

# KIC 008481000

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
008481000-01	OBS	No	6.552365	131.794654	33.2	10.771	10.2	9.0	1.72	6792	1.16	1151.79
008481000-02	OBS	No	3.275831	131.521211	59.2	9.000	10.0	-1.0	1.72	6792	1.33	2902.74

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
008481000-01	OBS	FP	0.00	1	0	0	0	LPP_DV—MOD_NONUNIQ_DV
008481000-02	OBS	FP	0.00	1	0	0	0	TRANS_GAPPED—SWEET_NTL—LPP_DV—SAME_NTL_PERIOD—CENT_NOFITS

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

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

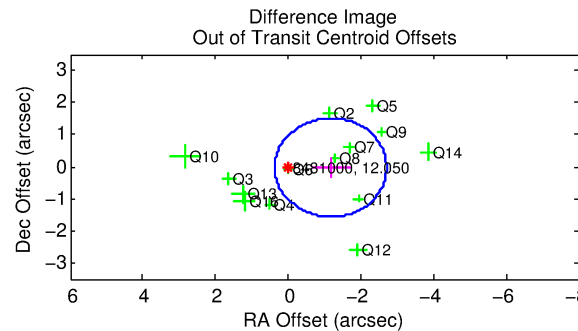
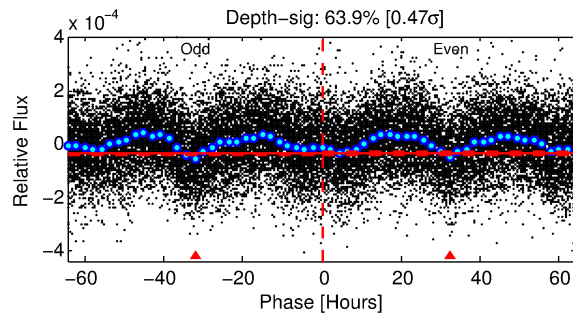
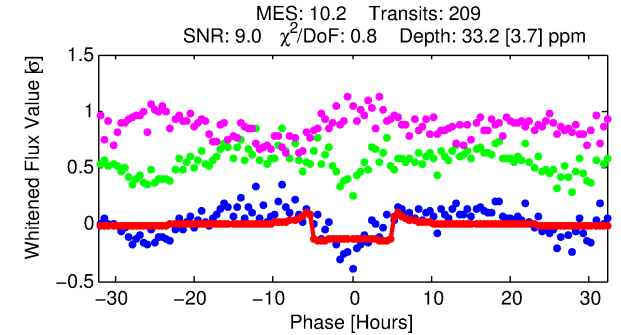
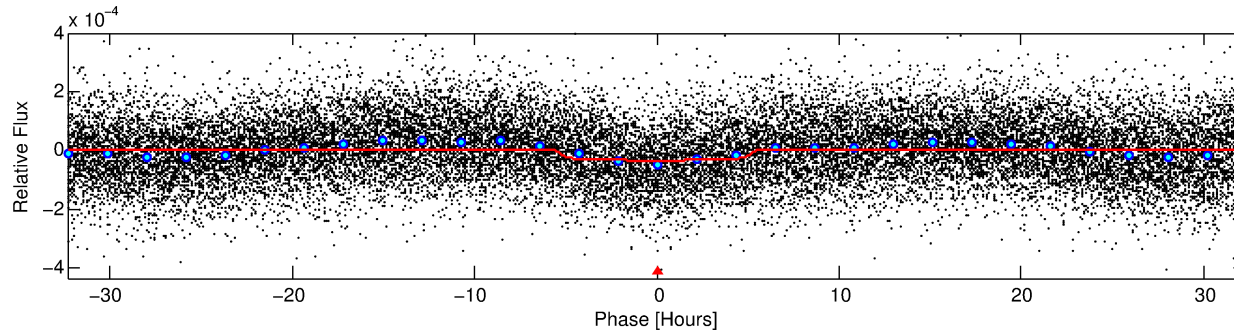
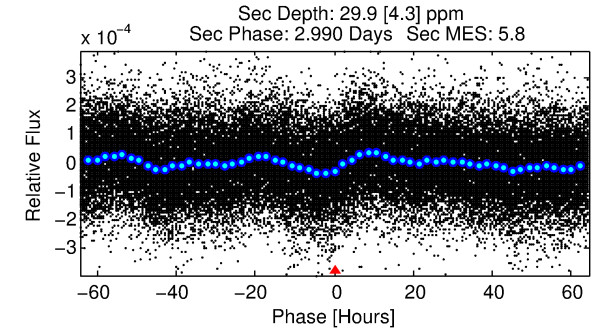
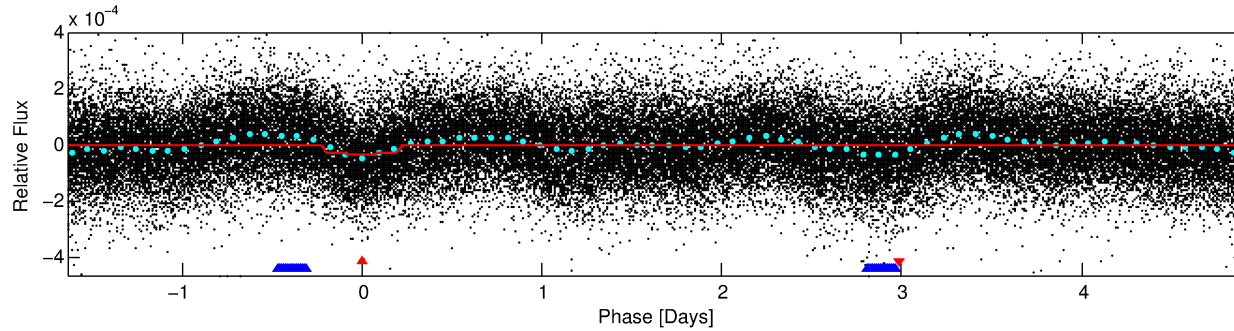
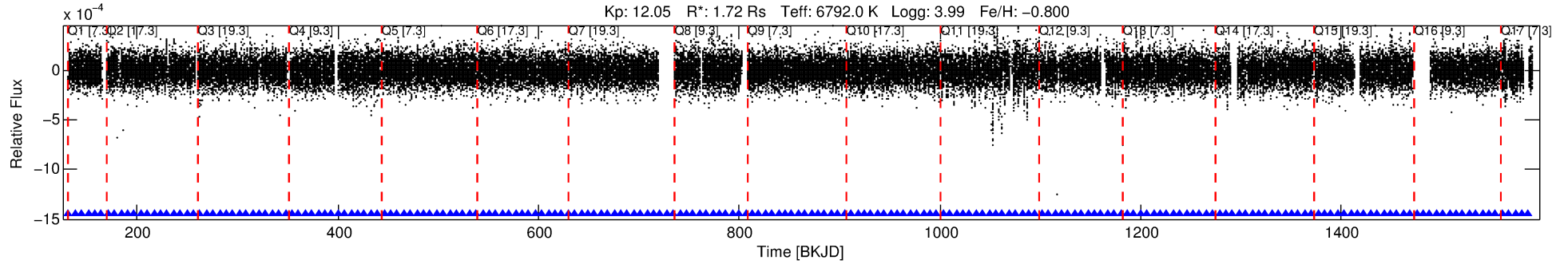
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

## Ephemeris Match Information For 008481000-01

No Significant Match Found

# DV One-Page Summary

KIC: 8481000 Candidate: 1 of 2 Period: 6.552 d



## DV Fit Results:

Period = 6.55236 [0.00006] d  
Epoch = 131.7947 [0.0065] BKJD  
Rp/R\* = 0.0062 [0.0007]  
a/R\* = 2.27 [1.02]  
b = 0.90 [0.12]  
Seff = 1151.79 [559.53]  
Teq = 1485 [180] K  
Rp = 1.16 [0.39] Re  
a = 0.0700 [0.0210] AU  
Ag = 60.30 [32.59] [1.82σ]  
Teffp = 6400 [466] K [9.83σ]

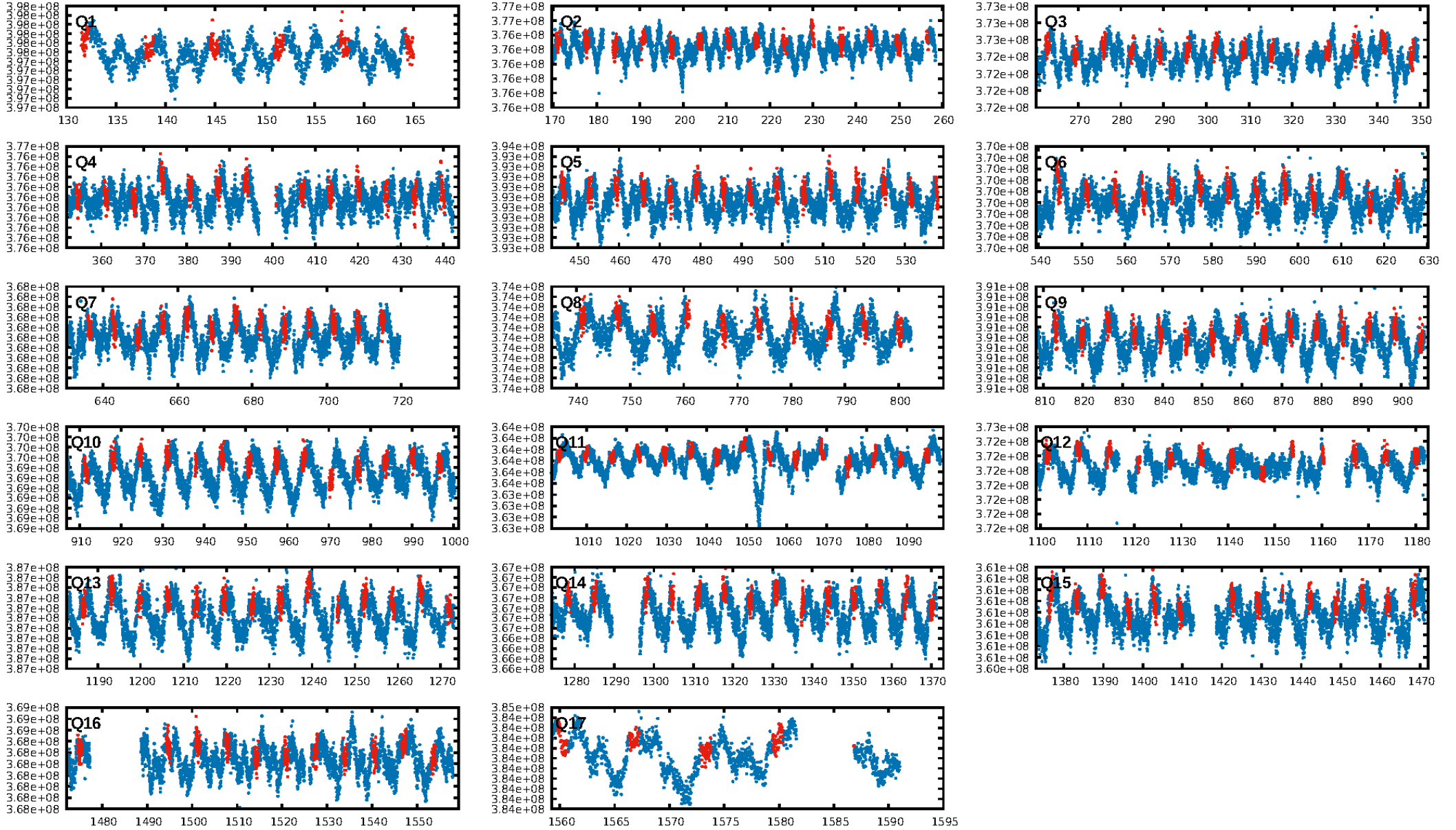
## DV Diagnostic Results:

ShortPeriod-sig: 100.0% [5.60σ]  
LongPeriod-sig: N/A  
ModelChiSquare2-sig: N/A  
ModelChiSquareGof-sig: N/A  
Bootstrap-pfa: 2.30e-16  
RollingBand-fgt: 1.00 [199/199]  
**GhostDiagnostic-chr: 0.6969**  
Centroid-sig: 6.7%  
Centroid-so: 0.776 arcsec [1.98σ]  
OotOffset-rm: 1.168 arcsec [2.28σ]  
KicOffset-rm: 1.159 arcsec [2.40σ]  
OotOffset-st: 4/3/4/3 [14]  
KicOffset-st: 4/3/4/3 [14]  
DiffImageQuality-fgm: 0.79 [11/14]  
DiffImageOverlap-fno: 0.00 [0/17]

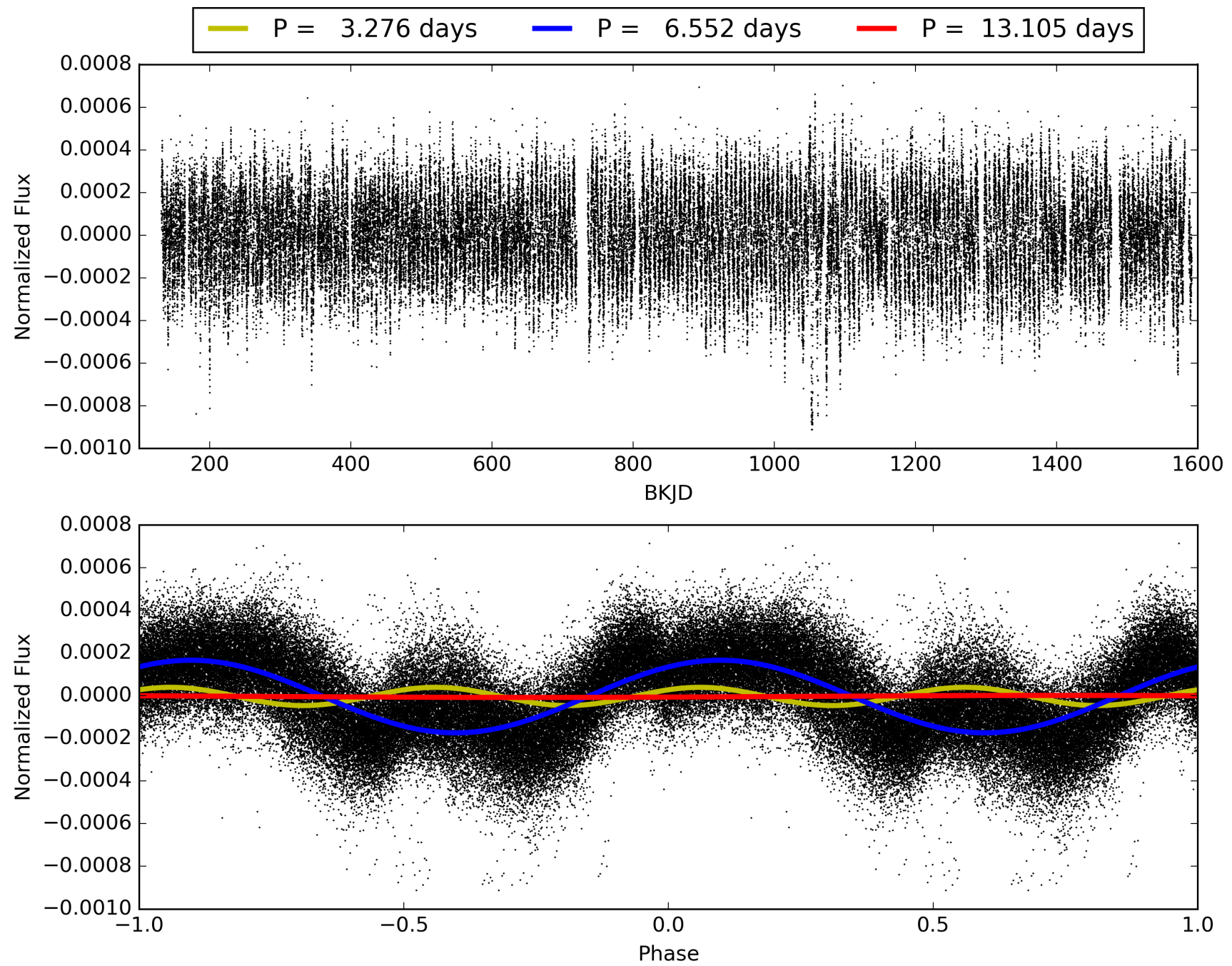
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 01-Feb-2016 00:21:30 Z

