

# KIC 007598492

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
007598492-01	OBS	No	0.569070	132.087062	37.3	1.498	9.1	5.2	2.15	7512	1.54	53046.26
007598492-02	OBS	No	0.790079	132.150879	21.9	4.146	8.5	2.0	2.15	7512	1.08	34249.06

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
007598492-01	OBS	FP	0.00	1	0	0	0	LPP_DV
007598492-02	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_ALT

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

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

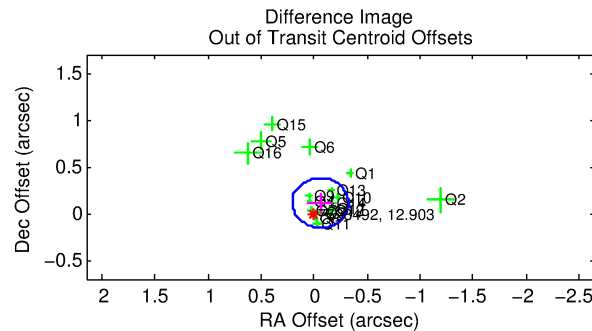
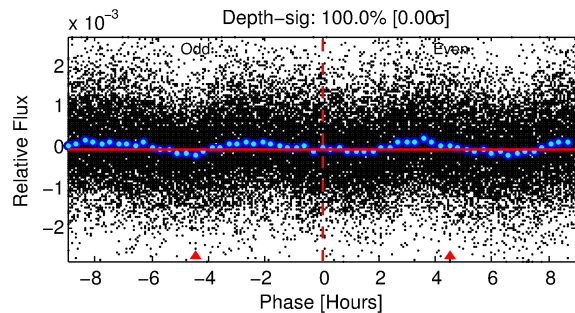
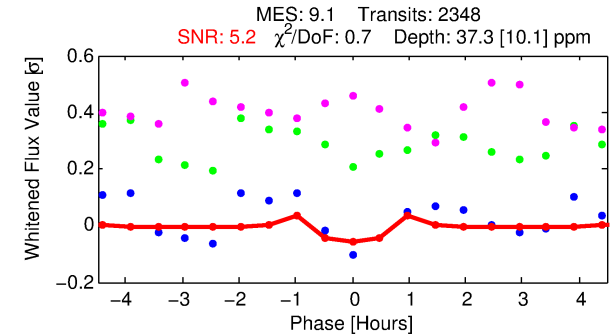
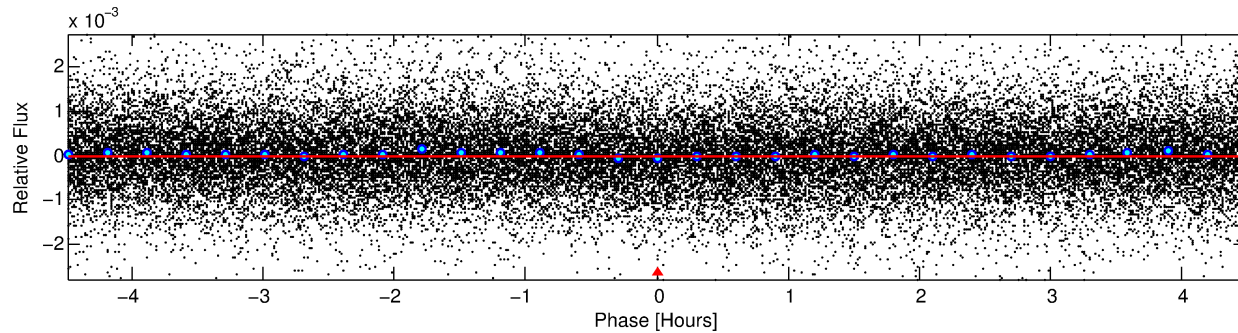
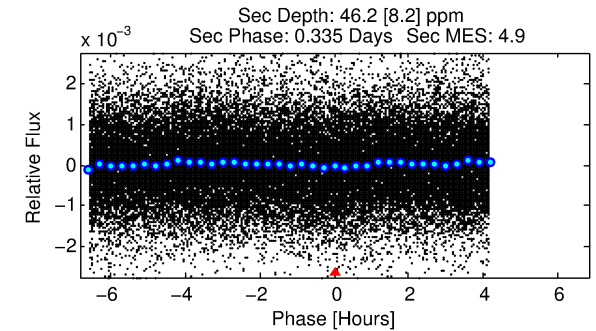
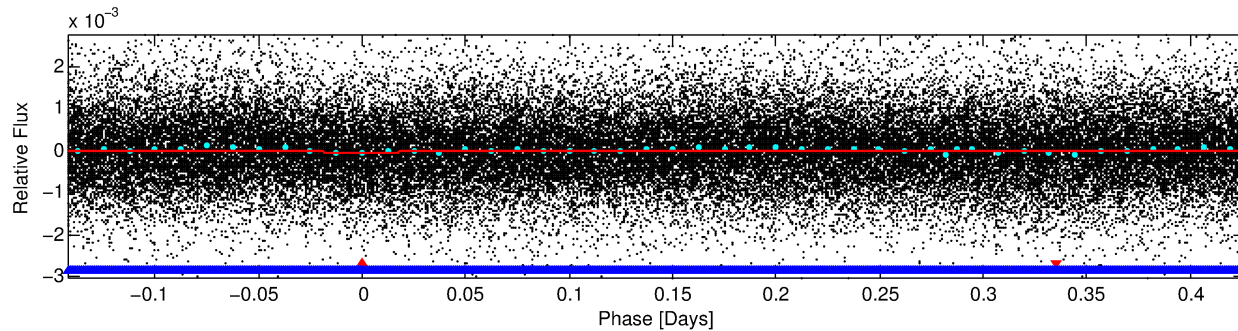
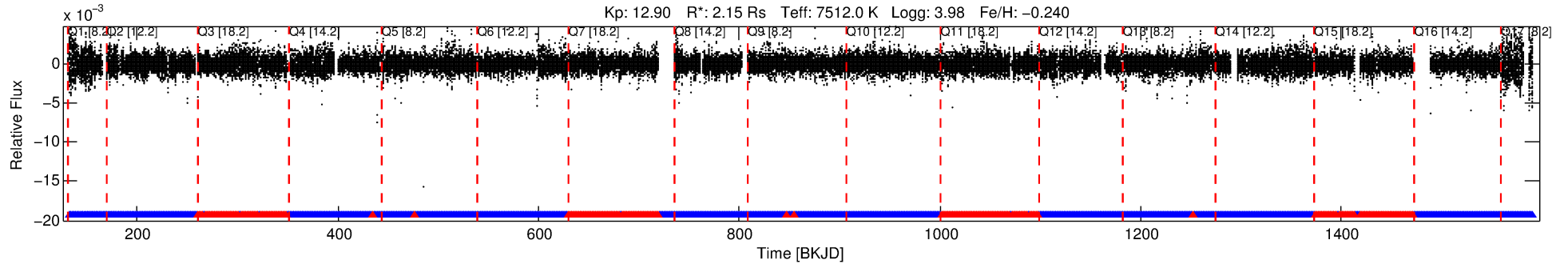
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

## Ephemeris Match Information For 007598492-01

No Significant Match Found

# DV One-Page Summary

KIC: 7598492 Candidate: 1 of 2 Period: 0.569 d



## DV Fit Results:

Period = 0.56907 [0.00002] d  
Epoch = 132.0871 [0.0021] BKJD  
Rp/R\* = 0.0066 [0.0022]  
a/R\* = 1.61 [1.75]  
b = 0.90 [0.38]  
Seff = 53046.26 [25427.22]  
Teq = 3870 [464] K  
Rp = 1.54 [0.70] Re  
a = 0.0158 [0.0045] AU  
Ag = 2.66 [2.17] [0.76σ]  
Teffp = 7643 [1342] K [2.66σ]

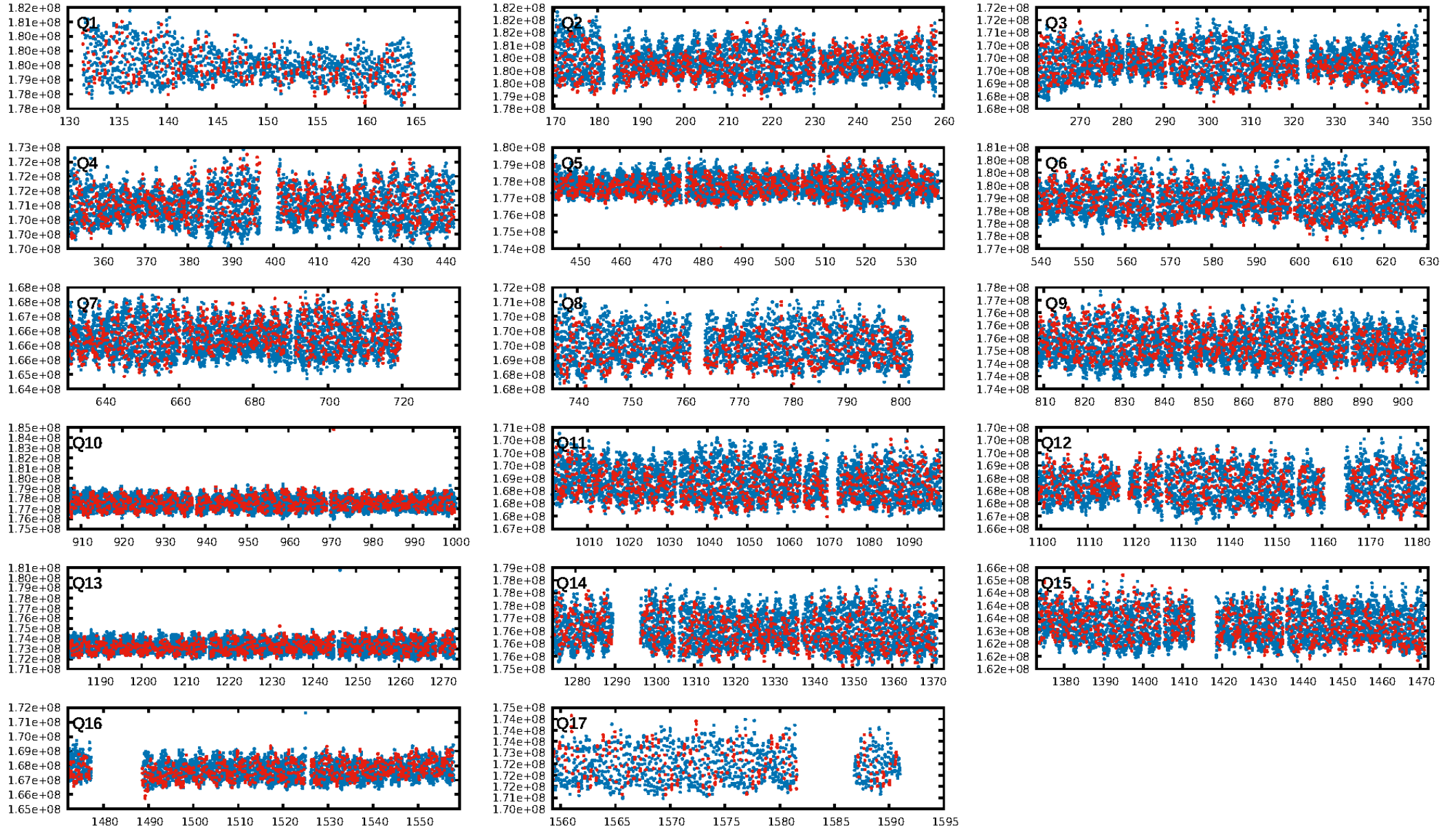
## DV Diagnostic Results:

ShortPeriod-sig: N/A  
LongPeriod-sig: 77.1% [1.20σ]  
ModelChiSquare2-sig: N/A  
ModelChiSquareGof-sig: N/A  
Bootstrap-pfa: 3.04e-14  
RollingBand-fgt: 0.77 [1733/2242]  
GhostDiagnostic-chr: -66.29  
Centroid-sig: 0.0%  
Centroid-so: 1.676 arcsec [2.93σ]  
OotOffset-rm: 0.126 arcsec [1.43σ]  
KicOffset-rm: 0.080 arcsec [0.64σ]  
OotOffset-st: 4/4/4/5 [17]  
KicOffset-st: 4/4/4/5 [17]  
DiffImageQuality-fgm: 0.41 [7/17]  
DiffImageOverlap-fno: 1.00 [17/17]

Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 01-Feb-2016 09:03:45 Z

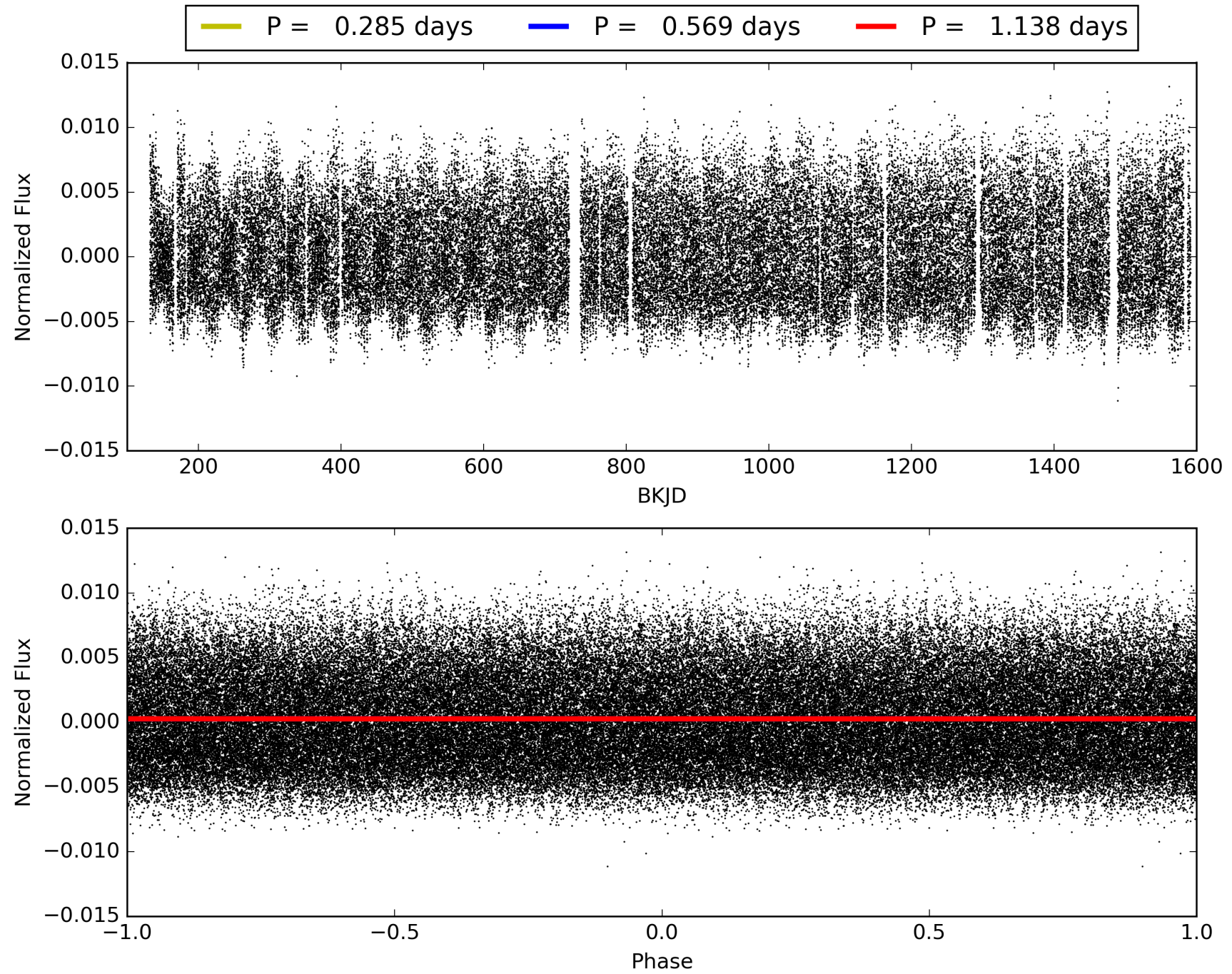
This Data Validation Report Summary was produced in the Kepler Science Operations Center Pipeline at NASA Ames Research Center

