

# KIC 008591173

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
008591173-01	OBS	2181.01	12.288520	141.620146	344.4	3.073	17.0	18.3	1.67	5109	3.59	164.77

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
008591173-01	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.

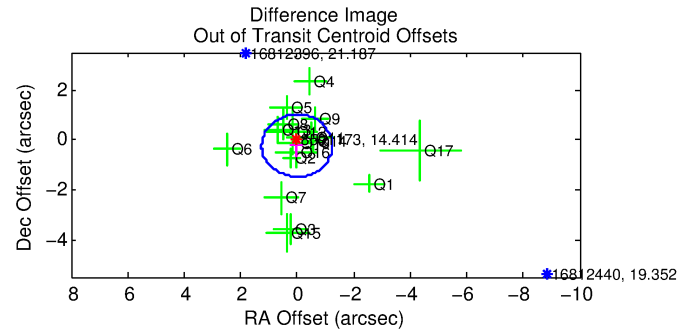
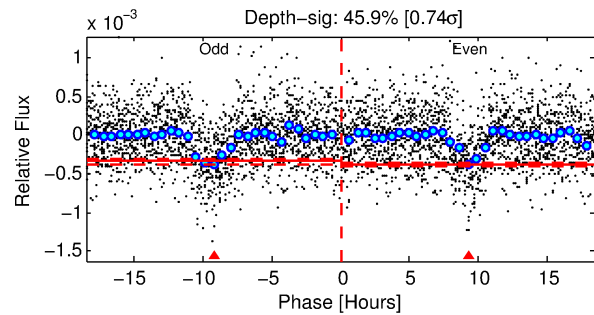
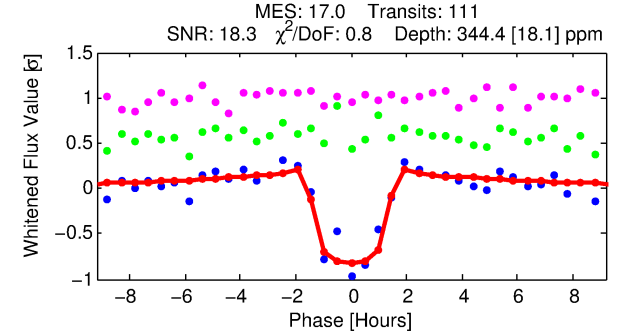
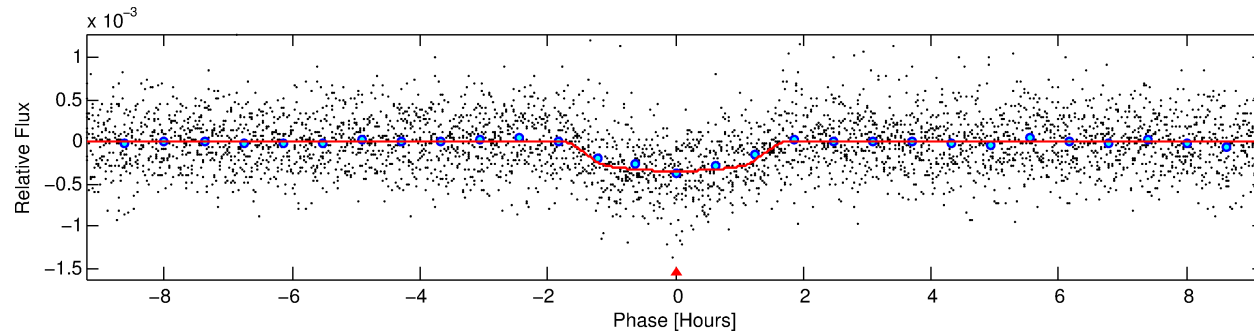
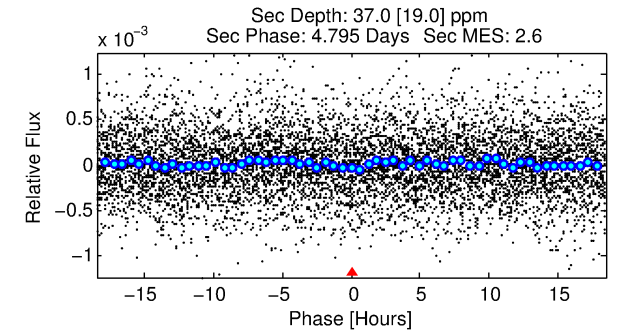
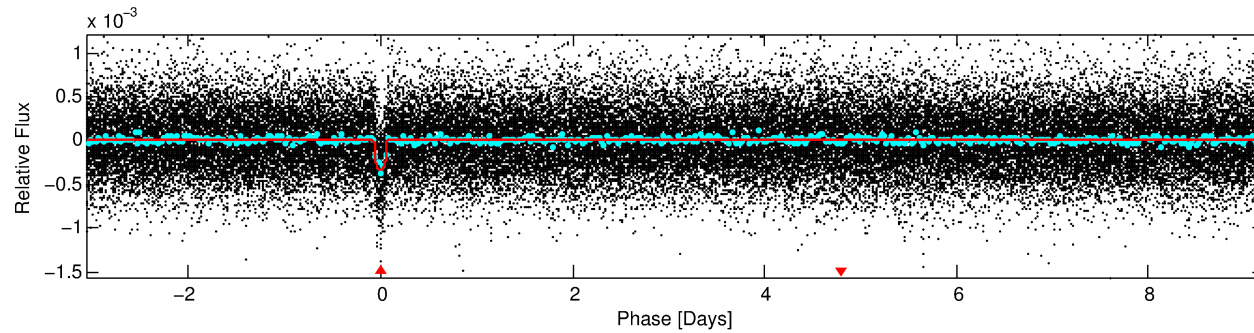
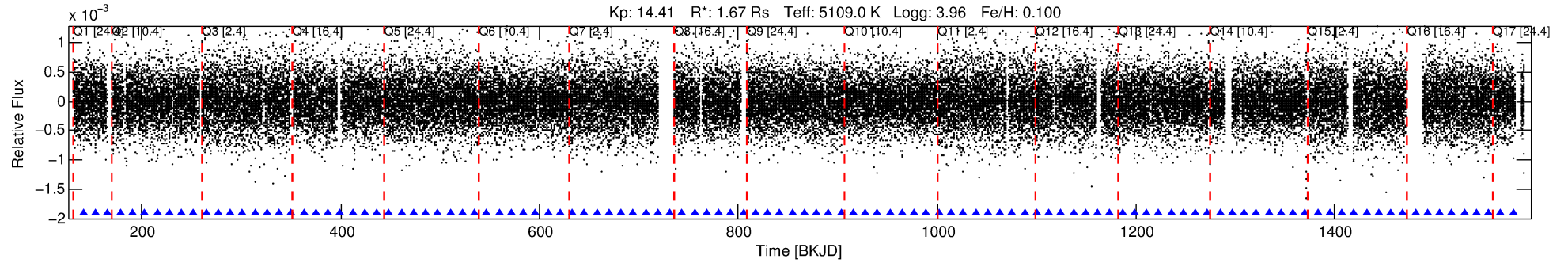
## Ephemeris Match Information For 008591173-01

No Significant Match Found

# DV One-Page Summary

KIC: 8591173 Candidate: 1 of 1 Period: 12.289 d

KOI: K02181.01 Corr: 0.957



## DV Fit Results:

Period = 12.28852 [0.00005] d  
Epoch = 141.6201 [0.0032] BKJD  
Rp/R\* = 0.0197 [0.0081]  
a/R\* = 17.30 [27.07]  
b = 0.85 [0.53]  
Seff = 164.77 [169.20]  
Teq = 914 [235] K  
Rp = 3.59 [2.51] Re  
a = 0.1017 [0.0616] AU  
Ag = 16.37 [23.01] [0.67σ]  
Teffp = 2841 [694] K [2.63σ]

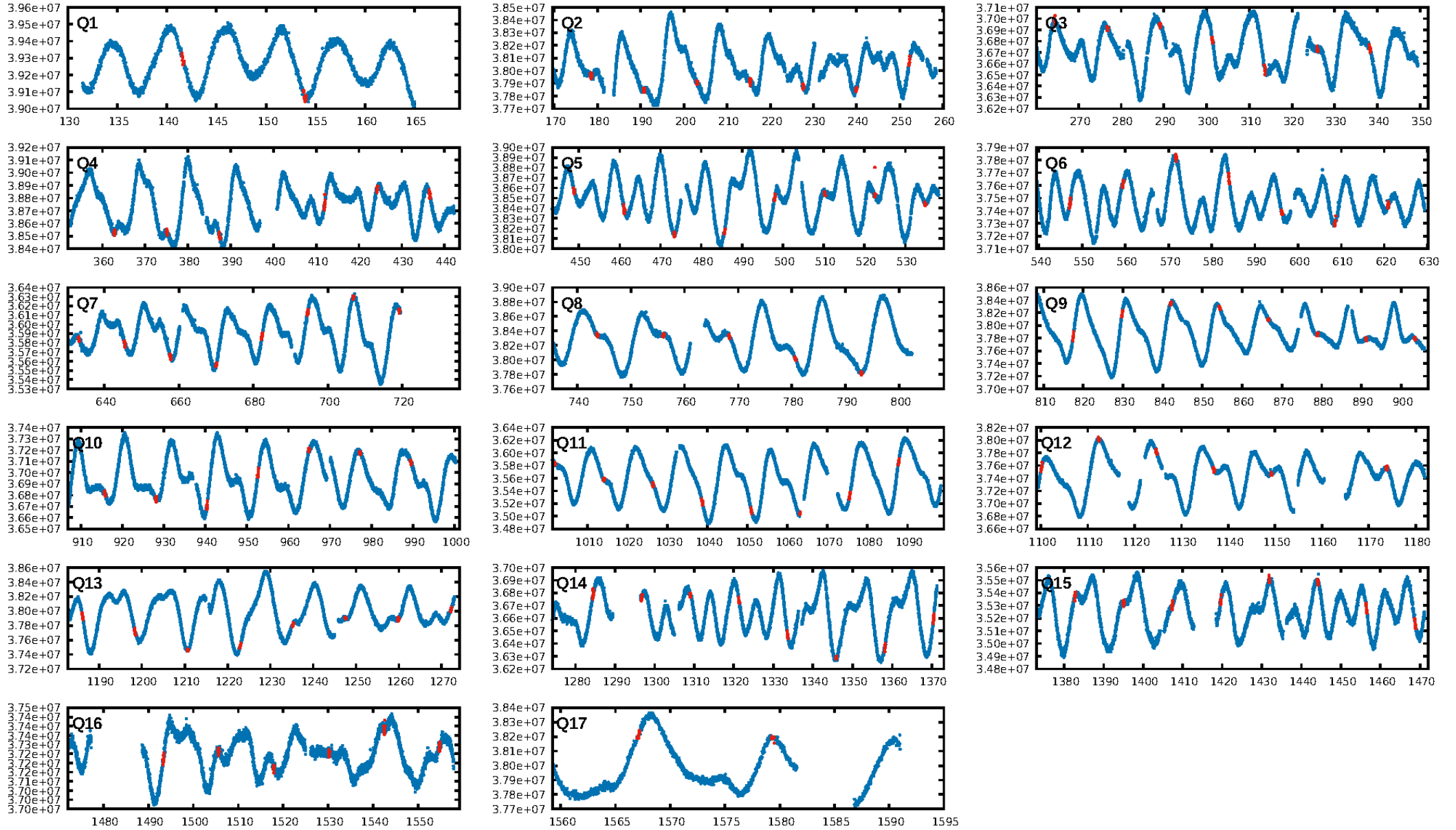
## DV Diagnostic Results:

ShortPeriod-sig: N/A  
LongPeriod-sig: N/A  
ModelChiSquare2-sig: 99.4%  
ModelChiSquareGof-sig: 100.0%  
Bootstrap-pfa: 4.45e-63  
RollingBand-fgt: 1.00 [107/107]  
GhostDiagnostic-chr: 3.166  
Centroid-sig: N/A  
Centroid-so: 2.137 arcsec [3.33σ]  
OotOffset-rm: 0.236 arcsec [0.57σ]  
KicOffset-rm: 0.301 arcsec [0.74σ]  
OotOffset-st: 4/4/4/5 [17]  
KicOffset-st: 4/4/4/5 [17]  
DiffImageQuality-fgm: 0.82 [14/17]  
DiffImageOverlap-fno: 1.00 [17/17]

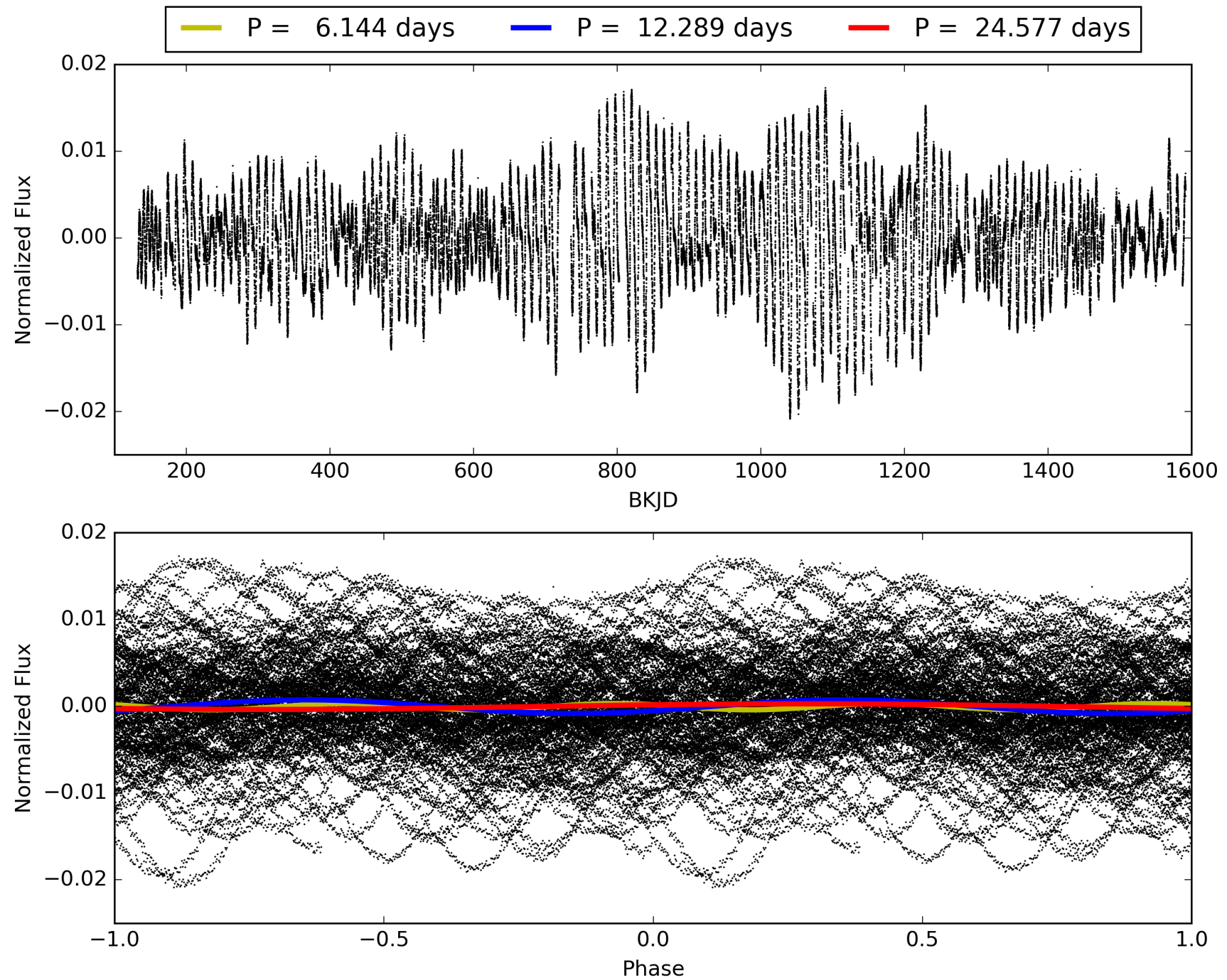
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 29-Jan-2016 21:23:51 Z