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

# TCE 008481000-01, PDC Light Curves

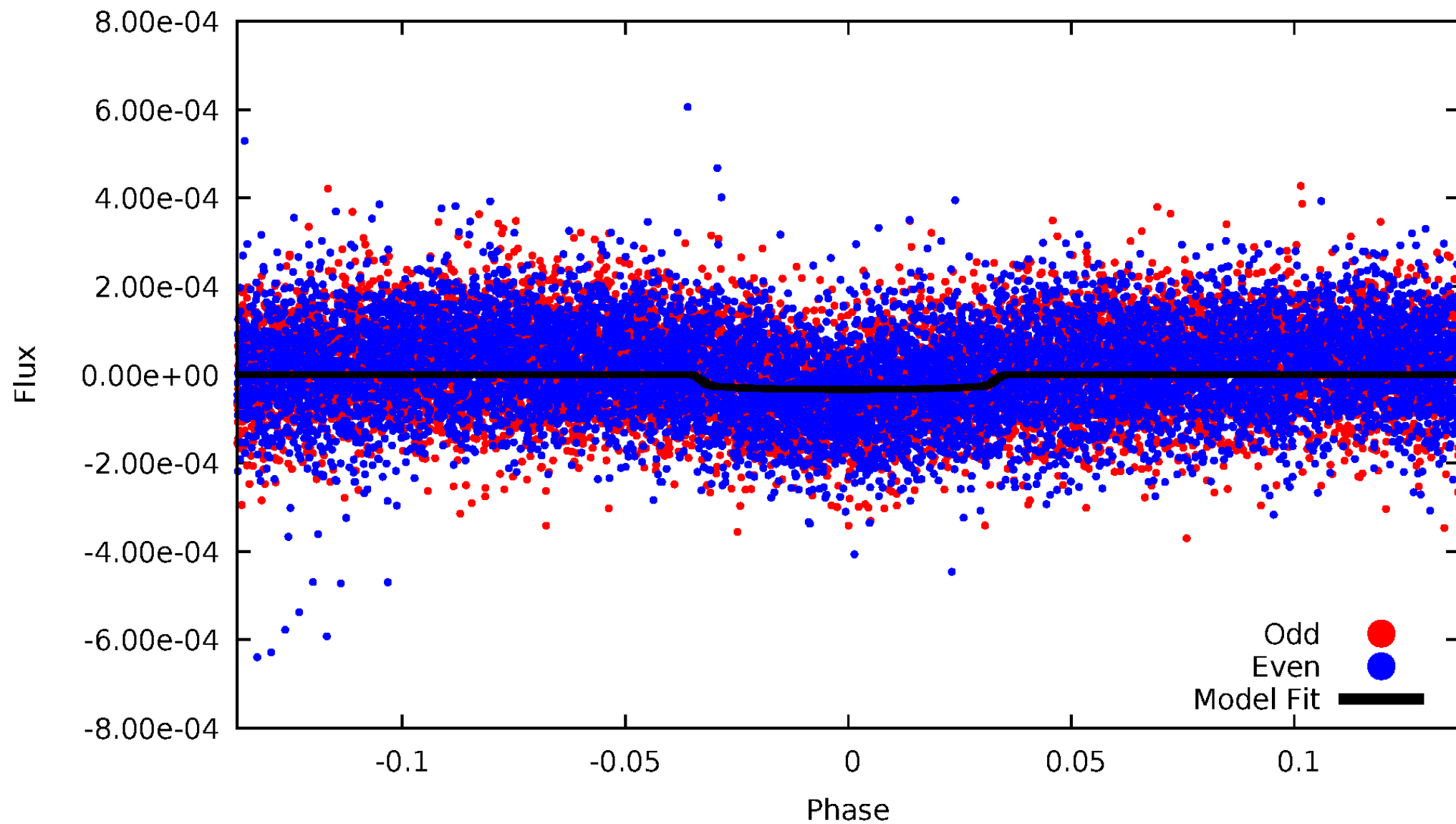


TCE 008481000-01



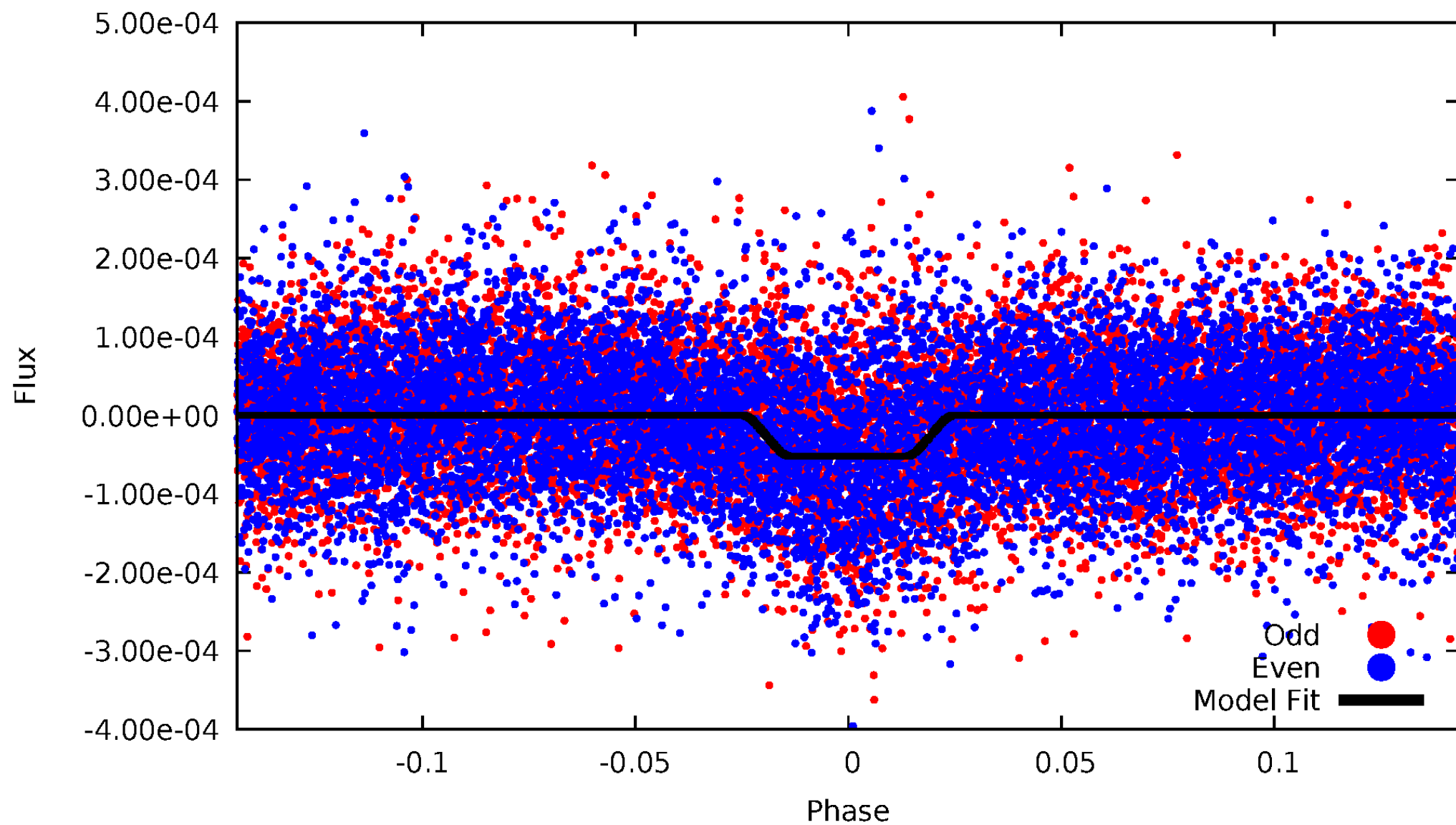
# DV Odd/Even

TCE 008481000-01

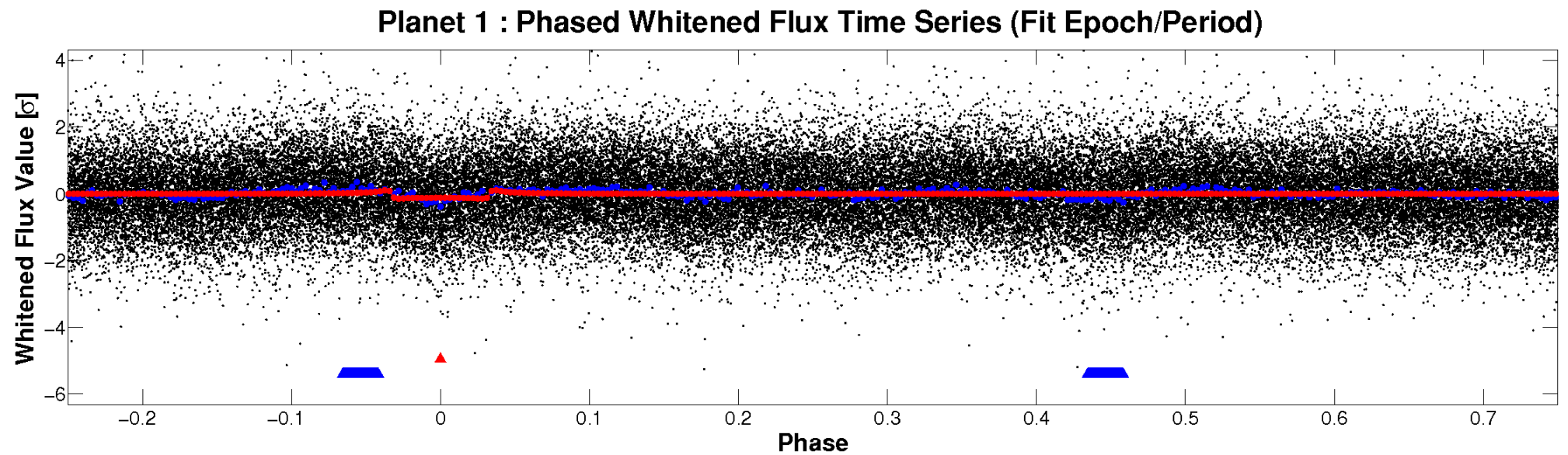
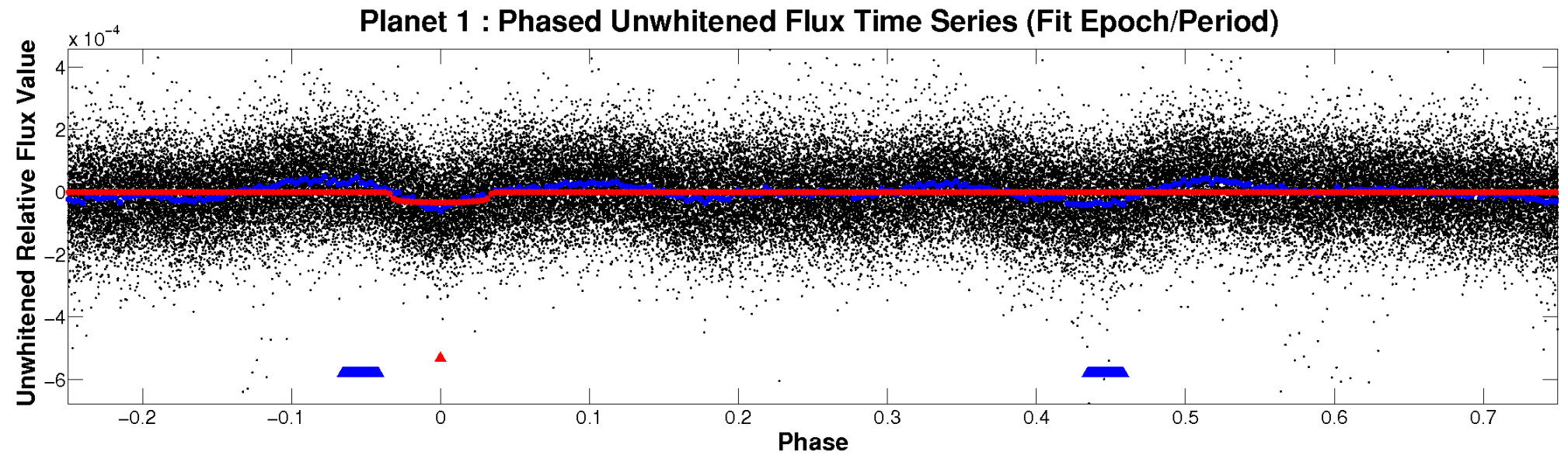


# ALT Odd/Even

TCE 008481000-01

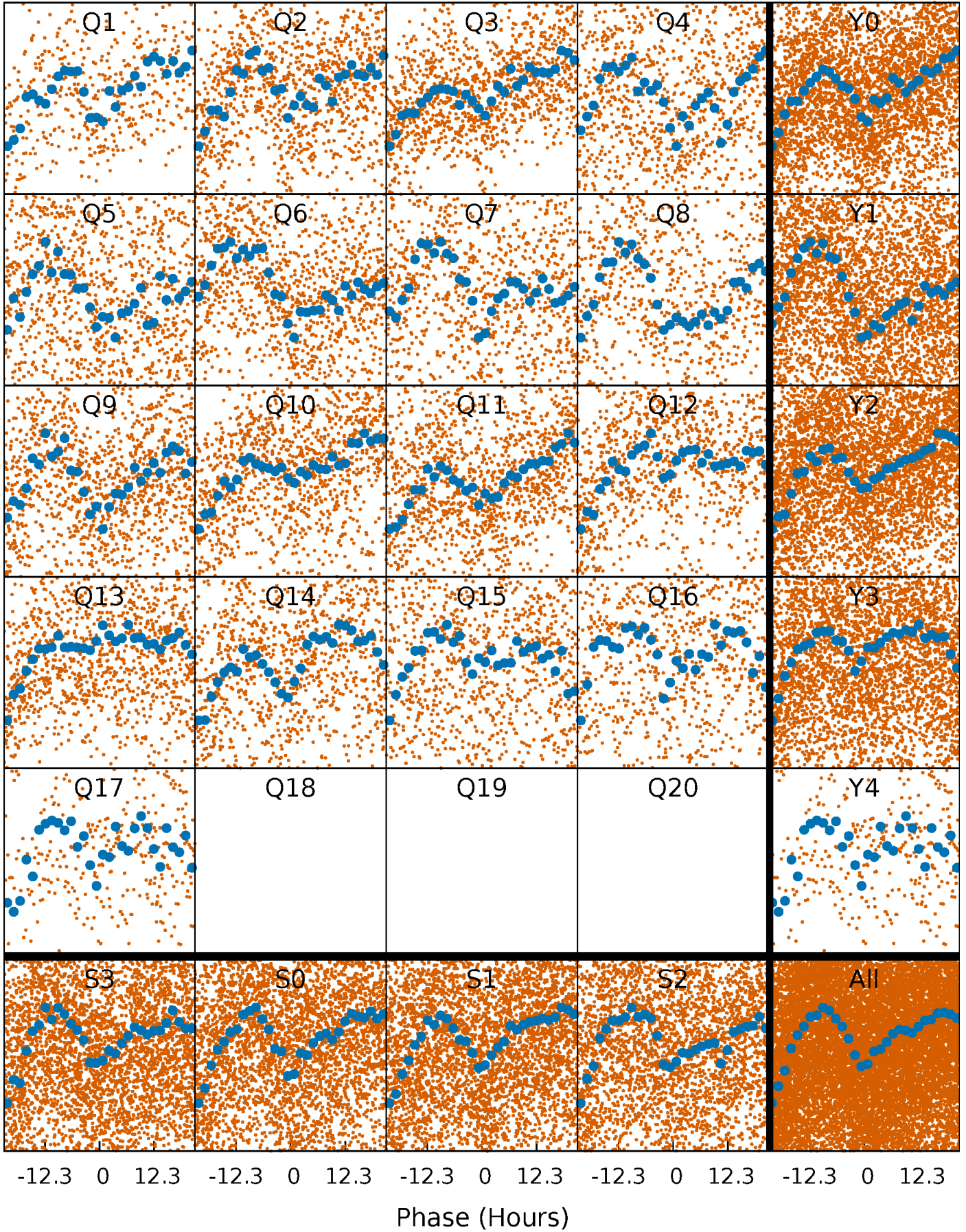


# Non-Whitened Vs. Whitened Light Curve



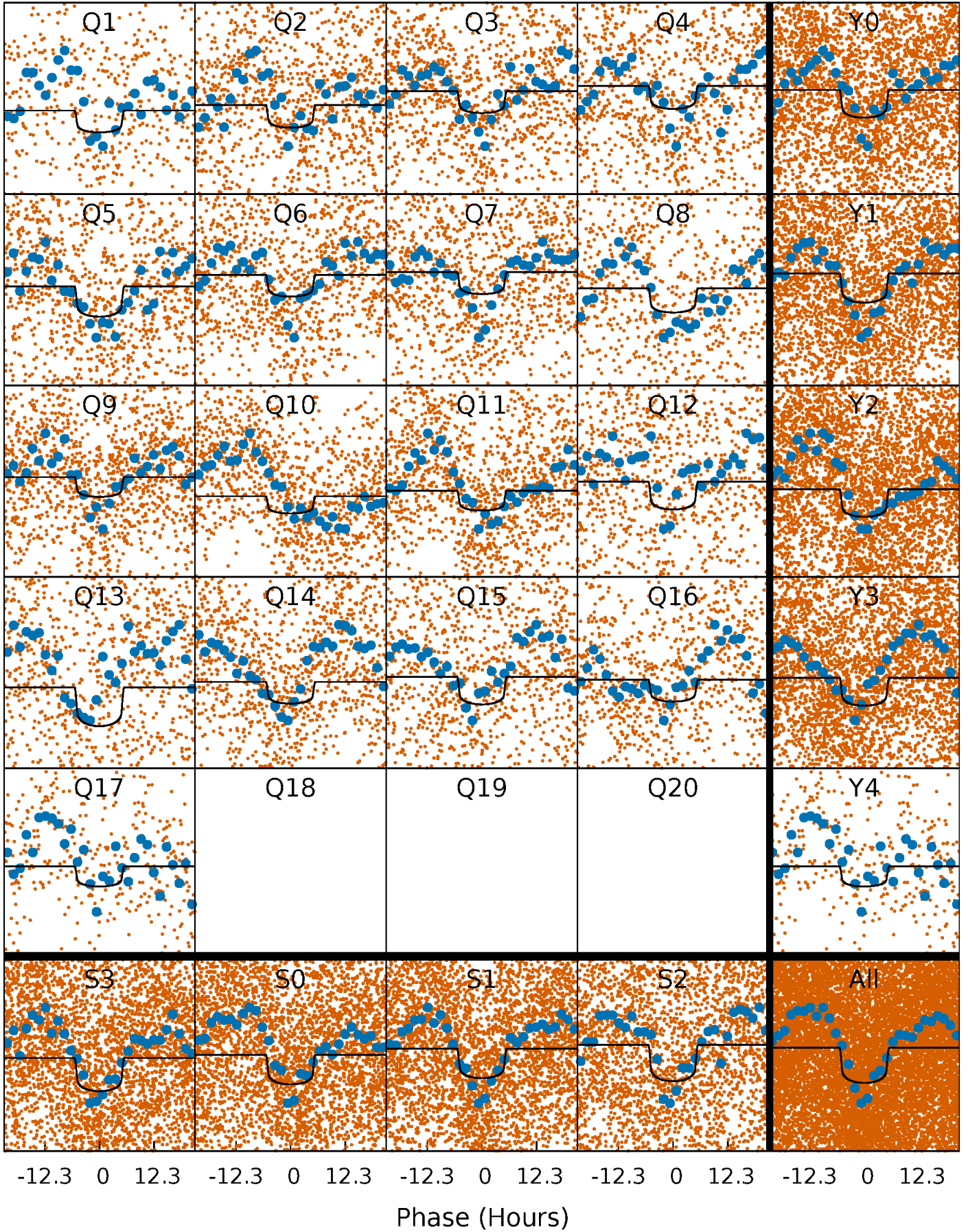
# PDC Quarter-Phased Transit Curves

TCE 008481000-01 P= 6.552365 Days  $T_0=131.794654$  (BKJD)



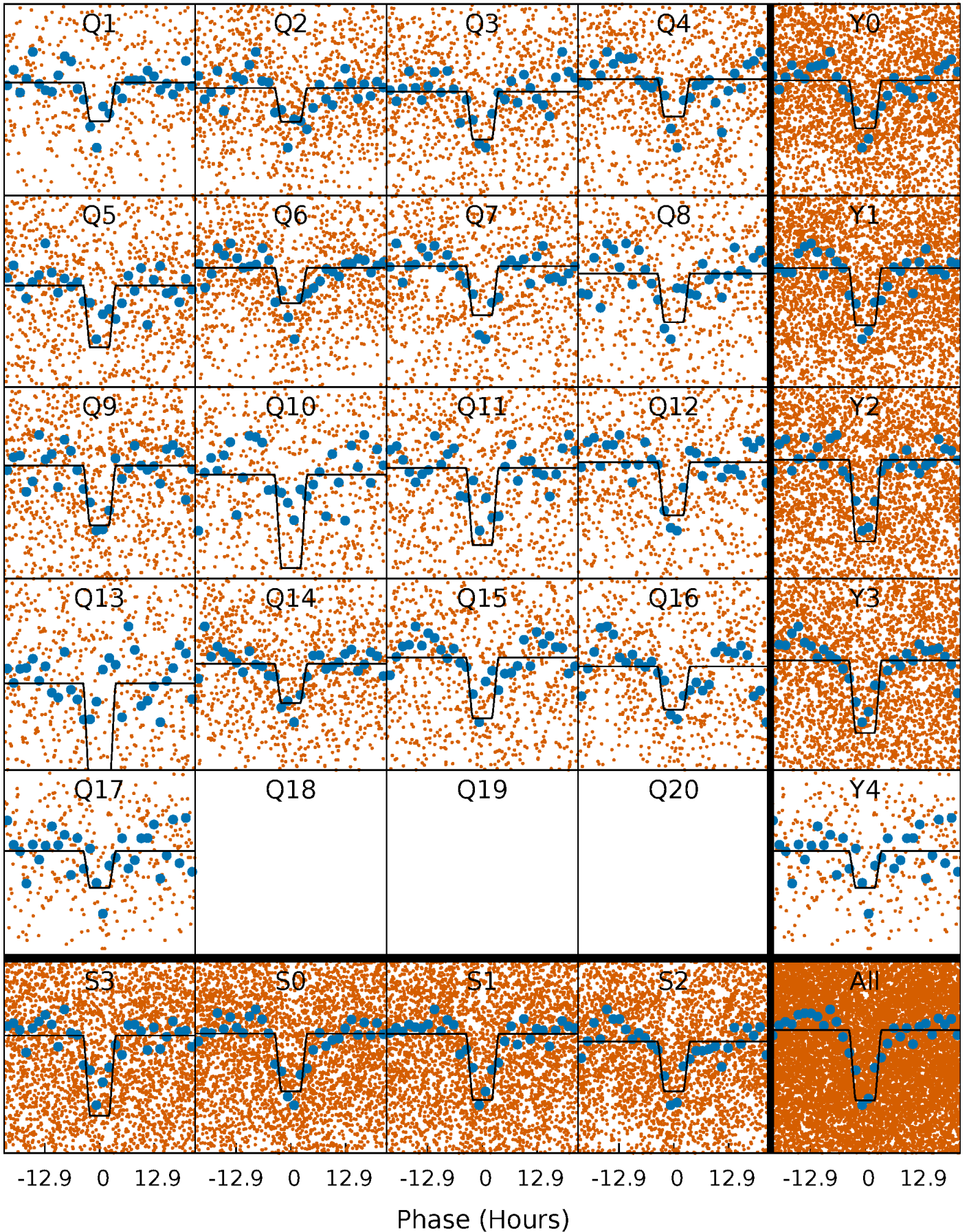
# DV Quarter-Phased Transit Curves

TCE 008481000-01   P= 6.552365 Days    $T_0=131.794654$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

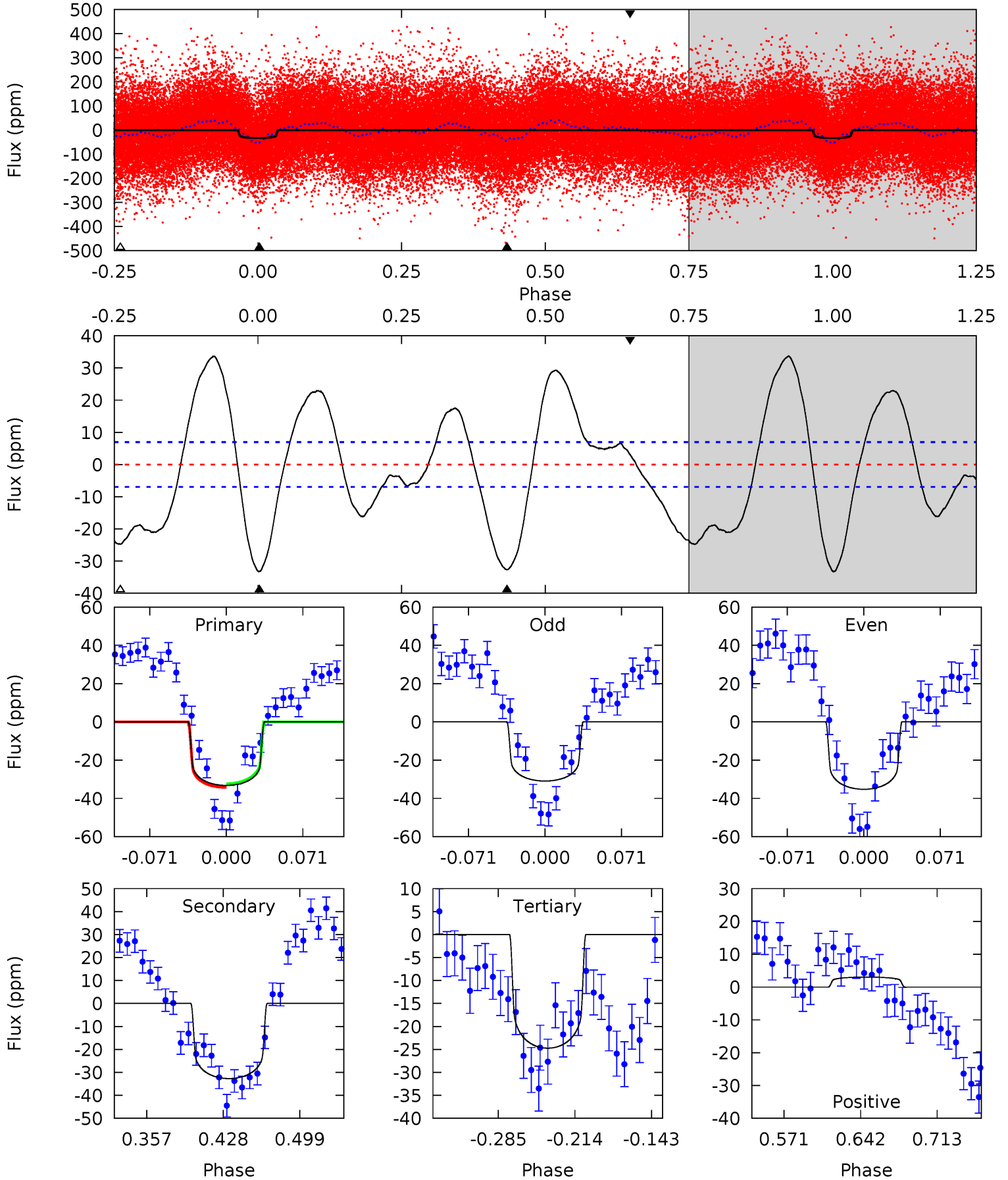
TCE 008481000-01 P= 6.552054 Days  $T_0=131.810710$  (BKJD)



