

# KIC 008231877

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
008231877-01	OBS	6996.01	1.307766	131.776105	17147.1	2.135	1593.0	1142.0	0.67	5112	12.06	672.81

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
008231877-01	OBS	FP	0.00	0	1	0	0	DEPTH_ODDEVEN_DV—DEPTH_ODDEVEN_ALT—MOD_ODDEVEN_DV—MOD_ODDEVEN_ALT—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.

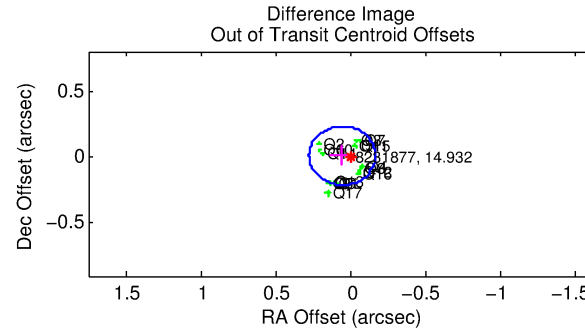
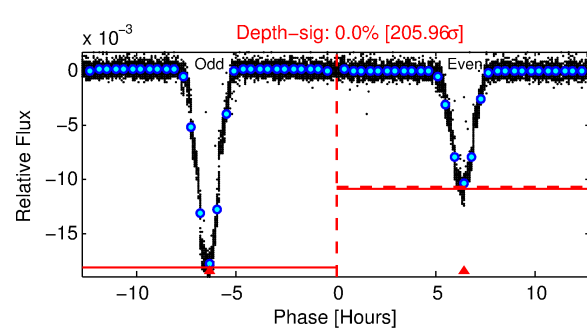
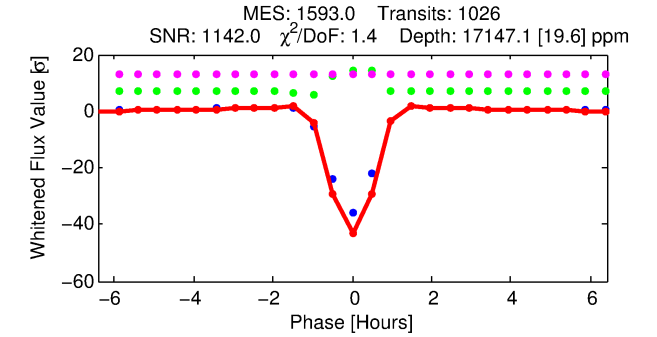
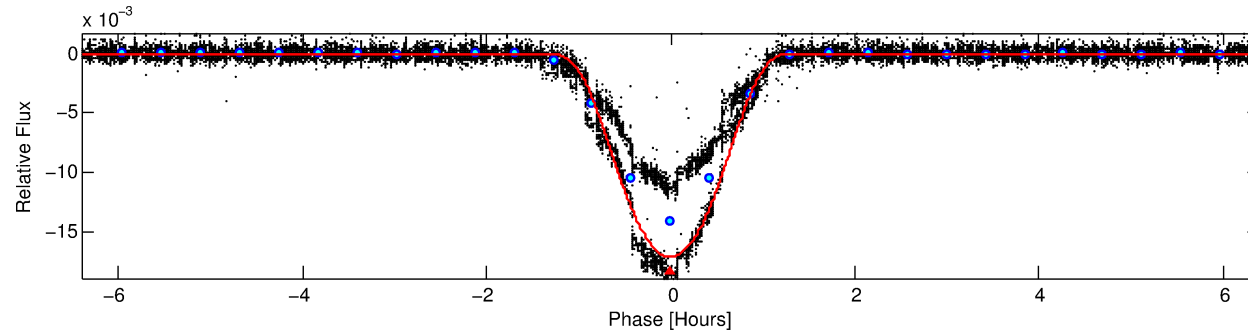
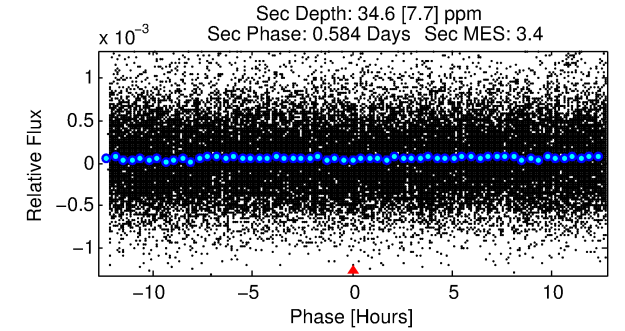
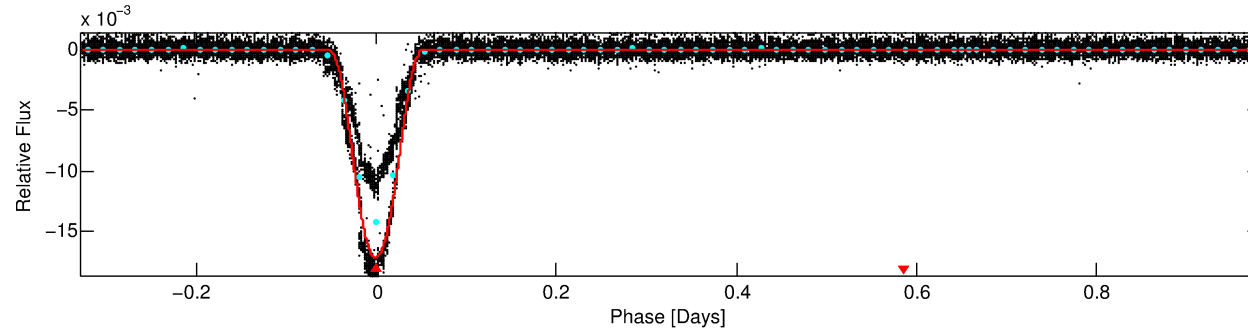
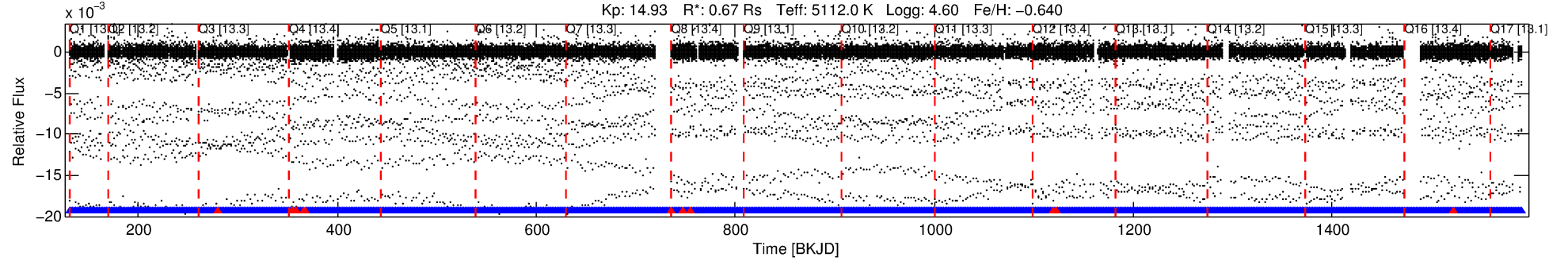
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

## Ephemeris Match Information For 008231877-01

No Significant Match Found

# DV One-Page Summary

KIC: 8231877 Candidate: 1 of 1 Period: 1.308 d  
KOI: K06996.01 Corr: 0.979



## DV Fit Results:

Period = 1.30777 [0.00000] d  
Epoch = 131.7761 [0.0000] BKJD  
Rp/R\* = 0.1642 [0.0027]  
a/R\* = 3.52 [0.01]  
b = 0.91 [0.01]  
Seff = 672.81 [118.73]  
Teq = 1299 [57] K  
Rp = 12.06 [1.22] Re  
a = 0.0203 [0.0018] AU  
Ag = 0.05 [0.01] [-67.48 $\sigma$ ]  
Teffp = 968 [62] K [-3.92 $\sigma$ ]

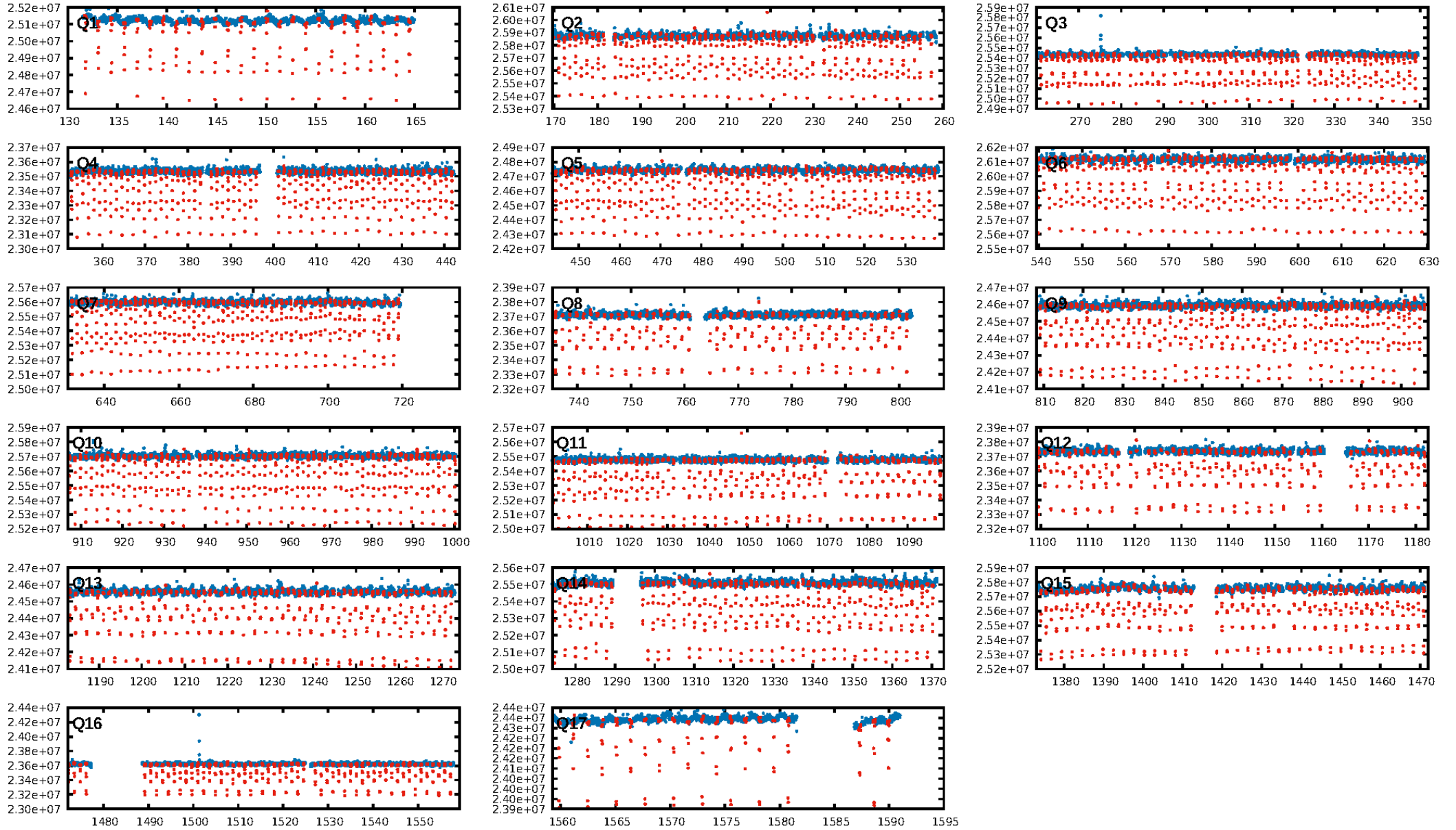
## DV Diagnostic Results:

ShortPeriod-sig: N/A  
LongPeriod-sig: N/A  
ModelChiSquare2-sig: N/A  
ModelChiSquareGof-sig: N/A  
Bootstrap-pfa: 0.00e+00  
RollingBand-fgt: 0.99 [967/980]  
GhostDiagnostic-chr: 1.443  
Centroid-sig: 0.1%  
Centroid-so: 0.132 arcsec [19.77 $\sigma$ ]  
OotOffset-rm: 0.054 arcsec [0.74 $\sigma$ ]  
KicOffset-rm: 0.265 arcsec [3.13 $\sigma$ ]  
OotOffset-st: 4/4/4/5 [17]  
KicOffset-st: 4/4/4/5 [17]  
DiffImageQuality-fgm: 1.00 [17/17]  
DiffImageOverlap-fno: 1.00 [17/17]

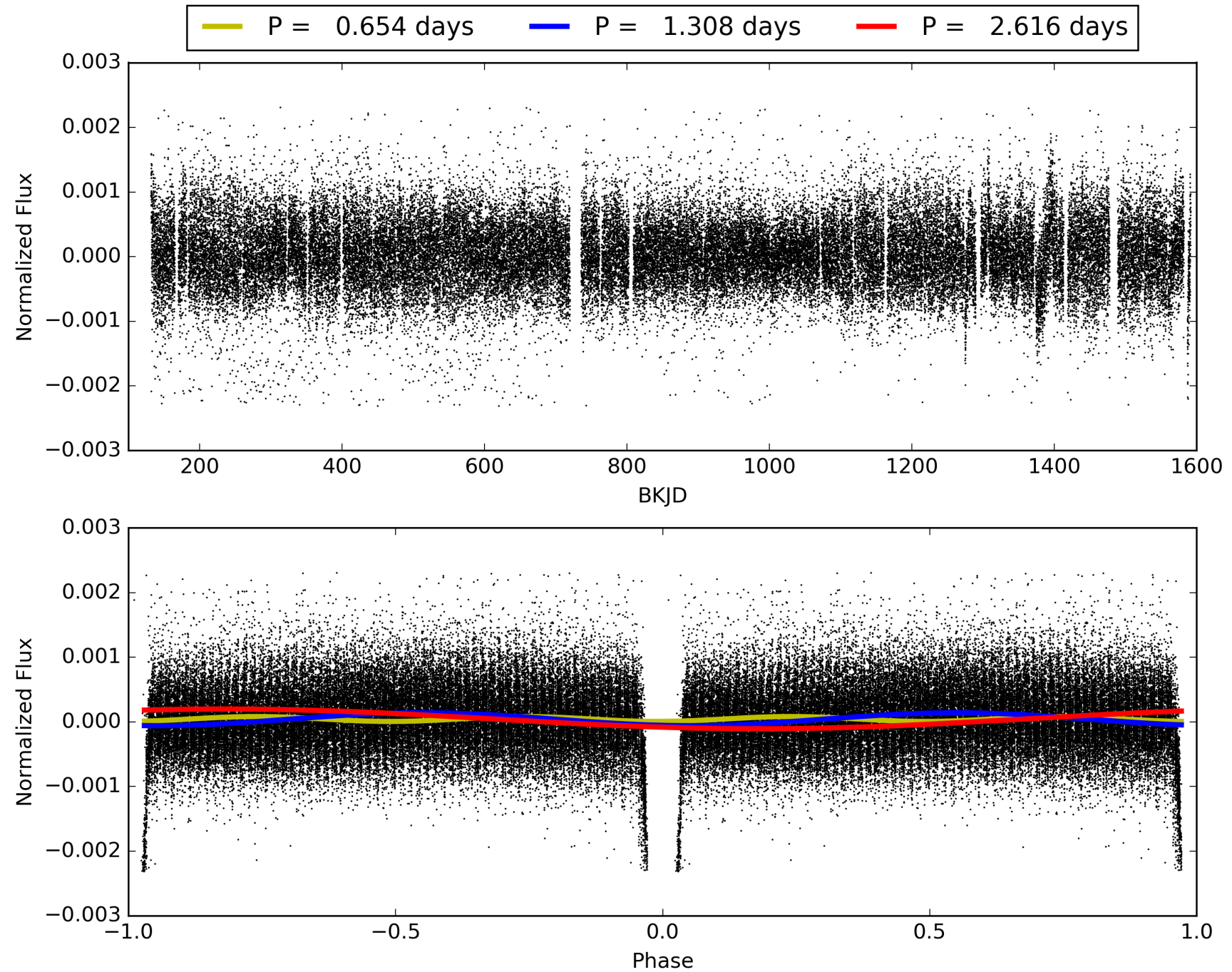
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 31-Jan-2016 17:23:38 Z

