

# KIC 007432476

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
007432476-01	OBS	No	0.816940	131.529312	79852.9	2.886	172.7	132.1	0.75	5234	36.63	1457.21
007432476-02	OBS	No	0.816916	131.948494	2683.0	1.500	74.6	-1.0	0.75	5234	3.80	1457.27

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
007432476-01	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—CENT_KIC_POS
007432476-02	OBS	FP	0.00	1	0	0	1	LPP_DV—SAME_NTL_PERIOD—CENT_NOFITS—EPHEM_MATCH

**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.

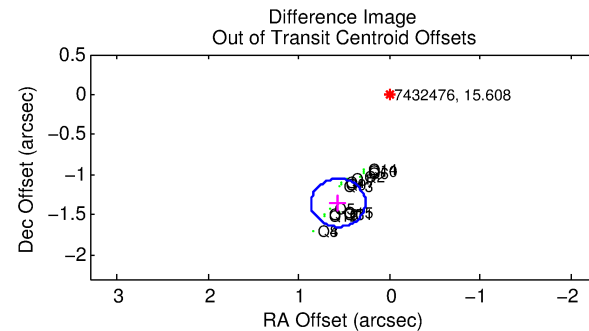
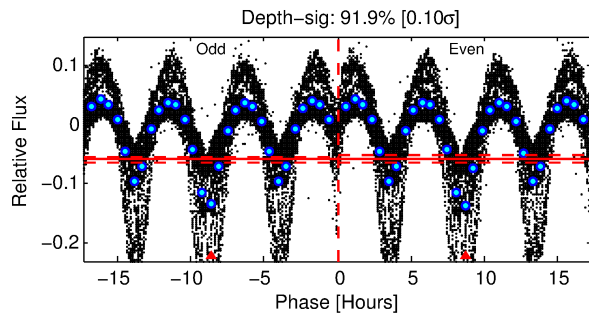
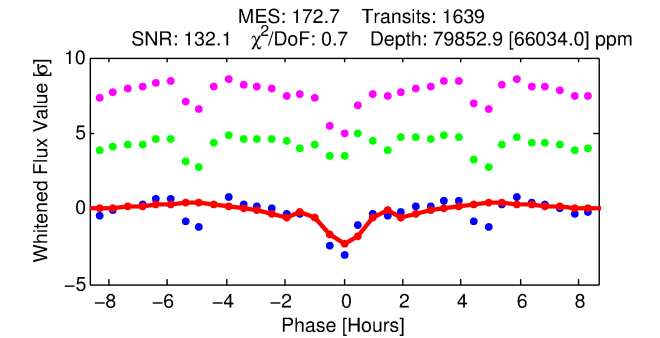
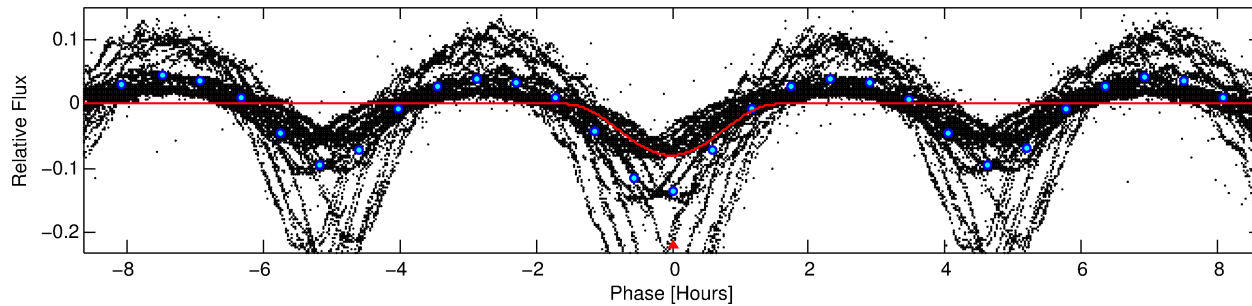
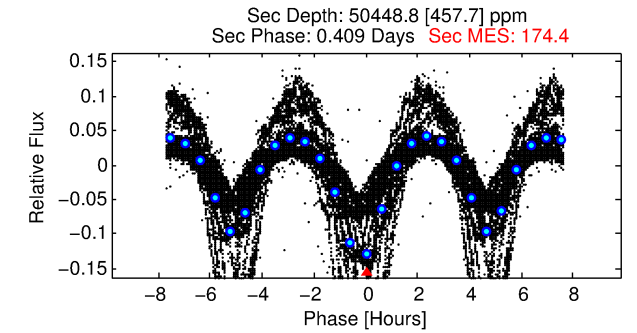
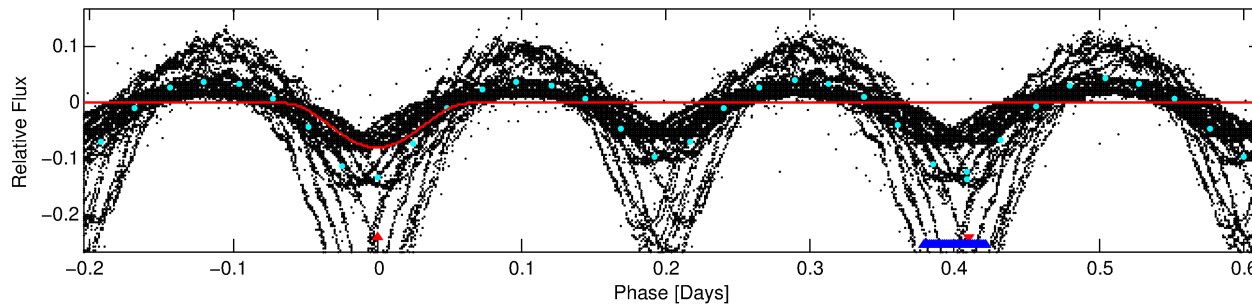
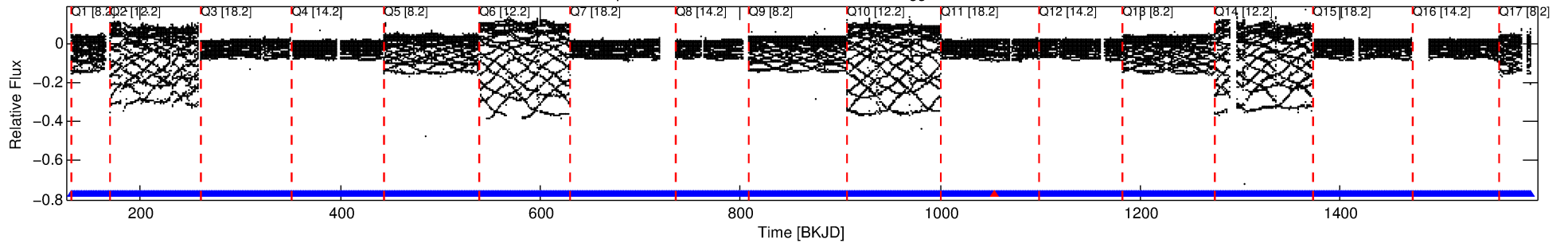
## Ephemeris Match Information For 007432476-01

No Significant Match Found

# DV One-Page Summary

KIC: 7432476 Candidate: 1 of 2 Period: 0.817 d

Kp: 15.61 R\*: 0.75 Rs Teff: 5234.0 K Logg: 4.61 Fe/H: -0.180



## DV Fit Results:

Period = 0.81694 [0.00000] d  
Epoch = 131.5293 [0.0002] BKJD  
Rp/R\* = 0.4494 [0.4883]  
a/R\* = 2.56 [0.38]  
b = 1.00 [0.86]  
Seff = 1457.21 [289.59]  
Teff = 1575 [78] K  
**Rp = 36.63 [40.12] Re**  
a = 0.0160 [0.0018] AU  
Ag = 5.33 [11.61] [0.37σ]  
Teffp = 3700 [2014] K [1.05σ]

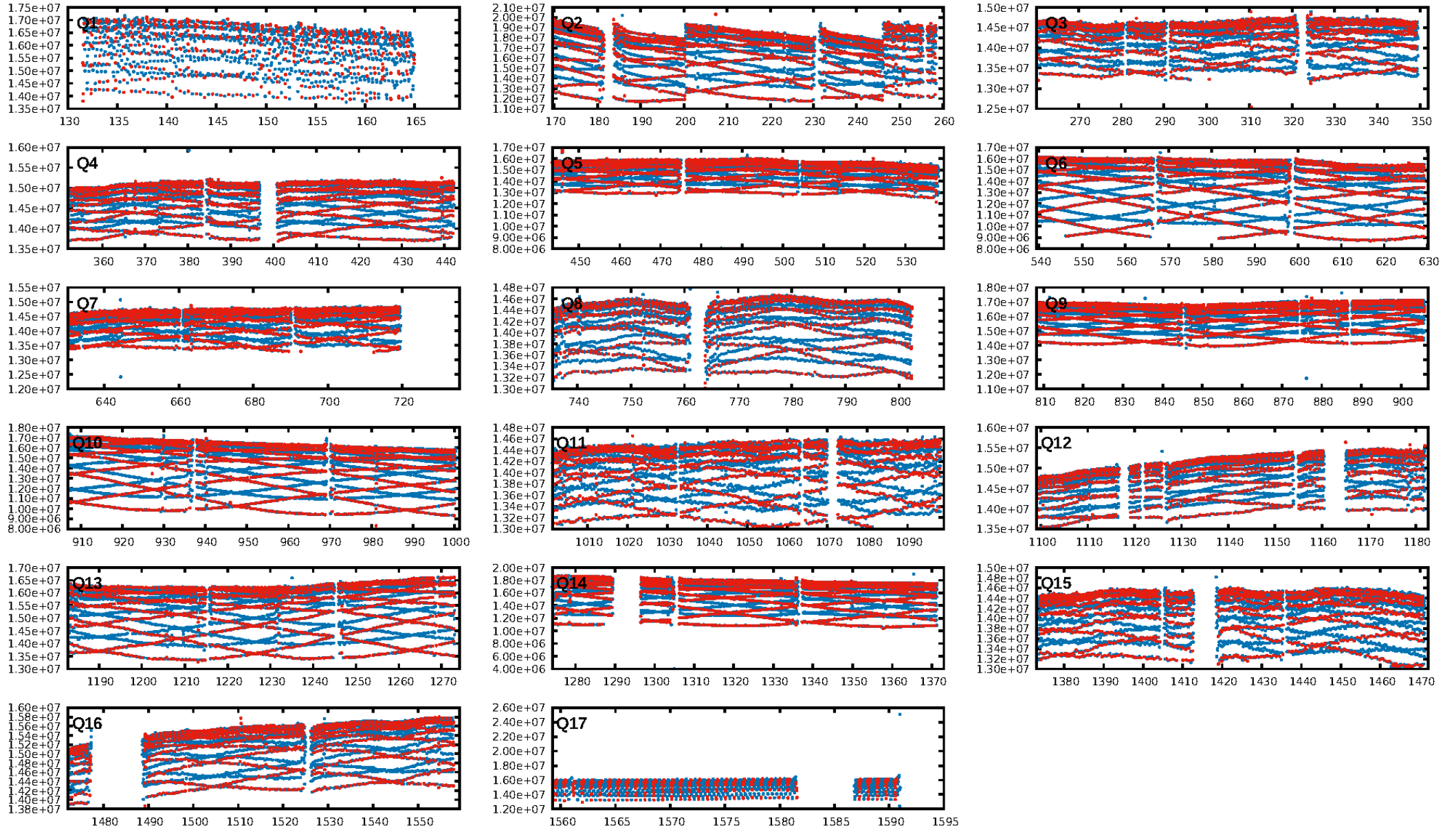
## DV Diagnostic Results:

**ShortPeriod-sig: 0.0% [0.00σ]**  
LongPeriod-sig: N/A  
ModelChiSquare2-sig: N/A  
ModelChiSquareGof-sig: N/A  
Bootstrap-pfa: N/A  
RollingBand-fgt: 1.00 [1563/1564]  
GhostDiagnostic-chr: N/A  
Centroid-sig: N/A  
Centroid-so: N/A  
**OotOffset-rm: 1.464 arcsec [14.66σ]**  
**KicOffset-rm: 4.083 arcsec [59.87σ]**  
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]

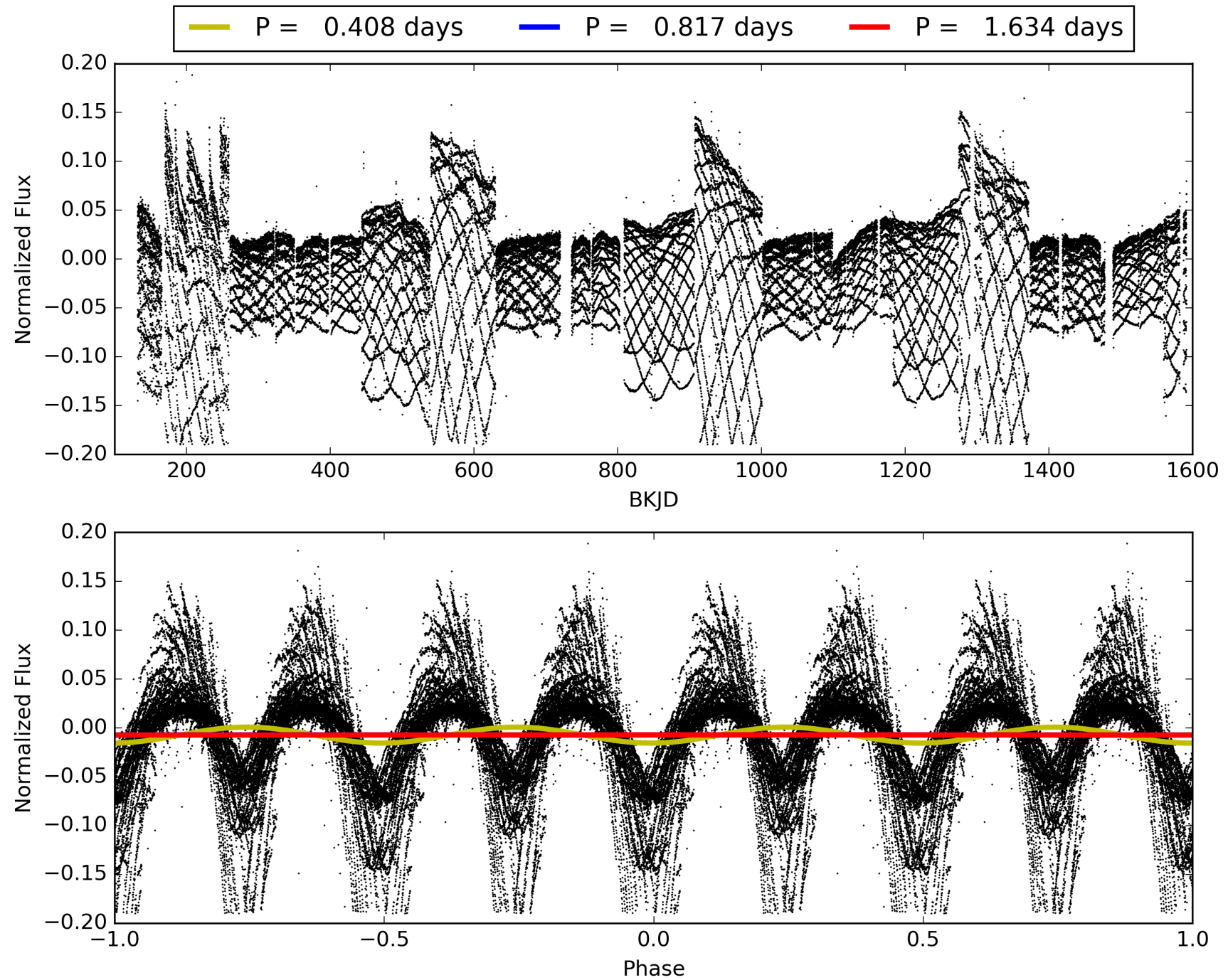
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 02-Feb-2016 07:59:44 Z