# TCE 007598492-01, PDC Light Curves



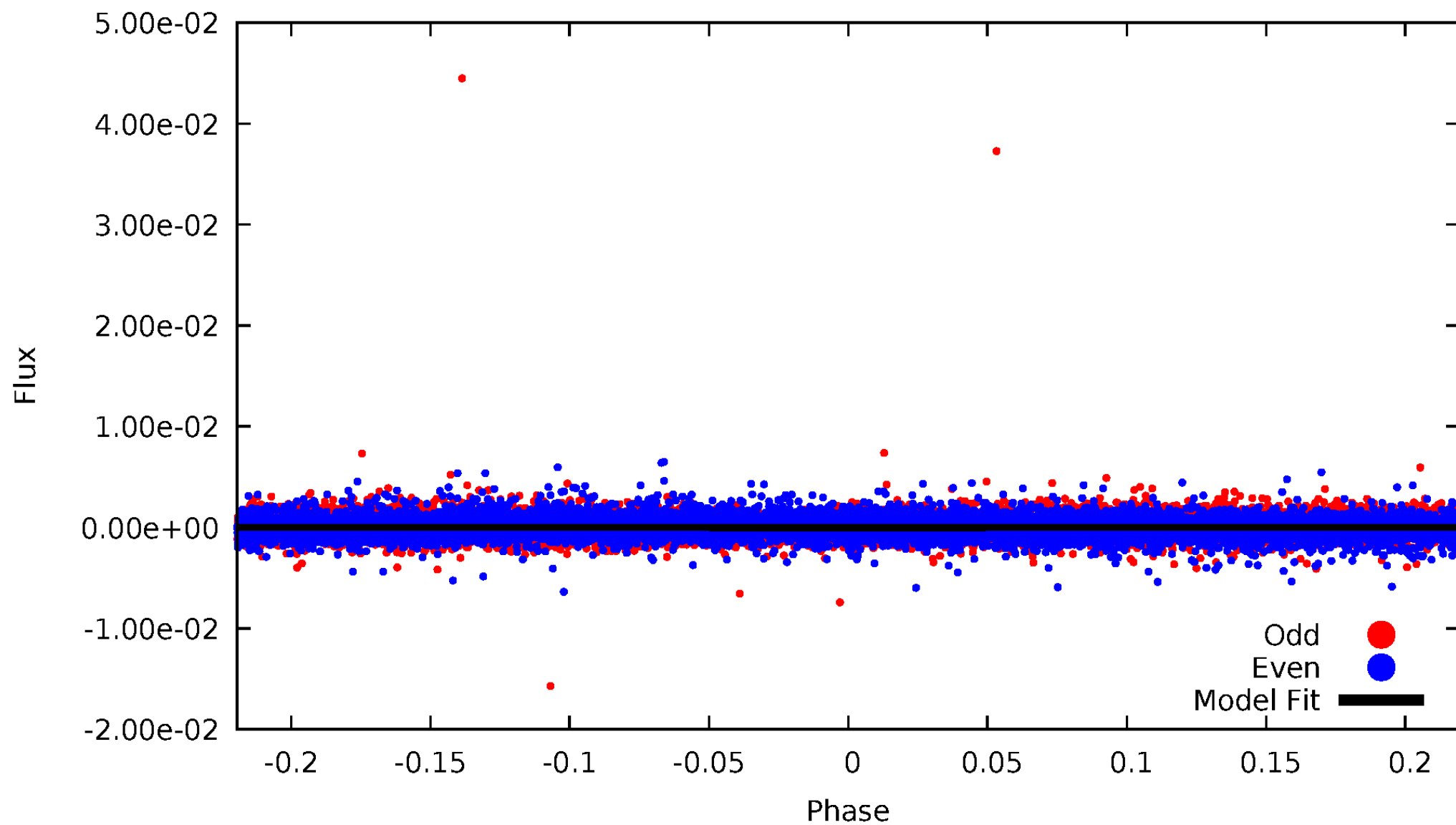


TCE 007598492-01



# DV Odd/Even

TCE 007598492-01



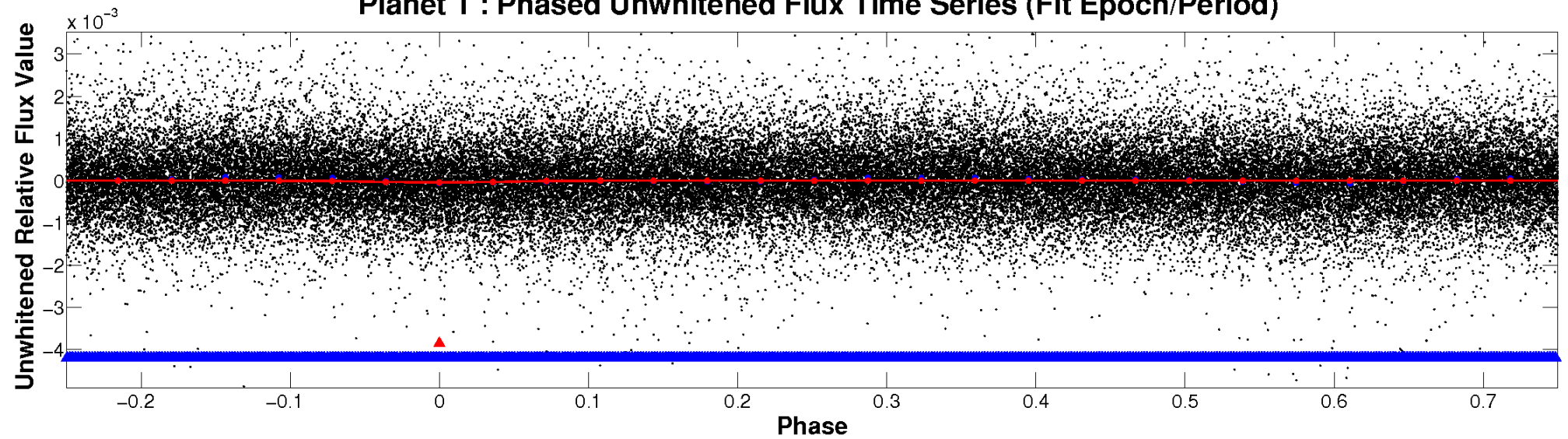


ALT Odd/Even

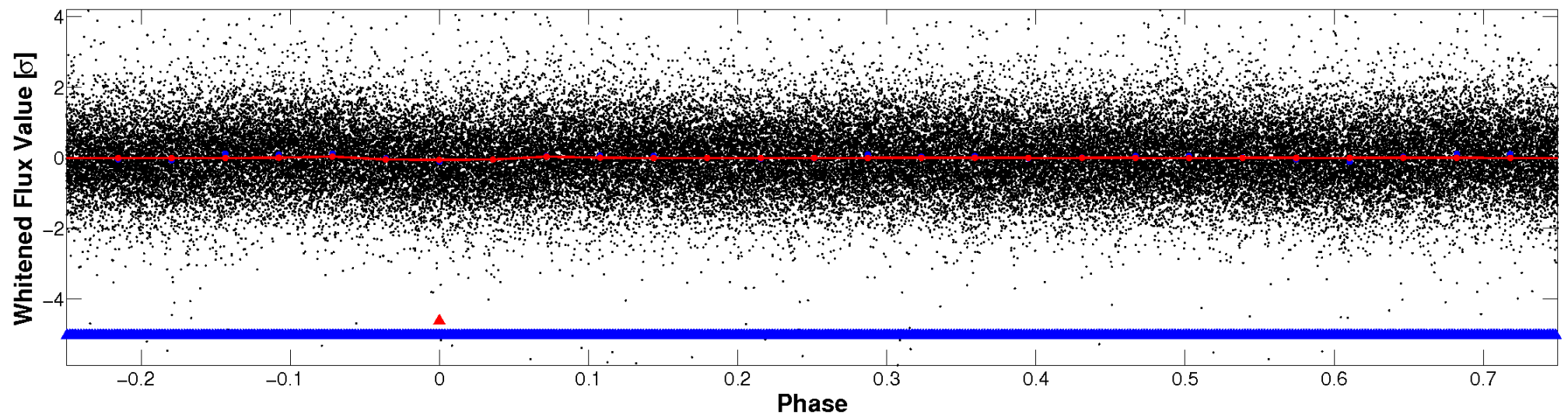
This plot does not exist for this TCE.

# Non-Whitened Vs. Whitened Light Curve

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



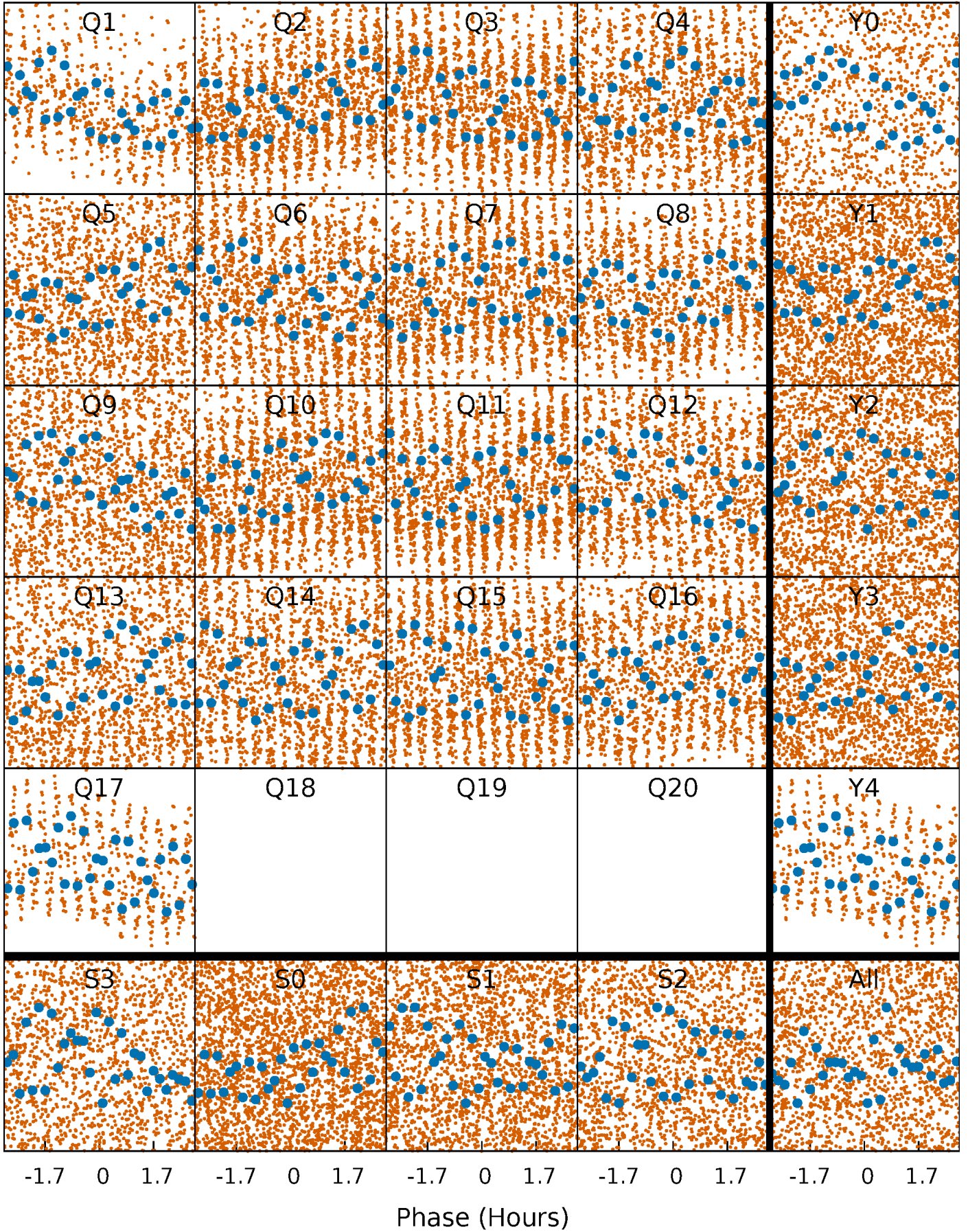
**Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)**





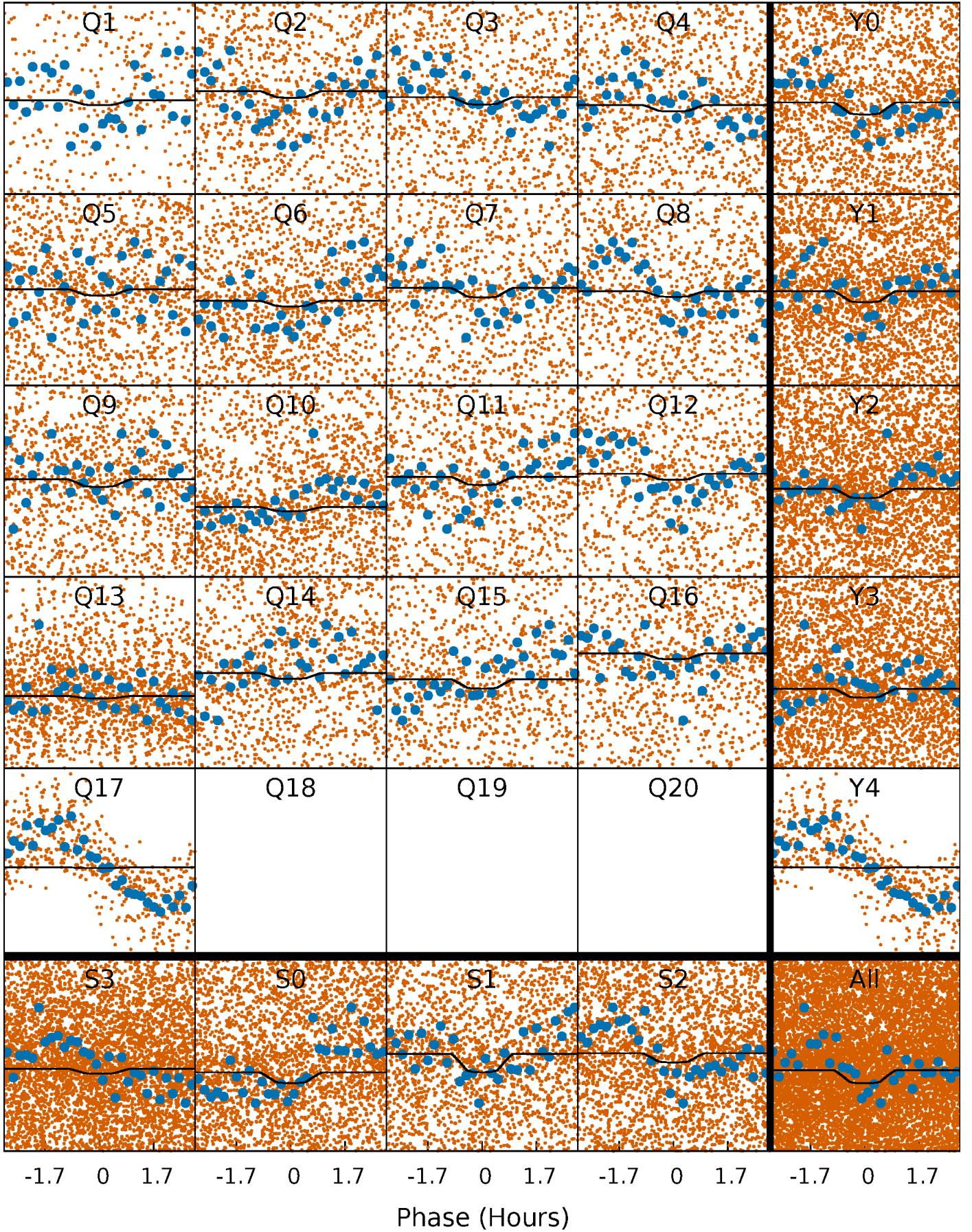
# PDC Quarter-Phased Transit Curves

TCE 007598492-01   P= 0.569070 Days    $T_0=132.087062$  (BKJD)



# DV Quarter-Phased Transit Curves

TCE 007598492-01   P= 0.569070 Days    $T_0=132.087062$  (BKJD)



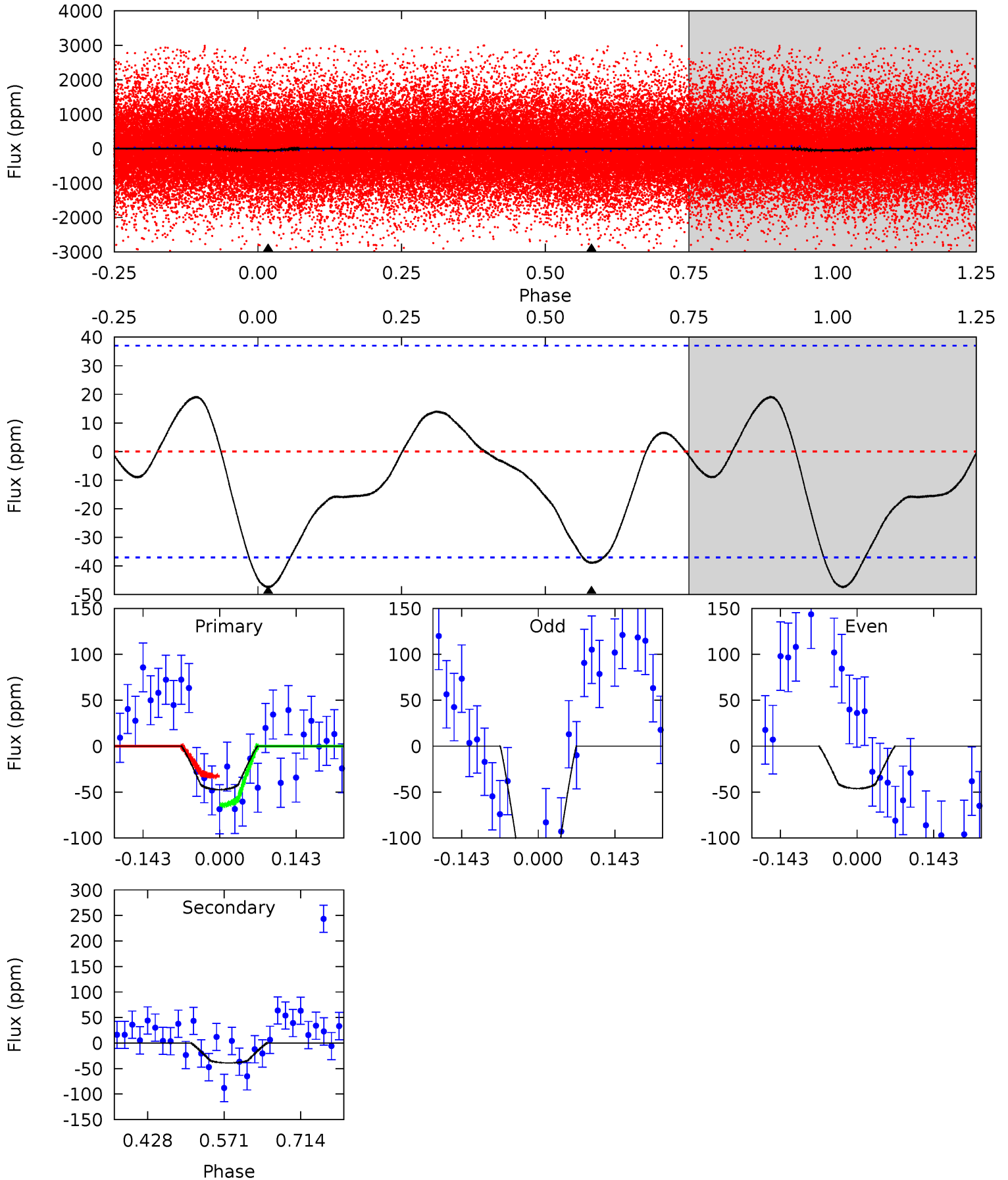
This plot does not exist for this TCE.