# DV Model-Shift Uniqueness Test

008481000-01, P = 6.552365 Days, E = 125.242289 Days

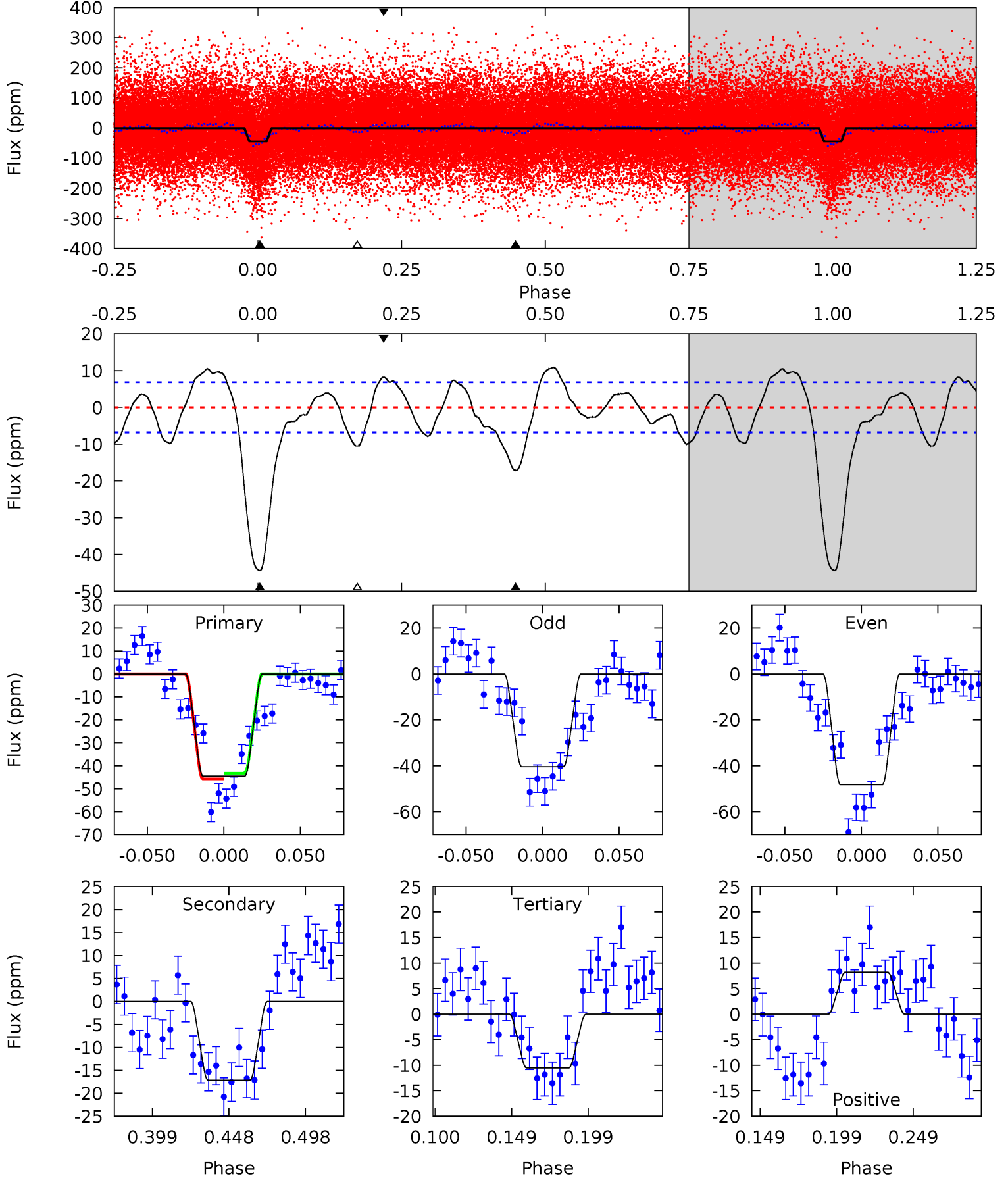
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
22.1	21.7	16.4	2.02	4.64	1.80	10.8	5.63	20.1	5.30	19.7	1.43	0.94	0.50	0.61



# Alt Model-Shift Uniqueness Test

008481000-01, P = 6.552054 Days, E = 125.258656 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
30.6	11.8	7.27	5.70	4.71	1.96	3.83	23.4	25.0	4.56	6.14	2.71	0.96	0.20	0.84



### Stellar Parameters For KIC 008481000

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R$ ( $R_{\odot}$ )	$M$ ( $M_{\odot}$ )	$p_{\star}$ ( $\text{g}\cdot\text{cm}^{-3}$ )
	$6792^{+183}_{-204}$	$3.994^{+0.273}_{-0.117}$	$-0.800^{+0.350}_{-0.300}$	$1.720^{+0.340}_{-0.553}$	$1.064^{+0.162}_{-0.135}$	$0.295^{+0.504}_{-0.101}$
	+3%/-3%	+7%/-3%	+44%/-37%	+20%/-32%	+15%/-13%	+171%/-34%
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 008481000-01 / KOI

Detrend	Depth (ppm)	$R_p$ ( $R_{\oplus}$ )	$T_{\text{max}}$ (K)	$T_{\text{obs}}$ (K)	$A_{\text{obs}}$
DV	$-33 \pm 2$	$1.13^{+0.20}_{-0.20}$	$2039^{+143}_{-166}$	$6494^{+477}_{-411}$	$69^{+37}_{-18}$
Alt.	$-17 \pm 1$	$1.34^{+0.22}_{-0.25}$	$2055^{+123}_{-175}$	$5161^{+307}_{-250}$	$27^{+13}_{-8}$

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

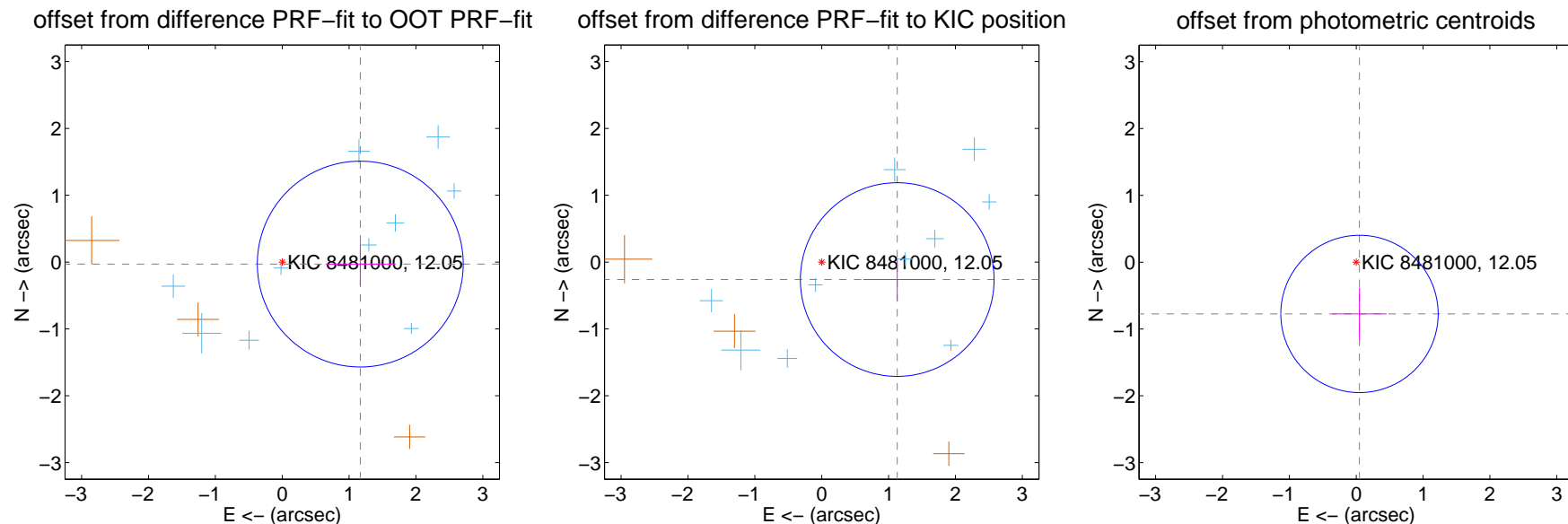
## DV Centroid Data

Supplemental centroid analysis for 008481000-01. Kepler magnitude: 12.05. Transit SNR 8.96

There are 11 quarters with good PRF difference image offsets

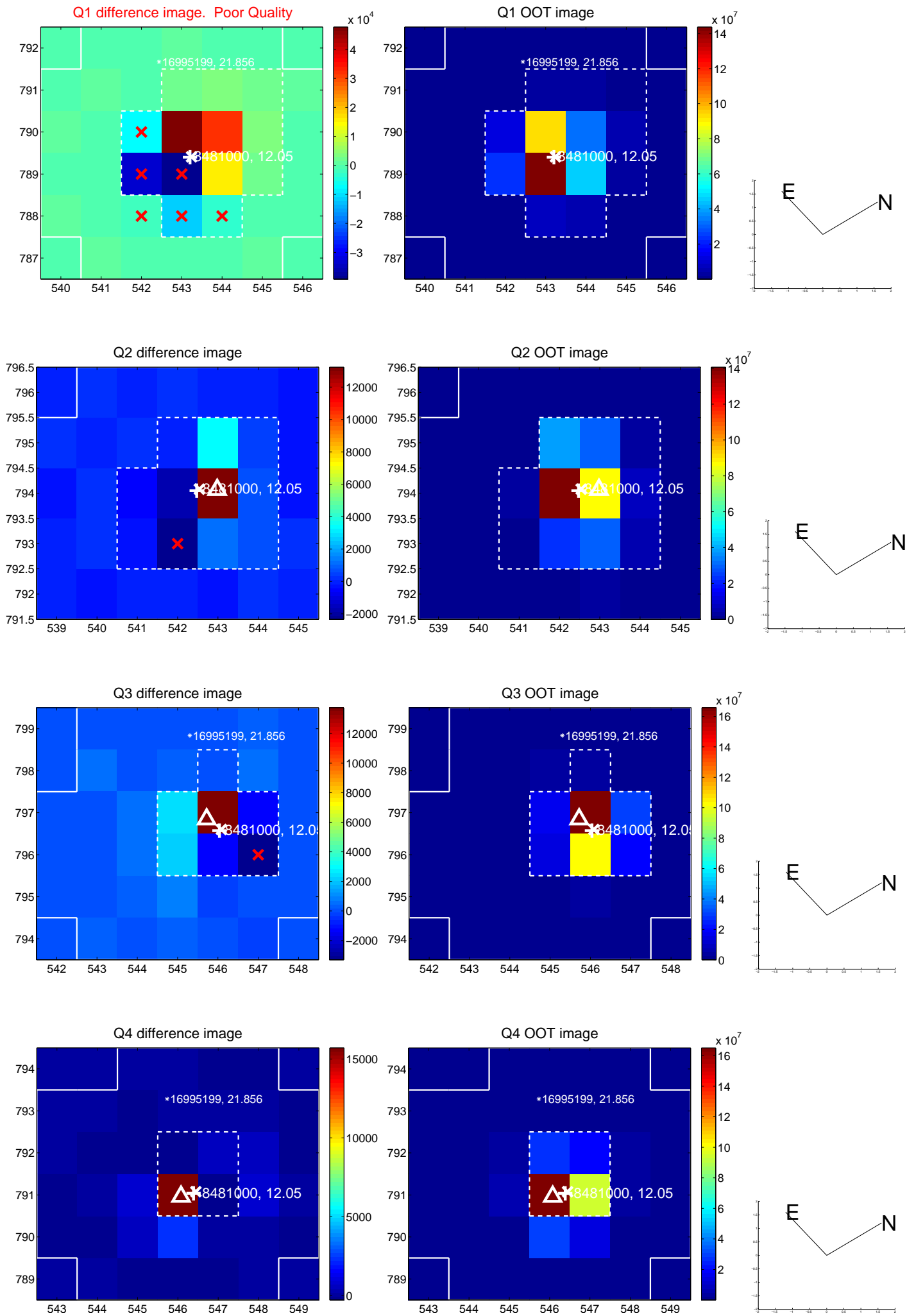
The direct PRF centroid is offset from the target star catalog position by about 0.25 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$1.168 \pm 0.513$	2.28	$-1.167 \pm 0.515$	$-0.030 \pm 0.320$
PRF-fit source offset from KIC position	$1.159 \pm 0.483$	2.40	$-1.129 \pm 0.508$	$-0.261 \pm 0.317$
photometric centroid source offset	$0.78 \pm 0.39$	1.98	$-0.05 \pm 0.41$	$-0.77 \pm 0.39$

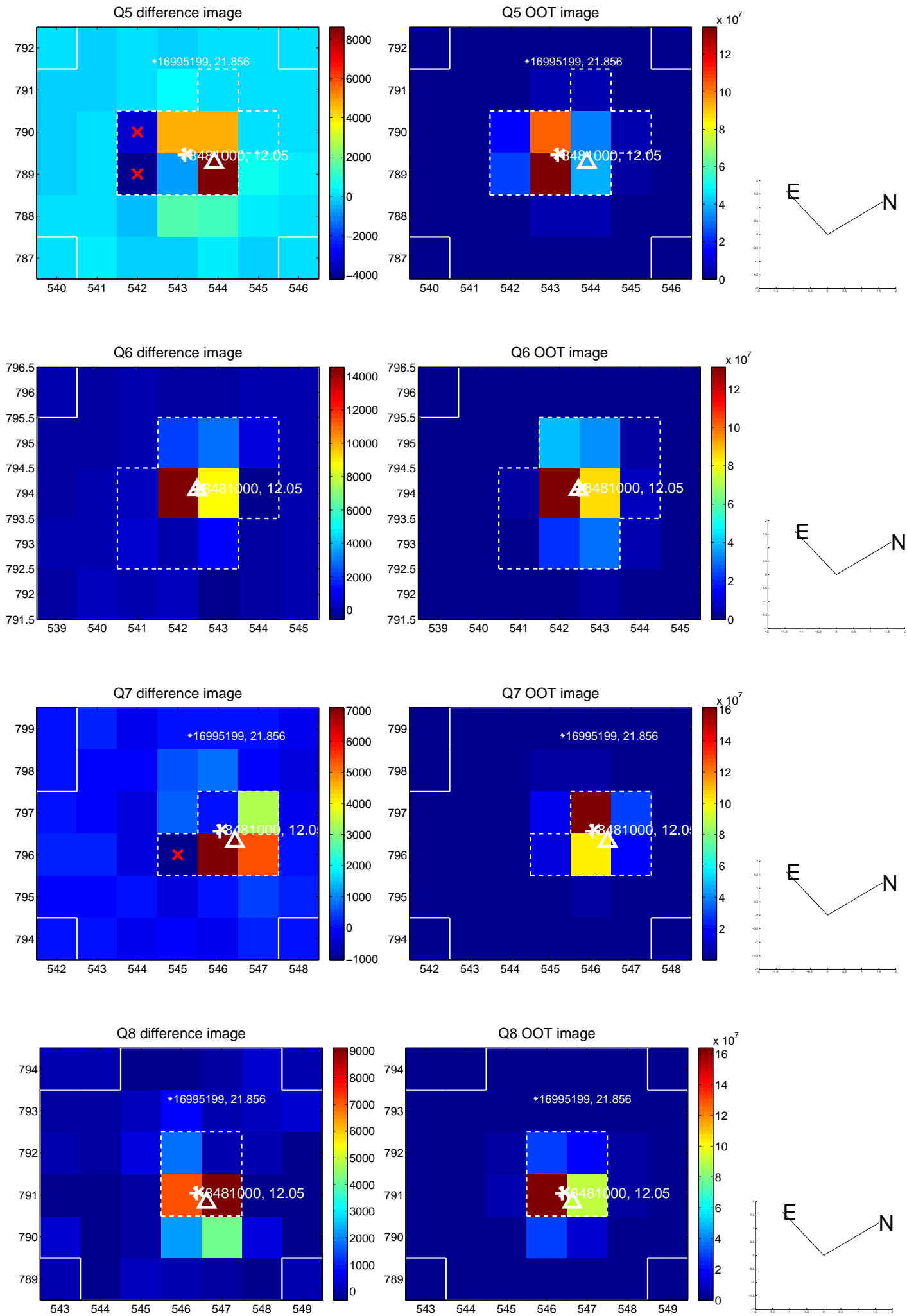


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses:** good quarterly centroid offsets; **Vermillion crosses:** bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: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

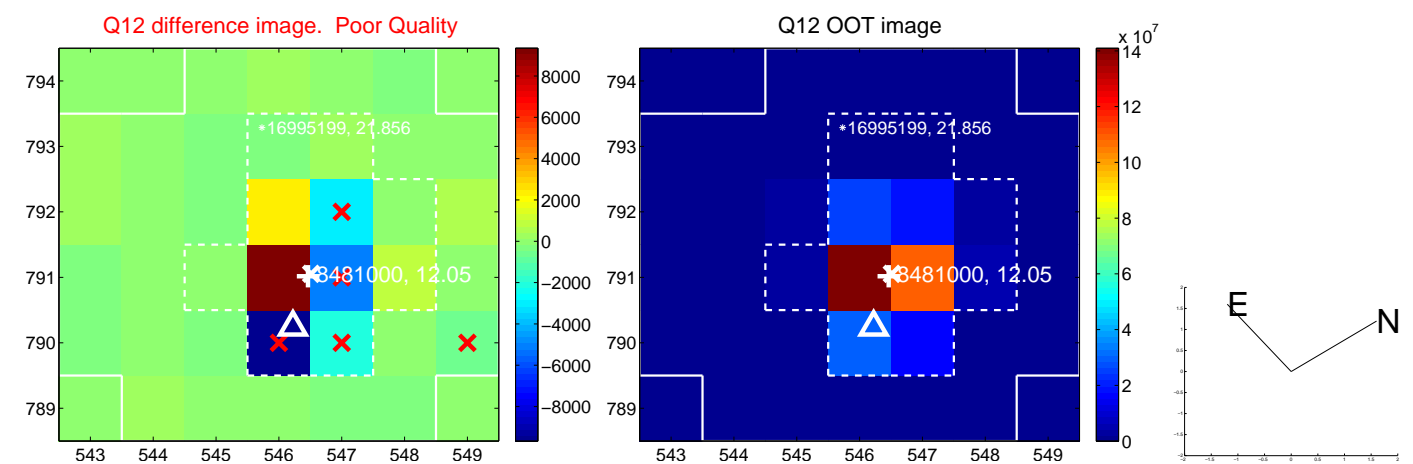
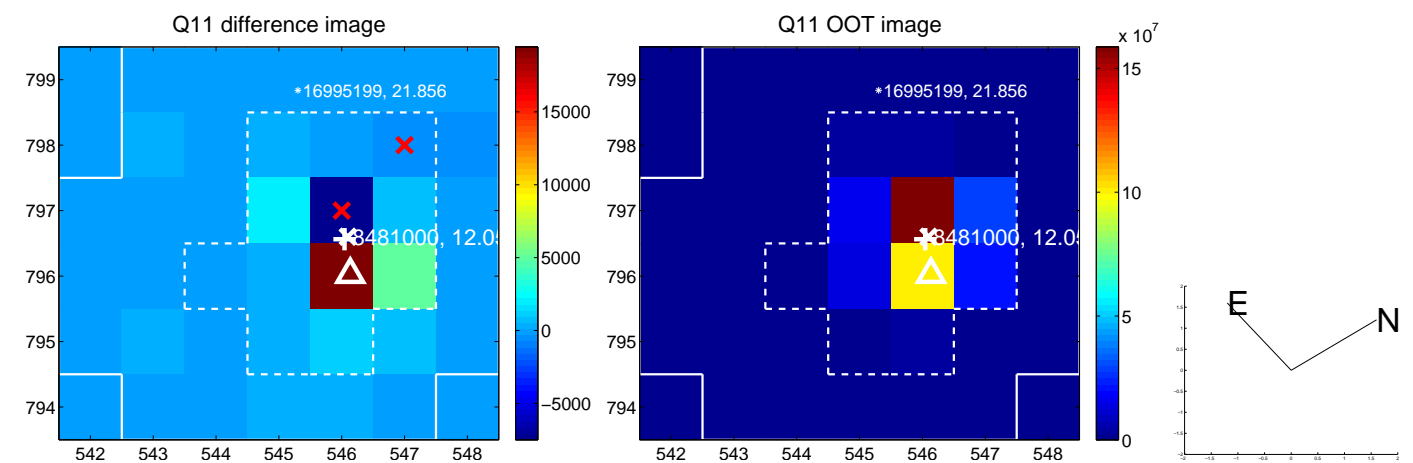
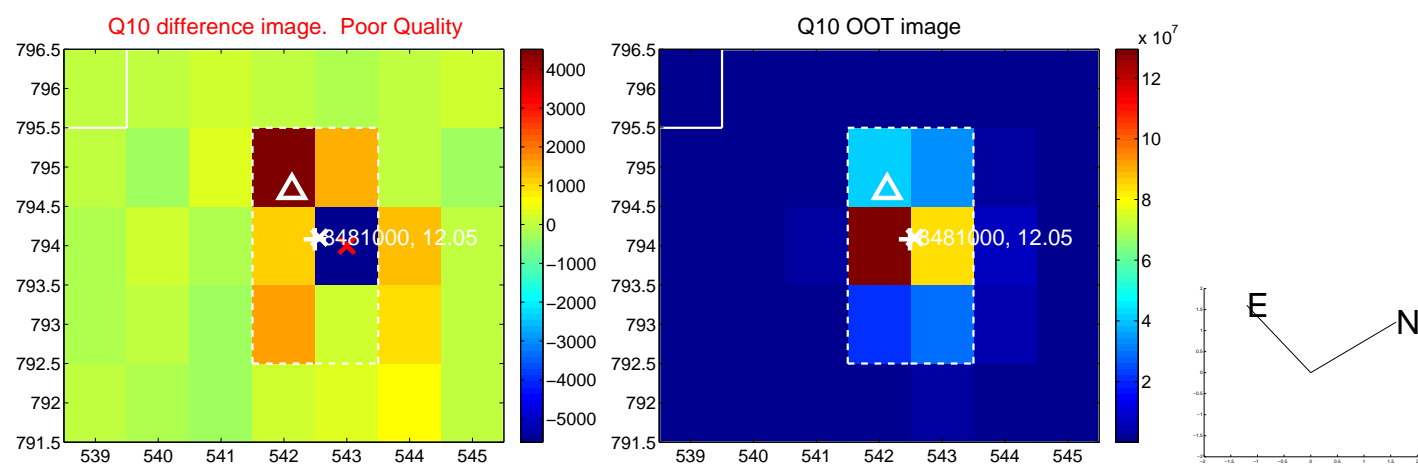
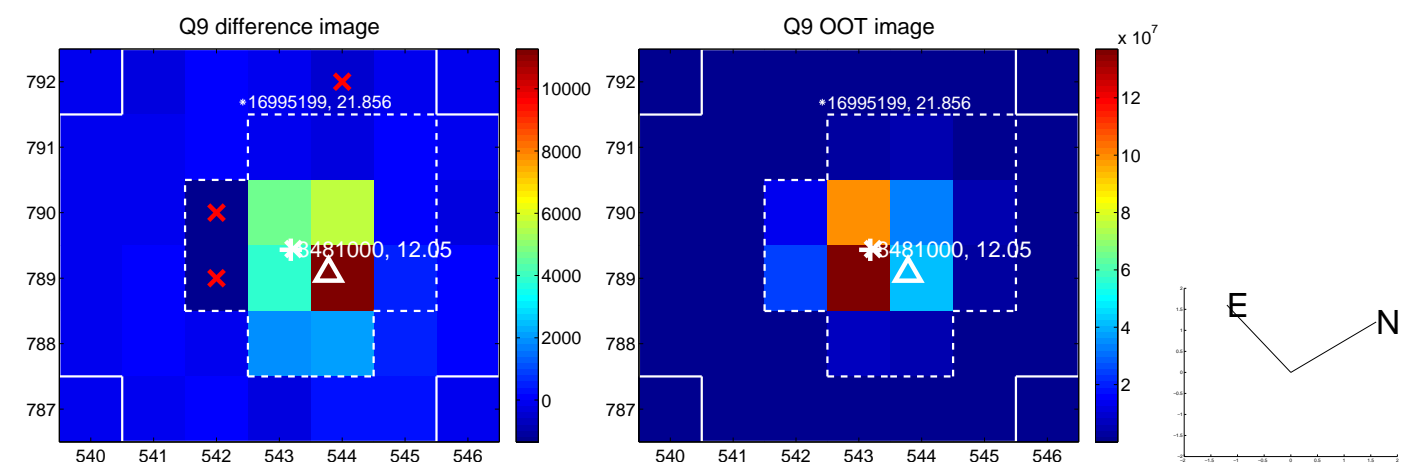
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