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

# TCE 008231877-01, PDC Light Curves

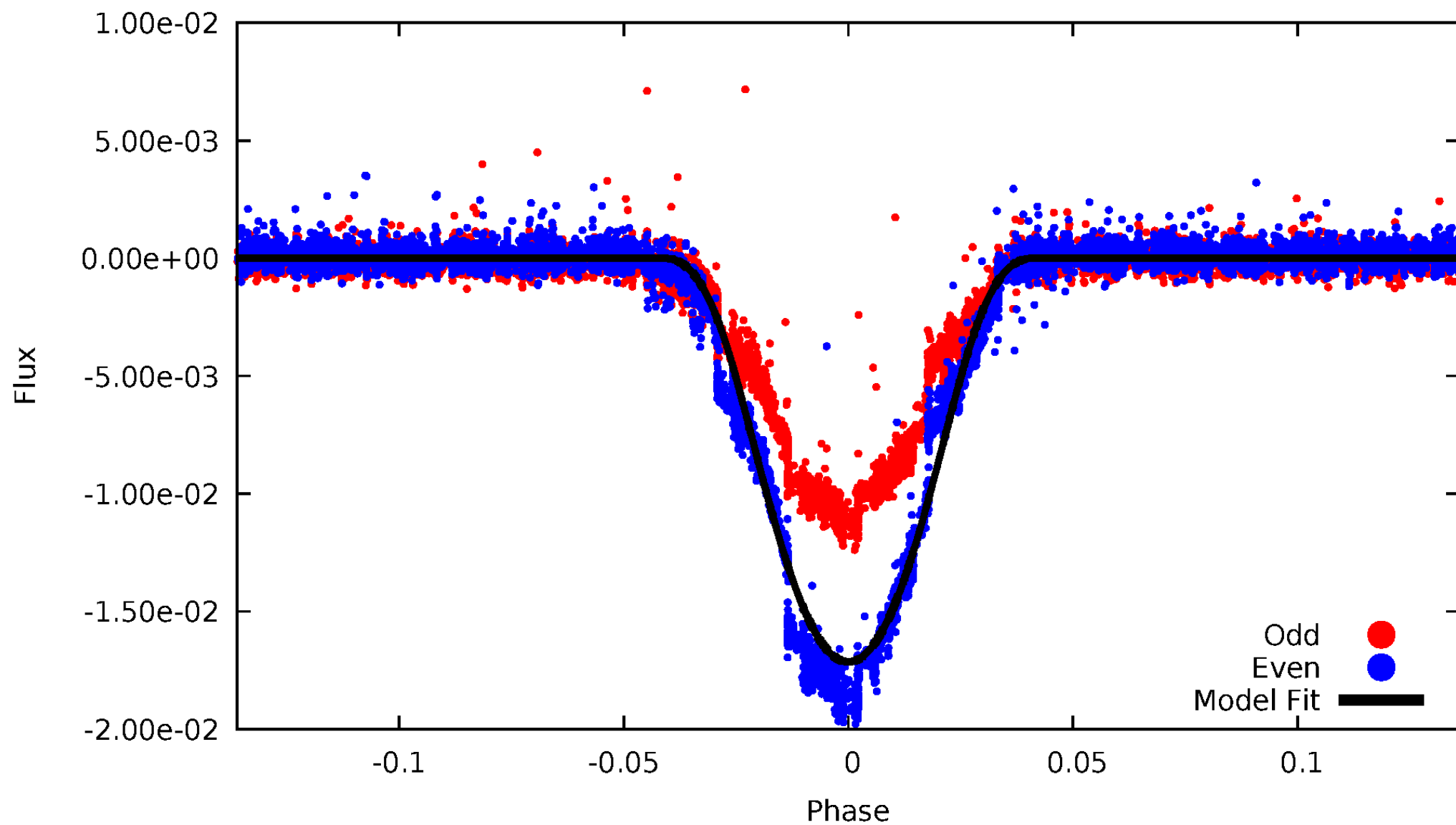


TCE 008231877-01



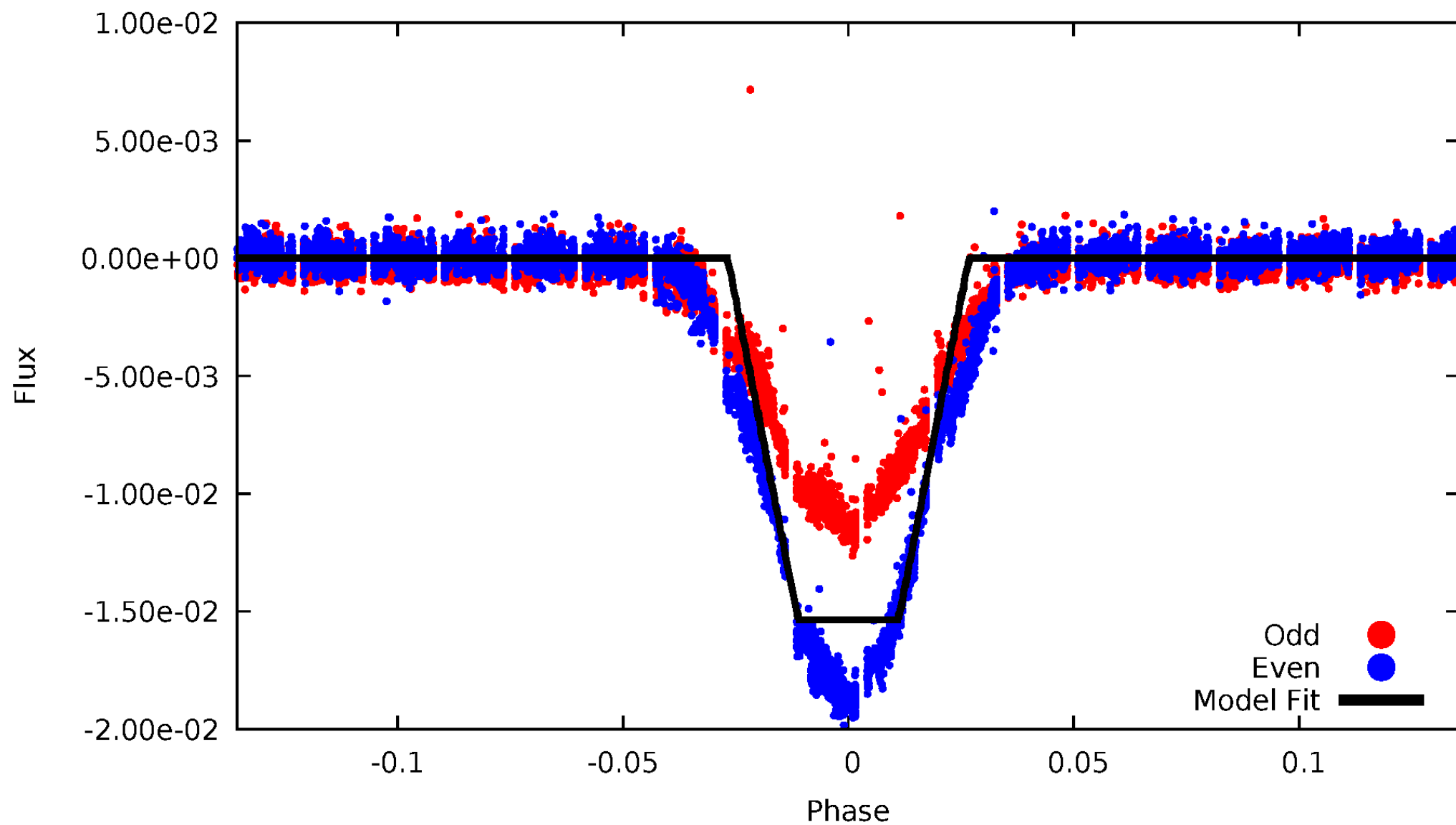
# DV Odd/Even

TCE 008231877-01



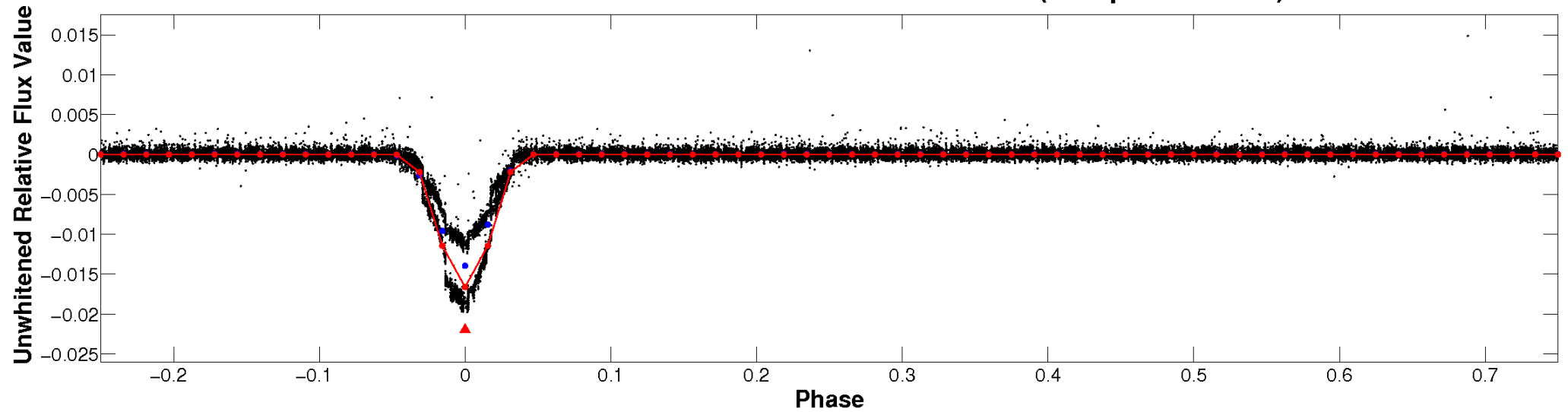
# ALT Odd/Even

TCE 008231877-01

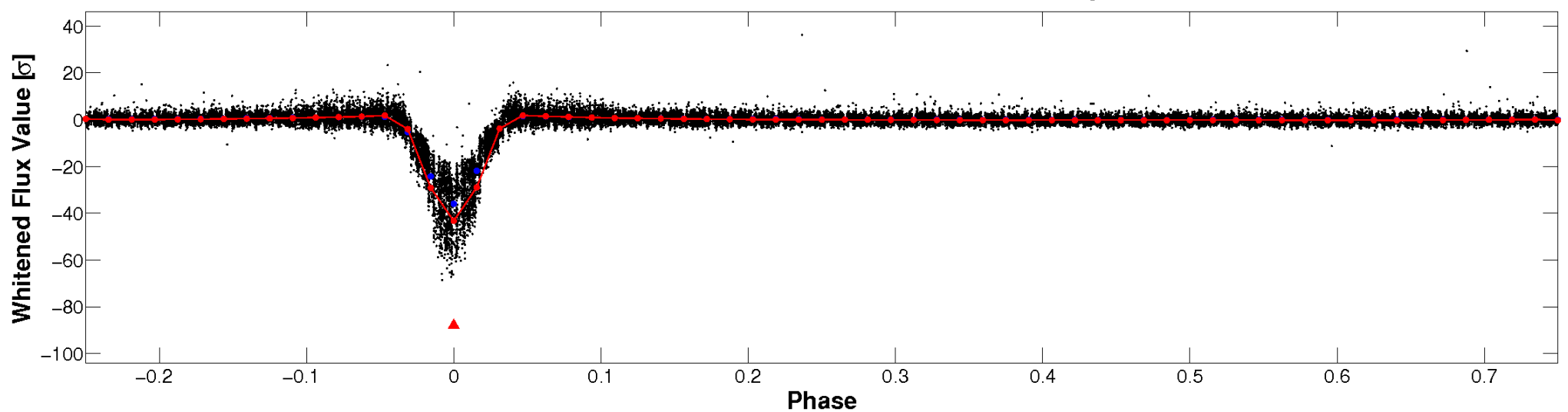


# Non-Whitened Vs. Whitened Light Curve

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



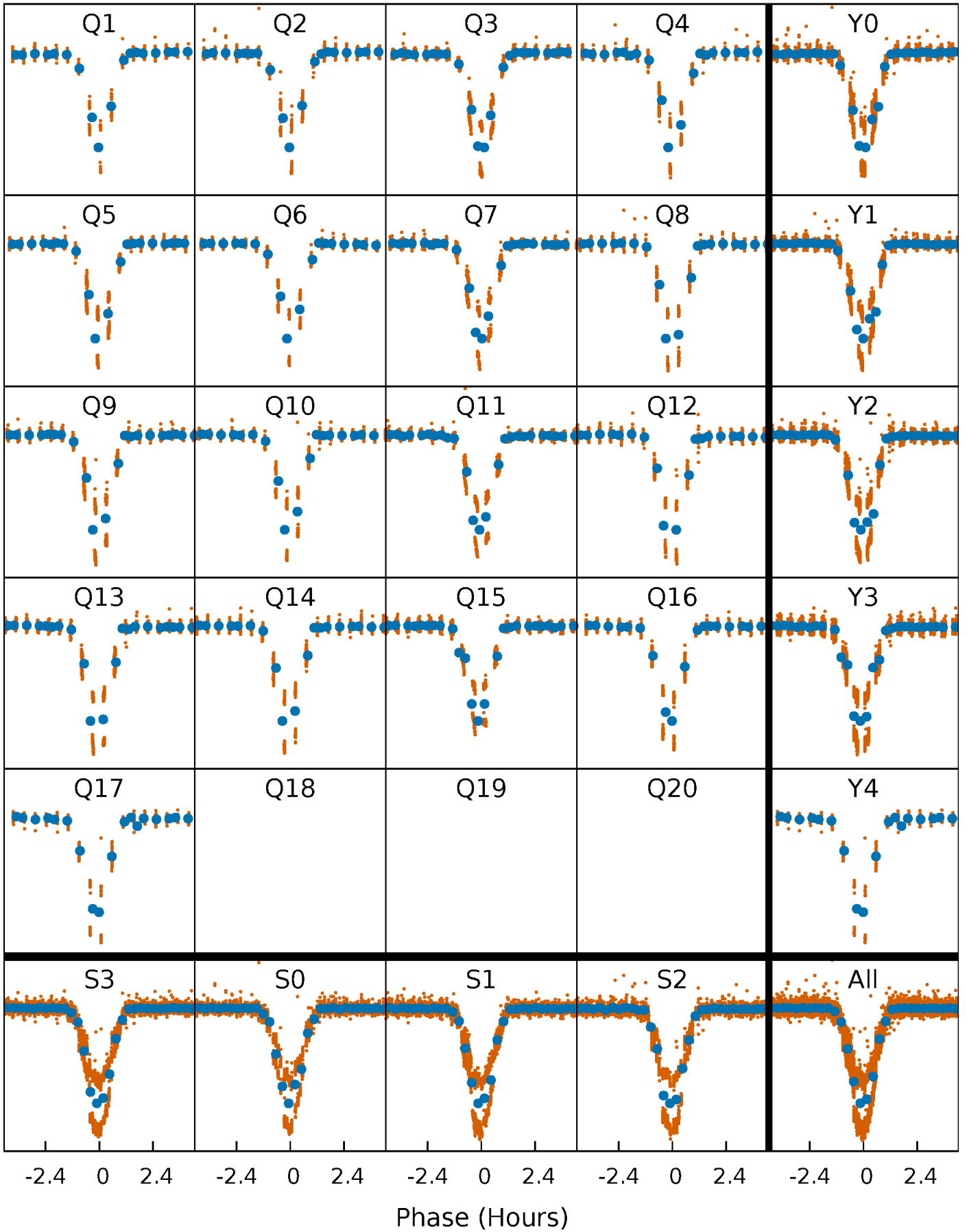
**Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)**