# DV Model-Shift Uniqueness Test

007598492-01, P = 0.569070 Days, E = 130.948922 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
5.74	4.72	0	0	4.49	1.47	1.11	5.74	5.74	4.72	4.72	5.88	0.90	0.29	1.93



## Alt Model-Shift Uniqueness Test

This plot does not exist for this TCE.



### Stellar Parameters For KIC 007598492

	$T_{\text{eff}} (K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R (R_{\odot})$	$M (M_{\odot})$	$\rho_{\star} (\text{g}\cdot\text{cm}^{-3})$
	$7512^{+235}_{-314}$	$3.981^{+0.260}_{-0.140}$	$-0.240^{+0.250}_{-0.350}$	$2.150^{+0.544}_{-0.665}$	$1.613^{+0.196}_{-0.294}$	$0.229^{+0.373}_{-0.103}$
	+3%/-4%	+7%/-4%	+104%/-146%	+25%/-31%	+12%/-18%	+163%/-45%
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 007598492-01 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	$A_{\text{obs}}$
DV	$-39 \pm 8$	$1.46^{+0.61}_{-0.52}$	$5324^{+373}_{-456}$	$7063^{+2131}_{-1362}$	$2.429^{+3.737}_{-1.237}$
Alt.	N/A	N/A	N/A	N/A	N/A

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

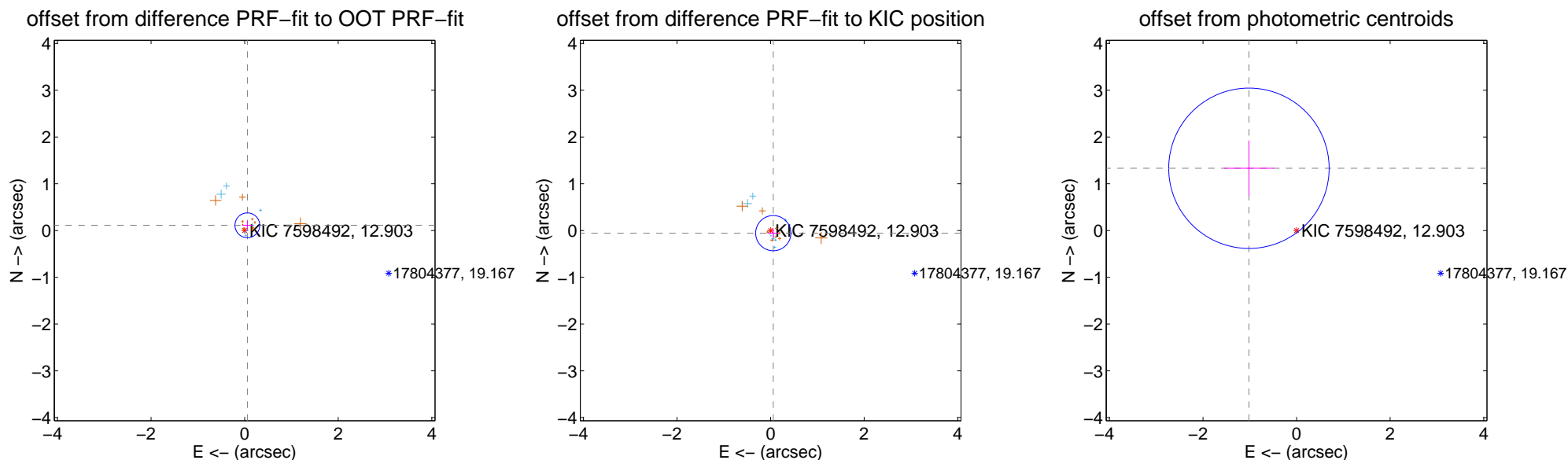
## DV Centroid Data

Supplemental centroid analysis for 007598492-01. Kepler magnitude: 12.90. Transit SNR 5.17

There are 7 quarters with good PRF difference image offsets

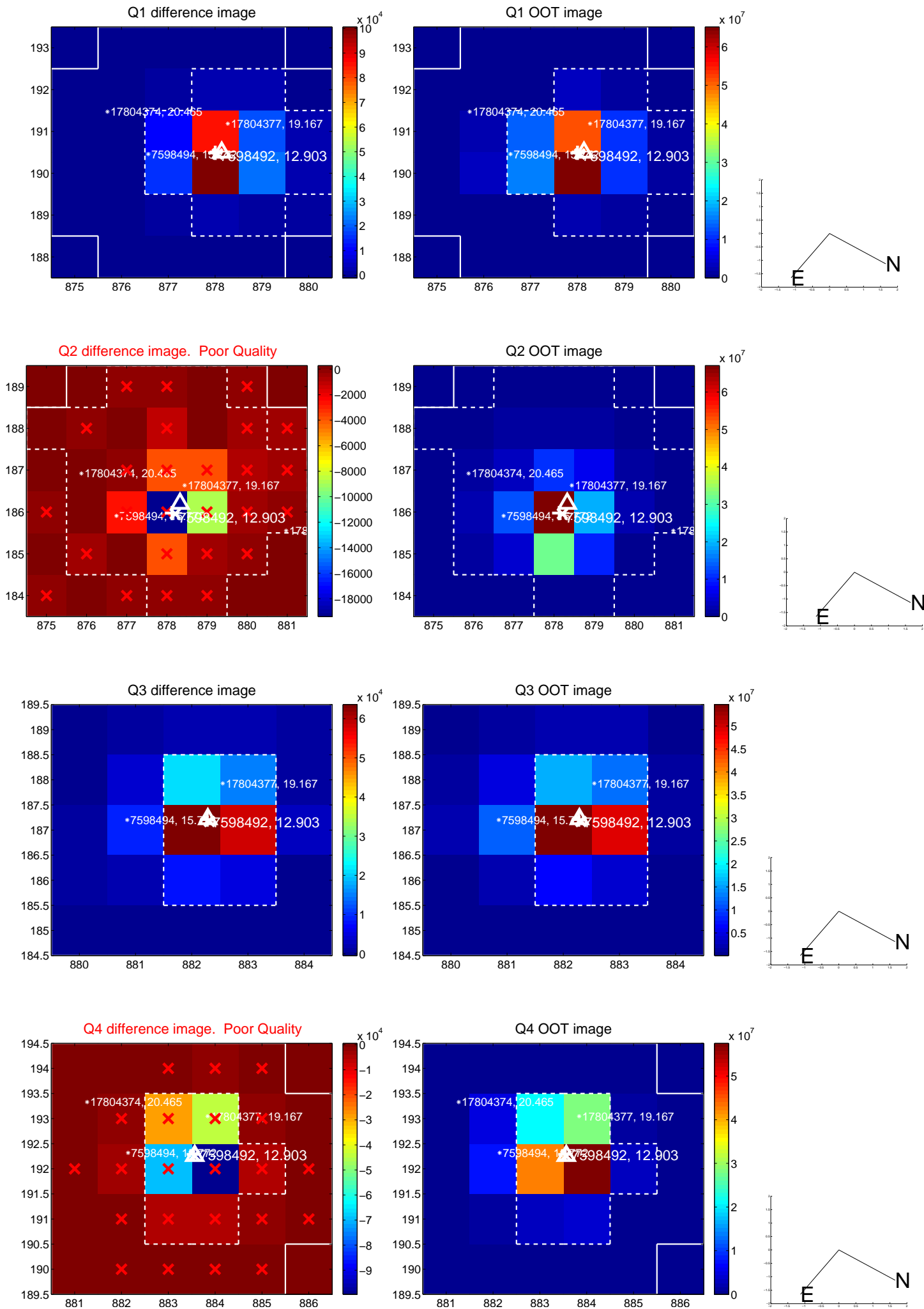
The direct PRF centroid is offset from the target star catalog position by about 0.23 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$0.126 \pm 0.088$	1.43	$-0.058 \pm 0.110$	$0.112 \pm 0.102$
PRF-fit source offset from KIC position	$0.080 \pm 0.125$	0.64	$-0.057 \pm 0.112$	$-0.056 \pm 0.102$
photometric centroid source offset	$1.68 \pm 0.57$	2.93	$1.02 \pm 0.53$	$1.33 \pm 0.59$

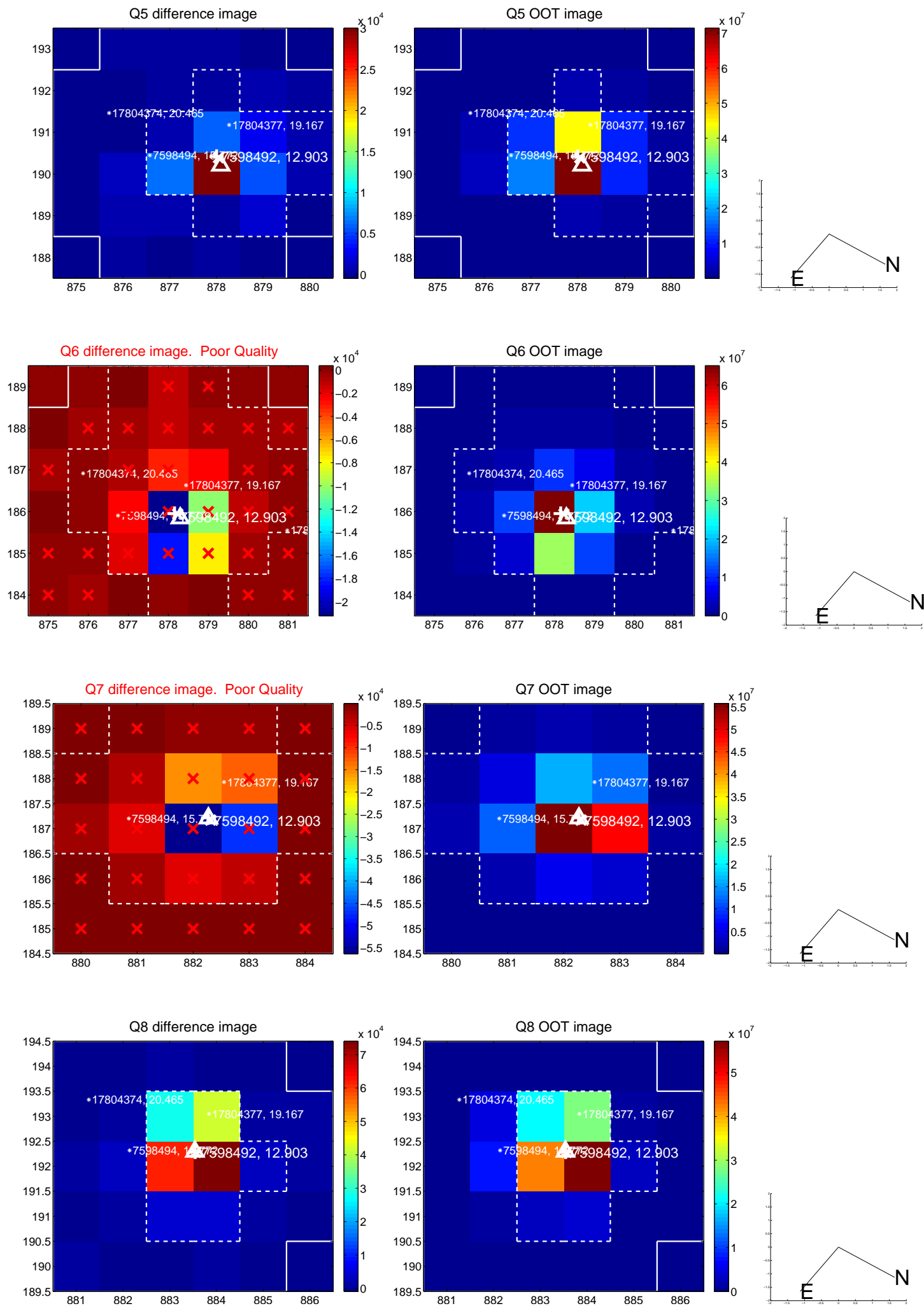


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: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

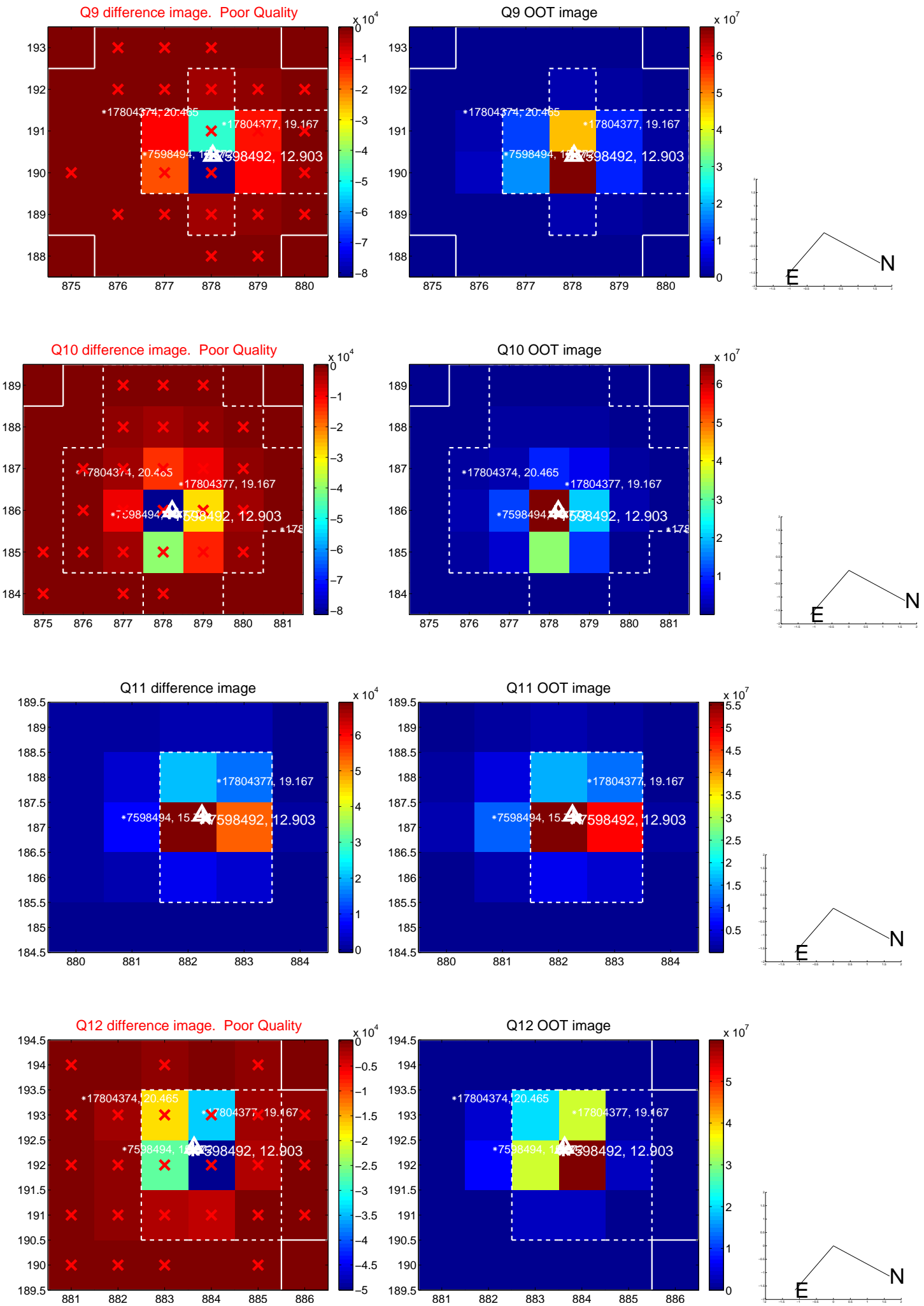
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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

