

# KIC 007464417

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
007464417-01	OBS	No	1.951081	133.345683	69.2	9.418	10.5	12.5	0.94	5964	1.63	1110.93
007464417-02	OBS	No	188.482541	203.896698	229.6	3.993	16.6	3.2	0.94	5964	1.60	2.51
007464417-03	OBS	No	111.604084	210.850692	216.1	9.492	7.9	3.8	0.94	5964	1.51	5.04

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
007464417-01	OBS	FP	0.00	1	0	0	0	SWEET_NTL—LPP_DV—LPP_ALT—CENT_FEW_DIFFS
007464417-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL_SKYE_TRACKER—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_FEW_DIFFS
007464417-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_CHASES—TRANS_GAPPED—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—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.

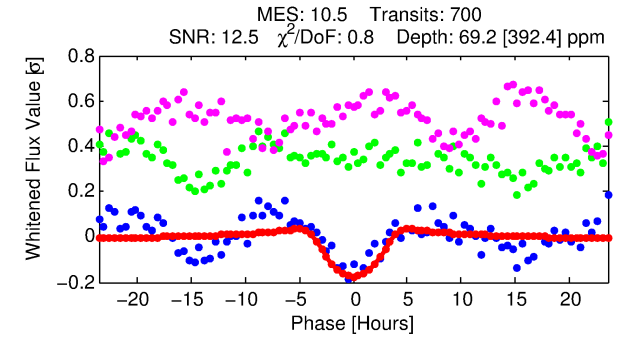
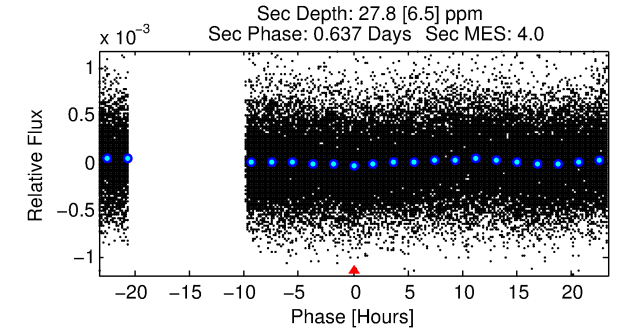
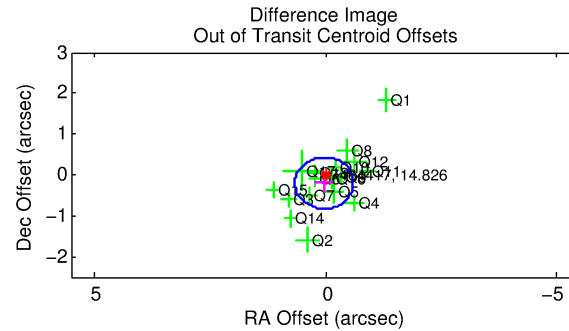
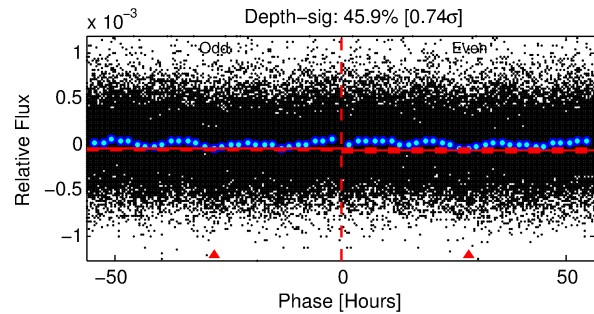
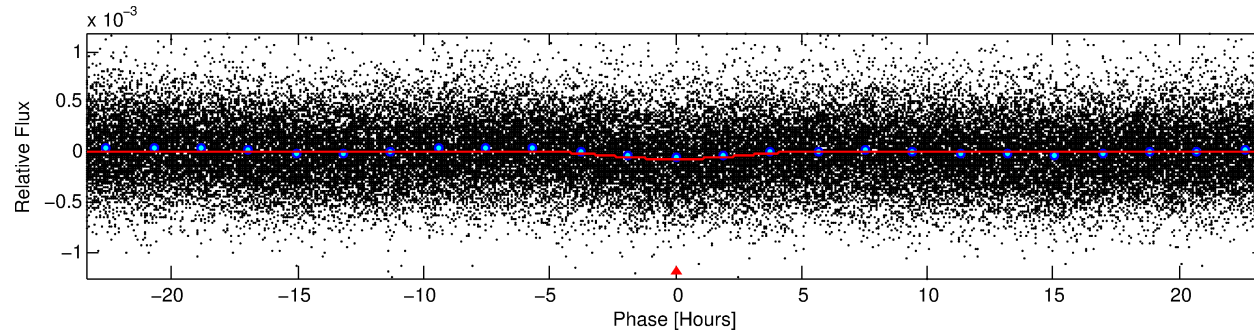
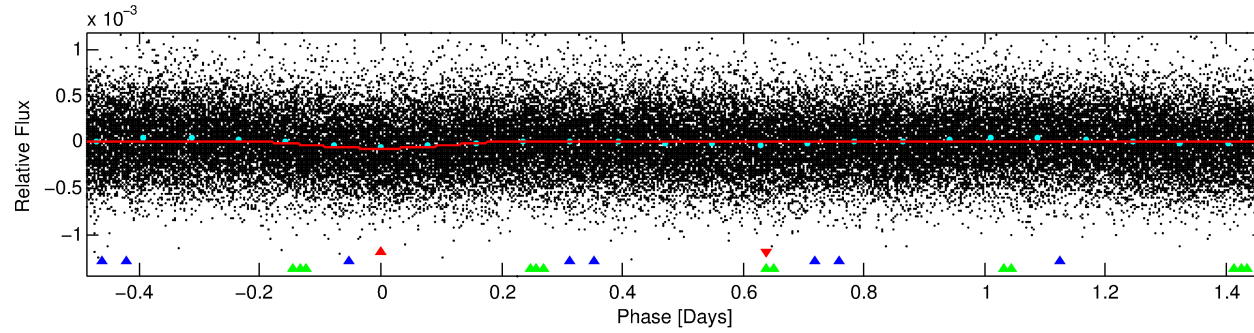
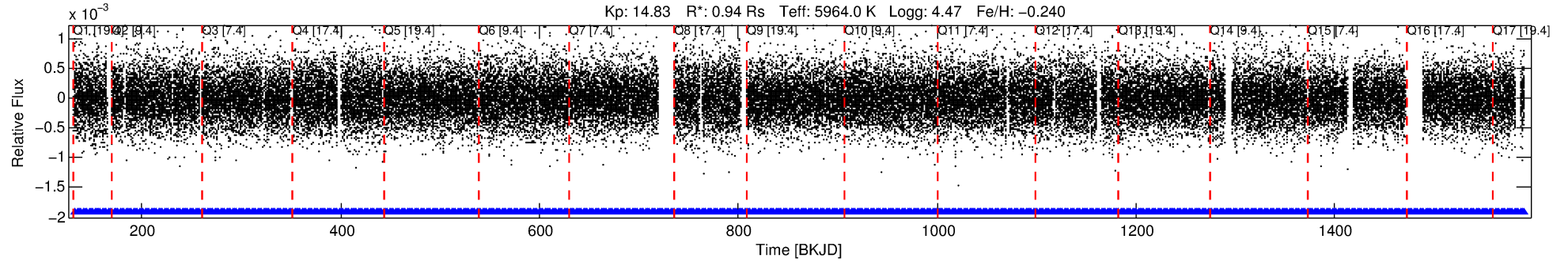
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

Ephemeris Match Information For 007464417-01

No Significant Match Found

# DV One-Page Summary

KIC: 7464417 Candidate: 1 of 3 Period: 1.951 d



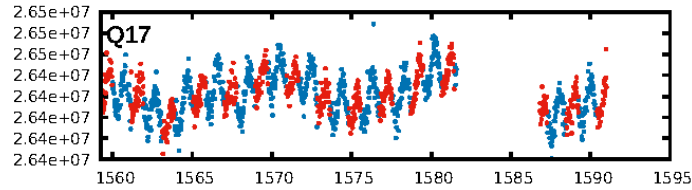
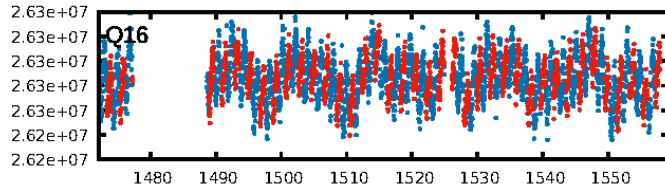
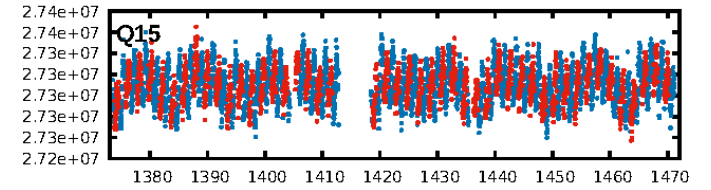
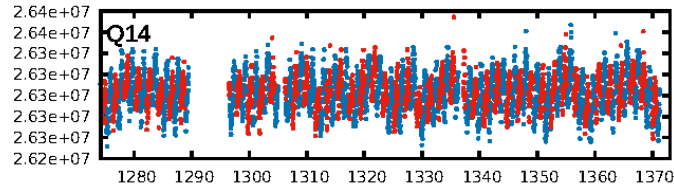
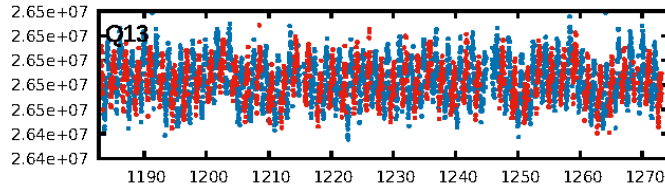
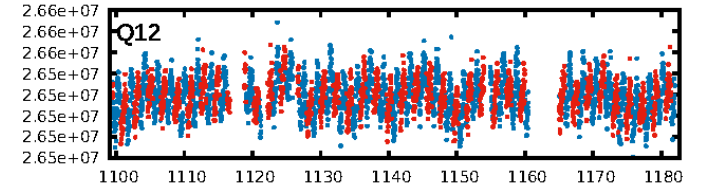
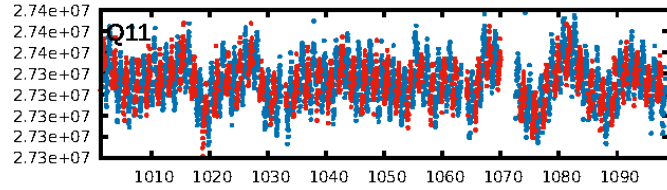
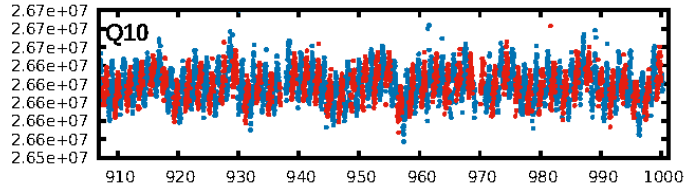
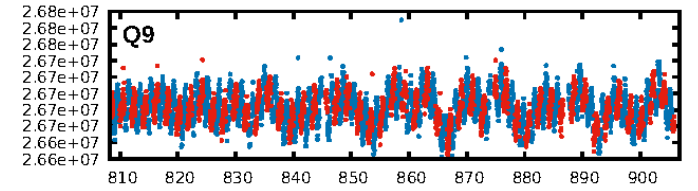
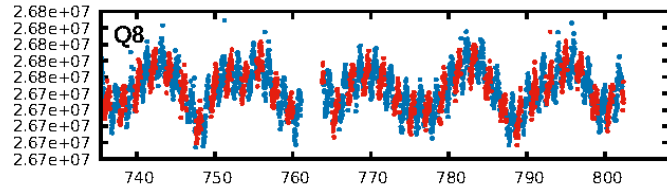
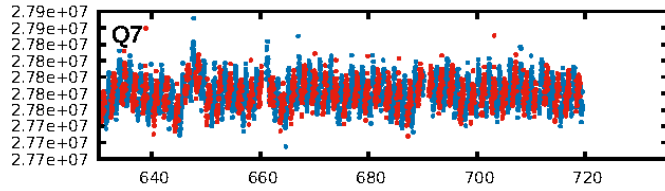
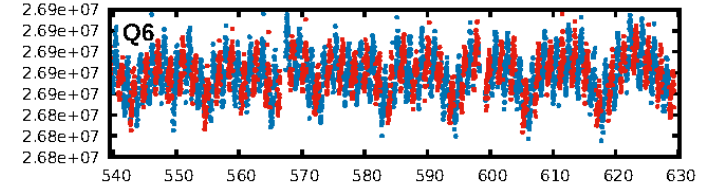
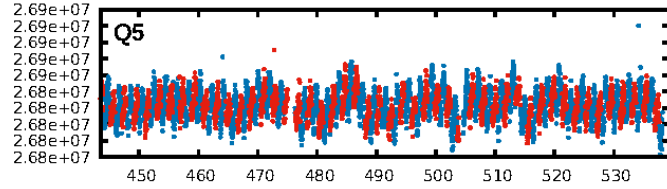
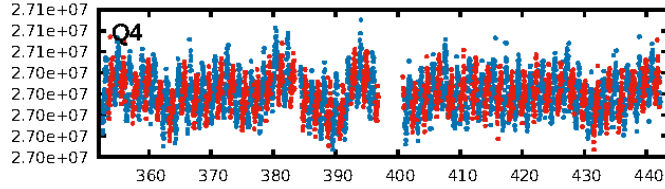
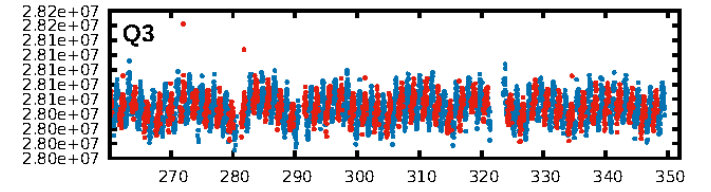
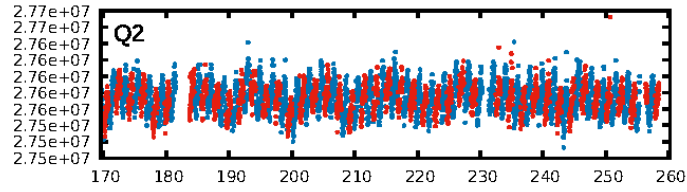
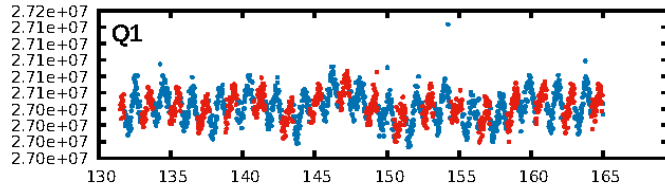
## DV Fit Results:

Period = 1.95108 [0.00003] d  
Epoch = 133.3457 [0.0135] BKJD  
Rp/R\* = 0.0159 [0.0346]  
a/R\* = 1.04 [0.01]  
b = 1.00 [0.12]  
Seff = 1110.93 [436.00]  
Teff = 1472 [144] K  
Rp = 1.63 [3.59] Re  
a = 0.0301 [0.0077] AU  
Ag = 5.20 [22.79] [0.18 $\sigma$ ]  
Teffp = 3437 [3754] K [0.52 $\sigma$ ]

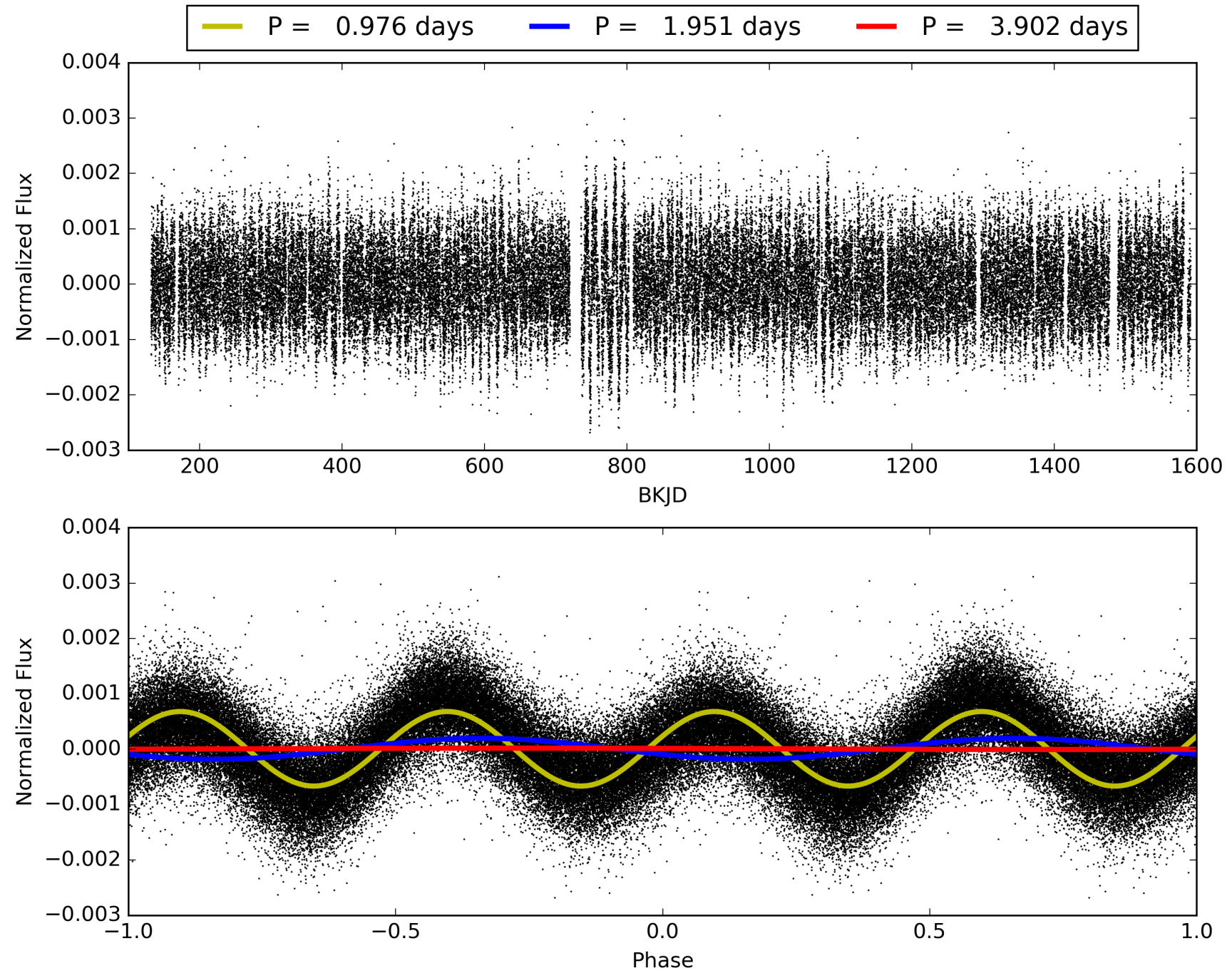
## DV Diagnostic Results:

ShortPeriod-sig: N/A  
LongPeriod-sig: 100.0% [196.80 $\sigma$ ]  
ModelChiSquare2-sig: N/A  
ModelChiSquareGof-sig: N/A  
Bootstrap-pfa: 2.83e-22  
RollingBand-fgt: 1.00 [667/667]  
GhostDiagnostic-chr: 2.3  
Centroid-sig: 0.0%  
Centroid-so: 2.528 arcsec [3.41 $\sigma$ ]  
OotOffset-rm: 0.202 arcsec [0.96 $\sigma$ ]  
KicOffset-rm: 0.255 arcsec [1.13 $\sigma$ ]  
OotOffset-st: 4/4/4/5 [17]  
KicOffset-st: 4/4/4/5 [17]  
DiffImageQuality-fgm: 0.00 [0/17]  
DiffImageOverlap-fno: 1.00 [17/17]

# TCE 007464417-01, PDC Light Curves



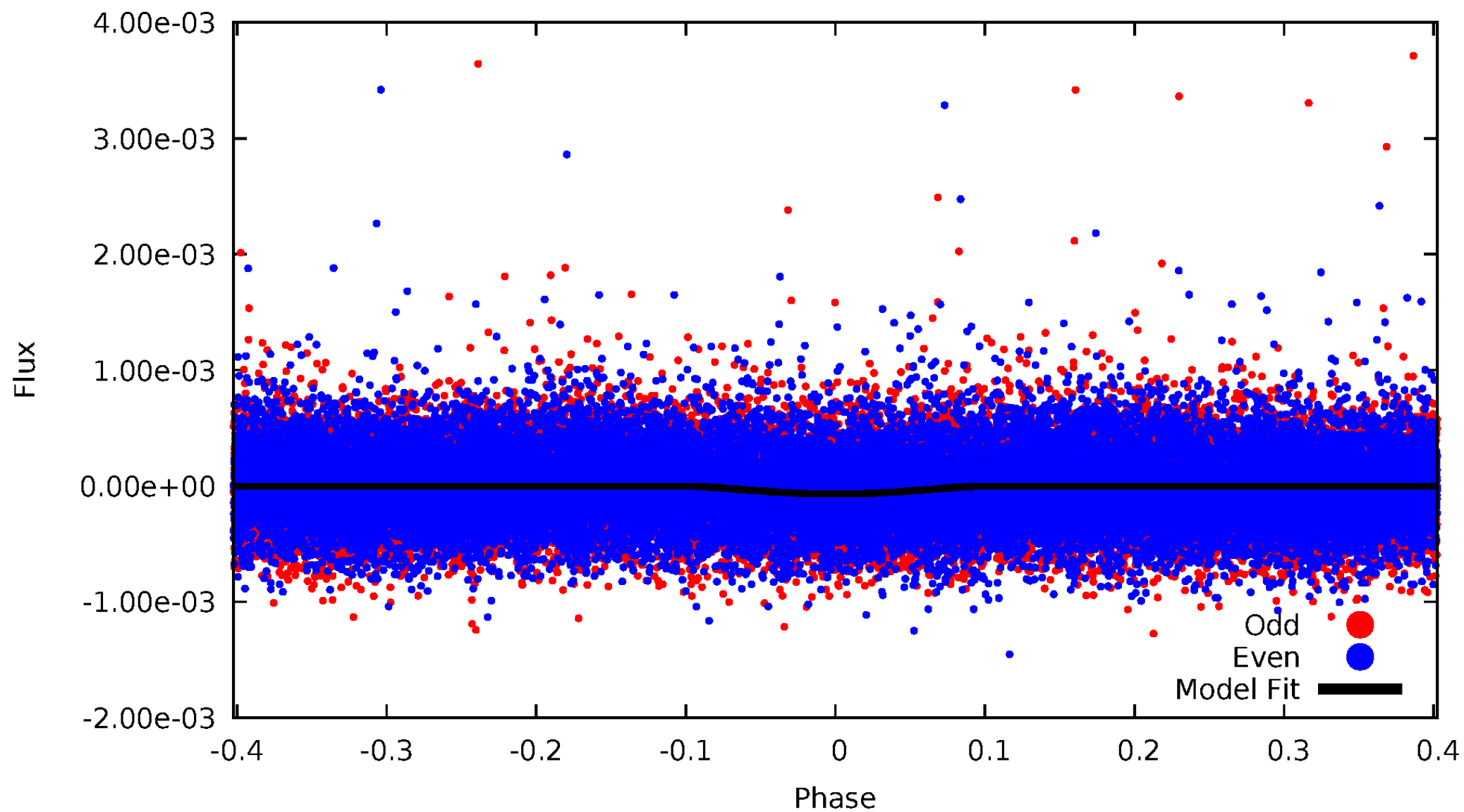
TCE 007464417-01





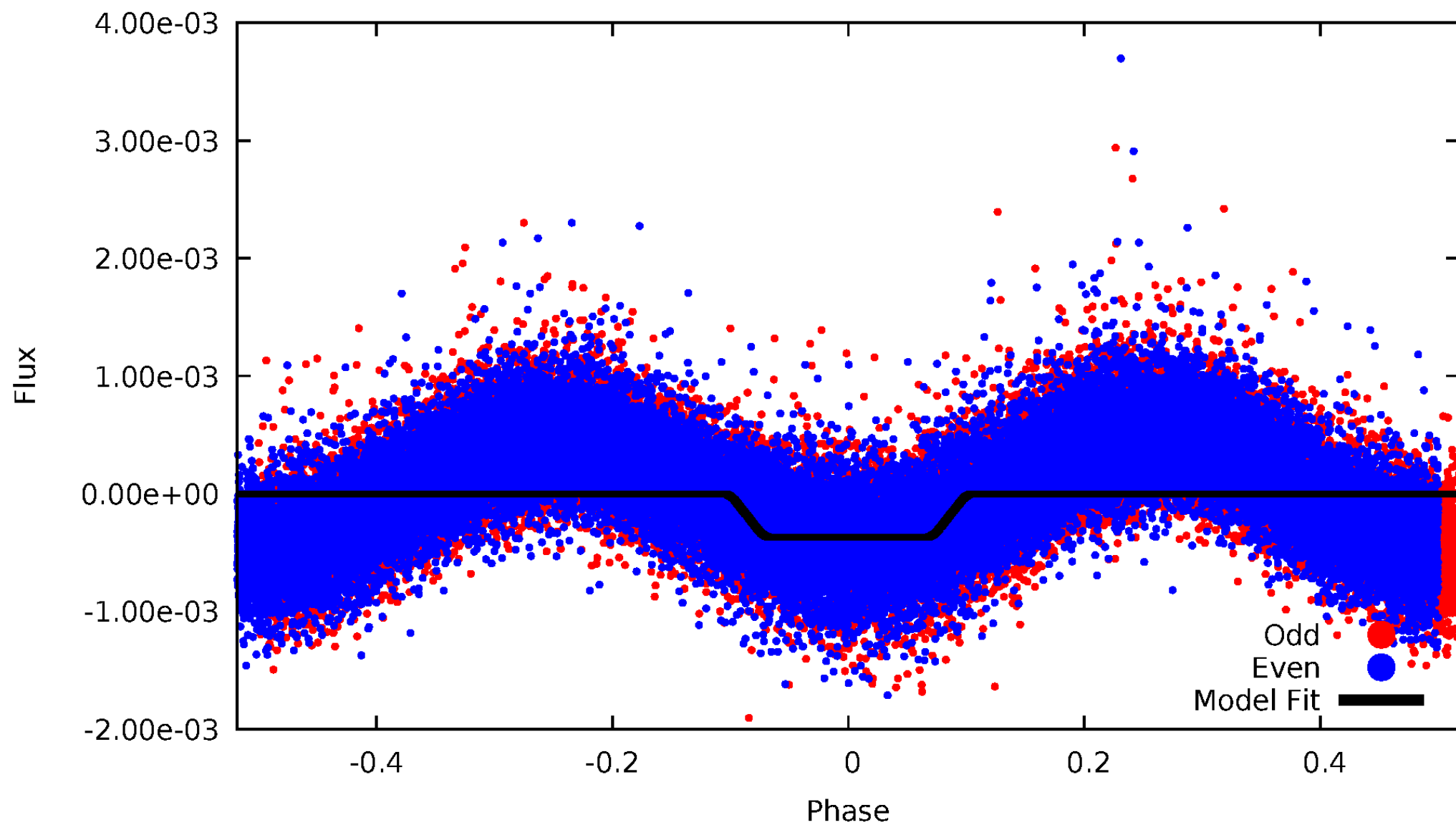
# DV Odd/Even

TCE 007464417-01

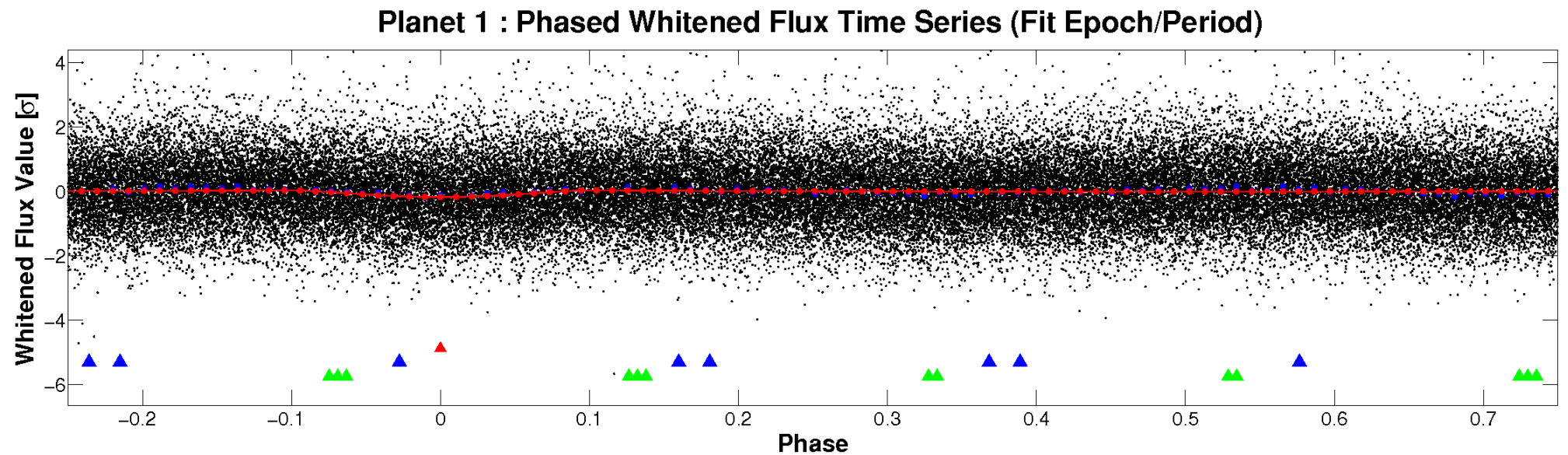
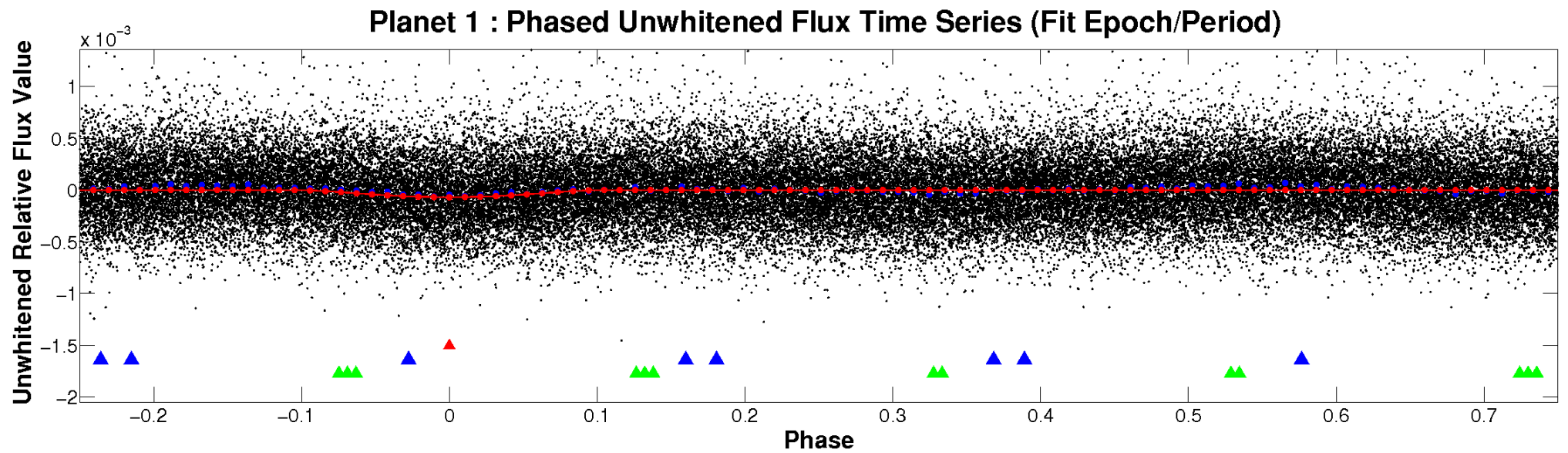


