

# KIC 005174492

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
005174492-01	OBS	No	1.129874	132.545149	23.2	3.014	9.7	5.9	2.21	8497	1.24	30924.97
005174492-02	OBS	6534.01	0.720534	132.022155	33.9	5.267	7.9	8.1	2.21	8497	1.36	56339.13

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
005174492-01	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_SKYE_ZUMA_TRACKER—LPP_DV—LPP_ALT—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_KIC_POS
005174492-02	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—CENT_KIC_POS

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

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

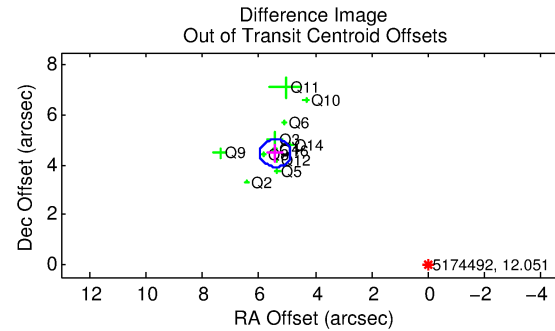
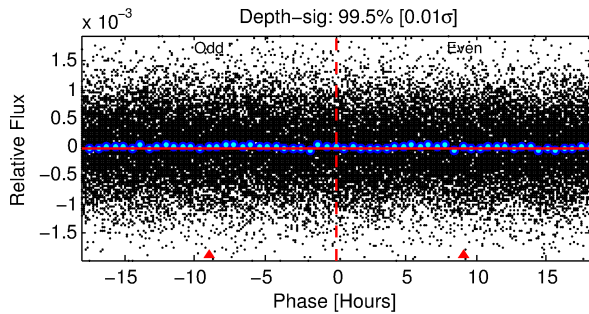
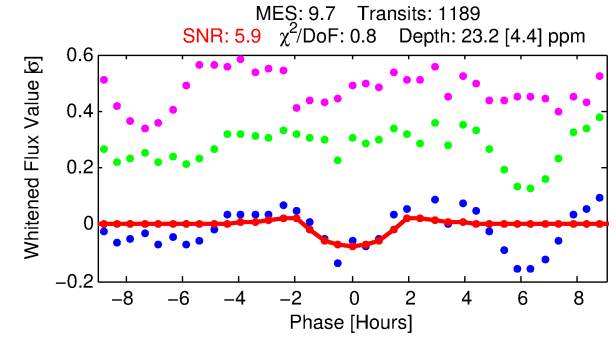
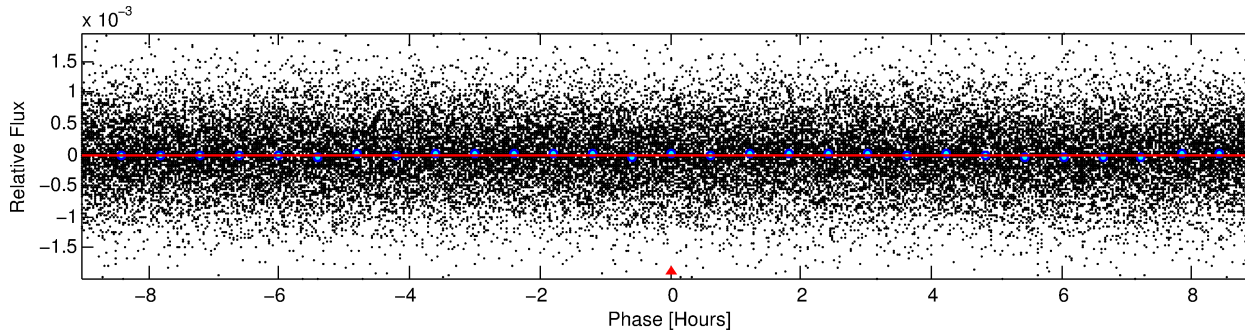
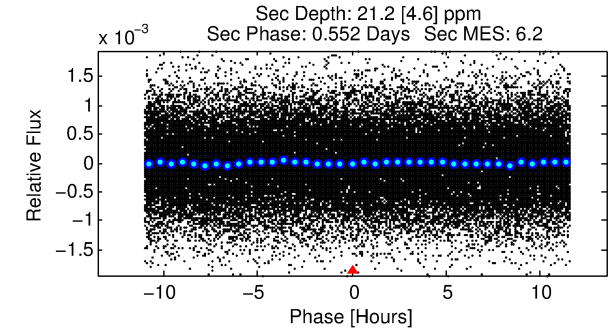
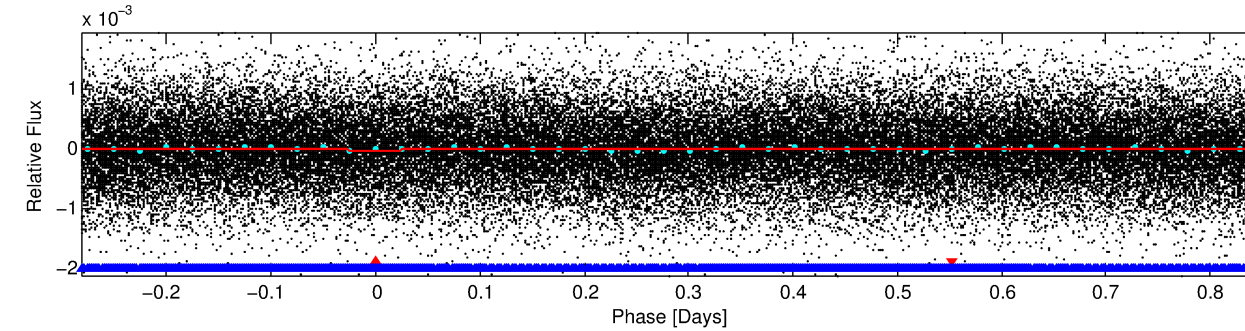
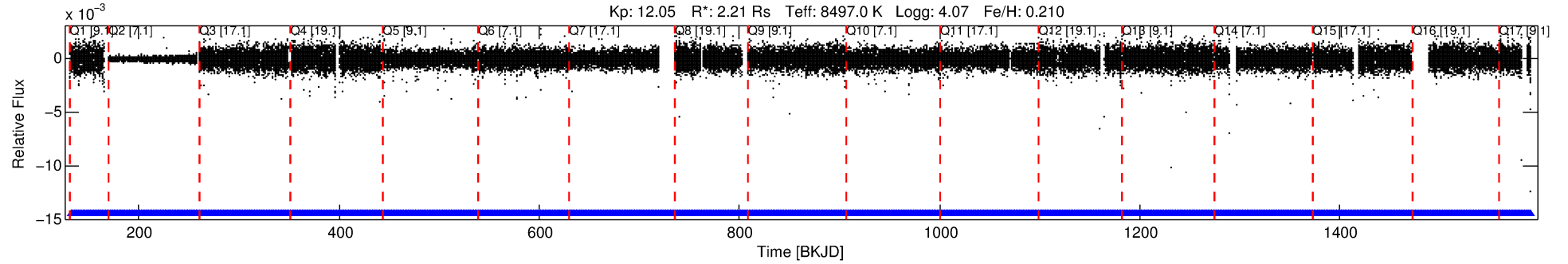
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

## Ephemeris Match Information For 005174492-01

No Significant Match Found

# DV One-Page Summary

KIC: 5174492 Candidate: 1 of 2 Period: 1.130 d  
KOI: K06534 Corr: No Ephemeris Match



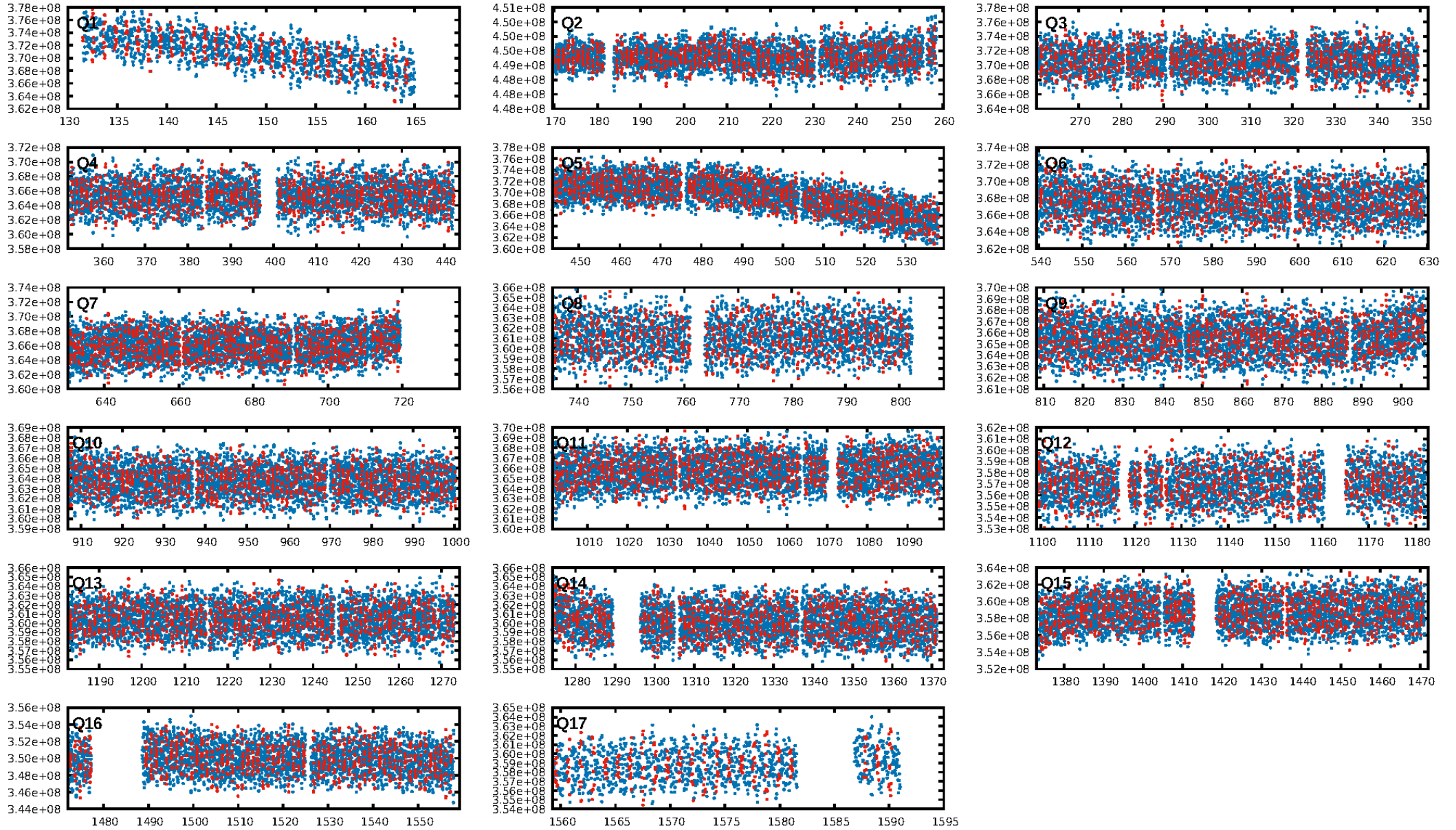
## DV Fit Results:

Period = 1.12987 [0.00002] d  
Epoch = 132.5451 [0.0059] BKJD  
Rp/R\* = 0.0051 [0.0023]  
a/R\* = 1.58 [2.77]  
b = 0.90 [0.62]  
Seff = 30924.97 [11641.00]  
Teff = 3381 [318] K  
Rp = 1.24 [0.66] Re  
a = 0.0272 [0.0063] AU  
Ag = 5.62 [5.50] [0.84σ]  
Teffp = 8051 [1896] K [2.43σ]

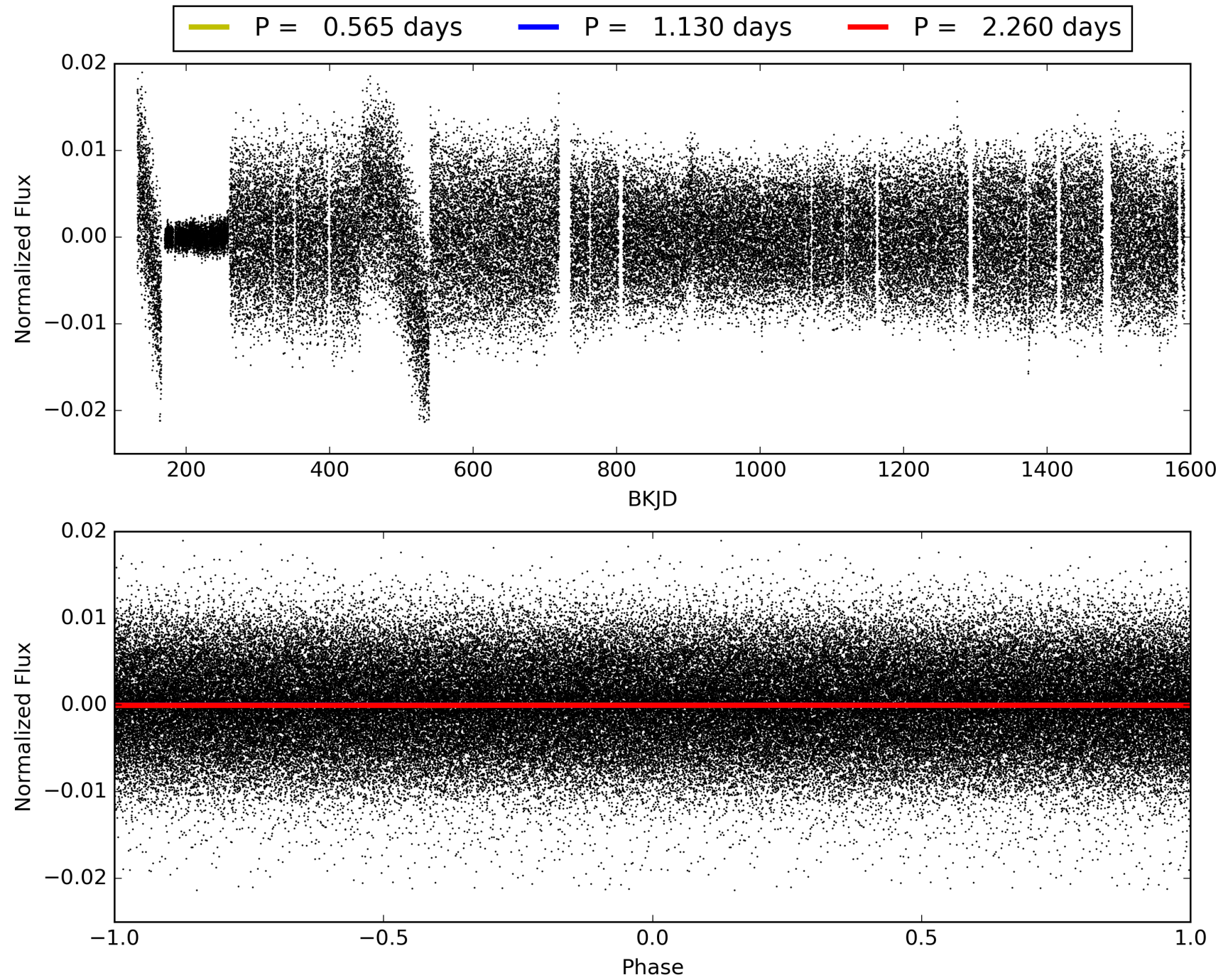
## DV Diagnostic Results:

ShortPeriod-sig: 89.5% [1.62σ]  
LongPeriod-sig: N/A  
ModelChiSquare2-sig: N/A  
ModelChiSquareGof-sig: N/A  
Bootstrap-pfa: 1.02e-52  
RollingBand-fgt: 1.00 [1137/1137]  
GhostDiagnostic-chr: N/A  
Centroid-sig: 0.3%  
Centroid-so: 3.410 arcsec [4.72σ]  
OotOffset-rm: 7.015 arcsec [38.49σ]  
KicOffset-rm: 0.121 arcsec [0.42σ]  
OotOffset-st: 4/2/4/2 [12]  
KicOffset-st: 4/2/4/5 [15]  
DiffImageQuality-fgm: 0.53 [8/15]  
DiffImageOverlap-fno: 0.00 [0/17]

