

# KIC 008265156

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
008265156-01	OBS	No	2.182330	132.812830	36.4	4.066	13.6	14.4	1.67	7193	1.18	4800.56
008265156-02	OBS	6177.01	0.978346	132.135934	31.4	1.602	10.4	12.5	1.67	7193	1.09	13991.44

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
008265156-01	OBS	FP	0.00	1	0	0	0	SWEET_NTL—LPP_DV
008265156-02	OBS	FP	0.00	0	0	1	0	CENT_RESOLVED_OFFSET

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

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

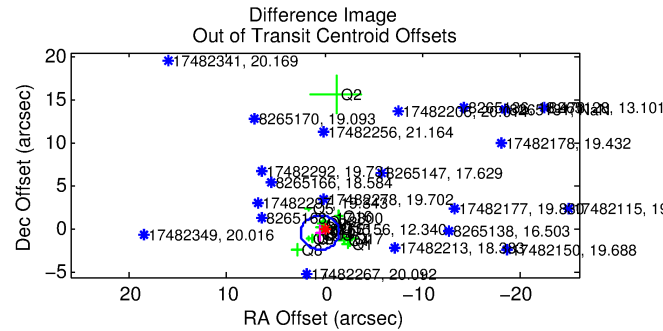
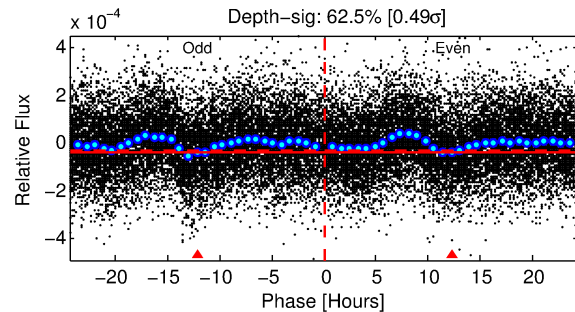
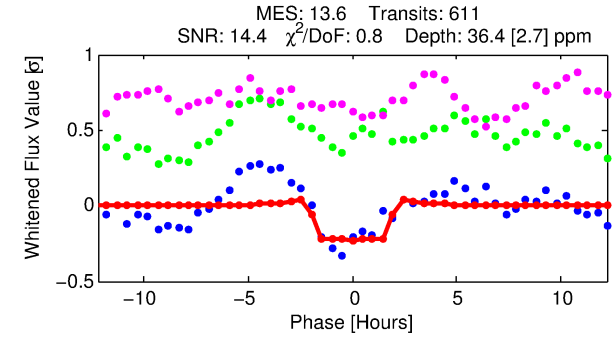
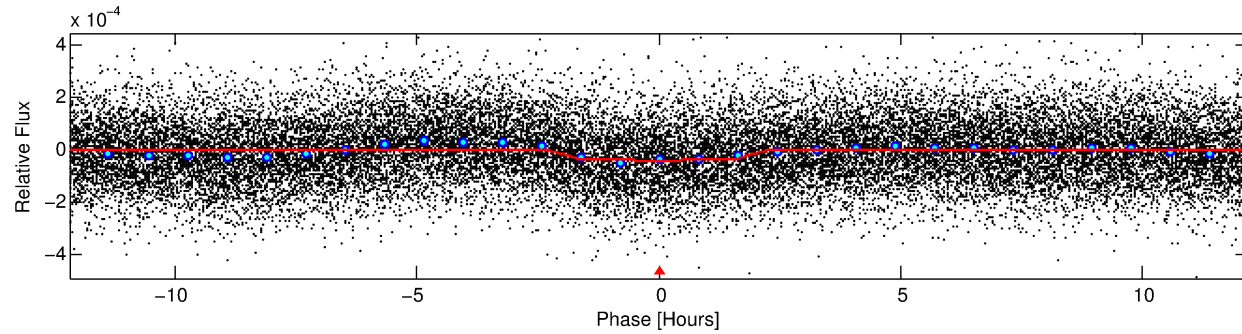
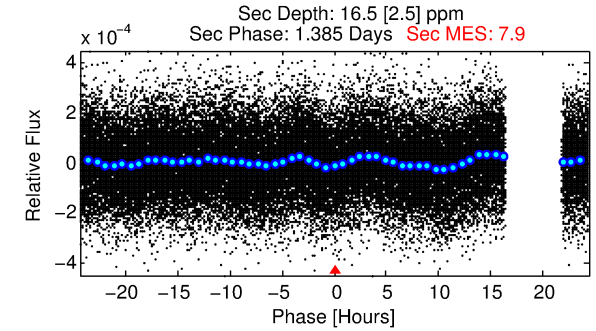
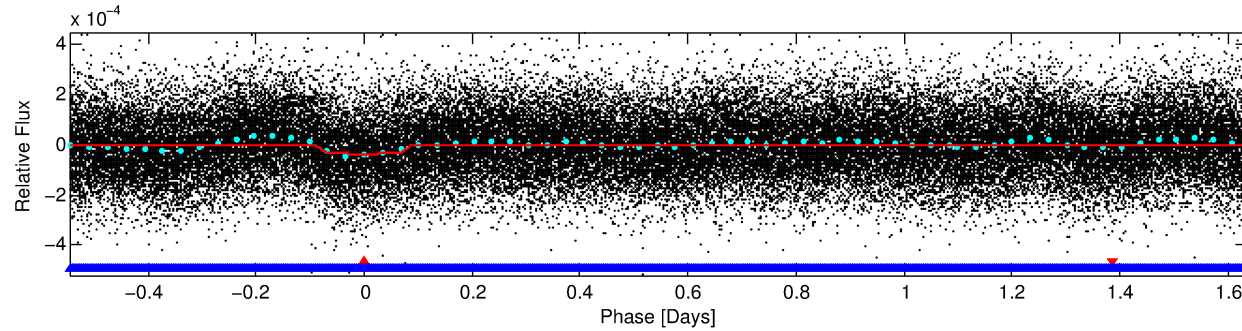
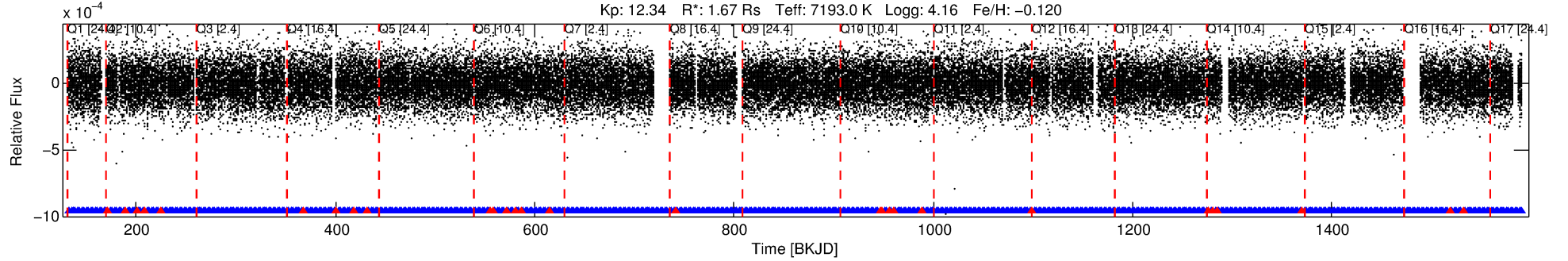
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

## Ephemeris Match Information For 008265156-01

No Significant Match Found

# DV One-Page Summary

KIC: 8265156 Candidate: 1 of 2 Period: 2.182 d  
KOI: K06177 Corr: No Ephemeris Match



## DV Fit Results:

Period = 2.18233 [0.00001] d  
Epoch = 132.8128 [0.0027] BKJD  
Rp/R\* = 0.0065 [0.0013]  
a/R\* = 1.96 [1.80]  
b = 0.92 [0.22]  
Seff = 4800.56 [1911.62]  
Teff = 7193 [211] K  
Rp = 1.18 [0.44] Re  
a = 0.0374 [0.0096] AU  
Ag = 9.01 [5.02] [1.60σ]  
Teffp = 5686 [647] K [5.24σ]

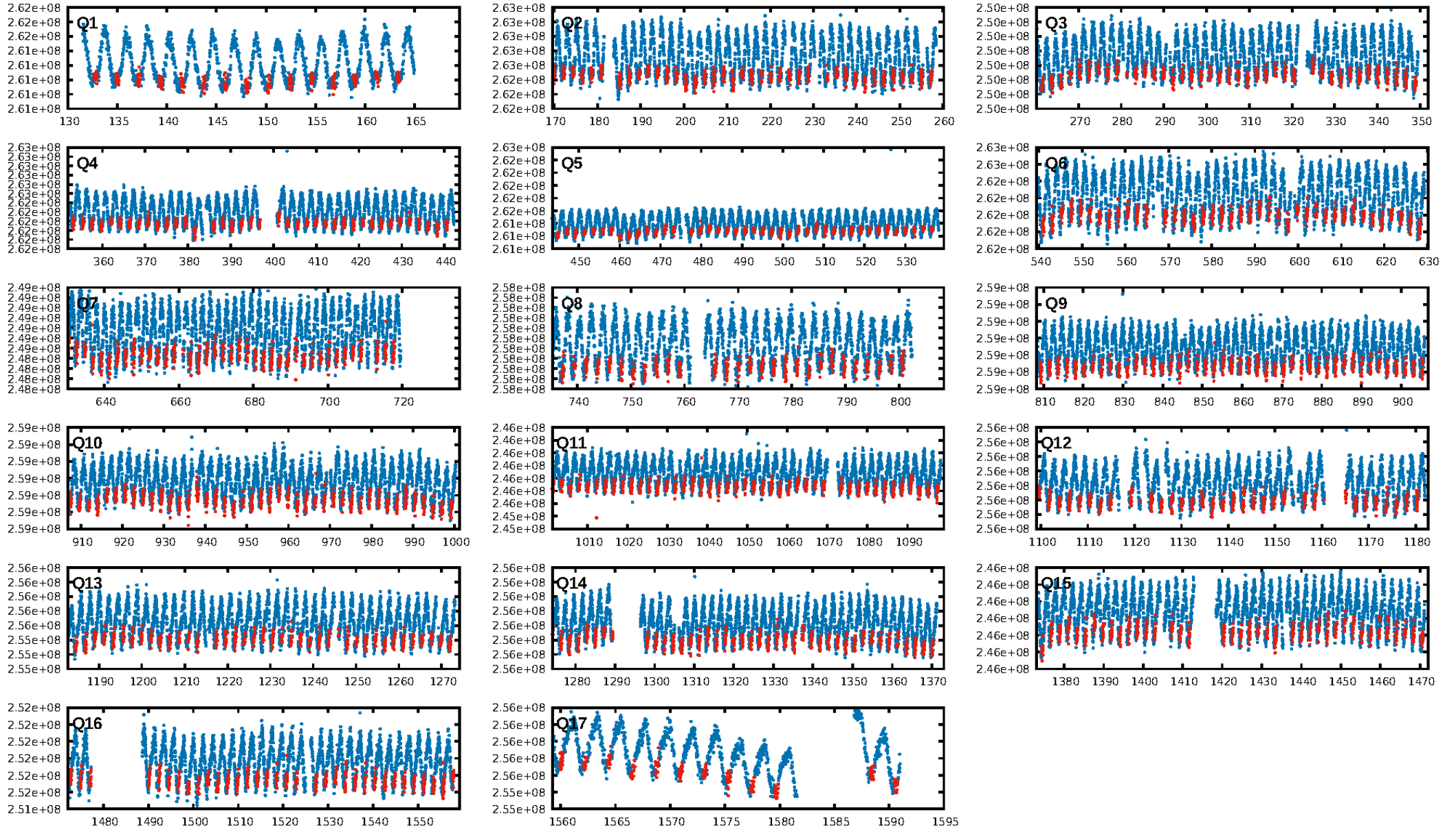
## DV Diagnostic Results:

ShortPeriod-sig: 100.0% [6.61σ]  
LongPeriod-sig: N/A  
ModelChiSquare2-sig: N/A  
ModelChiSquareGof-sig: N/A  
Bootstrap-pfa: 9.09e-35  
RollingBand-fgt: 0.95 [556/584]  
GhostDiagnostic-chr: -58.87  
Centroid-sig: 0.0%  
Centroid-so: 1.524 arcsec [2.05σ]  
OotOffset-rm: 0.616 arcsec [0.94σ]  
KicOffset-rm: 0.667 arcsec [1.23σ]  
OotOffset-st: 4/4/4/5 [17]  
KicOffset-st: 4/4/4/5 [17]  
DiffImageQuality-fgm: 0.82 [14/17]  
DiffImageOverlap-fno: 1.00 [17/17]

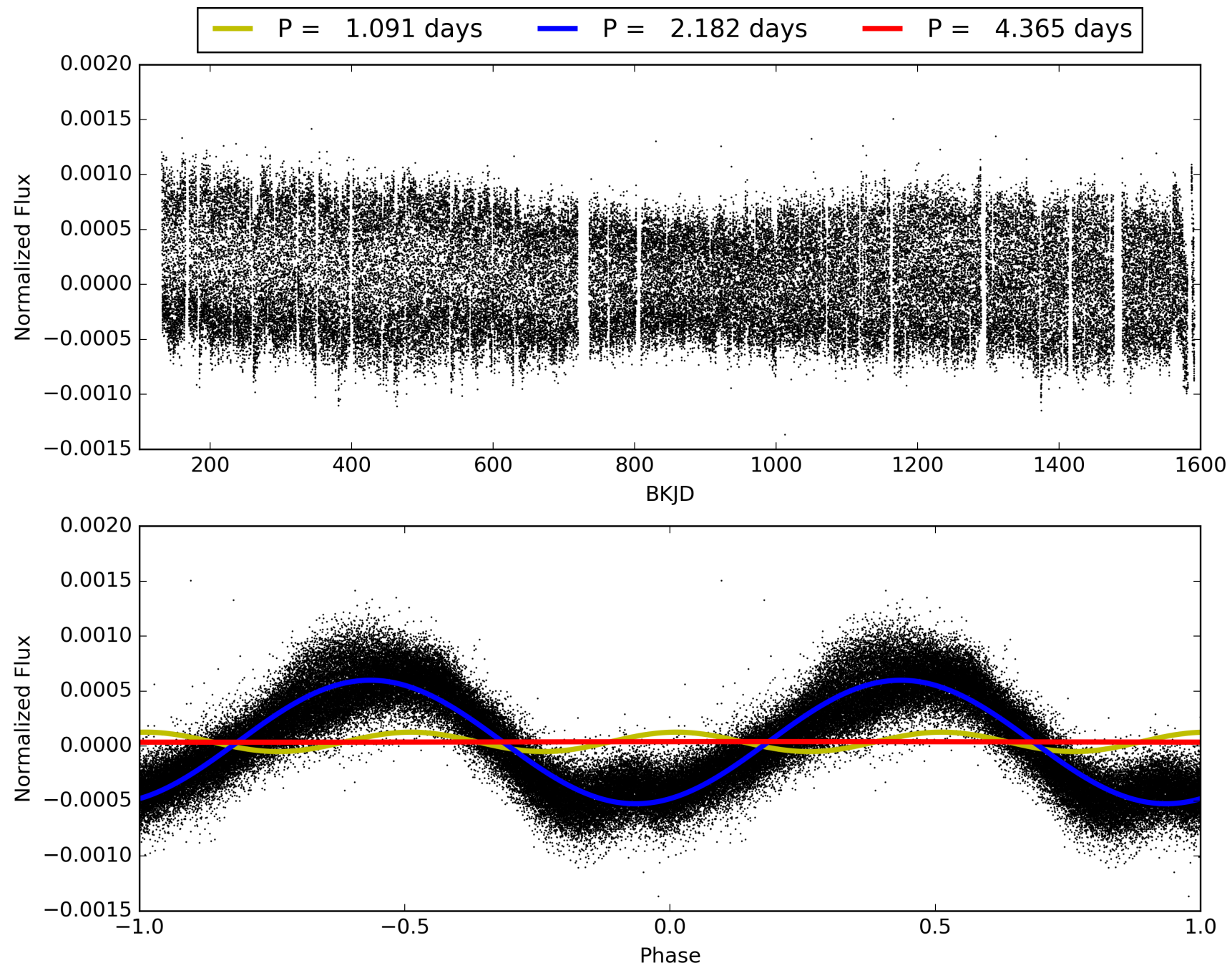
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 07:42:00 Z

