

# KIC 007700622

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
007700622-01	OBS	0315.01	35.581033	153.480209	941.4	4.386	73.6	83.8	0.68	4894	2.42	6.56

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
007700622-01	OBS	PC	1.00	0	0	0	0	CENT_KIC_POS

**Notes:** OBS = Observed. INJ = Injected. INV = Inverted. SCR = Scrambled.

N = Not Transit-Like. S = Stellar Eclipse. C = Centroid Offset. E = Ephemeris Match.

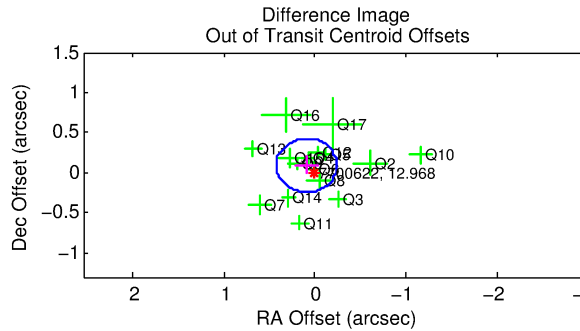
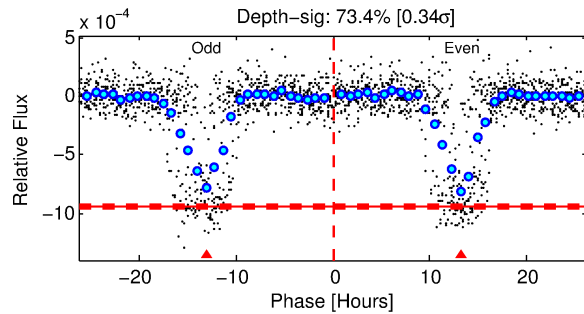
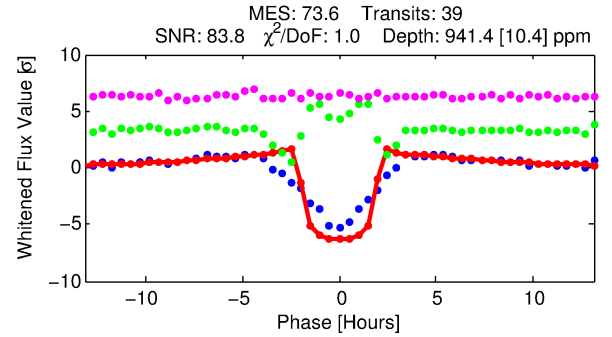
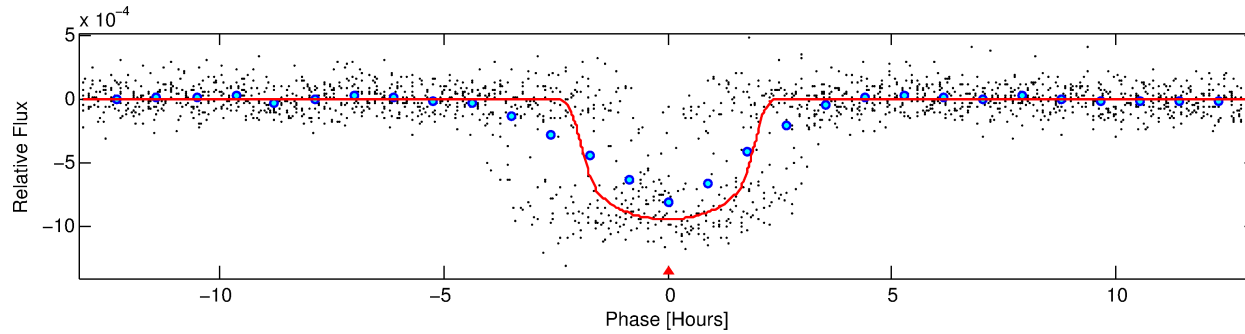
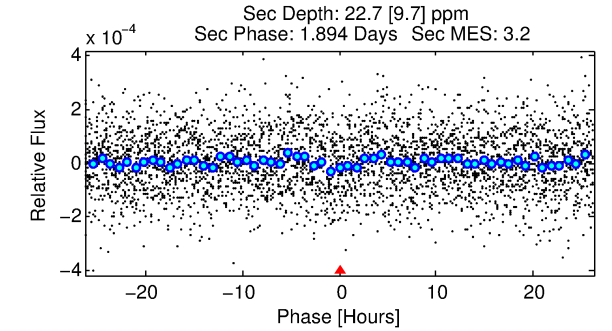
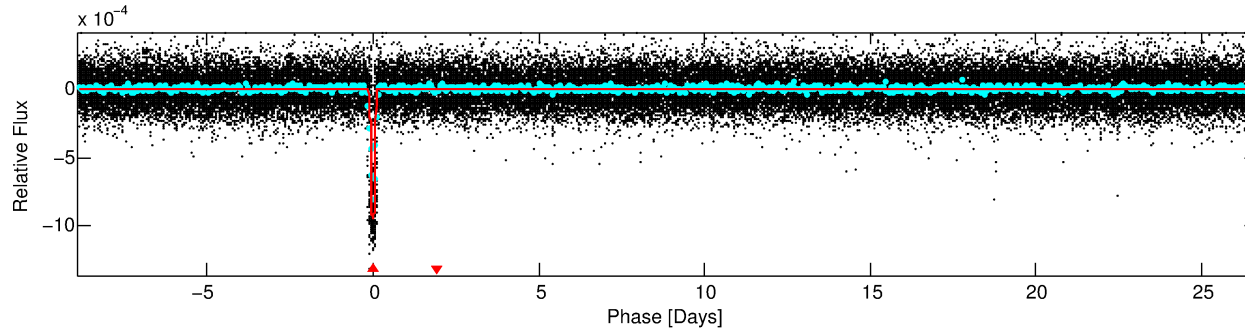
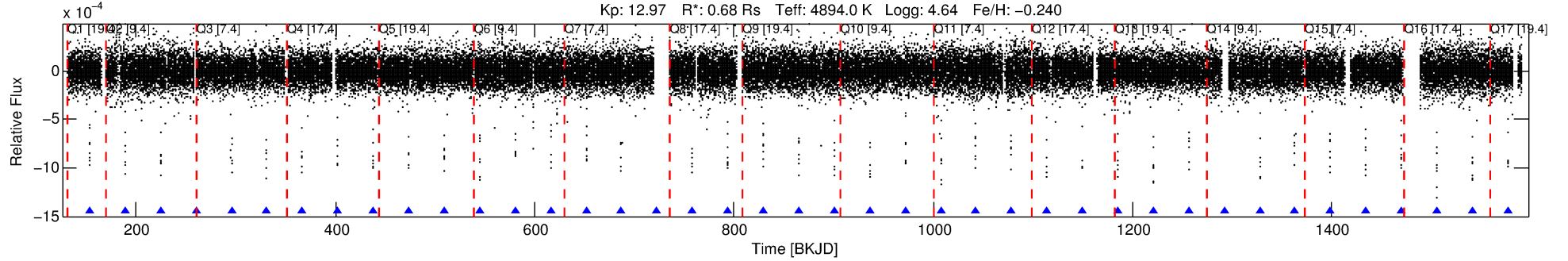
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

## Ephemeris Match Information For 007700622-01

No Significant Match Found

# DV One-Page Summary

KIC: 7700622 Candidate: 1 of 1 Period: 35.581 d  
KOI: K00315.01 Corr: 0.827



## DV Fit Results:

Period = 35.58103 [0.00004] d  
Epoch = 153.4802 [0.0009] BKJD  
Rp/R\* = 0.0324 [0.0012]  
a/R\* = 37.09 [4.74]  
b = 0.84 [0.05]  
Seff = 6.56 [0.72]  
Teq = 408 [11] K  
Rp = 2.42 [0.17] Re  
a = 0.1915 [0.0098] AU  
Ag = 78.10 [34.29] [2.25σ]  
Teffp = 1875 [206] K [7.11σ]

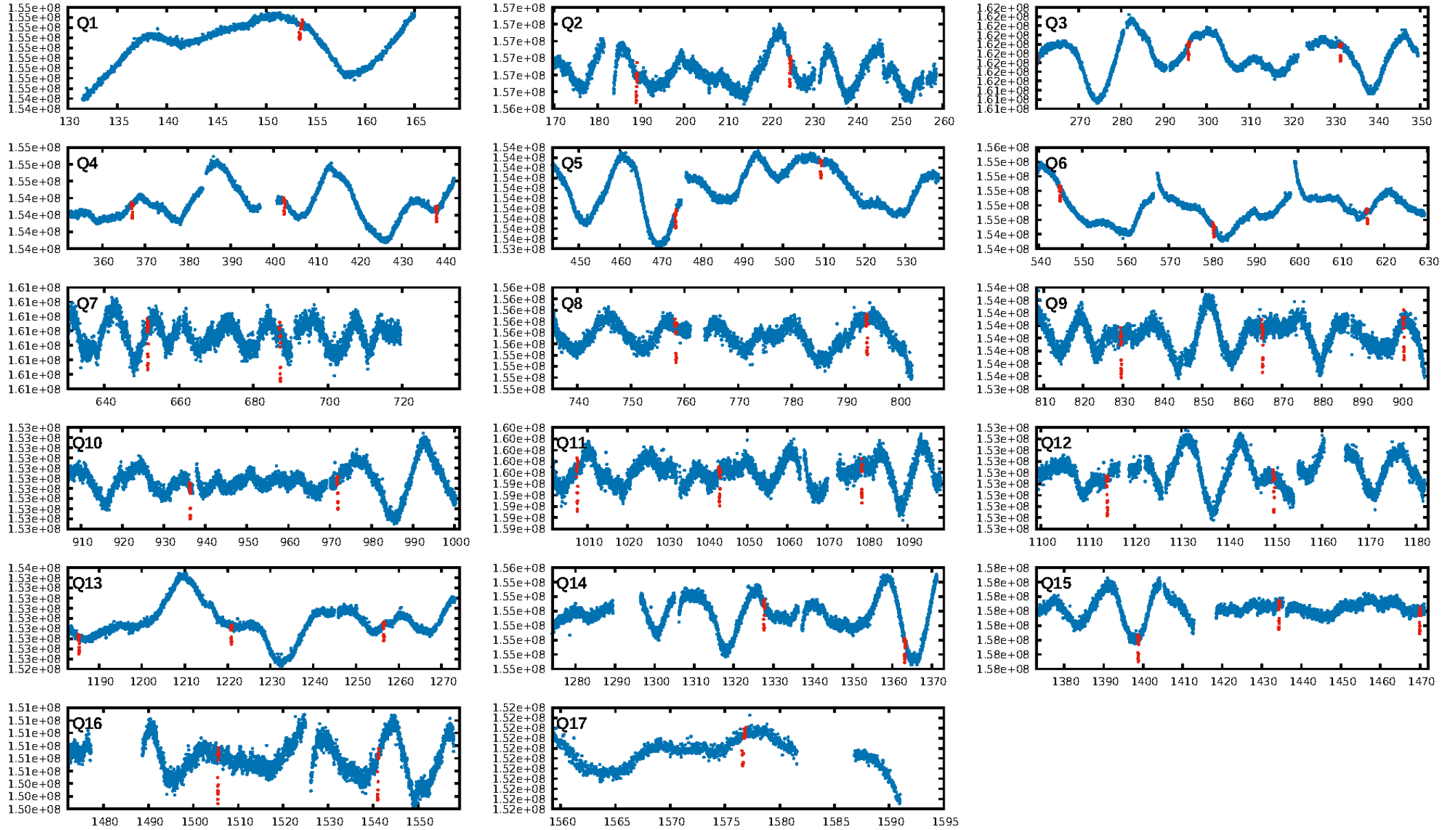
## DV Diagnostic Results:

ShortPeriod-sig: N/A  
LongPeriod-sig: N/A  
ModelChiSquare2-sig: 81.1%  
ModelChiSquareGof-sig: 100.0%  
Bootstrap-pfa: 0.00e+00  
RollingBand-fgt: 1.00 [37/37]  
GhostDiagnostic-chr: 12.92  
Centroid-sig: 58.0%  
Centroid-so: 0.805 arcsec [8.85σ]  
OotOffset-rm: 0.130 arcsec [1.17σ]  
KicOffset-rm: 0.613 arcsec [5.82σ]  
OotOffset-st: 4/4/4/4 [16]  
KicOffset-st: 4/4/4/4 [16]  
DiffImageQuality-fgm: 1.00 [16/16]  
DiffImageOverlap-fno: 1.00 [17/17]

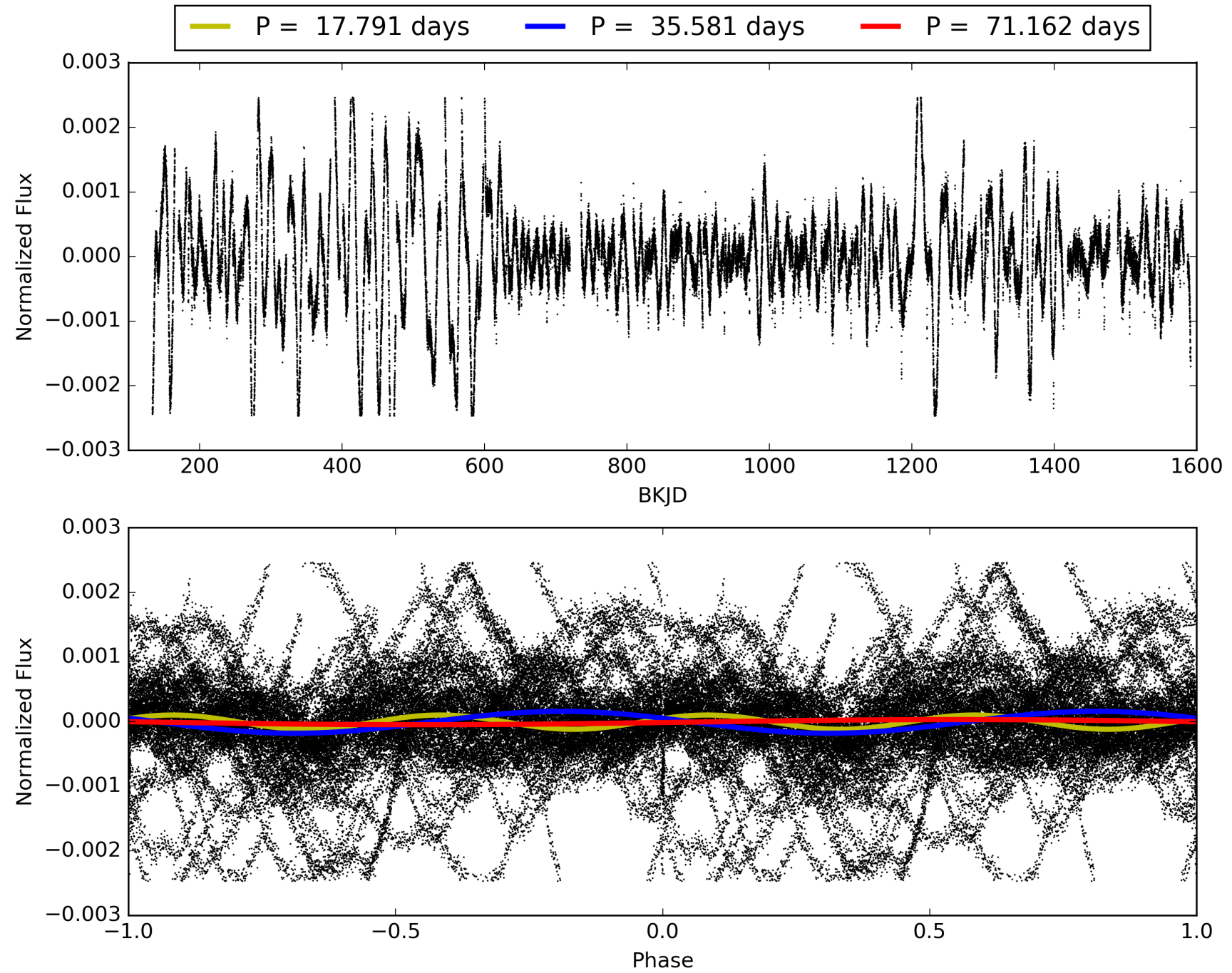
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 23:30:06 Z

