

# KIC 008259177

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
008259177-01	OBS	No	6.002695	131.619973	54.3	15.000	9.3	-1.0	1.90	7286	1.42	1582.17
008259177-02	OBS	No	6.002111	135.800254	32.0	42.088	10.9	15.7	1.90	7286	1.09	1582.38

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
008259177-01	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_ALT—CENT_NOFITS
008259177-02	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—SAME_NTL_PERIOD

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

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

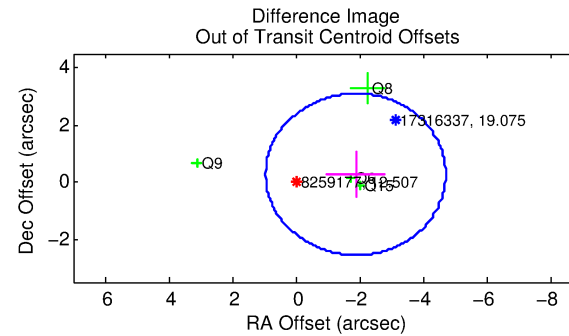
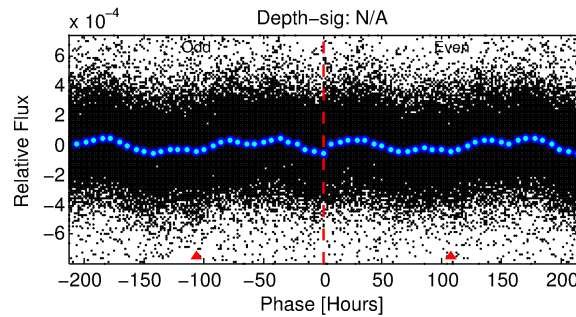
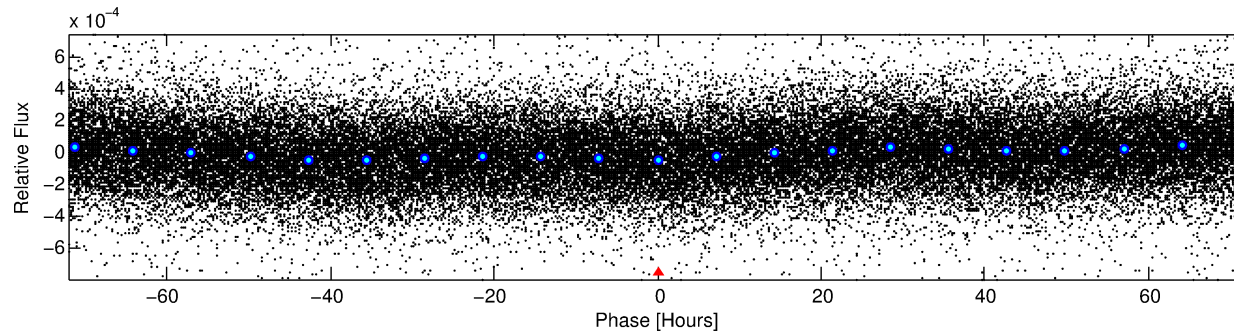
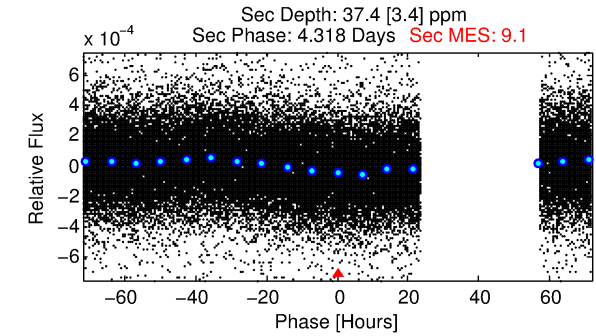
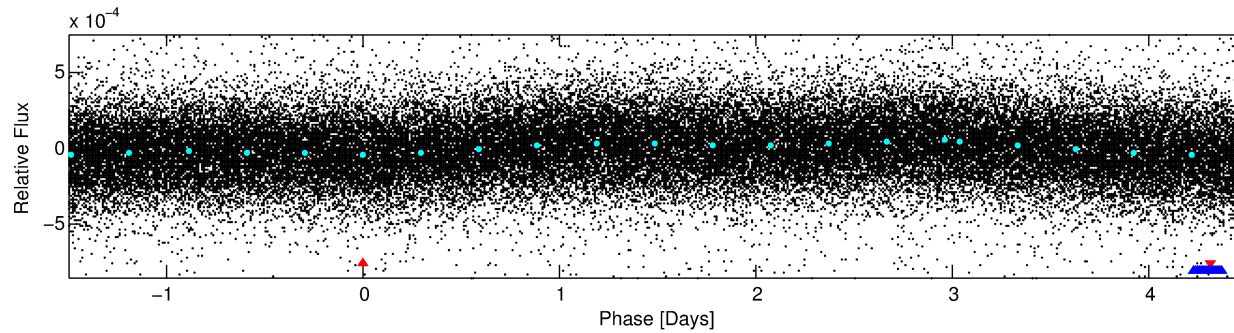
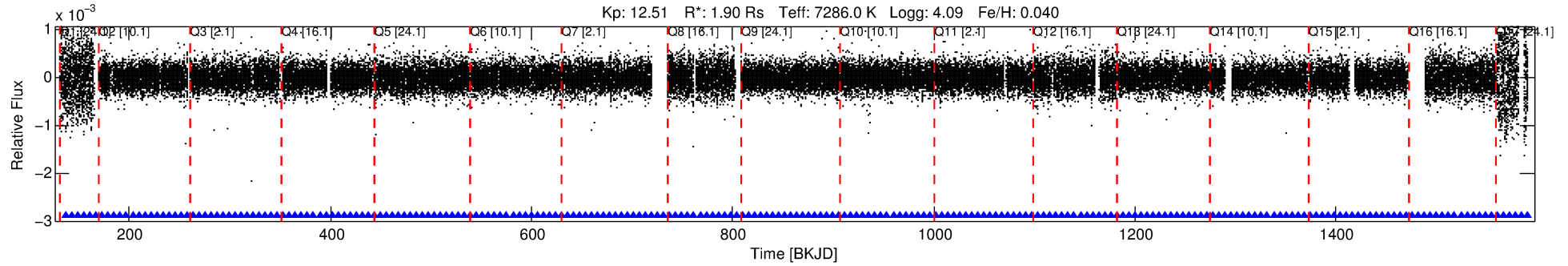
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

## Ephemeris Match Information For 008259177-01

No Significant Match Found

# DV One-Page Summary

KIC: 8259177 Candidate: 1 of 2 Period: 6.003 d



## TPS TCE Results:

Period = 6.00269 d  
Epoch = 131.6200 BKJD

**DV fit results are unavailable**

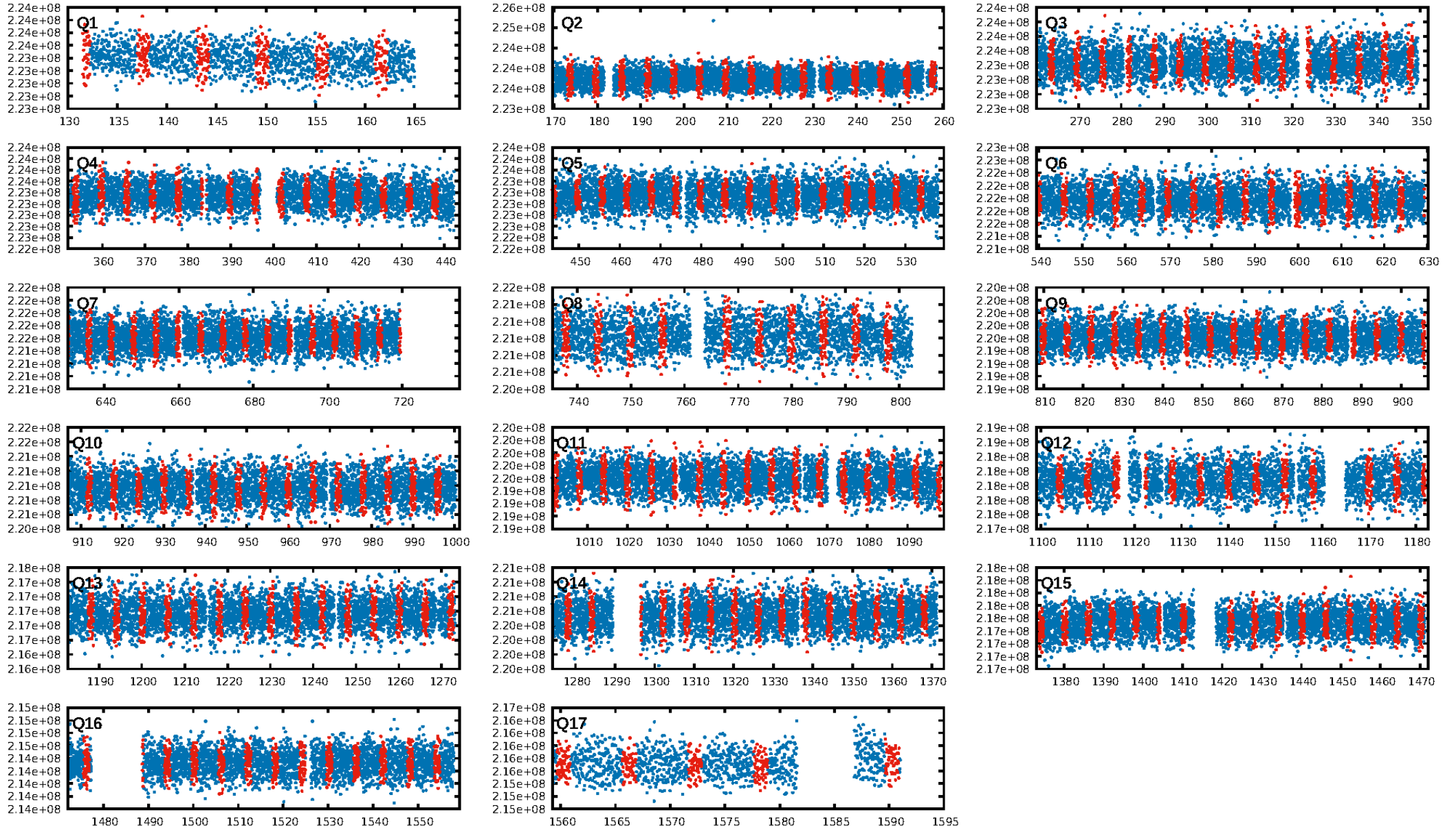
## DV Diagnostic Results:

**ShortPeriod-sig: 0.0% [0.00 $\sigma$ ]**  
LongPeriod-sig: N/A  
ModelChiSquare2-sig: N/A  
ModelChiSquareGof-sig: N/A  
Bootstrap-pfa: 6.33e-35  
RollingBand-fgt: 1.00 [224/224]  
GhostDiagnostic-chr: 3.765  
Centroid-sig: 25.3%  
Centroid-so: 0.989 arcsec [1.35 $\sigma$ ]  
OotOffset-rm: 1.904 arcsec [2.02 $\sigma$ ]  
KicOffset-rm: 1.921 arcsec [2.42 $\sigma$ ]  
OotOffset-st: 1/1/1/1 [4]  
KicOffset-st: 1/1/1/1 [4]  
DiffImageQuality-fgm: 0.75 [3/4]  
DiffImageOverlap-fno: 0.00 [0/17]

Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 16:09:01 Z

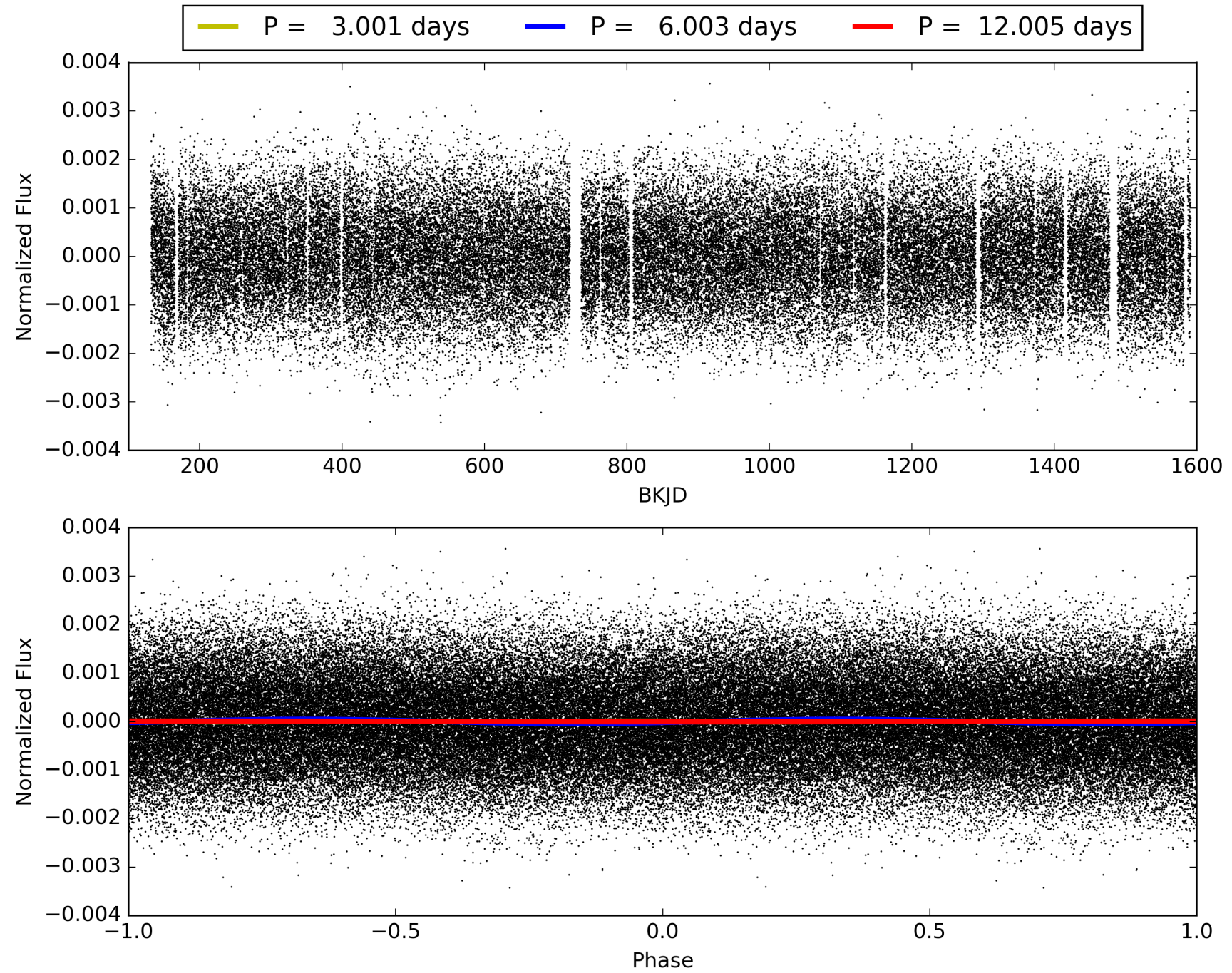
This Data Validation Report Summary was produced in the Kepler Science Operations Center Pipeline at NASA Ames Research Center

