

# KIC 008506766

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
008506766-01	OBS	0138.01	48.937857	140.766923	7232.4	6.578	362.1	362.5	1.76	7066	23.88	80.52

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
008506766-01	OBS	FP	0.00	0	1	0	0	DEEP_V_SHAPED

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

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

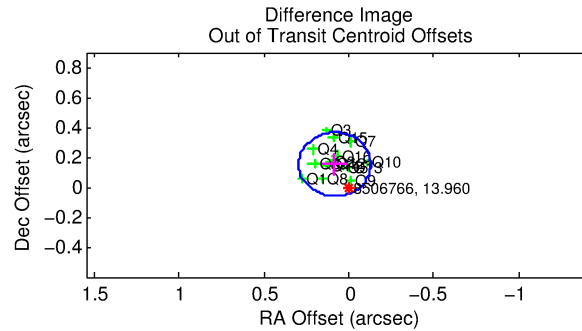
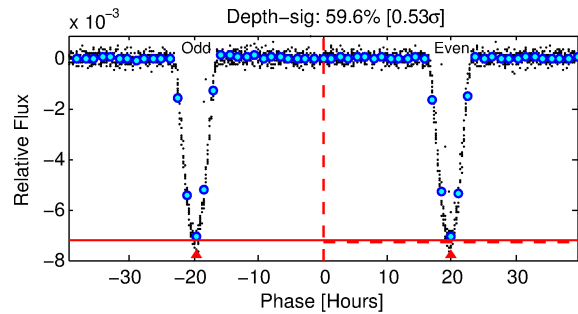
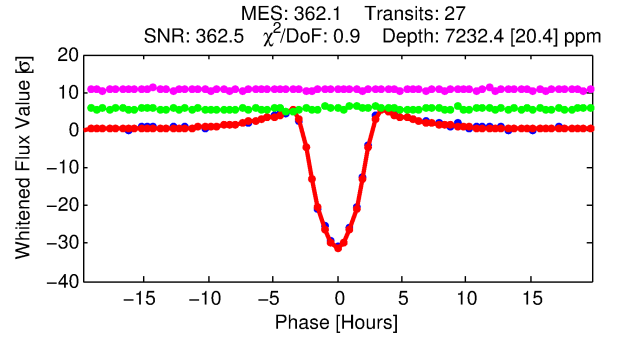
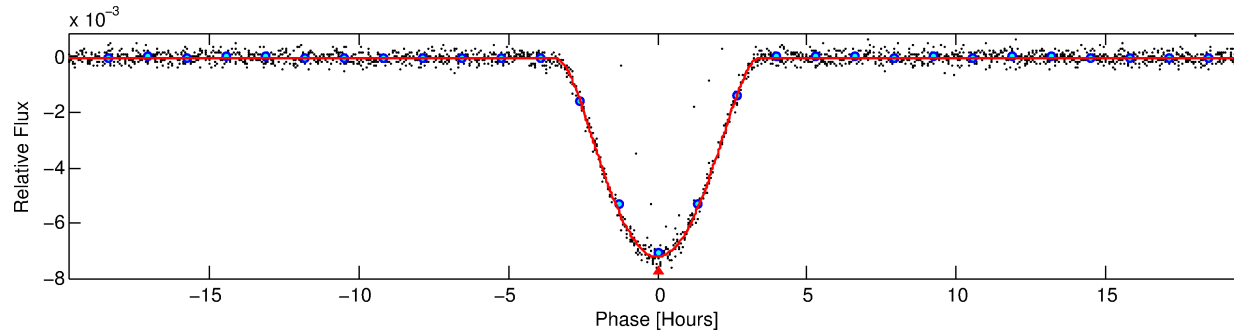
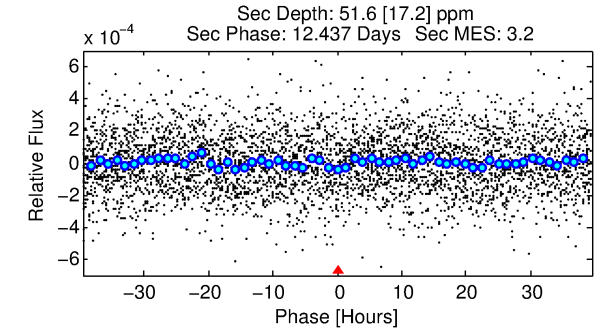
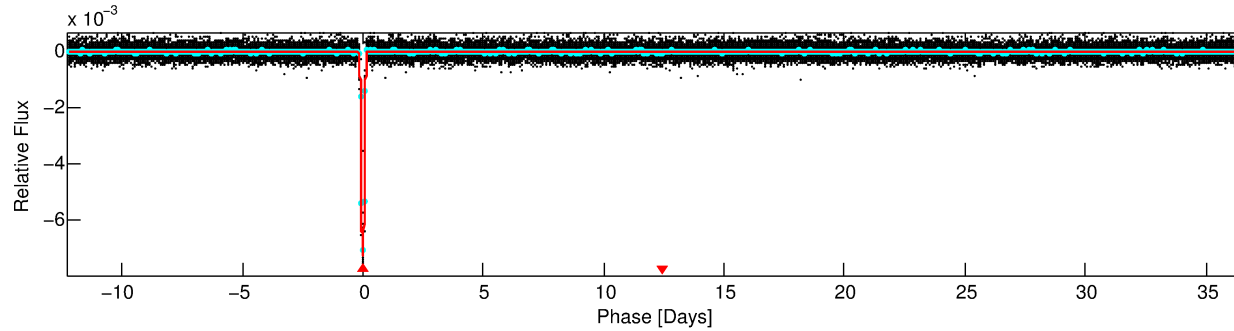
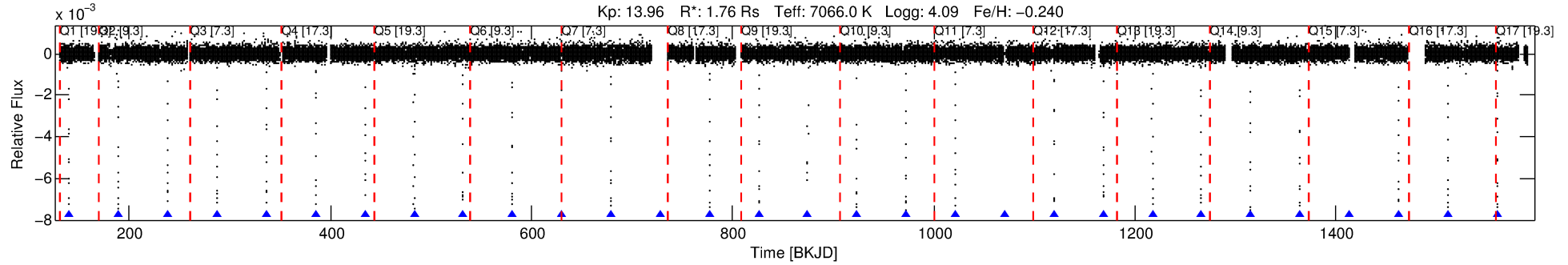
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

## Ephemeris Match Information For 008506766-01

No Significant Match Found

# DV One-Page Summary

KIC: 8506766 Candidate: 1 of 1 Period: 48.938 d  
KOI: K00138.01 Corr: 0.998



## DV Fit Results:

Period = 48.93786 [0.00002] d  
Epoch = 140.7669 [0.0004] BKJD  
Rp/R\* = 0.1242 [0.0084]  
a/R\* = 31.35 [0.46]  
b = 0.98 [0.01]  
Seff = 80.52 [32.41]  
Teq = 764 [77] K  
Rp = 23.88 [6.81] Re  
a = 0.2933 [0.0709] AU  
Ag = 4.28 [2.19] [1.50σ]  
Teffp = 1699 [170] K [5.01σ]

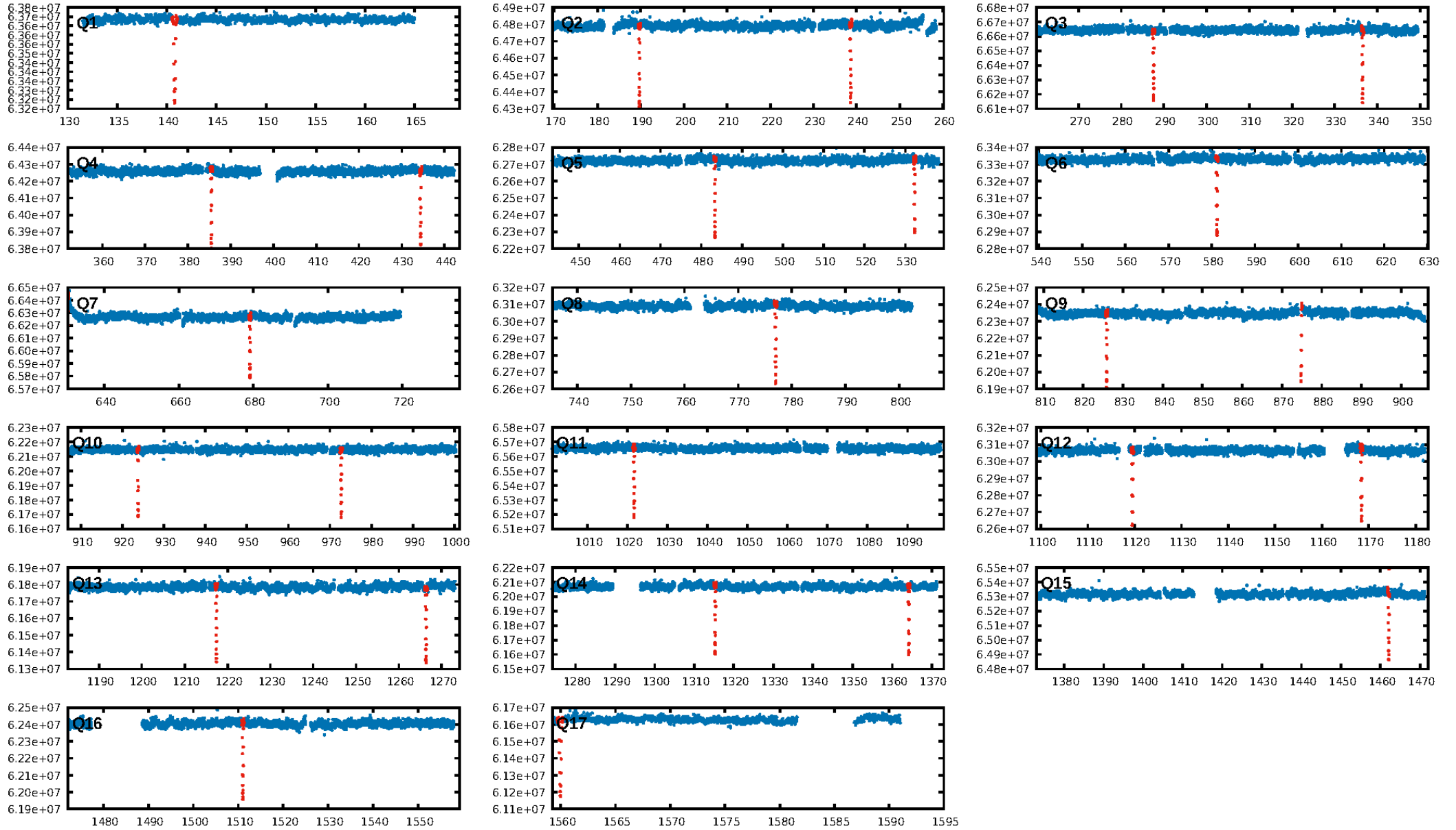
## DV Diagnostic Results:

ShortPeriod-sig: N/A  
LongPeriod-sig: N/A  
ModelChiSquare2-sig: 3.3%  
ModelChiSquareGof-sig: 100.0%  
Bootstrap-pfa: 0.00e+00  
RollingBand-fgt: 1.00 [25/25]  
GhostDiagnostic-chr: 7.298  
Centroid-sig: 0.0%  
Centroid-so: 0.123 arcsec [6.08σ]  
OotOffset-rm: 0.174 arcsec [2.46σ]  
KicOffset-rm: 0.134 arcsec [1.80σ]  
OotOffset-st: 4/3/4/4 [15]  
KicOffset-st: 4/3/4/4 [15]  
DiffImageQuality-fgm: 1.00 [15/15]  
DiffImageOverlap-fno: 1.00 [15/15]

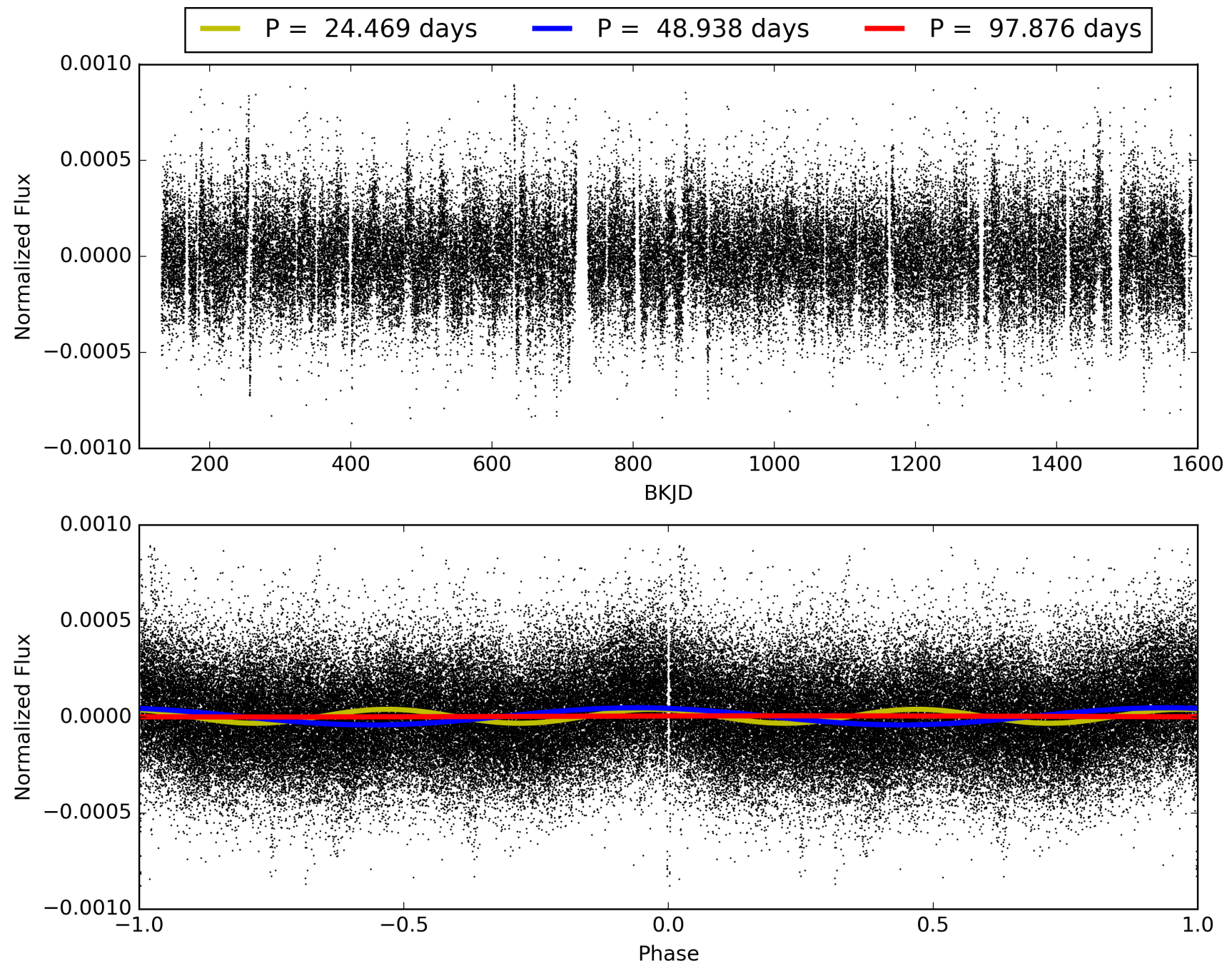
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 18:23:17 Z