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

# TCE 008591173-01, PDC Light Curves

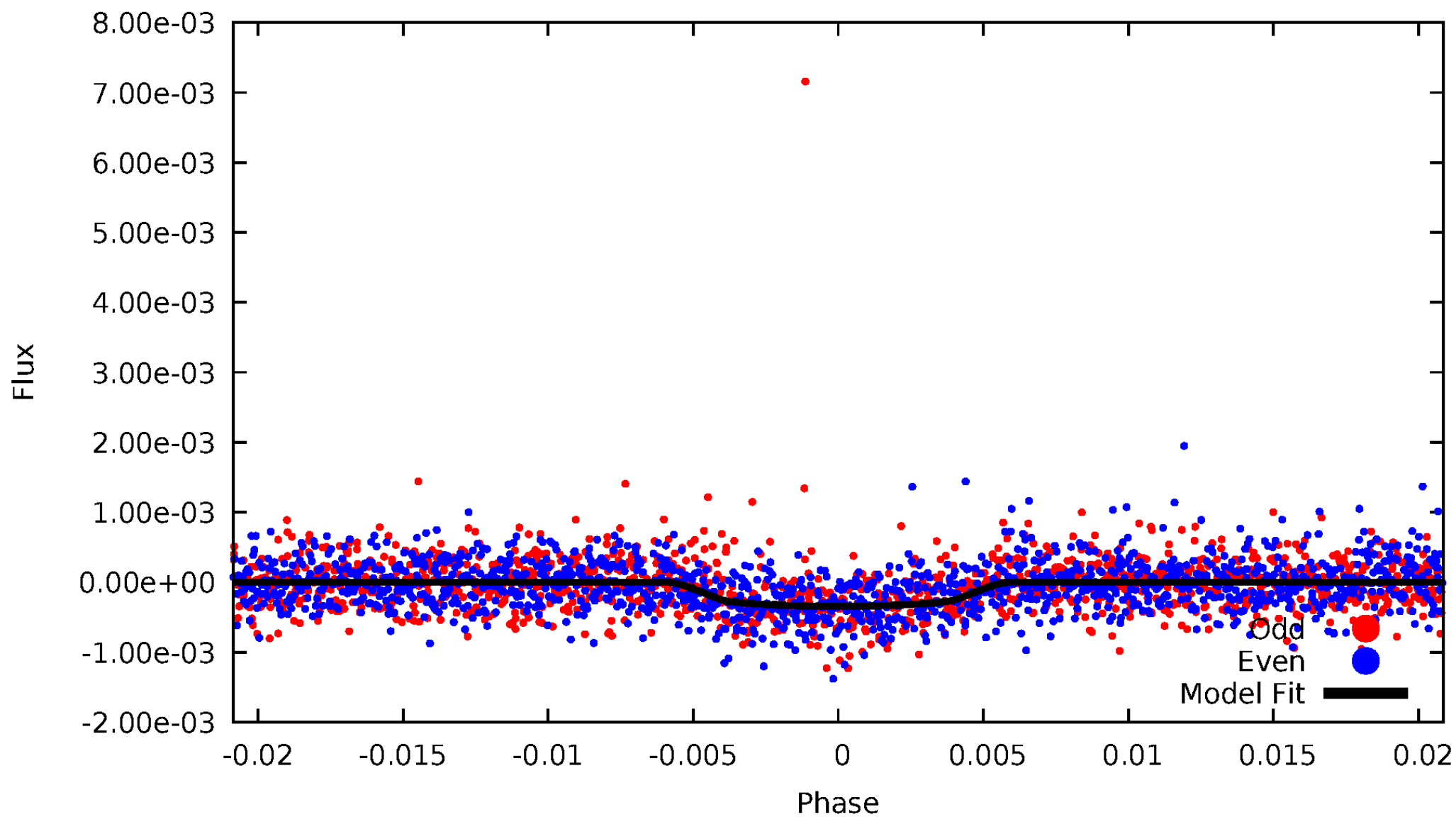


TCE 008591173-01



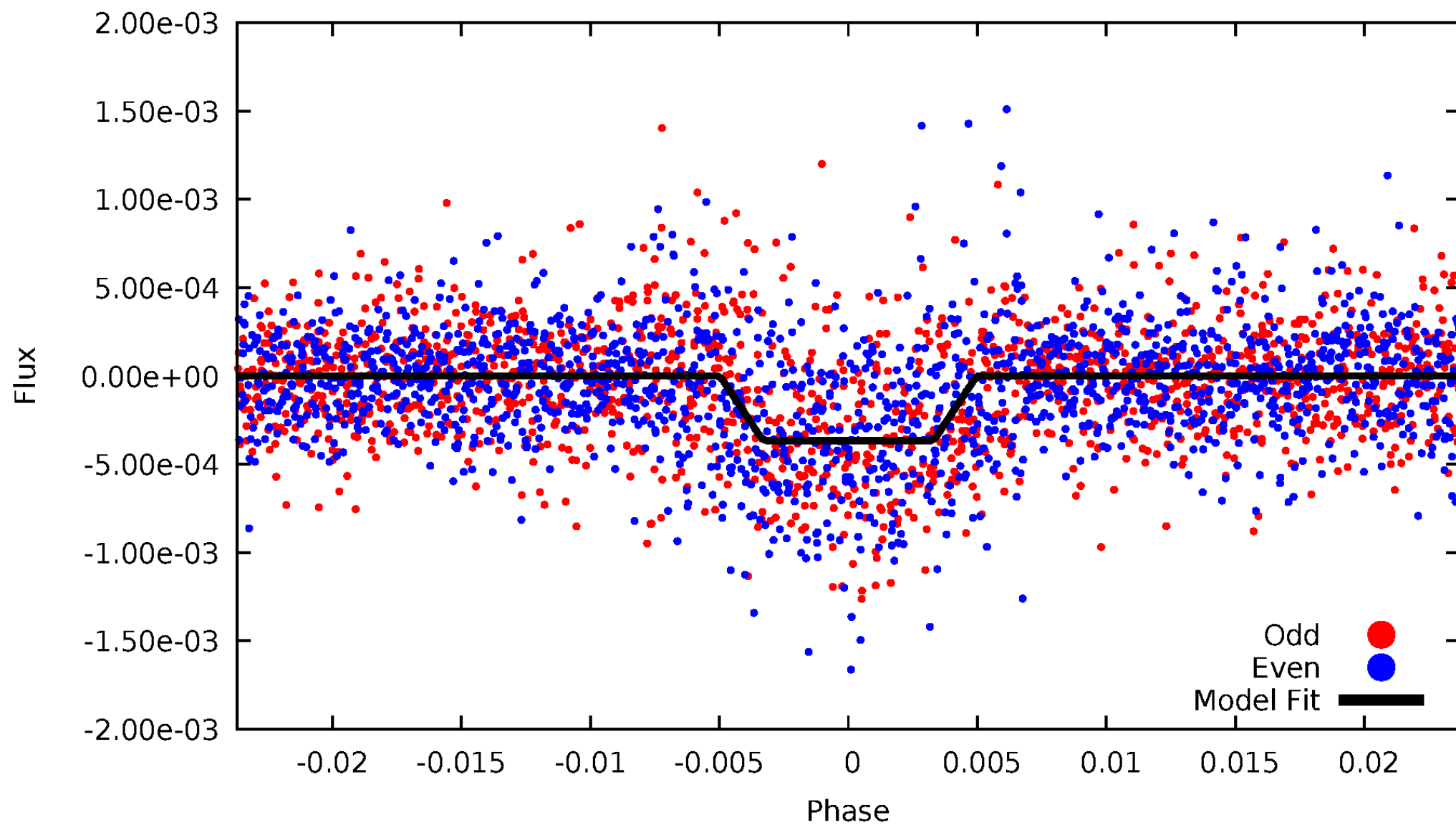
# DV Odd/Even

TCE 008591173-01



# ALT Odd/Even

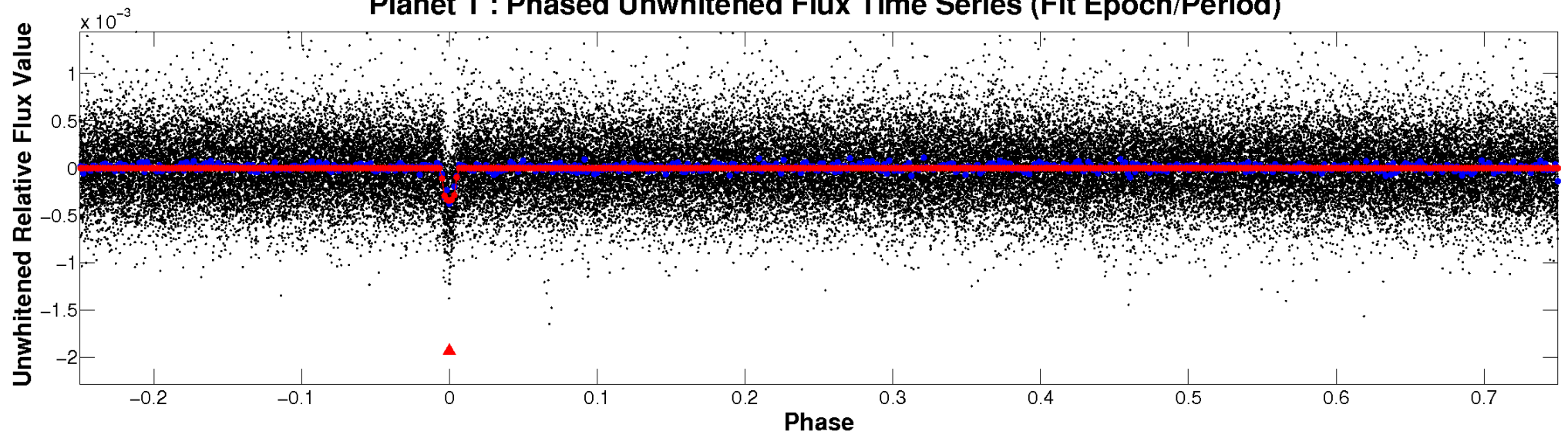
TCE 008591173-01



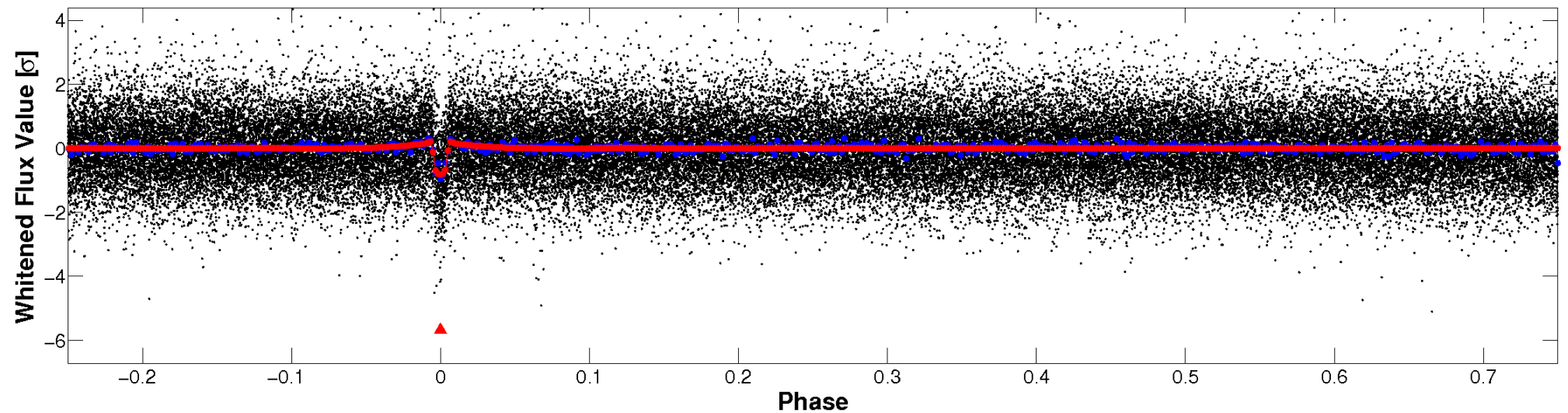


# Non-Whitened Vs. Whitened Light Curve

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

