

# KIC 010448764

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
010448764-01	OBS	No	3.488907	132.689937	628.8	8.318	16.9	20.1	2.14	7615	5.52	4786.33
010448764-02	OBS	No	3.489087	131.653487	704.6	10.726	17.8	20.9	2.14	7615	8.87	4786.00
010448764-03	OBS	No	1.744589	131.874064	544.2	7.439	14.0	16.4	2.14	7615	5.79	12059.55

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
010448764-01	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_ALT—CENT_SATURATED
010448764-02	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—SAME_NTL_PERIOD—CENT_SATURATED
010448764-03	OBS	FP	0.00	1	0	0	0	TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_ALT—SAME_NTL_PERIOD—CENT_SATURATED

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

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

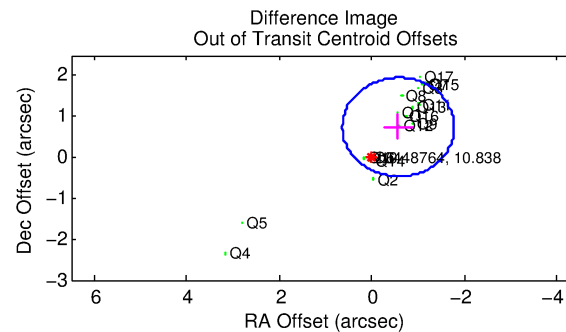
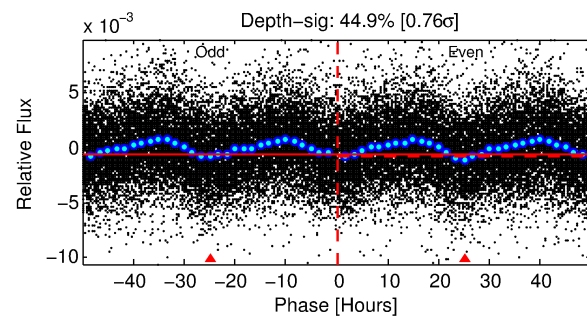
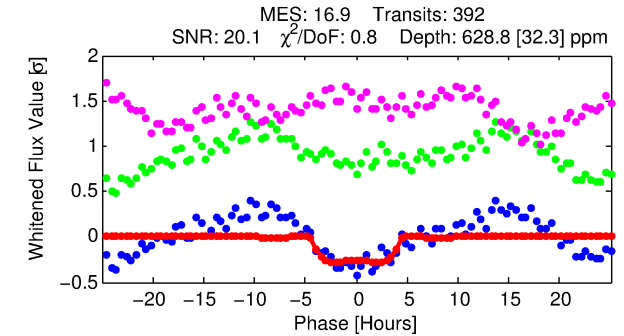
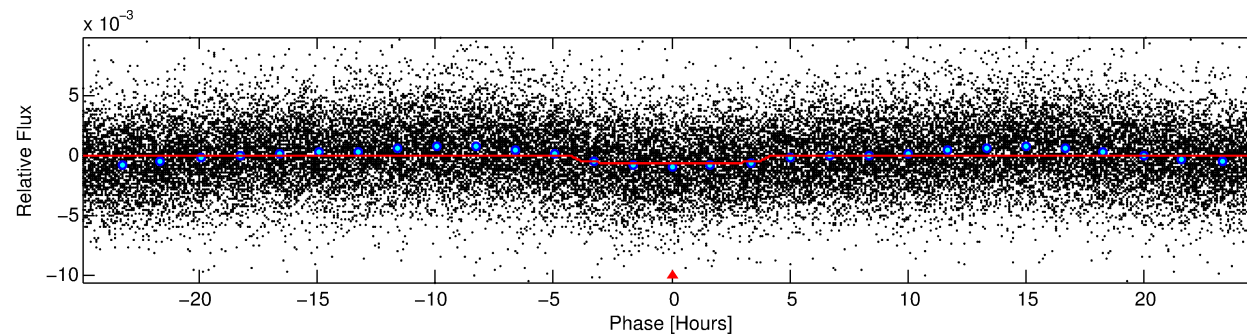
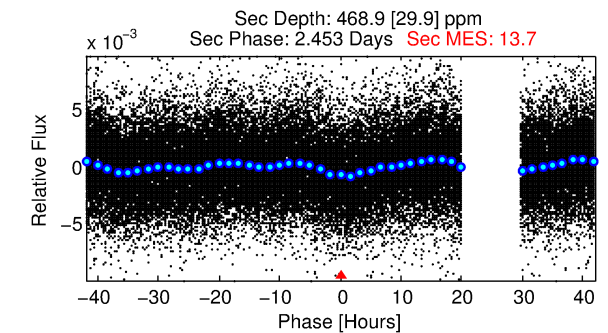
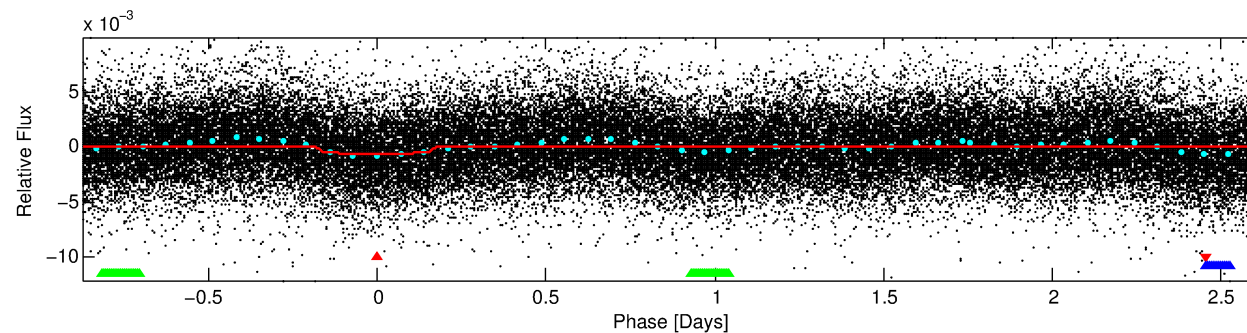
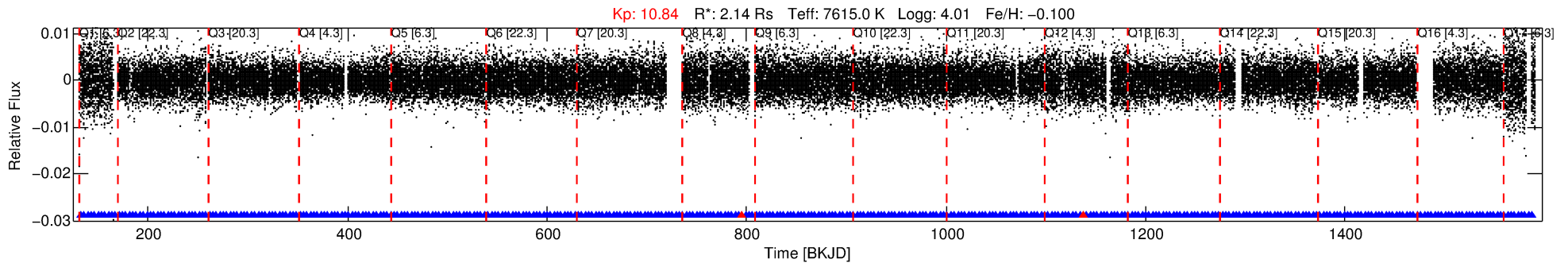
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

Ephemeris Match Information For 010448764-01

No Significant Match Found

# DV One-Page Summary

KIC: 10448764 Candidate: 1 of 3 Period: 3.489 d



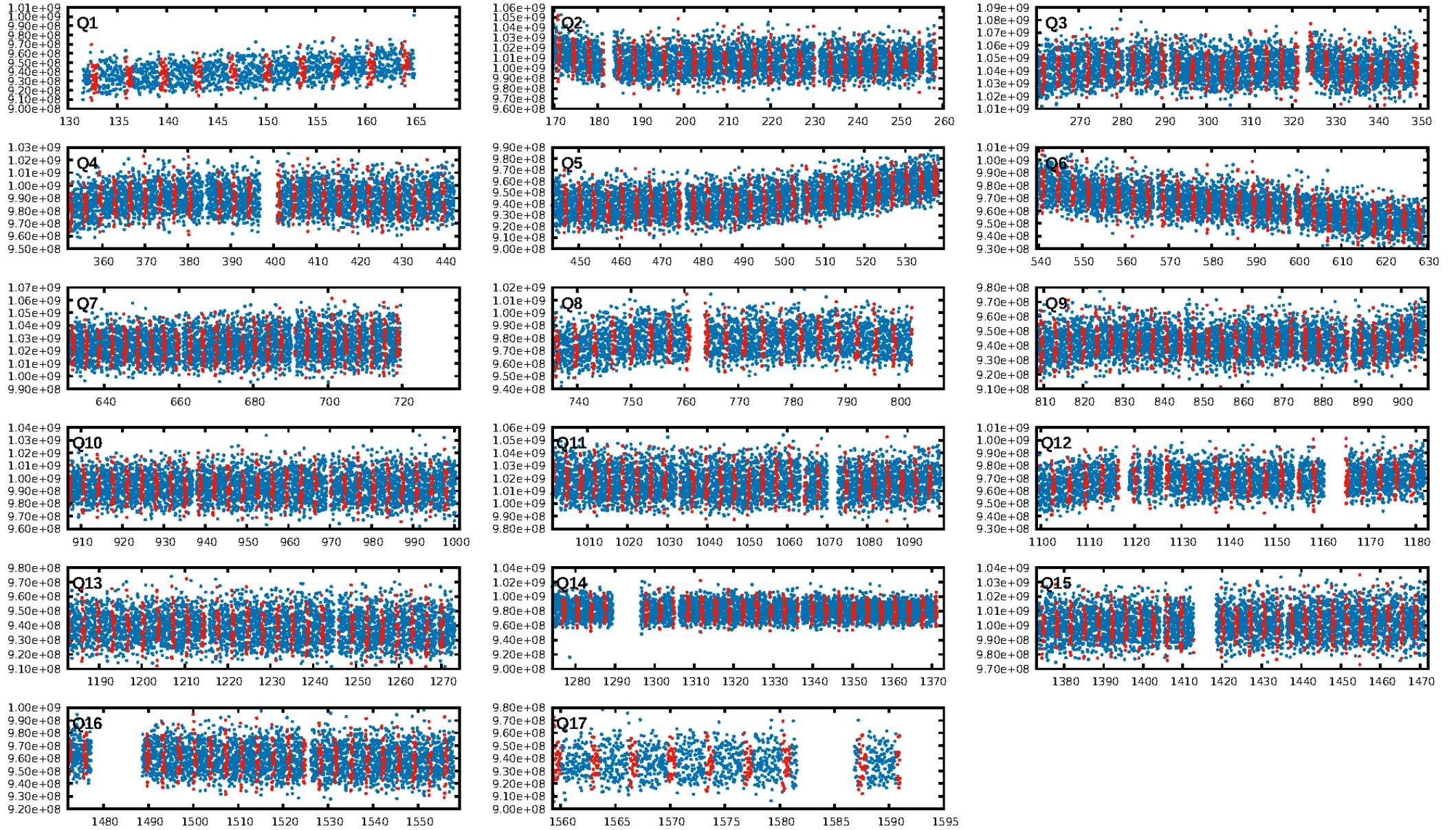
## DV Fit Results:

Period = 3.48891 [0.00002] d  
Epoch = 132.6899 [0.0047] BKJD  
Rp/R\* = 0.0236 [0.0096]  
a/R\* = 3.12 [6.90]  
b = 0.38 [5.58]  
Seff = 4786.33 [1969.84]  
Teq = 2121 [218] K  
Rp = 5.52 [2.68] Re  
a = 0.0538 [0.0131] AU  
Ag = 24.45 [21.87] [1.07σ]  
Teffp = 7292 [1510] K [3.39σ]

## DV Diagnostic Results:

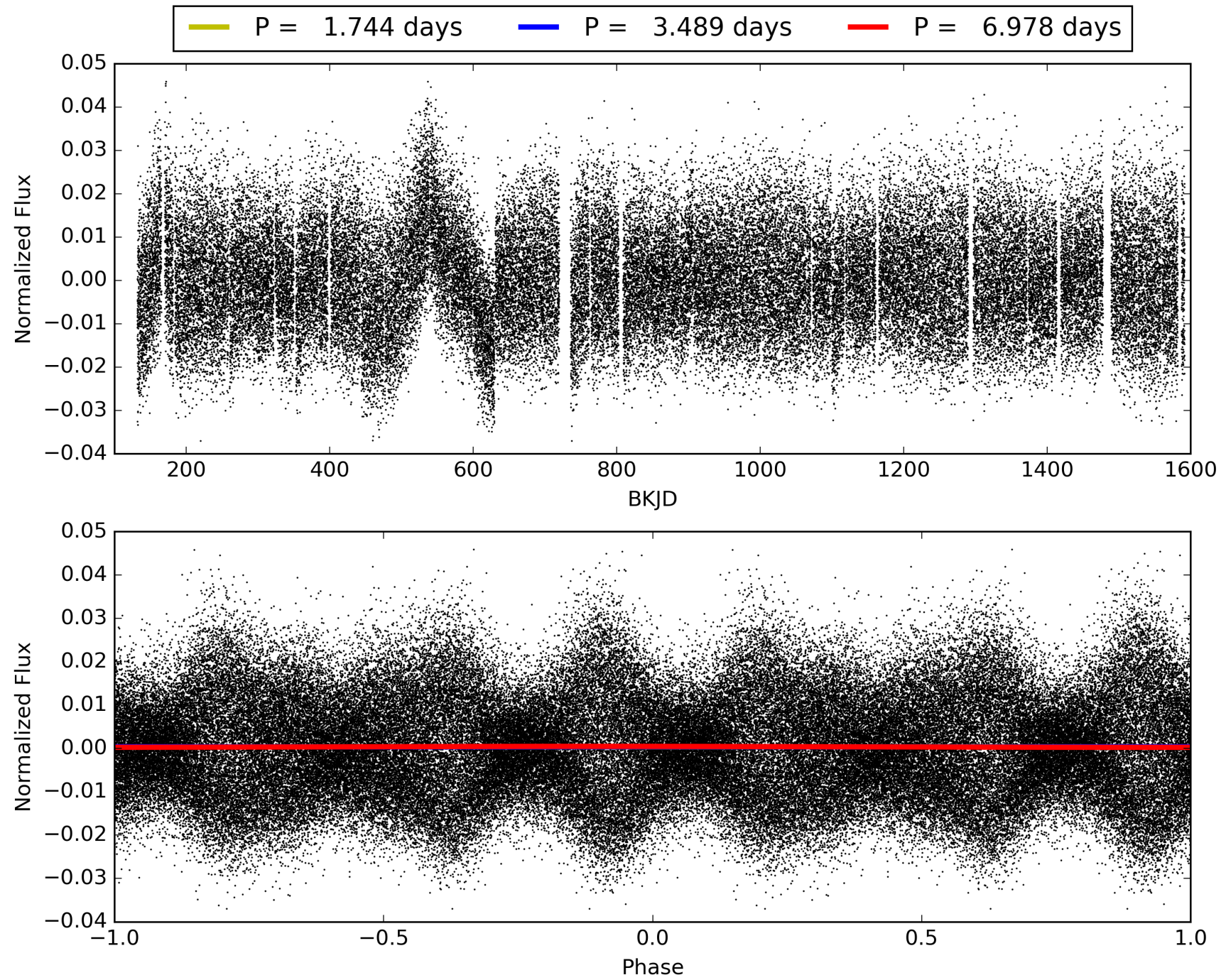
ShortPeriod-sig: 100.0% [3.75σ]  
LongPeriod-sig: 0.0% [0.00σ]  
ModelChiSquare2-sig: N/A  
ModelChiSquareGof-sig: N/A  
Bootstrap-pfa: 8.37e-98  
RollingBand-fgt: 0.99 [371/373]  
GhostDiagnostic-chr: 1.139  
Centroid-sig: 3.1%  
Centroid-so: 0.333 arcsec [5.63σ]  
OotOffset-rm: 0.940 arcsec [2.33σ]  
KicOffset-rm: 0.989 arcsec [2.50σ]  
OotOffset-st: 4/4/4/5 [17]  
KicOffset-st: 4/4/4/5 [17]  
DiffImageQuality-fgm: 0.65 [11/17]  
DiffImageOverlap-fno: 0.18 [3/17]

# TCE 010448764-01, PDC Light Curves





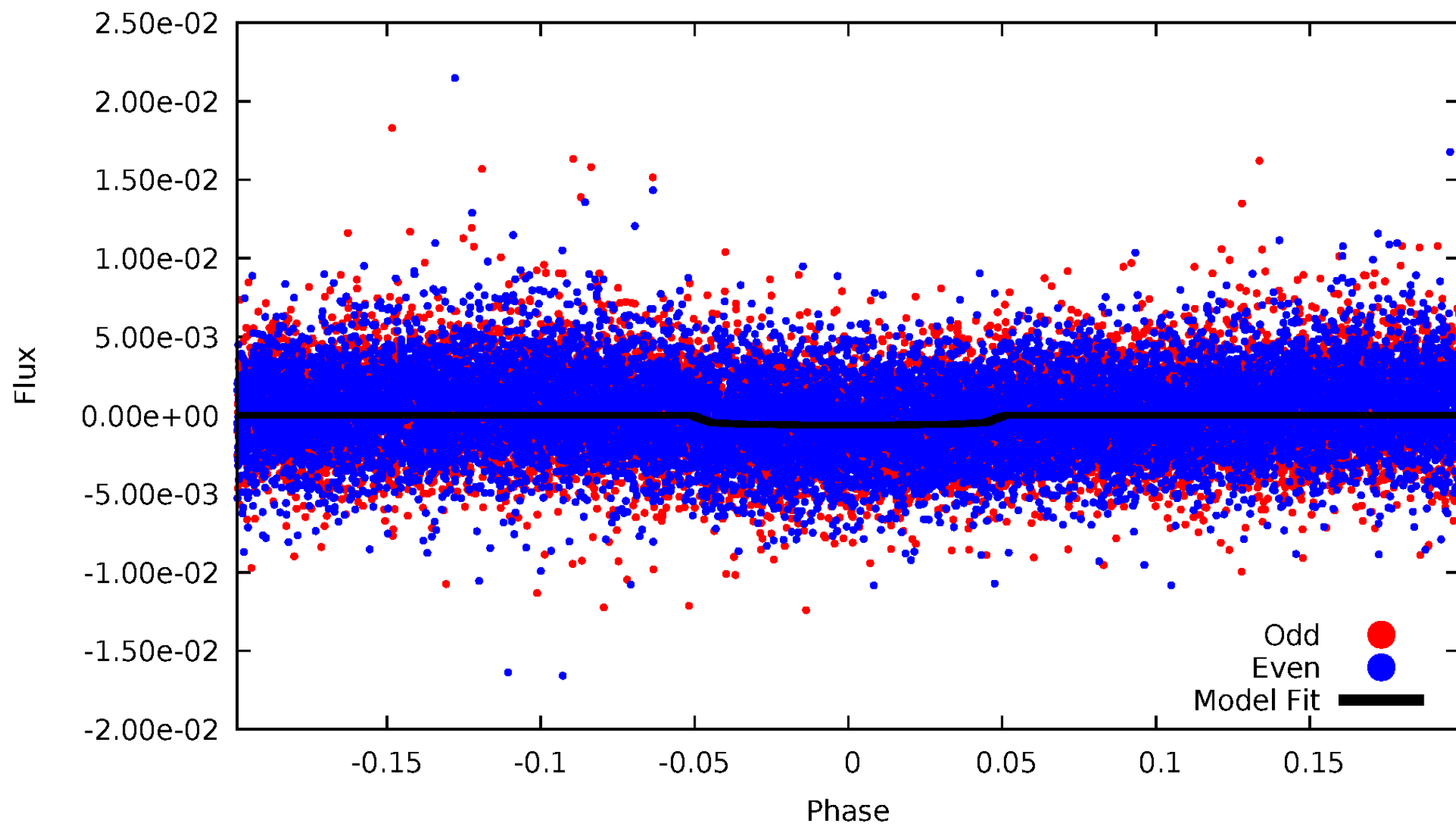
TCE 010448764-01





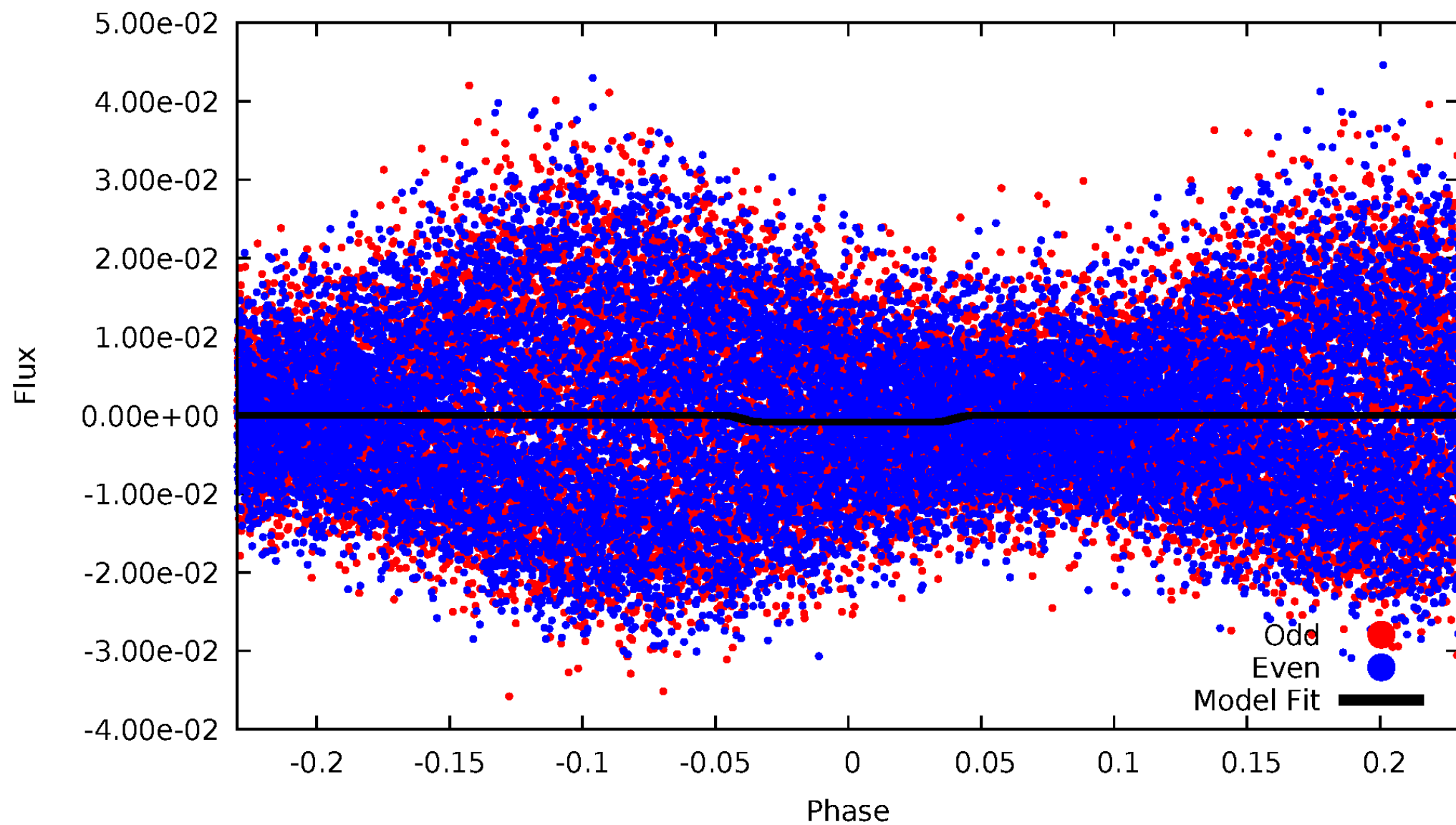
# DV Odd/Even

TCE 010448764-01



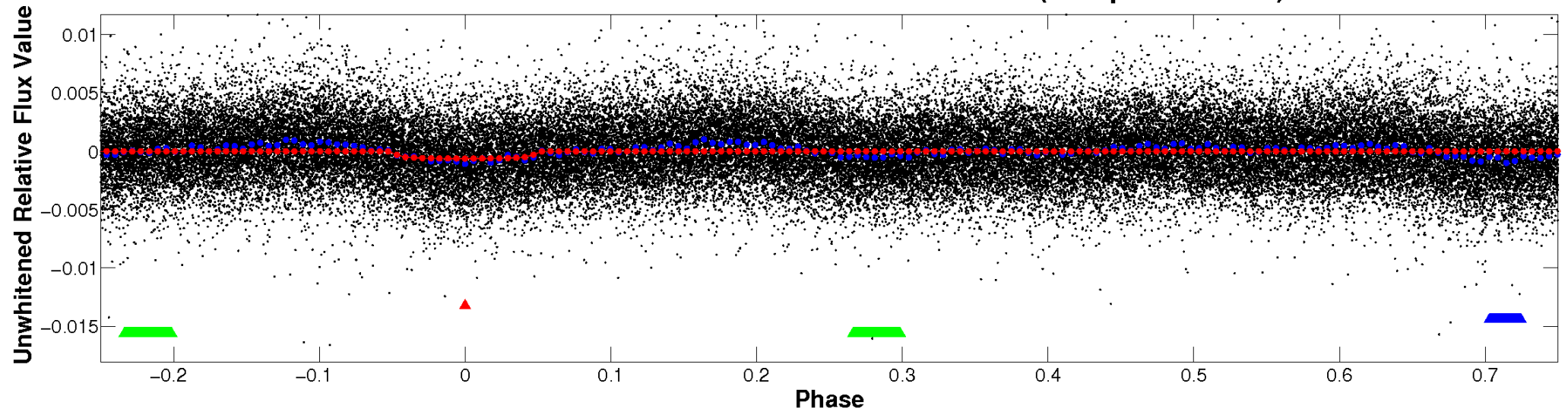
# ALT Odd/Even

TCE 010448764-01

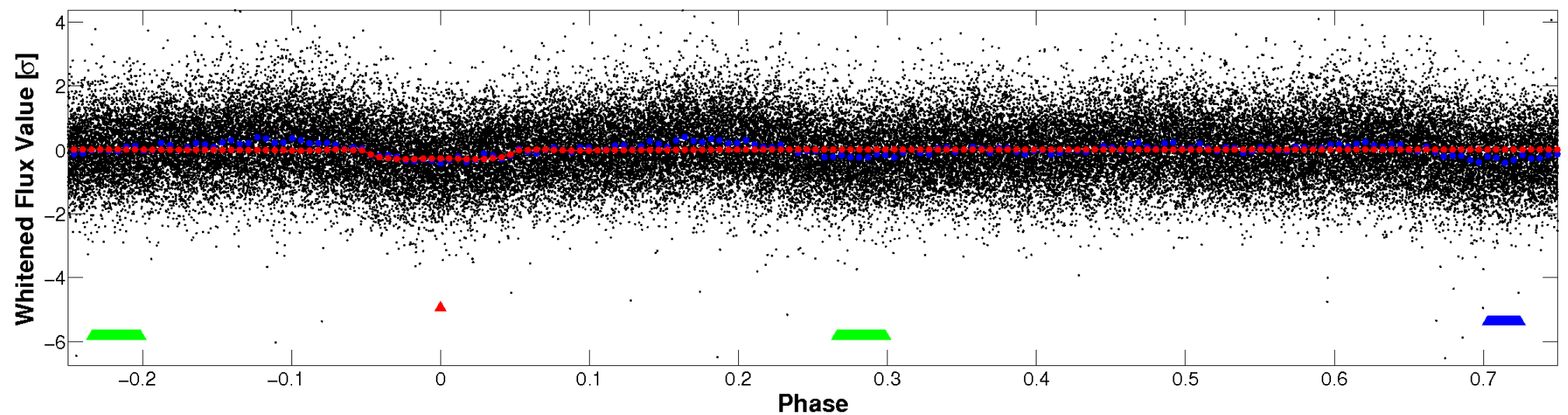


# Non-Whitened Vs. Whitened Light Curve

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



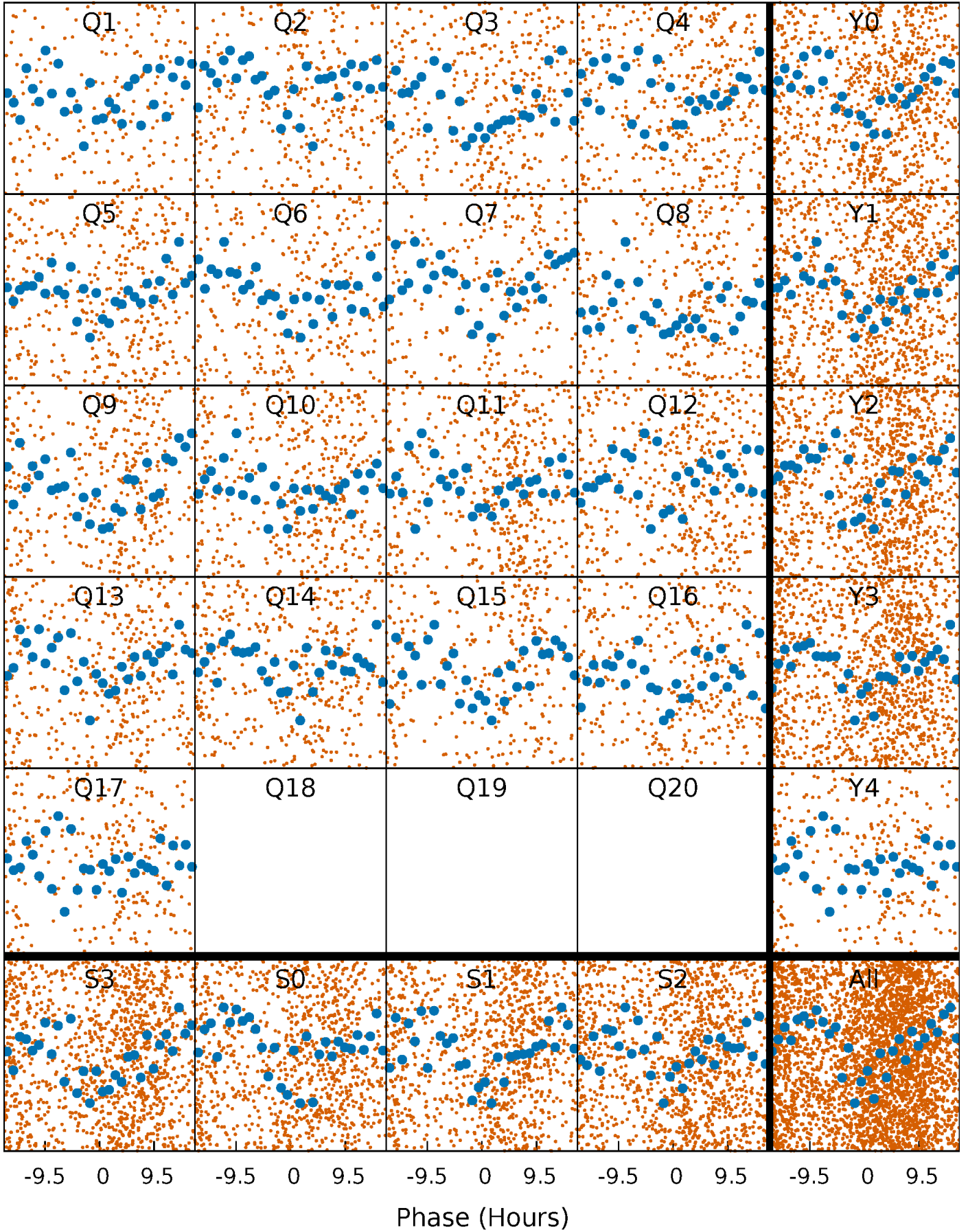
Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)





