

# KIC 004851464

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
004851464-01	OBS	1757.01	5.548249	133.219941	42885.4	6.069	1331.1	1245.4	1.03	6124	21.53	332.27
004851464-02	OBS	No	2.774093	133.230986	1482.3	5.960	48.9	49.2	1.03	6124	4.53	837.28
004851464-03	OBS	No	518.799110	533.219066	1735.4	11.120	21.3	6.6	1.03	6124	5.26	0.78

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
004851464-01	OBS	FP	0.00	0	1	0	0	MOD_SEC_DV—MOD_SEC_ALT—HAS_SEC_TCE
004851464-02	OBS	FP	0.00	1	1	0	0	IS_SEC_TCE
004851464-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_CHASES_MARSHALL—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—INCONSISTENT_TRANS—CENT_FEW_DIFFS

**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.

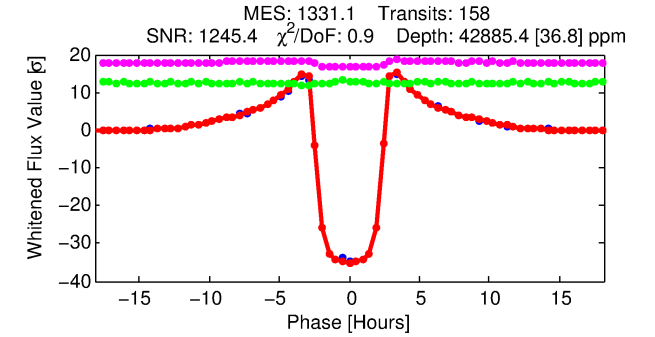
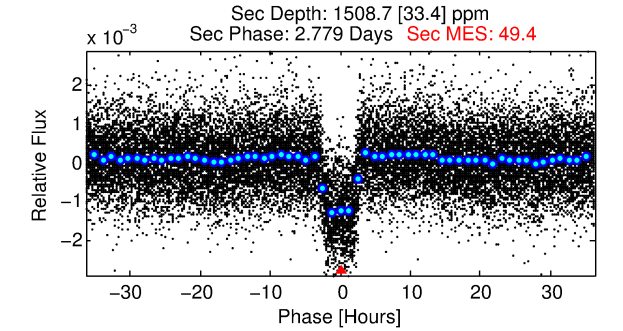
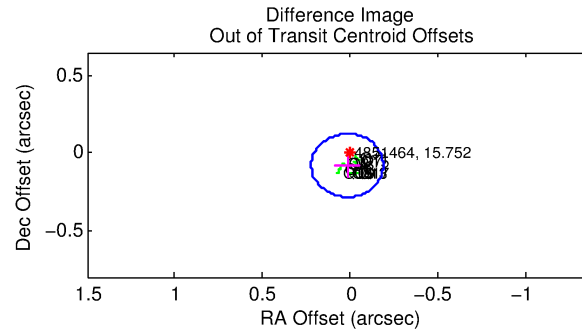
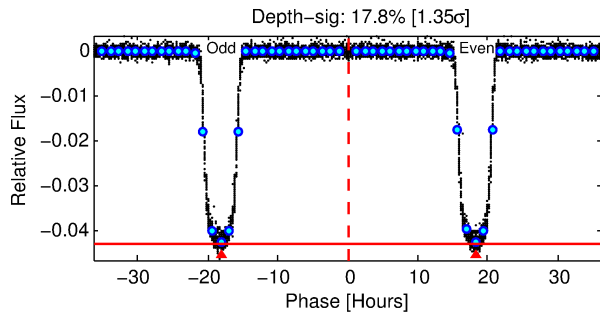
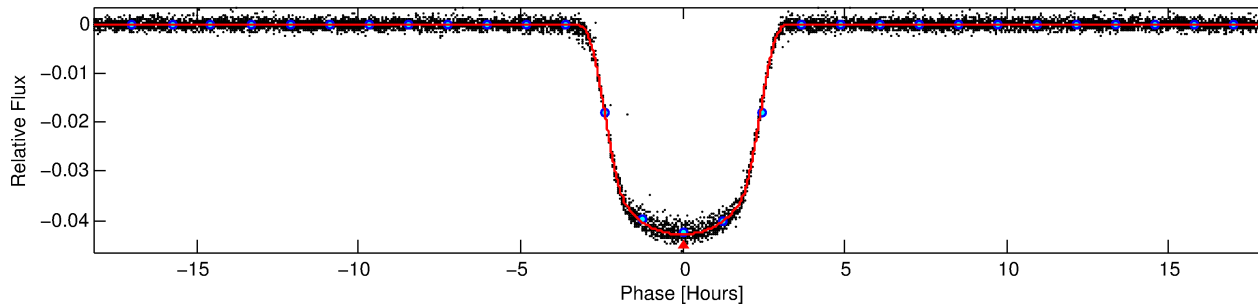
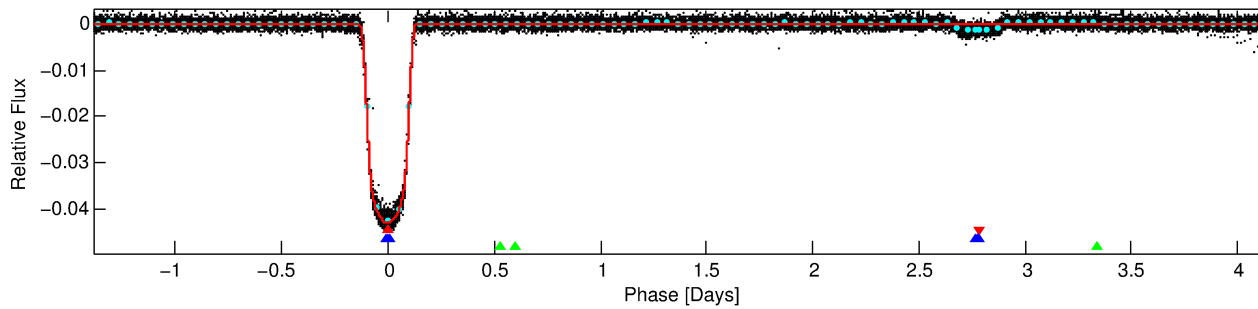
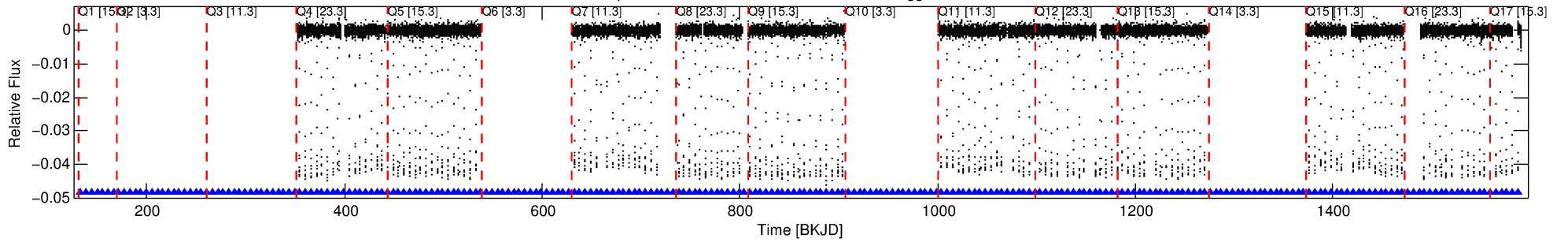
Ephemeris Match Information For 004851464-01

No Significant Match Found

# DV One-Page Summary

KIC: 4851464 Candidate: 1 of 3 Period: 5.548 d  
KOI: K01757.01 Corr: 0.999

Kp: 15.75 R\*: 1.03 Rs Teff: 6124.0 K Logg: 4.46 Fe/H: -0.020



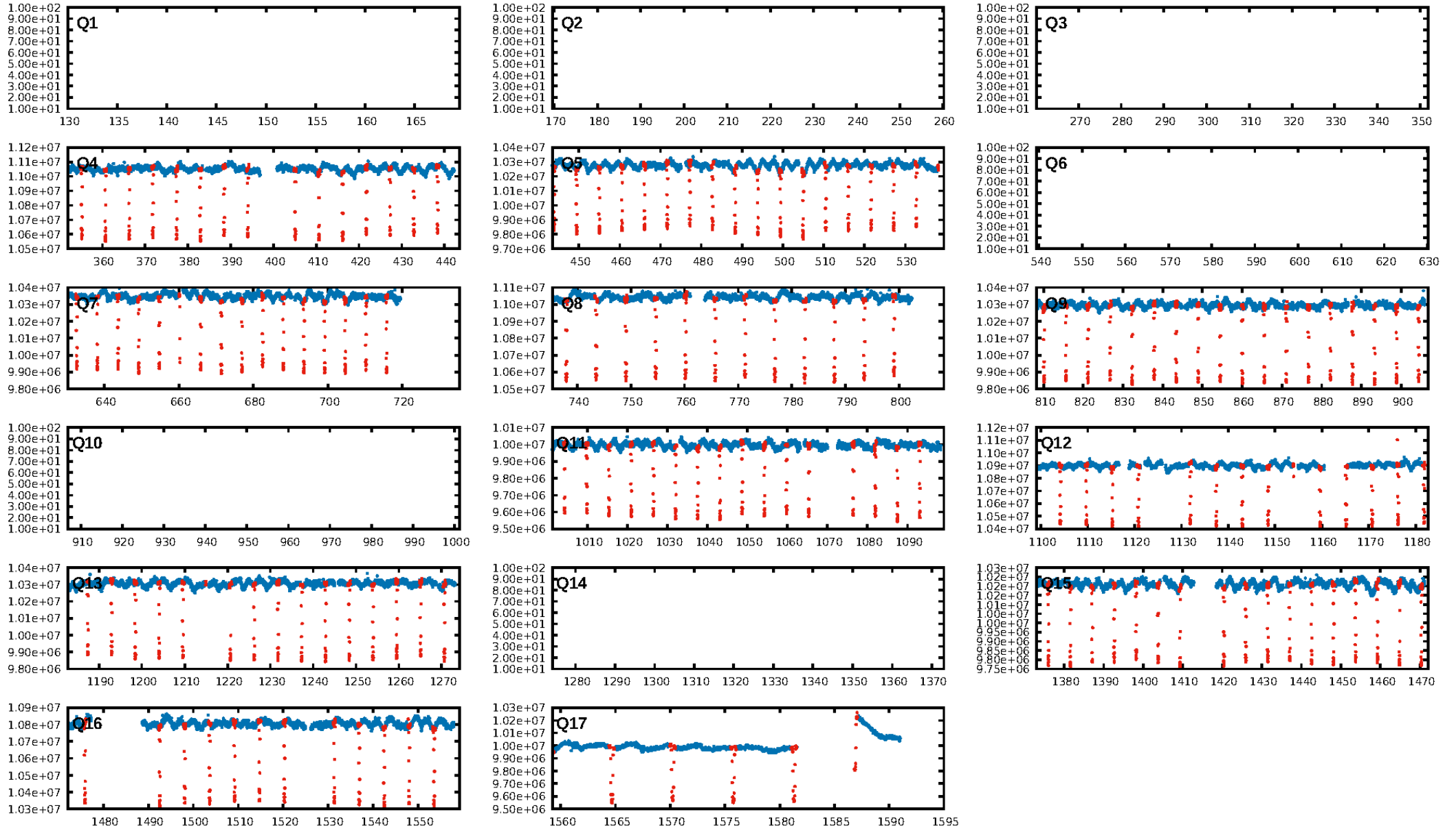
## DV Fit Results:

Period = 5.54825 [0.00000] d  
Epoch = 133.2199 [0.0001] BKJD  
Rp/R\* = 0.1919 [0.0001]  
a/R\* = 8.04 [0.02]  
b = 0.32 [0.01]  
Seff = 332.27 [136.94]  
Teq = 1089 [112] K  
Rp = 21.53 [6.78] Re  
a = 0.0633 [0.0167] AU  
Ag = 7.18 [2.75] [2.25σ]  
Teffp = 2755 [107] K [10.74σ]

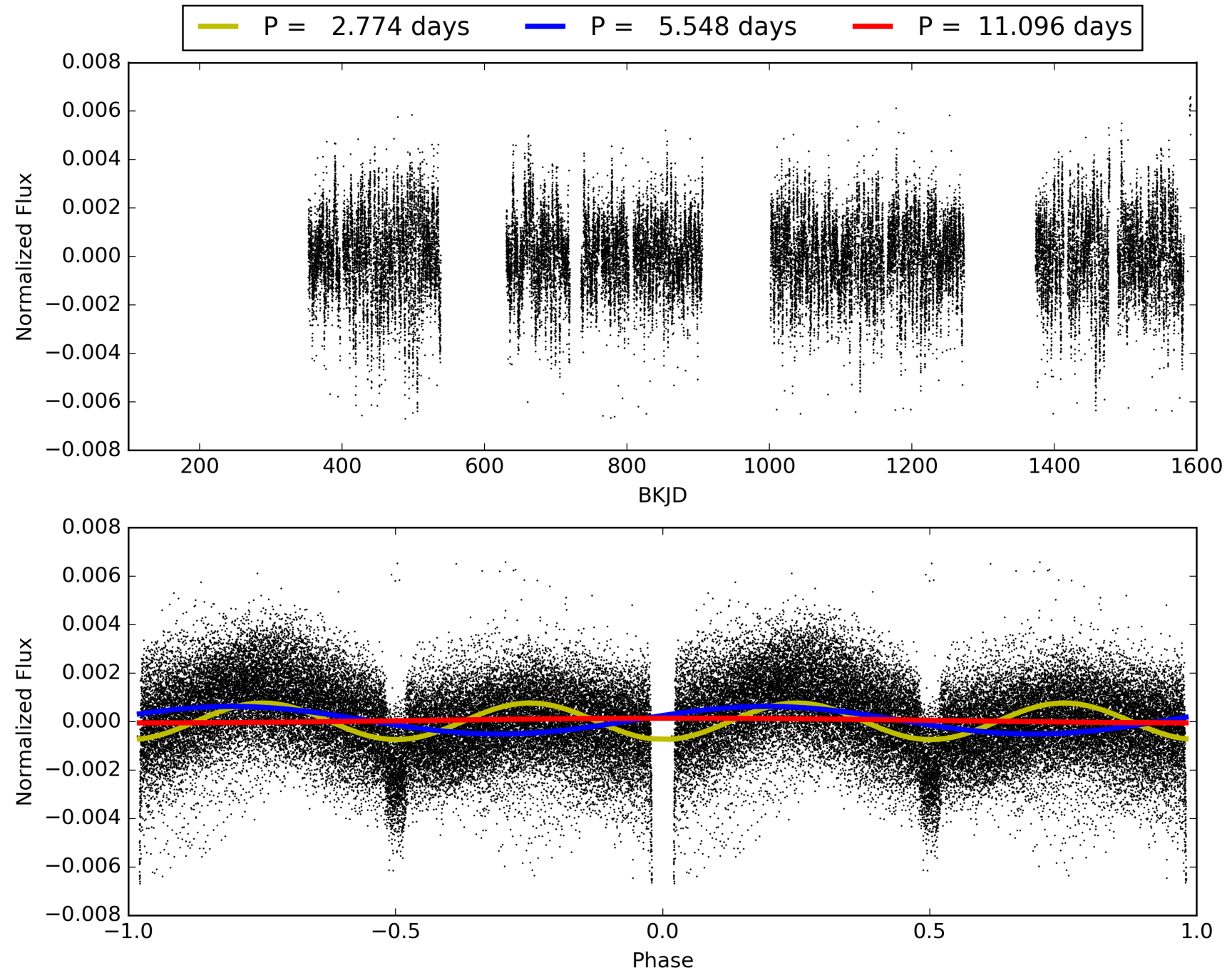
## DV Diagnostic Results:

ShortPeriod-sig: 100.0% [7.83σ]  
LongPeriod-sig: 100.0% [972.38σ]  
ModelChiSquare2-sig: 0.0%  
ModelChiSquareGof-sig: 100.0%  
Bootstrap-pfa: 0.00e+00  
RollingBand-fgt: 1.00 [152/152]  
GhostDiagnostic-chr: 3.827  
Centroid-sig: 0.0%  
Centroid-so: 0.146 arcsec [12.43σ]  
OotOffset-rm: 0.082 arcsec [1.20σ]  
OotOffset-st: 0/3/4/4 [11]  
KicOffset-rm: 0.183 arcsec [2.68σ]  
KicOffset-st: 0/3/4/4 [11]  
DiffImageQuality-fgm: 1.00 [11/11]  
DiffImageOverlap-fno: 0.00 [0/11]