# TCE 005174492-01, PDC Light Curves

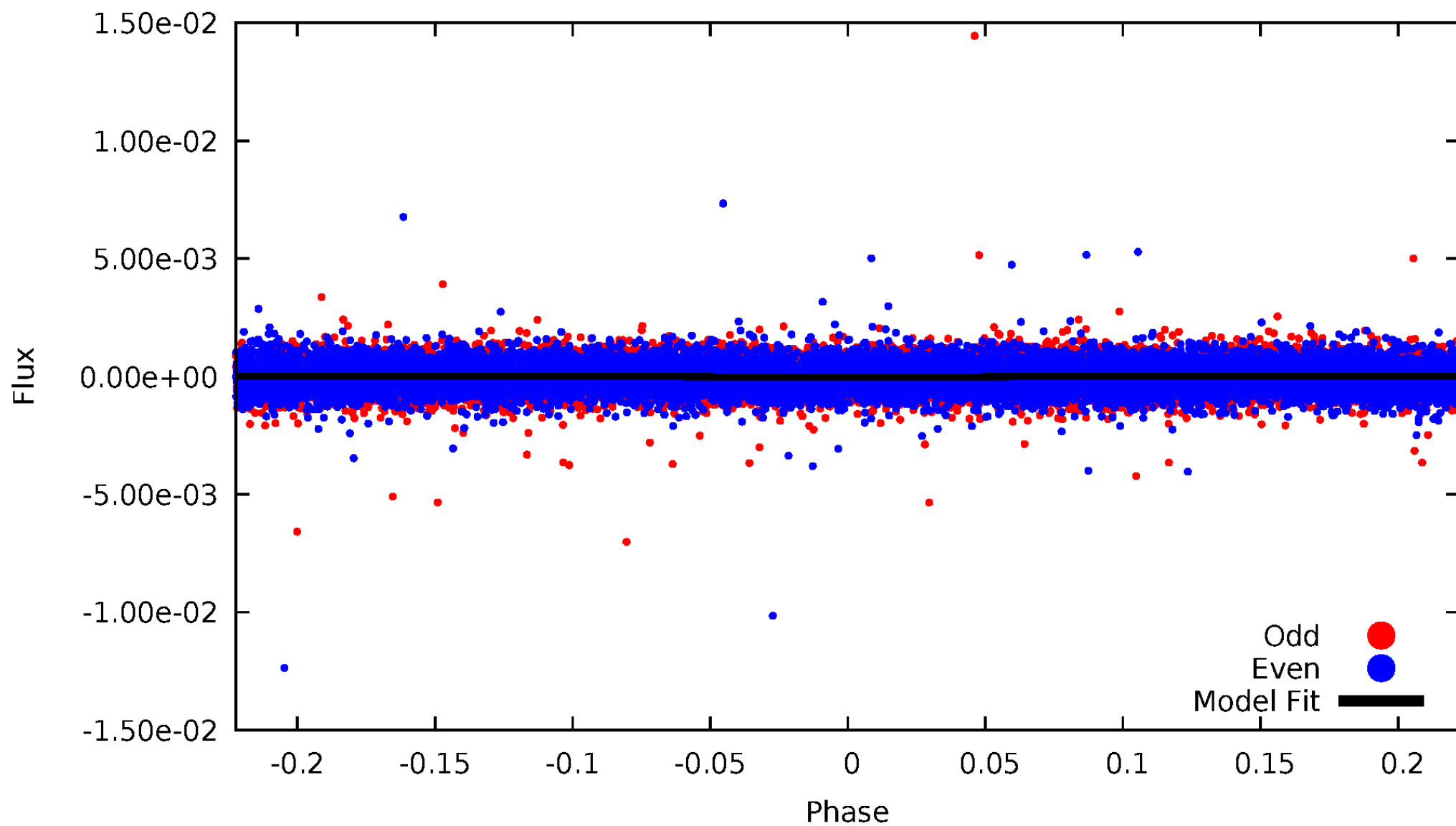


TCE 005174492-01



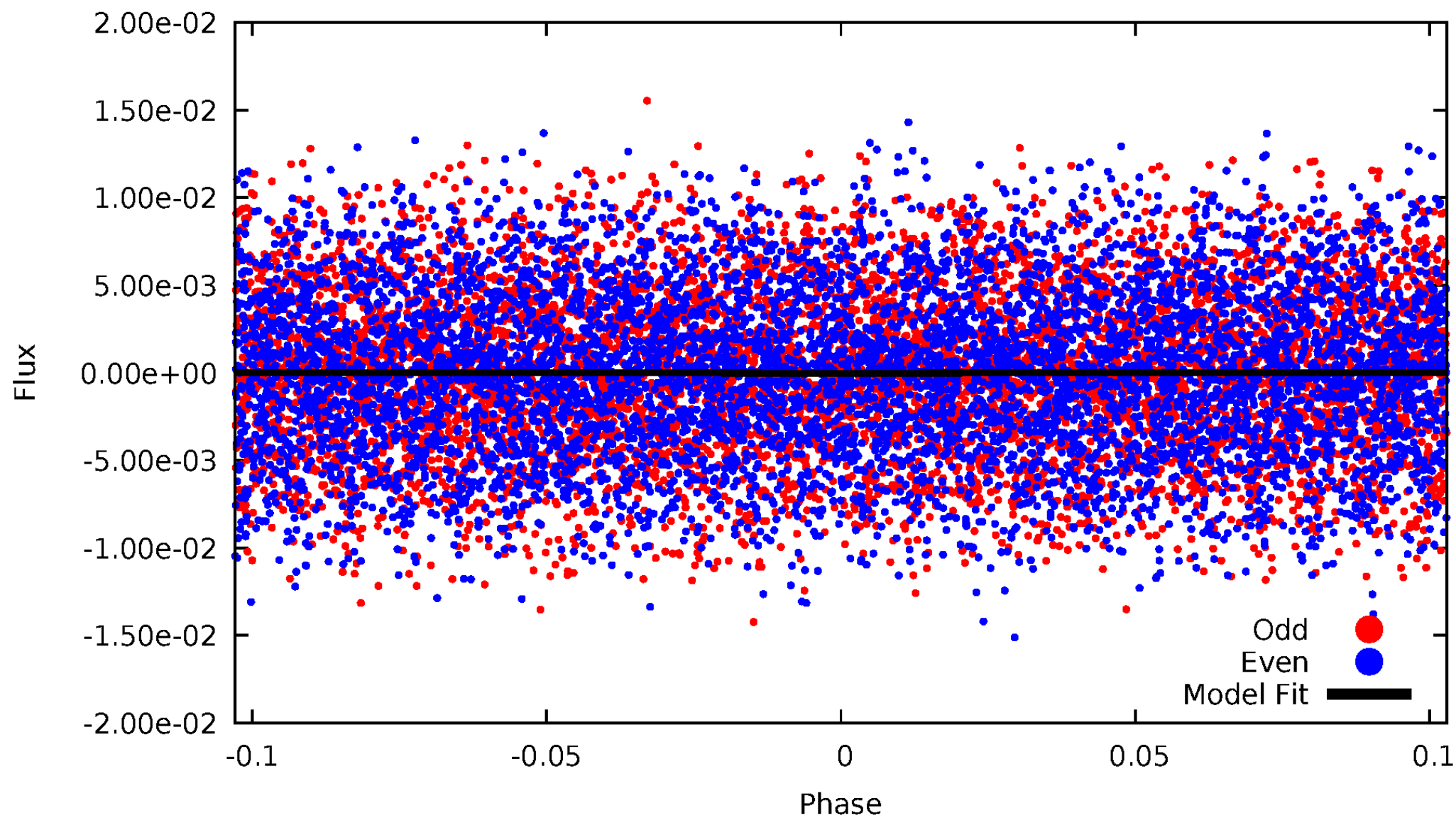
# DV Odd/Even

TCE 005174492-01



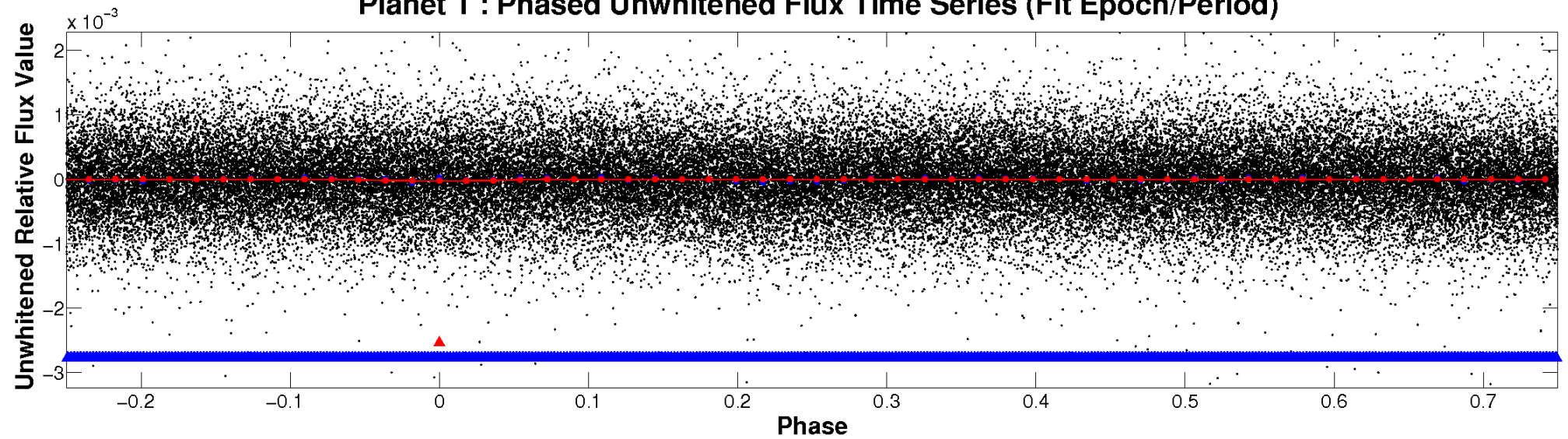
# ALT Odd/Even

TCE 005174492-01

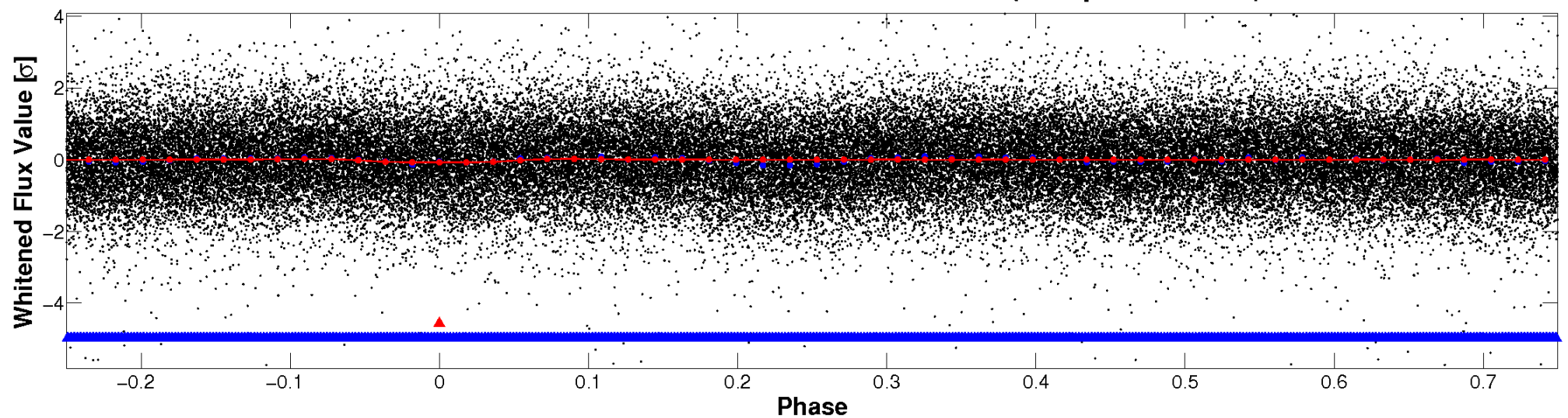


# Non-Whitened Vs. Whitened Light Curve

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

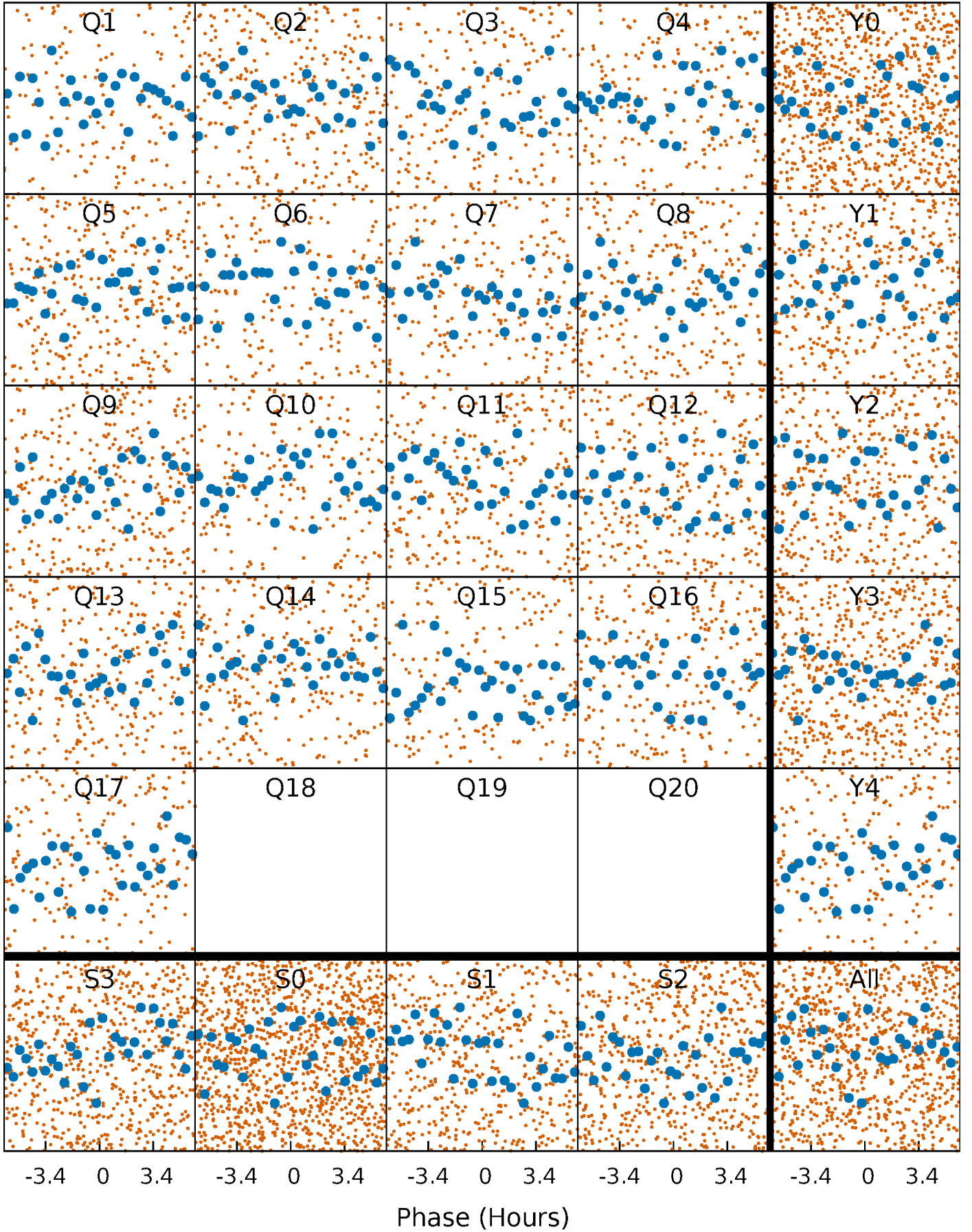


**Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)**



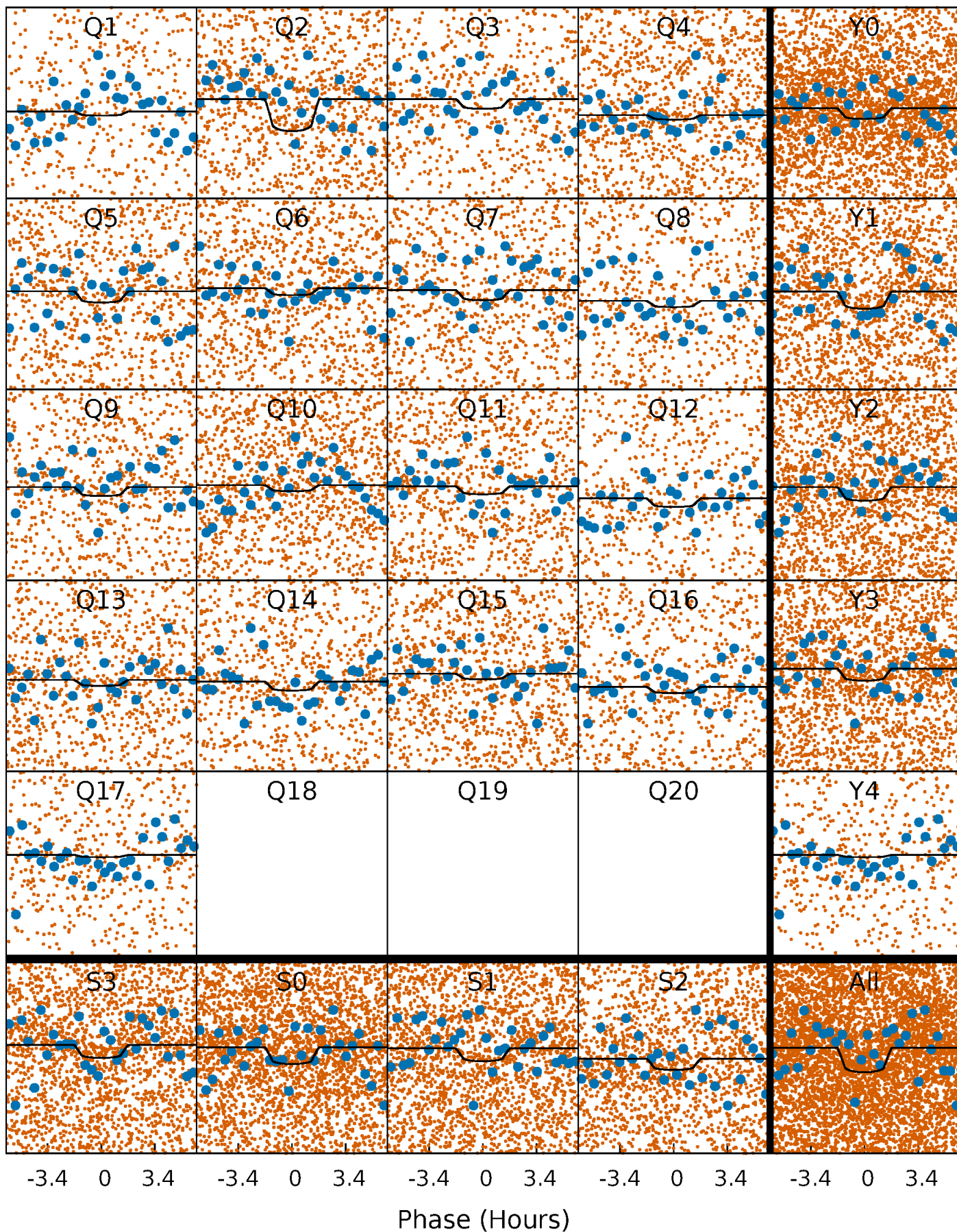
# PDC Quarter-Phased Transit Curves

TCE 005174492-01   P= 1.129874 Days    $T_0=132.545149$  (BKJD)



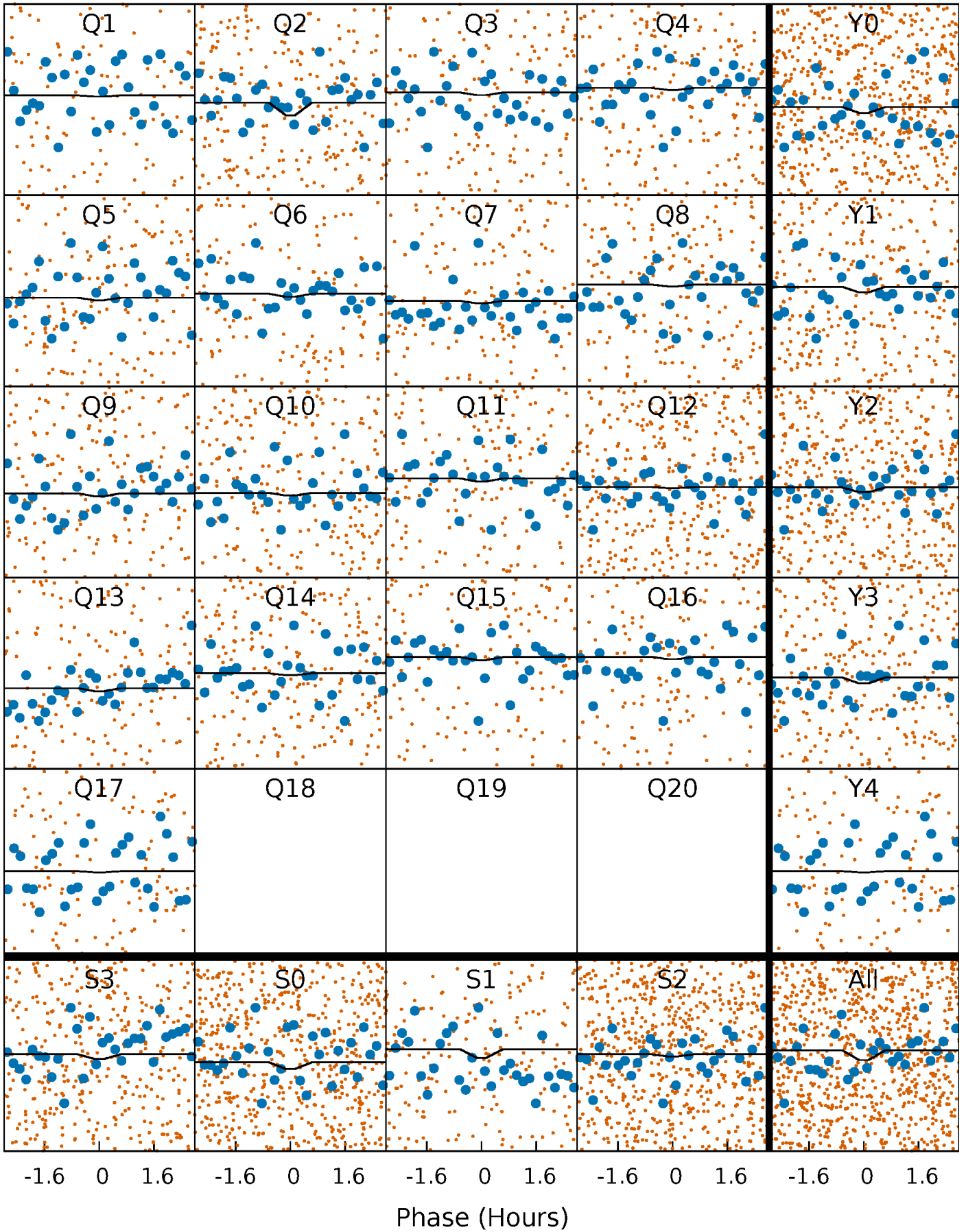
# DV Quarter-Phased Transit Curves

TCE 005174492-01 P= 1.129874 Days  $T_0=132.545149$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

TCE 005174492-01   P= 1.129958 Days    $T_0=132.529851$  (BKJD)

