

# KIC 003440074

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
003440074-01	OBS	No	0.867136	132.300837	18.1	5.111	8.0	5.4	8.28	6756	3.75	0.00
003440074-02	OBS	No	0.867154	131.755115	76.6	2.817	11.9	16.6	8.28	6756	8.43	0.00
003440074-03	OBS	No	4.048636	133.678052	382.9	2.216	12.5	9.6	8.28	6756	16.79	25966.89
003440074-04	OBS	No	7.976591	133.160117	576.7	1.486	8.1	6.2	8.28	6756	20.20	10513.37

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
003440074-01	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT
003440074-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_SKYE_ZUMA—LPP_DV—MOD_NONUNIQ_DV—SAME_NTL_PERIOD
003440074-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_SKYE_TRACKER—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV
003440074-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_TRACKER—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV

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

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

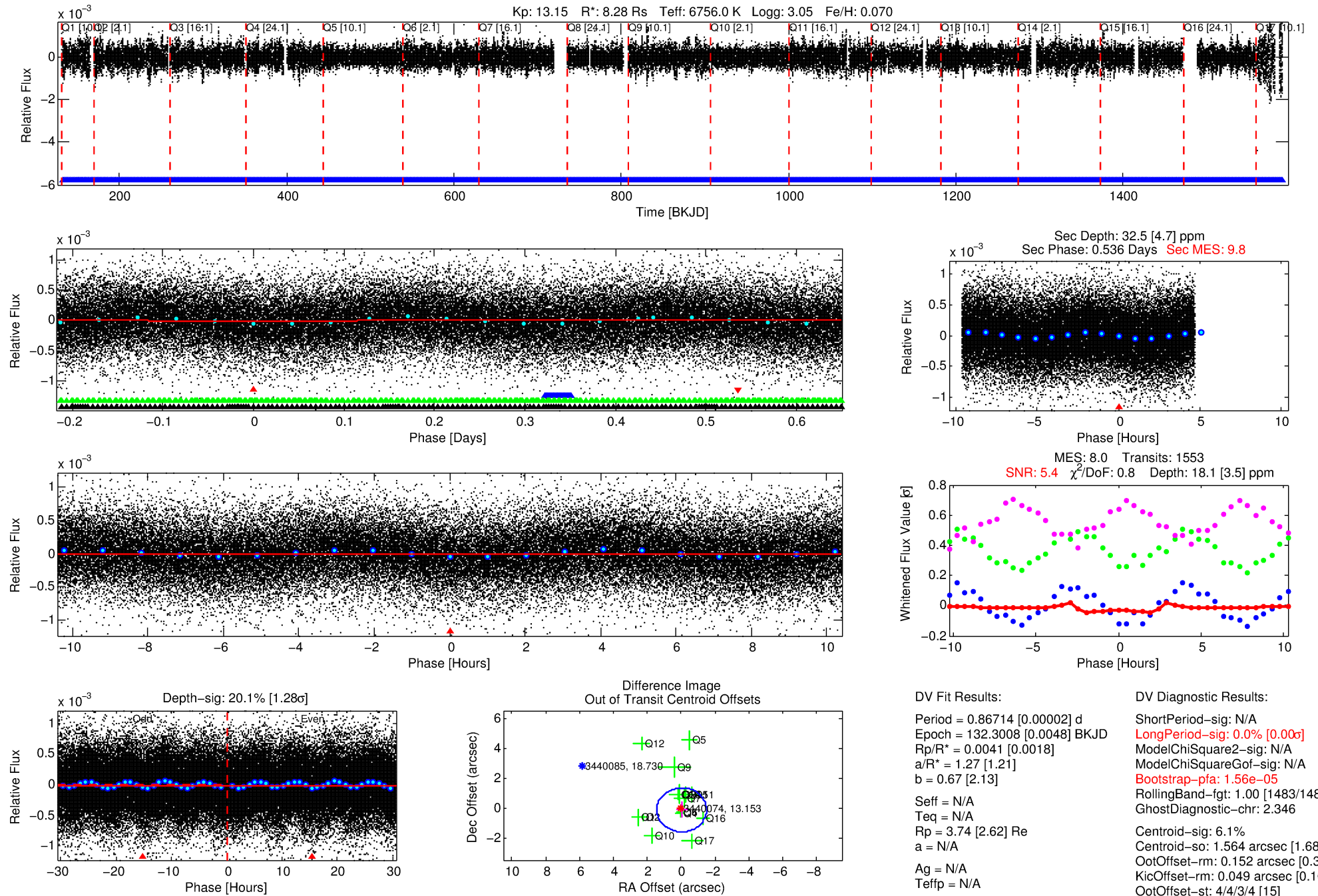
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

Ephemeris Match Information For 003440074-01

No Significant Match Found

# DV One-Page Summary

KIC: 3440074 Candidate: 1 of 4 Period: 0.867 d



## DV Fit Results:

Period = 0.86714 [0.00002] d  
Epoch = 132.3008 [0.0048] BKJD  
Rp/R\* = 0.0041 [0.0018]  
a/R\* = 1.27 [1.21]  
b = 0.67 [2.13]  
Seff = N/A  
Teq = N/A  
Rp = 3.74 [2.62] Re  
a = N/A  
Ag = N/A  
Teffp = N/A

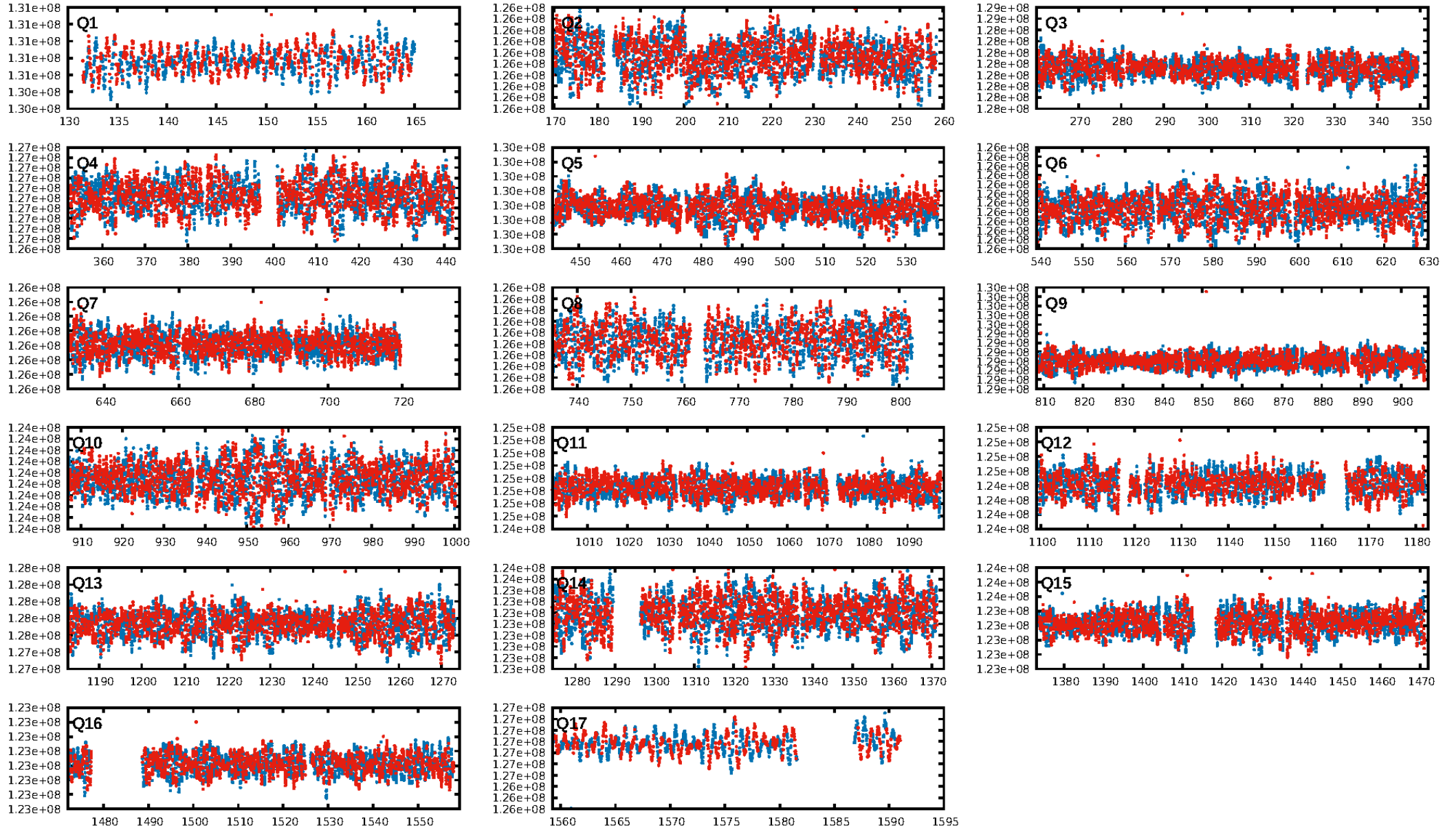
## DV Diagnostic Results:

ShortPeriod-sig: N/A  
LongPeriod-sig: 0.0% [0.00σ]  
ModelChiSquare2-sig: N/A  
ModelChiSquareGof-sig: N/A  
Bootstrap-pfa: 1.56e-05  
RollingBand-fgt: 1.00 [1483/1483]  
GhostDiagnostic-chr: 2.346  
Centroid-sig: 6.1%  
Centroid-so: 1.564 arcsec [1.68σ]  
OotOffset-rm: 0.152 arcsec [0.31σ]  
KicOffset-rm: 0.049 arcsec [0.10σ]  
OotOffset-st: 4/4/3/4 [15]  
KicOffset-st: 4/4/3/4 [15]  
DiffImageQuality-fgm: 0.40 [6/15]  
DiffImageOverlap-fno: 0.00 [0/17]

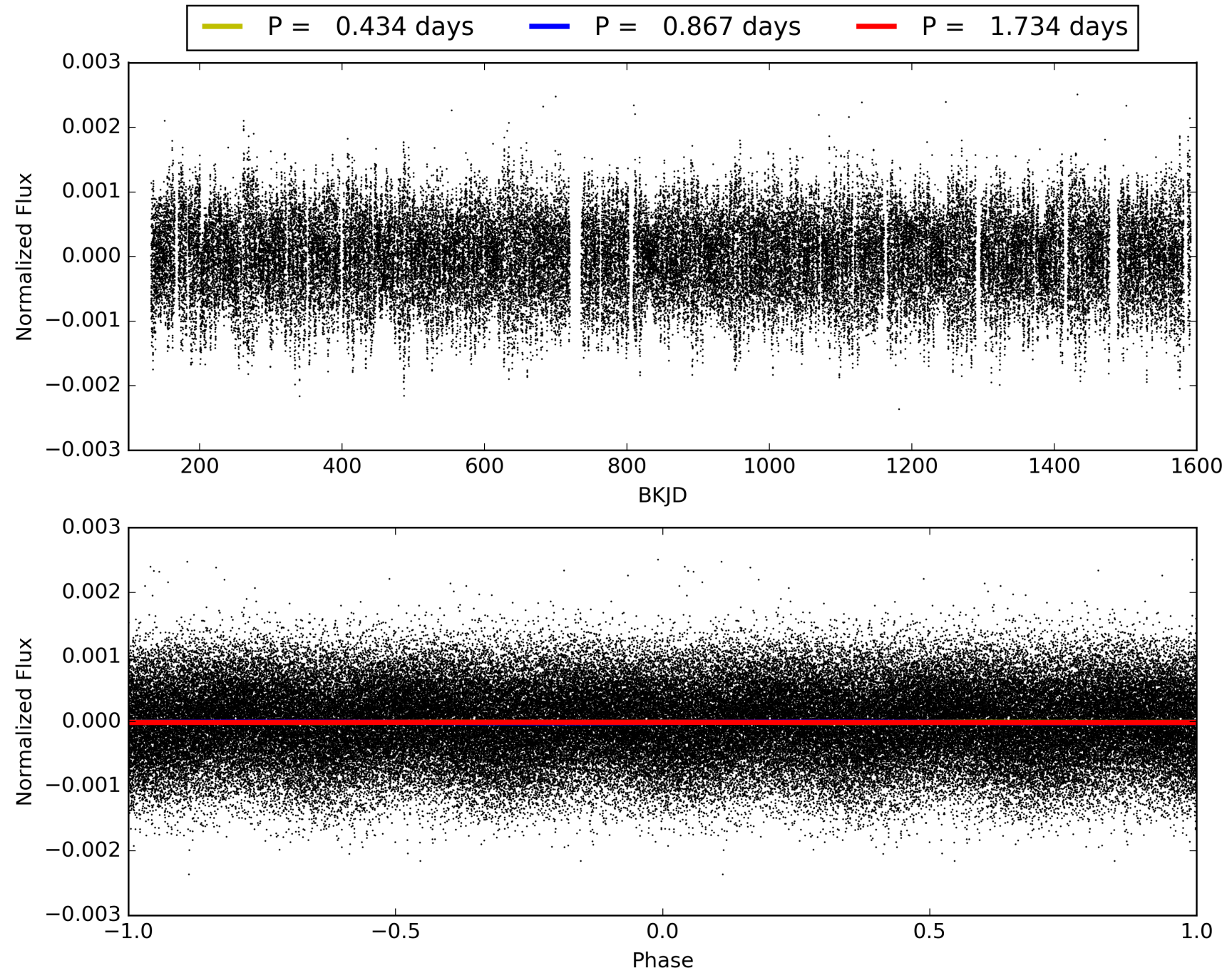
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 31-Jan-2016 13:25:07 Z

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

# TCE 003440074-01, PDC Light Curves



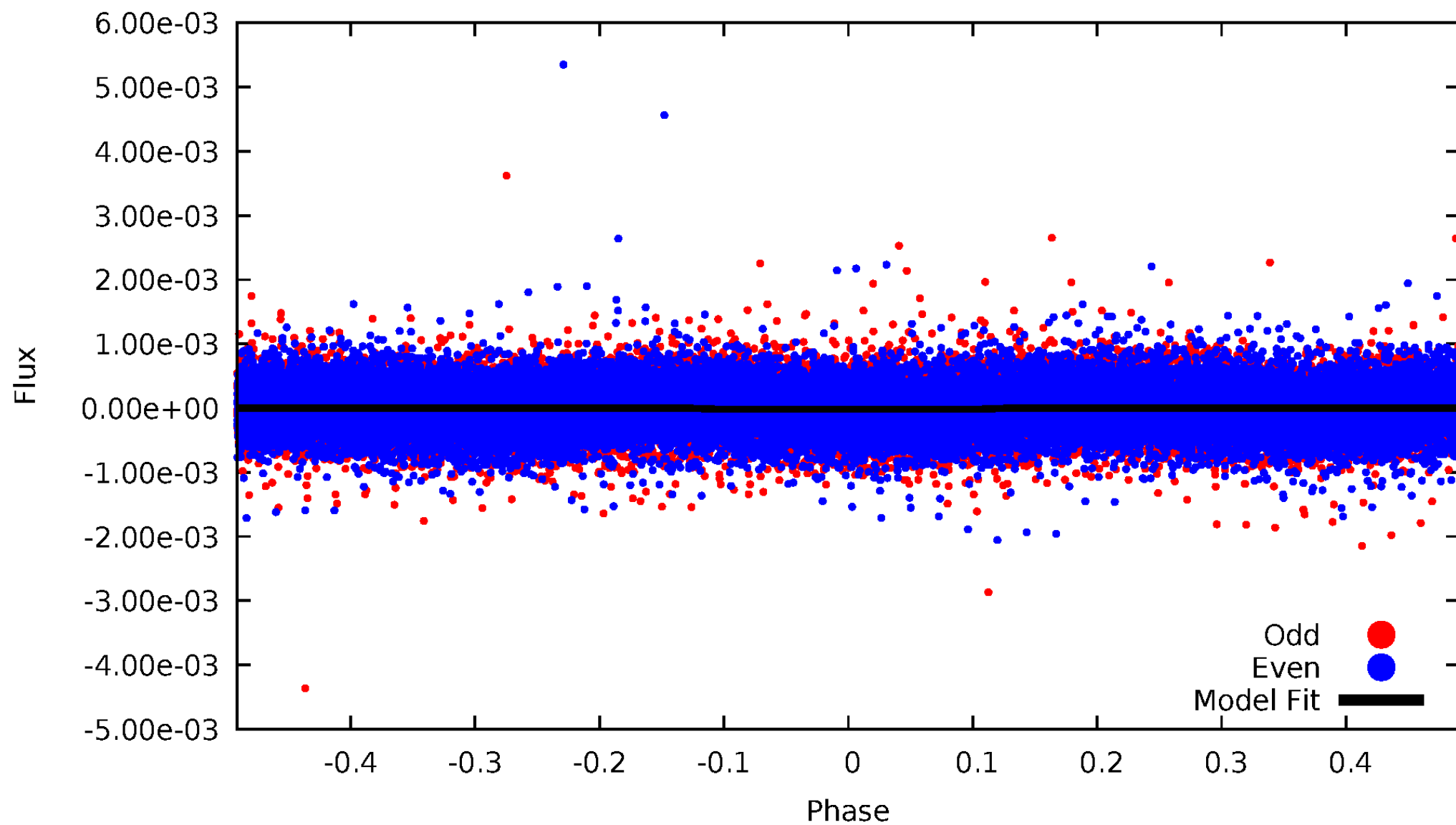
TCE 003440074-01





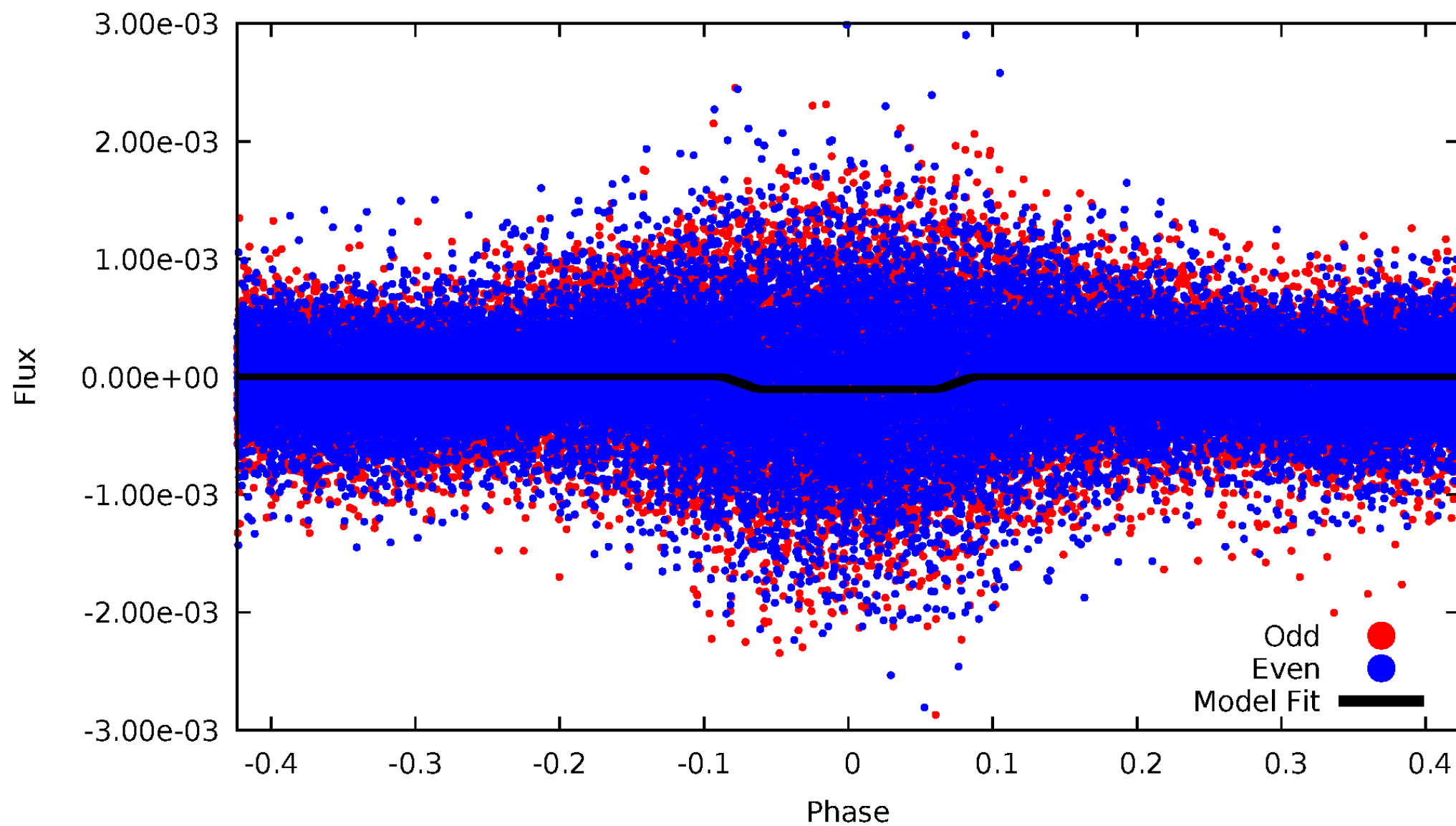
# DV Odd/Even

TCE 003440074-01

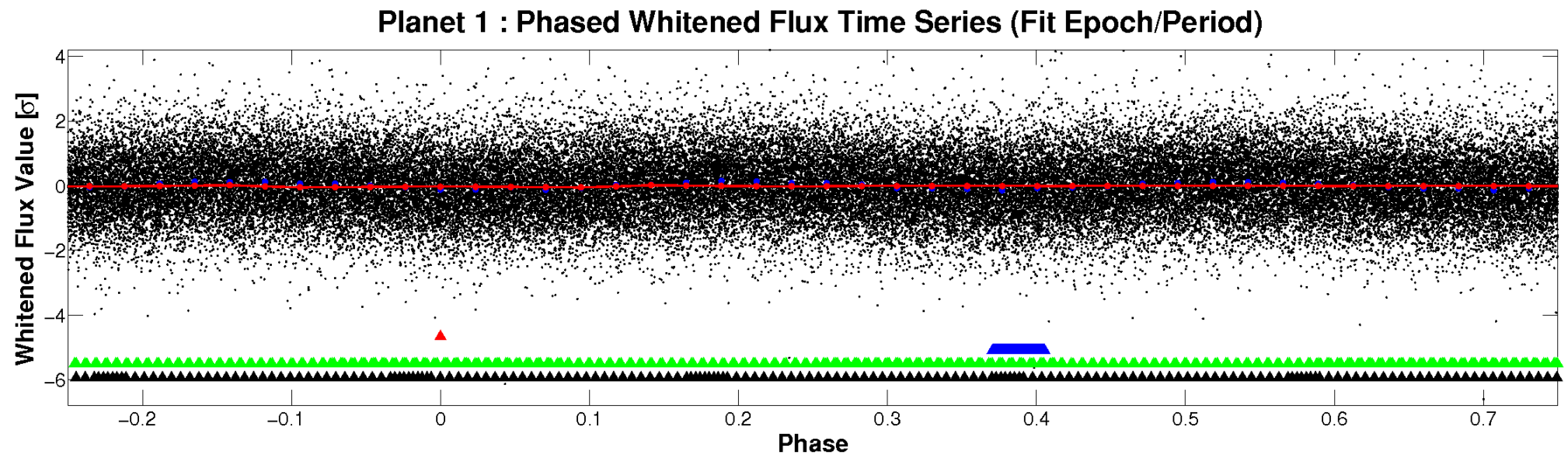
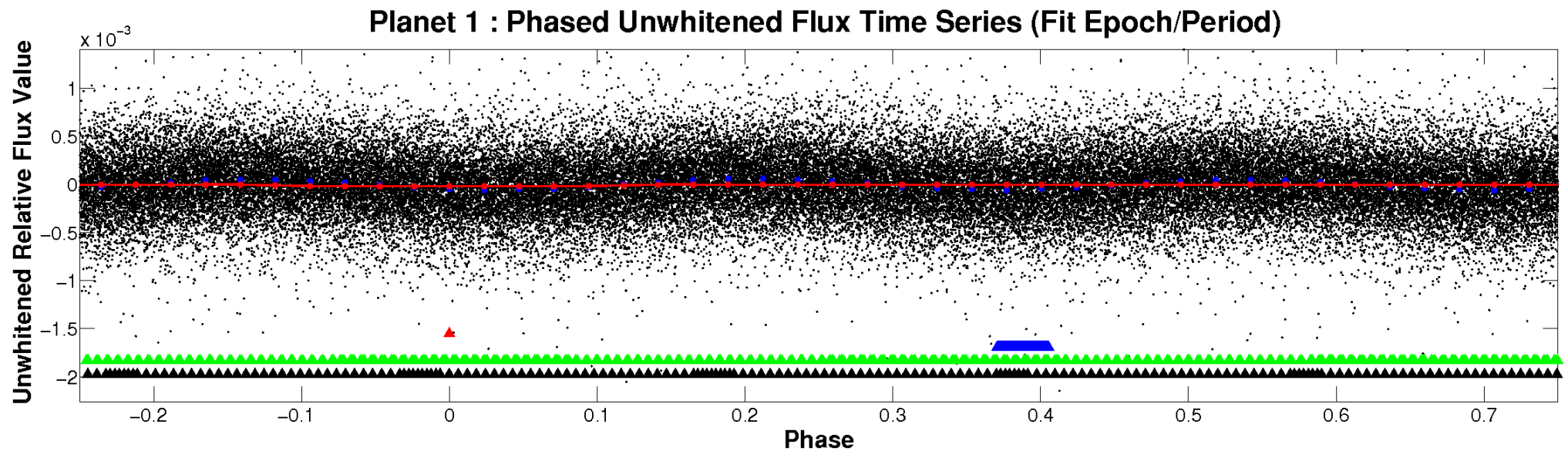


# ALT Odd/Even

TCE 003440074-01

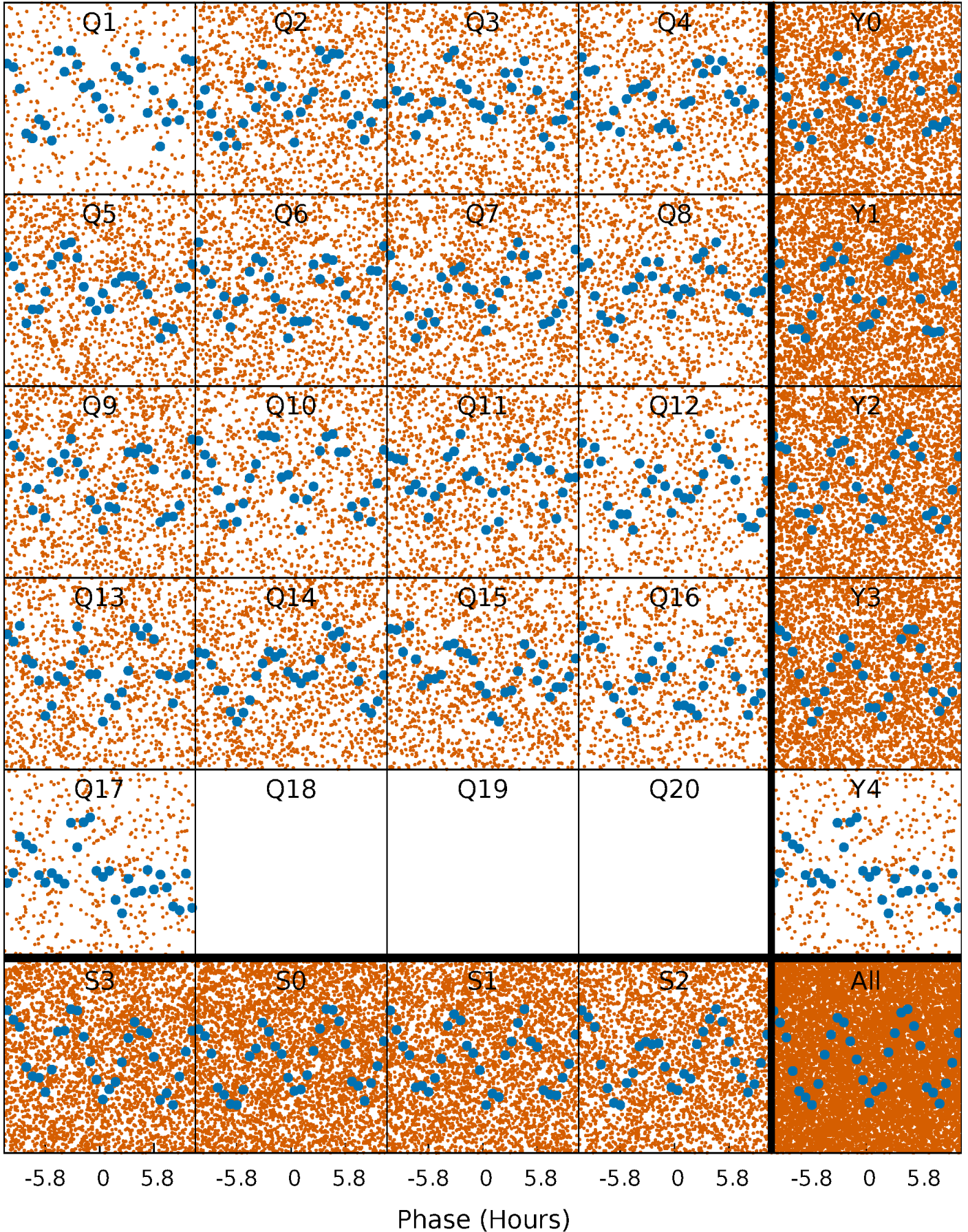


# Non-Whitened Vs. Whitened Light Curve



# PDC Quarter-Phased Transit Curves

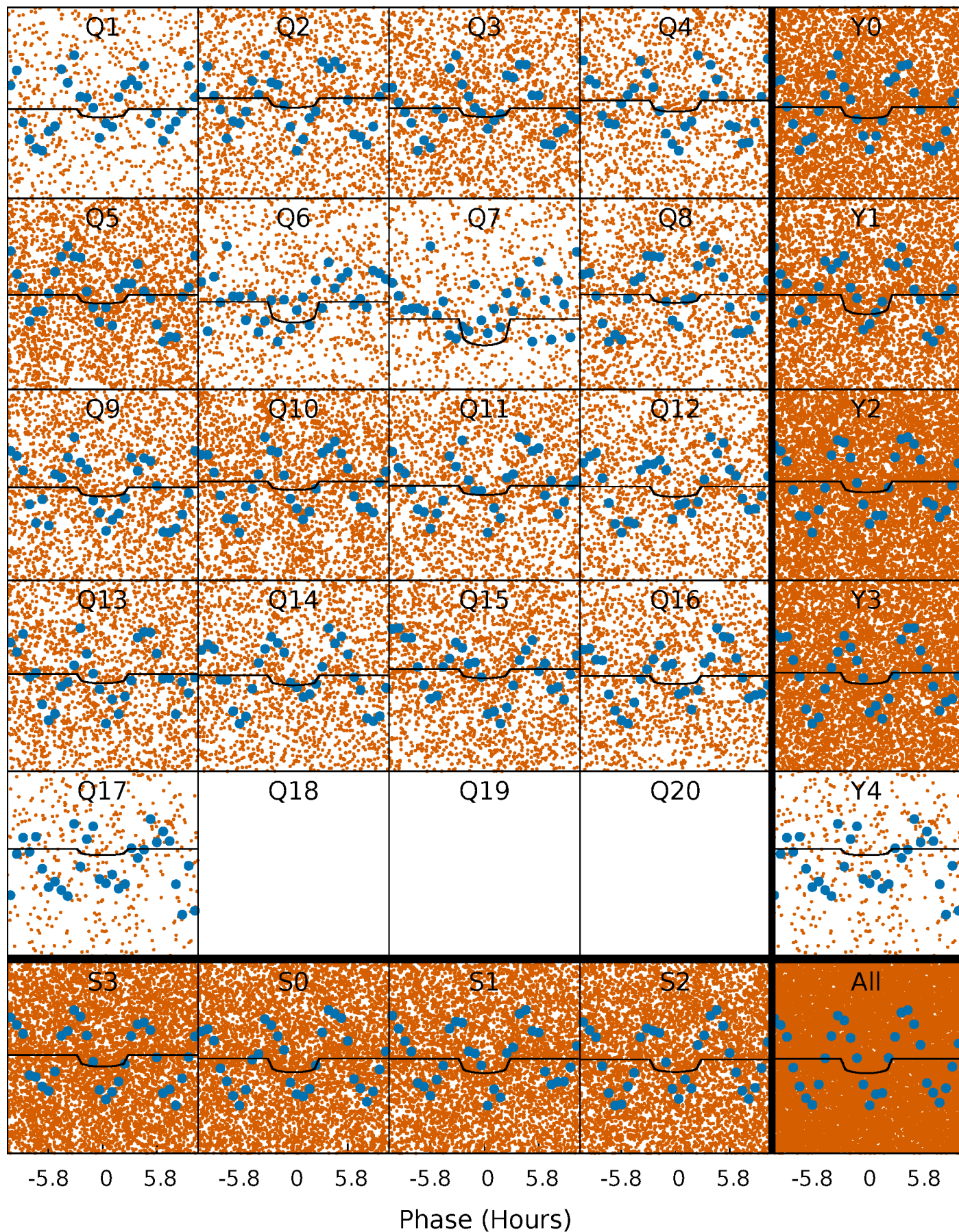
TCE 003440074-01 P= 0.867136 Days  $T_0=132.300837$  (BKJD)





# DV Quarter-Phased Transit Curves

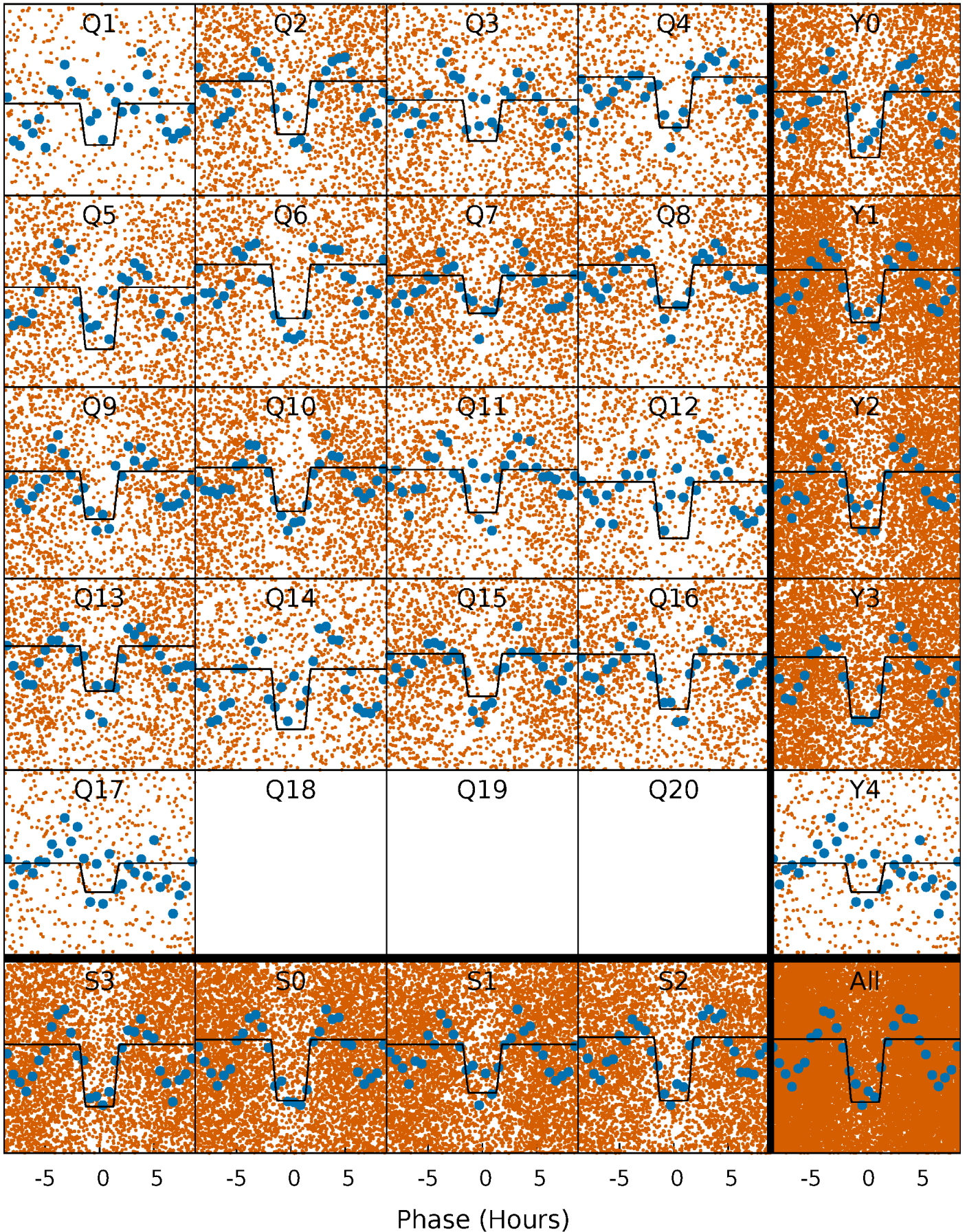
TCE 003440074-01 P= 0.867136 Days  $T_0=132.300837$  (BKJD)