# TCE 004851464-01, PDC Light Curves

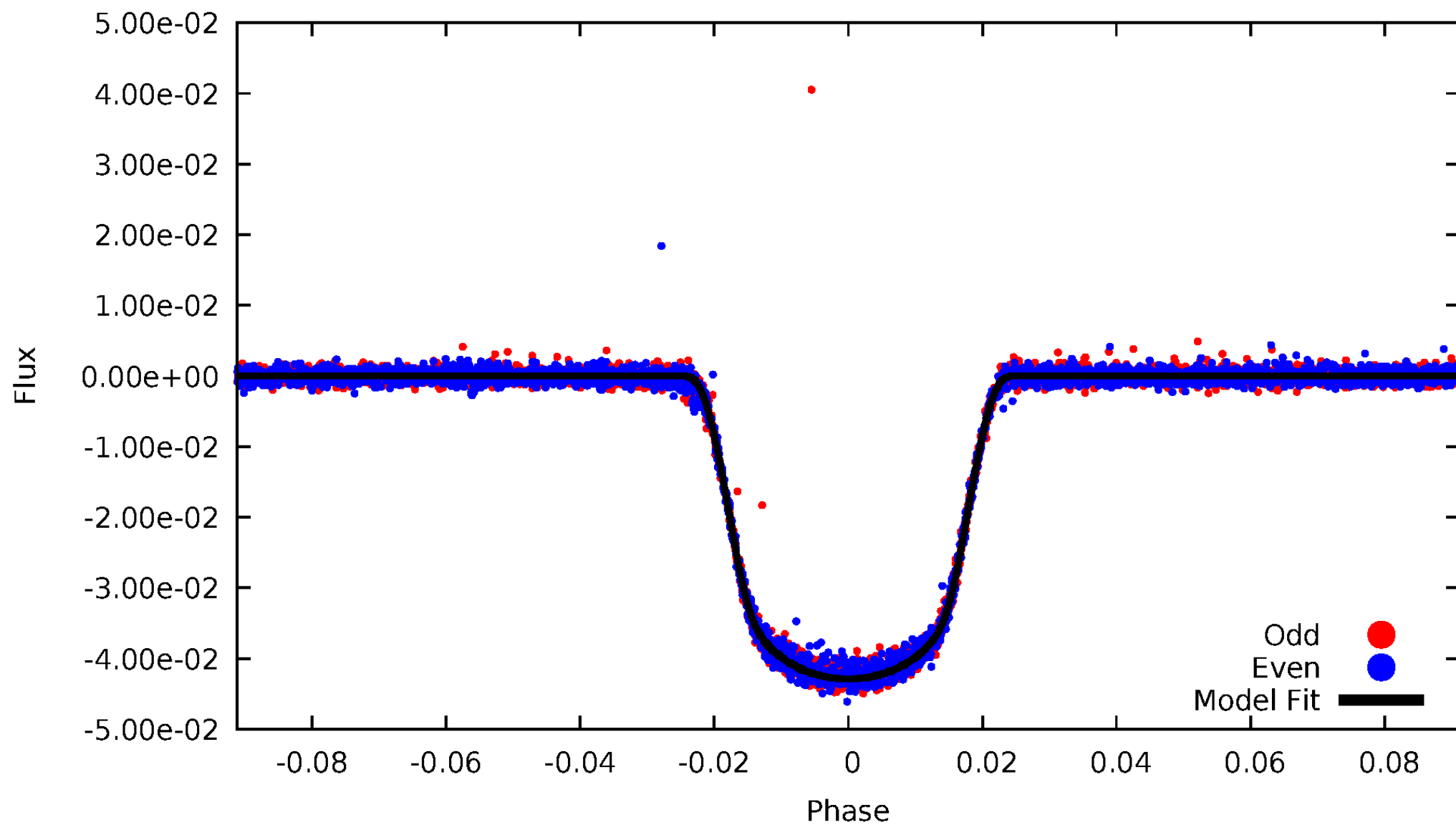


TCE 004851464-01



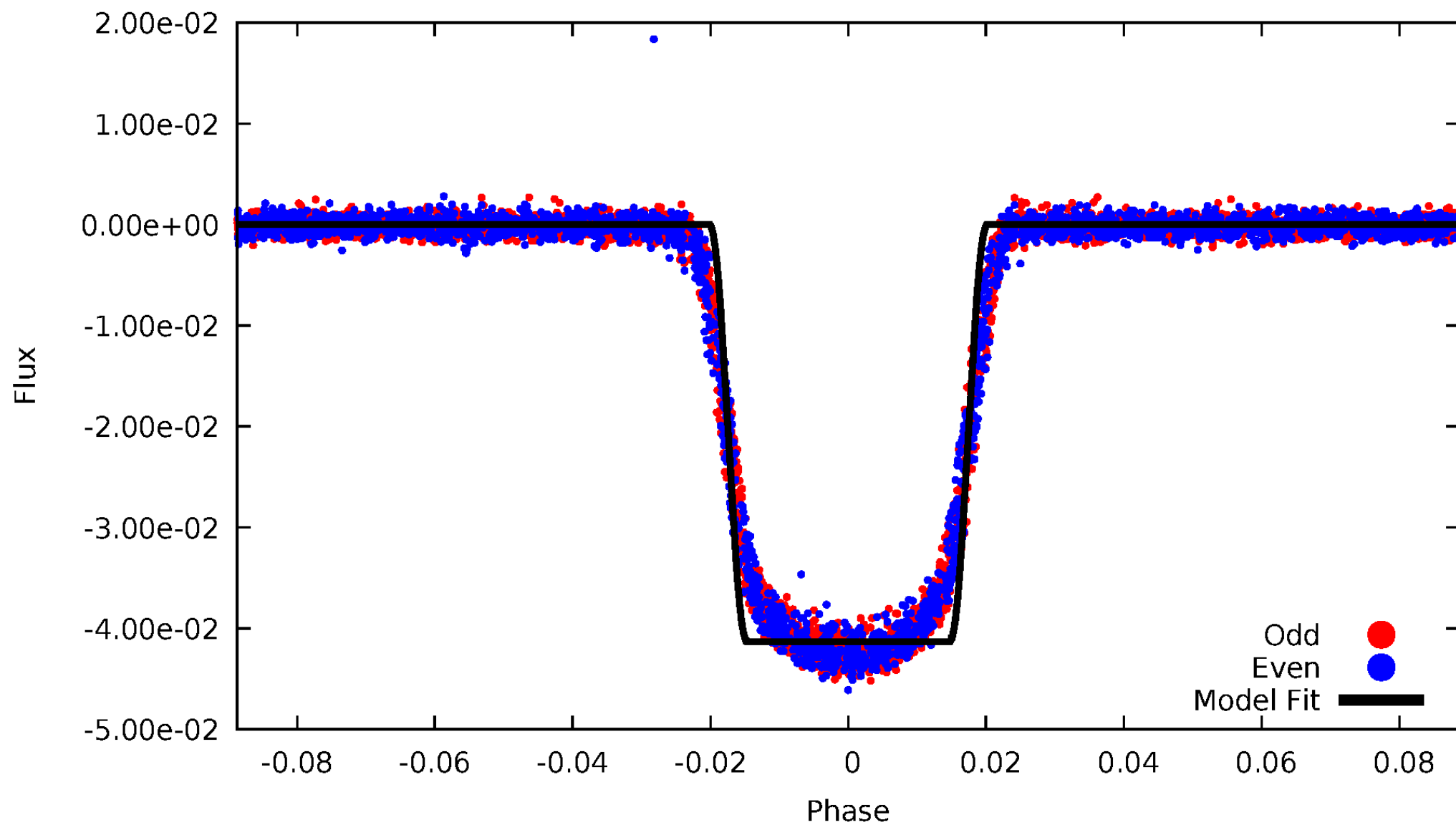
# DV Odd/Even

TCE 004851464-01



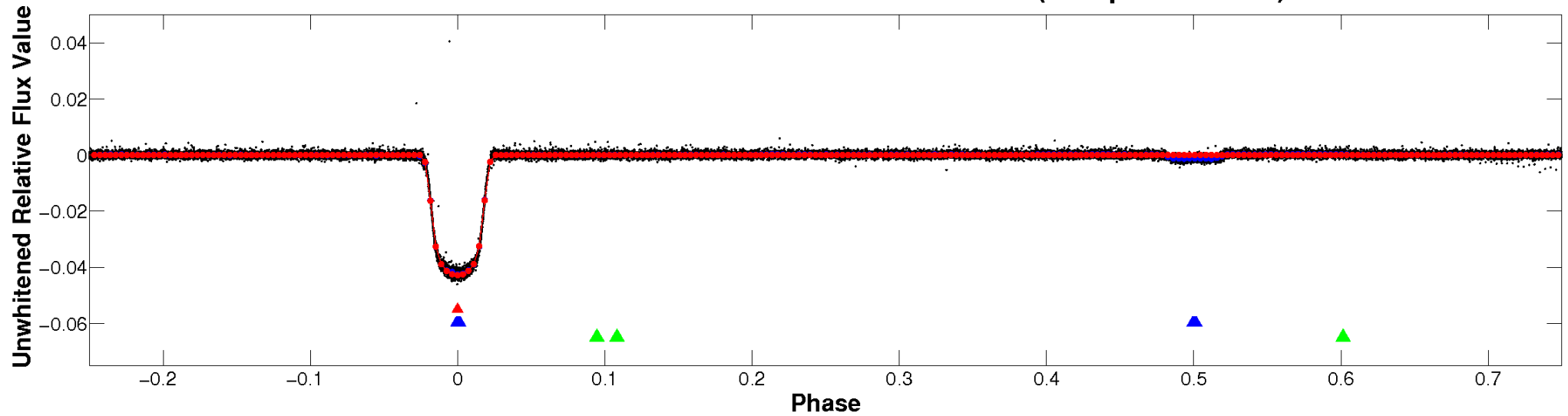
# ALT Odd/Even

TCE 004851464-01

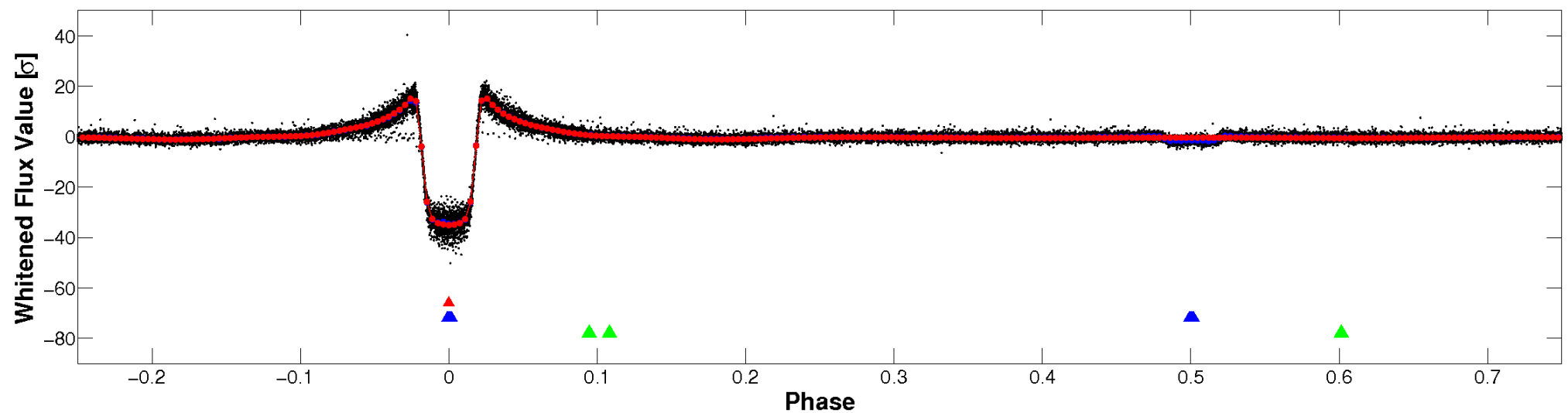


# Non-Whitened Vs. Whitened Light Curve

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

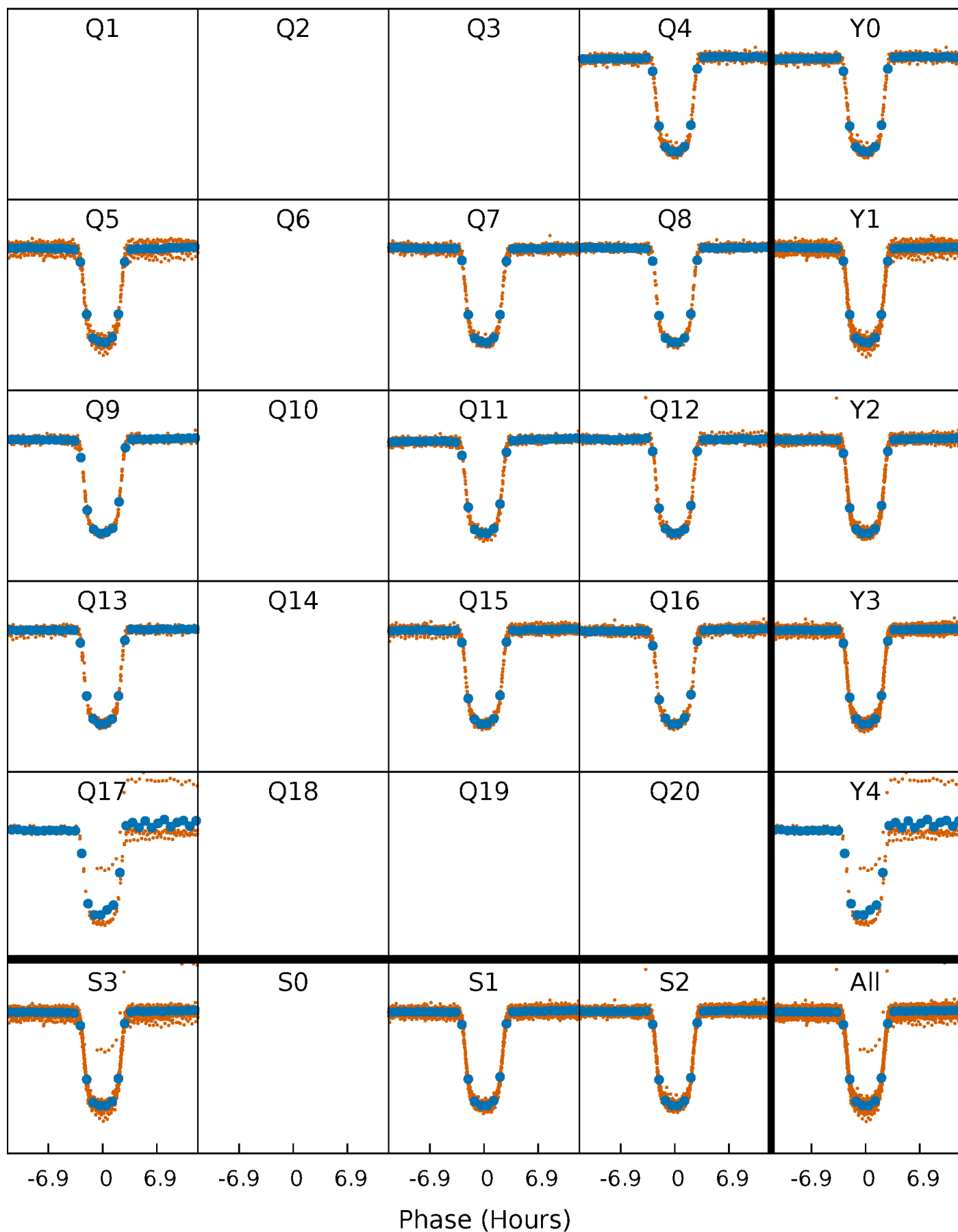


**Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)**



# PDC Quarter-Phased Transit Curves

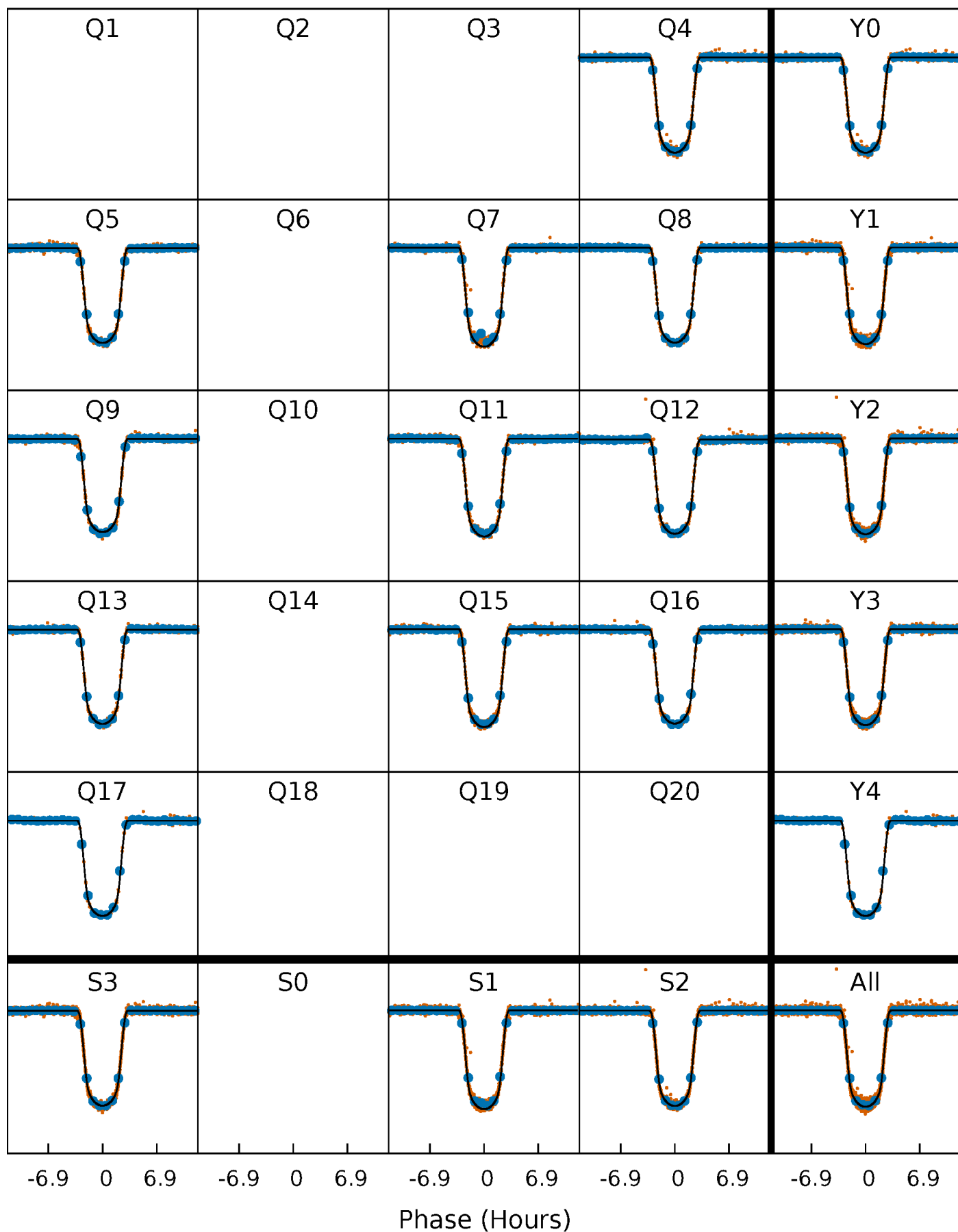
TCE 004851464-01 P= 5.548249 Days  $T_0=133.219941$  (BKJD)





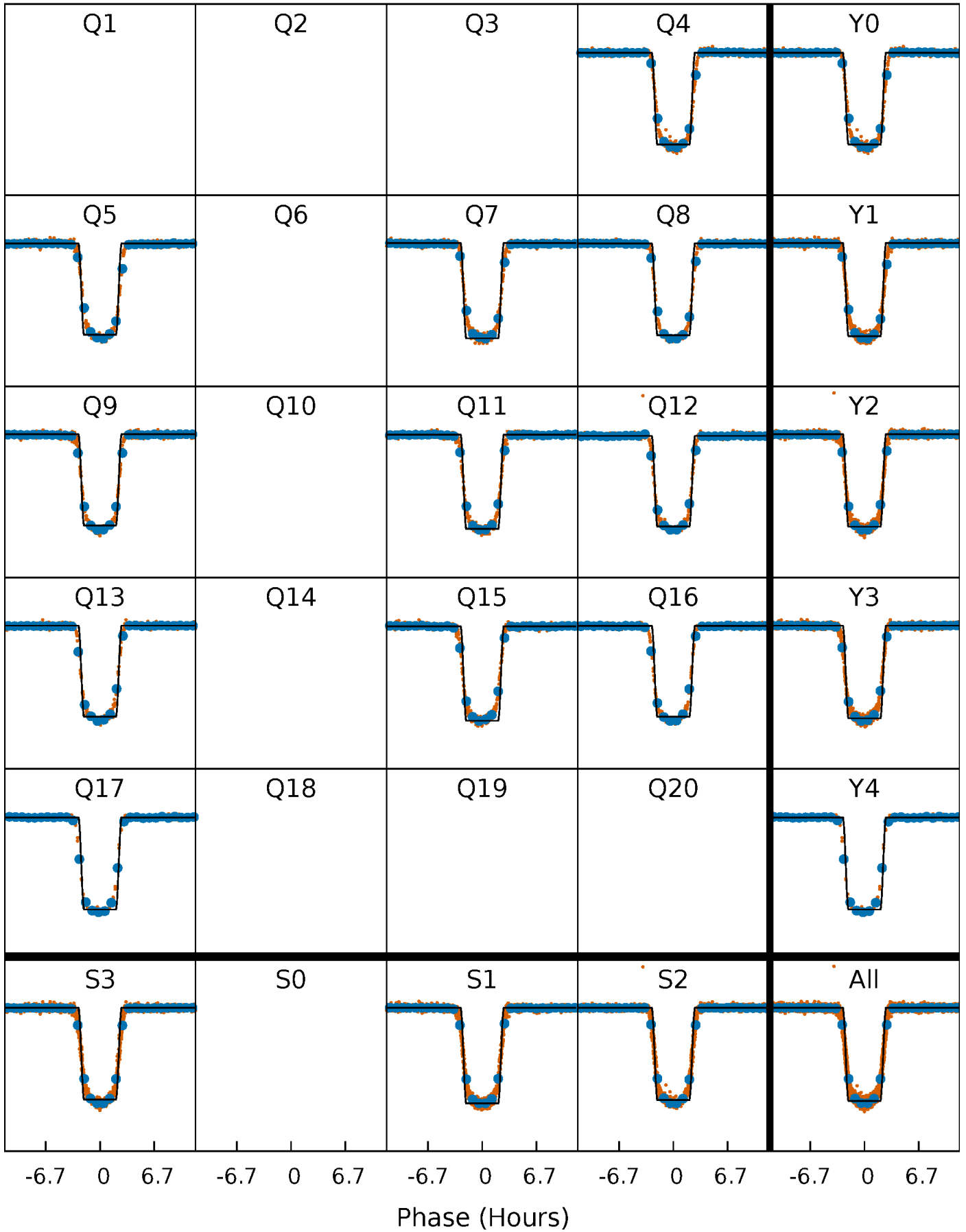
# DV Quarter-Phased Transit Curves

TCE 004851464-01 P= 5.548249 Days  $T_0=133.219941$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

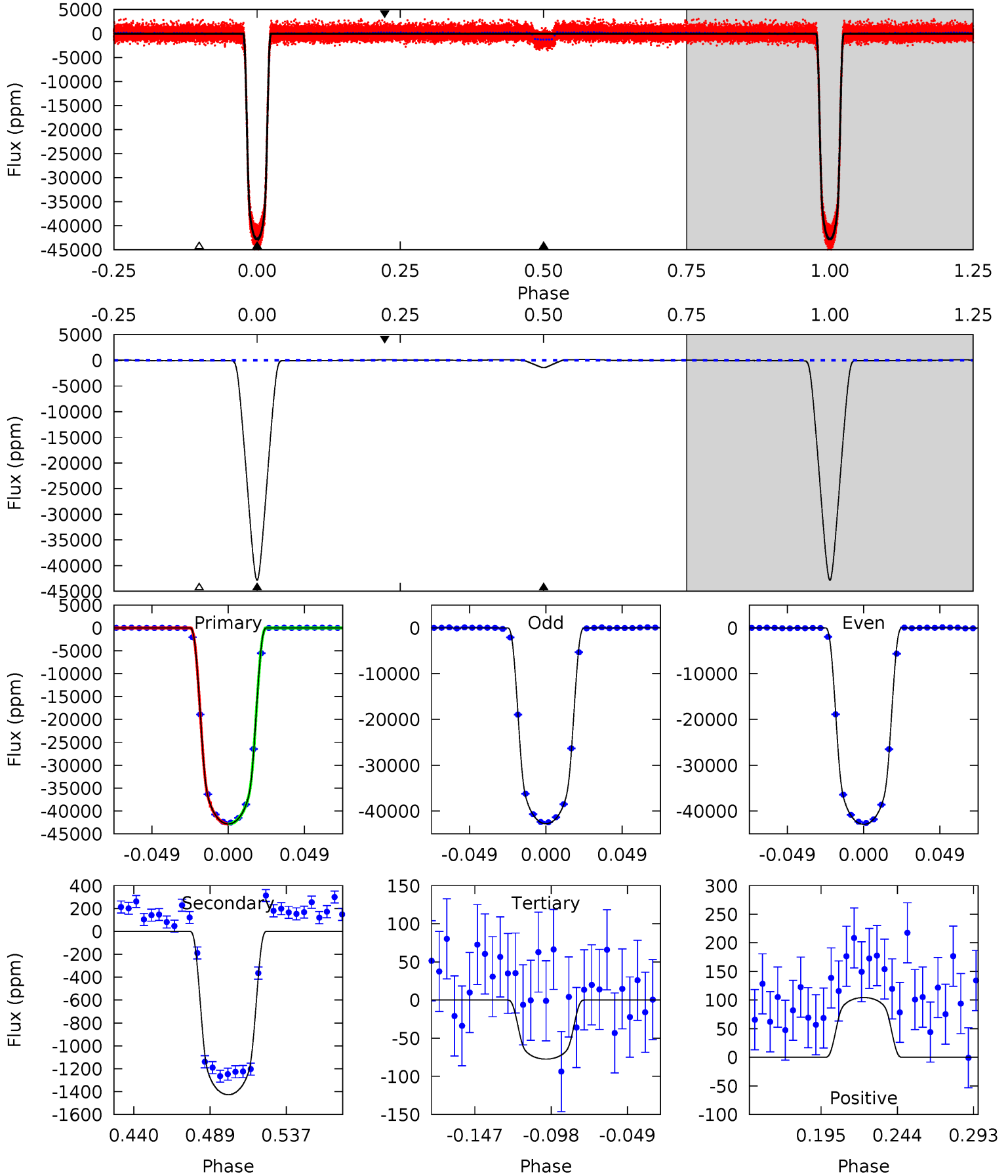
TCE 004851464-01 P= 5.548303 Days  $T_0=133.211896$  (BKJD)



# DV Model-Shift Uniqueness Test

004851464-01, P = 5.548249 Days, E = 133.219941 Days

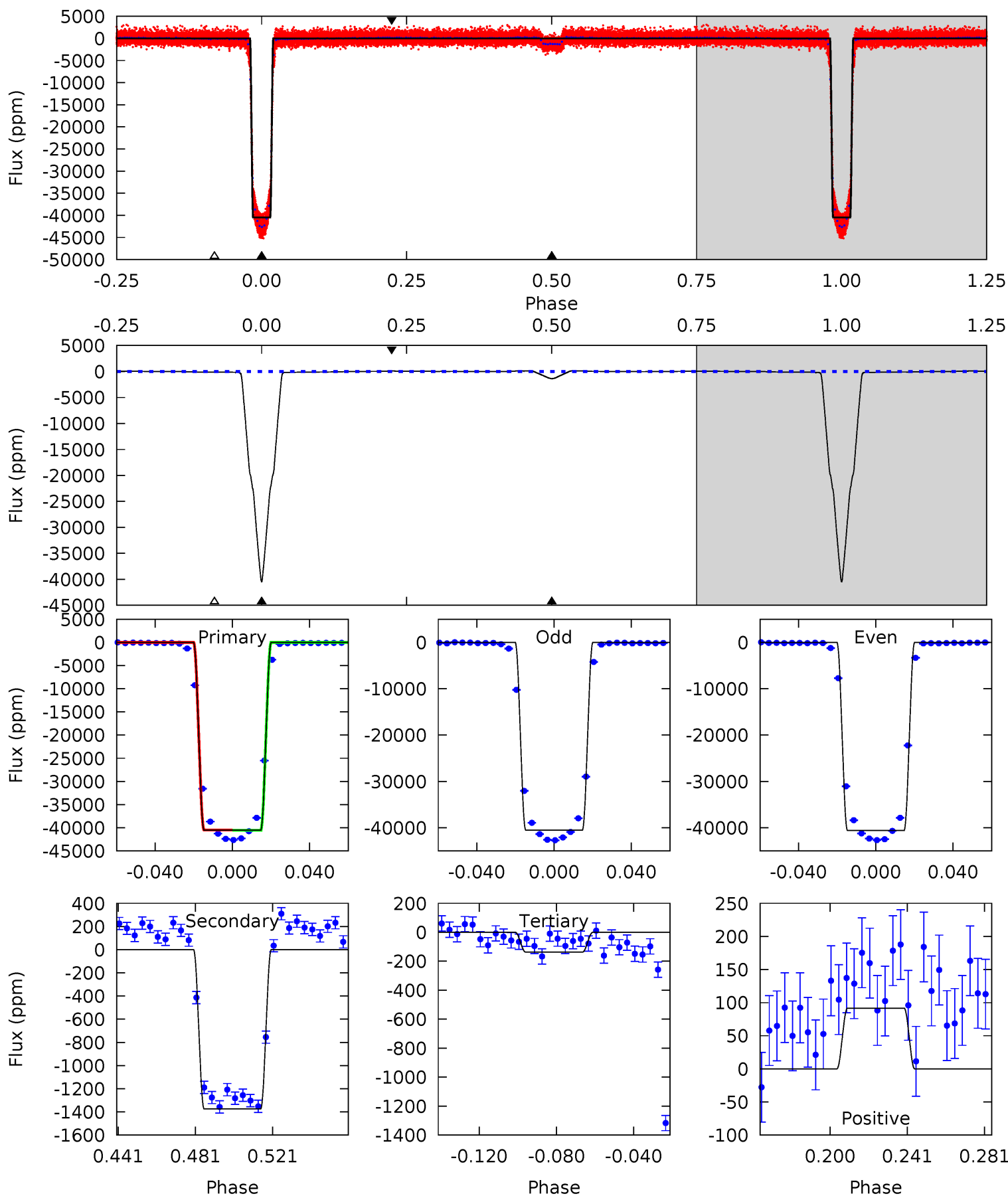
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
2678	89.2	4.84	6.53	4.71	1.97	4.01	2673	2671	84.4	82.7	4.35	0.98	0.00	0.97



# Alt Model-Shift Uniqueness Test

004851464-01, P = 5.548303 Days, E = 133.211896 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
2167	73.5	7.35	4.90	4.75	2.05	3.70	2160	2163	66.1	68.6	2.16	0.99	0.00	2.04



### Stellar Parameters For KIC 004851464

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R$ ( $R_{\odot}$ )	$M(M_{\odot})$	$p_{\star}$ ( $\text{g}\cdot\text{cm}^{-3}$ )
	$6124^{+193}_{-236}$	$4.455^{+0.052}_{-0.208}$	$-0.020^{+0.250}_{-0.300}$	$1.028^{+0.324}_{-0.130}$	$1.097^{+0.151}_{-0.151}$	$1.424^{+0.402}_{-0.750}$
	+3%/-4%	+1%/-5%	+1250%/-1500%	+32%/-13%	+14%/-14%	+28%/-53%
Source	KIC0	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 004851464-01 / KOI 1757.01

Detrend	Depth (ppm)	$R_p$ ( $R_{\oplus}$ )	$T_{max}$ (K)	$T_{obs}$ (K)	$A_{obs}$
DV	$-1427 \pm 16$	$22.29^{+3.88}_{-2.03}$	$1560^{+114}_{-83}$	$3260^{+62}_{-73}$	$6.235^{+1.042}_{-1.463}$
Alt.	$-1373 \pm 19$	$23.81^{+3.46}_{-2.16}$	$1556^{+112}_{-77}$	$3180^{+62}_{-79}$	$5.363^{+0.789}_{-1.252}$

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

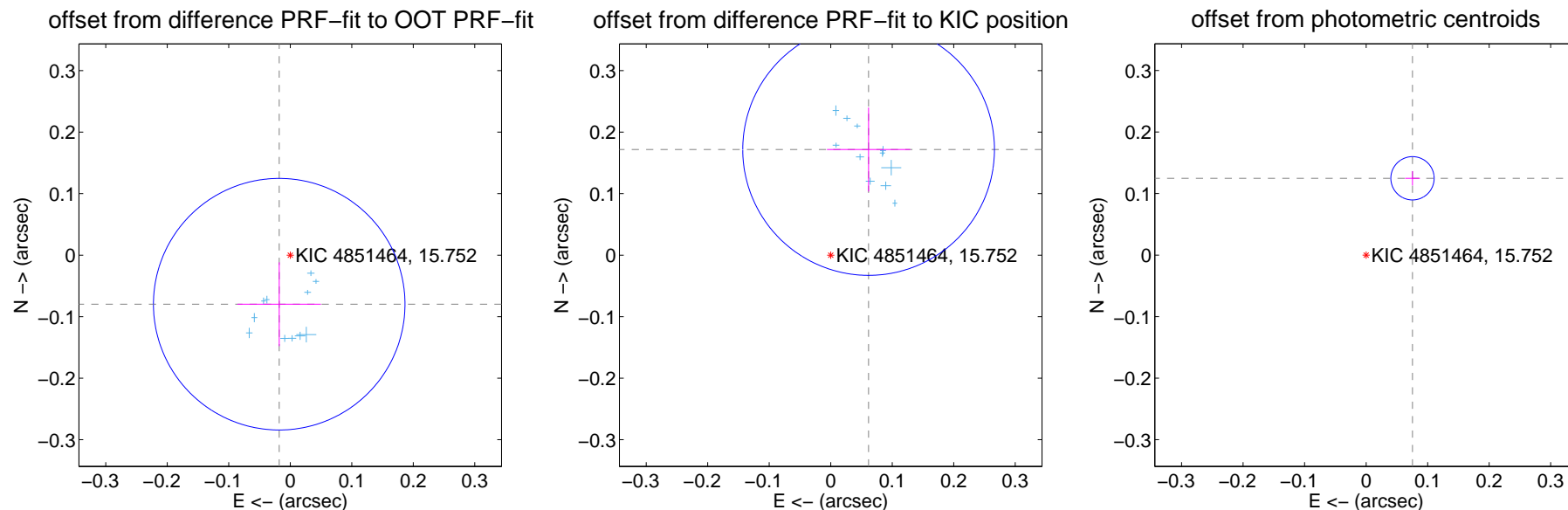
## DV Centroid Data

Supplemental centroid analysis for 004851464-01. Kepler magnitude: 15.75. Transit SNR 1245.38

There are 11 quarters with good PRF difference image offsets

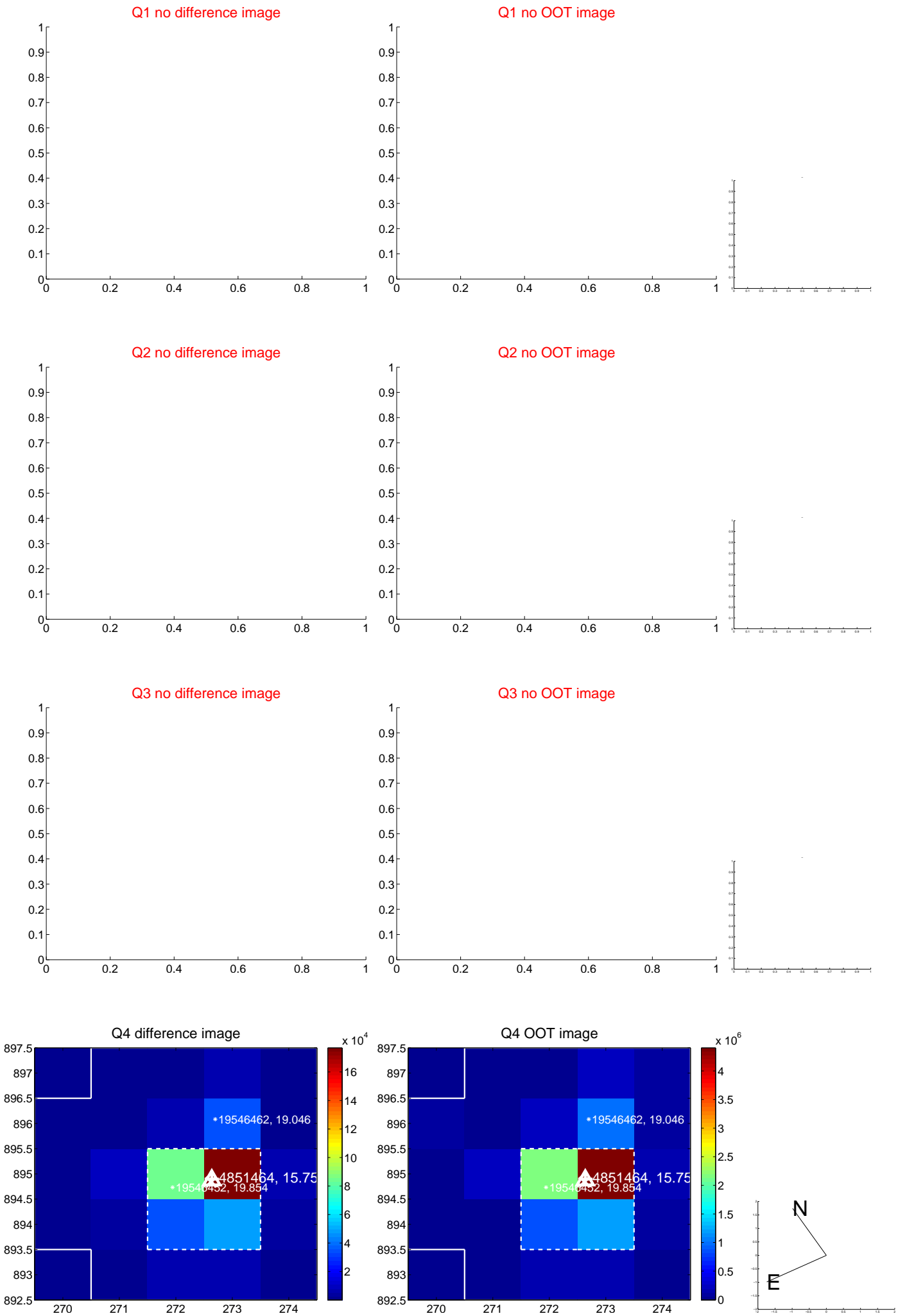
The direct PRF centroid is offset from the target star catalog position by about 0.28 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$0.082 \pm 0.068$	1.20	$0.018 \pm 0.068$	$-0.080 \pm 0.068$
PRF-fit source offset from KIC position	$0.183 \pm 0.068$	2.68	$-0.062 \pm 0.068$	$0.172 \pm 0.068$
photometric centroid source offset	$0.15 \pm 0.01$	12.43	$-0.08 \pm 0.01$	$0.12 \pm 0.01$

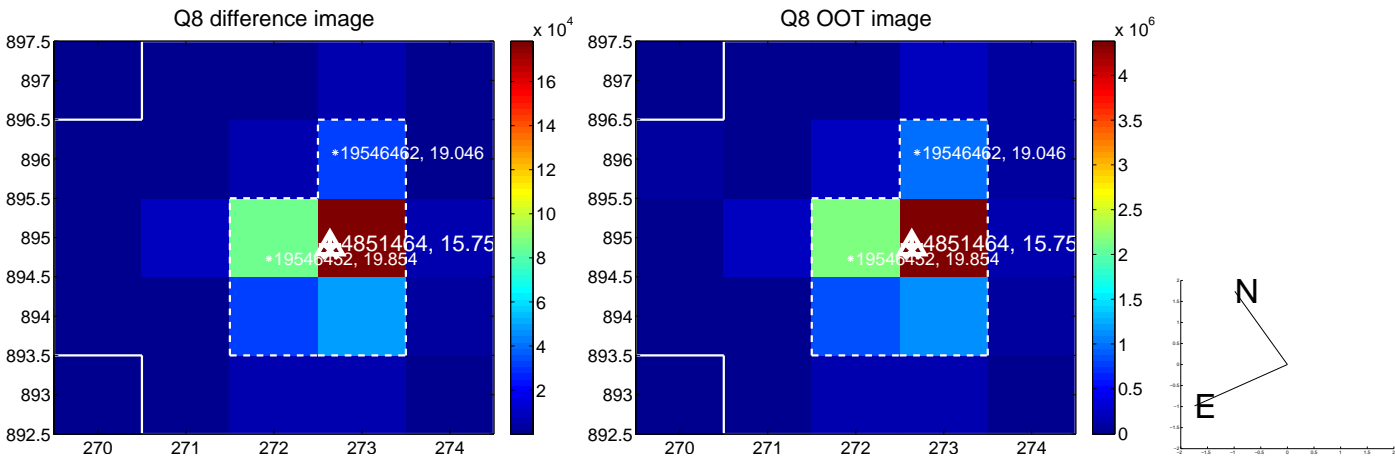
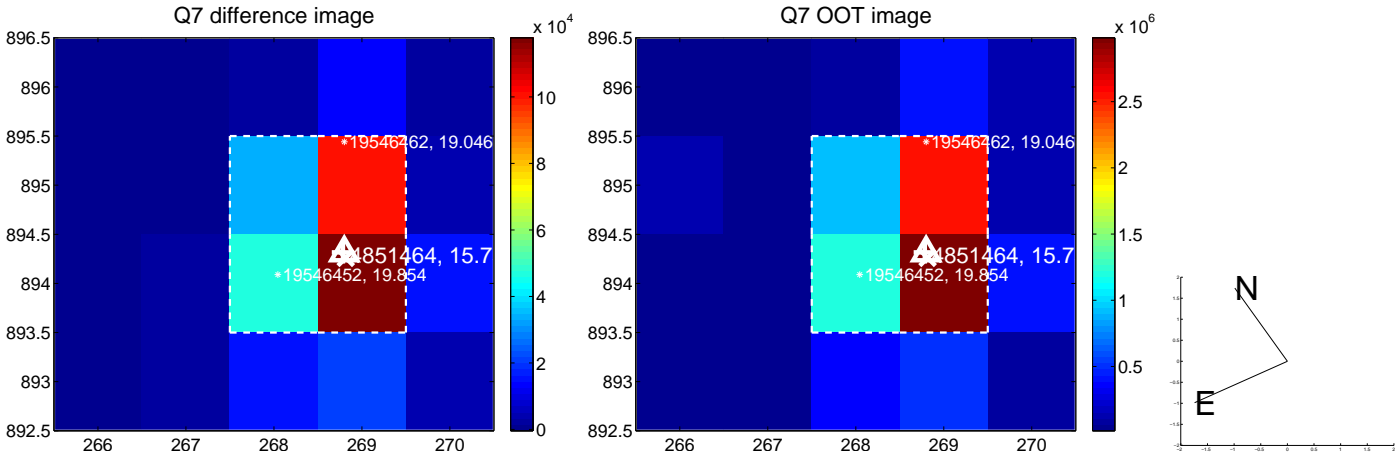
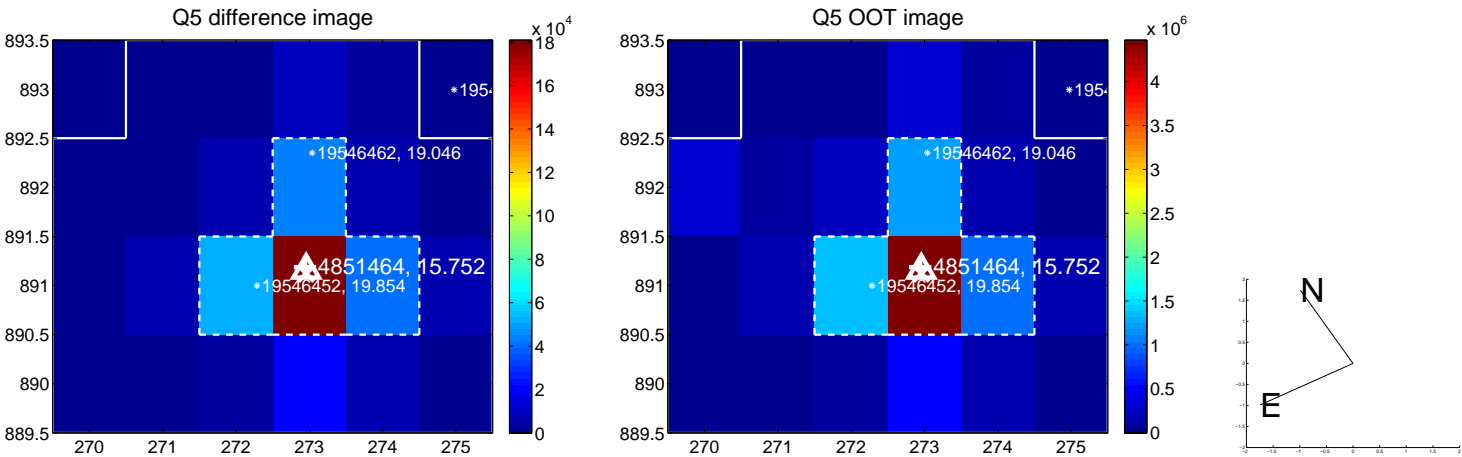