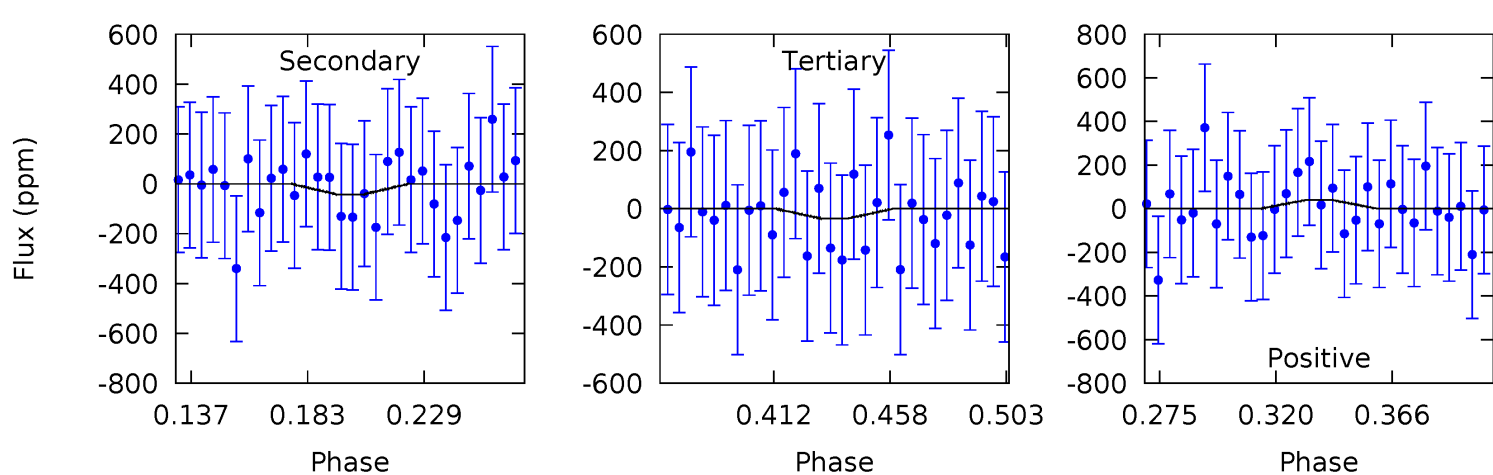
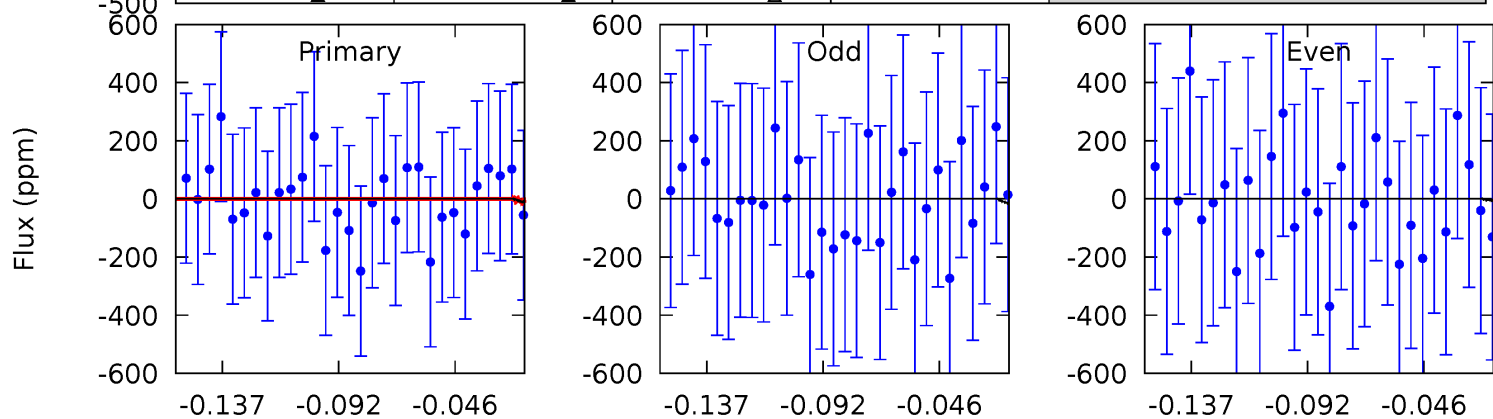
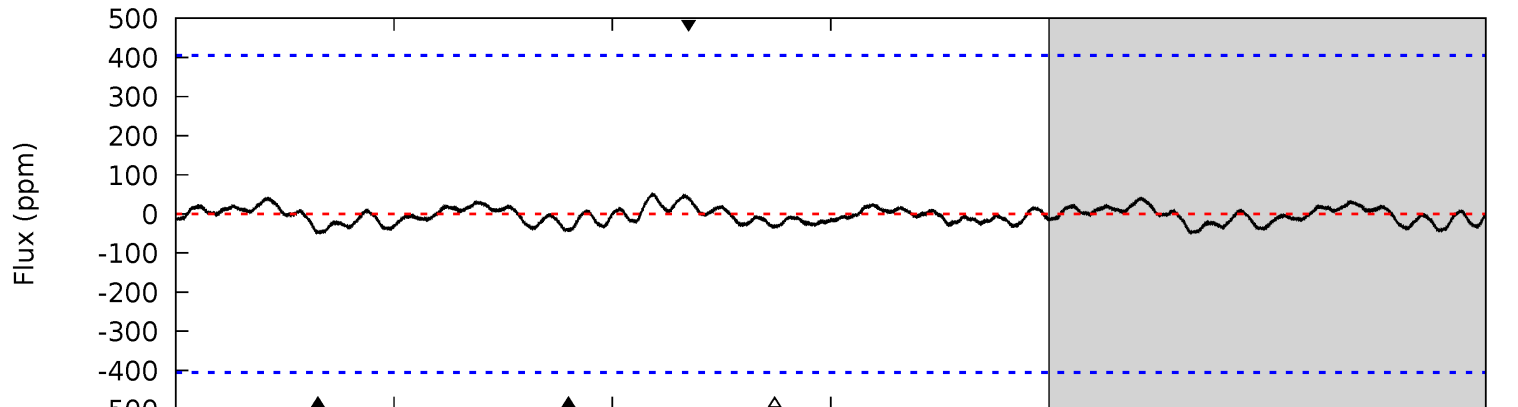
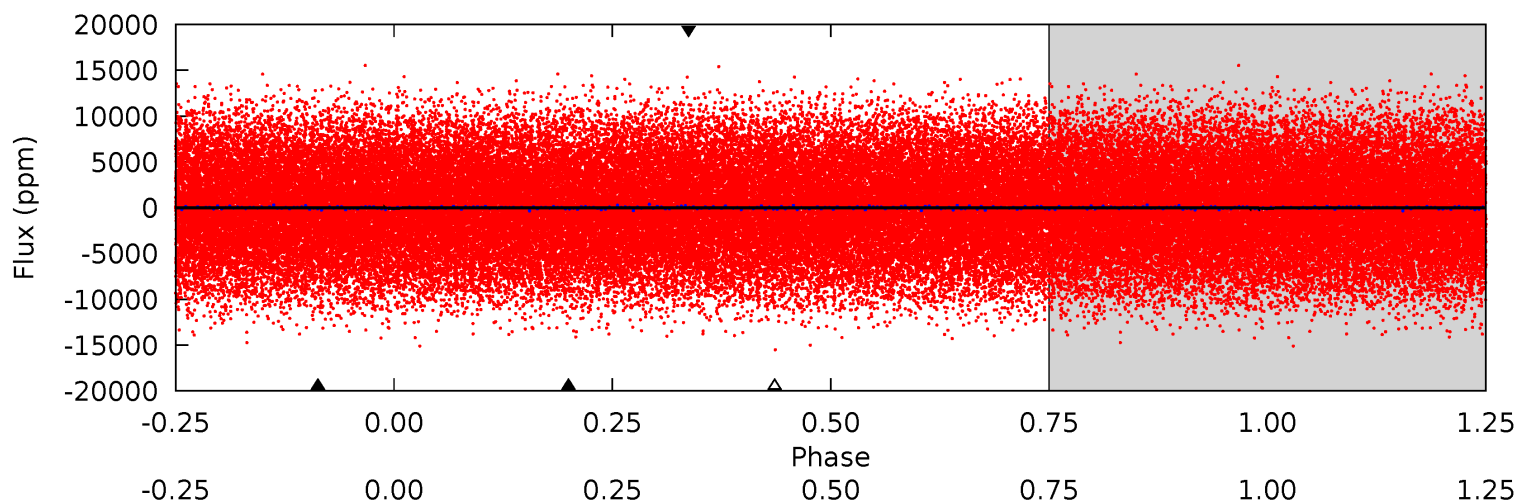




# Alt Model-Shift Uniqueness Test

005174492-01, P = 1.129958 Days, E = 131.399893 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
0.57	0.51	0.40	0.47	4.73	2.00	0.21	0.17	0.10	0.11	0.04	0.24	0.53	0.51	0.05



### Stellar Parameters For KIC 005174492

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R$ ( $R_{\odot}$ )	$M$ ( $M_{\odot}$ )	$p_{\star}$ ( $\text{g}\cdot\text{cm}^{-3}$ )
	$8497^{+237}_{-407}$	$4.070^{+0.140}_{-0.171}$	$0.210^{+0.150}_{-0.600}$	$2.211^{+0.630}_{-0.515}$	$2.095^{+0.318}_{-0.437}$	$0.273^{+0.215}_{-0.128}$
	+3%/-5%	+3%/-4%	+71%/-286%	+28%/-23%	+15%/-21%	+79%/-47%
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 005174492-01 / KOI

Detrend	Depth (ppm)	$R_p$ ( $R_{\oplus}$ )	$T_{max}$ (K)	$T_{obs}$ (K)	$A_{obs}$
DV	$-8 \pm 6$	$1.25^{+0.67}_{-0.54}$	$4729^{+366}_{-317}$	$5400^{+2752}_{-2704}$	$1.624^{+4.562}_{-1.300}$
Alt.	$-43 \pm 86$	$1.41^{+0.63}_{-0.56}$	$4733^{+358}_{-305}$	$8594^{+6908}_{-18160}$	$7.077^{+26.629}_{-16.641}$

$T_{max}$  = 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

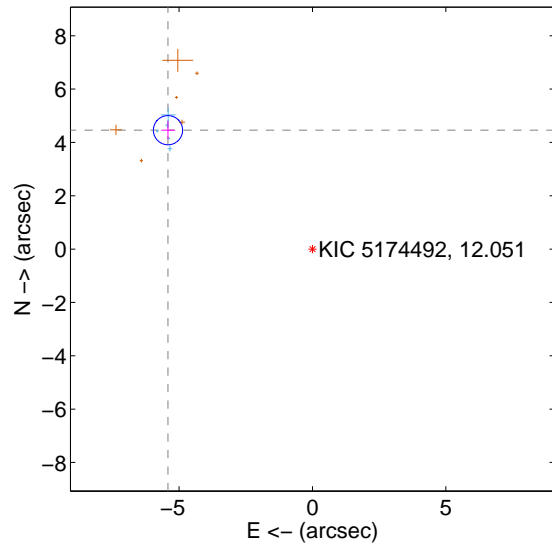
Supplemental centroid analysis for 005174492-01. Kepler magnitude: 12.05. Transit SNR 5.93

There are 8 quarters with good PRF difference image offsets

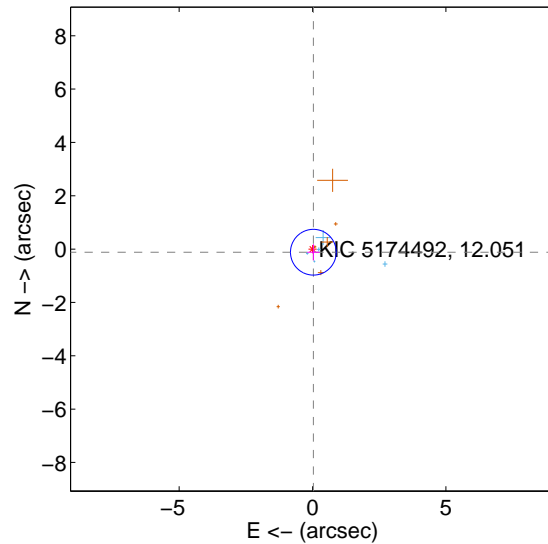
The OOT PRF centroid is offset from the target star catalog position by about 7.22 arcsec so the offset from difference PRF-fit to OOT-fit may be invalid.

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$7.015 \pm 0.182$	38.49	$5.416 \pm 0.250$	$4.458 \pm 0.336$
PRF-fit source offset from KIC position	$0.121 \pm 0.286$	0.42	$-0.032 \pm 0.227$	$-0.117 \pm 0.306$
photometric centroid source offset	$3.41 \pm 0.72$	4.72	$-2.62 \pm 0.79$	$-2.18 \pm 0.61$

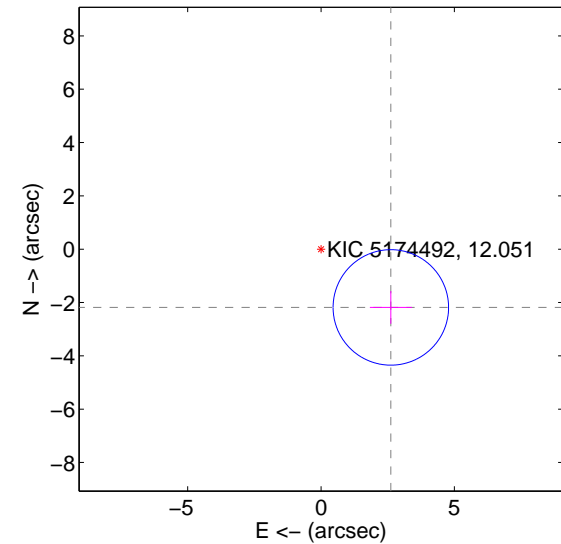
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position

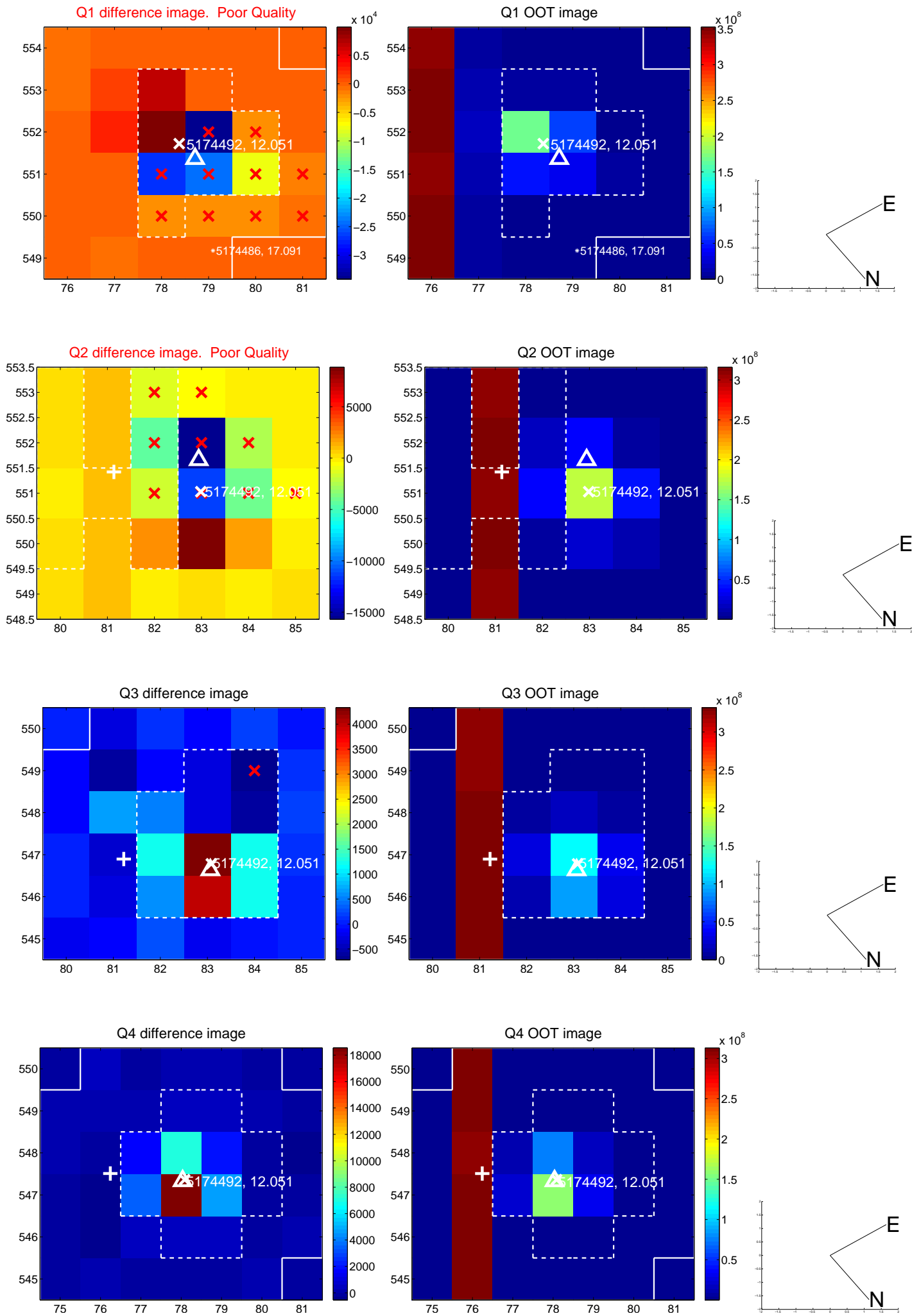


offset from photometric centroids

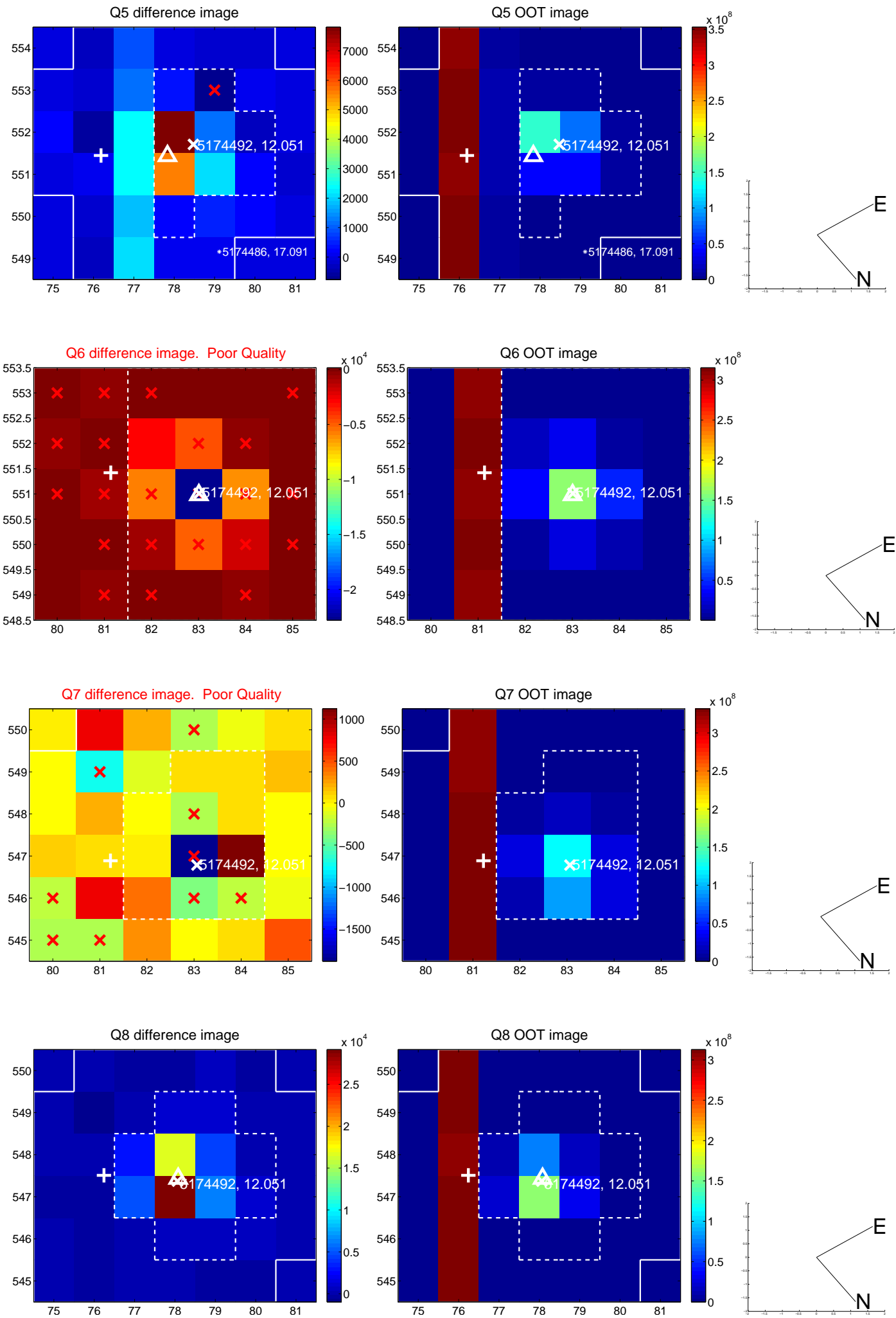


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: three-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

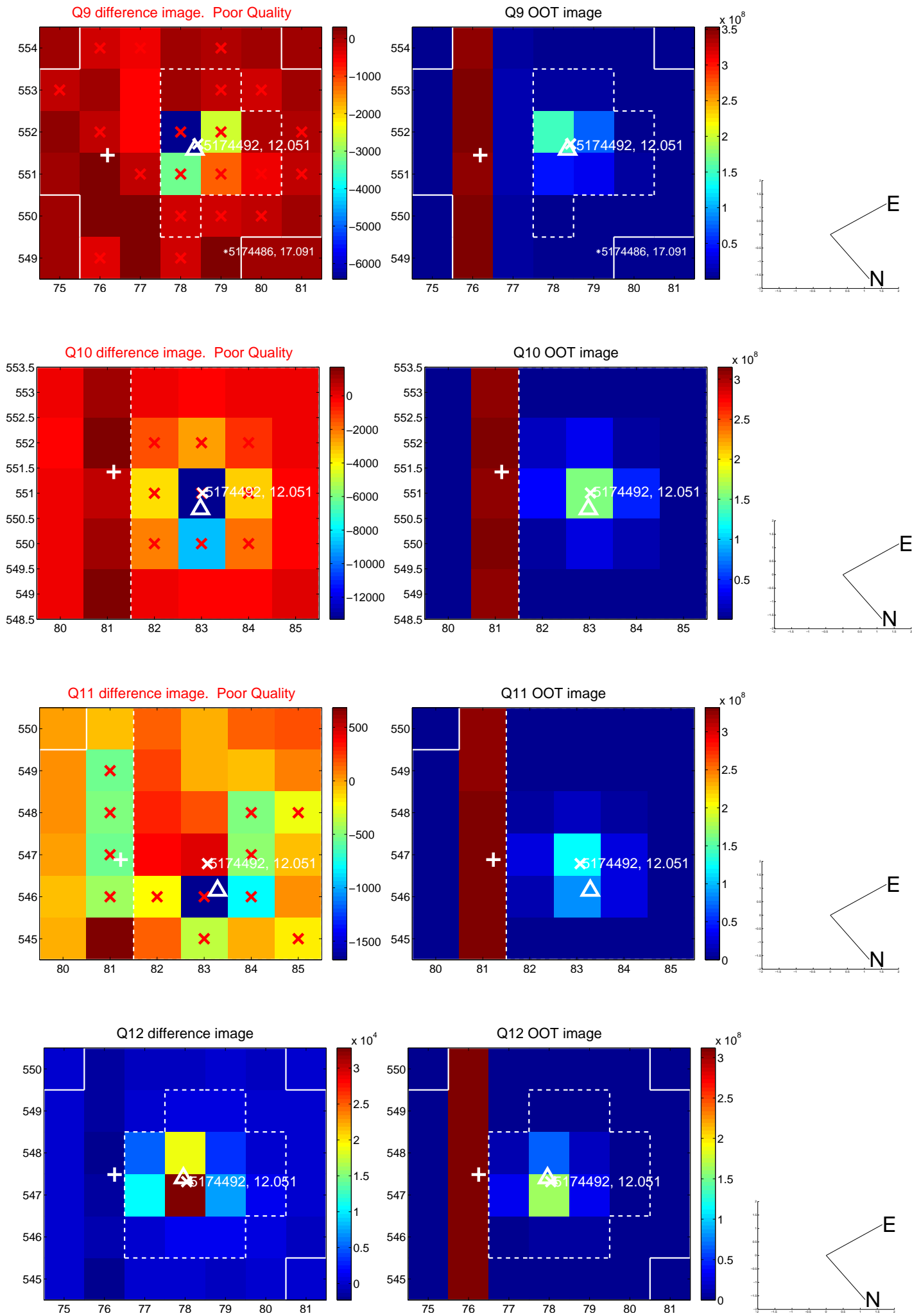
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



