

# KIC 006963490

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
006963490-01	OBS	No	0.688825	132.240424	148.0	2.606	11.2	9.0	1.23	6656	1.67	9908.53
006963490-02	OBS	No	0.850129	131.941189	370.2	1.221	10.7	9.2	1.23	6656	2.46	7484.71
006963490-03	OBS	No	0.850059	133.277315	78.7	2.916	9.8	3.2	1.23	6656	1.18	7485.53

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
006963490-01	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT
006963490-02	OBS	FP	0.00	1	0	0	0	TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT
006963490-03	OBS	FP	0.00	1	0	0	0	TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—SAME_NTL_PERIOD

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

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

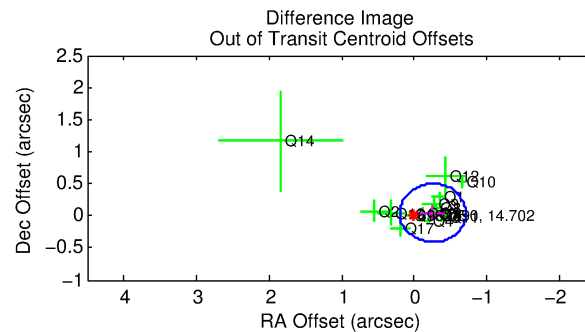
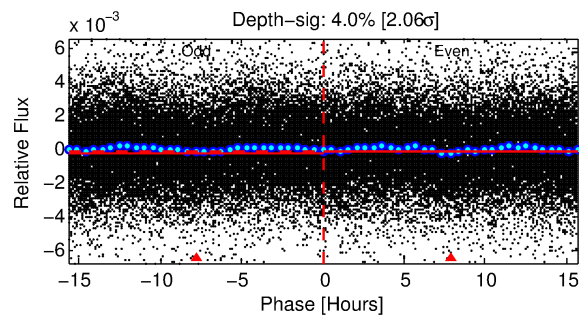
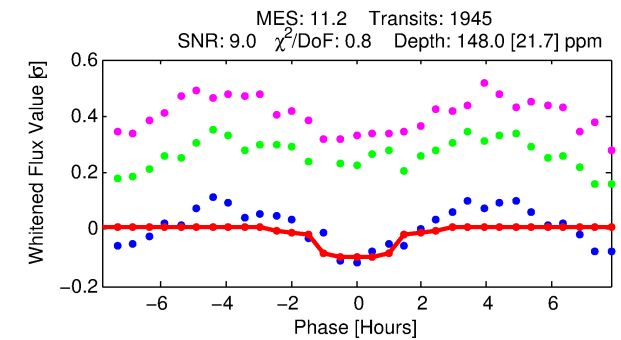
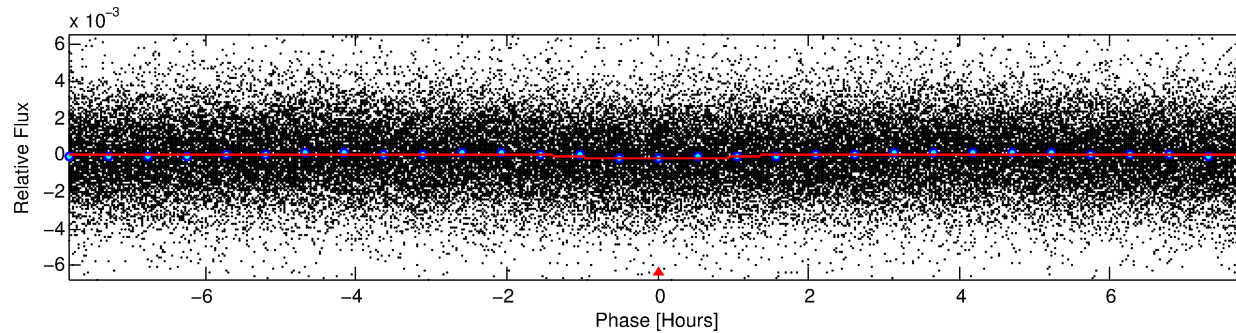
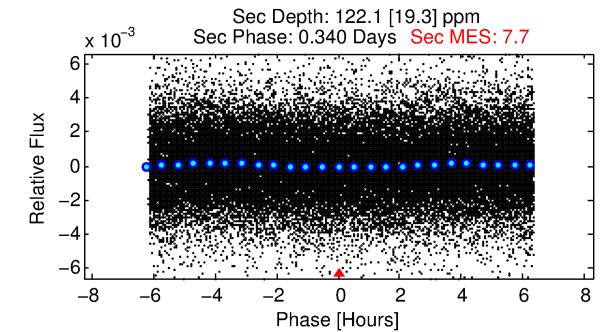
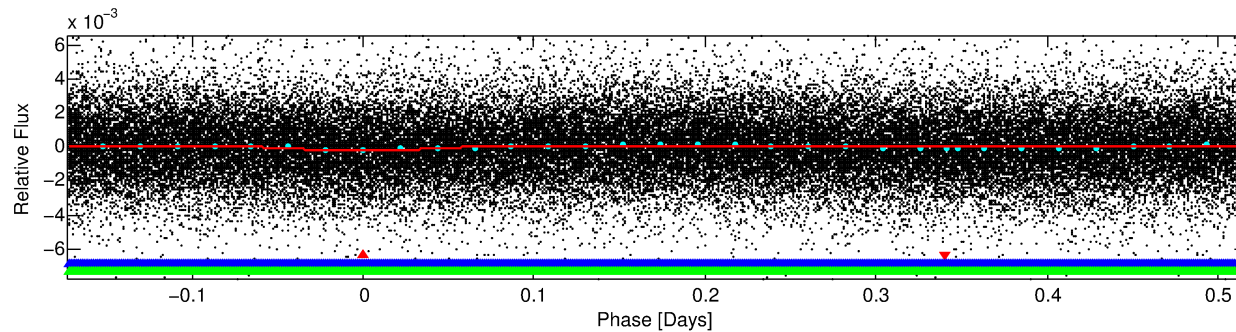
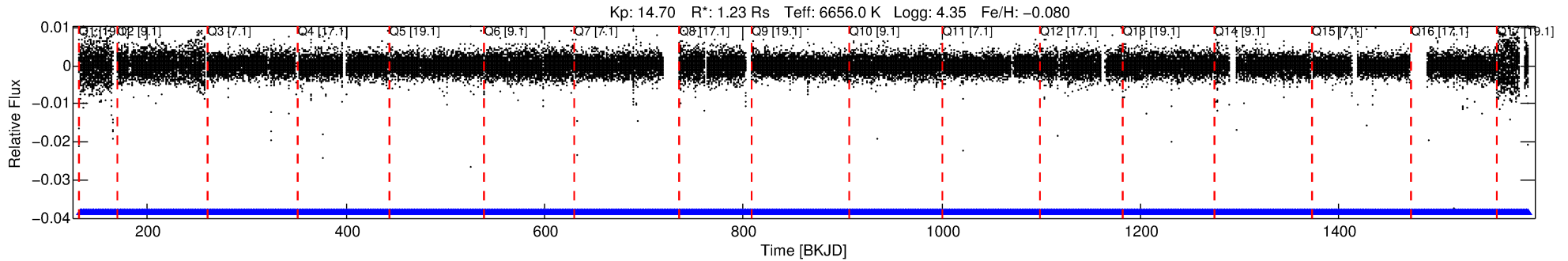
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

Ephemeris Match Information For 006963490-01

No Significant Match Found

# DV One-Page Summary

KIC: 6963490 Candidate: 1 of 3 Period: 0.689 d



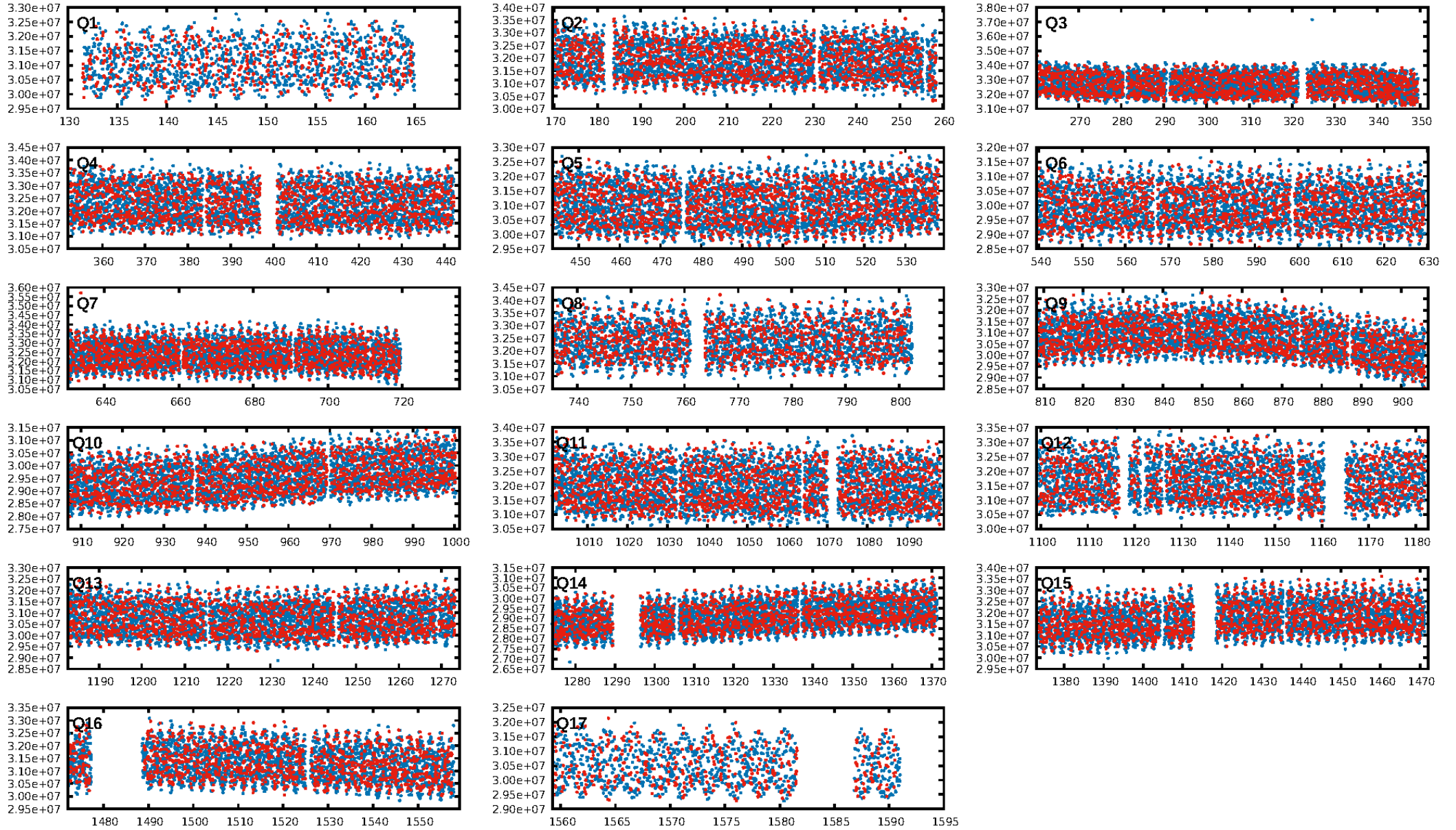
## DV Fit Results:

Period = 0.68883 [0.00001] d  
Epoch = 132.2404 [0.0040] BKJD  
Rp/R\* = 0.0125 [0.0128]  
a/R\* = 1.48 [4.77]  
b = 0.83 [2.30]  
Seff = 9908.53 [3922.69]  
Teq = 2544 [252] K  
Rp = 1.67 [1.80] Re  
a = 0.0164 [0.0043] AU  
Ag = 6.46 [13.53] [0.40σ]  
Teffp = 6270 [3242] K [1.15σ]

## DV Diagnostic Results:

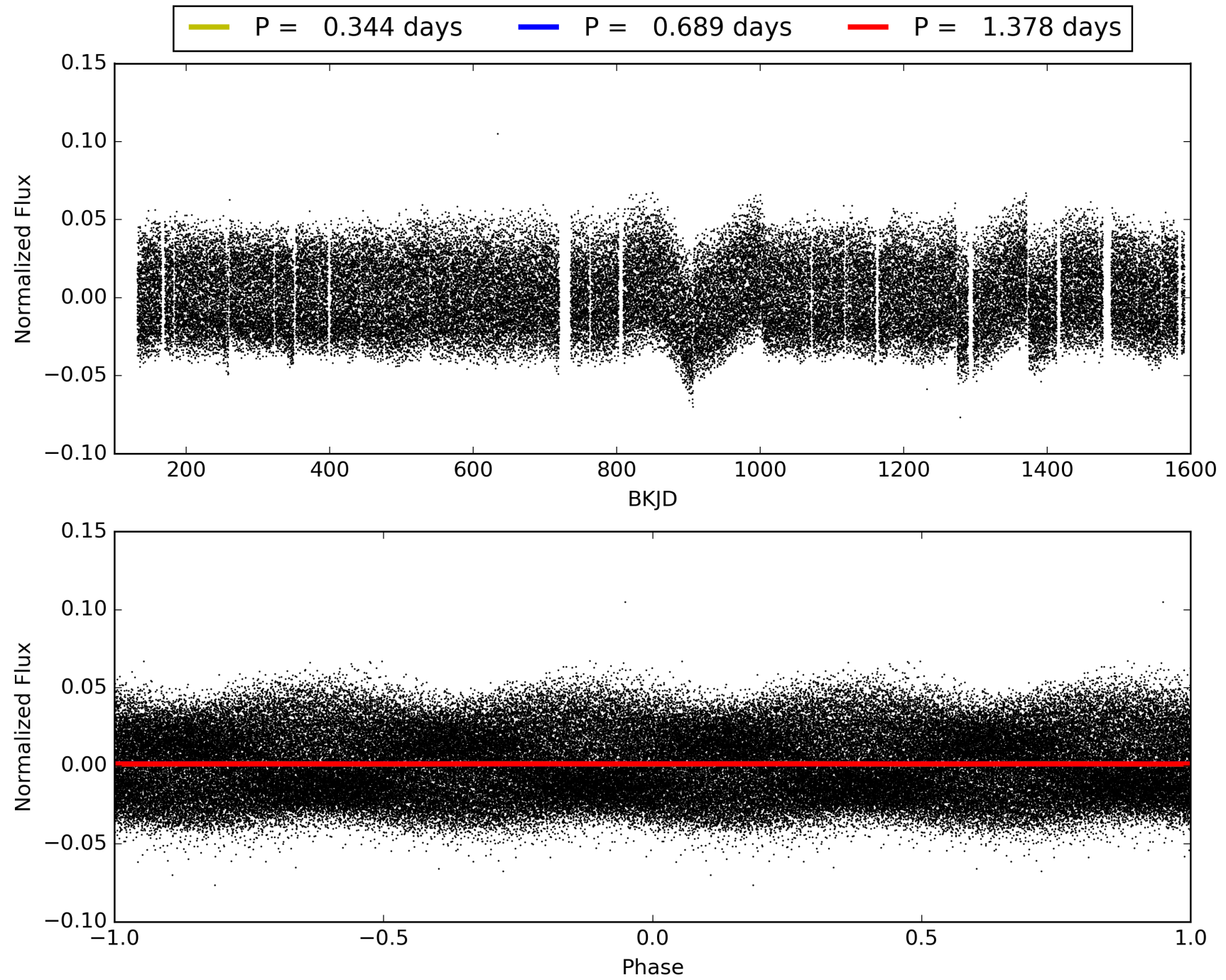
ShortPeriod-sig: N/A  
LongPeriod-sig: 67.8% [0.99σ]  
ModelChiSquare2-sig: N/A  
ModelChiSquareGof-sig: N/A  
Bootstrap-pfa: 3.67e-40  
RollingBand-fgt: 1.00 [1857/1857]  
**GhostDiagnostic-chr: 0.8426**  
Centroid-sig: N/A  
Centroid-so: 0.807 arcsec [1.93σ]  
OotOffset-rm: 0.257 arcsec [1.70σ]  
KicOffset-rm: 0.202 arcsec [1.66σ]  
OotOffset-st: 3/4/4/5 [16]  
KicOffset-st: 3/4/4/5 [16]  
DiffImageQuality-fgm: 0.69 [11/16]  
DiffImageOverlap-fno: 0.00 [0/17]

# TCE 006963490-01, PDC Light Curves





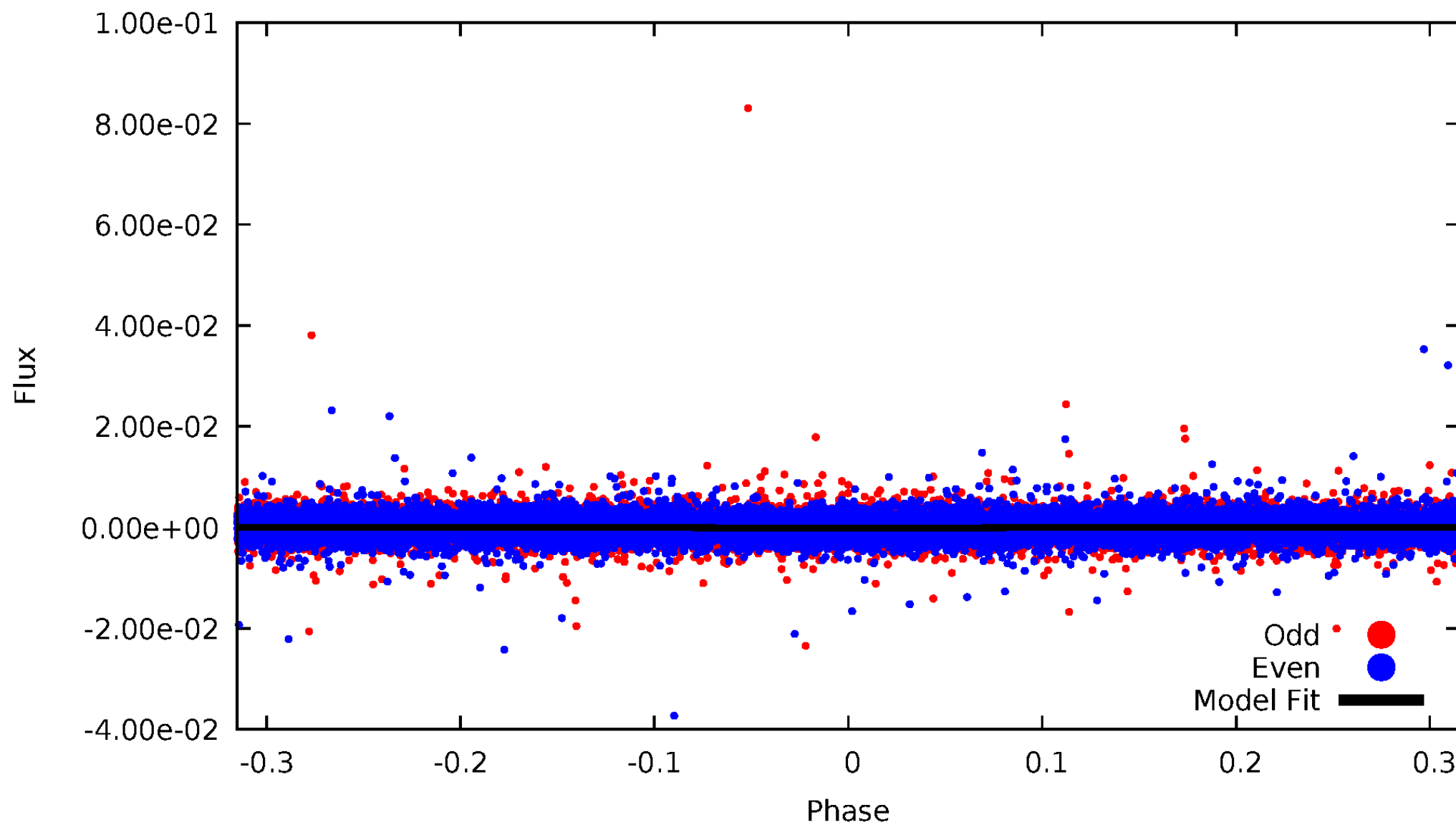
TCE 006963490-01





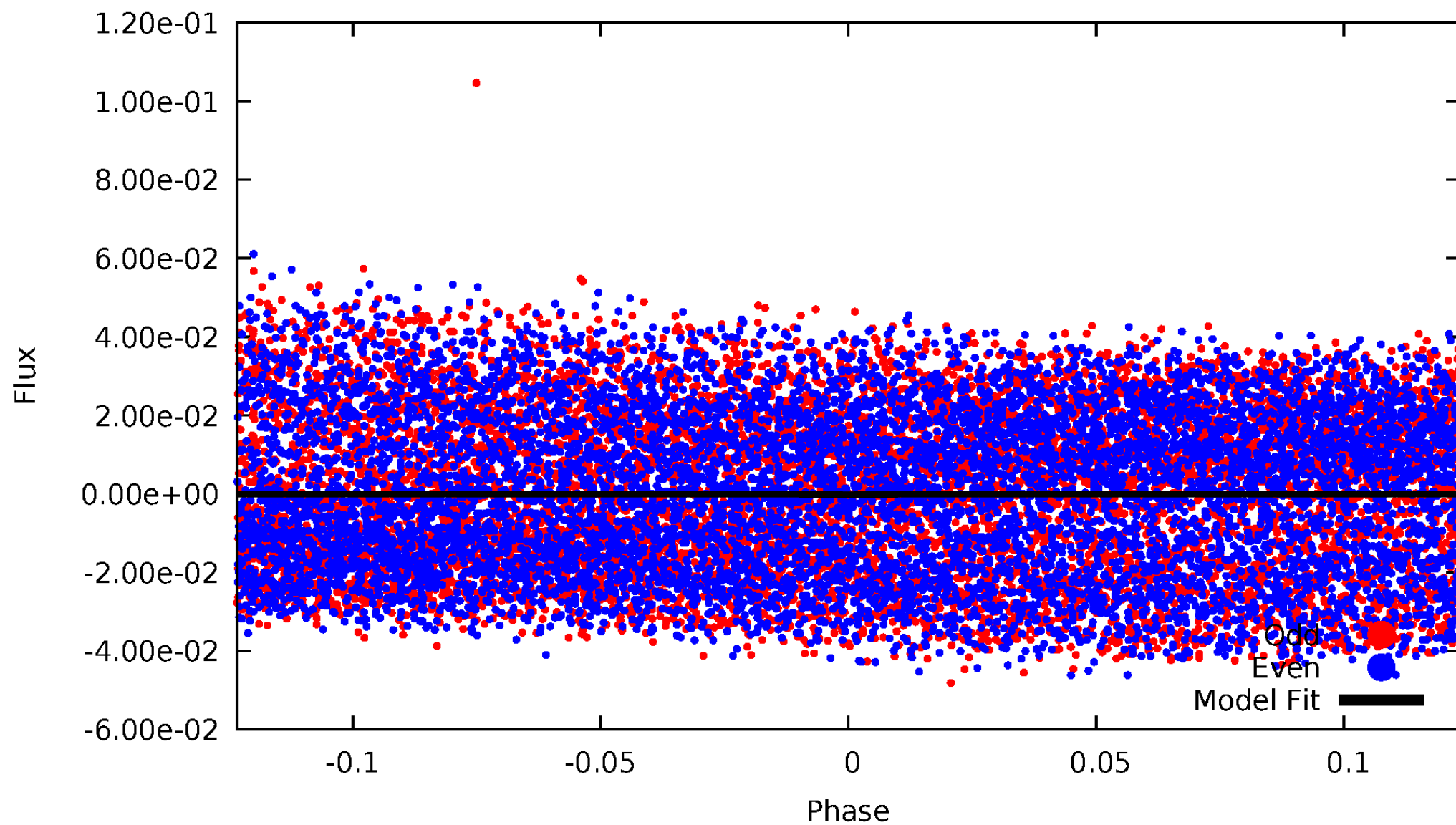
# DV Odd/Even

TCE 006963490-01

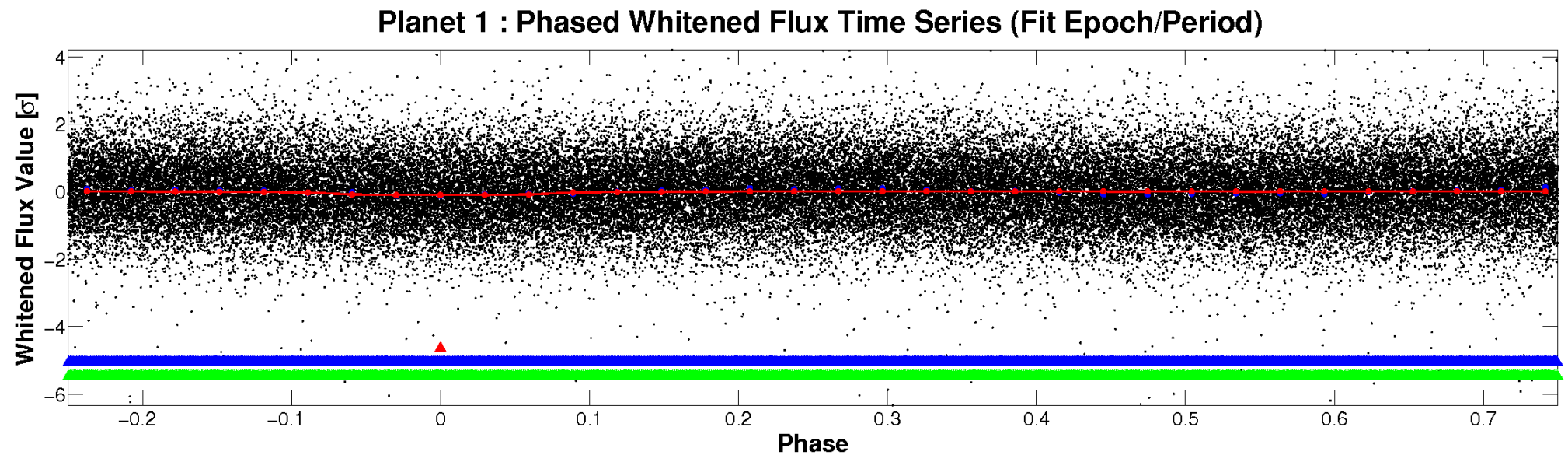
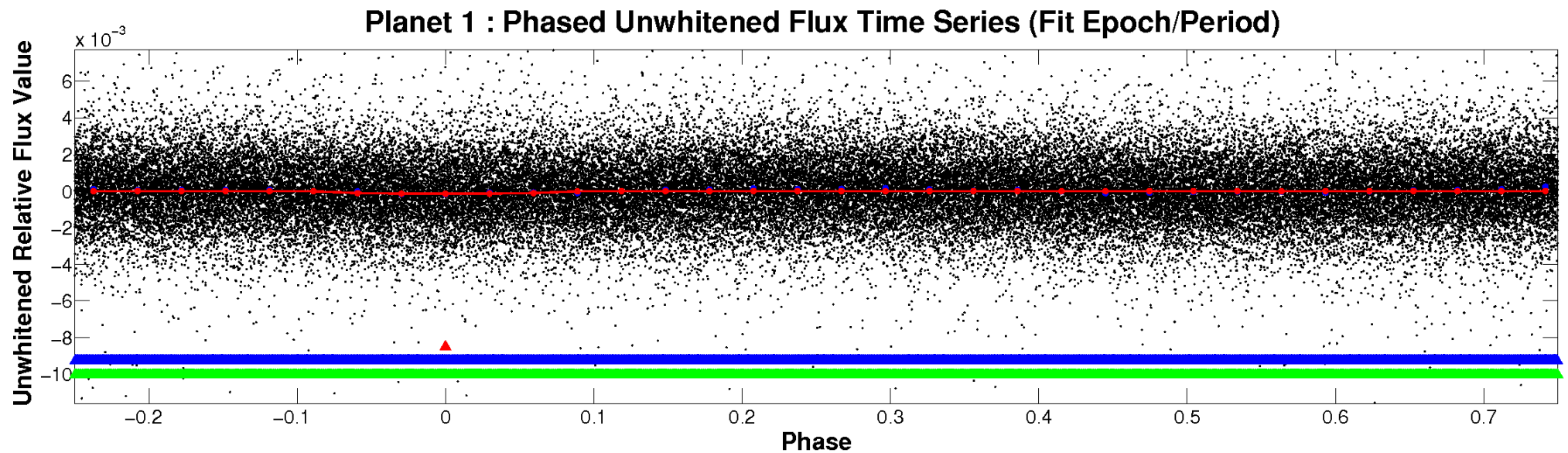


# ALT Odd/Even

TCE 006963490-01



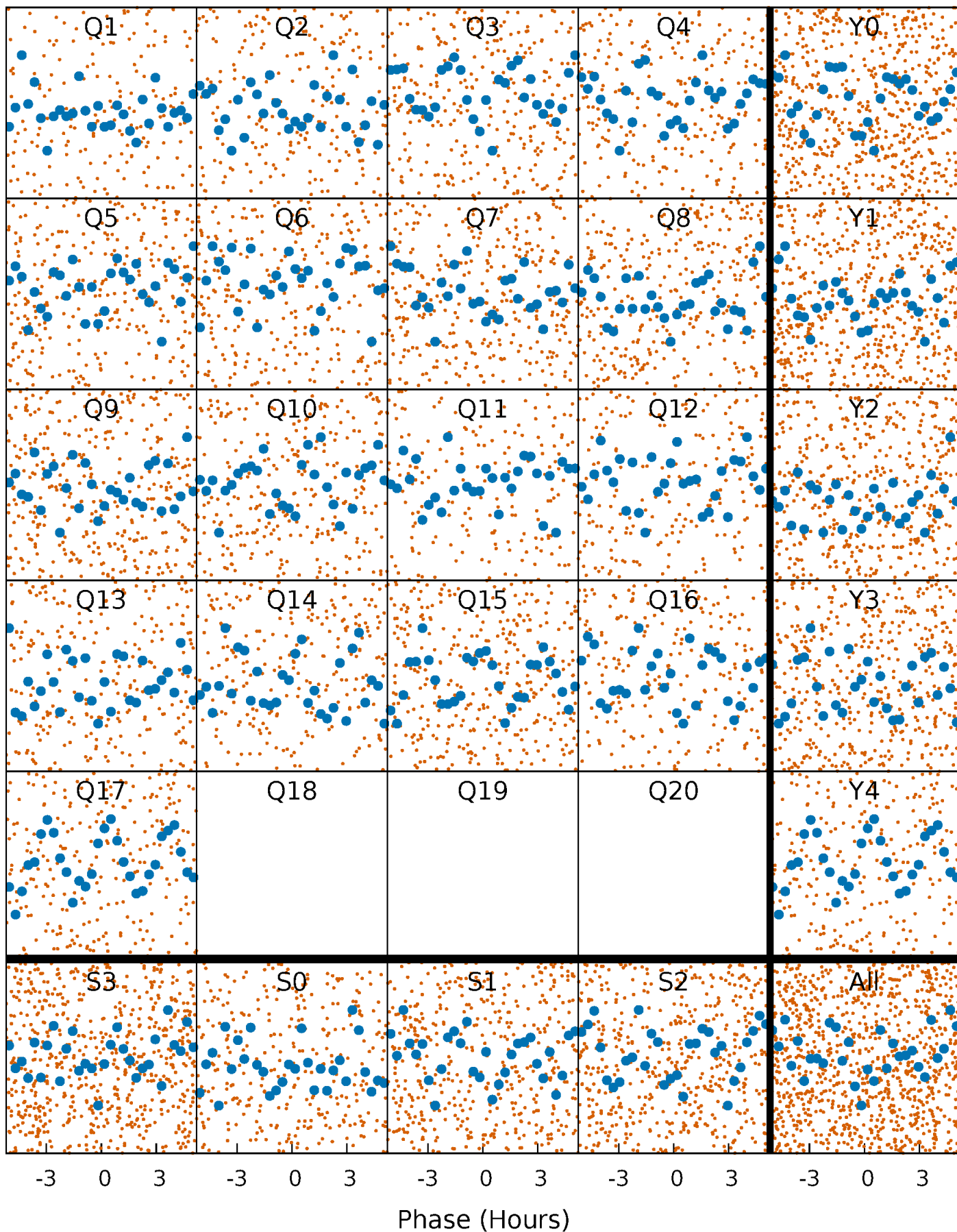
# Non-Whitened Vs. Whitened Light Curve





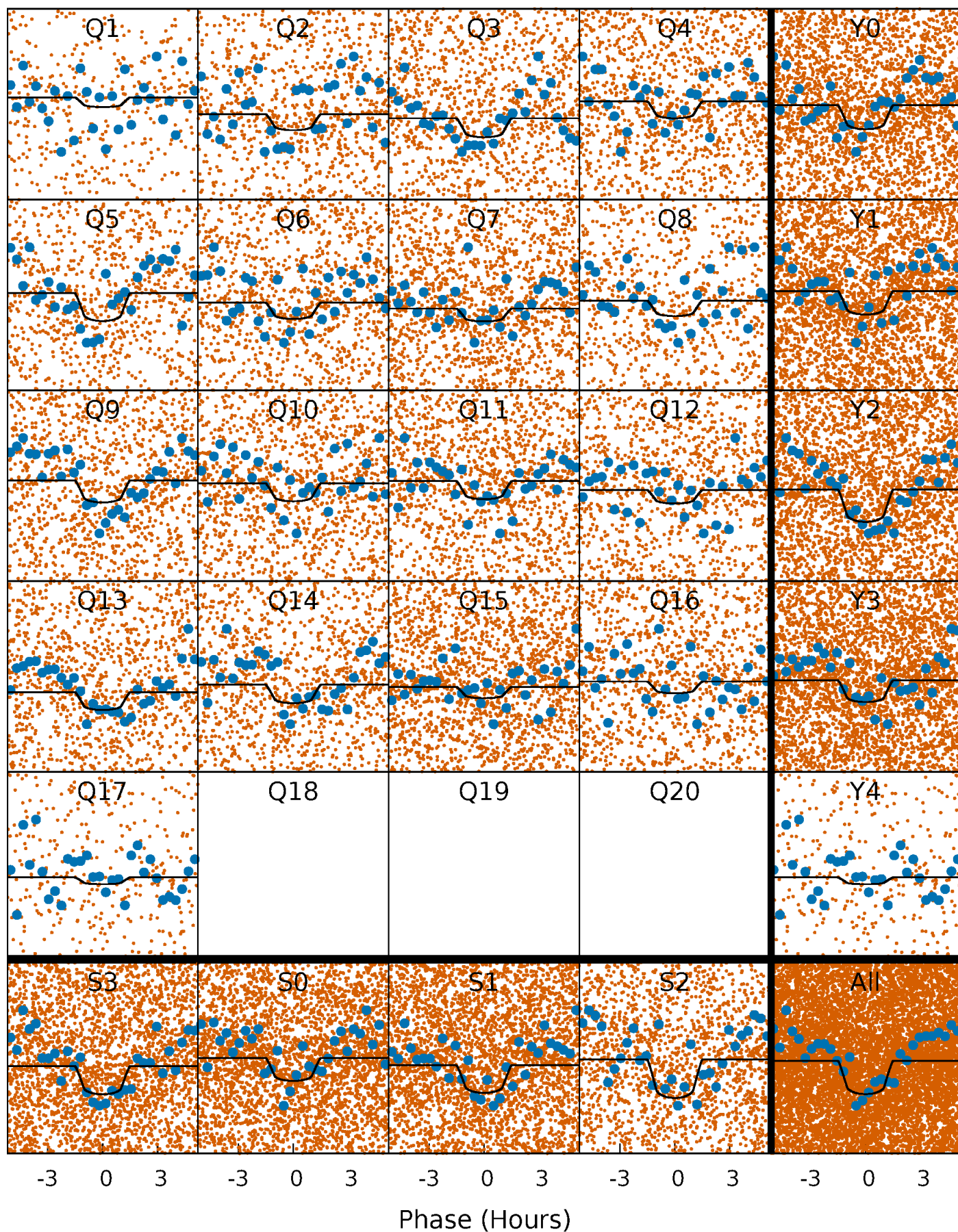
# PDC Quarter-Phased Transit Curves

TCE 006963490-01   P= 0.688825 Days    $T_0=132.240424$  (BKJD)