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses:** good quarterly centroid offsets; **Vermillion crosses:** bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: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

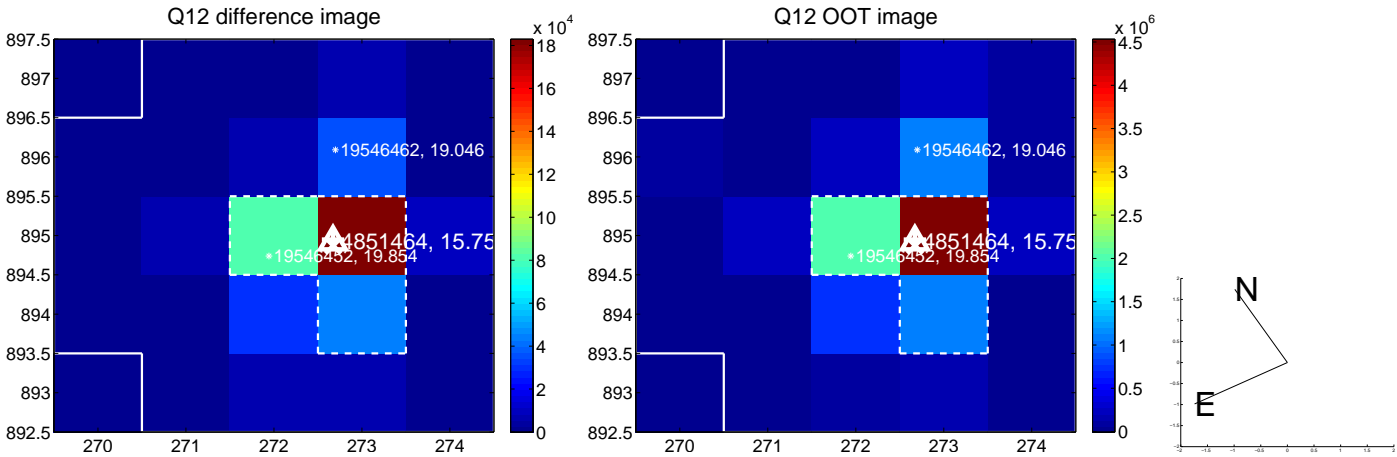
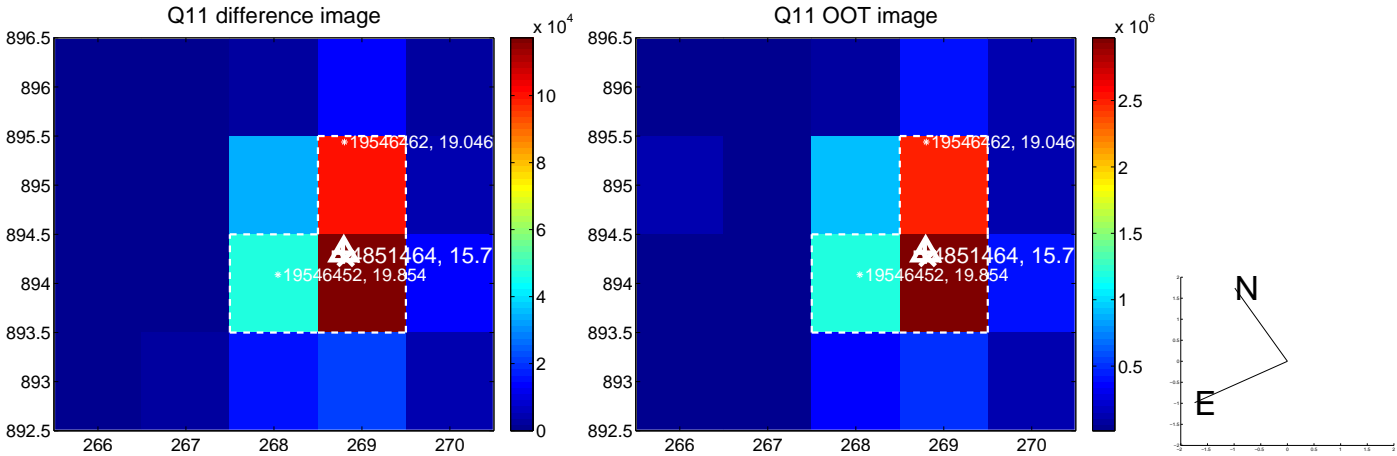
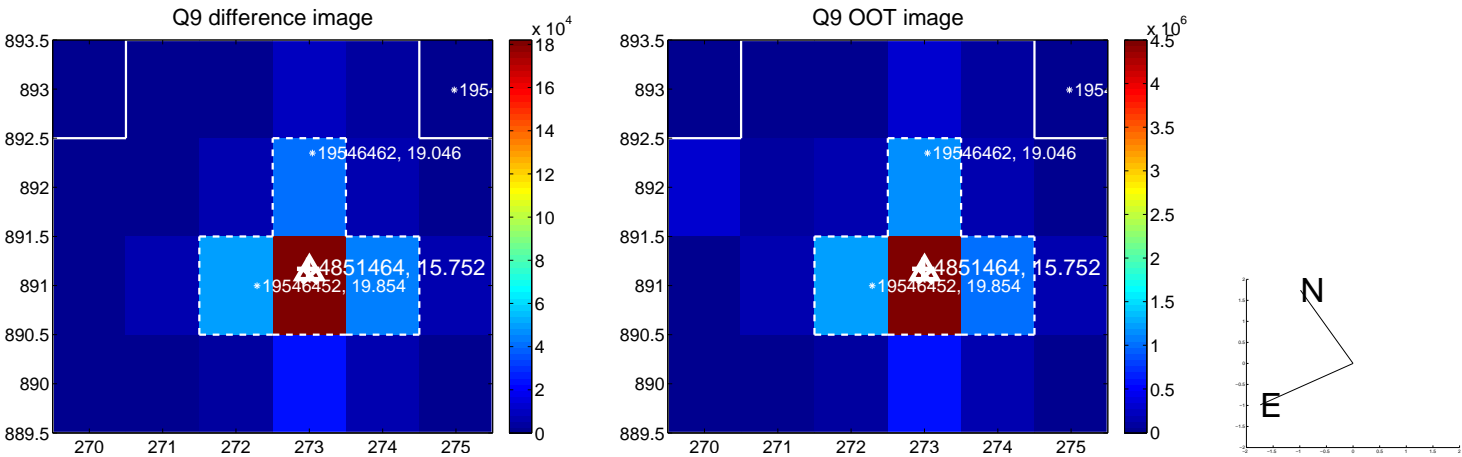


white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.

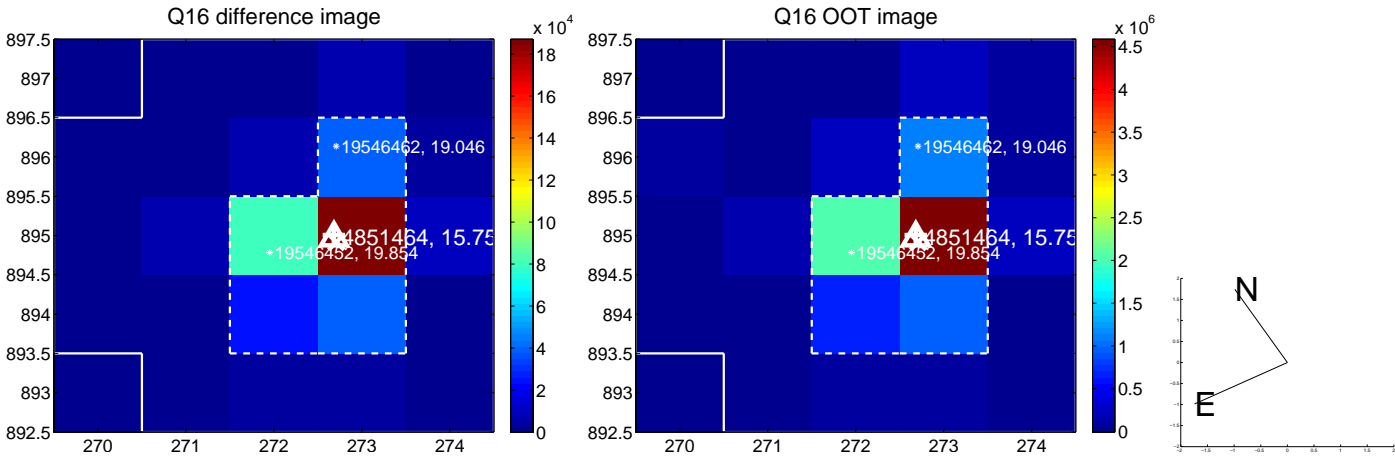
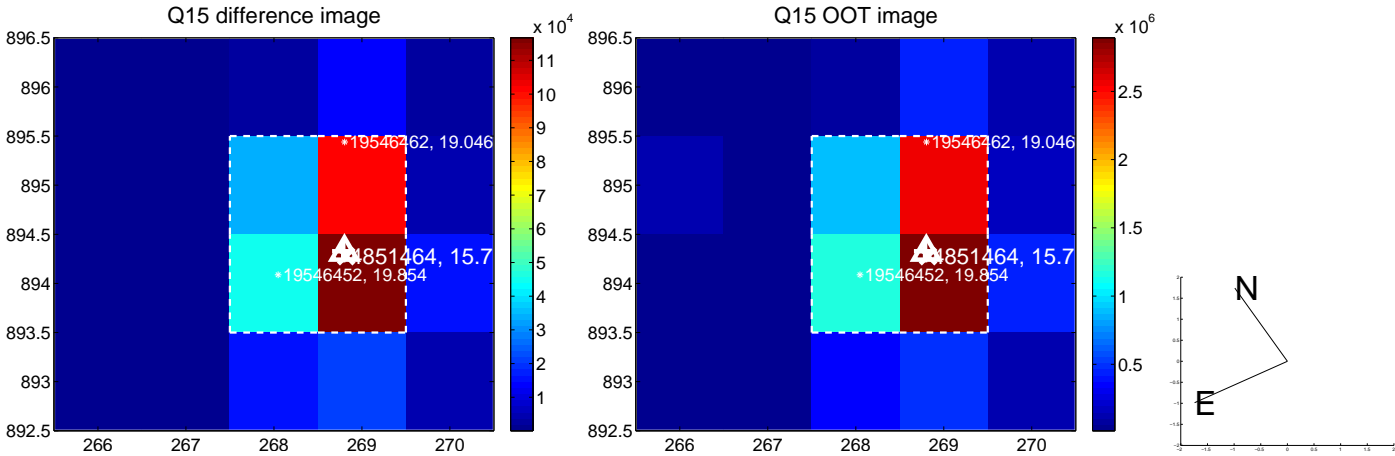
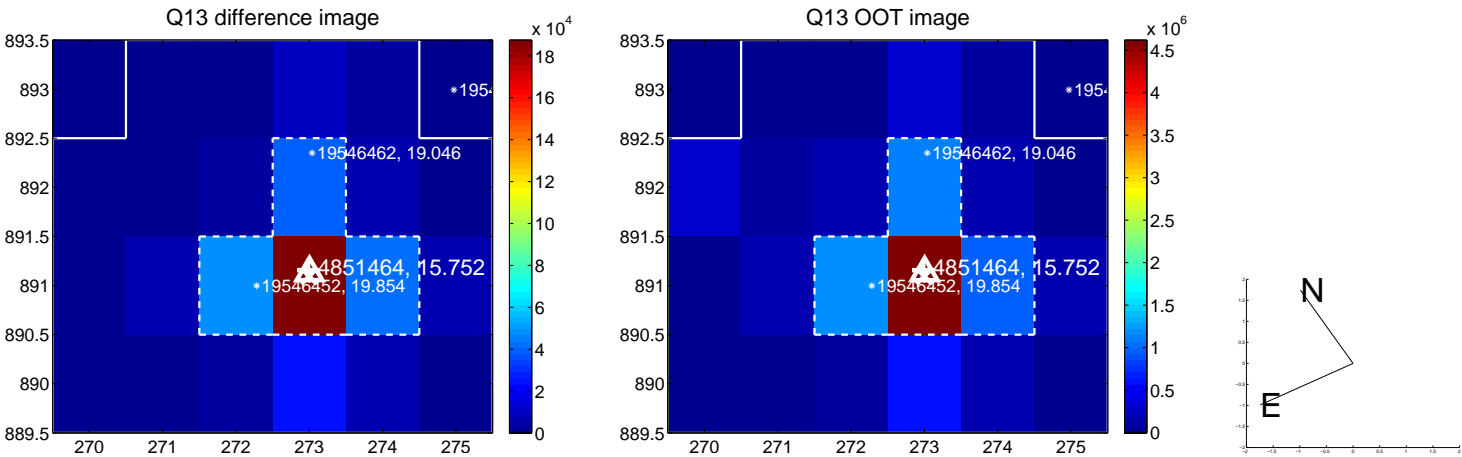




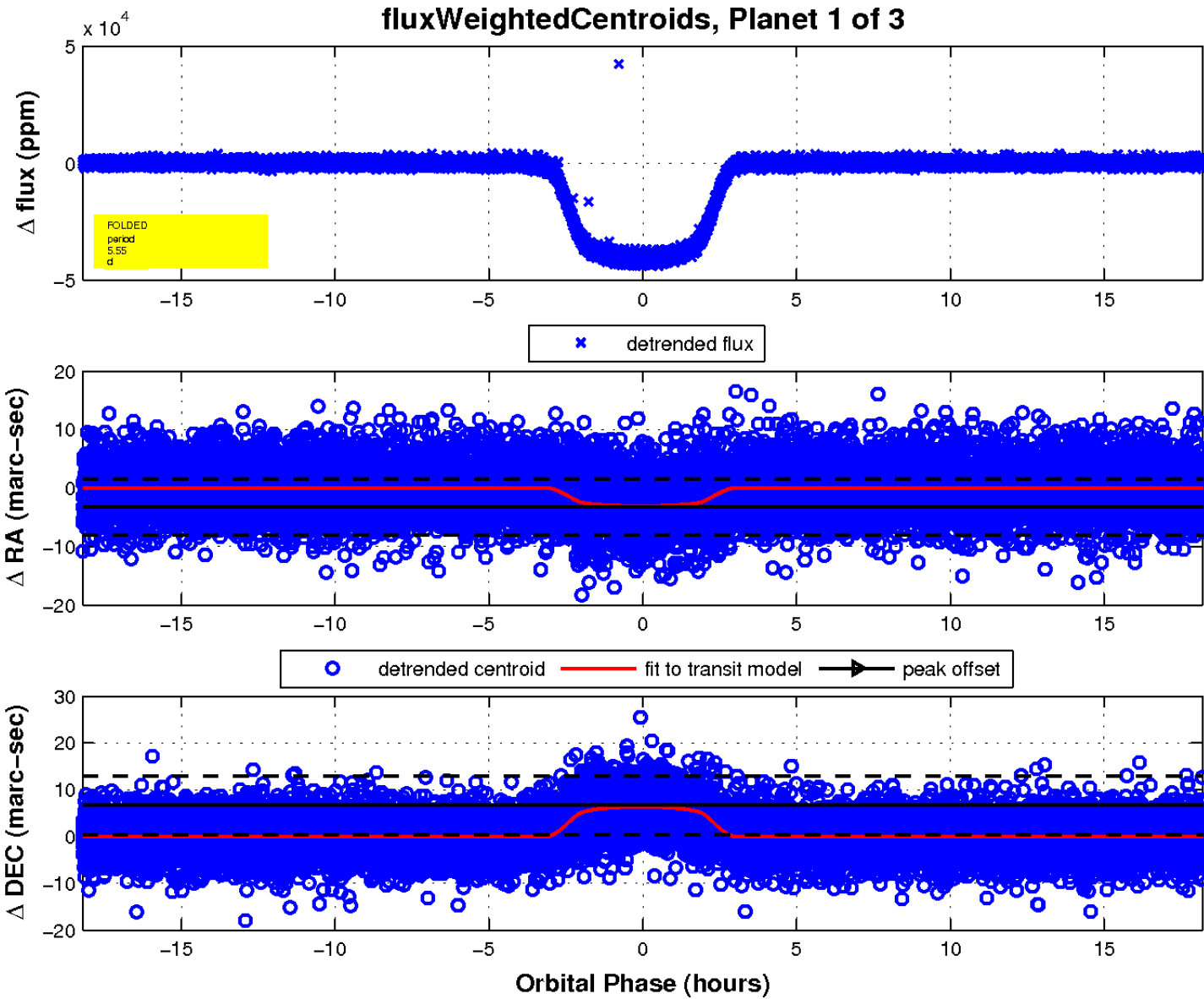
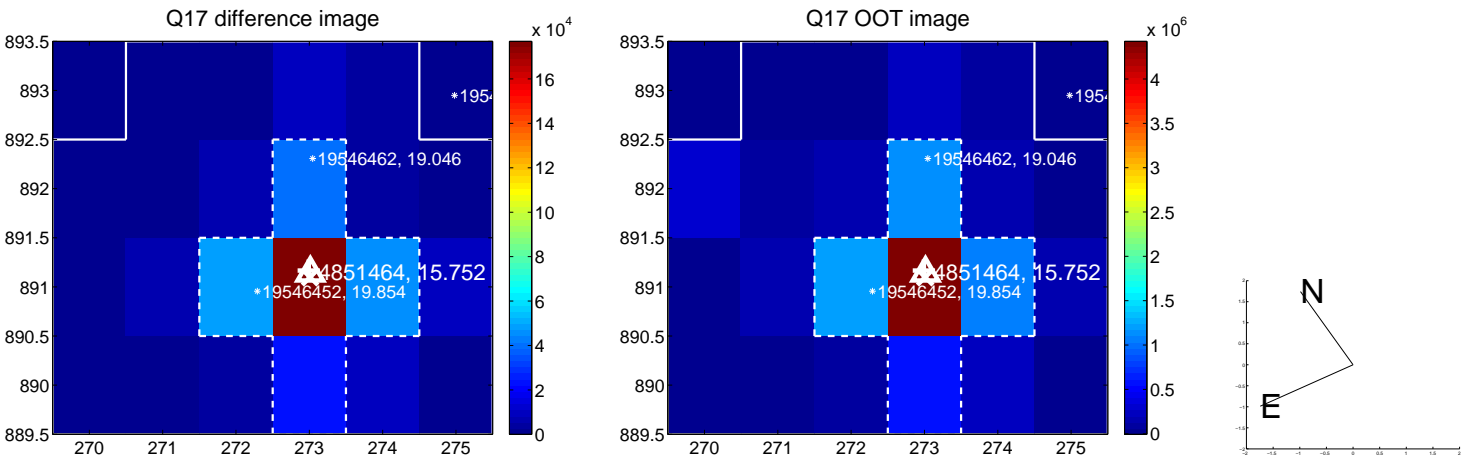
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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

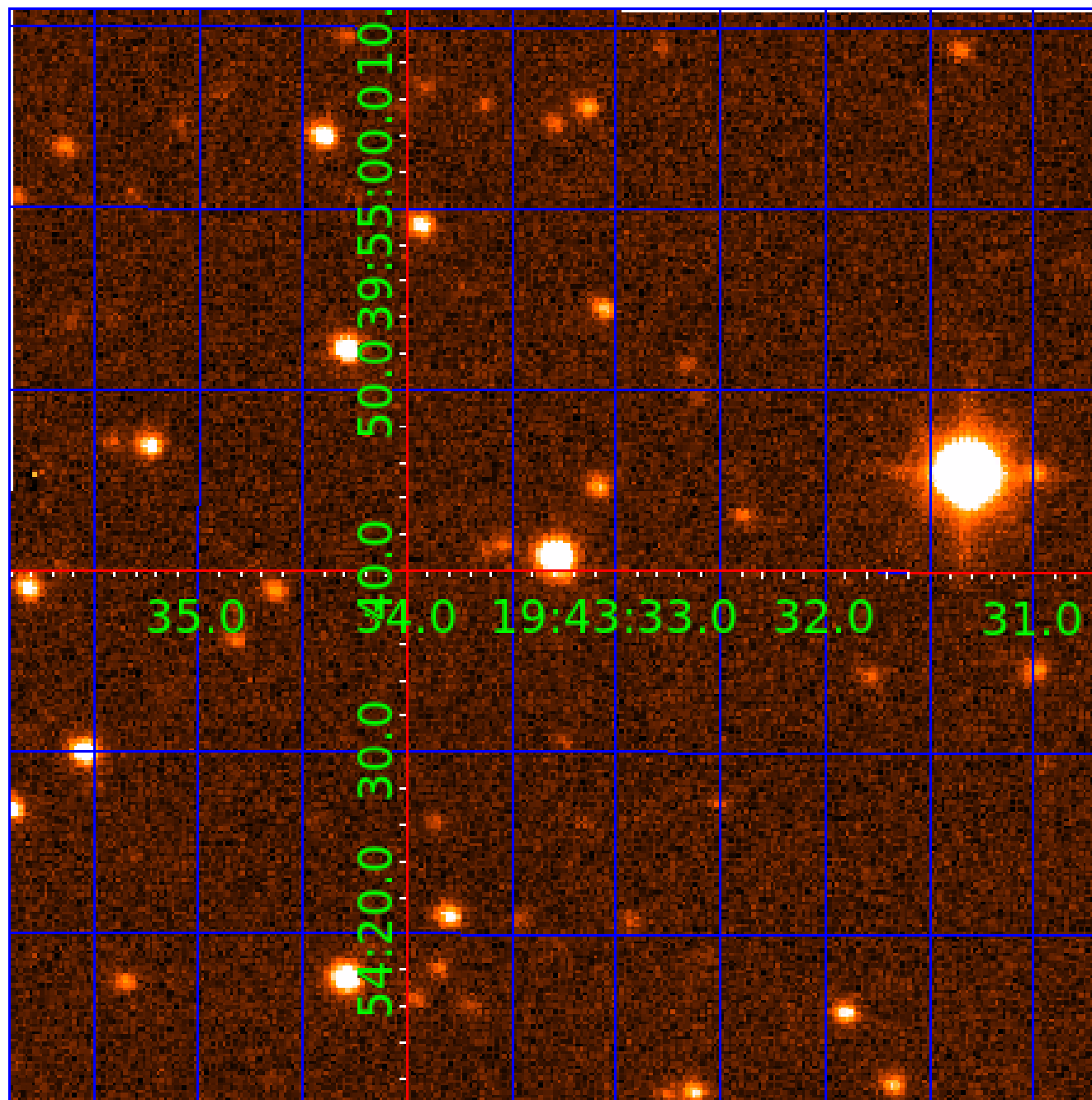


white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



UKIRT Image

Declination



# KIC 004851464

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
004851464-01	OBS	1757.01	5.548249	133.219941	42885.4	6.069	1331.1	1245.4	1.03	6124	21.53	332.27
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004851464-03	OBS	No	518.799110	533.219066	1735.4	11.120	21.3	6.6	1.03	6124	5.26	0.78

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
004851464-01	OBS	FP	0.00	0	1	0	0	MOD_SEC_DV—MOD_SEC_ALT—HAS_SEC_TCE
004851464-02	OBS	FP	0.00	1	1	0	0	IS_SEC_TCE
004851464-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_CHASES_MARSHALL—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—INCONSISTENT_TRANS—CENT_FEW_DIFFS

**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.

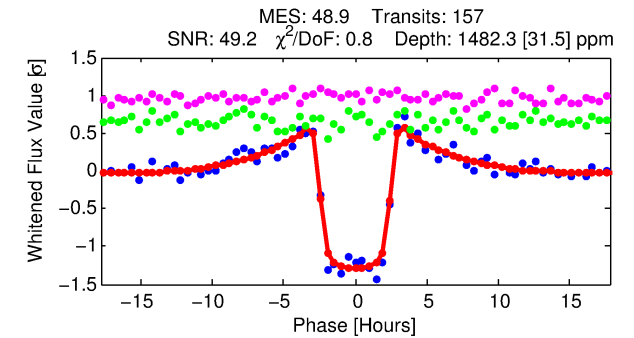
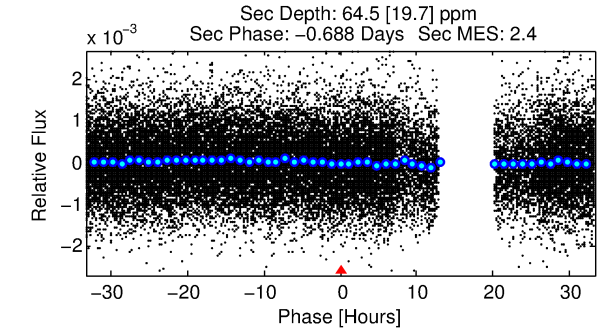
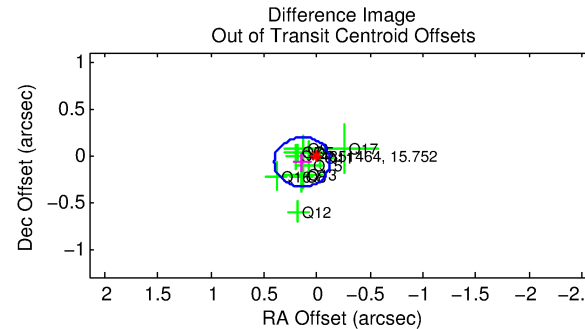
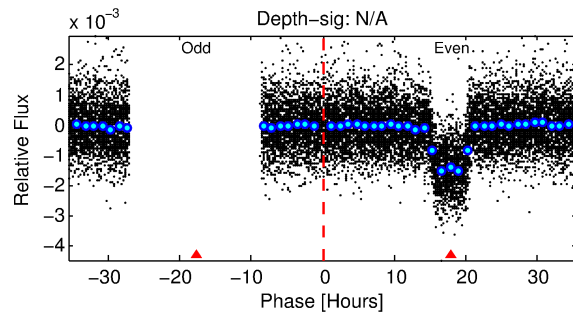
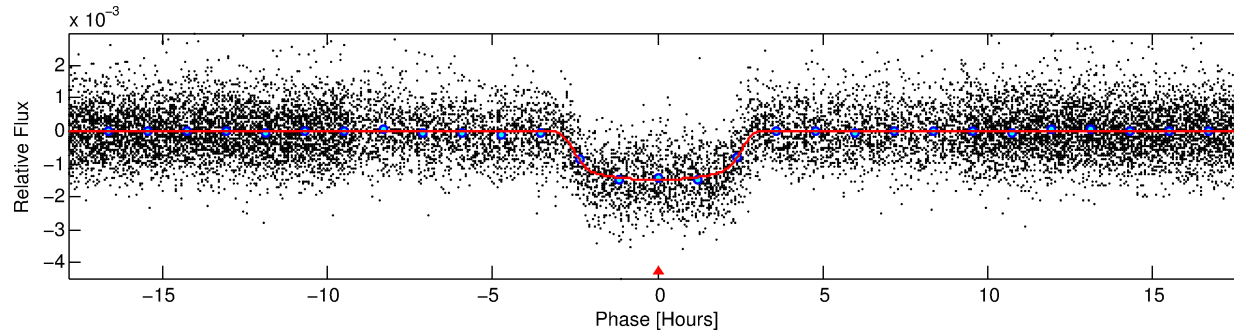
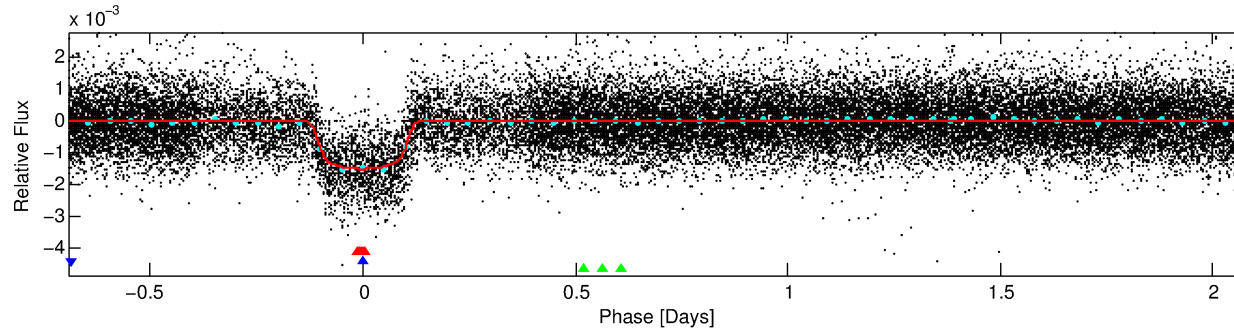
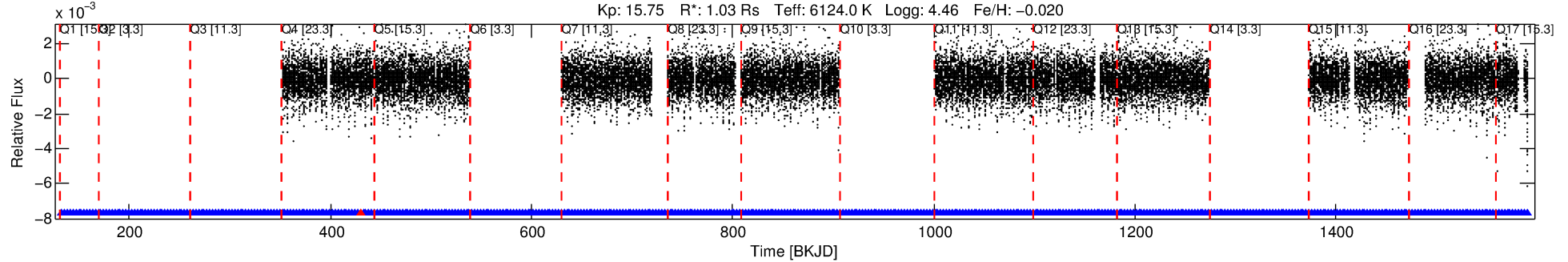
## Ephemeris Match Information For 004851464-02

