

# KIC 006266741

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
006266741-01	OBS	0508.01	7.930575	137.795591	823.4	3.794	71.0	80.7	1.03	5674	3.39	154.58
006266741-02	OBS	0508.02	16.665896	146.870167	743.5	4.216	48.9	52.4	1.03	5674	3.05	57.43

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
006266741-01	OBS	PC	1.00	0	0	0	0	NO_COMMENT
006266741-02	OBS	PC	1.00	0	0	0	0	NO_COMMENT

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

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

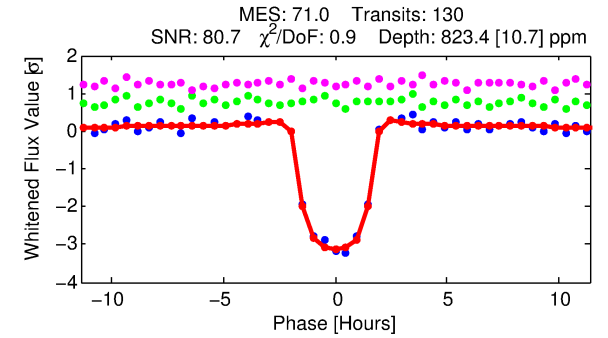
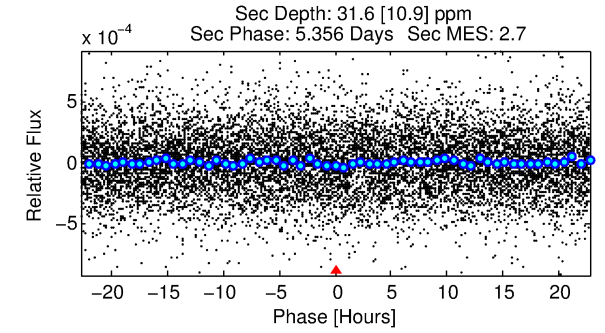
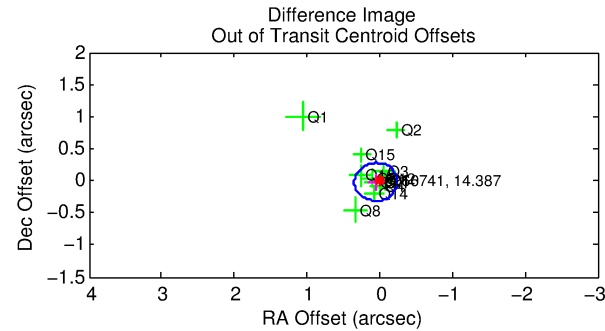
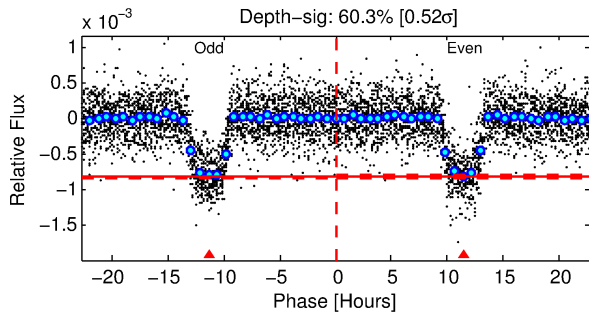
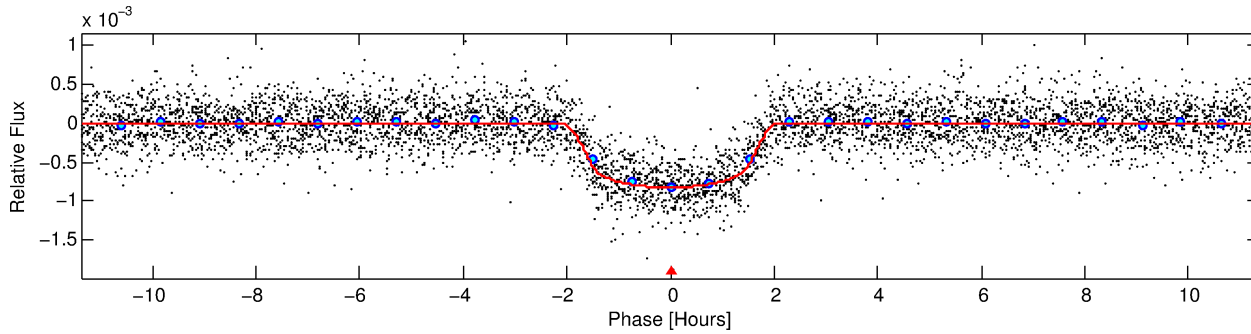
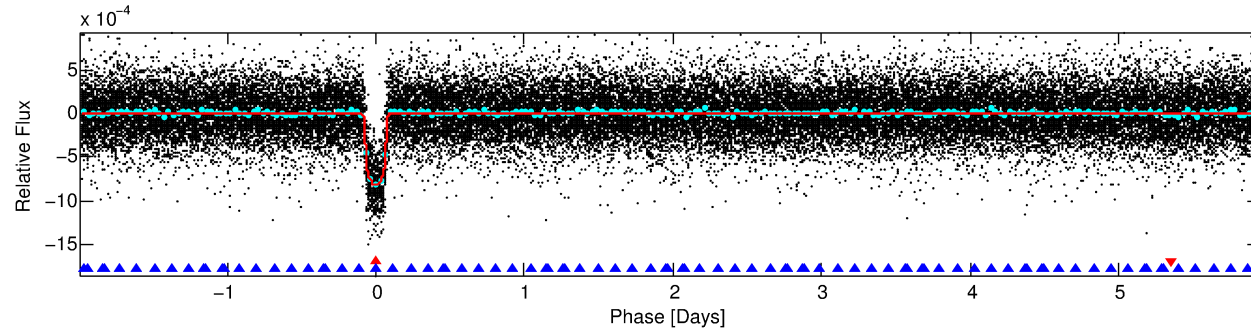
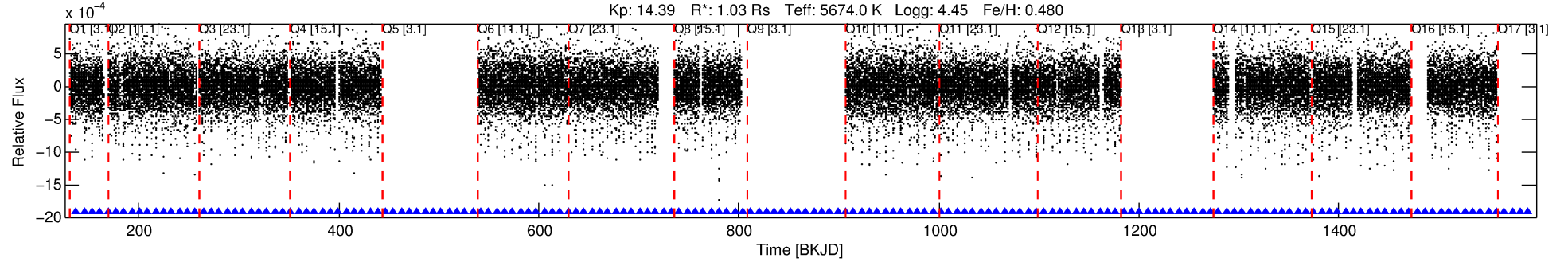
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

## Ephemeris Match Information For 006266741-01

No Significant Match Found

# DV One-Page Summary

KIC: 6266741 Candidate: 1 of 2 Period: 7.931 d  
KOI: K00508.01 Name: Kepler-170b Corr: 0.976



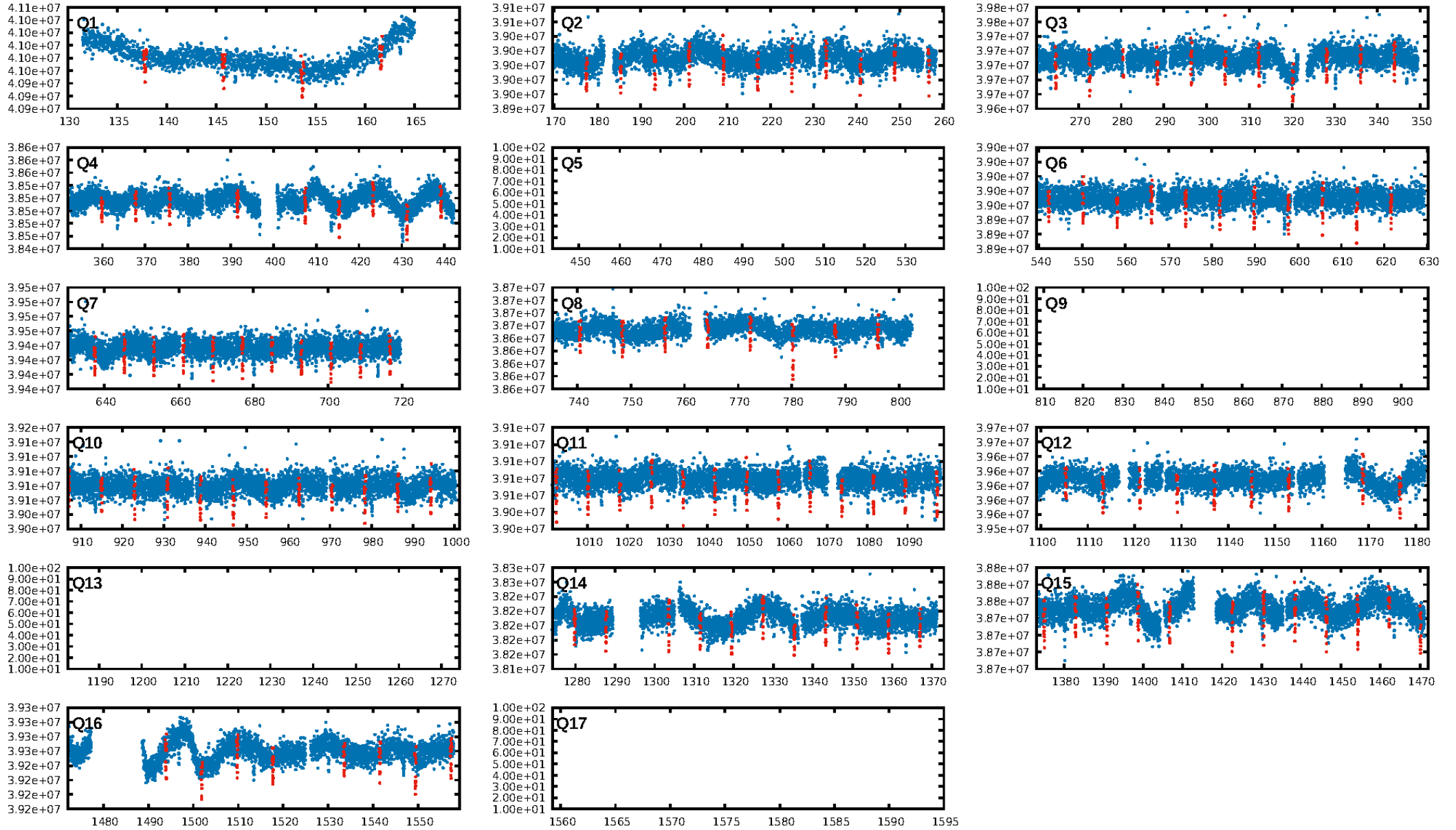
## DV Fit Results:

Period = 7.93058 [0.00001] d  
Epoch = 137.7956 [0.0009] BKJD  
Rp/R\* = 0.0301 [0.0016]  
a/R\* = 9.46 [2.06]  
b = 0.84 [0.08]  
Seff = 154.58 [36.46]  
Teff = 899 [53] K  
Rp = 3.39 [0.55] Re  
a = 0.0800 [0.0114] AU  
Ag = 9.67 [4.10] [2.12 $\sigma$ ]  
Teffp = 2452 [227] K [6.67 $\sigma$ ]

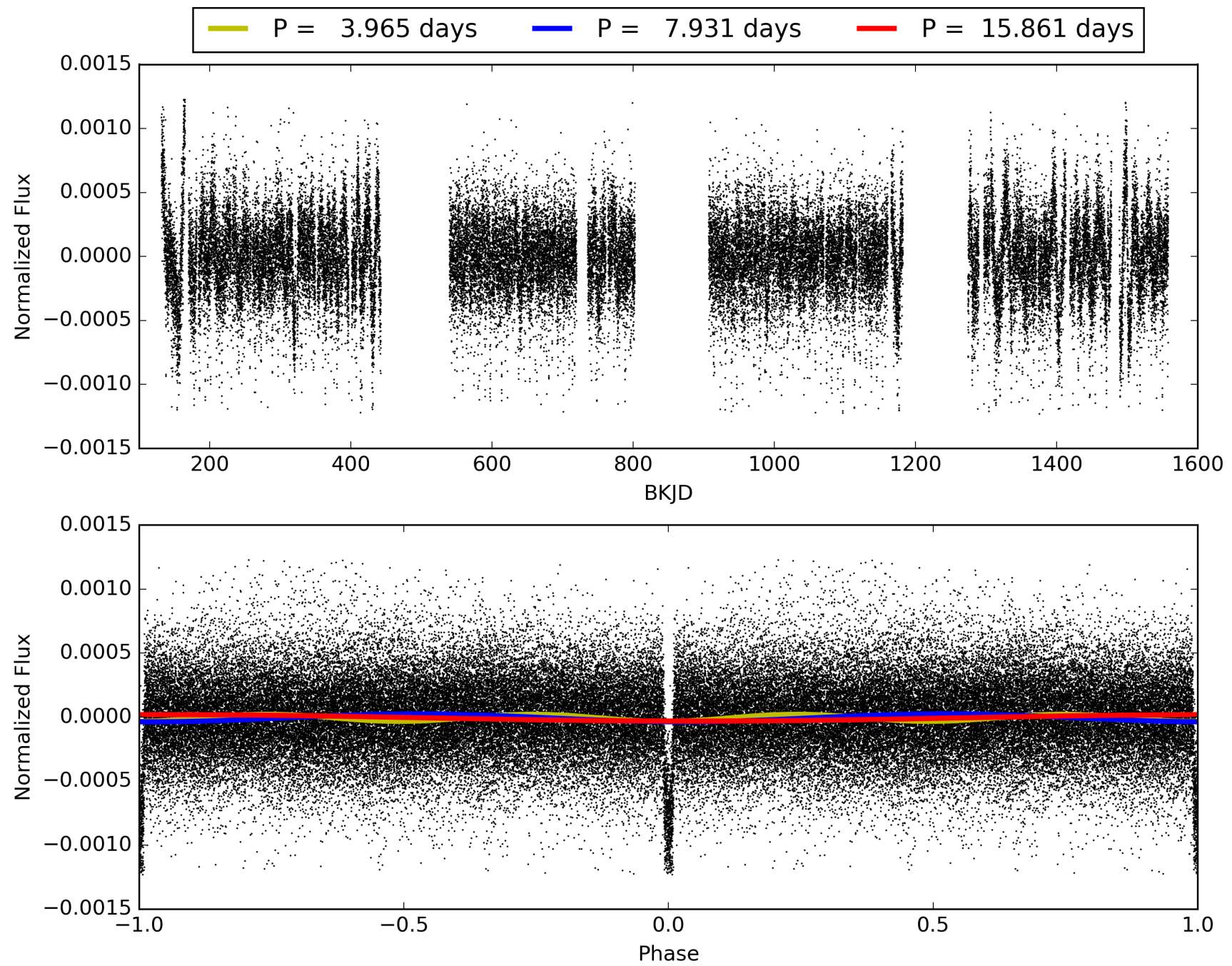
## DV Diagnostic Results:

ShortPeriod-sig: N/A  
LongPeriod-sig: 100.0% [36.96 $\sigma$ ]  
ModelChiSquare2-sig: 98.8%  
ModelChiSquareGof-sig: 100.0%  
Bootstrap-pfa: 0.00e+00  
RollingBand-fgt: 1.00 [126/126]  
GhostDiagnostic-chr: 5.854  
Centroid-sig: 47.4%  
Centroid-so: 0.266 arcsec [1.70 $\sigma$ ]  
OotOffset-rm: 0.058 arcsec [0.58 $\sigma$ ]  
KicOffset-rm: 0.214 arcsec [1.70 $\sigma$ ]  
OotOffset-st: 4/4/4/1 [13]  
KicOffset-st: 4/4/4/1 [13]  
DiffImageQuality-fgm: 1.00 [13/13]  
DiffImageOverlap-fno: 1.00 [13/13]