# Alt. Detrend Quarter-Phased Transit Curves

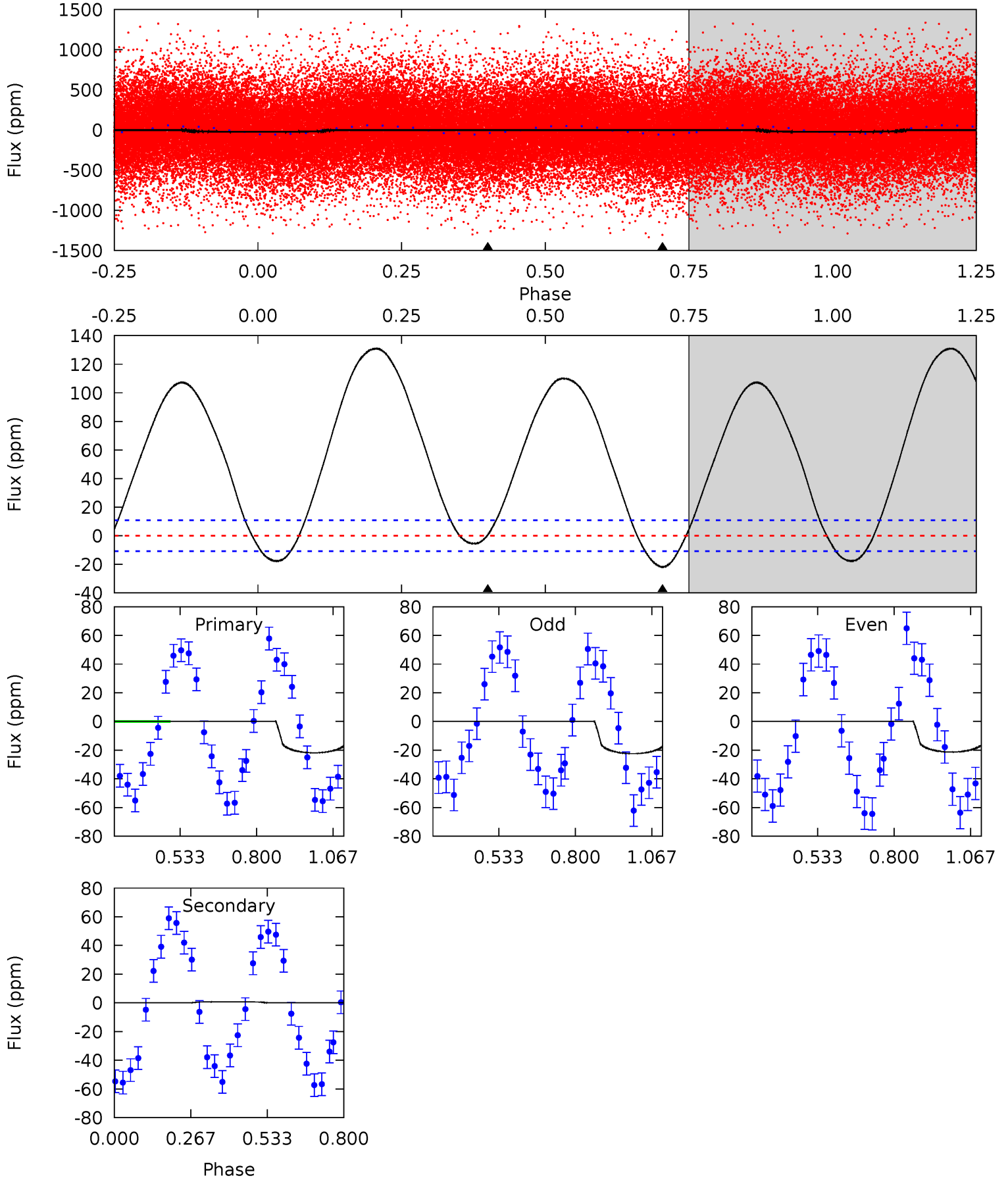
TCE 003440074-01 P= 0.867182 Days  $T_0=132.290057$  (BKJD)



# DV Model-Shift Uniqueness Test

003440074-01, P = 0.867136 Days, E = 131.433701 Days

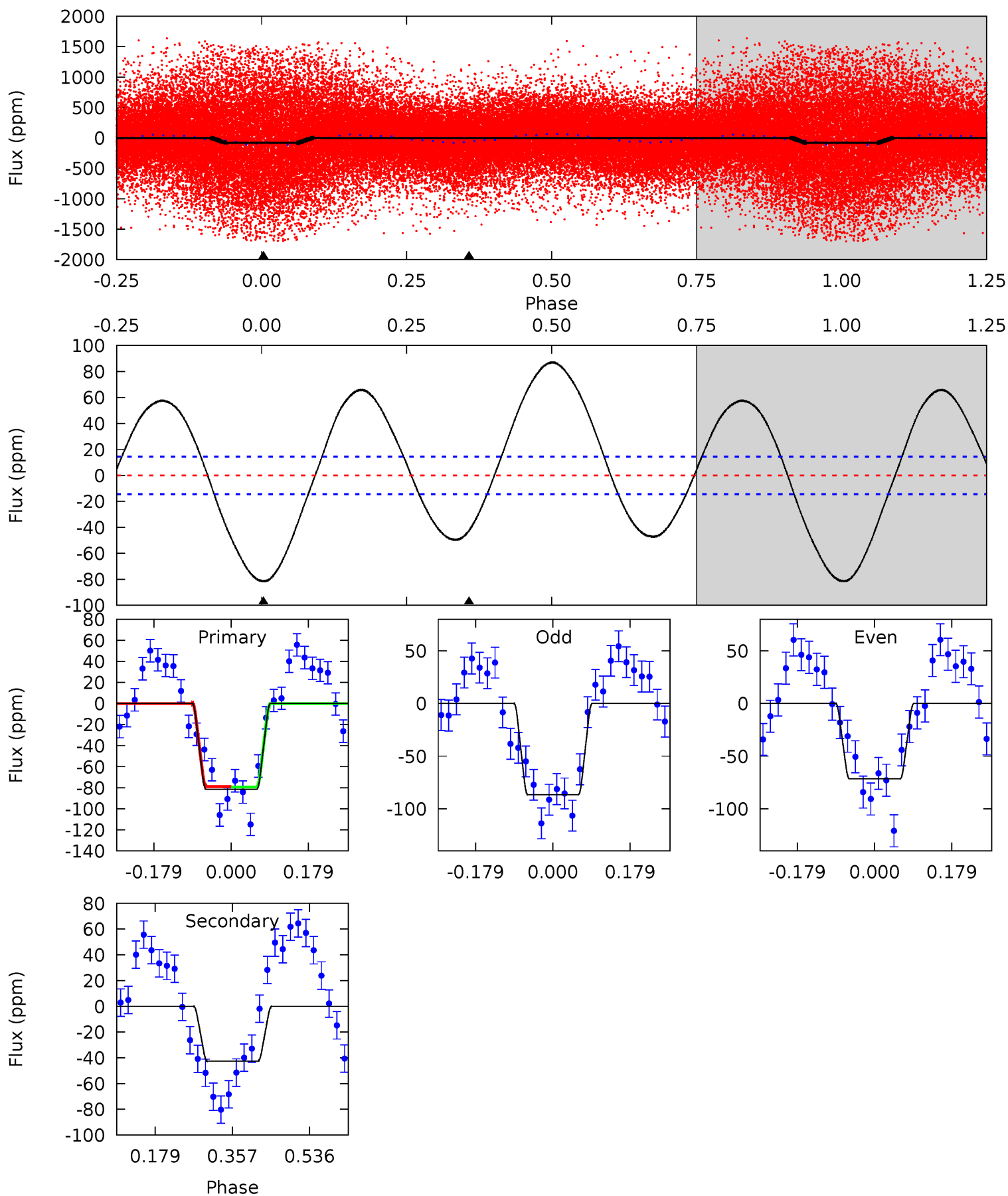
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
8.82	-0.28	0	0	4.35	1.11	10.7	8.82	8.82	-0.28	-0.28	0.23	1.91	0.86	8.78



# Alt Model-Shift Uniqueness Test

003440074-01, P = 0.867182 Days, E = 131.422875 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
25.0	13.1	0	0	4.44	1.34	11.7	25.0	25.0	13.1	13.1	2.28	1.23	0.52	0.07





### Stellar Parameters For KIC 003440074

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R$ ( $R_{\odot}$ )	$M(M_{\odot})$	$\rho_{\star}$ ( $\text{g}\cdot\text{cm}^{-3}$ )
	$6756^{+161}_{-262}$	$3.051^{+0.536}_{-0.134}$	$0.070^{+0.200}_{-0.500}$	$8.275^{+1.606}_{-4.497}$	$2.811^{+0.322}_{-1.030}$	$0.007^{+0.049}_{-0.003}$
	+2%/-4%	+18%/-4%	+286%/-714%	+19%/-54%	+11%/-37%	+703%/-42%
Source	PHO1	FLK73	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 003440074-01 / KOI

Detrend	Depth (ppm)	$R_p$ ( $R_{\oplus}$ )	$T_{max}$ (K)	$T_{obs}$ (K)	$A_{obs}$
DV	$1\pm2$	$3.40^{+1.69}_{-1.58}$	$7298^{+620}_{-958}$	$-6088^{+954}_{-647}$	$-0.013^{+0.064}_{-0.122}$
Alt.	$-43\pm3$	$8.61^{+2.51}_{-2.47}$	$7341^{+580}_{-876}$	$-4725^{+8622}_{-841}$	$0.195^{+0.161}_{-0.074}$

$T_{max}$  = 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

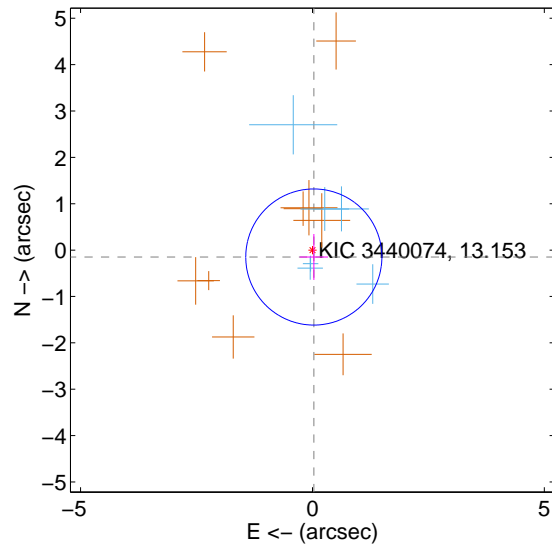
Supplemental centroid analysis for 003440074-01. Kepler magnitude: 13.15. Transit SNR 5.44

There are 6 quarters with good PRF difference image offsets

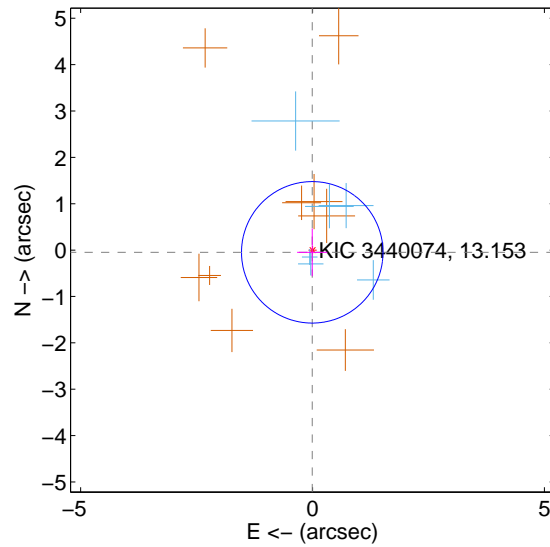
The direct PRF centroid is offset from the target star catalog position by about 0.10 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$0.152 \pm 0.489$	0.31	$-0.030 \pm 0.304$	$-0.149 \pm 0.495$
PRF-fit source offset from KIC position	$0.049 \pm 0.509$	0.10	$0.006 \pm 0.326$	$-0.048 \pm 0.513$
photometric centroid source offset	$1.56 \pm 0.93$	1.68	$-1.56 \pm 0.93$	$-0.05 \pm 1.08$

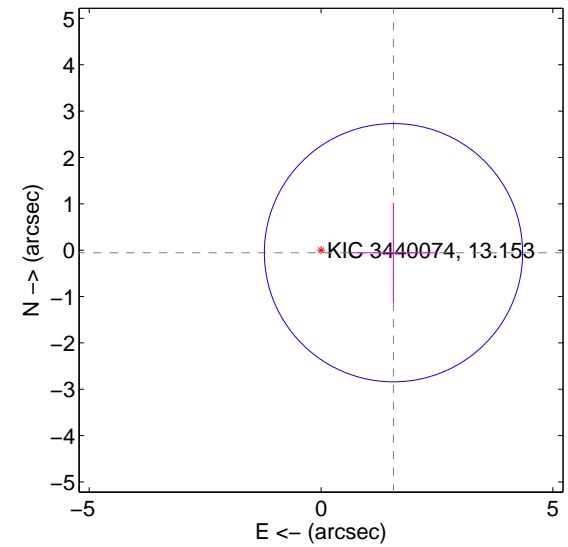
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position

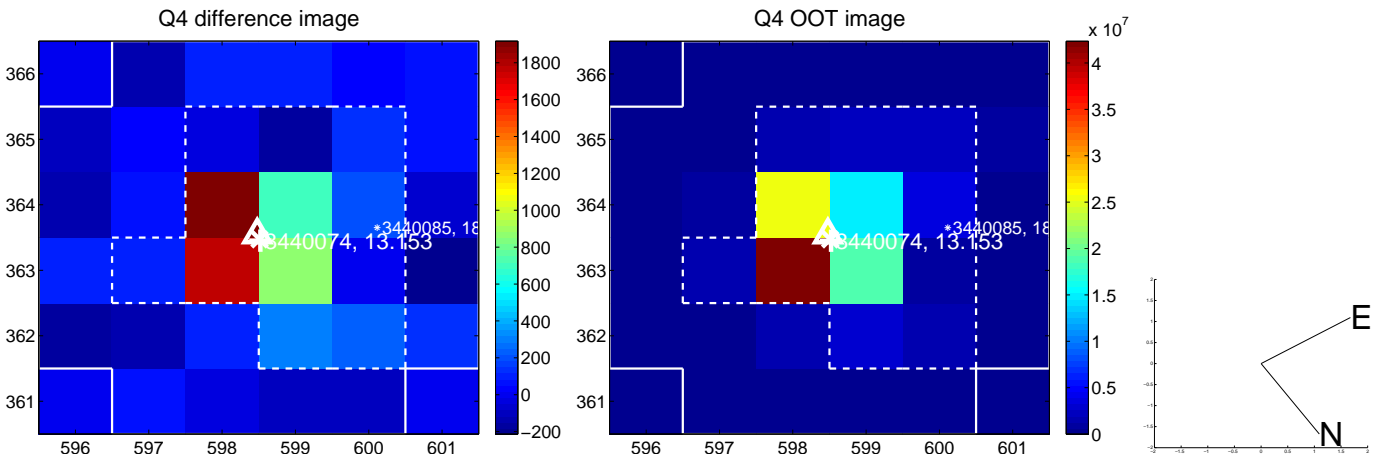
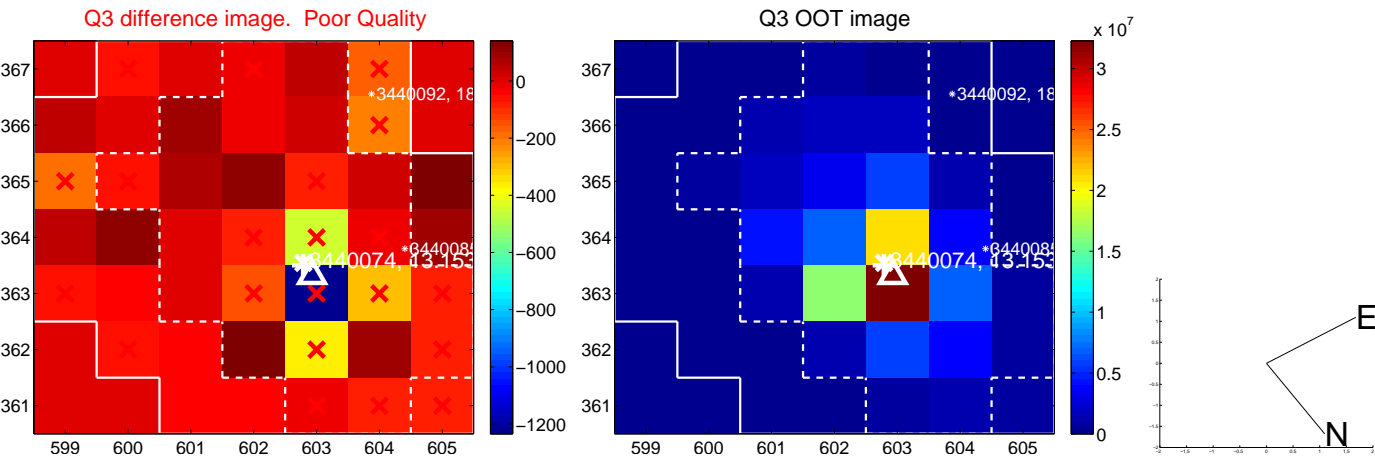
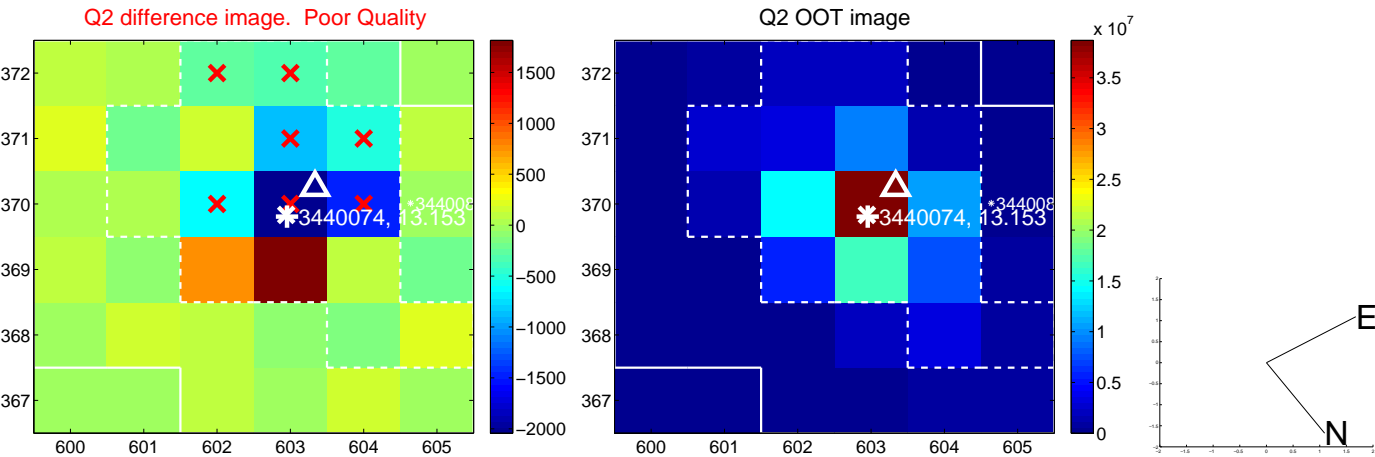
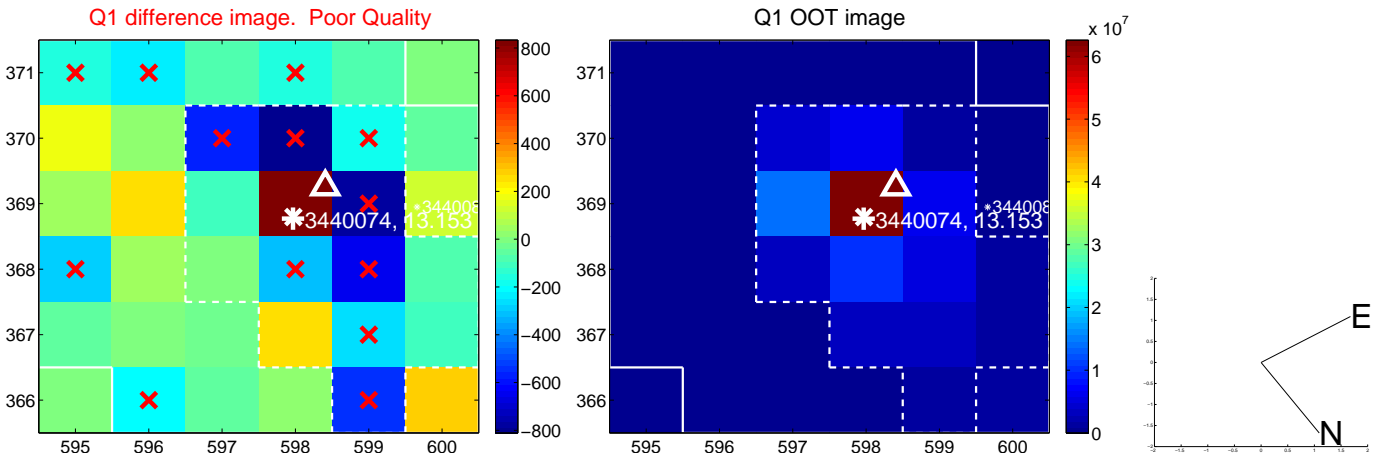


offset from photometric centroids

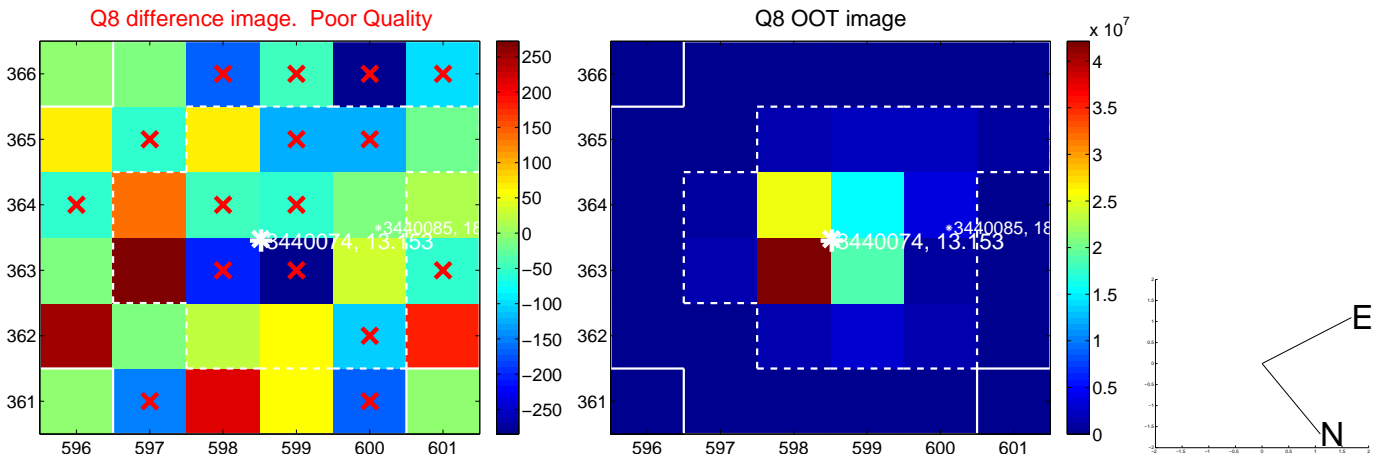
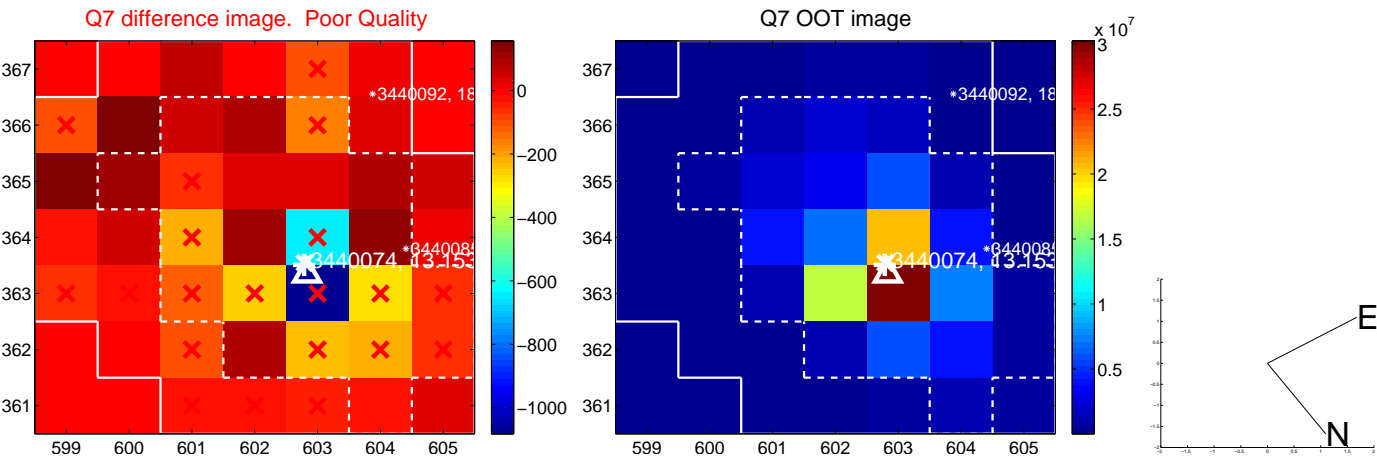
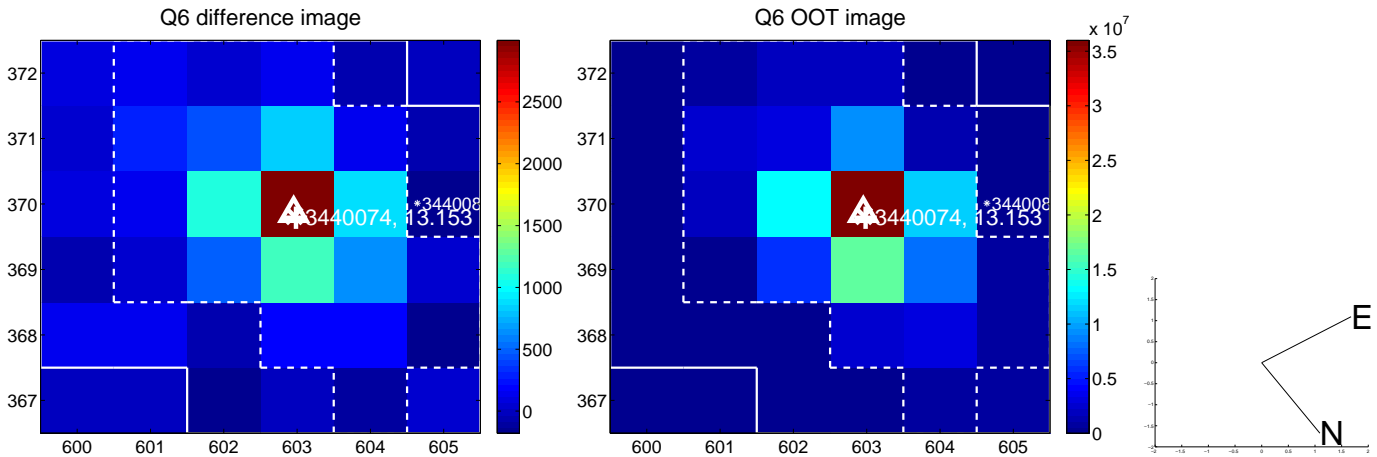
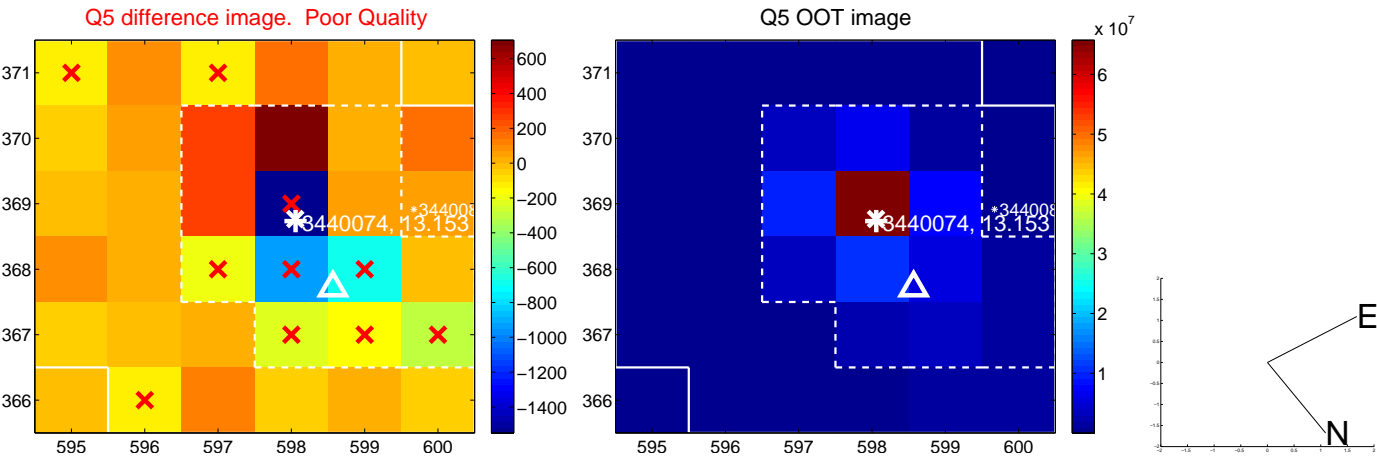


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: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

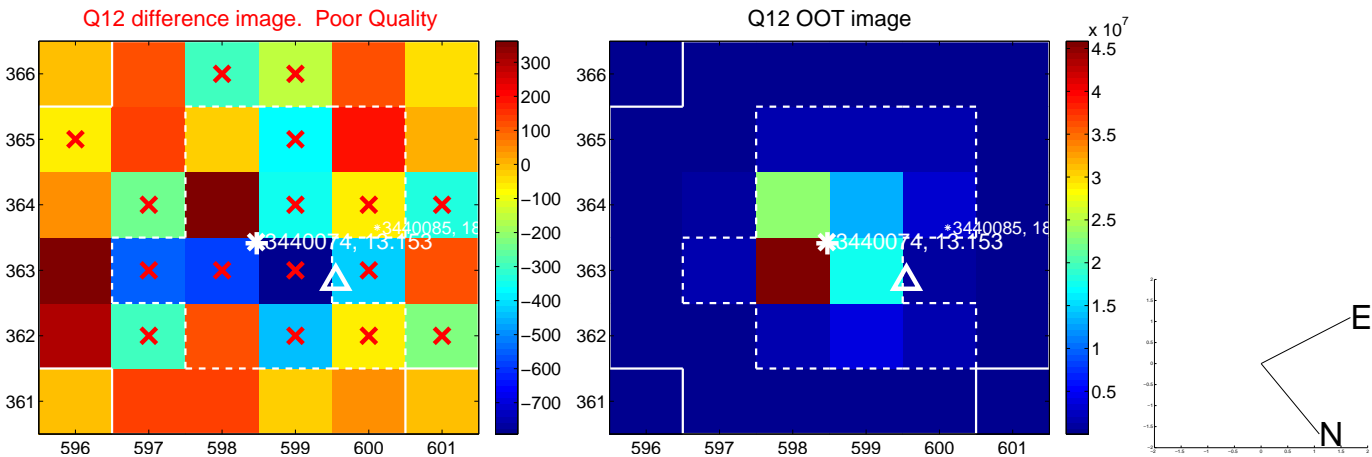
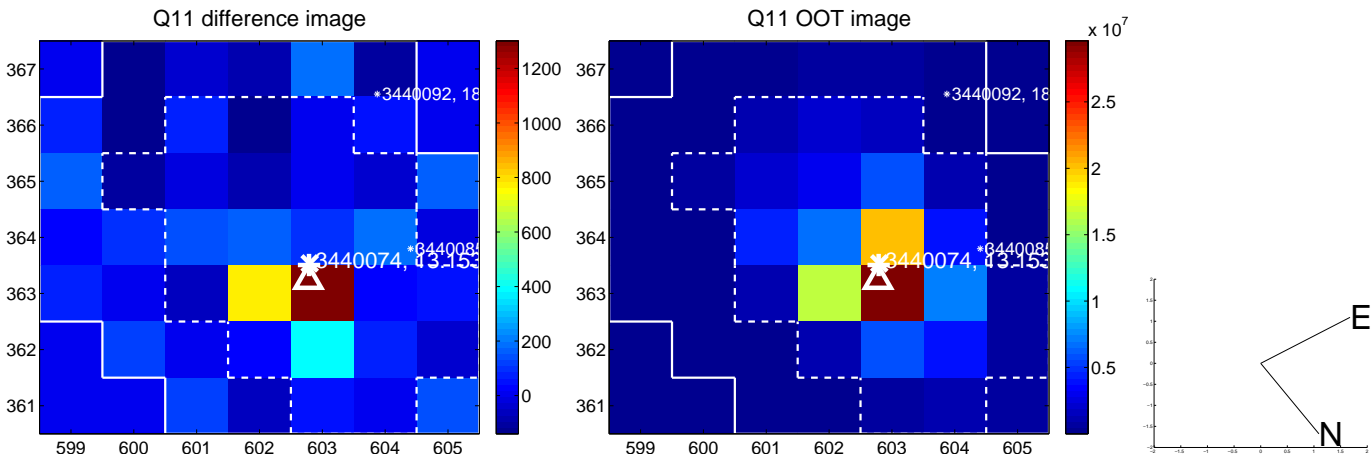
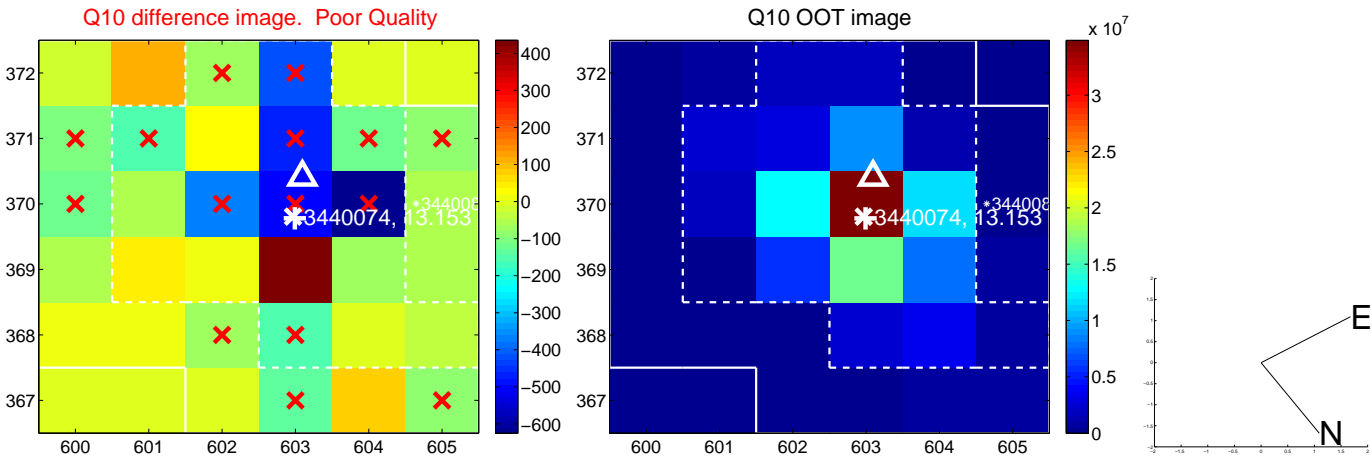
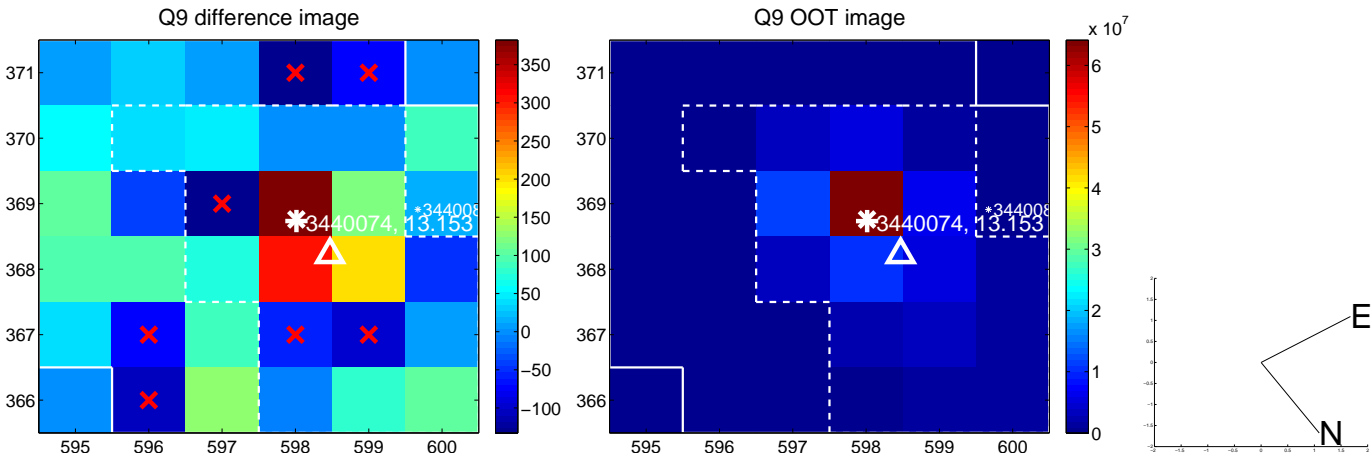


white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.