# TCE 008259177-01, PDC Light Curves



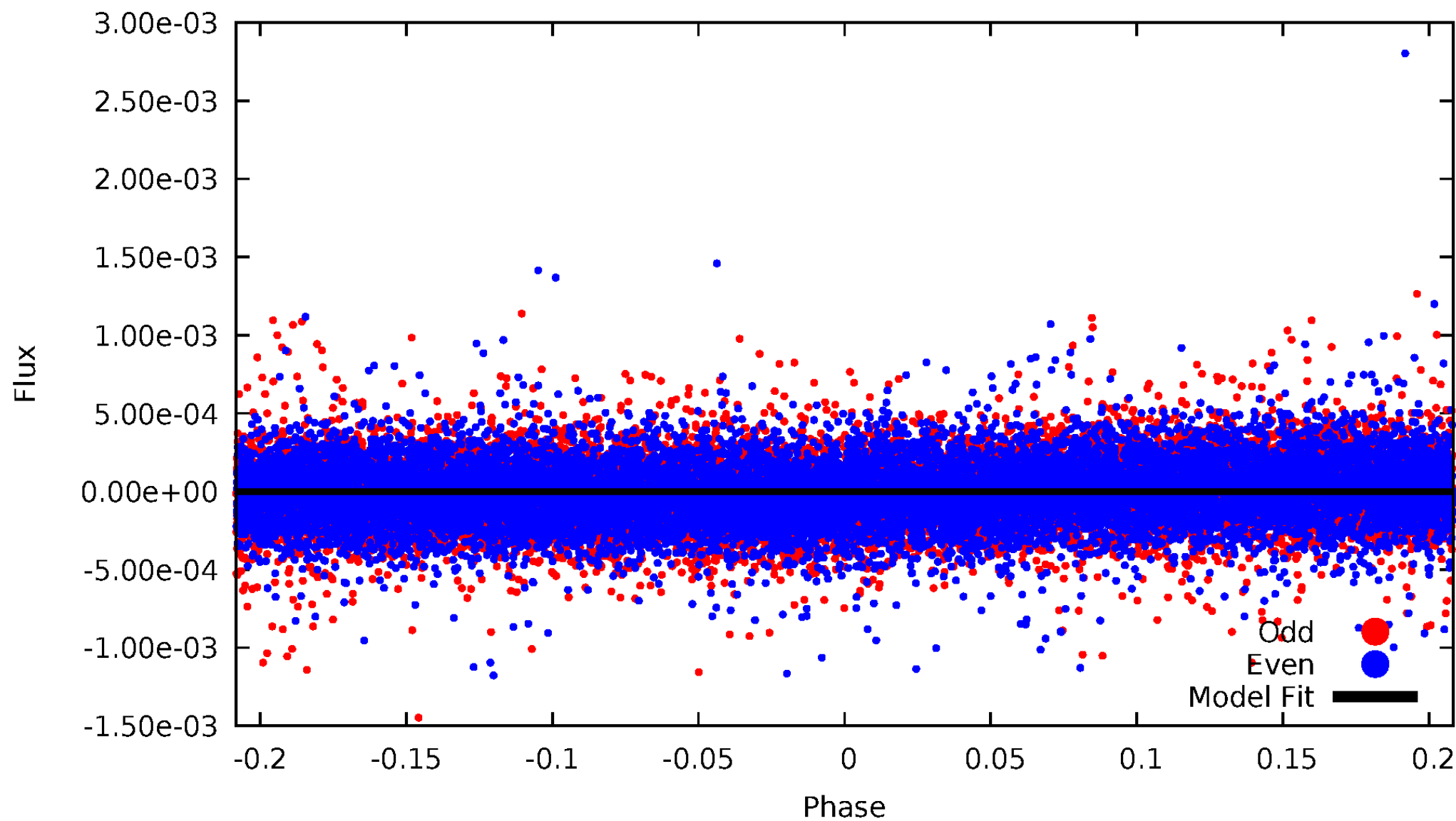


TCE 008259177-01



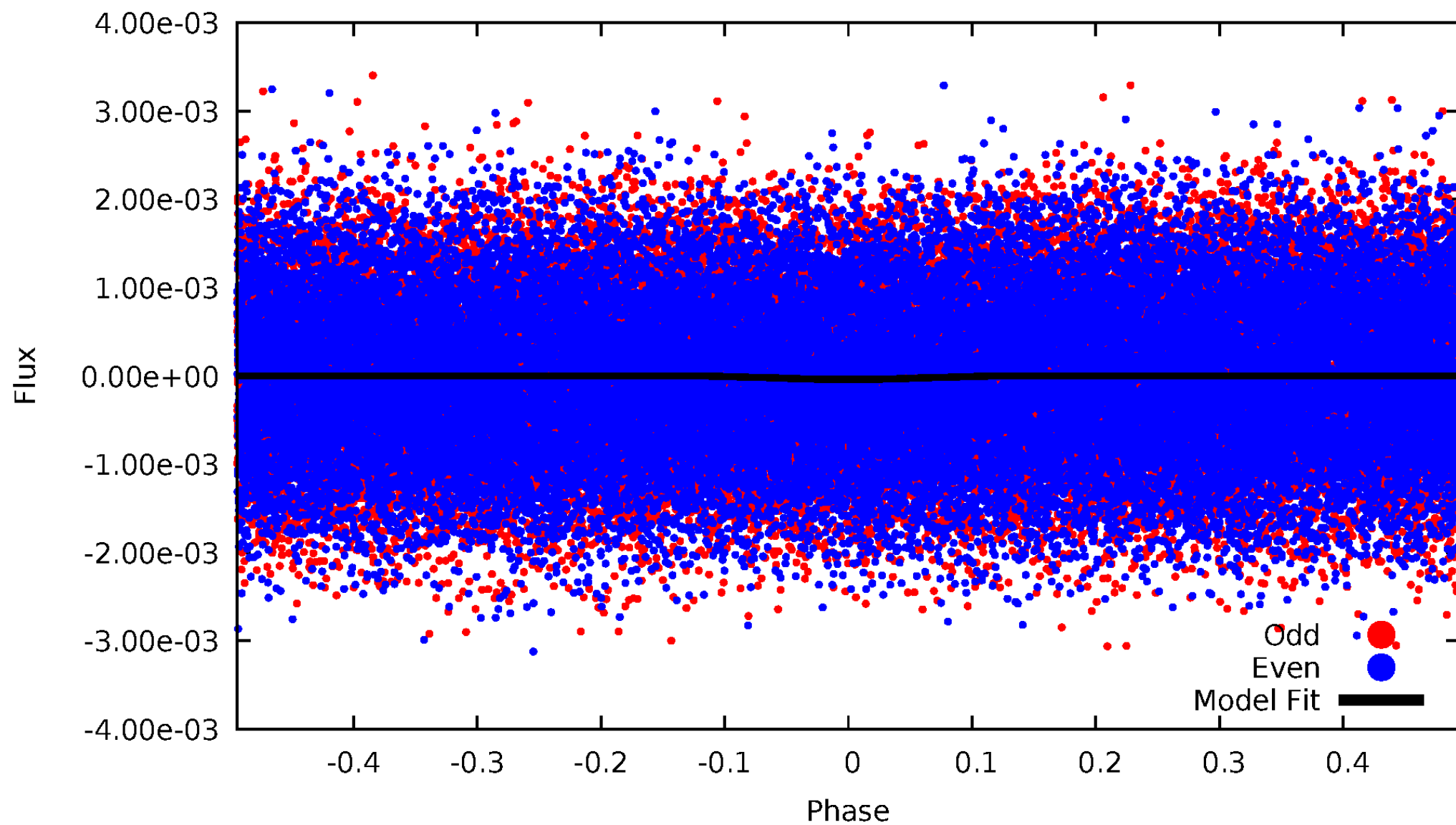
# DV Odd/Even

TCE 008259177-01

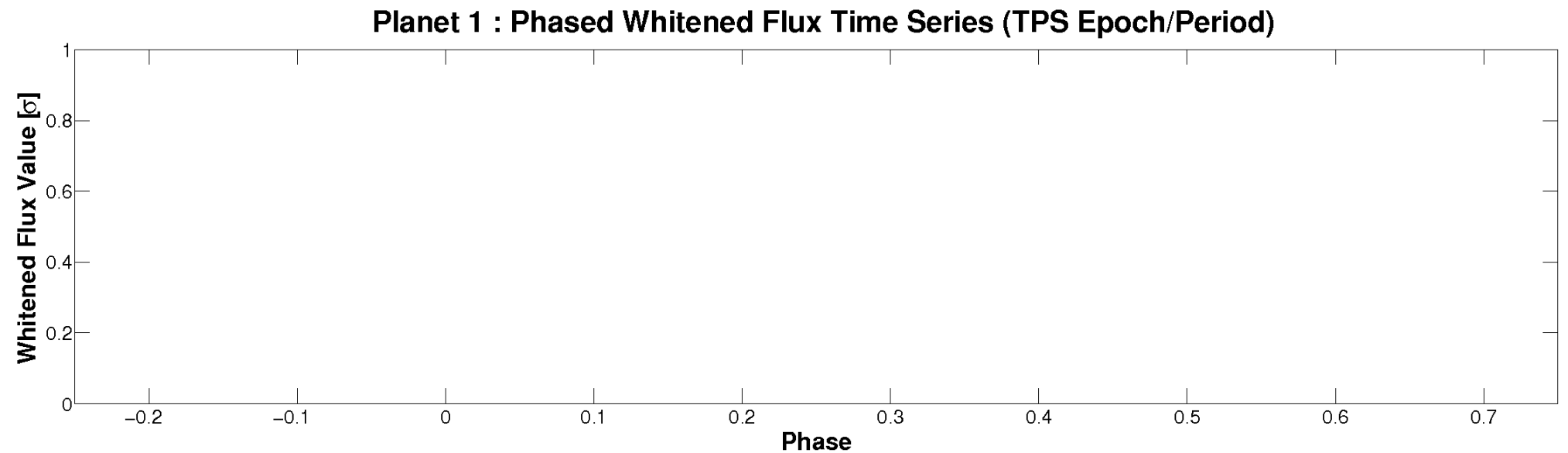
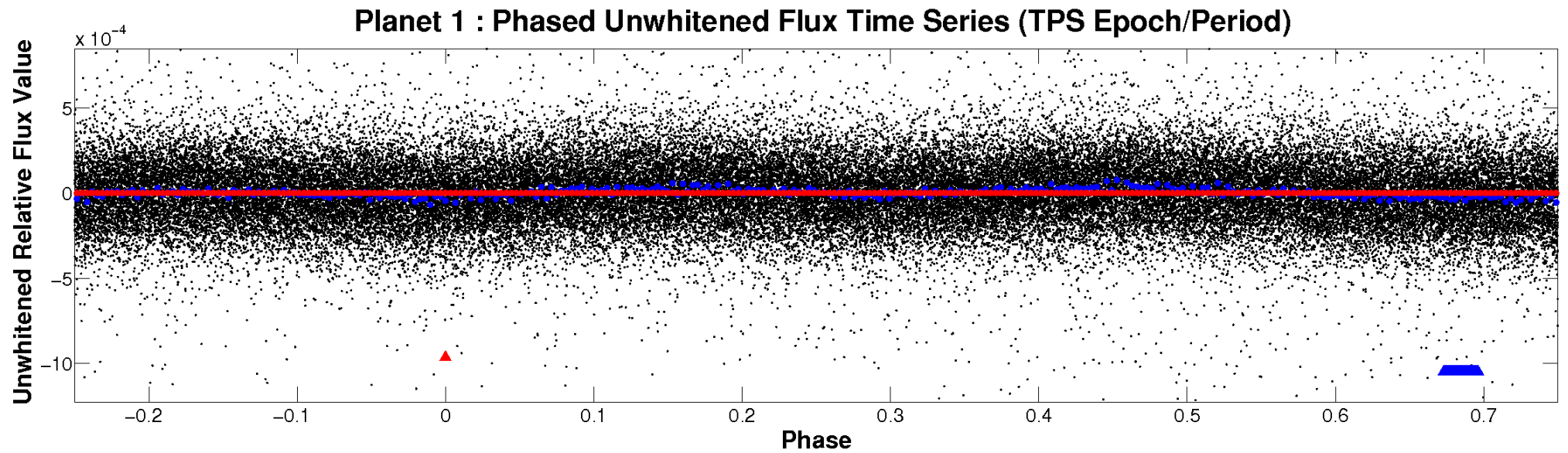


# ALT Odd/Even

TCE 008259177-01

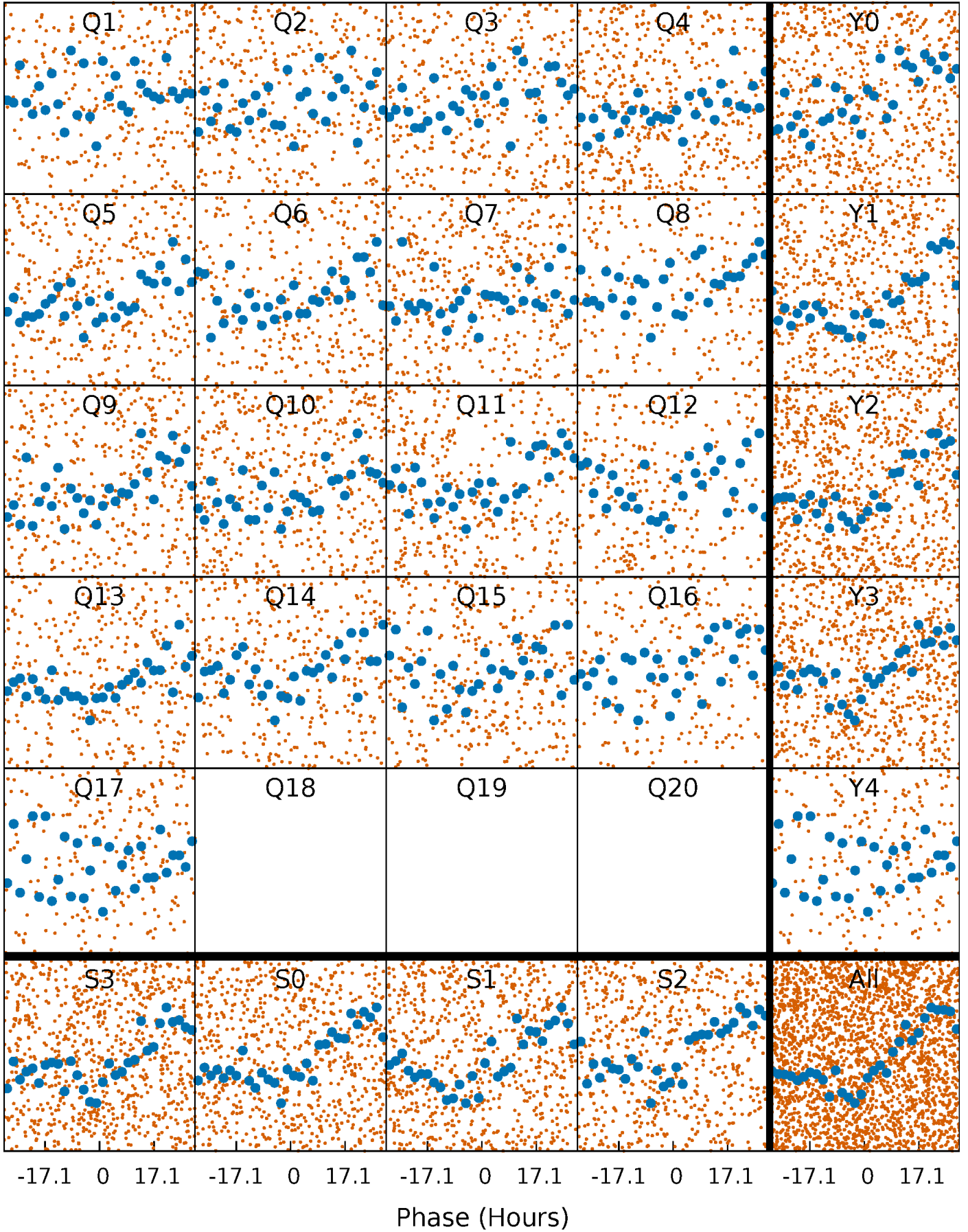


# Non-Whitened Vs. Whitened Light Curve



# PDC Quarter-Phased Transit Curves

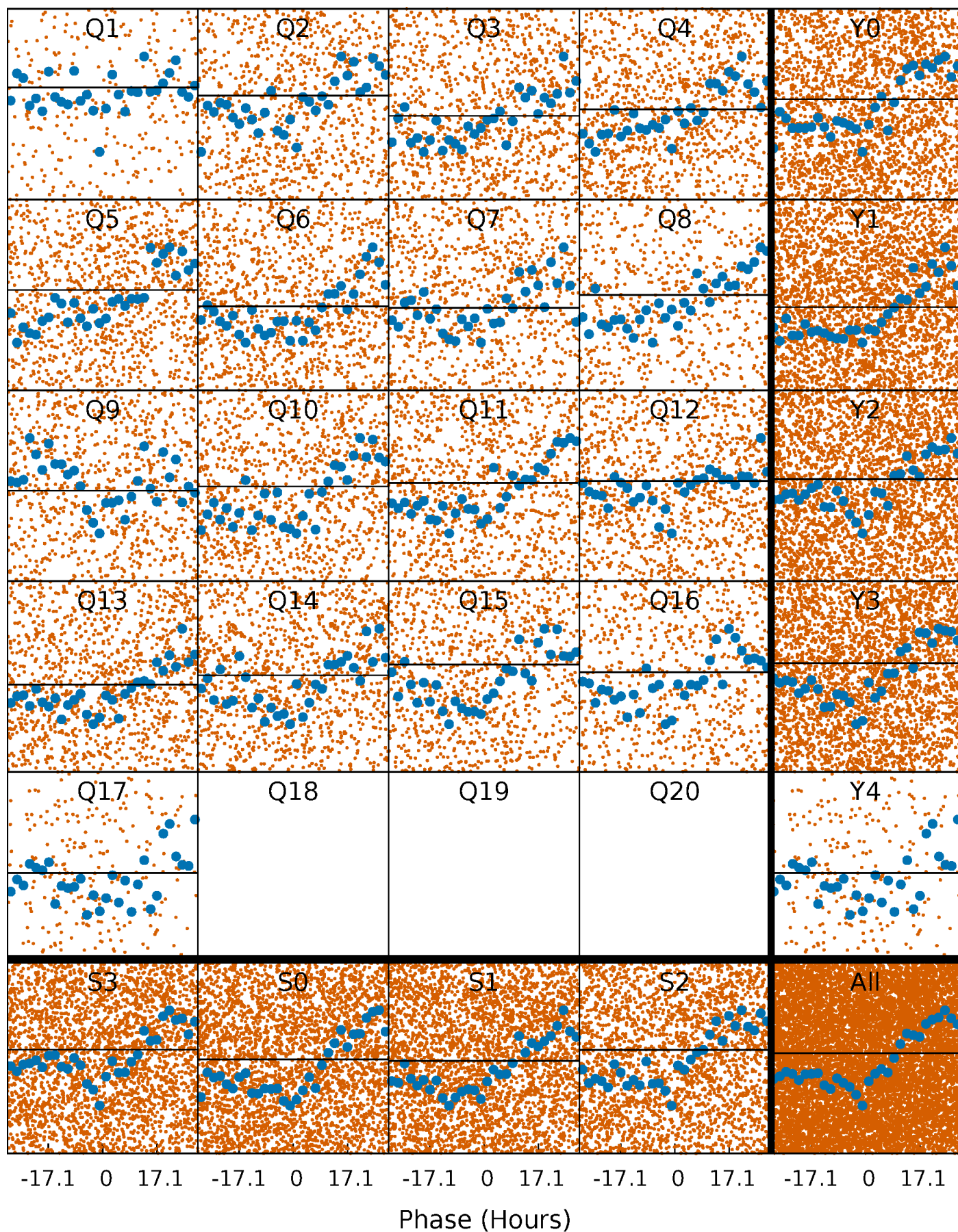
TCE 008259177-01 P= 6.002695 Days  $T_0=131.619973$  (BKJD)





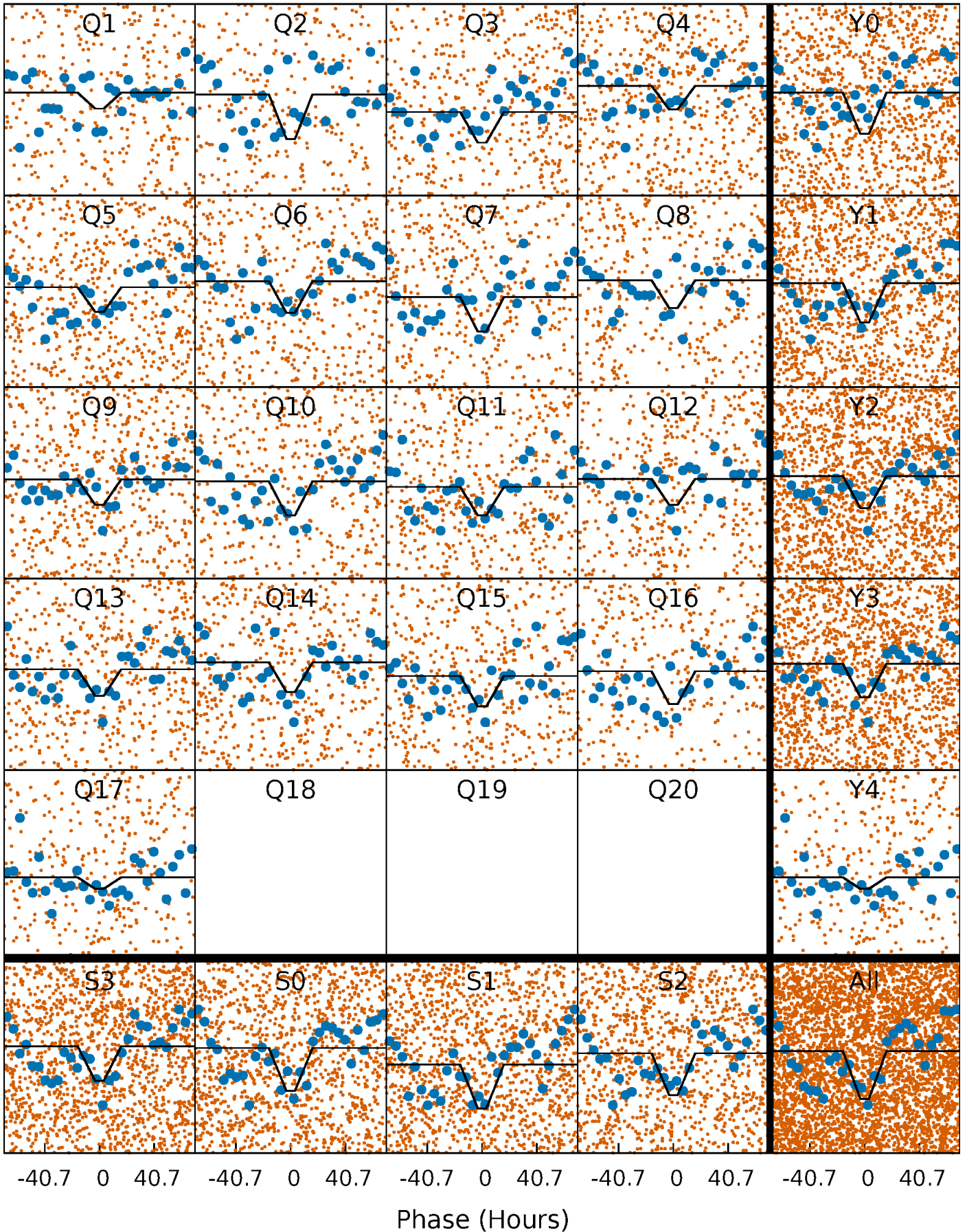
# DV Quarter-Phased Transit Curves

TCE 008259177-01 P= 6.002695 Days  $T_0=131.619973$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

