

# KIC 010007492

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
010007492-01	OBS	5754.01	2.645590	133.707981	1205.0	2.830	165.9	147.6	5.44	4980	30.95	8557.38
010007492-02	OBS	No	2.645617	132.384713	61.9	1.958	9.6	10.1	5.44	4980	5.42	8557.26

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
010007492-01	OBS	FP	0.00	0	1	1	0	MOD_SEC_DV—MOD_SEC_ALT—HAS_SEC_TCE—CENT_UNRESOLVED_OFFSET
010007492-02	OBS	FP	0.00	1	1	1	0	IS_SEC_TCE—CENT_UNRESOLVED_OFFSET—HALO_GHOST

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

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

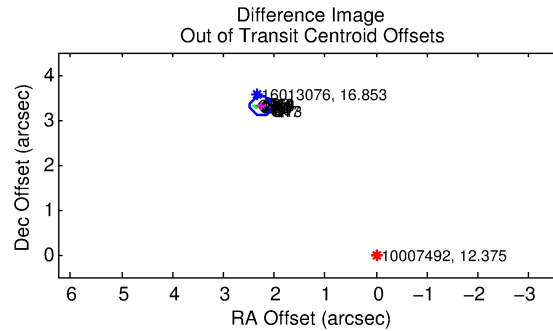
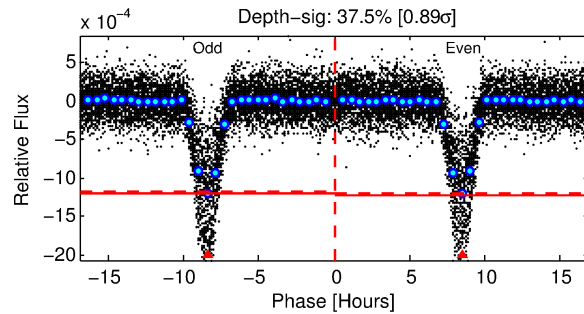
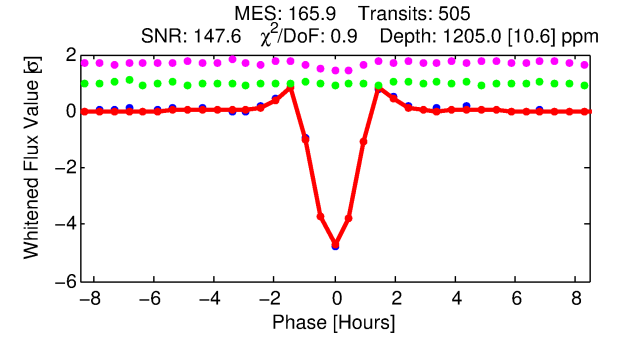
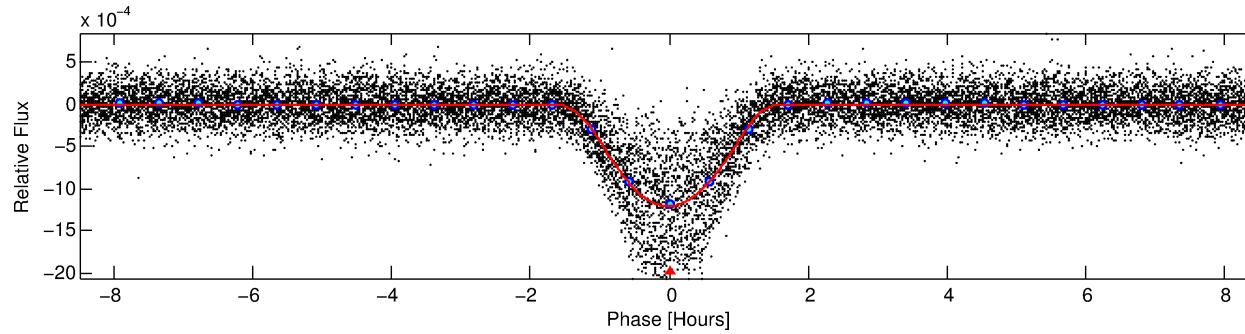
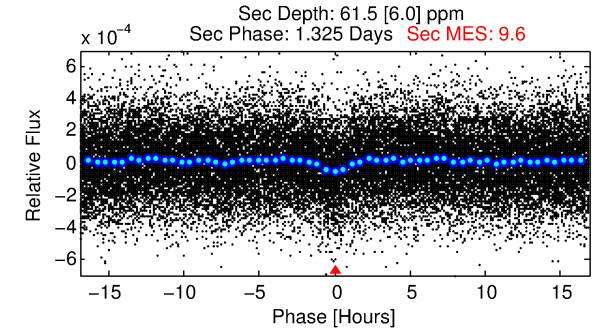
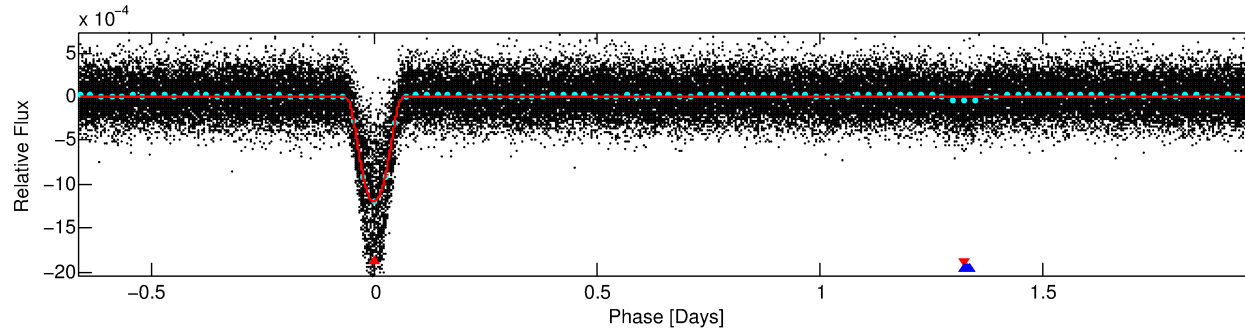
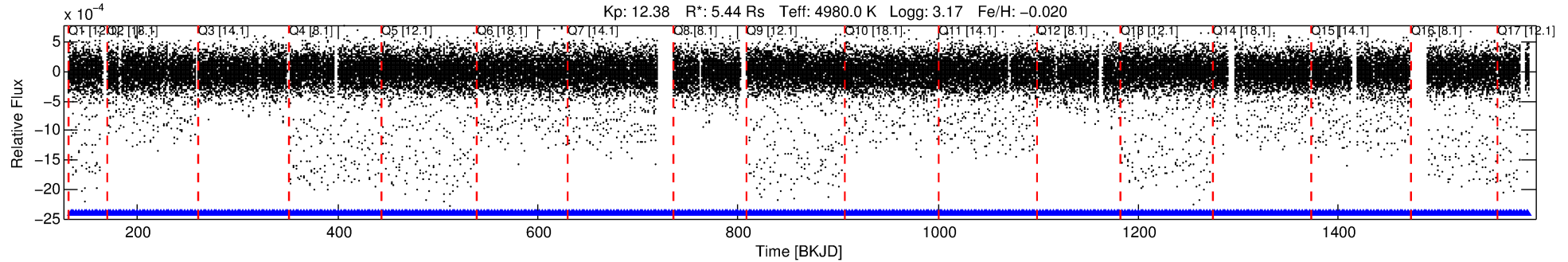
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

## Ephemeris Match Information For 010007492-01

No Significant Match Found

# DV One-Page Summary

KIC: 10007492 Candidate: 1 of 2 Period: 2.646 d  
KOI: K05754.01 Corr: 0.990



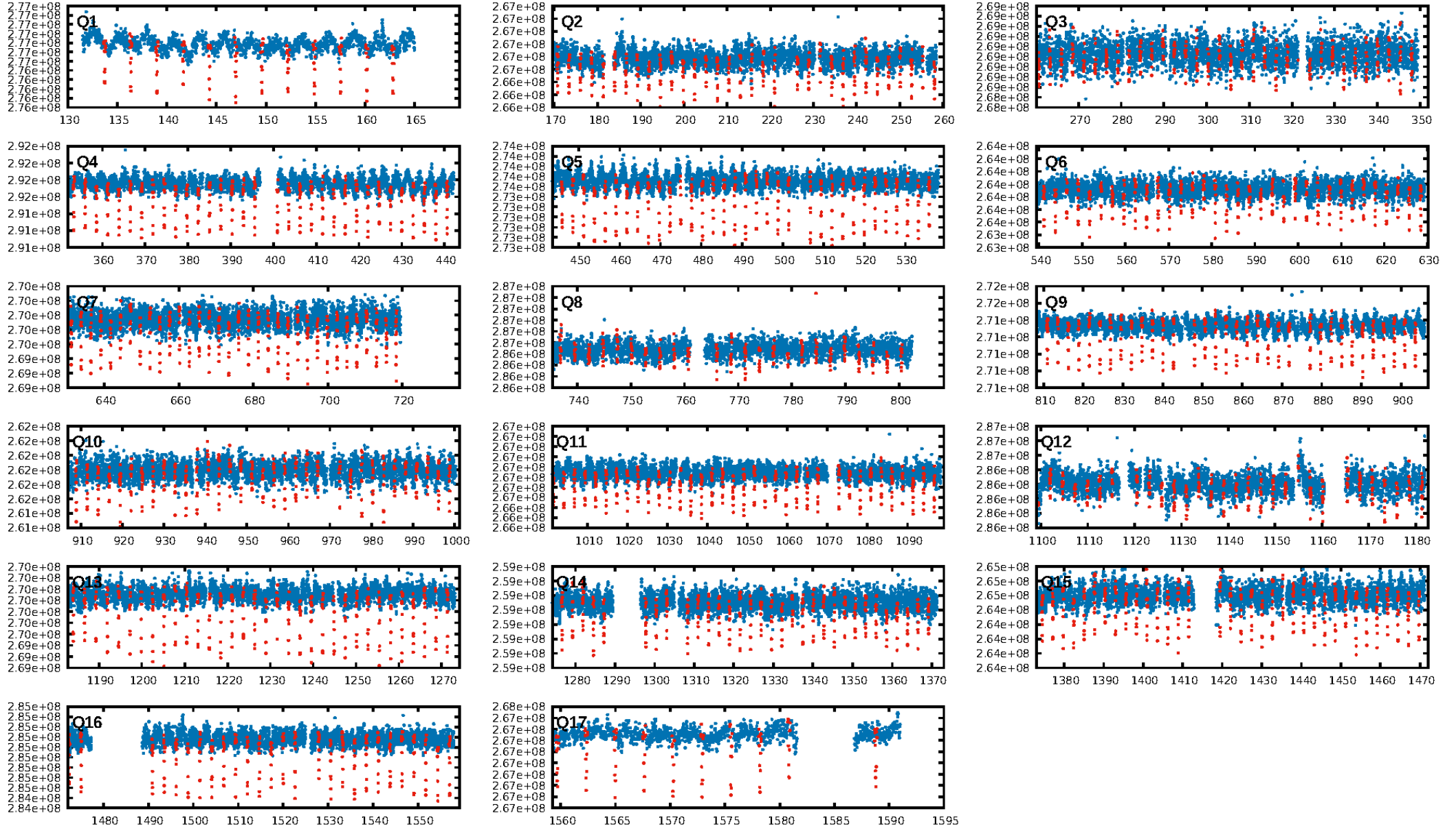
## DV Fit Results:

Period = 2.64559 [0.00000] d  
Epoch = 133.7080 [0.0002] BKJD  
Rp/R\* = 0.0521 [0.0040]  
a/R\* = 2.91 [0.07]  
b = 0.98 [0.01]  
Seff = 8557.38 [2856.29]  
Teq = 2453 [205] K  
Rp = 30.95 [9.01] Re  
a = 0.0437 [0.0100] AU  
Ag = 0.07 [0.03] [-37.08σ]  
Teffp = 1932 [94] K [-2.31σ]

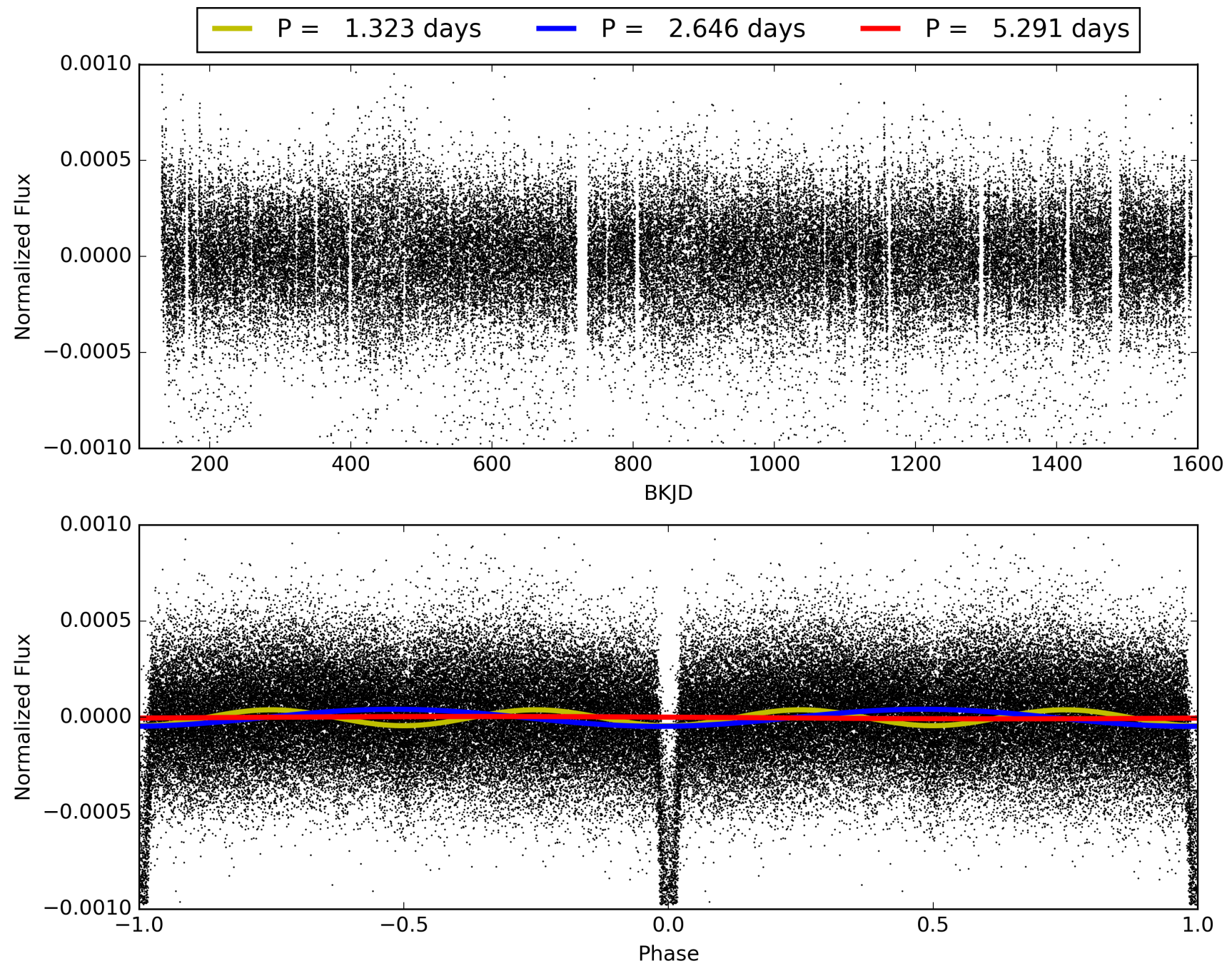
## DV Diagnostic Results:

ShortPeriod-sig: N/A  
LongPeriod-sig: 0.0% [0.00σ]  
ModelChiSquare2-sig: N/A  
ModelChiSquareGof-sig: N/A  
Bootstrap-pfa: 0.00e+00  
RollingBand-fgt: 1.00 [483/483]  
GhostDiagnostic-chr: 0.2556  
Centroid-sig: 0.0%  
Centroid-so: 6.175 arcsec [273.15σ]  
OotOffset-rm: 4.002 arcsec [57.61σ]  
KicOffset-rm: 4.109 arcsec [58.96σ]  
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 010007492-01, PDC Light Curves