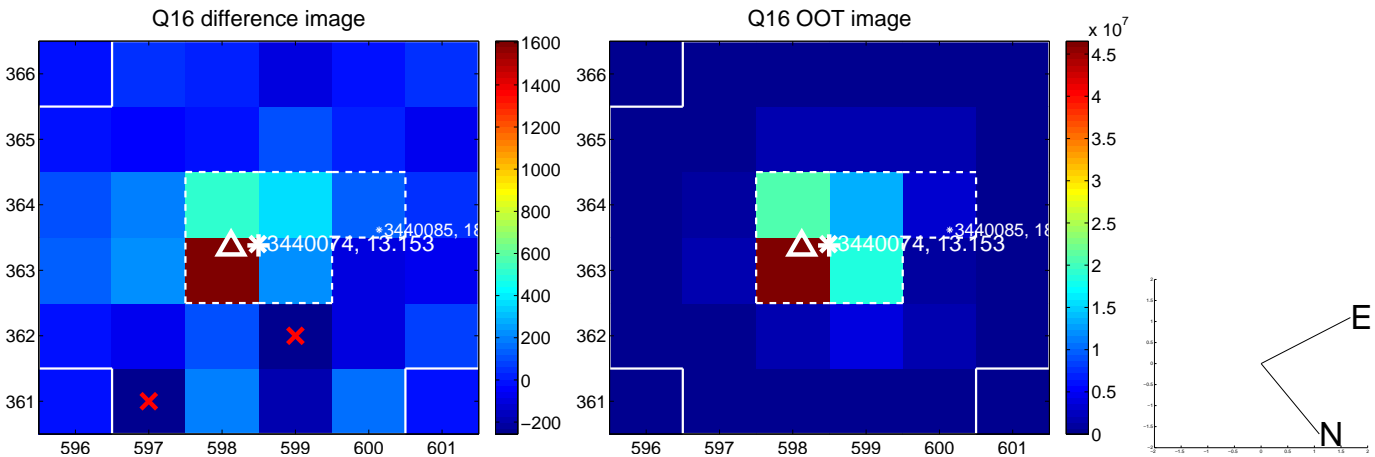
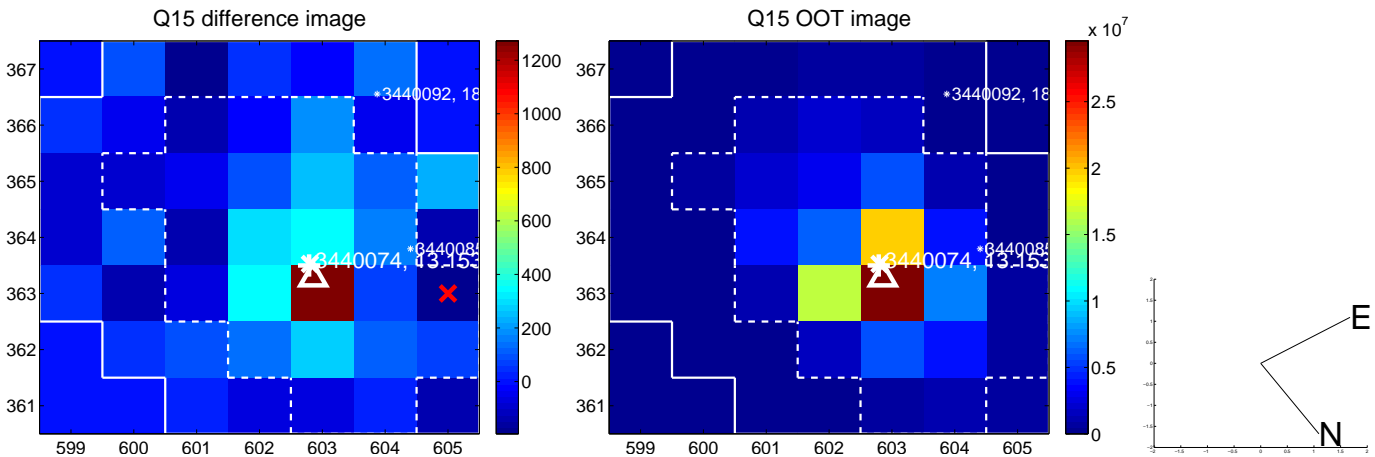
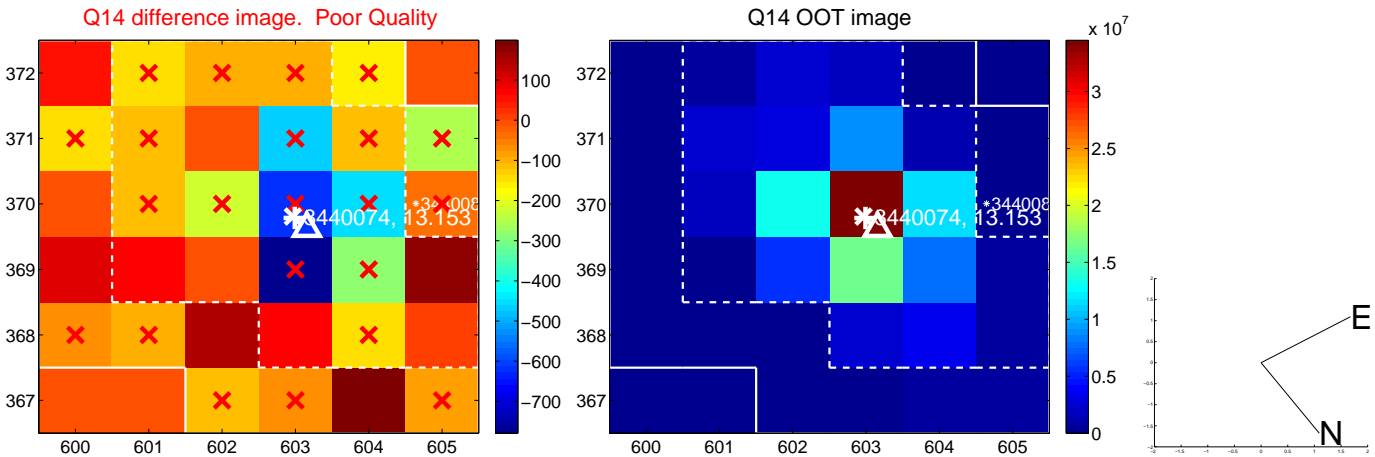
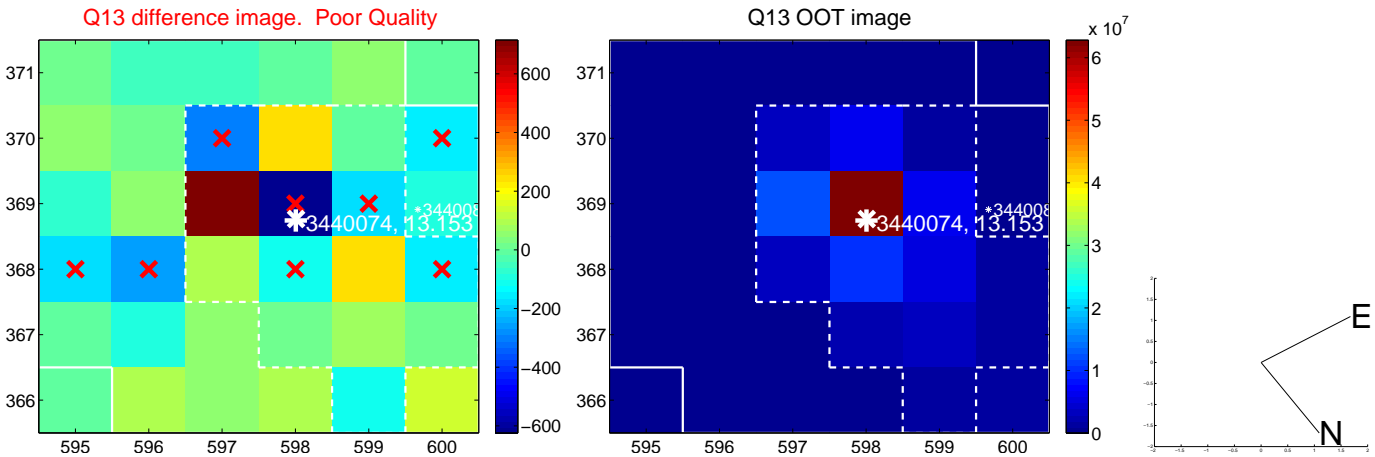




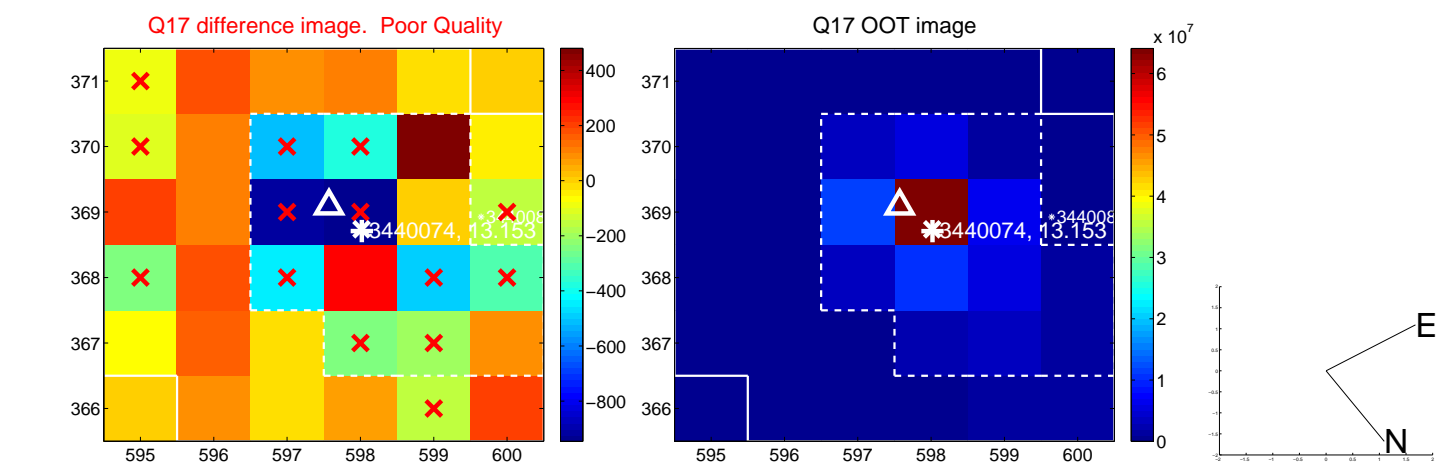
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



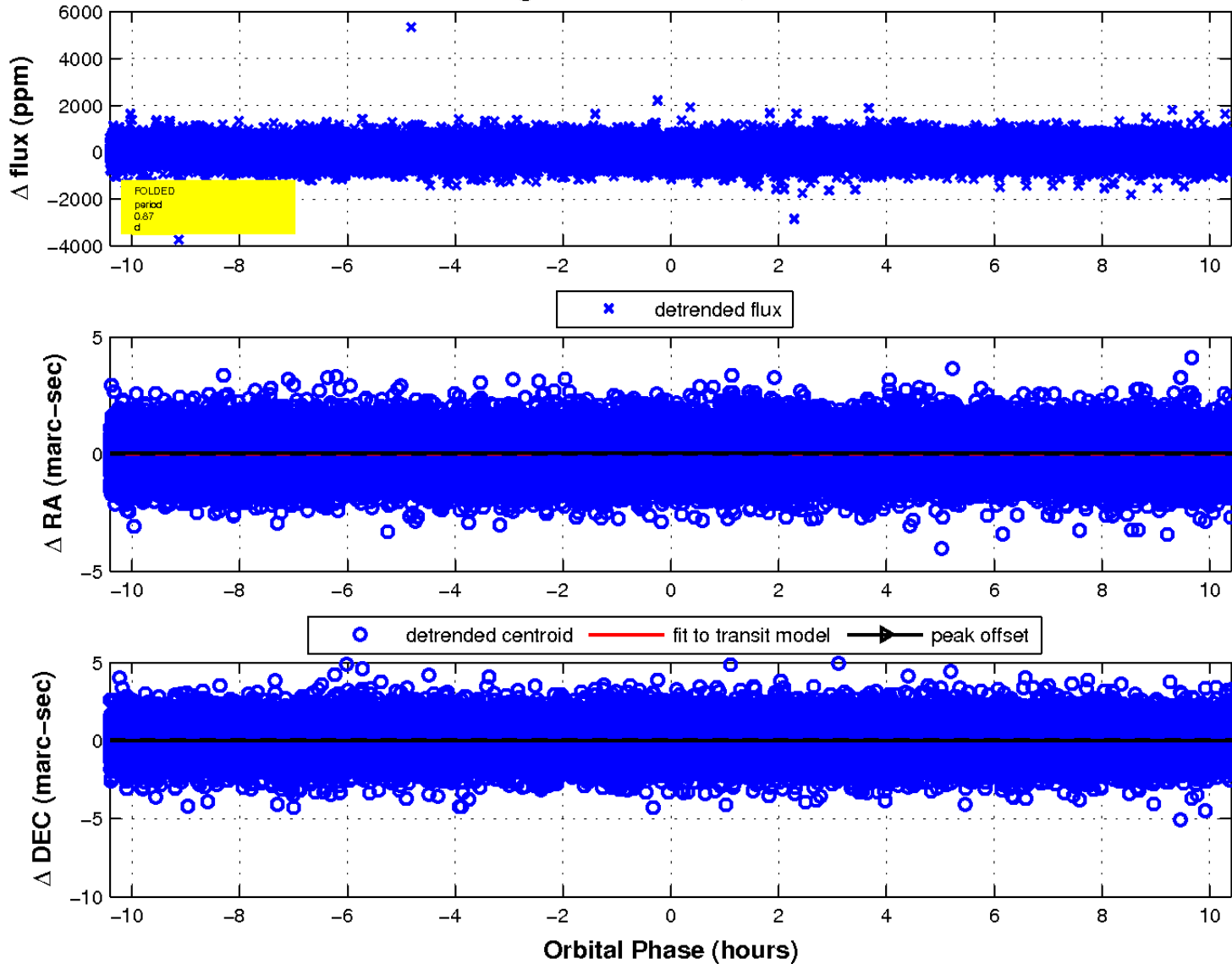
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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

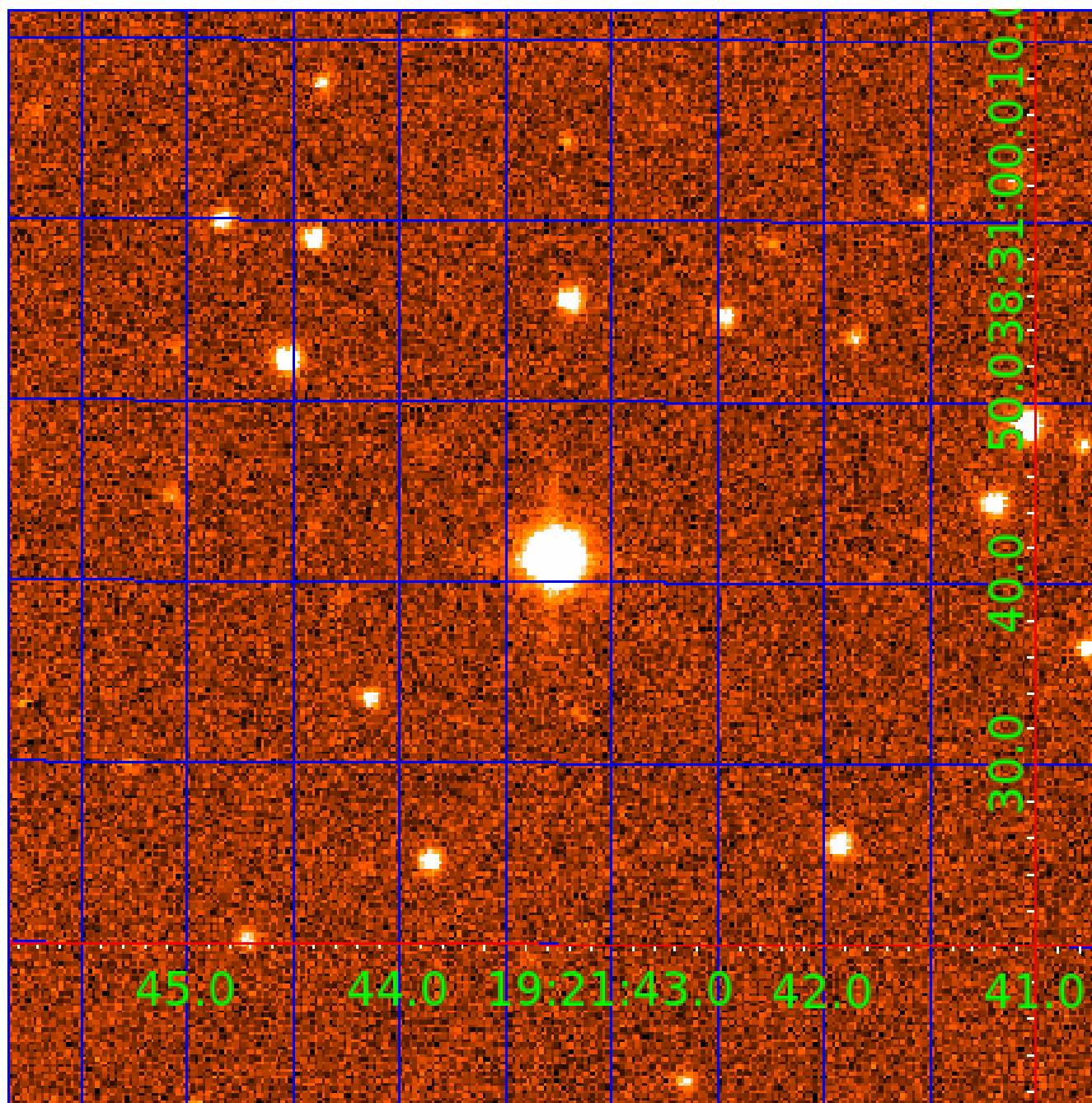


fluxWeightedCentroids, Planet 1 of 4



UKIRT Image

Declination





# KIC 003440074

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
003440074-01	OBS	No	0.867136	132.300837	18.1	5.111	8.0	5.4	8.28	6756	3.75	0.00
003440074-02	OBS	No	0.867154	131.755115	76.6	2.817	11.9	16.6	8.28	6756	8.43	0.00
003440074-03	OBS	No	4.048636	133.678052	382.9	2.216	12.5	9.6	8.28	6756	16.79	25966.89
003440074-04	OBS	No	7.976591	133.160117	576.7	1.486	8.1	6.2	8.28	6756	20.20	10513.37

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
003440074-01	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT
003440074-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_SKYE_ZUMA—LPP_DV—MOD_NONUNIQ_DV—SAME_NTL_PERIOD
003440074-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_SKYE_TRACKER—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV
003440074-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_TRACKER—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV

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

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

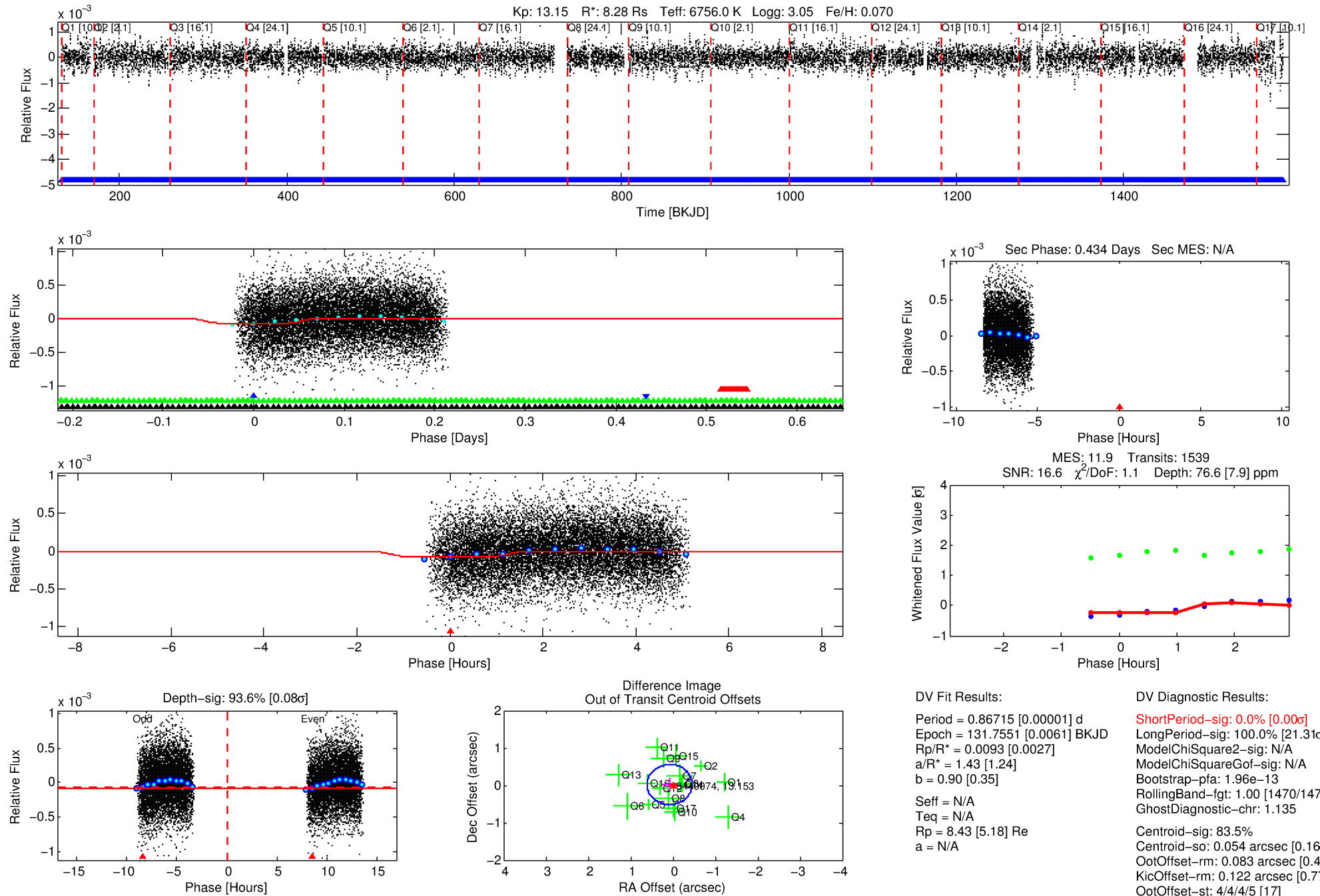
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

Ephemeris Match Information For 003440074-02

No Significant Match Found

# DV One-Page Summary

KIC: 3440074 Candidate: 2 of 4 Period: 0.867 d



## DV Fit Results:

Period = 0.86715 [0.00001] d  
Epoch = 131.7551 [0.0061] BKJD  
Rp/R\* = 0.0093 [0.0027]  
a/R\* = 1.43 [1.24]  
b = 0.90 [0.35]  
Seff = N/A  
Teq = N/A  
Rp = 8.43 [5.18] Re  
a = N/A

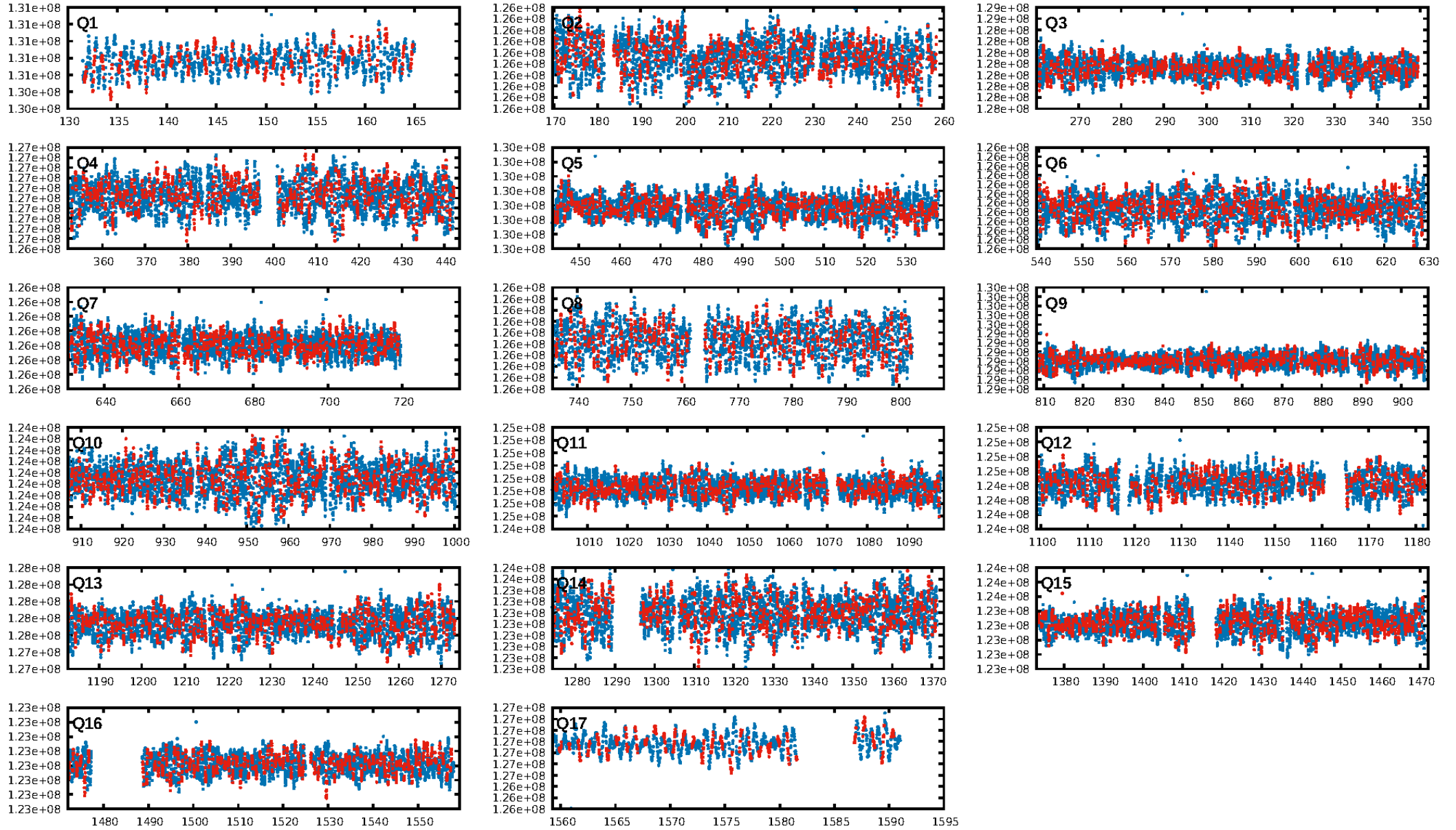
## DV Diagnostic Results:

ShortPeriod-sig: 0.0% [0.00 $\sigma$ ]  
LongPeriod-sig: 100.0% [21.31 $\sigma$ ]  
ModelChiSquare2-sig: N/A  
ModelChiSquareGof-sig: N/A  
Bootstrap-pfa: 1.96e-13  
RollingBand-fgt: 1.00 [1470/1470]  
GhostDiagnostic-chr: 1.135  
Centroid-sig: 83.5%  
Centroid-so: 0.054 arcsec [0.16 $\sigma$ ]  
OotOffset-rm: 0.083 arcsec [0.47 $\sigma$ ]  
KicOffset-rm: 0.122 arcsec [0.77 $\sigma$ ]  
OotOffset-st: 4/4/4/5 [17]  
KicOffset-st: 4/4/4/5 [17]  
DiffImageQuality-fgm: 1.00 [17/17]  
DiffImageOverlap-fno: 0.00 [0/17]

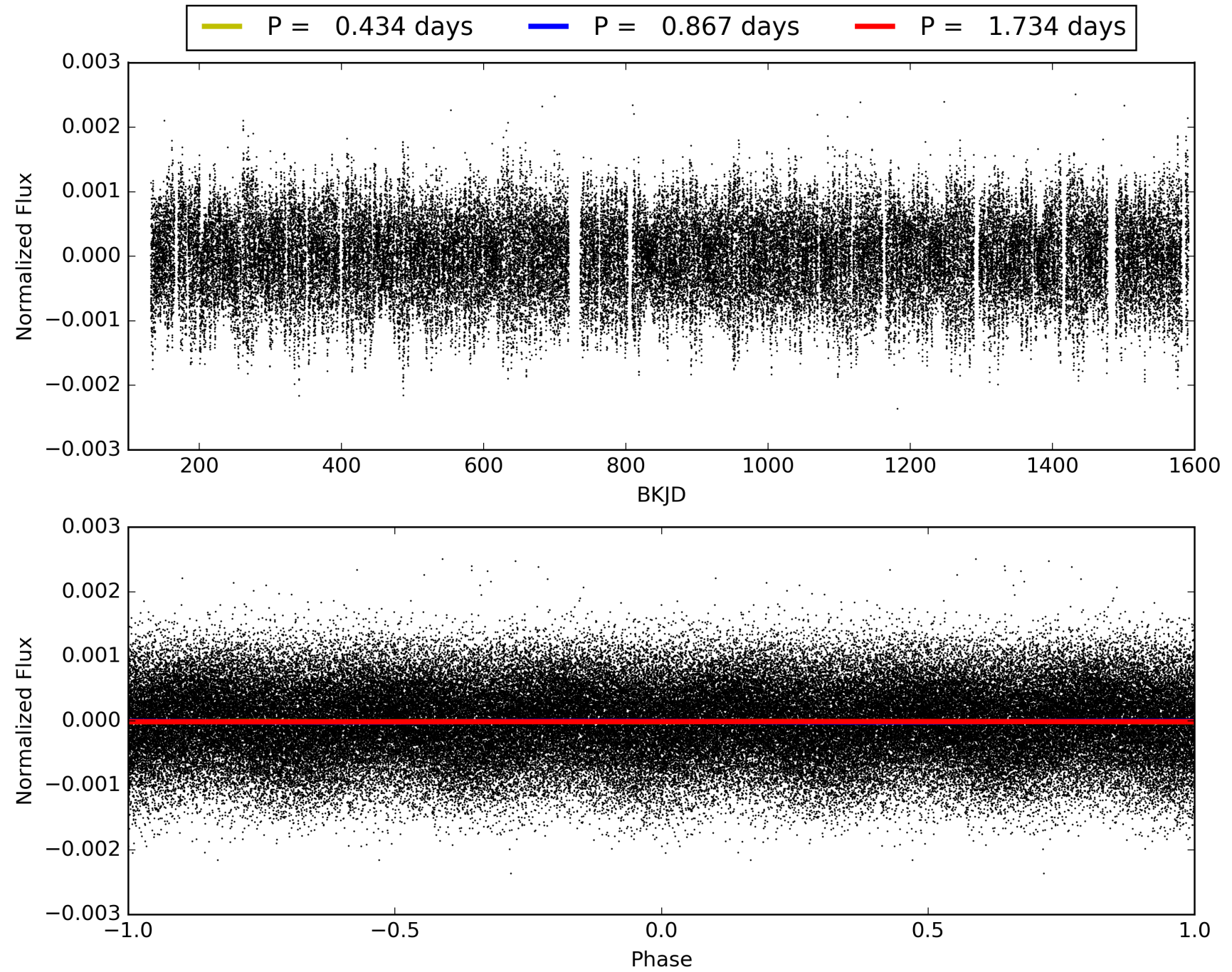
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 31-Jan-2016 13:25:20 Z

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

# TCE 003440074-02, PDC Light Curves

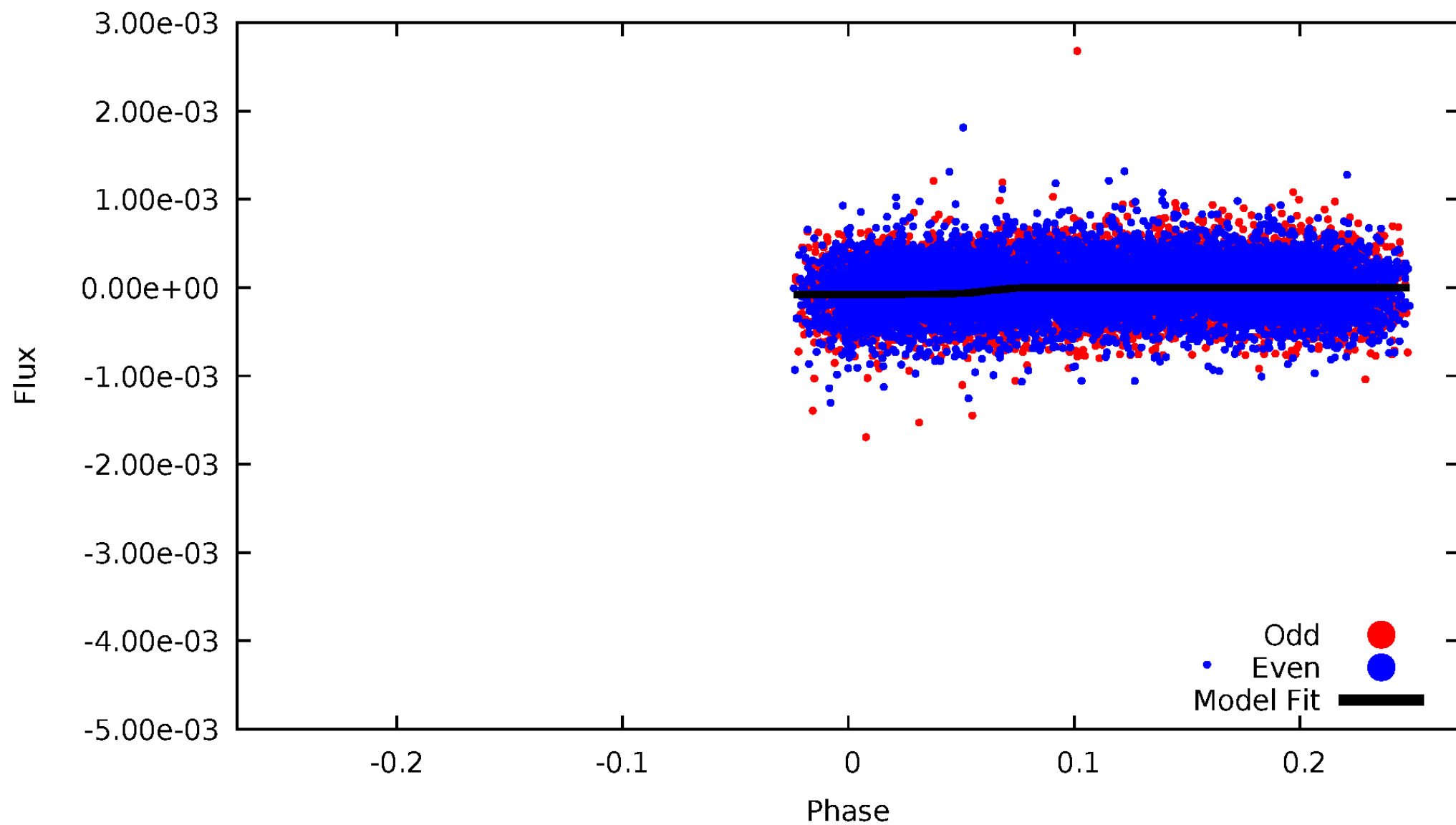


# TCE 003440074-02



DV Odd/Even

TCE 003440074-02





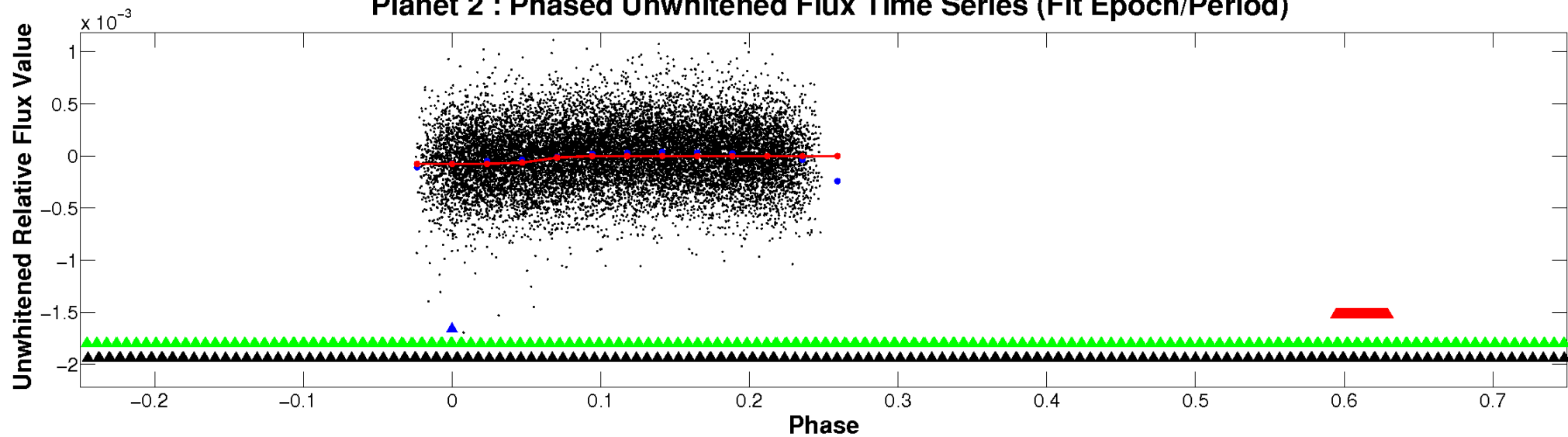


ALT Odd/Even

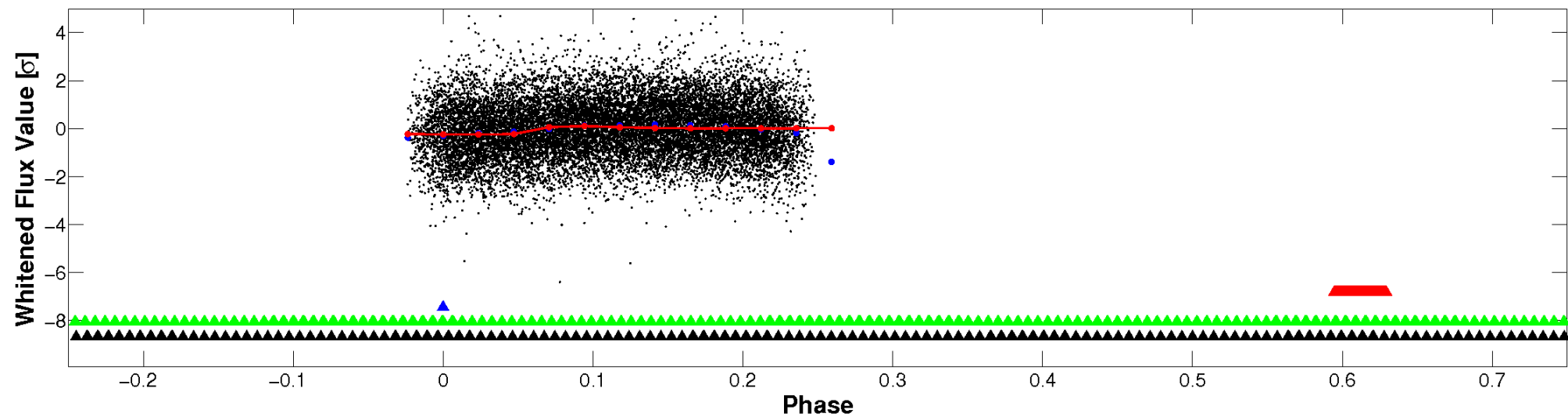
This plot does not exist for this TCE.