No Significant Match Found

# DV One-Page Summary

KIC: 4851464 Candidate: 2 of 3 Period: 2.774 d  
KOI: K01757 Corr: No Ephemeris Match

Kp: 15.75 R\*: 1.03 Rs Teff: 6124.0 K Logg: 4.46 Fe/H: -0.020



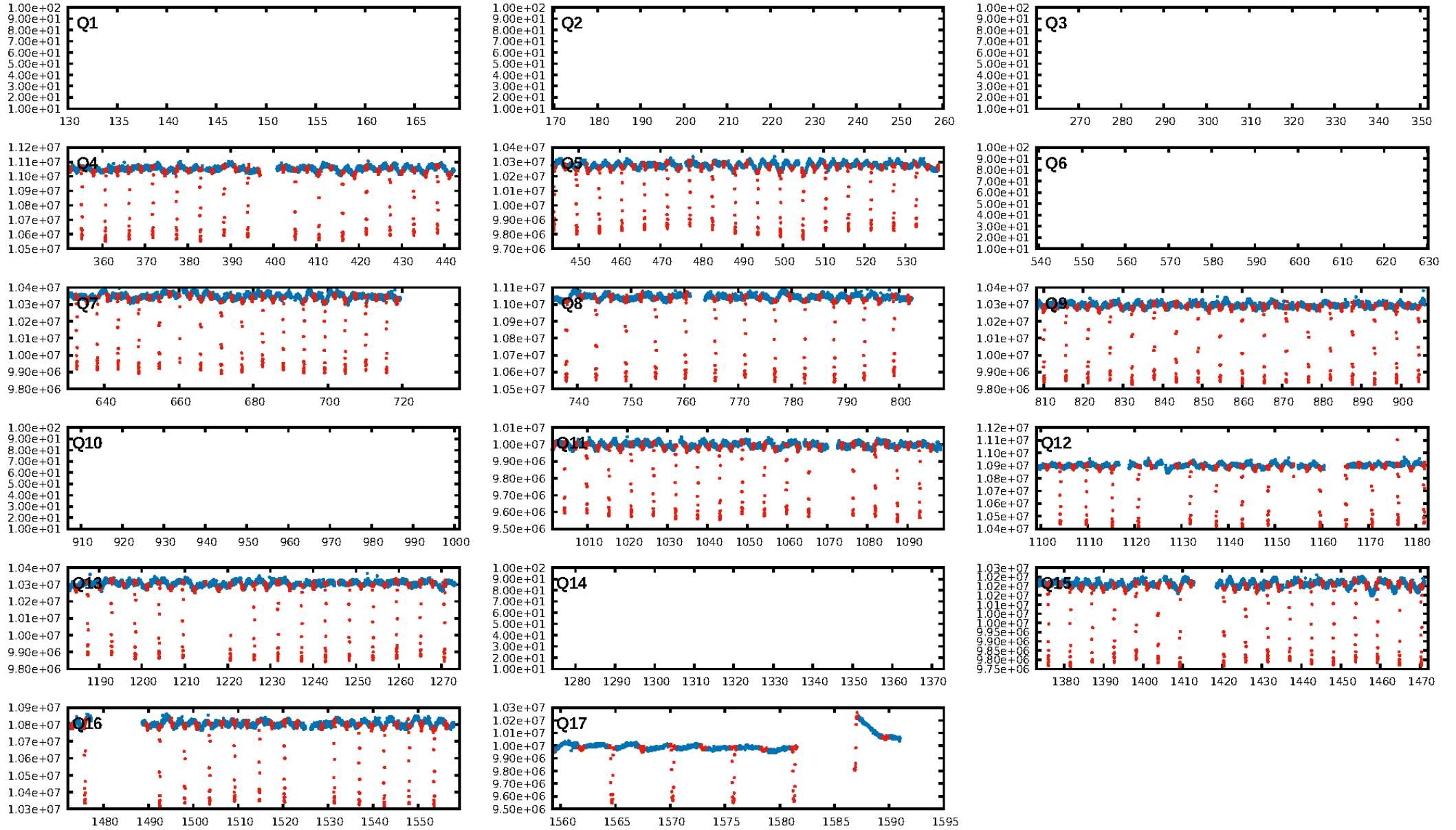
## DV Fit Results:

Period = 2.77409 [0.00001] d  
Epoch = 133.2310 [0.0013] BKJD  
Rp/R\* = 0.0404 [0.0009]  
a/R\* = 2.27 [0.16]  
b = 0.86 [0.03]  
Seff = 837.28 [345.07]  
Teff = 1372 [141] K  
Rp = 4.53 [1.43] Re  
a = 0.0399 [0.0105] AU  
Ag = 2.75 [1.35] [1.29σ]  
Teffp = 2730 [236] K [4.94σ]

## DV Diagnostic Results:

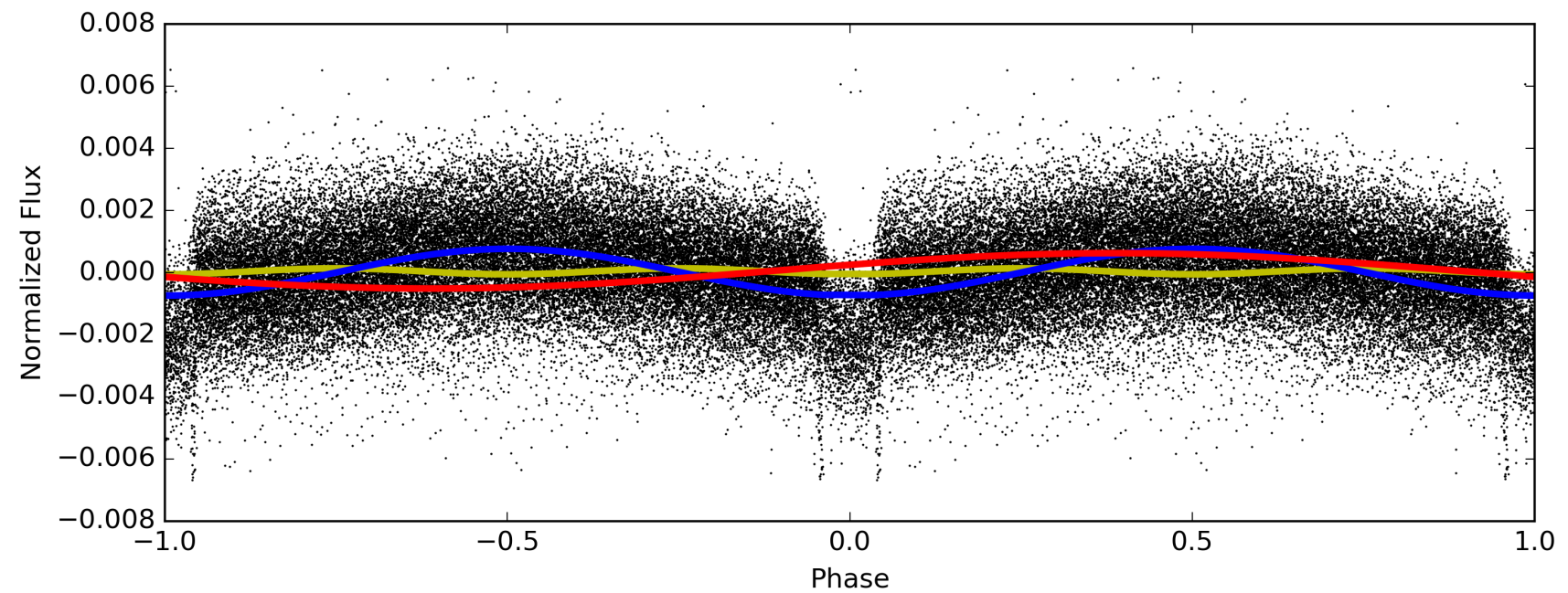
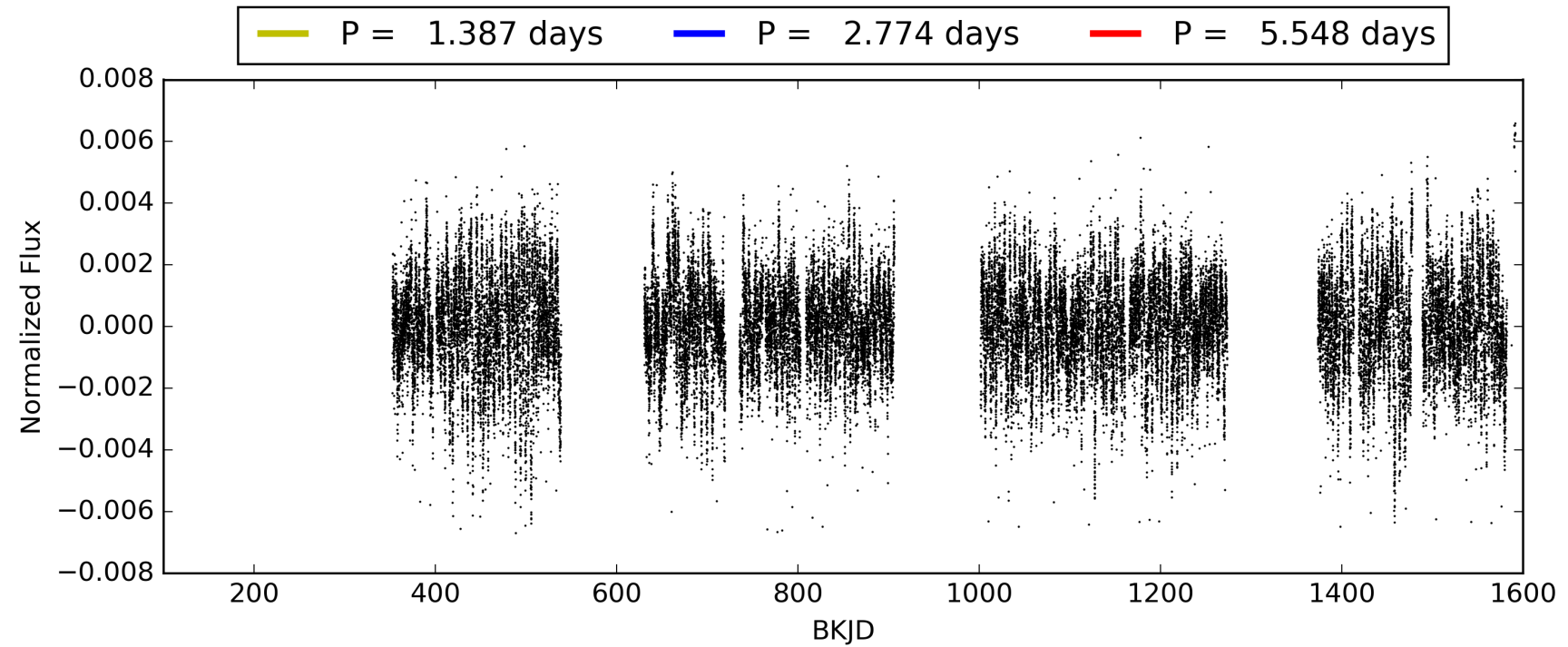
ShortPeriod-sig: N/A  
LongPeriod-sig: 100.0% [7.83σ]  
ModelChiSquare2-sig: 100.0%  
ModelChiSquareGof-sig: 100.0%  
Bootstrap-pfa: 0.00e+00  
RollingBand-fgt: 0.99 [151/152]  
GhostDiagnostic-chr: 4.641  
Centroid-sig: 0.0%  
Centroid-so: 0.330 arcsec [1.41σ]  
OotOffset-rm: 0.158 arcsec [1.80σ]  
KicOffset-rm: 0.198 arcsec [2.27σ]  
OotOffset-st: 0/3/4/4 [11]  
KicOffset-st: 0/3/4/4 [11]  
DiffImageQuality-fgm: 1.00 [11/11]  
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# TCE 004851464-02, PDC Light Curves





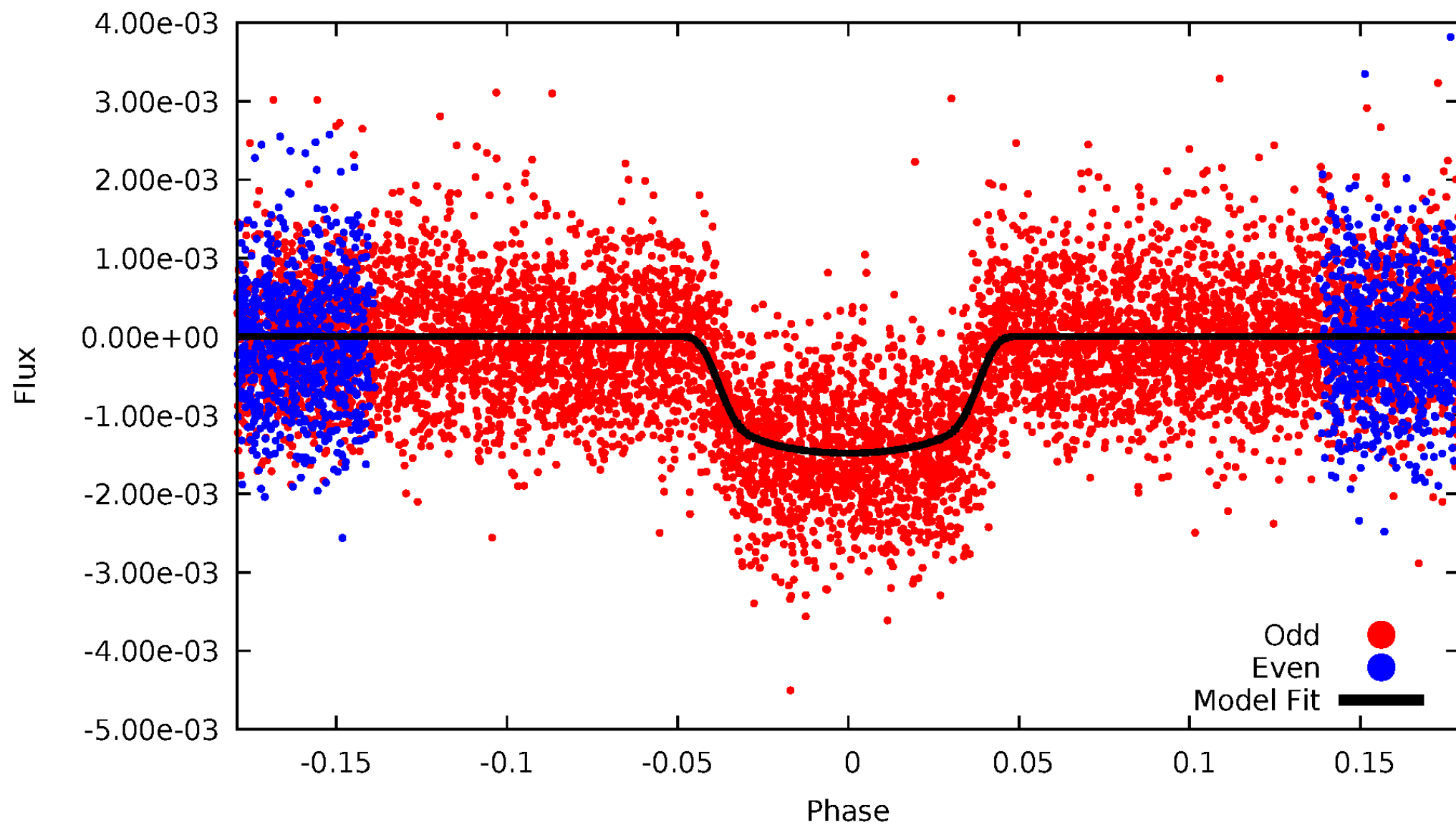
TCE 004851464-02





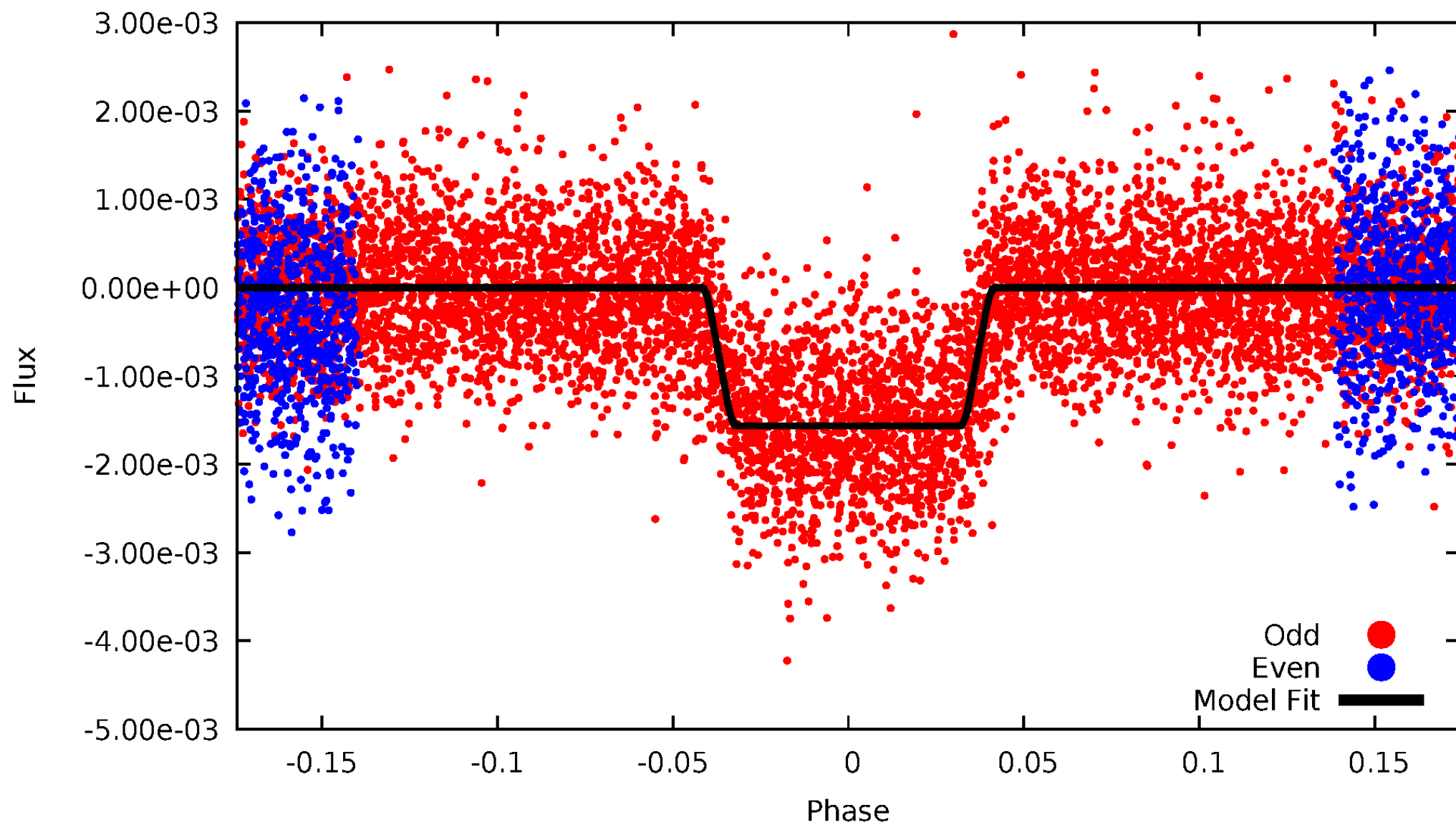
# DV Odd/Even

TCE 004851464-02



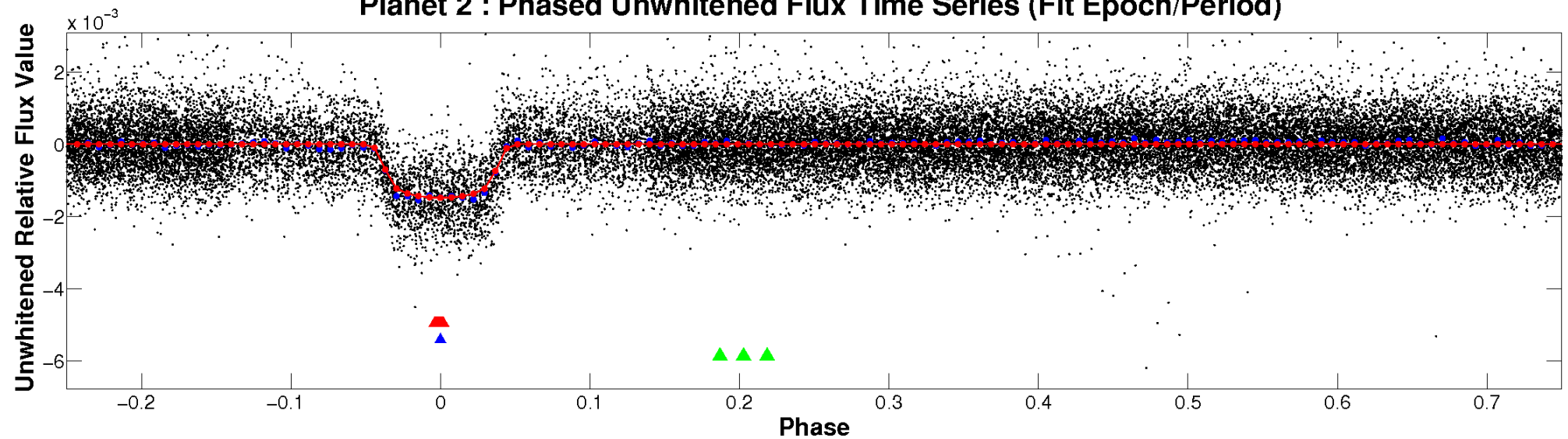
# ALT Odd/Even

TCE 004851464-02

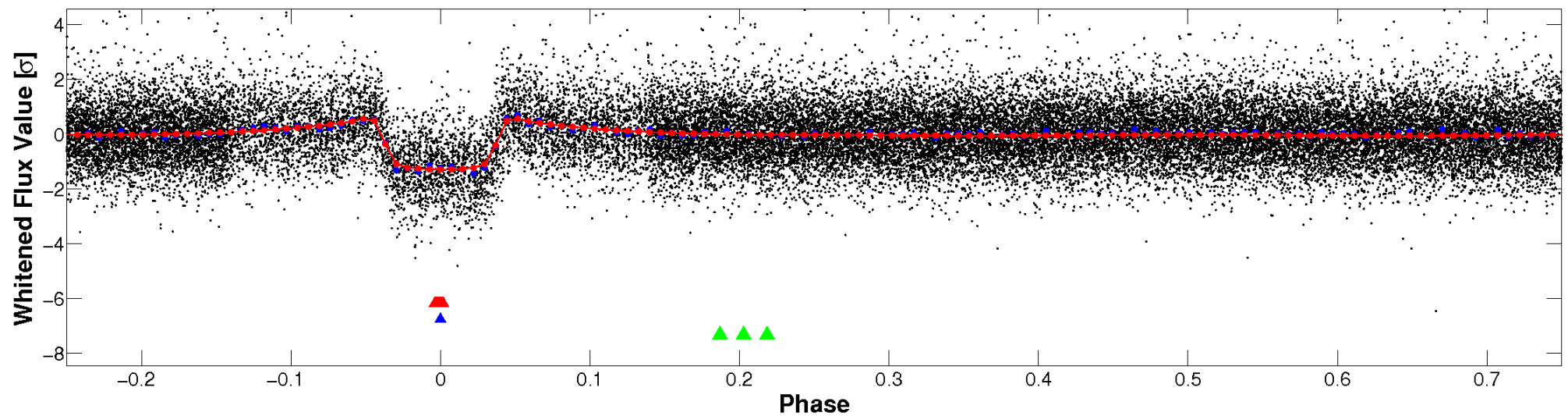


# Non-Whitened Vs. Whitened Light Curve

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

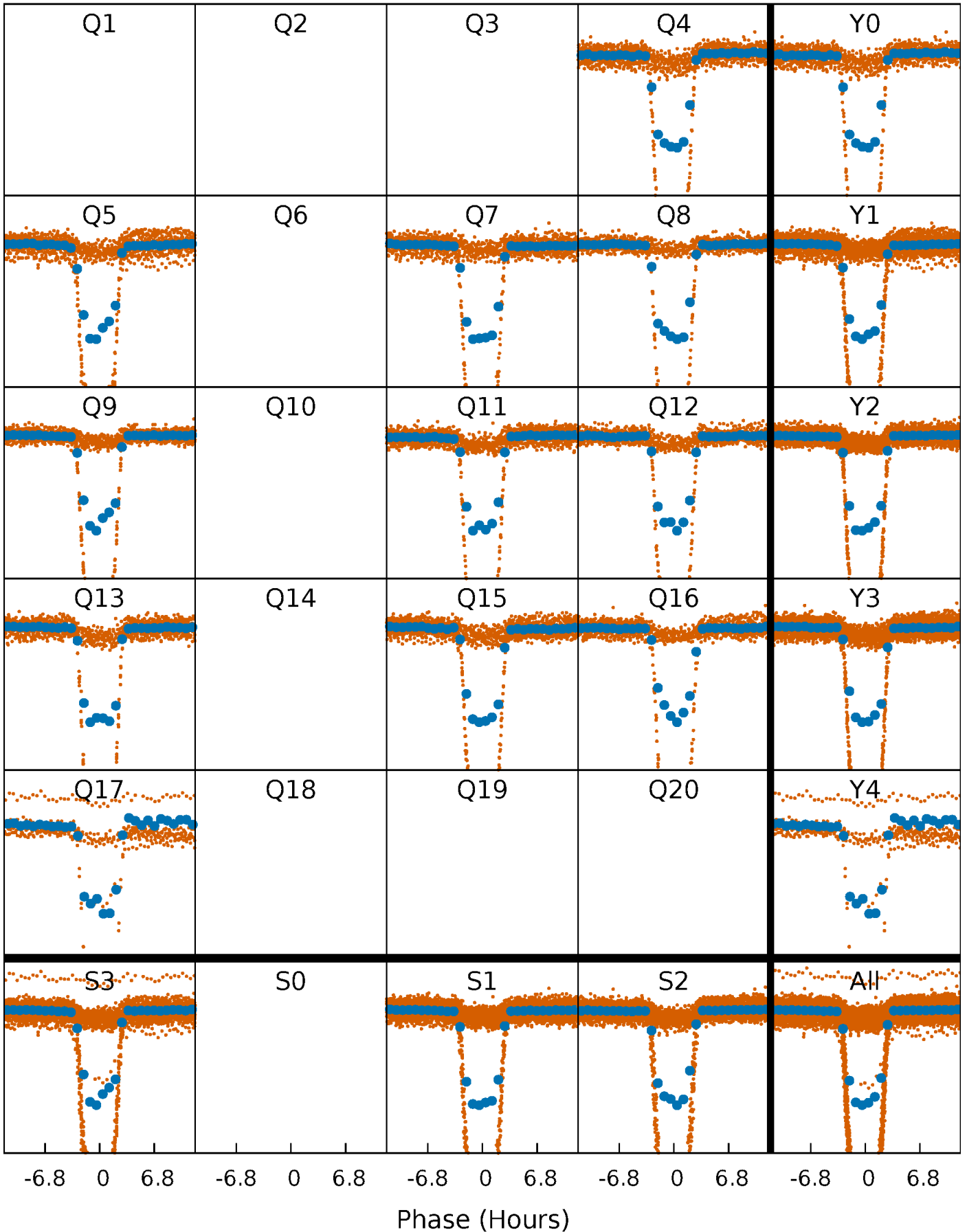


## Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



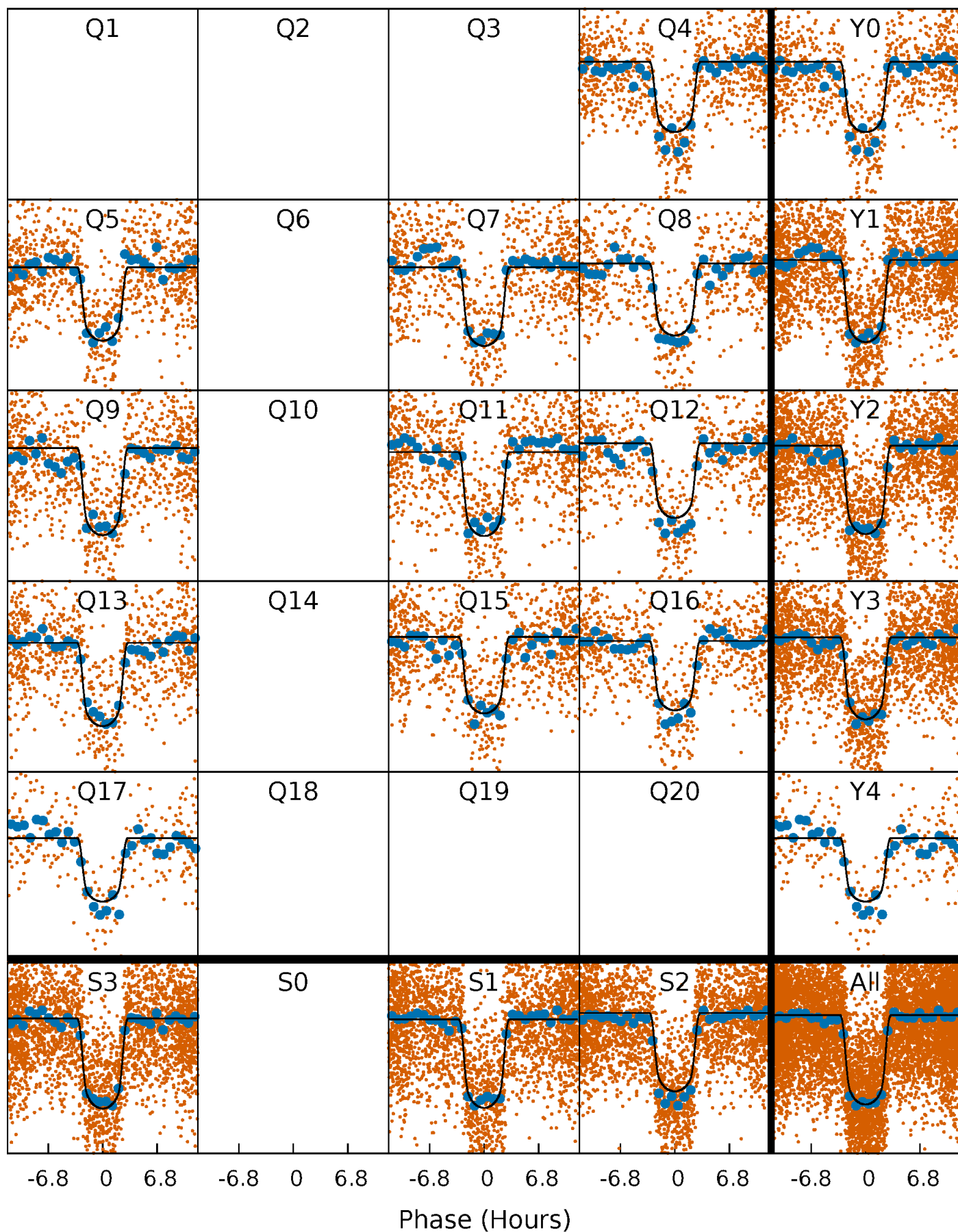
# PDC Quarter-Phased Transit Curves

TCE 004851464-02   P= 2.774093 Days    $T_0=133.230986$  (BKJD)