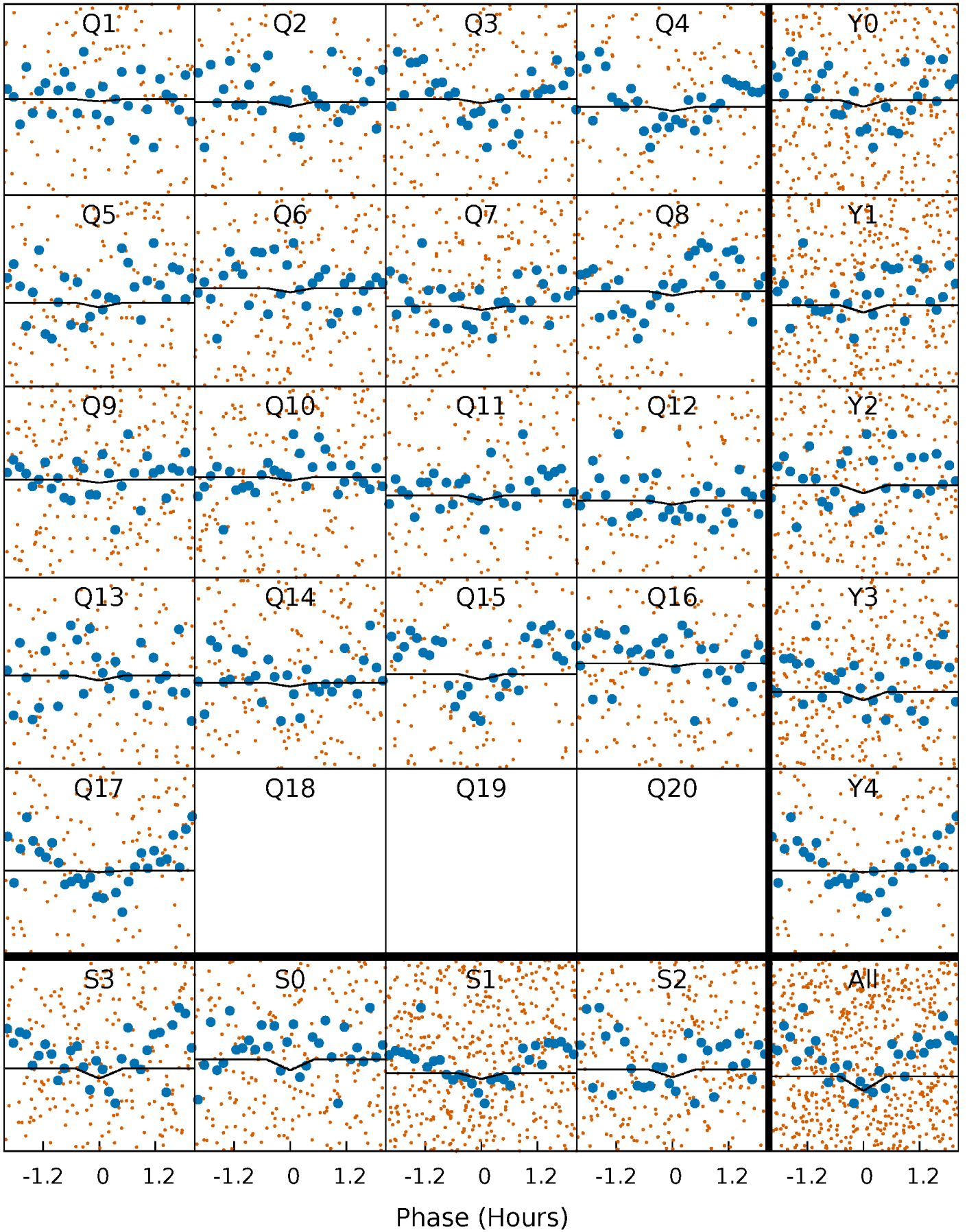
# DV Quarter-Phased Transit Curves

TCE 006963490-01 P= 0.688825 Days  $T_0=132.240424$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

TCE 006963490-01   P= 0.688874 Days    $T_0=132.221329$  (BKJD)

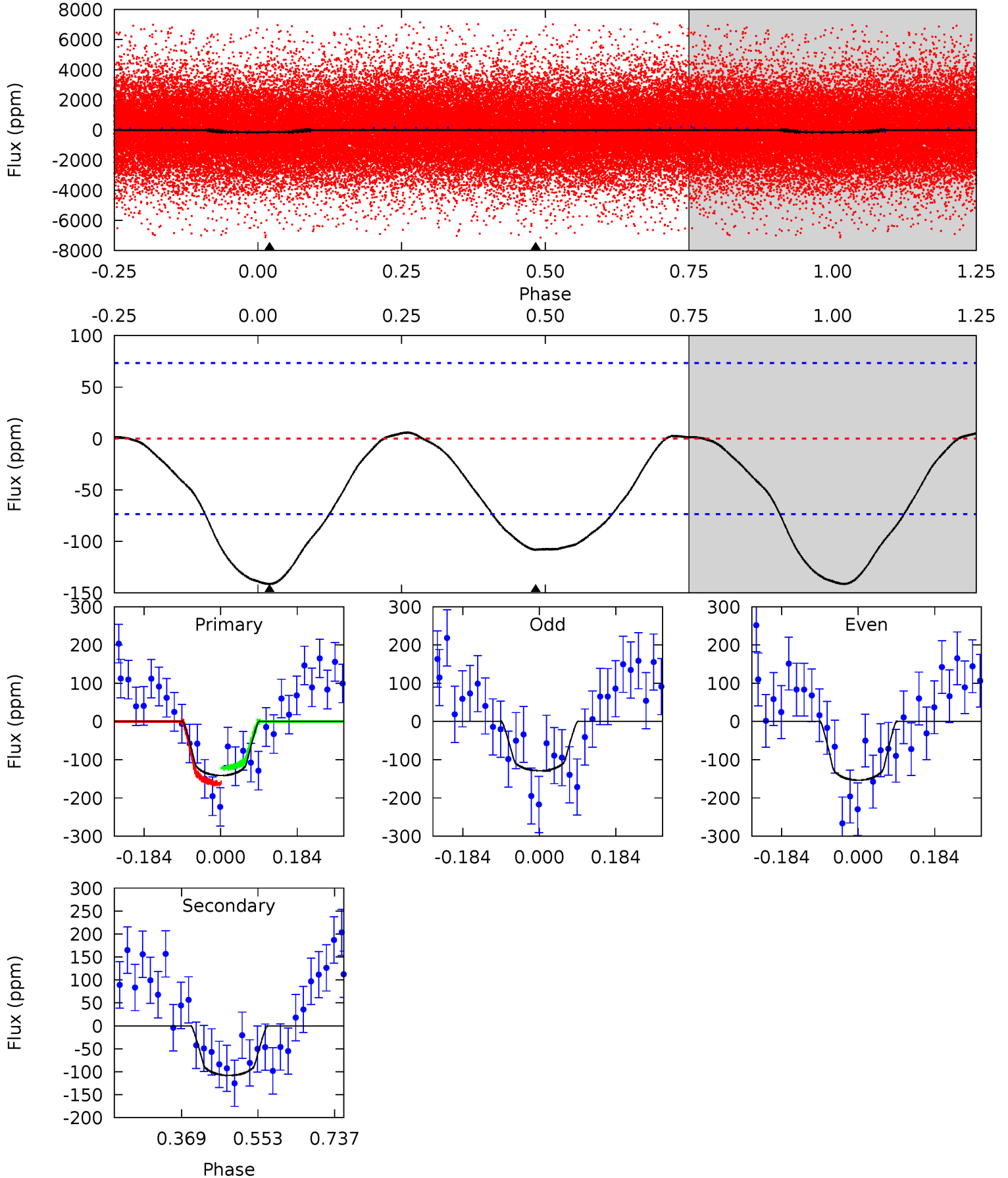




# DV Model-Shift Uniqueness Test

006963490-01, P = 0.688825 Days, E = 130.862774 Days

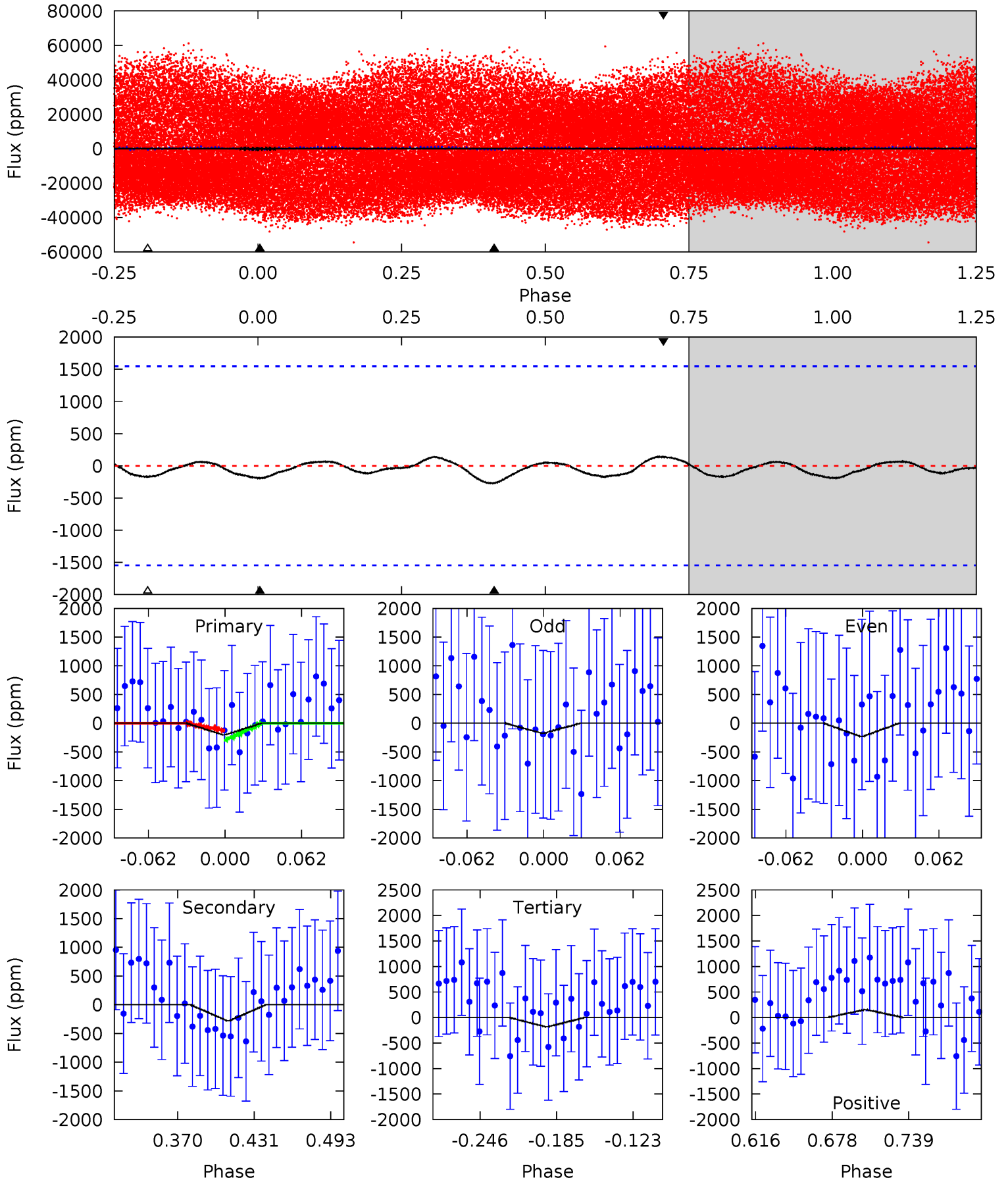
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
8.54	6.53	0	0	4.43	1.33	0.51	8.54	8.54	6.53	6.53	0.76	0.84	0.04	1.22



# Alt Model-Shift Uniqueness Test

006963490-01, P = 0.688874 Days, E = 130.843581 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
0.61	0.84	0.55	0.46	4.67	1.87	0.26	0.07	0.15	0.30	0.38	0.09	-0.10	0.35	0.26



### Stellar Parameters For KIC 006963490

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	$6656^{+181}_{-241}$	$4.351^{+0.065}_{-0.195}$	$-0.080^{+0.250}_{-0.350}$	$1.232^{+0.397}_{-0.159}$	$1.248^{+0.174}_{-0.174}$	$0.941^{+0.322}_{-0.465}$
	+3%/-4%	+1%/-4%	+312%/-438%	+32%/-13%	+14%/-14%	+34%/-49%
Source	PHO1	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 006963490-01 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	$A_{obs}$
DV	$-108 \pm 17$	$2.15^{+1.80}_{-1.34}$	$3611^{+268}_{-186}$	$5392^{+3987}_{-1389}$	$3.463^{+20.226}_{-2.442}$
Alt.	$-279 \pm 331$	$2.38^{+1.70}_{-1.46}$	$3612^{+265}_{-183}$	$6149^{+5976}_{-10591}$	$5.947^{+37.479}_{-6.940}$

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



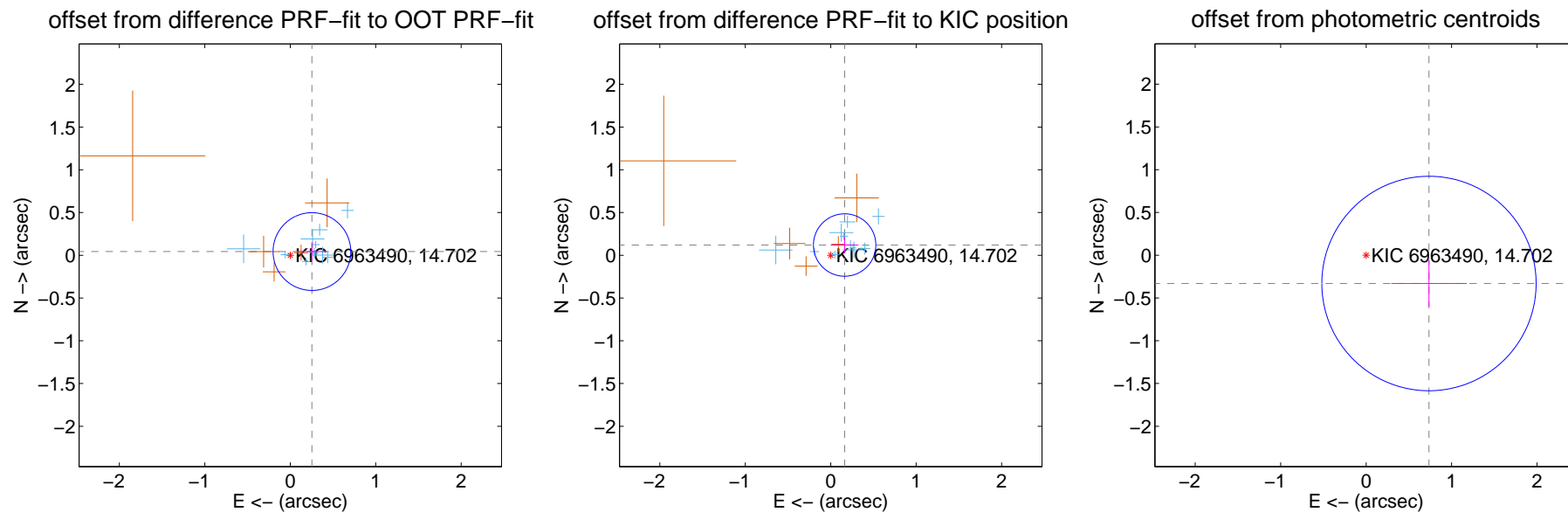
## DV Centroid Data

Supplemental centroid analysis for 006963490-01. Kepler magnitude: 14.70. Transit SNR 9.01

There are 11 quarters with good PRF difference image offsets

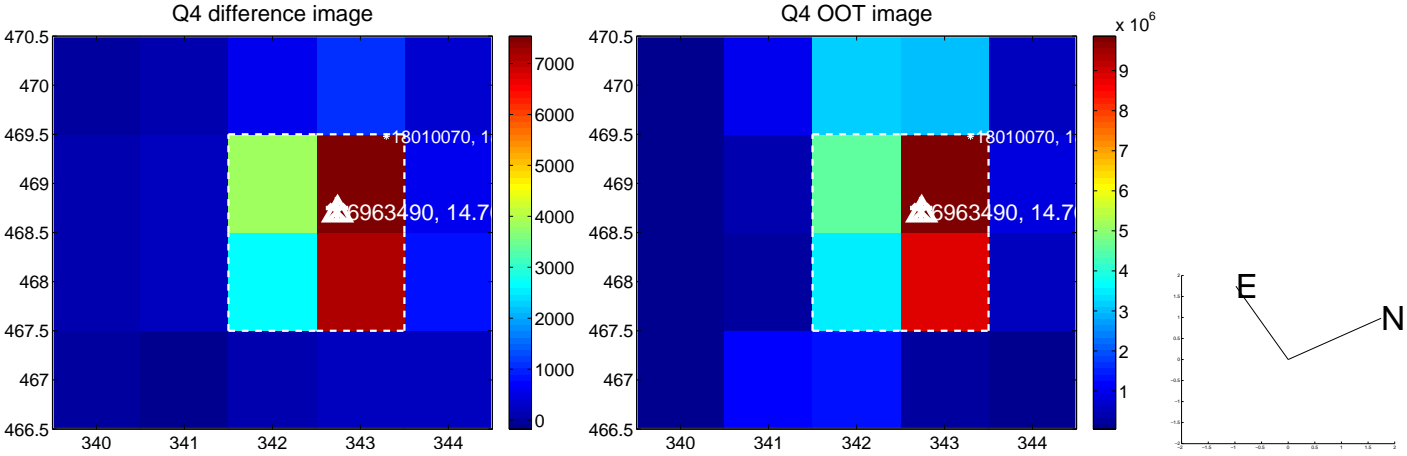
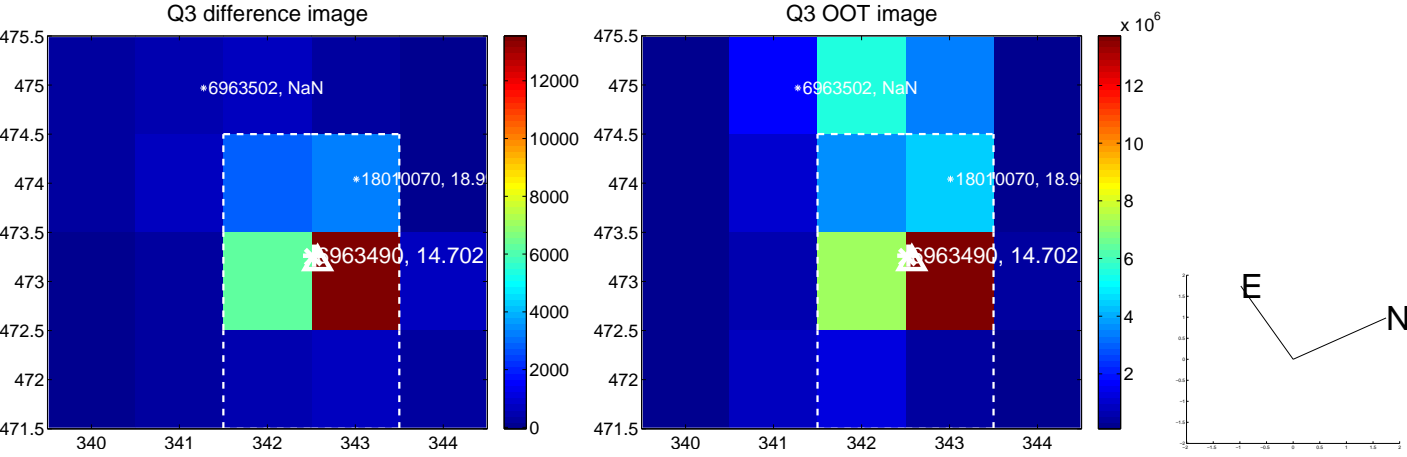
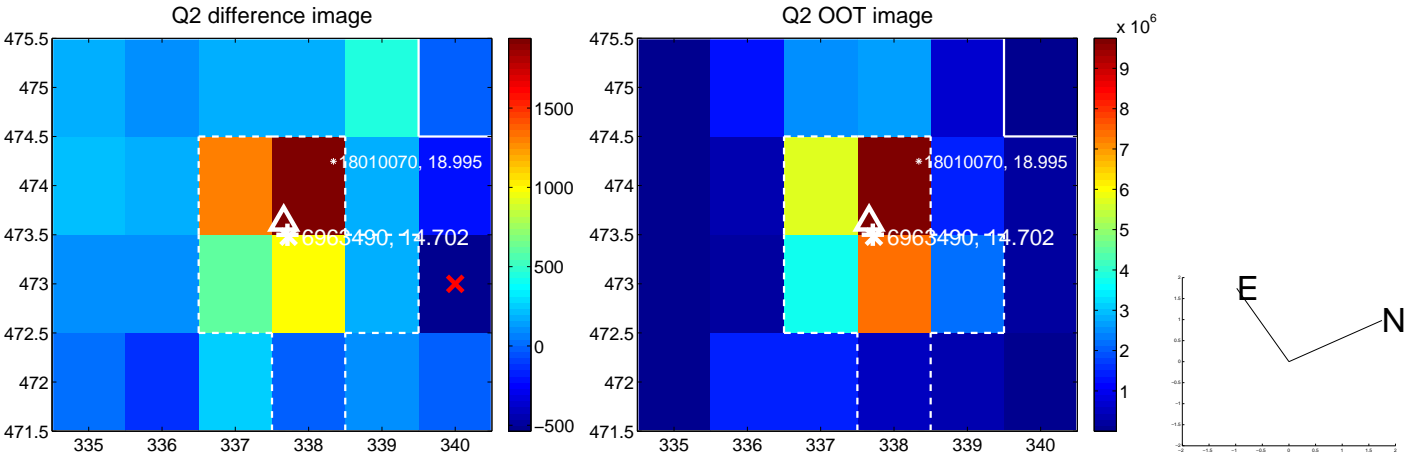
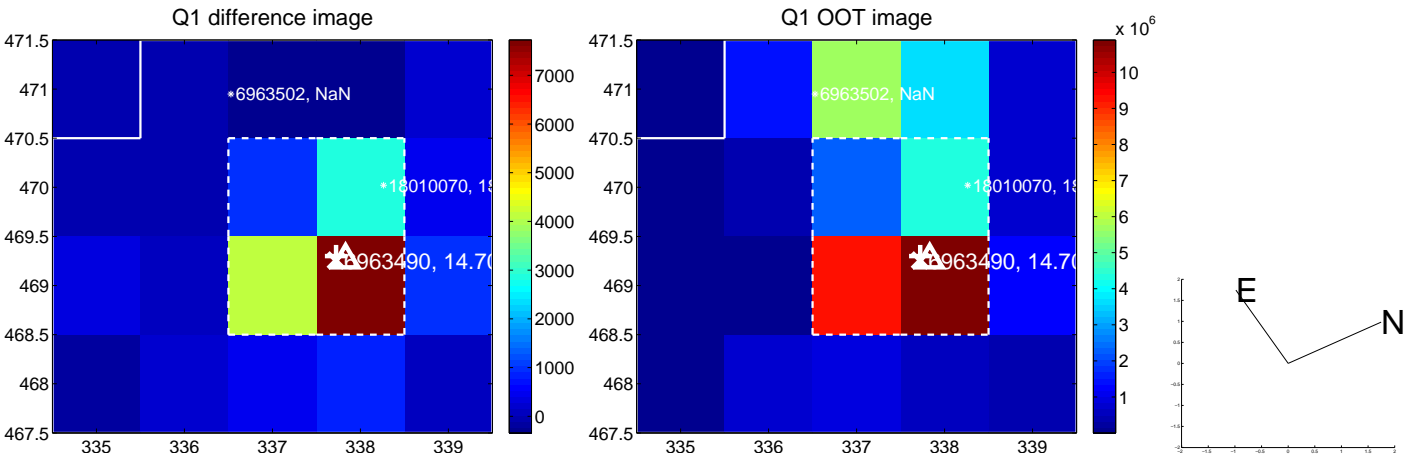
The direct PRF centroid is offset from the target star catalog position by about 0.12 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$0.257 \pm 0.152$	1.70	$-0.253 \pm 0.160$	$0.043 \pm 0.109$
PRF-fit source offset from KIC position	$0.202 \pm 0.122$	1.66	$-0.163 \pm 0.162$	$0.120 \pm 0.098$
photometric centroid source offset	$0.81 \pm 0.42$	1.93	$-0.74 \pm 0.44$	$-0.33 \pm 0.27$

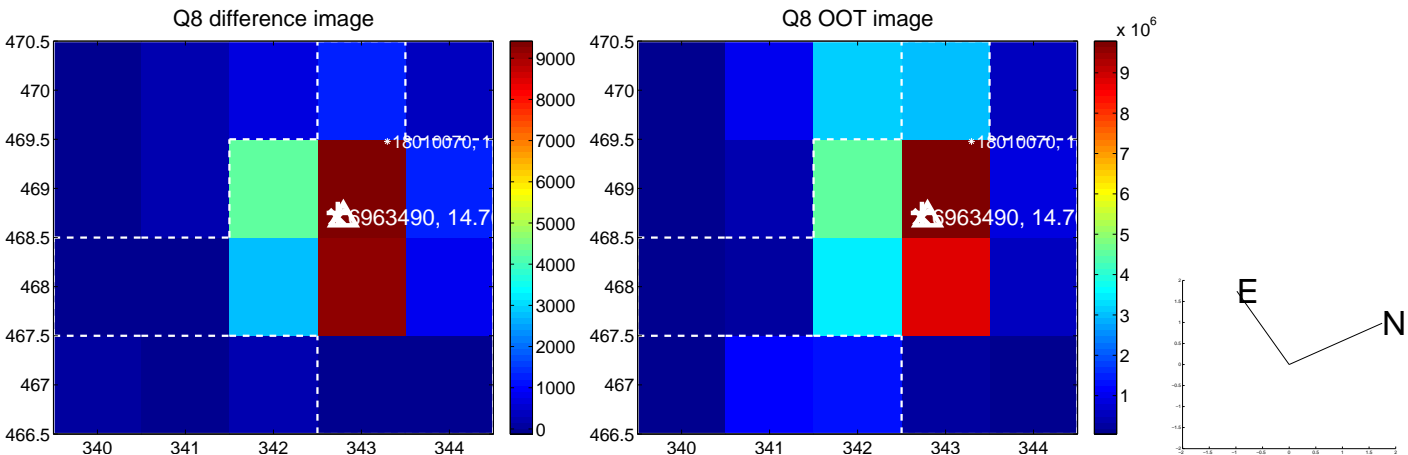
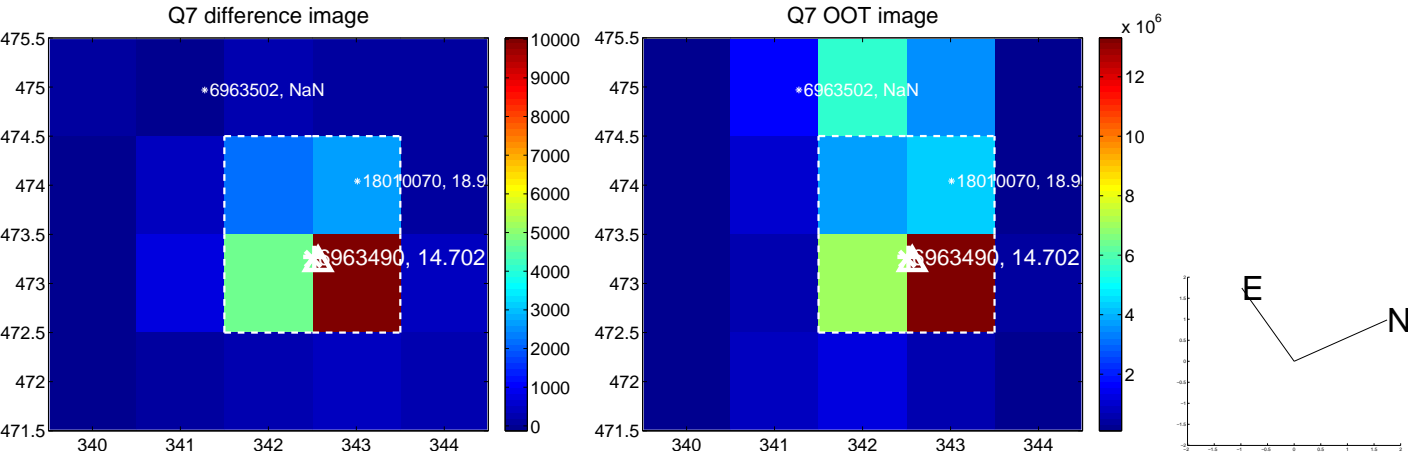
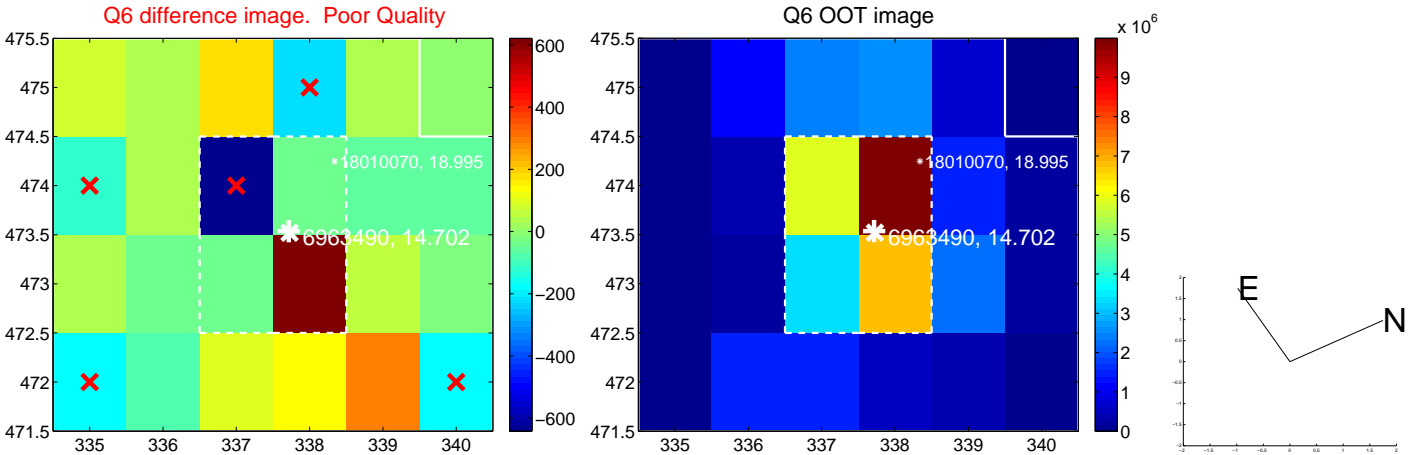
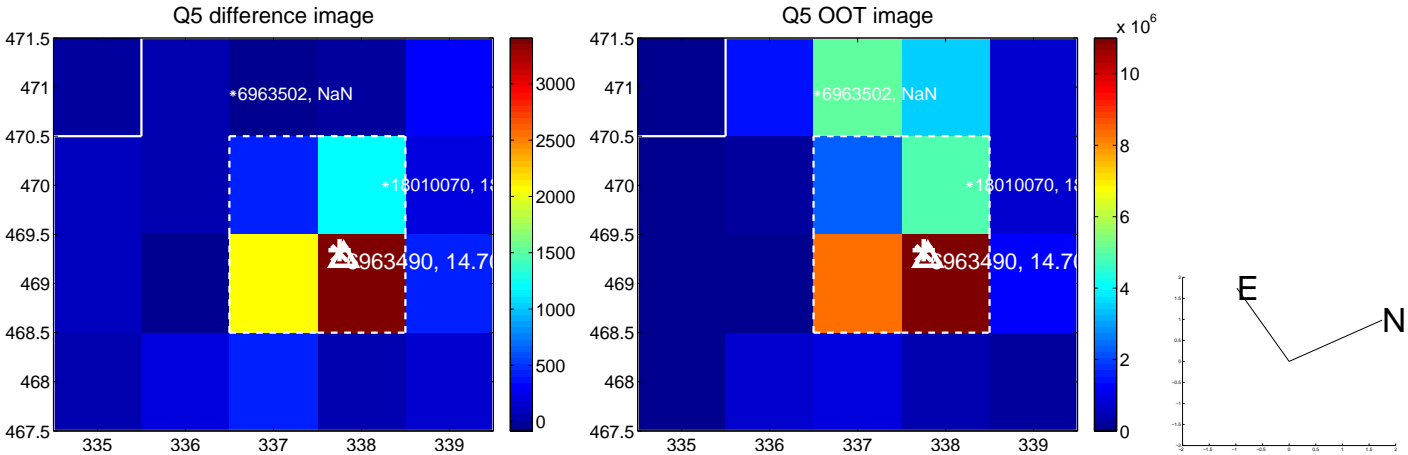


