

# KIC 008156120

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
008156120-01	OBS	0318.01	38.584463	136.245664	1352.0	10.529	73.7	80.2	1.93	6273	7.37	79.22

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
008156120-01	OBS	PC	0.99	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.

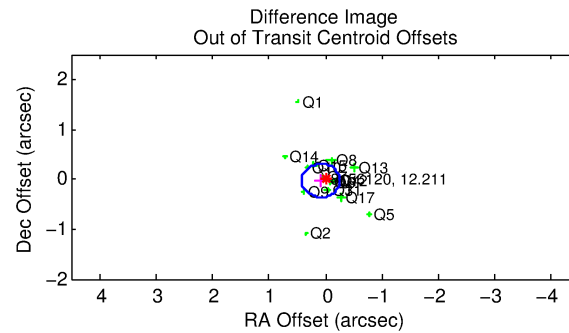
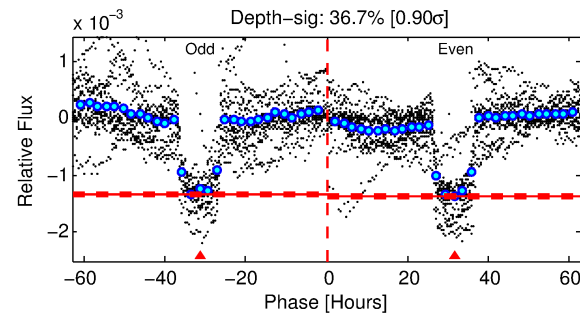
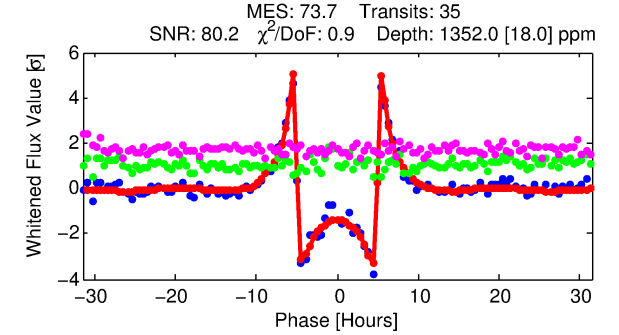
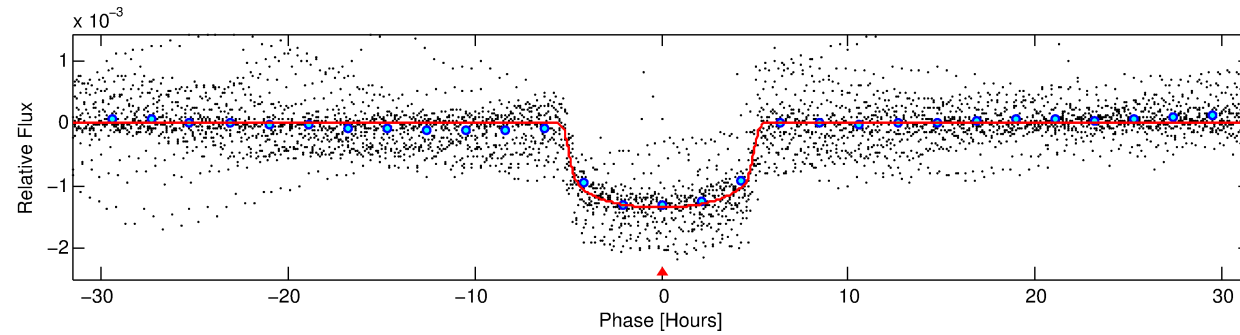
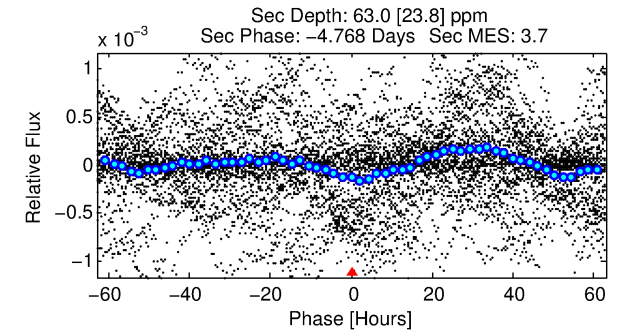
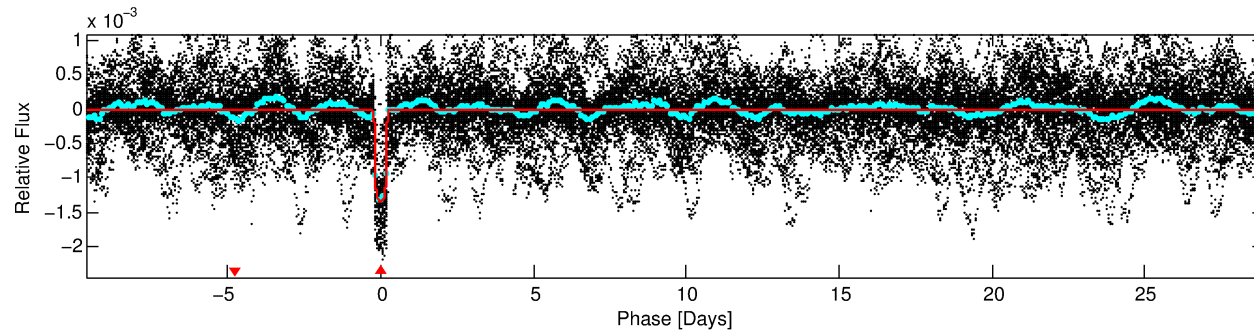
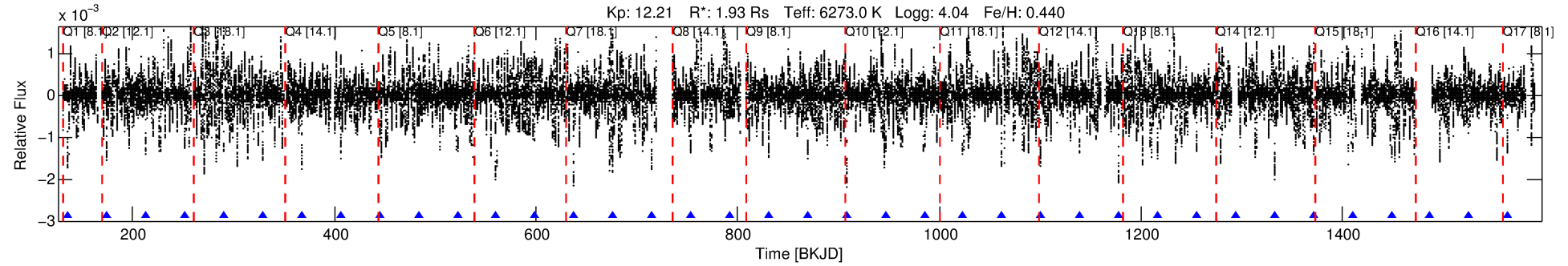
## Ephemeris Match Information For 008156120-01

No Significant Match Found

# DV One-Page Summary

KIC: 8156120 Candidate: 1 of 1 Period: 38.584 d

KOI: K00318.01 Corr: 0.992



## DV Fit Results:

Period = 38.58446 [0.00003] d  
Epoch = 136.2457 [0.0007] BKJD  
Rp/R\* = 0.0351 [0.0005]  
a/R\* = 23.91 [1.21]  
b = 0.59 [0.06]  
Seff = 79.22 [25.06]  
Teff = 761 [60] K  
Rp = 7.37 [1.65] Re  
a = 0.2550 [0.0510] AU  
Ag = 41.45 [20.19] [2.00σ]  
Teffp = 2984 [289] K [7.53σ]

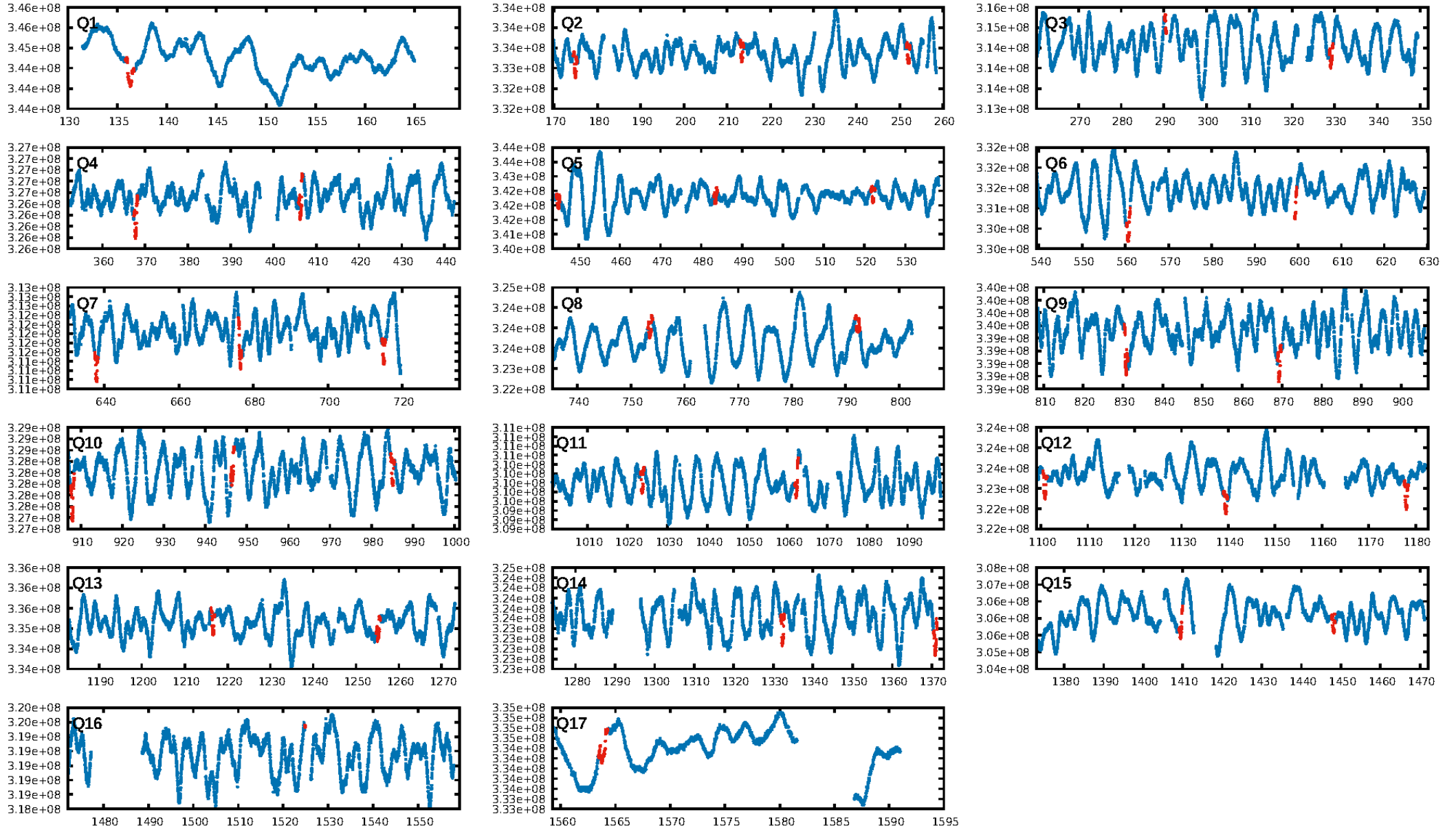
## DV Diagnostic Results:

ShortPeriod-sig: N/A  
LongPeriod-sig: N/A  
ModelChiSquare2-sig: 87.0%  
ModelChiSquareGof-sig: 100.0%  
Bootstrap-pfa: 0.00e+00  
RollingBand-fgt: 1.00 [33/33]  
GhostDiagnostic-chr: 3.052  
Centroid-sig: N/A  
Centroid-so: 0.067 arcsec [2.14σ]  
OotOffset-rm: 0.087 arcsec [0.78σ]  
KicOffset-rm: 0.114 arcsec [1.01σ]  
OotOffset-st: 4/4/3/5 [16]  
KicOffset-st: 4/4/3/5 [16]  
DiffImageQuality-fgm: 1.00 [16/16]  
DiffImageOverlap-fno: 1.00 [16/16]

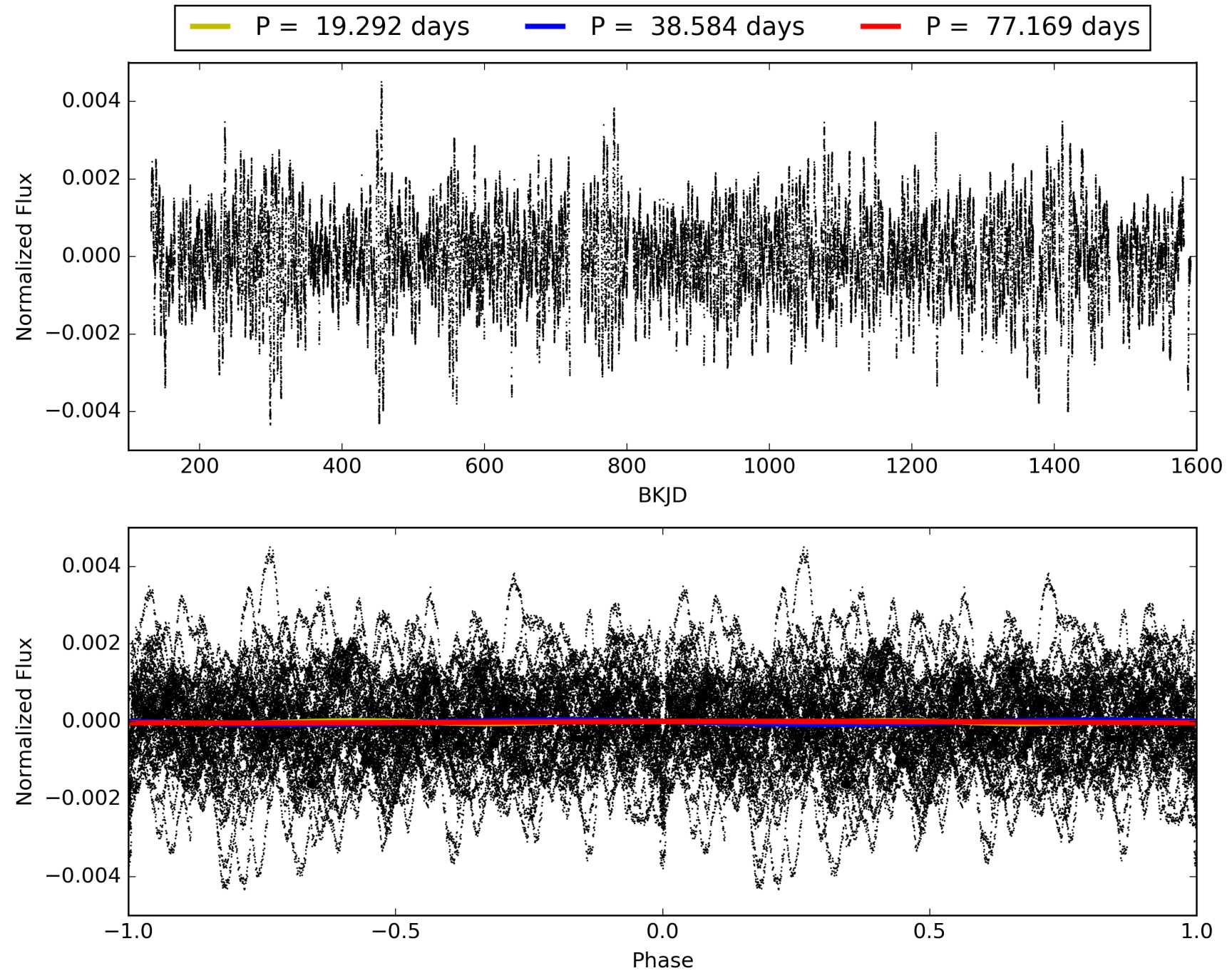
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 01-Feb-2016 03:48:07 Z