# ALT Odd/Even

TCE 007464417-01

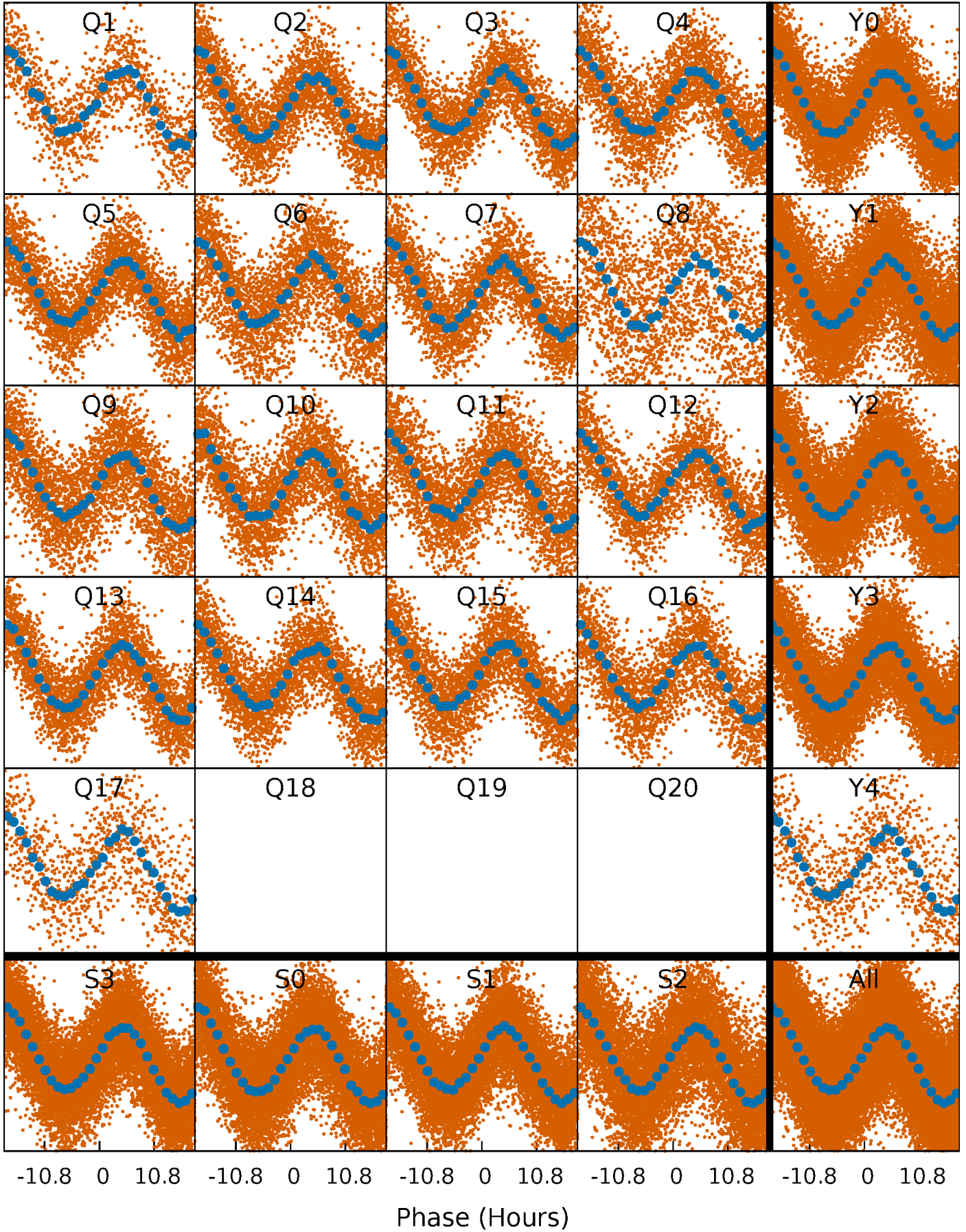


# Non-Whitened Vs. Whitened Light Curve



# PDC Quarter-Phased Transit Curves

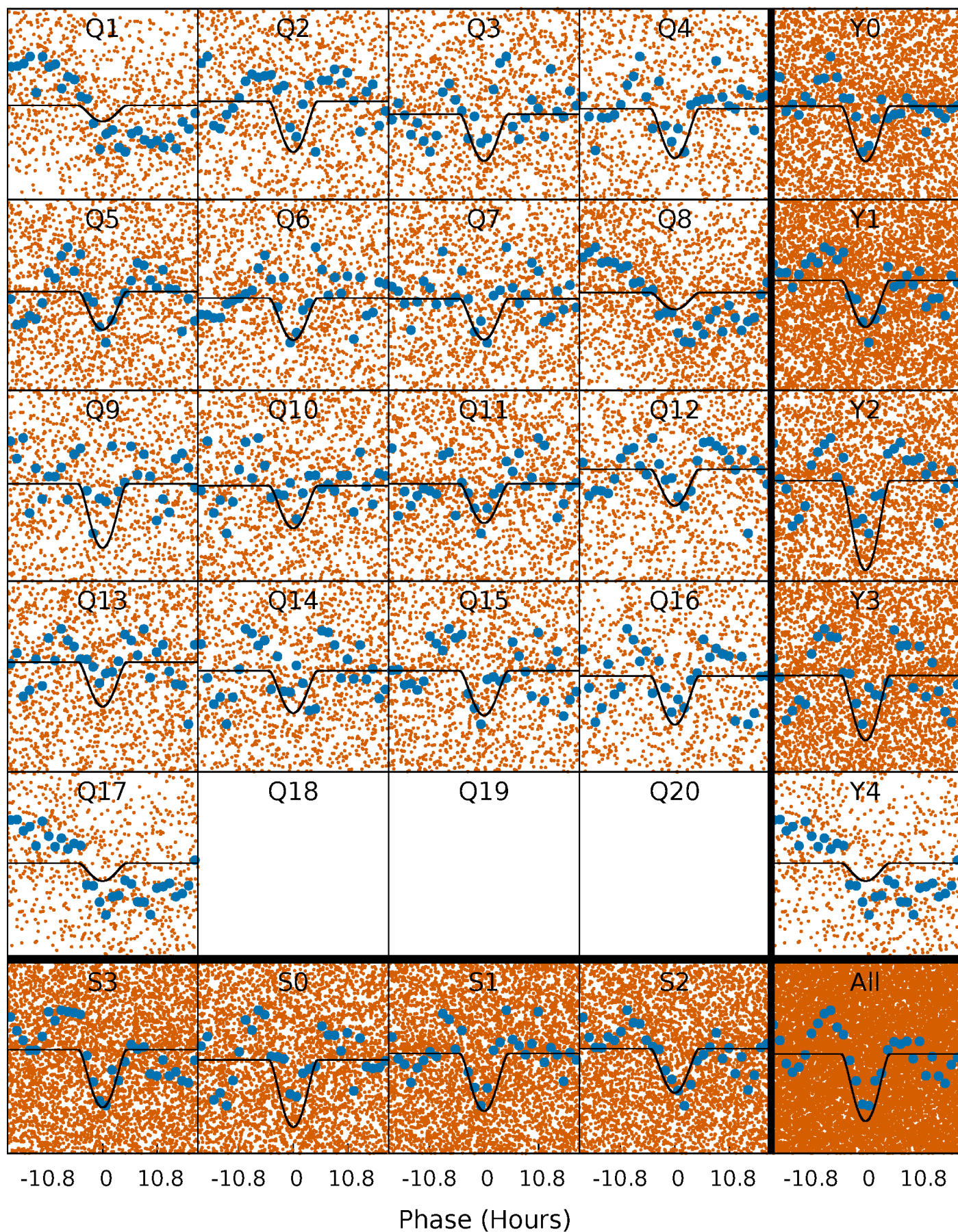
TCE 007464417-01 P= 1.951081 Days  $T_0=133.345683$  (BKJD)





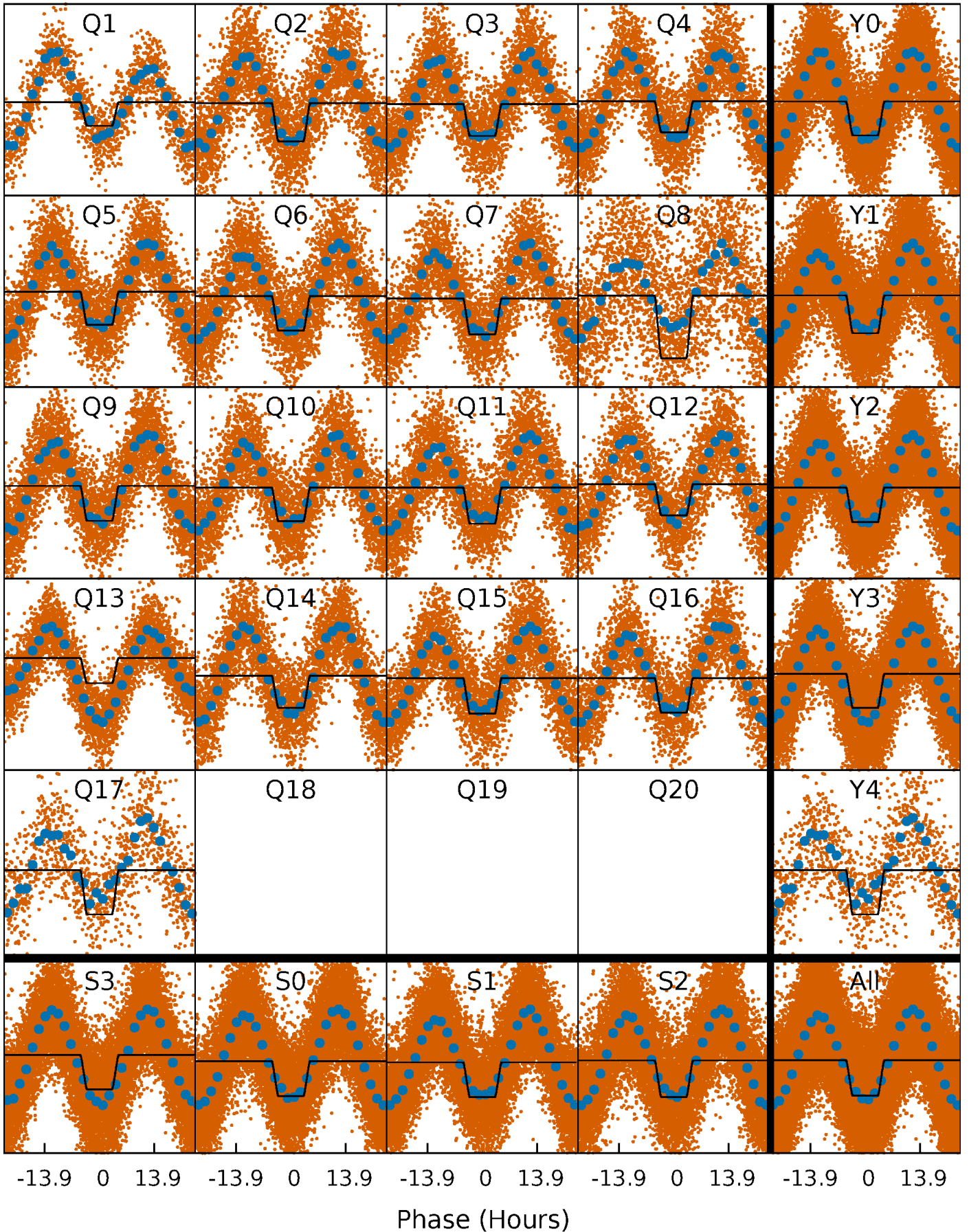
# DV Quarter-Phased Transit Curves

TCE 007464417-01 P= 1.951081 Days  $T_0=133.345683$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

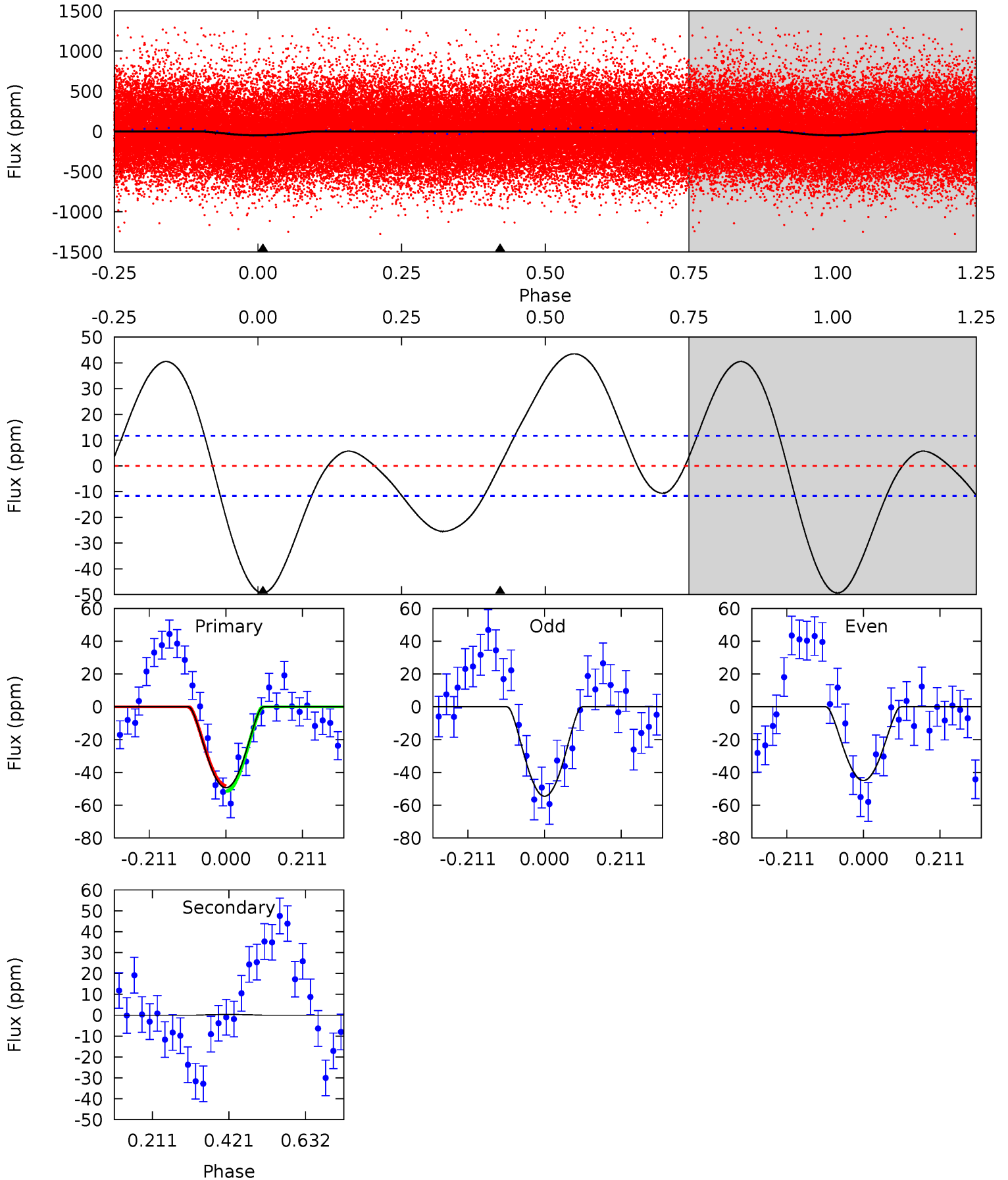
TCE 007464417-01 P= 1.951079 Days  $T_0=133.037598$  (BKJD)



# DV Model-Shift Uniqueness Test

007464417-01, P = 1.951081 Days, E = 131.394602 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
18.6	-0.13	0	0	4.41	1.25	4.44	18.6	18.6	-0.13	-0.13	1.81	0.41	0.47	0.66

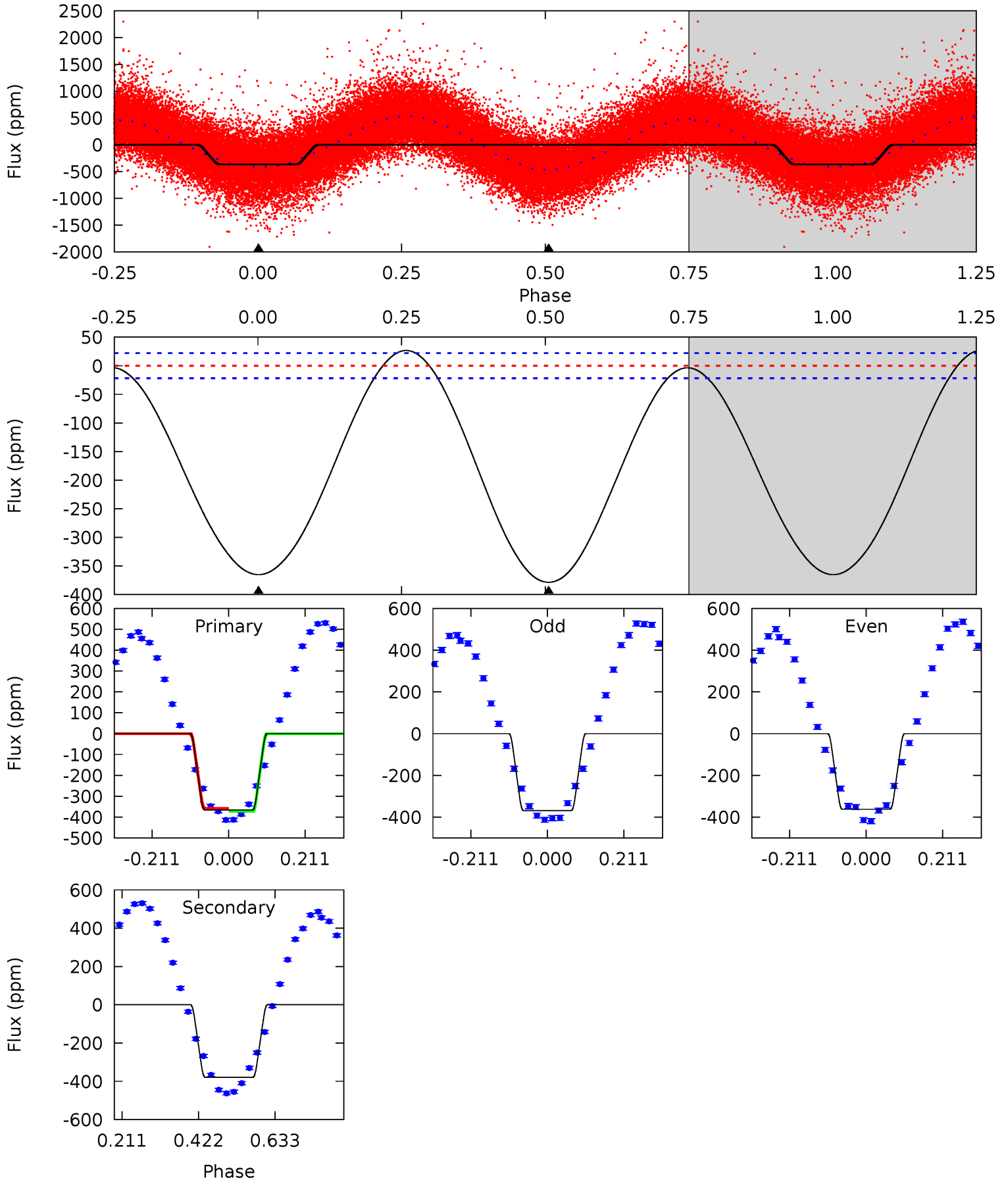




# Alt Model-Shift Uniqueness Test

007464417-01, P = 1.951079 Days, E = 131.086519 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
73.5	76.1	0	0	4.41	1.25	3.24	73.5	73.5	76.1	76.1	0.64	1.09	0.07	2.19





### Stellar Parameters For KIC 007464417

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	$5964^{+161}_{-196}$	$4.470^{+0.067}_{-0.202}$	$-0.240^{+0.300}_{-0.300}$	$0.943^{+0.285}_{-0.114}$	$0.957^{+0.118}_{-0.118}$	$1.606^{+0.550}_{-0.795}$
	+3%/-3%	+1%/-5%	+125%/-125%	+30%/-12%	+12%/-12%	+34%/-49%
Source	PHO1	KIC0	KIC0	DSEP		

KIC = Kepler Input Catalog; PHO = Photometry; SPE = Spectroscopy; AST = Asteroseismology  
 TRA = Transits; DESP = Dartmouth Models; MULT = Multiple Models

### Secondary Eclipse Parameters for KIC 007464417-01 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	$A_{obs}$
DV	$0 \pm 3$	$3.27^{+3.00}_{-2.27}$	$2086^{+134}_{-106}$	$-2569^{+216}_{-245}$	$-0.008^{+0.137}_{-0.287}$
Alt.	$-378 \pm 5$	$3.48^{+2.98}_{-2.37}$	$2087^{+149}_{-107}$	$4714^{+3499}_{-982}$	$15^{+125}_{-11}$

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

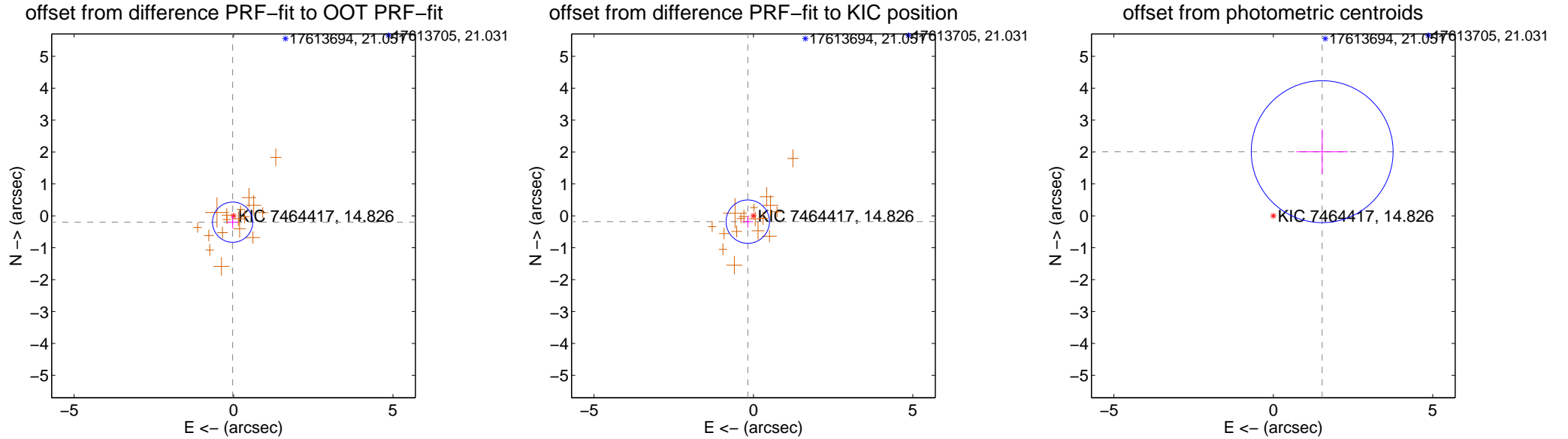
## DV Centroid Data

Supplemental centroid analysis for 007464417-01. Kepler magnitude: 14.83. Transit SNR 12.53

There are 0 quarters with good PRF difference image offsets

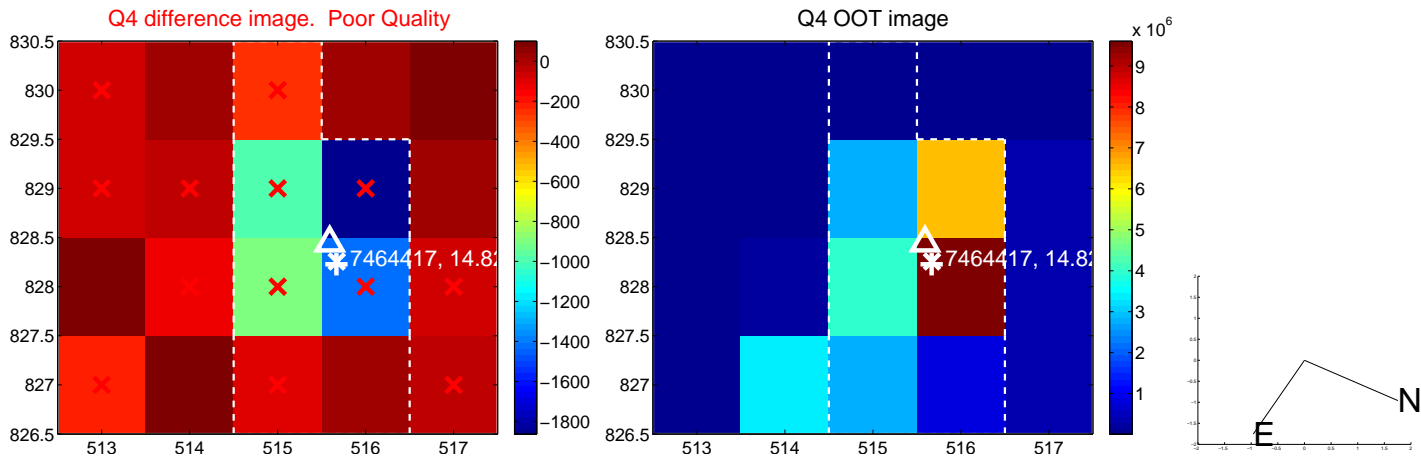
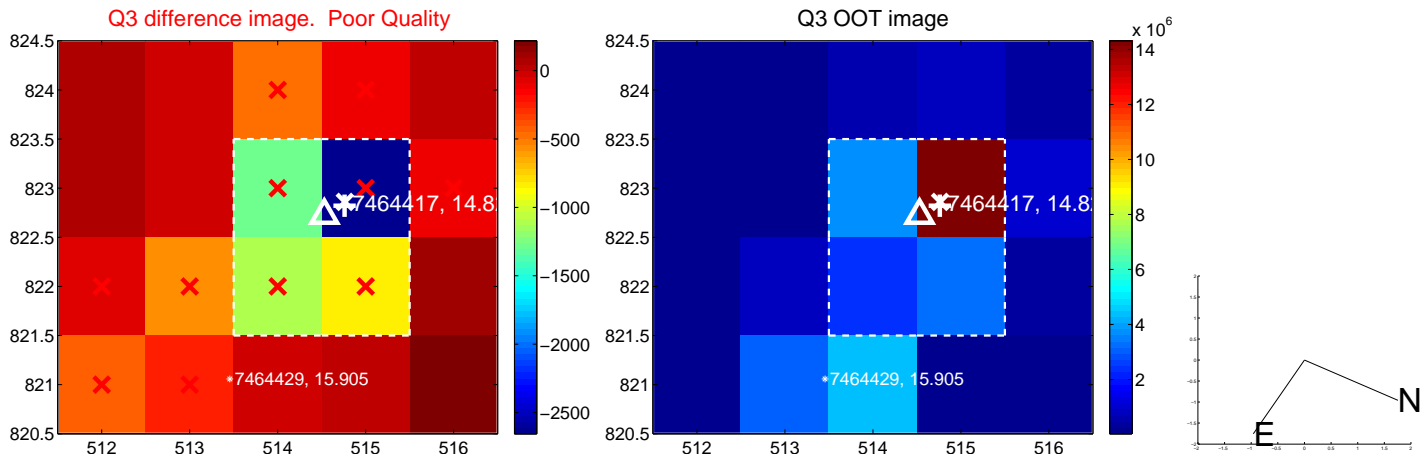
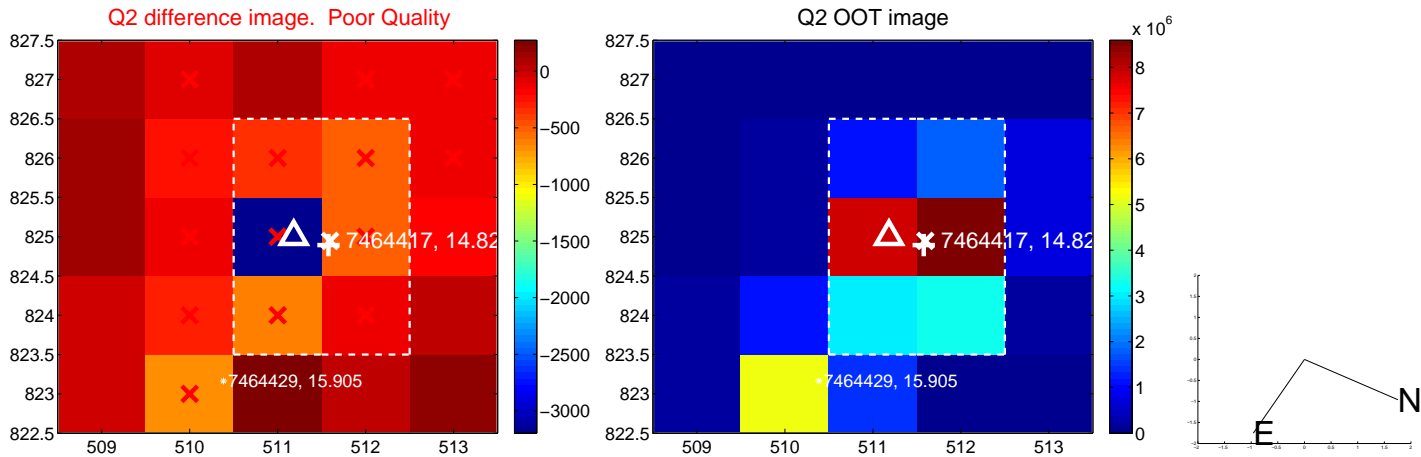
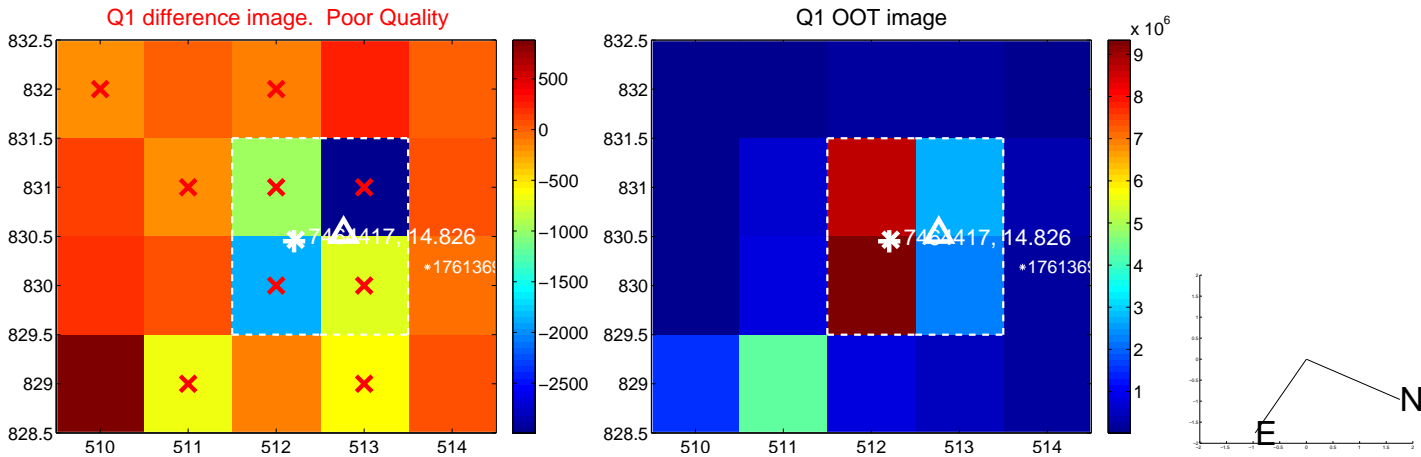
The direct PRF centroid is offset from the target star catalog position by about 0.06 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$0.202 \pm 0.210$	0.96	$0.029 \pm 0.181$	$-0.200 \pm 0.195$
PRF-fit source offset from KIC position	$0.255 \pm 0.227$	1.13	$0.178 \pm 0.173$	$-0.183 \pm 0.187$
photometric centroid source offset	$2.53 \pm 0.74$	3.41	$-1.53 \pm 0.81$	$2.01 \pm 0.70$