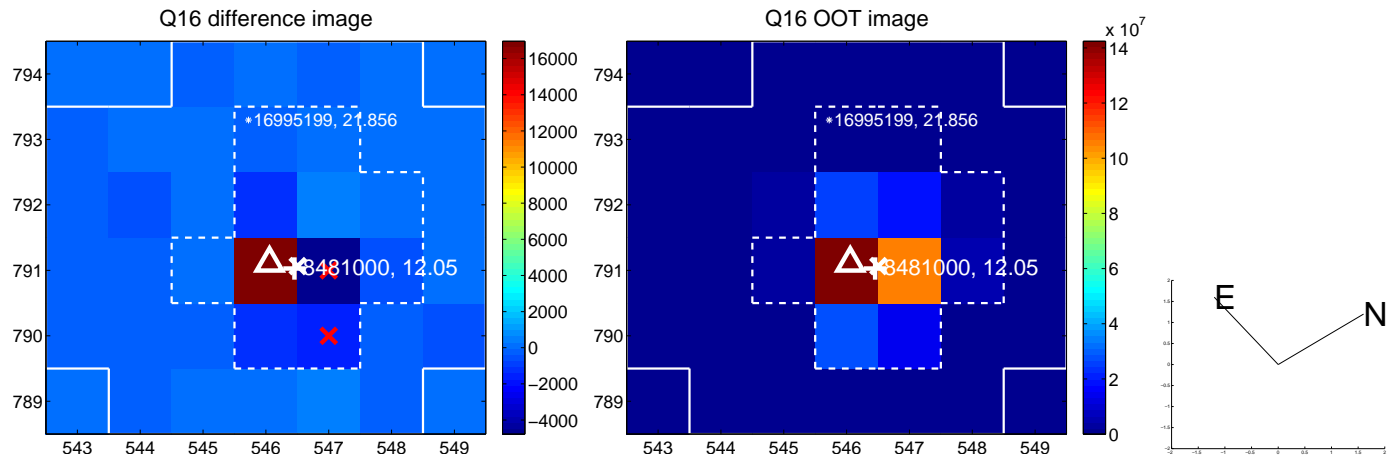
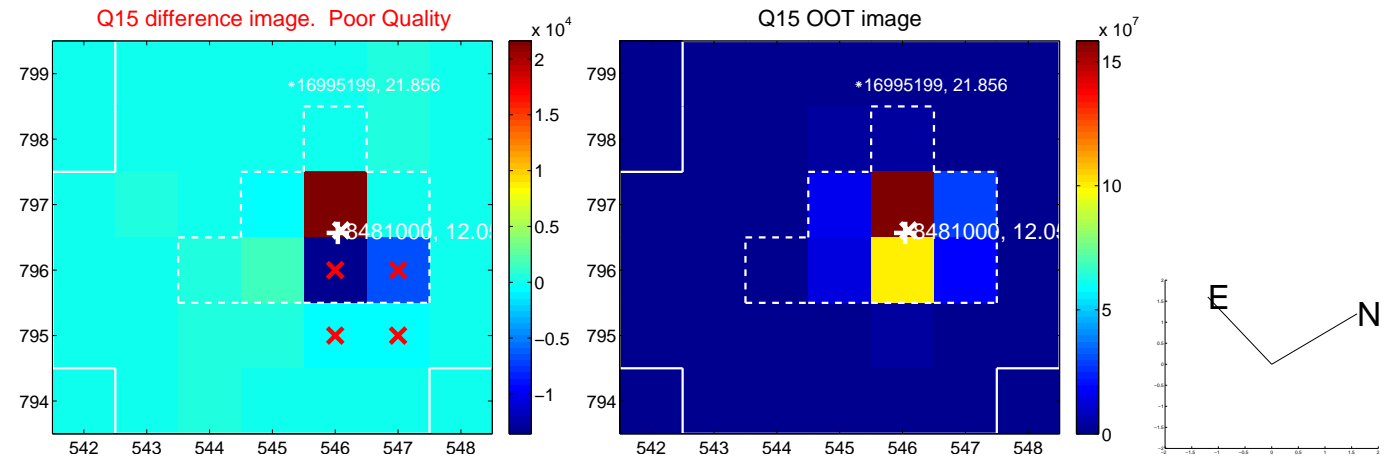
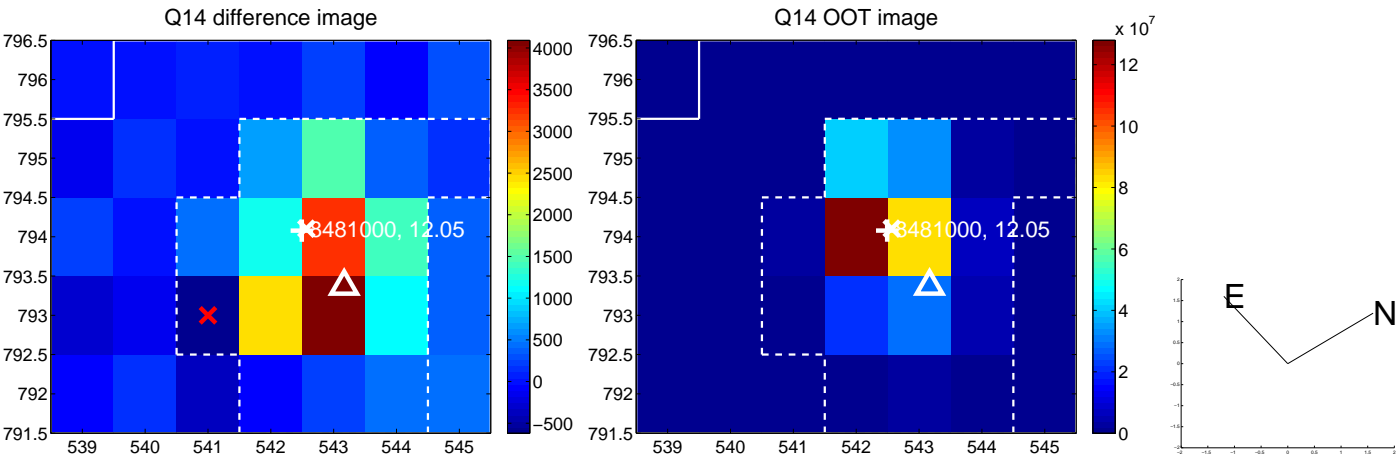
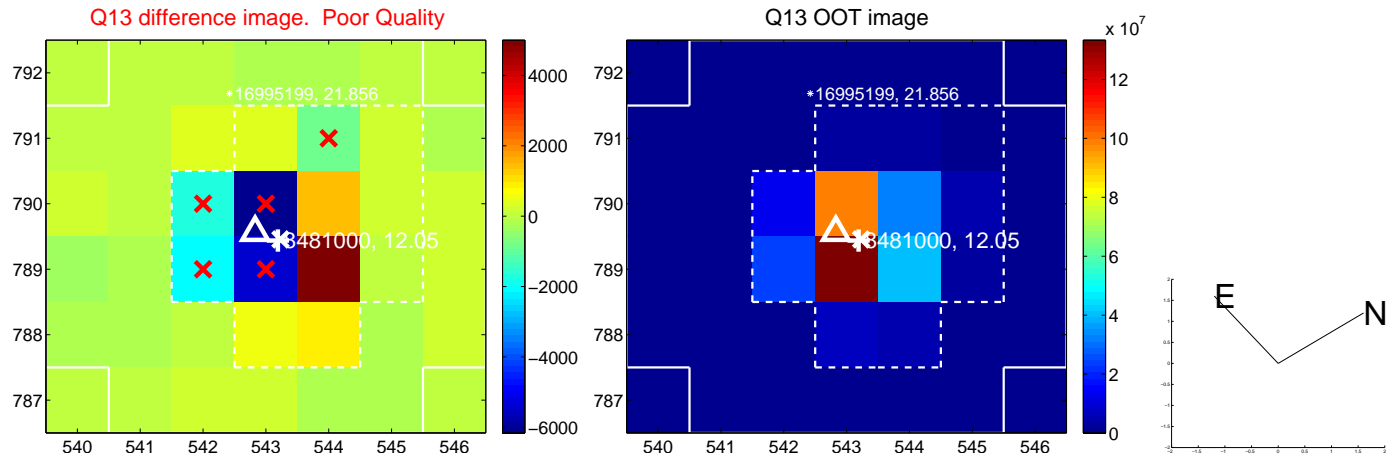
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



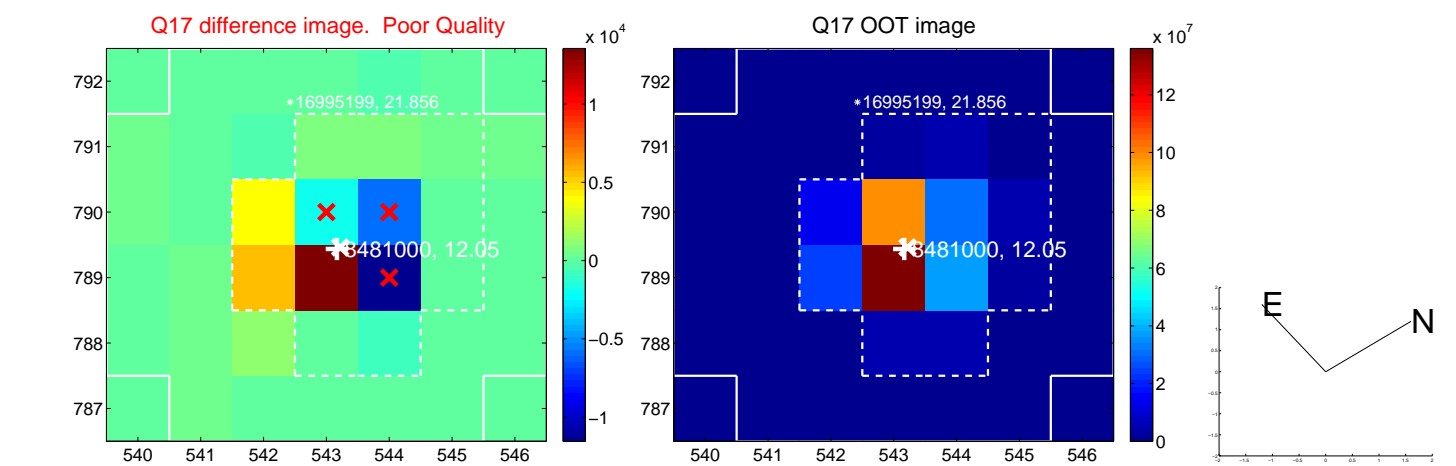
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



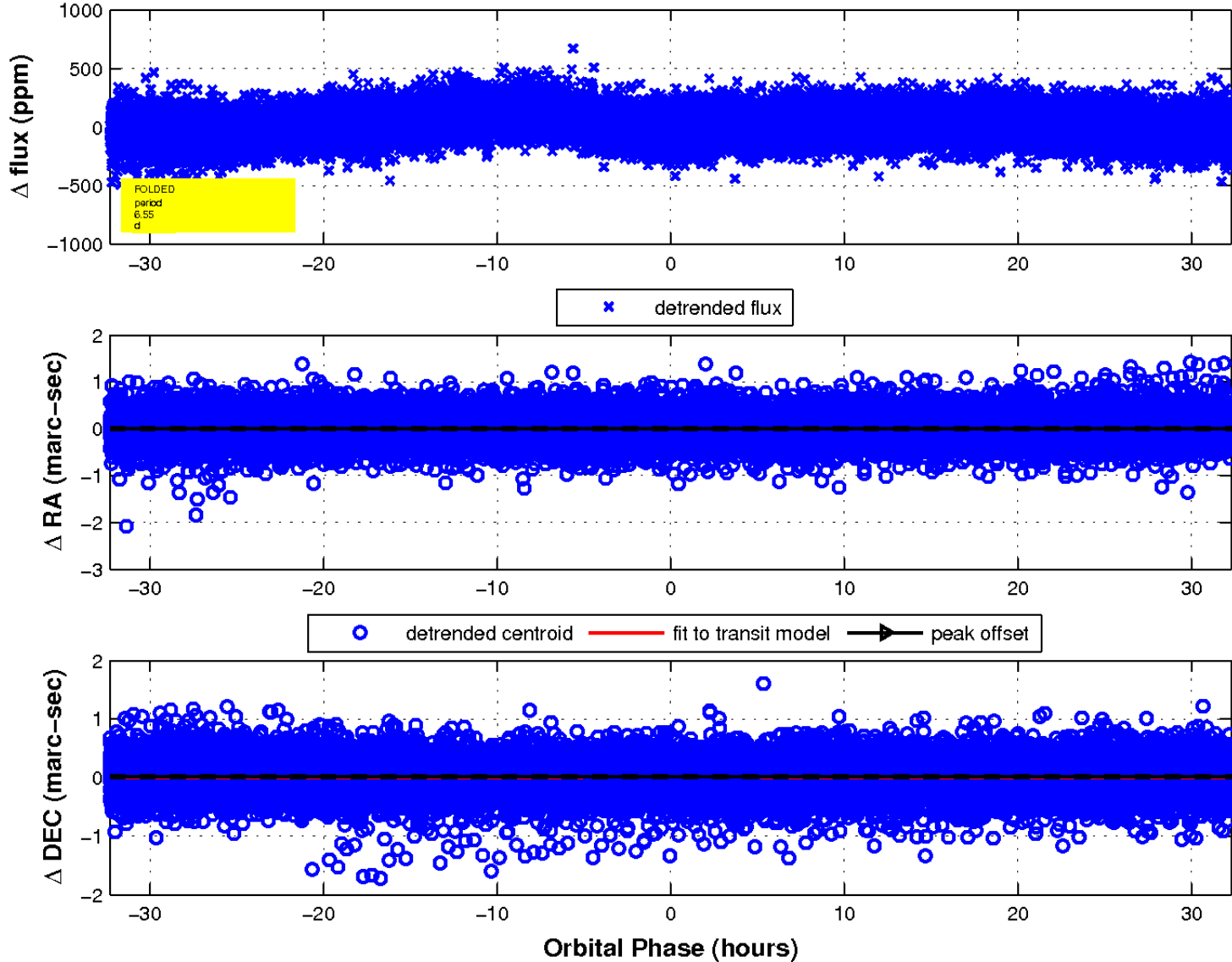
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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

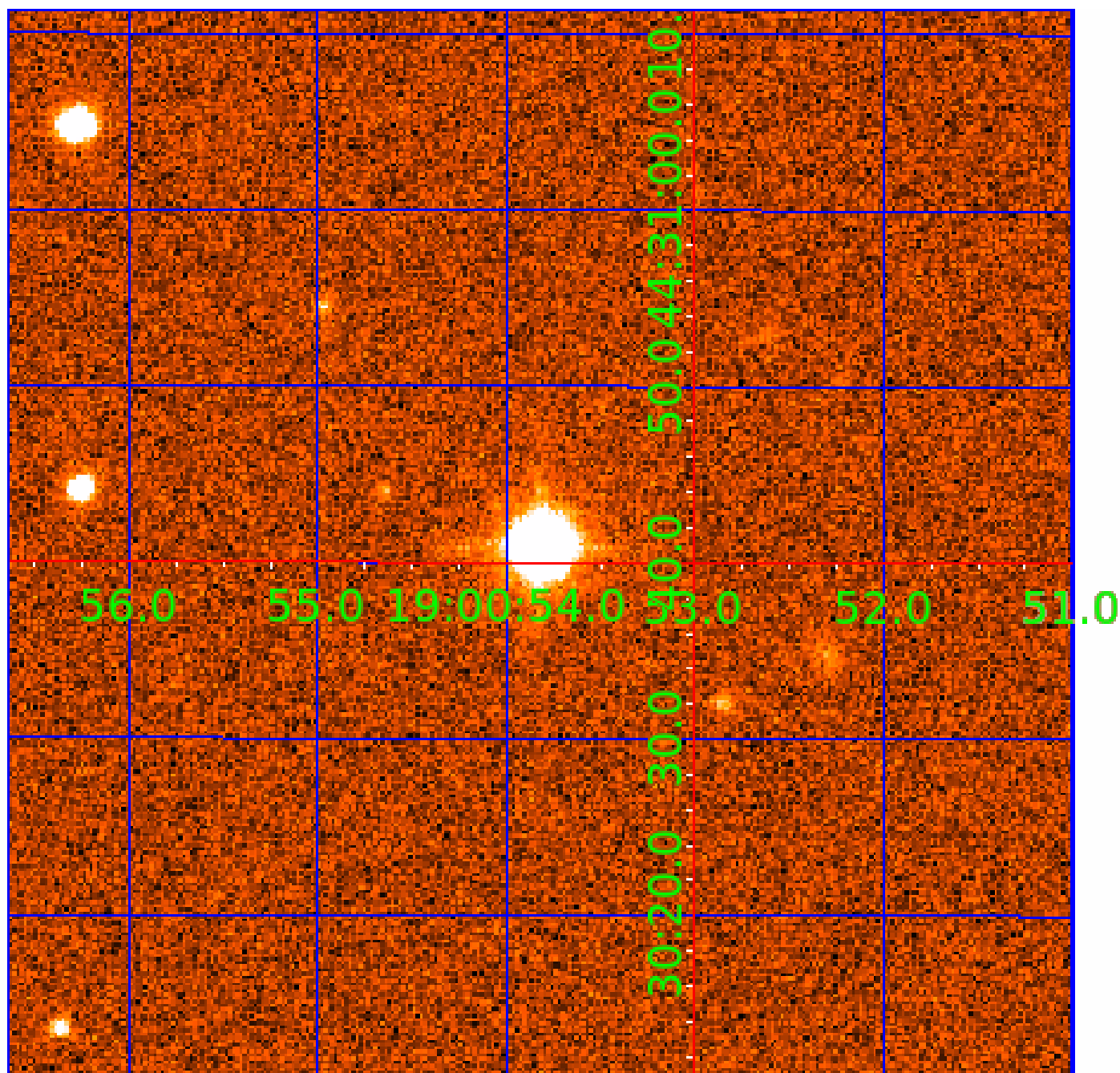


fluxWeightedCentroids, Planet 1 of 2



UKIRT Image

Declination



# KIC 008481000

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
008481000-01	OBS	No	6.552365	131.794654	33.2	10.771	10.2	9.0	1.72	6792	1.16	1151.79
008481000-02	OBS	No	3.275831	131.521211	59.2	9.000	10.0	-1.0	1.72	6792	1.33	2902.74