# TCE 006266741-01, PDC Light Curves

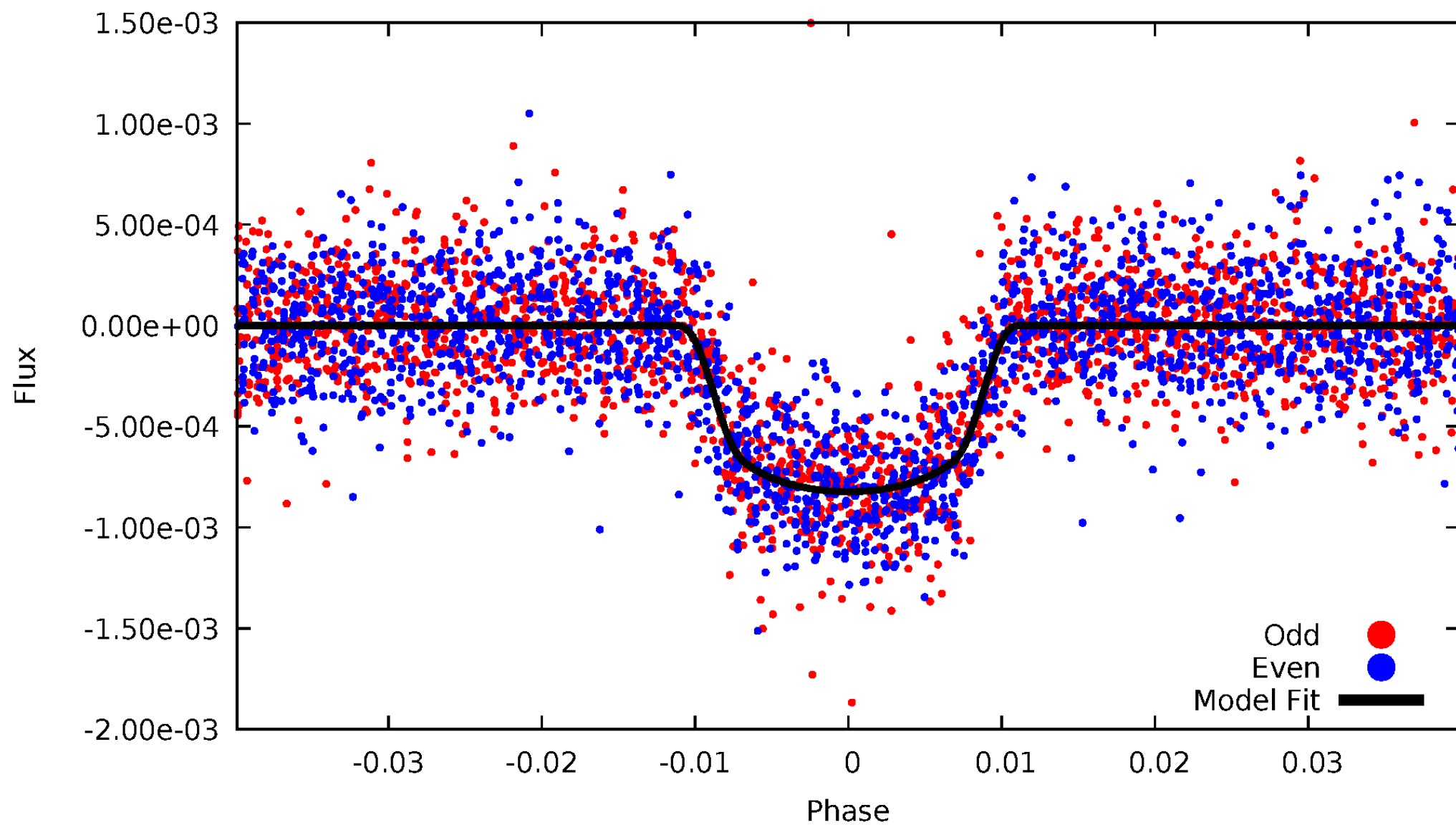


TCE 006266741-01



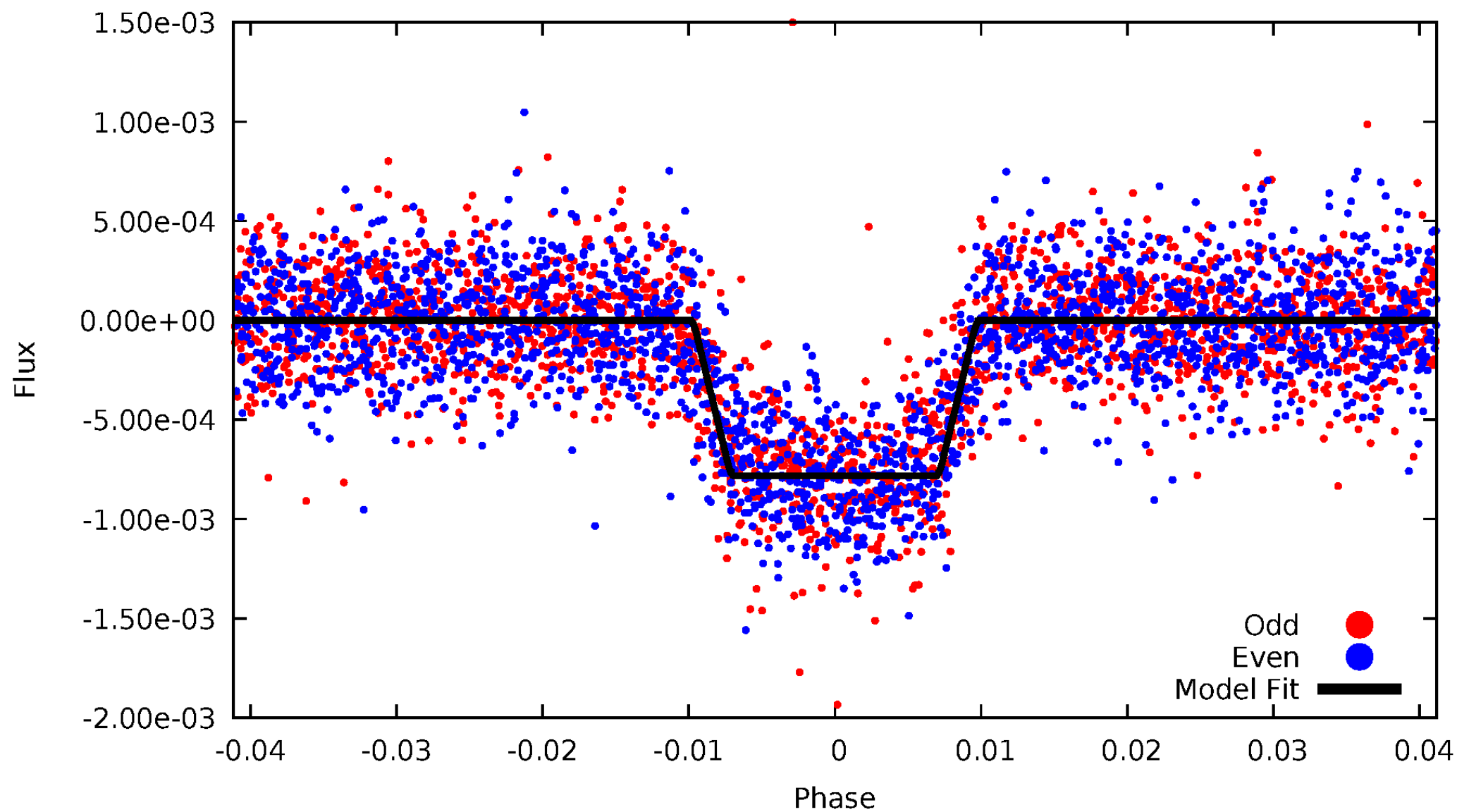
# DV Odd/Even

TCE 006266741-01



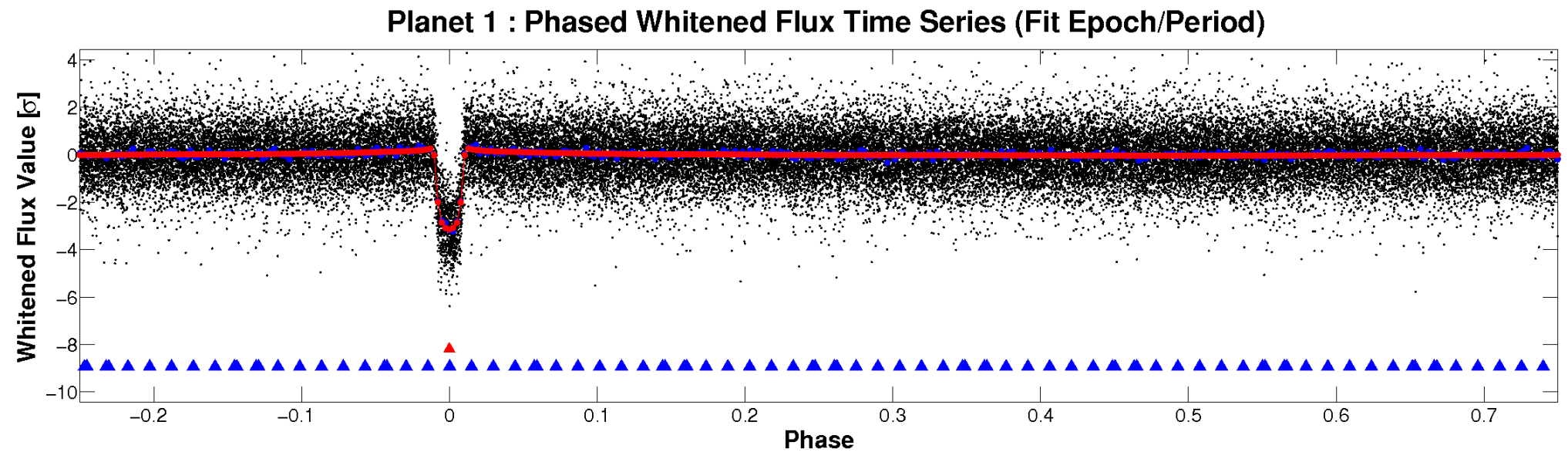
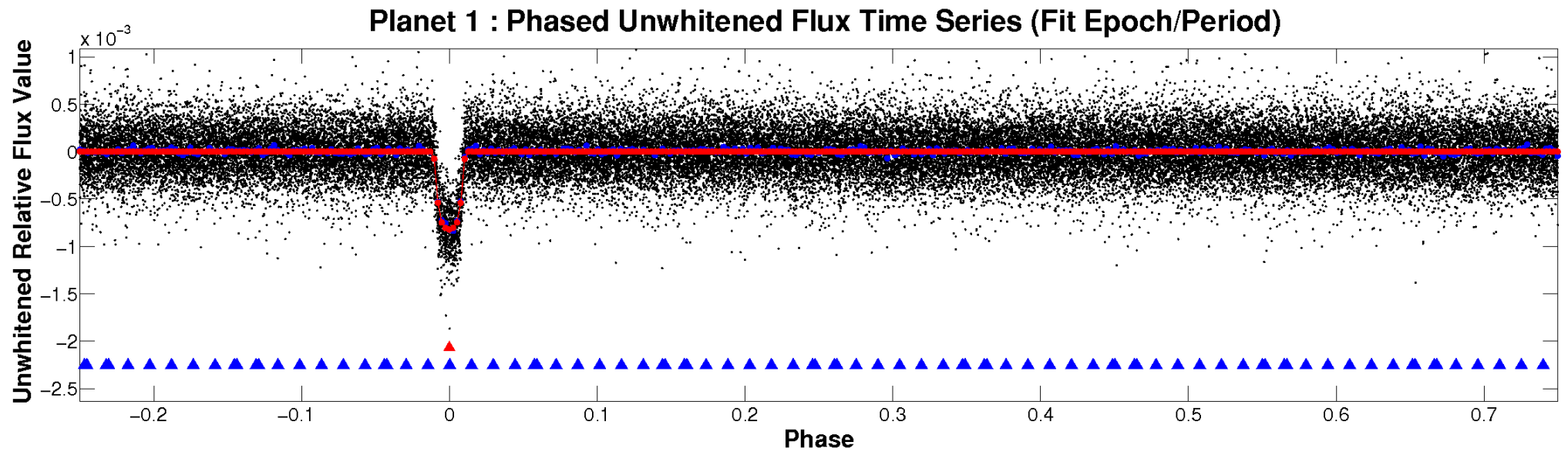
# ALT Odd/Even

TCE 006266741-01



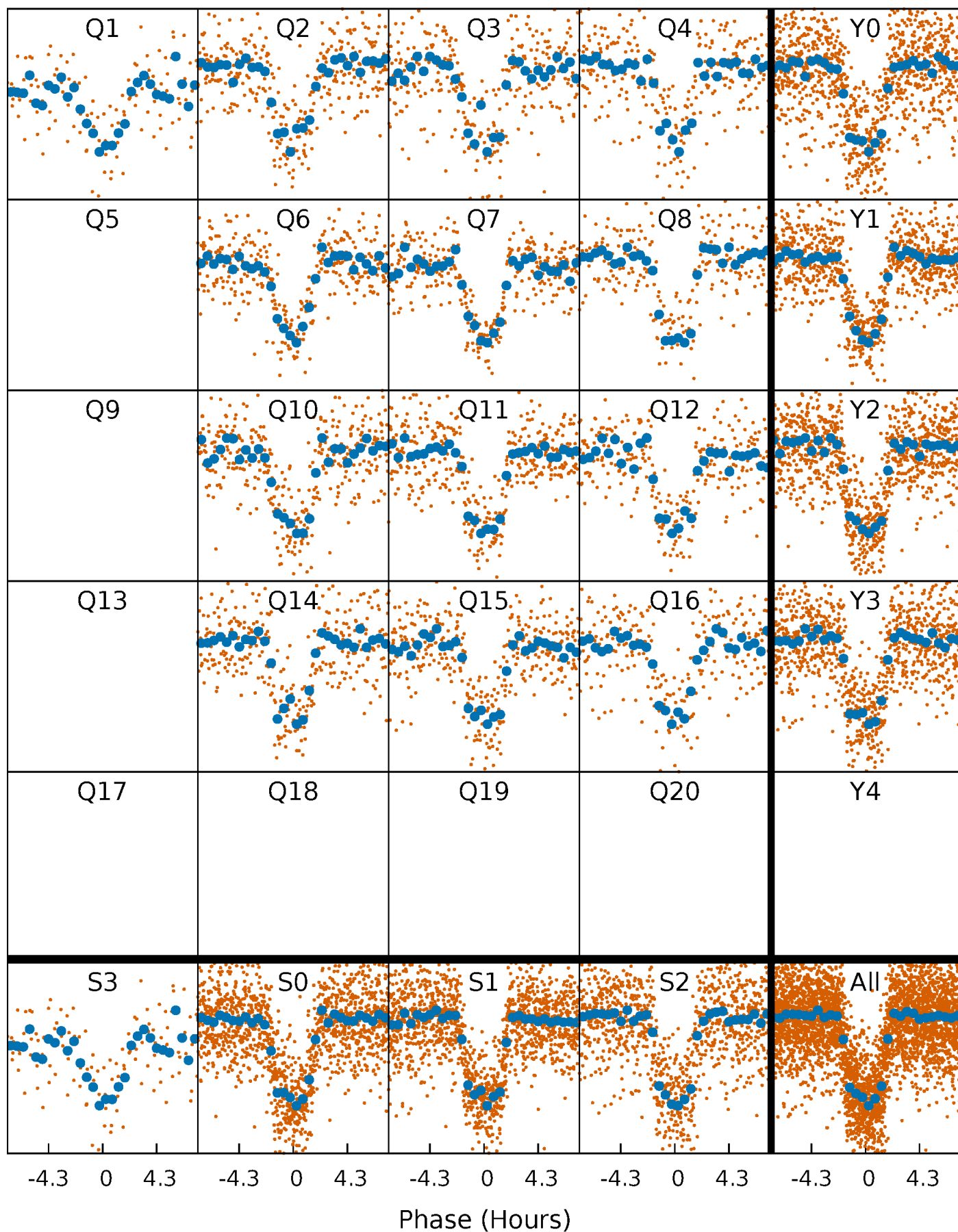


# Non-Whitened Vs. Whitened Light Curve



# PDC Quarter-Phased Transit Curves

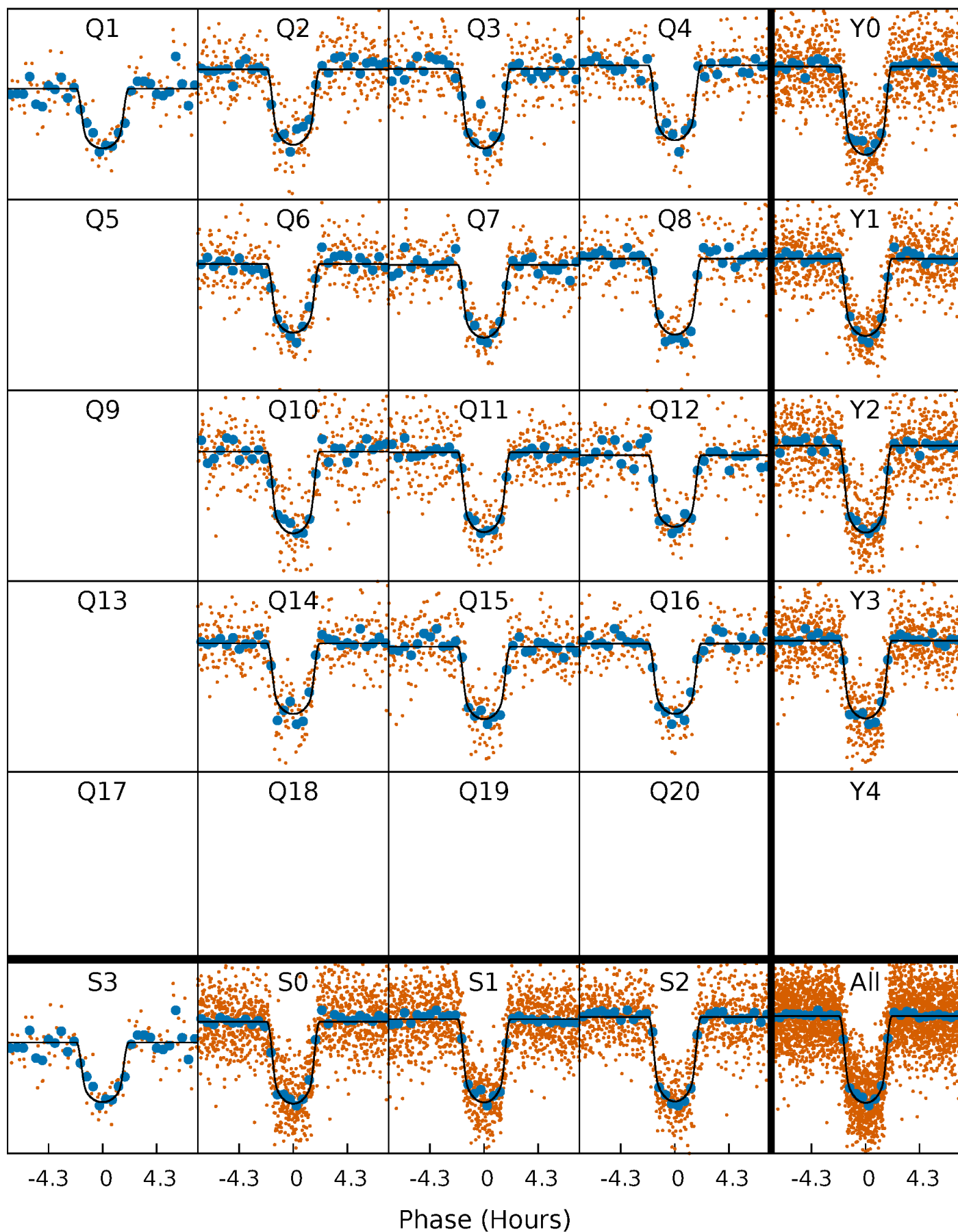
TCE 006266741-01 P= 7.930575 Days  $T_0=137.795591$  (BKJD)