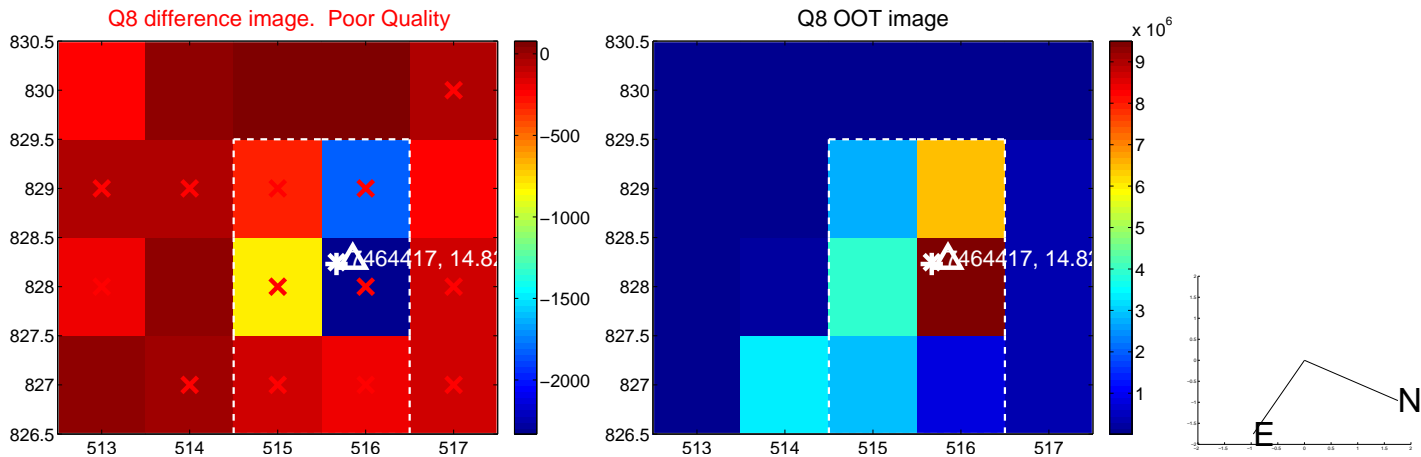
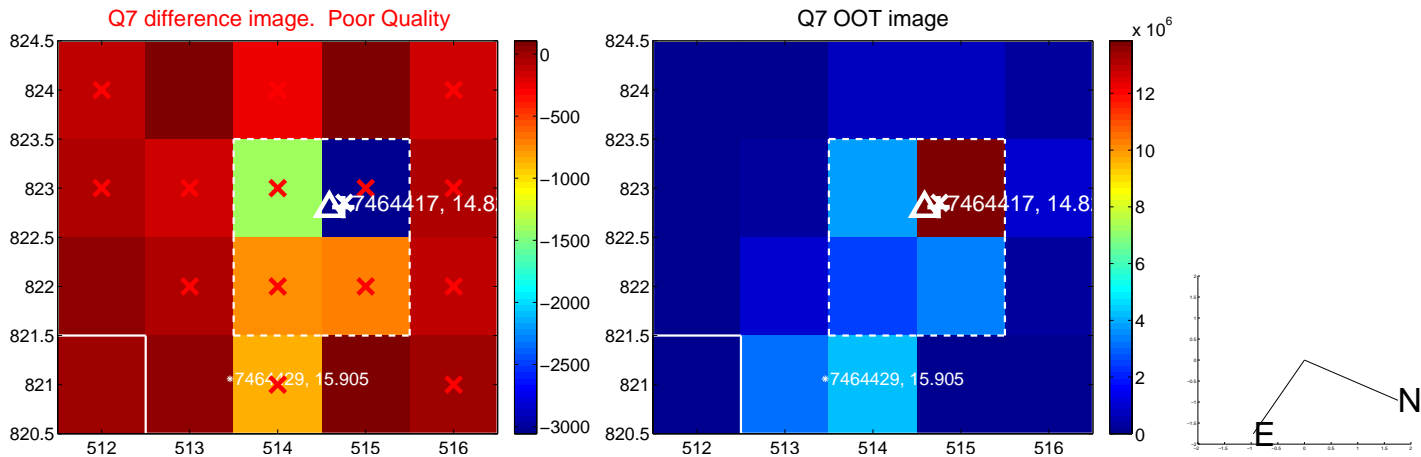
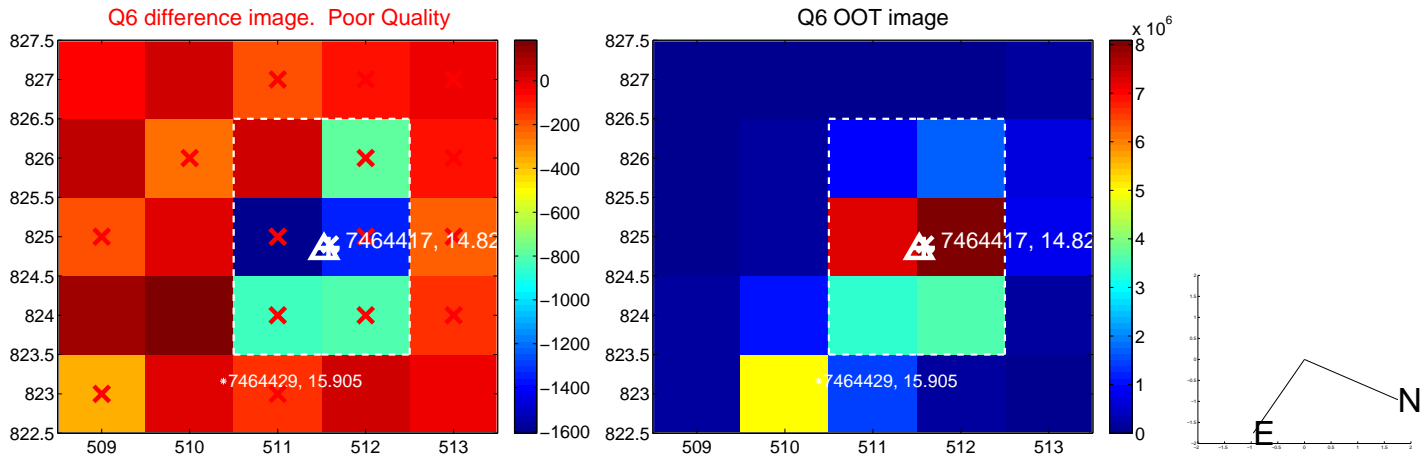
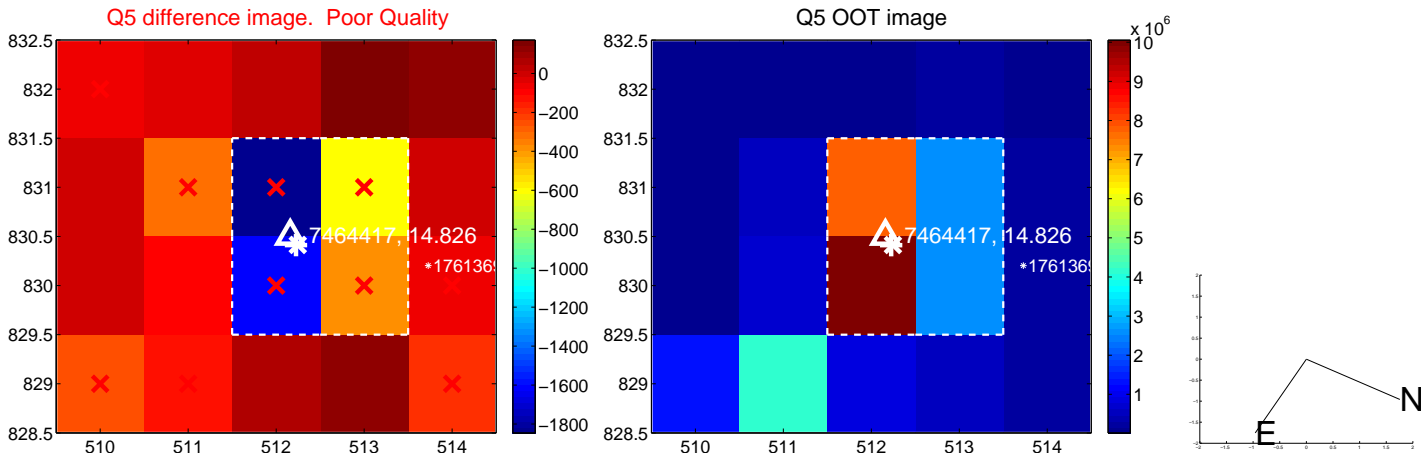


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: three-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

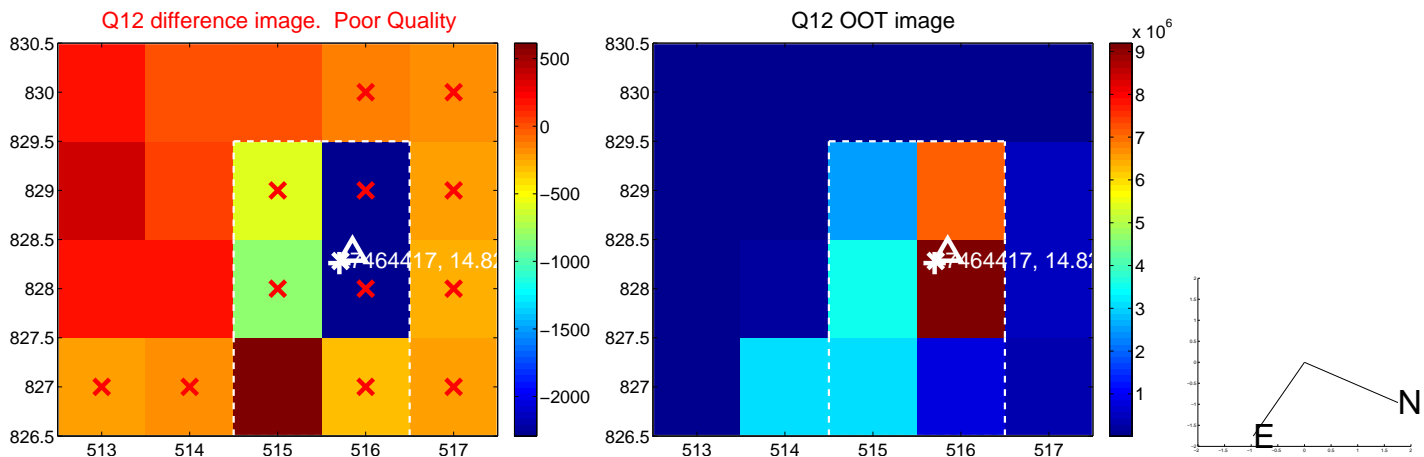
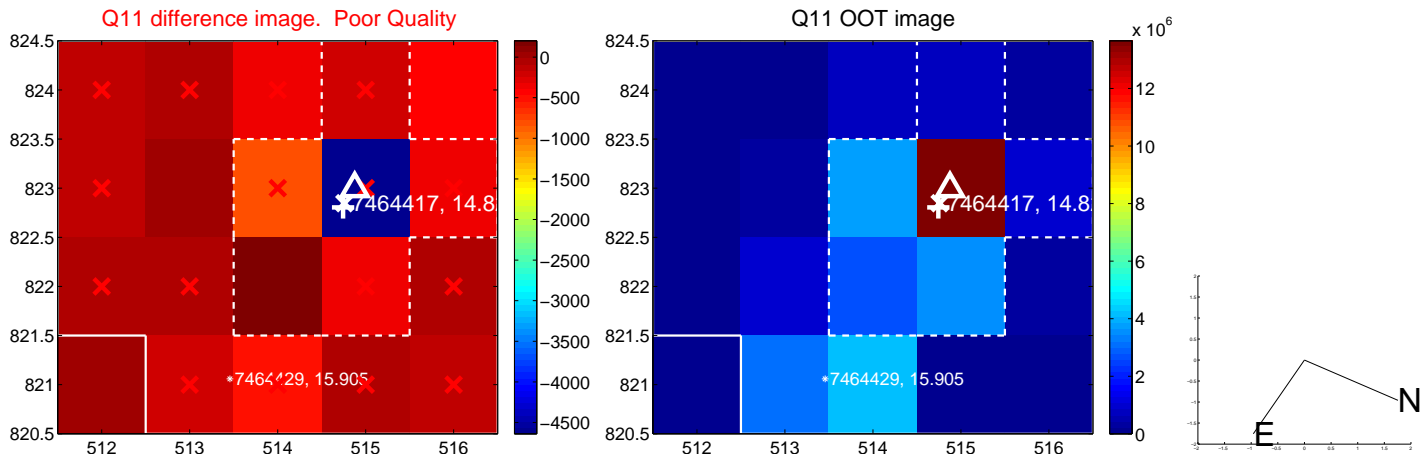
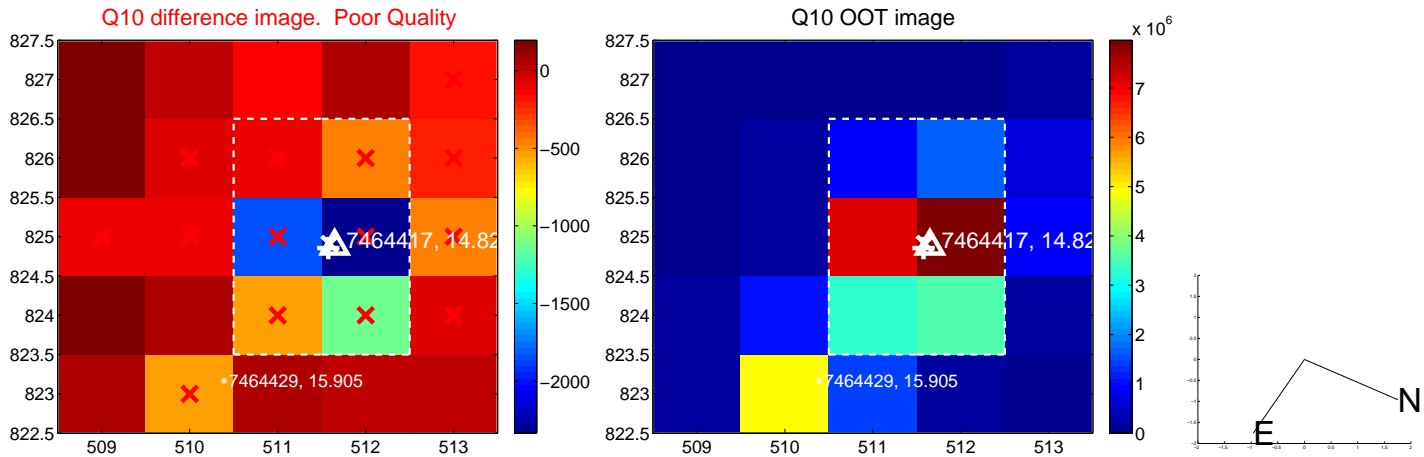
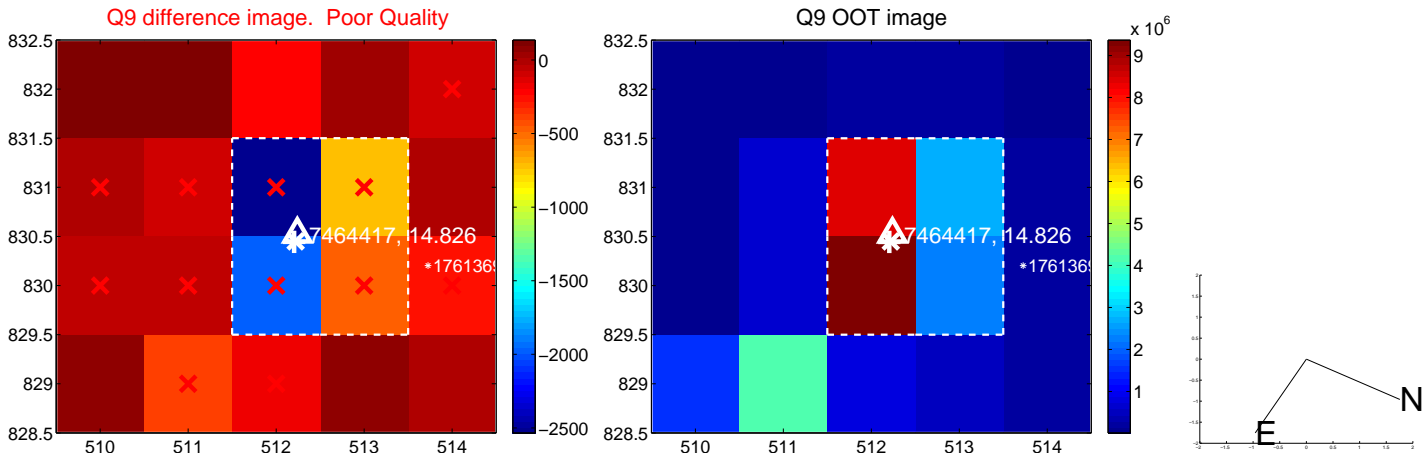


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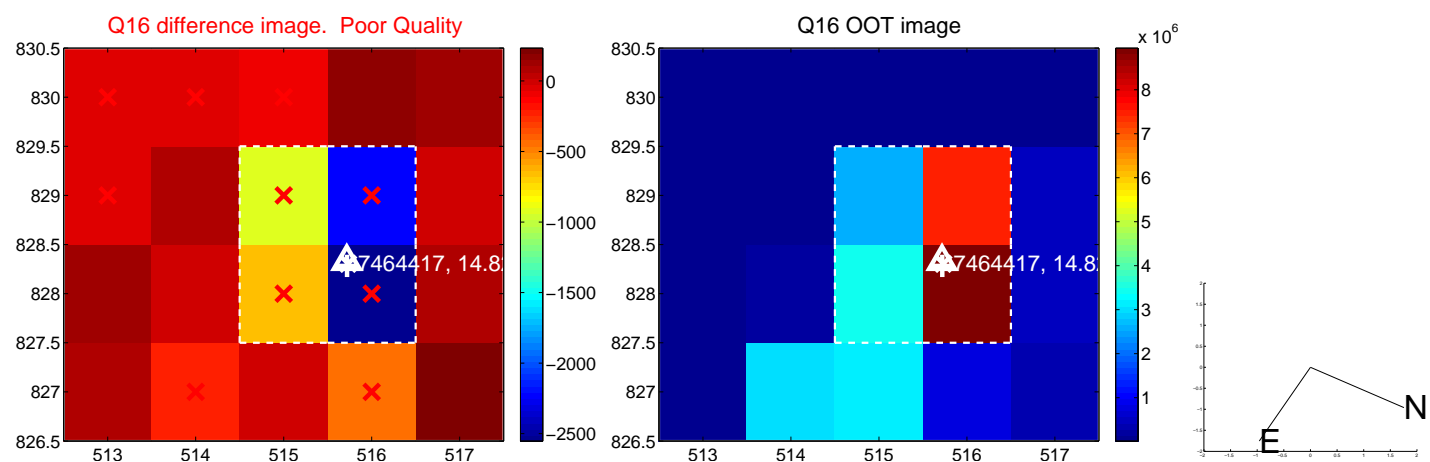
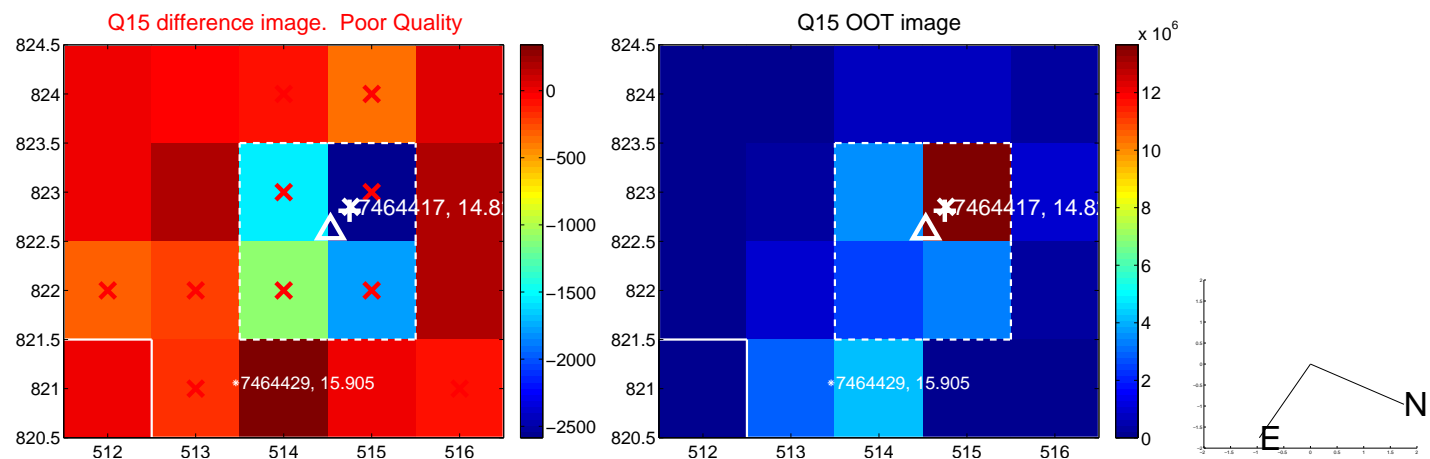
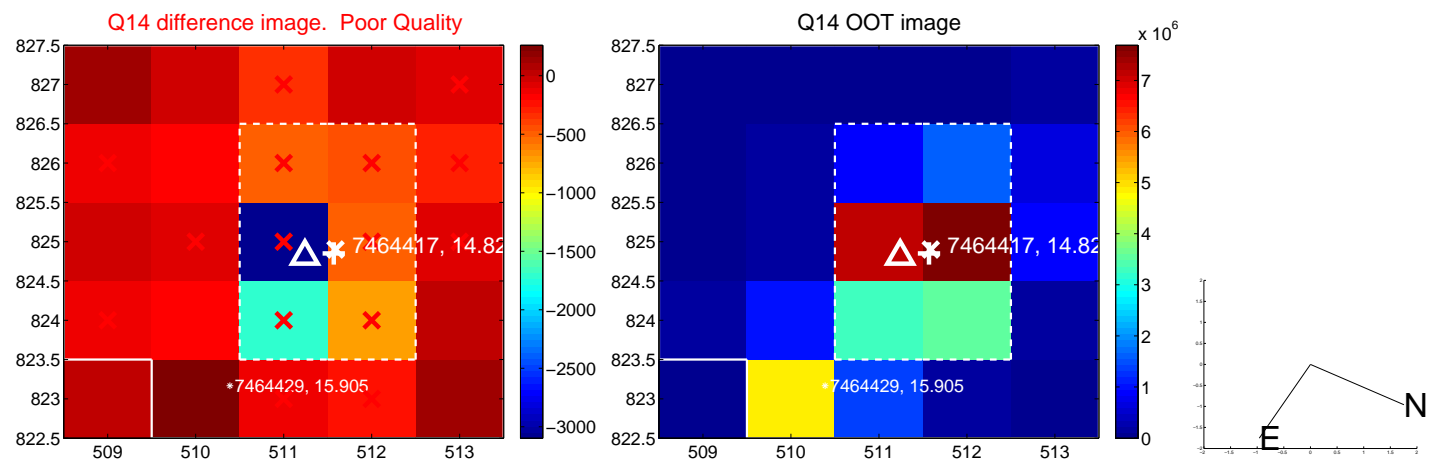
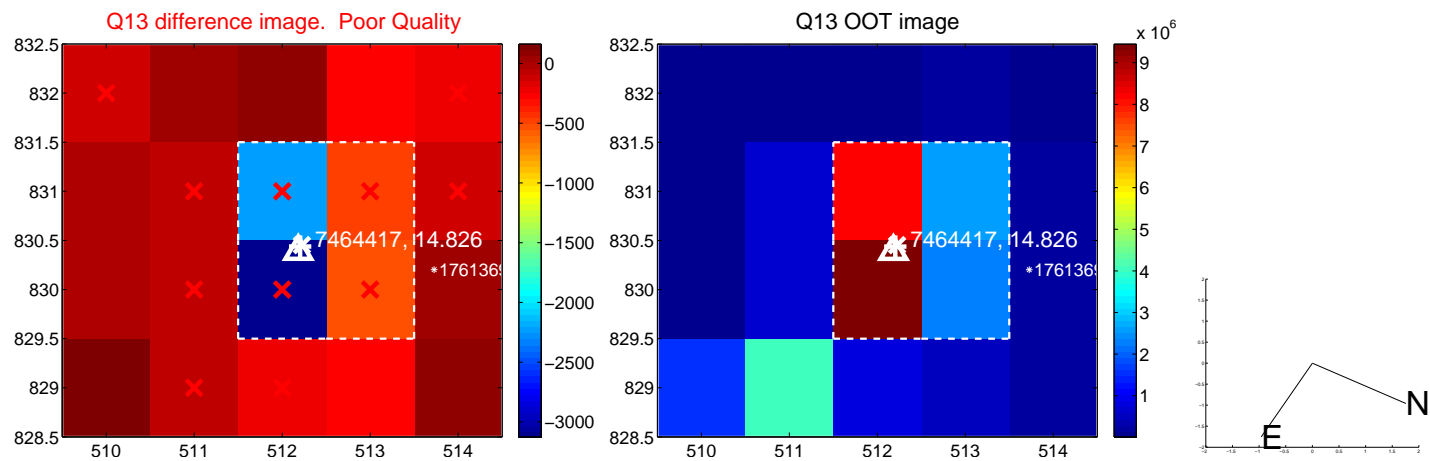




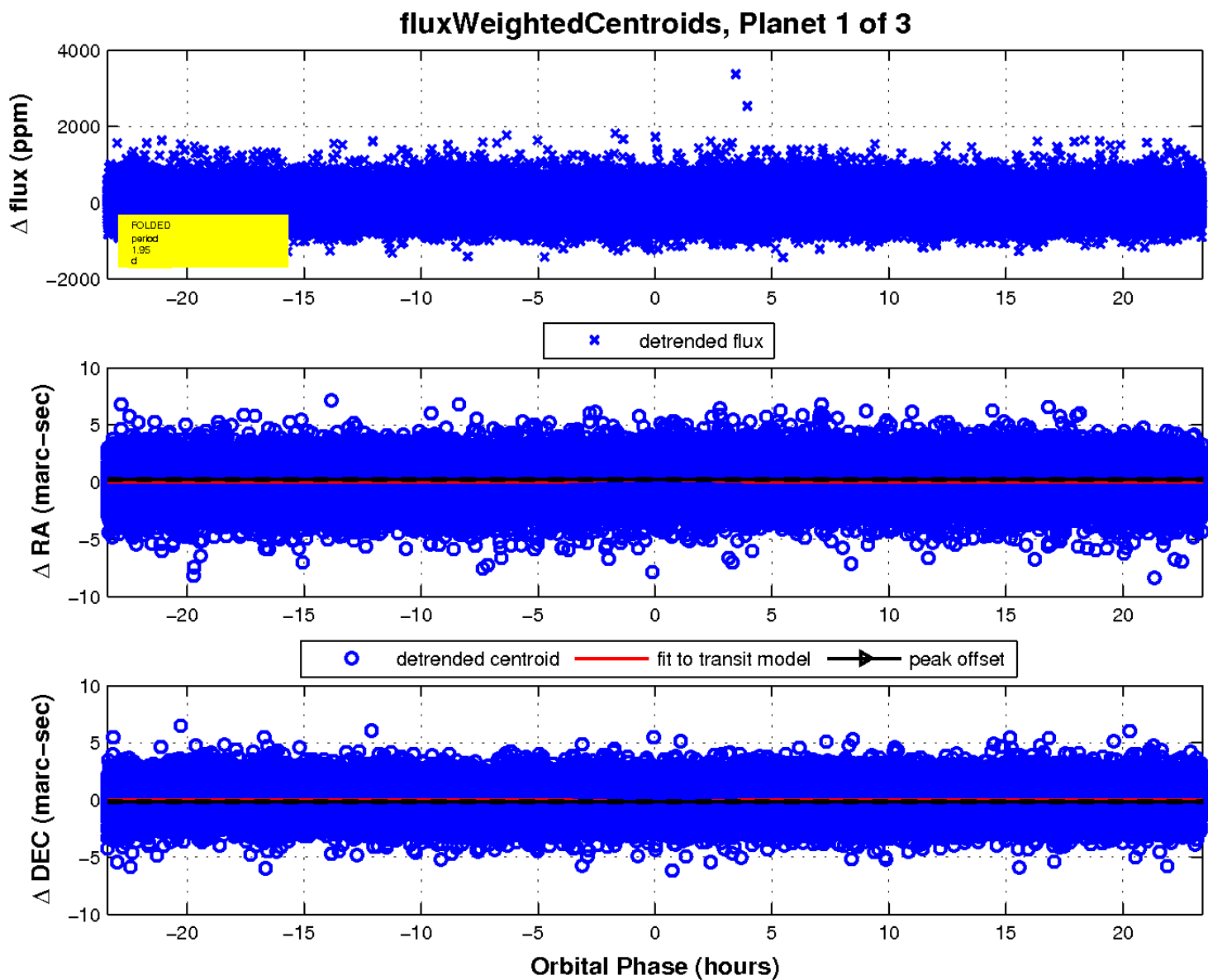
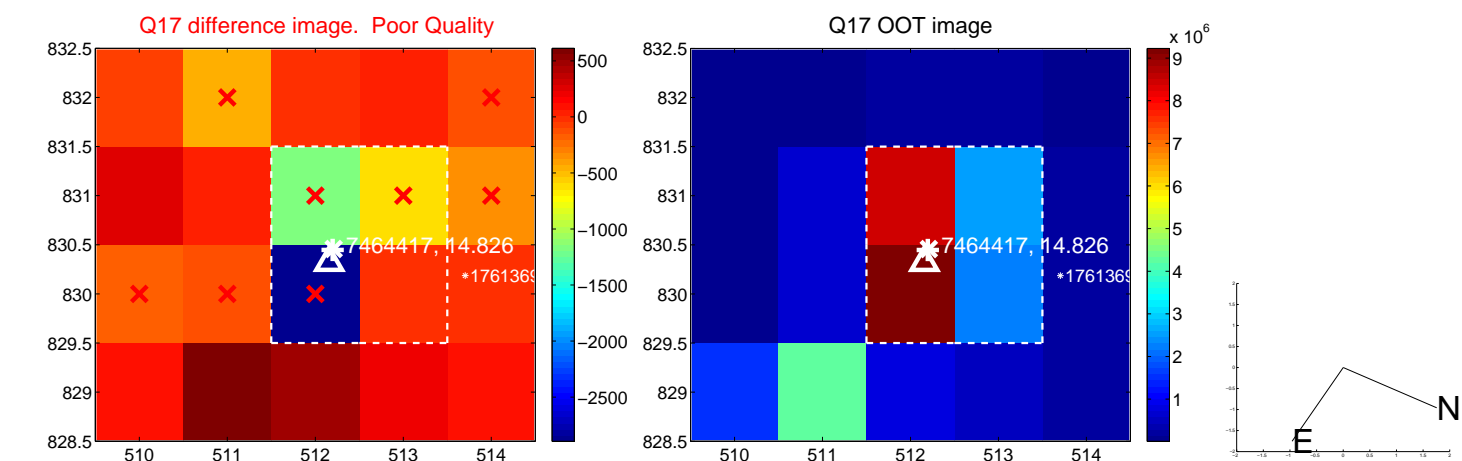
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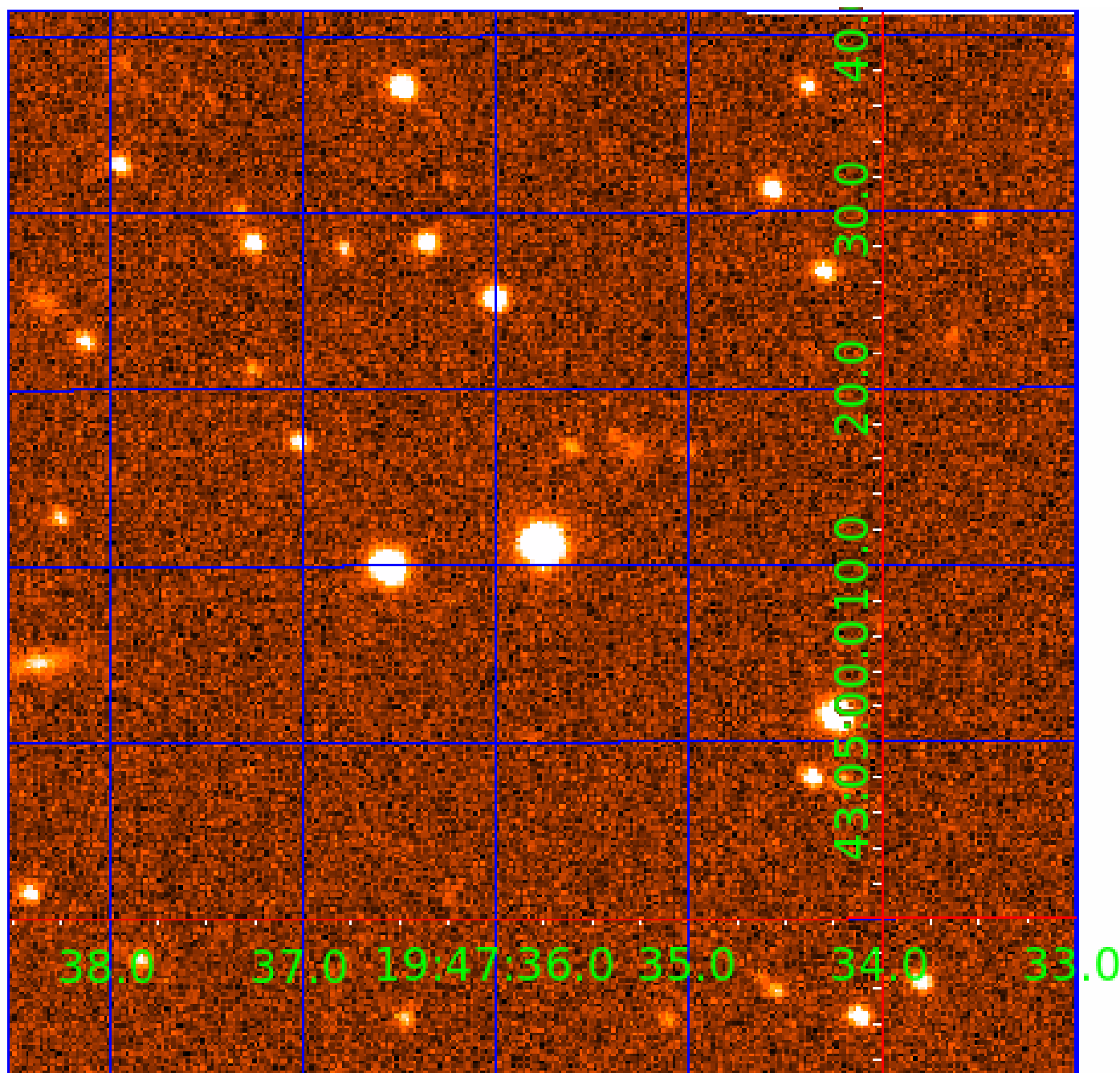