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses:** good quarterly centroid offsets; **Vermillion crosses:** bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: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

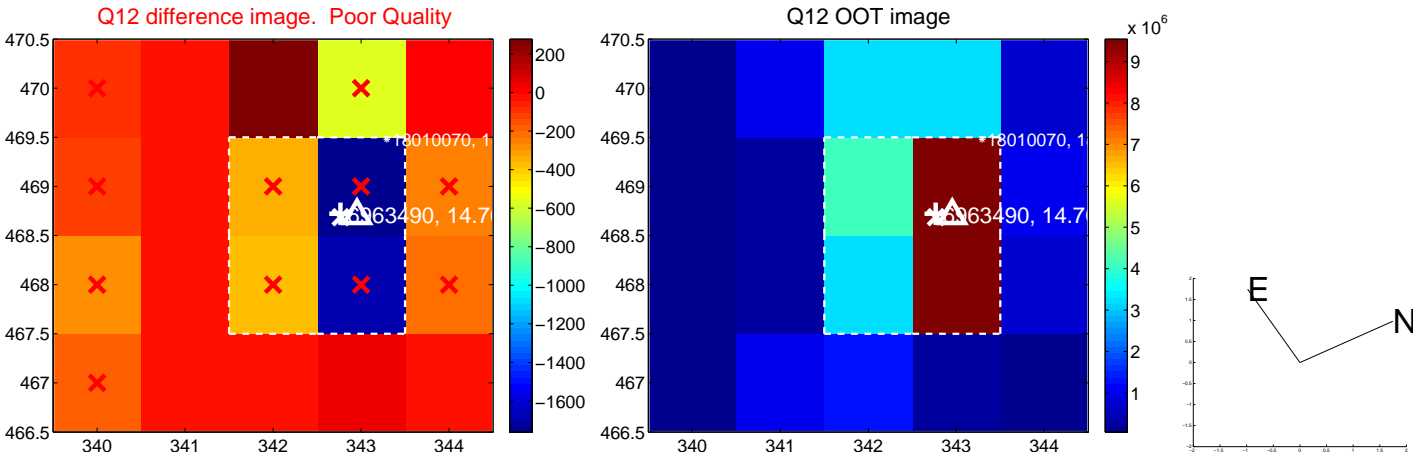
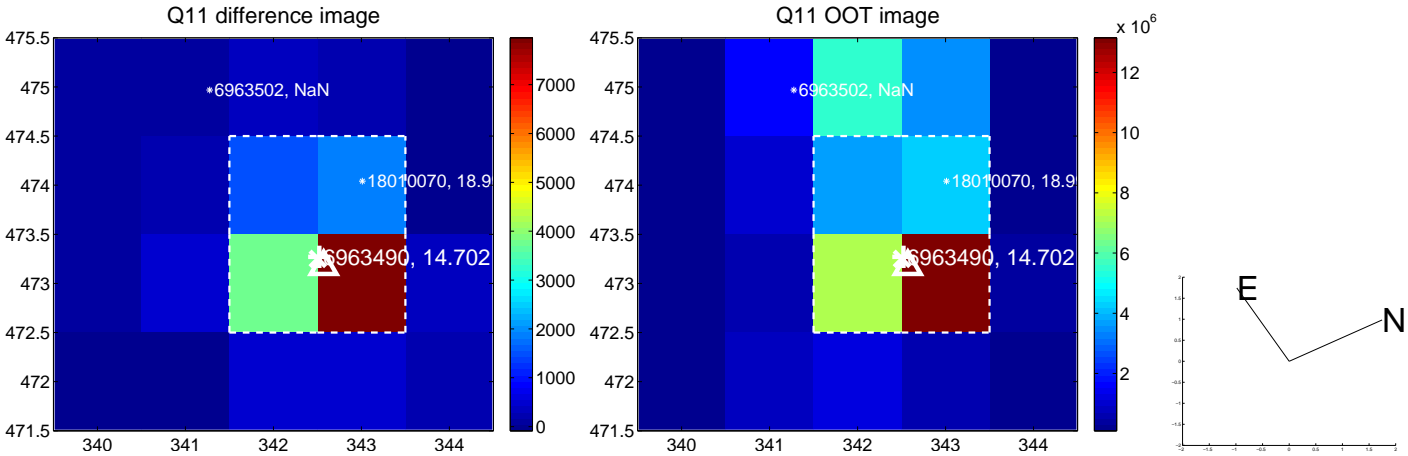
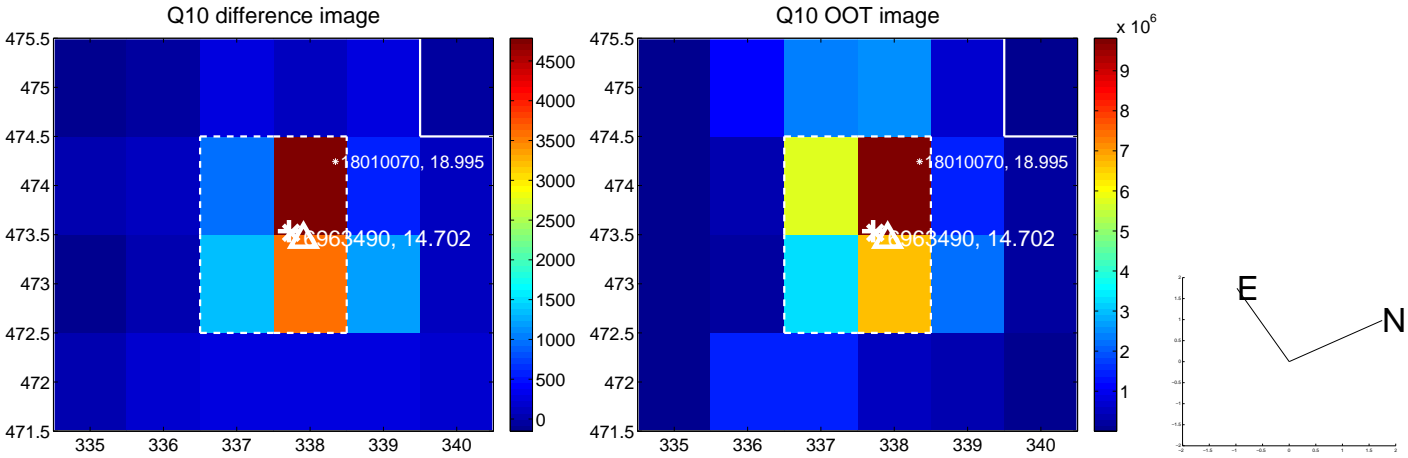
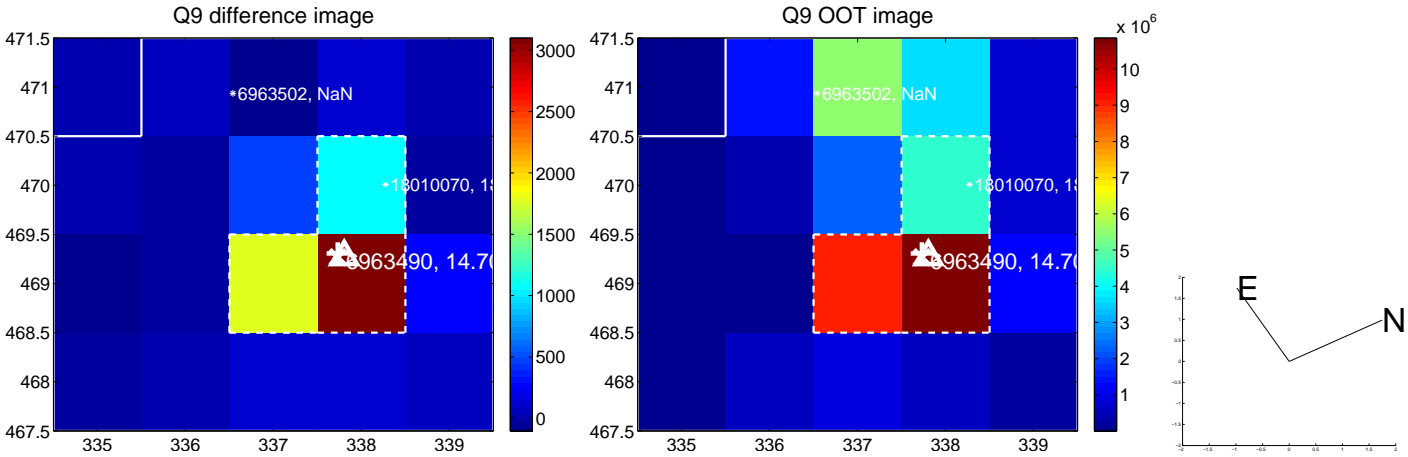


white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.

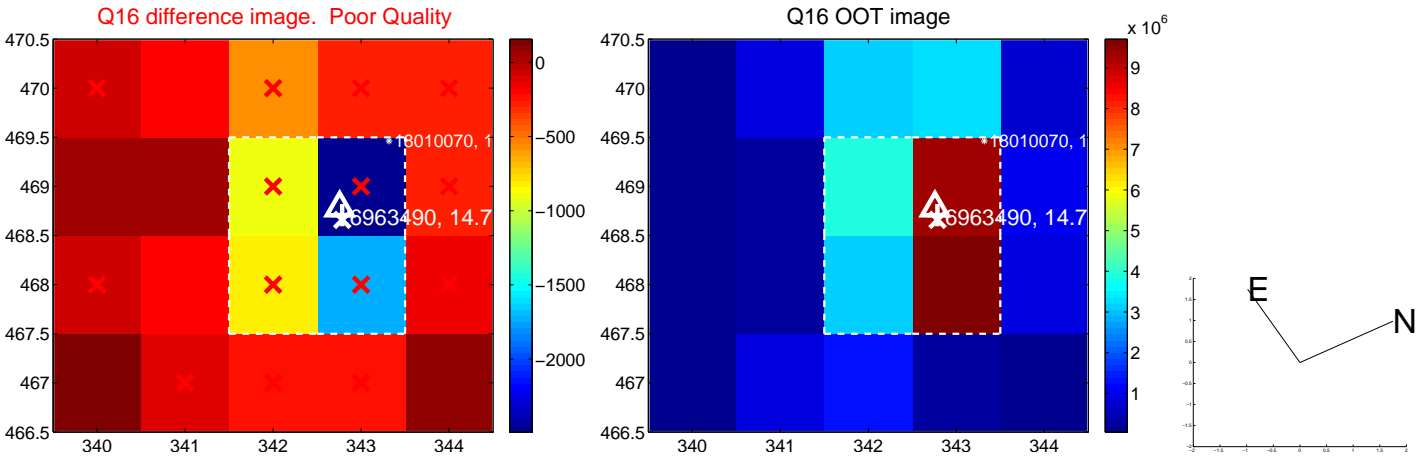
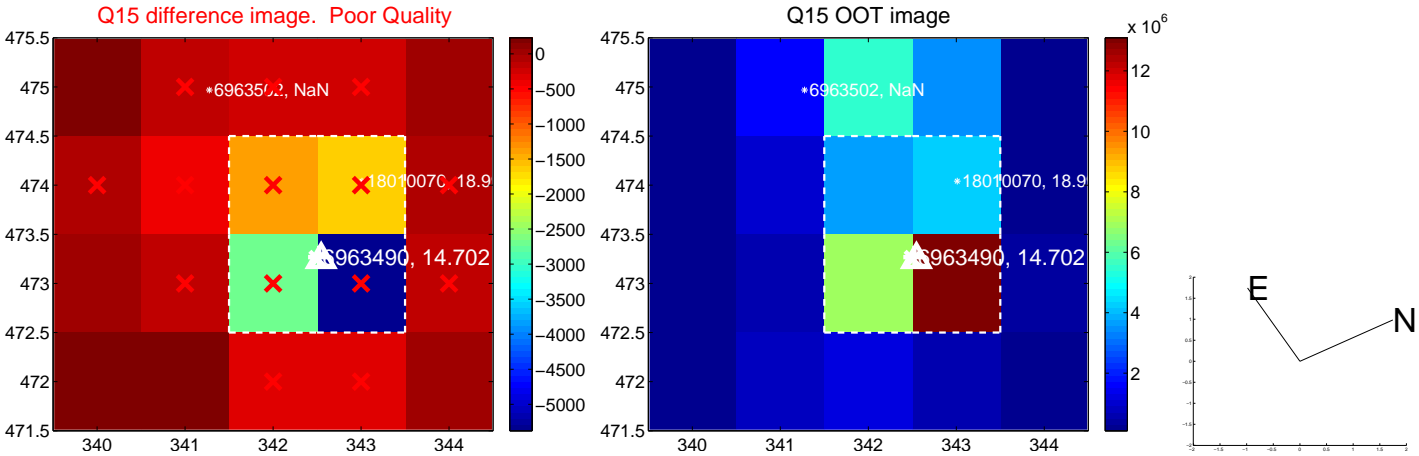
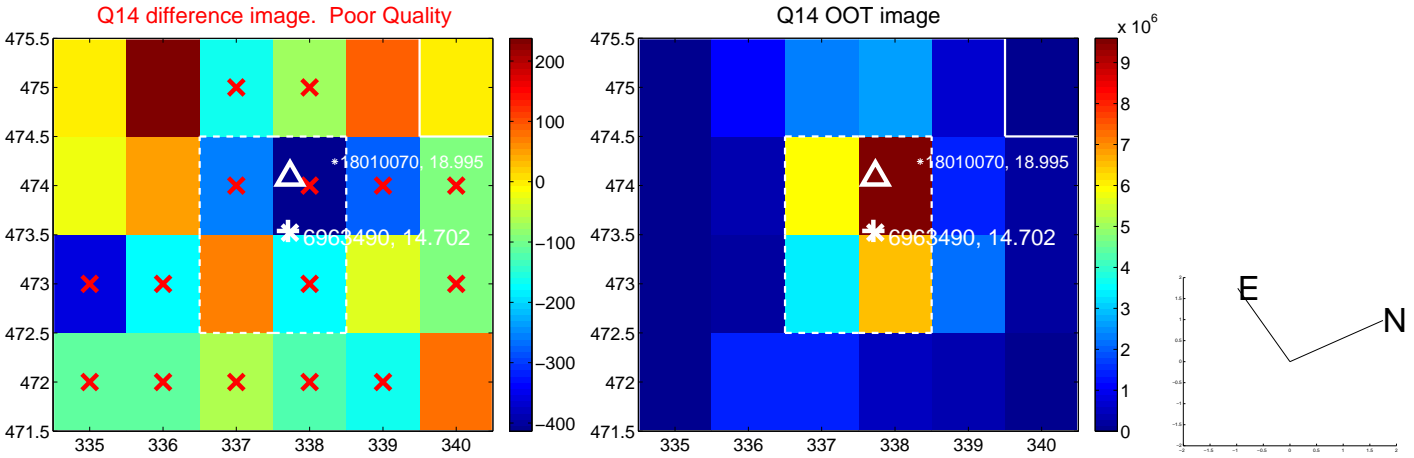
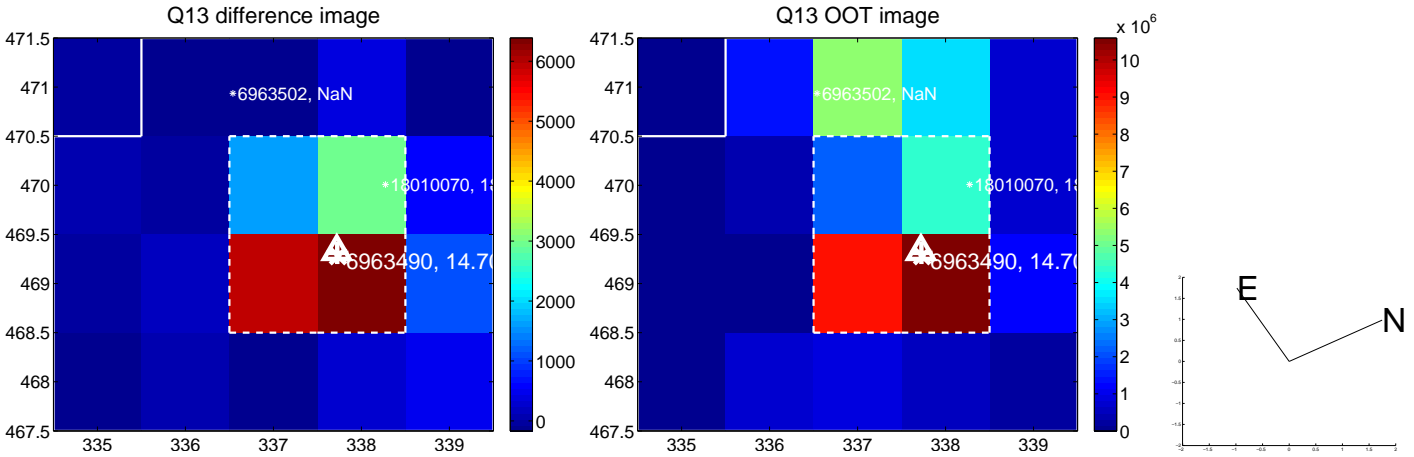




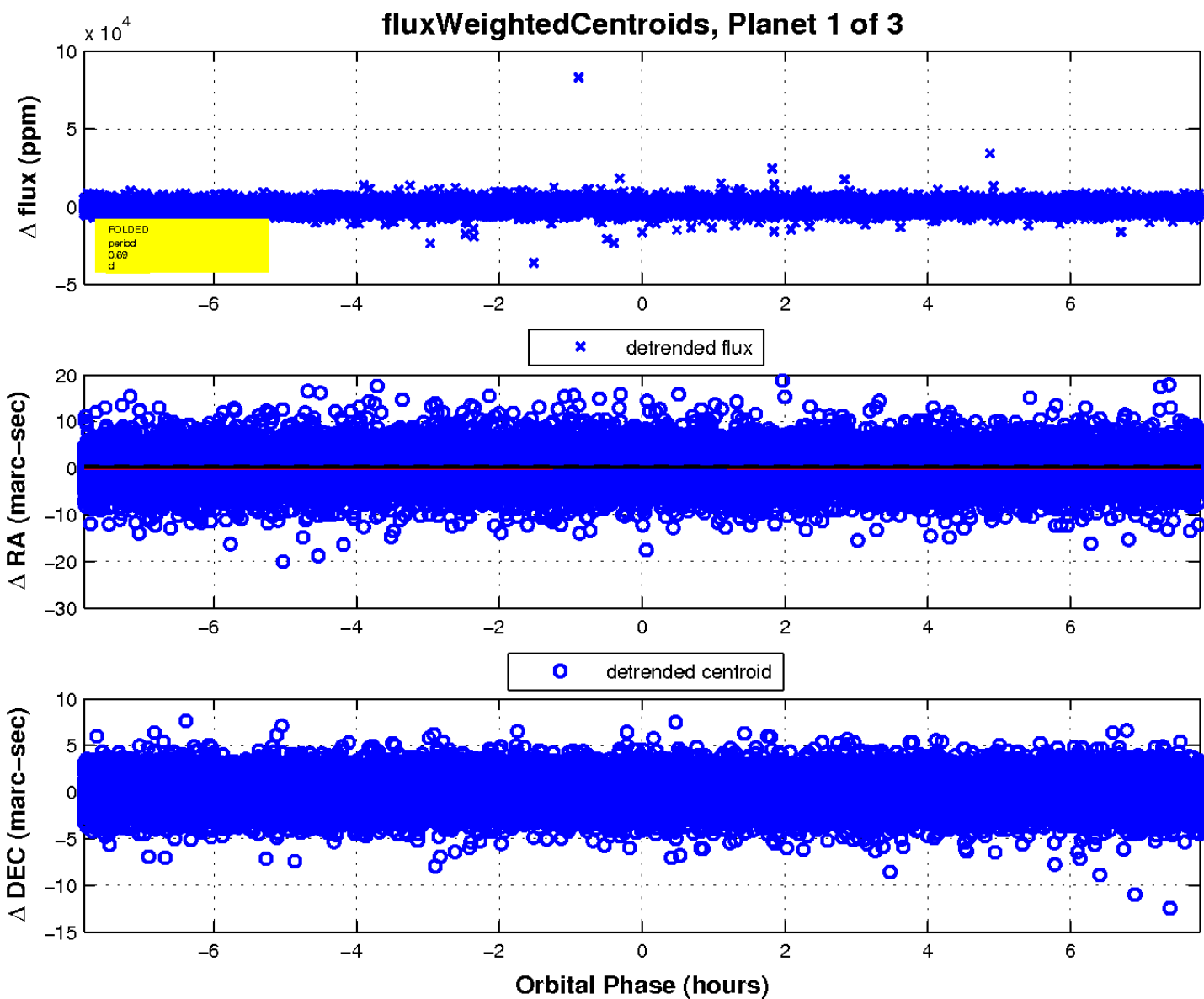
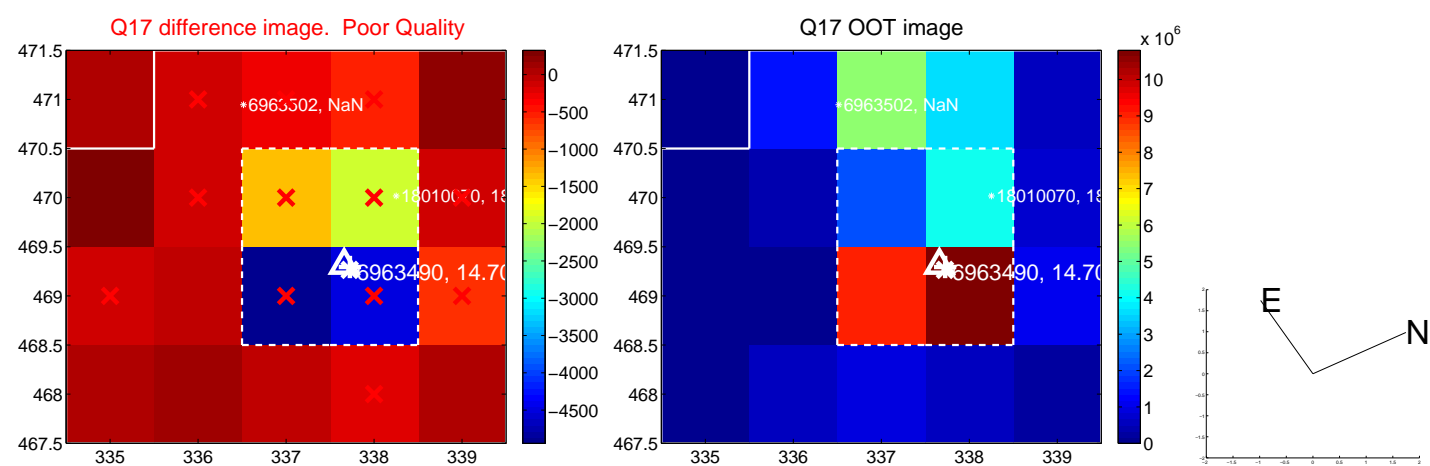
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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

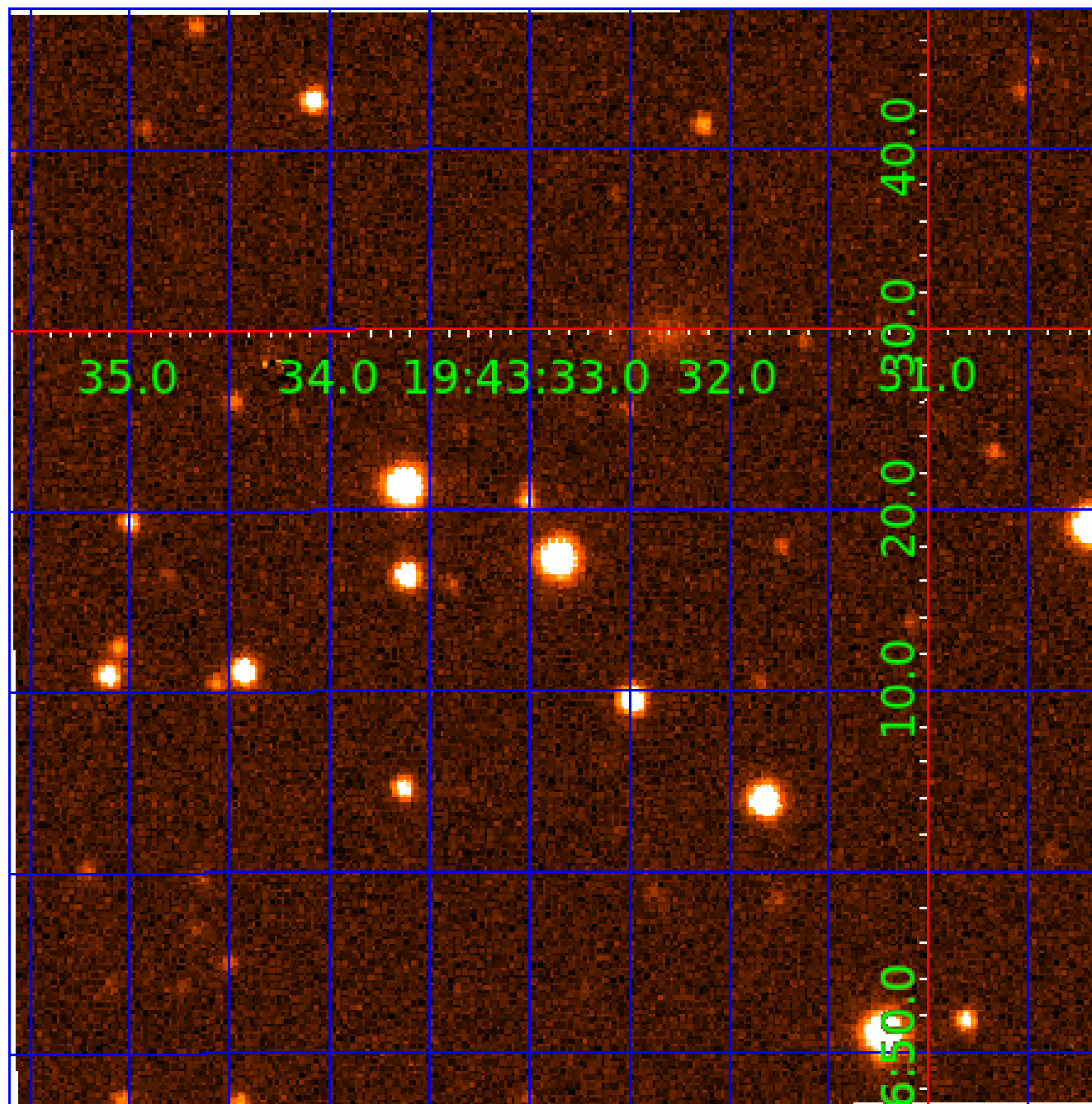


white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



UKIRT Image

Declination



# KIC 006963490

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
006963490-01	OBS	No	0.688825	132.240424	148.0	2.606	11.2	9.0	1.23	6656	1.67	9908.53
006963490-02	OBS	No	0.850129	131.941189	370.2	1.221	10.7	9.2	1.23	6656	2.46	7484.71
006963490-03	OBS	No	0.850059	133.277315	78.7	2.916	9.8	3.2	1.23	6656	1.18	7485.53

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
006963490-01	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT
006963490-02	OBS	FP	0.00	1	0	0	0	TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT
006963490-03	OBS	FP	0.00	1	0	0	0	TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—SAME_NTL_PERIOD

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

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

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

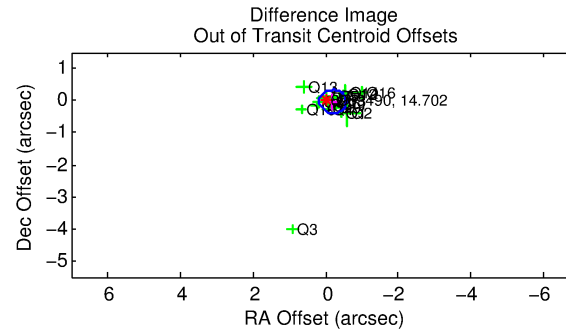
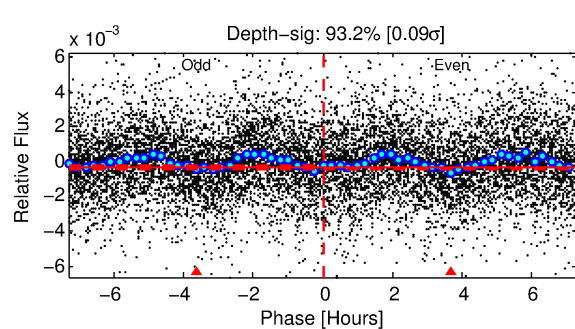
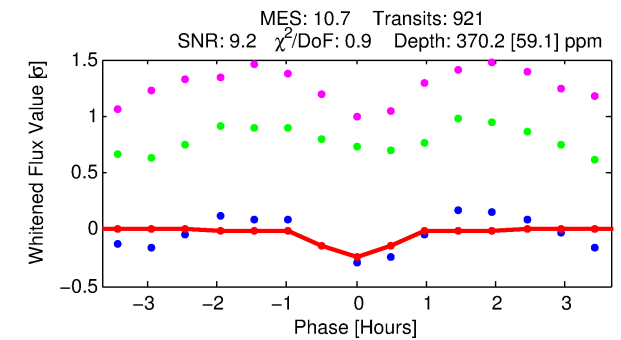
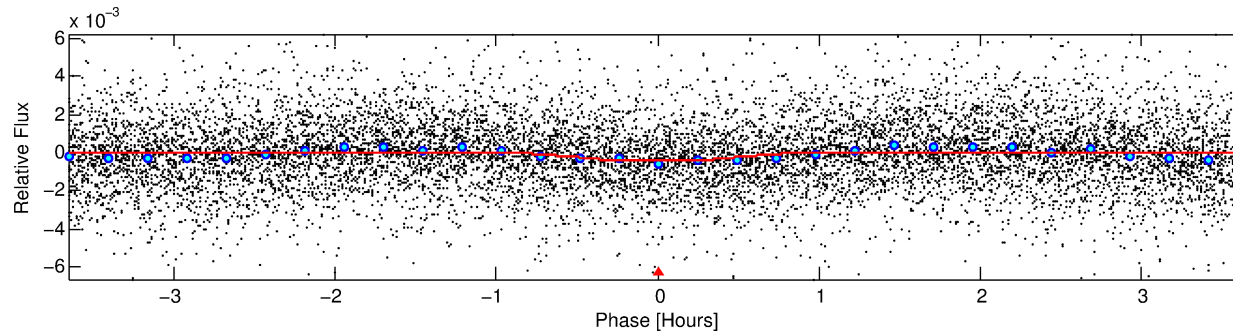
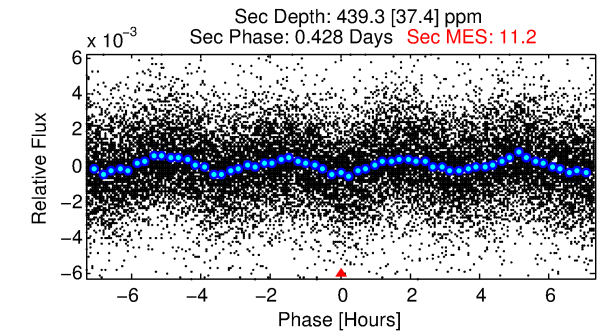
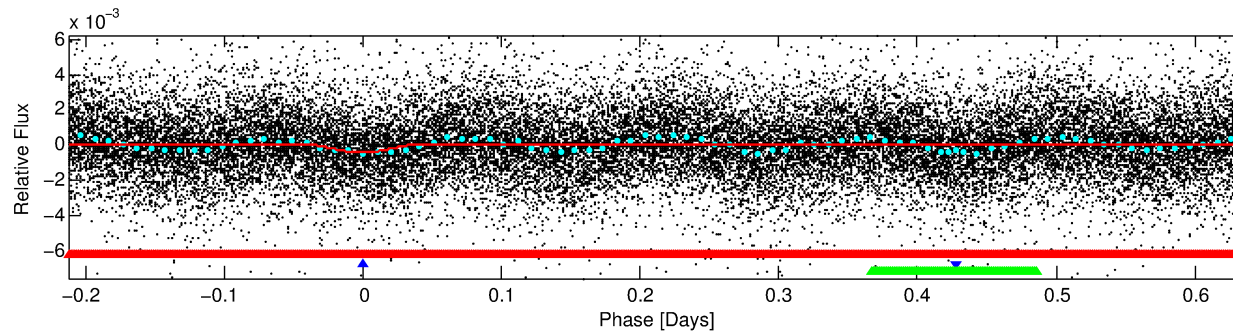
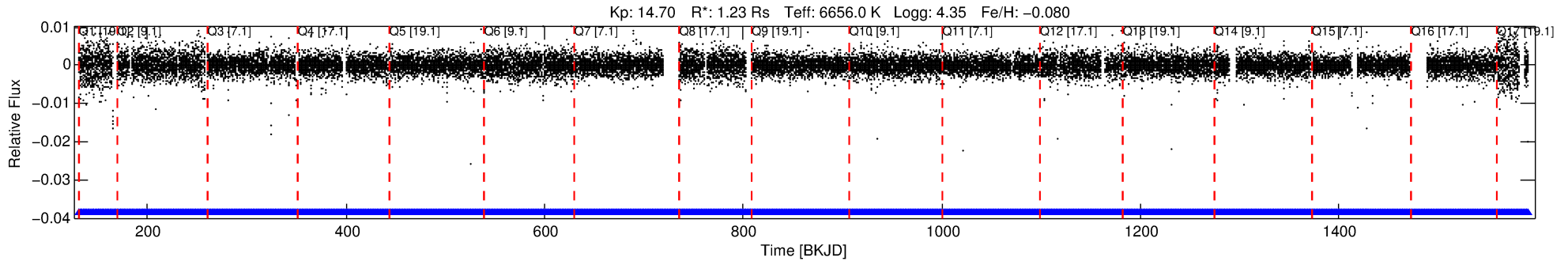
## Ephemeris Match Information For 006963490-02