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

# TCE 008156120-01, PDC Light Curves

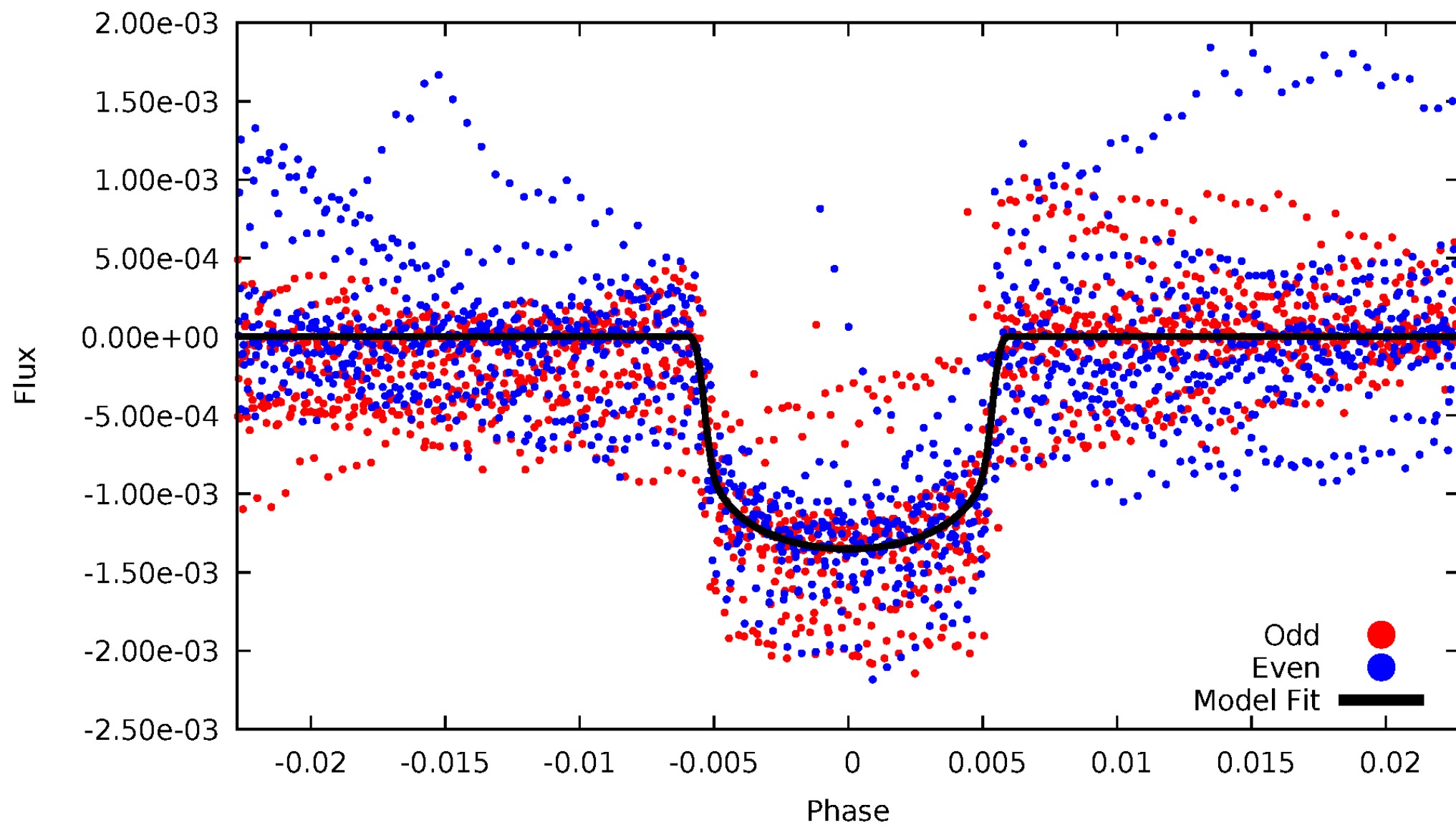


TCE 008156120-01



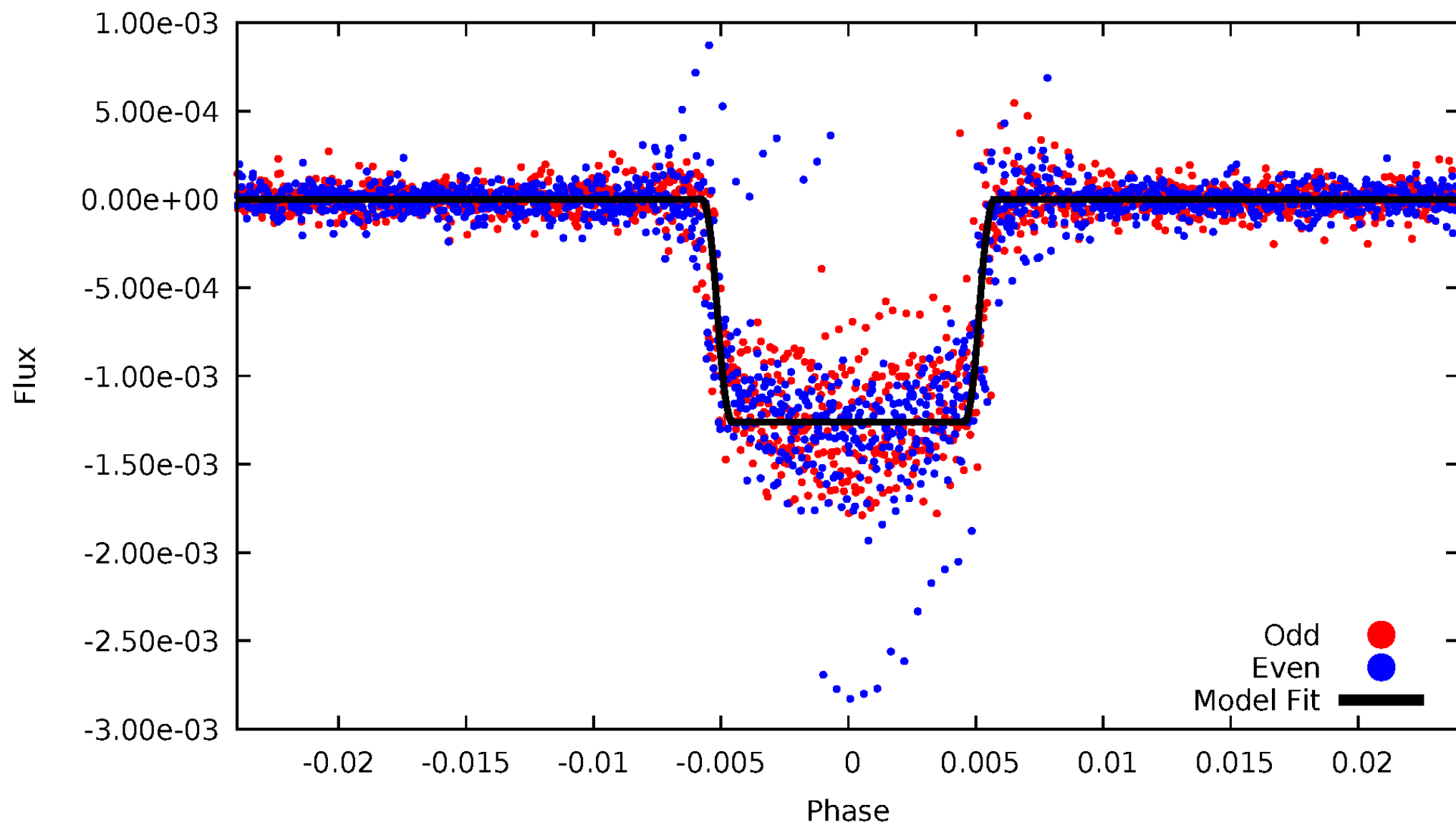
# DV Odd/Even

TCE 008156120-01



# ALT Odd/Even

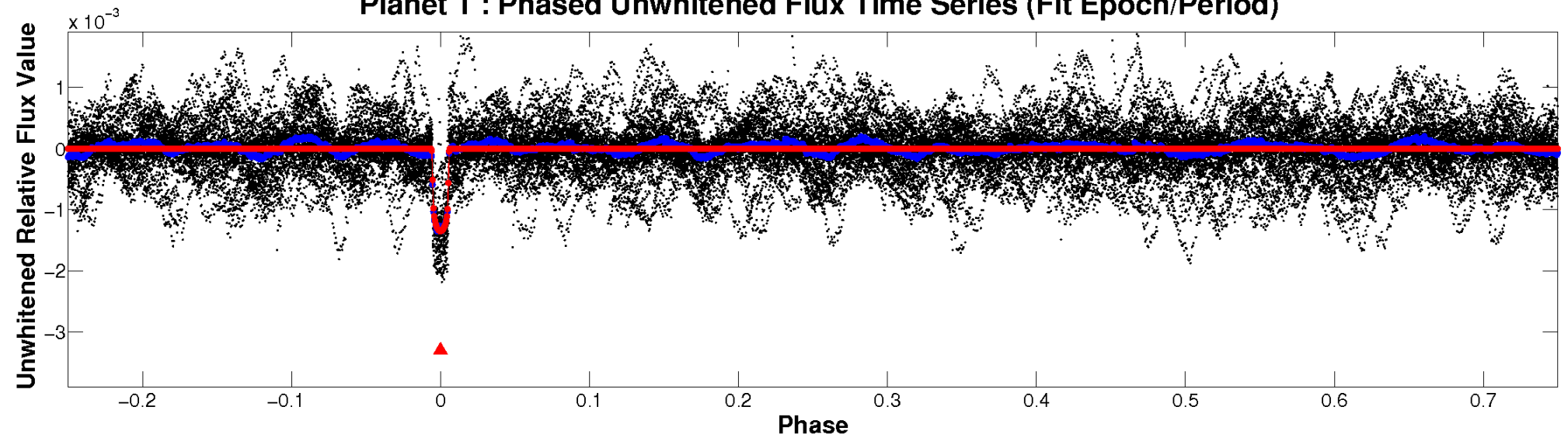
TCE 008156120-01



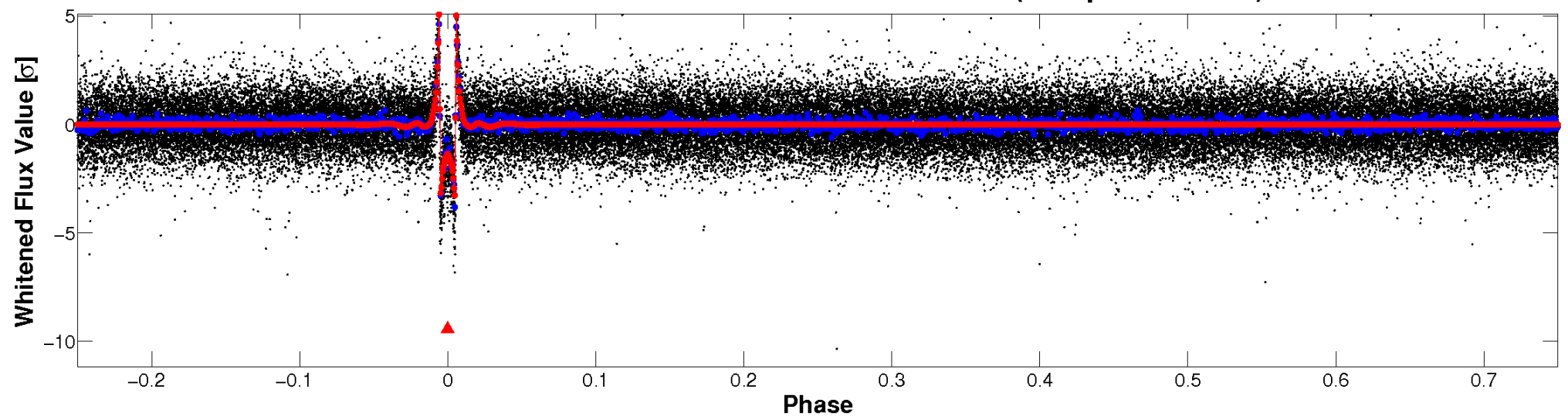


# Non-Whitened Vs. Whitened Light Curve

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