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

# TCE 007432476-01, PDC Light Curves

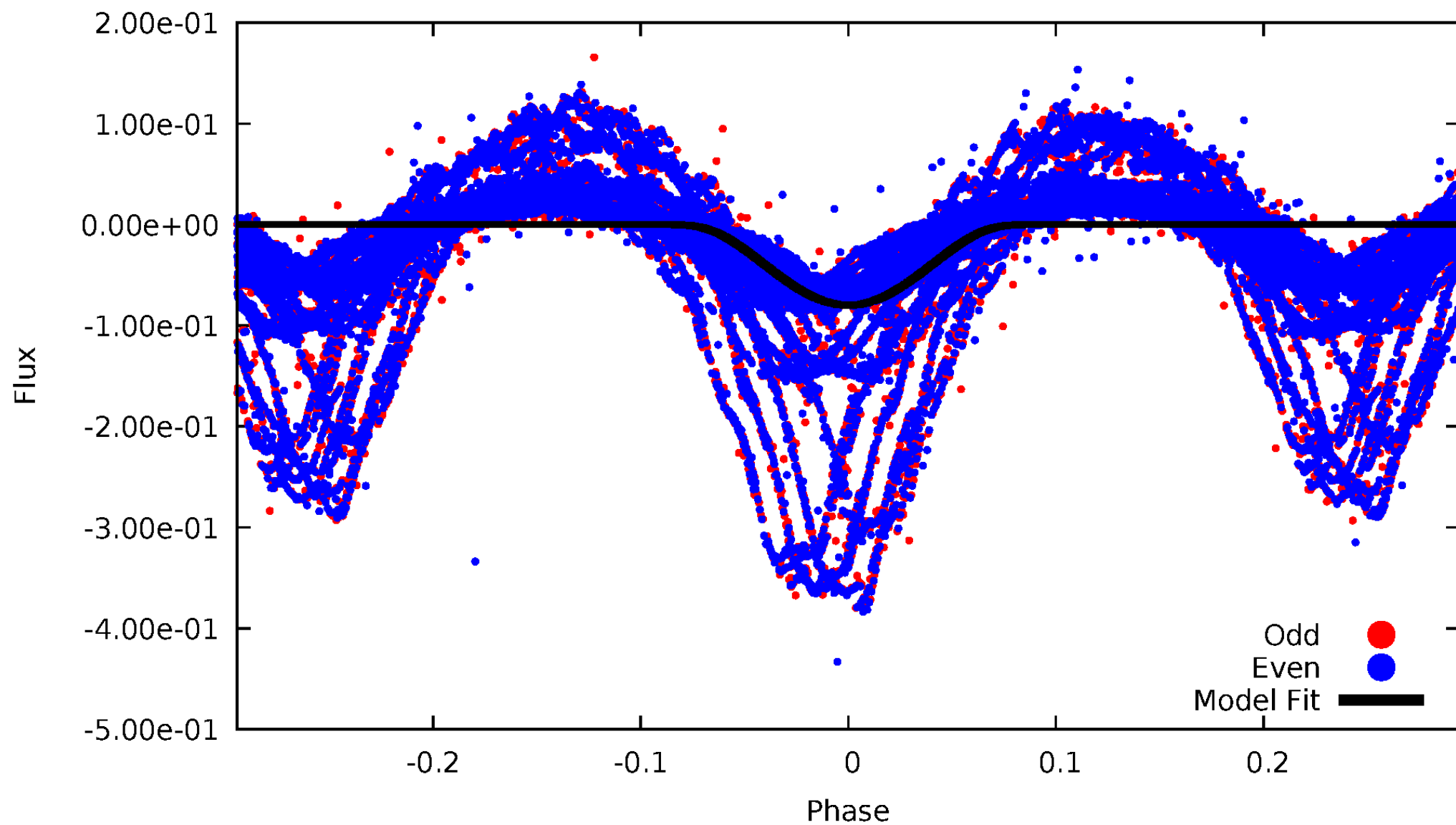


TCE 007432476-01



# DV Odd/Even

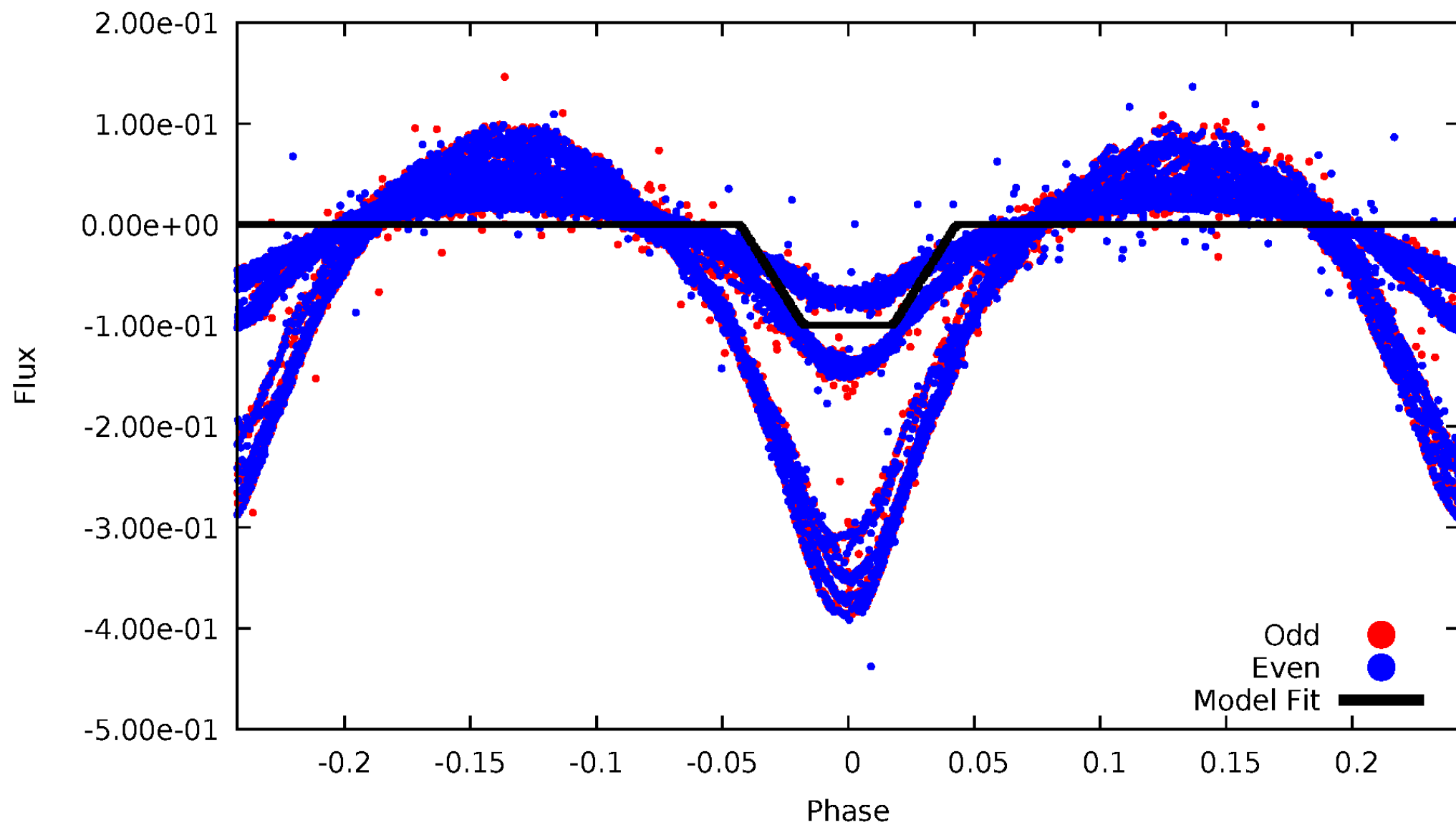
TCE 007432476-01





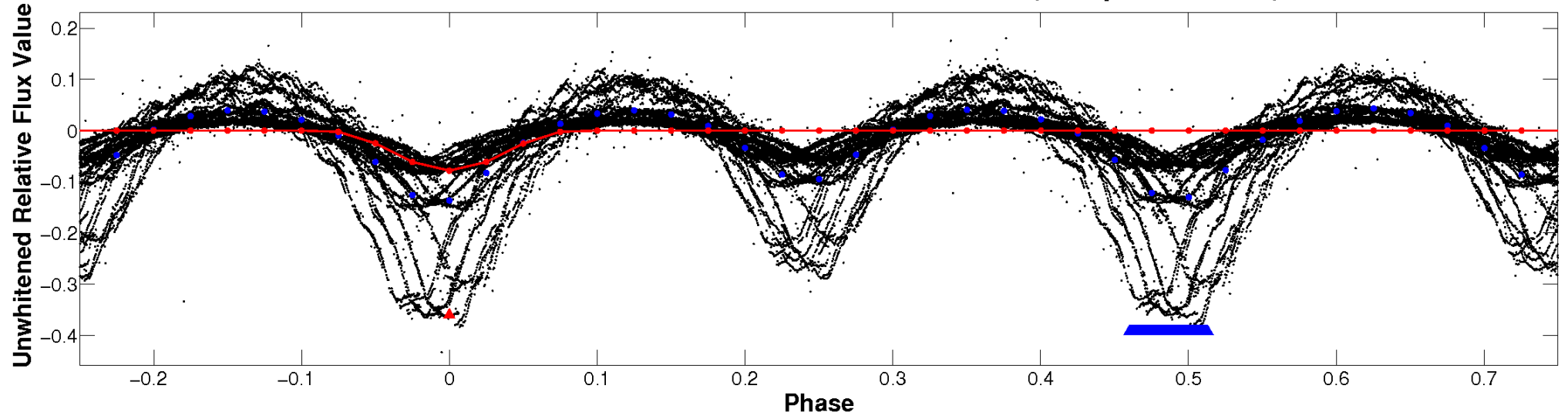
# ALT Odd/Even

TCE 007432476-01

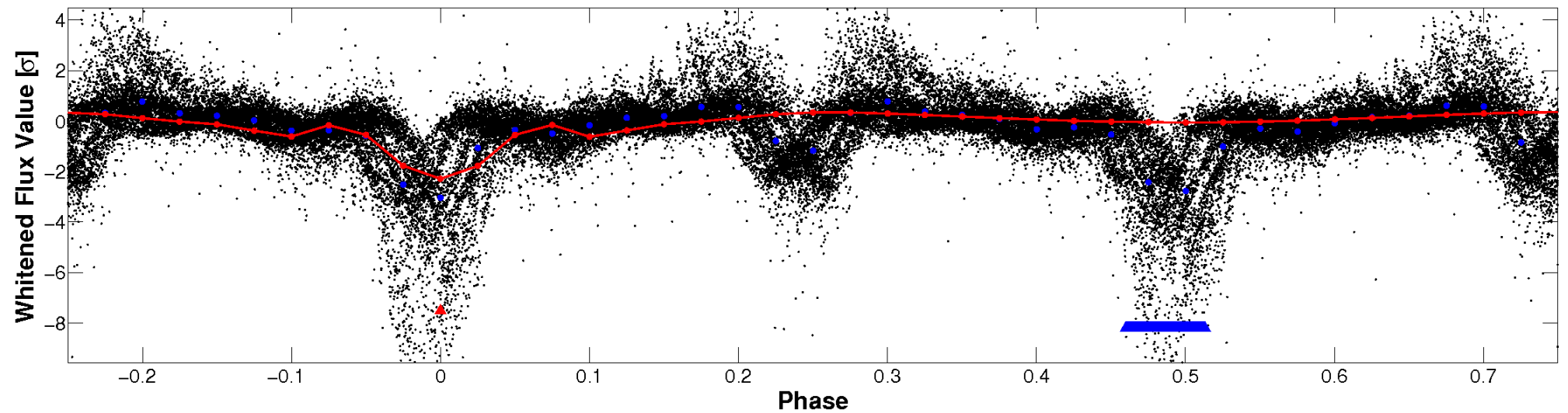


# Non-Whitened Vs. Whitened Light Curve

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

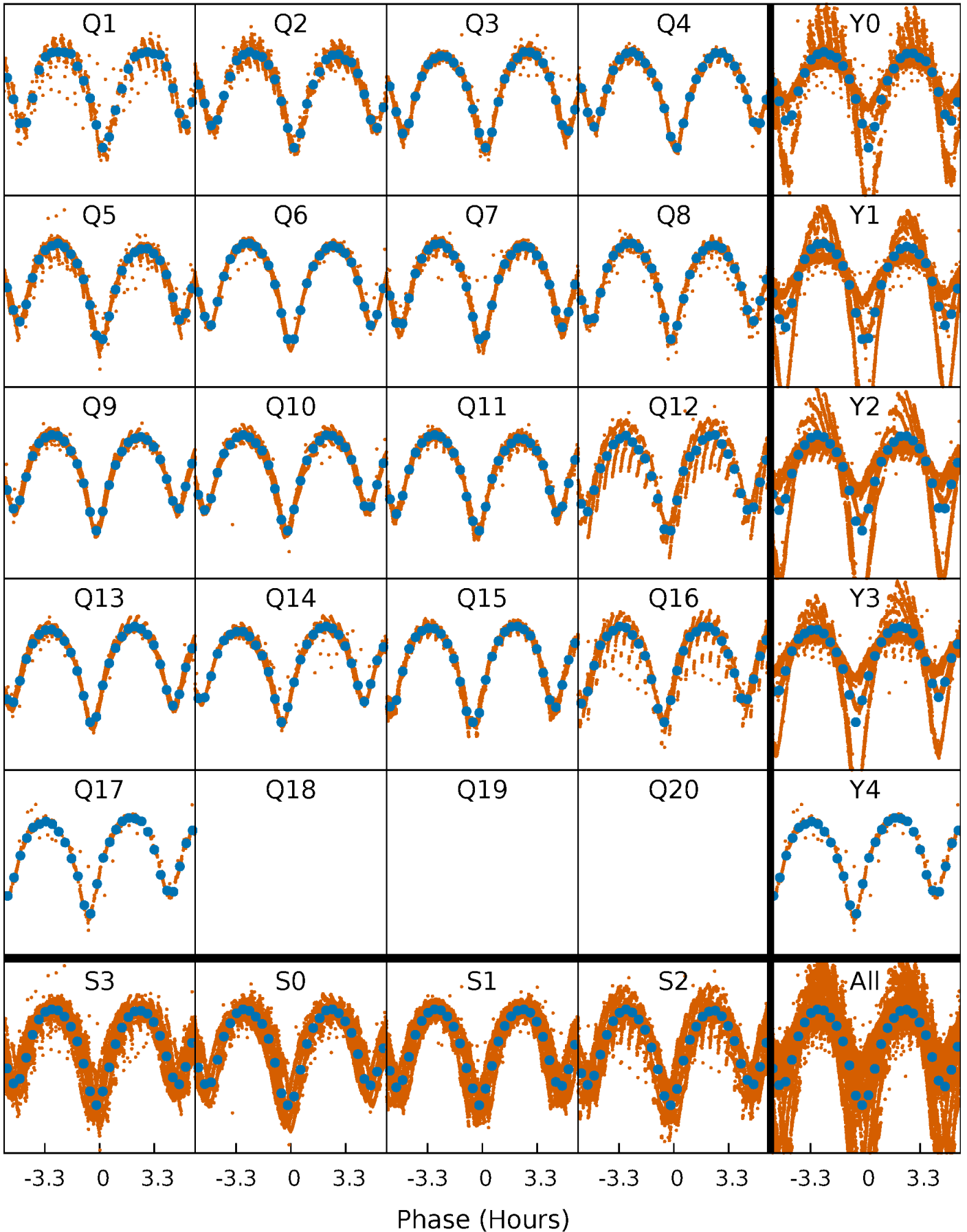


**Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)**



# PDC Quarter-Phased Transit Curves

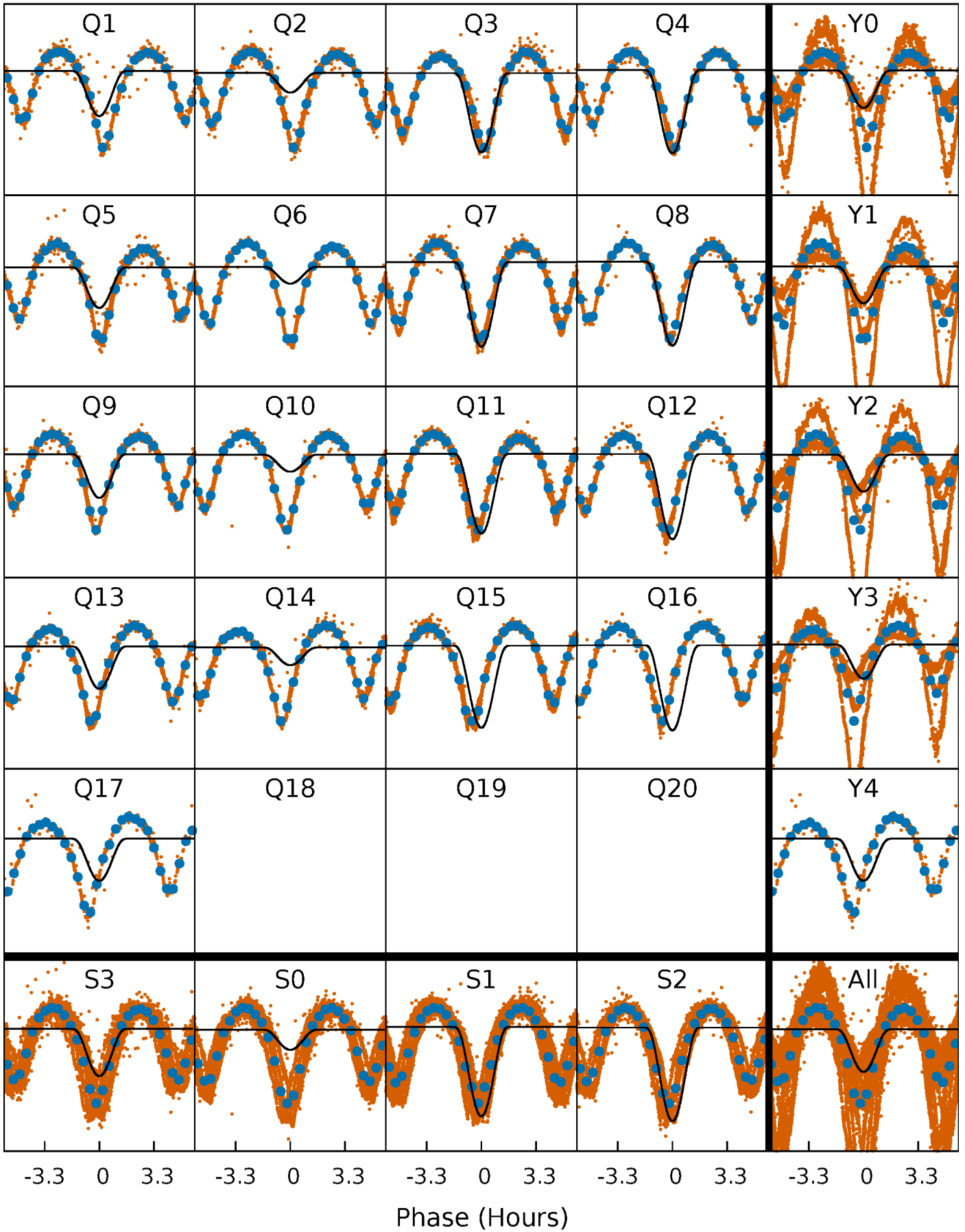
TCE 007432476-01   P= 0.816940 Days    $T_0=131.529312$  (BKJD)





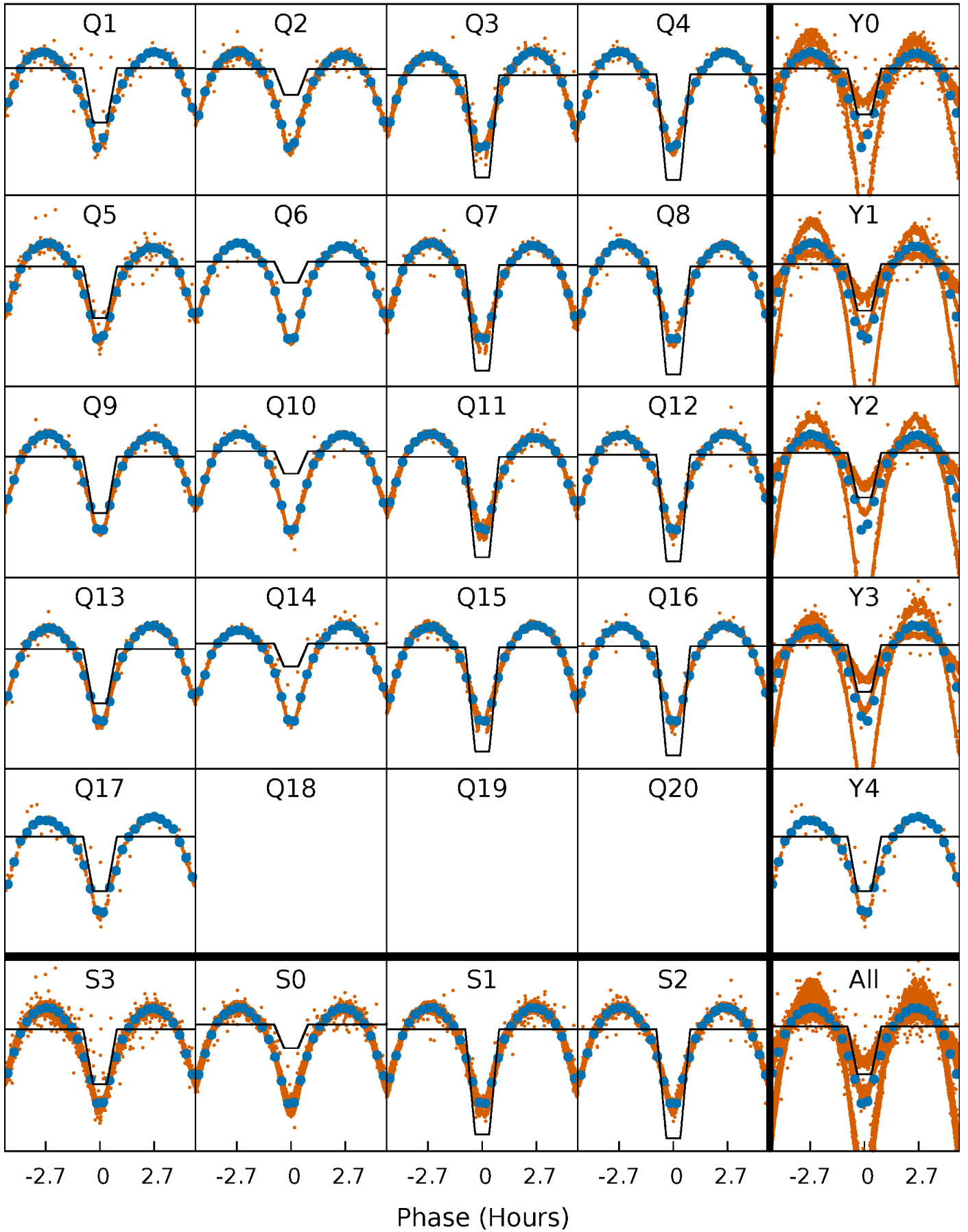
# DV Quarter-Phased Transit Curves

TCE 007432476-01   P= 0.816940 Days    $T_0=131.529312$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

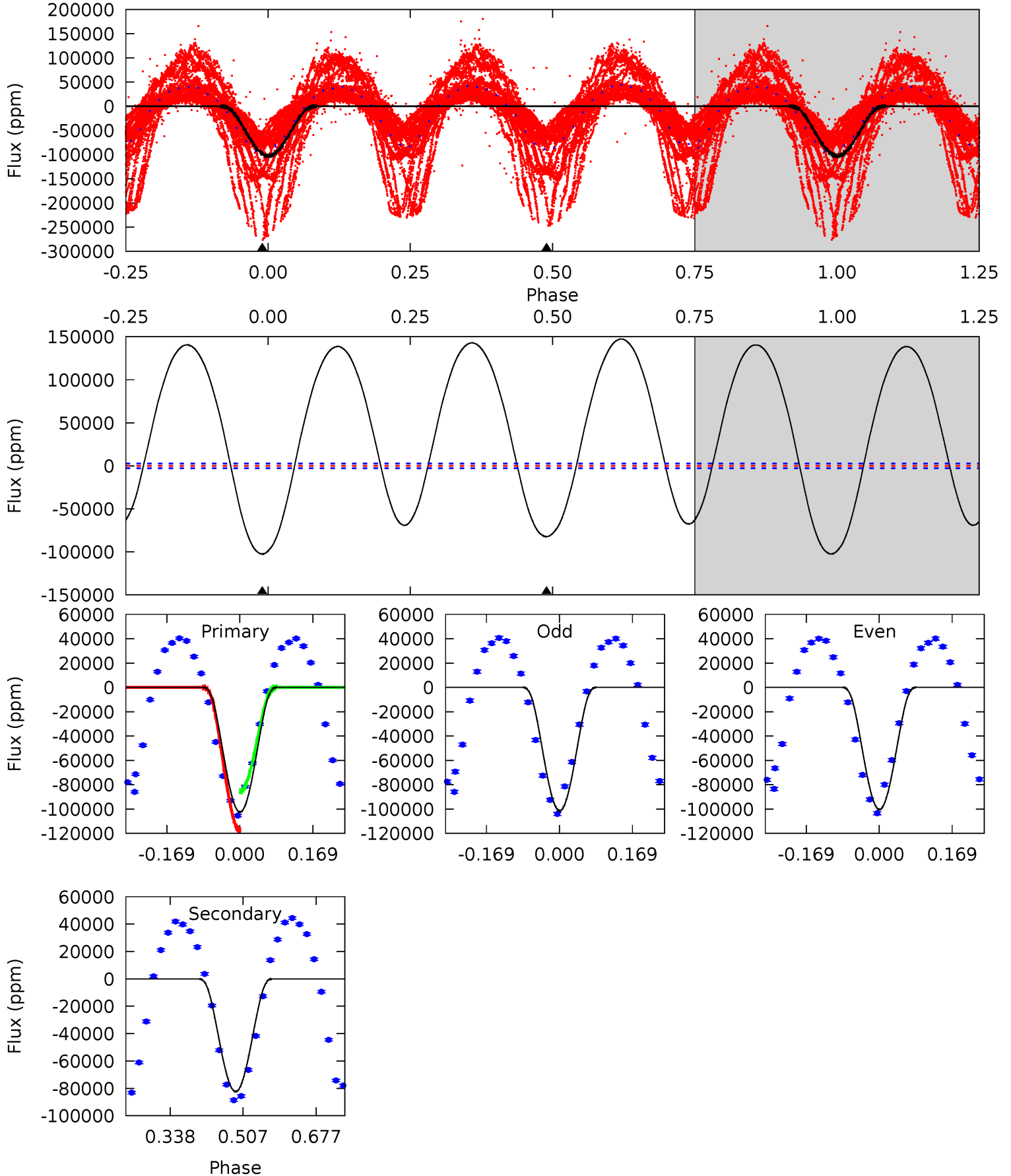
TCE 007432476-01 P= 0.816916 Days  $T_0=131.542870$  (BKJD)