No Significant Match Found



# DV One-Page Summary

KIC: 6963490 Candidate: 2 of 3 Period: 0.850 d



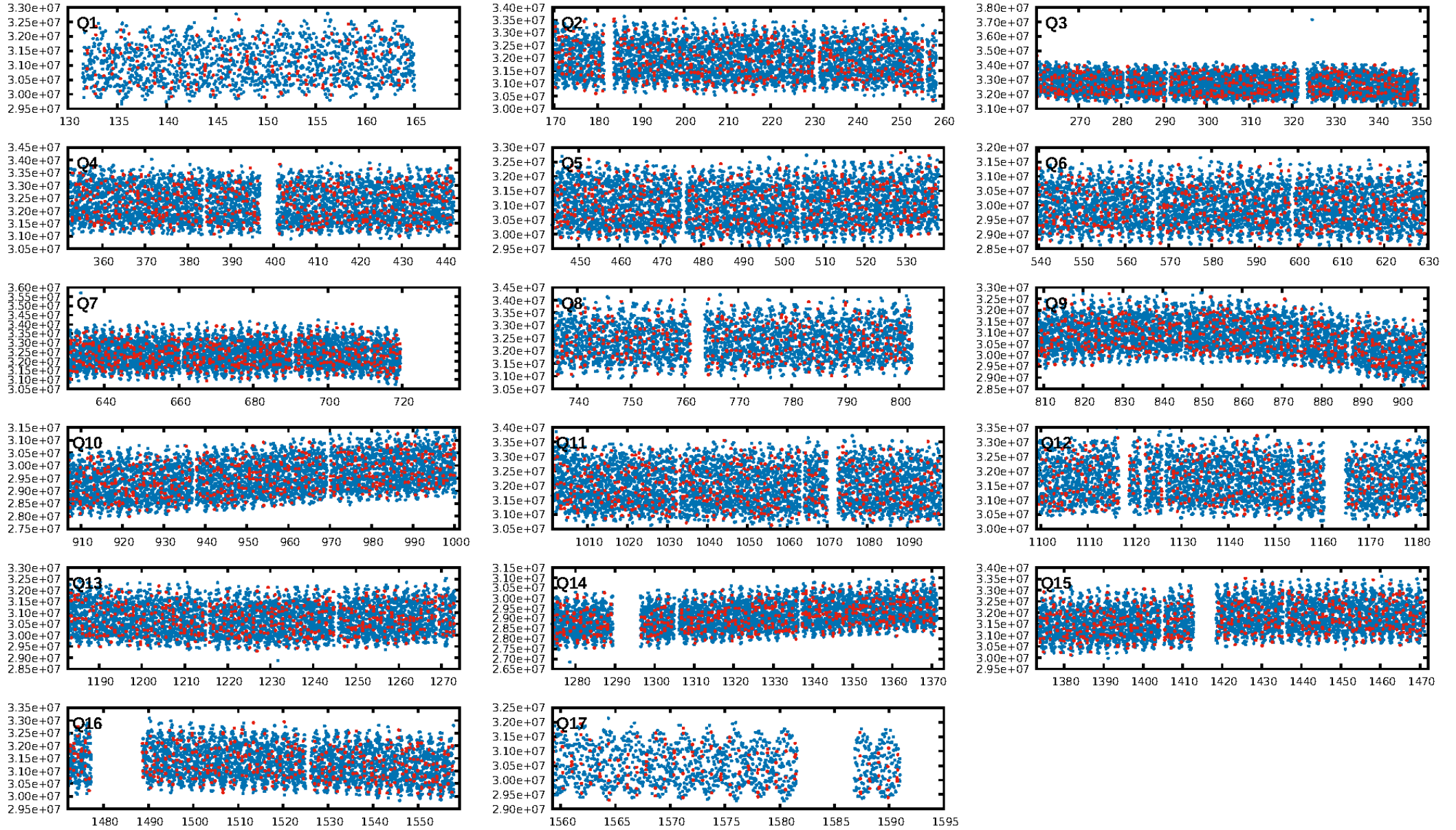
## DV Fit Results:

Period = 0.85013 [0.00001] d  
Epoch = 131.9412 [0.0024] BKJD  
Rp/R\* = 0.0183 [0.0129]  
a/R\* = 4.79 [17.47]  
b = 0.50 [5.86]  
Seff = 7484.71 [2963.12]  
Teff = 2372 [235] K  
Rp = 2.46 [1.91] Re  
a = 0.0189 [0.0049] AU  
Ag = 14.23 [20.82] [0.64 $\sigma$ ]  
Teffp = 7122 [2534] K [1.87 $\sigma$ ]

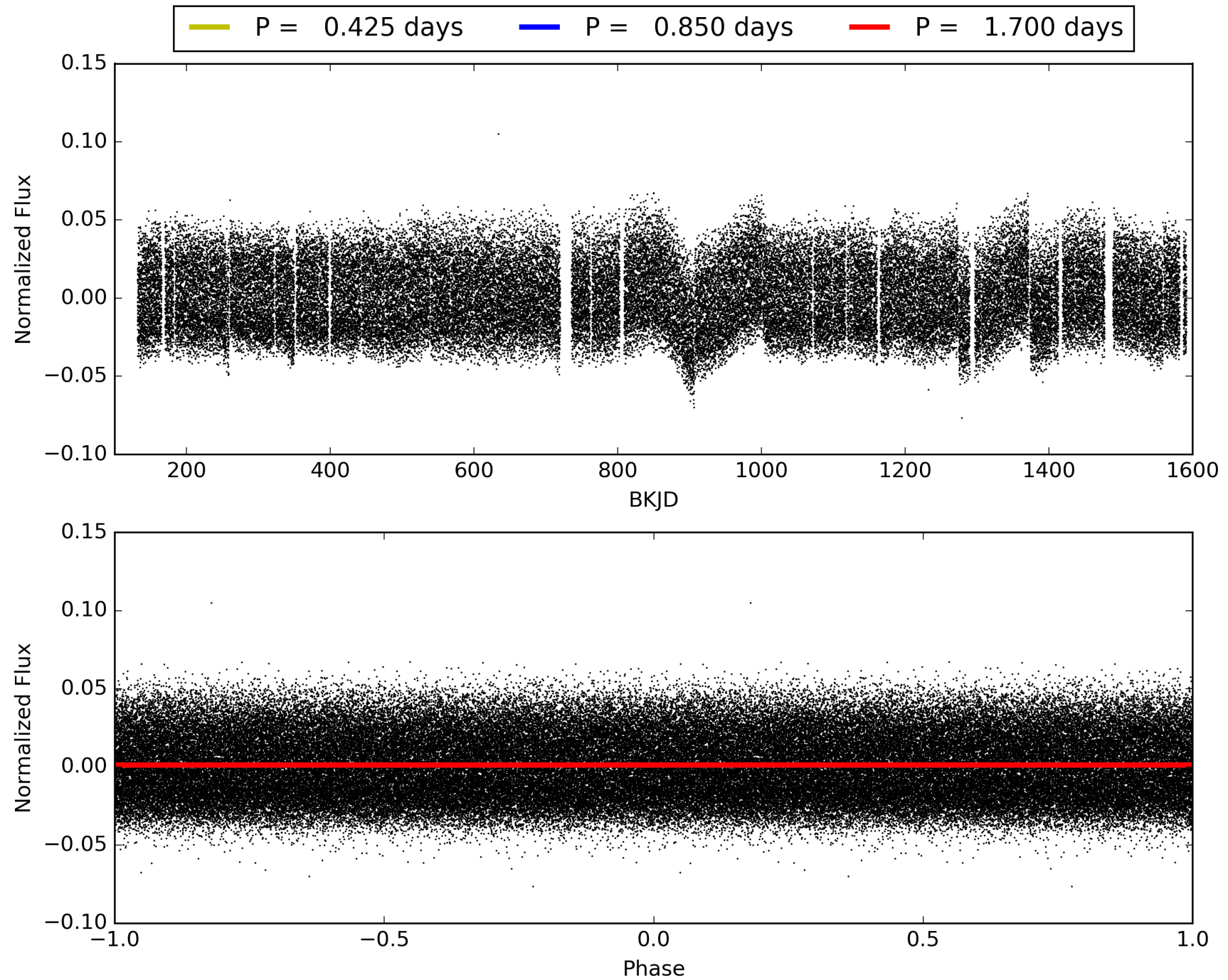
## DV Diagnostic Results:

**ShortPeriod-sig: 0.0% [0.00 $\sigma$ ]**  
LongPeriod-sig: N/A  
ModelChiSquare2-sig: N/A  
ModelChiSquareGof-sig: N/A  
Bootstrap-pfa: 7.02e-26  
RollingBand-fgt: 1.00 [878/878]  
**GhostDiagnostic-chr: 0.9313**  
Centroid-sig: N/A  
Centroid-so: 0.397 arcsec [1.36 $\sigma$ ]  
OotOffset-rm: 0.202 arcsec [1.66 $\sigma$ ]  
KicOffset-rm: 0.107 arcsec [0.62 $\sigma$ ]  
OotOffset-st: 4/4/4/5 [17]  
KicOffset-st: 4/4/4/5 [17]  
DiffImageQuality-fgm: 0.65 [11/17]  
DiffImageOverlap-fno: 1.00 [17/17]

# TCE 006963490-02, PDC Light Curves



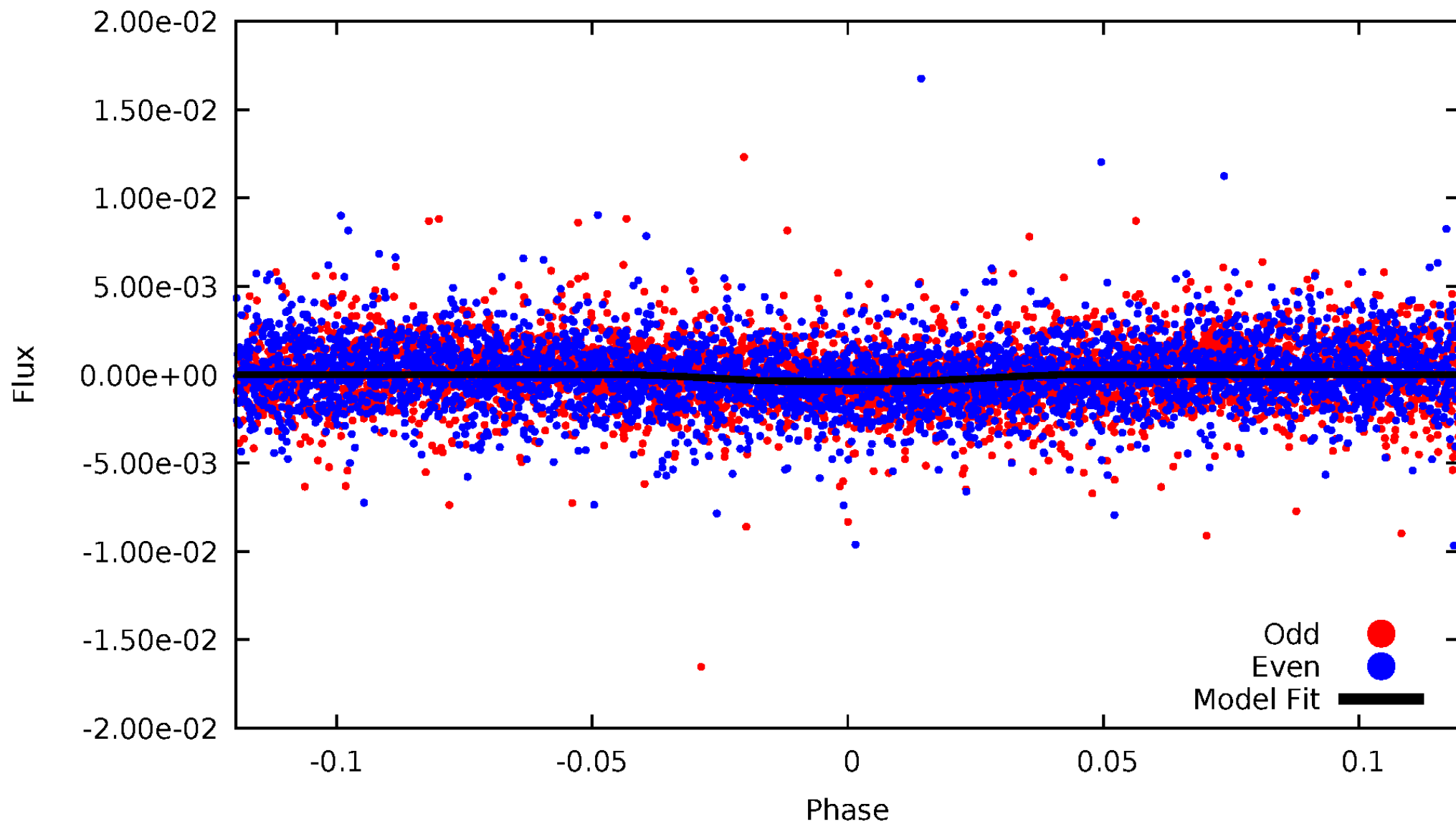
TCE 006963490-02





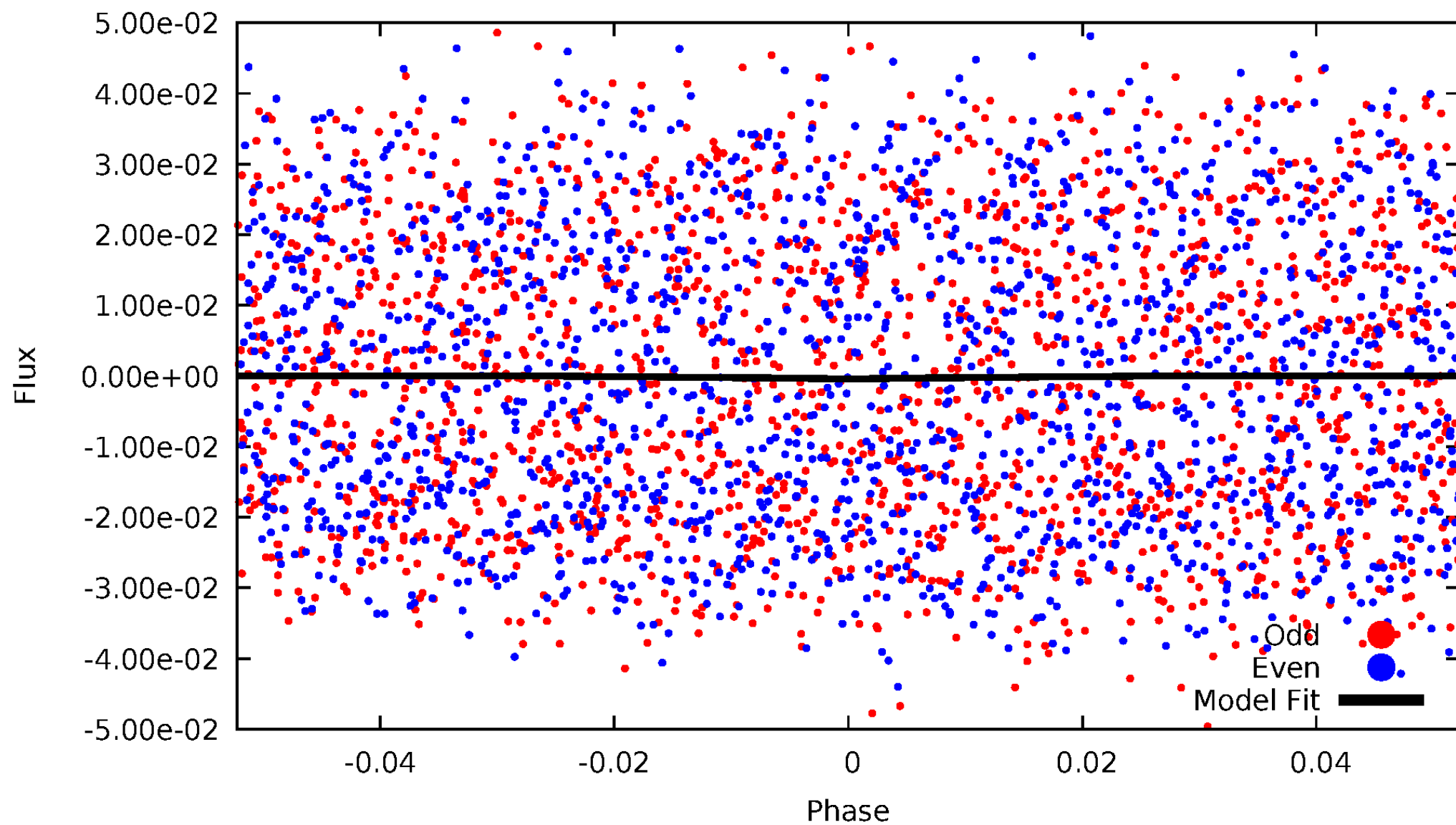
# DV Odd/Even

TCE 006963490-02



# ALT Odd/Even

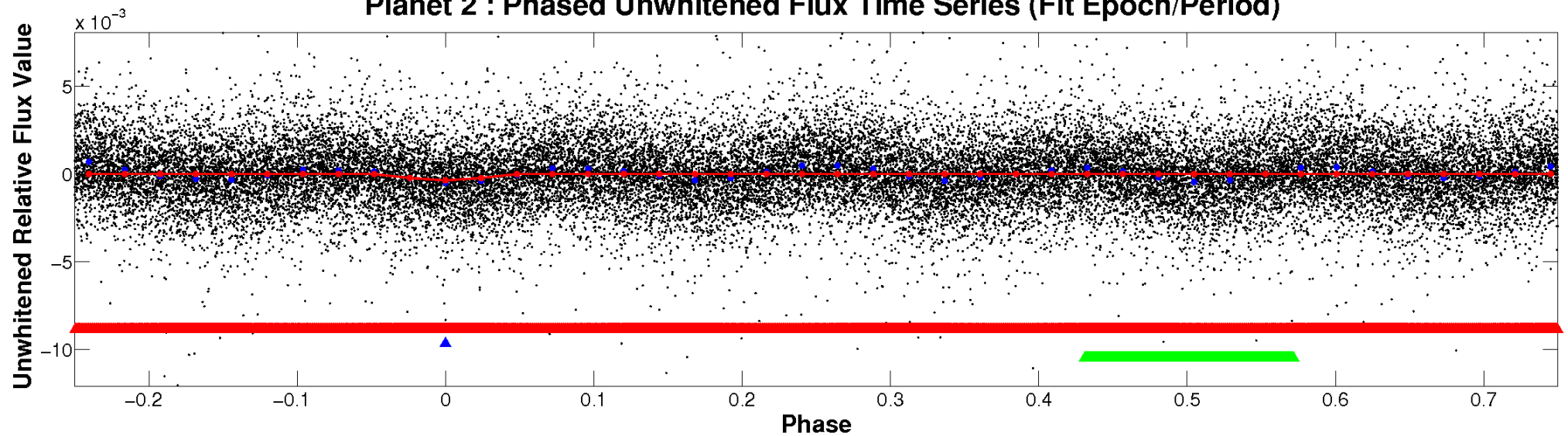
TCE 006963490-02



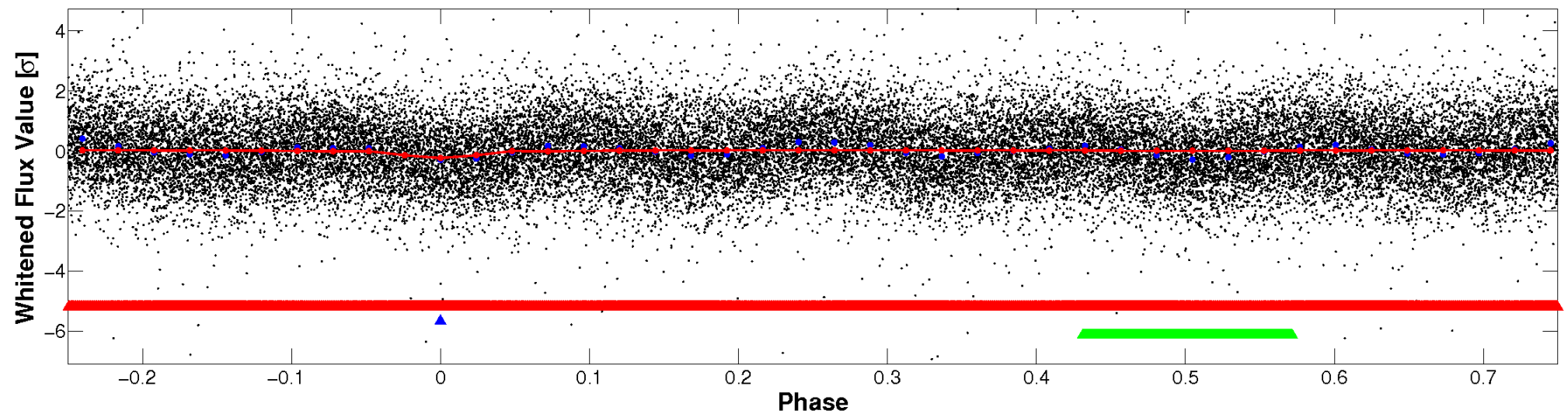


# Non-Whitened Vs. Whitened Light Curve

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

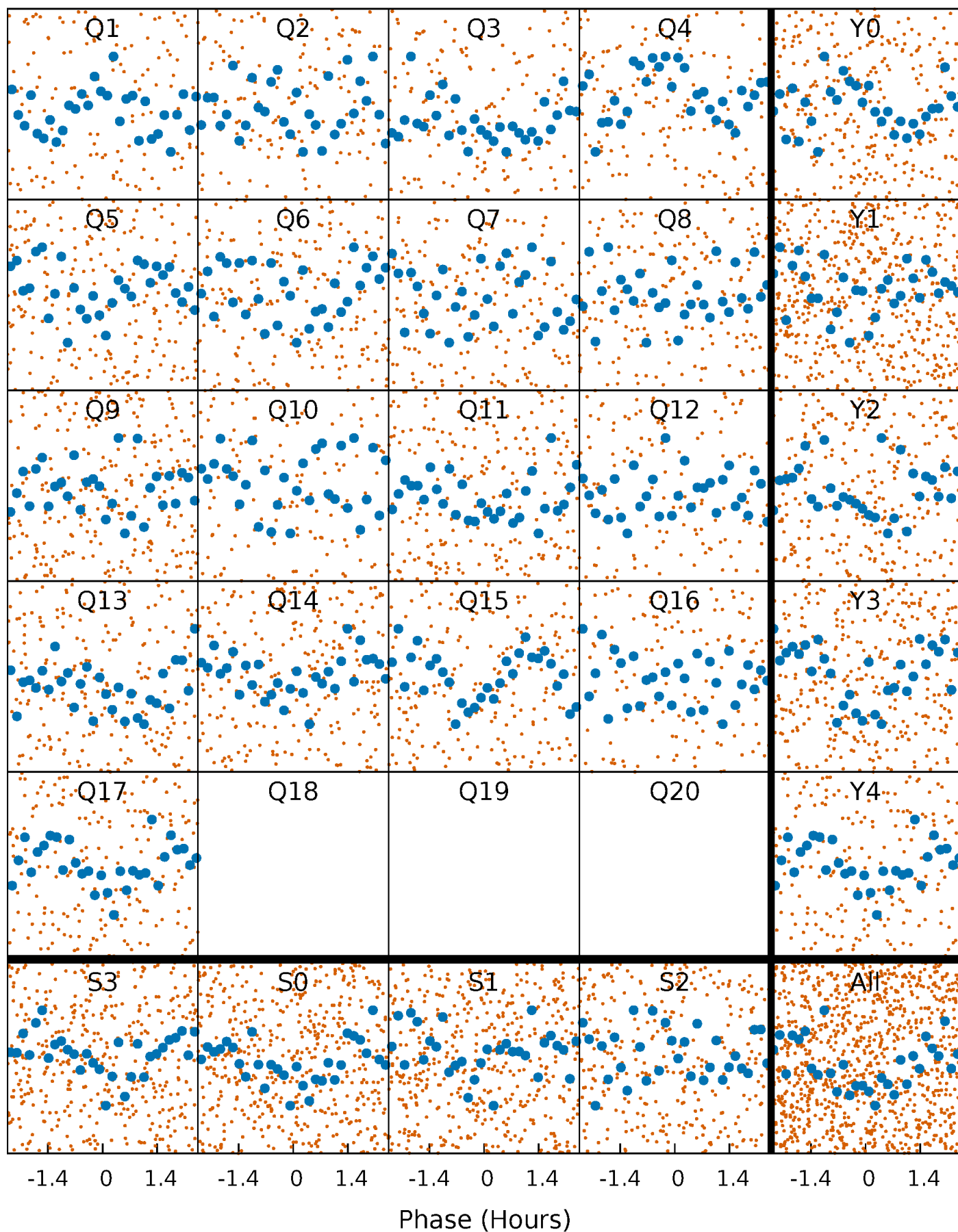


## Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



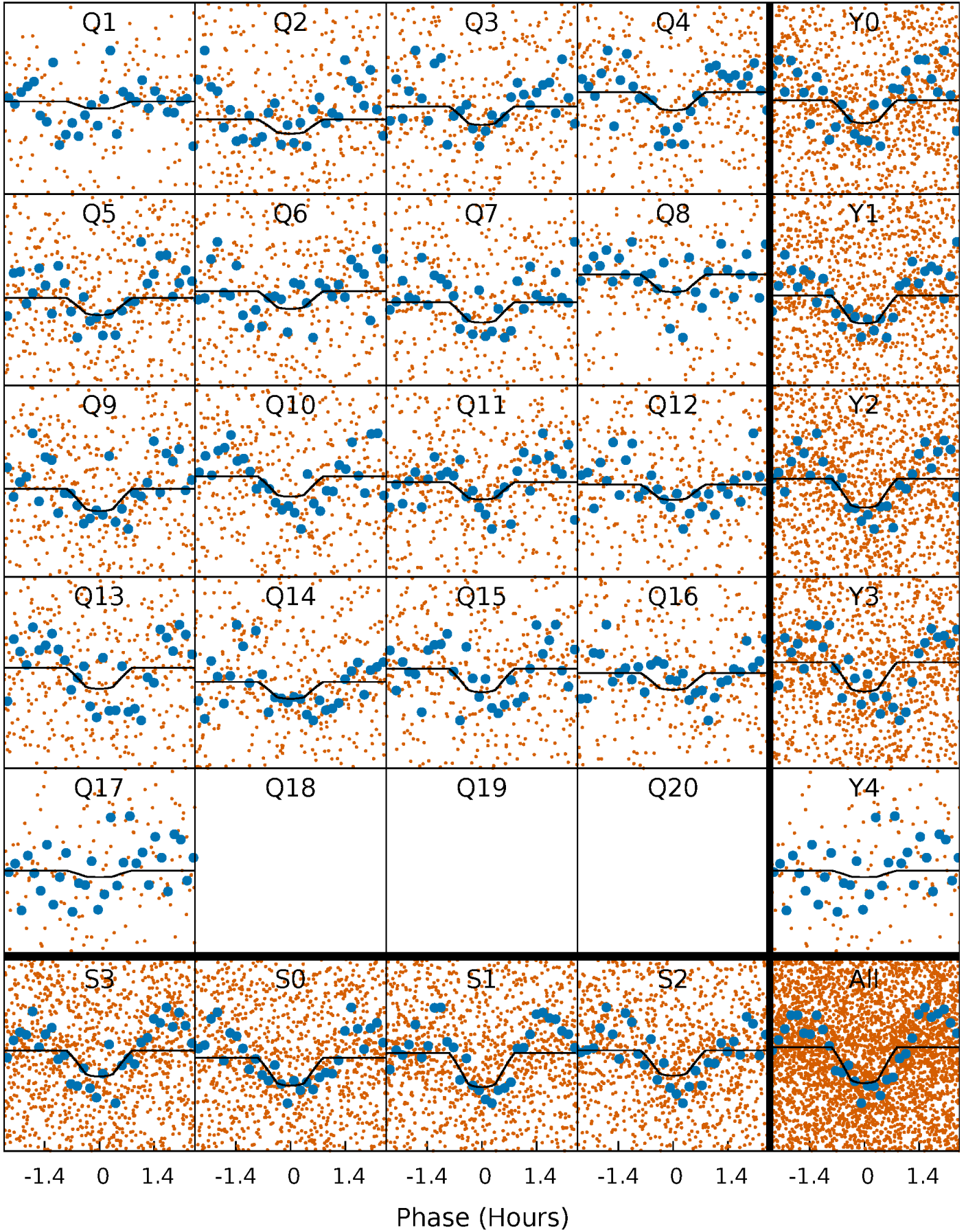
# PDC Quarter-Phased Transit Curves

TCE 006963490-02   P= 0.850129 Days    $T_0=131.941189$  (BKJD)



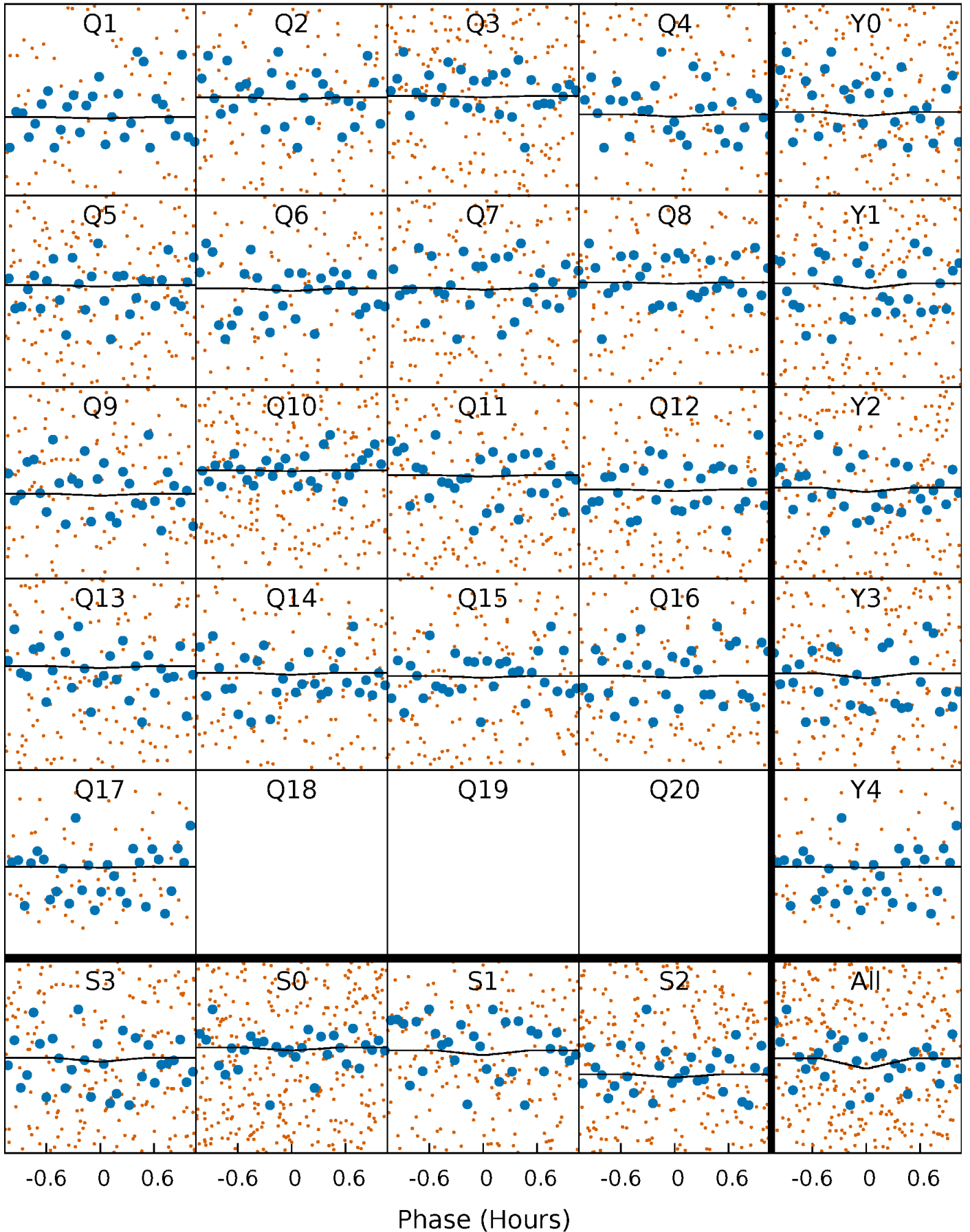
# DV Quarter-Phased Transit Curves

TCE 006963490-02 P= 0.850129 Days  $T_0=131.941189$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