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

# TCE 008265156-01, PDC Light Curves

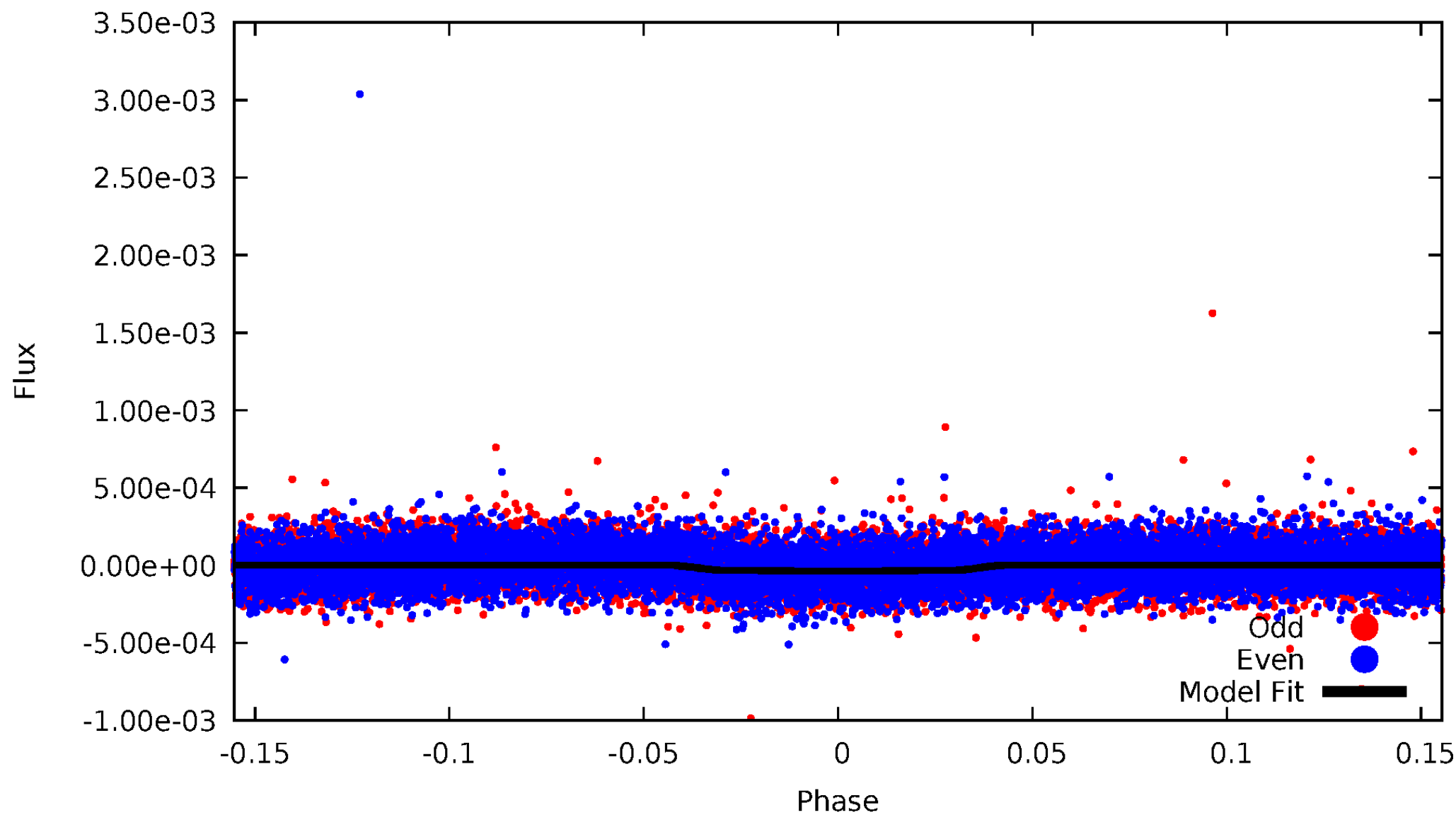


TCE 008265156-01



# DV Odd/Even

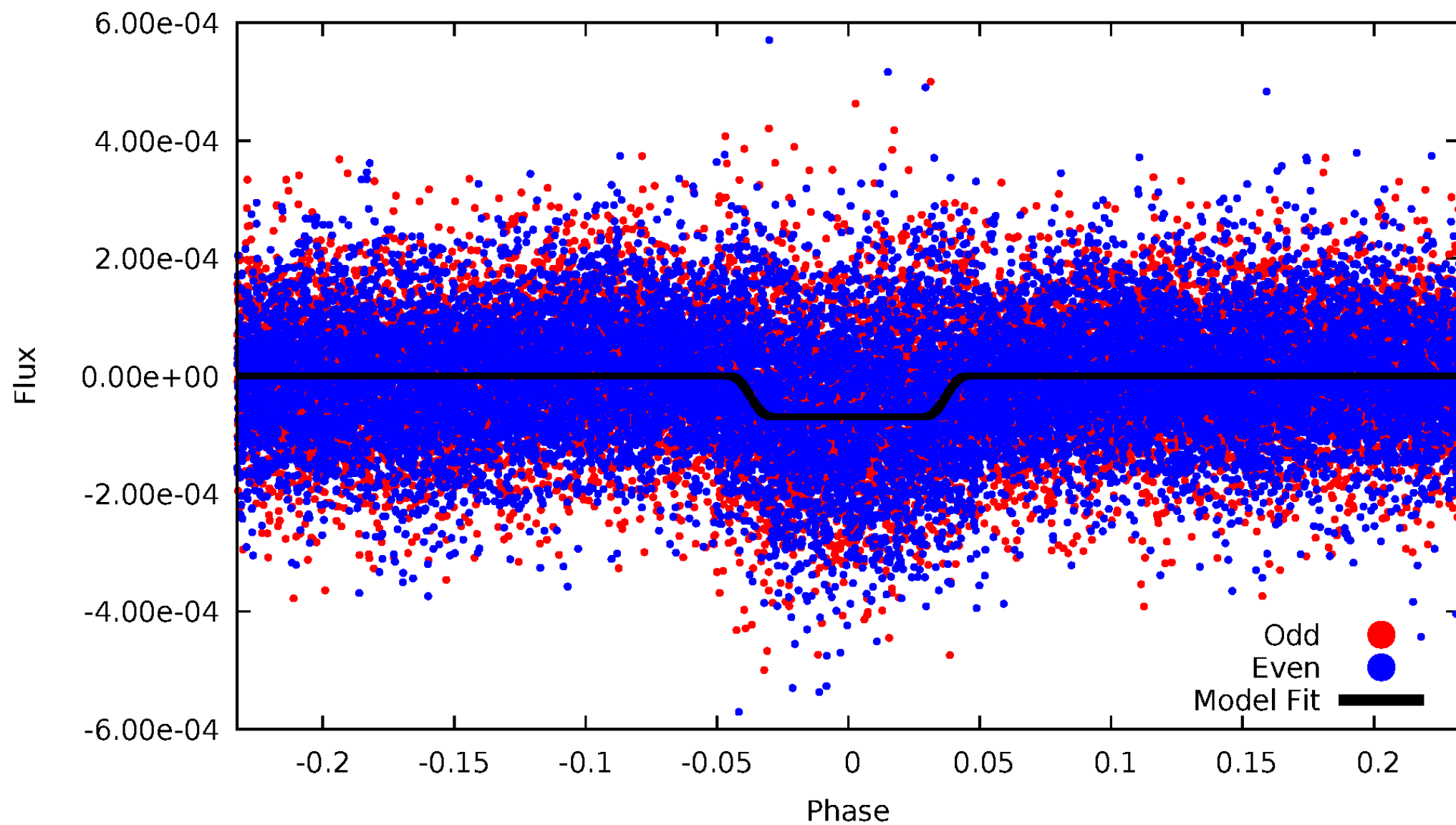
TCE 008265156-01



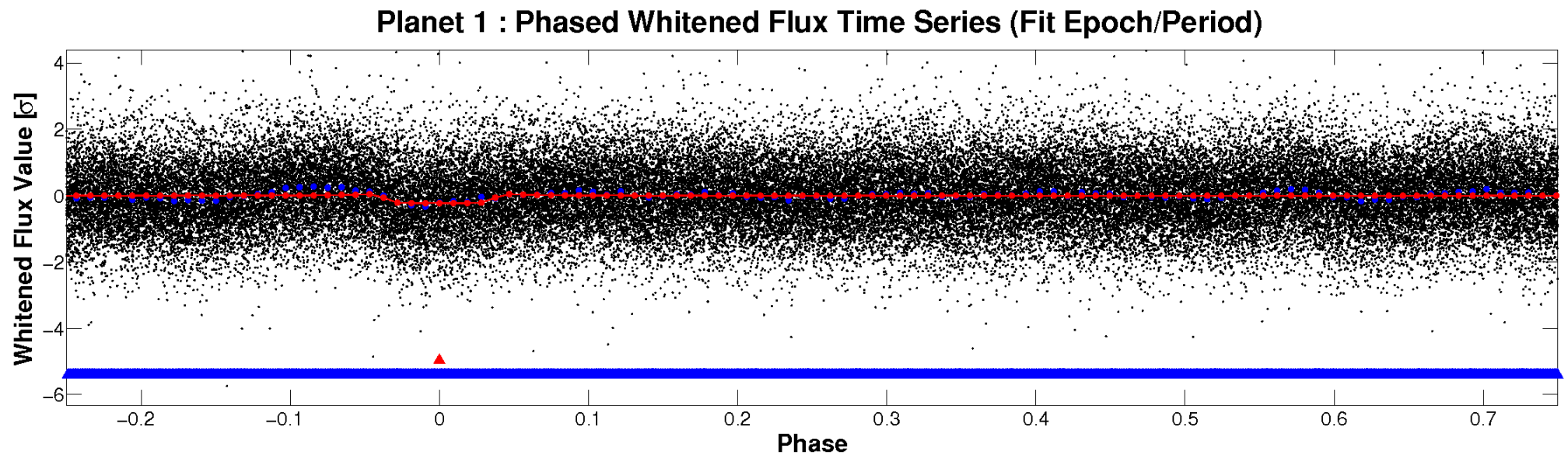
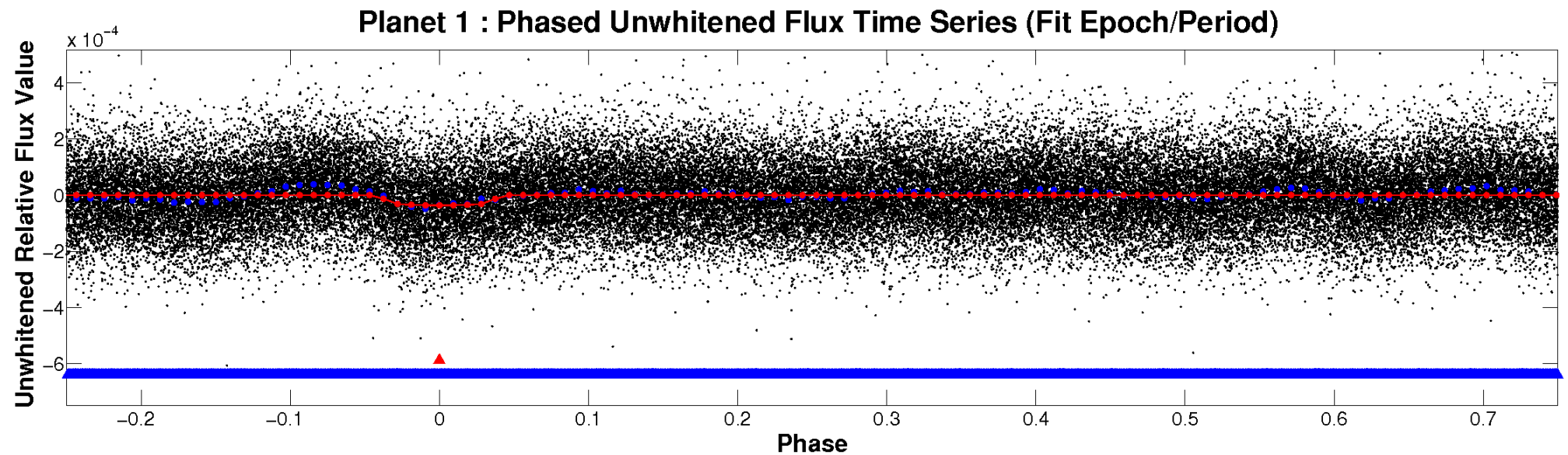


# ALT Odd/Even

TCE 008265156-01

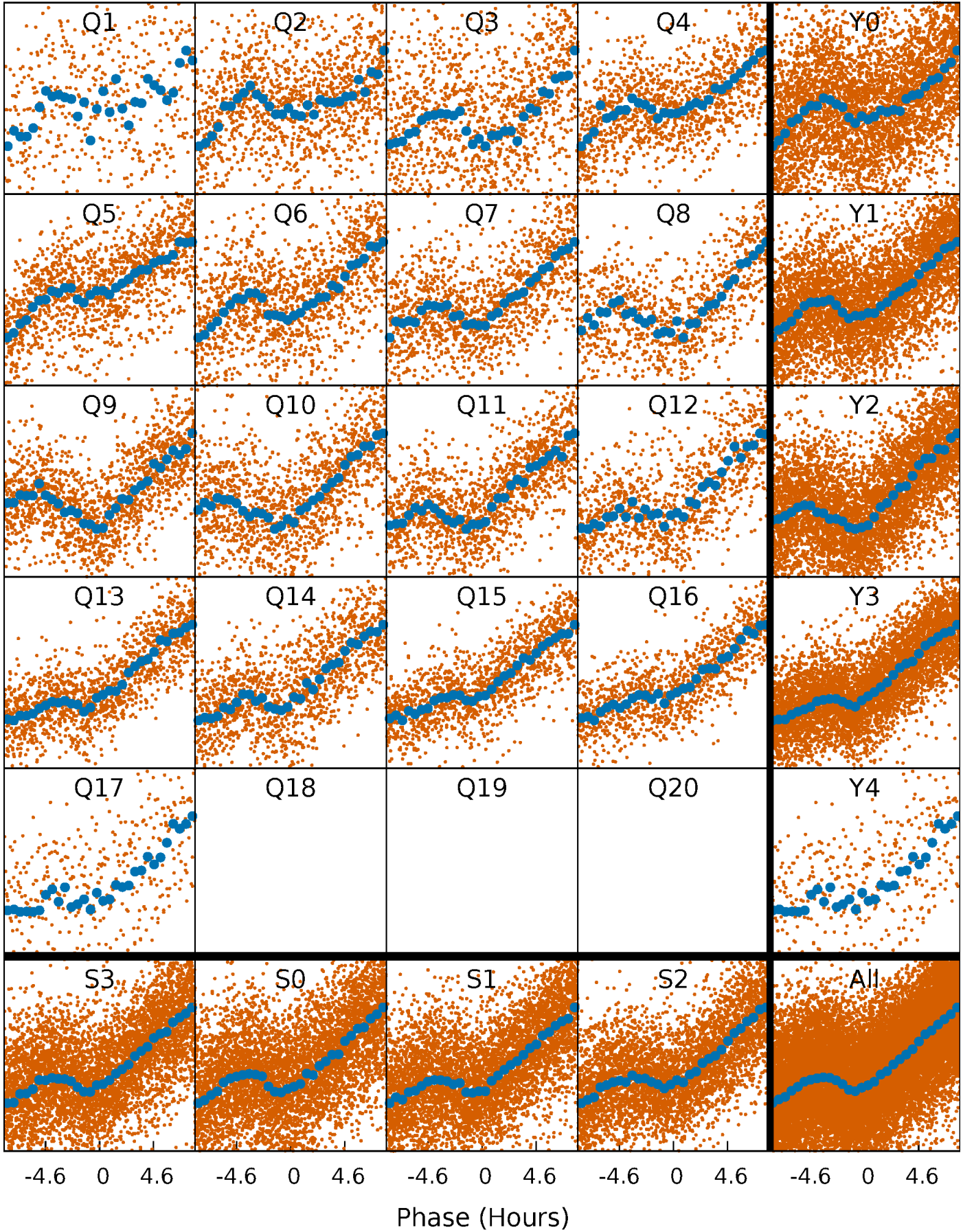


# Non-Whitened Vs. Whitened Light Curve



# PDC Quarter-Phased Transit Curves

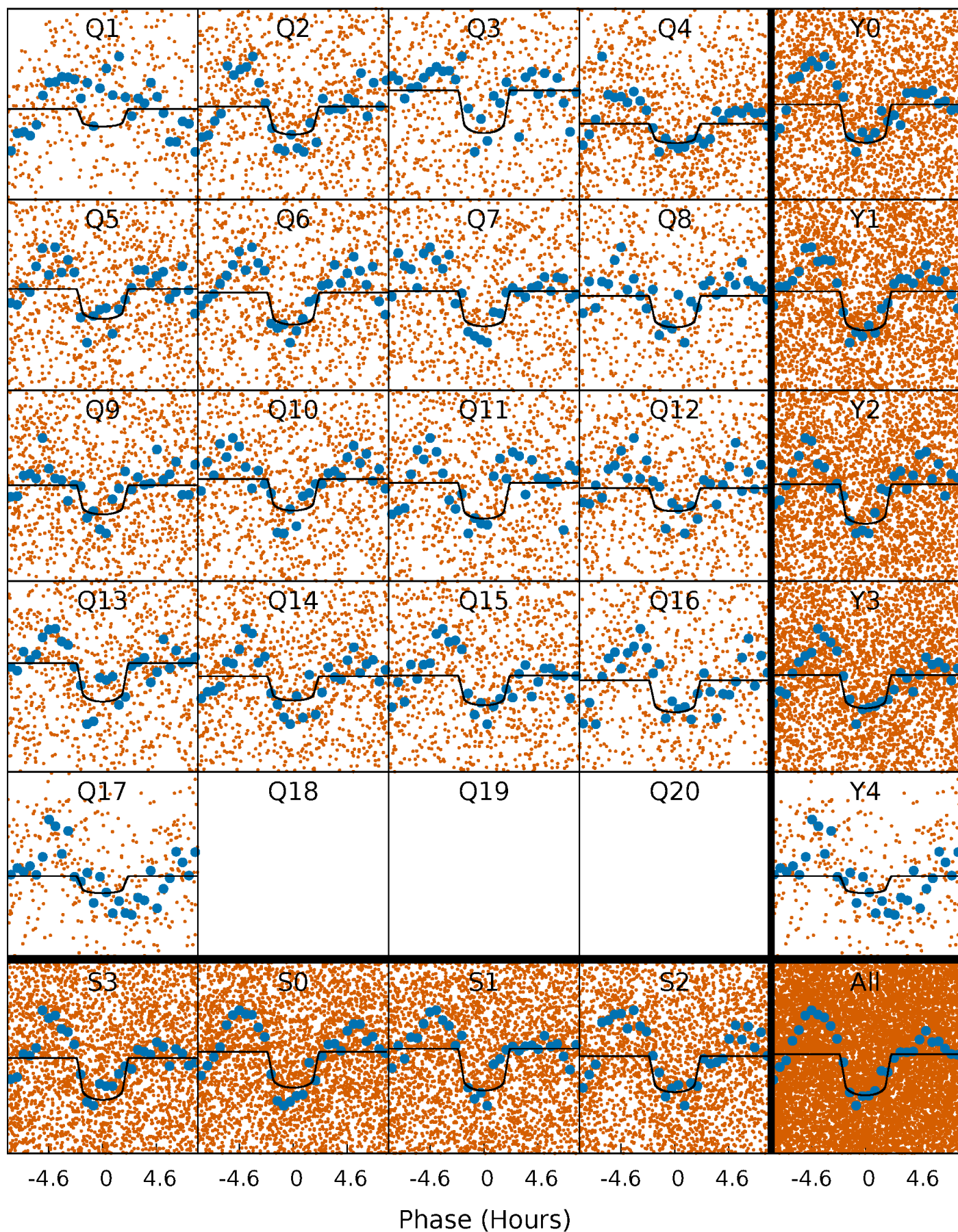
TCE 008265156-01   P= 2.182330 Days    $T_0=132.812830$  (BKJD)





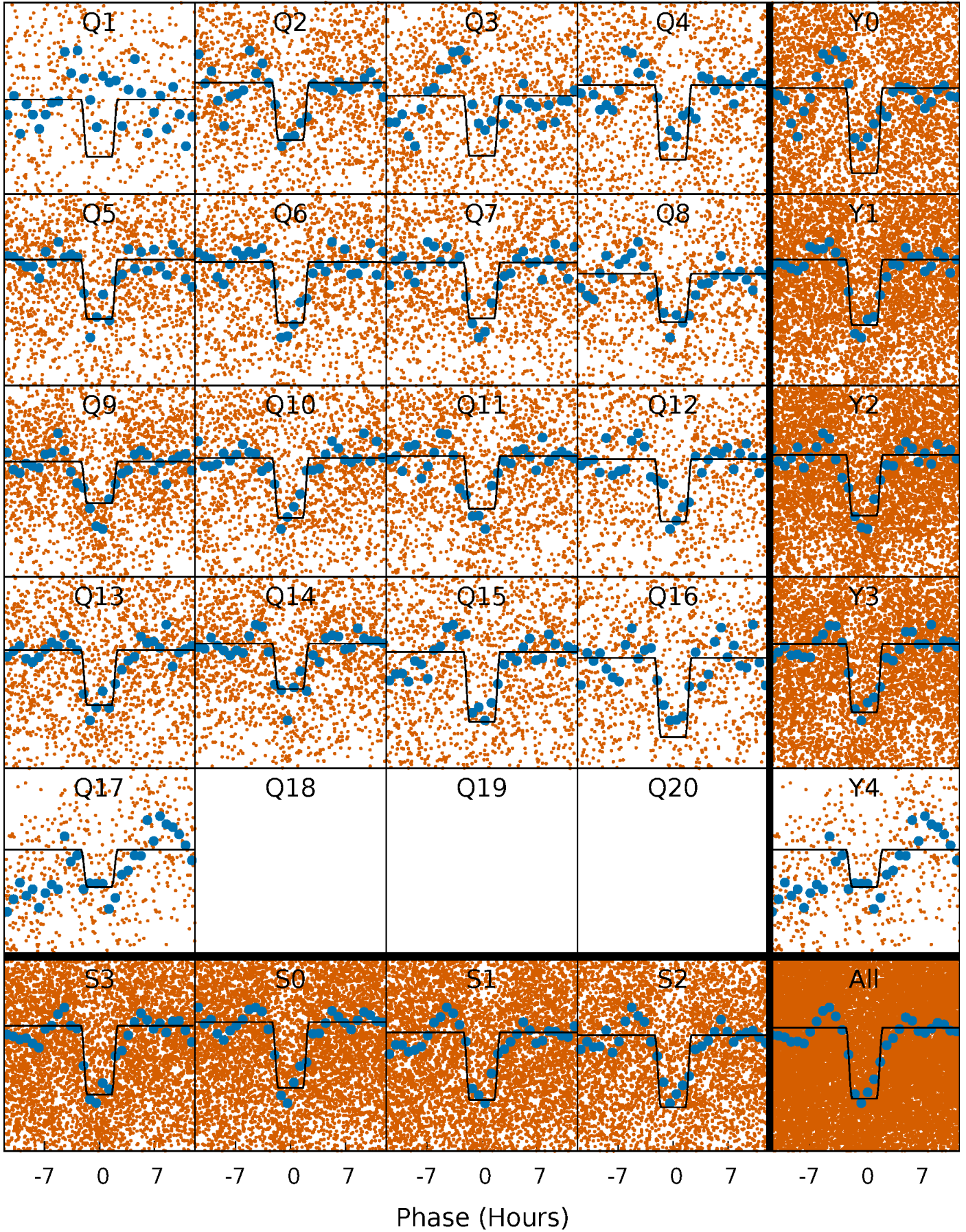
# DV Quarter-Phased Transit Curves

TCE 008265156-01 P= 2.182330 Days  $T_0=132.812830$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

