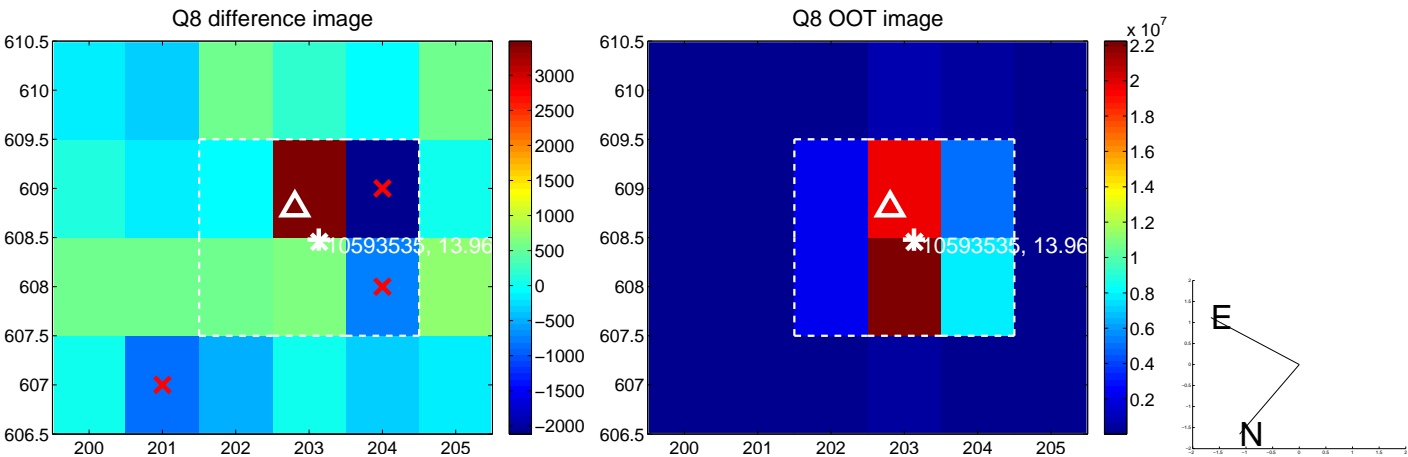
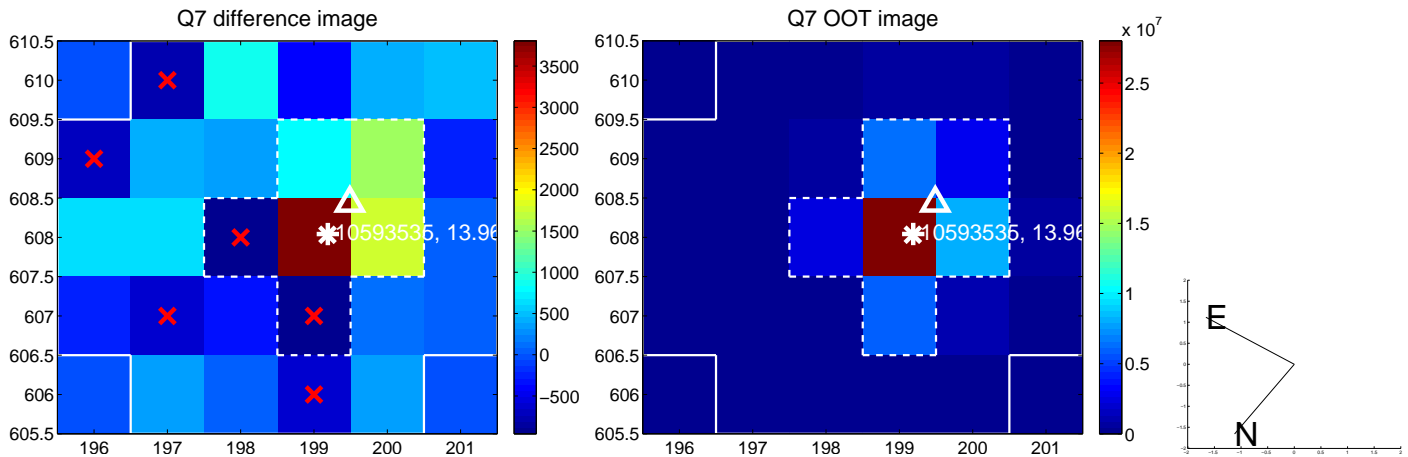
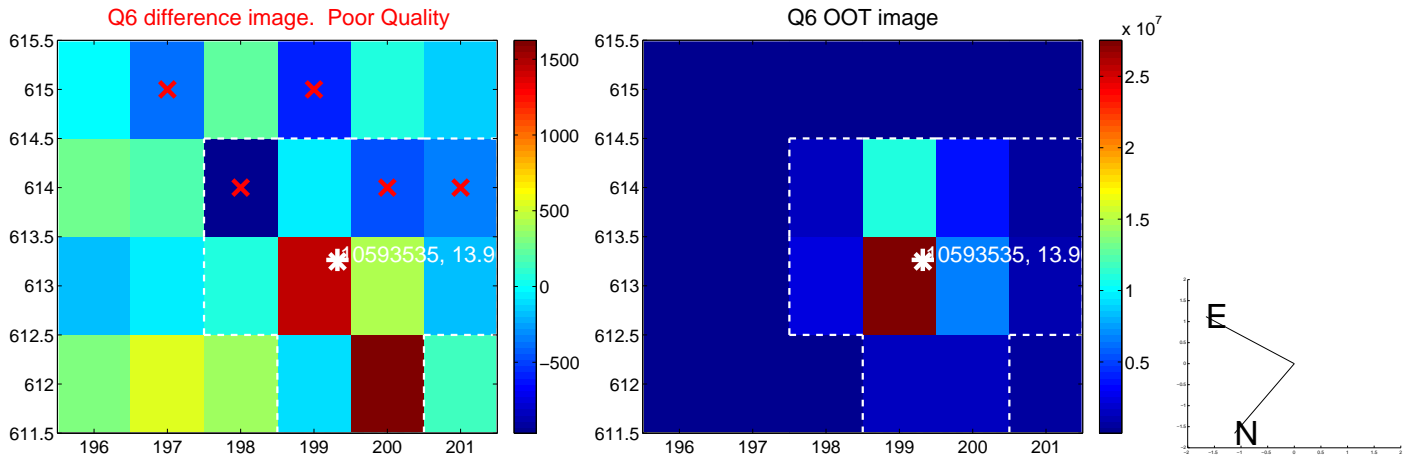
