

# KIC 006523216

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
006523216-01	OBS	6725.01	14.313155	138.220560	21625.2	8.893	3336.7	3177.8	2.38	5750	34.91	405.06
006523216-02	OBS	No	7.156573	138.632527	892.9	10.384	158.2	144.3	2.38	5750	8.22	1020.68
006523216-03	OBS	No	364.060743	332.854763	403.5	9.203	22.6	10.2	2.38	5750	5.29	5.42

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
006523216-01	OBS	FP	0.00	0	1	0	0	MOD_SEC_DV—MOD_SEC_ALT—HAS_SEC_TCE
006523216-02	OBS	FP	0.00	1	1	0	0	IS_SEC_TCE
006523216-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_MARSHALL—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—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.

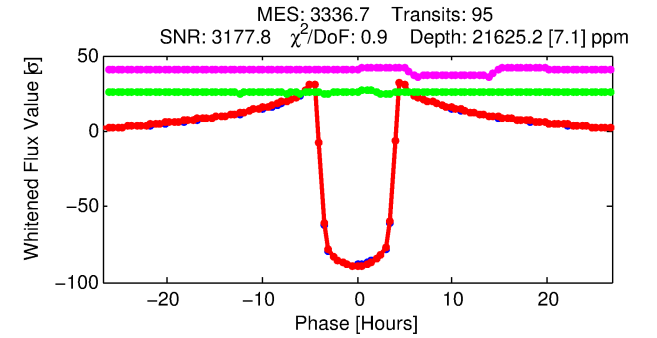
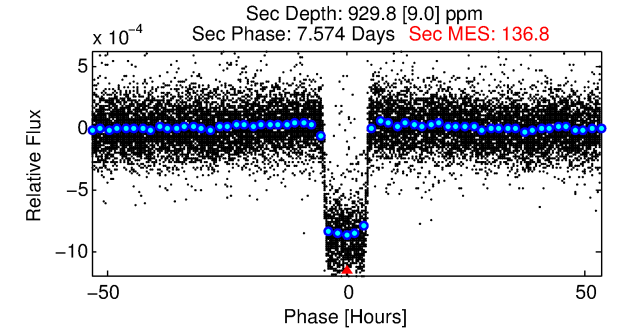
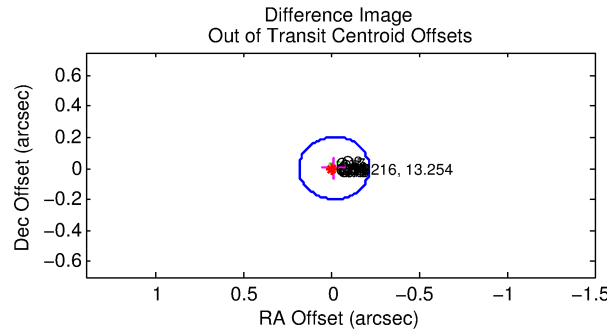
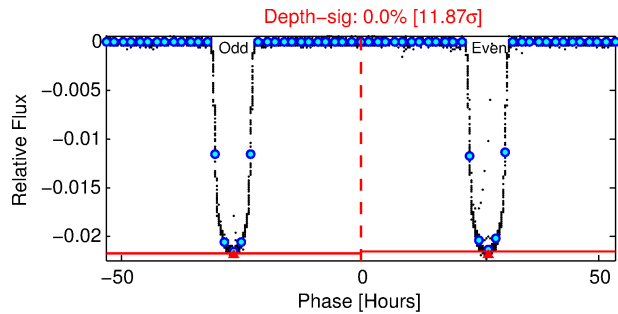
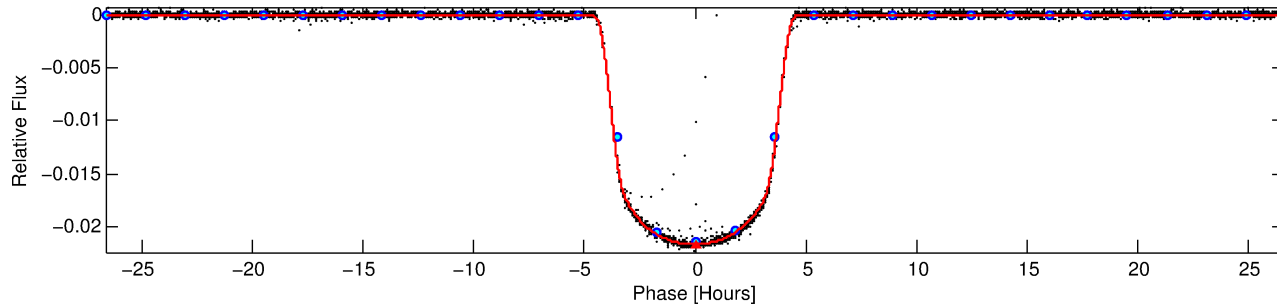
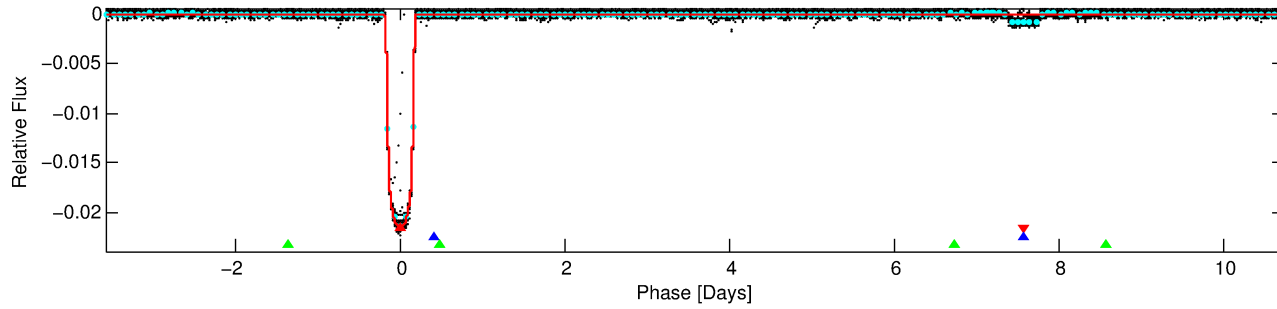
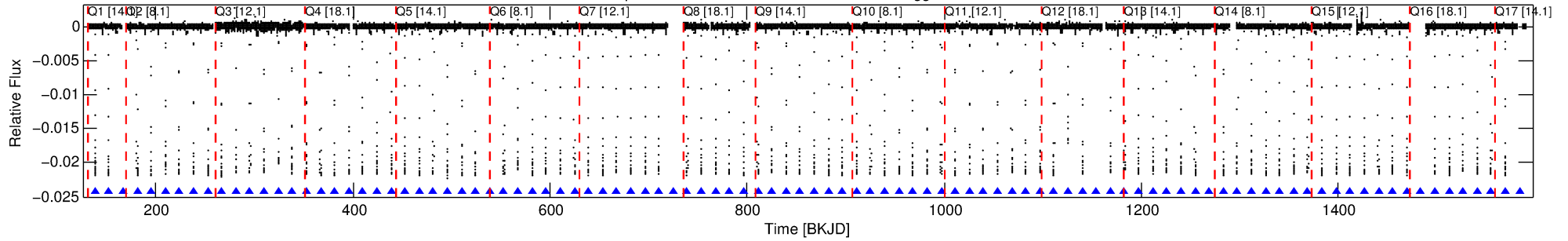
## Ephemeris Match Information For 006523216-01

No Significant Match Found

# DV One-Page Summary

KIC: 6523216 Candidate: 1 of 3 Period: 14.313 d  
KOI: K06725.01 Corr: 0.999

Kp: 13.25 R\*: 2.38 Rs Teff: 5750.0 K Logg: 3.70 Fe/H: -0.700



## DV Fit Results:

Period = 14.31316 [0.00000] d  
Epoch = 138.2206 [0.0000] BKJD  
Rp/R\* = 0.1345 [0.0000]  
a/R\* = 13.96 [0.02]  
b = 0.00 [2.34]  
Seff = 405.06 [120.78]  
Teq = 1144 [85] K  
Rp = 34.91 [8.03] Re  
a = 0.1170 [0.0231] AU  
Ag = 5.74 [1.68] [2.83σ]  
Teffp = 2738 [41] K [16.81σ]

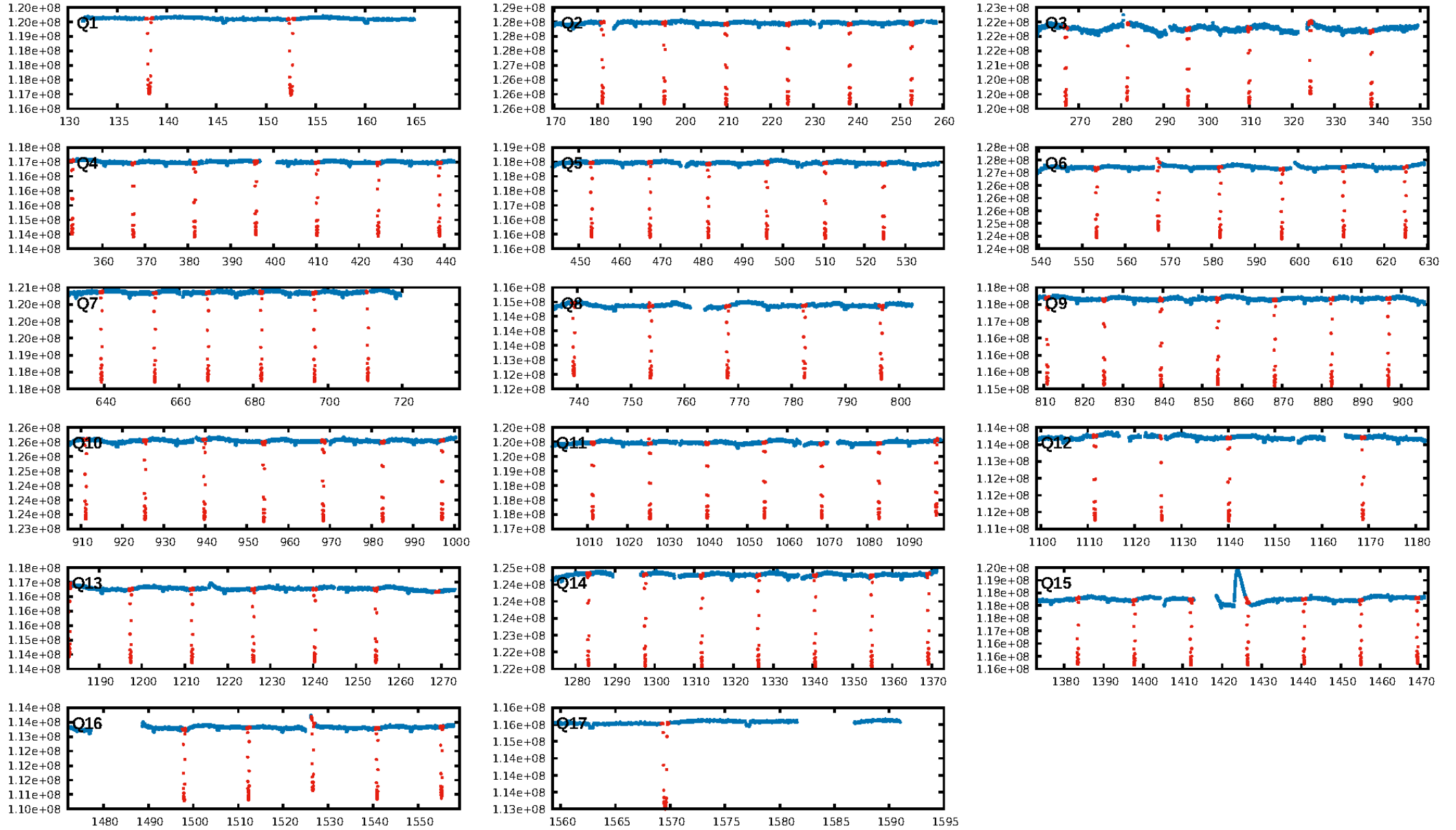
## DV Diagnostic Results:

ShortPeriod-sig: 100.0% [12.56σ]  
LongPeriod-sig: 100.0% [655.91σ]  
ModelChiSquare2-sig: 0.0%  
ModelChiSquareGof-sig: 0.0%  
Bootstrap-pfa: 0.00e+00  
RollingBand-fgt: 1.00 [92/92]  
GhostDiagnostic-chr: 6.045  
Centroid-sig: 0.0%  
Centroid-so: 0.125 arcsec [51.52σ]  
OotOffset-rm: 0.016 arcsec [0.24σ]  
KicOffset-rm: 0.142 arcsec [2.11σ]  
OotOffset-st: 4/4/4/5 [17]  
KicOffset-st: 4/4/4/5 [17]  
DiffImageQuality-fgm: 1.00 [17/17]  
DiffImageOverlap-fno: 0.00 [0/17]

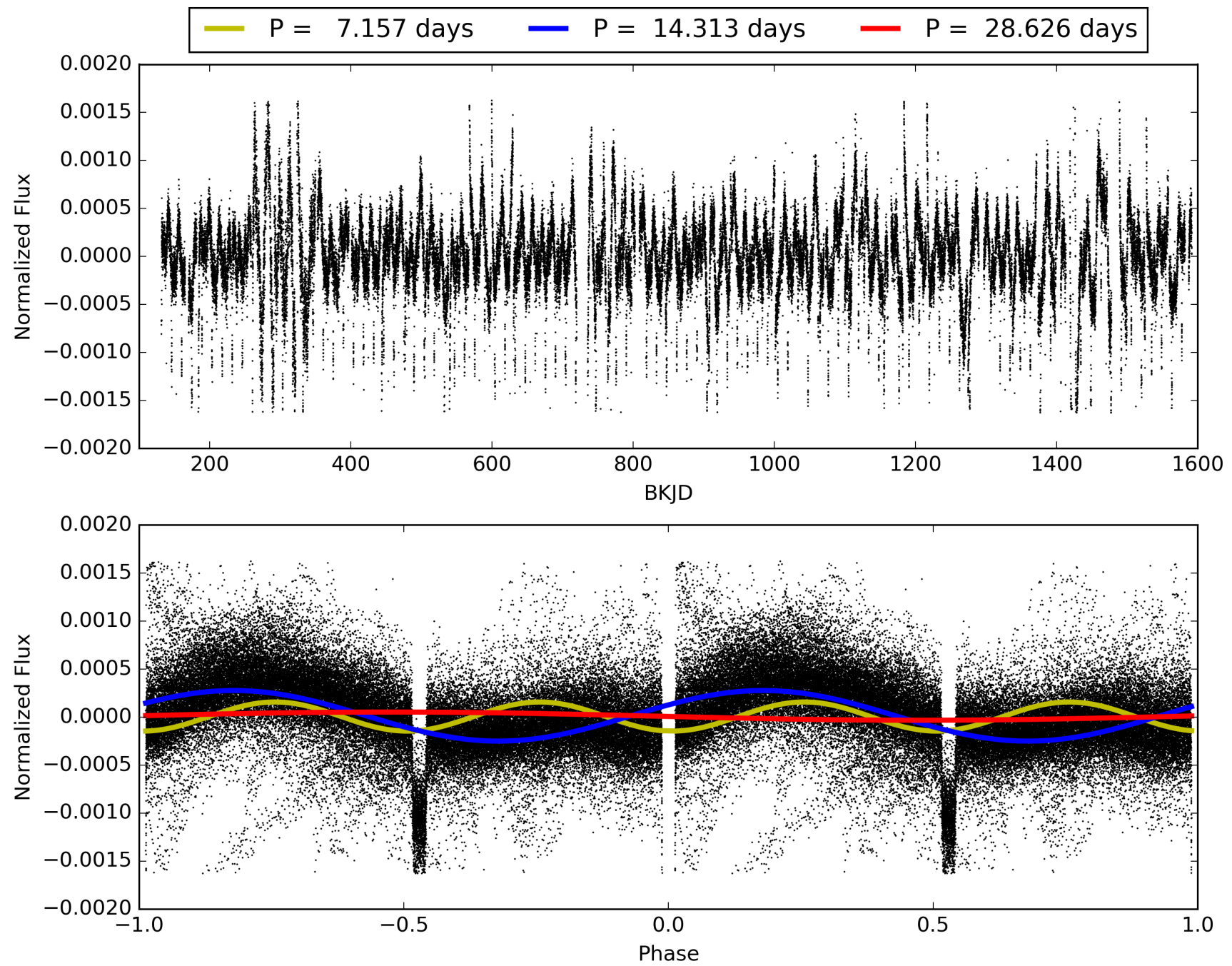
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 29-Jan-2016 22:32:53 Z