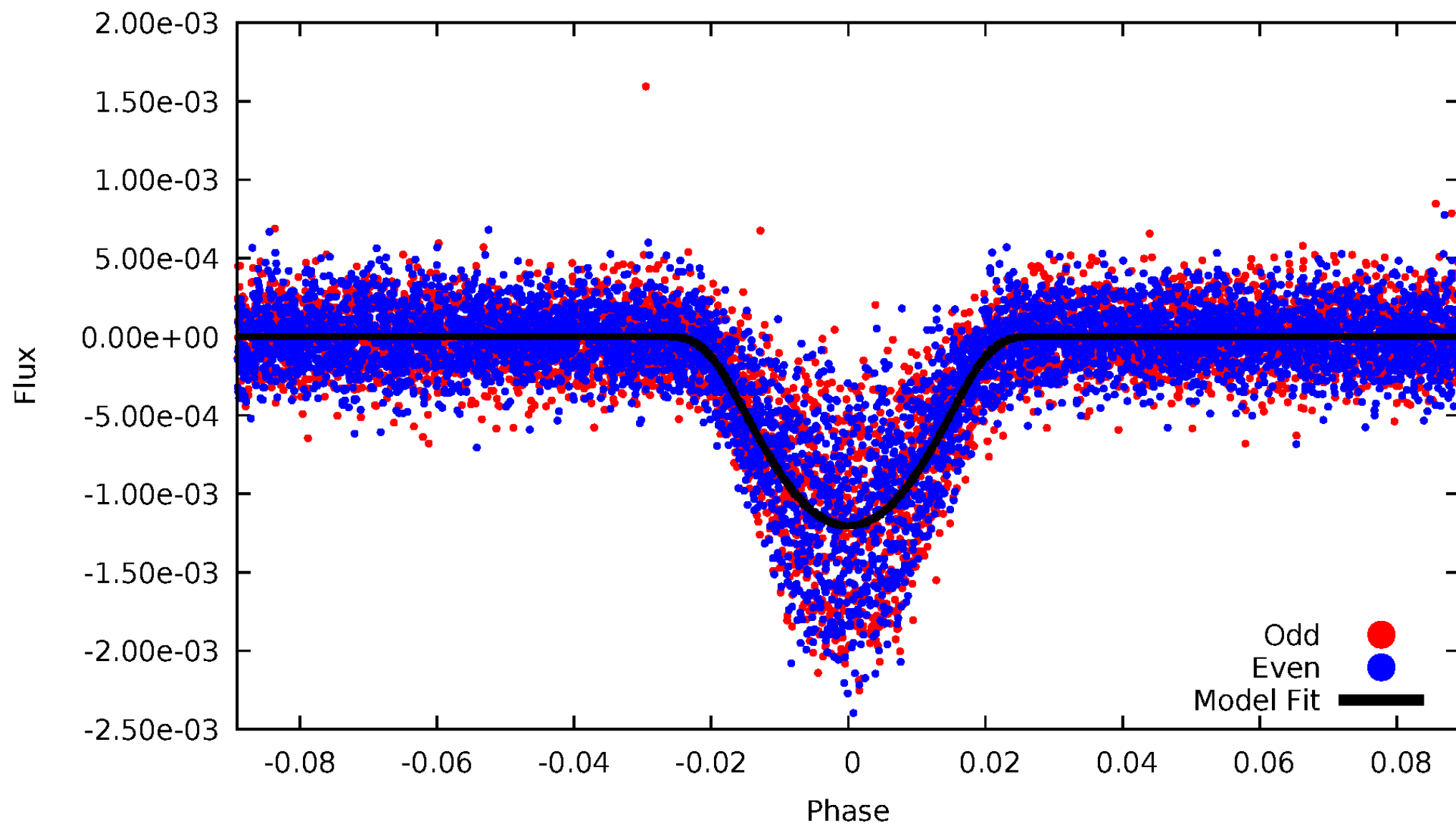
TCE 010007492-01





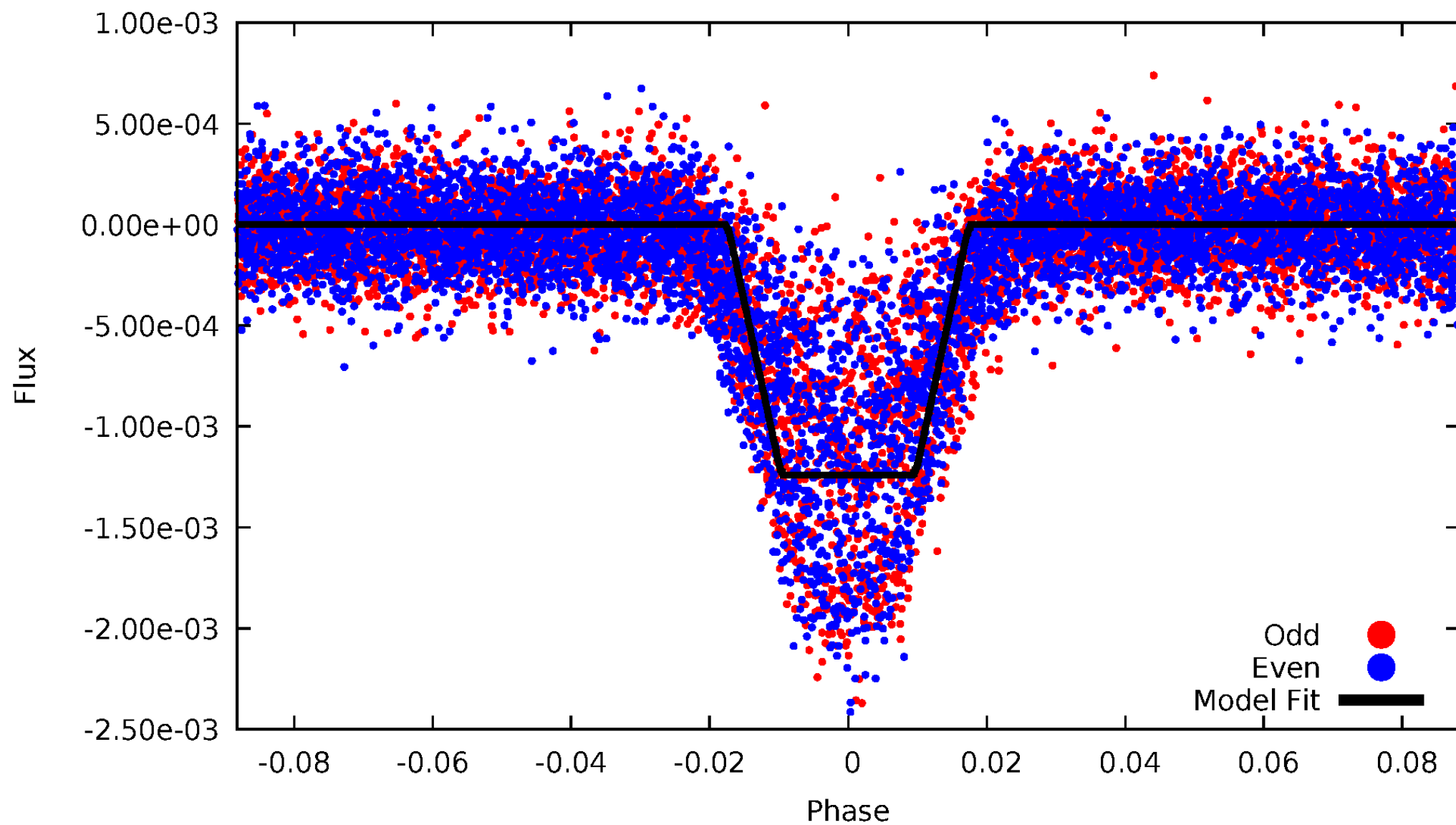
# DV Odd/Even

TCE 010007492-01



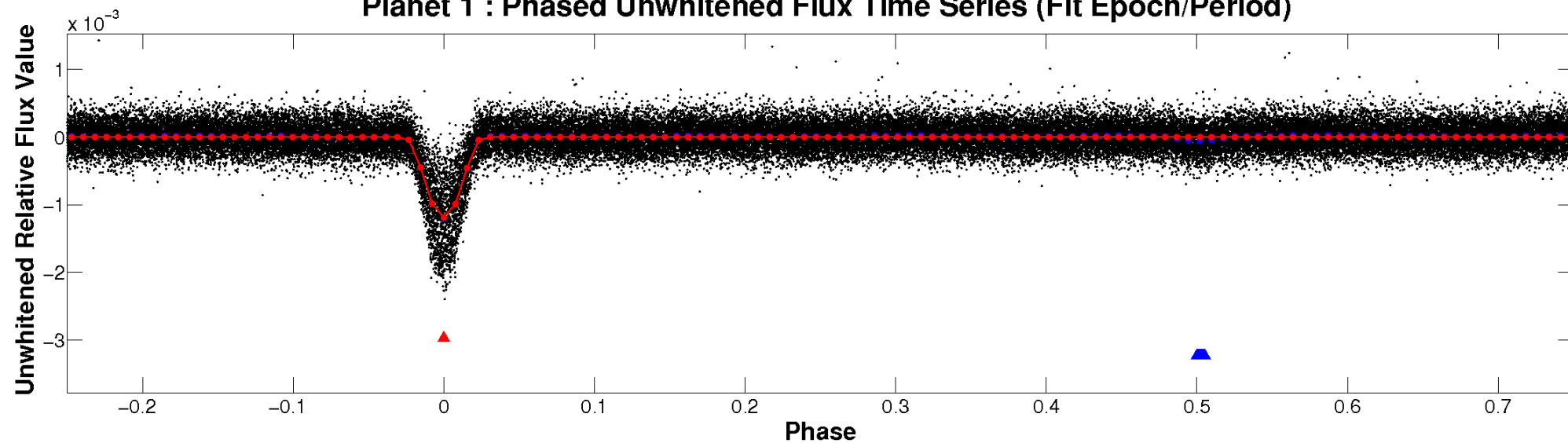
# ALT Odd/Even

TCE 010007492-01

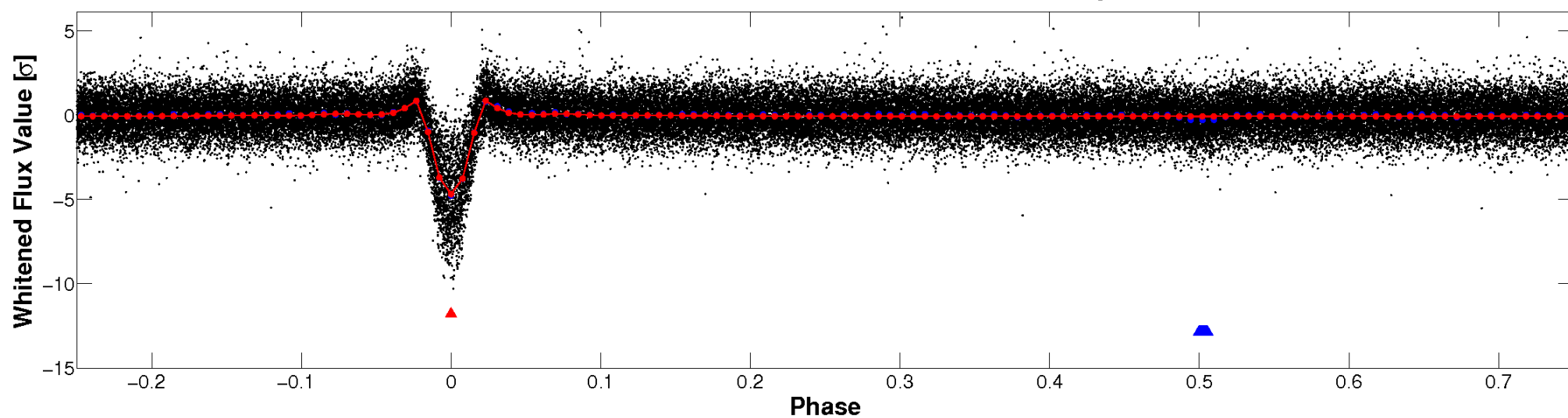


# Non-Whitened Vs. Whitened Light Curve

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

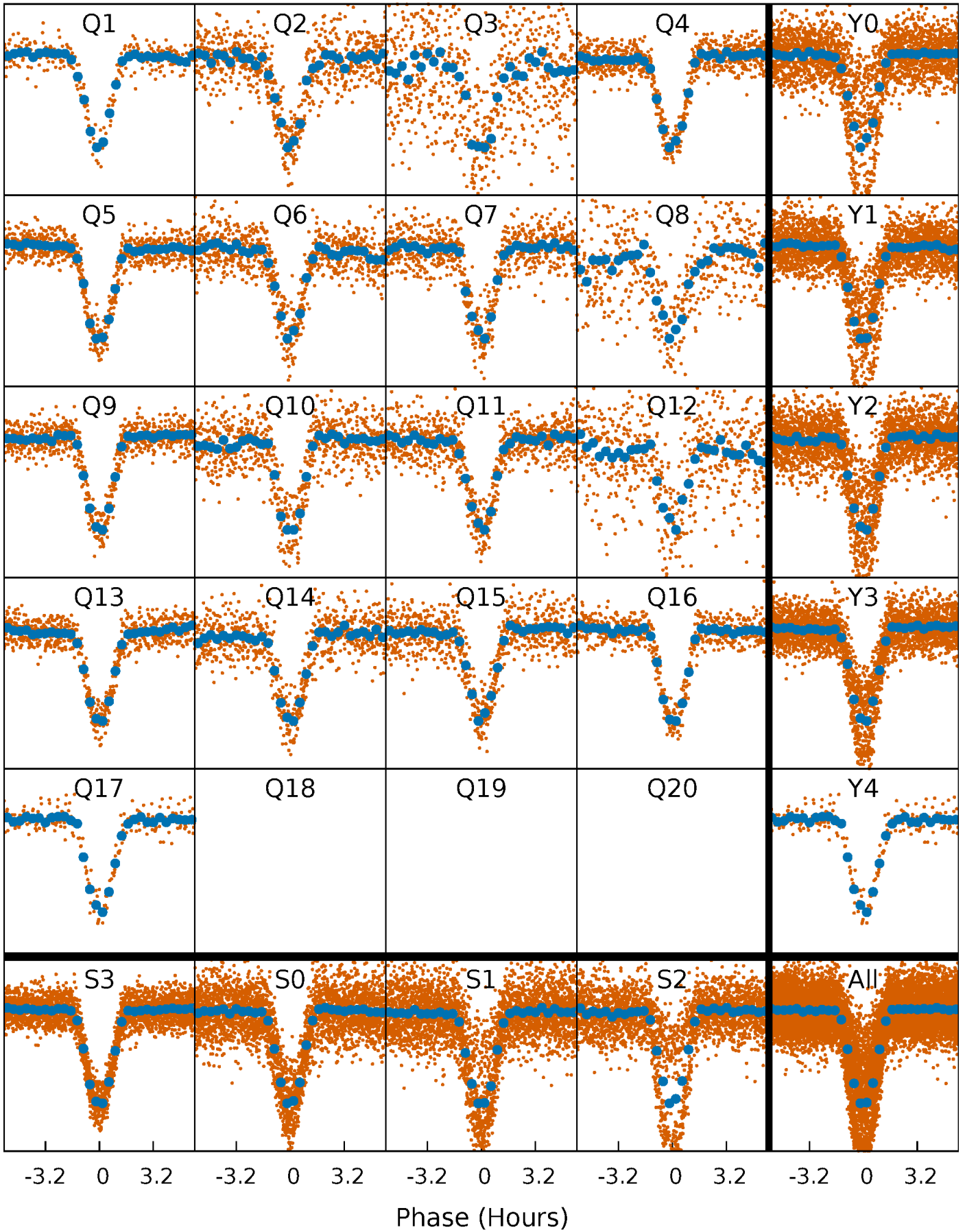


**Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)**



# PDC Quarter-Phased Transit Curves

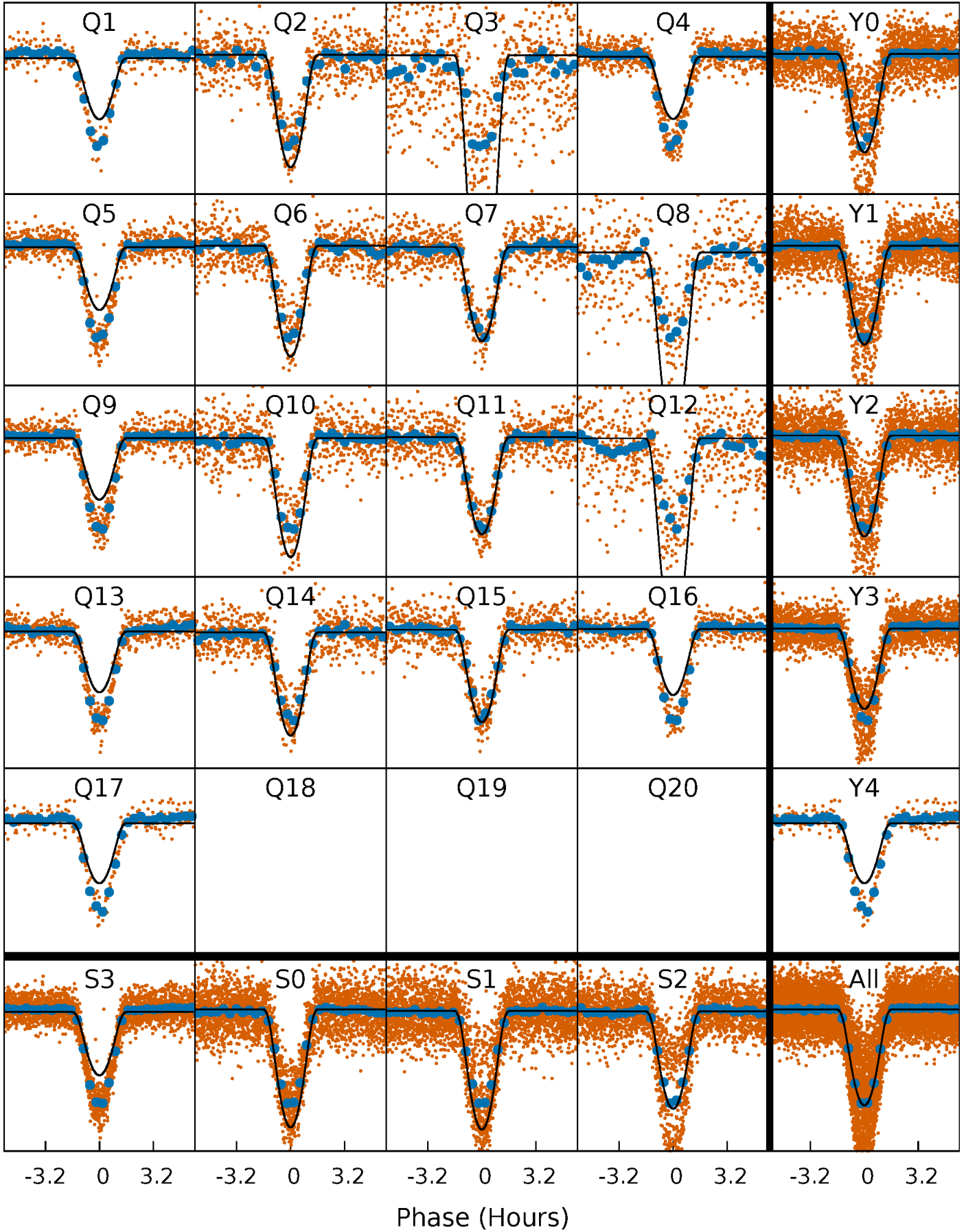
TCE 010007492-01   P= 2.645590 Days    $T_0=133.707981$  (BKJD)