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

# TCE 008506766-01, PDC Light Curves

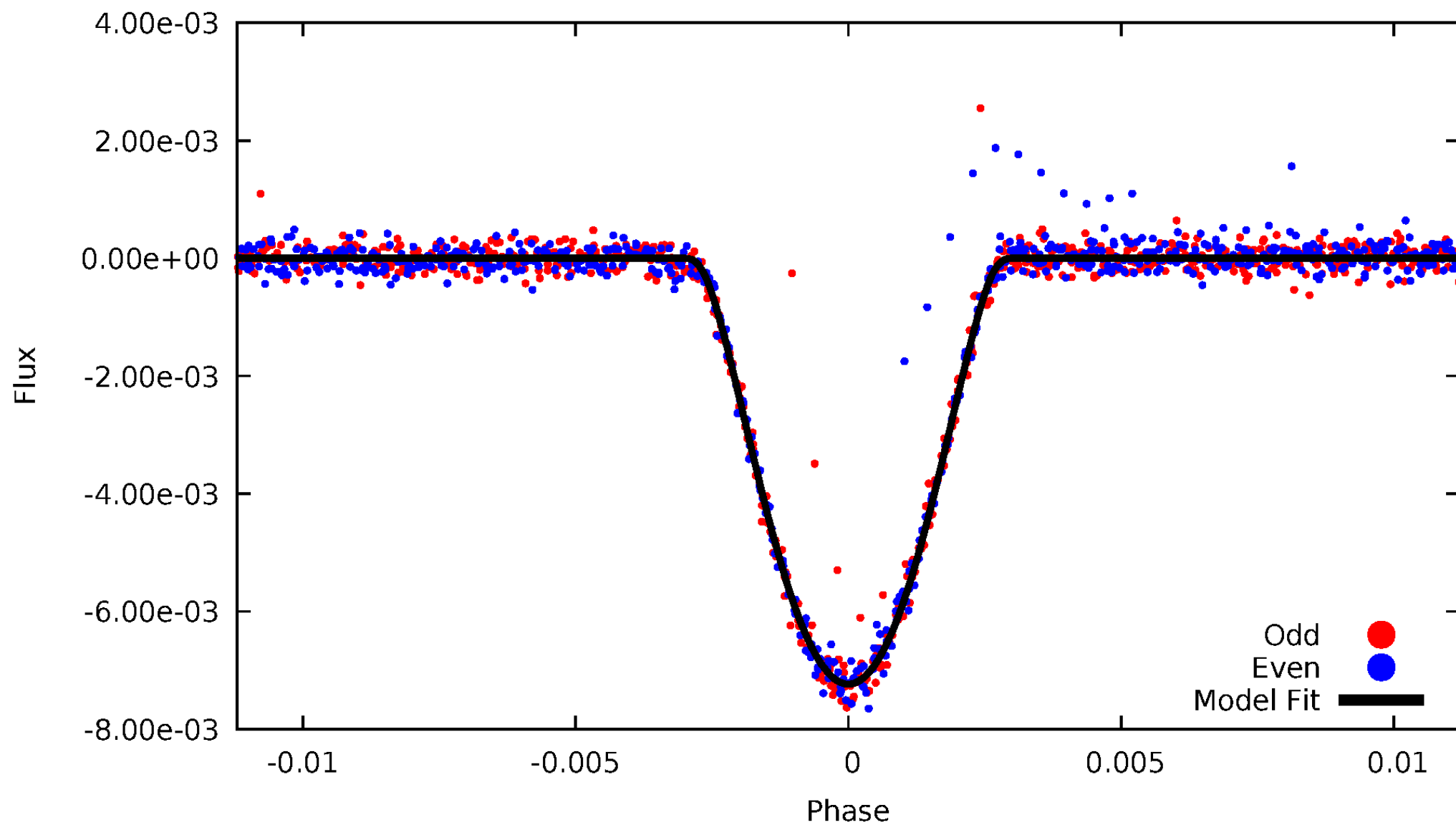


TCE 008506766-01



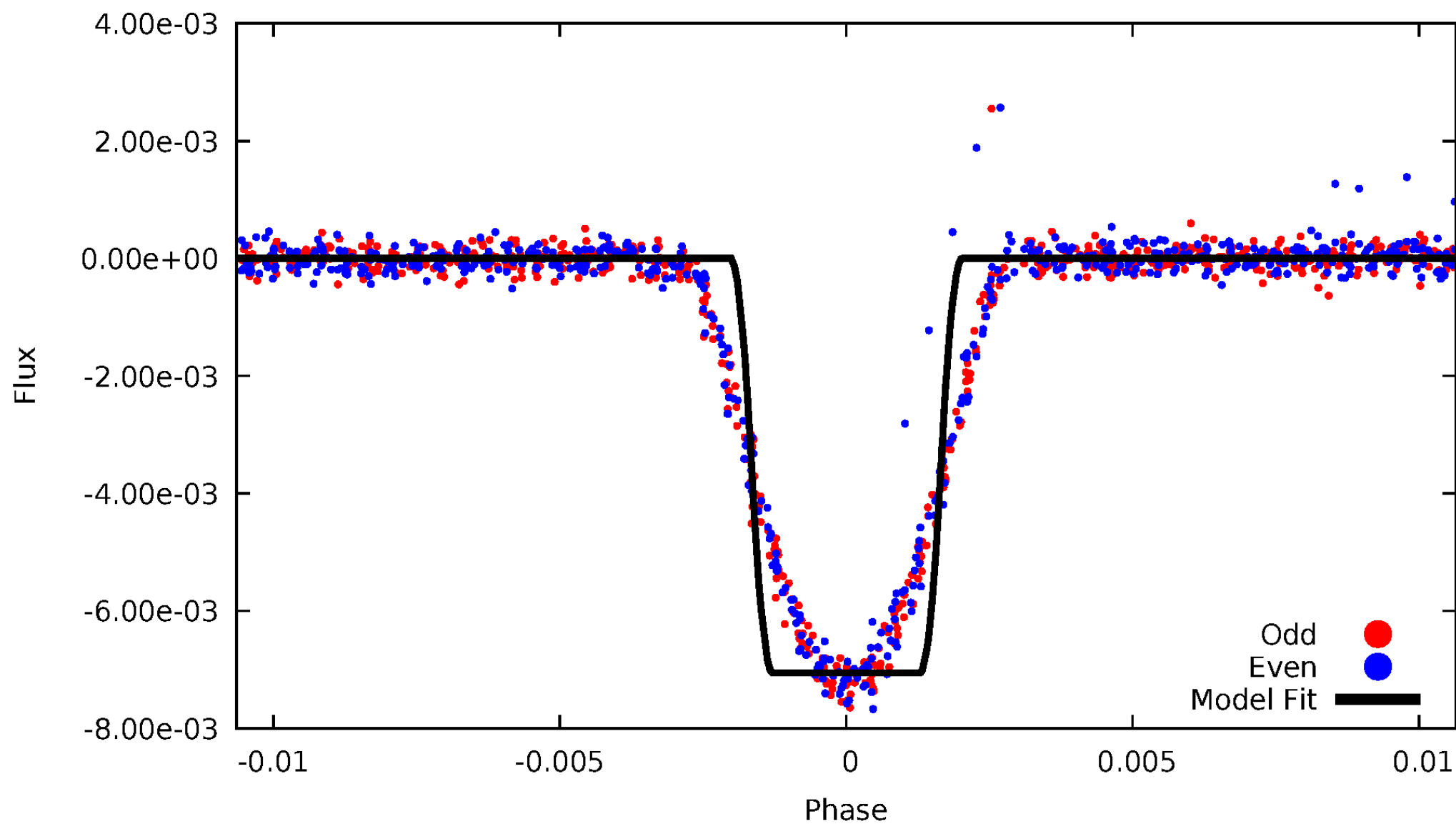
# DV Odd/Even

TCE 008506766-01

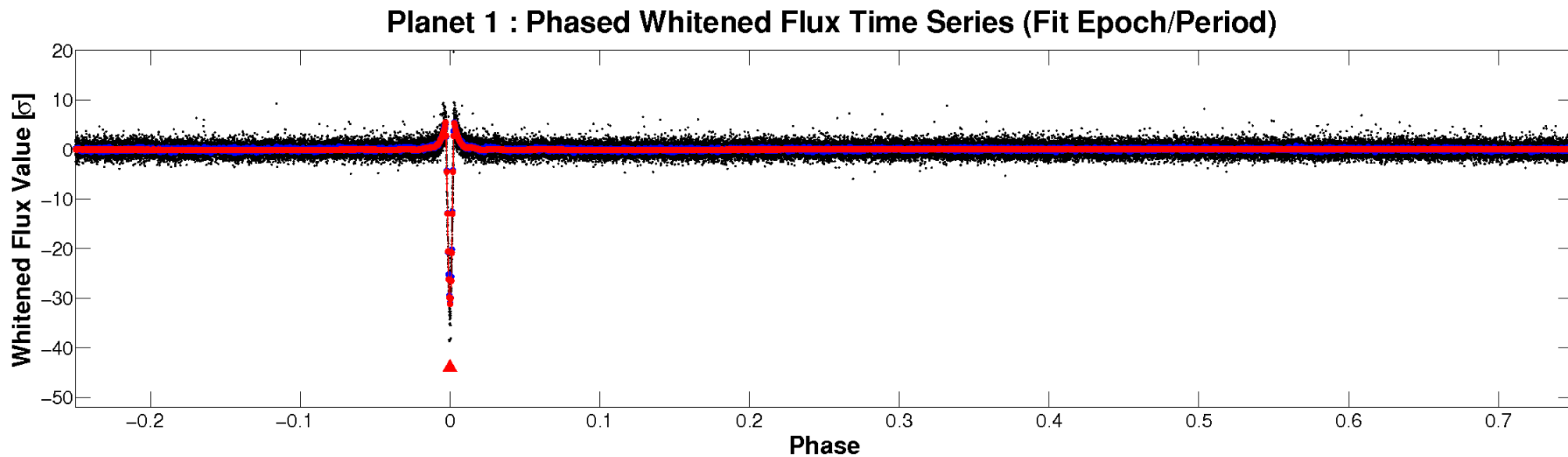
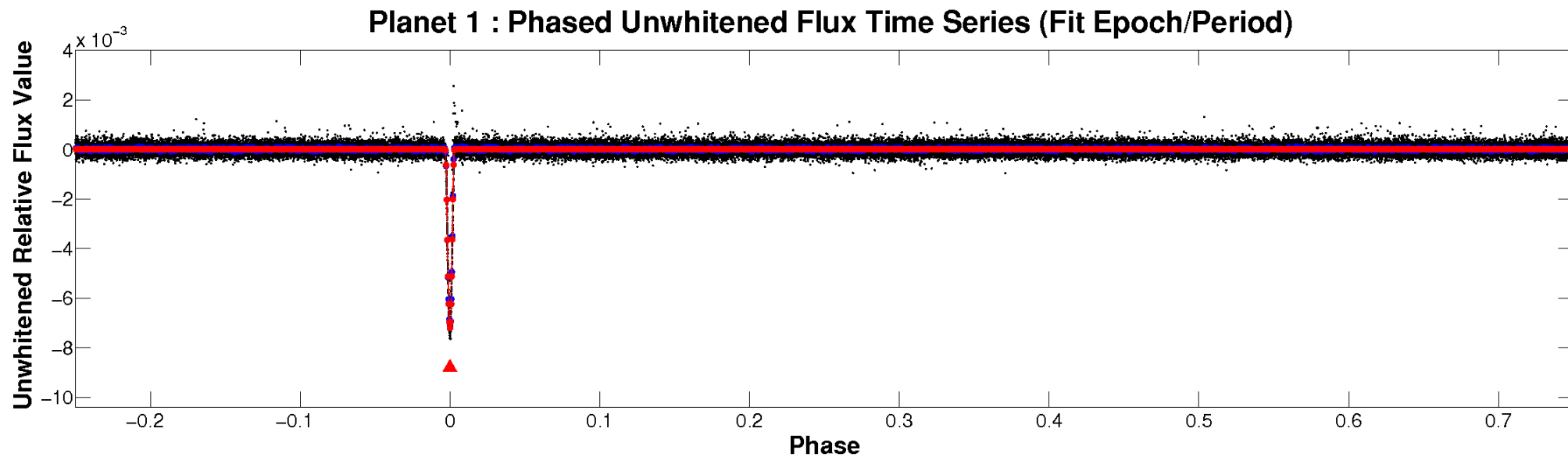