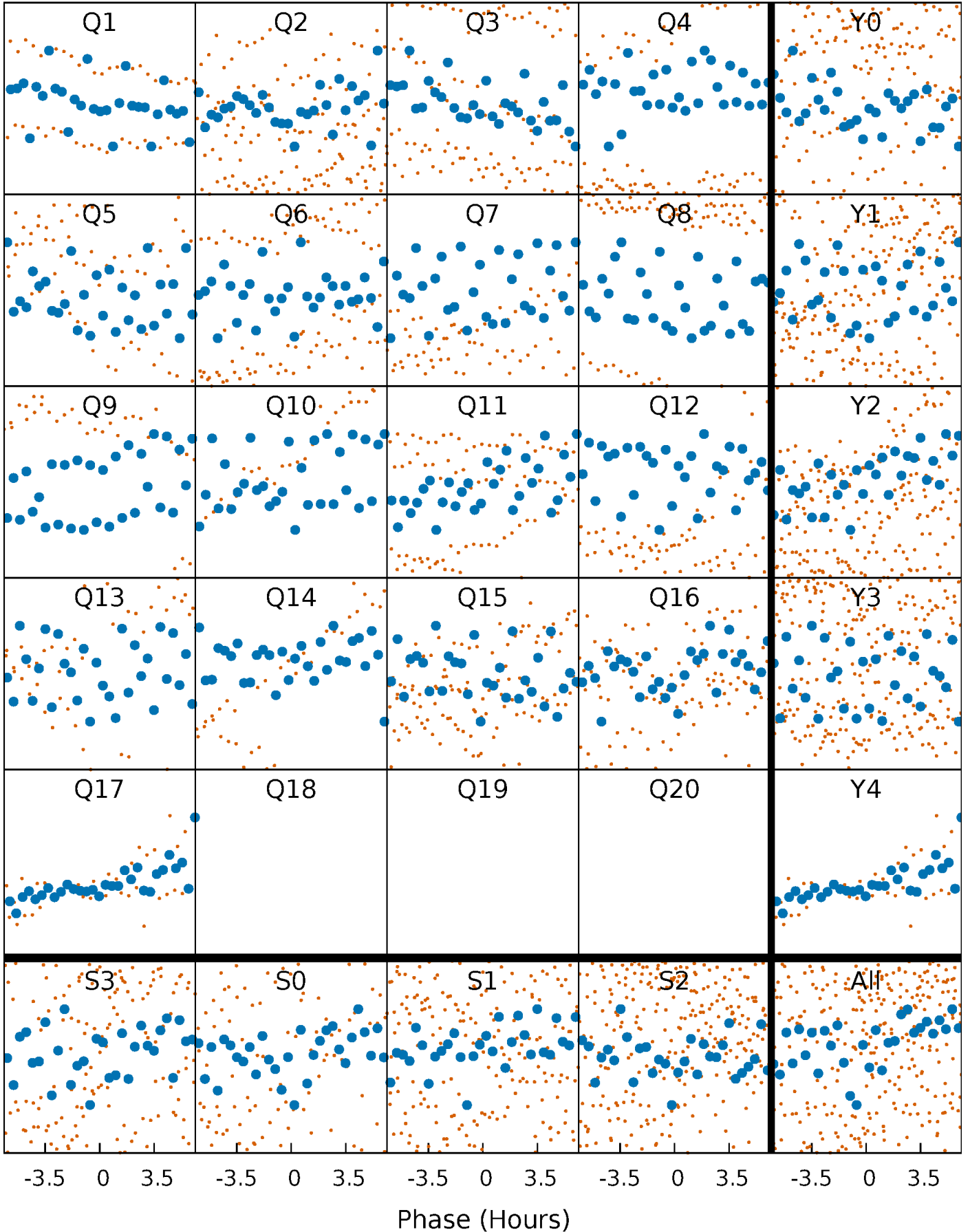


**Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)**



# PDC Quarter-Phased Transit Curves

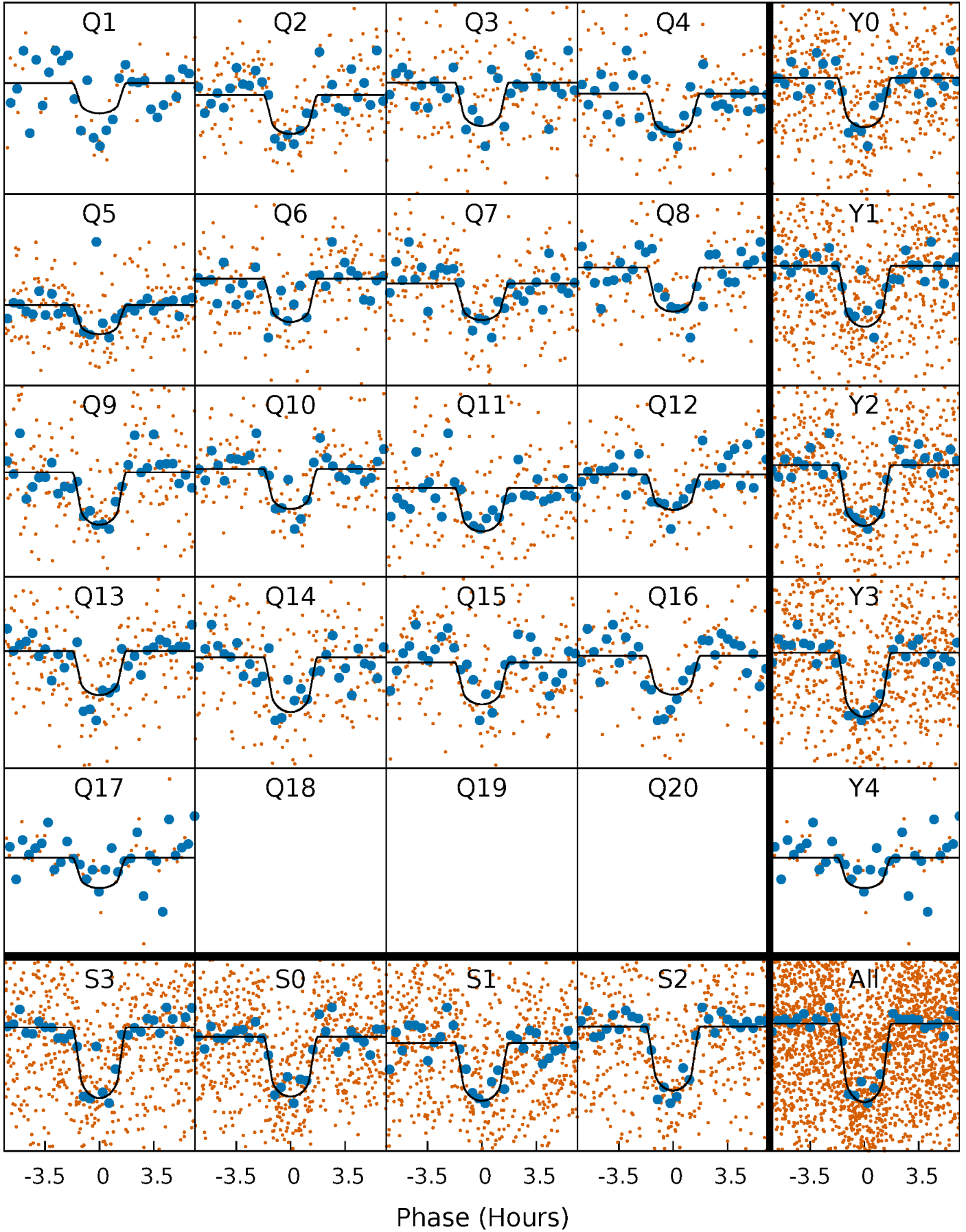
TCE 008591173-01 P= 12.288520 Days  $T_0=141.620146$  (BKJD)





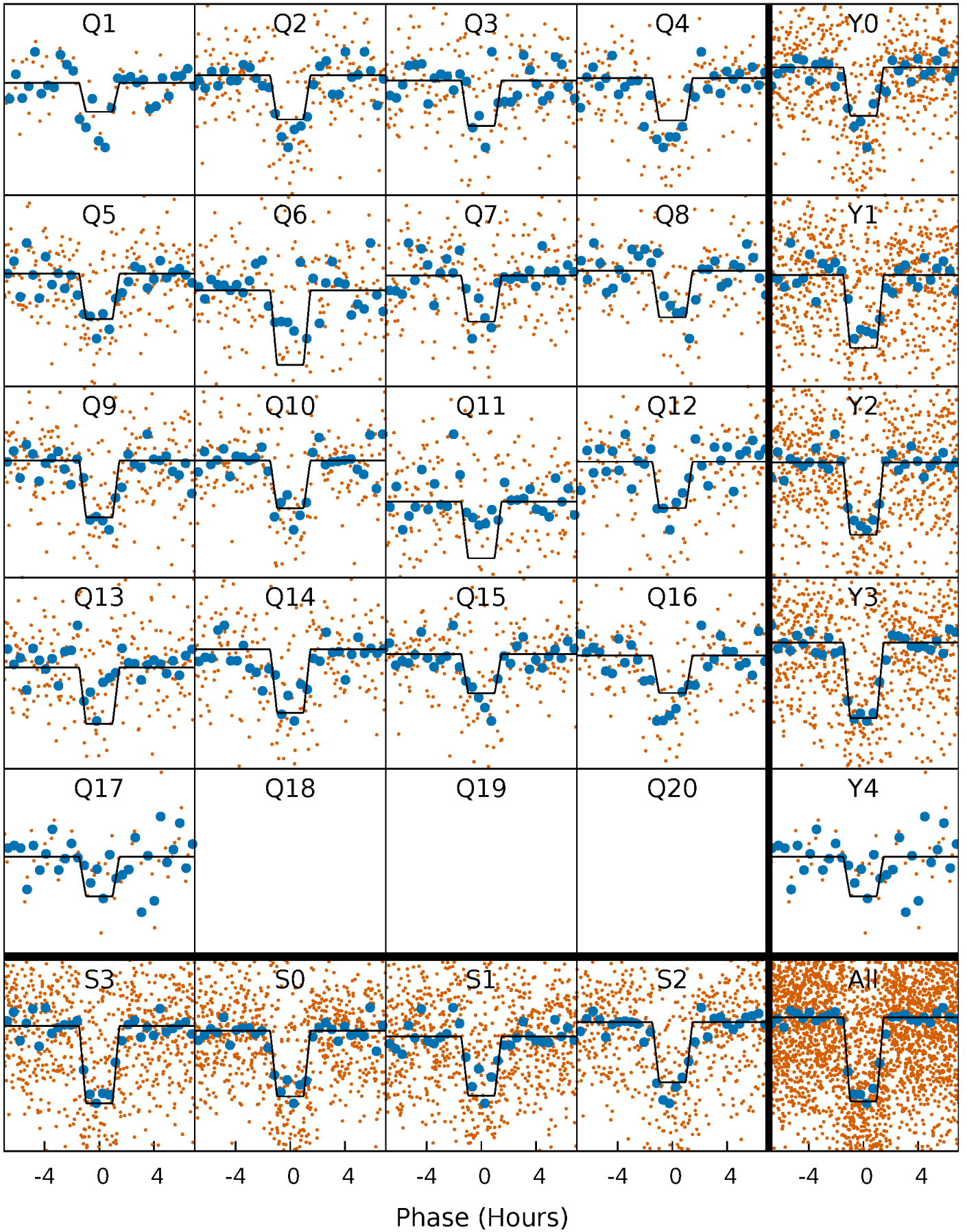
# DV Quarter-Phased Transit Curves

TCE 008591173-01 P= 12.288520 Days  $T_0=141.620146$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