# DV Model-Shift Uniqueness Test

007432476-01, P = 0.816940 Days, E = 130.712372 Days

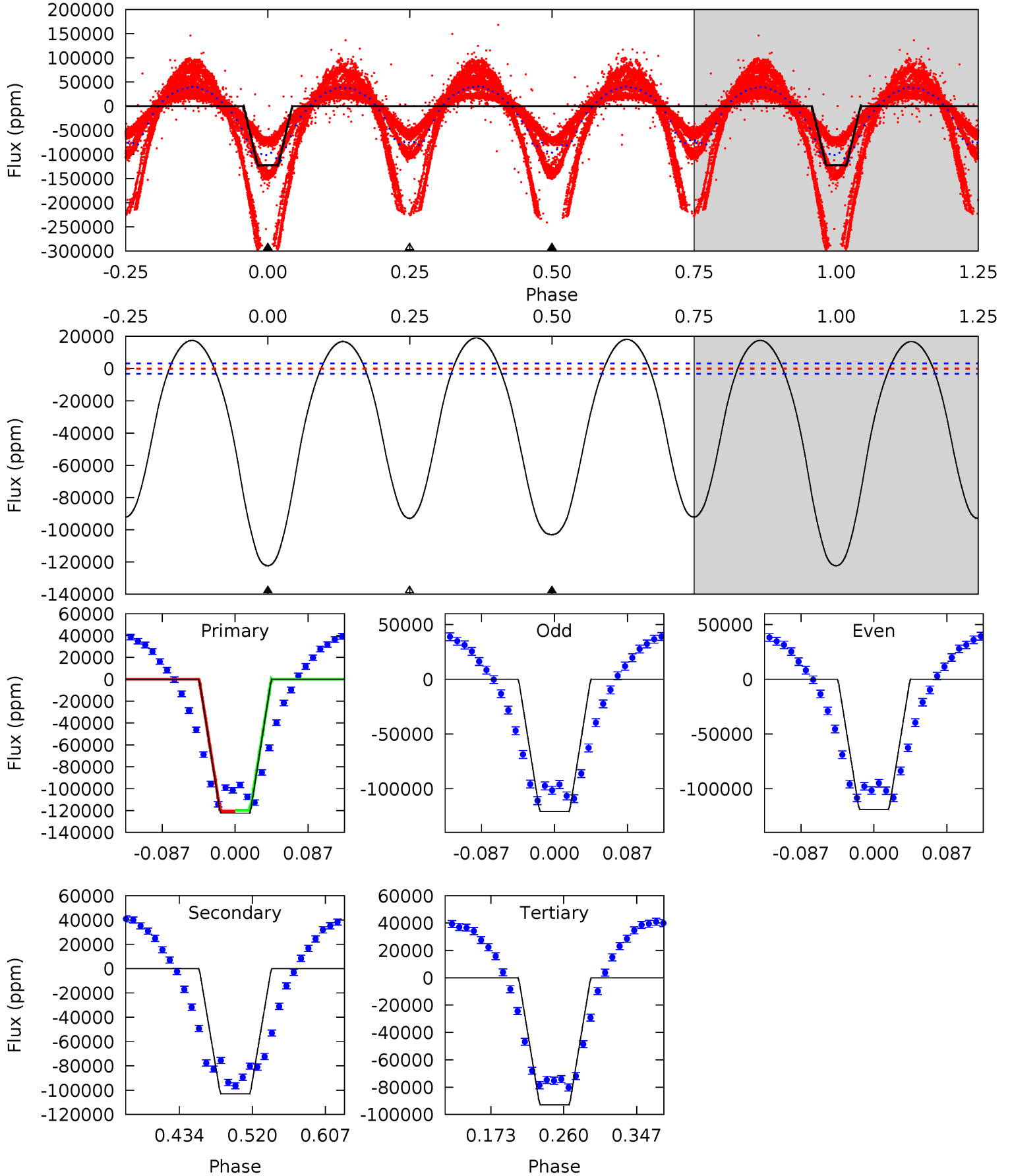
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
163.7	131.4	0	0	4.45	1.37	90.4	163.7	163.7	131.4	131.4	0.86	1.45	0.59	29.9



# Alt Model-Shift Uniqueness Test

007432476-01, P = 0.816916 Days, E = 130.725954 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
173.5	146.1	131.8	0	4.59	1.71	53.4	41.7	173.5	14.3	146.1	1.35	1.26	0.13	0.61



### Stellar Parameters For KIC 007432476

	$T_{\text{eff}} (K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R (R_{\odot})$	$M (M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	$5234^{+142}_{-158}$	$4.608^{+0.036}_{-0.084}$	$-0.180^{+0.300}_{-0.300}$	$0.747^{+0.102}_{-0.062}$	$0.836^{+0.060}_{-0.103}$	$2.826^{+0.517}_{-0.756}$
	+3%/-3%	+1%/-2%	+167%/-167%	+14%/-8%	+7%/-12%	+18%/-27%
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 007432476-01 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	$A_{\text{obs}}$
DV	$-82302 \pm 626$	$46.27^{+34.15}_{-28.64}$	$2224^{+85}_{-77}$	$4048^{+2228}_{-727}$	$5.876^{+32.915}_{-3.908}$
Alt.	$-103001 \pm 705$	$37.38^{+38.08}_{-24.22}$	$2220^{+85}_{-83}$	$4620^{+3006}_{-1076}$	$11^{+78}_{-9}$

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

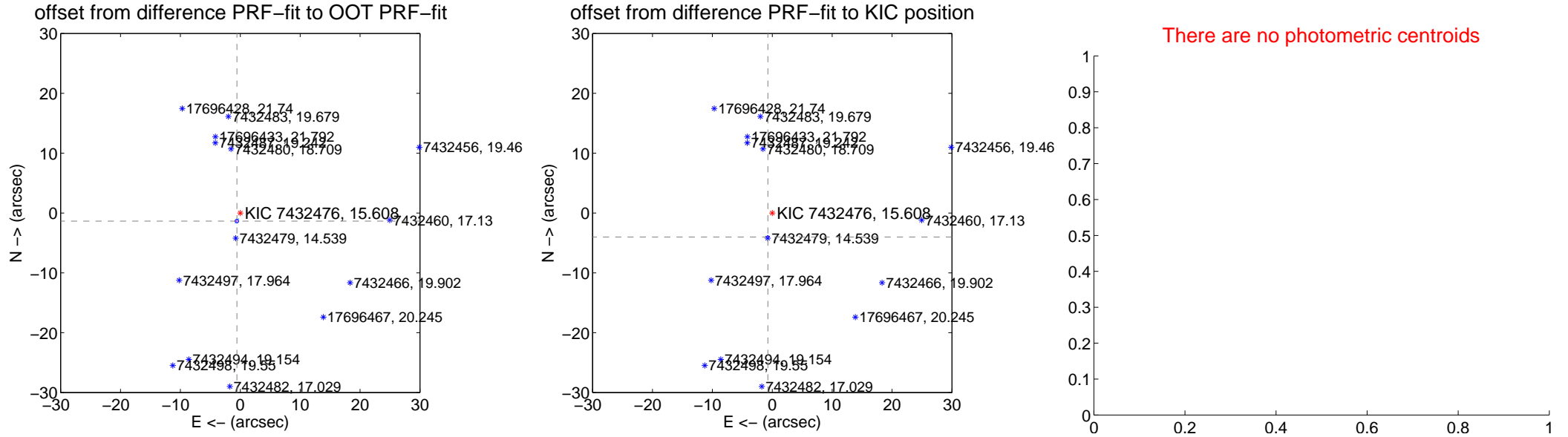
## DV Centroid Data

Supplemental centroid analysis for 007432476-01. Kepler magnitude: 15.61. Transit SNR 132.14

There are 17 quarters with good PRF difference image offsets

The OOT PRF centroid is offset from the target star catalog position by about 2.85 arcsec so the offset from difference PRF-fit to OOT-fit may be invalid.

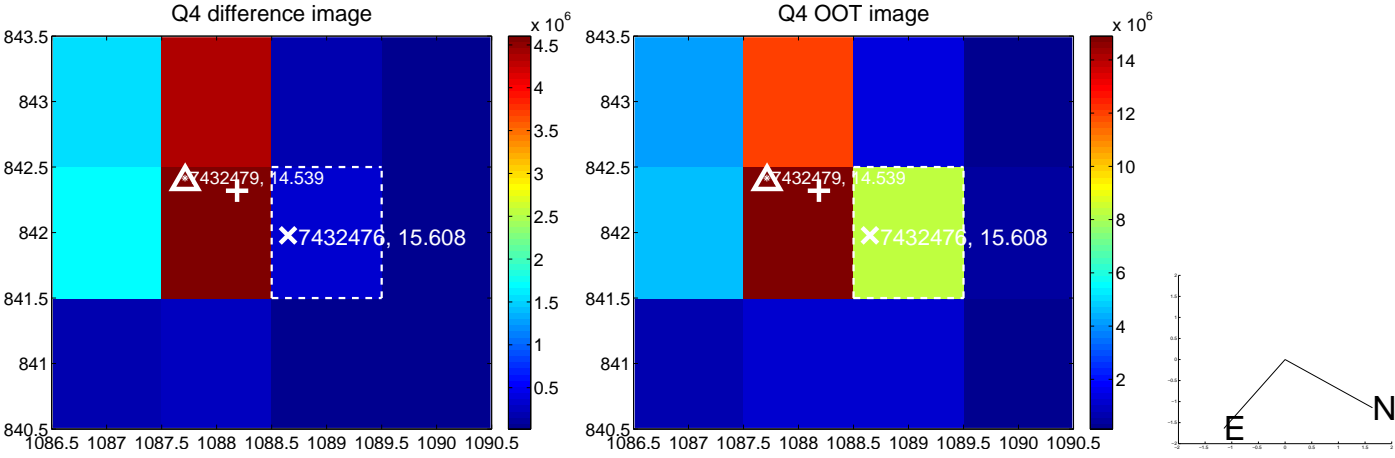
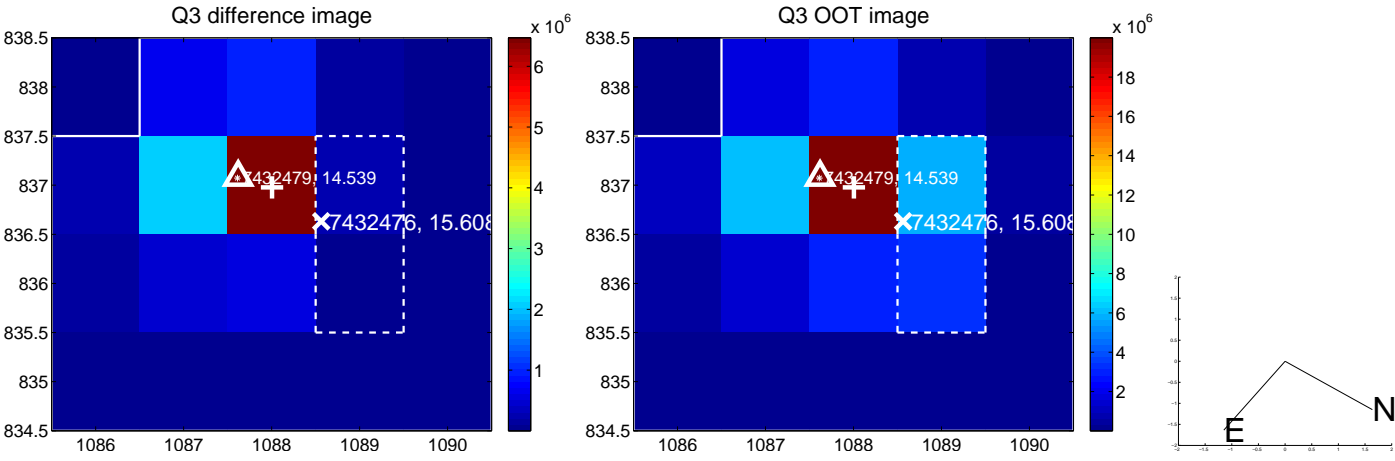
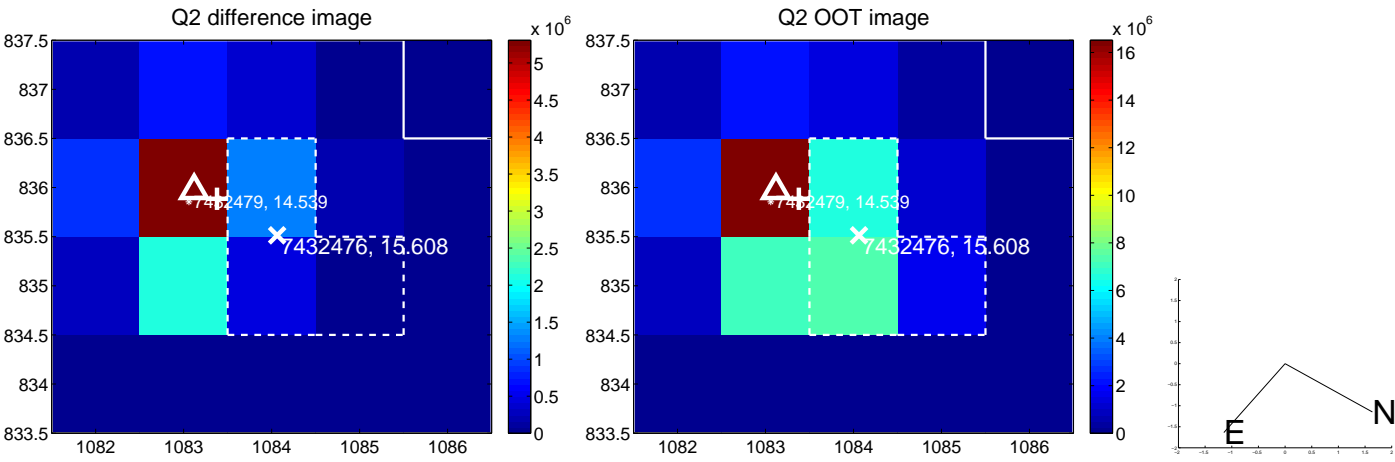
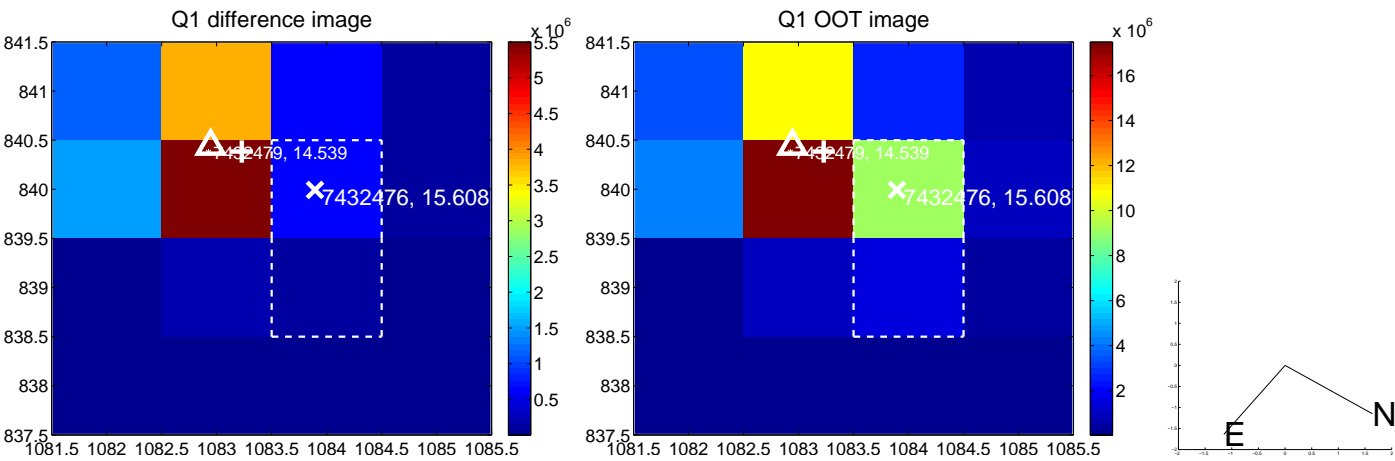
	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	1.464 $\pm$ 0.100	14.66	0.567 $\pm$ 0.079	-1.350 $\pm$ 0.093
PRF-fit source offset from KIC position	4.083 $\pm$ 0.068	59.87	0.731 $\pm$ 0.069	-4.017 $\pm$ 0.068
photometric centroid source offset	—	—	—	—



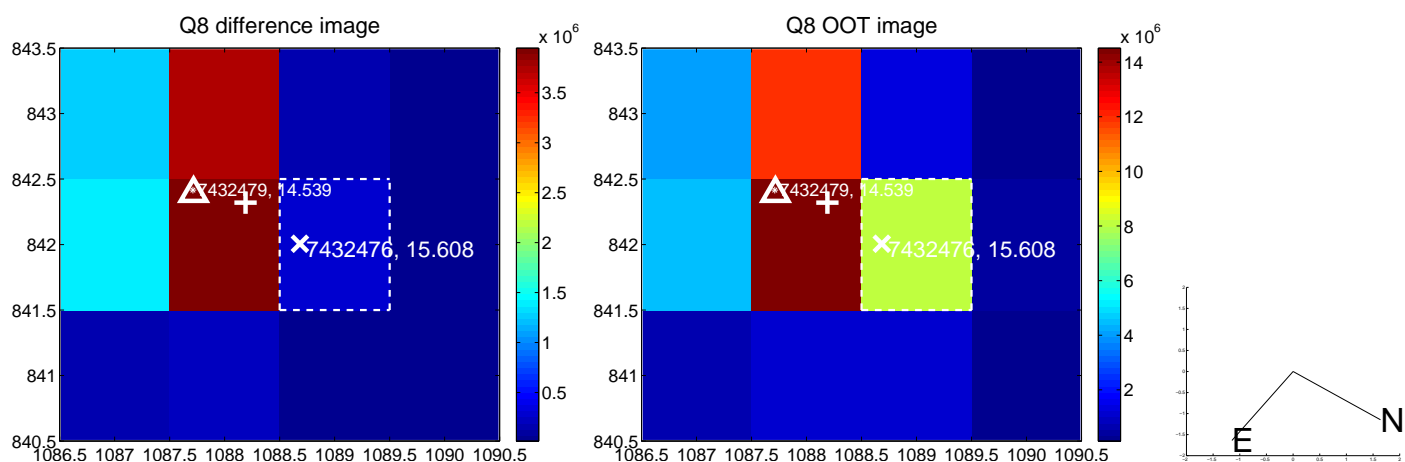
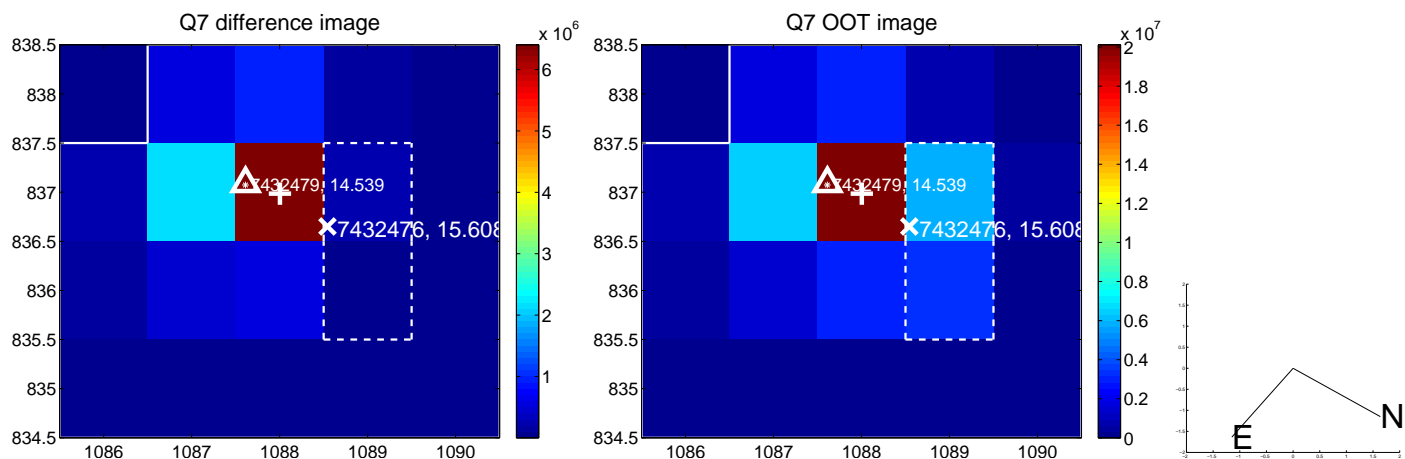
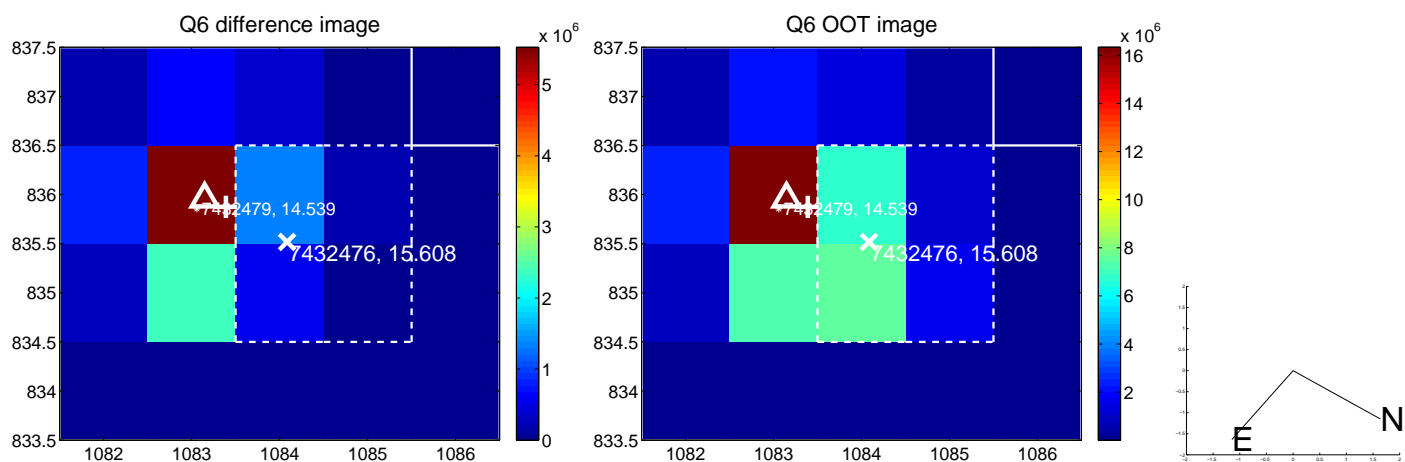
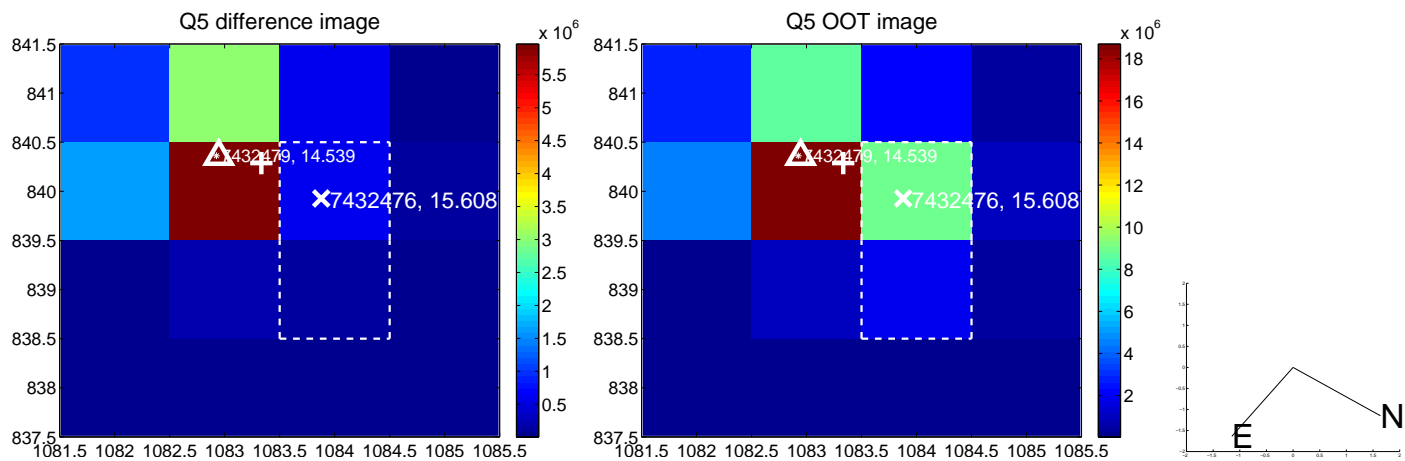
Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: three-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