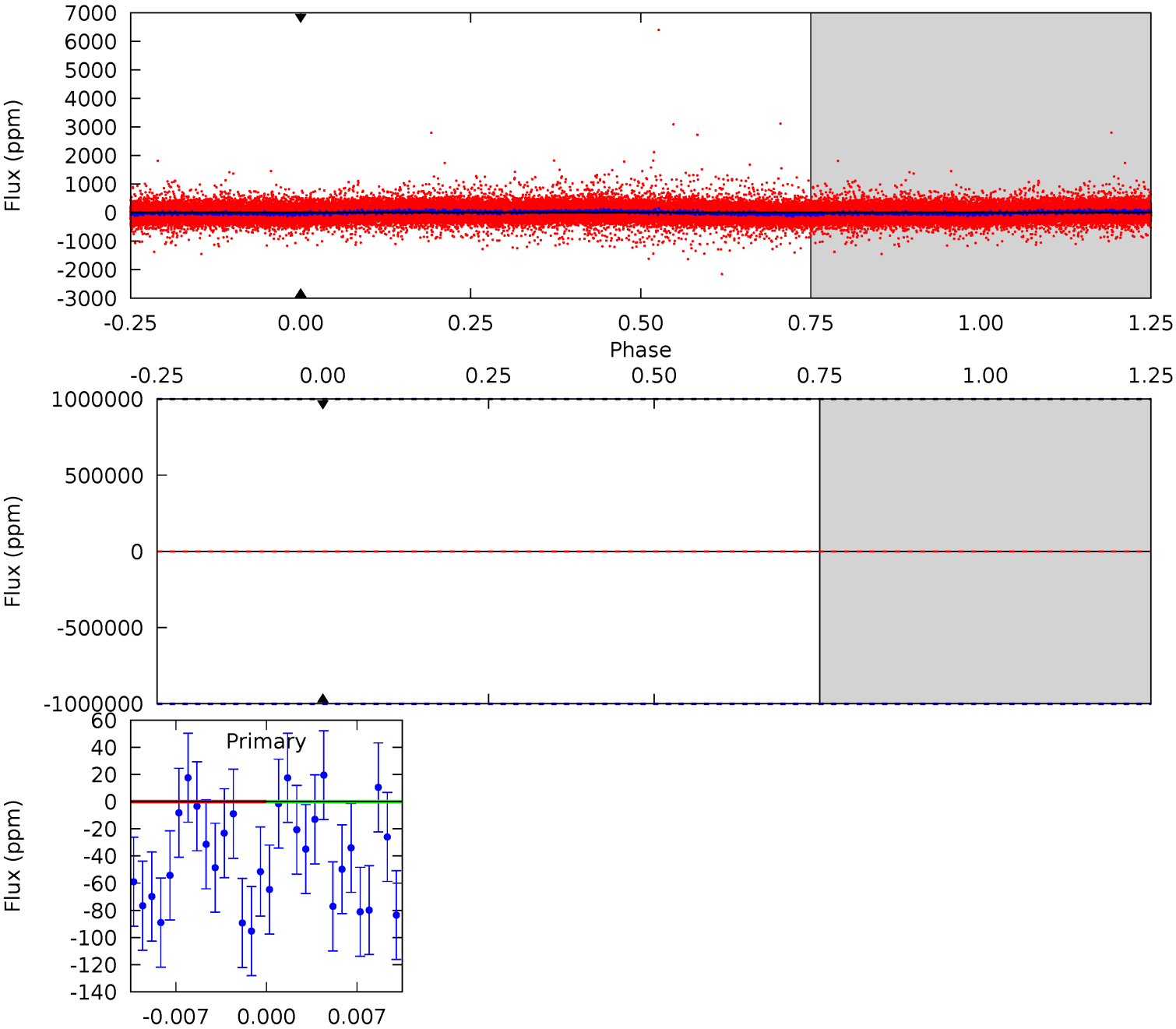
TCE 008259177-01 P= 6.002695 Days  $T_0=137.428442$  (BKJD)



DV Model-Shift Uniqueness Test

008259177-01, P = 6.002695 Days, E = 125.617278 Days

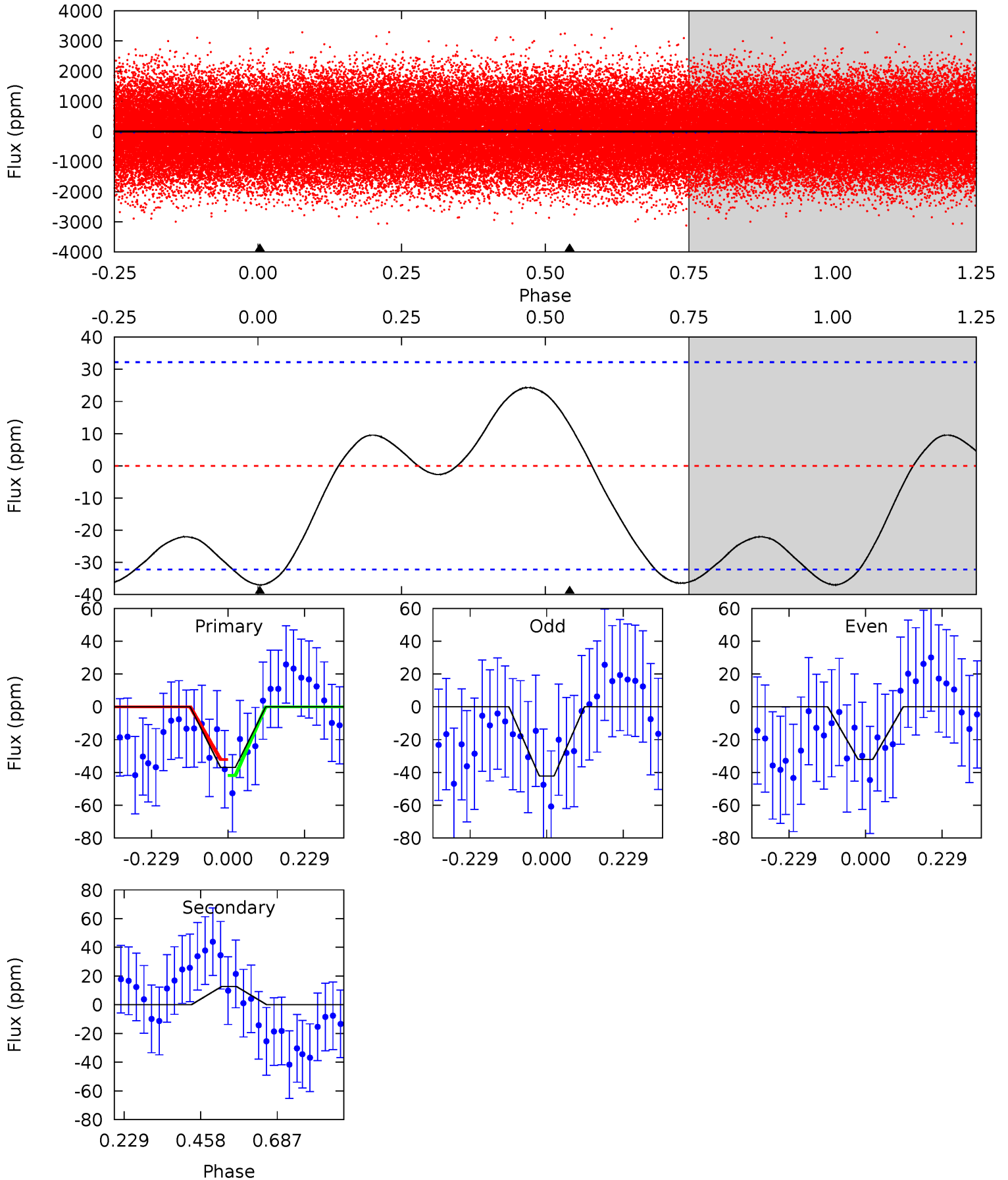
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
0	0	0	0	1.00	1.00	1.00	0	0	0	0	0	0	0	0



# Alt Model-Shift Uniqueness Test

008259177-01, P = 6.002695 Days, E = 131.425747 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
5.04	-1.74	0	0	4.39	1.20	1.63	5.04	5.04	-1.74	-1.74	0.69	5.91	0.40	0.67





### Stellar Parameters For KIC 008259177

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	$7286^{+230}_{-316}$	$4.089^{+0.144}_{-0.176}$	$0.040^{+0.200}_{-0.350}$	$1.898^{+0.556}_{-0.404}$	$1.613^{+0.212}_{-0.259}$	$0.332^{+0.246}_{-0.163}$
	+3%/-4%	+4%/-4%	+500%/-875%	+29%/-21%	+13%/-16%	+74%/-49%
Source	KIC0	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 008259177-01 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	$A_{obs}$
DV	$0 \pm 1000000$	$14.57^{+15.71}_{-9.74}$	$2249^{+179}_{-160}$	$5817^{+37791}_{-38409}$	$33^{+3049}_{-2104}$
Alt.	$13 \pm 7$	$15.34^{+15.46}_{-11.48}$	$2255^{+168}_{-151}$	$-2803^{+153}_{-742}$	$-0.147^{+0.122}_{-1.986}$

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

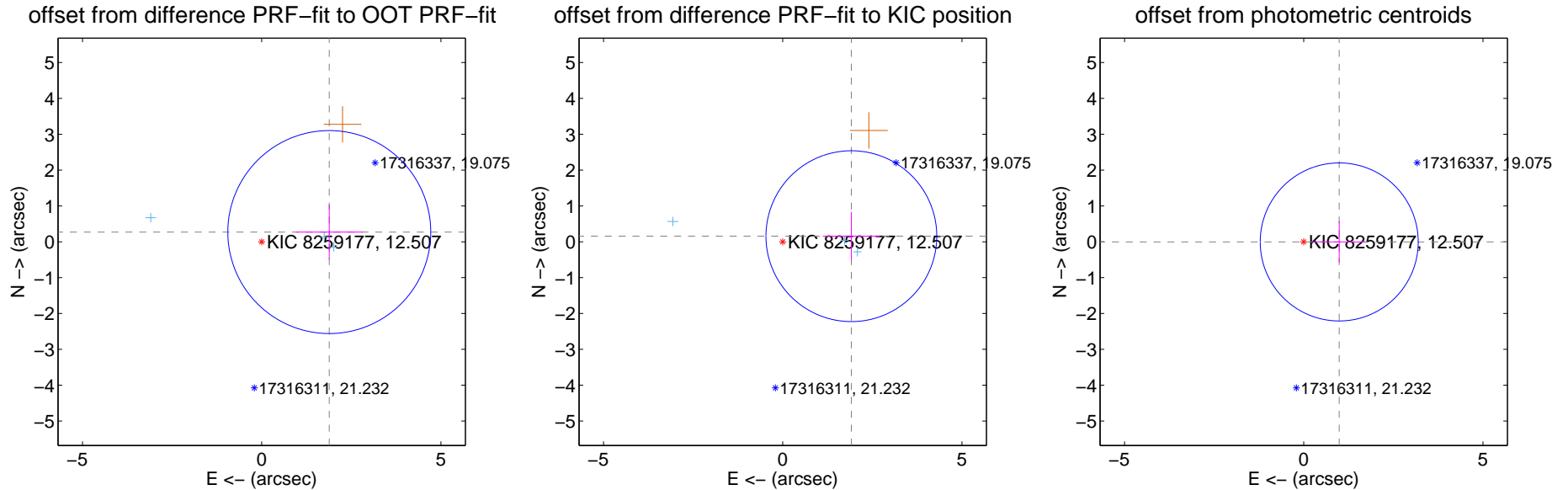
## DV Centroid Data

Supplemental centroid analysis for 008259177-01. Kepler magnitude: 12.51. Transit SNR -1.00

There are 3 quarters with good PRF difference image offsets

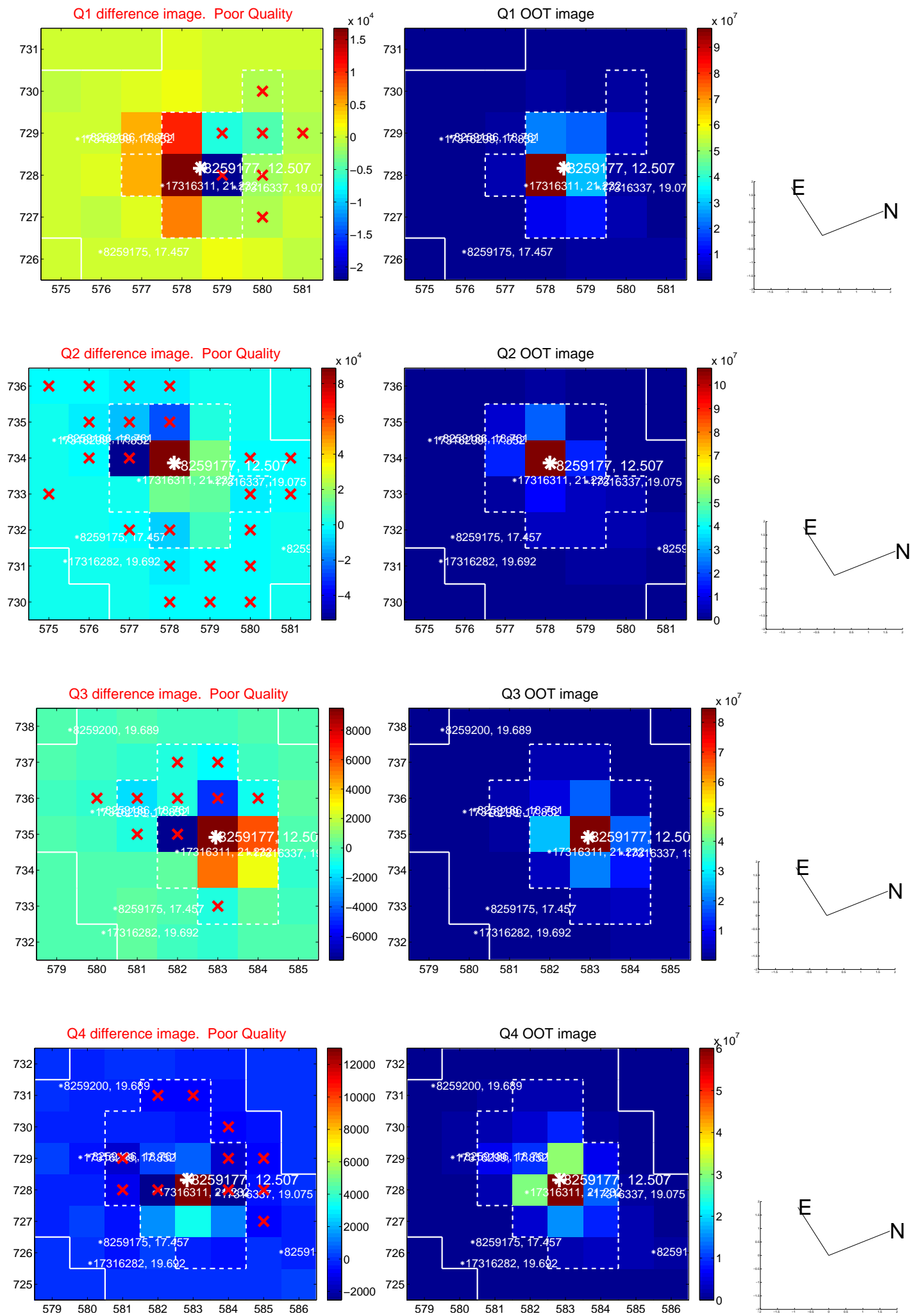
The direct PRF centroid is offset from the target star catalog position by about 0.15 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$1.904 \pm 0.944$	2.02	$-1.885 \pm 0.936$	$0.271 \pm 0.765$
PRF-fit source offset from KIC position	$1.921 \pm 0.794$	2.42	$-1.914 \pm 0.798$	$0.156 \pm 0.675$
photometric centroid source offset	$0.99 \pm 0.73$	1.35	$-0.99 \pm 0.73$	$-0.00 \pm 0.58$

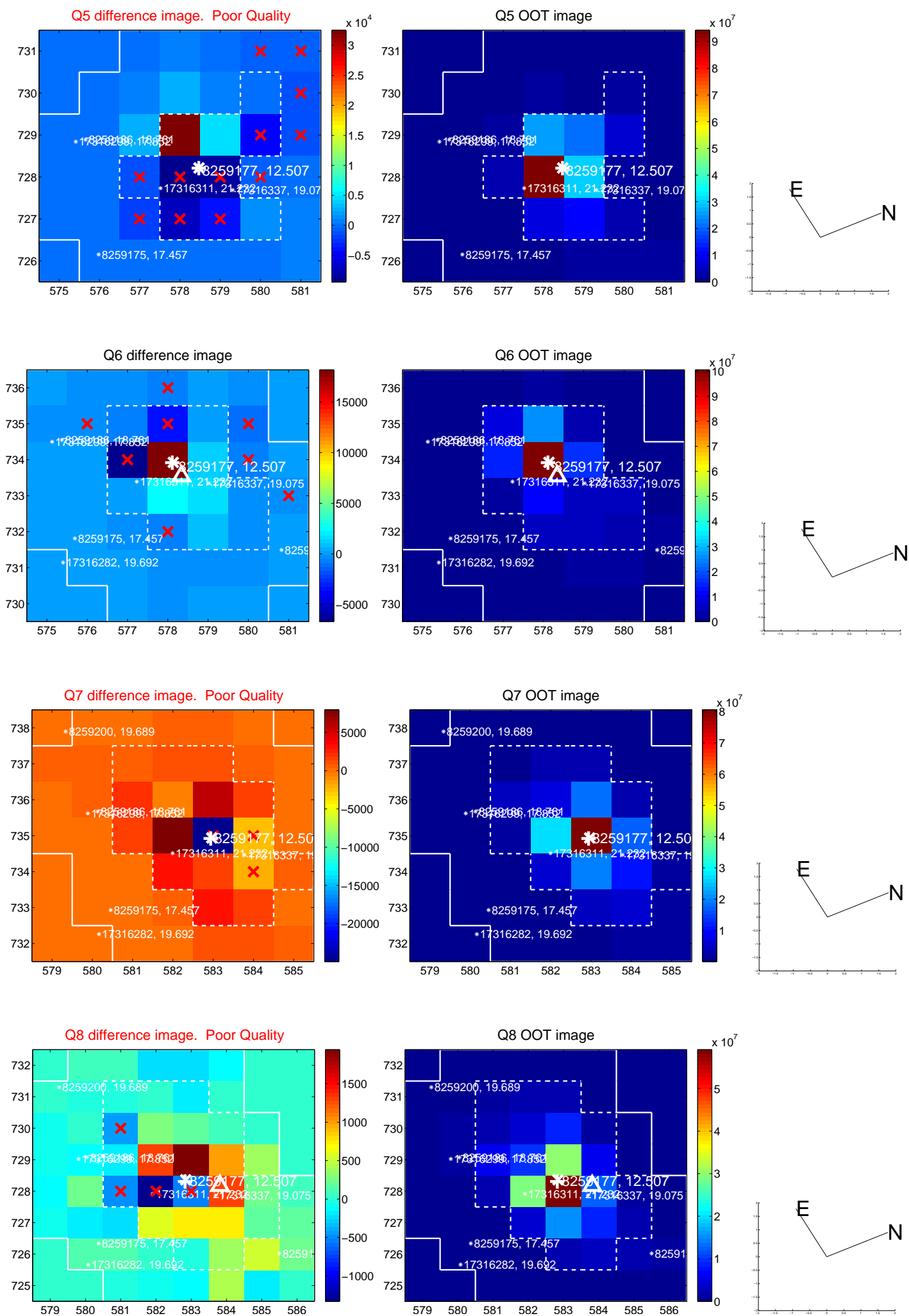


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: three-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