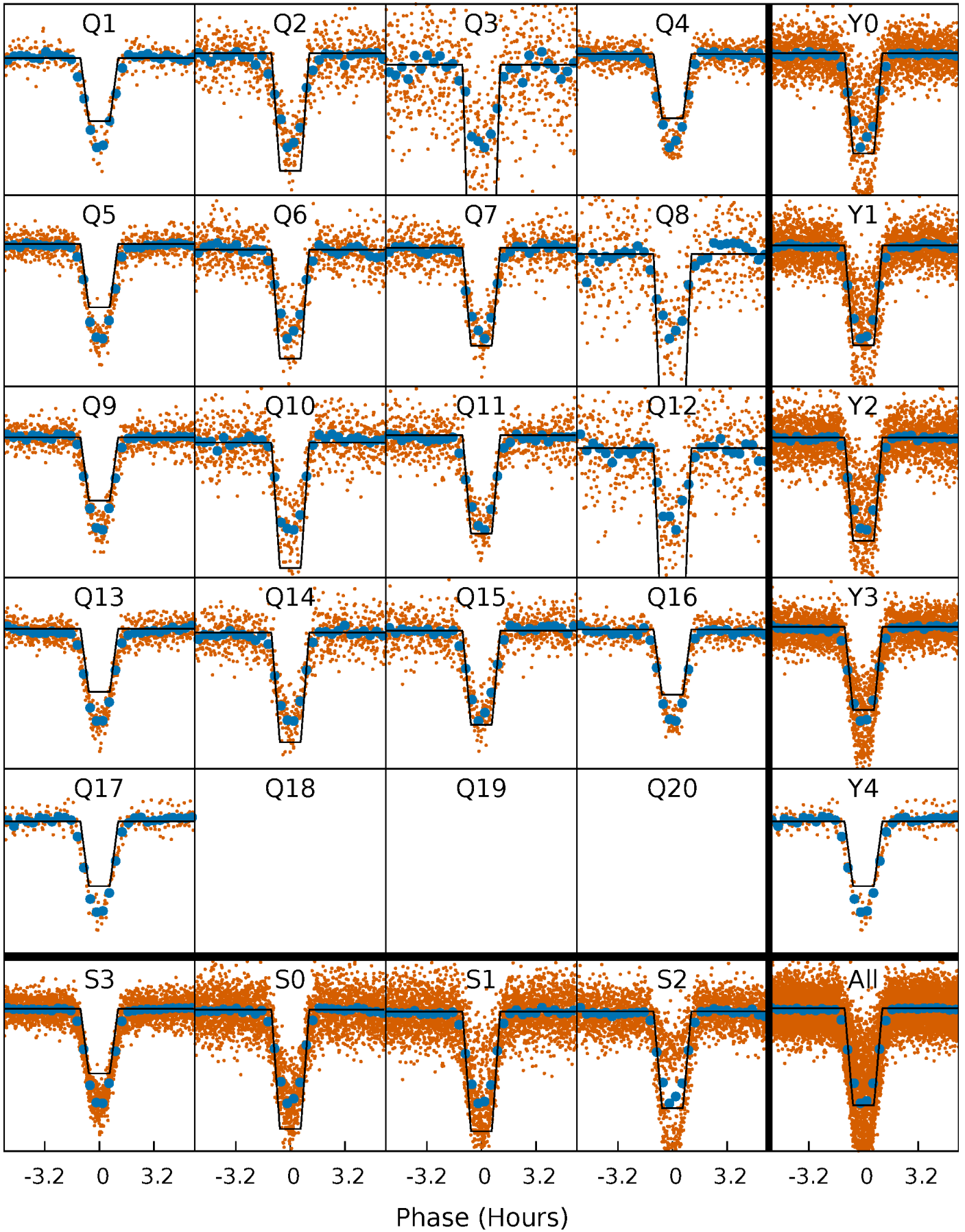
# DV Quarter-Phased Transit Curves

TCE 010007492-01   P= 2.645590 Days    $T_0=133.707981$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

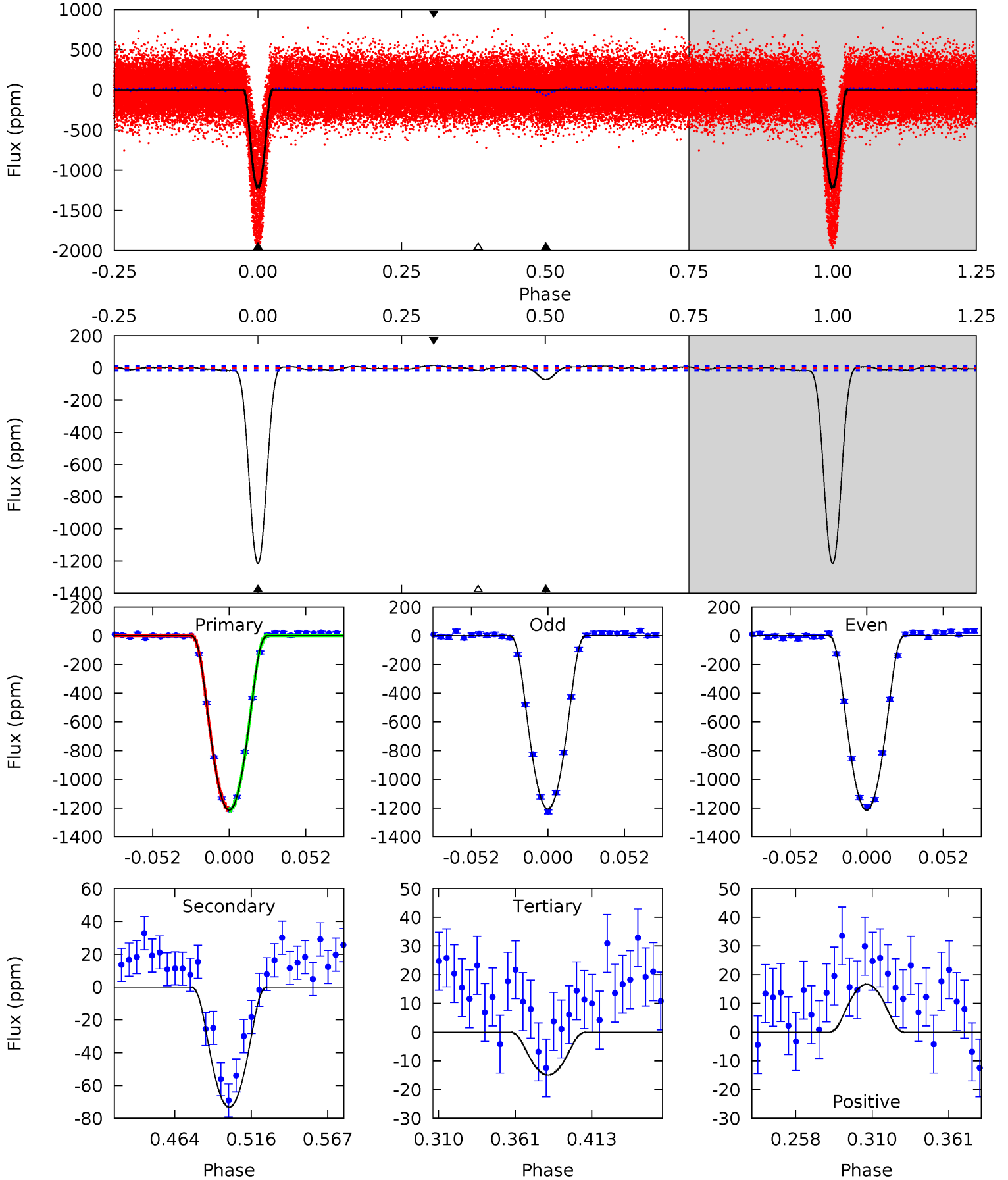
TCE 010007492-01 P= 2.645598 Days  $T_0=133.705631$  (BKJD)



# DV Model-Shift Uniqueness Test

010007492-01, P = 2.645590 Days, E = 131.062391 Days

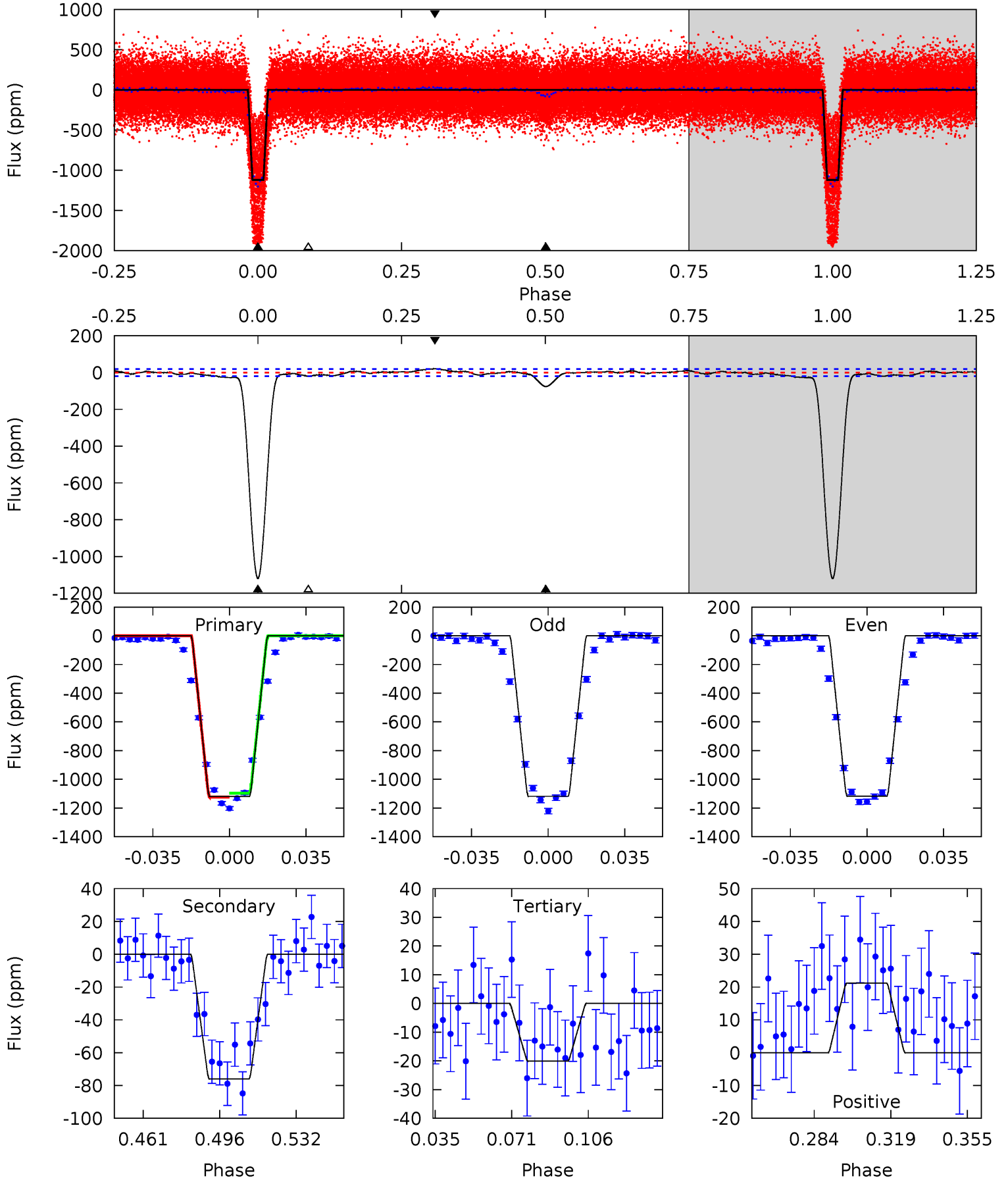
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
376.7	22.7	4.64	5.17	4.70	1.95	2.37	372.1	371.6	18.1	17.5	1.21	1.03	0.01	0.79



# Alt Model-Shift Uniqueness Test

010007492-01, P = 2.645598 Days, E = 131.060033 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
279.0	18.9	5.00	5.28	4.78	2.10	2.38	274.0	273.7	13.9	13.6	0.16	1.04	0.02	3.34



### Stellar Parameters For KIC 010007492

	$T_{\text{eff}} (K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M (M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	$4980^{+51}_{-88}$	$3.167^{+0.174}_{-0.116}$	$-0.020^{+0.100}_{-0.150}$	$5.443^{+0.823}_{-1.529}$	$1.589^{+0.206}_{-0.481}$	$0.014^{+0.015}_{-0.004}$
	+1%/-2%	+5%/-4%	+500%/-750%	+15%/-28%	+13%/-30%	+105%/-32%
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 010007492-01 / KOI 5754.01

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	$A_{\text{obs}}$
DV	$-73 \pm 3$	$30.83^{+4.19}_{-4.99}$	$3411^{+170}_{-207}$	$-3142^{+156}_{-129}$	$0.082^{+0.027}_{-0.018}$
Alt.	$-76 \pm 4$	$20.77^{+3.60}_{-3.57}$	$3408^{+172}_{-212}$	$-2865^{+431}_{-217}$	$0.187^{+0.075}_{-0.051}$

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



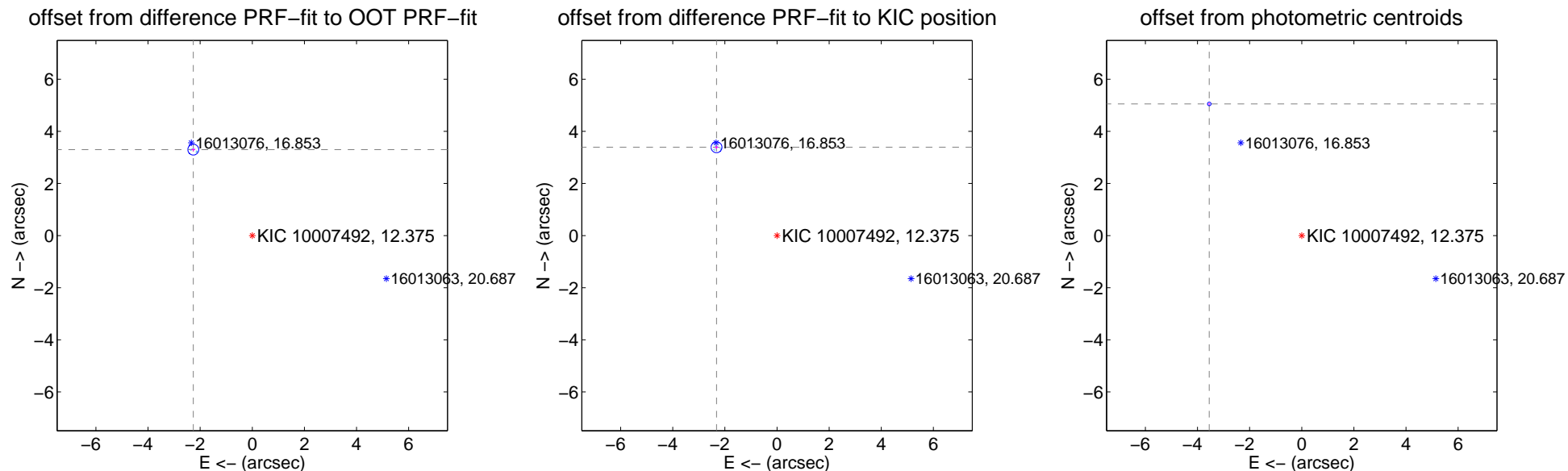
## DV Centroid Data

Supplemental centroid analysis for 010007492-01. Kepler magnitude: 12.38. Transit SNR 147.57

There are 17 quarters with good PRF difference image offsets

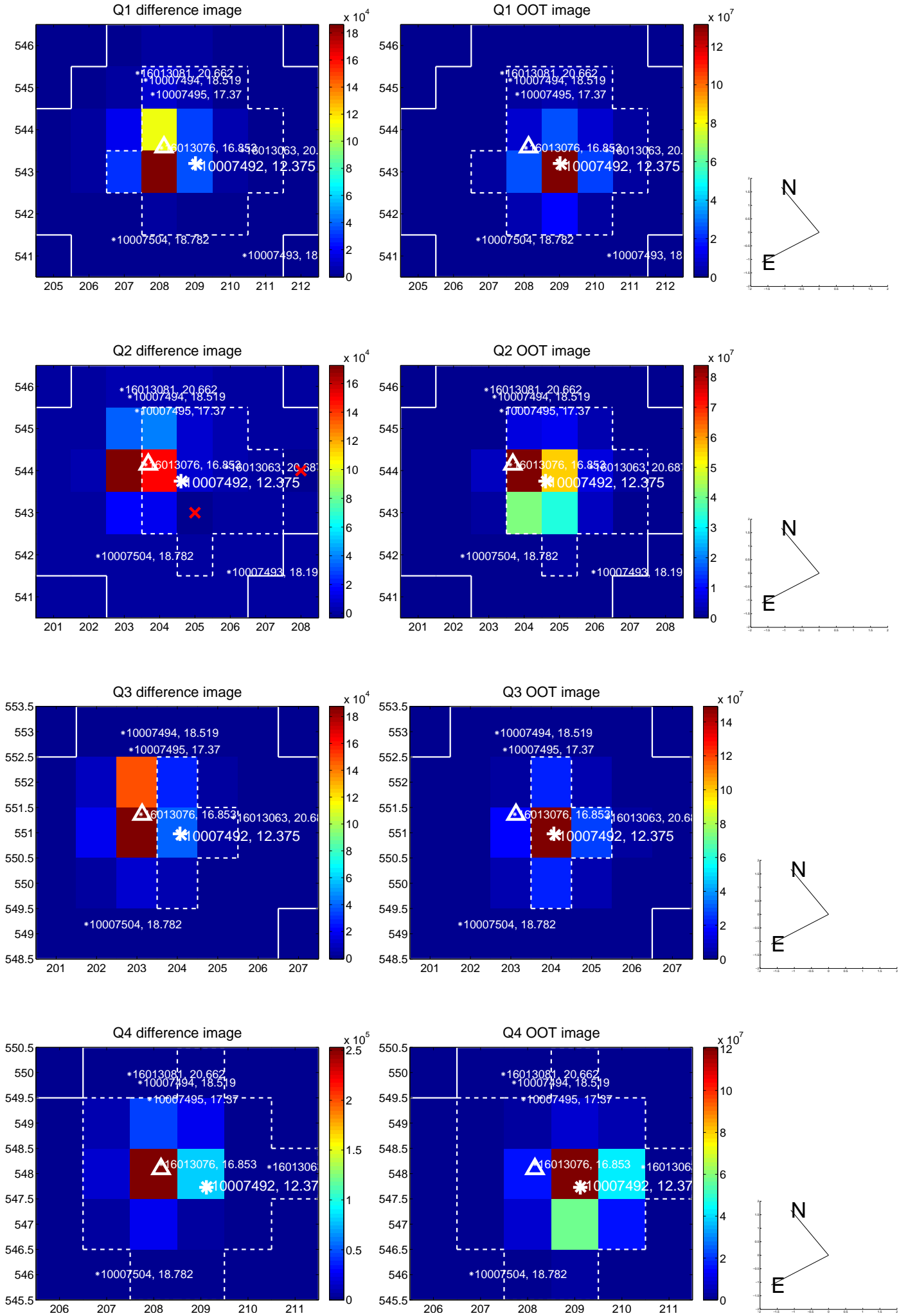
The direct PRF centroid is offset from the target star catalog position by about 0.12 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$4.002 \pm 0.069$	<b>57.61</b>	$2.264 \pm 0.070$	$3.300 \pm 0.068$
PRF-fit source offset from KIC position	$4.109 \pm 0.070$	<b>58.96</b>	$2.322 \pm 0.071$	$3.390 \pm 0.068$
photometric centroid source offset	$6.18 \pm 0.02$	<b>273.15</b>	$3.55 \pm 0.02$	$5.05 \pm 0.02$