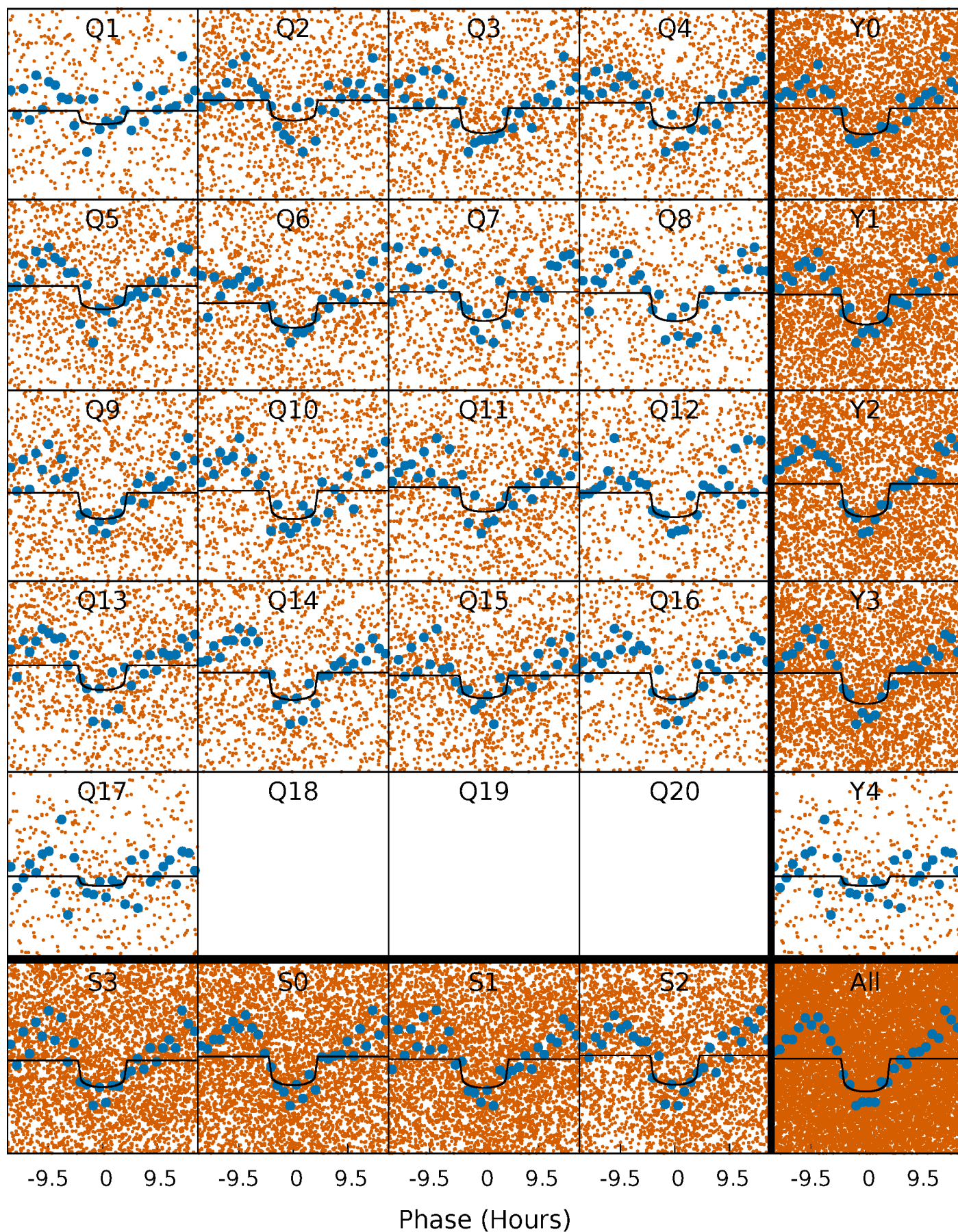
# PDC Quarter-Phased Transit Curves

TCE 010448764-01   P= 3.488907 Days    $T_0=132.689937$  (BKJD)



# DV Quarter-Phased Transit Curves

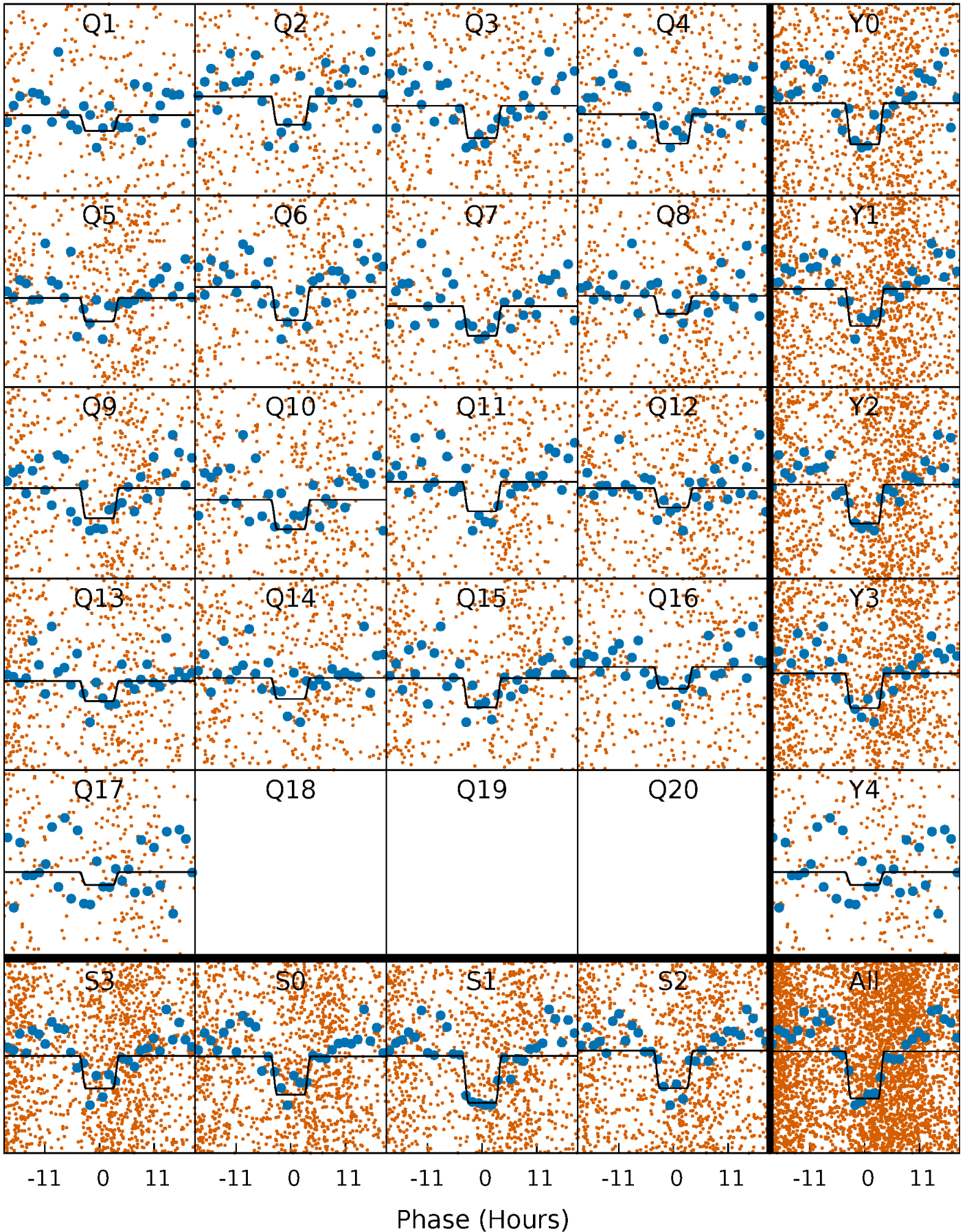
TCE 010448764-01 P= 3.488907 Days  $T_0=132.689937$  (BKJD)





# Alt. Detrend Quarter-Phased Transit Curves

TCE 010448764-01 P= 3.488769 Days  $T_0=132.726801$  (BKJD)

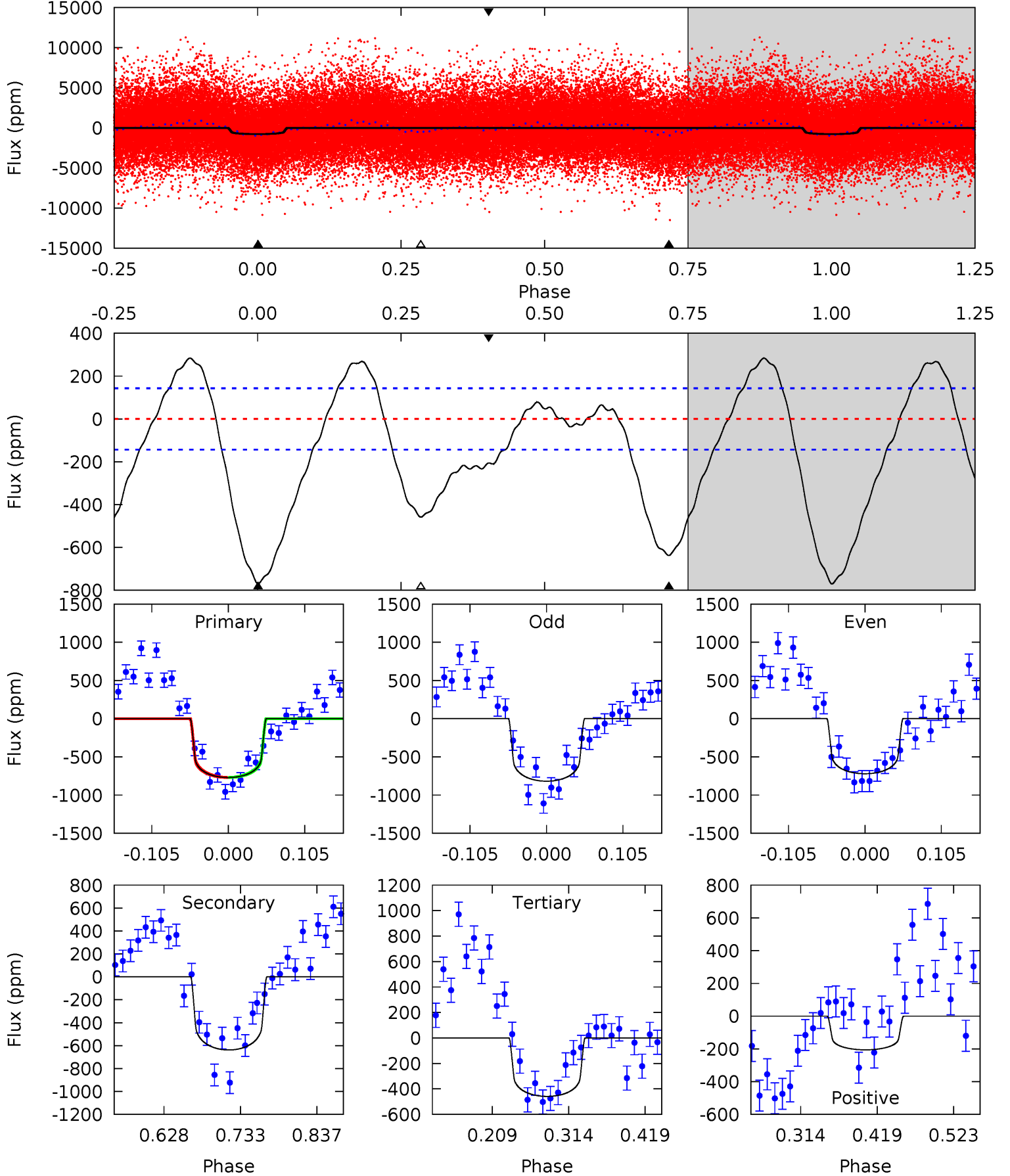




# DV Model-Shift Uniqueness Test

010448764-01, P = 3.488907 Days, E = 129.201030 Days

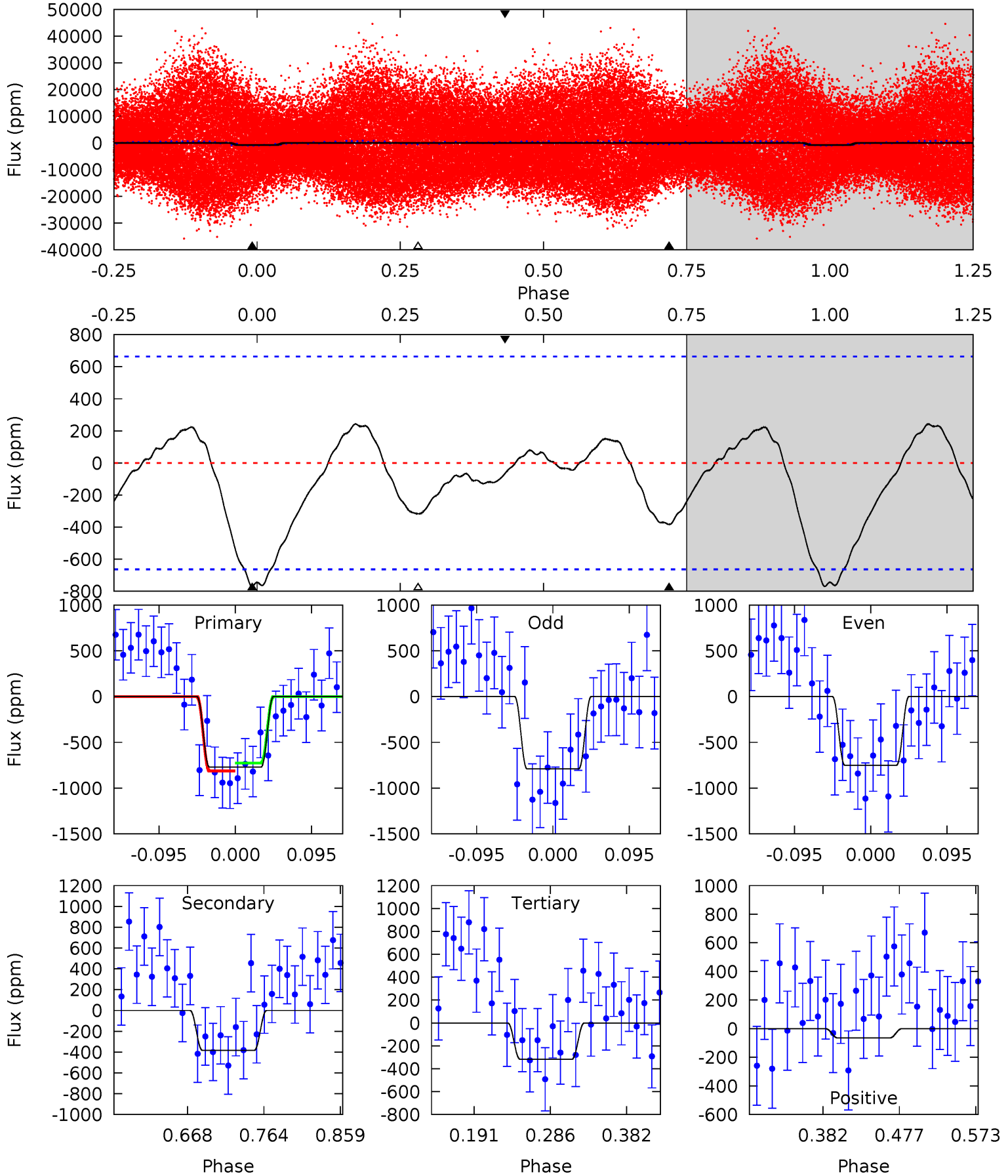
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
24.5	20.3	14.6	-6.54	4.56	1.62	6.55	9.91	31.0	5.69	26.8	1.56	1.01	0.27	0.01



# Alt Model-Shift Uniqueness Test

010448764-01, P = 3.488769 Days, E = 129.238032 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
5.31	2.64	2.19	-0.45	4.57	1.67	1.02	3.12	5.75	0.45	3.09	0.14	1.03	0.24	0.30



### Stellar Parameters For KIC 010448764

	$T_{\text{eff}} (K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R (R_{\odot})$	$M (M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	$7615^{+211}_{-316}$	$4.007^{+0.216}_{-0.144}$	$-0.100^{+0.200}_{-0.350}$	$2.143^{+0.517}_{-0.574}$	$1.702^{+0.198}_{-0.322}$	$0.243^{+0.301}_{-0.100}$
	+3%/-4%	+5%/-4%	+200%/-350%	+24%/-27%	+12%/-19%	+123%/-41%
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 010448764-01 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	$A_{\text{obs}}$
DV	$-638 \pm 31$	$5.55^{+2.36}_{-2.09}$	$2944^{+214}_{-220}$	$7666^{+2914}_{-1210}$	$32^{+51}_{-16}$
Alt.	$-383 \pm 145$	$6.73^{+2.61}_{-2.26}$	$2930^{+195}_{-224}$	$5942^{+1572}_{-952}$	$13^{+18}_{-7}$

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



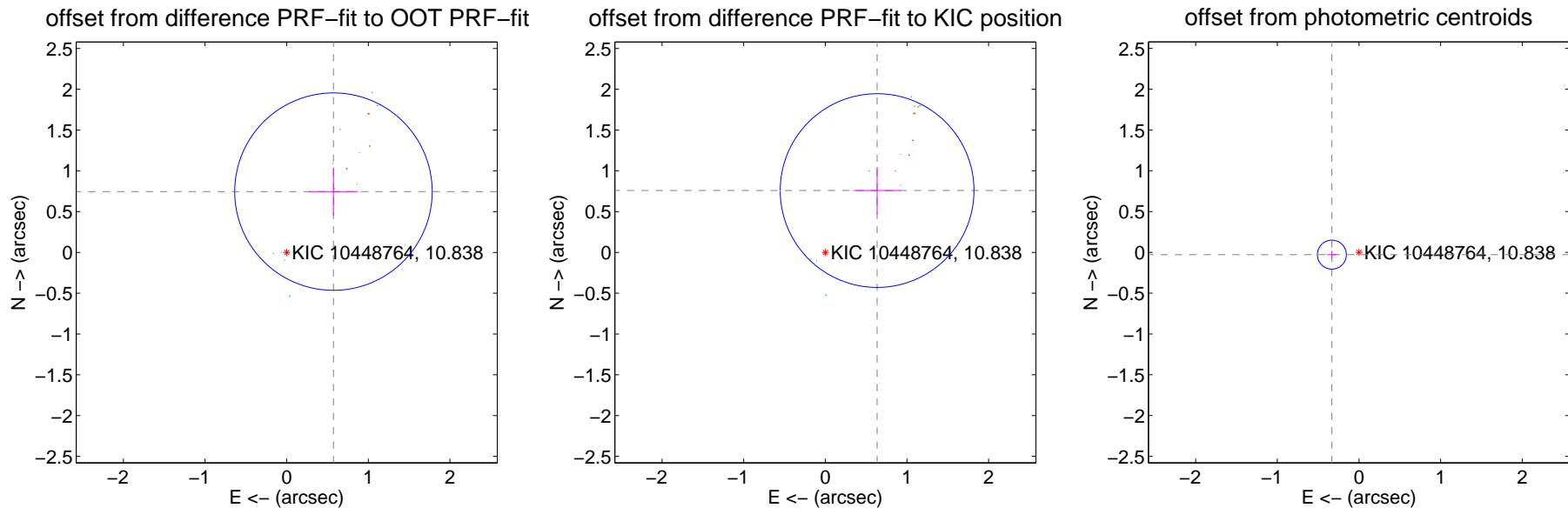
## DV Centroid Data

Supplemental centroid analysis for 010448764-01. **Kepler magnitude: 10.84.** Transit SNR 20.07

There are 11 quarters with good PRF difference image offsets

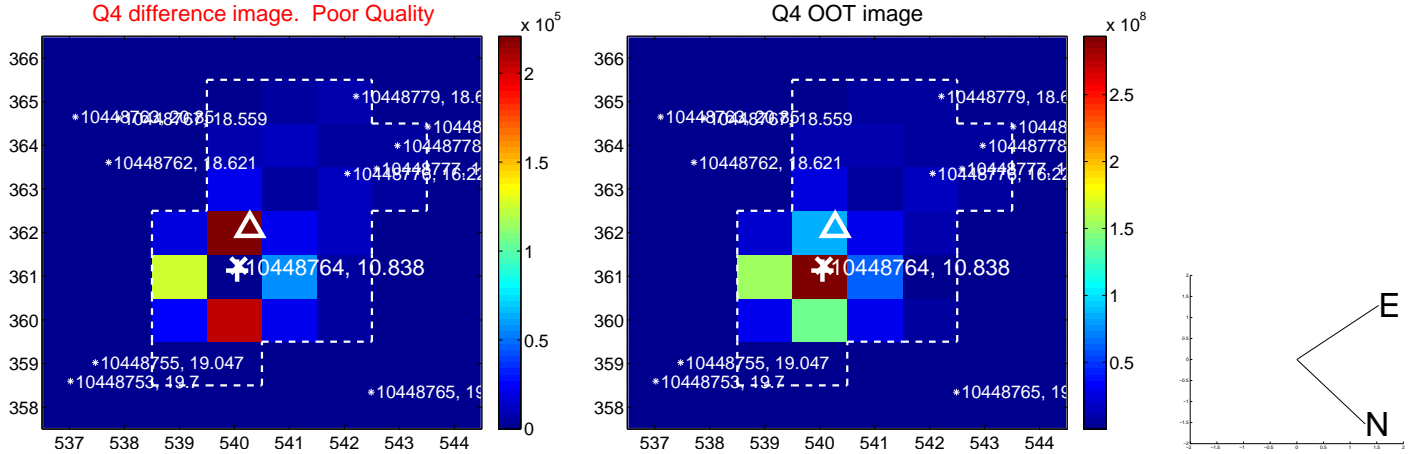
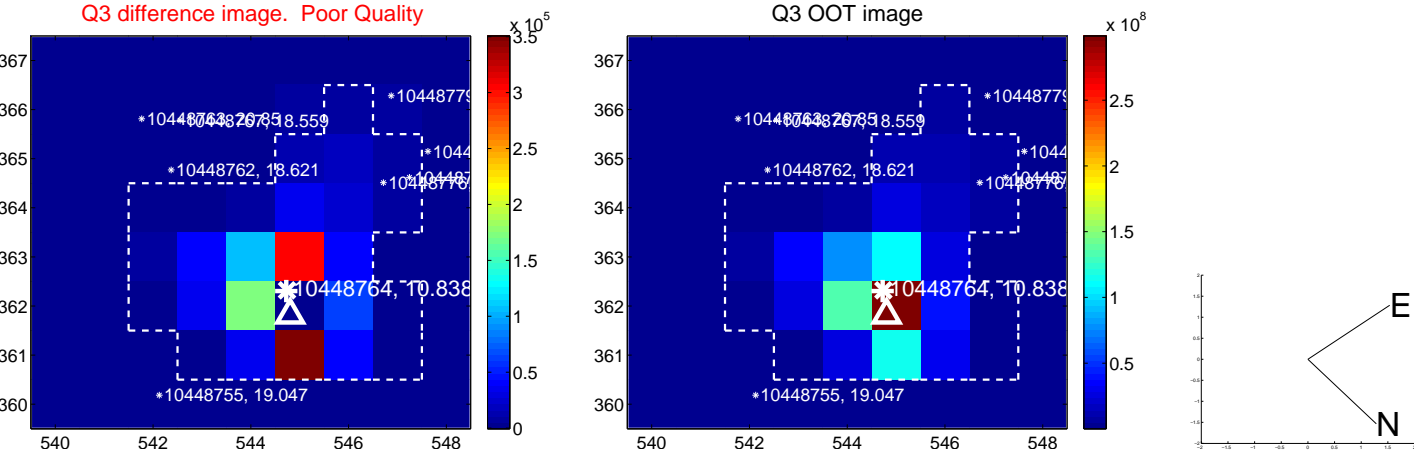
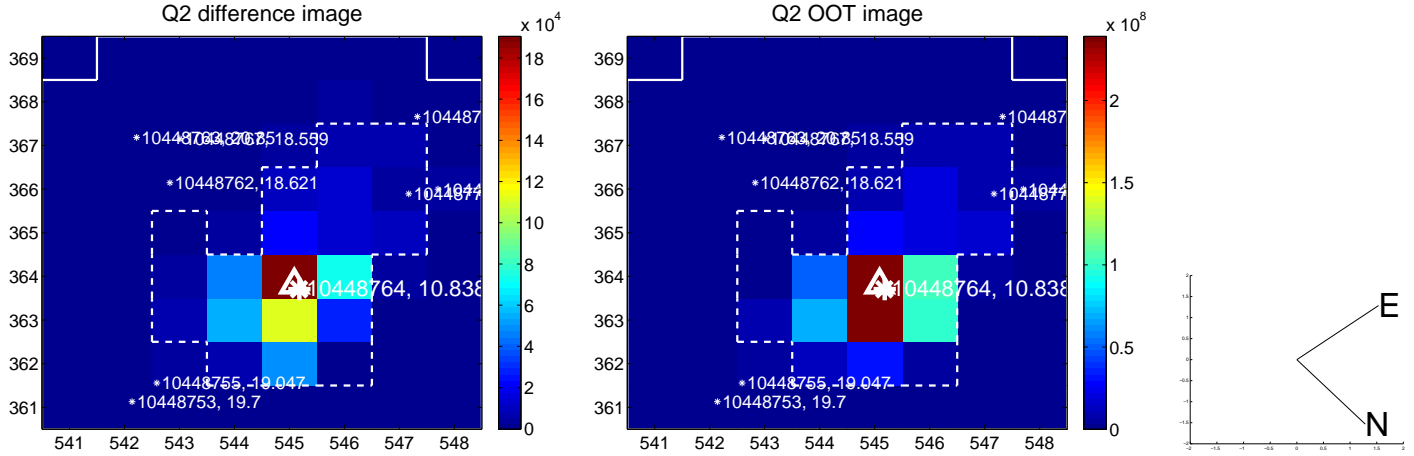
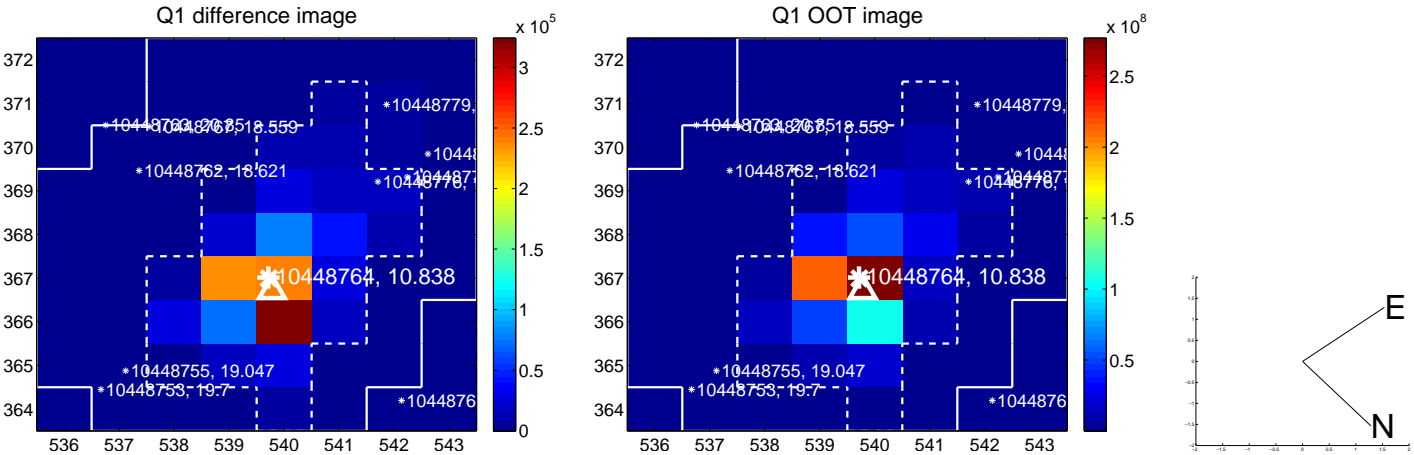
The direct PRF centroid is offset from the target star catalog position by about 0.05 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$0.940 \pm 0.403$	2.33	$-0.573 \pm 0.300$	$0.745 \pm 0.294$
PRF-fit source offset from KIC position	$0.989 \pm 0.396$	2.50	$-0.634 \pm 0.291$	$0.758 \pm 0.287$
photometric centroid source offset	<b><math>0.33 \pm 0.06</math></b>	<b>5.63</b>	$0.33 \pm 0.06$	$-0.03 \pm 0.05$



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.