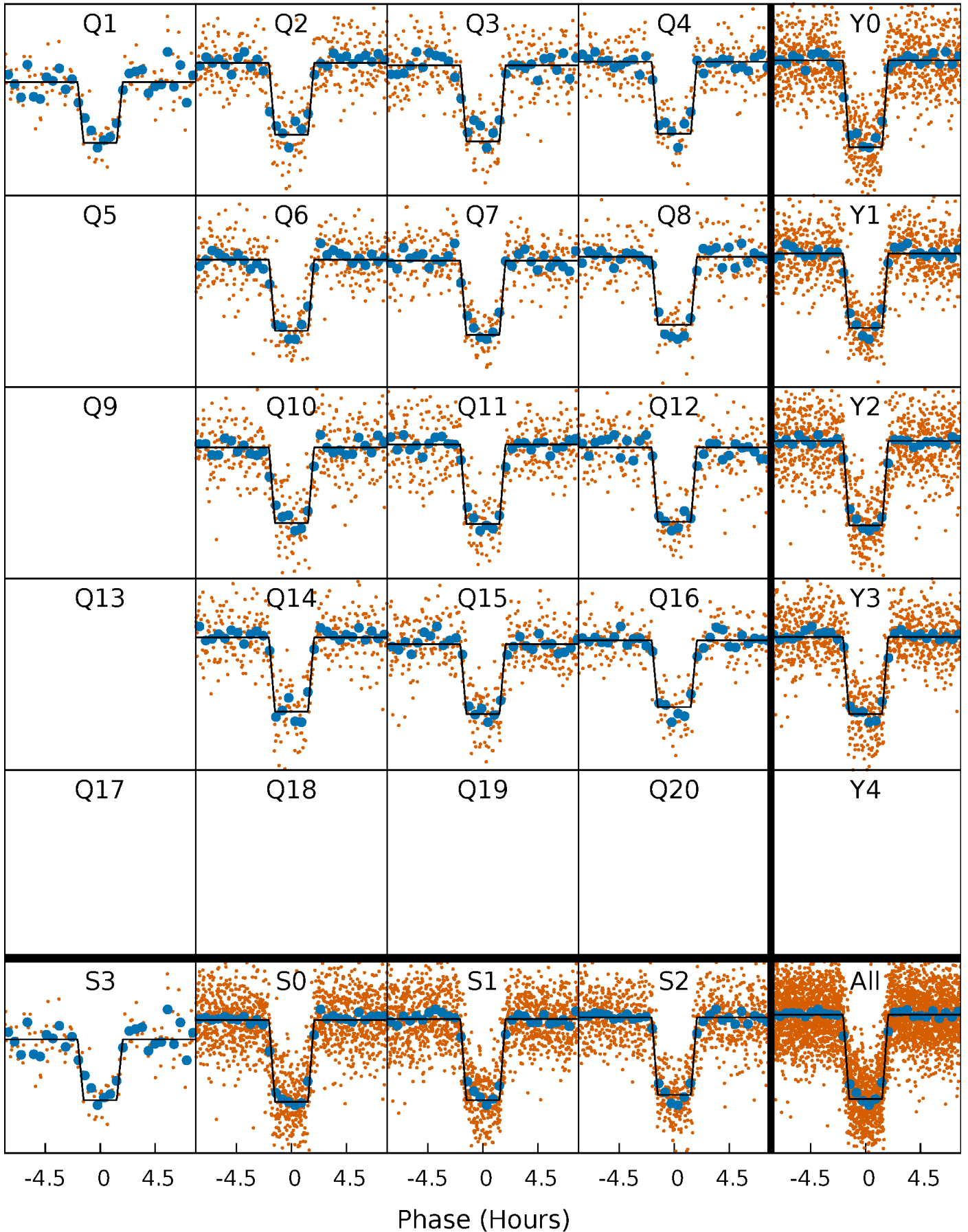
# DV Quarter-Phased Transit Curves

TCE 006266741-01 P= 7.930575 Days  $T_0=137.795591$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

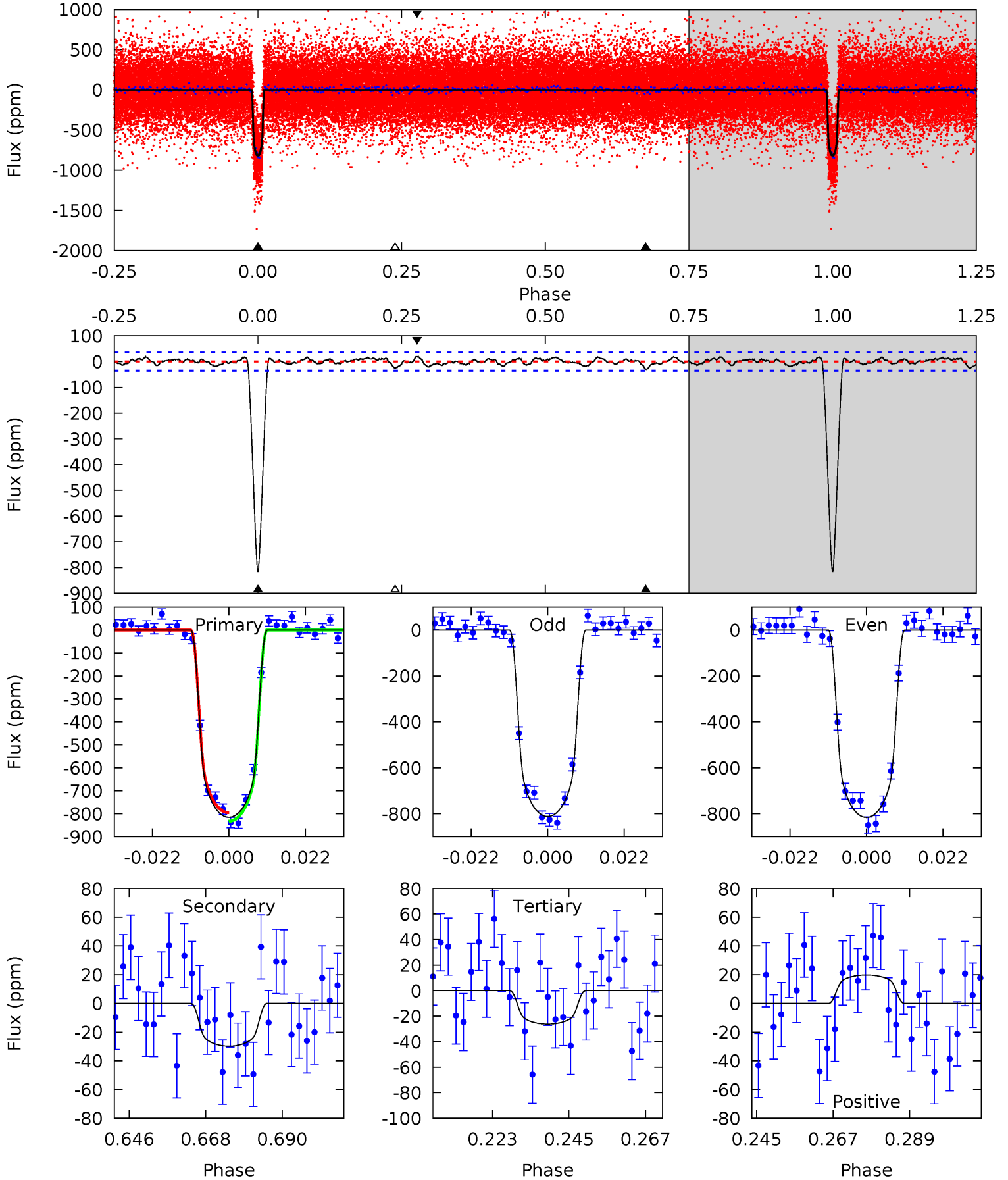
TCE 006266741-01   P= 7.930524 Days    $T_0=137.800164$  (BKJD)



# DV Model-Shift Uniqueness Test

006266741-01, P = 7.930575 Days, E = 129.865016 Days

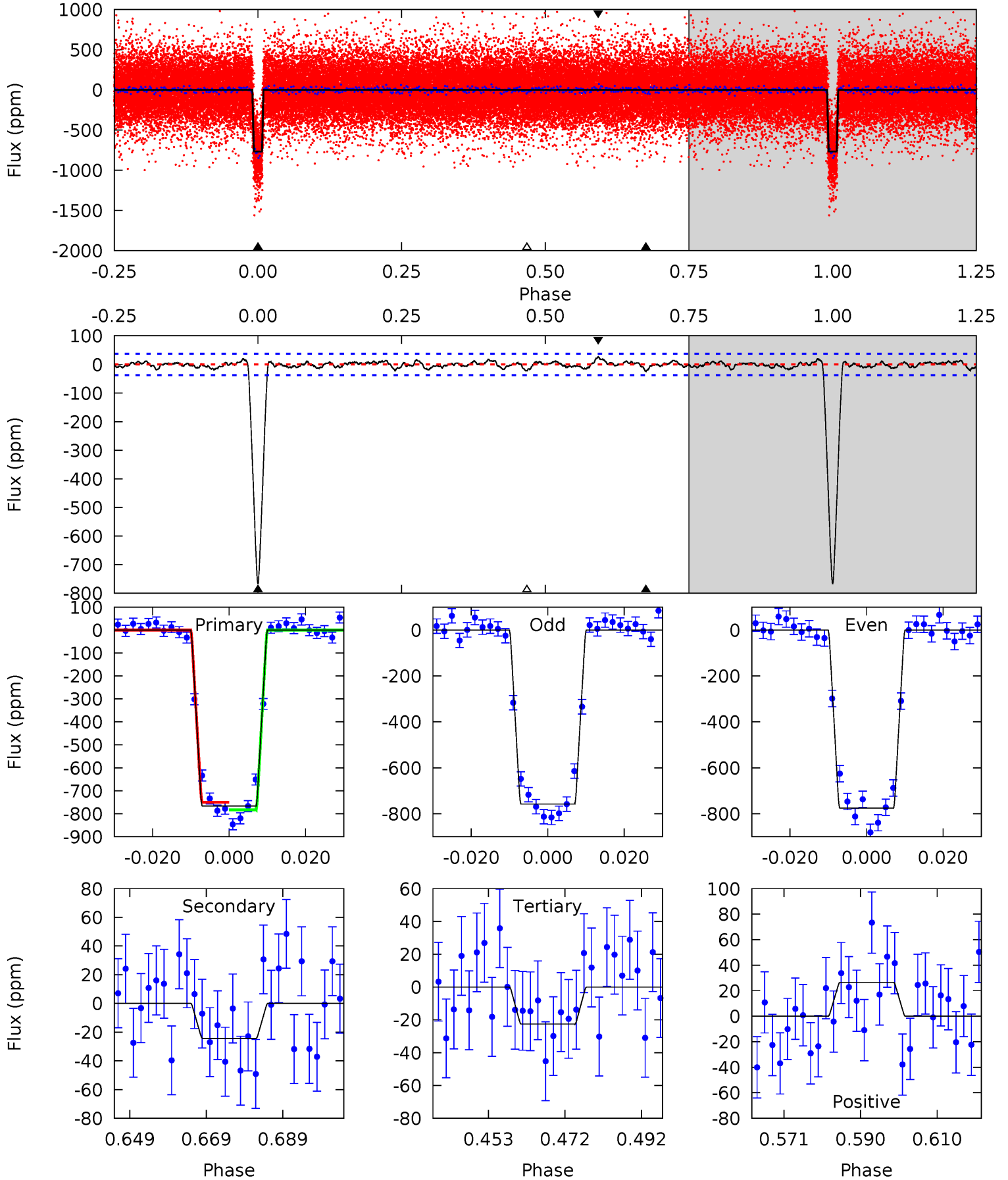
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
112.2	4.10	3.60	2.73	4.87	2.29	1.22	108.6	109.5	0.49	1.37	0.29	1.01	0.02	2.52



# Alt Model-Shift Uniqueness Test

006266741-01, P = 7.930524 Days, E = 129.869640 Days

Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
99.7	3.16	2.94	3.45	4.89	2.33	1.08	96.8	96.3	0.22	-0.29	1.16	1.01	0.03	2.15



### Stellar Parameters For KIC 006266741

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R$ ( $R_{\odot}$ )	$M(M_{\odot})$	$p_{\star}$ ( $\text{g}\cdot\text{cm}^{-3}$ )
	$5674^{+103}_{-114}$	$4.446^{+0.034}_{-0.128}$	$0.480^{+0.050}_{-0.150}$	$1.032^{+0.159}_{-0.057}$	$1.086^{+0.050}_{-0.066}$	$1.392^{+0.218}_{-0.494}$
	+2%/-2%	+1%/-3%	+10%/-31%	+15%/-6%	+5%/-6%	+16%/-35%
Source	SPE58	SPE58	SPE58	DSEP		

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

### Secondary Eclipse Parameters for KIC 006266741-01 / KOI 0508.01

Detrend	Depth (ppm)	$R_p$ ( $R_{\oplus}$ )	$T_{\text{max}}$ (K)	$T_{\text{obs}}$ (K)	$A_{\text{obs}}$
DV	$-30 \pm 7$	$3.46^{+0.34}_{-0.25}$	$1268^{+52}_{-36}$	$3037^{+124}_{-135}$	$8.563^{+2.836}_{-2.417}$
Alt.	$-24 \pm 8$	$3.22^{+0.30}_{-0.25}$	$1269^{+55}_{-39}$	$3011^{+152}_{-184}$	$7.901^{+3.260}_{-2.832}$

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



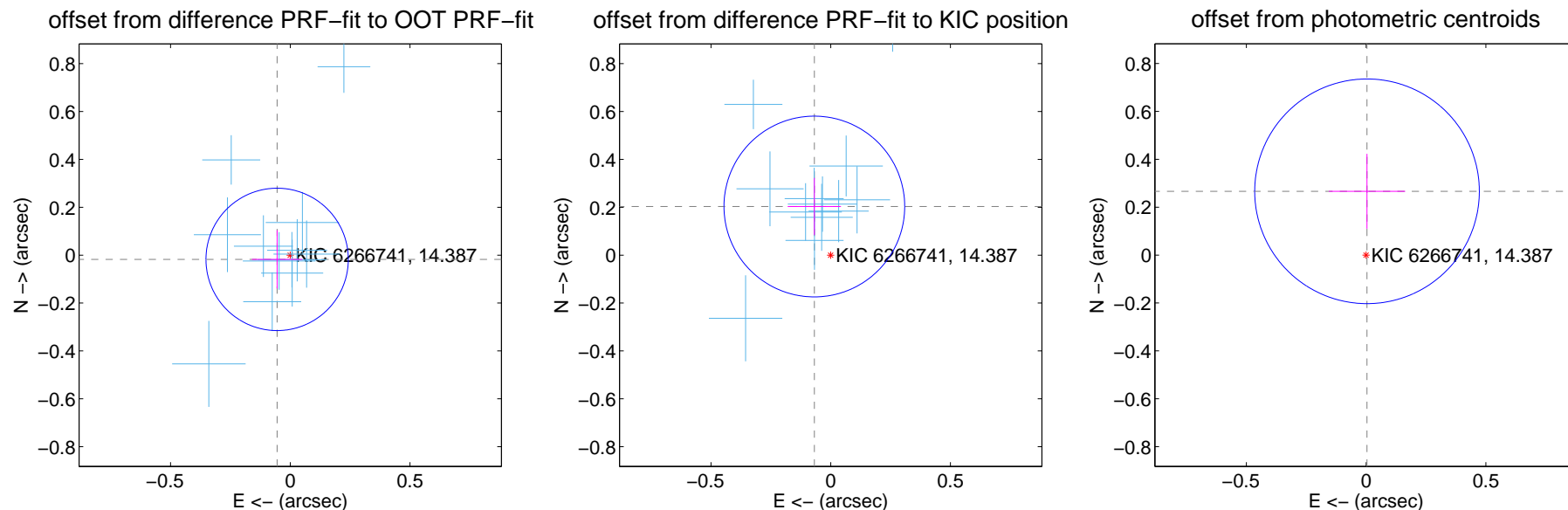
## DV Centroid Data

Supplemental centroid analysis for 006266741-01. Kepler magnitude: 14.39. Transit SNR 80.72

There are 13 quarters with good PRF difference image offsets

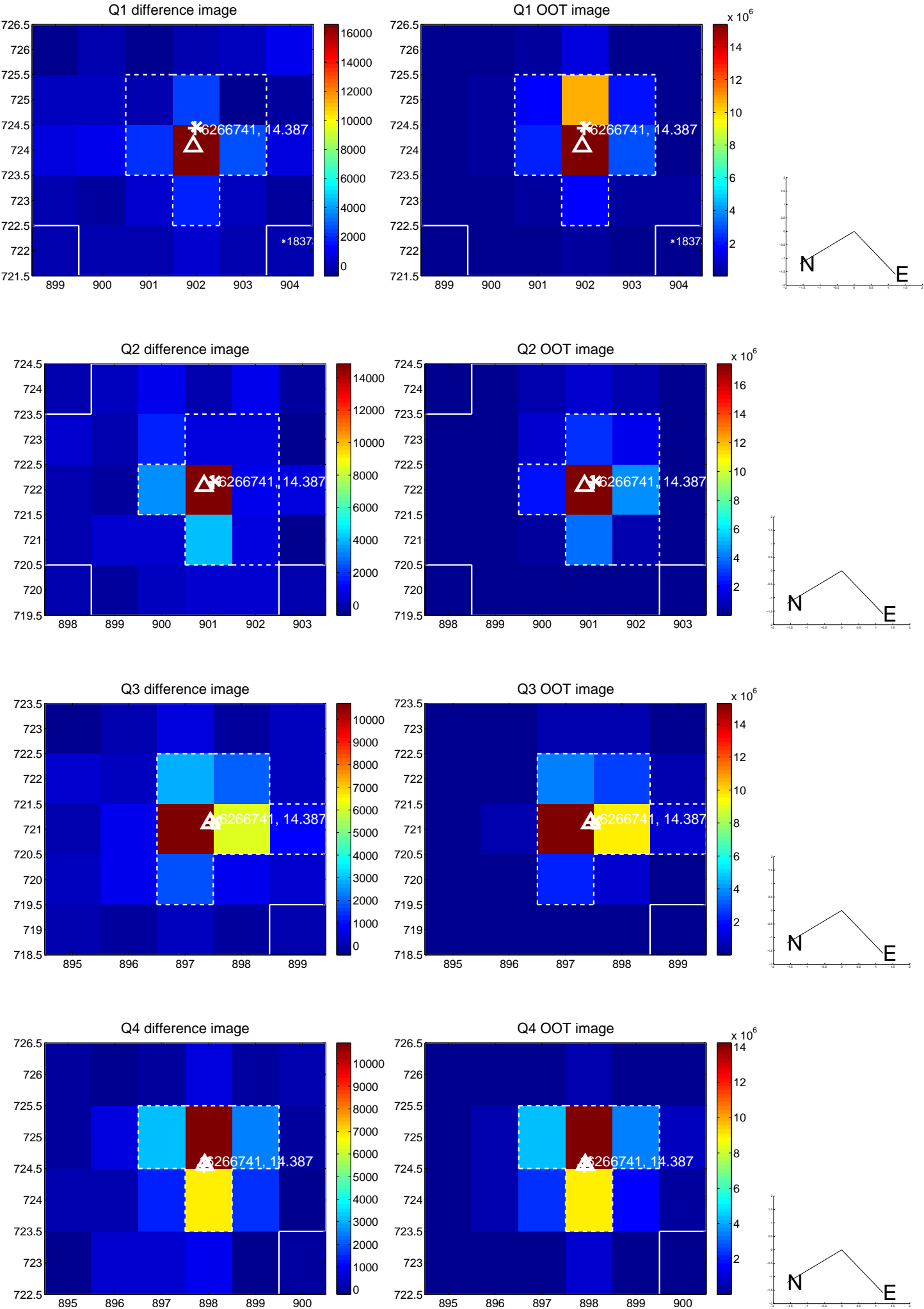
The direct PRF centroid is offset from the target star catalog position by about 0.19 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$0.058 \pm 0.099$	0.58	$0.055 \pm 0.105$	$-0.018 \pm 0.122$
PRF-fit source offset from KIC position	$0.214 \pm 0.126$	1.70	$0.068 \pm 0.111$	$0.203 \pm 0.119$
photometric centroid source offset	$0.27 \pm 0.16$	1.70	$-0.00 \pm 0.16$	$0.27 \pm 0.16$