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# UKIRT Image

Declination



# KIC 007464417

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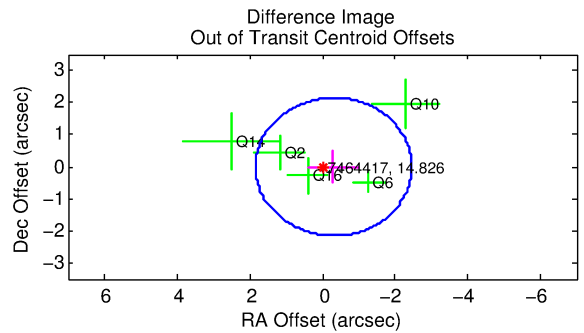
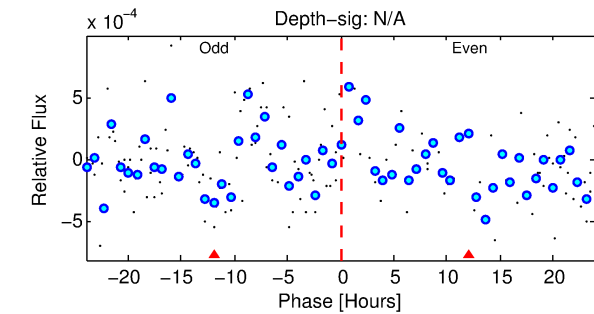
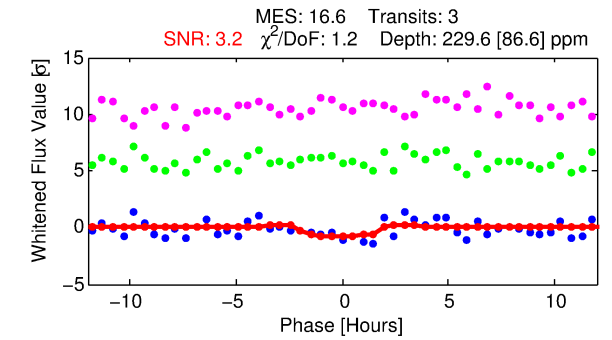
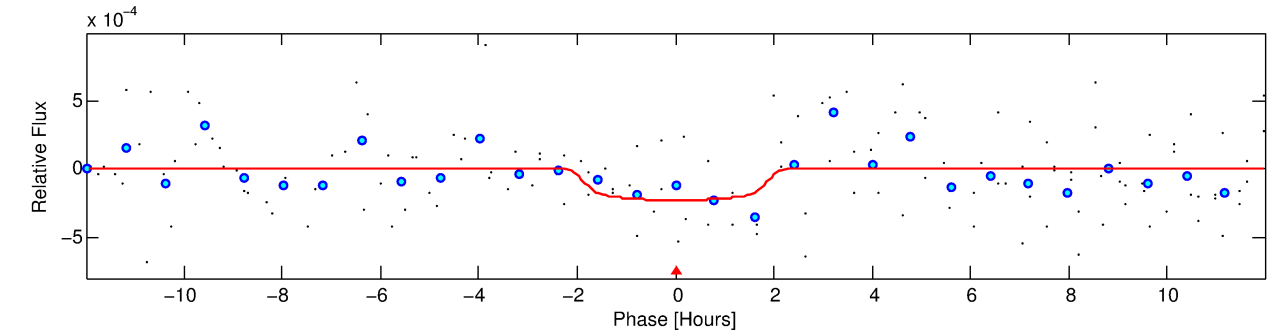
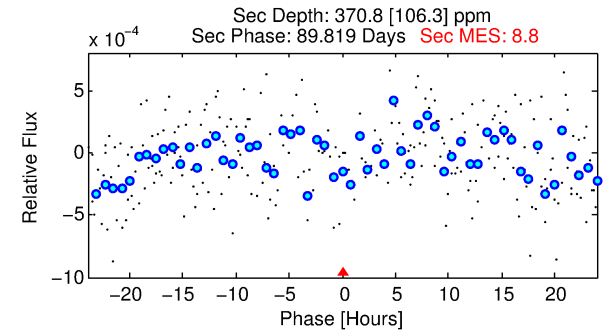
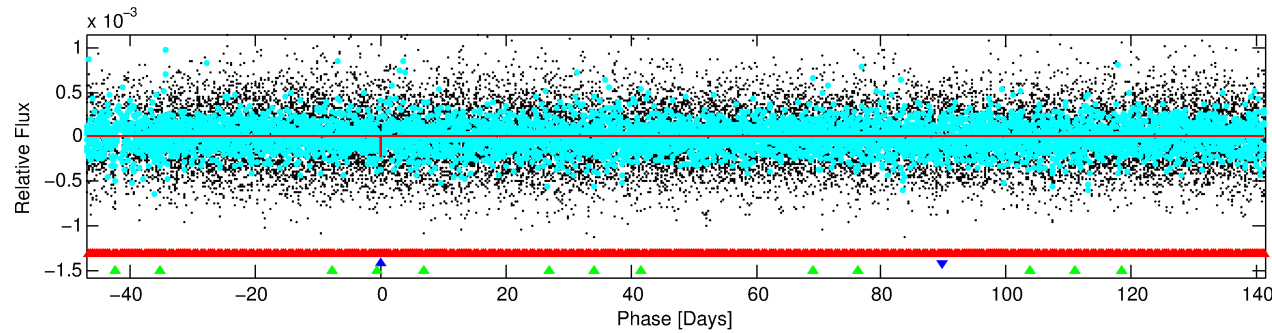
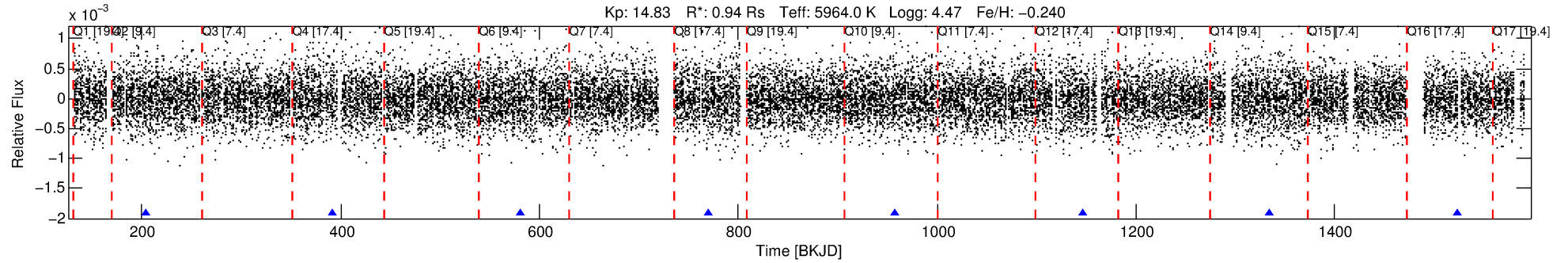
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

Ephemeris Match Information For 007464417-02

No Significant Match Found

# DV One-Page Summary

KIC: 7464417 Candidate: 2 of 3 Period: 188.483 d



## DV Fit Results:

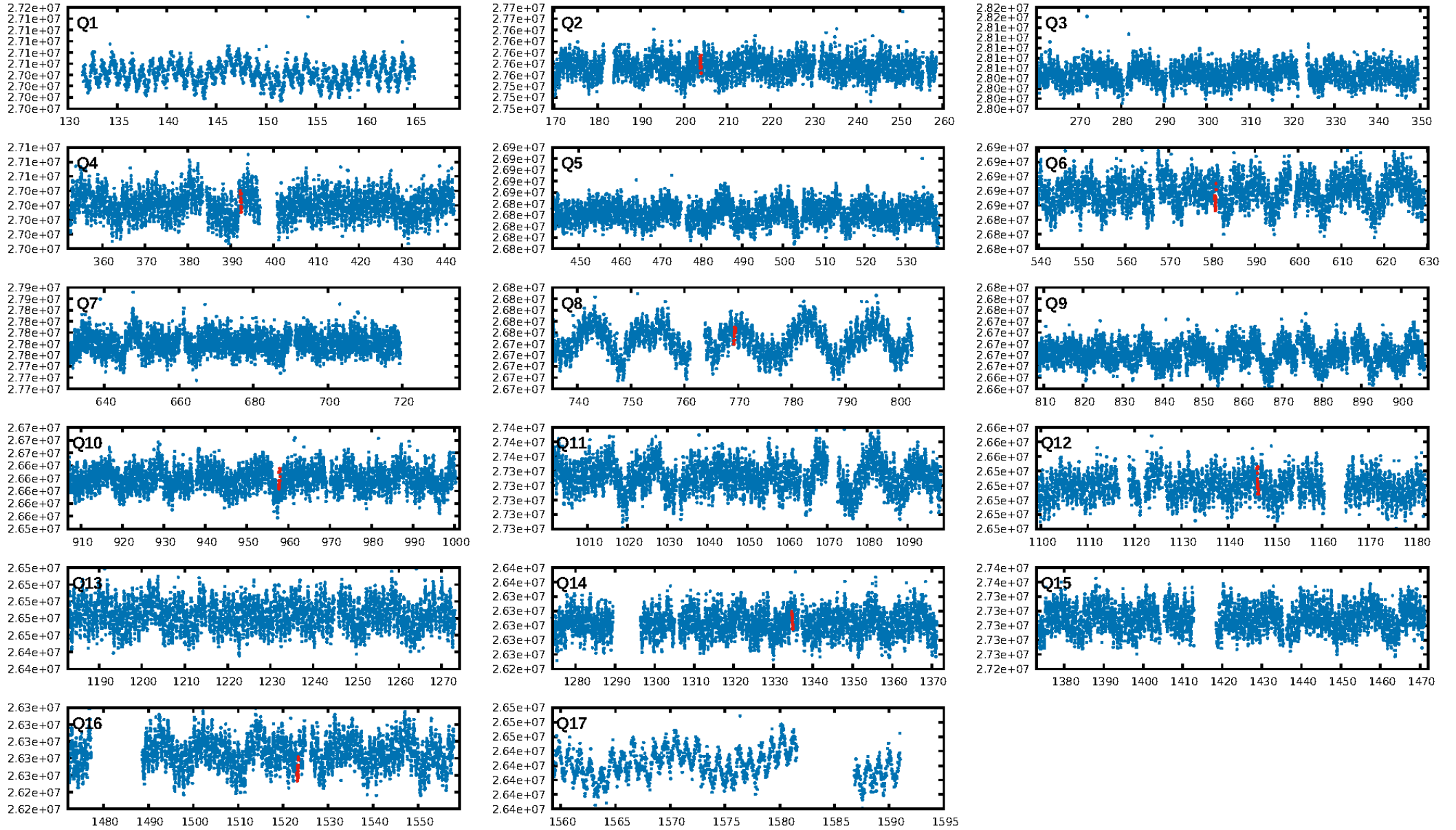
Period = 188.48254 [0.00696] d  
Epoch = 203.8967 [0.0345] BKJD  
Rp/R\* = 0.0155 [0.0362]  
a/R\* = 214.81 [2483.81]  
b = 0.82 [4.59]  
Seff = 2.51 [0.98]  
Teff = 321 [31] K  
Rp = 1.60 [3.76] Re  
a = 0.6342 [0.1612] AU  
Ag = 32074.75 [150147.38] [0.21σ]  
Teffp = 6638 [7748] K [0.82σ]

## DV Diagnostic Results:

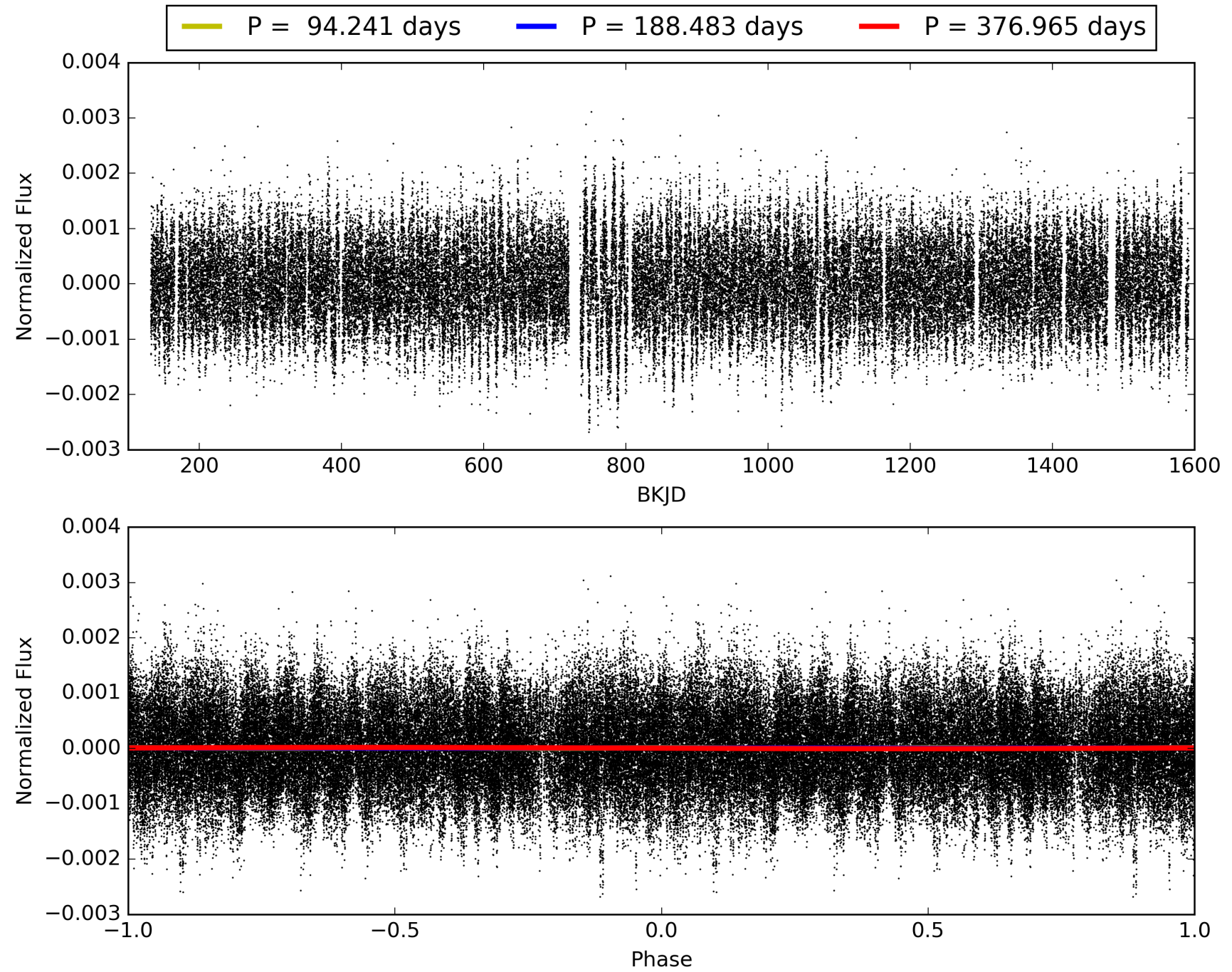
ShortPeriod-sig: 100.0% [179.17σ]  
LongPeriod-sig: N/A  
ModelChiSquare2-sig: 28.6%  
ModelChiSquareGof-sig: 94.4%  
Bootstrap-pfa: 2.59e-32  
RollingBand-fgt: 1.00 [3/3]  
GhostDiagnostic-chr: -10.38  
Centroid-sig: 27.1%  
Centroid-so: 4.937 arcsec [1.77σ]  
OotOffset-rm: 0.307 arcsec [0.43σ]  
KicOffset-rm: 0.150 arcsec [0.18σ]  
OotOffset-st: 4/0/1/0 [5]  
KicOffset-st: 4/0/1/0 [5]  
DiffImageQuality-fgm: 0.40 [2/5]  
DiffImageOverlap-fno: 0.38 [3/8]



# TCE 007464417-02, PDC Light Curves

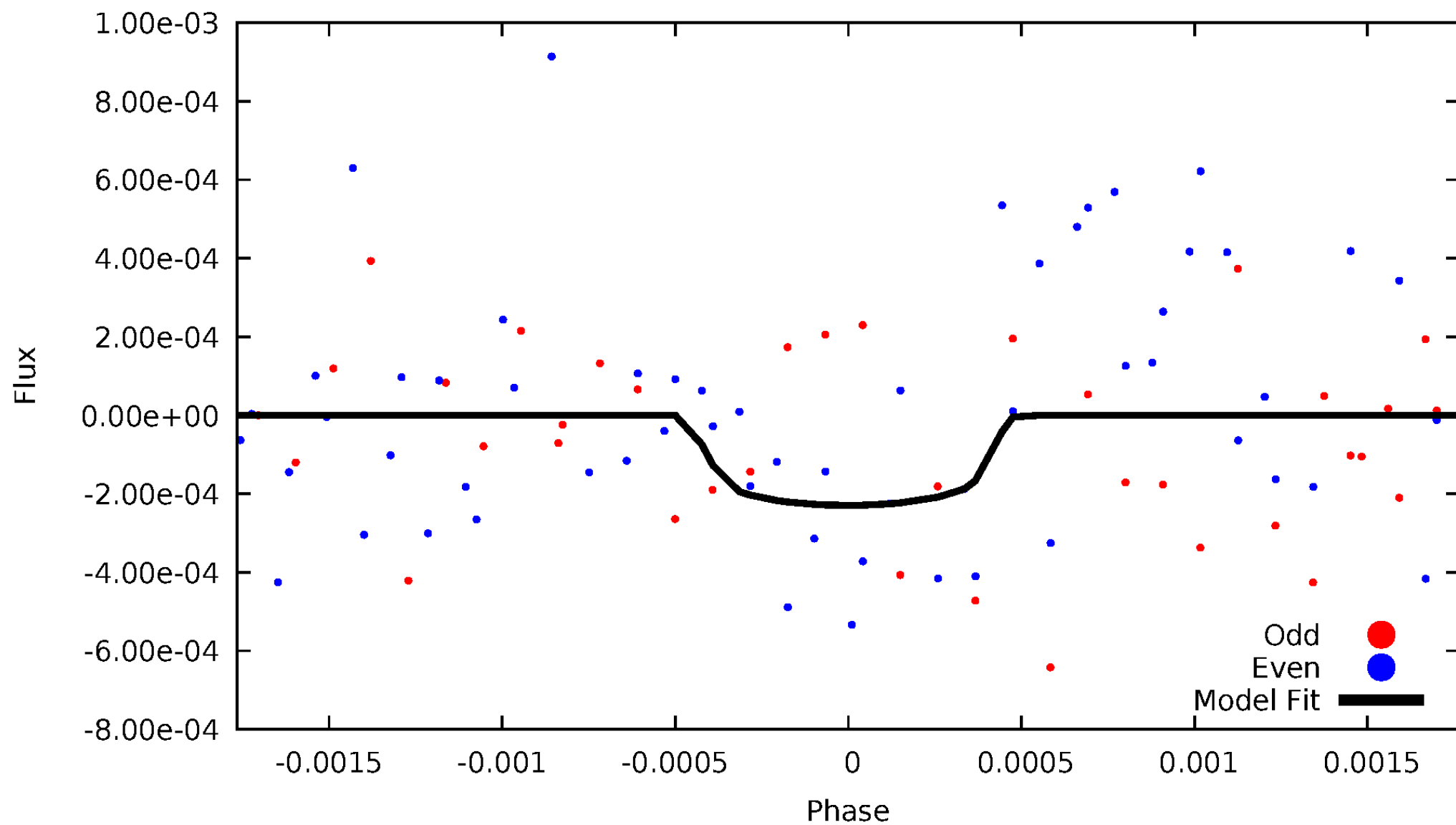


# TCE 007464417-02



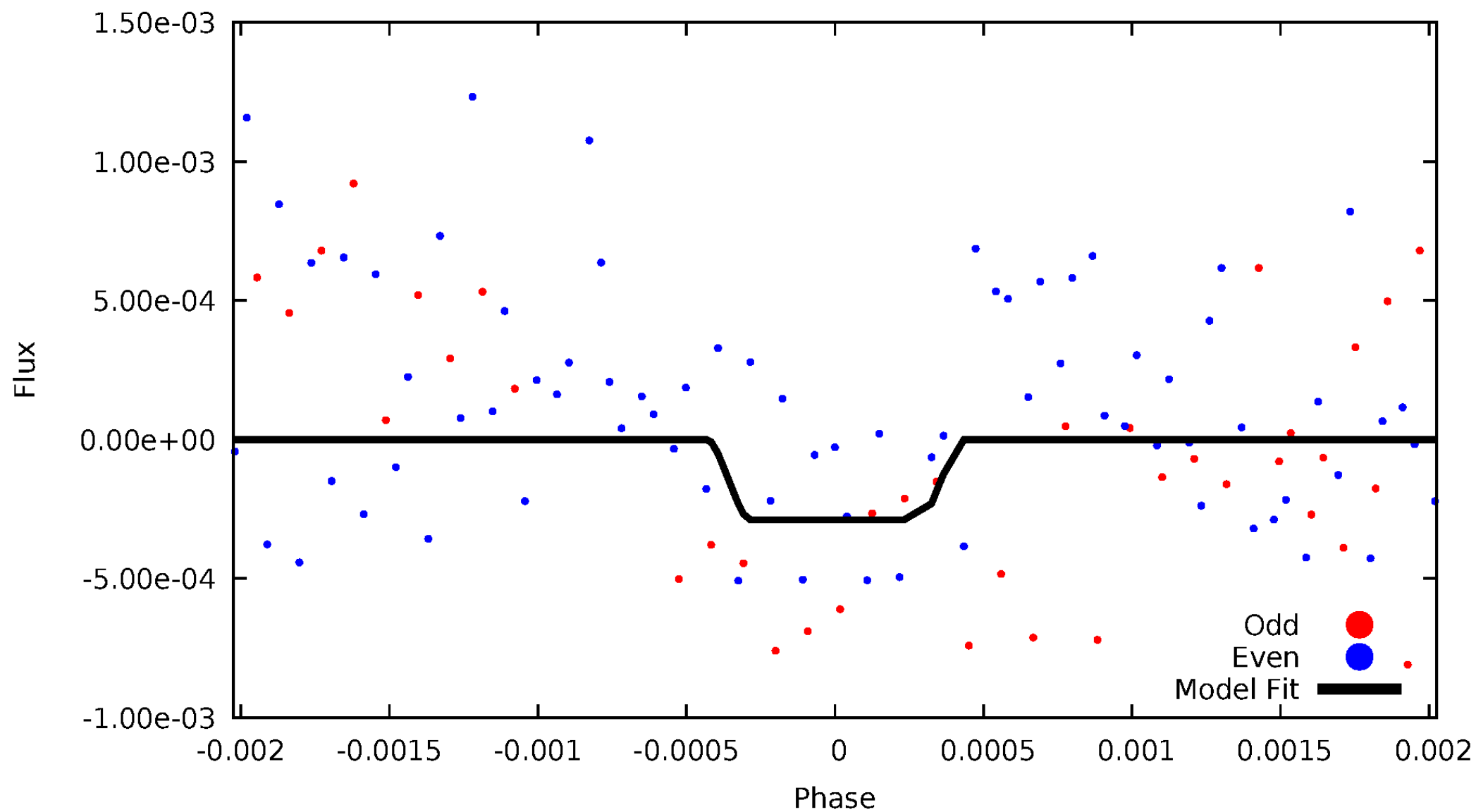
# DV Odd/Even

TCE 007464417-02



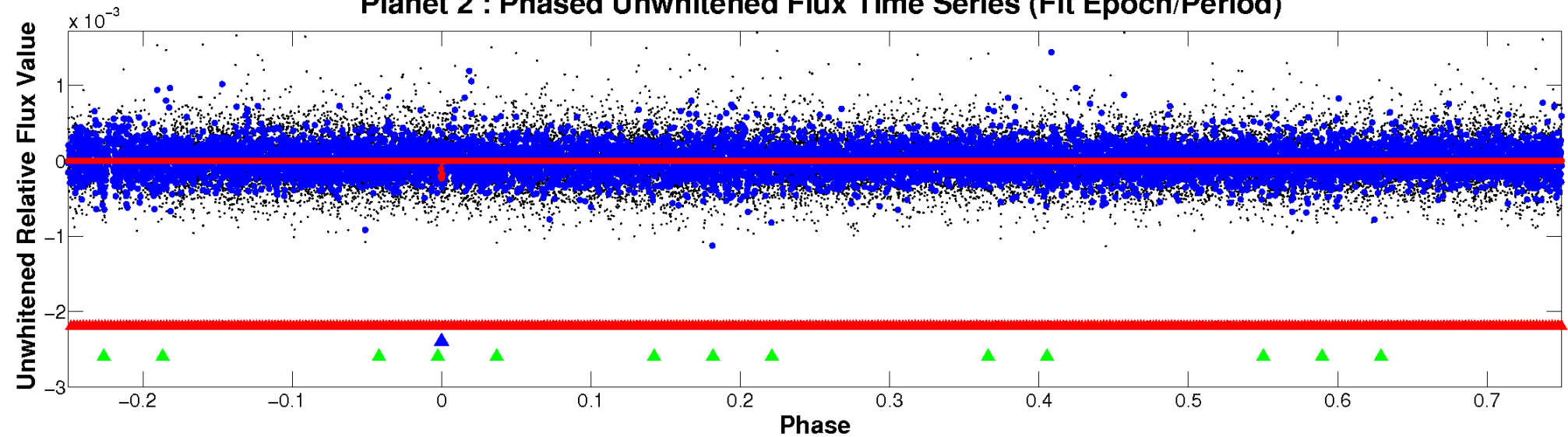
# ALT Odd/Even

TCE 007464417-02

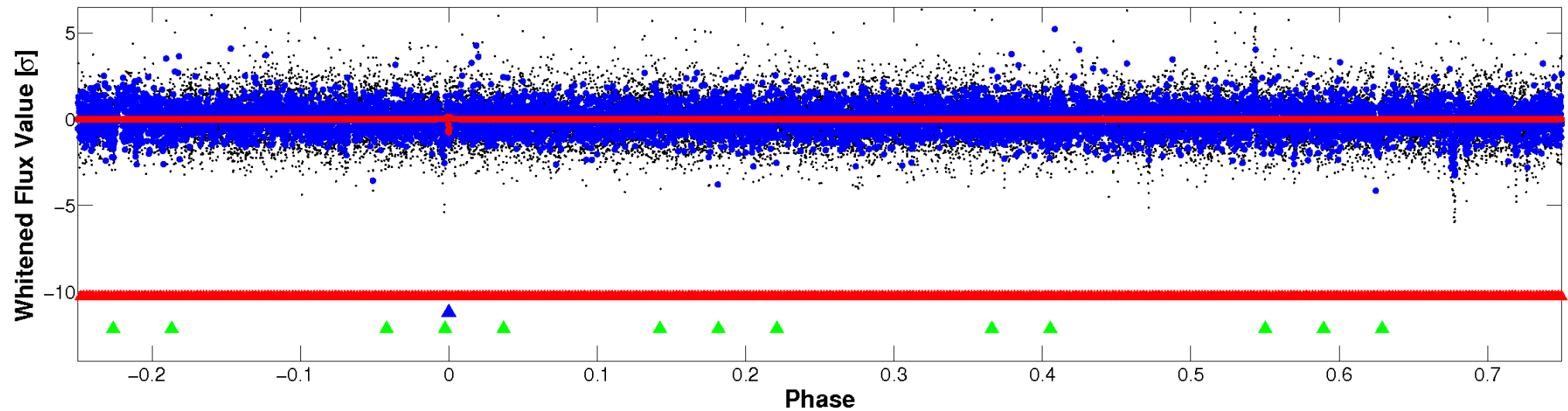


# Non-Whitened Vs. Whitened Light Curve

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



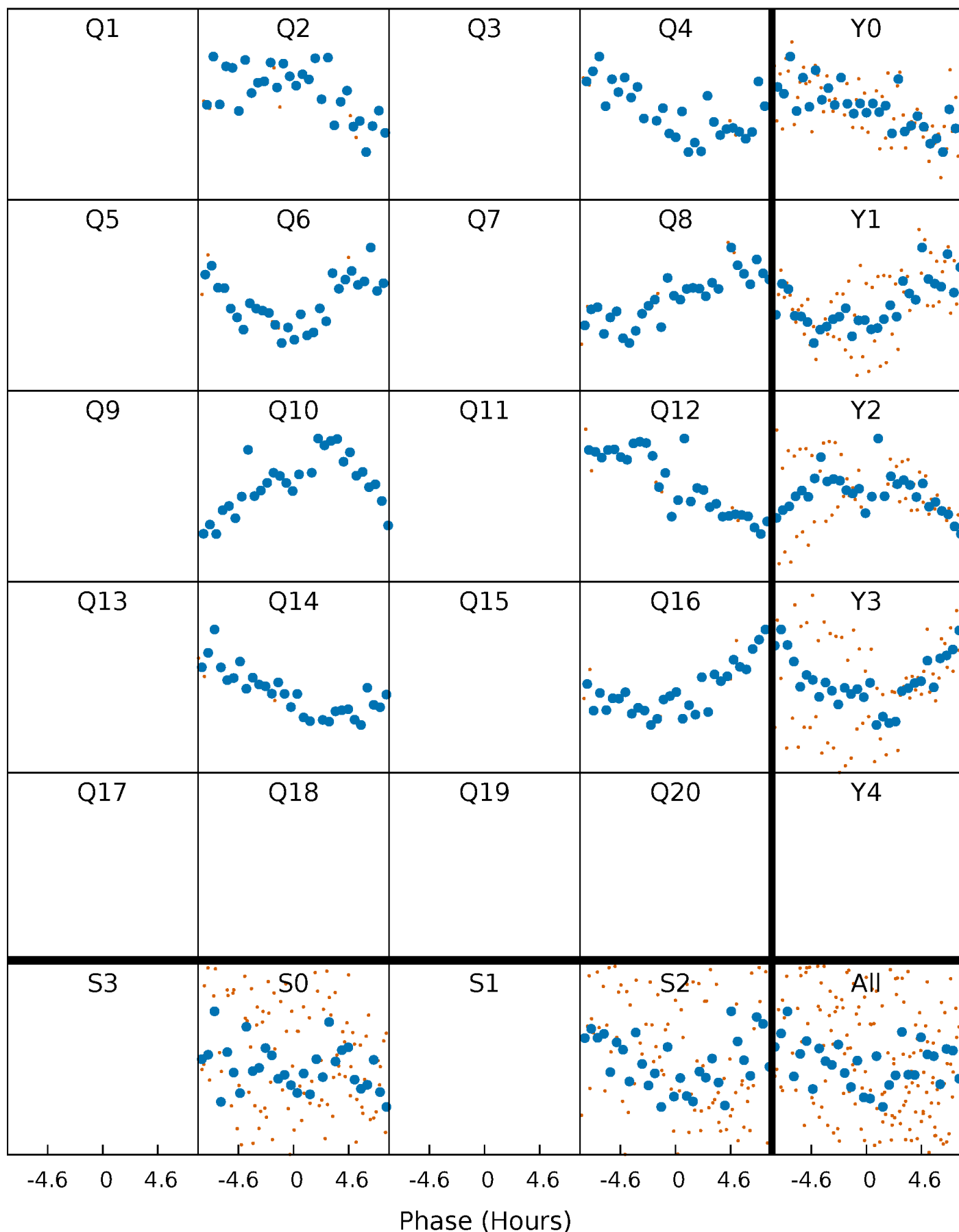
## Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)





