

# KIC 003962243

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
003962243-01	OBS	1203.01	31.883933	160.211989	910.2	6.226	21.6	23.3	0.97	5779	3.69	23.87
003962243-02	OBS	1203.02	14.128523	142.894097	574.7	3.730	18.9	20.0	0.97	5779	2.71	70.67
003962243-03	OBS	1203.03	48.647478	172.131940	624.8	5.154	10.1	10.8	0.97	5779	3.71	13.59

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
003962243-01	OBS	PC	1.00	0	0	0	0	NO_COMMENT
003962243-02	OBS	PC	0.98	0	0	0	0	NO_COMMENT
003962243-03	OBS	PC	0.83	0	0	0	0	NO_COMMENT

**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.

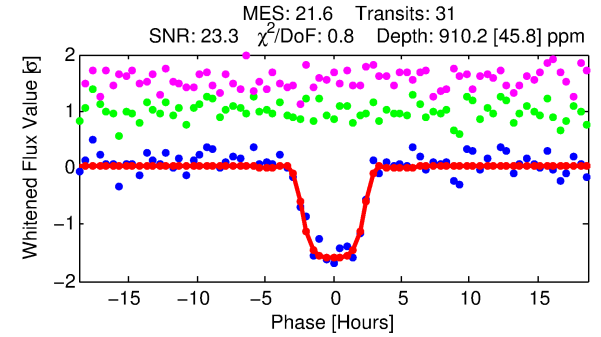
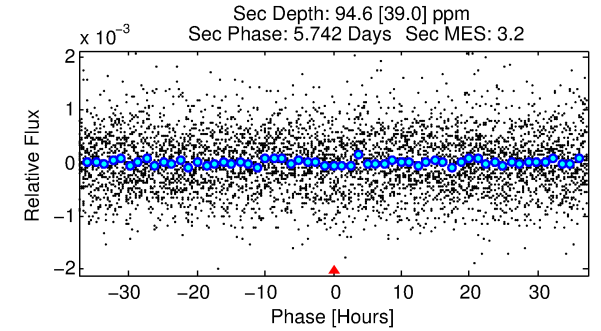
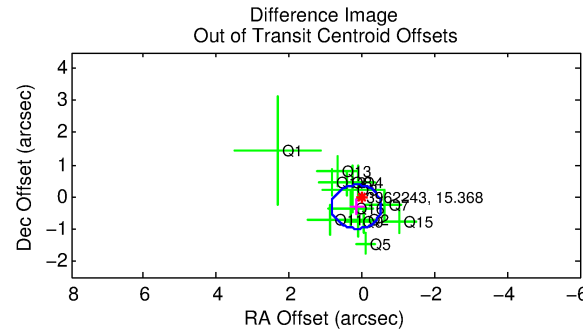
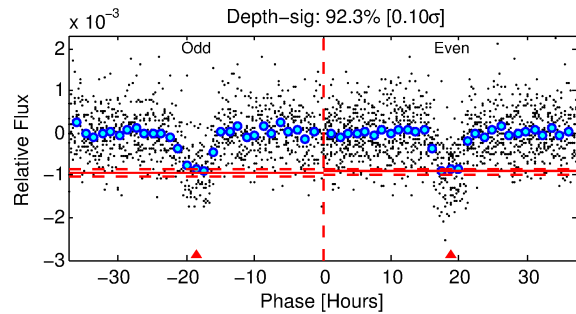
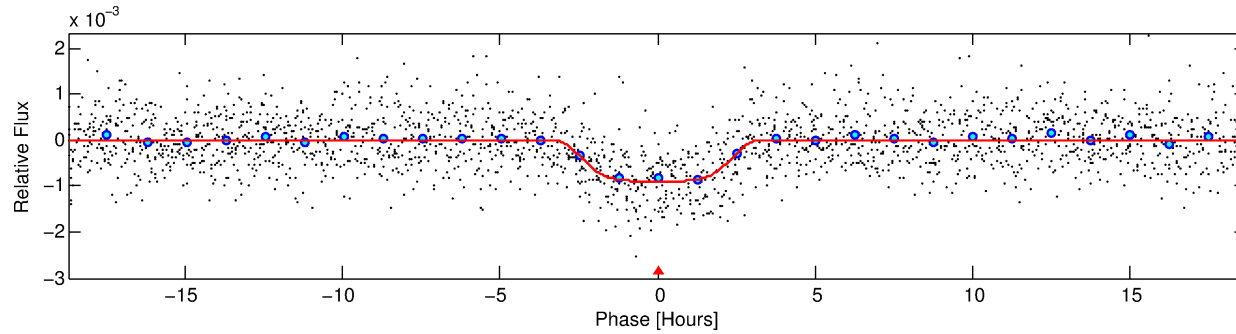
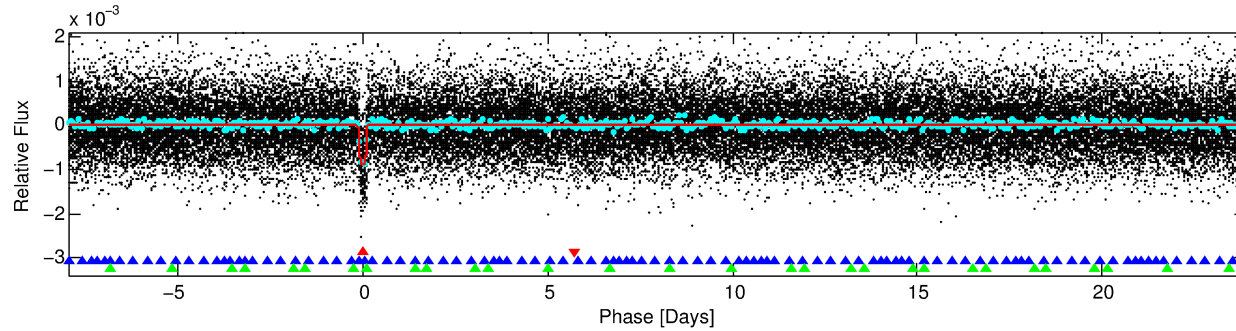
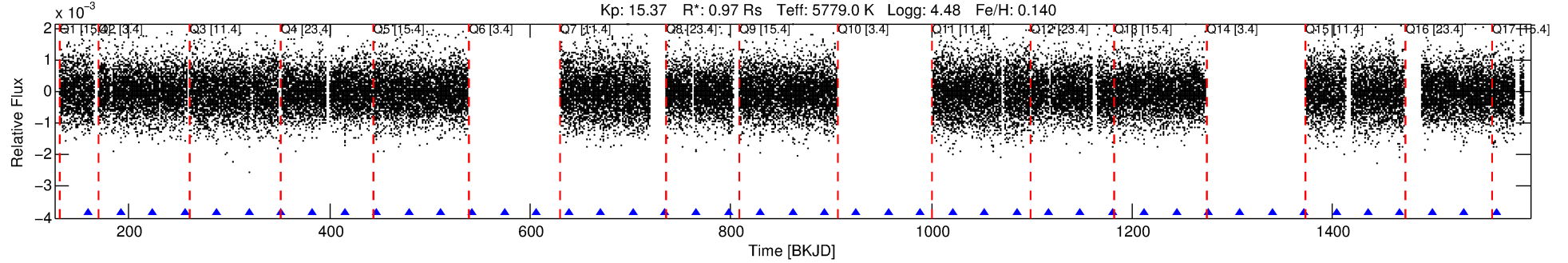
Ephemeris Match Information For 003962243-01

No Significant Match Found

# DV One-Page Summary

KIC: 3962243 Candidate: 1 of 3 Period: 31.884 d  
KOI: K01203.01 Name: Kepler-276c Corr: 0.905

Kp: 15.37 R\*: 0.97 Rs Teff: 5779.0 K Logg: 4.48 Fe/H: 0.140



## DV Fit Results:

Period = 31.88393 [0.00024] d  
Epoch = 160.2120 [0.0060] BKJD  
Rp/R\* = 0.0348 [0.0015]  
a/R\* = 16.83 [2.25]  
b = 0.94 [0.02]  
Seff = 23.87 [5.54]  
Teq = 564 [33] K  
Rp = 3.70 [0.62] Re  
a = 0.1993 [0.0291] AU  
Ag = 151.32 [72.26] [2.08σ]  
Teffp = 3056 [325] K [7.62σ]

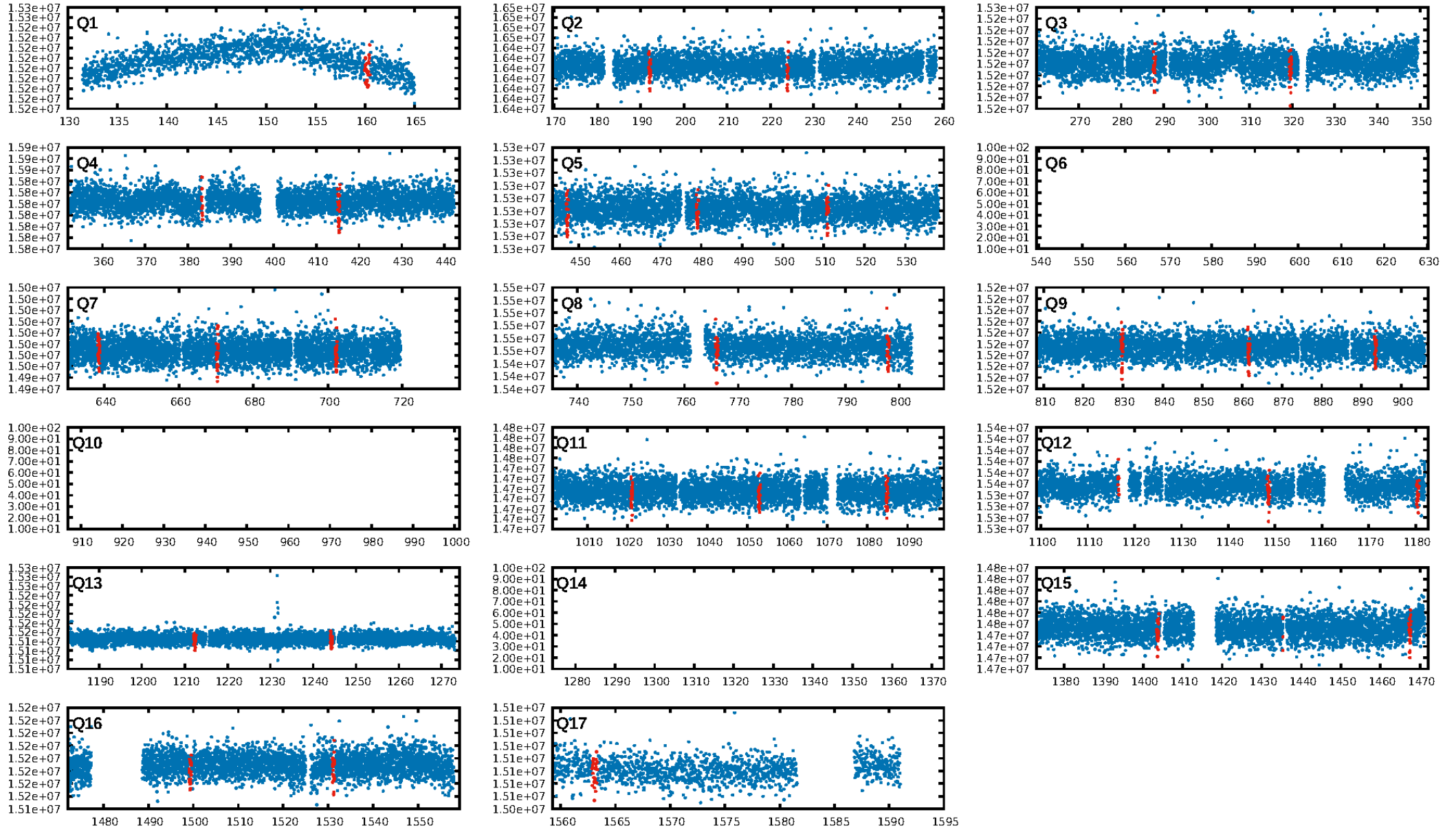
## DV Diagnostic Results:

ShortPeriod-sig: 100.0% [58.72σ]  
LongPeriod-sig: 100.0% [49.78σ]  
ModelChiSquare2-sig: 94.0%  
ModelChiSquareGof-sig: 100.0%  
Bootstrap-pfa: 4.51e-100  
RollingBand-fgt: 1.00 [29/29]  
GhostDiagnostic-chr: 2.532  
Centroid-sig: 0.4%  
Centroid-so: 1.215 arcsec [1.81σ]  
OotOffset-rm: 0.344 arcsec [1.52σ]  
KicOffset-rm: 0.406 arcsec [2.01σ]  
OotOffset-st: 1/4/4/4 [13]  
KicOffset-st: 1/4/4/4 [13]  
DiffImageQuality-fgm: 0.92 [12/13]  
DiffImageOverlap-fno: 0.93 [13/14]

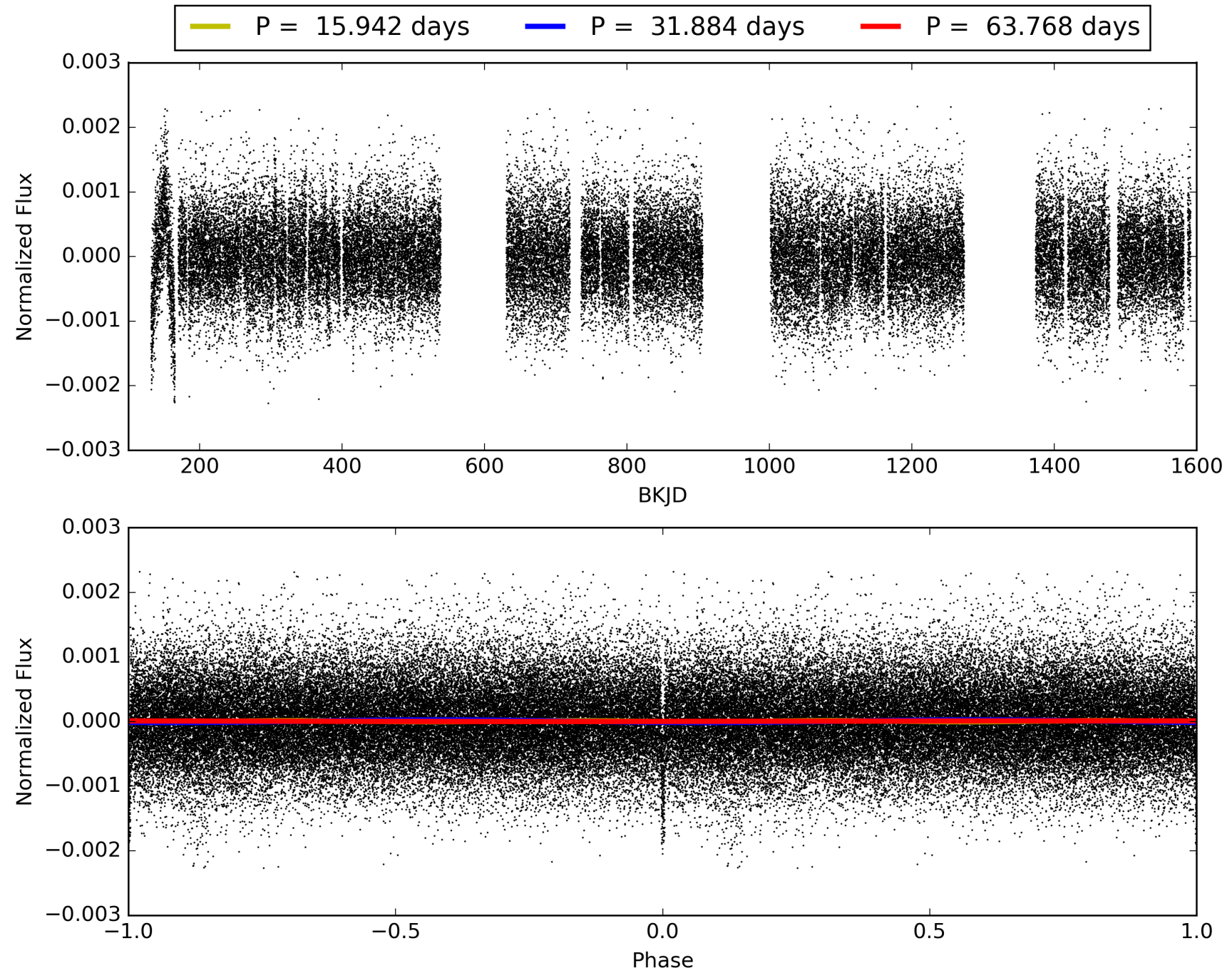
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 18:22:15 Z

