

# KIC 007983117

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
007983117-01	OBS	3214.01	11.494985	141.277185	54.1	7.508	15.8	17.0	1.79	6033	1.55	352.58
007983117-02	OBS	3214.02	25.089562	138.522384	41.4	8.422	8.4	9.1	1.79	6033	1.40	124.53

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
007983117-01	OBS	PC	1.00	0	0	0	0	NO_COMMENT
007983117-02	OBS	PC	1.00	0	0	0	0	CENT_FEW_MEAS

**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 007983117-01

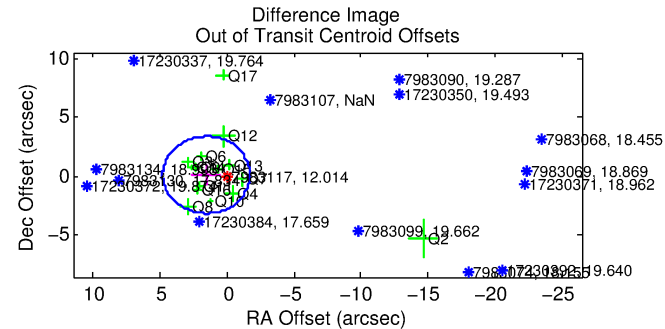
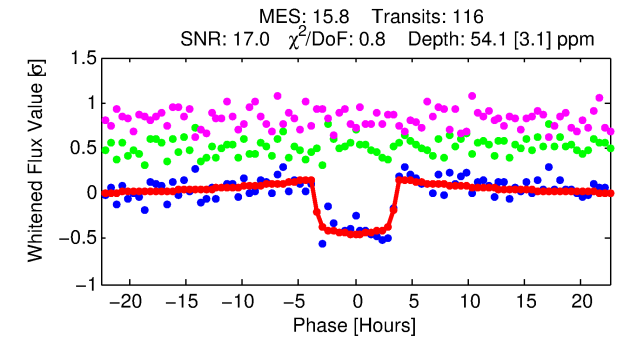
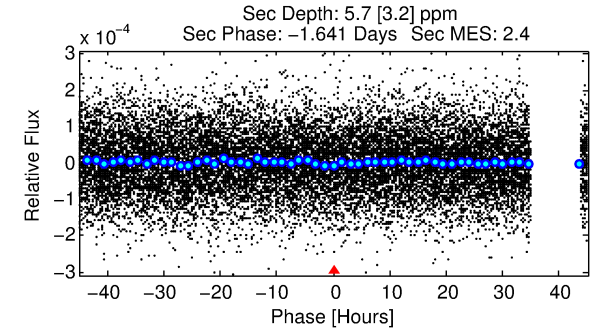
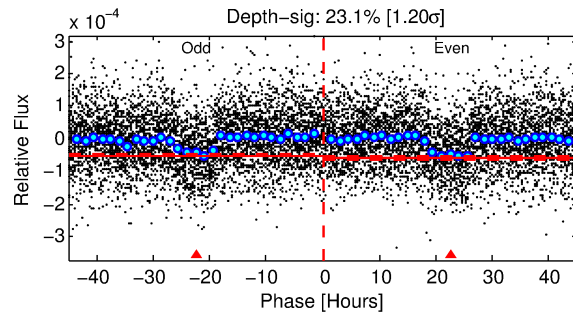
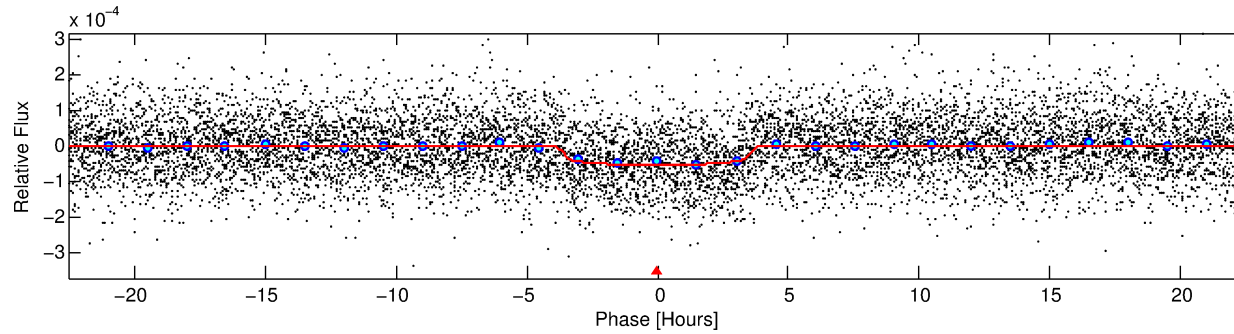
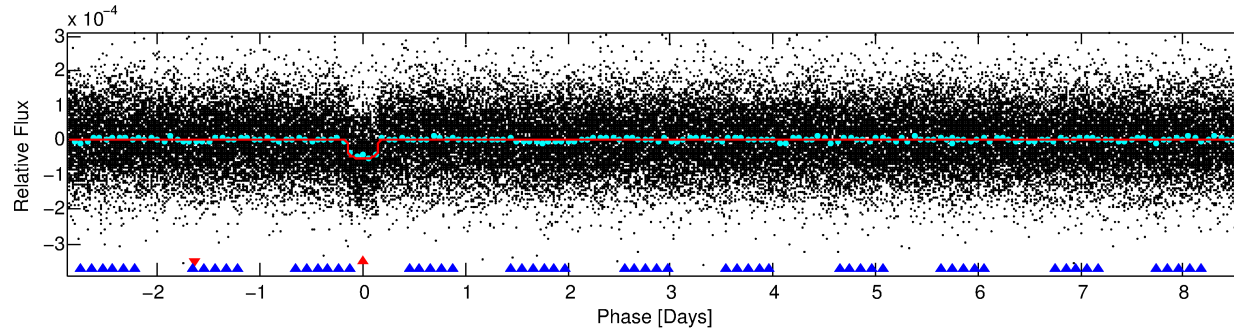
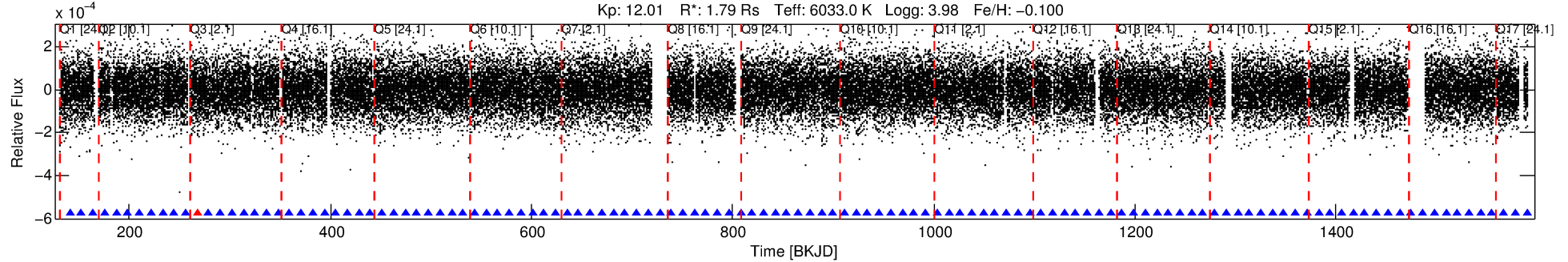
No Significant Match Found

# DV One-Page Summary

KIC: 7983117 Candidate: 1 of 2 Period: 11.495 d

KOI: K03214.01 Corr: 0.997

Kp: 12.01 R\*: 1.79 Rs Teff: 6033.0 K Logg: 3.98 Fe/H: -0.100



## DV Fit Results:

Period = 11.49499 [0.00008] d  
Epoch = 141.2772 [0.0056] BKJD  
Rp/R\* = 0.0079 [0.0012]  
a/R\* = 5.37 [4.00]  
b = 0.90 [0.16]  
Seff = 352.58 [167.90]  
Teq = 1105 [132] K  
Rp = 1.55 [0.55] Re  
a = 0.1037 [0.0306] AU  
Ag = 14.14 [11.13] [1.18σ]  
Teffp = 3313 [538] K [3.99σ]

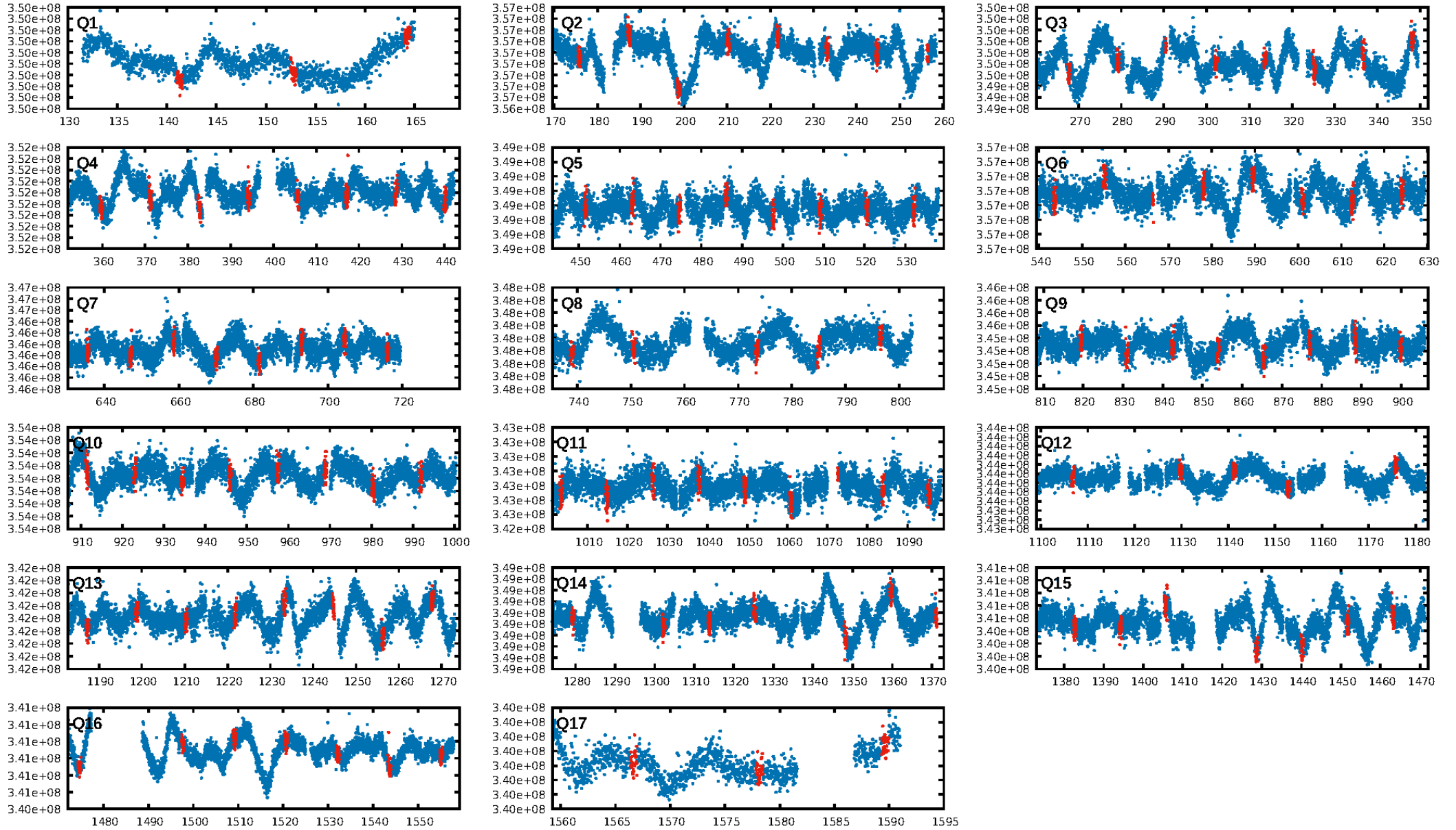
## DV Diagnostic Results:

ShortPeriod-sig: N/A  
LongPeriod-sig: 100.0% [28.92σ]  
ModelChiSquare2-sig: 100.0%  
ModelChiSquareGof-sig: 100.0%  
Bootstrap-pfa: 2.69e-53  
RollingBand-fgt: 0.99 [109/110]  
GhostDiagnostic-chr: 6.131  
Centroid-sig: 0.0%  
Centroid-so: 1.494 arcsec [2.68σ]  
OotOffset-rm: 1.556 arcsec [1.43σ]  
KicOffset-rm: 1.639 arcsec [1.59σ]  
OotOffset-st: 4/4/4/3 [15]  
KicOffset-st: 4/4/4/3 [15]  
DiffImageQuality-fgm: 0.40 [6/15]  
DiffImageOverlap-fno: 1.00 [17/17]

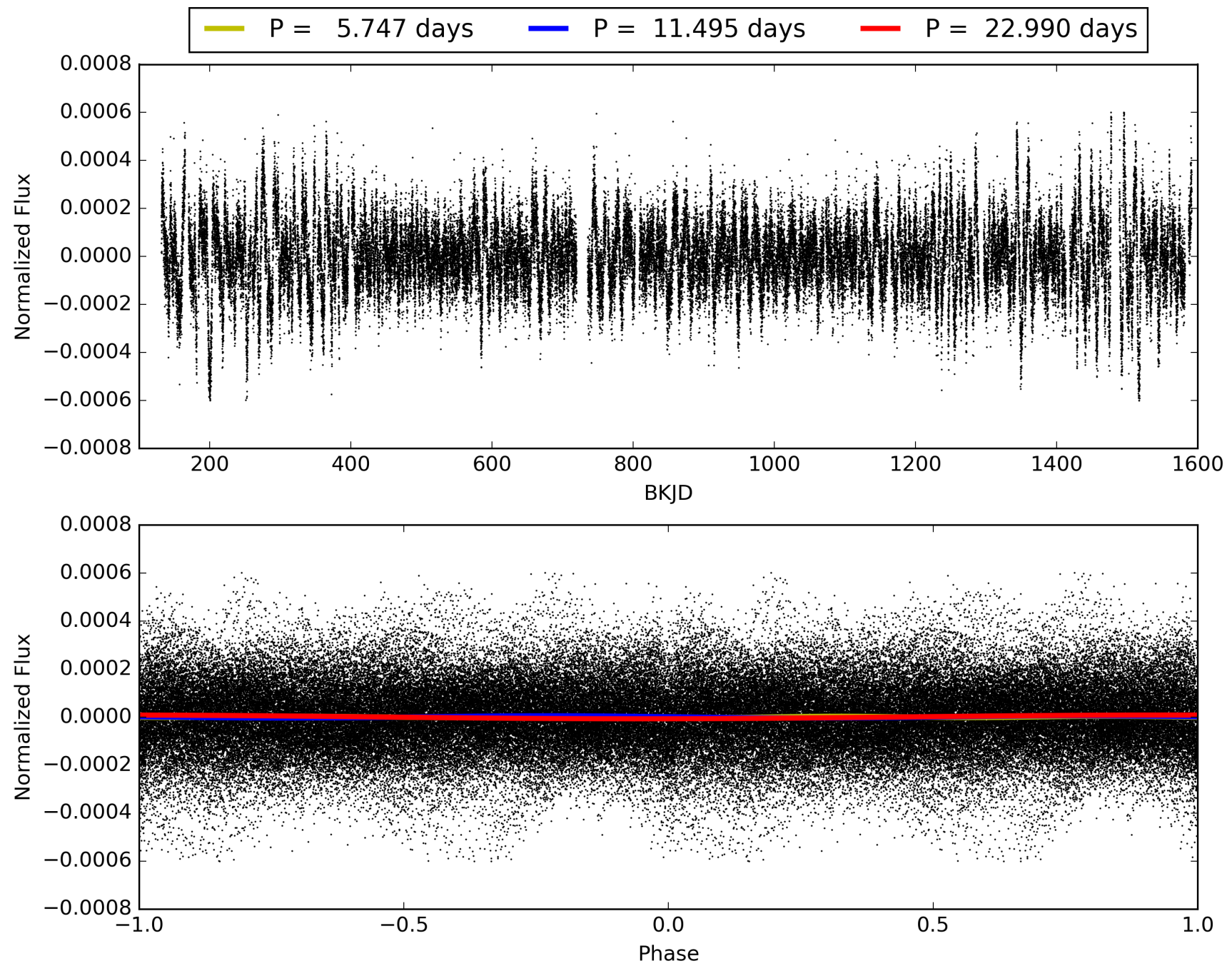
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 15:50:31 Z