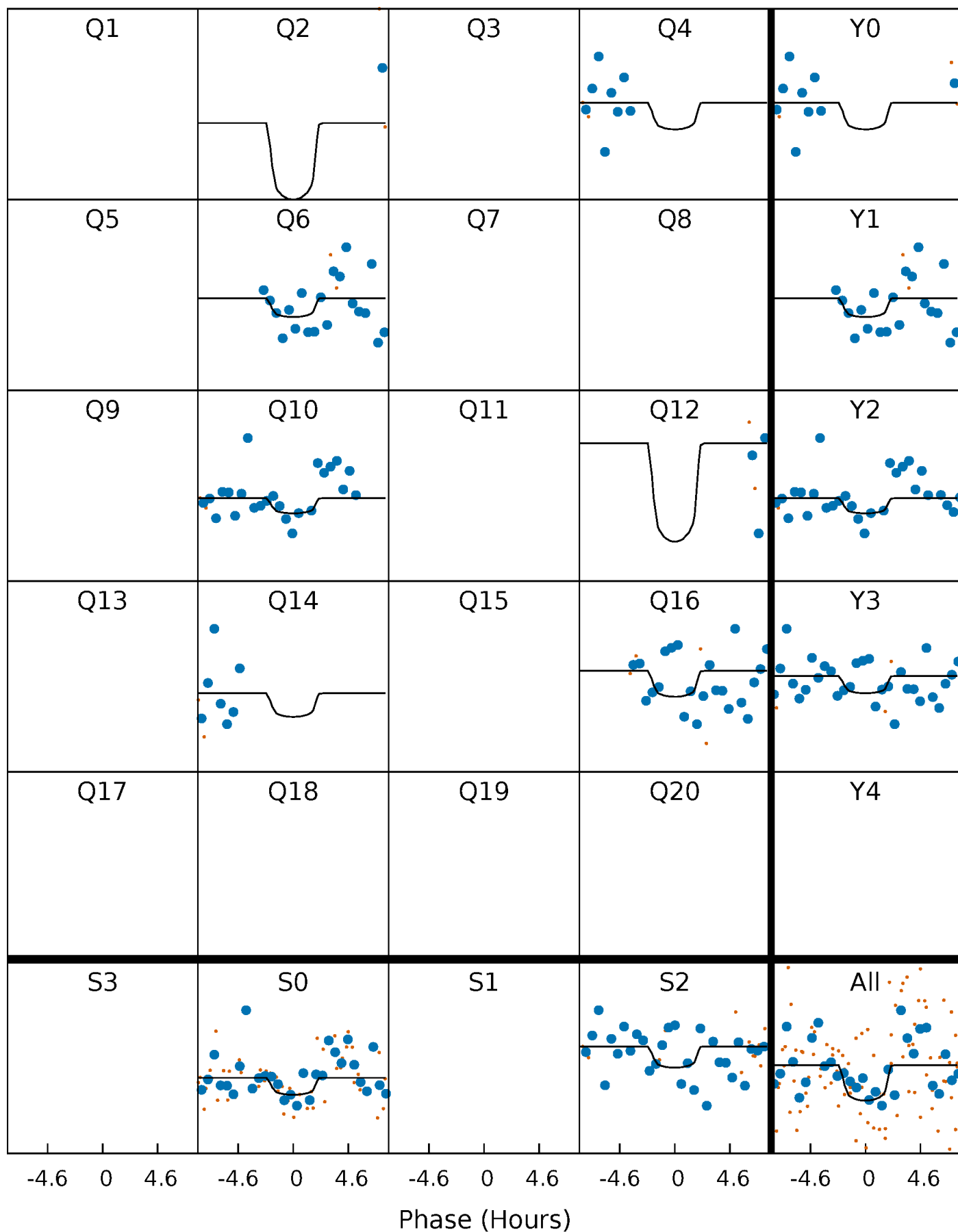
# PDC Quarter-Phased Transit Curves

TCE 007464417-02 P=188.482541 Days  $T_0=203.896698$  (BKJD)



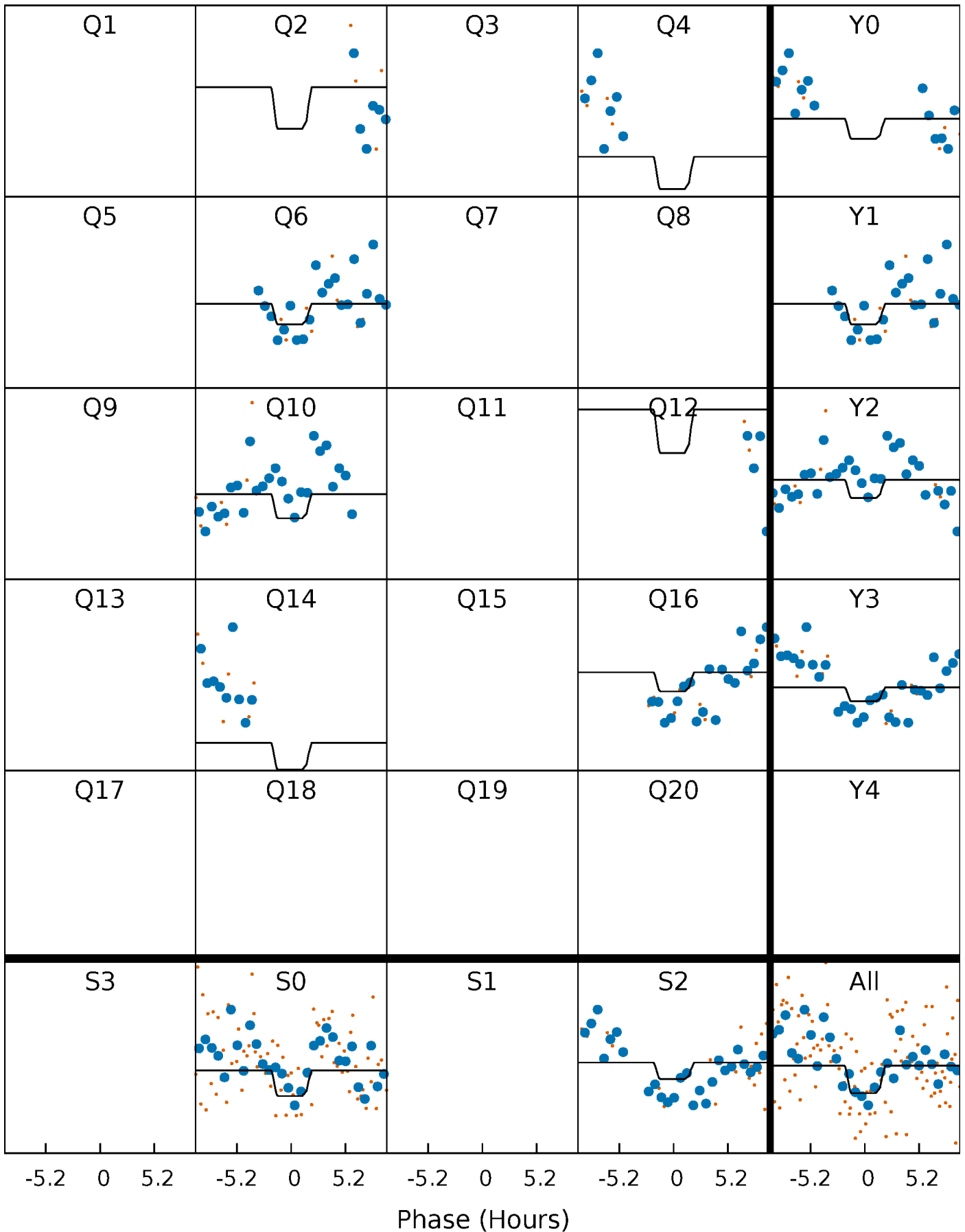
# DV Quarter-Phased Transit Curves

TCE 007464417-02 P=188.482541 Days  $T_0=203.896698$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

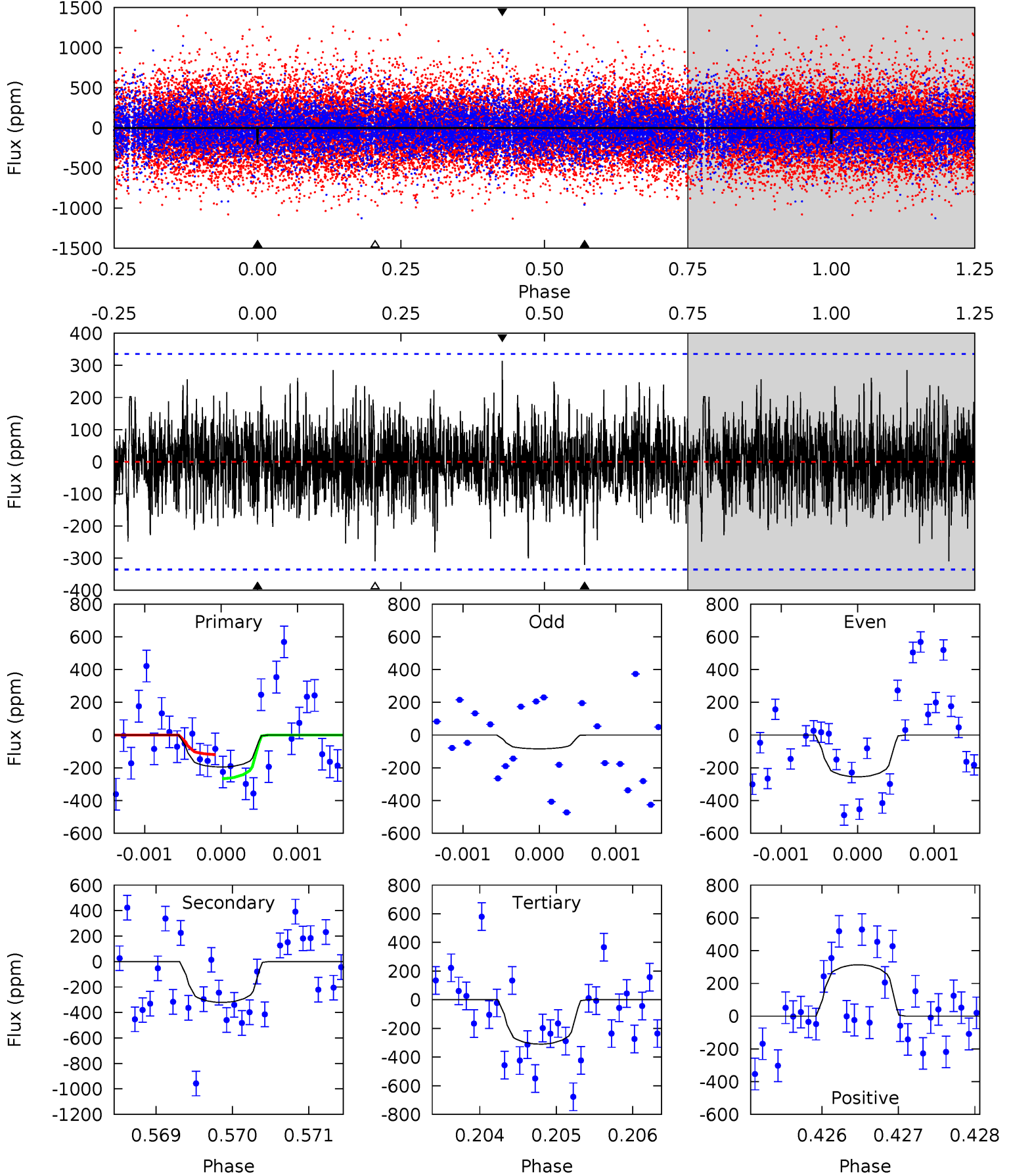
TCE 007464417-02 P=188.465535 Days  $T_0=203.959050$  (BKJD)



# DV Model-Shift Uniqueness Test

007464417-02,  $P = 188.482541$  Days,  $E = 15.414157$  Days

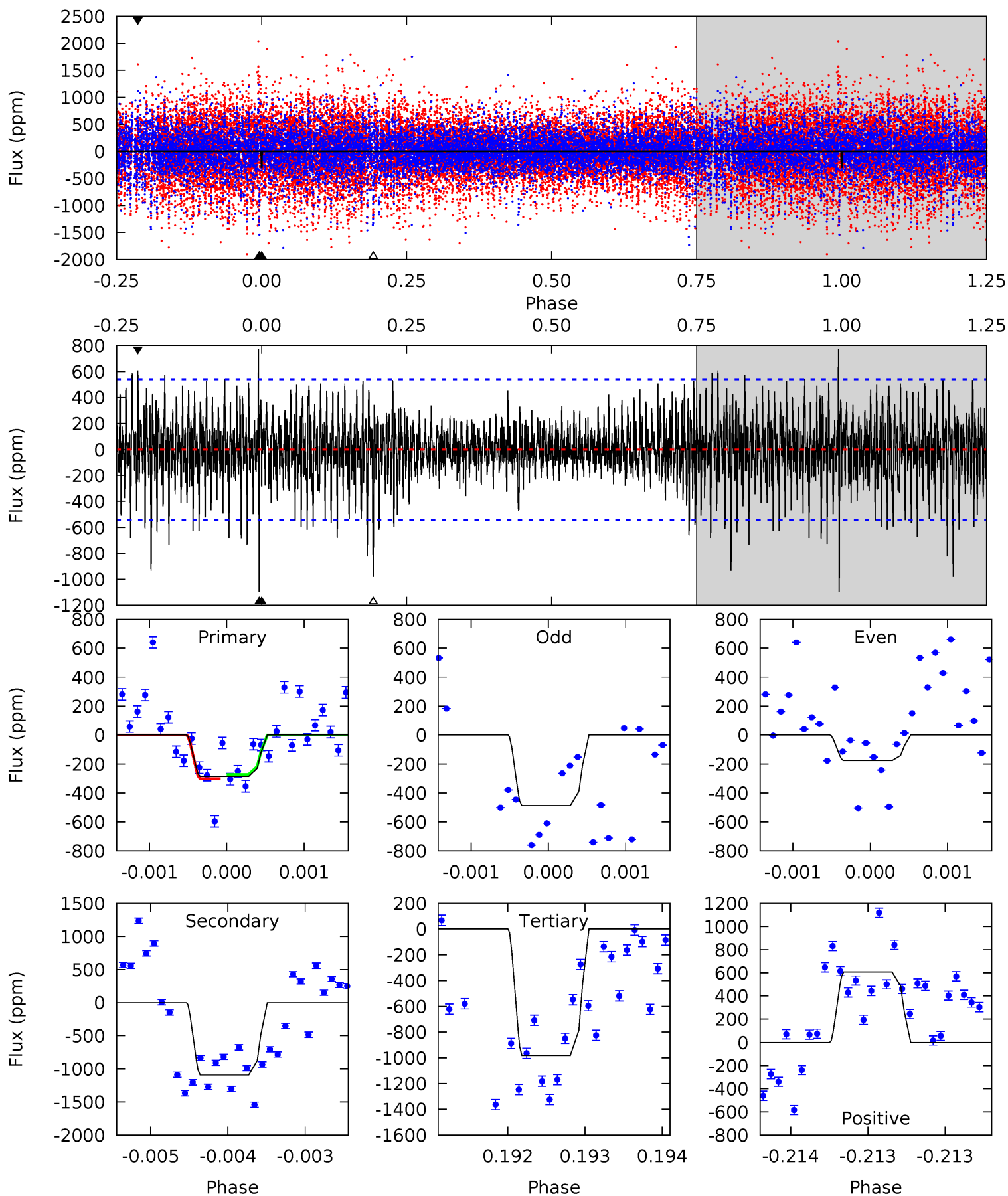
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
3.19	5.23	5.05	5.11	5.47	3.32	1.26	-1.86	-1.93	0.18	0.12	1.35	0.88	0.49	1.20



# Alt Model-Shift Uniqueness Test

007464417-02, P = 188.465535 Days, E = 15.493515 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
2.90	11.1	9.94	6.17	5.48	3.34	1.86	-7.05	-3.27	1.15	4.92	1.50	0.76	0.41	0.15





### Stellar Parameters For KIC 007464417

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	$5964^{+161}_{-196}$	$4.470^{+0.067}_{-0.202}$	$-0.240^{+0.300}_{-0.300}$	$0.943^{+0.285}_{-0.114}$	$0.957^{+0.118}_{-0.118}$	$1.606^{+0.550}_{-0.795}$
	+3%/-3%	+1%/-5%	+125%/-125%	+30%/-12%	+12%/-12%	+34%/-49%
Source	PHO1	KIC0	KIC0	DSEP		

KIC = Kepler Input Catalog; PHO = Photometry; SPE = Spectroscopy; AST = Asteroseismology  
 TRA = Transits; DESP = Dartmouth Models; MULT = Multiple Models

### Secondary Eclipse Parameters for KIC 007464417-02 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	$A_{obs}$
DV	$-321 \pm 61$	$3.34^{+3.19}_{-2.25}$	$455^{+31}_{-23}$	$4643^{+3487}_{-1010}$	$6379^{+48312}_{-4789}$
Alt.	$-1095 \pm 99$	$3.53^{+3.24}_{-2.43}$	$457^{+30}_{-23}$	$6019^{+6734}_{-1493}$	$19678^{+176259}_{-14364}$

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

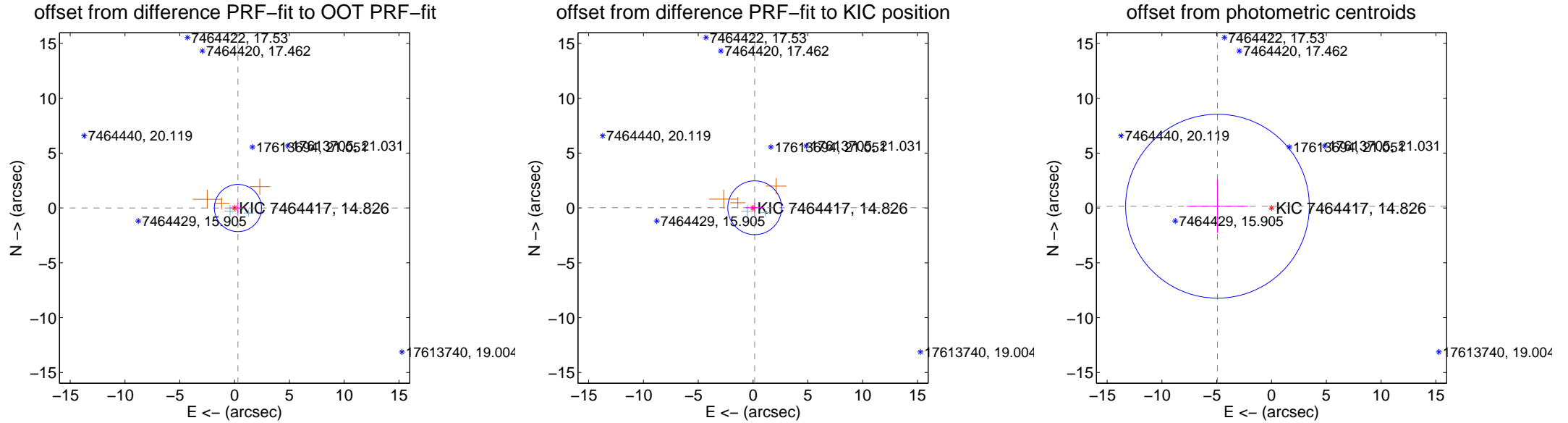
## DV Centroid Data

Supplemental centroid analysis for 007464417-02. Kepler magnitude: 14.83. Transit SNR 3.18

There are 2 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	$0.307 \pm 0.717$	0.43	$-0.307 \pm 0.717$	$-0.007 \pm 0.475$
PRF-fit source offset from KIC position	$0.150 \pm 0.818$	0.18	$-0.149 \pm 0.811$	$0.018 \pm 0.448$
photometric centroid source offset	$4.94 \pm 2.79$	1.77	$4.93 \pm 2.79$	$0.16 \pm 2.44$



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.

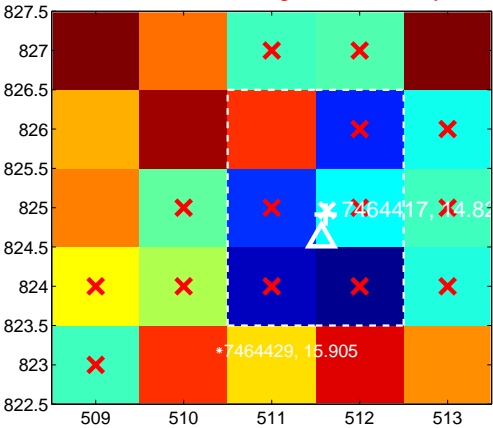
Q1 no difference image



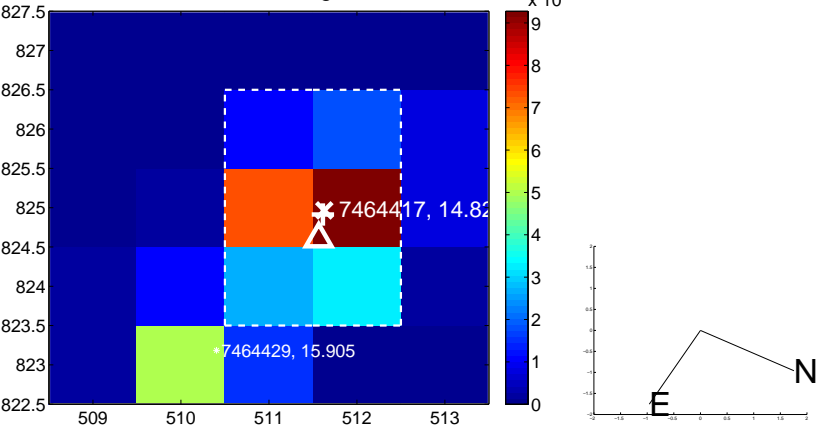
Q1 no OOT image



Q2 difference image. Poor Quality



Q2 OOT image



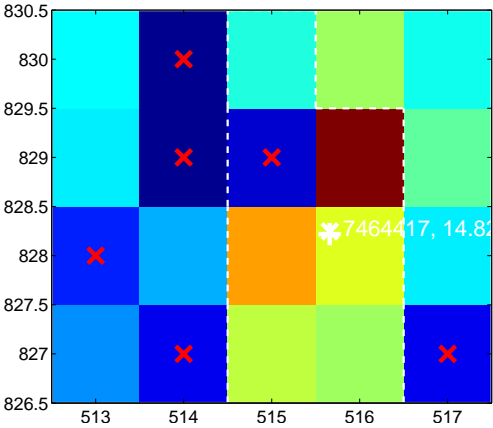
Q3 no difference image



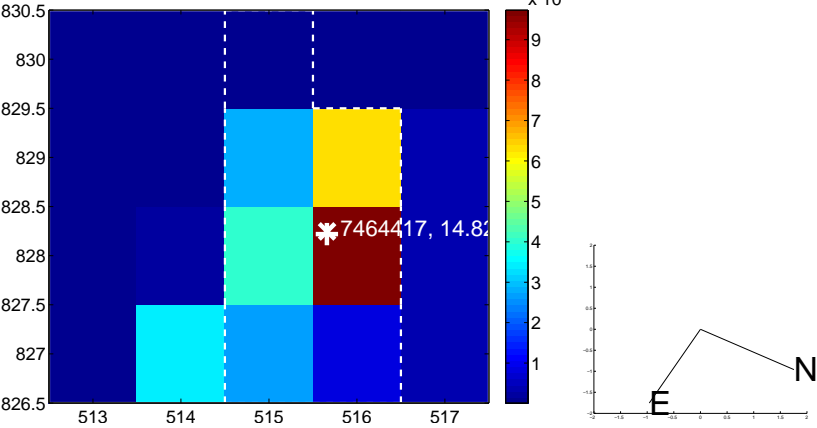
Q3 no OOT image



Q4 difference image. Poor Quality



Q4 OOT image



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

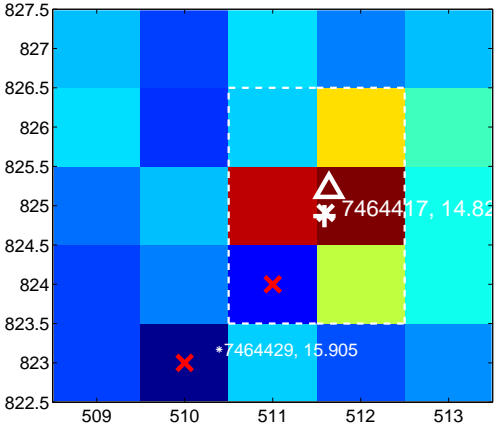
Q5 no difference image



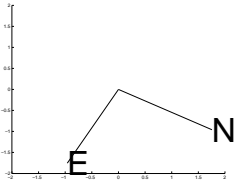
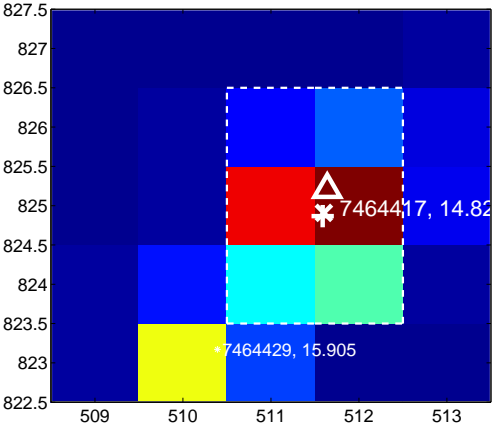
Q5 no OOT image



Q6 difference image



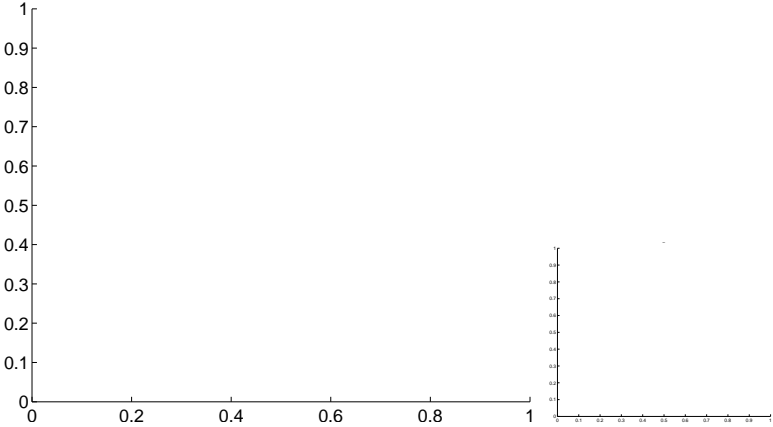
Q6 OOT image



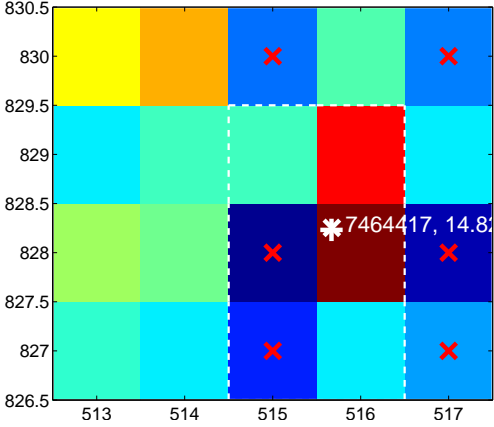
Q7 no difference image



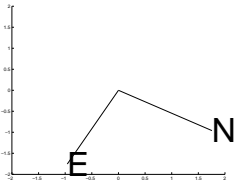
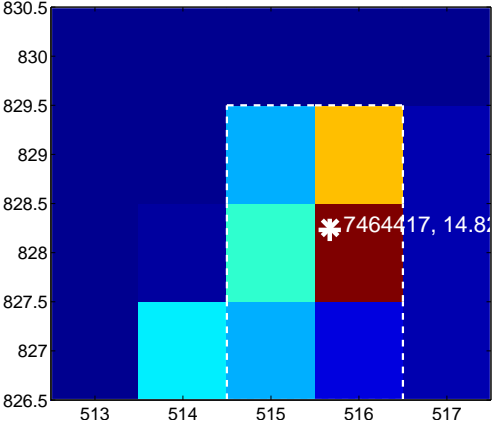
Q7 no OOT image



Q8 difference image. Poor Quality



Q8 OOT image

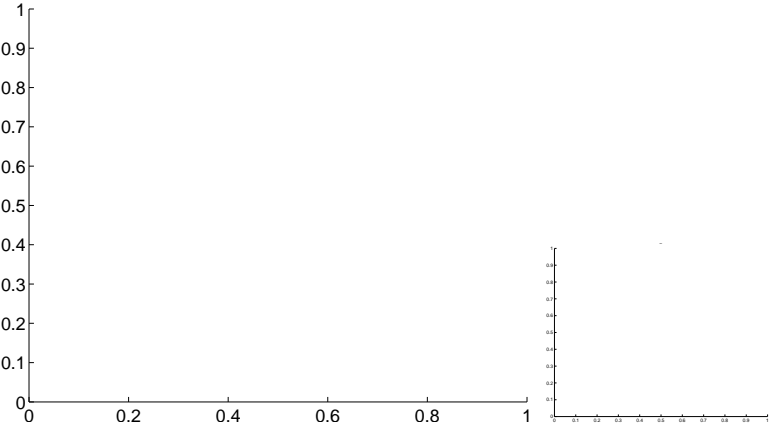


white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.