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

# TCE 003962243-01, PDC Light Curves

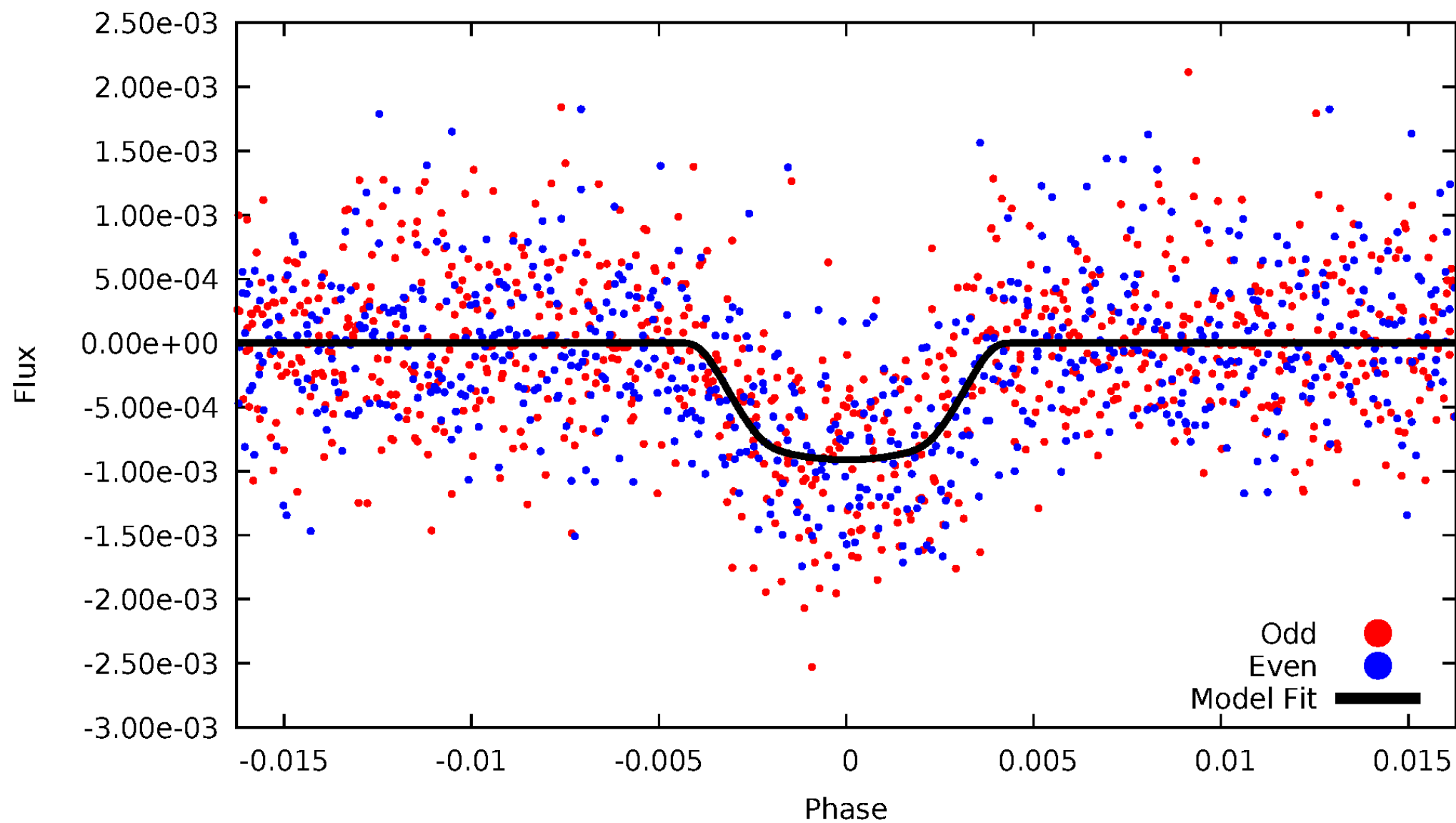


TCE 003962243-01



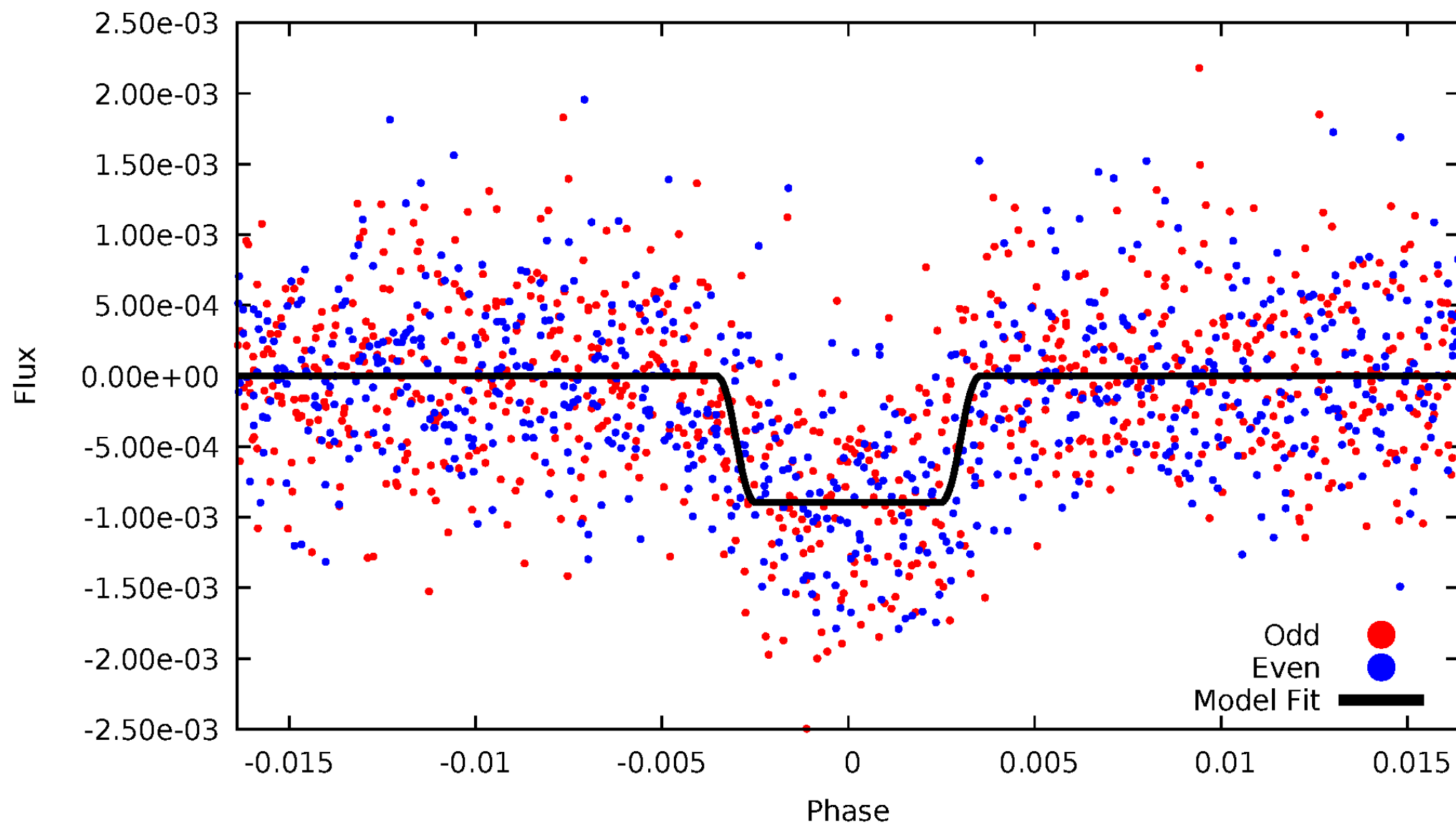
# DV Odd/Even

TCE 003962243-01



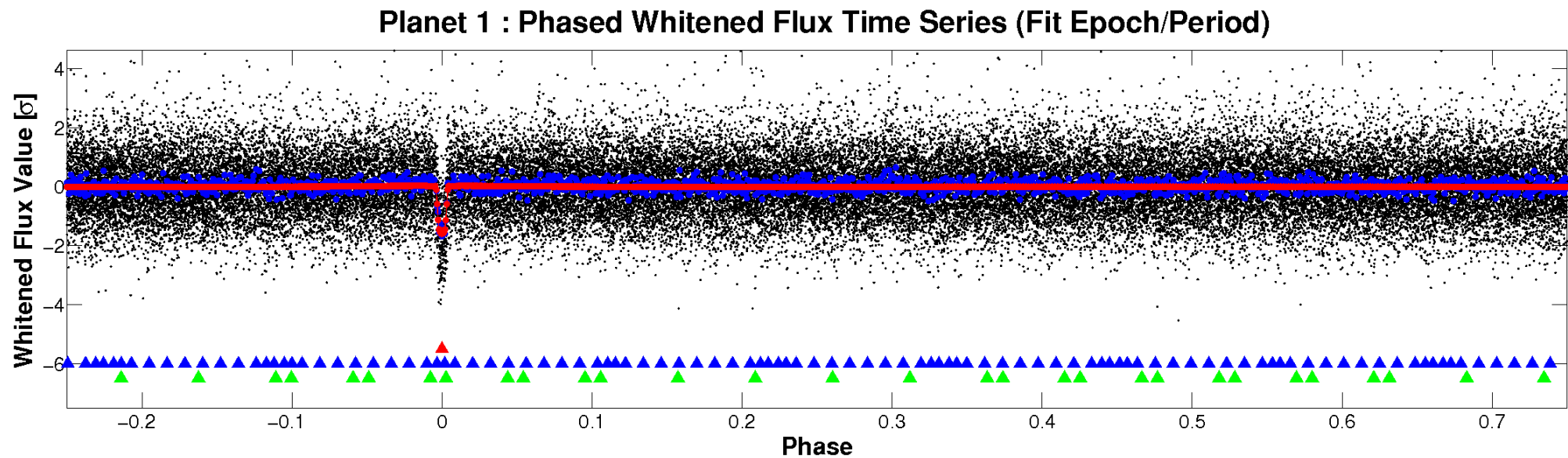
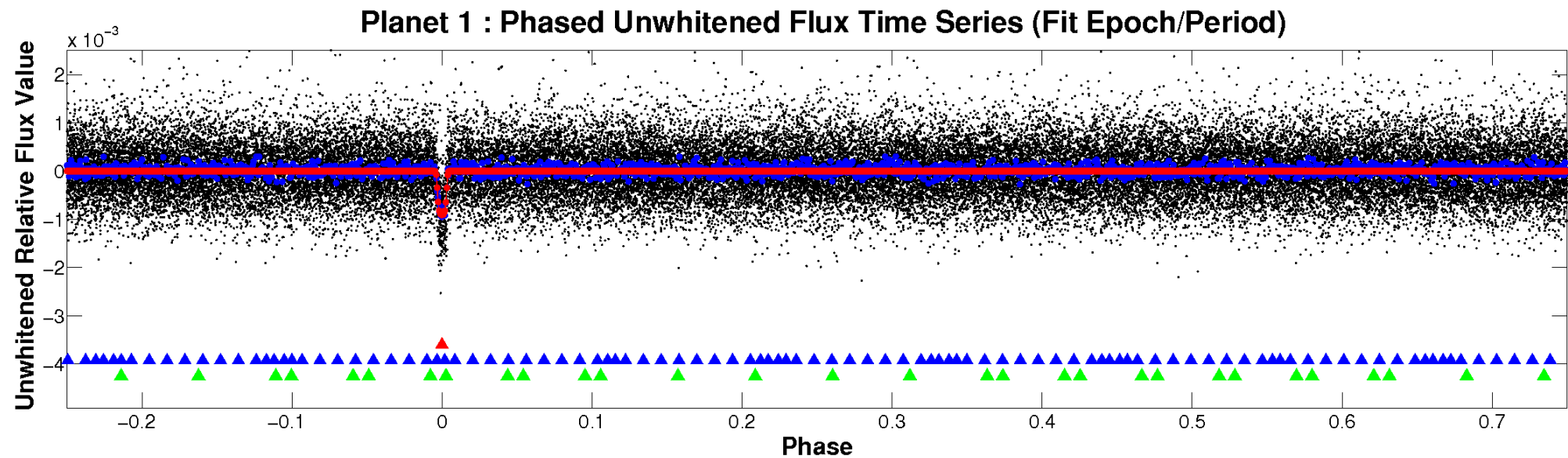
# ALT Odd/Even