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
008481000-01	OBS	FP	0.00	1	0	0	0	LPP_DV—MOD_NONUNIQ_DV
008481000-02	OBS	FP	0.00	1	0	0	0	TRANS_GAPPED—SWEET_NTL—LPP_DV—SAME_NTL_PERIOD—CENT_NOFITS

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

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

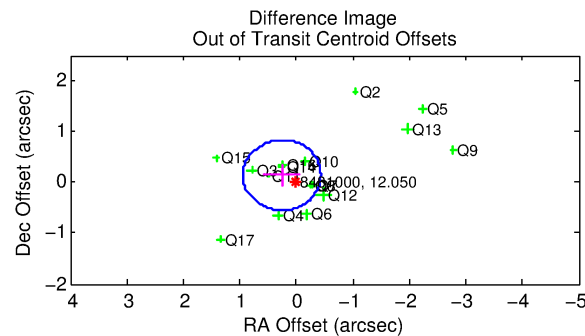
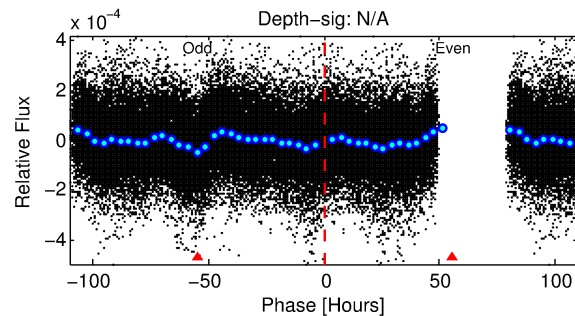
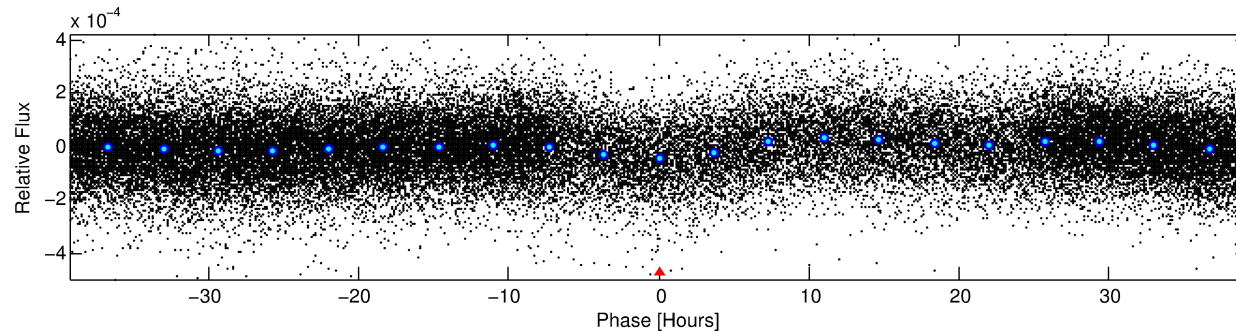
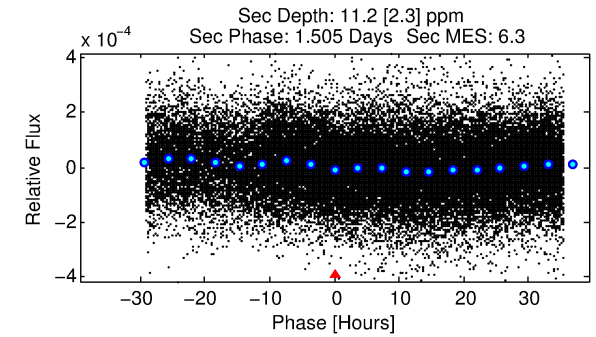
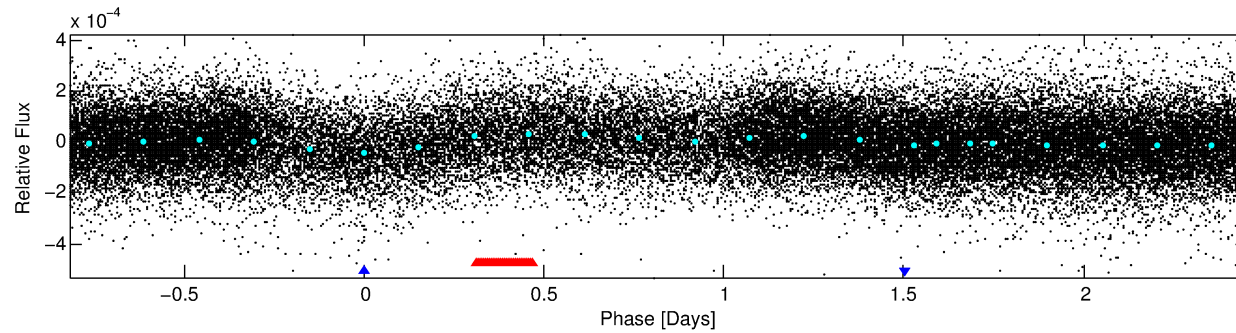
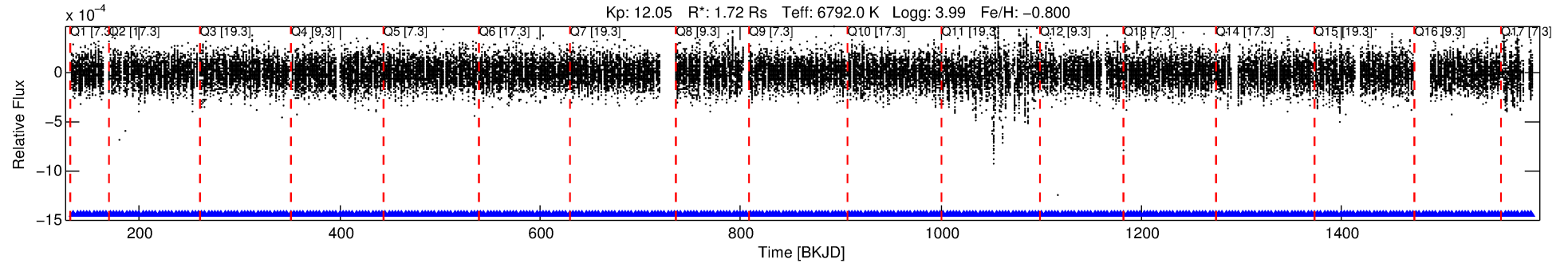
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

## Ephemeris Match Information For 008481000-02

No Significant Match Found

# DV One-Page Summary

KIC: 8481000 Candidate: 2 of 2 Period: 3.276 d



## TPS TCE Results:

Period = 3.27583 d  
Epoch = 131.5212 BKJD

DV fit results are unavailable

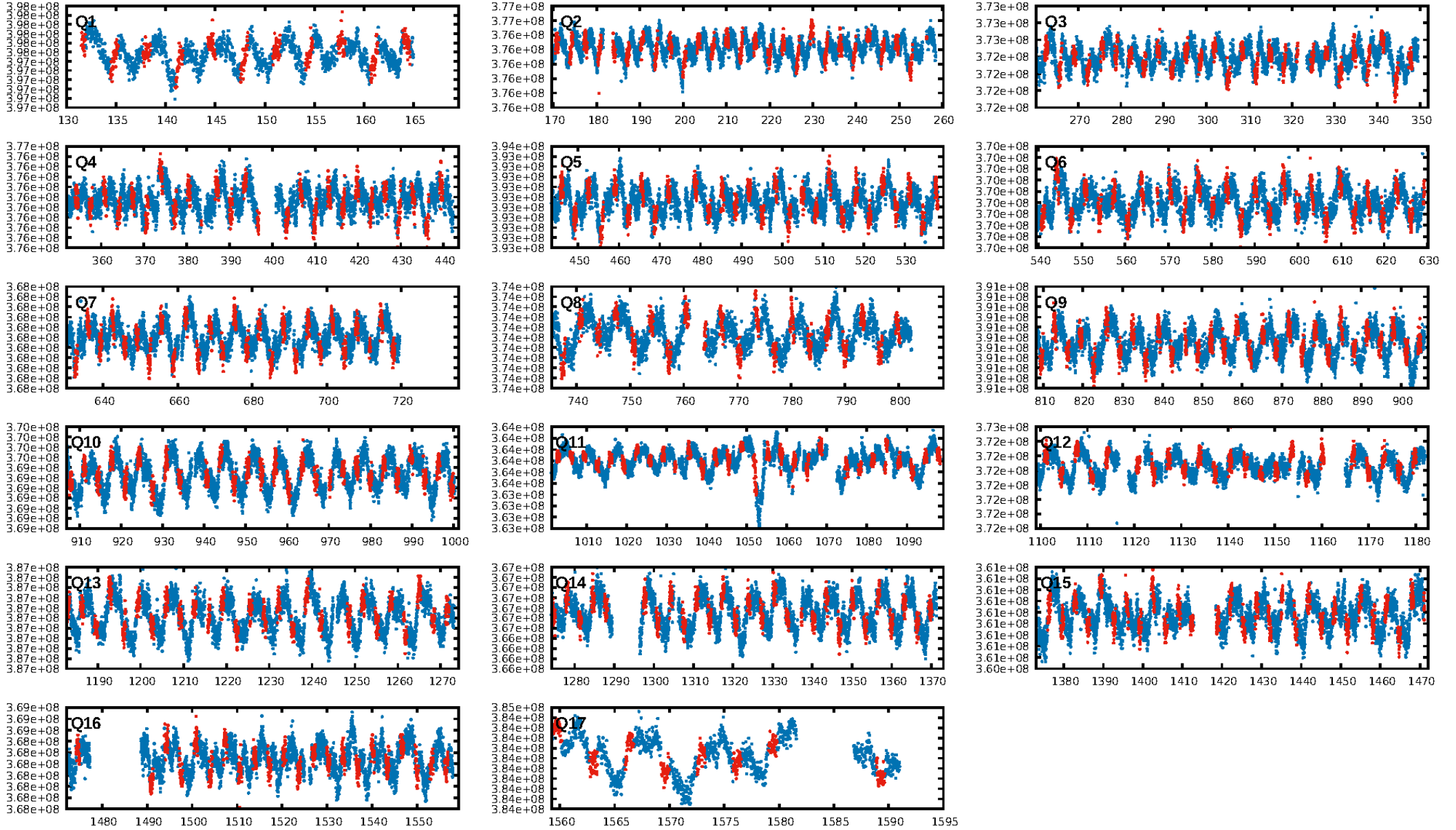
## DV Diagnostic Results:

ShortPeriod-sig: N/A  
LongPeriod-sig: 100.0% [5.60σ]  
ModelChiSquare2-sig: N/A  
ModelChiSquareGof-sig: N/A  
Bootstrap-pfa: 1.51e-14  
RollingBand-fgt: 1.00 [392/392]  
GhostDiagnostic-chr: 0.3571  
Centroid-sig: 1.1%  
Centroid-so: 0.485 arcsec [3.72σ]  
OotOffset-rm: 0.294 arcsec [1.27σ]  
KicOffset-rm: 0.291 arcsec [0.90σ]  
OotOffset-st: 4/4/4/4 [16]  
KicOffset-st: 4/4/4/4 [16]  
DiffImageQuality-fgm: 1.00 [16/16]  
DiffImageOverlap-fno: 1.00 [17/17]

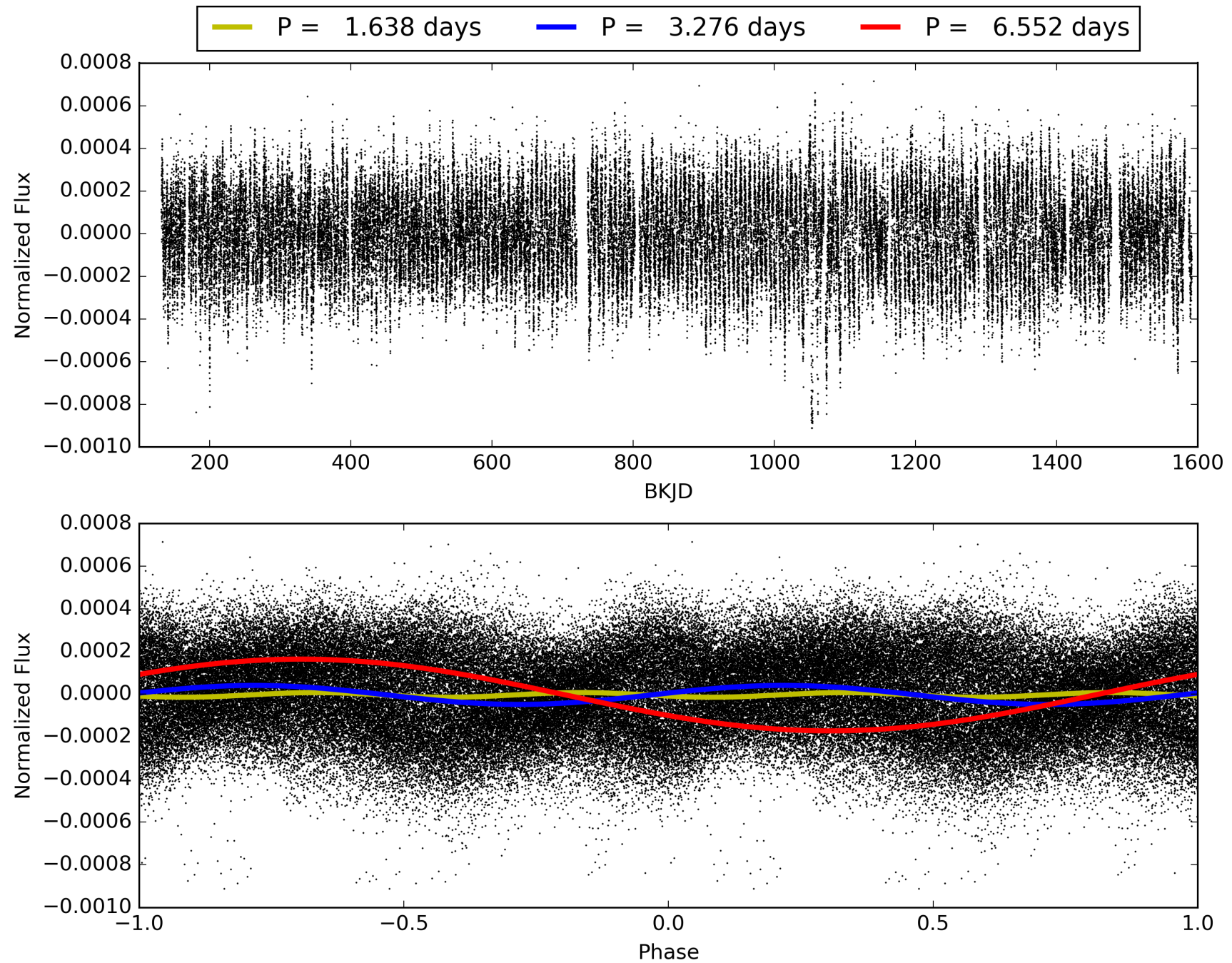
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 01-Feb-2016 00:21:40 Z