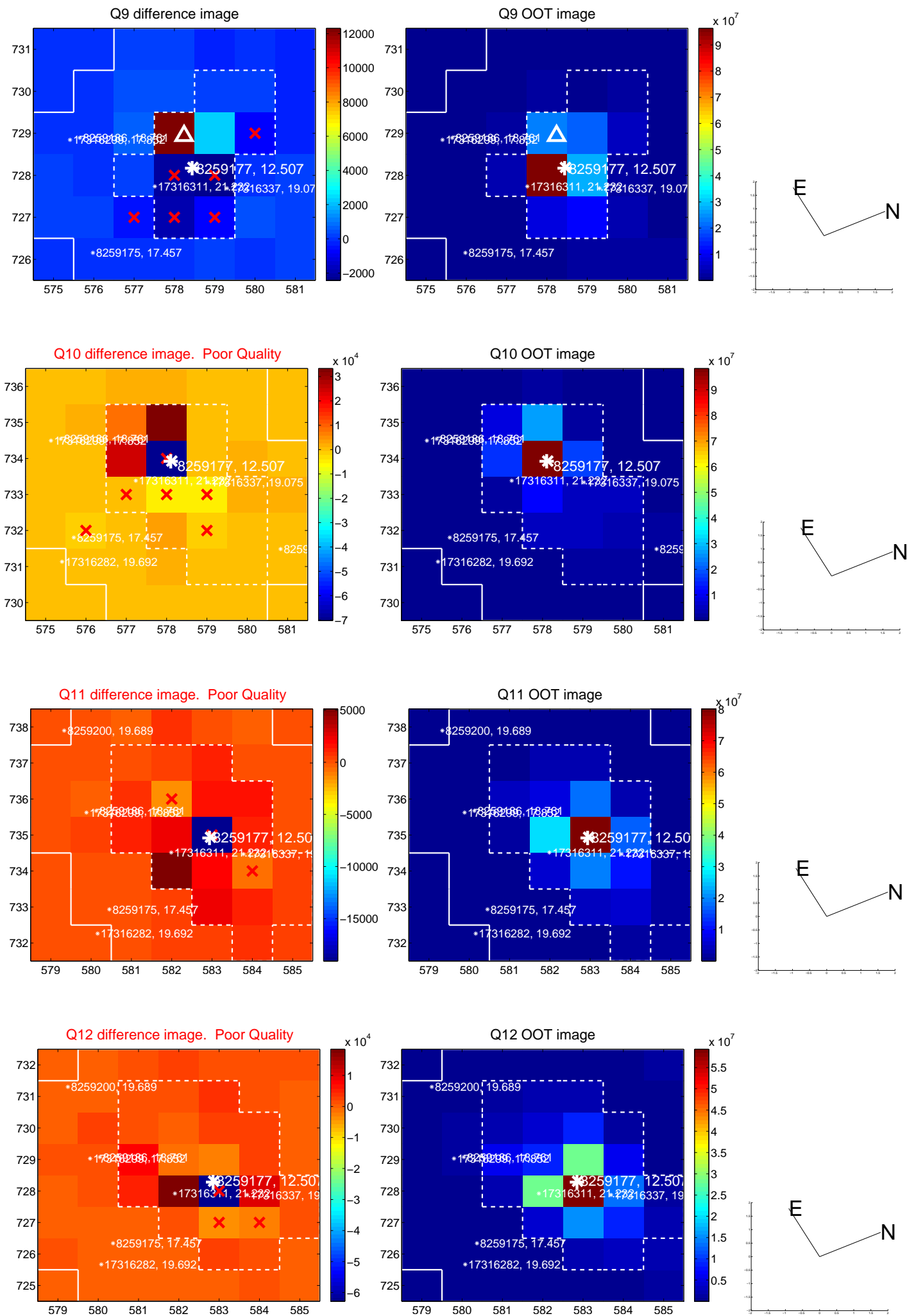


white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.

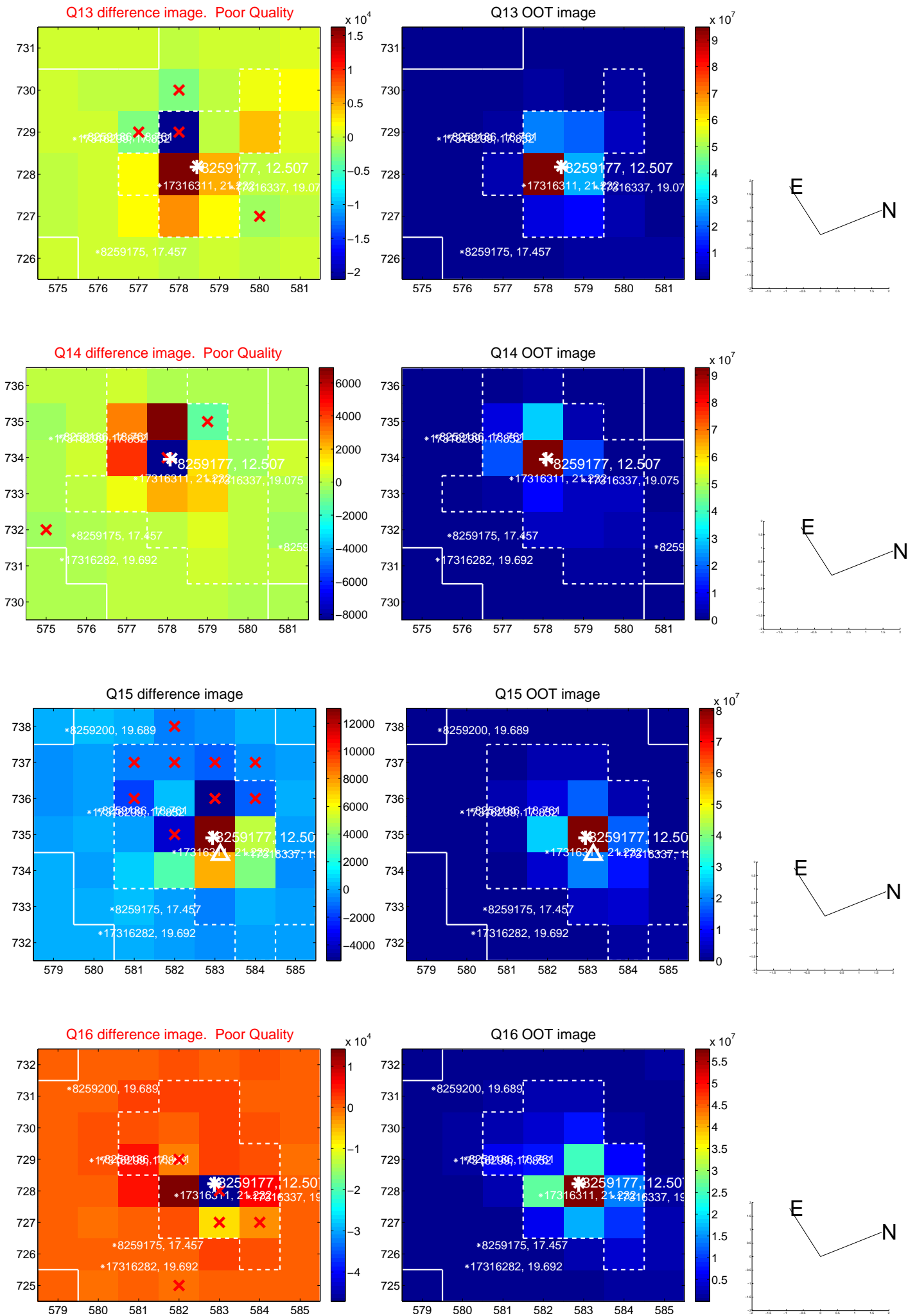




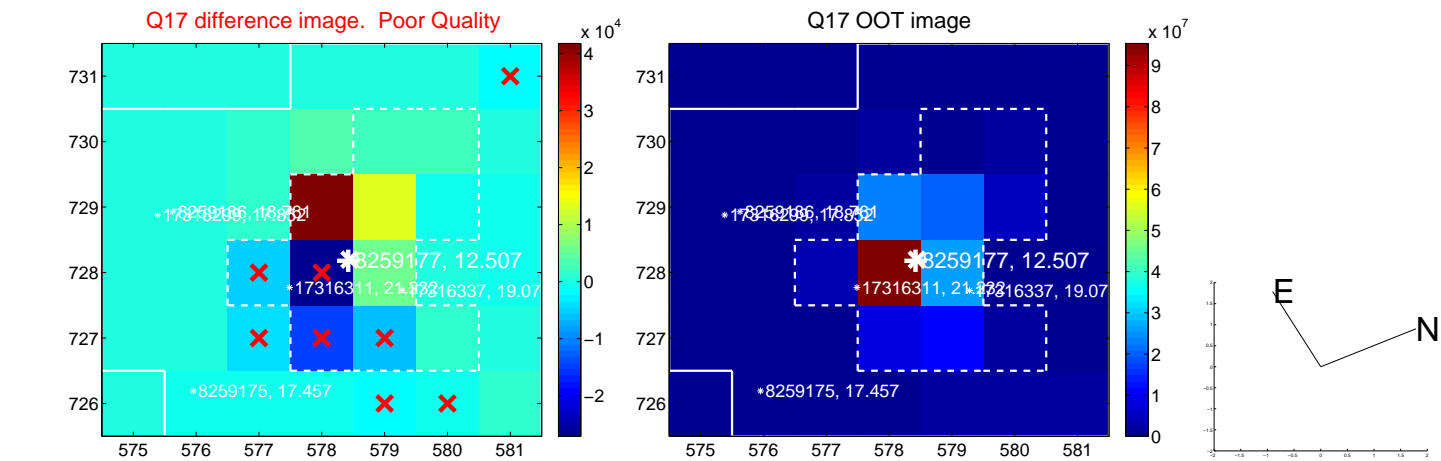
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



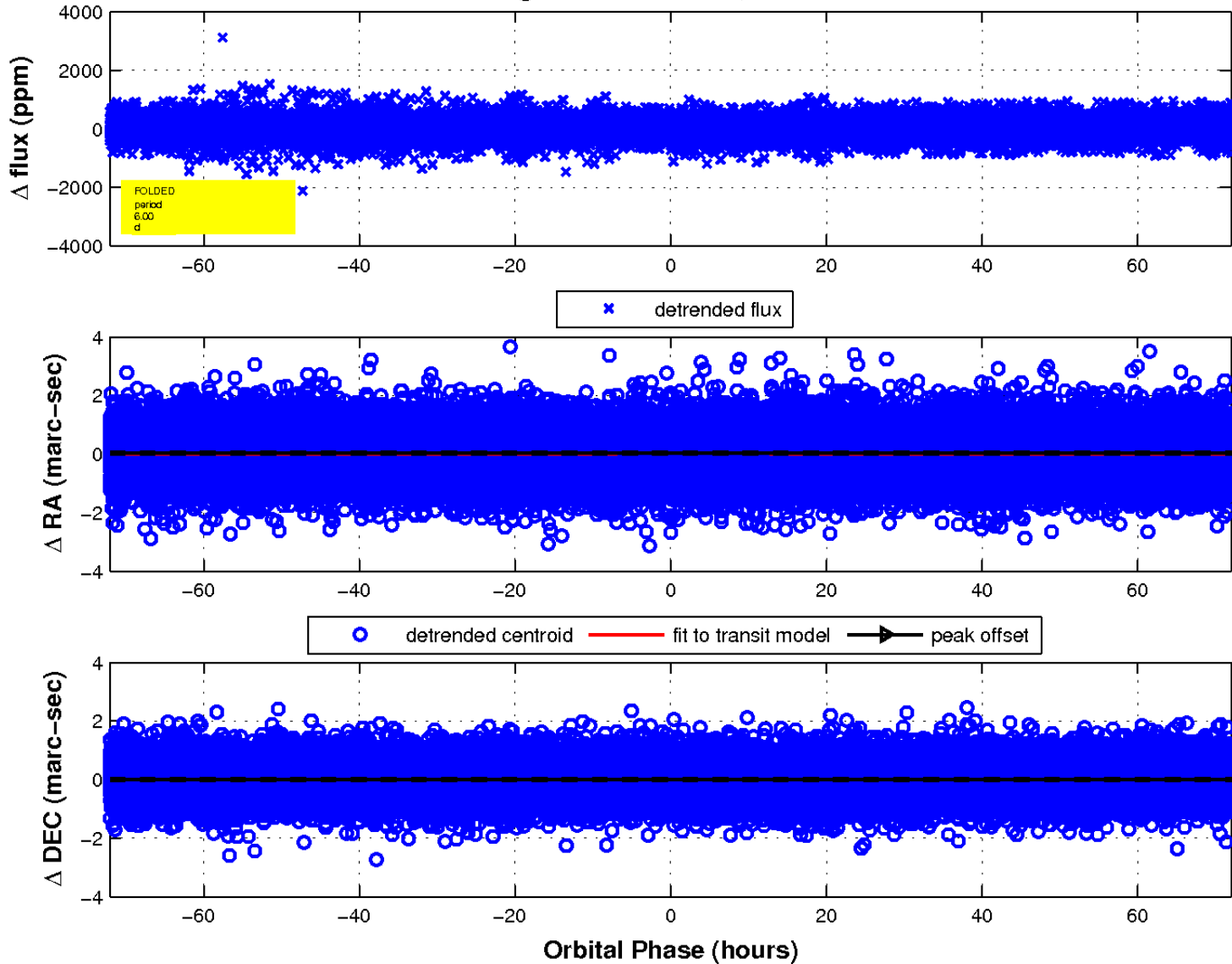
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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

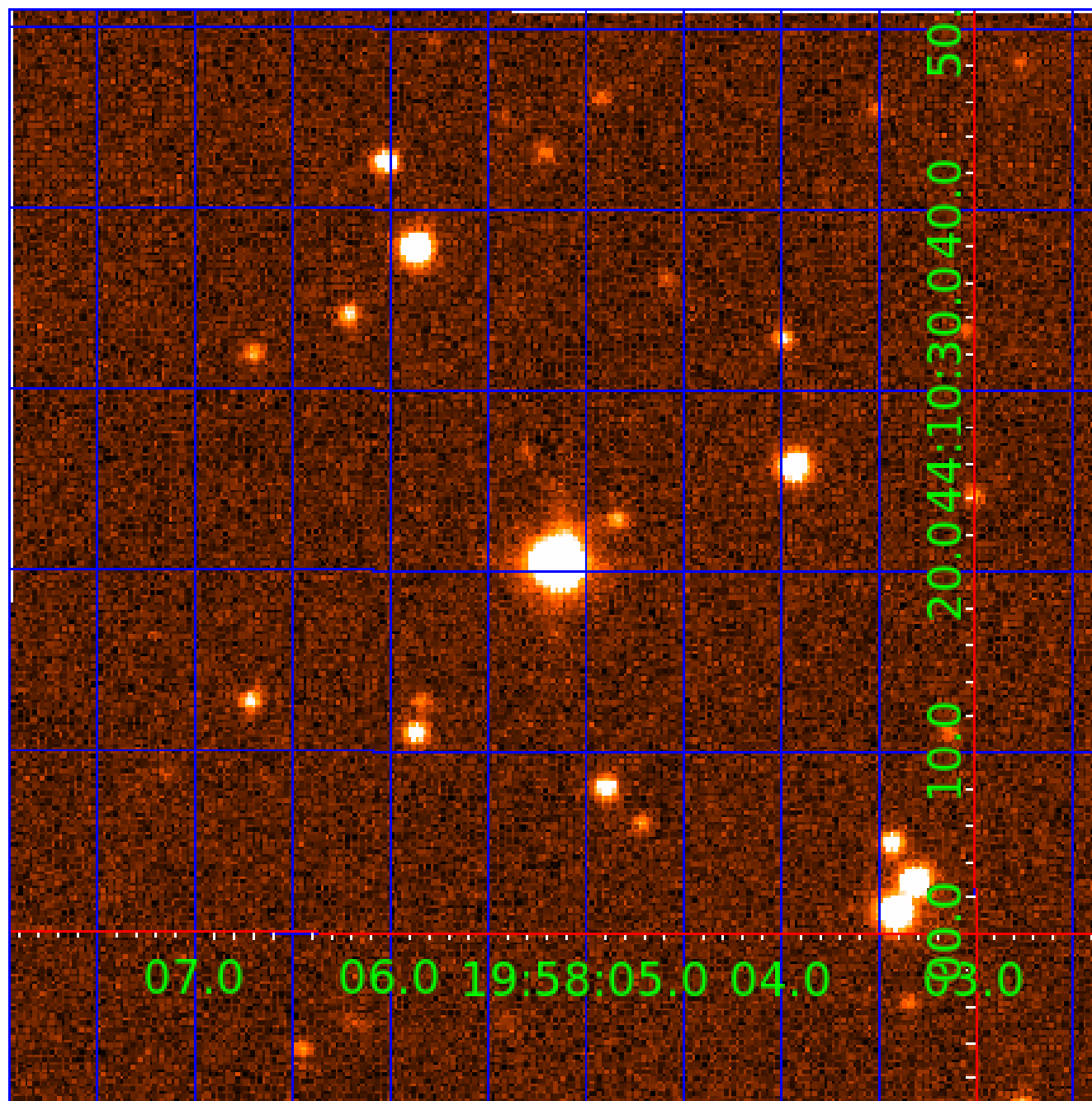


fluxWeightedCentroids, Planet 1 of 2



UKIRT Image

Declination





# KIC 008259177

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
008259177-01	OBS	No	6.002695	131.619973	54.3	15.000	9.3	-1.0	1.90	7286	1.42	1582.17
008259177-02	OBS	No	6.002111	135.800254	32.0	42.088	10.9	15.7	1.90	7286	1.09	1582.38

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
008259177-01	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_ALT—CENT_NOFITS
008259177-02	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—SAME_NTL_PERIOD