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

# TCE 007700622-01, PDC Light Curves

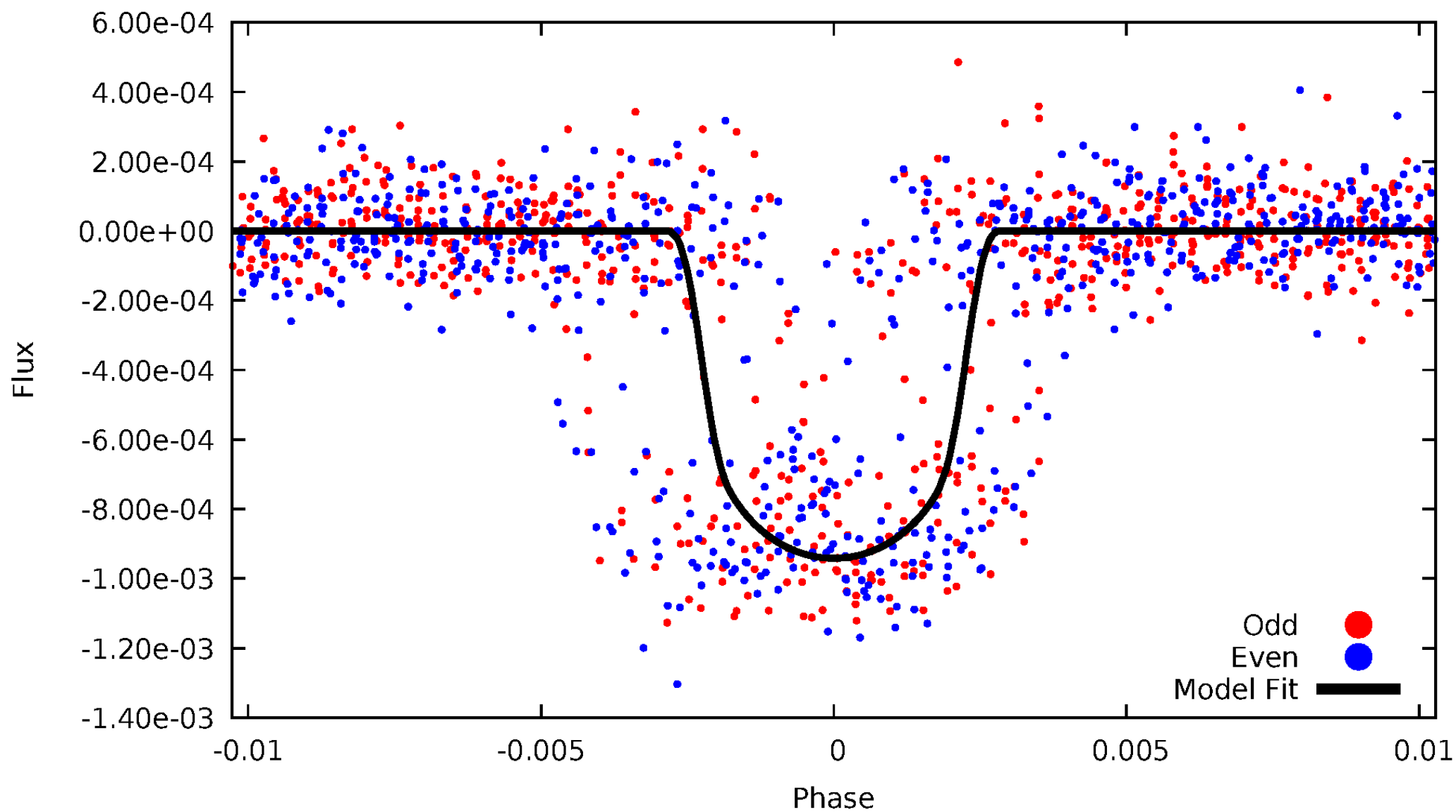


TCE 007700622-01



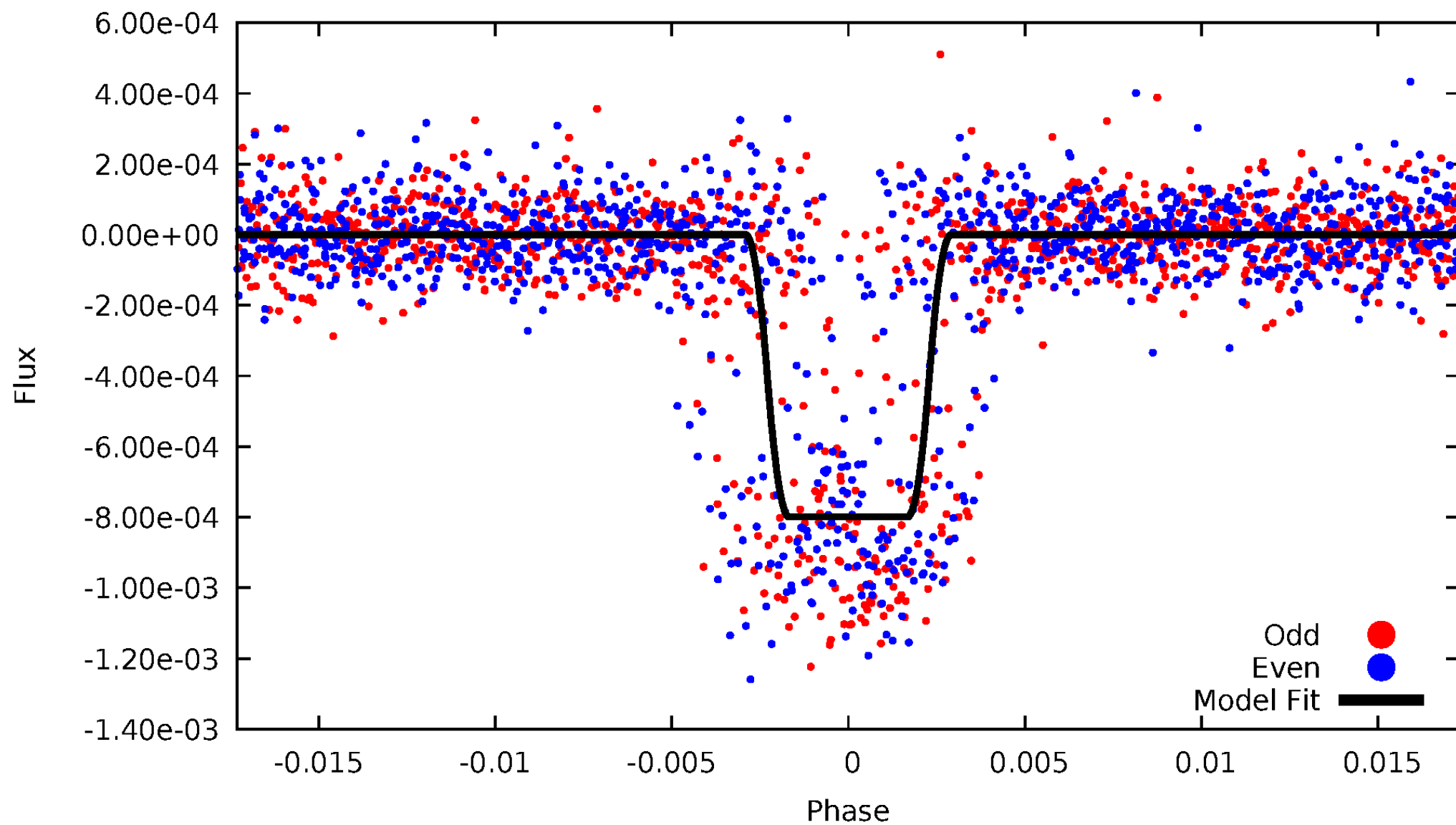
# DV Odd/Even

TCE 007700622-01



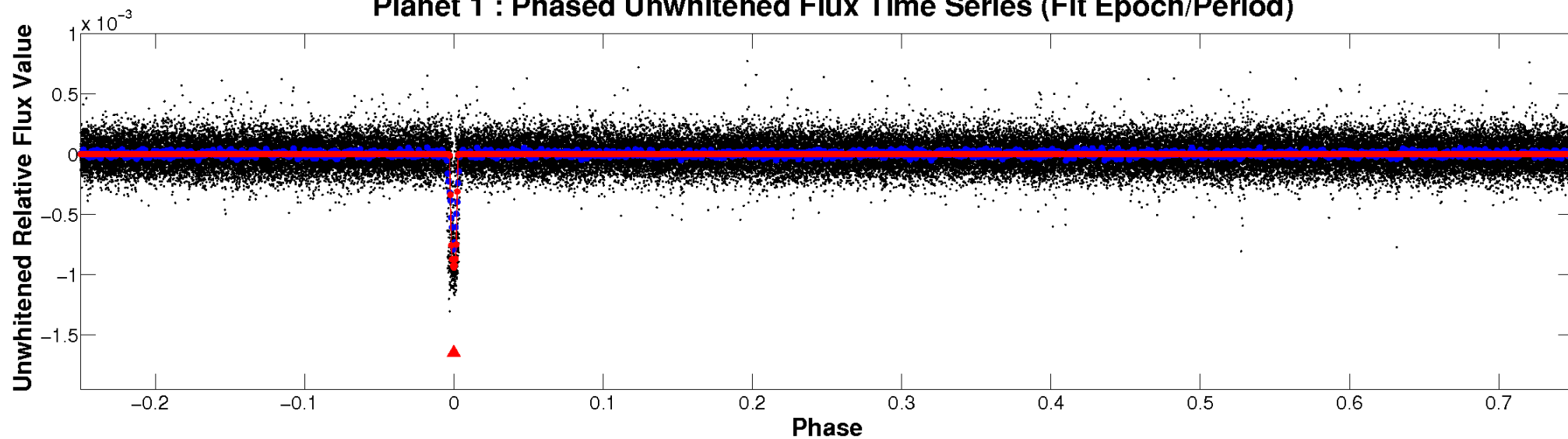
# ALT Odd/Even

TCE 007700622-01

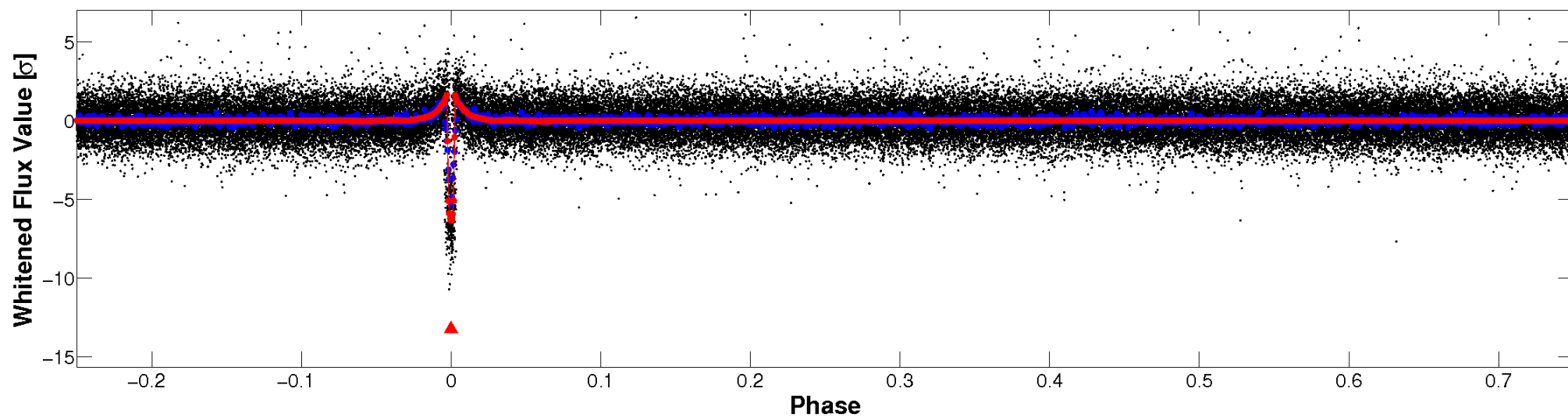


# Non-Whitened Vs. Whitened Light Curve

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