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

# TCE 008481000-02, PDC Light Curves

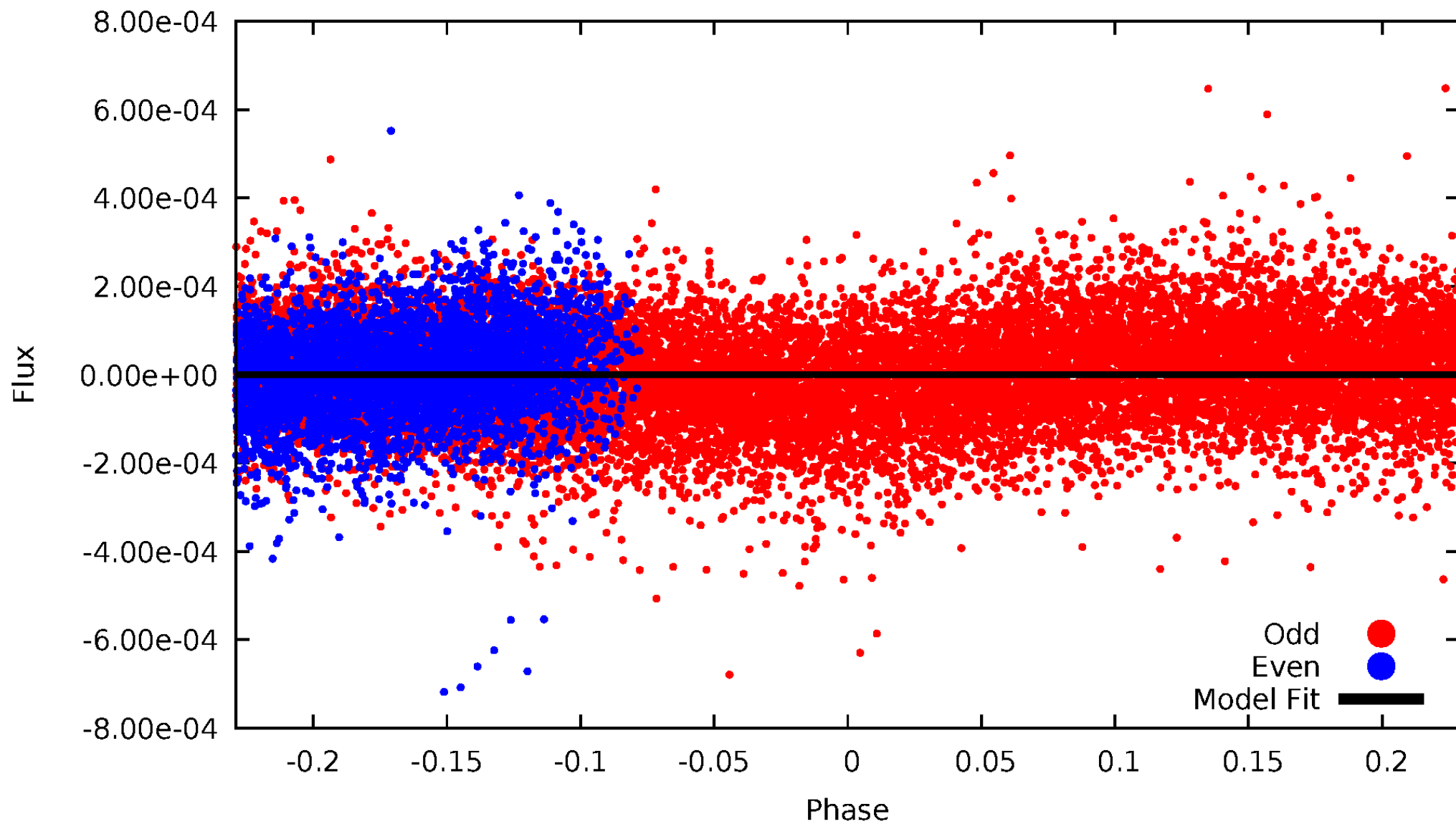


TCE 008481000-02



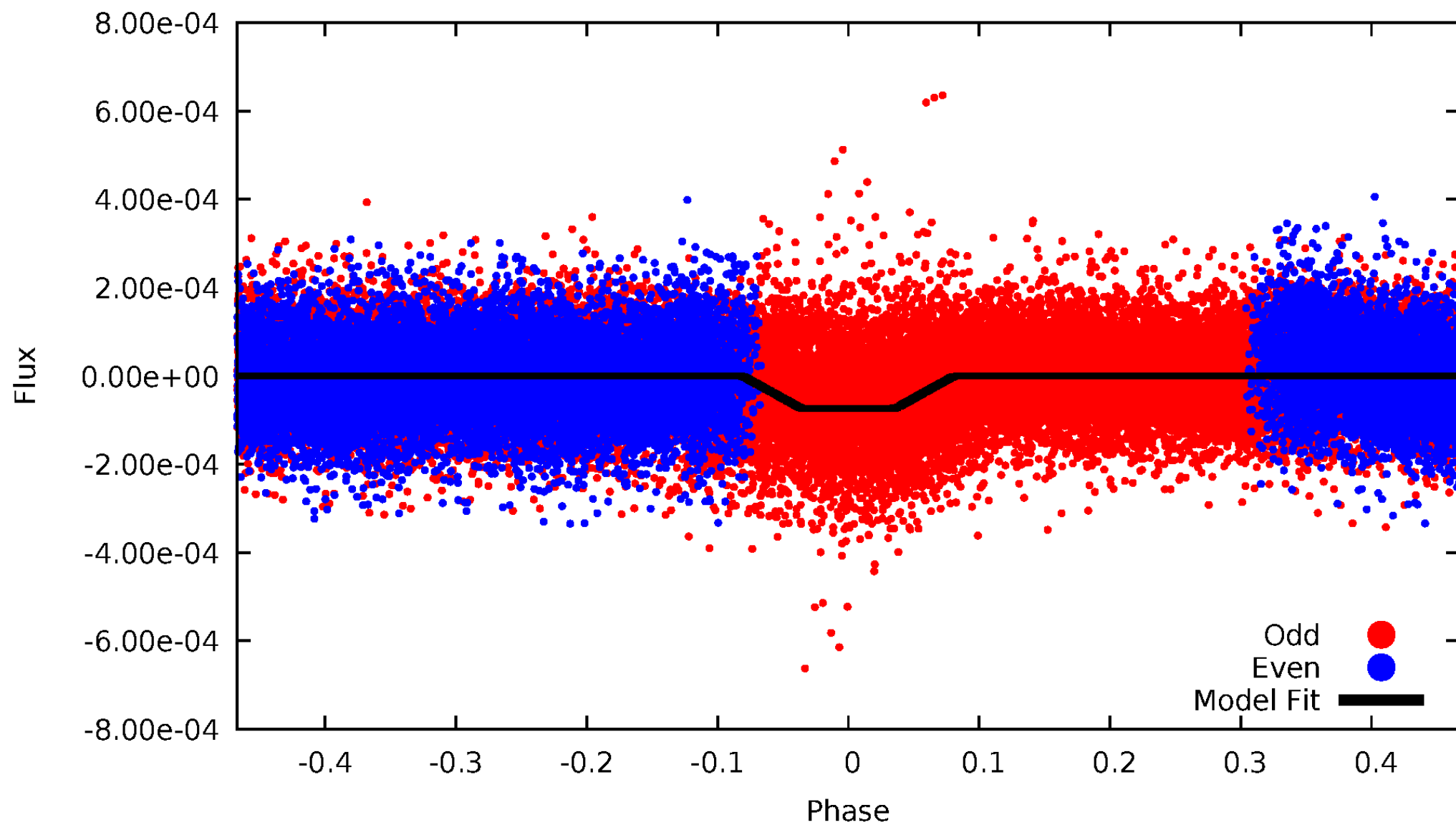
DV Odd/Even

TCE 008481000-02



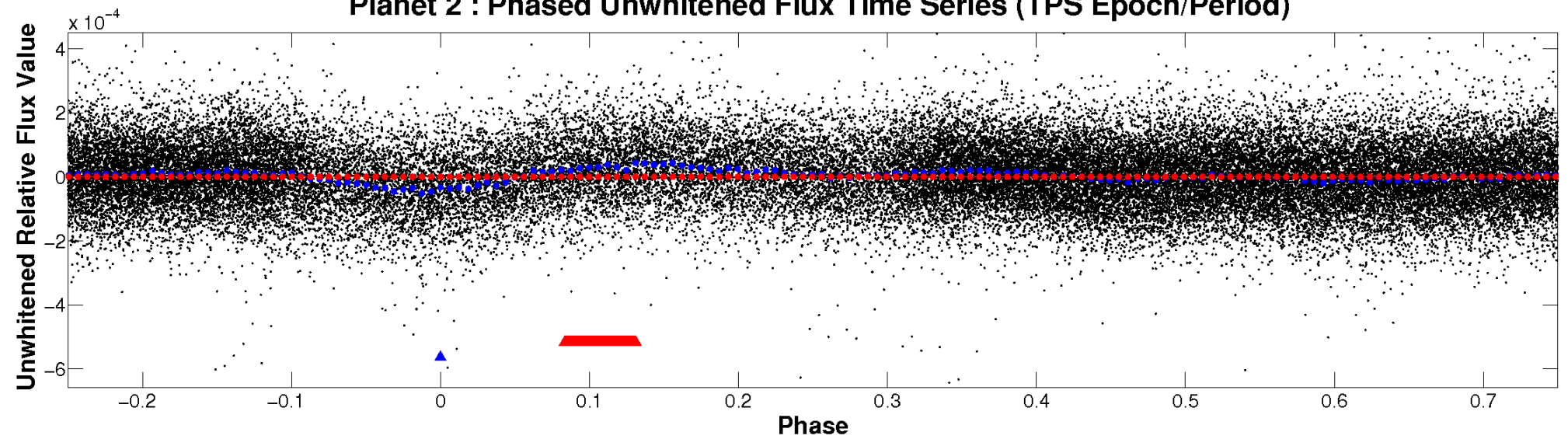
# ALT Odd/Even

TCE 008481000-02

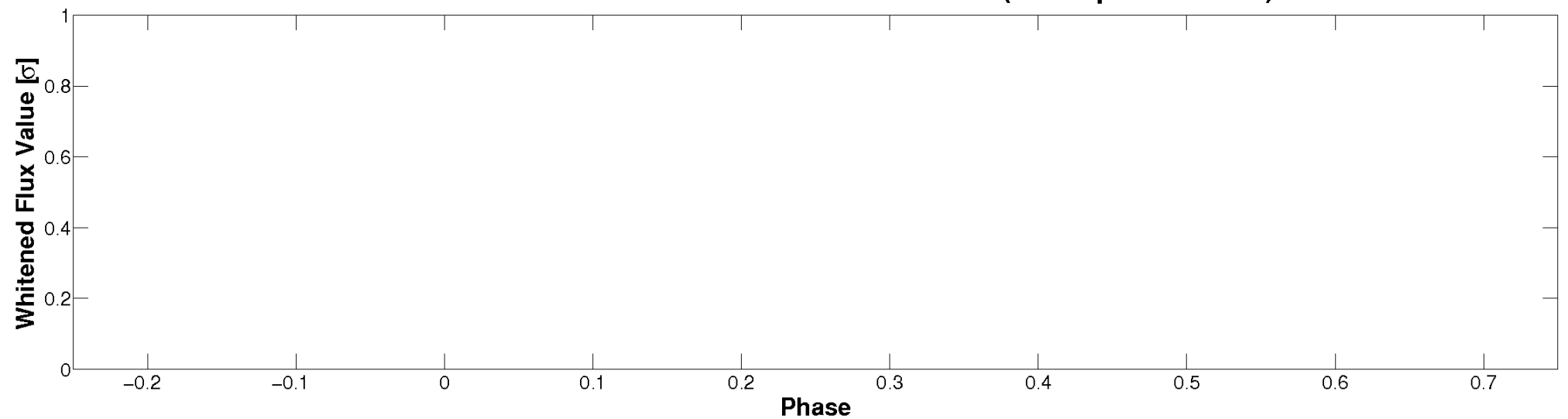


# Non-Whitened Vs. Whitened Light Curve

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

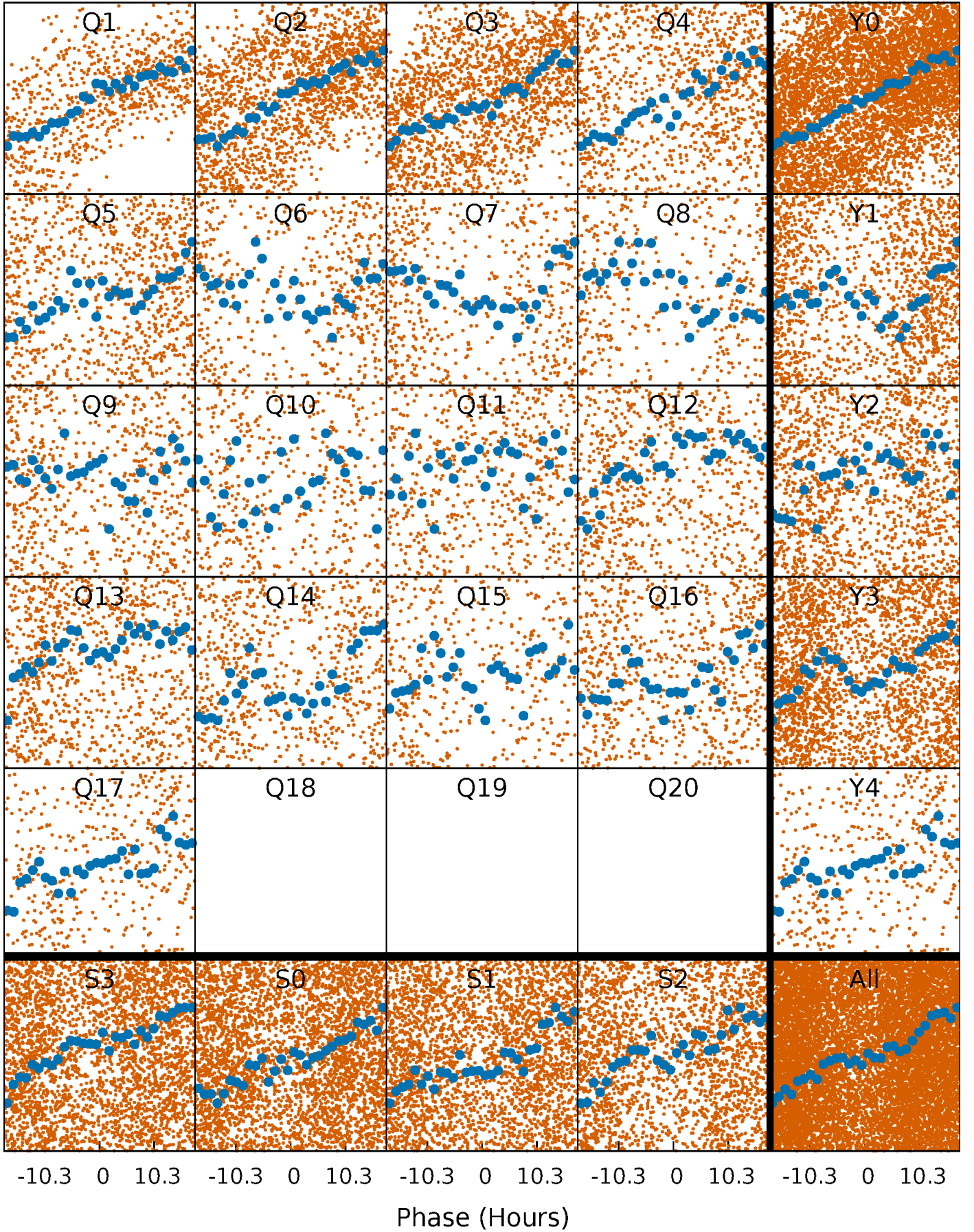


**Planet 2 : Phased Whitened Flux Time Series (TPS Epoch/Period)**



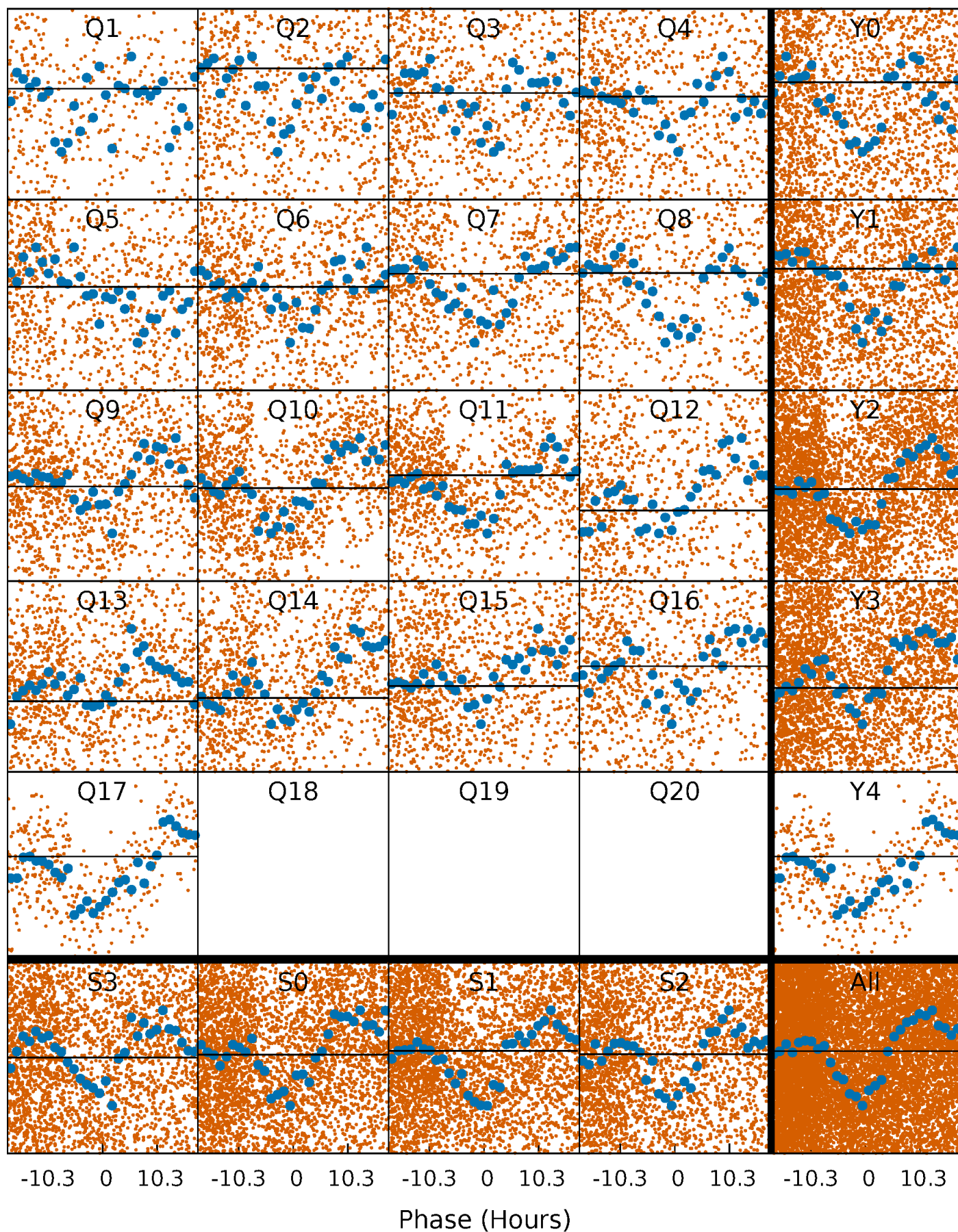
# PDC Quarter-Phased Transit Curves

TCE 008481000-02   P= 3.275831 Days    $T_0=131.521211$  (BKJD)



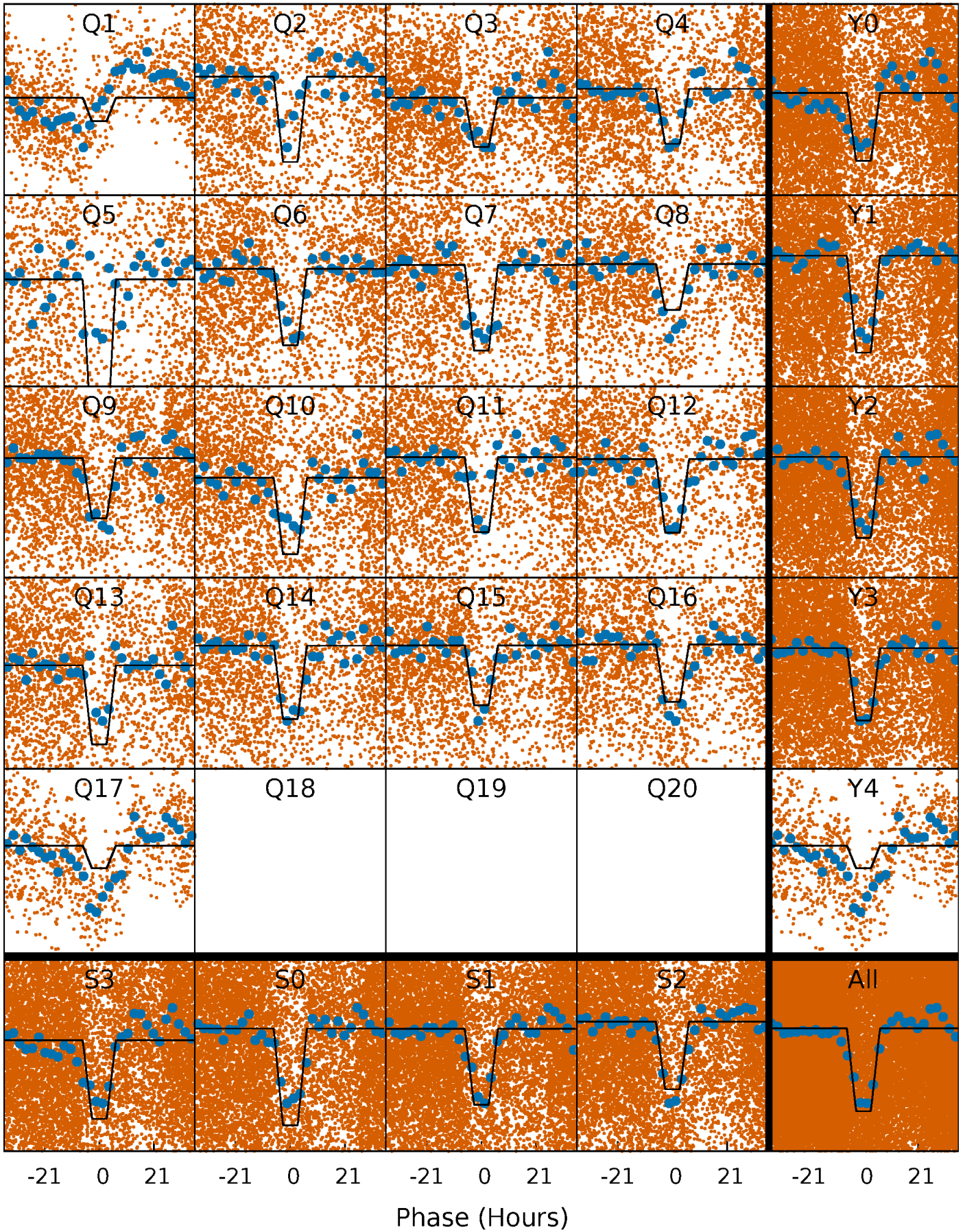
# DV Quarter-Phased Transit Curves

TCE 008481000-02 P= 3.275831 Days  $T_0=131.521211$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

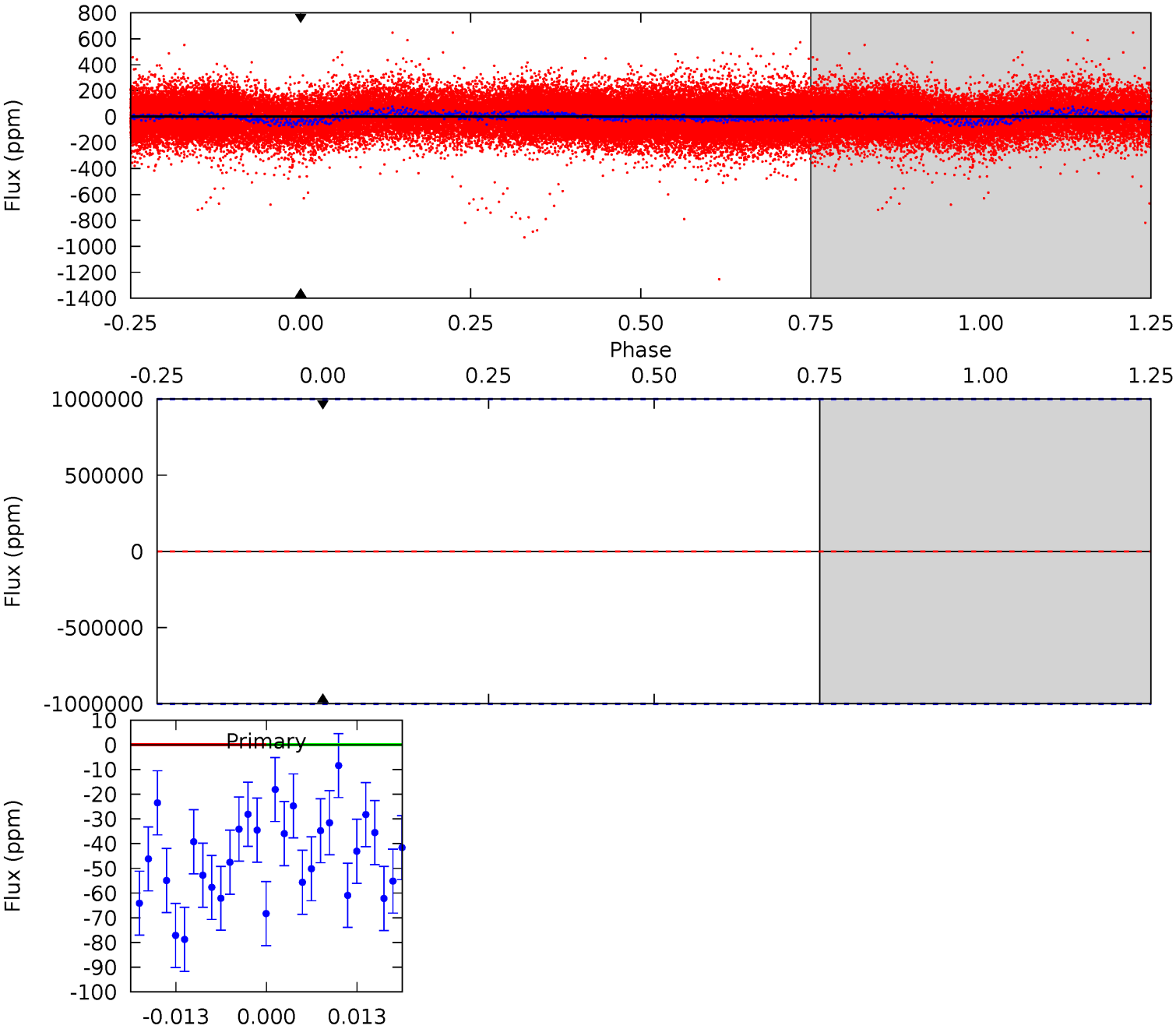
TCE 008481000-02   P= 3.275831 Days    $T_0=134.760346$  (BKJD)