# PDC Quarter-Phased Transit Curves

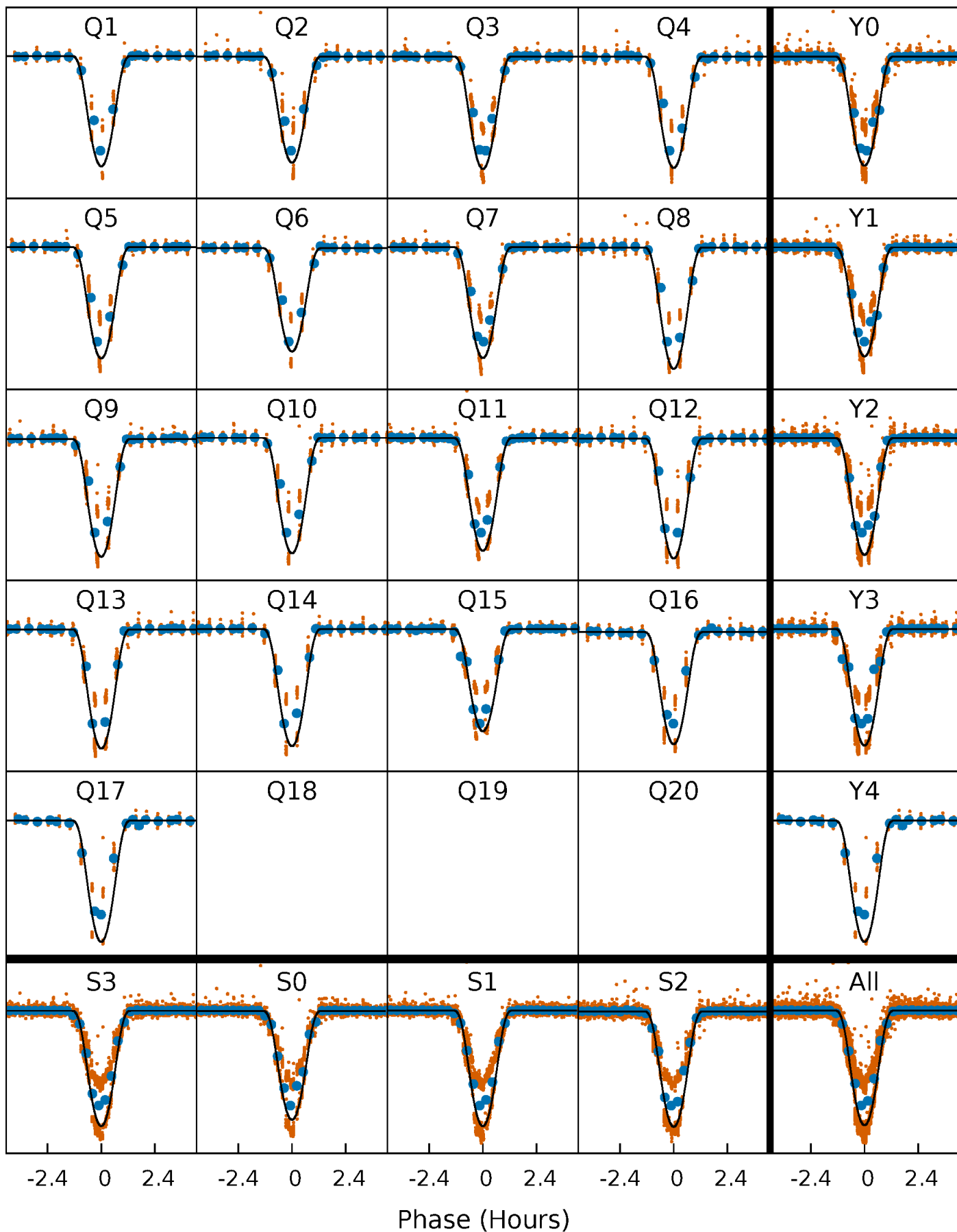
TCE 008231877-01 P= 1.307766 Days  $T_0=131.776105$  (BKJD)





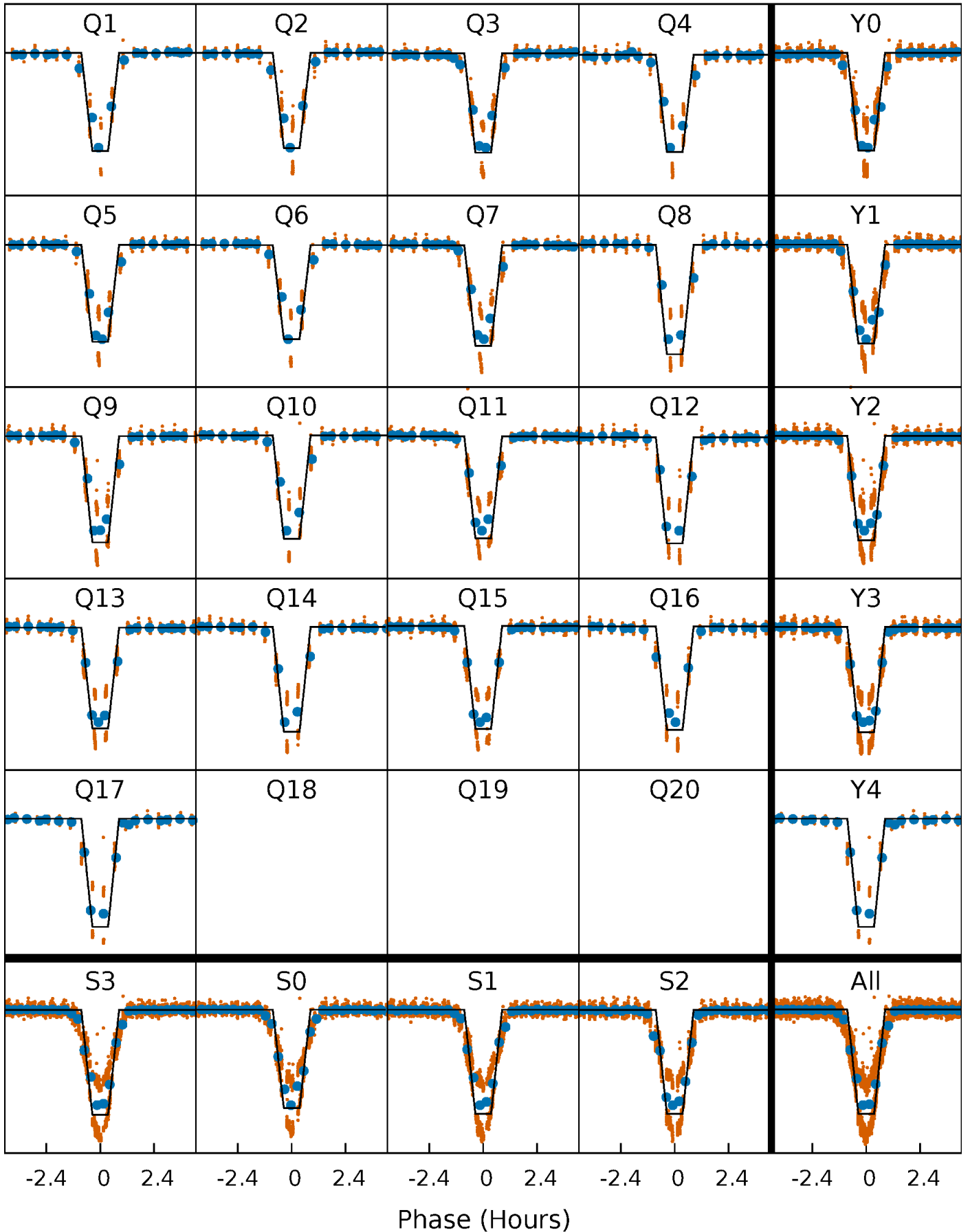
# DV Quarter-Phased Transit Curves

TCE 008231877-01 P= 1.307766 Days  $T_0=131.776105$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

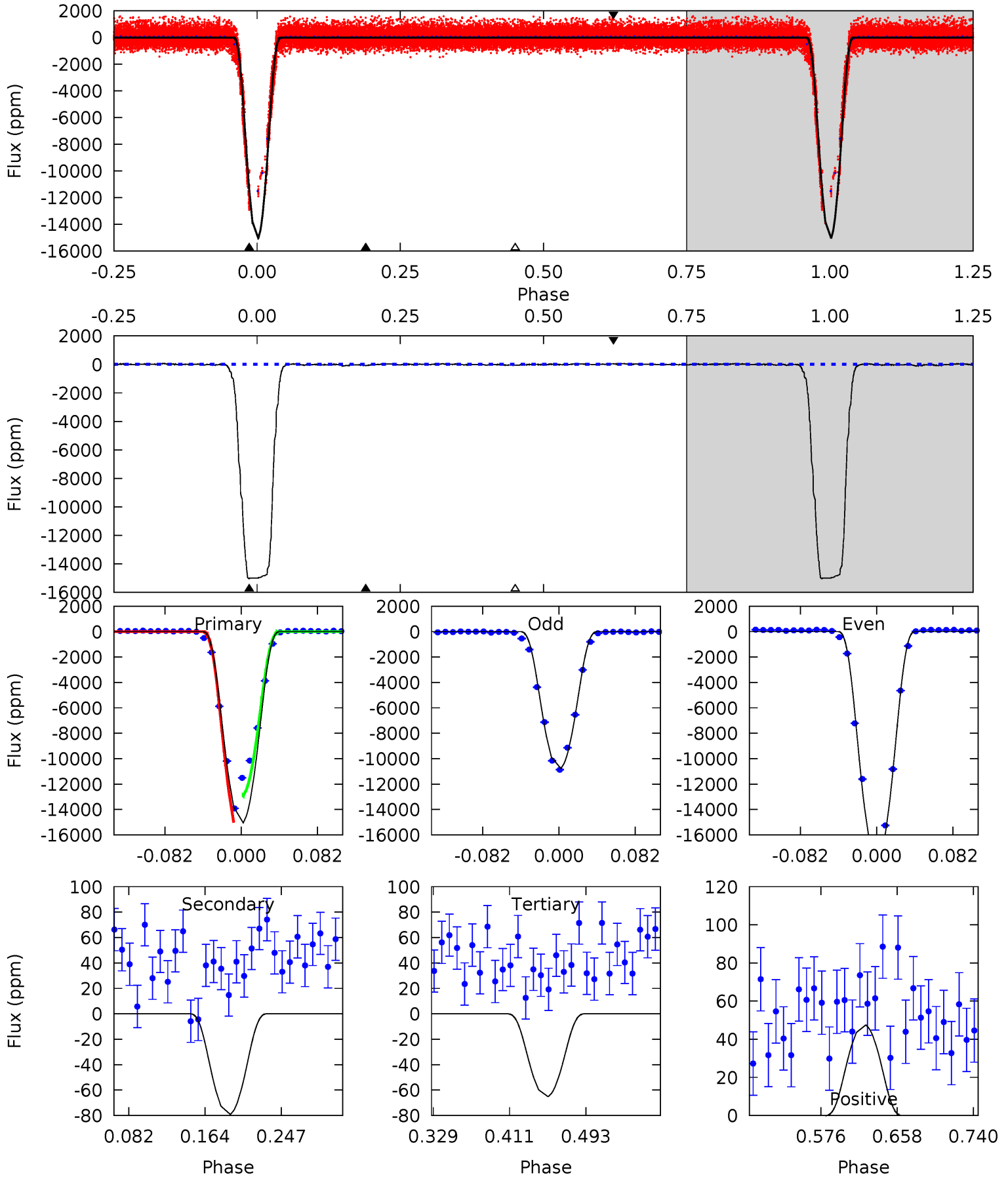
TCE 008231877-01 P= 1.307762 Days  $T_0=131.777064$  (BKJD)