TCE 008265156-01 P= 2.182351 Days  $T_0=132.801561$  (BKJD)

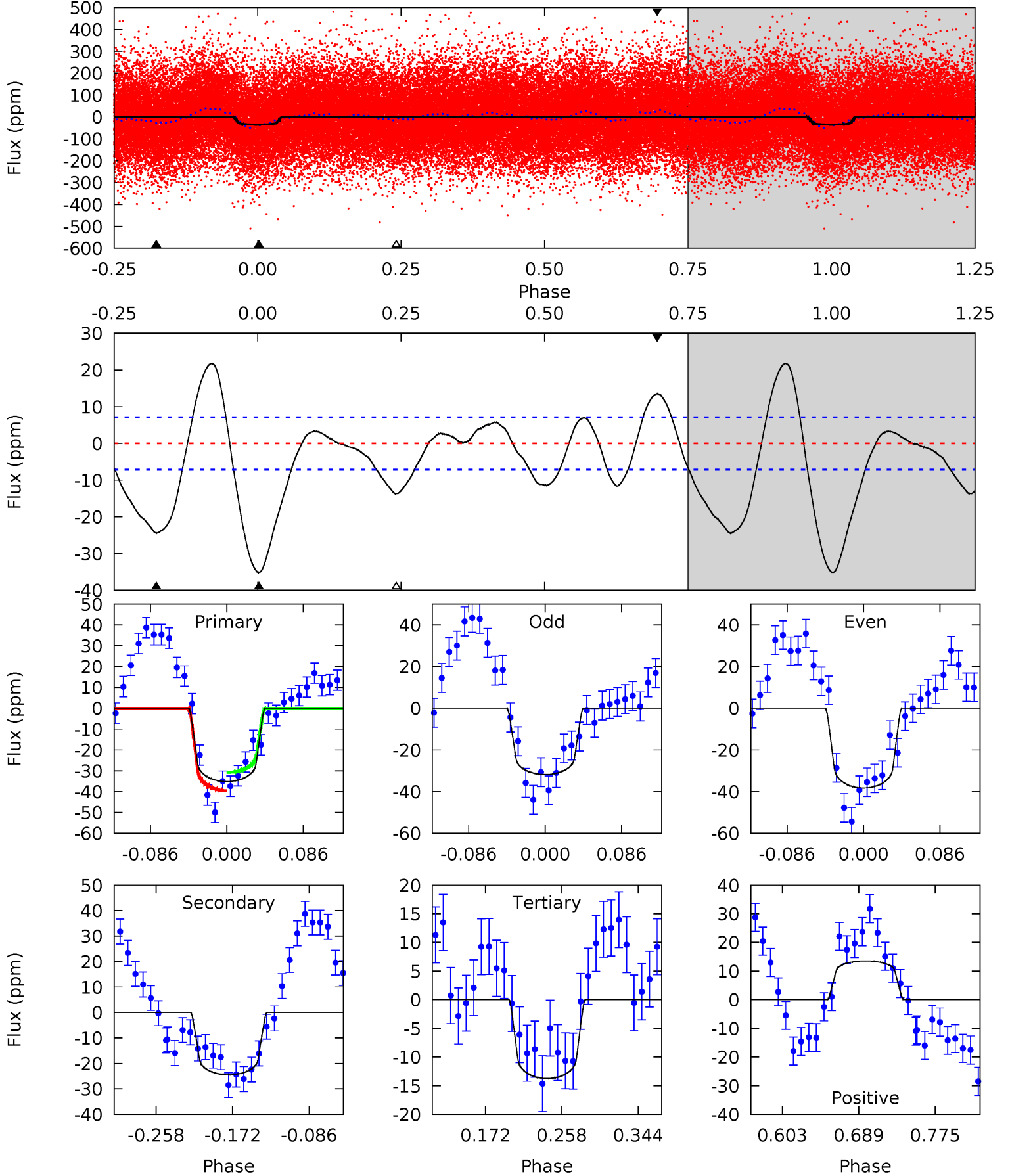




# DV Model-Shift Uniqueness Test

008265156-01, P = 2.182330 Days, E = 130.630500 Days

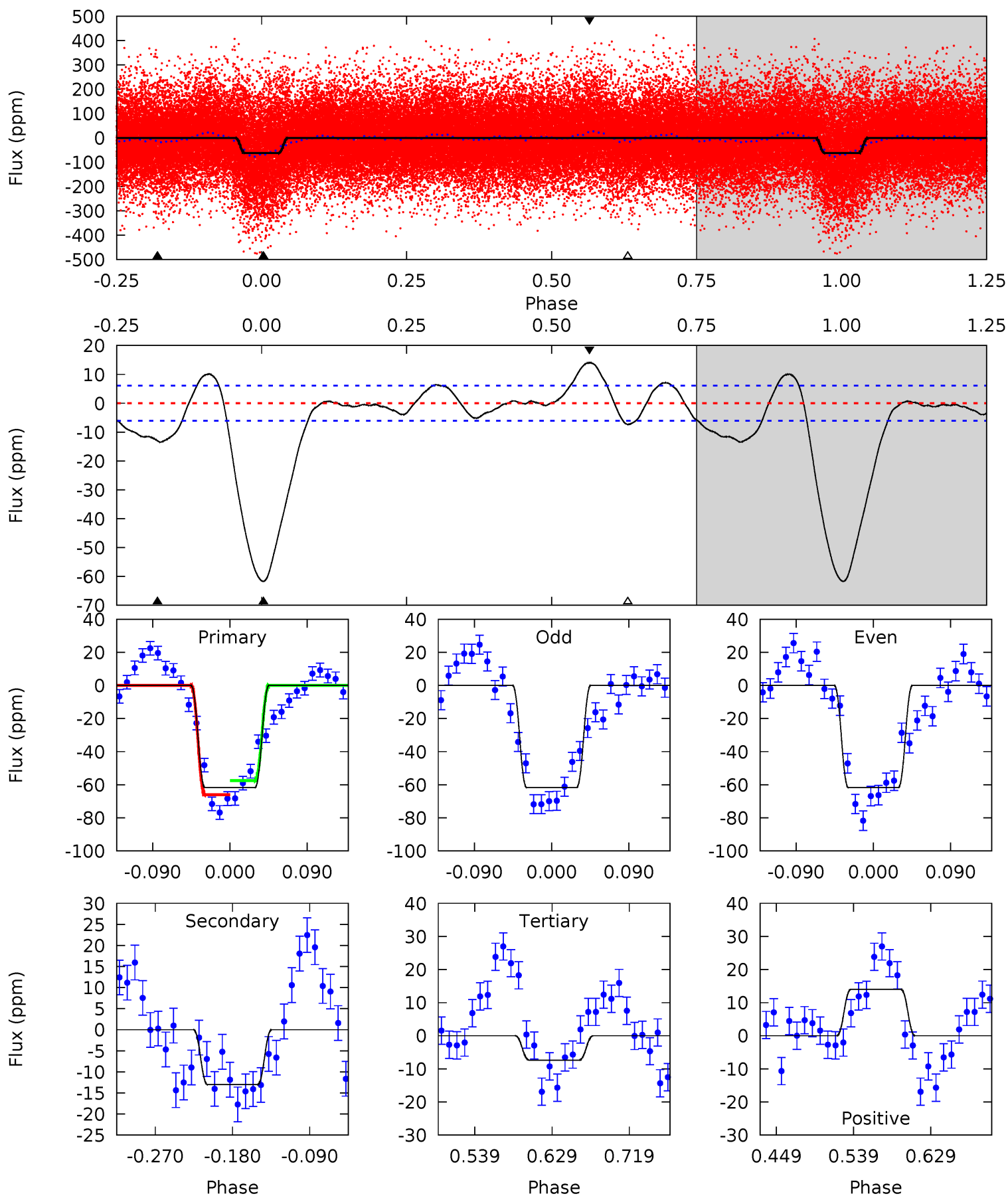
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
22.7	15.8	8.85	8.72	4.60	1.72	4.47	13.8	13.9	6.90	7.03	2.09	0.97	0.38	2.84



# Alt Model-Shift Uniqueness Test

008265156-01, P = 2.182351 Days, E = 130.619210 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
46.4	9.78	5.54	10.5	4.59	1.70	3.51	40.9	35.9	4.25	-0.75	0.02	0.97	0.19	3.24





### Stellar Parameters For KIC 008265156

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	$7193^{+200}_{-300}$	$4.156^{+0.128}_{-0.192}$	$-0.120^{+0.250}_{-0.350}$	$1.671^{+0.525}_{-0.350}$	$1.460^{+0.218}_{-0.239}$	$0.441^{+0.288}_{-0.222}$
	+3%/-4%	+3%/-5%	+208%/-292%	+31%/-21%	+15%/-16%	+65%/-50%
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 008265156-01 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	$A_{\text{obs}}$
DV	-24±2	$1.20^{+0.32}_{-0.27}$	$2987^{+232}_{-204}$	$6181^{+755}_{-611}$	$13^{+8}_{-5}$
Alt.	-13±1	$1.55^{+0.32}_{-0.30}$	$2988^{+214}_{-190}$	$4730^{+389}_{-339}$	$4.163^{+2.031}_{-1.277}$

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

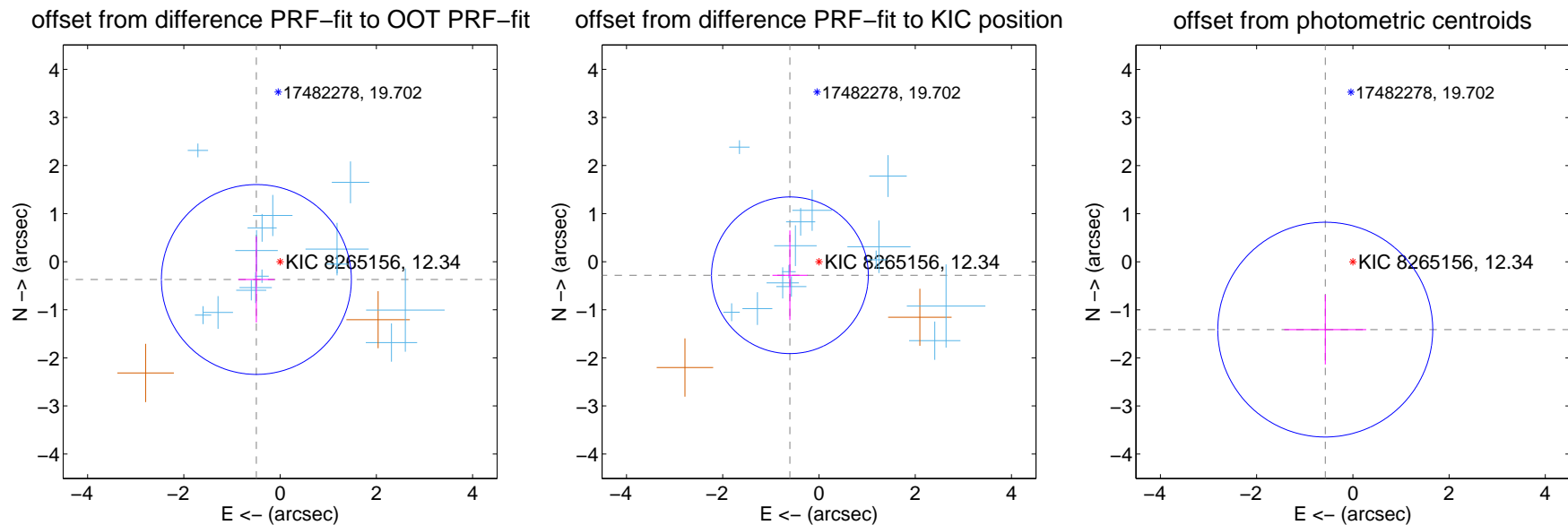
## DV Centroid Data

Supplemental centroid analysis for 008265156-01. Kepler magnitude: 12.34. Transit SNR 14.43

There are 14 quarters with good PRF difference image offsets

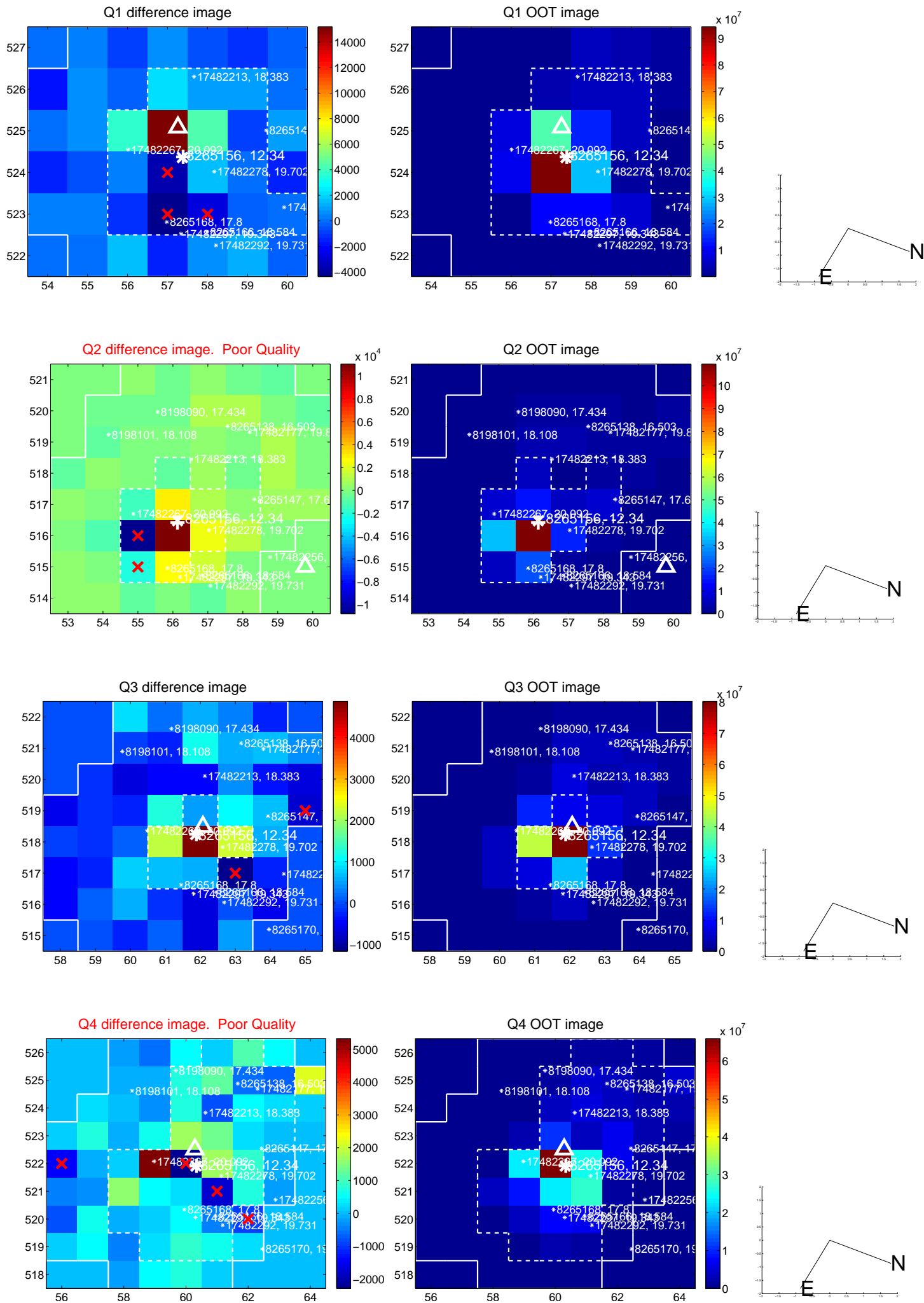
The direct PRF centroid is offset from the target star catalog position by about 0.09 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$0.616 \pm 0.658$	0.94	$0.493 \pm 0.377$	$-0.370 \pm 0.894$
PRF-fit source offset from KIC position	$0.667 \pm 0.543$	1.23	$0.604 \pm 0.364$	$-0.282 \pm 0.931$
photometric centroid source offset	$1.52 \pm 0.74$	2.05	$0.57 \pm 0.85$	$-1.41 \pm 0.73$

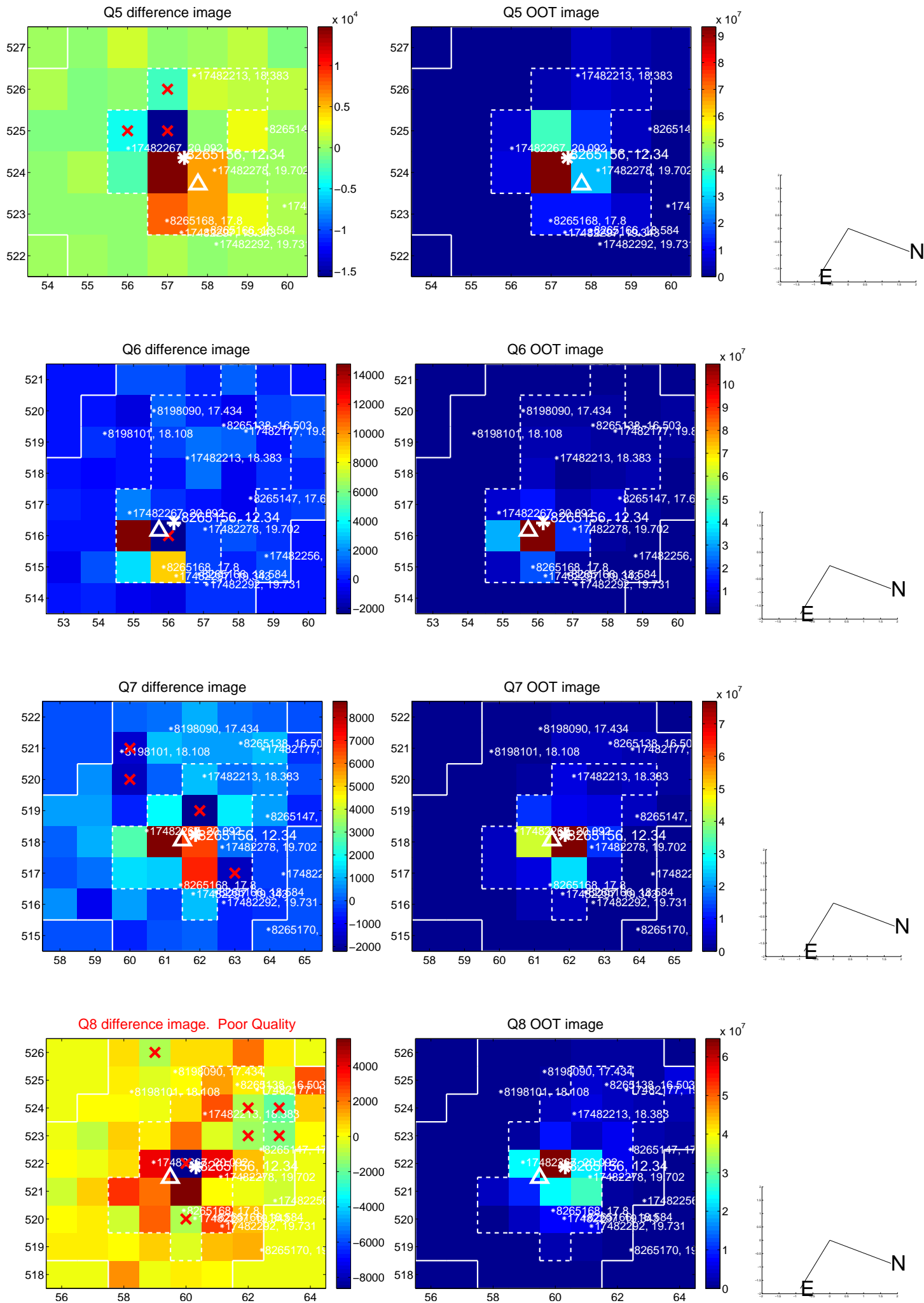


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses:** good quarterly centroid offsets; **Vermillion crosses:** bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: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