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

# TCE 007983117-01, PDC Light Curves

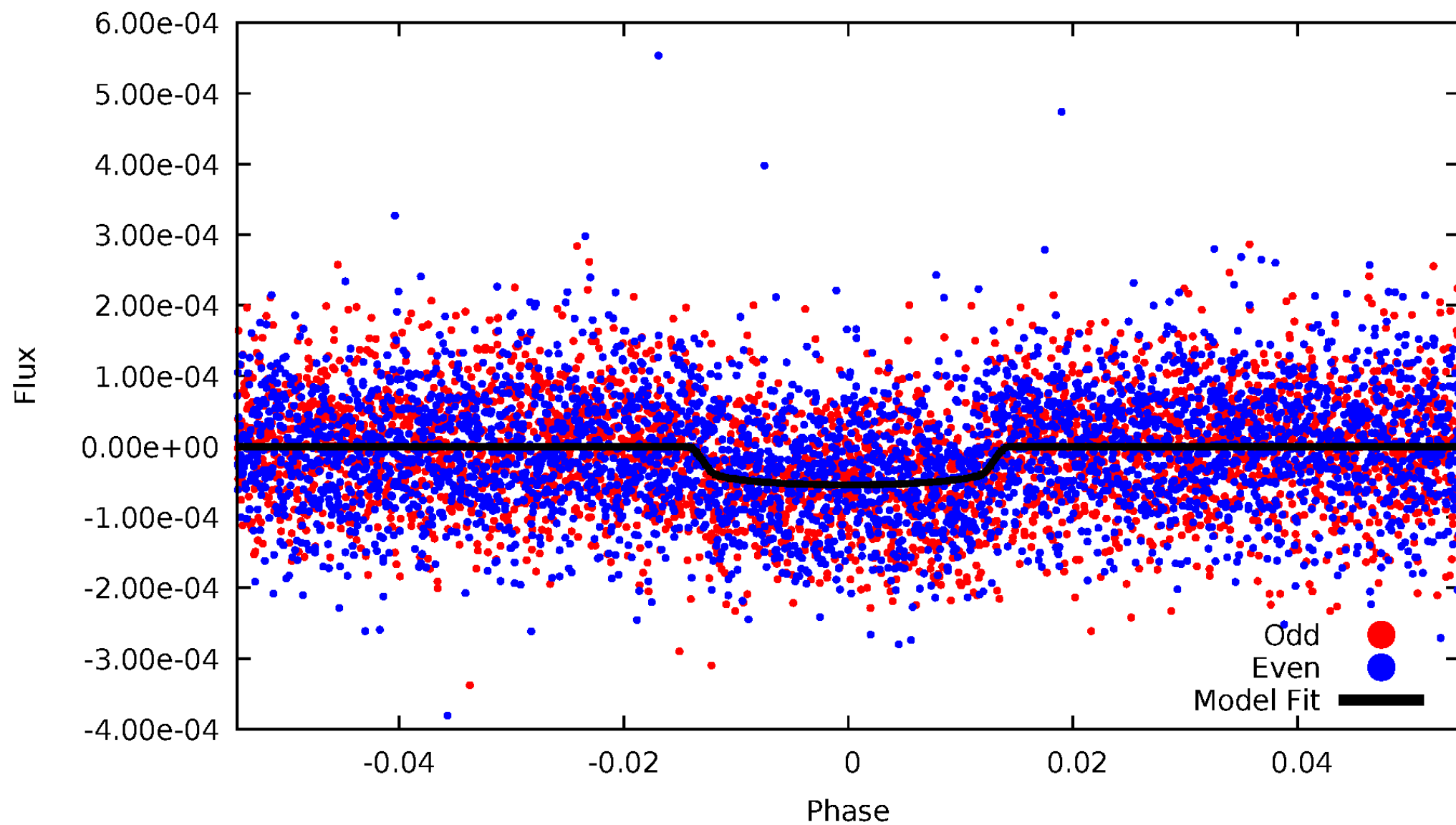


TCE 007983117-01



# DV Odd/Even

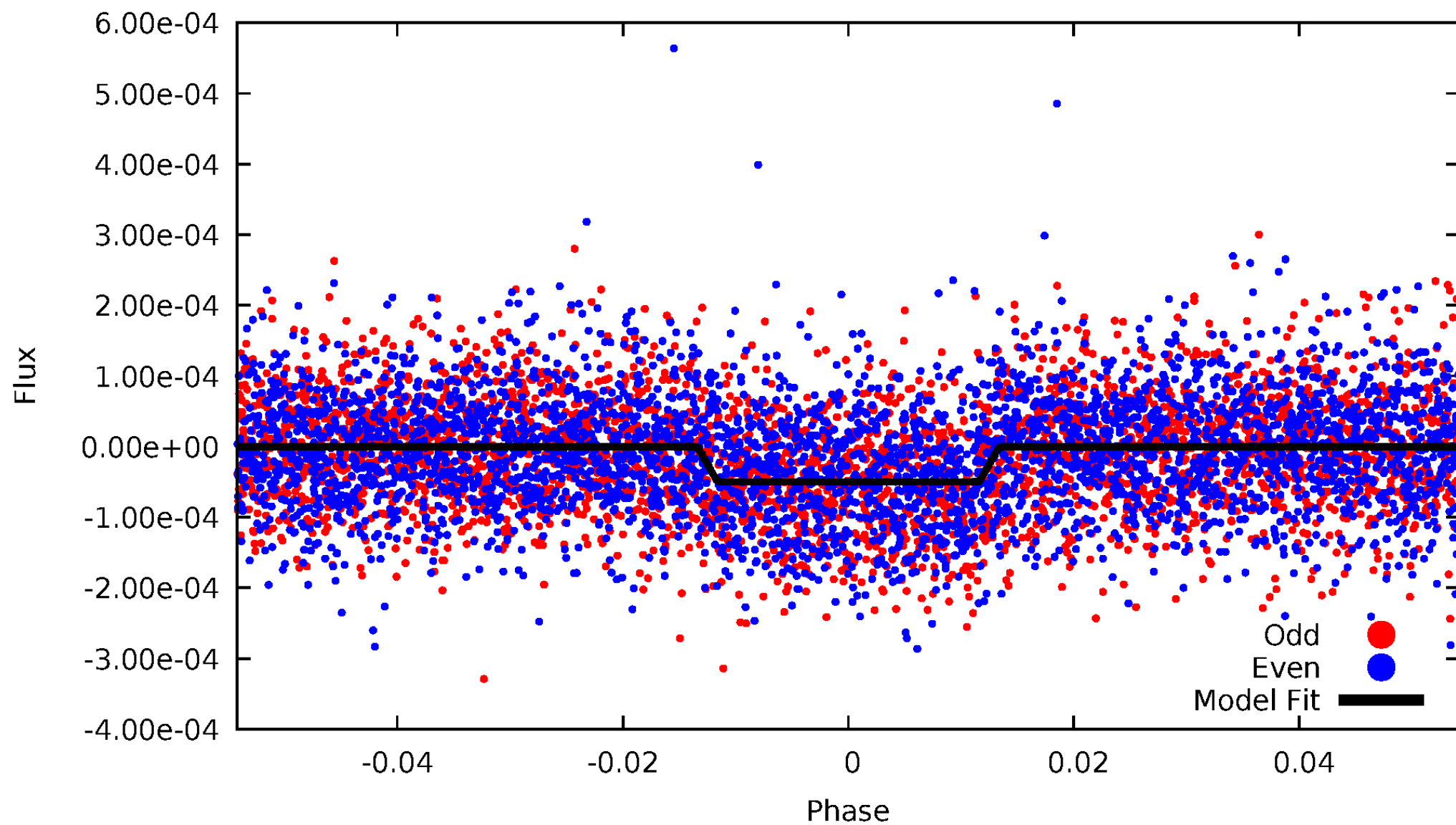
TCE 007983117-01





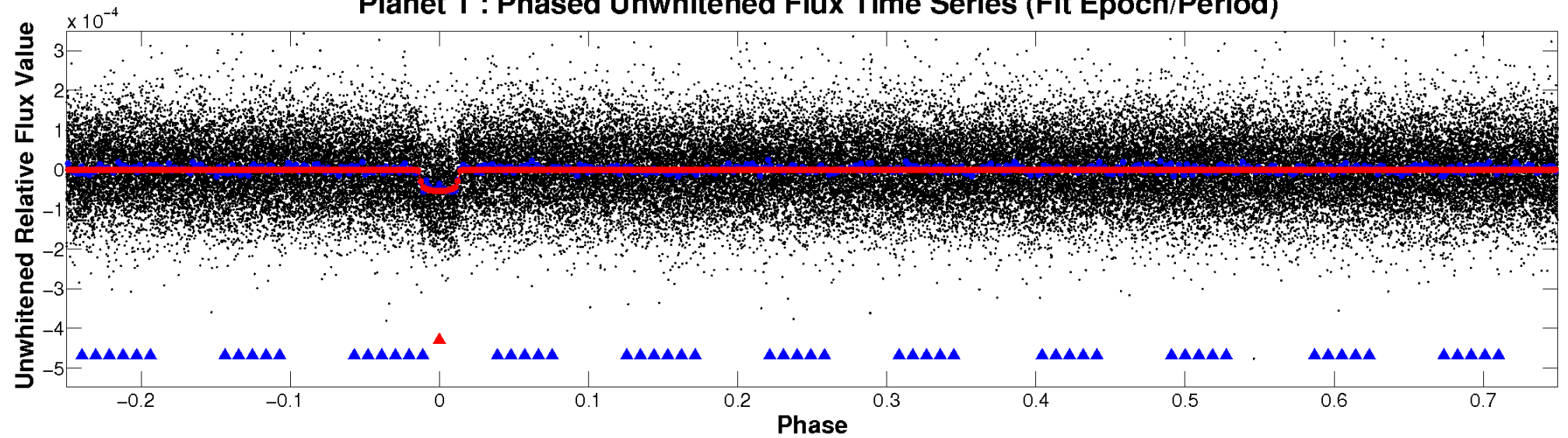
# ALT Odd/Even

TCE 007983117-01

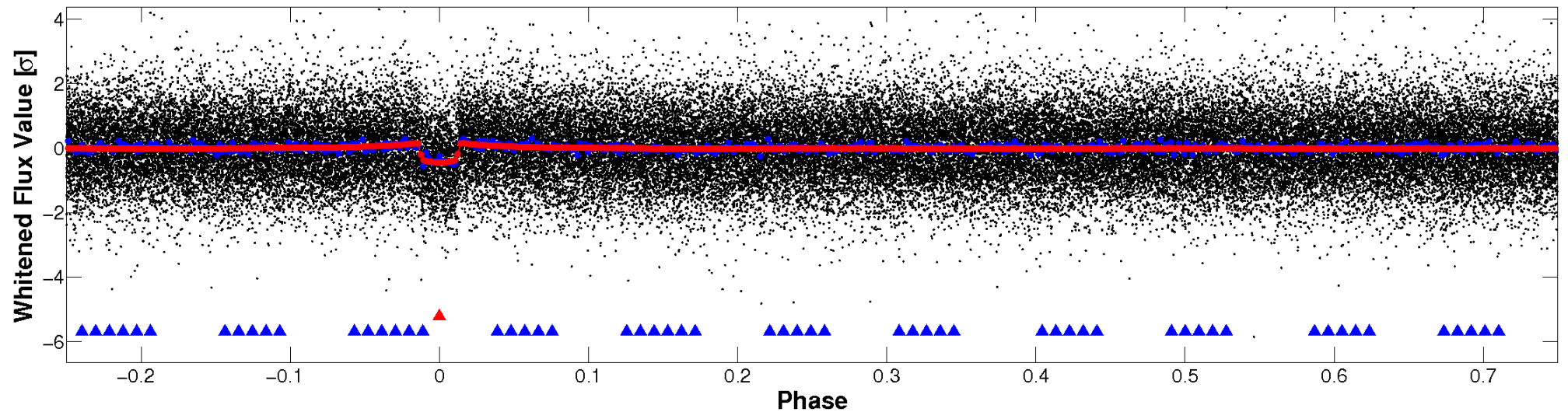


# Non-Whitened Vs. Whitened Light Curve

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

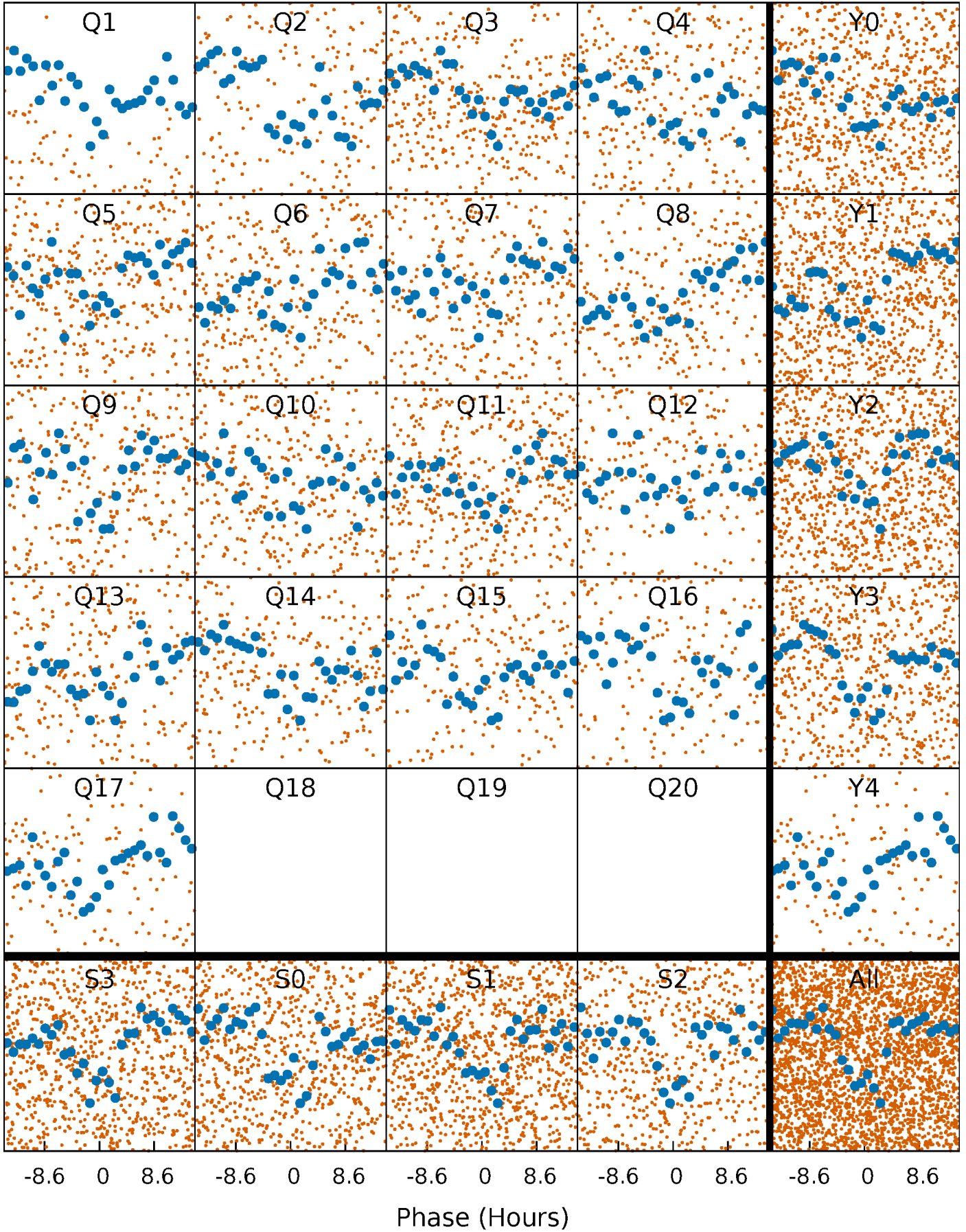


Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)



# PDC Quarter-Phased Transit Curves

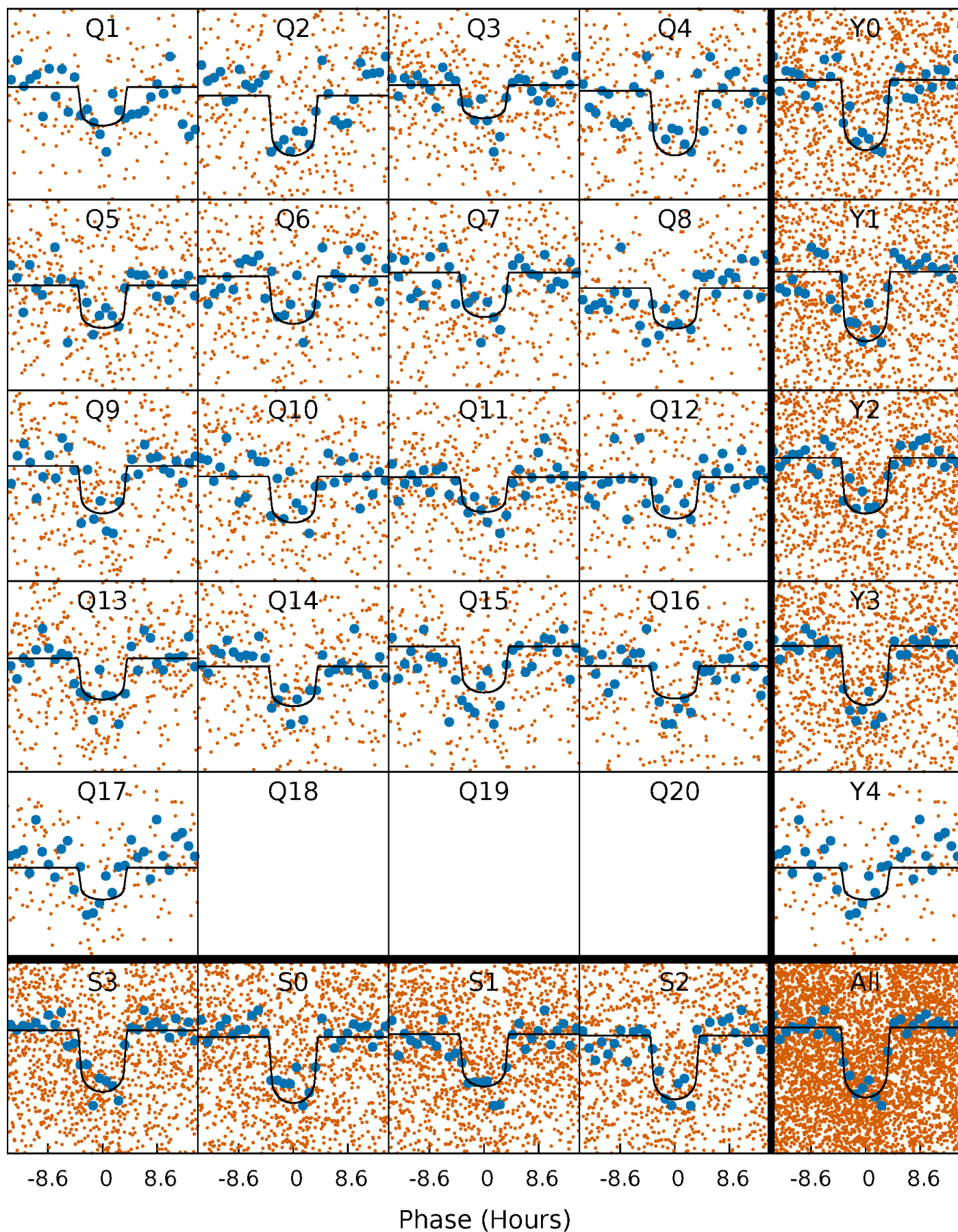
TCE 007983117-01 P= 11.494985 Days  $T_0=141.277185$  (BKJD)