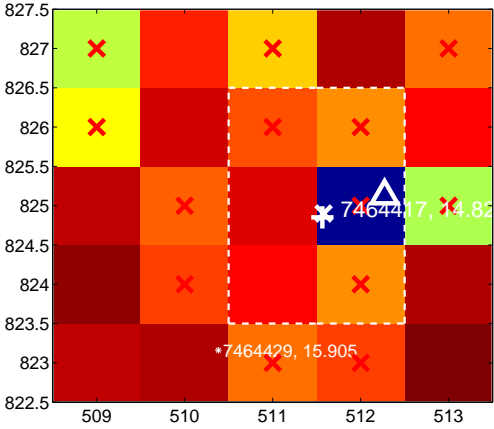
Q9 no difference image



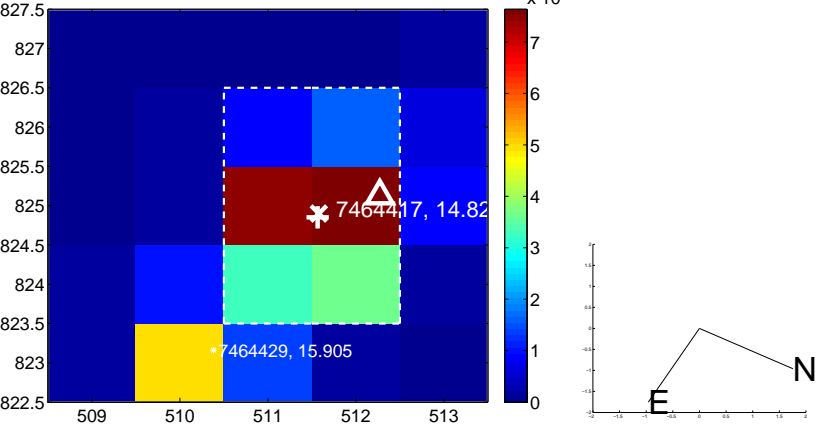
Q9 no OOT image



Q10 difference image. Poor Quality



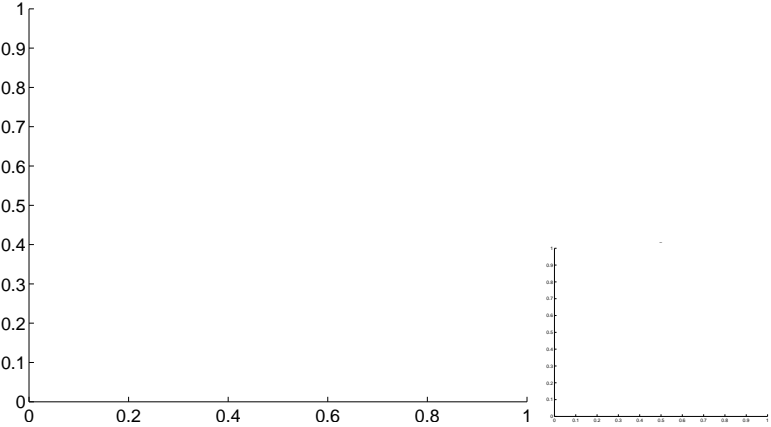
Q10 OOT image



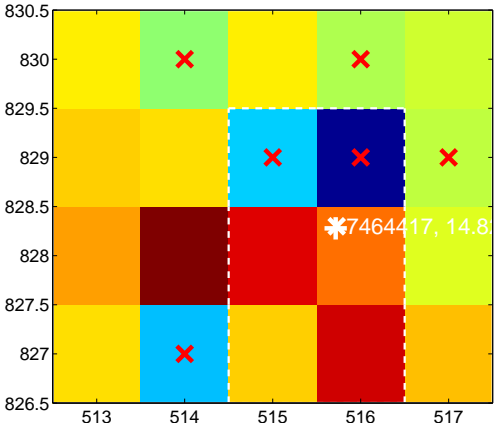
Q11 no difference image



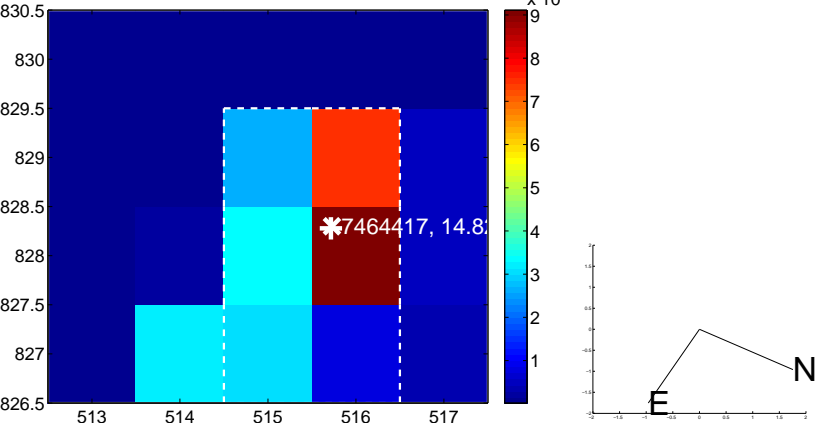
Q11 no OOT image



Q12 difference image. Poor Quality



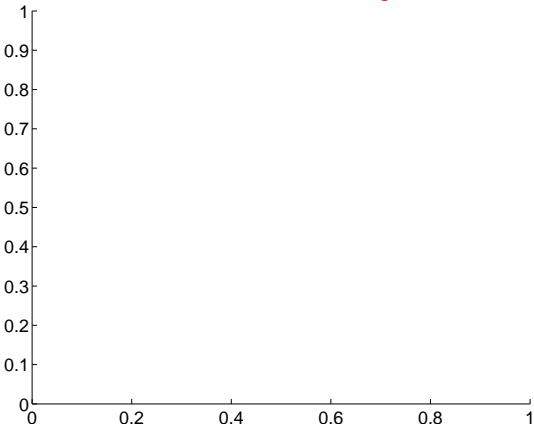
Q12 OOT image





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

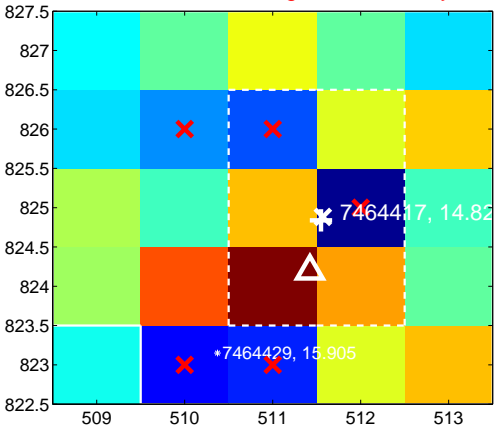
Q13 no difference image



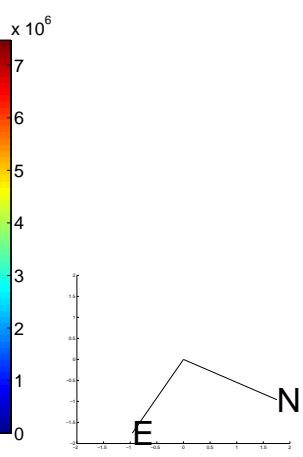
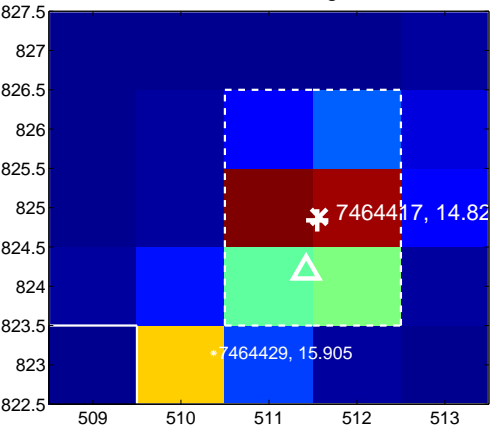
Q13 no OOT image



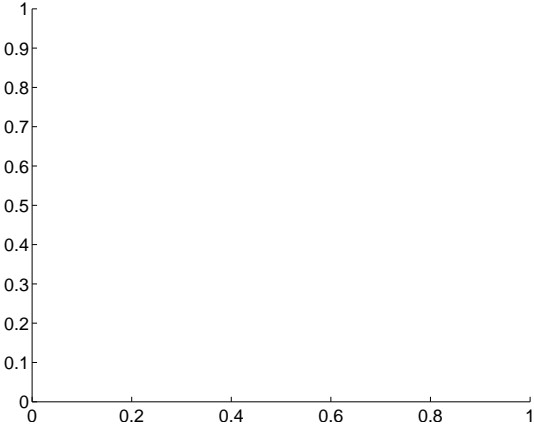
Q14 difference image. Poor Quality



Q14 OOT image



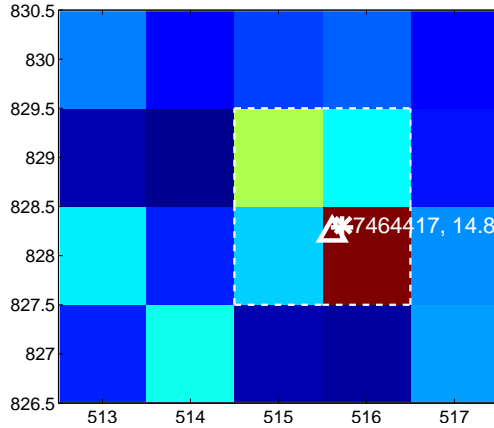
Q15 no difference image



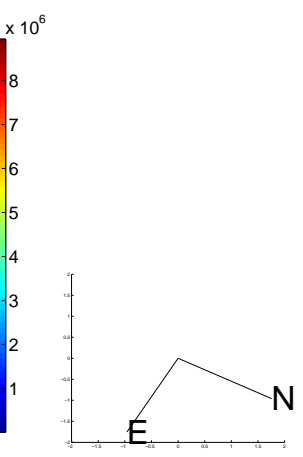
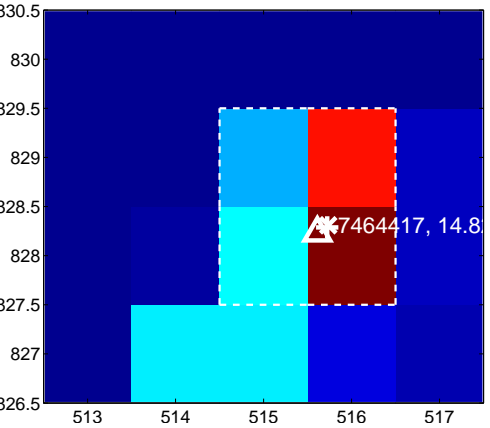
Q15 no OOT image



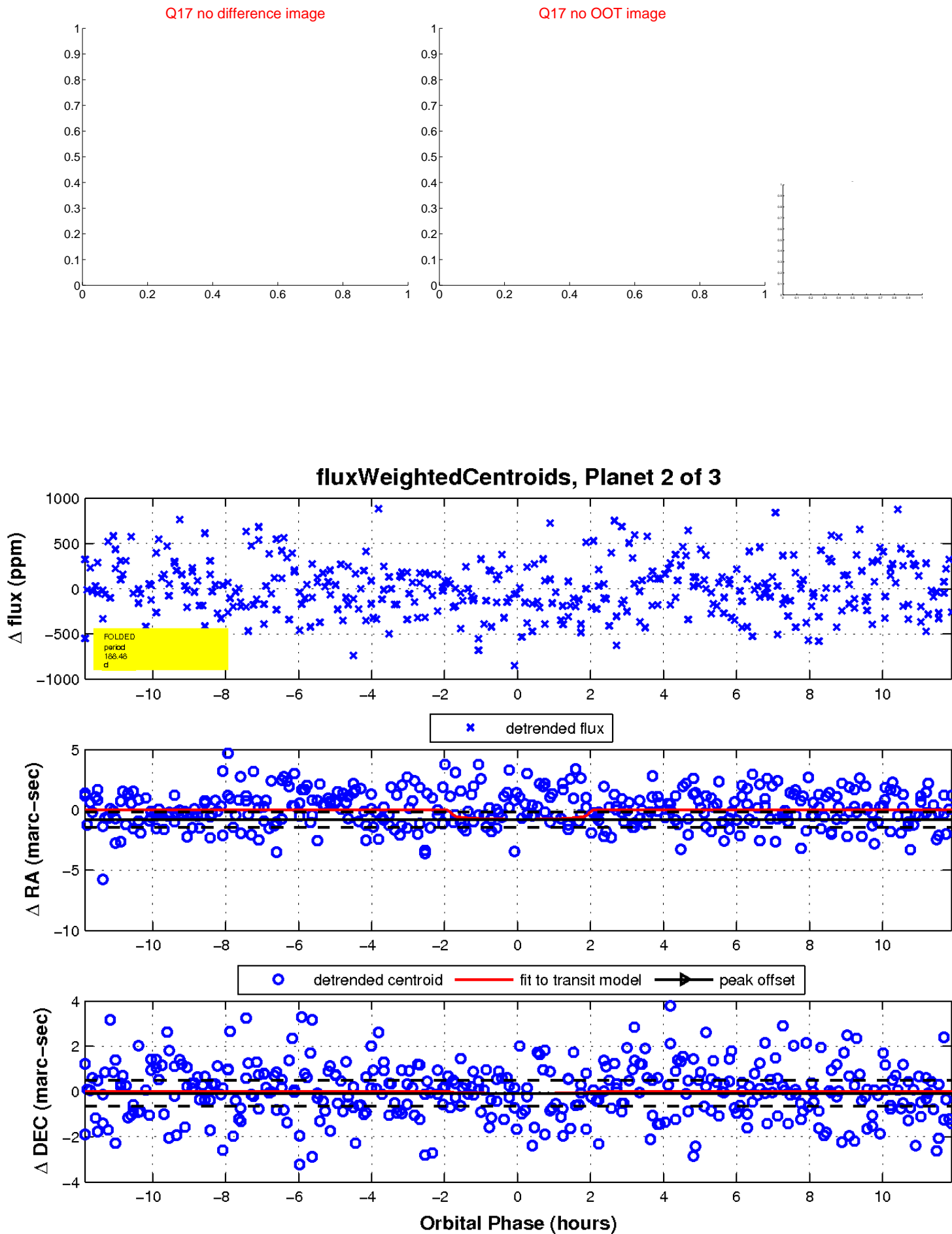
Q16 difference image



Q16 OOT image

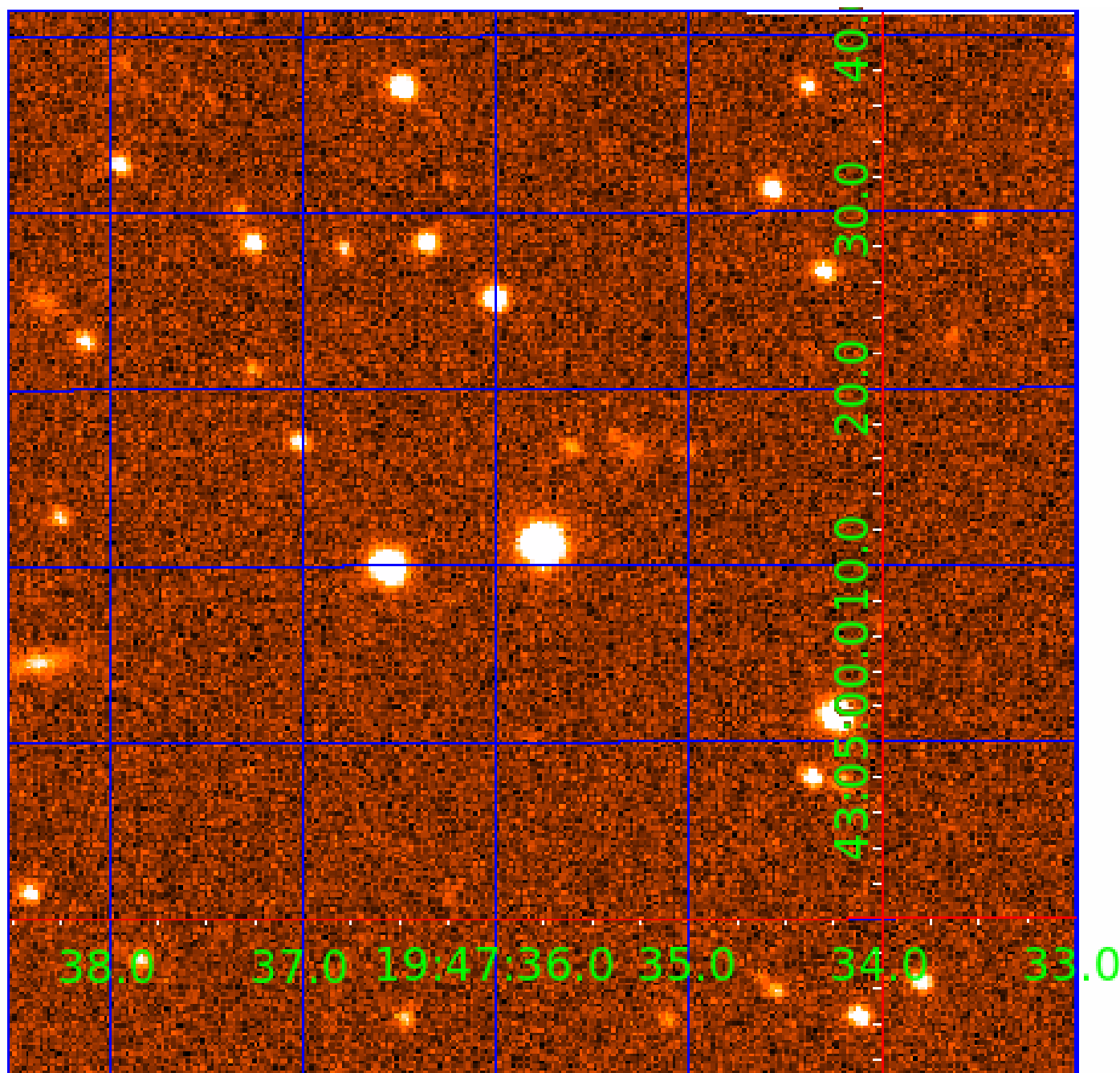


white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



# UKIRT Image

Declination



# KIC 007464417

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
007464417-01	OBS	No	1.951081	133.345683	69.2	9.418	10.5	12.5	0.94	5964	1.63	1110.93
007464417-02	OBS	No	188.482541	203.896698	229.6	3.993	16.6	3.2	0.94	5964	1.60	2.51
007464417-03	OBS	No	111.604084	210.850692	216.1	9.492	7.9	3.8	0.94	5964	1.51	5.04

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
007464417-01	OBS	FP	0.00	1	0	0	0	SWEET_NTL—LPP_DV—LPP_ALT—CENT_FEW_DIFFS
007464417-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL_SKYE_TRACKER—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV— MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_FEW_DIFFS
007464417-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_CHASES—TRANS_GAPPED—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT— MOD_POS_ALT—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.

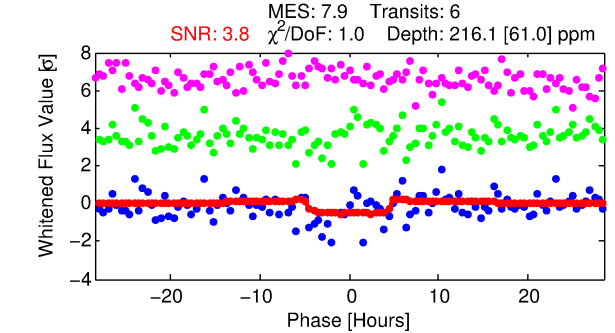
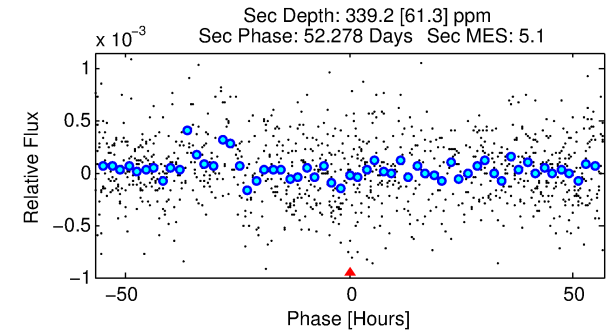
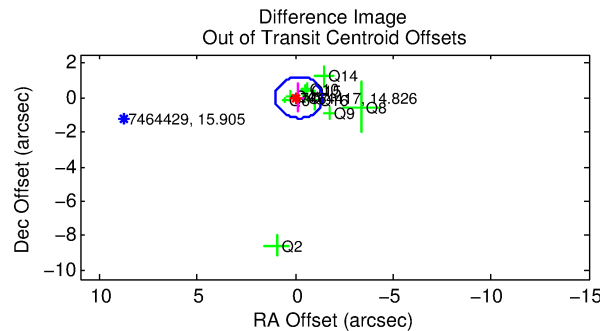
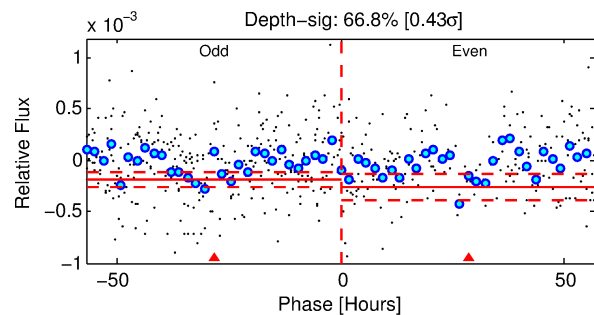
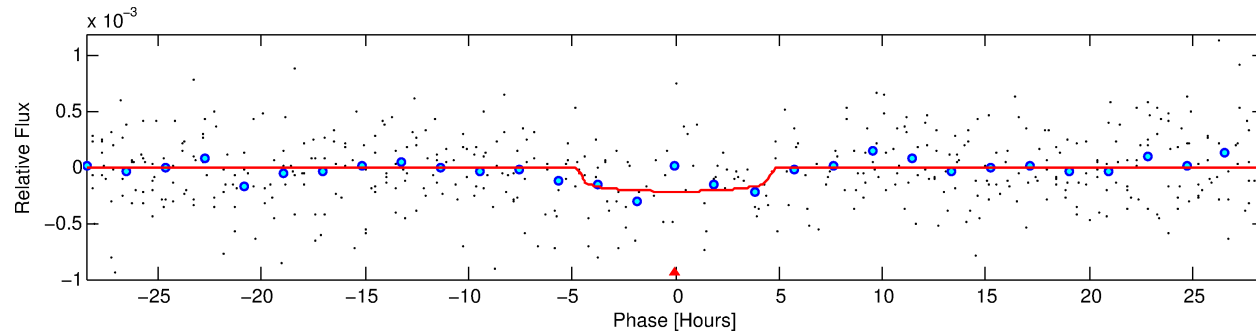
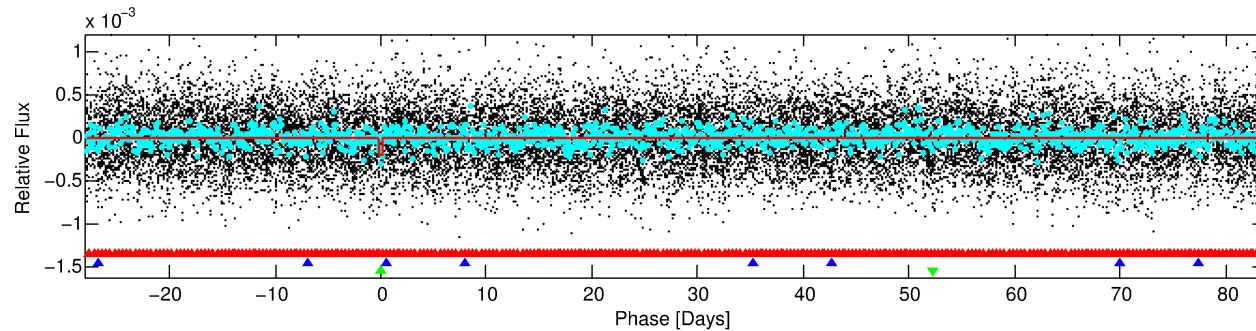
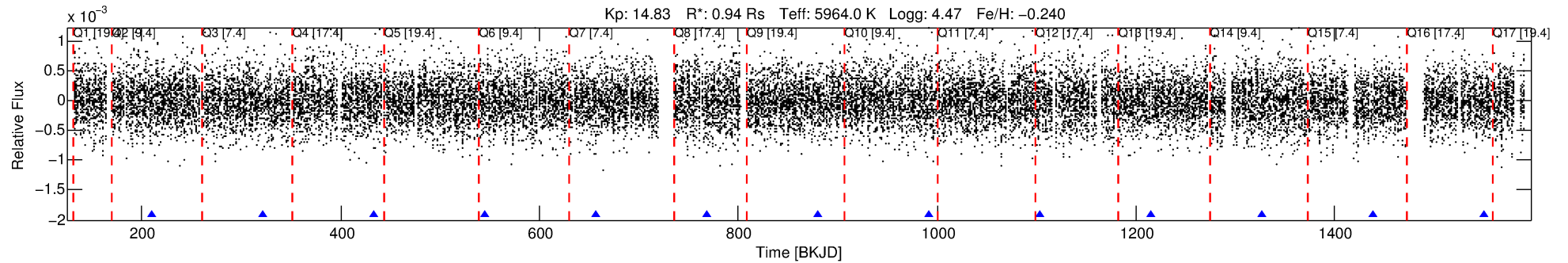
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

Ephemeris Match Information For 007464417-03

No Significant Match Found

# DV One-Page Summary

KIC: 7464417 Candidate: 3 of 3 Period: 111.604 d



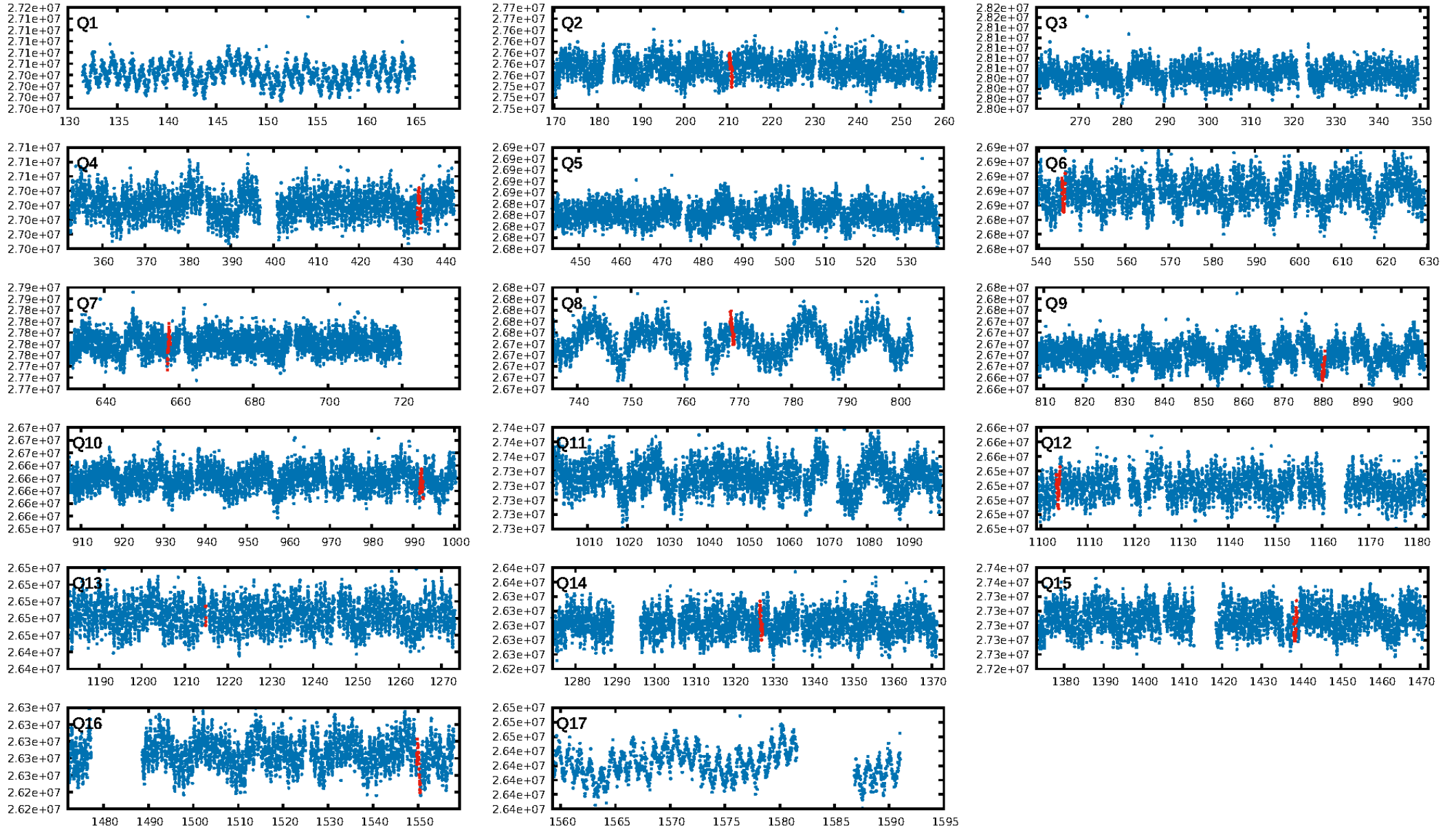
## DV Fit Results:

Period = 111.60408 [0.00496] d  
Epoch = 210.8507 [0.0316] BKJD  
Rp/R\* = 0.0147 [0.0124]  
a/R\* = 60.35 [244.83]  
b = 0.76 [2.27]  
Seff = 5.04 [1.98]  
Teq = 382 [37] K  
Rp = 1.51 [1.36] Re  
a = 0.4472 [0.1137] AU  
Ag = 16368.54 [28556.45] [0.57 $\sigma$ ]  
Teffp = 6682 [2856] K [2.21 $\sigma$ ]

## DV Diagnostic Results:

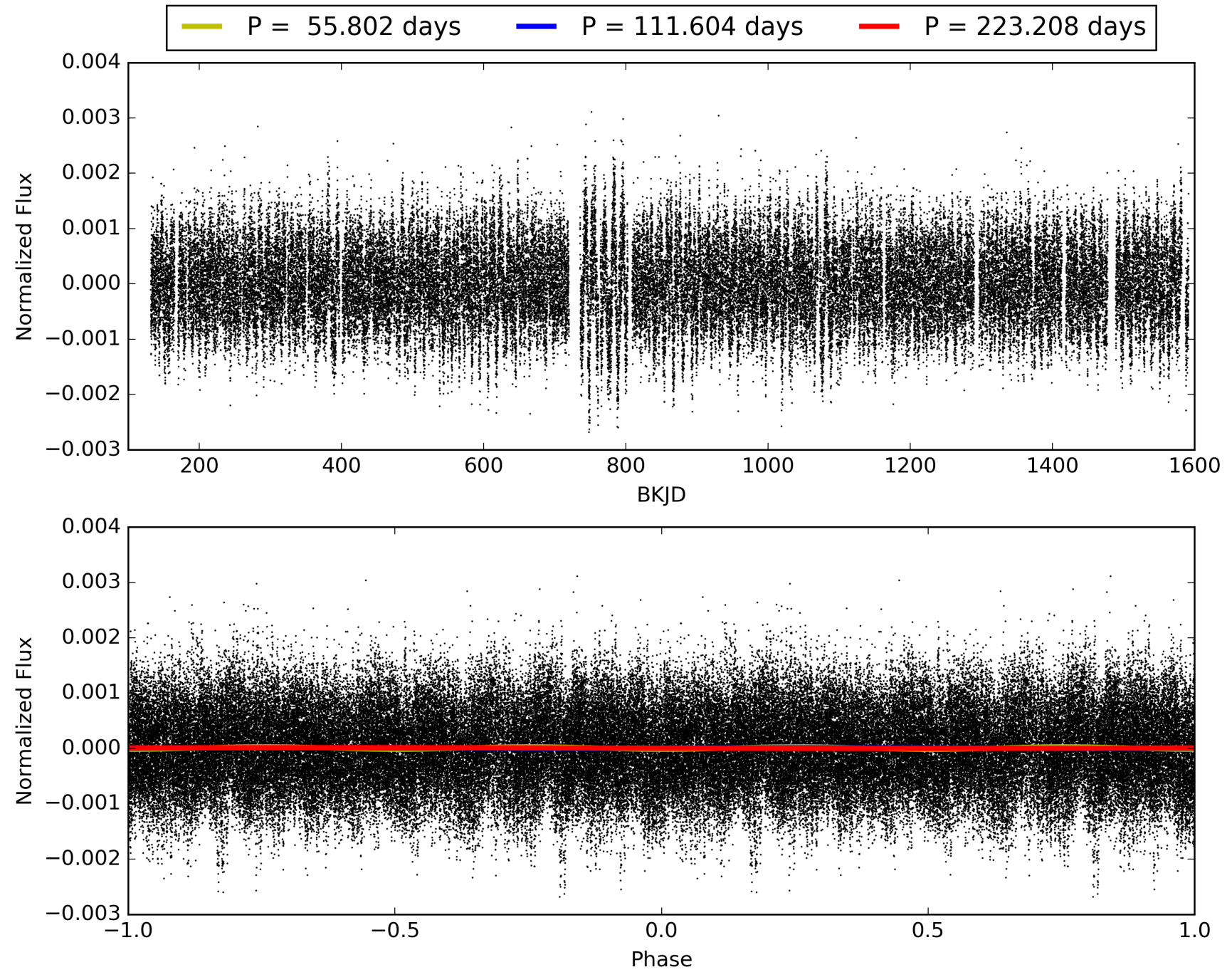
ShortPeriod-sig: 100.0% [196.80 $\sigma$ ]  
LongPeriod-sig: 100.0% [179.17 $\sigma$ ]  
ModelChiSquare2-sig: 1.0%  
ModelChiSquareGof-sig: 100.0%  
**Bootstrap-pfa: 1.36e-11**  
RollingBand-fgt: 1.00 [6/6]  
**GhostDiagnostic-chr: 0.5978**  
Centroid-sig: 22.3%  
Centroid-so: 0.723 arcsec [0.44 $\sigma$ ]  
OotOffset-rm: 0.175 arcsec [0.44 $\sigma$ ]  
KicOffset-rm: 0.066 arcsec [0.08 $\sigma$ ]  
OotOffset-st: 4/2/3/1 [10]  
KicOffset-st: 4/2/3/1 [10]  
DiffImageQuality-fgm: 0.40 [4/10]  
DiffImageOverlap-fno: 0.00 [0/10]