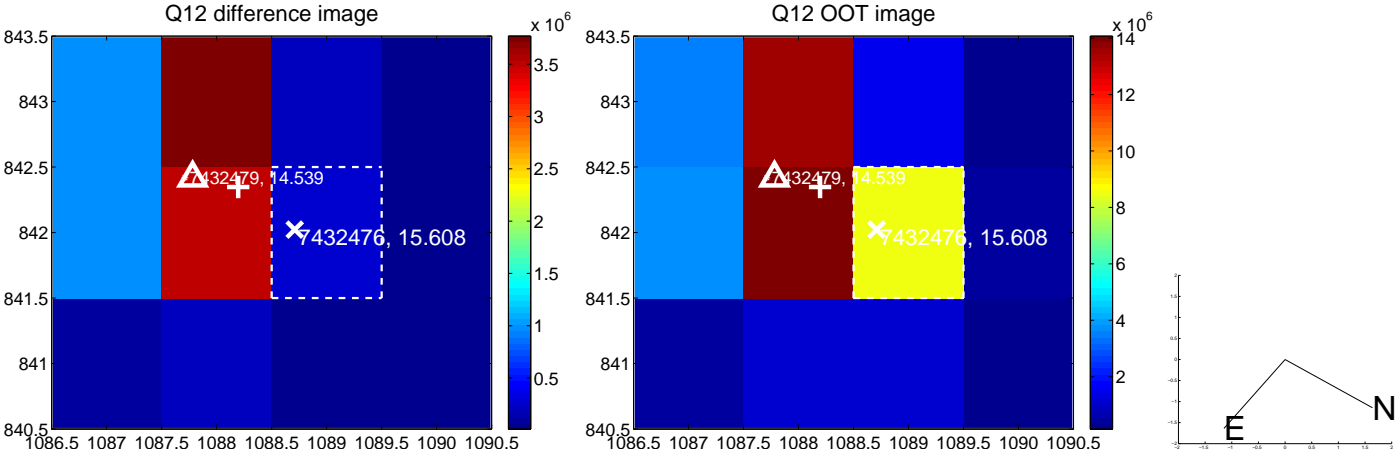
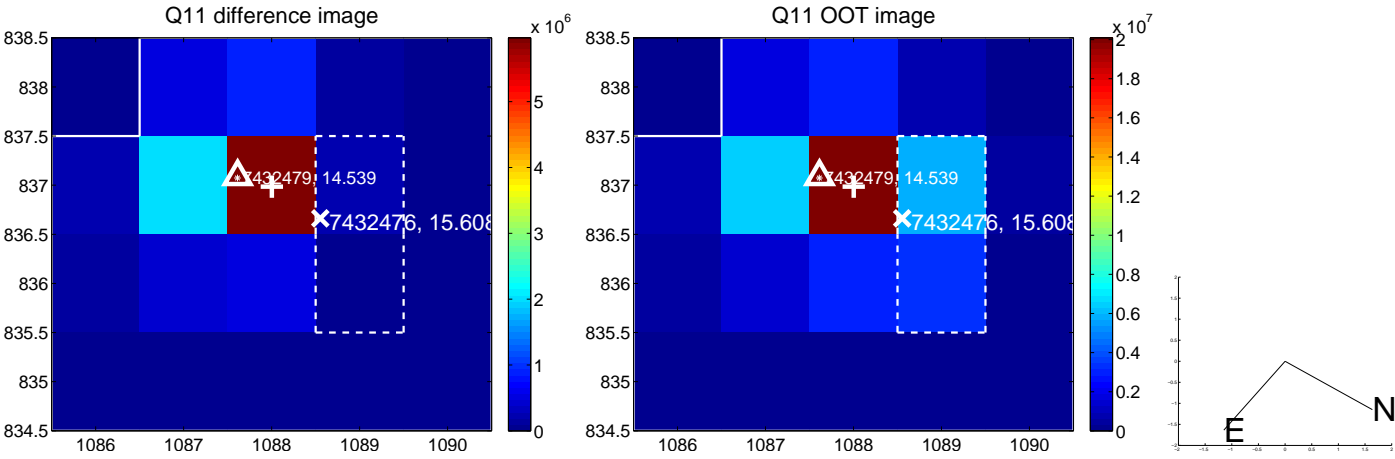
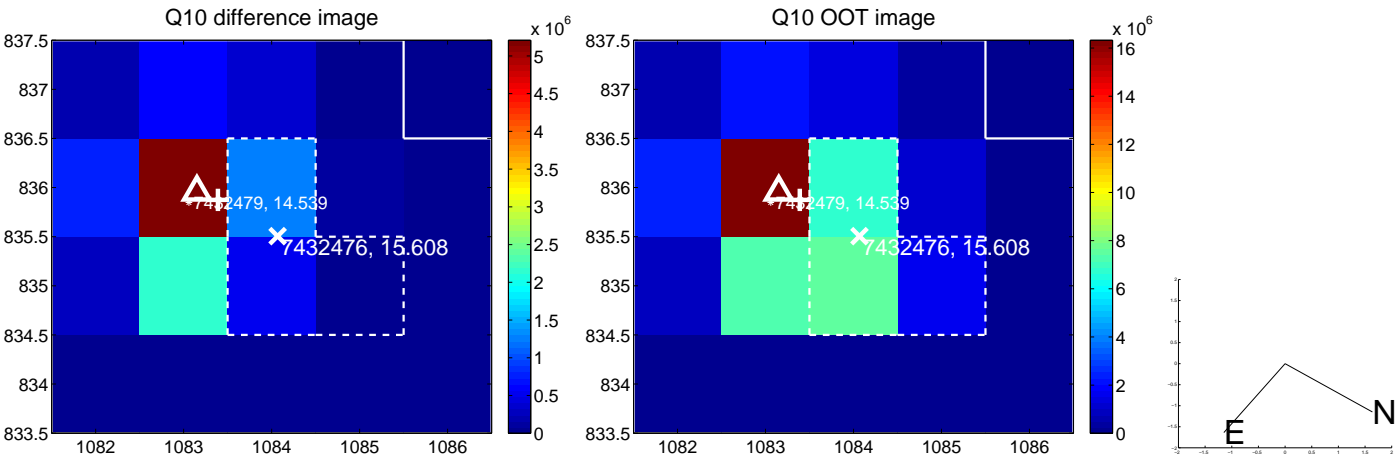
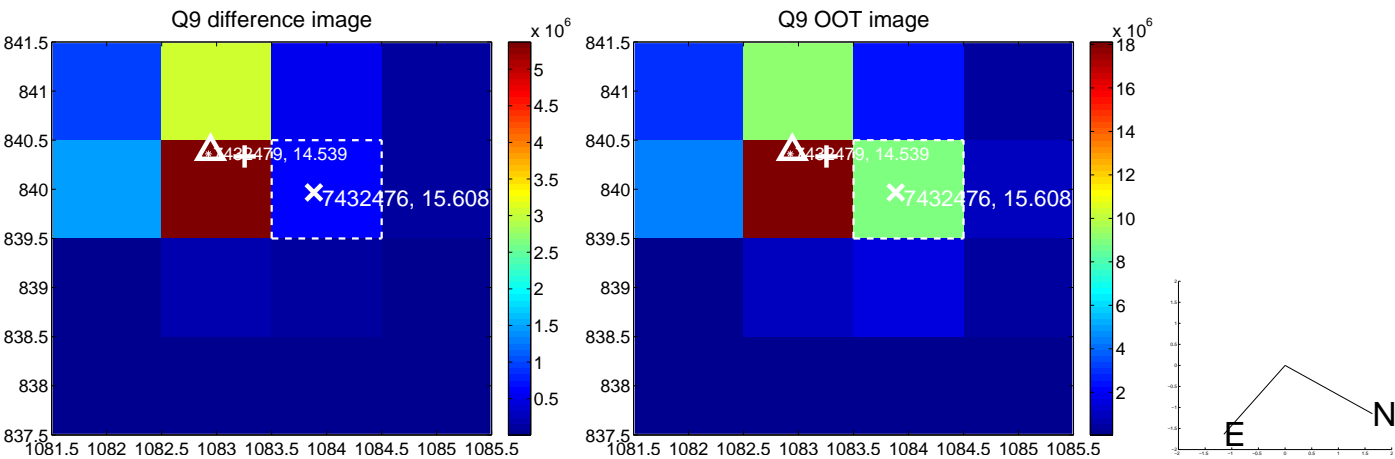
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



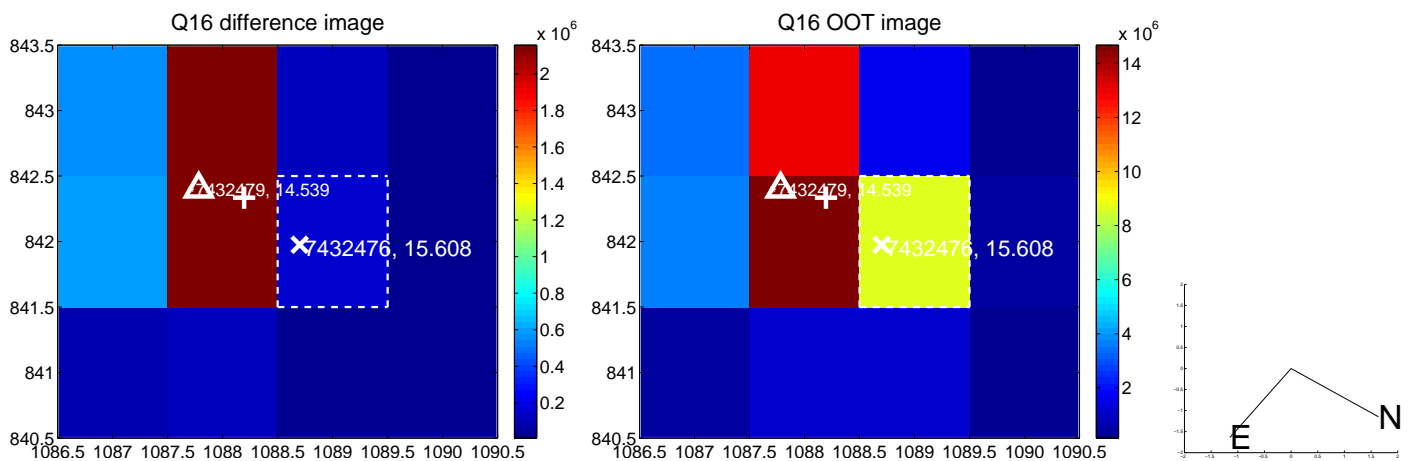
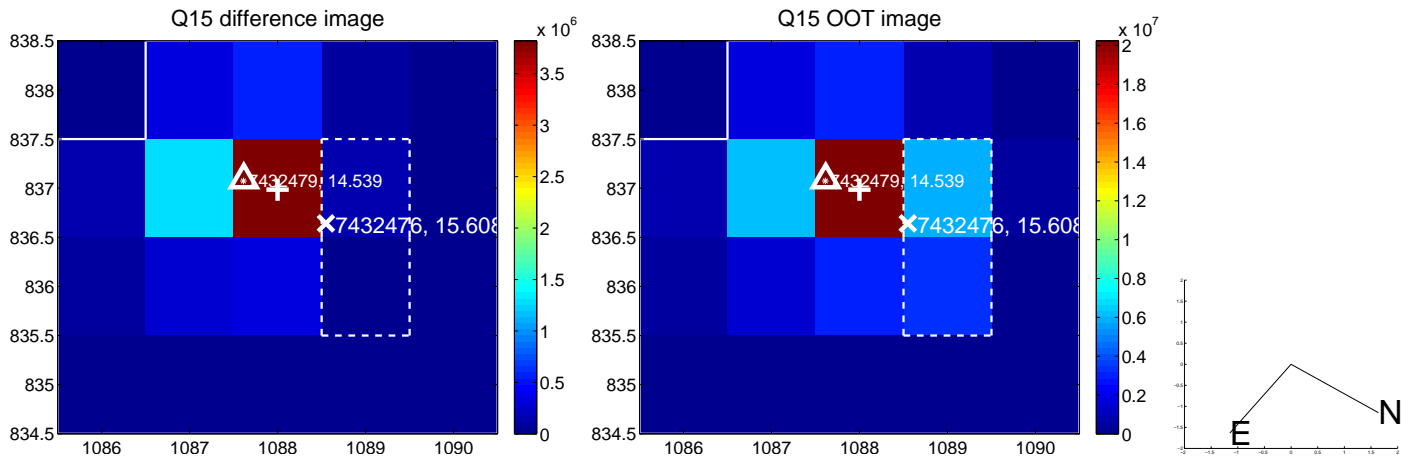
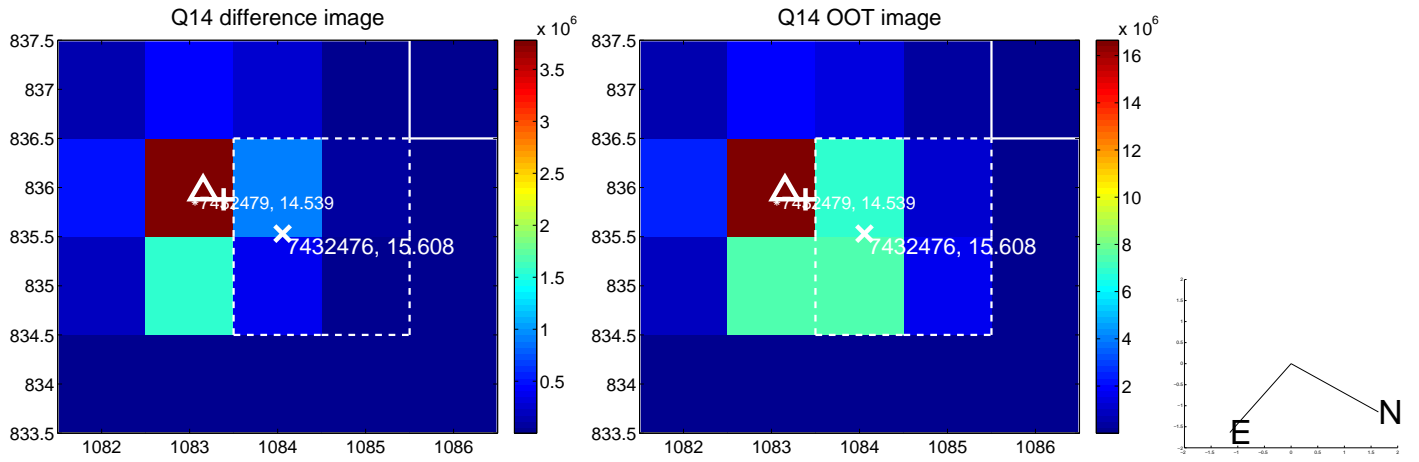
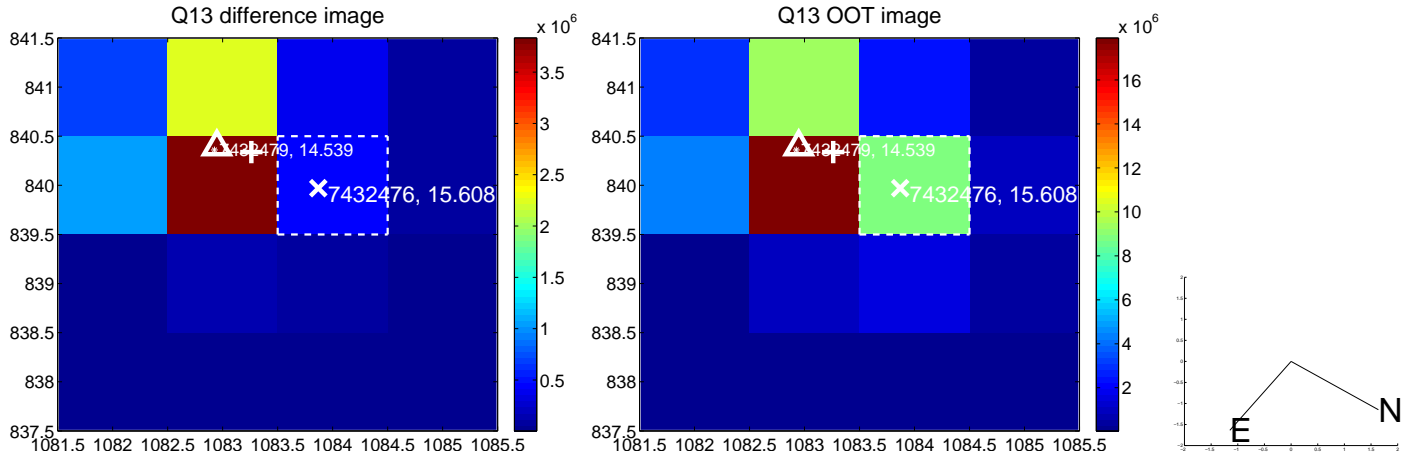
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



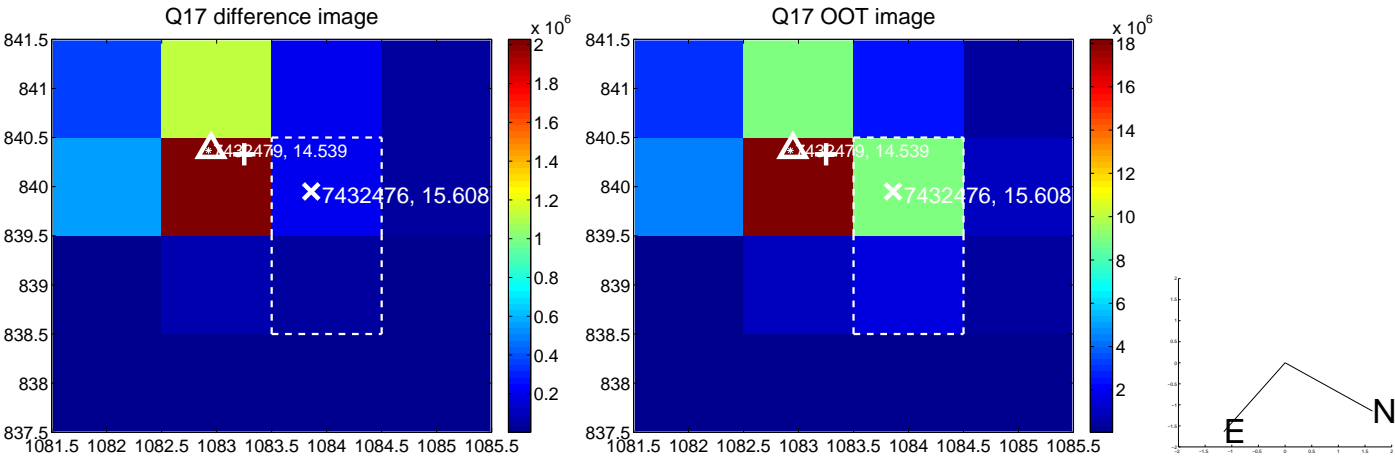
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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



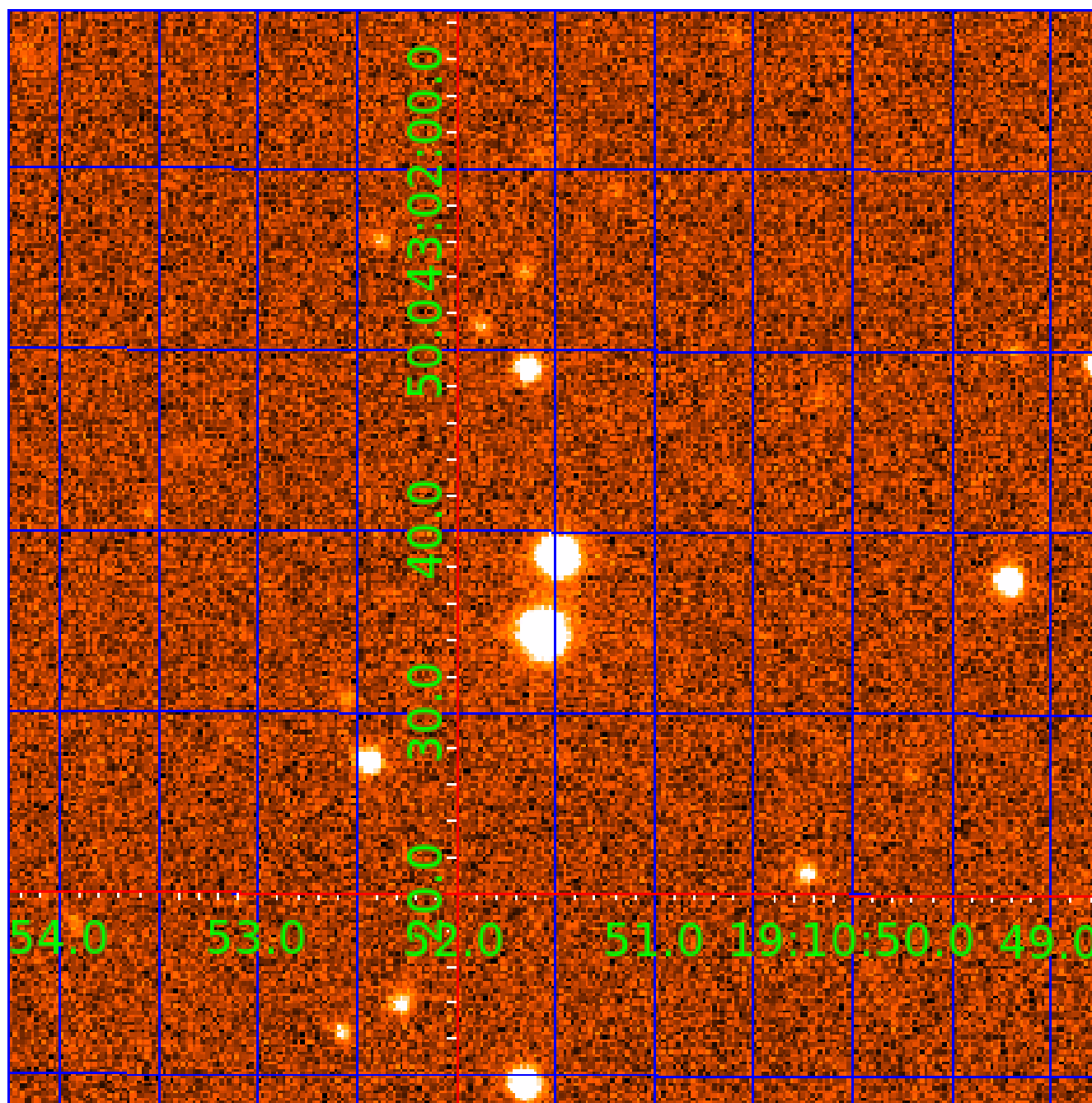
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



folded centroid time series figure for this object.