# DV Model-Shift Uniqueness Test

008231877-01, P = 1.307766 Days, E = 130.468339 Days

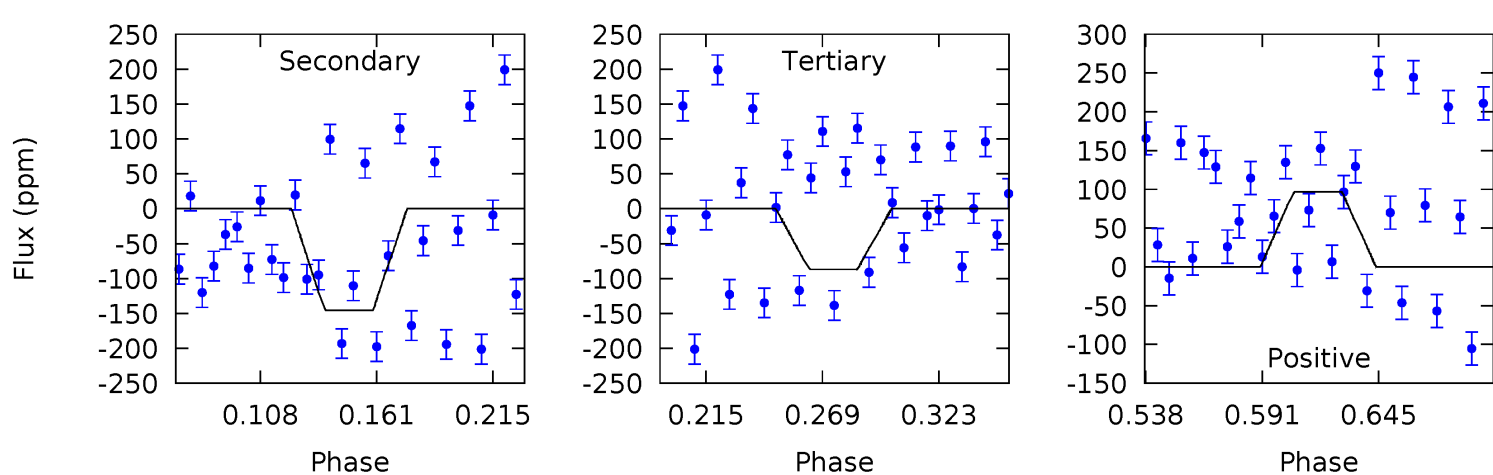
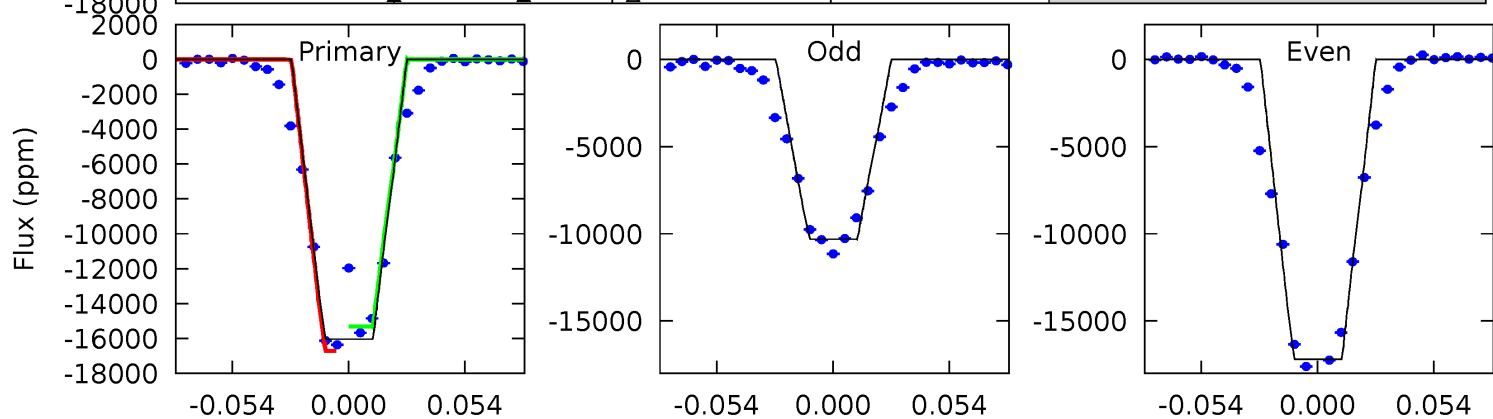
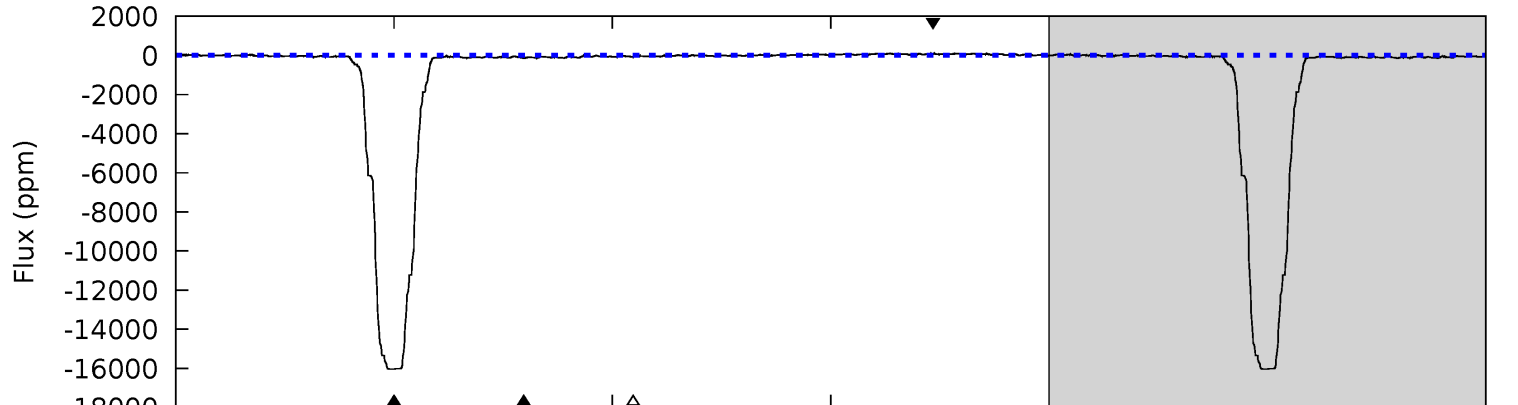
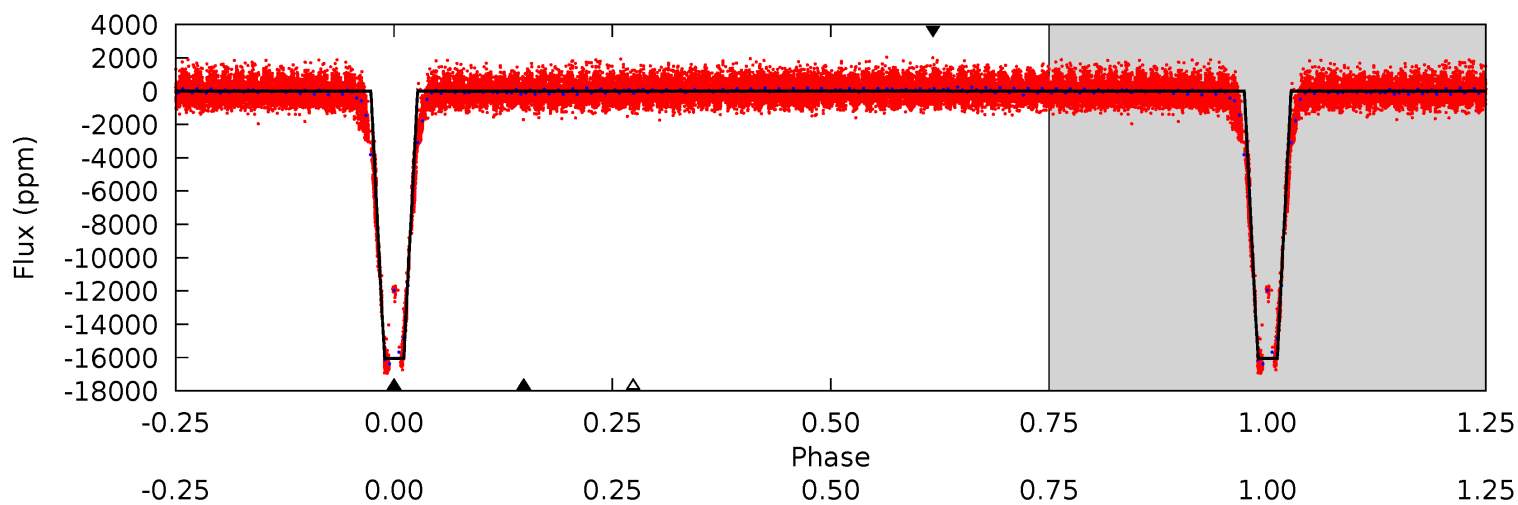
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
2110	11.1	9.14	6.66	4.61	1.74	3.22	2101	2104	1.96	4.44	674.5	0.88	0.00	0



# Alt Model-Shift Uniqueness Test

008231877-01, P = 1.307762 Days, E = 130.469302 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
1371	12.5	7.42	8.29	4.69	1.93	4.12	1364	1363	5.04	4.18	415.6	0.89	0.01	0



### Stellar Parameters For KIC 008231877

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	$5112^{+154}_{-154}$	$4.596^{+0.072}_{-0.048}$	$-0.640^{+0.350}_{-0.300}$	$0.673^{+0.067}_{-0.060}$	$0.651^{+0.077}_{-0.033}$	$3.008^{+0.874}_{-0.568}$
	+3%/-3%	+2%/-1%	+55%/-47%	+10%/-9%	+12%/-5%	+29%/-19%
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 008231877-01 / KOI 6996.01

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	$A_{obs}$
DV	$-79 \pm 7$	$12.03^{+0.72}_{-0.63}$	$1807^{+65}_{-65}$	$-2222^{+57}_{-53}$	$0.125^{+0.018}_{-0.015}$
Alt.	$-146 \pm 12$	$9.10^{+0.54}_{-0.50}$	$1806^{+67}_{-66}$	$2103^{+89}_{-138}$	$0.405^{+0.056}_{-0.051}$

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

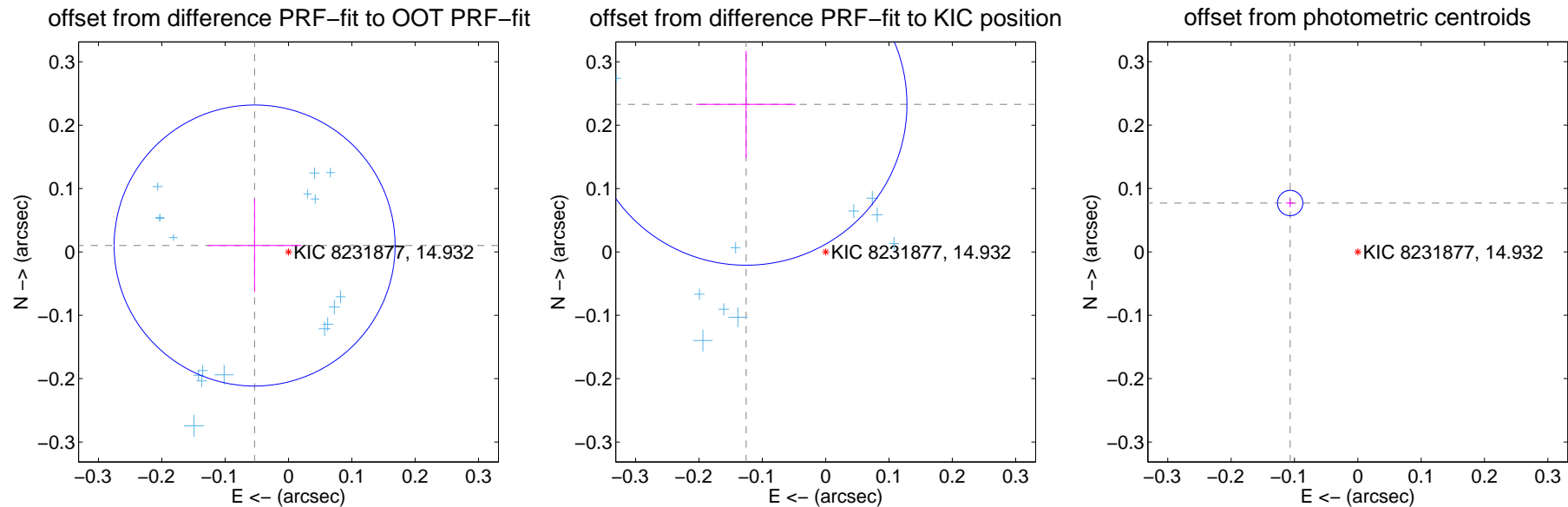
## DV Centroid Data

Supplemental centroid analysis for 008231877-01. Kepler magnitude: 14.93. Transit SNR 1141.96