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

# TCE 006523216-01, PDC Light Curves

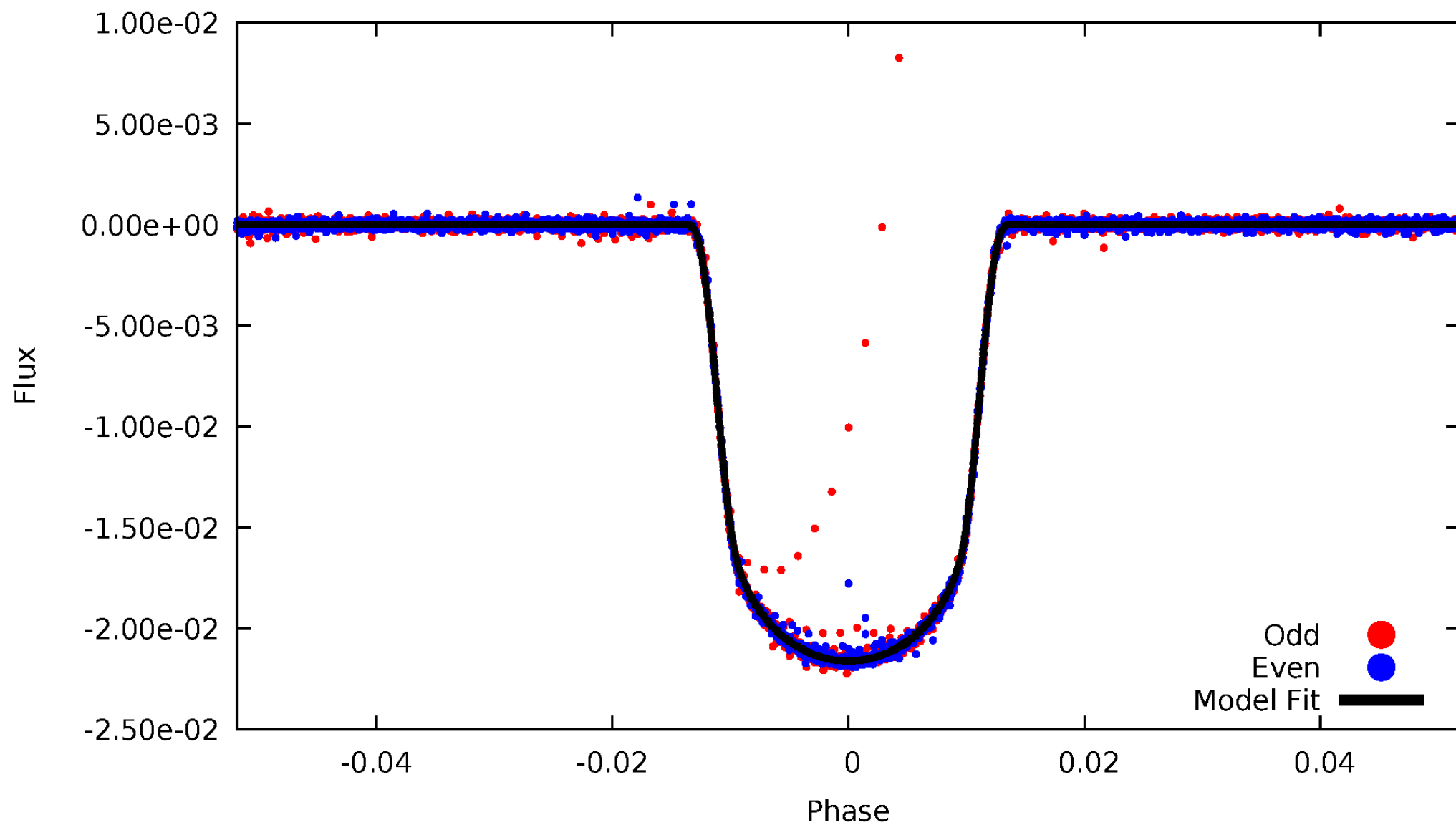


TCE 006523216-01



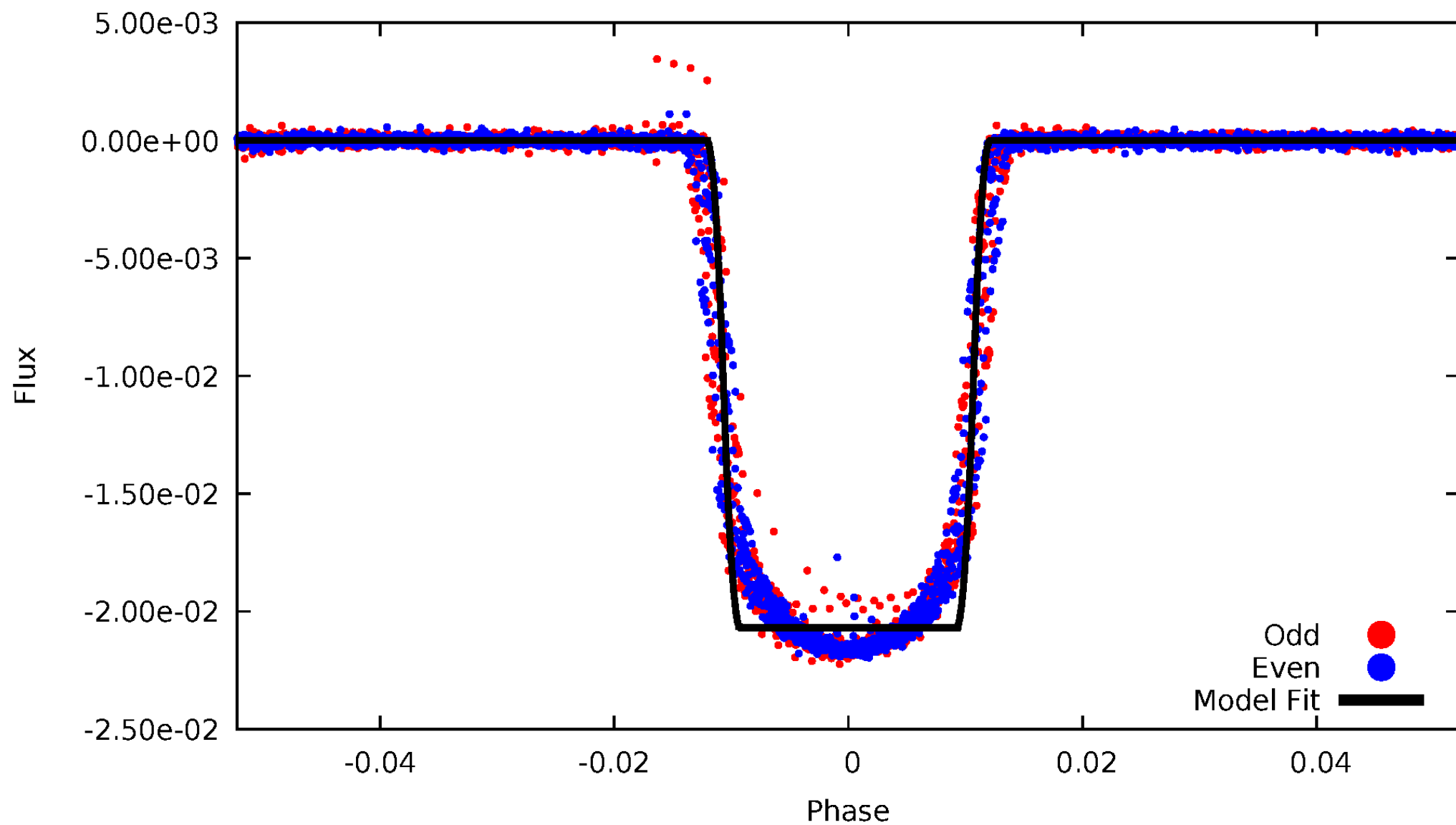
# DV Odd/Even

TCE 006523216-01



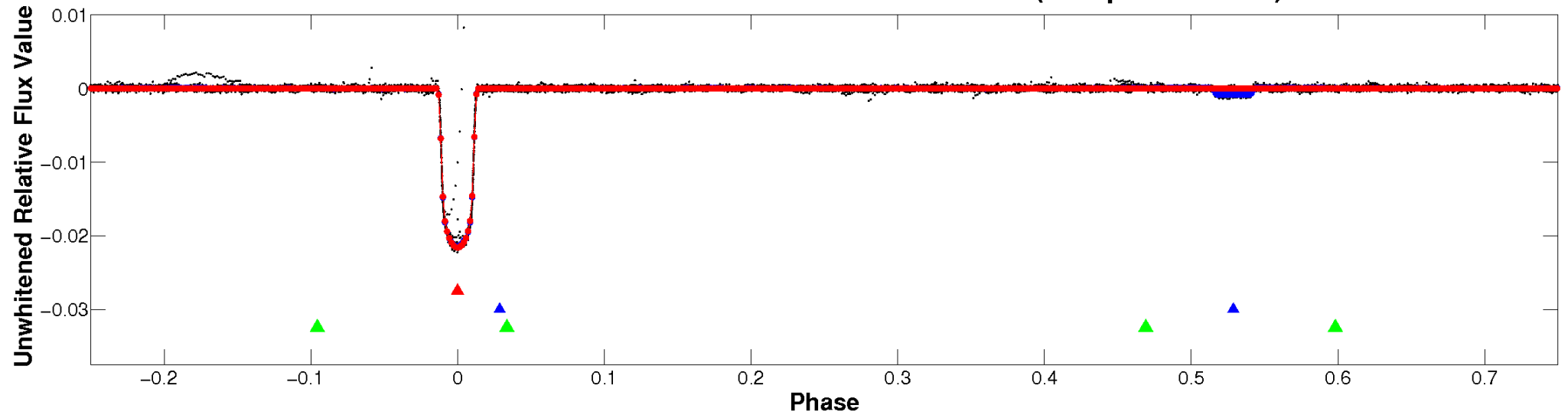
# ALT Odd/Even

TCE 006523216-01

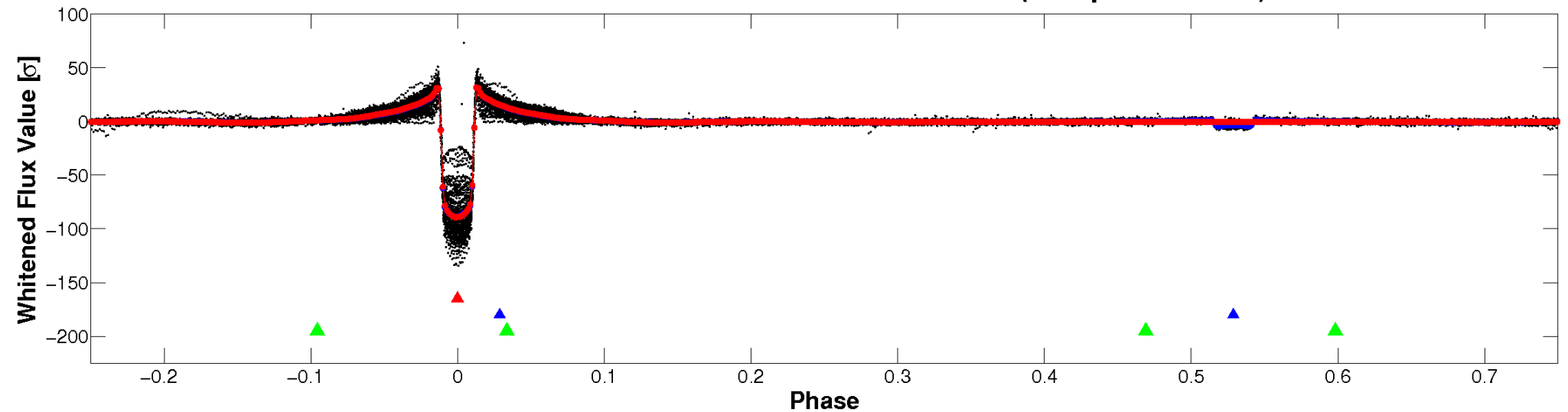


# Non-Whitened Vs. Whitened Light Curve

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

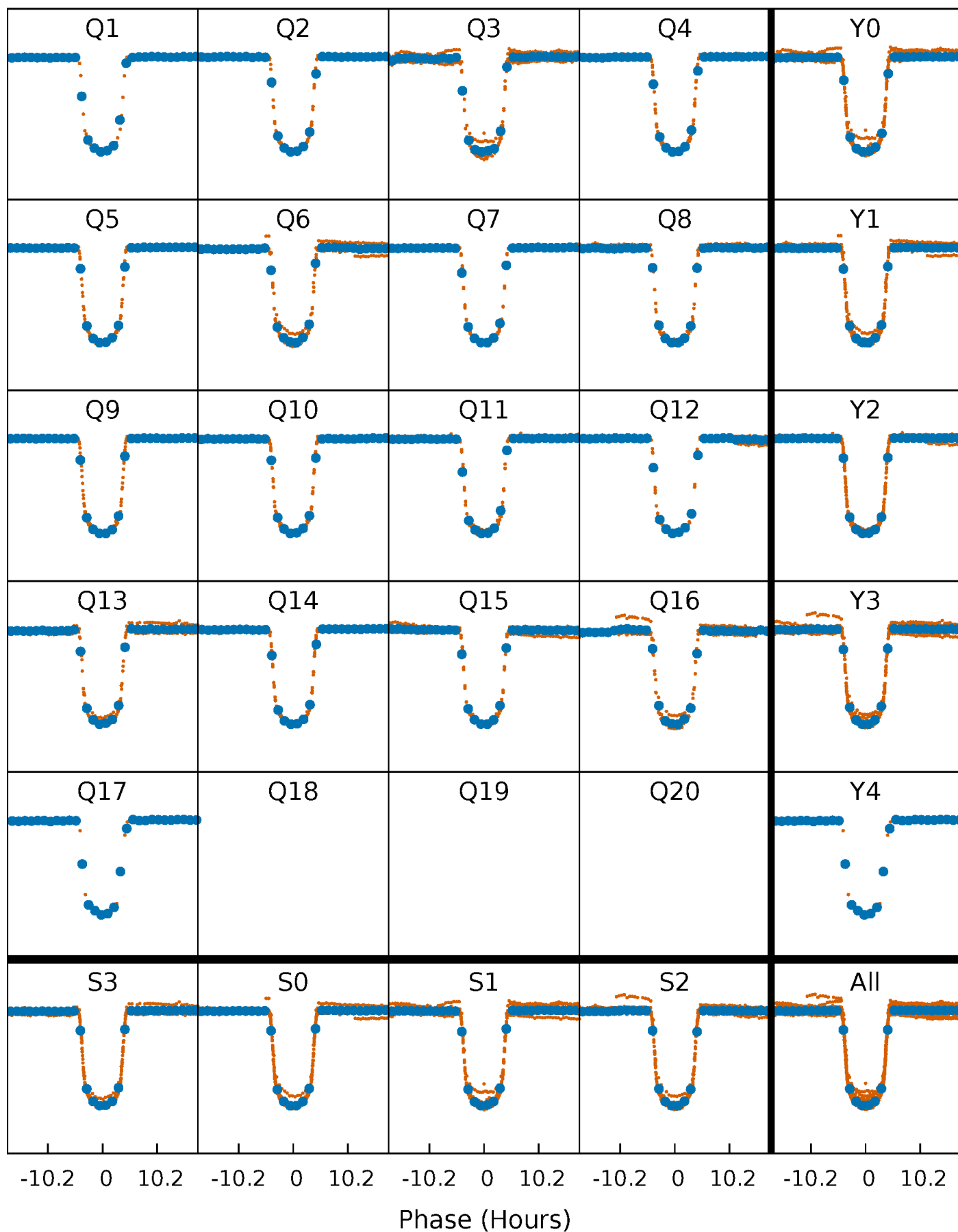


**Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)**



# PDC Quarter-Phased Transit Curves

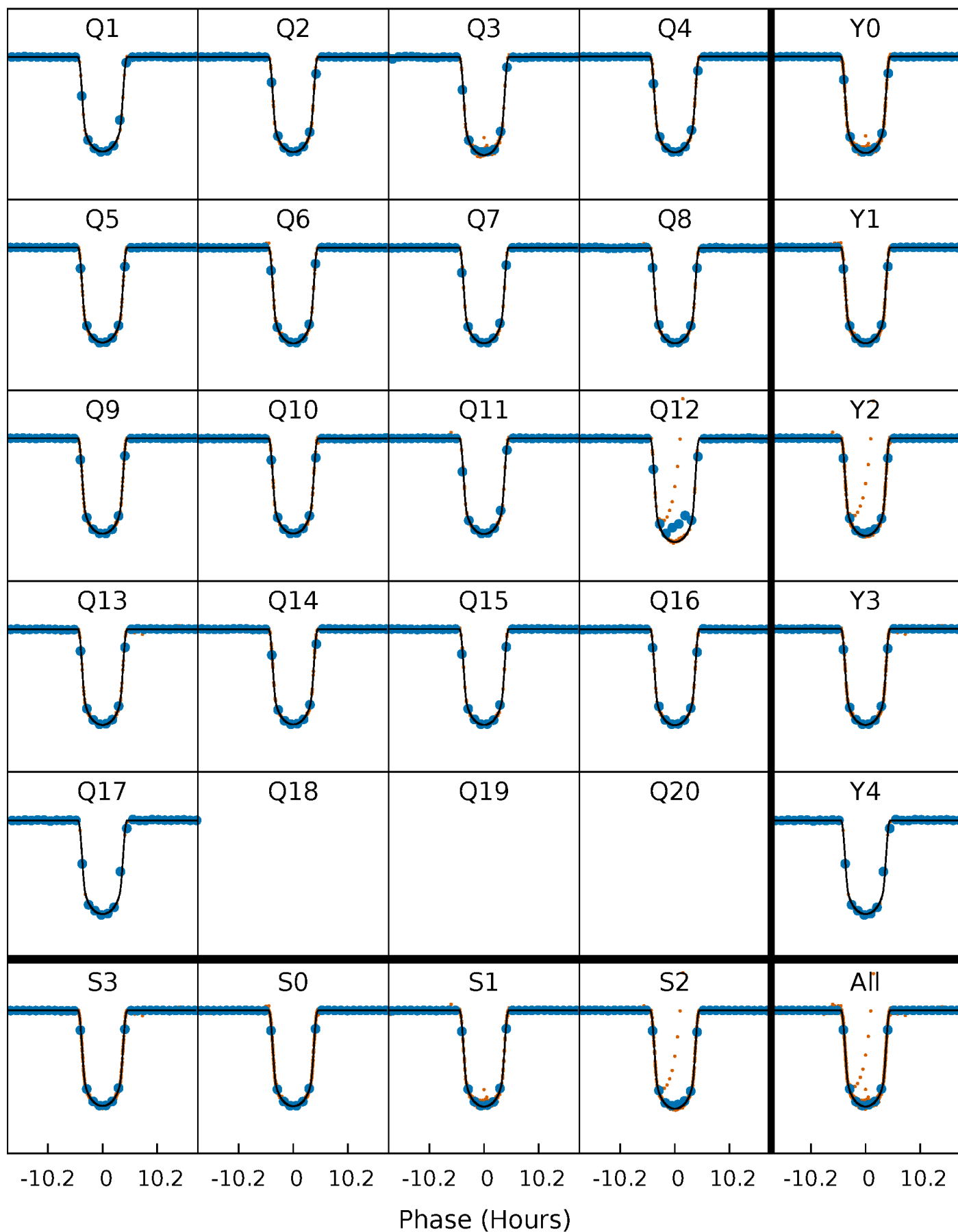
TCE 006523216-01 P= 14.313155 Days  $T_0=138.220560$  (BKJD)





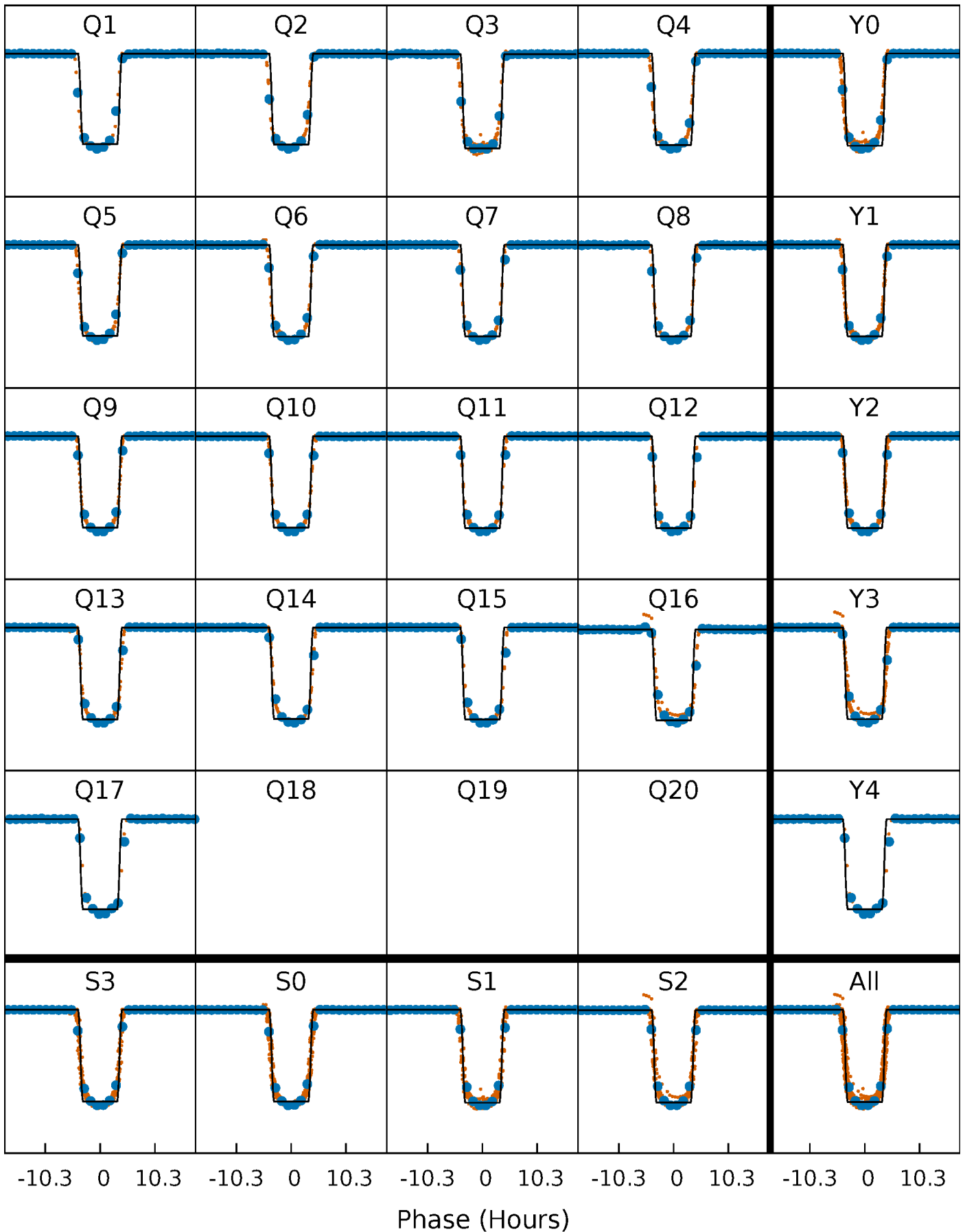
# DV Quarter-Phased Transit Curves

TCE 006523216-01 P= 14.313155 Days  $T_0=138.220560$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

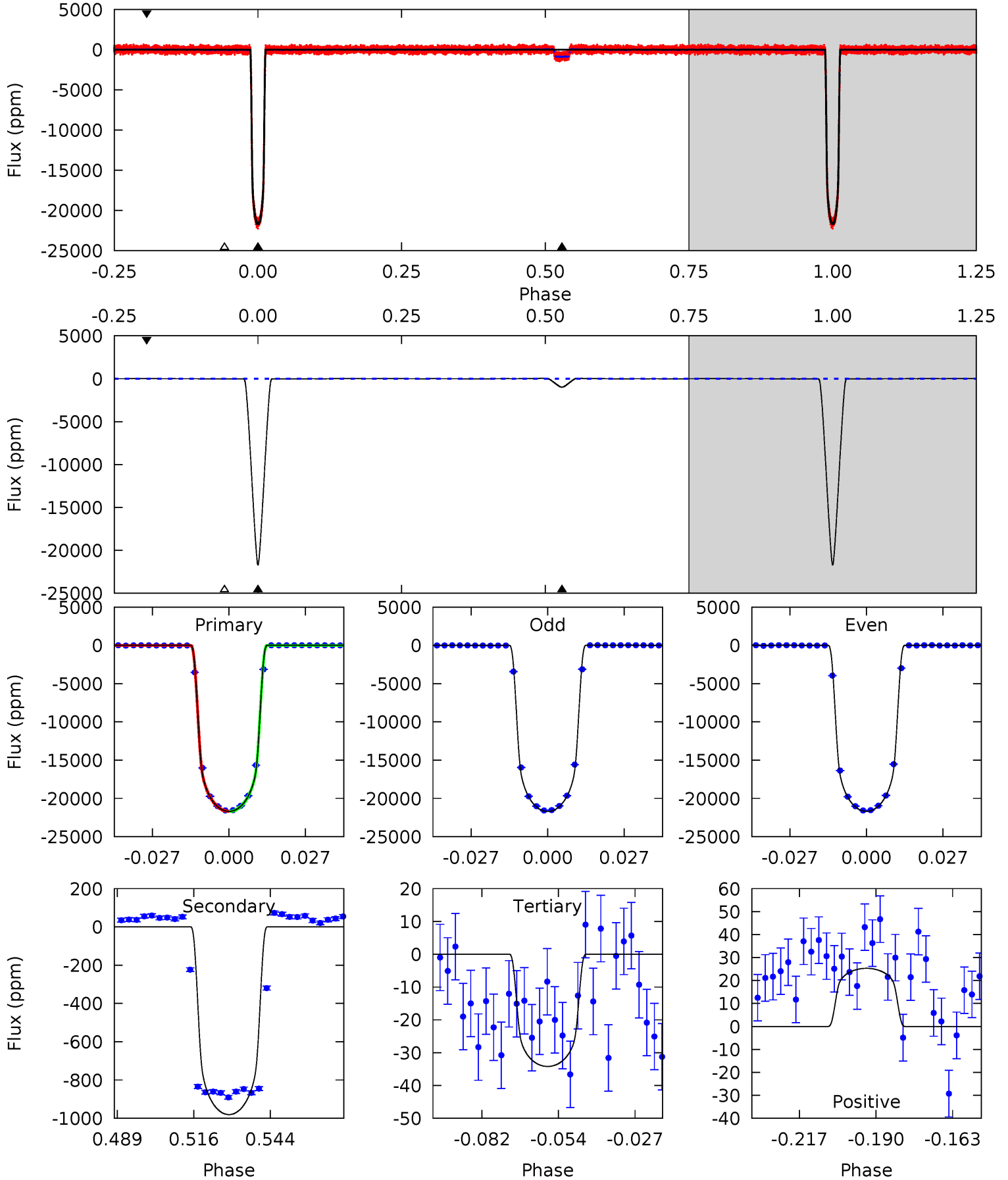
TCE 006523216-01 P= 14.312821 Days  $T_0=138.237784$  (BKJD)



# DV Model-Shift Uniqueness Test

006523216-01, P = 14.313155 Days, E = 123.907405 Days

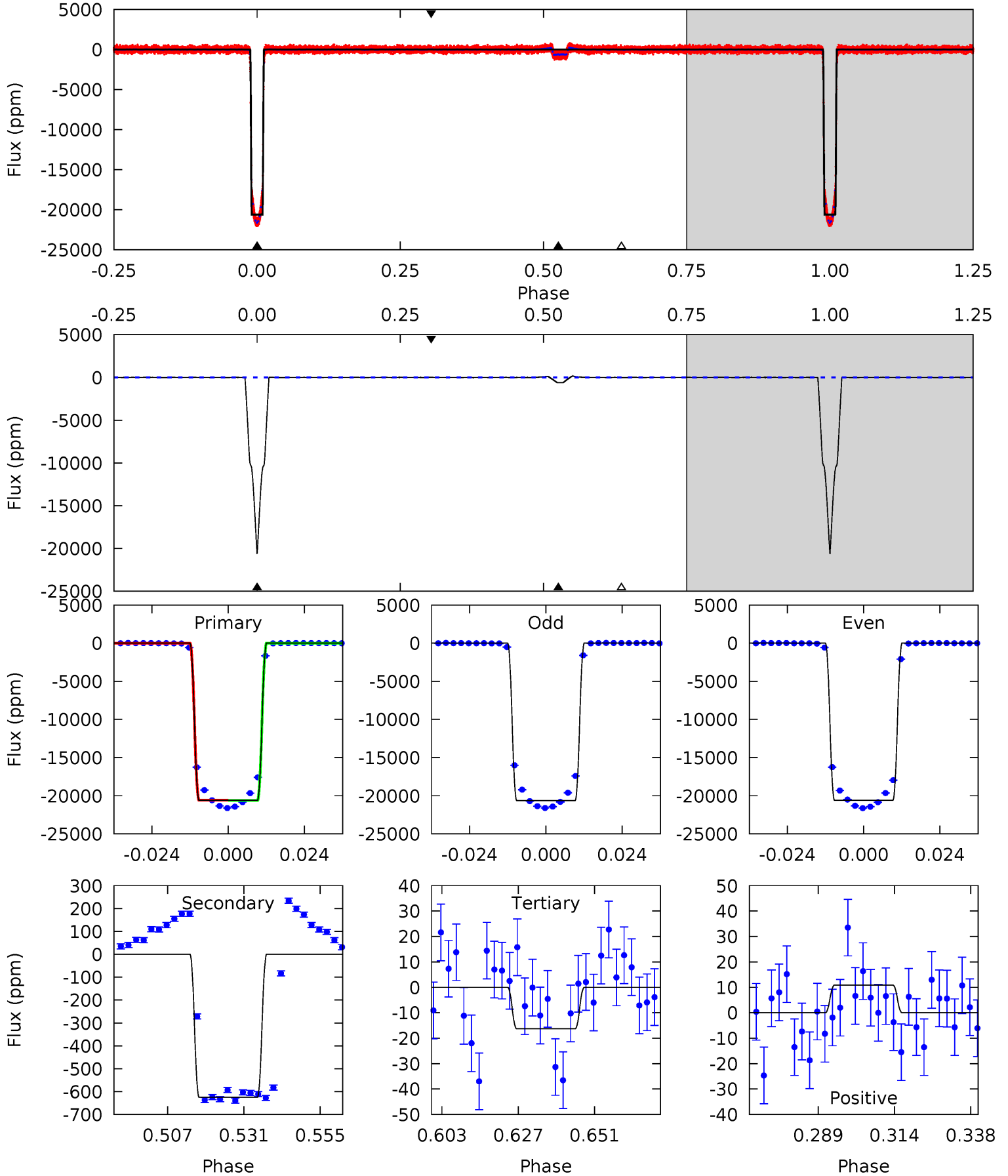
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
6043	273.1	9.52	7.04	4.83	2.21	4.16	6033	6036	263.6	266.1	2.80	0.99	0.00	1.98



# Alt Model-Shift Uniqueness Test

006523216-01, P = 14.312821 Days, E = 123.924963 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
4768	144.6	3.78	2.52	4.85	2.26	3.54	4765	4766	140.8	142.1	4.40	1.00	0.01	3.68



### Stellar Parameters For KIC 006523216

	$T_{\text{eff}} (K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R (R_{\odot})$	$M (M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	$5750^{+77}_{-86}$	$3.703^{+0.162}_{-0.108}$	$-0.700^{+0.150}_{-0.150}$	$2.379^{+0.547}_{-0.547}$	$1.041^{+0.172}_{-0.156}$	$0.109^{+0.101}_{-0.038}$
	+1%/-1%	+4%/-3%	+21%/-21%	+23%/-23%	+17%/-15%	+93%/-35%
Source	SPE74	SPE74	SPE74	DSEP		

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

### Secondary Eclipse Parameters for KIC 006523216-01 / KOI 6725.01

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	$A_{\text{obs}}$
DV	$-981 \pm 4$	$34.49^{+4.37}_{-4.13}$	$1590^{+81}_{-95}$	$3299^{+28}_{-34}$	$6.216^{+1.570}_{-1.075}$
Alt.	$-624 \pm 4$	$37.24^{+4.48}_{-4.44}$	$1594^{+76}_{-95}$	$3007^{+26}_{-30}$	$3.381^{+0.891}_{-0.538}$

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

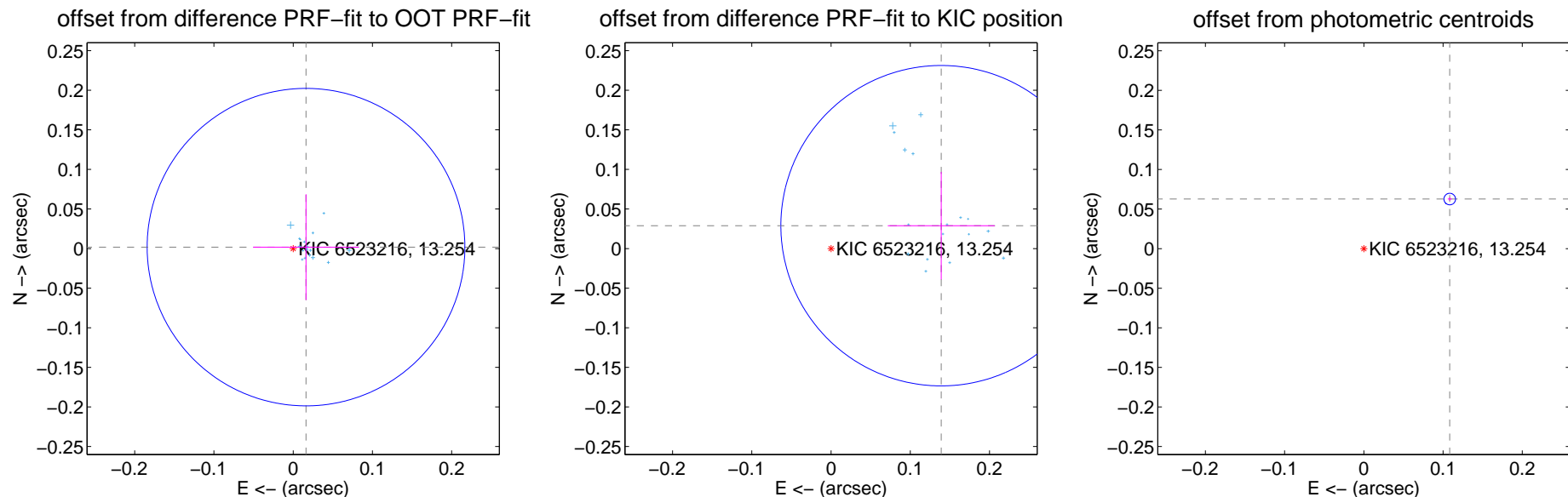
## DV Centroid Data

Supplemental centroid analysis for 006523216-01. Kepler magnitude: 13.25. Transit SNR 3177.75

There are 17 quarters with good PRF difference image offsets

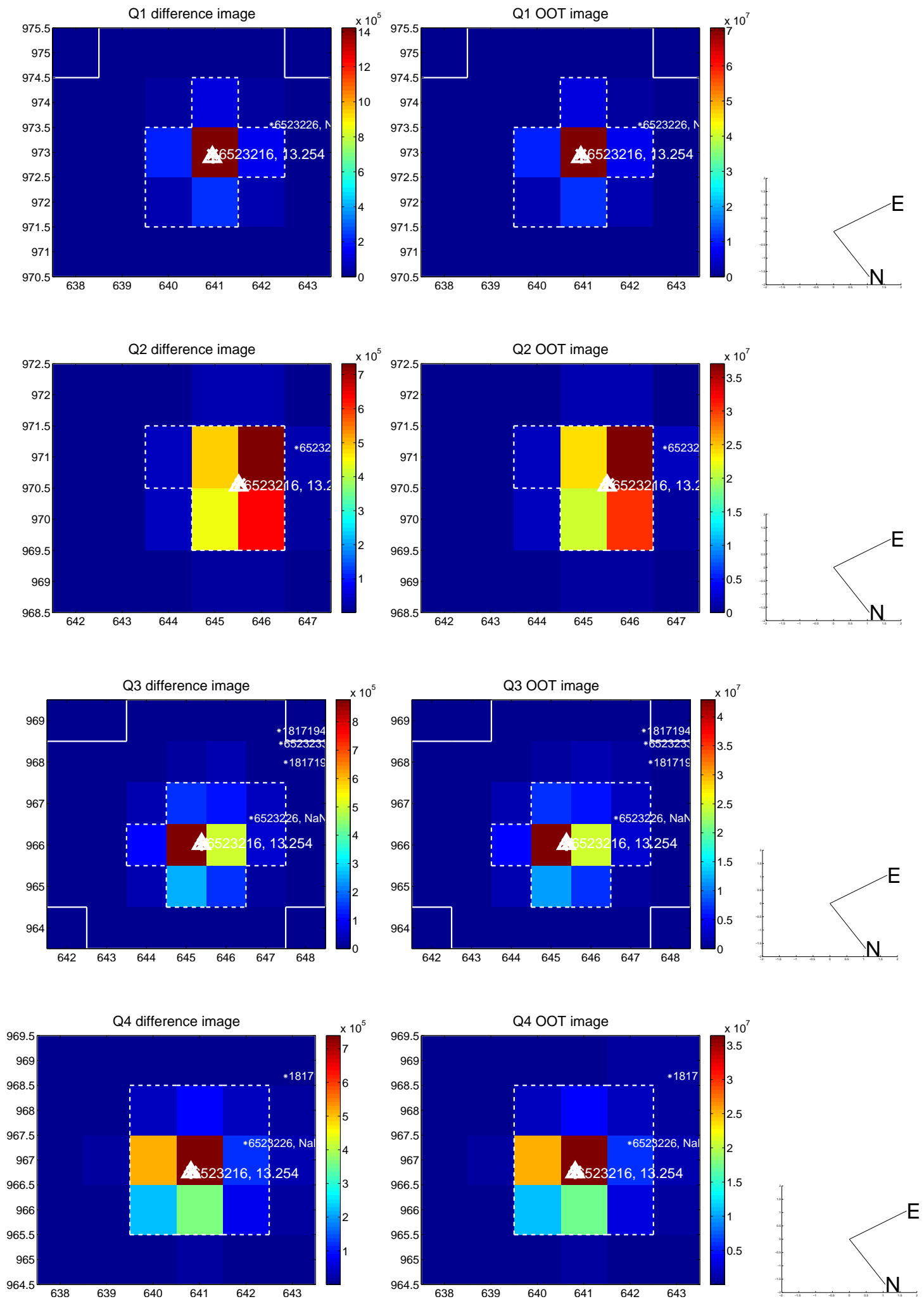
The direct PRF centroid is offset from the target star catalog position by about 0.15 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$0.016 \pm 0.067$	0.24	$-0.016 \pm 0.067$	$0.002 \pm 0.067$
PRF-fit source offset from KIC position	$0.142 \pm 0.067$	2.11	$-0.139 \pm 0.067$	$0.029 \pm 0.068$
photometric centroid source offset	$0.13 \pm 0.00$	51.52	$-0.11 \pm 0.00$	$0.06 \pm 0.00$