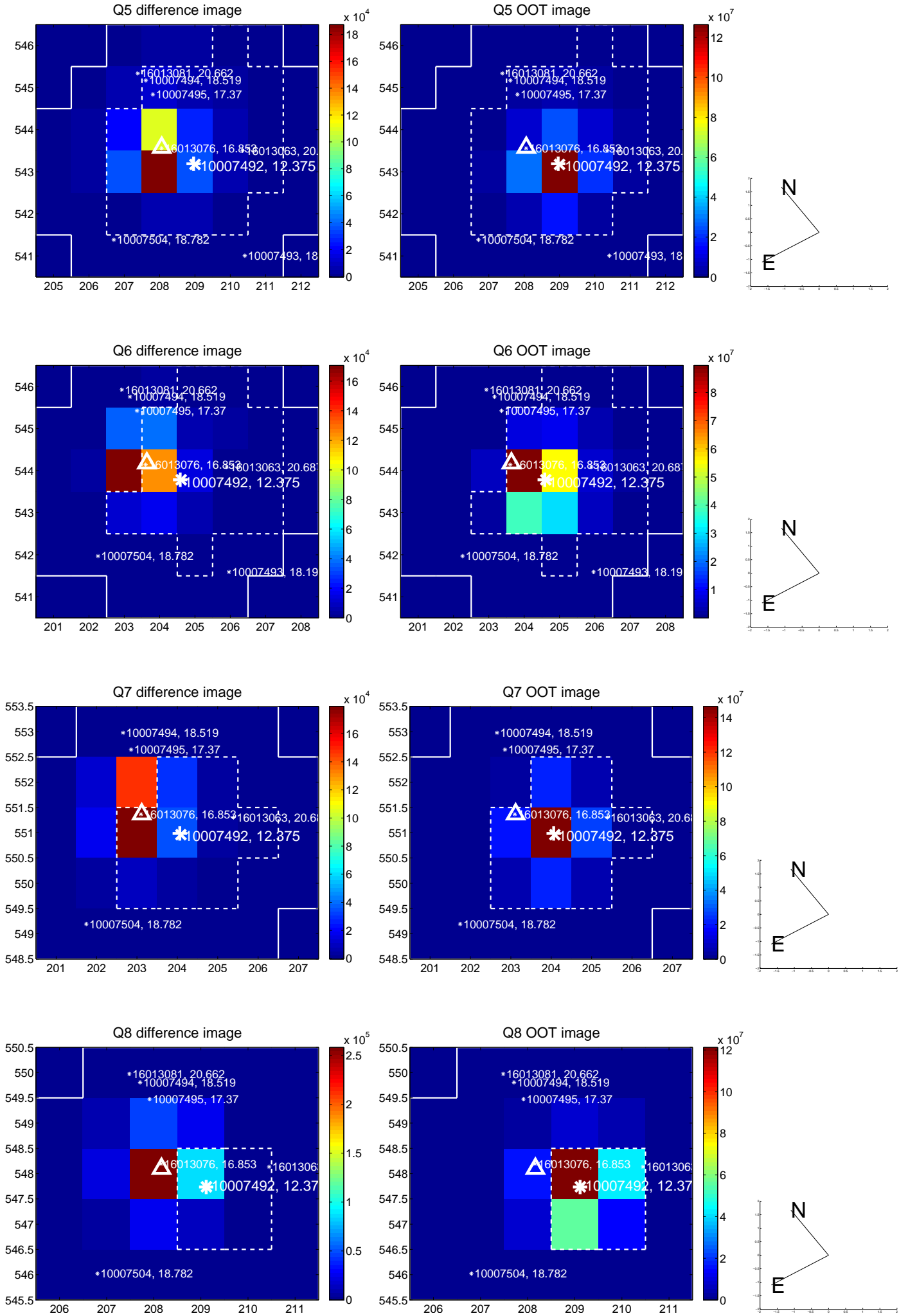


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: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

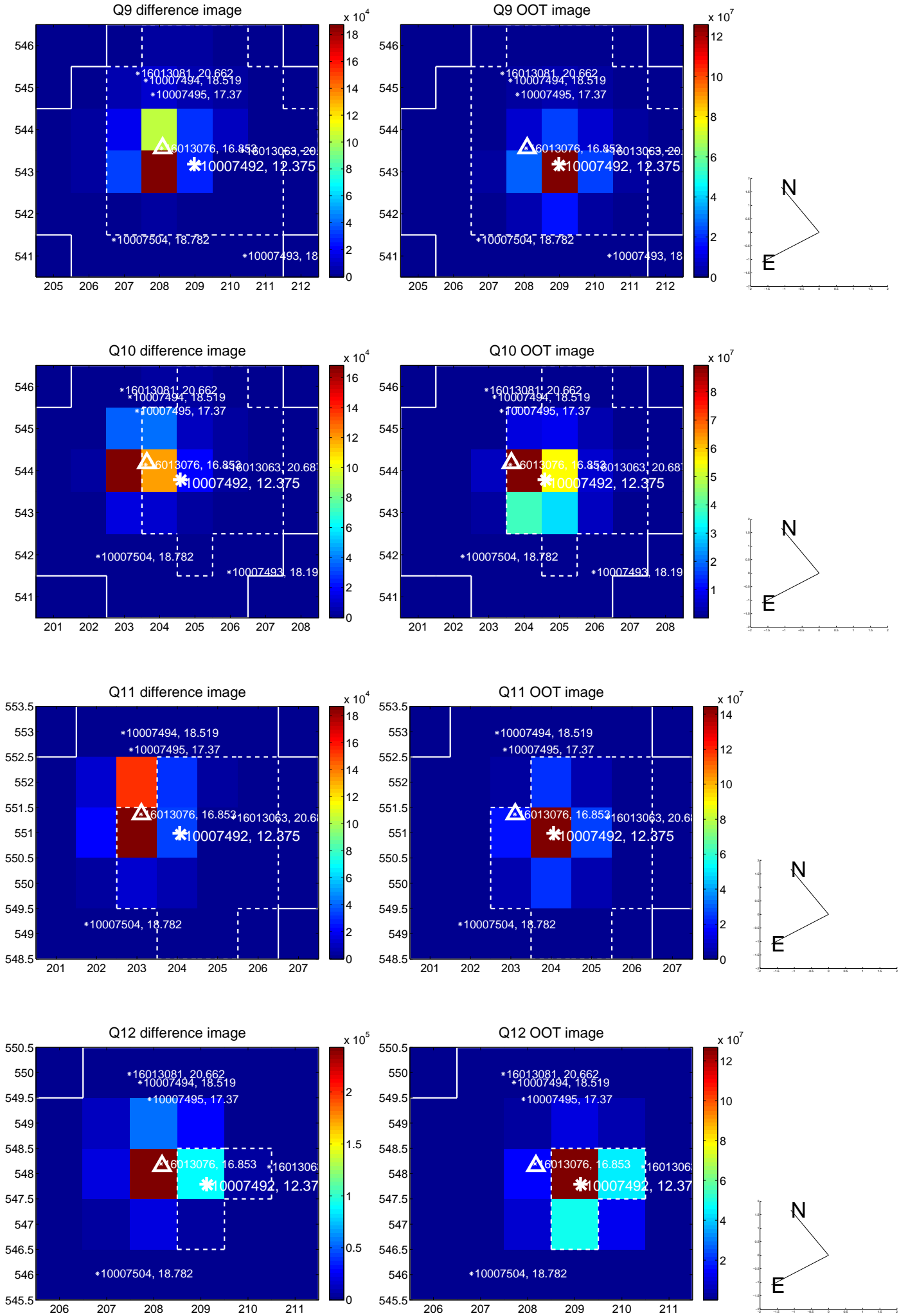
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



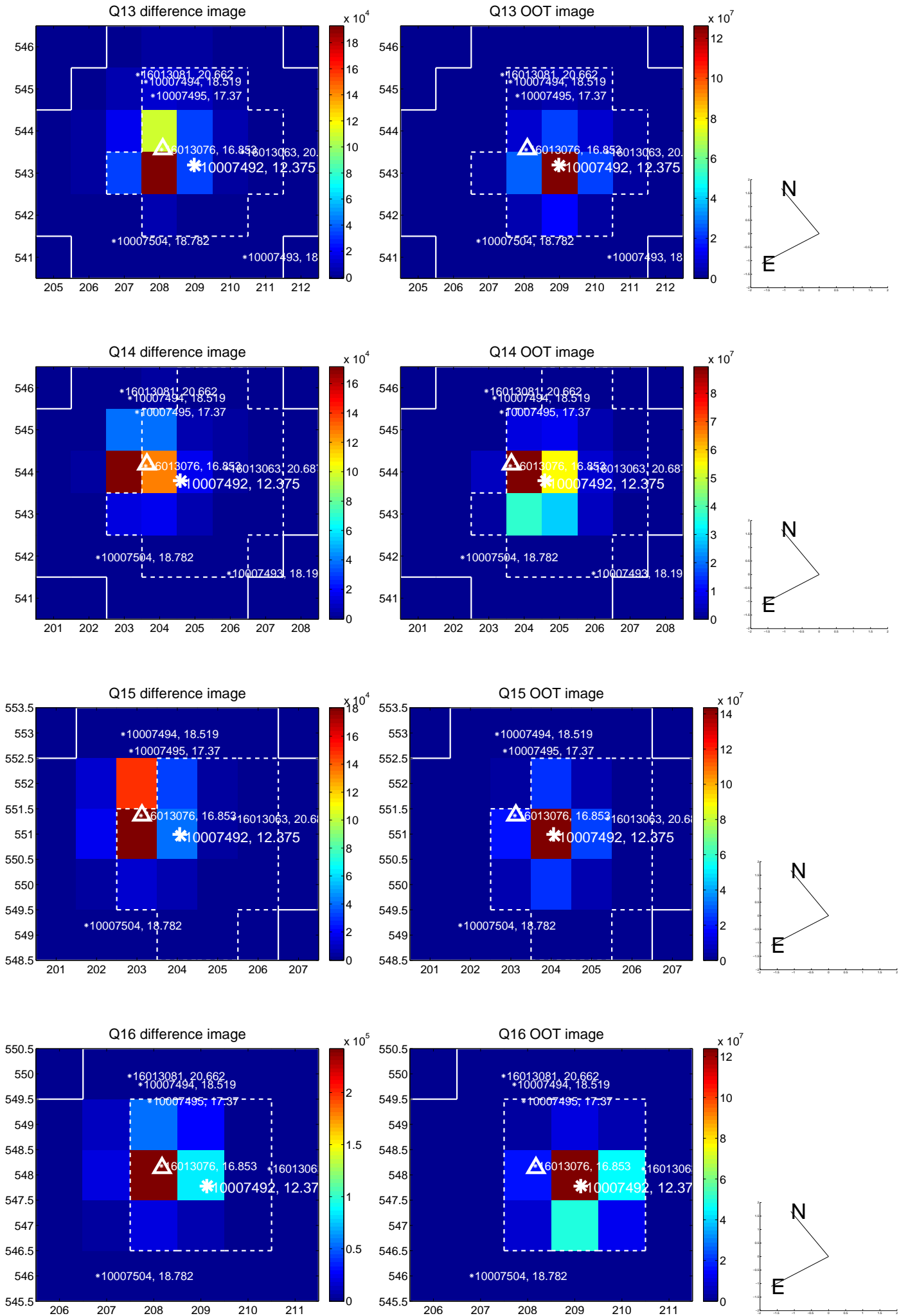
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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

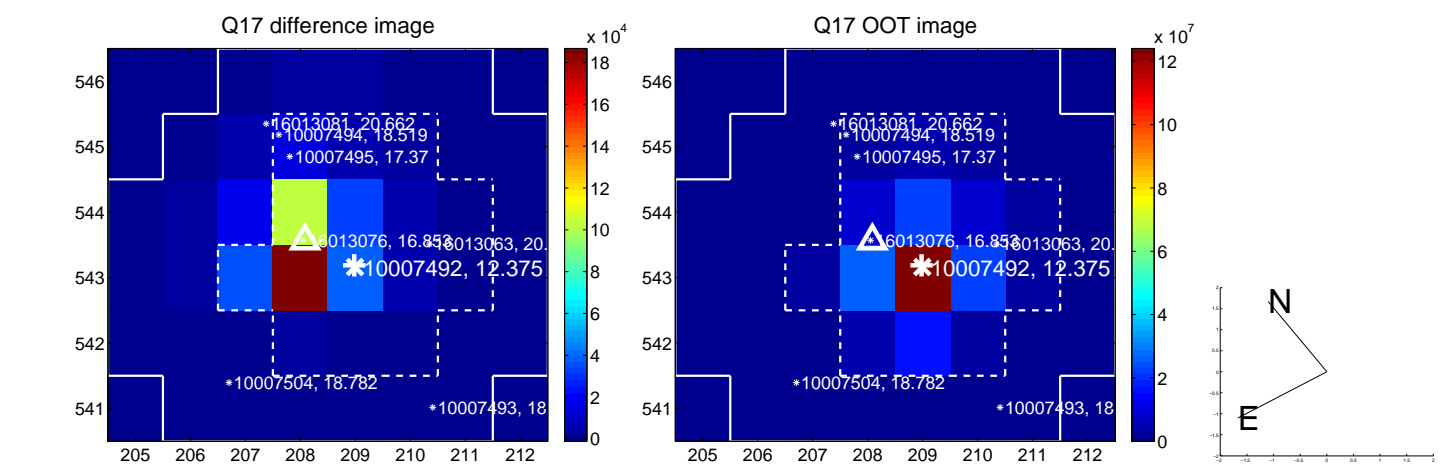


white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.

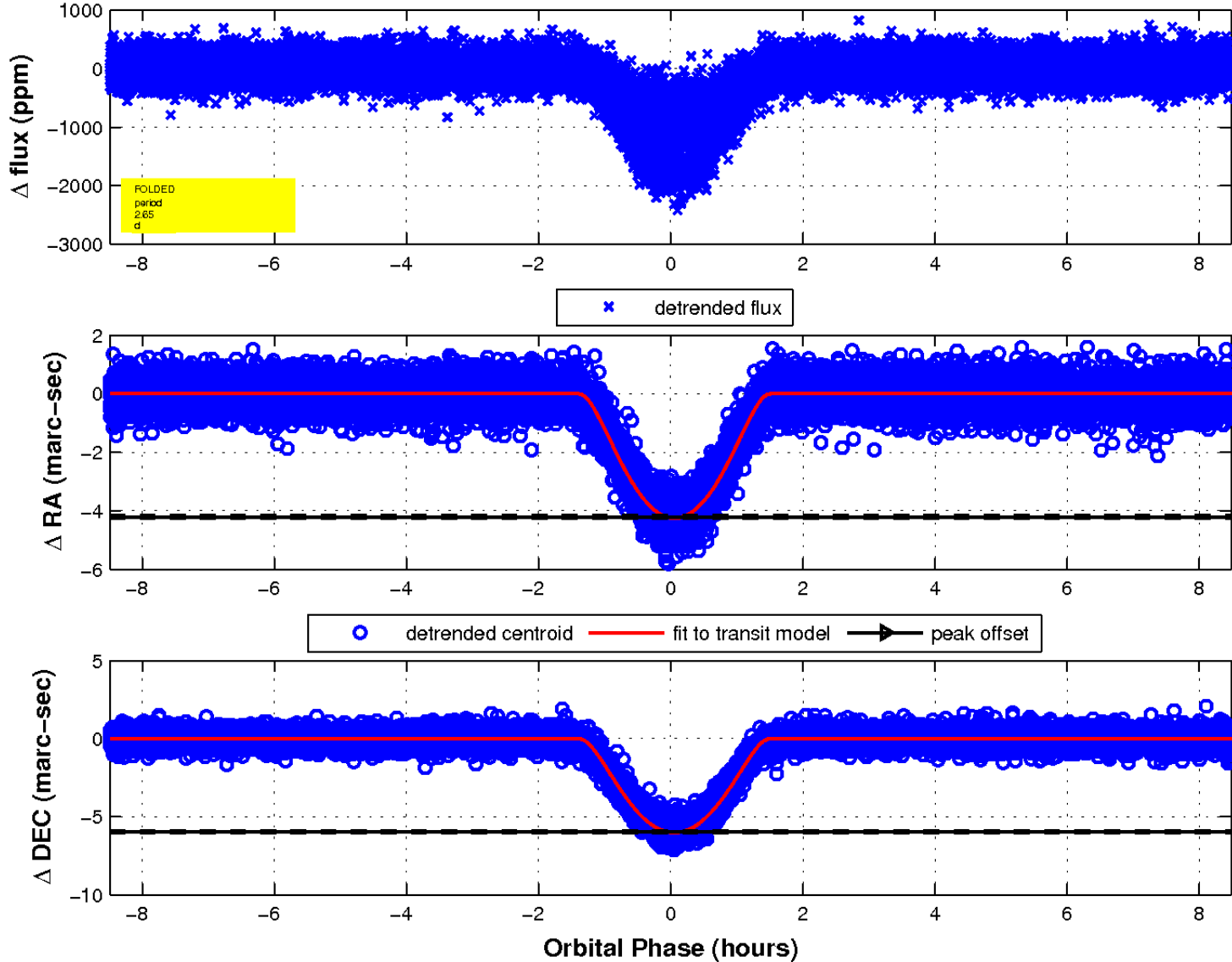




white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.