TCE 003962243-01



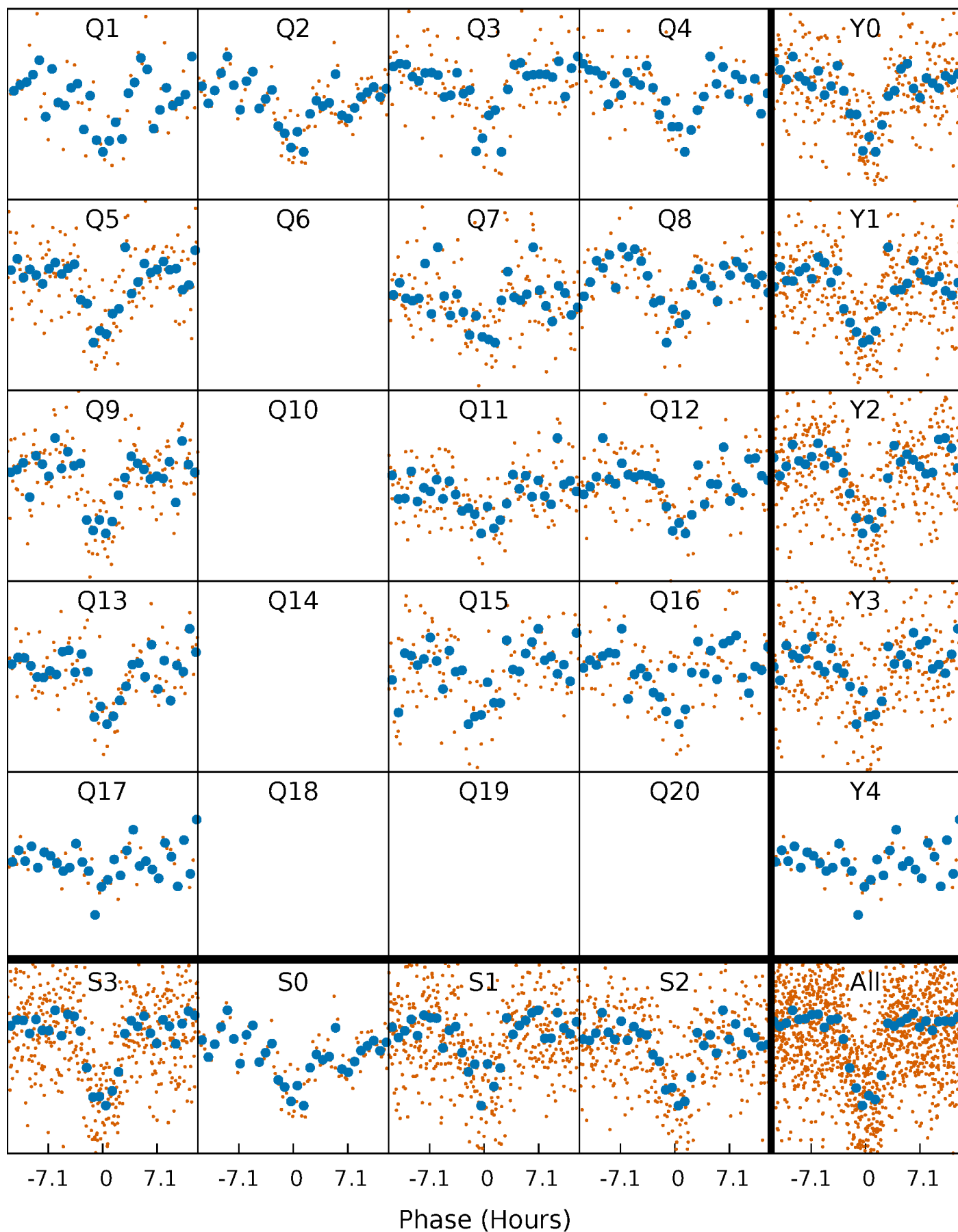


# Non-Whitened Vs. Whitened Light Curve



# PDC Quarter-Phased Transit Curves

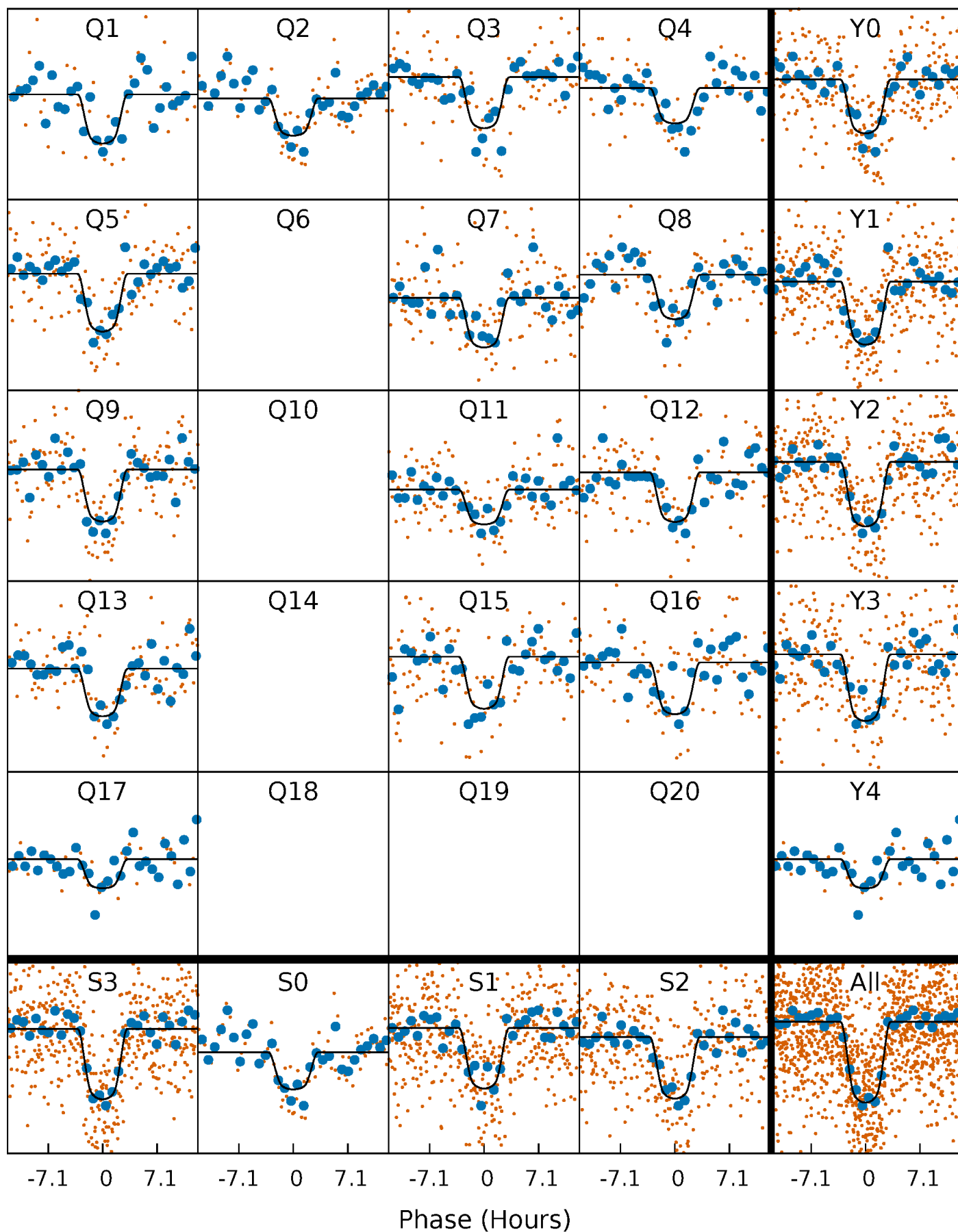
TCE 003962243-01 P= 31.883933 Days  $T_0=160.211989$  (BKJD)





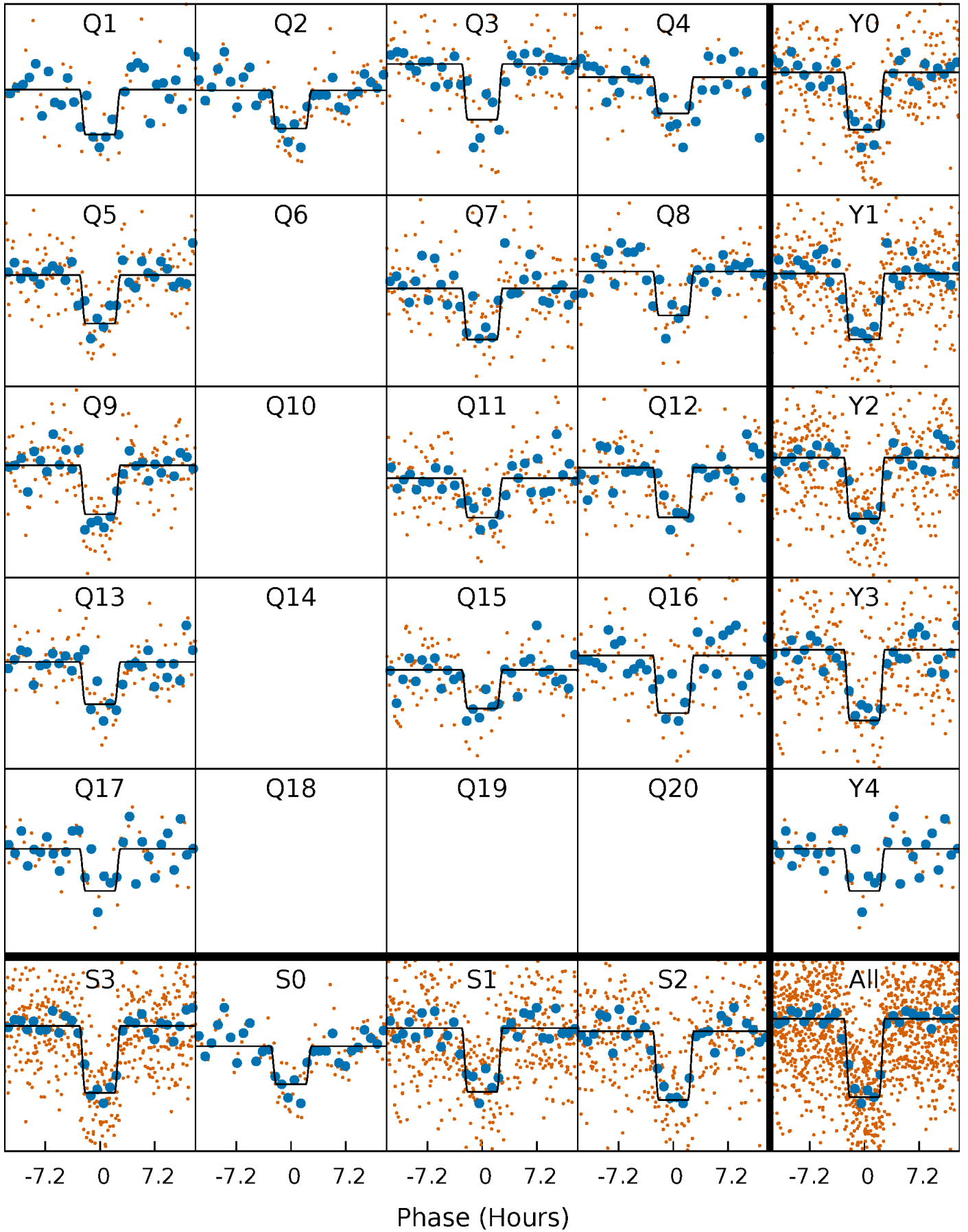
# DV Quarter-Phased Transit Curves

TCE 003962243-01 P= 31.883933 Days  $T_0=160.211989$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

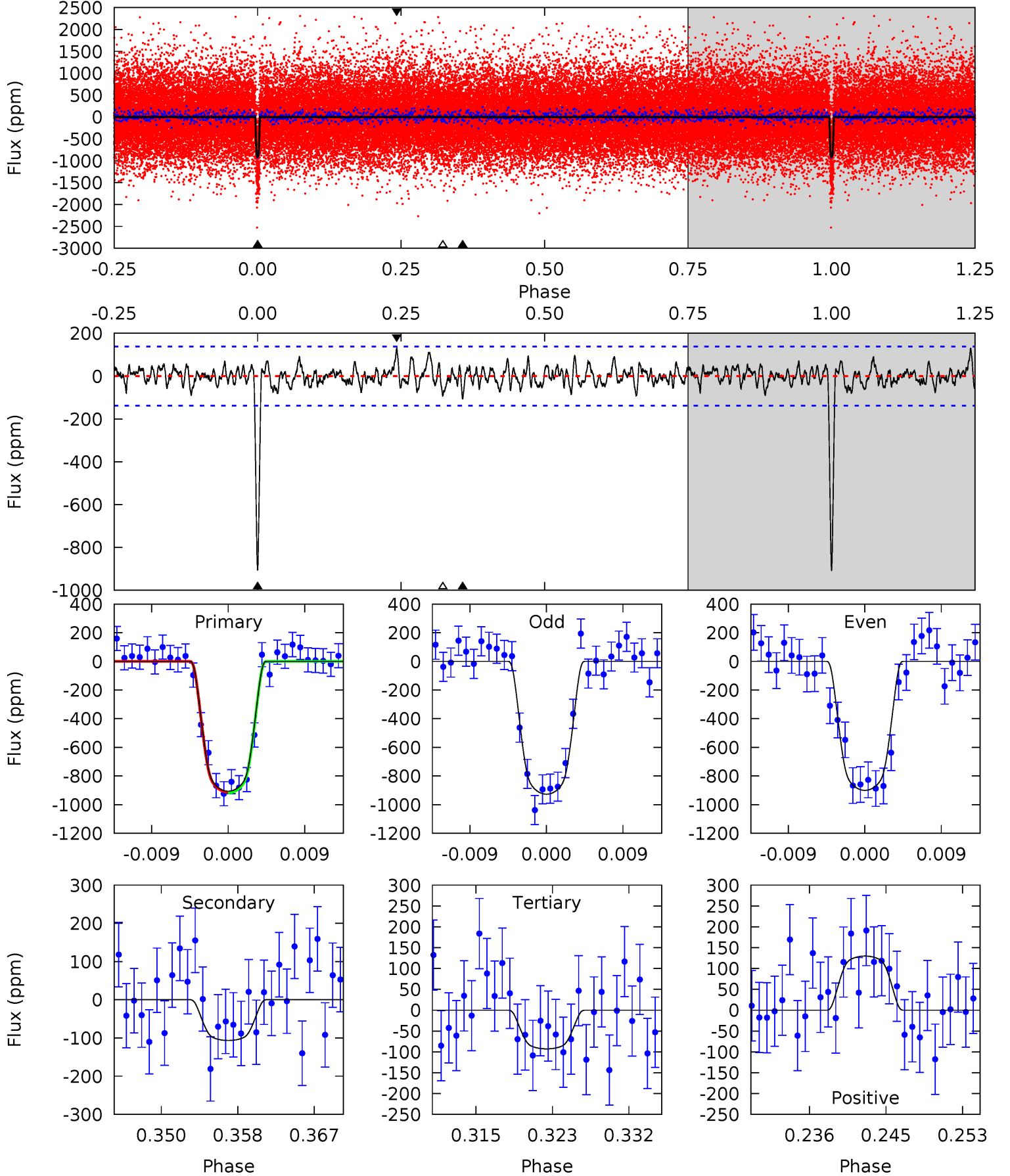
TCE 003962243-01 P= 31.883499 Days  $T_0=160.220693$  (BKJD)