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

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

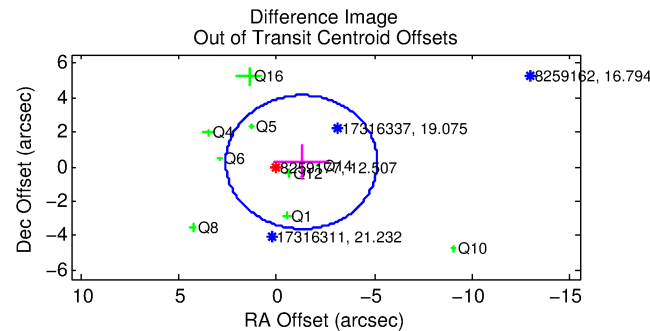
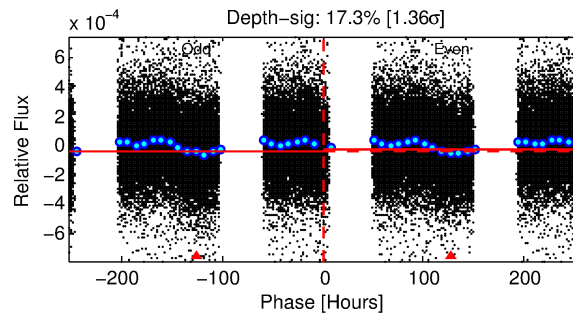
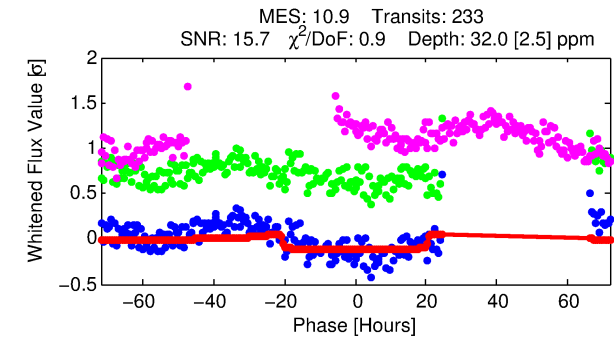
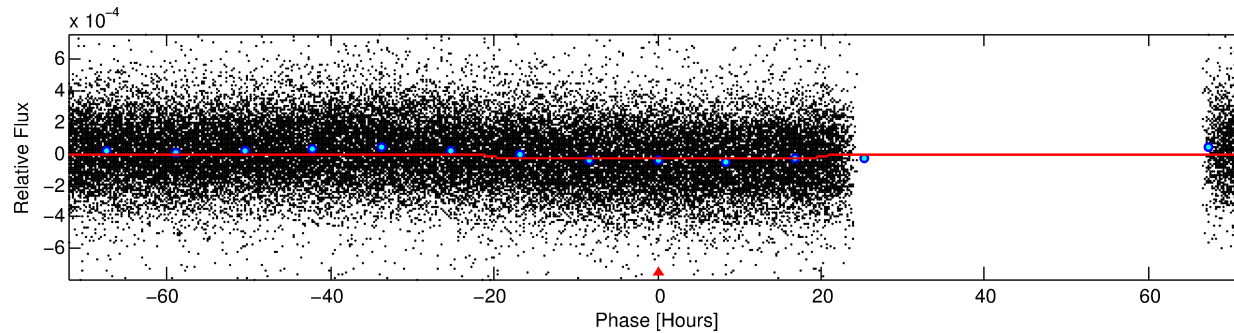
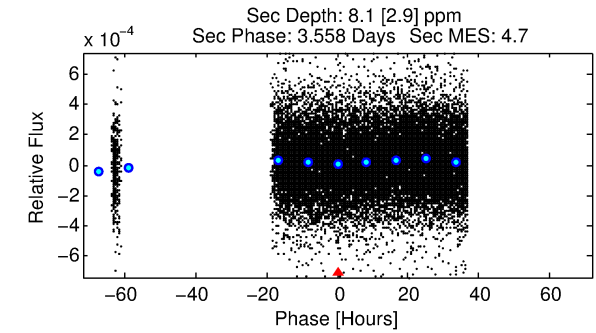
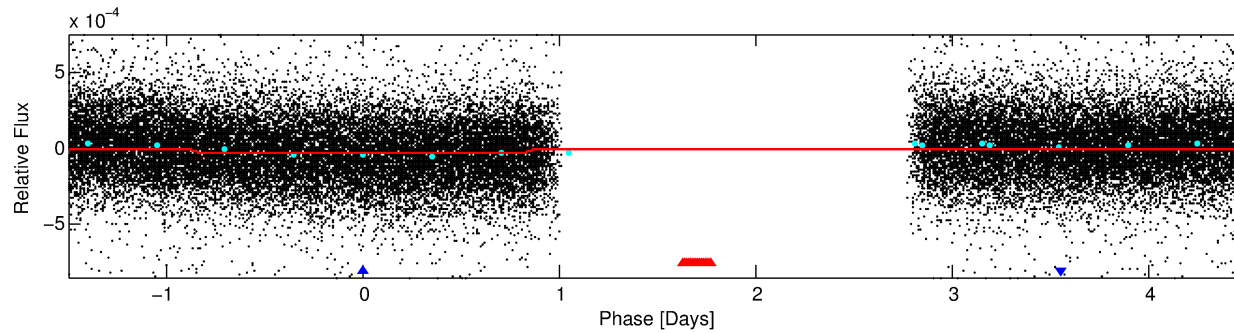
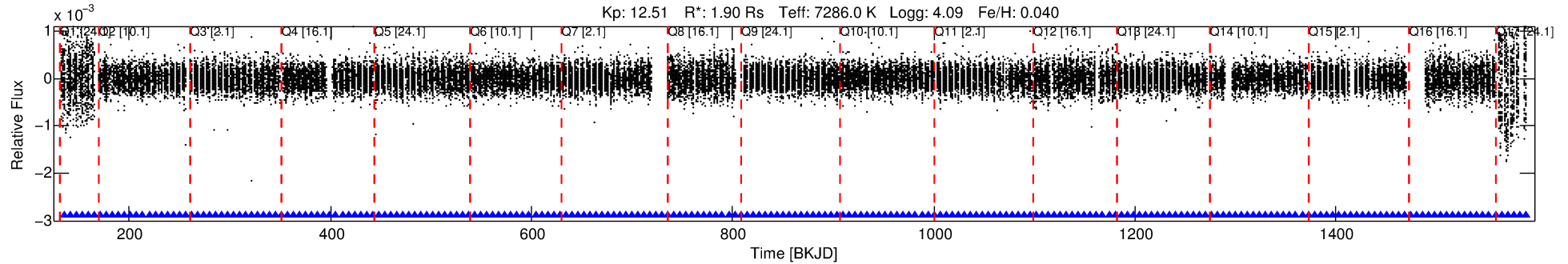
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

## Ephemeris Match Information For 008259177-02

No Significant Match Found

# DV One-Page Summary

KIC: 8259177 Candidate: 2 of 2 Period: 6.002 d



## DV Fit Results:

Period = 6.00211 [0.00013] d  
Epoch = 135.8003 [0.0164] BKJD  
Rp/R\* = 0.0053 [0.0026]  
a/R\* = 1.26 [1.38]  
b = 0.15 [19.58]  
Seff = 1582.38 [594.66]  
Teq = 1608 [151] K  
Rp = 1.09 [0.62] Re  
a = 0.0758 [0.0180] AU  
Ag = 21.57 [23.58] [0.87σ]  
Teffp = 5358 [1414] K [2.64σ]

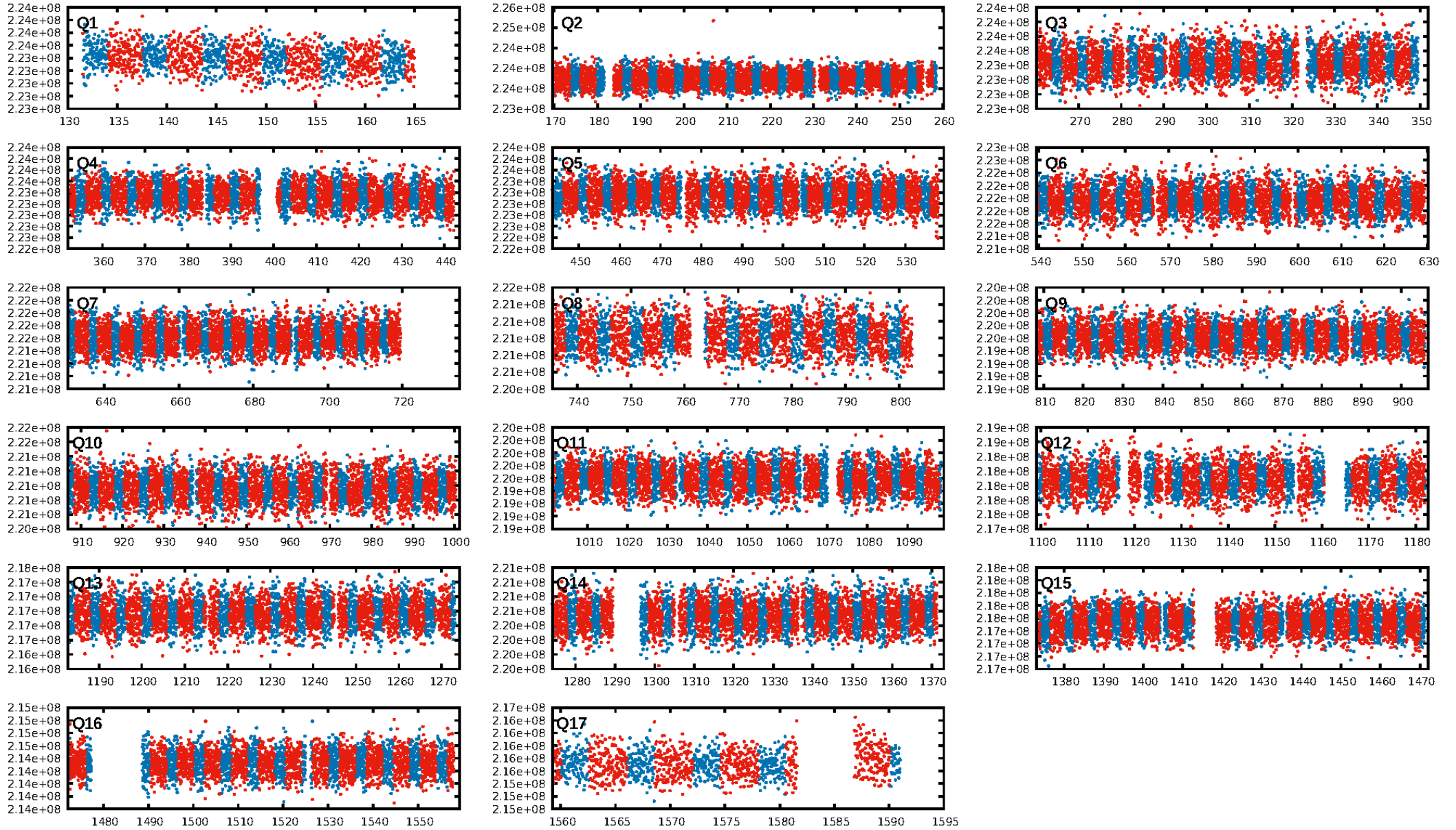
## DV Diagnostic Results:

ShortPeriod-sig: N/A  
LongPeriod-sig: 0.0% [0.00σ]  
ModelChiSquare2-sig: N/A  
ModelChiSquareGof-sig: N/A  
Bootstrap-pfa: 1.27e-45  
RollingBand-fgt: 1.00 [222/222]  
GhostDiagnostic-chr: 3.14  
Centroid-sig: 1.0%  
Centroid-so: 1.052 arcsec [1.84σ]  
OotOffset-rm: 1.304 arcsec [1.01σ]  
KicOffset-rm: 1.305 arcsec [1.01σ]  
OotOffset-st: 3/0/4/2 [9]  
KicOffset-st: 3/0/4/2 [9]  
DiffImageQuality-fgm: 0.33 [3/9]  
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Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 16:09:16 Z

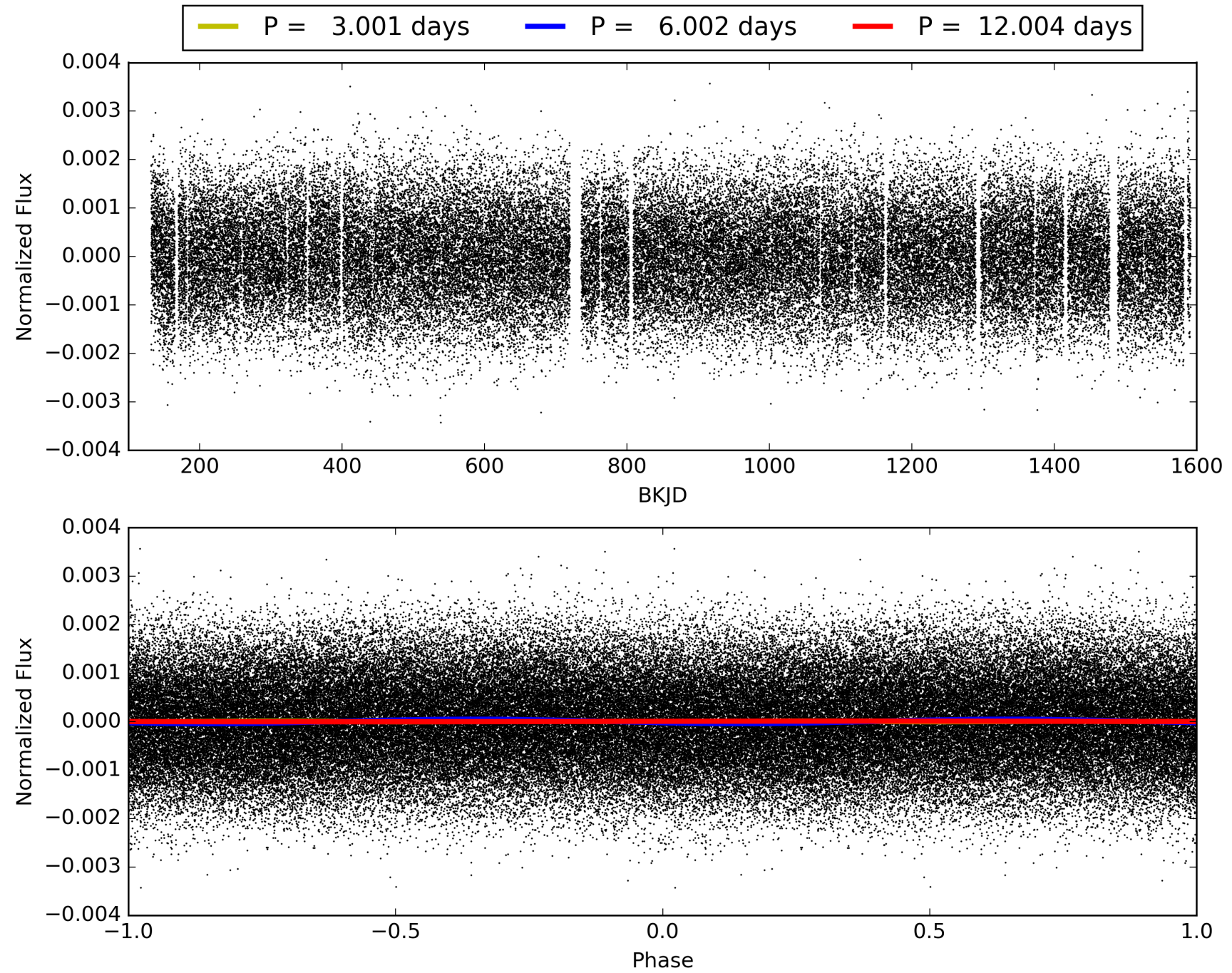
This Data Validation Report Summary was produced in the Kepler Science Operations Center Pipeline at NASA Ames Research Center