# UKIRT Image

Declination





# KIC 007432476

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
007432476-01	OBS	No	0.816940	131.529312	79852.9	2.886	172.7	132.1	0.75	5234	36.63	1457.21
007432476-02	OBS	No	0.816916	131.948494	2683.0	1.500	74.6	-1.0	0.75	5234	3.80	1457.27

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
007432476-01	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—CENT_KIC_POS
007432476-02	OBS	FP	0.00	1	0	0	1	LPP_DV—SAME_NTL_PERIOD—CENT_NOFITS—EPHEM_MATCH

**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 007432476-02

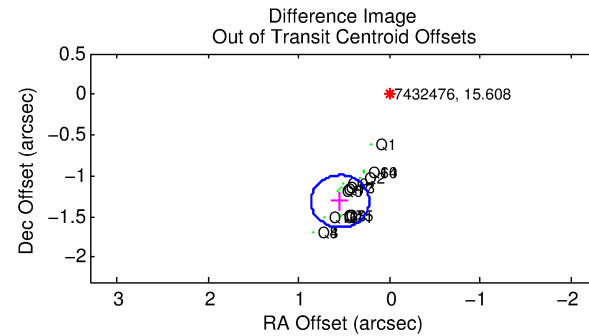
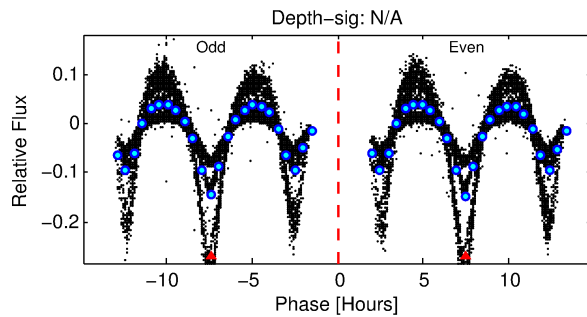
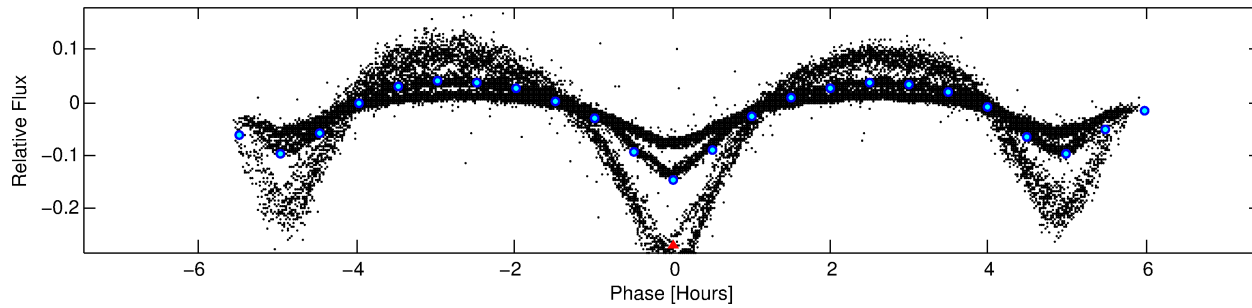
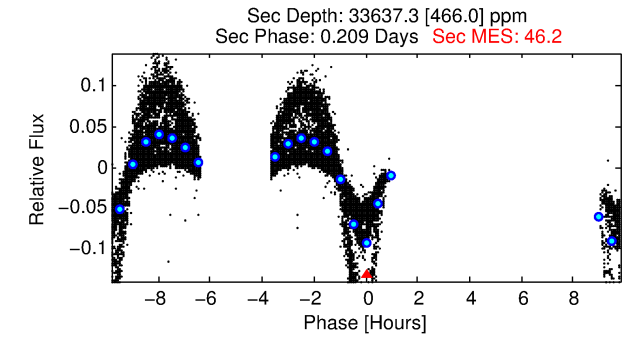
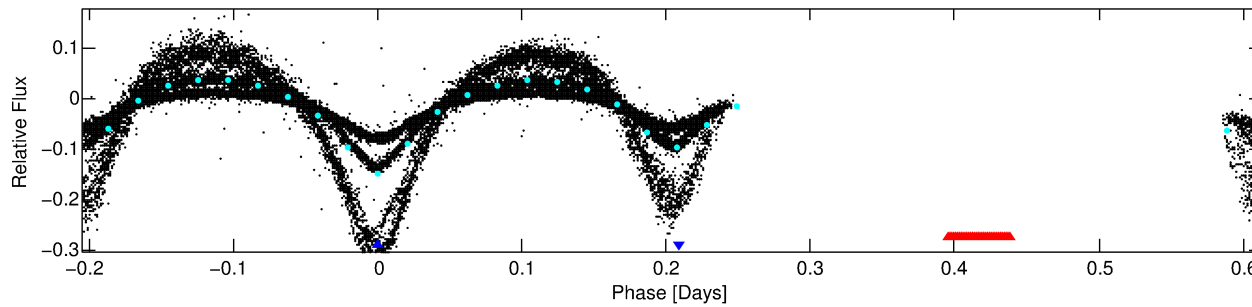
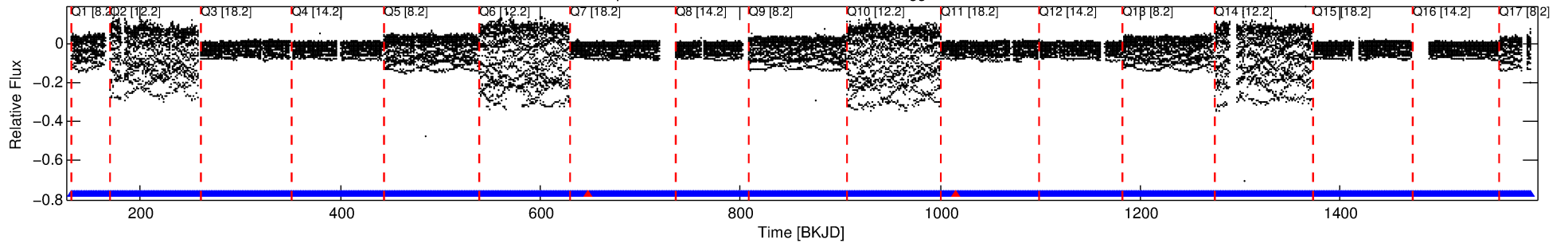
TCE (1)	KIC	Parent (2)	Parent KIC	$P_1:P_2$	Dist ( $''$ )	$\Delta$ Row	$\Delta$ Col	$m_2$	$m_1$	$D_2/D_1$	Mechanism	Flag	$\sigma_P$	$\sigma_T$
007432476-02	7432476	007432479-pri	7432479	2:1	4.3	-1	1	14.54	15.61	220.16	Direct-PRF	0	0.41	0.17

**Notes:**  $P_1:P_2$  is the period ratio. Dist is the distance in arcseconds.  $\Delta$ Row and  $\Delta$ Col are the number of pixels apart in row and column.  $m_2$  and  $m_1$  are the magnitudes of the parent and child.  $D_2/D_1$  is the parent's transit depth divided by the child's.  $\sigma_P$  and  $\sigma_T$  are the significance of the match in period and epoch. For a match to be considered significant  $\sigma_P < 5.0$  and  $\sigma_T < 5.0$ . Matches which have  $\sigma_P$  and  $\sigma_T$  very close to this cutoff should receive extra scrutiny, especially if the period ratio is very large.

# DV One-Page Summary

KIC: 7432476 Candidate: 2 of 2 Period: 0.817 d

Kp: 15.61 R\*: 0.75 Rs Teff: 5234.0 K Logg: 4.61 Fe/H: -0.180



## TPS TCE Results:

Period = 0.81692 d  
Epoch = 131.9485 BKJD

DV fit results are unavailable

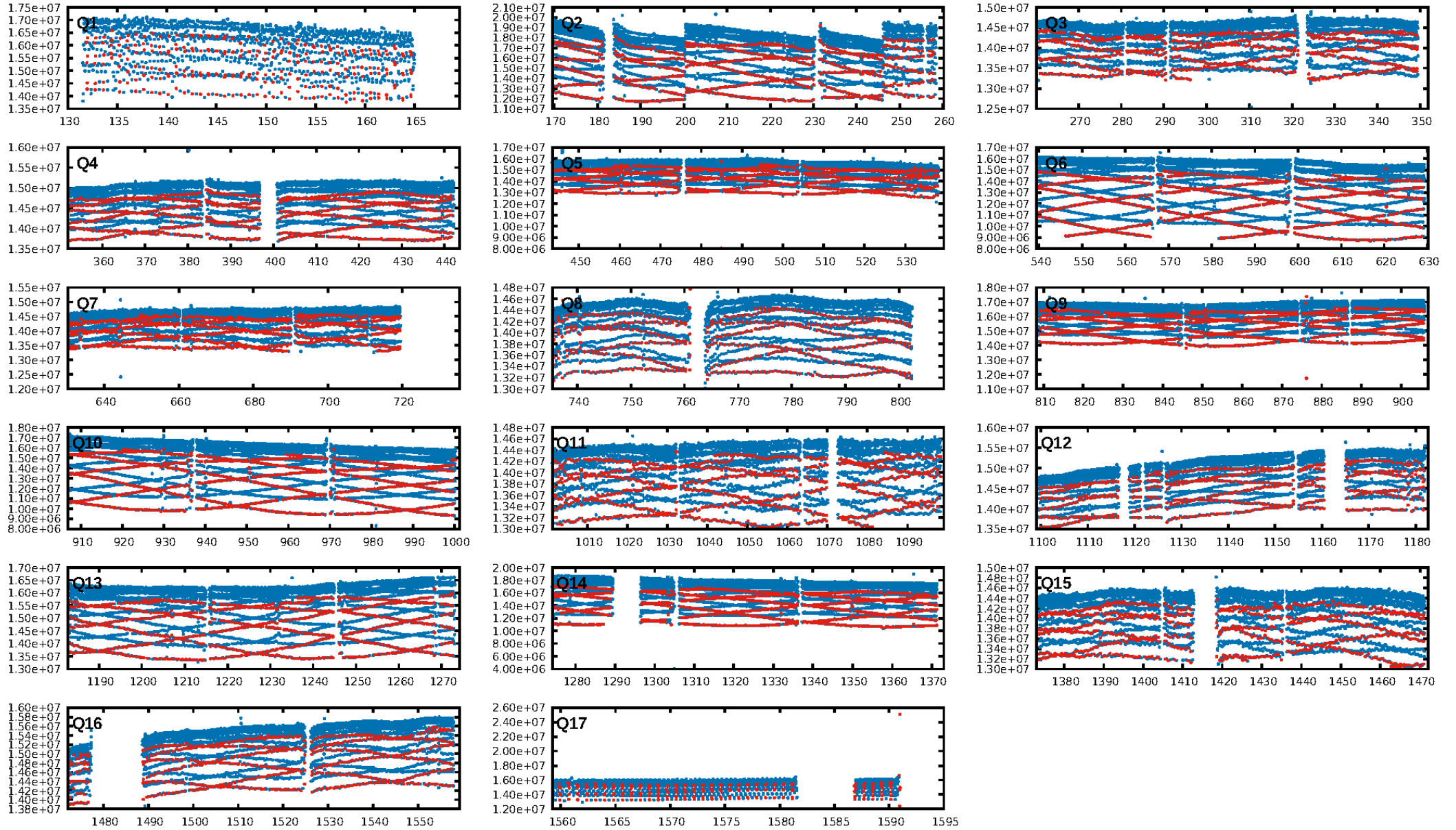
## DV Diagnostic Results:

ShortPeriod-sig: N/A  
LongPeriod-sig: 0.0% [0.00σ]  
ModelChiSquare2-sig: N/A  
ModelChiSquareGof-sig: N/A  
Bootstrap-pfa: N/A  
RollingBand-fgt: 1.00 [1565/1567]  
GhostDiagnostic-chr: N/A  
Centroid-sig: N/A  
Centroid-so: N/A  
OotOffset-rm: 1.422 arcsec [13.25σ]  
KicOffset-rm: 4.075 arcsec [59.85σ]  
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]

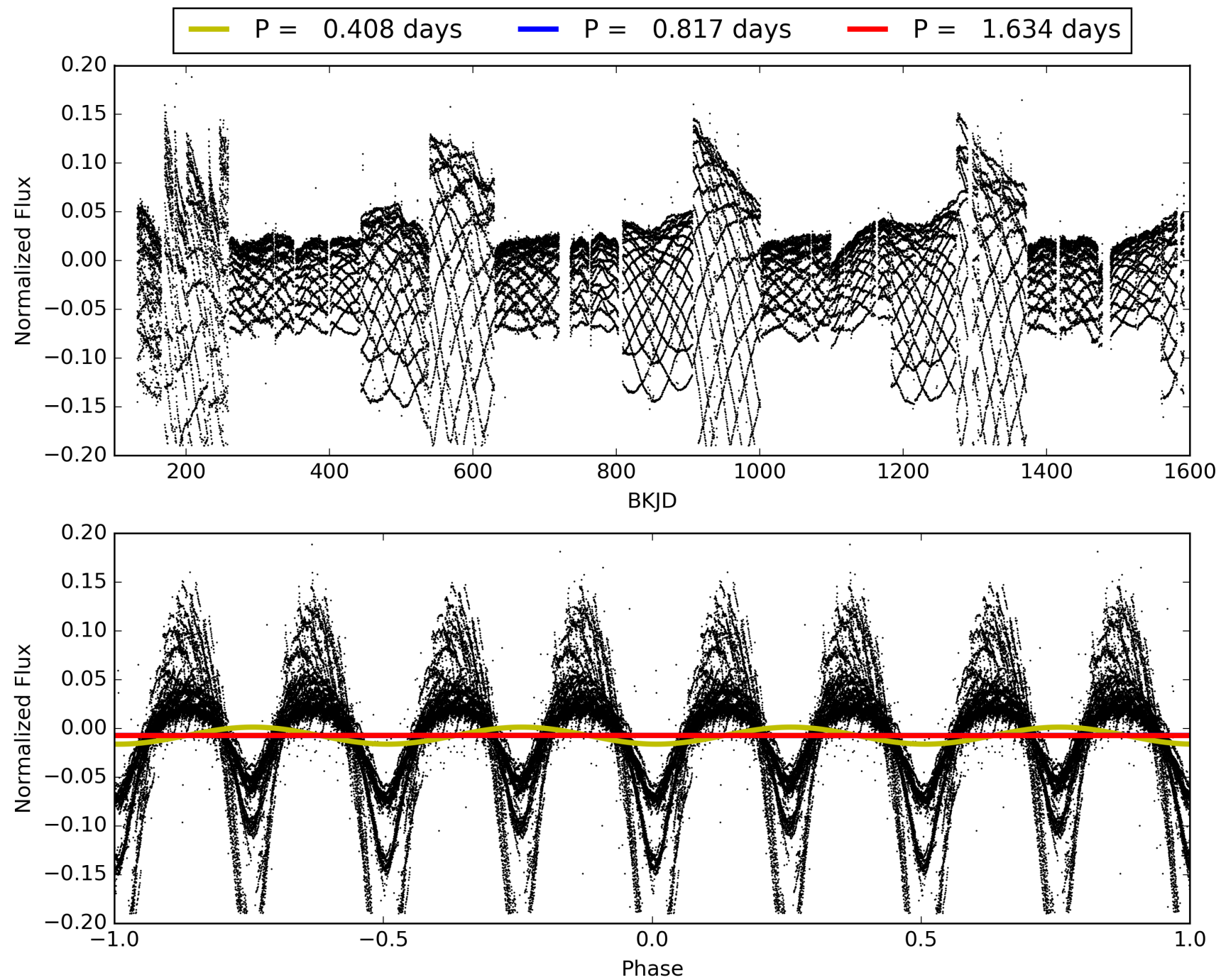
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 02-Feb-2016 07:59:54 Z