There are 17 quarters with good PRF difference image offsets

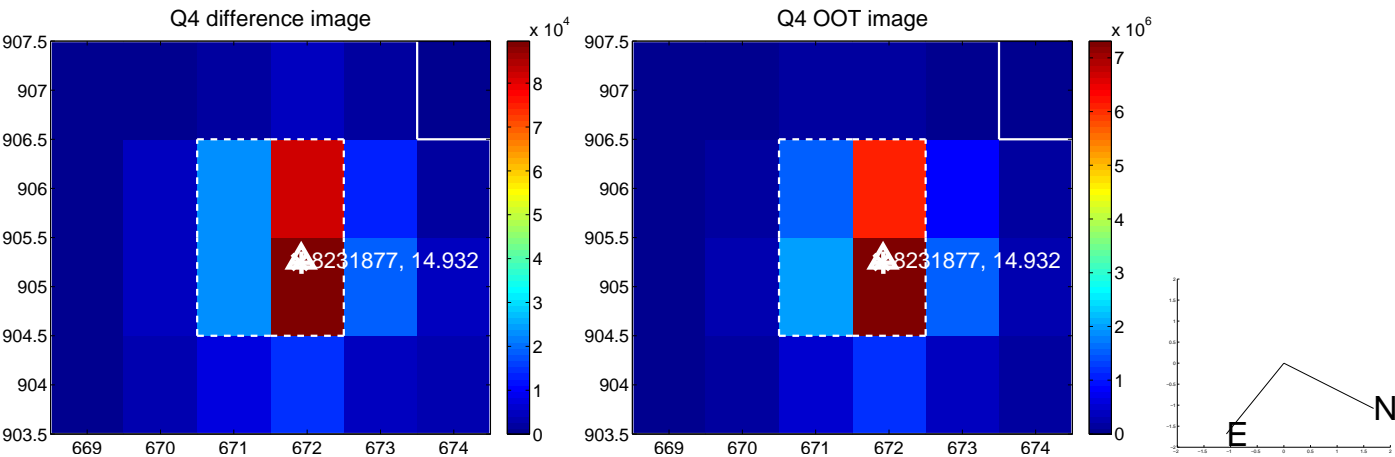
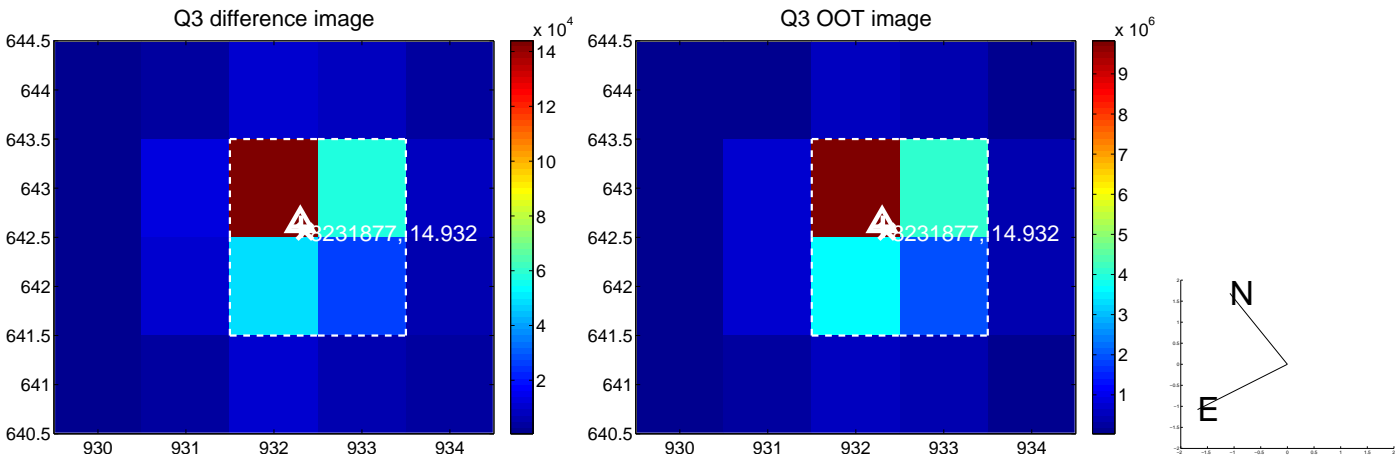
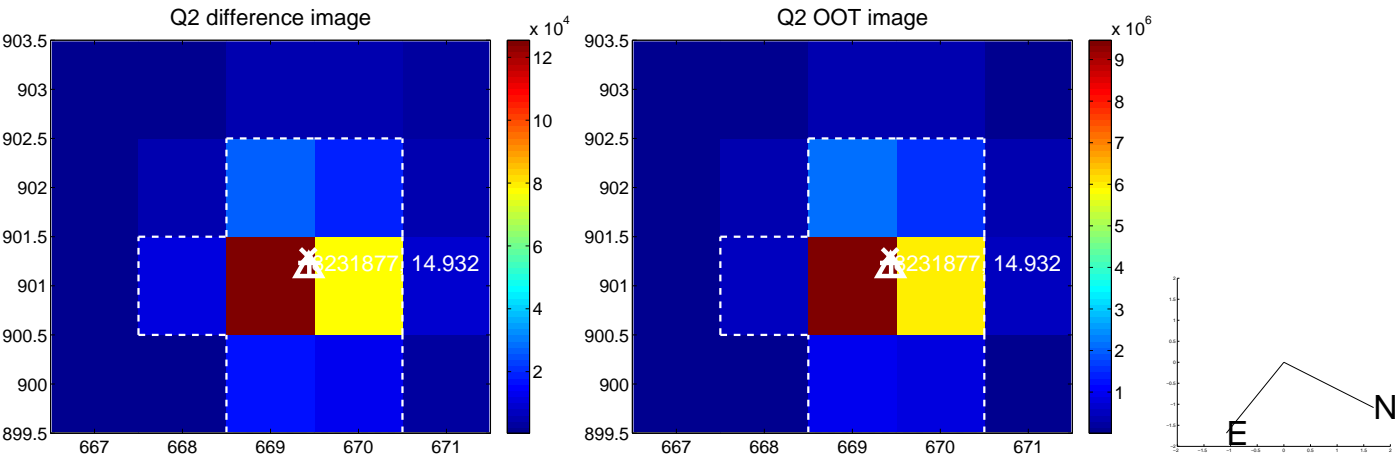
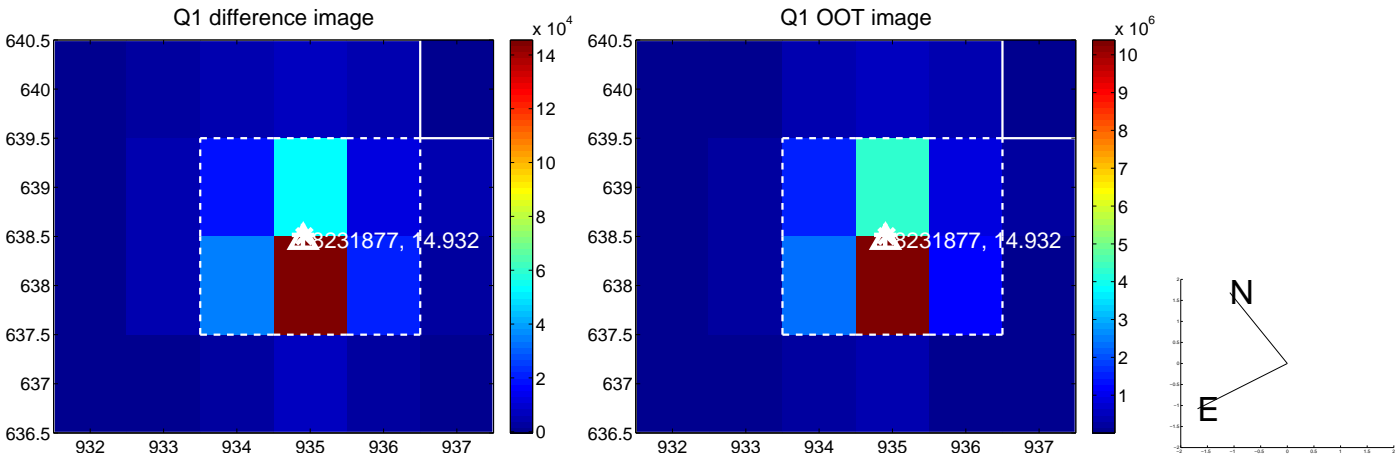
The direct PRF centroid is offset from the target star catalog position by about 0.14 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$0.054 \pm 0.074$	0.74	$0.054 \pm 0.074$	$0.010 \pm 0.073$
PRF-fit source offset from KIC position	$0.265 \pm 0.085$	3.13	$0.126 \pm 0.078$	$0.233 \pm 0.084$
photometric centroid source offset	$0.13 \pm 0.01$	19.77	$0.11 \pm 0.01$	$0.08 \pm 0.01$