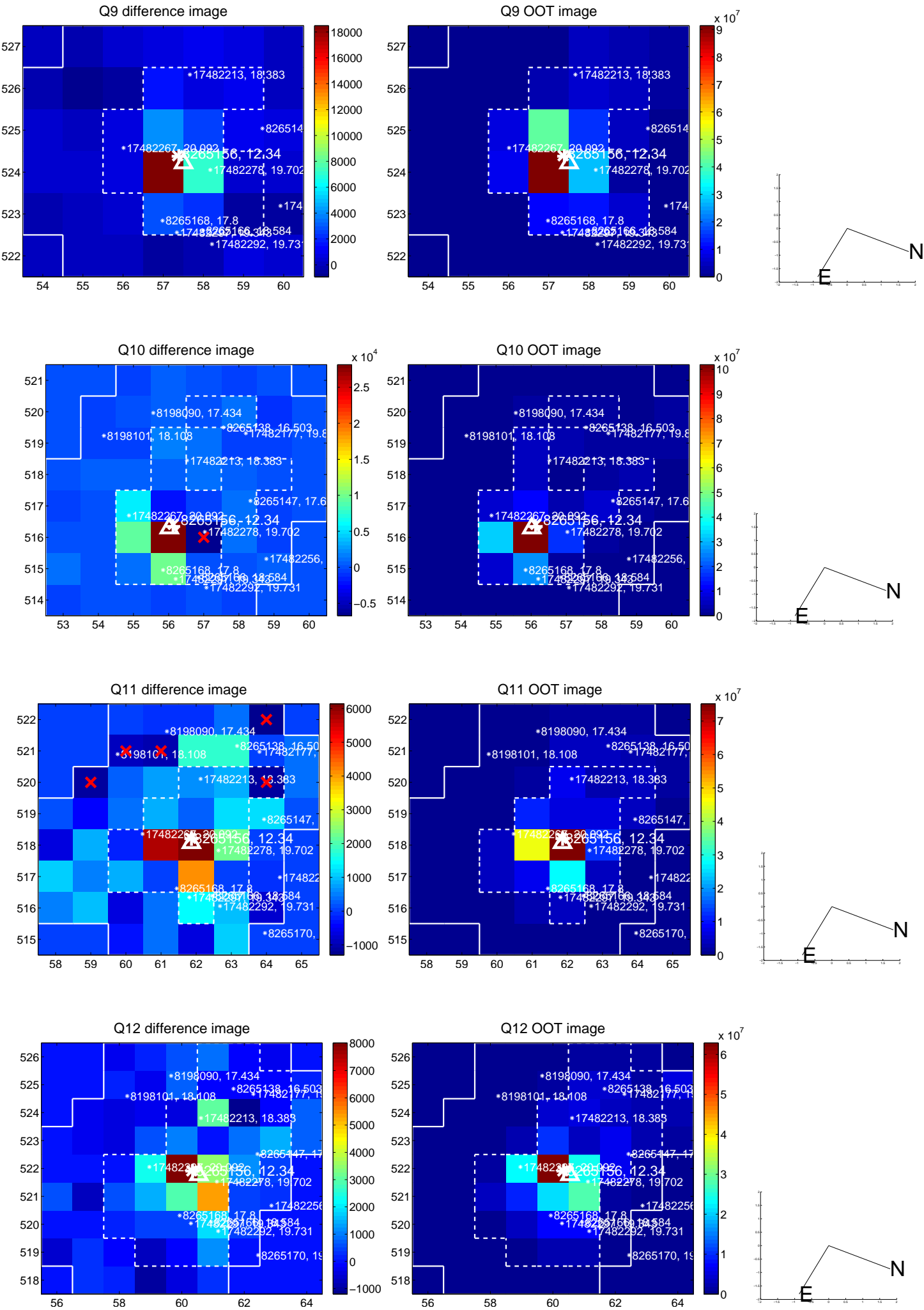


white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.

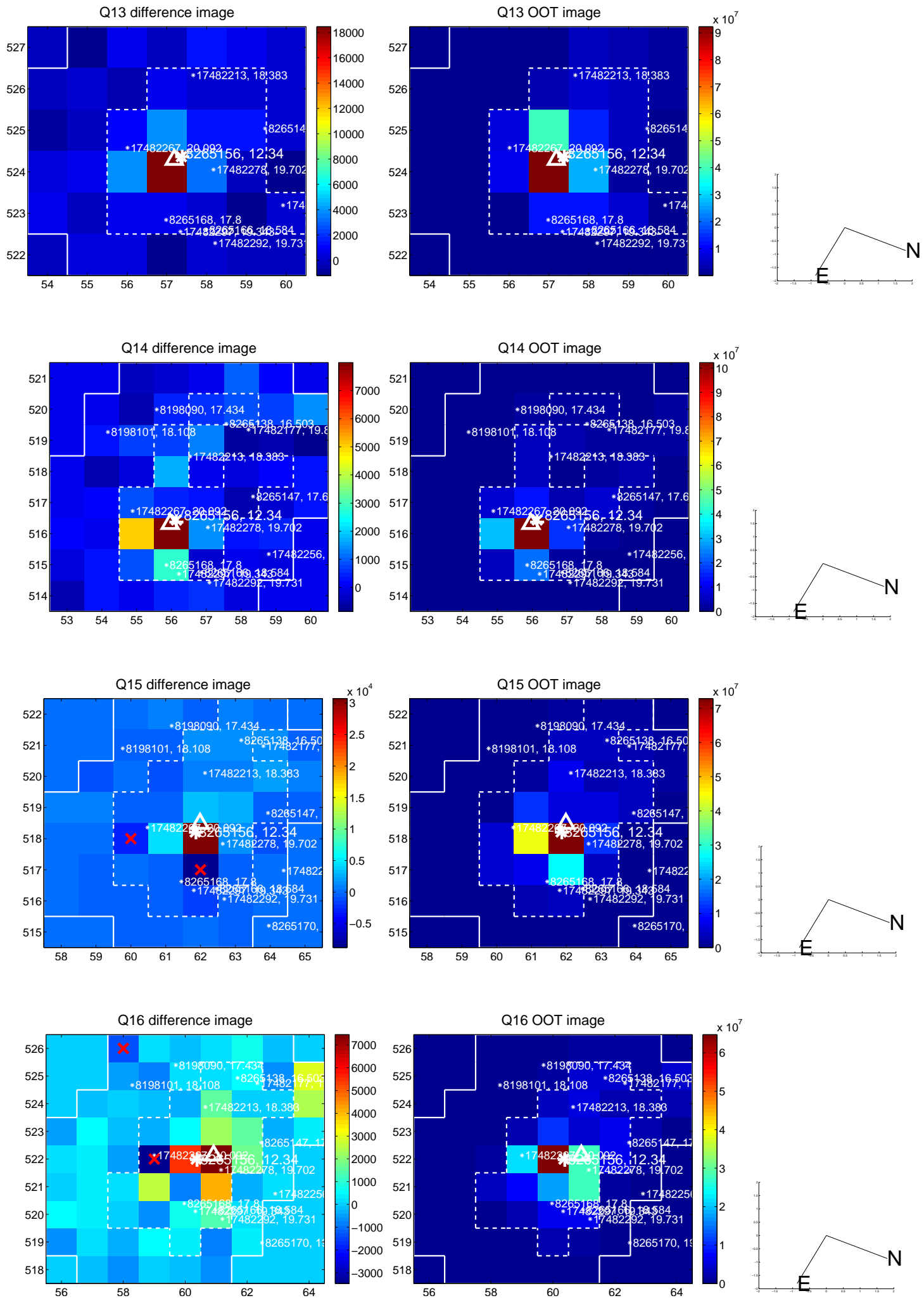




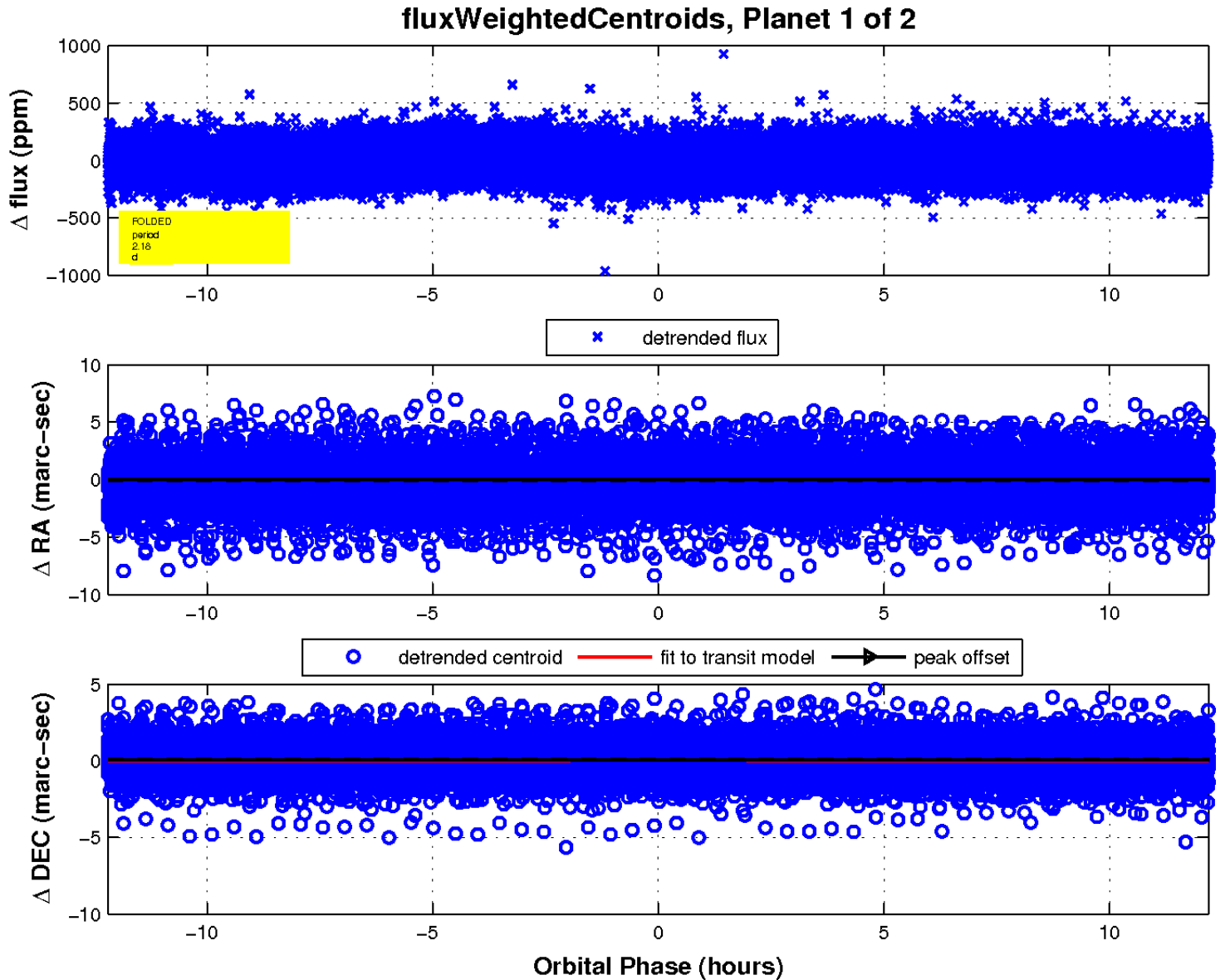
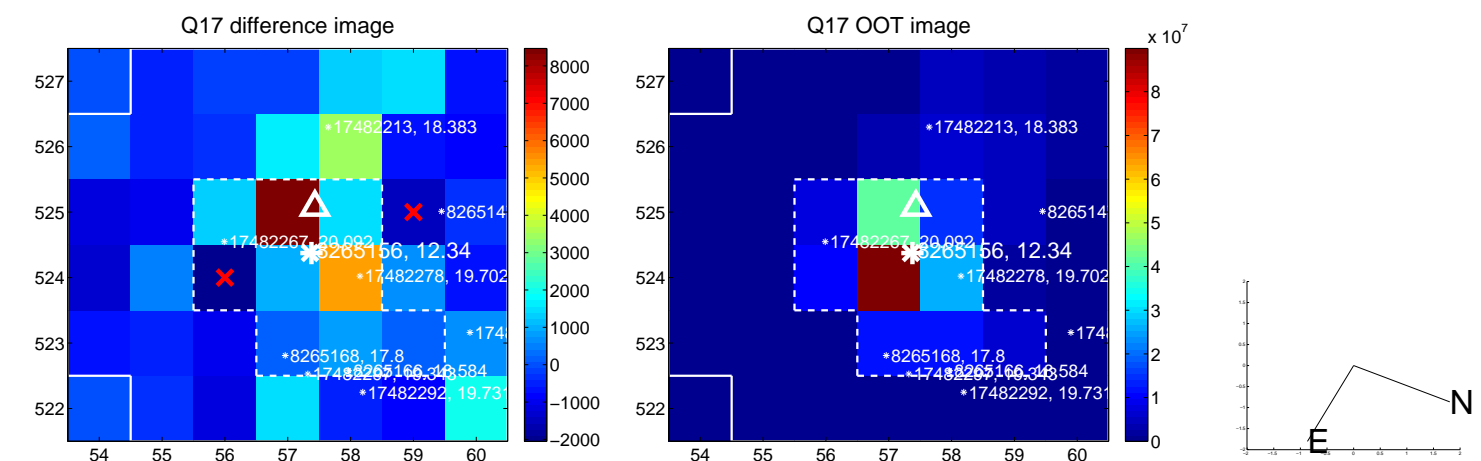
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



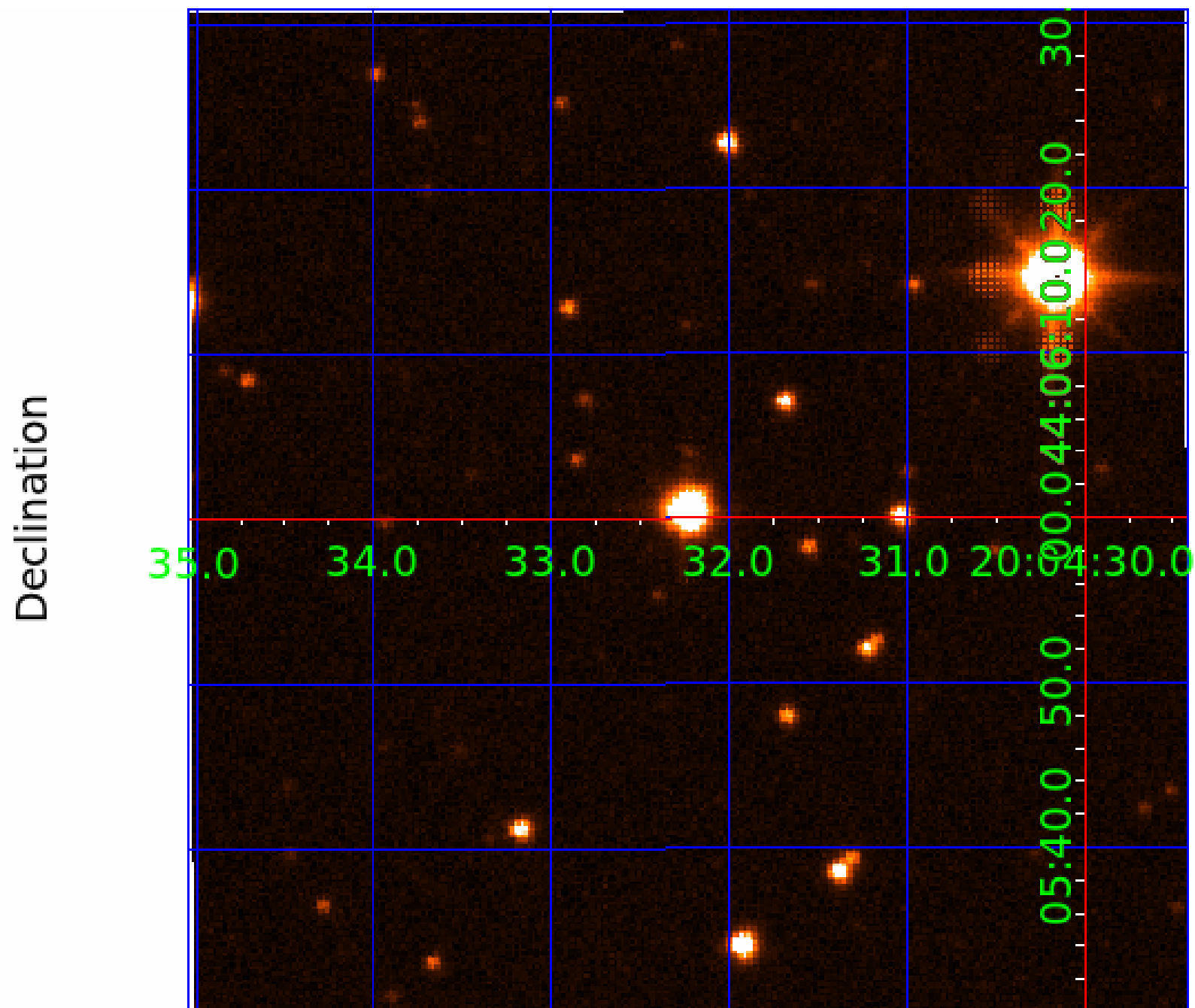
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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



UKIRT Image





# KIC 008265156

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
008265156-01	OBS	No	2.182330	132.812830	36.4	4.066	13.6	14.4	1.67	7193	1.18	4800.56
008265156-02	OBS	6177.01	0.978346	132.135934	31.4	1.602	10.4	12.5	1.67	7193	1.09	13991.44

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
008265156-01	OBS	FP	0.00	1	0	0	0	SWEET_NTL—LPP_DV
008265156-02	OBS	FP	0.00	0	0	1	0	CENT_RESOLVED_OFFSET