# Non-Whitened Vs. Whitened Light Curve

## Planet 2 : Phased Unwhitened Flux Time Series (Fit Epoch/Period)

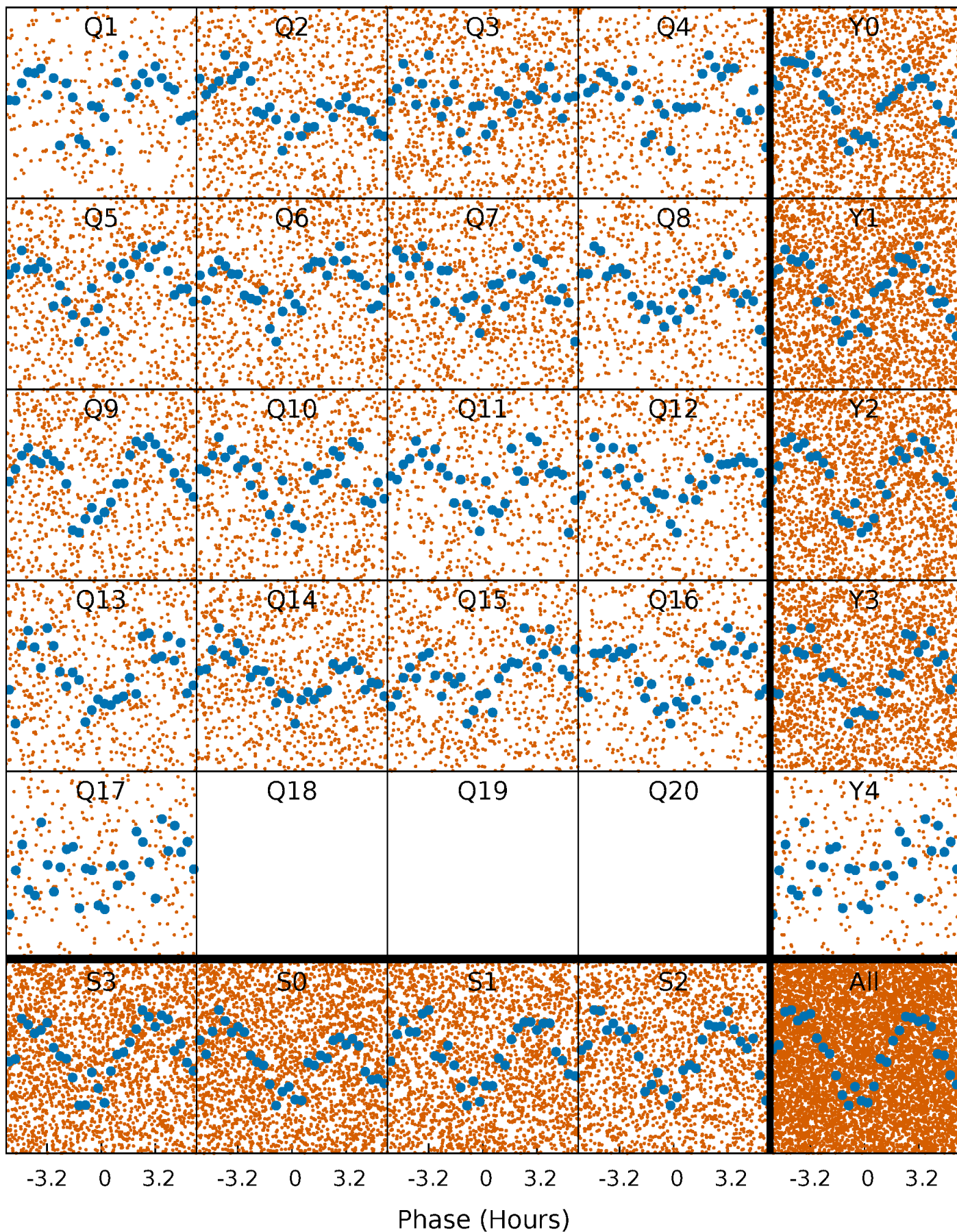


## Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



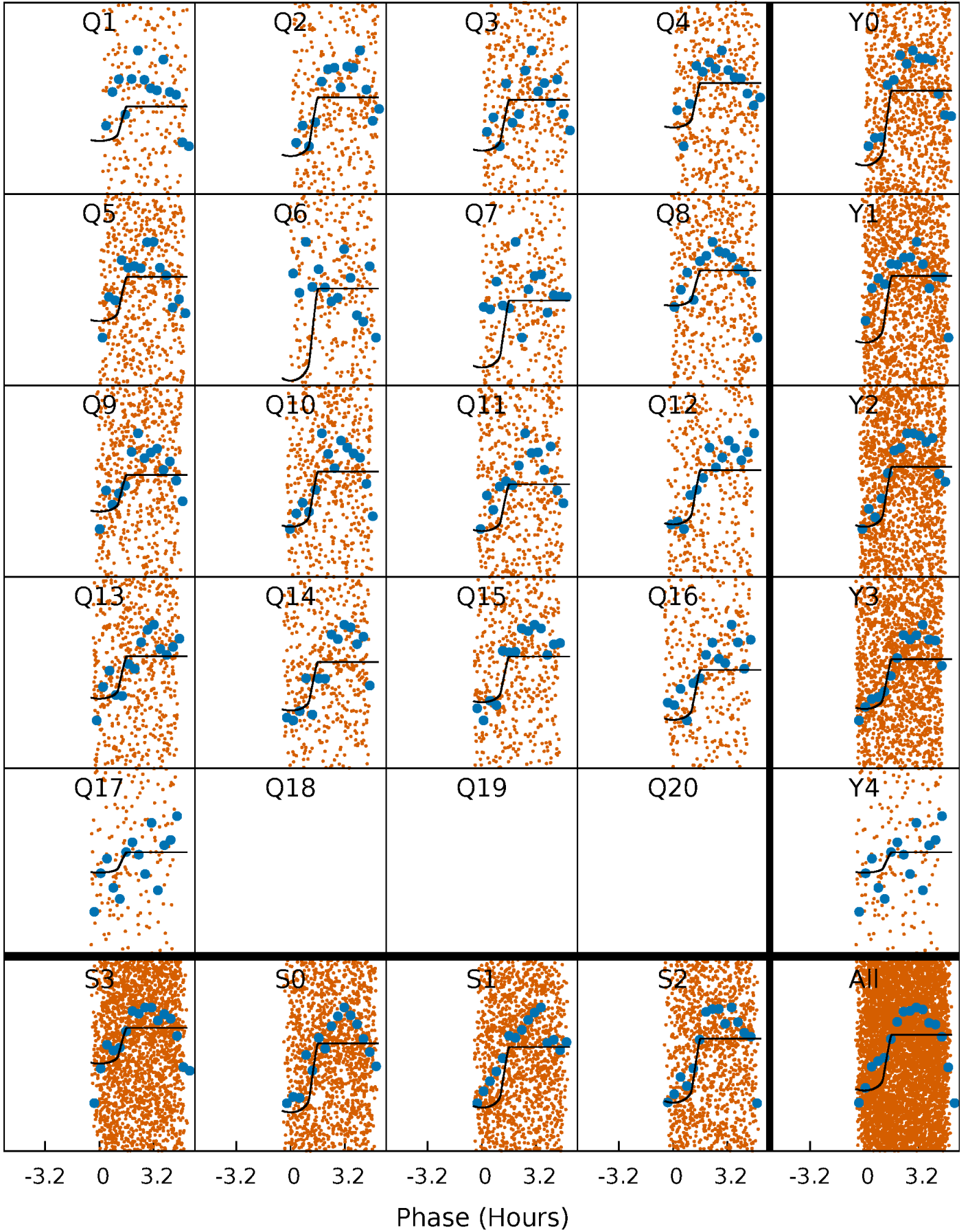
# PDC Quarter-Phased Transit Curves

TCE 003440074-02 P= 0.867154 Days  $T_0=131.755115$  (BKJD)



# DV Quarter-Phased Transit Curves

TCE 003440074-02     $P = 0.867154$  Days     $T_0 = 131.755115$  (BKJD)



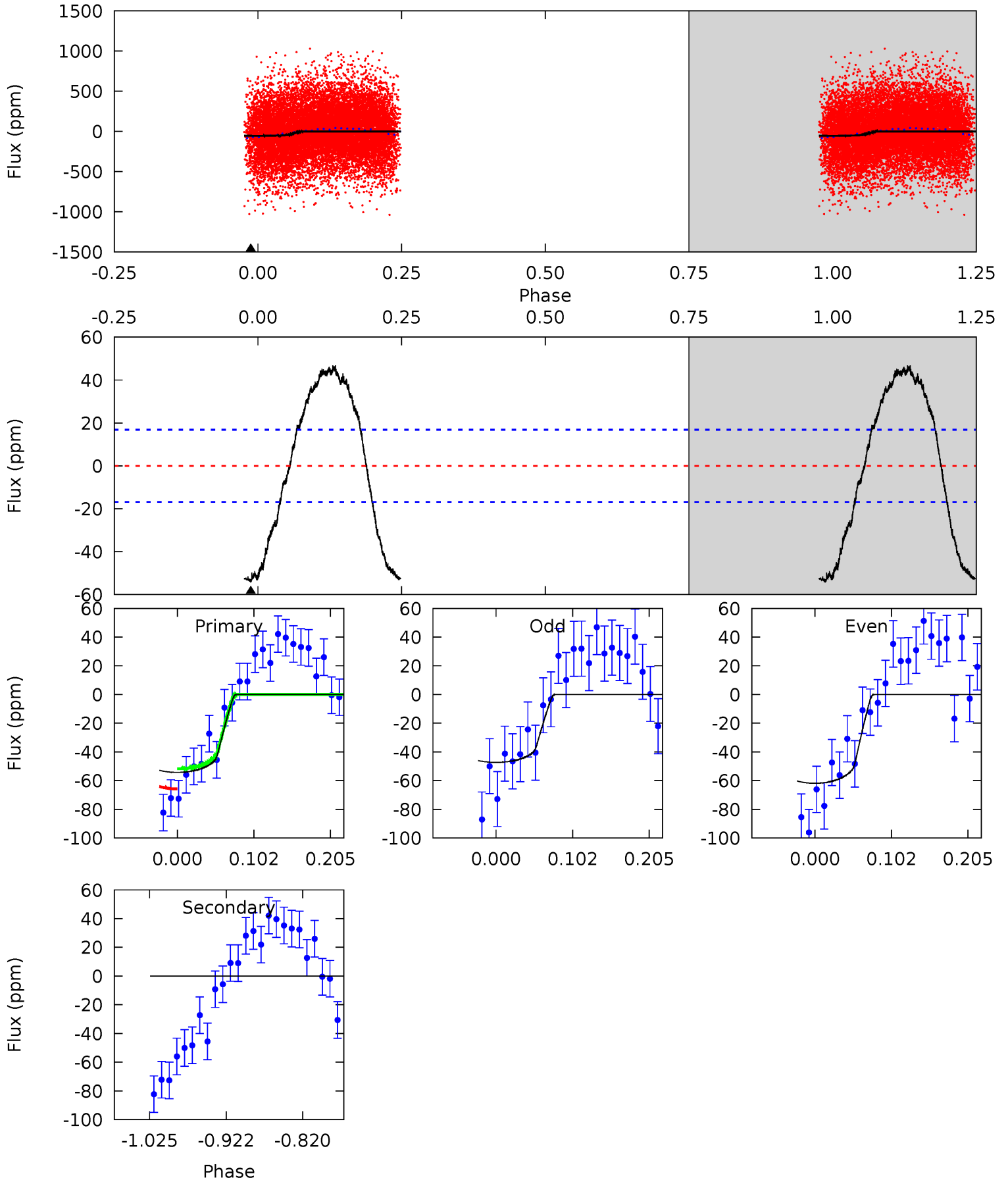
This plot does not exist for this TCE.



# DV Model-Shift Uniqueness Test

003440074-02, P = 0.867154 Days, E = 131.755115 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
14.7	0	0	0	4.56	1.63	8.55	14.7	14.7	0	0	1.98	0.98	0.46	1.04



## Alt Model-Shift Uniqueness Test

This plot does not exist for this TCE.

### Stellar Parameters For KIC 003440074

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R$ ( $R_{\odot}$ )	$M(M_{\odot})$	$p_{\star}$ ( $\text{g}\cdot\text{cm}^{-3}$ )
	$6756^{+161}_{-262}$	$3.051^{+0.536}_{-0.134}$	$0.070^{+0.200}_{-0.500}$	$8.275^{+1.606}_{-4.497}$	$2.811^{+0.322}_{-1.030}$	$0.007^{+0.049}_{-0.003}$
	+2%/-4%	+18%/-4%	+286%/-714%	+19%/-54%	+11%/-37%	+703%/-42%
Source	PHO1	FLK73	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 003440074-02 / KOI

Detrend	Depth (ppm)	$R_p$ ( $R_{\oplus}$ )	$T_{max}$ (K)	$T_{obs}$ (K)	$A_{obs}$
DV	$0 \pm 4$	$7.55^{+3.22}_{-2.69}$	$7371^{+575}_{-976}$	$-6033^{+774}_{-487}$	$0.001^{+0.025}_{-0.028}$
Alt.	N/A	N/A	N/A	N/A	N/A

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

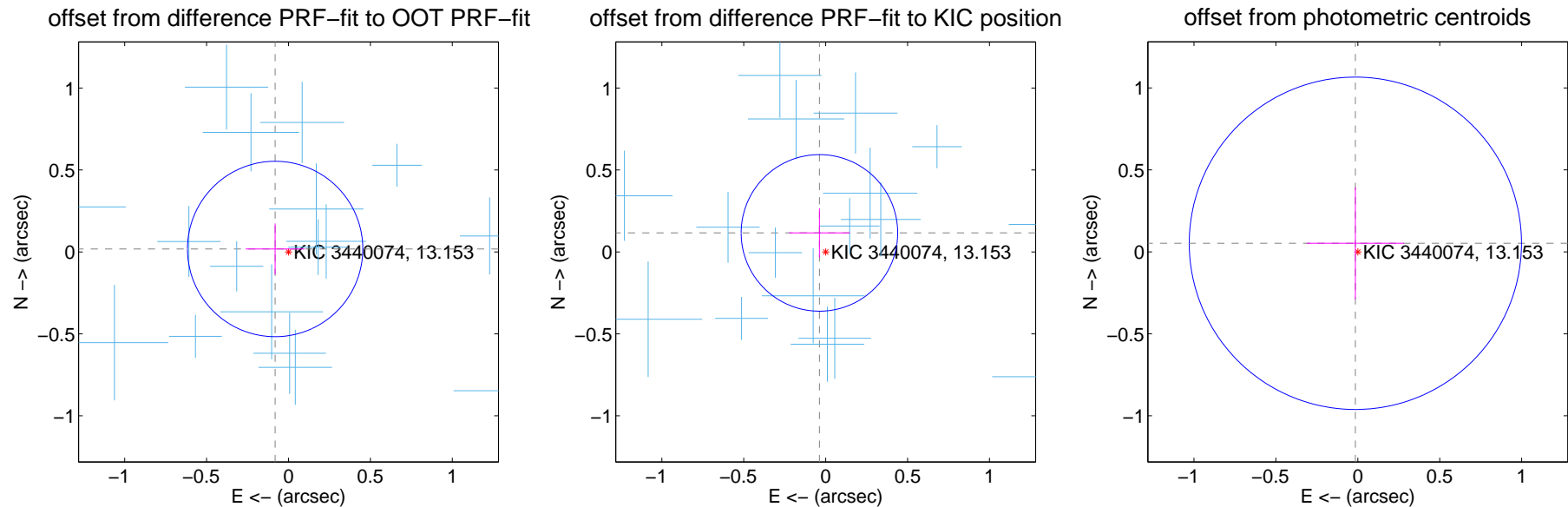
## DV Centroid Data

Supplemental centroid analysis for 003440074-02. Kepler magnitude: 13.15. Transit SNR 16.59

There are 17 quarters with good PRF difference image offsets

The direct PRF centroid is offset from the target star catalog position by about 0.10 arcsec

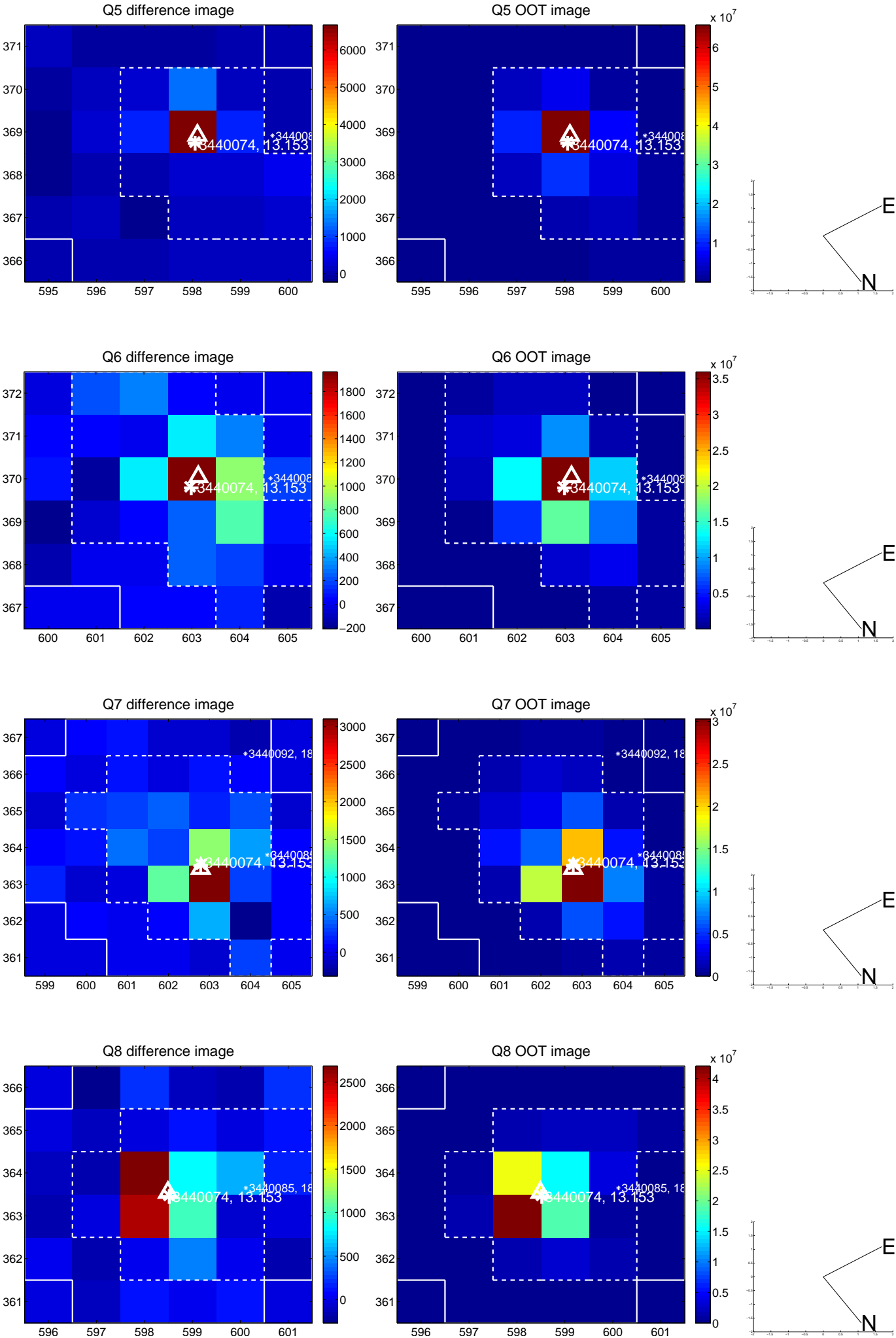
	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$0.083 \pm 0.178$	0.47	$0.082 \pm 0.179$	$0.018 \pm 0.155$
PRF-fit source offset from KIC position	$0.122 \pm 0.159$	0.77	$0.038 \pm 0.186$	$0.116 \pm 0.150$
photometric centroid source offset	$0.05 \pm 0.34$	0.16	$0.01 \pm 0.30$	$0.05 \pm 0.34$



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.

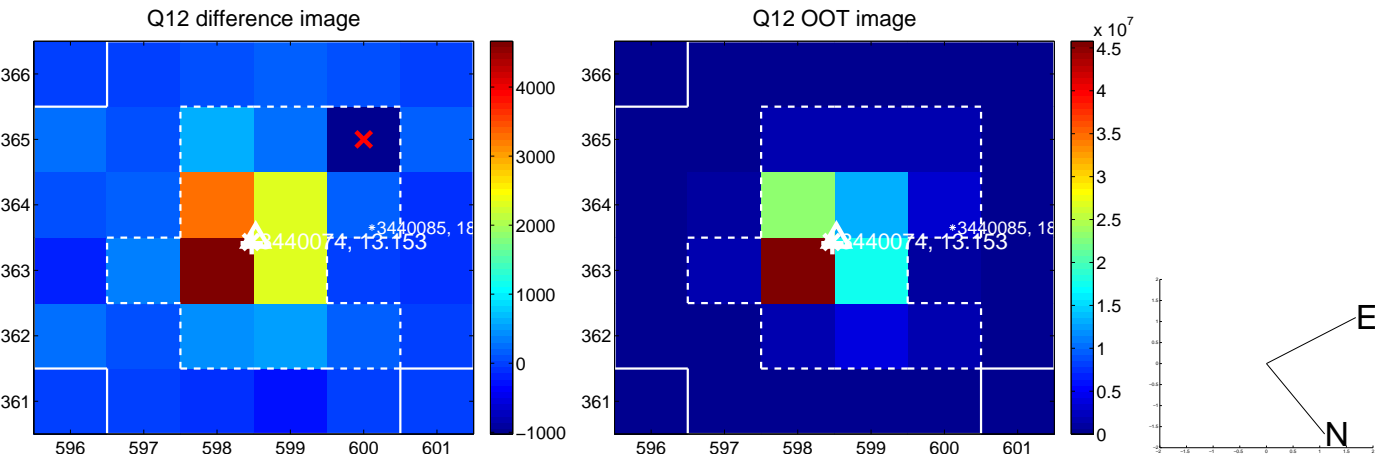
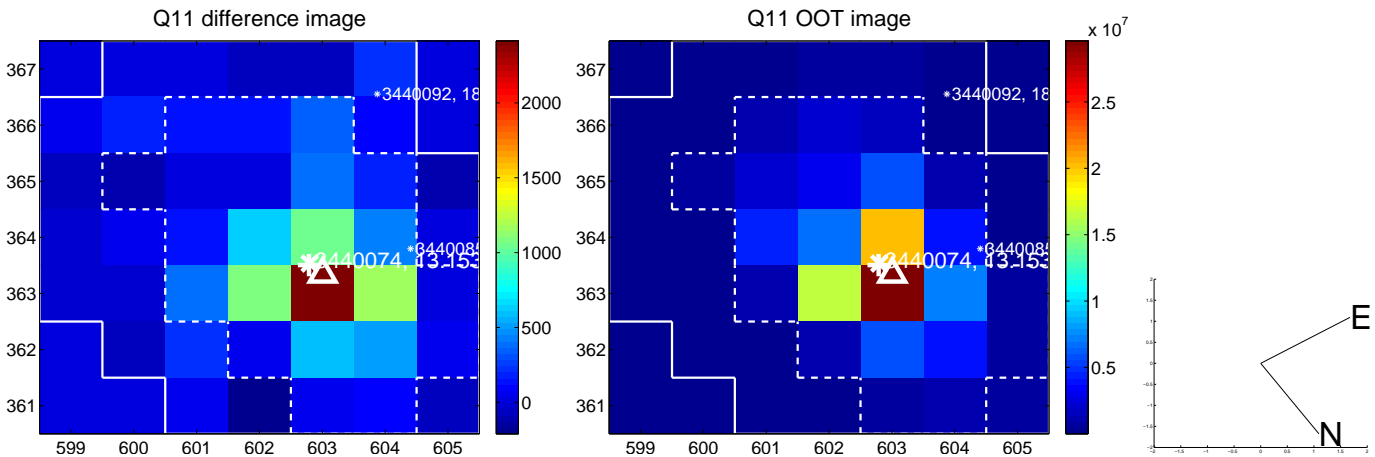
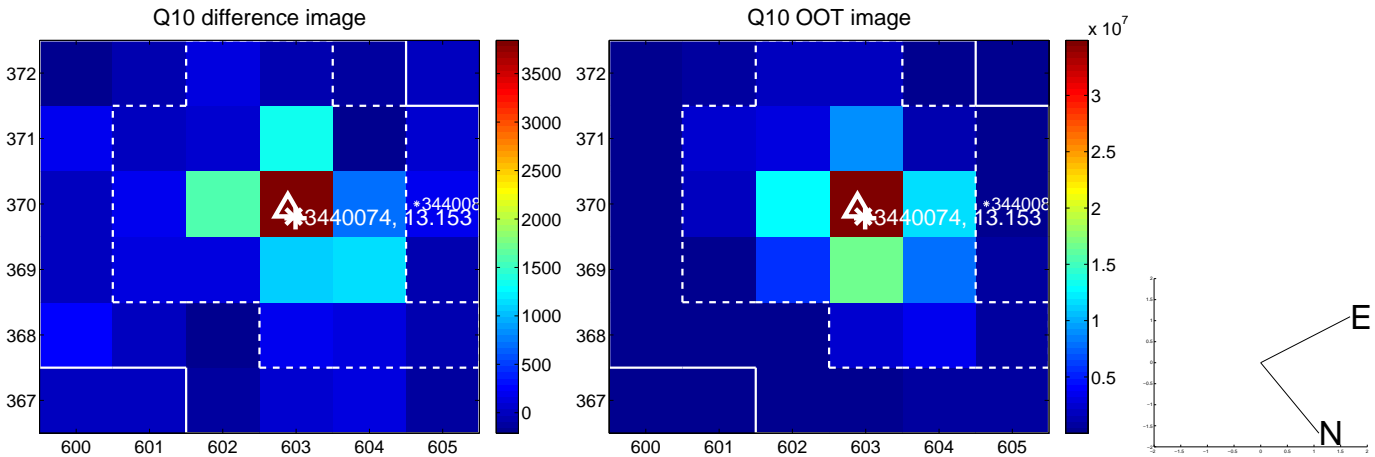
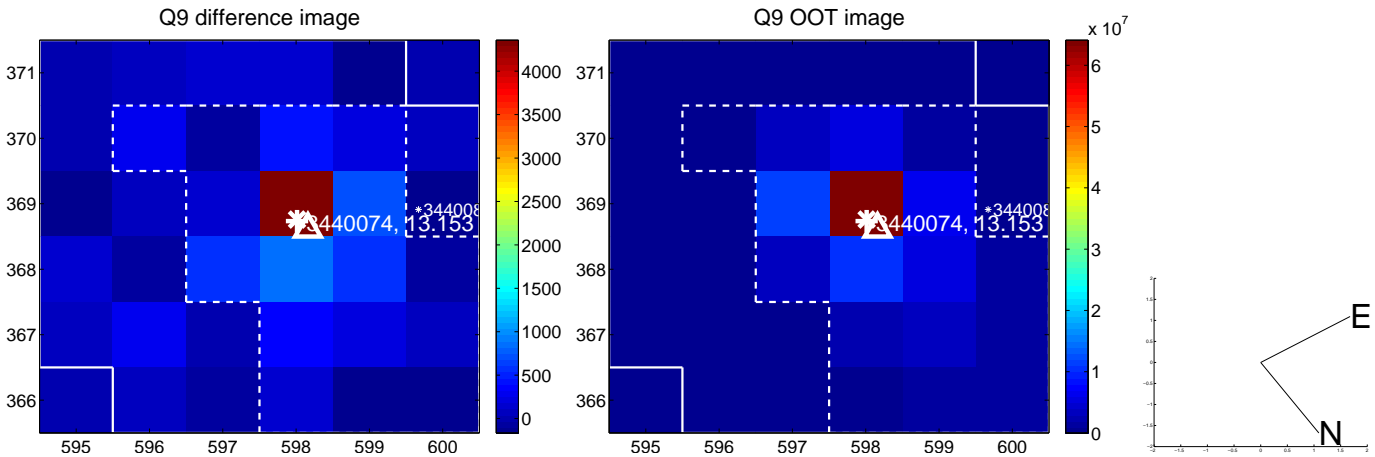


white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.

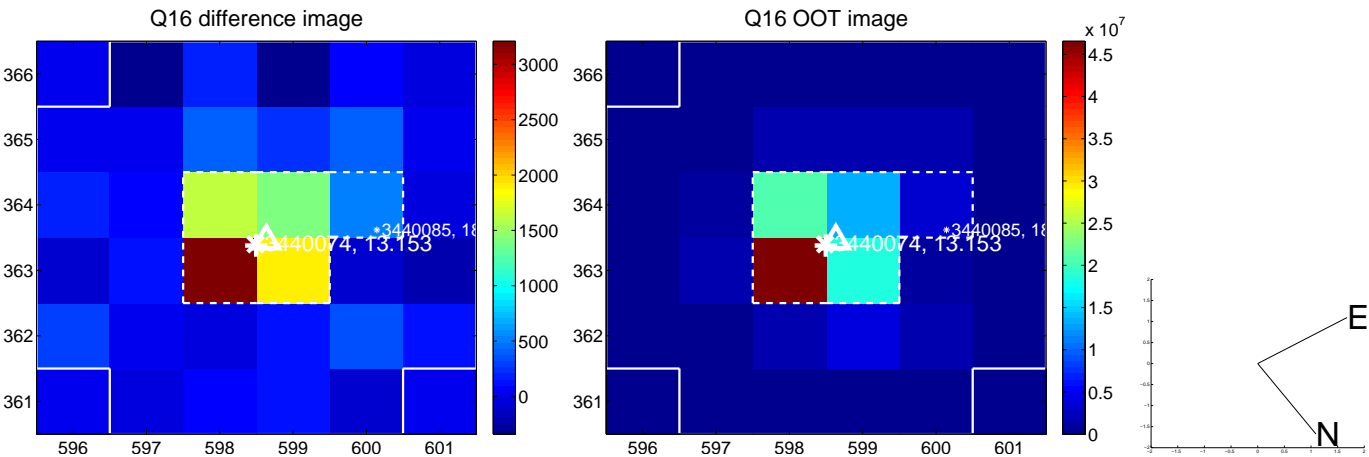
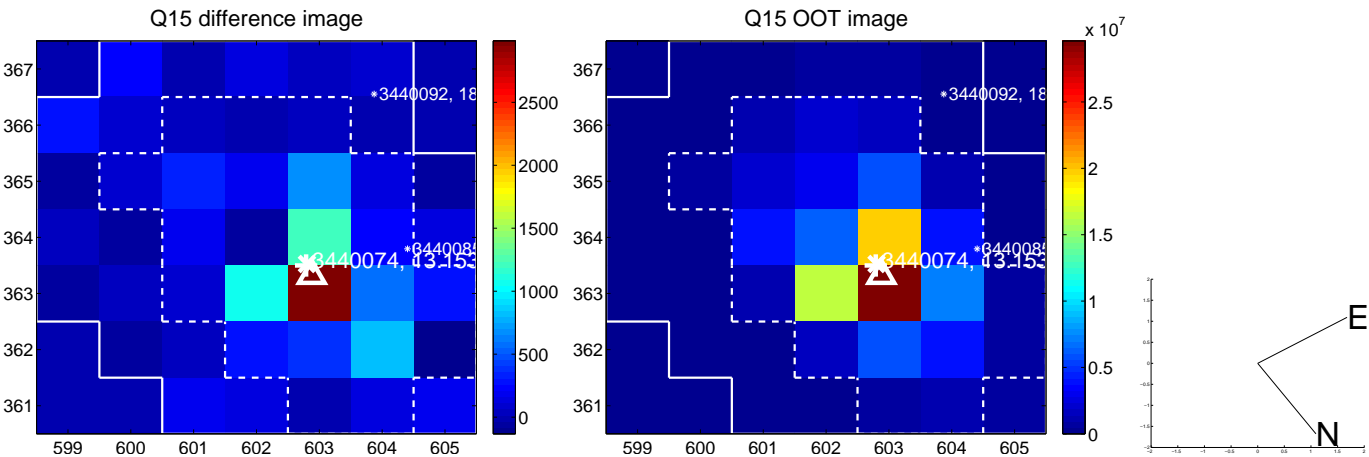
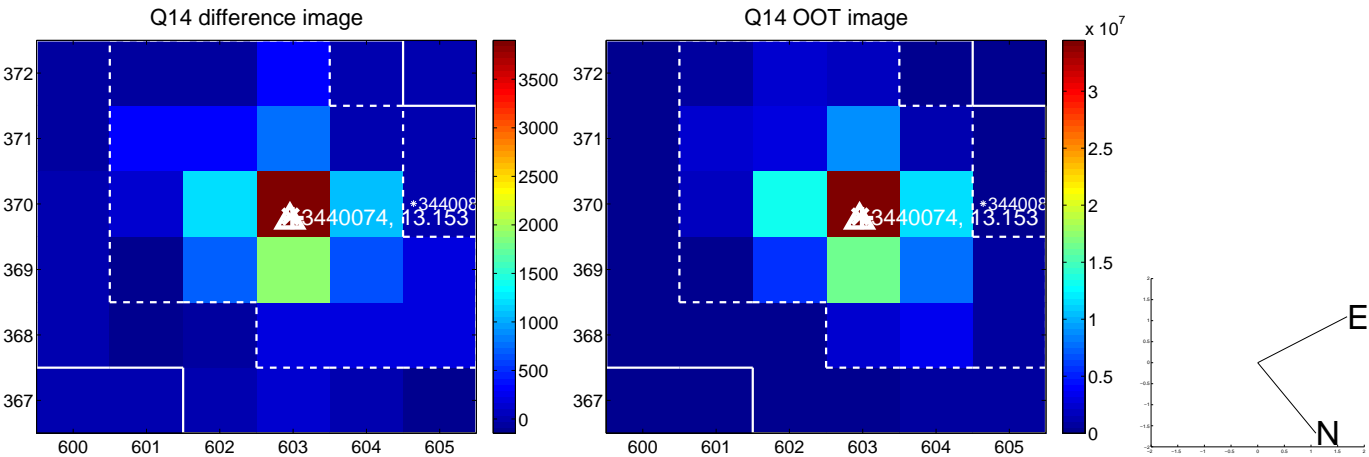
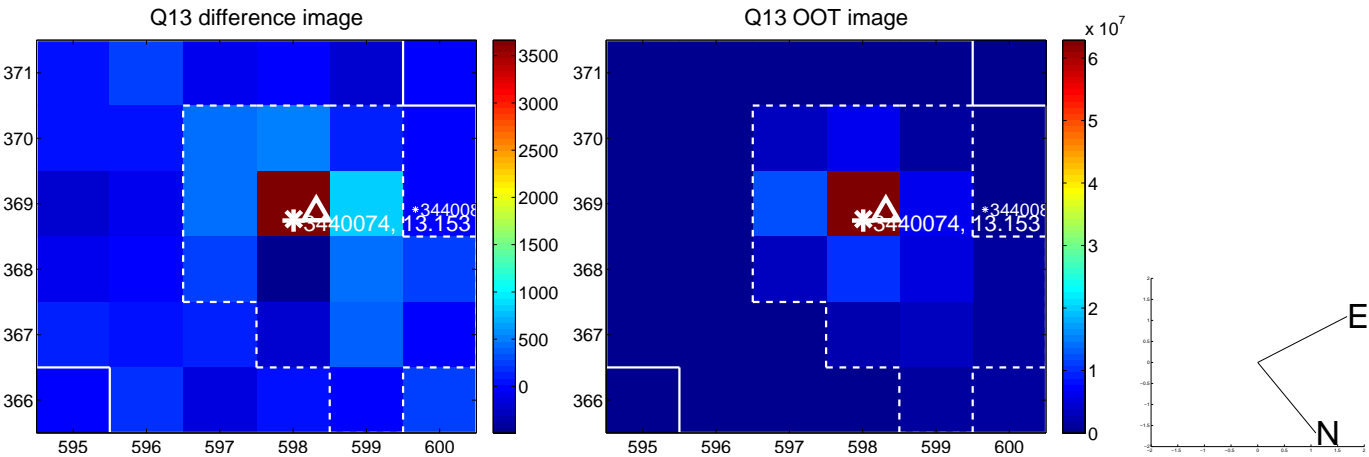




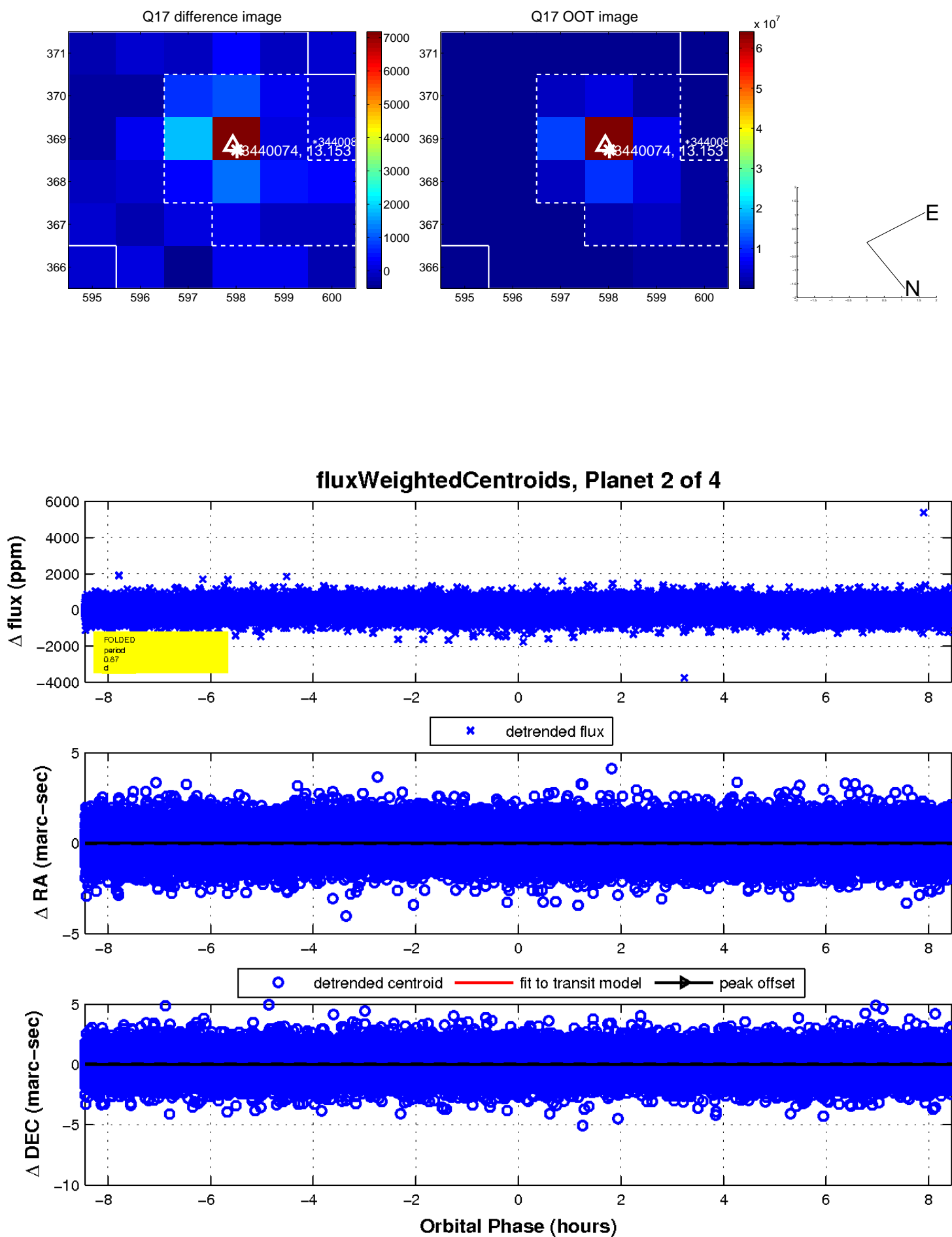
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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.