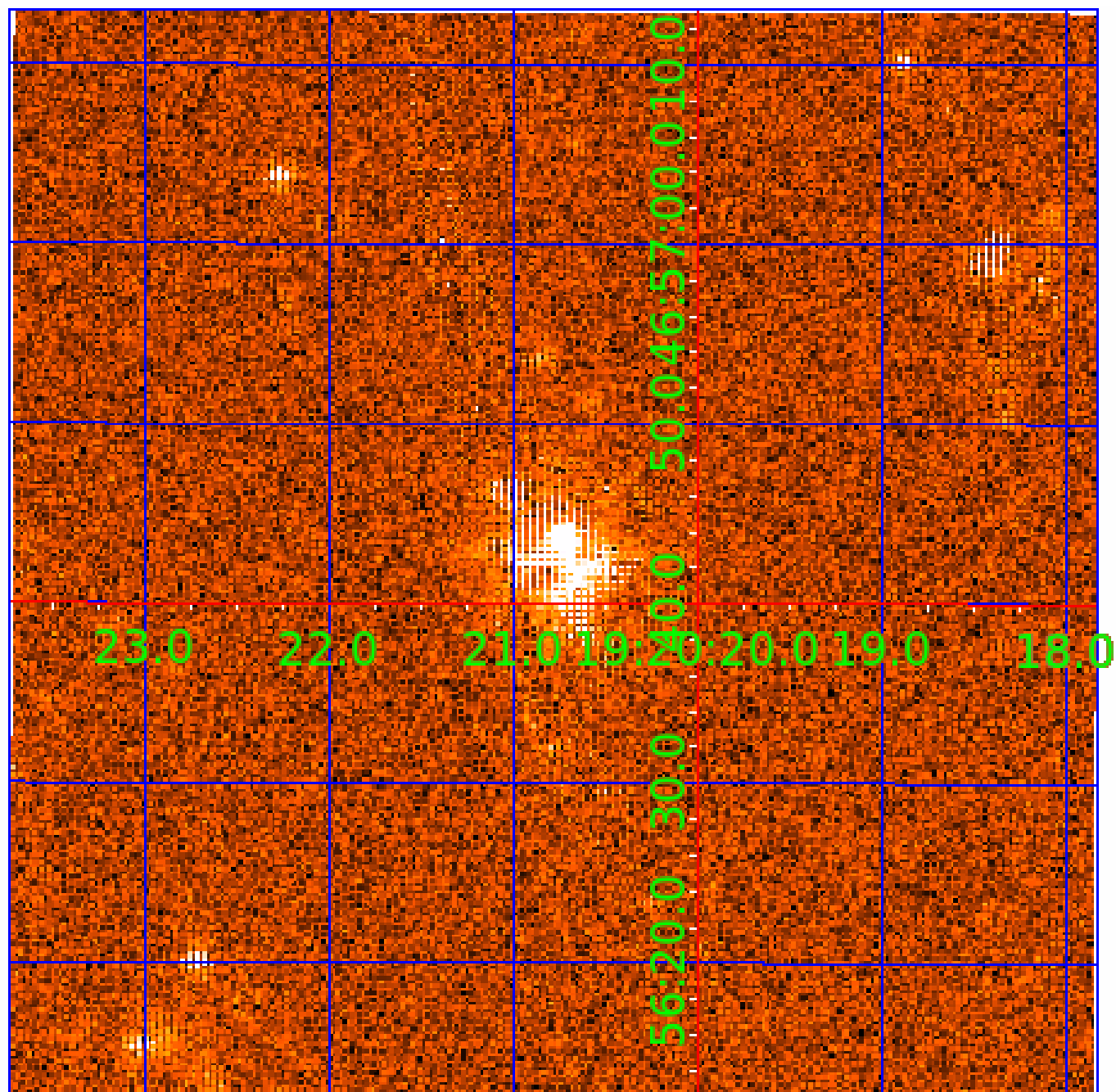


fluxWeightedCentroids, Planet 1 of 2



UKIRT Image

Declination



# KIC 010007492

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
010007492-01	OBS	5754.01	2.645590	133.707981	1205.0	2.830	165.9	147.6	5.44	4980	30.95	8557.38
010007492-02	OBS	No	2.645617	132.384713	61.9	1.958	9.6	10.1	5.44	4980	5.42	8557.26

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
010007492-01	OBS	FP	0.00	0	1	1	0	MOD_SEC_DV—MOD_SEC_ALT—HAS_SEC_TCE—CENT_UNRESOLVED_OFFSET
010007492-02	OBS	FP	0.00	1	1	1	0	IS_SEC_TCE—CENT_UNRESOLVED_OFFSET—HALO_GHOST

**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.

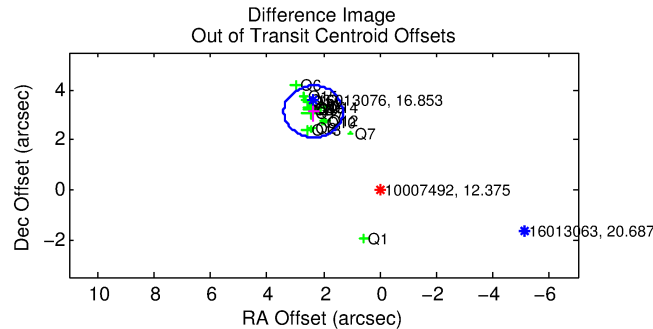
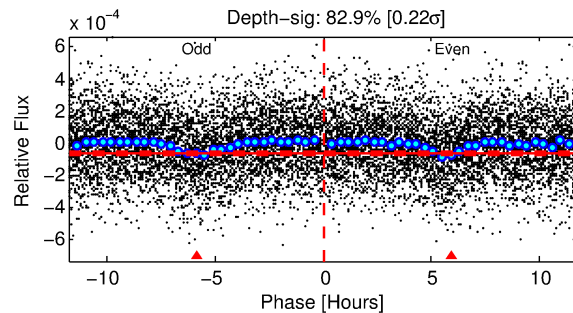
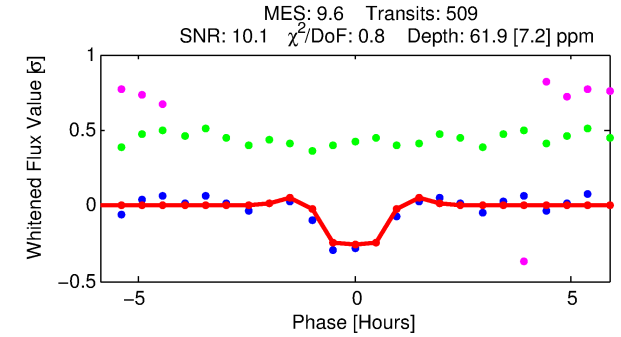
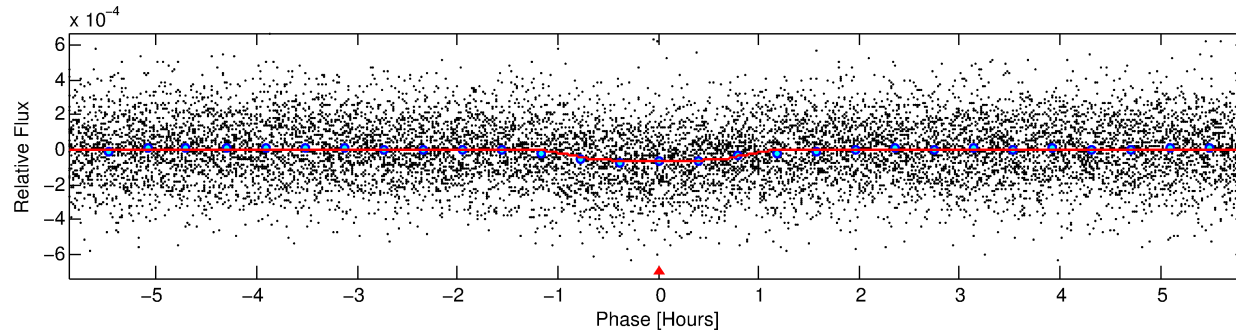
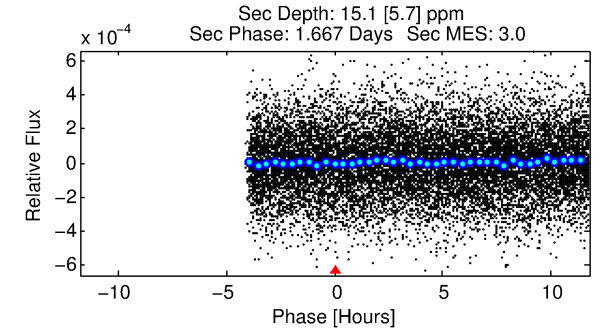
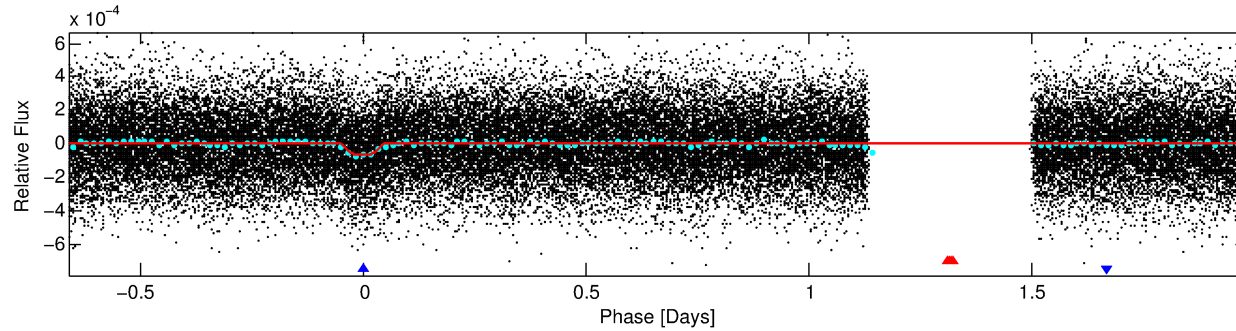
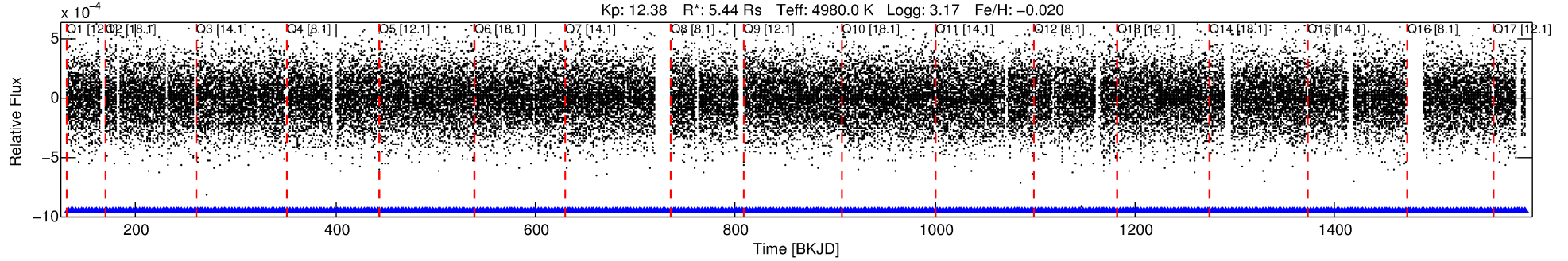
## Ephemeris Match Information For 010007492-02

No Significant Match Found

# DV One-Page Summary

KIC: 10007492 Candidate: 2 of 2 Period: 2.646 d  
KOI: K05754 Corr: No Ephemeris Match

Kp: 12.38 R\*: 5.44 Rs Teff: 4980.0 K Logg: 3.17 Fe/H: -0.020



## DV Fit Results:

Period = 2.64562 [0.00001] d  
Epoch = 132.3847 [0.0022] BKJD  
Rp/R\* = 0.0091 [0.0047]  
a/R\* = 4.20 [8.67]  
b = 0.93 [0.34]  
Seff = 8557.26 [2856.25]  
Teq = 2453 [205] K  
Rp = 5.42 [3.18] Re  
a = 0.0437 [0.0100] AU  
Ag = 0.54 [0.62] [-0.74σ]  
Teffp = 3252 [894] K [0.87σ]

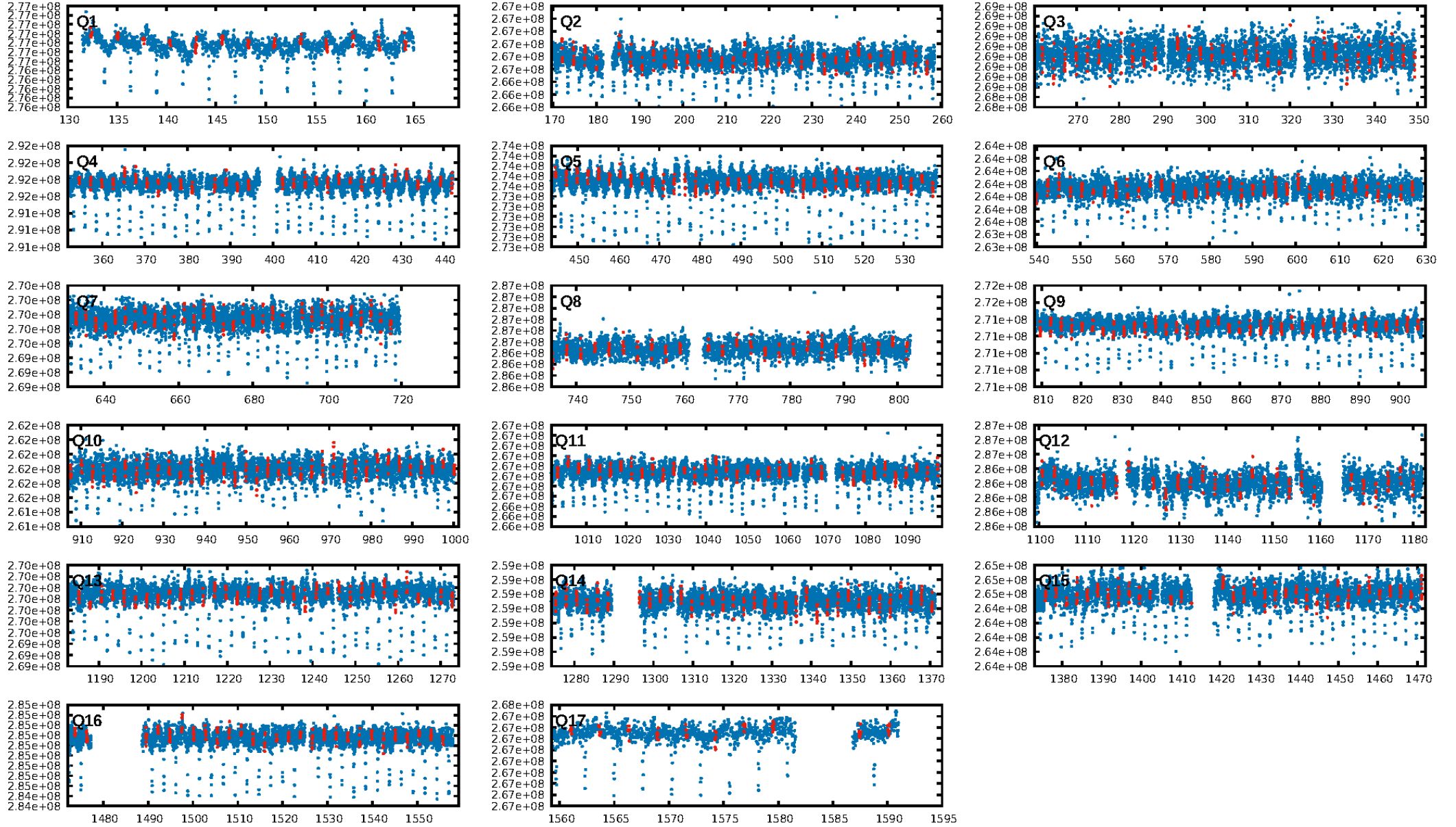
## DV Diagnostic Results:

ShortPeriod-sig: 0.0% [0.00σ]  
LongPeriod-sig: N/A  
ModelChiSquare2-sig: N/A  
ModelChiSquareGof-sig: N/A  
Bootstrap-pfa: 2.67e-18  
RollingBand-fgt: 1.00 [486/486]  
GhostDiagnostic-chr: 0.08378  
Centroid-sig: 0.0%  
Centroid-so: 5.534 arcsec [13.62σ]  
OotOffset-rm: 3.917 arcsec [11.31σ]  
KicOffset-rm: 4.011 arcsec [12.58σ]  
OotOffset-st: 4/4/3/5 [16]  
KicOffset-st: 4/4/3/5 [16]  
DiffImageQuality-fgm: 0.94 [15/16]  
DiffImageOverlap-fno: 1.00 [17/17]

Software Revision: svn-ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 29-Jan-2016 08:24:44 Z

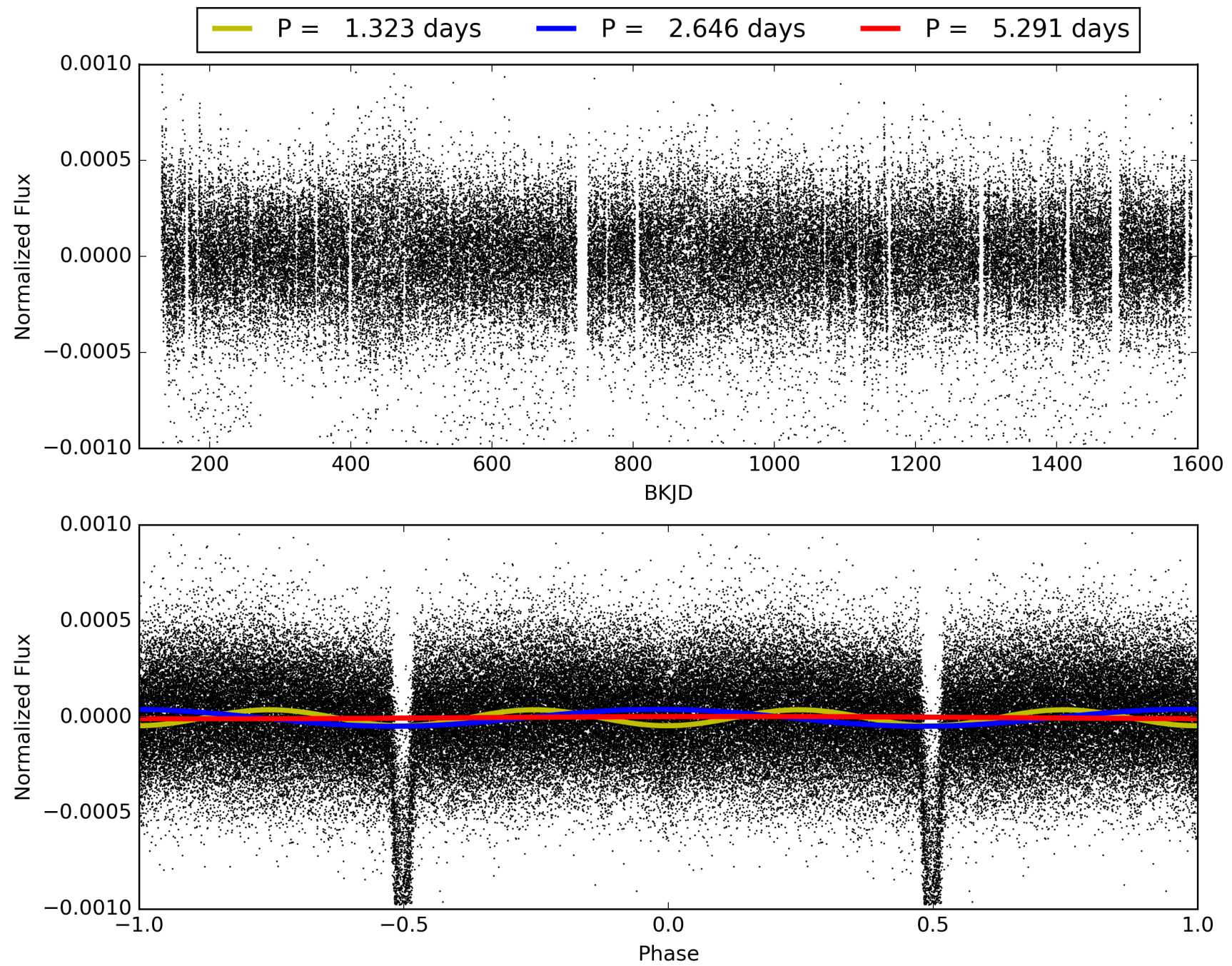
This Data Validation Report Summary was produced in the Kepler Science Operations Center Pipeline at NASA Ames Research Center