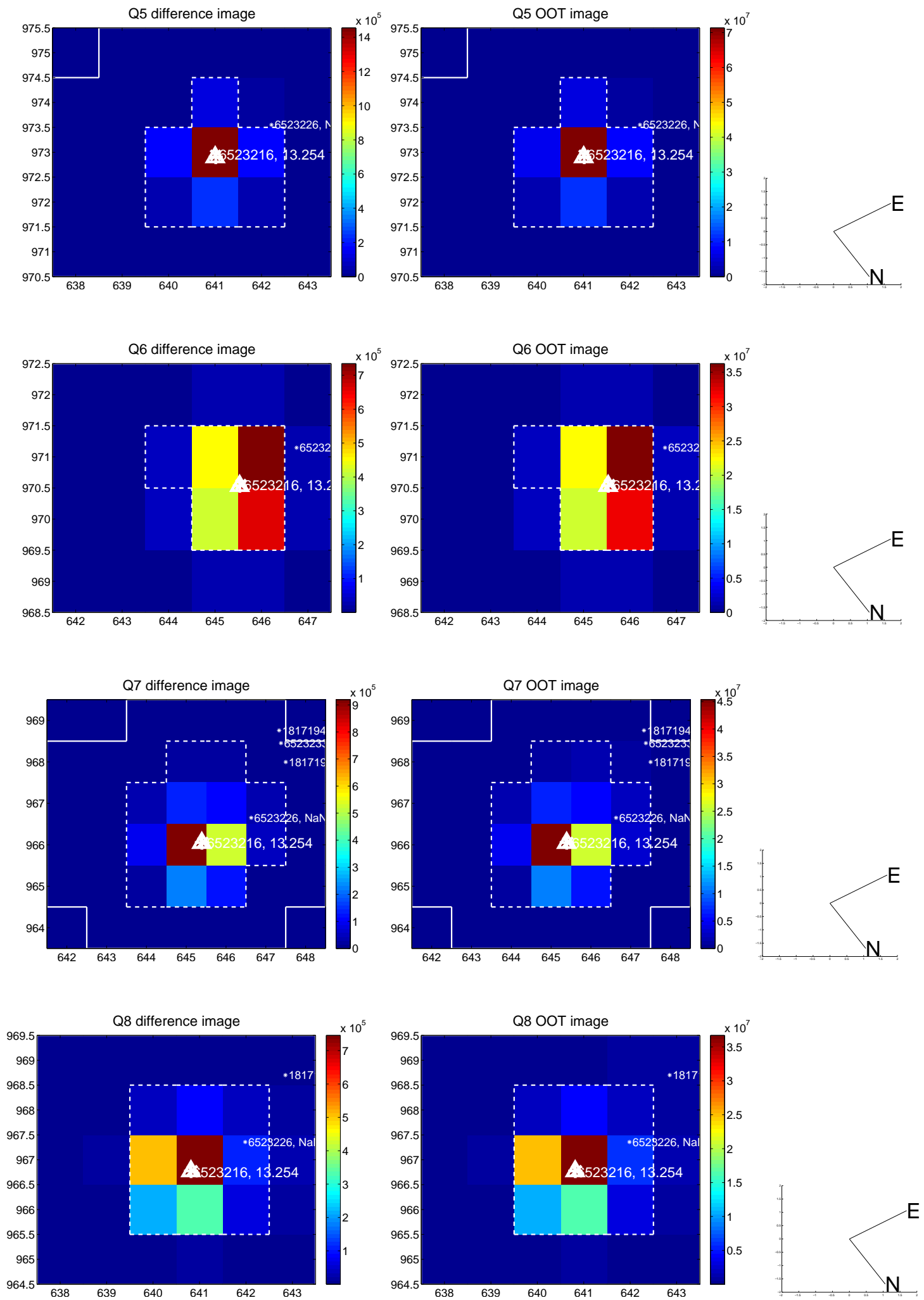


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses:** good quarterly centroid offsets; **Vermillion crosses:** bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: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

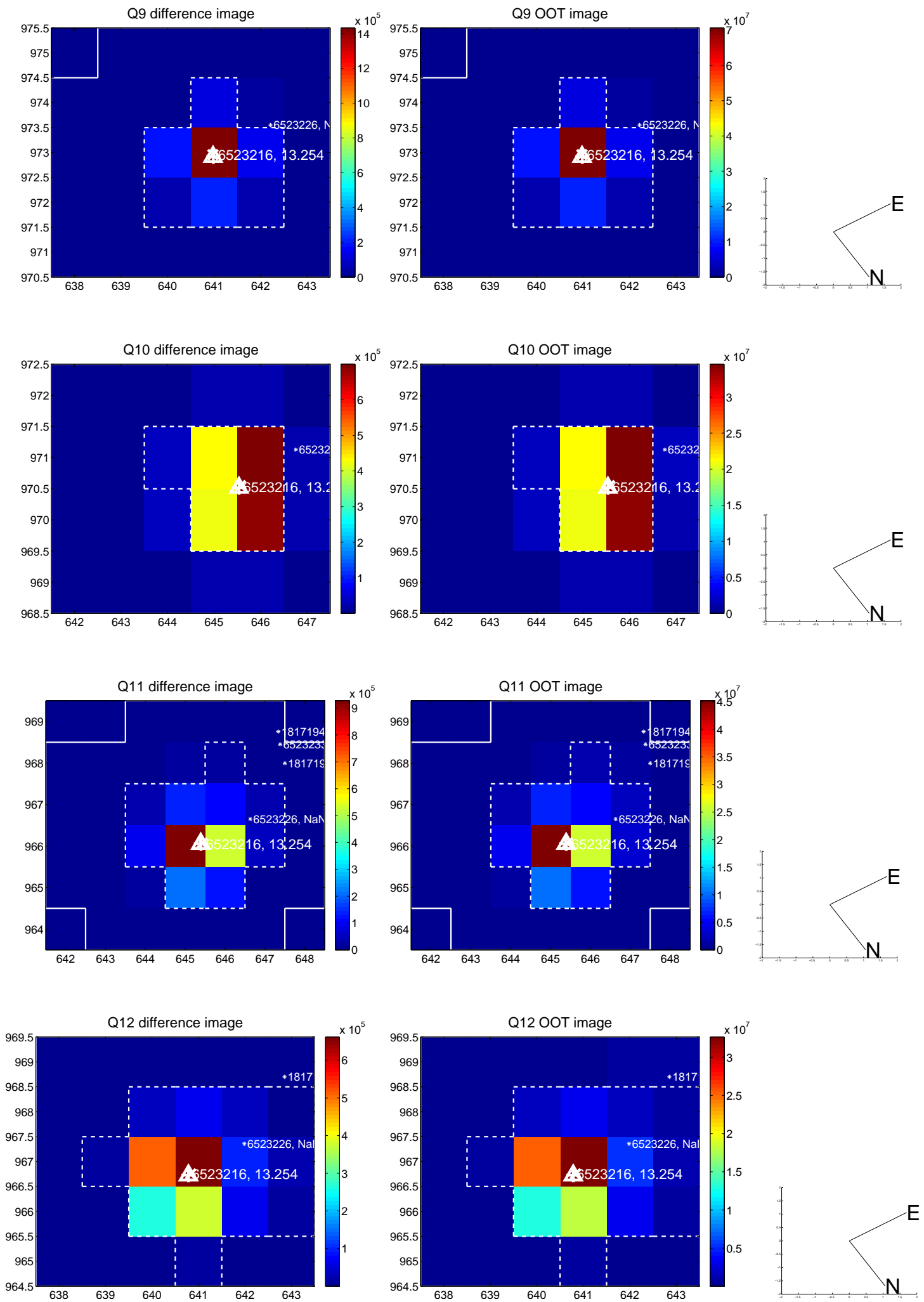


white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.

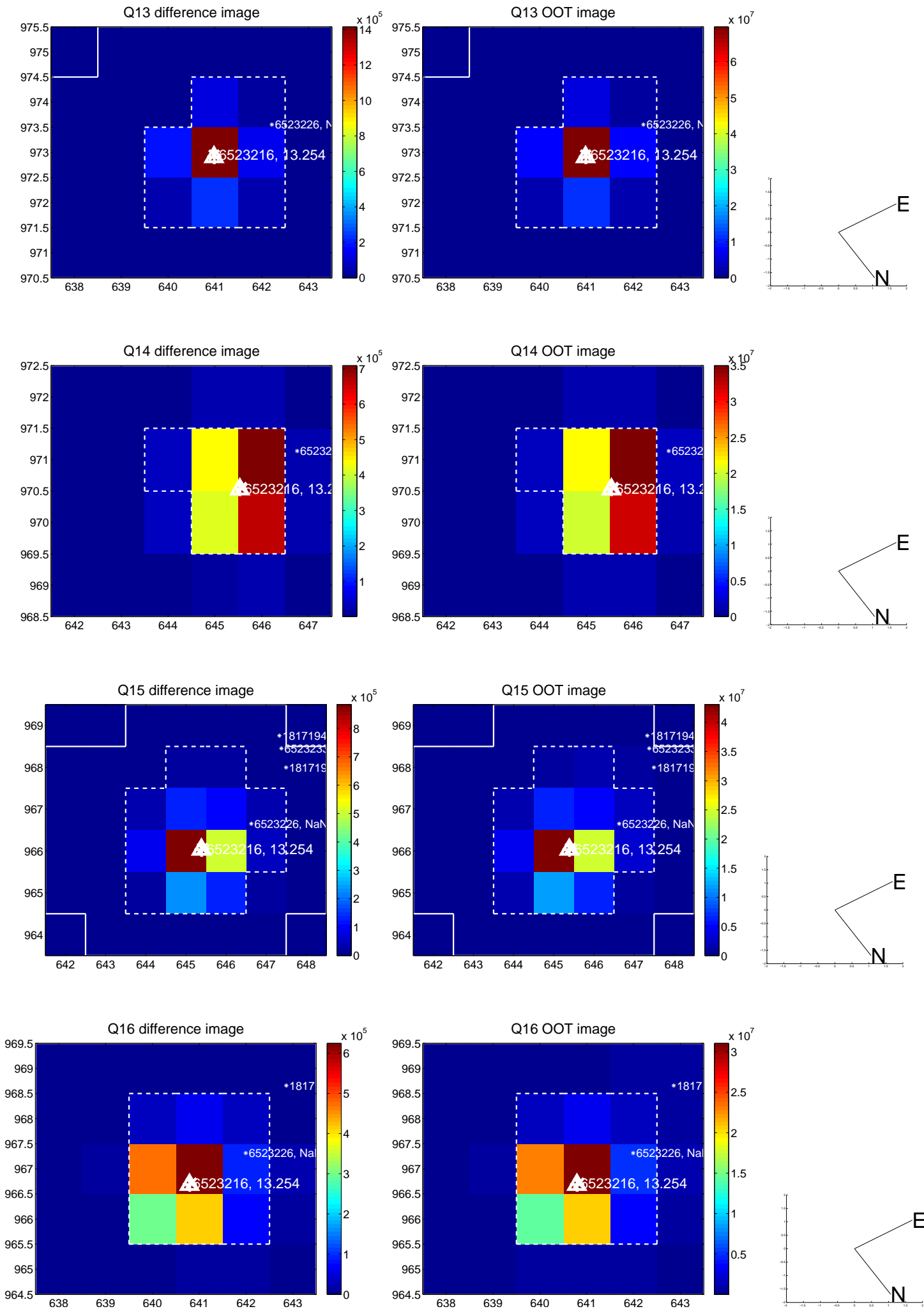




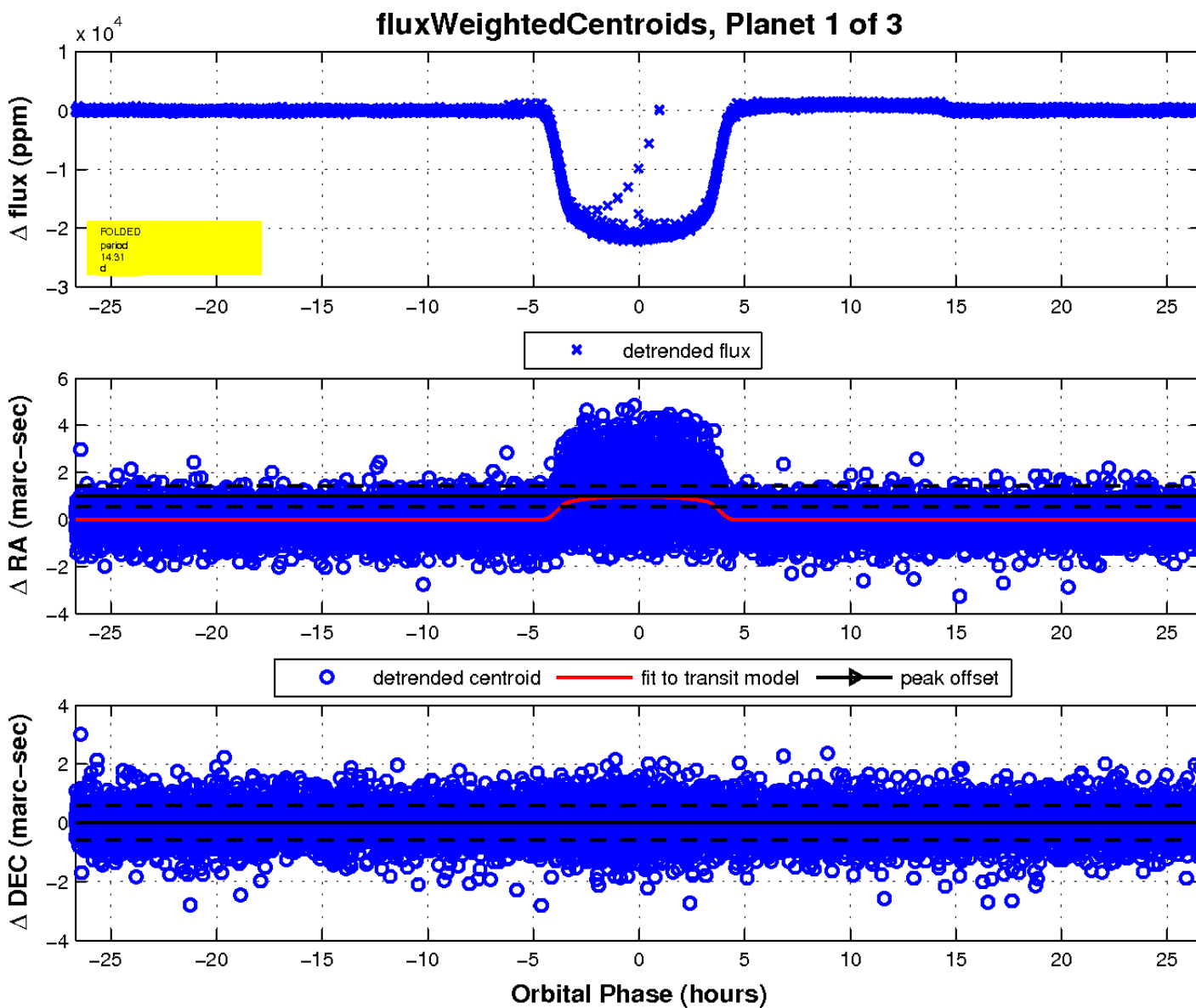
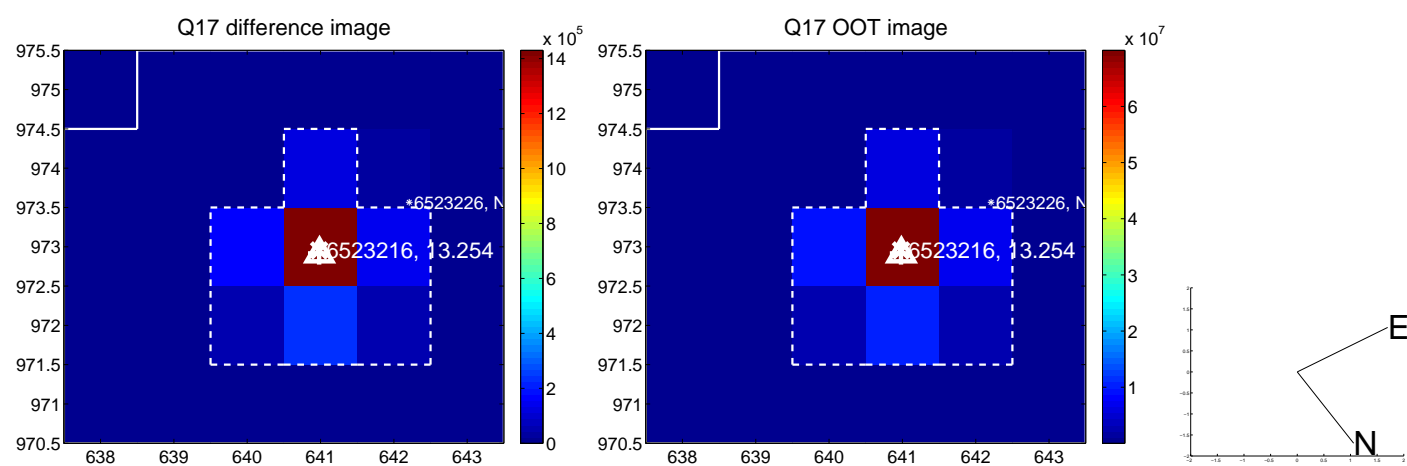
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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

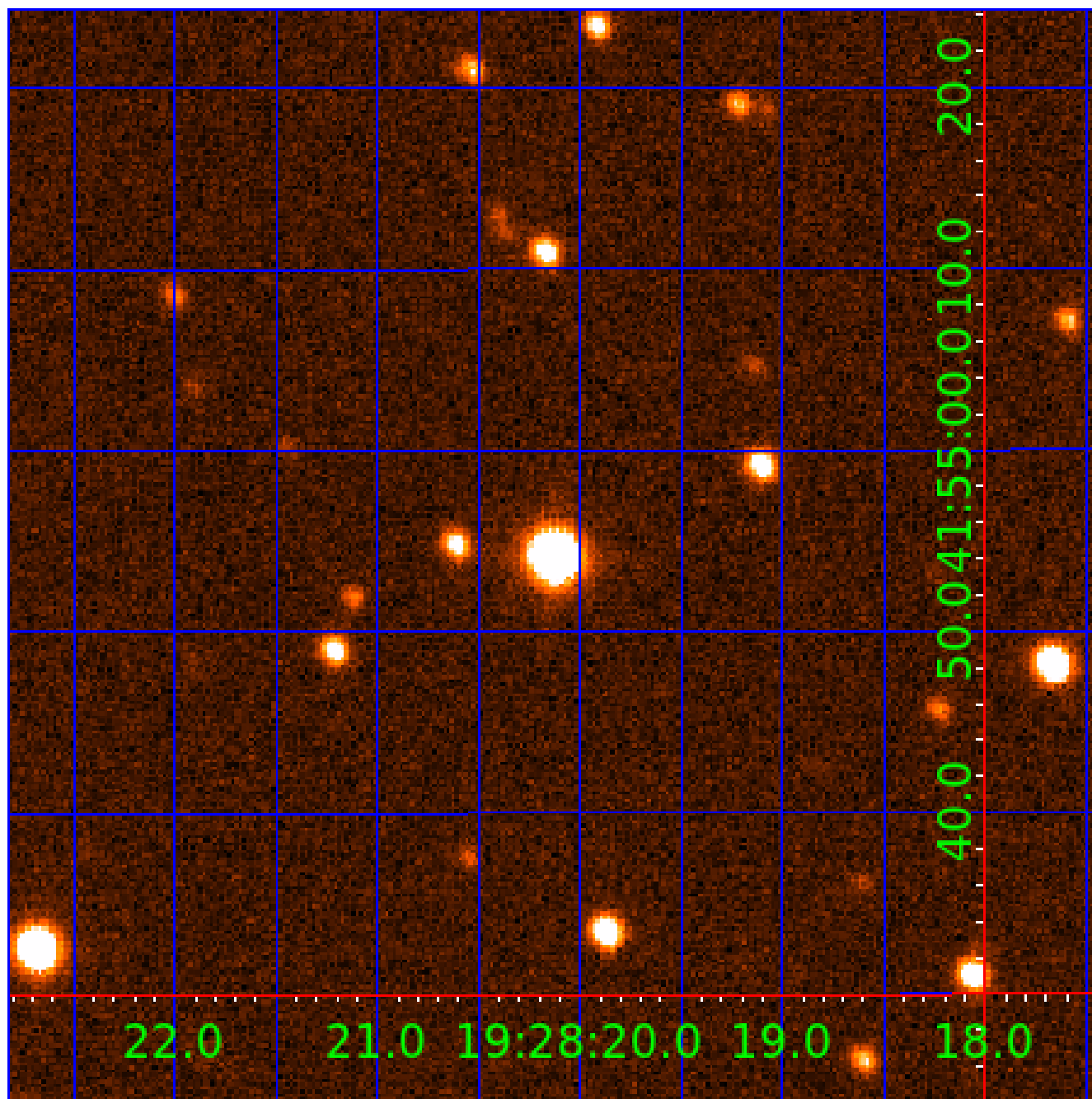


white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



UKIRT Image

Declination



# KIC 006523216

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
006523216-01	OBS	6725.01	14.313155	138.220560	21625.2	8.893	3336.7	3177.8	2.38	5750	34.91	405.06
006523216-02	OBS	No	7.156573	138.632527	892.9	10.384	158.2	144.3	2.38	5750	8.22	1020.68
006523216-03	OBS	No	364.060743	332.854763	403.5	9.203	22.6	10.2	2.38	5750	5.29	5.42

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
006523216-01	OBS	FP	0.00	0	1	0	0	MOD_SEC_DV—MOD_SEC_ALT—HAS_SEC_TCE
006523216-02	OBS	FP	0.00	1	1	0	0	IS_SEC_TCE
006523216-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_MARSHALL—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—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.

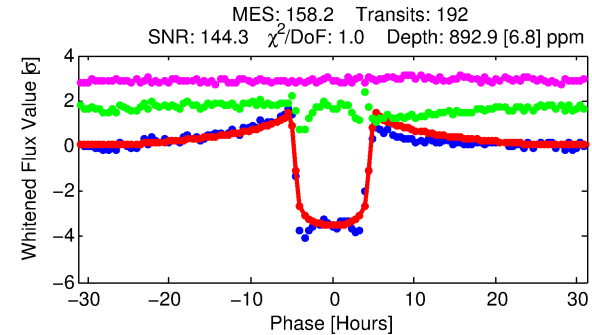
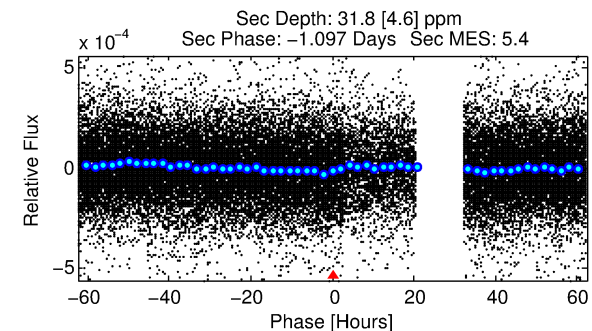
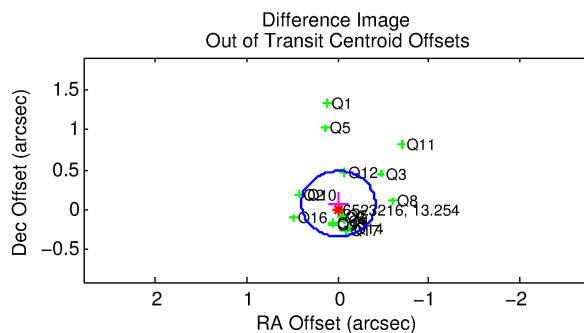
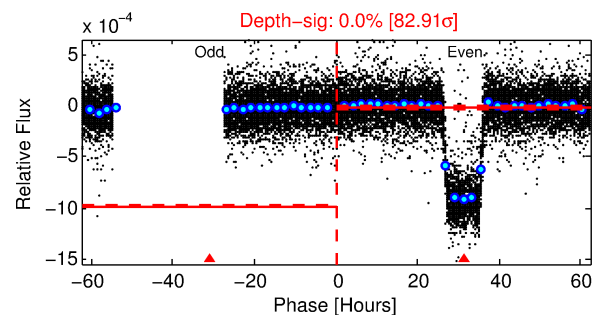
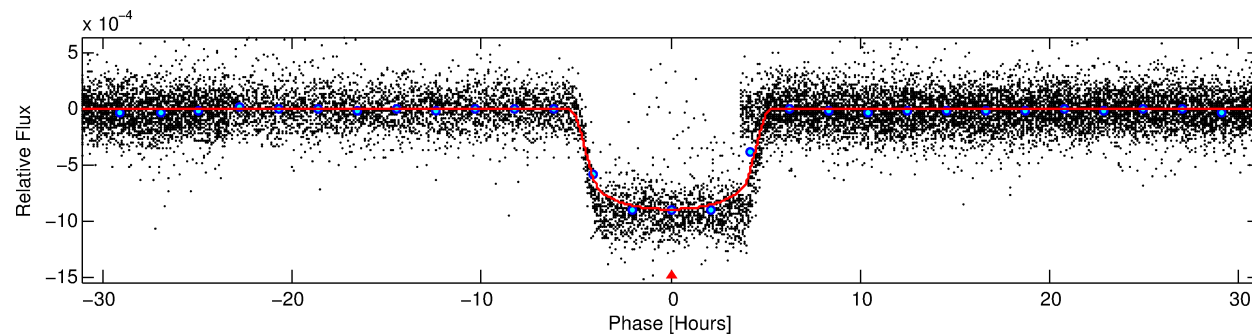
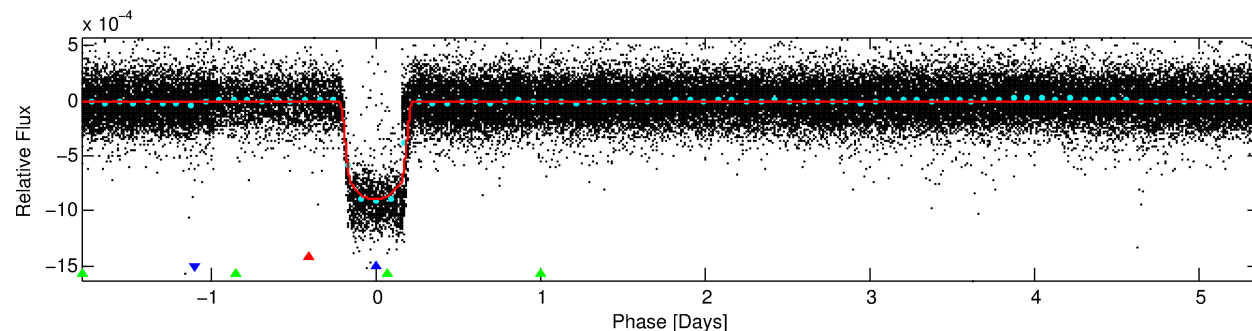
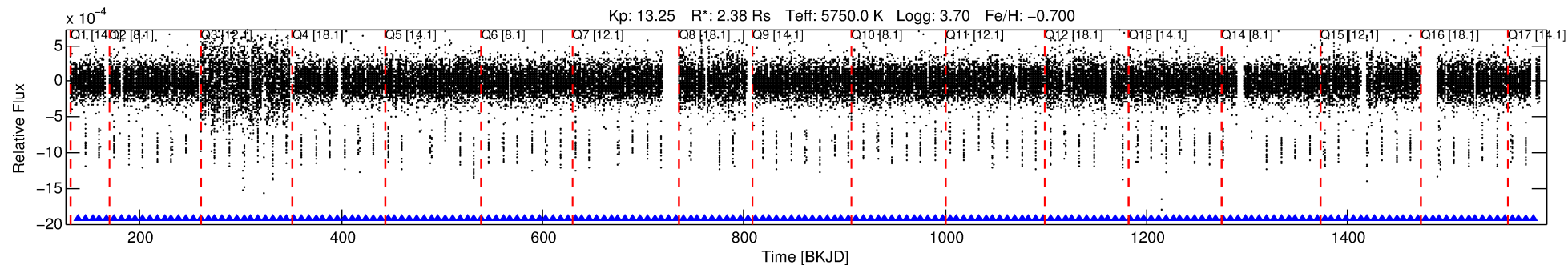
## Ephemeris Match Information For 006523216-02

No Significant Match Found

# DV One-Page Summary

KIC: 6523216 Candidate: 2 of 3 Period: 7.157 d  
KOI: K06725 Corr: No Ephemeris Match