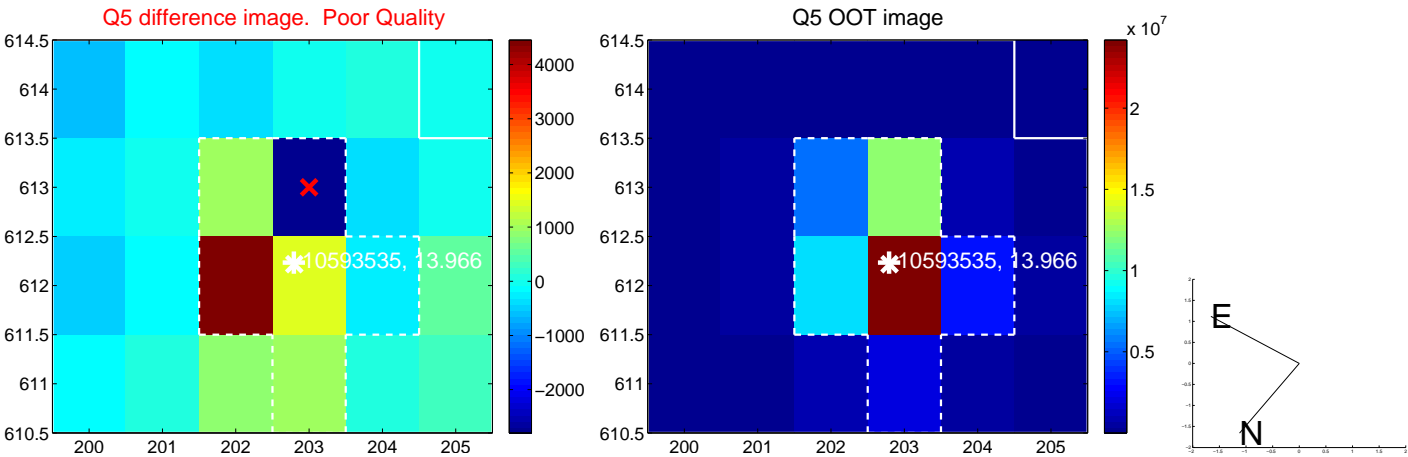


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses:** good quarterly centroid offsets; **Vermillion