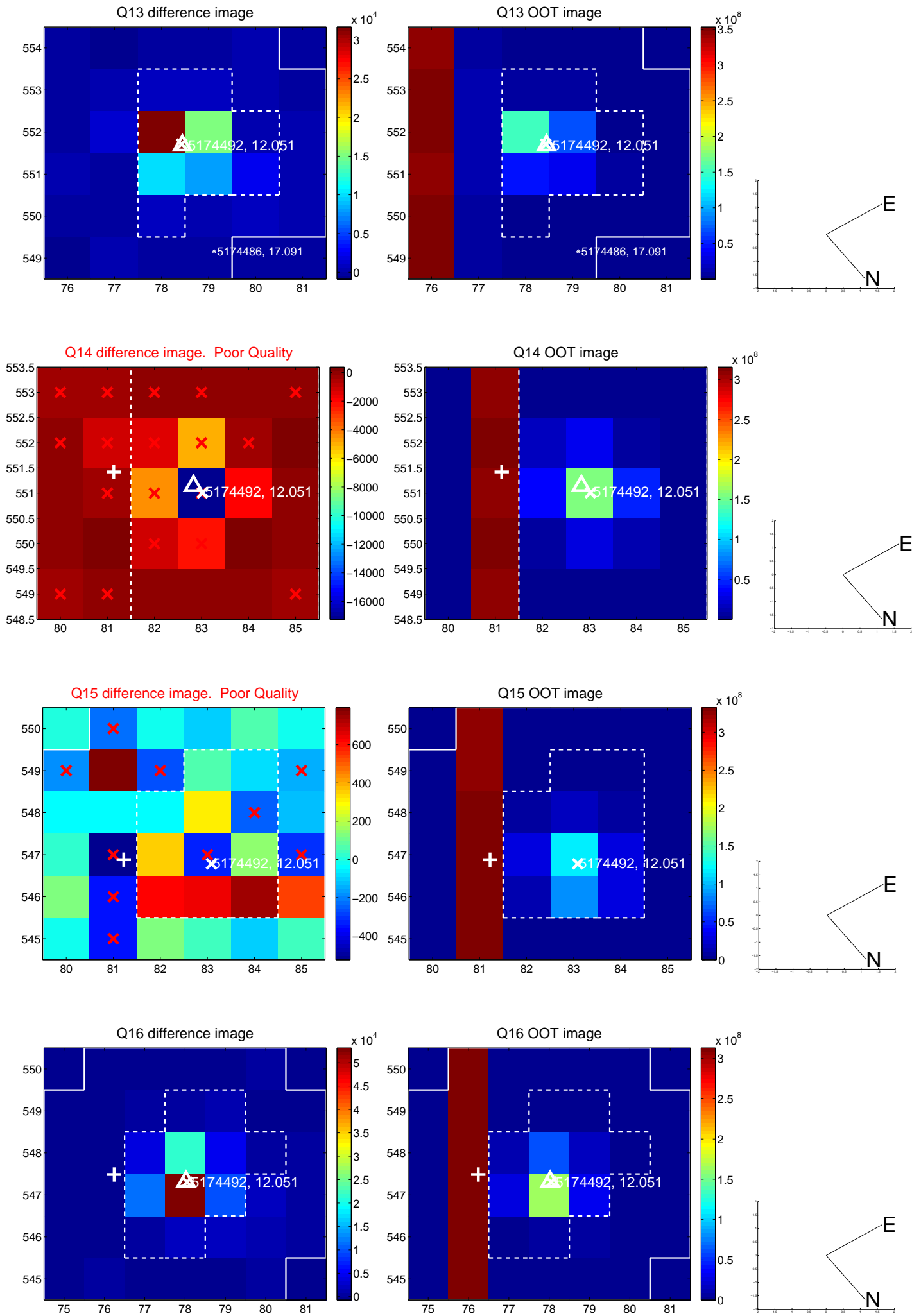
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



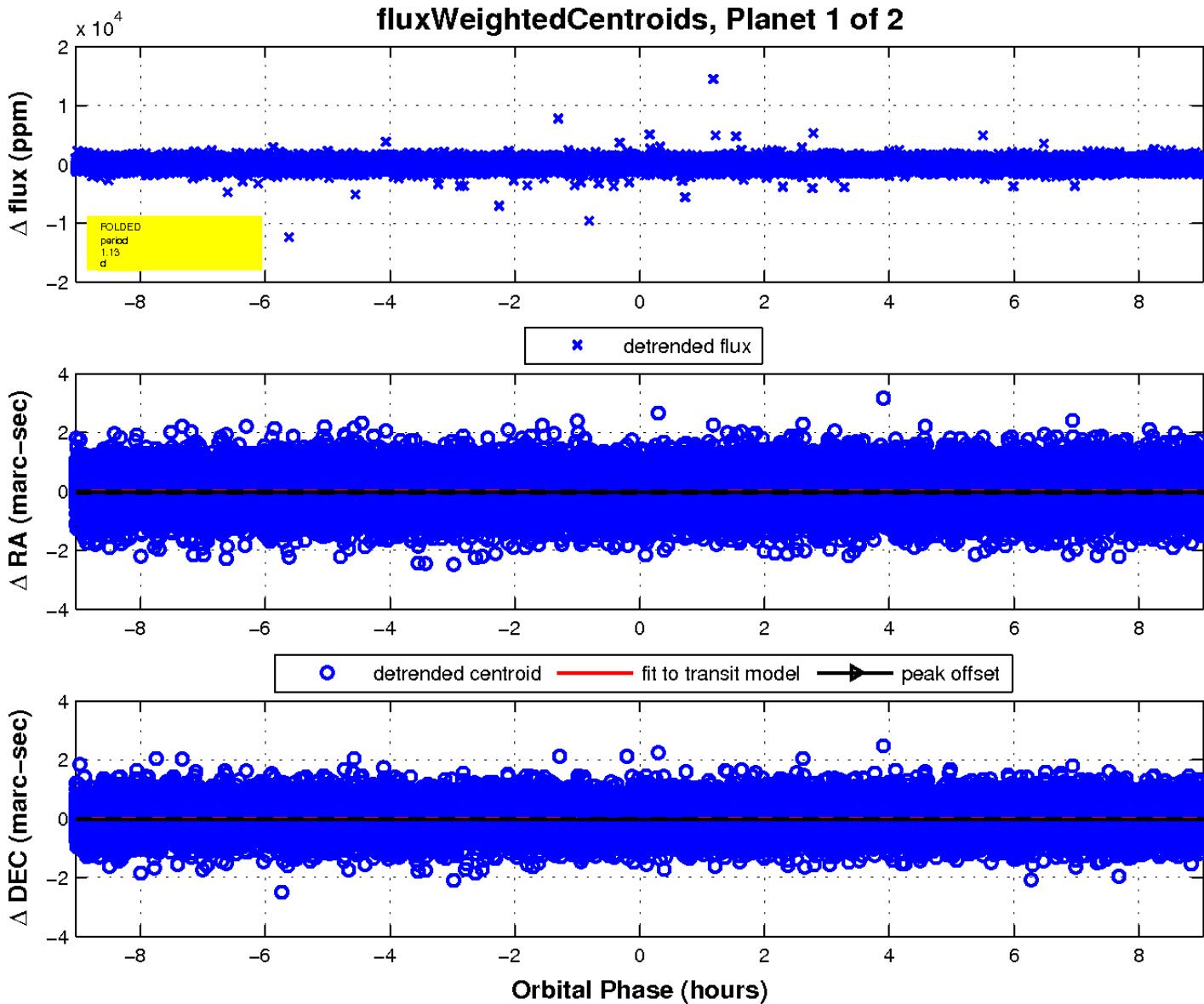
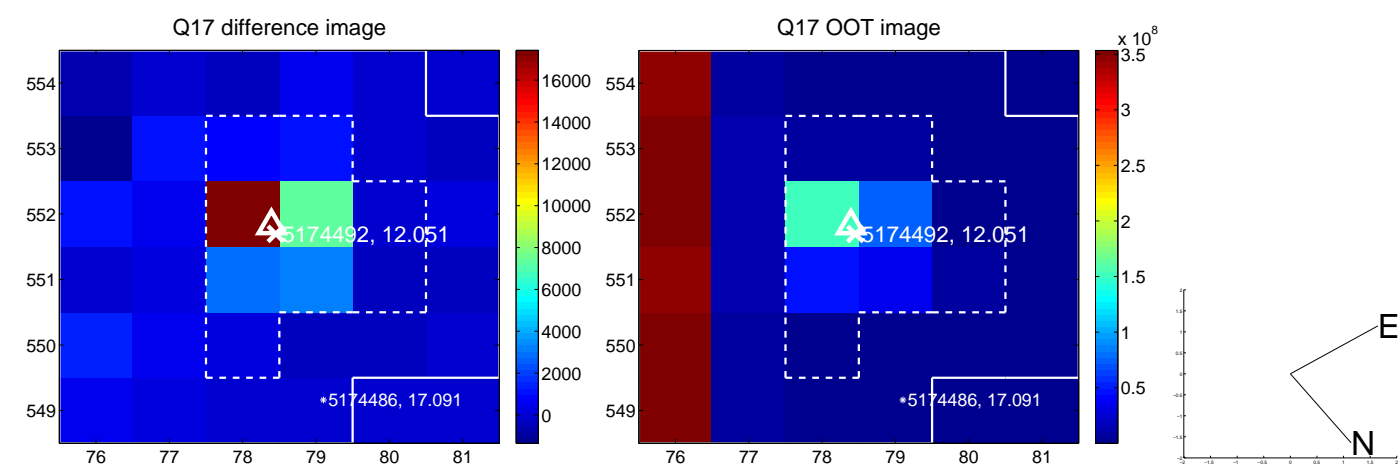
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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

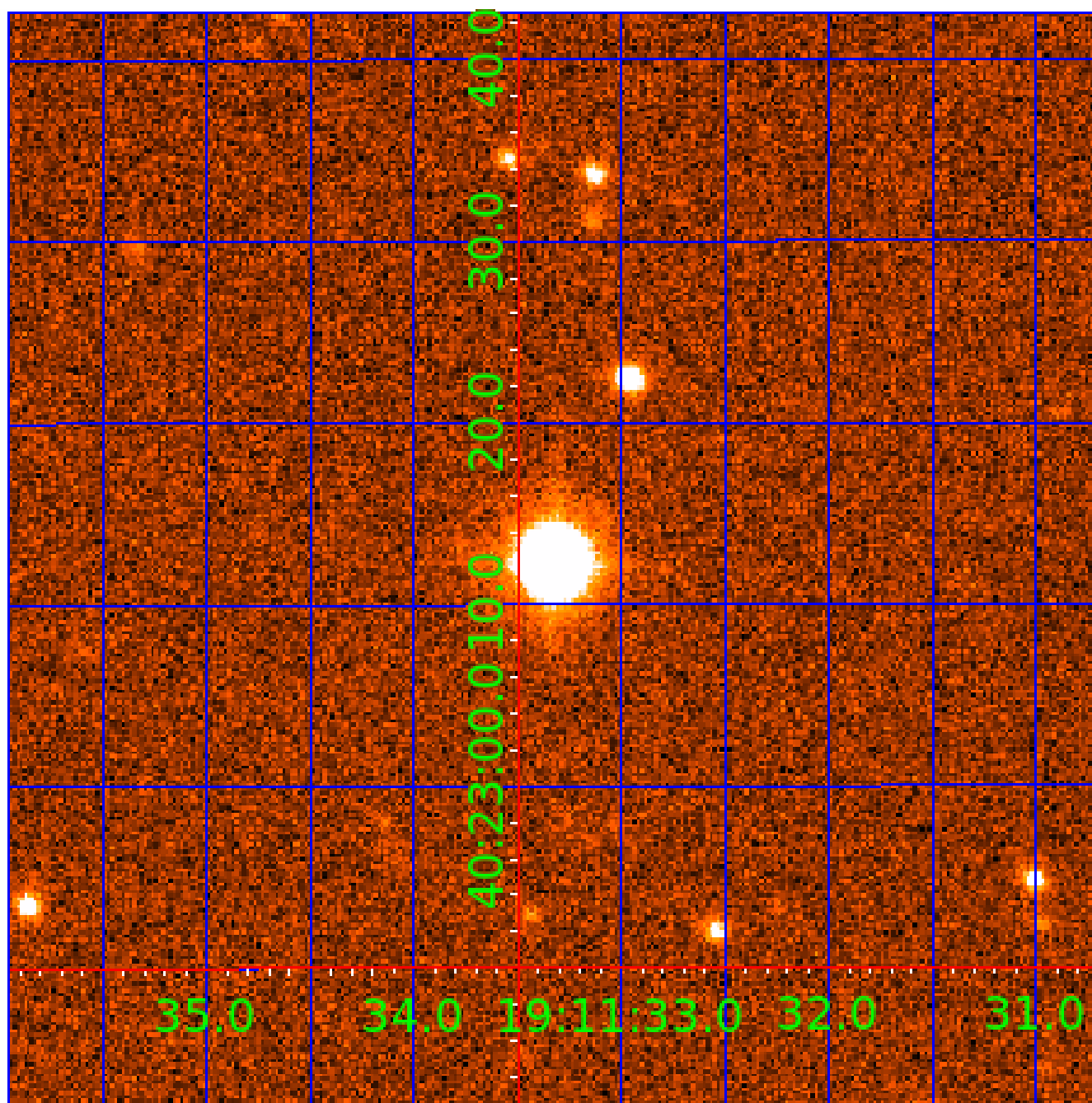


white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



UKIRT Image

Declination



# KIC 005174492

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
005174492-01	OBS	No	1.129874	132.545149	23.2	3.014	9.7	5.9	2.21	8497	1.24	30924.97
005174492-02	OBS	6534.01	0.720534	132.022155	33.9	5.267	7.9	8.1	2.21	8497	1.36	56339.13

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
005174492-01	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_SKYE_ZUMA_TRACKER—LPP_DV—LPP_ALT—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_KIC_POS
005174492-02	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—CENT_KIC_POS

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

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

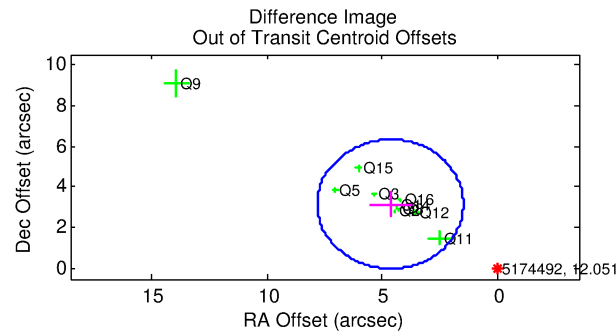
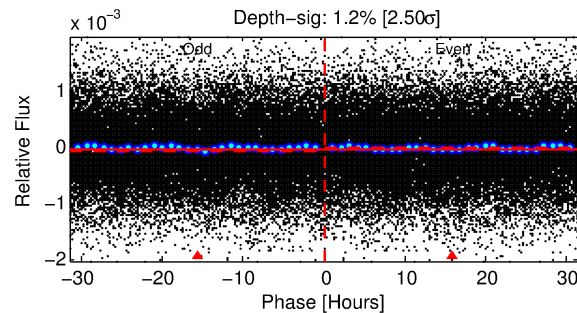
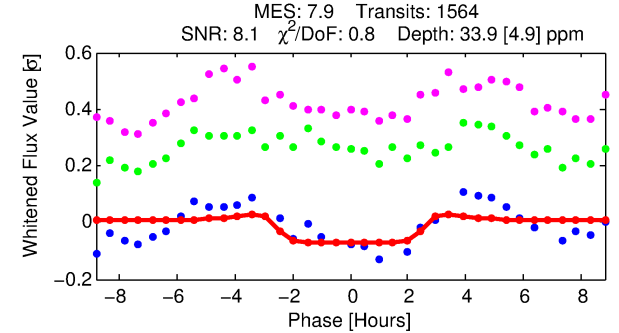
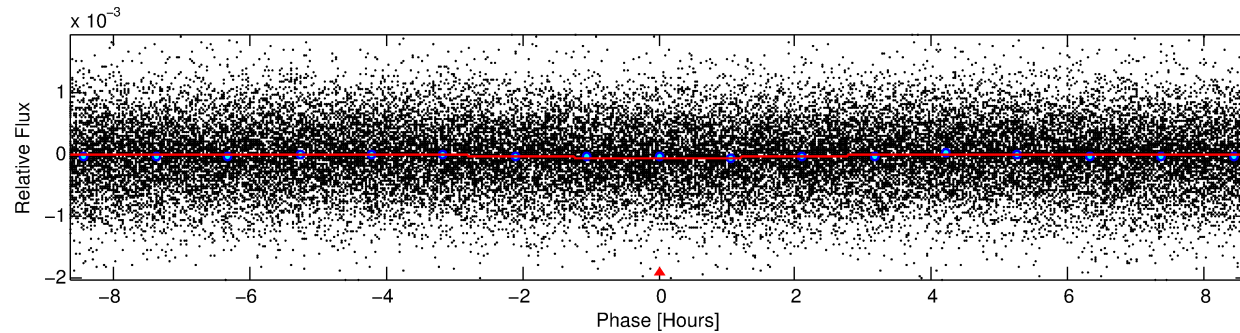
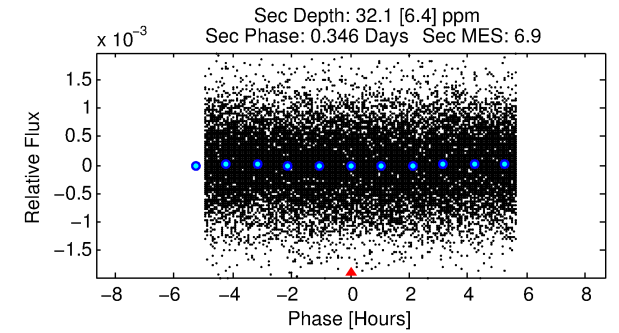
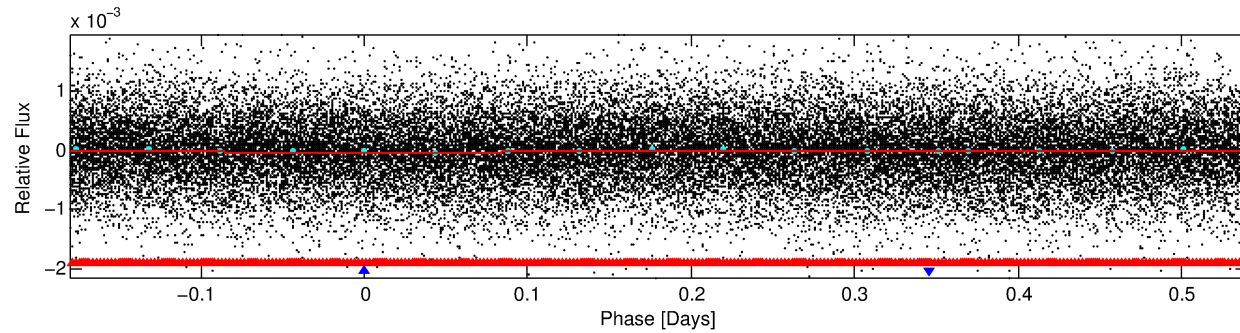
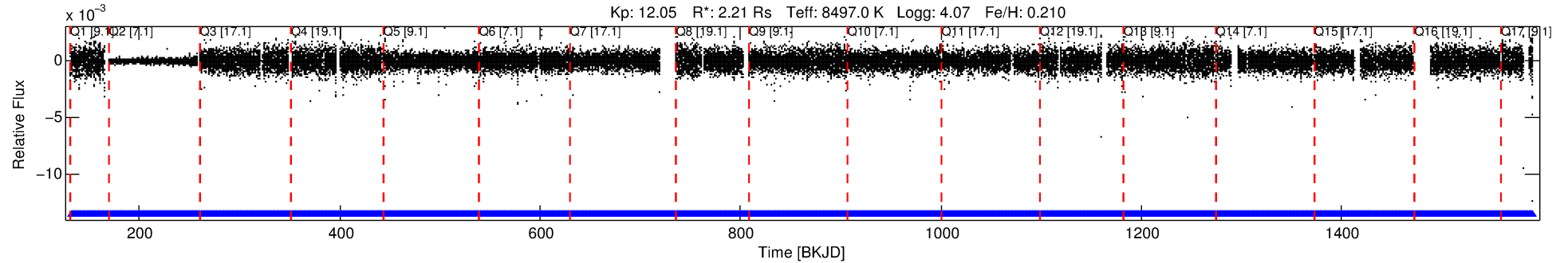
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