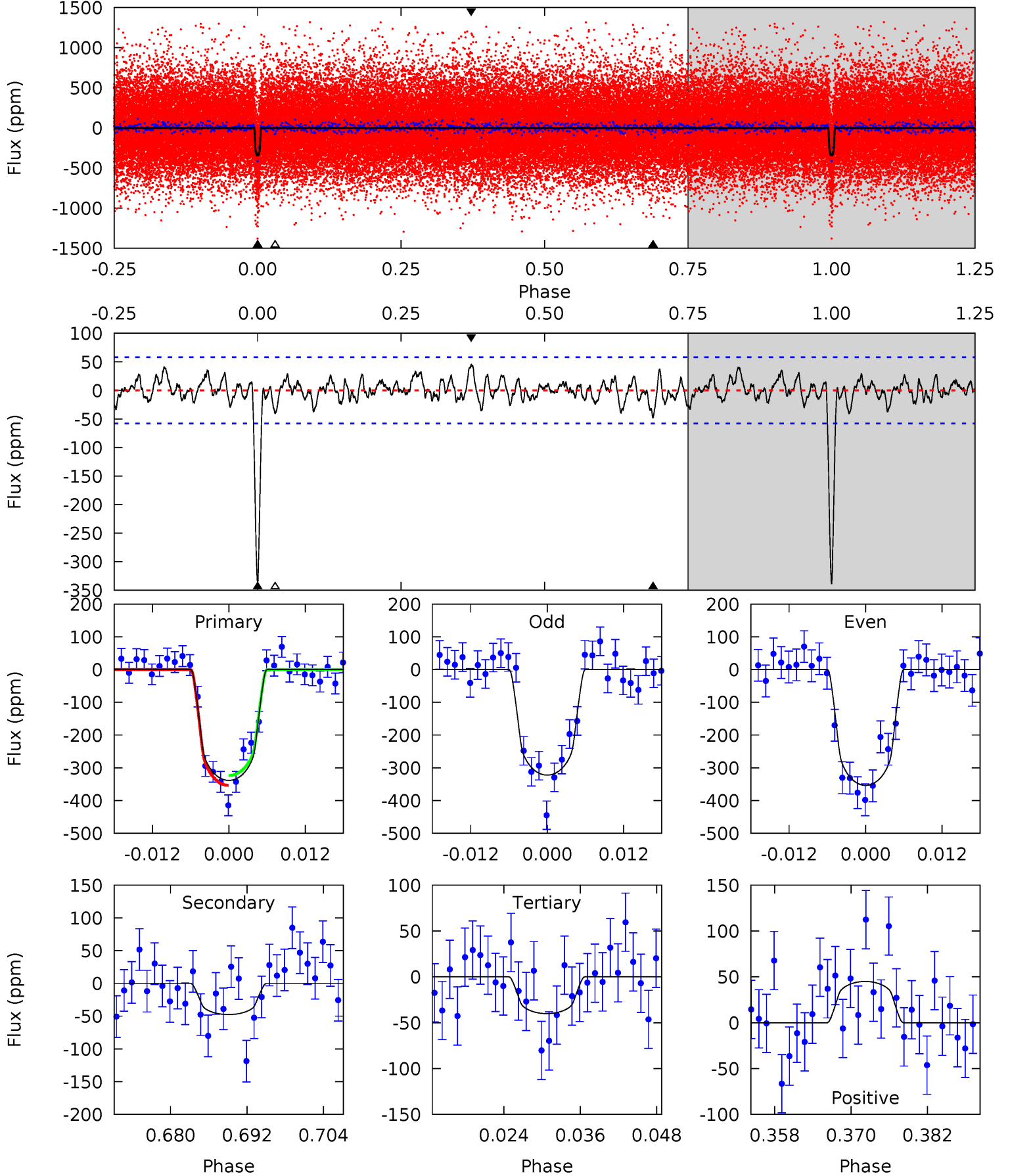
TCE 008591173-01 P= 12.288541 Days  $T_0=141.616391$  (BKJD)



# DV Model-Shift Uniqueness Test

008591173-01,  $P = 12.288520$  Days,  $E = 129.331626$  Days

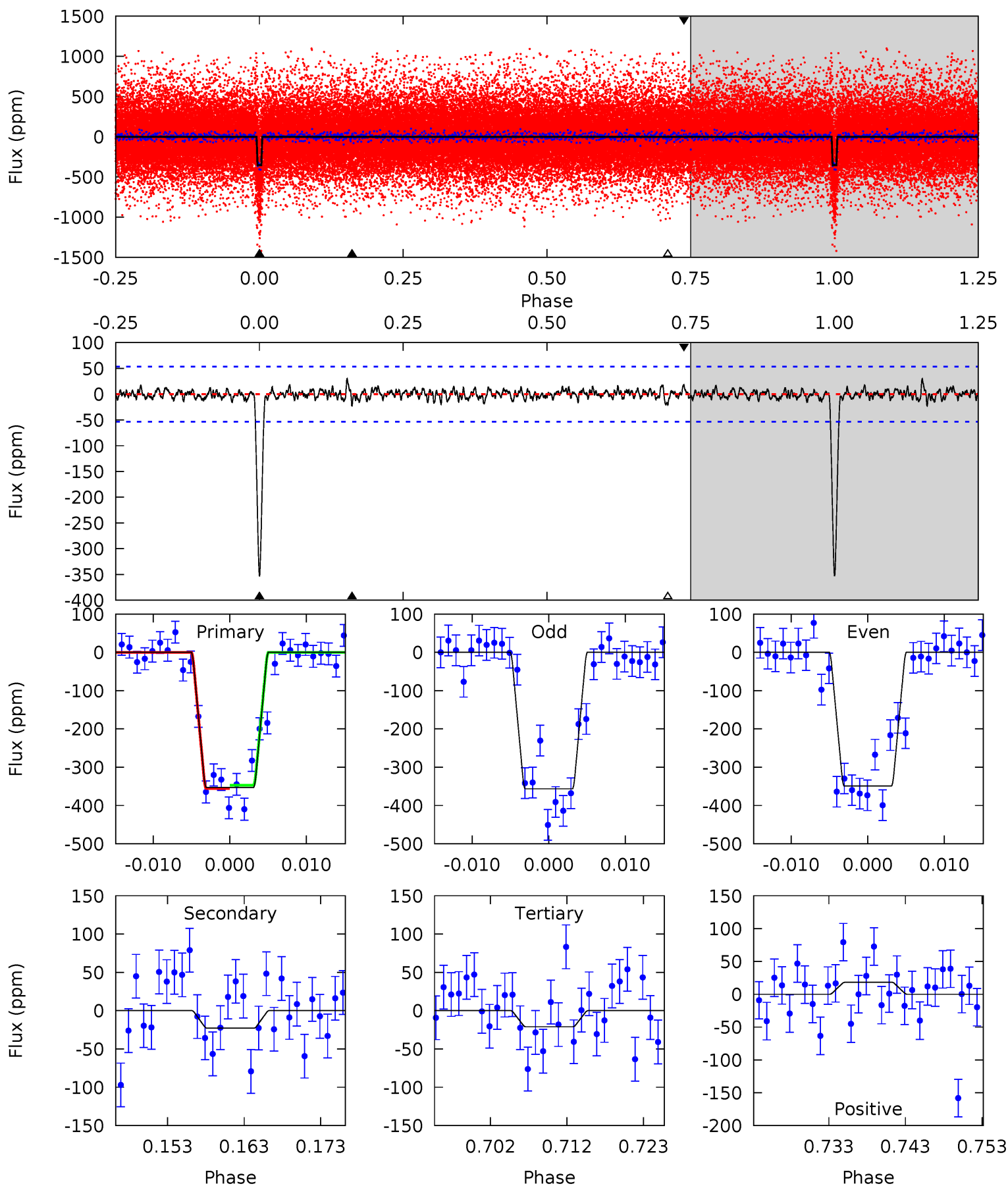
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
29.2	4.10	3.46	3.87	4.99	2.51	1.29	25.7	25.3	0.65	0.23	1.35	0.89	0.12	1.30



# Alt Model-Shift Uniqueness Test

008591173-01, P = 12.288541 Days, E = 129.327850 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
33.2	2.14	1.98	1.71	5.02	2.57	0.64	31.2	31.5	0.16	0.43	0.35	1.03	0.08	0.40



### Stellar Parameters For KIC 008591173

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R$ ( $R_{\odot}$ )	$M(M_{\odot})$	$p_{\star}$ ( $\text{g}\cdot\text{cm}^{-3}$ )
	$5109^{+169}_{-138}$	$3.960^{+0.616}_{-0.264}$	$0.100^{+0.250}_{-0.250}$	$1.671^{+0.775}_{-0.947}$	$0.929^{+0.103}_{-0.126}$	$0.280^{+2.004}_{-0.195}$
	+3%/-3%	+16%/-7%	+250%/-250%	+46%/-57%	+11%/-14%	+715%/-70%
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 008591173-01 / KOI 2181.01

Detrend	Depth (ppm)	$R_p$ ( $R_{\oplus}$ )	$T_{\text{max}}$ (K)	$T_{\text{obs}}$ (K)	$A_{\text{obs}}$
DV	$-48 \pm 12$	$3.25^{+2.02}_{-1.57}$	$1264^{+149}_{-199}$	$3463^{+790}_{-369}$	$24^{+69}_{-15}$
Alt.	$-23 \pm 11$	$3.23^{+1.93}_{-1.51}$	$1257^{+156}_{-199}$	$3081^{+557}_{-366}$	$11^{+28}_{-7}$