# ALT Odd/Even

TCE 008506766-01

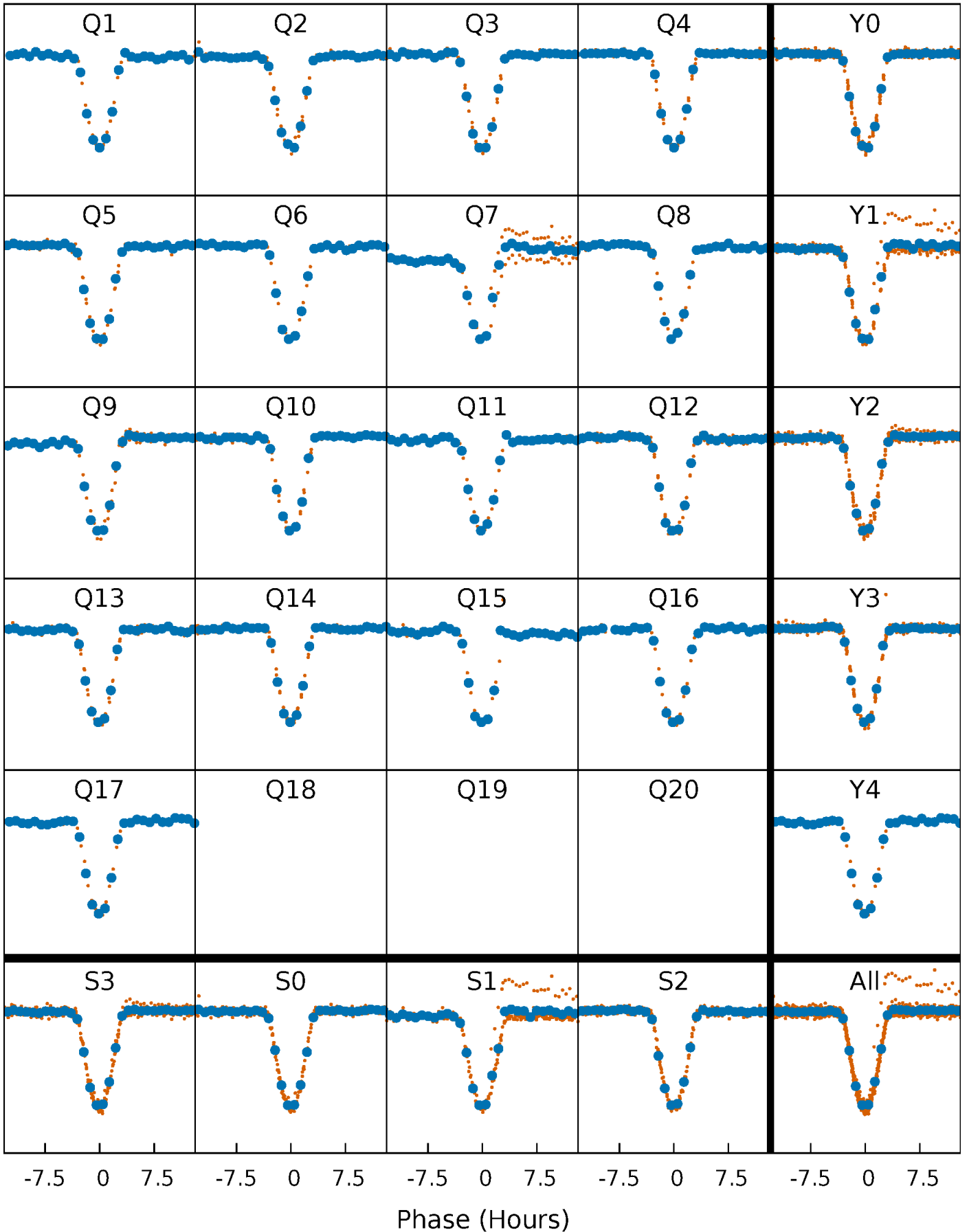


# Non-Whitened Vs. Whitened Light Curve



# PDC Quarter-Phased Transit Curves

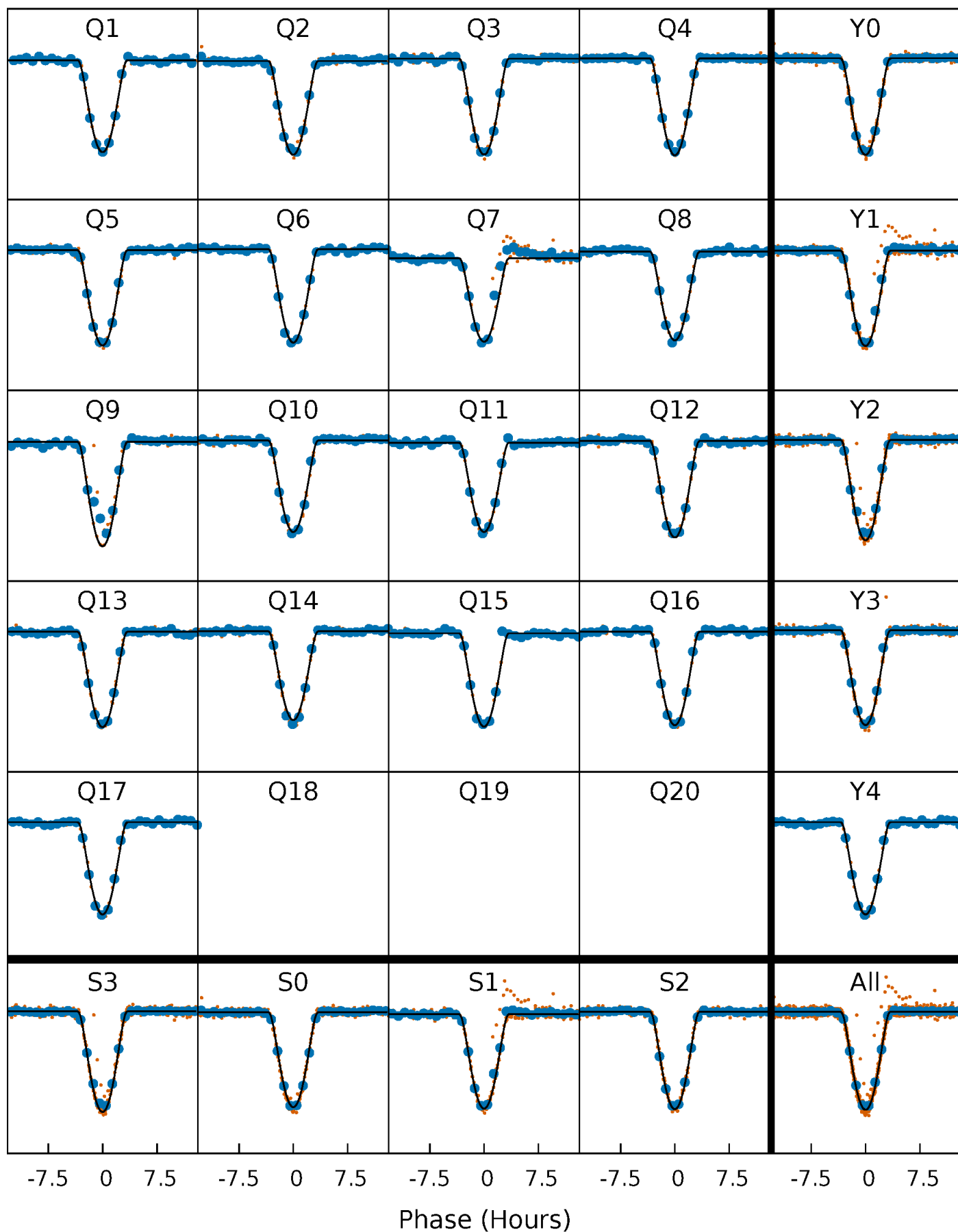
TCE 008506766-01 P= 48.937857 Days  $T_0=140.766923$  (BKJD)





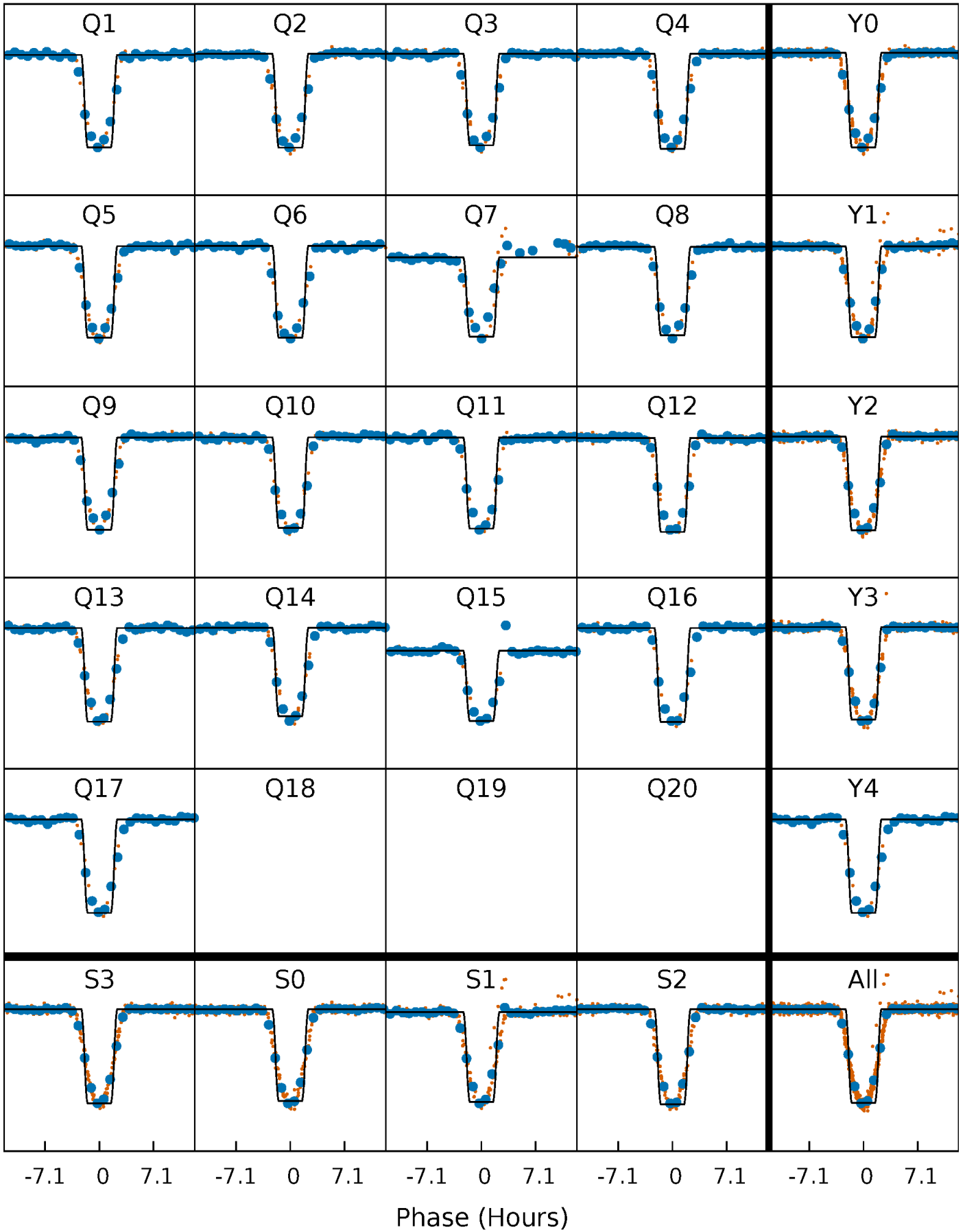
# DV Quarter-Phased Transit Curves

TCE 008506766-01 P= 48.937857 Days  $T_0=140.766923$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

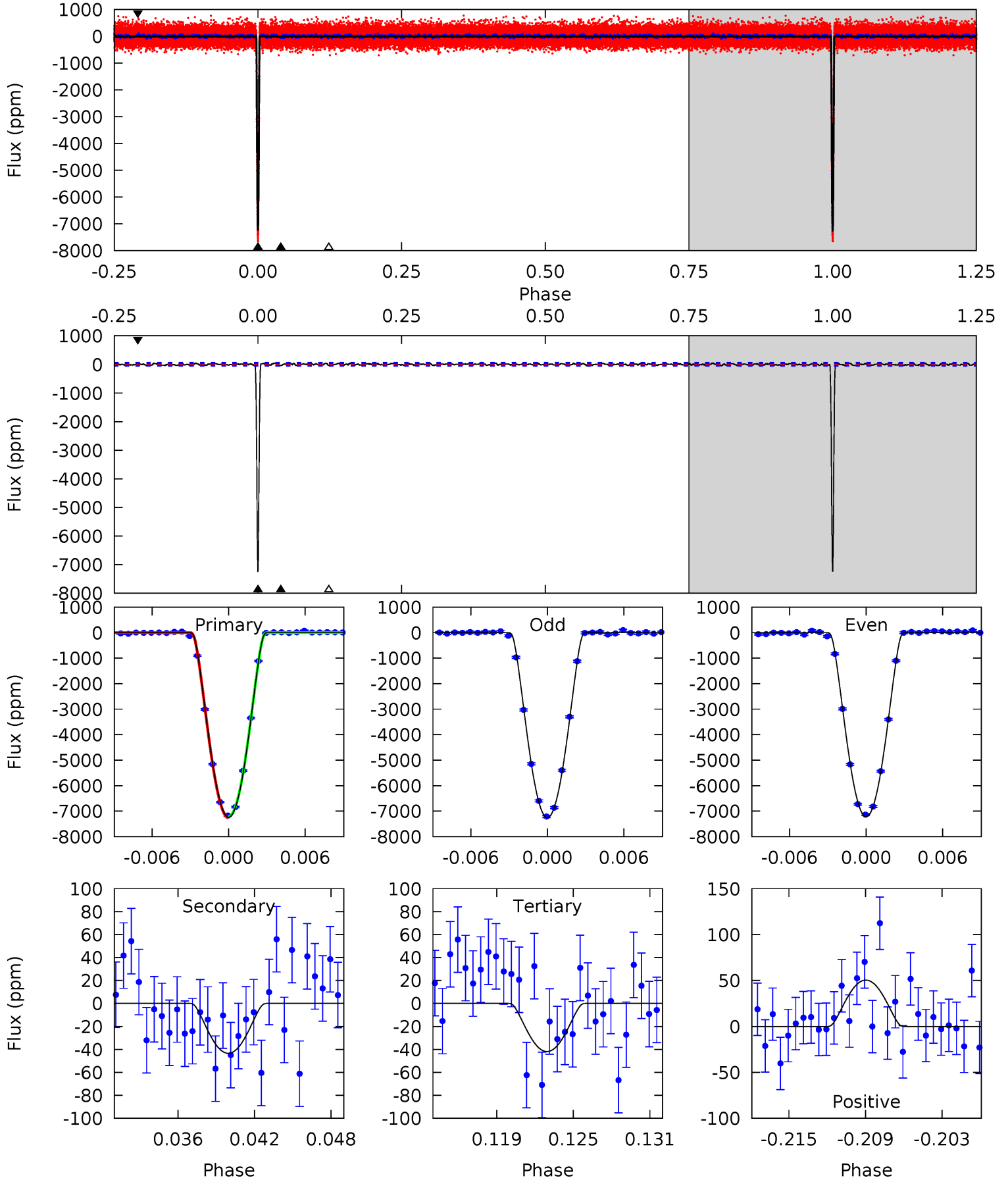
TCE 008506766-01 P= 48.937519 Days  $T_0=140.770547$  (BKJD)