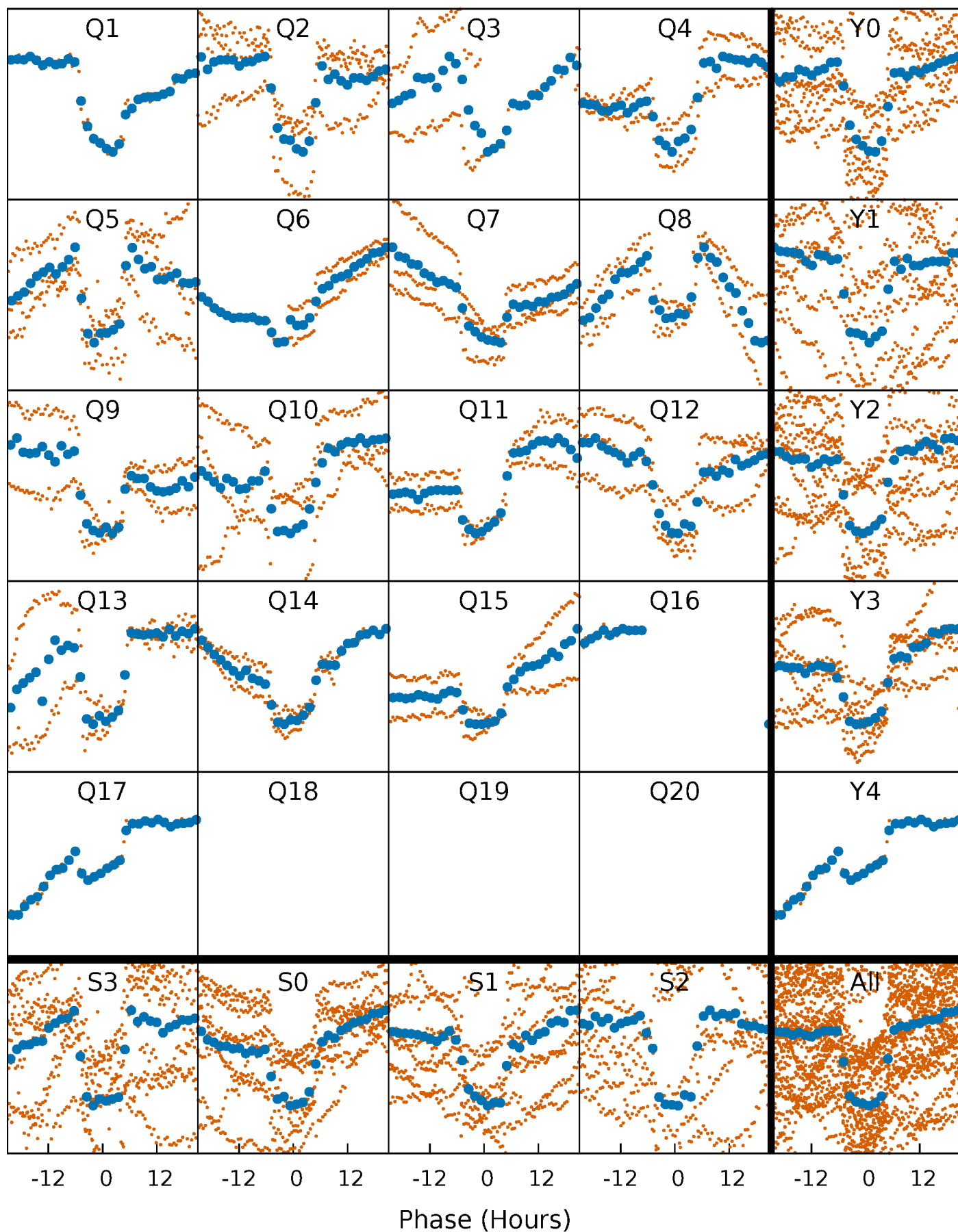


**Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)**



# PDC Quarter-Phased Transit Curves

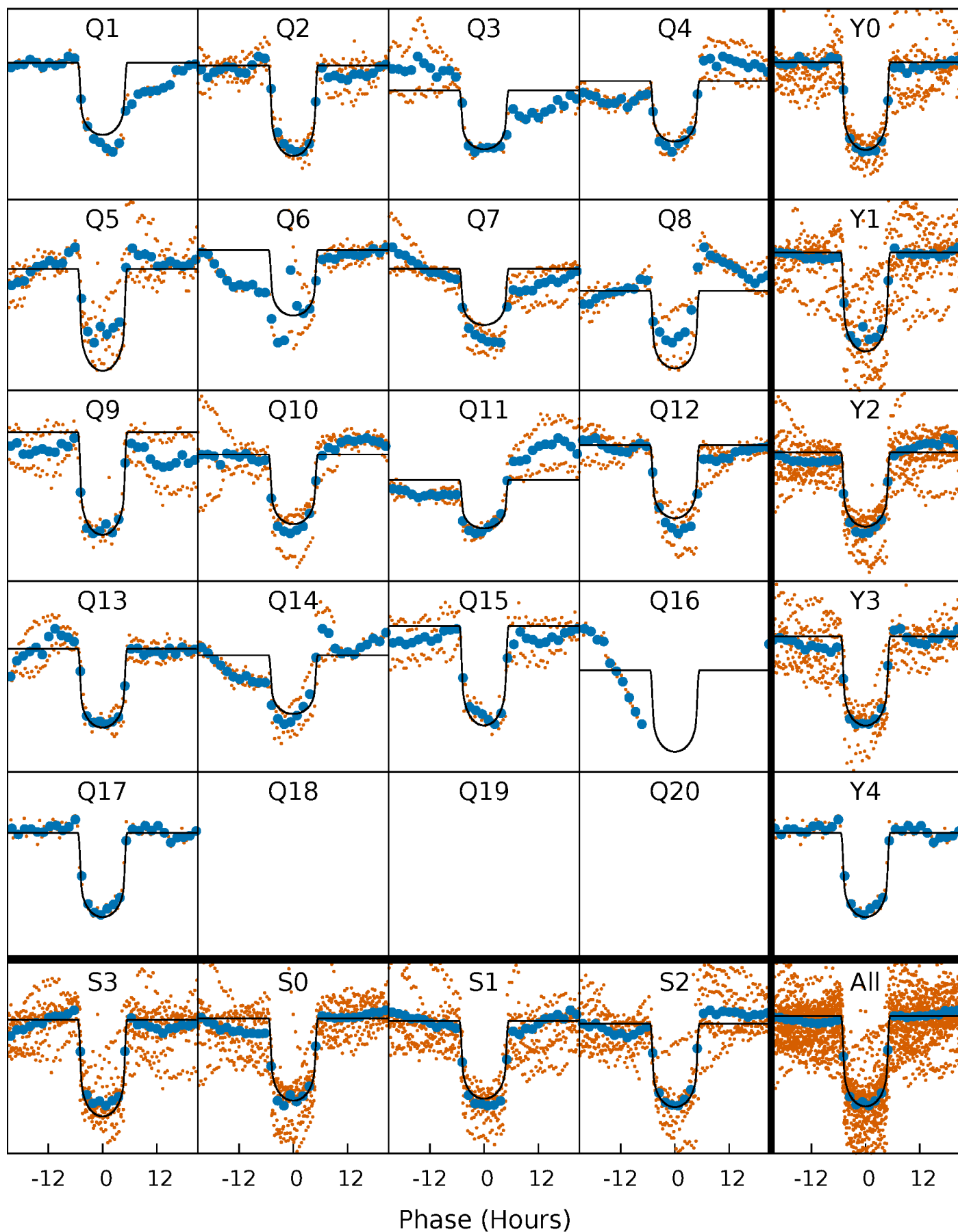
TCE 008156120-01 P= 38.584463 Days  $T_0=136.245665$  (BKJD)





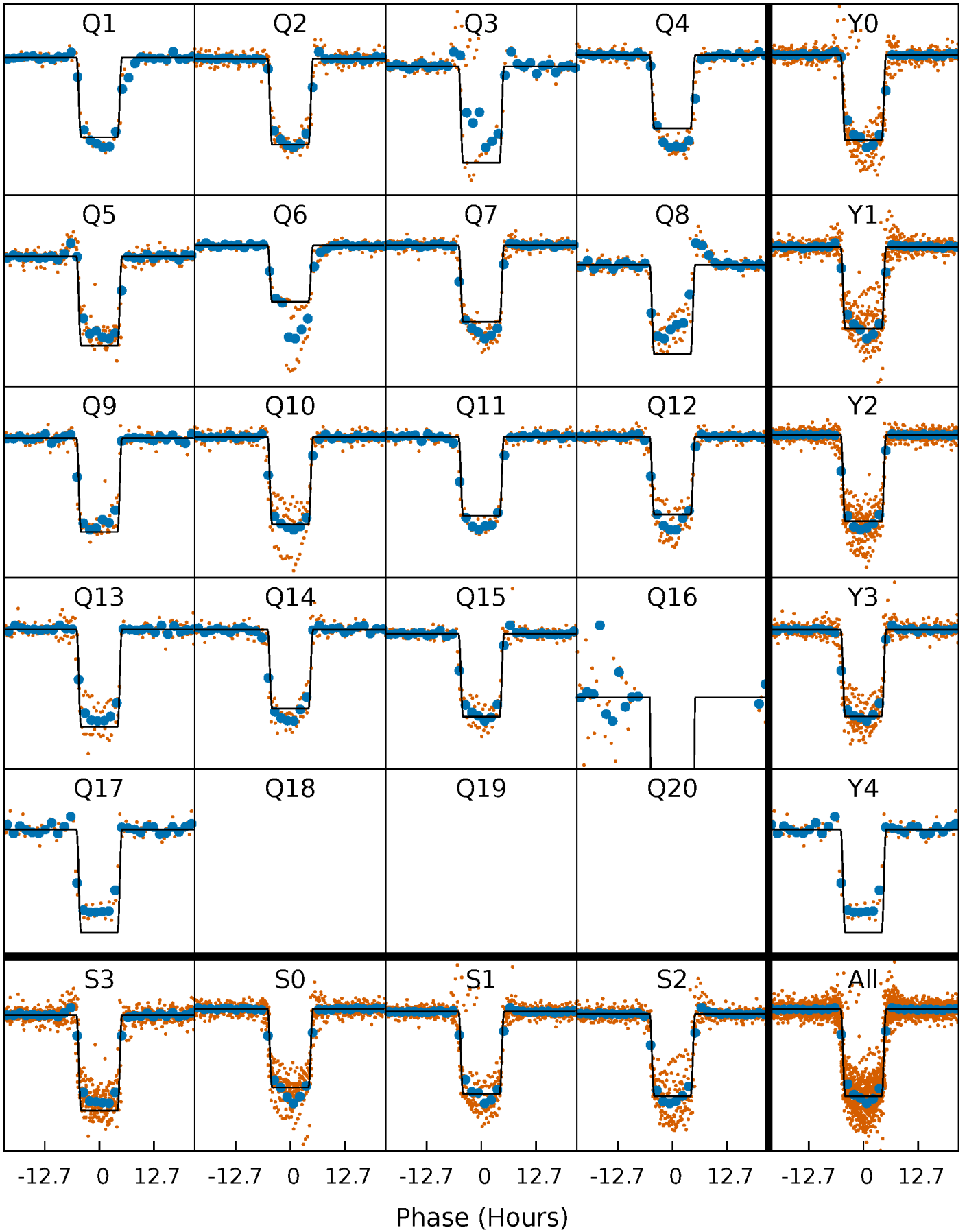
# DV Quarter-Phased Transit Curves

TCE 008156120-01 P= 38.584463 Days  $T_0=136.245665$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