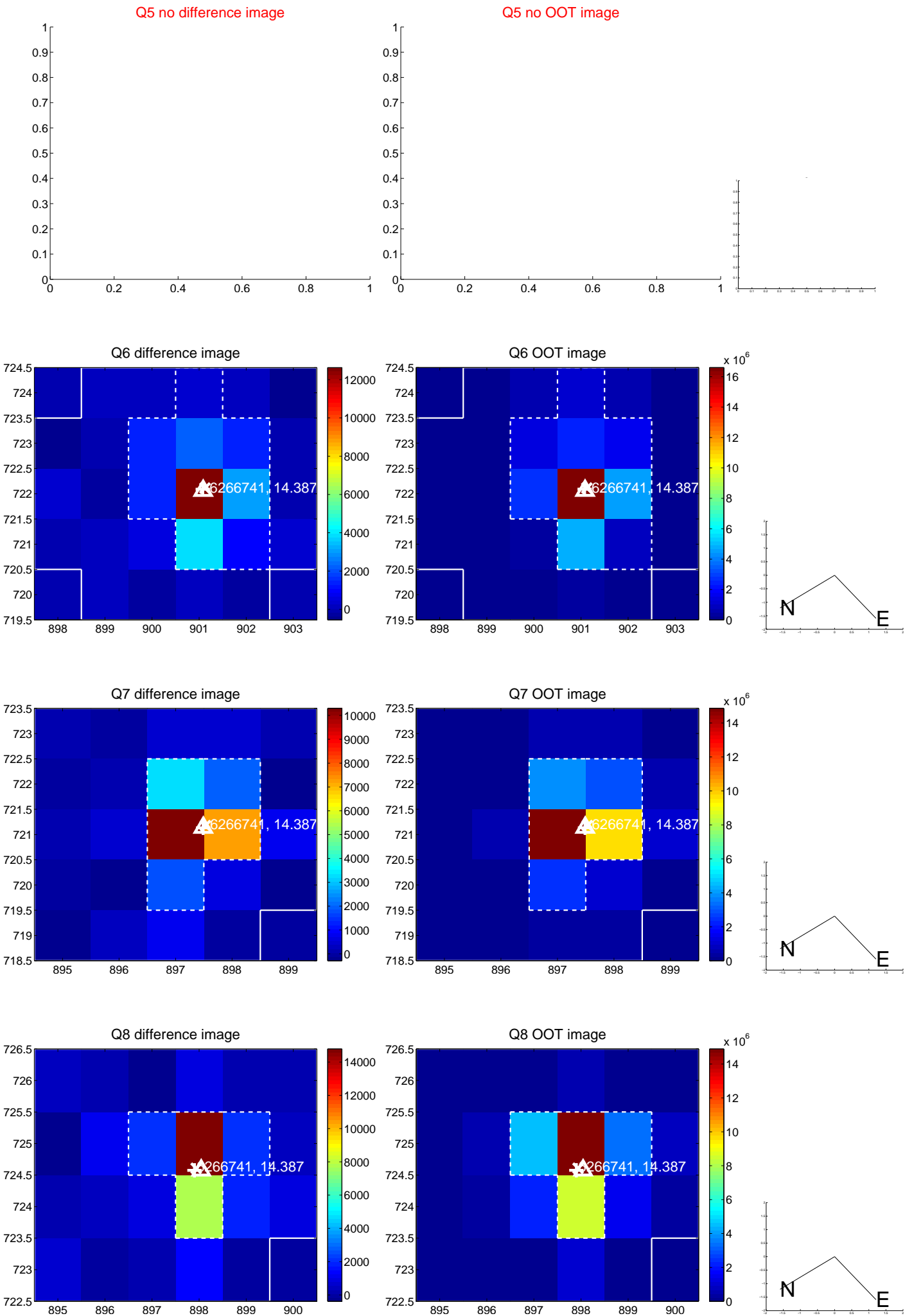


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses:** good quarterly centroid offsets; **Vermillion crosses:** bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: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

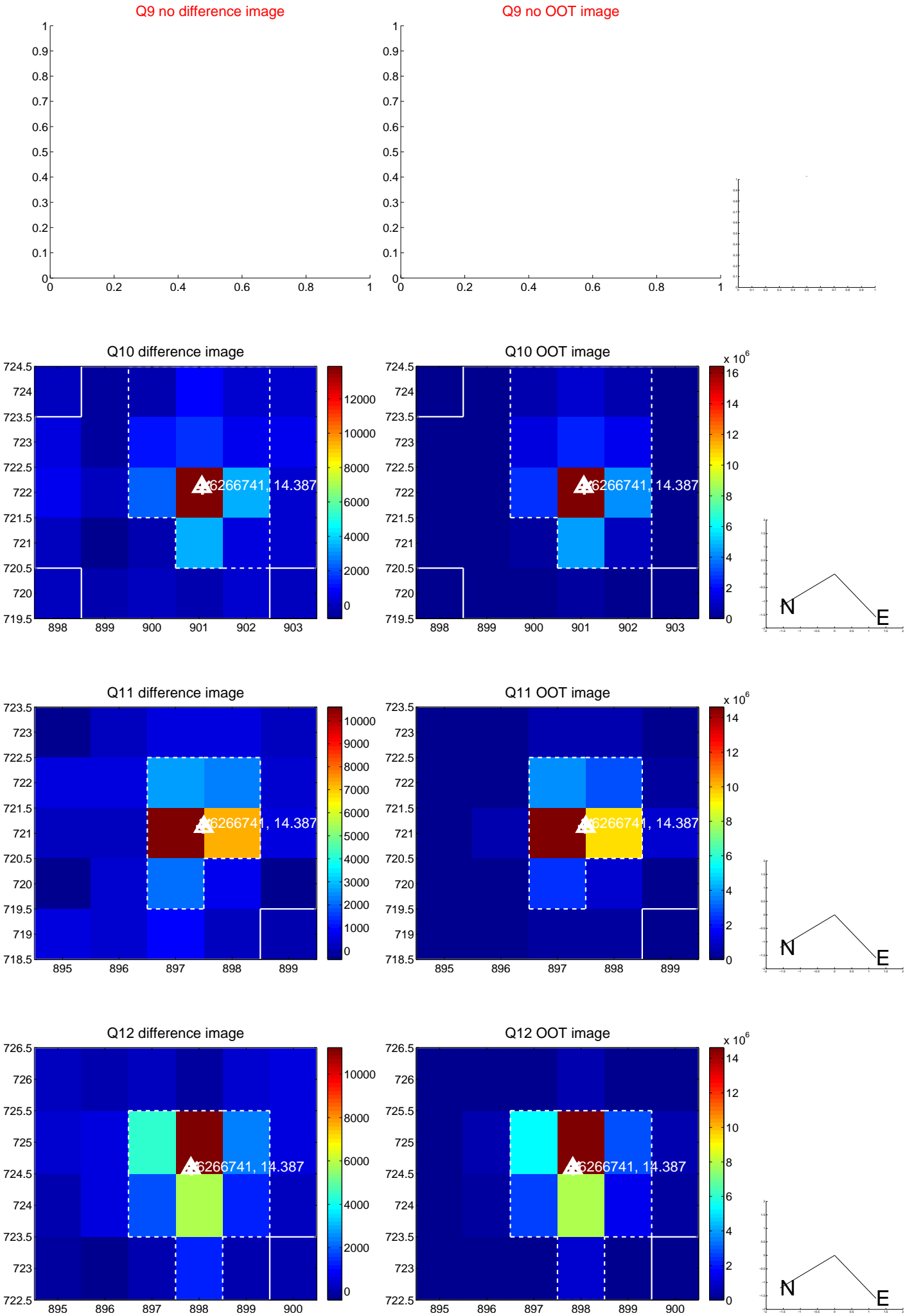
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



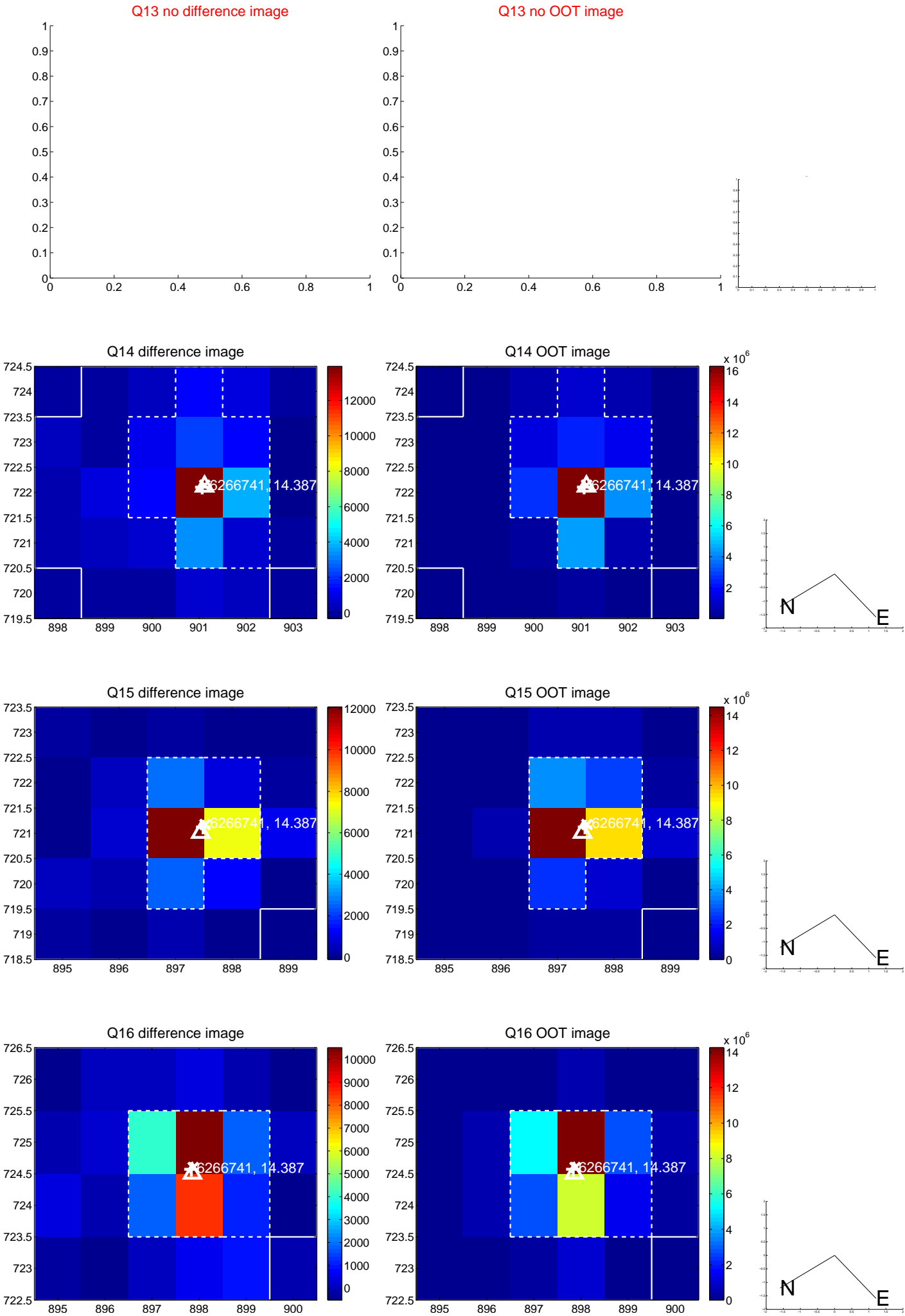
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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

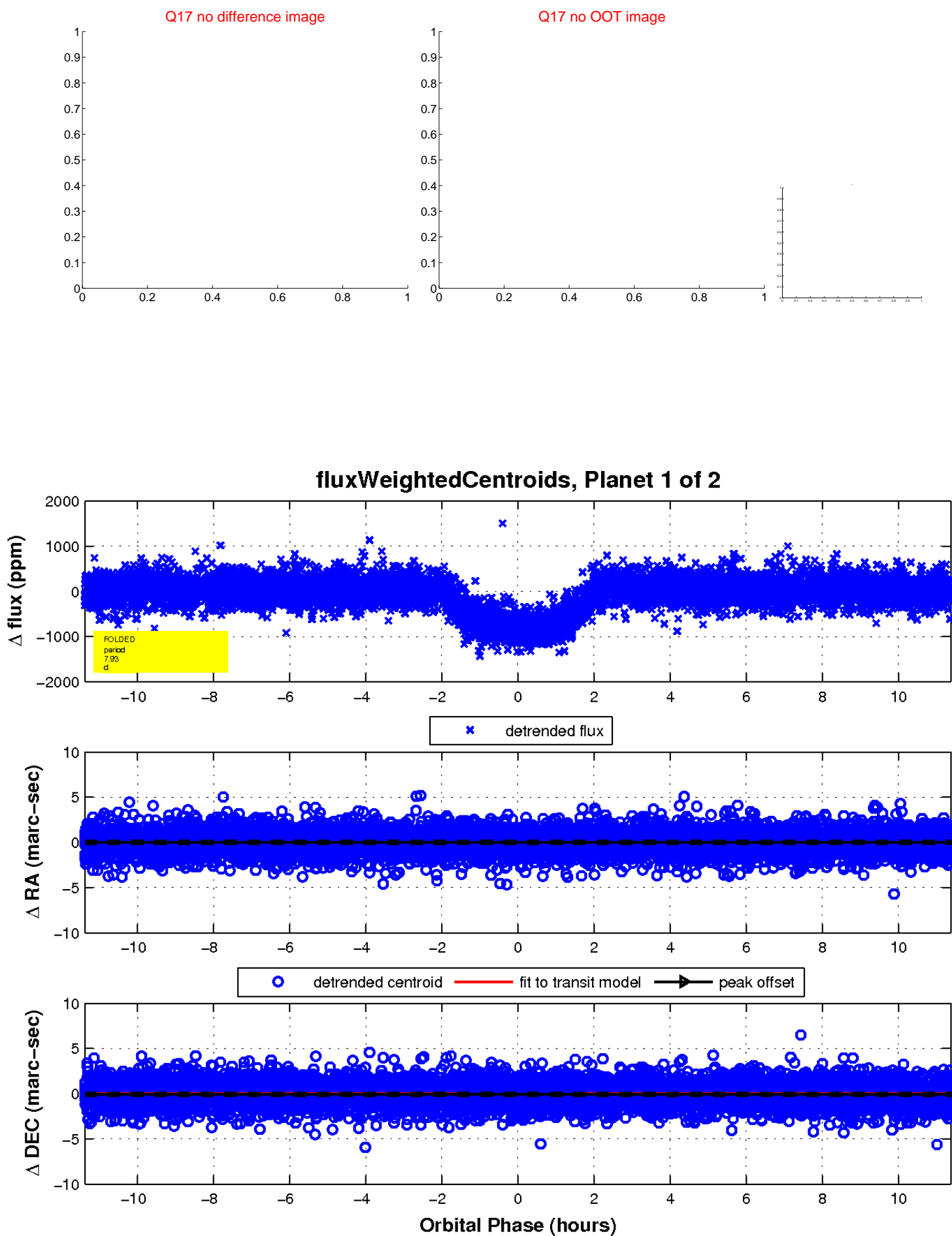


white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



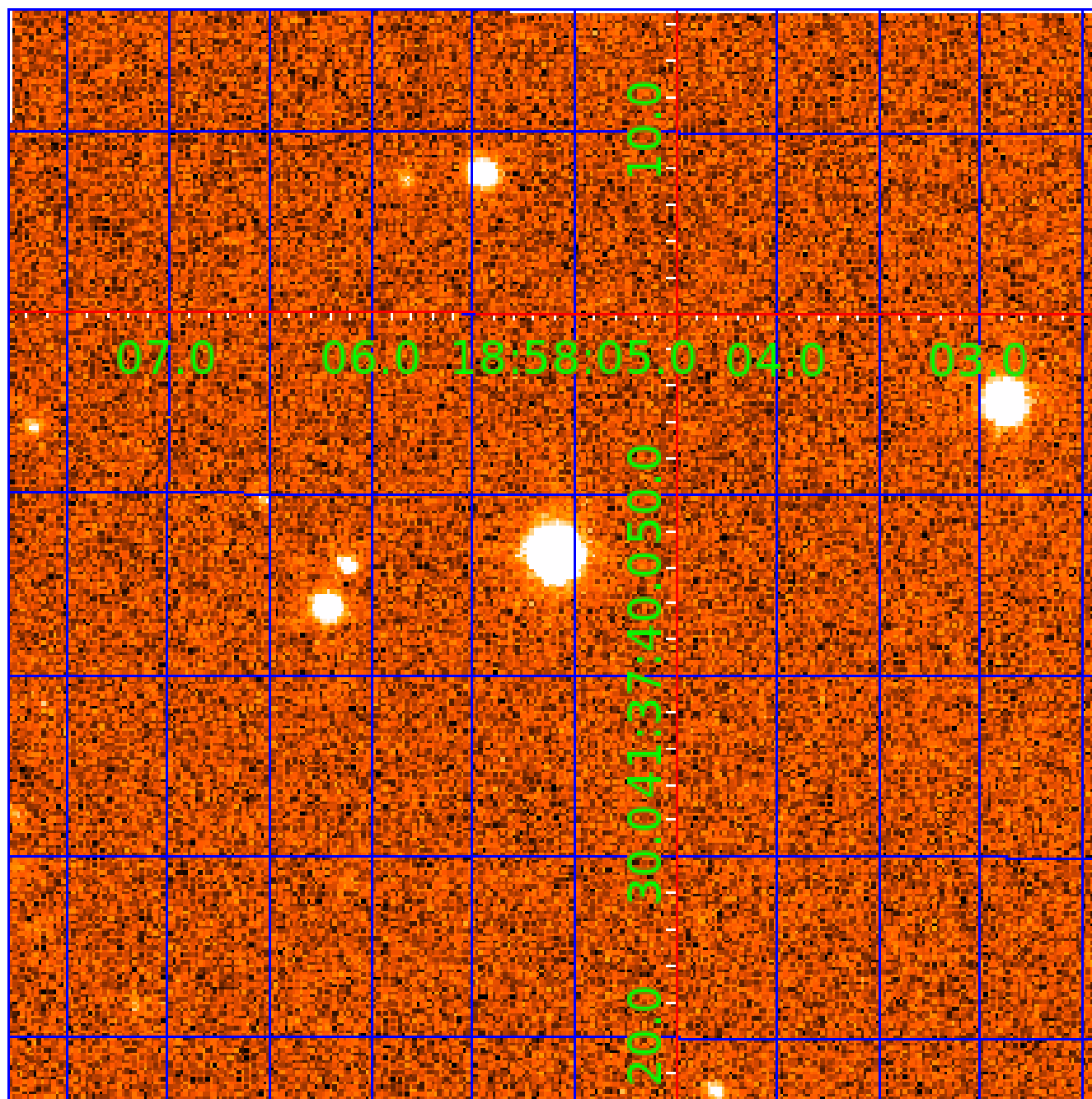


white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



# UKIRT Image

Declination



# KIC 006266741

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
006266741-01	OBS	0508.01	7.930575	137.795591	823.4	3.794	71.0	80.7	1.03	5674	3.39	154.58
006266741-02	OBS	0508.02	16.665896	146.870167	743.5	4.216	48.9	52.4	1.03	5674	3.05	57.43