crosses:** bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: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

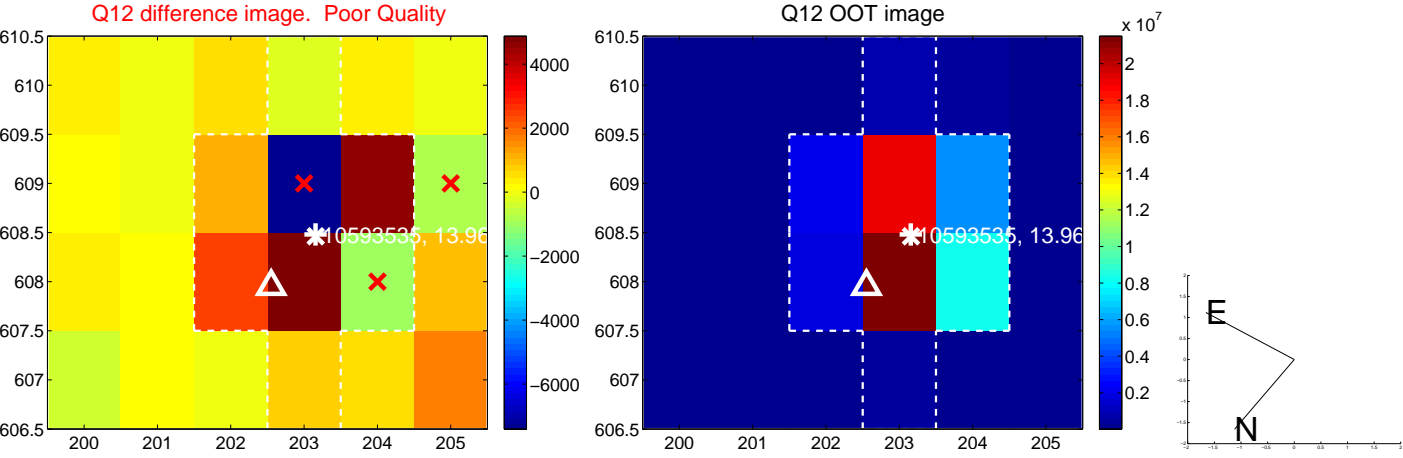