## Ephemeris Match Information For 005174492-02

No Significant Match Found

# DV One-Page Summary

KIC: 5174492 Candidate: 2 of 2 Period: 0.721 d  
KOI: K06534.01 Corr: 0.807



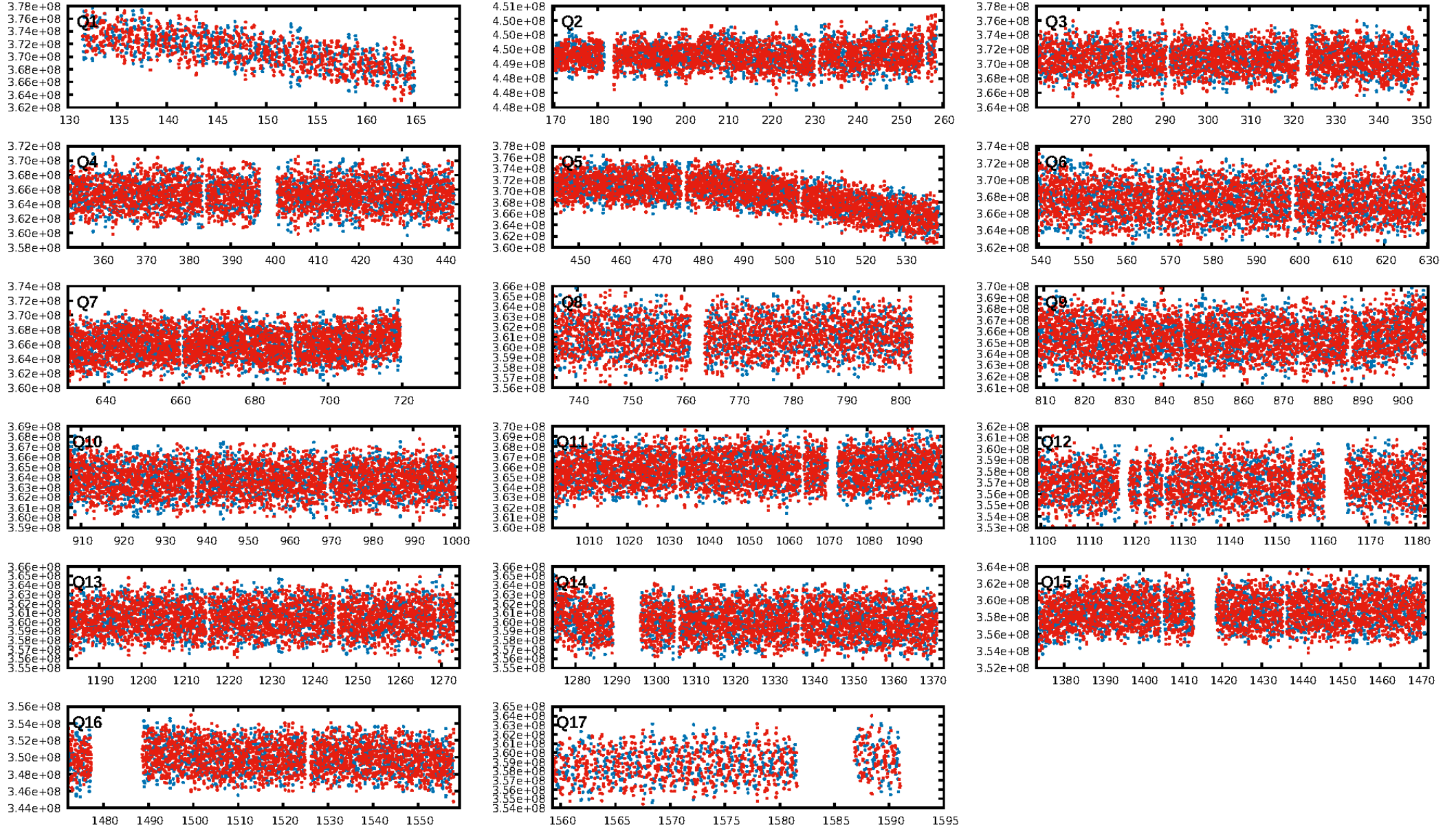
## DV Fit Results:

Period = 0.72053 [0.00001] d  
Epoch = 132.0222 [0.0054] BKJD  
Rp/R\* = 0.0056 [0.0053]  
a/R\* = 1.15 [1.63]  
b = 0.60 [6.07]  
Seff = 56339.13 [21207.58]  
Teq = 3929 [370] K  
Rp = 1.36 [1.33] Re  
a = 0.0201 [0.0046] AU  
Ag = 3.89 [7.45] [0.39σ]  
Teffp = 8530 [4049] K [1.13σ]

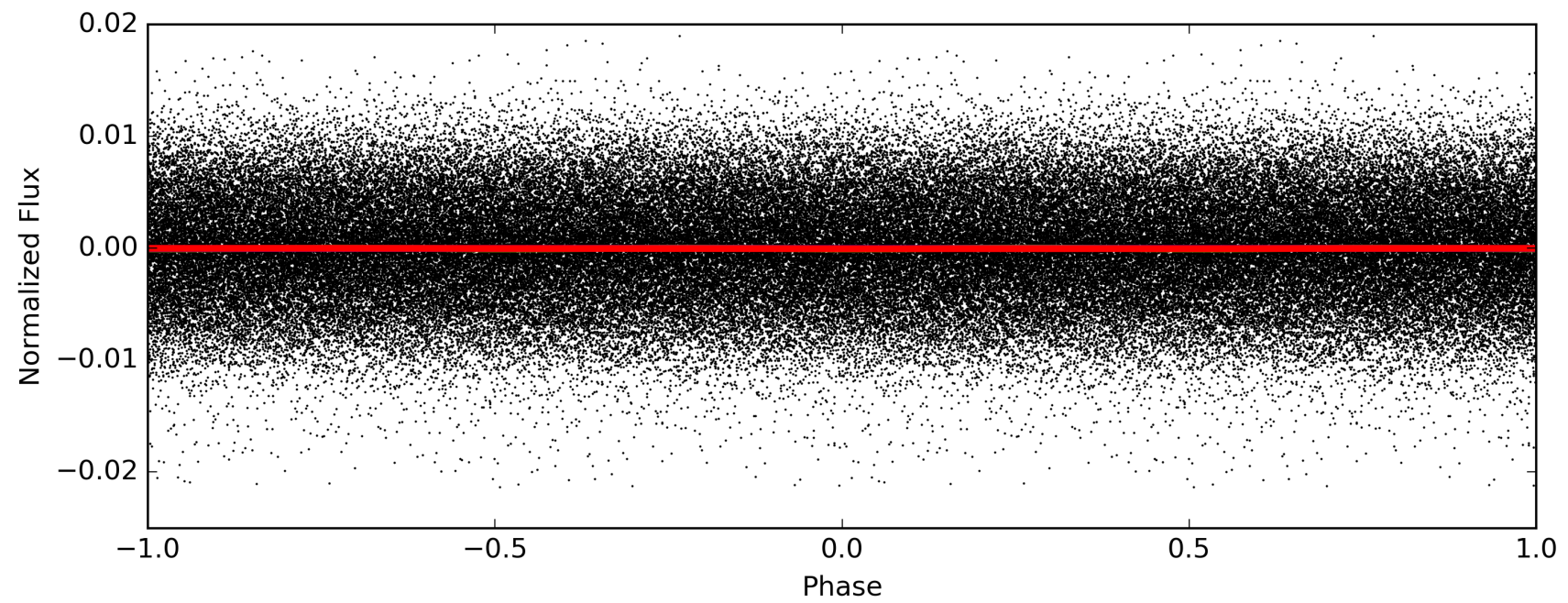
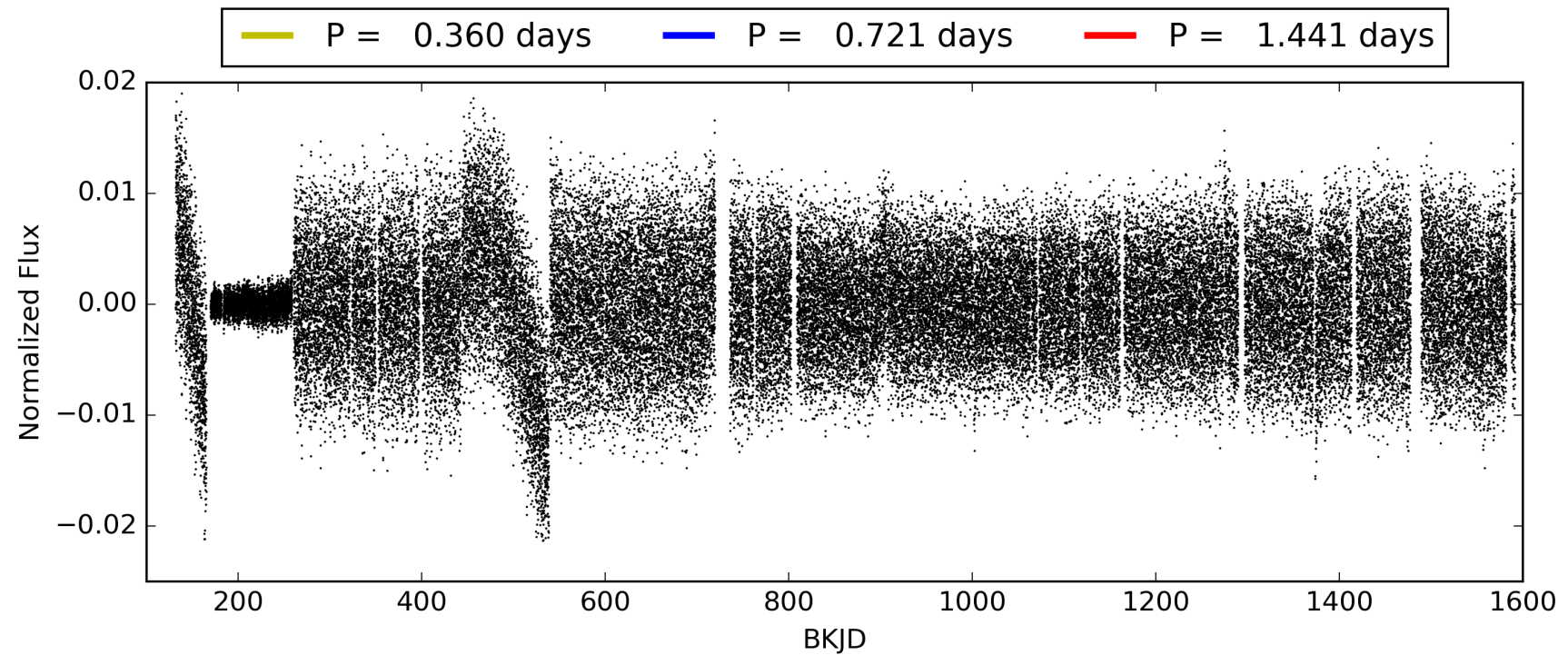
## DV Diagnostic Results:

ShortPeriod-sig: N/A  
LongPeriod-sig: 89.5% [1.62σ]  
ModelChiSquare2-sig: N/A  
ModelChiSquareGof-sig: N/A  
Bootstrap-pfa: 1.01e-13  
RollingBand-fgt: 1.00 [1495/1495]  
GhostDiagnostic-chr: N/A  
Centroid-sig: 0.0%  
Centroid-so: 4.057 arcsec [12.08σ]  
OotOffset-rm: 5.635 arcsec [5.35σ]  
KicOffset-rm: 1.662 arcsec [2.46σ]  
OotOffset-st: 2/3/3/2 [10]  
KicOffset-st: 2/3/3/5 [13]  
DiffImageQuality-fgm: 0.38 [5/13]  
DiffImageOverlap-fno: 1.00 [17/17]