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



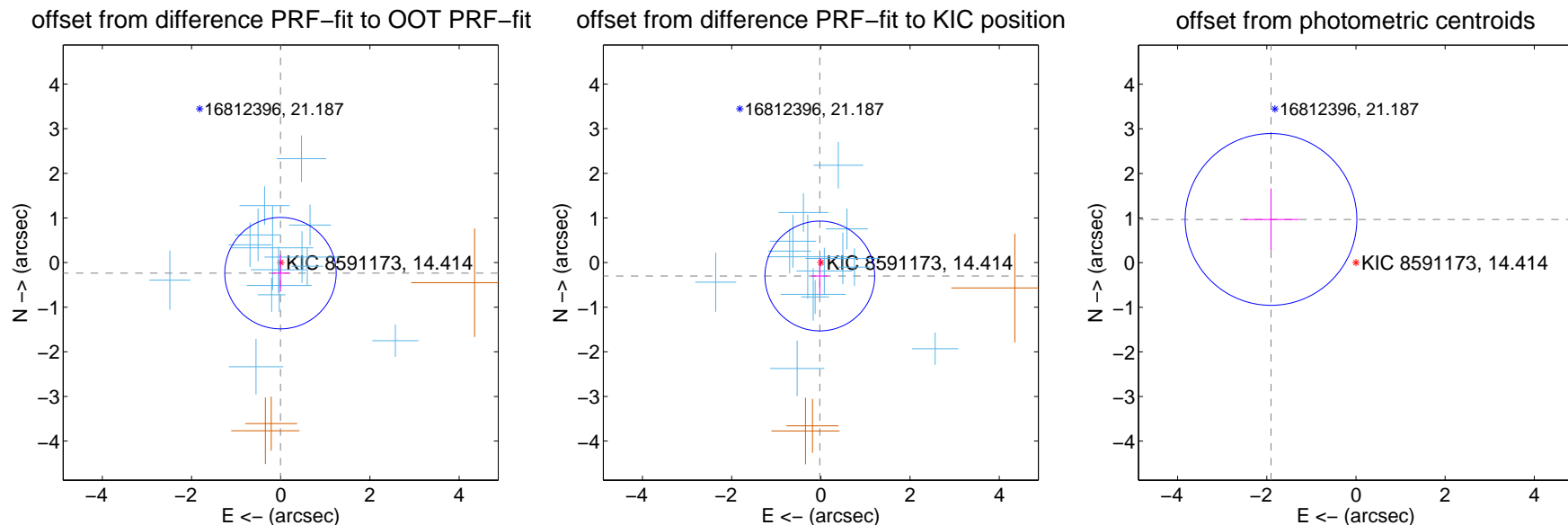
## DV Centroid Data

Supplemental centroid analysis for 008591173-01. Kepler magnitude: 14.41. Transit SNR 18.33

There are 14 quarters with good PRF difference image offsets

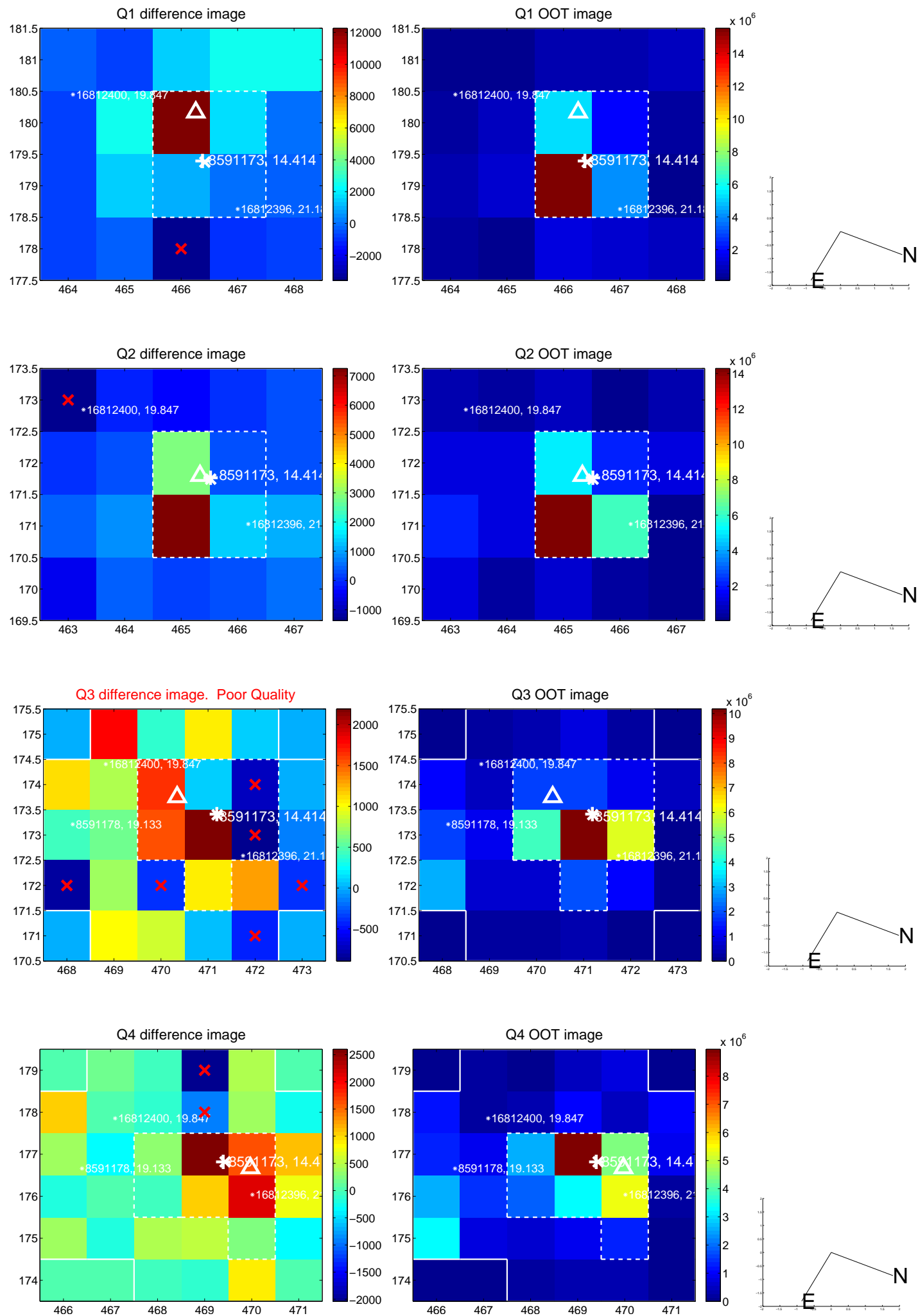
The direct PRF centroid is offset from the target star catalog position by about 0.12 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$0.236 \pm 0.416$	0.57	$0.006 \pm 0.199$	$-0.236 \pm 0.416$
PRF-fit source offset from KIC position	$0.301 \pm 0.410$	0.74	$0.024 \pm 0.189$	$-0.300 \pm 0.411$
photometric centroid source offset	$2.14 \pm 0.64$	<b>3.33</b>	$1.91 \pm 0.63$	$0.97 \pm 0.70$

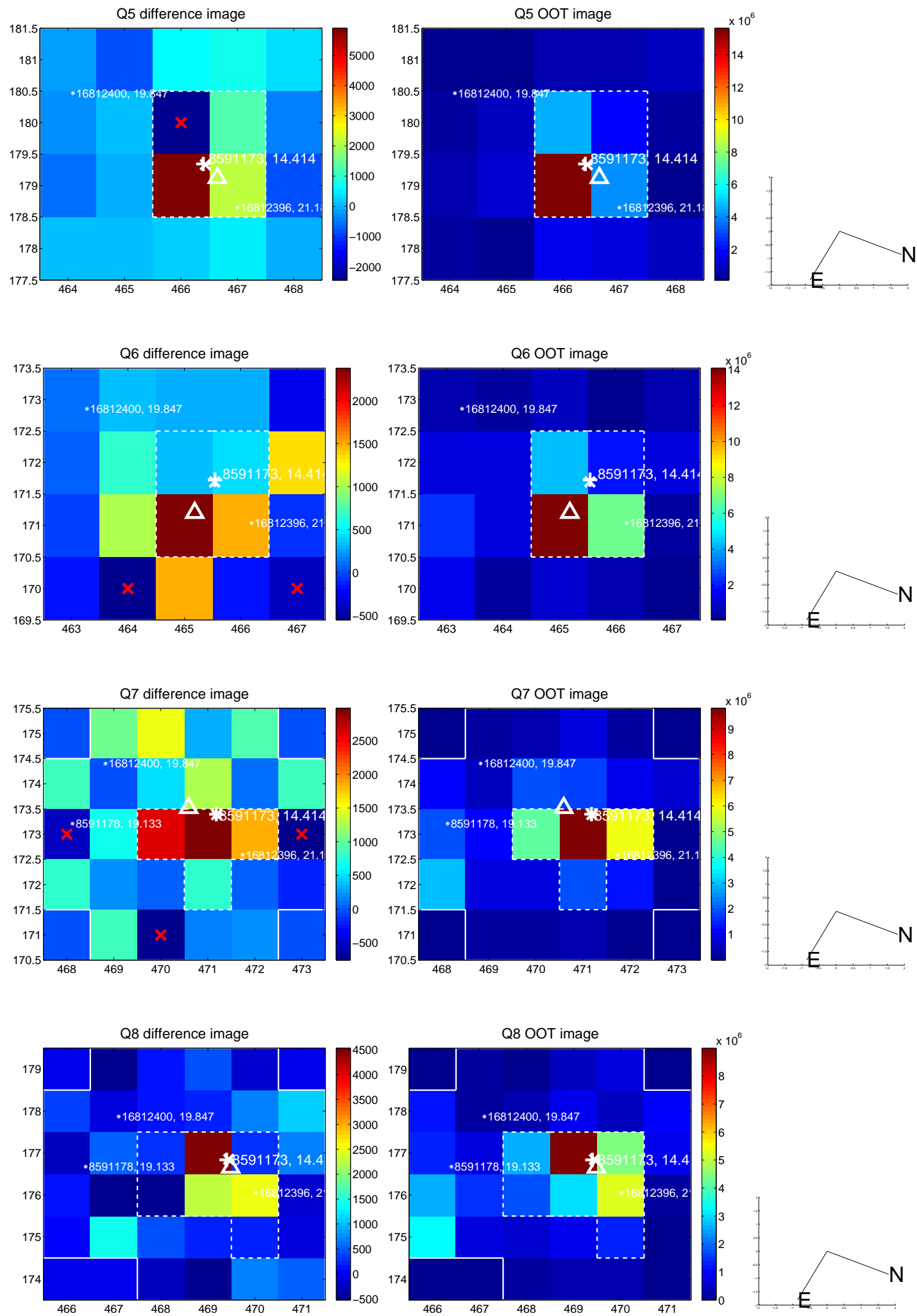


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: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