TCE 006963490-02   P= 0.850140 Days    $T_0=131.933363$  (BKJD)

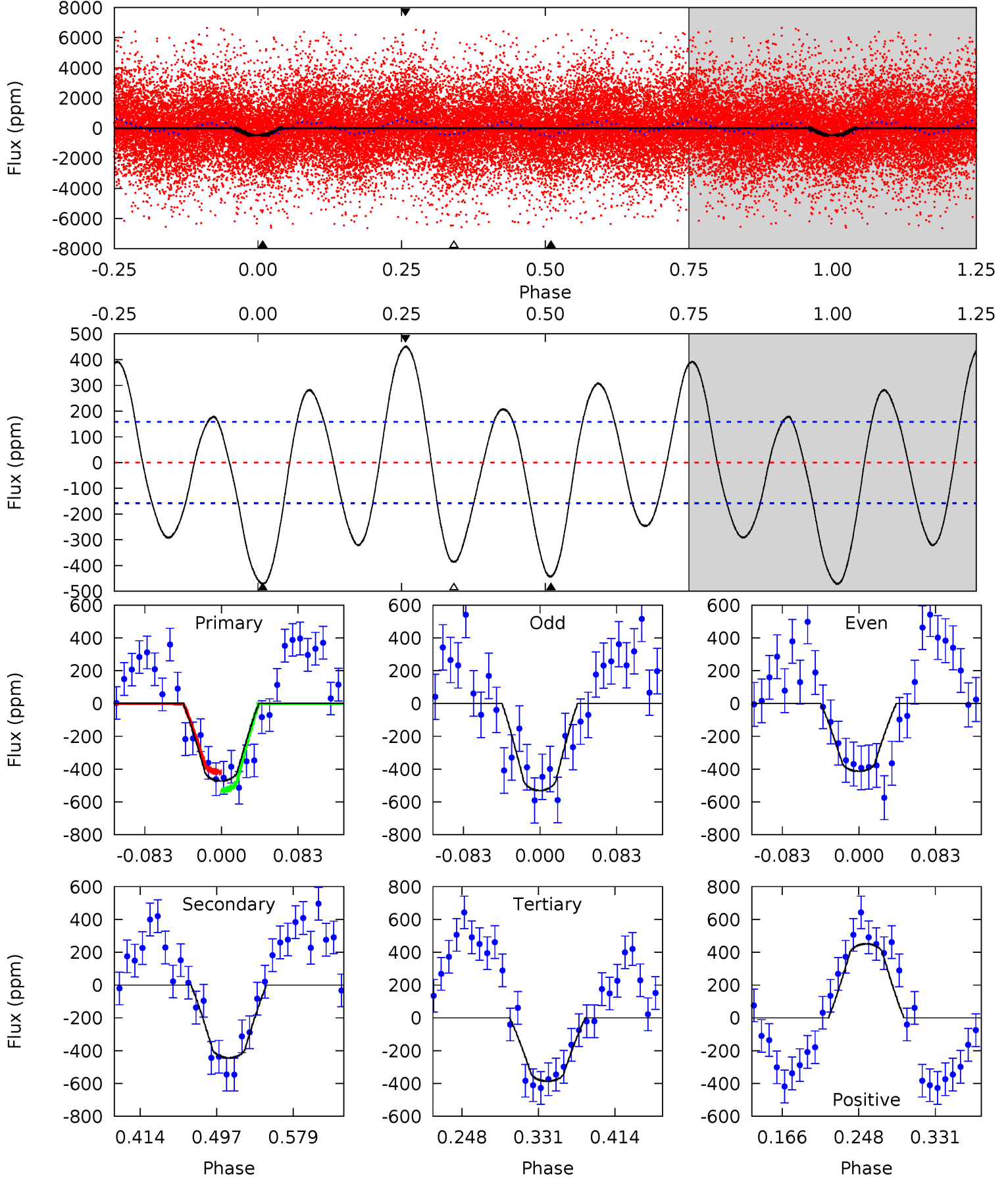




# DV Model-Shift Uniqueness Test

006963490-02, P = 0.850129 Days, E = 131.091060 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
13.7	12.9	11.2	13.1	4.60	1.73	6.84	2.50	0.62	1.67	-0.21	1.73	0.96	0.49	1.61

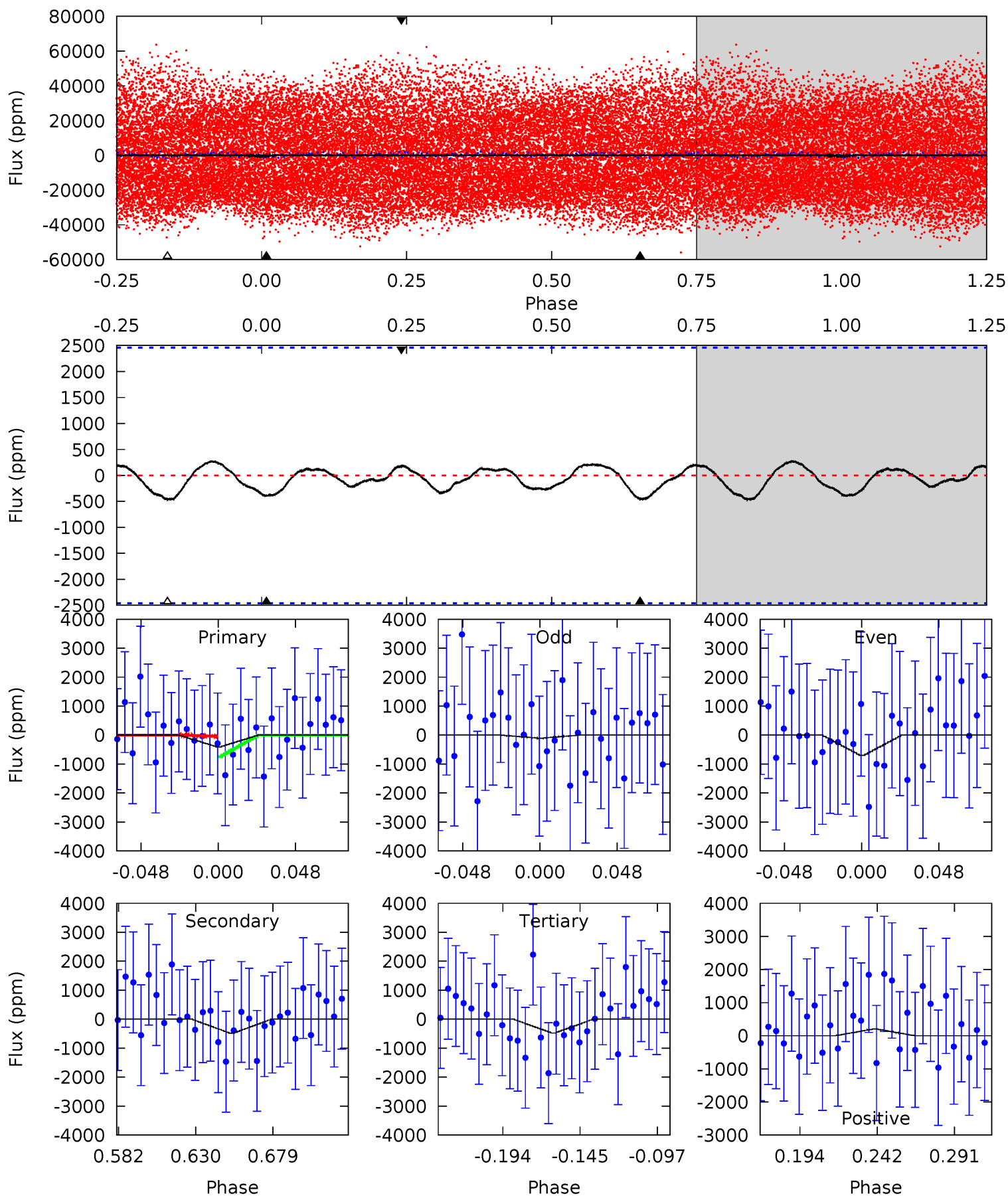




# Alt Model-Shift Uniqueness Test

006963490-02, P = 0.850140 Days, E = 131.083223 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
0.78	0.92	0.91	0.39	4.71	1.97	0.35	-0.13	0.39	0.01	0.54	0.57	0.16	0.37	0.67



### Stellar Parameters For KIC 006963490

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	$6656^{+181}_{-241}$	$4.351^{+0.065}_{-0.195}$	$-0.080^{+0.250}_{-0.350}$	$1.232^{+0.397}_{-0.159}$	$1.248^{+0.174}_{-0.174}$	$0.941^{+0.322}_{-0.465}$
	+3%/-4%	+1%/-4%	+312%/-438%	+32%/-13%	+14%/-14%	+34%/-49%
Source	PHO1	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 006963490-02 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	$A_{obs}$
DV	$-444 \pm 34$	$2.78^{+1.82}_{-1.49}$	$3366^{+230}_{-177}$	$6696^{+4705}_{-1387}$	$11^{+40}_{-7}$
Alt.	$-483 \pm 522$	$2.90^{+1.74}_{-1.54}$	$3373^{+246}_{-191}$	$6415^{+5032}_{-10211}$	$9.472^{+41.751}_{-9.784}$

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

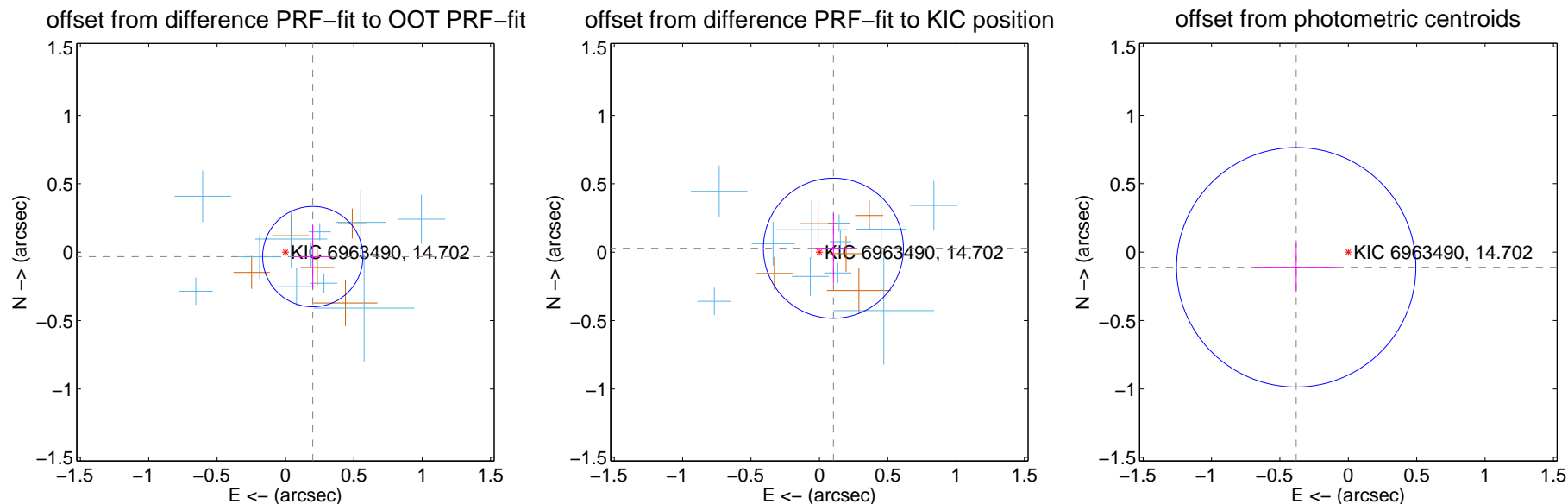
## DV Centroid Data

Supplemental centroid analysis for 006963490-02. Kepler magnitude: 14.70. Transit SNR 9.23

There are 11 quarters with good PRF difference image offsets

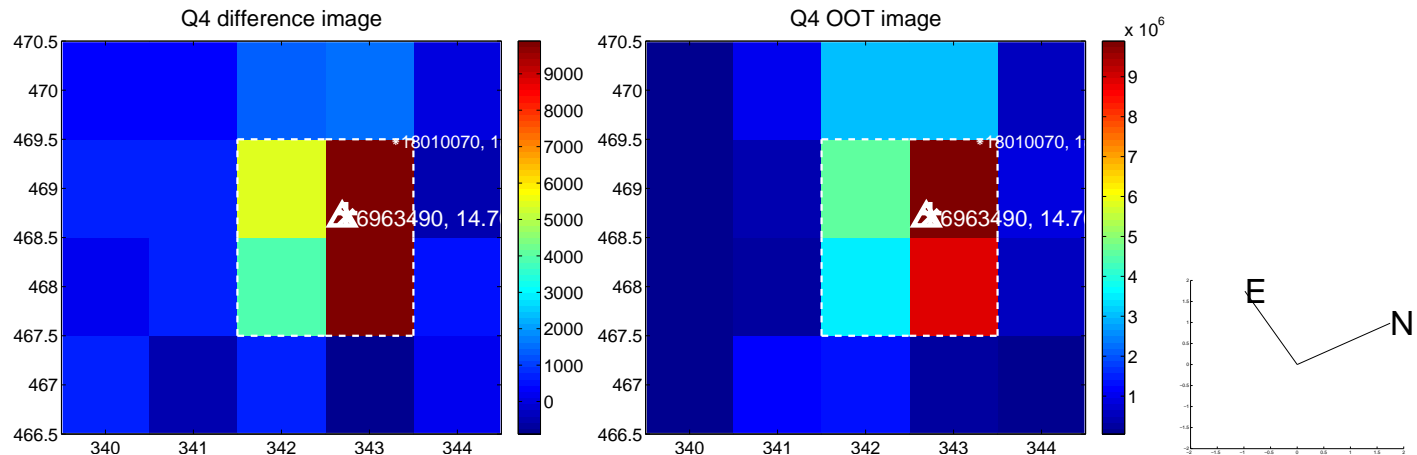
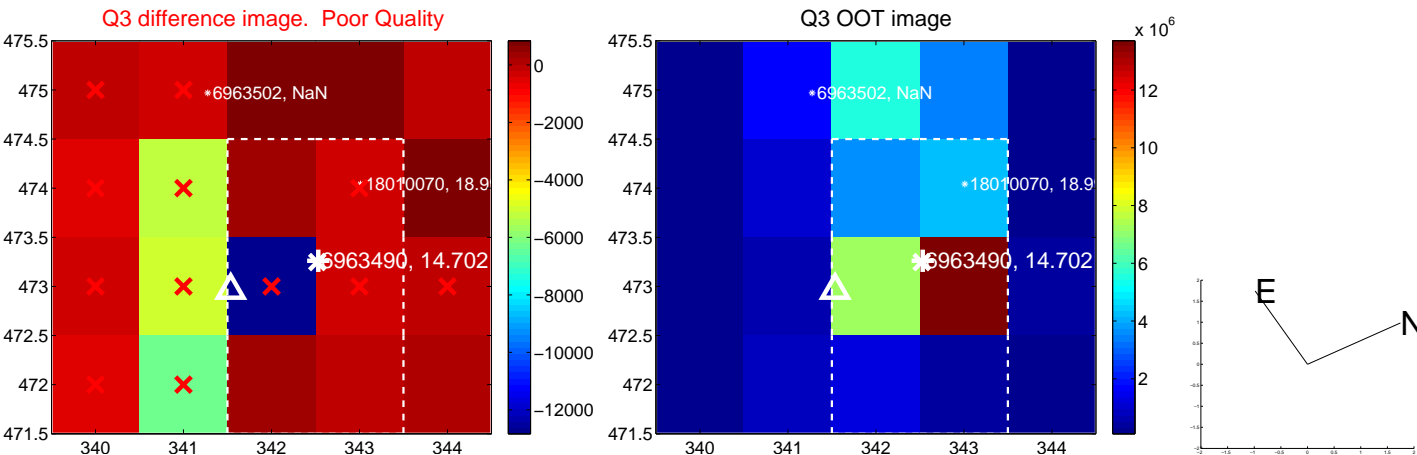
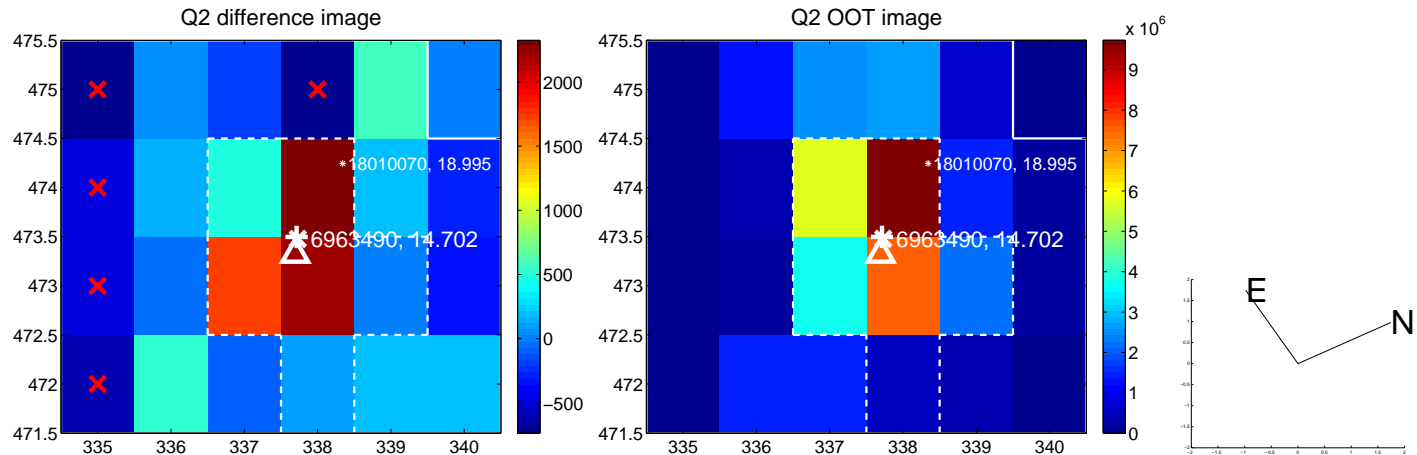
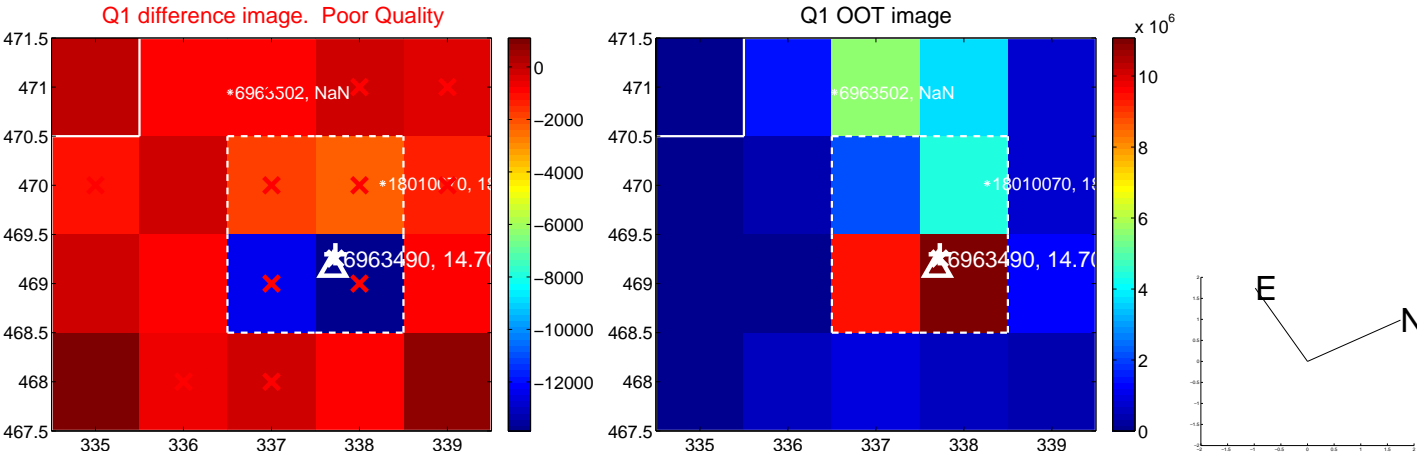
The direct PRF centroid is offset from the target star catalog position by about 0.12 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$0.202 \pm 0.122$	1.66	$-0.200 \pm 0.135$	$-0.033 \pm 0.234$
PRF-fit source offset from KIC position	$0.107 \pm 0.171$	0.62	$-0.103 \pm 0.135$	$0.029 \pm 0.254$
photometric centroid source offset	$0.40 \pm 0.29$	1.36	$0.38 \pm 0.30$	$-0.11 \pm 0.18$

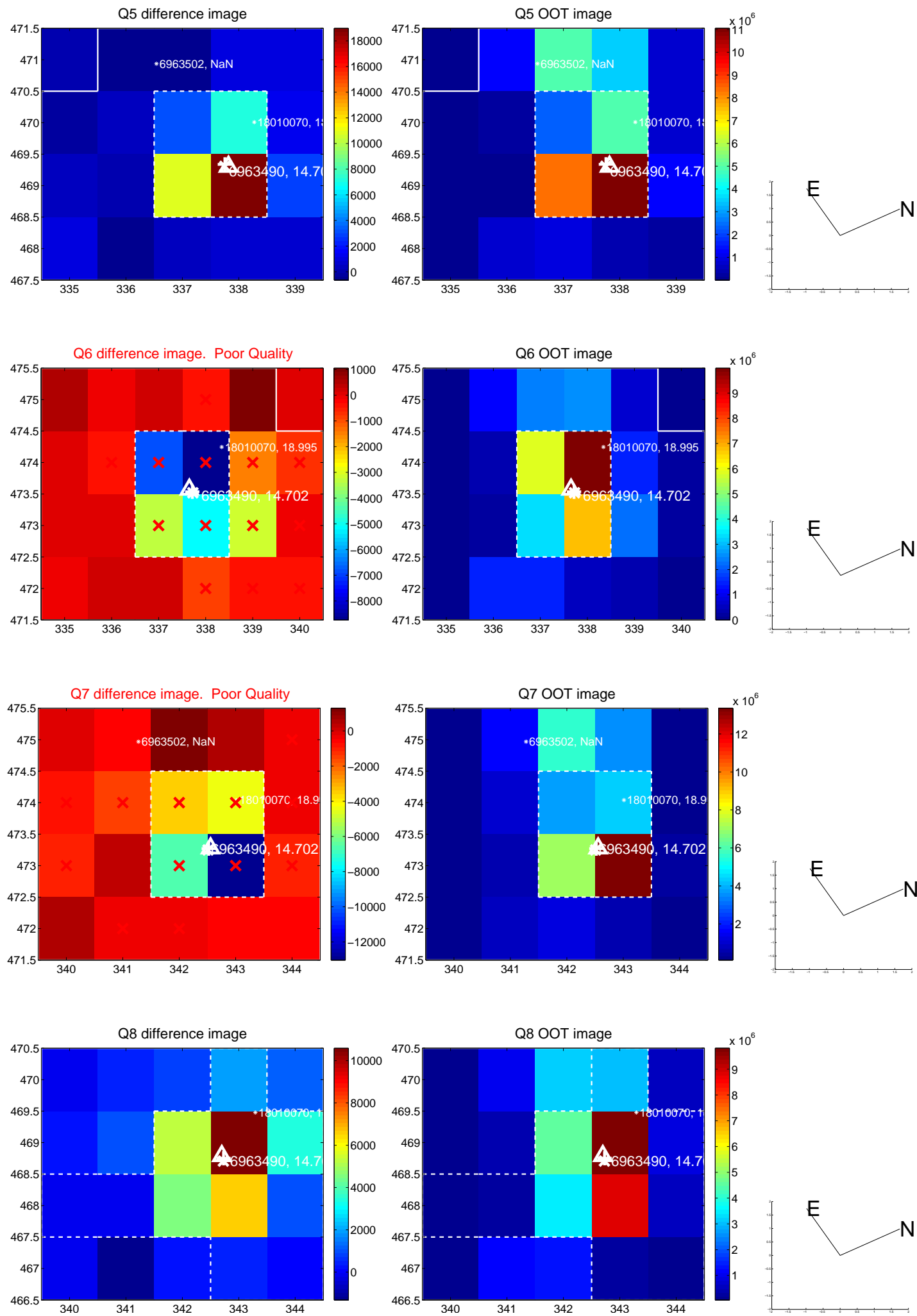


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets;** magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: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

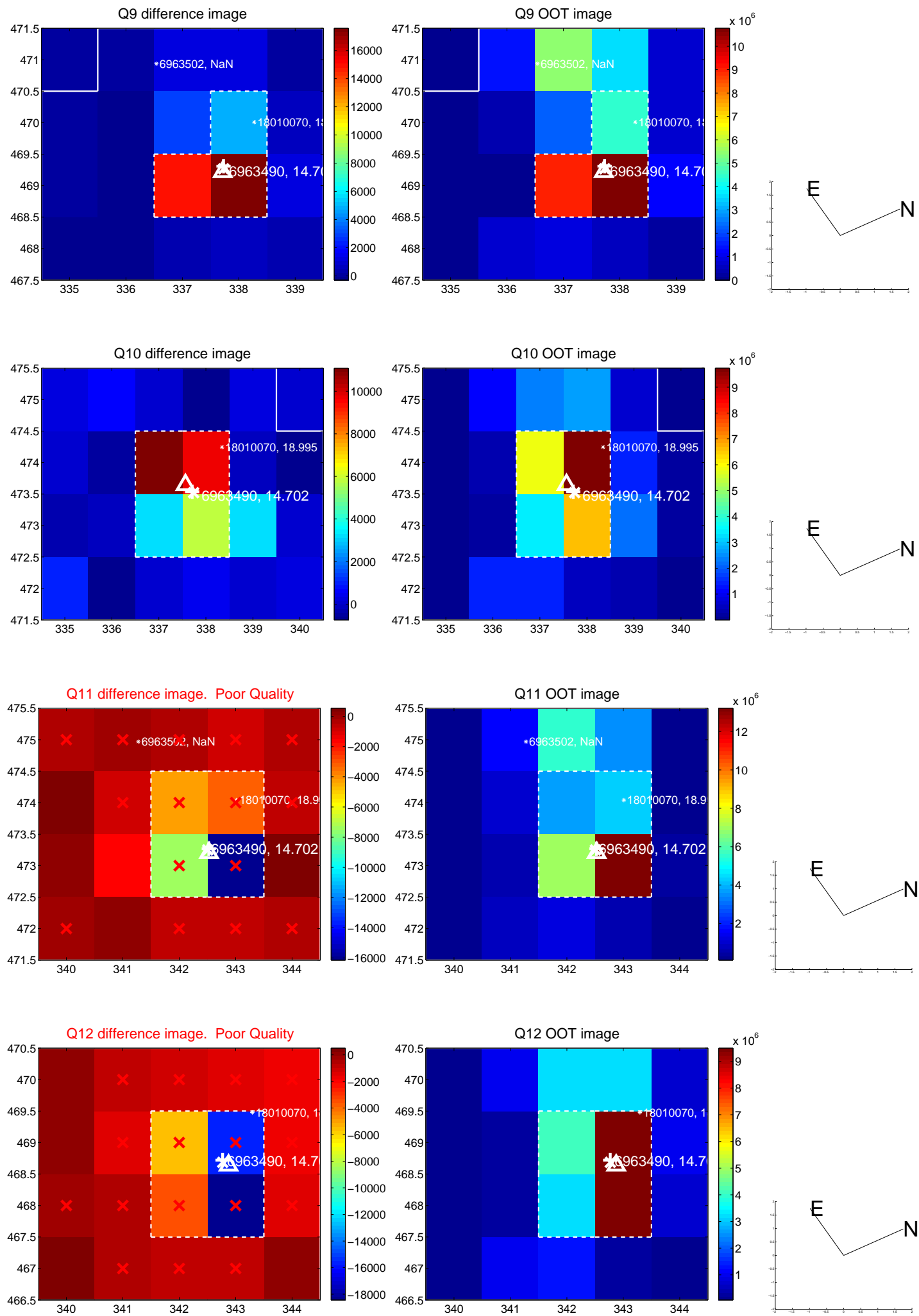


white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.

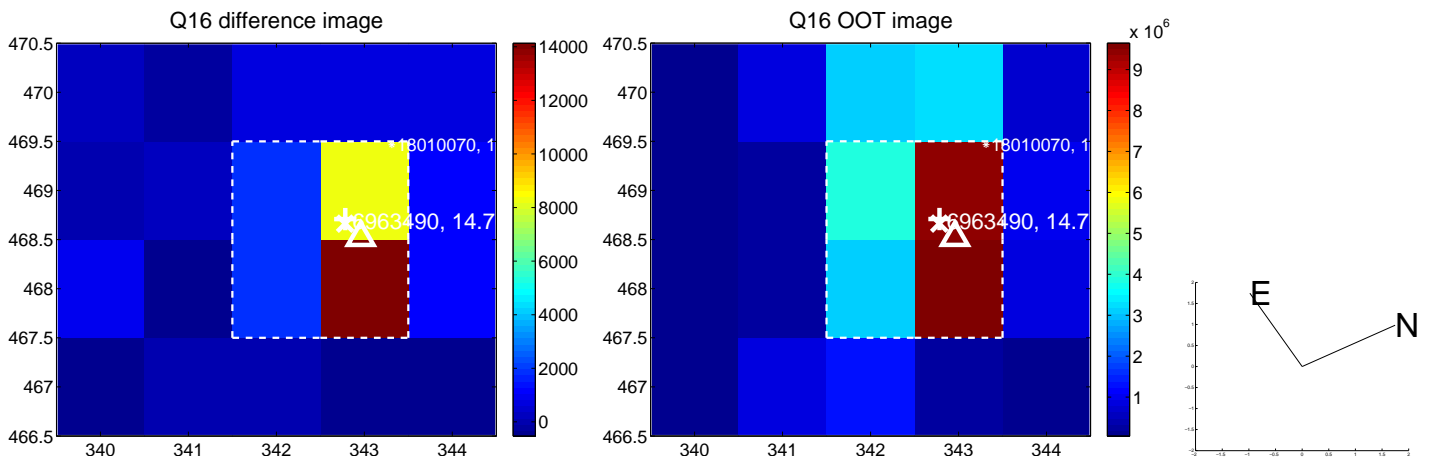
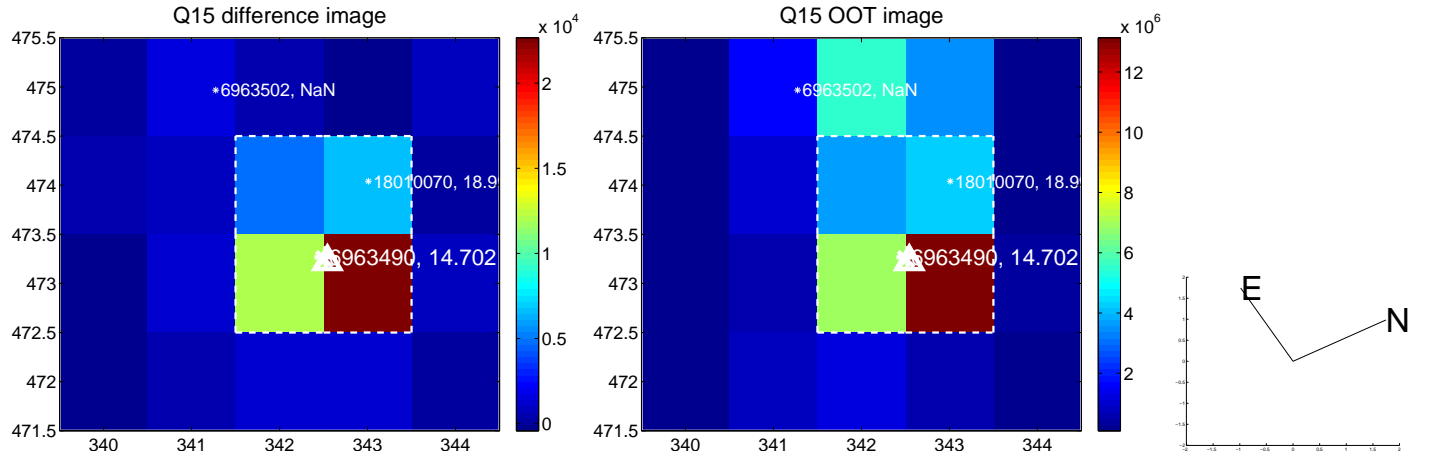
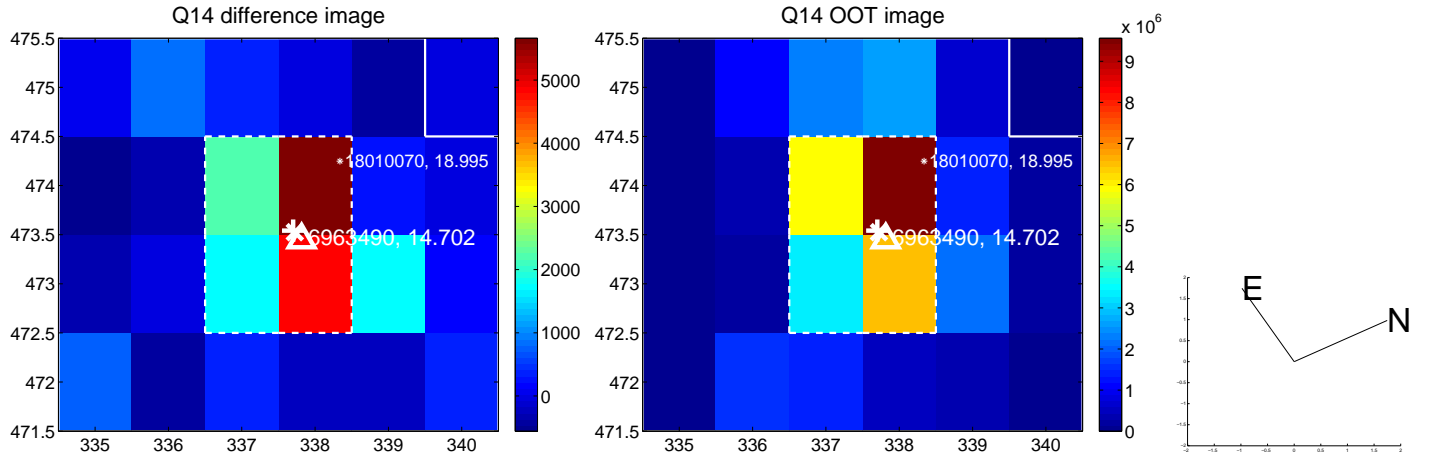
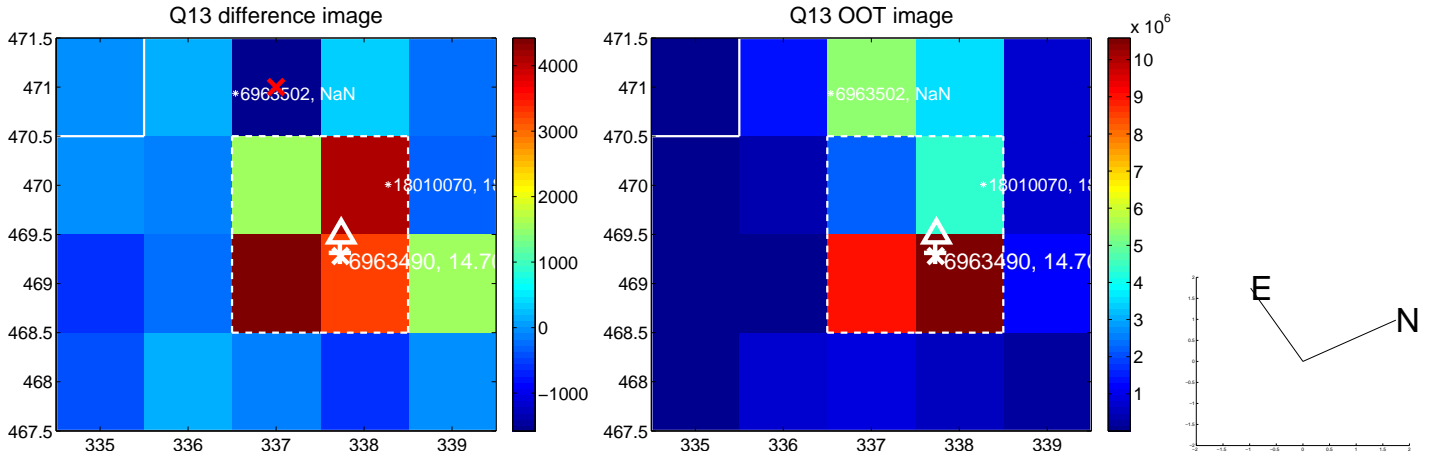