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
006266741-01	OBS	PC	1.00	0	0	0	0	NO_COMMENT
006266741-02	OBS	PC	1.00	0	0	0	0	NO_COMMENT

**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.

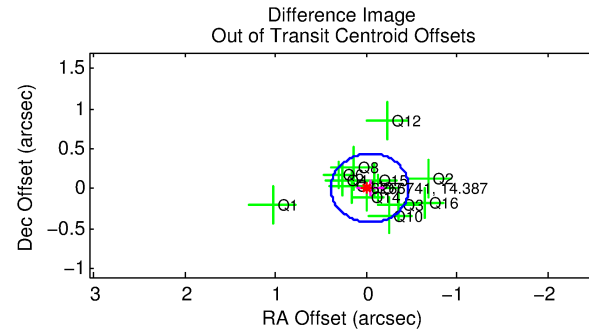
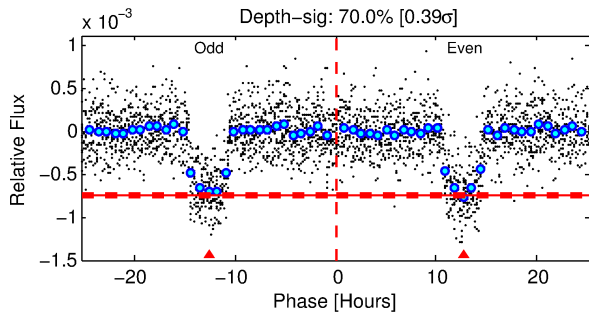
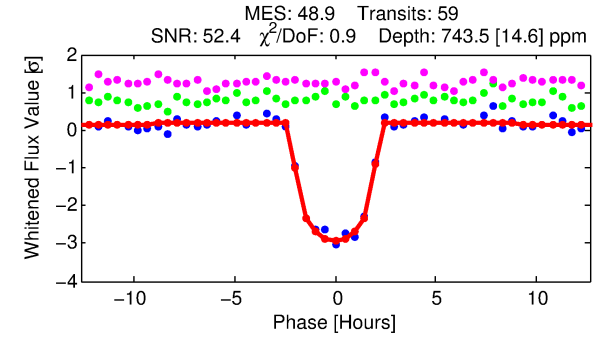
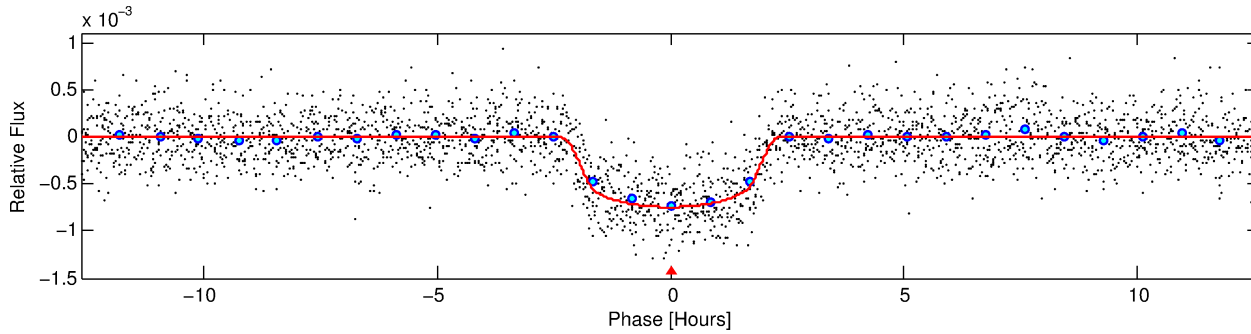
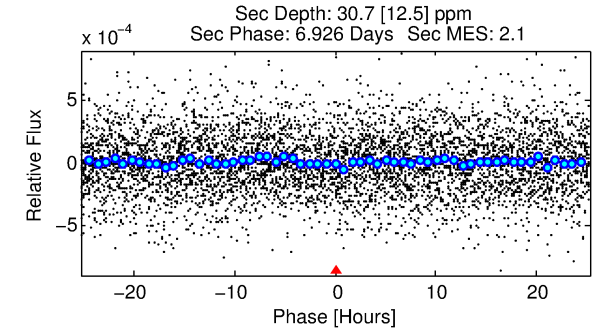
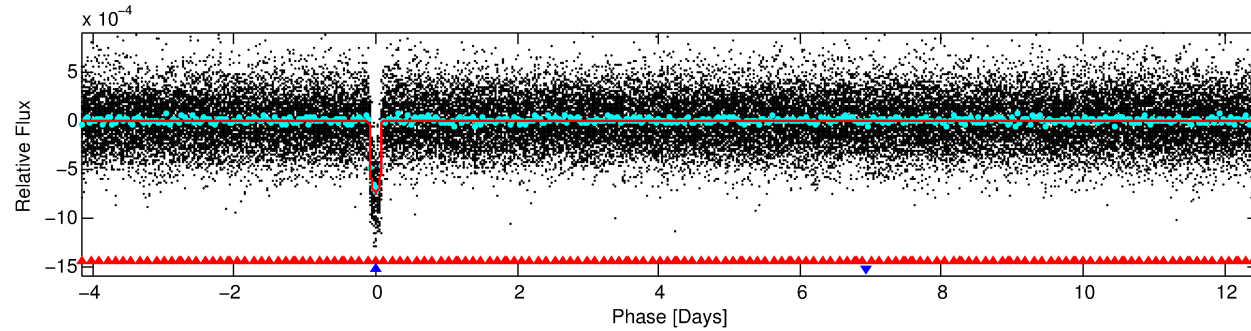
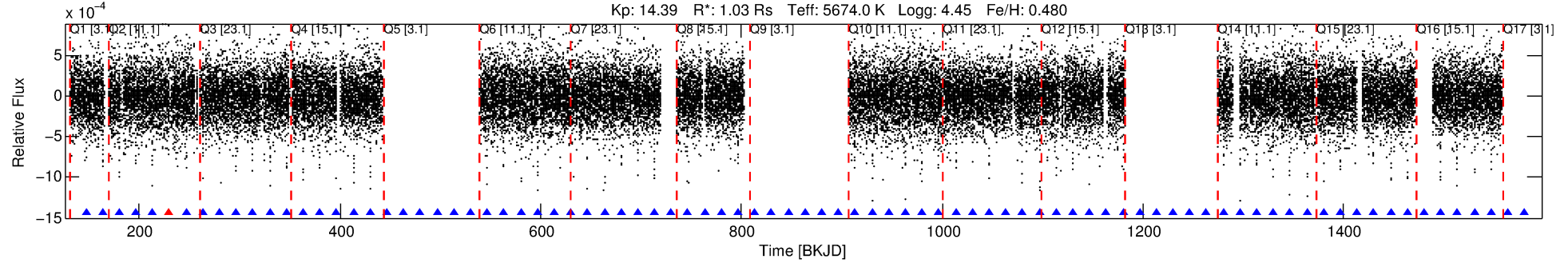
## Ephemeris Match Information For 006266741-02

No Significant Match Found

# DV One-Page Summary

KIC: 6266741 Candidate: 2 of 2 Period: 16.666 d  
KOI: K00508.02 Name: Kepler-170c Corr: 0.995

Kp: 14.39 R\*: 1.03 Rs Teff: 5674.0 K Logg: 4.45 Fe/H: 0.480



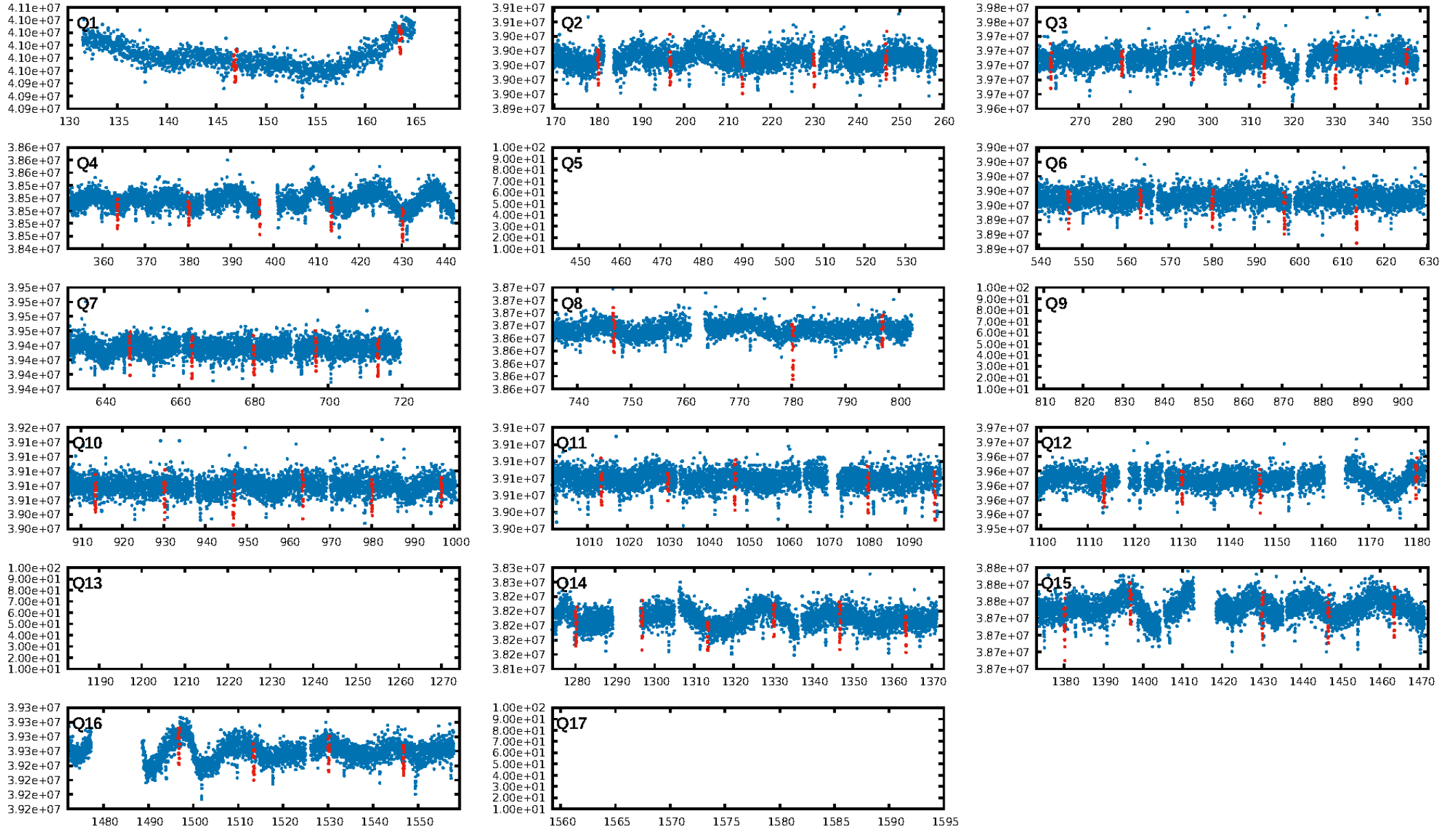
## DV Fit Results:

Period = 16.66590 [0.00003] d  
Epoch = 146.8702 [0.0016] BKJD  
Rp/R\* = 0.0271 [0.0045]  
a/R\* = 21.41 [14.19]  
b = 0.74 [0.41]  
Seff = 57.43 [13.54]  
Teff = 702 [41] K  
Rp = 3.05 [0.69] Re  
a = 0.1312 [0.0187] AU  
Ag = 31.21 [17.84] [1.69 $\sigma$ ]  
Teffp = 2565 [342] K [5.41 $\sigma$ ]

## DV Diagnostic Results:

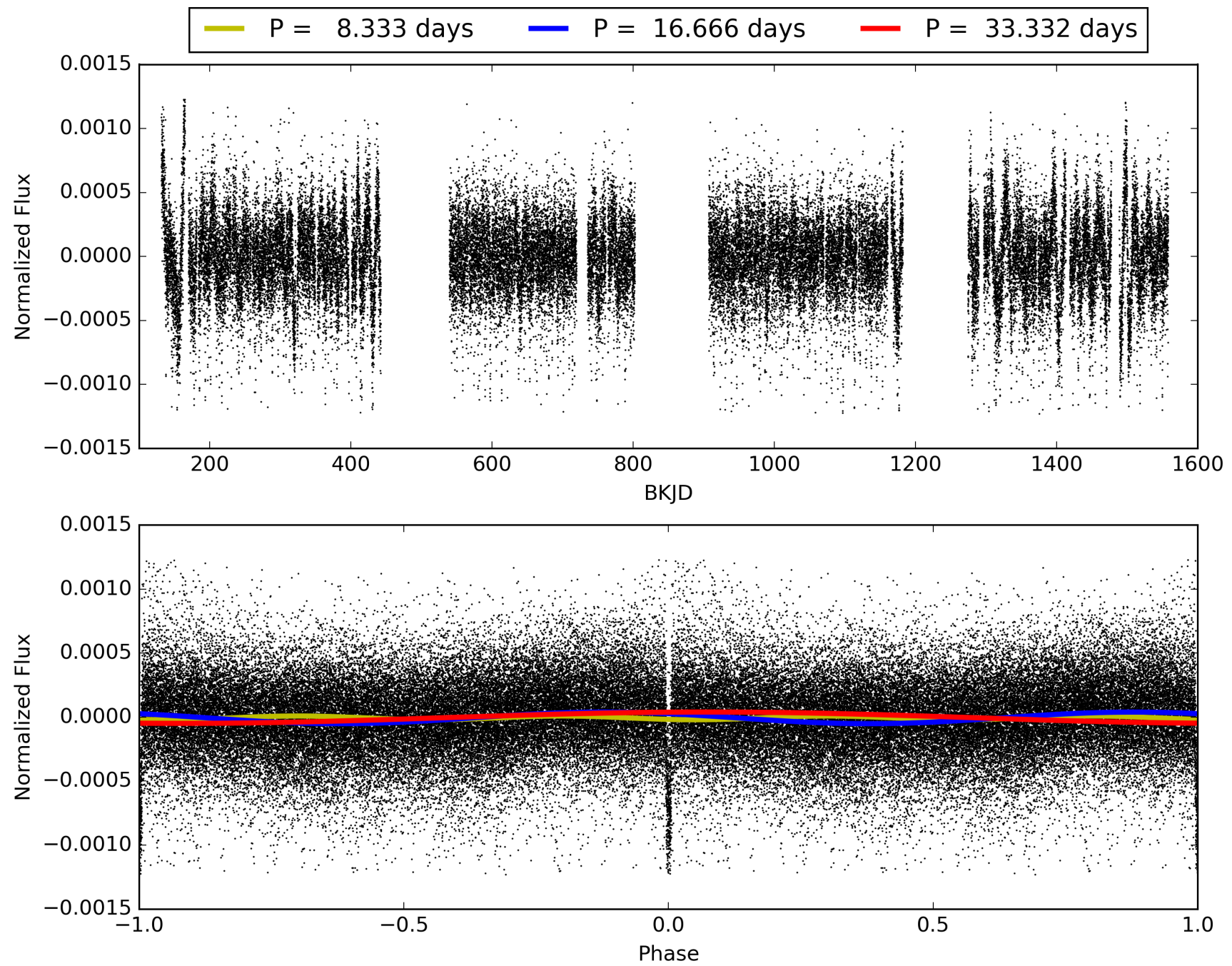
ShortPeriod-sig: 100.0% [36.96 $\sigma$ ]  
LongPeriod-sig: N/A  
ModelChiSquare2-sig: 2.9%  
ModelChiSquareGof-sig: 100.0%  
Bootstrap-pfa: 0.00e+00  
RollingBand-fgt: 0.98 [56/57]  
GhostDiagnostic-chr: 4.532  
Centroid-sig: 38.6%  
Centroid-so: 0.341 arcsec [1.42 $\sigma$ ]  
OotOffset-rm: 0.040 arcsec [0.28 $\sigma$ ]  
KicOffset-rm: 0.223 arcsec [2.27 $\sigma$ ]  
OotOffset-st: 4/4/4/1 [13]  
KicOffset-st: 4/4/4/1 [13]  
DiffImageQuality-fgm: 1.00 [13/13]  
DiffImageOverlap-fno: 1.00 [13/13]