# DV Model-Shift Uniqueness Test

008481000-02, P = 3.275831 Days, E = 131.521211 Days

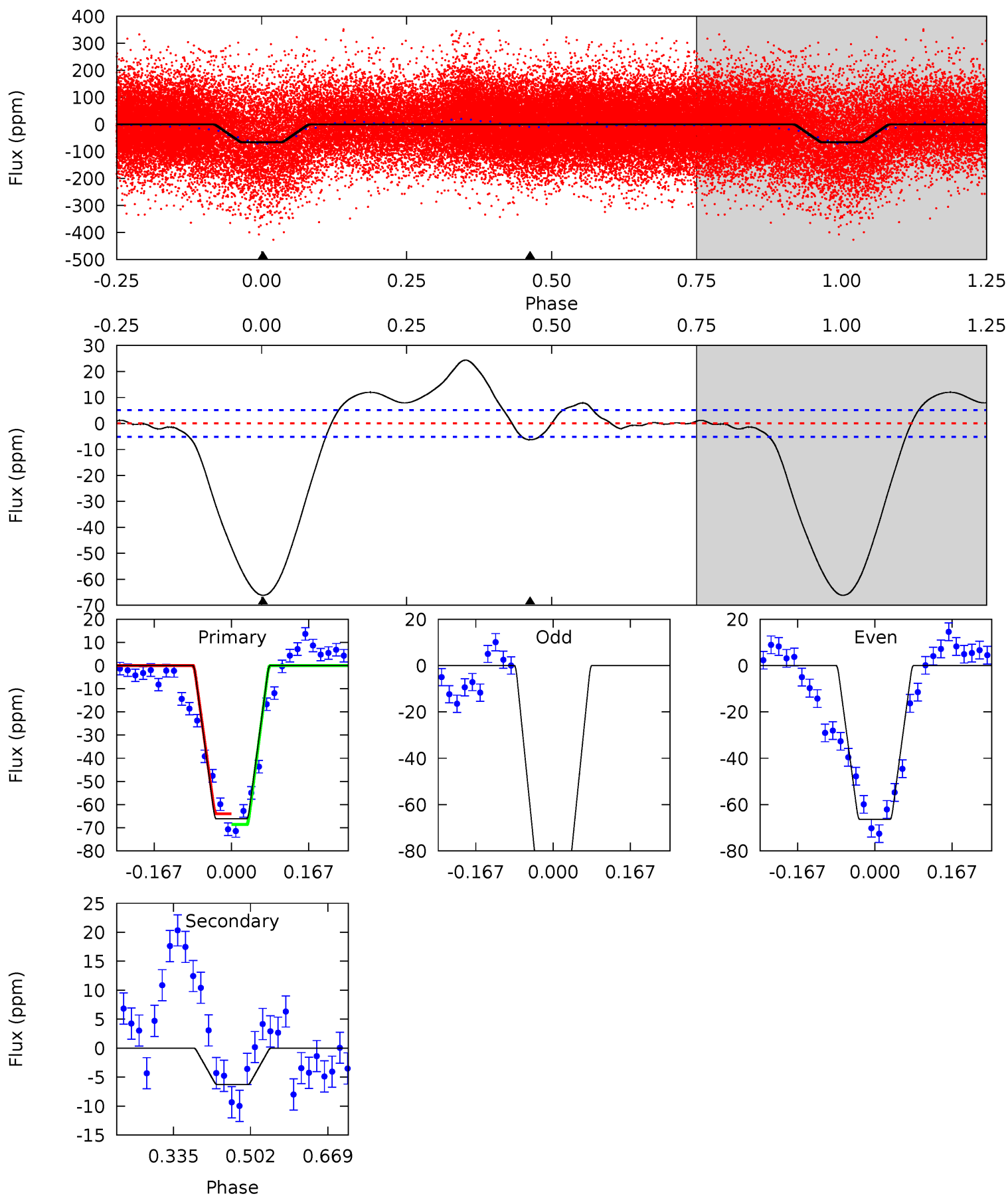
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
0	0	0	0	1.00	1.00	1.00	0	0	0	0	0	0	0	0



# Alt Model-Shift Uniqueness Test

008481000-02, P = 3.275831 Days, E = 131.484515 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
57.2	5.43	0	0	4.46	1.38	3.93	57.2	57.2	5.43	5.43	2.50	0.27	0.27	1.99



### Stellar Parameters For KIC 008481000

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R$ ( $R_{\odot}$ )	$M$ ( $M_{\odot}$ )	$p_{\star}$ ( $\text{g}\cdot\text{cm}^{-3}$ )
	$6792^{+183}_{-204}$	$3.994^{+0.273}_{-0.117}$	$-0.800^{+0.350}_{-0.300}$	$1.720^{+0.340}_{-0.553}$	$1.064^{+0.162}_{-0.135}$	$0.295^{+0.504}_{-0.101}$
	+3%/-3%	+7%/-3%	+44%/-37%	+20%/-32%	+15%/-13%	+171%/-34%
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 008481000-02 / KOI

Detrend	Depth (ppm)	$R_p$ ( $R_{\oplus}$ )	$T_{max}$ (K)	$T_{obs}$ (K)	$A_{obs}$
DV	$0 \pm 1000000$	$13.16^{+14.51}_{-9.54}$	$2580^{+150}_{-214}$	$-4258^{+35319}_{-28244}$	$-4.842^{+1056.021}_{-1004.032}$
Alt.	$-6 \pm 1$	$13.20^{+14.62}_{-9.54}$	$2579^{+181}_{-210}$	$-2730^{+5345}_{-165}$	$0.037^{+0.444}_{-0.029}$

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

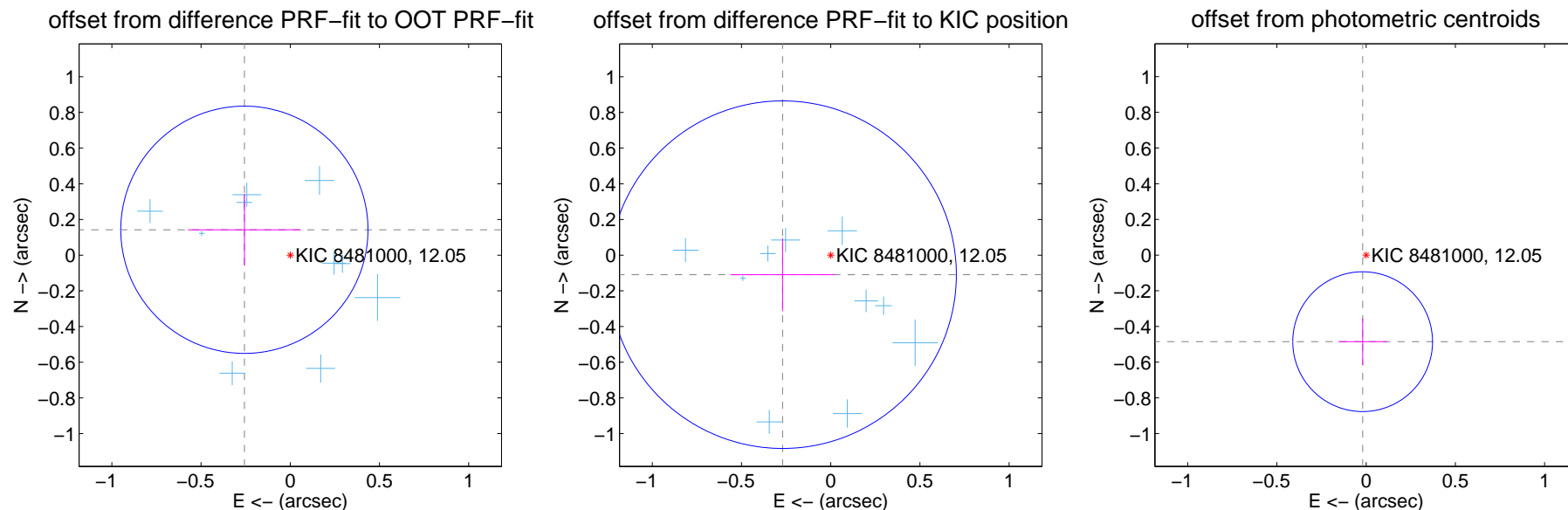
## DV Centroid Data

Supplemental centroid analysis for 008481000-02. Kepler magnitude: 12.05. Transit SNR -1.00

There are 16 quarters with good PRF difference image offsets

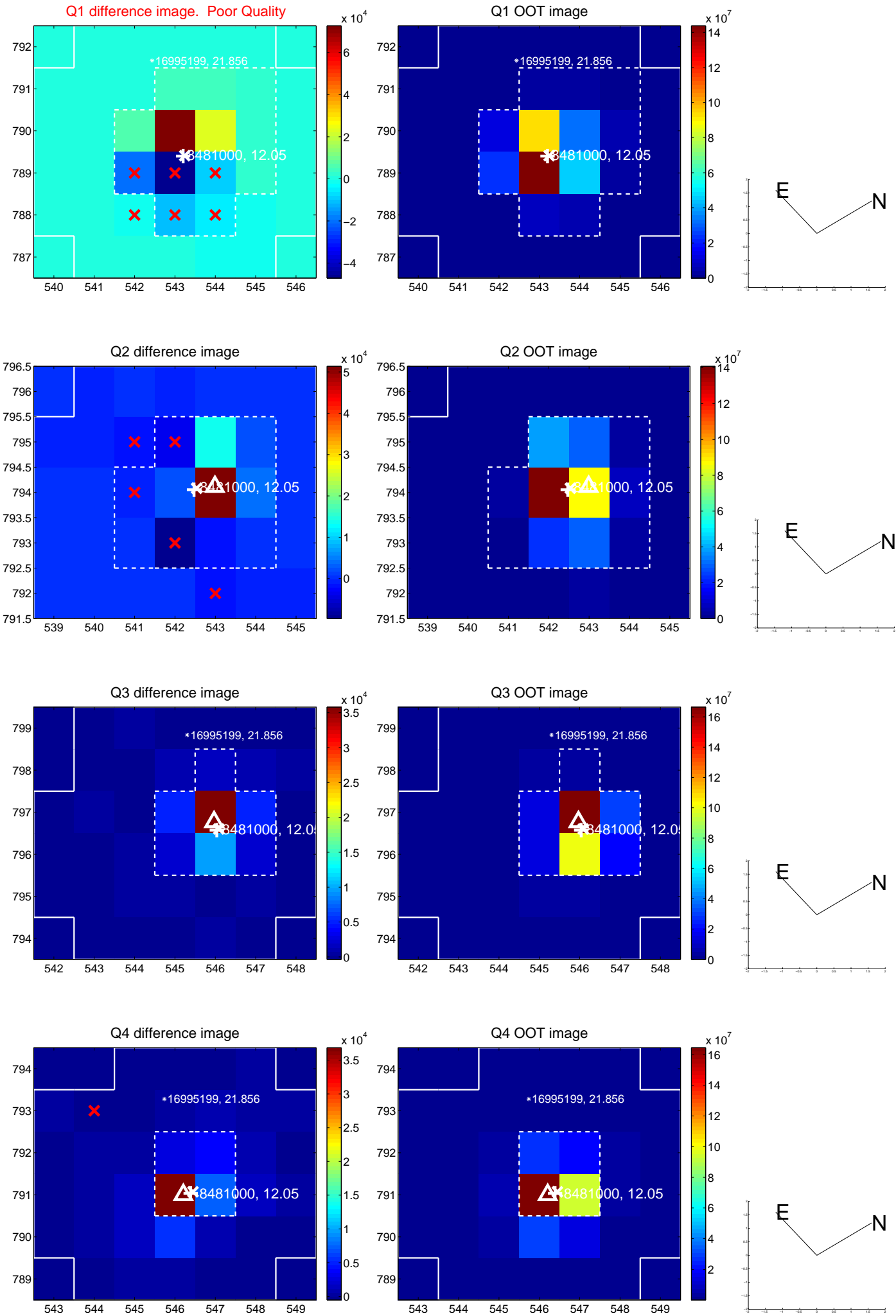
The direct PRF centroid is offset from the target star catalog position by about 0.22 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$0.294 \pm 0.231$	1.27	$0.257 \pm 0.317$	$0.142 \pm 0.201$
PRF-fit source offset from KIC position	$0.291 \pm 0.325$	0.90	$0.270 \pm 0.293$	$-0.109 \pm 0.205$
photometric centroid source offset	$0.49 \pm 0.13$	3.72	$0.02 \pm 0.14$	$-0.49 \pm 0.13$

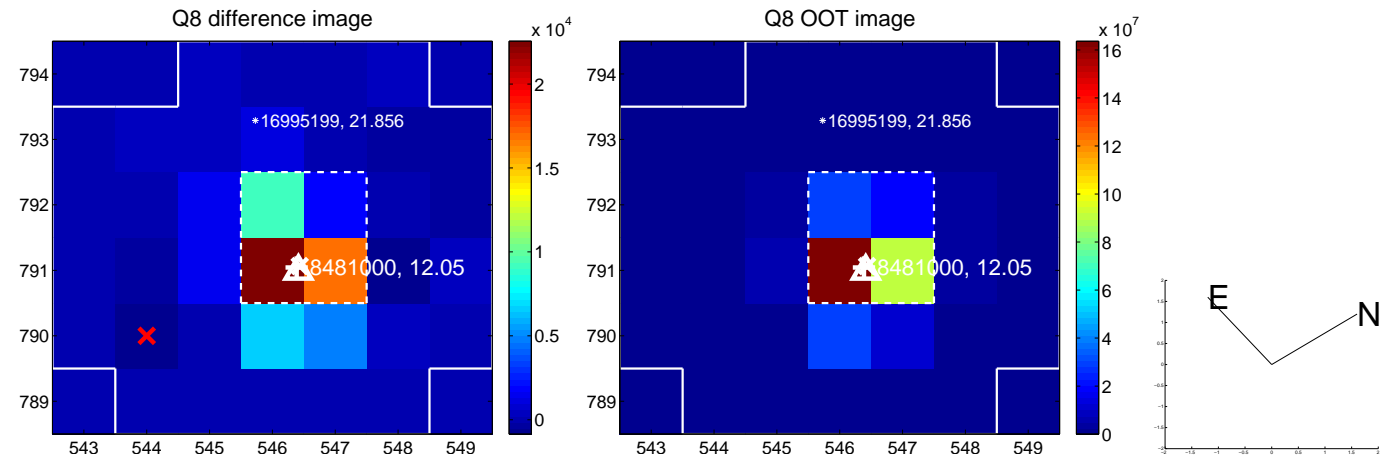
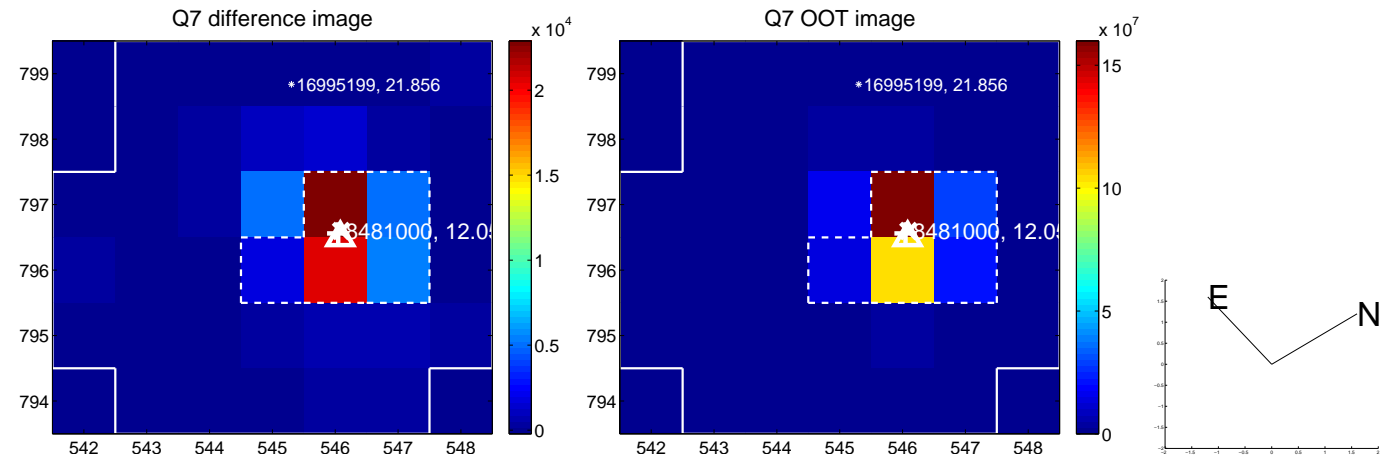
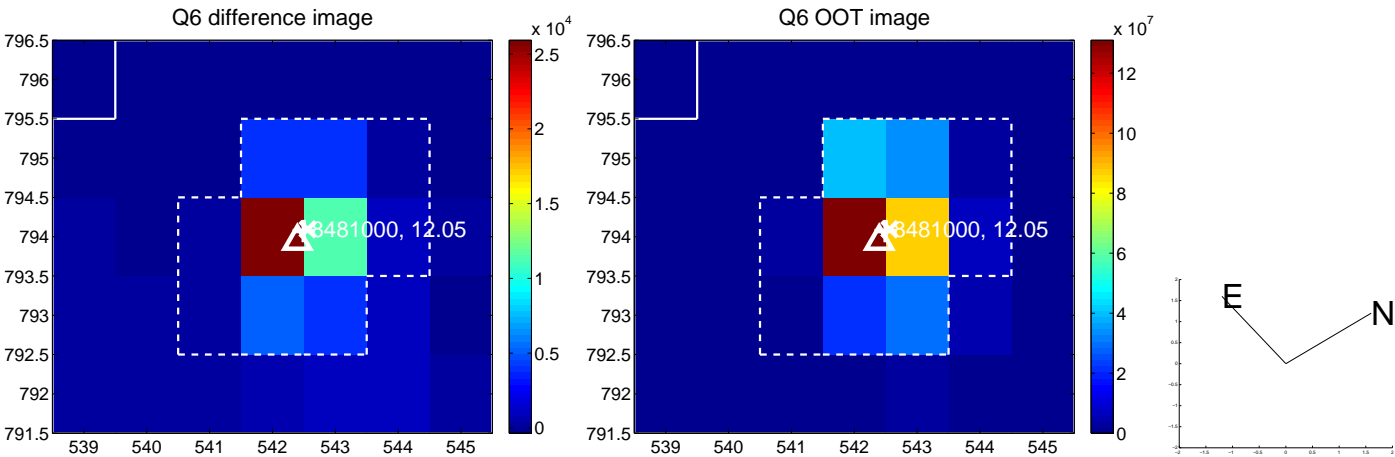
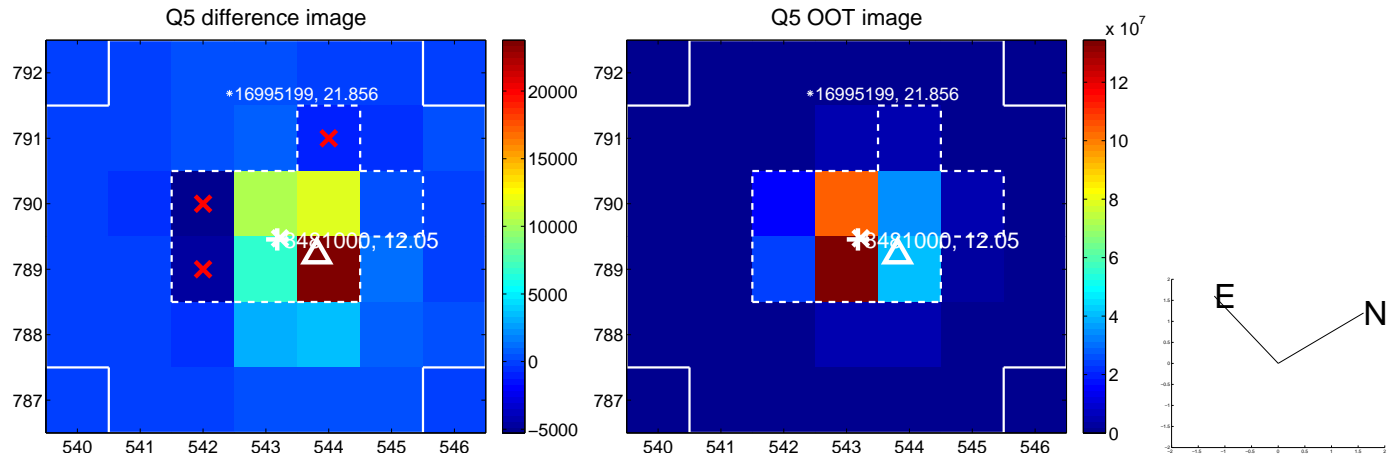


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses:** good quarterly centroid offsets; **Vermillion crosses:** bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: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