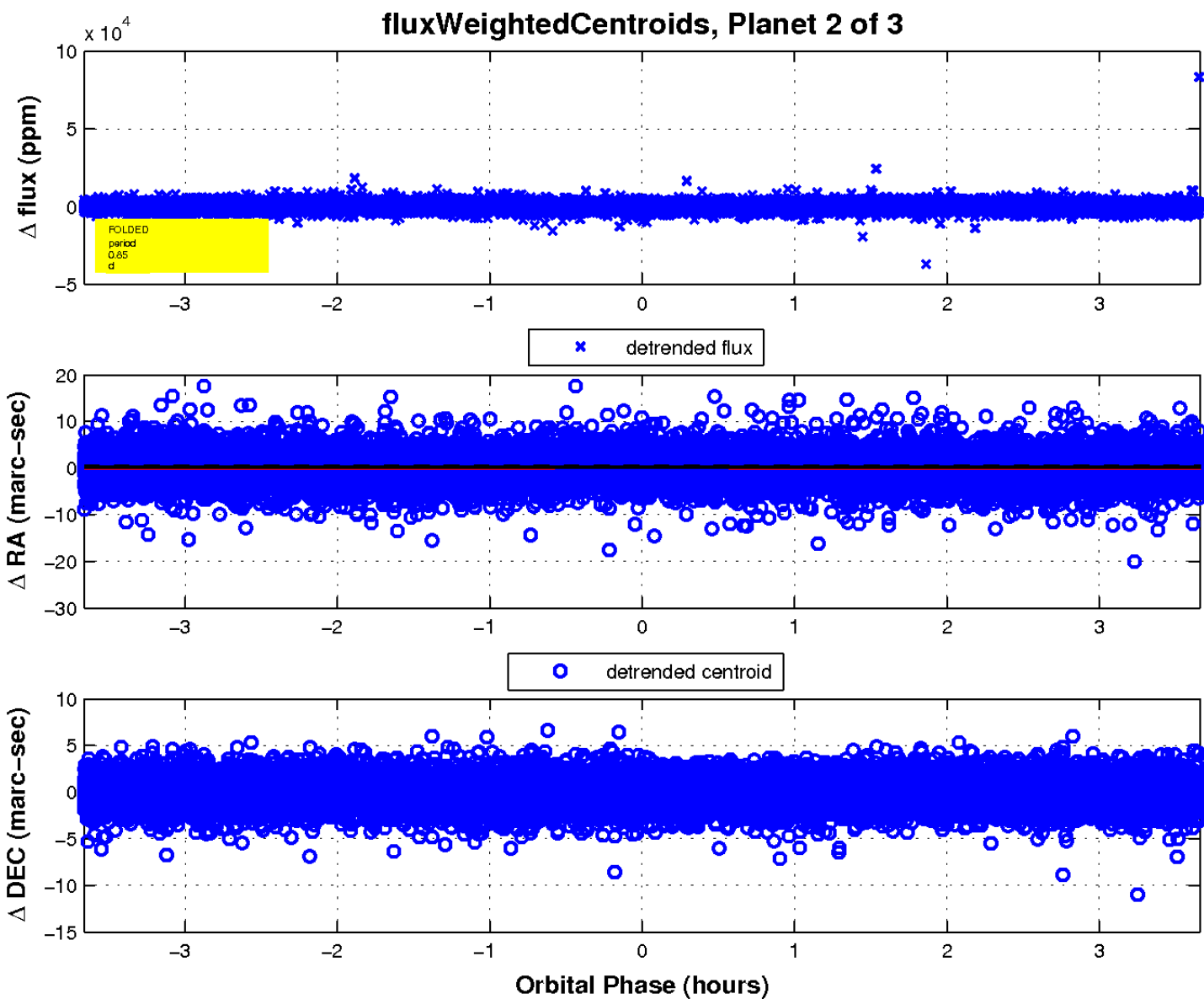
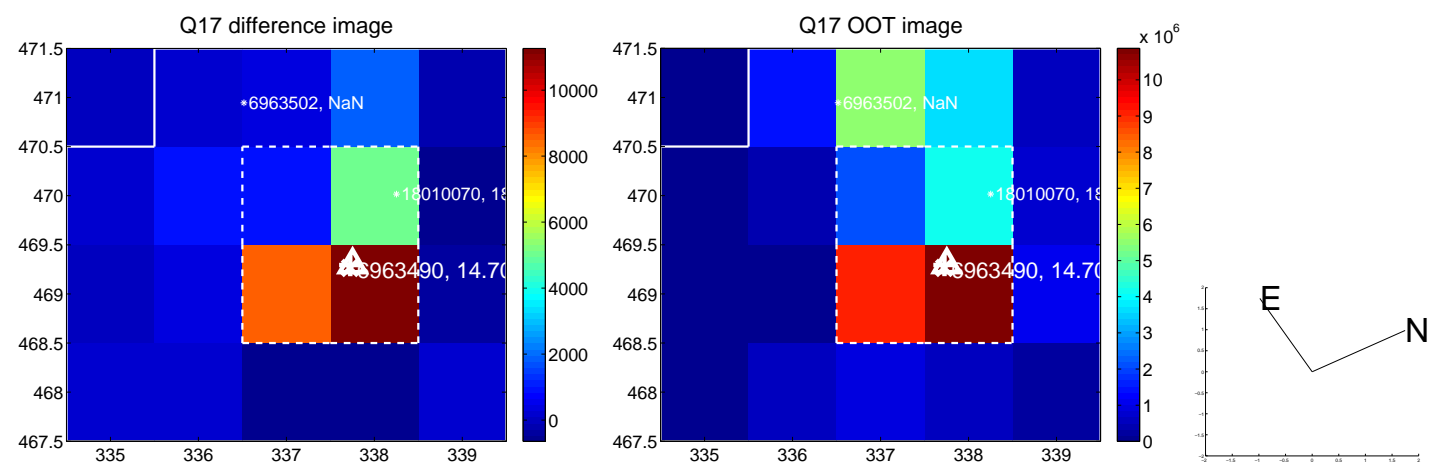
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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

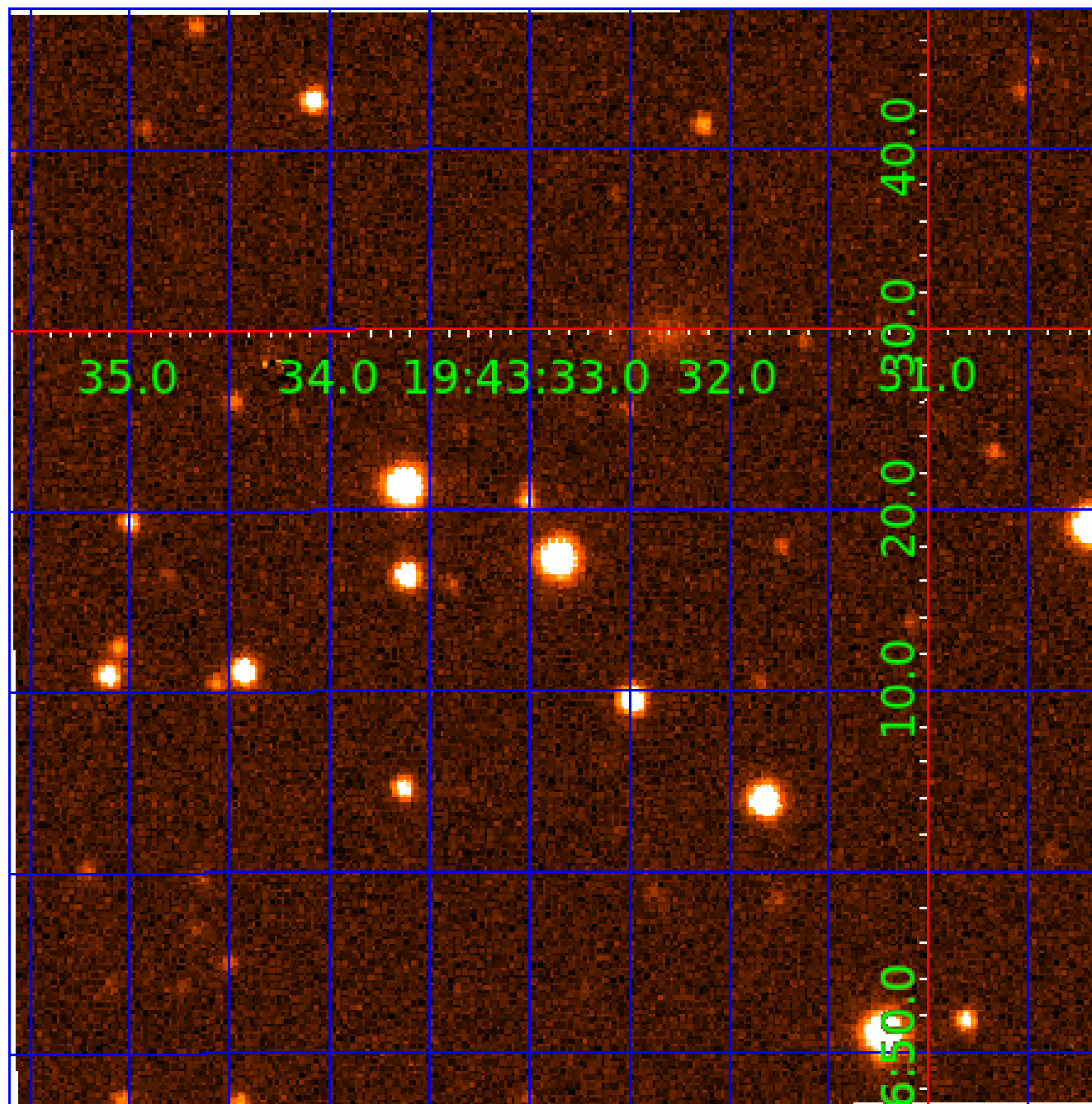


white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



UKIRT Image

Declination



# KIC 006963490

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
006963490-01	OBS	No	0.688825	132.240424	148.0	2.606	11.2	9.0	1.23	6656	1.67	9908.53
006963490-02	OBS	No	0.850129	131.941189	370.2	1.221	10.7	9.2	1.23	6656	2.46	7484.71
006963490-03	OBS	No	0.850059	133.277315	78.7	2.916	9.8	3.2	1.23	6656	1.18	7485.53

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
006963490-01	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT
006963490-02	OBS	FP	0.00	1	0	0	0	TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT
006963490-03	OBS	FP	0.00	1	0	0	0	TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—SAME_NTL_PERIOD

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

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

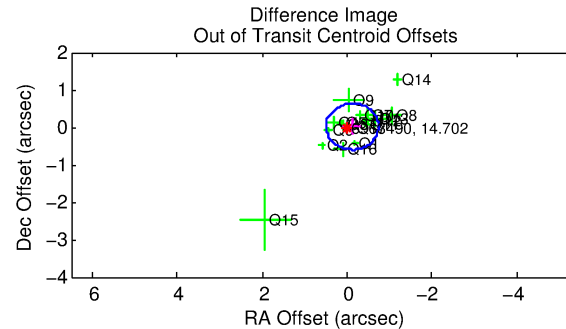
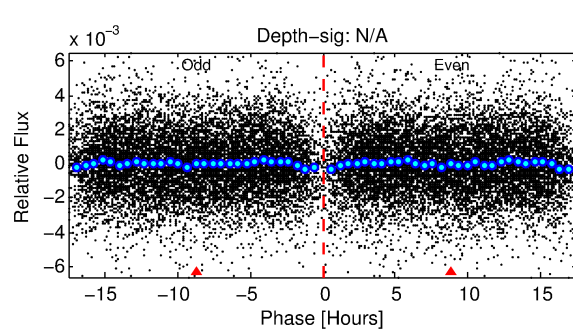
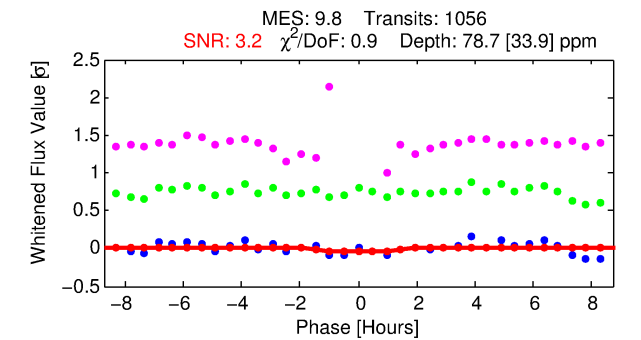
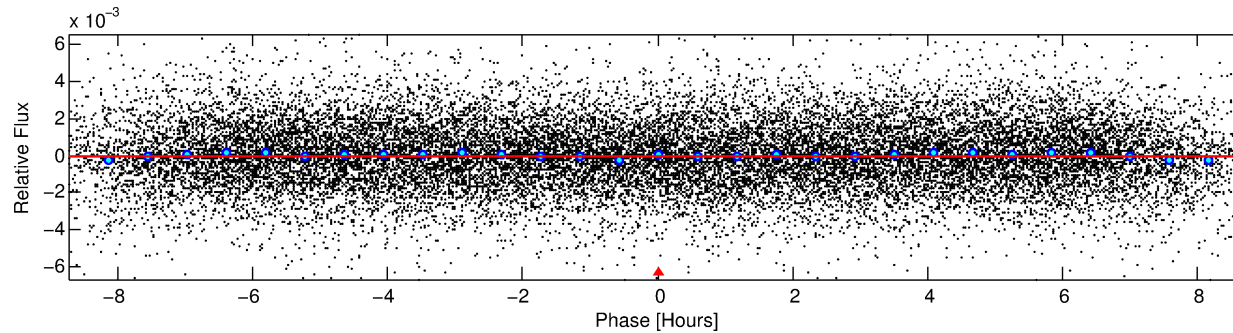
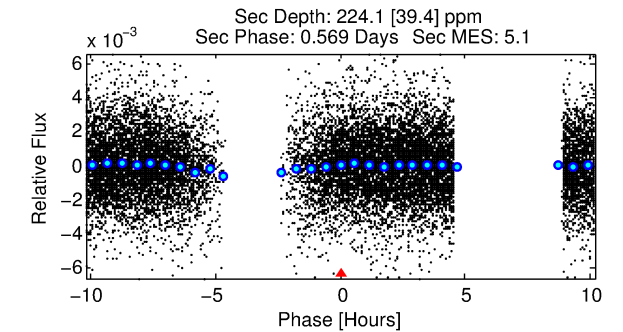
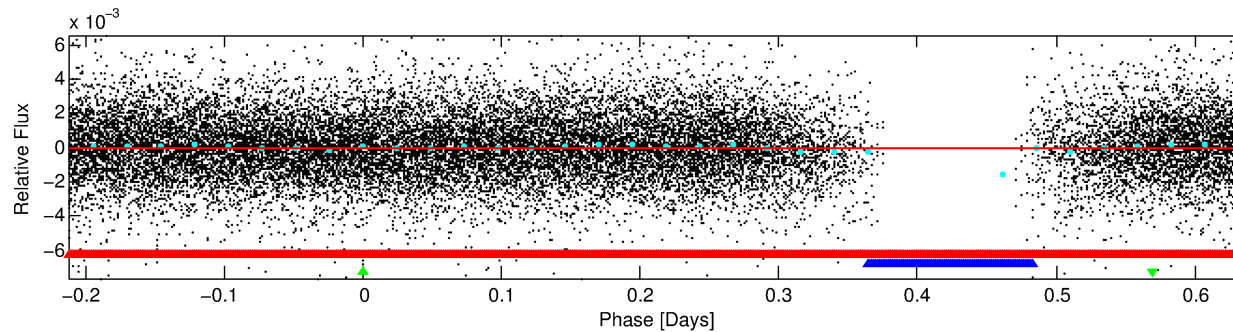
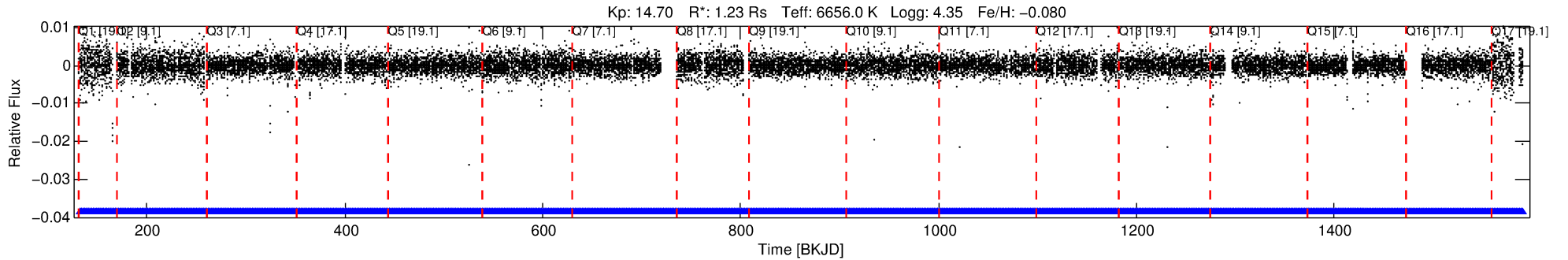
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

Ephemeris Match Information For 006963490-03

No Significant Match Found

# DV One-Page Summary

KIC: 6963490 Candidate: 3 of 3 Period: 0.850 d



## DV Fit Results:

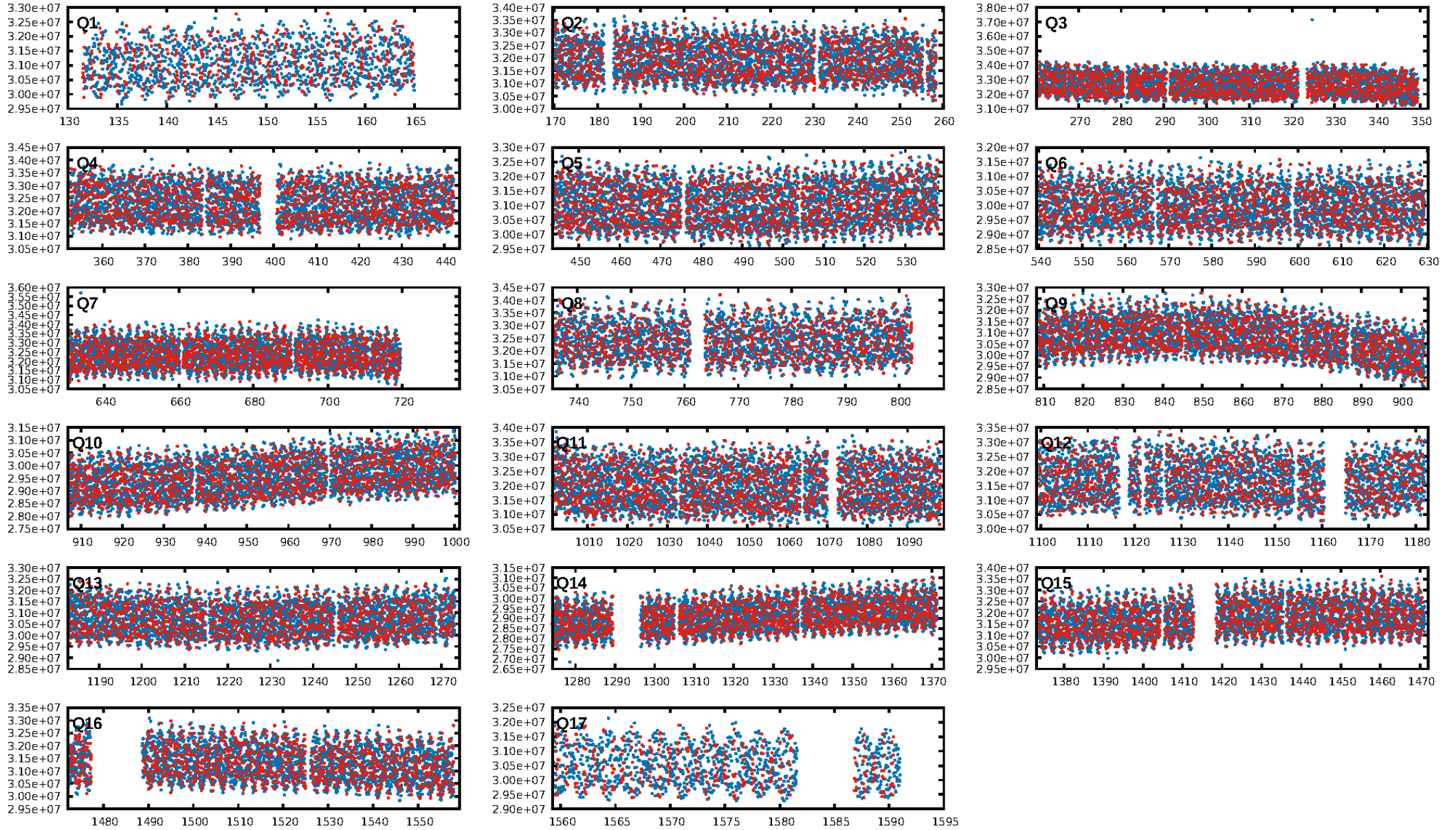
Period = 0.85006 [0.00004] d  
Epoch = 133.2773 [0.0127] BKJD  
Rp/R\* = 0.0088 [0.0198]  
a/R\* = 1.78 [15.36]  
b = 0.72 [8.48]  
Seff = 7485.53 [2963.45]  
Teff = 2372 [235] K  
Rp = 1.18 [2.69] Re  
a = 0.0189 [0.0049] AU  
Ag = 31.72 [144.21] [0.21 $\sigma$ ]  
Teffp = 8703 [9863] K [0.64 $\sigma$ ]

## DV Diagnostic Results:

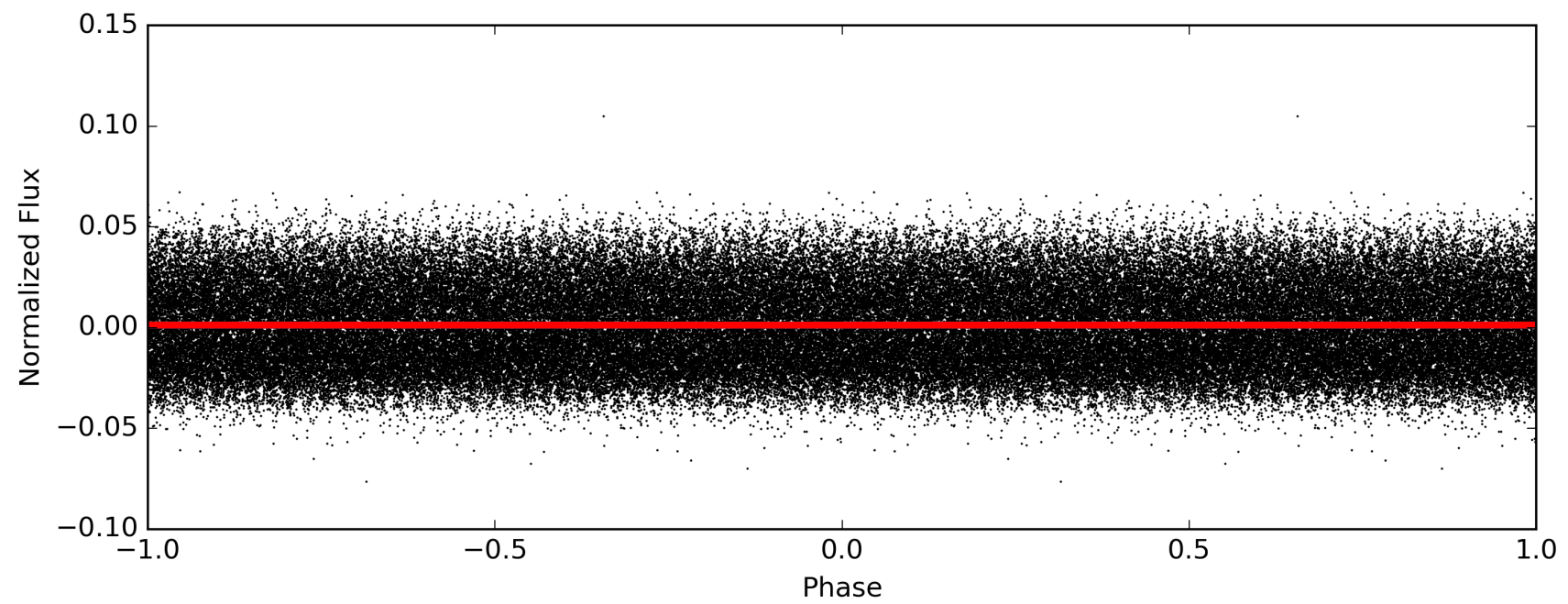
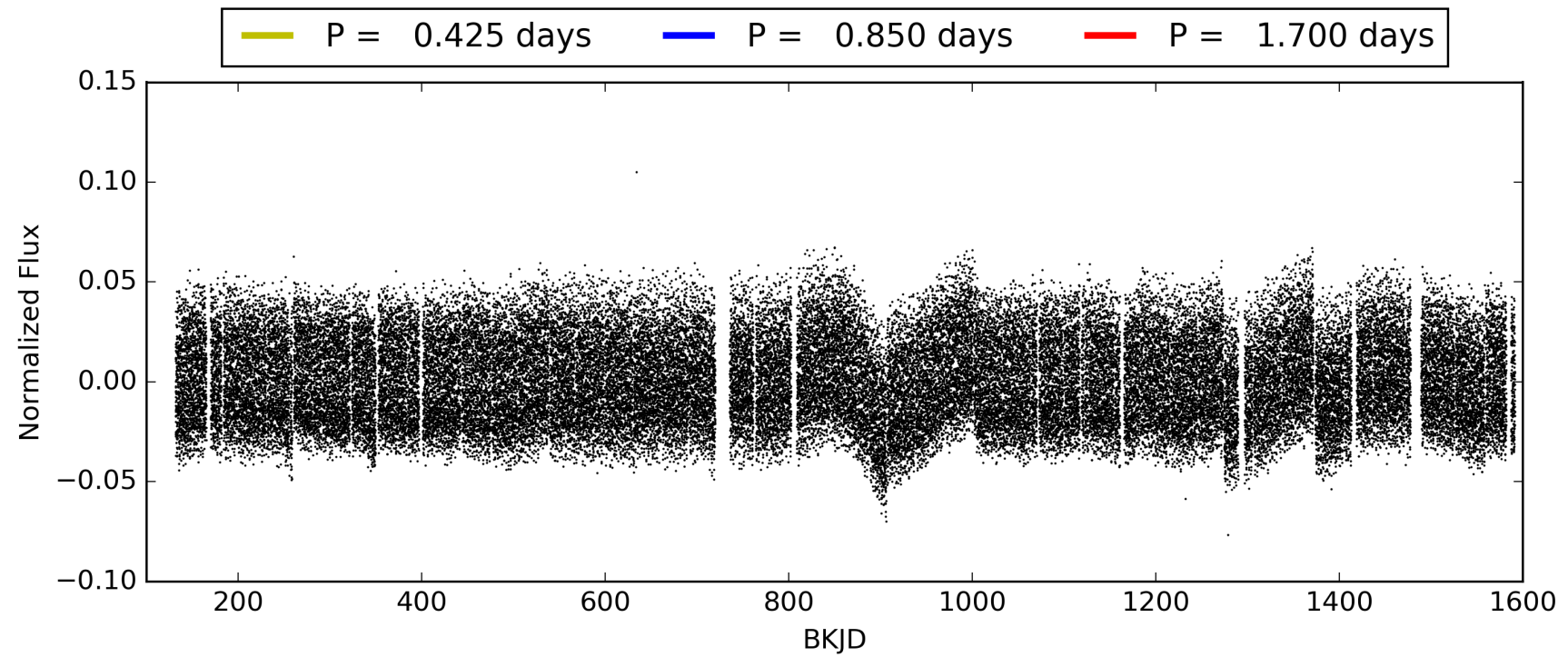
ShortPeriod-sig: 67.8% [0.99 $\sigma$ ]  
LongPeriod-sig: 0.0% [0.00 $\sigma$ ]  
ModelChiSquare2-sig: N/A  
ModelChiSquareGof-sig: N/A  
Bootstrap-pfa: 2.15e-22  
RollingBand-fgt: 1.00 [1008/1008]  
GhostDiagnostic-chr: 0.3789  
Centroid-sig: N/A  
Centroid-so: 1.049 arcsec [1.75 $\sigma$ ]  
OotOffset-rm: 0.127 arcsec [0.62 $\sigma$ ]  
KicOffset-rm: 0.079 arcsec [0.35 $\sigma$ ]  
OotOffset-st: 4/4/4/5 [17]  
KicOffset-st: 4/4/4/5 [17]  
DiffImageQuality-fgm: 0.53 [9/17]  
DiffImageOverlap-fno: 0.00 [0/17]