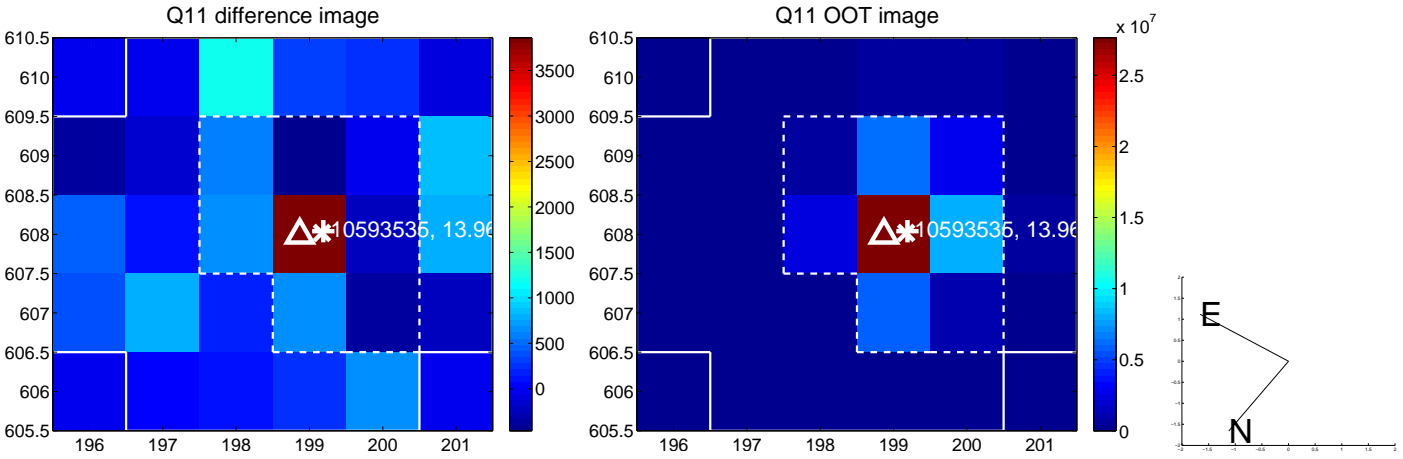
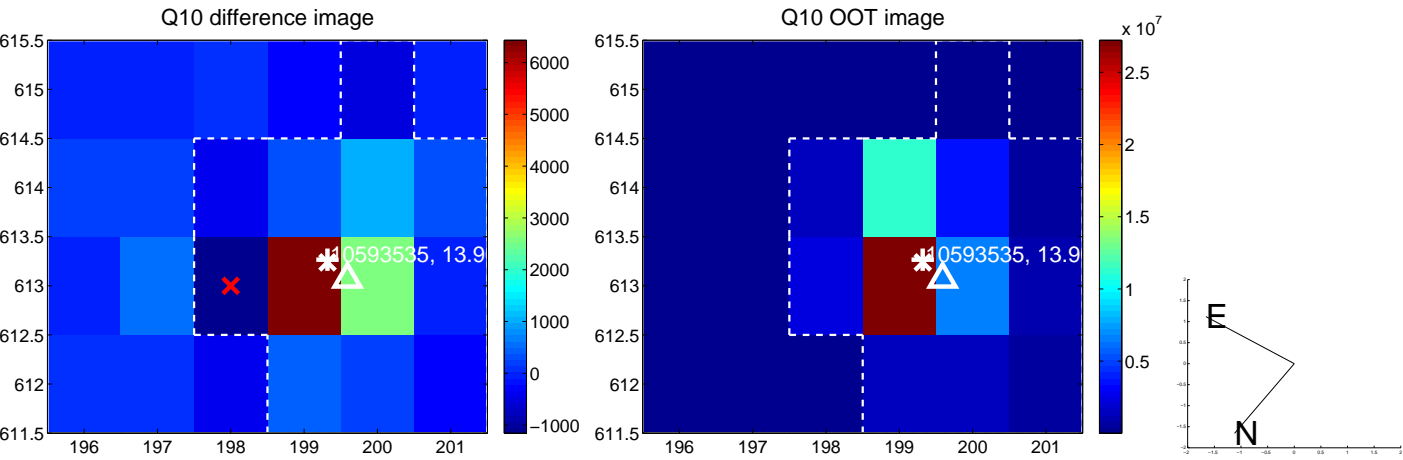
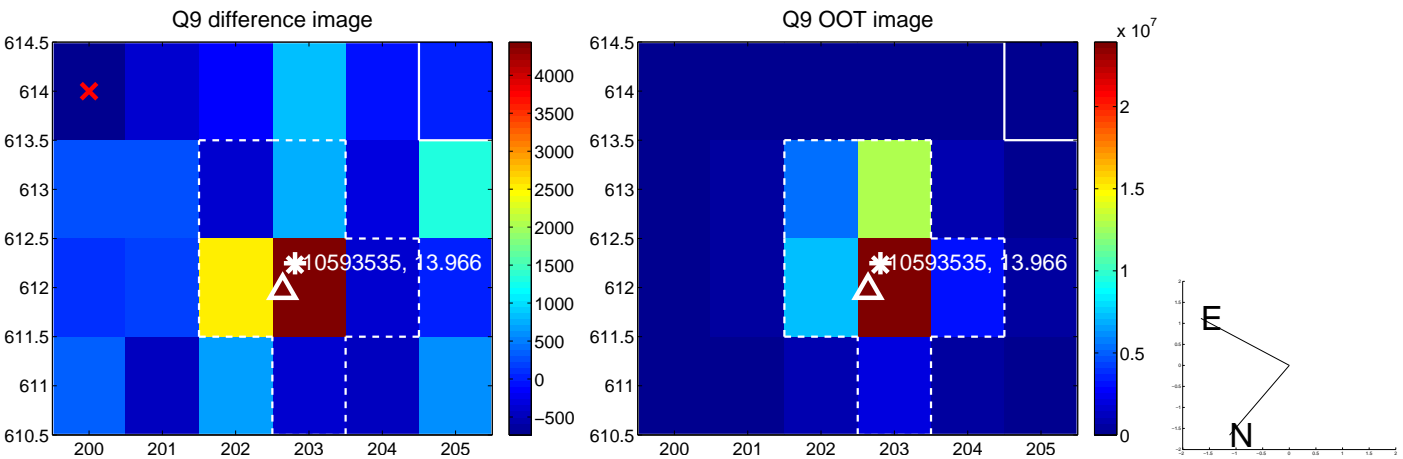