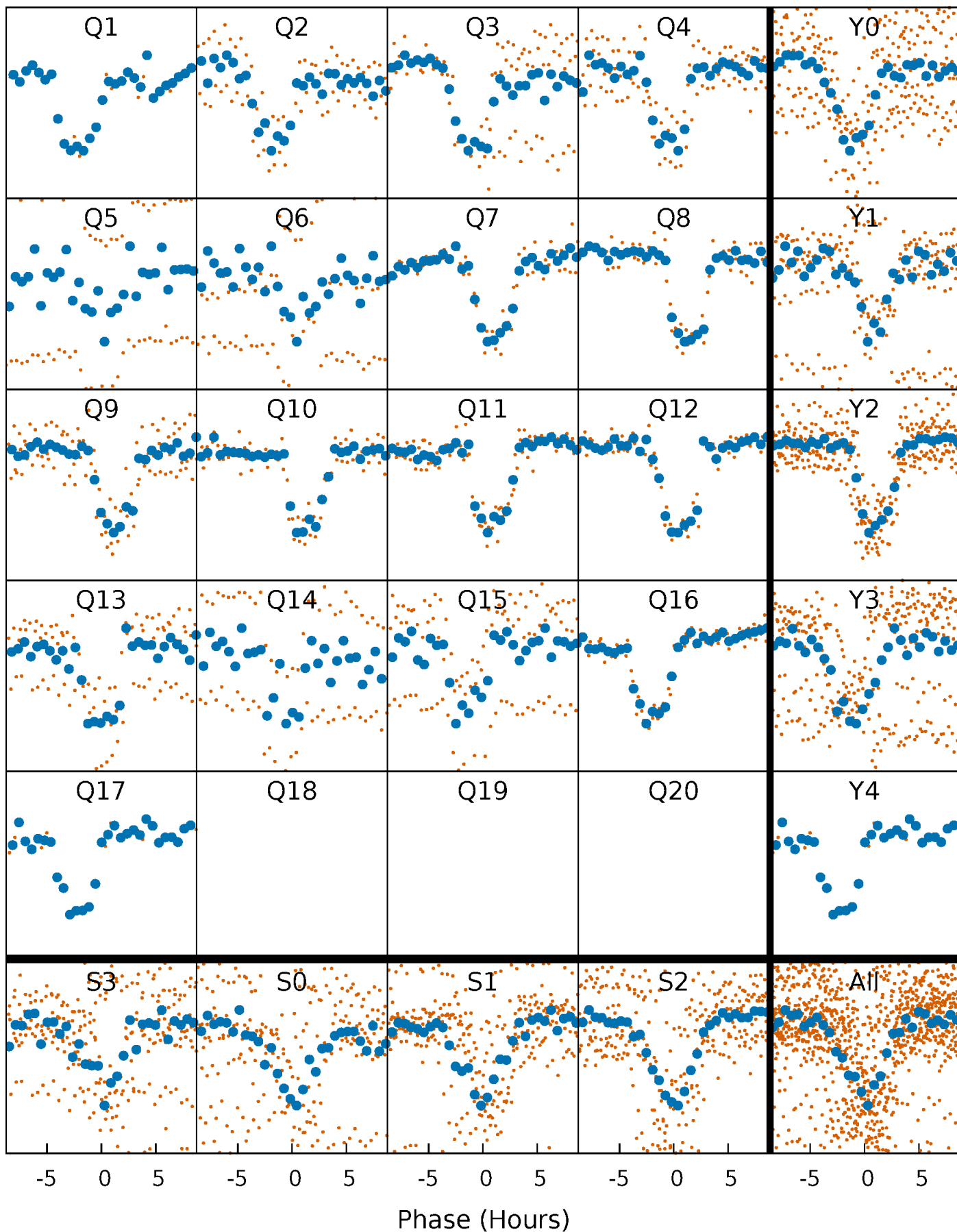


Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)



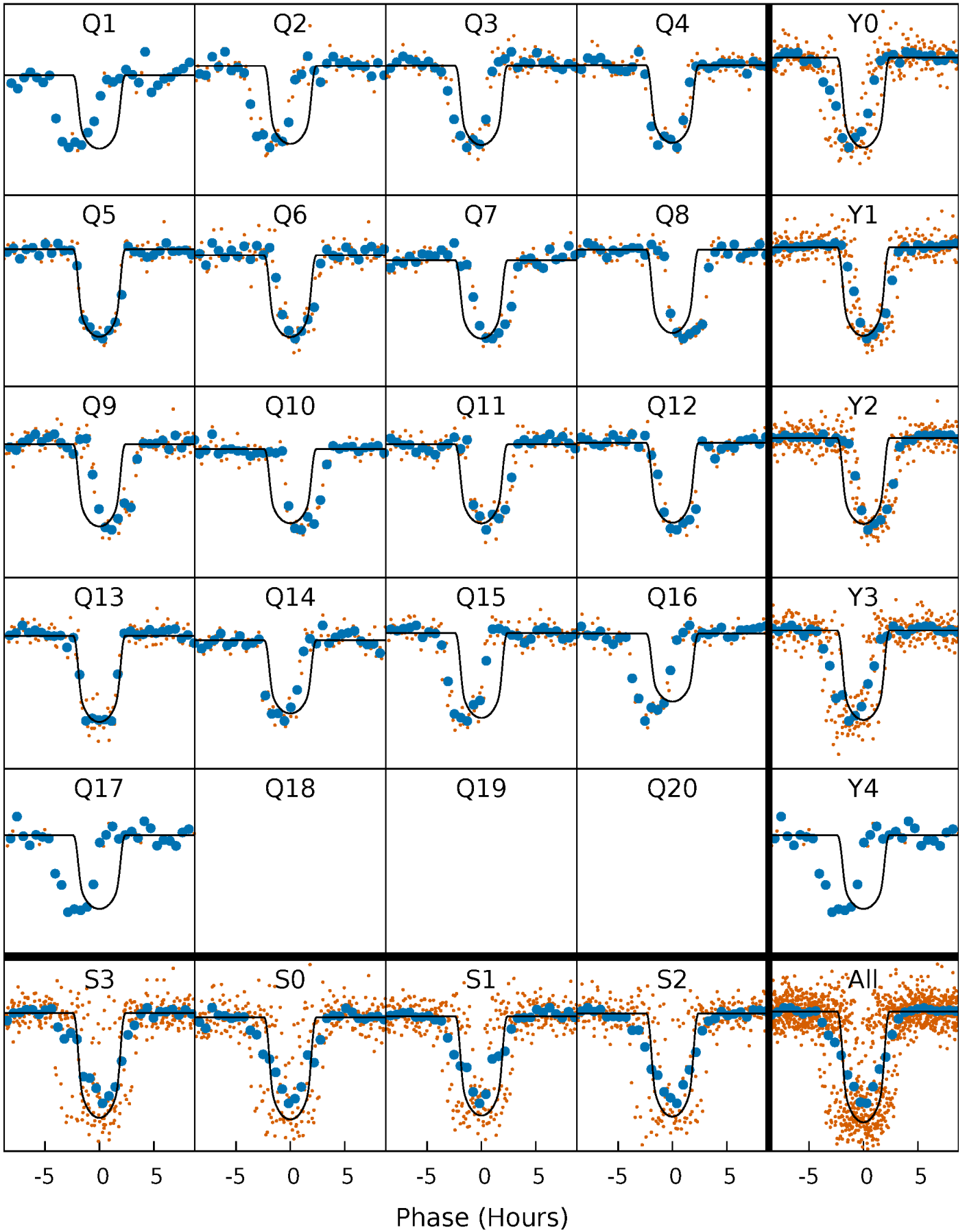
# PDC Quarter-Phased Transit Curves

TCE 007700622-01 P= 35.581033 Days  $T_0=153.480209$  (BKJD)



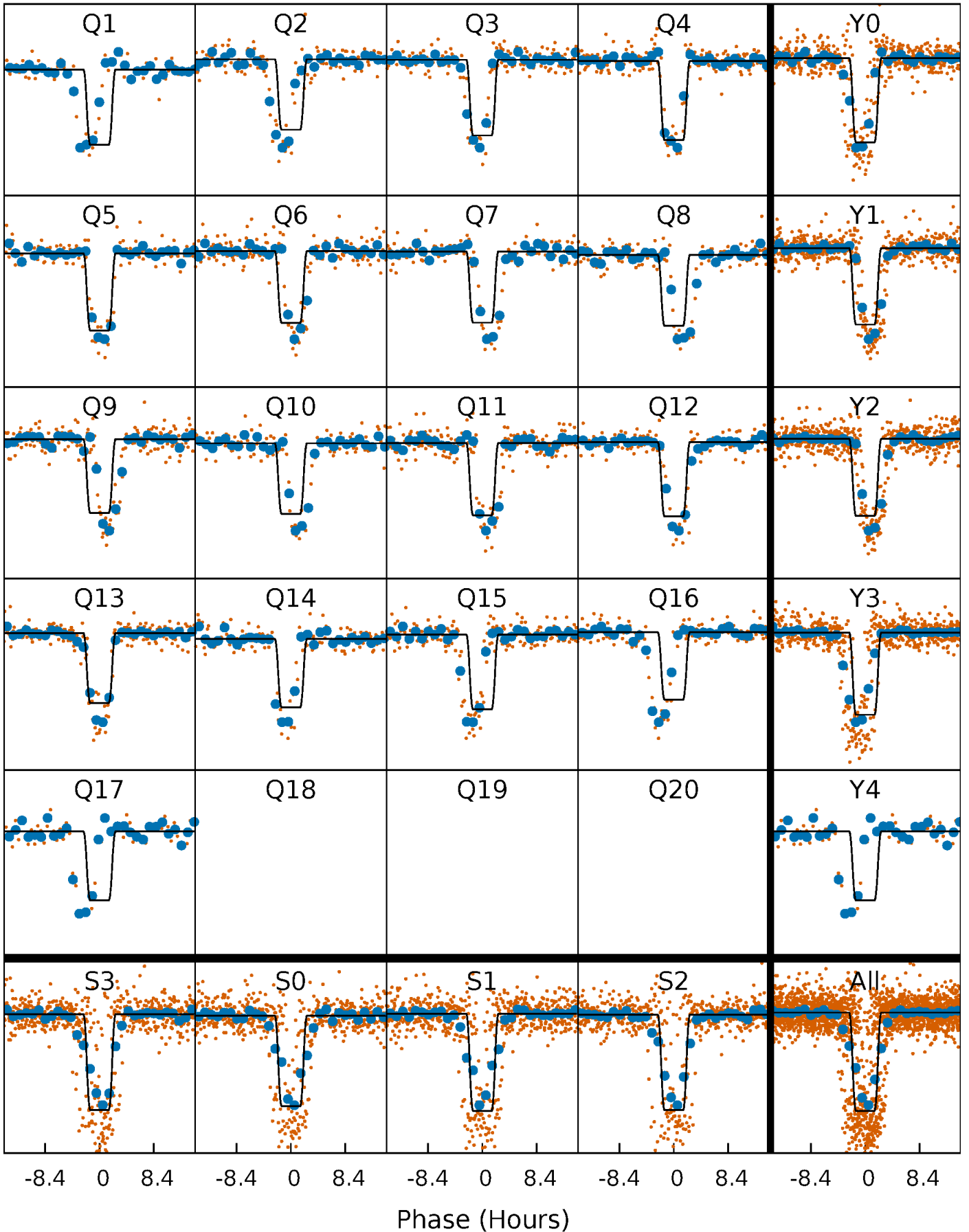
# DV Quarter-Phased Transit Curves

TCE 007700622-01 P= 35.581033 Days  $T_0=153.480209$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