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

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

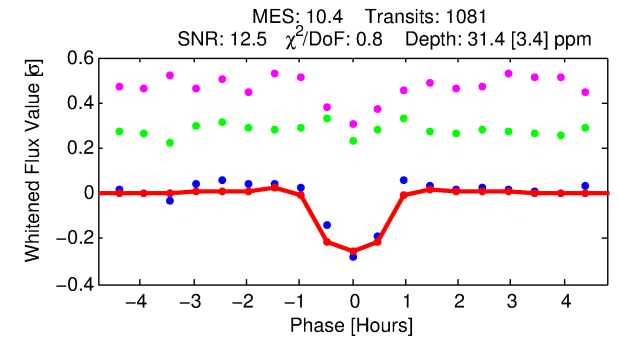
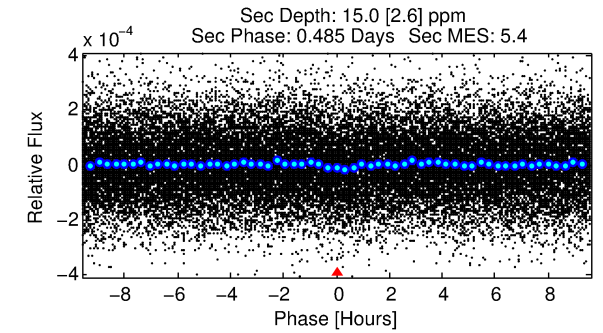
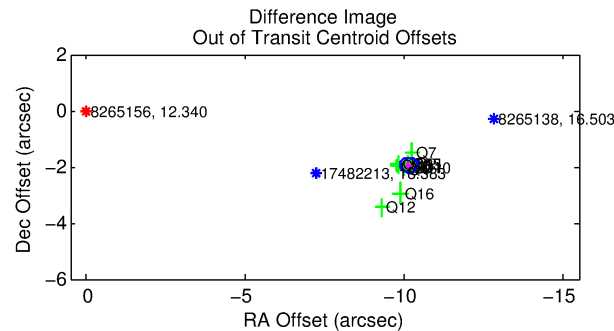
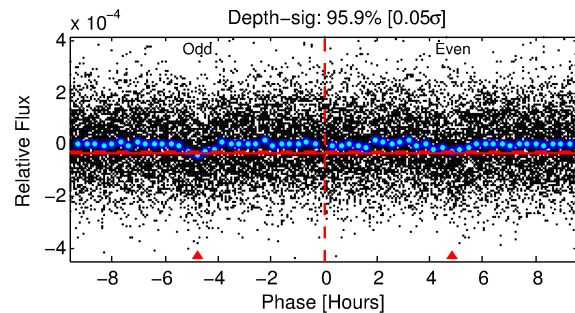
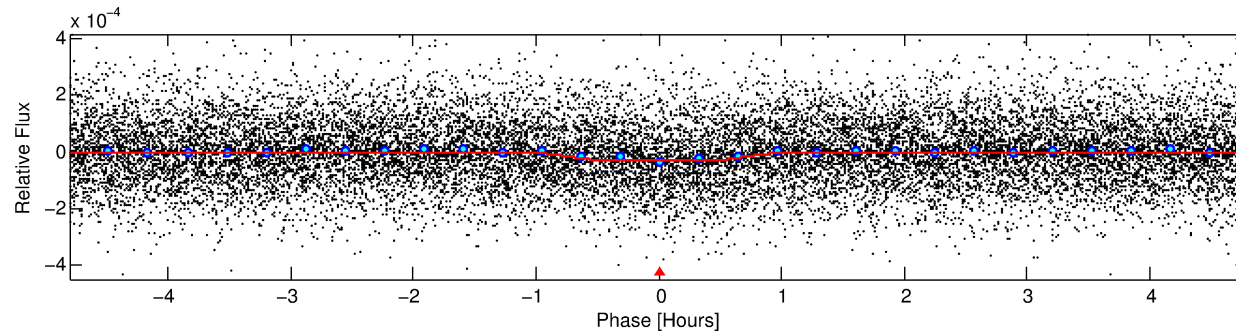
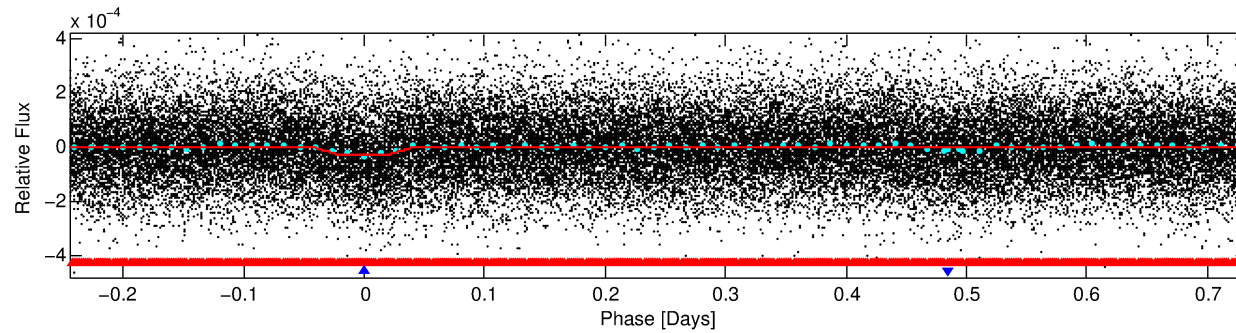
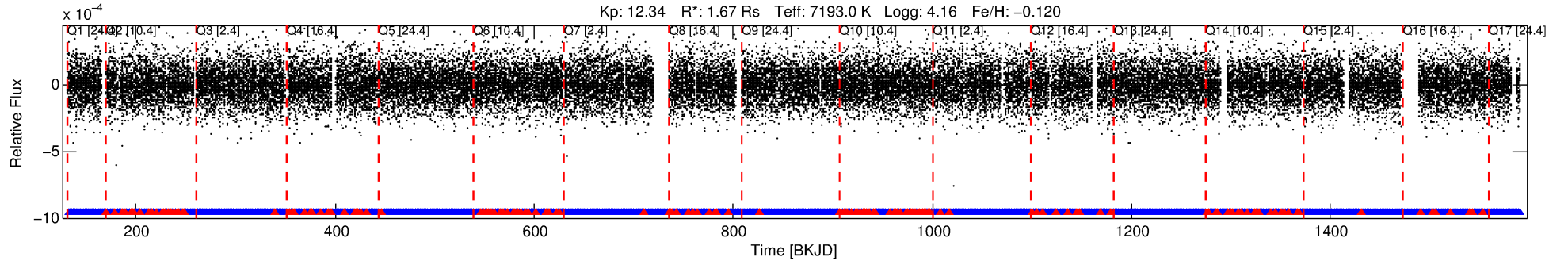
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

## Ephemeris Match Information For 008265156-02

No Significant Match Found

# DV One-Page Summary

KIC: 8265156 Candidate: 2 of 2 Period: 0.978 d  
KOI: K06177.01 Corr: 0.863



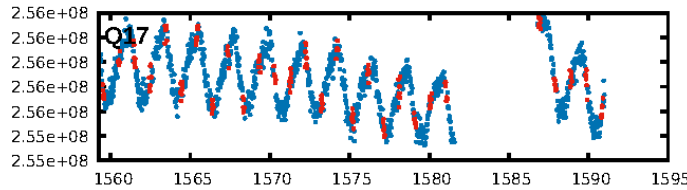
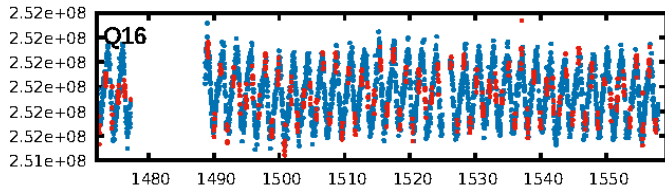
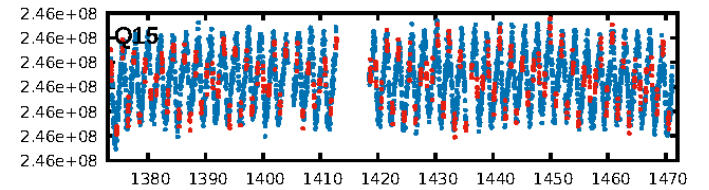
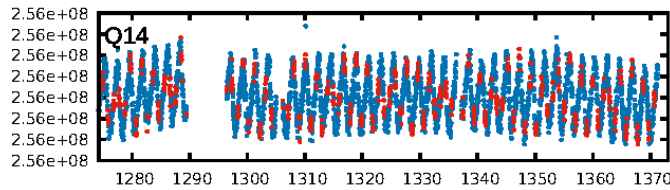
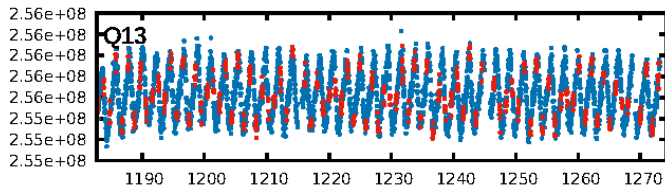
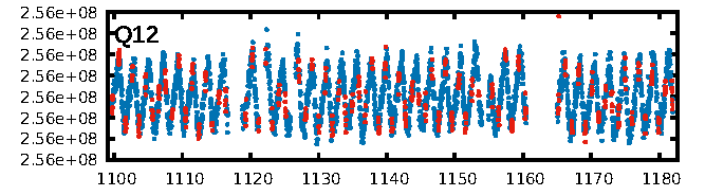
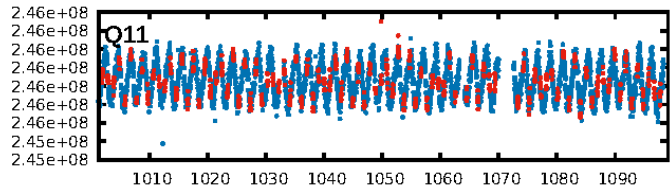
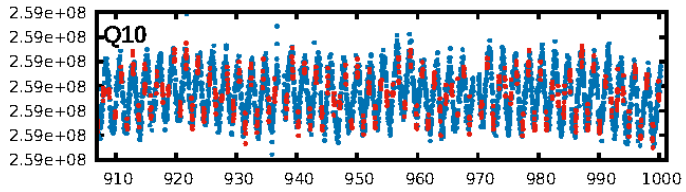
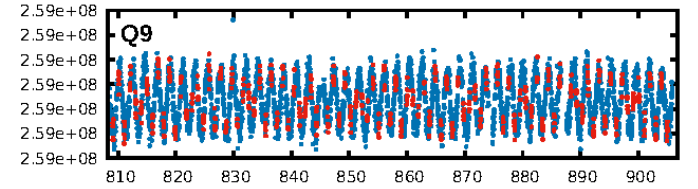
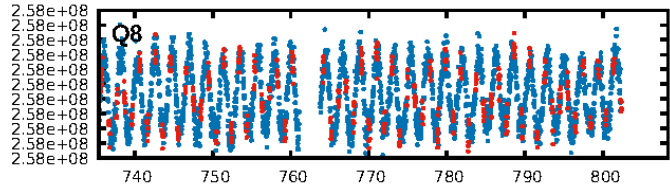
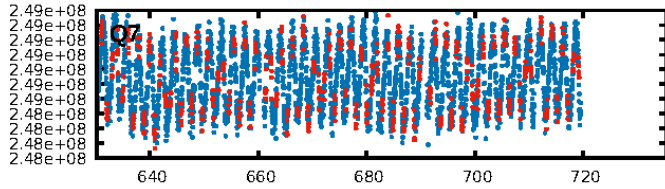
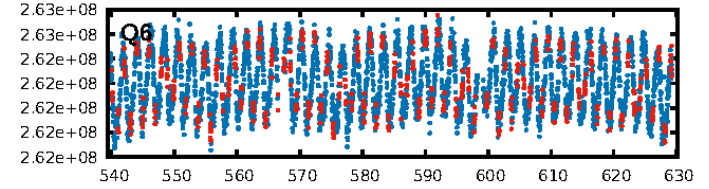
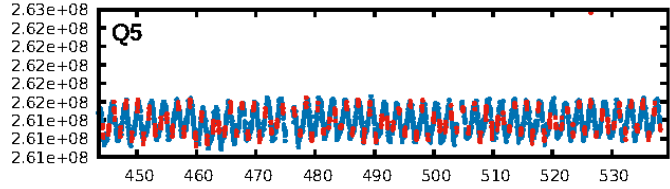
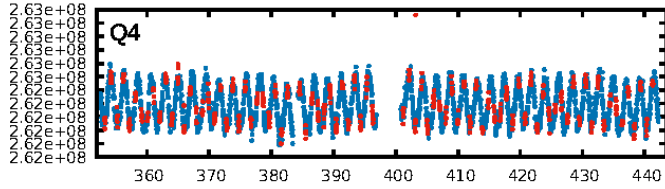
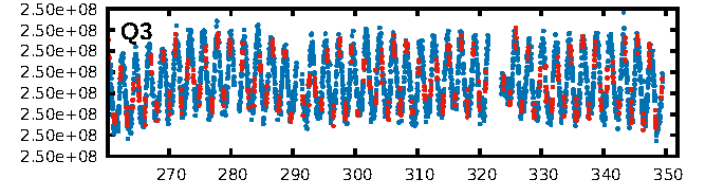
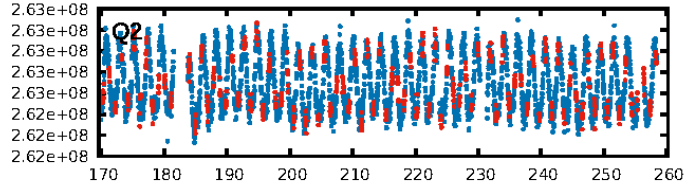
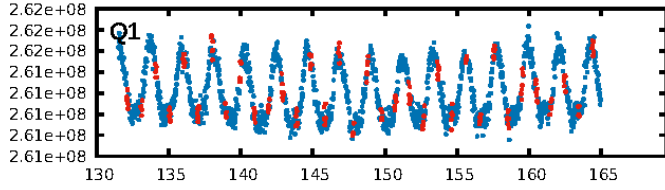
## DV Fit Results:

Period = 0.97835 [0.00001] d  
Epoch = 132.1359 [0.0017] BKJD  
Rp/R\* = 0.0060 [0.0014]  
a/R\* = 2.29 [2.72]  
b = 0.90 [0.31]  
Seff = 13991.44 [5571.51]  
Teq = 2773 [276] K  
Rp = 1.09 [0.43] Re  
a = 0.0219 [0.0056] AU  
Ag = 3.34 [2.07] [1.13 $\sigma$ ]  
Teff = 5796 [767] K [3.71 $\sigma$ ]

## DV Diagnostic Results:

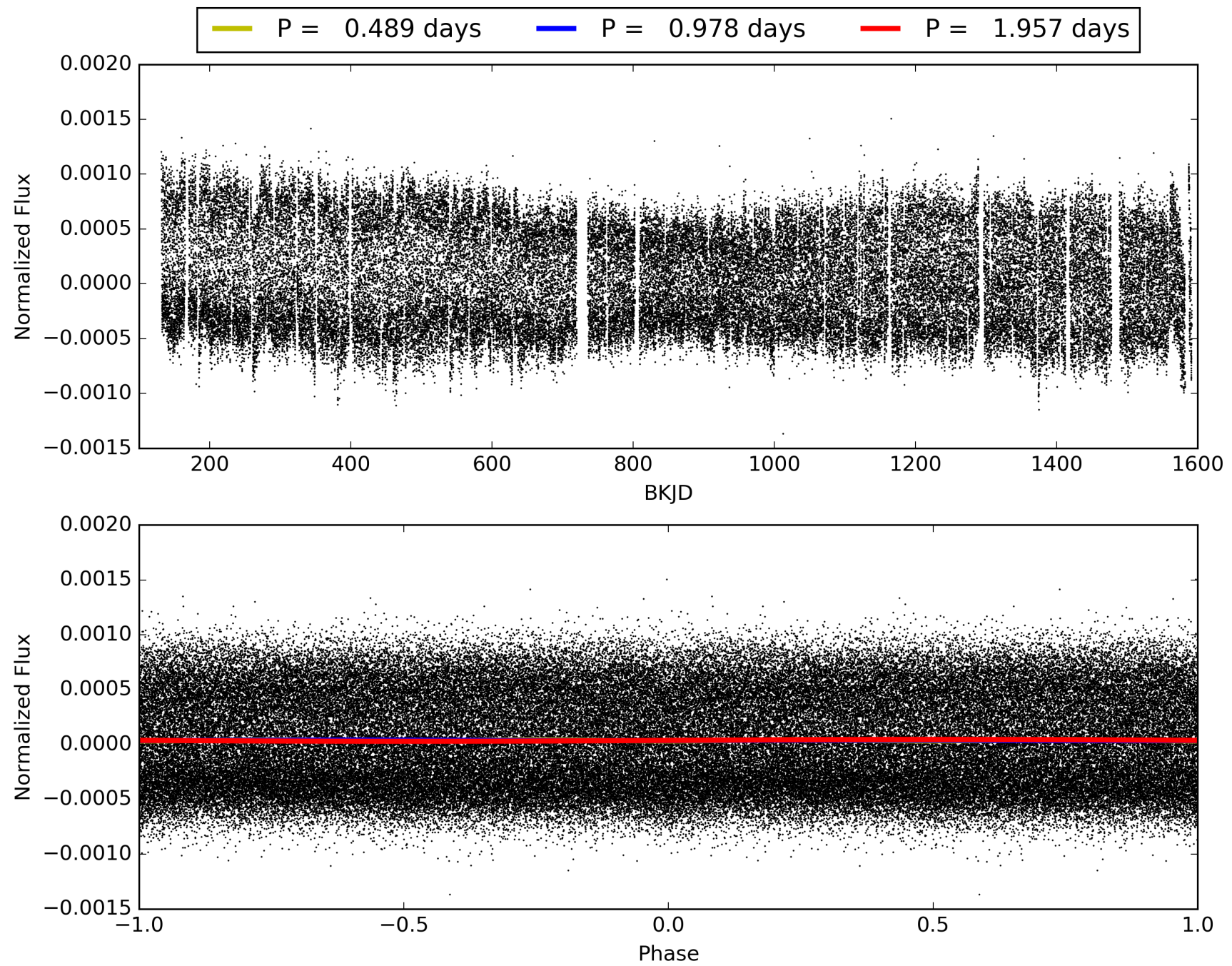
ShortPeriod-sig: N/A  
LongPeriod-sig: 100.0% [6.61 $\sigma$ ]  
ModelChiSquare2-sig: N/A  
ModelChiSquareGof-sig: N/A  
Bootstrap-pfa: 2.73e-23  
RollingBand-fgt: 0.85 [878/1030]  
GhostDiagnostic-chr: 0.313  
Centroid-sig: 0.0%  
Centroid-so: 12.601 arcsec [13.21 $\sigma$ ]  
OotOffset-rm: 10.317 arcsec [112.47 $\sigma$ ]  
KicOffset-rm: 10.252 arcsec [120.33 $\sigma$ ]  
OotOffset-st: 2/4/4/3 [13]  
KicOffset-st: 2/4/4/3 [13]  
DiffImageQuality-fgm: 0.77 [10/13]  
DiffImageOverlap-fno: 1.00 [17/17]