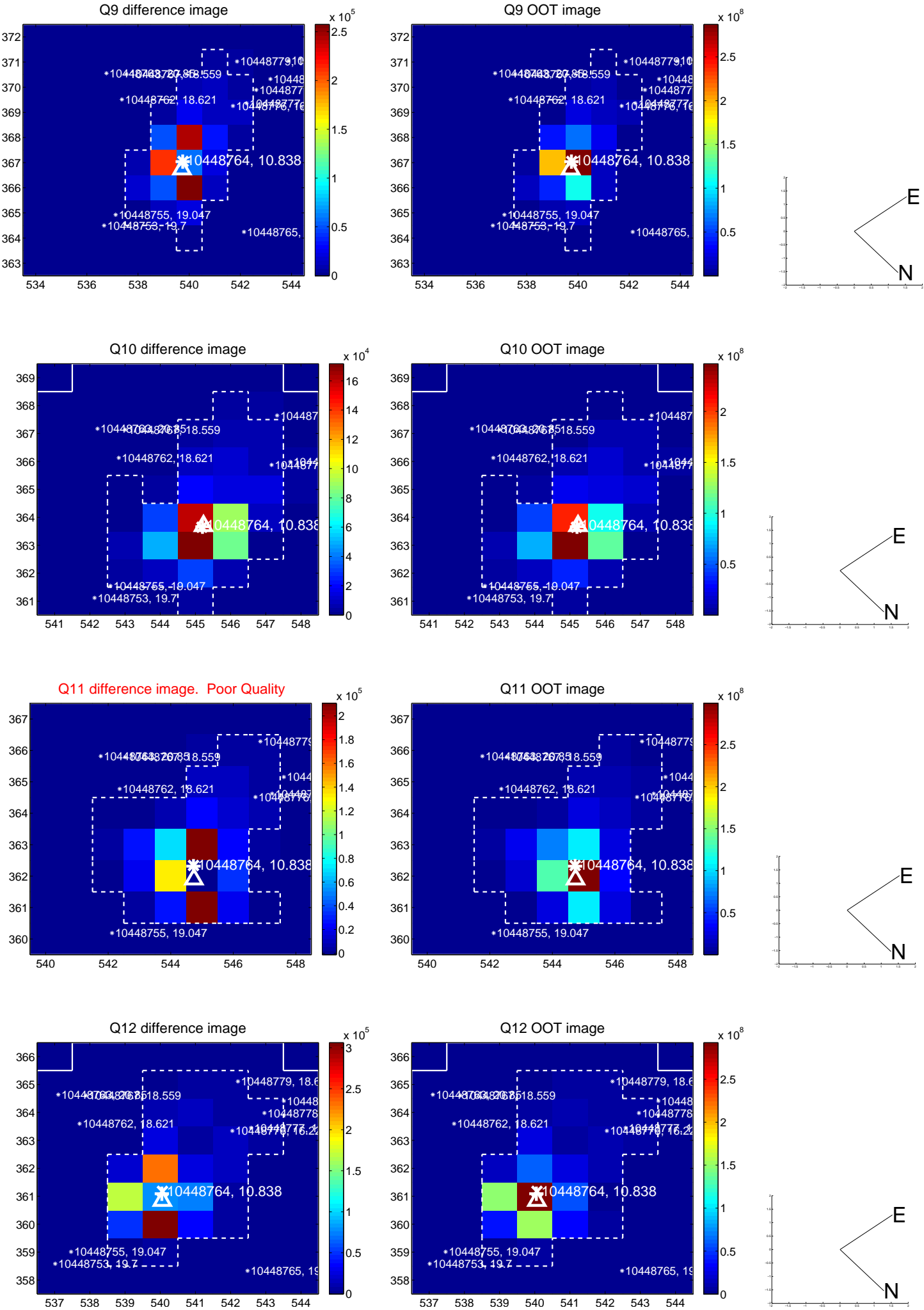
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



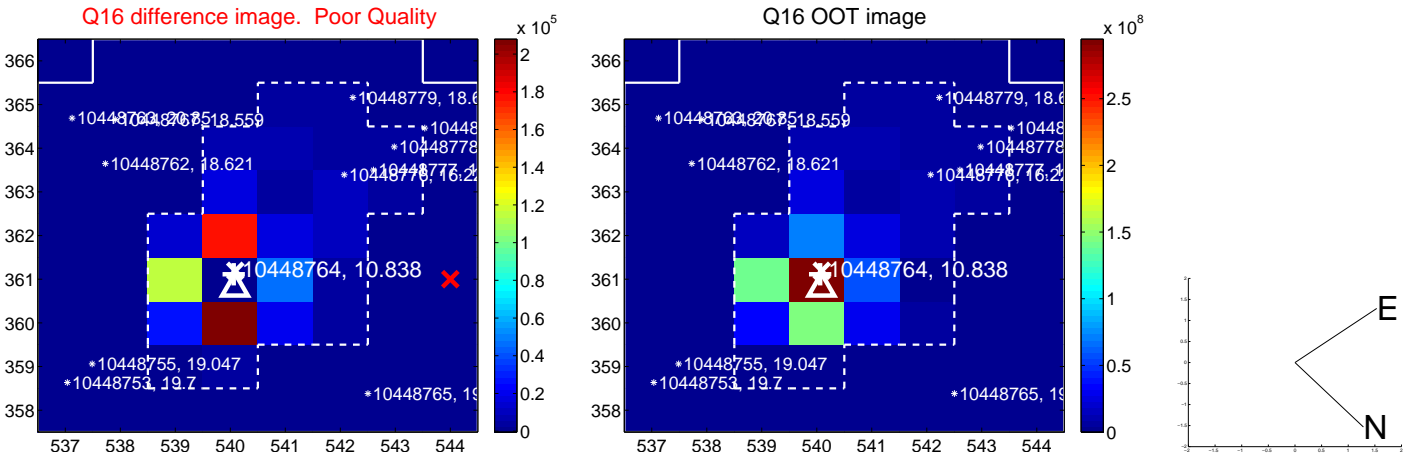
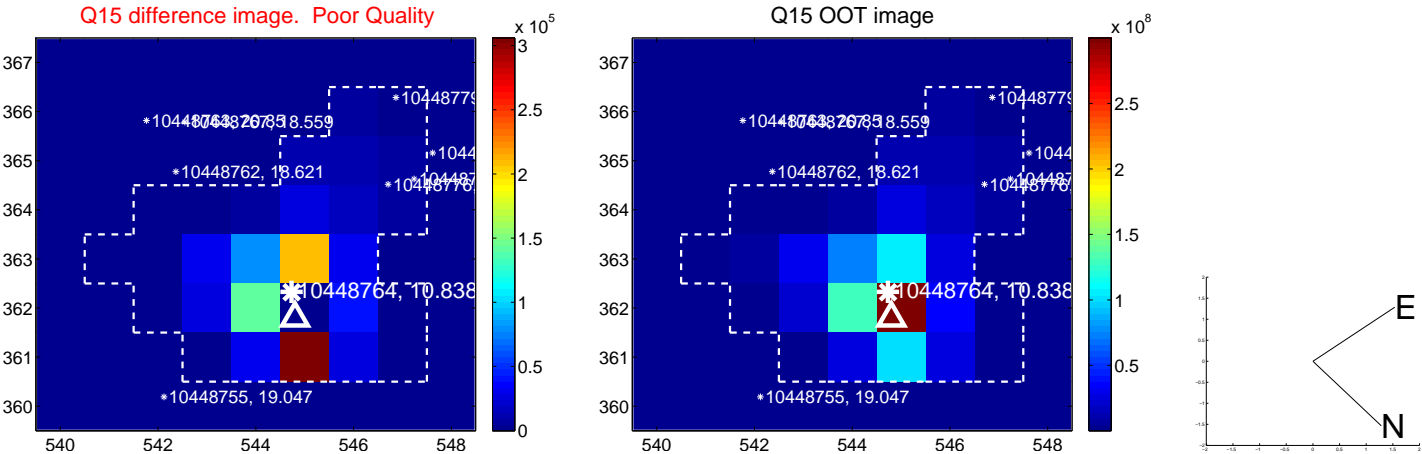
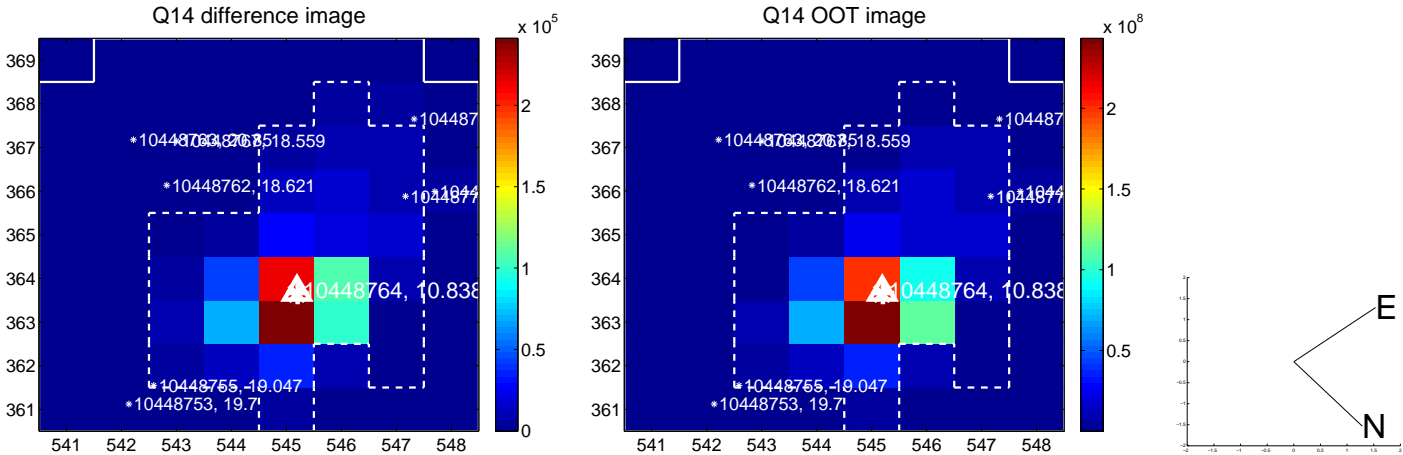
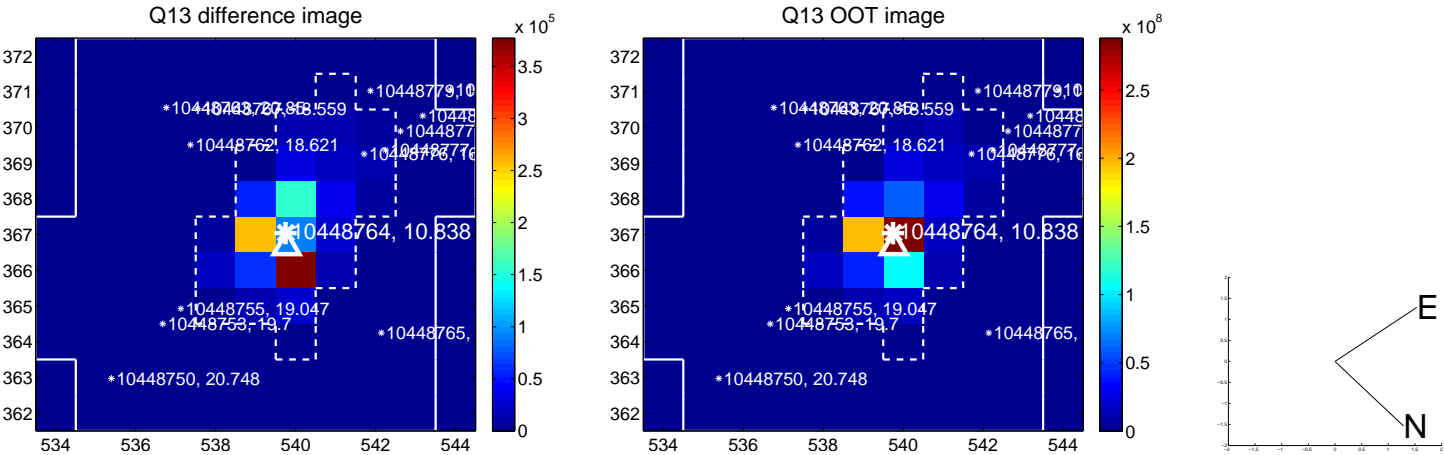




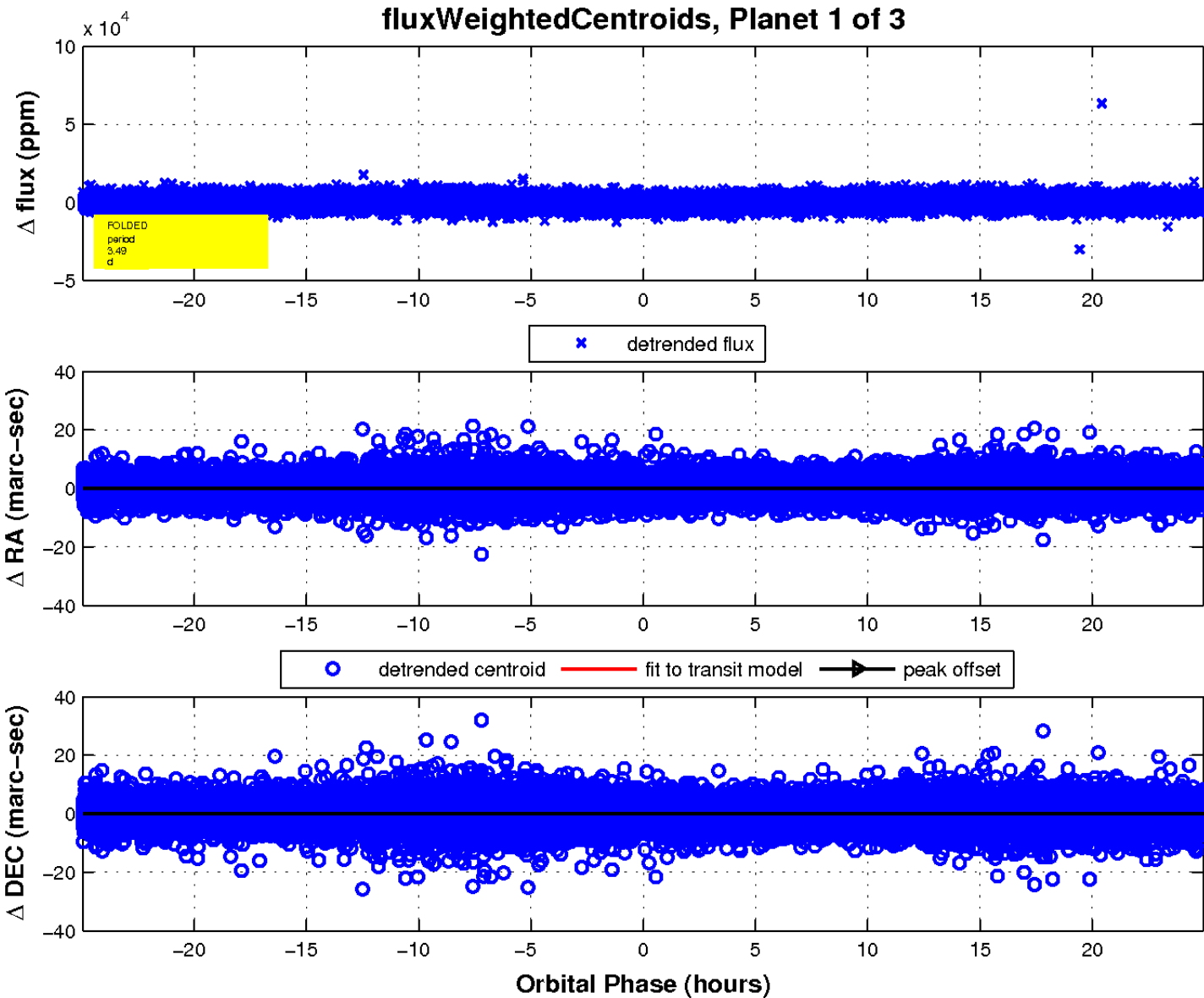
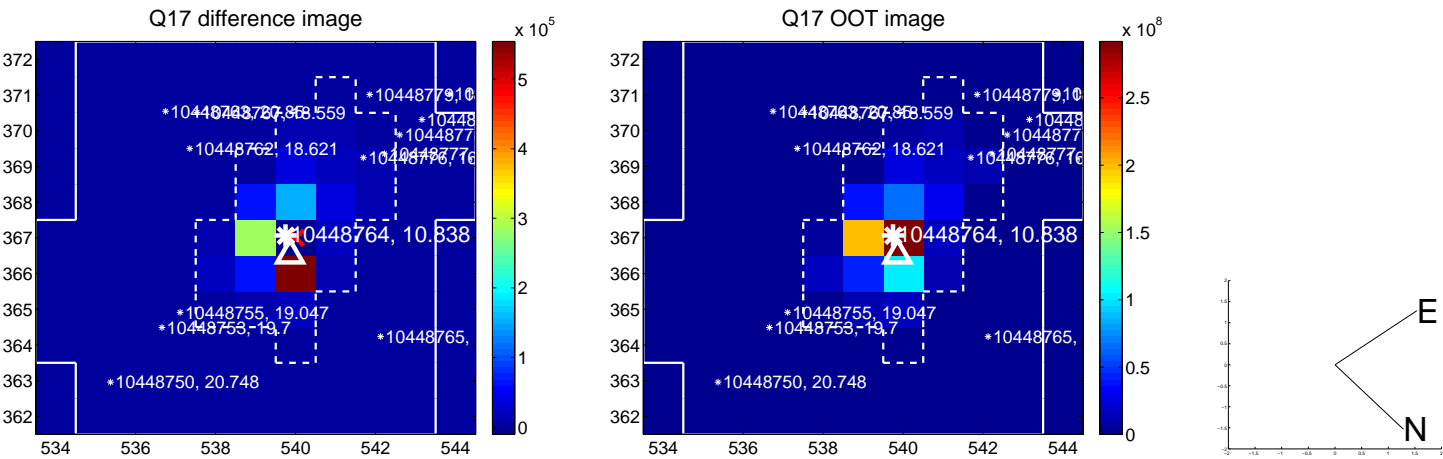
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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

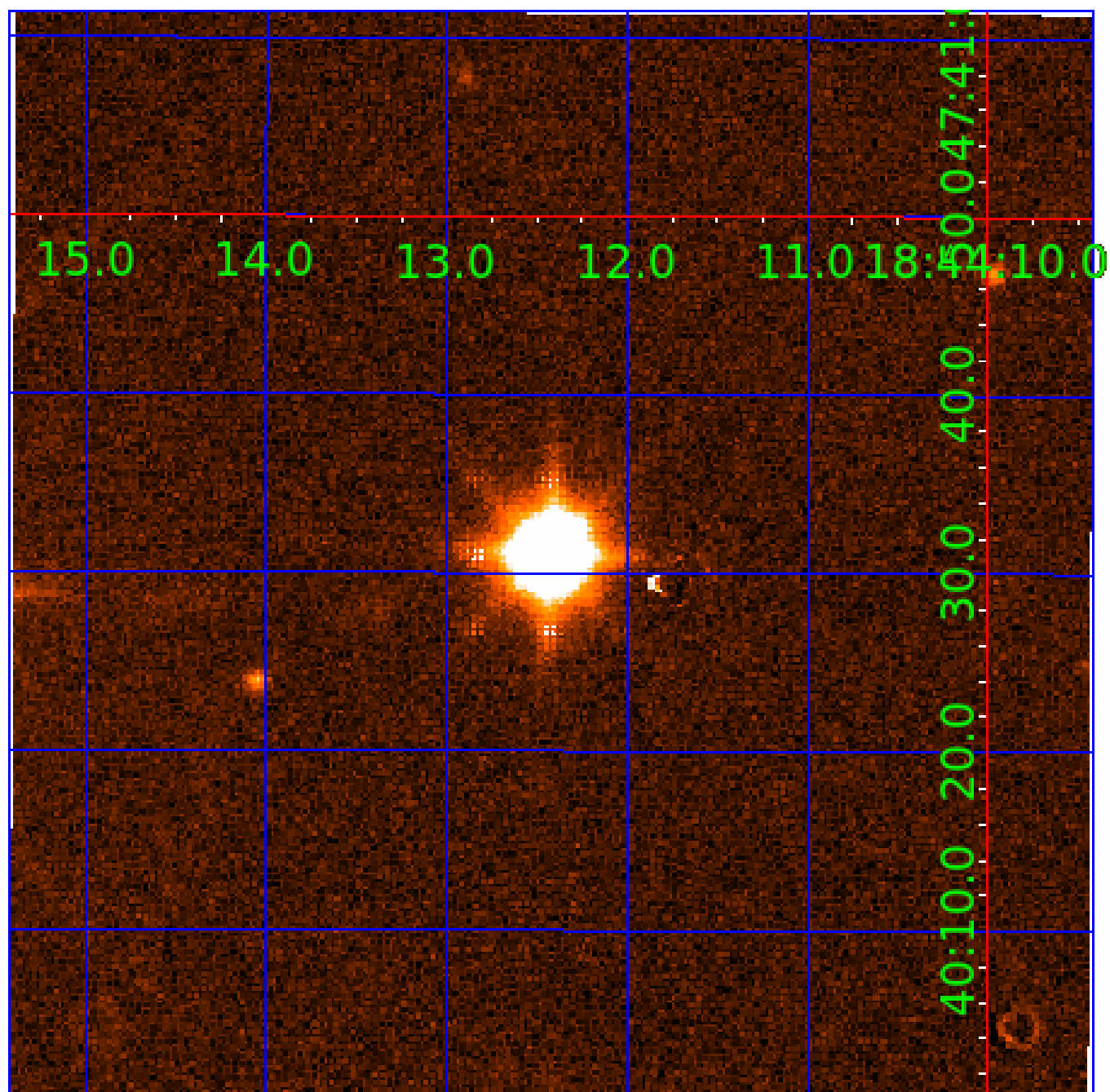


white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



UKIRT Image

Declination





# KIC 010448764

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
010448764-01	OBS	No	3.488907	132.689937	628.8	8.318	16.9	20.1	2.14	7615	5.52	4786.33
010448764-02	OBS	No	3.489087	131.653487	704.6	10.726	17.8	20.9	2.14	7615	8.87	4786.00
010448764-03	OBS	No	1.744589	131.874064	544.2	7.439	14.0	16.4	2.14	7615	5.79	12059.55

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
010448764-01	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_ALT—CENT_SATURATED
010448764-02	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—SAME_NTL_PERIOD—CENT_SATURATED
010448764-03	OBS	FP	0.00	1	0	0	0	TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_ALT—SAME_NTL_PERIOD—CENT_SATURATED

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

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

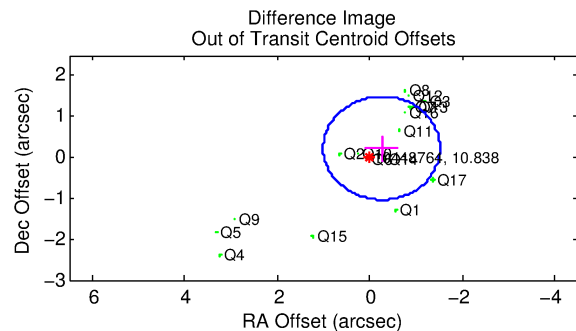
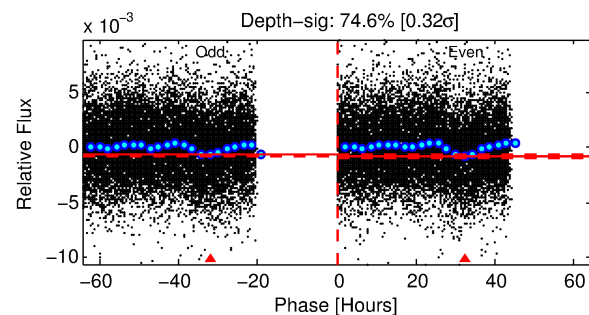
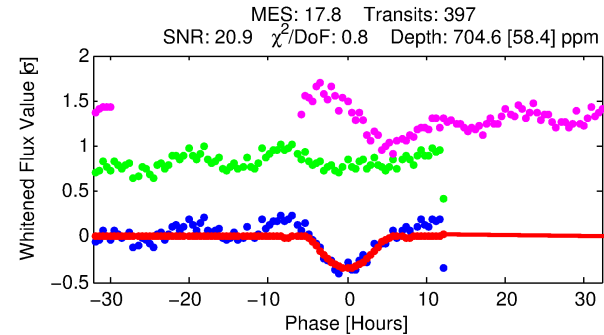
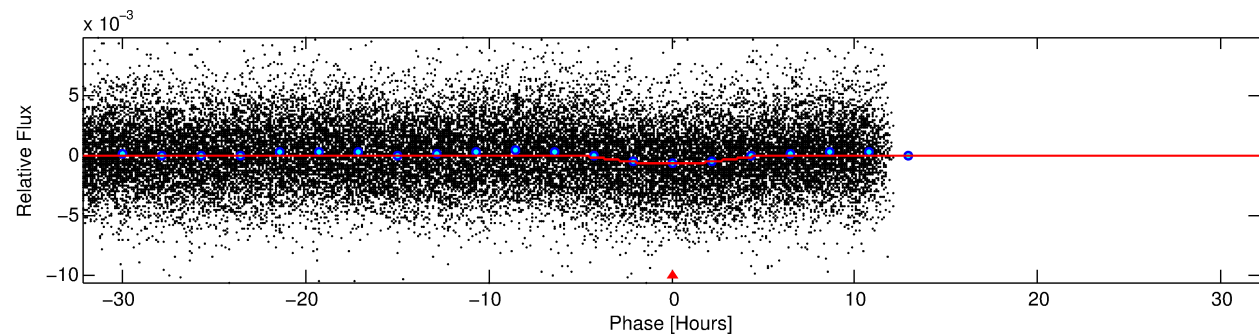
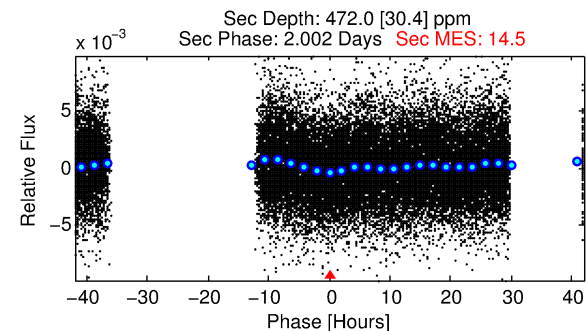
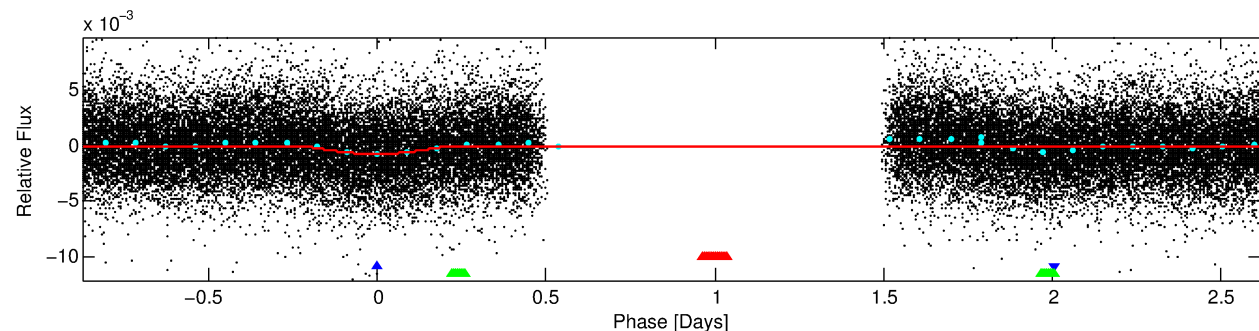
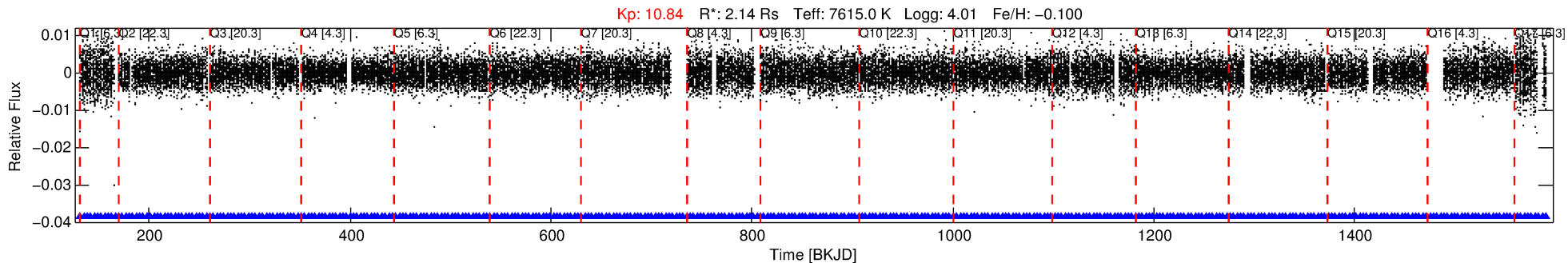
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

## Ephemeris Match Information For 010448764-02

No Significant Match Found

# DV One-Page Summary

KIC: 10448764 Candidate: 2 of 3 Period: 3.489 d



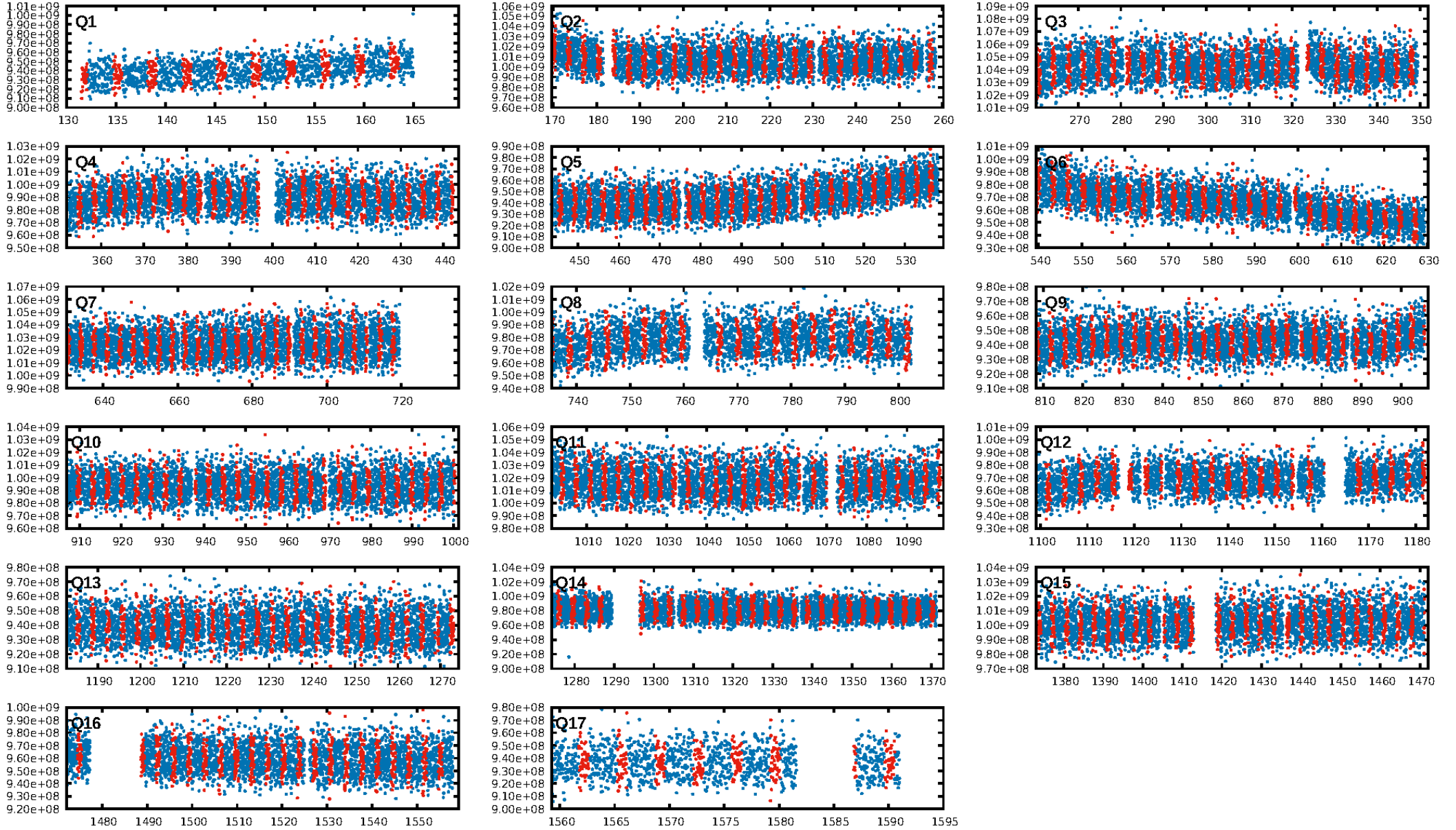
## DV Fit Results:

Period = 3.48909 [0.00005] d  
Epoch = 131.6535 [0.0121] BKJD  
Rp/R\* = 0.0379 [0.0302]  
a/R\* = 1.28 [0.11]  
b = 0.99 [0.05]  
Seff = 4786.00 [1969.71]  
Teq = 2121 [218] K  
Rp = 8.87 [7.46] Re  
a = 0.0538 [0.0131] AU  
Ag = 9.54 [15.63] [0.55σ]  
Teffp = 5762 [2310] K [1.57σ]

## DV Diagnostic Results:

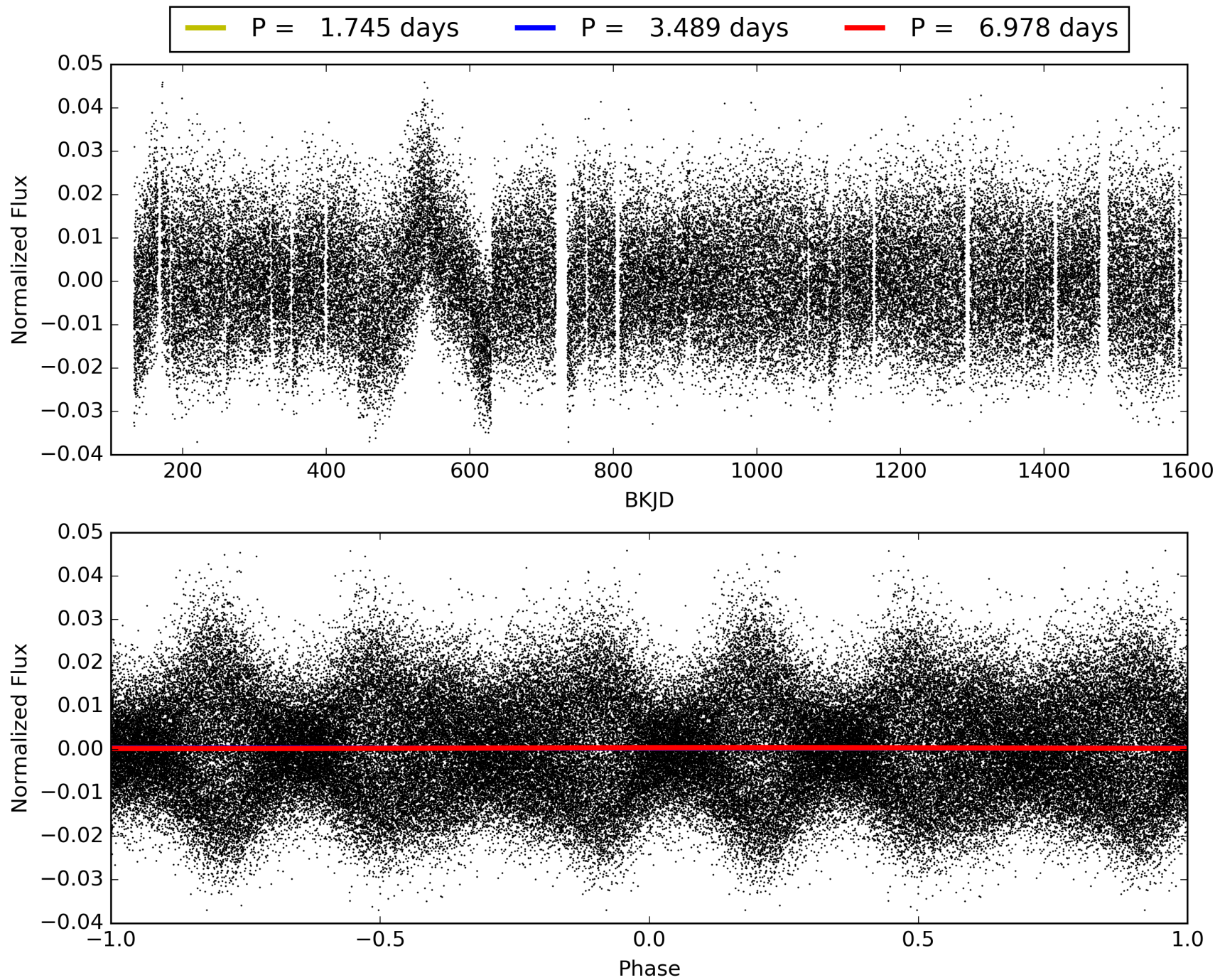
ShortPeriod-sig: 0.0% [0.00σ]  
LongPeriod-sig: N/A  
ModelChiSquare2-sig: N/A  
ModelChiSquareGof-sig: N/A  
Bootstrap-pfa: 2.97e-95  
RollingBand-fgt: 1.00 [379/379]  
GhostDiagnostic-chr: 1.074  
Centroid-sig: 0.2%  
Centroid-so: 0.285 arcsec [4.65σ]  
OotOffset-rm: 0.341 arcsec [0.81σ]  
KicOffset-rm: 0.257 arcsec [0.62σ]  
OotOffset-st: 4/4/4/5 [17]  
KicOffset-st: 4/4/4/5 [17]  
DiffImageQuality-fgm: 0.59 [10/17]  
DiffImageOverlap-fno: 0.00 [0/17]

# TCE 010448764-02, PDC Light Curves





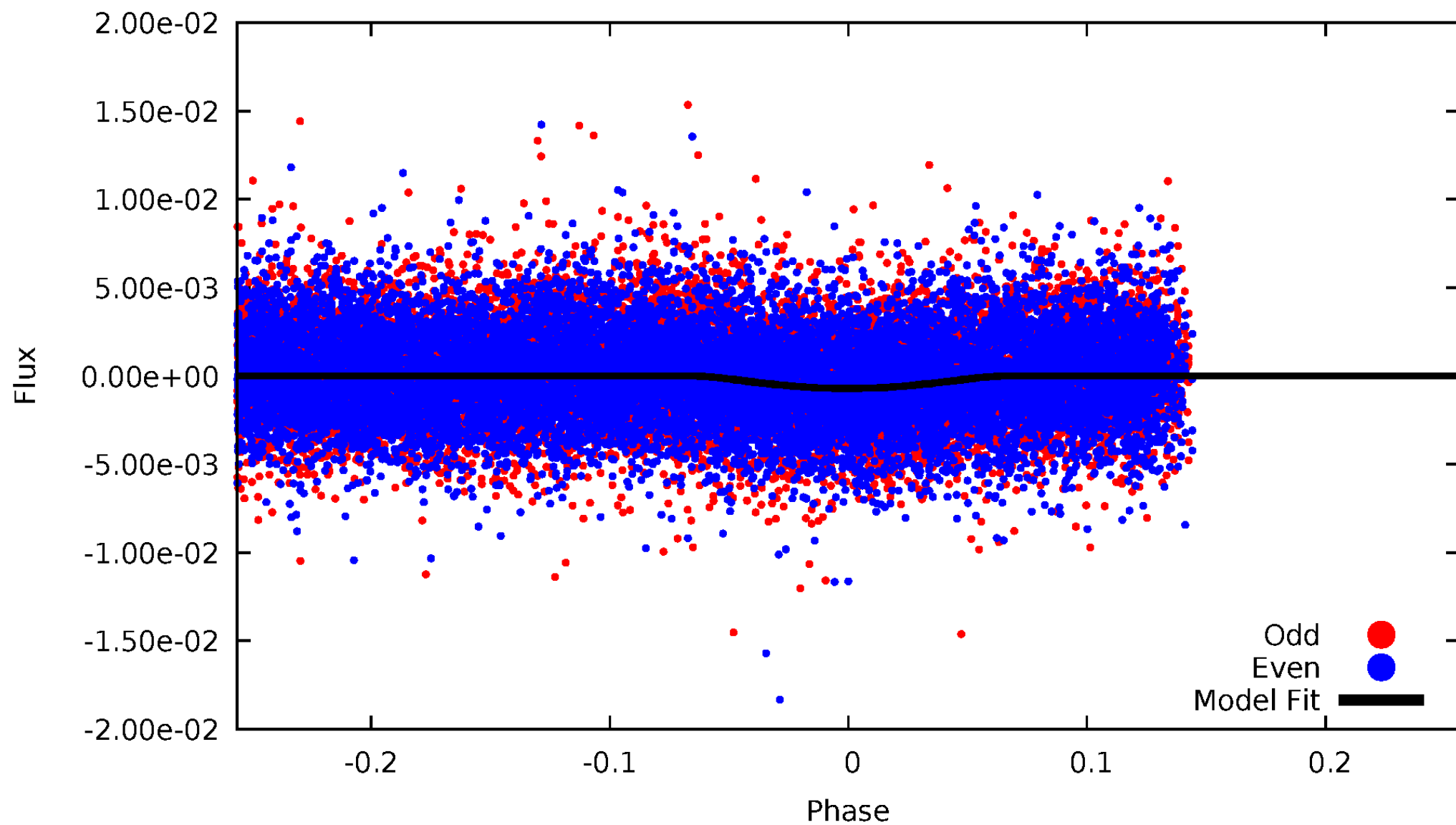
TCE 010448764-02





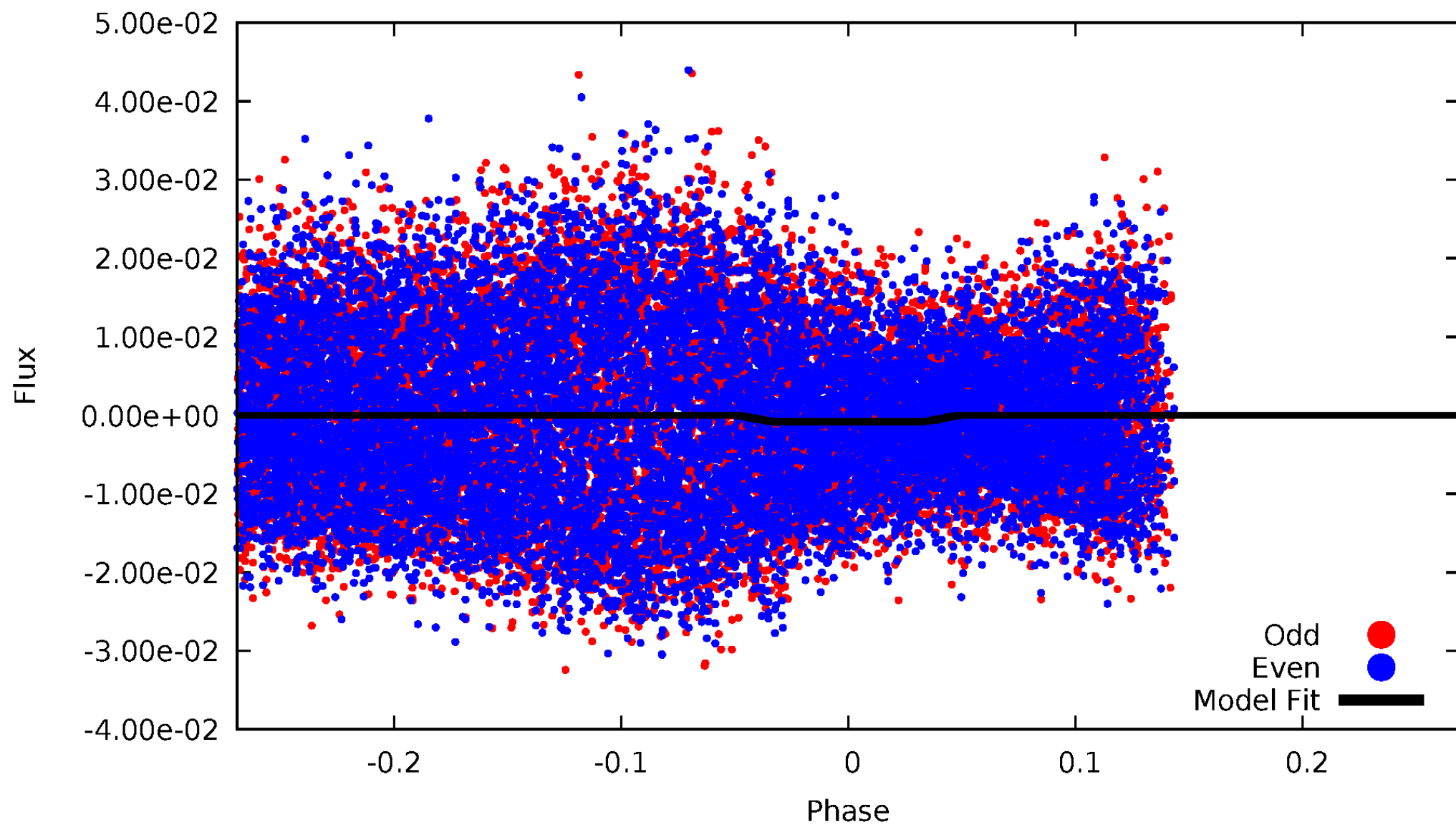
DV Odd/Even

TCE 010448764-02



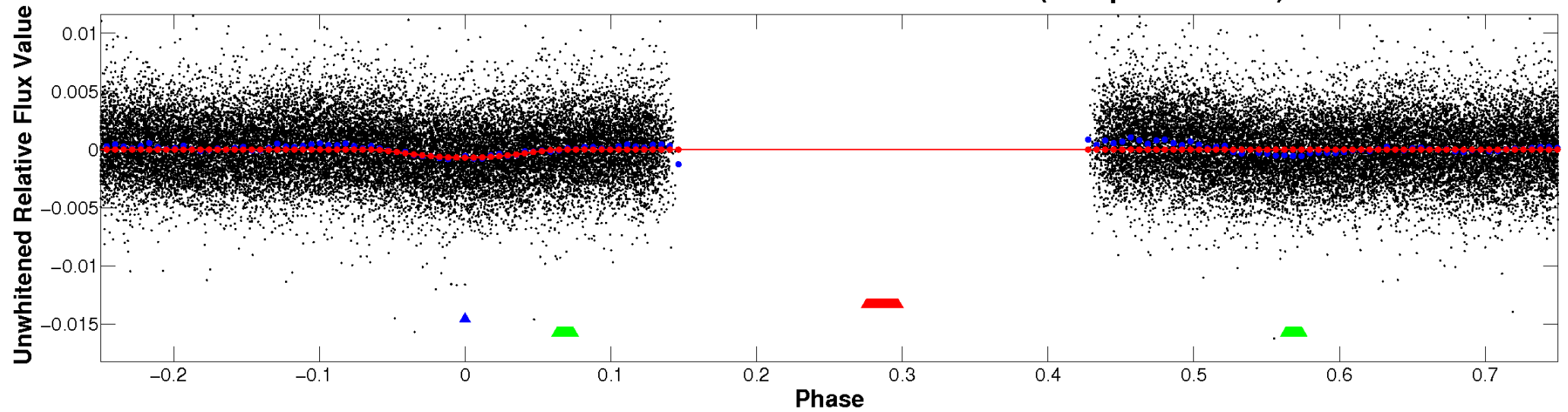
# ALT Odd/Even

TCE 010448764-02

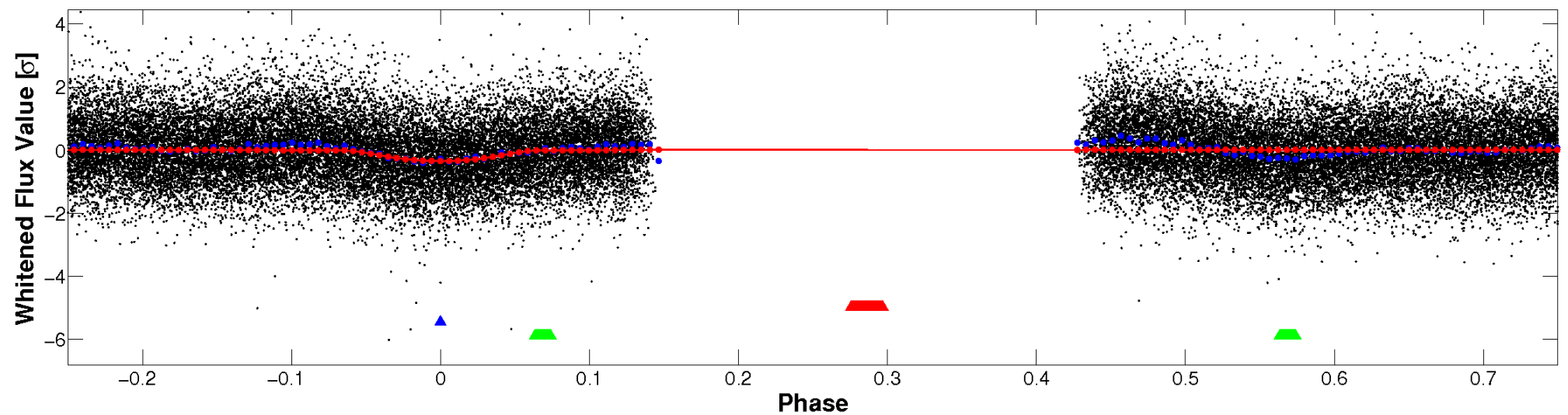


# Non-Whitened Vs. Whitened Light Curve

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

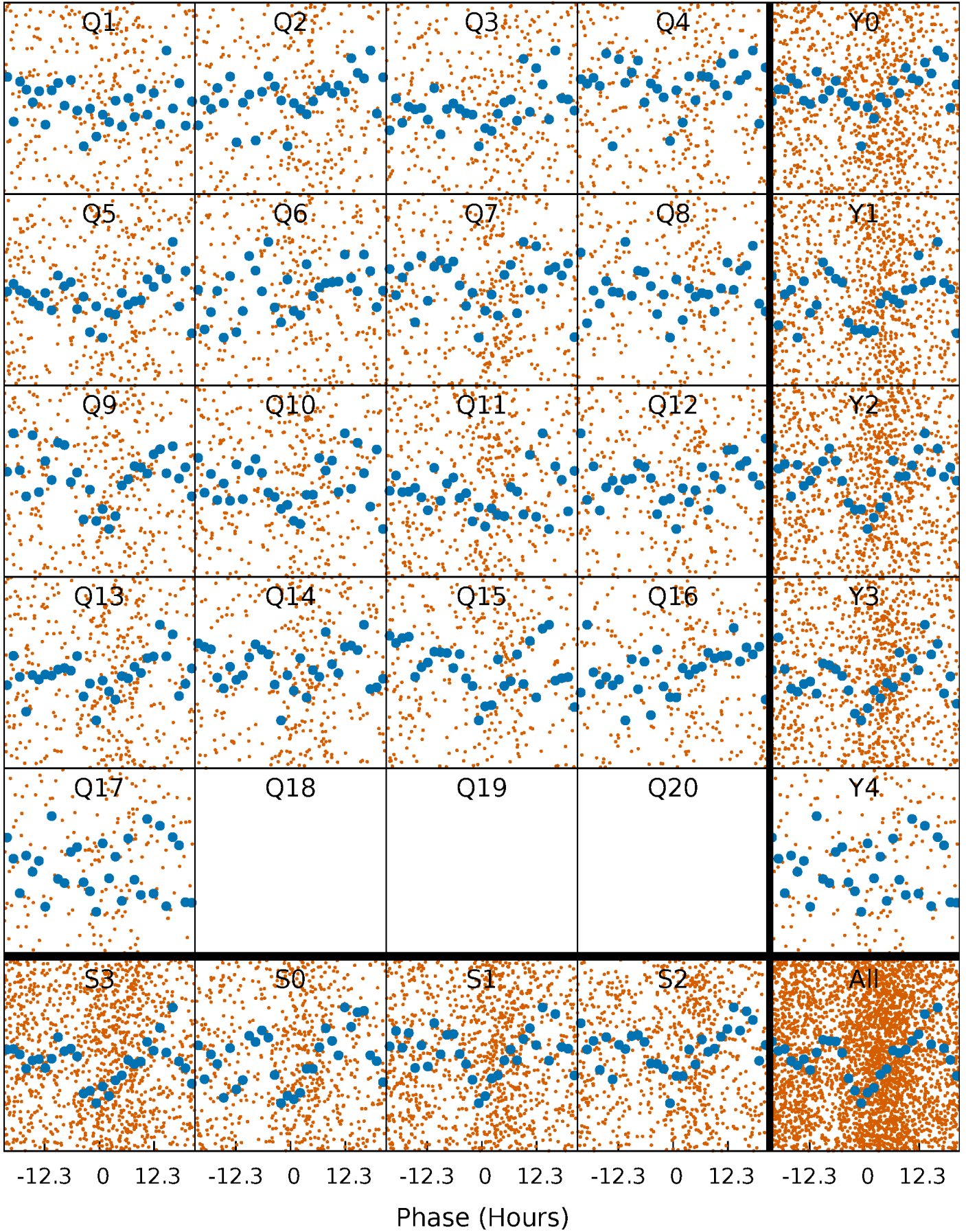


## Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



# PDC Quarter-Phased Transit Curves

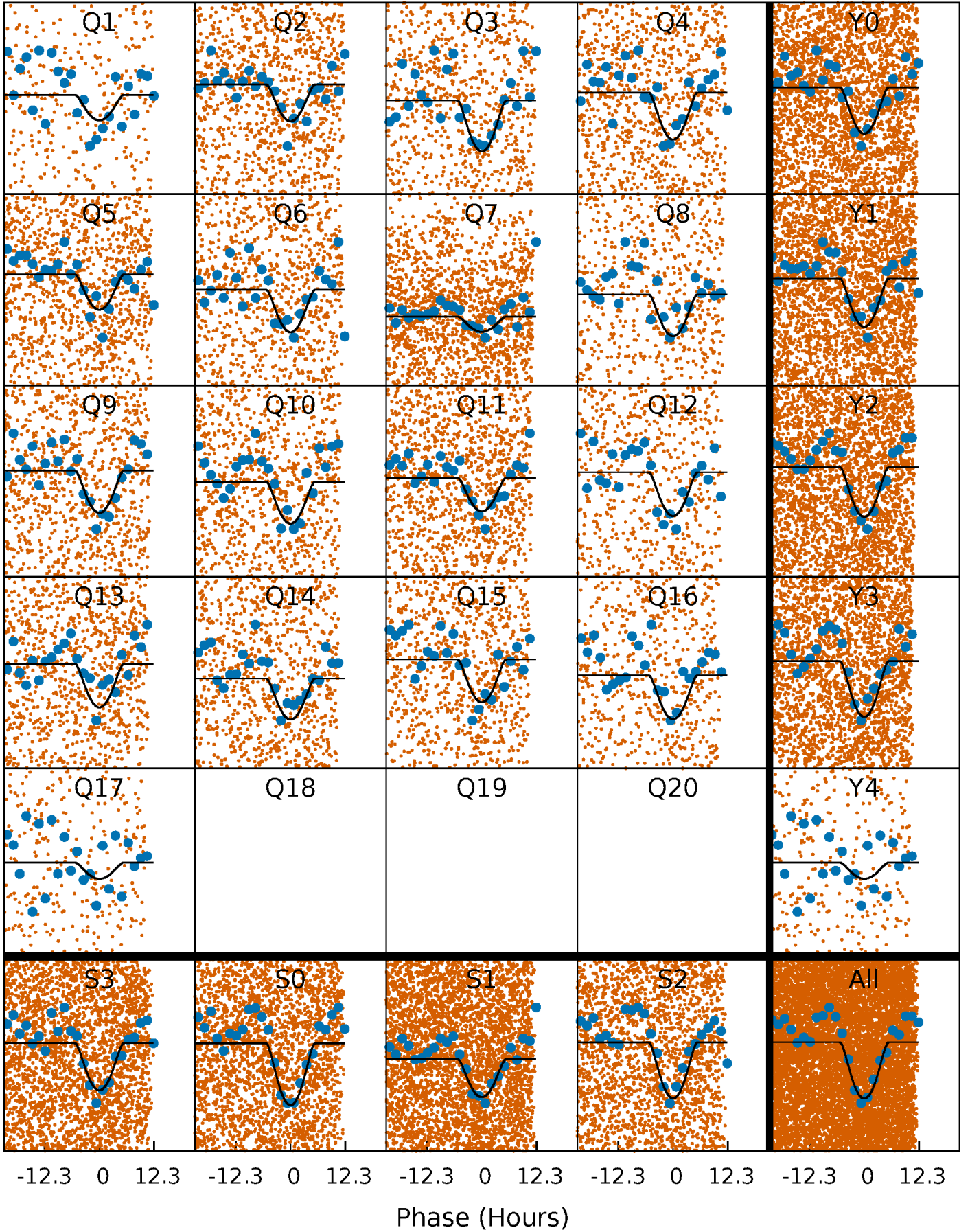
TCE 010448764-02     $P = 3.489087$  Days     $T_0 = 131.653487$  (BKJD)





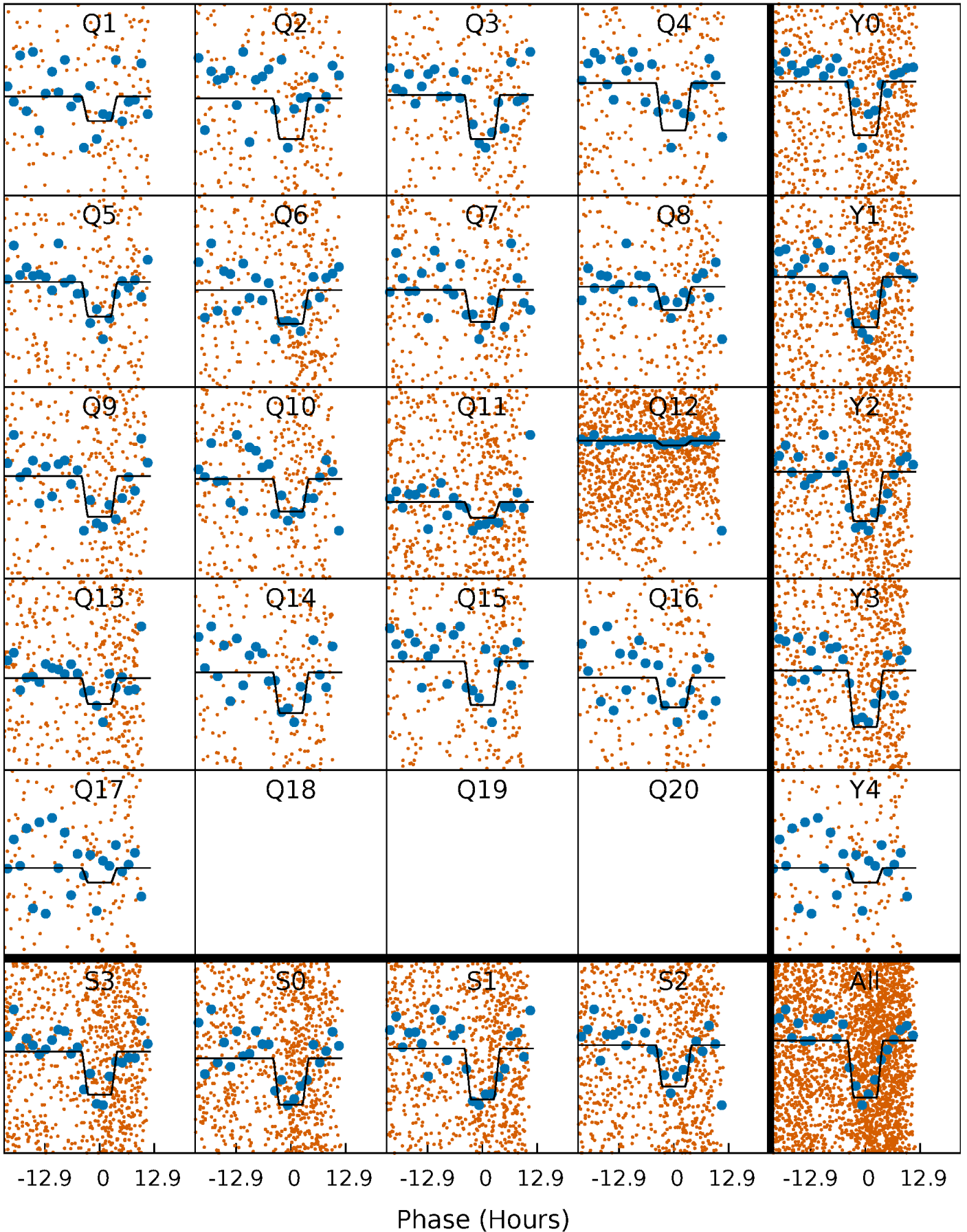
# DV Quarter-Phased Transit Curves

TCE 010448764-02   P= 3.489087 Days    $T_0=131.653487$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