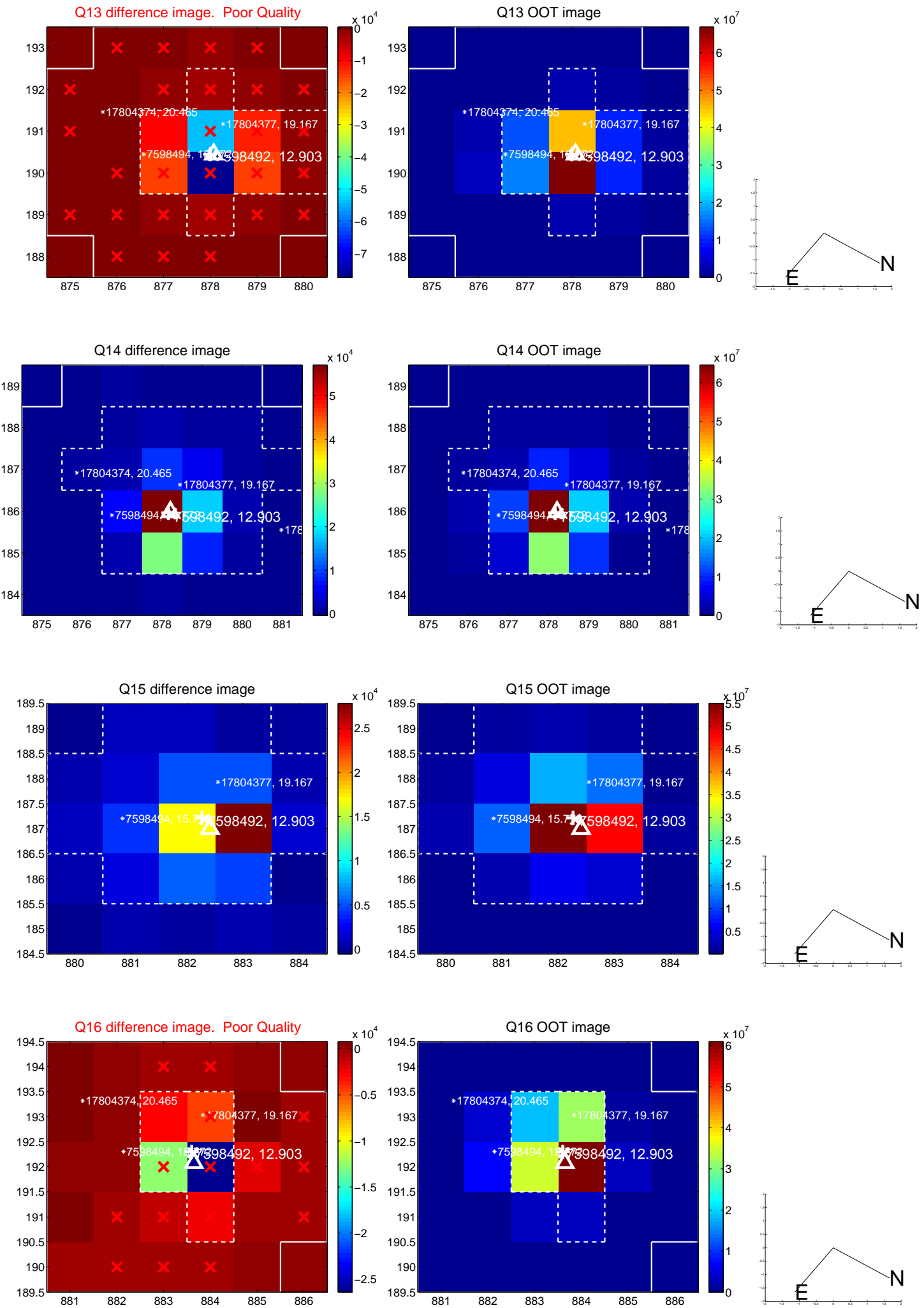


white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.

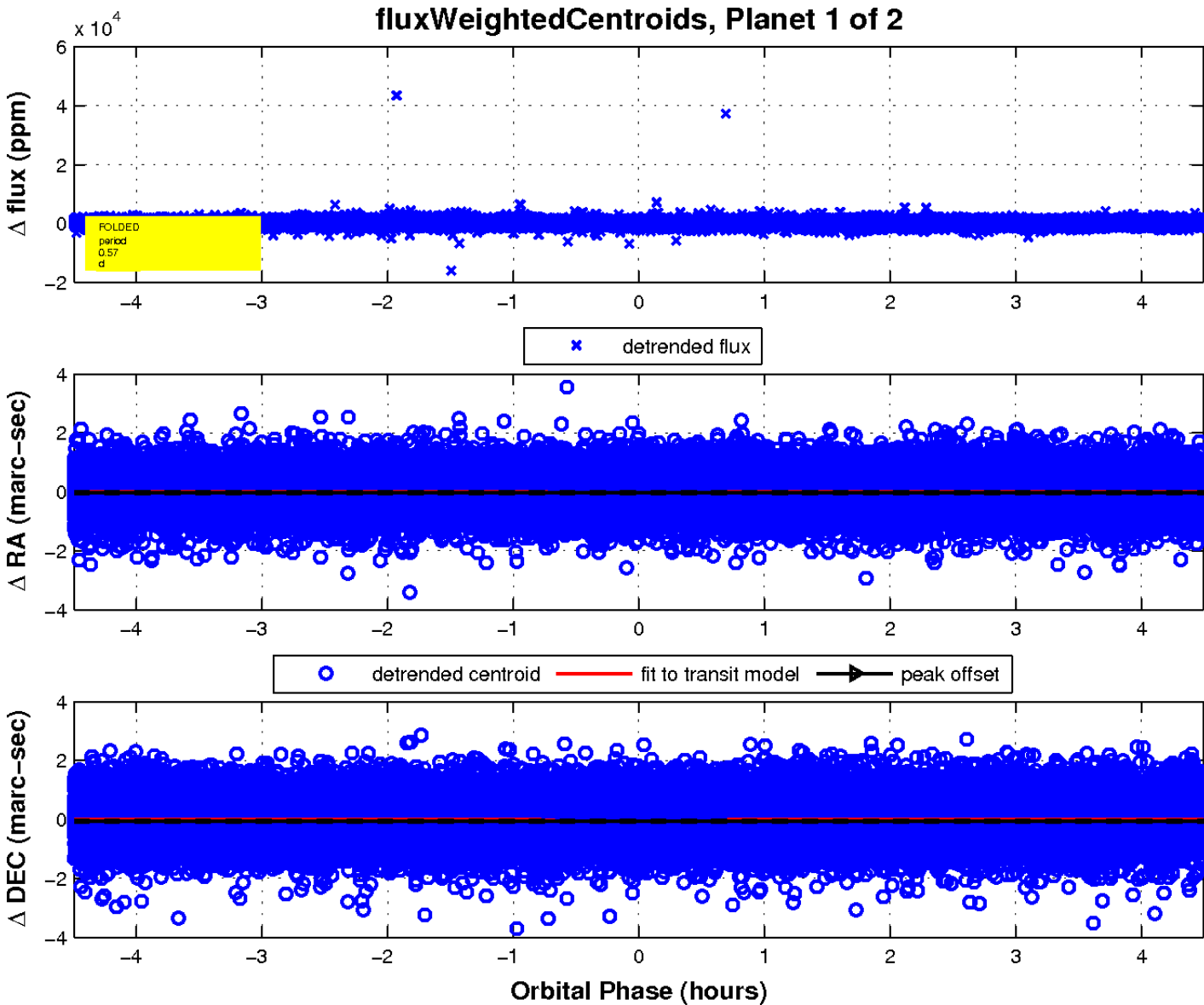
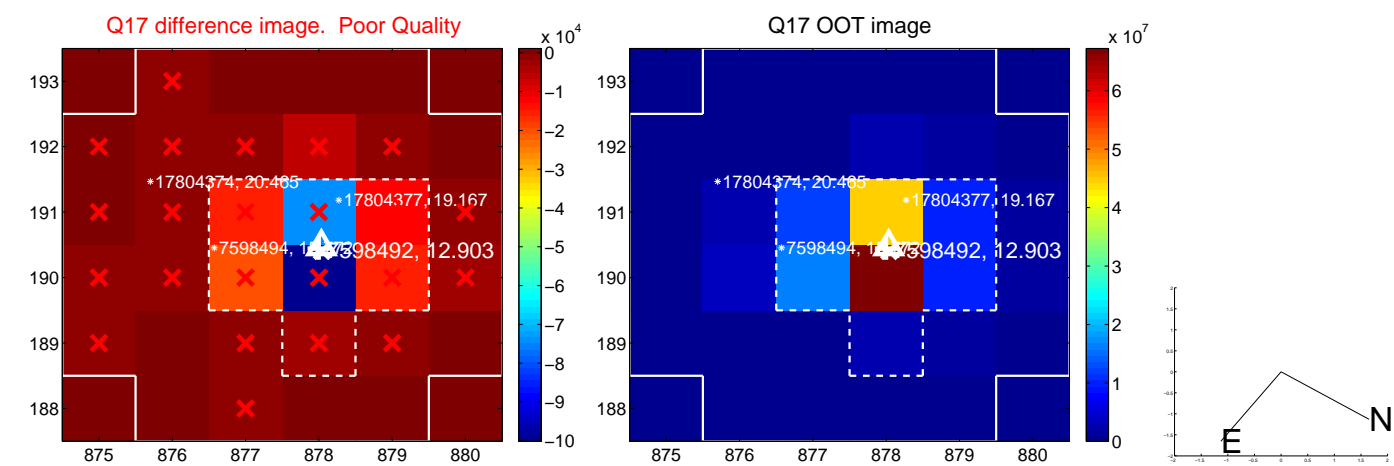




white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.

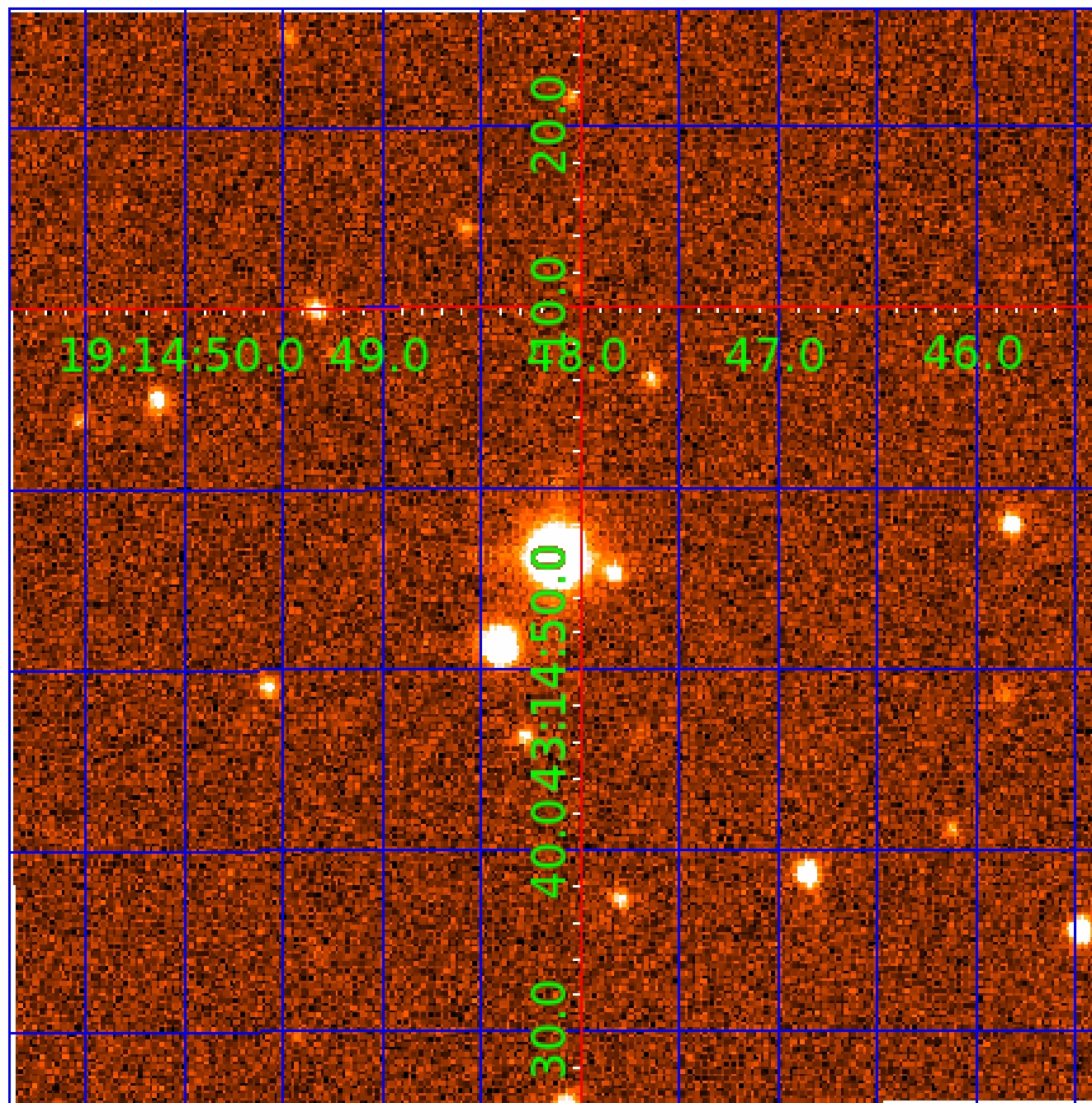


white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



# UKIRT Image

Declination



# KIC 007598492

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
007598492-01	OBS	No	0.569070	132.087062	37.3	1.498	9.1	5.2	2.15	7512	1.54	53046.26
007598492-02	OBS	No	0.790079	132.150879	21.9	4.146	8.5	2.0	2.15	7512	1.08	34249.06

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
007598492-01	OBS	FP	0.00	1	0	0	0	LPP_DV
007598492-02	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_ALT

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

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

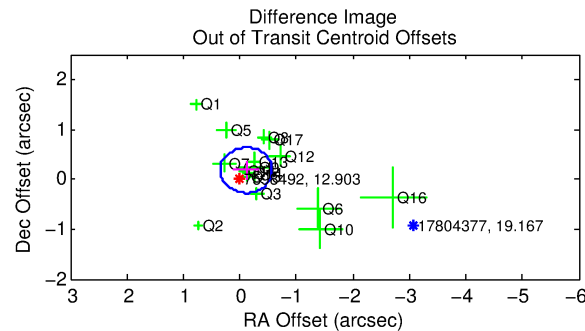
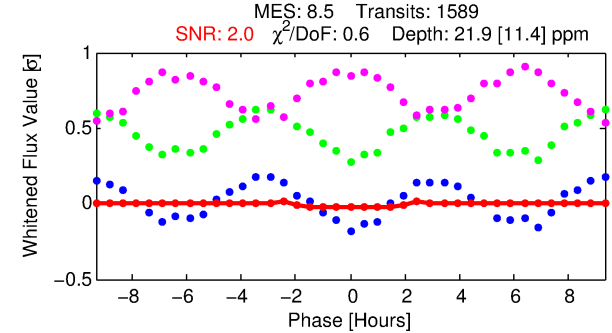
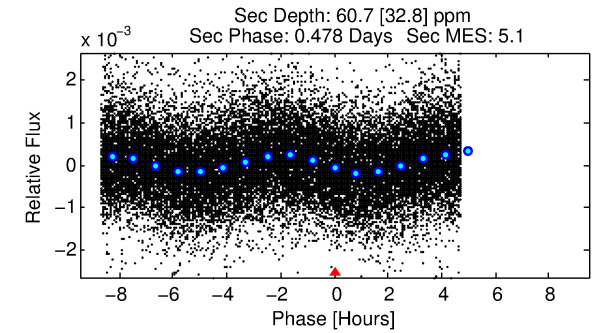
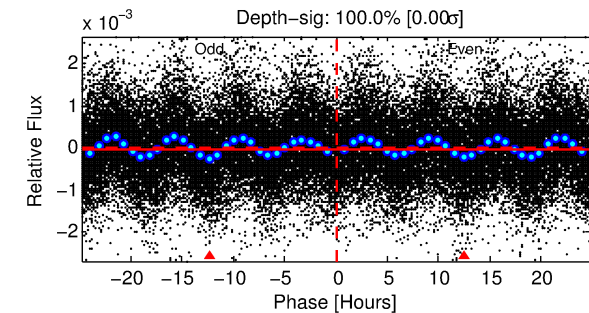
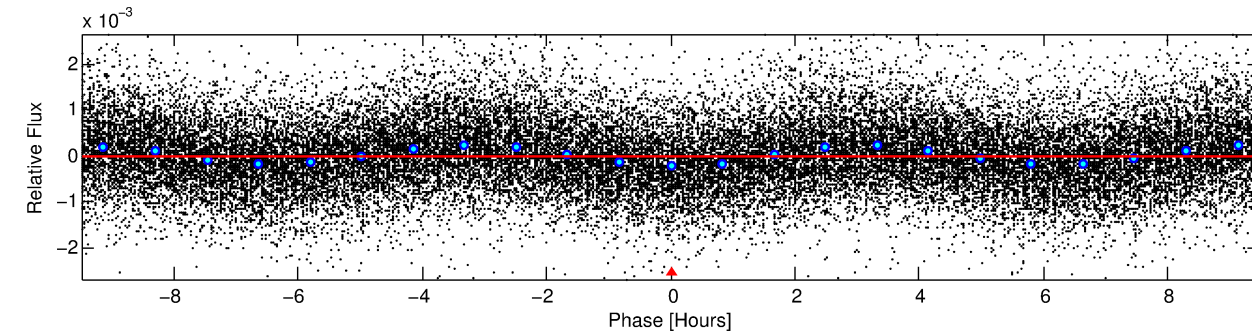
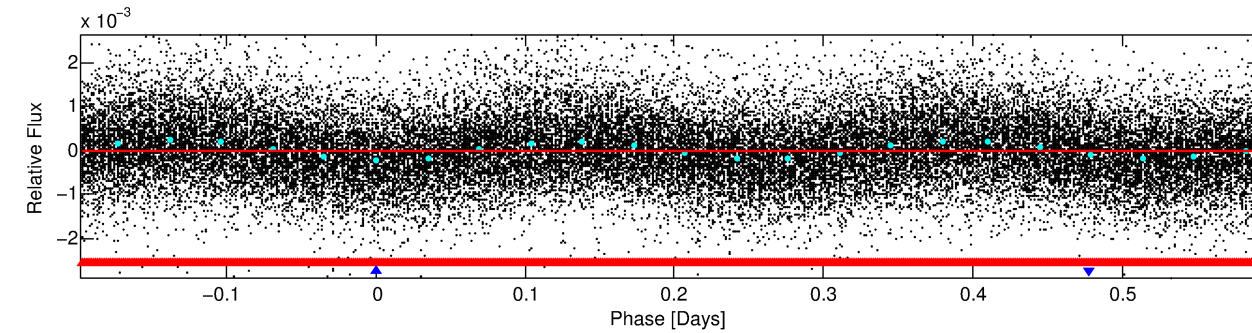
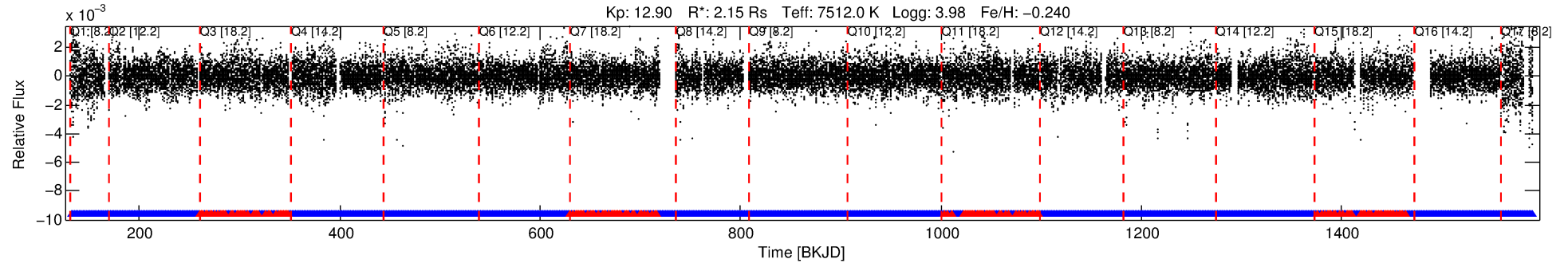
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