# DV Quarter-Phased Transit Curves

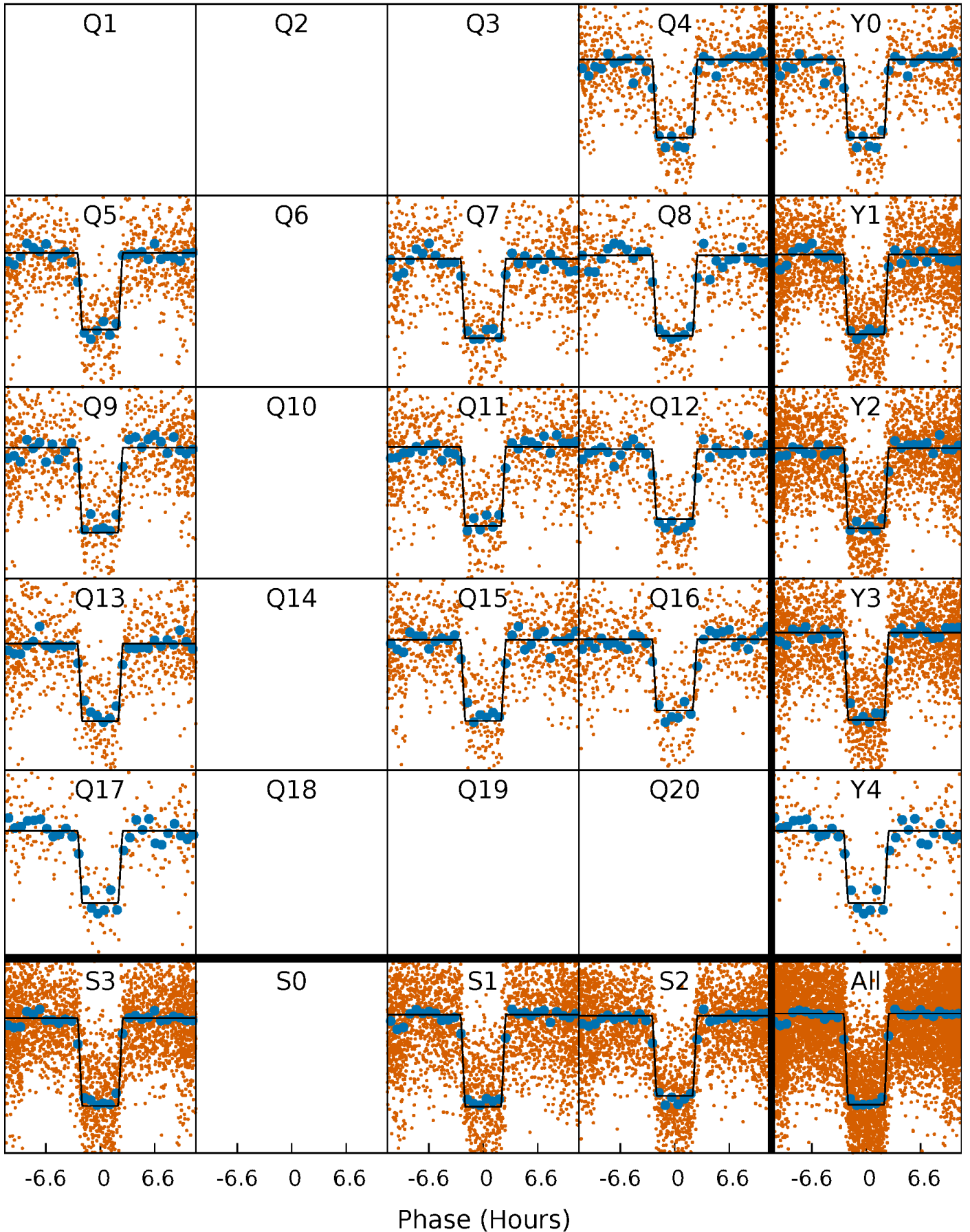
TCE 004851464-02   P= 2.774093 Days    $T_0=133.230986$  (BKJD)





# Alt. Detrend Quarter-Phased Transit Curves

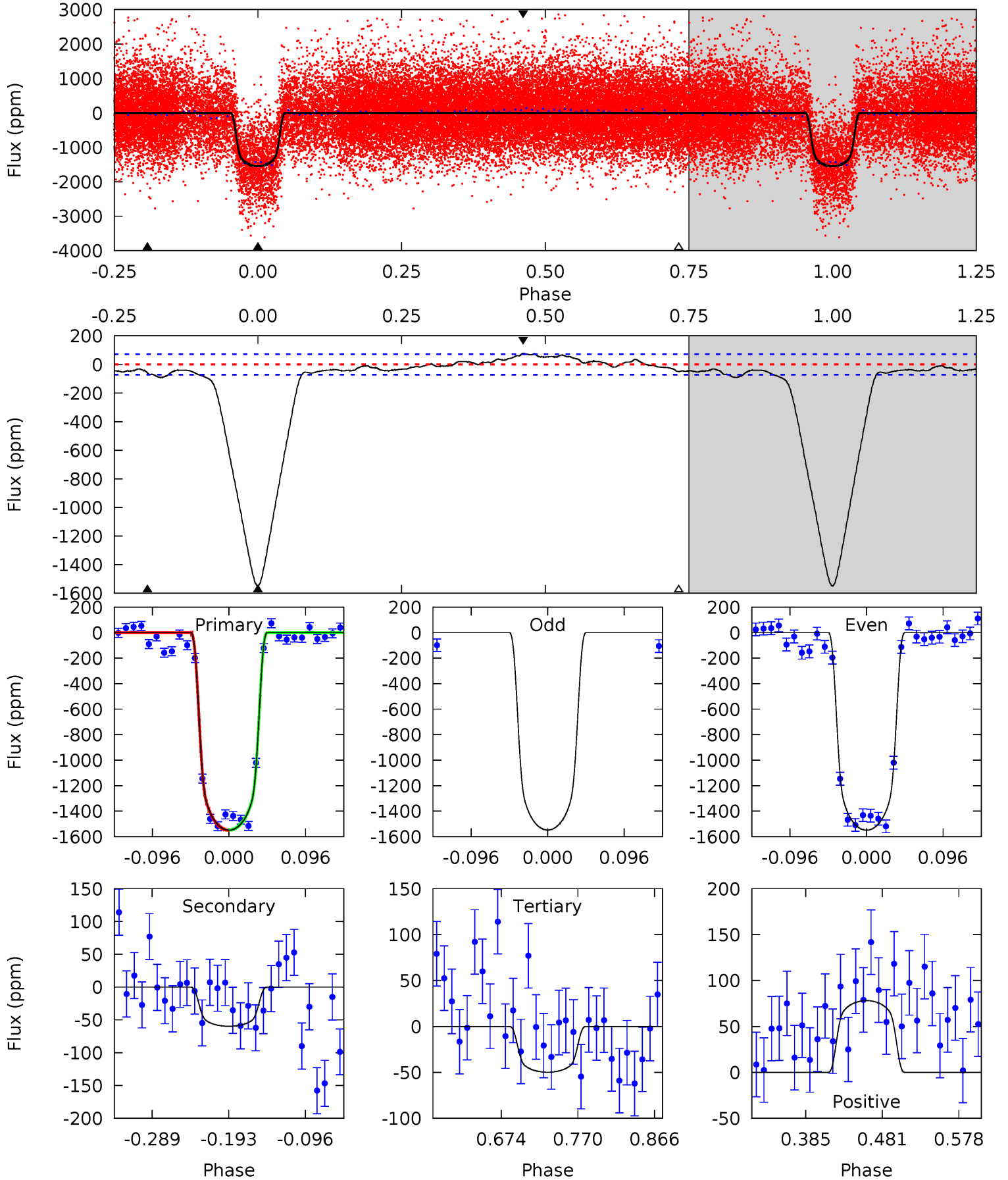
TCE 004851464-02   P= 2.774100 Days    $T_0=133.228830$  (BKJD)



# DV Model-Shift Uniqueness Test

004851464-02, P = 2.774093 Days, E = 133.230986 Days

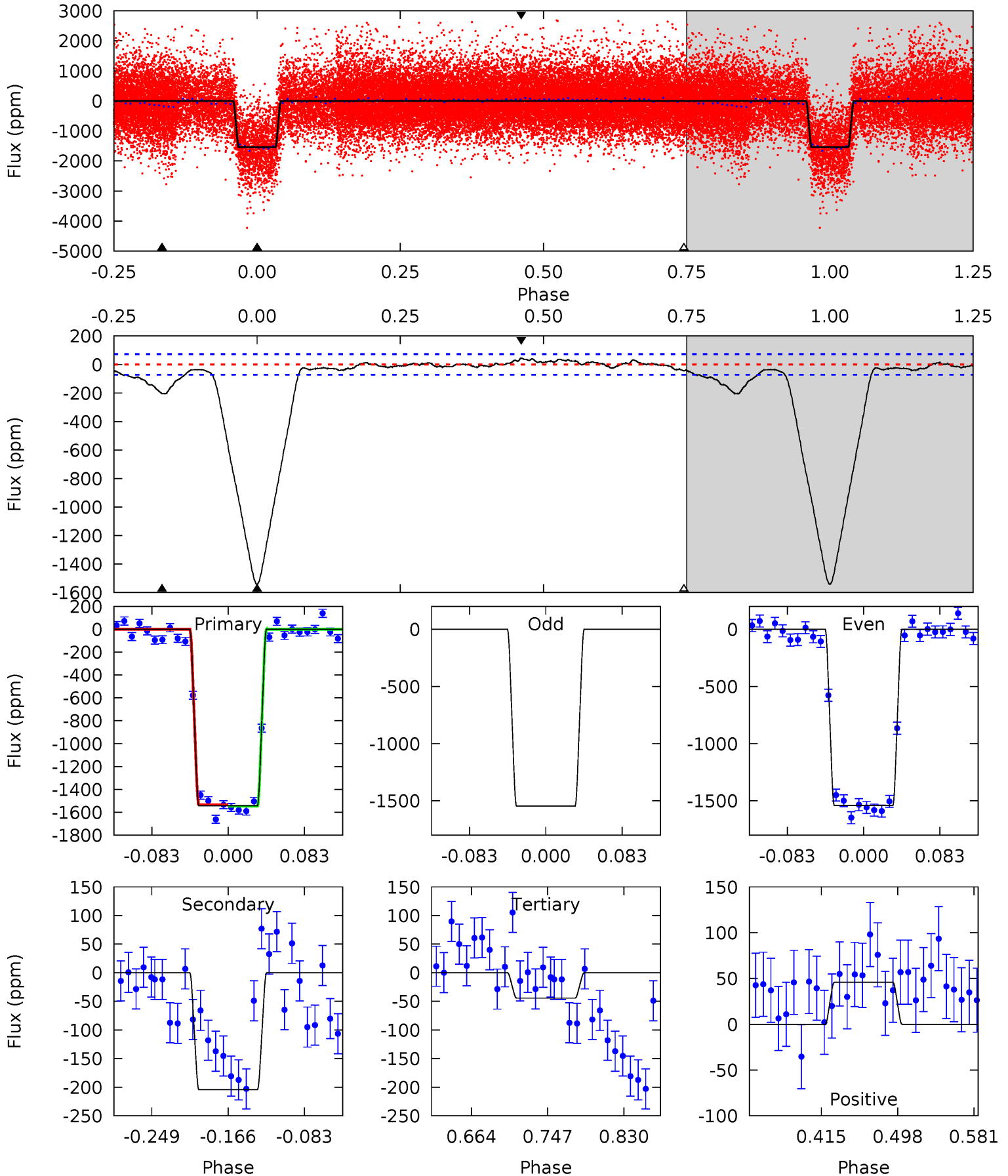
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
99.2	3.83	3.19	5.00	4.57	1.66	2.23	96.0	94.2	0.63	-1.17	0.05	1.01	0.05	0.09



# Alt Model-Shift Uniqueness Test

004851464-02, P = 2.774100 Days, E = 133.228830 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
98.3	13.0	2.83	2.92	4.60	1.73	1.23	95.5	95.4	10.2	10.1	0.24	0.98	0.03	0.41





### Stellar Parameters For KIC 004851464

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R$ ( $R_{\odot}$ )	$M(M_{\odot})$	$p_{\star}$ ( $\text{g}\cdot\text{cm}^{-3}$ )
	$6124^{+193}_{-236}$	$4.455^{+0.052}_{-0.208}$	$-0.020^{+0.250}_{-0.300}$	$1.028^{+0.324}_{-0.130}$	$1.097^{+0.151}_{-0.151}$	$1.424^{+0.402}_{-0.750}$
	+3%/-4%	+1%/-5%	+1250%/-1500%	+32%/-13%	+14%/-14%	+28%/-53%
Source	KIC0	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 004851464-02 / KOI

Detrend	Depth (ppm)	$R_p$ ( $R_{\oplus}$ )	$T_{\text{max}}$ (K)	$T_{\text{obs}}$ (K)	$A_{\text{obs}}$
DV	$-60 \pm 16$	$4.73^{+0.82}_{-0.45}$	$1971^{+160}_{-104}$	$3181^{+150}_{-182}$	$2.233^{+0.769}_{-0.792}$
Alt.	$-204 \pm 16$	$4.59^{+0.76}_{-0.42}$	$1958^{+144}_{-101}$	$3974^{+109}_{-126}$	$8.315^{+1.616}_{-2.088}$

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

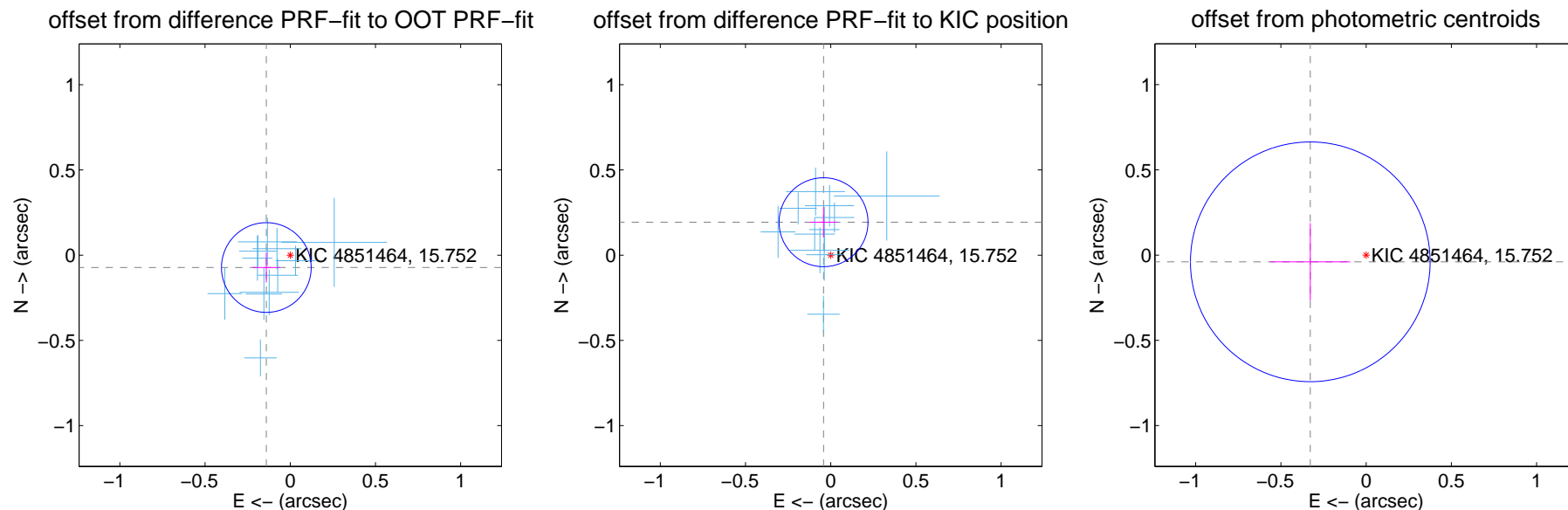
## DV Centroid Data

Supplemental centroid analysis for 004851464-02. Kepler magnitude: 15.75. Transit SNR 49.19

There are 11 quarters with good PRF difference image offsets

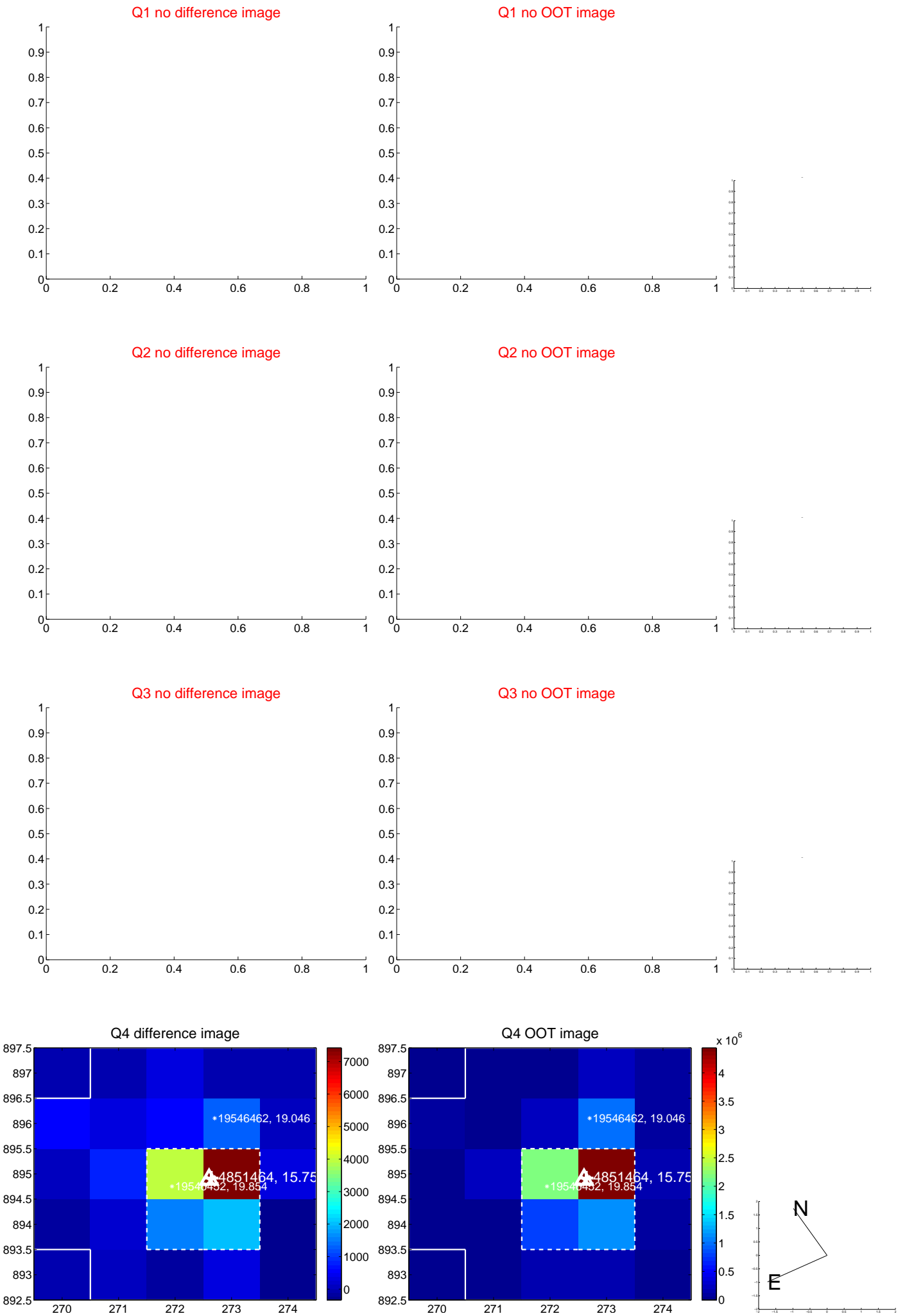
The direct PRF centroid is offset from the target star catalog position by about 0.28 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$0.158 \pm 0.088$	1.80	$0.140 \pm 0.080$	$-0.073 \pm 0.088$
PRF-fit source offset from KIC position	$0.198 \pm 0.087$	2.27	$0.042 \pm 0.080$	$0.193 \pm 0.089$
photometric centroid source offset	$0.33 \pm 0.23$	1.41	$0.33 \pm 0.23$	$-0.04 \pm 0.23$

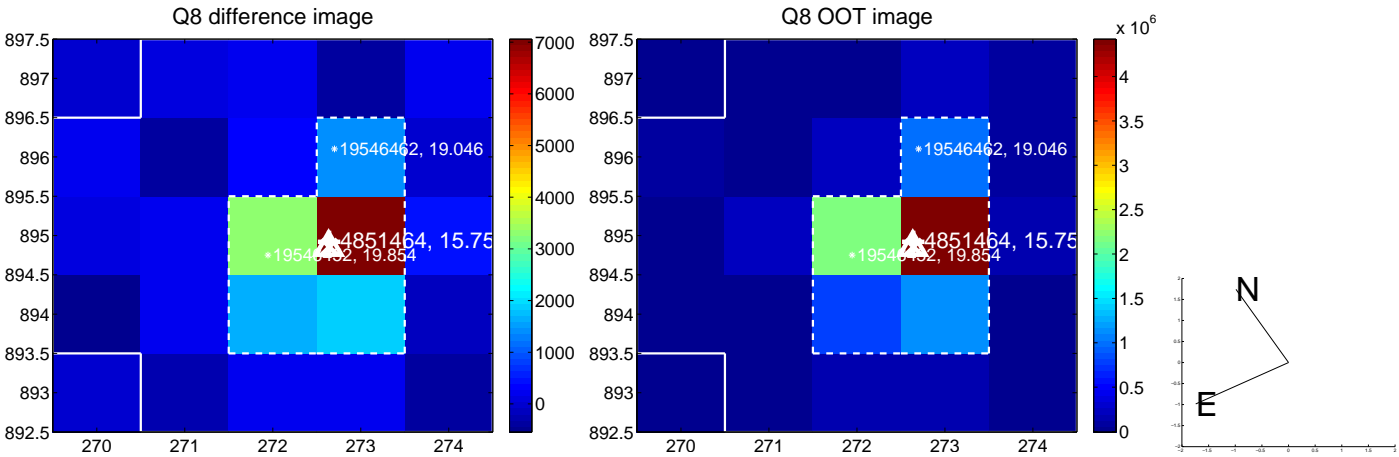
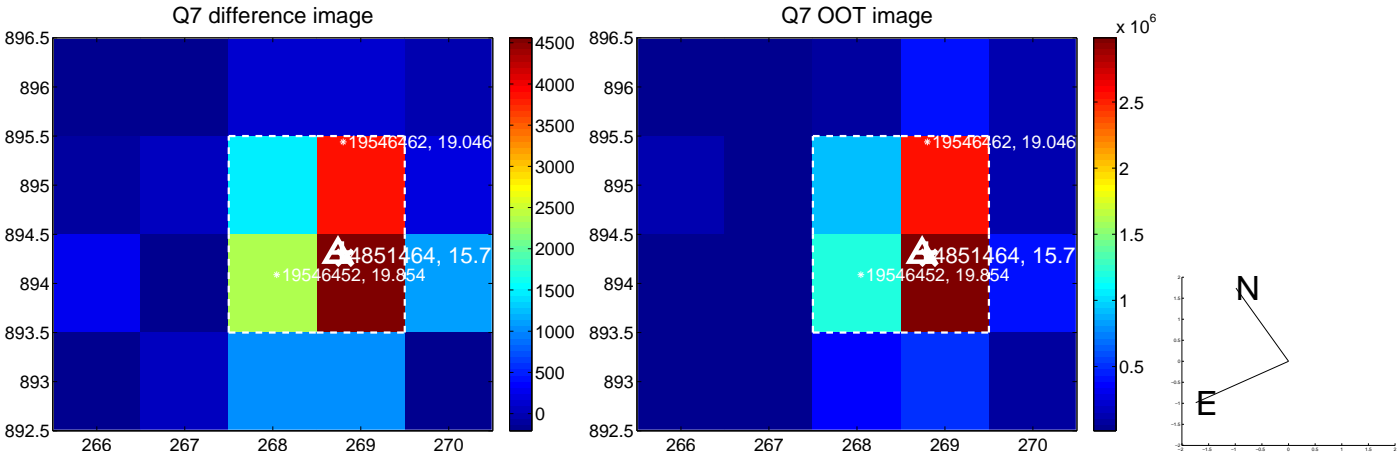
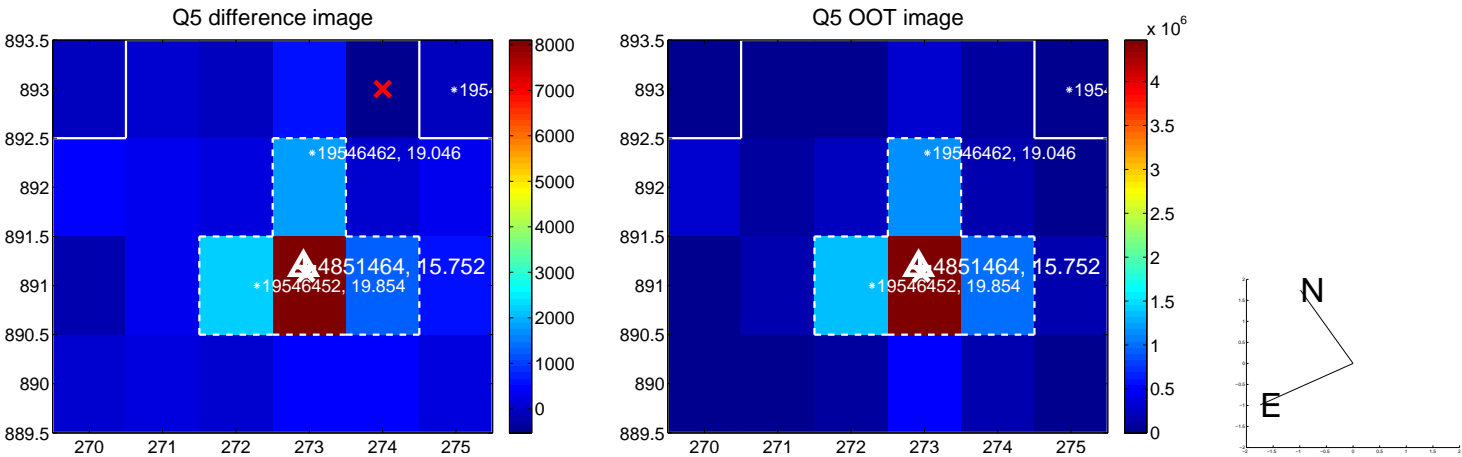