# TCE 005174492-02, PDC Light Curves

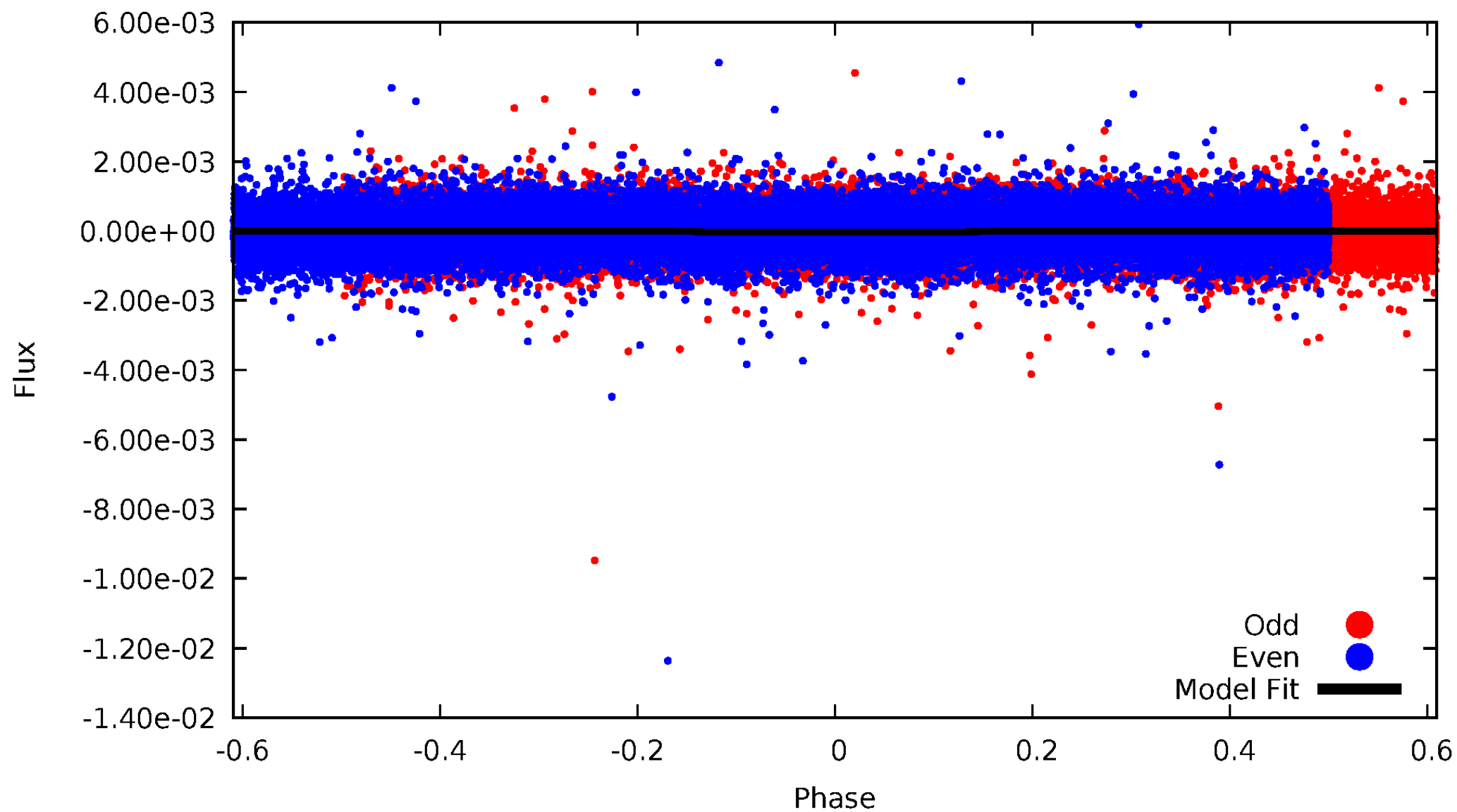


TCE 005174492-02



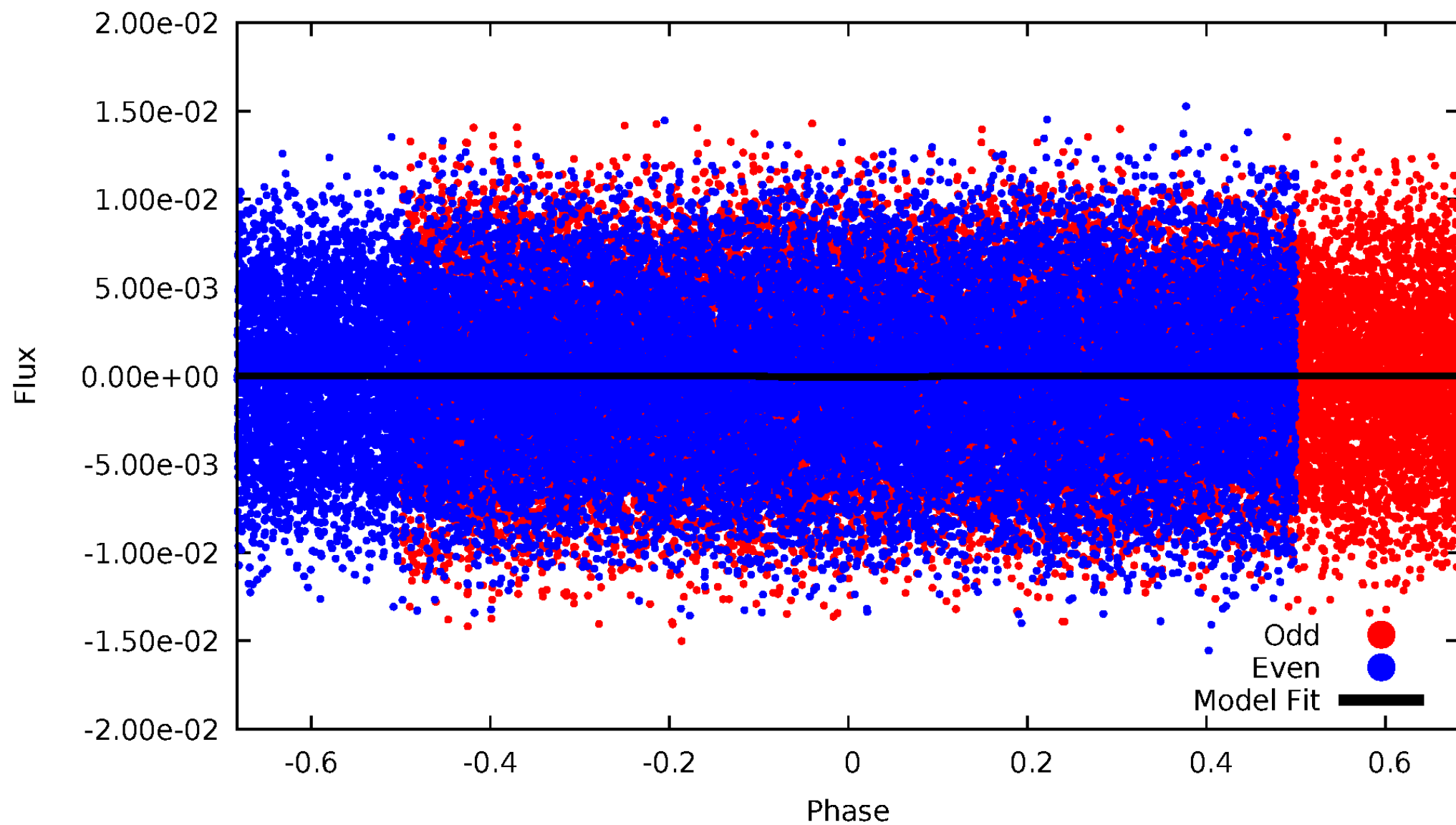
# DV Odd/Even

TCE 005174492-02



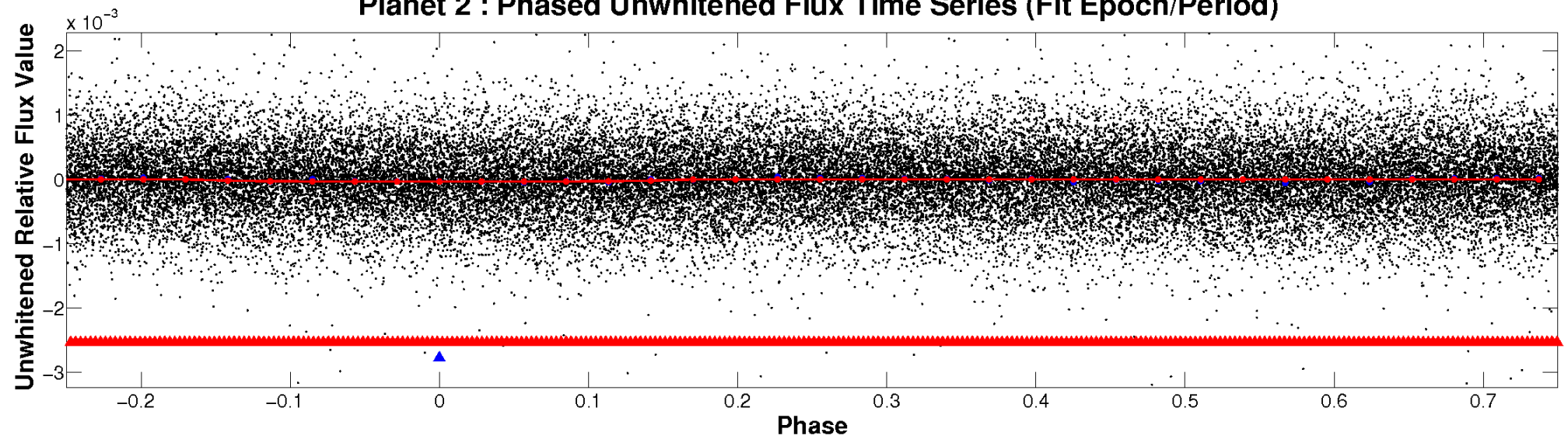
# ALT Odd/Even

TCE 005174492-02

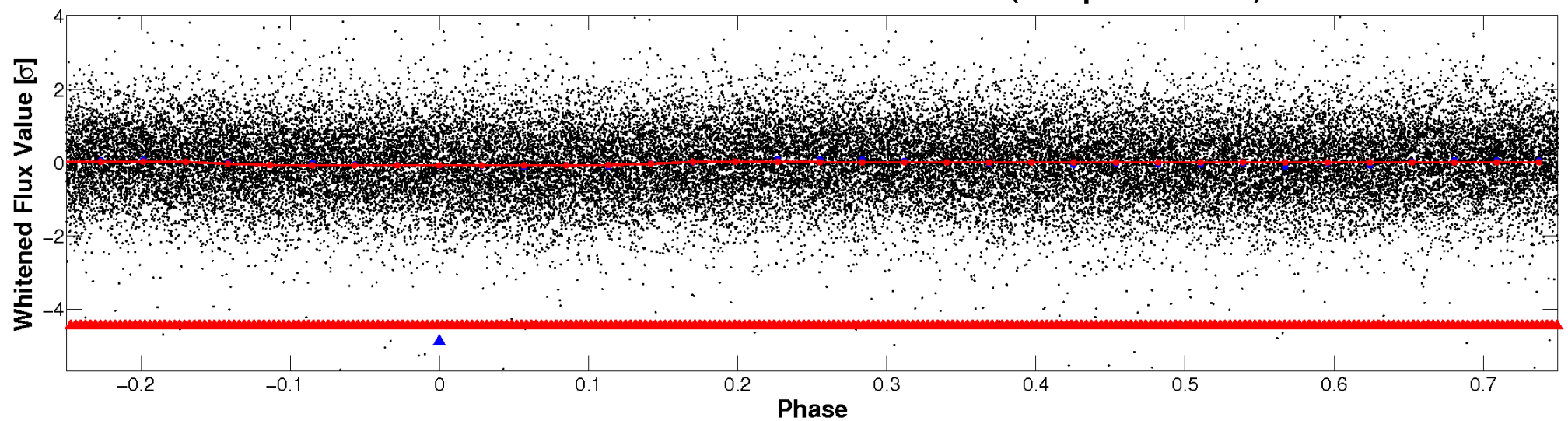


# Non-Whitened Vs. Whitened Light Curve

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

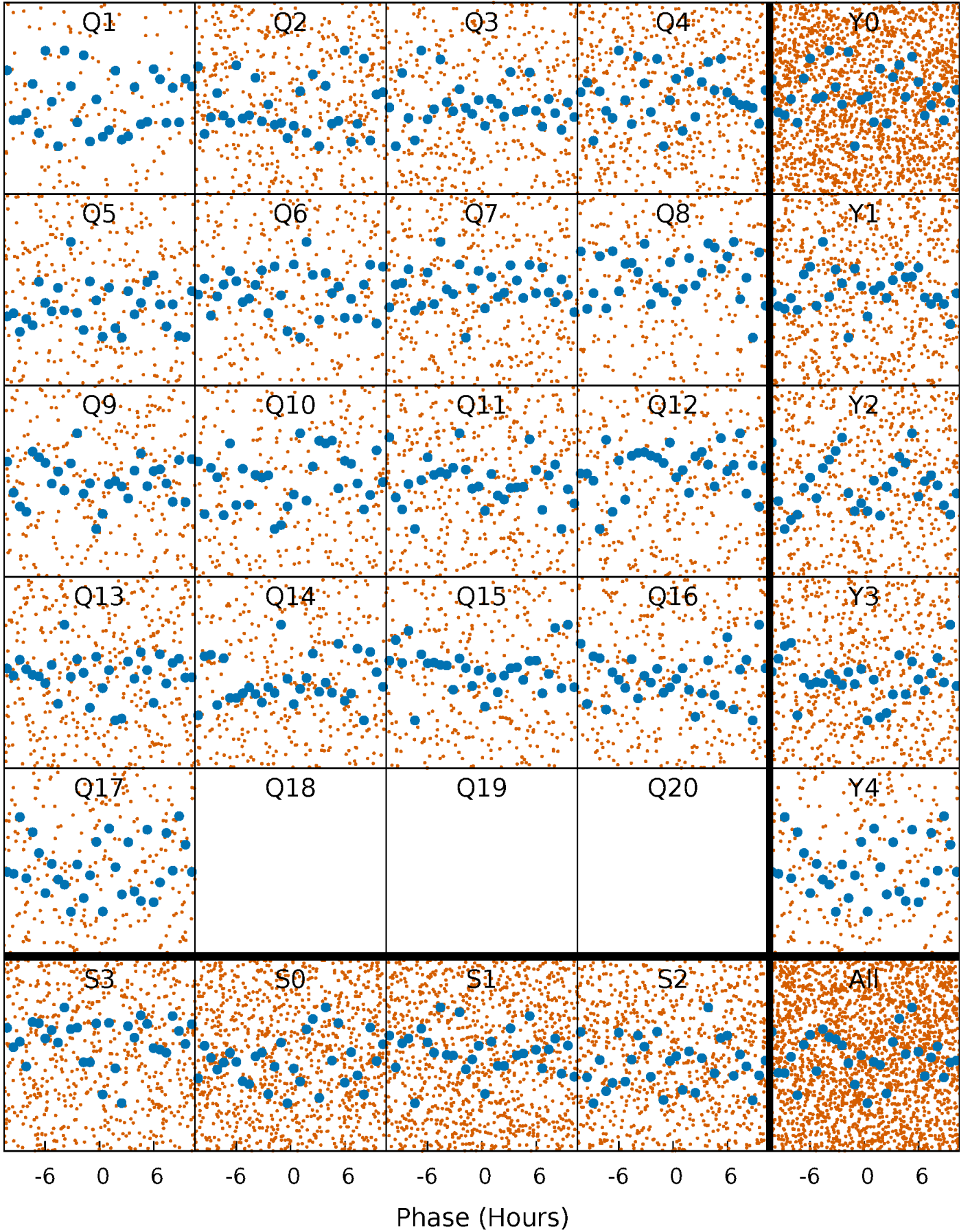


**Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)**



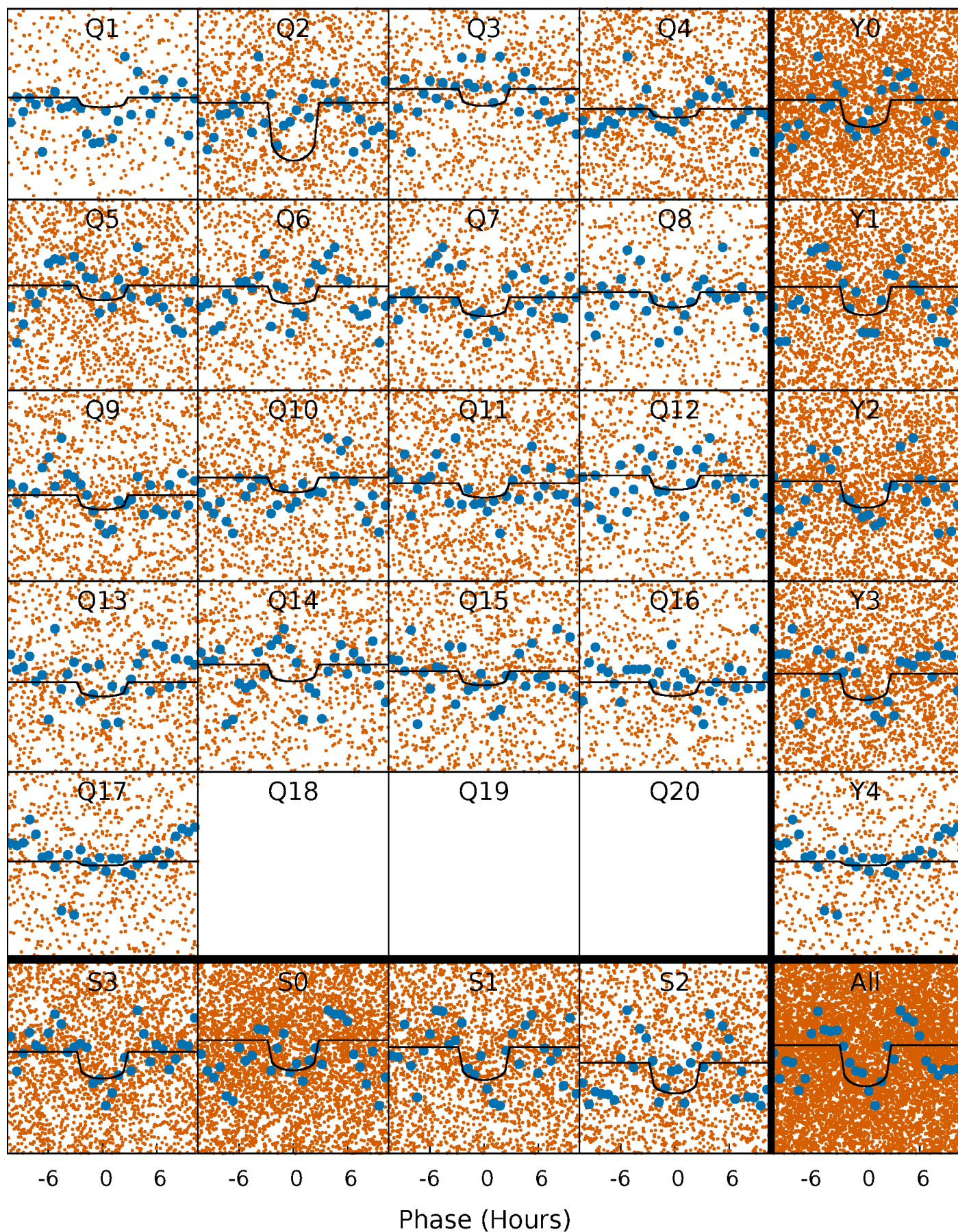
# PDC Quarter-Phased Transit Curves

TCE 005174492-02   P= 0.720534 Days    $T_0=132.022155$  (BKJD)



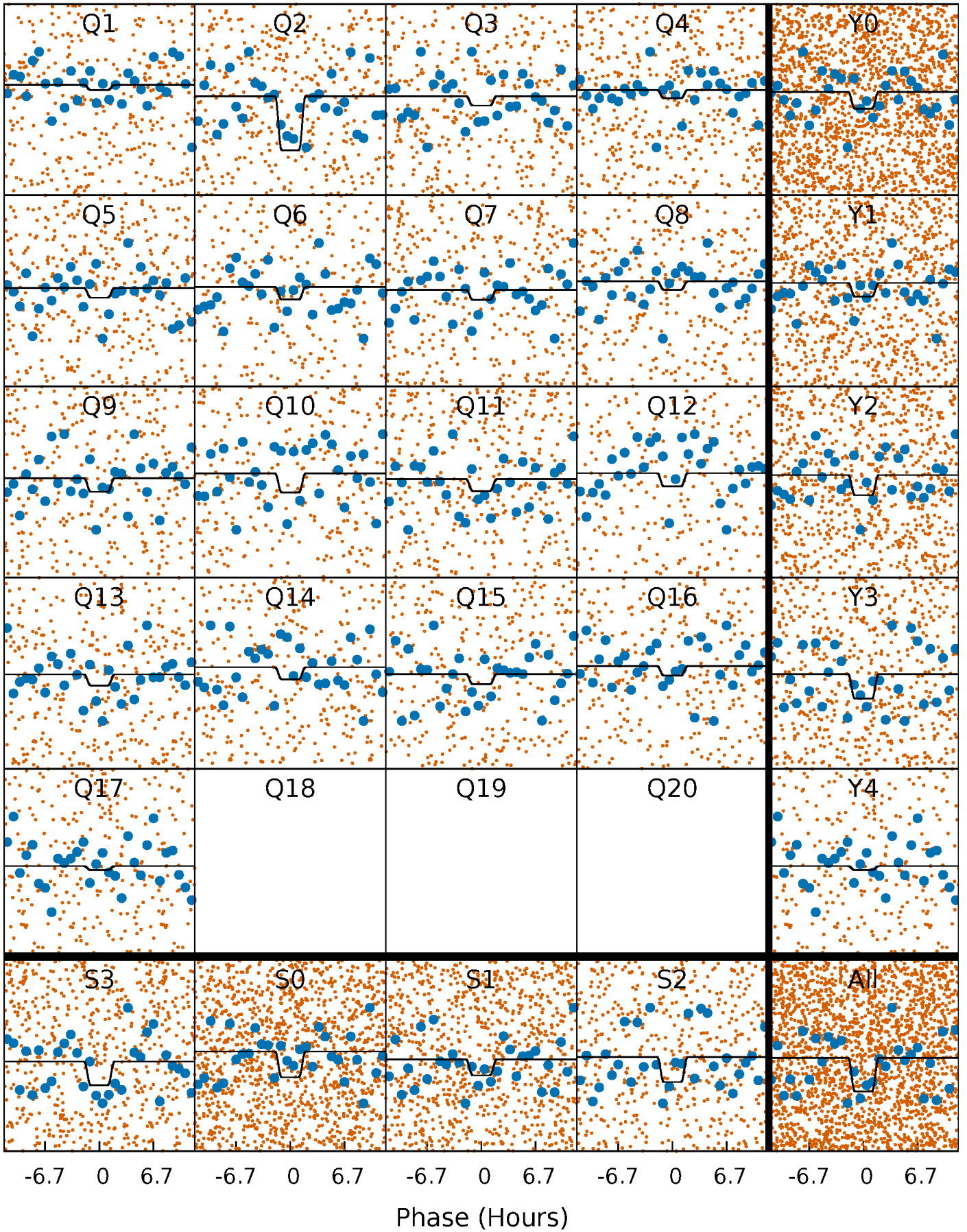
# DV Quarter-Phased Transit Curves

TCE 005174492-02   P= 0.720534 Days    $T_0=132.022155$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

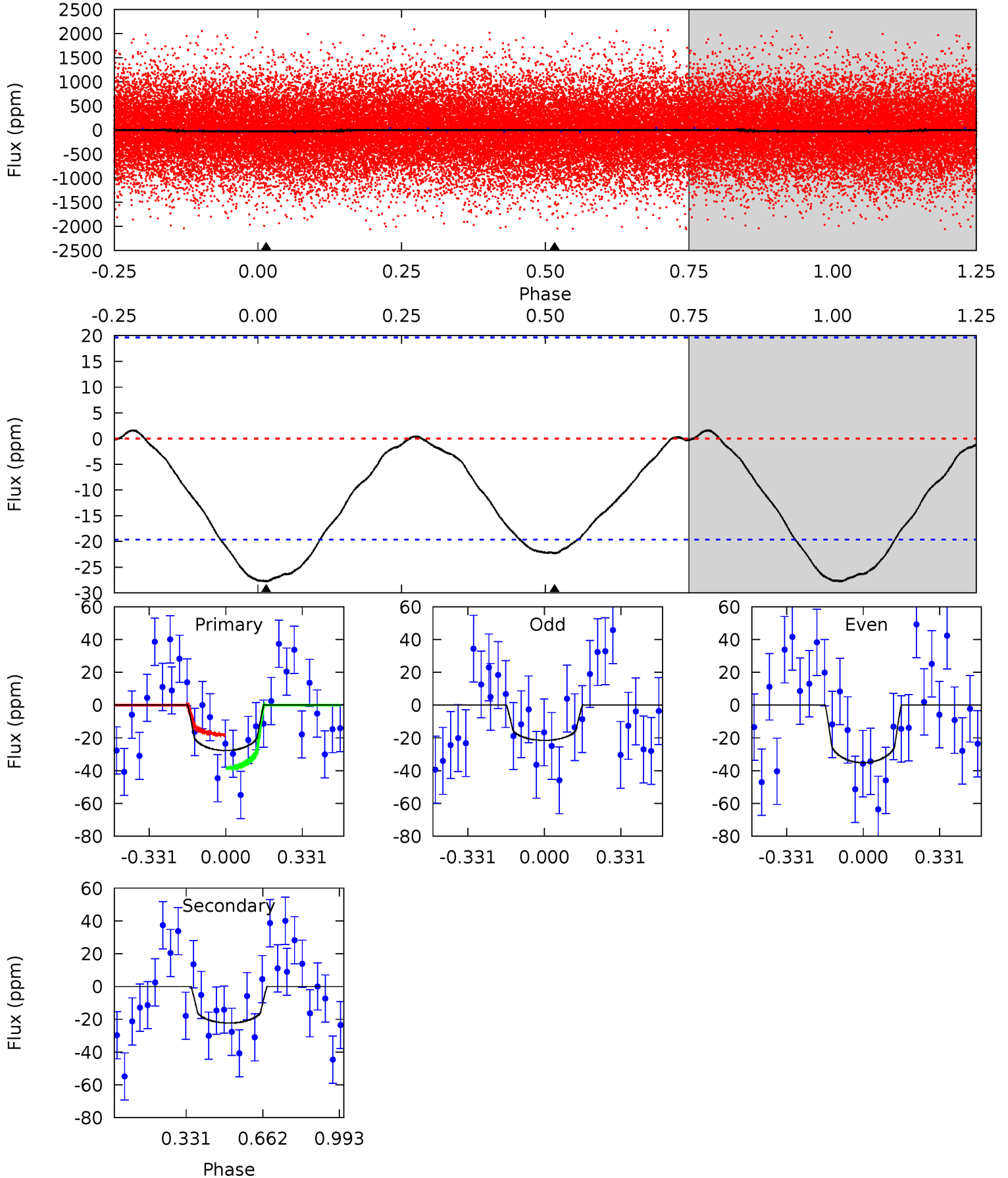
TCE 005174492-02     $P = 0.720608$  Days     $T_0 = 131.989284$  (BKJD)



# DV Model-Shift Uniqueness Test

005174492-02, P = 0.720534 Days, E = 131.301621 Days

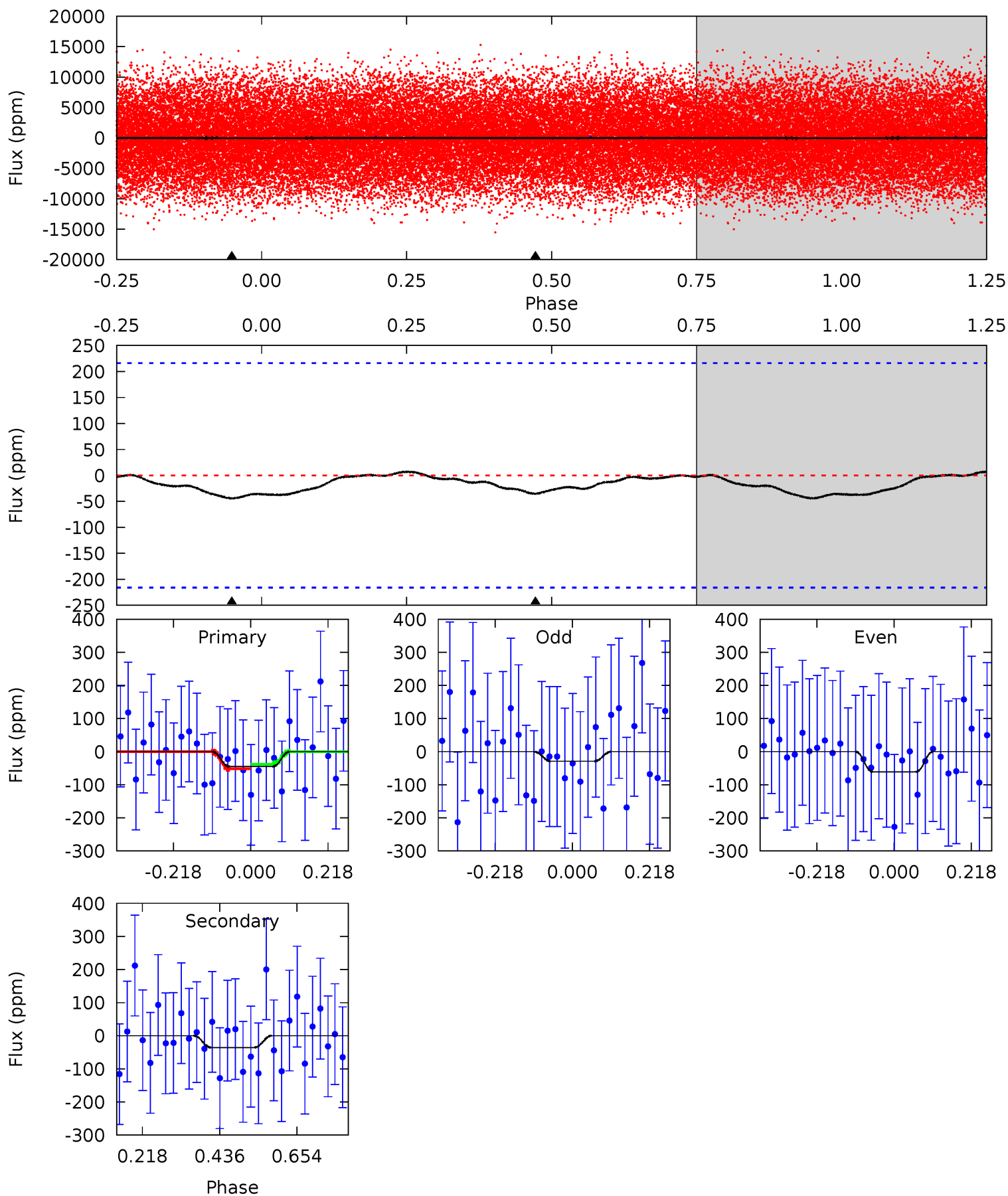
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
6.09	4.89	0	0	4.31	0.97	0.19	6.09	6.09	4.89	4.89	1.49	1.19	0.05	2.29



# Alt Model-Shift Uniqueness Test

005174492-02, P = 0.720608 Days, E = 131.268676 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
0.91	0.73	0	0	4.40	1.23	0.06	0.91	0.91	0.73	0.73	0.33	0.99	0.14	0.14



### Stellar Parameters For KIC 005174492

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R$ ( $R_{\odot}$ )	$M$ ( $M_{\odot}$ )	$p_{\star}$ ( $\text{g}\cdot\text{cm}^{-3}$ )
	$8497^{+237}_{-407}$	$4.070^{+0.140}_{-0.171}$	$0.210^{+0.150}_{-0.600}$	$2.211^{+0.630}_{-0.515}$	$2.095^{+0.318}_{-0.437}$	$0.273^{+0.215}_{-0.128}$
	+3%/-5%	+3%/-4%	+71%/-286%	+28%/-23%	+15%/-21%	+79%/-47%
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 005174492-02 / KOI 6534.01

Detrend	Depth (ppm)	$R_p$ ( $R_{\oplus}$ )	$T_{max}$ (K)	$T_{obs}$ (K)	$A_{obs}$
DV	$-22 \pm 5$	$1.60^{+1.18}_{-0.96}$	$5495^{+380}_{-394}$	$6542^{+6040}_{-1988}$	$1.902^{+9.525}_{-1.276}$
Alt.	$-36 \pm 49$	$2.00^{+1.44}_{-1.14}$	$5487^{+405}_{-396}$	$5934^{+5997}_{-11627}$	$1.385^{+9.350}_{-1.970}$

$T_{max}$  = 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

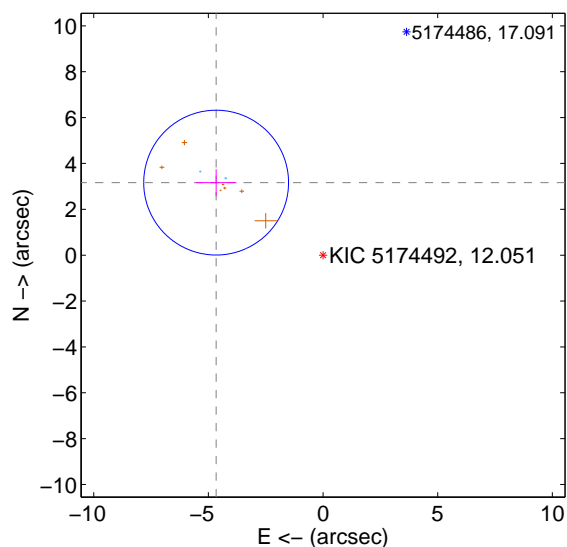
Supplemental centroid analysis for 005174492-02. Kepler magnitude: 12.05. Transit SNR 8.07

There are 5 quarters with good PRF difference image offsets

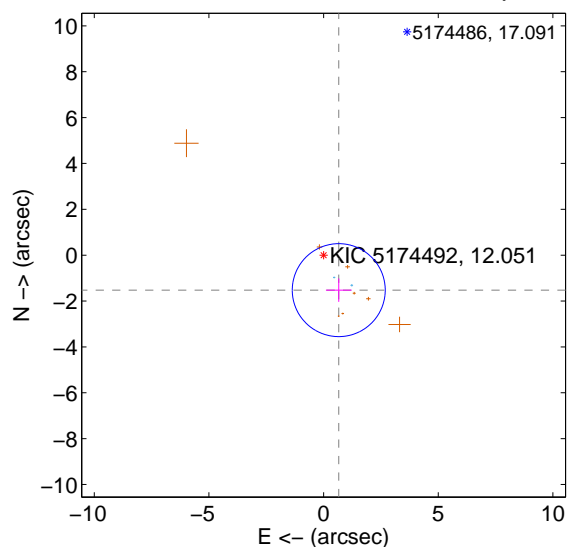
The OOT PRF centroid is offset from the target star catalog position by about 7.19 arcsec so the offset from difference PRF-fit to OOT-fit may be invalid.