# DV Model-Shift Uniqueness Test

008506766-01, P = 48.937857 Days, E = 91.829066 Days

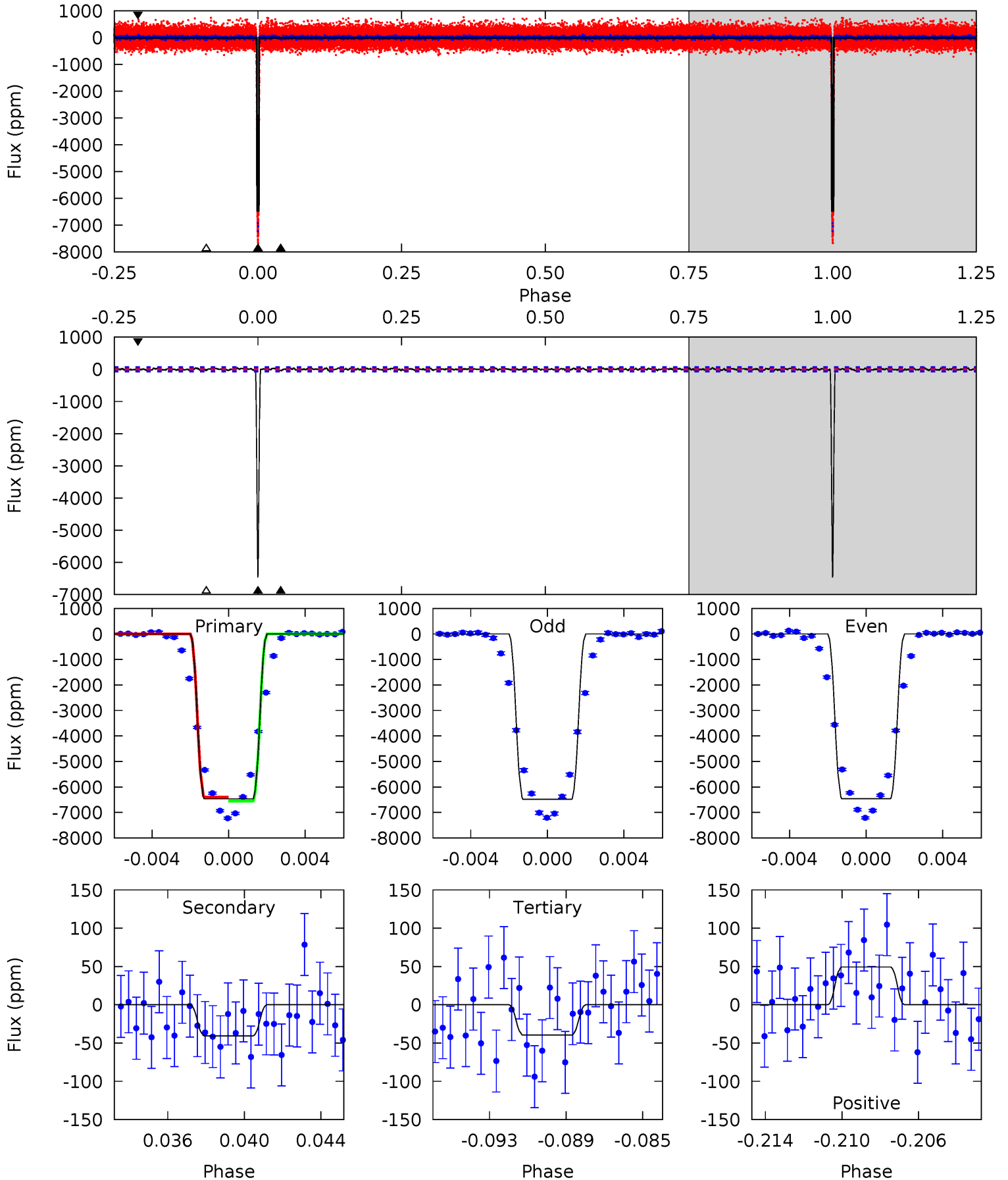
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
762.3	4.57	4.41	5.31	5.12	2.75	1.79	757.9	757.0	0.16	-0.74	1.79	0.96	0.01	2.83



# Alt Model-Shift Uniqueness Test

008506766-01, P = 48.937519 Days, E = 91.833028 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
536.4	3.37	3.29	4.10	5.20	2.87	1.22	533.1	532.3	0.08	-0.73	0.97	0.98	0.01	6.44



### Stellar Parameters For KIC 008506766

	$T_{\text{eff}} (K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R (R_{\odot})$	$M (M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	$7066^{+197}_{-310}$	$4.094^{+0.203}_{-0.166}$	$-0.240^{+0.250}_{-0.350}$	$1.761^{+0.488}_{-0.488}$	$1.406^{+0.208}_{-0.255}$	$0.363^{+0.427}_{-0.187}$
	+3%/-4%	+5%/-4%	+104%/-146%	+28%/-28%	+15%/-18%	+118%/-52%
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 008506766-01 / KOI 0138.01

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	$A_{\text{obs}}$
DV	$-43 \pm 9$	$23.84^{+3.77}_{-3.66}$	$1060^{+86}_{-81}$	$2449^{+83}_{-100}$	$3.621^{+1.633}_{-1.131}$
Alt.	$-41 \pm 12$	$15.93^{+3.10}_{-2.71}$	$1057^{+83}_{-89}$	$2686^{+132}_{-150}$	$7.386^{+4.434}_{-2.831}$

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

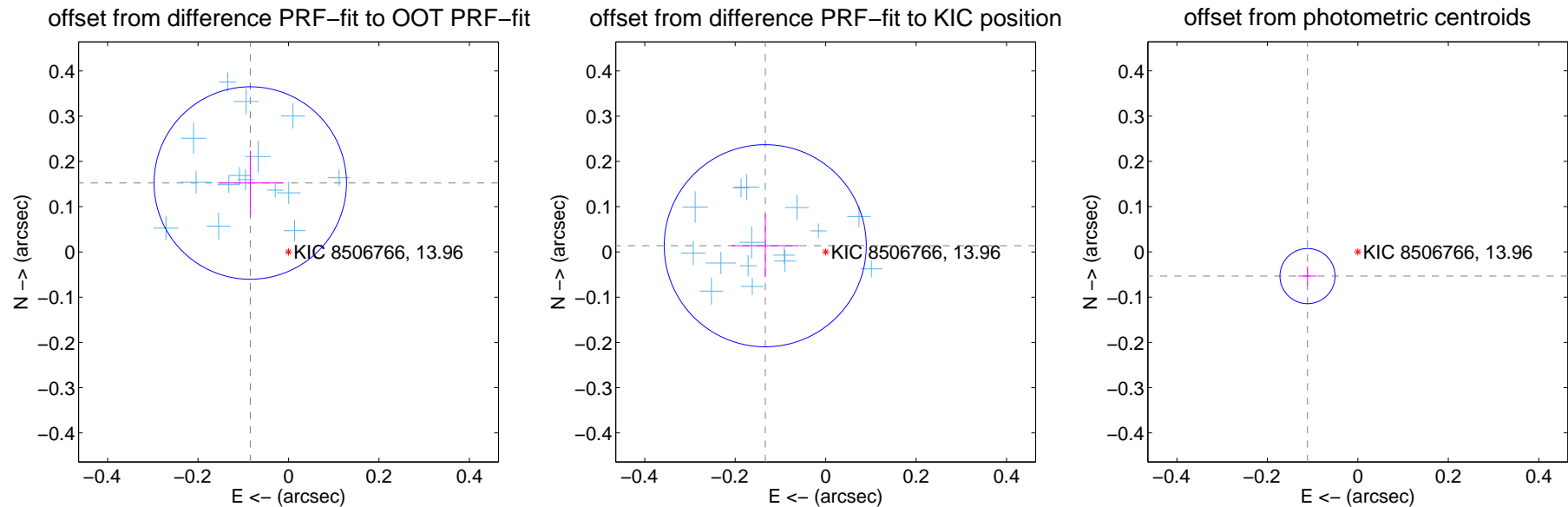
## DV Centroid Data

Supplemental centroid analysis for 008506766-01. Kepler magnitude: 13.96. Transit SNR 362.49