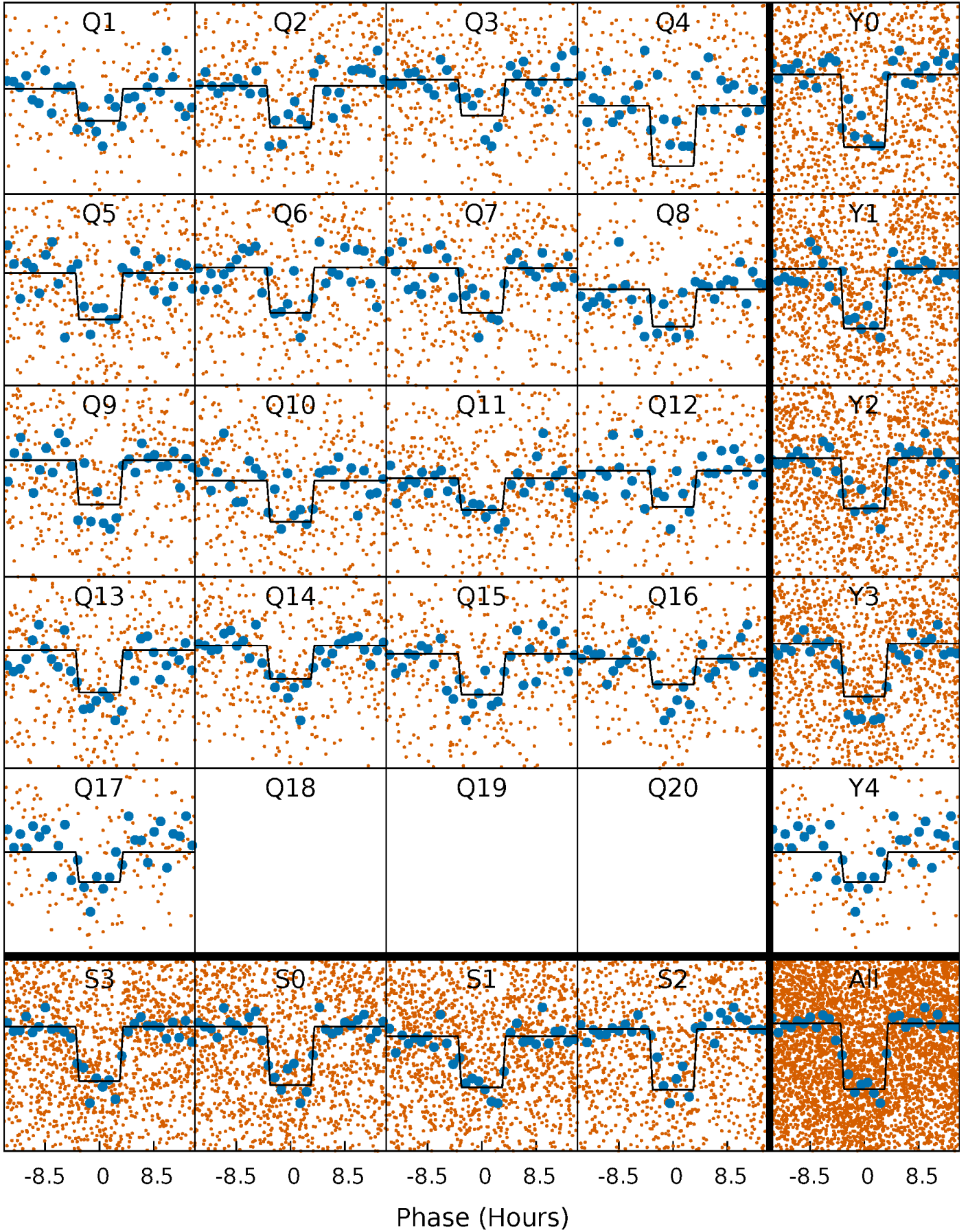
# DV Quarter-Phased Transit Curves

TCE 007983117-01 P= 11.494985 Days  $T_0=141.277185$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

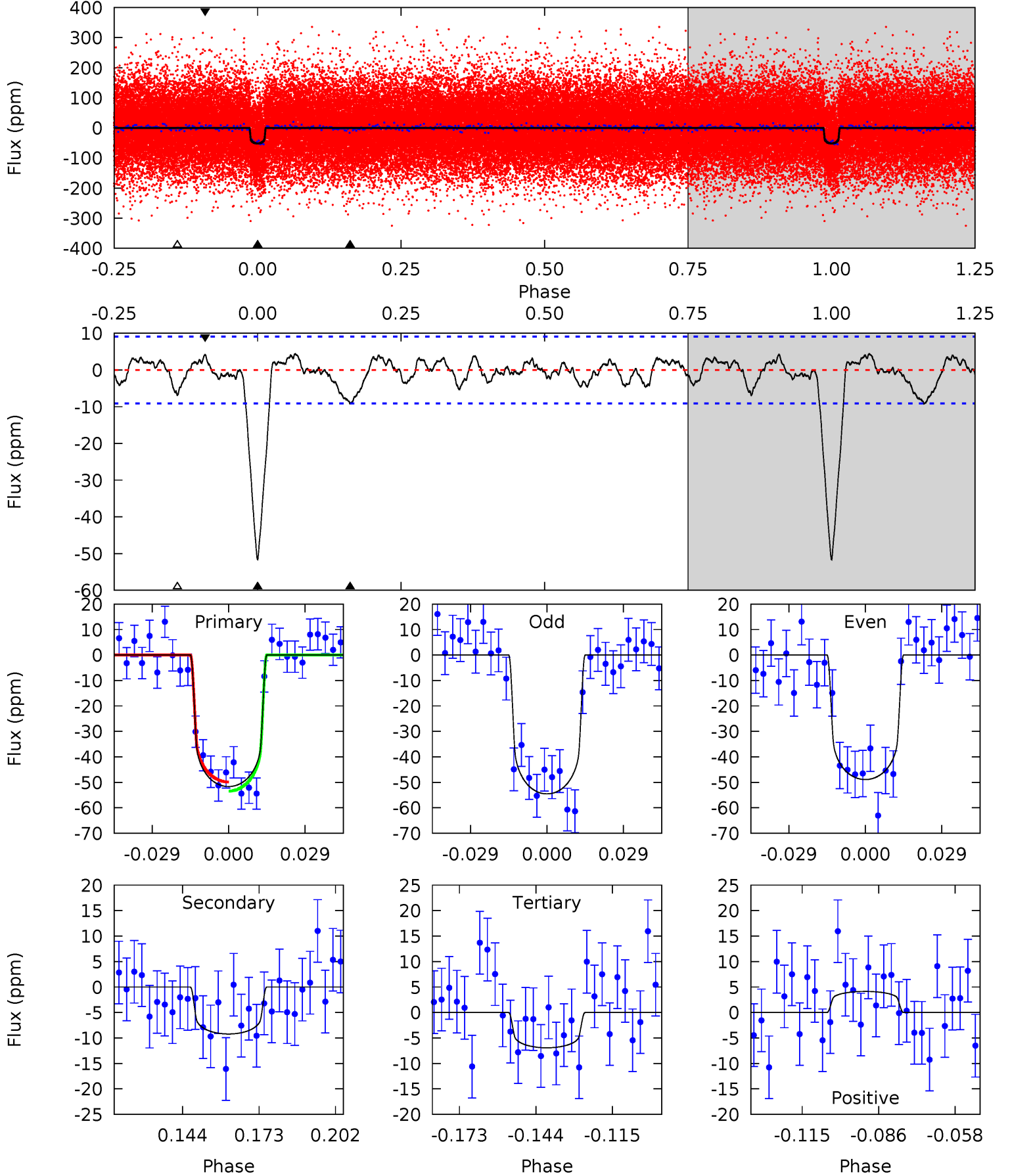
TCE 007983117-01 P= 11.494760 Days  $T_0=141.288205$  (BKJD)



# DV Model-Shift Uniqueness Test

007983117-01, P = 11.494985 Days, E = 129.782200 Days

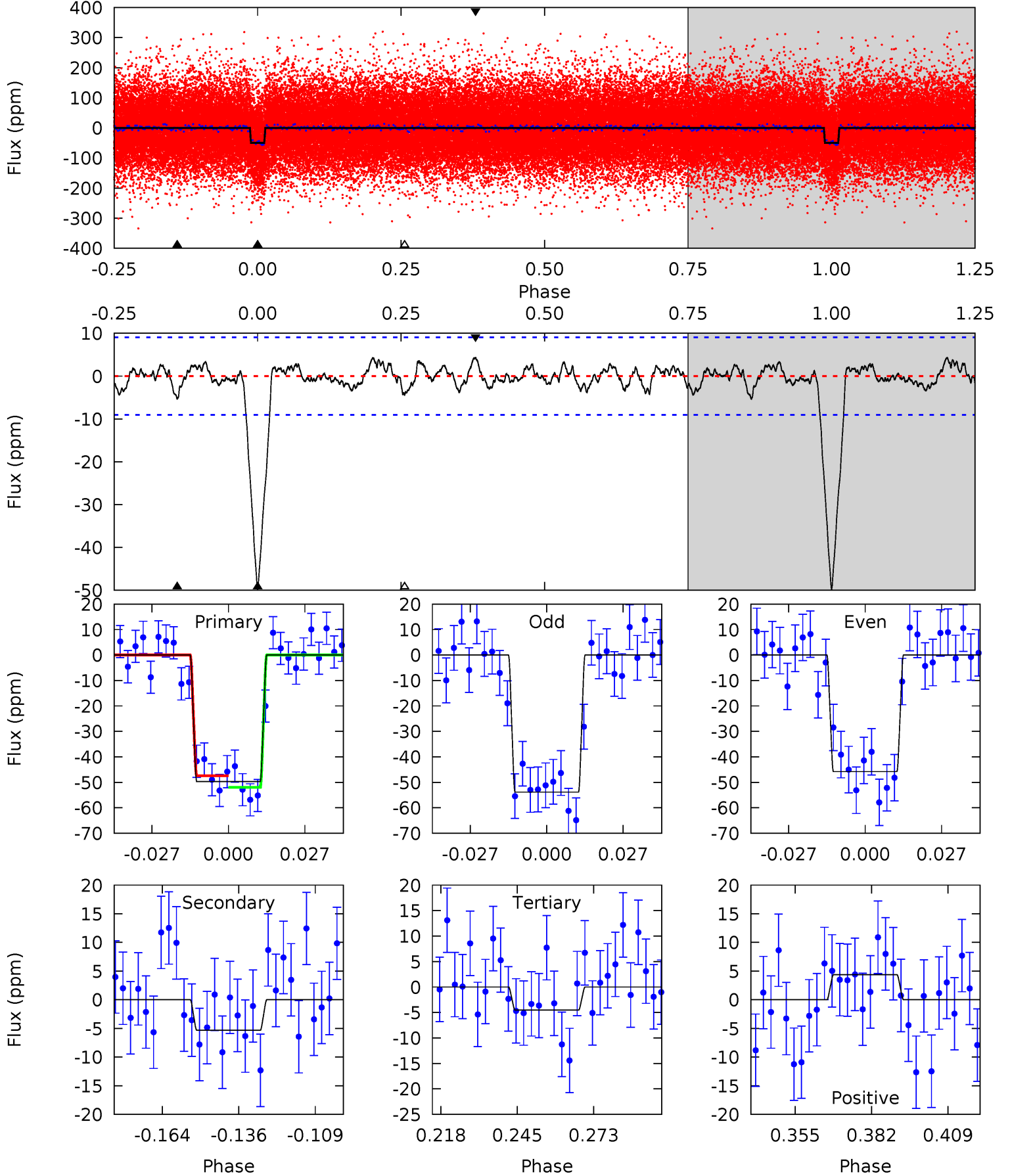
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
27.3	4.88	3.67	2.19	4.82	2.19	1.22	23.7	25.2	1.22	2.69	1.49	1.02	0.08	0.95



# Alt Model-Shift Uniqueness Test

007983117-01,  $P = 11.494760$  Days,  $E = 129.793445$  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	2.84	2.41	2.33	4.83	2.21	0.98	24.1	24.2	0.43	0.51	2.15	1.01	0.08	1.22



### Stellar Parameters For KIC 007983117

	$T_{\text{eff}} (K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R (R_{\odot})$	$M (M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	$6033^{+183}_{-183}$	$3.985^{+0.266}_{-0.114}$	$-0.100^{+0.300}_{-0.300}$	$1.788^{+0.351}_{-0.571}$	$1.127^{+0.189}_{-0.172}$	$0.278^{+0.481}_{-0.099}$
	+3%/-3%	+7%/-3%	+300%/-300%	+20%/-32%	+17%/-15%	+173%/-36%
Source	PHO1	FLK73	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 007983117-01 / KOI 3214.01

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	$A_{\text{obs}}$
DV	$-9 \pm 2$	$1.50^{+0.32}_{-0.33}$	$1520^{+105}_{-131}$	$4035^{+284}_{-269}$	$25^{+15}_{-9}$
Alt.	$-5 \pm 2$	$1.34^{+0.31}_{-0.31}$	$1527^{+94}_{-132}$	$3779^{+348}_{-326}$	$17^{+14}_{-7}$

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



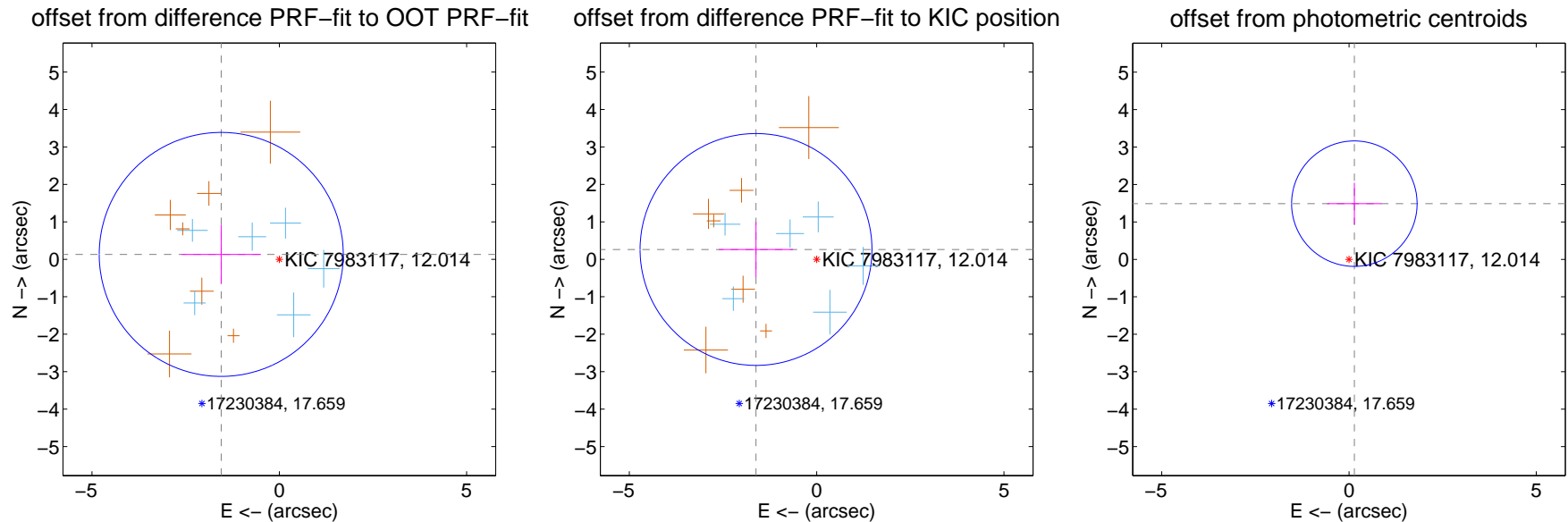
## DV Centroid Data

Supplemental centroid analysis for 007983117-01. Kepler magnitude: 12.01. Transit SNR 16.96

There are 6 quarters with good PRF difference image offsets

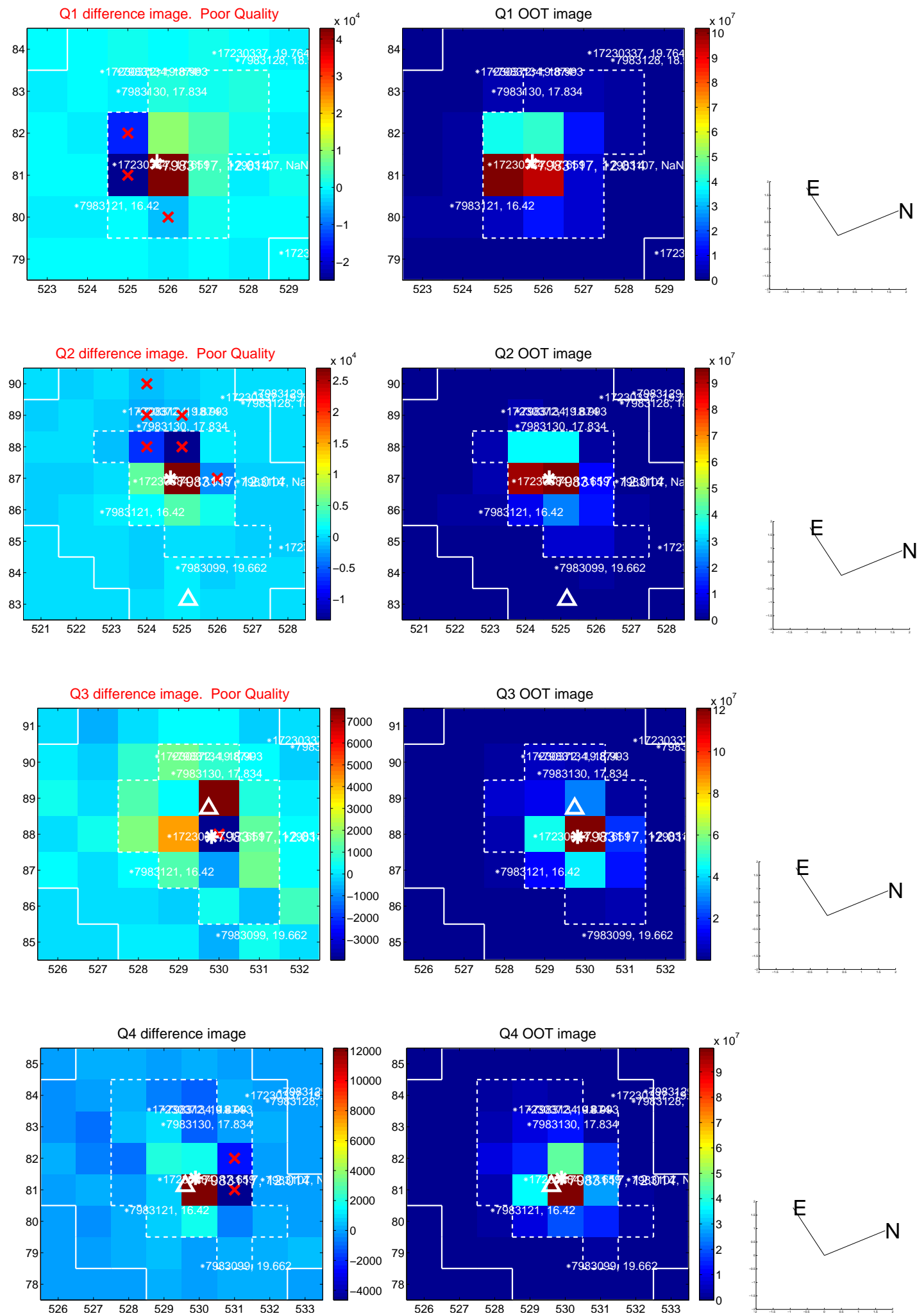
The direct PRF centroid is offset from the target star catalog position by about 0.22 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$1.556 \pm 1.085$	1.43	$1.550 \pm 1.059$	$0.131 \pm 0.783$
PRF-fit source offset from KIC position	$1.639 \pm 1.031$	1.59	$1.618 \pm 0.989$	$0.262 \pm 0.732$
photometric centroid source offset	$1.49 \pm 0.56$	2.68	$-0.14 \pm 0.73$	$1.49 \pm 0.56$