This astronomical image shows a field of stars against a dark, noisy background. A blue grid is overlaid on the image, with green text labels indicating coordinates. The labels are arranged in two rows at the bottom and one row on the right side. The top row of labels at the bottom reads '45.0', '44.0', '19:21:43.0', '42.0', and '41.0' from left to right. The bottom row of labels at the bottom reads '30.0', '40.0', '50.0', '38.31', and '00.01' from left to right. The rightmost column of labels reads '30.0', '40.0', '50.0', '38.31', and '00.01' from top to bottom. The central star is the brightest and most prominent in the field.

Declination

# KIC 003440074

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
003440074-01	OBS	No	0.867136	132.300837	18.1	5.111	8.0	5.4	8.28	6756	3.75	0.00
003440074-02	OBS	No	0.867154	131.755115	76.6	2.817	11.9	16.6	8.28	6756	8.43	0.00
003440074-03	OBS	No	4.048636	133.678052	382.9	2.216	12.5	9.6	8.28	6756	16.79	25966.89
003440074-04	OBS	No	7.976591	133.160117	576.7	1.486	8.1	6.2	8.28	6756	20.20	10513.37

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
003440074-01	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT
003440074-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_SKYE_ZUMA—LPP_DV—MOD_NONUNIQ_DV—SAME_NTL_PERIOD
003440074-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_SKYE_TRACKER—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV
003440074-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_TRACKER—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV

**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.

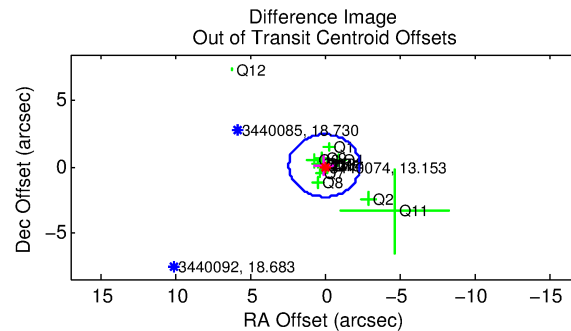
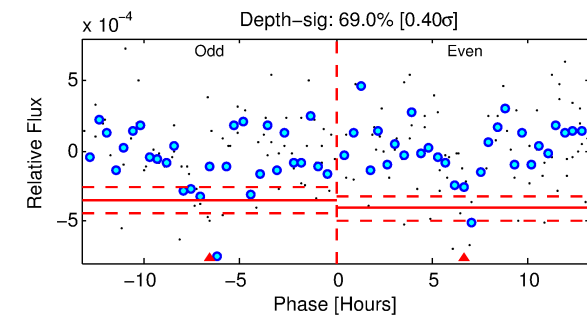
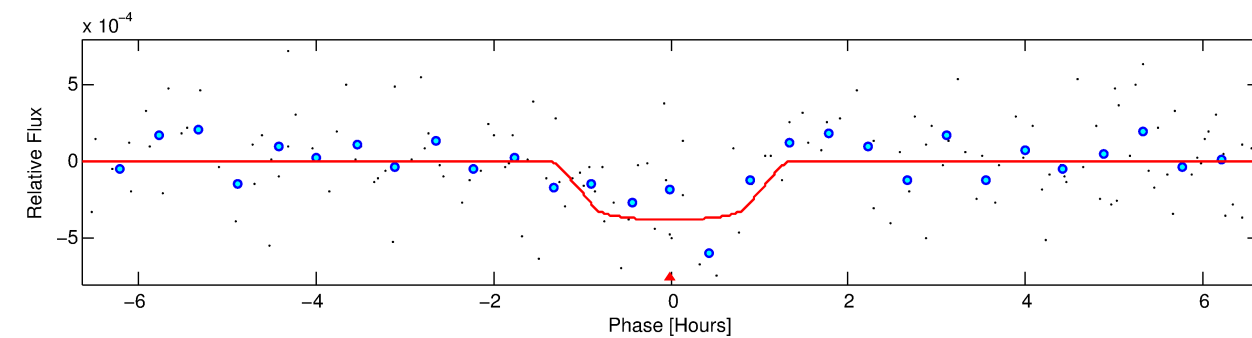
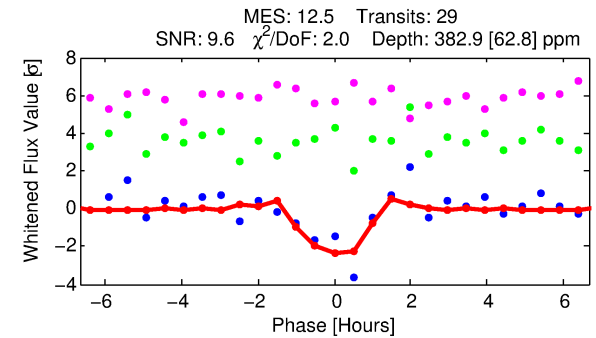
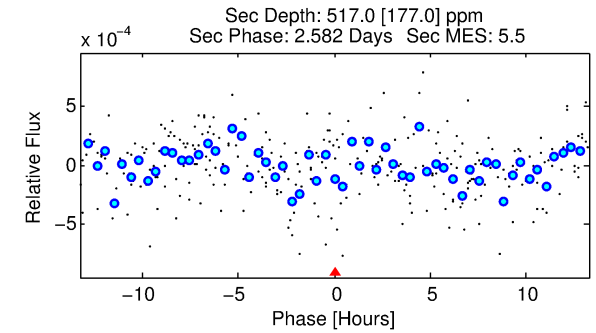
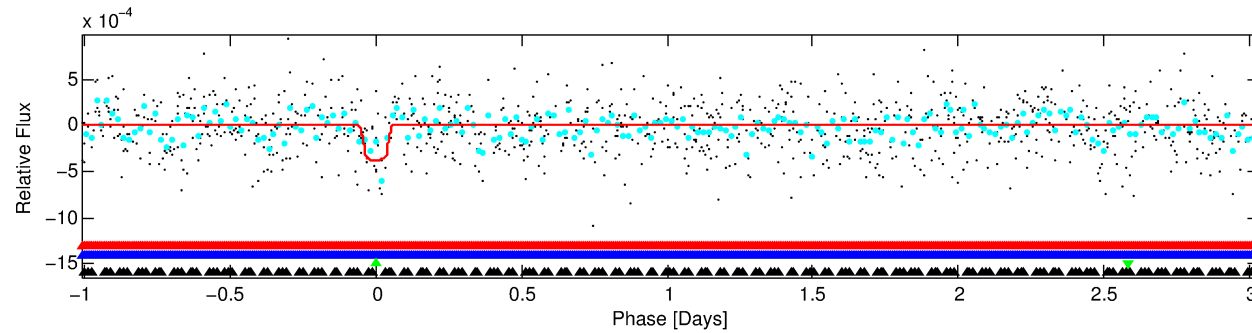
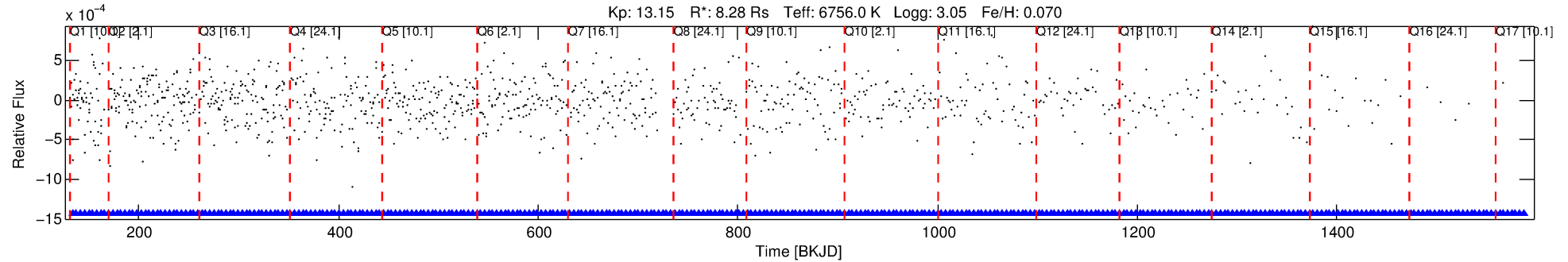
Ephemeris Match Information For 003440074-03

No Significant Match Found



# DV One-Page Summary

KIC: 3440074 Candidate: 3 of 4 Period: 4.049 d



## DV Fit Results:

Period = 4.04864 [0.00006] d  
Epoch = 133.6781 [0.0072] BKJD  
Rp/R\* = 0.0186 [0.0308]  
a/R\* = 12.37 [113.19]  
b = 0.51 [13.66]  
Seff = 25966.89 [23689.79]  
Teq = 3237 [738] K  
Rp = 16.79 [29.25] Re  
a = 0.0702 [0.0385] AU  
Ag = 4.96 [17.11] [0.23σ]  
Teffp = 7470 [6221] K [0.68σ]

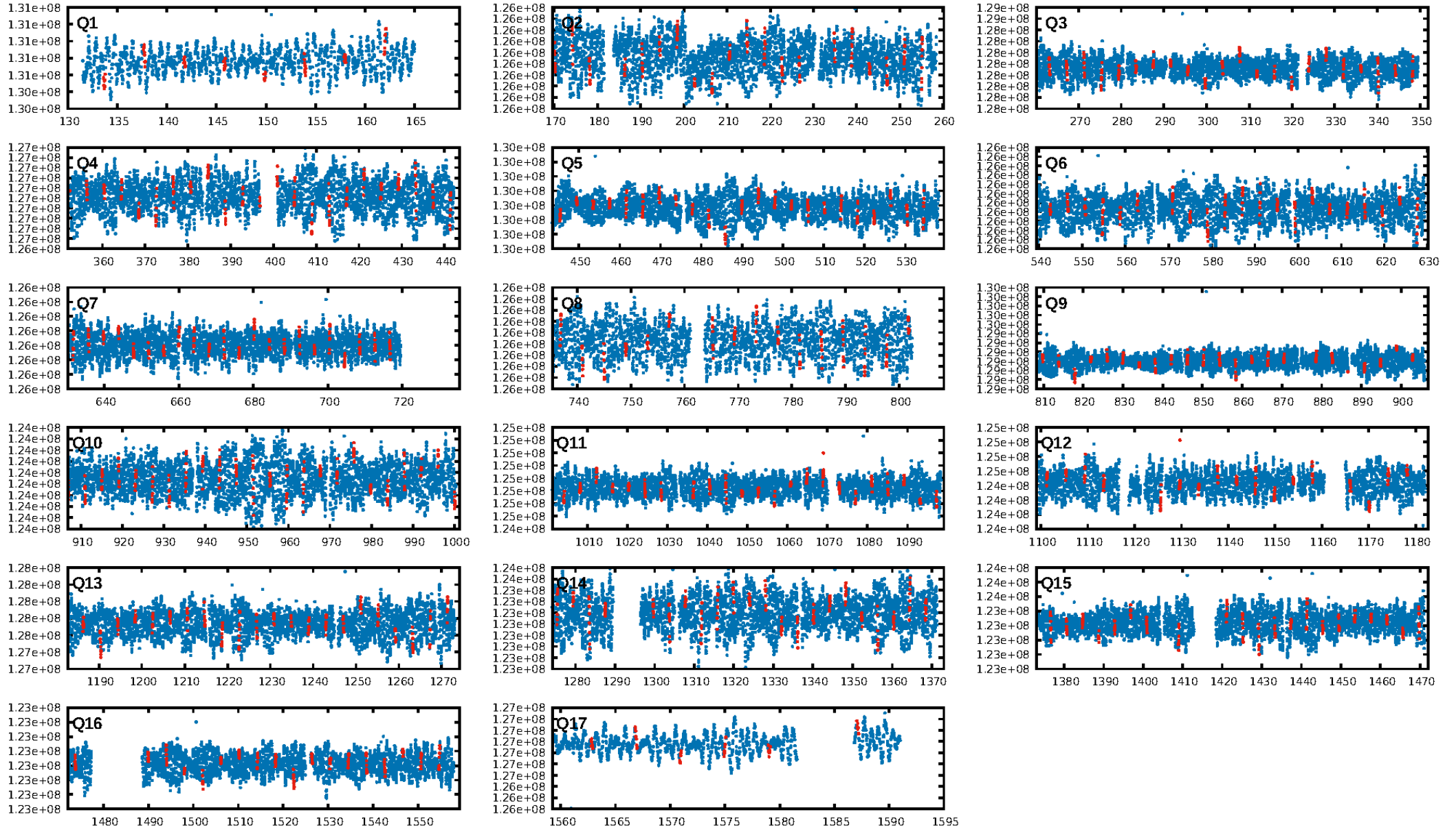
## DV Diagnostic Results:

ShortPeriod-sig: 100.0% [21.31σ]  
LongPeriod-sig: 100.0% [35.34σ]  
**ModelChiSquare2-sig: 0.2%**  
ModelChiSquareGof-sig: 100.0%  
Bootstrap-pfa: 1.20e-17  
RollingBand-fgt: 1.00 [26/26]  
GhostDiagnostic-chr: -13.3  
Centroid-sig: 0.6%  
Centroid-so: 0.244 arcsec [1.50σ]  
OotOffset-rm: 0.080 arcsec [0.10σ]  
KicOffset-rm: 0.188 arcsec [0.33σ]  
OotOffset-st: 4/4/3/3 [14]  
KicOffset-st: 4/4/3/3 [14]  
DiffImageQuality-fgm: 0.57 [8/14]  
DiffImageOverlap-fno: 0.00 [0/17]

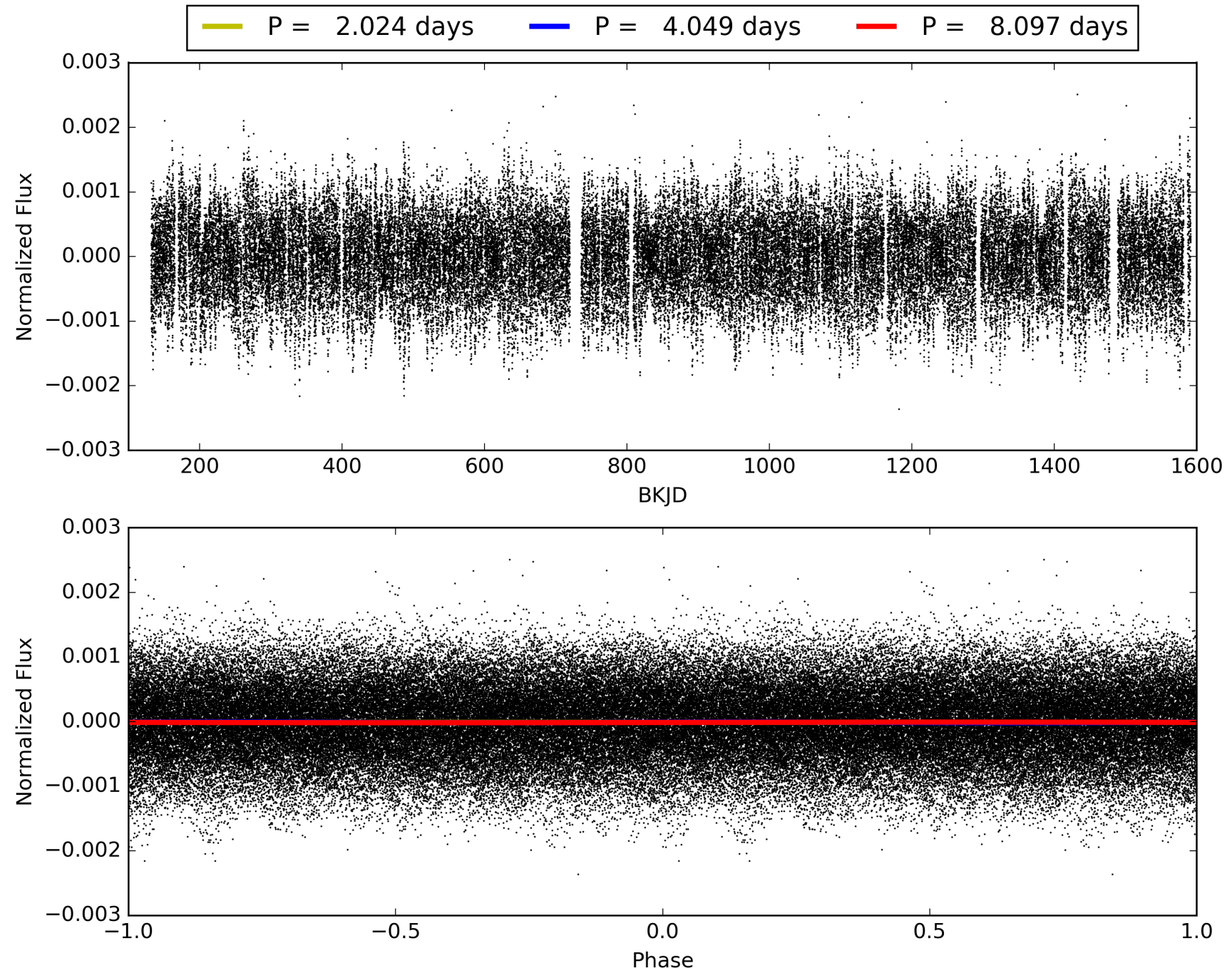
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 31-Jan-2016 13:25:26 Z

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

# TCE 003440074-03, PDC Light Curves

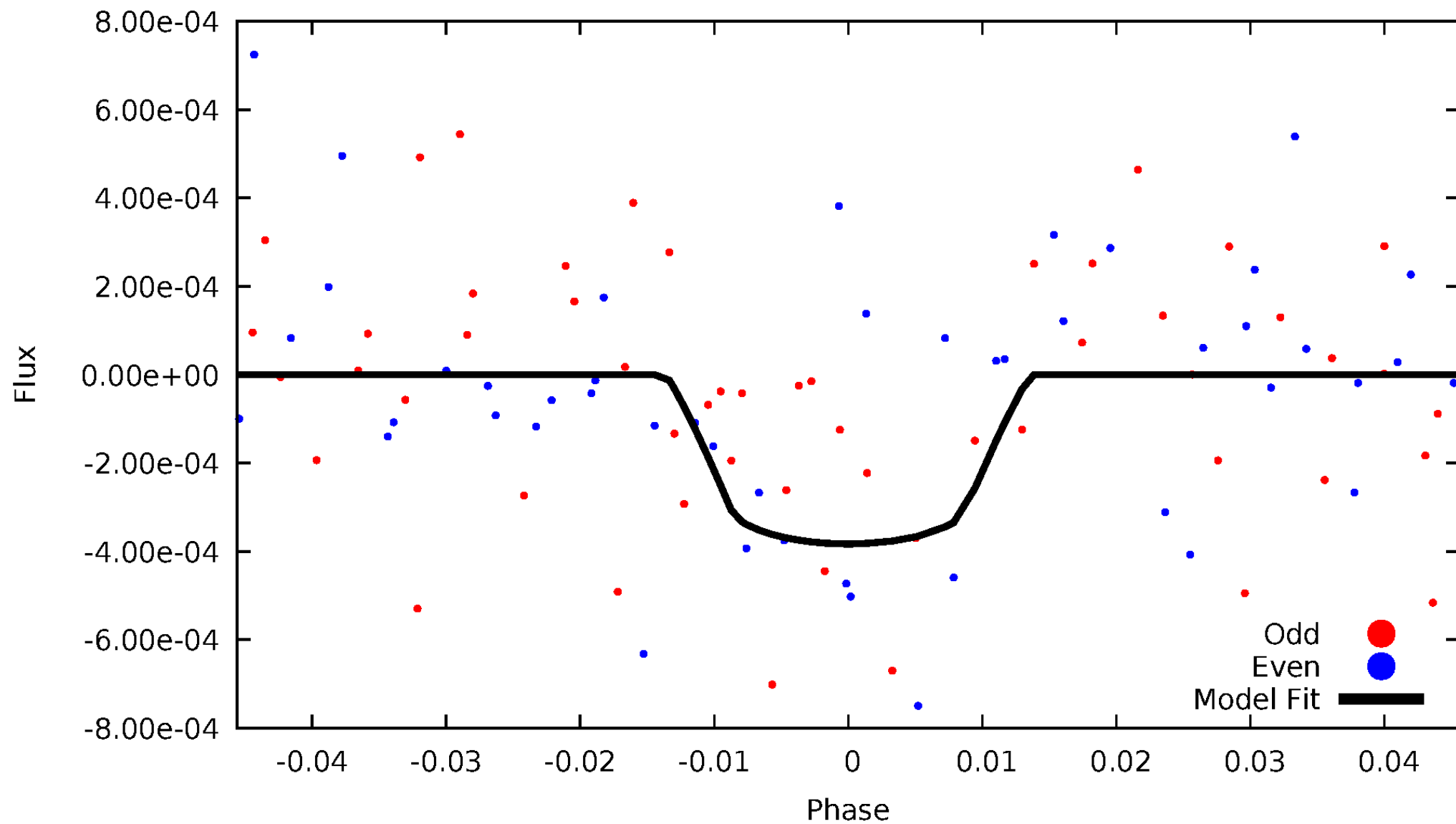


TCE 003440074-03



# DV Odd/Even

TCE 003440074-03





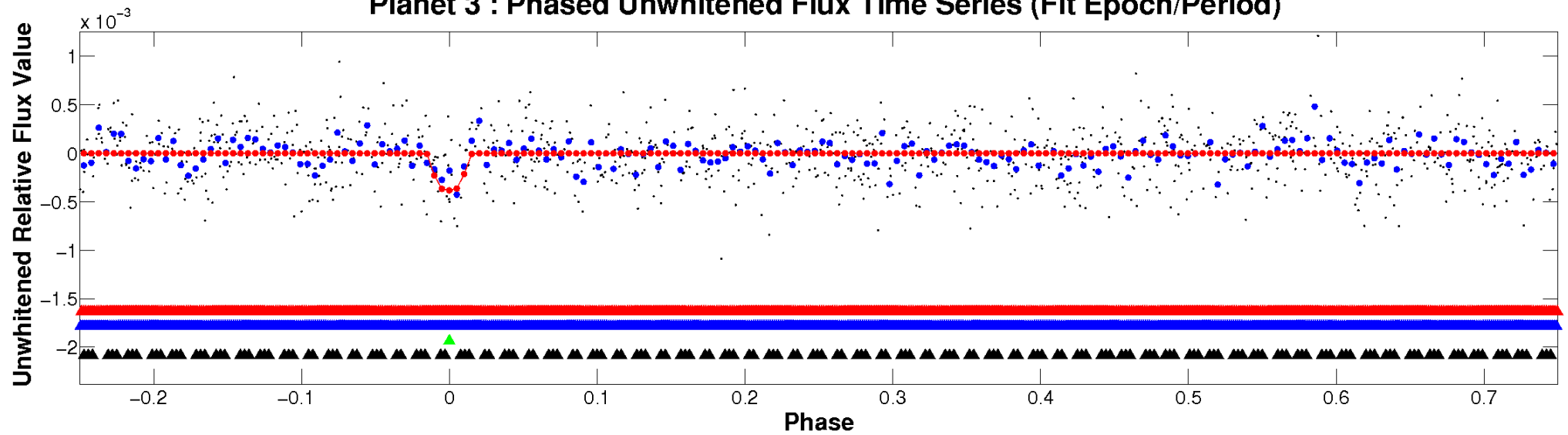
ALT Odd/Even

This plot does not exist for this TCE.

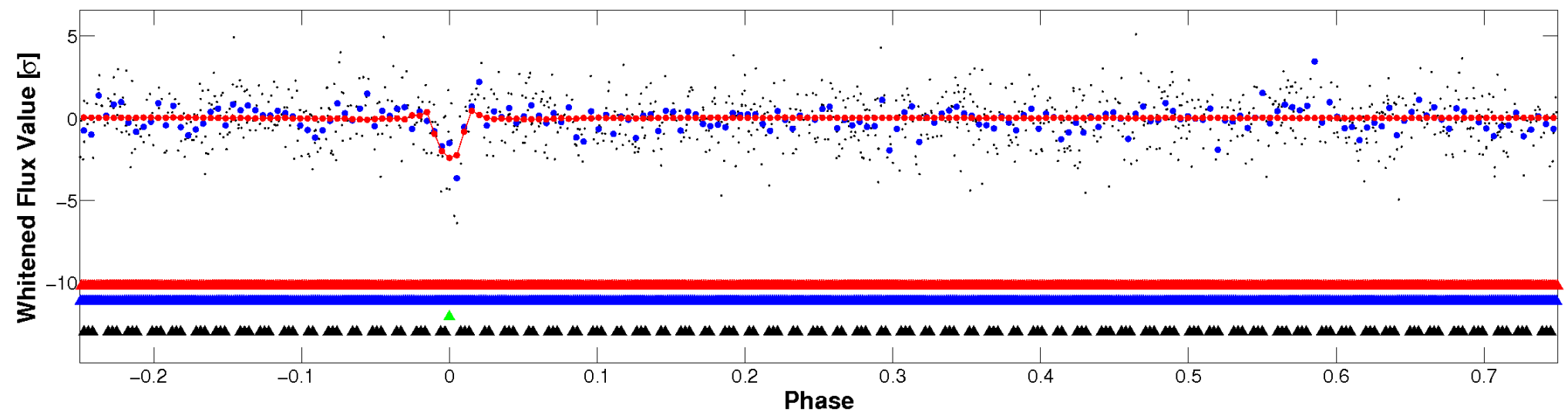


# Non-Whitened Vs. Whitened Light Curve

## Planet 3 : Phased Unwhitened Flux Time Series (Fit Epoch/Period)

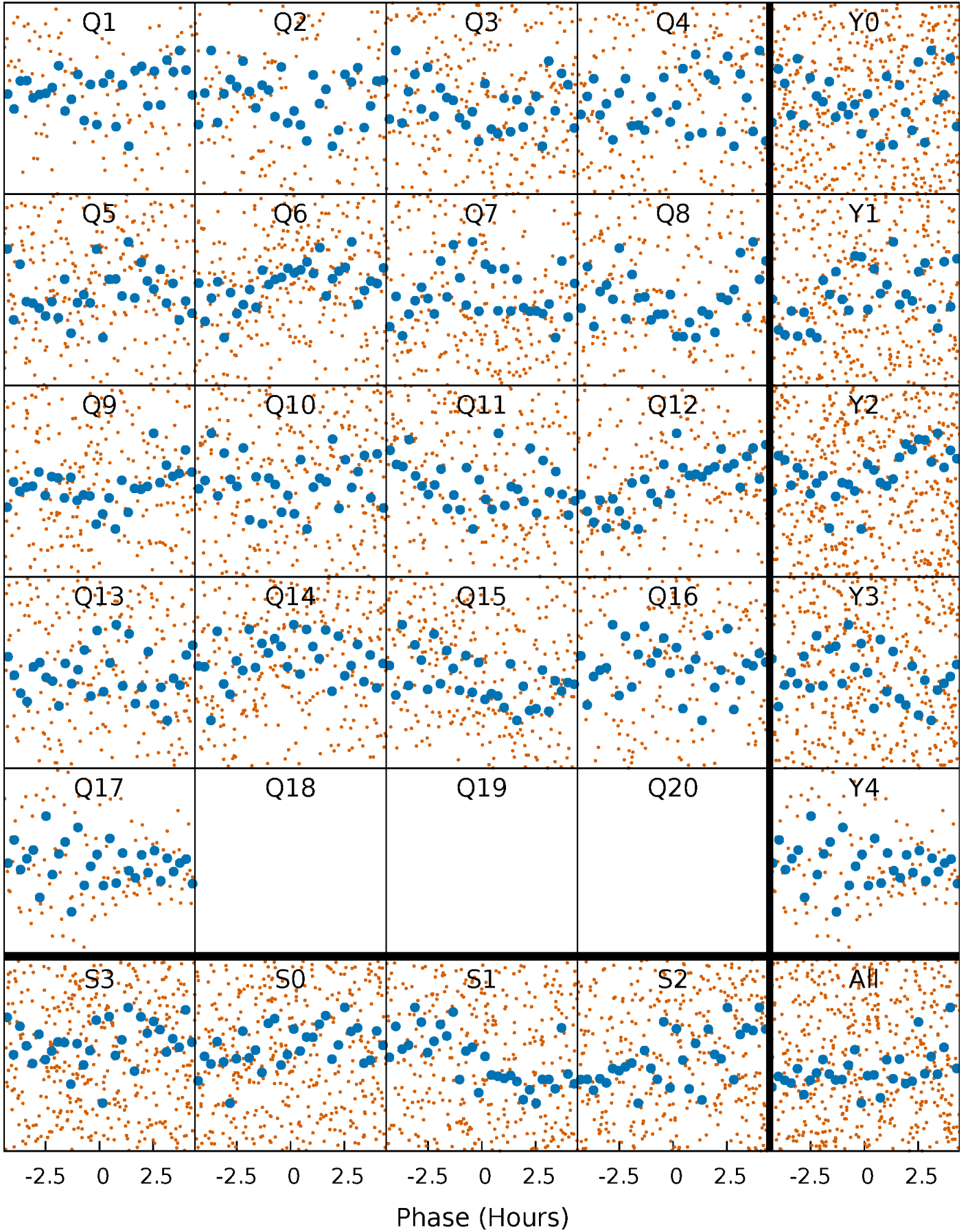


## Planet 3 : Phased Whitened Flux Time Series (Fit Epoch/Period)



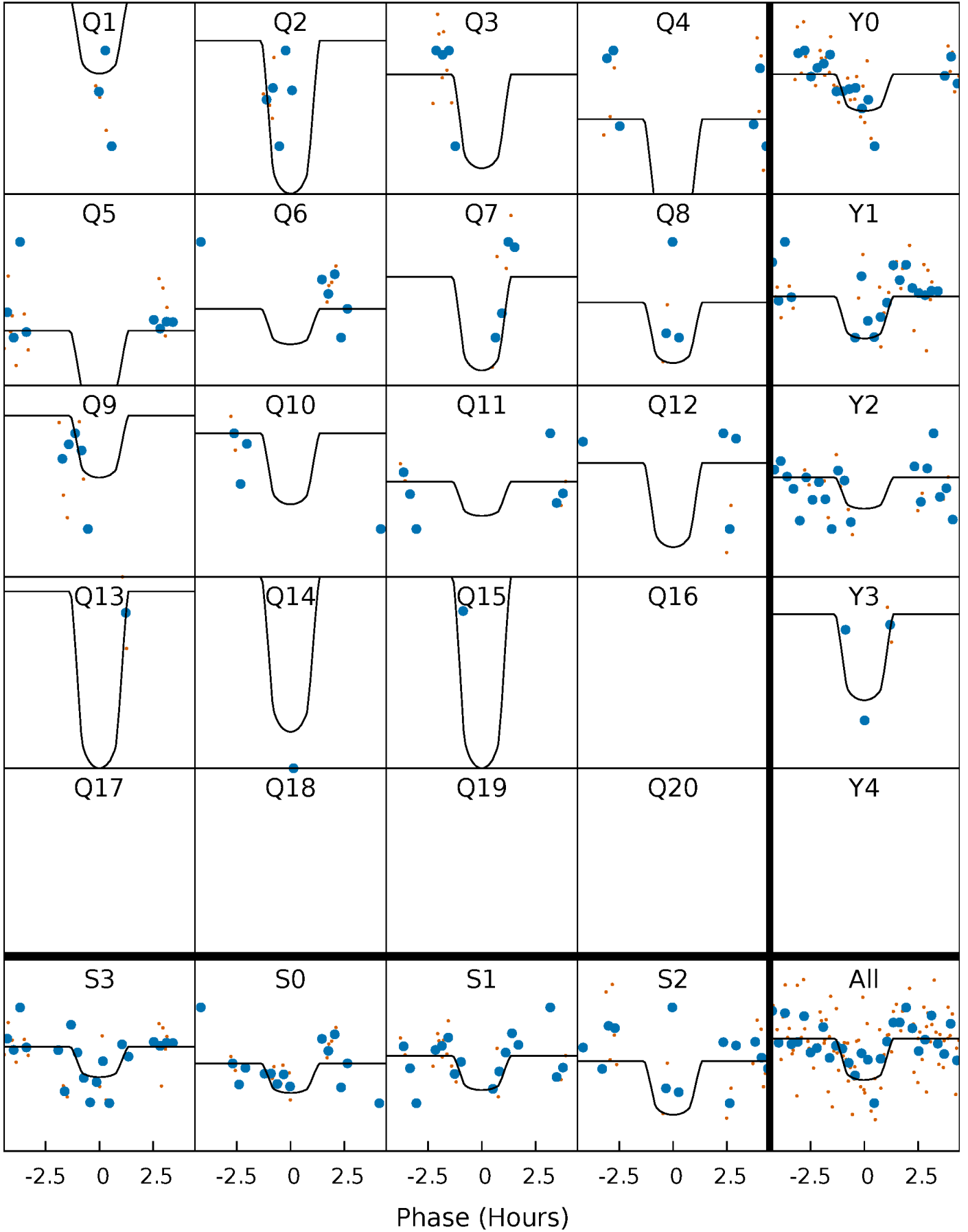
# PDC Quarter-Phased Transit Curves

TCE 003440074-03   P= 4.048636 Days    $T_0=133.678052$  (BKJD)



# DV Quarter-Phased Transit Curves

TCE 003440074-03     $P = 4.048636$  Days     $T_0 = 133.678052$  (BKJD)

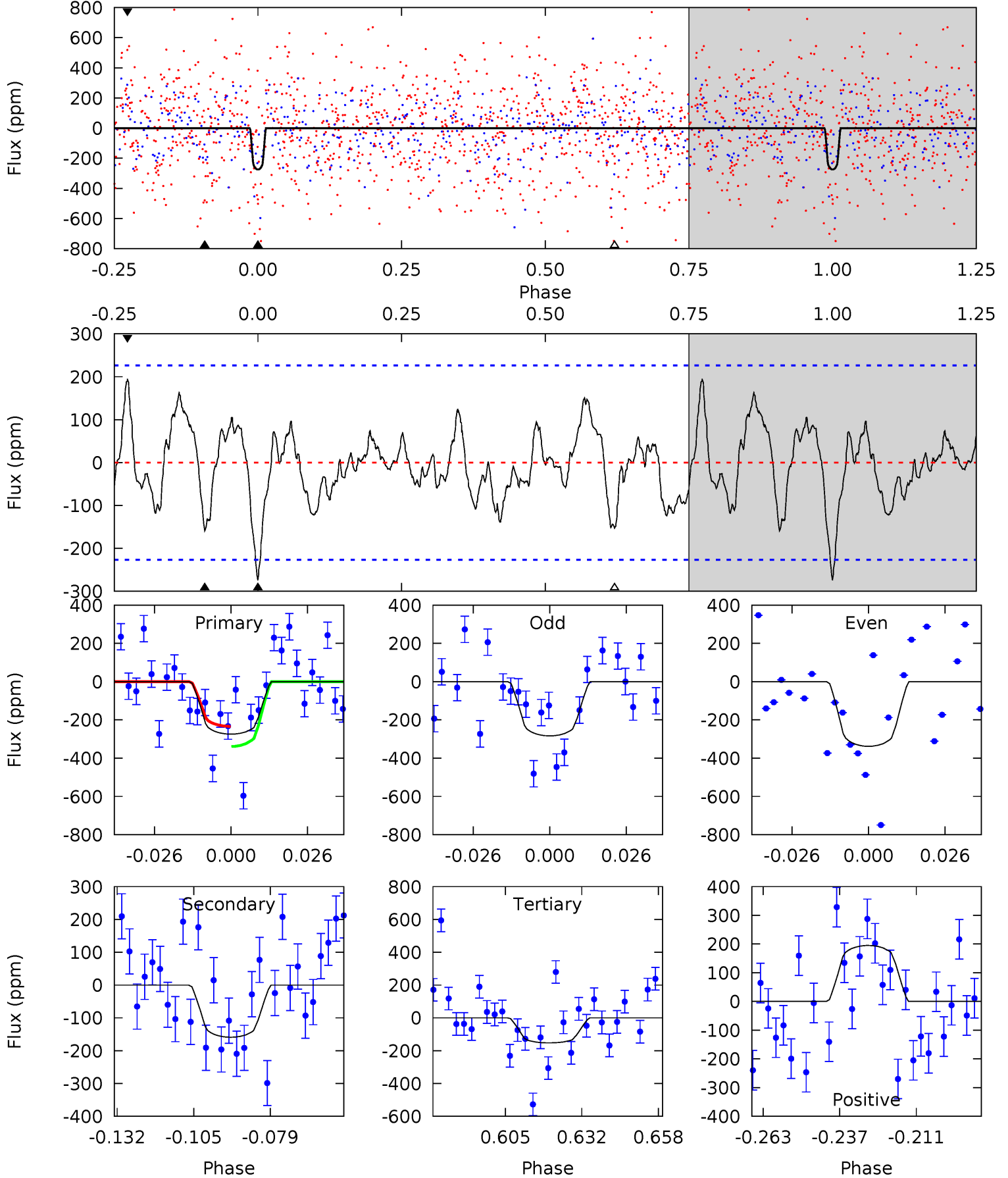


This plot does not exist for this TCE.

# DV Model-Shift Uniqueness Test

003440074-03, P = 4.048636 Days, E = 129.629416 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
5.86	3.40	3.26	4.16	4.84	2.22	1.53	2.60	1.70	0.14	-0.77	0.57	1.02	0.42	1.09



## Alt Model-Shift Uniqueness Test

This plot does not exist for this TCE.