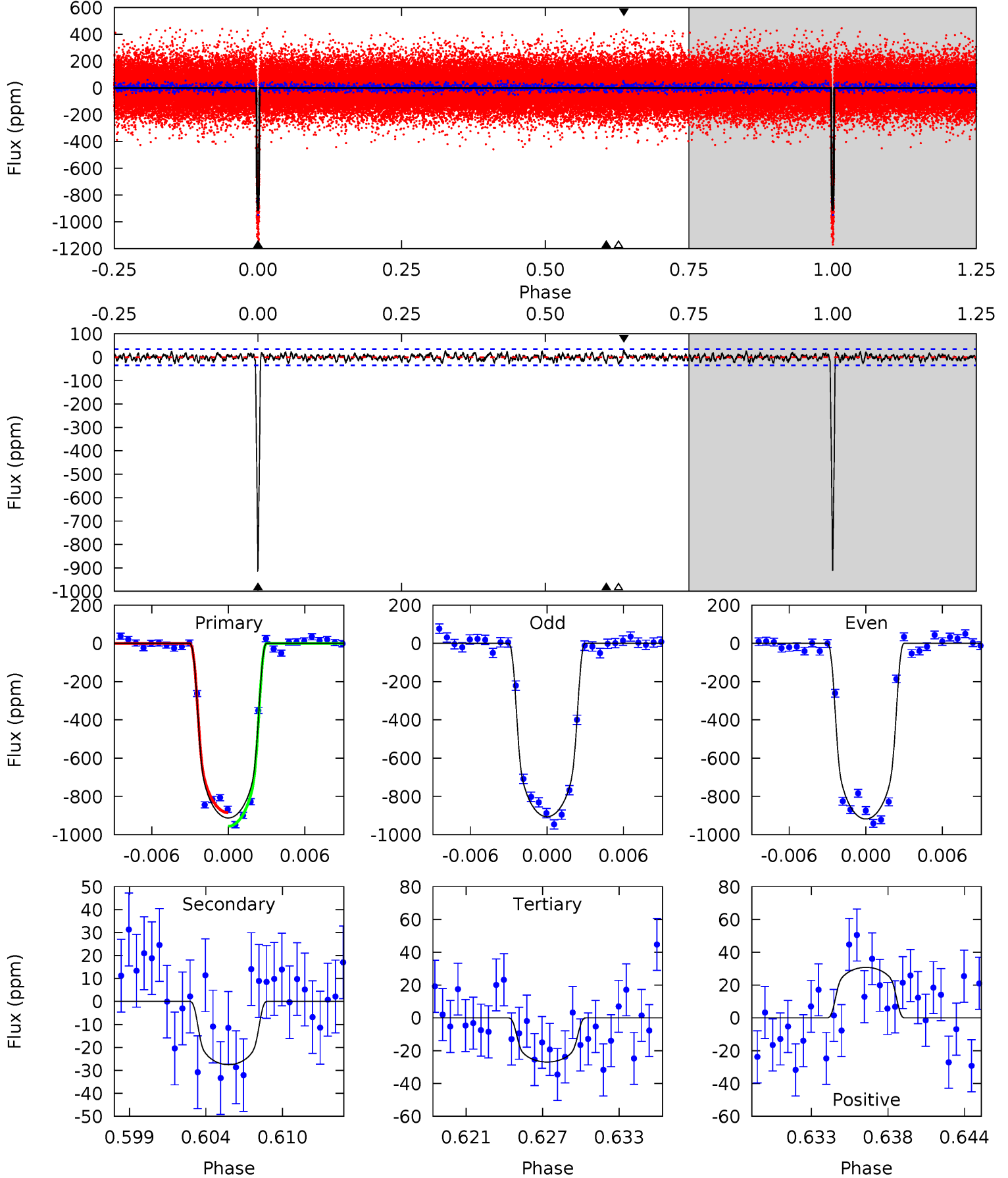
TCE 007700622-01 P= 35.581583 Days  $T_0=153.462747$  (BKJD)



# DV Model-Shift Uniqueness Test

007700622-01, P = 35.581033 Days, E = 117.899176 Days

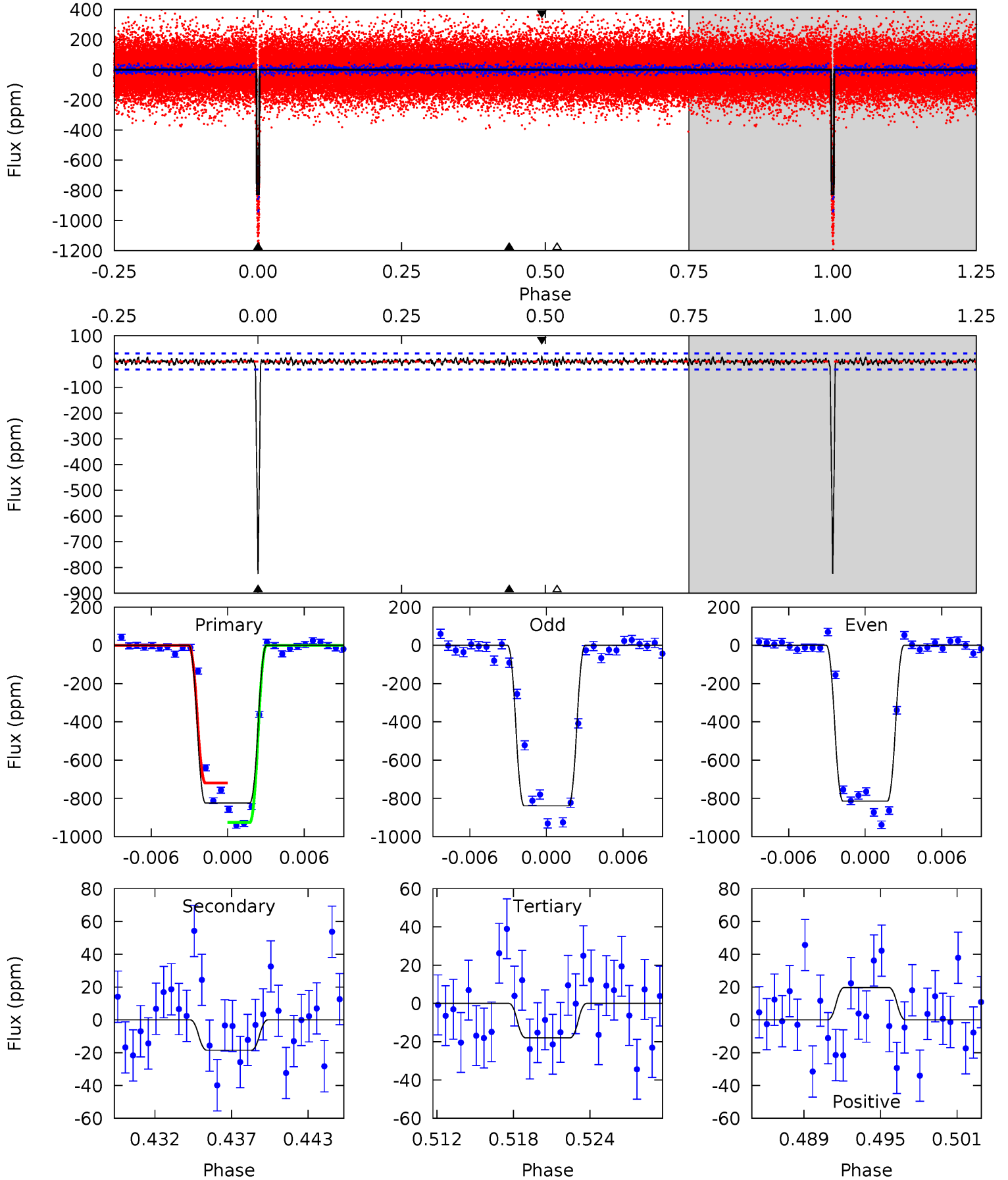
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
136.2	4.11	4.02	4.59	5.13	2.77	1.38	132.2	131.6	0.09	-0.48	0.90	1.02	0.03	5.26



# Alt Model-Shift Uniqueness Test

007700622-01, P = 35.581583 Days, E = 117.881164 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
135.6	3.05	2.96	3.25	5.13	2.76	0.90	132.7	132.4	0.09	-0.20	2.05	0.98	0.02	16.8



### Stellar Parameters For KIC 007700622

	$T_{\text{eff}}(K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	$4894^{+97}_{-97}$	$4.637^{+0.015}_{-0.042}$	$-0.240^{+0.150}_{-0.150}$	$0.684^{+0.041}_{-0.031}$	$0.753^{+0.032}_{-0.059}$	$3.311^{+0.237}_{-0.493}$
	+2%/-2%	+0%/-1%	+62%/-62%	+6%/-5%	+4%/-8%	+7%/-15%
Source	SPE59	SPE59	SPE59	DSEP		

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

### Secondary Eclipse Parameters for KIC 007700622-01 / KOI 0315.01

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	$A_{\text{obs}}$
DV	$-28 \pm 7$	$2.45^{+0.12}_{-0.12}$	$574^{+13}_{-12}$	$2702^{+84}_{-102}$	$90^{+24}_{-23}$
Alt.	$-19 \pm 6$	$2.14^{+0.12}_{-0.11}$	$574^{+13}_{-14}$	$2669^{+111}_{-146}$	$82^{+30}_{-28}$