# DV Model-Shift Uniqueness Test

003962243-01, P = 31.883933 Days, E = 128.328056 Days

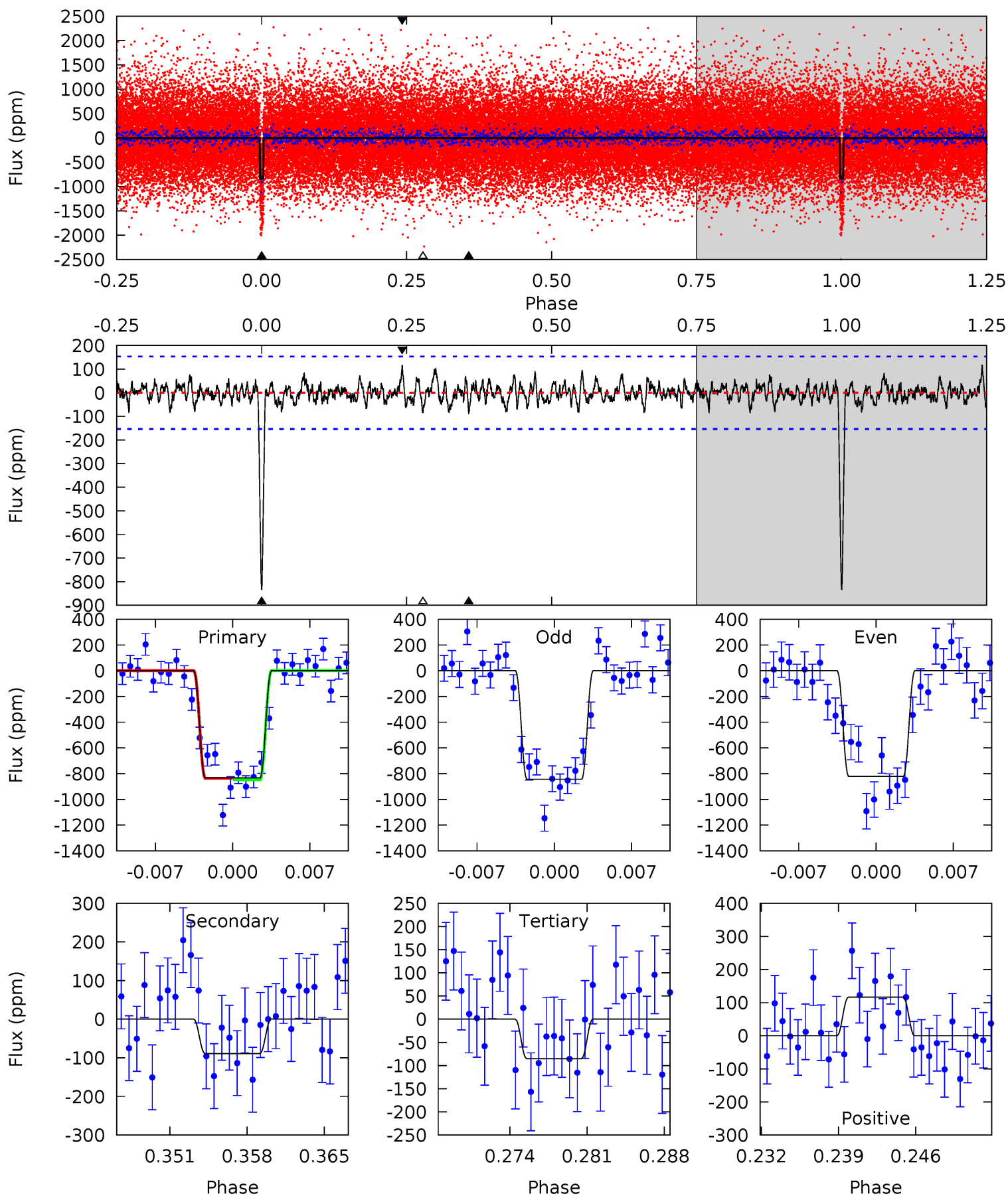
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
33.2	3.91	3.40	4.76	5.05	2.62	1.30	29.8	28.4	0.50	-0.85	0.49	1.00	0.13	0.11



# Alt Model-Shift Uniqueness Test

003962243-01, P = 31.883499 Days, E = 128.337194 Days

Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
27.7	2.95	2.82	3.86	5.09	2.70	1.05	24.8	23.8	0.13	-0.91	0.36	1.04	0.12	0.21



### Stellar Parameters For KIC 003962243

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	$5779^{+78}_{-86}$	$4.477^{+0.032}_{-0.128}$	$0.140^{+0.150}_{-0.150}$	$0.974^{+0.158}_{-0.053}$	$1.037^{+0.056}_{-0.068}$	$1.582^{+0.192}_{-0.553}$
	+1%/-1%	+1%/-3%	+107%/-107%	+16%/-5%	+5%/-7%	+12%/-35%
Source	SPE90	SPE90	SPE90	DSEP		

KIC = Kepler Input Catalog; PHO = Photometry; SPE = Spectroscopy; AST = Asteroseismology  
 TRA = Transits; DESP = Dartmouth Models; MULT = Multiple Models

### Secondary Eclipse Parameters for KIC 003962243-01 / KOI 1203.01

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	$A_{obs}$
DV	$-107 \pm 27$	$3.77^{+0.37}_{-0.24}$	$796^{+34}_{-20}$	$3603^{+144}_{-187}$	$158^{+51}_{-45}$
Alt.	$-89 \pm 30$	$3.25^{+0.30}_{-0.23}$	$796^{+33}_{-20}$	$3659^{+199}_{-242}$	$179^{+64}_{-68}$

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

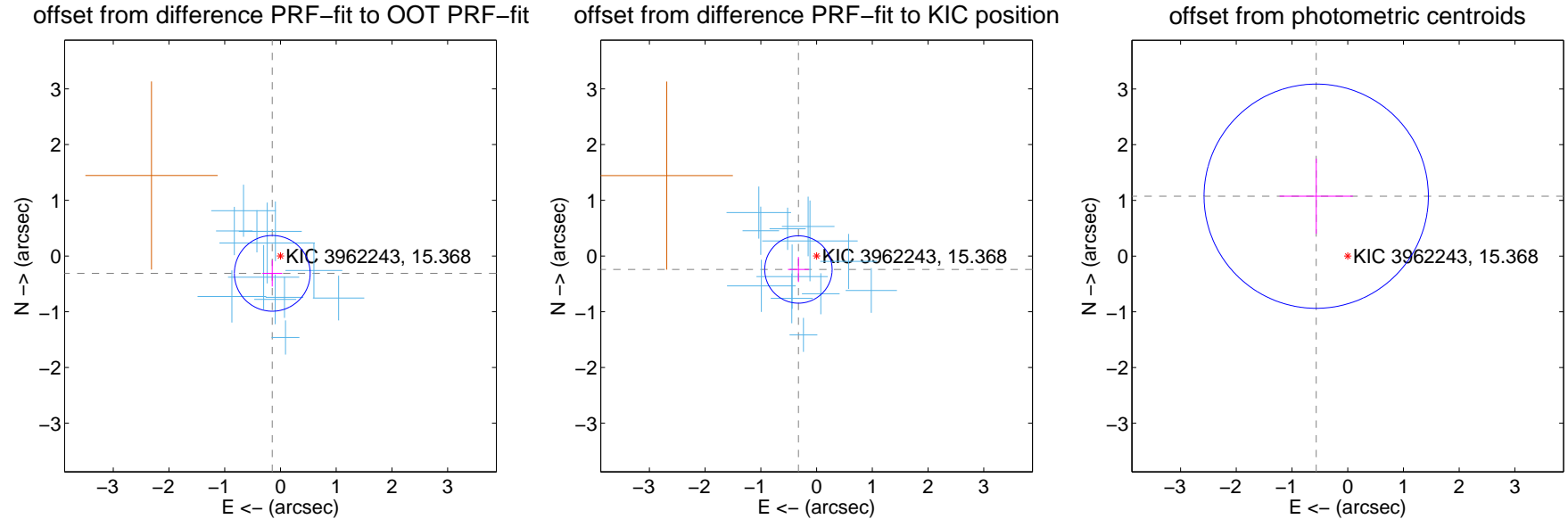
## DV Centroid Data

Supplemental centroid analysis for 003962243-01. Kepler magnitude: 15.37. Transit SNR 23.26

There are 12 quarters with good PRF difference image offsets

The direct PRF centroid is offset from the target star catalog position by about 0.14 arcsec