Kp: 13.25 R\*: 2.38 Rs Teff: 5750.0 K Logg: 3.70 Fe/H: -0.700



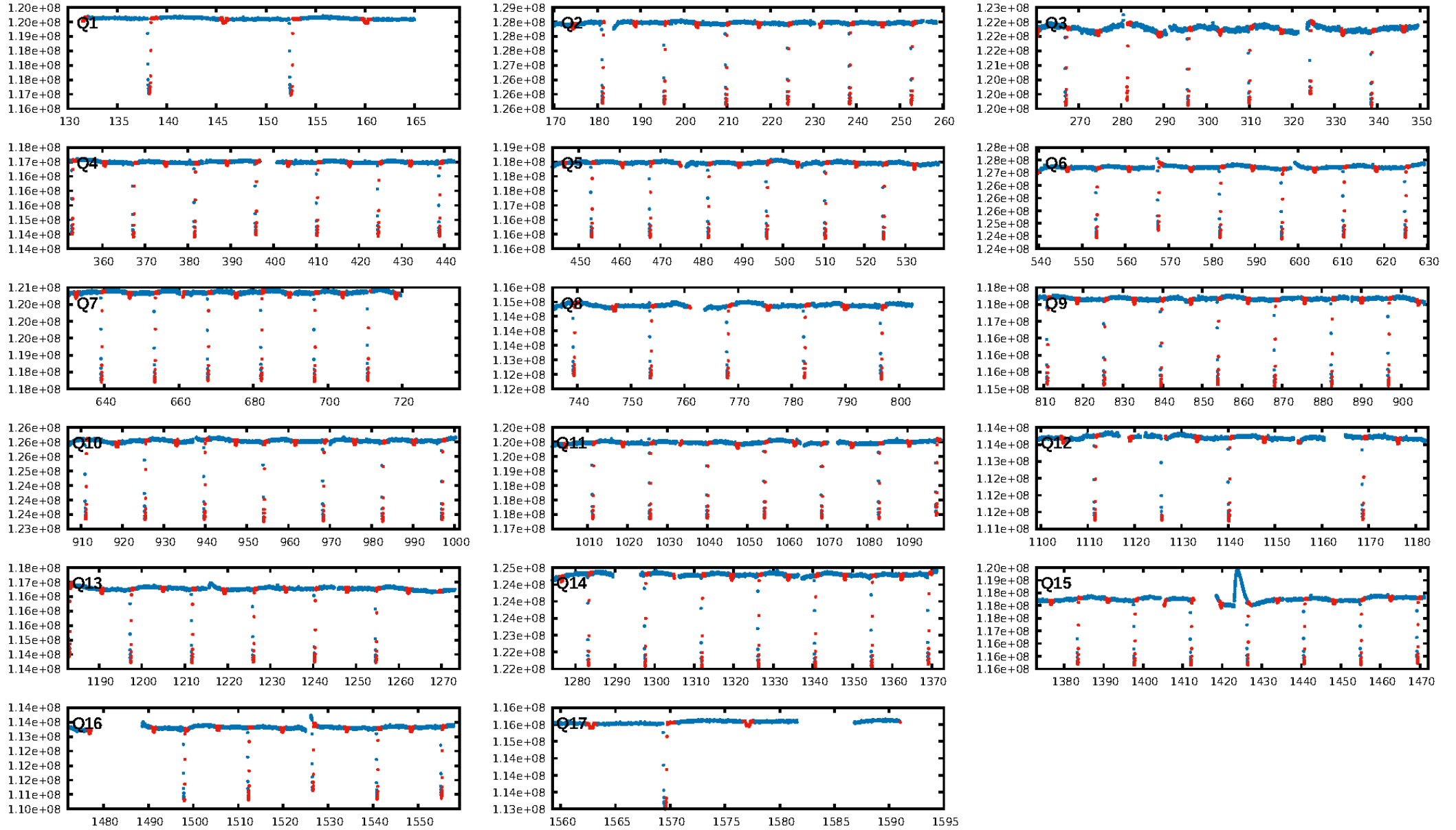
## DV Fit Results:

Period = 7.15657 [0.00001] d  
Epoch = 138.6325 [0.0010] BKJD  
Rp/R\* = 0.0317 [0.0002]  
a/R\* = 3.00 [0.06]  
b = 0.88 [0.01]  
Seff = 1020.68 [304.36]  
Teq = 1441 [107] K  
Rp = 8.22 [1.89] Re  
a = 0.0737 [0.0145] AU  
Ag = 1.40 [0.46] [0.88σ]  
Teffp = 2425 [96] K [6.84σ]

## DV Diagnostic Results:

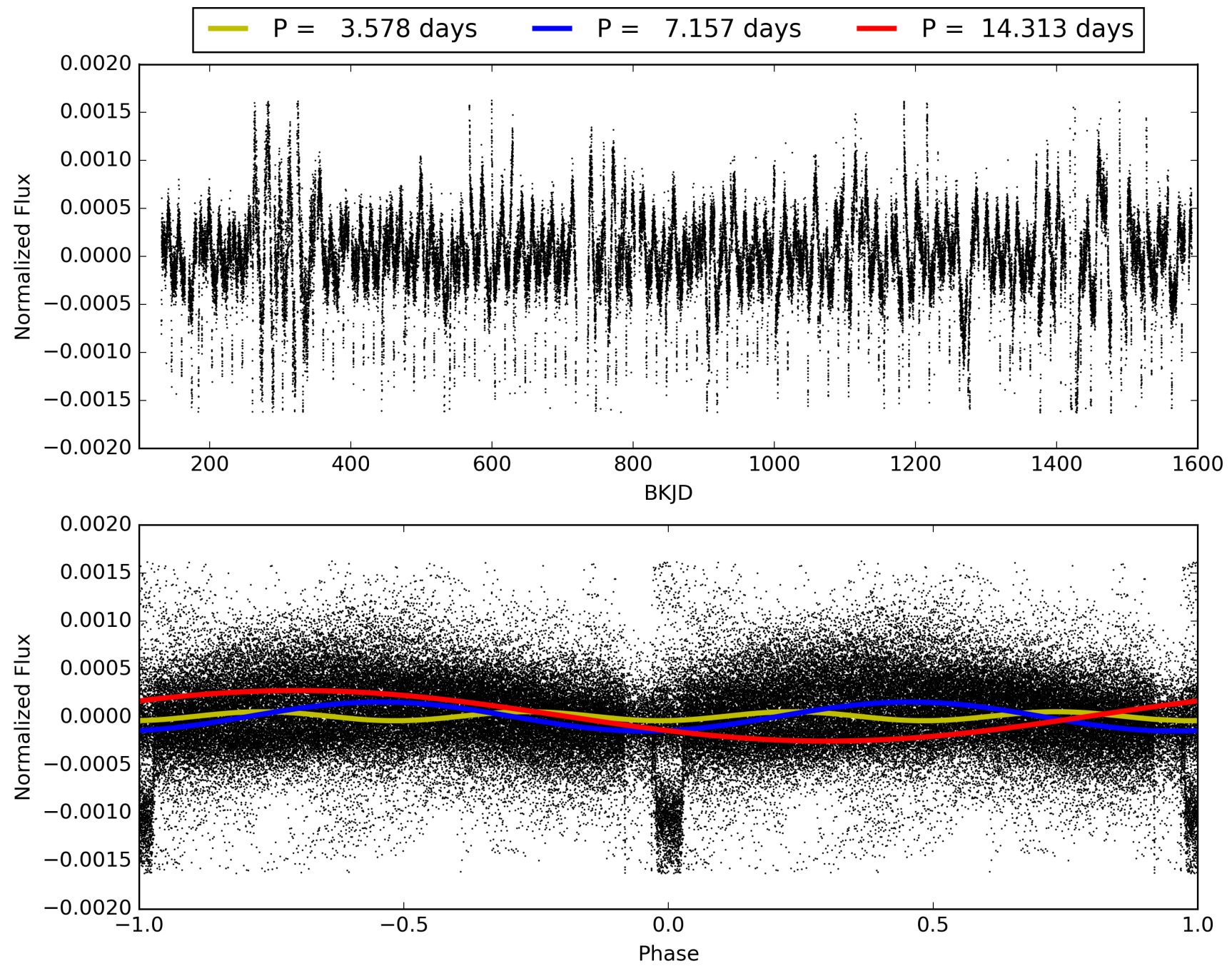
ShortPeriod-sig: N/A  
LongPeriod-sig: 100.0% [12.56σ]  
ModelChiSquare2-sig: 0.0%  
ModelChiSquareGof-sig: 100.0%  
Bootstrap-pfa: 0.00e+00  
RollingBand-fgt: 1.00 [184/184]  
GhostDiagnostic-chr: 3.63  
Centroid-sig: 3.6%  
Centroid-so: 0.035 arcsec [0.90σ]  
OotOffset-rm: 0.076 arcsec [0.56σ]  
KicOffset-rm: 0.121 arcsec [1.07σ]  
OotOffset-st: 4/4/4/5 [17]  
KicOffset-st: 4/4/4/5 [17]  
DiffImageQuality-fgm: 1.00 [17/17]  
DiffImageOverlap-fno: 1.00 [17/17]

# TCE 006523216-02, PDC Light Curves





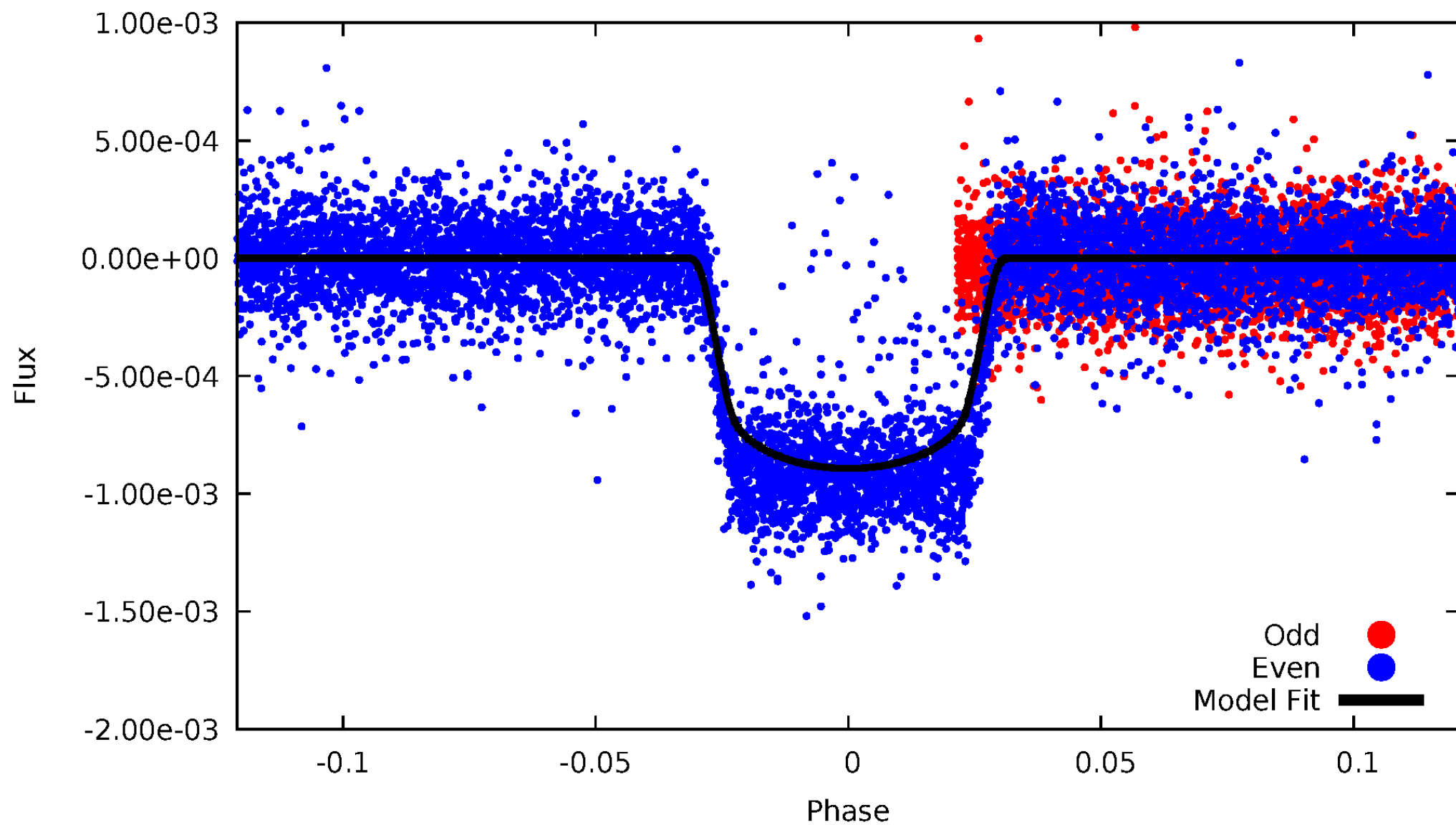
TCE 006523216-02





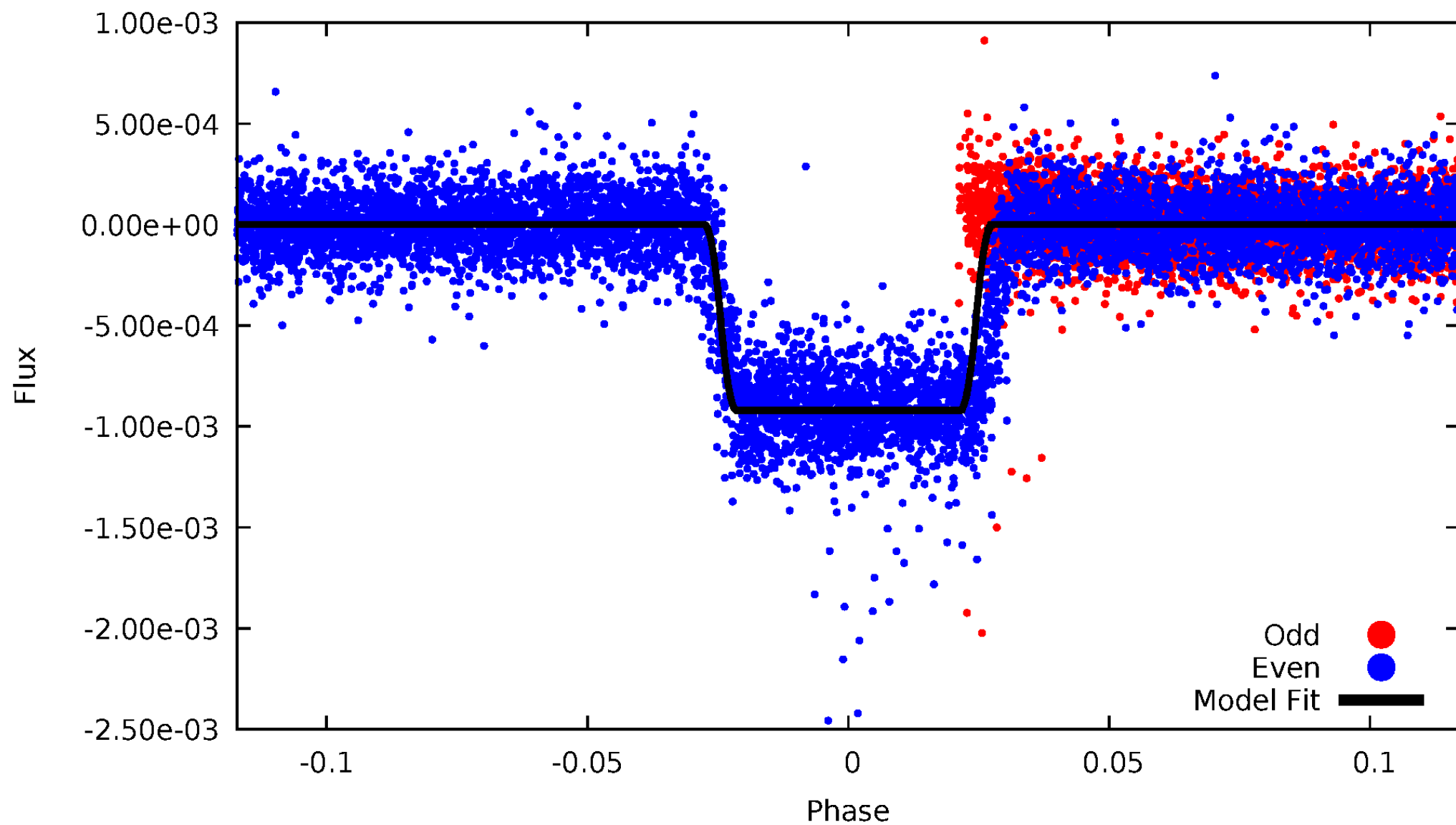
# DV Odd/Even

TCE 006523216-02



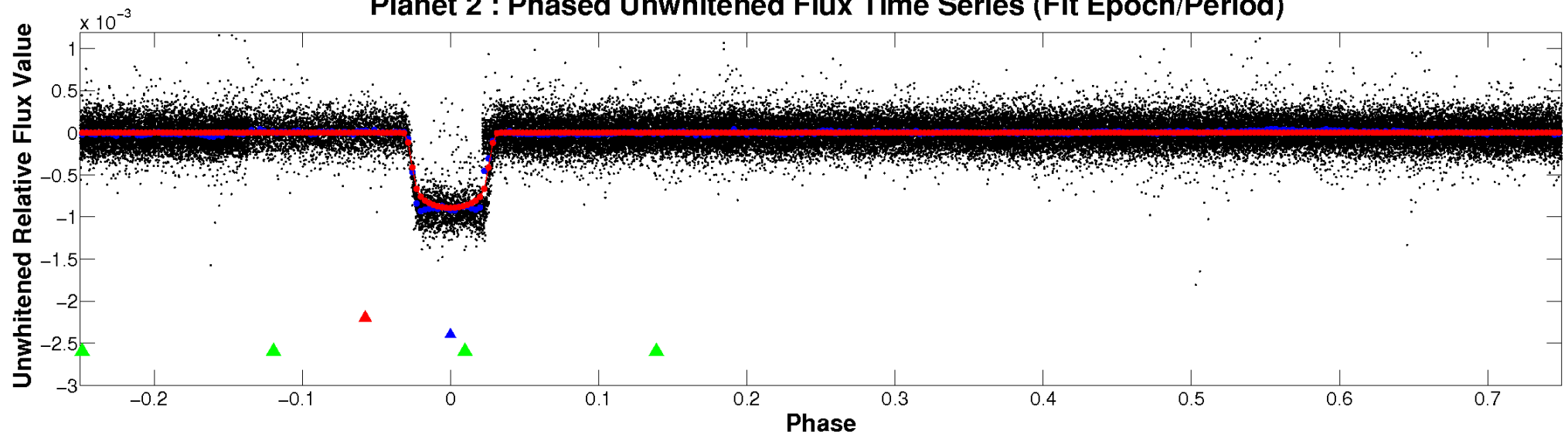
# ALT Odd/Even

TCE 006523216-02

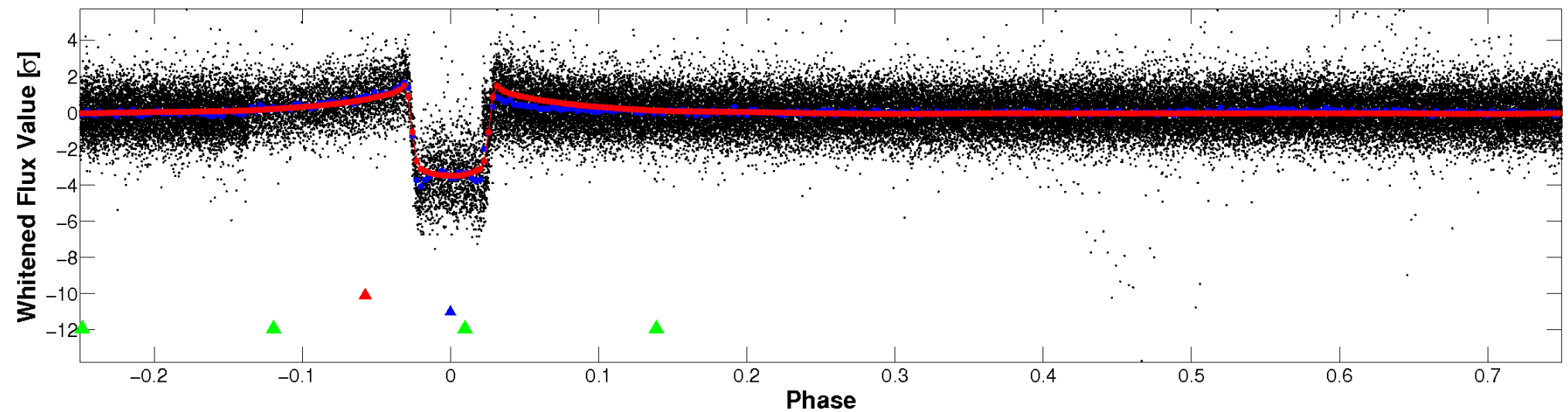


# Non-Whitened Vs. Whitened Light Curve

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

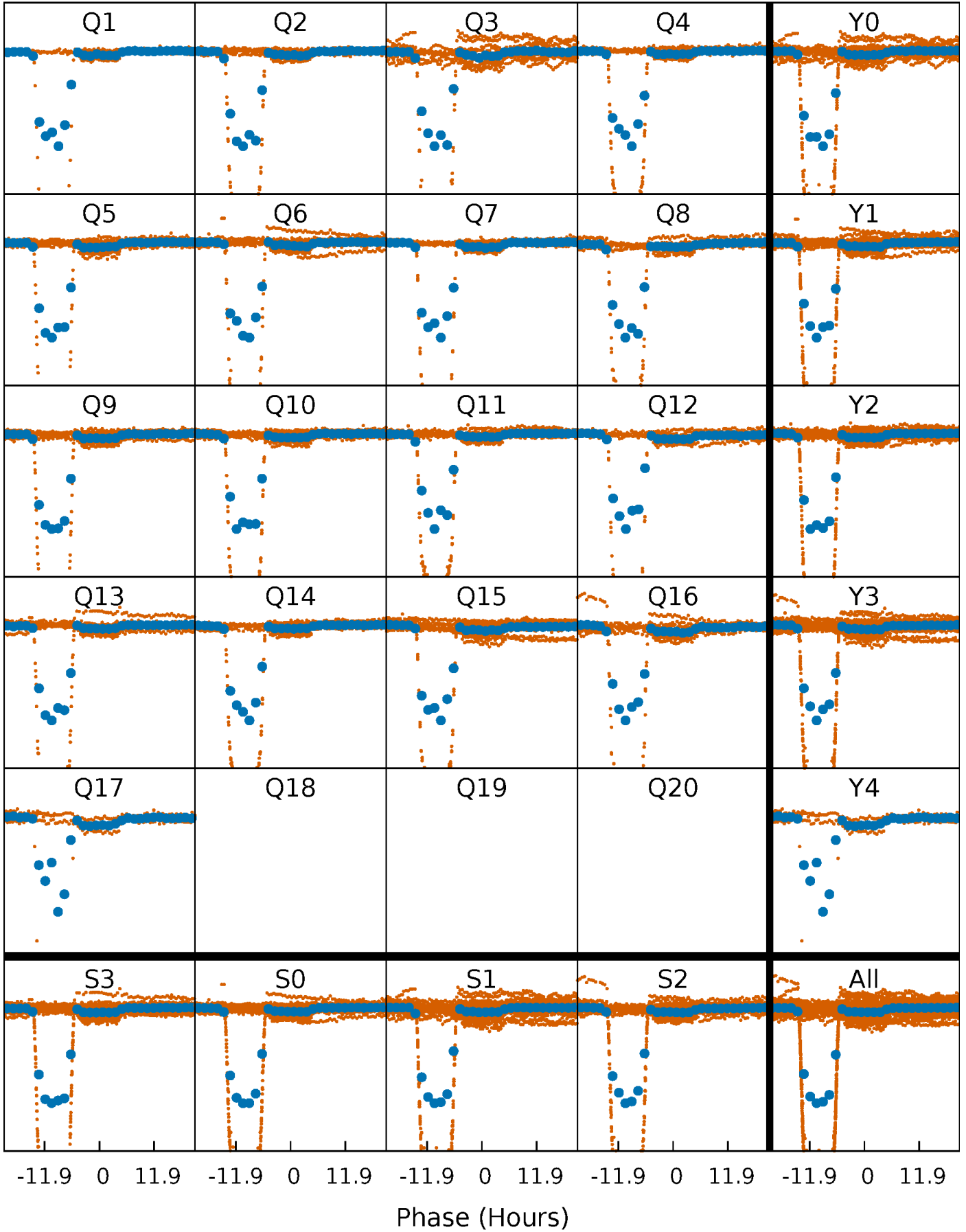


## Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



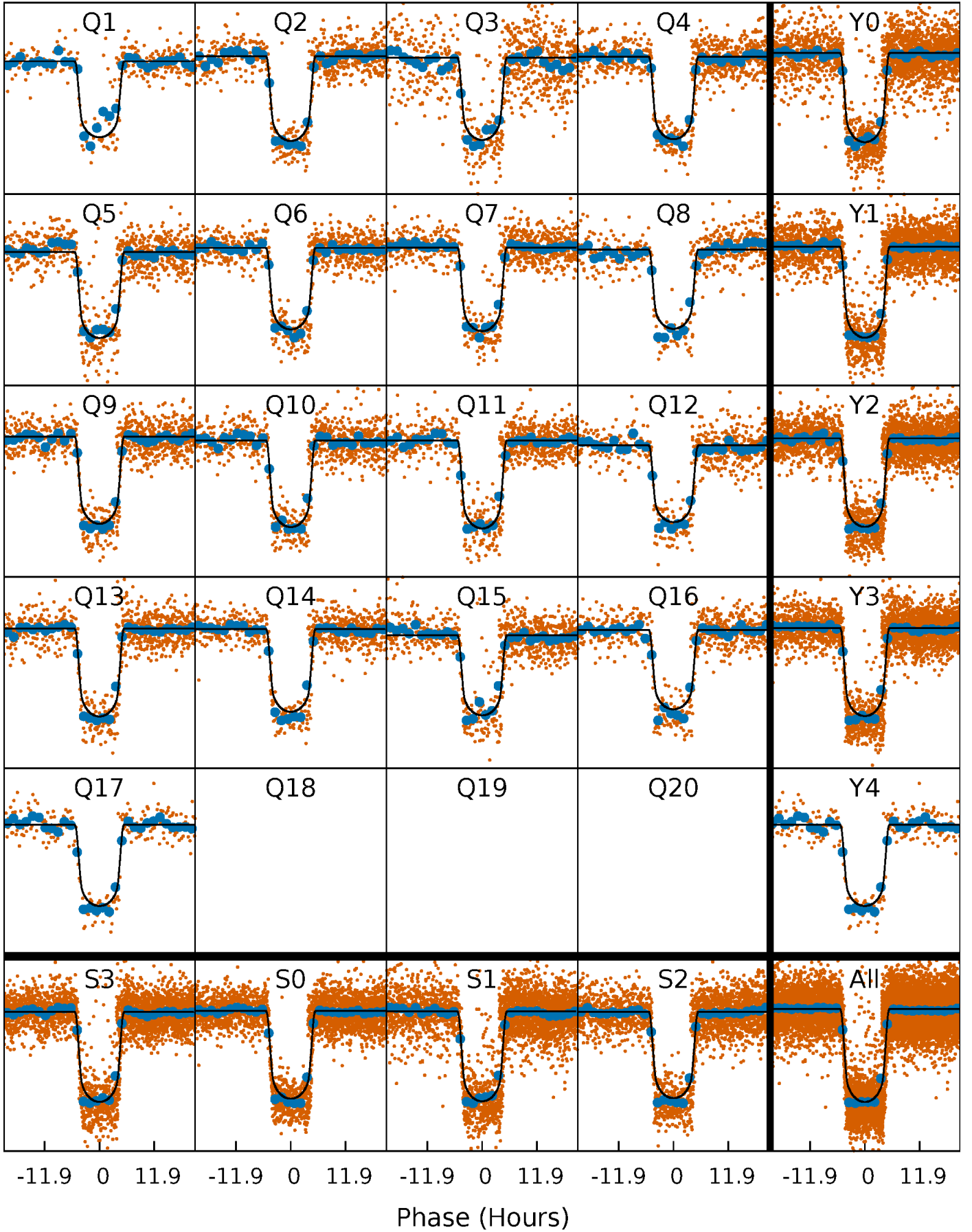
# PDC Quarter-Phased Transit Curves

TCE 006523216-02     $P = 7.156573$  Days     $T_0 = 138.632527$  (BKJD)