### Stellar Parameters For KIC 003440074

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R$ ( $R_{\odot}$ )	$M(M_{\odot})$	$p_{\star}$ ( $\text{g}\cdot\text{cm}^{-3}$ )
	$6756^{+161}_{-262}$	$3.051^{+0.536}_{-0.134}$	$0.070^{+0.200}_{-0.500}$	$8.275^{+1.606}_{-4.497}$	$2.811^{+0.322}_{-1.030}$	$0.007^{+0.049}_{-0.003}$
	+2%/-4%	+18%/-4%	+286%/-714%	+19%/-54%	+11%/-37%	+703%/-42%
Source	PHO1	FLK73	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 003440074-03 / KOI

Detrend	Depth (ppm)	$R_p$ ( $R_{\oplus}$ )	$T_{max}$ (K)	$T_{obs}$ (K)	$A_{obs}$
DV	-159±47	$23.90^{+25.08}_{-16.30}$	$4403^{+348}_{-676}$	$3960^{+3407}_{-7377}$	$0.692^{+5.560}_{-0.514}$
Alt.	N/A	N/A	N/A	N/A	N/A

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

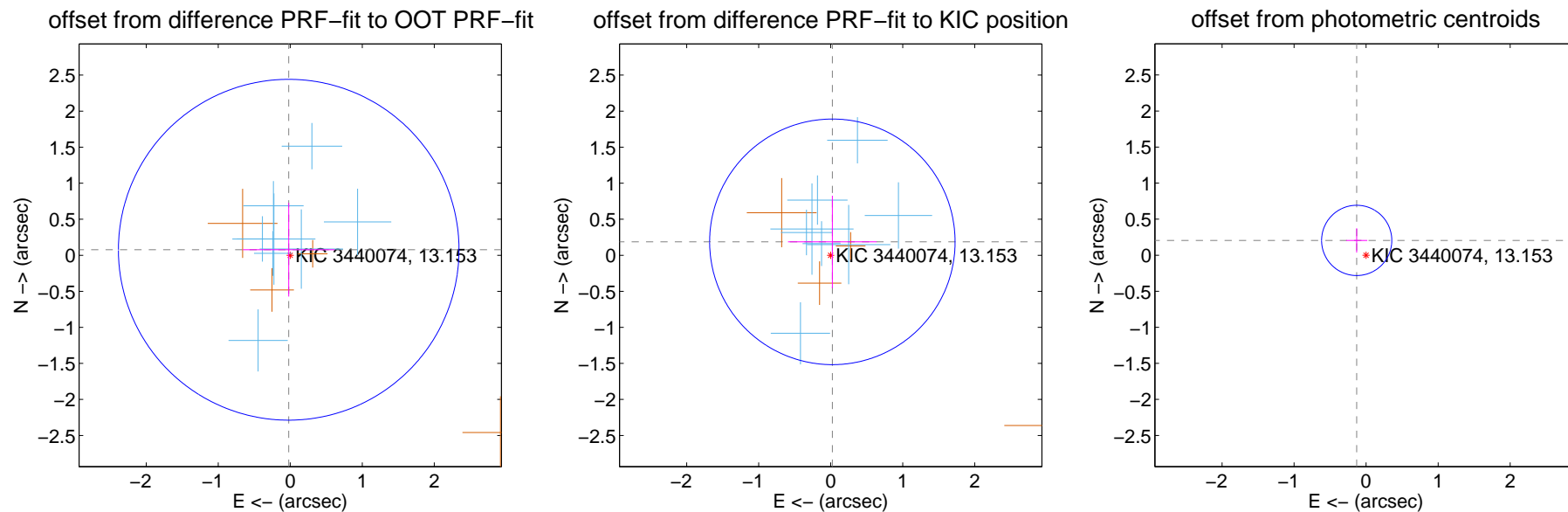
## DV Centroid Data

Supplemental centroid analysis for 003440074-03. Kepler magnitude: 13.15. Transit SNR 9.61

There are 8 quarters with good PRF difference image offsets

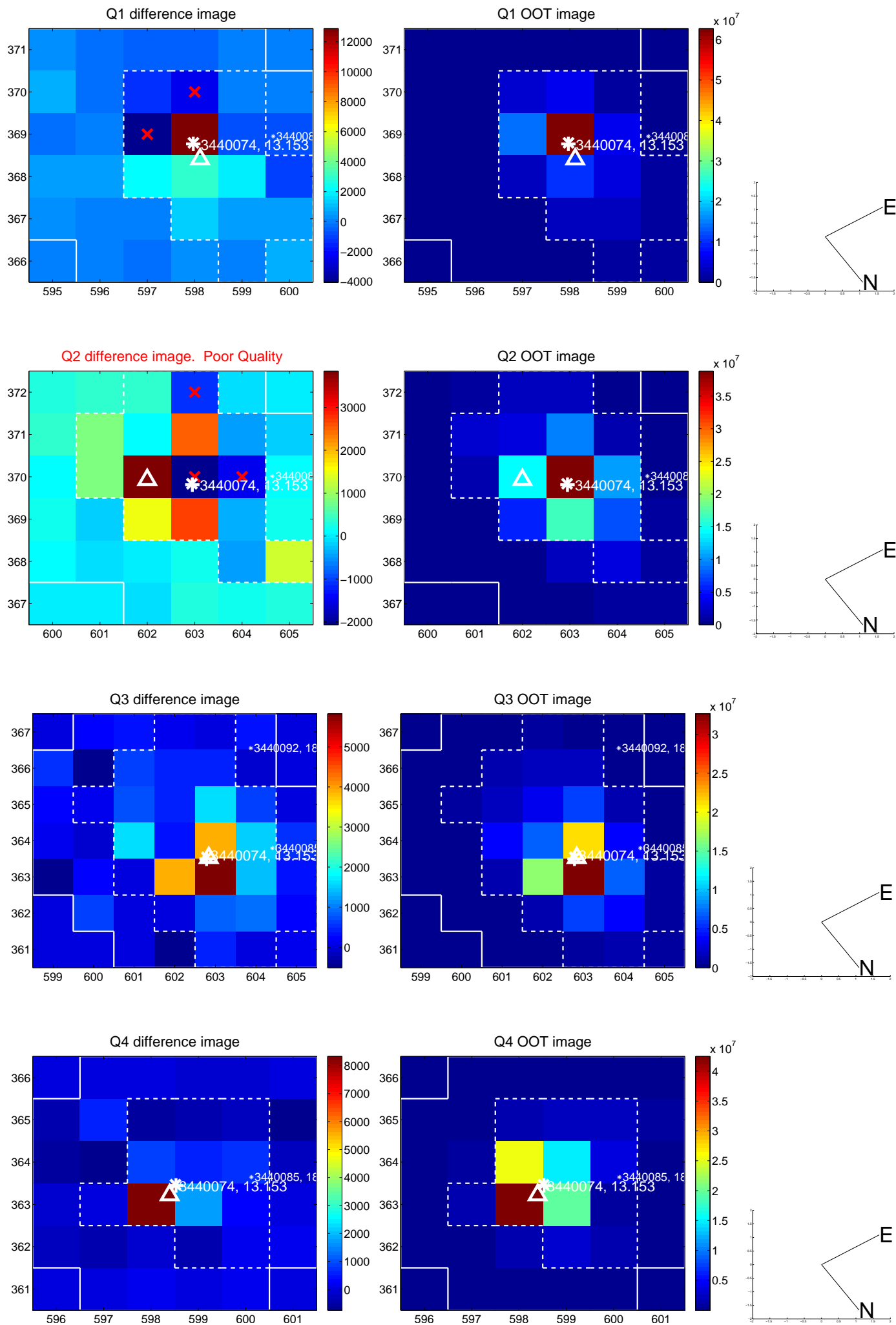
The direct PRF centroid is offset from the target star catalog position by about 0.10 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$0.080 \pm 0.788$	0.10	$0.022 \pm 0.638$	$0.077 \pm 0.650$
PRF-fit source offset from KIC position	$0.188 \pm 0.568$	0.33	$-0.023 \pm 0.615$	$0.186 \pm 0.641$
photometric centroid source offset	$0.24 \pm 0.16$	1.50	$0.13 \pm 0.15$	$0.21 \pm 0.17$

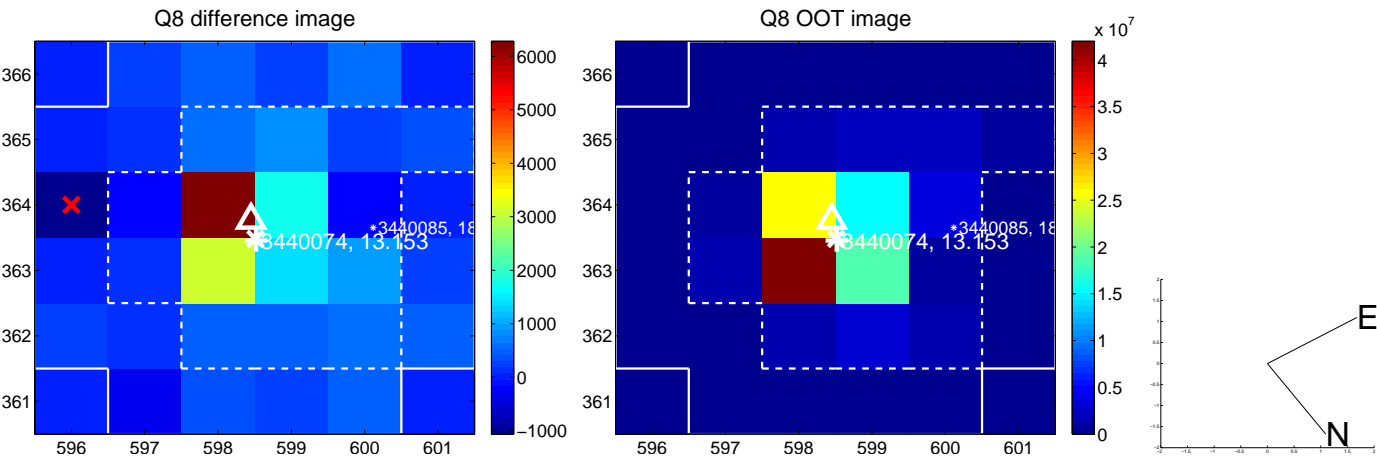
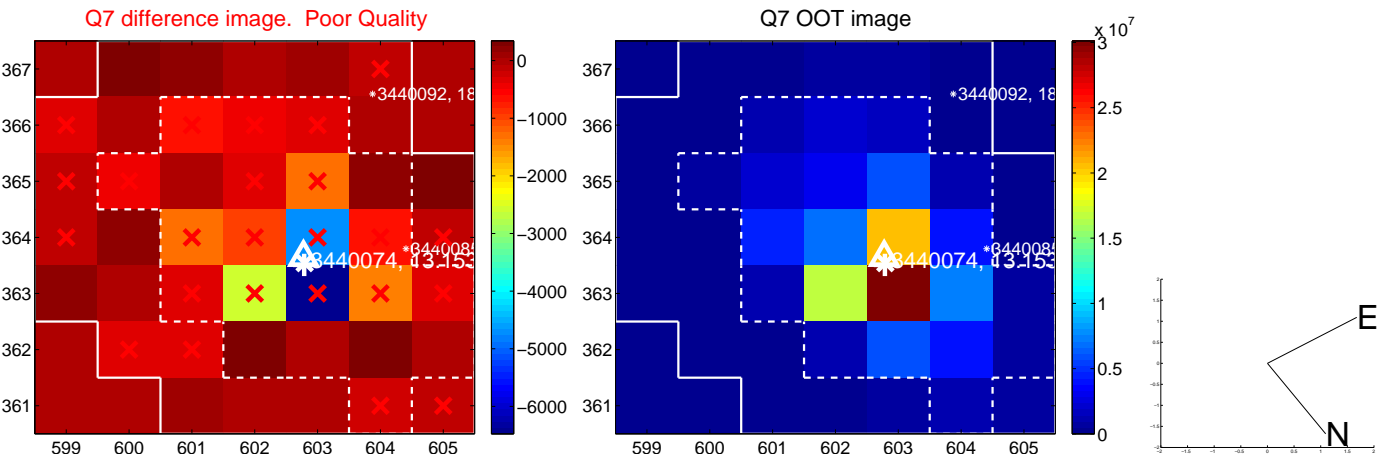
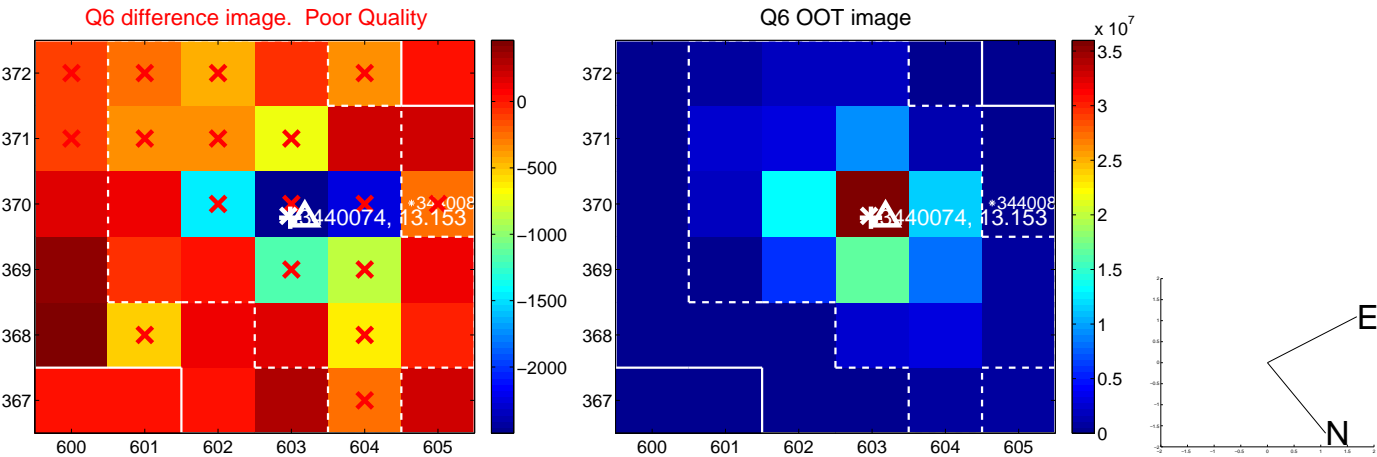
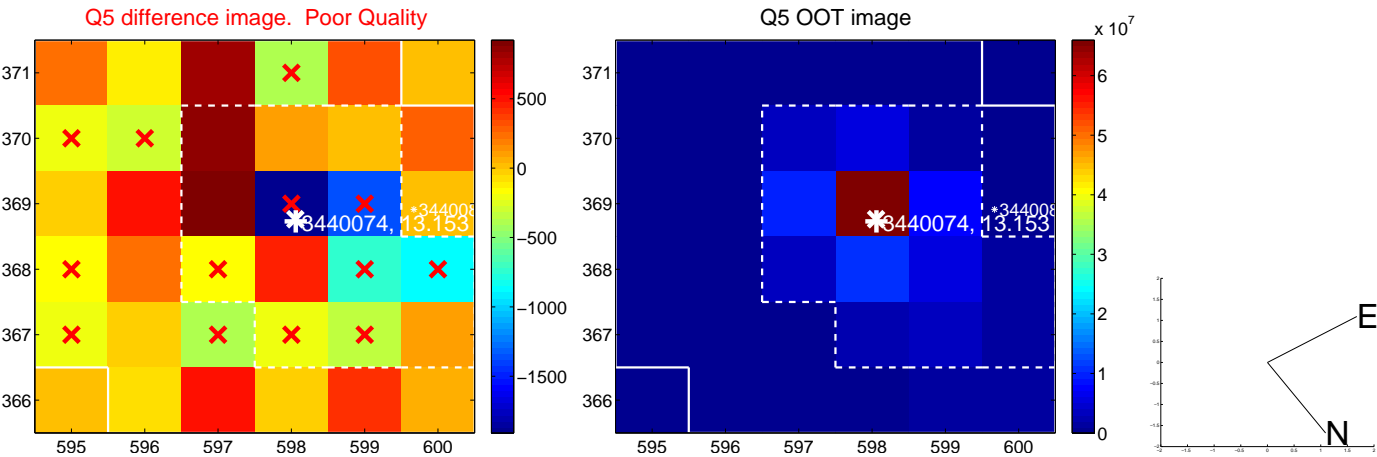


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: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

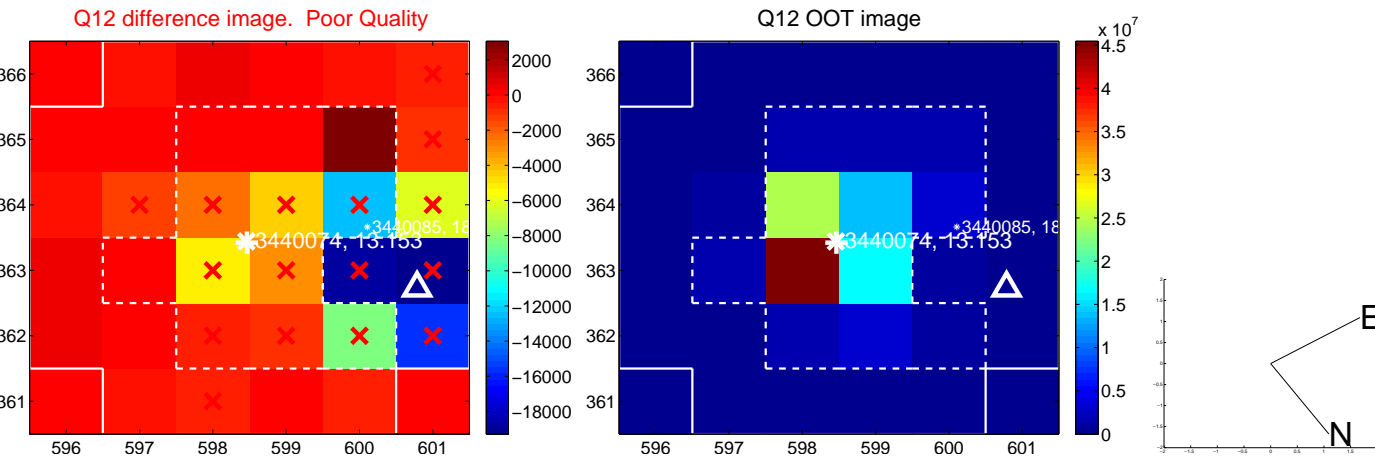
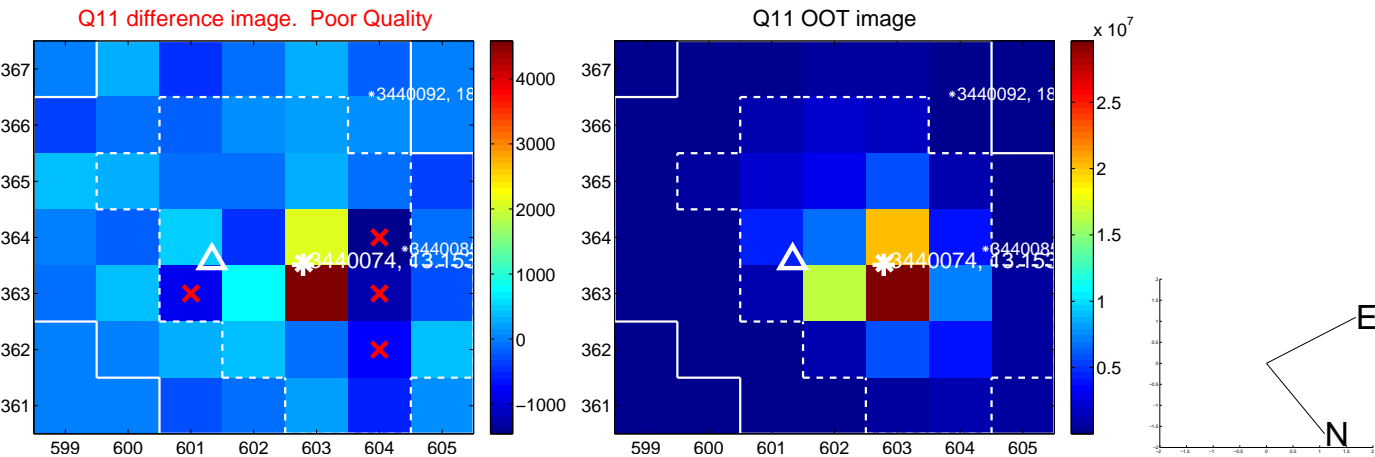
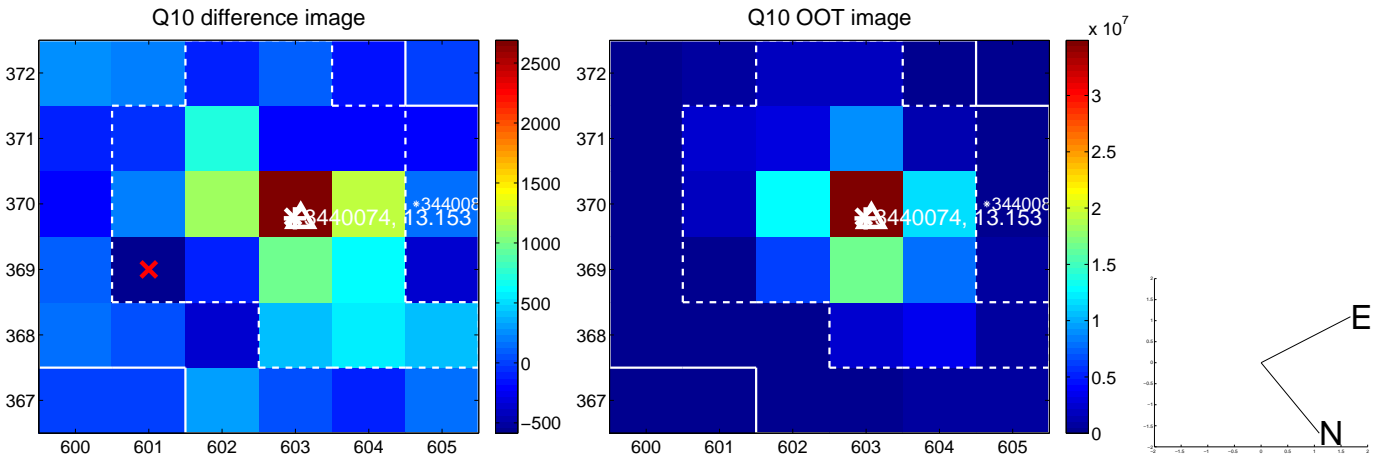
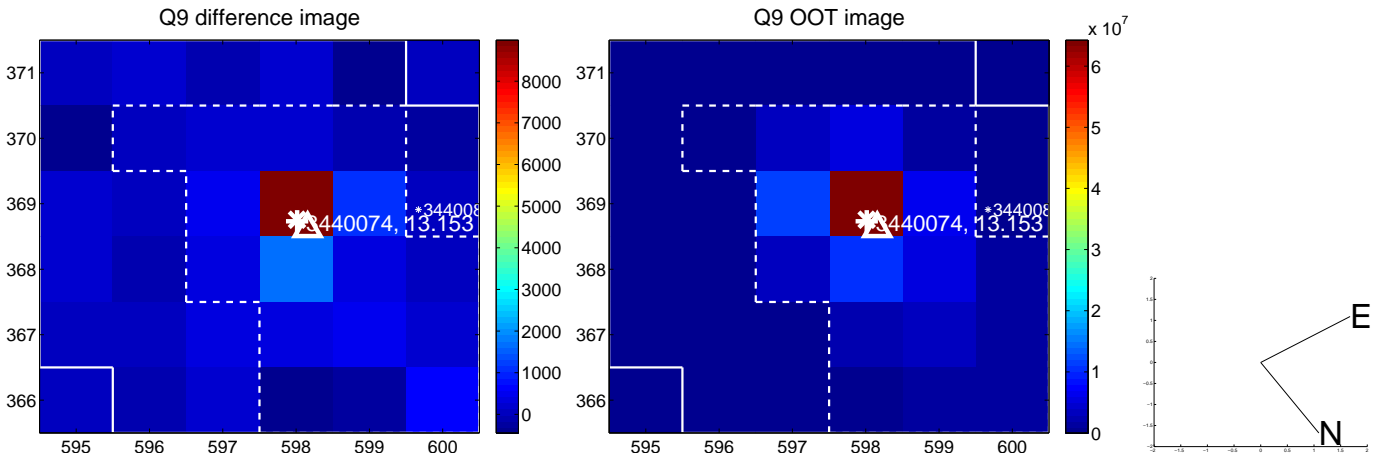
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



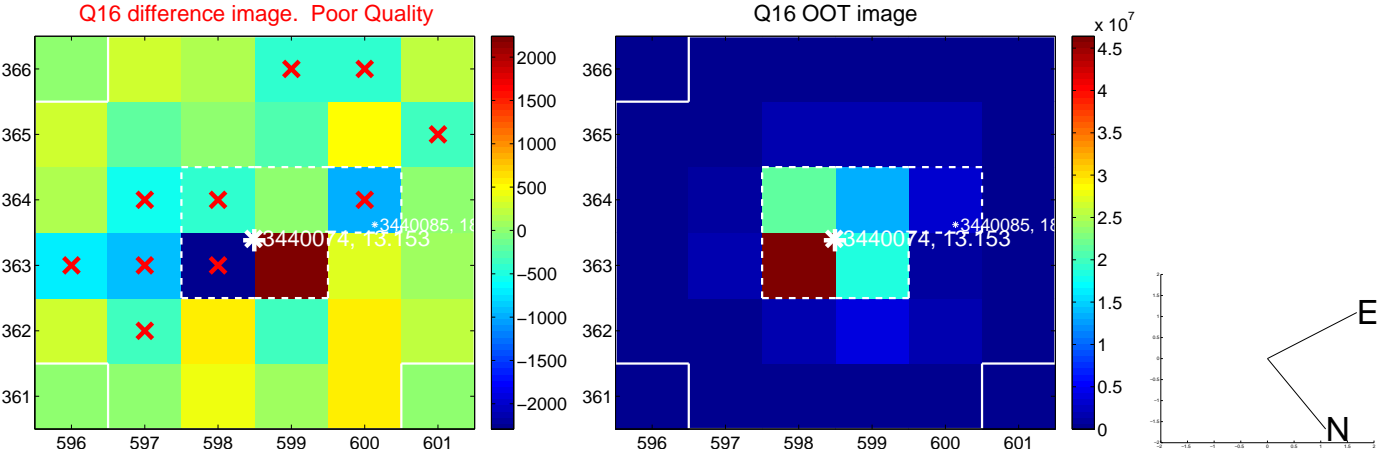
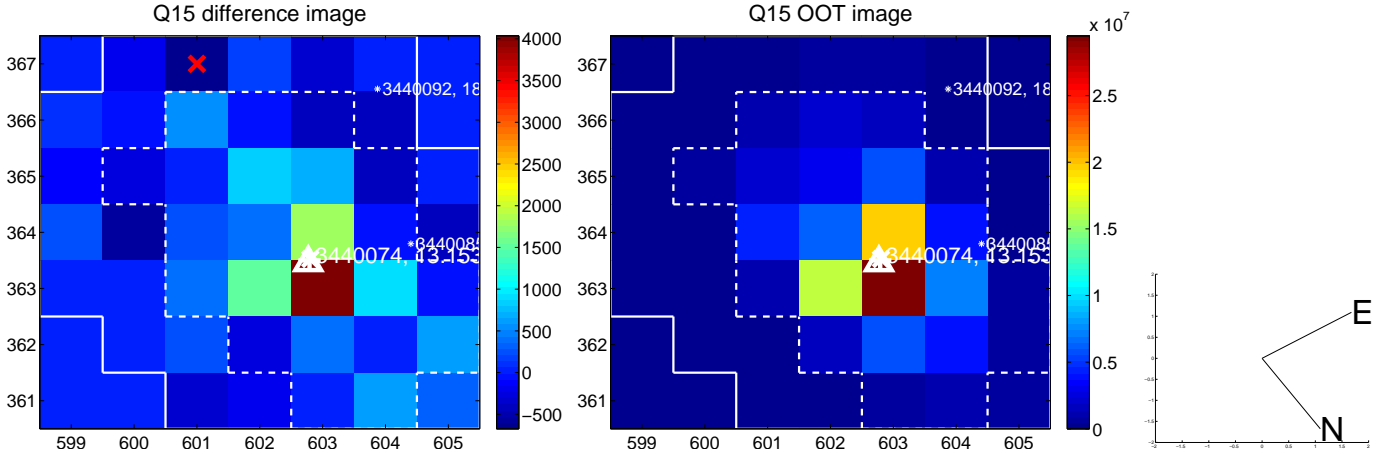
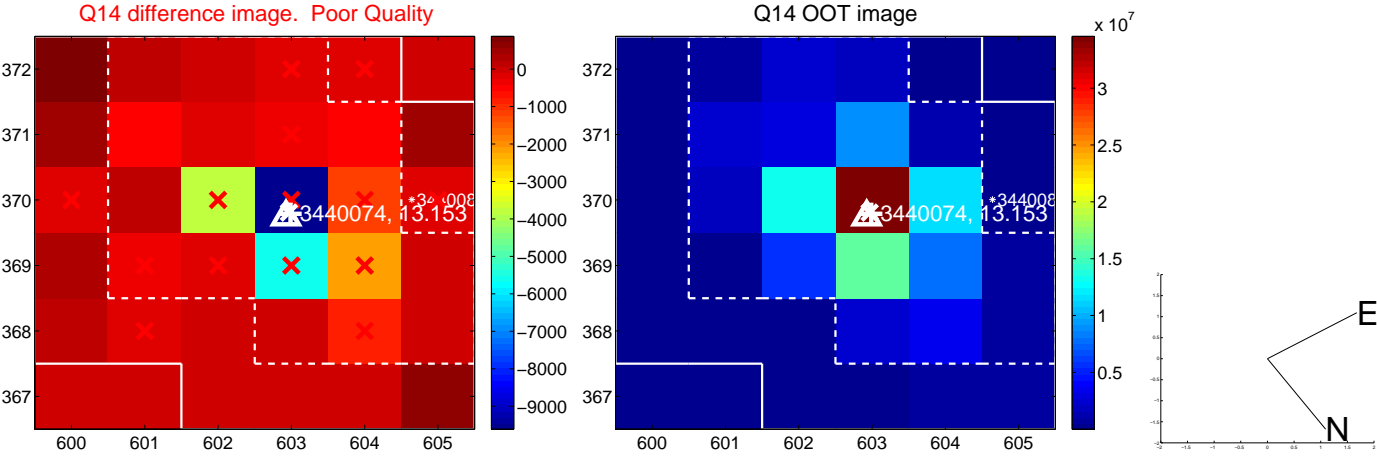
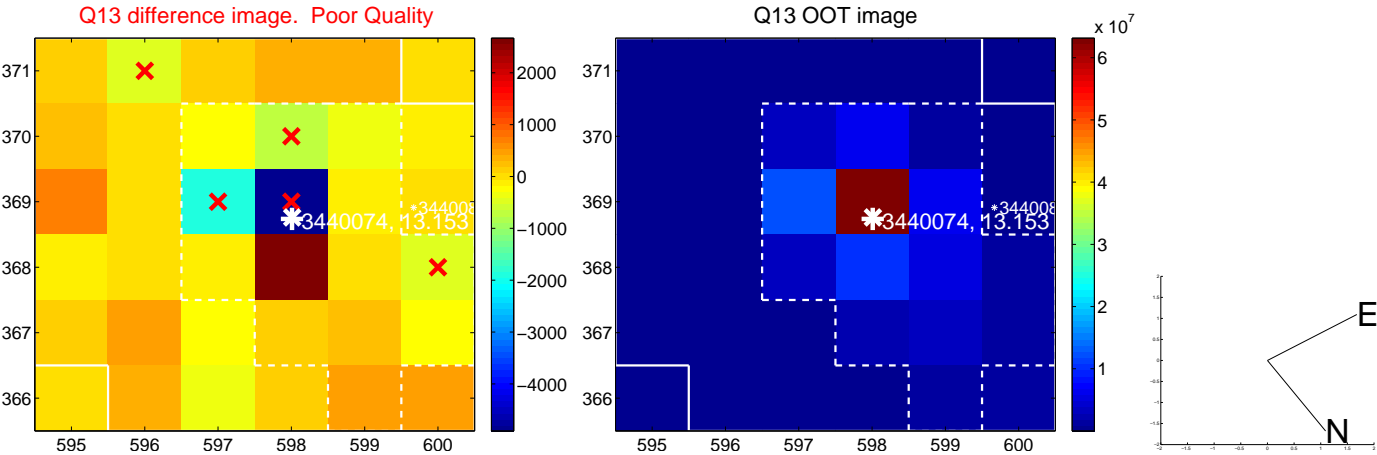
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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

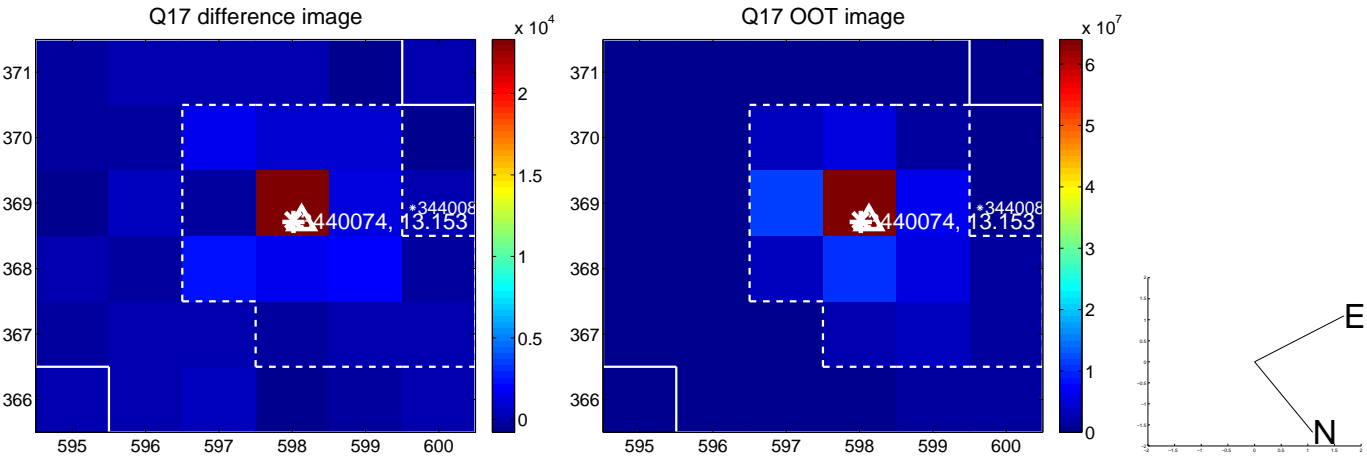


white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.

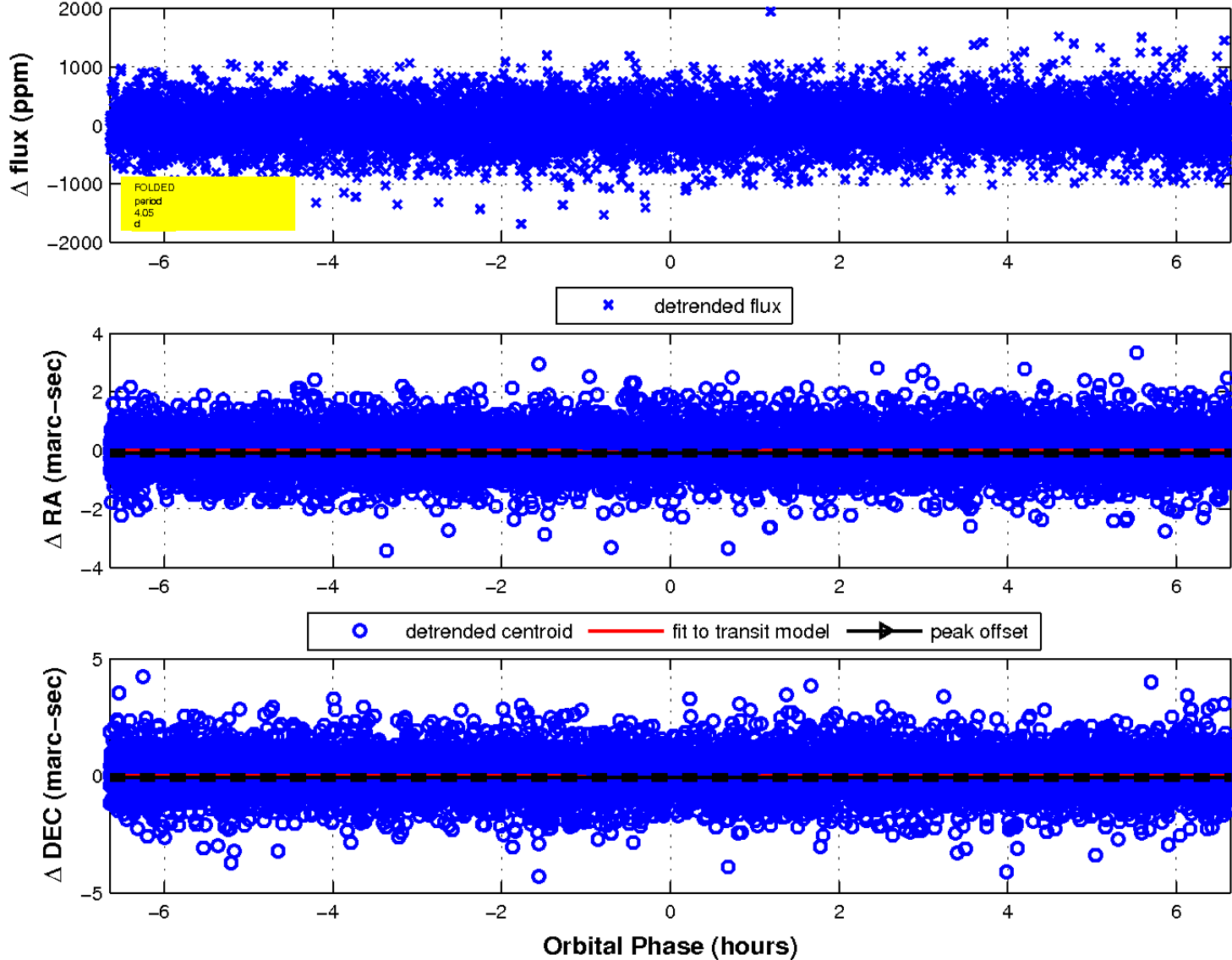




white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.