## Ephemeris Match Information For 007598492-02

No Significant Match Found

# DV One-Page Summary

KIC: 7598492 Candidate: 2 of 2 Period: 0.790 d



## DV Fit Results:

Period = 0.79008 [0.00005] d  
Epoch = 132.1509 [0.0083] BKJD  
Rp/R\* = 0.0046 [0.0030]  
a/R\* = 1.33 [1.93]  
b = 0.70 [2.43]  
Seff = 34249.06 [16416.96]  
Teq = 3469 [416] K  
Rp = 1.08 [0.77] Re  
a = 0.0196 [0.0056] AU  
Ag = 11.08 [16.24] [0.62 $\sigma$ ]  
Teffp = 9785 [3437] K [1.82 $\sigma$ ]

## DV Diagnostic Results:

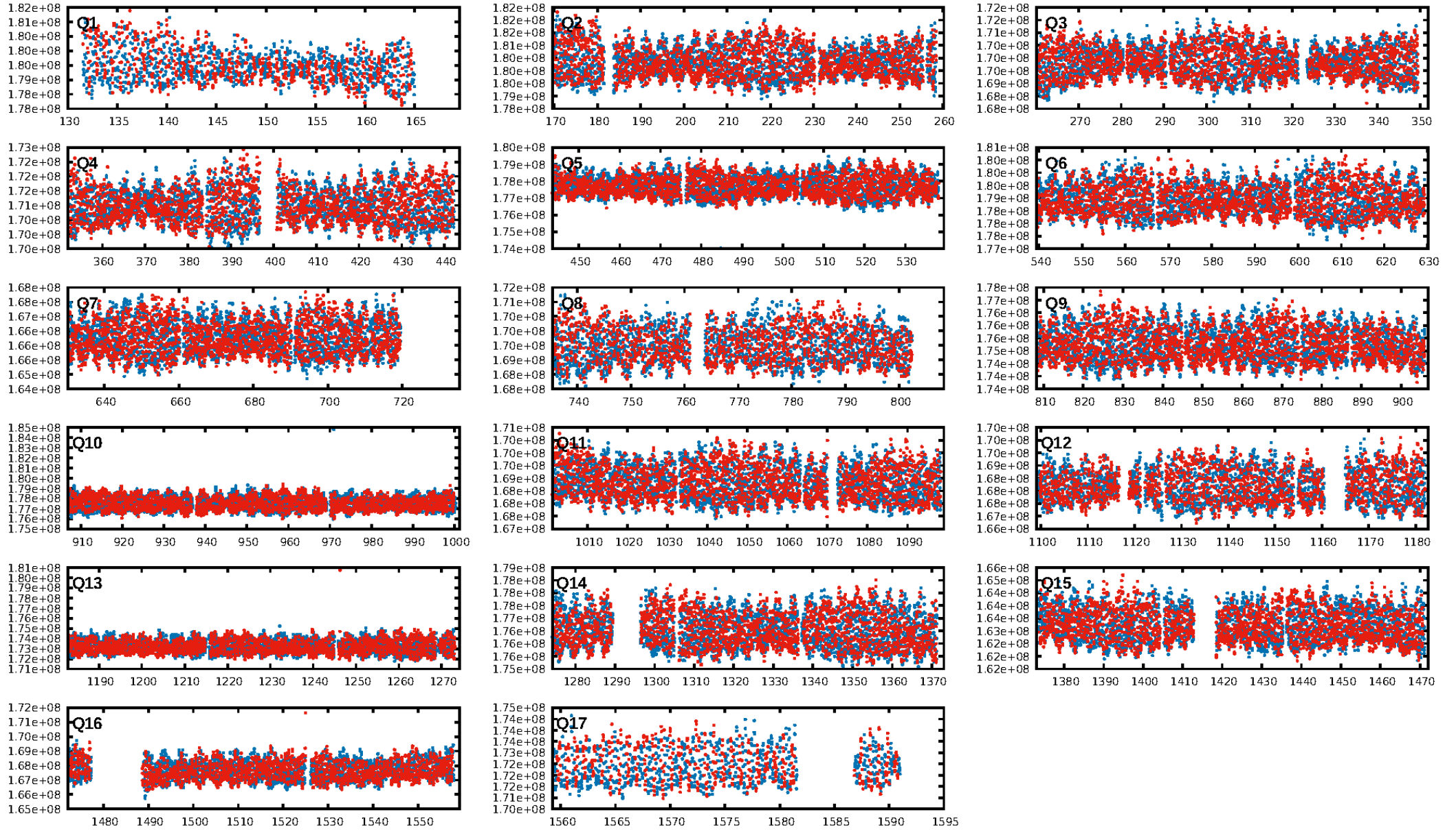
ShortPeriod-sig: 77.1% [1.20 $\sigma$ ]  
LongPeriod-sig: N/A  
ModelChiSquare2-sig: N/A  
ModelChiSquareGof-sig: N/A  
Bootstrap-pfa: 6.31e-14  
RollingBand-fgt: 0.88 [1343/1519]  
GhostDiagnostic-chr: 1.576  
Centroid-sig: 1.0%  
Centroid-so: 1.149 arcsec [1.60 $\sigma$ ]  
OotOffset-rm: 0.209 arcsec [1.38 $\sigma$ ]  
KicOffset-rm: 0.144 arcsec [0.62 $\sigma$ ]  
OotOffset-st: 4/4/3/5 [16]  
KicOffset-st: 4/4/3/5 [16]  
DiffImageQuality-fgm: 0.69 [11/16]  
DiffImageOverlap-fno: 0.00 [0/17]

Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 01-Feb-2016 09:03:57 Z

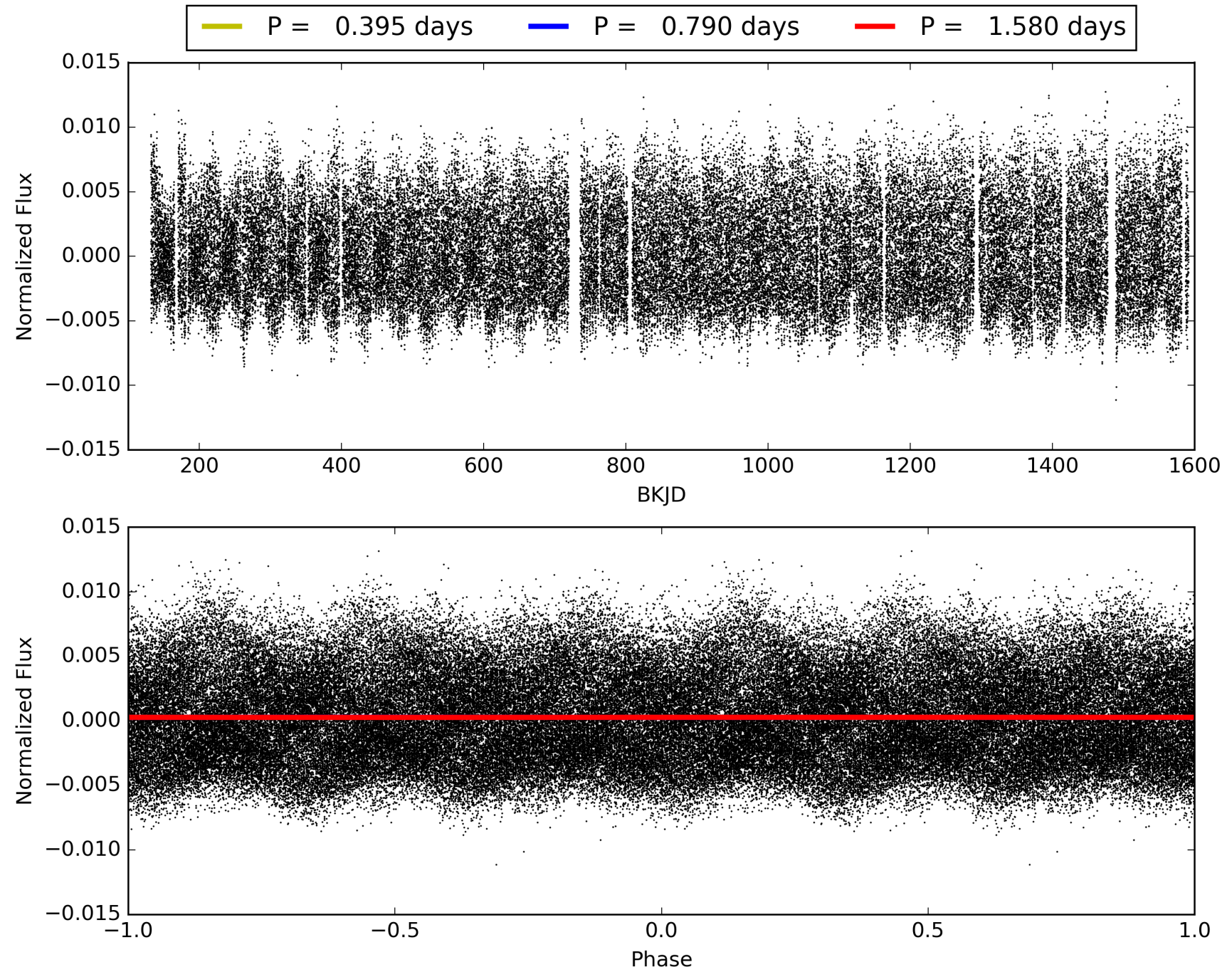
This Data Validation Report Summary was produced in the Kepler Science Operations Center Pipeline at NASA Ames Research Center