$T_{\text{max}}$  = 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

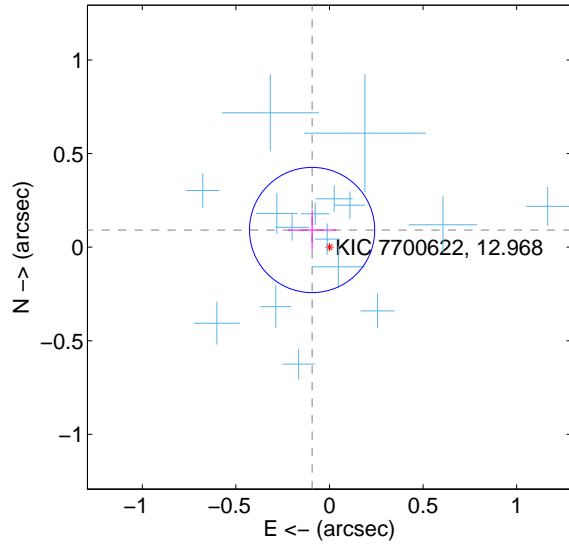
Supplemental centroid analysis for 007700622-01. Kepler magnitude: 12.97. Transit SNR 83.77

There are 16 quarters with good PRF difference image offsets

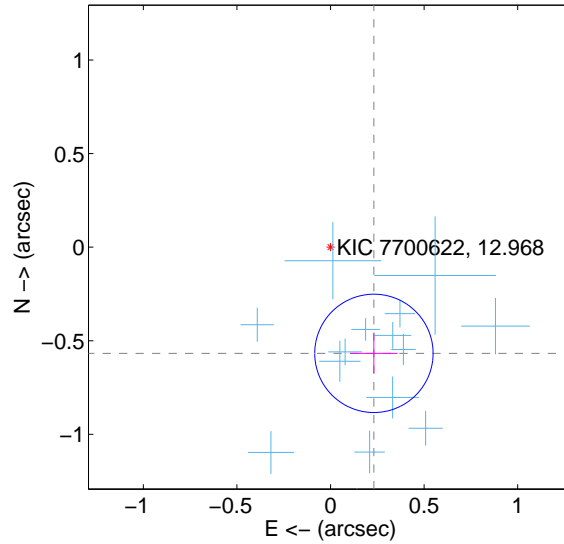
The direct PRF centroid is offset from the target star catalog position by about 0.85 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$0.130 \pm 0.111$	1.17	$0.093 \pm 0.128$	$0.092 \pm 0.106$
PRF-fit source offset from KIC position	$0.613 \pm 0.105$	5.82	$-0.232 \pm 0.127$	$-0.567 \pm 0.107$
photometric centroid source offset	$0.80 \pm 0.09$	8.85	$-0.45 \pm 0.09$	$-0.67 \pm 0.09$

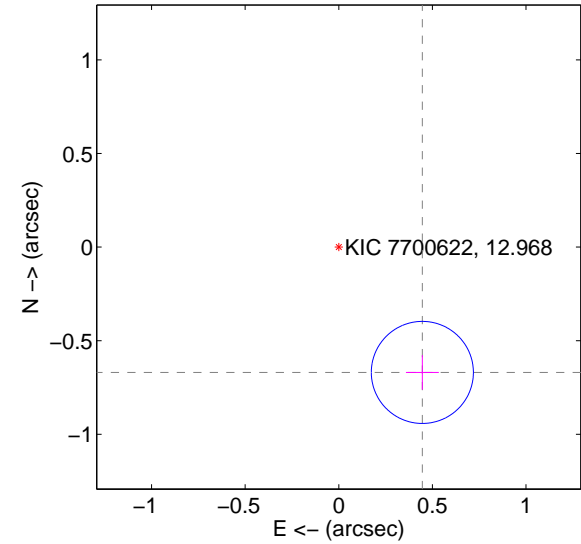
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position

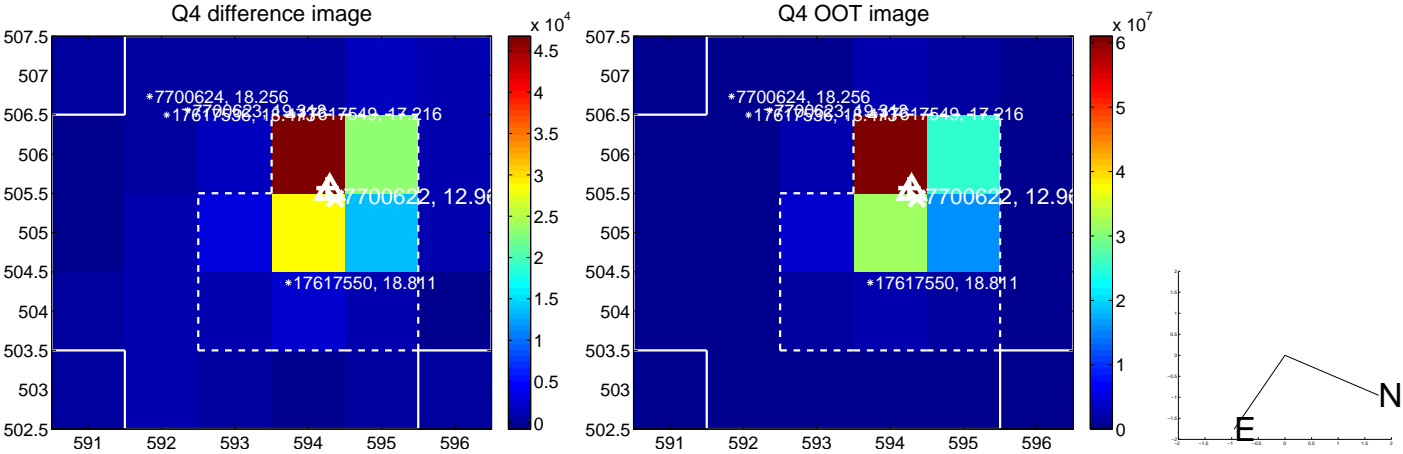
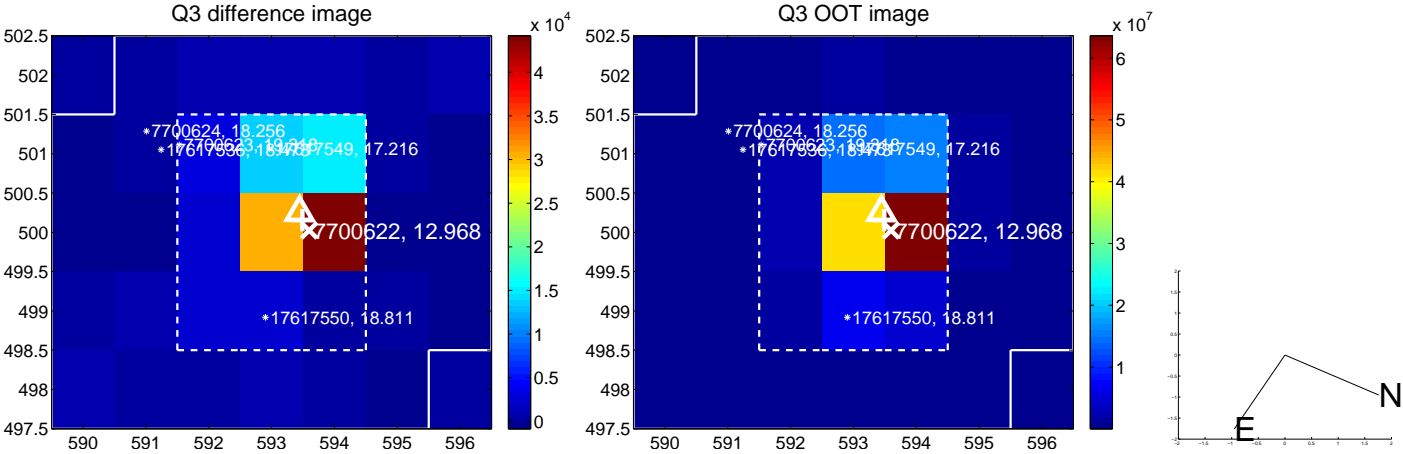
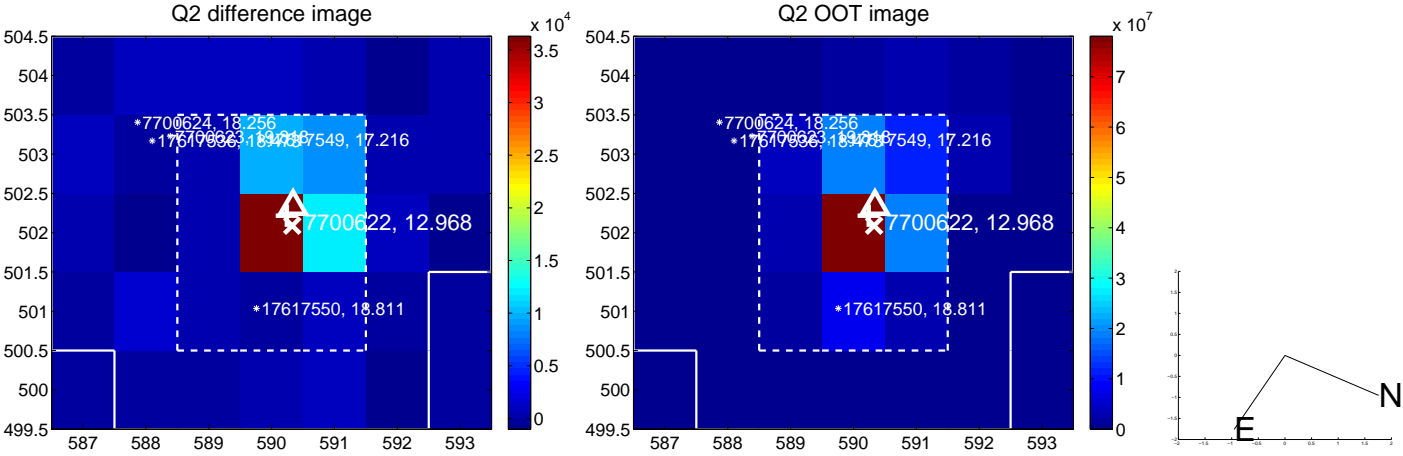
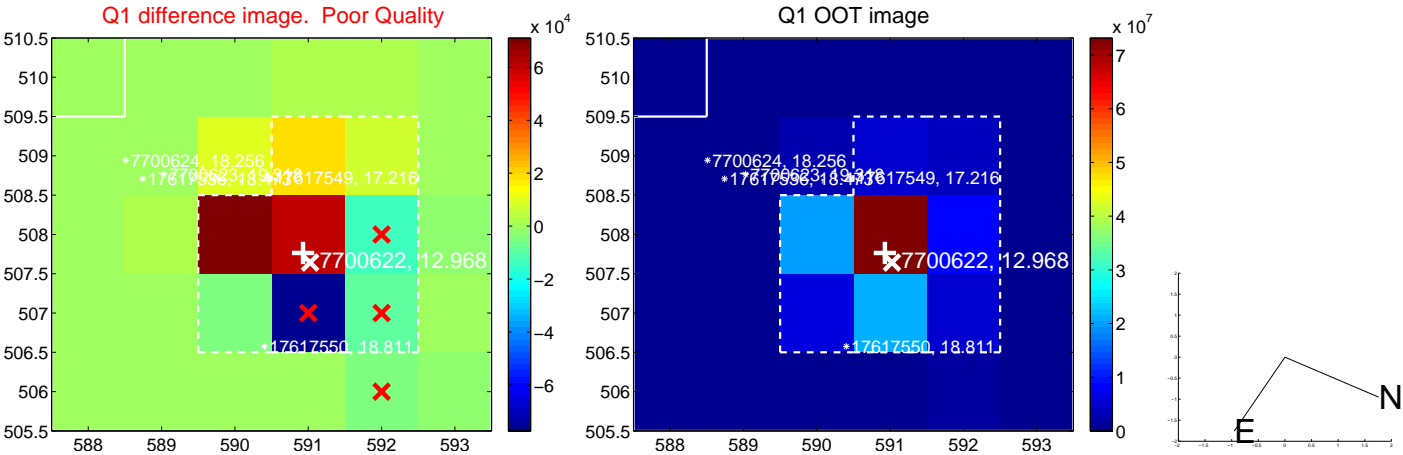