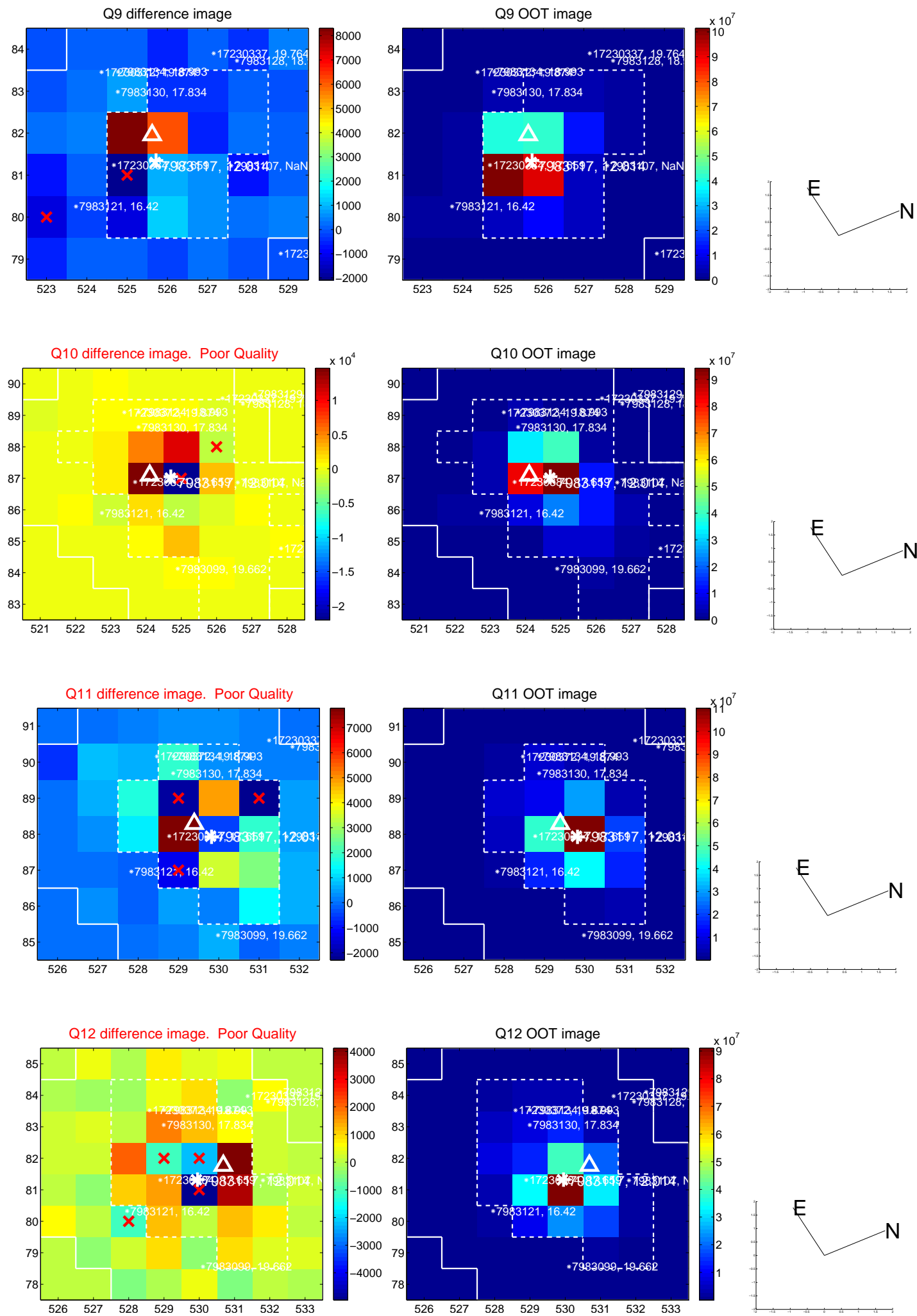
Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: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

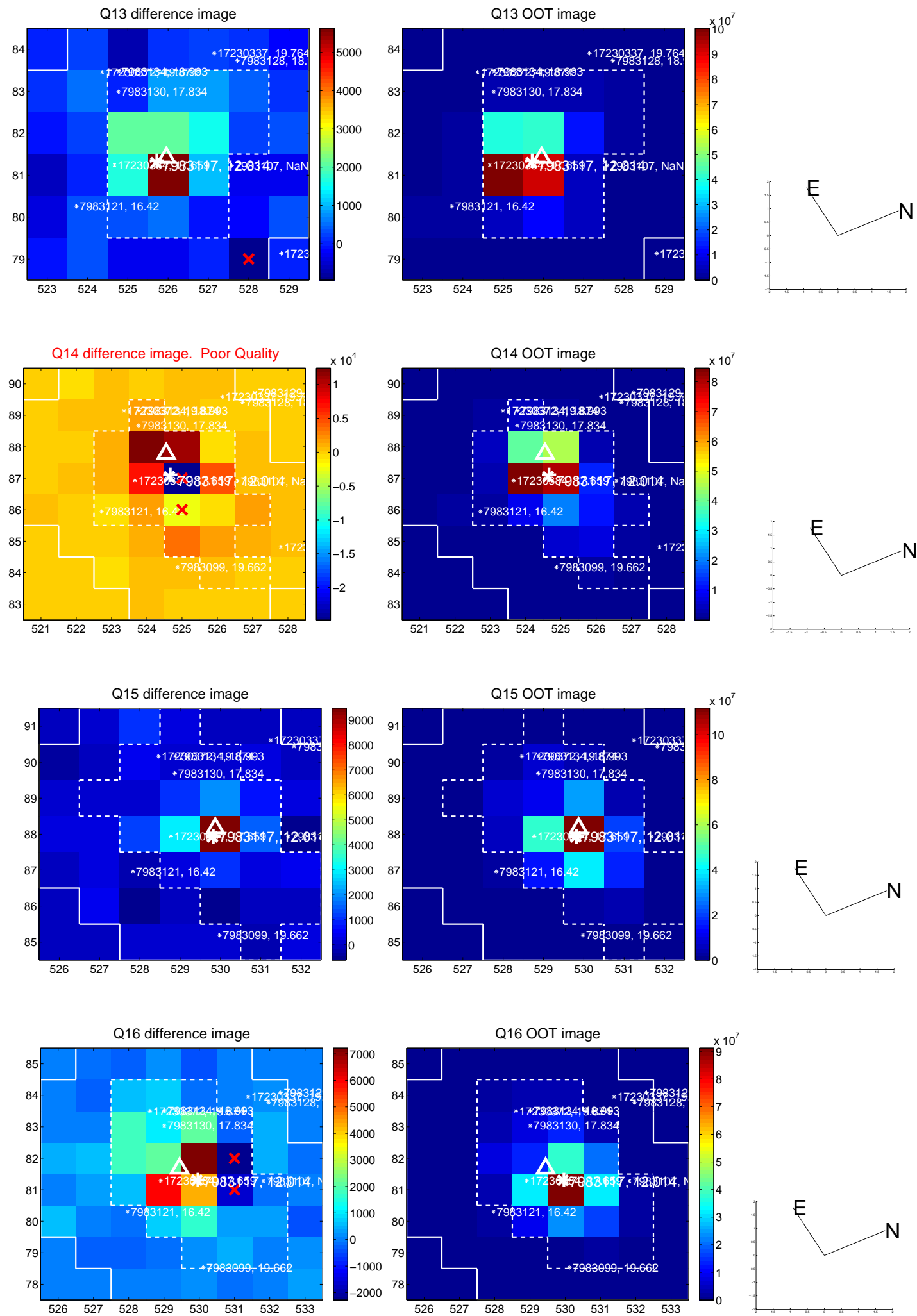




white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.

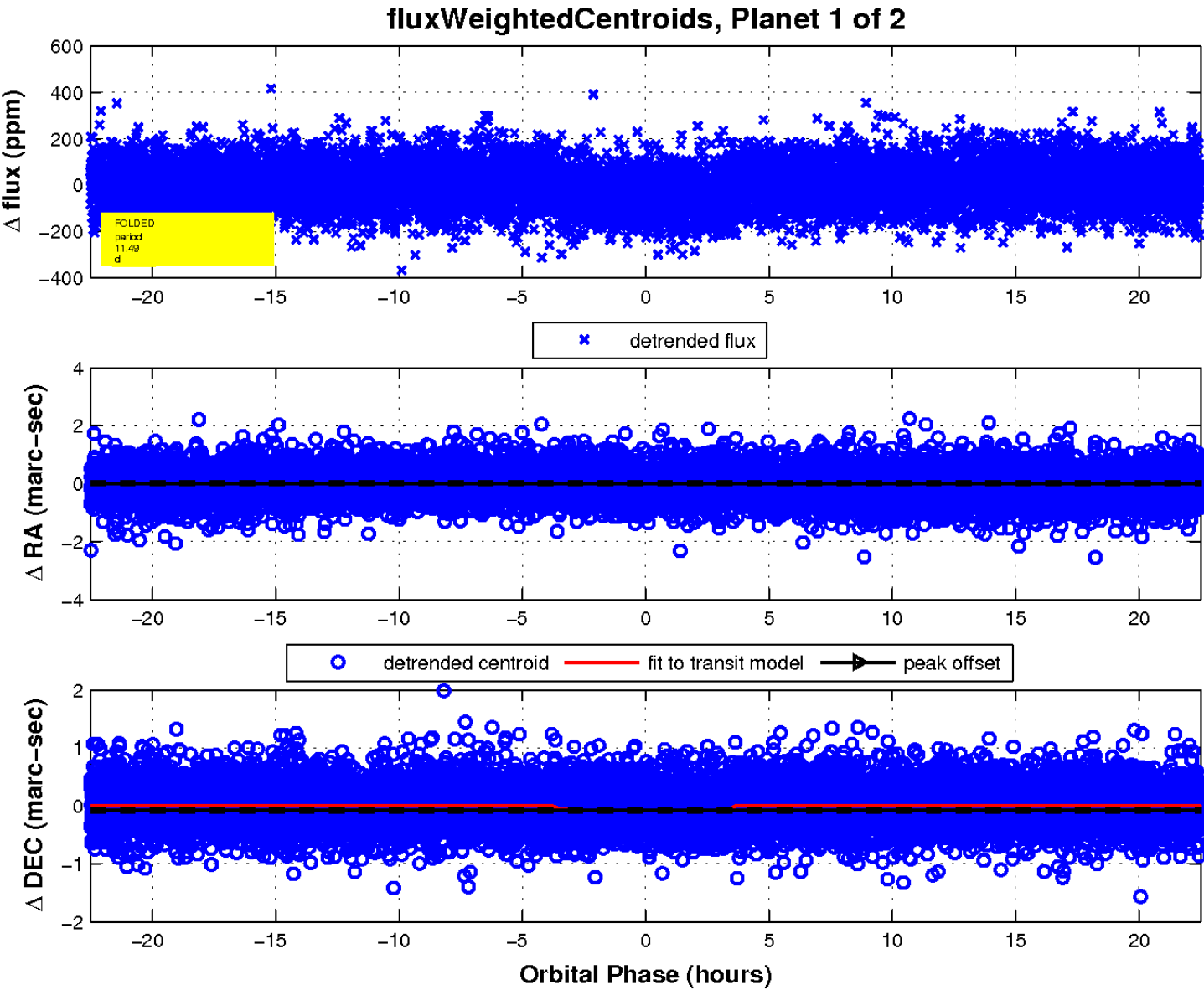
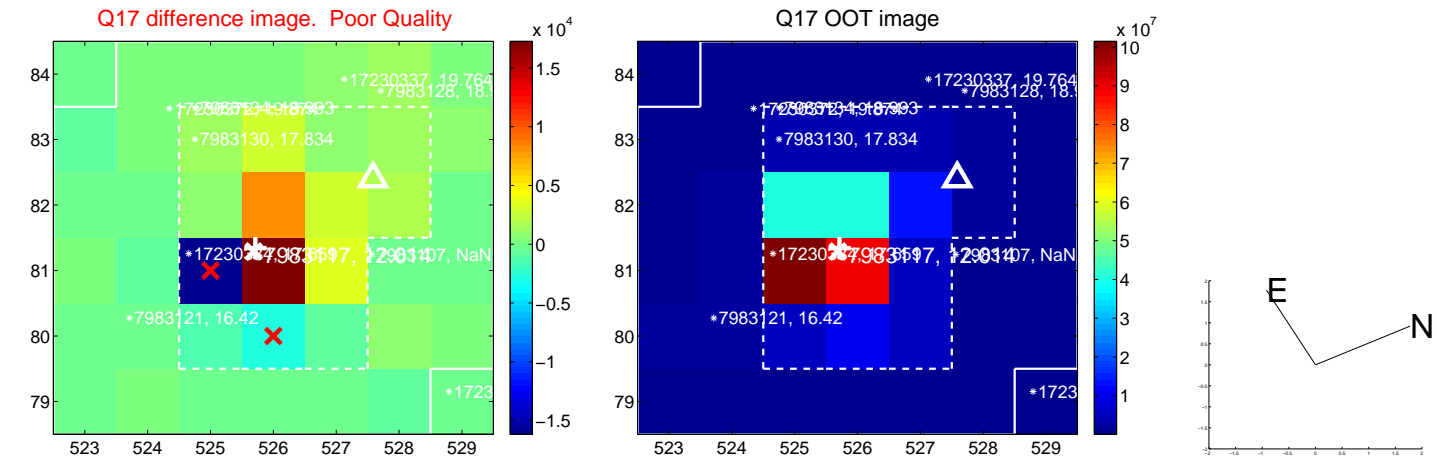


white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



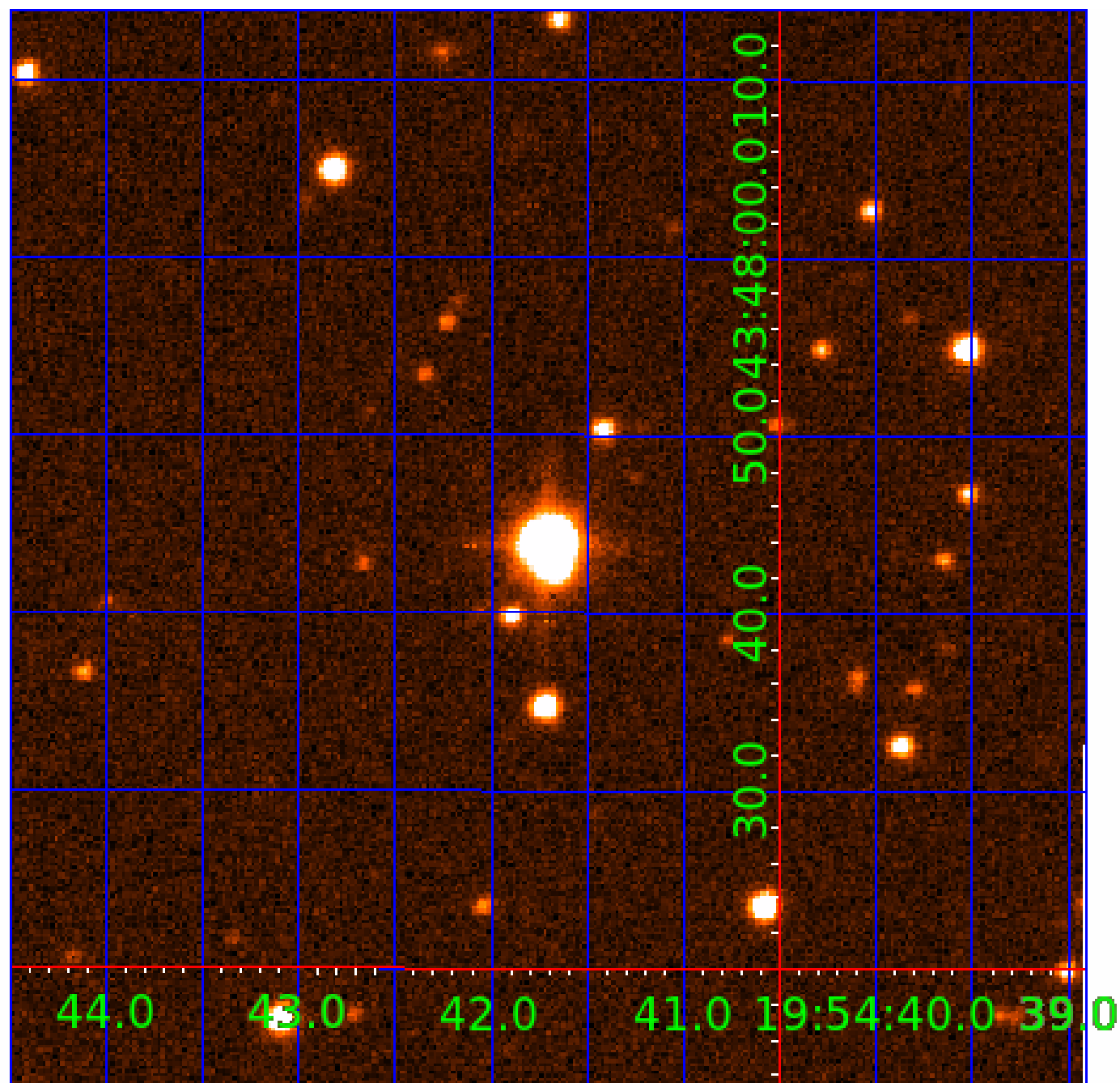


white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



UKIRT Image

Declination



# KIC 007983117

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
007983117-01	OBS	3214.01	11.494985	141.277185	54.1	7.508	15.8	17.0	1.79	6033	1.55	352.58
007983117-02	OBS	3214.02	25.089562	138.522384	41.4	8.422	8.4	9.1	1.79	6033	1.40	124.53

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
007983117-01	OBS	PC	1.00	0	0	0	0	NO_COMMENT
007983117-02	OBS	PC	1.00	0	0	0	0	CENT_FEW_MEAS