# TCE 007598492-02, PDC Light Curves

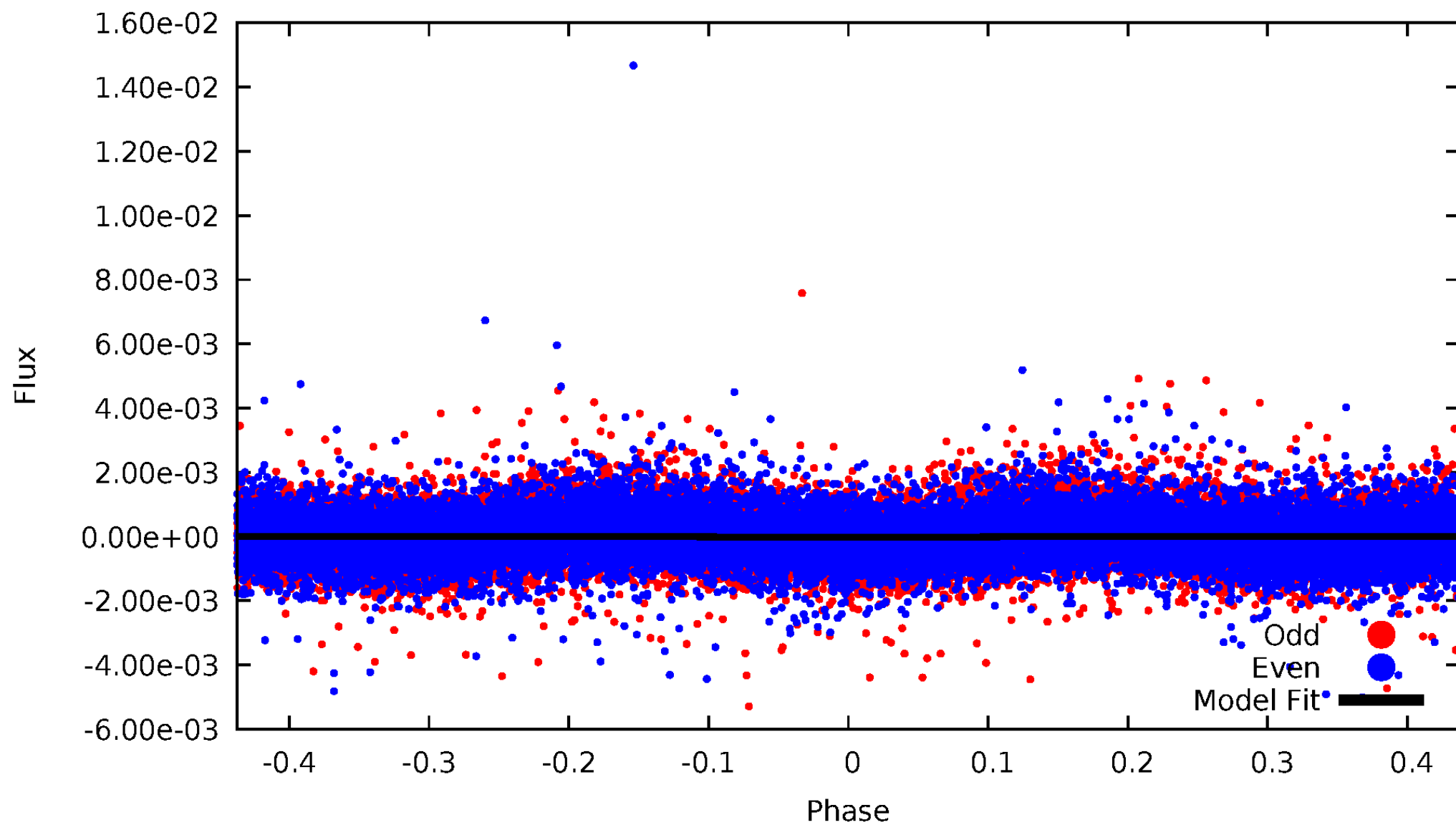


# TCE 007598492-02



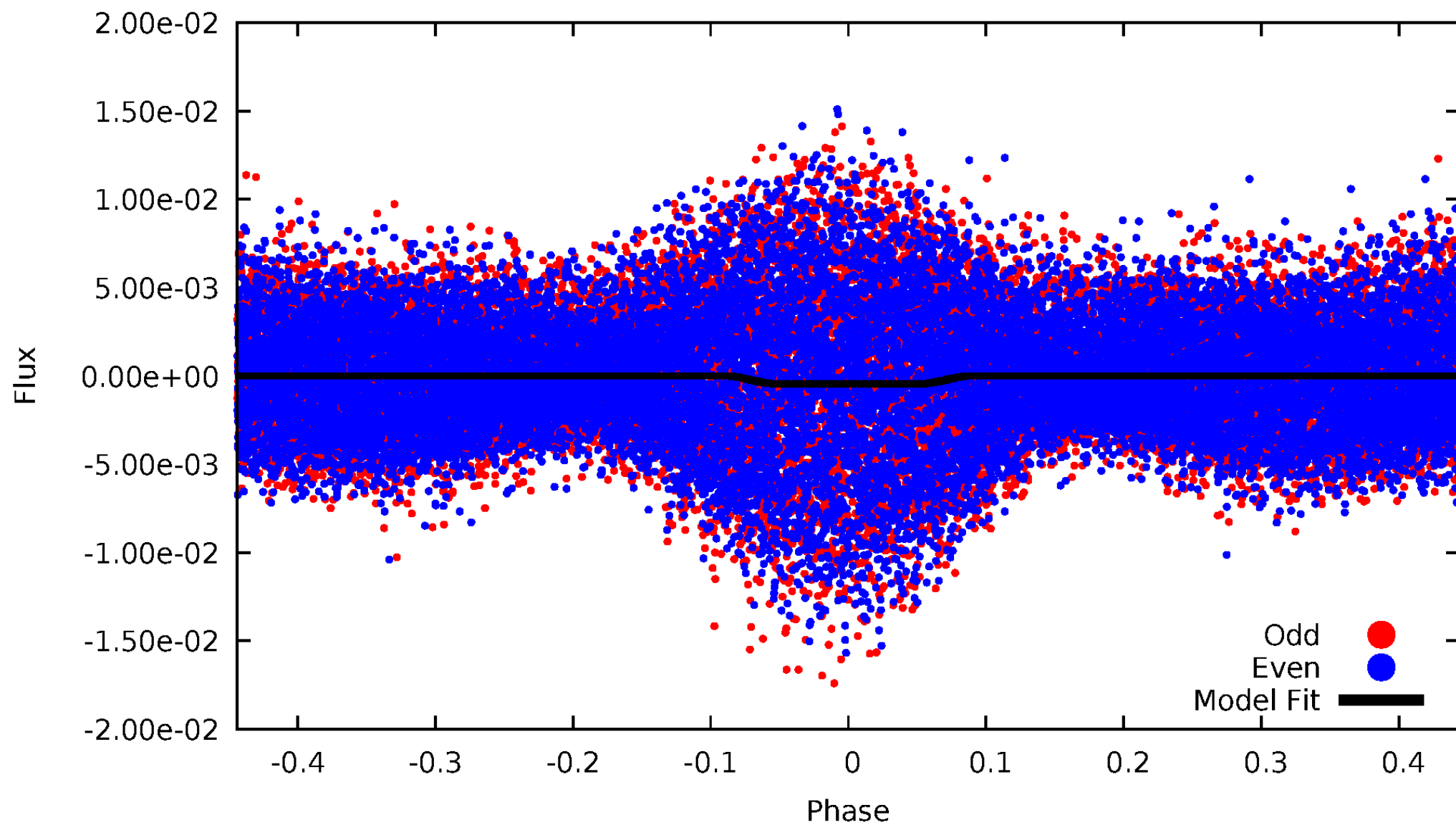
# DV Odd/Even

TCE 007598492-02



# ALT Odd/Even

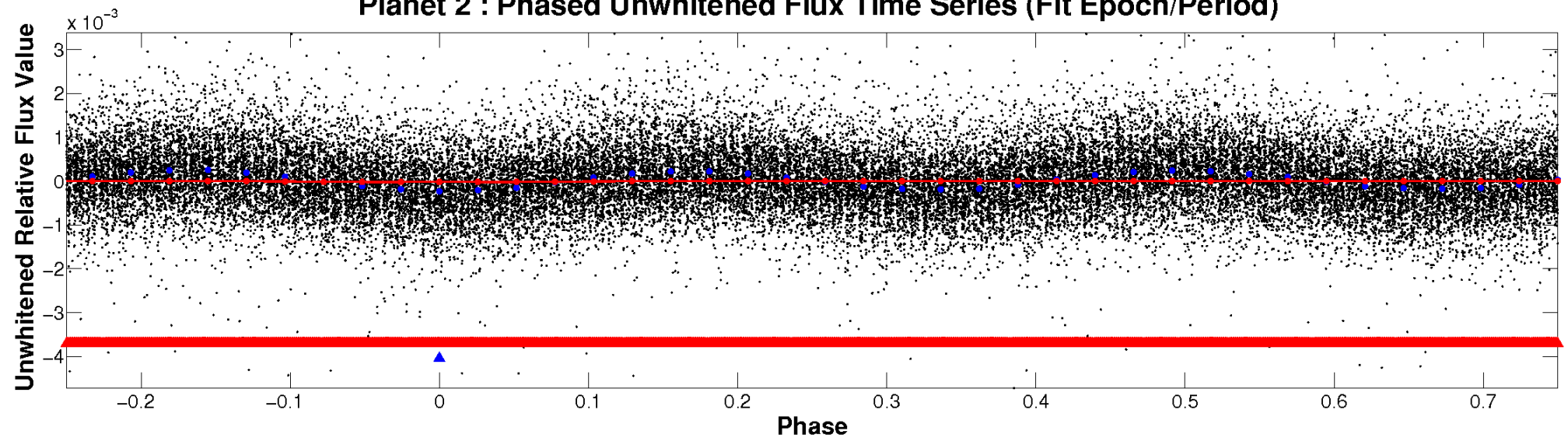
TCE 007598492-02



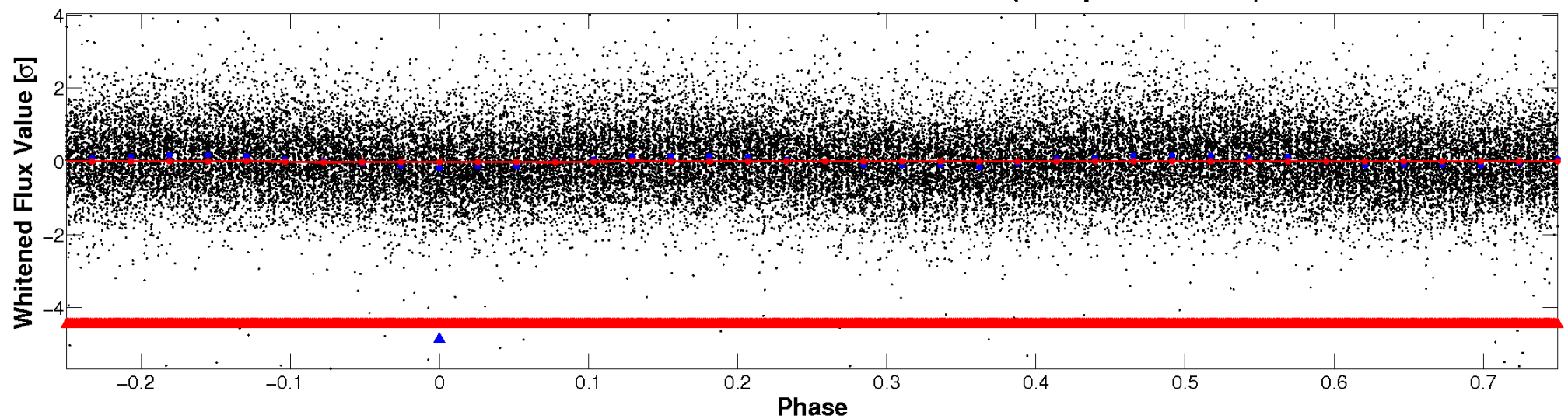


# Non-Whitened Vs. Whitened Light Curve

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



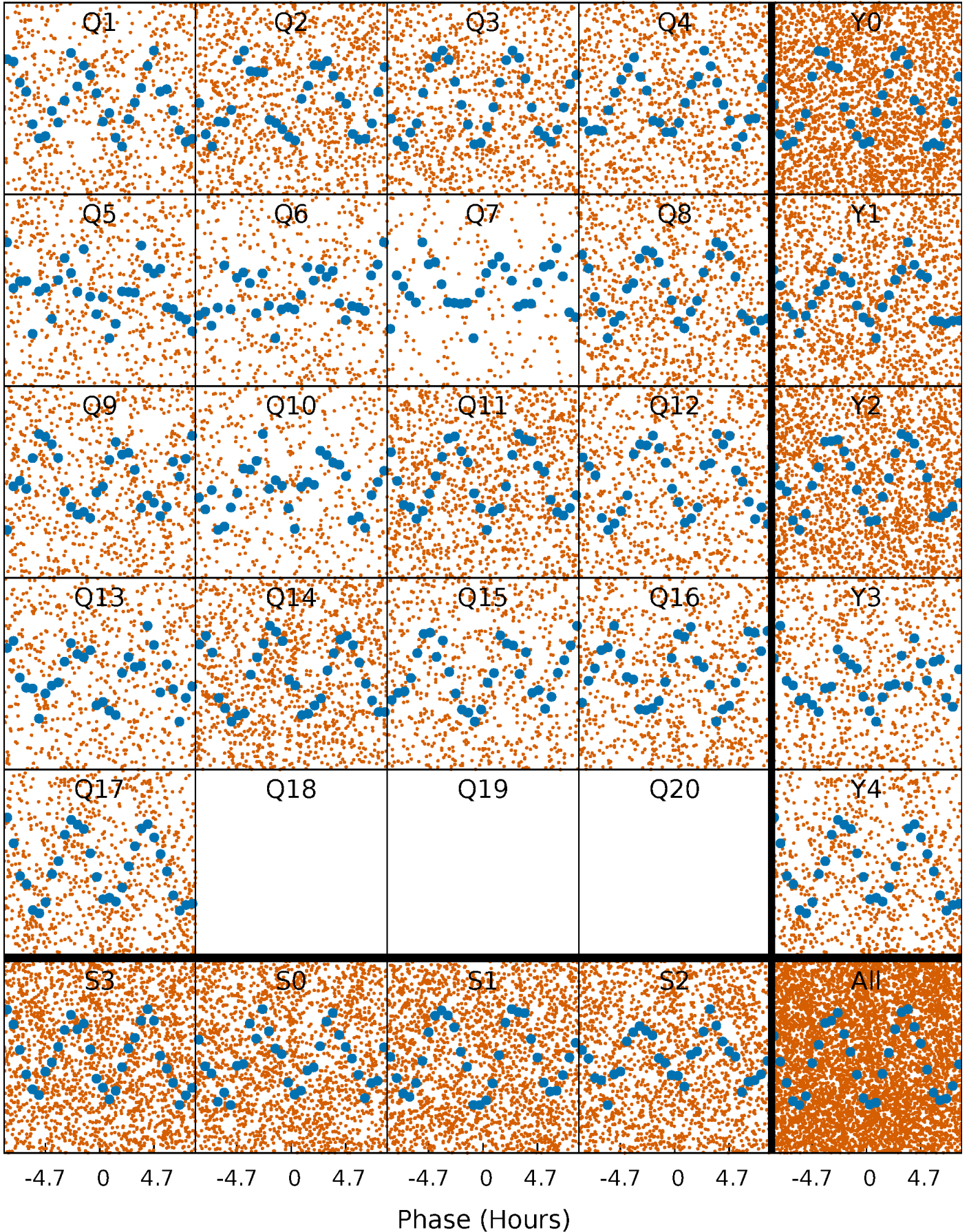
## Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)





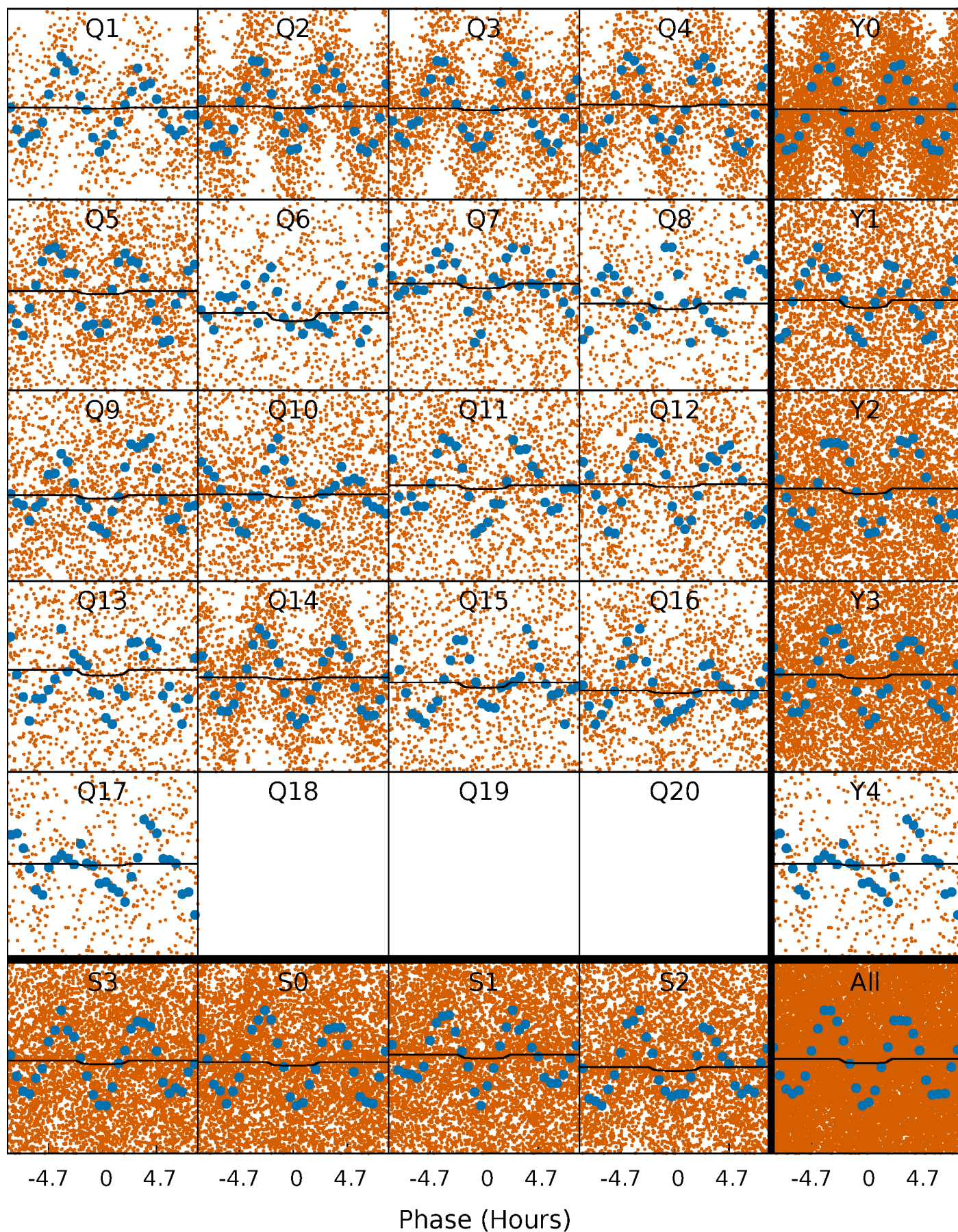
# PDC Quarter-Phased Transit Curves

TCE 007598492-02   P= 0.790079 Days    $T_0=132.150879$  (BKJD)



# DV Quarter-Phased Transit Curves

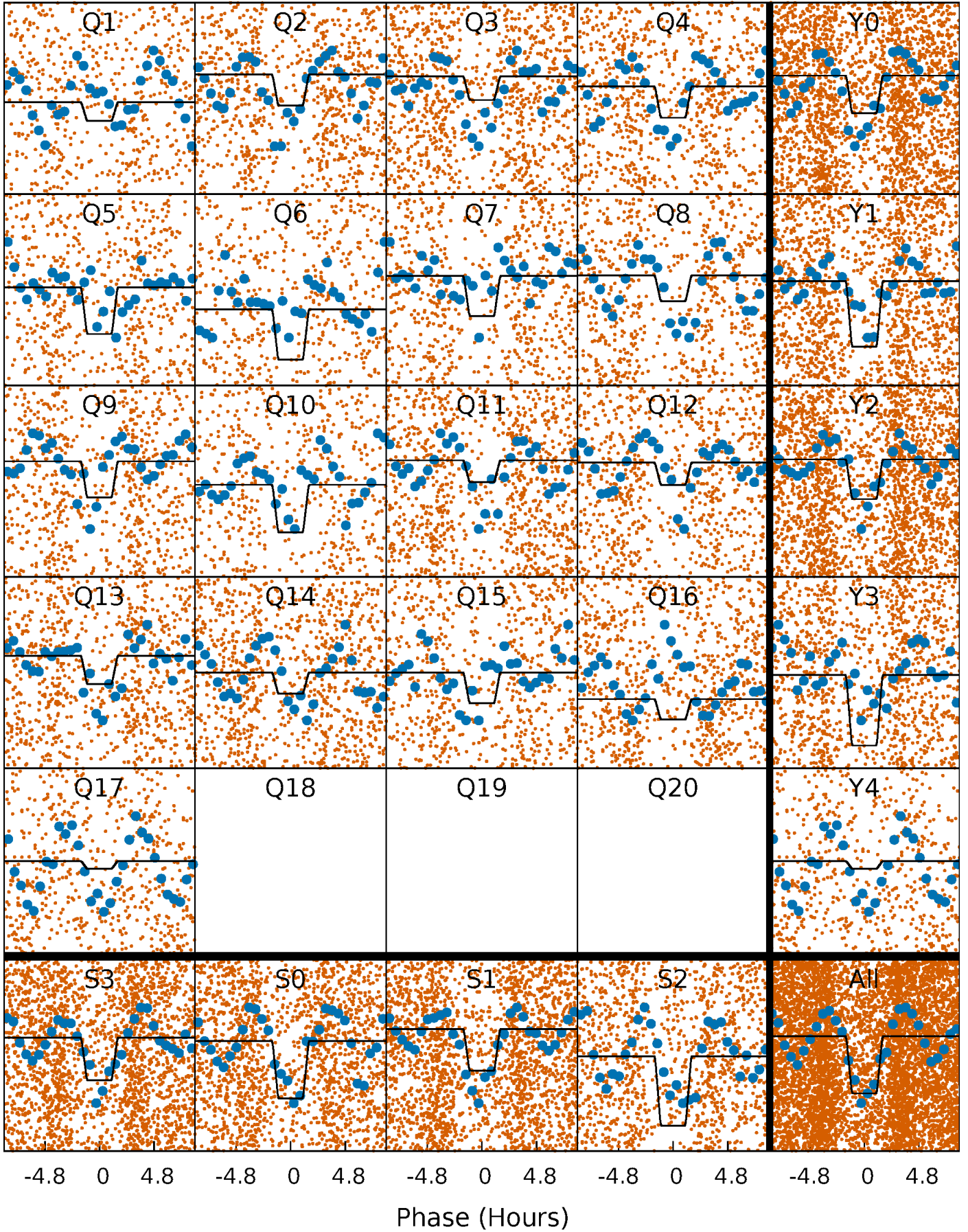
TCE 007598492-02   P= 0.790079 Days    $T_0=132.150879$  (BKJD)