# TCE 008259177-02, PDC Light Curves





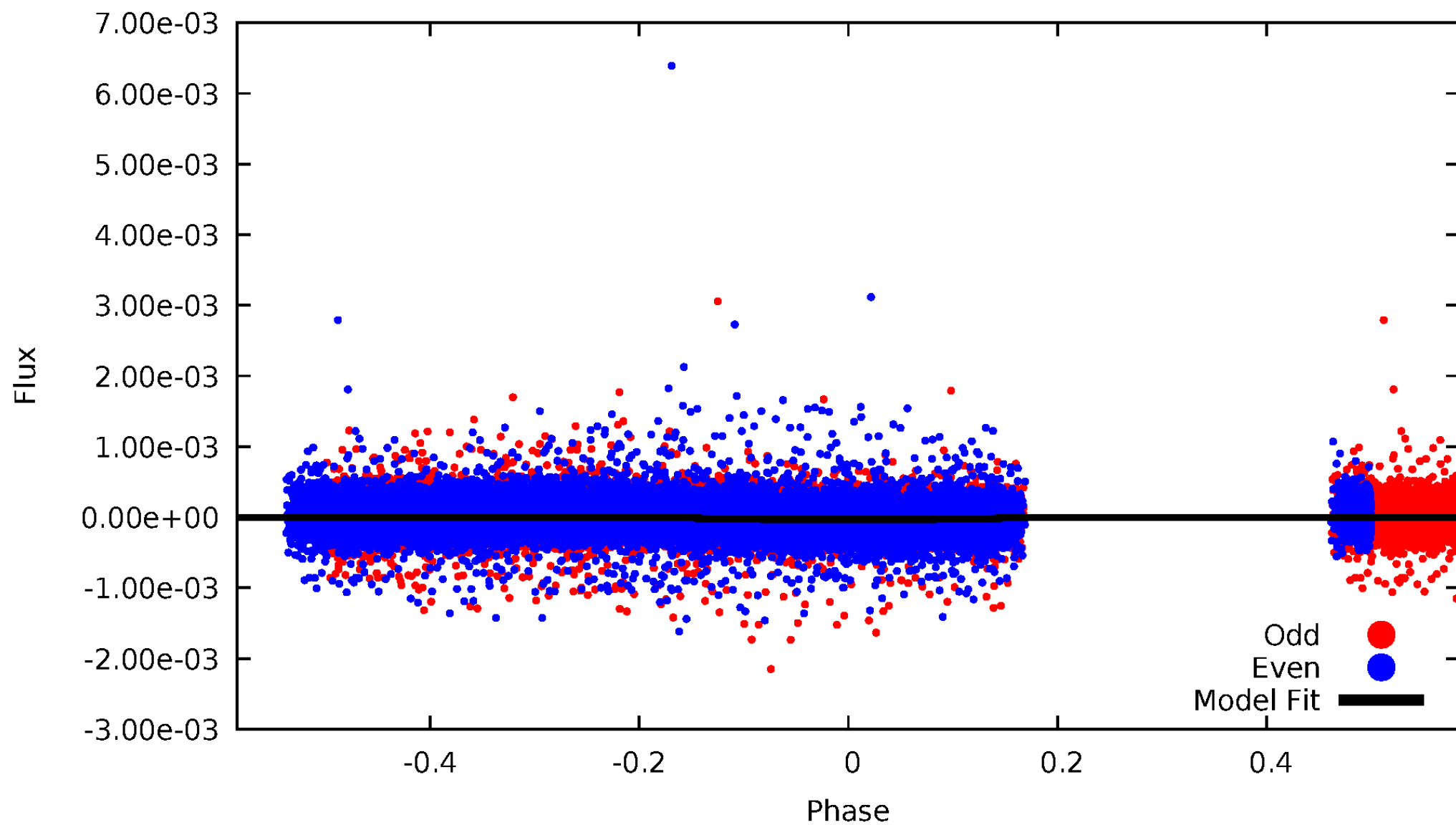
TCE 008259177-02





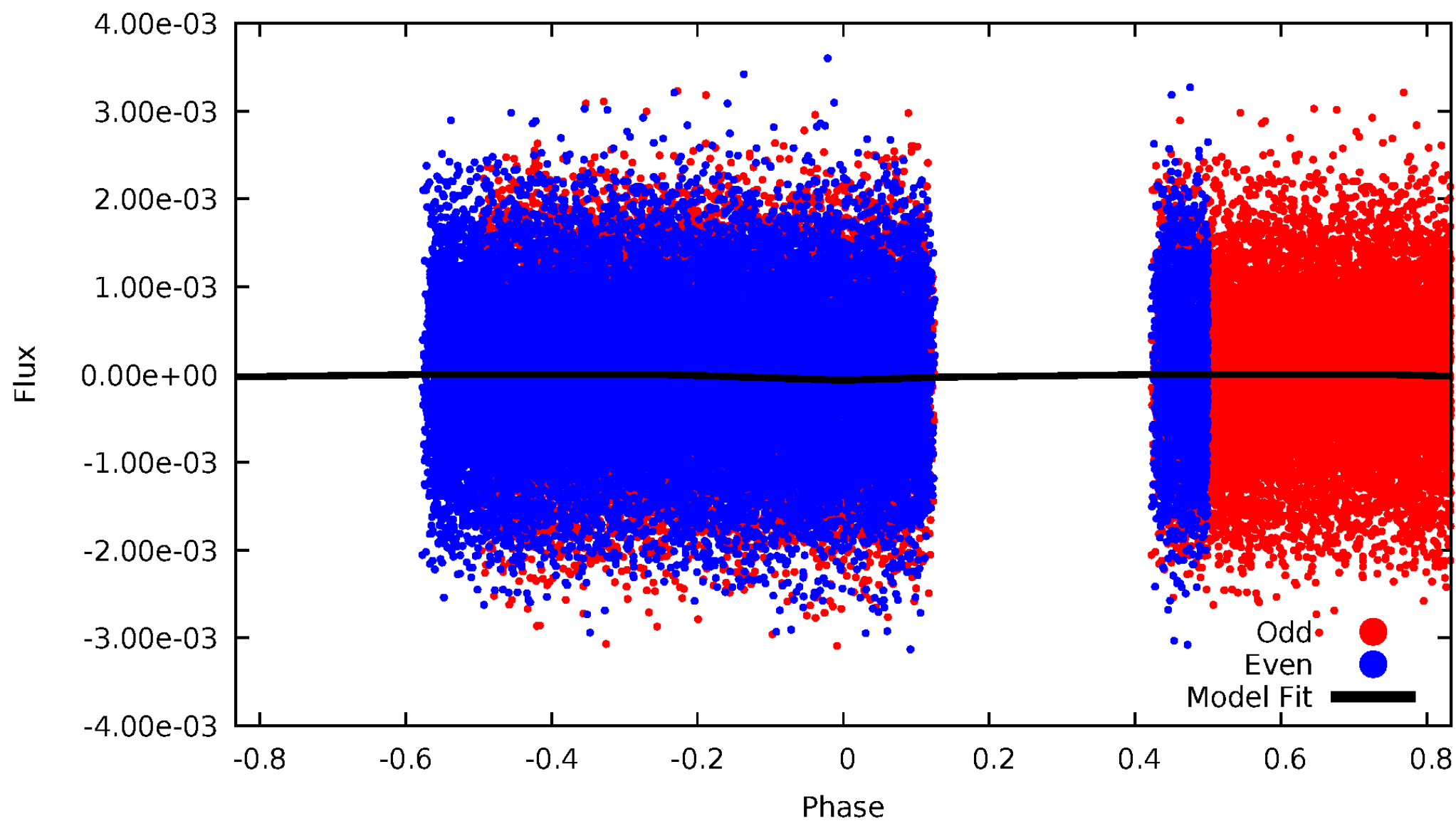
DV Odd/Even

TCE 008259177-02



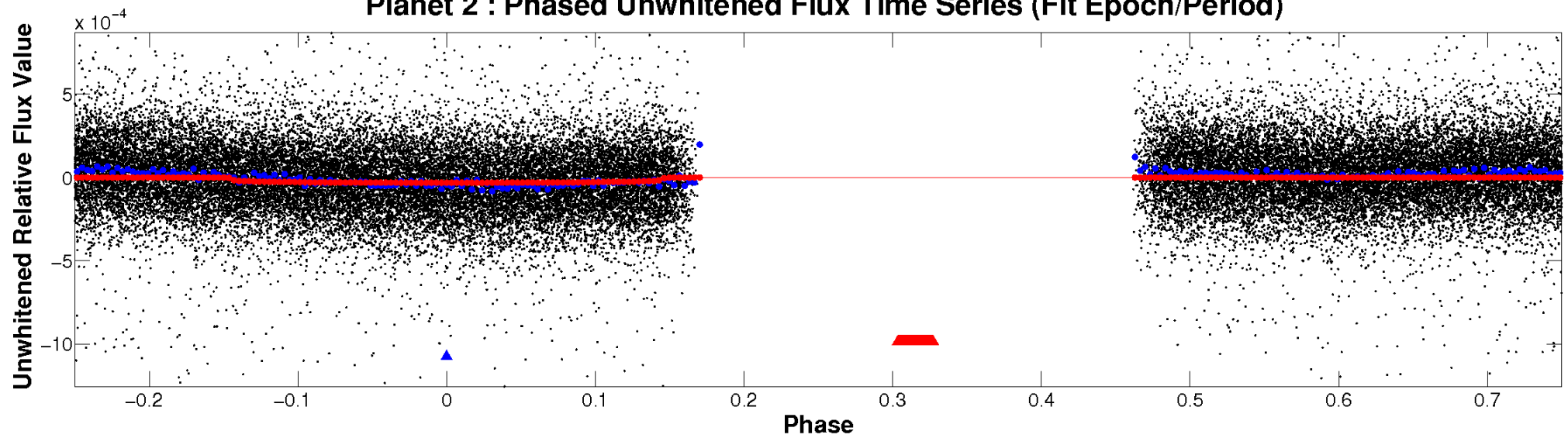
# ALT Odd/Even

TCE 008259177-02

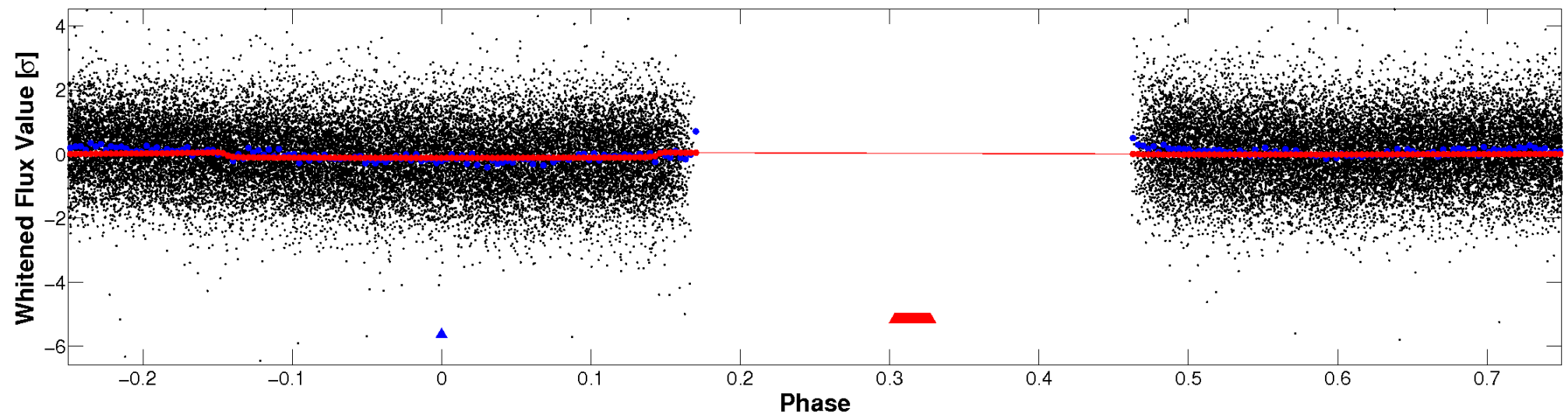


# Non-Whitened Vs. Whitened Light Curve

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

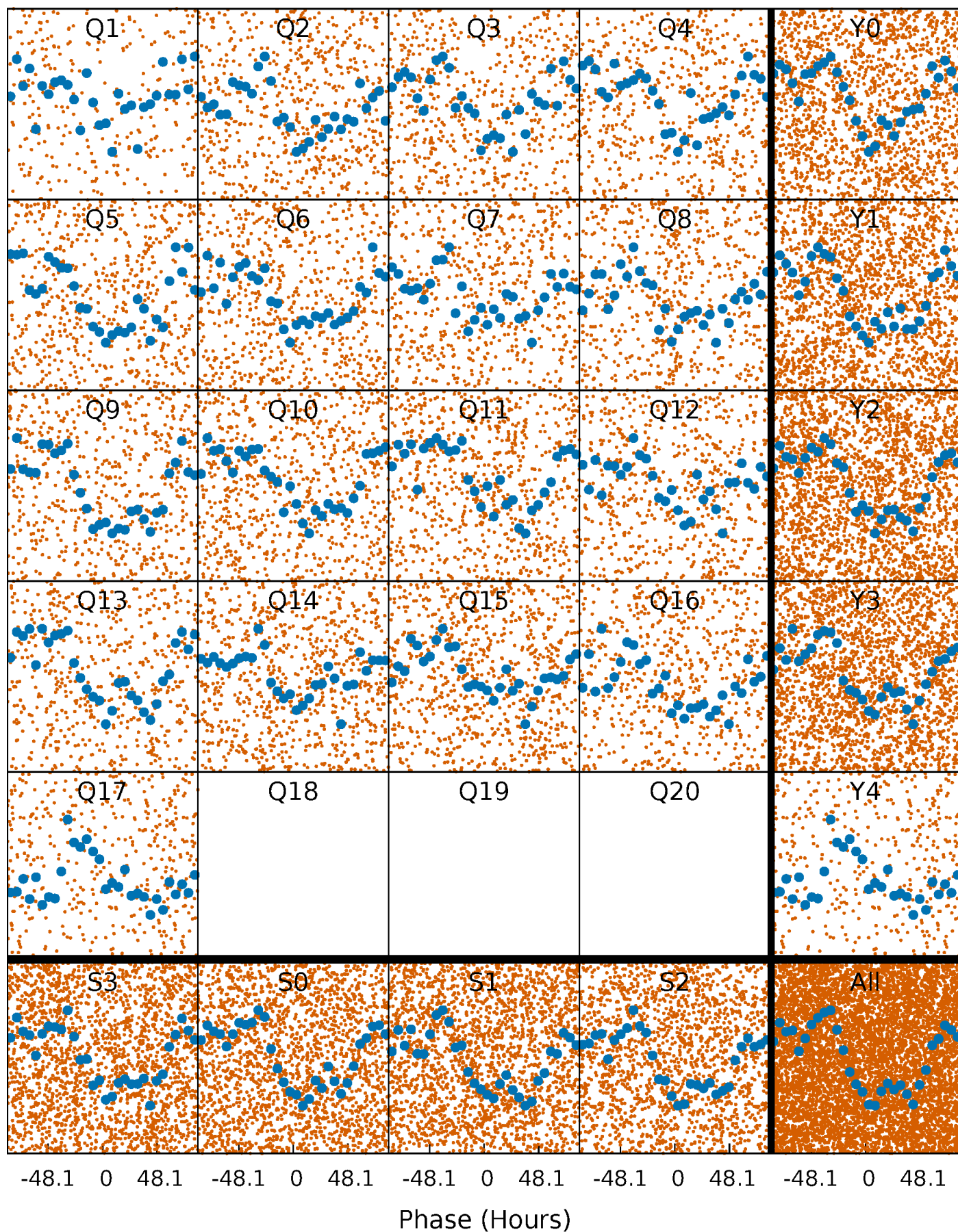


## Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



# PDC Quarter-Phased Transit Curves

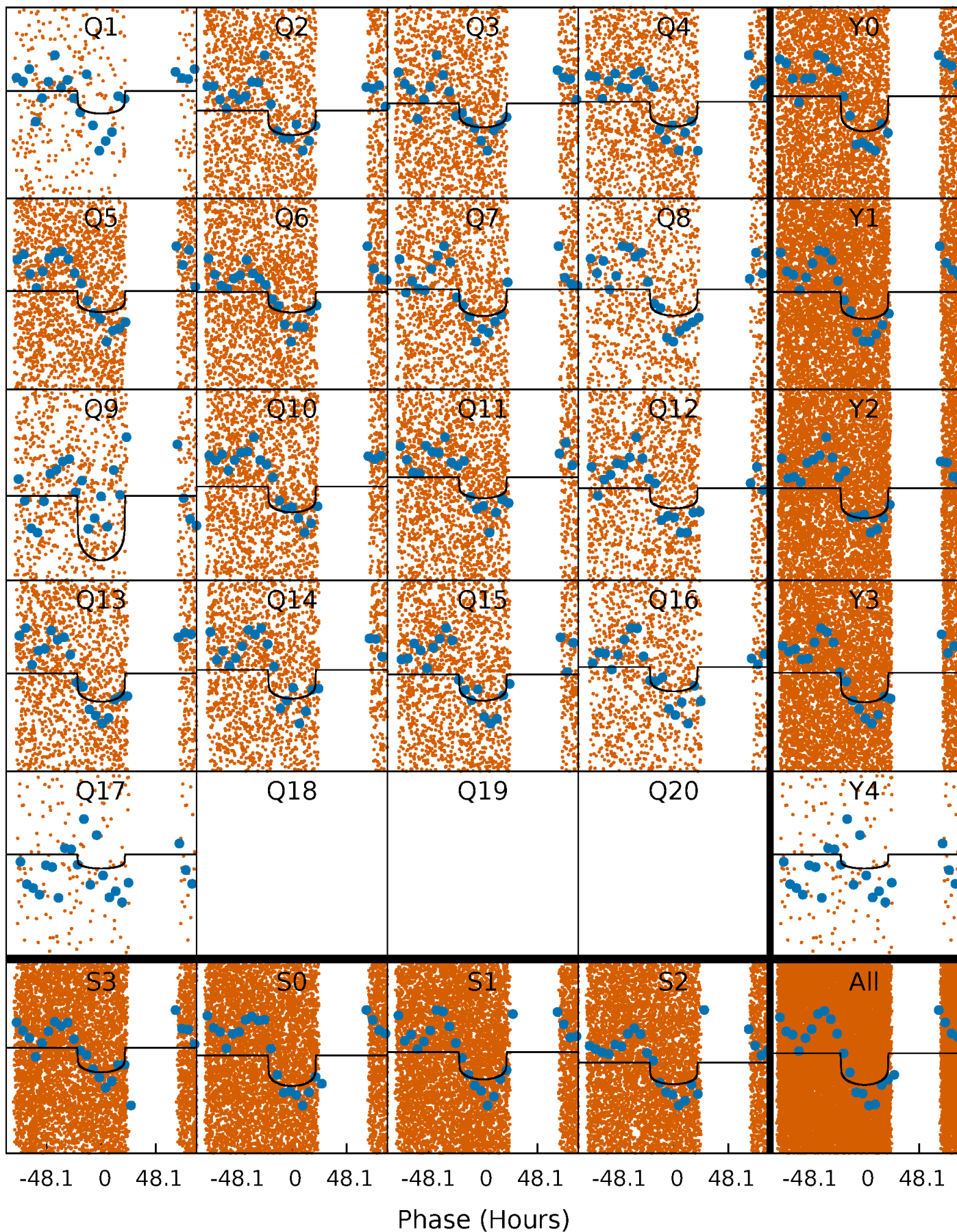
TCE 008259177-02 P= 6.002111 Days  $T_0=135.800254$  (BKJD)





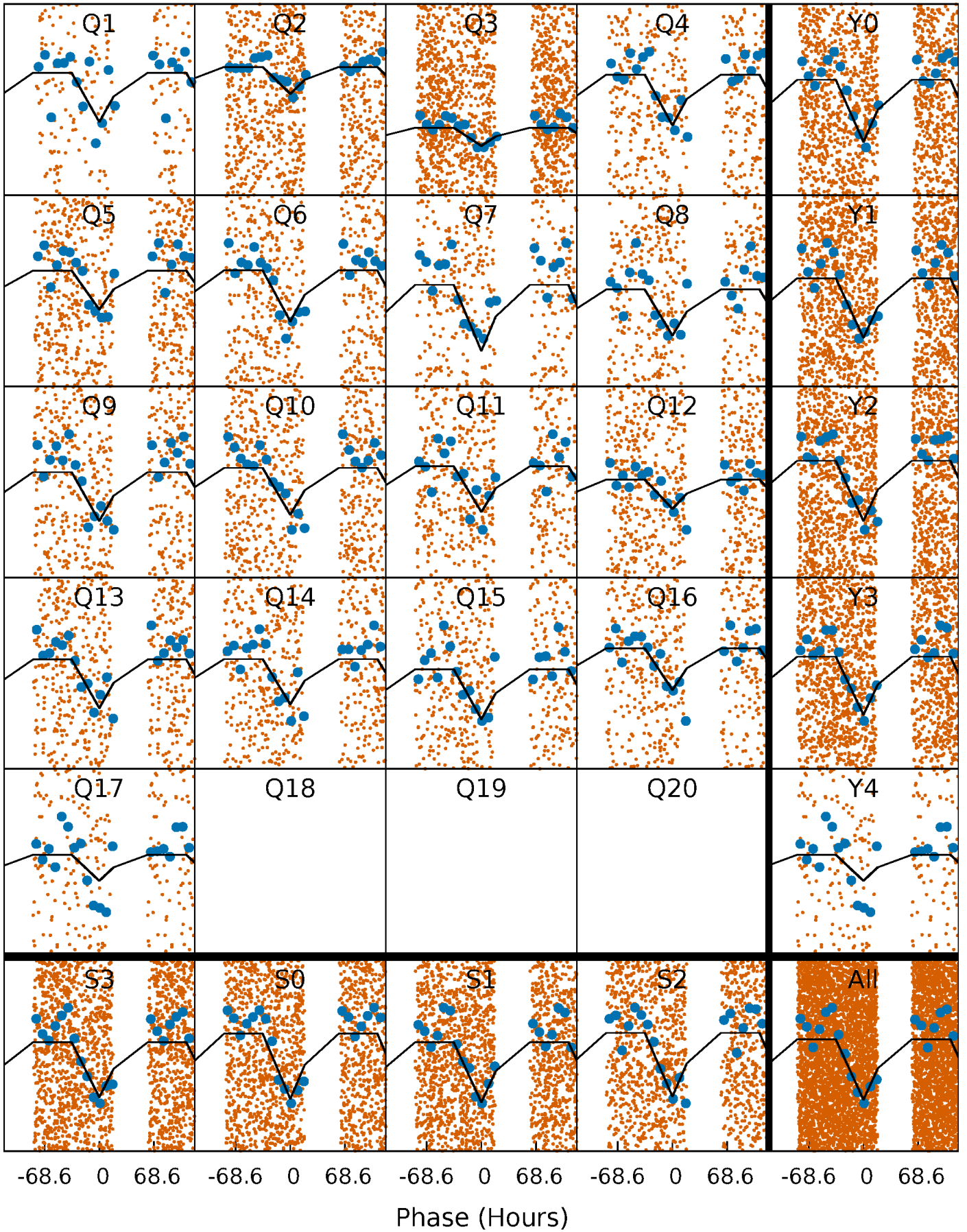
# DV Quarter-Phased Transit Curves

TCE 008259177-02   P= 6.002111 Days    $T_0=135.800254$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