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

# TCE 007432476-02, PDC Light Curves

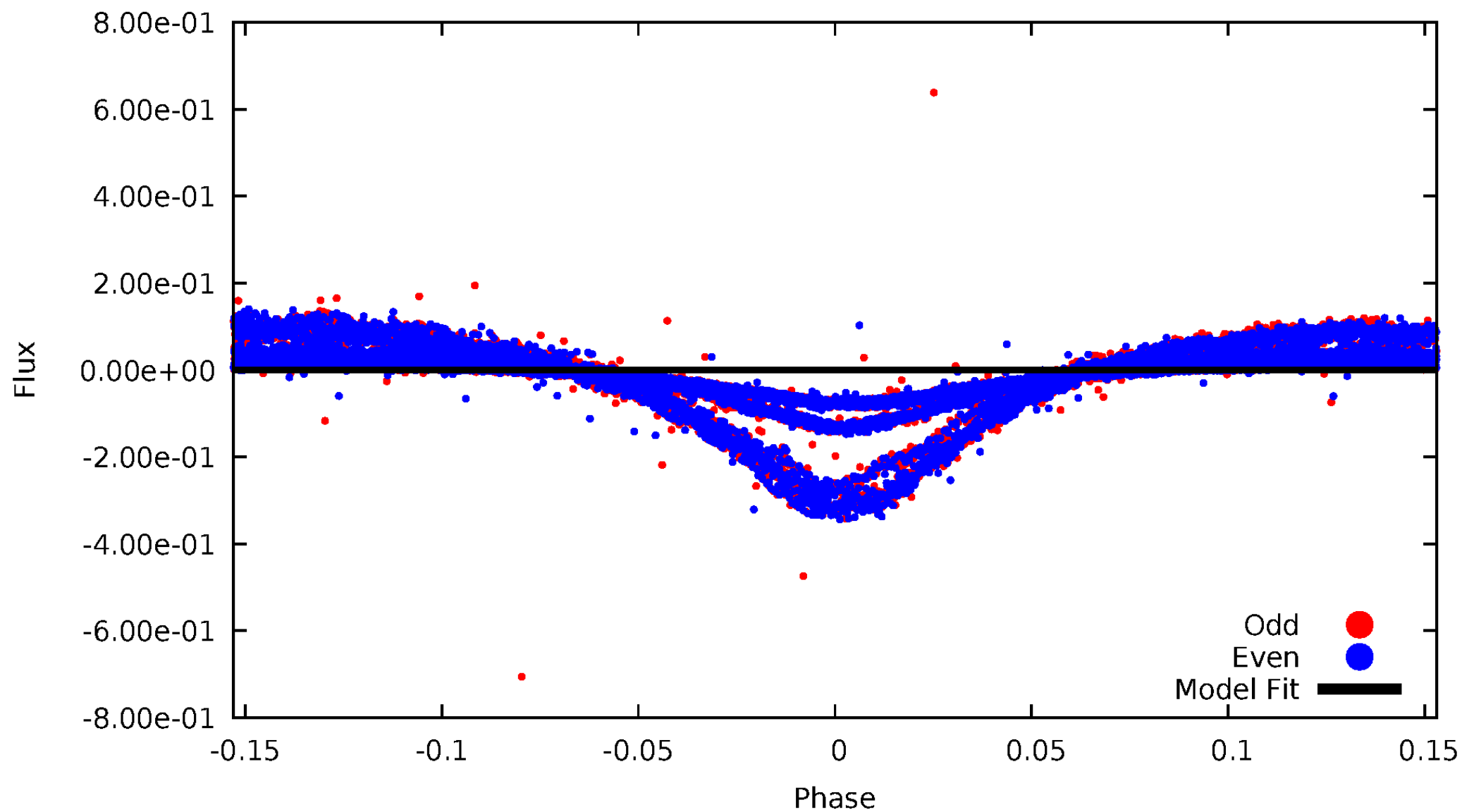


TCE 007432476-02



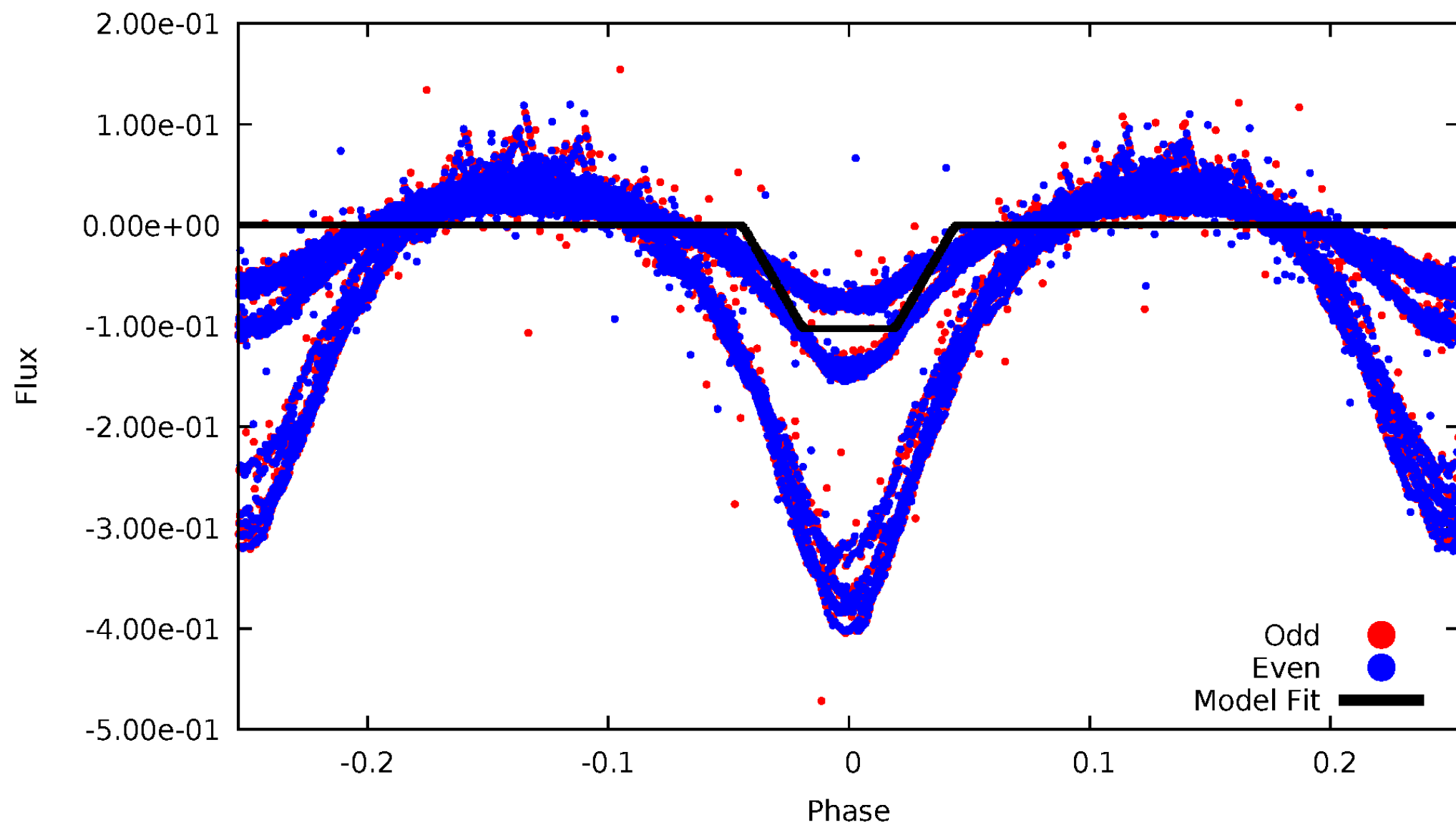
# DV Odd/Even

TCE 007432476-02



# ALT Odd/Even

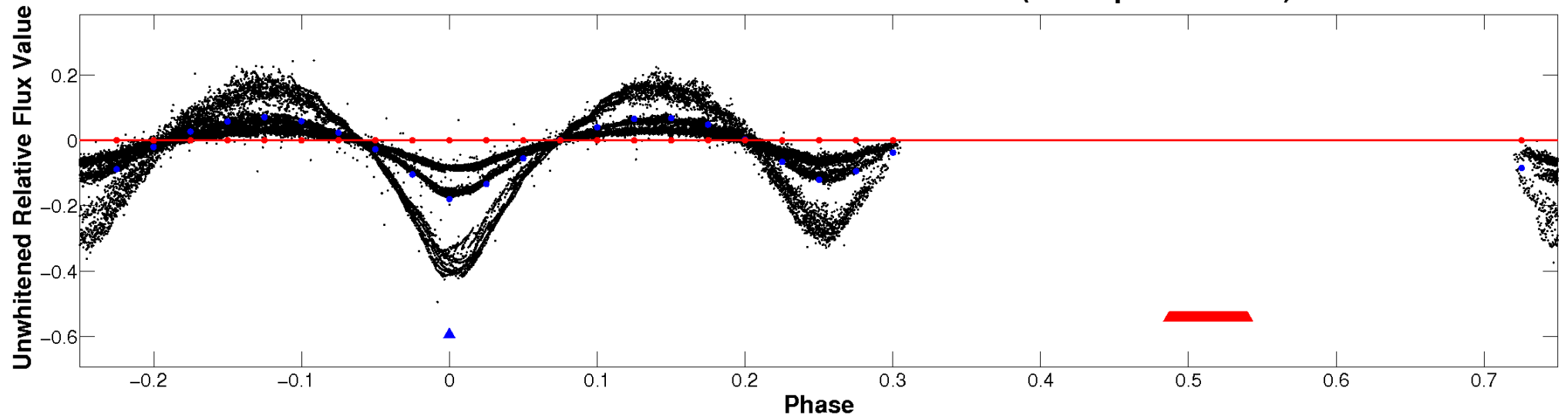
TCE 007432476-02



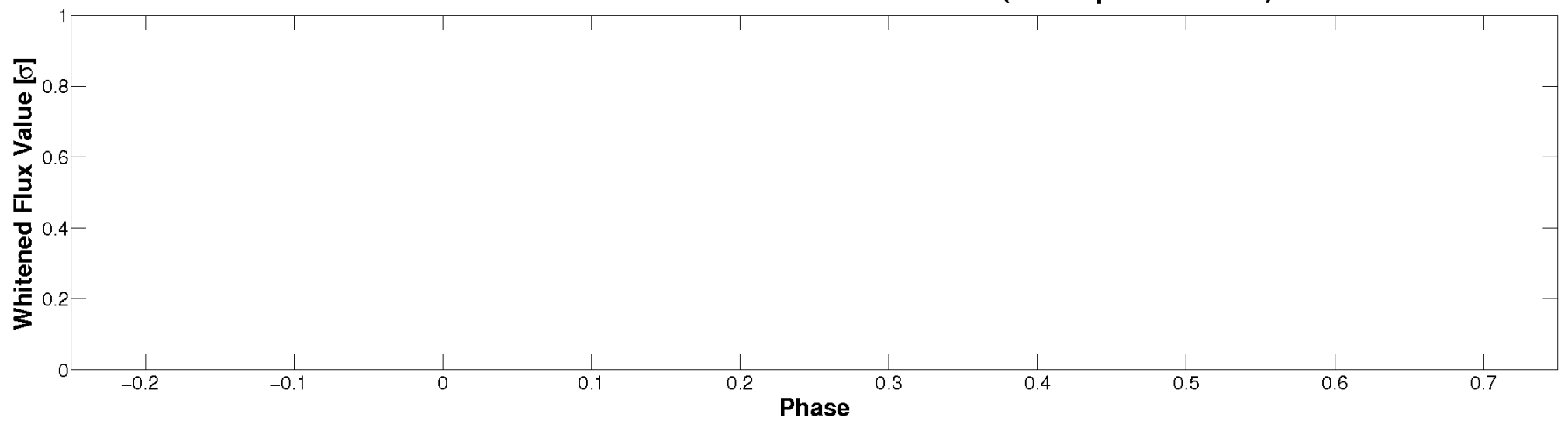


# Non-Whitened Vs. Whitened Light Curve

**Planet 2 : Phased Unwhitened Flux Time Series (TPS Epoch/Period)**

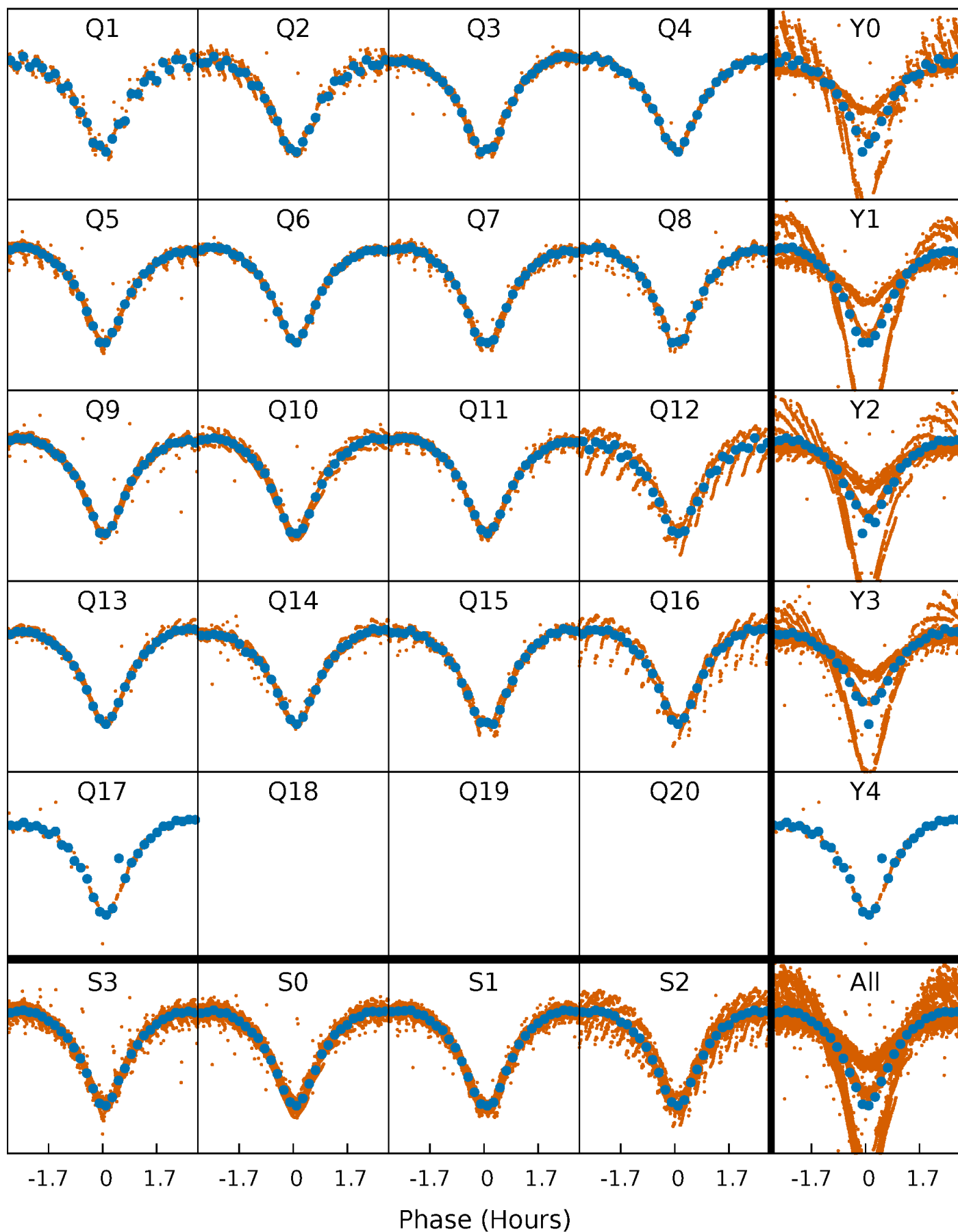


**Planet 2 : Phased Whitened Flux Time Series (TPS Epoch/Period)**



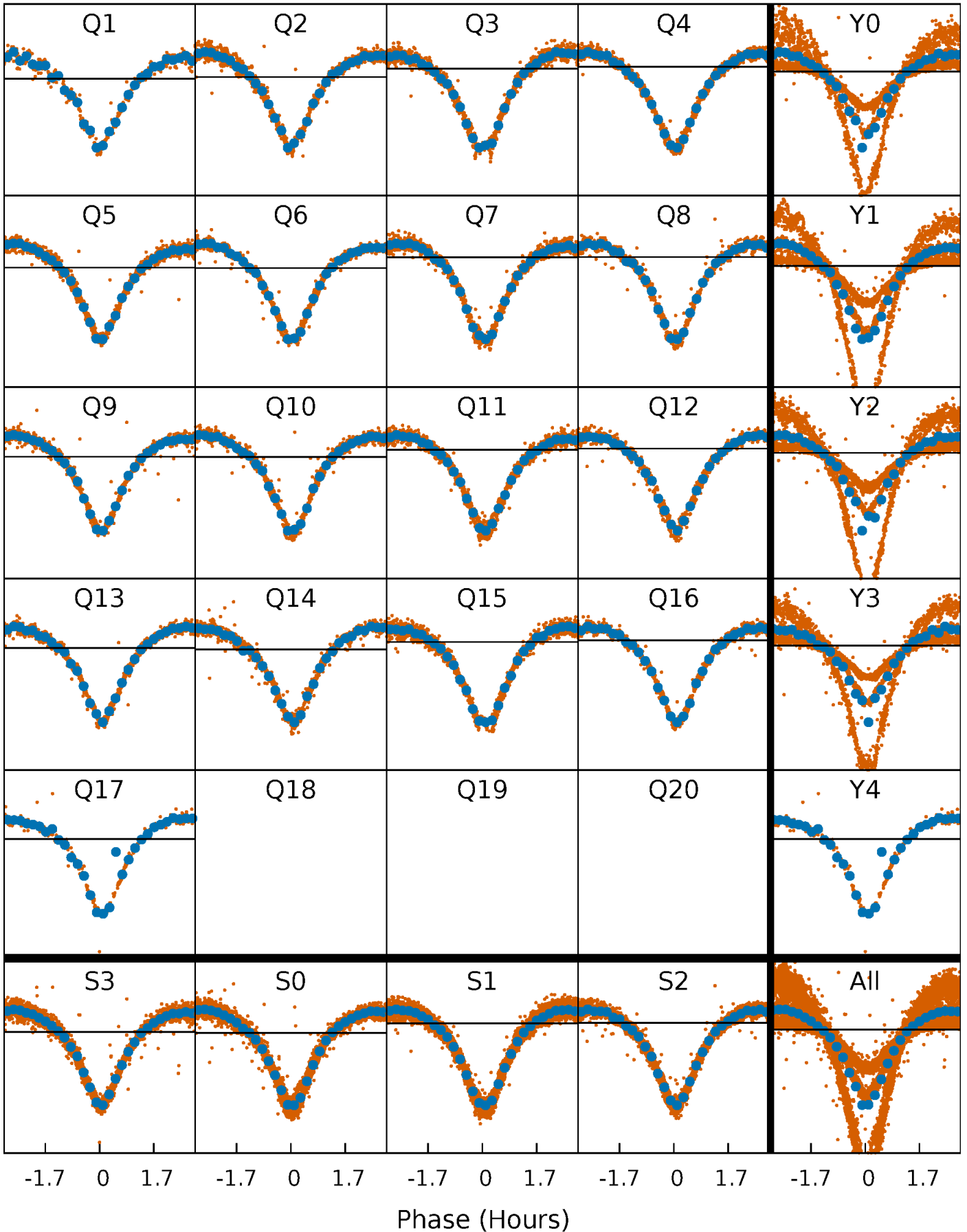
# PDC Quarter-Phased Transit Curves

TCE 007432476-02 P= 0.816916 Days  $T_0=131.948494$  (BKJD)



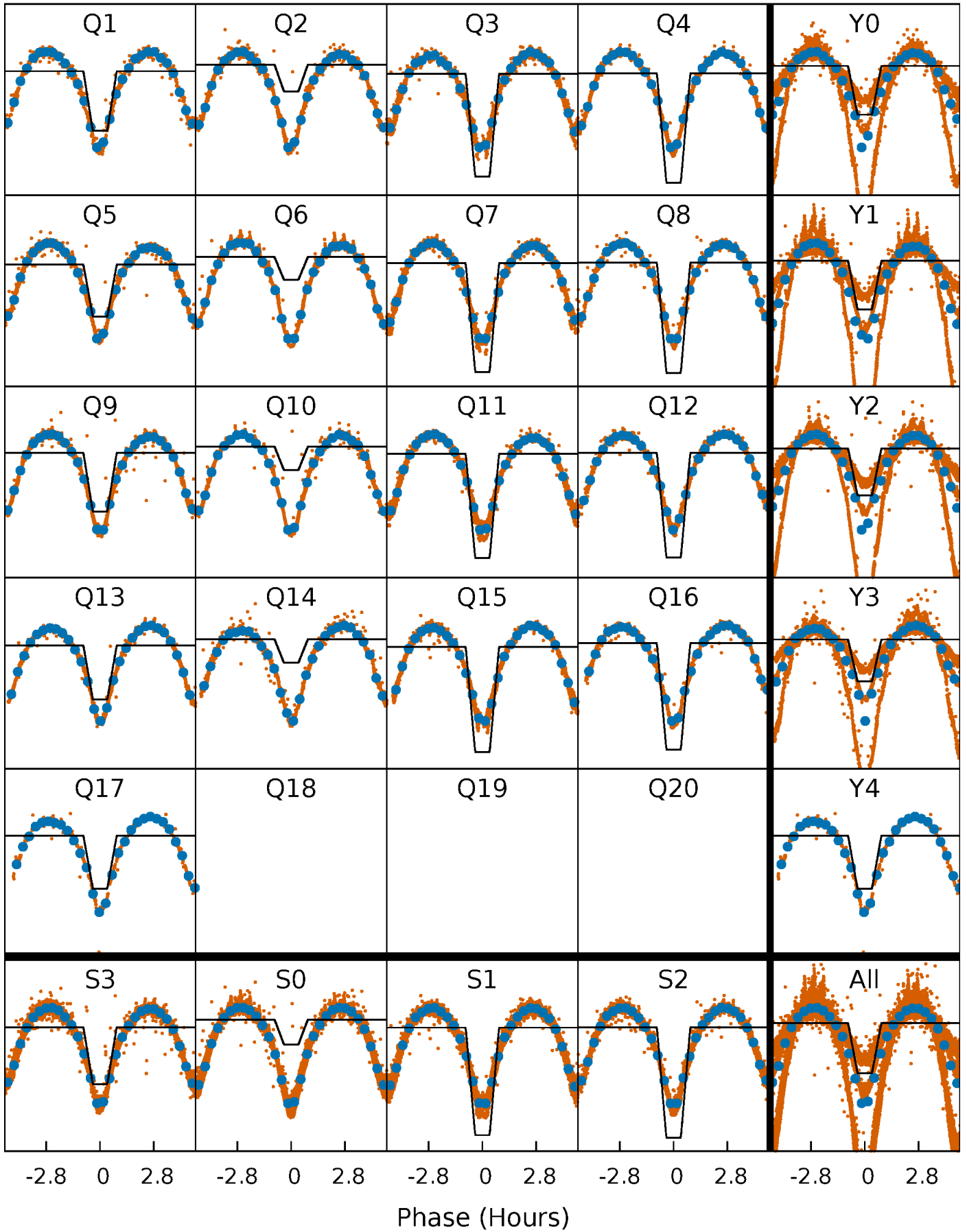
# DV Quarter-Phased Transit Curves

TCE 007432476-02 P= 0.816916 Days  $T_0=131.948494$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

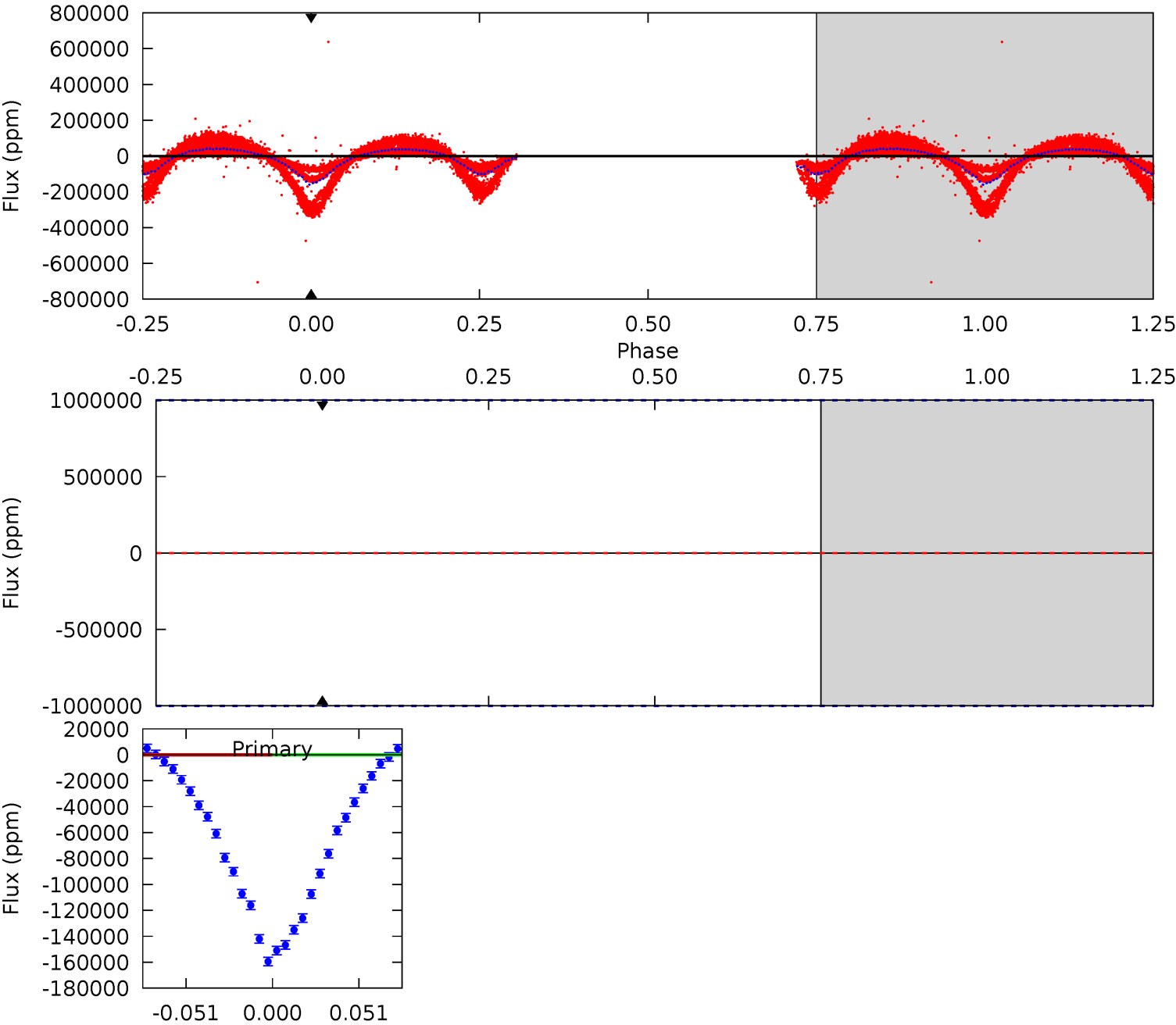
TCE 007432476-02   P= 0.816916 Days    $T_0=131.951265$  (BKJD)