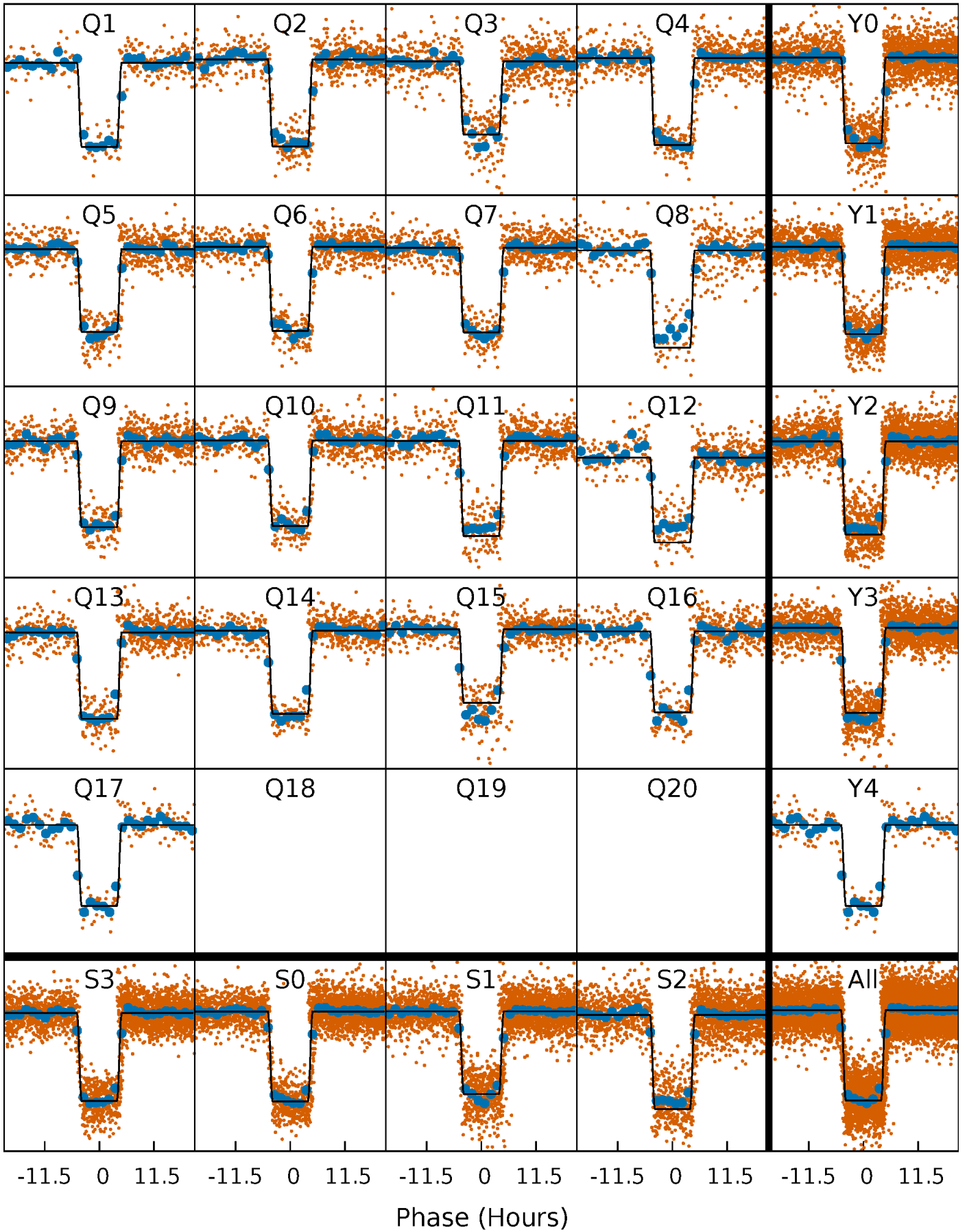
# DV Quarter-Phased Transit Curves

TCE 006523216-02   P= 7.156573 Days    $T_0=138.632527$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

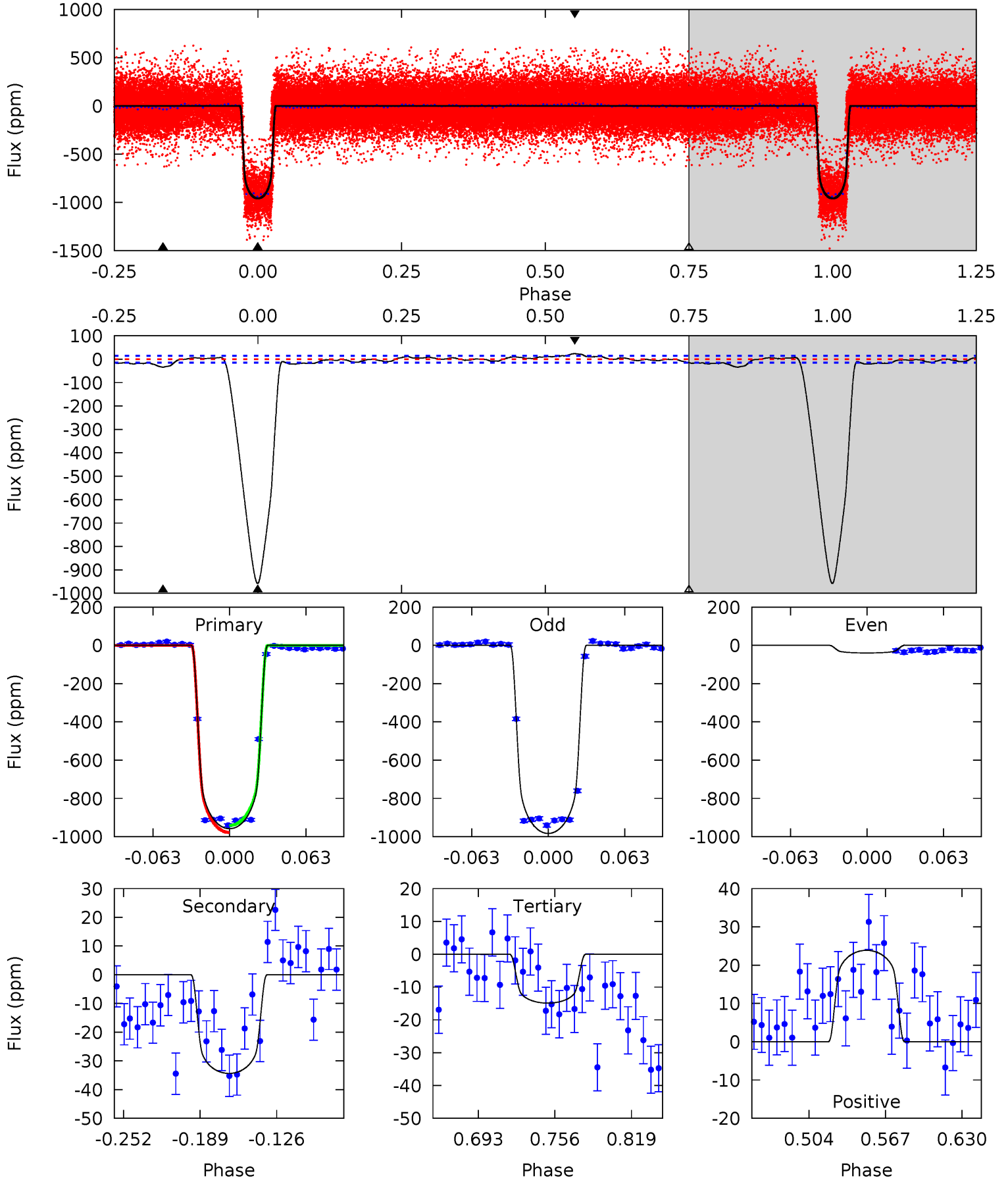
TCE 006523216-02   P= 7.156720 Days    $T_0=138.608919$  (BKJD)



# DV Model-Shift Uniqueness Test

006523216-02, P = 7.156573 Days, E = 131.475954 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
305.8	11.0	4.75	7.62	4.66	1.86	2.95	301.0	298.2	6.21	3.35	106.5	1.32	0.02	5.81

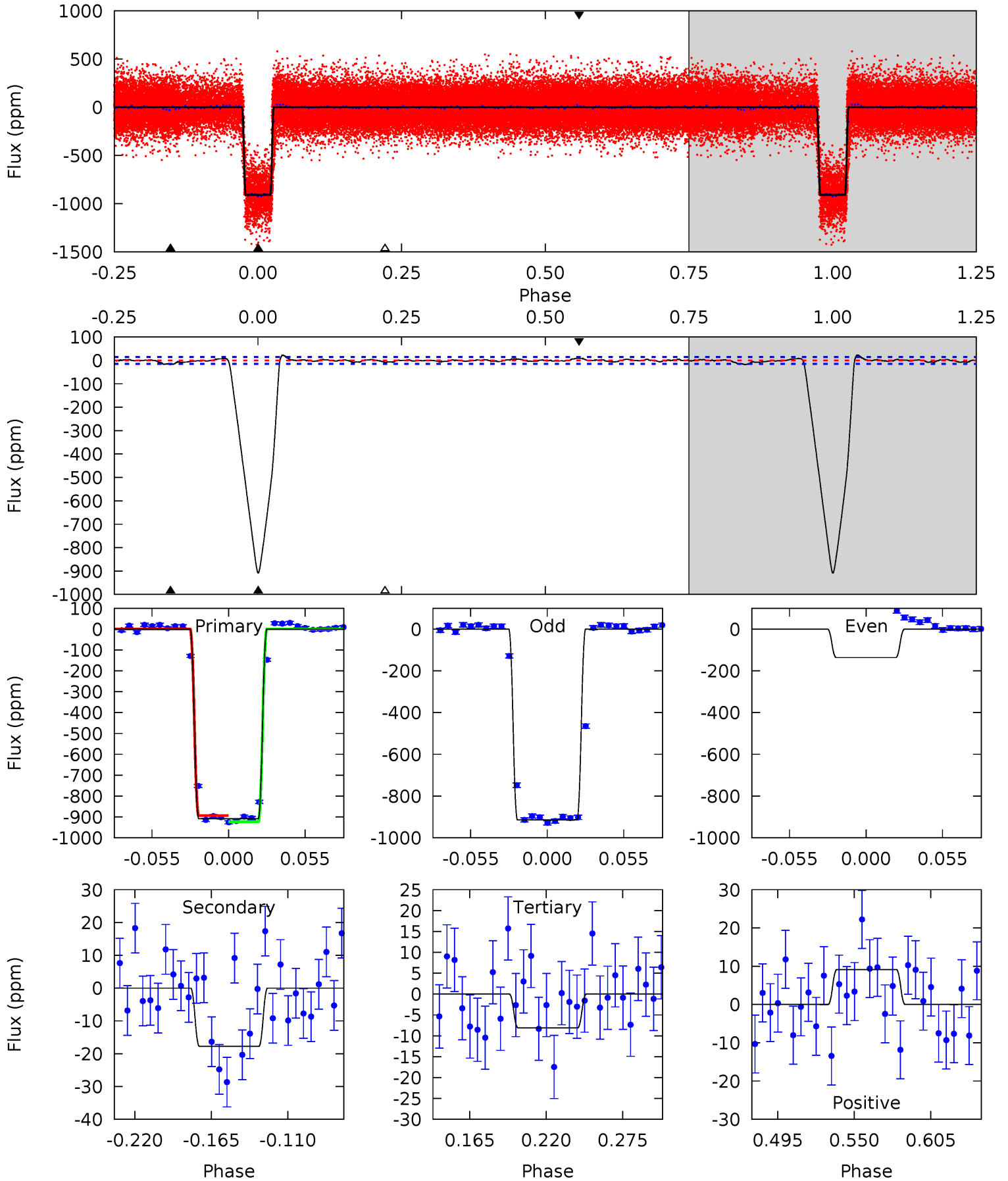




# Alt Model-Shift Uniqueness Test

006523216-02, P = 7.156720 Days, E = 131.452199 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
290.3	5.67	2.60	2.92	4.69	1.92	1.06	287.7	287.3	3.07	2.75	70.1	0.65	0.03	4.56





### Stellar Parameters For KIC 006523216

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	$5750^{+77}_{-86}$	$3.703^{+0.162}_{-0.108}$	$-0.700^{+0.150}_{-0.150}$	$2.379^{+0.547}_{-0.547}$	$1.041^{+0.172}_{-0.156}$	$0.109^{+0.101}_{-0.038}$
	+1%/-1%	+4%/-3%	+21%/-21%	+23%/-23%	+17%/-15%	+93%/-35%
Source	SPE74	SPE74	SPE74	DSEP		

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

### Secondary Eclipse Parameters for KIC 006523216-02 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	$A_{\text{obs}}$
DV	$-34 \pm 3$	$8.11^{+1.02}_{-0.96}$	$1995^{+101}_{-109}$	$3011^{+53}_{-65}$	$1.569^{+0.424}_{-0.310}$
Alt.	$-18 \pm 3$	$7.84^{+0.89}_{-0.94}$	$2002^{+98}_{-112}$	$2705^{+88}_{-119}$	$0.873^{+0.272}_{-0.207}$

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

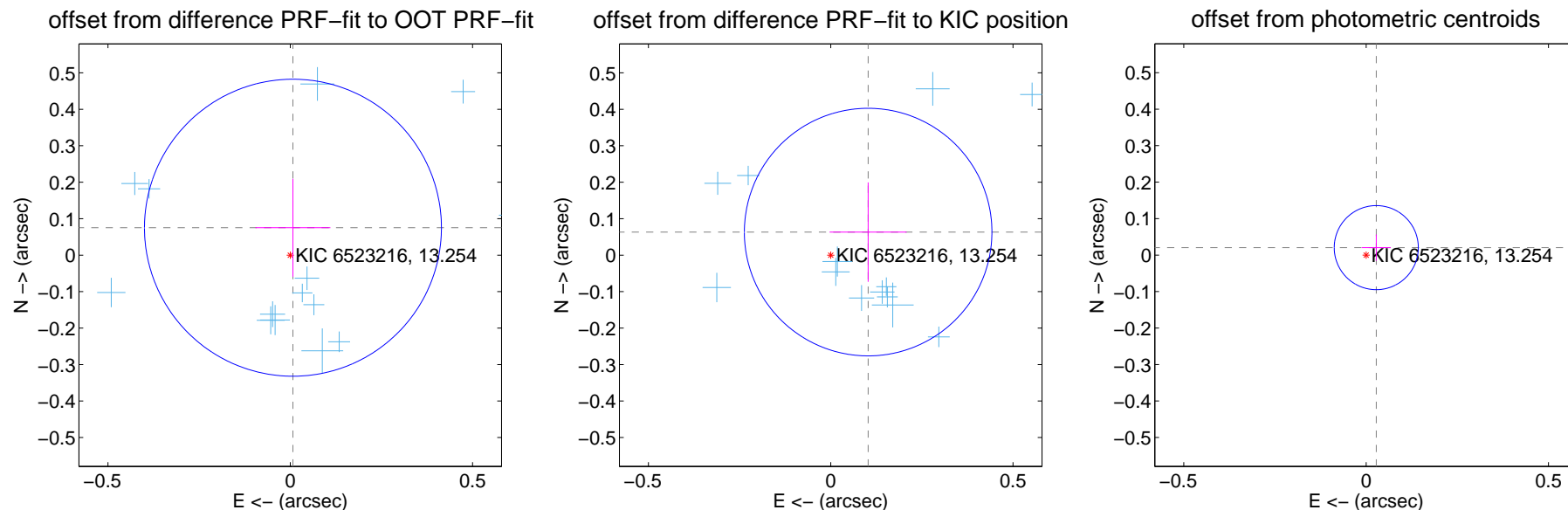
## DV Centroid Data

Supplemental centroid analysis for 006523216-02. Kepler magnitude: 13.25. Transit SNR 144.29

There are 17 quarters with good PRF difference image offsets

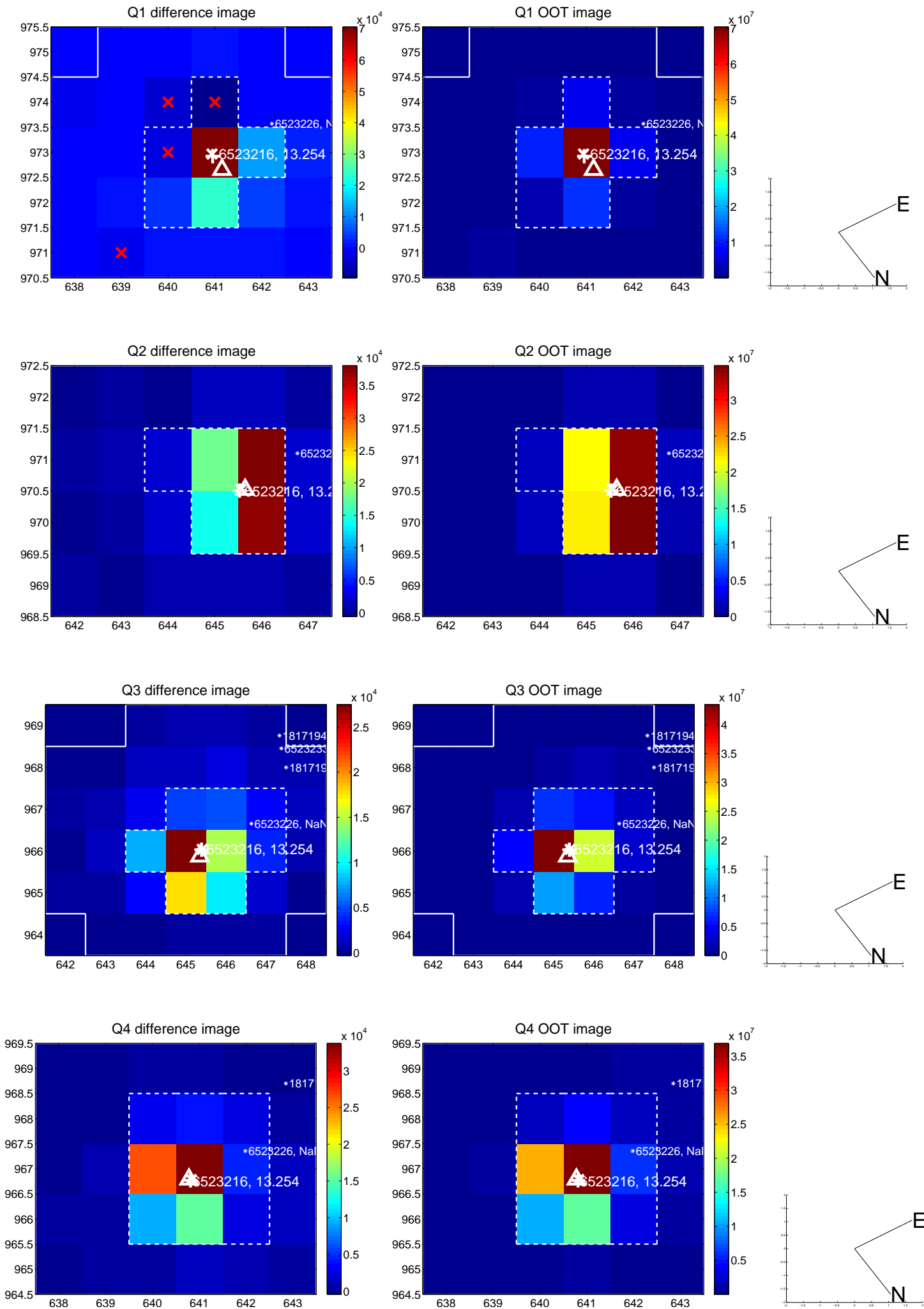
The direct PRF centroid is offset from the target star catalog position by about 0.15 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$0.076 \pm 0.136$	0.56	$-0.007 \pm 0.103$	$0.075 \pm 0.134$
PRF-fit source offset from KIC position	$0.121 \pm 0.113$	1.07	$-0.103 \pm 0.106$	$0.063 \pm 0.136$
photometric centroid source offset	$0.03 \pm 0.04$	0.90	$-0.03 \pm 0.04$	$0.02 \pm 0.04$

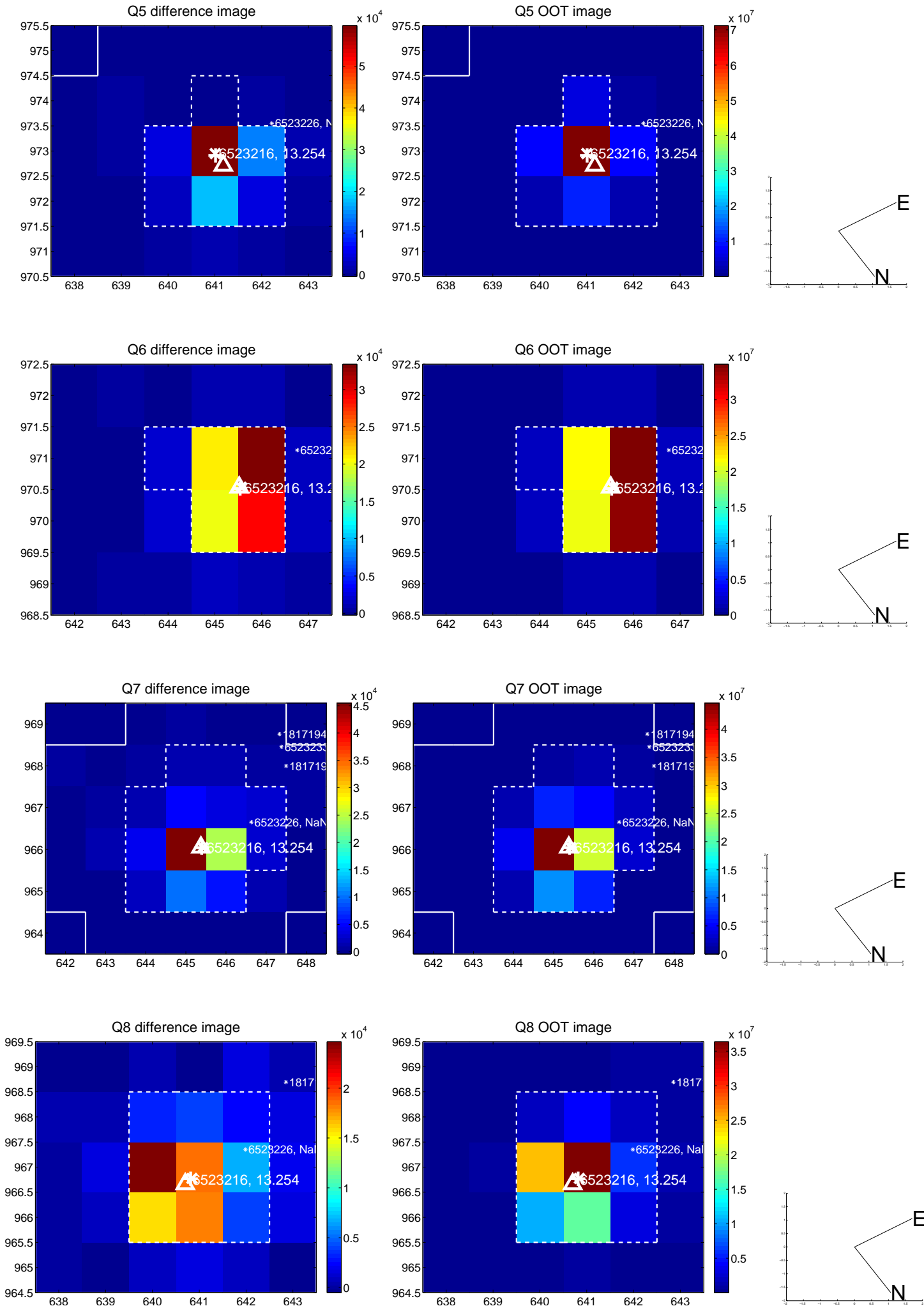


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses:** good quarterly centroid offsets; **Vermillion crosses:** bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: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

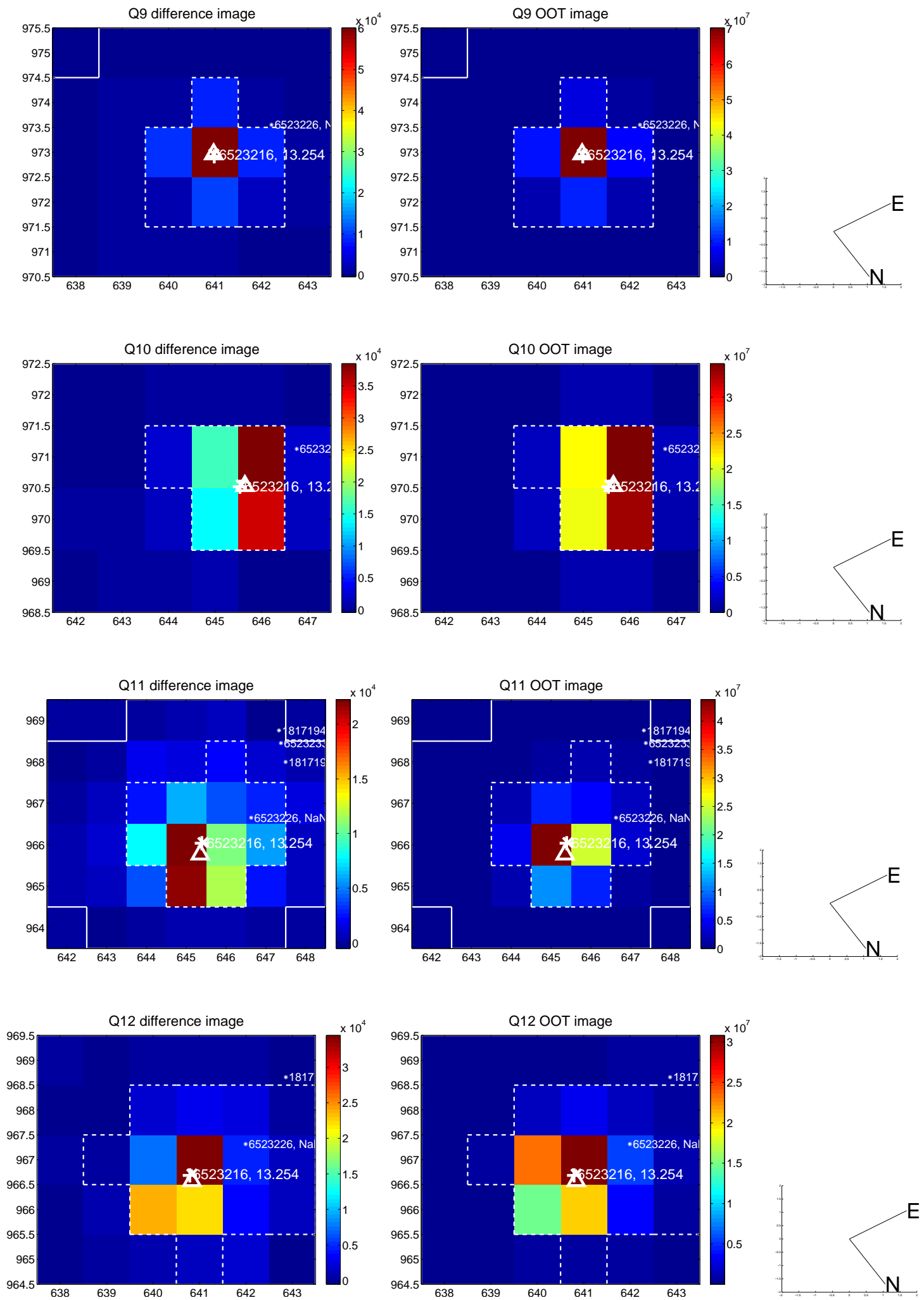
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