# TCE 007464417-03, PDC Light Curves



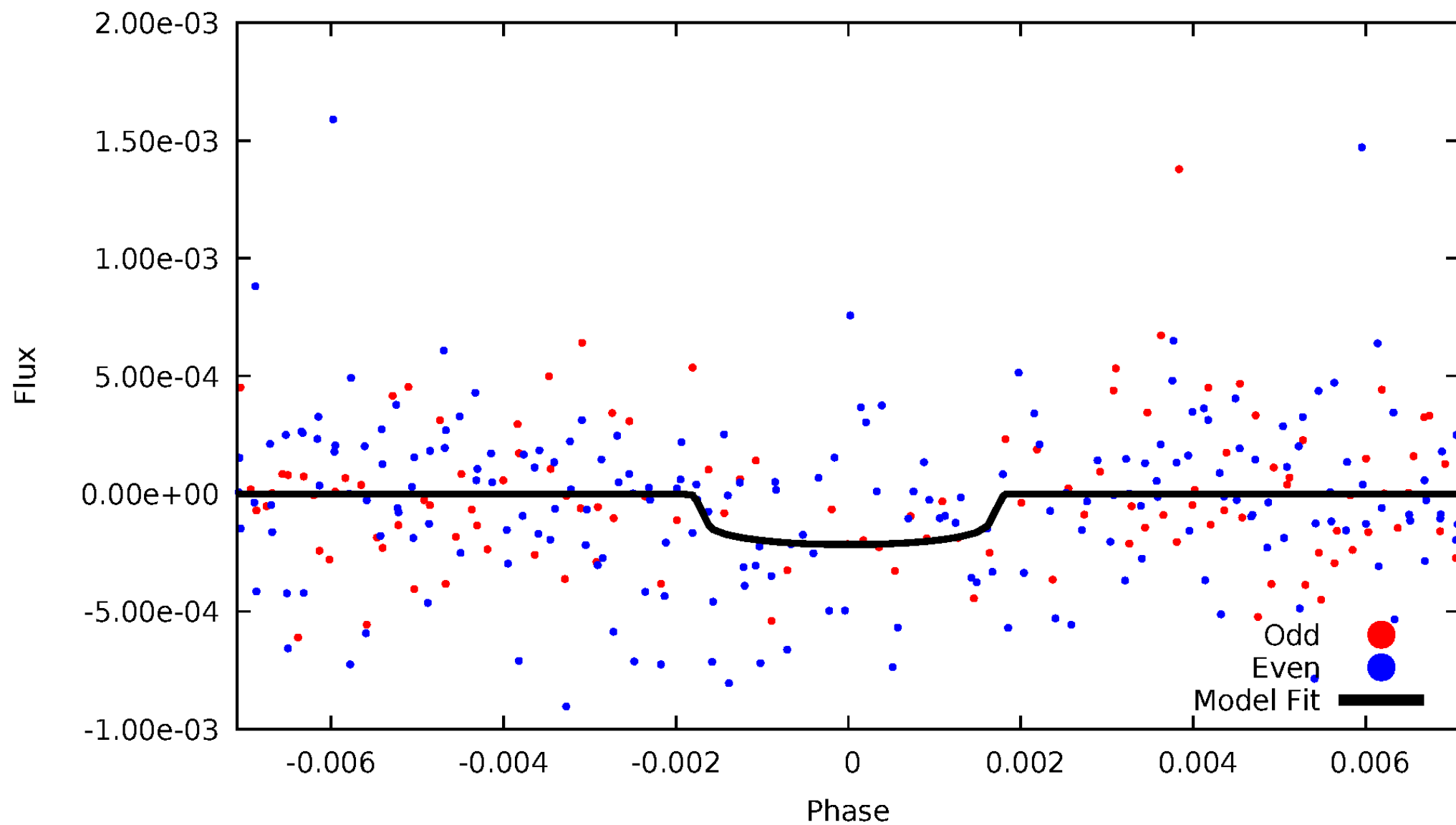


# TCE 007464417-03



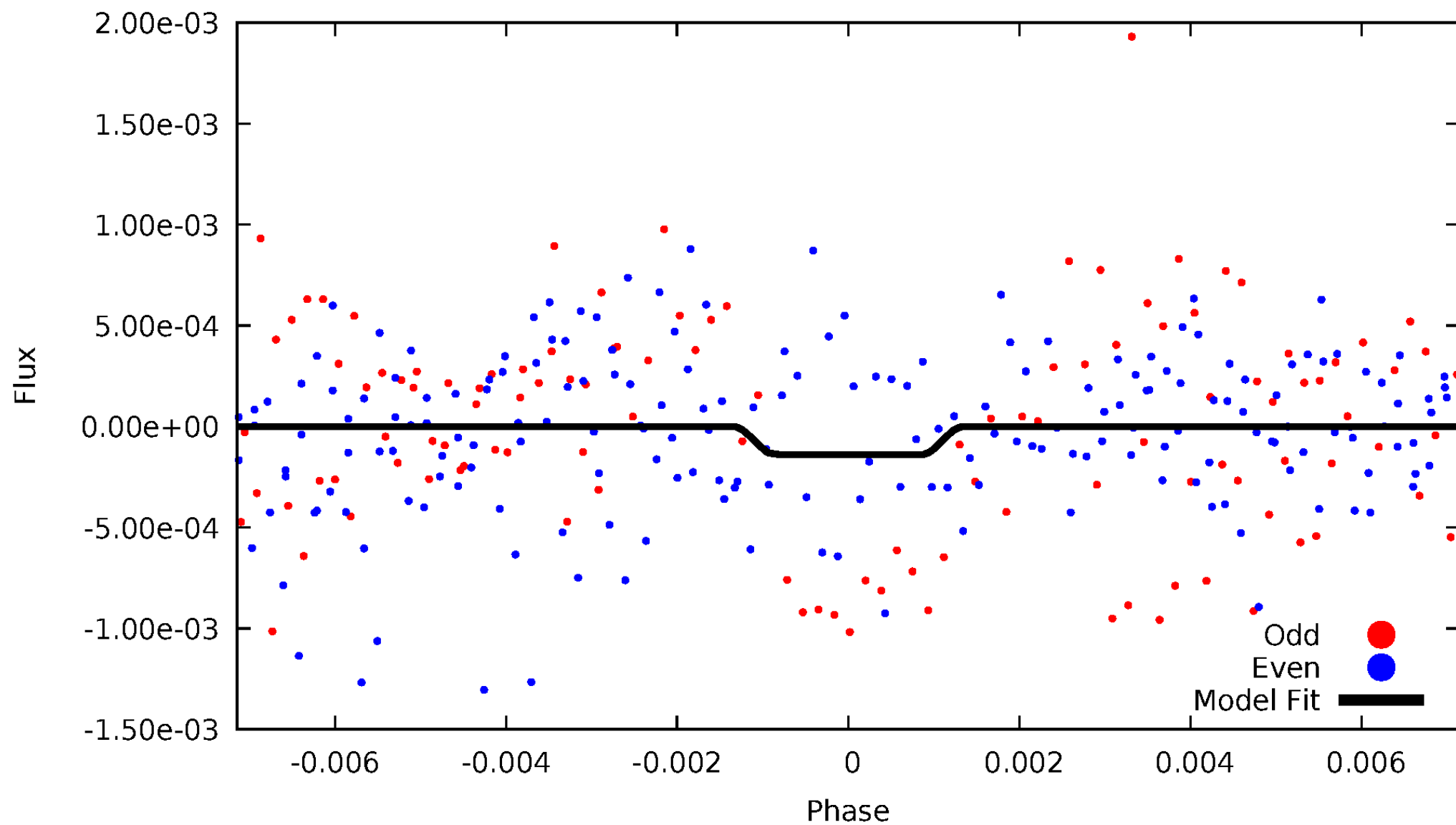
# DV Odd/Even

TCE 007464417-03



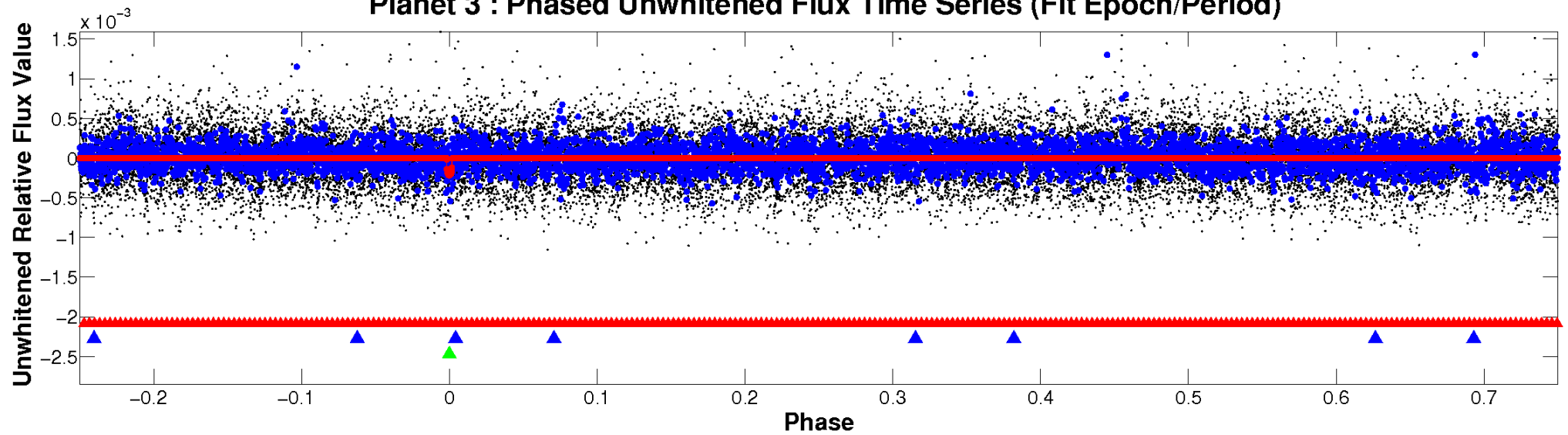
# ALT Odd/Even

TCE 007464417-03

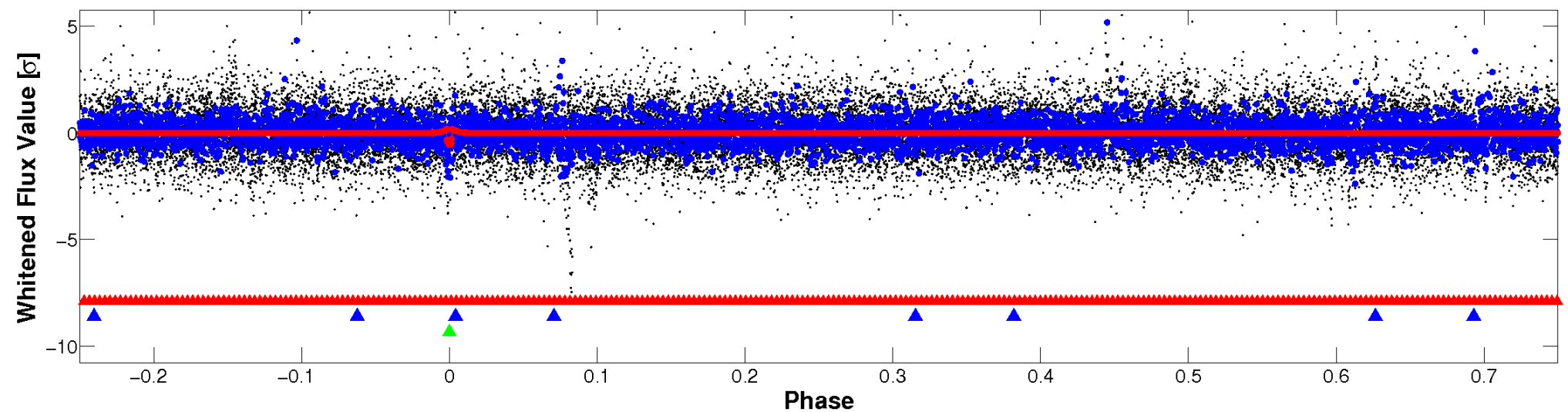


# Non-Whitened Vs. Whitened Light Curve

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

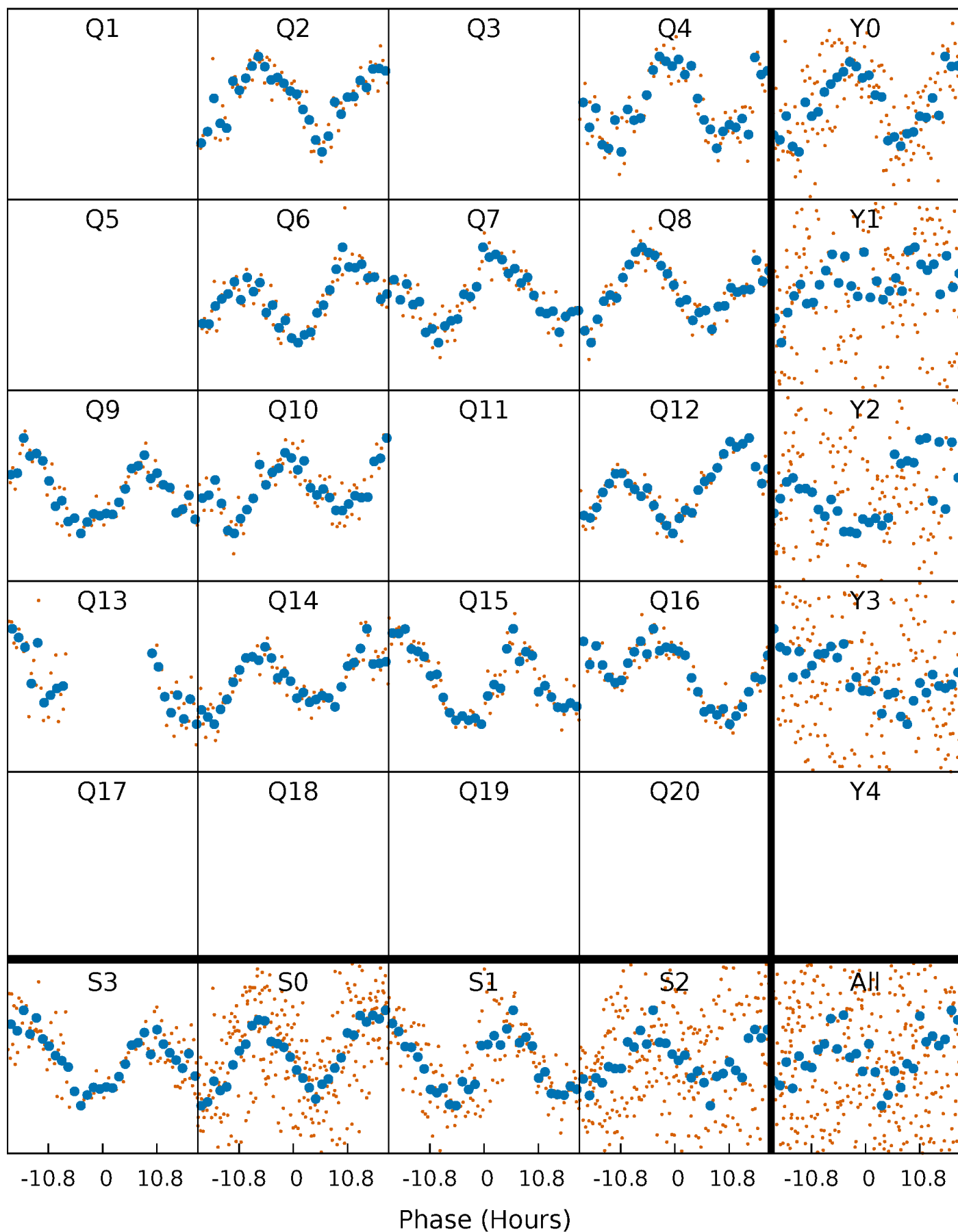


## Planet 3 : Phased Whitened Flux Time Series (Fit Epoch/Period)



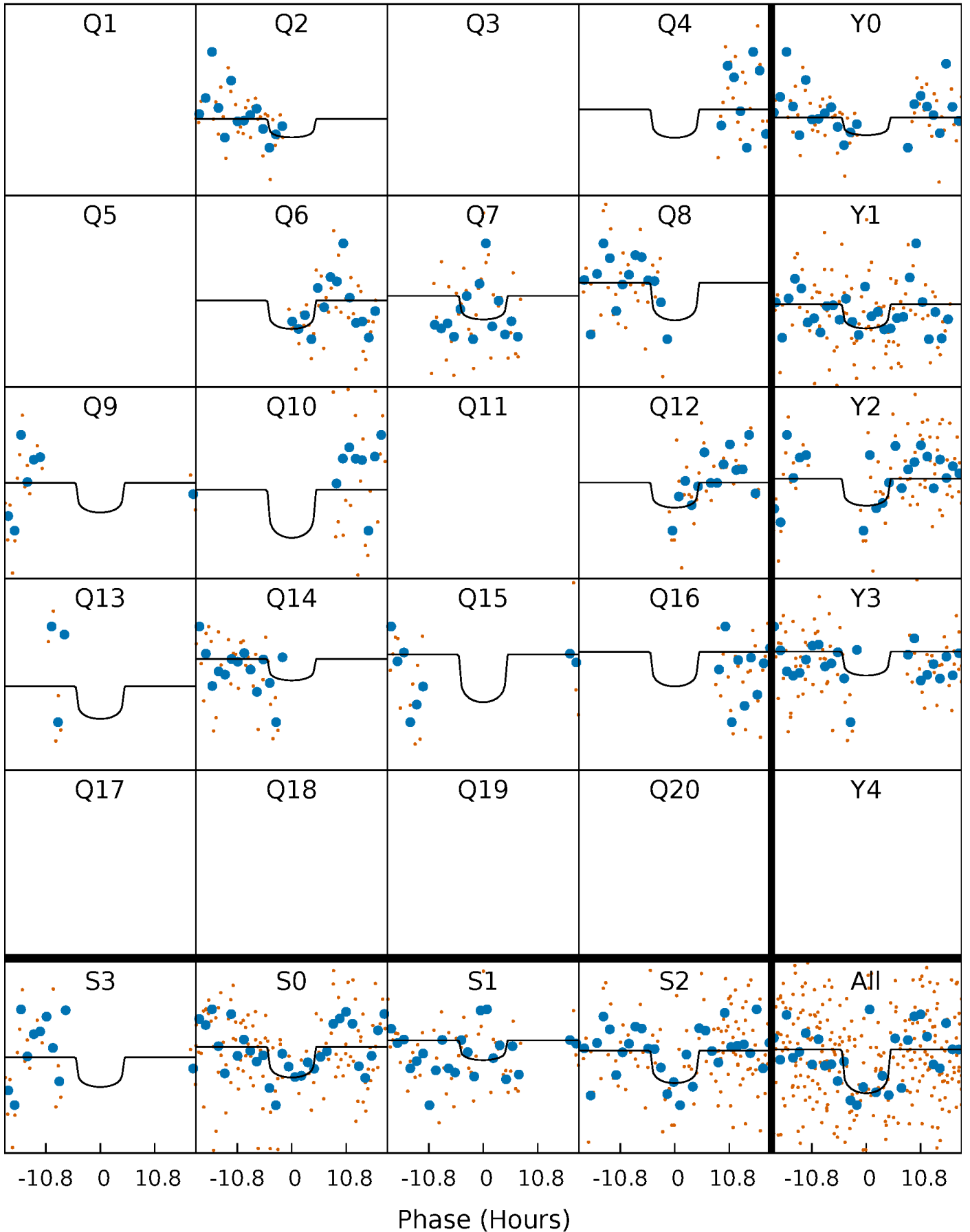
# PDC Quarter-Phased Transit Curves

TCE 007464417-03 P=111.604084 Days  $T_0=210.850692$  (BKJD)



# DV Quarter-Phased Transit Curves

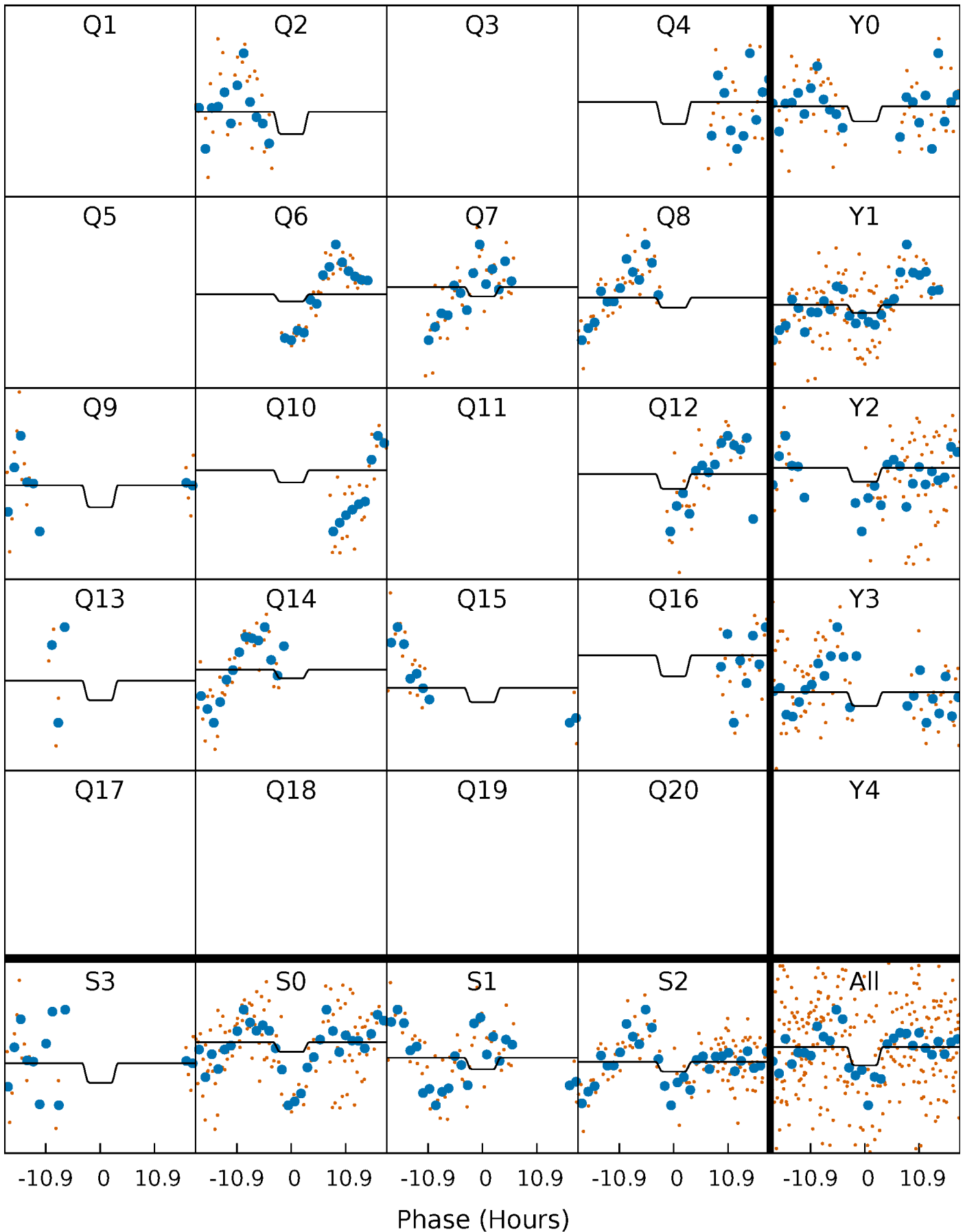
TCE 007464417-03     $P=111.604084$  Days     $T_0=210.850692$  (BKJD)





# Alt. Detrend Quarter-Phased Transit Curves

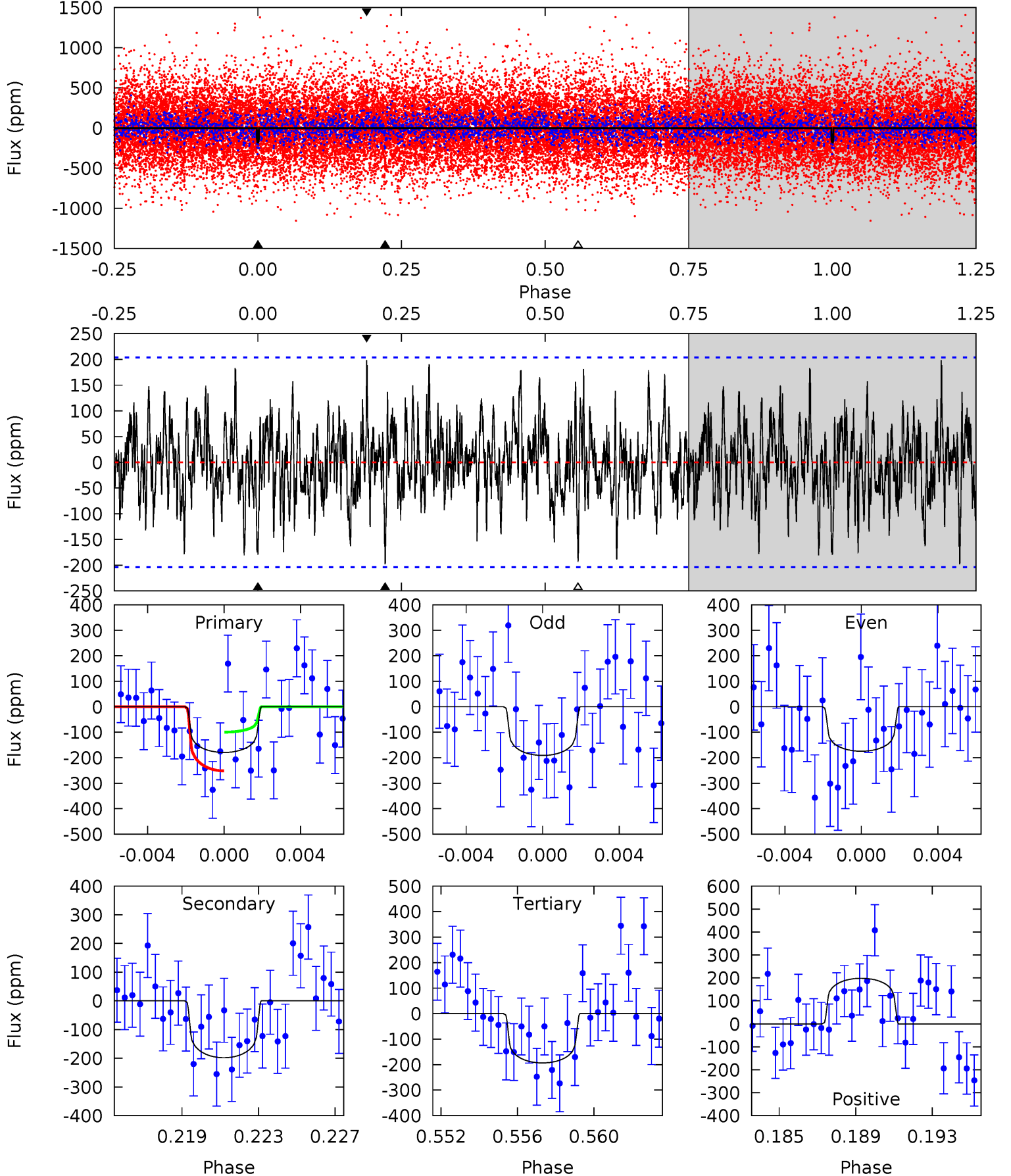
TCE 007464417-03 P=111.594330 Days  $T_0=210.938182$  (BKJD)



# DV Model-Shift Uniqueness Test

007464417-03, P = 111.604084 Days, E = 99.246608 Days

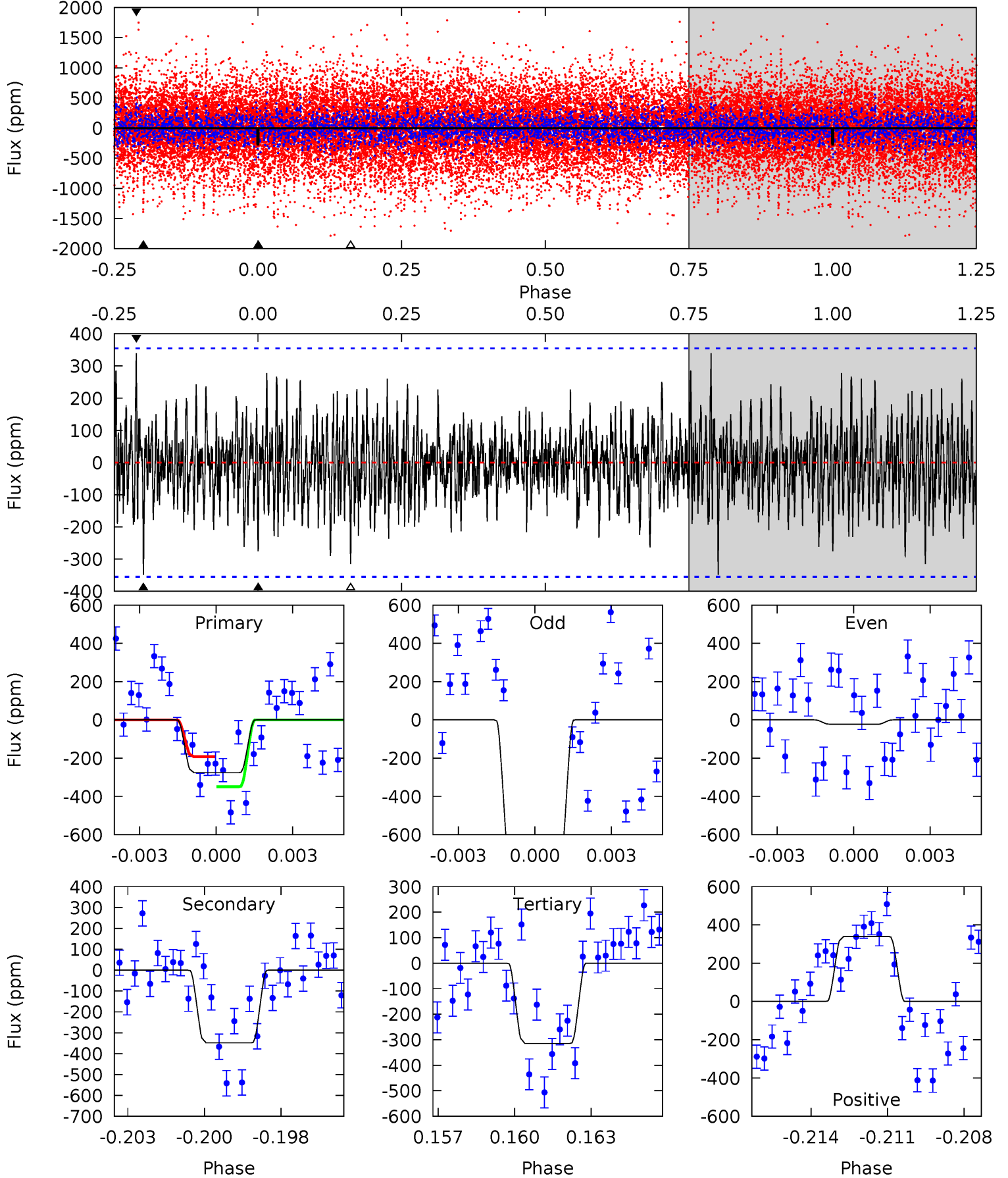
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
4.59	5.07	4.94	5.07	5.21	2.90	1.56	-0.36	-0.49	0.12	-0.01	0.19	1.10	0.50	1.94



# Alt Model-Shift Uniqueness Test

007464417-03, P = 111.594330 Days, E = 99.343852 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
4.09	5.17	4.67	5.04	5.27	3.00	1.31	-0.58	-0.95	0.50	0.13	5.52	-2.13	0.49	1.17



### Stellar Parameters For KIC 007464417

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	$5964^{+161}_{-196}$	$4.470^{+0.067}_{-0.202}$	$-0.240^{+0.300}_{-0.300}$	$0.943^{+0.285}_{-0.114}$	$0.957^{+0.118}_{-0.118}$	$1.606^{+0.550}_{-0.795}$
	+3%/-3%	+1%/-5%	+125%/-125%	+30%/-12%	+12%/-12%	+34%/-49%
Source	PHO1	KIC0	KIC0	DSEP		

KIC = Kepler Input Catalog; PHO = Photometry; SPE = Spectroscopy; AST = Asteroseismology  
 TRA = Transits; DESP = Dartmouth Models; MULT = Multiple Models

### Secondary Eclipse Parameters for KIC 007464417-03 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	$A_{obs}$
DV	$-198 \pm 39$	$1.79^{+1.20}_{-1.03}$	$543^{+40}_{-29}$	$5484^{+3199}_{-1060}$	$6675^{+31163}_{-4364}$
Alt.	$-348 \pm 67$	$1.53^{+1.22}_{-0.94}$	$545^{+38}_{-28}$	$6847^{+7080}_{-1701}$	$15872^{+101365}_{-10710}$