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



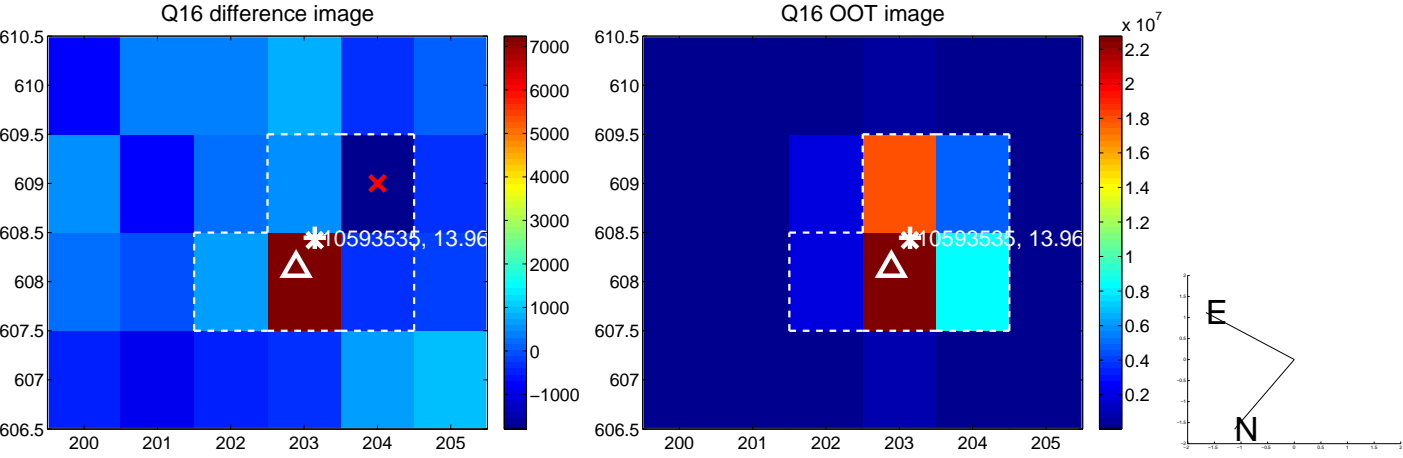
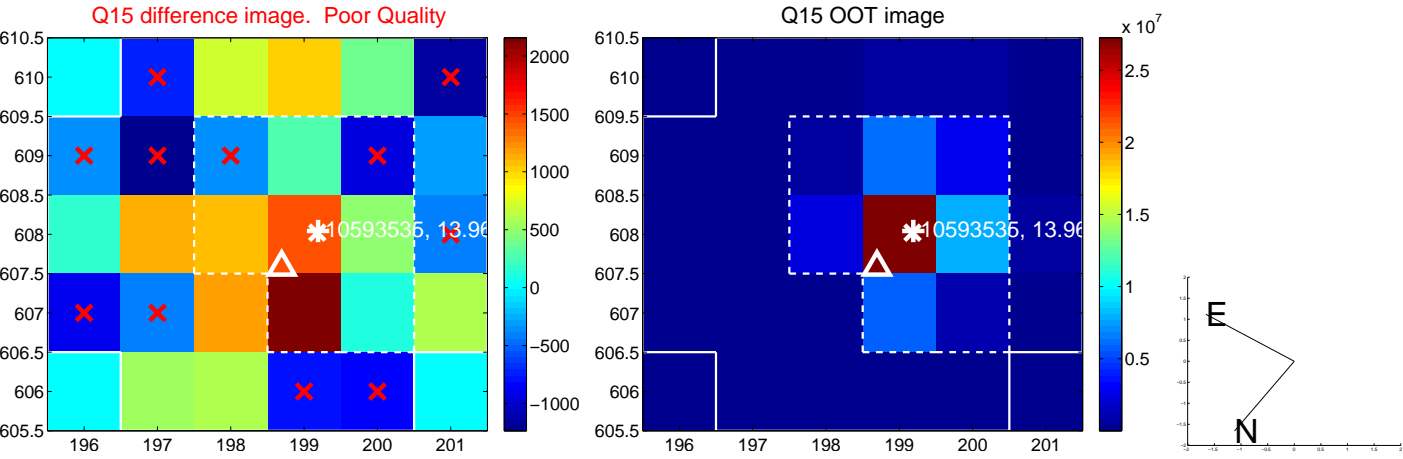