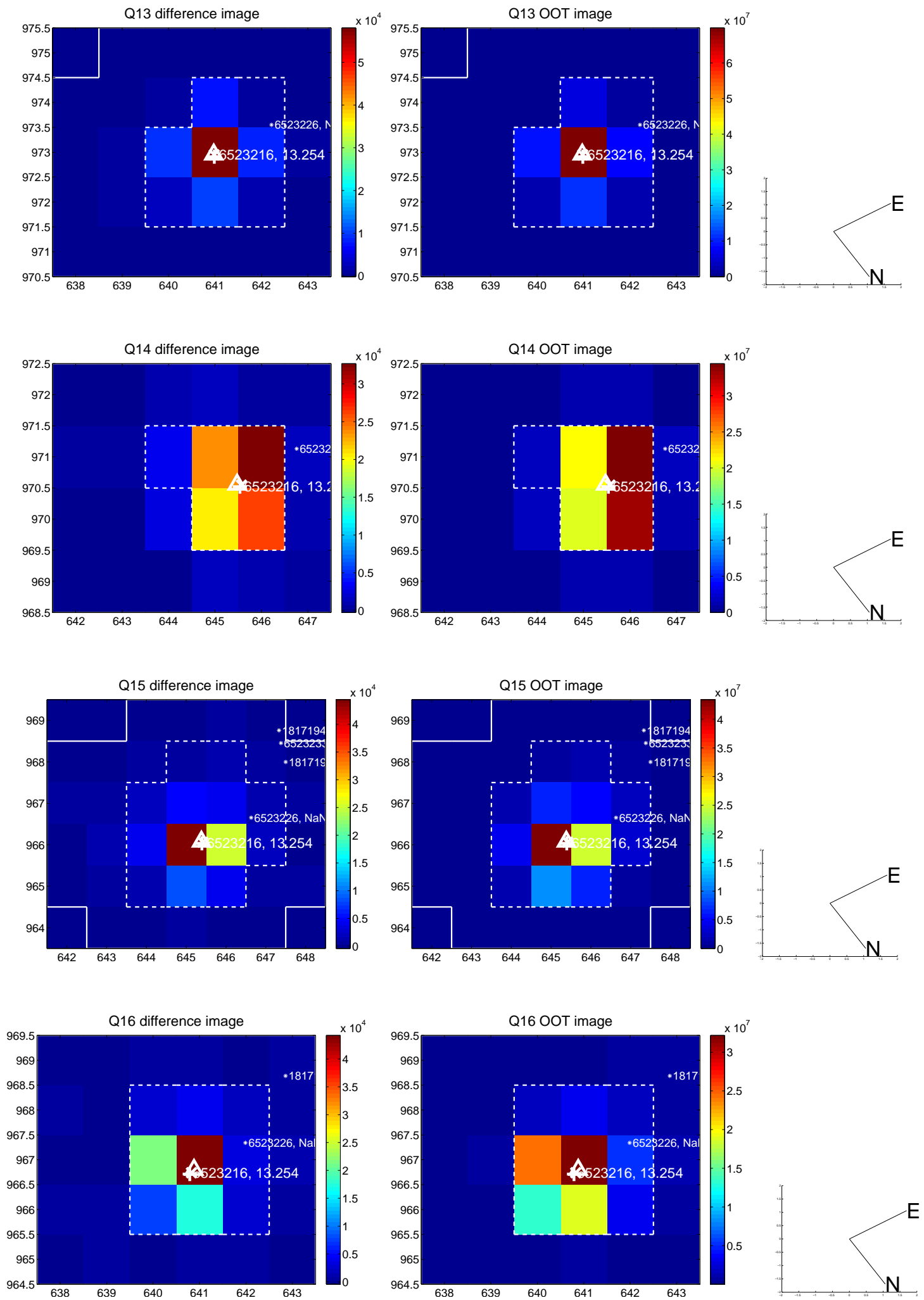
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



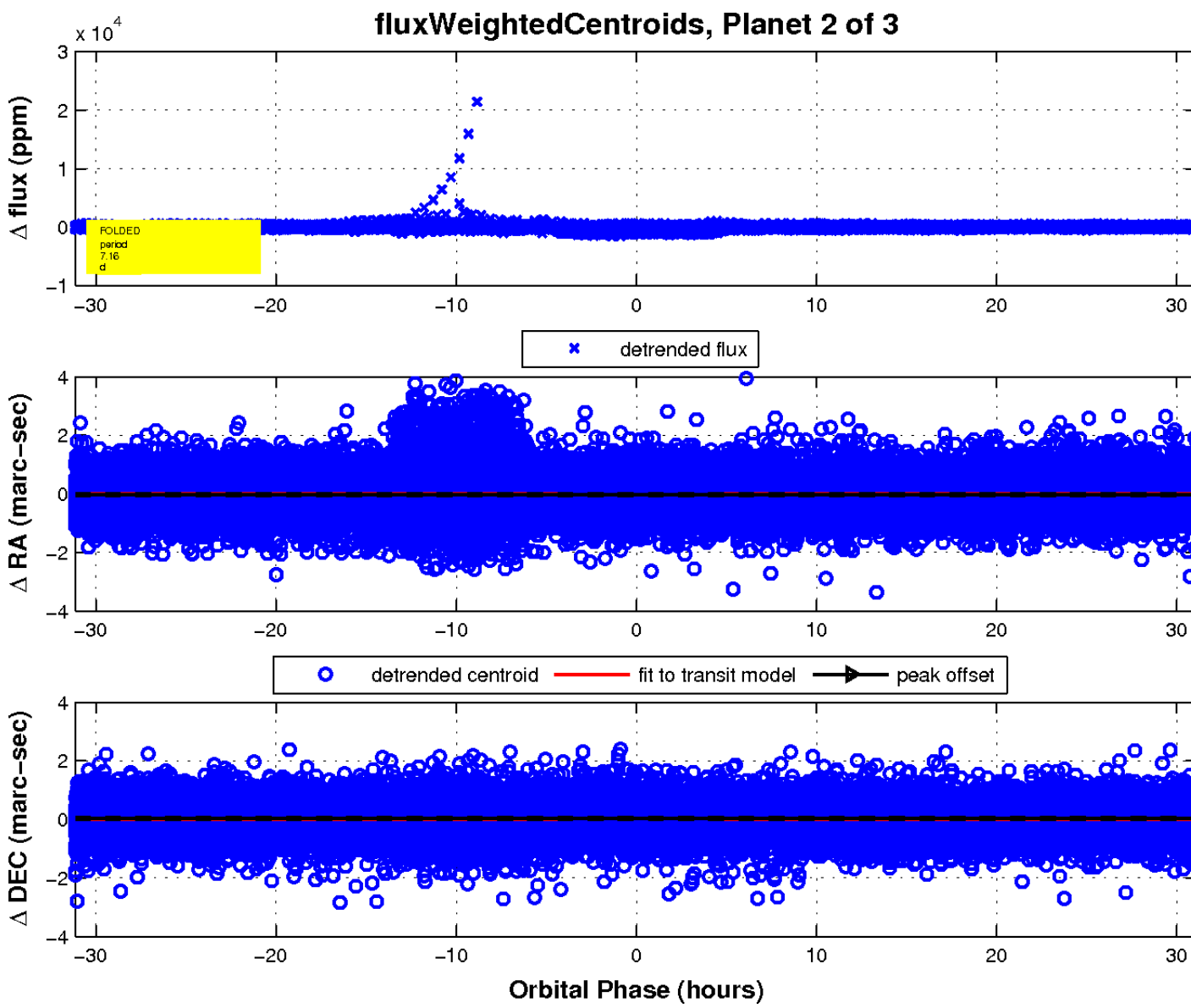
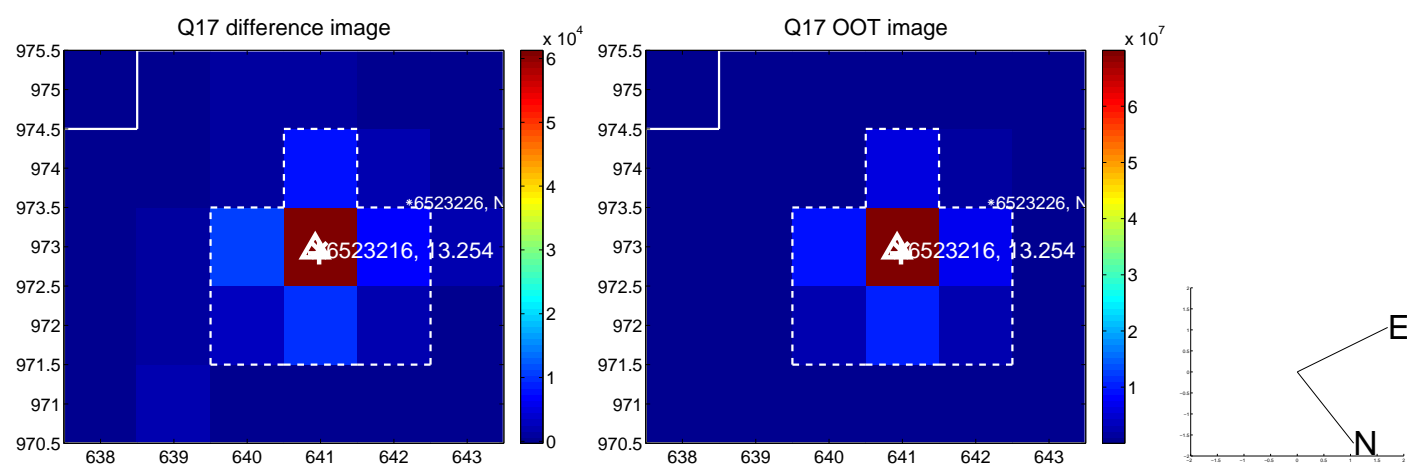
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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

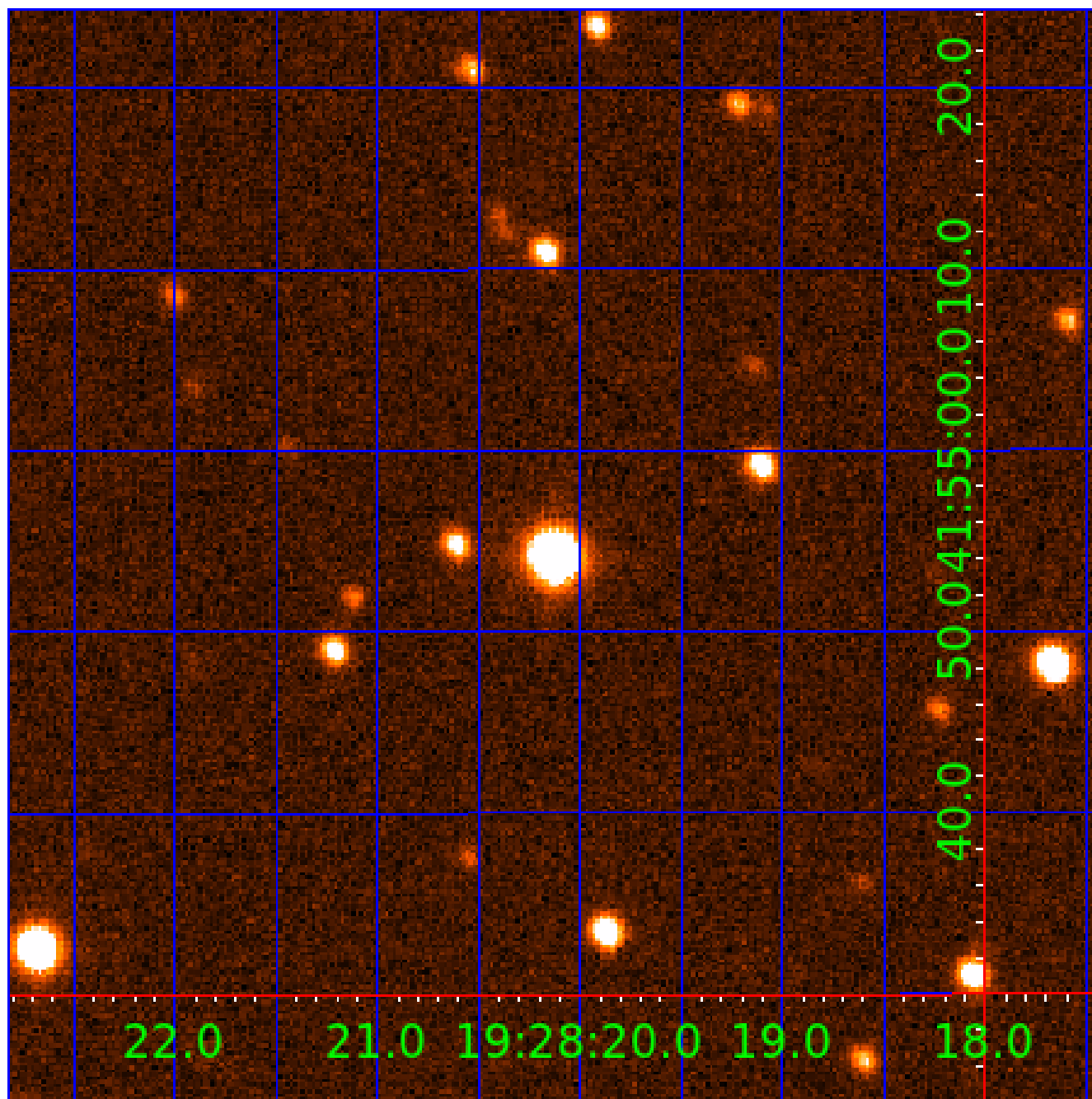


white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



UKIRT Image

Declination





# KIC 006523216

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
006523216-01	OBS	6725.01	14.313155	138.220560	21625.2	8.893	3336.7	3177.8	2.38	5750	34.91	405.06
006523216-02	OBS	No	7.156573	138.632527	892.9	10.384	158.2	144.3	2.38	5750	8.22	1020.68
006523216-03	OBS	No	364.060743	332.854763	403.5	9.203	22.6	10.2	2.38	5750	5.29	5.42

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
006523216-01	OBS	FP	0.00	0	1	0	0	MOD_SEC_DV—MOD_SEC_ALT—HAS_SEC_TCE
006523216-02	OBS	FP	0.00	1	1	0	0	IS_SEC_TCE
006523216-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_MARSHALL—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—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.

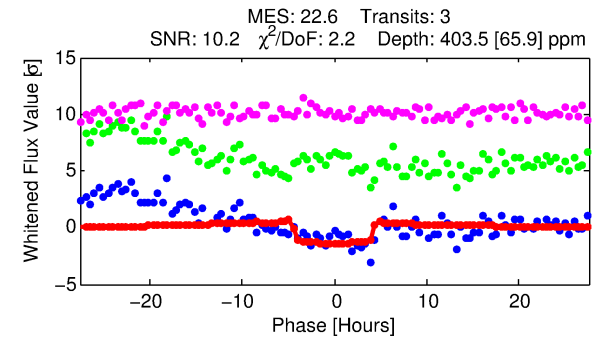
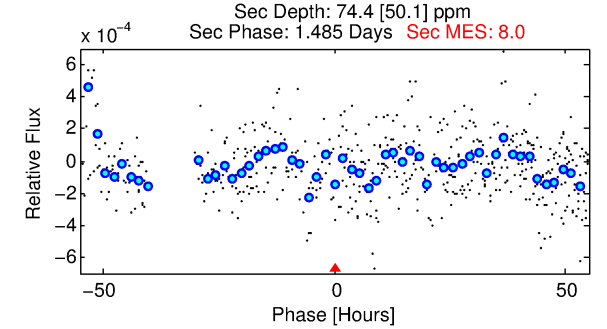
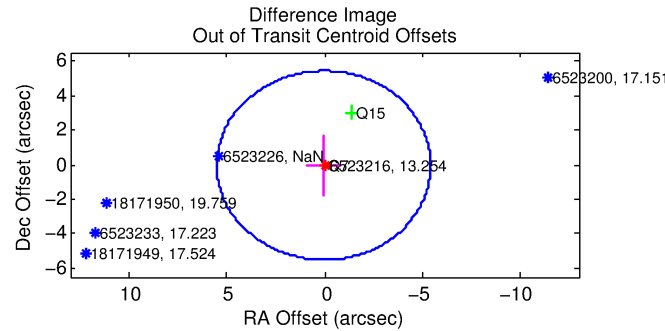
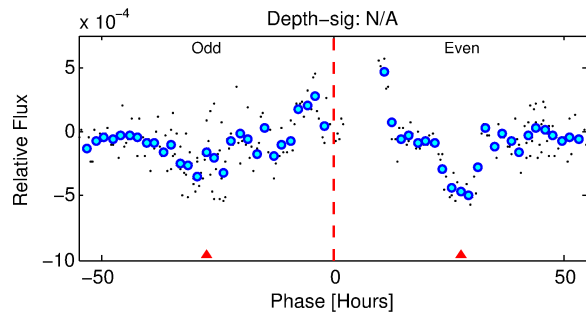
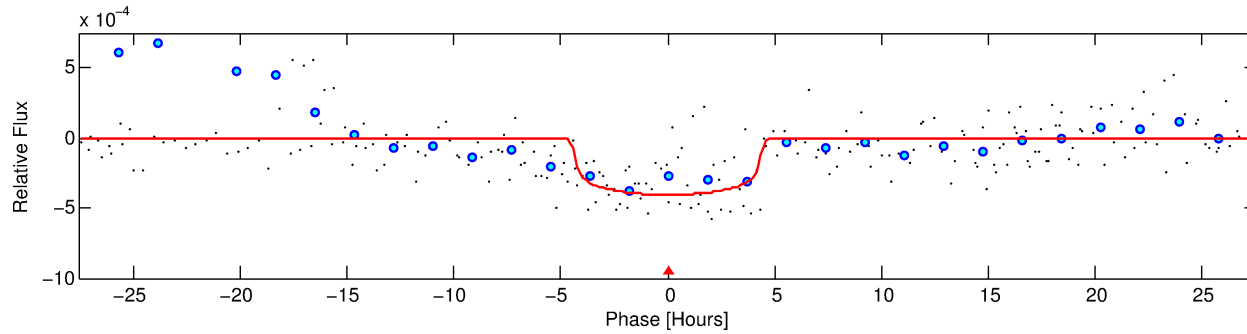
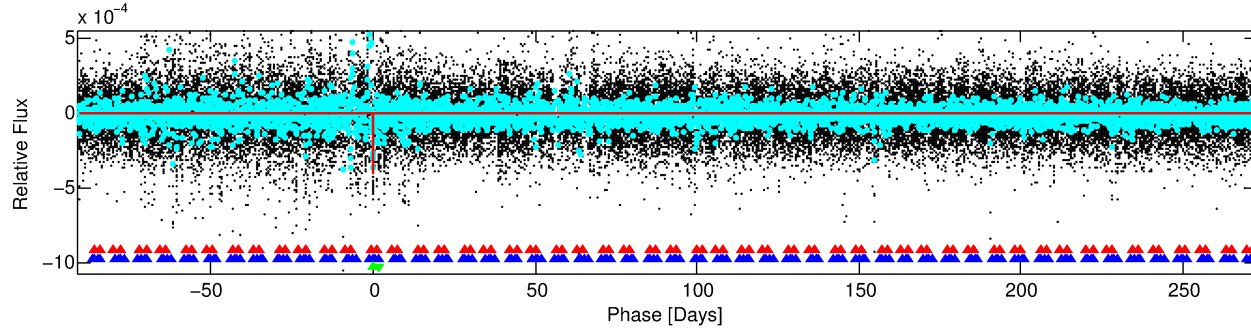
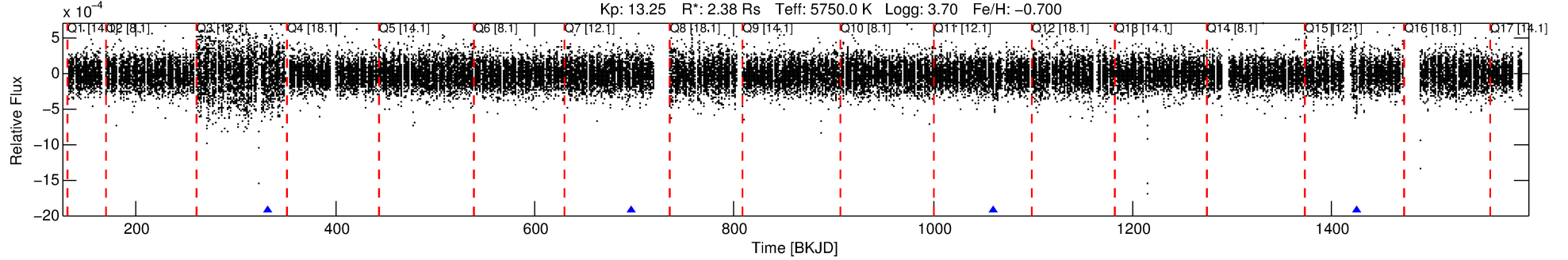
## Ephemeris Match Information For 006523216-03

No Significant Match Found

# DV One-Page Summary

KIC: 6523216 Candidate: 3 of 3 Period: 364.061 d  
KOI: K06725 Corr: No Ephemeris Match

Kp: 13.25 R\*: 2.38 Rs Teff: 5750.0 K Logg: 3.70 Fe/H: -0.700



## DV Fit Results:

Period = 364.06074 [0.00878] d  
Epoch = 332.8548 [0.0202] BKJD  
Rp/R\* = 0.0204 [0.0081]  
a/R\* = 192.12 [369.12]  
b = 0.80 [0.89]  
Seff = 5.41 [1.61]  
Teq = 389 [29] K  
Rp = 5.28 [2.42] Re  
a = 1.0118 [0.1997] AU  
Ag = 1500.70 [1622.22] [0.92σ]  
Teffp = 3743 [976] K [3.44σ]

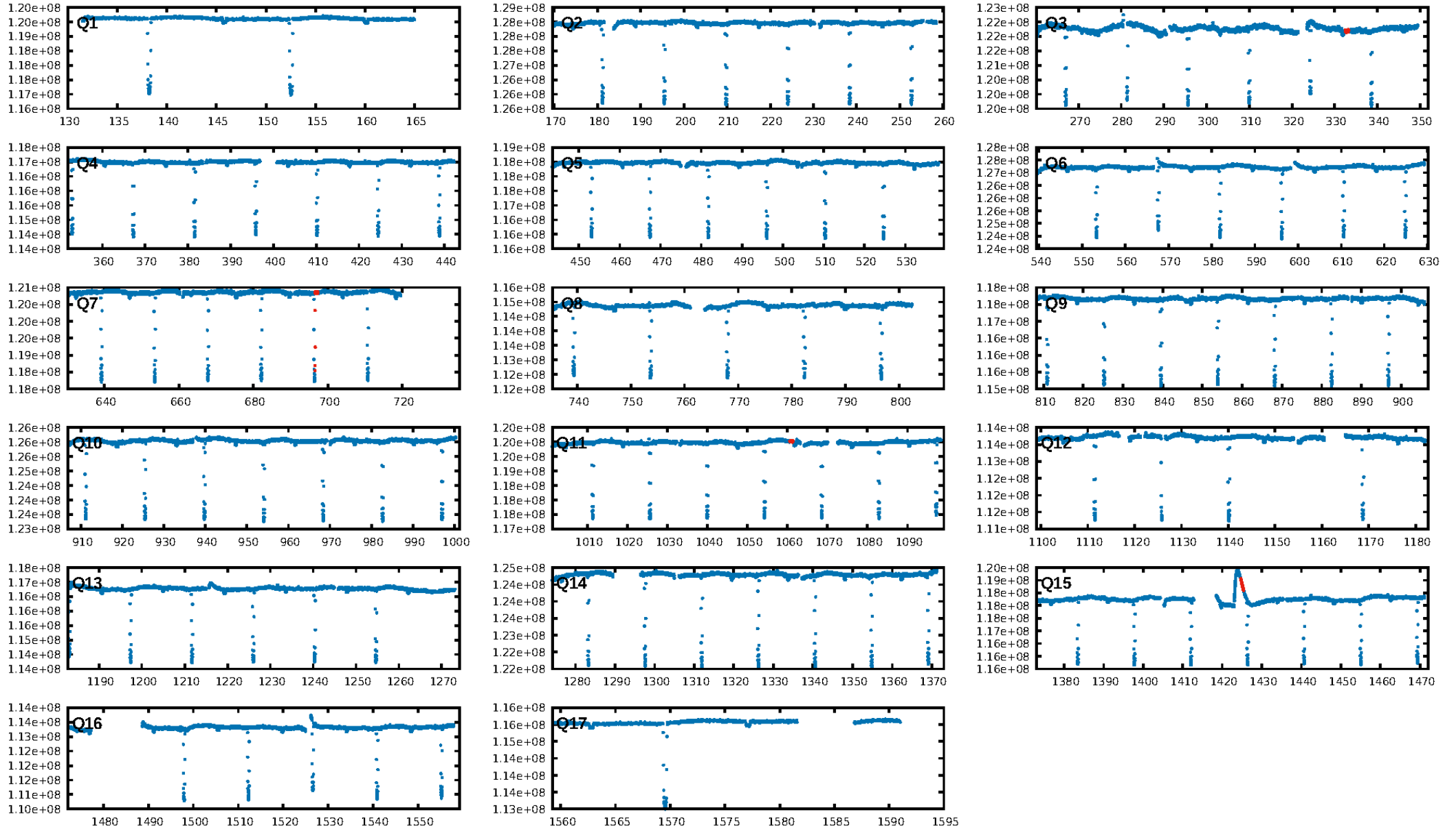
## DV Diagnostic Results:

ShortPeriod-sig: 100.0% [655.91σ]  
LongPeriod-sig: N/A  
ModelChiSquare2-sig: 0.0%  
ModelChiSquareGof-sig: 0.5%  
Bootstrap-pfa: 6.25e-55  
RollingBand-fgt: 1.00 [3/3]  
GhostDiagnostic-chr: 0.4378  
Centroid-sig: 6.7%  
Centroid-so: 1.010 arcsec [1.31σ]  
OotOffset-rm: 0.061 arcsec [0.03σ]  
OotOffset-st: 0/2/0/0 [2]  
KicOffset-rm: 0.101 arcsec [0.13σ]  
KicOffset-st: 0/2/0/0 [2]  
DiffImageQuality-fgm: 0.00 [0/2]  
DiffImageOverlap-fno: 0.50 [2/4]

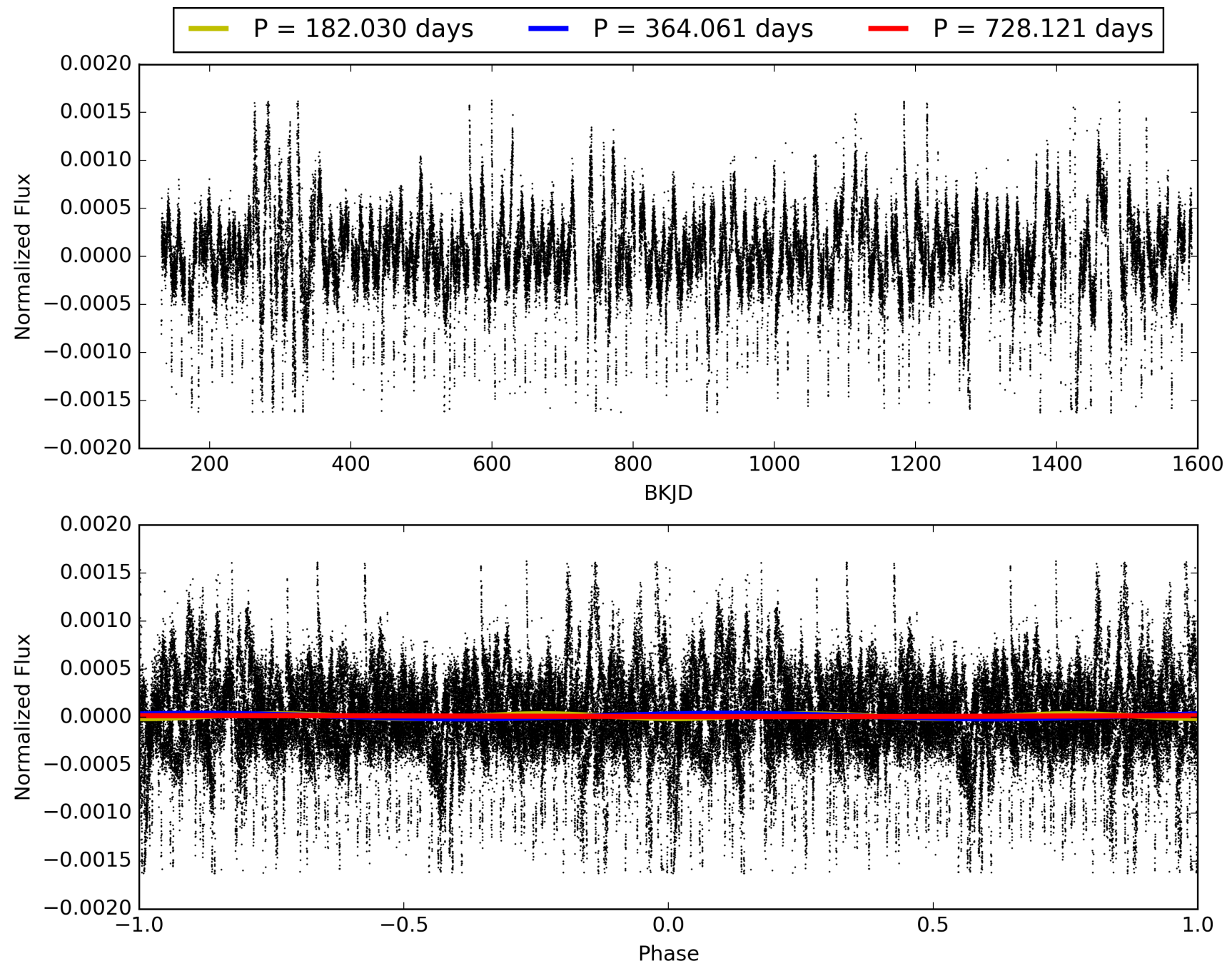
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 29-Jan-2016 22:33:10 Z