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

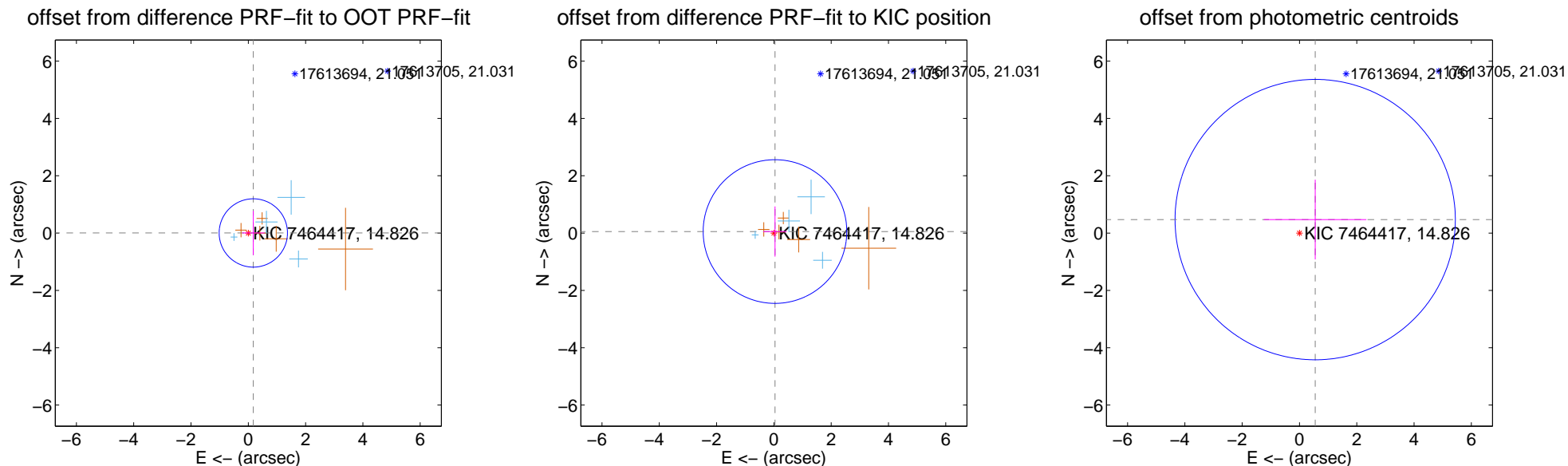
## DV Centroid Data

Supplemental centroid analysis for 007464417-03. Kepler magnitude: 14.83. Transit SNR 3.78

There are 4 quarters with good PRF difference image offsets

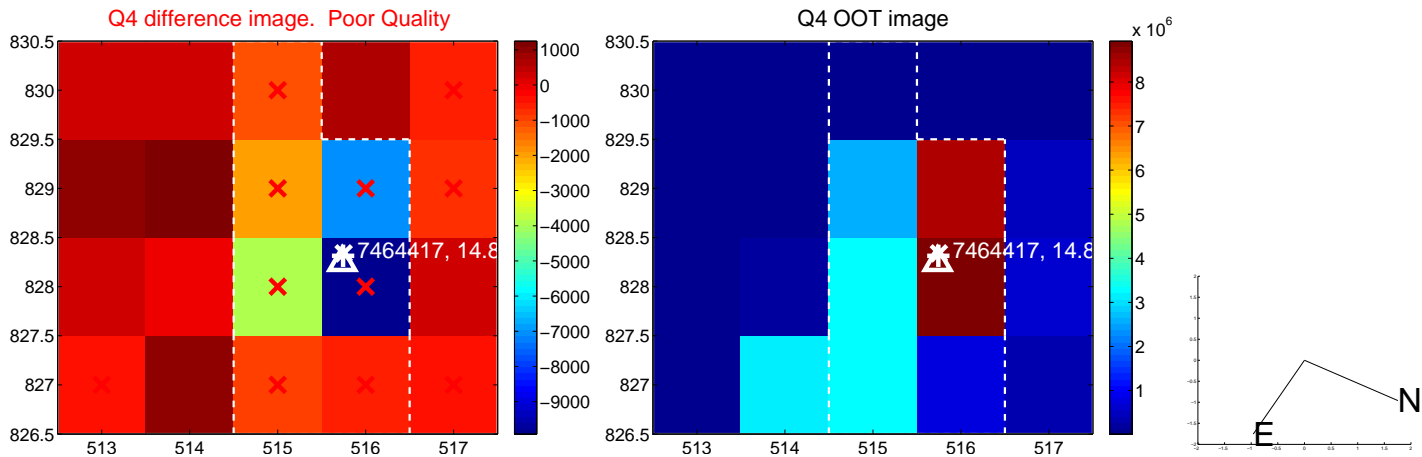
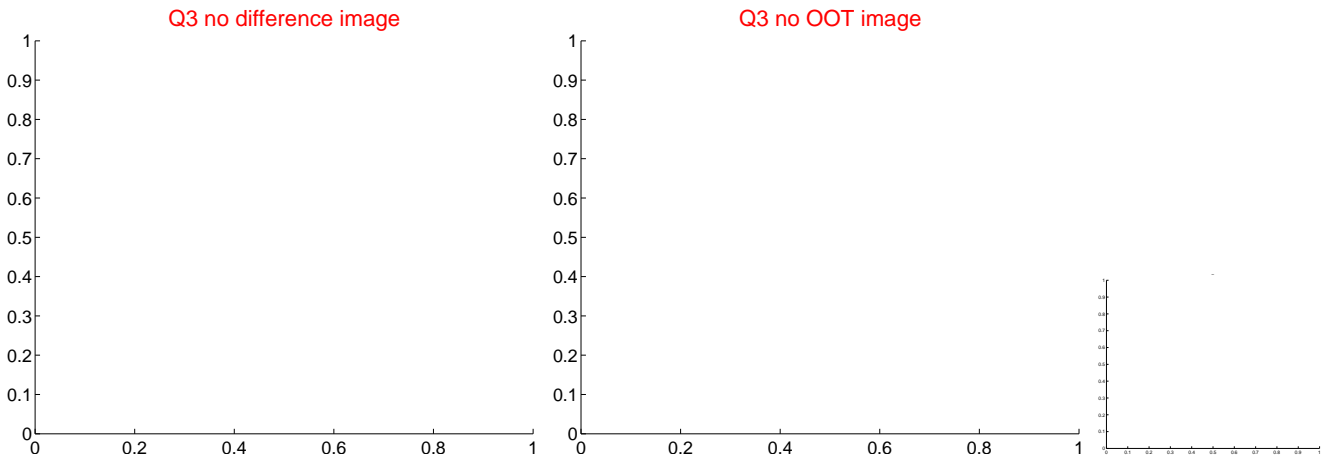
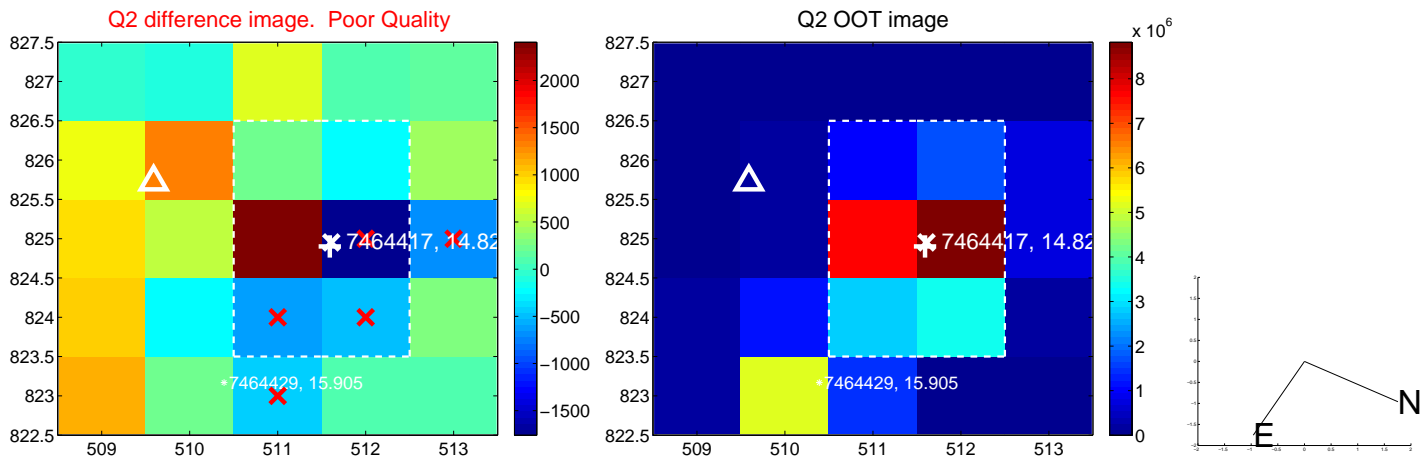
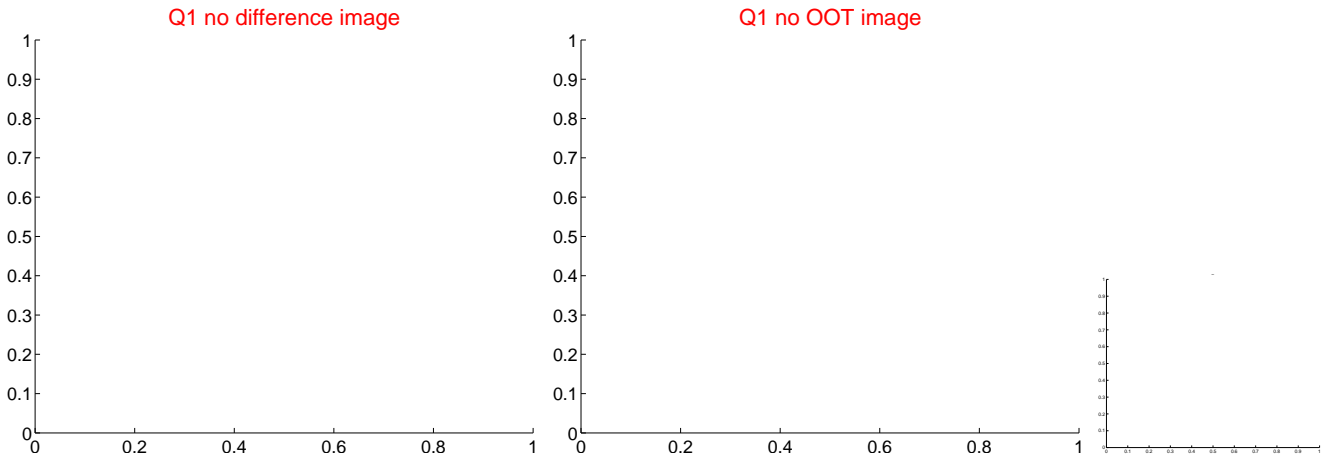
The direct PRF centroid is offset from the target star catalog position by about 0.11 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$0.175 \pm 0.397$	0.44	$-0.175 \pm 0.390$	$0.004 \pm 0.769$
PRF-fit source offset from KIC position	$0.066 \pm 0.835$	0.08	$-0.038 \pm 0.409$	$0.054 \pm 0.874$
photometric centroid source offset	$0.72 \pm 1.63$	0.44	$-0.55 \pm 1.79$	$0.47 \pm 1.39$



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.

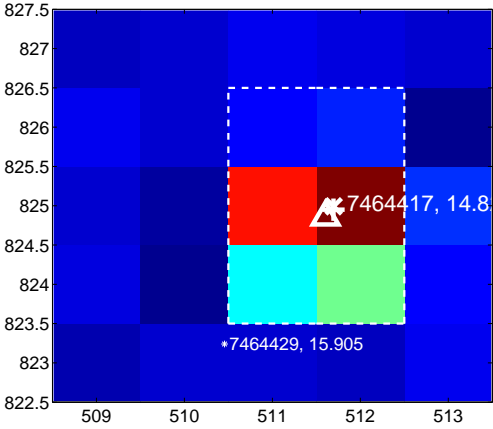
Q5 no difference image



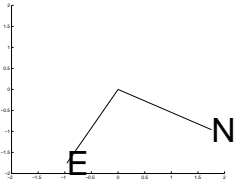
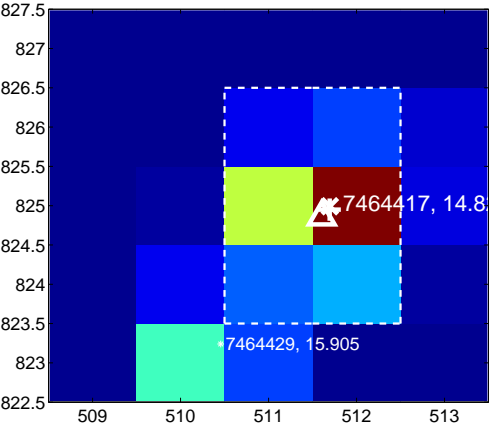
Q5 no OOT image



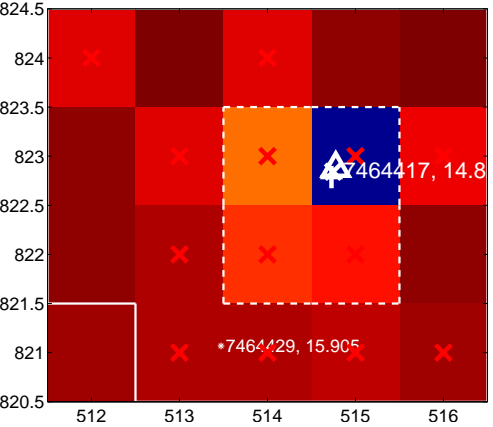
Q6 difference image



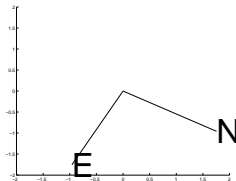
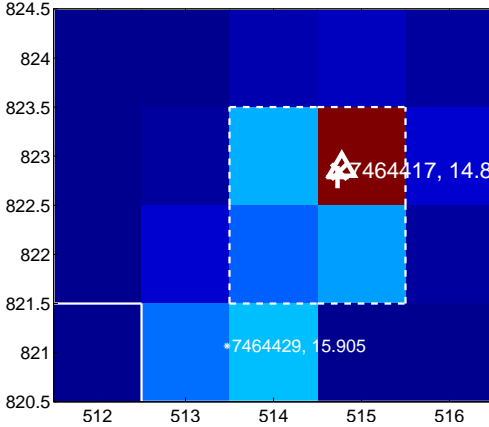
Q6 OOT image



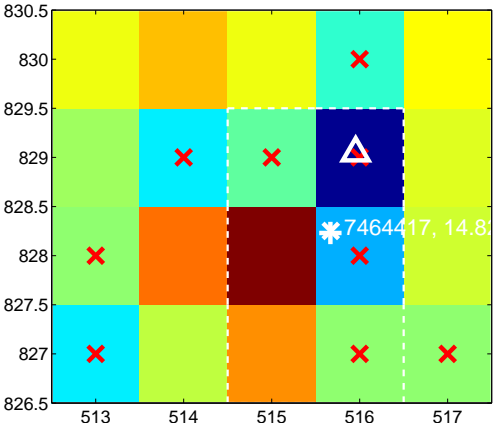
Q7 difference image. Poor Quality



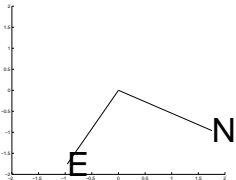
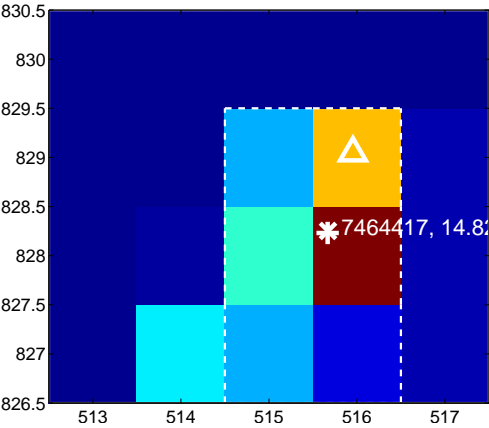
Q7 OOT image



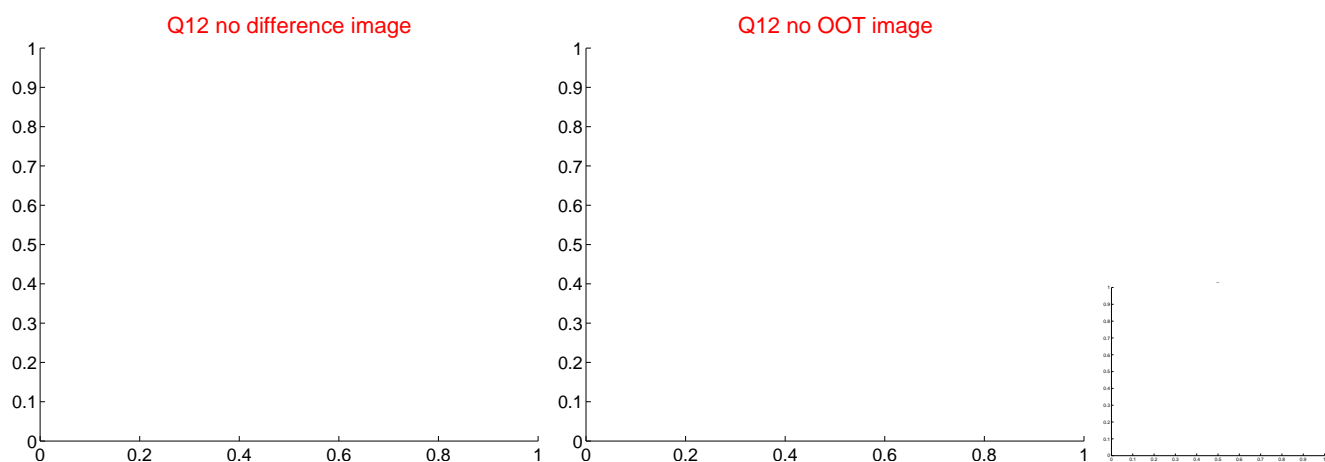
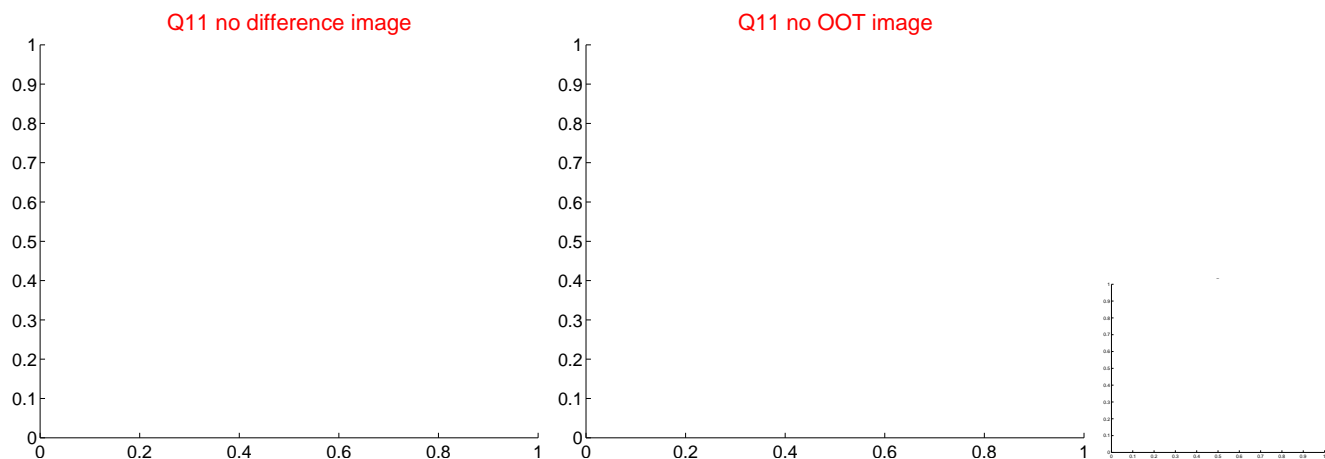
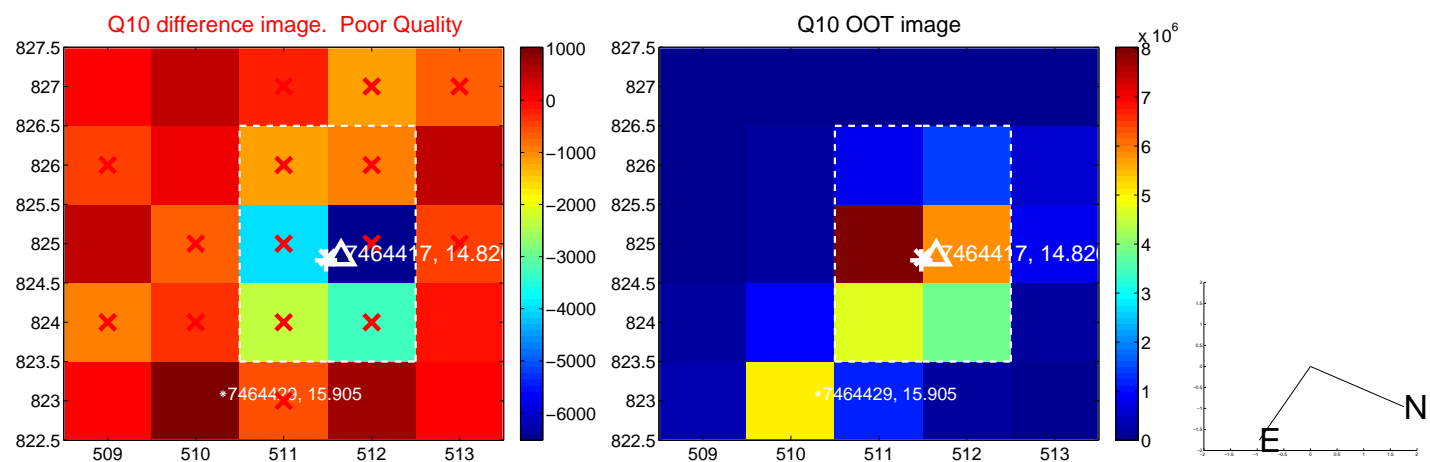
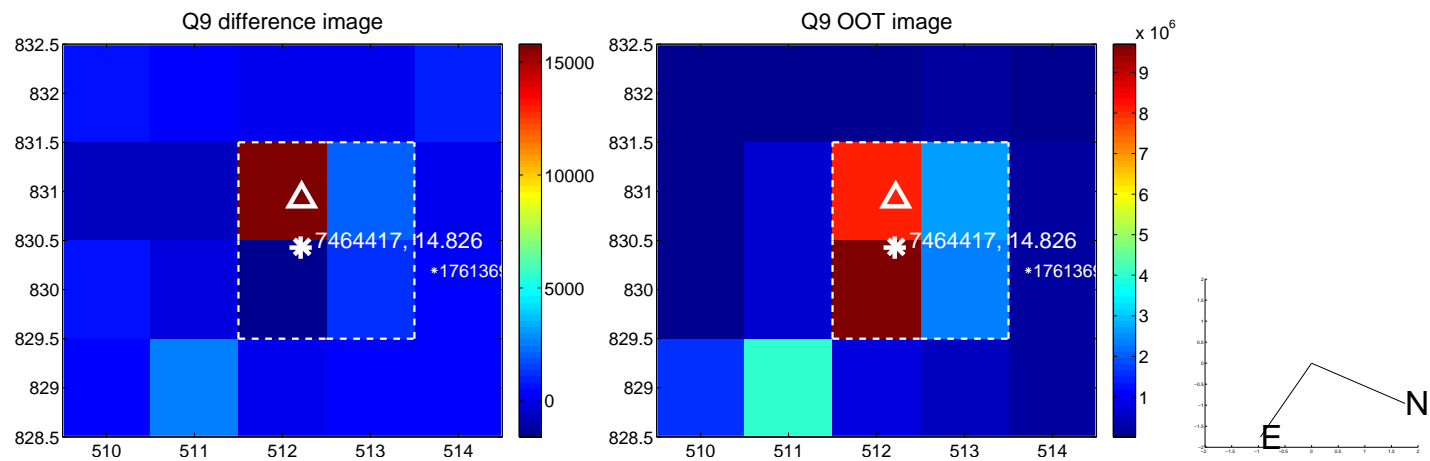
Q8 difference image. Poor Quality



Q8 OOT image



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.

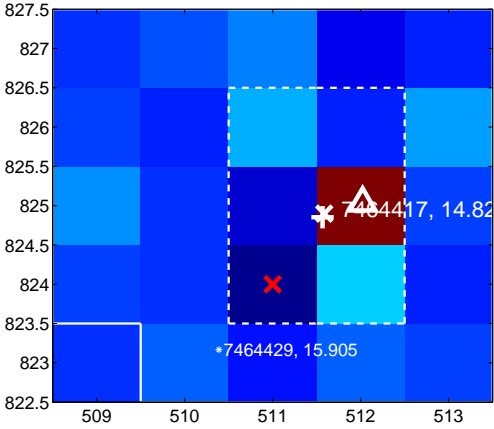
Q13 no difference image



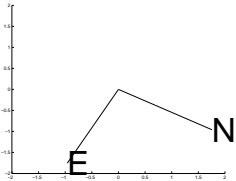
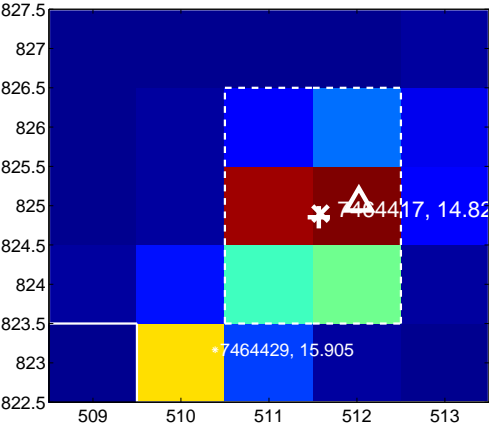
Q13 no OOT image



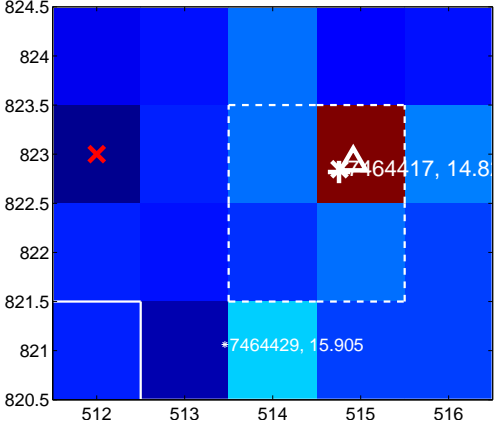
Q14 difference image



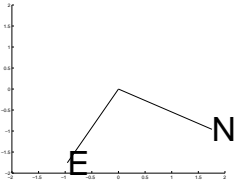
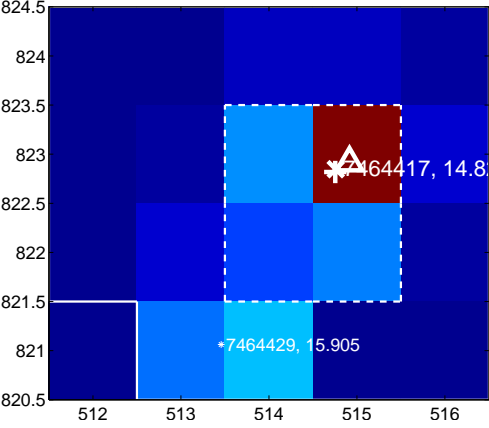
Q14 OOT image



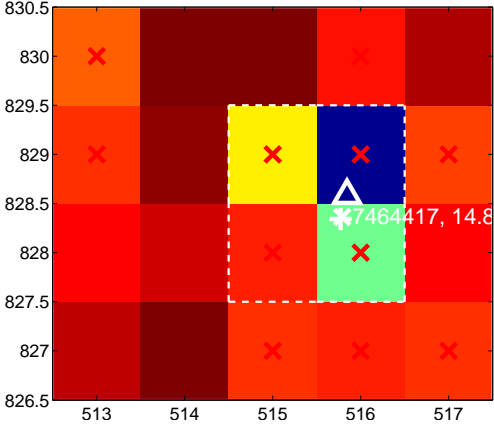
Q15 difference image



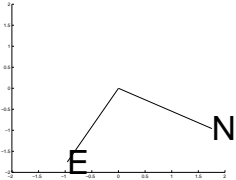
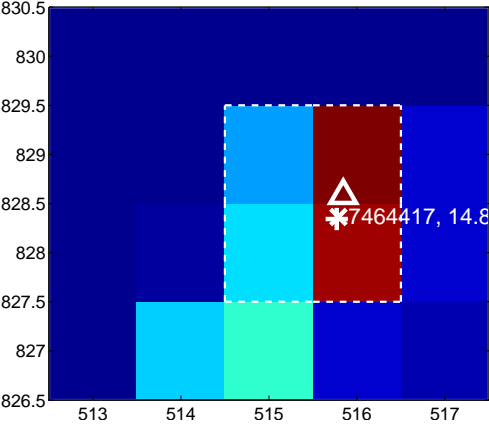
Q15 OOT image



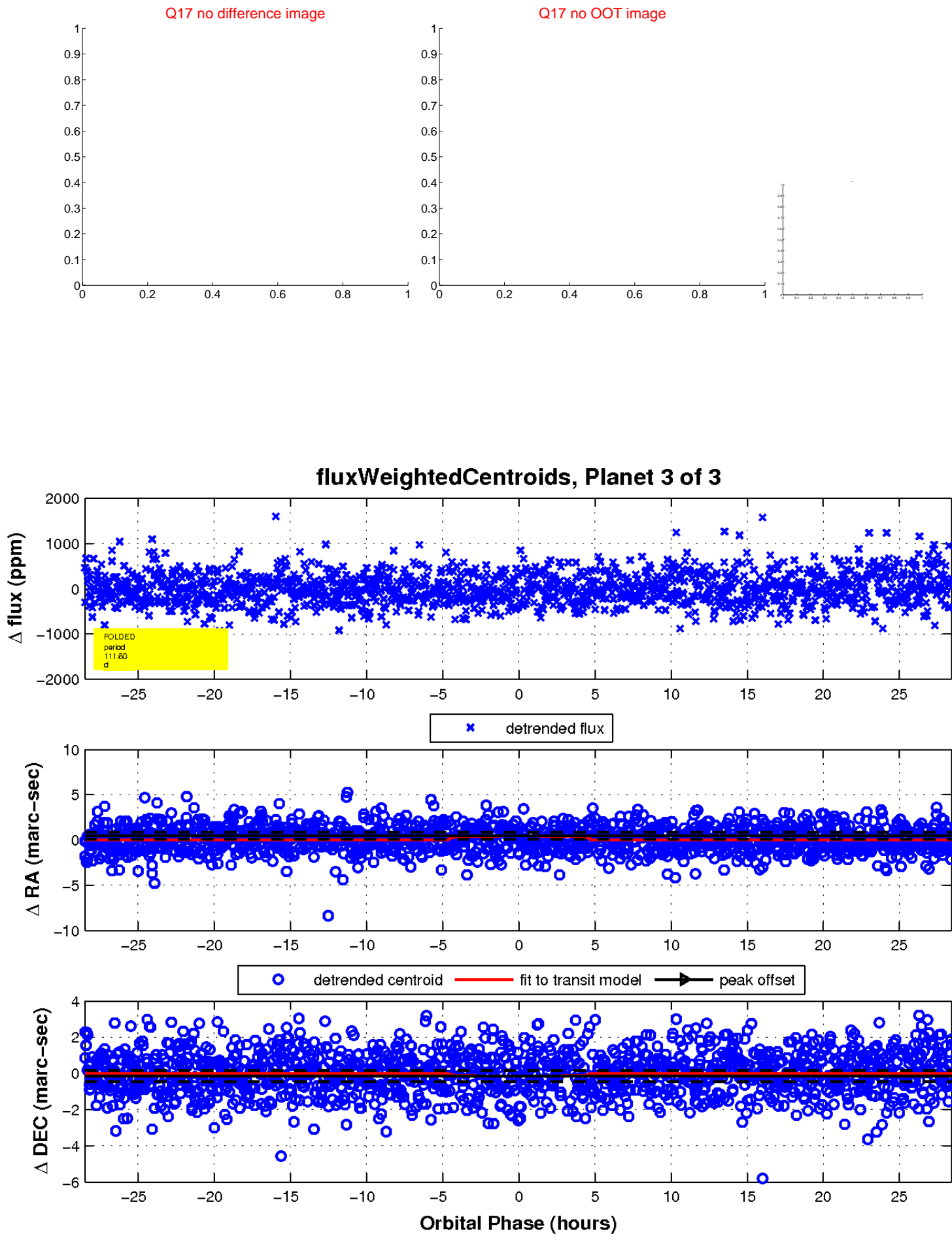
Q16 difference image. Poor Quality



Q16 OOT image



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



# UKIRT Image

Declination