**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 007983117-02

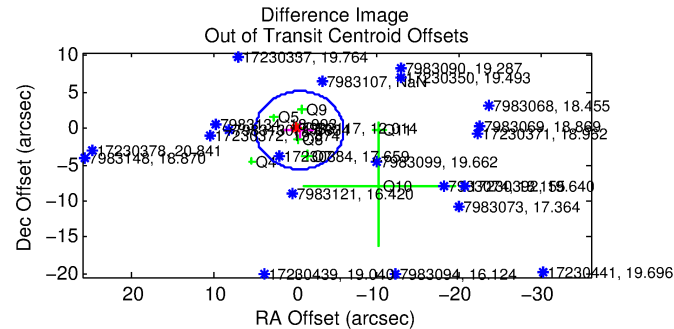
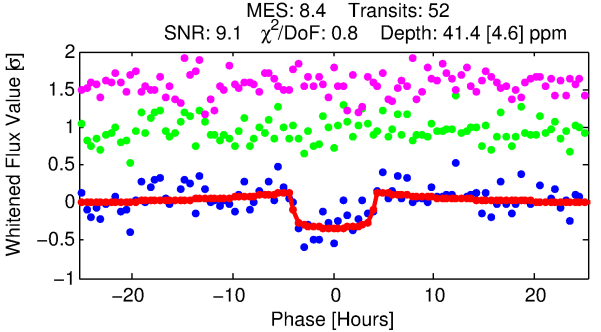
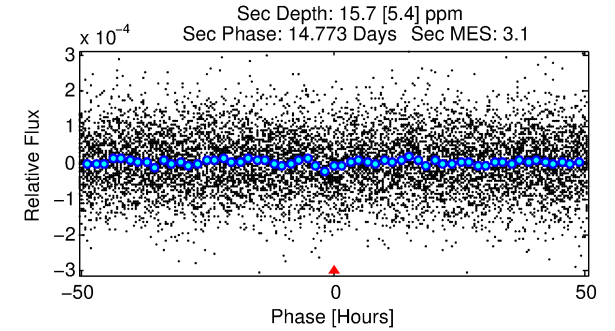
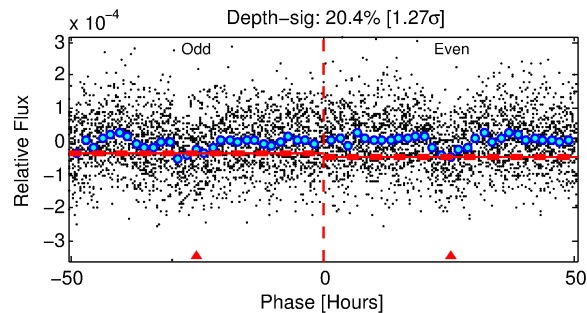
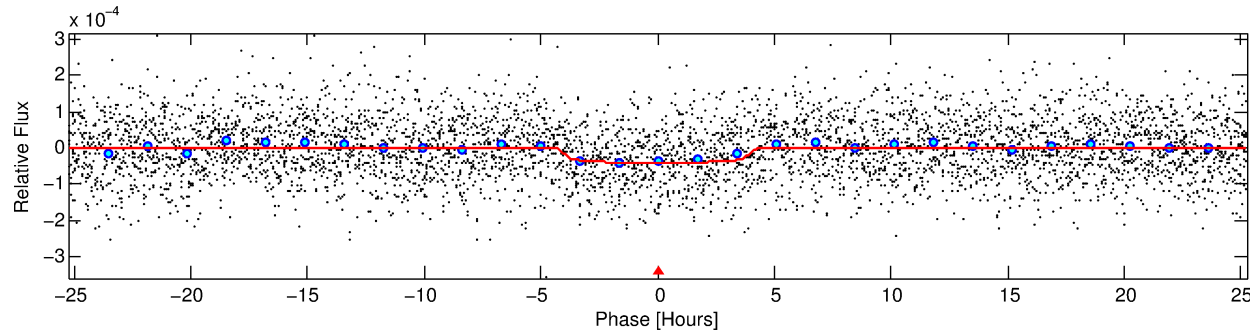
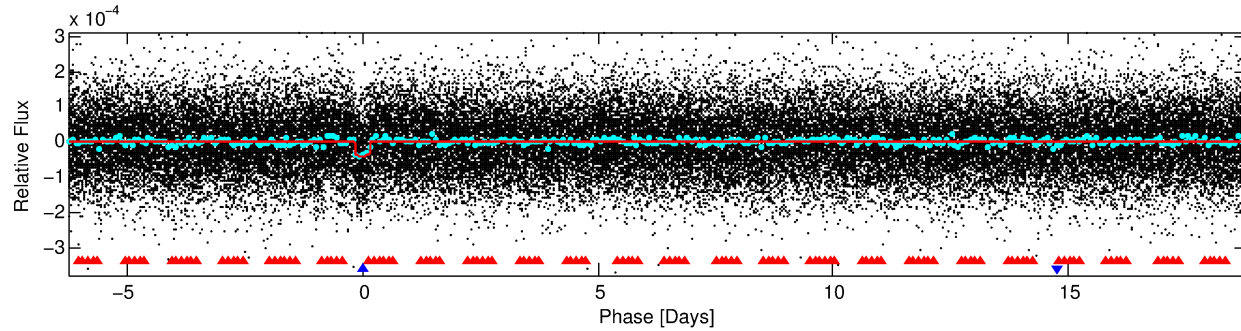
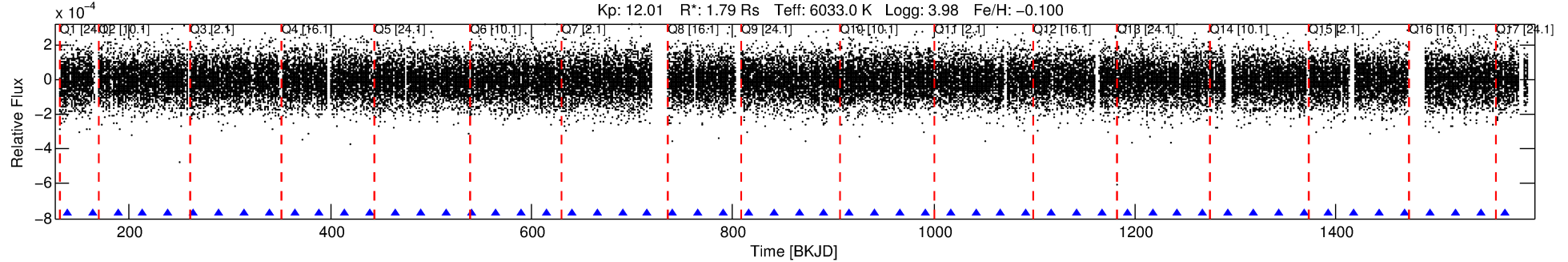
No Significant Match Found

# DV One-Page Summary

KIC: 7983117 Candidate: 2 of 2 Period: 25.090 d

KOI: K03214.02 Corr: 0.980

Kp: 12.01 R\*: 1.79 Rs Teff: 6033.0 K Logg: 3.98 Fe/H: -0.100



## DV Fit Results:

Period = 25.08956 [0.00038] d  
Epoch = 138.5224 [0.0121] BKJD  
Rp/R\* = 0.0072 [0.0014]  
a/R\* = 8.86 [8.92]  
b = 0.93 [0.15]  
Seff = 124.53 [59.30]  
Teq = 852 [101] K  
Rp = 1.40 [0.52] Re  
a = 0.1746 [0.0515] AU  
Ag = 134.55 [93.63] [1.43σ]  
Teffp = 4485 [601] K [5.9%σ]

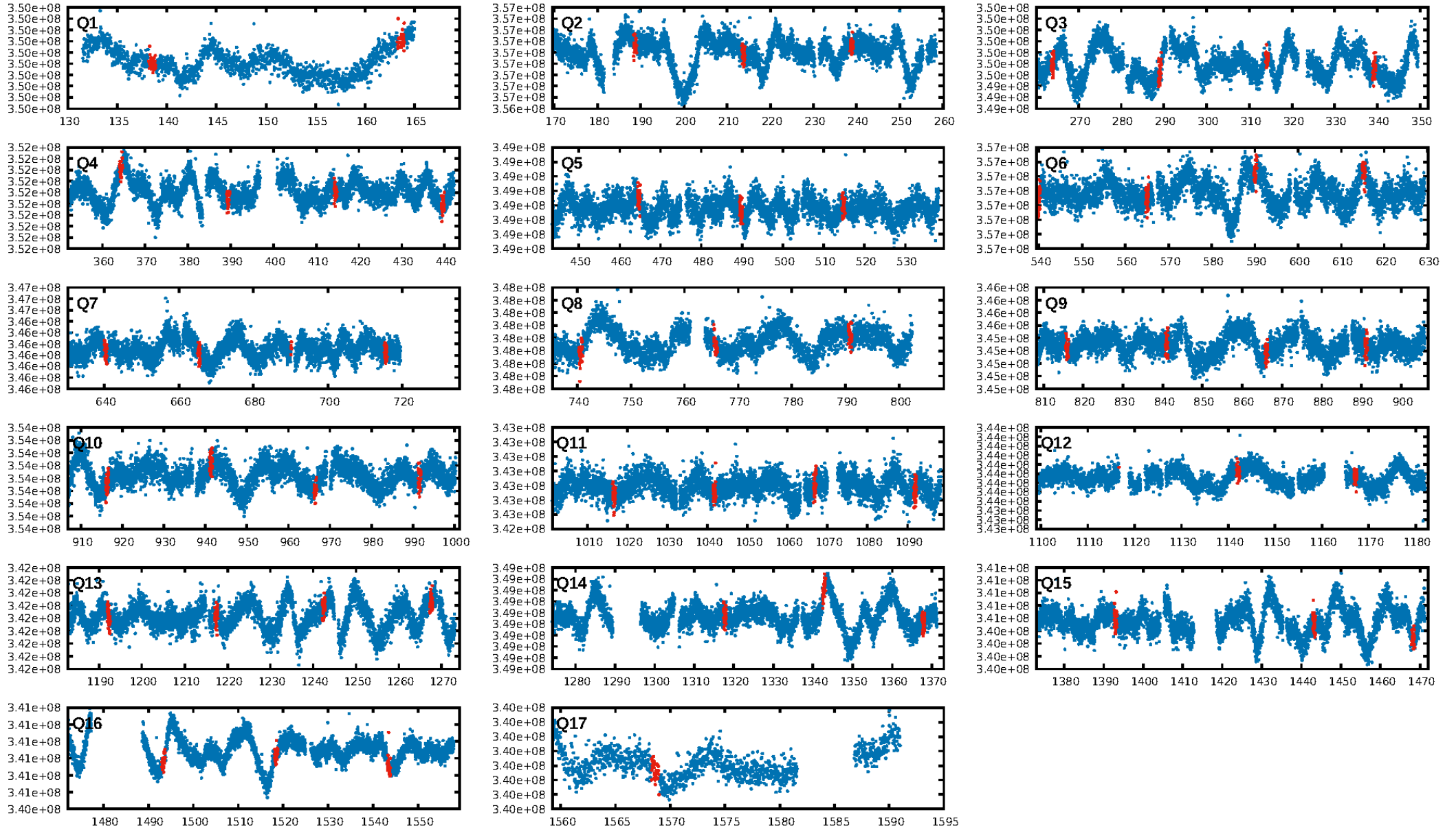
## DV Diagnostic Results:

ShortPeriod-sig: 100.0% [28.92σ]  
LongPeriod-sig: N/A  
ModelChiSquare2-sig: 87.9%  
ModelChiSquareGof-sig: 100.0%  
Bootstrap-pfa: 2.30e-16  
RollingBand-fgt: 1.00 [49/49]  
GhostDiagnostic-chr: 3.118  
Centroid-sig: 0.0%  
Centroid-so: 3.550 arcsec [2.73σ]  
OotOffset-rm: 0.518 arcsec [0.29σ]  
KicOffset-rm: 0.426 arcsec [0.24σ]  
OotOffset-st: 1/3/2/2 [8]  
KicOffset-st: 1/3/2/2 [8]  
DiffImageQuality-fgm: 0.38 [3/8]  
DiffImageOverlap-fno: 1.00 [17/17]

Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 15:50:38 Z

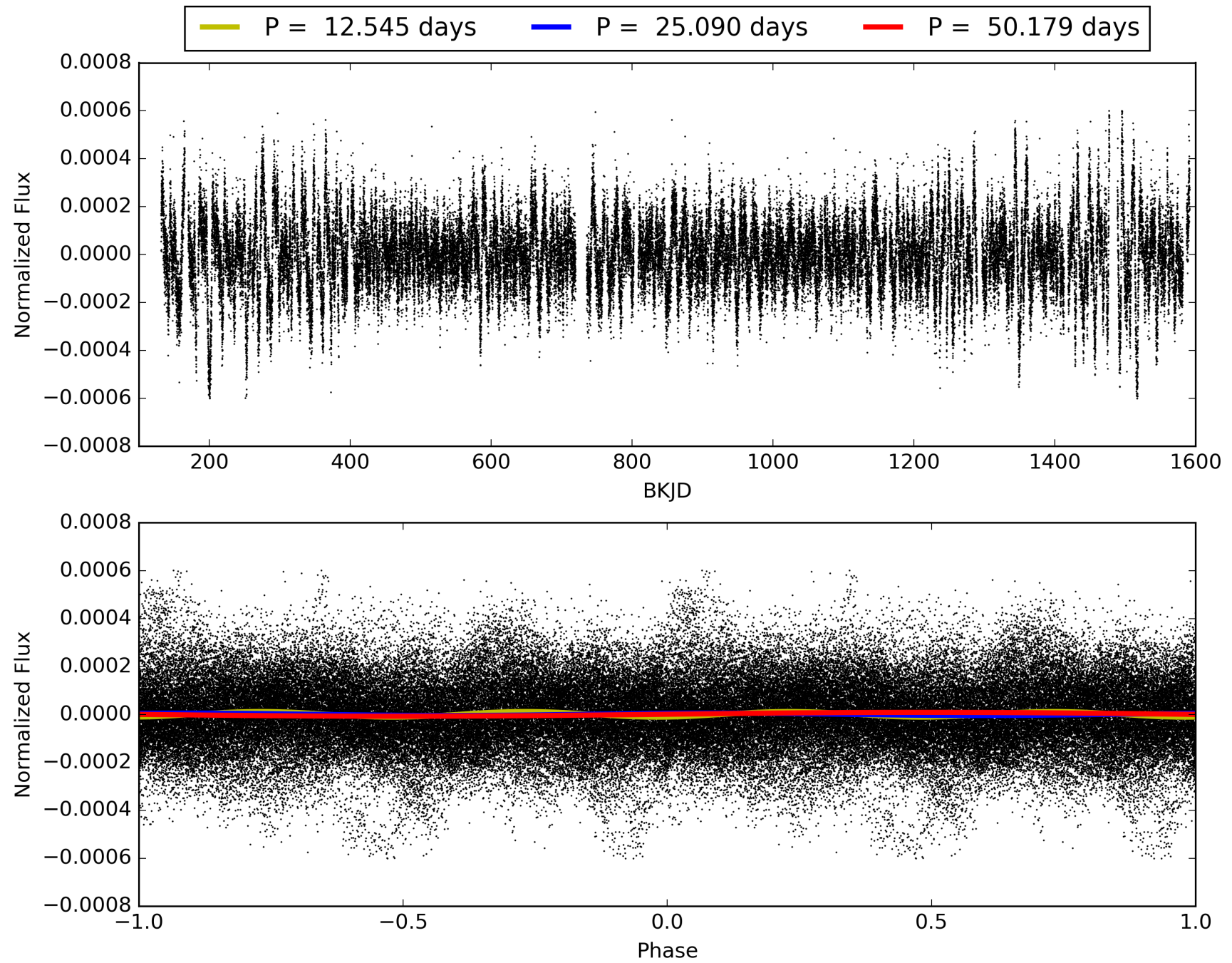
This Data Validation Report Summary was produced in the Kepler Science Operations Center Pipeline at NASA Ames Research Center