# TCE 010007492-02, PDC Light Curves



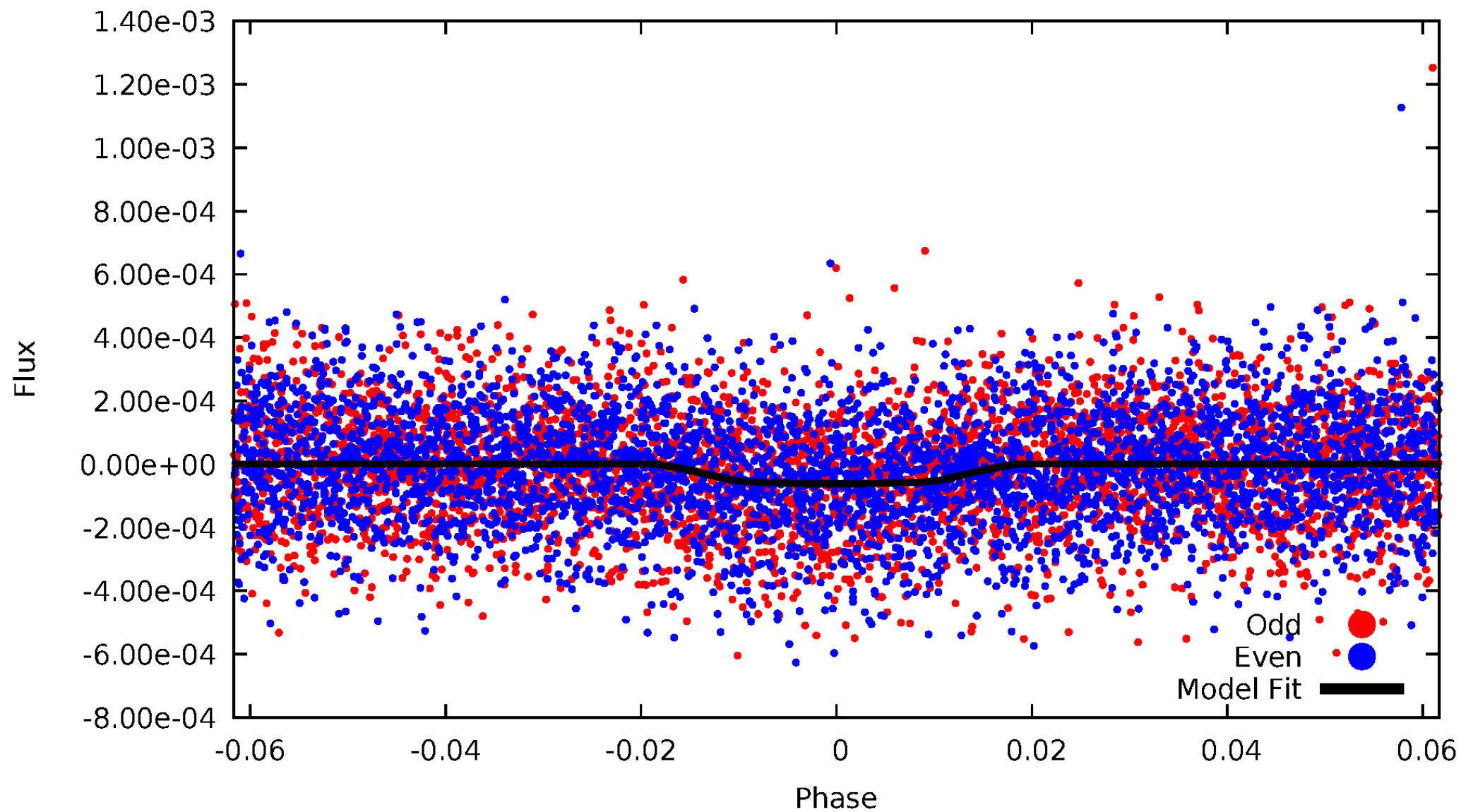


TCE 010007492-02



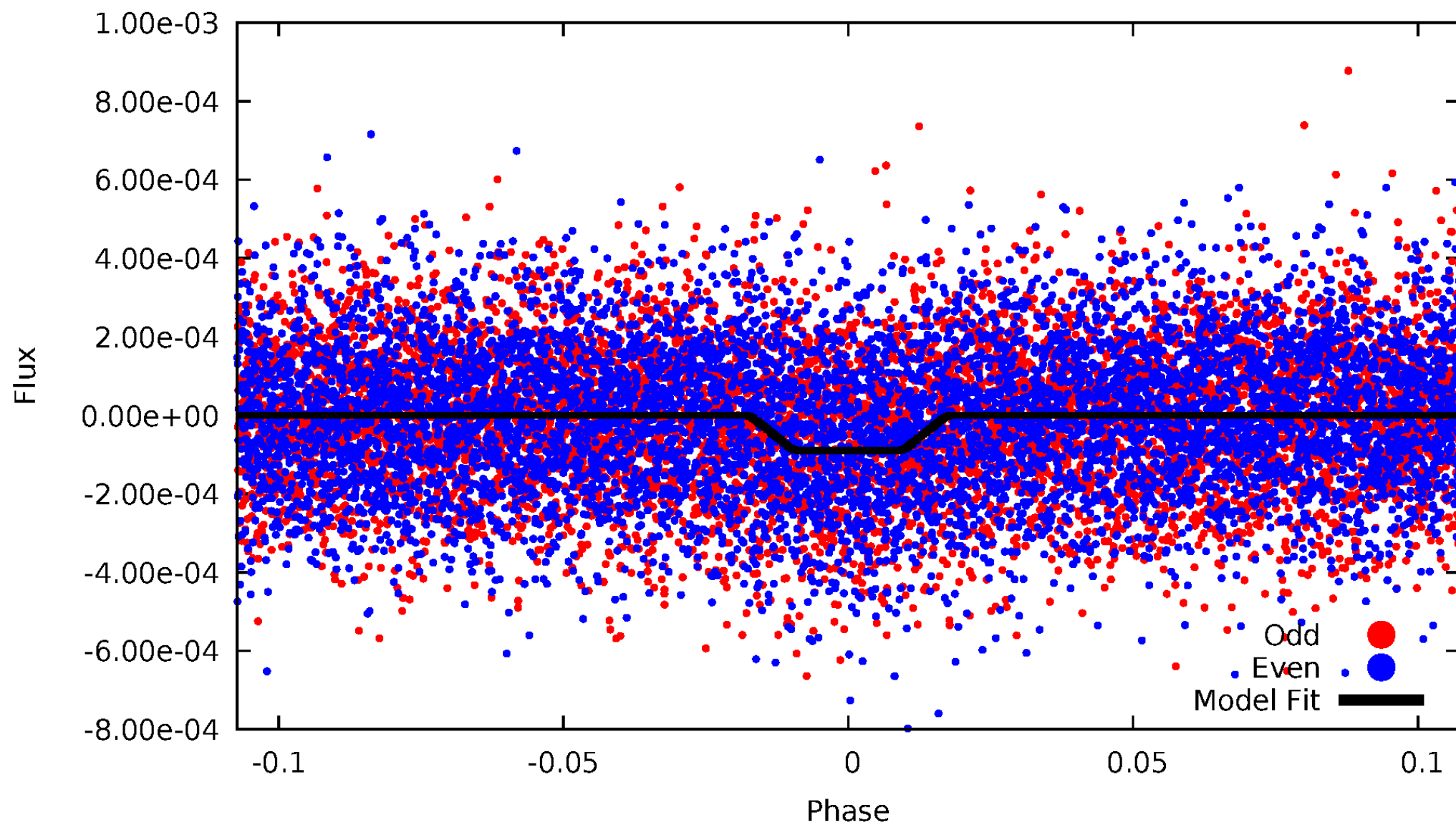
# DV Odd/Even

TCE 010007492-02



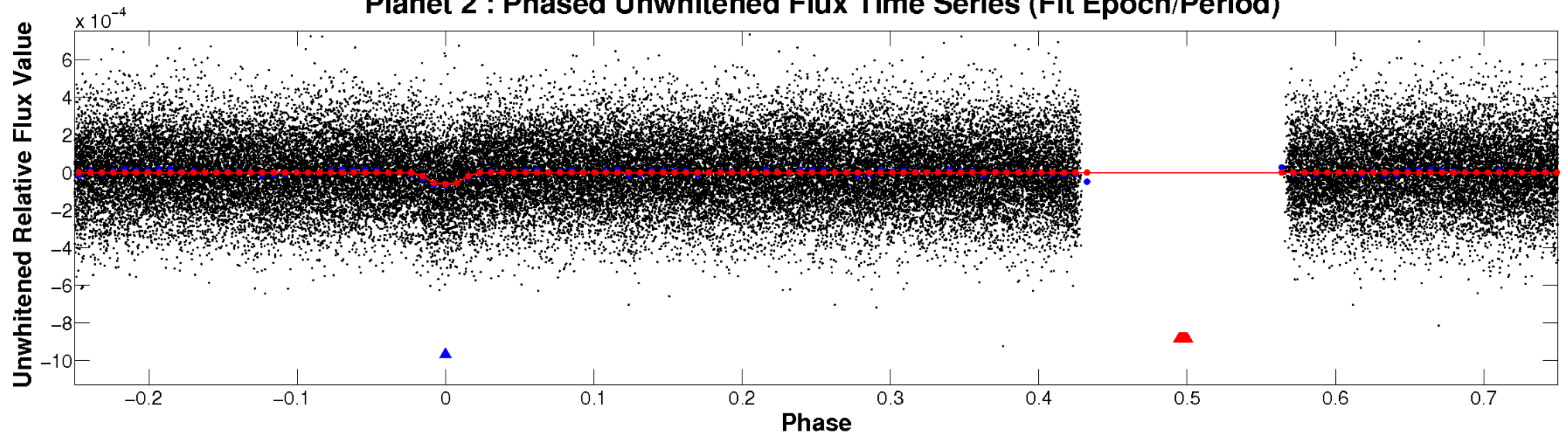
# ALT Odd/Even

TCE 010007492-02

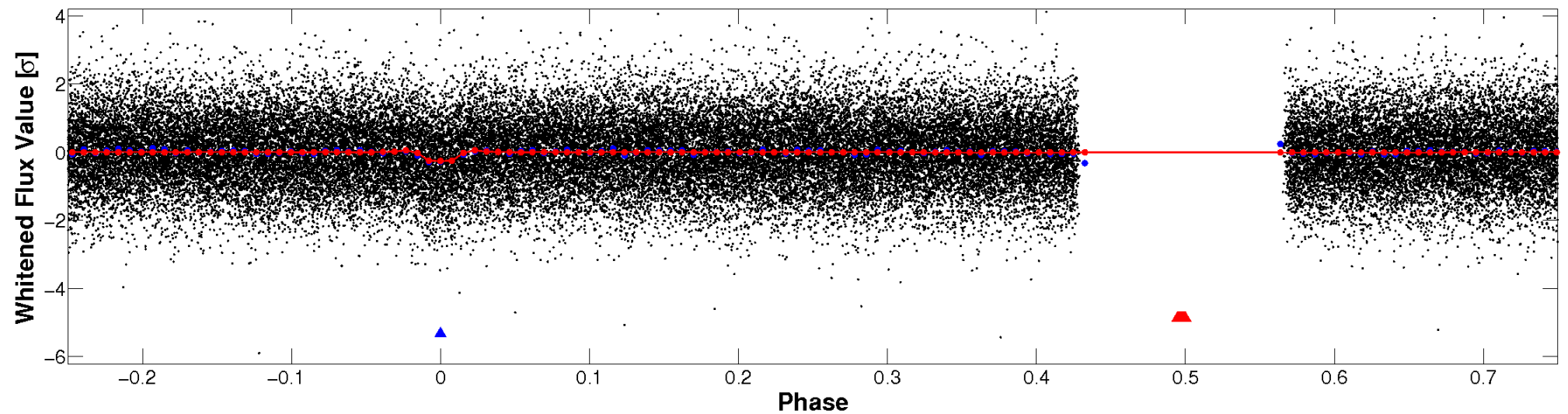


# Non-Whitened Vs. Whitened Light Curve

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



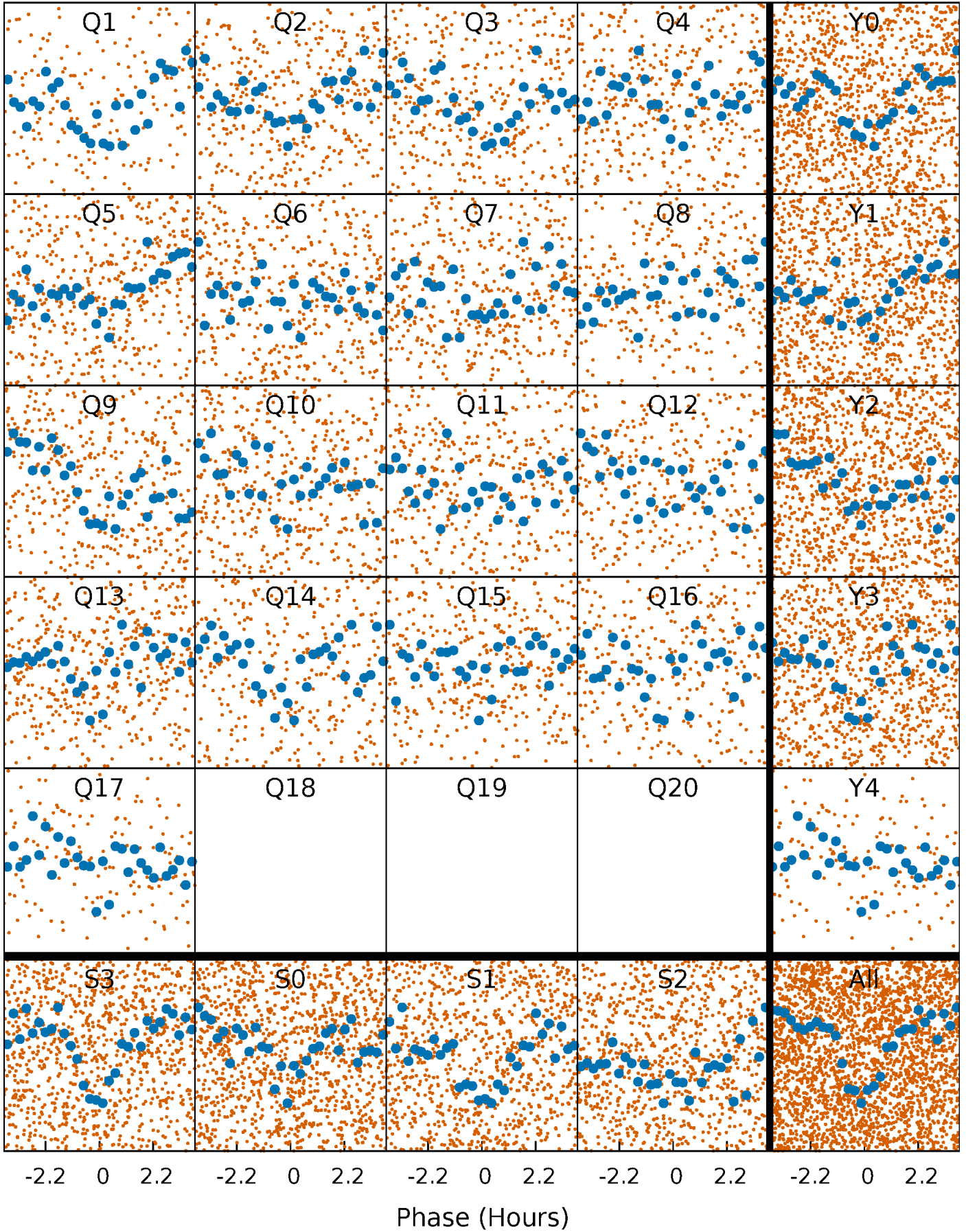
## Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)





# PDC Quarter-Phased Transit Curves

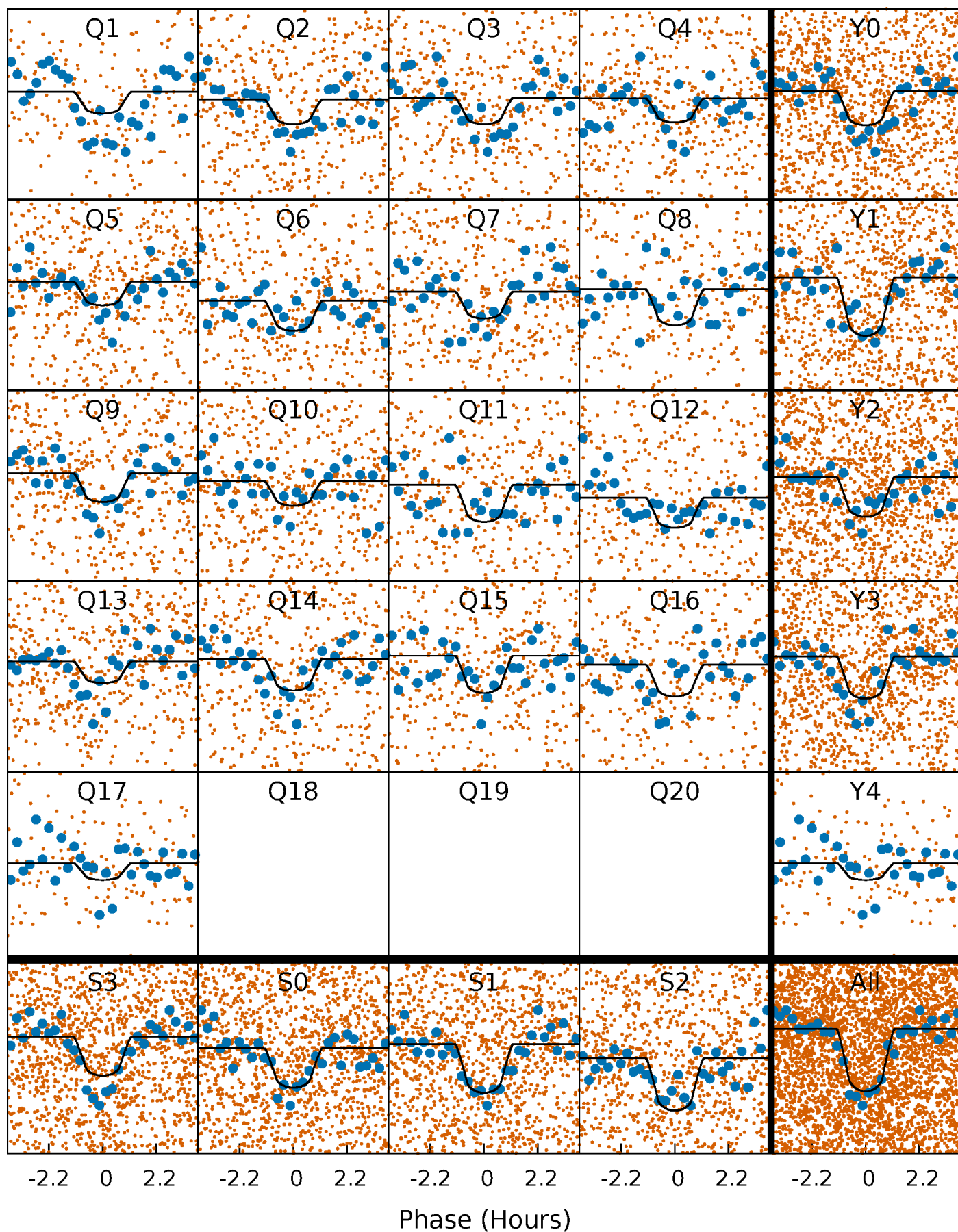
TCE 010007492-02   P= 2.645617 Days    $T_0=132.384713$  (BKJD)