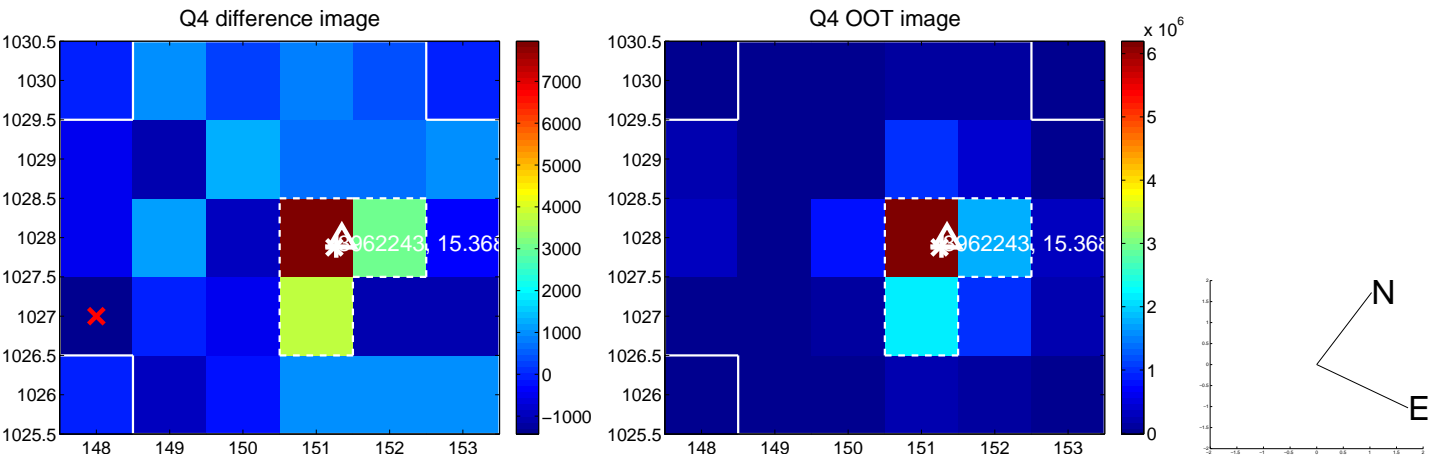
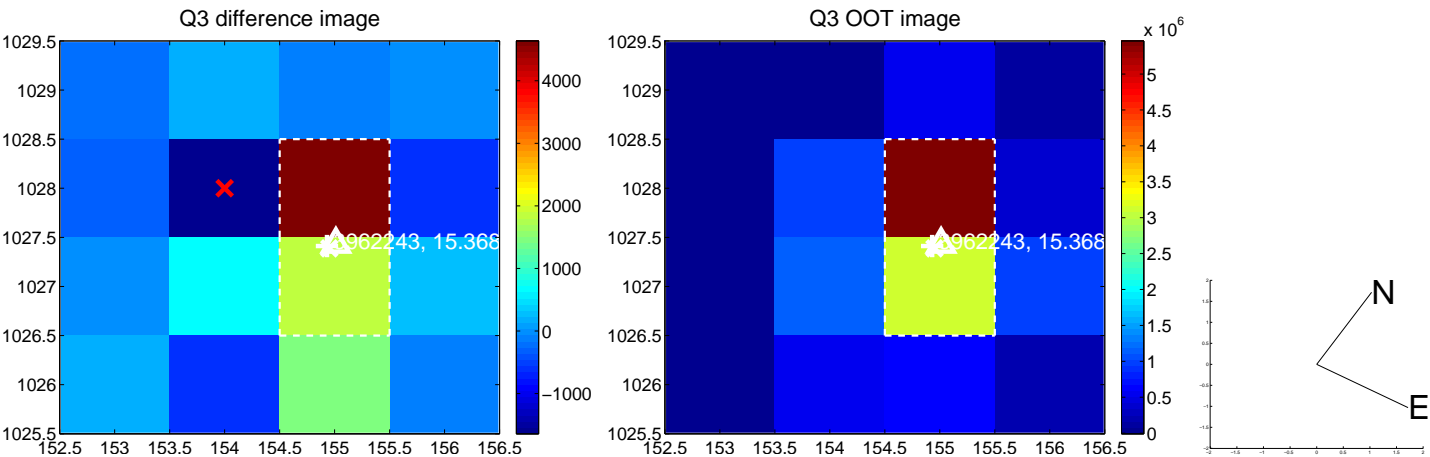
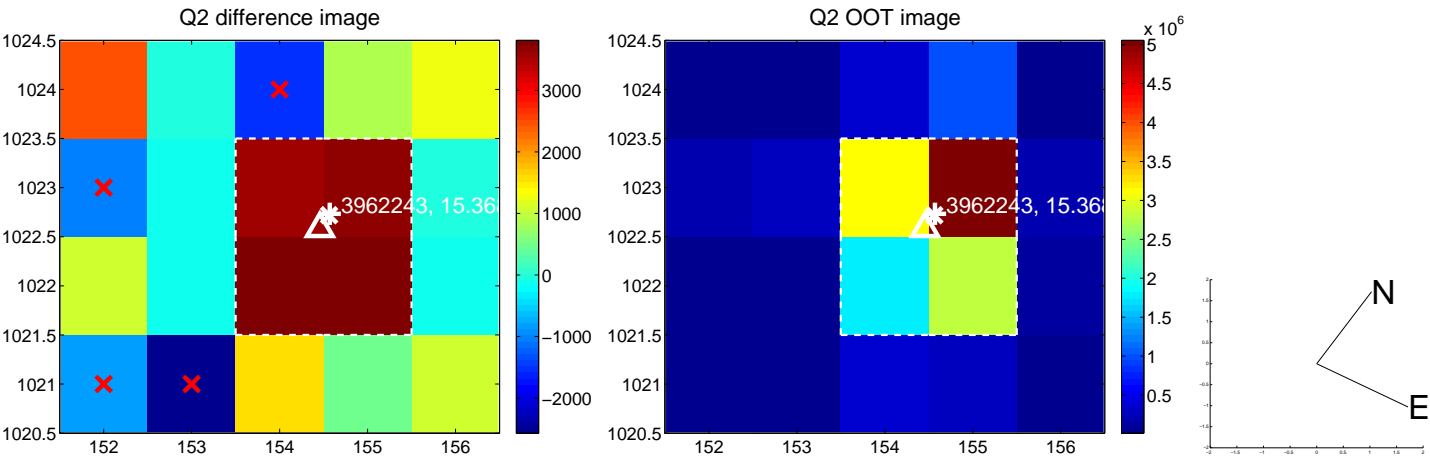
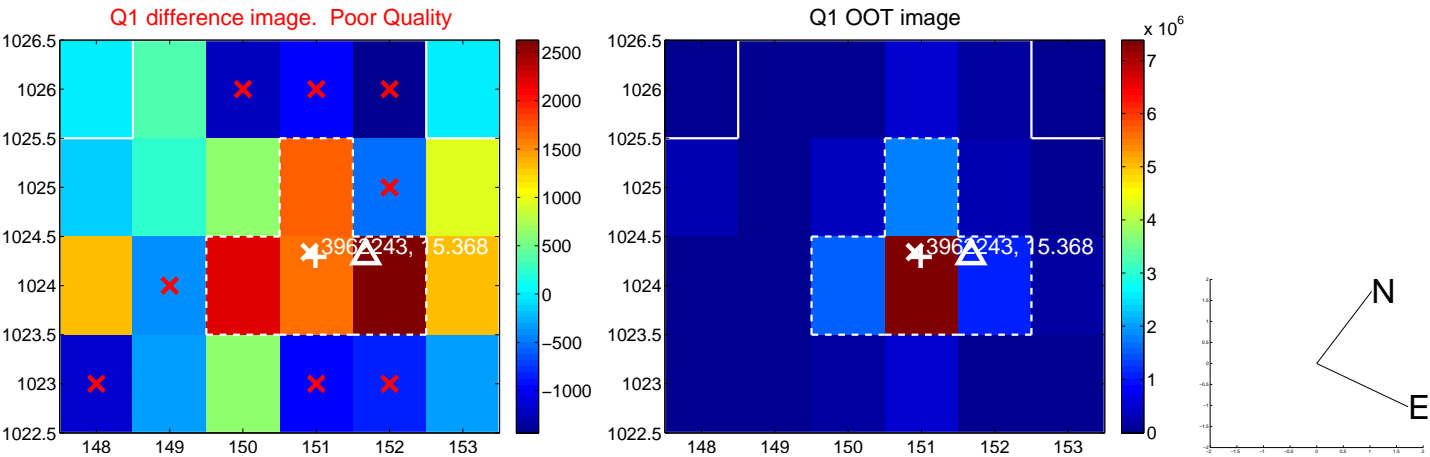
	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$0.344 \pm 0.227$	1.52	$0.147 \pm 0.179$	$-0.311 \pm 0.236$
PRF-fit source offset from KIC position	$0.406 \pm 0.201$	2.01	$0.326 \pm 0.188$	$-0.242 \pm 0.224$
photometric centroid source offset	$1.21 \pm 0.67$	1.81	$0.57 \pm 0.66$	$1.08 \pm 0.67$



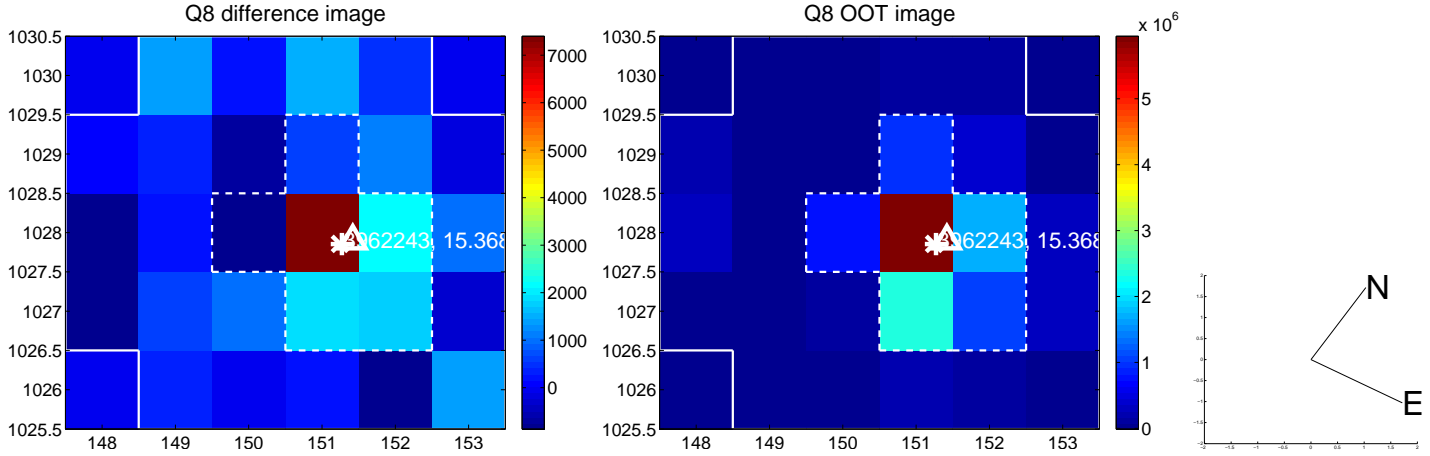
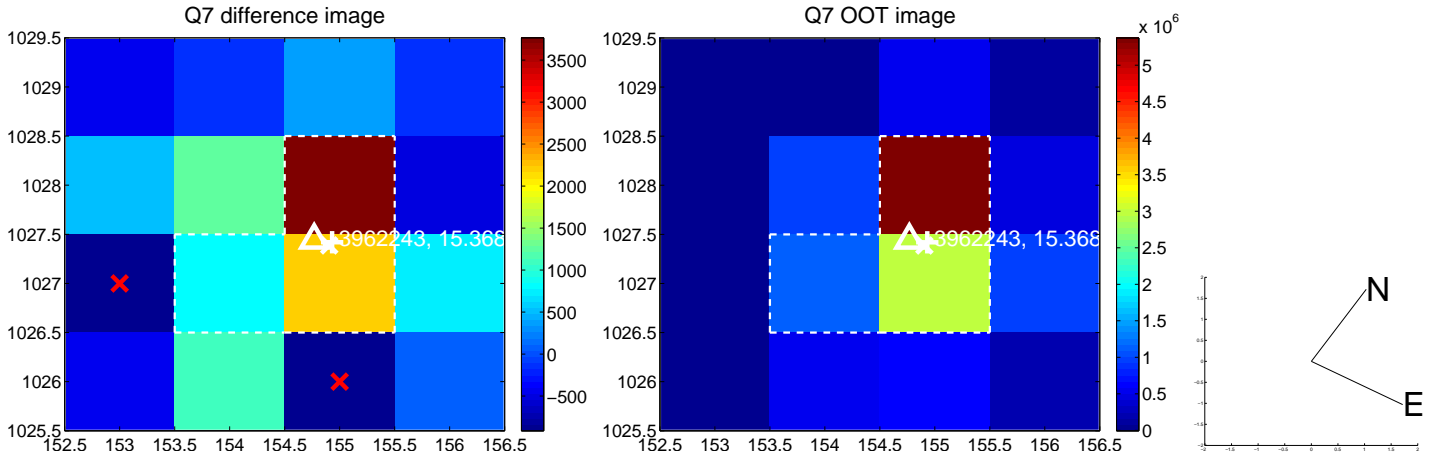
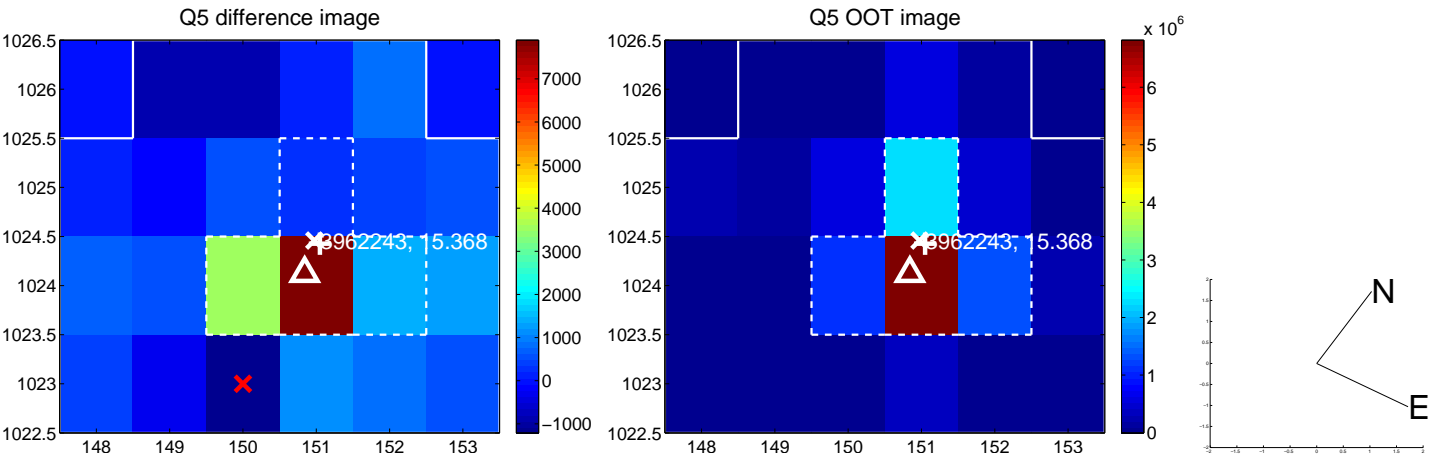
Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses:** good quarterly centroid offsets; **Vermillion crosses:** bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: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