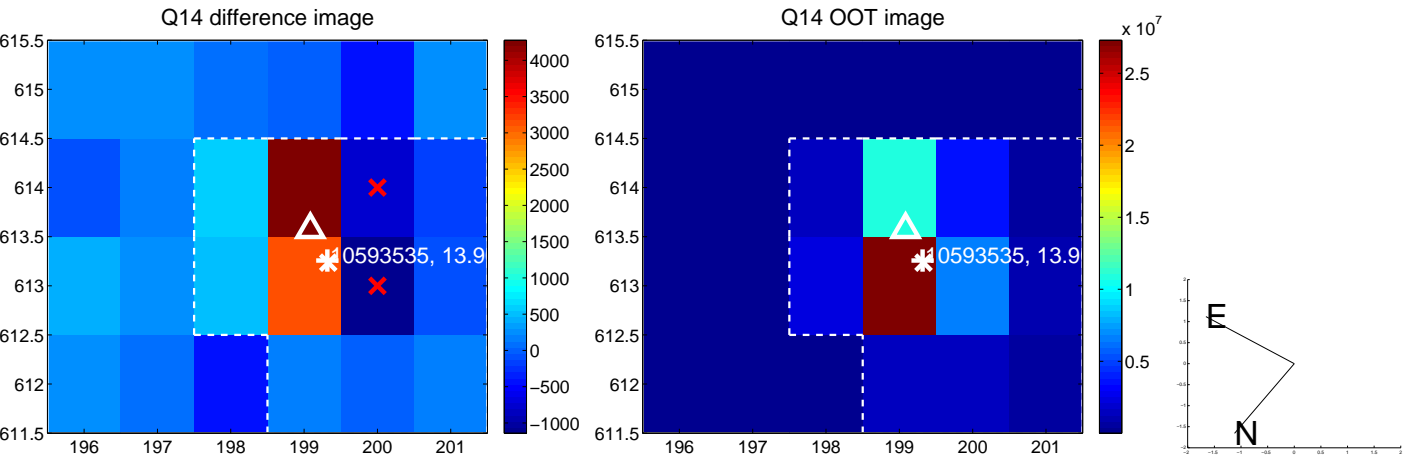
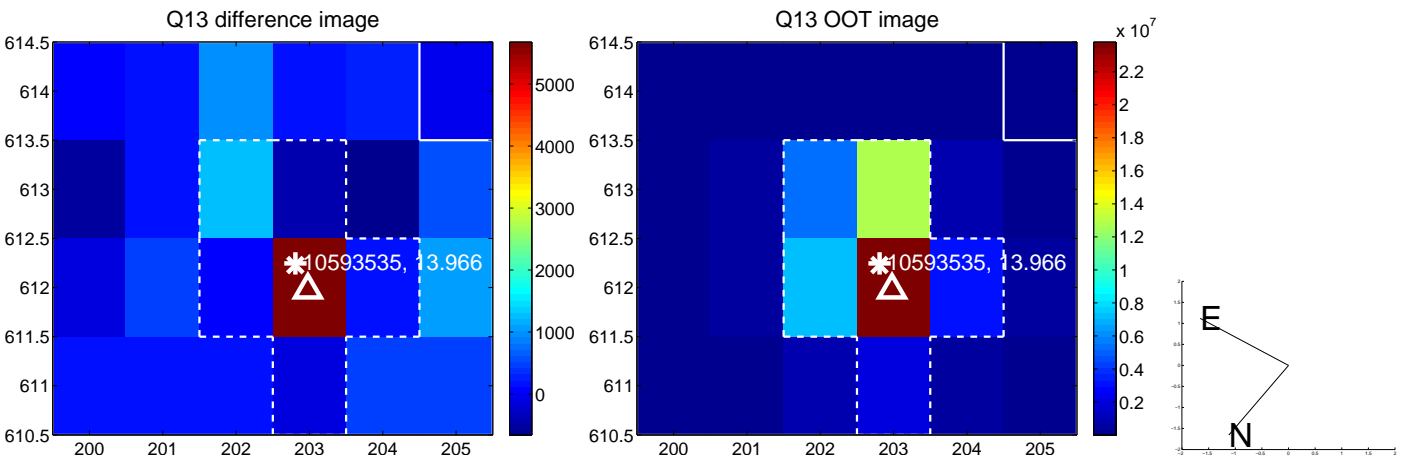
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