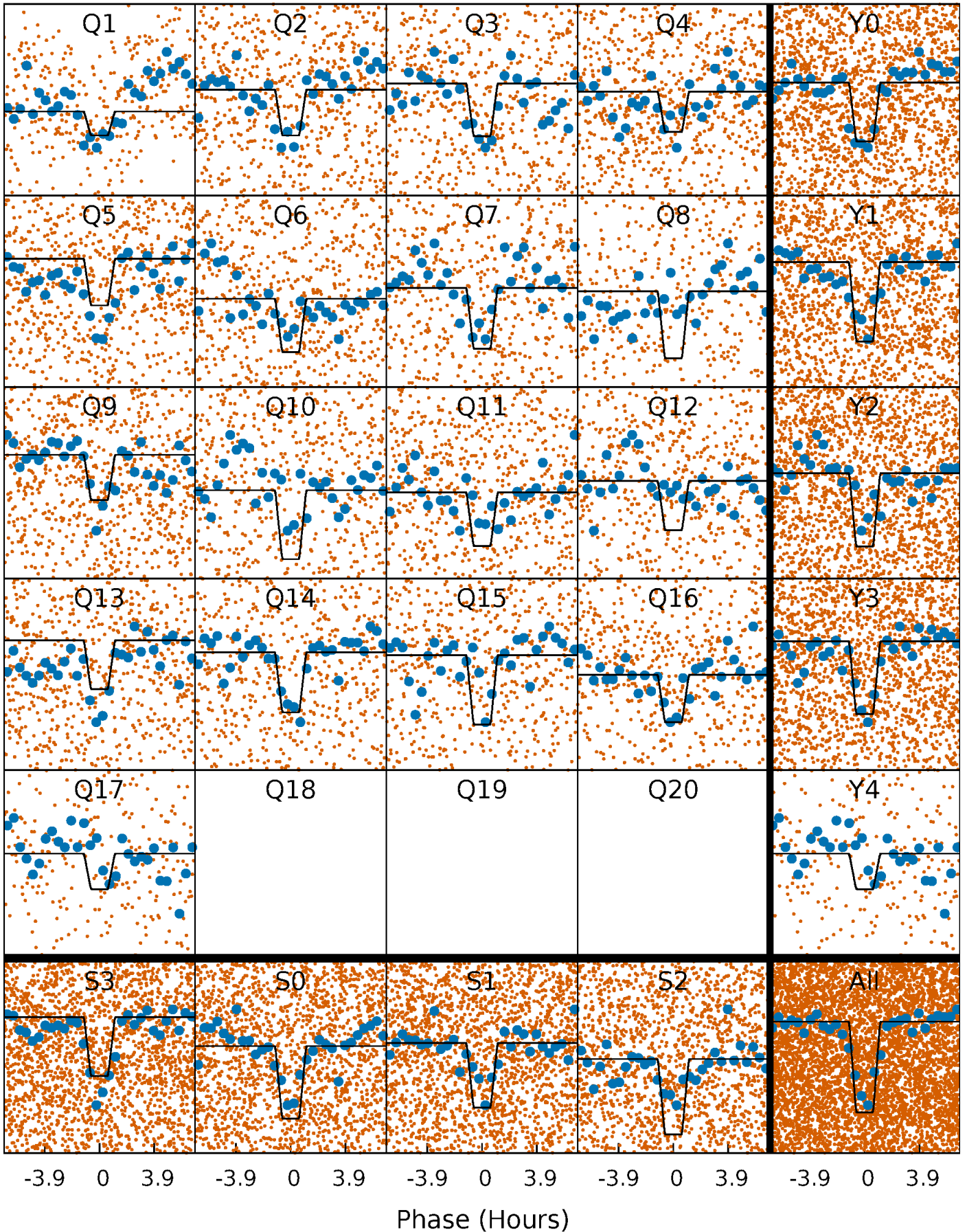
# DV Quarter-Phased Transit Curves

TCE 010007492-02   P= 2.645617 Days    $T_0=132.384713$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

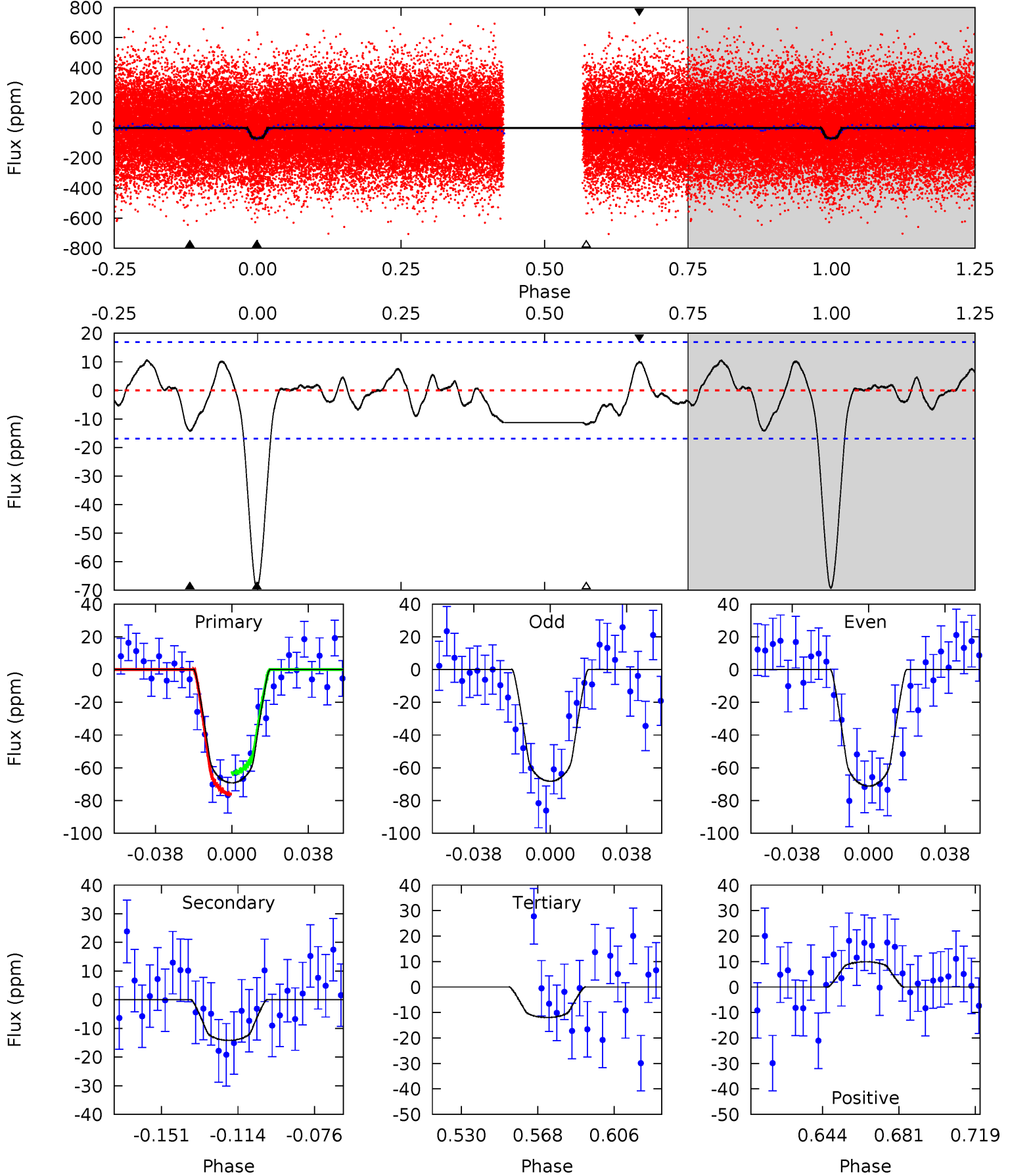
TCE 010007492-02 P= 2.645536 Days  $T_0=132.401362$  (BKJD)



# DV Model-Shift Uniqueness Test

010007492-02, P = 2.645617 Days, E = 129.739096 Days

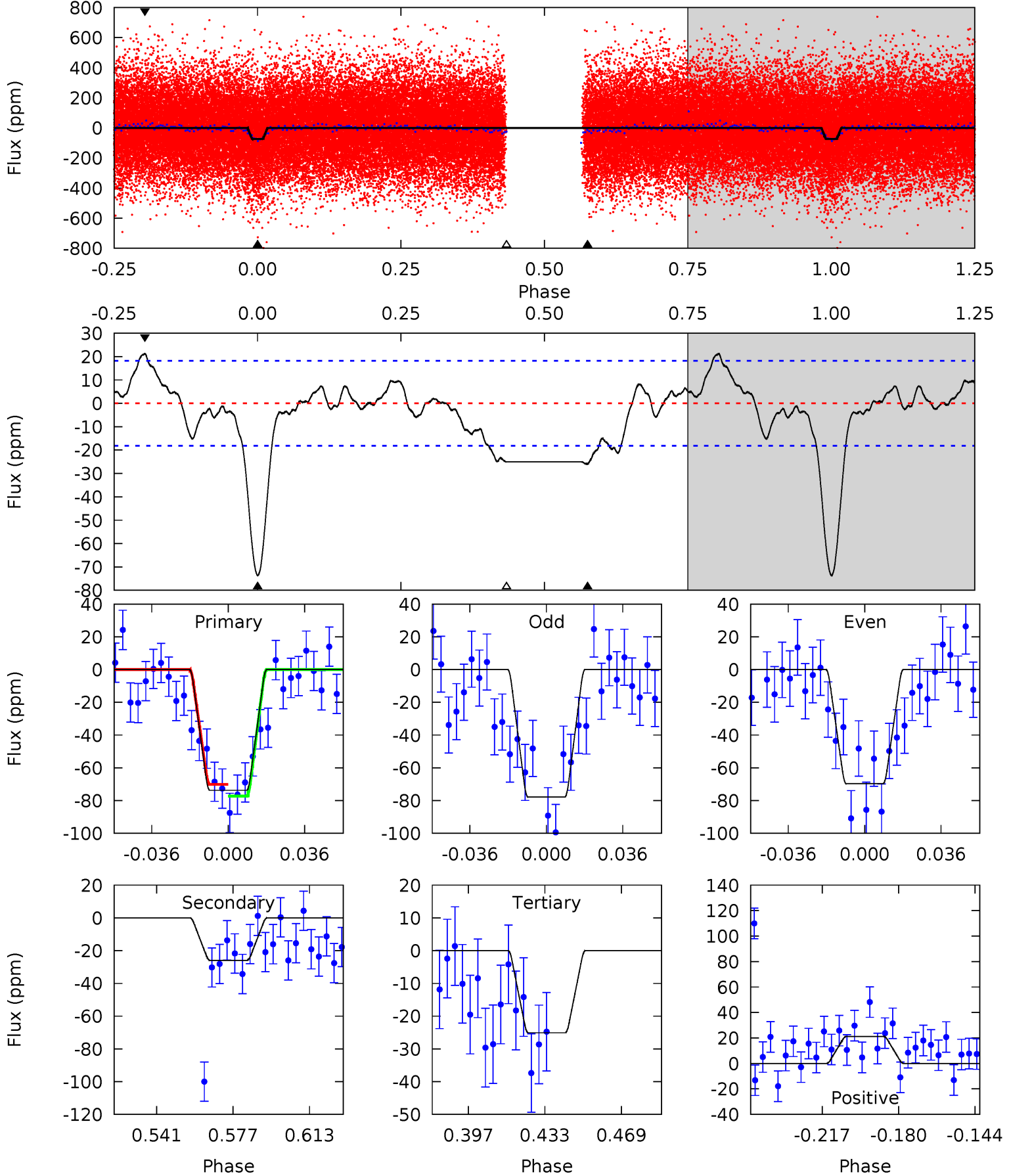
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
19.5	3.99	3.37	2.79	4.76	2.08	1.47	16.1	16.7	0.63	1.20	0.41	1.01	0.13	1.82



# Alt Model-Shift Uniqueness Test

010007492-02, P = 2.645536 Days, E = 129.755826 Days

Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
19.4	6.80	6.58	5.58	4.77	2.10	2.33	12.8	13.8	0.22	1.23	1.07	1.03	0.22	0.95





### Stellar Parameters For KIC 010007492

	$T_{\text{eff}} (K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R (R_{\odot})$	$M (M_{\odot})$	$\rho_{\star} (\text{g}\cdot\text{cm}^{-3})$
	$4980^{+51}_{-88}$	$3.167^{+0.174}_{-0.116}$	$-0.020^{+0.100}_{-0.150}$	$5.443^{+0.823}_{-1.529}$	$1.589^{+0.206}_{-0.481}$	$0.014^{+0.015}_{-0.004}$
	+1%/-2%	+5%/-4%	+500%/-750%	+15%/-28%	+13%/-30%	+105%/-32%
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 010007492-02 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	$A_{\text{obs}}$
DV	$-14 \pm 4$	$5.42^{+2.84}_{-2.61}$	$3415^{+161}_{-208}$	$3014^{+1292}_{-5855}$	$0.473^{+1.380}_{-0.274}$
Alt.	$-26 \pm 4$	$5.47^{+2.94}_{-2.58}$	$3418^{+163}_{-192}$	$3627^{+1325}_{-874}$	$0.884^{+2.381}_{-0.502}$

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

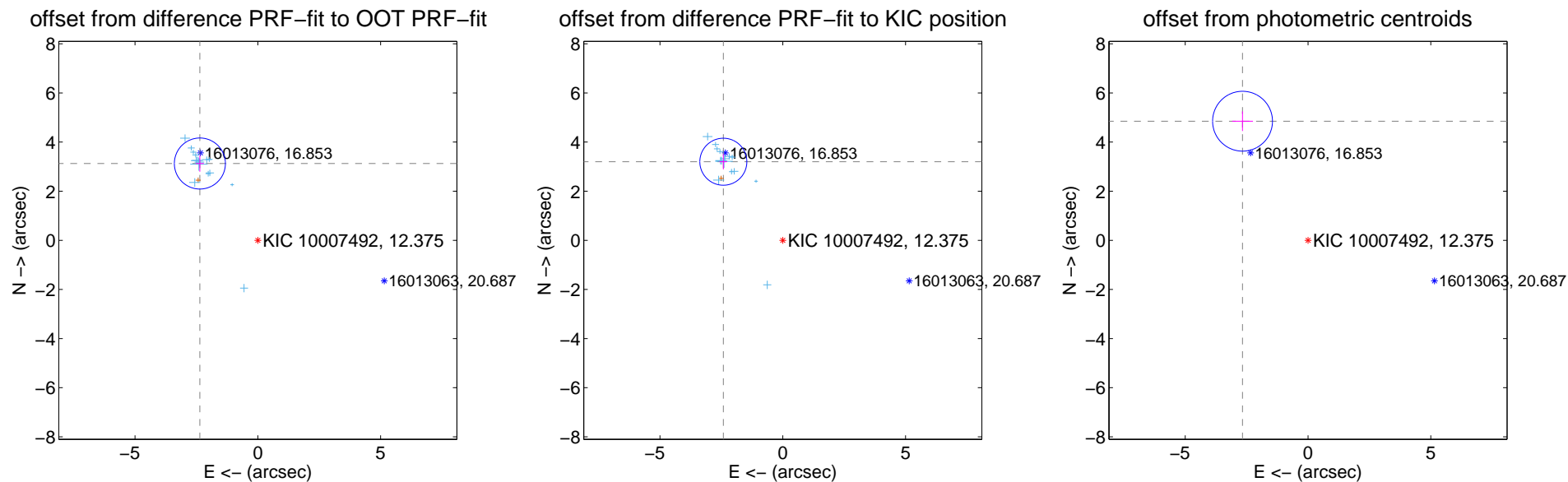
## DV Centroid Data

Supplemental centroid analysis for 010007492-02. Kepler magnitude: 12.38. Transit SNR 10.08

There are 15 quarters with good PRF difference image offsets

The direct PRF centroid is offset from the target star catalog position by about 0.12 arcsec

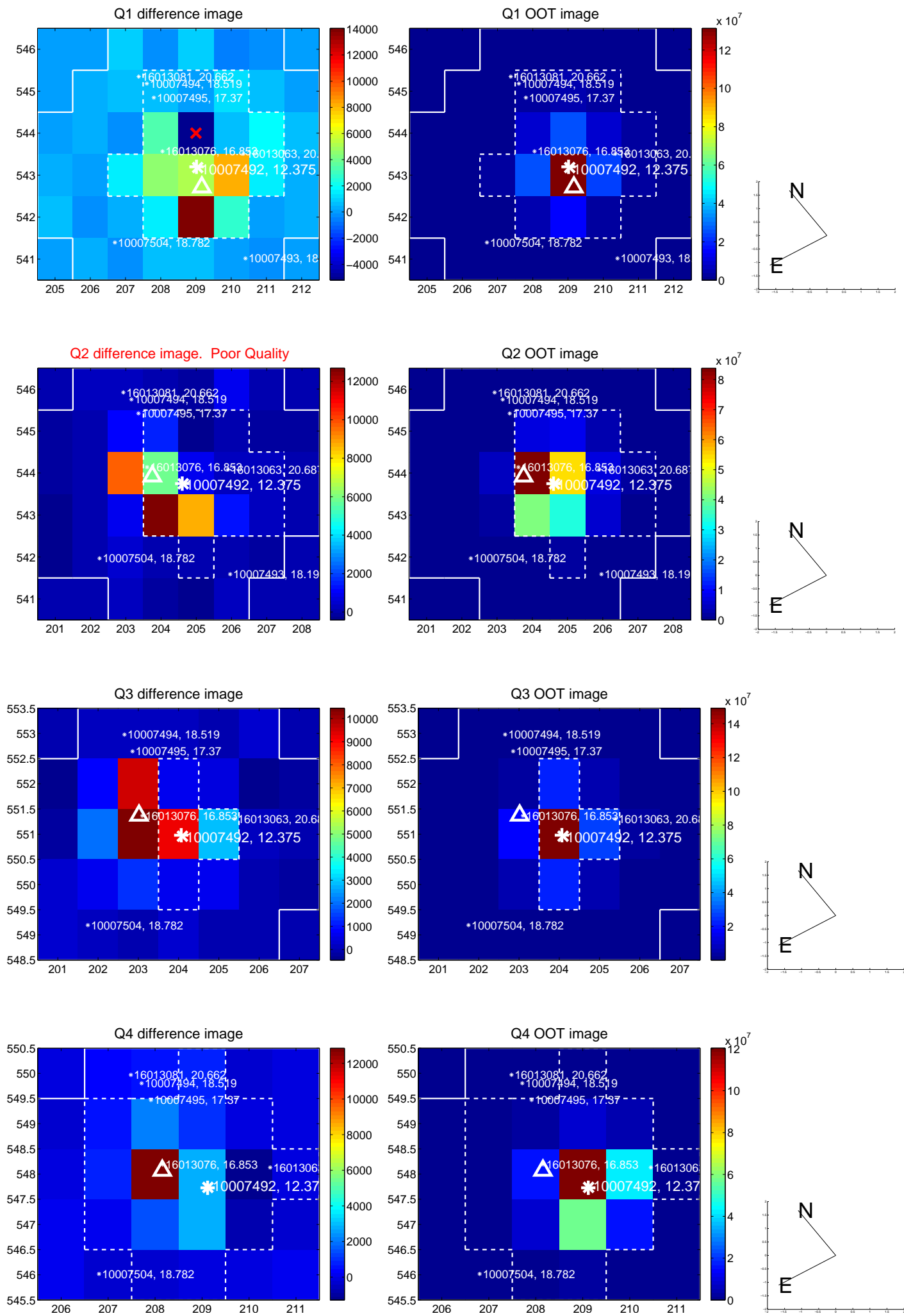
	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$3.917 \pm 0.346$	<b>11.31</b>	$2.359 \pm 0.163$	$3.127 \pm 0.335$
PRF-fit source offset from KIC position	$4.011 \pm 0.319$	<b>12.58</b>	$2.419 \pm 0.155$	$3.200 \pm 0.310$
photometric centroid source offset	$5.53 \pm 0.41$	<b>13.62</b>	$2.67 \pm 0.42$	$4.85 \pm 0.40$