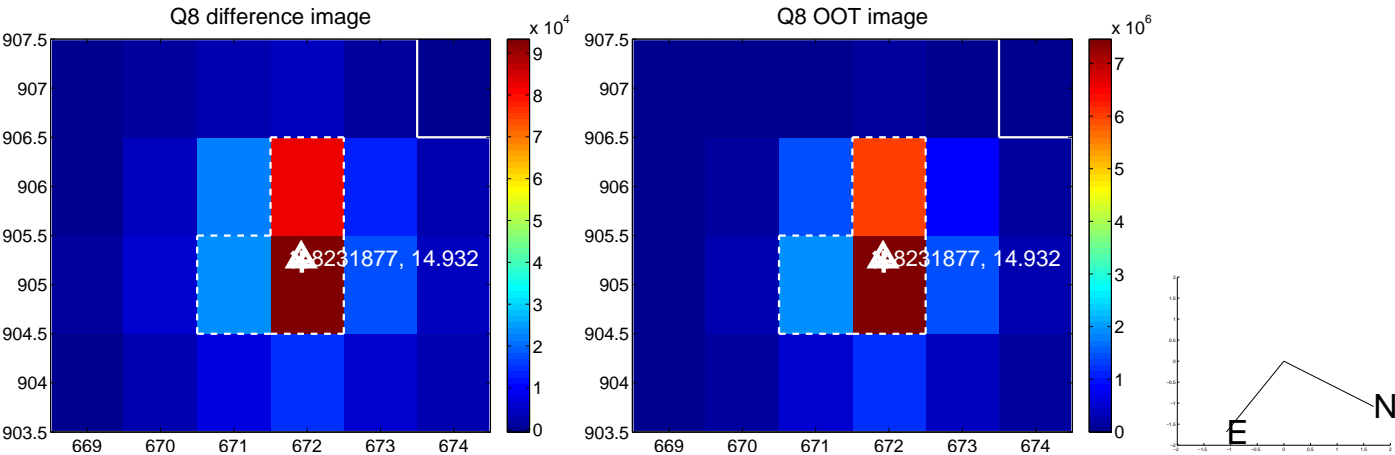
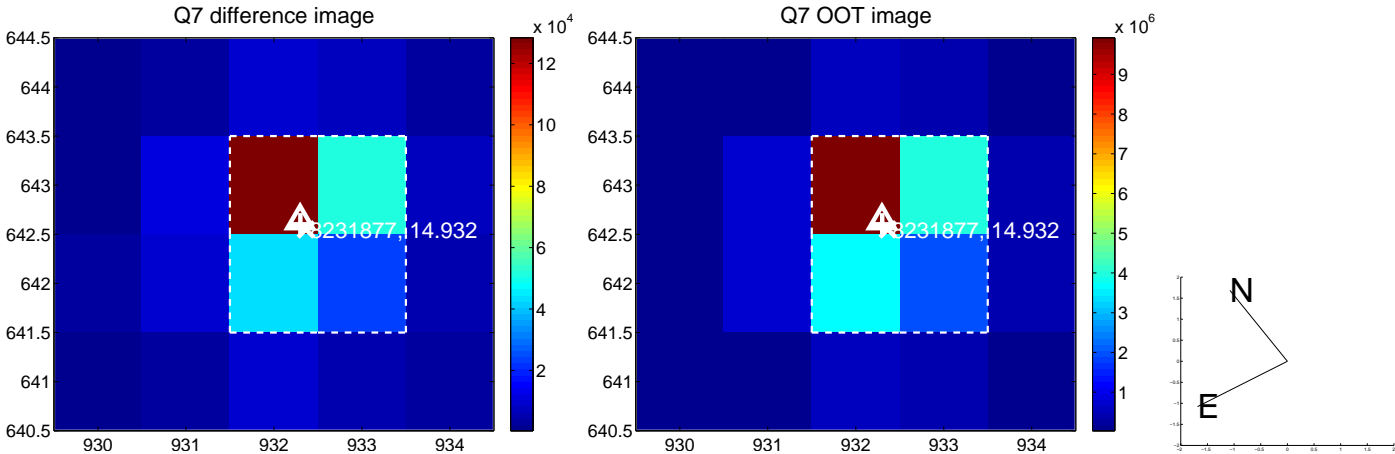
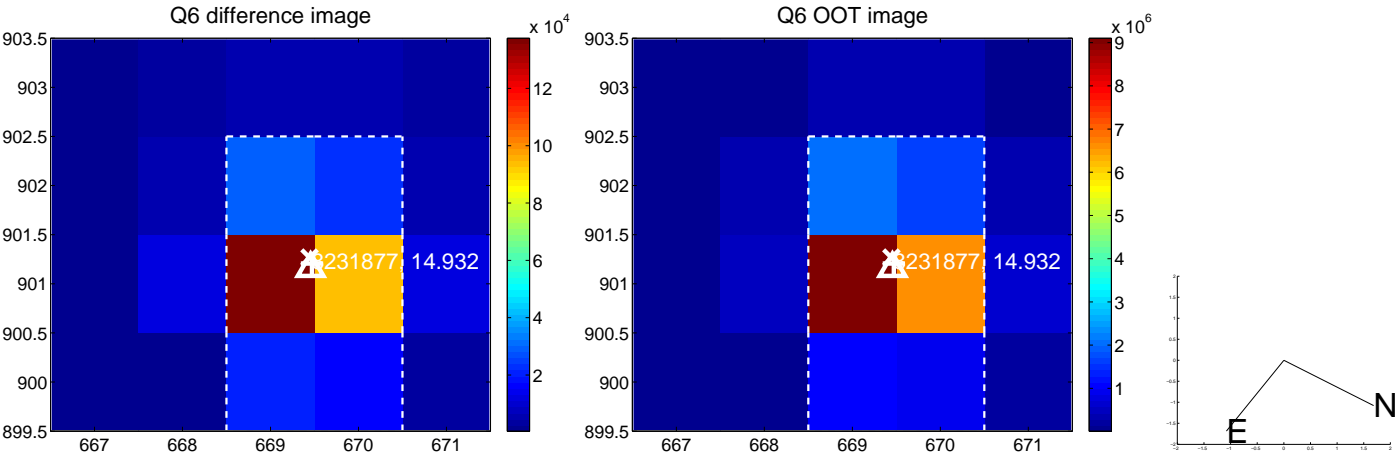
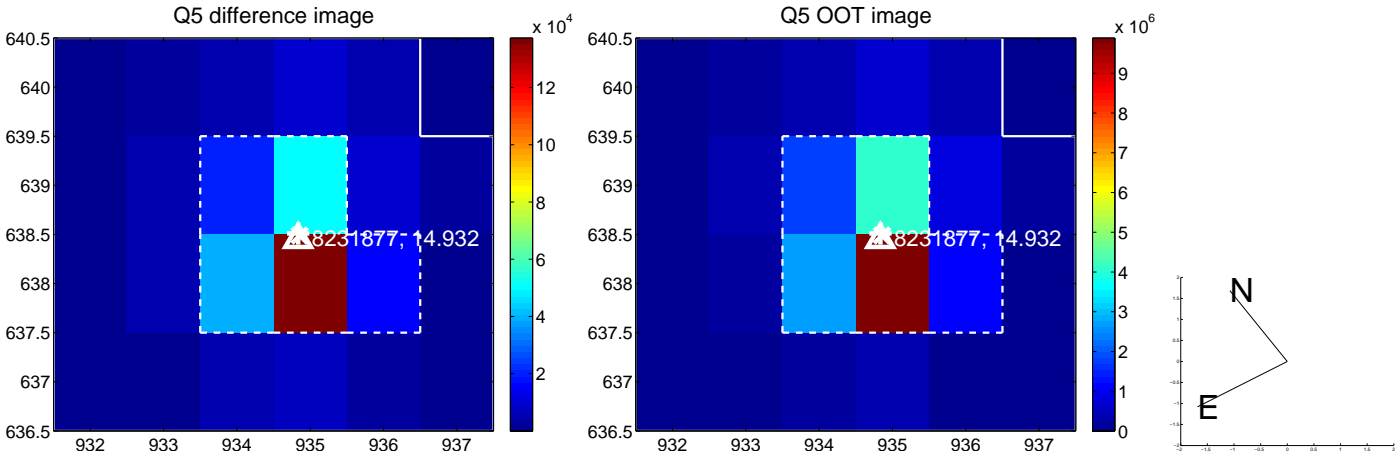
Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses:** good quarterly centroid offsets; **Vermillion crosses:** bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: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