# TCE 007983117-02, PDC Light Curves



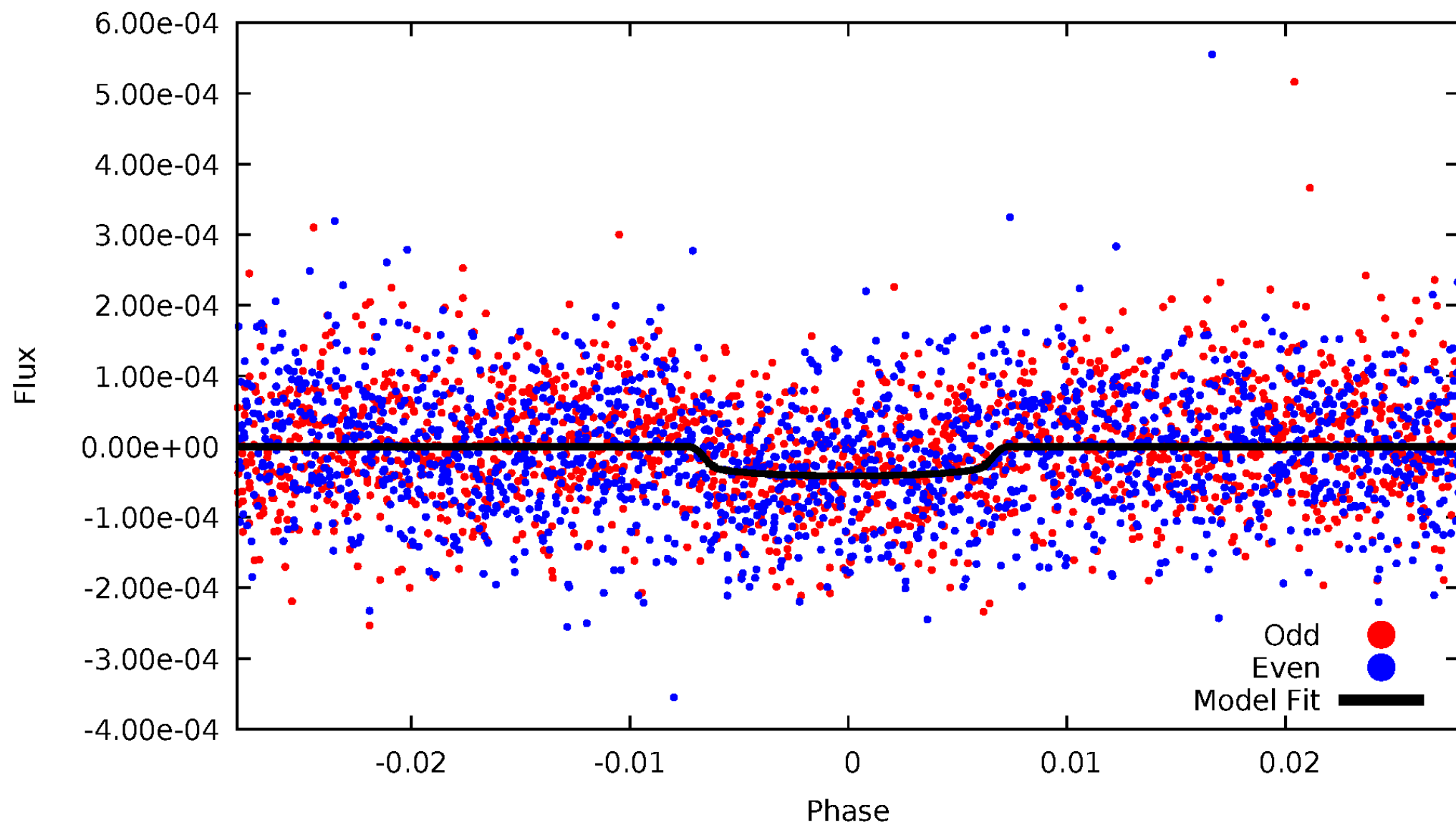


# TCE 007983117-02



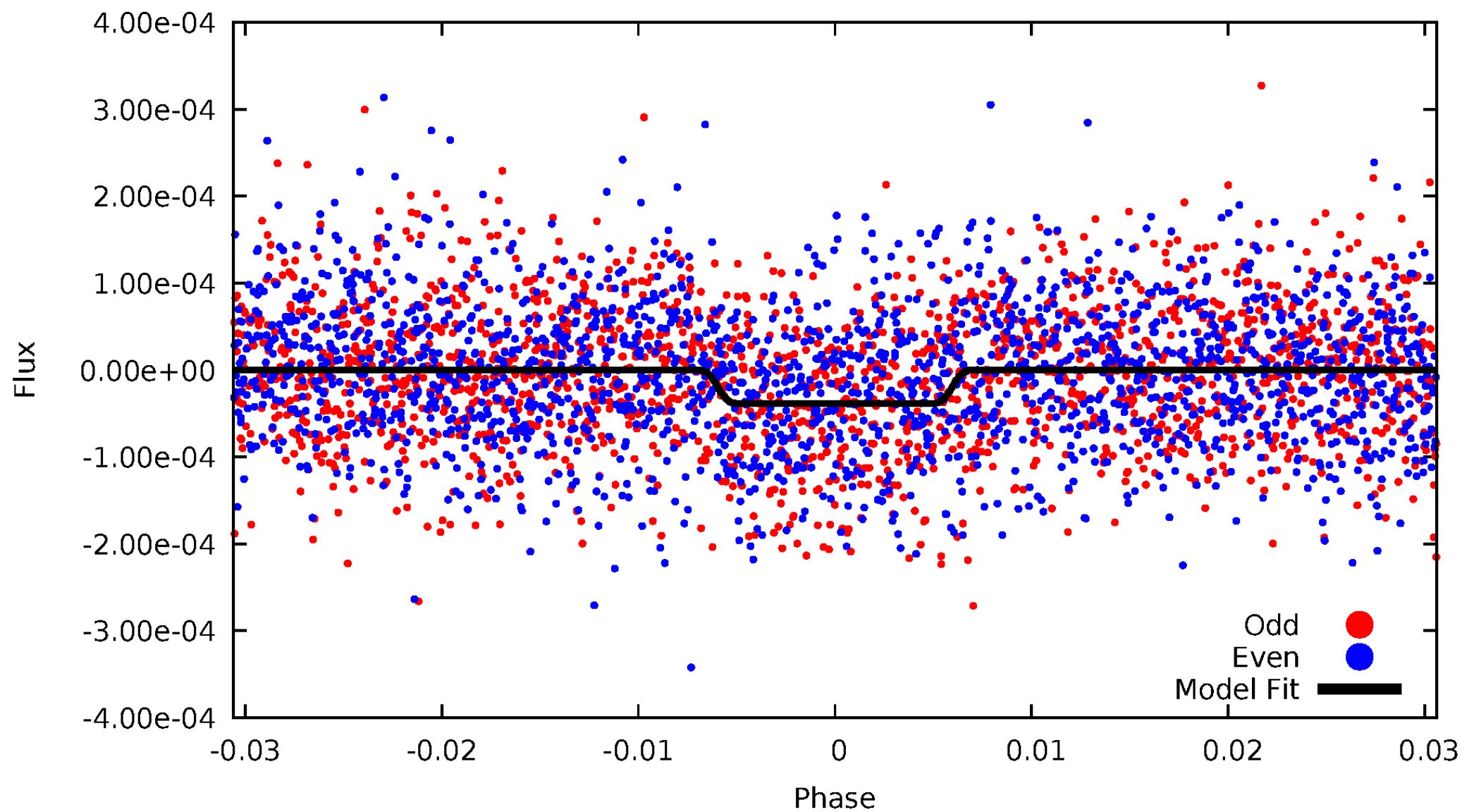
# DV Odd/Even

TCE 007983117-02



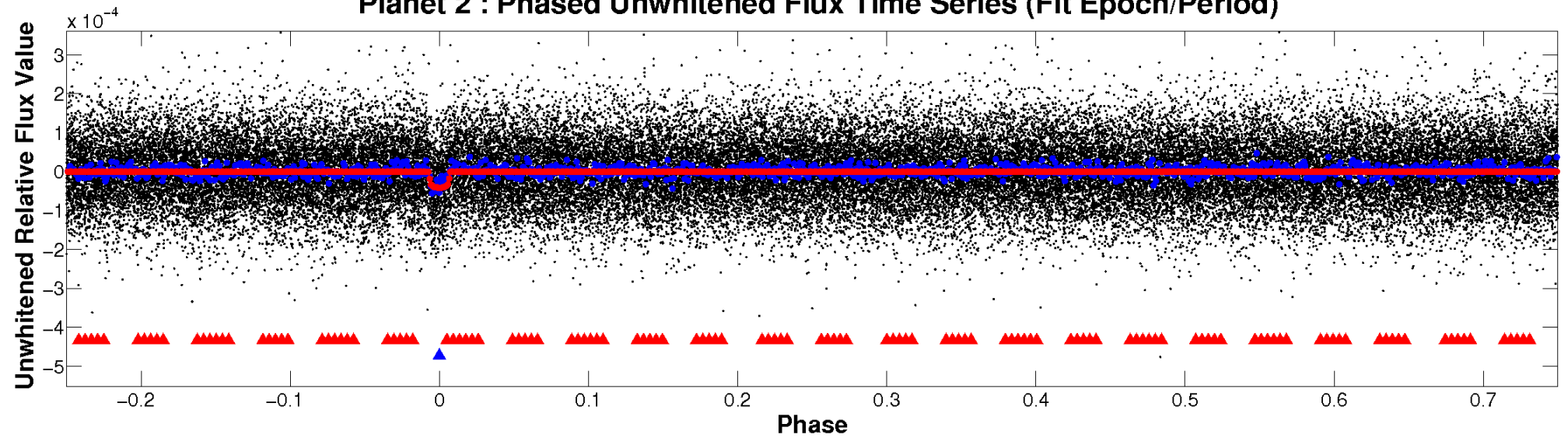
# ALT Odd/Even

TCE 007983117-02

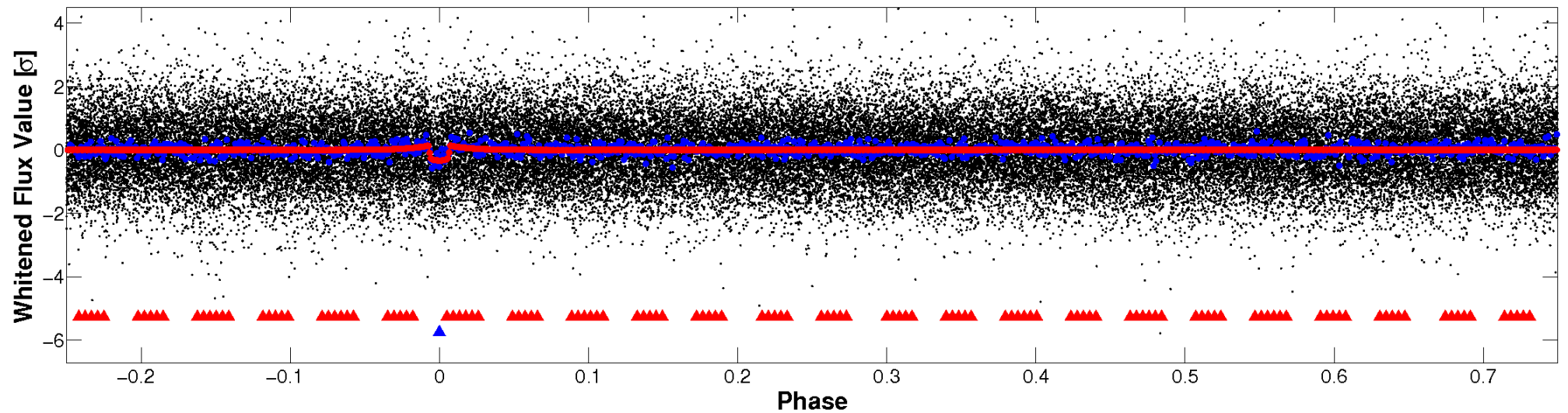


# Non-Whitened Vs. Whitened Light Curve

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

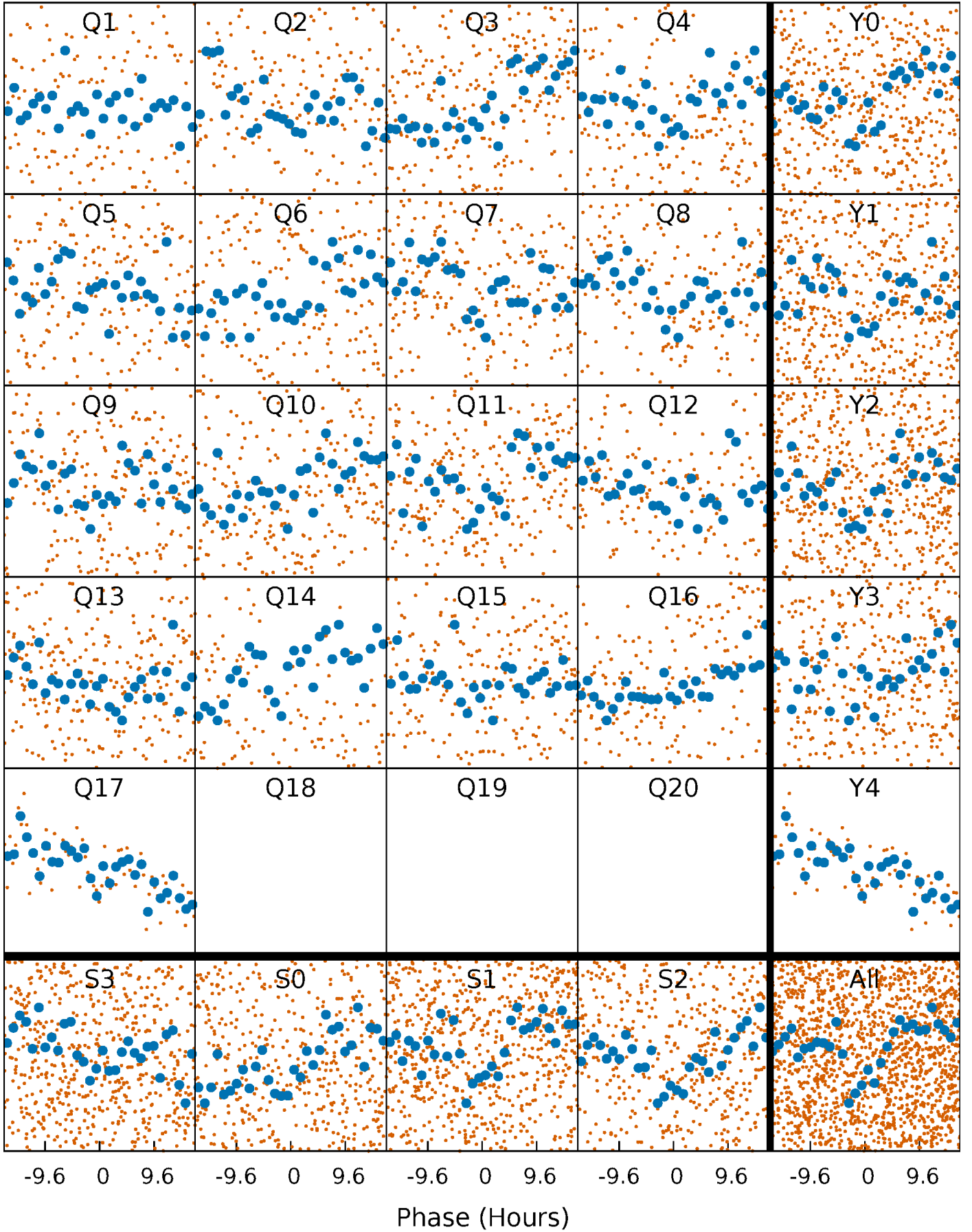


## Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



# PDC Quarter-Phased Transit Curves

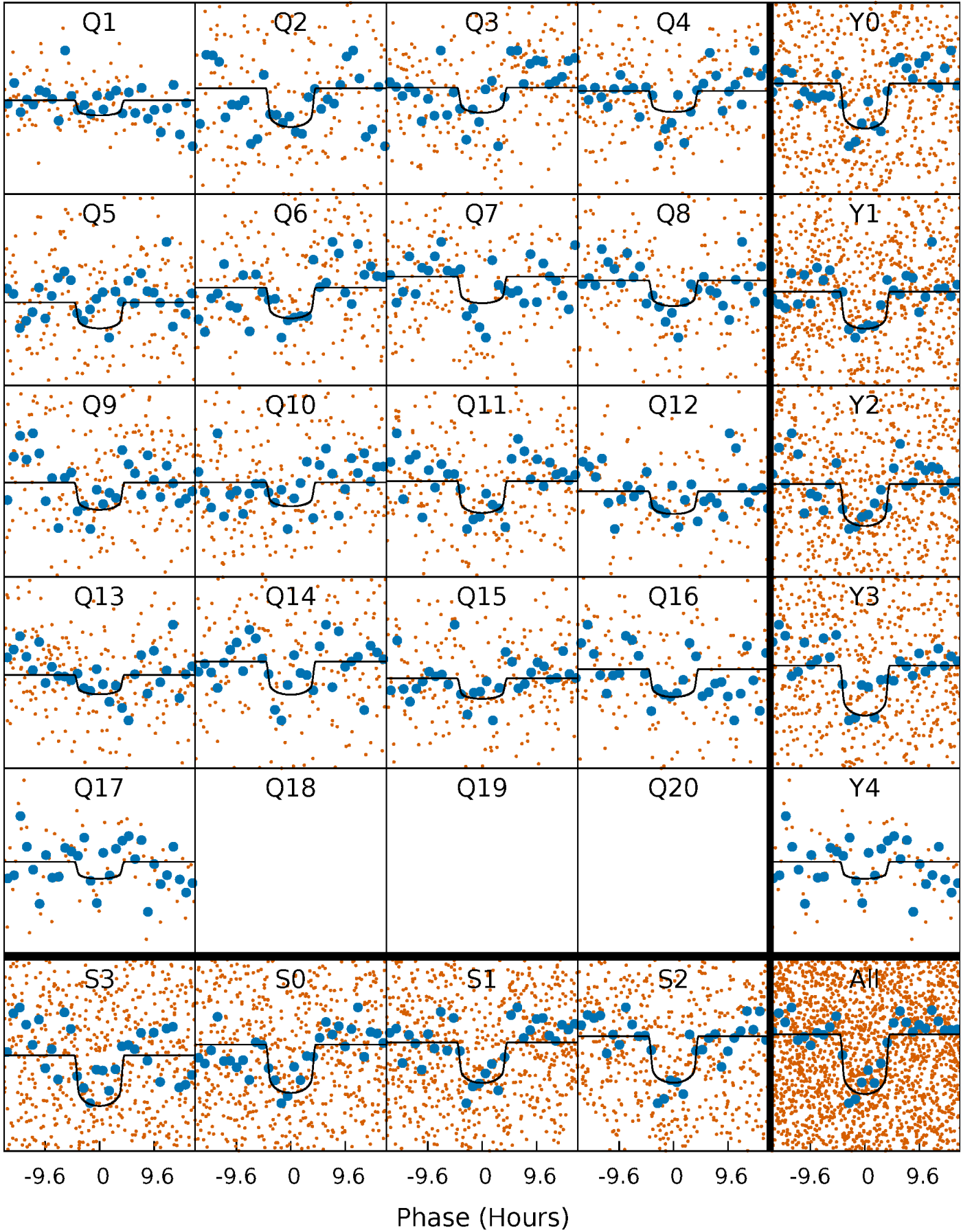
TCE 007983117-02 P= 25.089562 Days  $T_0=138.522384$  (BKJD)





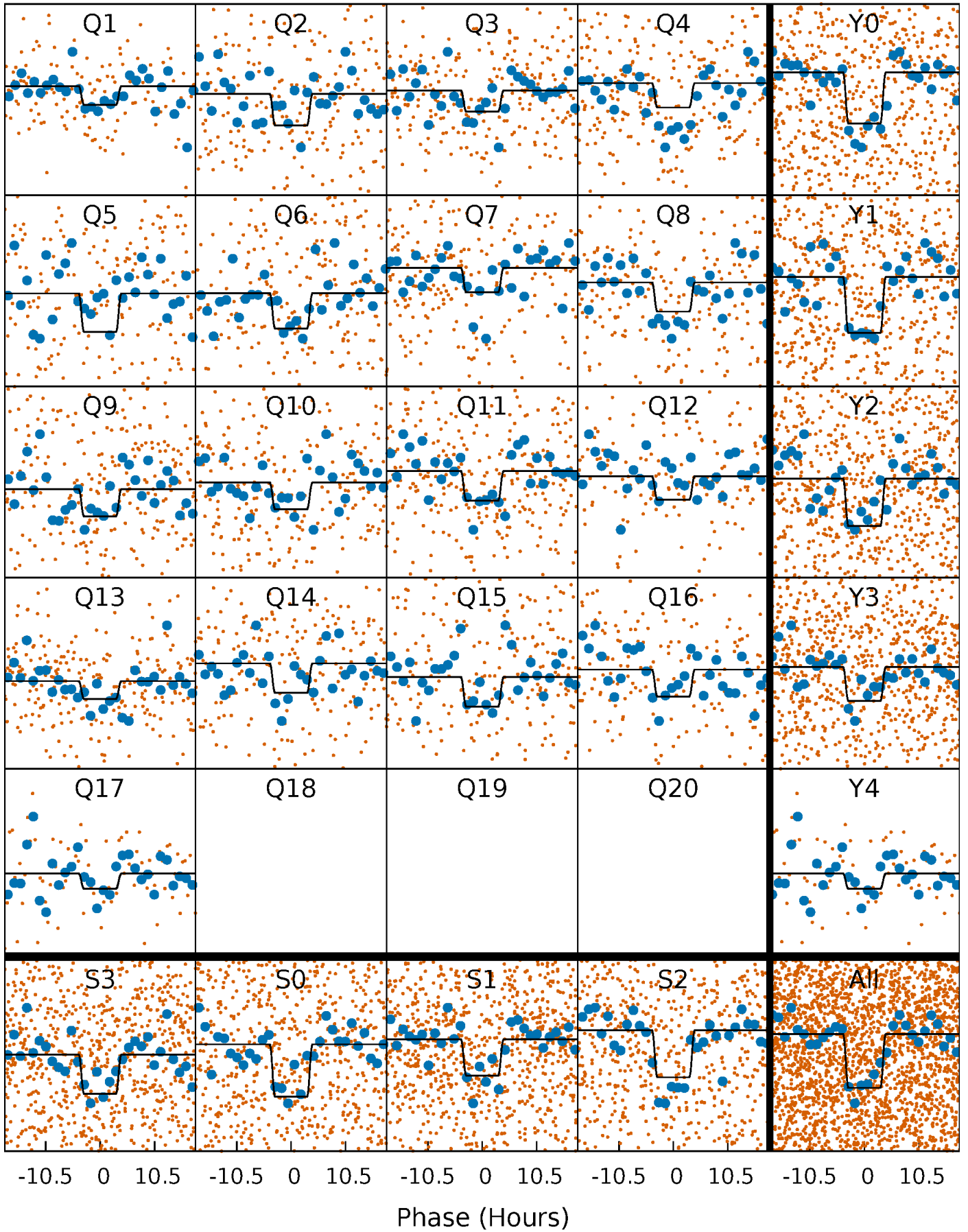
# DV Quarter-Phased Transit Curves

TCE 007983117-02 P= 25.089562 Days  $T_0=138.522384$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