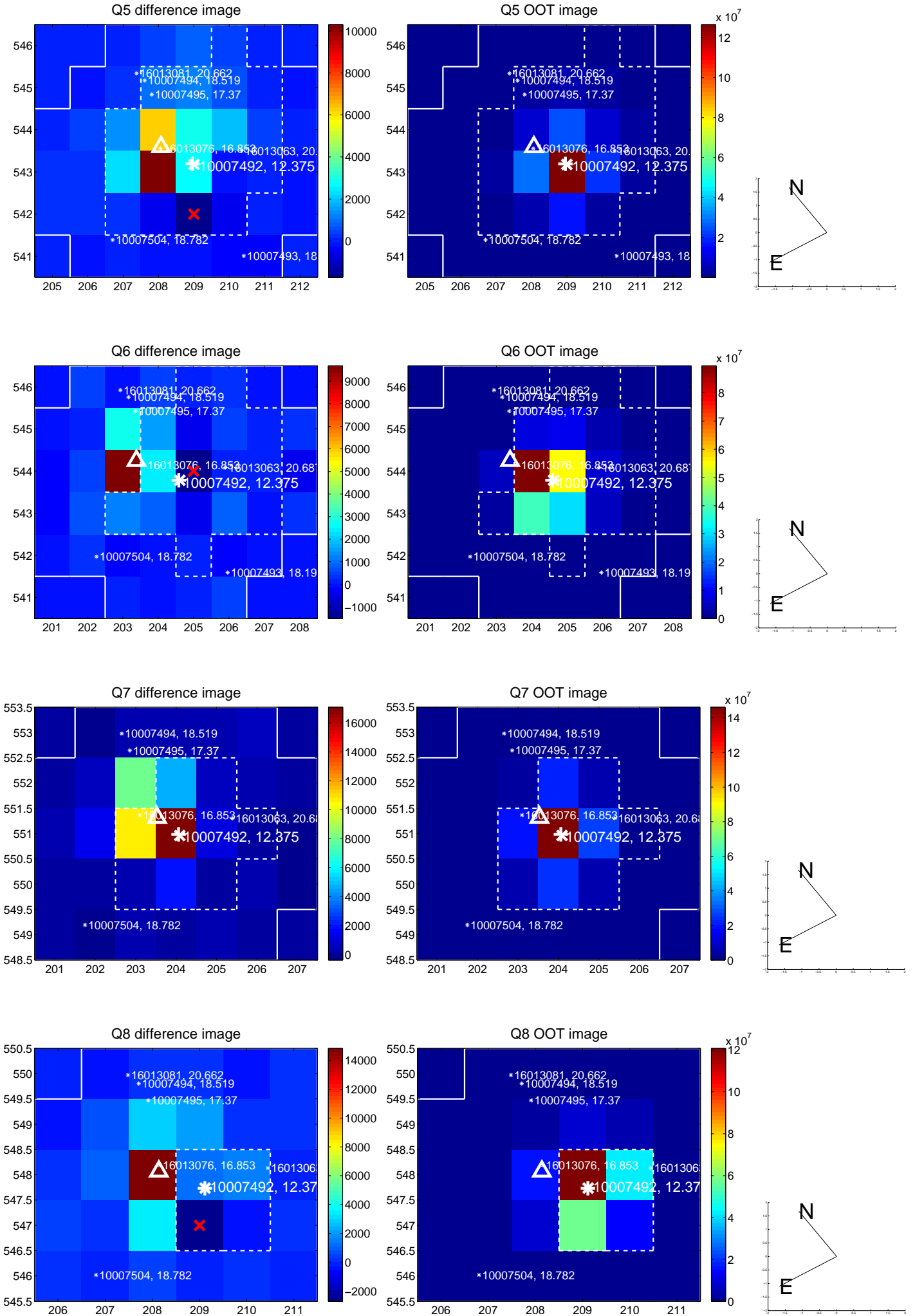
Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses:** good quarterly centroid offsets; **Vermillion crosses:** bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: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



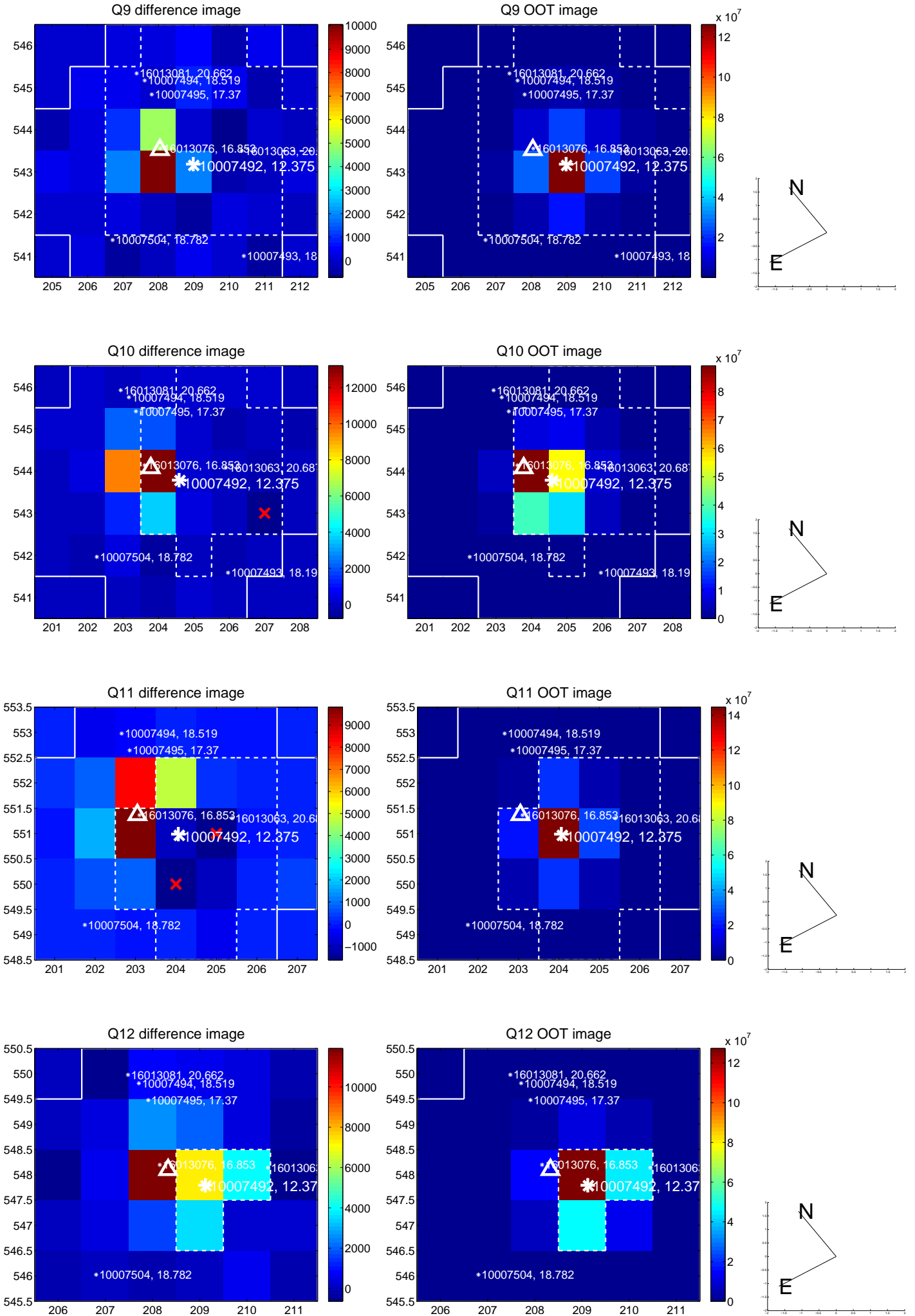
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



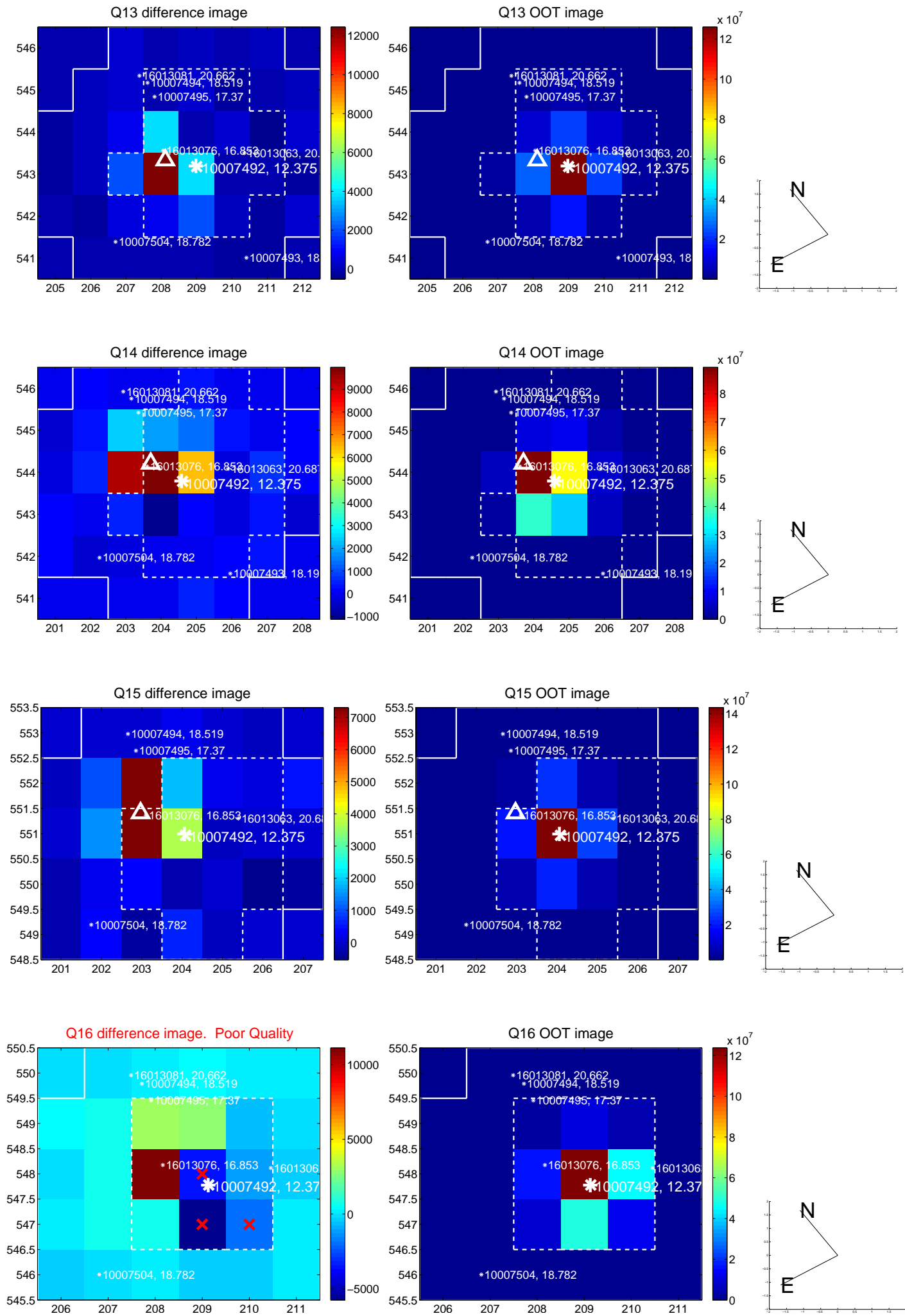
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



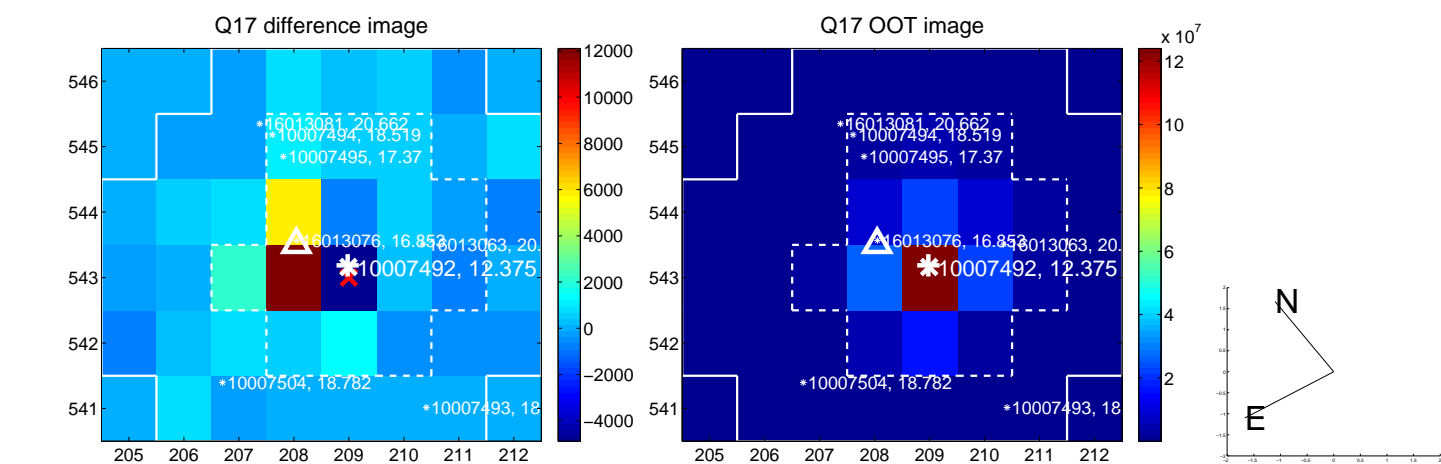
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



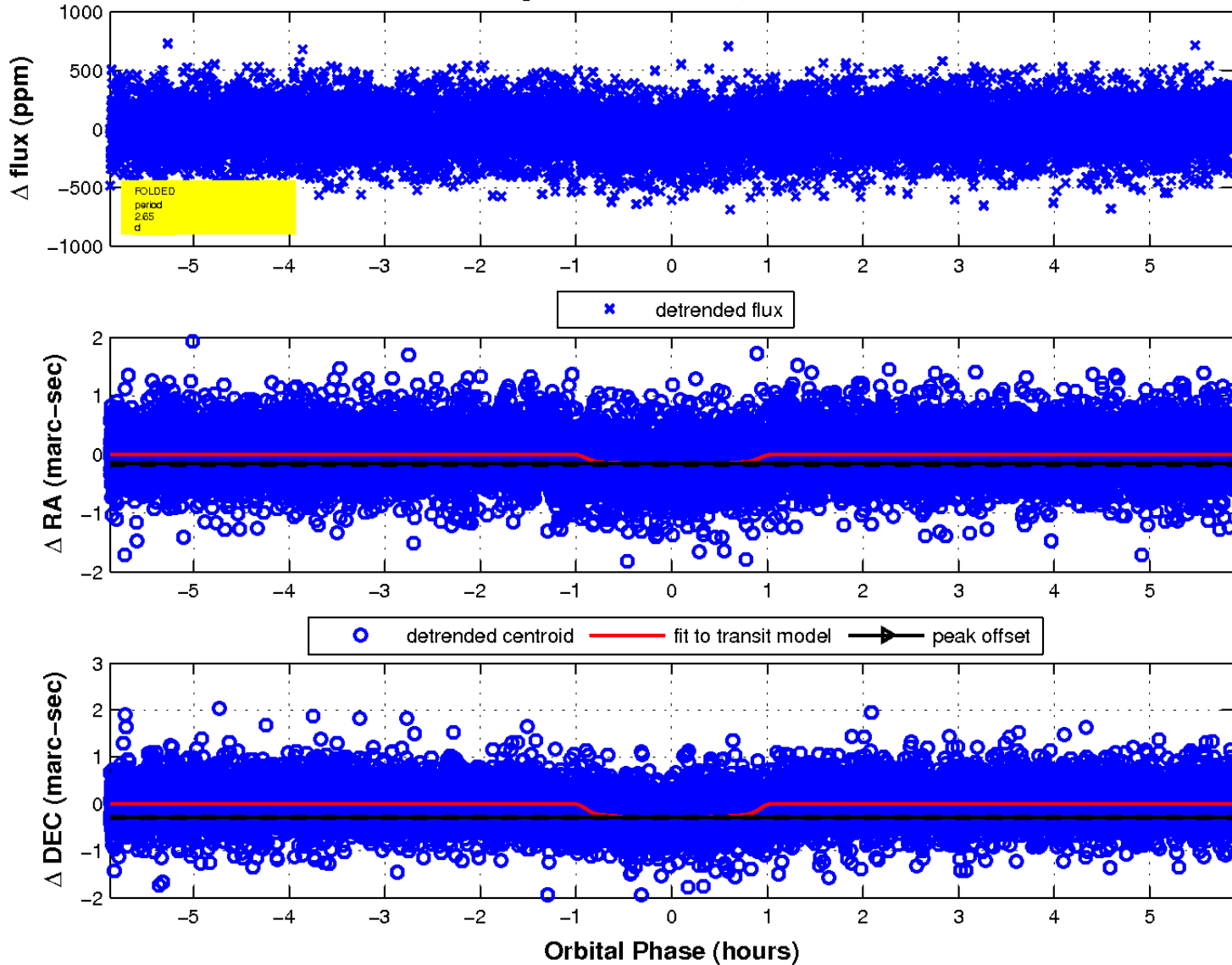
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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



fluxWeightedCentroids, Planet 2 of 2



UKIRT Image

Declination