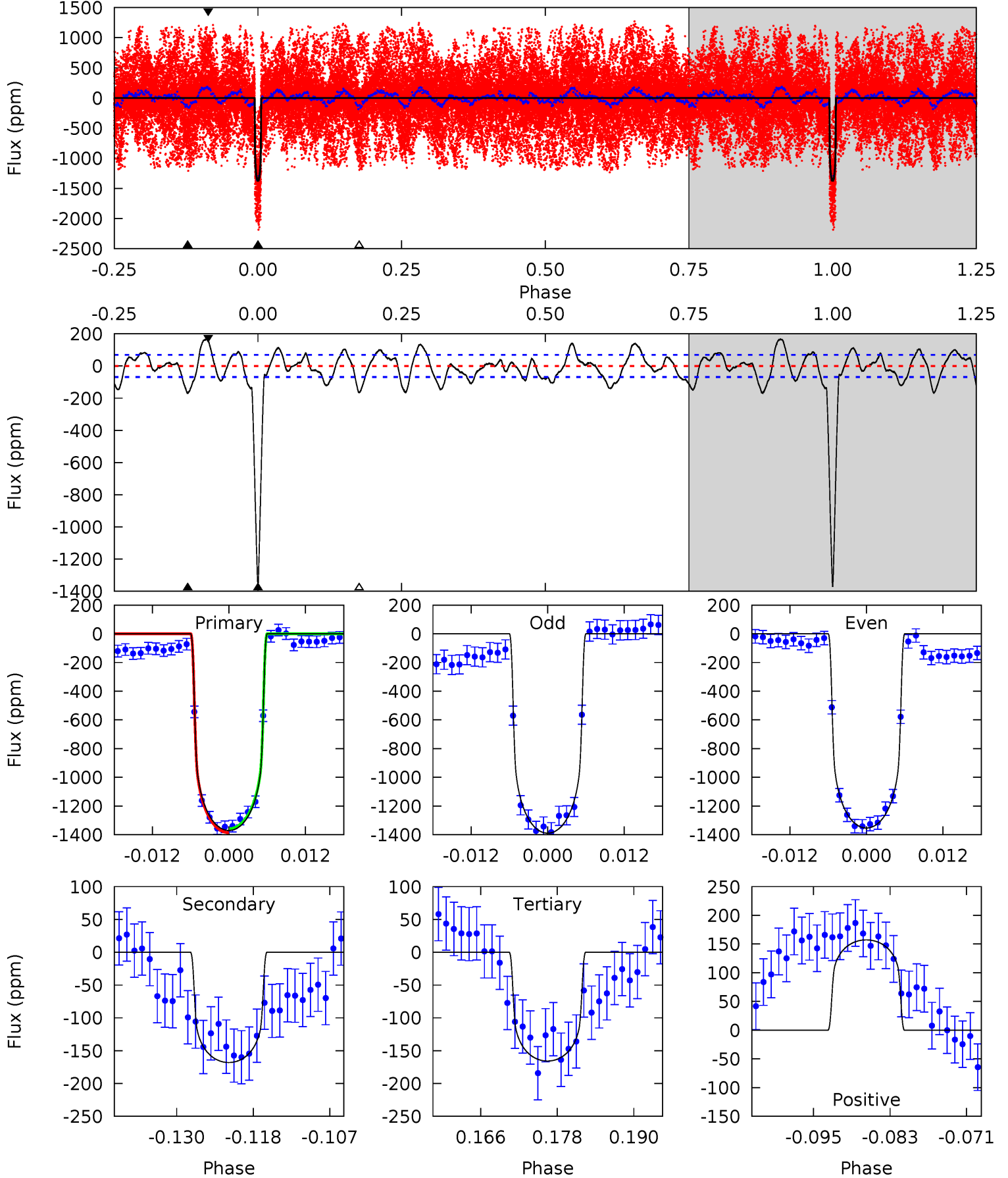
TCE 008156120-01 P= 38.585334 Days  $T_0=136.232561$  (BKJD)



# DV Model-Shift Uniqueness Test

008156120-01, P = 38.584463 Days, E = 97.661202 Days

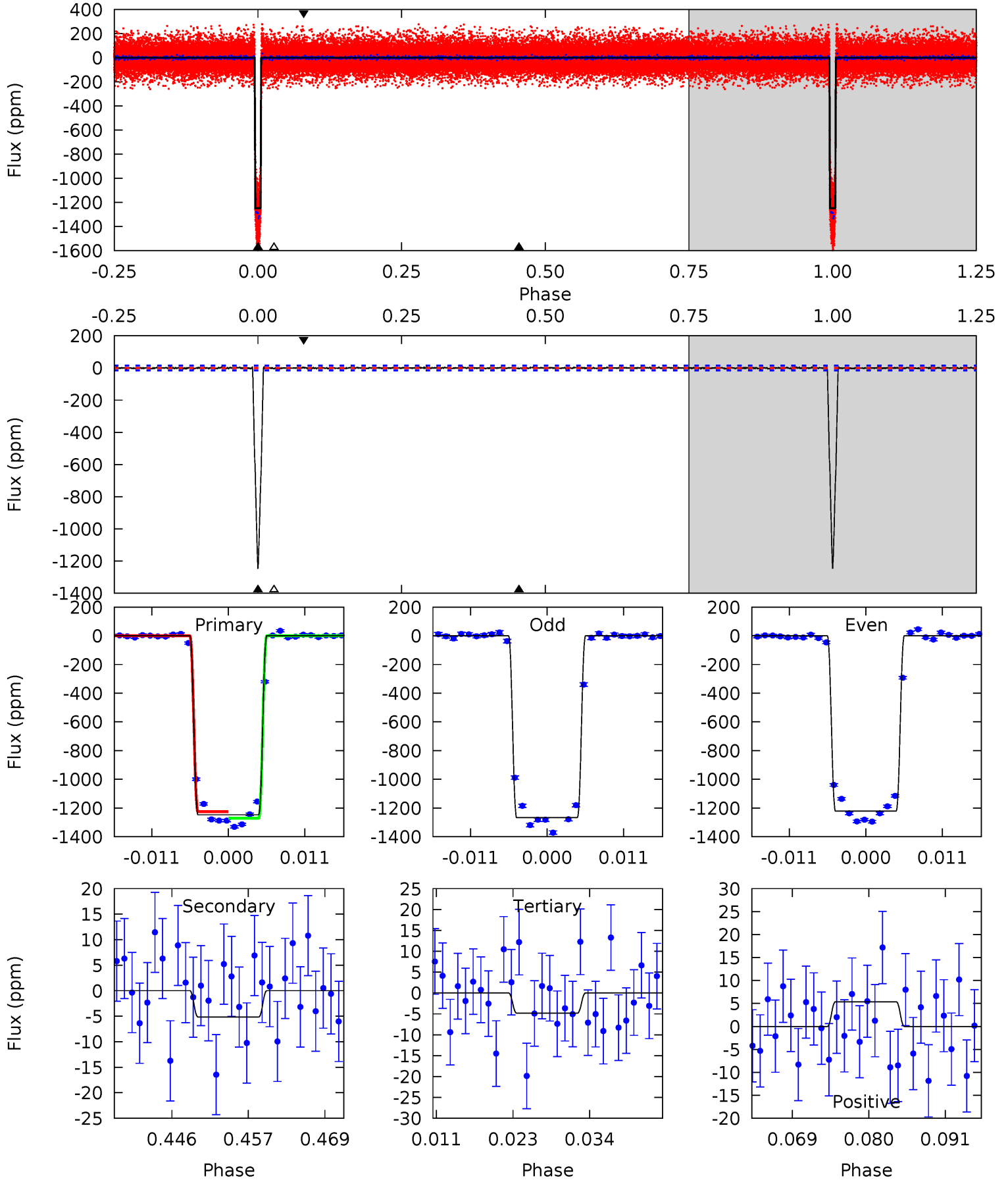
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
99.3	12.2	12.0	11.4	4.99	2.52	5.12	87.3	87.9	0.16	0.78	1.31	1.03	0.11	0.95



# Alt Model-Shift Uniqueness Test

008156120-01, P = 38.585334 Days, E = 97.647227 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
419.0	1.73	1.62	1.80	5.00	2.53	0.52	417.4	417.2	0.11	-0.07	7.57	1.02	0.00	7.67



### Stellar Parameters For KIC 008156120

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	$6273^{+113}_{-126}$	$4.040^{+0.174}_{-0.116}$	$0.440^{+0.050}_{-0.150}$	$1.927^{+0.353}_{-0.431}$	$1.486^{+0.126}_{-0.154}$	$0.292^{+0.271}_{-0.104}$
	+2%/-2%	+4%/-3%	+11%/-34%	+18%/-22%	+8%/-10%	+93%/-36%
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 008156120-01 / KOI 0318.01

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	$A_{\text{obs}}$
DV	$-168 \pm 14$	$7.37^{+0.74}_{-0.97}$	$1061^{+56}_{-67}$	$4101^{+80}_{-87}$	$111^{+36}_{-22}$
Alt.	$-5 \pm 3$	$7.39^{+0.78}_{-0.80}$	$1057^{+58}_{-57}$	$2433^{+155}_{-275}$	$3.438^{+1.983}_{-2.056}$