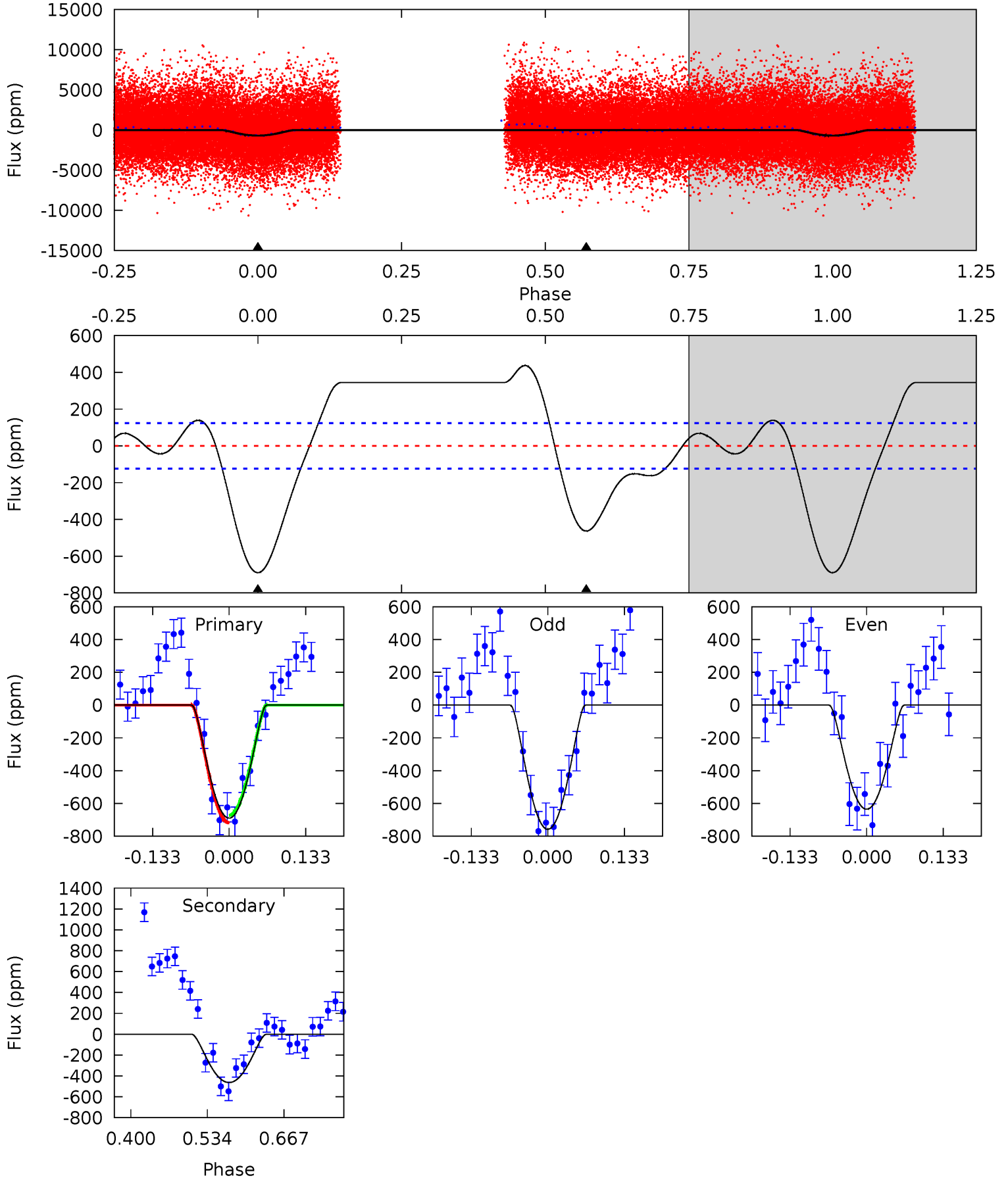
TCE 010448764-02     $P = 3.489133$  Days     $T_0 = 131.655741$  (BKJD)



# DV Model-Shift Uniqueness Test

010448764-02, P = 3.489087 Days, E = 128.164400 Days

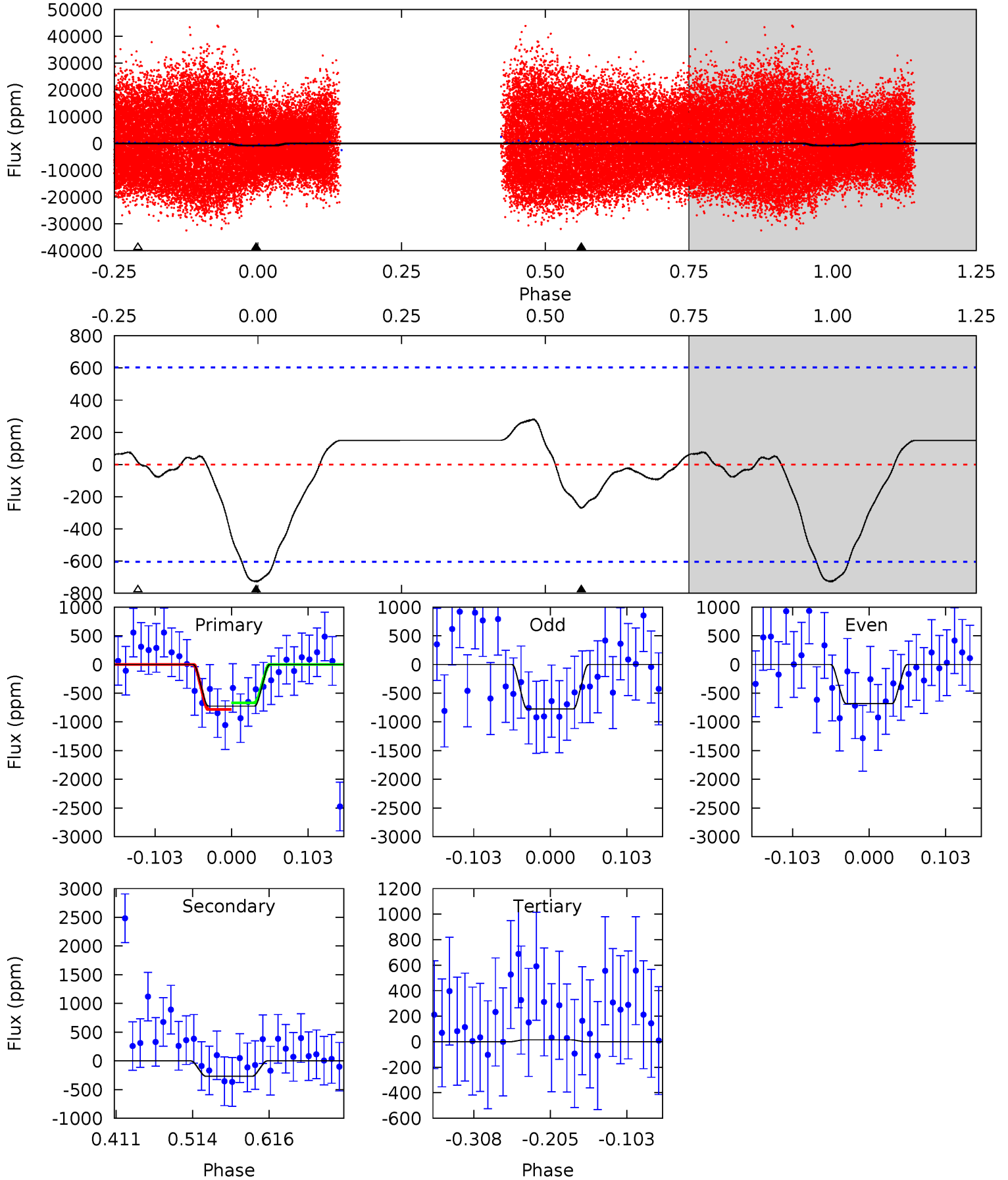
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
25.2	16.9	0	0	4.50	1.50	3.00	25.2	25.2	16.9	16.9	2.23	0.99	0.39	0.81



# Alt Model-Shift Uniqueness Test

010448764-02, P = 3.489133 Days, E = 128.166608 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
5.48	2.03	-0.11	0	4.56	1.63	0.64	5.59	5.48	2.14	2.03	0.35	1.04	0.28	0.46





### Stellar Parameters For KIC 010448764

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R$ ( $R_{\odot}$ )	$M$ ( $M_{\odot}$ )	$\rho_{\star}$ ( $\text{g}\cdot\text{cm}^{-3}$ )
	$7615^{+211}_{-316}$	$4.007^{+0.216}_{-0.144}$	$-0.100^{+0.200}_{-0.350}$	$2.143^{+0.517}_{-0.574}$	$1.702^{+0.198}_{-0.322}$	$0.243^{+0.301}_{-0.100}$
	+3%/-4%	+5%/-4%	+200%/-350%	+24%/-27%	+12%/-19%	+123%/-41%
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 010448764-02 / KOI

Detrend	Depth (ppm)	$R_p$ ( $R_{\oplus}$ )	$T_{\text{max}}$ (K)	$T_{\text{obs}}$ (K)	$A_{\text{obs}}$
DV	$-463 \pm 27$	$9.72^{+6.63}_{-6.04}$	$2928^{+202}_{-224}$	$5322^{+3577}_{-1066}$	$7.951^{+45.842}_{-5.212}$
Alt.	$-269 \pm 132$	$8.04^{+6.28}_{-5.17}$	$2914^{+227}_{-225}$	$4900^{+3259}_{-1203}$	$5.716^{+37.712}_{-4.265}$

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

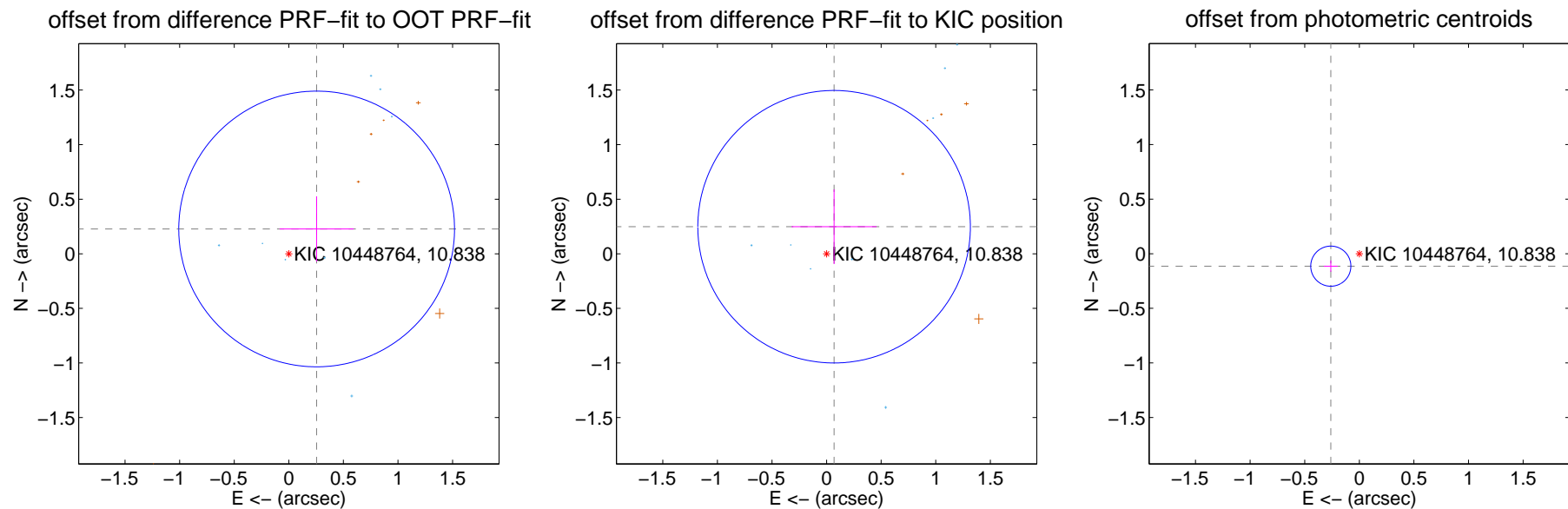
## DV Centroid Data

Supplemental centroid analysis for 010448764-02. **Kepler magnitude: 10.84.** Transit SNR 20.86

There are 10 quarters with good PRF difference image offsets

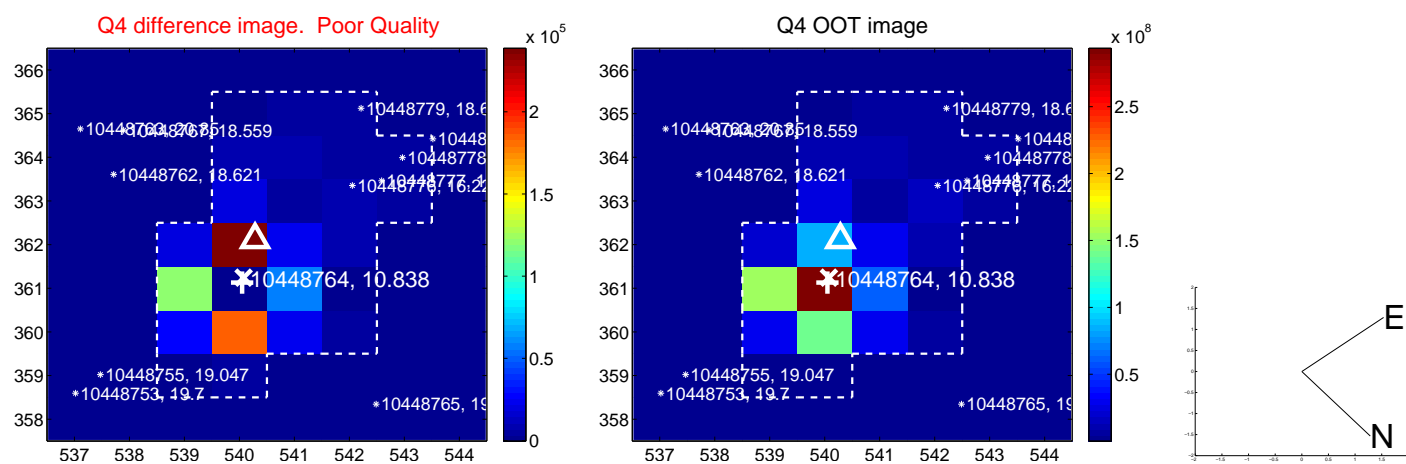
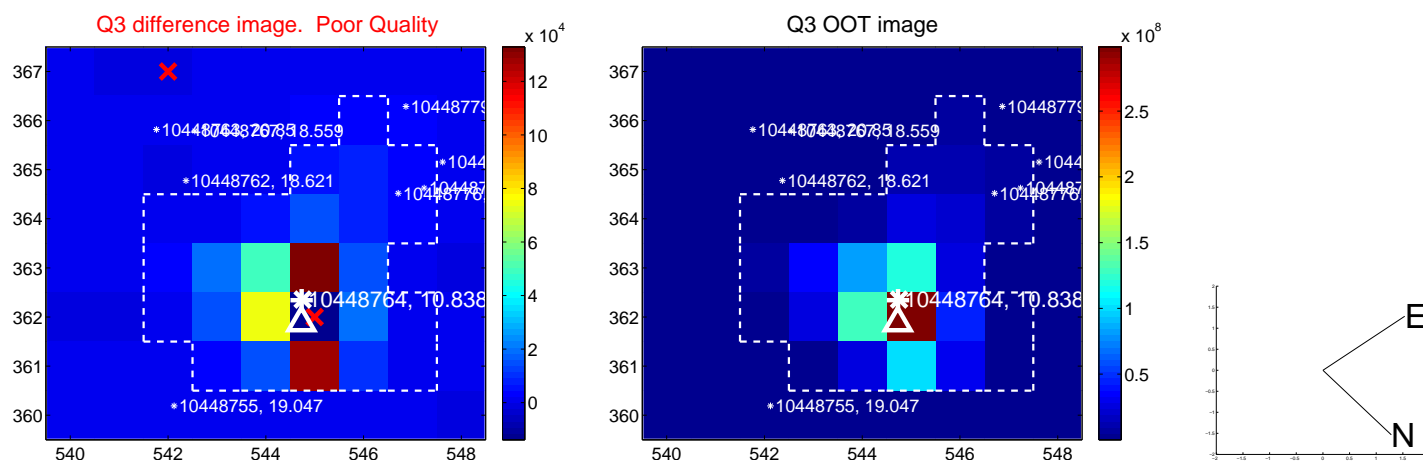
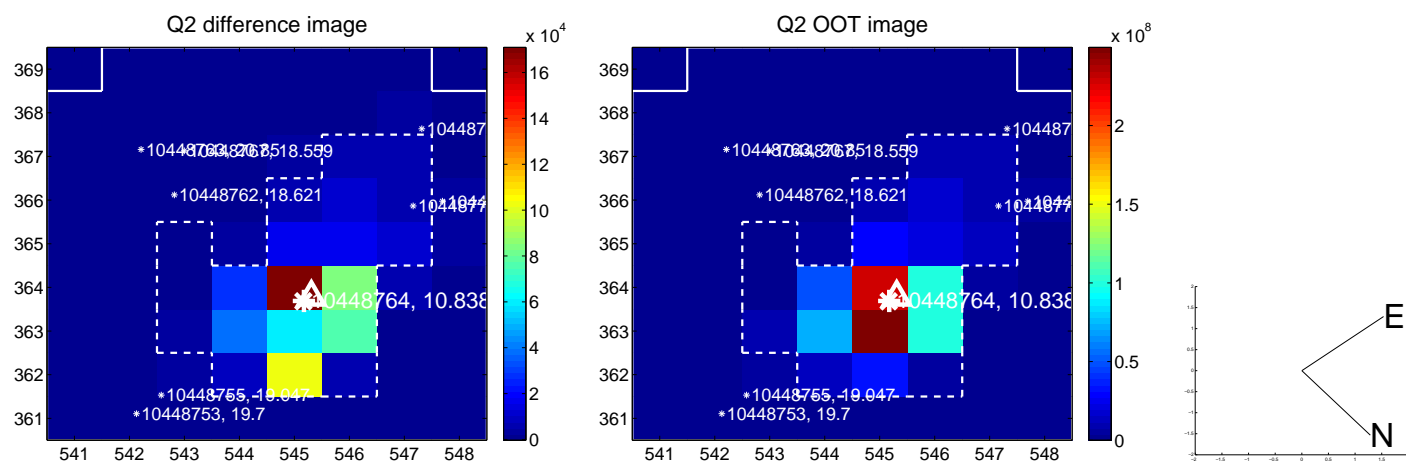
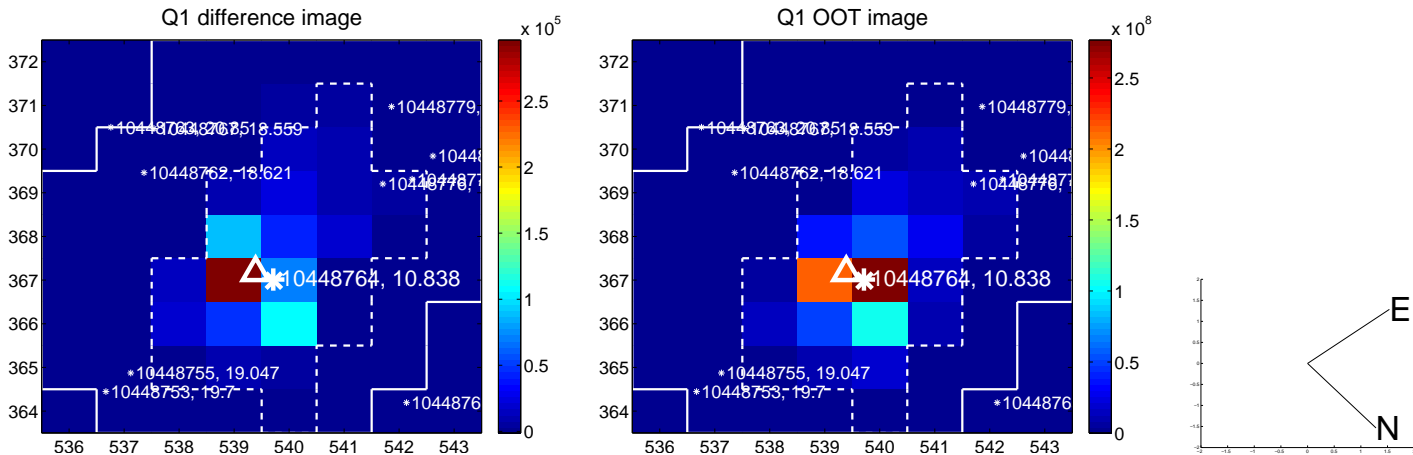
The direct PRF centroid is offset from the target star catalog position by about 0.05 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$0.341 \pm 0.421$	0.81	$-0.255 \pm 0.339$	$0.227 \pm 0.299$
PRF-fit source offset from KIC position	$0.257 \pm 0.416$	0.62	$-0.069 \pm 0.389$	$0.248 \pm 0.342$
photometric centroid source offset	<b><math>0.28 \pm 0.06</math></b>	<b>4.65</b>	$0.26 \pm 0.06$	$-0.11 \pm 0.05$

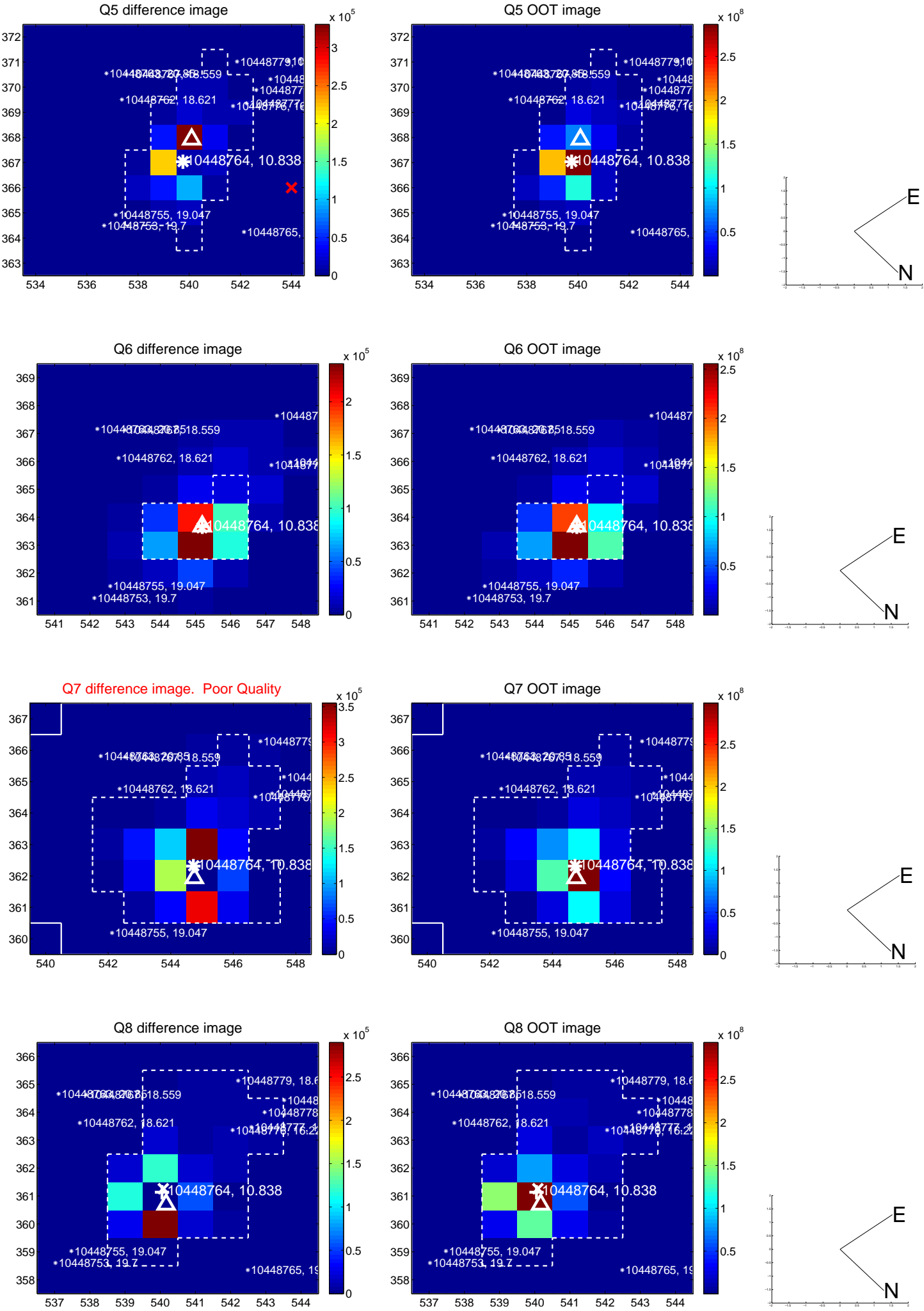


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets;** magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: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

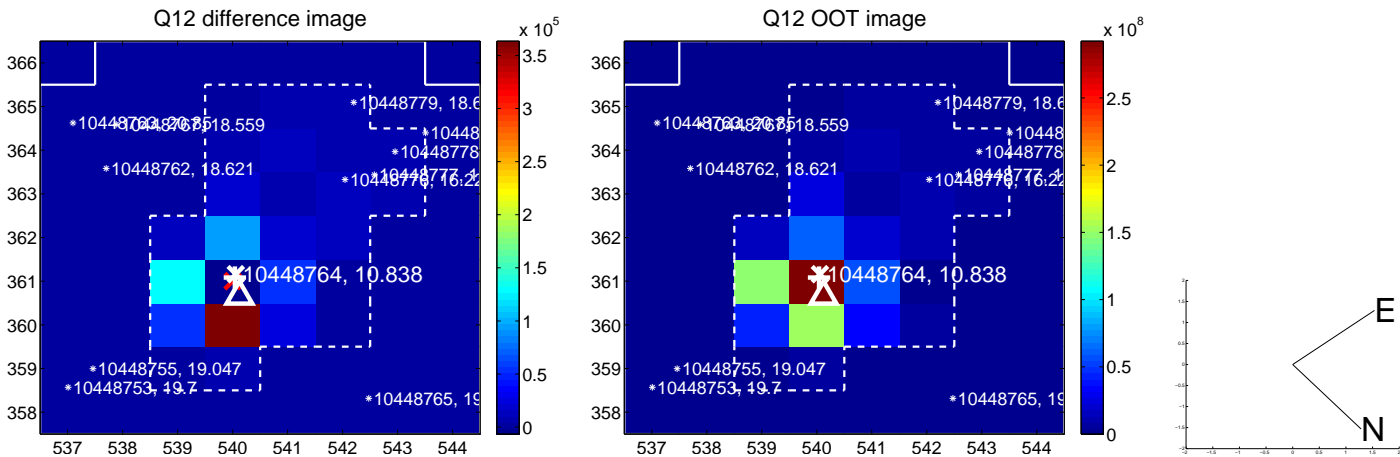
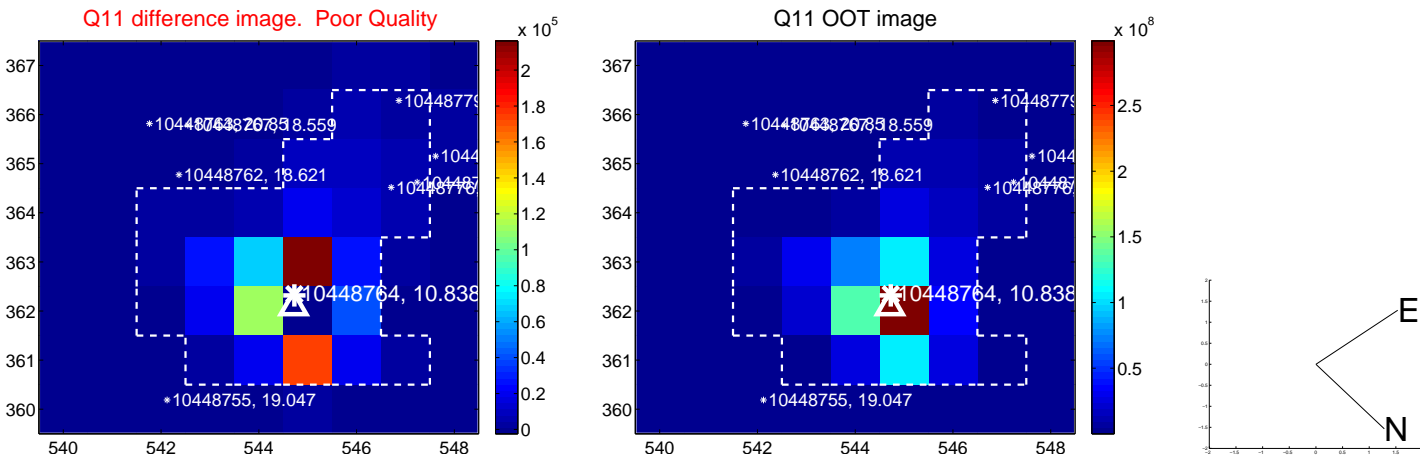
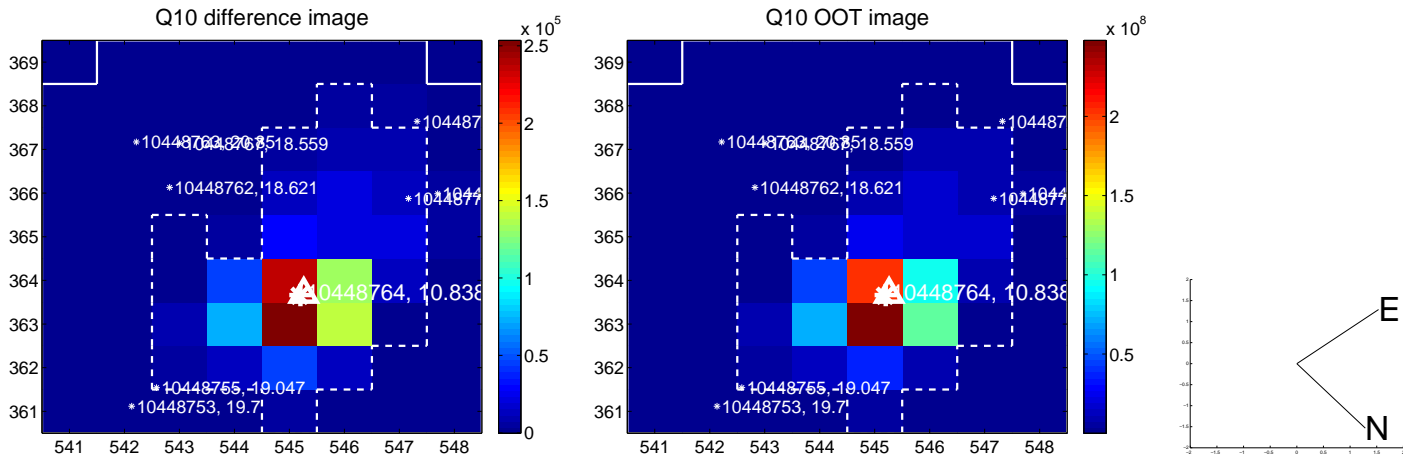
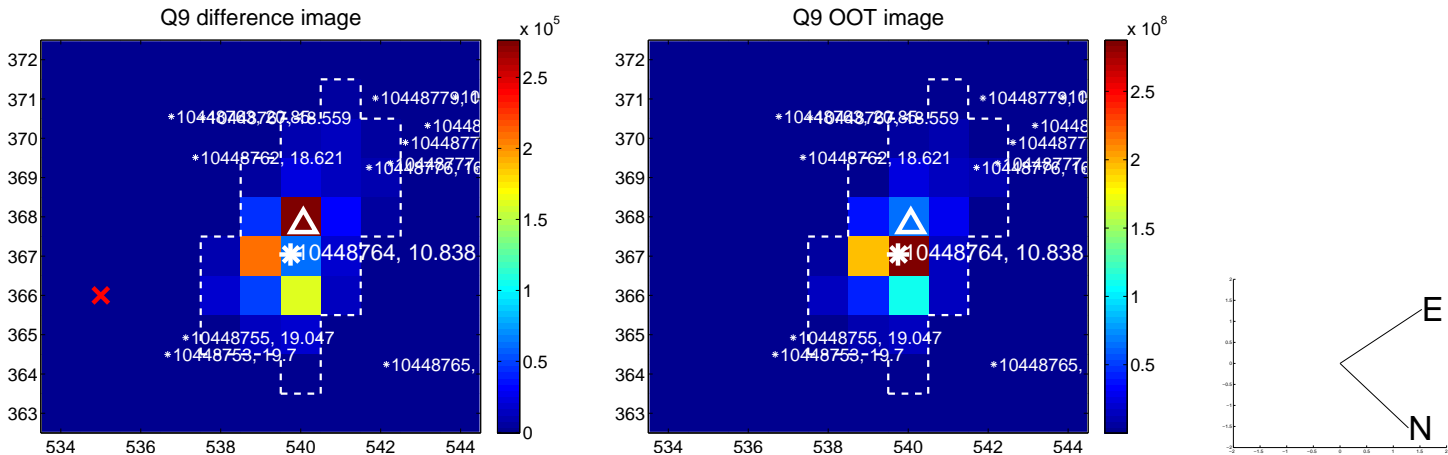
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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