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$5.635 \pm 1.053$	5.35	$4.662 \pm 0.884$	$3.164 \pm 0.584$
PRF-fit source offset from KIC position	$1.662 \pm 0.676$	2.46	$-0.661 \pm 0.560$	$-1.525 \pm 0.508$
photometric centroid source offset	$4.06 \pm 0.34$	12.08	$-3.37 \pm 0.36$	$-2.25 \pm 0.27$

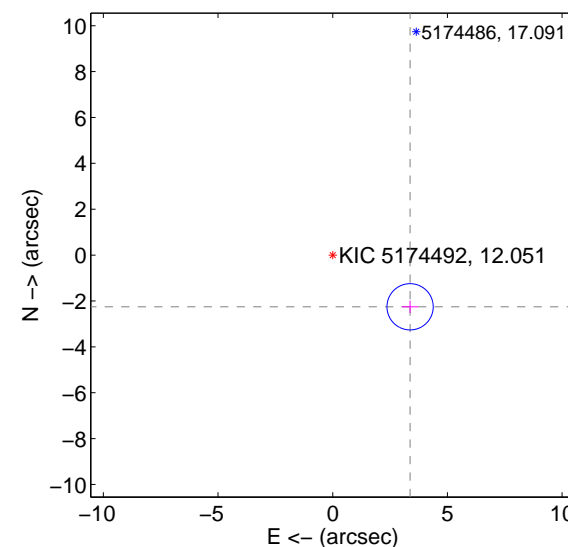
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position

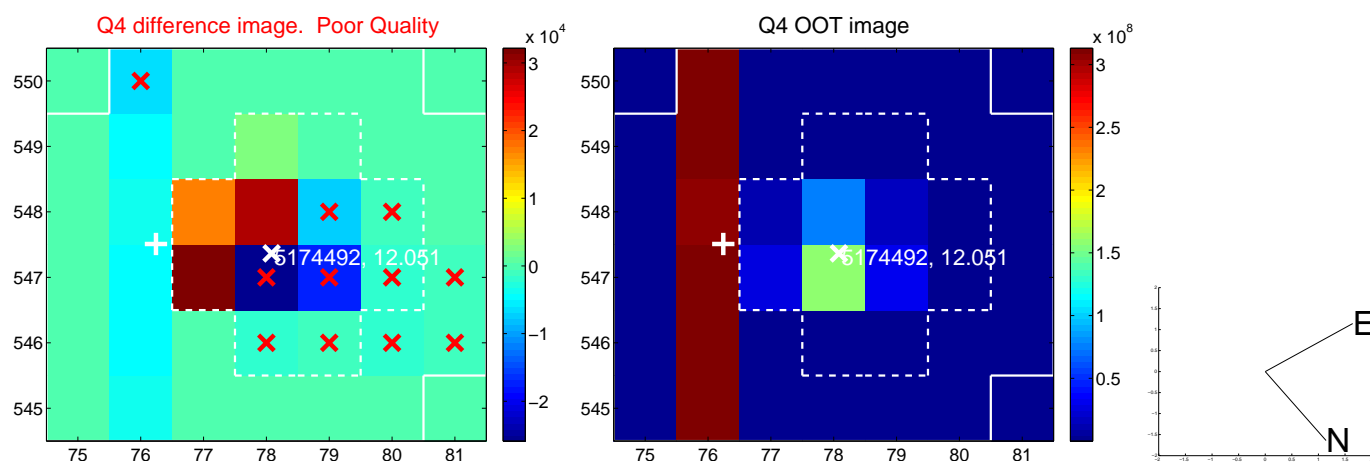
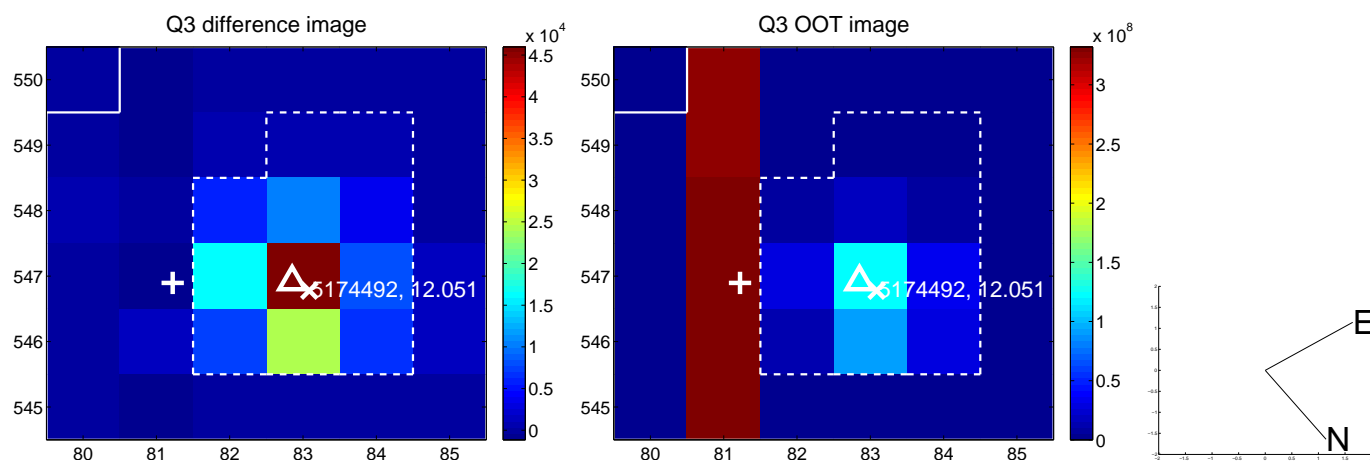
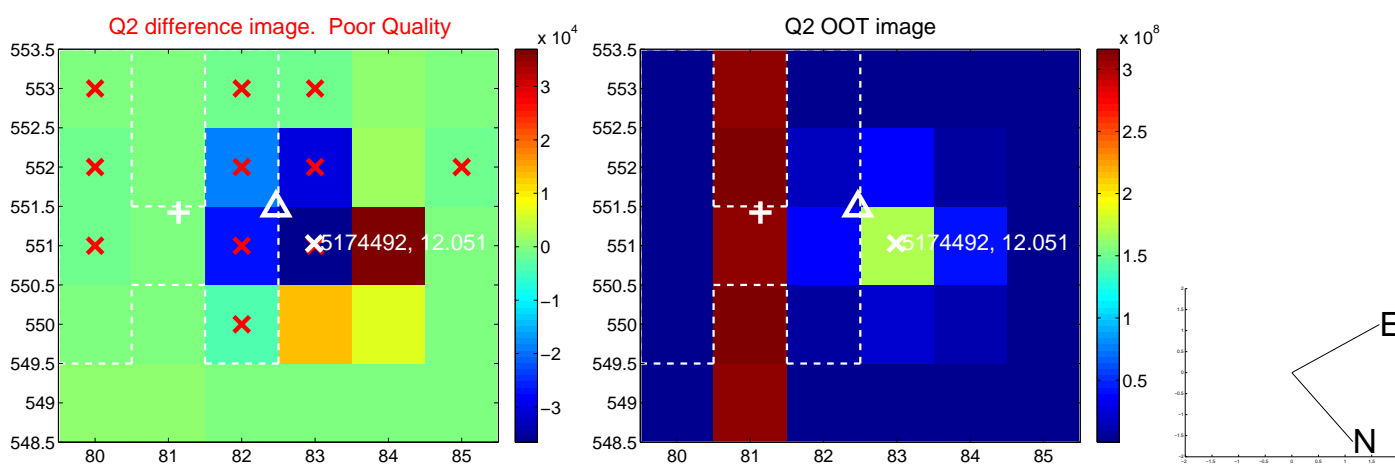
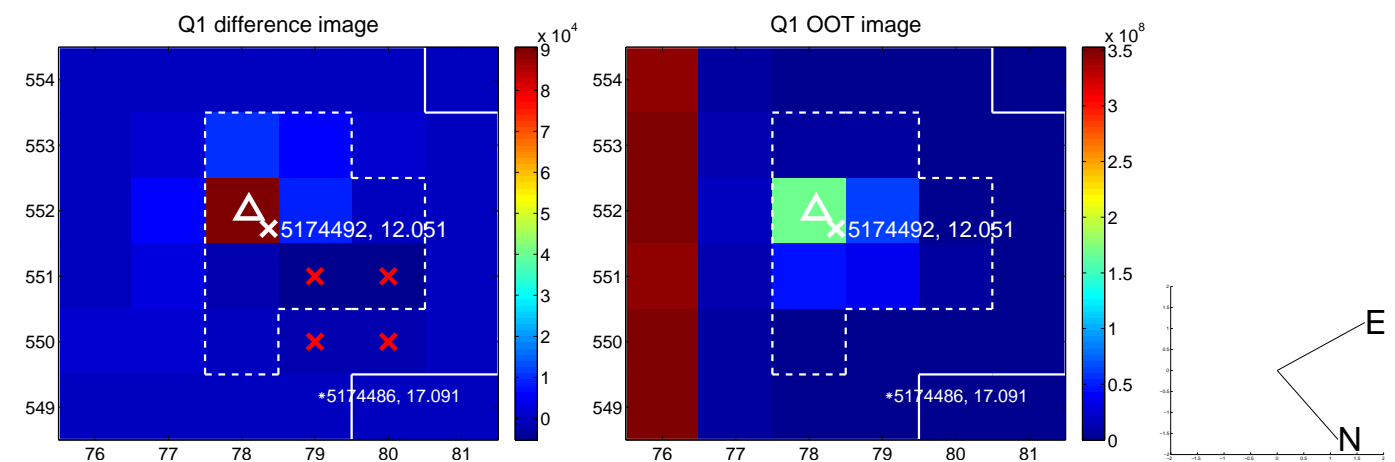


offset from photometric centroids

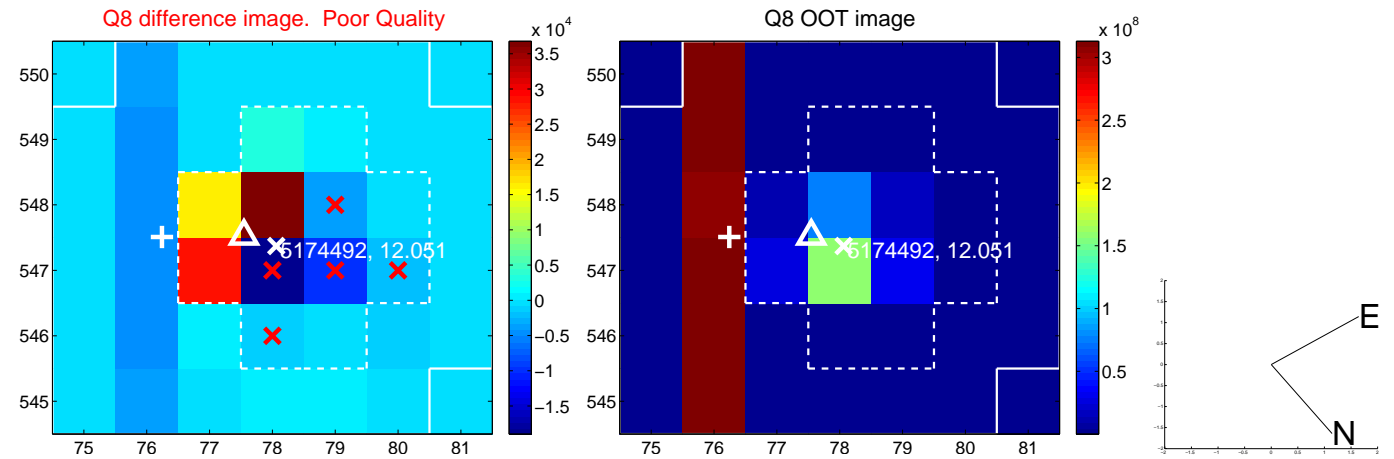
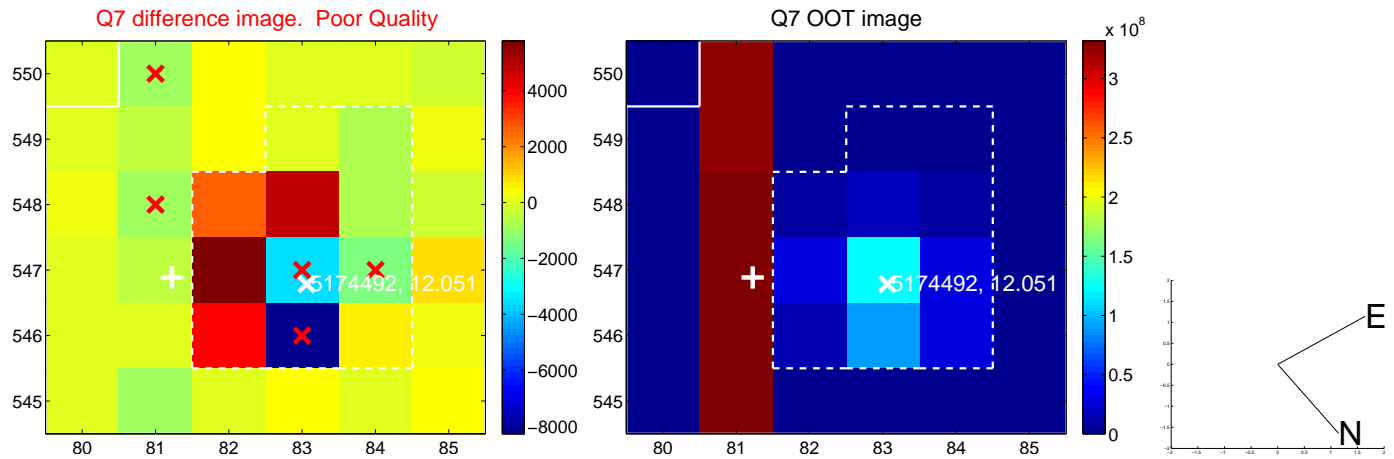
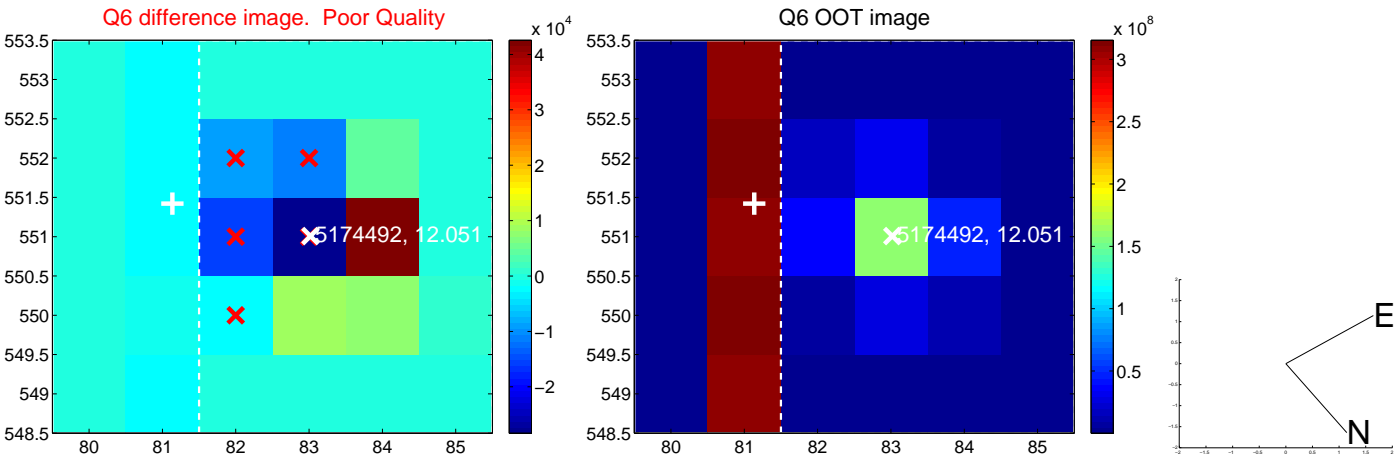
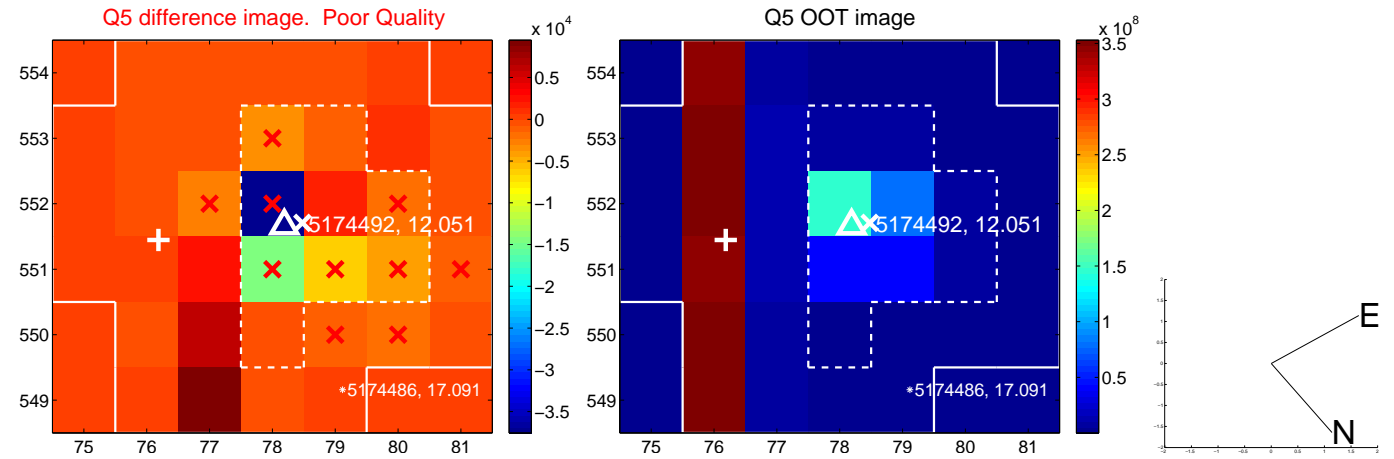


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets**; **Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: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