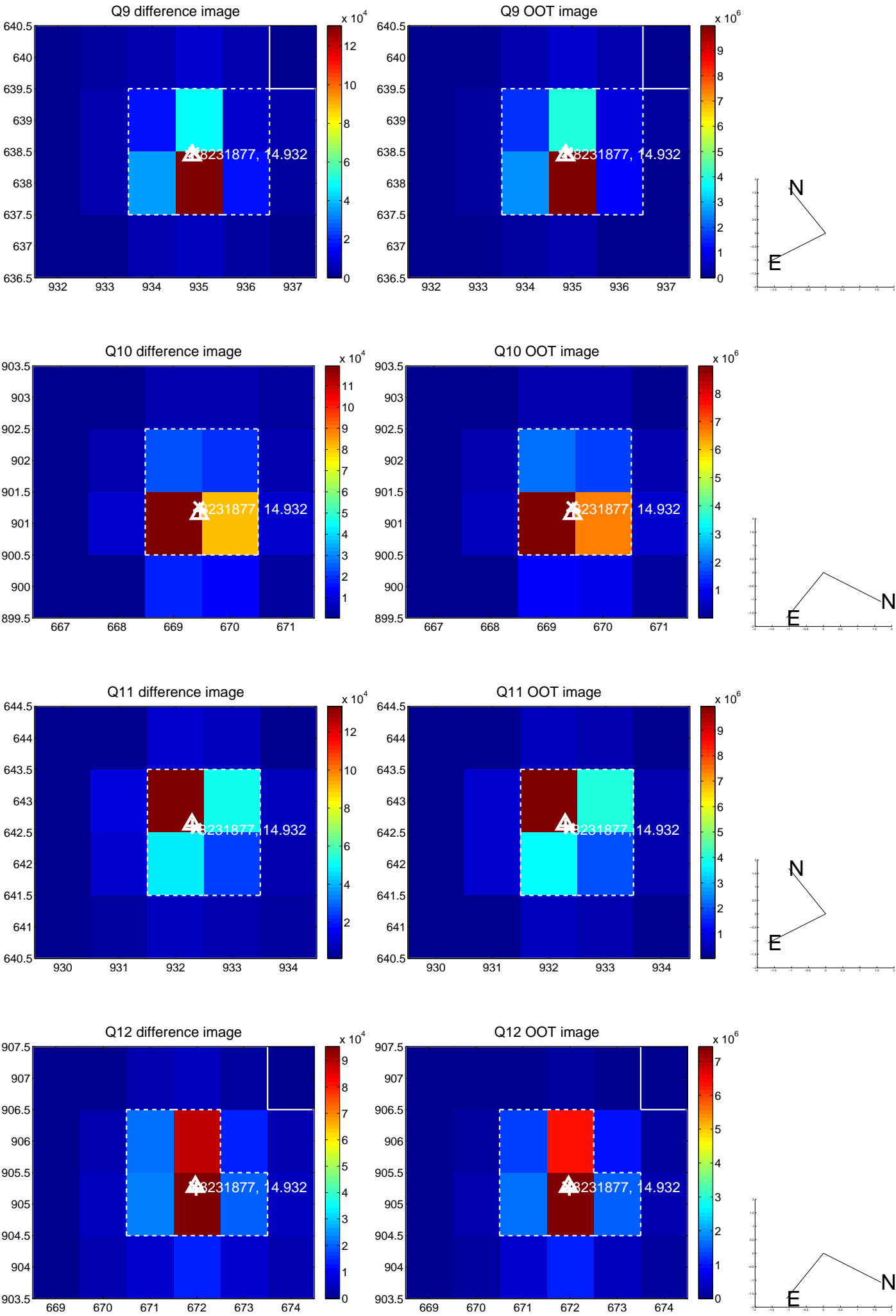




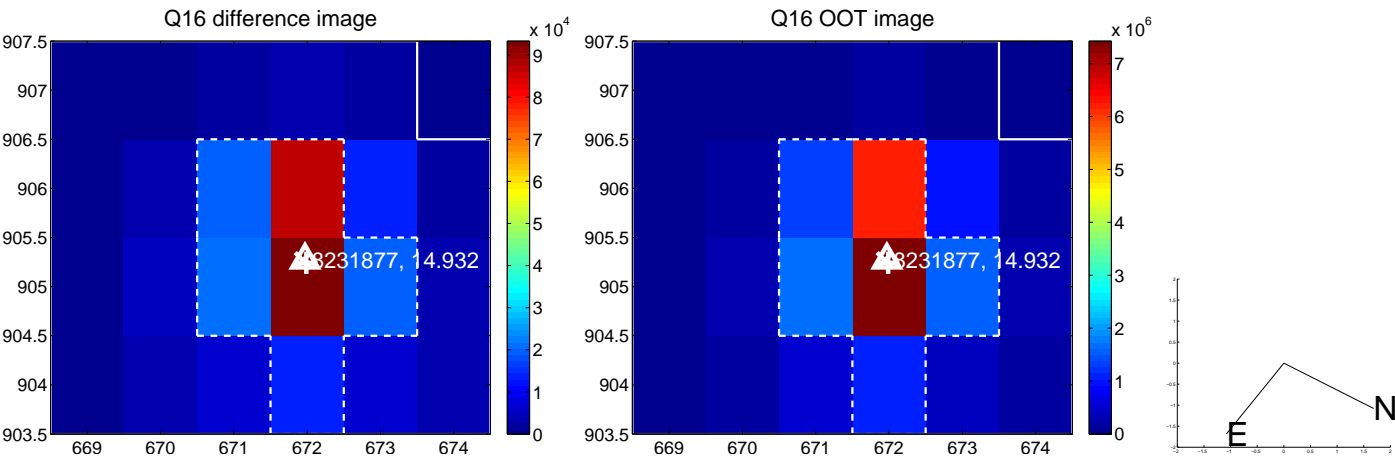
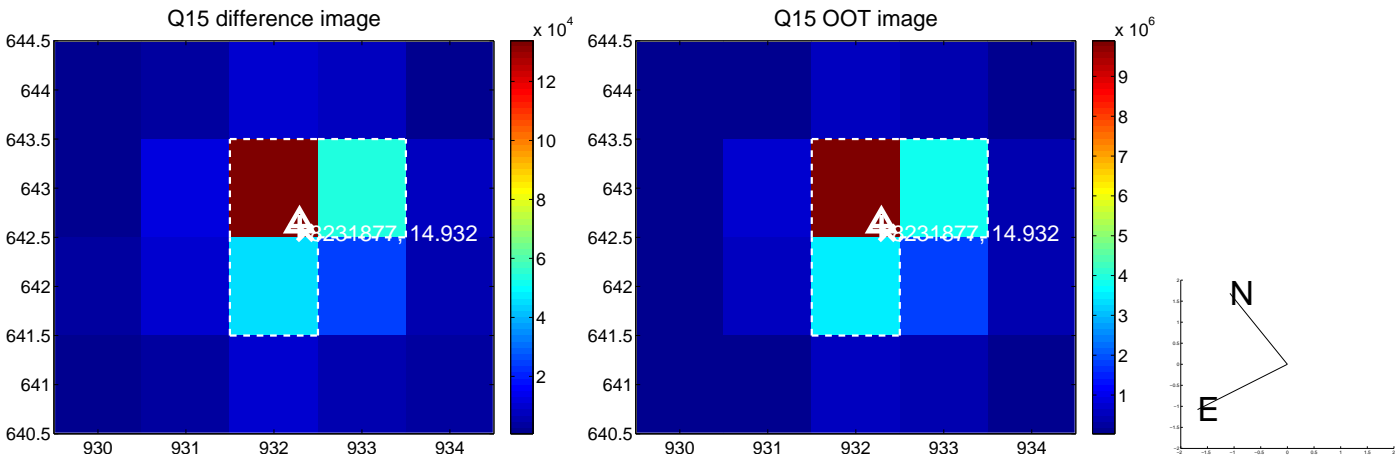
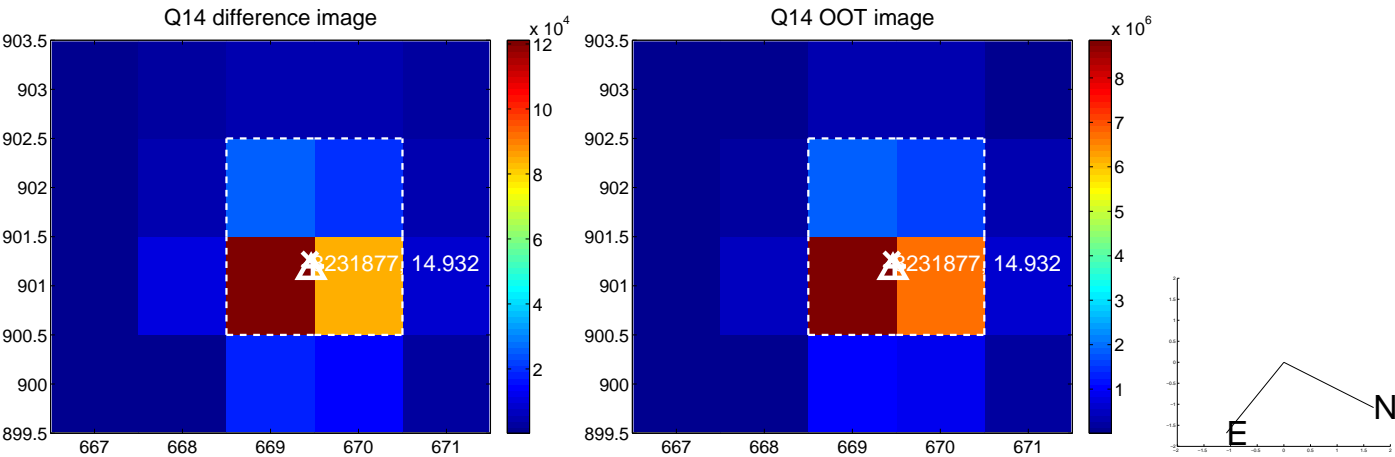
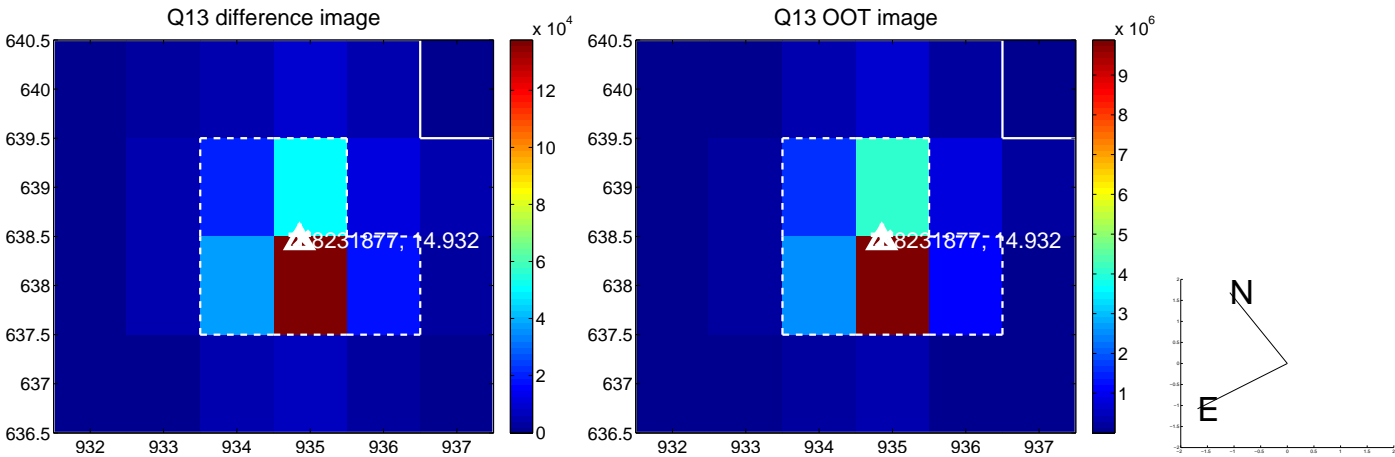
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



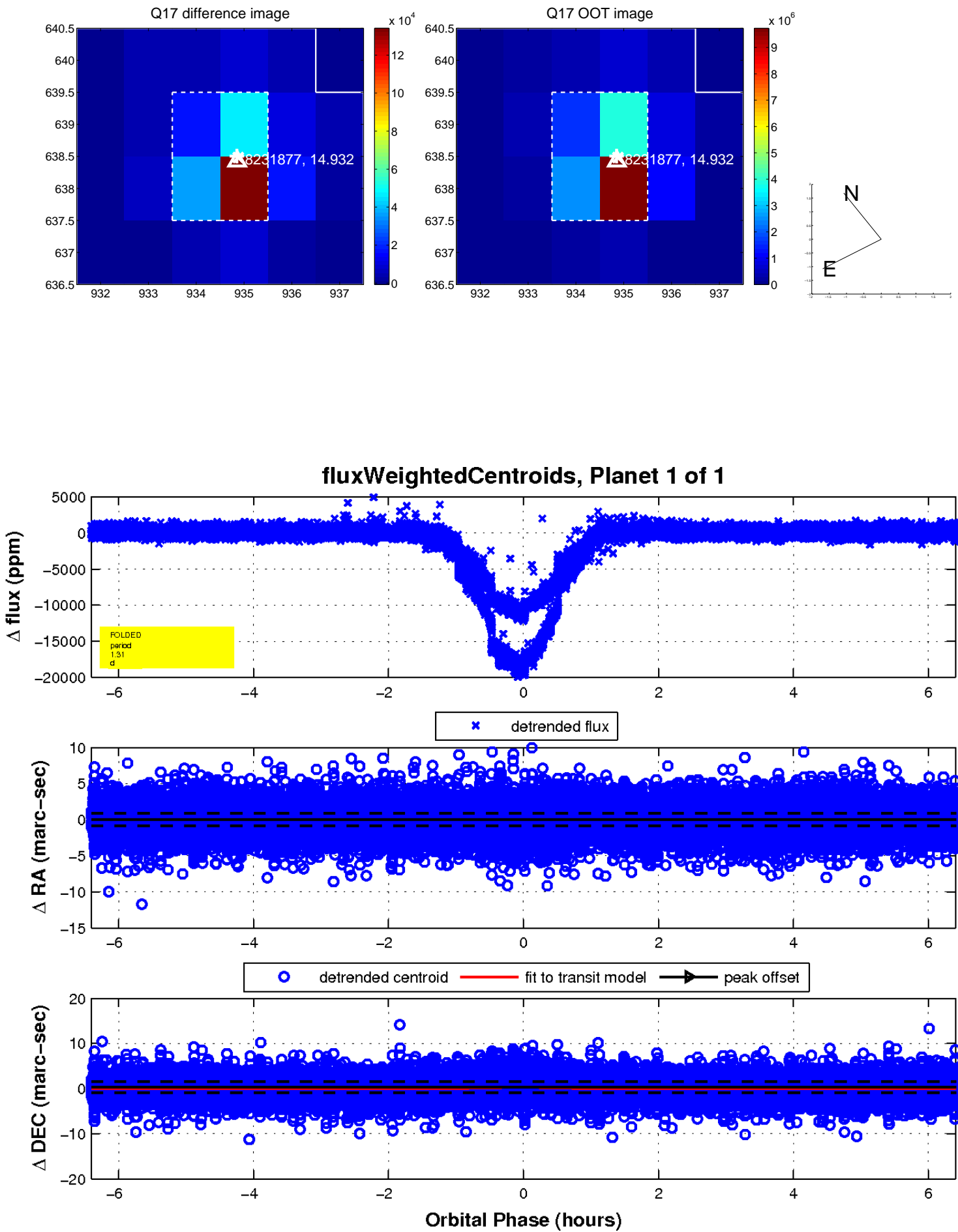
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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



# UKIRT Image

Declination