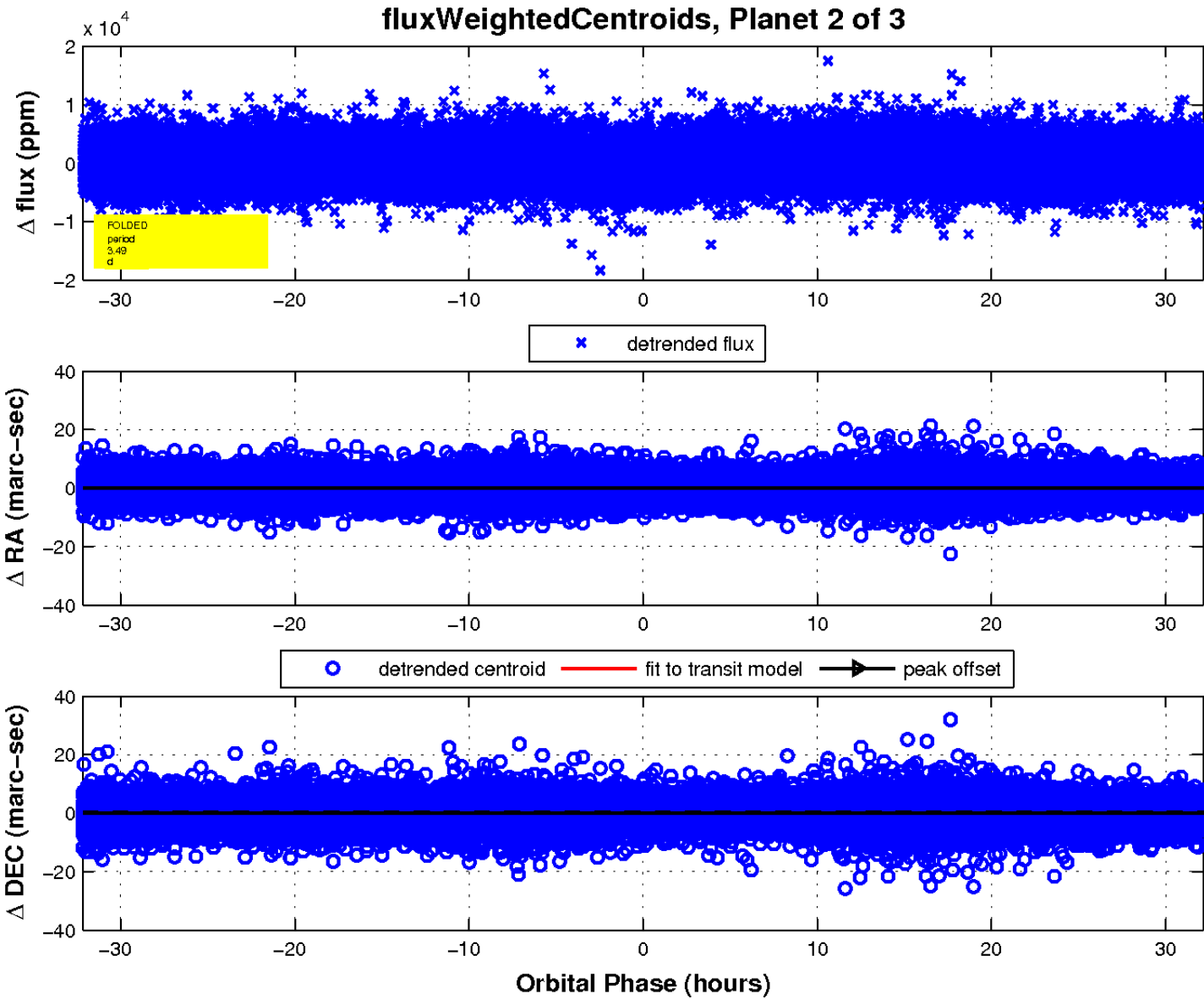
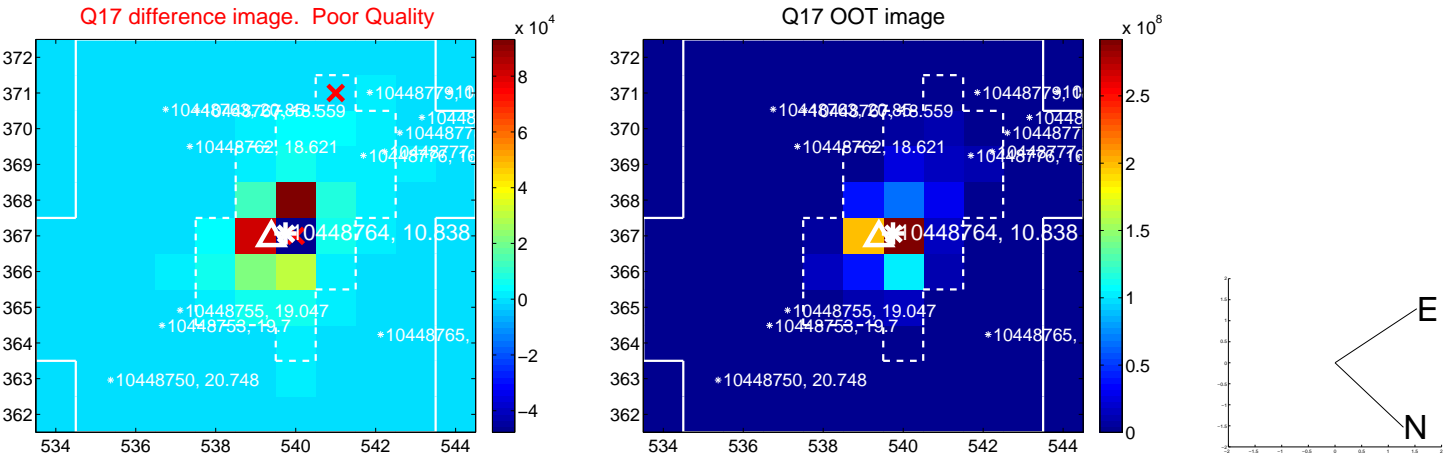
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.





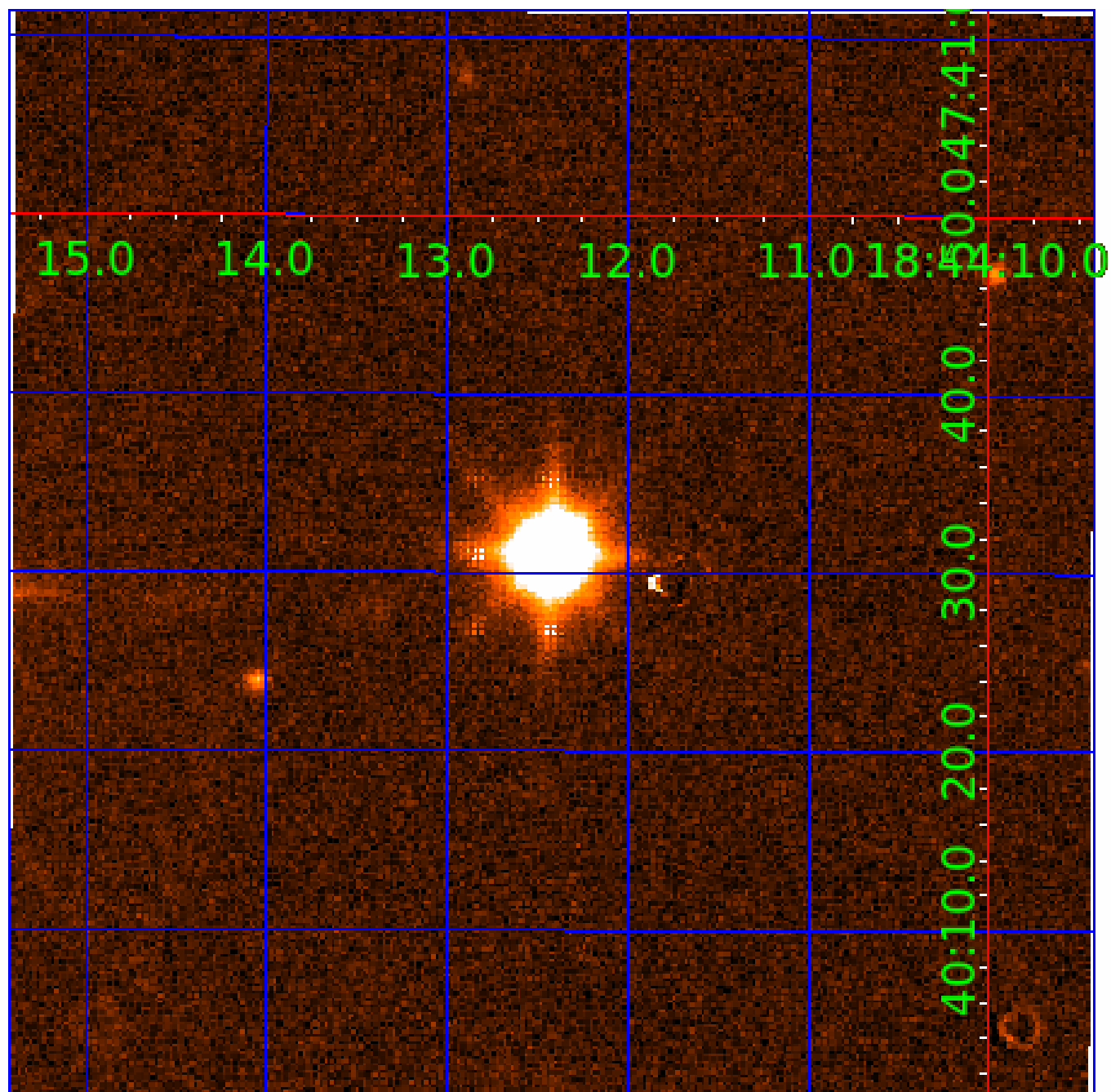


white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



UKIRT Image

Declination



# KIC 010448764

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
010448764-01	OBS	No	3.488907	132.689937	628.8	8.318	16.9	20.1	2.14	7615	5.52	4786.33
010448764-02	OBS	No	3.489087	131.653487	704.6	10.726	17.8	20.9	2.14	7615	8.87	4786.00
010448764-03	OBS	No	1.744589	131.874064	544.2	7.439	14.0	16.4	2.14	7615	5.79	12059.55

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
010448764-01	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_ALT—CENT_SATURATED
010448764-02	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—SAME_NTL_PERIOD—CENT_SATURATED
010448764-03	OBS	FP	0.00	1	0	0	0	TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_ALT—SAME_NTL_PERIOD—CENT_SATURATED

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

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

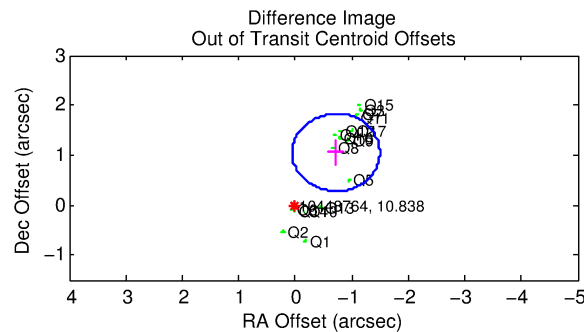
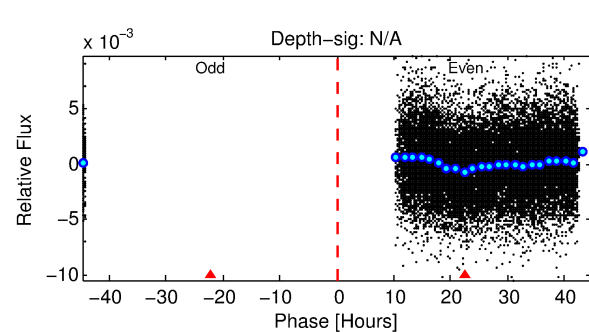
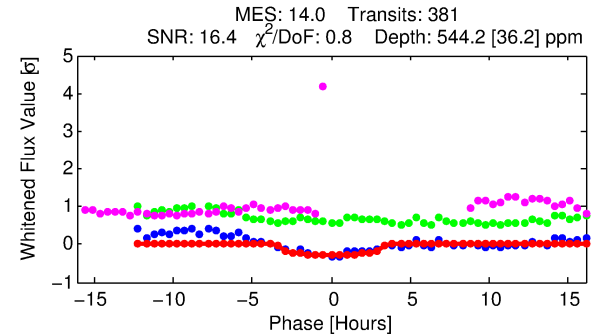
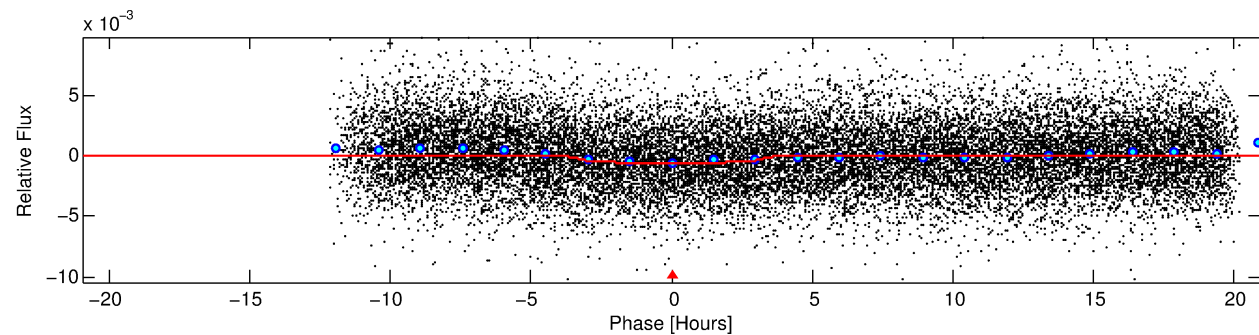
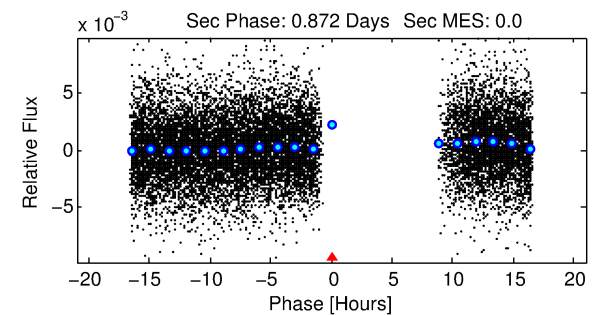
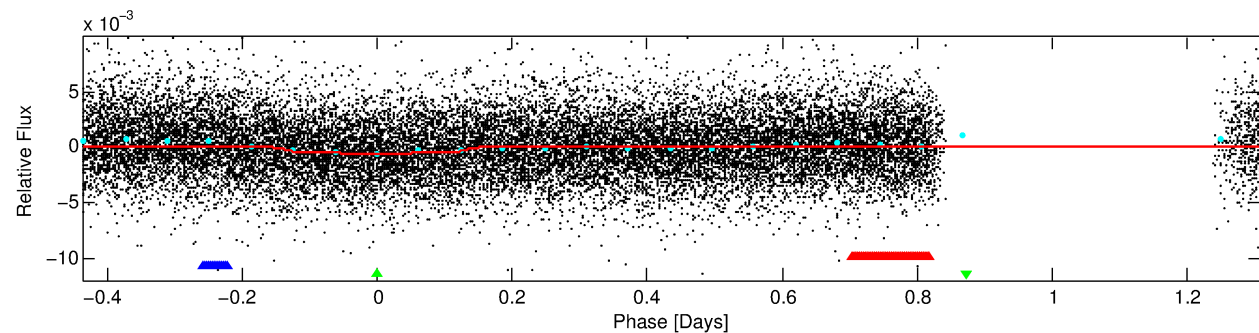
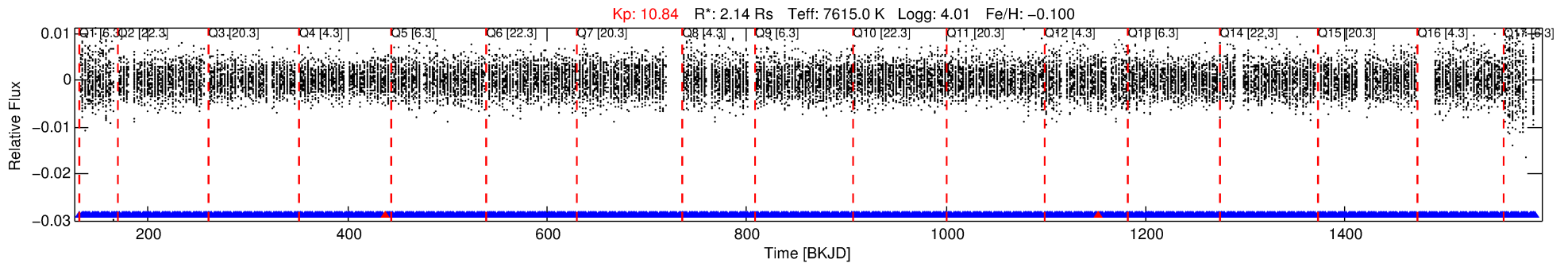
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

Ephemeris Match Information For 010448764-03

No Significant Match Found

# DV One-Page Summary

KIC: 10448764 Candidate: 3 of 3 Period: 1.745 d



## DV Fit Results:

Period = 1.74459 [0.00002] d  
Epoch = 131.8741 [0.0068] BKJD  
Rp/R\* = 0.0247 [0.0018]  
a/R\* = 1.29 [0.21]  
b = 0.90 [0.09]  
Seff = 12059.55 [4963.18]  
Teff = 2672 [275] K  
Rp = 5.79 [1.61] Re  
a = 0.0339 [0.0083] AU  
Ag = N/A  
Teffp = N/A

## DV Diagnostic Results:

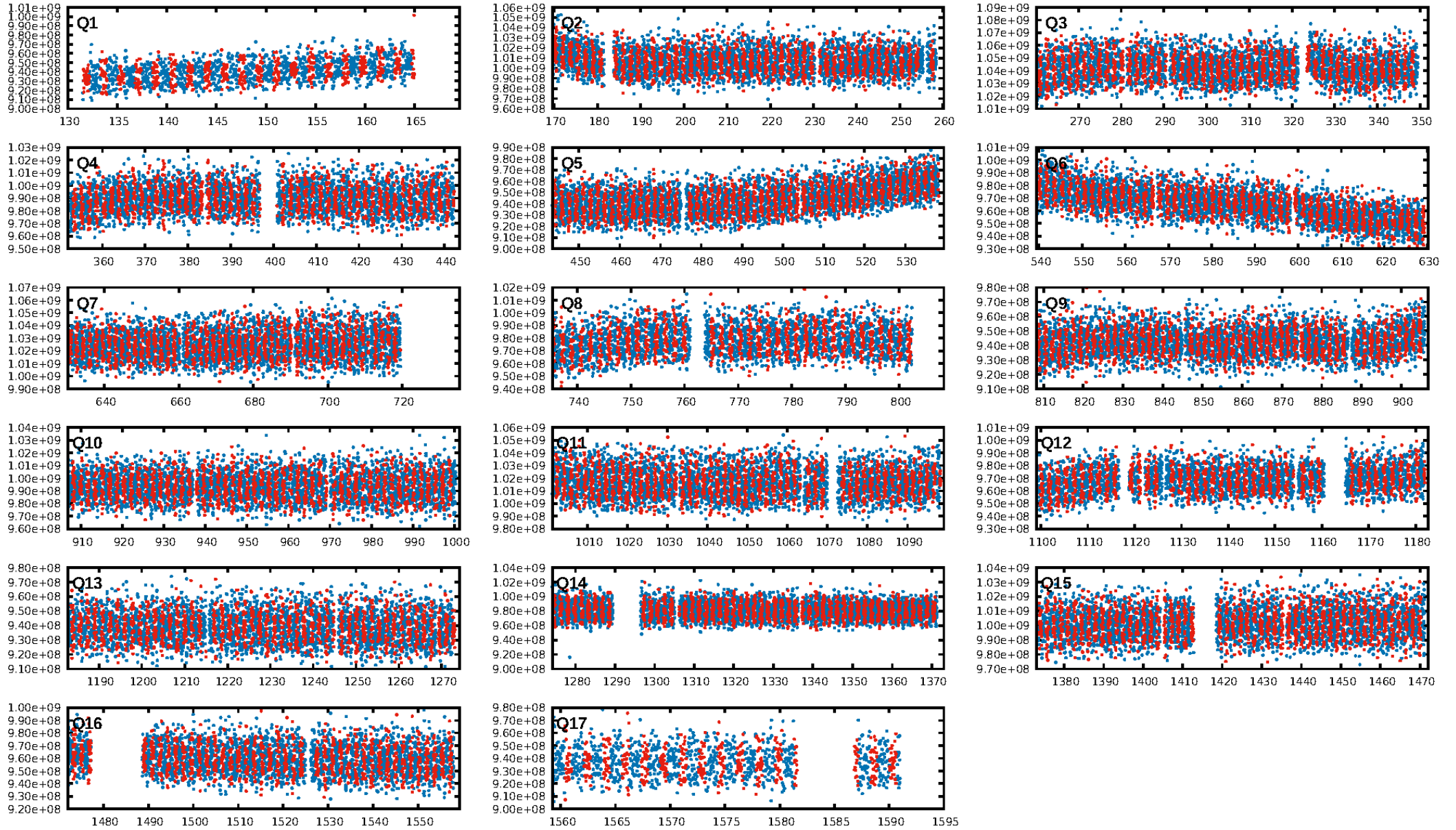
ShortPeriod-sig: N/A  
LongPeriod-sig: 100.0% [3.75σ]  
ModelChiSquare2-sig: N/A  
ModelChiSquareGof-sig: N/A  
Bootstrap-pfa: 7.17e-66  
RollingBand-fgt: 0.99 [361/363]  
GhostDiagnostic-chr: 1.145  
Centroid-sig: 27.6%  
Centroid-so: 0.183 arcsec [3.63σ]  
OotOffset-rm: 1.276 arcsec [4.93σ]  
KicOffset-rm: 1.536 arcsec [6.16σ]  
OotOffset-st: 4/4/4/5 [17]  
KicOffset-st: 4/4/4/5 [17]  
DiffImageQuality-fgm: 0.94 [16/17]  
DiffImageOverlap-fno: 1.00 [17/17]

Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 31-Jan-2016 15:02:58 Z

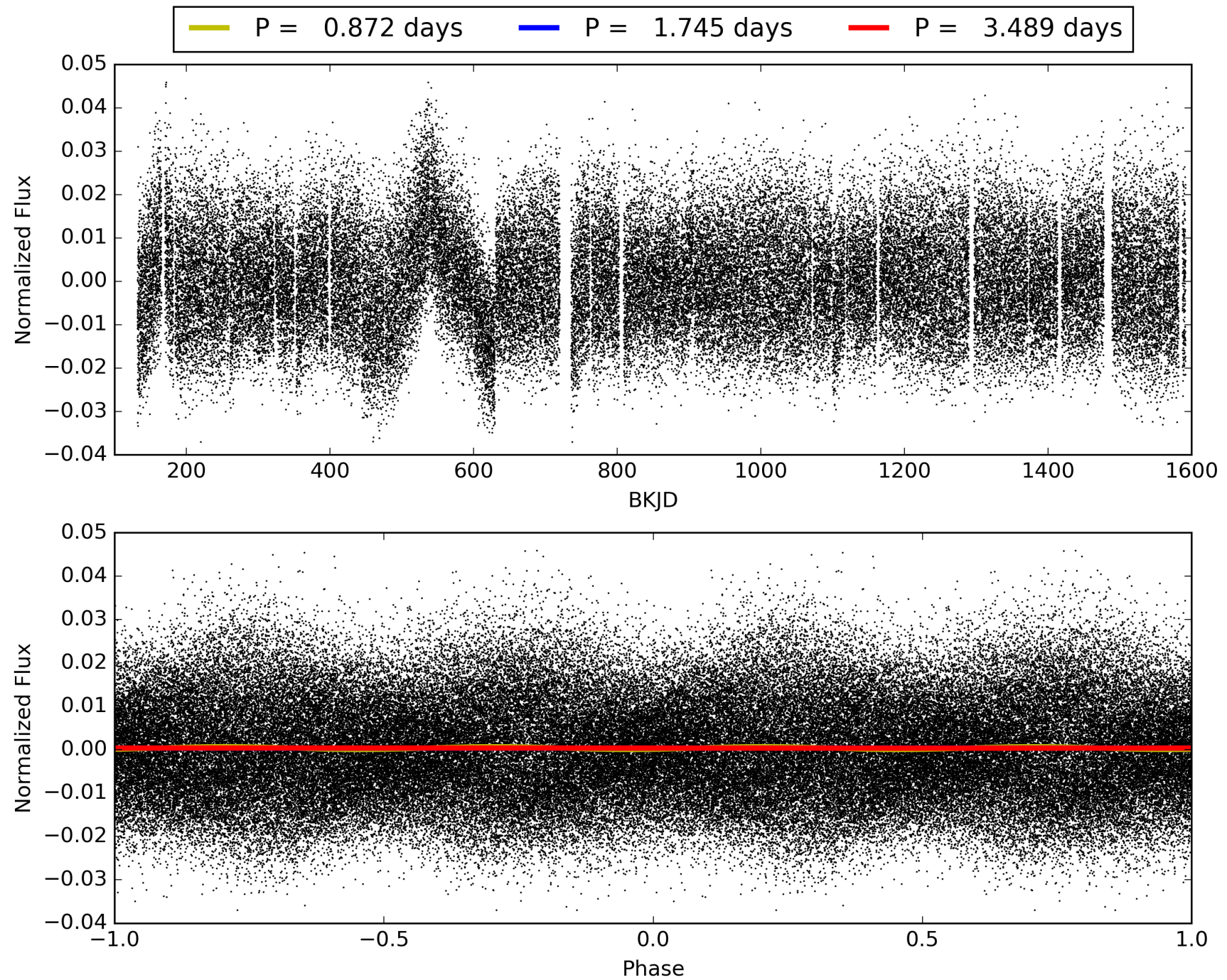
This Data Validation Report Summary was produced in the Kepler Science Operations Center Pipeline at NASA Ames Research Center