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses:** good quarterly centroid offsets; **Vermillion crosses:** bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: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

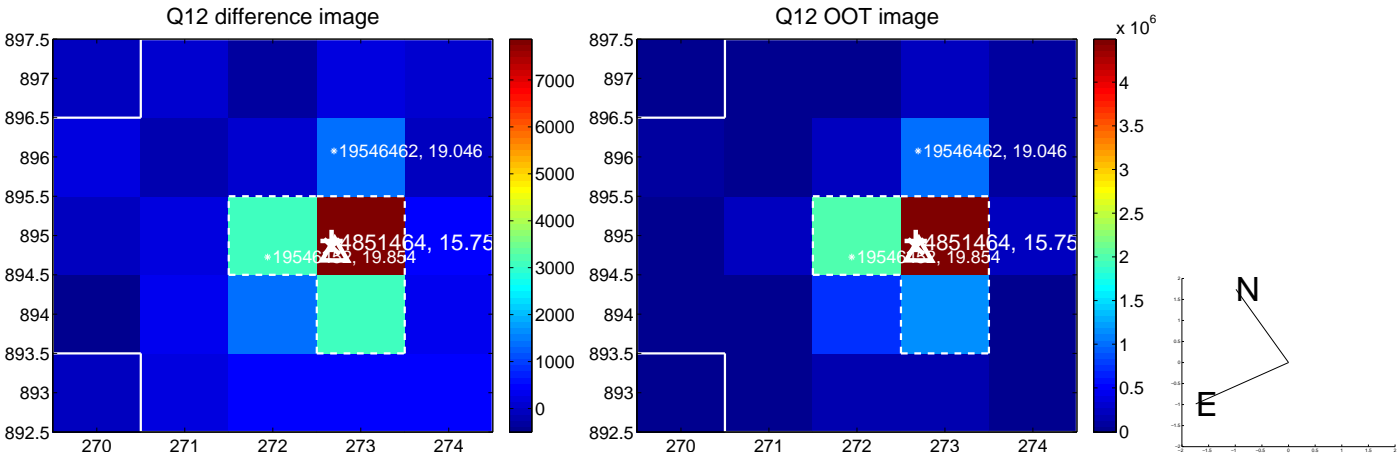
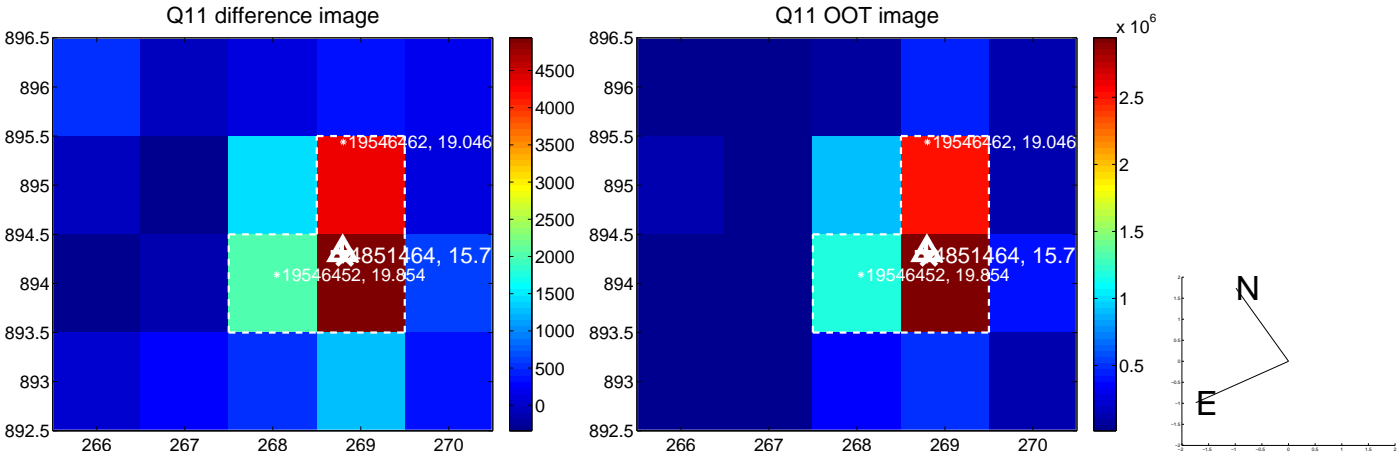
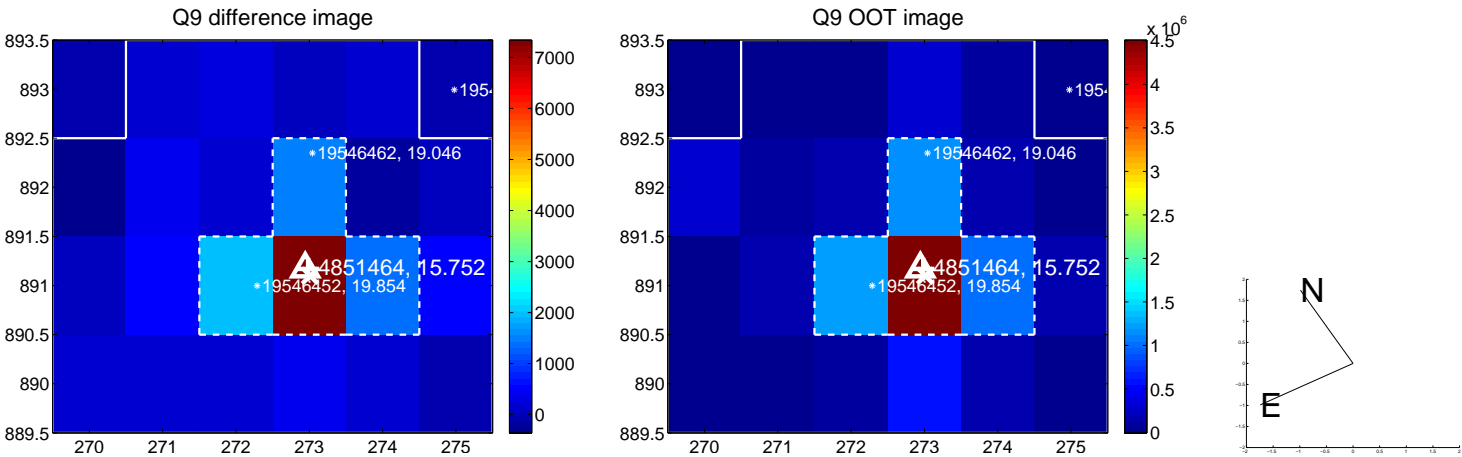
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



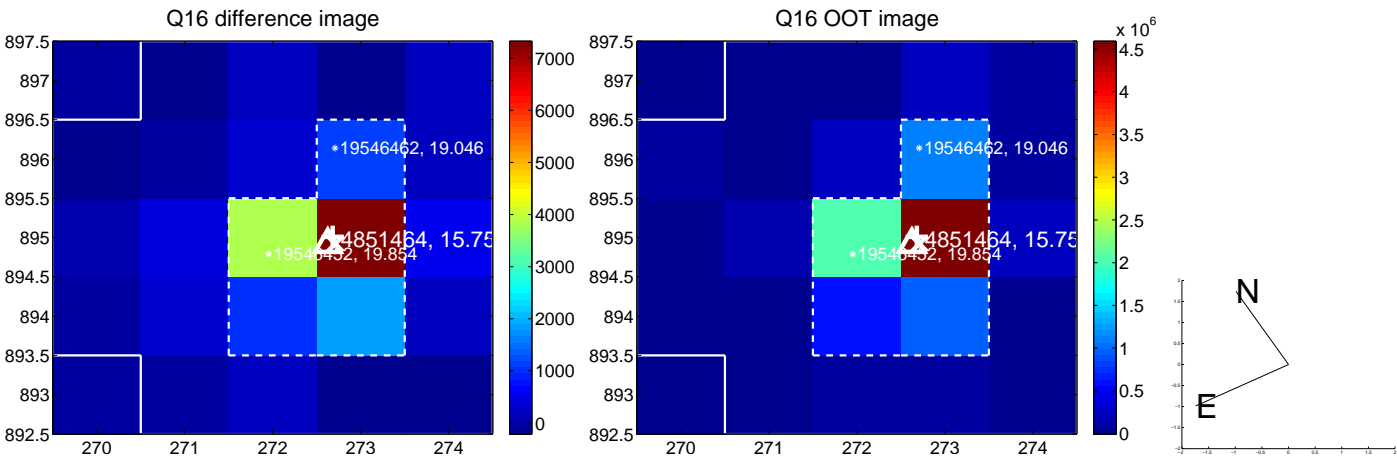
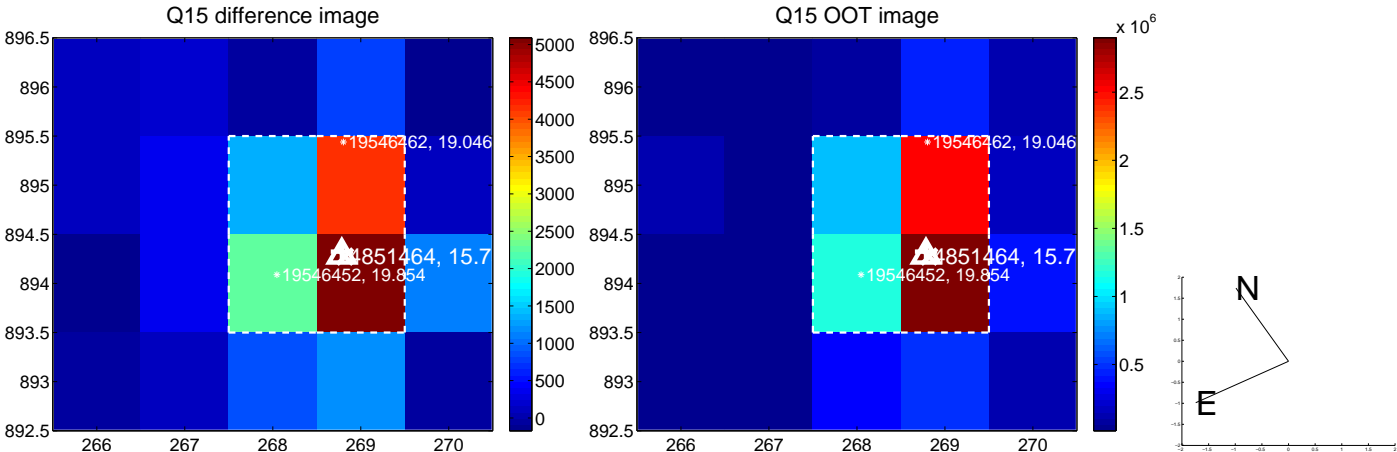
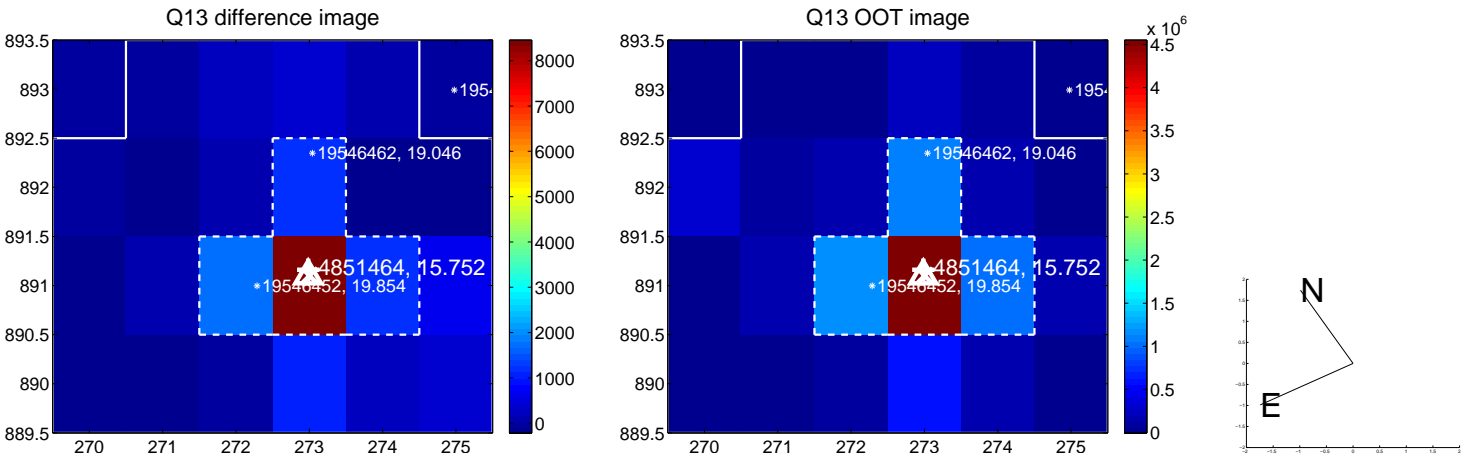
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



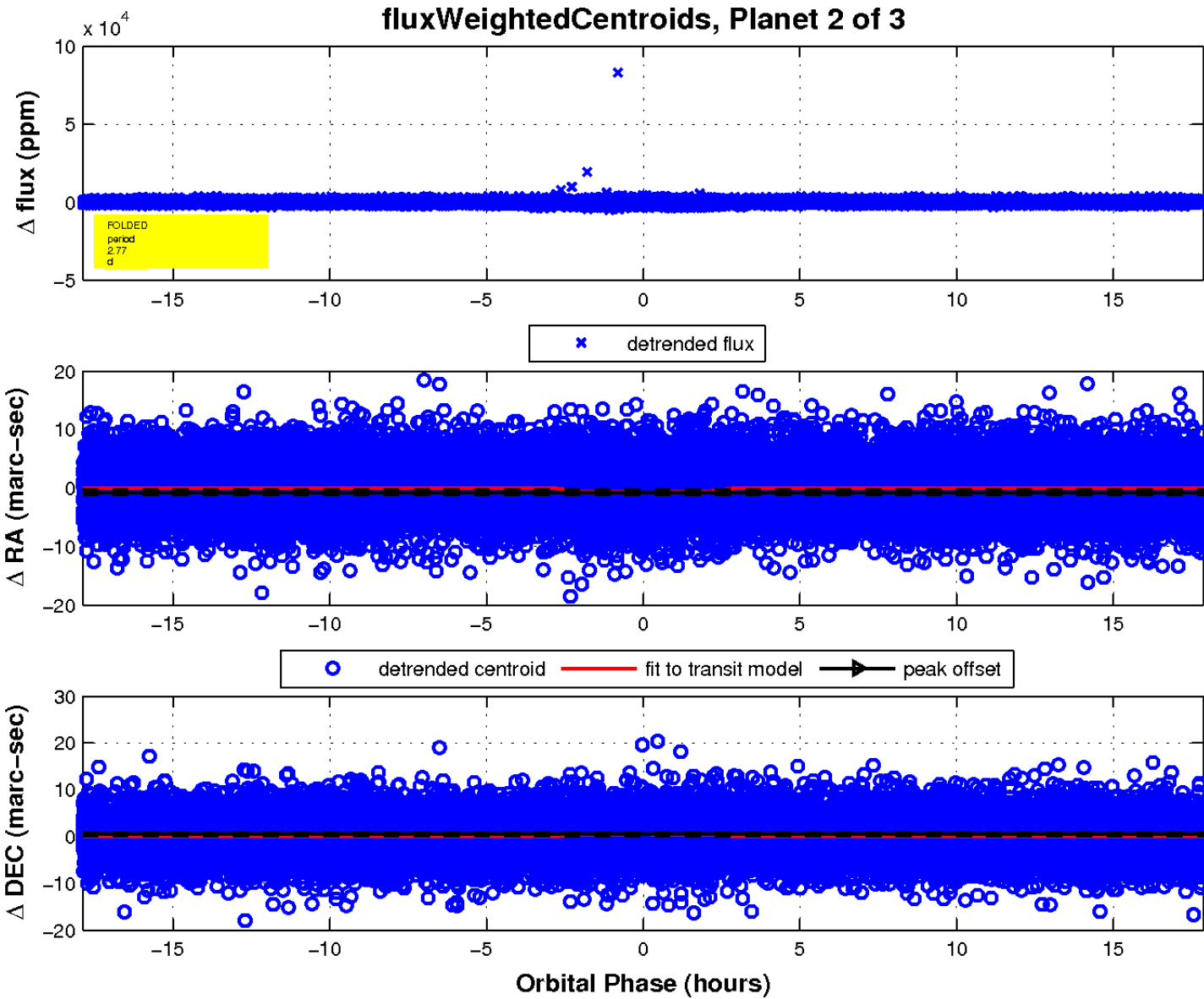
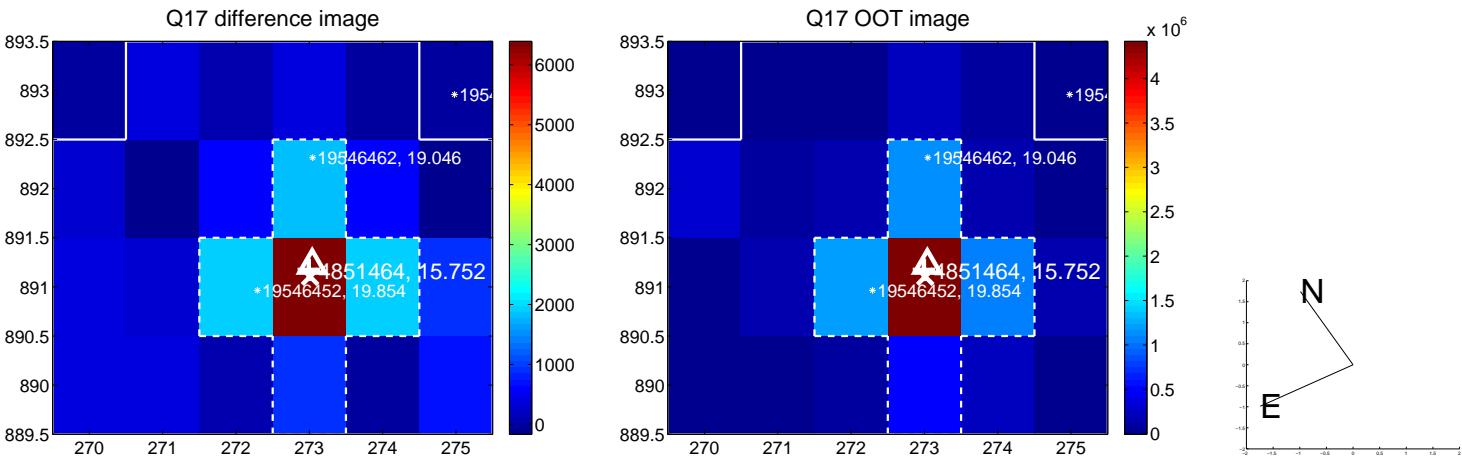
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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

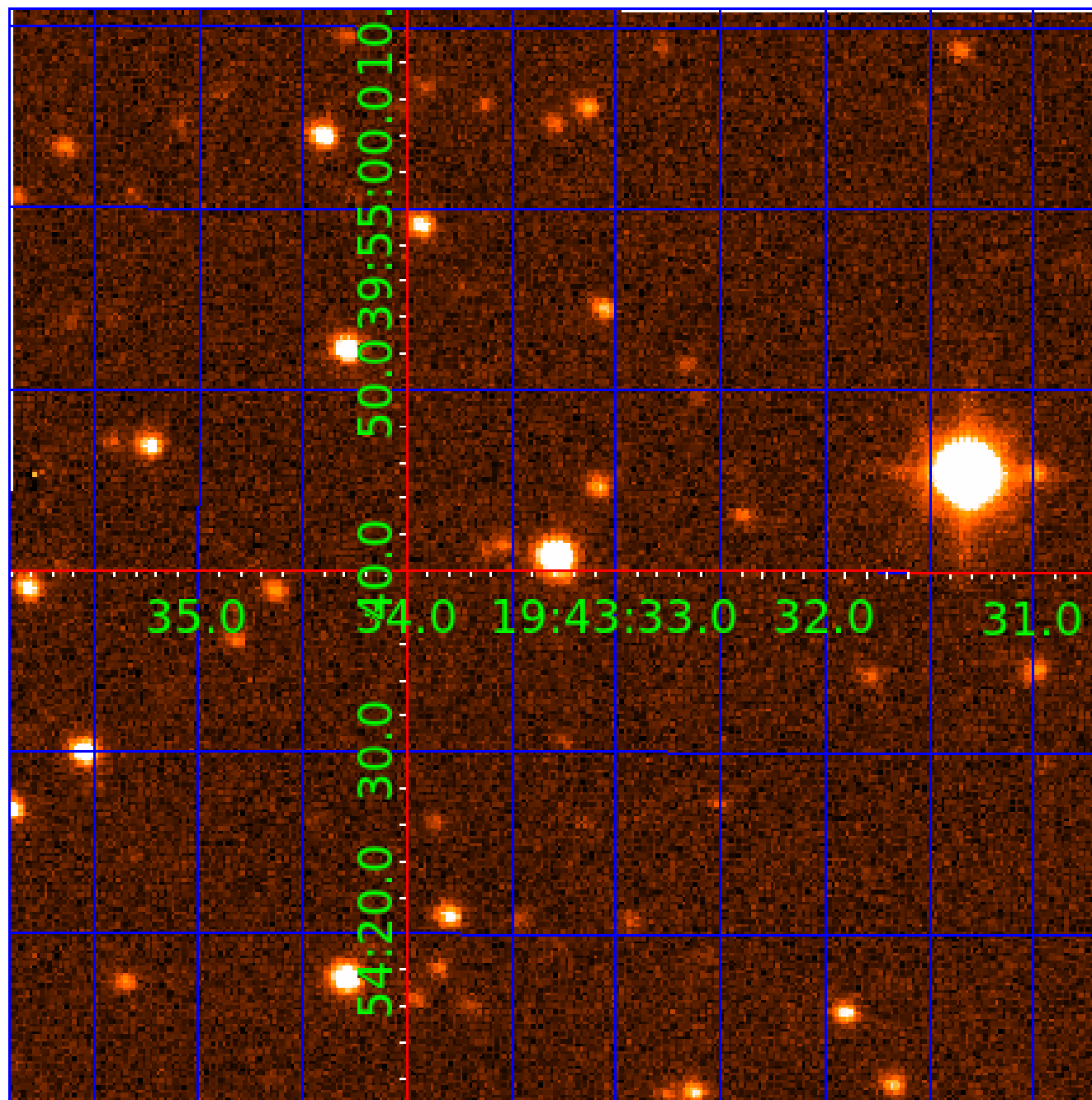


white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



UKIRT Image

Declination





# KIC 004851464

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
004851464-01	OBS	1757.01	5.548249	133.219941	42885.4	6.069	1331.1	1245.4	1.03	6124	21.53	332.27
004851464-02	OBS	No	2.774093	133.230986	1482.3	5.960	48.9	49.2	1.03	6124	4.53	837.28
004851464-03	OBS	No	518.799110	533.219066	1735.4	11.120	21.3	6.6	1.03	6124	5.26	0.78

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
004851464-01	OBS	FP	0.00	0	1	0	0	MOD_SEC_DV—MOD_SEC_ALT—HAS_SEC_TCE
004851464-02	OBS	FP	0.00	1	1	0	0	IS_SEC_TCE
004851464-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_CHASES_MARSHALL—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—INCONSISTENT_TRANS—CENT_FEW_DIFFS

**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.

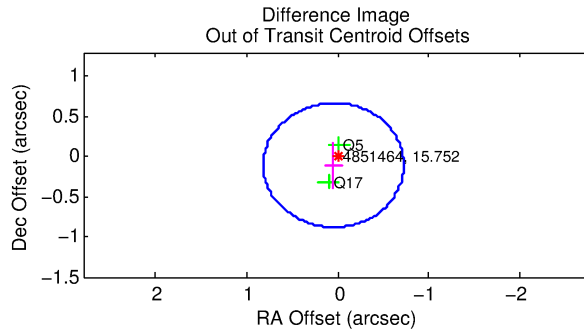
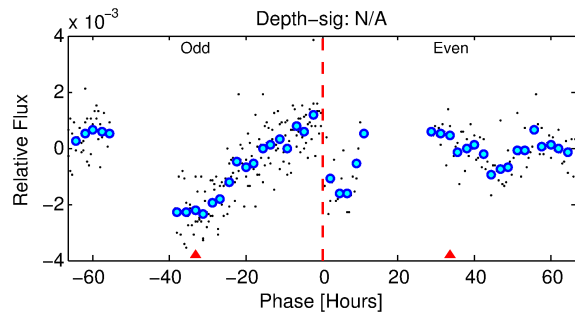
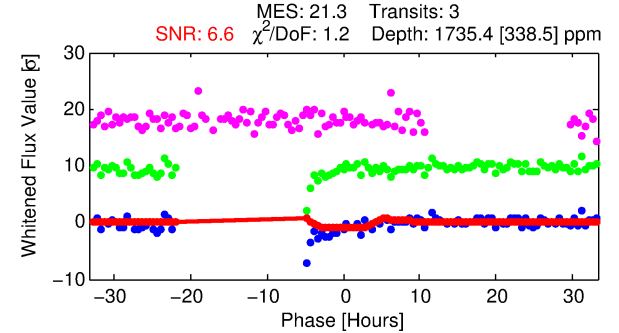
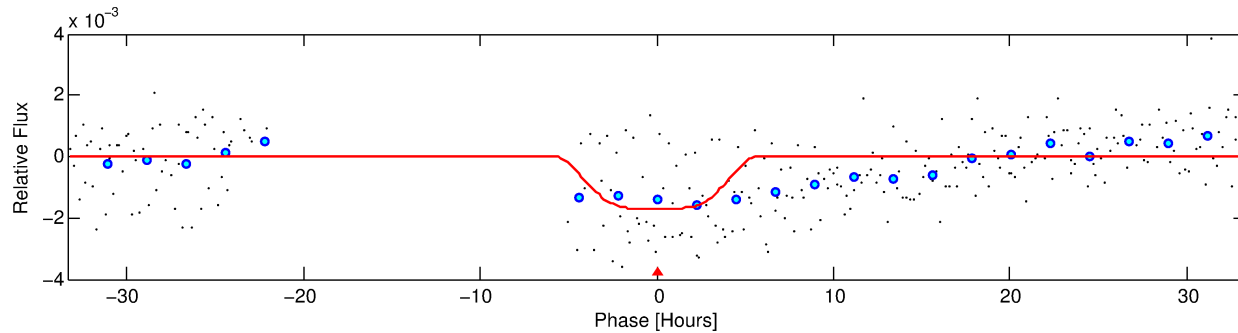
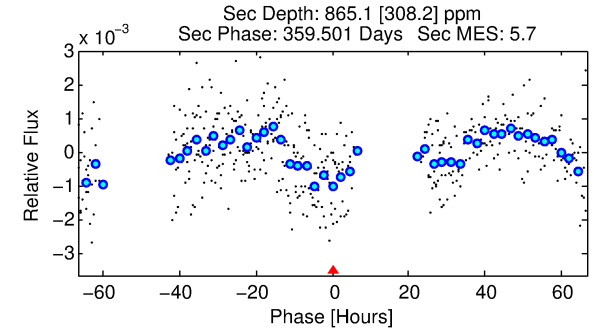
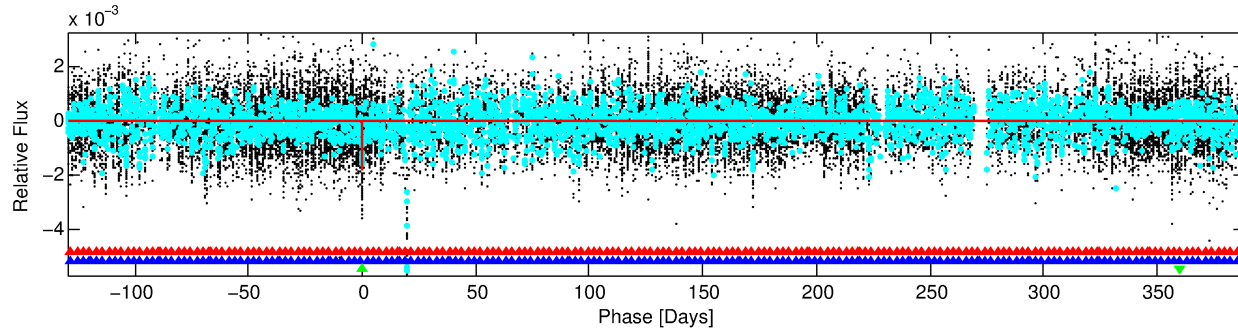
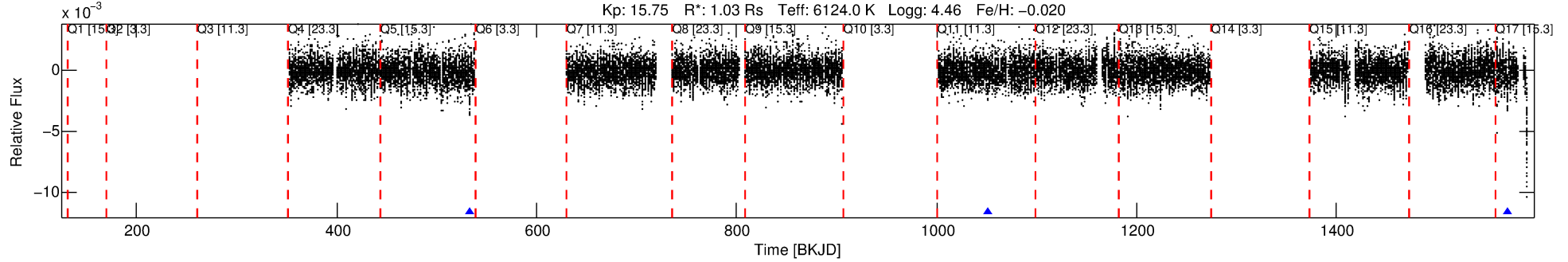
## Ephemeris Match Information For 004851464-03