# TCE 006963490-03, PDC Light Curves

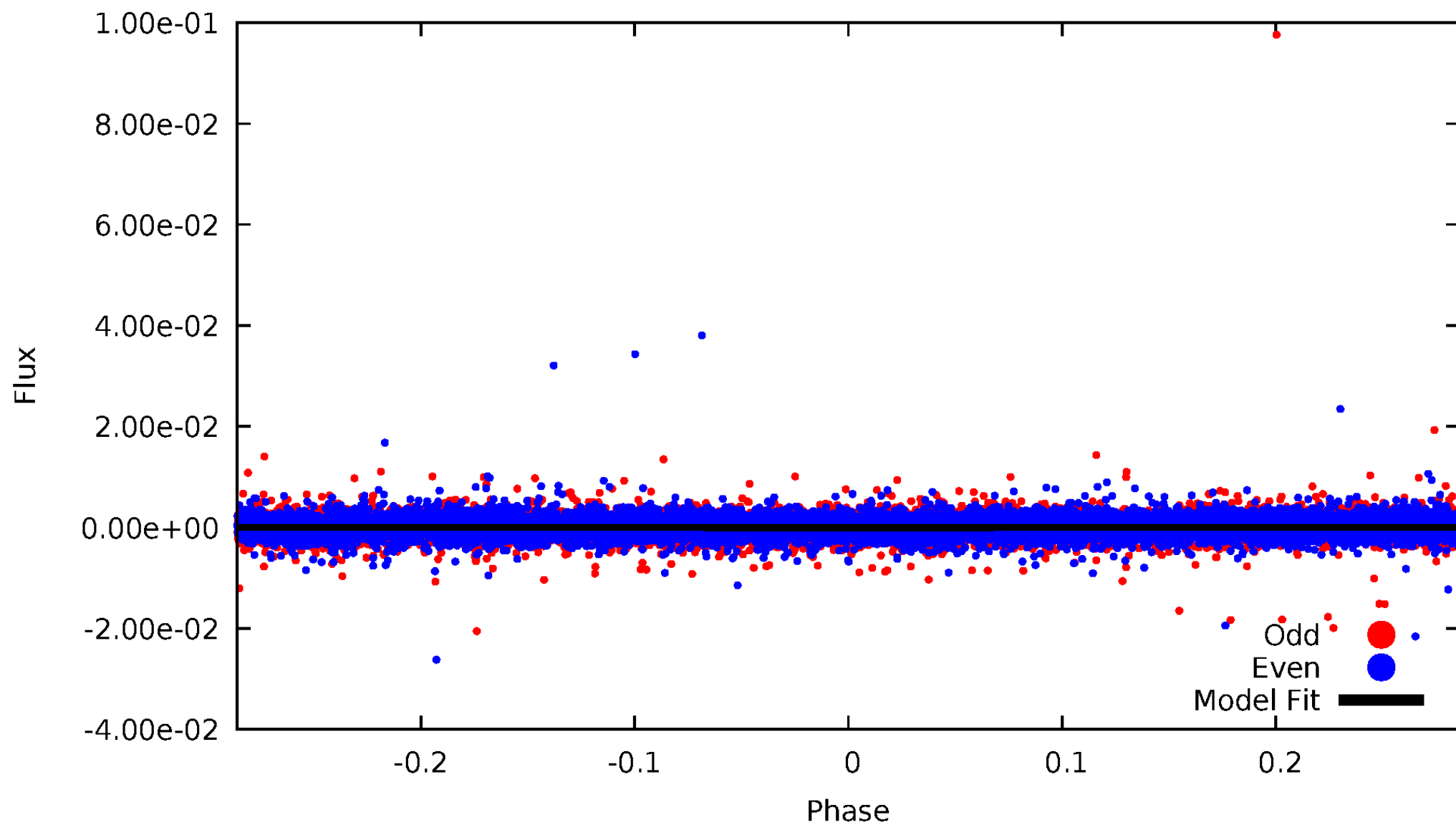


TCE 006963490-03



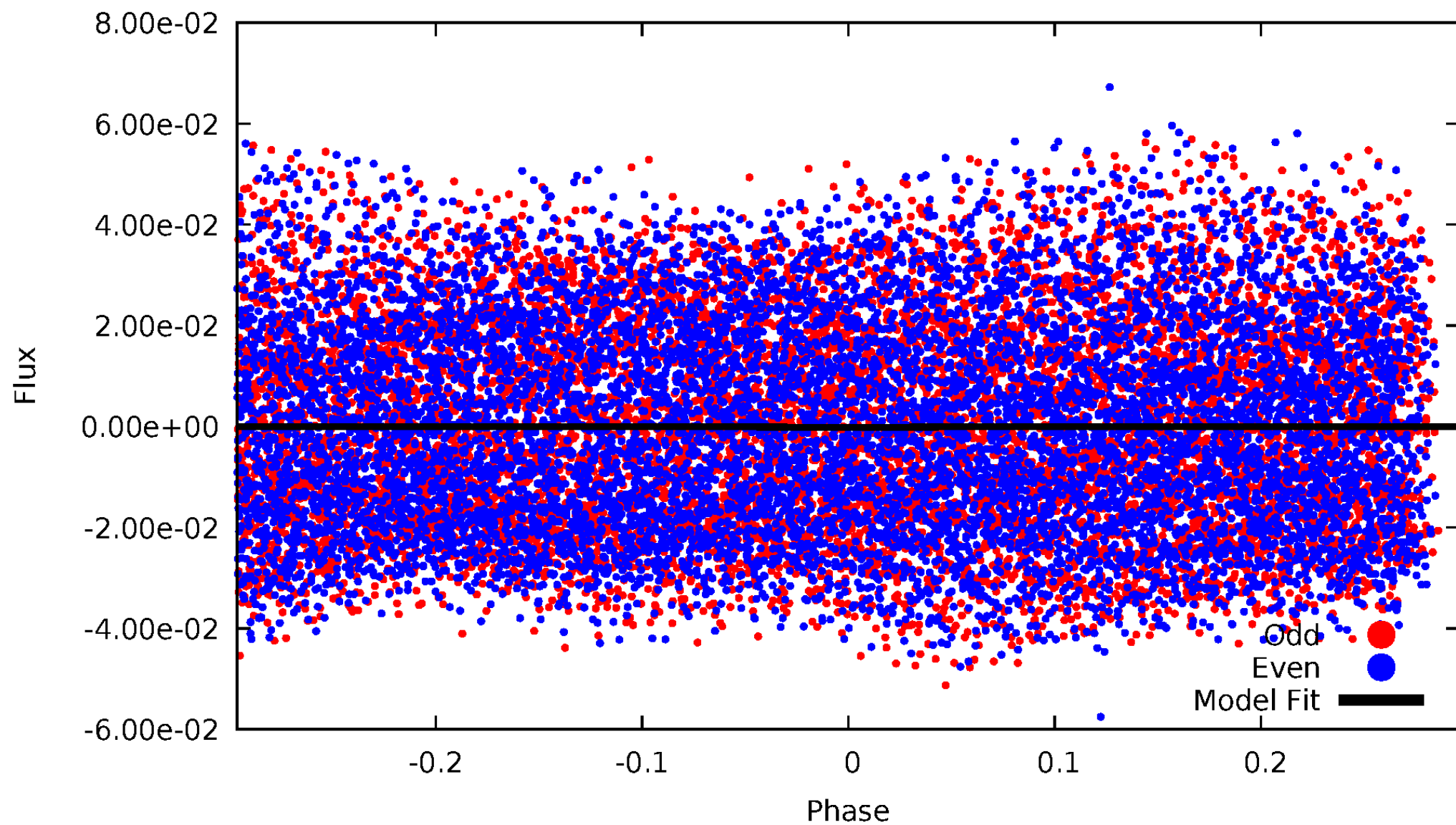
# DV Odd/Even

TCE 006963490-03



# ALT Odd/Even

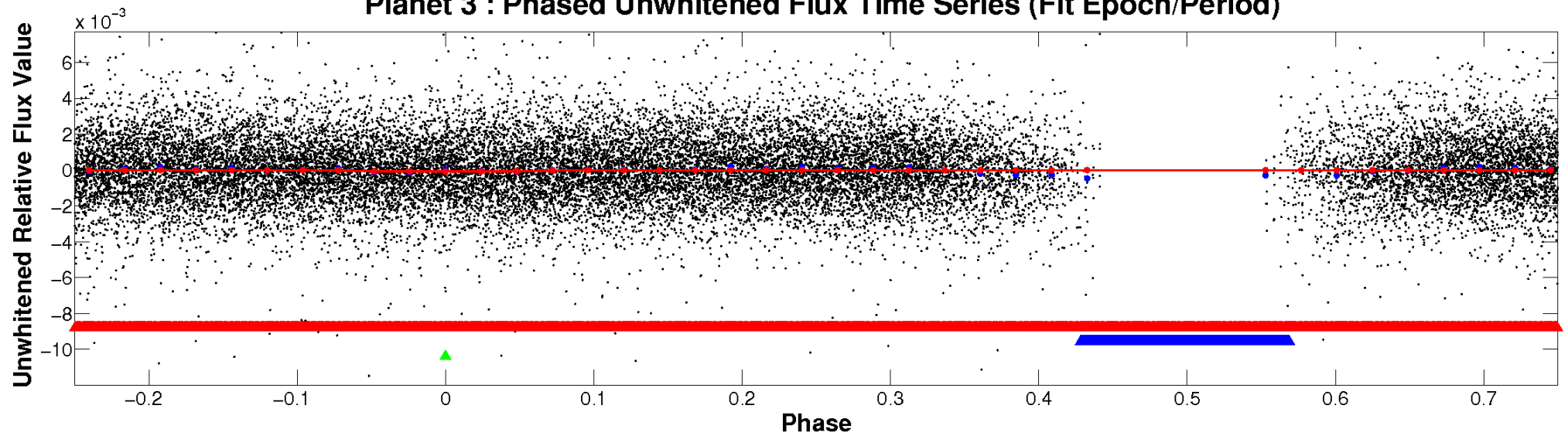
TCE 006963490-03



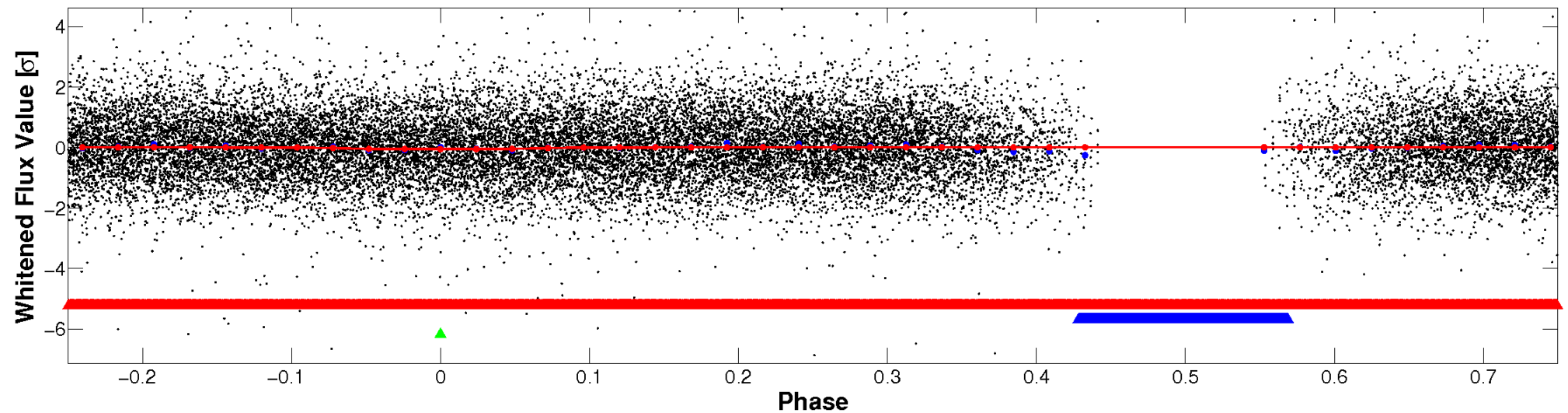


# Non-Whitened Vs. Whitened Light Curve

## Planet 3 : Phased Unwhitened Flux Time Series (Fit Epoch/Period)

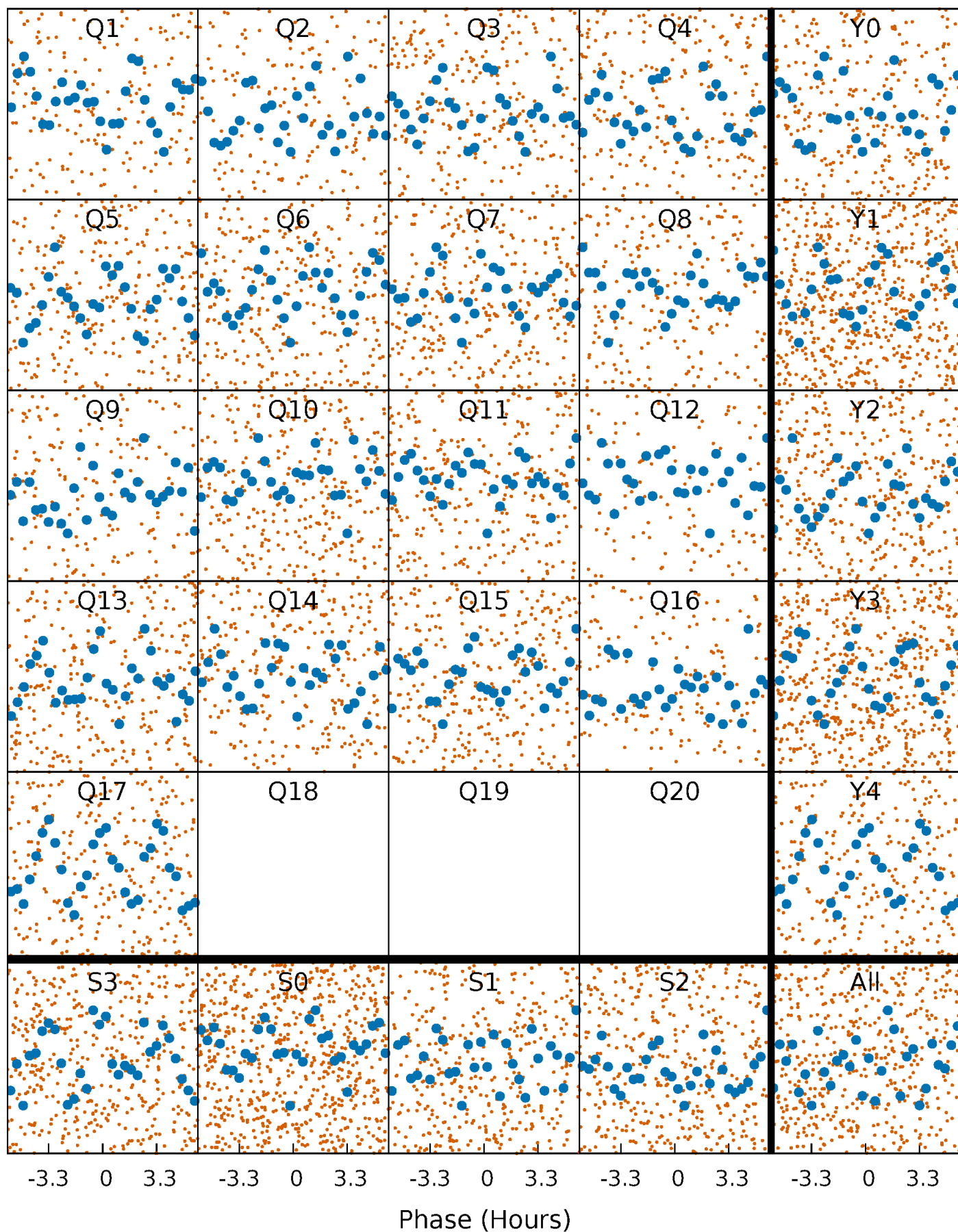


## Planet 3 : Phased Whitened Flux Time Series (Fit Epoch/Period)



# PDC Quarter-Phased Transit Curves

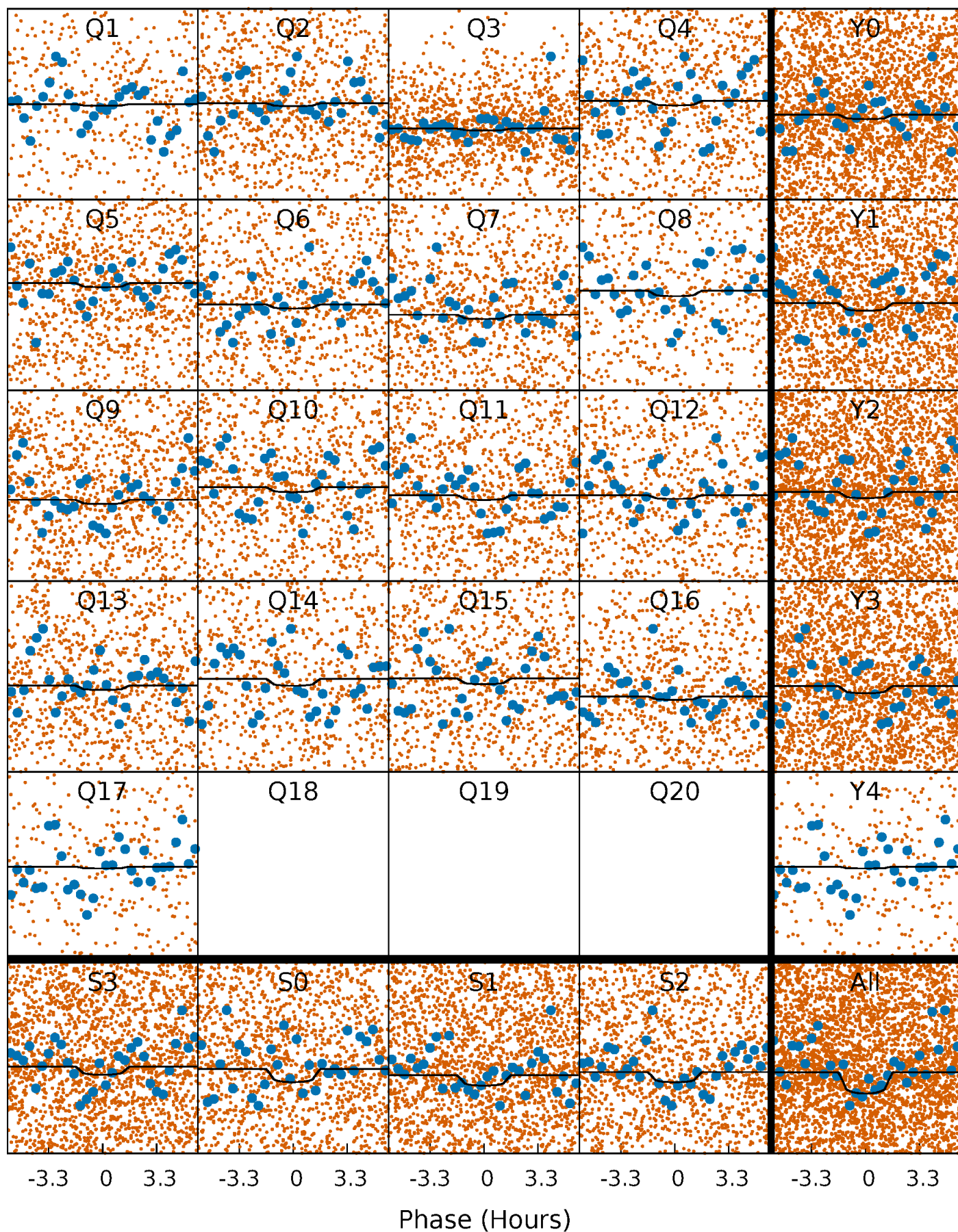
TCE 006963490-03     $P = 0.850059$  Days     $T_0 = 133.277315$  (BKJD)





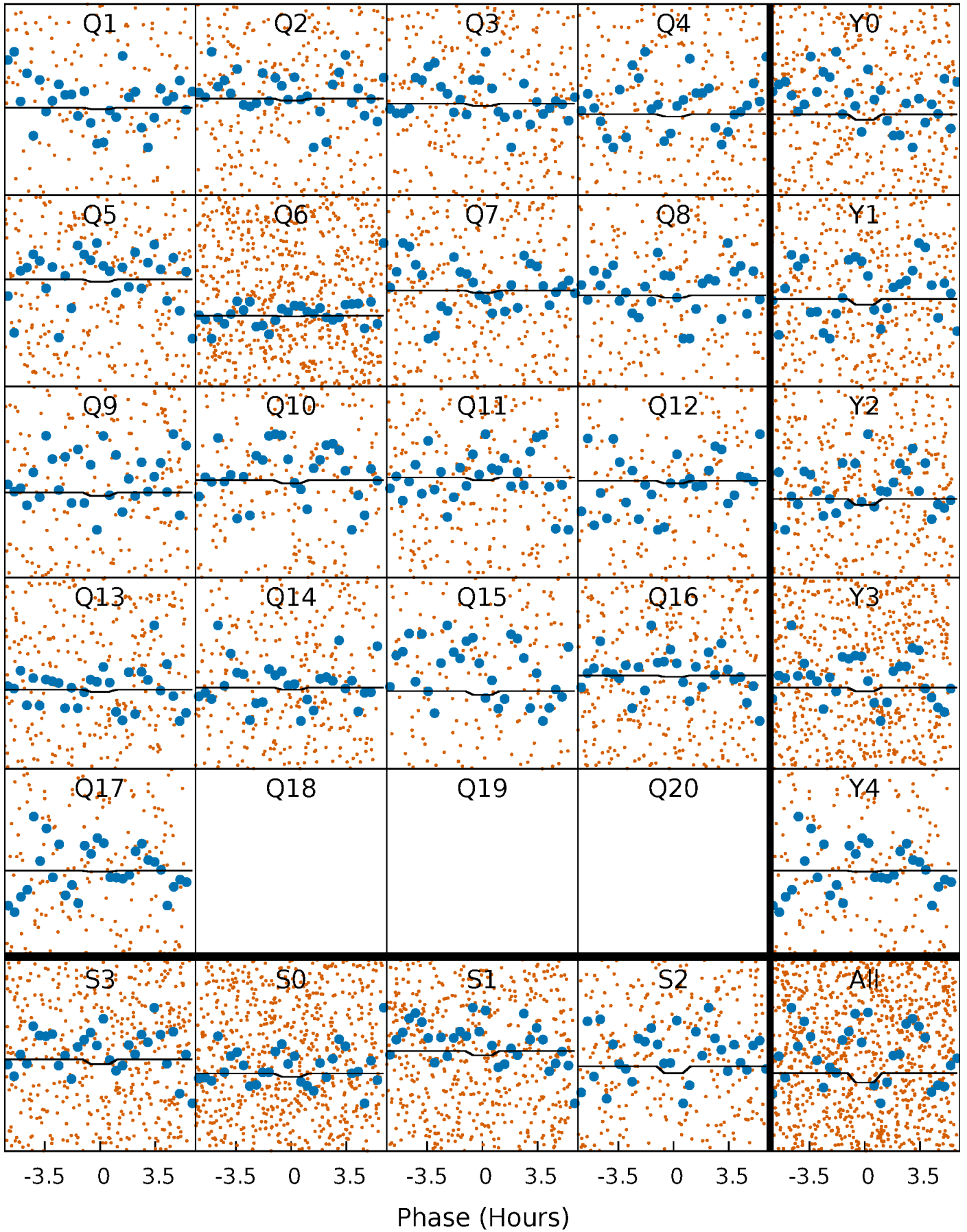
# DV Quarter-Phased Transit Curves

TCE 006963490-03 P= 0.850059 Days  $T_0=133.277315$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

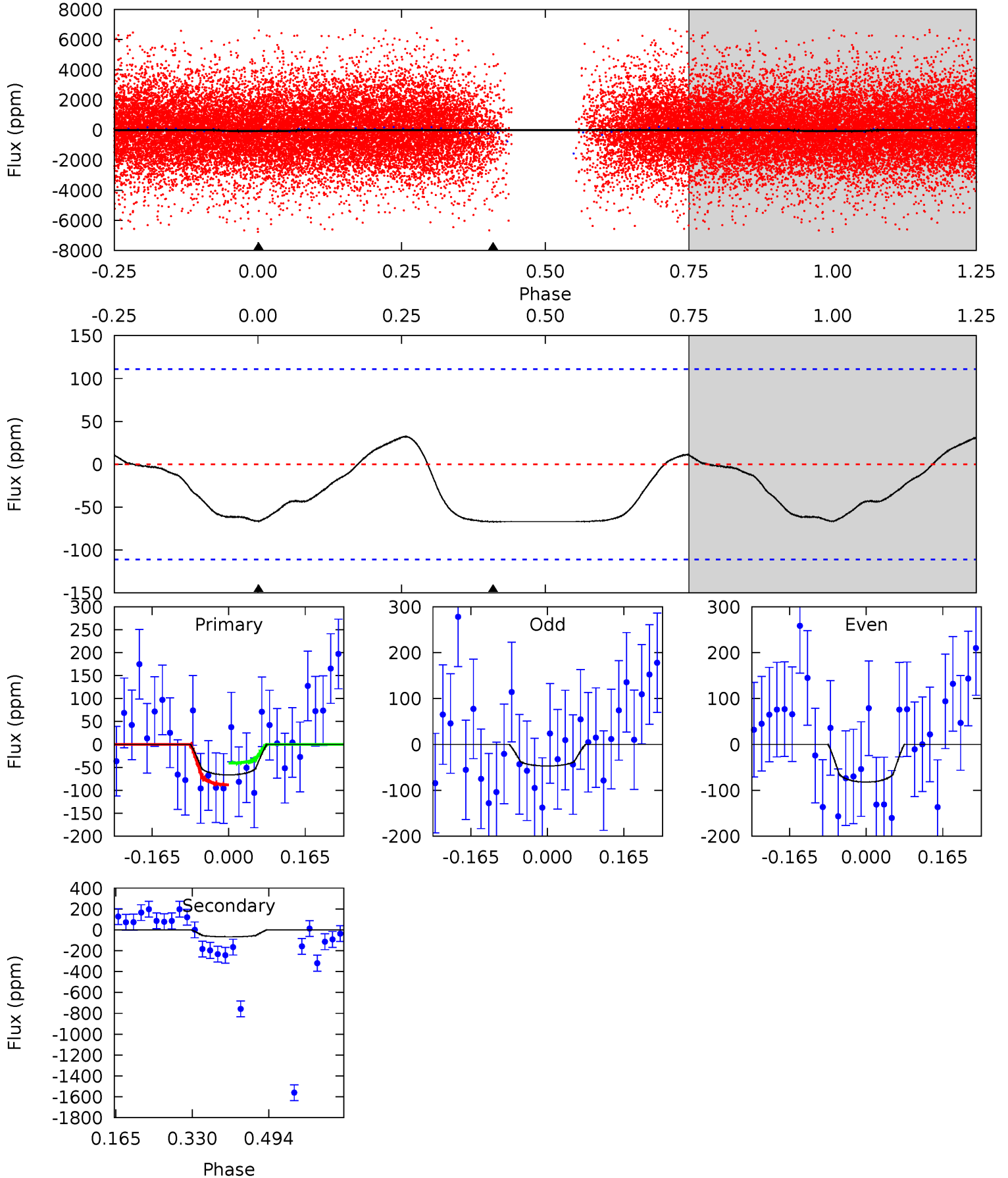
TCE 006963490-03 P= 0.850140 Days  $T_0=132.443655$  (BKJD)



# DV Model-Shift Uniqueness Test

006963490-03, P = 0.850059 Days, E = 131.577197 Days

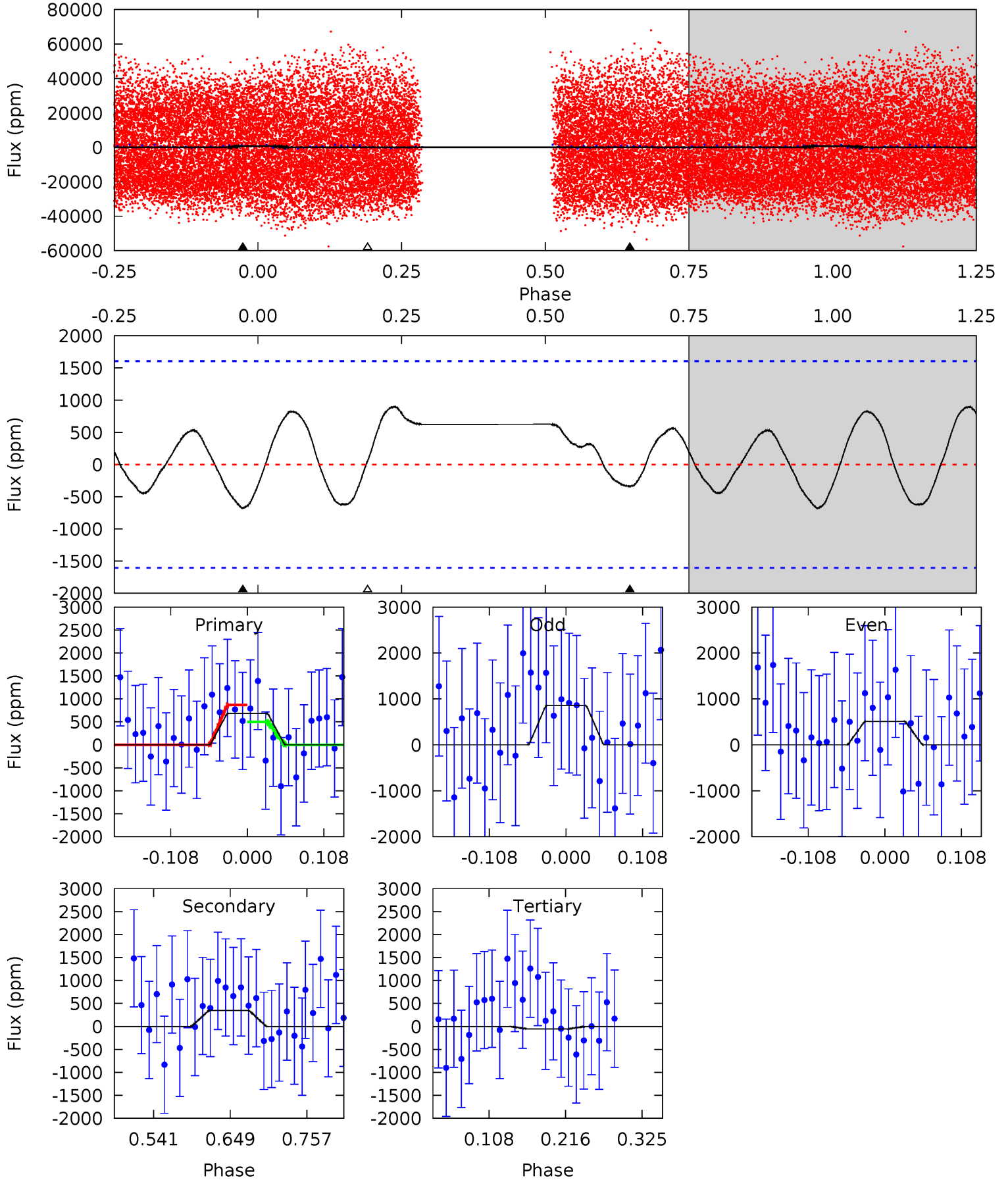
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
2.67	2.69	0	0	4.46	1.39	1.02	2.67	2.67	2.69	2.69	0.71	1.02	0.32	0.96



# Alt Model-Shift Uniqueness Test

006963490-03, P = 0.850140 Days, E = 131.593515 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
1.94	0.98	-0.16	0	4.55	1.61	1.35	2.10	1.94	1.14	0.98	0.48	0.59	0.57	0.53



### Stellar Parameters For KIC 006963490

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	$6656^{+181}_{-241}$	$4.351^{+0.065}_{-0.195}$	$-0.080^{+0.250}_{-0.350}$	$1.232^{+0.397}_{-0.159}$	$1.248^{+0.174}_{-0.174}$	$0.941^{+0.322}_{-0.465}$
	+3%/-4%	+1%/-4%	+312%/-438%	+32%/-13%	+14%/-14%	+34%/-49%
Source	PHO1	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 006963490-03 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	$A_{\text{obs}}$
DV	$-67 \pm 25$	$2.41^{+2.61}_{-1.55}$	$3376^{+256}_{-179}$	$4560^{+3303}_{-1474}$	$2.161^{+15.915}_{-1.675}$
Alt.	$-346 \pm 353$	$2.68^{+2.66}_{-1.82}$	$3381^{+246}_{-174}$	$6085^{+6921}_{-9390}$	$7.276^{+64.704}_{-7.309}$

$T_{\text{max}}$  = 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

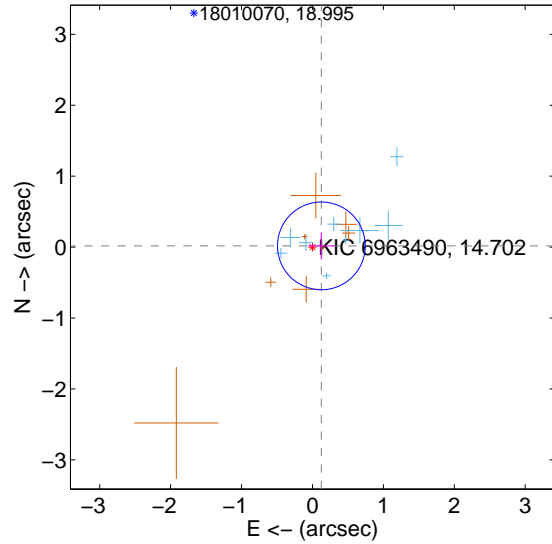
Supplemental centroid analysis for 006963490-03. Kepler magnitude: 14.70. Transit SNR 3.18

There are 9 quarters with good PRF difference image offsets

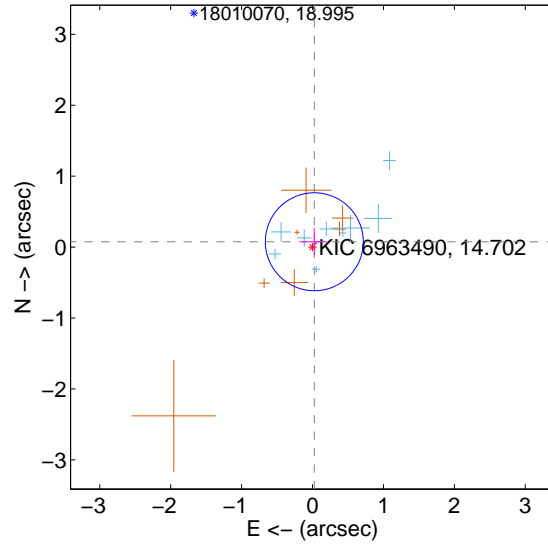
The direct PRF centroid is offset from the target star catalog position by about 0.12 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$0.127 \pm 0.206$	0.62	$-0.126 \pm 0.189$	$0.017 \pm 0.189$
PRF-fit source offset from KIC position	$0.079 \pm 0.230$	0.35	$-0.025 \pm 0.178$	$0.075 \pm 0.195$
photometric centroid source offset	$1.05 \pm 0.60$	1.75	$0.45 \pm 0.85$	$-0.95 \pm 0.53$