## TCE 008265156-02, PDC Light Curves





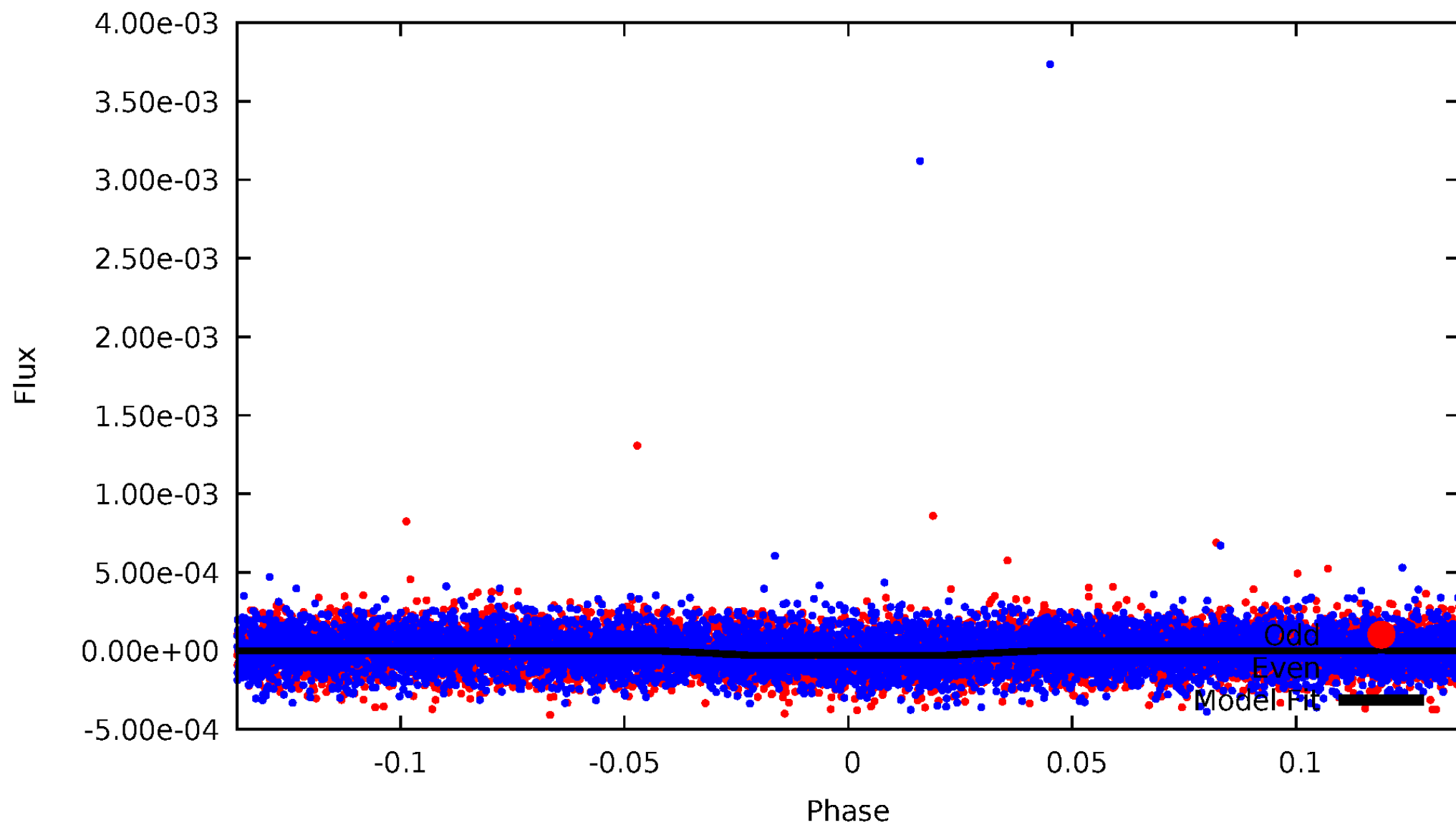
TCE 008265156-02





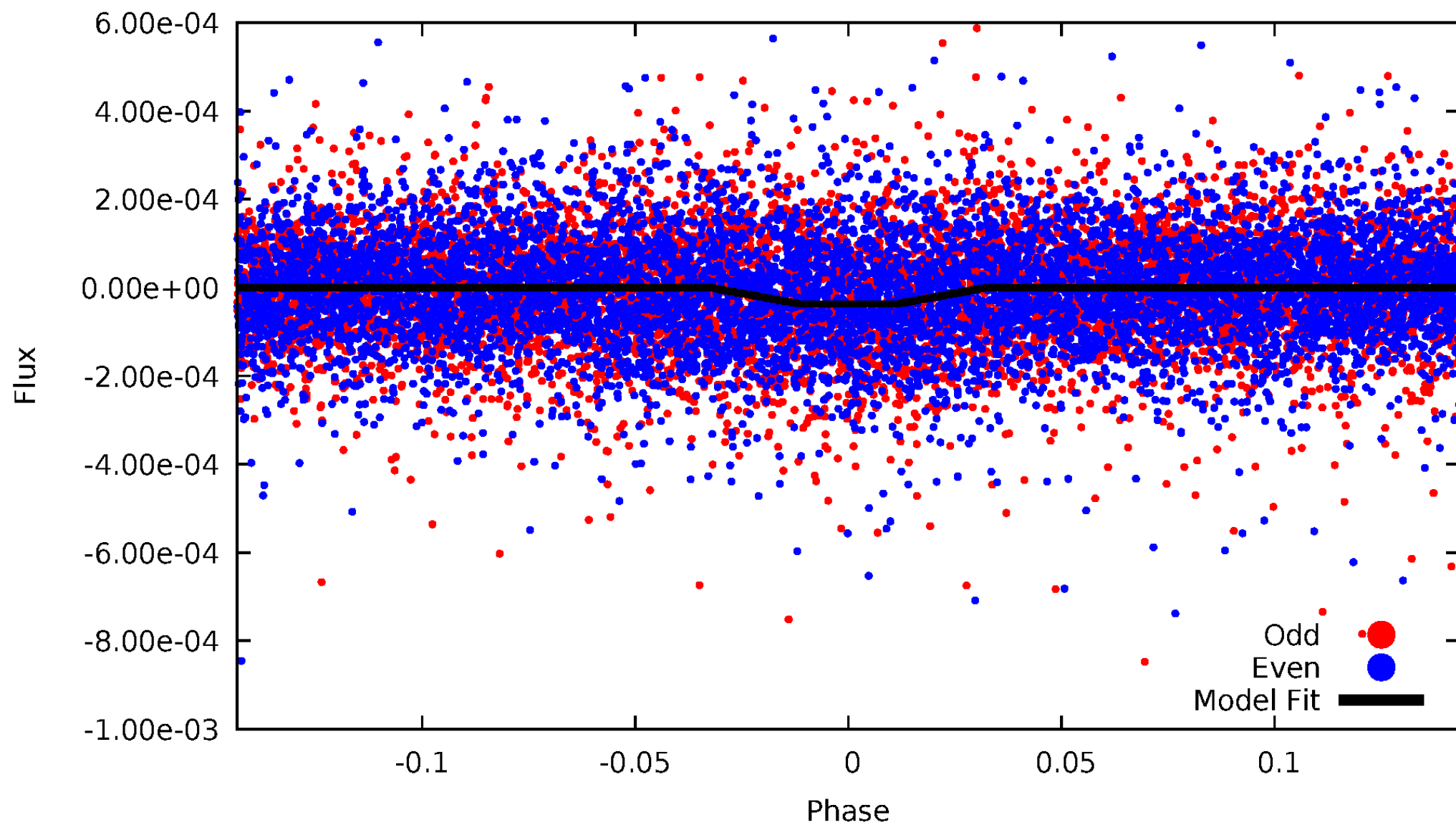
# DV Odd/Even

TCE 008265156-02



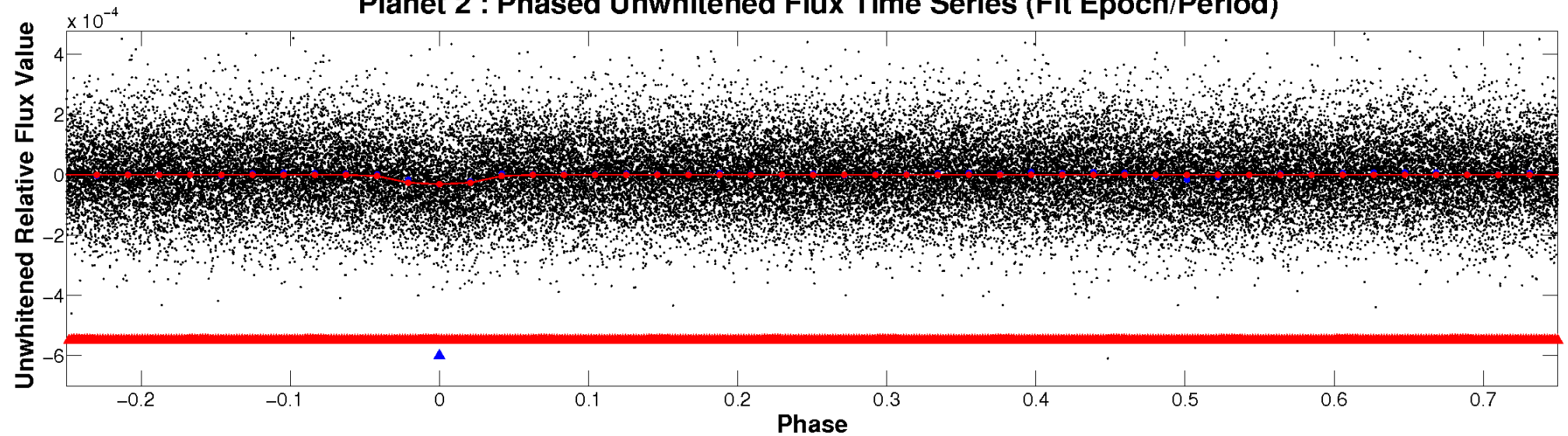
# ALT Odd/Even

TCE 008265156-02

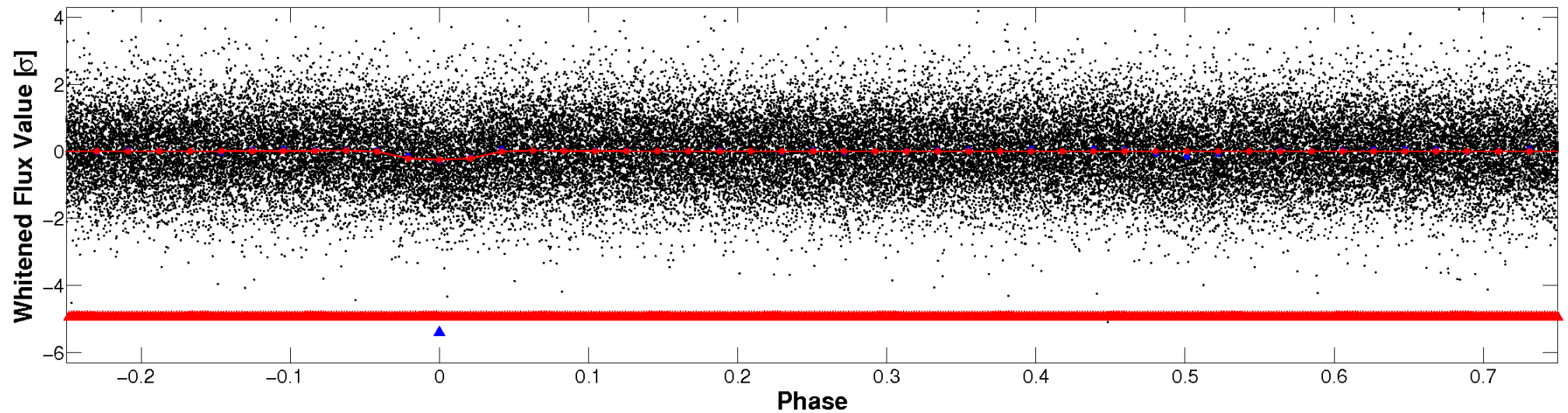


# Non-Whitened Vs. Whitened Light Curve

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

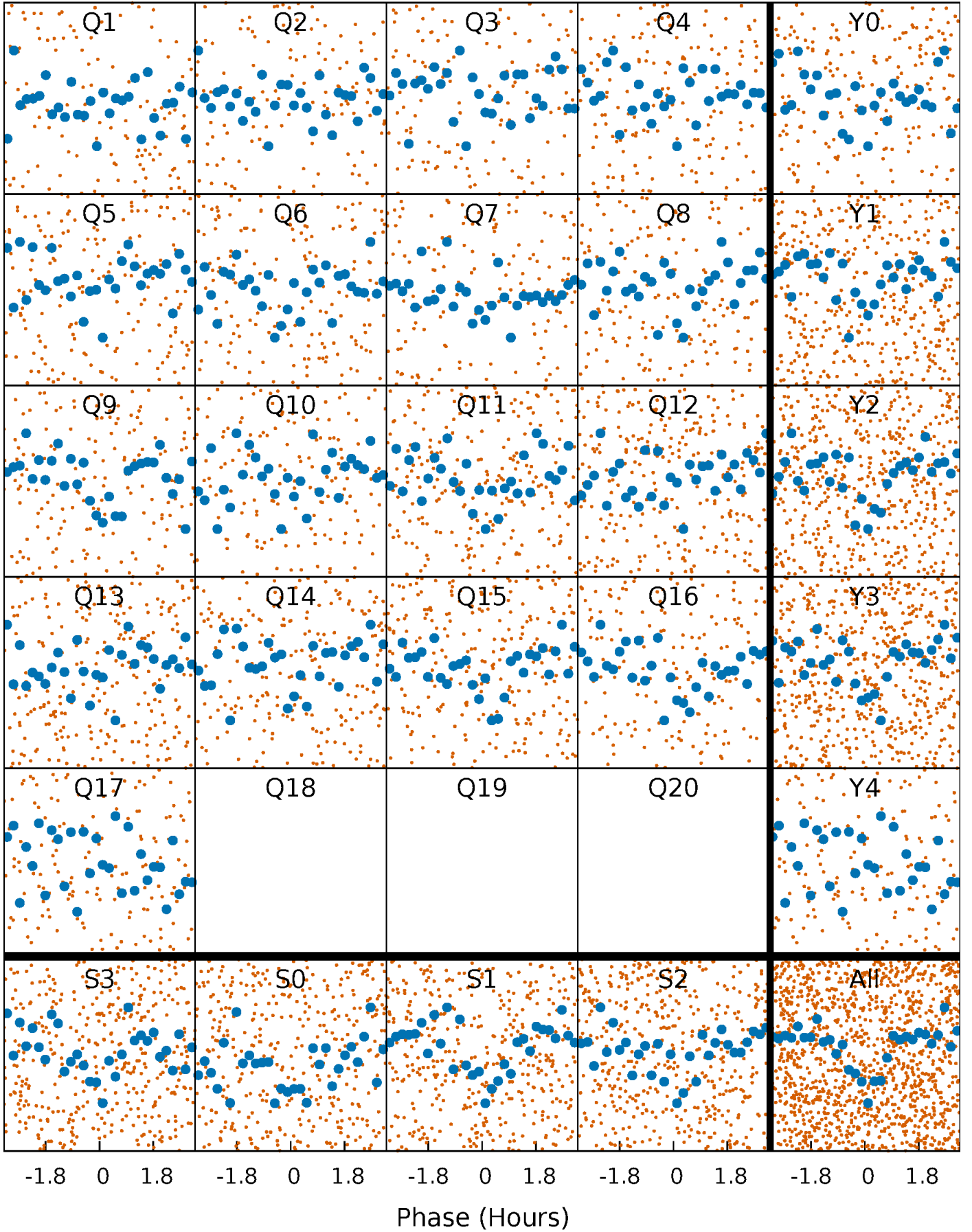


**Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)**



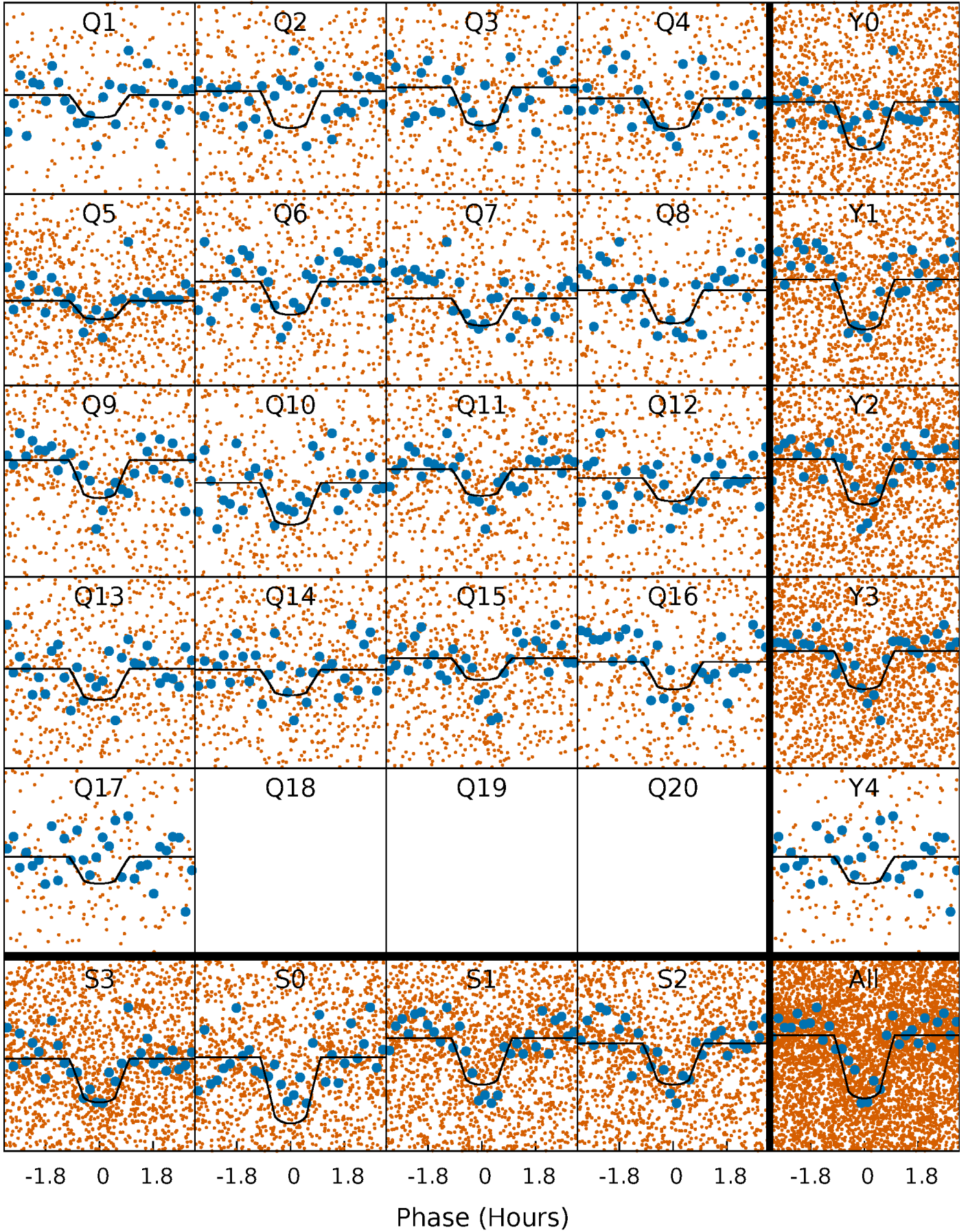
# PDC Quarter-Phased Transit Curves

TCE 008265156-02   P= 0.978346 Days    $T_0=132.135934$  (BKJD)



# DV Quarter-Phased Transit Curves

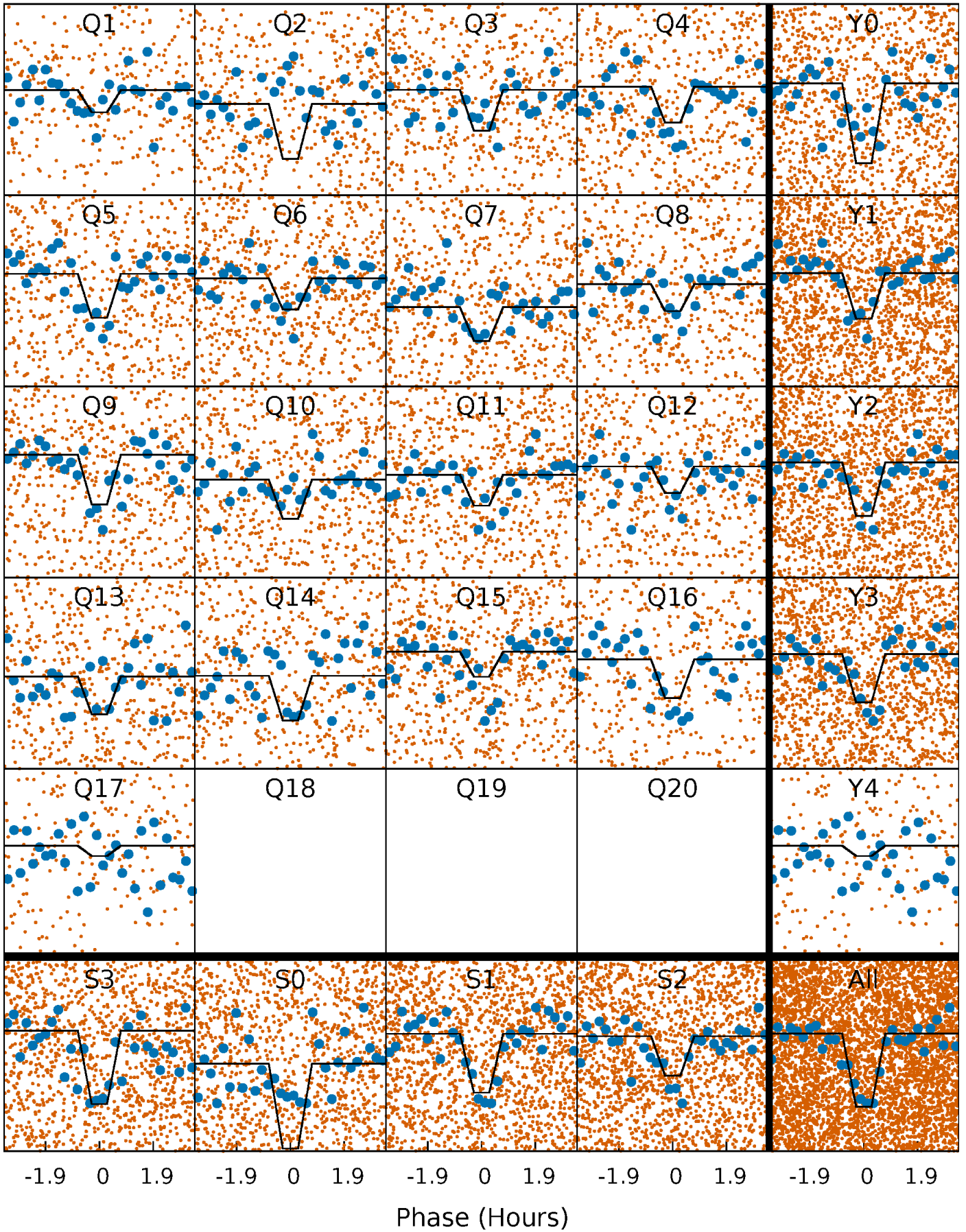
TCE 008265156-02   P= 0.978346 Days    $T_0=132.135934$  (BKJD)