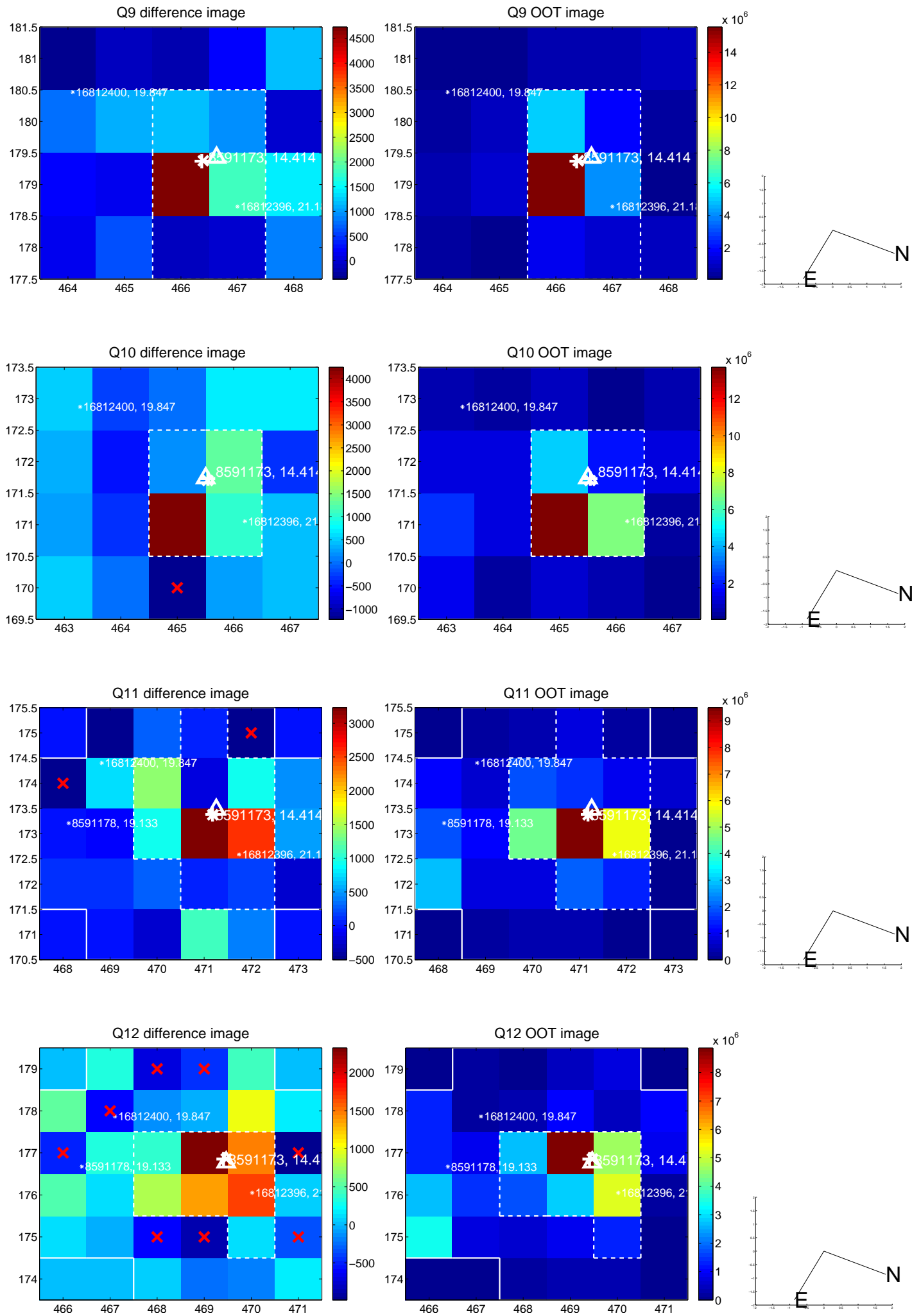
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