TCE 008259177-02 P= 6.003207 Days  $T_0=135.917184$  (BKJD)

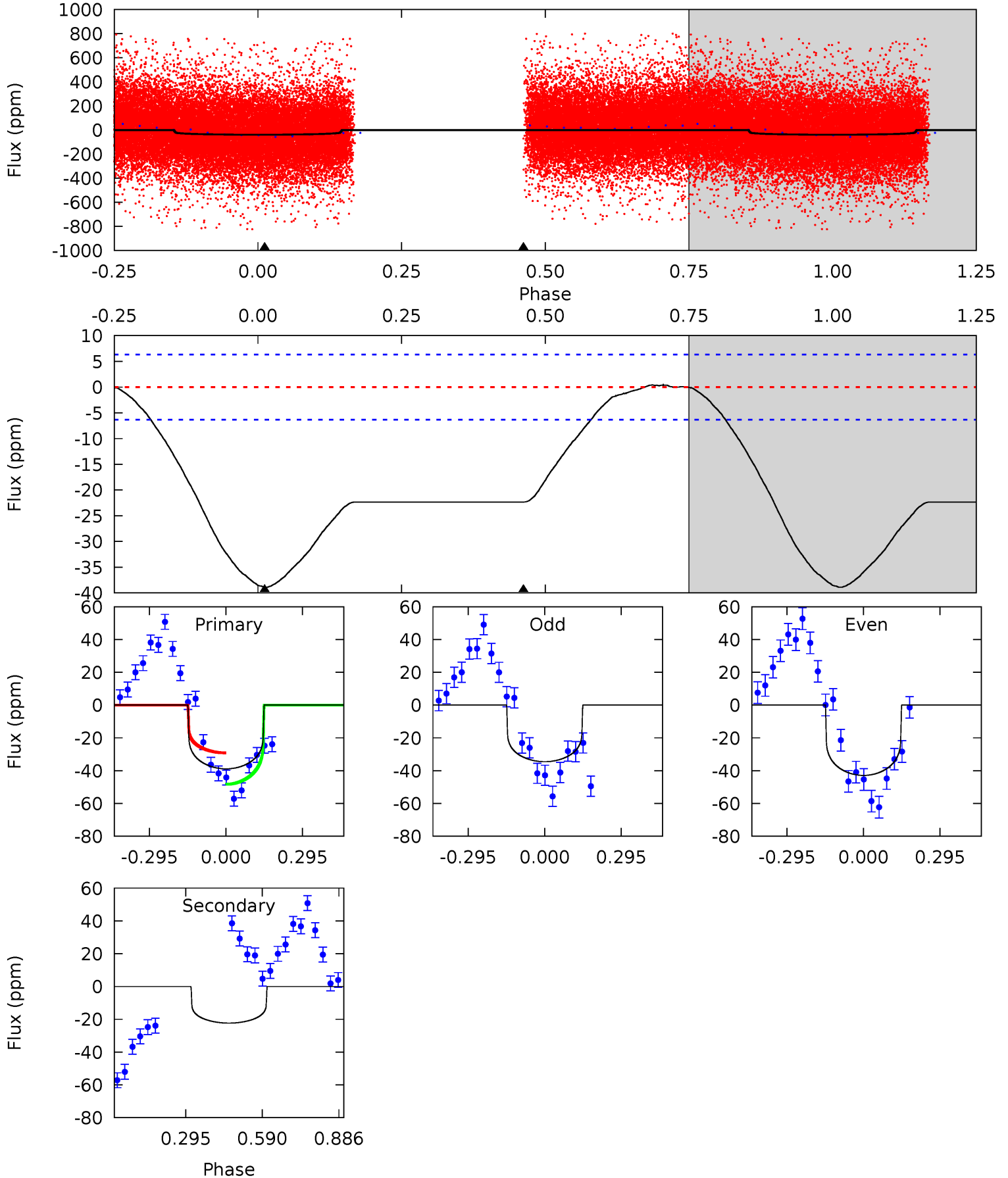




# DV Model-Shift Uniqueness Test

008259177-02, P = 6.002111 Days, E = 129.798143 Days

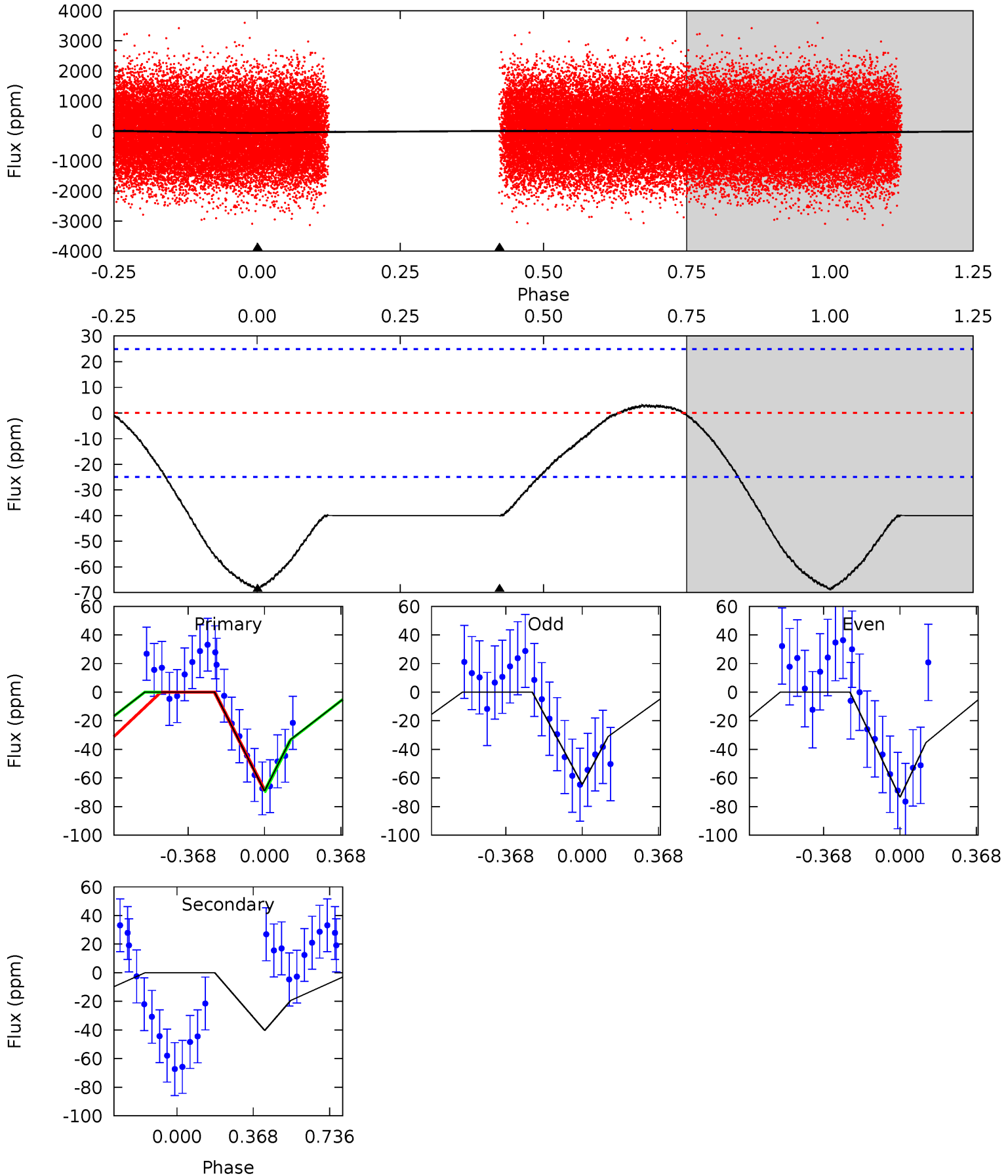
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
26.6	15.3	0	0	4.33	1.05	0.27	26.6	26.6	15.3	15.3	2.88	0.95	0.01	6.58



# Alt Model-Shift Uniqueness Test

008259177-02, P = 6.003207 Days, E = 129.913977 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
11.8	6.91	0	0	4.28	0.90	0.35	11.8	11.8	6.91	6.91	0.76	0.97	0.04	0.08



### Stellar Parameters For KIC 008259177

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	$7286^{+230}_{-316}$	$4.089^{+0.144}_{-0.176}$	$0.040^{+0.200}_{-0.350}$	$1.898^{+0.556}_{-0.404}$	$1.613^{+0.212}_{-0.259}$	$0.332^{+0.246}_{-0.163}$
	+3%/-4%	+4%/-4%	+500%/-875%	+29%/-21%	+13%/-16%	+74%/-49%
Source	KIC0	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 008259177-02 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	$A_{\text{obs}}$
DV	$-22 \pm 1$	$1.12^{+0.54}_{-0.53}$	$2246^{+162}_{-149}$	$6797^{+3067}_{-1272}$	$55^{+145}_{-30}$
Alt.	$-40 \pm 6$	$1.75^{+0.59}_{-0.55}$	$2238^{+183}_{-146}$	$6149^{+1517}_{-684}$	$41^{+49}_{-18}$

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

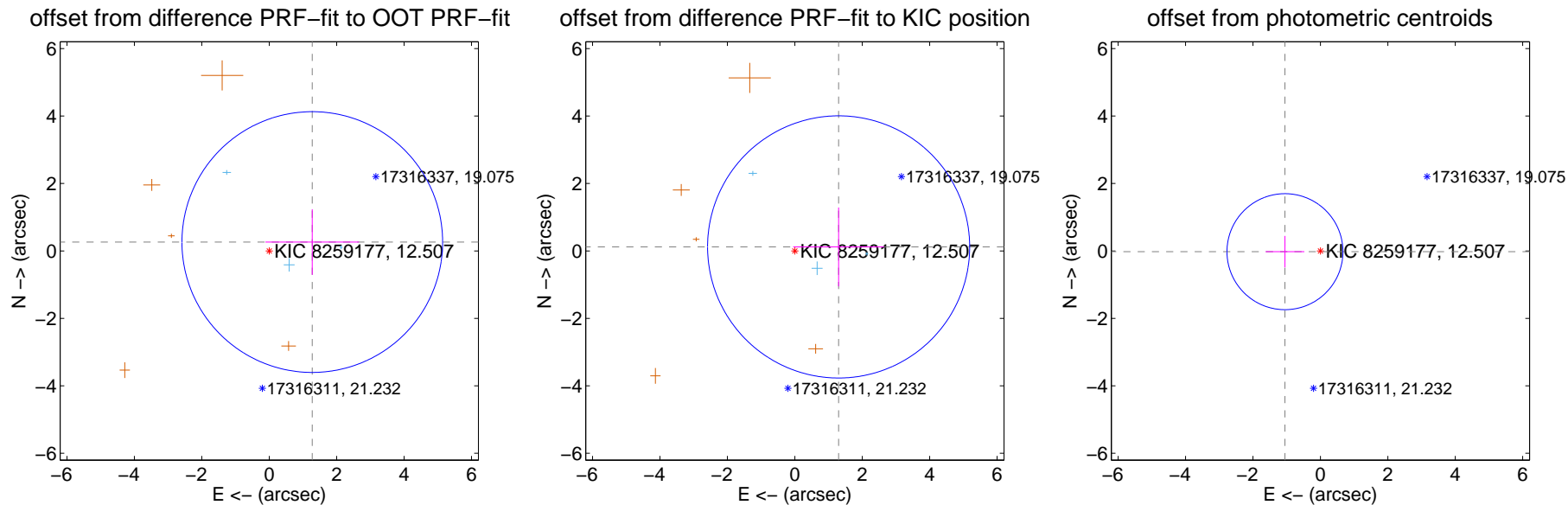
## DV Centroid Data

Supplemental centroid analysis for 008259177-02. Kepler magnitude: 12.51. Transit SNR 15.72

There are 3 quarters with good PRF difference image offsets

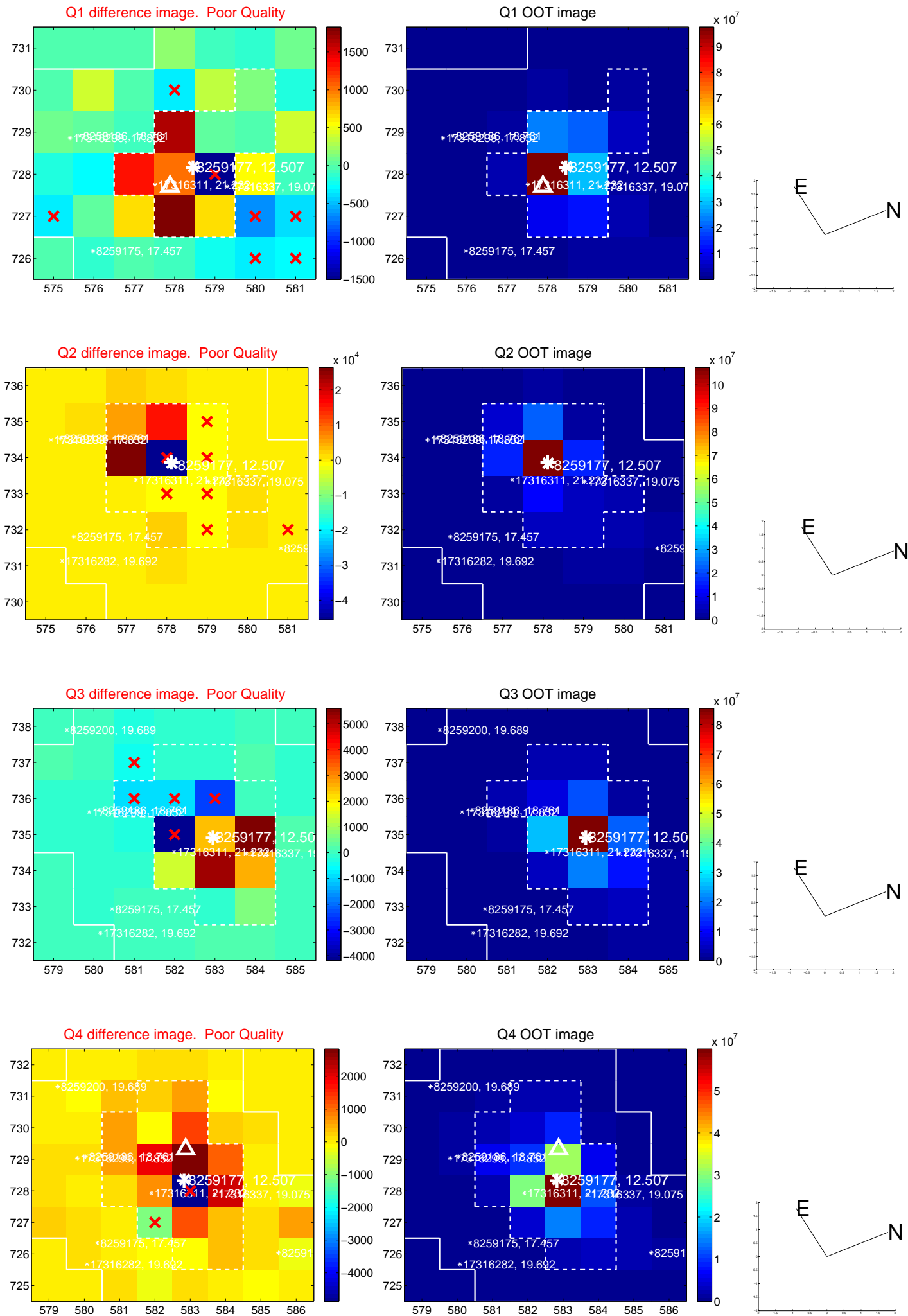
The direct PRF centroid is offset from the target star catalog position by about 0.10 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$1.304 \pm 1.289$	1.01	$-1.277 \pm 1.389$	$0.263 \pm 0.973$
PRF-fit source offset from KIC position	$1.305 \pm 1.296$	1.01	$-1.299 \pm 1.347$	$0.119 \pm 1.168$
photometric centroid source offset	$1.05 \pm 0.57$	1.84	$1.05 \pm 0.57$	$-0.02 \pm 0.47$

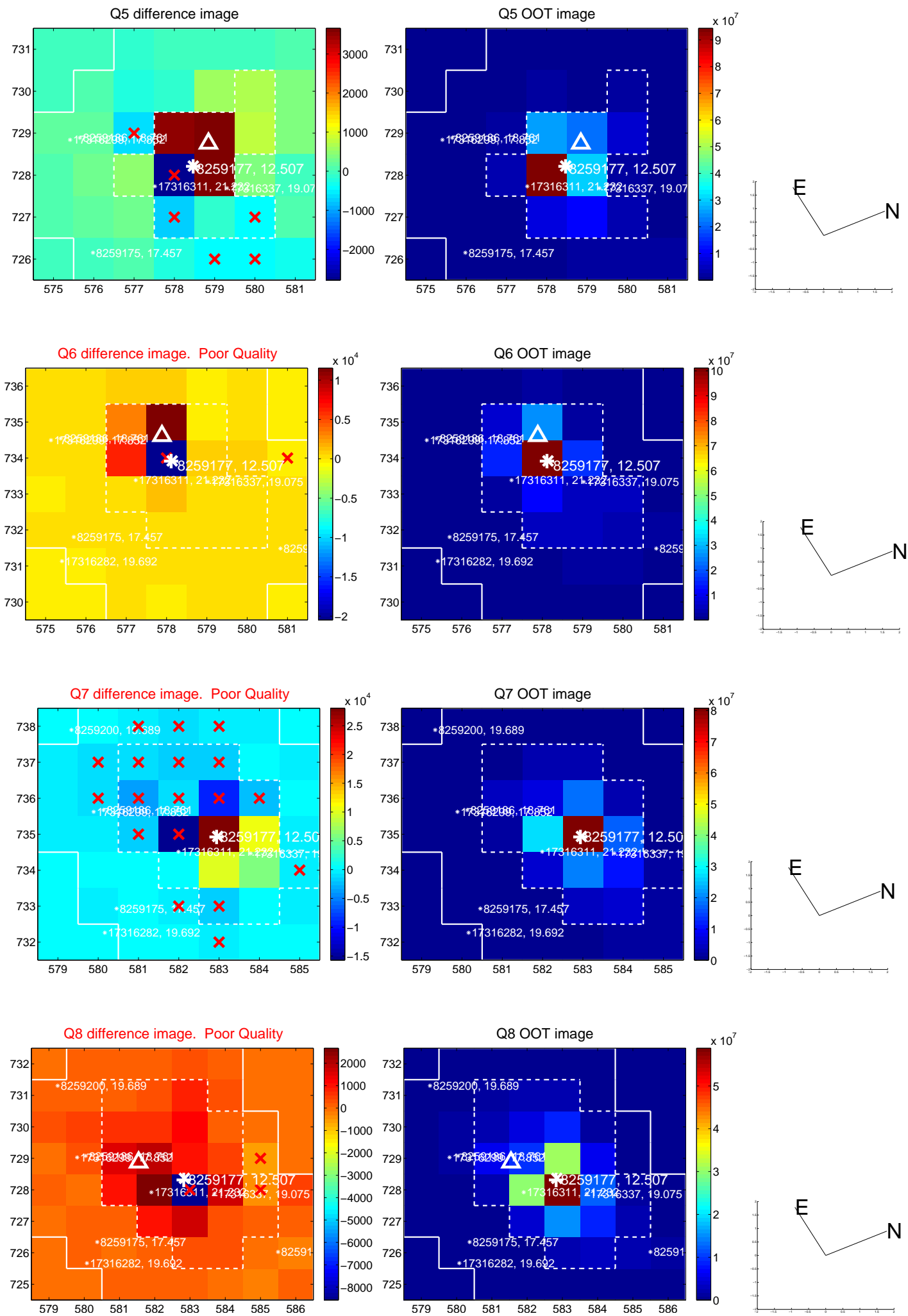


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: three-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