# TCE 006266741-02, PDC Light Curves



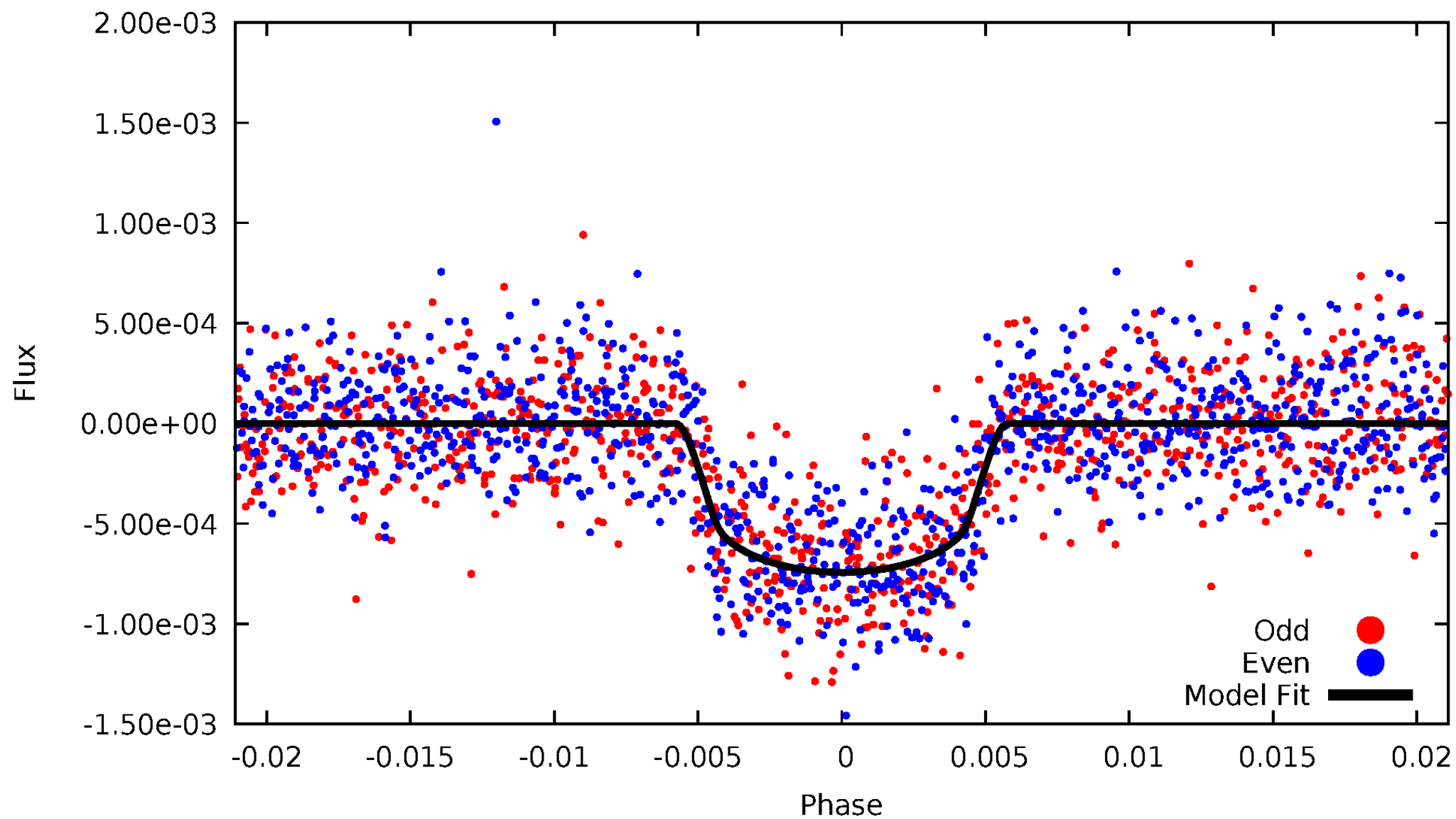


TCE 006266741-02



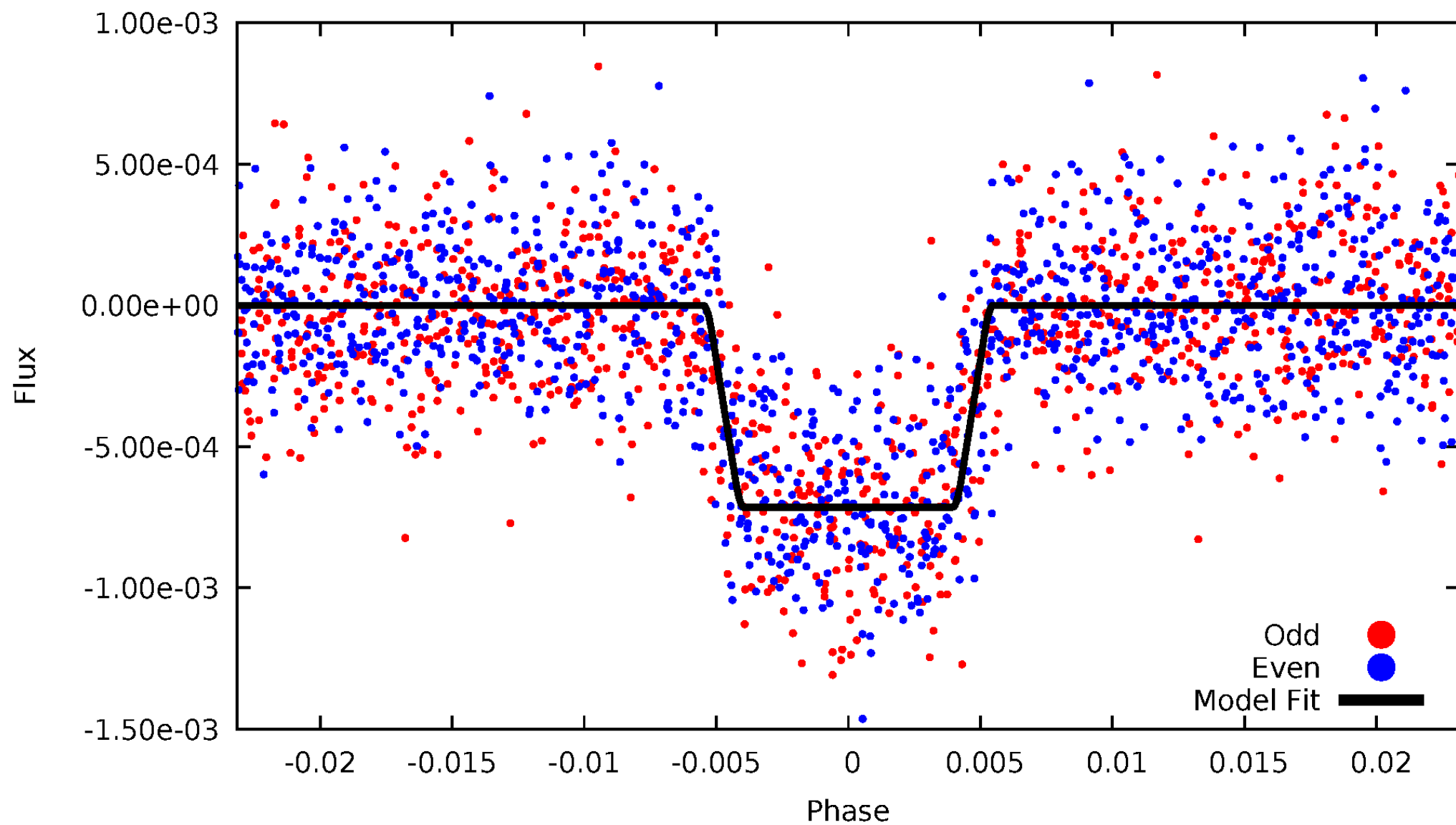
# DV Odd/Even

TCE 006266741-02



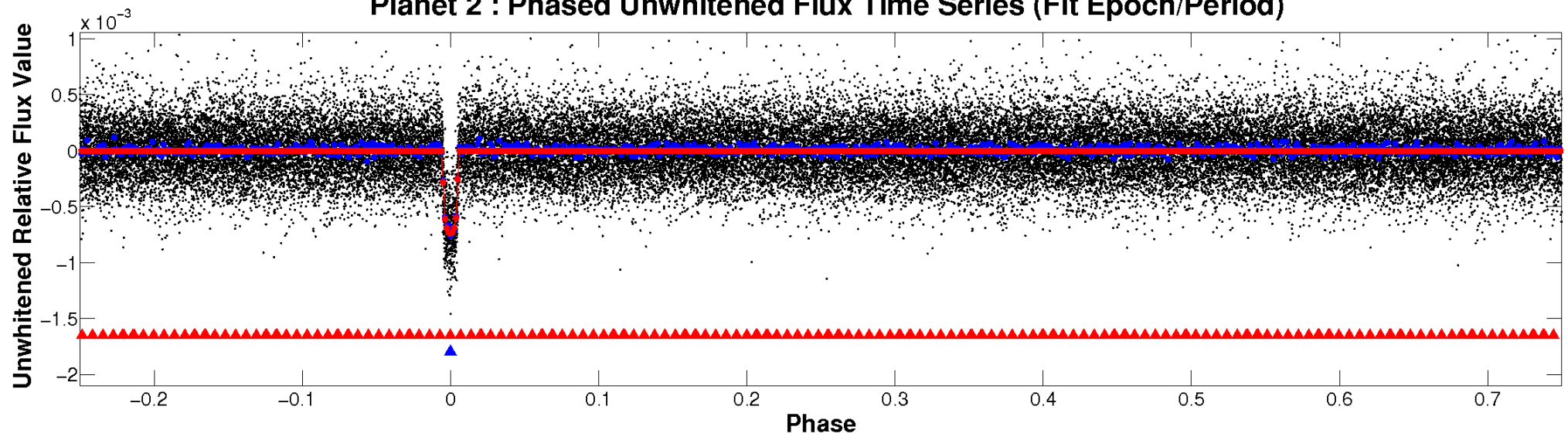
# ALT Odd/Even

TCE 006266741-02

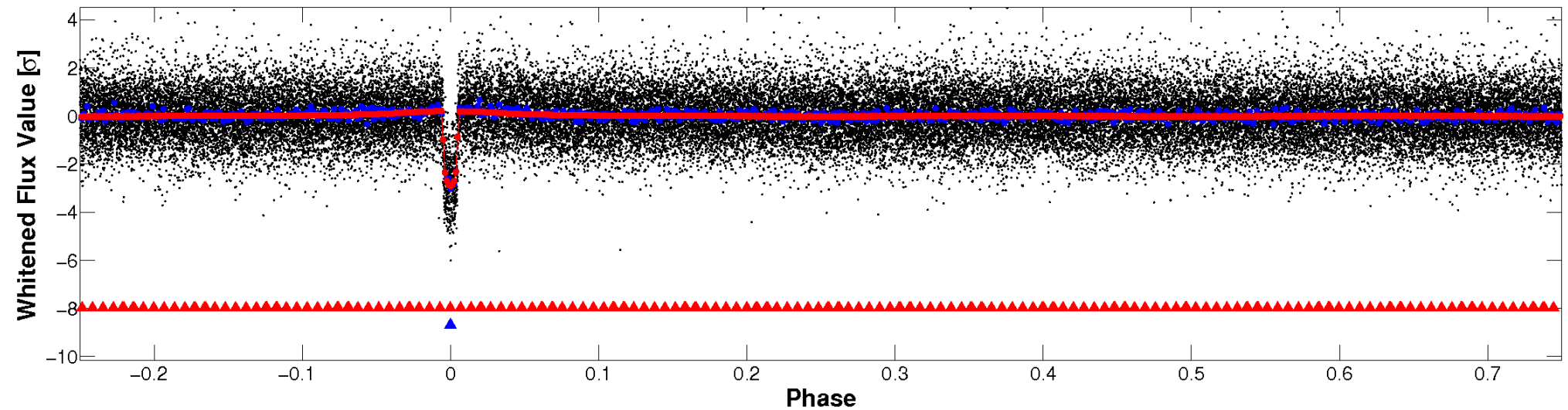


# Non-Whitened Vs. Whitened Light Curve

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

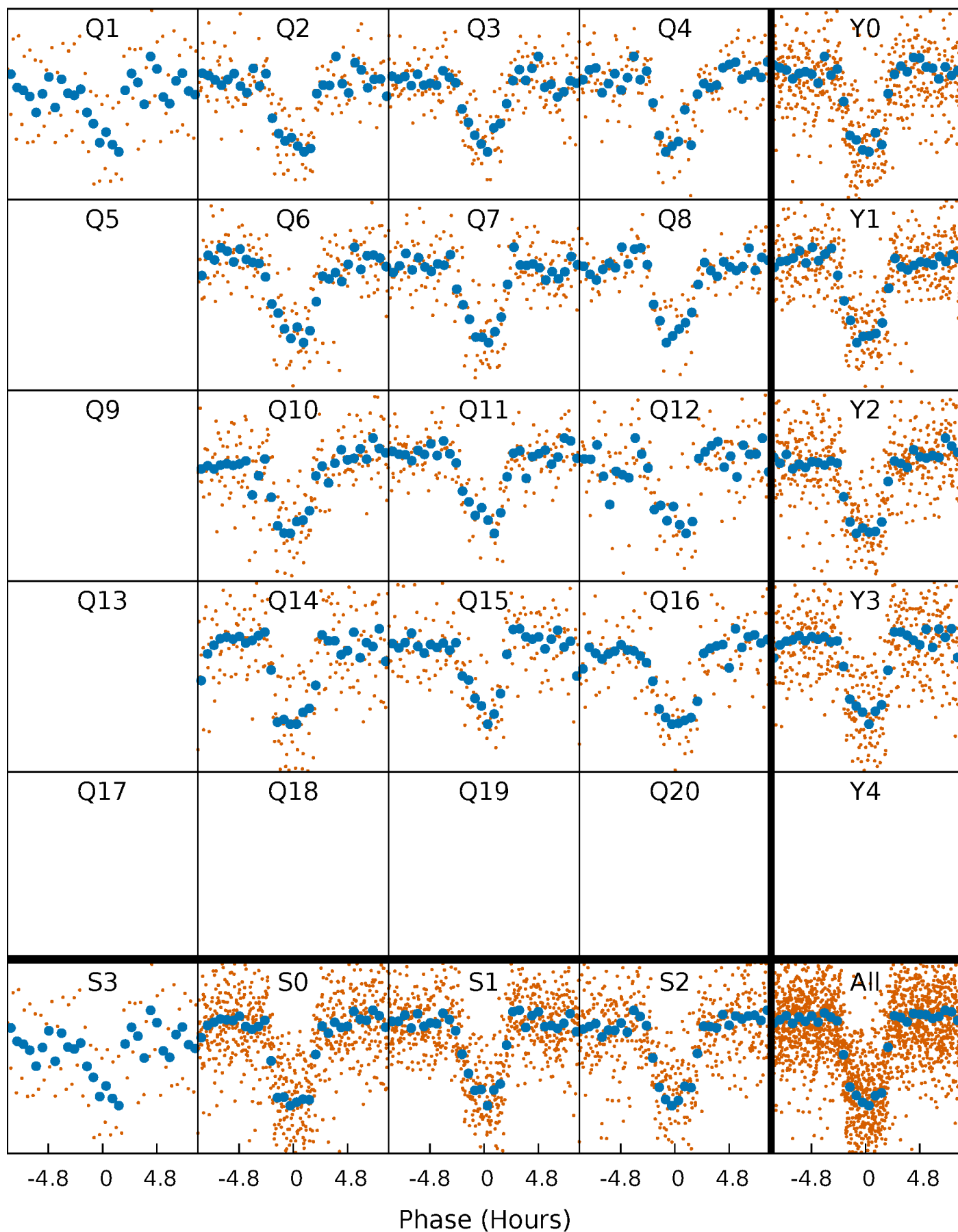


## Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



# PDC Quarter-Phased Transit Curves

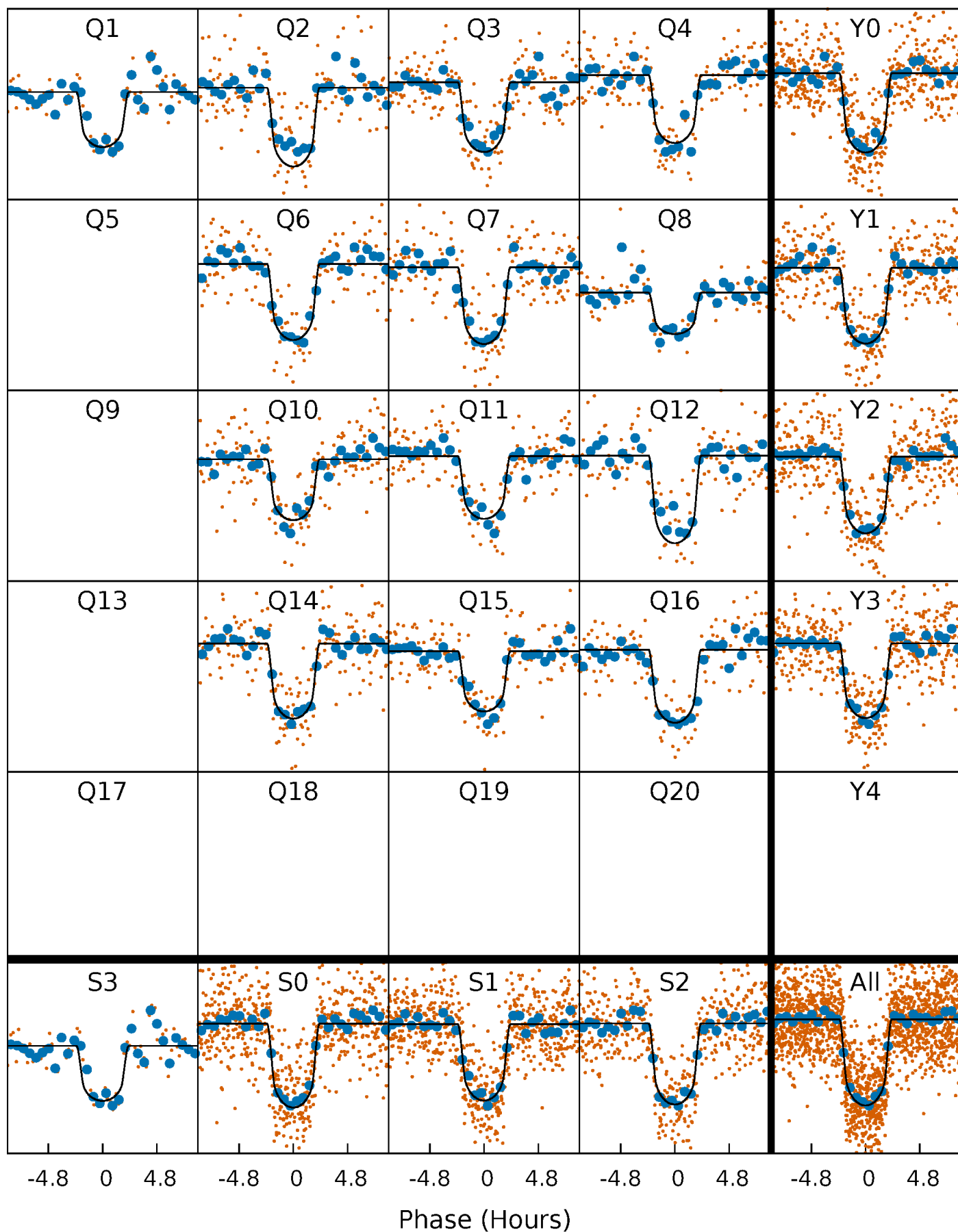
TCE 006266741-02 P= 16.665896 Days  $T_0=146.870167$  (BKJD)