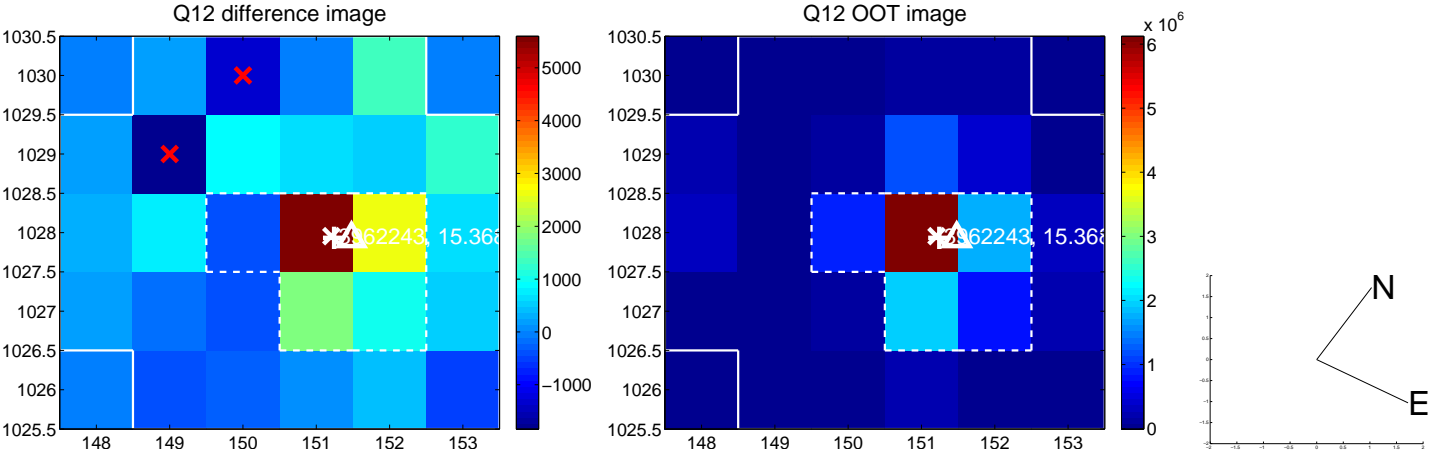
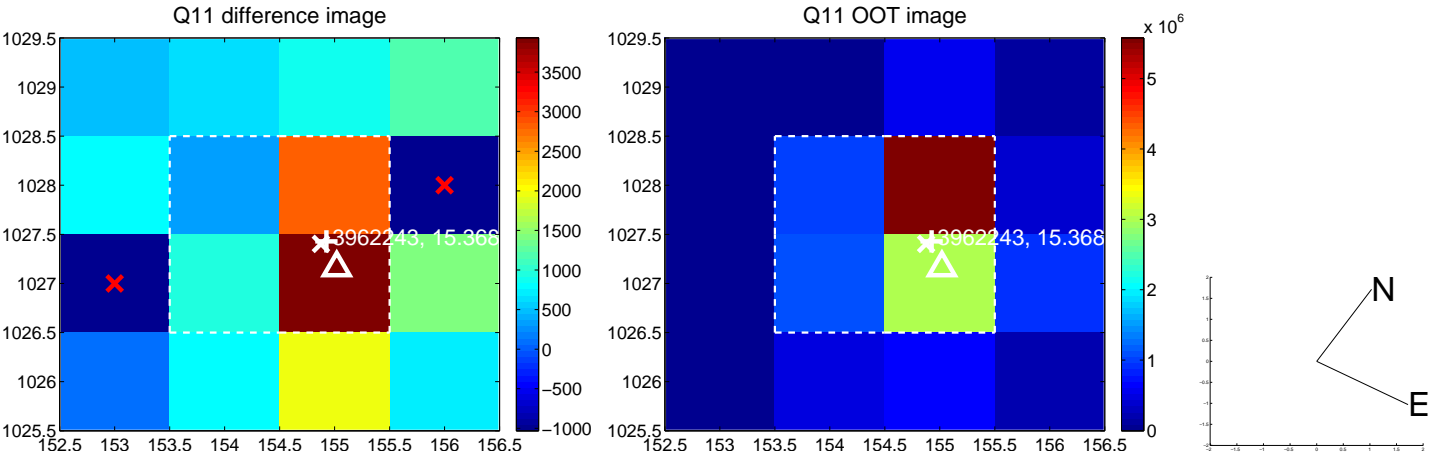
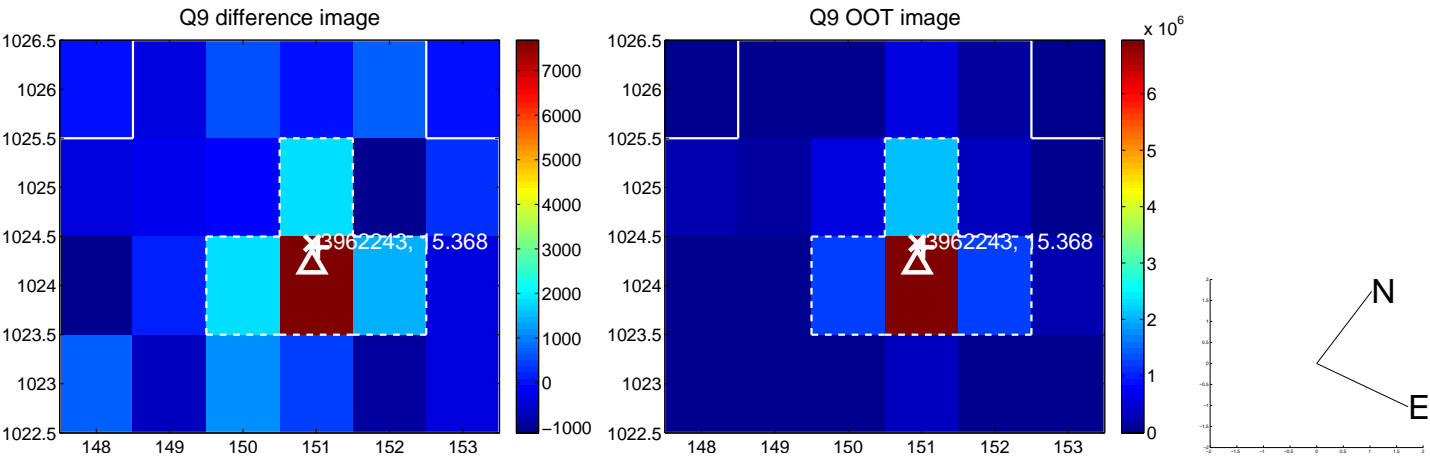
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