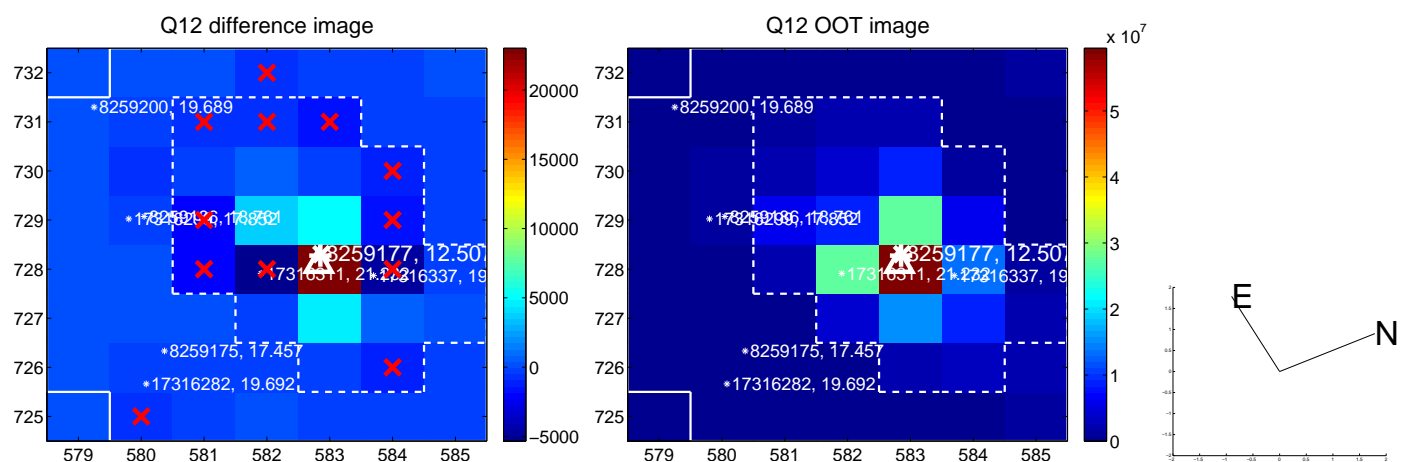
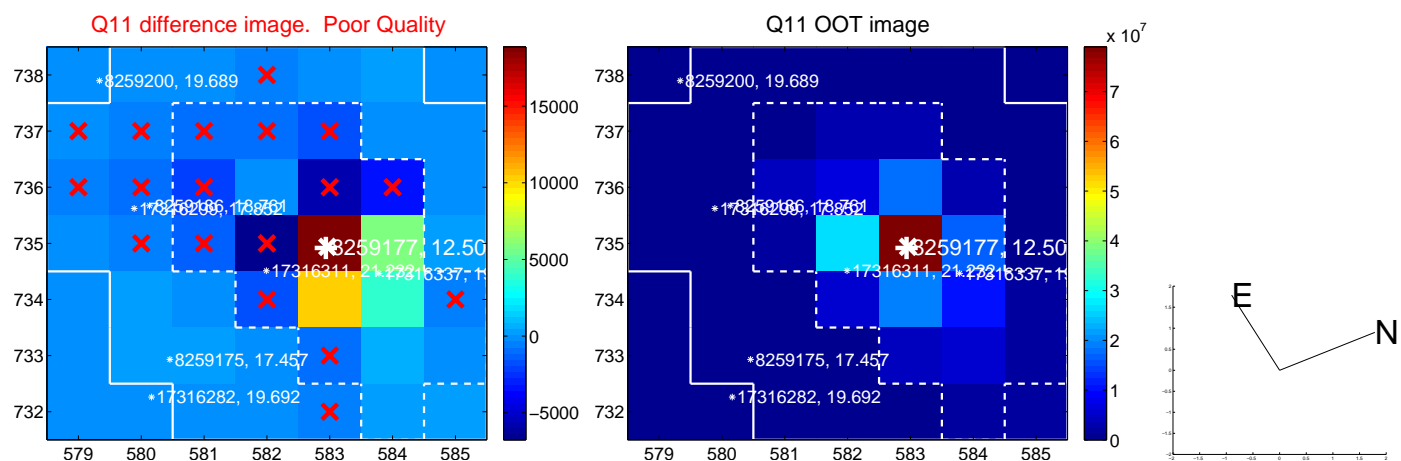
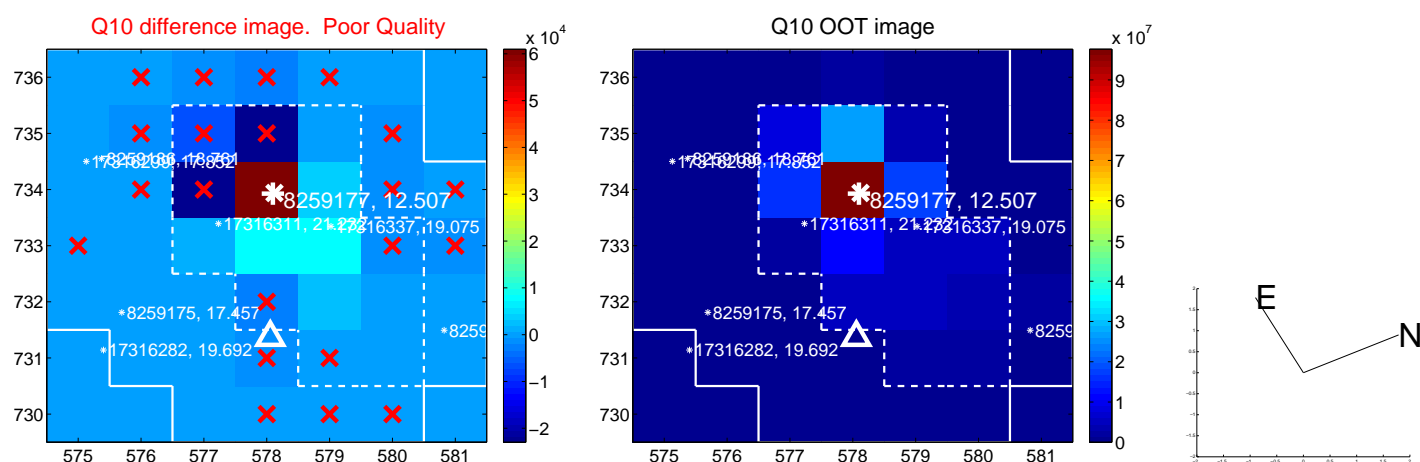
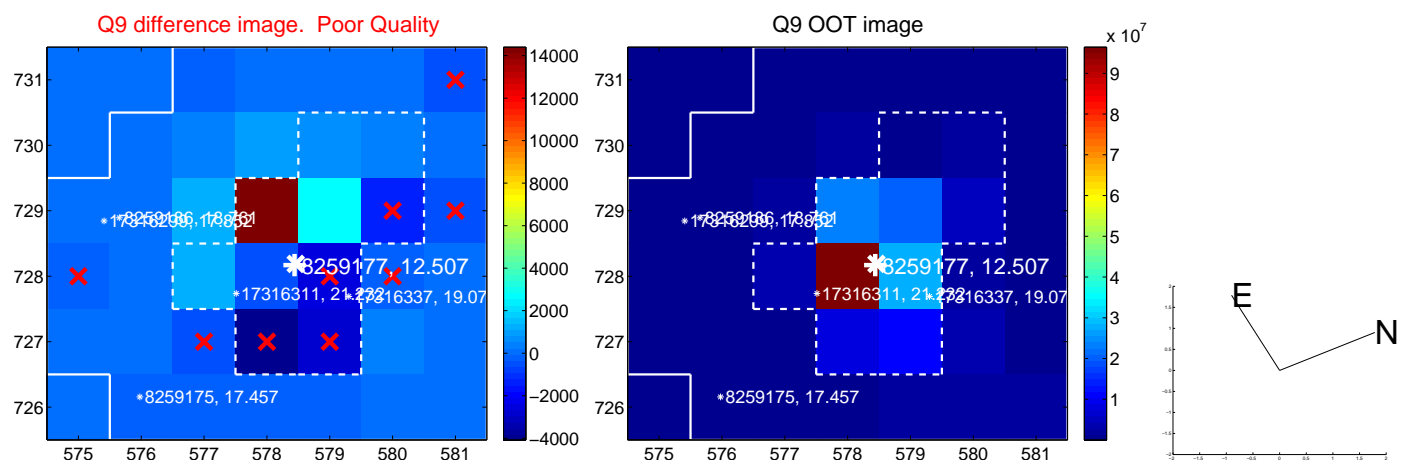


white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.

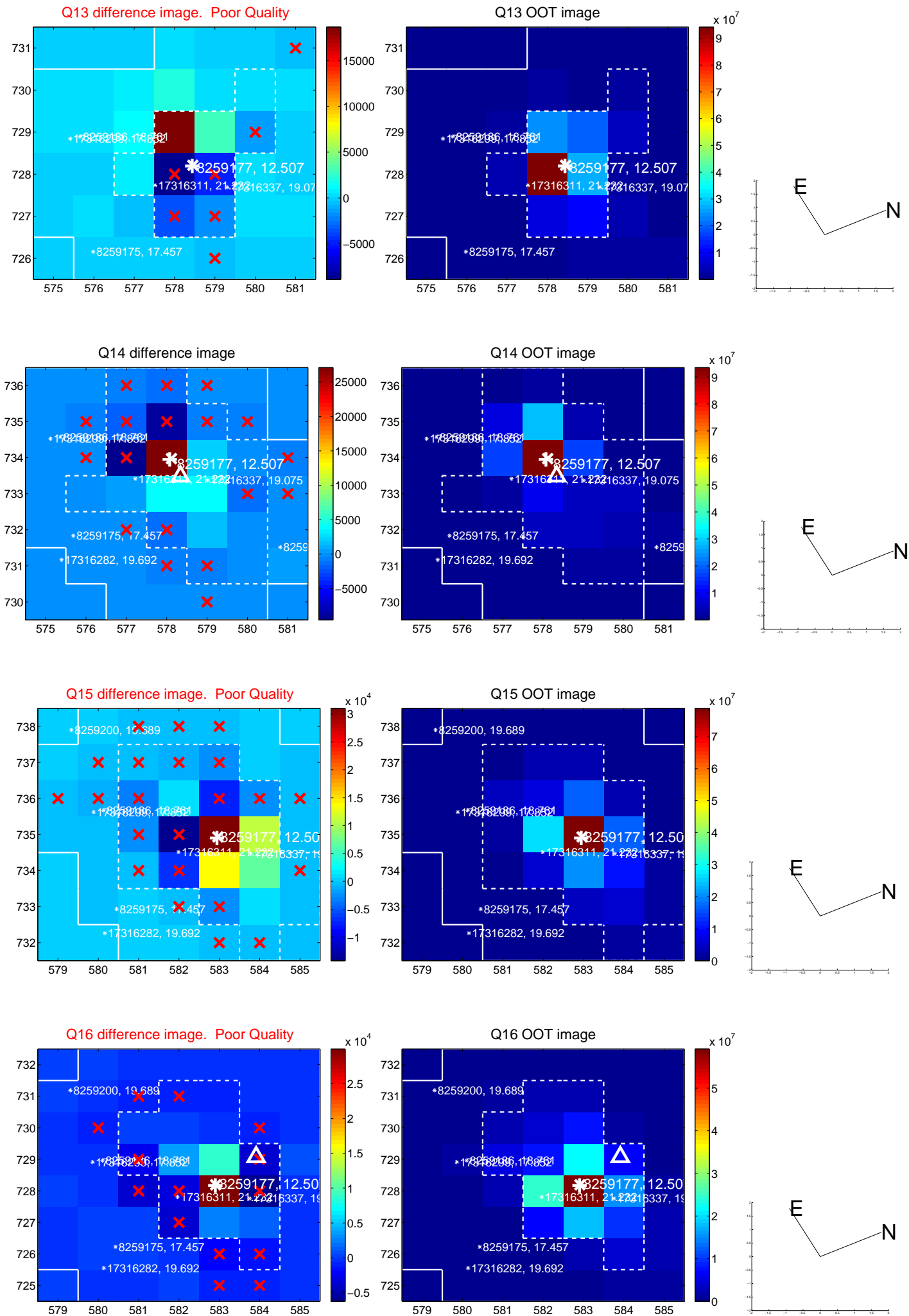




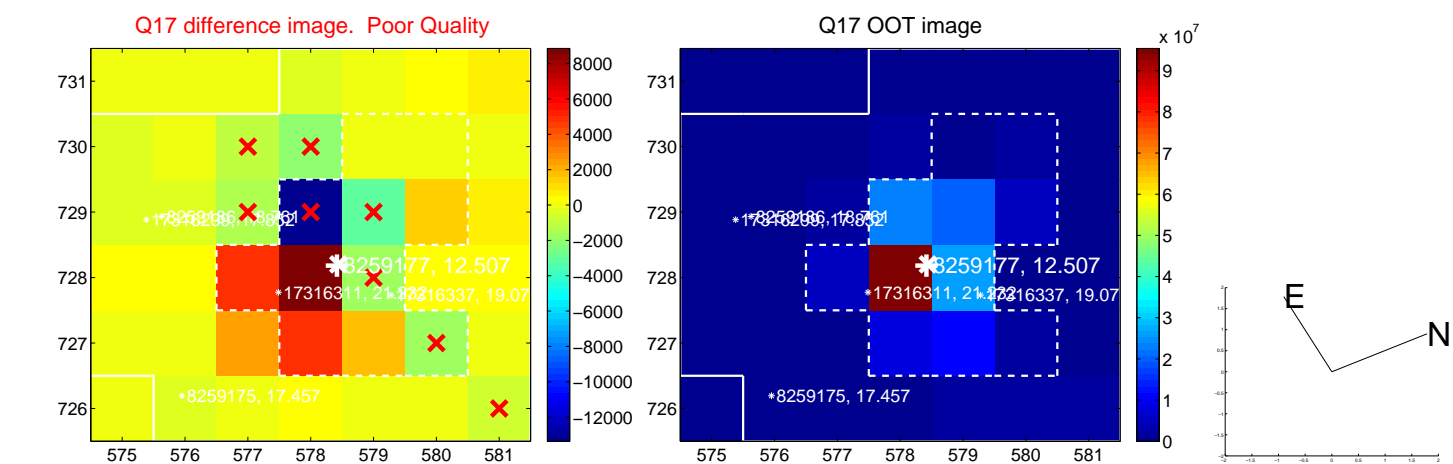
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



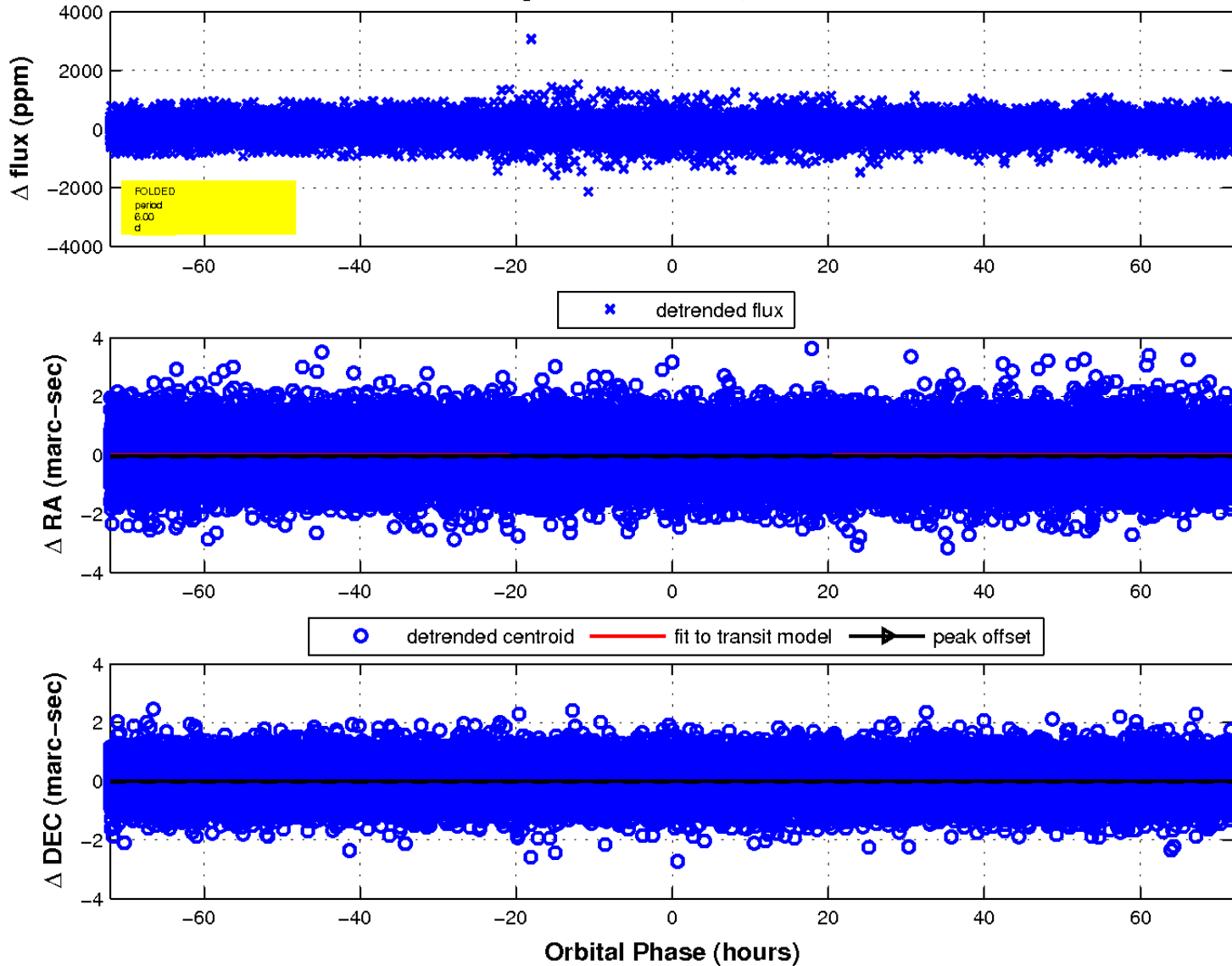
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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



fluxWeightedCentroids, Planet 2 of 2



UKIRT Image

Declination