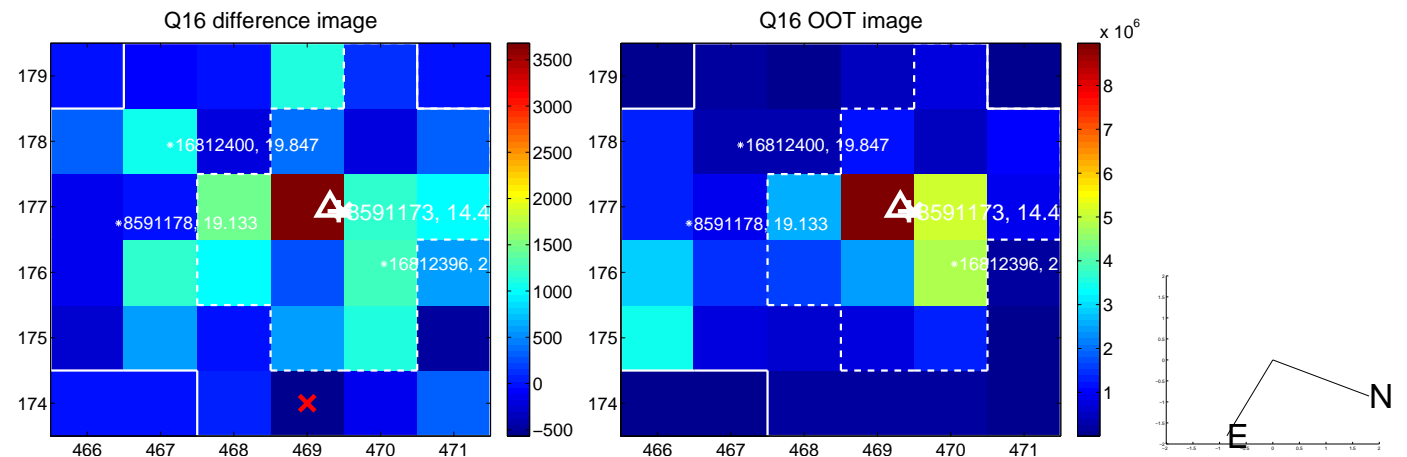
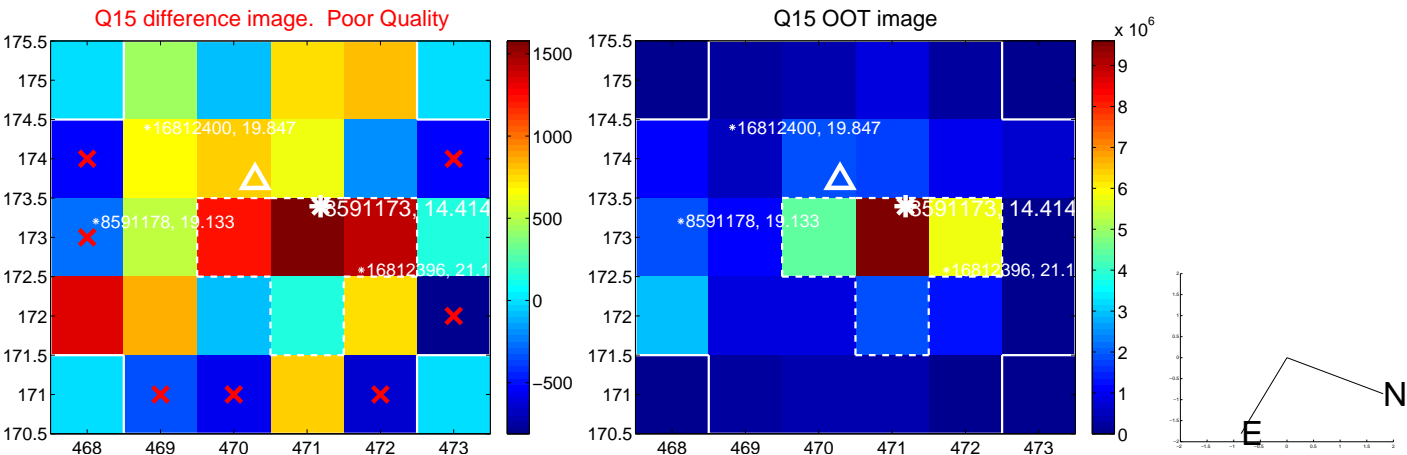
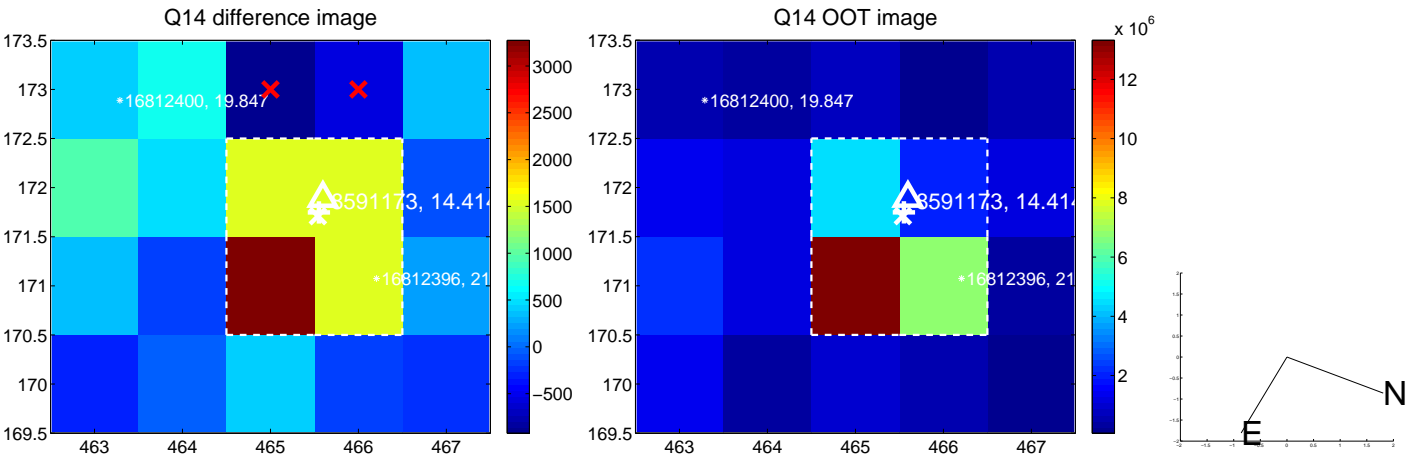
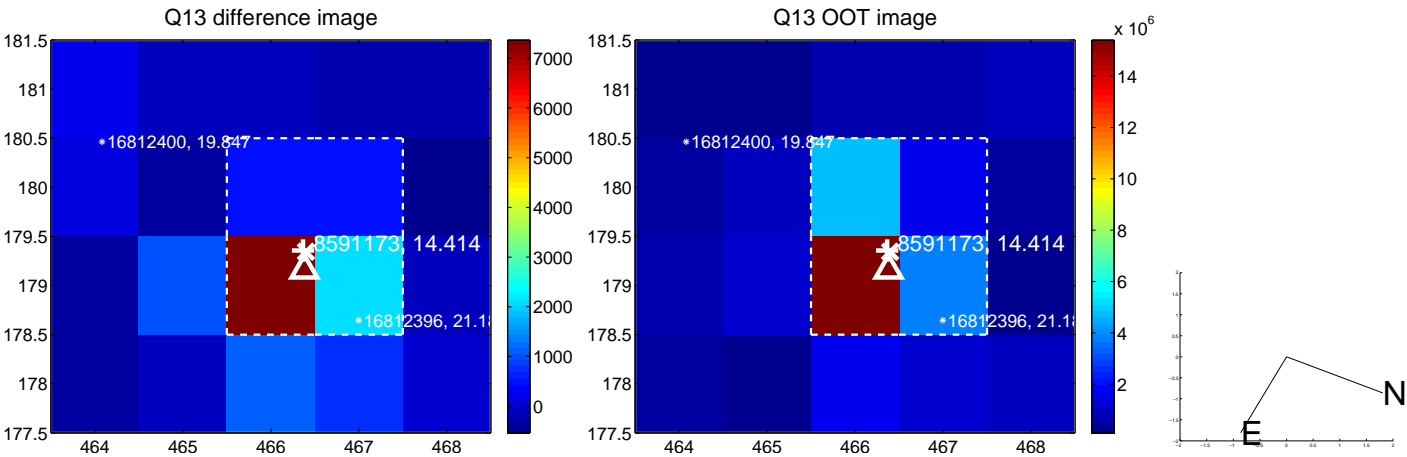
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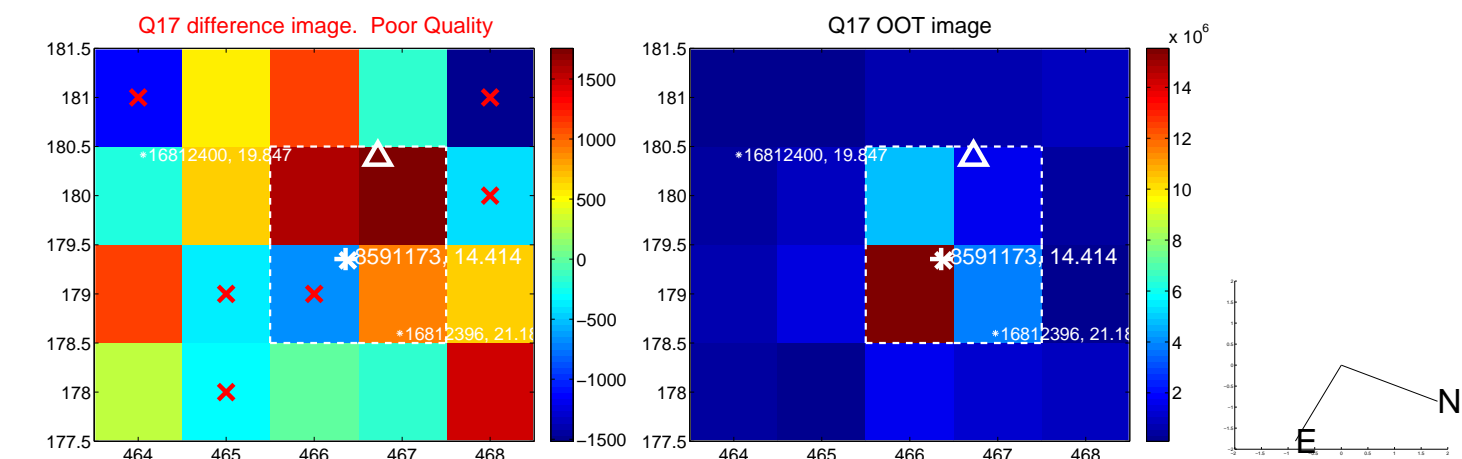


white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.

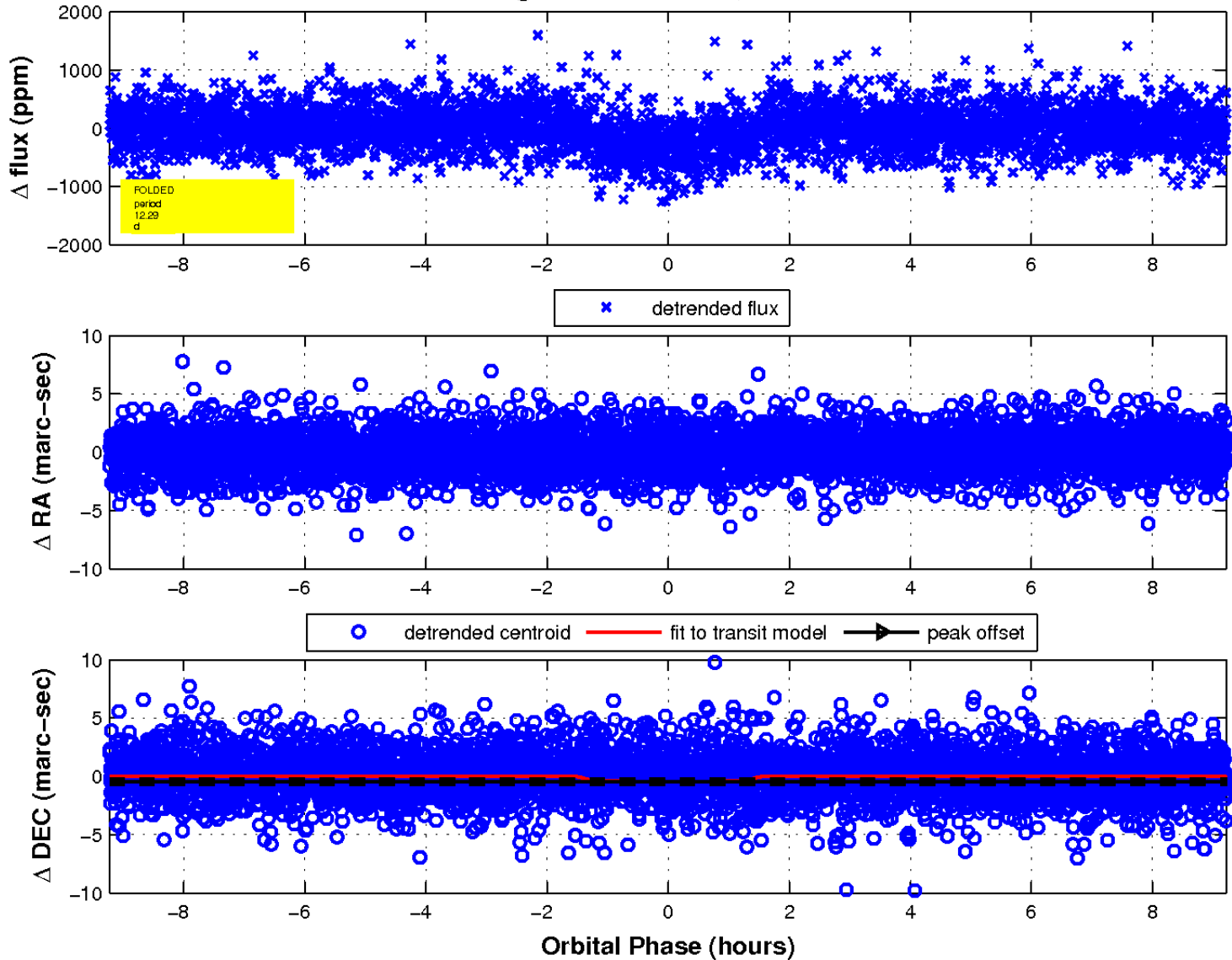




white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



fluxWeightedCentroids, Planet 1 of 1



UKIRT Image