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

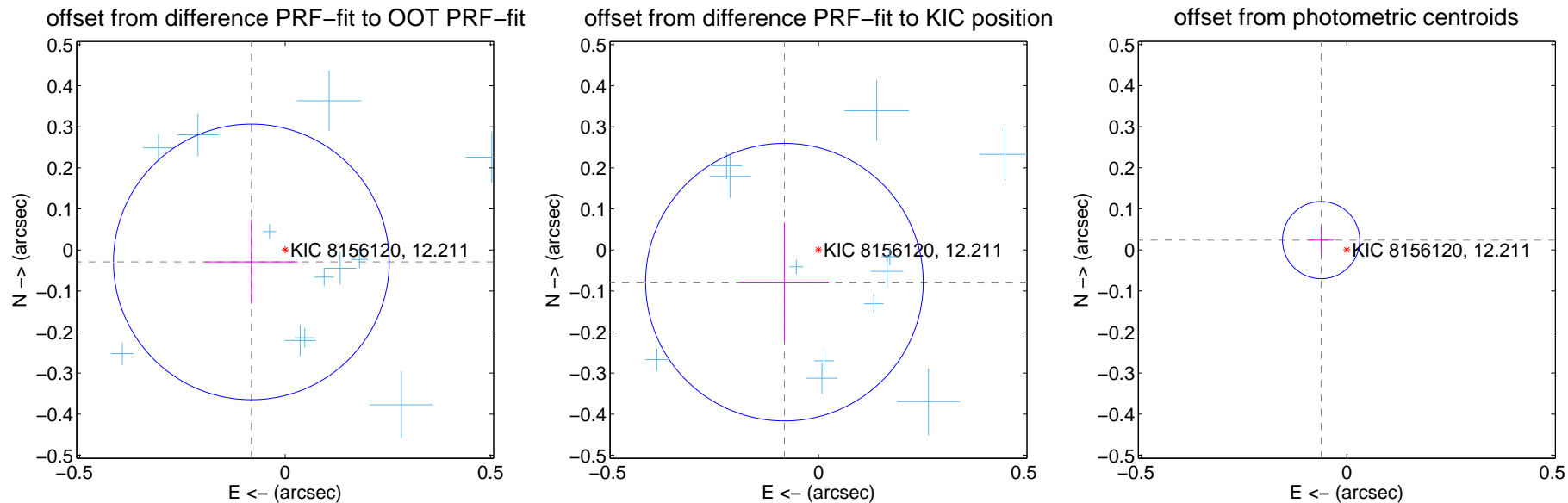
## DV Centroid Data

Supplemental centroid analysis for 008156120-01. Kepler magnitude: 12.21. Transit SNR 80.17

There are 16 quarters with good PRF difference image offsets

The direct PRF centroid is offset from the target star catalog position by about 0.02 arcsec

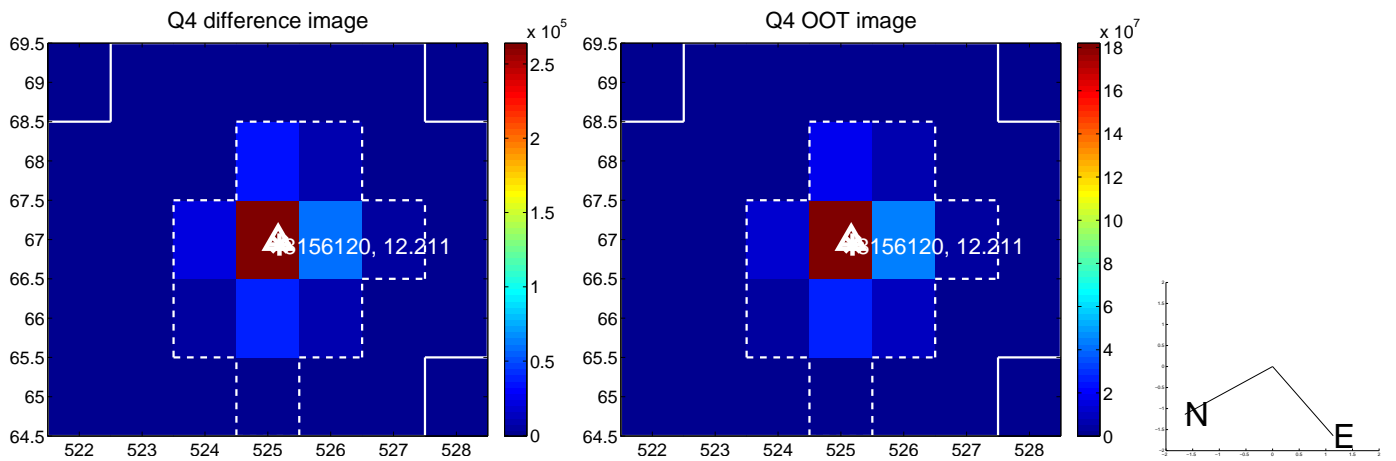
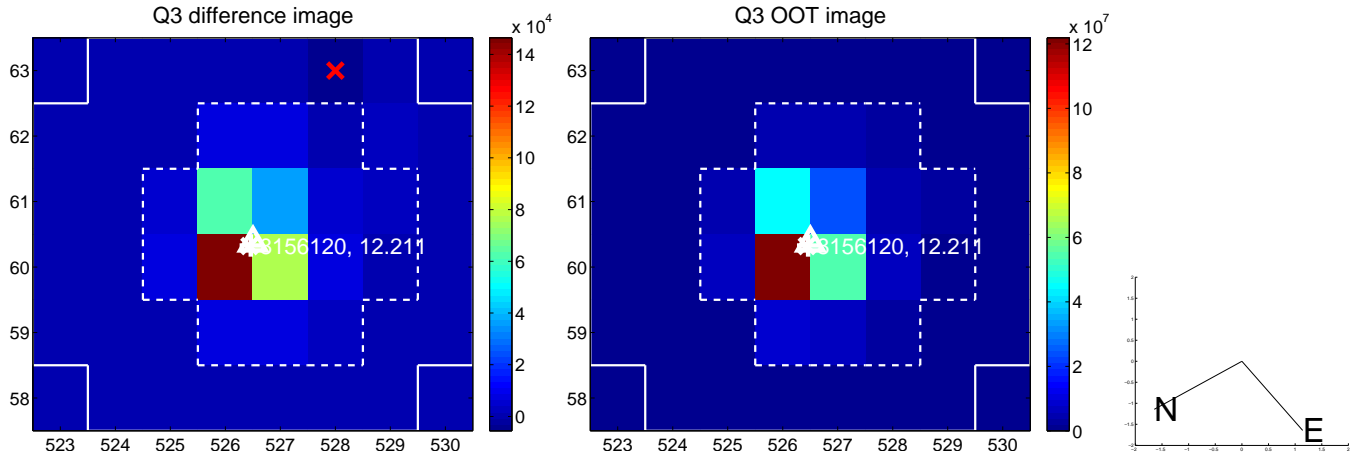
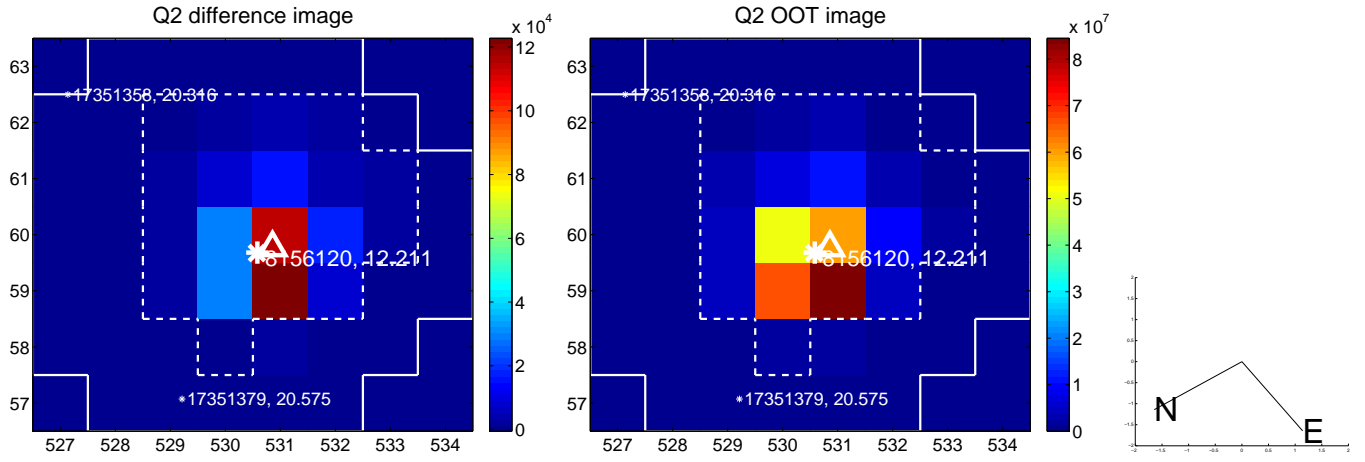
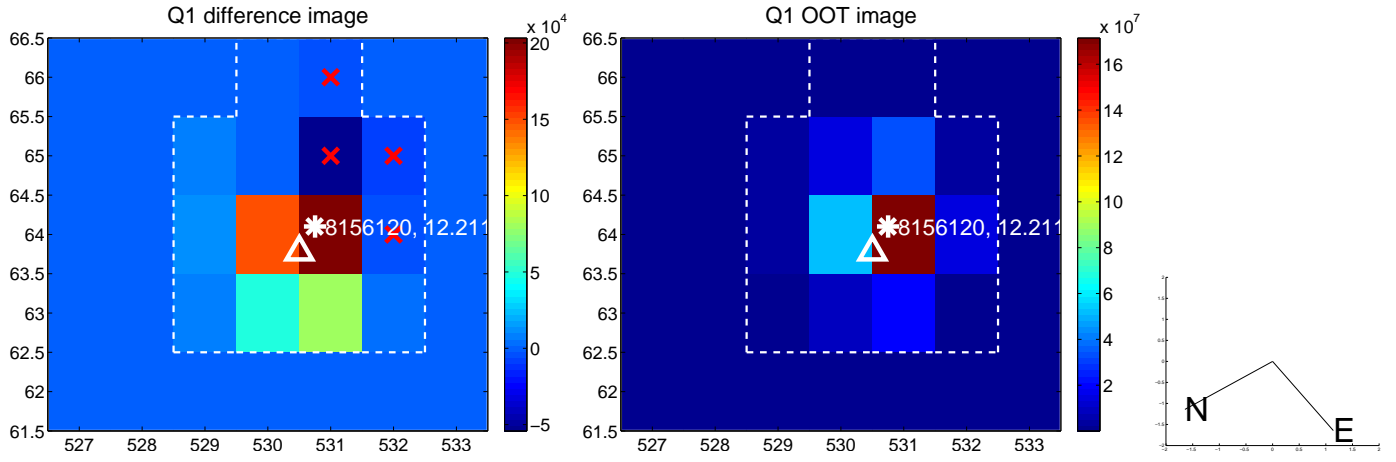
	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$0.087 \pm 0.112$	0.78	$0.082 \pm 0.113$	$-0.029 \pm 0.102$
PRF-fit source offset from KIC position	$0.114 \pm 0.113$	1.01	$0.083 \pm 0.108$	$-0.079 \pm 0.145$
photometric centroid source offset	$0.07 \pm 0.03$	2.14	$0.06 \pm 0.03$	$0.02 \pm 0.03$