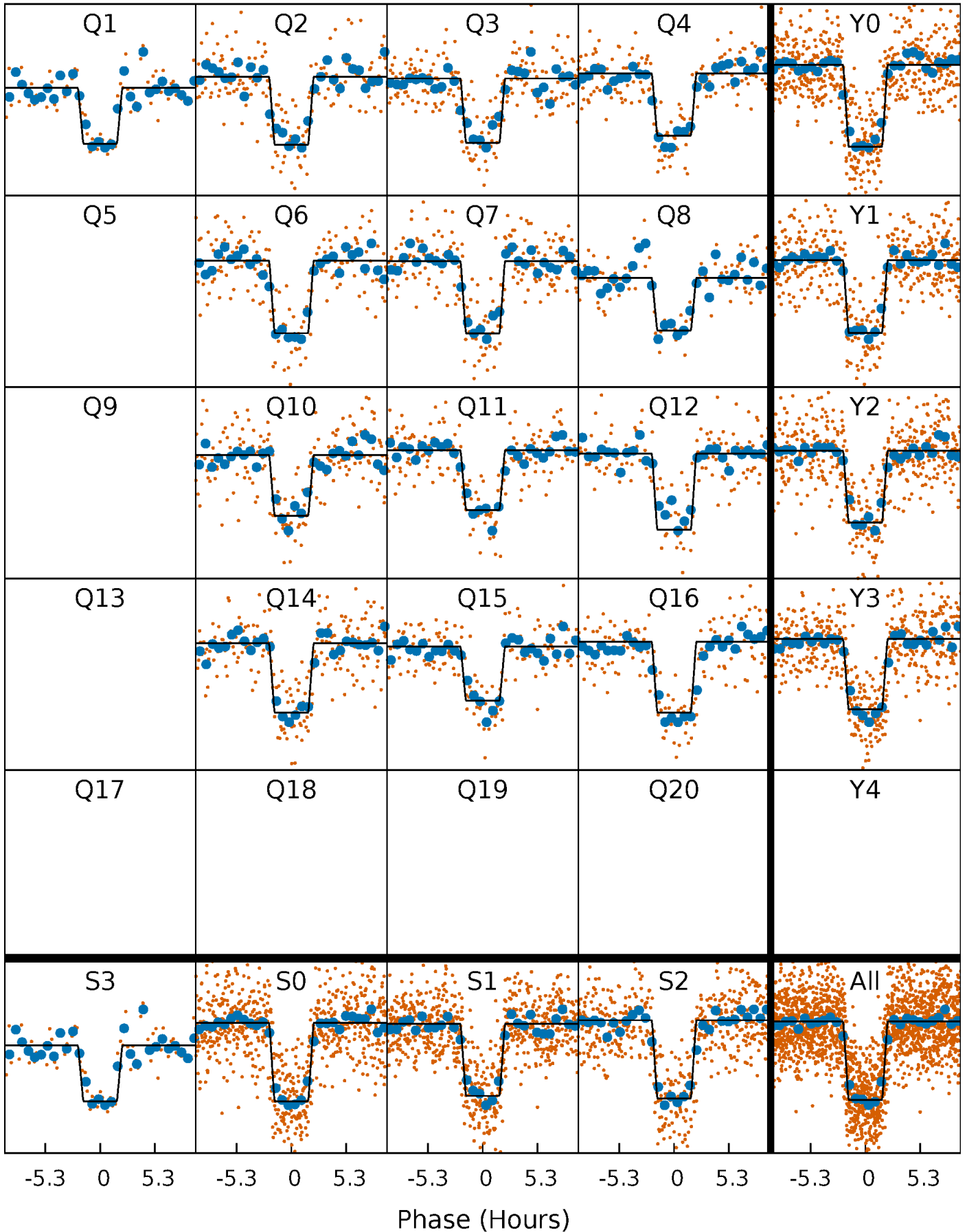
# DV Quarter-Phased Transit Curves

TCE 006266741-02 P= 16.665896 Days  $T_0=146.870167$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

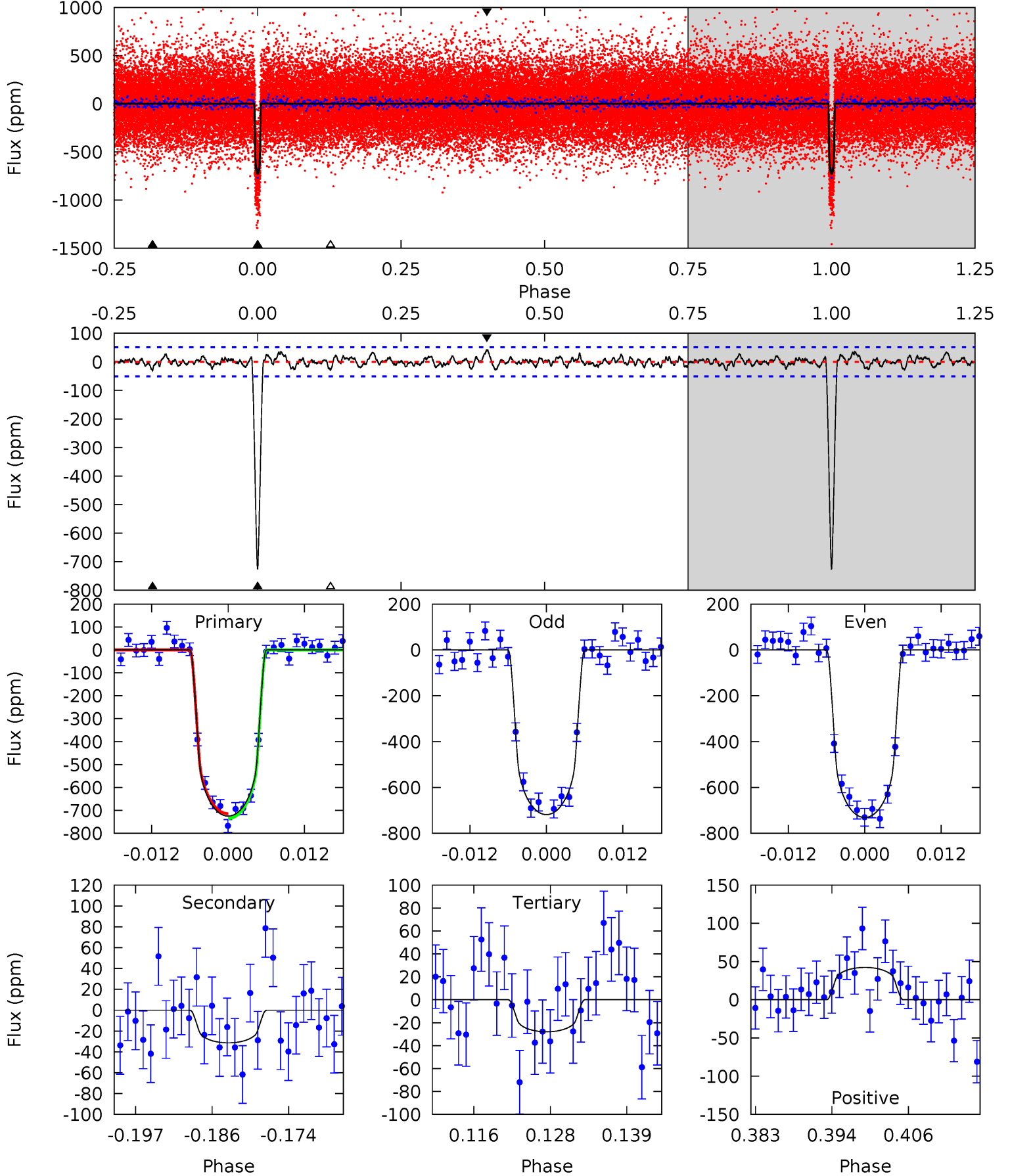
TCE 006266741-02 P= 16.665692 Days  $T_0=146.878710$  (BKJD)



# DV Model-Shift Uniqueness Test

006266741-02, P = 16.665896 Days, E = 130.204271 Days

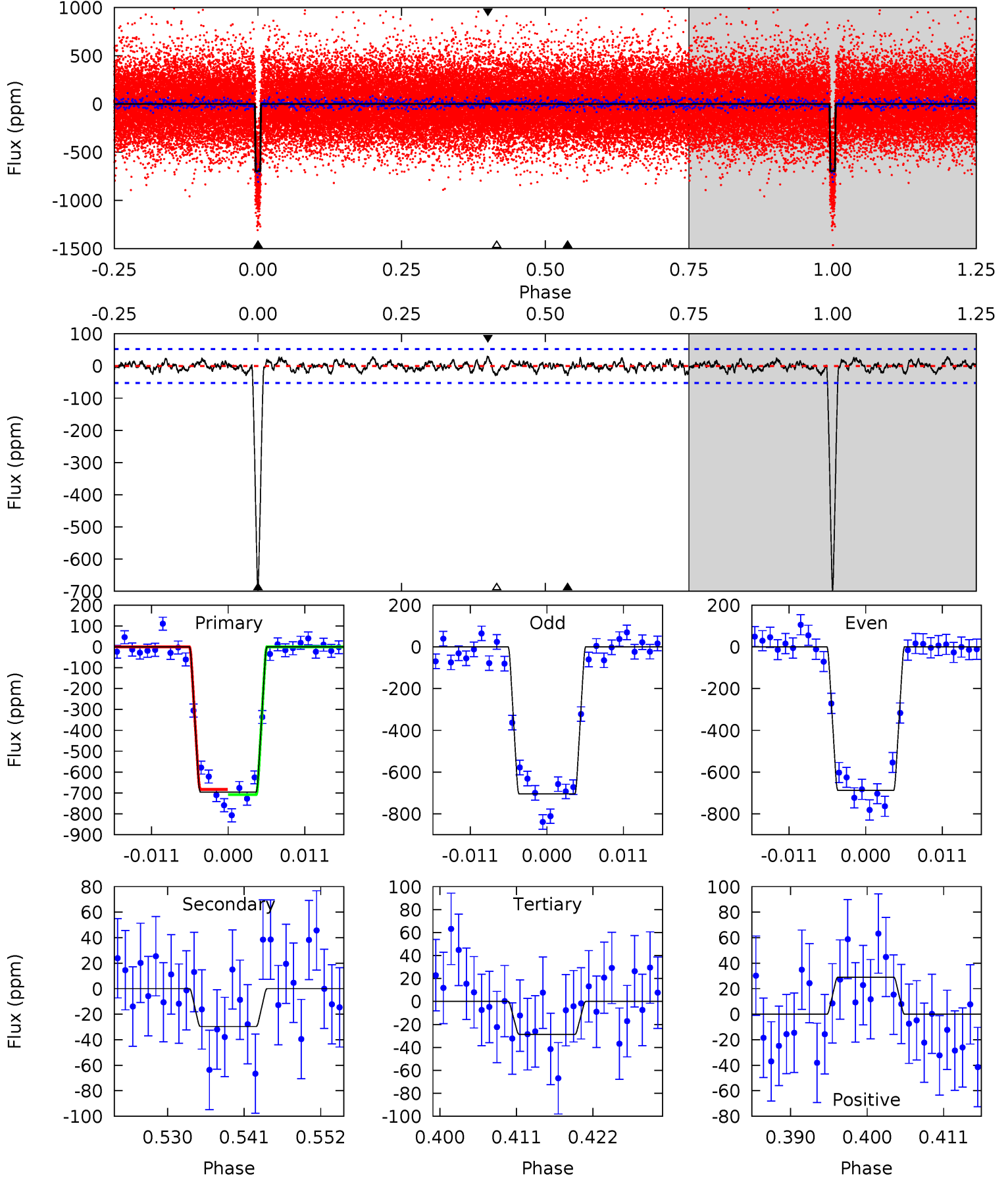
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
71.1	3.08	2.74	4.15	5.00	2.52	1.14	68.4	67.0	0.34	-1.07	0.63	0.99	0.06	1.01



# Alt Model-Shift Uniqueness Test

006266741-02, P = 16.665692 Days, E = 130.213018 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
66.2	2.82	2.73	2.77	5.01	2.55	0.99	63.5	63.5	0.09	0.06	0.81	0.99	0.04	1.19



### Stellar Parameters For KIC 006266741

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R$ ( $R_{\odot}$ )	$M(M_{\odot})$	$p_{\star}$ ( $\text{g}\cdot\text{cm}^{-3}$ )
	$5674^{+103}_{-114}$	$4.446^{+0.034}_{-0.128}$	$0.480^{+0.050}_{-0.150}$	$1.032^{+0.159}_{-0.057}$	$1.086^{+0.050}_{-0.066}$	$1.392^{+0.218}_{-0.494}$
	+2%/-2%	+1%/-3%	+10%/-31%	+15%/-6%	+5%/-6%	+16%/-35%
Source	SPE58	SPE58	SPE58	DSEP		

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

### Secondary Eclipse Parameters for KIC 006266741-02 / KOI 0508.02

Detrend	Depth (ppm)	$R_p$ ( $R_{\oplus}$ )	$T_{max}$ (K)	$T_{obs}$ (K)	$A_{obs}$
DV	$-31 \pm 10$	$3.16^{+0.56}_{-0.56}$	$992^{+38}_{-28}$	$3156^{+229}_{-217}$	$29^{+17}_{-12}$
Alt.	$-30 \pm 10$	$3.06^{+0.60}_{-0.54}$	$991^{+43}_{-29}$	$3159^{+228}_{-230}$	$29^{+18}_{-12}$

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

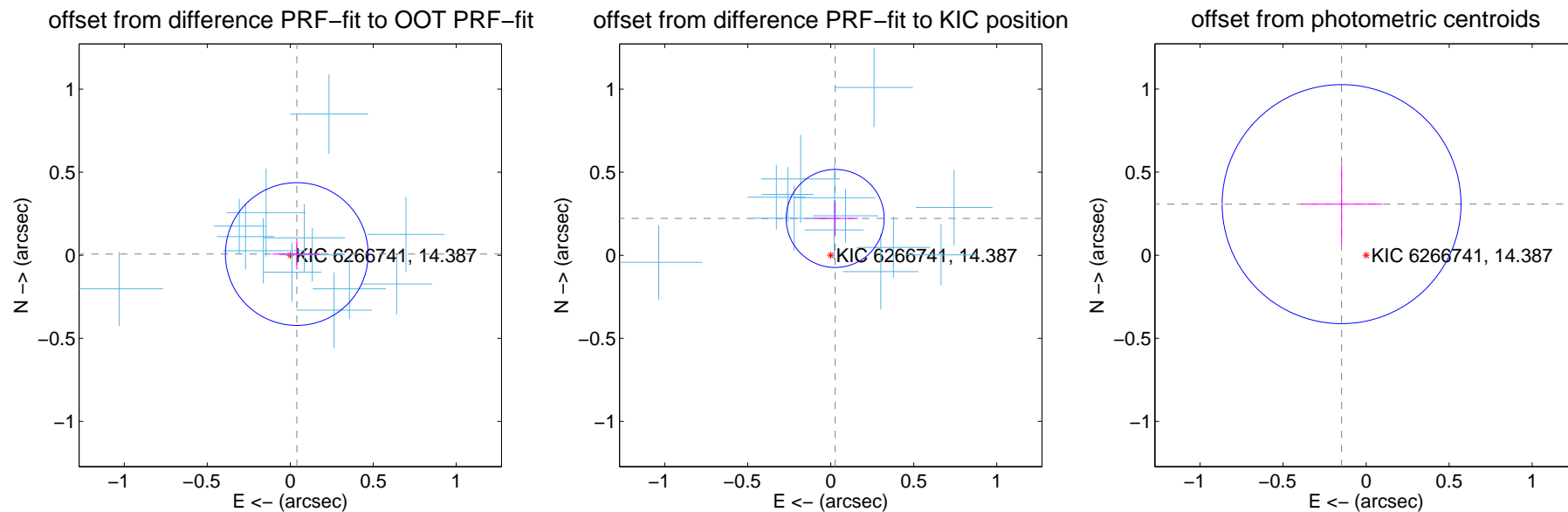
## DV Centroid Data

Supplemental centroid analysis for 006266741-02. Kepler magnitude: 14.39. Transit SNR 52.36