No Significant Match Found

# DV One-Page Summary

KIC: 4851464 Candidate: 3 of 3 Period: 518.799 d  
KOI: K01757 Corr: No Ephemeris Match

Kp: 15.75 R\*: 1.03 Rs Teff: 6124.0 K Logg: 4.46 Fe/H: -0.020



## DV Fit Results:

Period = 518.79911 [0.02054] d  
Epoch = 533.2191 [0.0304] BKJD  
Rp/R\* = 0.0469 [0.0057]  
a/R\* = 168.21 [41.78]  
b = 0.93 [0.03]  
Seff = 0.78 [0.32]  
Teq = 240 [25] K  
Rp = 5.26 [1.78] Re  
a = 1.3042 [0.3442] AU  
Ag = 29262.55 [16856.71] [1.74σ]  
Teffp = 4850 [555] K [8.30σ]

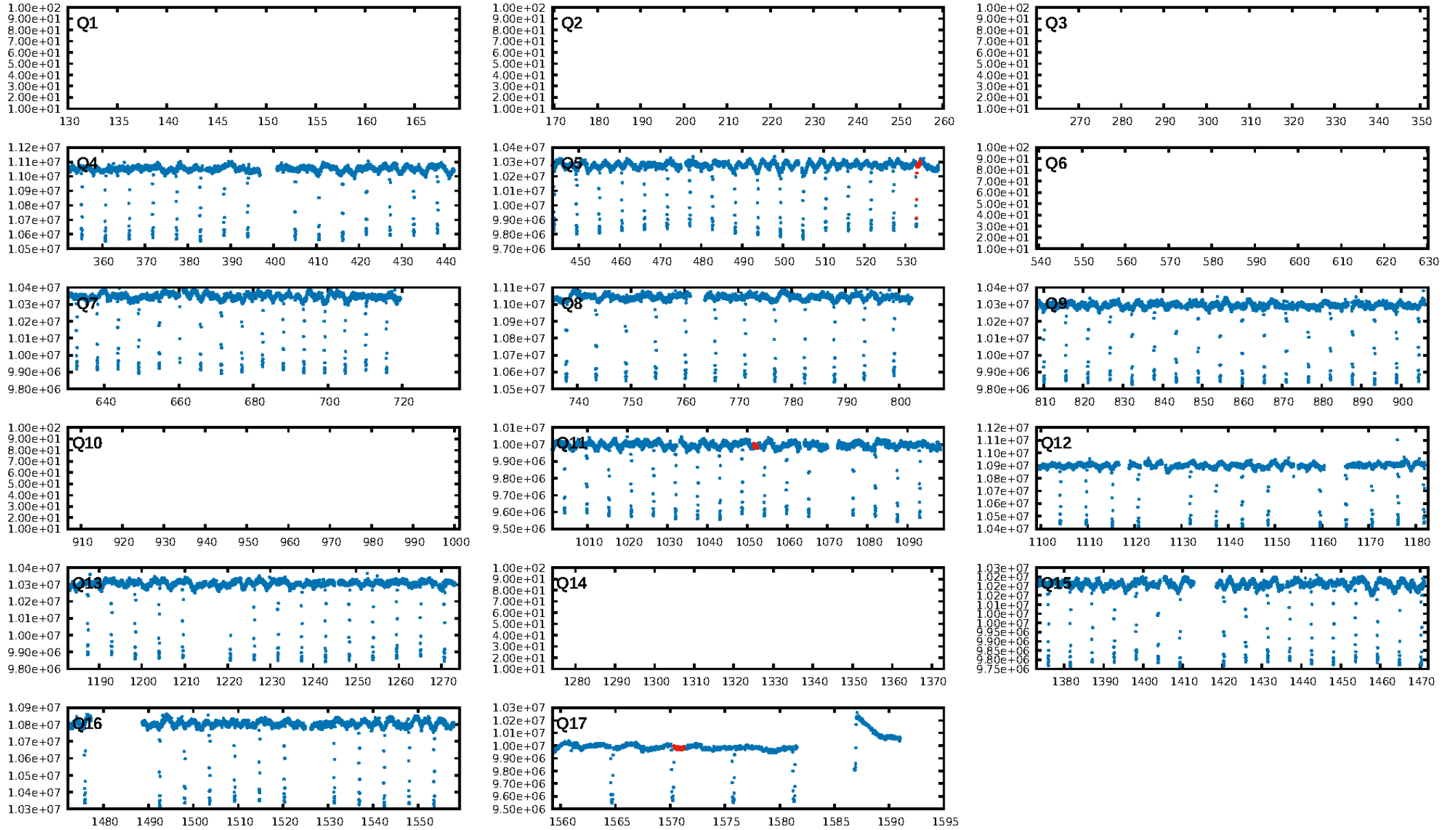
## DV Diagnostic Results:

ShortPeriod-sig: 100.0% [972.38σ]  
LongPeriod-sig: N/A  
ModelChiSquare2-sig: 0.0%  
ModelChiSquareGof-sig: 61.3%  
Bootstrap-pfa: 5.52e-28  
RollingBand-fgt: 1.00 [2/2]  
GhostDiagnostic-chr: -1.956  
Centroid-sig: 41.5%  
Centroid-so: 0.968 arcsec [0.83σ]  
OotOffset-rm: 0.117 arcsec [0.45σ]  
OotOffset-st: 0/0/0/2 [2]  
KicOffset-rm: 0.169 arcsec [0.59σ]  
KicOffset-st: 0/0/0/2 [2]  
DiffImageQuality-fgm: 0.00 [0/2]  
DiffImageOverlap-fno: 0.00 [0/3]

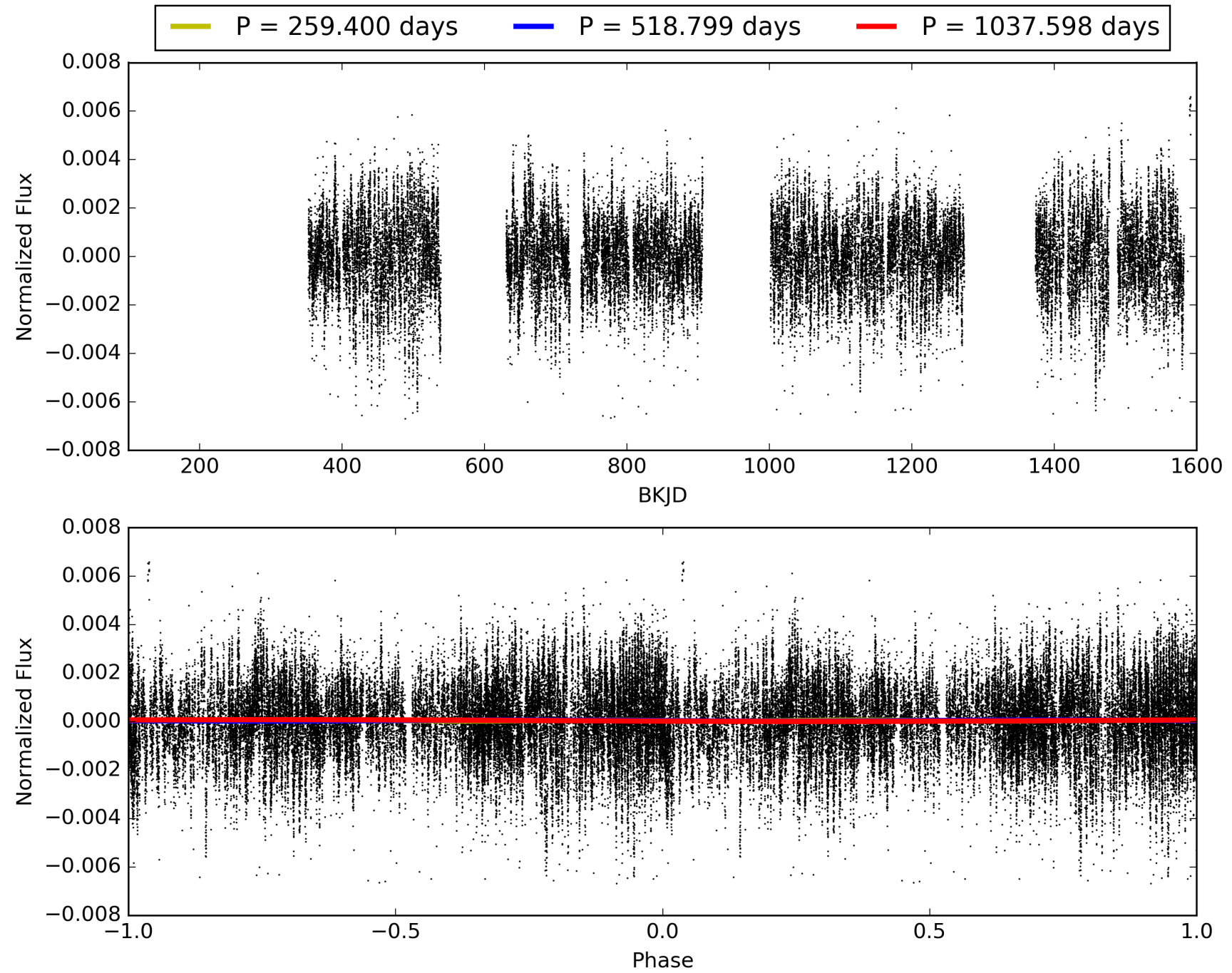
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 13:23:24 Z

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

# TCE 004851464-03, PDC Light Curves

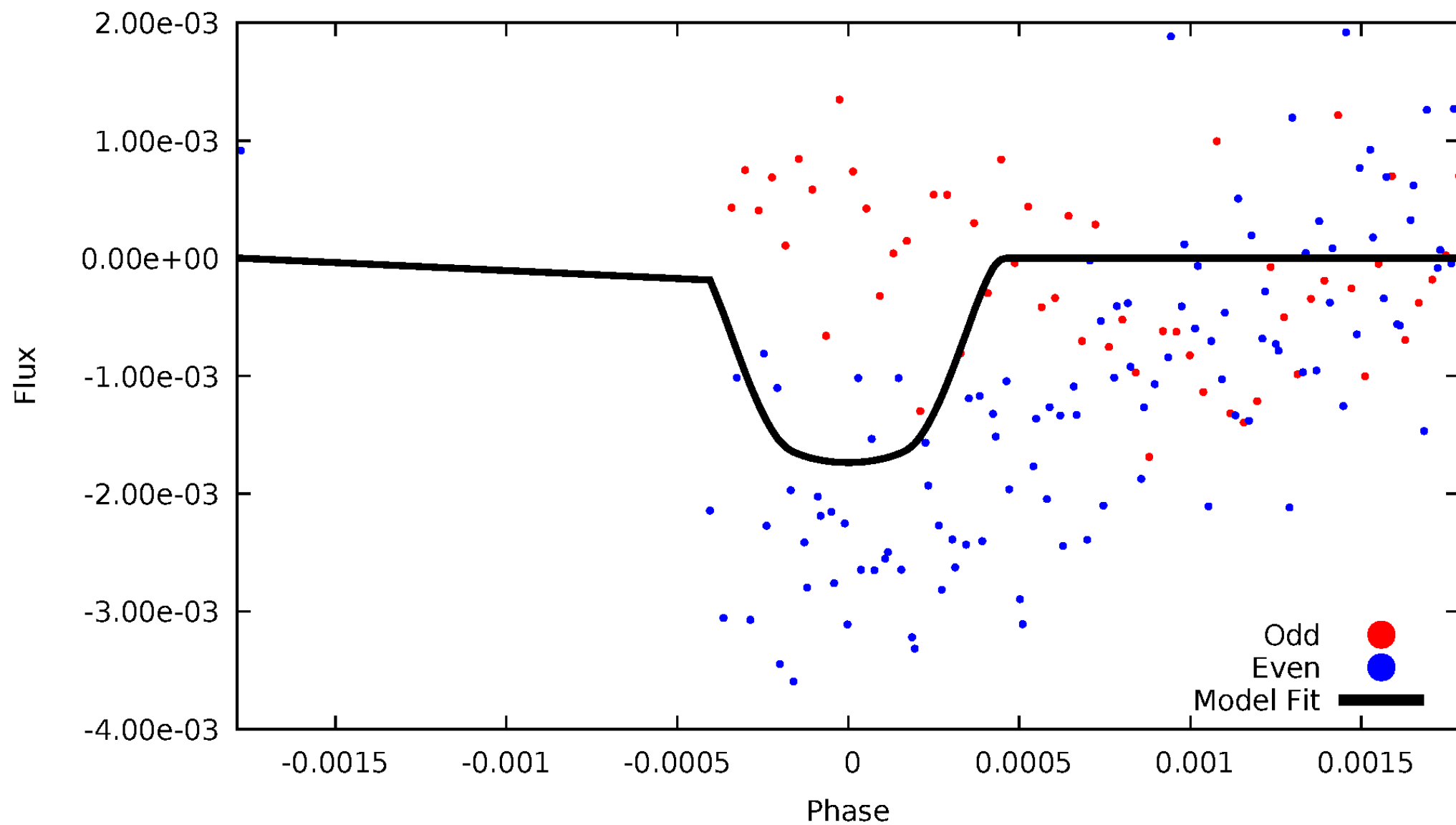


TCE 004851464-03



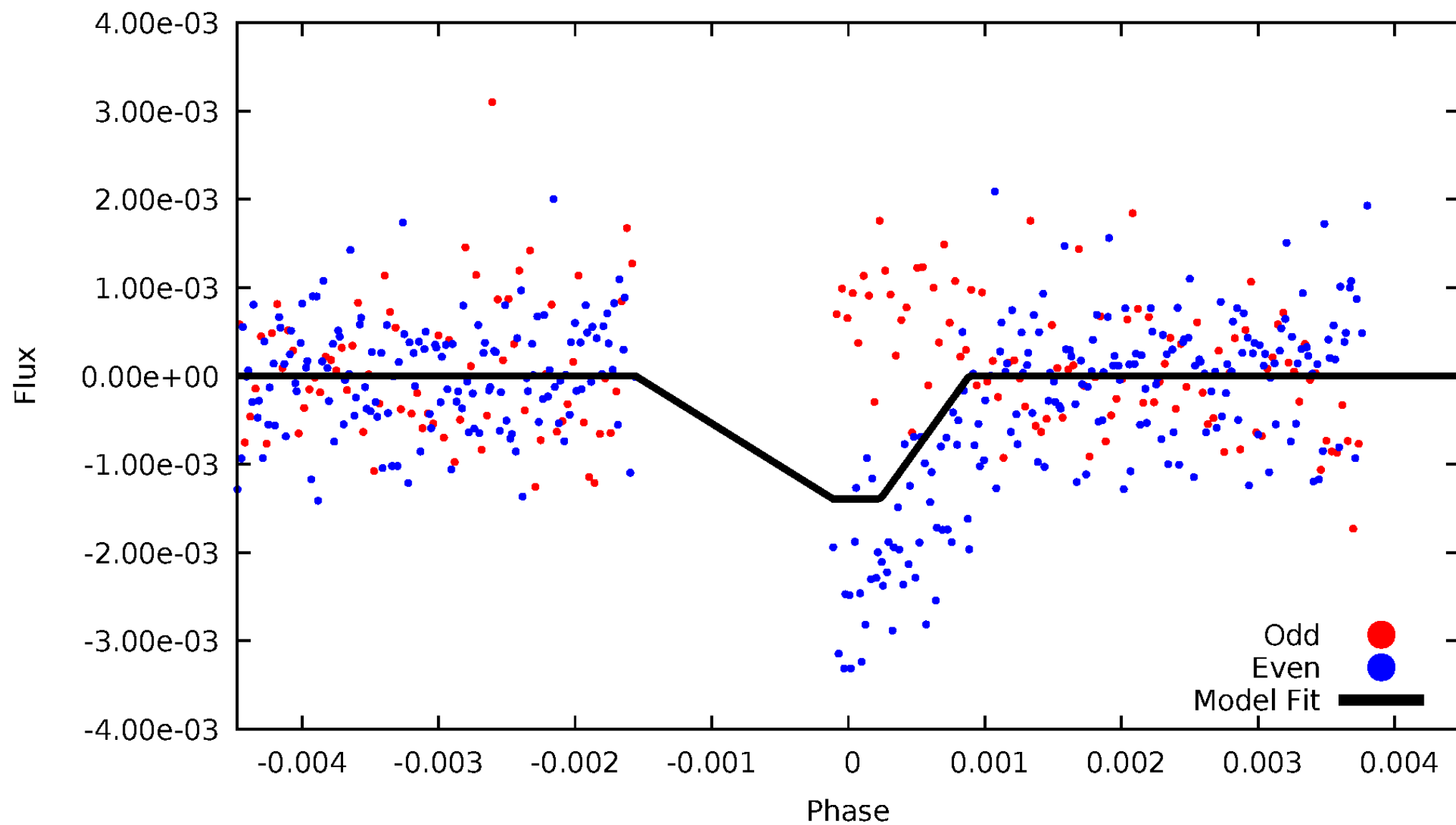
# DV Odd/Even

TCE 004851464-03



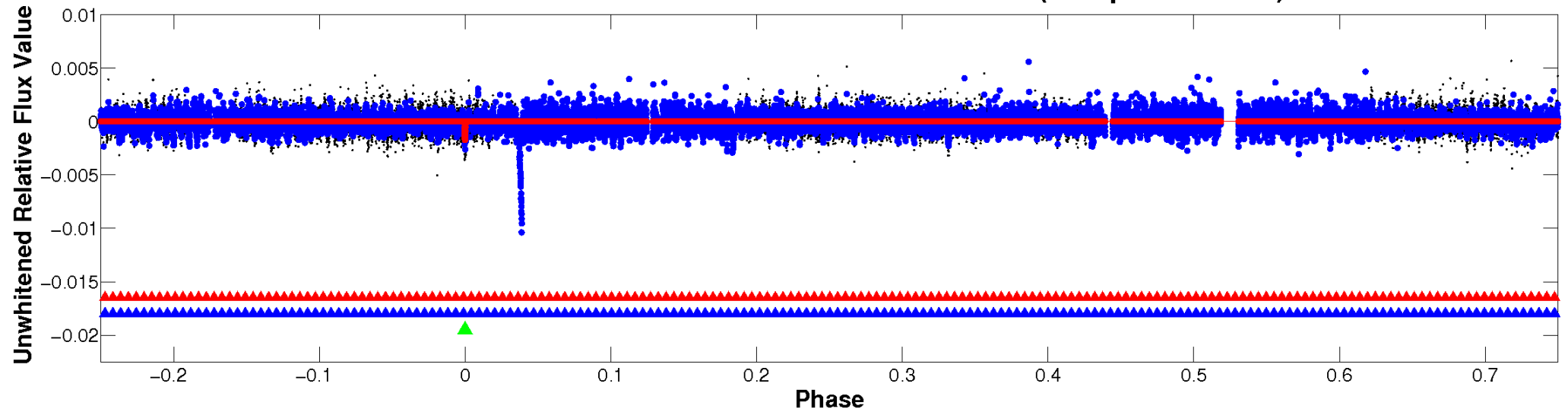
# ALT Odd/Even

TCE 004851464-03

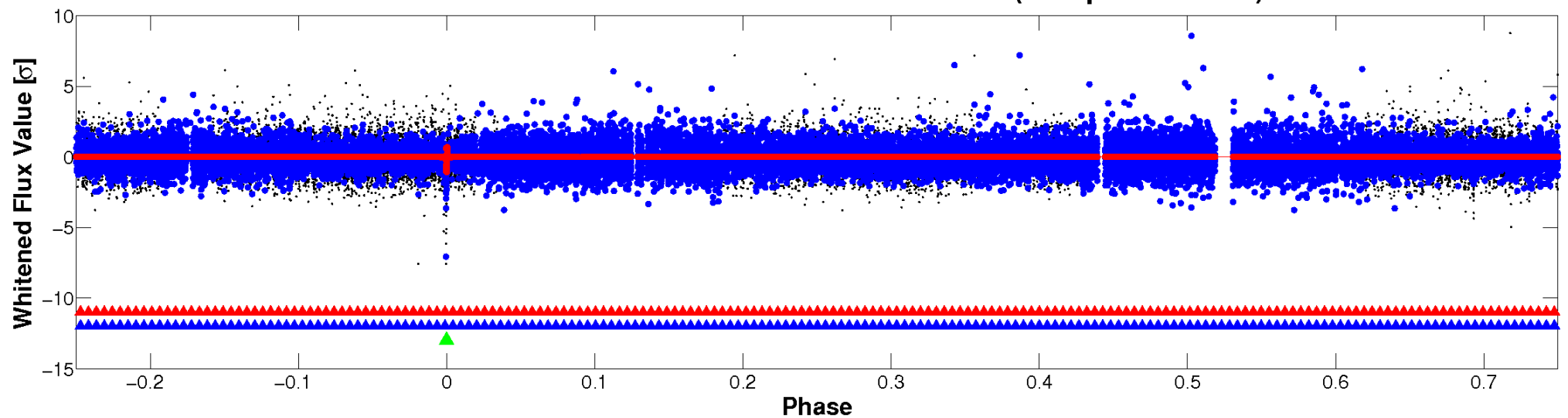


# Non-Whitened Vs. Whitened Light Curve

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

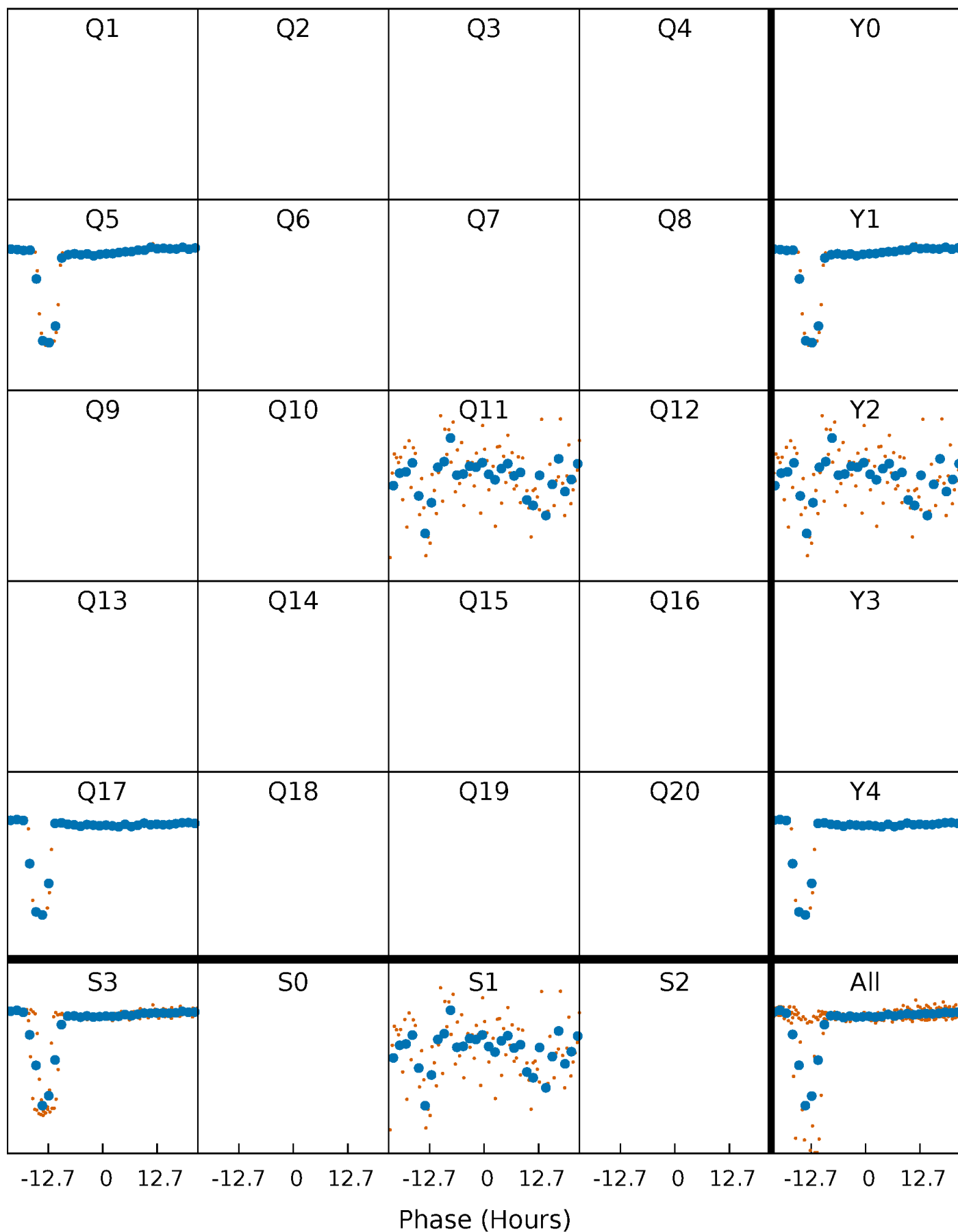


Planet 3 : Phased Whitened Flux Time Series (Fit Epoch/Period)



# PDC Quarter-Phased Transit Curves

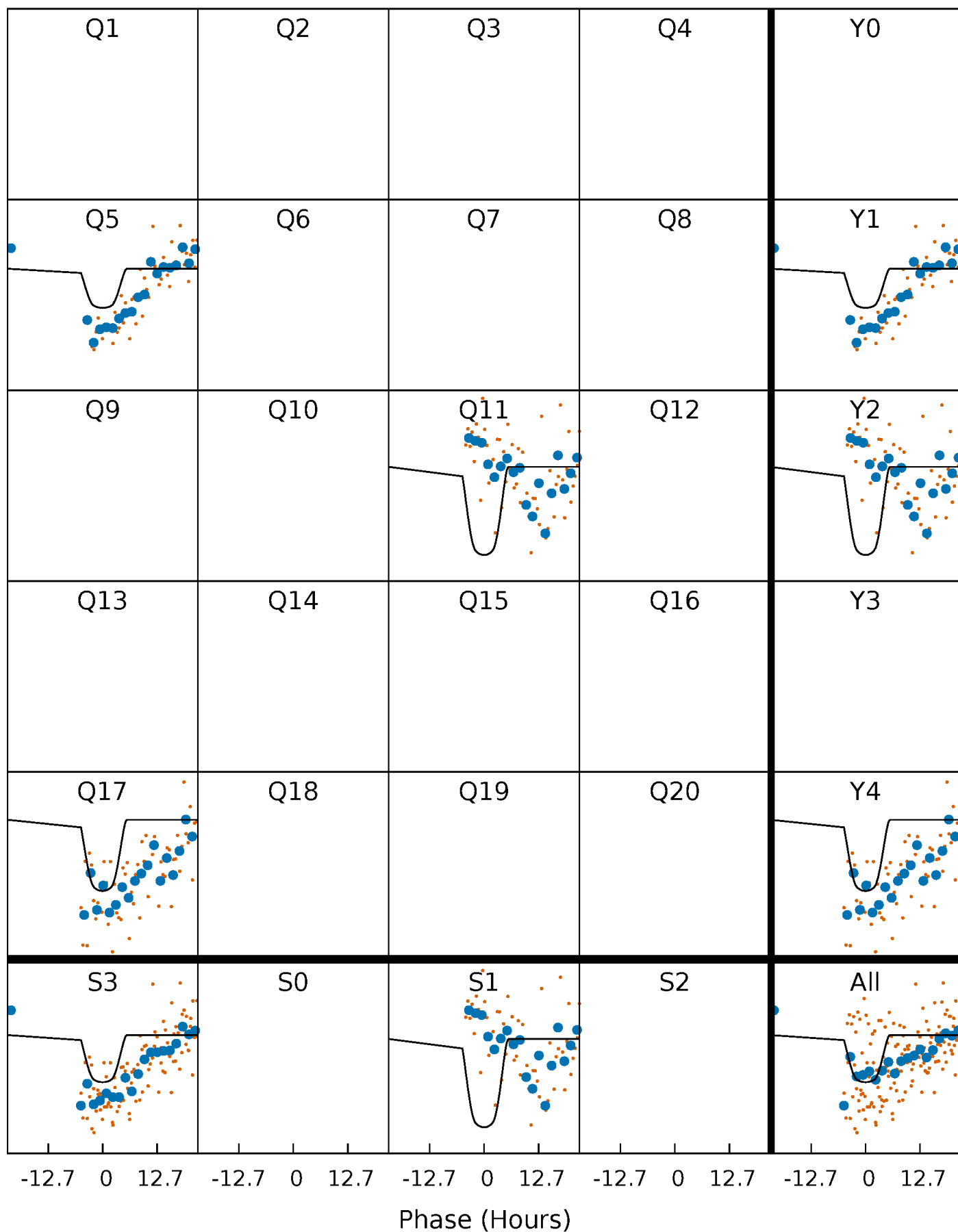
TCE 004851464-03   P=518.799110 Days    $T_0=533.219066$  (BKJD)