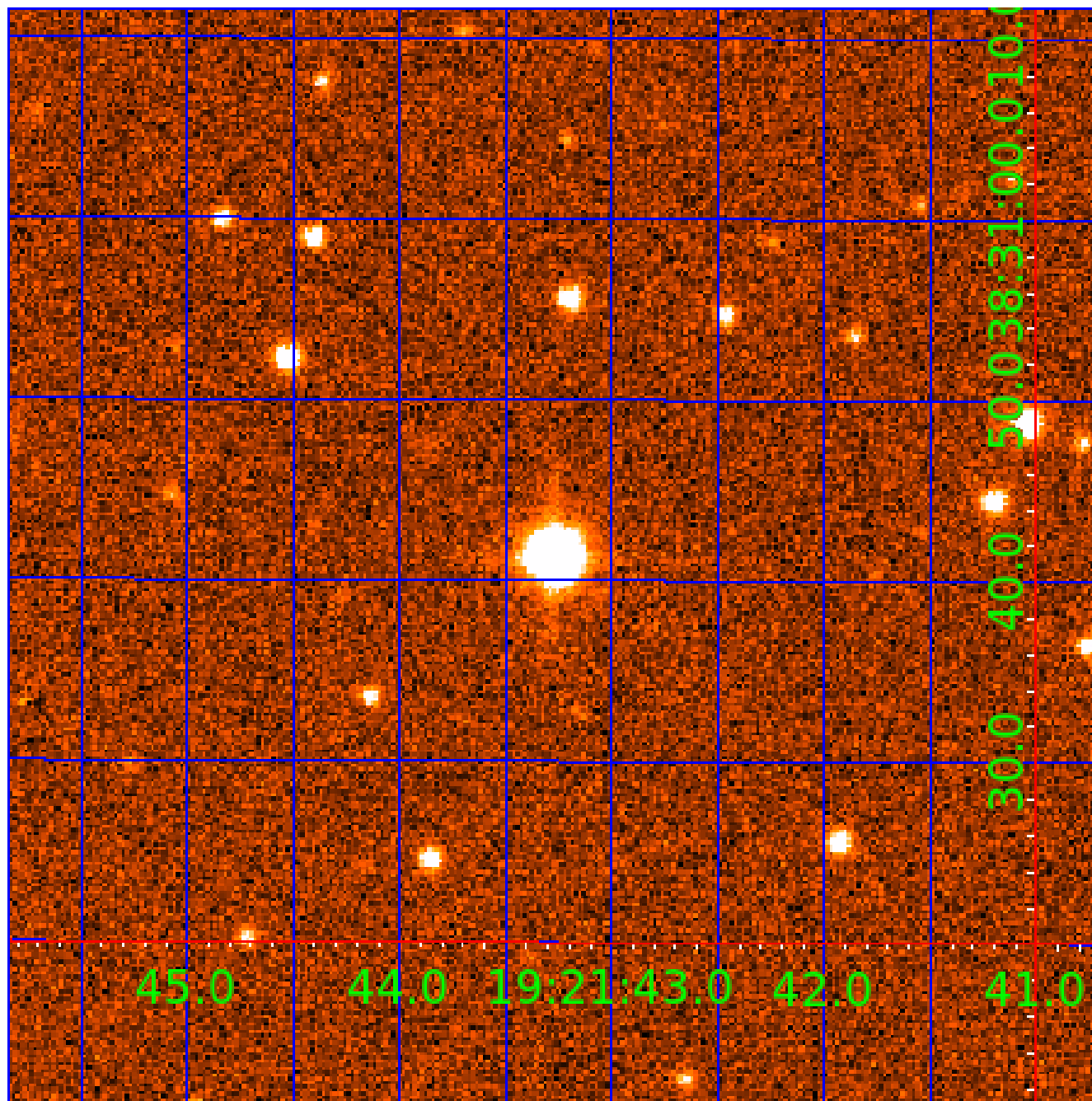


fluxWeightedCentroids, Planet 3 of 4



UKIRT Image

Declination



# KIC 003440074

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
003440074-01	OBS	No	0.867136	132.300837	18.1	5.111	8.0	5.4	8.28	6756	3.75	0.00
003440074-02	OBS	No	0.867154	131.755115	76.6	2.817	11.9	16.6	8.28	6756	8.43	0.00
003440074-03	OBS	No	4.048636	133.678052	382.9	2.216	12.5	9.6	8.28	6756	16.79	25966.89
003440074-04	OBS	No	7.976591	133.160117	576.7	1.486	8.1	6.2	8.28	6756	20.20	10513.37

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
003440074-01	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT
003440074-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_SKYE_ZUMA—LPP_DV—MOD_NONUNIQ_DV—SAME_NTL_PERIOD
003440074-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_SKYE_TRACKER—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV
003440074-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_TRACKER—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV

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

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

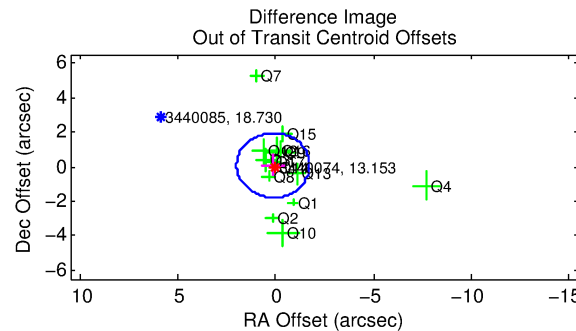
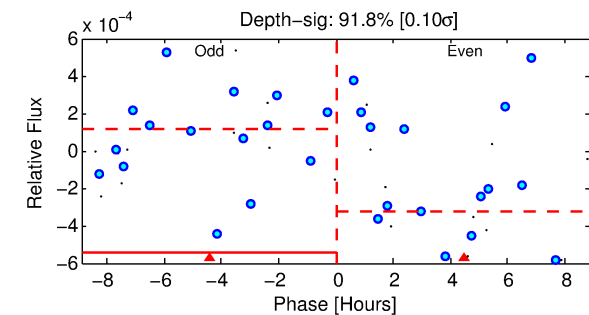
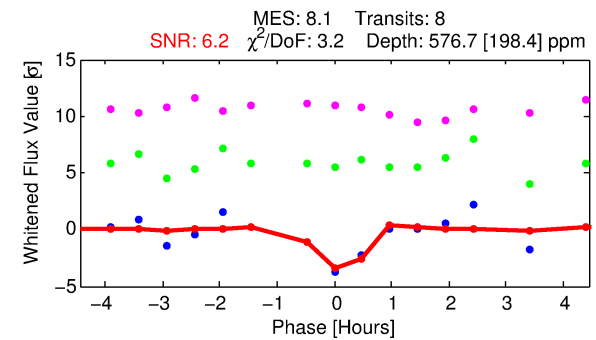
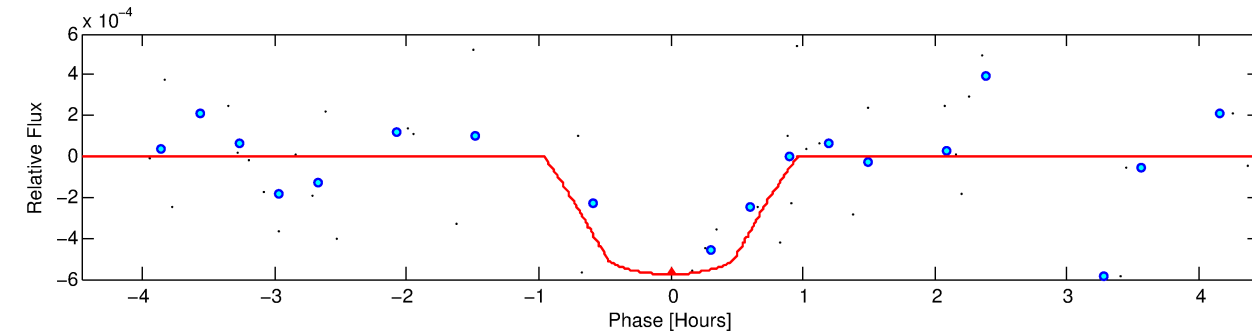
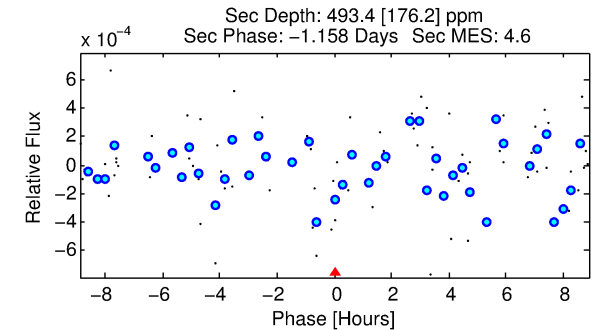
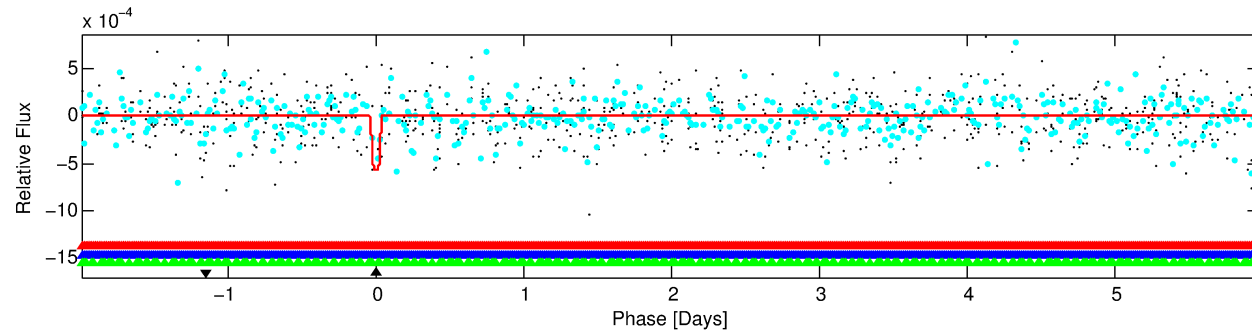
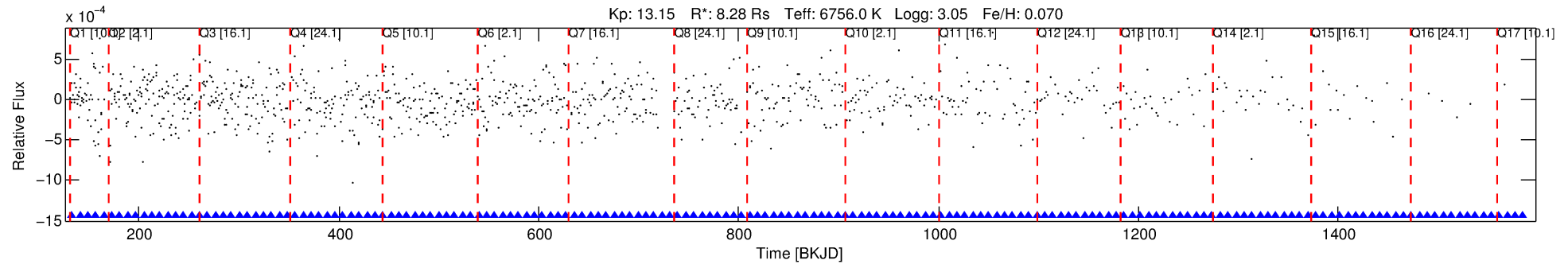
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

Ephemeris Match Information For 003440074-04

No Significant Match Found

# DV One-Page Summary

KIC: 3440074 Candidate: 4 of 4 Period: 7.977 d



## DV Fit Results:

Period = 7.97659 [0.00021] d  
Epoch = 133.1601 [0.0132] BKJD  
Rp/R\* = 0.0224 [0.0588]  
a/R\* = 40.88 [571.31]  
b = 0.23 [59.20]  
Seff = 10513.37 [9591.42]  
Teff = 2582 [589] K  
Rp = 20.20 [54.26] Re  
a = 0.1103 [0.0604] AU  
Ag = 8.09 [43.29] [0.16σ]  
Teffp = 6733 [8882] K [0.47σ]

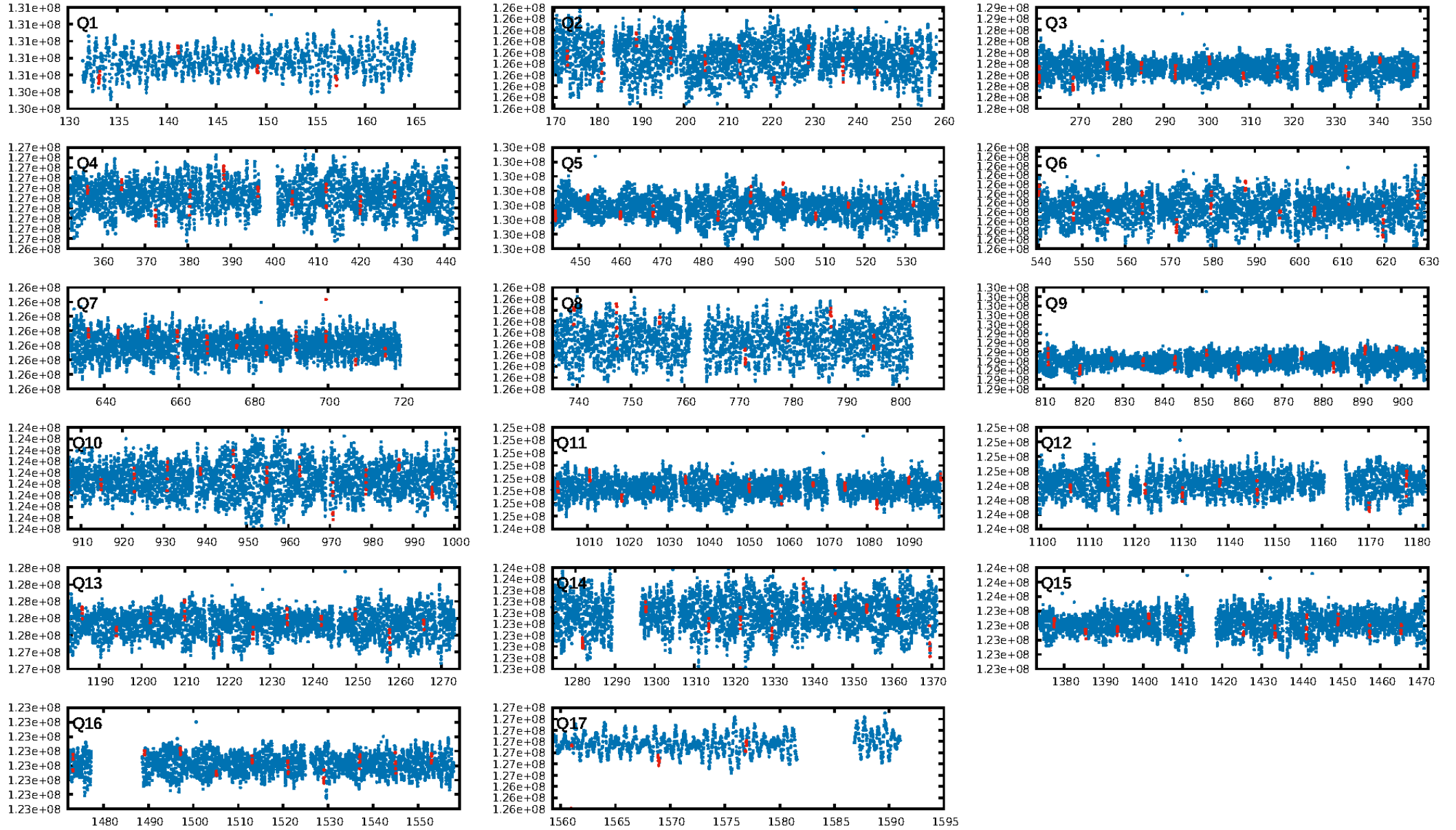
## DV Diagnostic Results:

ShortPeriod-sig: 100.0% [35.34σ]  
LongPeriod-sig: N/A  
ModelChiSquare2-sig: 3.0%  
ModelChiSquareGof-sig: 94.6%  
Bootstrap-pfa: 1.31e-11  
RollingBand-fgt: 1.00 [7/7]  
GhostDiagnostic-chr: -0.5661  
Centroid-sig: 1.4%  
Centroid-so: 0.317 arcsec [1.69σ]  
OotOffset-rm: 0.157 arcsec [0.25σ]  
OotOffset-st: 3/3/4/4 [14]  
KicOffset-rm: 0.233 arcsec [0.40σ]  
KicOffset-st: 3/3/4/4 [14]  
DiffImageQuality-fgm: 0.57 [8/14]  
DiffImageOverlap-fno: 0.00 [0/17]

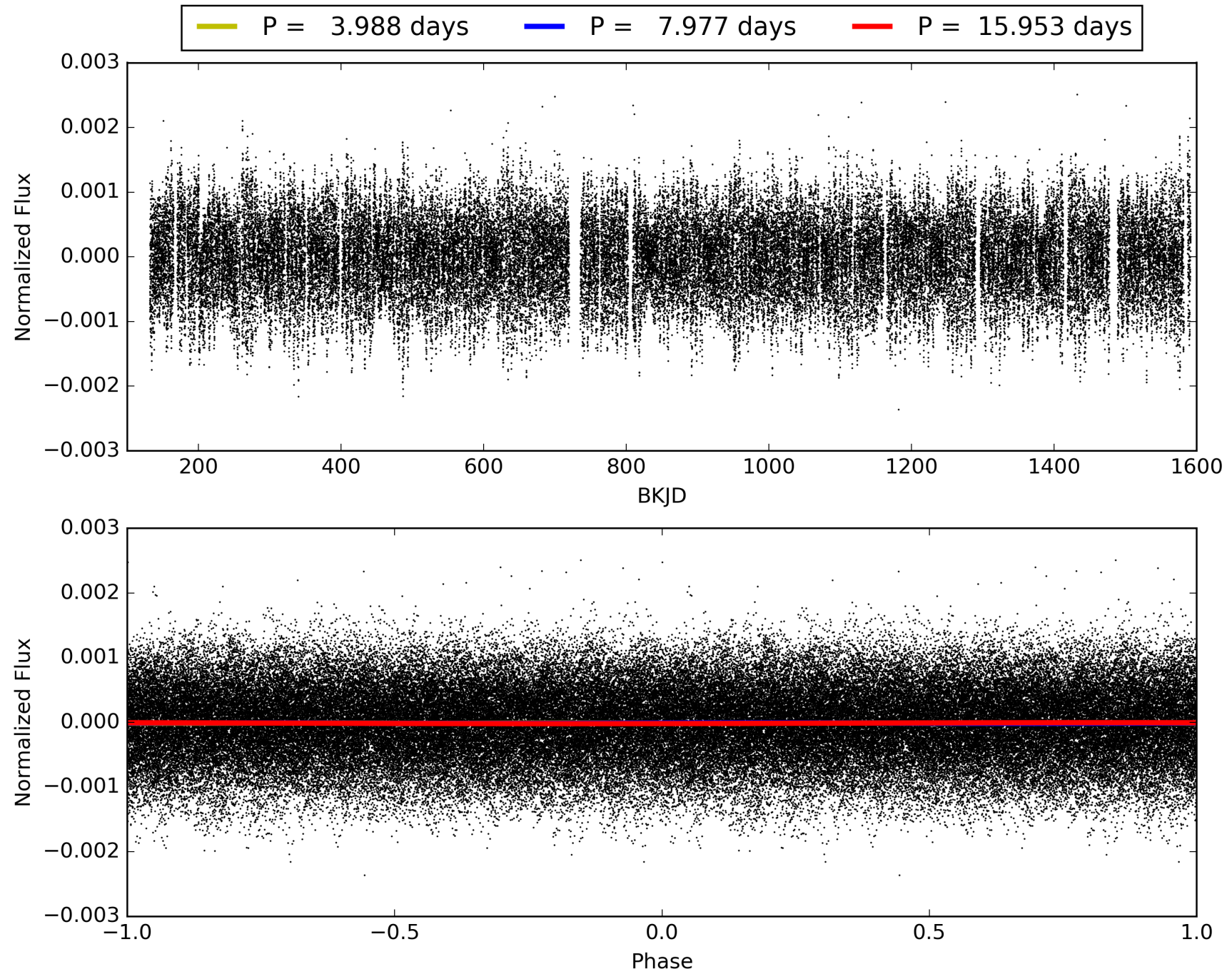
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 31-Jan-2016 13:25:28 Z

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

# TCE 003440074-04, PDC Light Curves



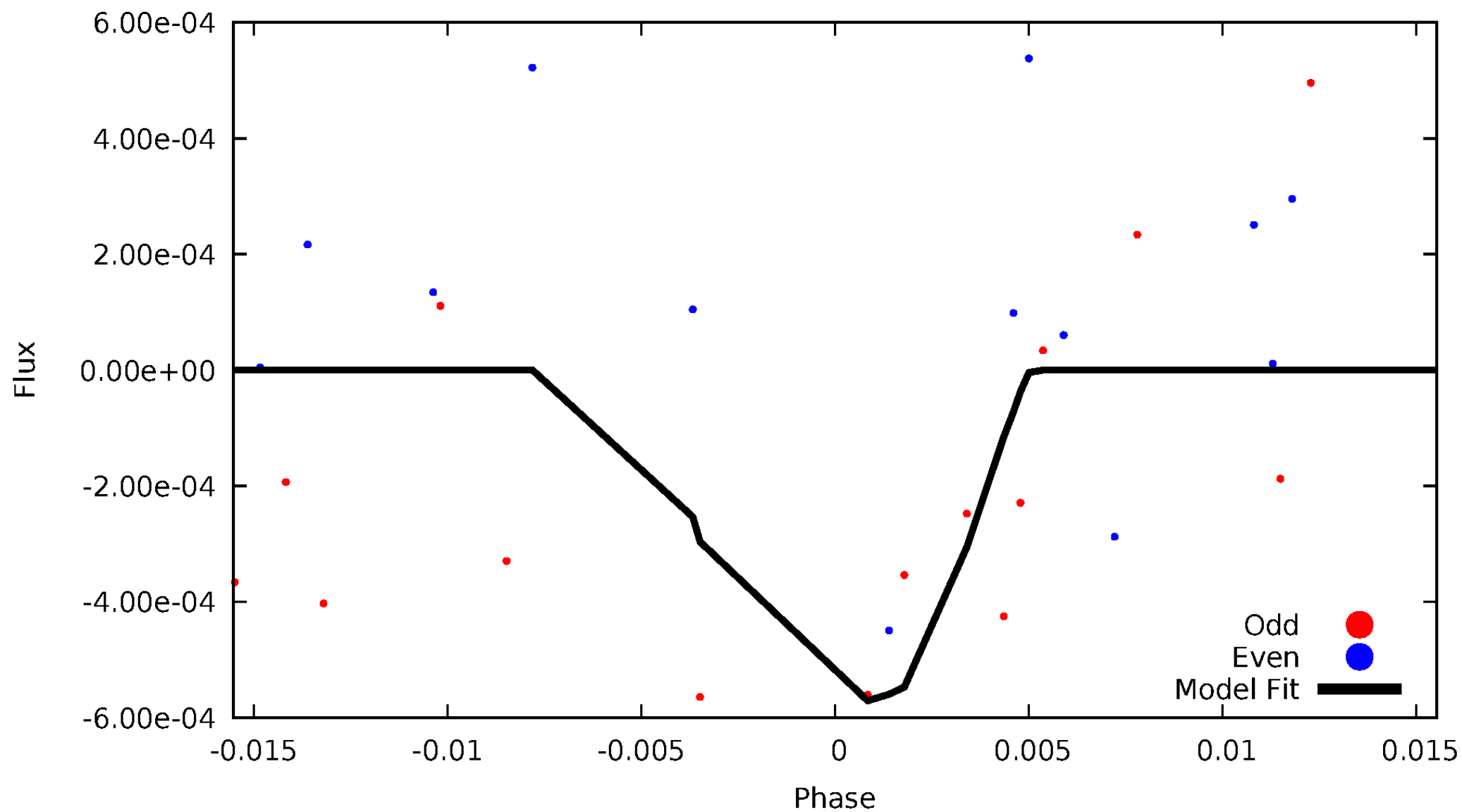
TCE 003440074-04





# DV Odd/Even

TCE 003440074-04



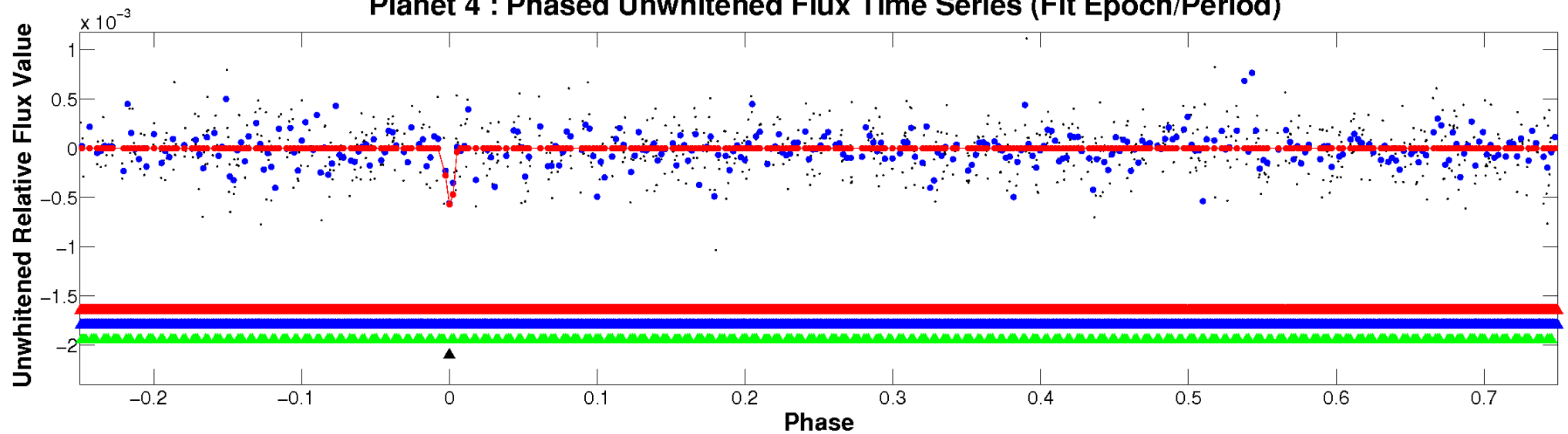


ALT Odd/Even

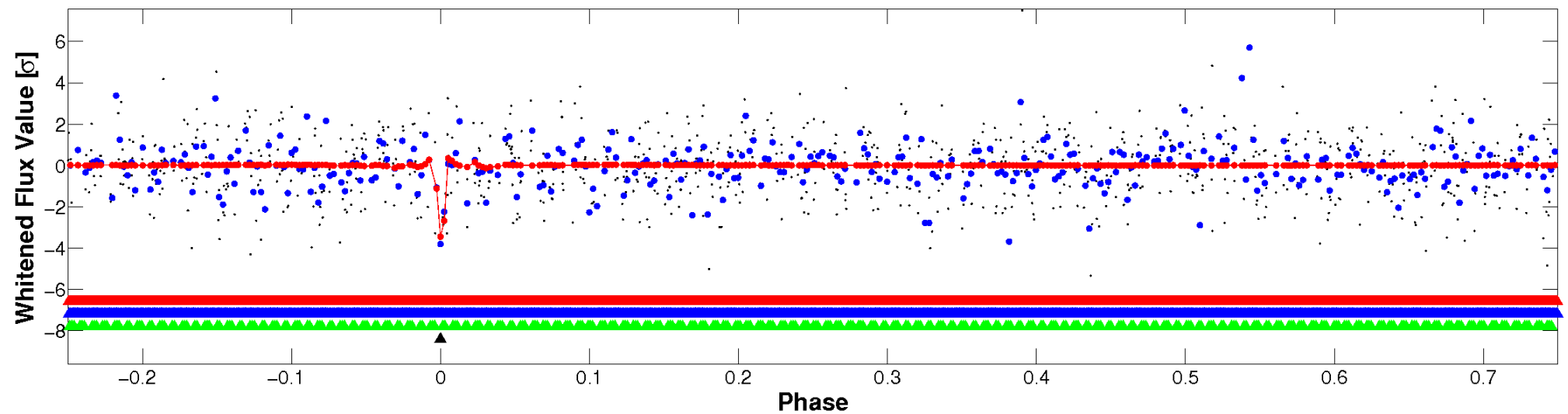
This plot does not exist for this TCE.

# Non-Whitened Vs. Whitened Light Curve

## Planet 4 : Phased Unwhitened Flux Time Series (Fit Epoch/Period)

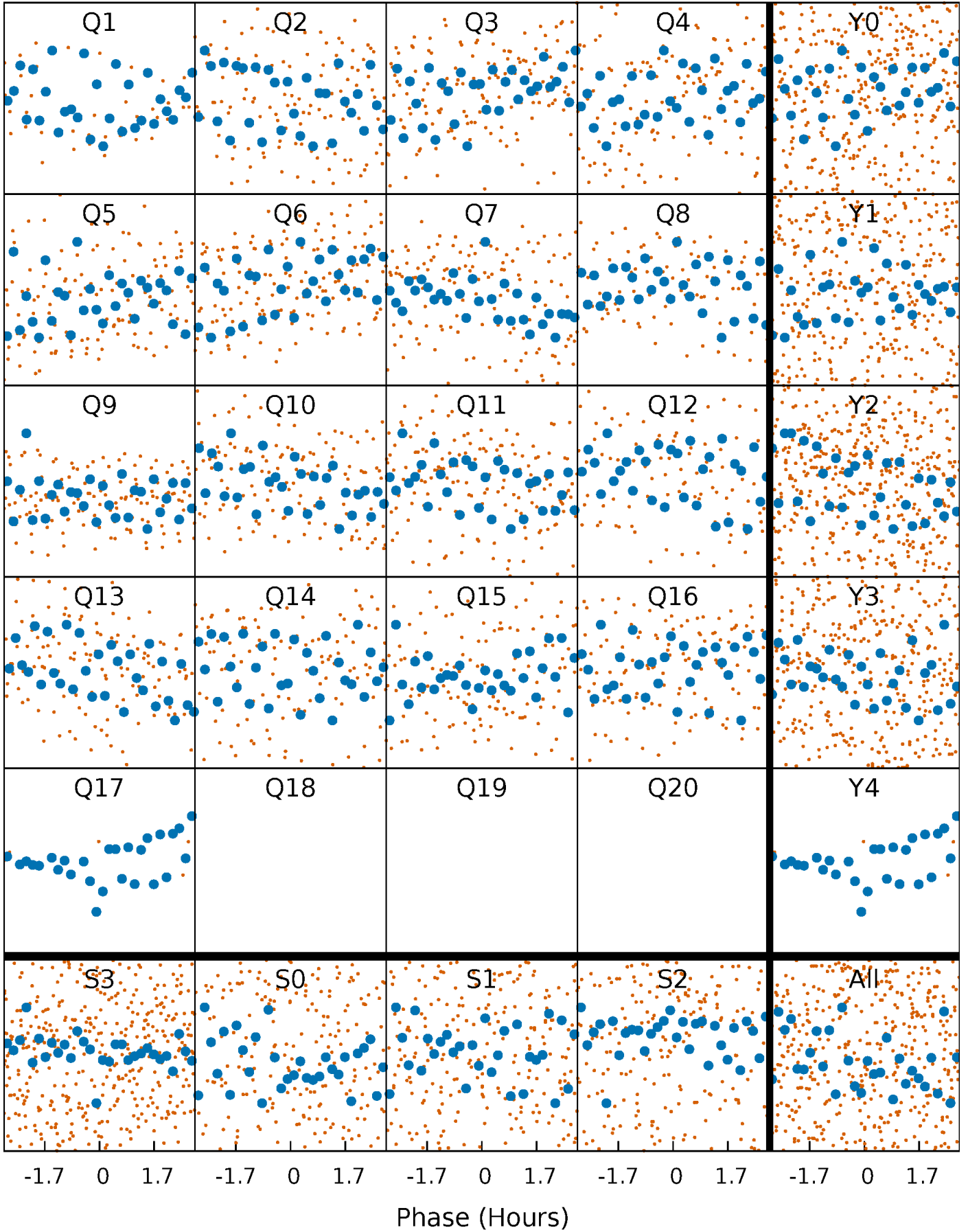


## Planet 4 : Phased Whitened Flux Time Series (Fit Epoch/Period)



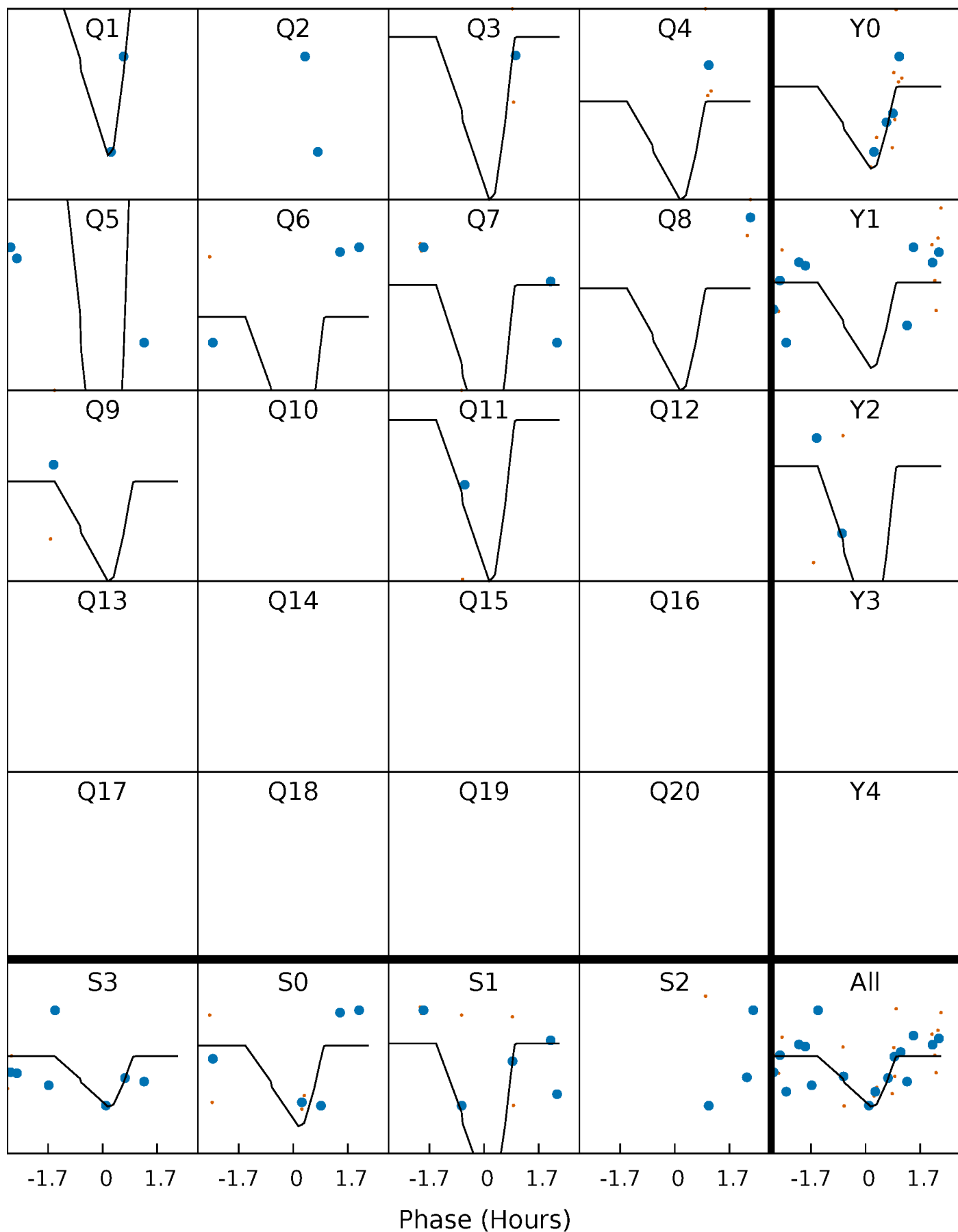
# PDC Quarter-Phased Transit Curves

TCE 003440074-04   P= 7.976591 Days    $T_0=133.160117$  (BKJD)



# DV Quarter-Phased Transit Curves

TCE 003440074-04 P= 7.976591 Days  $T_0=133.160117$  (BKJD)



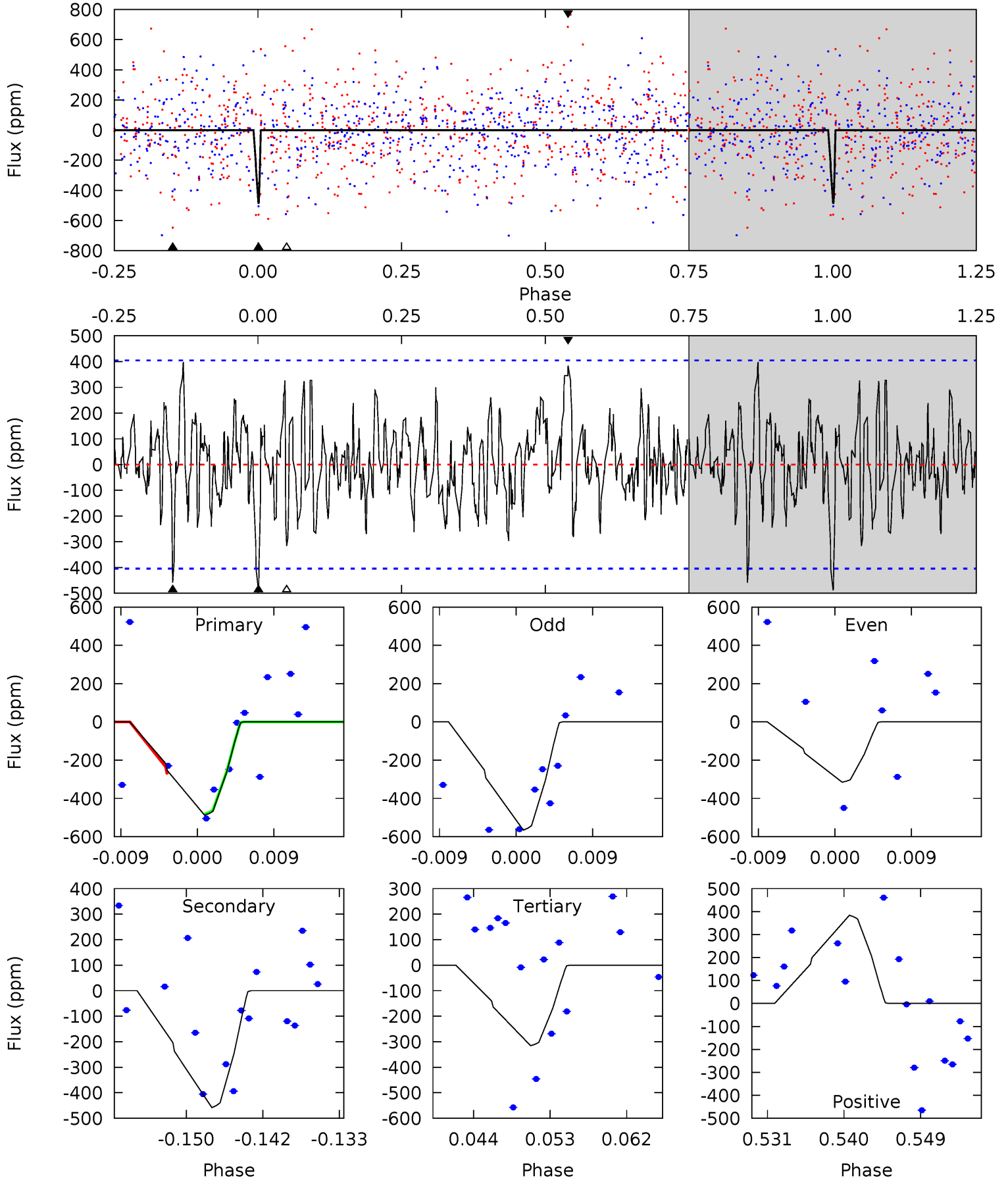
This plot does not exist for this TCE.