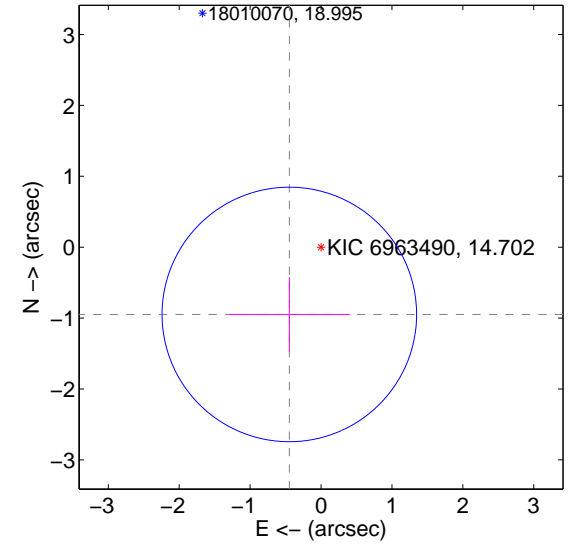
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position



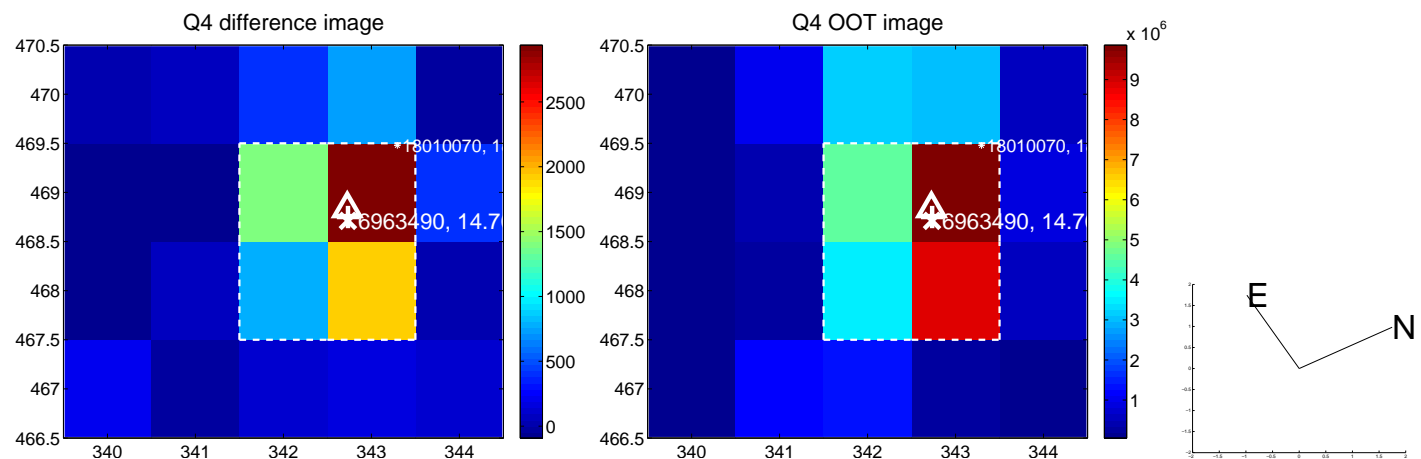
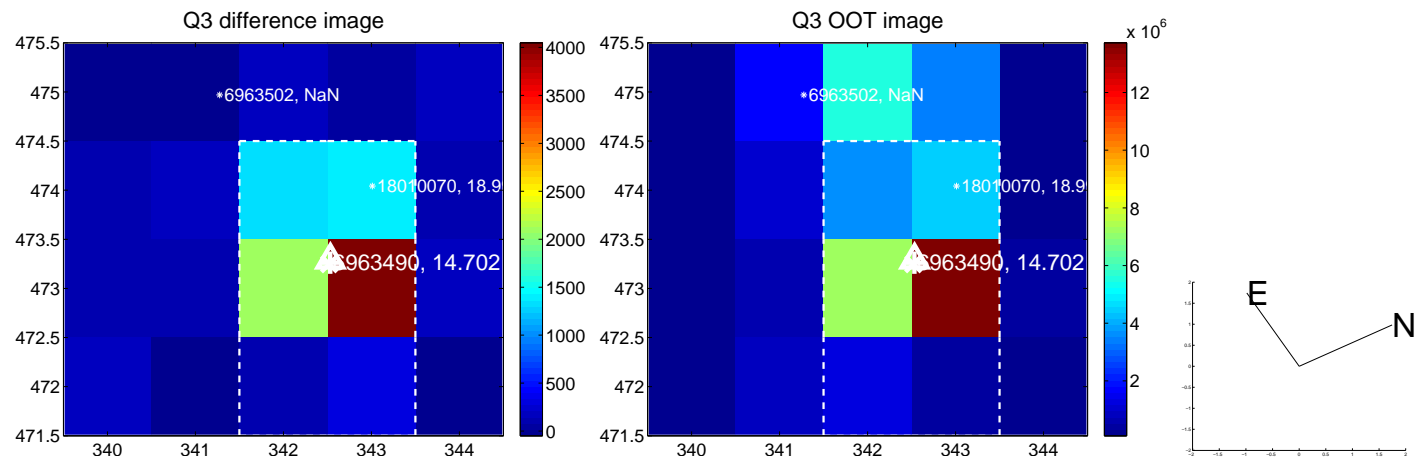
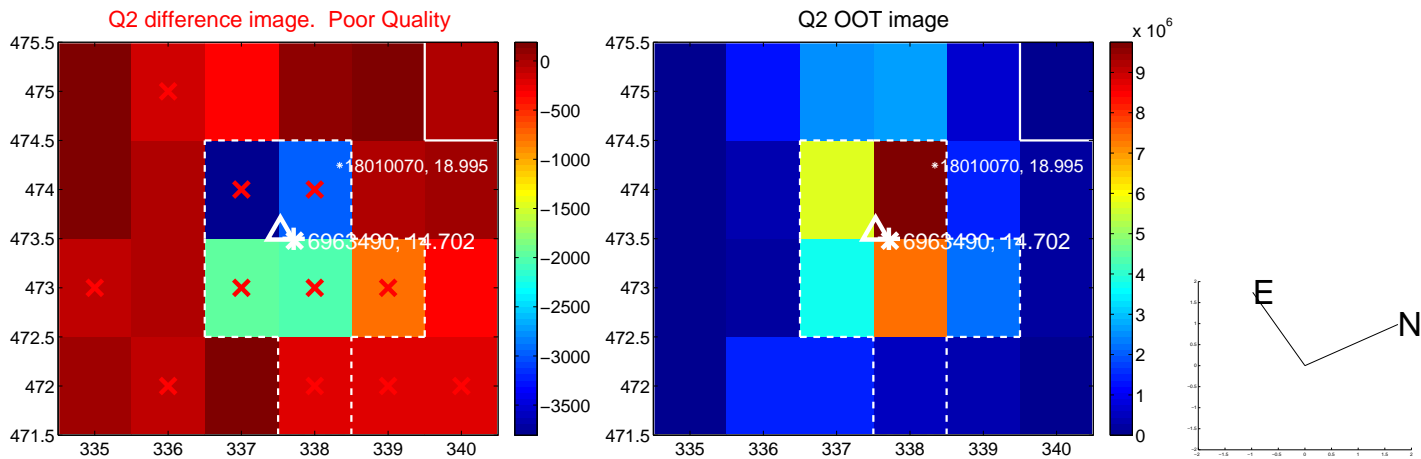
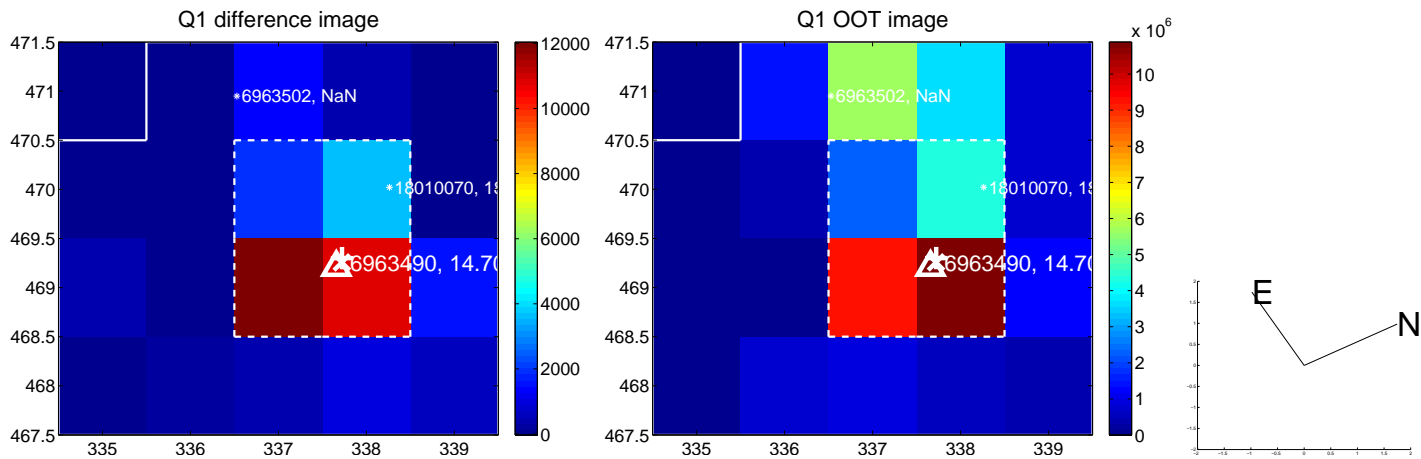
offset from photometric centroids



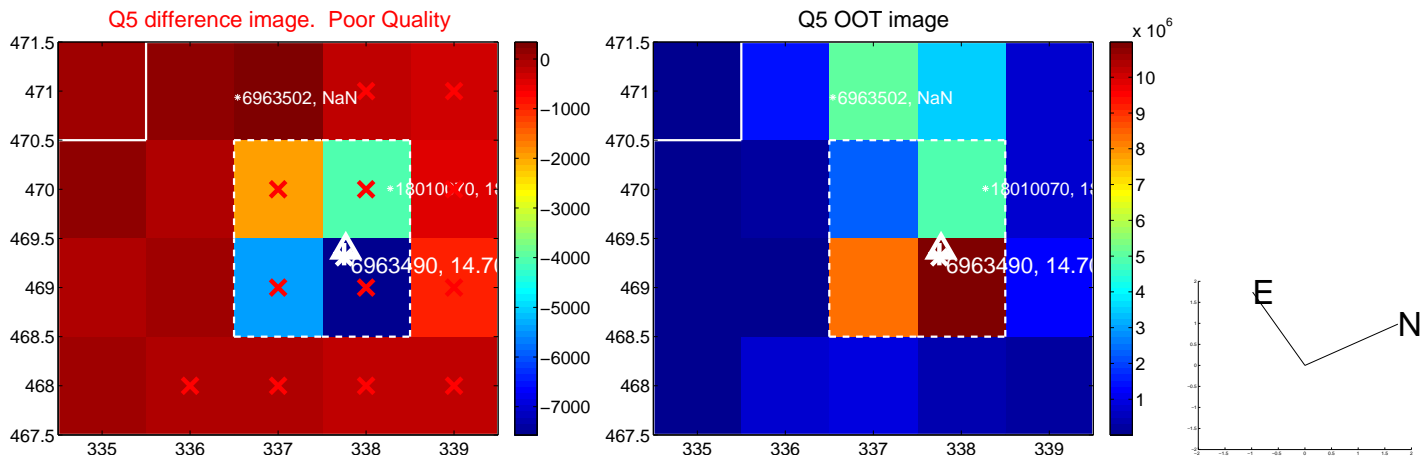
Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: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



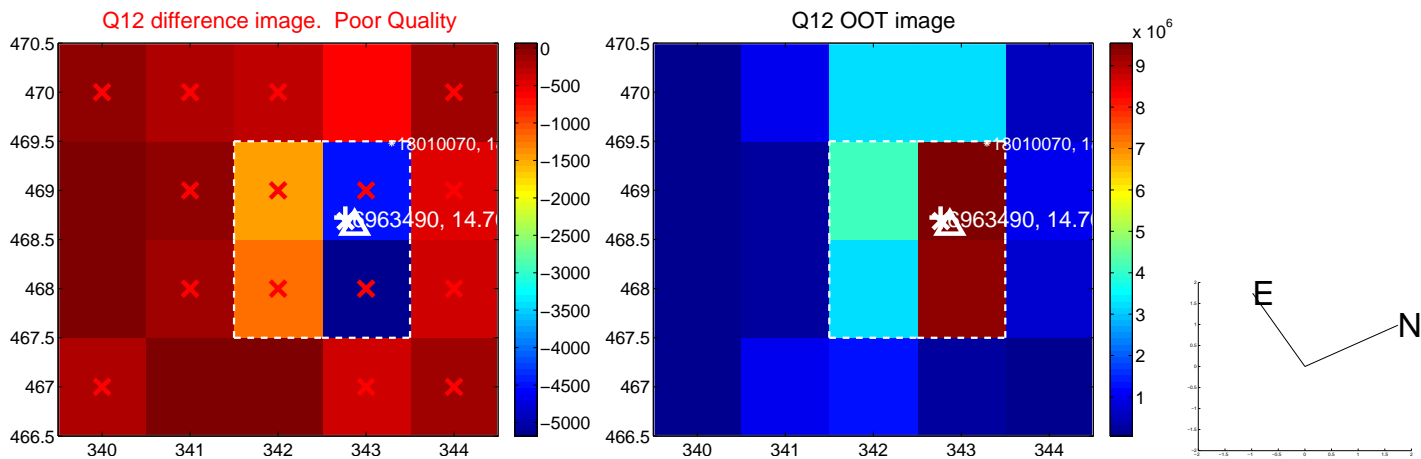
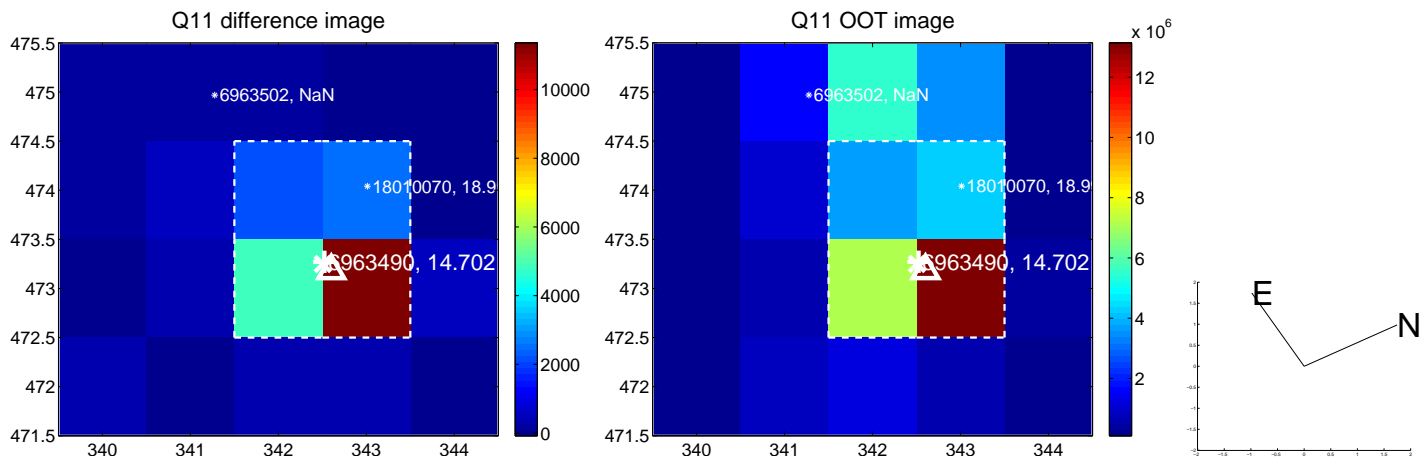
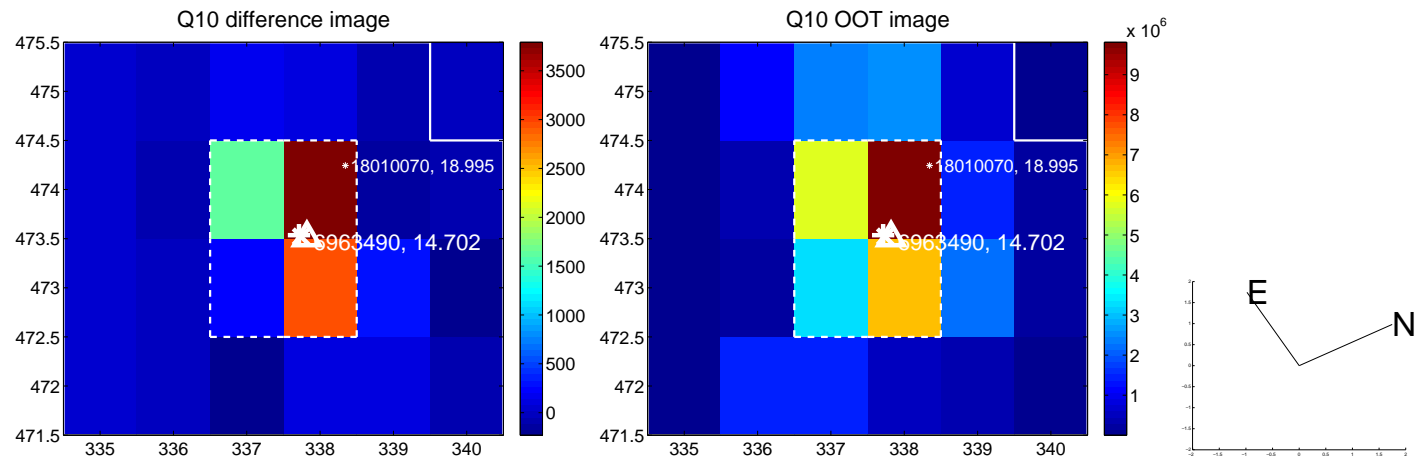
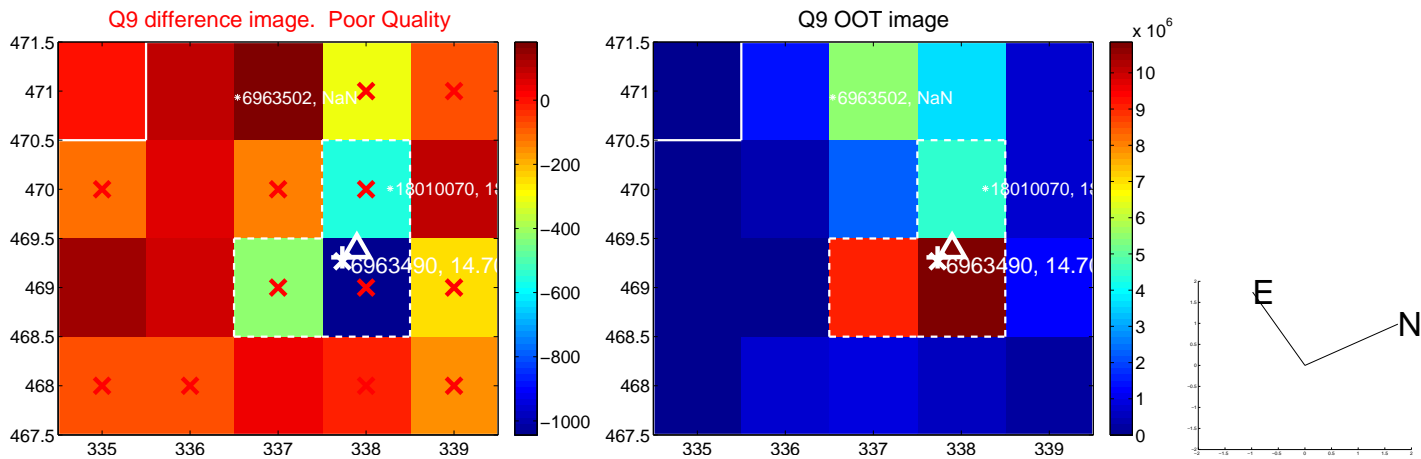
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



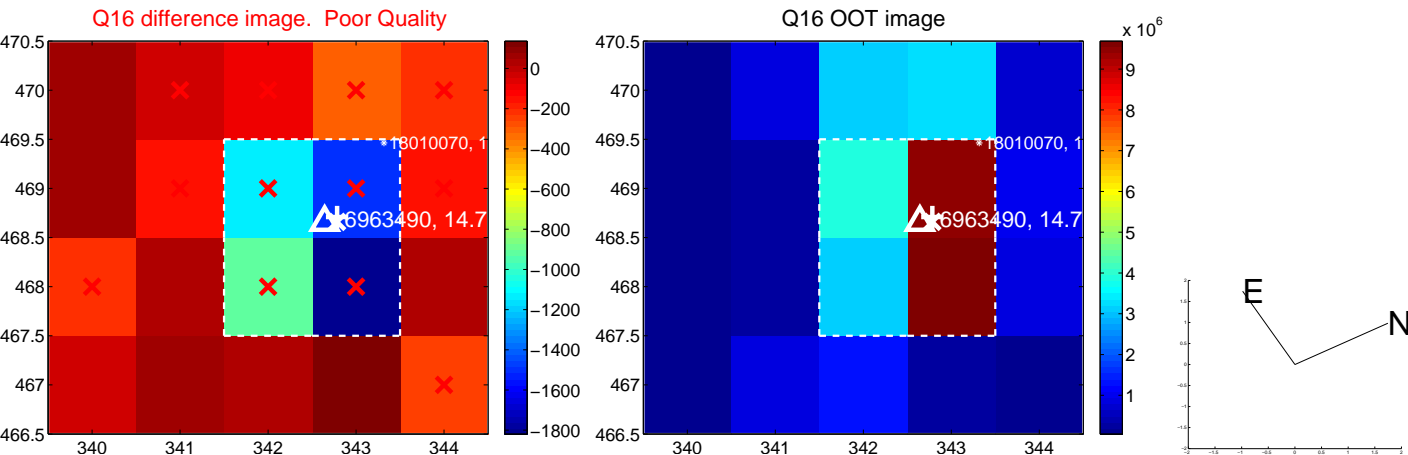
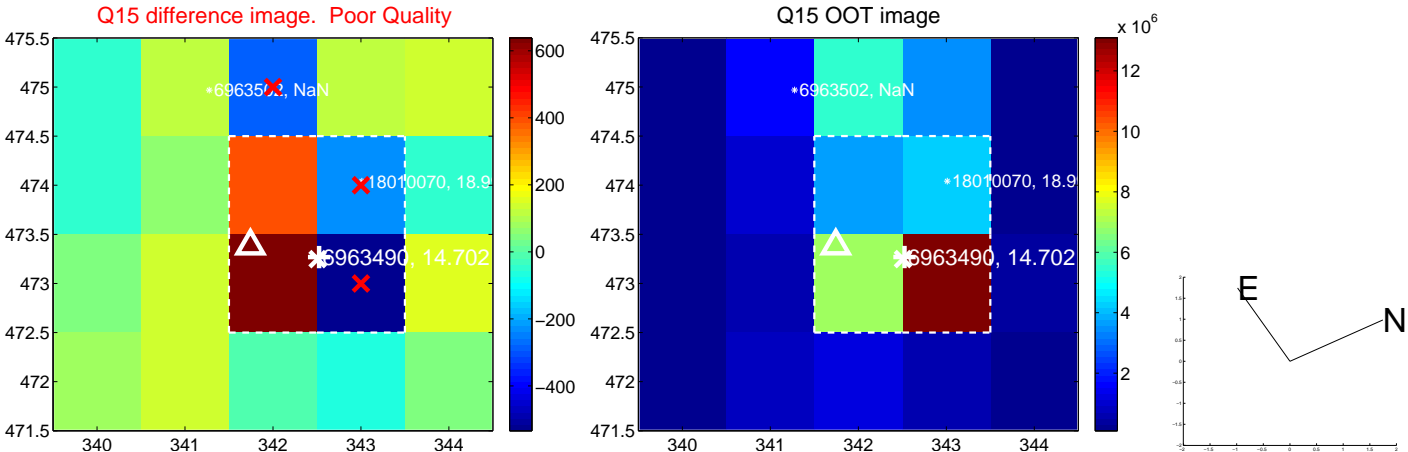
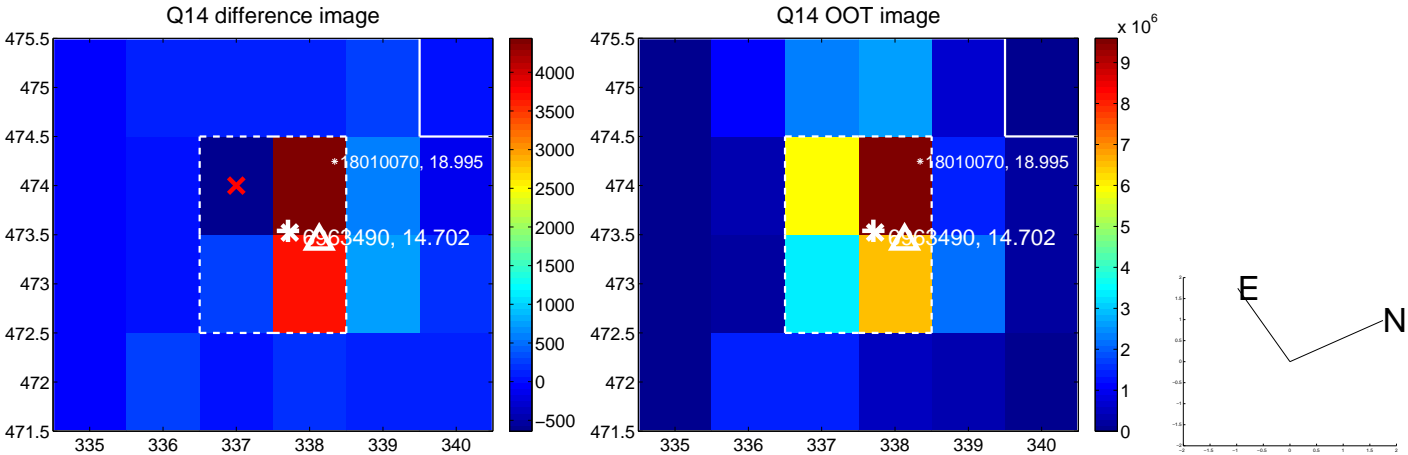
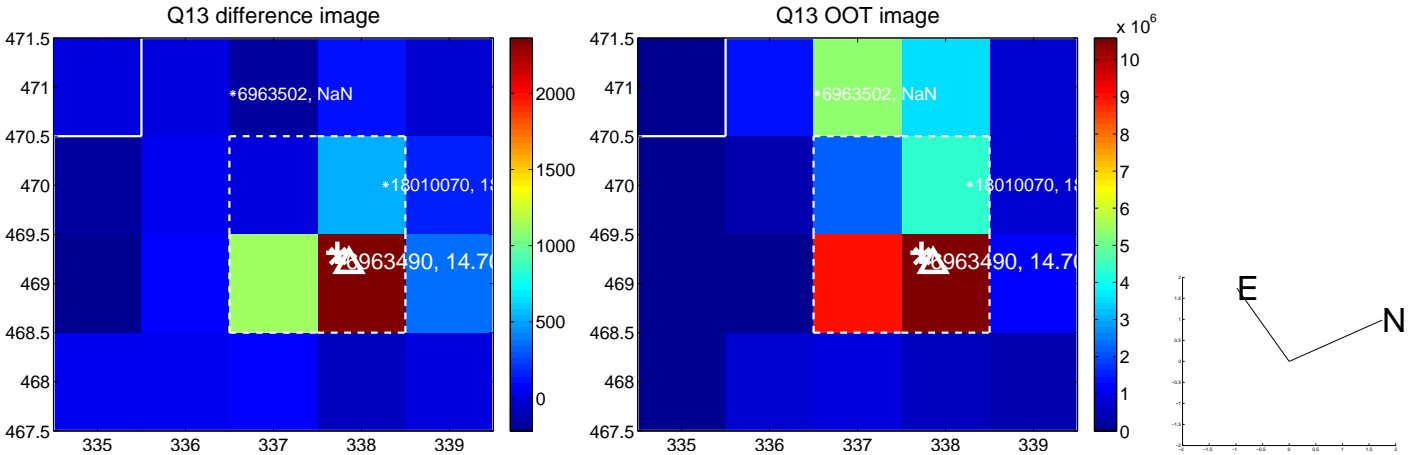
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



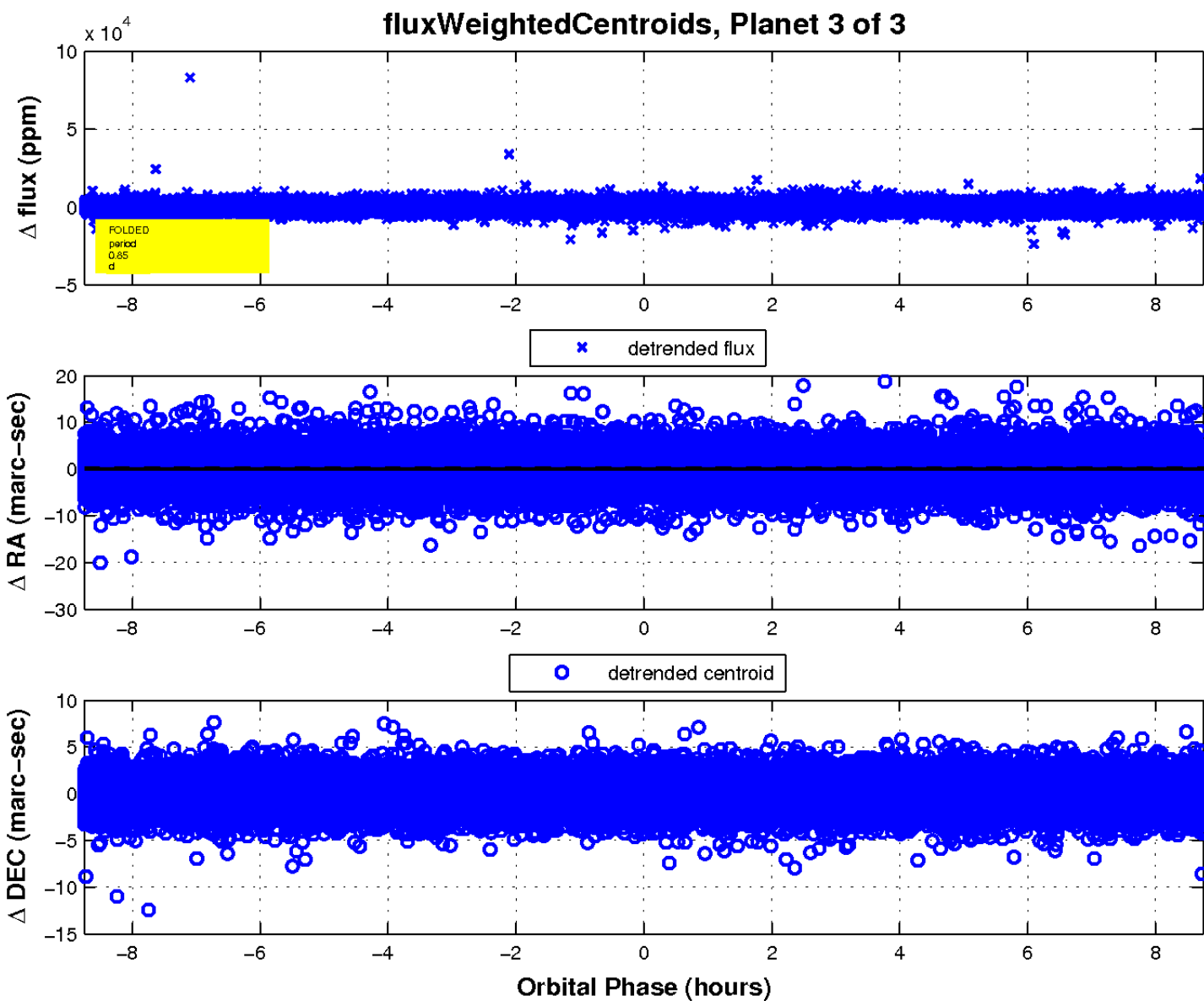
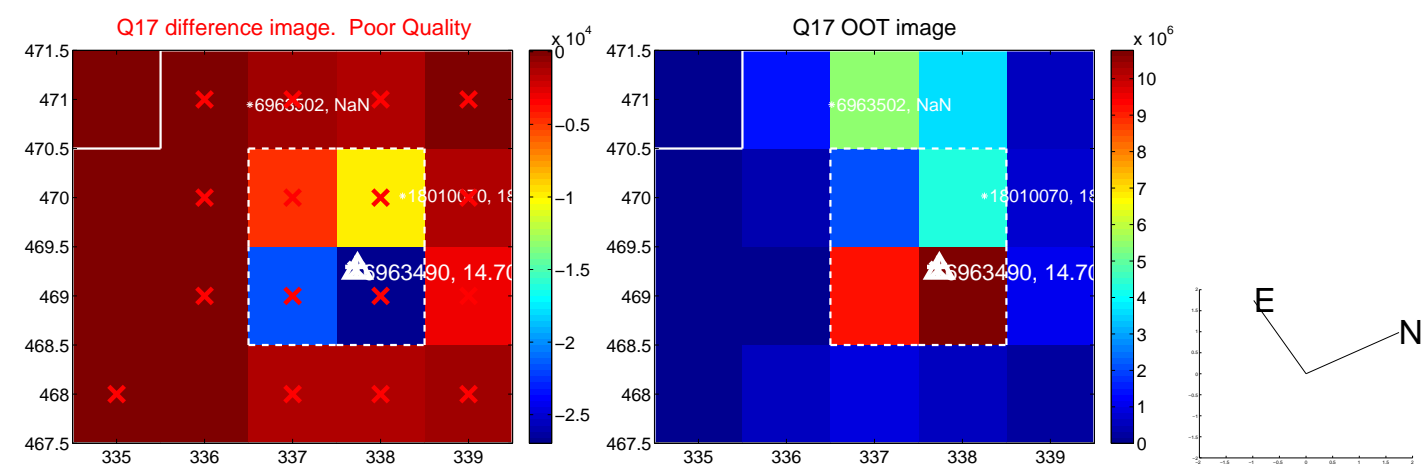
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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