There are 13 quarters with good PRF difference image offsets

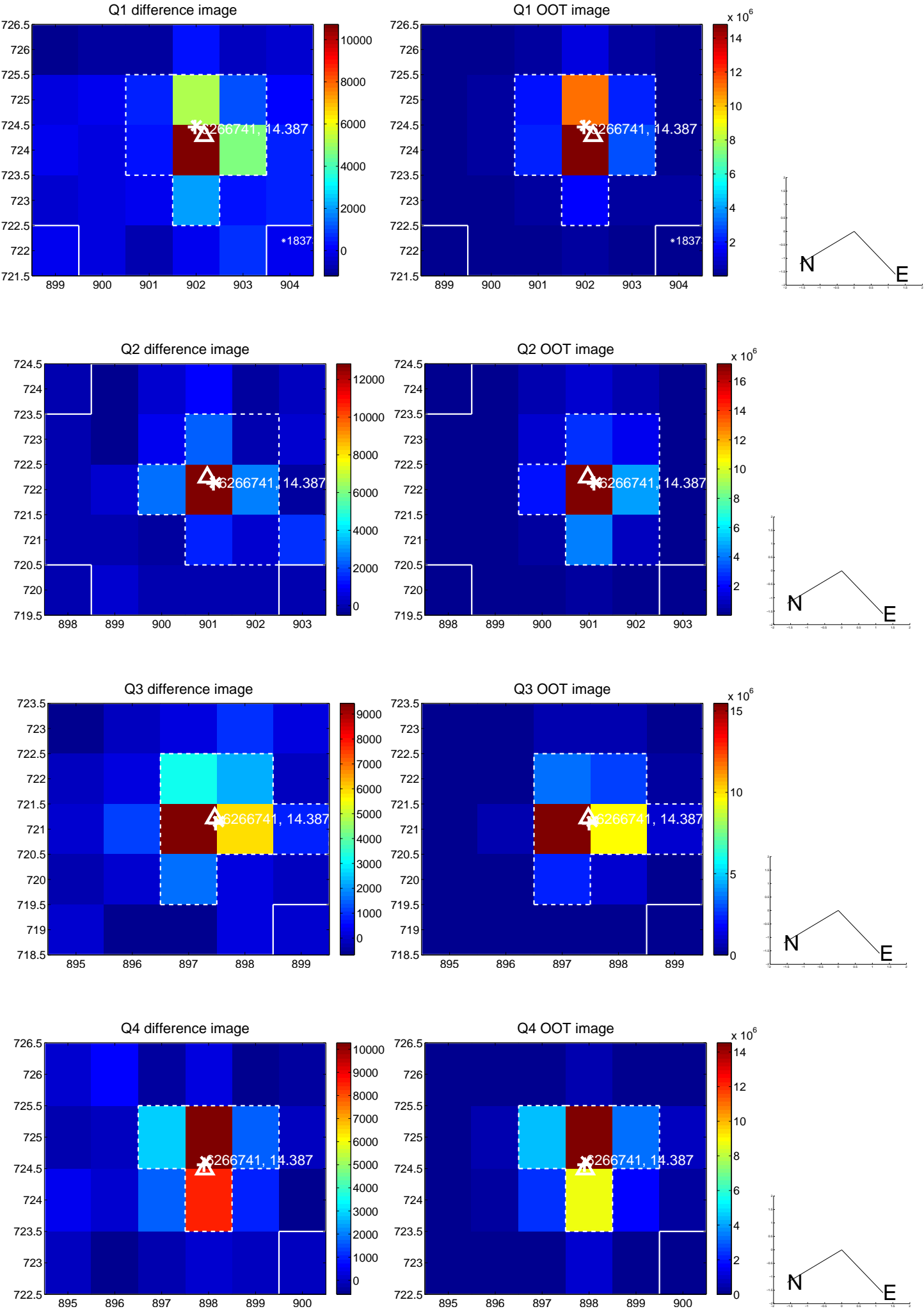
The direct PRF centroid is offset from the target star catalog position by about 0.18 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$0.040 \pm 0.143$	0.28	$-0.039 \pm 0.145$	$0.007 \pm 0.094$
PRF-fit source offset from KIC position	$0.223 \pm 0.098$	2.27	$-0.027 \pm 0.138$	$0.222 \pm 0.097$
photometric centroid source offset	$0.34 \pm 0.24$	1.42	$0.15 \pm 0.24$	$0.31 \pm 0.24$



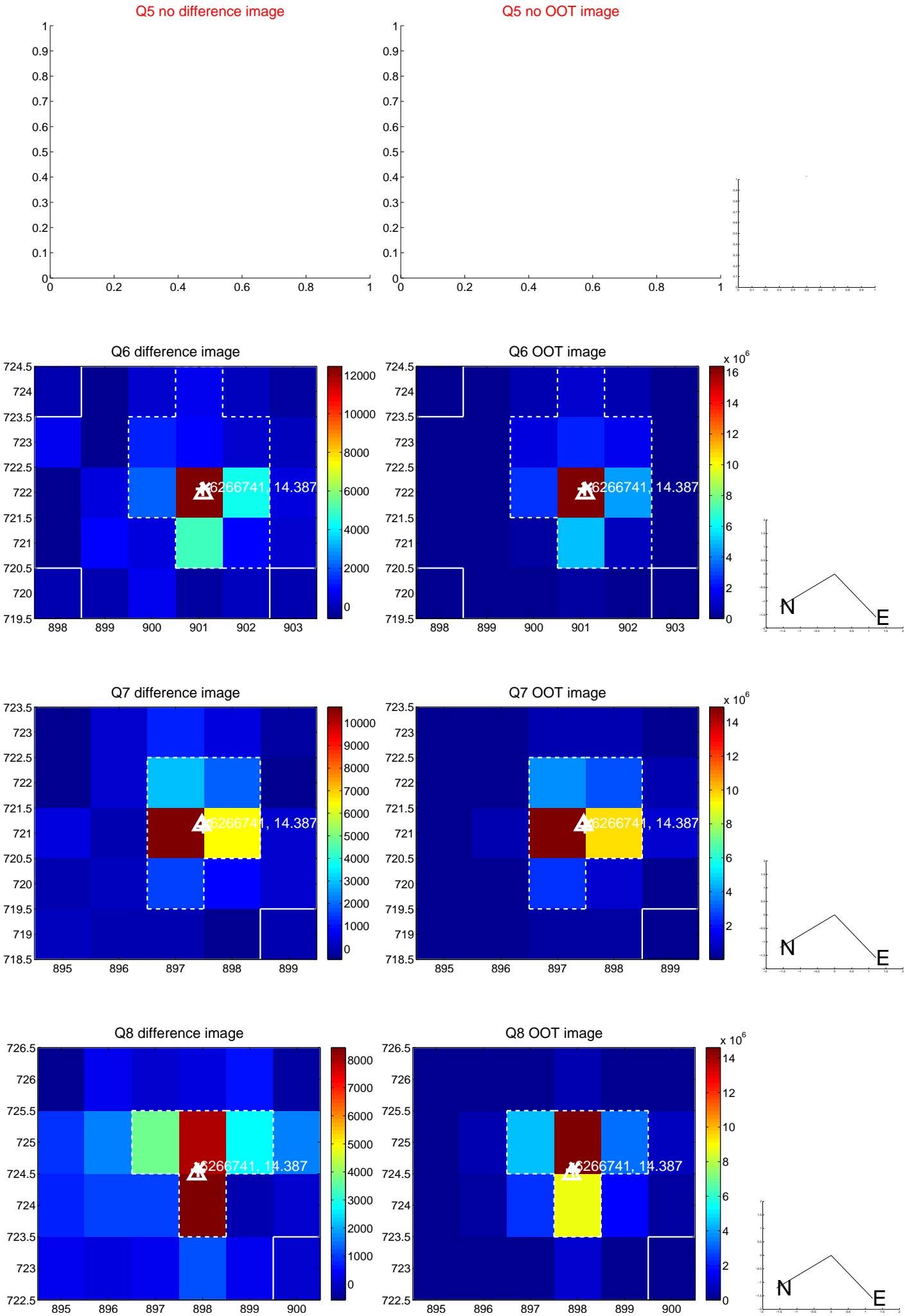
Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses:** good quarterly centroid offsets; **Vermillion crosses:** bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: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

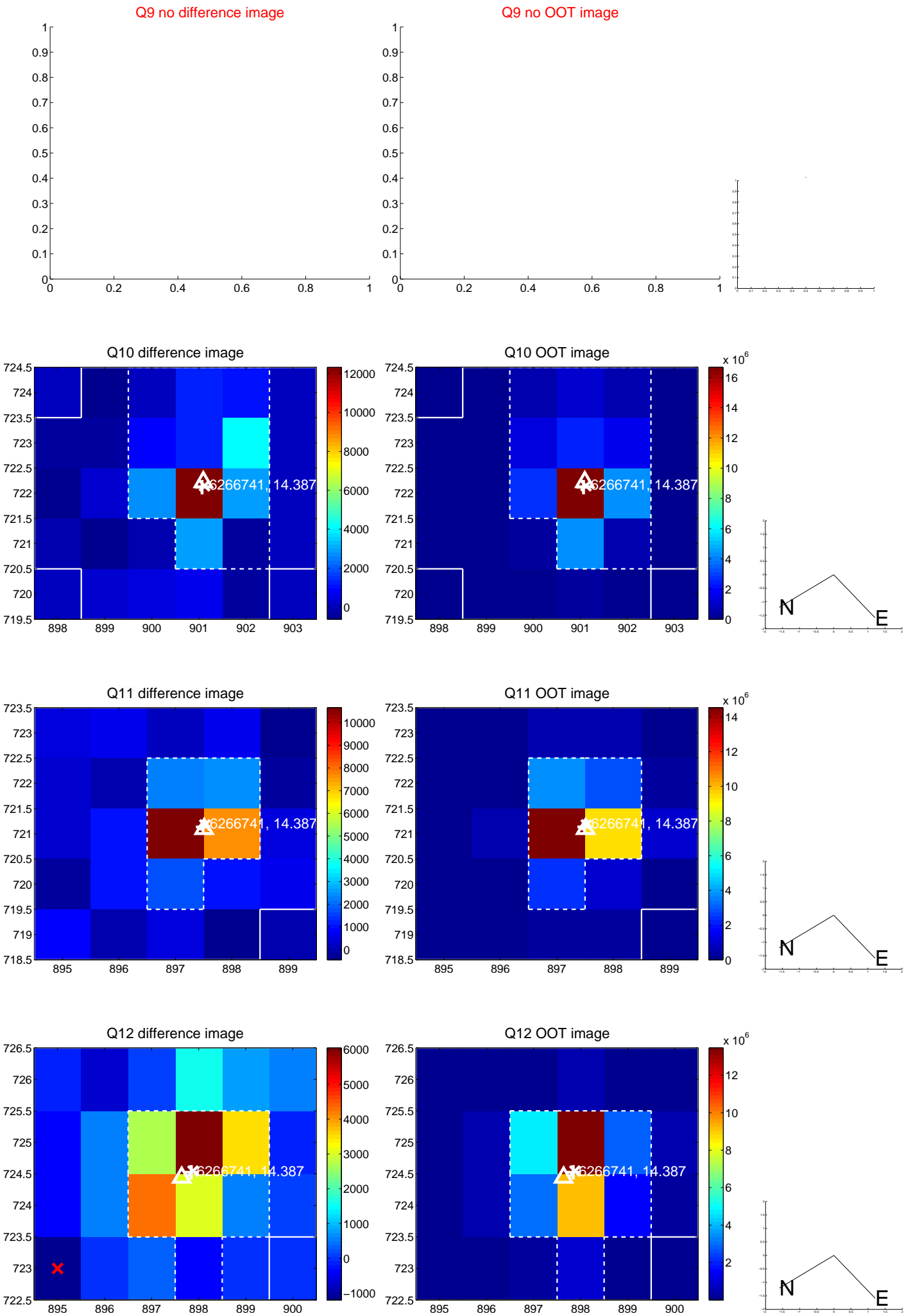




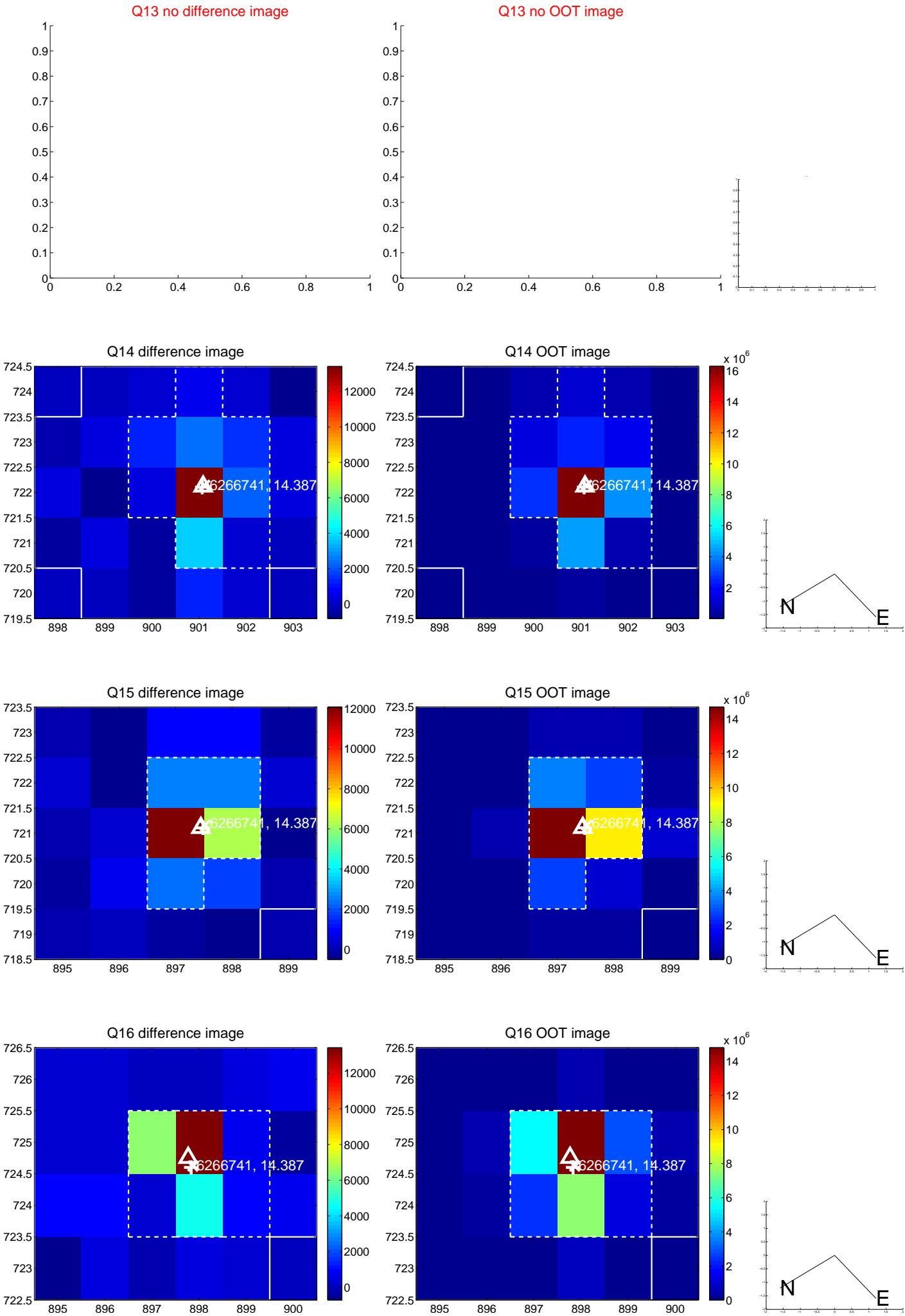
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



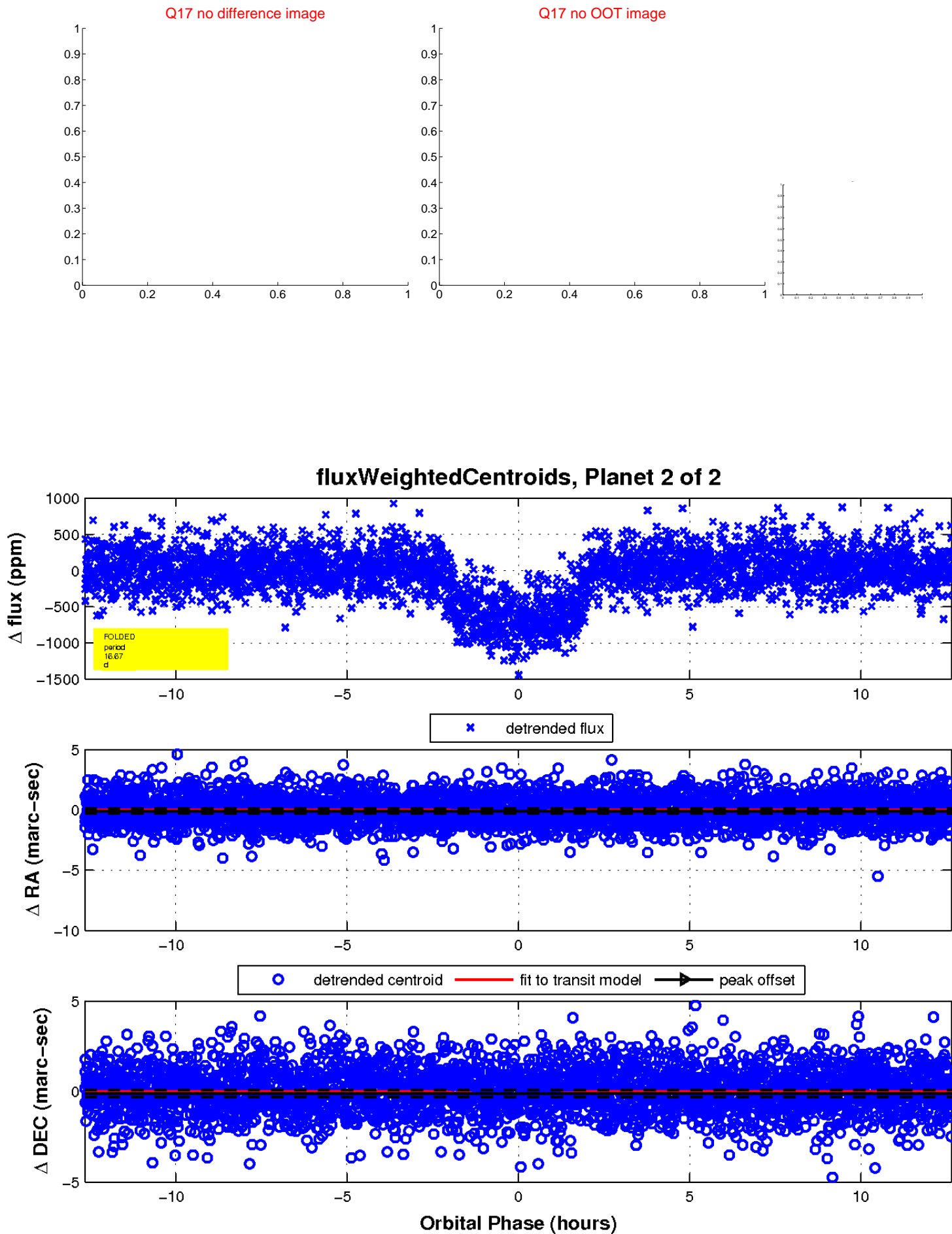
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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