# Alt. Detrend Quarter-Phased Transit Curves

TCE 008265156-02 P= 0.978349 Days  $T_0=132.136395$  (BKJD)

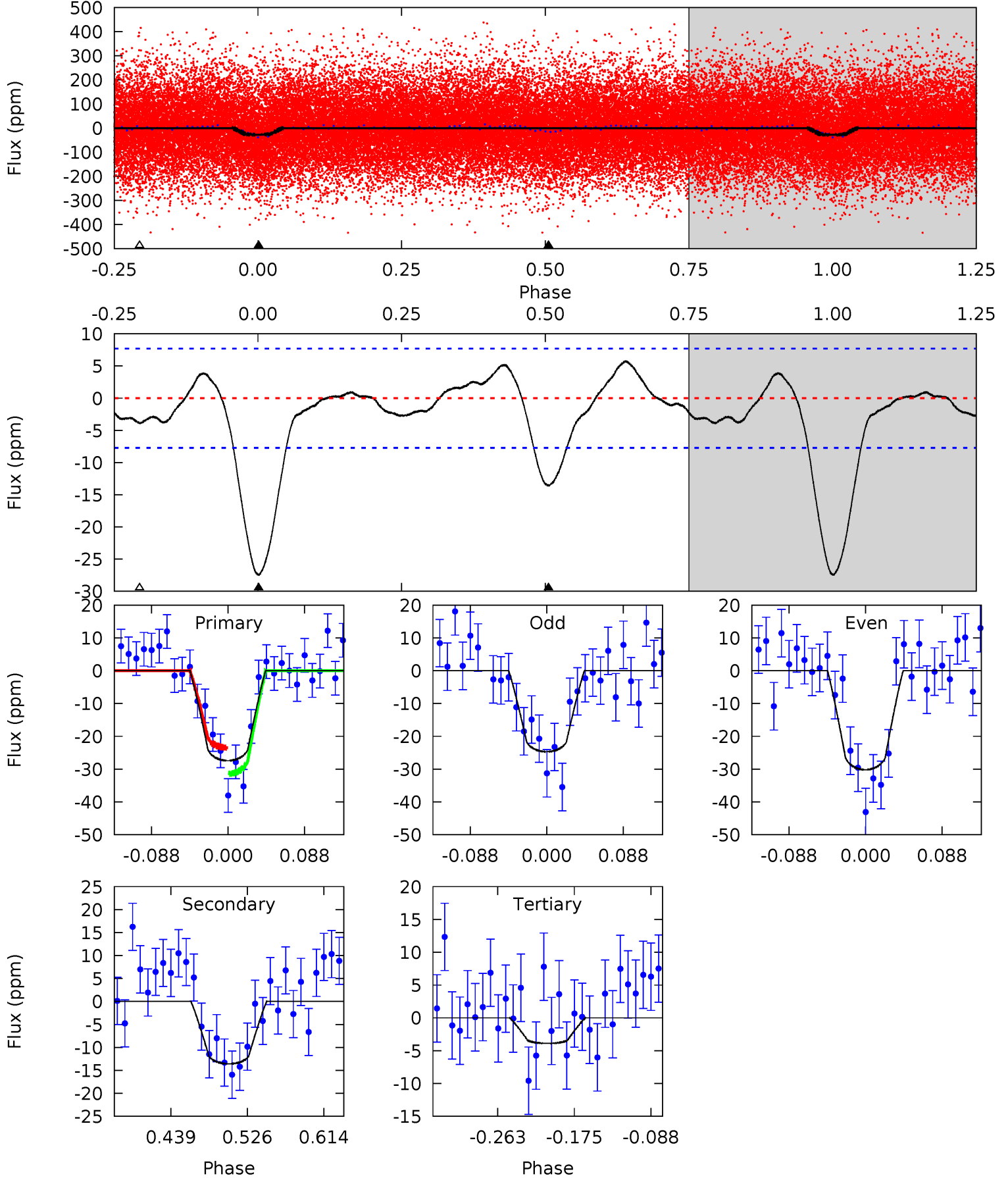




# DV Model-Shift Uniqueness Test

008265156-02, P = 0.978346 Days, E = 131.157588 Days

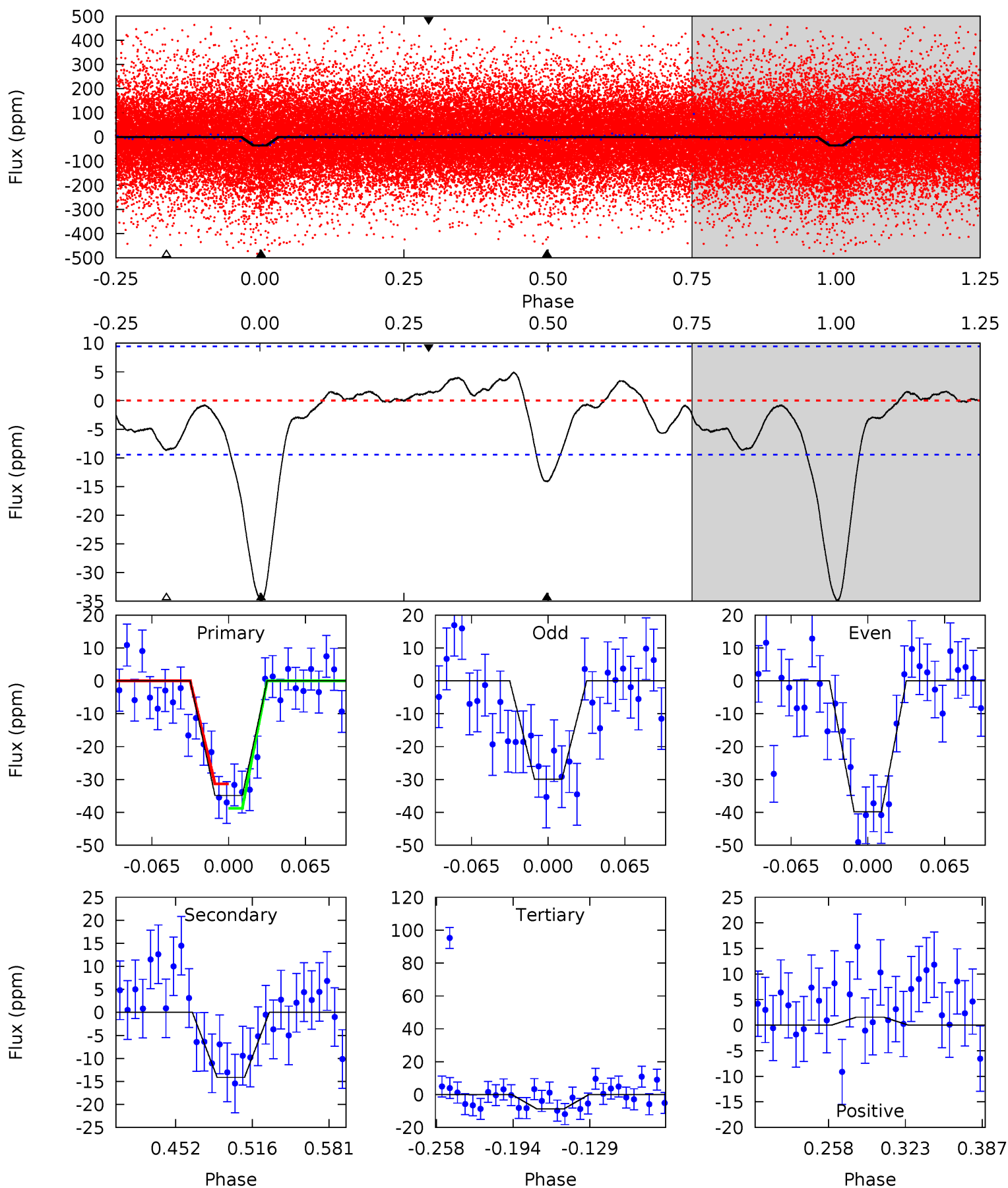
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
16.4	8.09	2.32	0	4.59	1.71	1.45	14.0	16.4	5.77	8.09	1.63	0.91	0.17	2.37



# Alt Model-Shift Uniqueness Test

008265156-02, P = 0.978349 Days, E = 131.158046 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
17.2	6.96	4.28	0.77	4.66	1.85	1.56	12.9	16.4	2.69	6.19	2.44	1.00	0.12	1.83



### Stellar Parameters For KIC 008265156

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	$7193^{+200}_{-300}$	$4.156^{+0.128}_{-0.192}$	$-0.120^{+0.250}_{-0.350}$	$1.671^{+0.525}_{-0.350}$	$1.460^{+0.218}_{-0.239}$	$0.441^{+0.288}_{-0.222}$
	+3%/-4%	+3%/-5%	+208%/-292%	+31%/-21%	+15%/-16%	+65%/-50%
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 008265156-02 / KOI 6177.01

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	$A_{\text{obs}}$
DV	$-14 \pm 2$	$1.10^{+0.33}_{-0.27}$	$3894^{+300}_{-262}$	$5429^{+896}_{-586}$	$2.944^{+2.214}_{-1.219}$
Alt.	$-14 \pm 2$	$1.13^{+0.33}_{-0.27}$	$3904^{+296}_{-262}$	$5439^{+838}_{-640}$	$2.879^{+2.247}_{-1.246}$

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

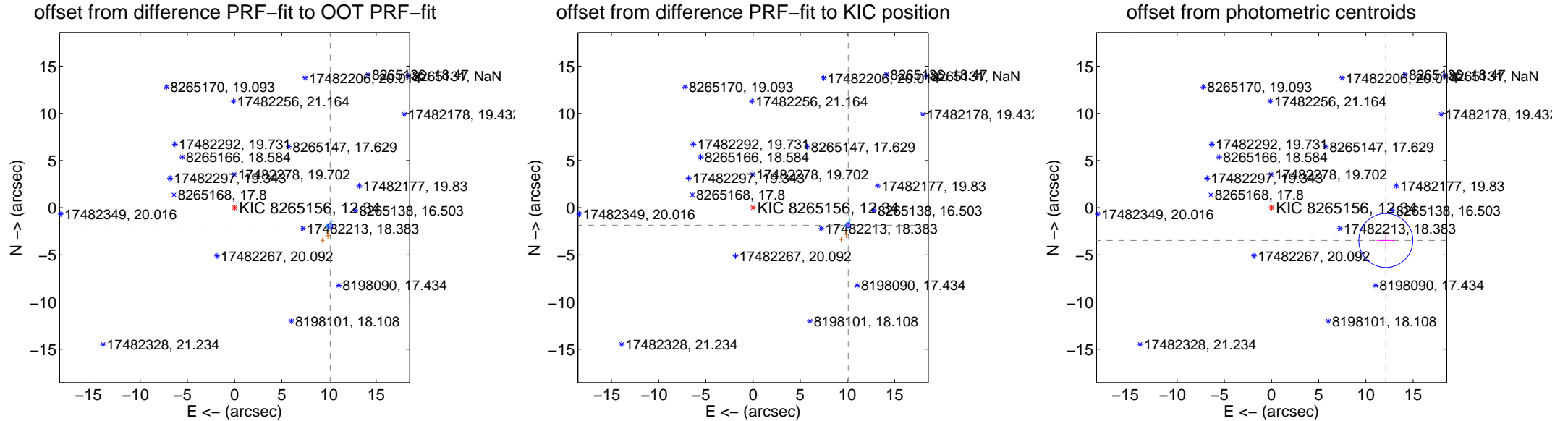
## DV Centroid Data

Supplemental centroid analysis for 008265156-02. Kepler magnitude: 12.34. Transit SNR 12.54

There are 10 quarters with good PRF difference image offsets

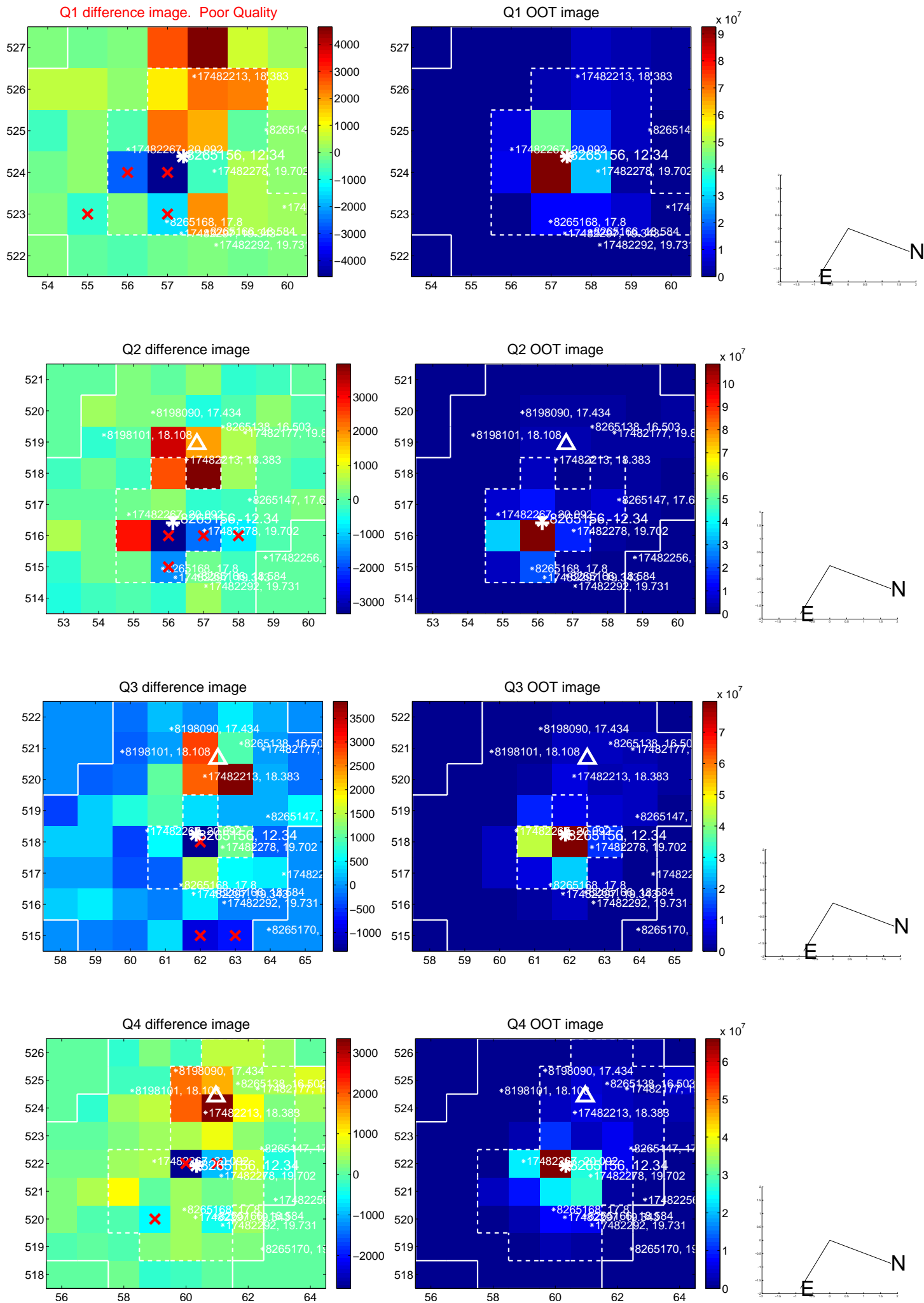
The direct PRF centroid is offset from the target star catalog position by about 0.13 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$10.317 \pm 0.092$	112.47	$-10.132 \pm 0.092$	$-1.944 \pm 0.081$
PRF-fit source offset from KIC position	$10.252 \pm 0.085$	120.33	$-10.082 \pm 0.085$	$-1.860 \pm 0.091$
photometric centroid source offset	$12.60 \pm 0.95$	13.21	$-12.11 \pm 0.96$	$-3.48 \pm 0.83$

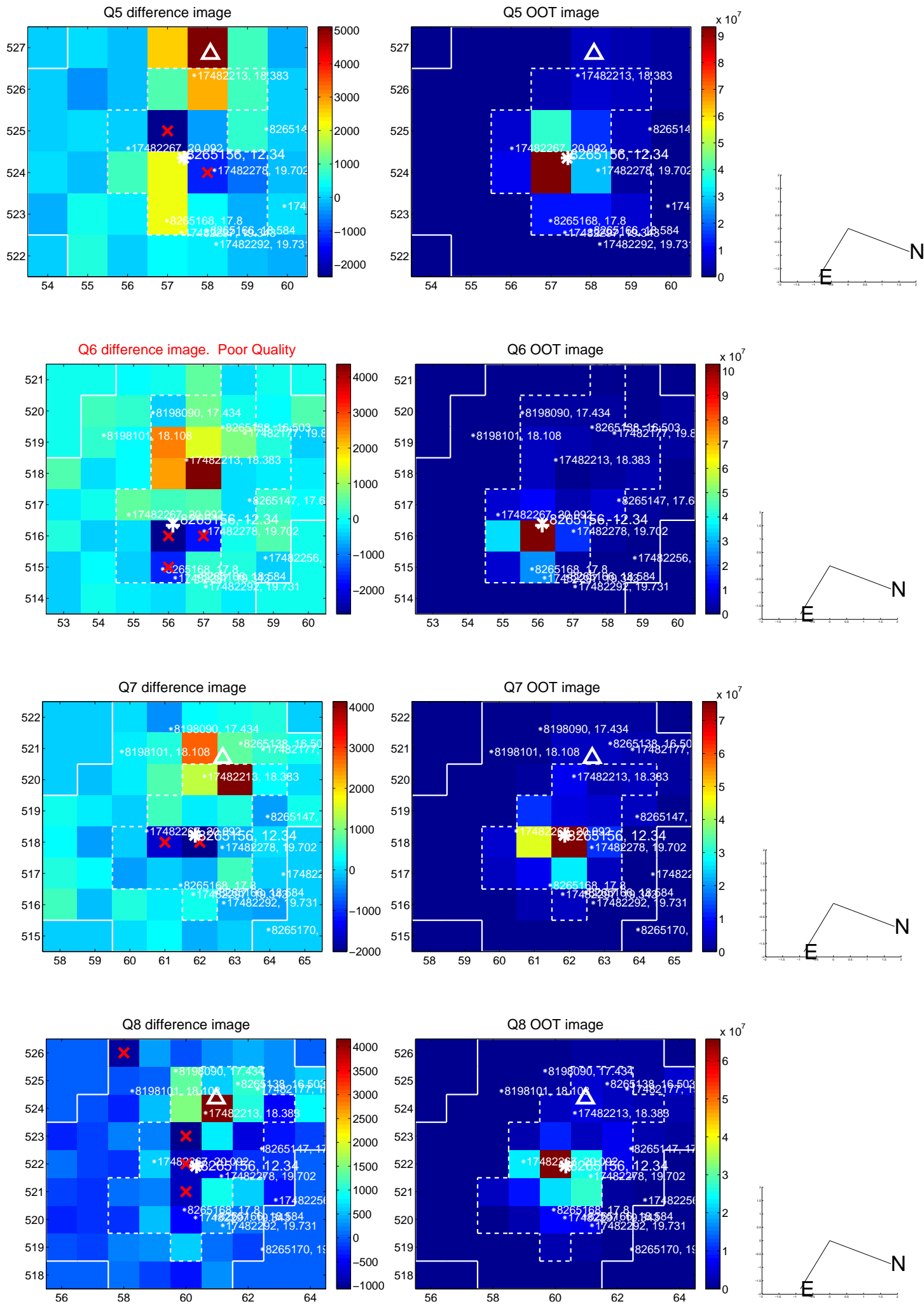


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets;** magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: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