# TCE 010448764-03, PDC Light Curves

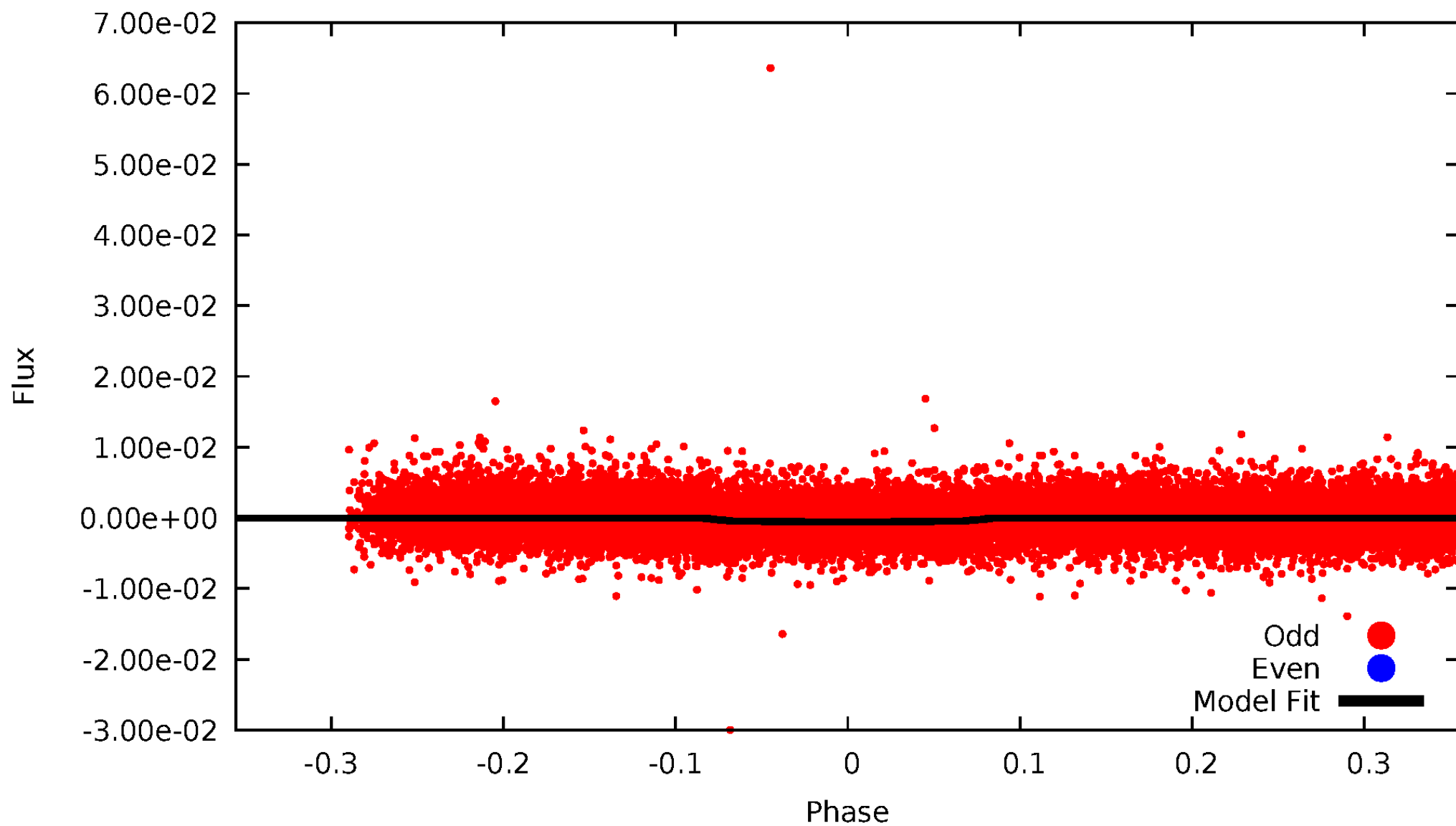


# TCE 010448764-03



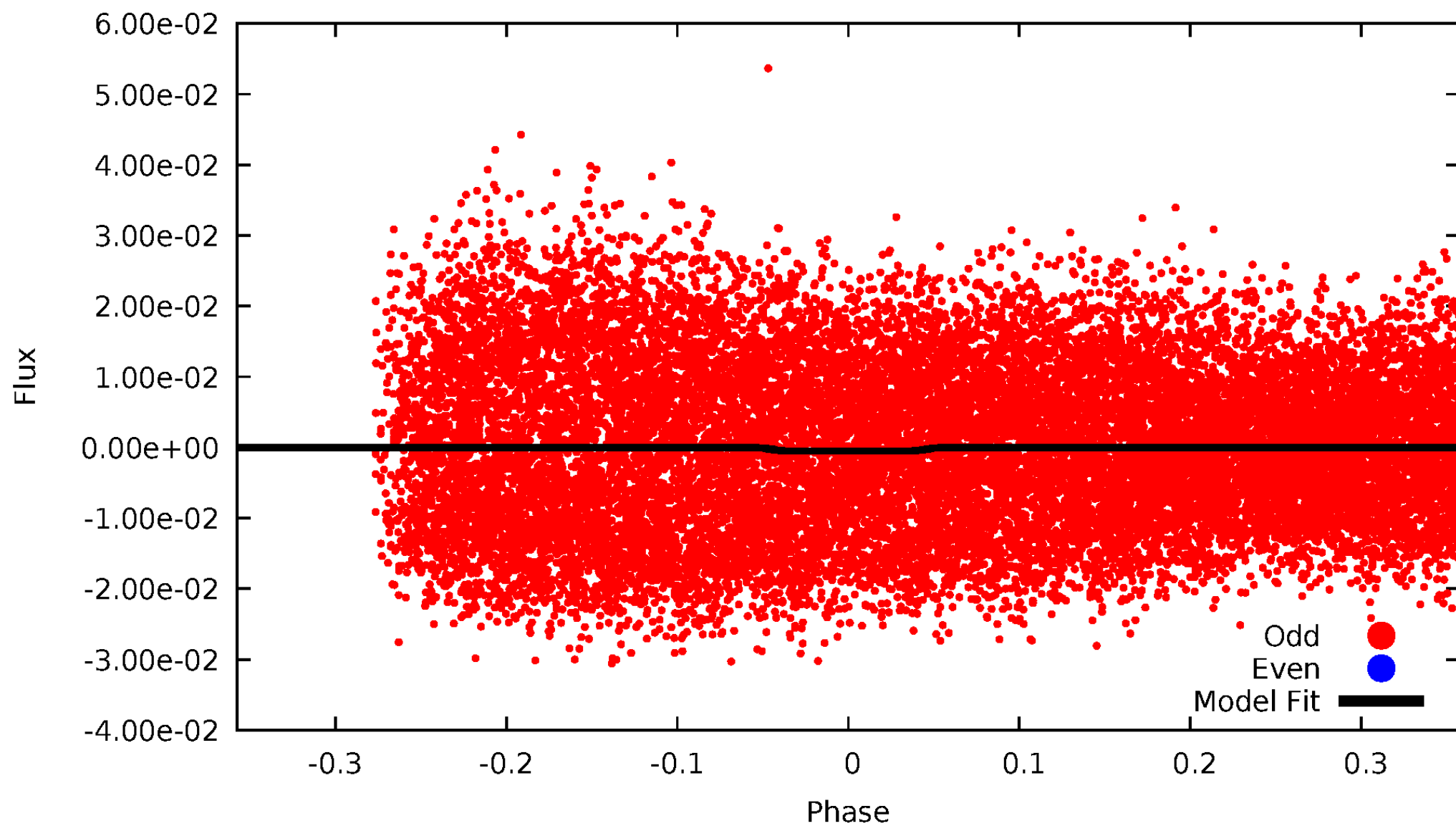
# DV Odd/Even

TCE 010448764-03



# ALT Odd/Even

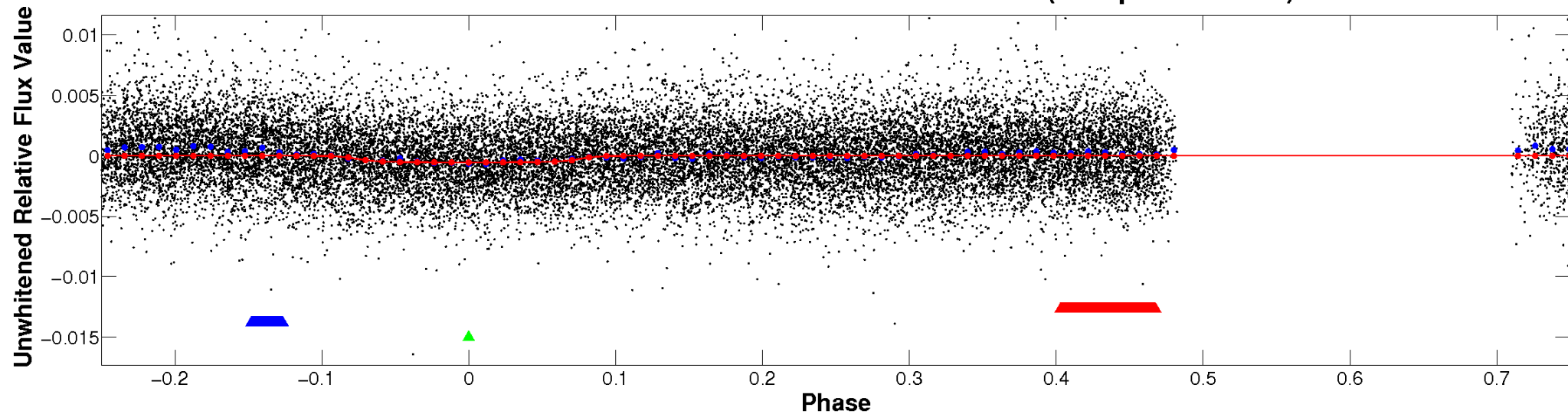
TCE 010448764-03



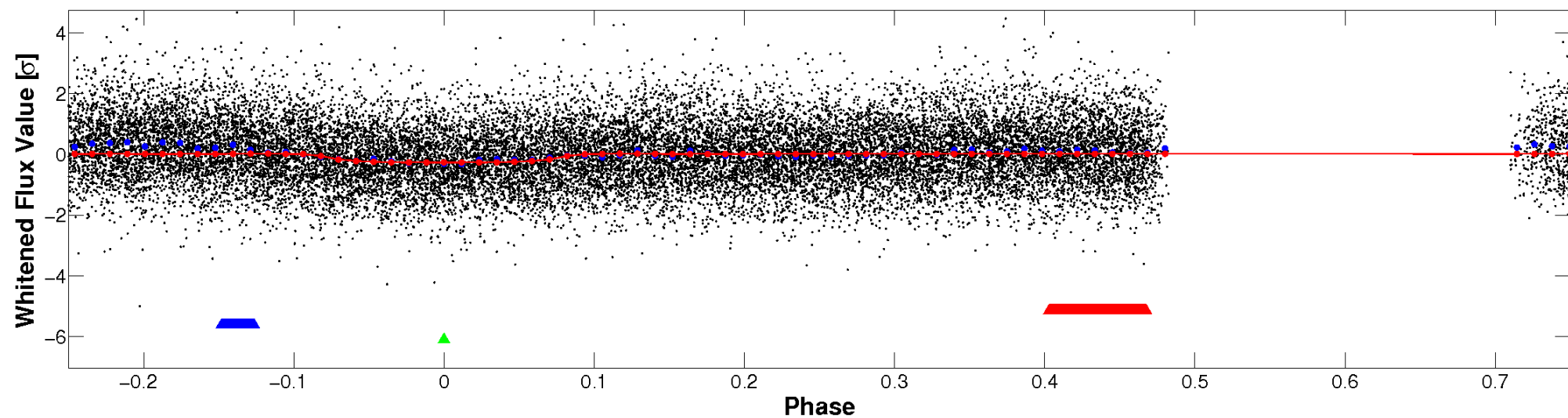


# Non-Whitened Vs. Whitened Light Curve

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



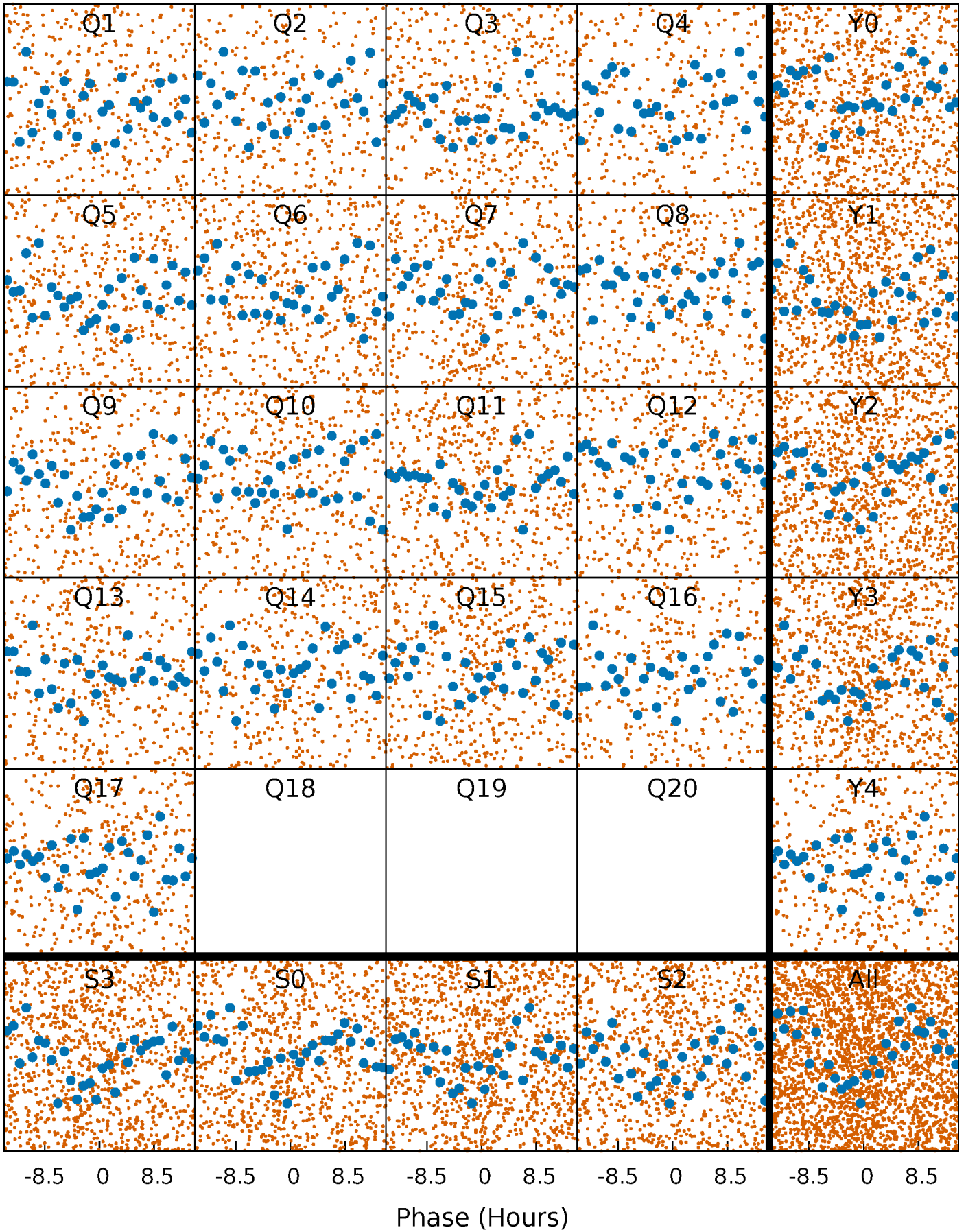
**Planet 3 : Phased Whitened Flux Time Series (Fit Epoch/Period)**





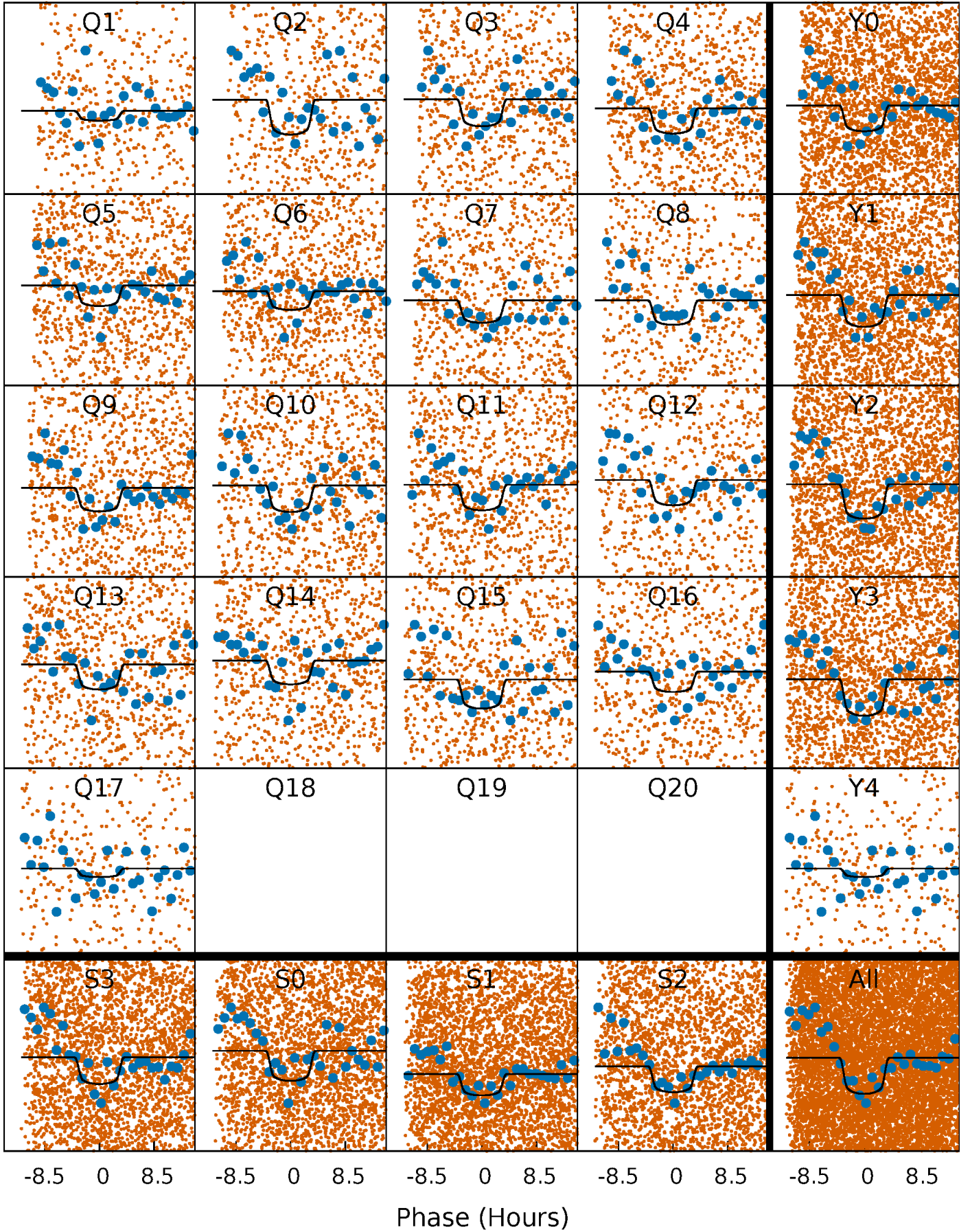
# PDC Quarter-Phased Transit Curves

TCE 010448764-03   P= 1.744589 Days    $T_0=131.874064$  (BKJD)



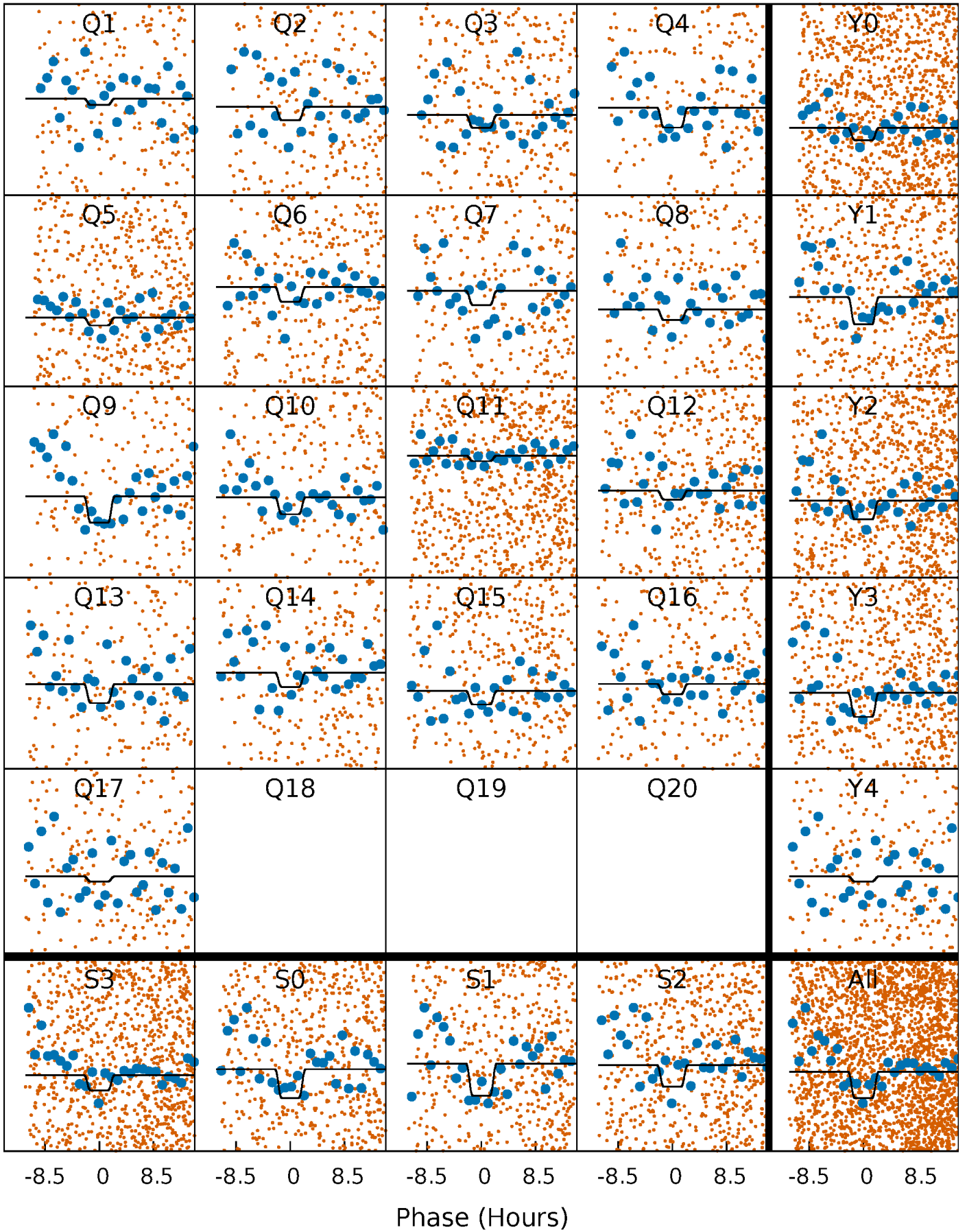
# DV Quarter-Phased Transit Curves

TCE 010448764-03     $P = 1.744589$  Days     $T_0 = 131.874064$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

TCE 010448764-03 P= 1.744556 Days  $T_0=131.878134$  (BKJD)

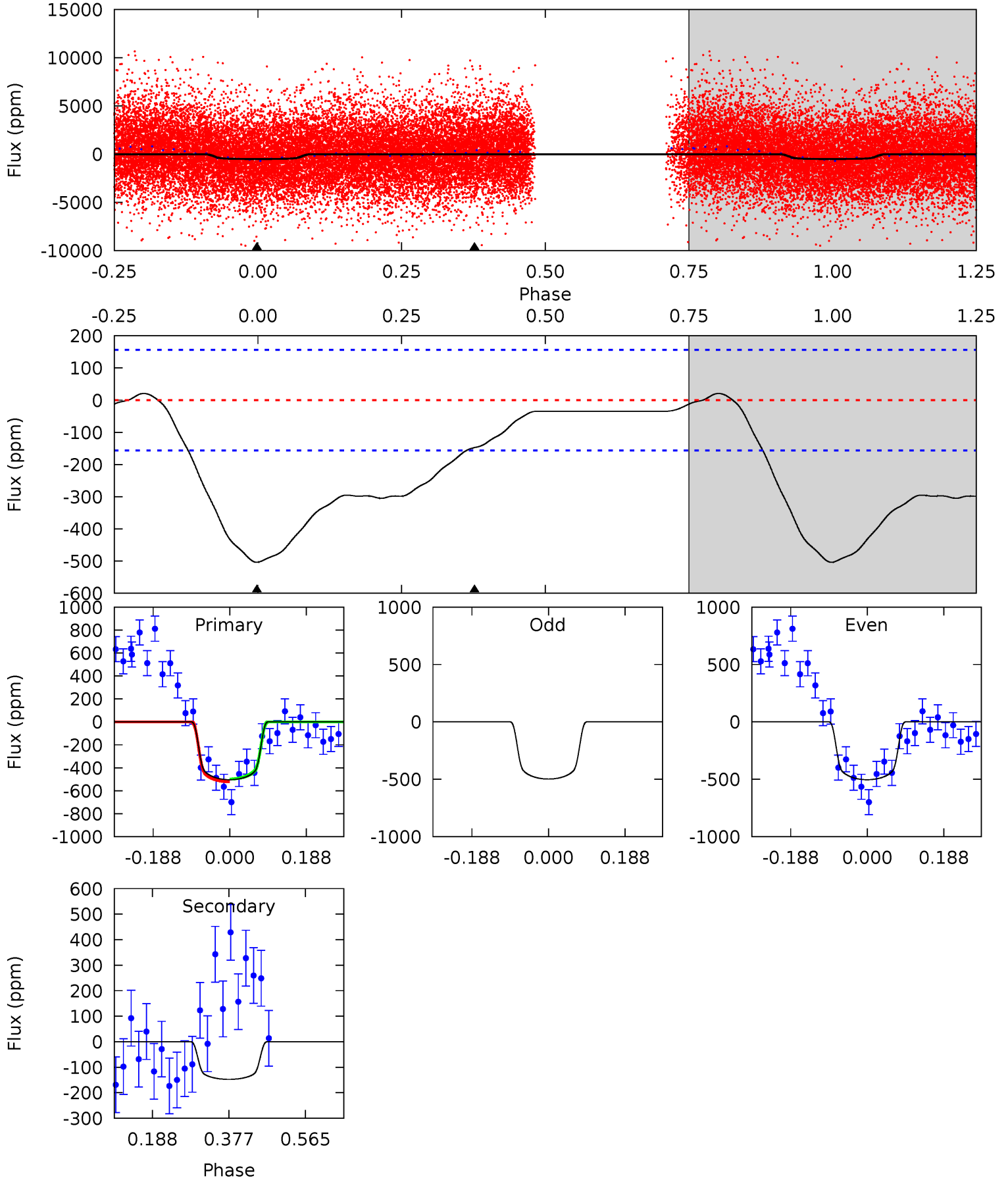




# DV Model-Shift Uniqueness Test

010448764-03, P = 1.744589 Days, E = 131.874064 Days

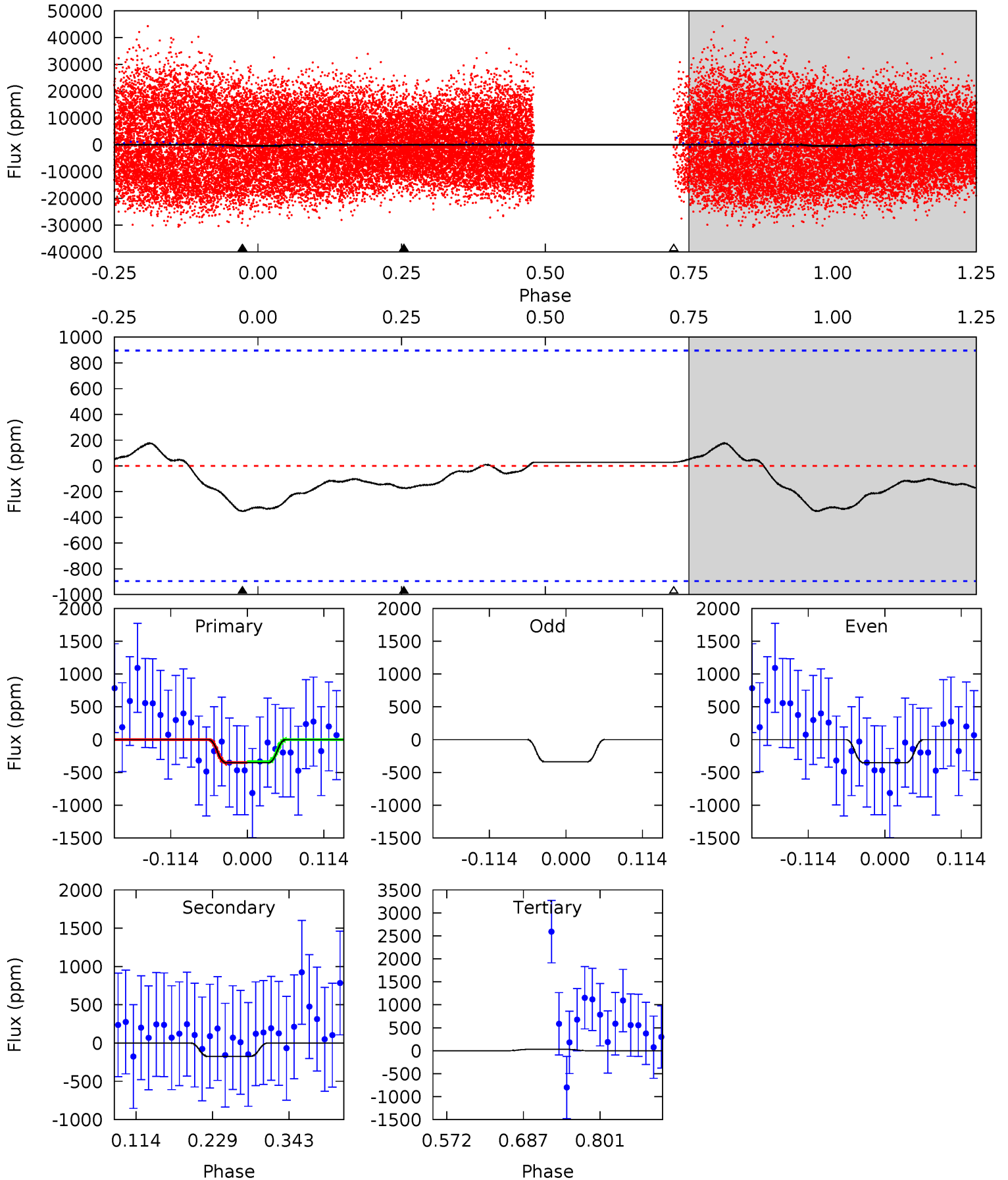
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
14.3	4.18	0	0	4.43	1.32	1.56	14.3	14.3	4.18	4.18	0.10	0.90	0.04	0.35



# Alt Model-Shift Uniqueness Test

010448764-03, P = 1.744556 Days, E = 131.878134 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
1.78	0.88	-0.14	0	4.54	1.58	0.50	1.92	1.78	1.02	0.88	0.04	12.1	0.33	0.03





### Stellar Parameters For KIC 010448764

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	$7615^{+211}_{-316}$	$4.007^{+0.216}_{-0.144}$	$-0.100^{+0.200}_{-0.350}$	$2.143^{+0.517}_{-0.574}$	$1.702^{+0.198}_{-0.322}$	$0.243^{+0.301}_{-0.100}$
	+3%/-4%	+5%/-4%	+200%/-350%	+24%/-27%	+12%/-19%	+123%/-41%
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 010448764-03 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	$A_{obs}$
DV	$-147 \pm 35$	$5.74^{+0.88}_{-0.93}$	$3685^{+274}_{-273}$	$5131^{+373}_{-360}$	$2.864^{+1.287}_{-0.961}$
Alt.	$-174 \pm 197$	$5.26^{+0.86}_{-0.86}$	$3694^{+257}_{-272}$	$5547^{+1189}_{-9754}$	$3.763^{+4.969}_{-4.427}$

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

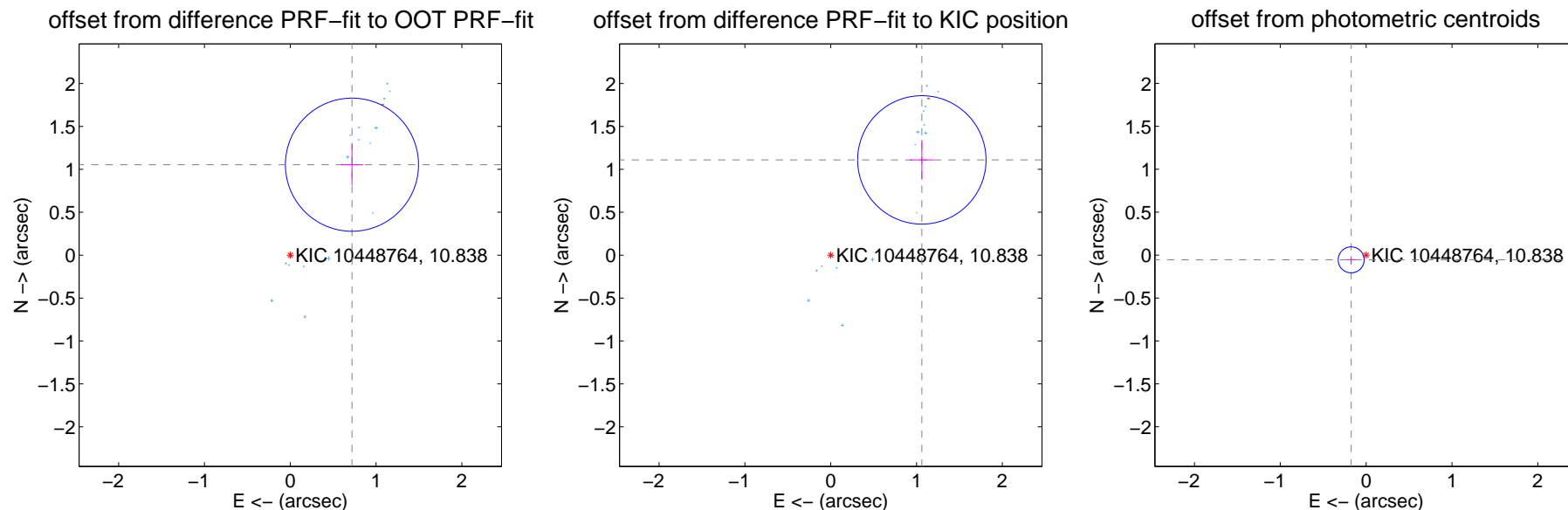
## DV Centroid Data

Supplemental centroid analysis for 010448764-03. **Kepler magnitude: 10.84.** Transit SNR 16.40