DV Model-Shift Uniqueness Test

007432476-02, P = 0.816916 Days, E = 131.131578 Days

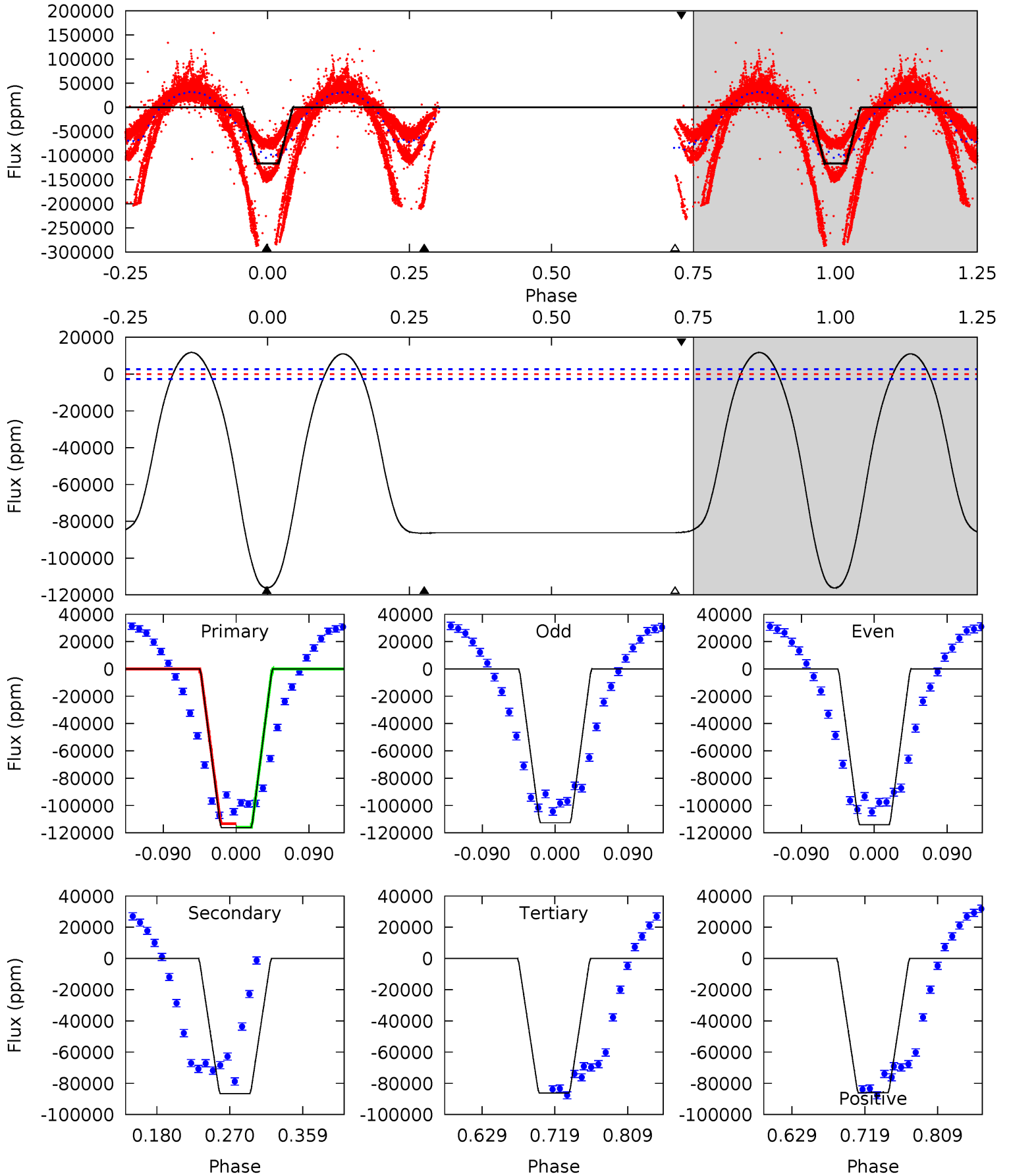
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
0	0	0	0	1.00	1.00	1.00	0	0	0	0	0	0	0	0



# Alt Model-Shift Uniqueness Test

007432476-02, P = 0.816916 Days, E = 131.134349 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
199.3	148.4	147.8	-147.5	4.59	1.70	52.4	51.5	346.8	0.59	295.9	1.19	1.29	0.09	3.13





### Stellar Parameters For KIC 007432476

	$T_{\text{eff}} (K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R (R_{\odot})$	$M (M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	$5234^{+142}_{-158}$	$4.608^{+0.036}_{-0.084}$	$-0.180^{+0.300}_{-0.300}$	$0.747^{+0.102}_{-0.062}$	$0.836^{+0.060}_{-0.103}$	$2.826^{+0.517}_{-0.756}$
	+3%/-3%	+1%/-2%	+167%/-167%	+14%/-8%	+7%/-12%	+18%/-27%
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 007432476-02 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	$A_{\text{obs}}$
DV	$0 \pm 1000000$	$6.93^{+6.58}_{-4.76}$	$2221^{+87}_{-79}$	$4142^{+11004}_{-16579}$	$6.129^{+546.277}_{-366.004}$
Alt.	$-86526 \pm 583$	$26.73^{+8.25}_{-8.73}$	$2218^{+99}_{-80}$	$5095^{+1074}_{-570}$	$19^{+22}_{-8}$

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

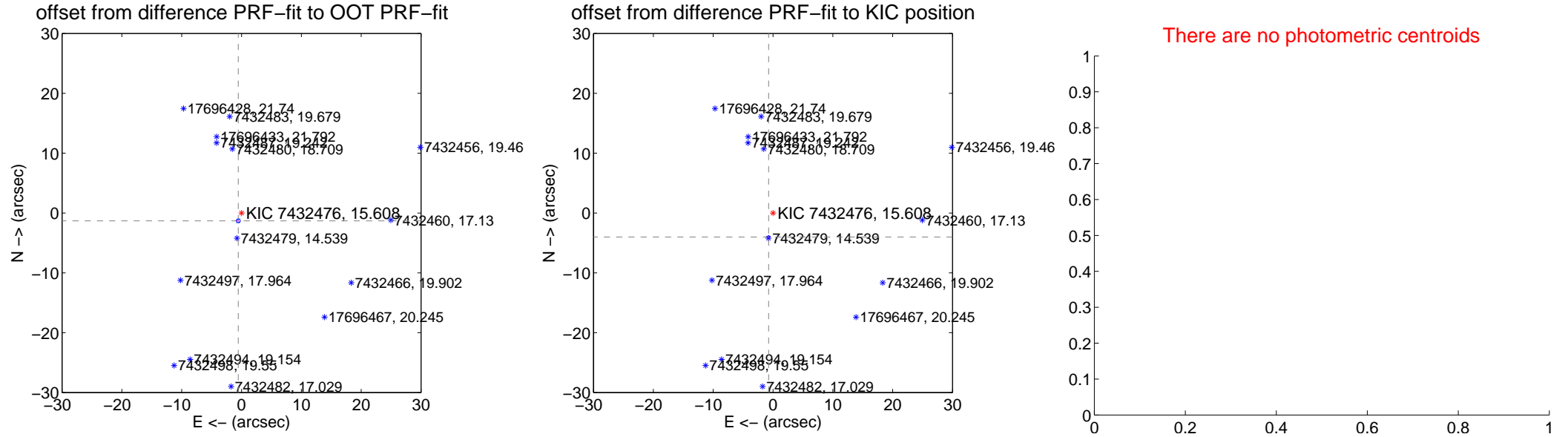
## DV Centroid Data

Supplemental centroid analysis for 007432476-02. Kepler magnitude: 15.61. Transit SNR -1.00

There are 17 quarters with good PRF difference image offsets

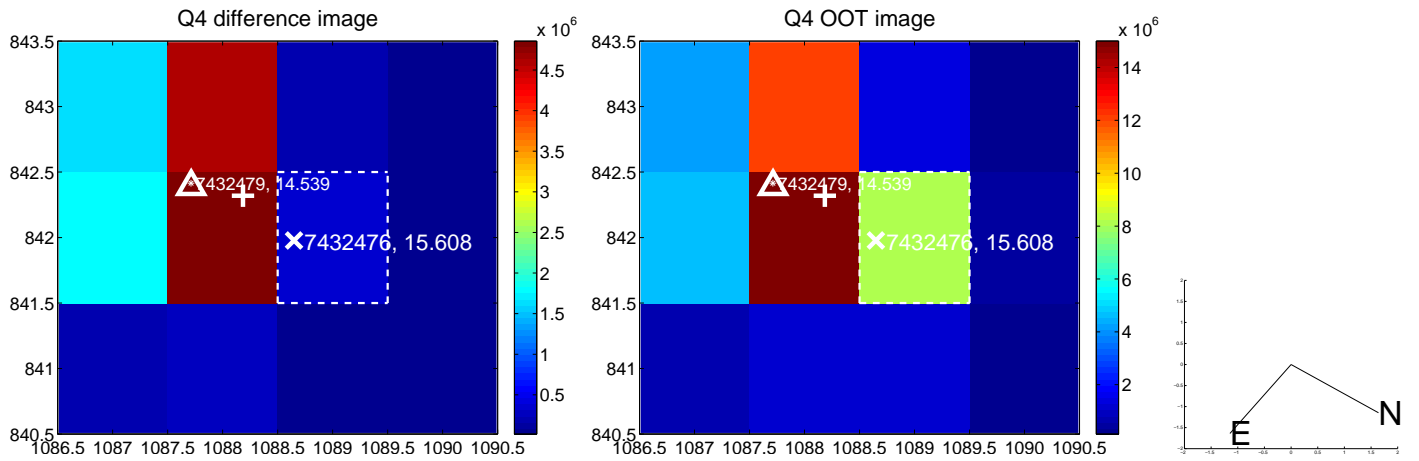
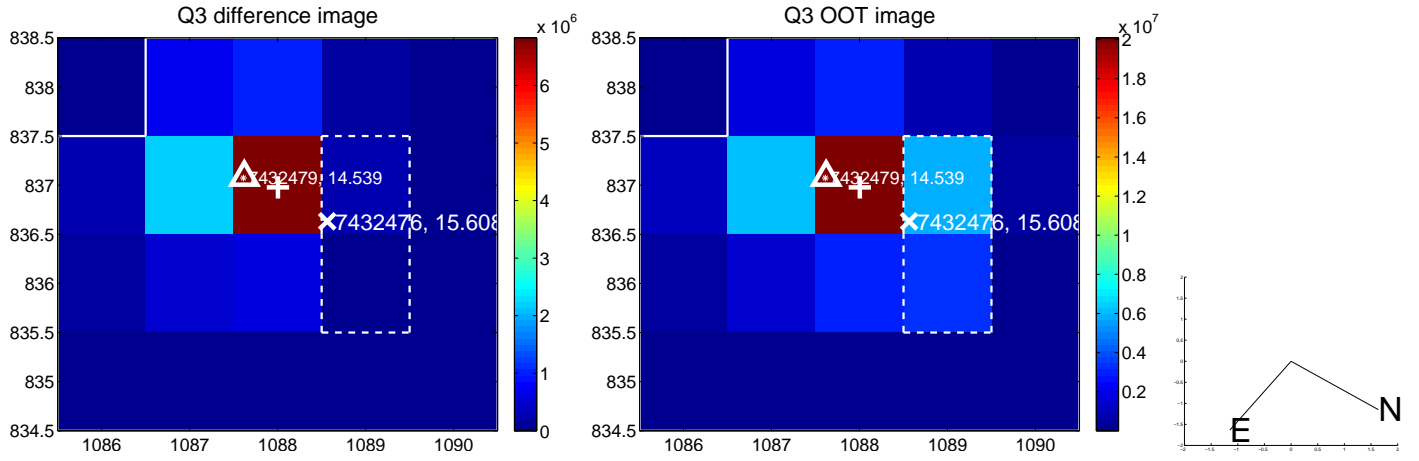
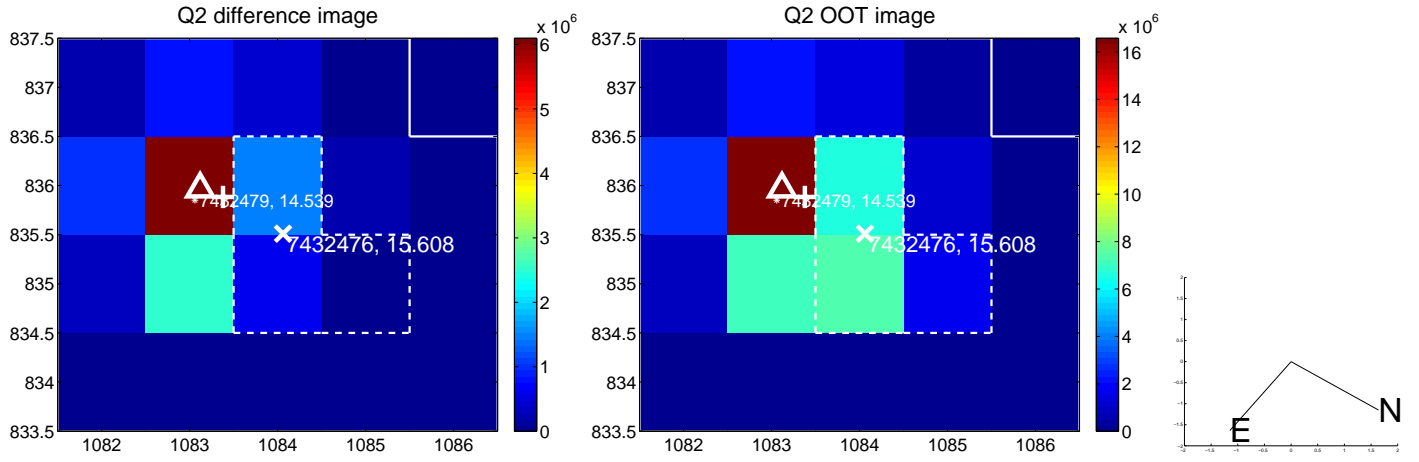
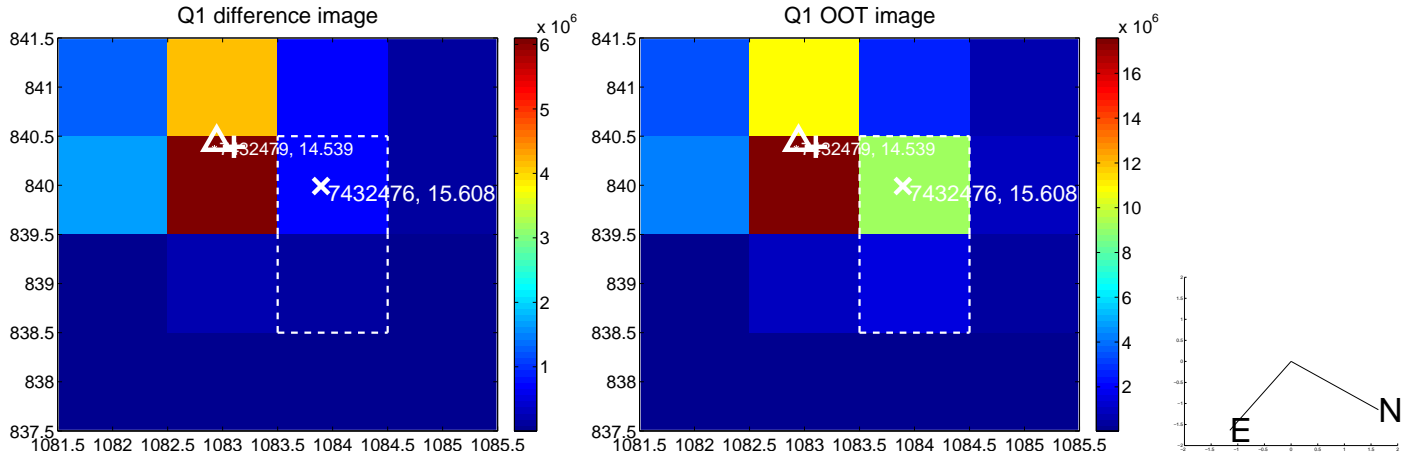
The OOT PRF centroid is offset from the target star catalog position by about 2.79 arcsec so the offset from difference PRF-fit to OOT-fit may be invalid.

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	1.422 $\pm$ 0.107	13.25	0.546 $\pm$ 0.081	-1.313 $\pm$ 0.099
PRF-fit source offset from KIC position	4.075 $\pm$ 0.068	59.85	0.726 $\pm$ 0.068	-4.010 $\pm$ 0.068
photometric centroid source offset	—	—	—	—

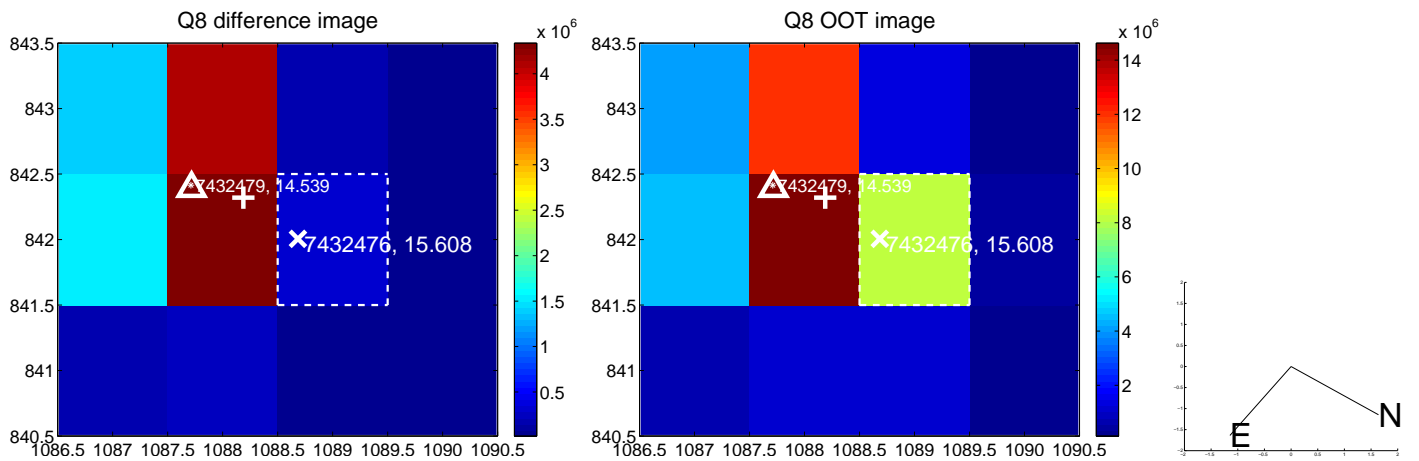
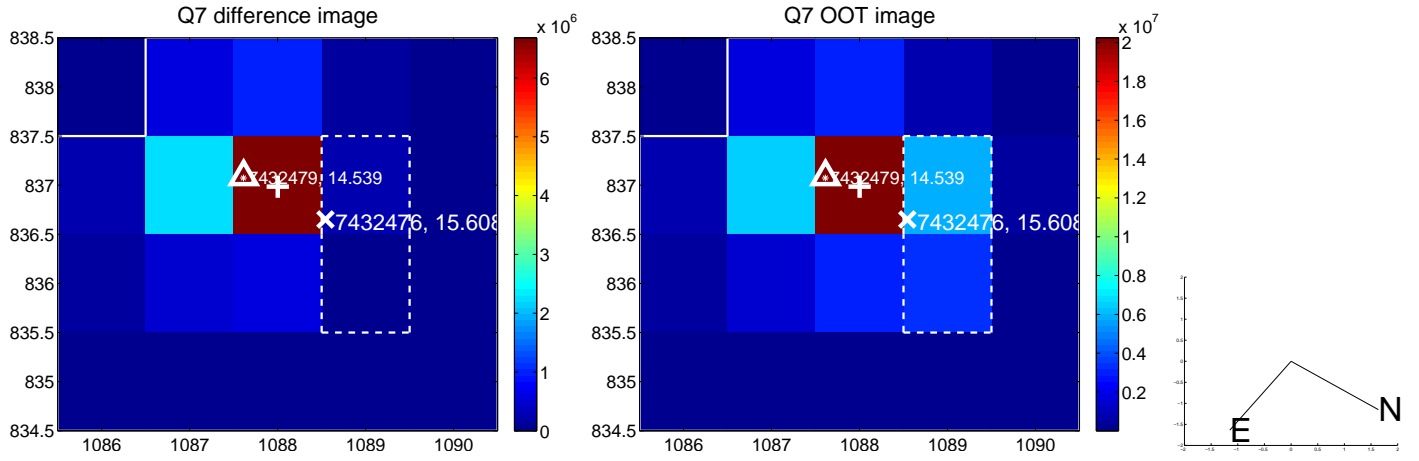
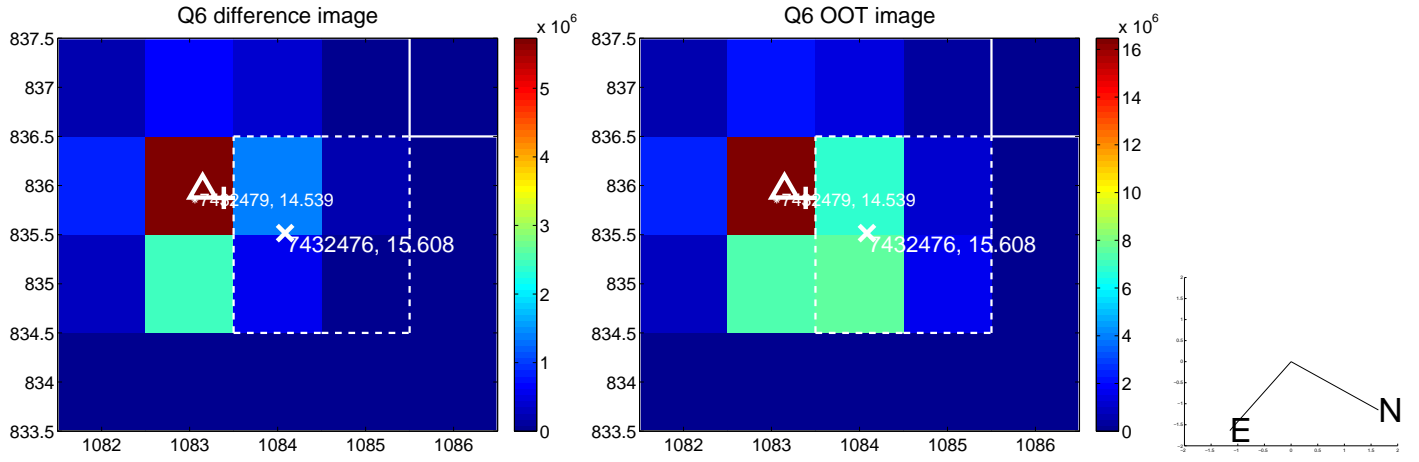
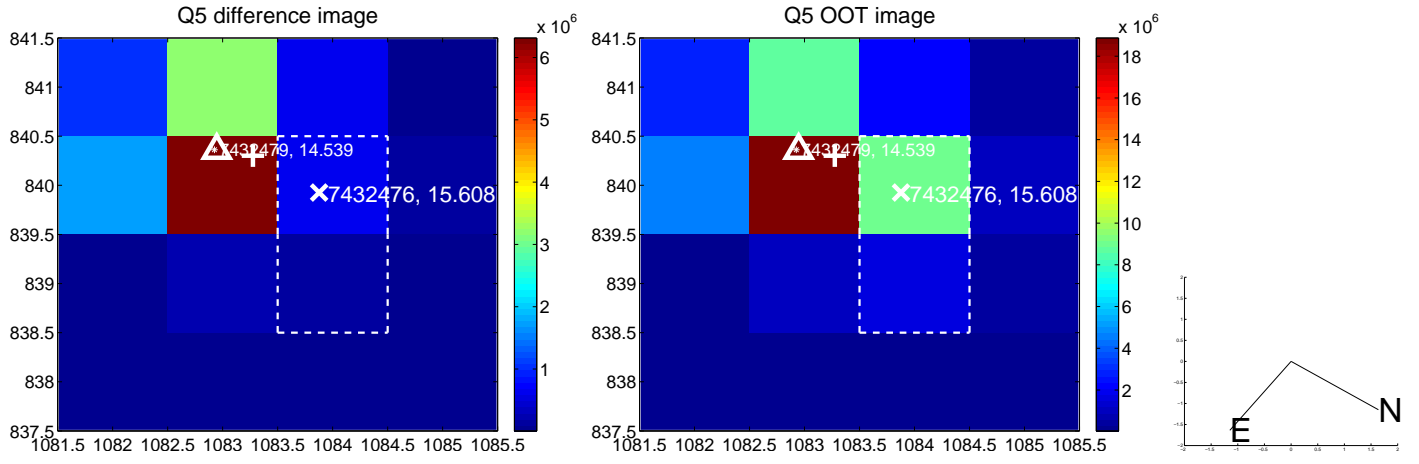