# DV Model-Shift Uniqueness Test

003440074-04, P = 7.976591 Days, E = 125.183526 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
6.10	5.73	3.94	4.80	5.05	2.62	1.61	2.16	1.30	1.78	0.93	1.52	1.00	0.45	0.00



## Alt Model-Shift Uniqueness Test

This plot does not exist for this TCE.

### Stellar Parameters For KIC 003440074

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	$6756^{+161}_{-262}$	$3.051^{+0.536}_{-0.134}$	$0.070^{+0.200}_{-0.500}$	$8.275^{+1.606}_{-4.497}$	$2.811^{+0.322}_{-1.030}$	$0.007^{+0.049}_{-0.003}$
	+2%/-4%	+18%/-4%	+286%/-714%	+19%/-54%	+11%/-37%	+703%/-42%
Source	PHO1	FLK73	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 003440074-04 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	$A_{\text{obs}}$
DV	$-458 \pm 80$	$39.75^{+43.93}_{-27.32}$	$3505^{+285}_{-504}$	$4368^{+3285}_{-1377}$	$1.969^{+14.613}_{-1.556}$
Alt.	N/A	N/A	N/A	N/A	N/A

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

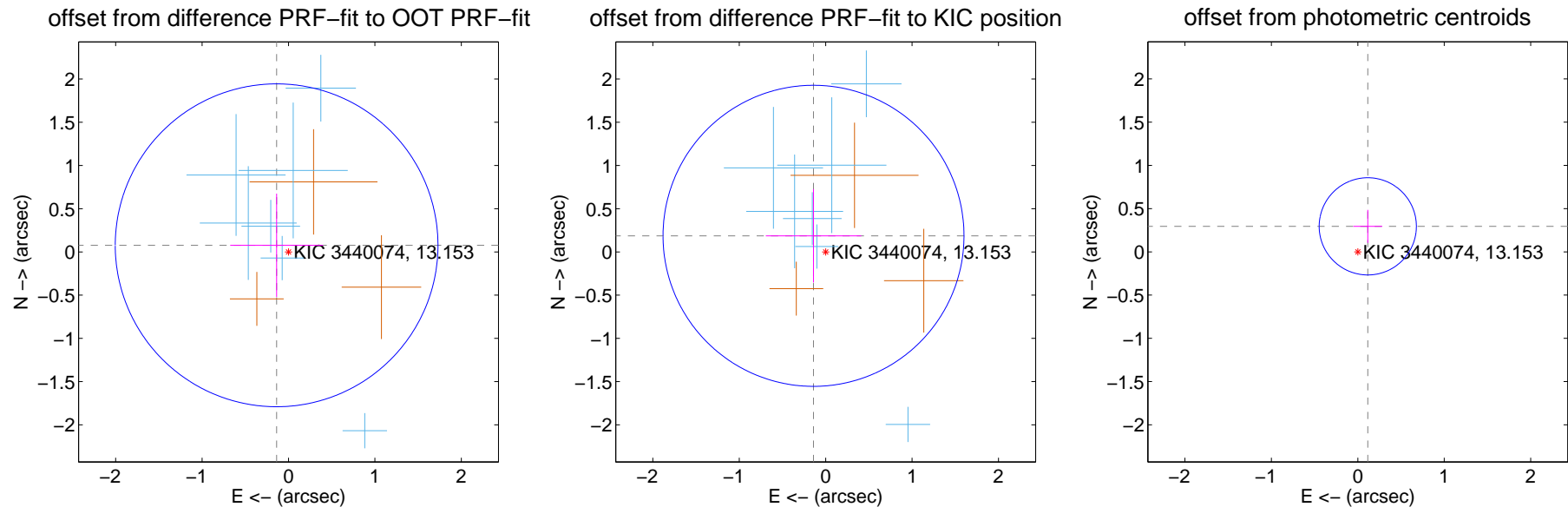
## DV Centroid Data

Supplemental centroid analysis for 003440074-04. Kepler magnitude: 13.15. Transit SNR 6.24

There are 8 quarters with good PRF difference image offsets

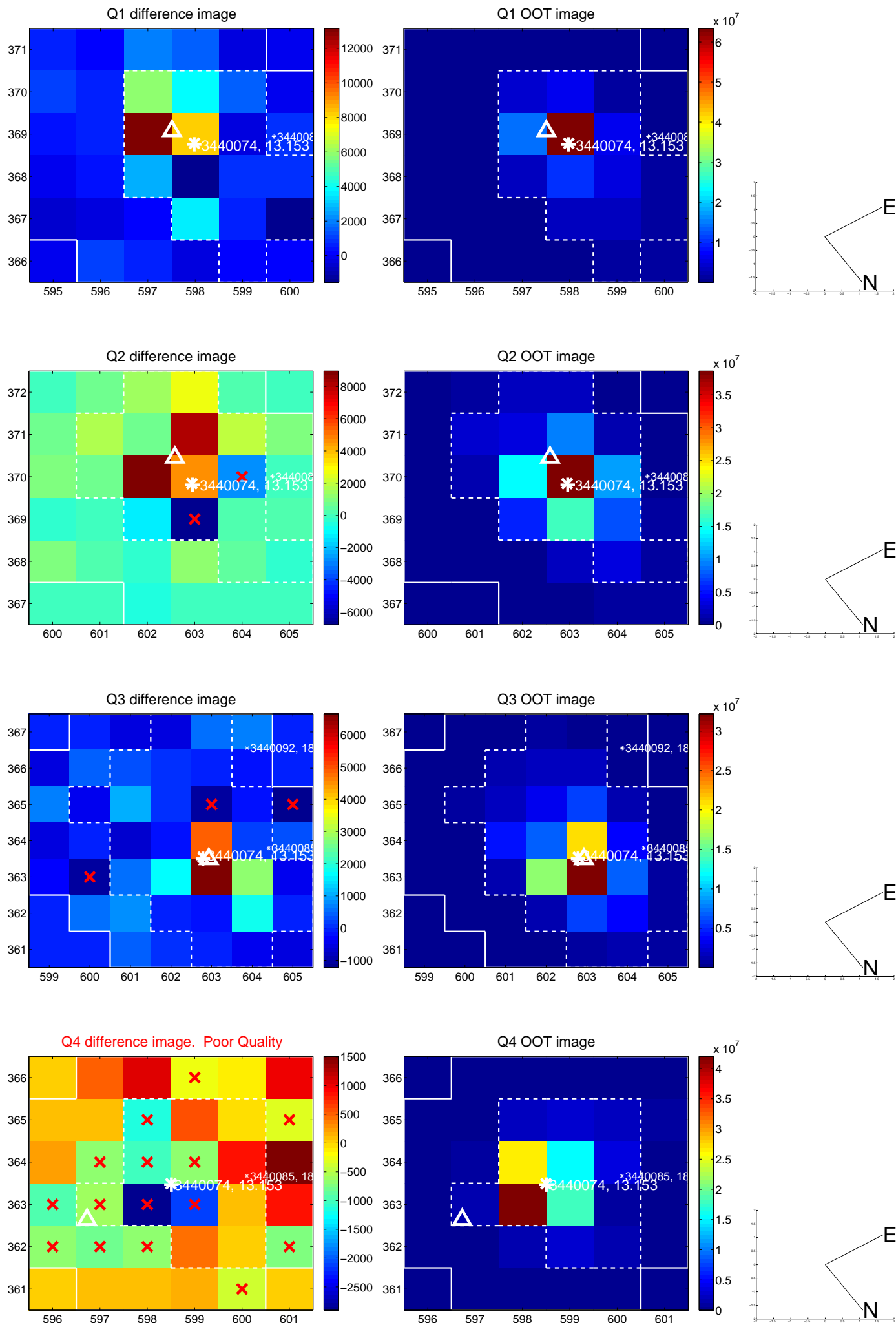
The direct PRF centroid is offset from the target star catalog position by about 0.10 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$0.157 \pm 0.622$	0.25	$0.137 \pm 0.537$	$0.077 \pm 0.598$
PRF-fit source offset from KIC position	$0.233 \pm 0.580$	0.40	$0.141 \pm 0.552$	$0.186 \pm 0.541$
photometric centroid source offset	$0.32 \pm 0.19$	1.69	$-0.12 \pm 0.17$	$0.29 \pm 0.19$

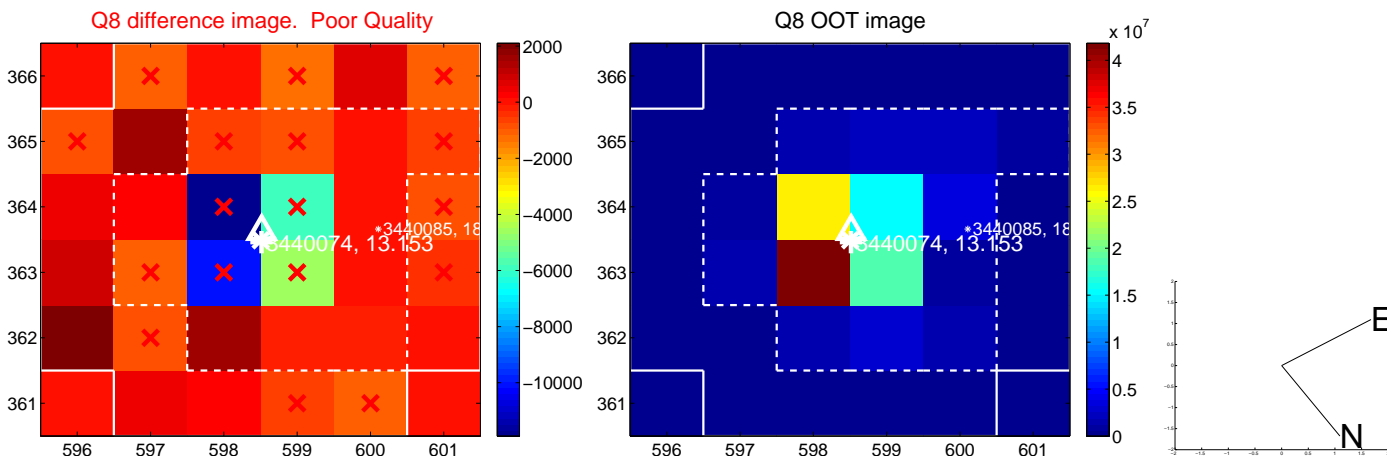
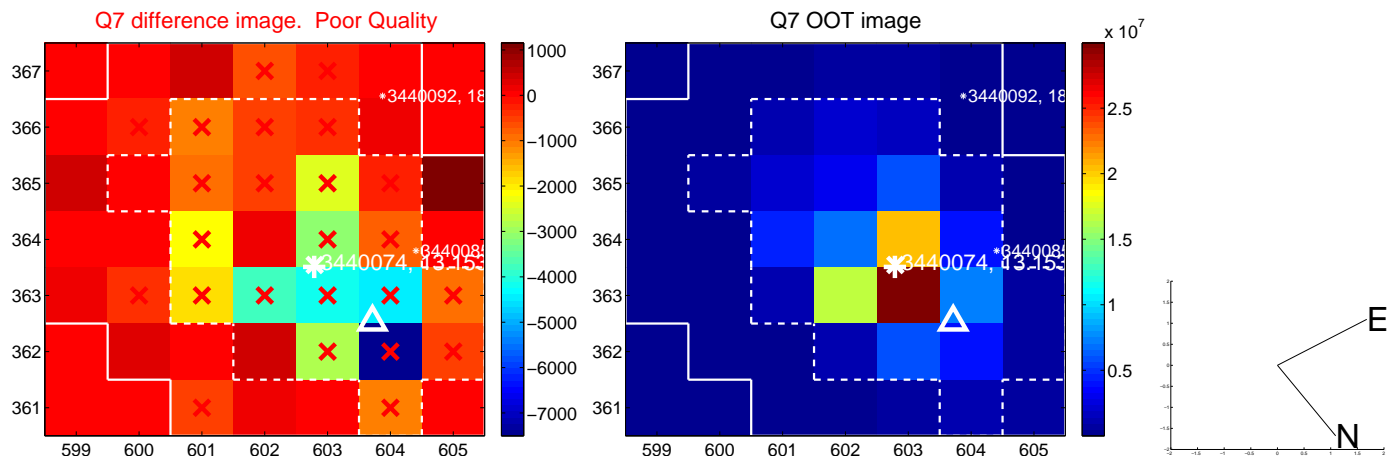
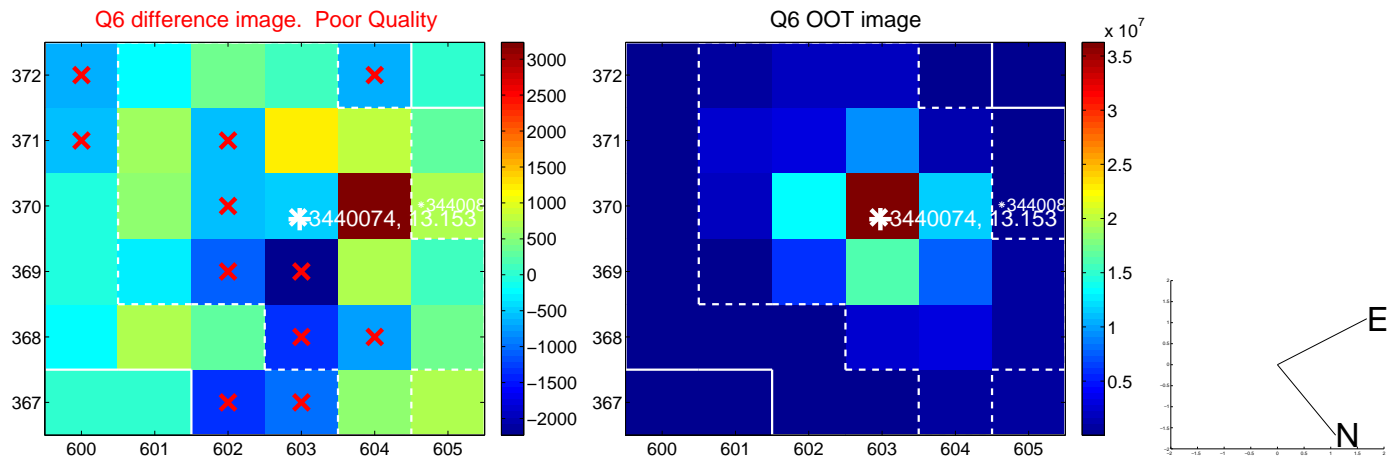
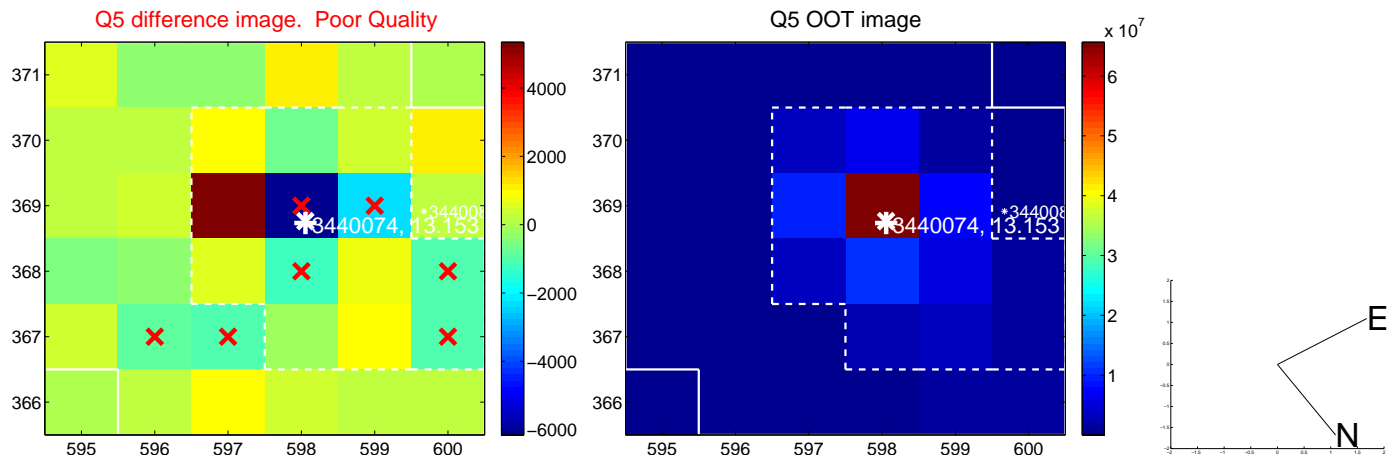


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses:** good quarterly centroid offsets; **Vermillion crosses:** bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: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

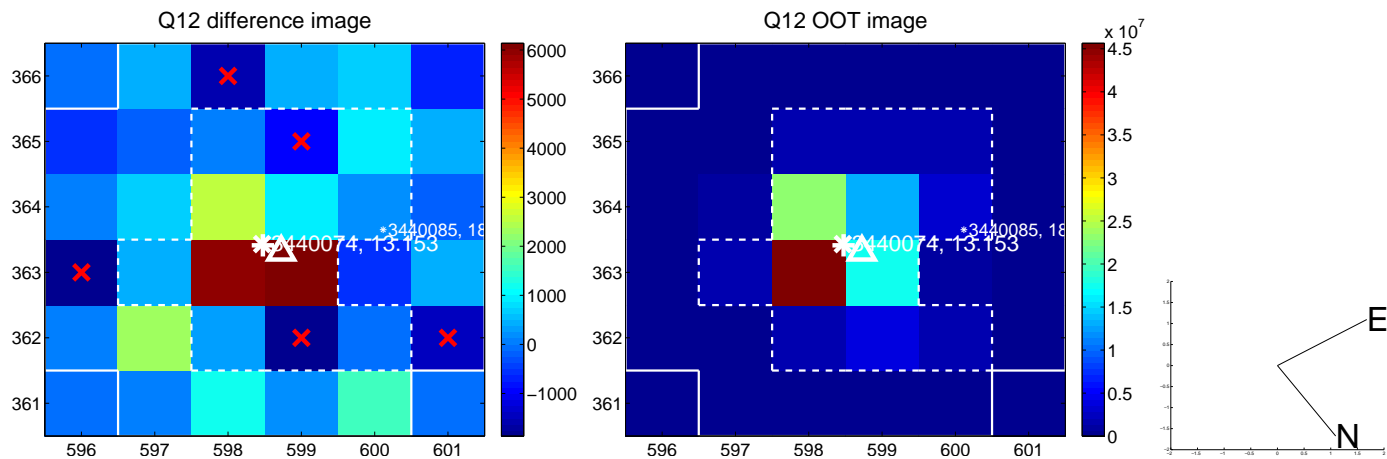
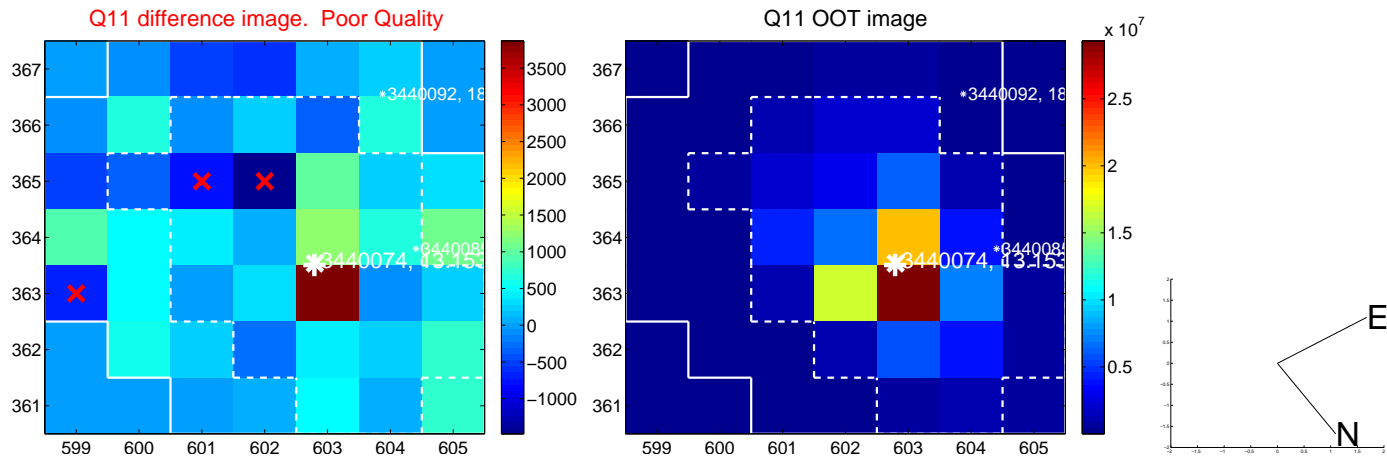
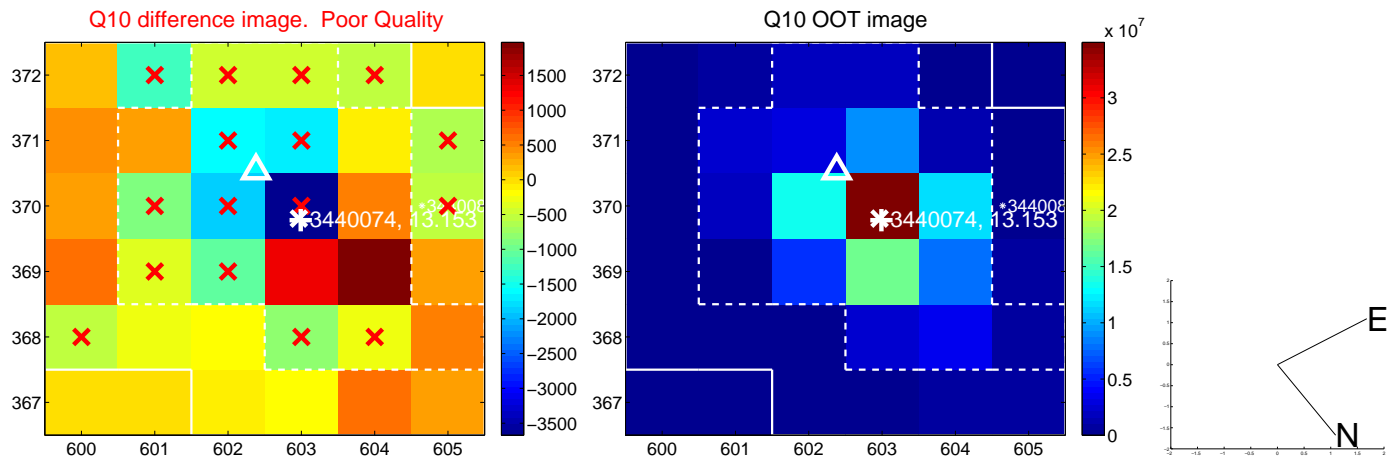
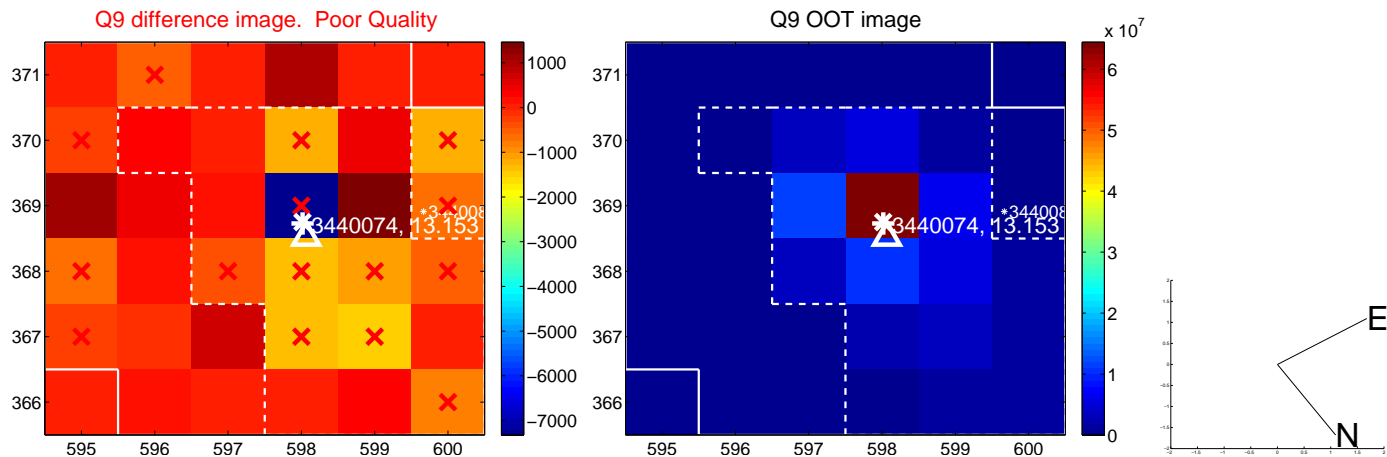
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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

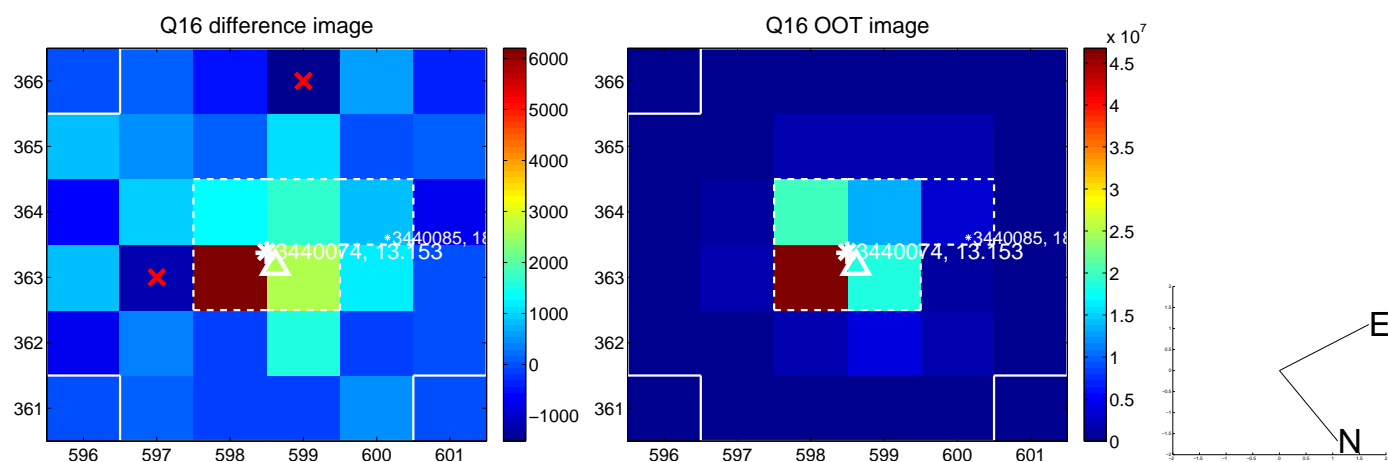
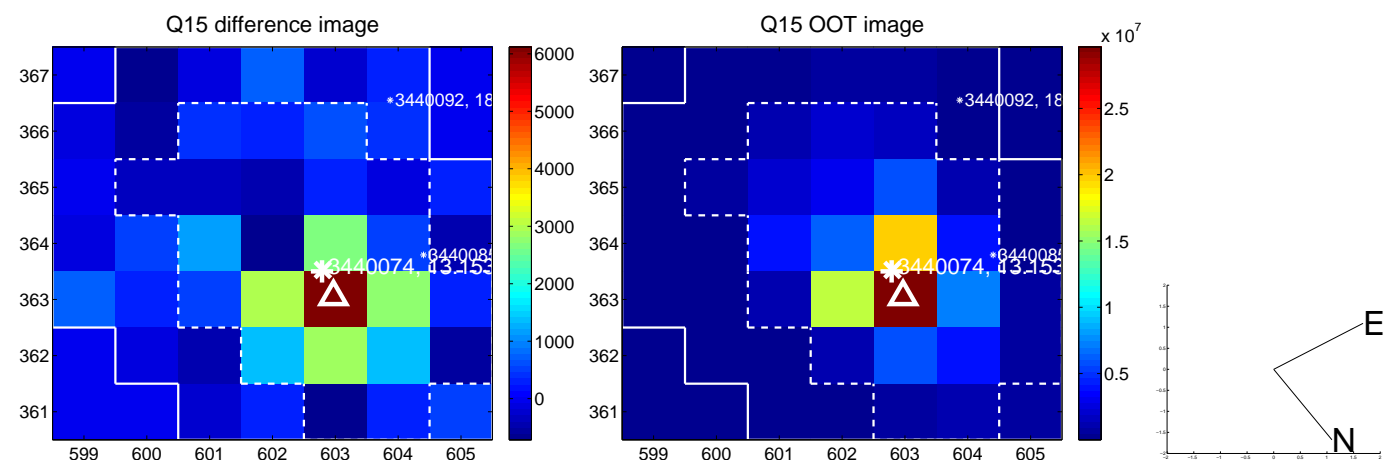
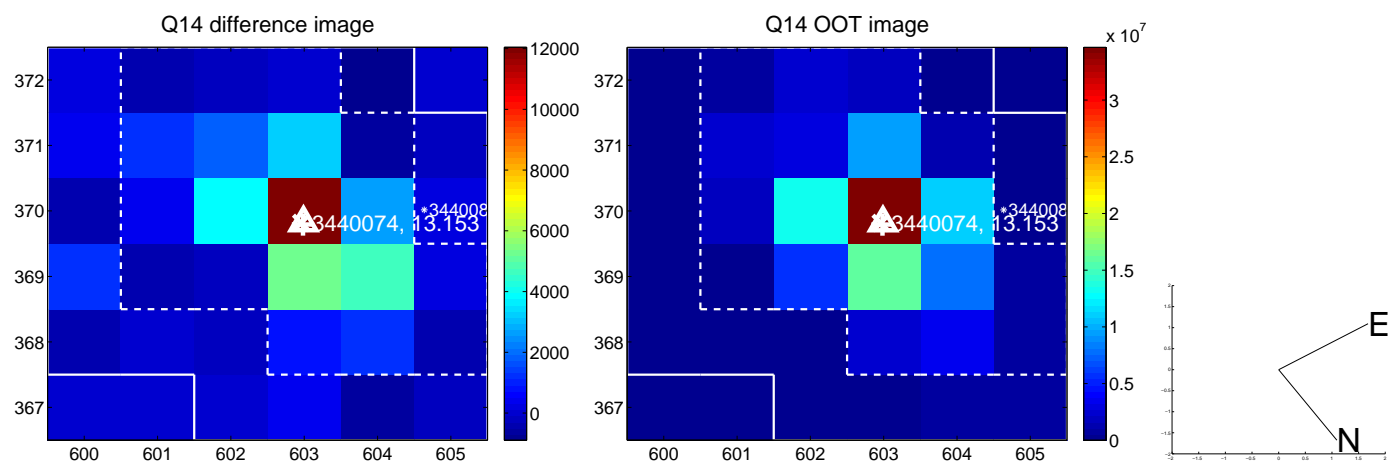
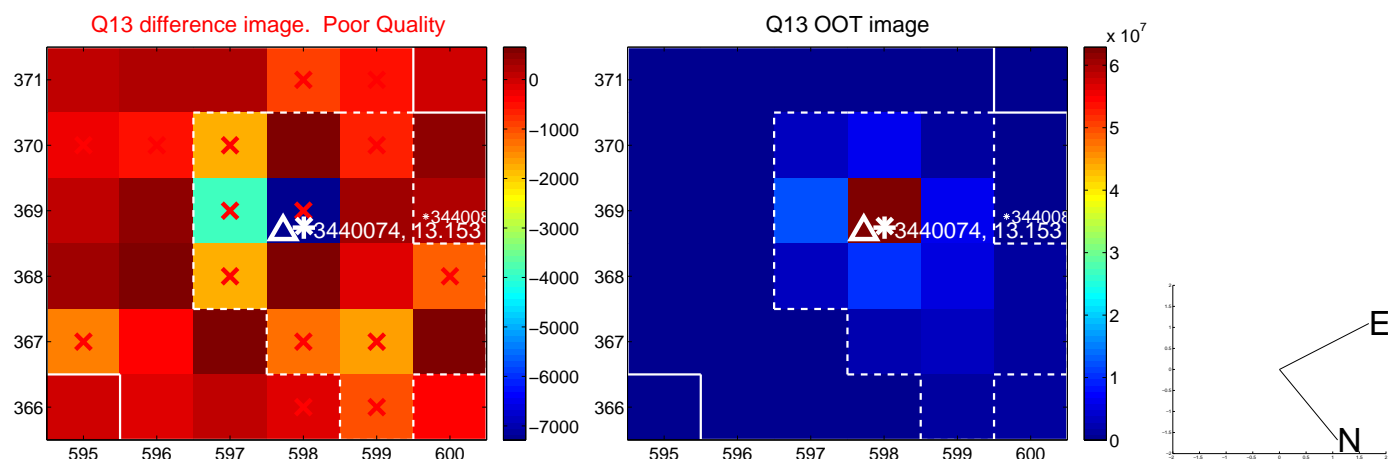


white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.

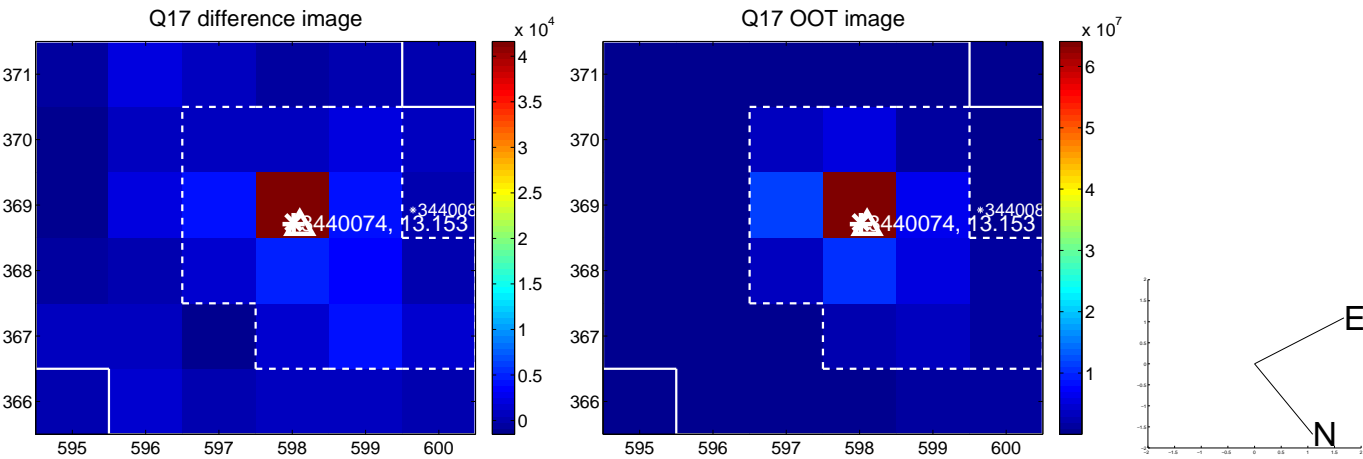




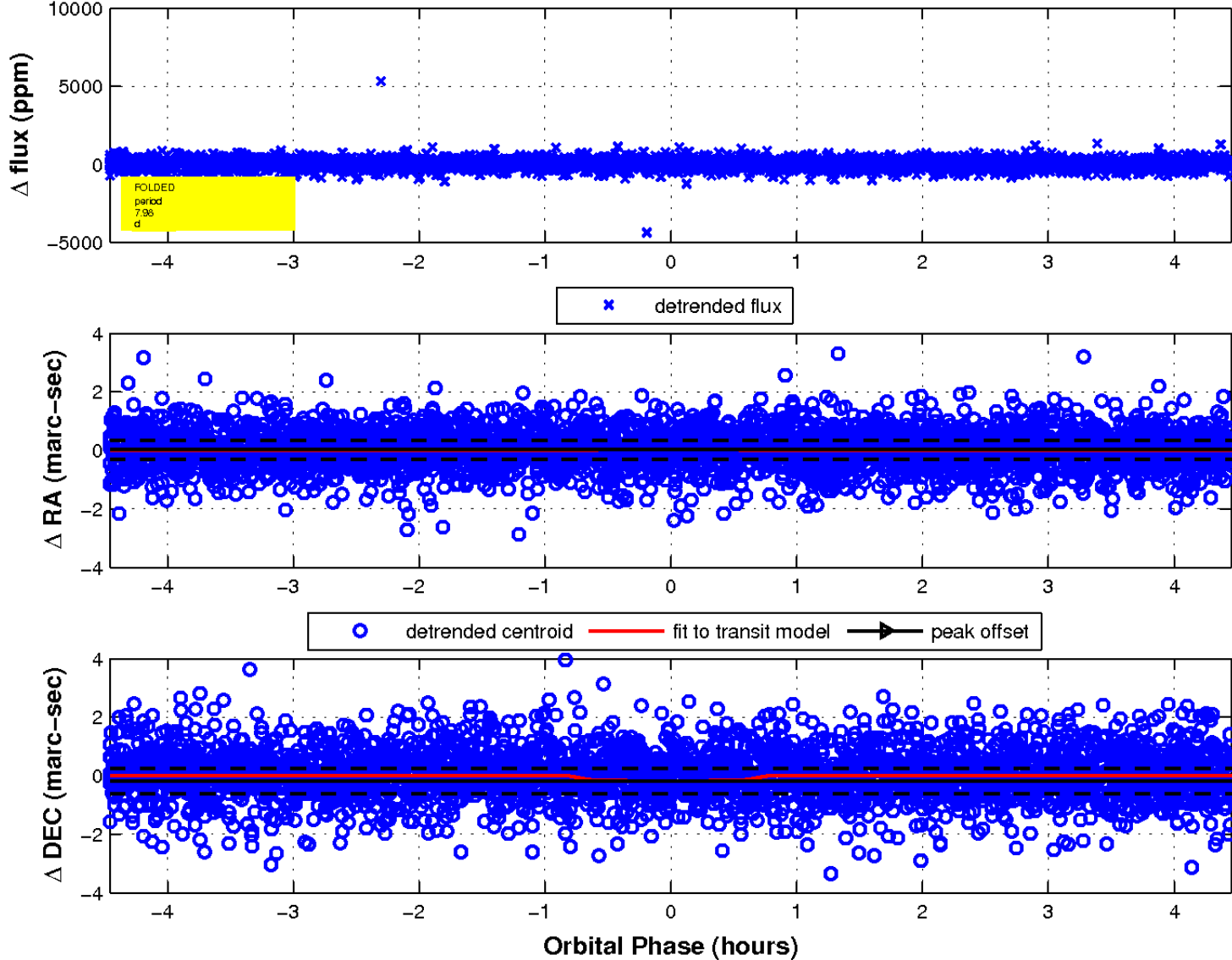
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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



fluxWeightedCentroids, Planet 4 of 4



UKIRT Image

Declination