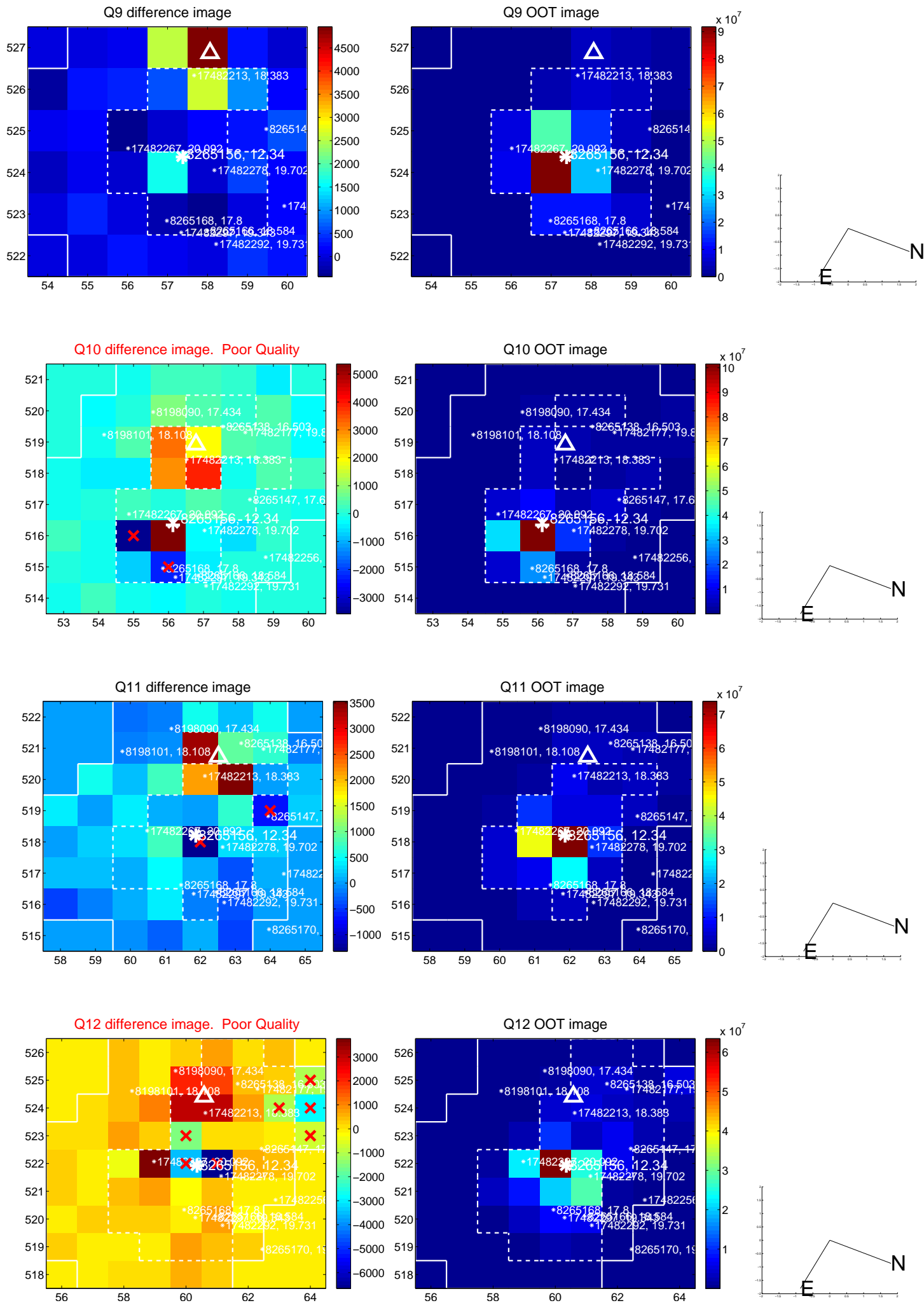


white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.

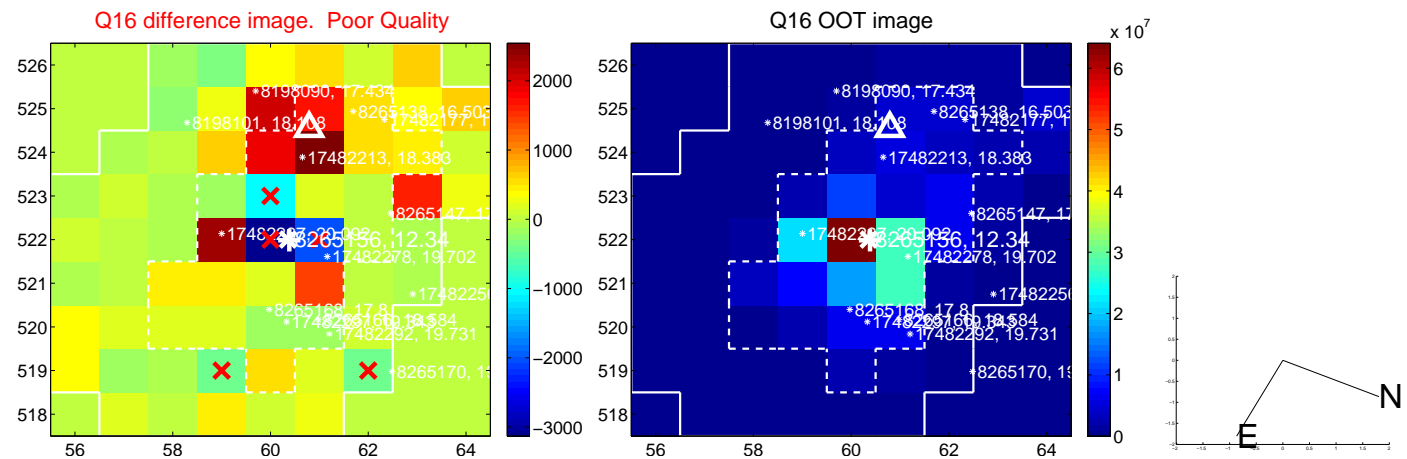
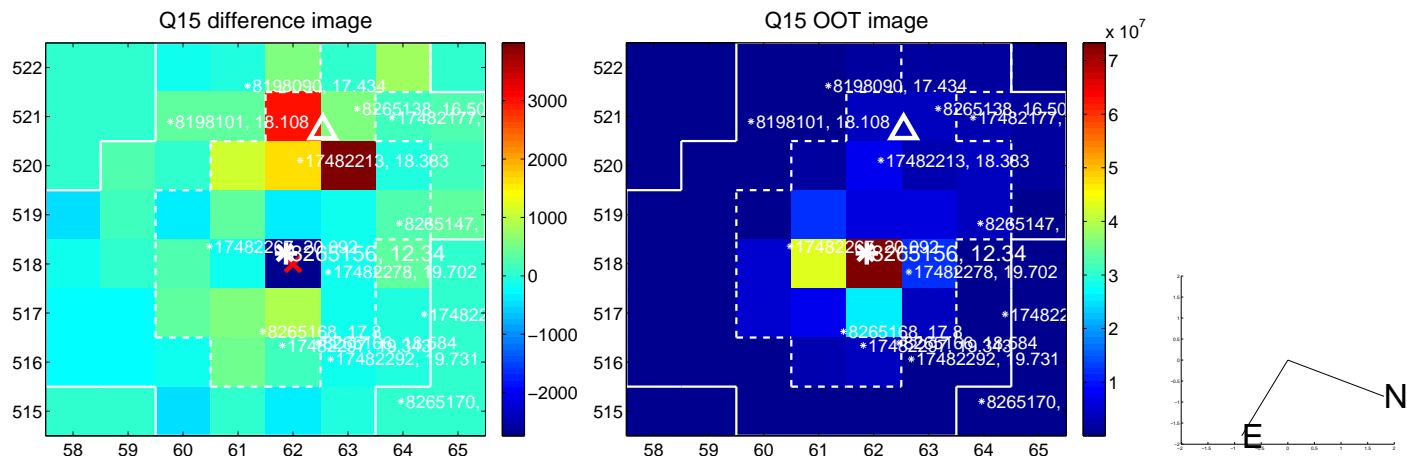
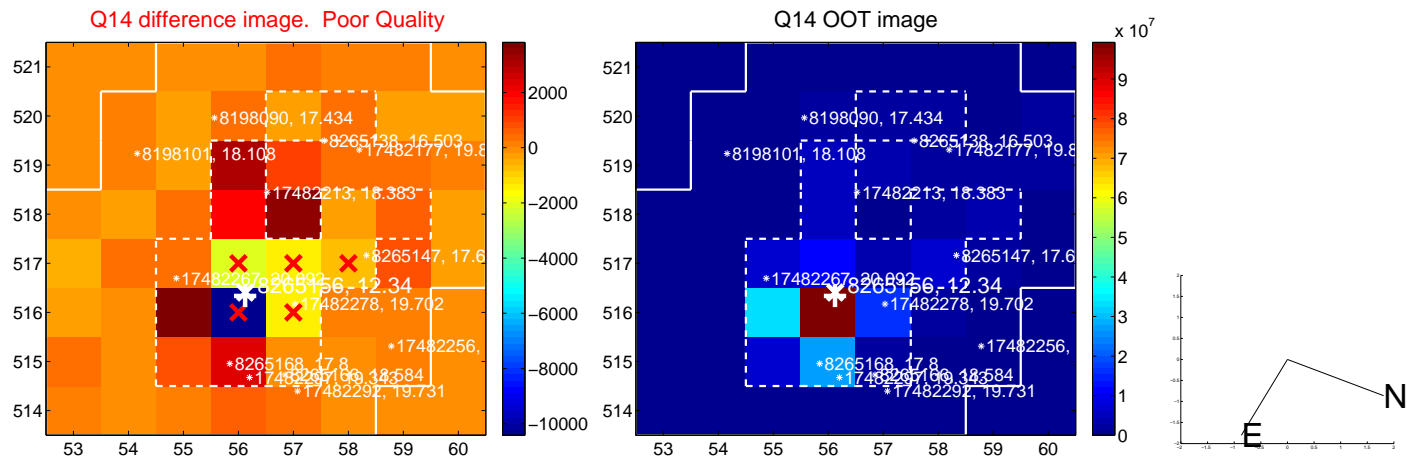
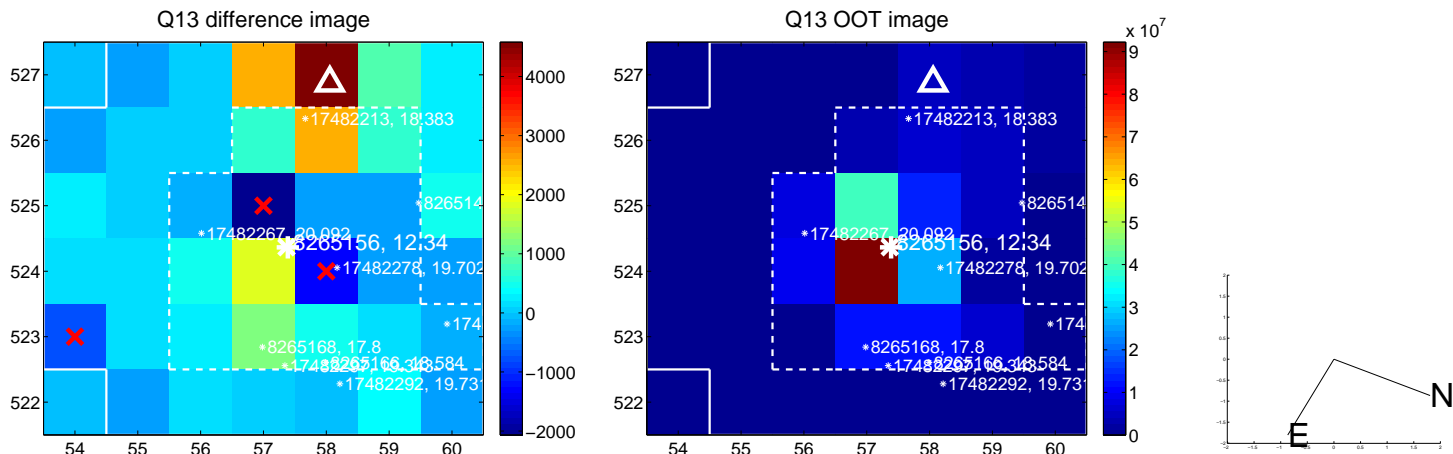




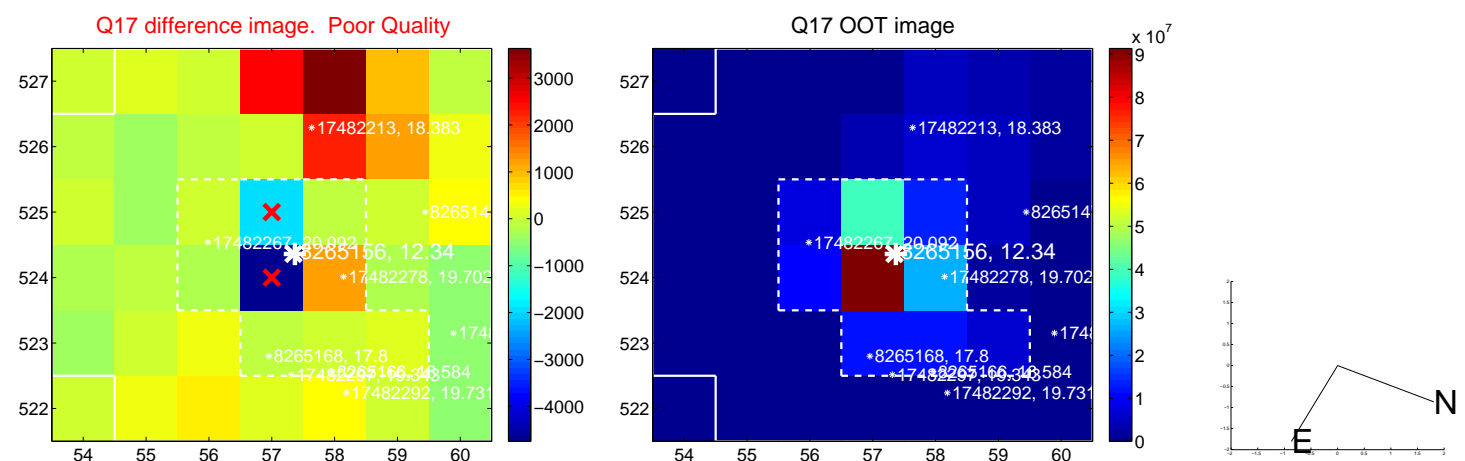
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



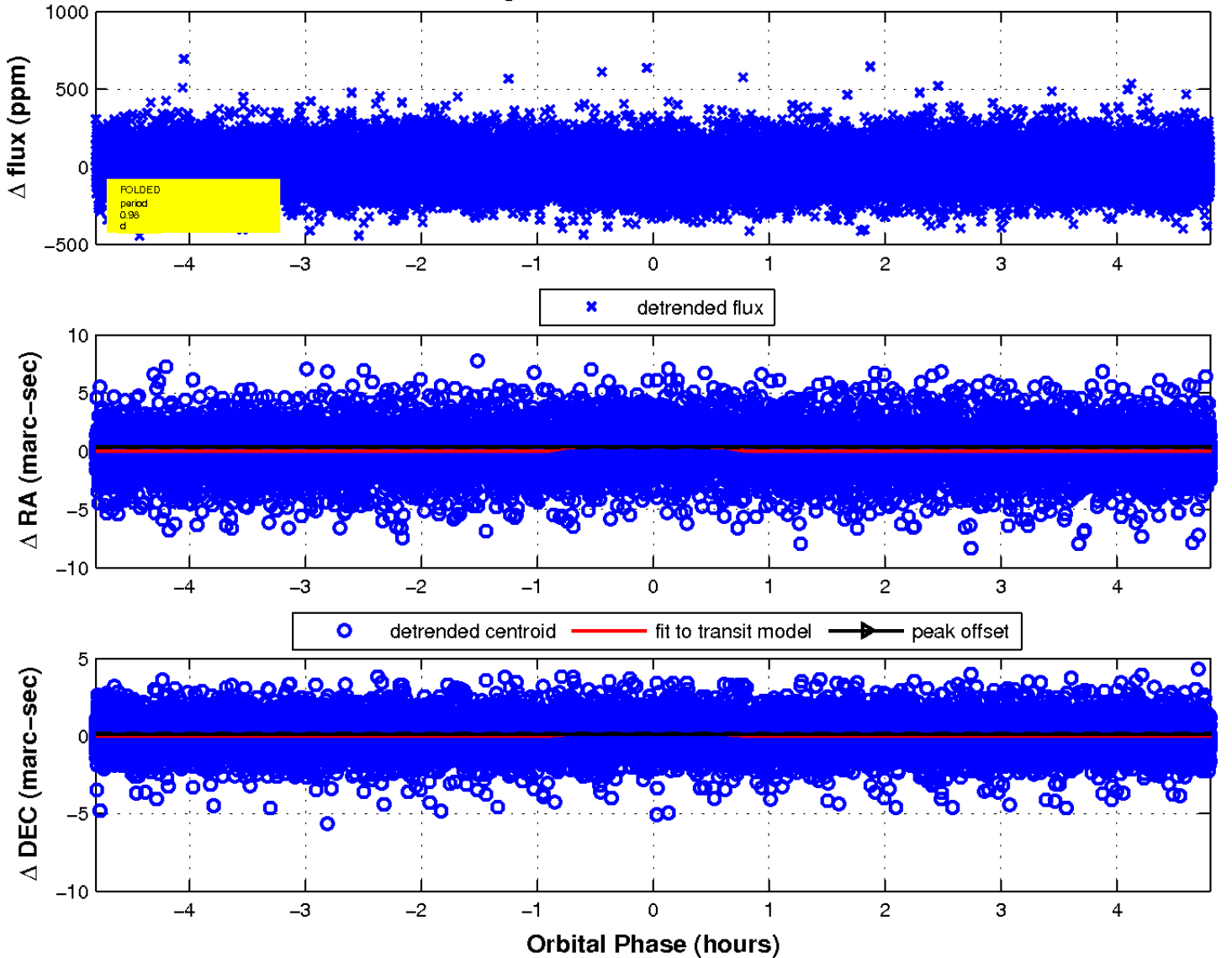
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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



fluxWeightedCentroids, Planet 2 of 2



UKIRT Image