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

# TCE 006523216-03, PDC Light Curves

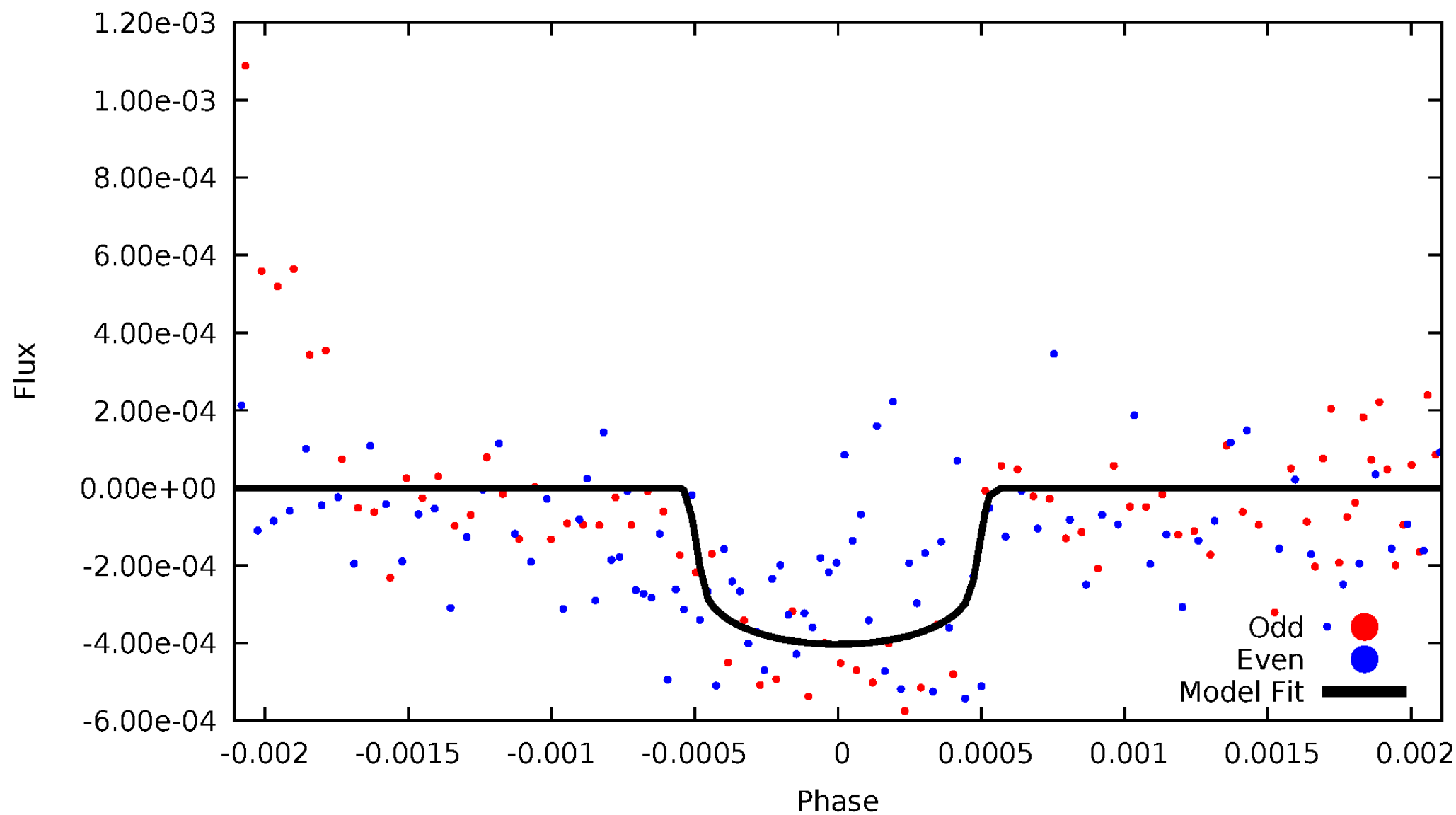


TCE 006523216-03



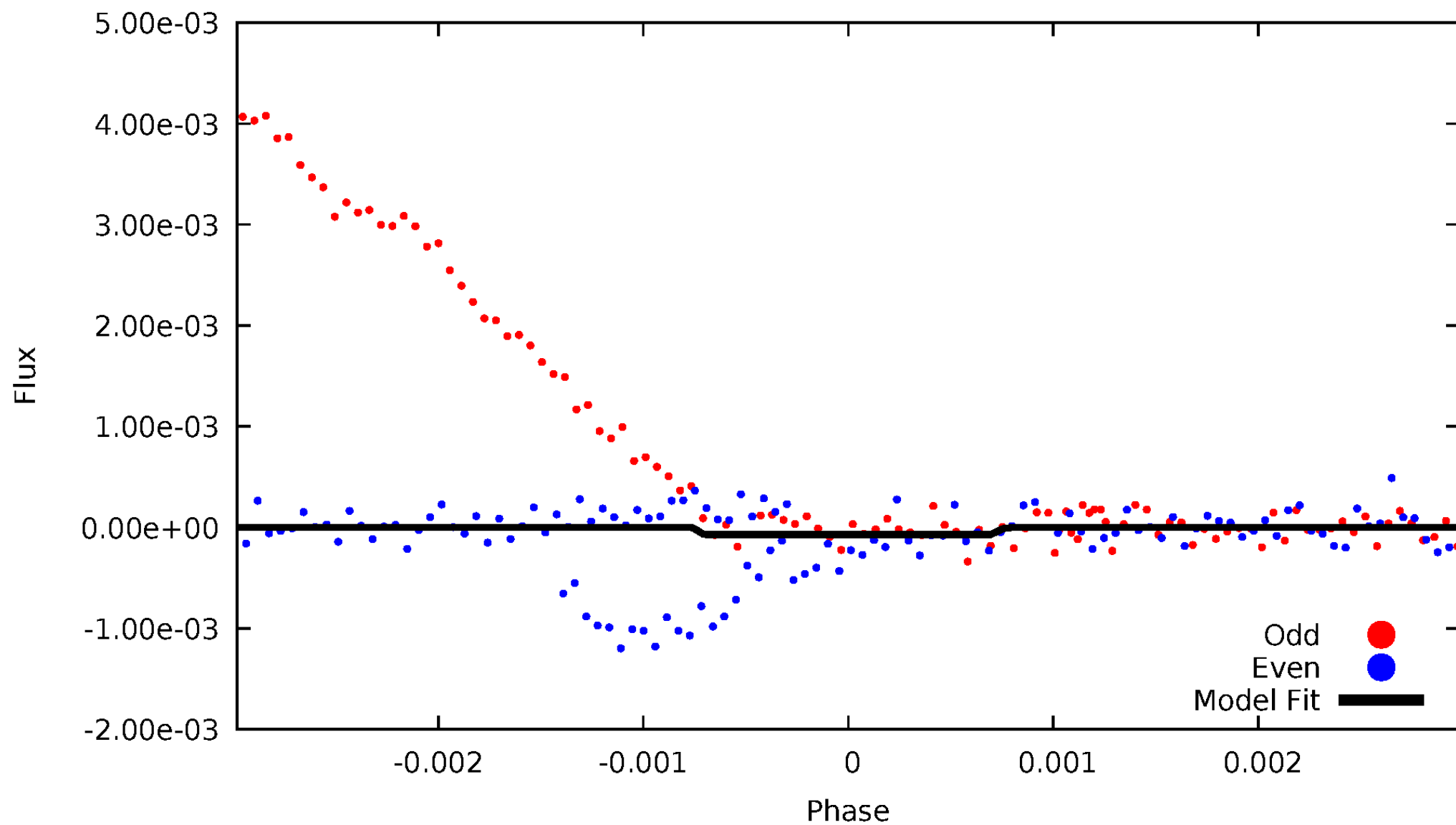
# DV Odd/Even

TCE 006523216-03



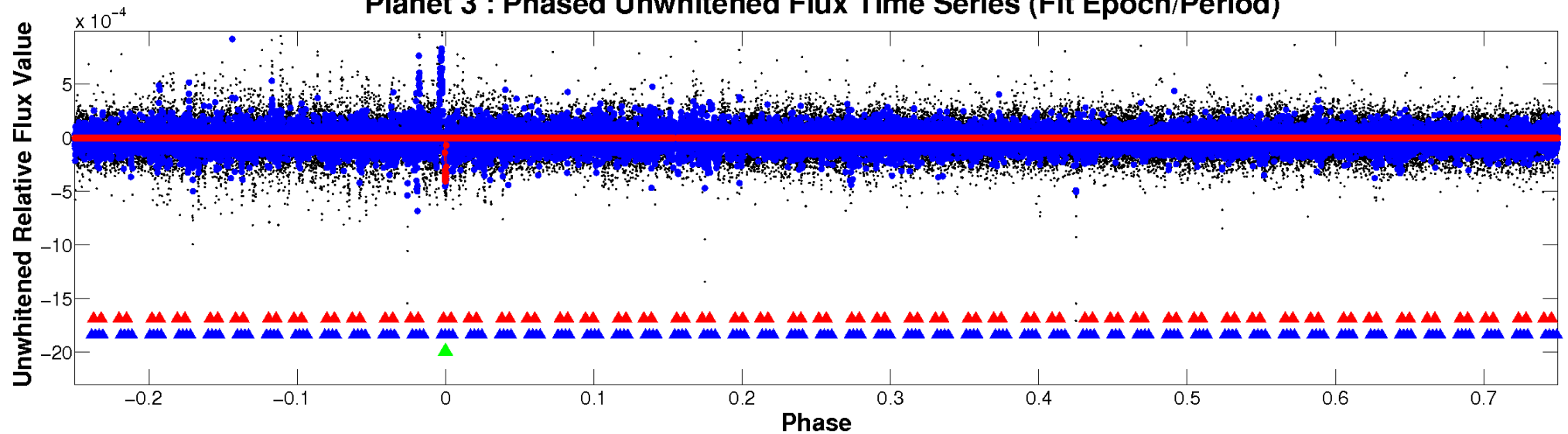
# ALT Odd/Even

TCE 006523216-03

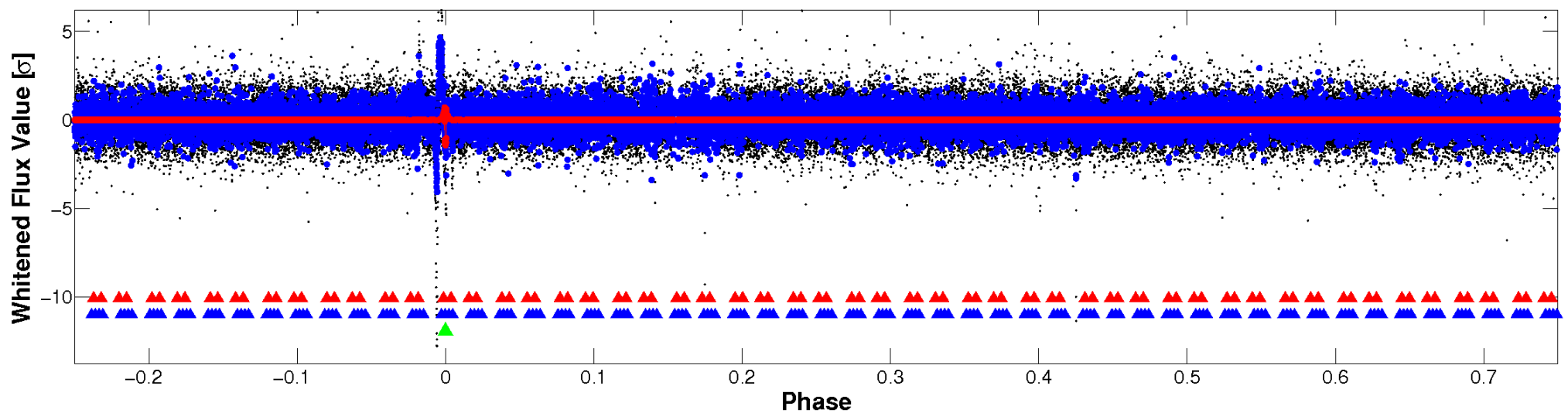


# Non-Whitened Vs. Whitened Light Curve

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

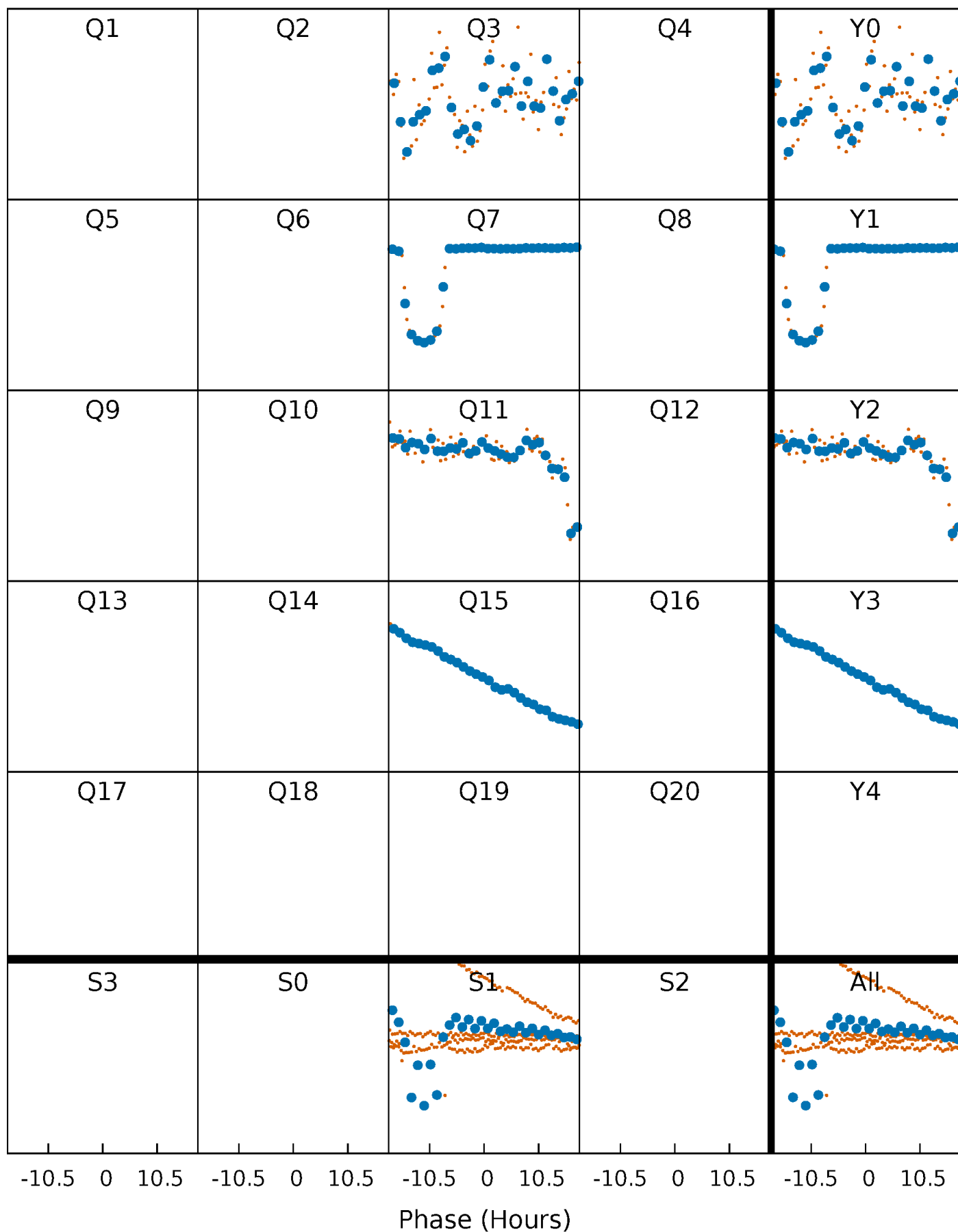


Planet 3 : Phased Whitened Flux Time Series (Fit Epoch/Period)



# PDC Quarter-Phased Transit Curves

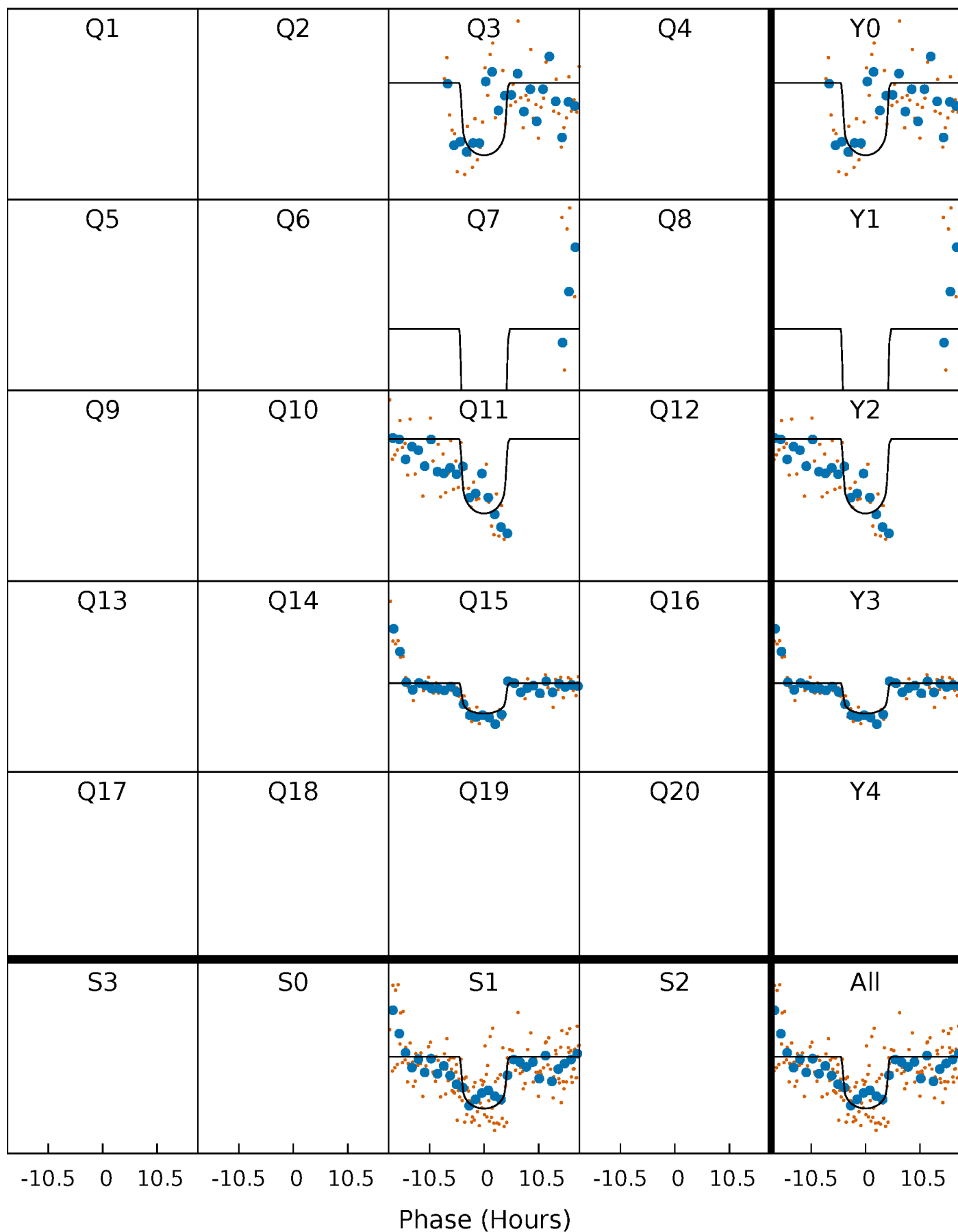
TCE 006523216-03     $P=364.060743$  Days     $T_0=332.854763$  (BKJD)





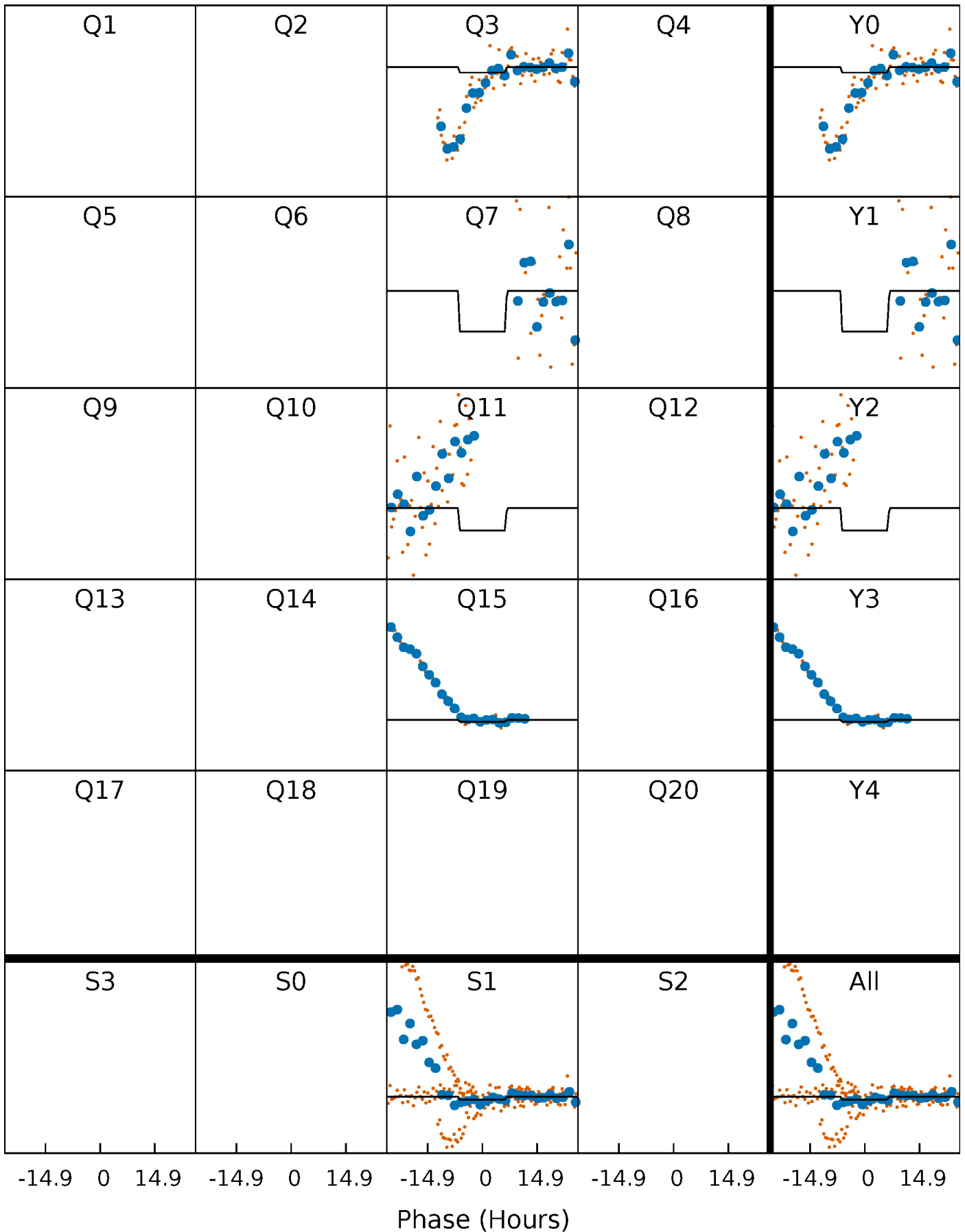
# DV Quarter-Phased Transit Curves

TCE 006523216-03     $P=364.060743$  Days     $T_0=332.854763$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

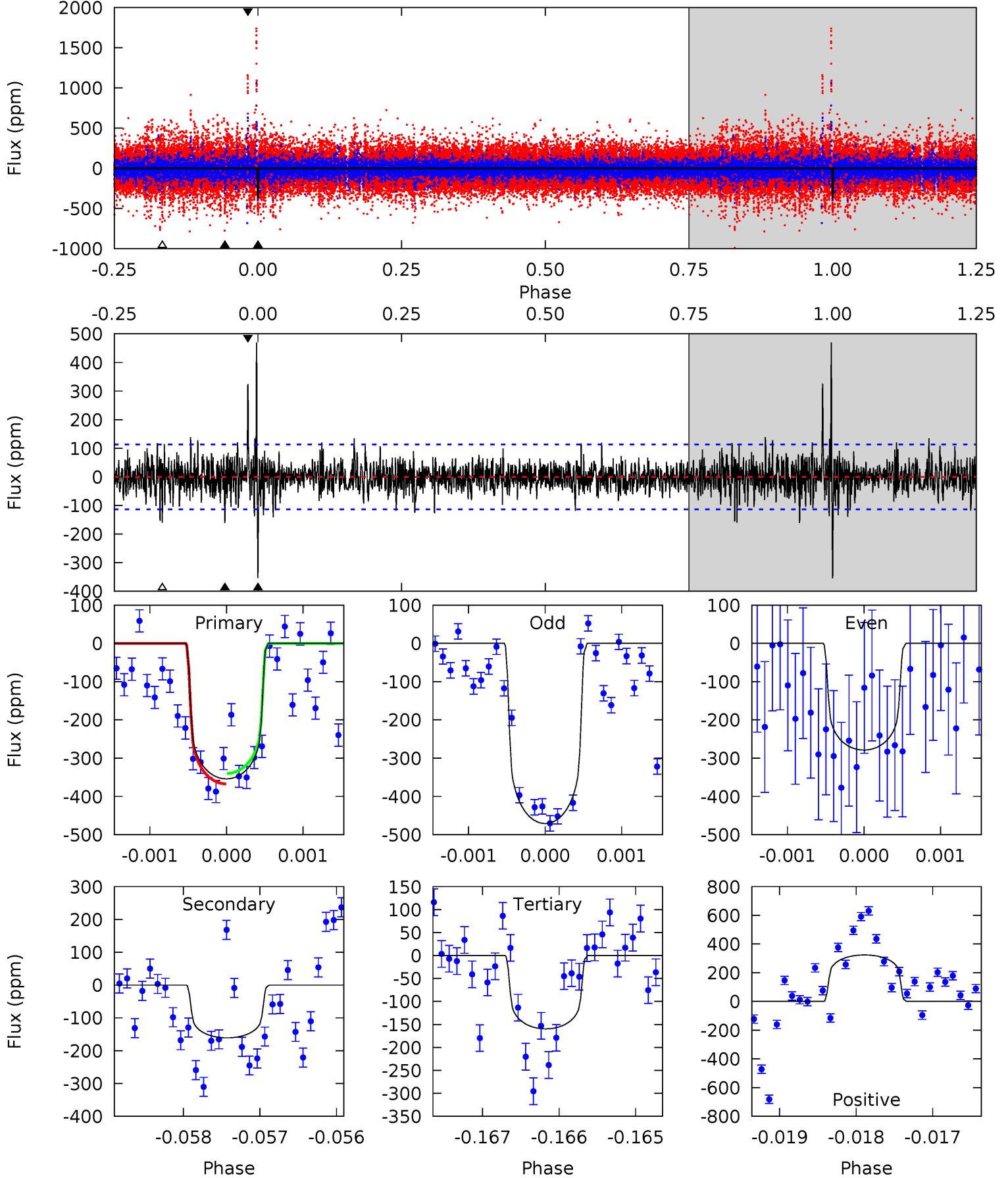
TCE 006523216-03     $P=364.112417$  Days     $T_0=333.042598$  (BKJD)