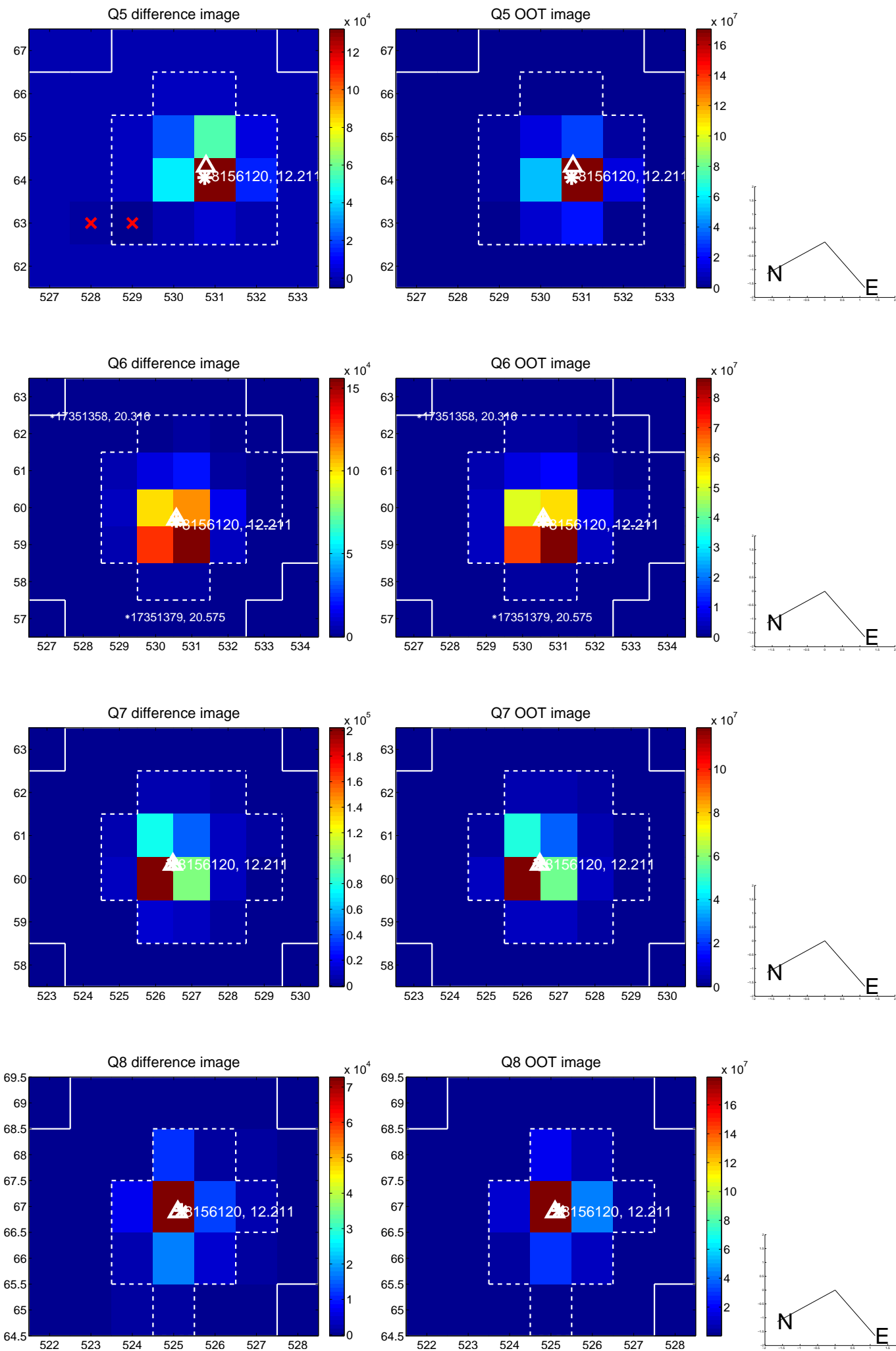
Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses:** good quarterly centroid offsets; **Vermillion crosses:** bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: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



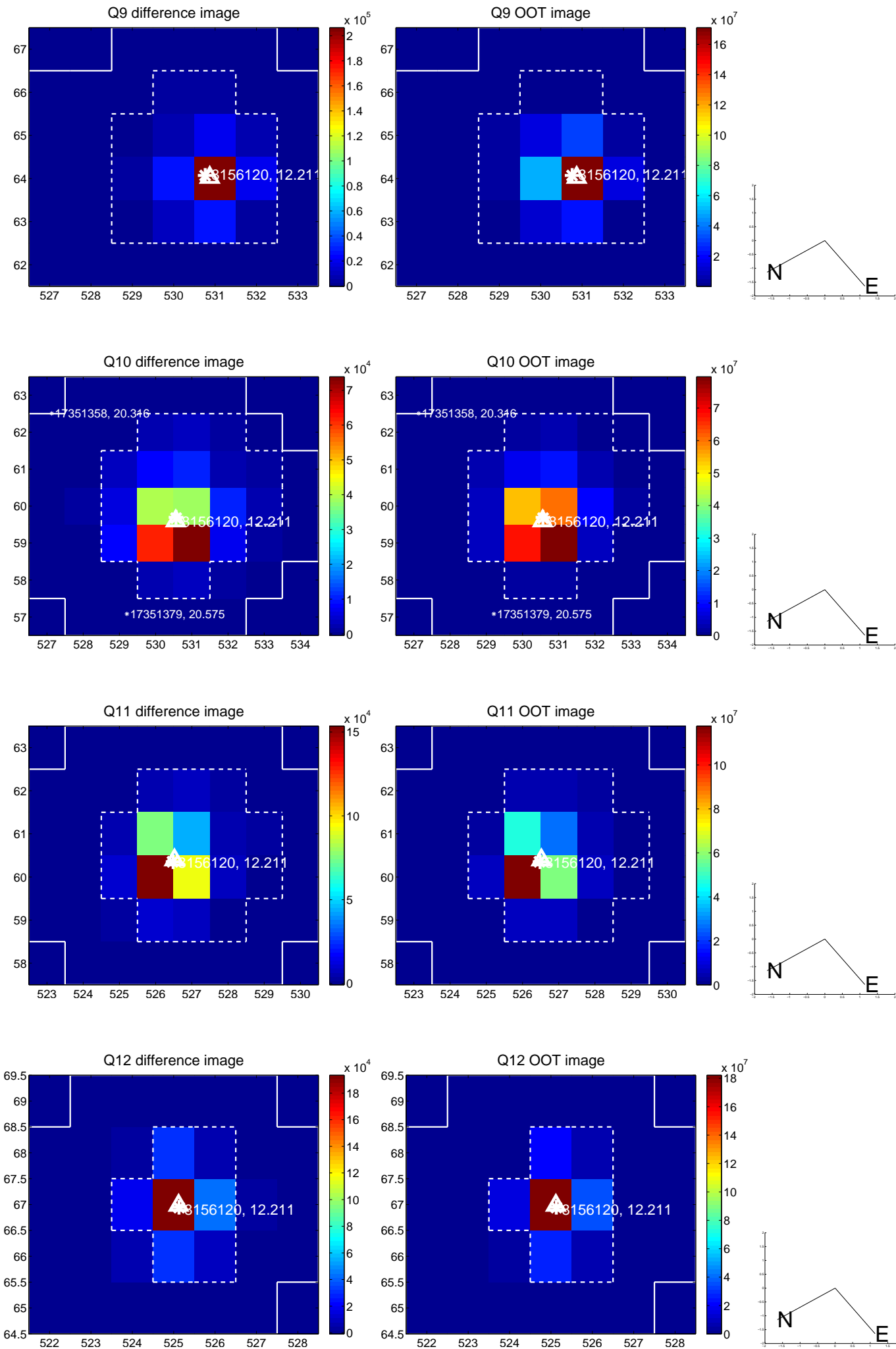
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