offset from photometric centroids

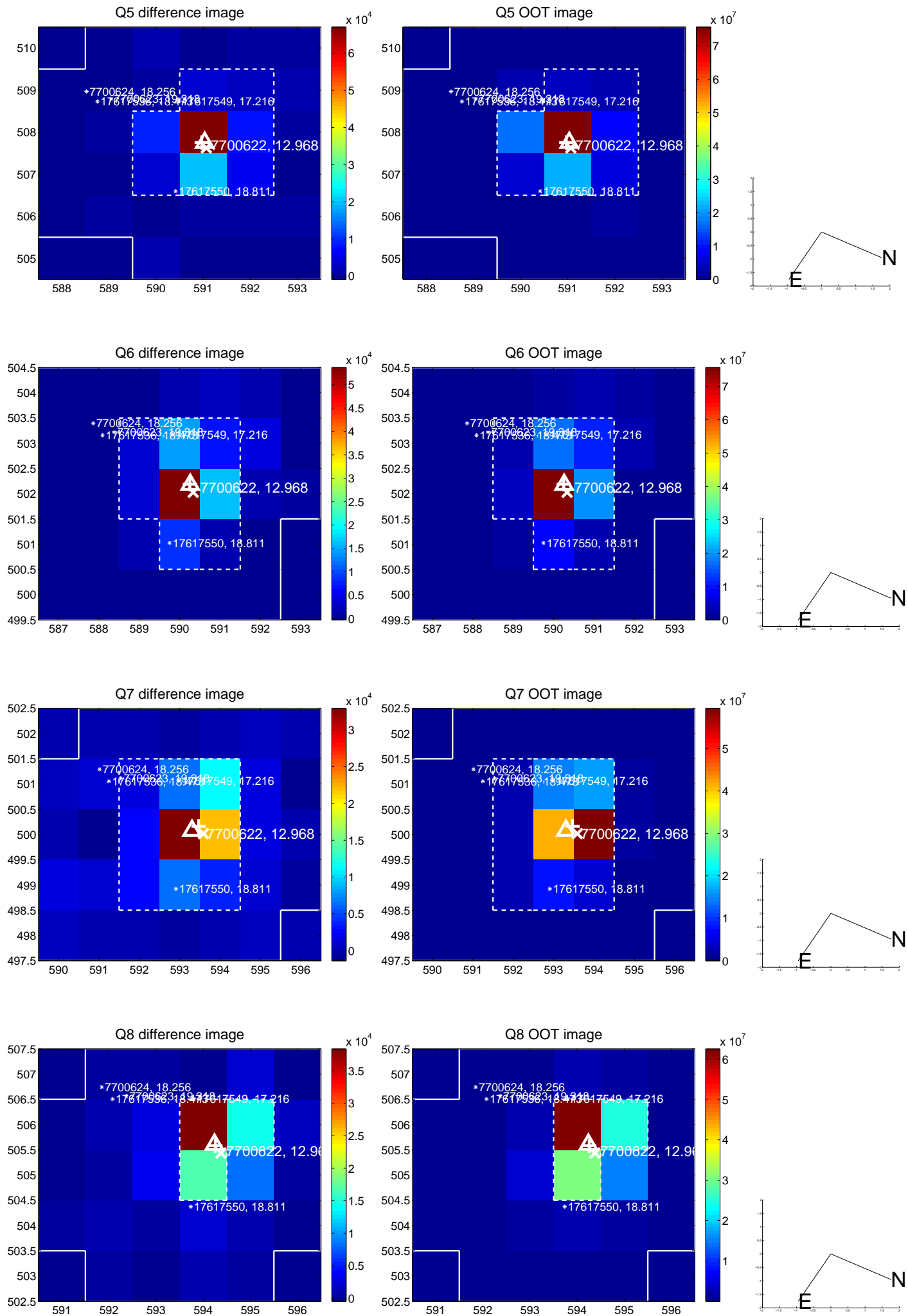


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses:** good quarterly centroid offsets; **Vermillion crosses:** bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: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

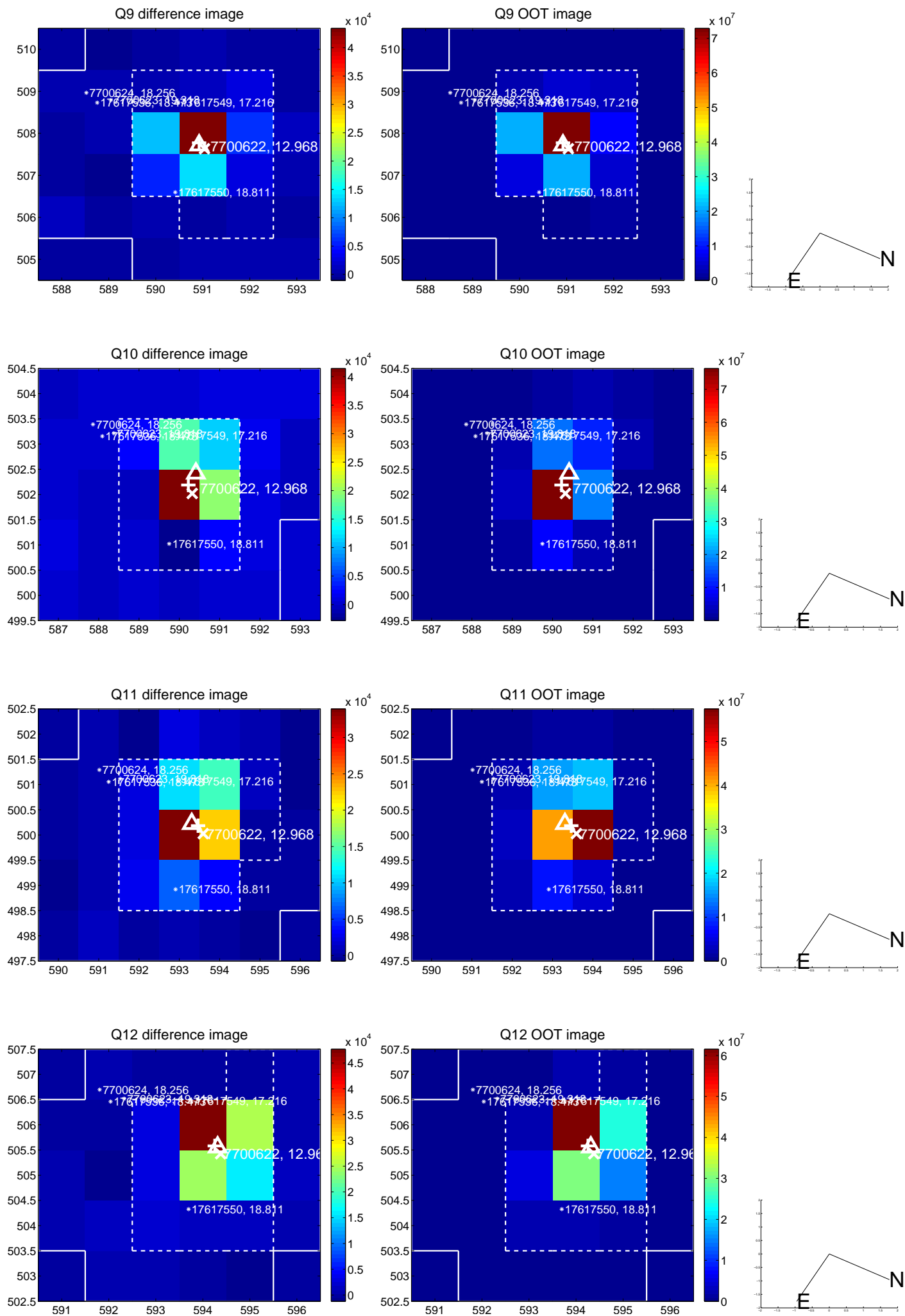
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