There are 16 quarters with good PRF difference image offsets

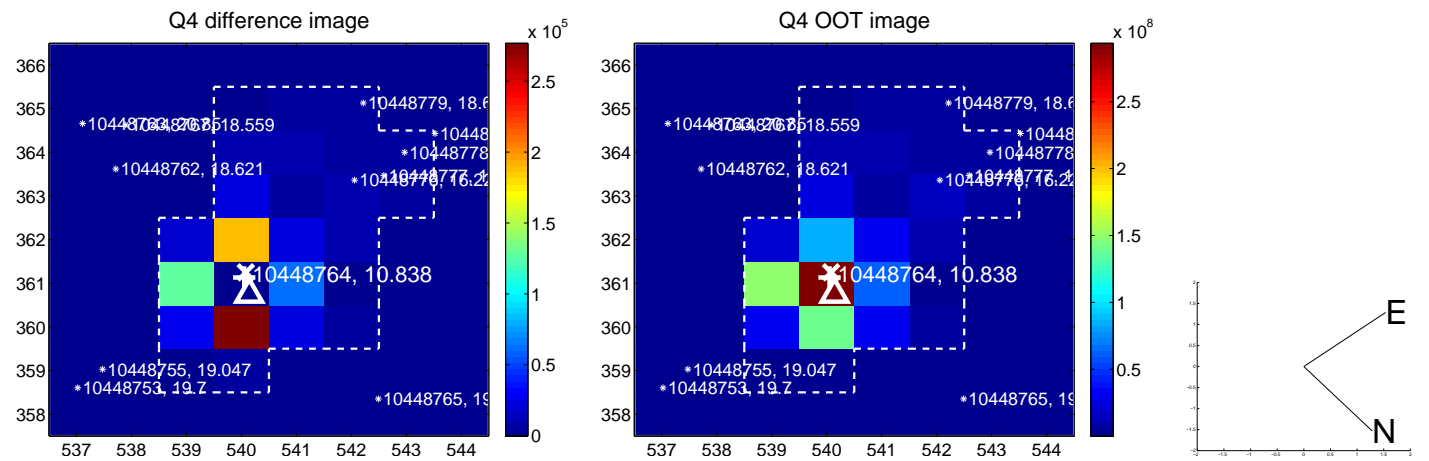
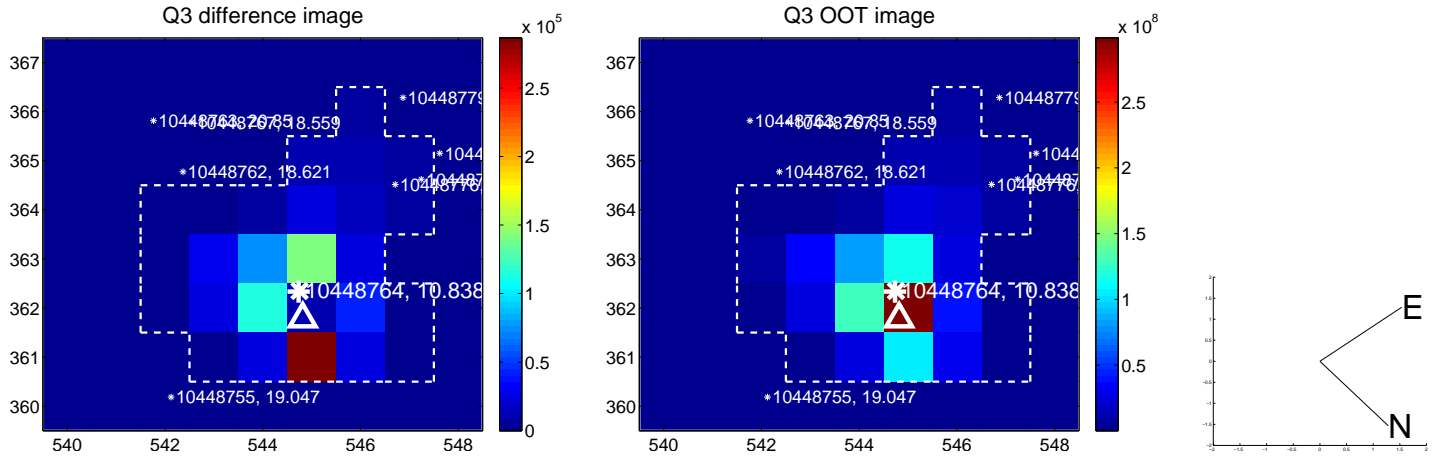
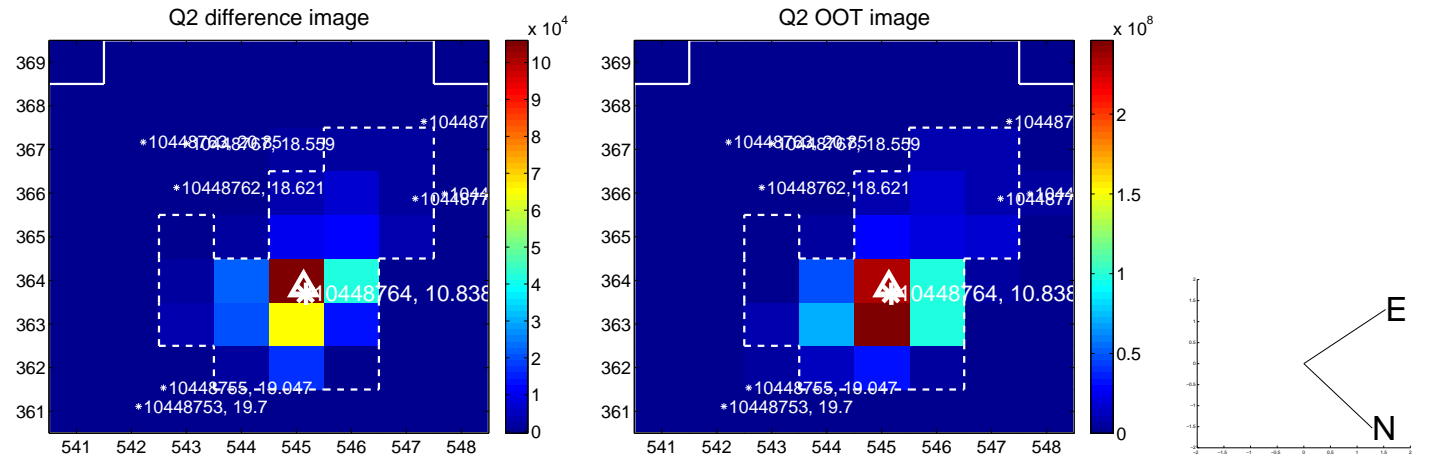
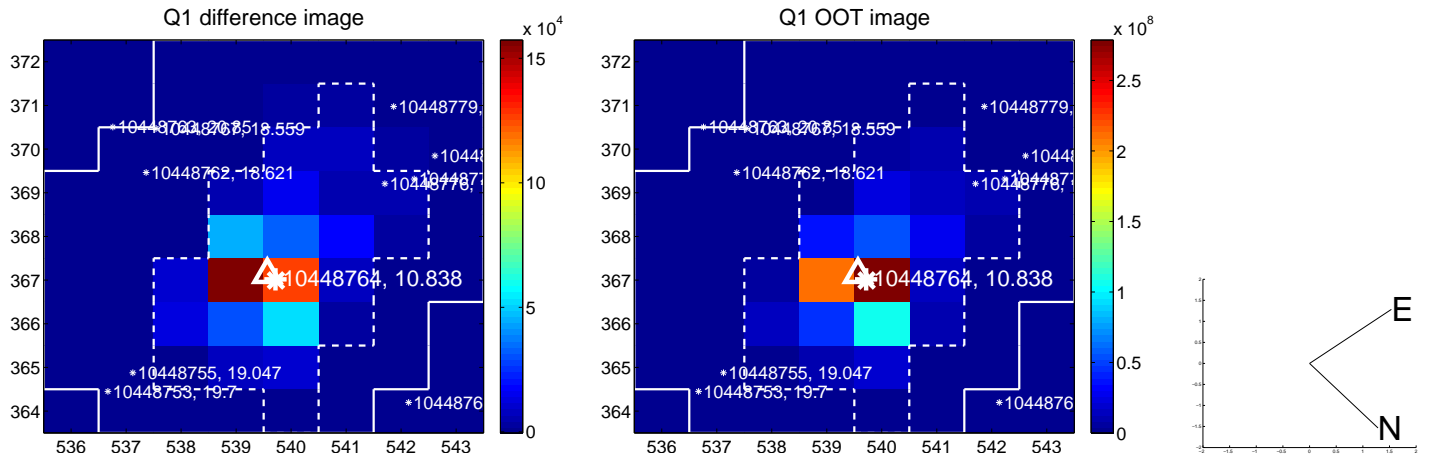
The direct PRF centroid is offset from the target star catalog position by about 0.05 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	<b><math>1.276 \pm 0.259</math></b>	<b>4.93</b>	$-0.719 \pm 0.134$	$1.054 \pm 0.238$
PRF-fit source offset from KIC position	<b><math>1.536 \pm 0.249</math></b>	<b>6.16</b>	$-1.062 \pm 0.140$	$1.110 \pm 0.232$
photometric centroid source offset	<b><math>0.18 \pm 0.05</math></b>	<b>3.63</b>	$0.17 \pm 0.05$	$-0.06 \pm 0.04$

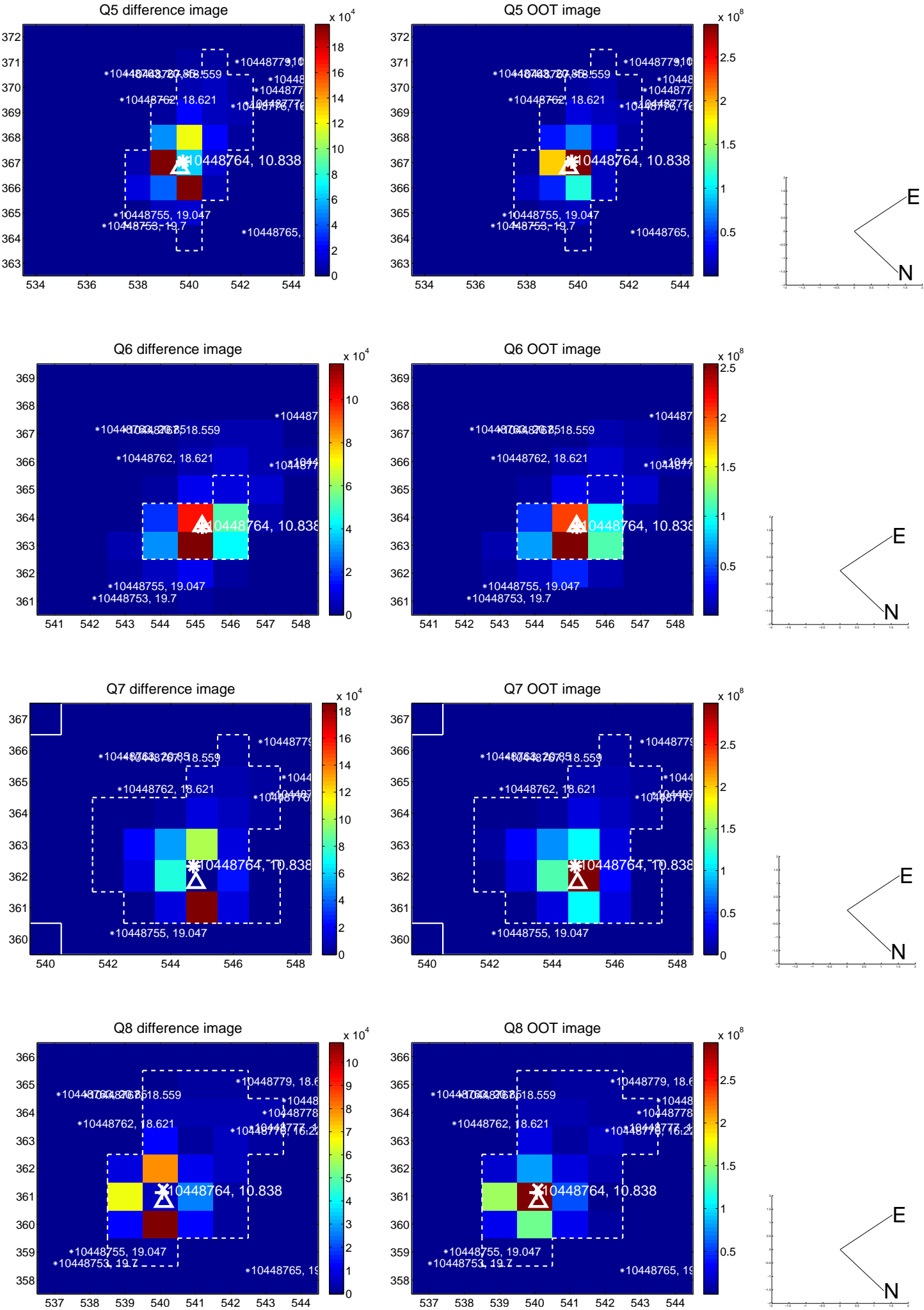


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets;** magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: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

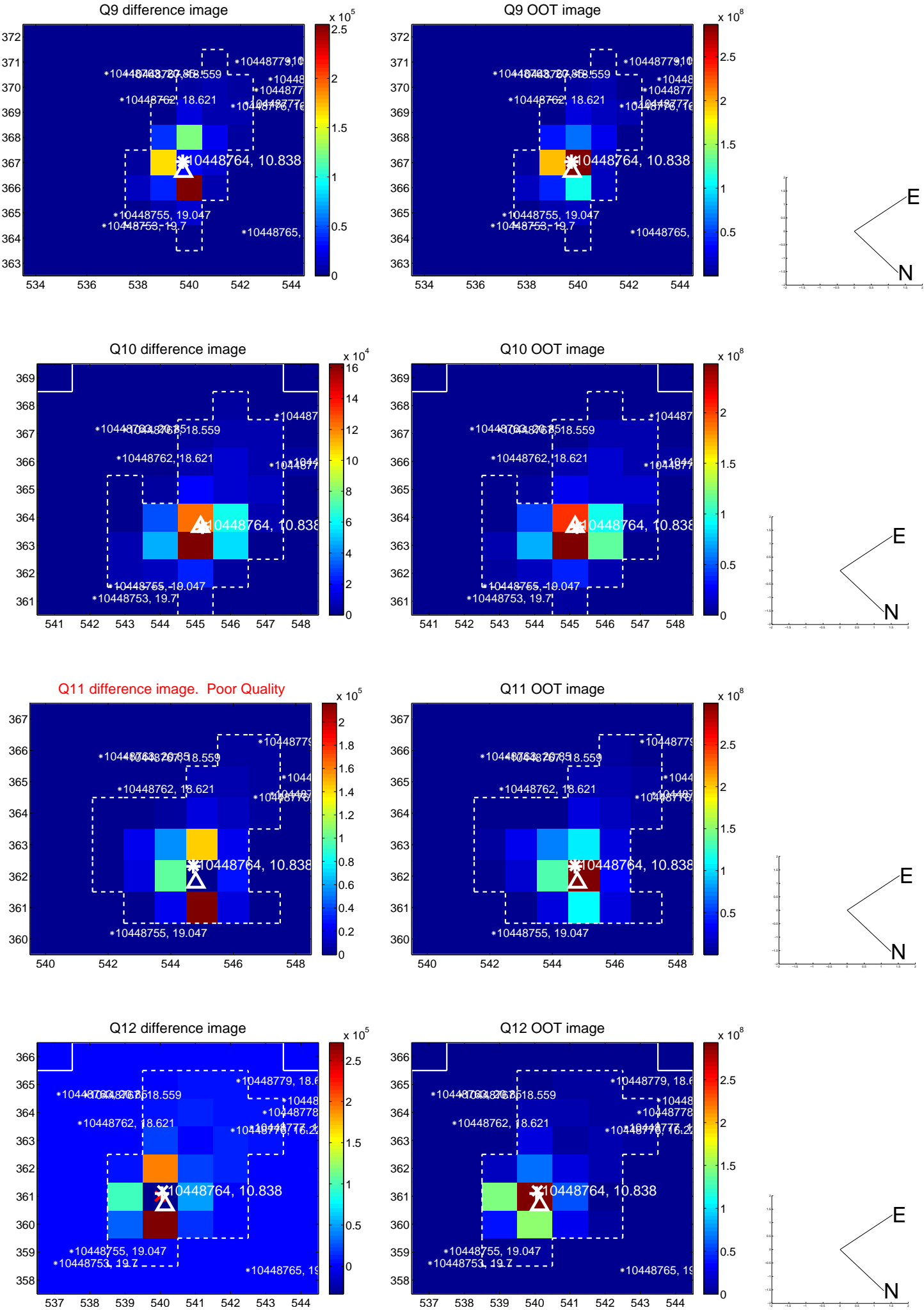
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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

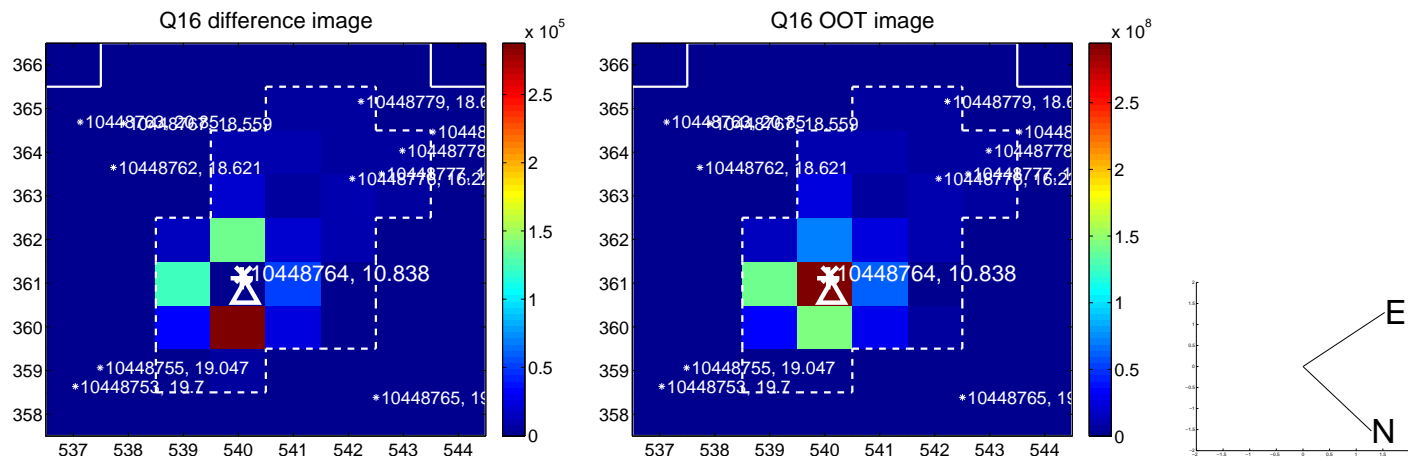
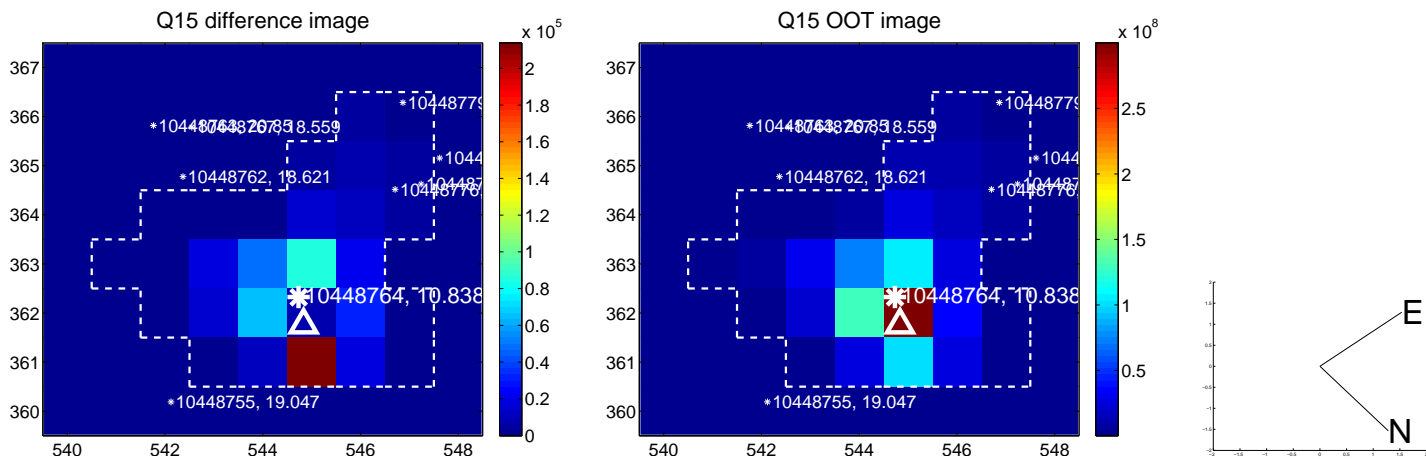
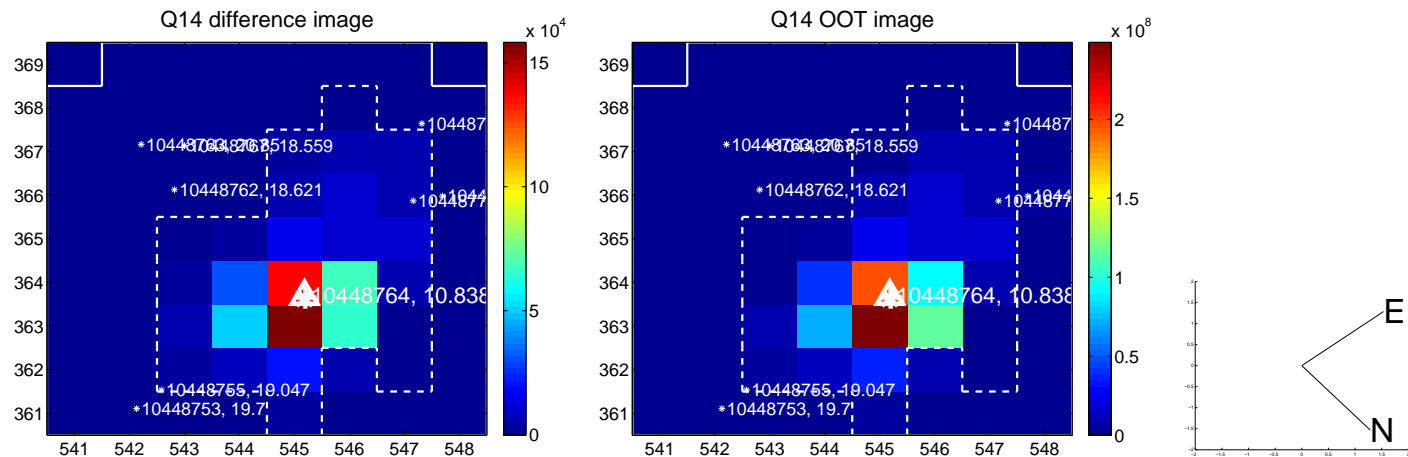
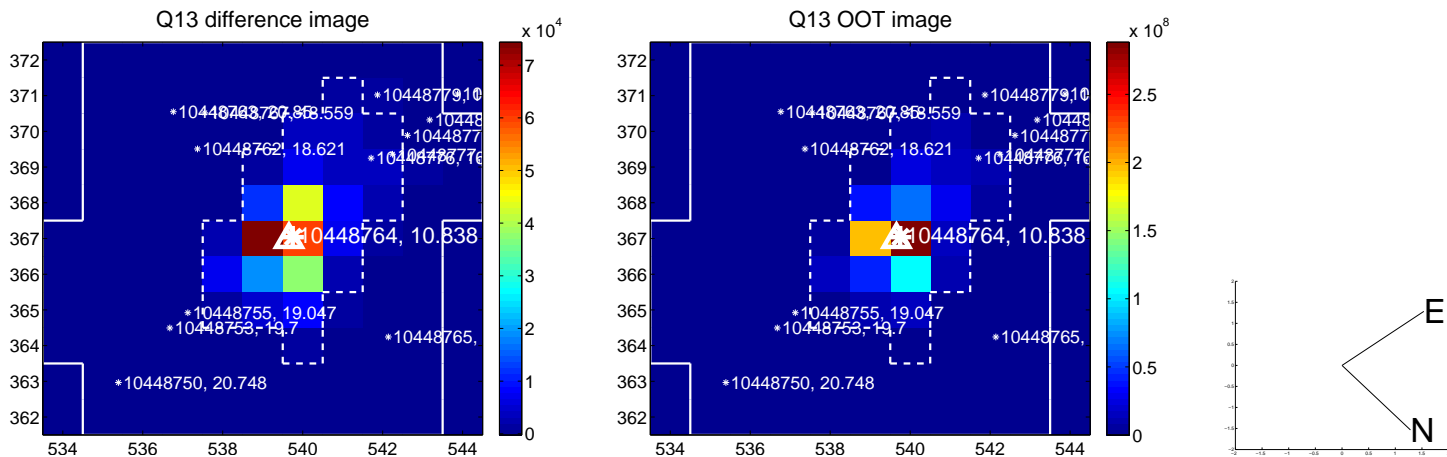


white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.

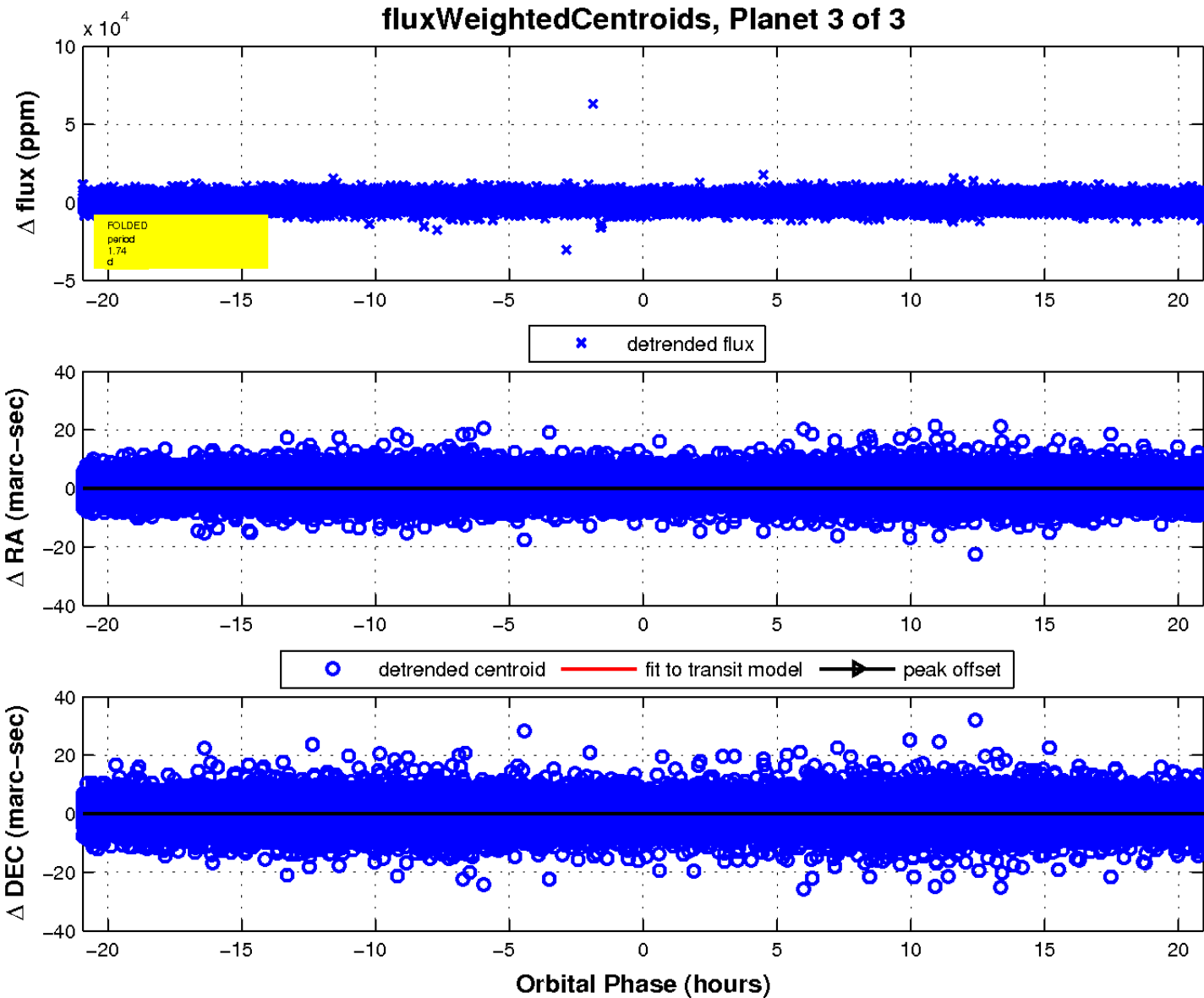
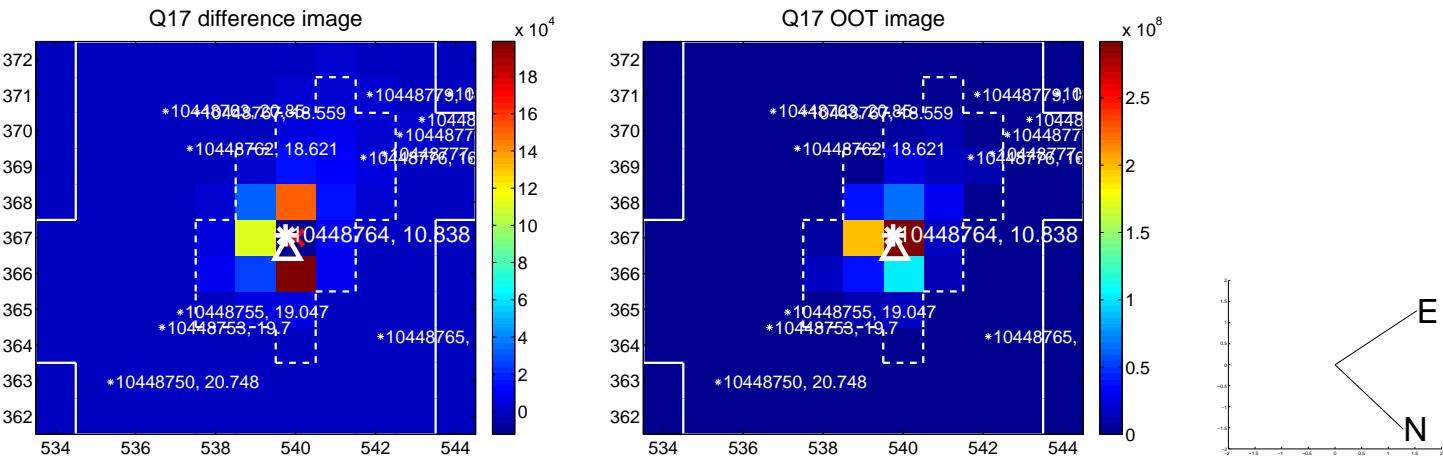




white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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



UKIRT Image

Declination