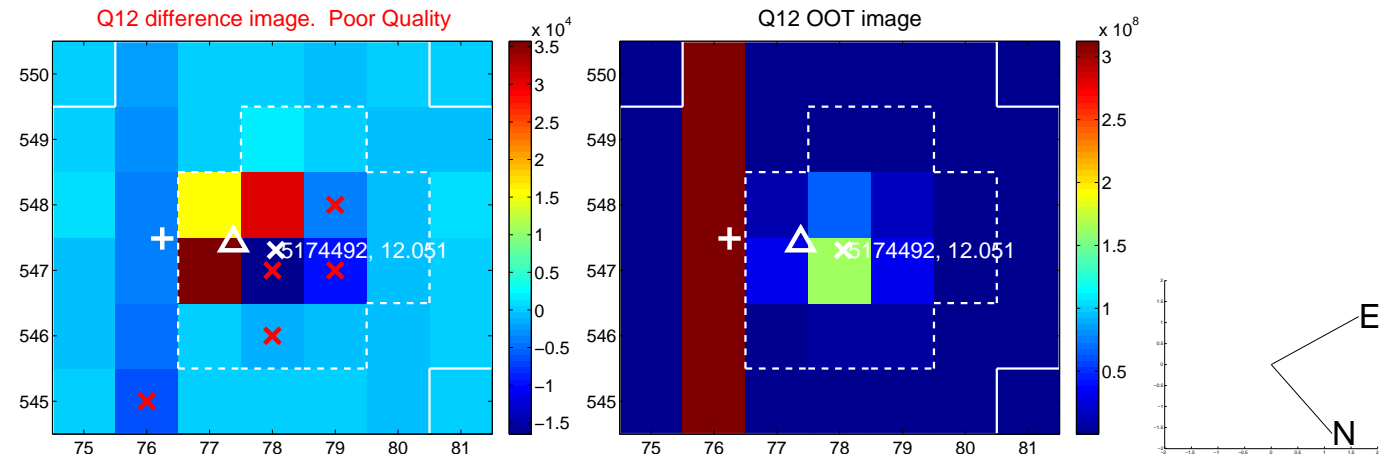
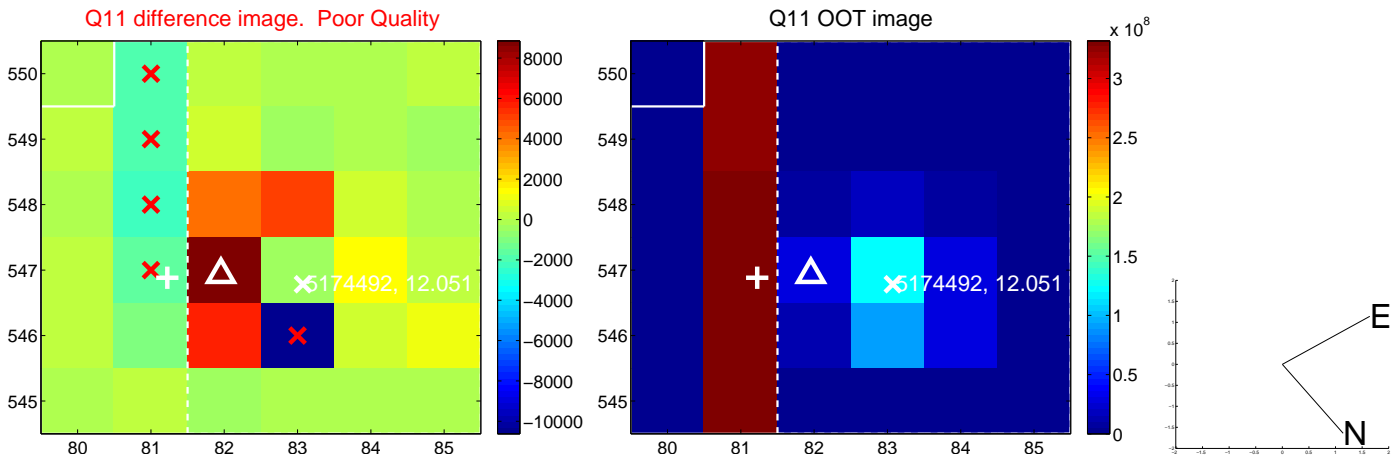
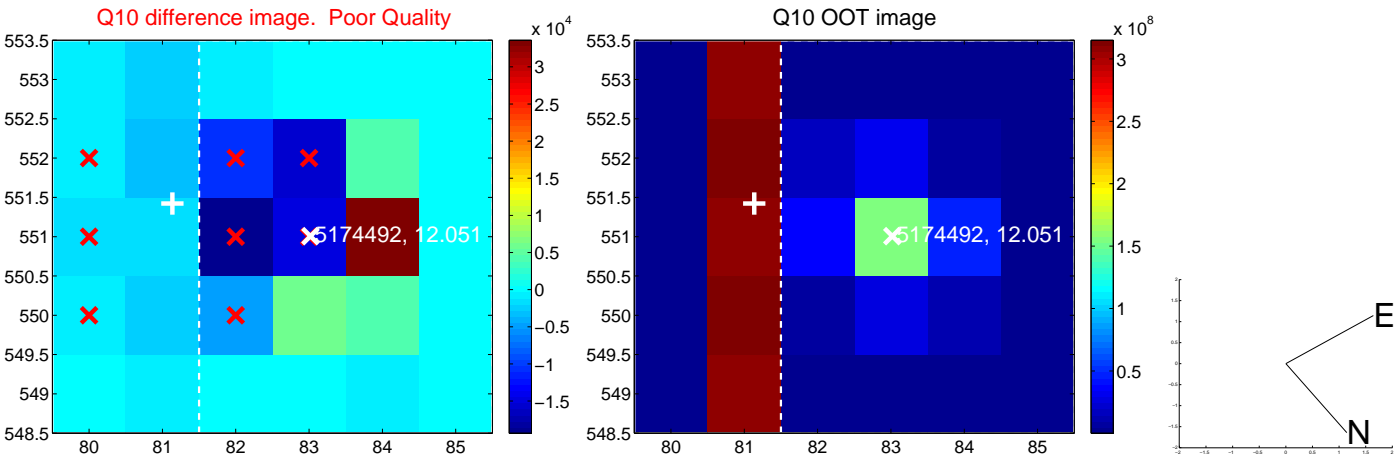
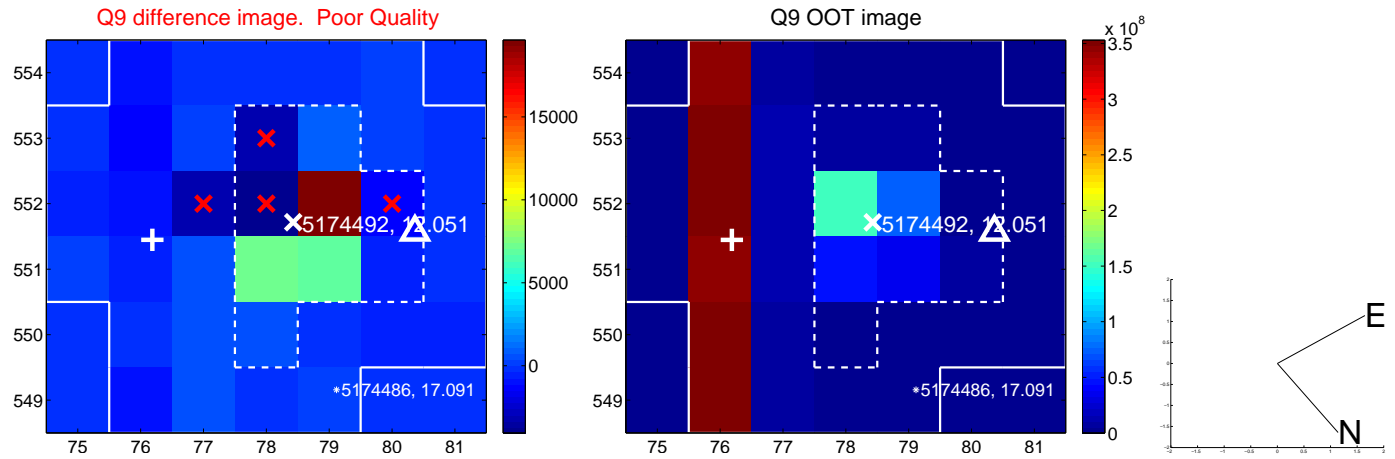
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



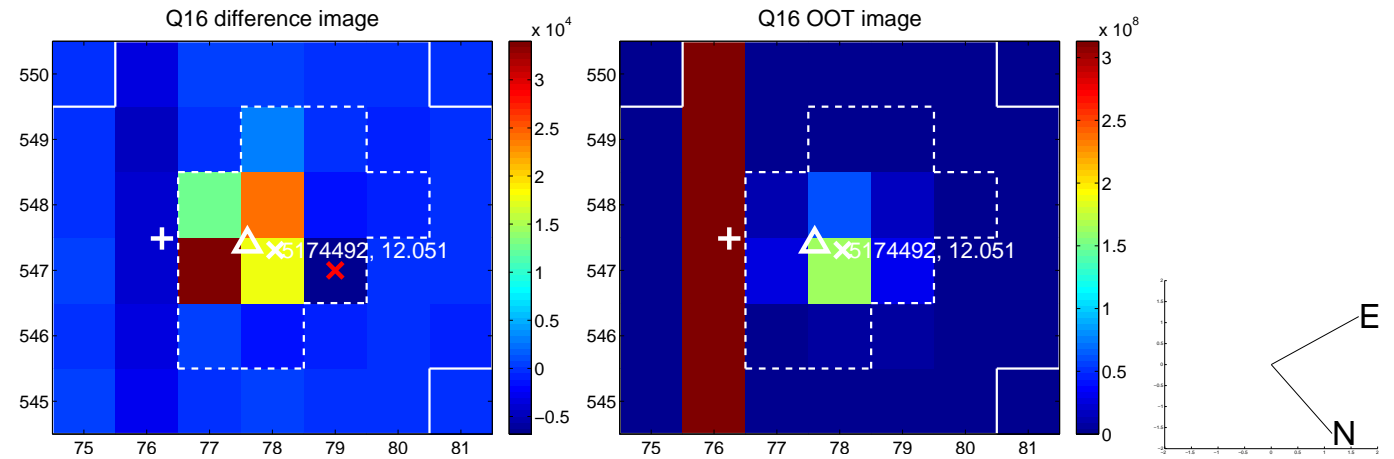
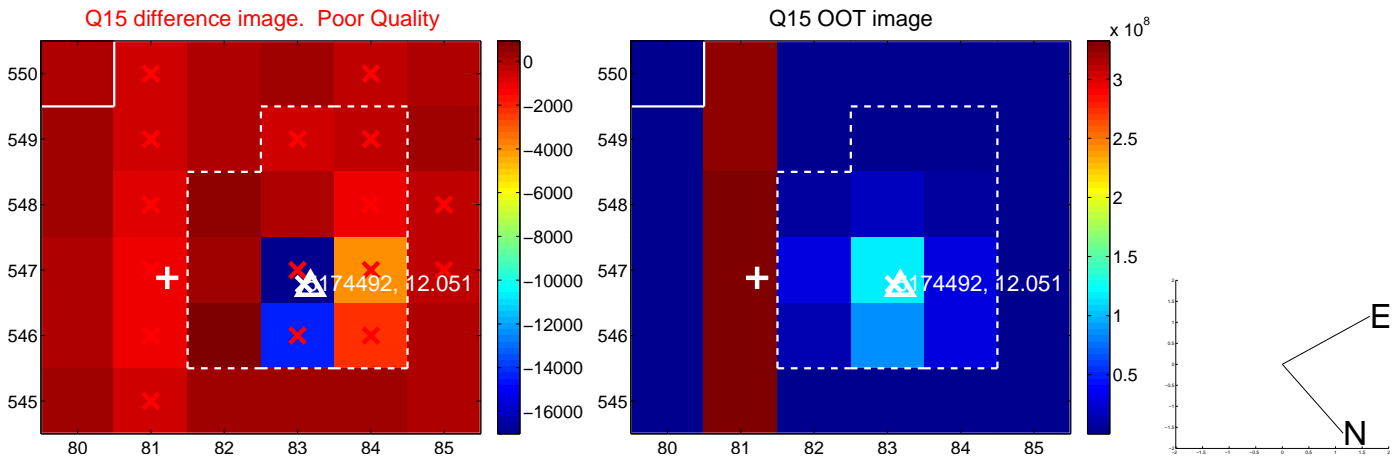
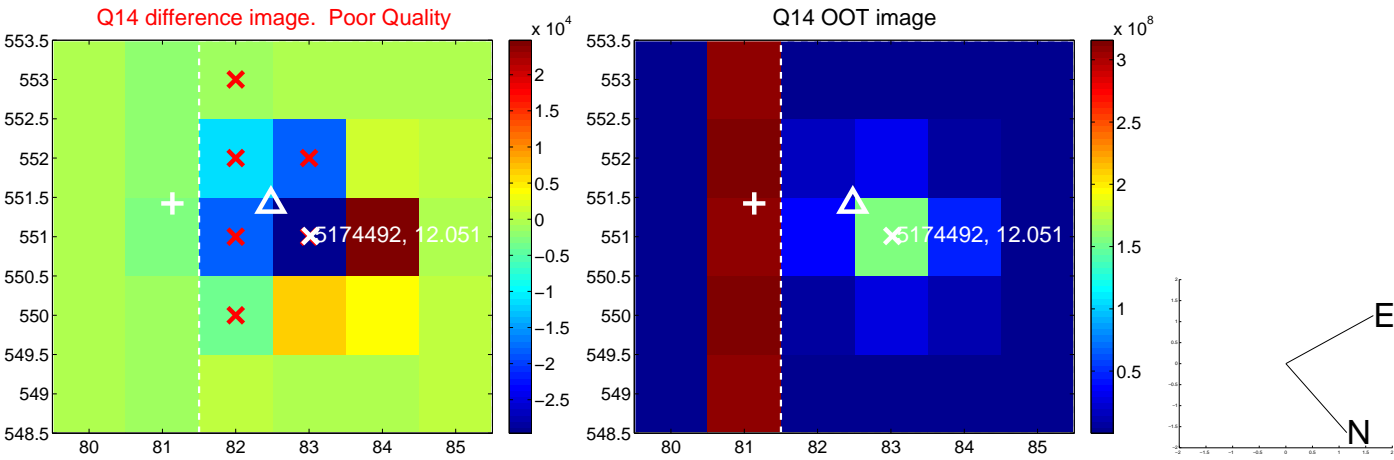
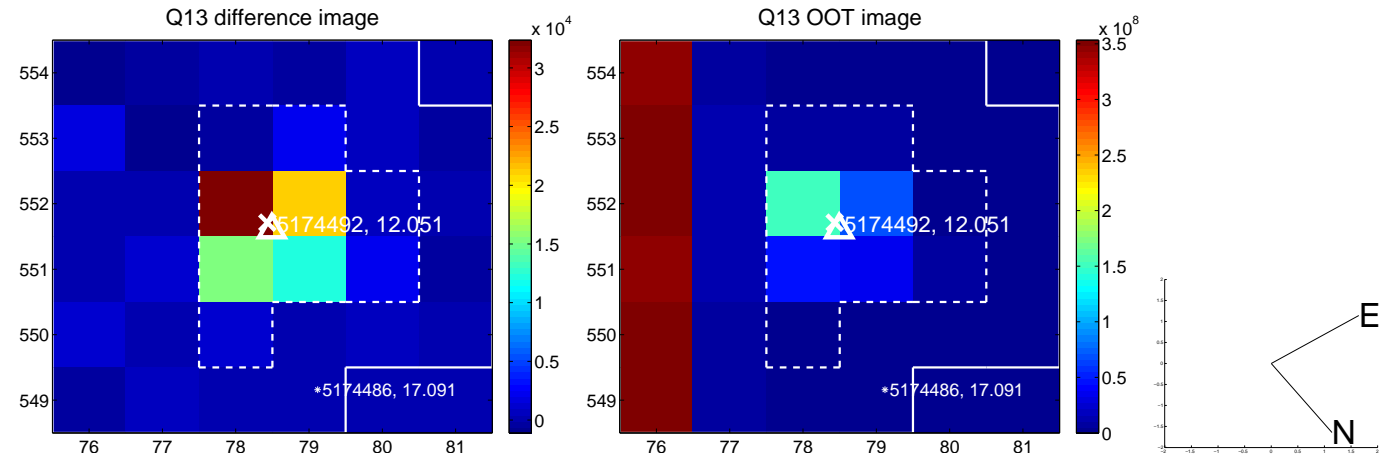
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



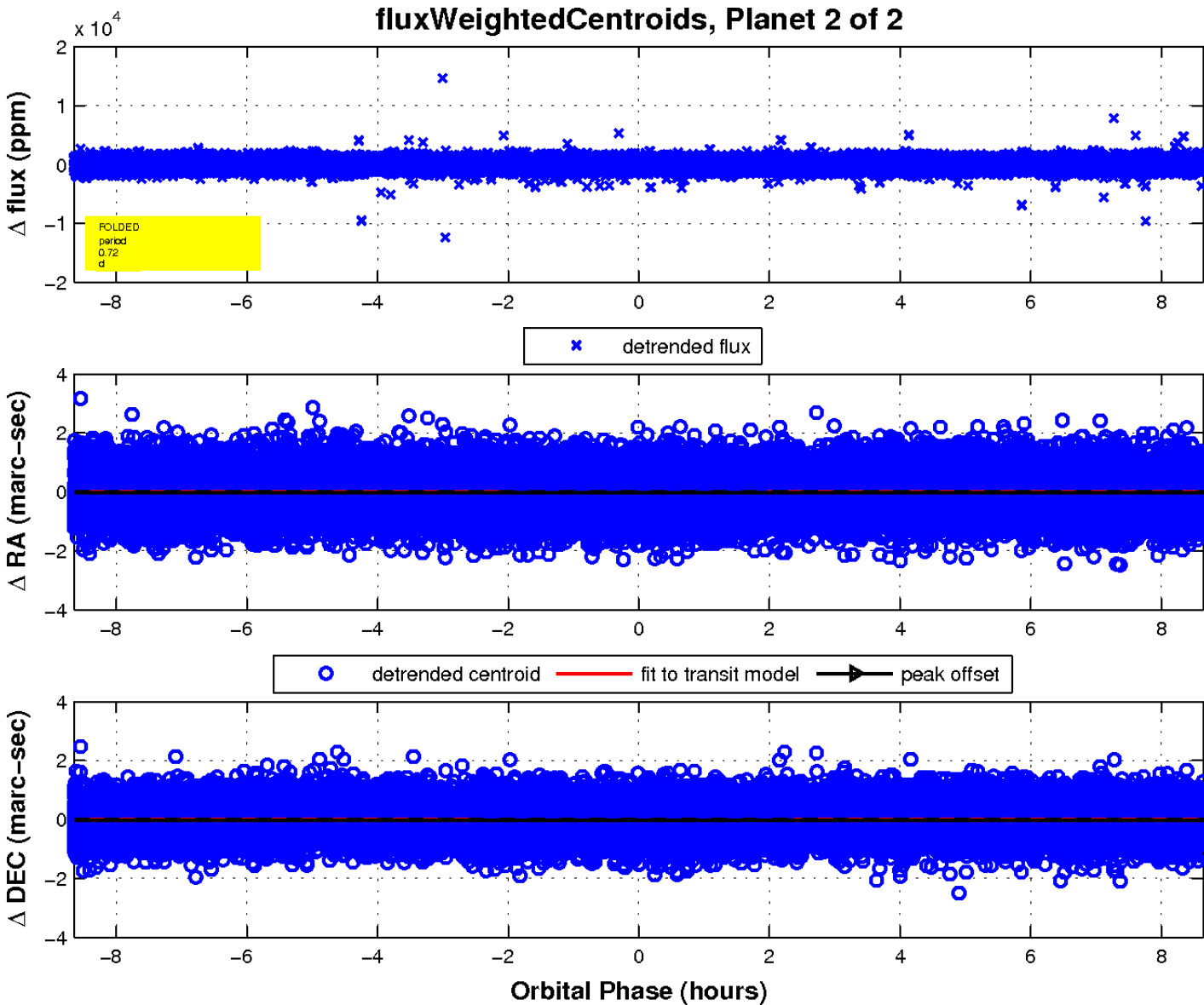
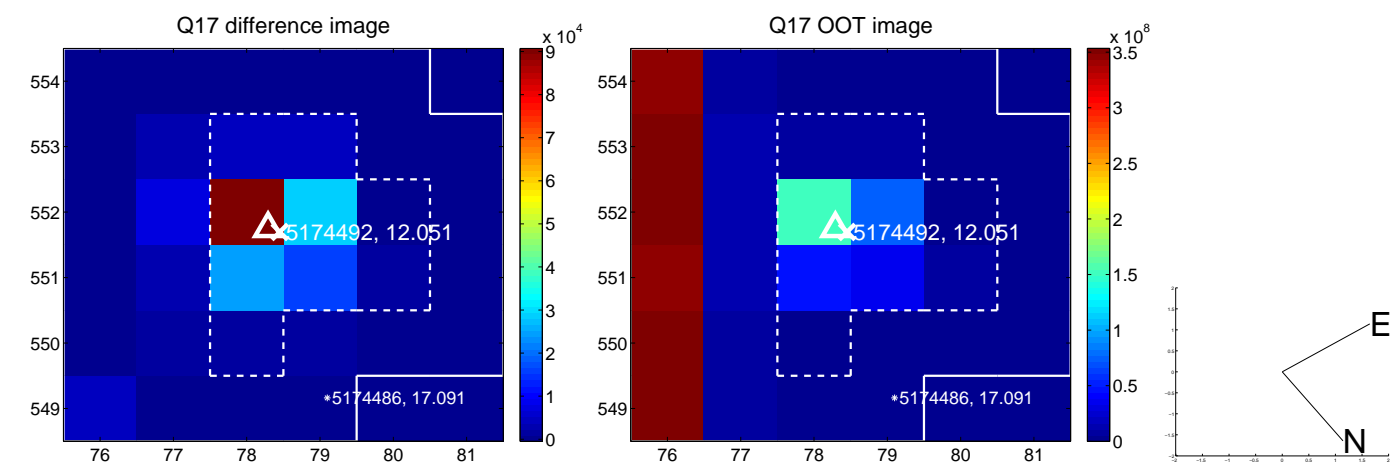
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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



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



UKIRT Image

Declination