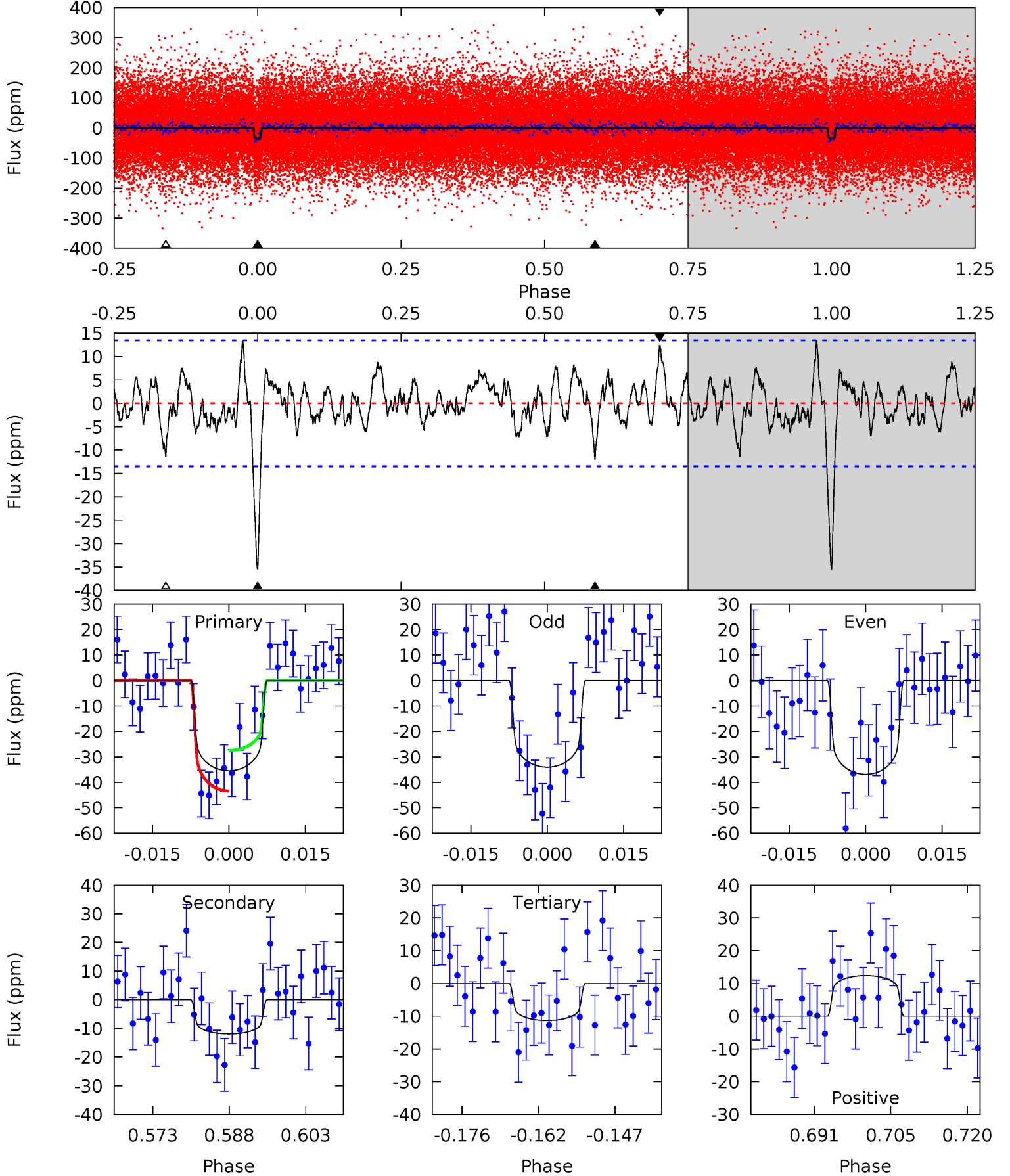
TCE 007983117-02     $P = 25.089689$  Days     $T_0 = 138.502891$  (BKJD)



# DV Model-Shift Uniqueness Test

007983117-02,  $P = 25.089562$  Days,  $E = 113.432822$  Days

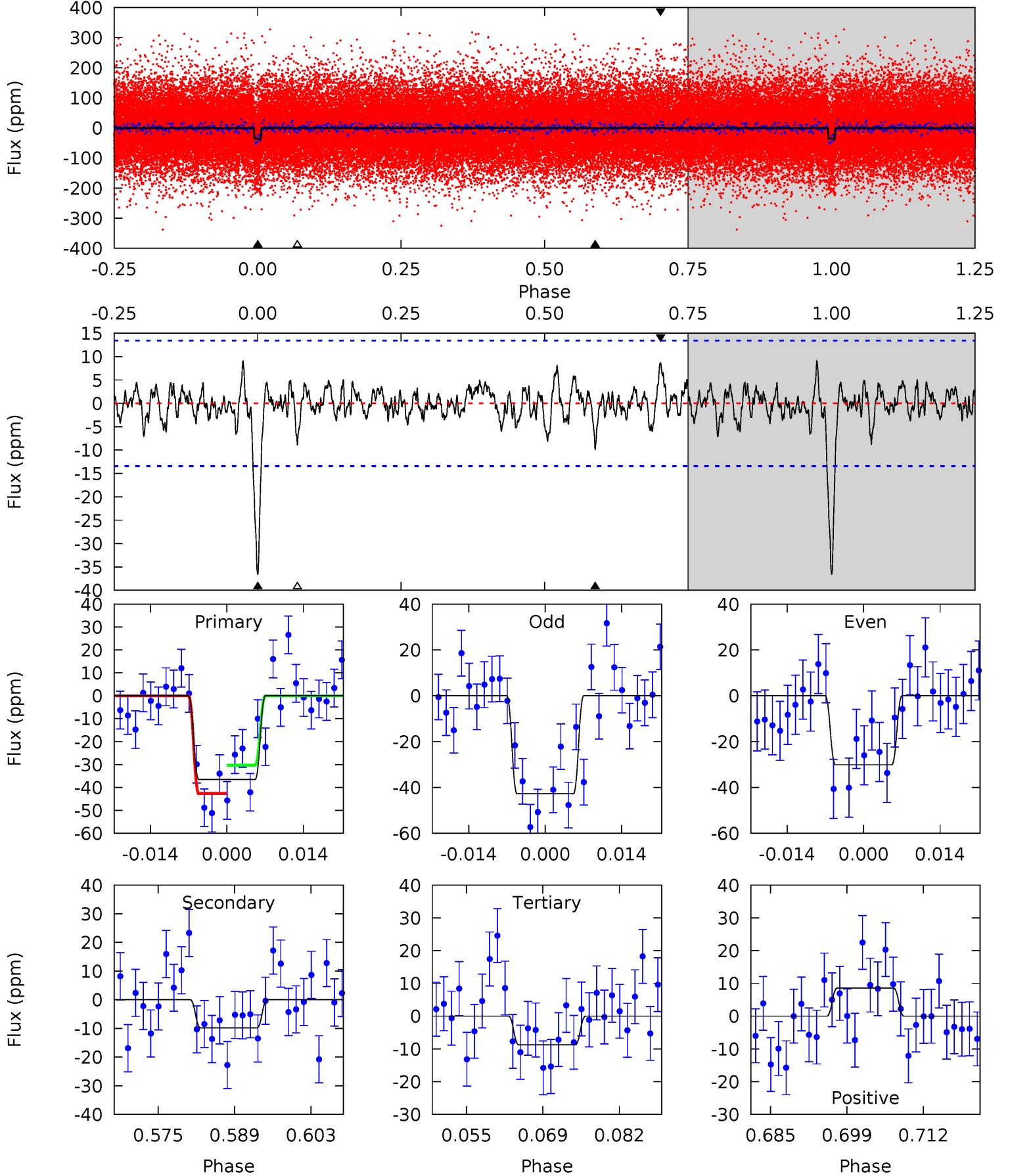
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
13.0	4.38	4.16	4.55	4.95	2.44	1.40	8.85	8.46	0.23	-0.17	0.52	0.89	0.27	2.94



# Alt Model-Shift Uniqueness Test

007983117-02,  $P = 25.089689$  Days,  $E = 113.413202$  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
13.5	3.63	3.25	3.16	4.97	2.47	1.00	10.2	10.3	0.38	0.46	2.35	1.01	0.20	2.28



### Stellar Parameters For KIC 007983117

	$T_{\text{eff}} (K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R (R_{\odot})$	$M (M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	$6033^{+183}_{-183}$	$3.985^{+0.266}_{-0.114}$	$-0.100^{+0.300}_{-0.300}$	$1.788^{+0.351}_{-0.571}$	$1.127^{+0.189}_{-0.172}$	$0.278^{+0.481}_{-0.099}$
	+3%/-3%	+7%/-3%	+300%/-300%	+20%/-32%	+17%/-15%	+173%/-36%
Source	PHO1	FLK73	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 007983117-02 / KOI 3214.02

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	$A_{\text{obs}}$
DV	$-12 \pm 3$	$1.36^{+0.34}_{-0.34}$	$1174^{+82}_{-100}$	$4379^{+505}_{-367}$	$111^{+91}_{-45}$
Alt.	$-10 \pm 3$	$1.19^{+0.33}_{-0.33}$	$1176^{+77}_{-93}$	$4449^{+551}_{-426}$	$117^{+107}_{-51}$

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

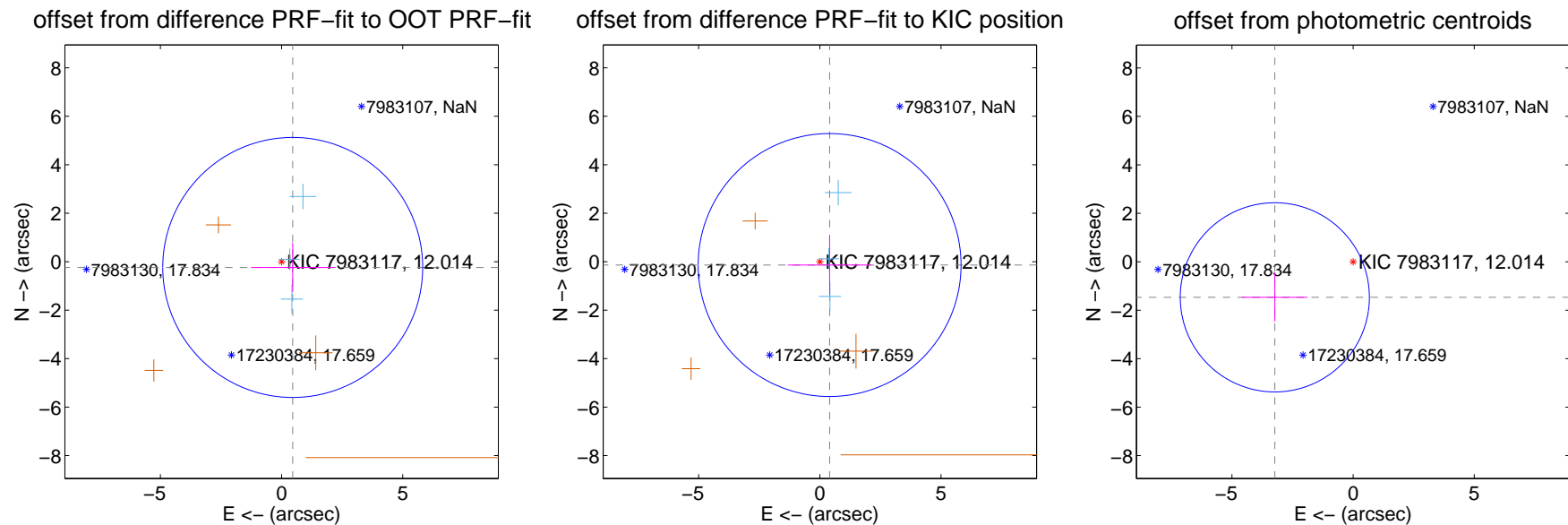
## DV Centroid Data

Supplemental centroid analysis for 007983117-02. Kepler magnitude: 12.01. Transit SNR 9.08

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

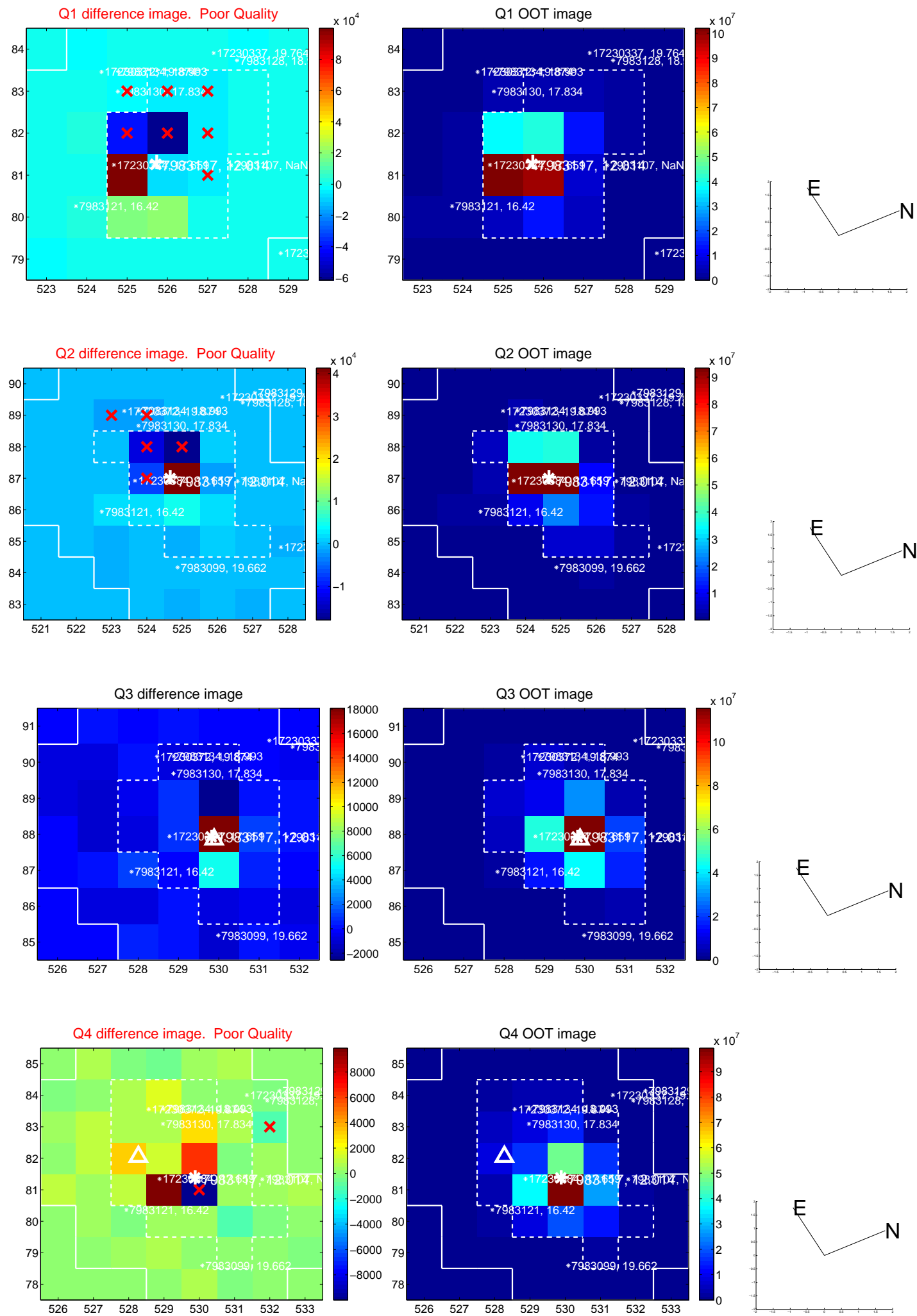
	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$0.518 \pm 1.788$	0.29	$-0.460 \pm 1.721$	$-0.237 \pm 1.012$
PRF-fit source offset from KIC position	$0.426 \pm 1.808$	0.24	$-0.403 \pm 1.726$	$-0.138 \pm 1.215$
photometric centroid source offset	$3.55 \pm 1.30$	2.73	$3.23 \pm 1.36$	$-1.47 \pm 1.00$



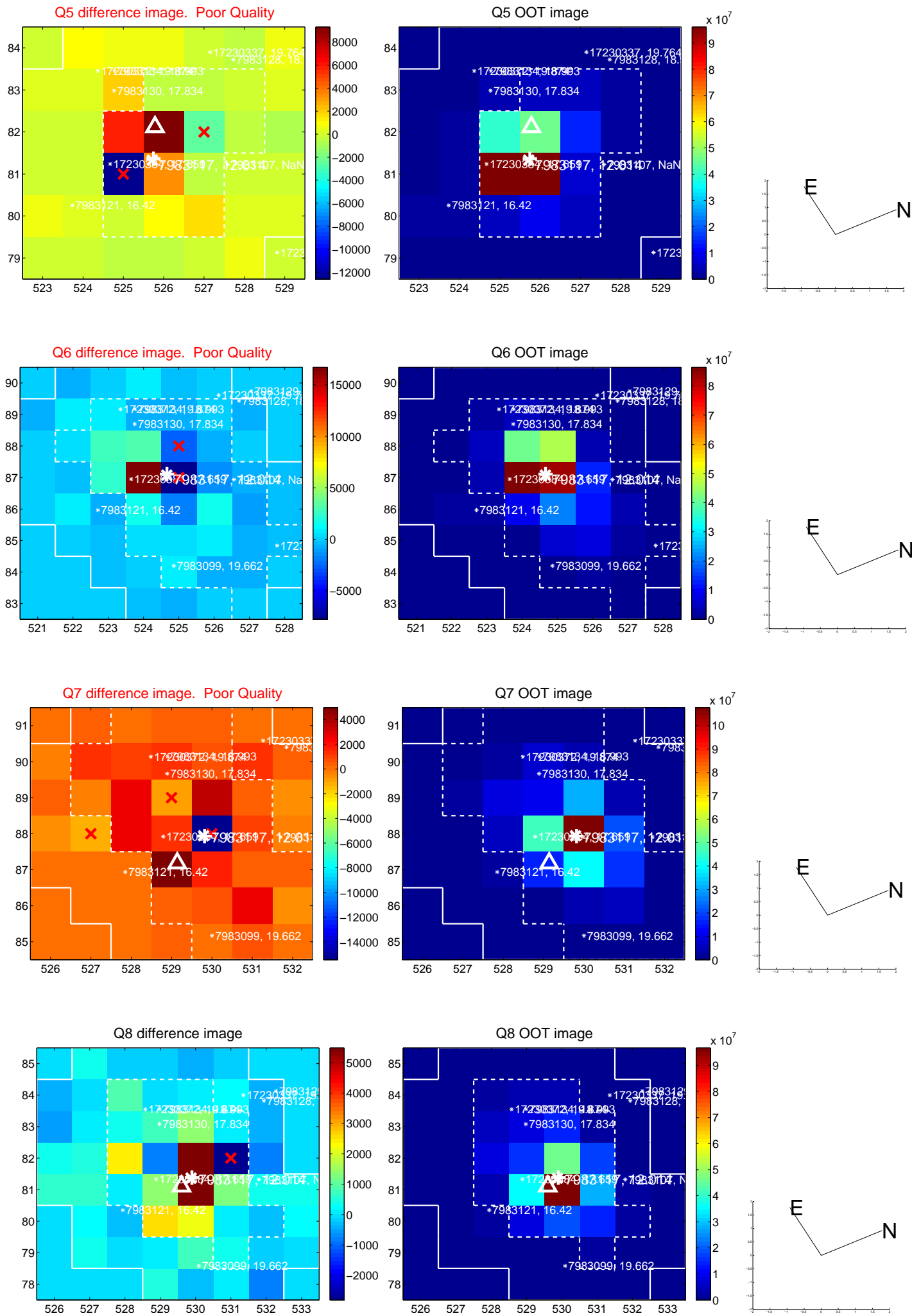
Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: three- $\sigma$ . Red \*: target star. Blue \*: Other stars. Text next to a star gives its KIC ID and kepmag. KIC IDs > 15,000,000 are from the UKIRT catalog.