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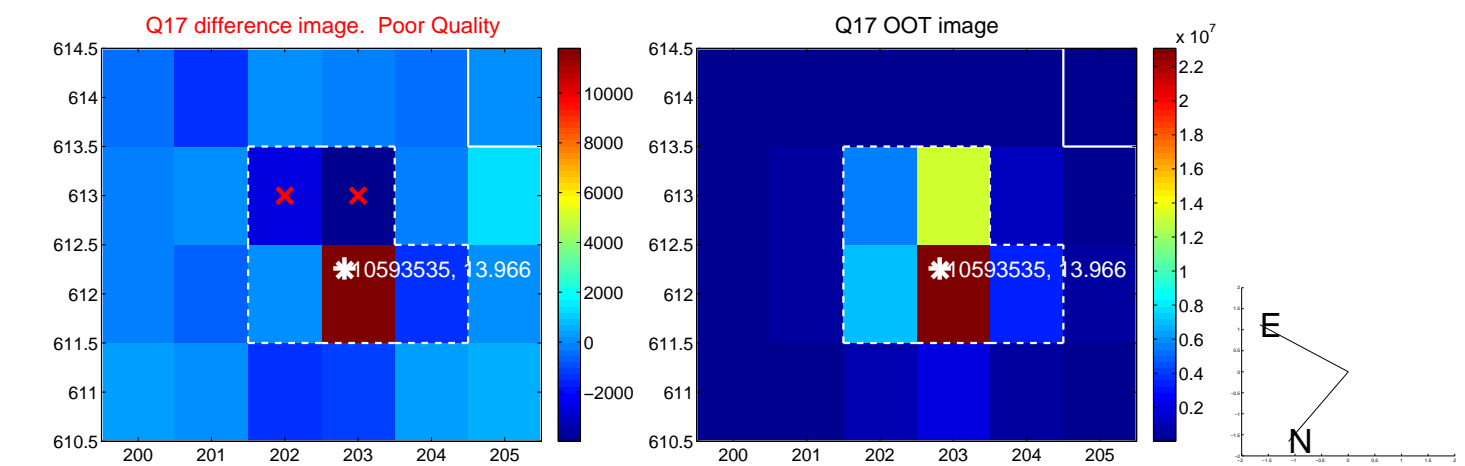


white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.