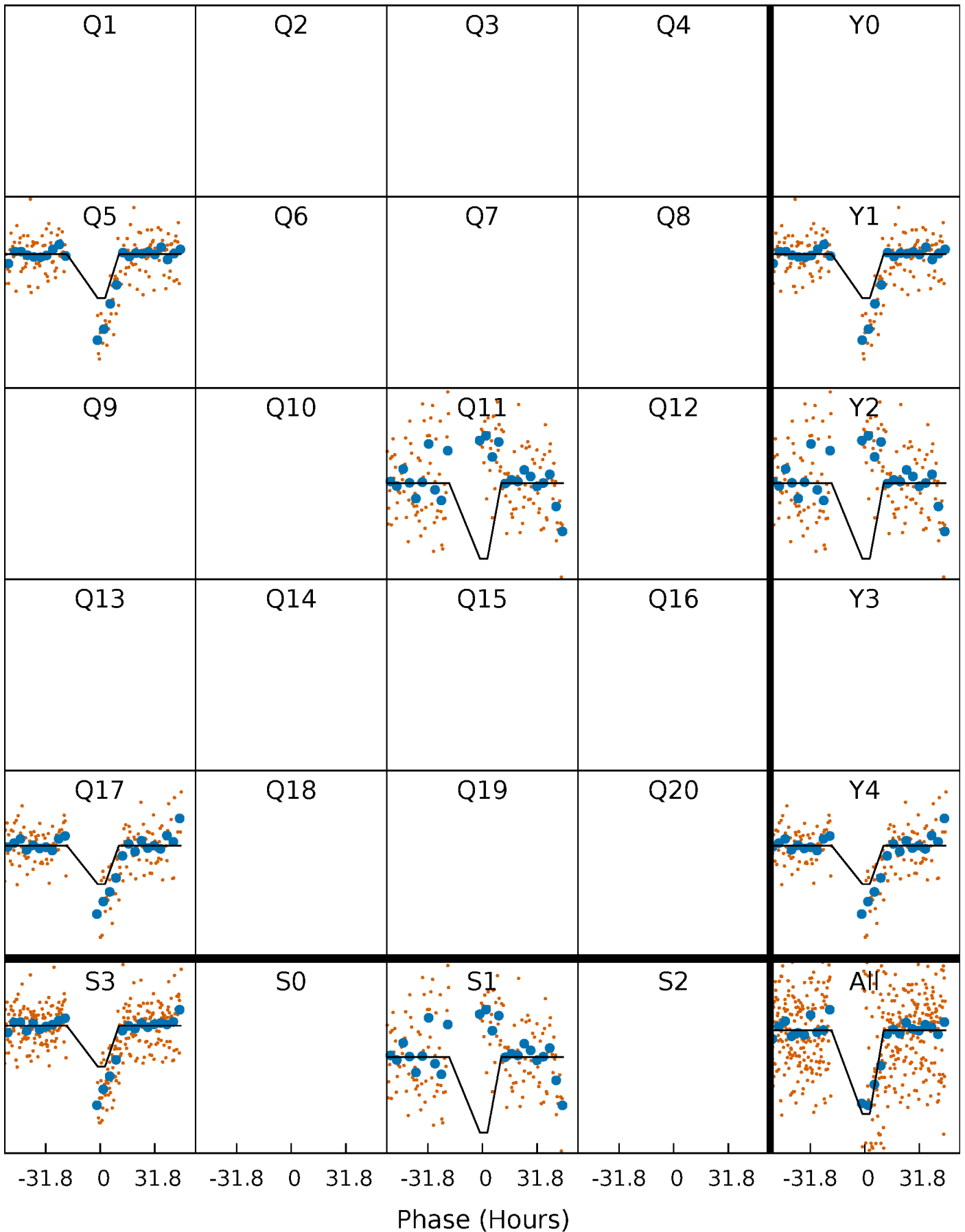
# DV Quarter-Phased Transit Curves

TCE 004851464-03     $P=518.799110$  Days     $T_0=533.219066$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

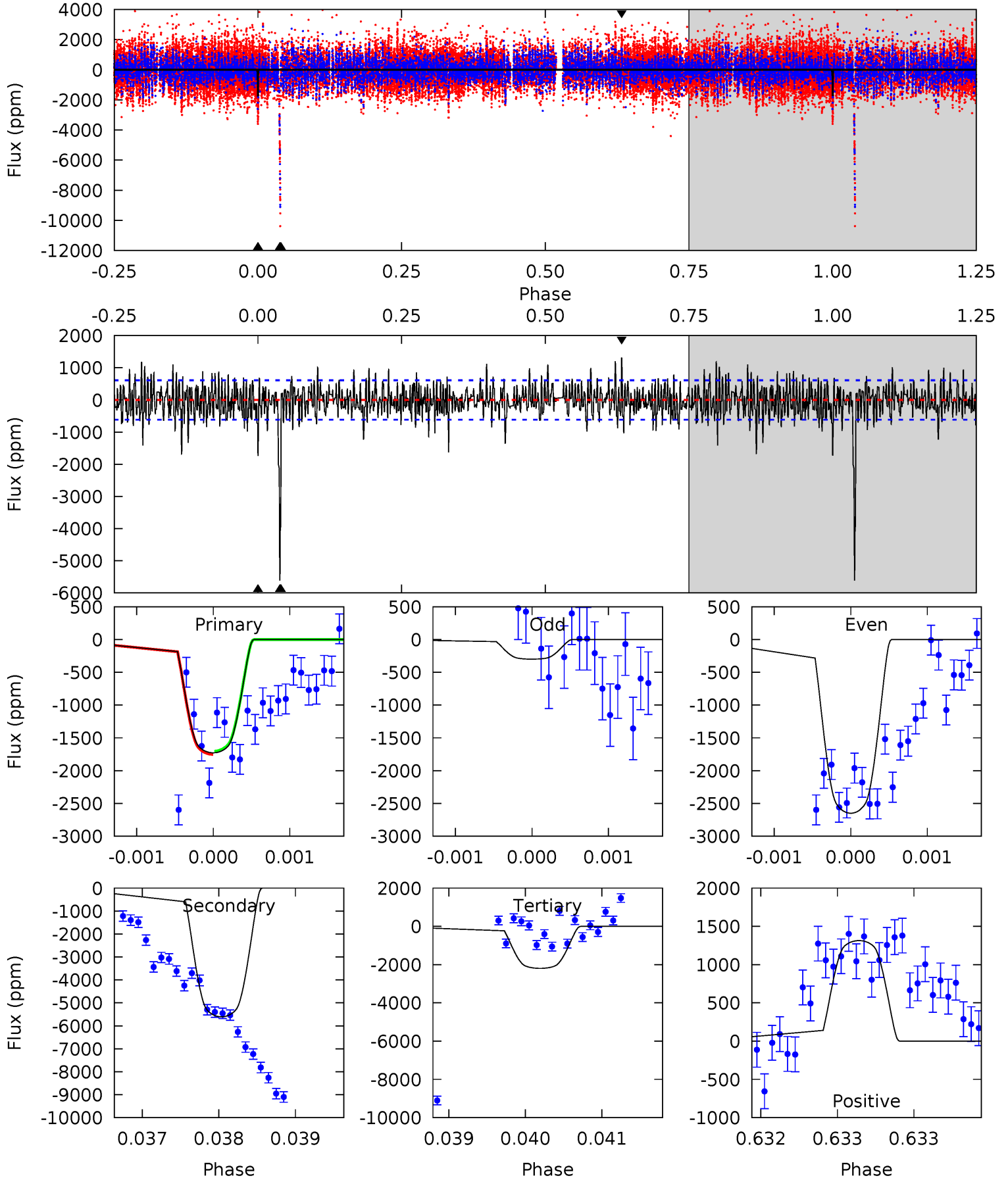
TCE 004851464-03     $P=518.733165$  Days     $T_0=533.152211$  (BKJD)



# DV Model-Shift Uniqueness Test

004851464-03, P = 518.799110 Days, E = 14.419956 Days

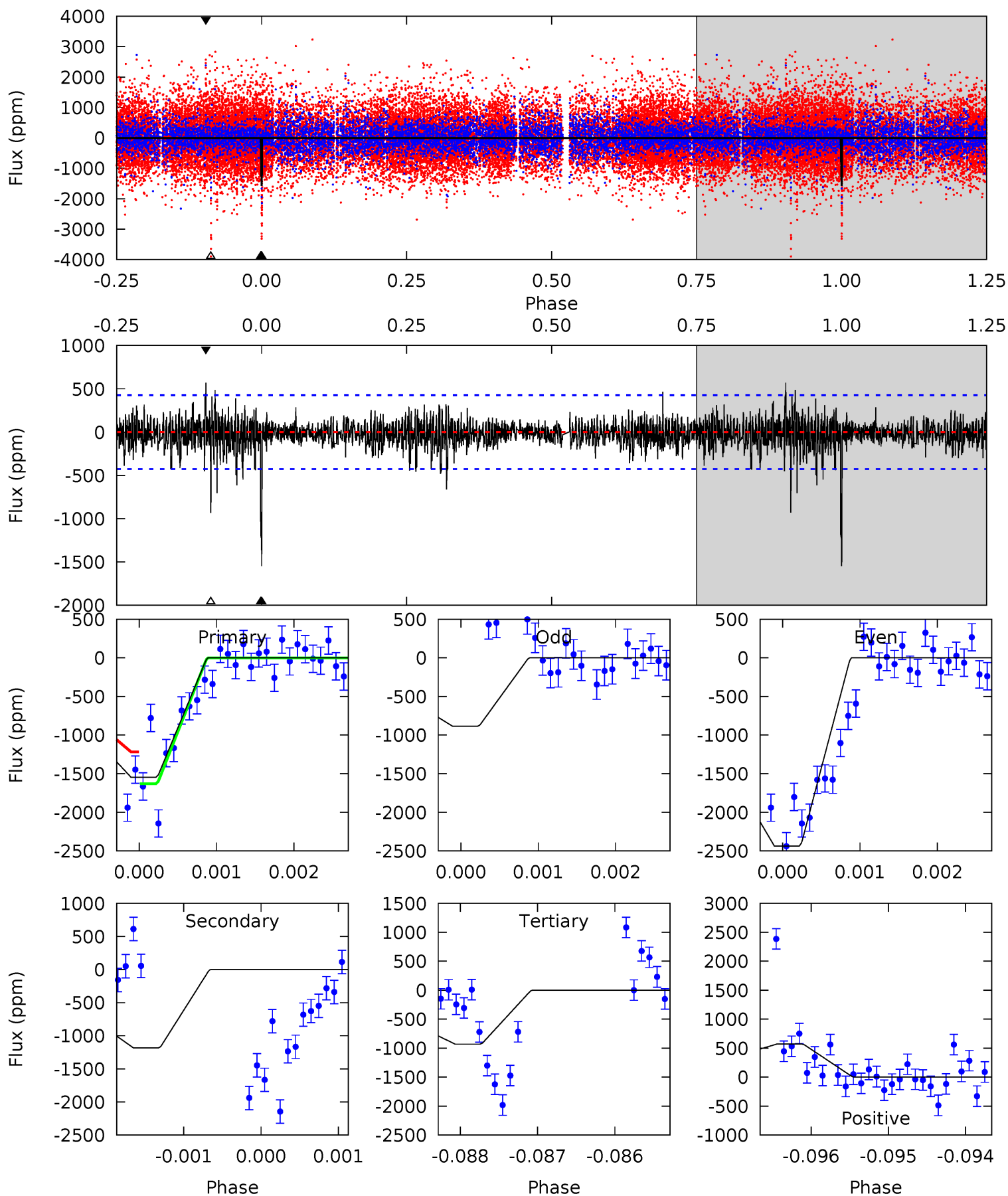
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
15.4	50.1	19.6	11.7	5.48	3.33	3.64	-4.19	3.70	30.5	38.4	10.2	0.74	0.19	0.21



# Alt Model-Shift Uniqueness Test

004851464-03, P = 518.733165 Days, E = 14.419046 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
19.7	15.1	11.9	7.27	5.45	3.29	1.45	7.83	12.4	3.24	7.82	9.71	0.58	0.27	1.47



### Stellar Parameters For KIC 004851464

	$T_{\text{eff}}(K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	$6124^{+193}_{-236}$	$4.455^{+0.052}_{-0.208}$	$-0.020^{+0.250}_{-0.300}$	$1.028^{+0.324}_{-0.130}$	$1.097^{+0.151}_{-0.151}$	$1.424^{+0.402}_{-0.750}$
	+3%/-4%	+1%/-5%	+1250%/-1500%	+32%/-13%	+14%/-14%	+28%/-53%
Source	KIC0	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 004851464-03 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	$A_{\text{obs}}$
DV	$-5608 \pm 112$	$5.51^{+1.03}_{-0.81}$	$343^{+26}_{-18}$	$7932^{+792}_{-663}$	$172779^{+57503}_{-49669}$
Alt.	$-1185 \pm 79$	$4.34^{+1.02}_{-0.75}$	$342^{+26}_{-18}$	$5914^{+544}_{-456}$	$57968^{+26307}_{-19855}$

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

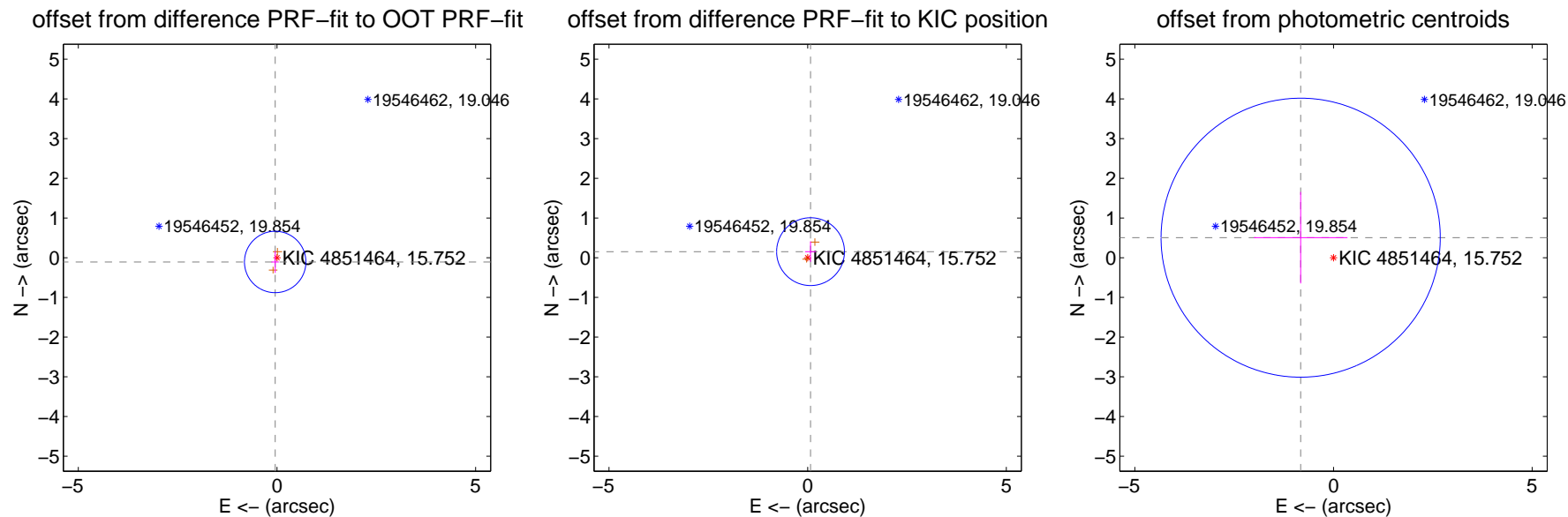
## DV Centroid Data

Supplemental centroid analysis for 004851464-03. Kepler magnitude: 15.75. Transit SNR 6.60

There are 0 quarters with good PRF difference image offsets

The direct PRF centroid is offset from the target star catalog position by about 0.28 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$0.117 \pm 0.258$	0.45	$0.045 \pm 0.092$	$-0.107 \pm 0.277$
PRF-fit source offset from KIC position	$0.169 \pm 0.285$	0.59	$-0.073 \pm 0.138$	$0.153 \pm 0.258$
photometric centroid source offset	$0.97 \pm 1.17$	0.83	$0.83 \pm 1.18$	$0.50 \pm 1.15$

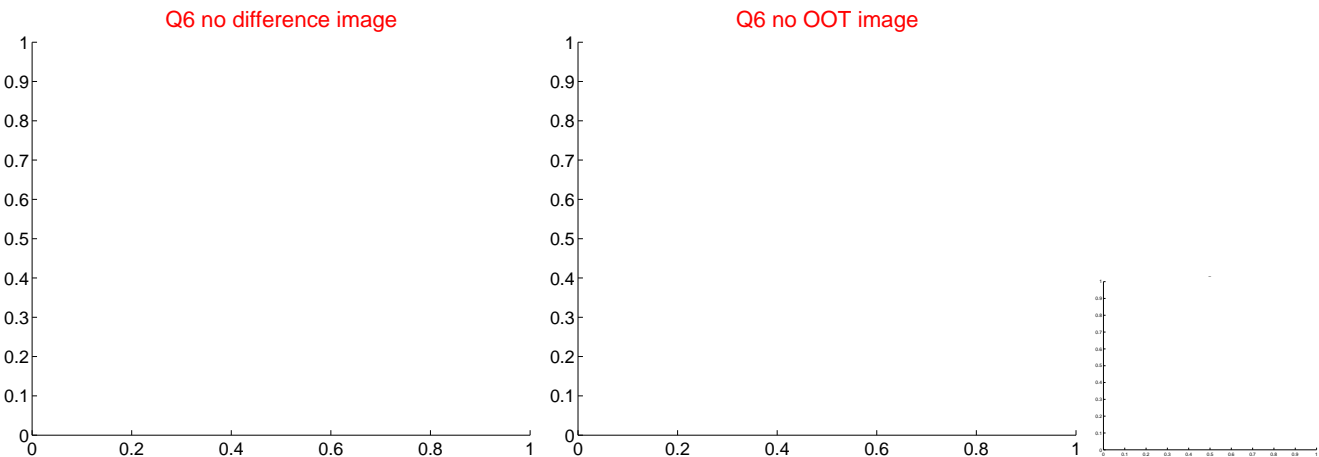
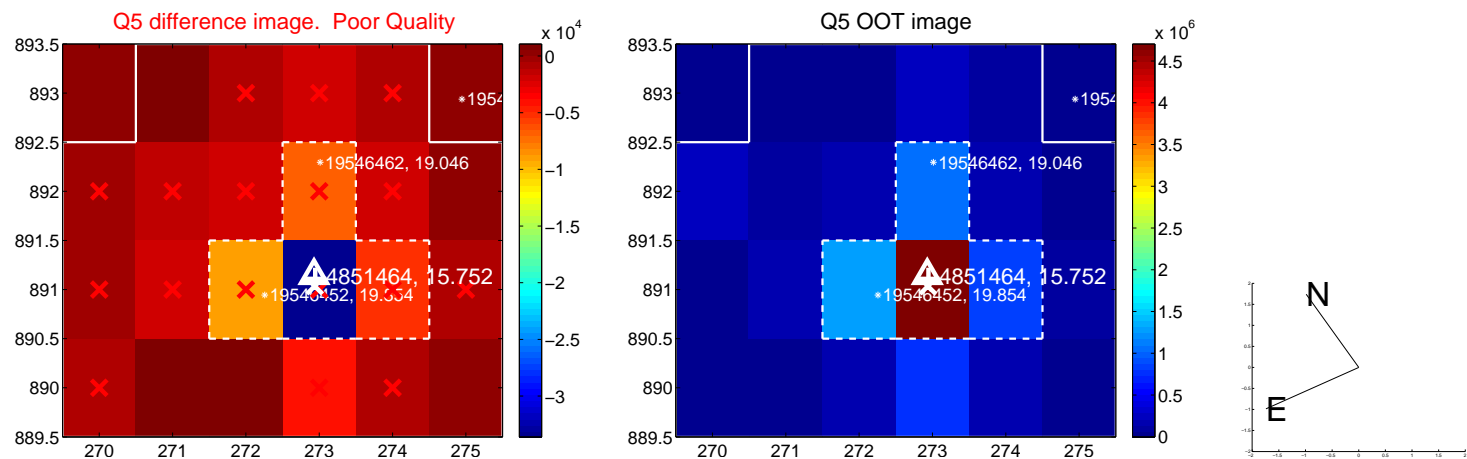


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: three-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

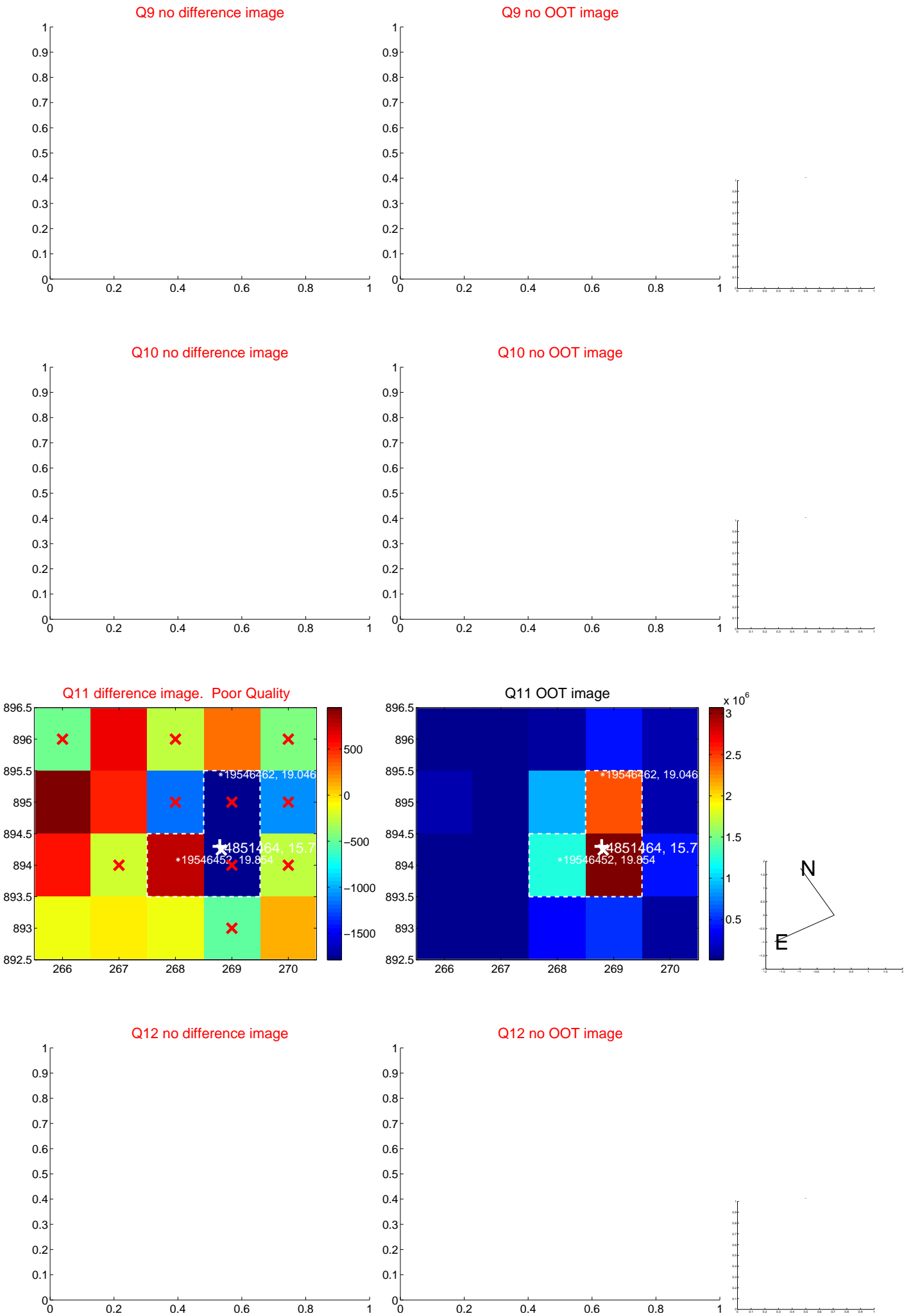


white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.





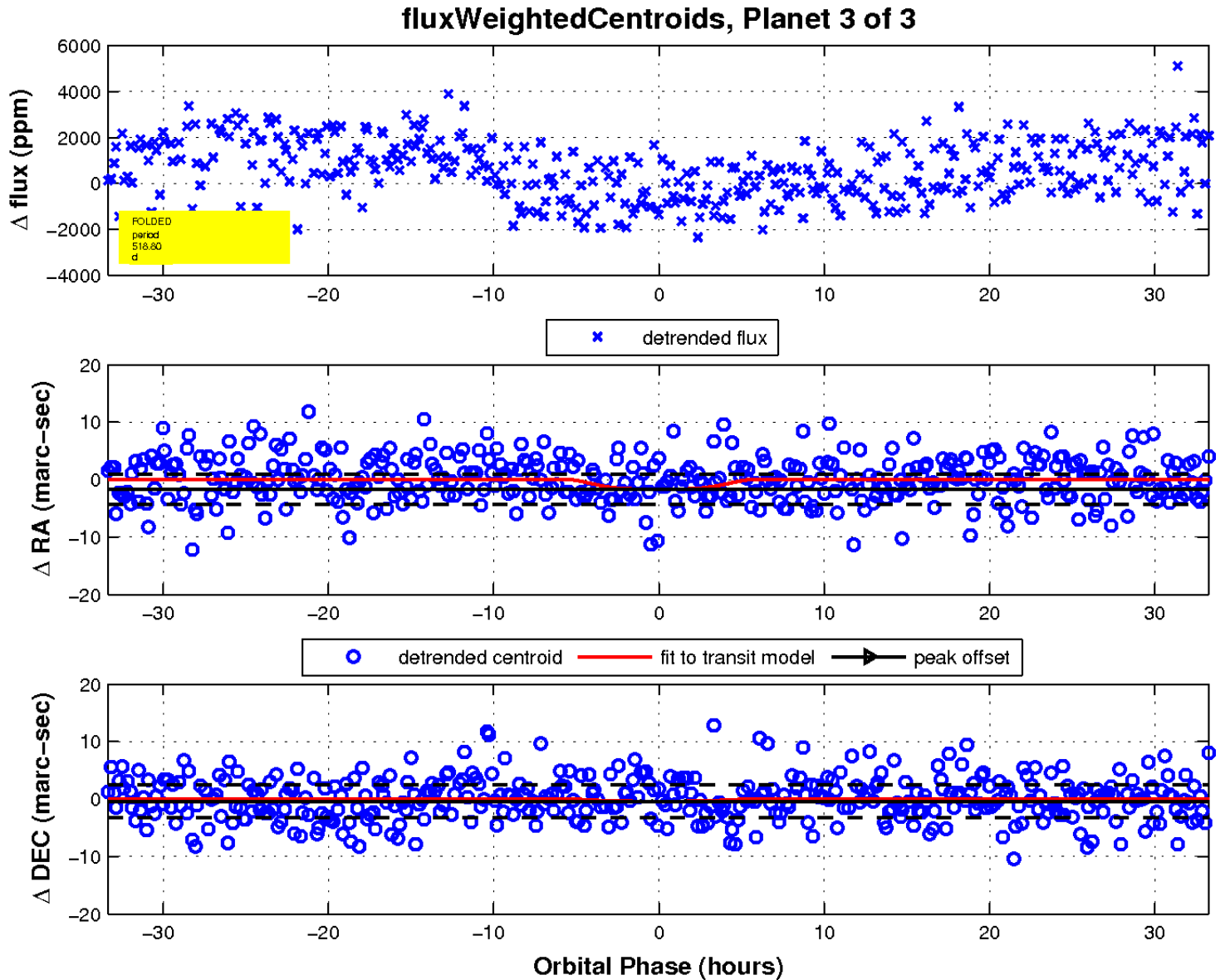
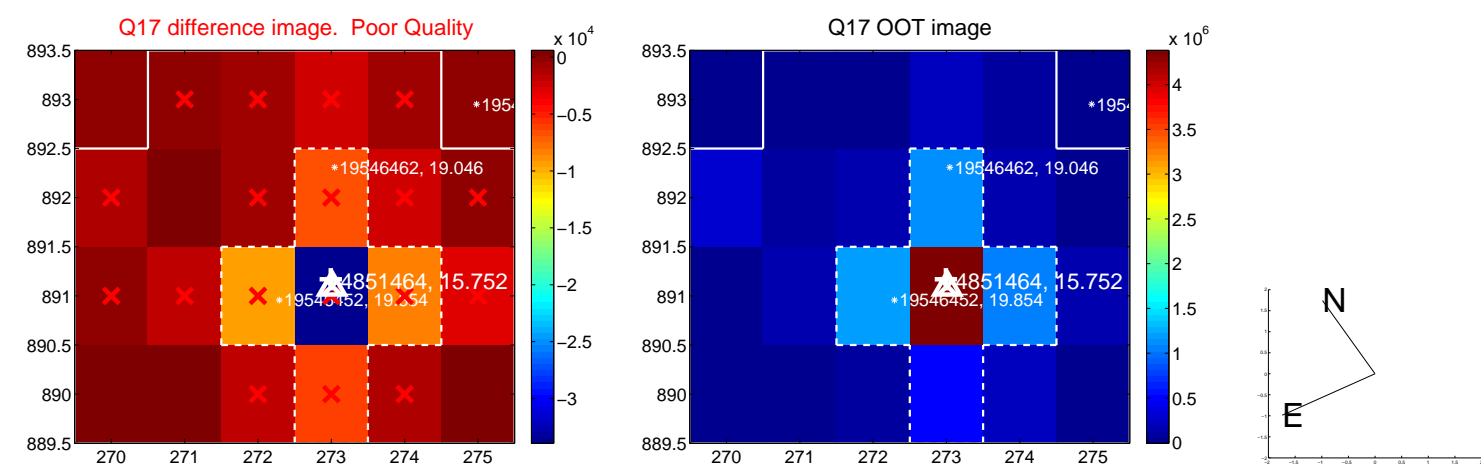
white ×: KIC target position; +: OOT centroid; △: difference centroid. red ×: large negative pixel value.



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.



UKIRT Image

Declination