There are 15 quarters with good PRF difference image offsets

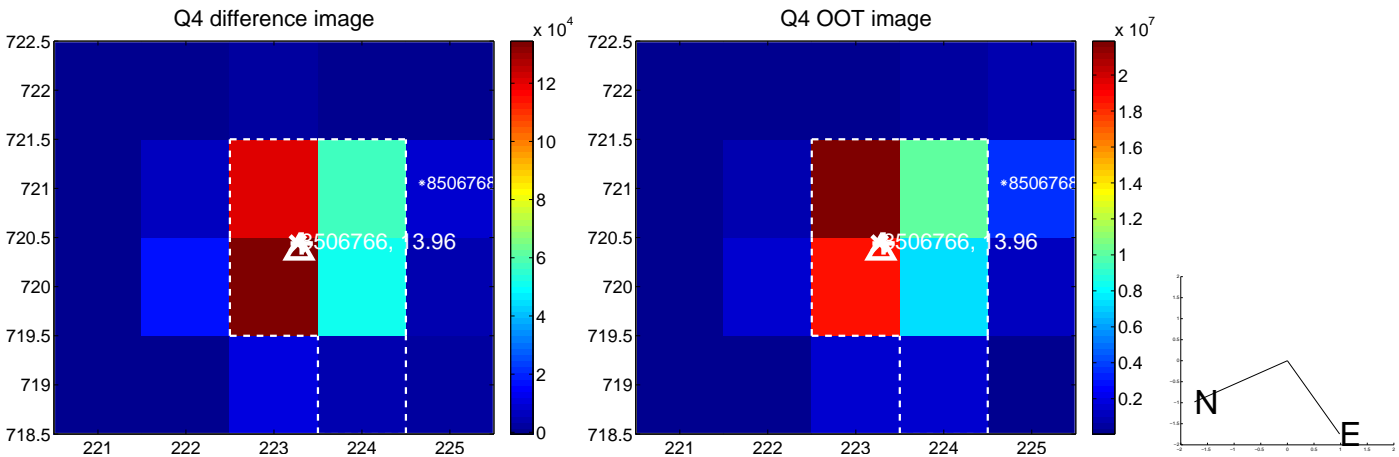
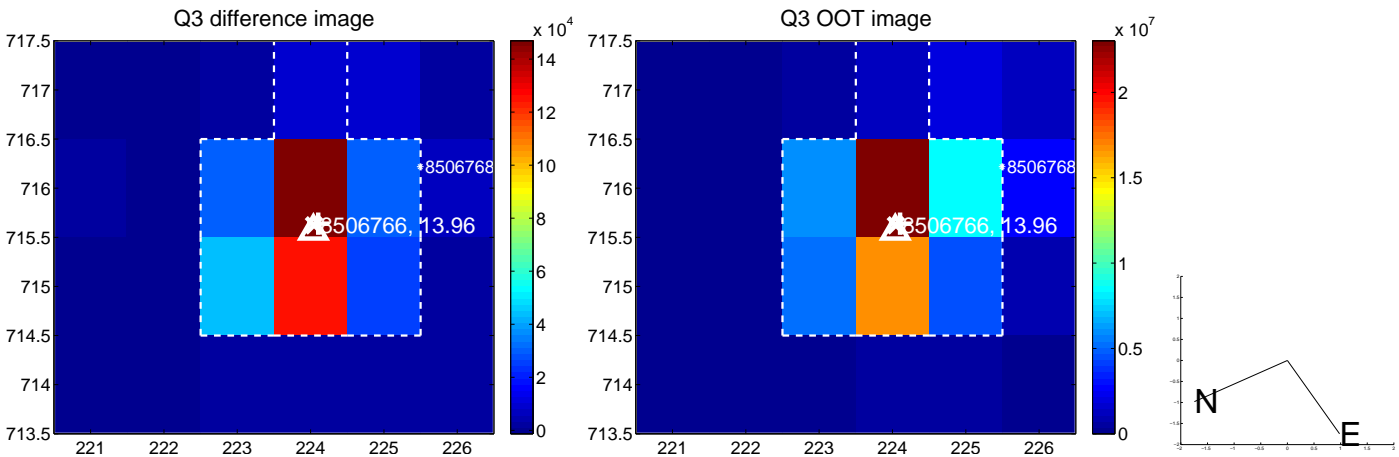
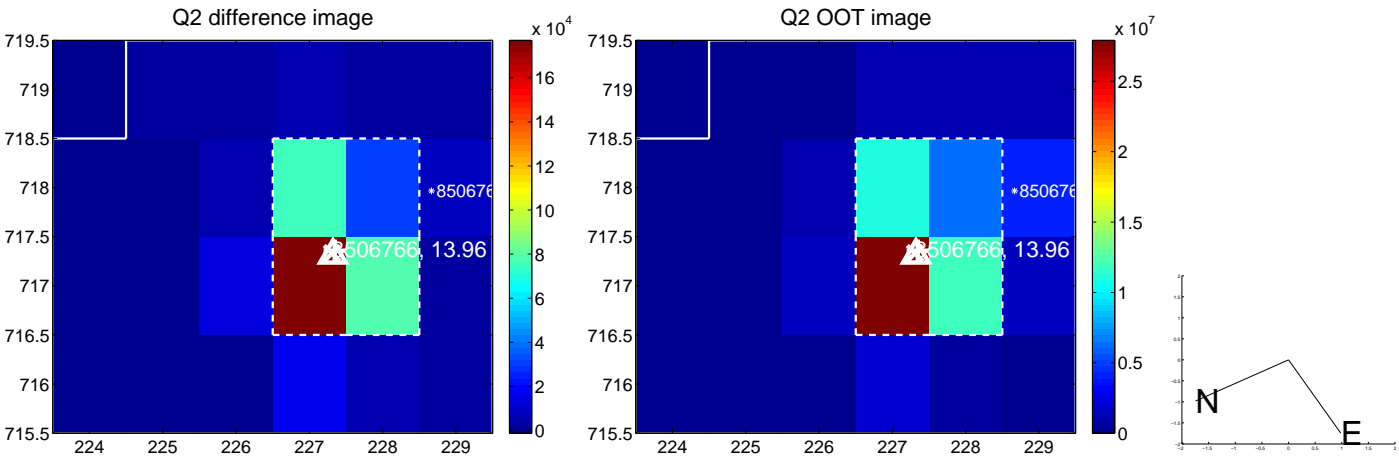
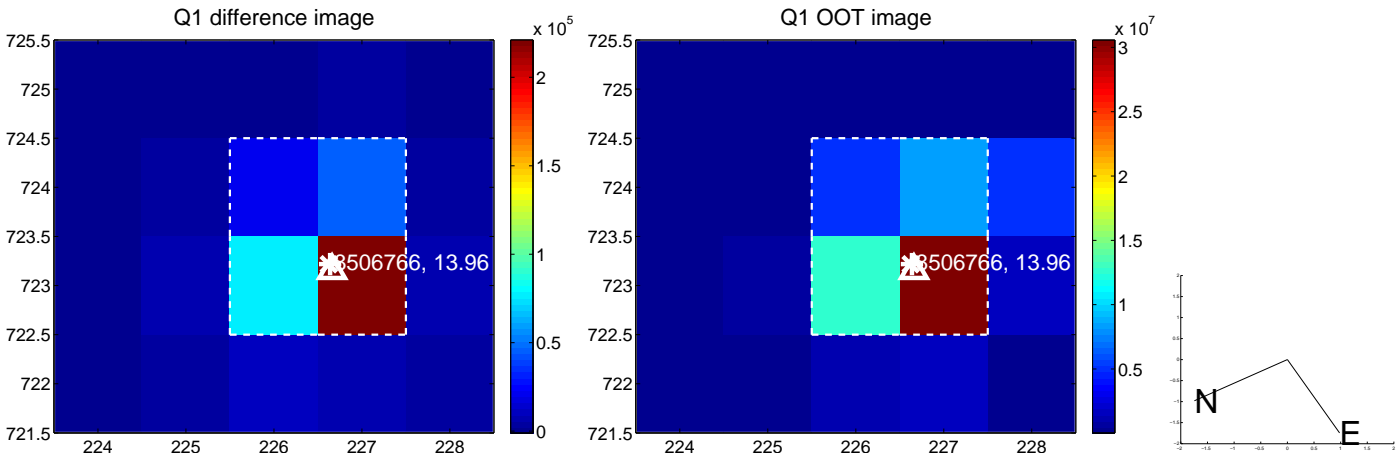
The direct PRF centroid is offset from the target star catalog position by about 0.21 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$0.174 \pm 0.071$	2.46	$0.084 \pm 0.072$	$0.152 \pm 0.071$
PRF-fit source offset from KIC position	$0.134 \pm 0.074$	1.80	$0.134 \pm 0.074$	$0.014 \pm 0.070$
photometric centroid source offset	$0.12 \pm 0.02$	6.08	$0.11 \pm 0.02$	$-0.05 \pm 0.02$

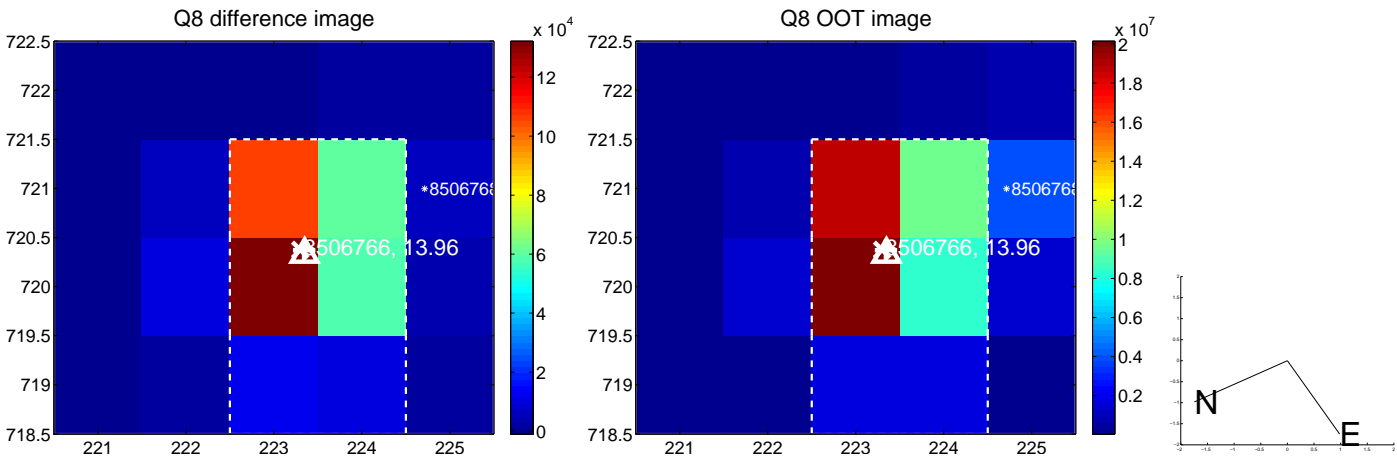
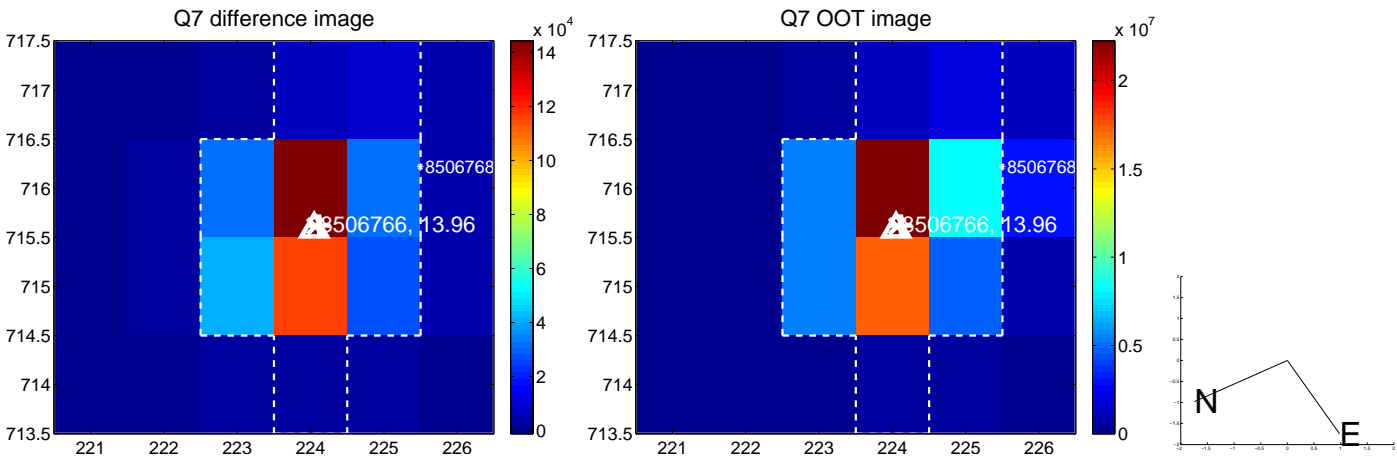
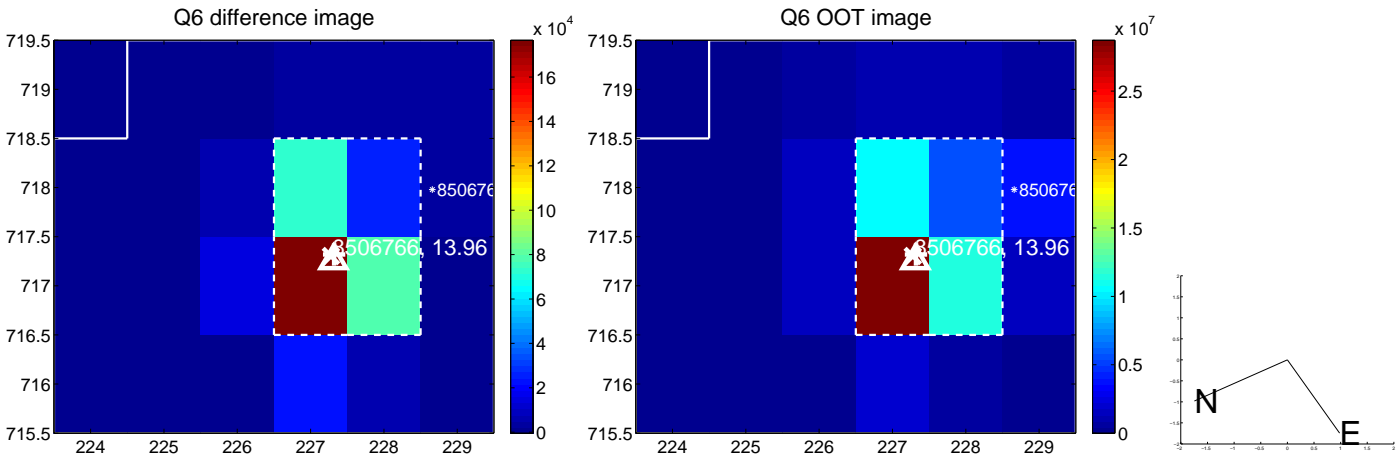
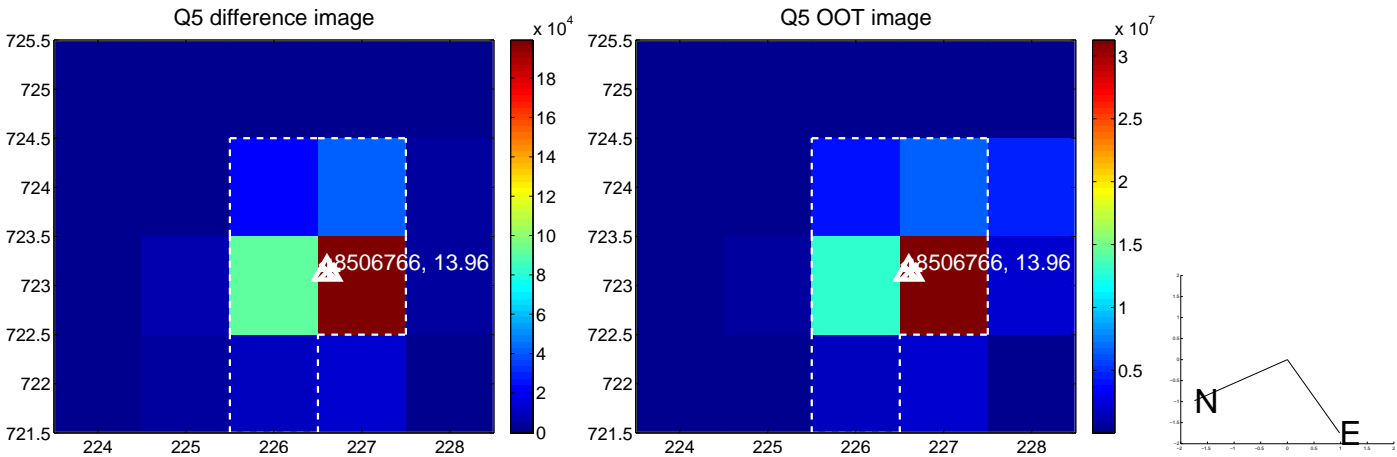