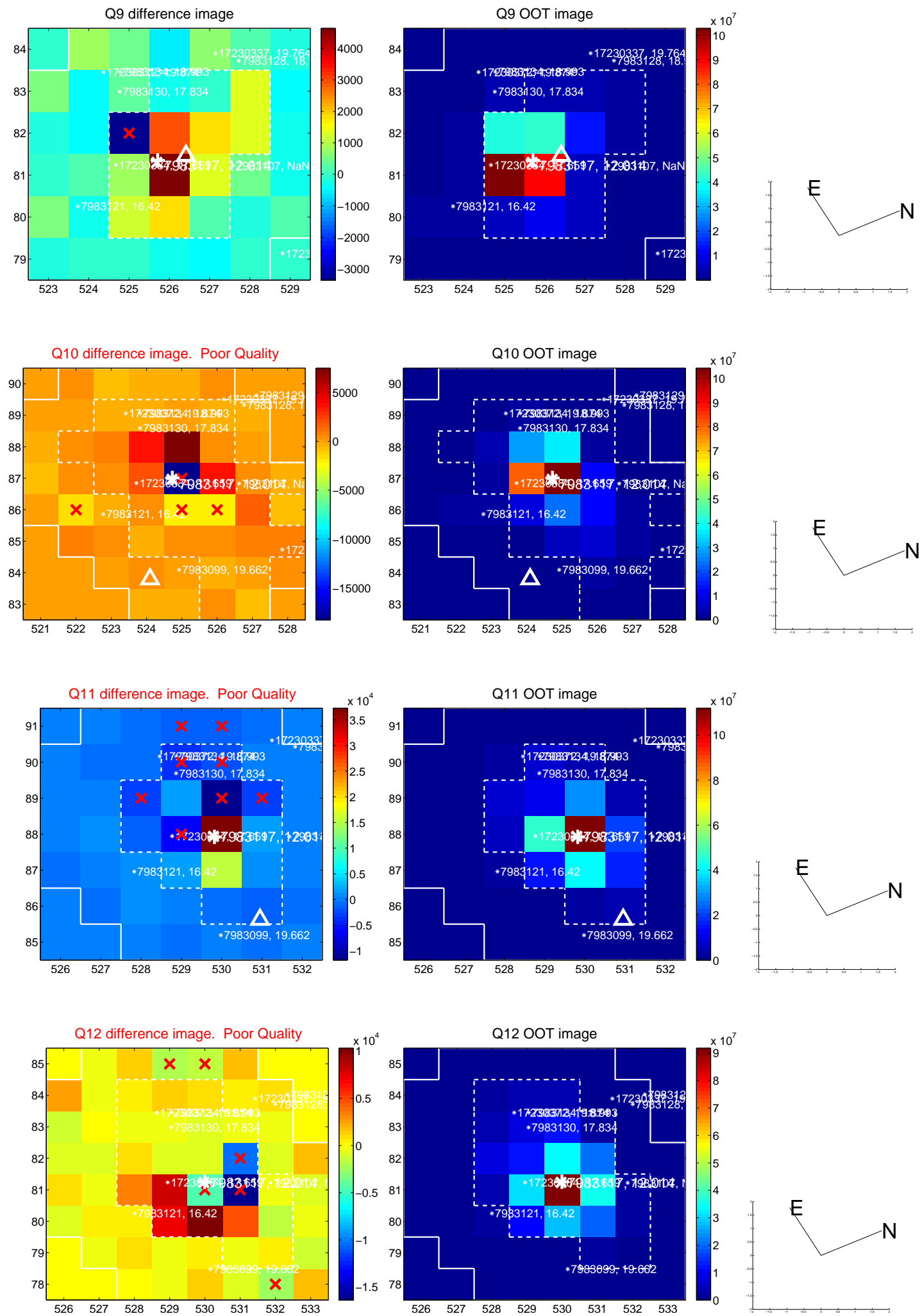
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



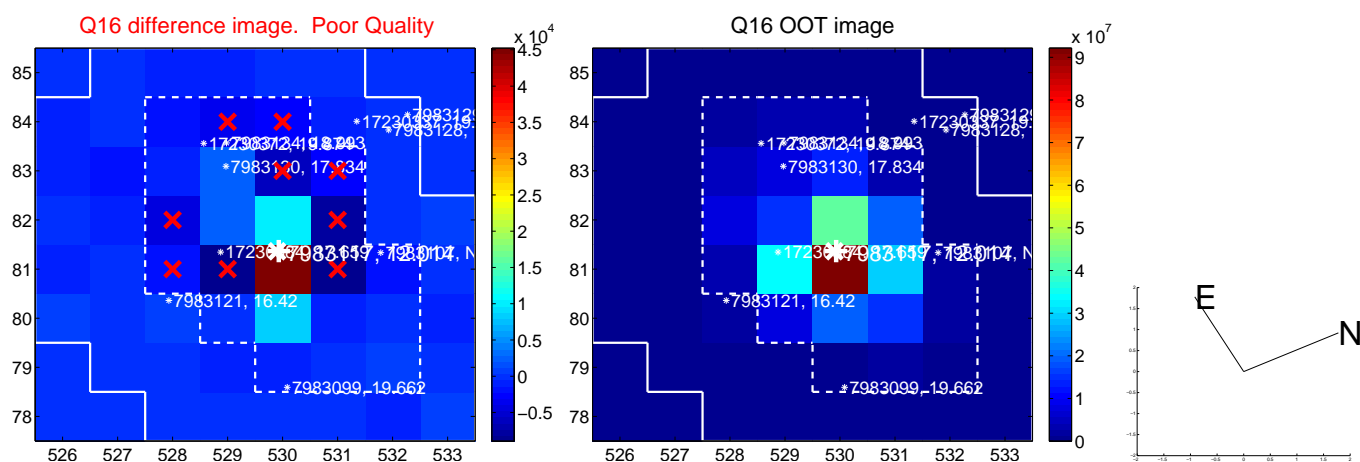
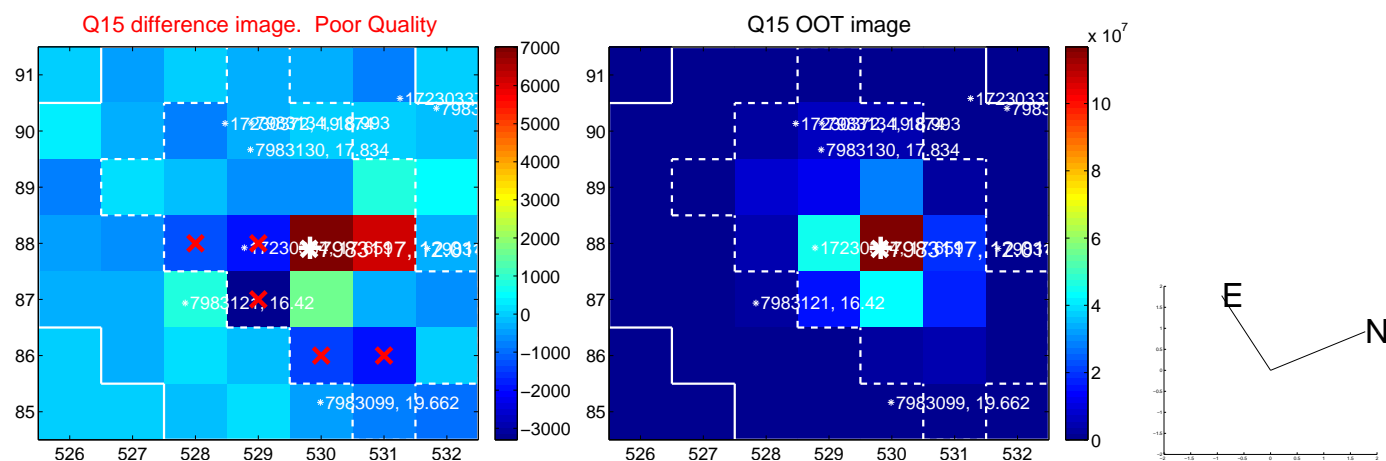
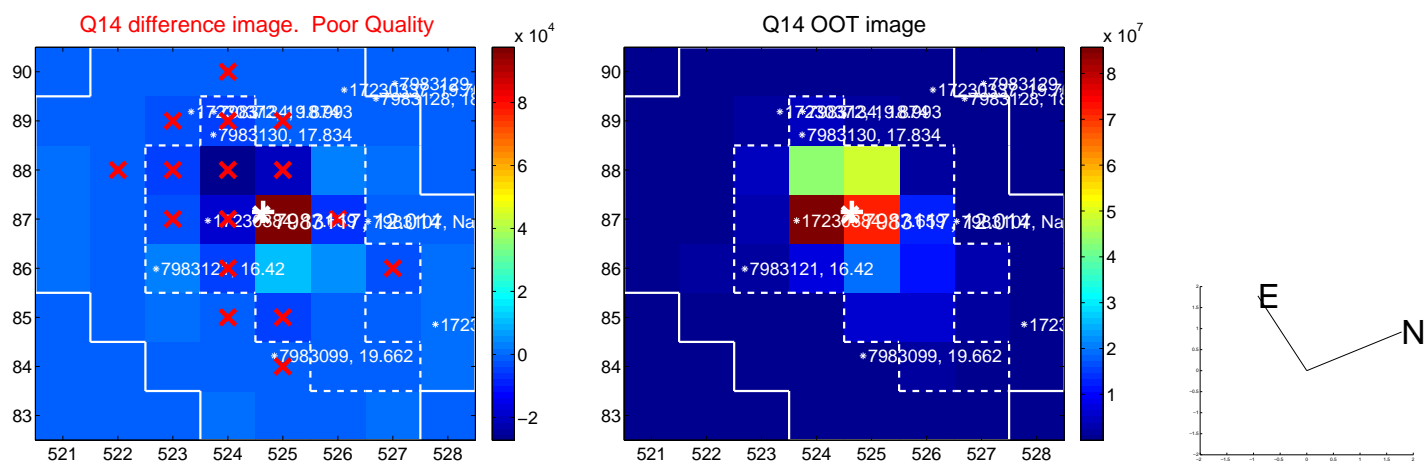
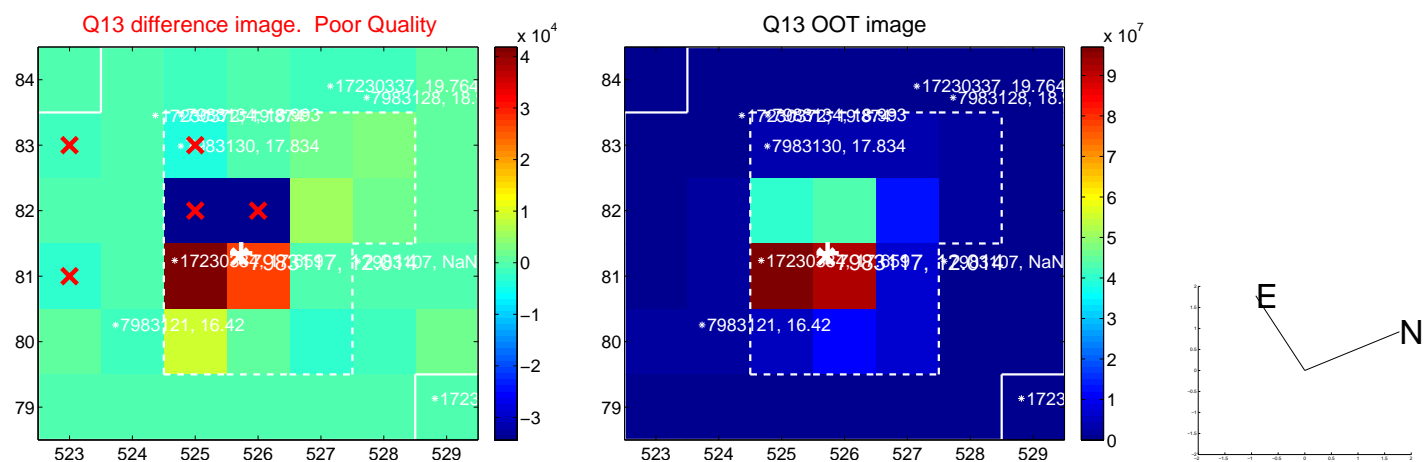
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



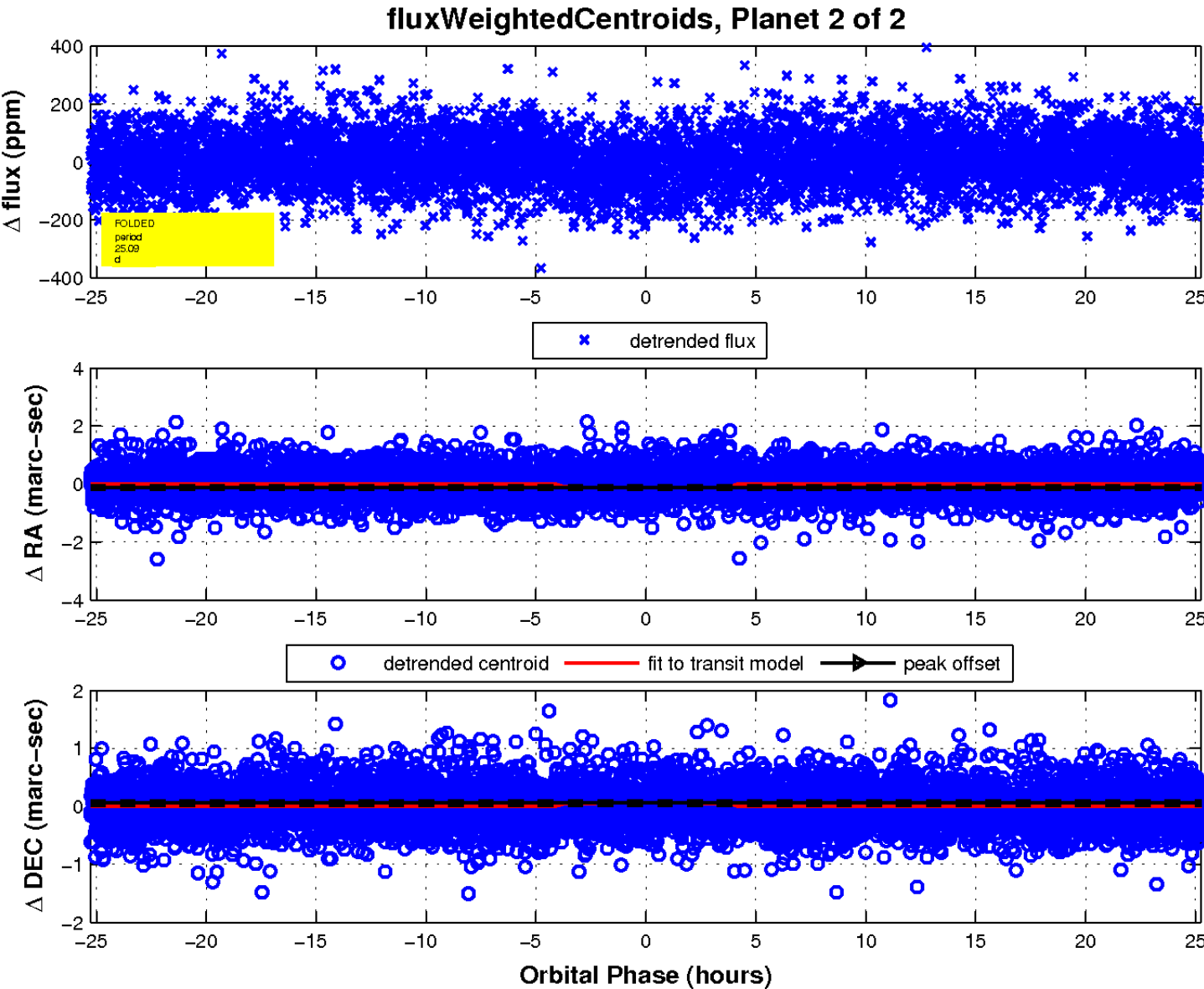
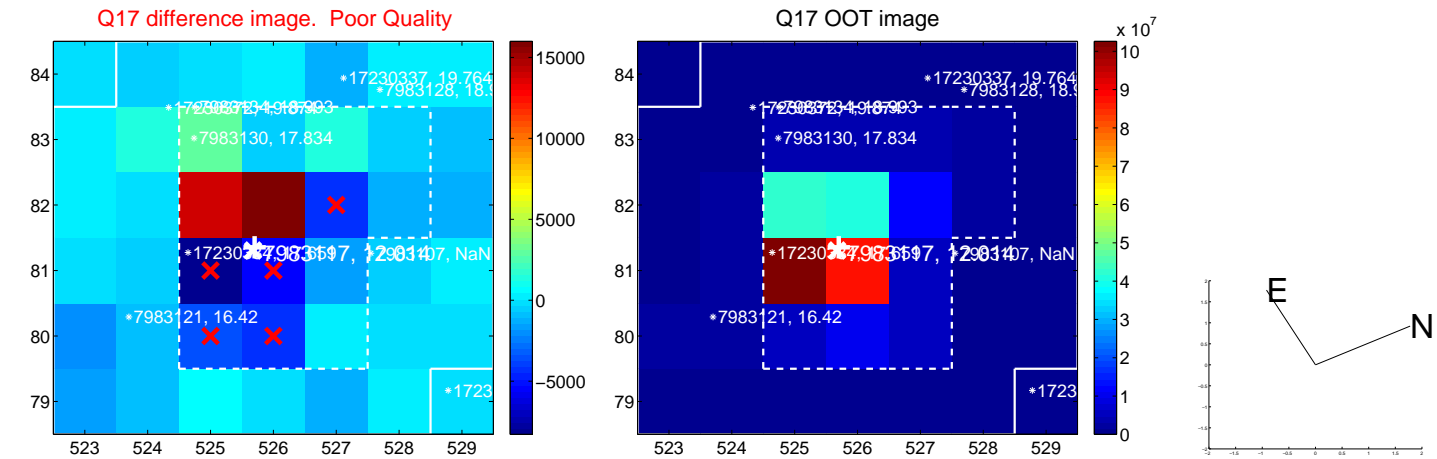
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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



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



UKIRT Image

Declination