# Alt. Detrend Quarter-Phased Transit Curves

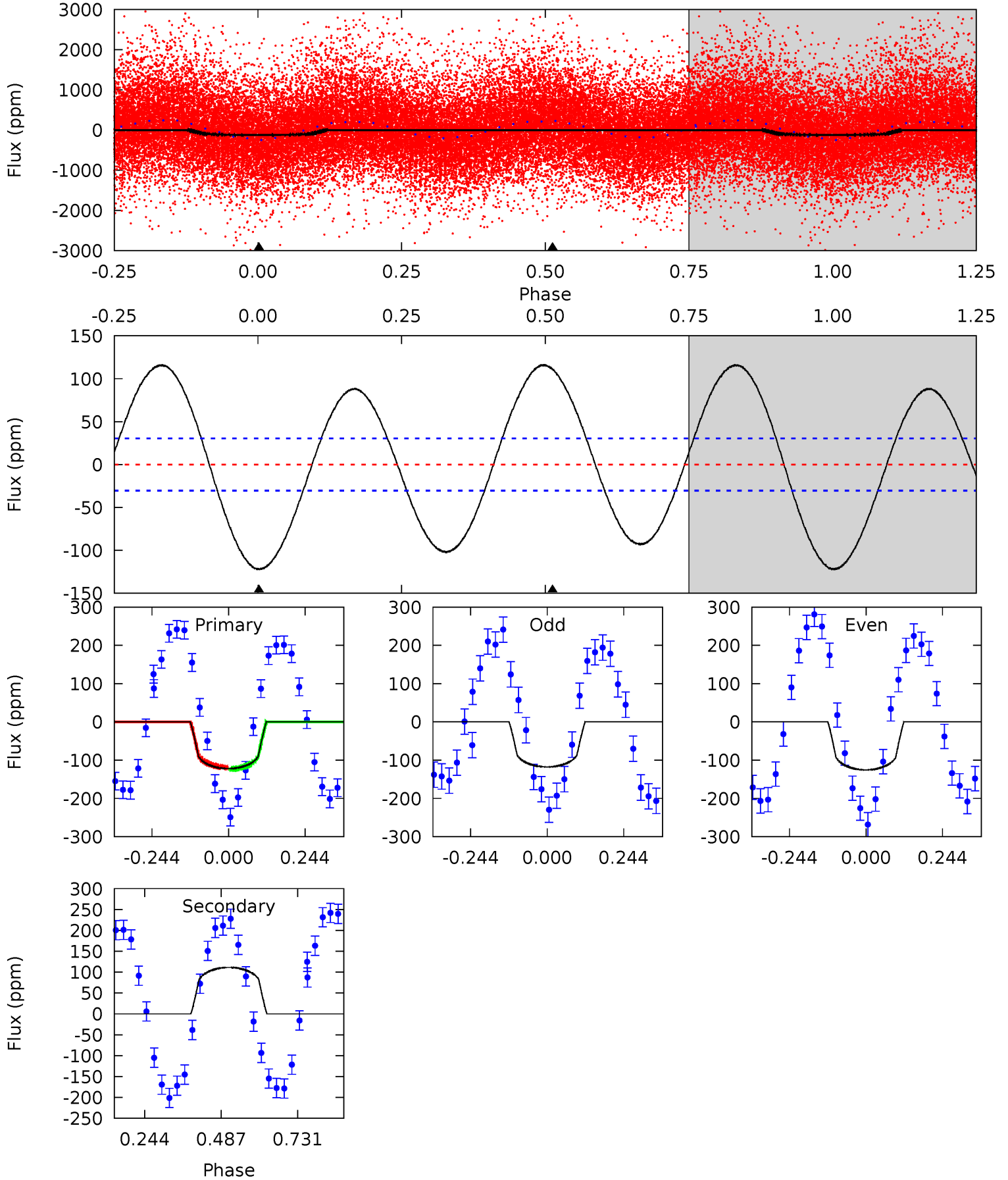
TCE 007598492-02 P= 0.790103 Days  $T_0=132.135970$  (BKJD)



# DV Model-Shift Uniqueness Test

007598492-02, P = 0.790079 Days, E = 131.360800 Days

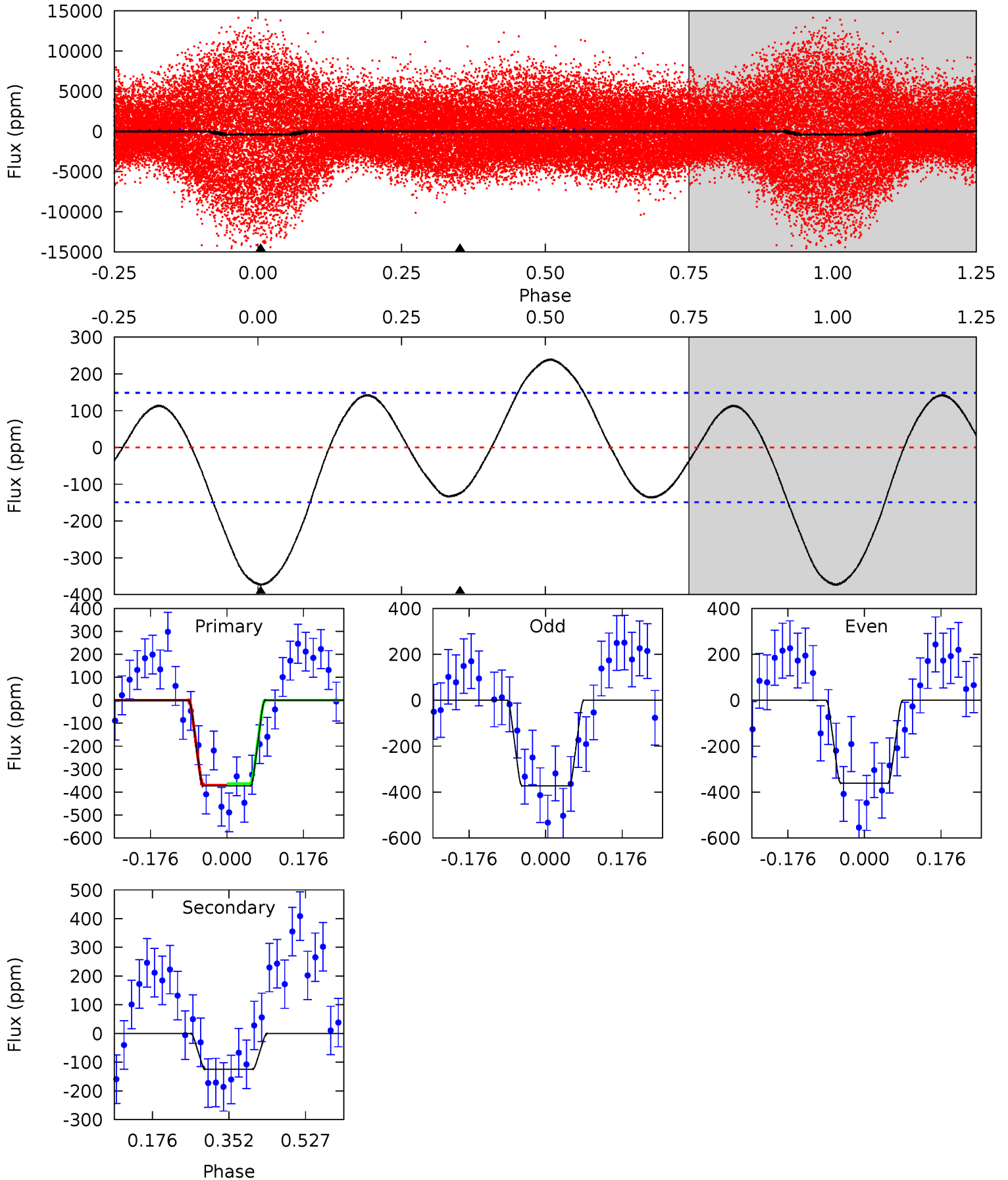
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
17.5	-16.0	0	0	4.37	1.17	5.55	17.5	17.5	-16.0	-16.0	0.57	0.84	0.49	0.30



# Alt Model-Shift Uniqueness Test

007598492-02, P = 0.790103 Days, E = 131.345867 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
11.2	3.73	0	0	4.45	1.35	3.27	11.2	11.2	3.73	3.73	0.17	32.8	0.39	0.10



### Stellar Parameters For KIC 007598492

	$T_{\text{eff}} (K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R (R_{\odot})$	$M (M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	$7512^{+235}_{-314}$	$3.981^{+0.260}_{-0.140}$	$-0.240^{+0.250}_{-0.350}$	$2.150^{+0.544}_{-0.665}$	$1.613^{+0.196}_{-0.294}$	$0.229^{+0.373}_{-0.103}$
	+3%/-4%	+7%/-4%	+104%/-146%	+25%/-31%	+12%/-18%	+163%/-45%
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 007598492-02 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	$A_{\text{obs}}$
DV	$111 \pm 7$	$1.06^{+0.68}_{-0.55}$	$4753^{+374}_{-404}$	$-13238^{+4086}_{-16093}$	$-20.600^{+12.839}_{-69.339}$
Alt.	$-125 \pm 33$	$4.70^{+0.99}_{-0.90}$	$4784^{+344}_{-383}$	$5061^{+635}_{-607}$	$1.158^{+0.763}_{-0.442}$

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

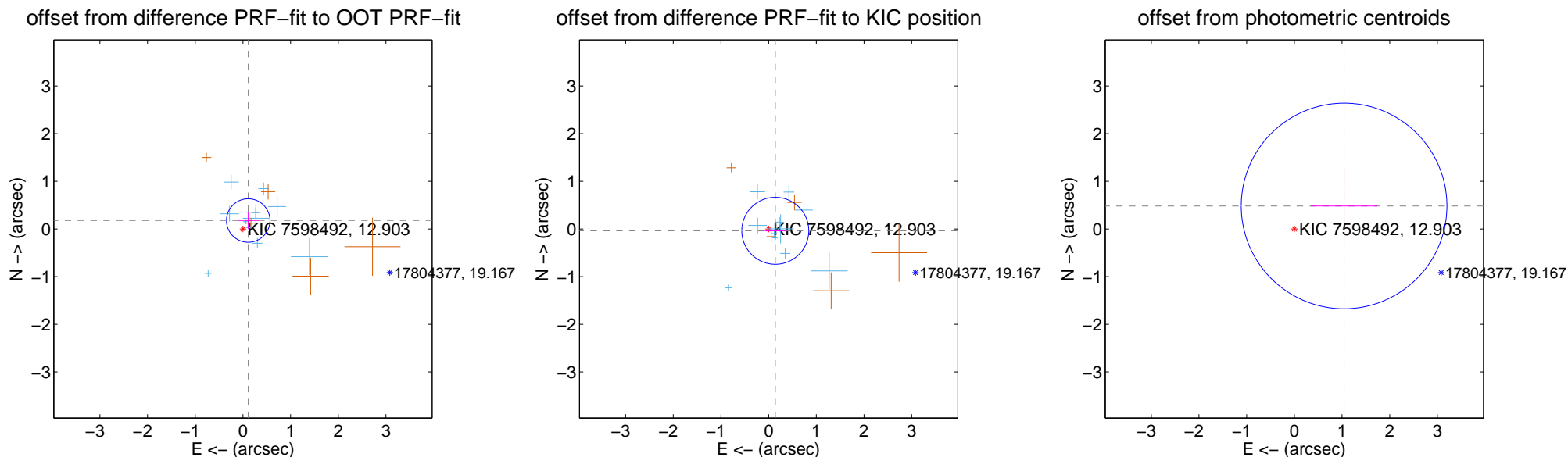
## DV Centroid Data

Supplemental centroid analysis for 007598492-02. Kepler magnitude: 12.90. Transit SNR 1.98

There are 11 quarters with good PRF difference image offsets

The direct PRF centroid is offset from the target star catalog position by about 0.23 arcsec

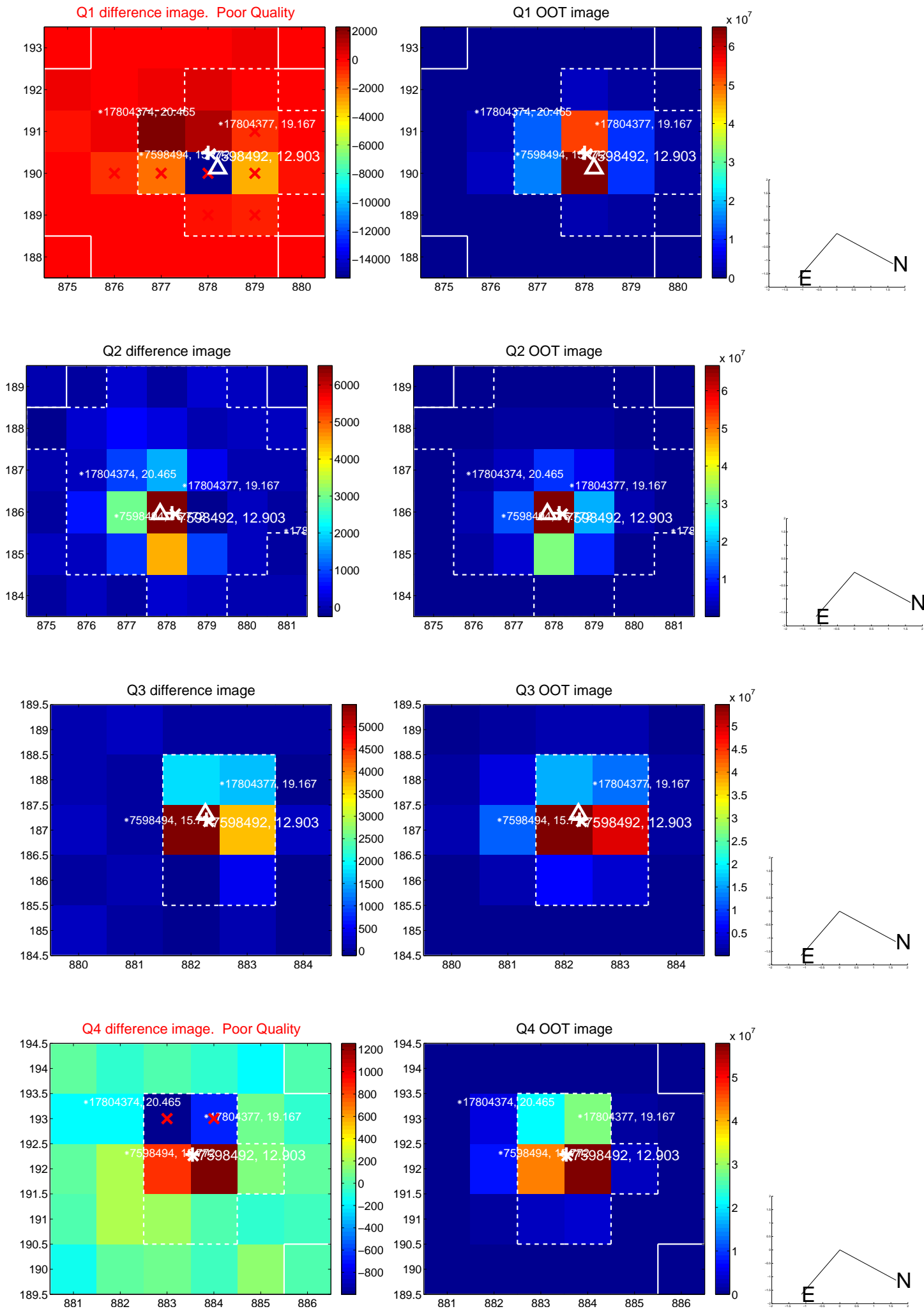
	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$0.209 \pm 0.152$	1.38	$-0.111 \pm 0.218$	$0.178 \pm 0.180$
PRF-fit source offset from KIC position	$0.144 \pm 0.234$	0.62	$-0.139 \pm 0.222$	$-0.038 \pm 0.191$
photometric centroid source offset	$1.15 \pm 0.72$	1.60	$-1.04 \pm 0.70$	$0.48 \pm 0.81$