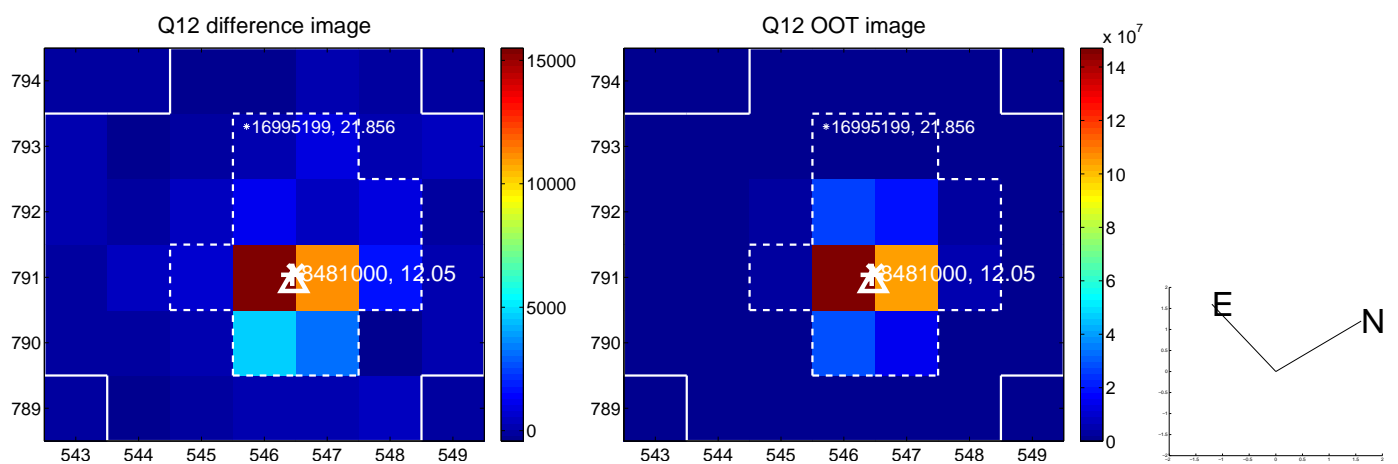
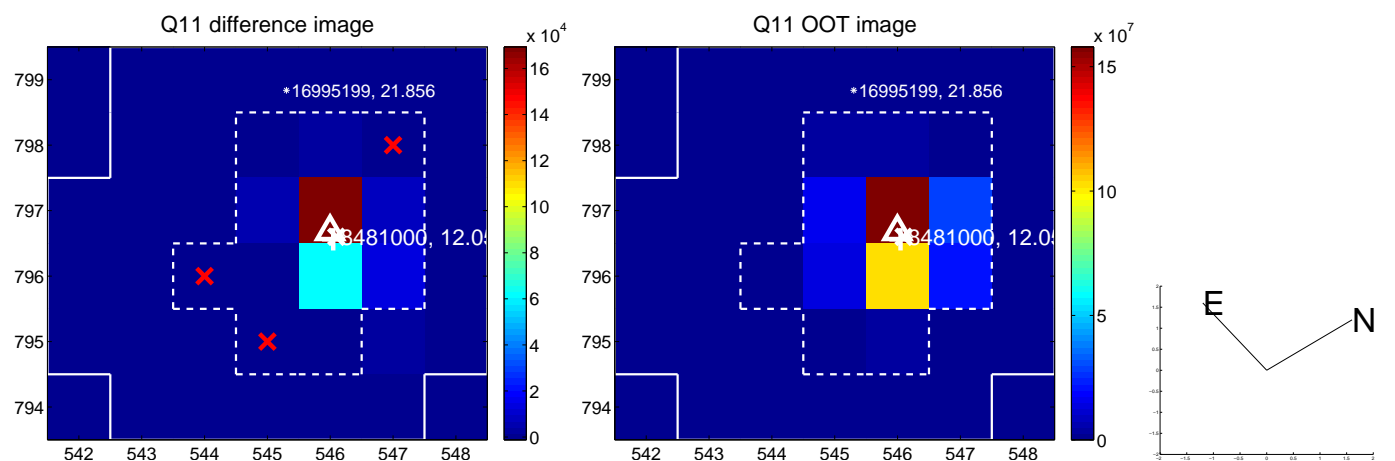
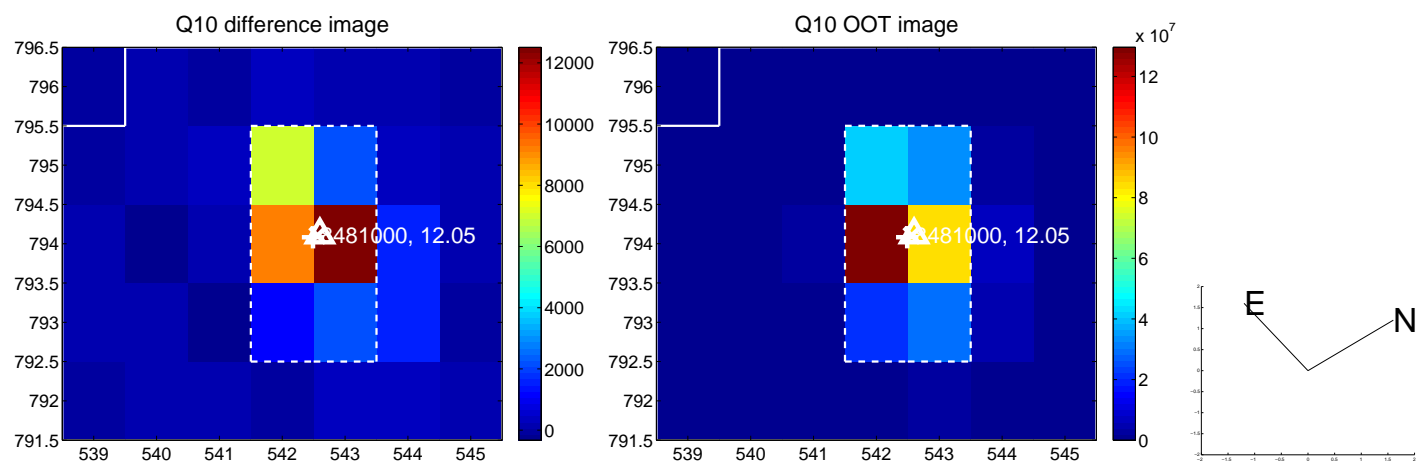
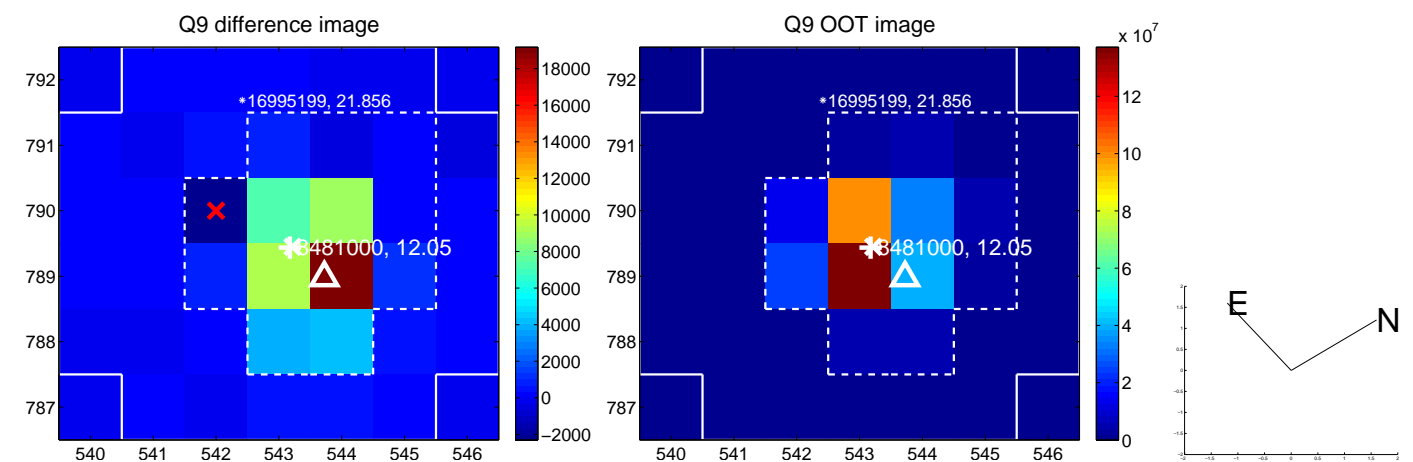
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



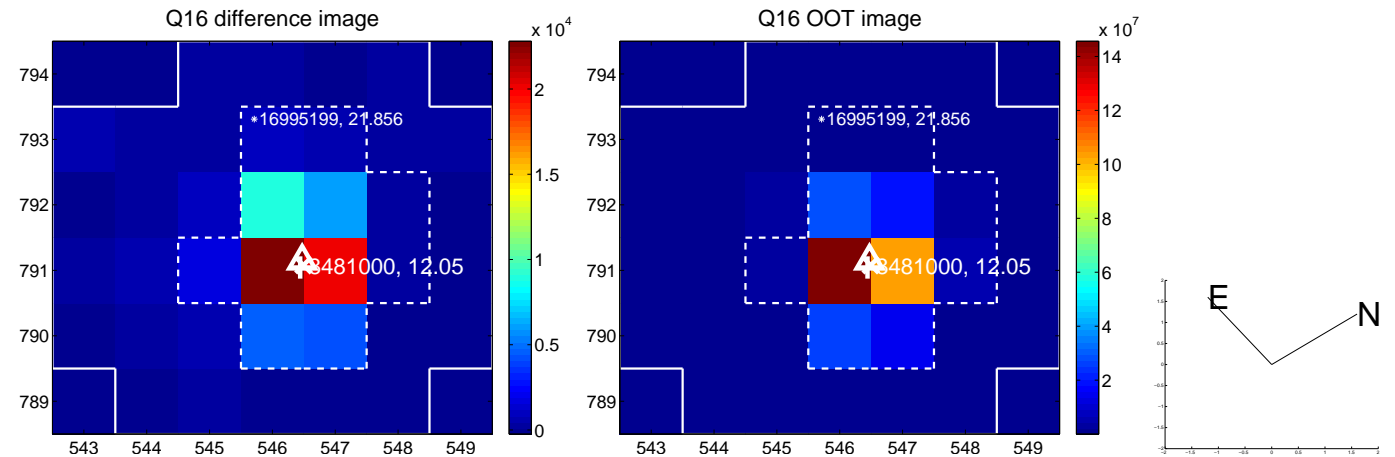
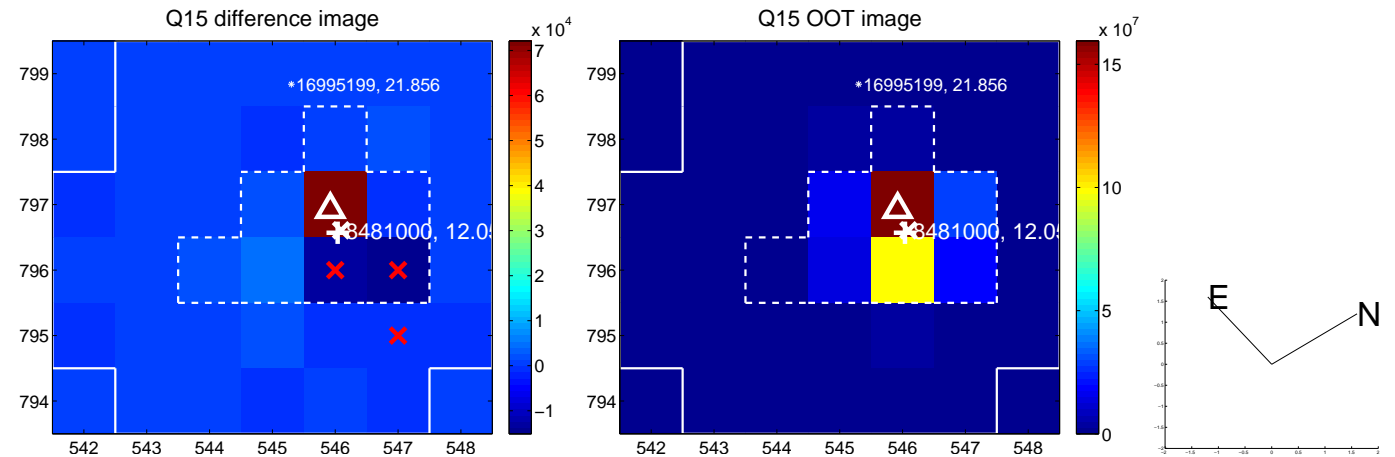
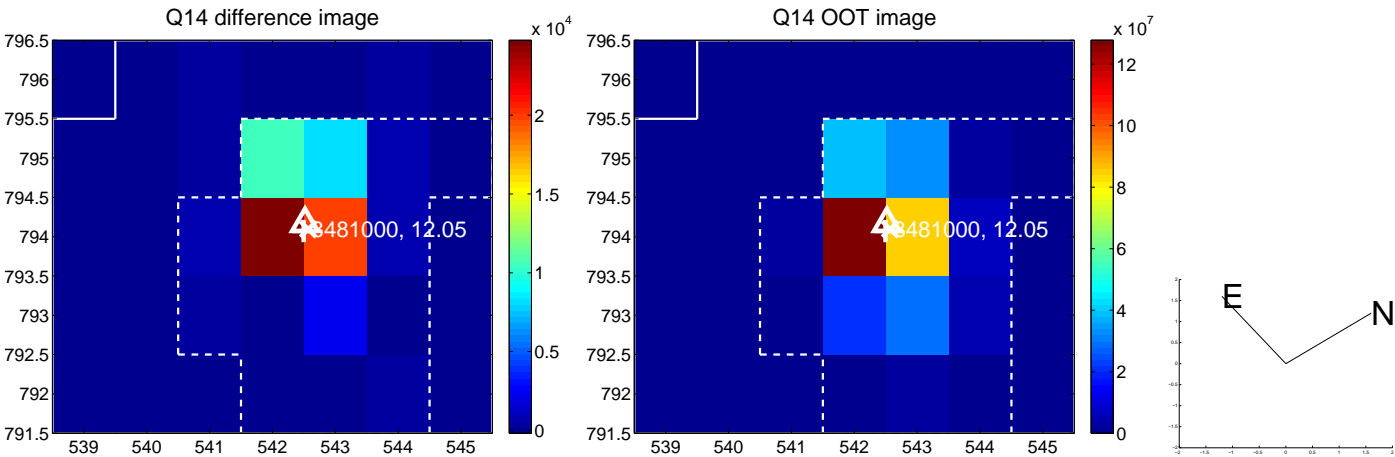
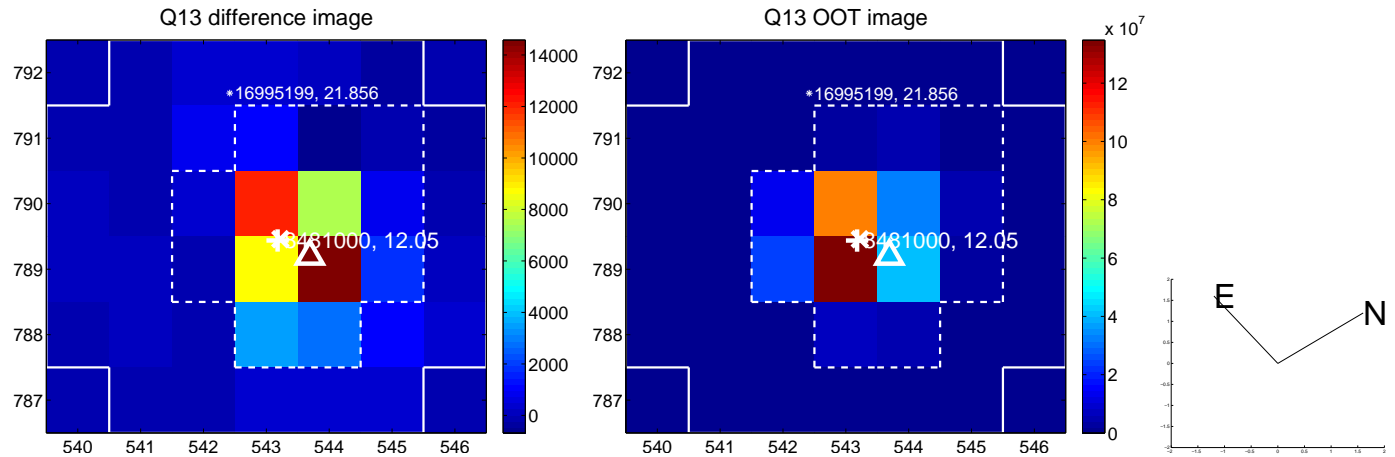
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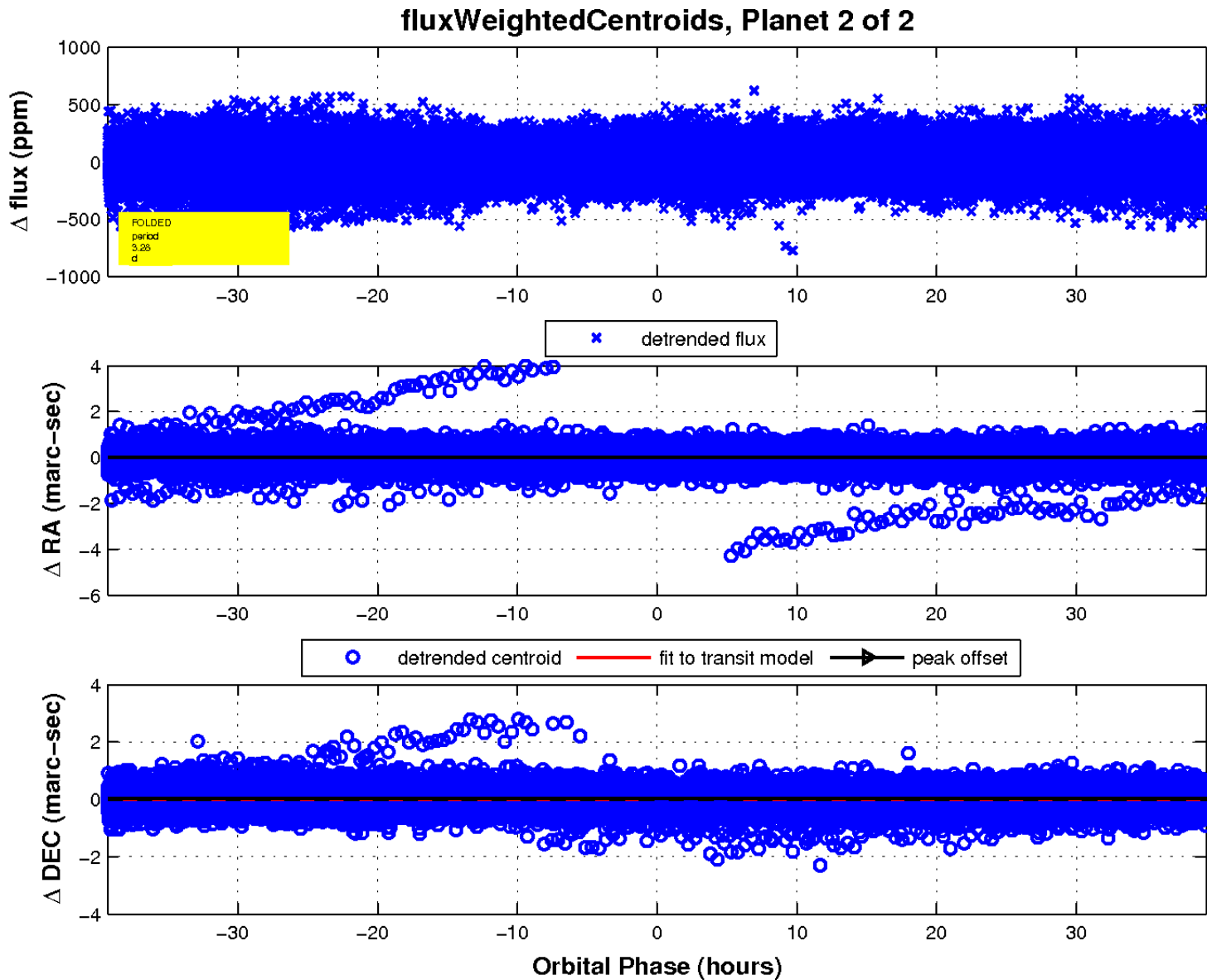
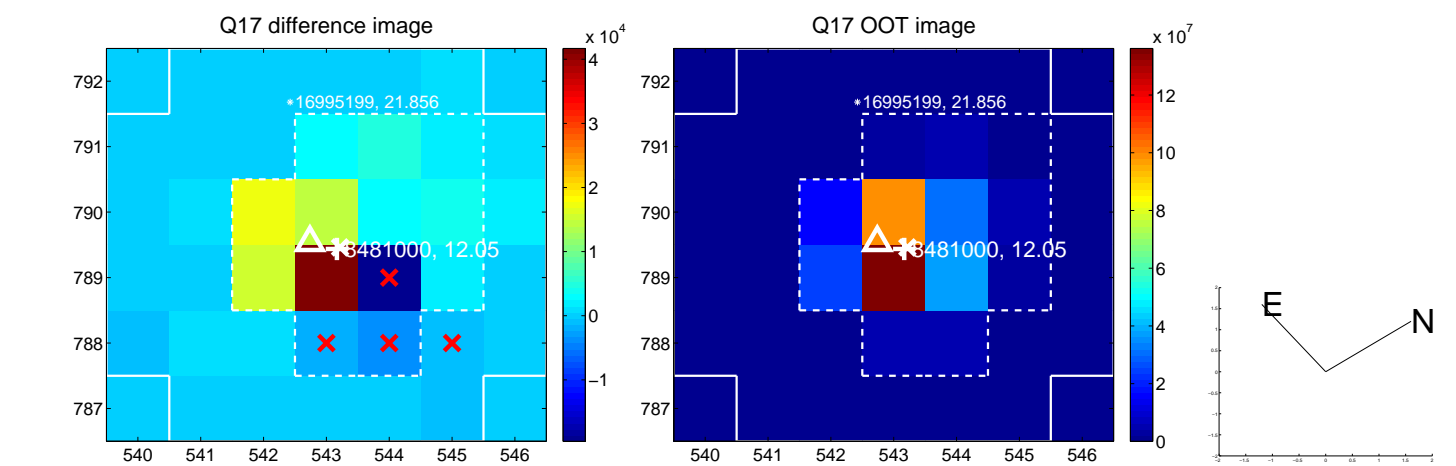
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white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



UKIRT Image

Declination