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses:** good quarterly centroid offsets; **Vermillion crosses:** bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: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

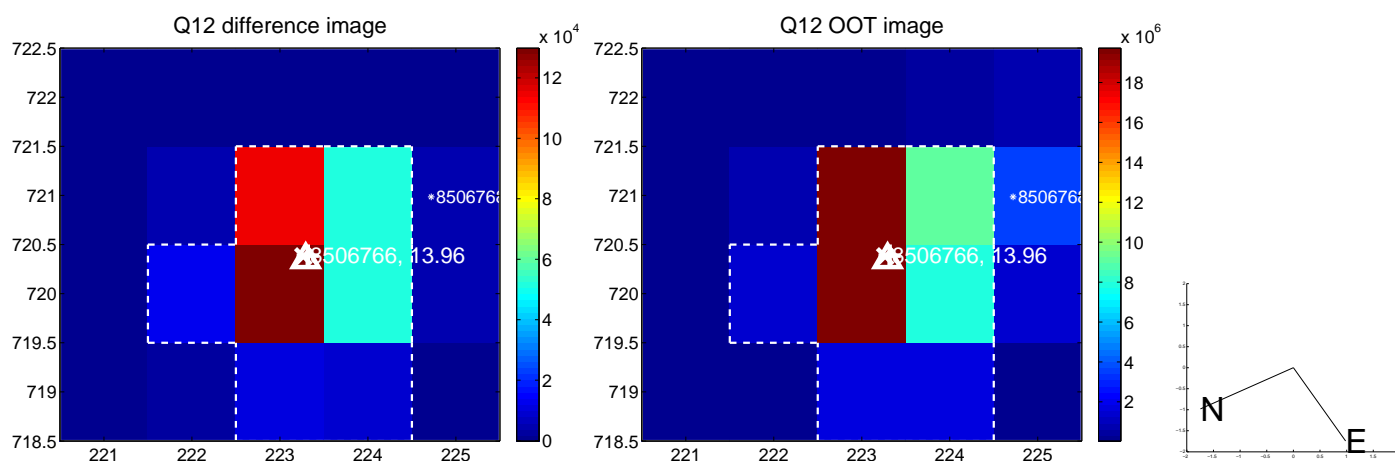
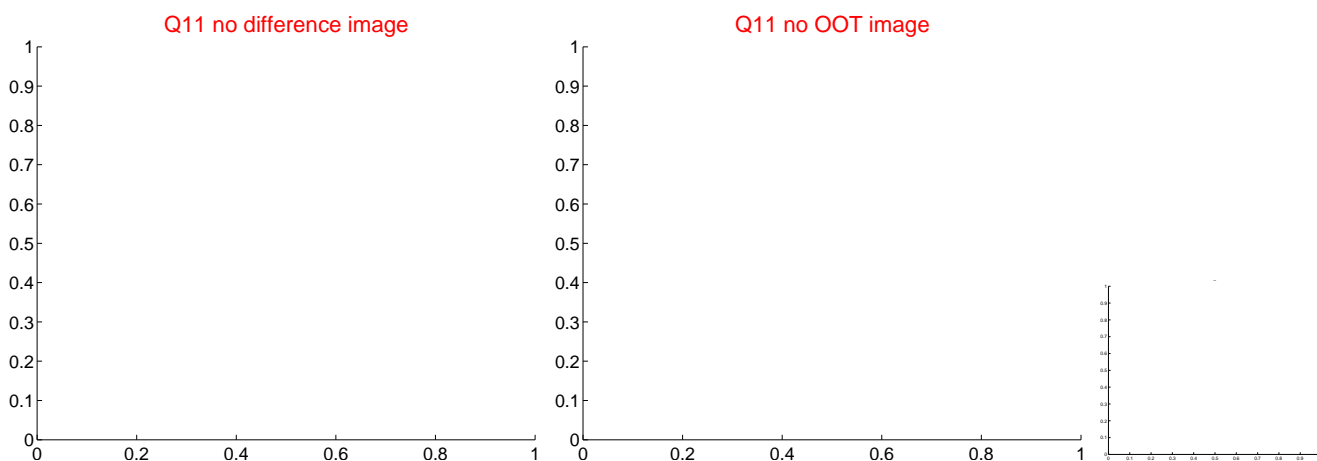
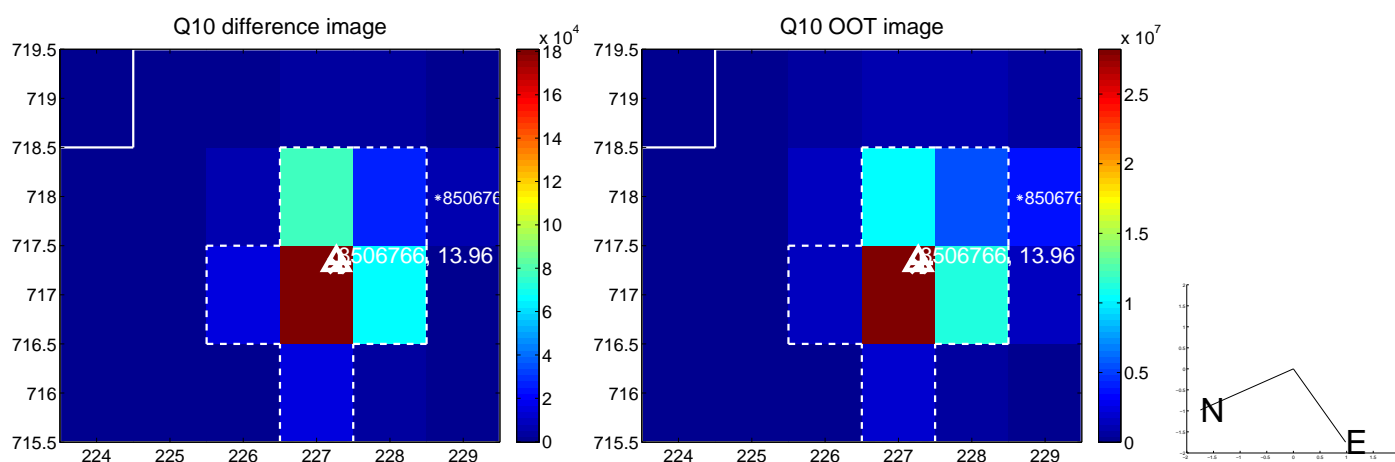
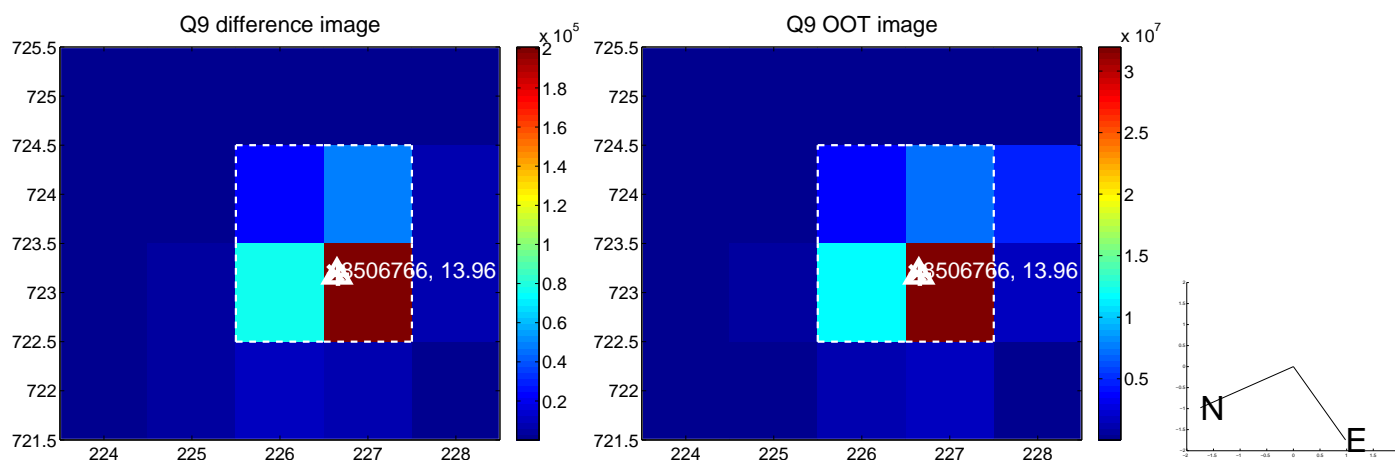


white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.