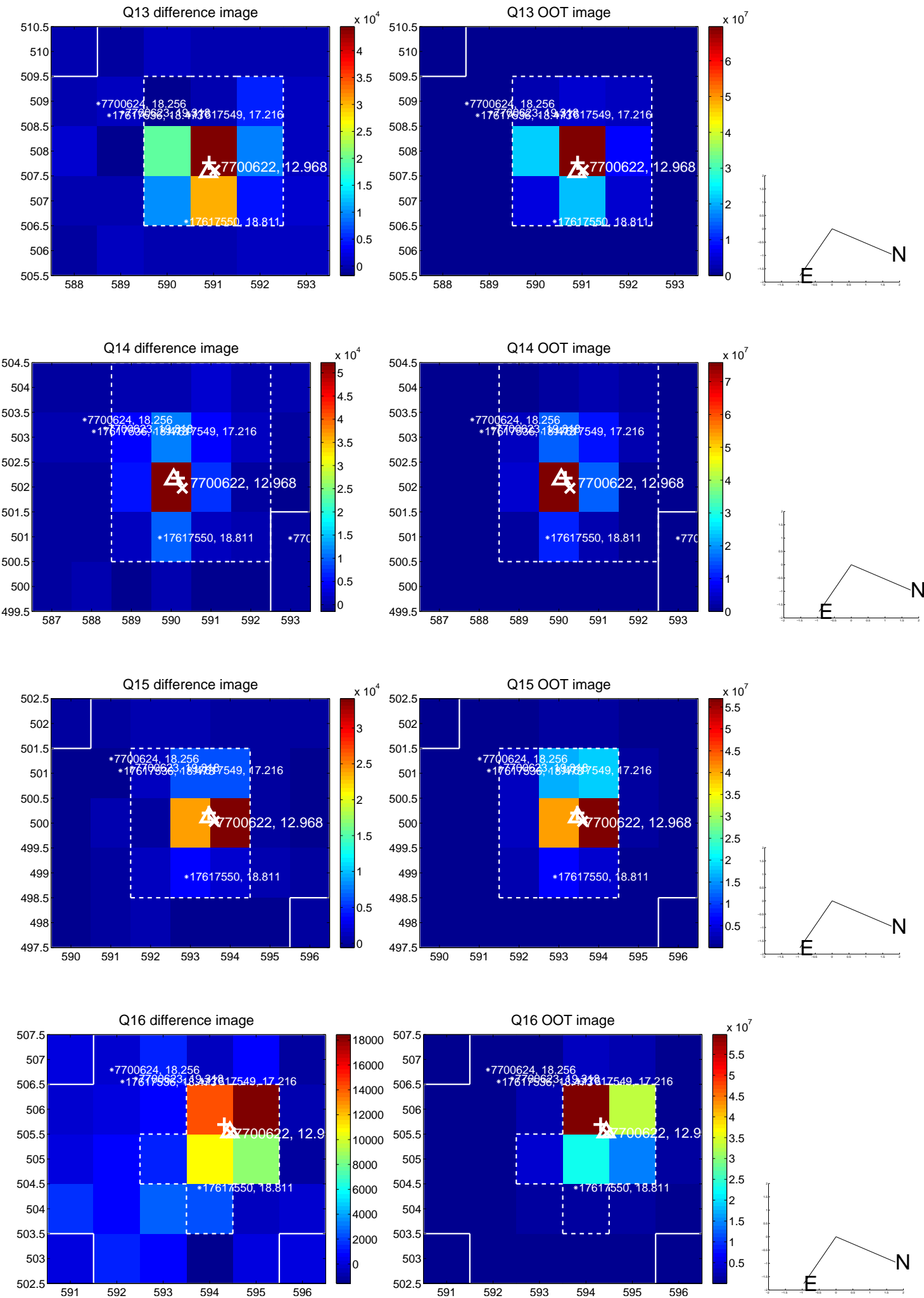
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



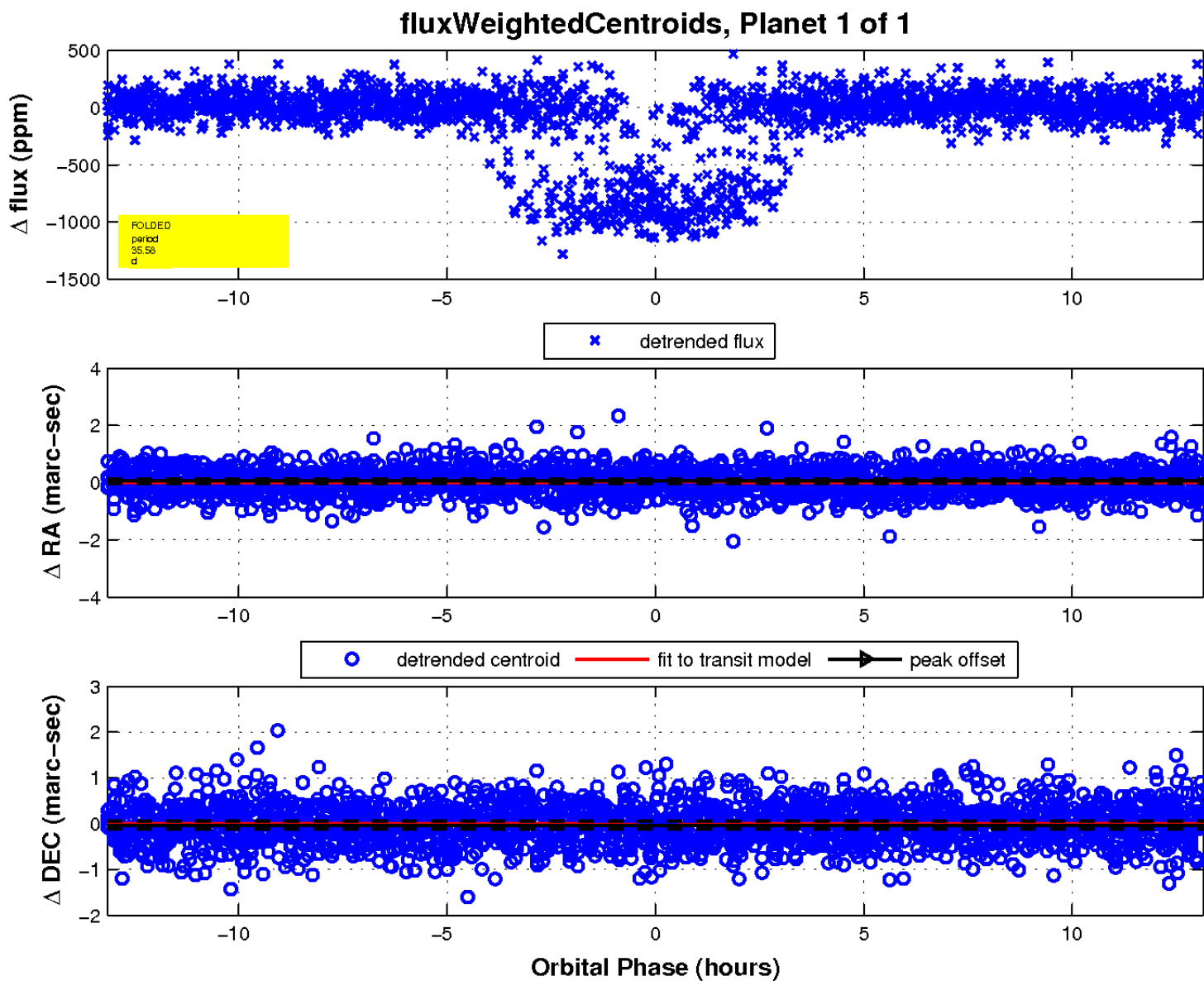
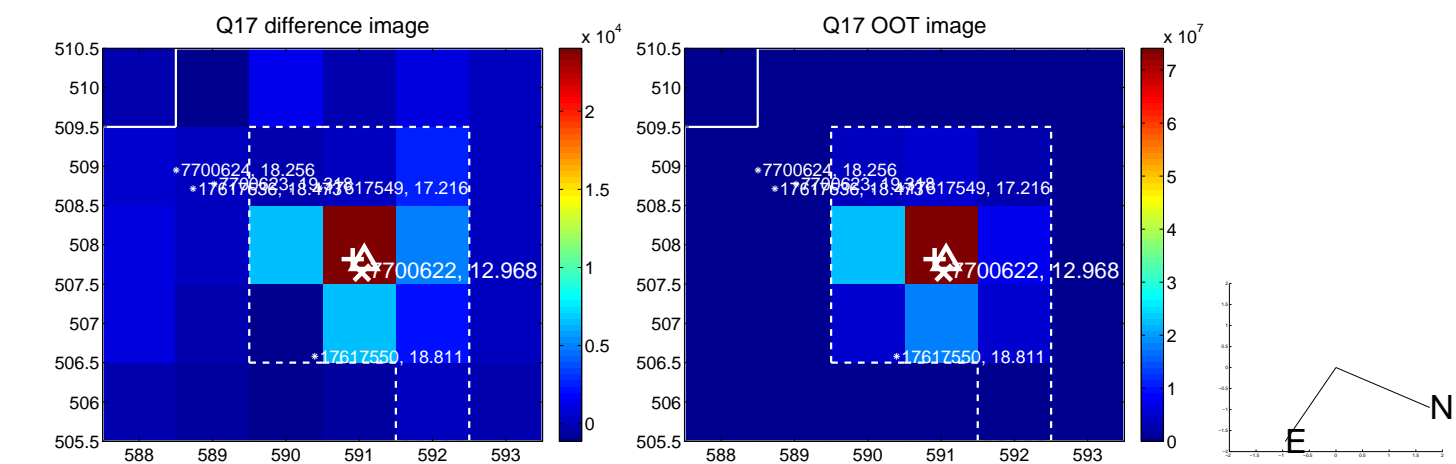
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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



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



UKIRT Image