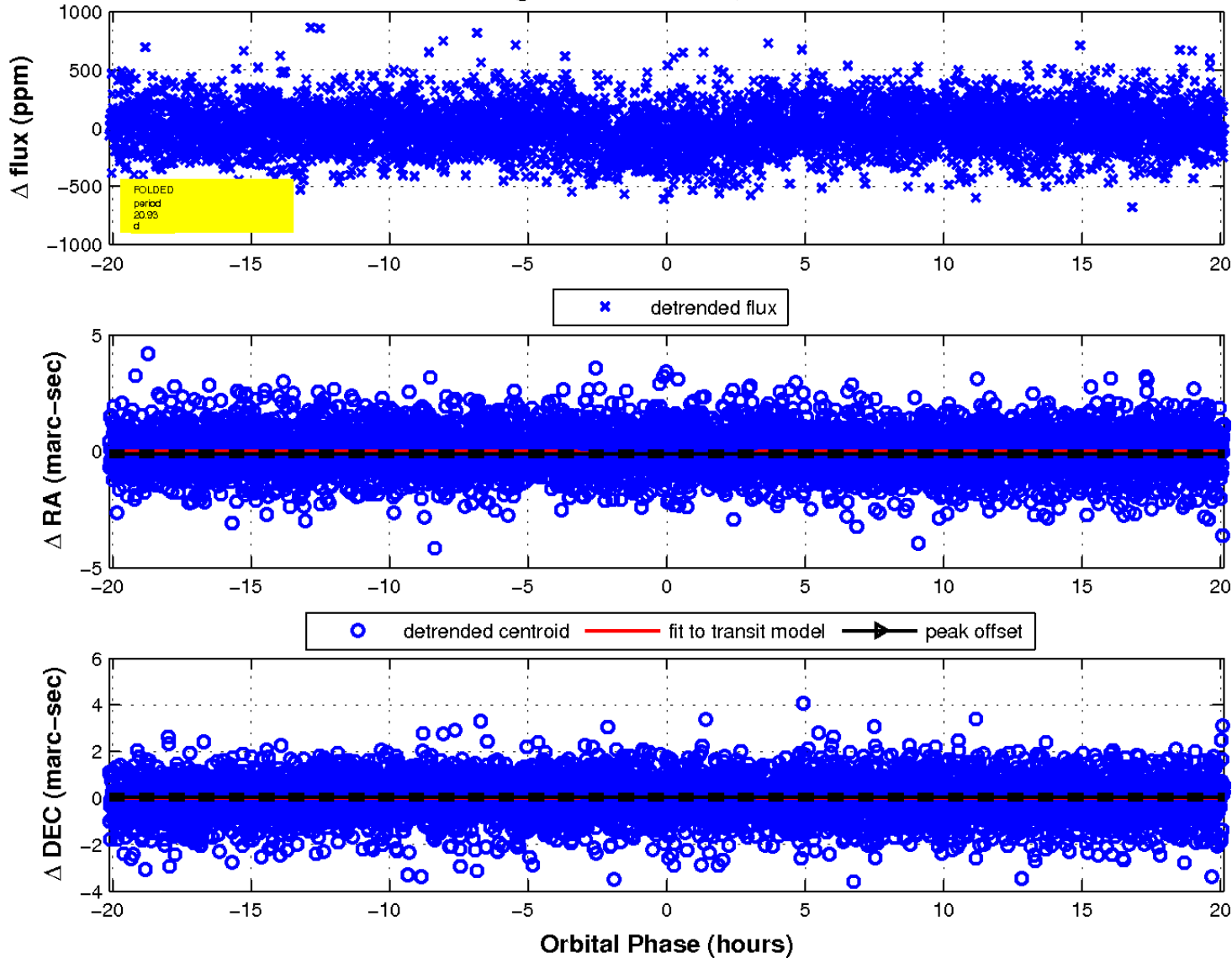




white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



fluxWeightedCentroids, Planet 1 of 1



UKIRT Image

Declination