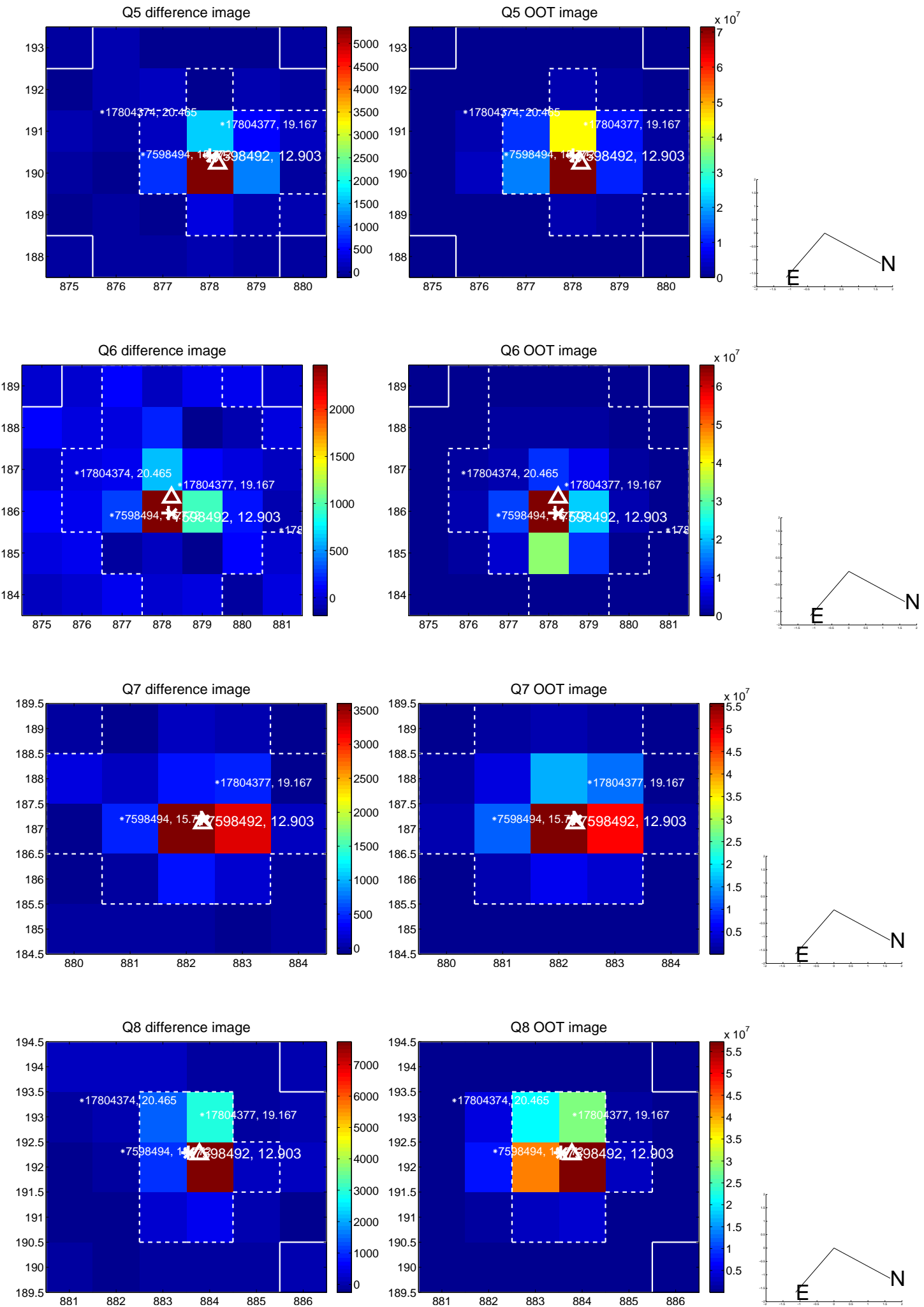
Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: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



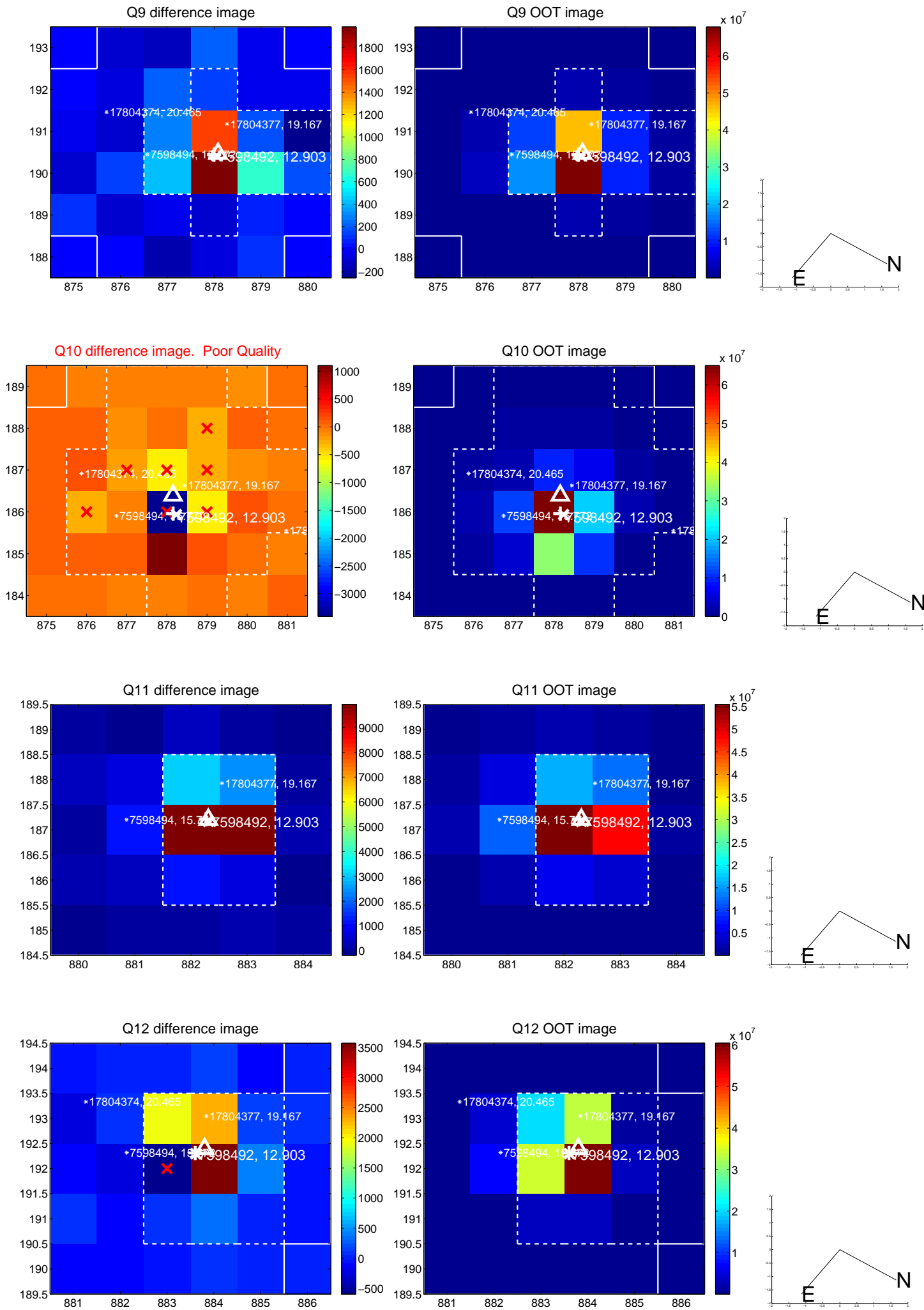
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



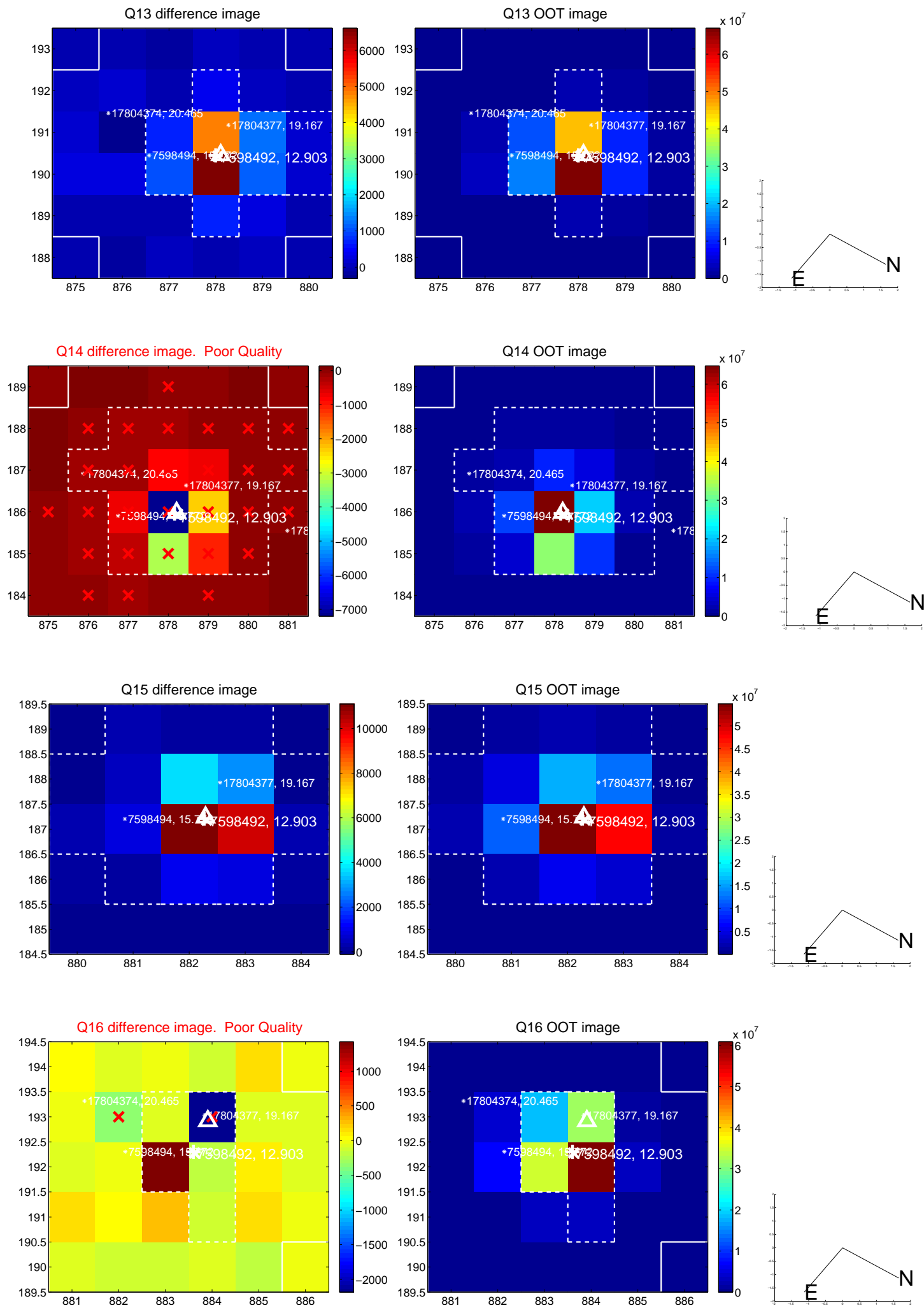
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



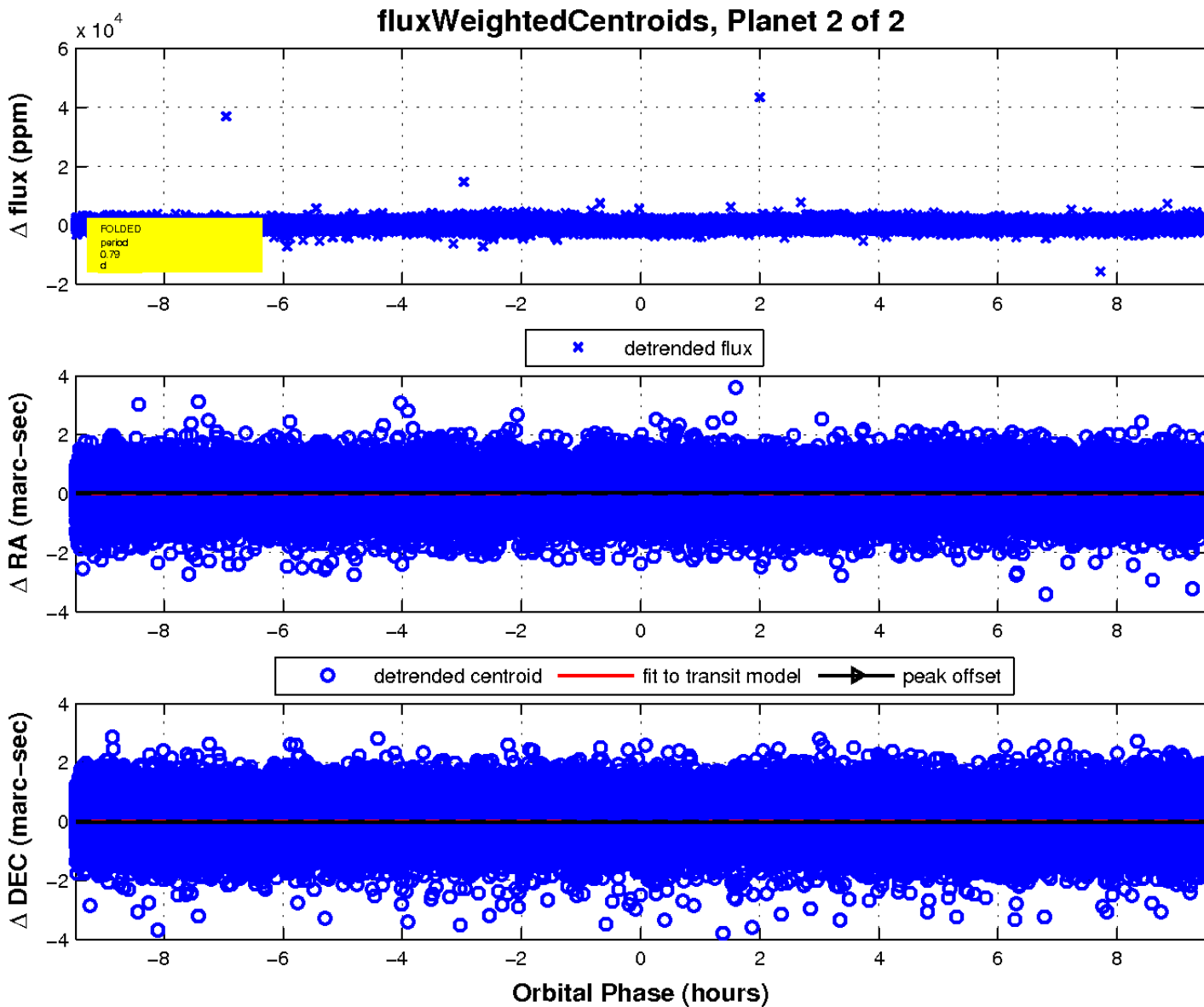
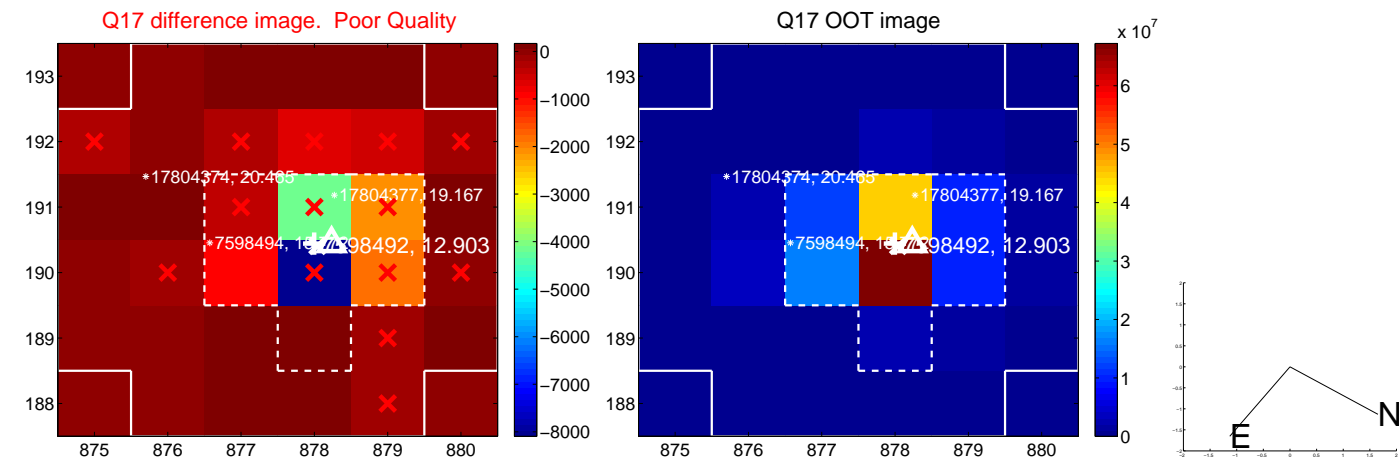
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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