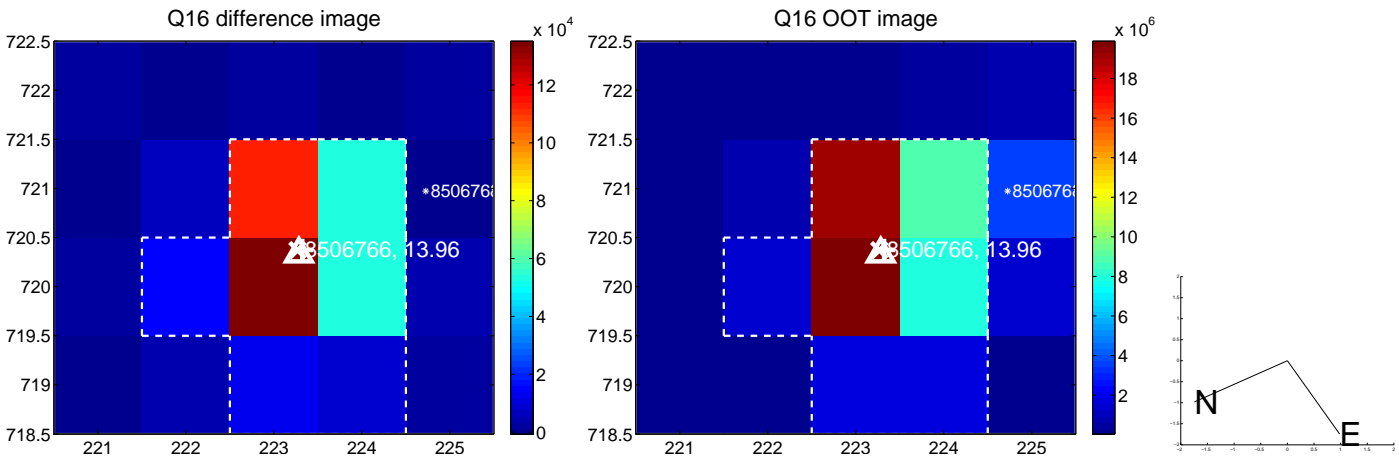
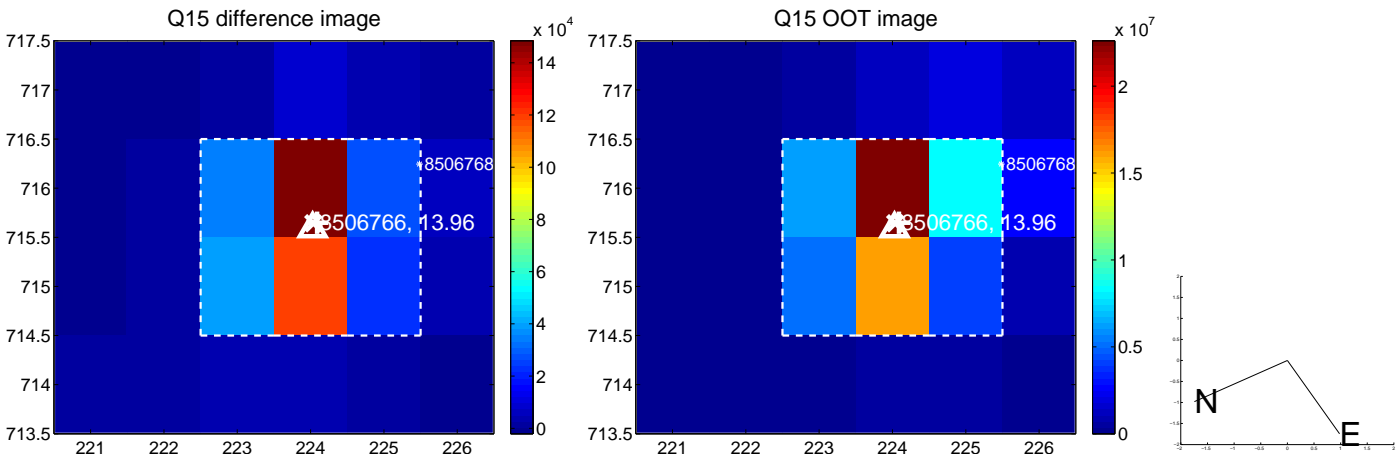
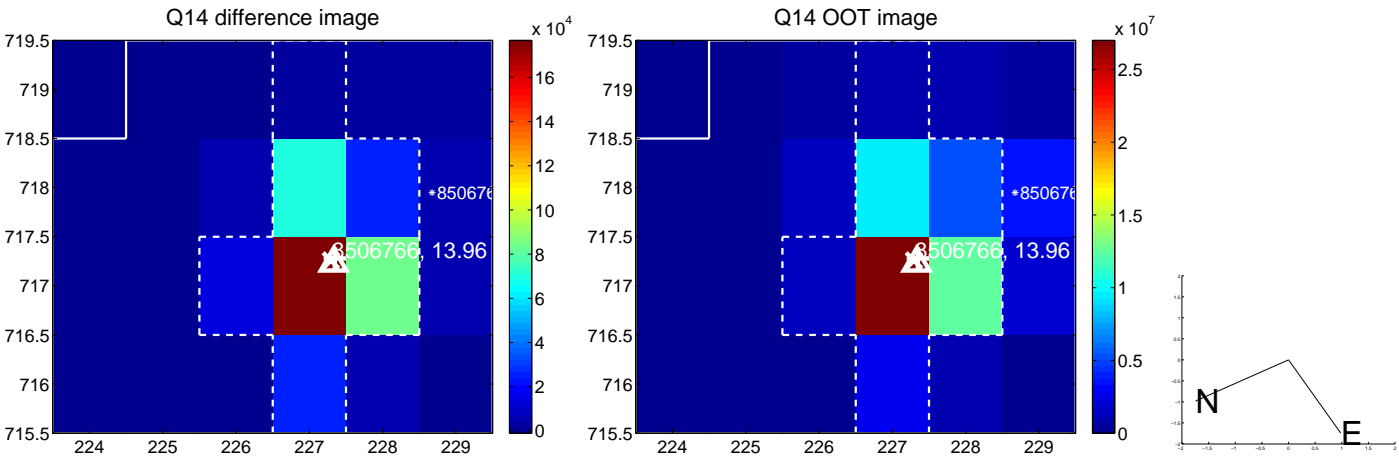
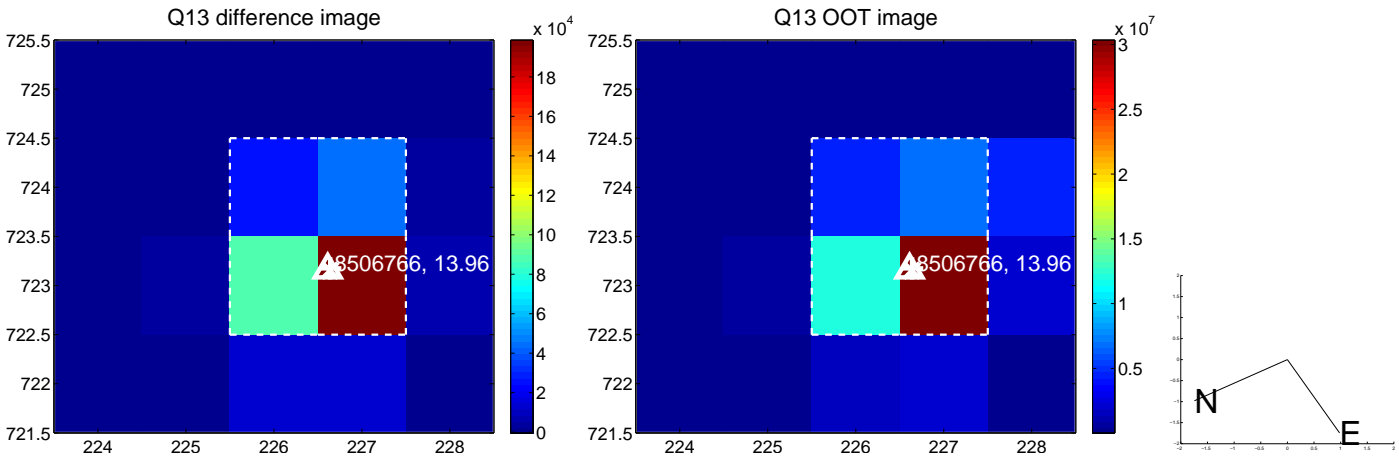




white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



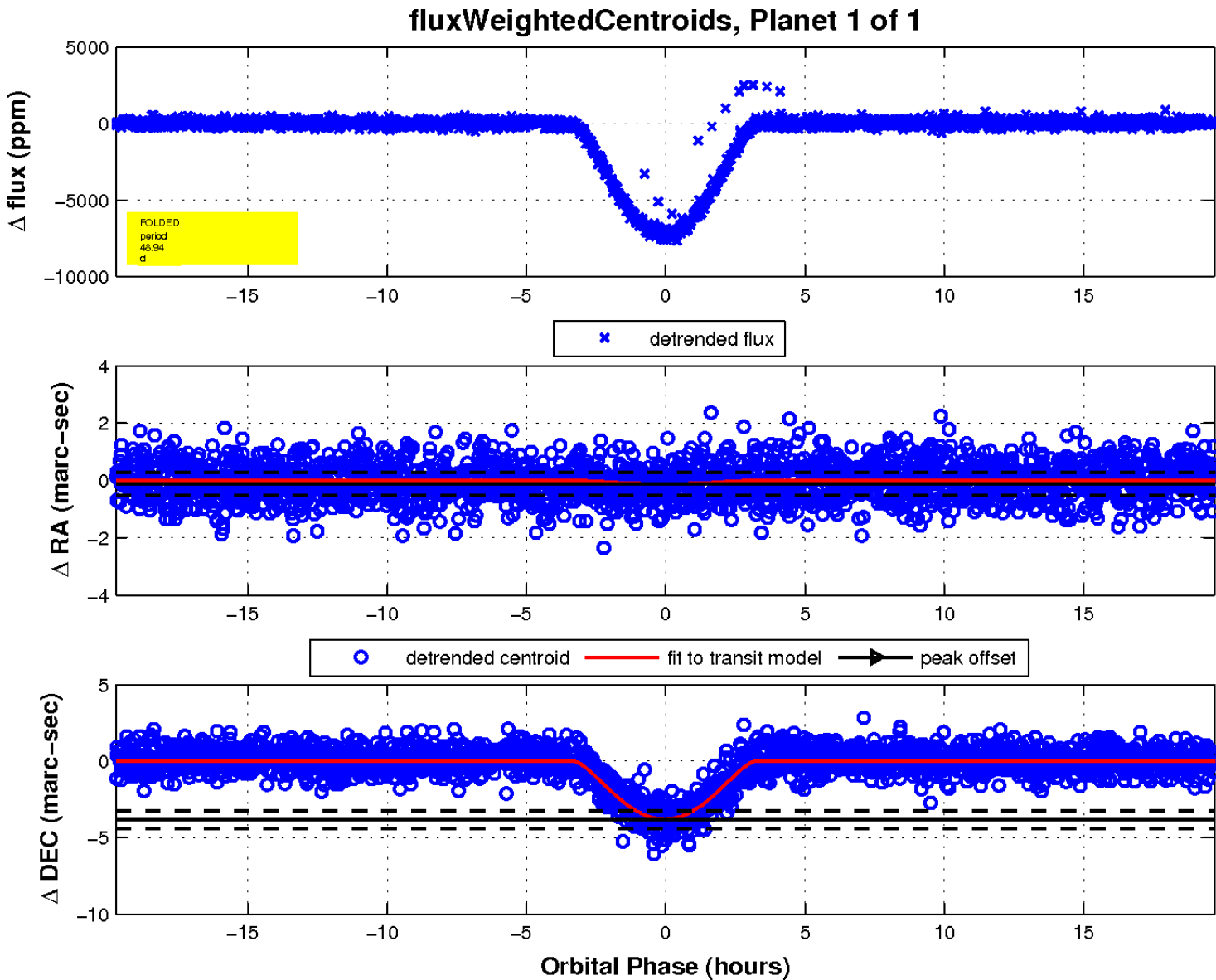
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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

Q17 no difference image

Q17 no OOT image



# UKIRT Image

Declination