# DV Model-Shift Uniqueness Test

006523216-03, P = 364.060743 Days, E = 332.854763 Days

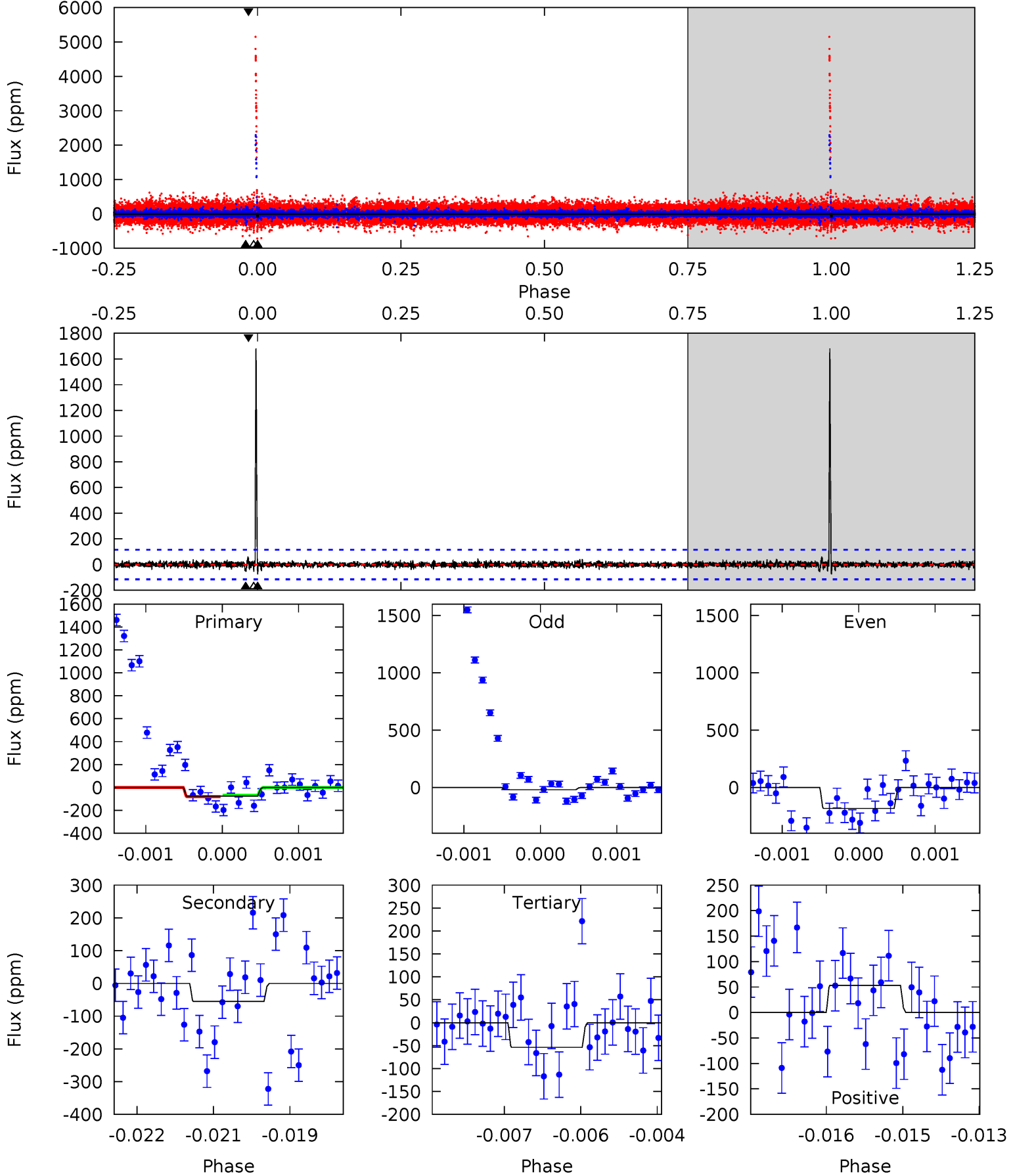
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
17.0	7.73	7.67	15.6	5.44	3.28	1.84	9.33	1.45	0.06	-7.83	4.24	0.96	0.57	0.65



# Alt Model-Shift Uniqueness Test

006523216-03, P = 364.112417 Days, E = 333.042598 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
3.52	2.58	2.51	2.48	5.38	3.17	2.38	1.00	1.03	0.07	0.10	2.85	2.18	0.96	0.31



### Stellar Parameters For KIC 006523216

	$T_{\text{eff}} (K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R (R_{\odot})$	$M (M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	$5750^{+77}_{-86}$	$3.703^{+0.162}_{-0.108}$	$-0.700^{+0.150}_{-0.150}$	$2.379^{+0.547}_{-0.547}$	$1.041^{+0.172}_{-0.156}$	$0.109^{+0.101}_{-0.038}$
	+1%/-1%	+4%/-3%	+21%/-21%	+23%/-23%	+17%/-15%	+93%/-35%
Source	SPE74	SPE74	SPE74	DSEP		

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

### Secondary Eclipse Parameters for KIC 006523216-03 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	$A_{\text{obs}}$
DV	$-161 \pm 21$	$5.15^{+2.29}_{-2.10}$	$539^{+30}_{-30}$	$4661^{+1177}_{-558}$	$3403^{+6863}_{-1747}$
Alt.	$-55 \pm 21$	$2.45^{+1.98}_{-1.45}$	$538^{+27}_{-28}$	$5069^{+3024}_{-1076}$	$5123^{+25942}_{-3651}$

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

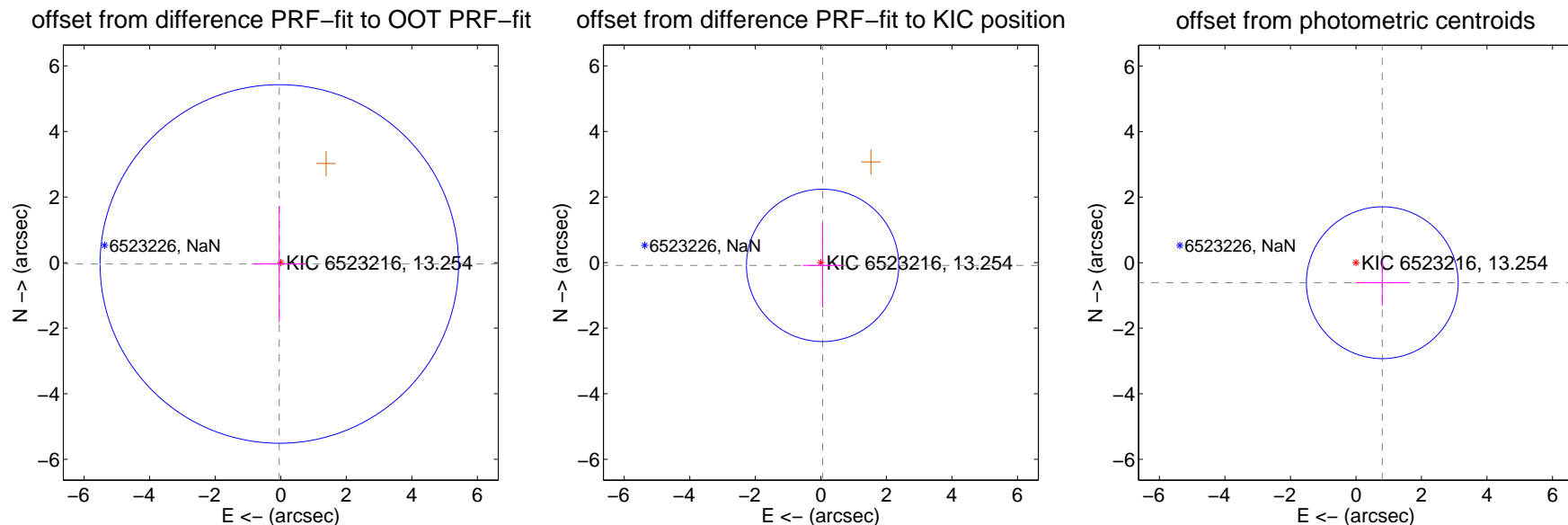
## DV Centroid Data

Supplemental centroid analysis for 006523216-03. Kepler magnitude: 13.25. Transit SNR 10.15

There are 0 quarters with good PRF difference image offsets

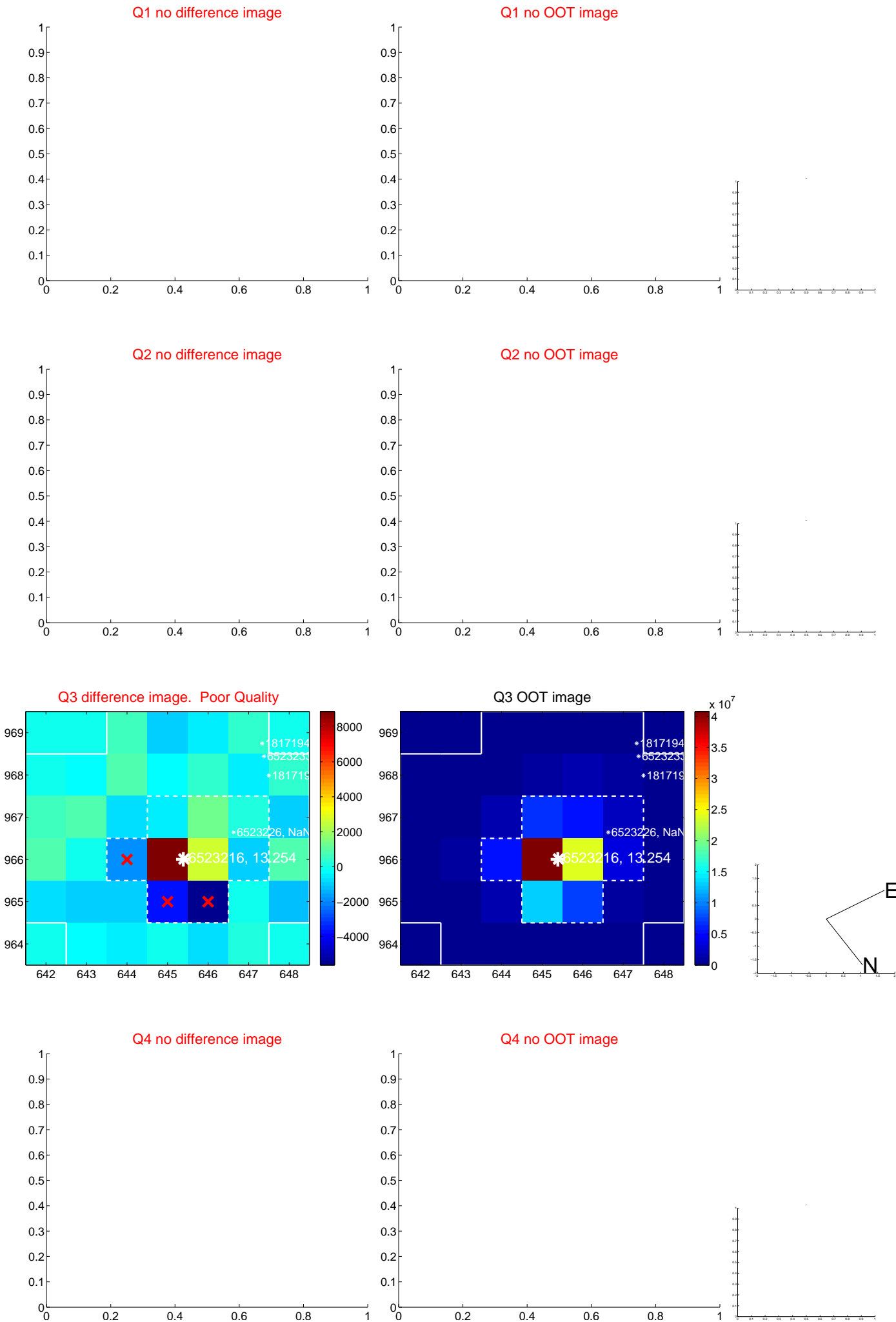
The direct PRF centroid is offset from the target star catalog position by about 0.15 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$0.061 \pm 1.823$	0.03	$0.044 \pm 0.827$	$-0.042 \pm 1.771$
PRF-fit source offset from KIC position	$0.101 \pm 0.774$	0.13	$-0.054 \pm 0.605$	$-0.085 \pm 1.290$
photometric centroid source offset	$1.01 \pm 0.77$	1.31	$-0.80 \pm 0.81$	$-0.61 \pm 0.70$

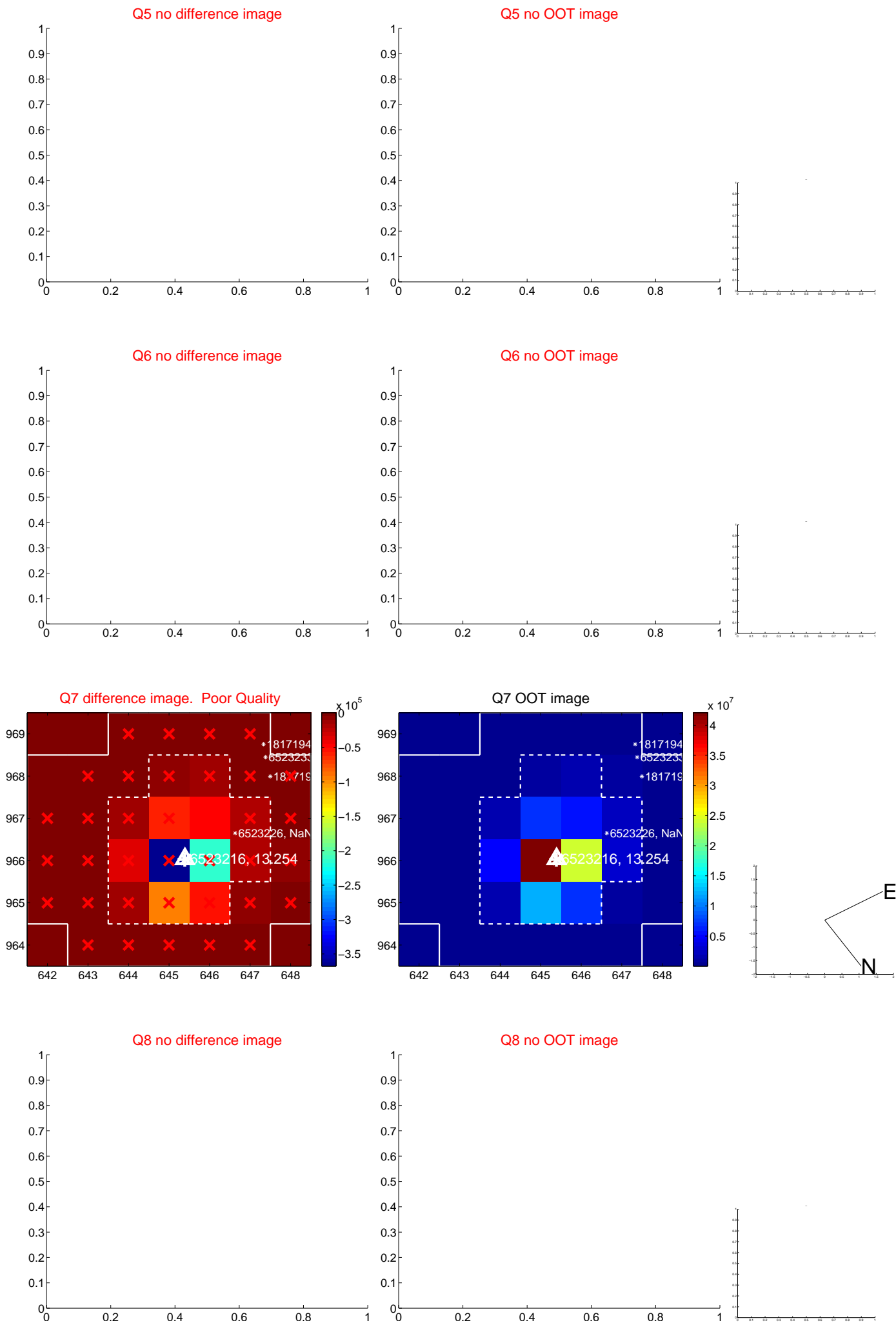


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: three-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

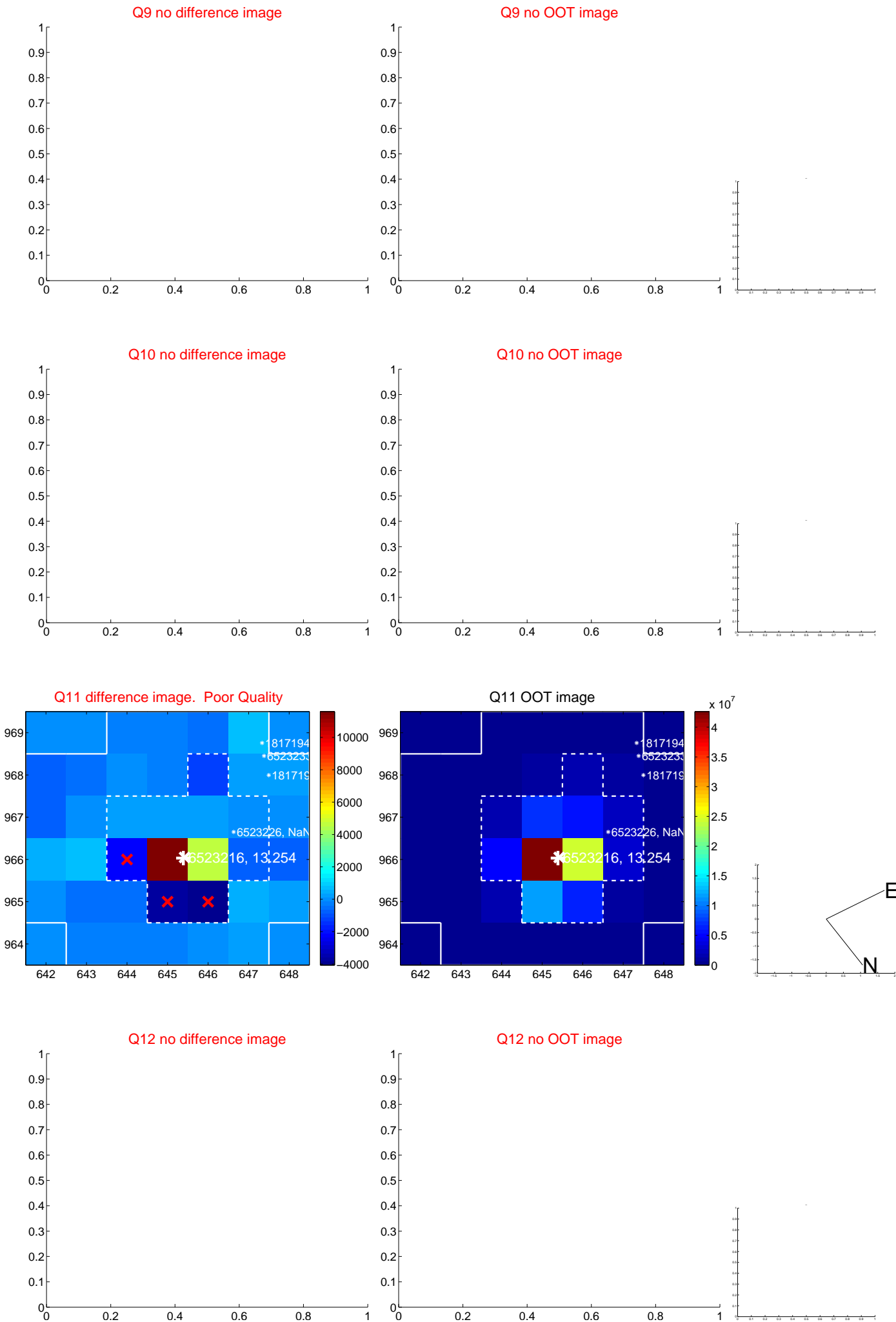


white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.

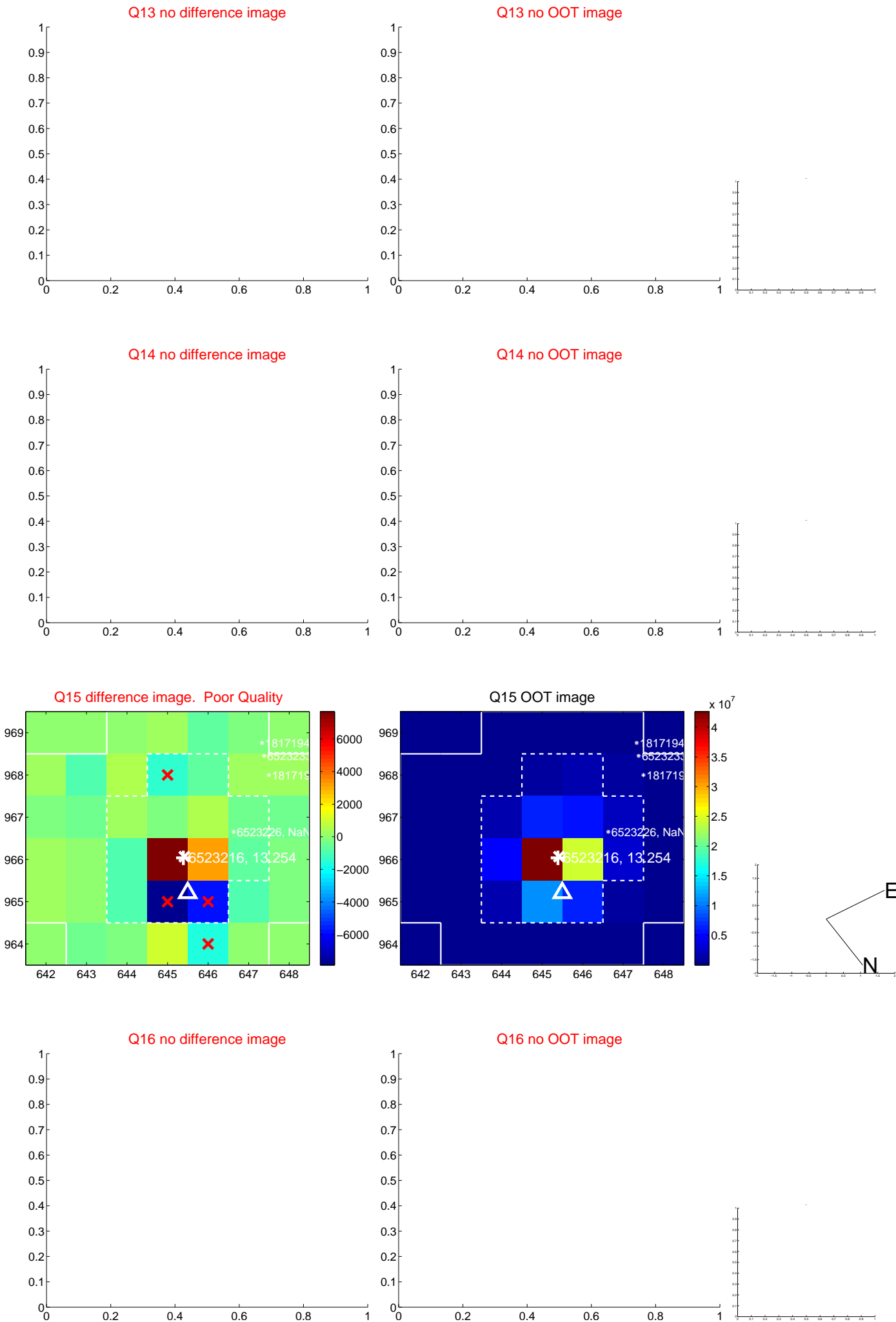




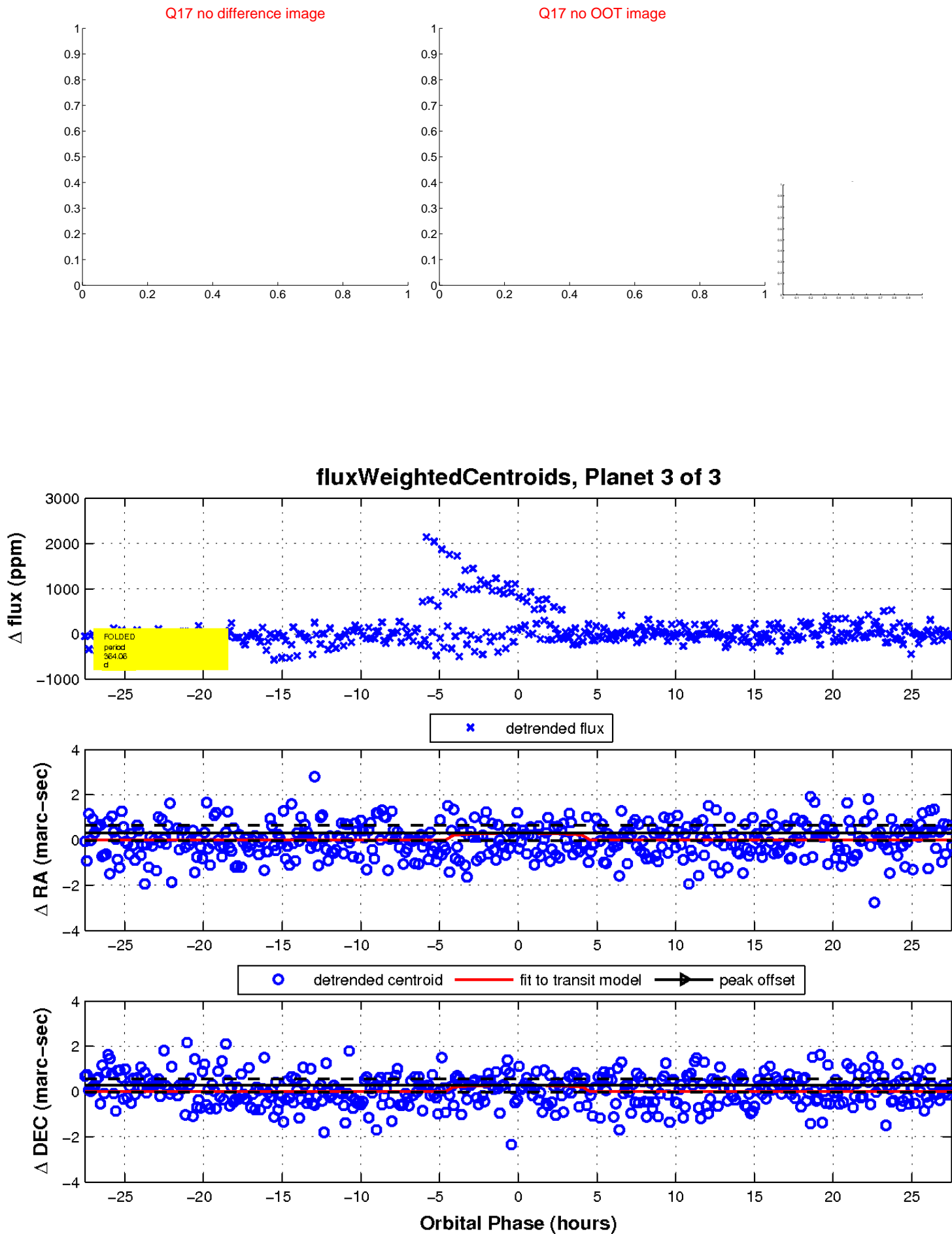
white ×: KIC target position; +: OOT centroid; △: difference centroid. red ✕: large negative pixel value.



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