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: three-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

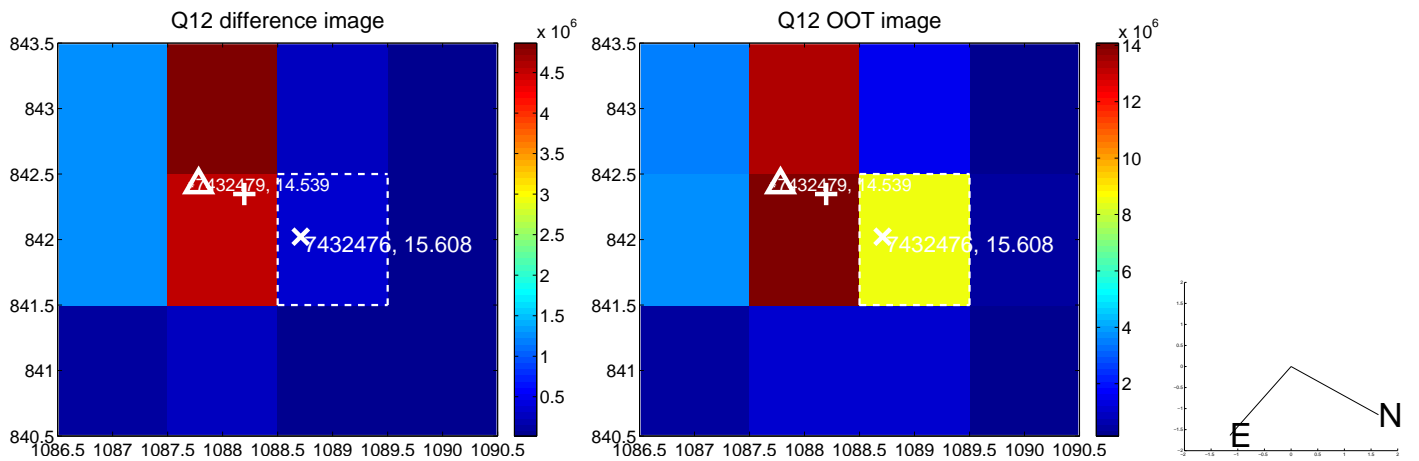
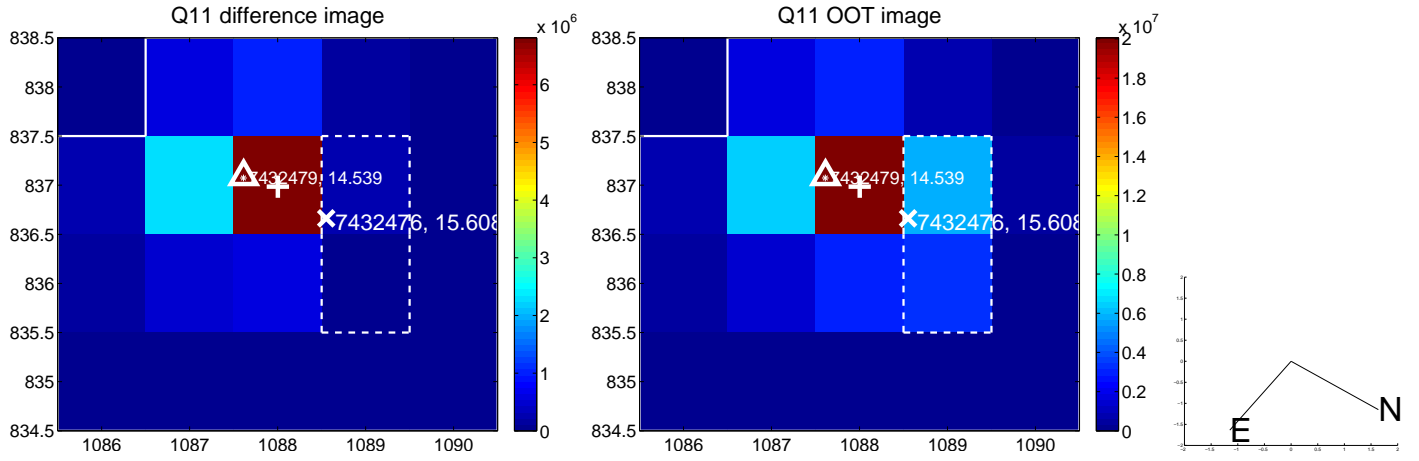
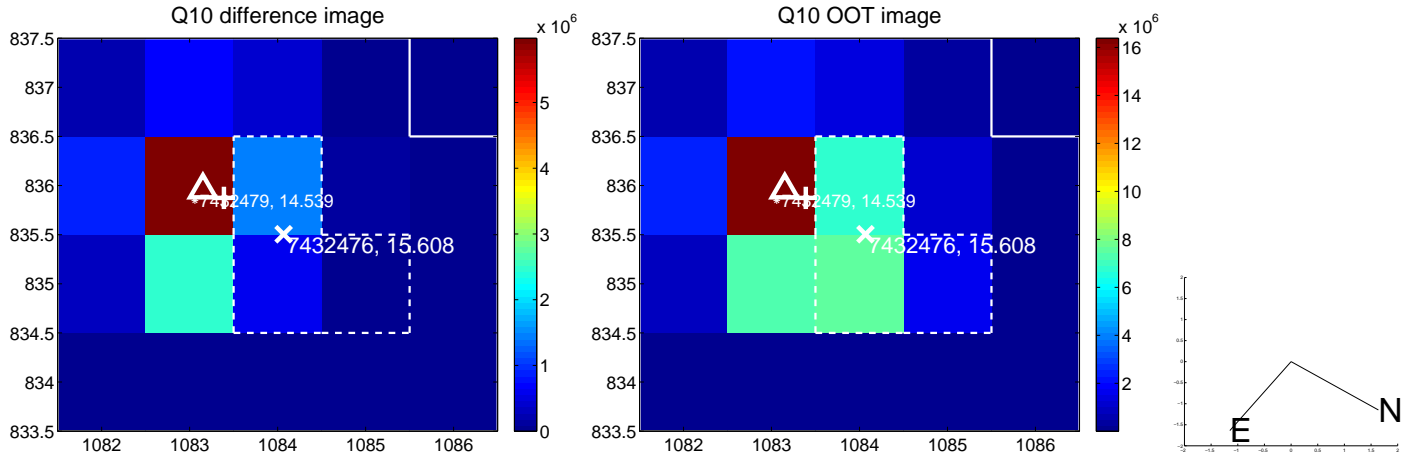
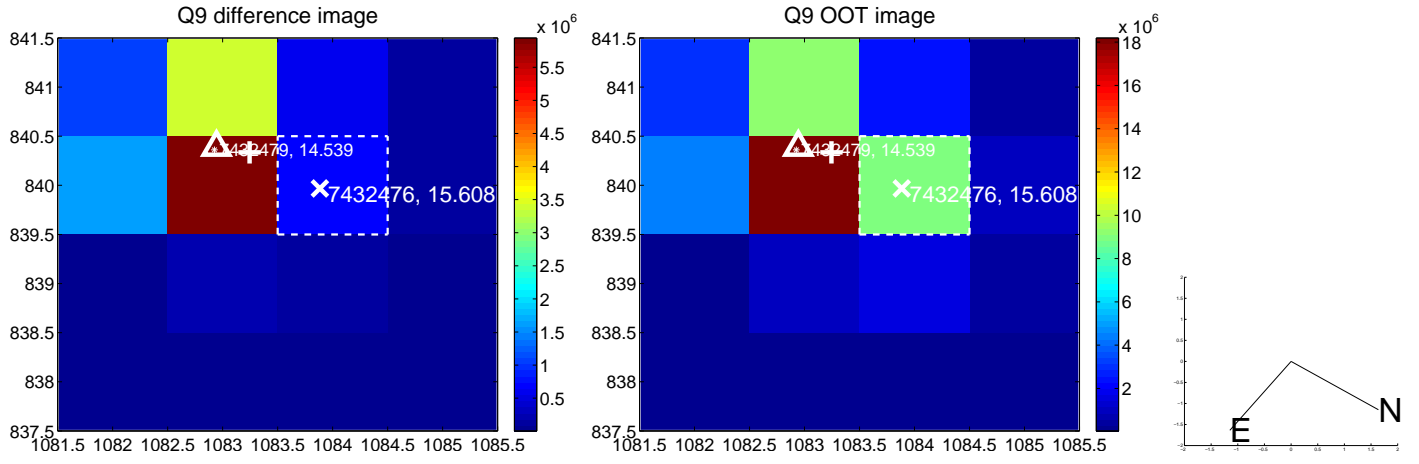
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



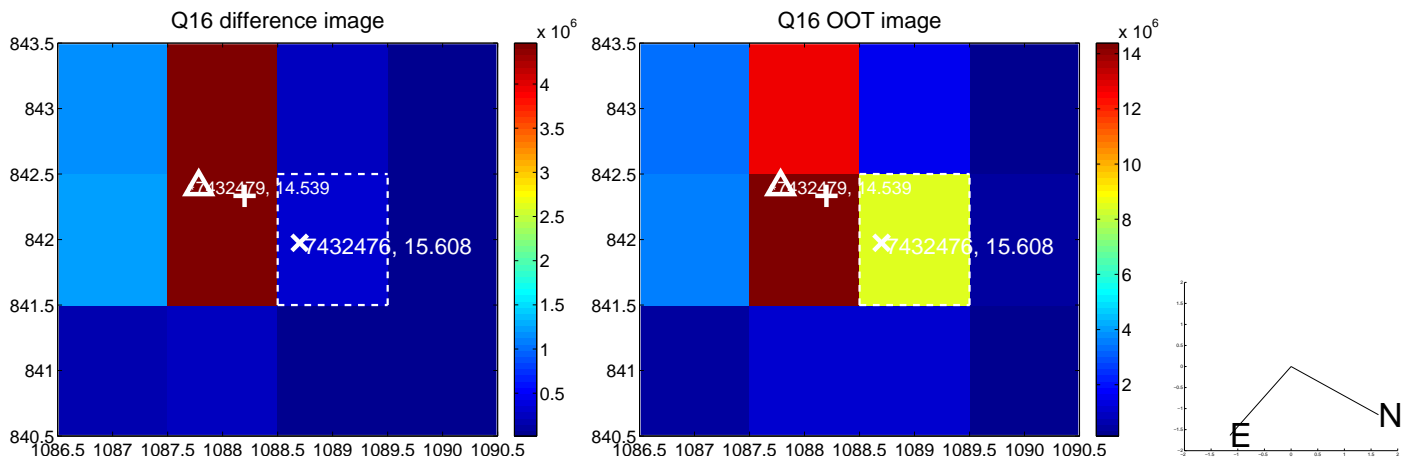
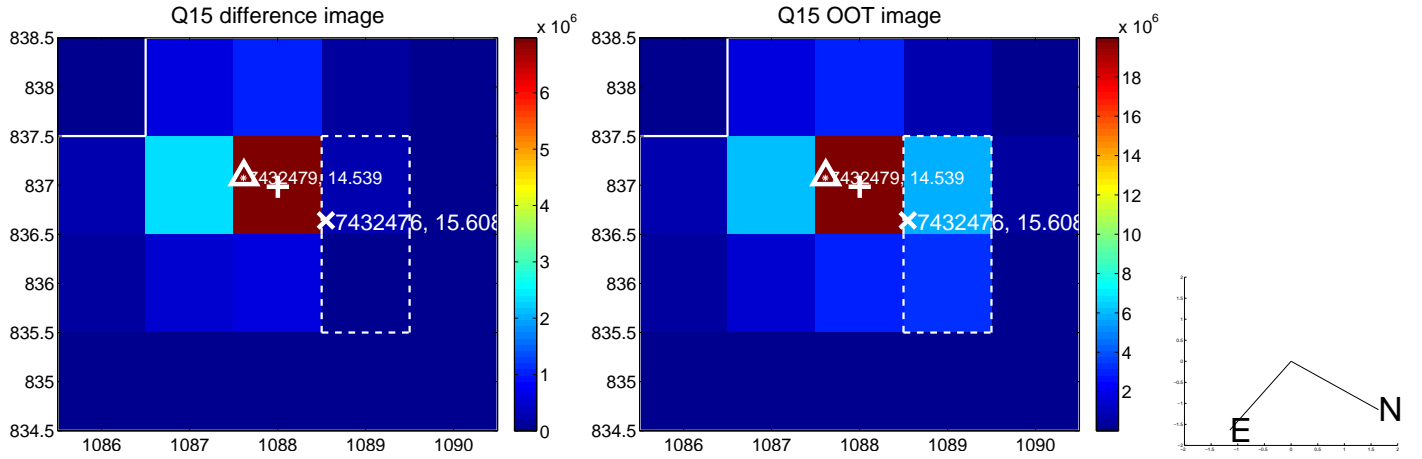
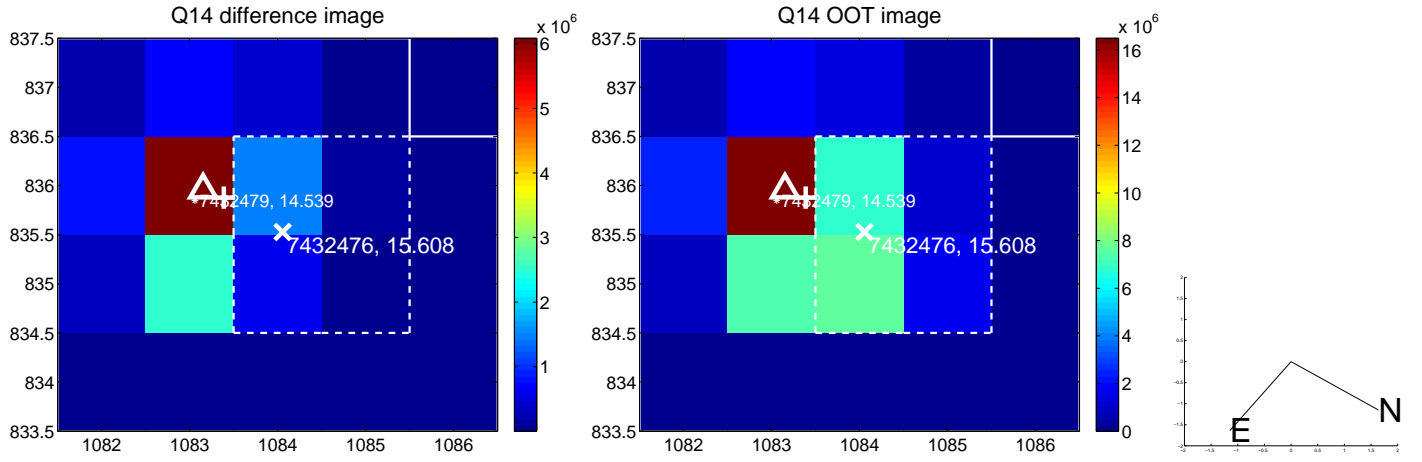
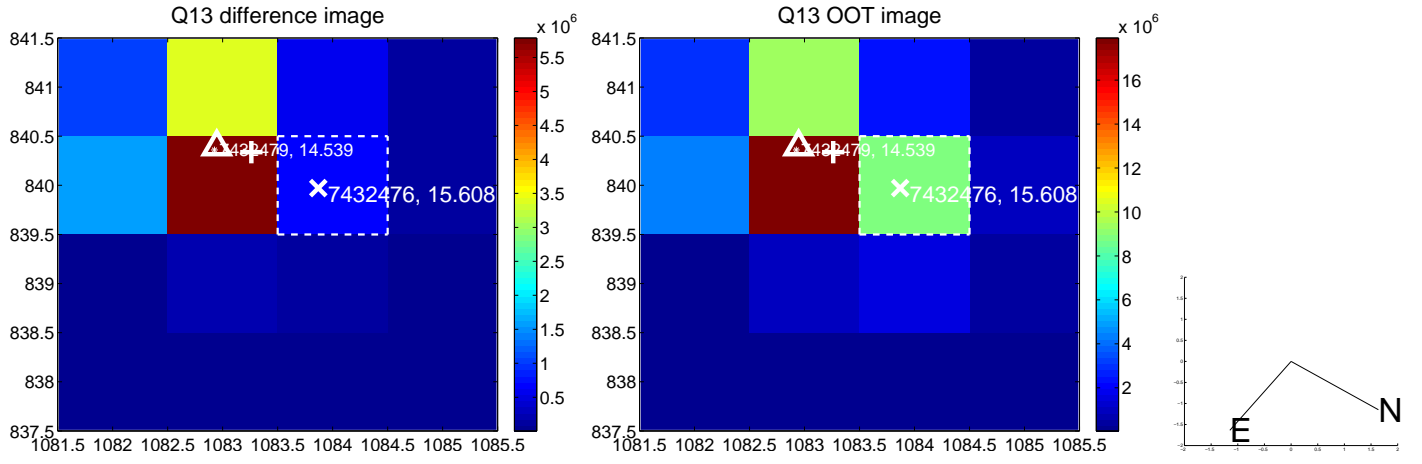
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



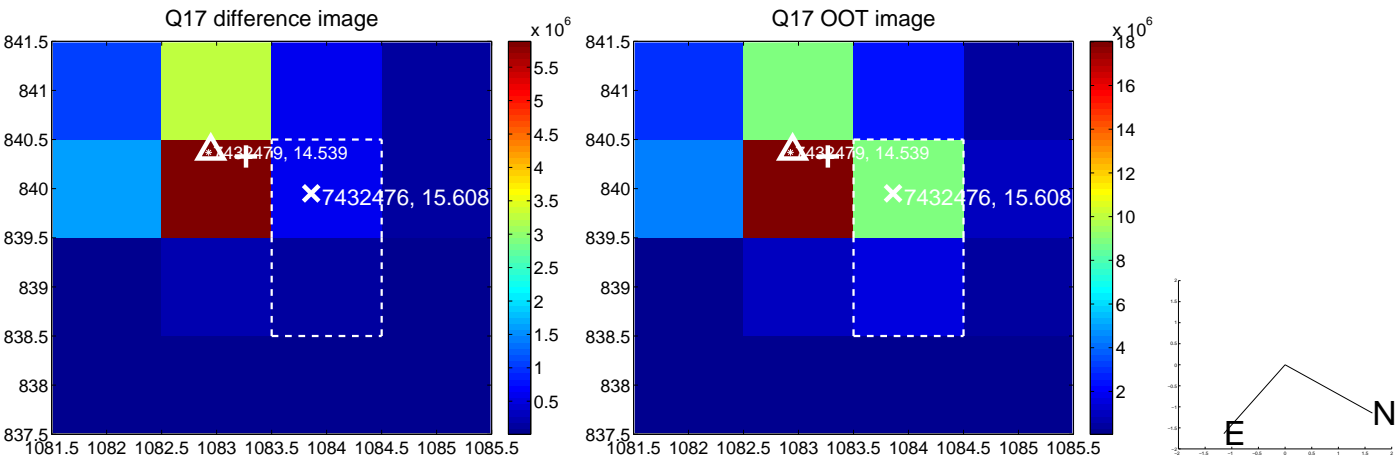
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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



folded centroid time series figure for this object.



UKIRT Image

Declination