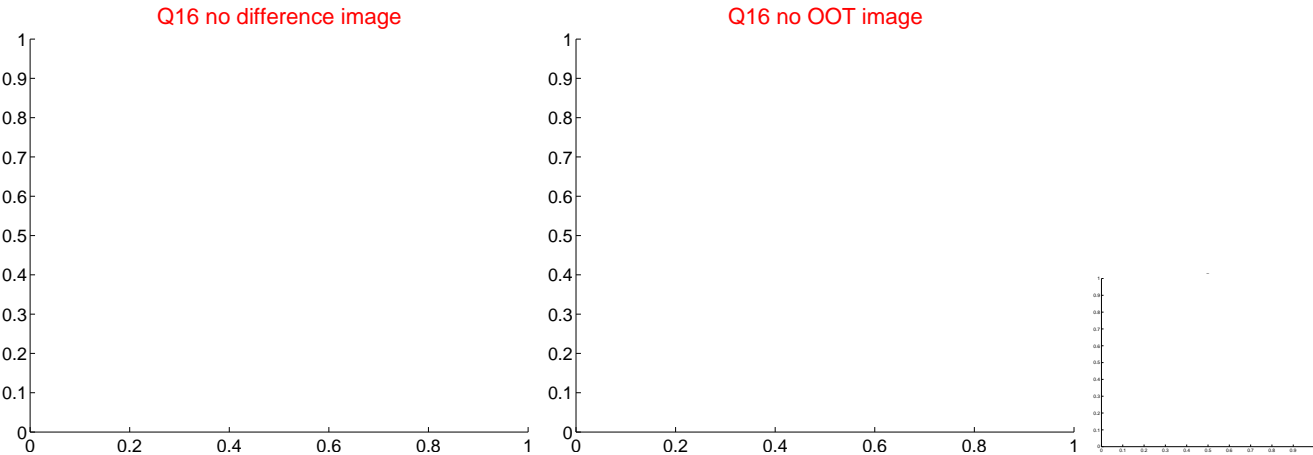
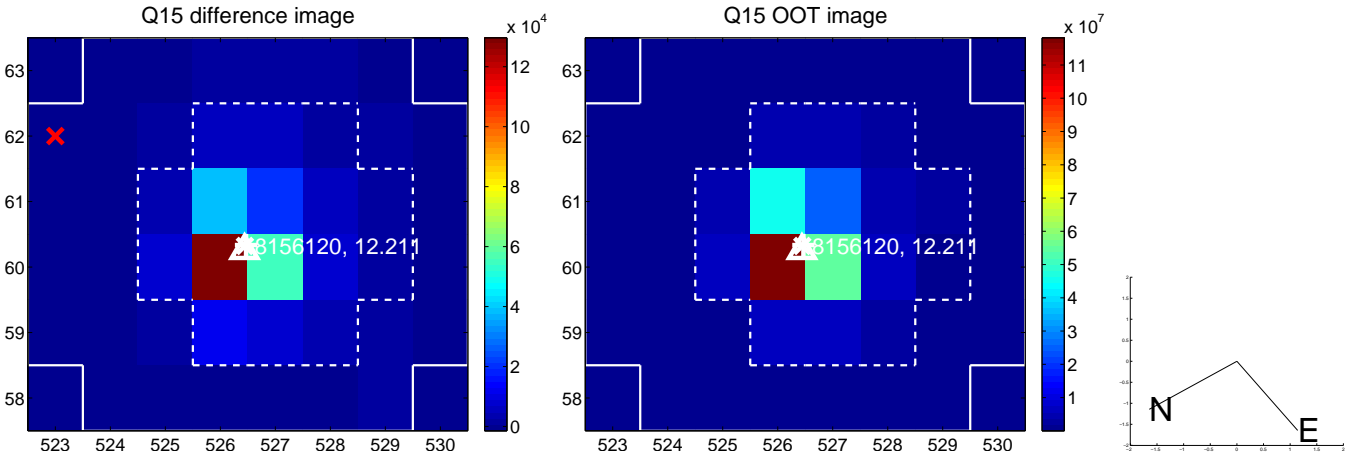
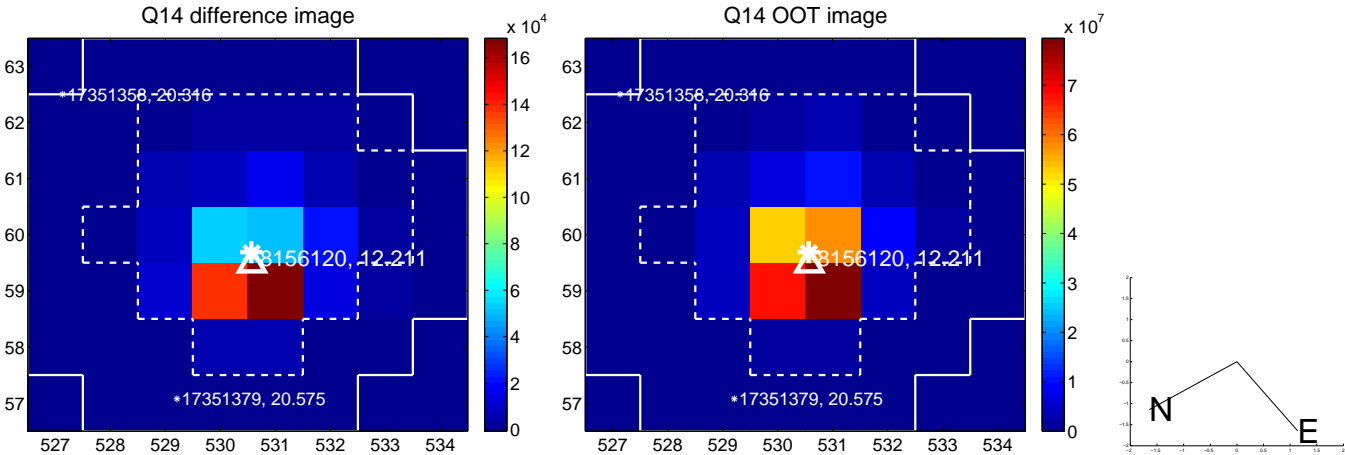
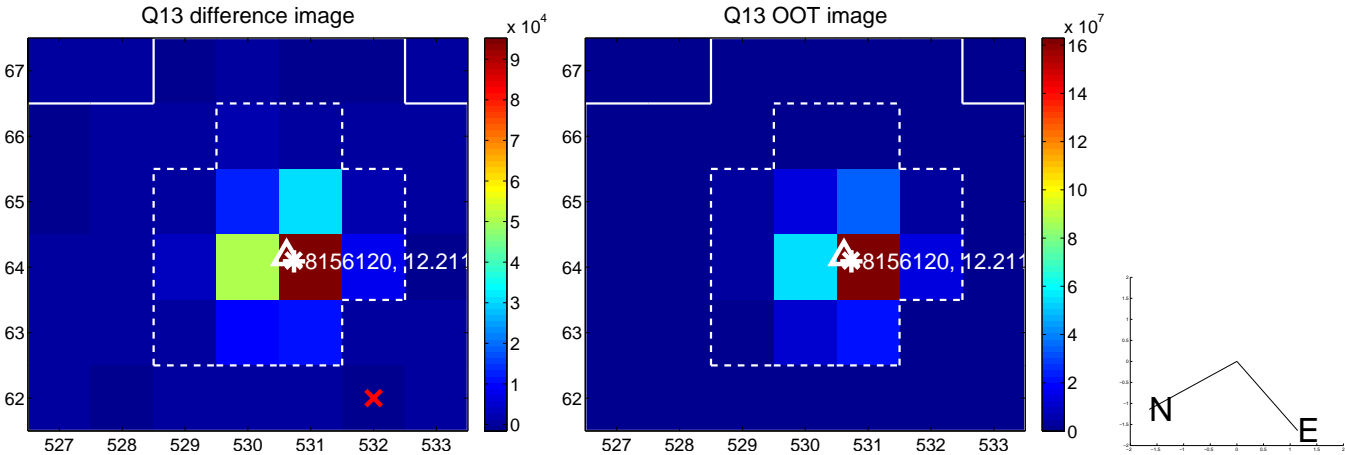
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



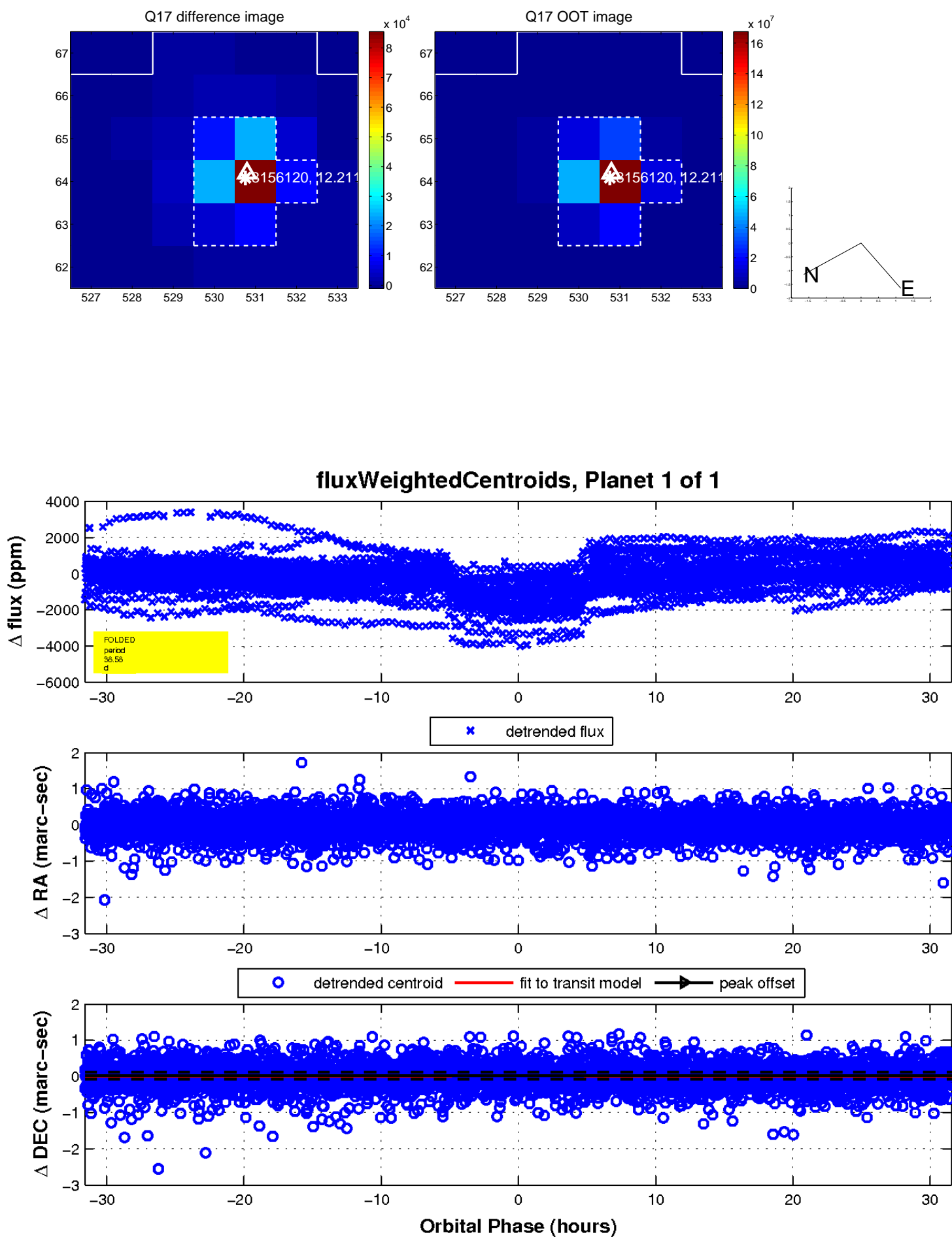
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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



UKIRT Image

Declination