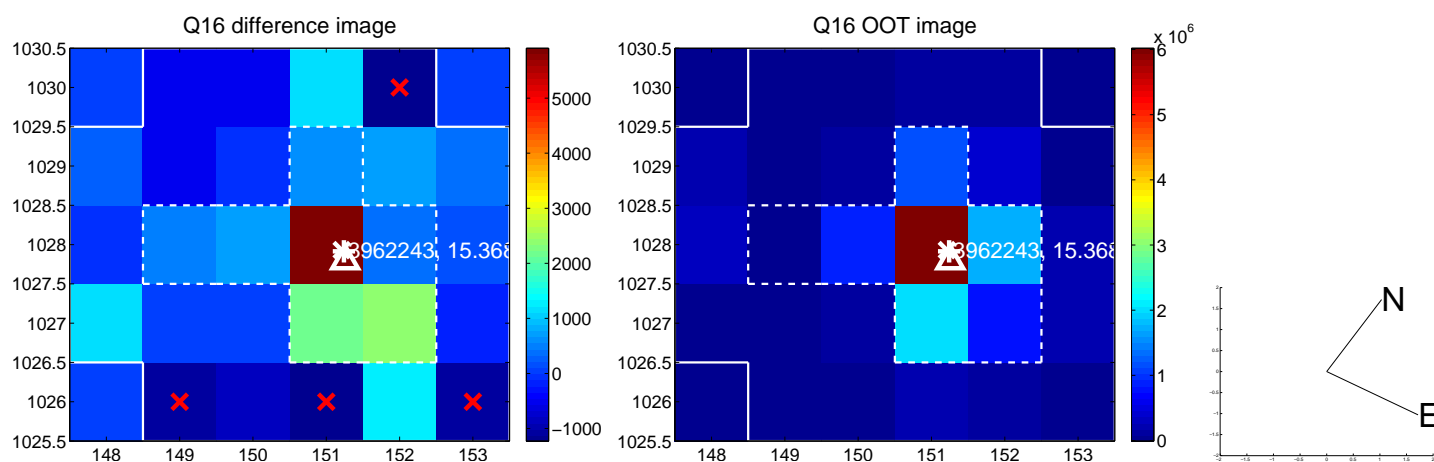
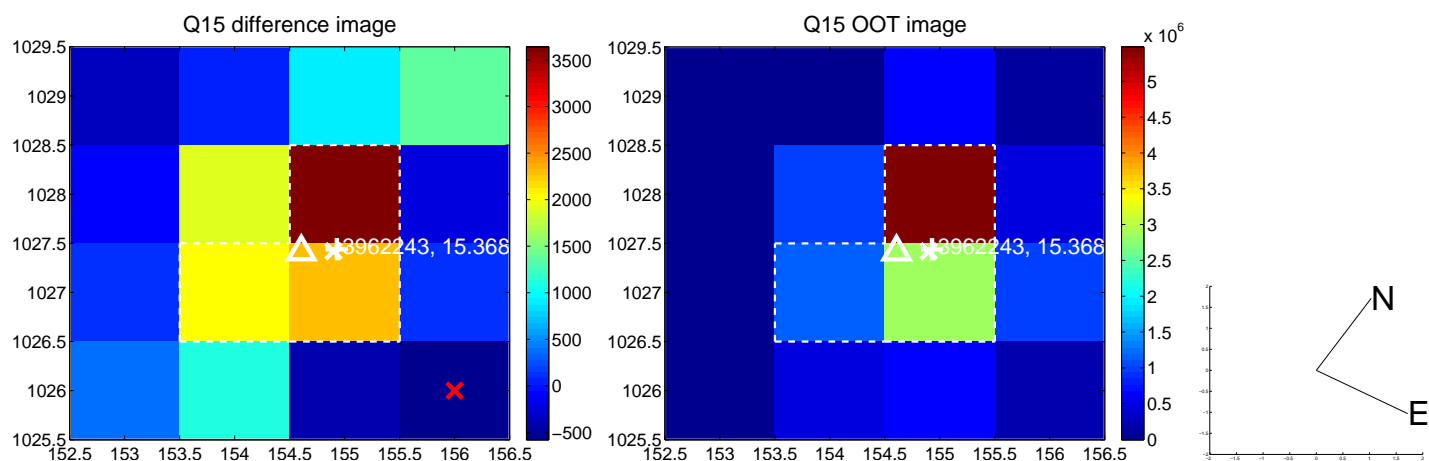
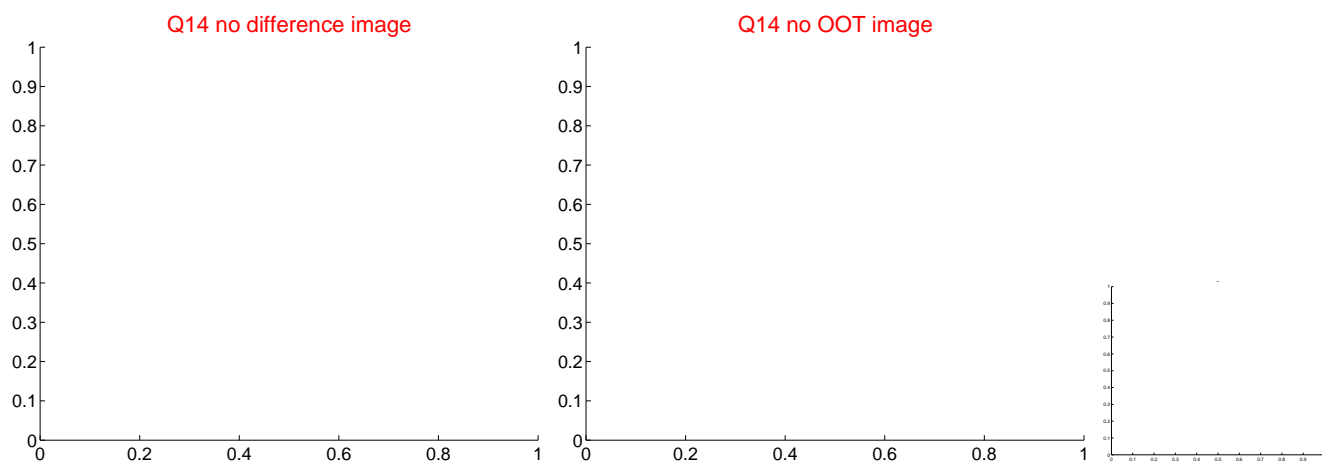
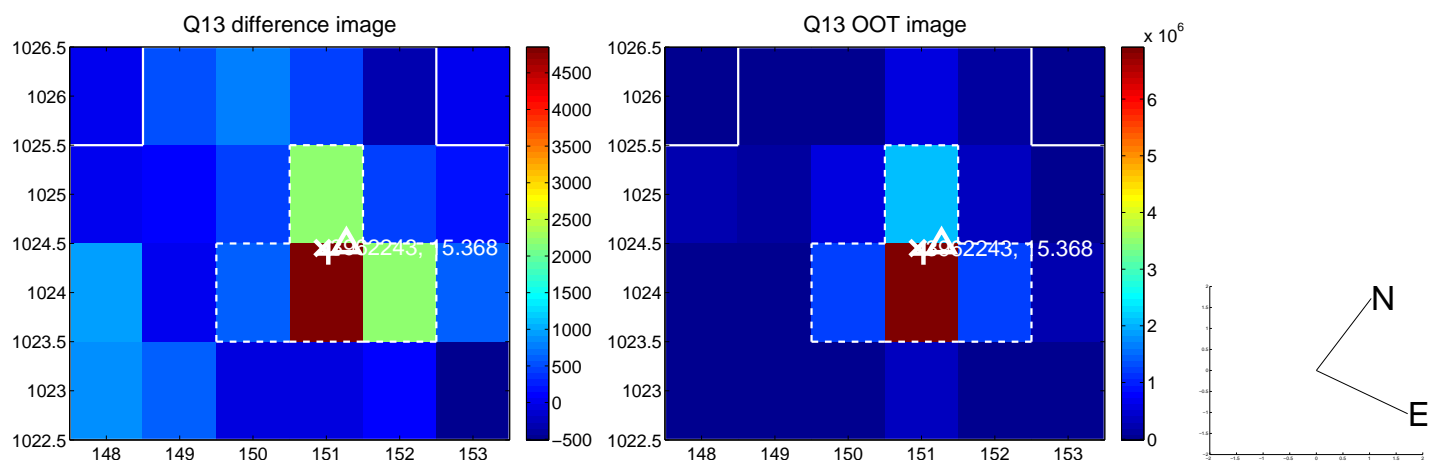
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



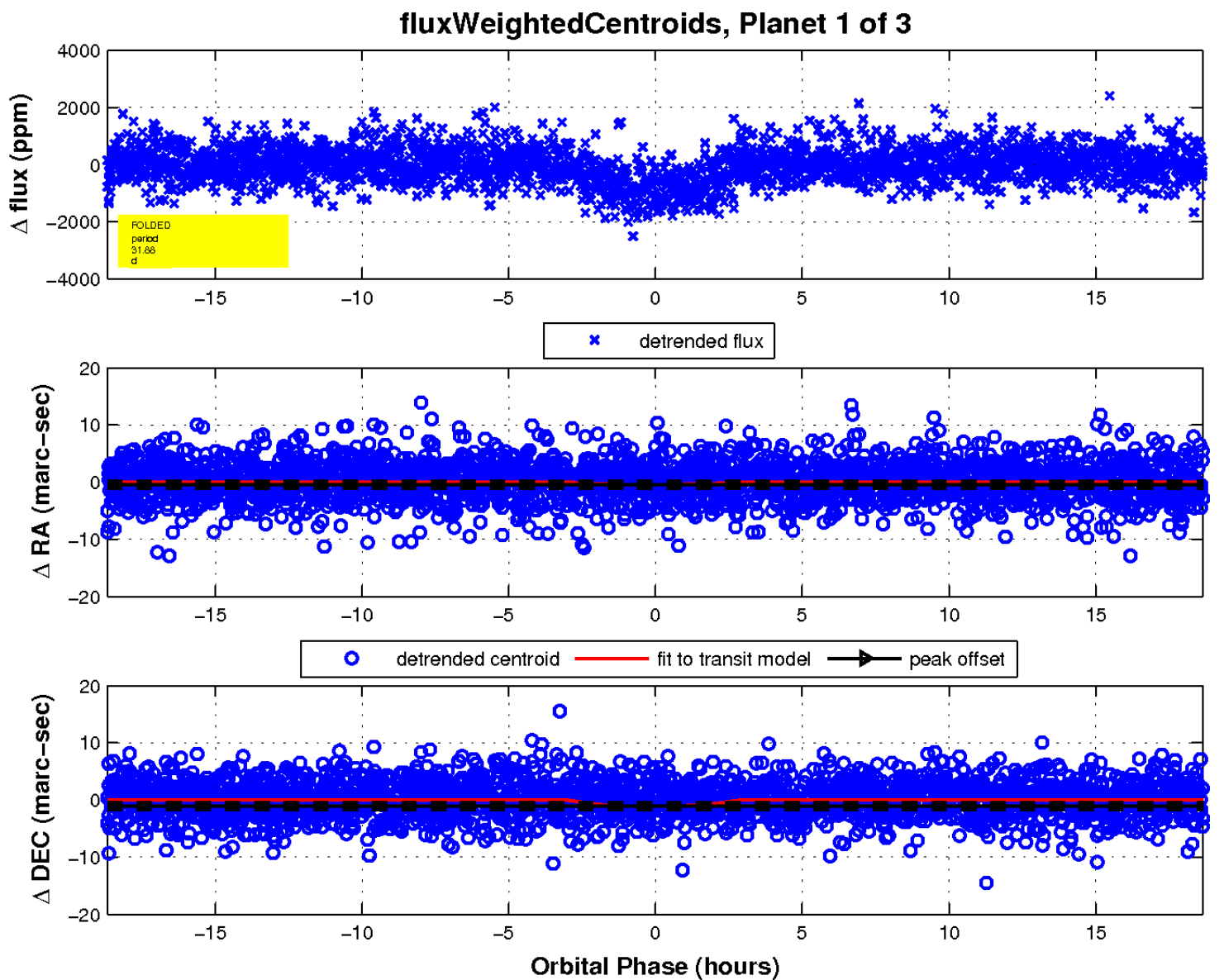
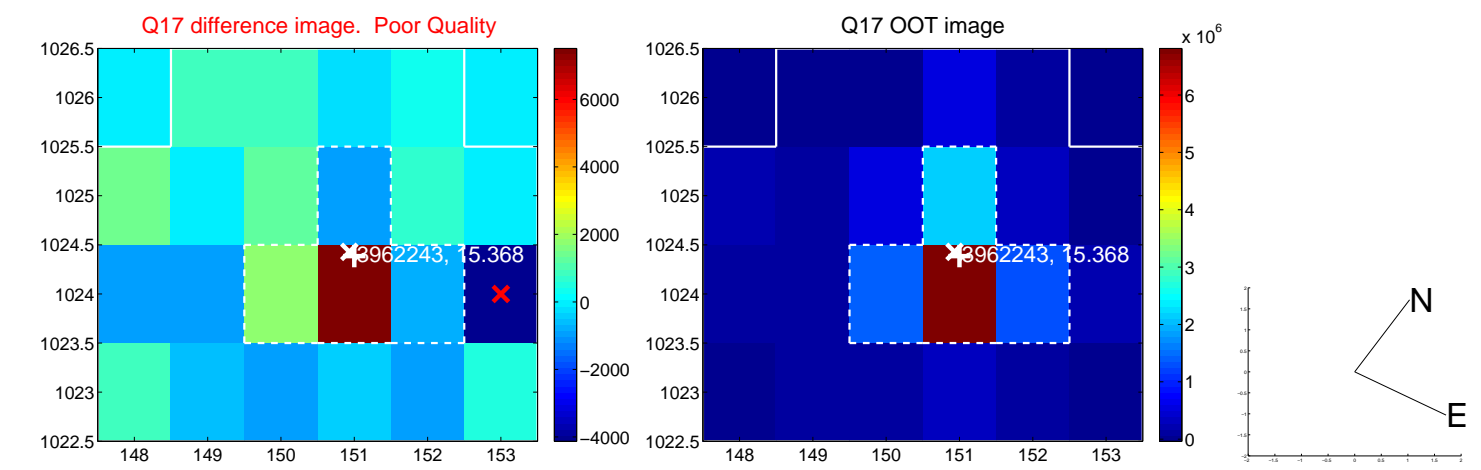
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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

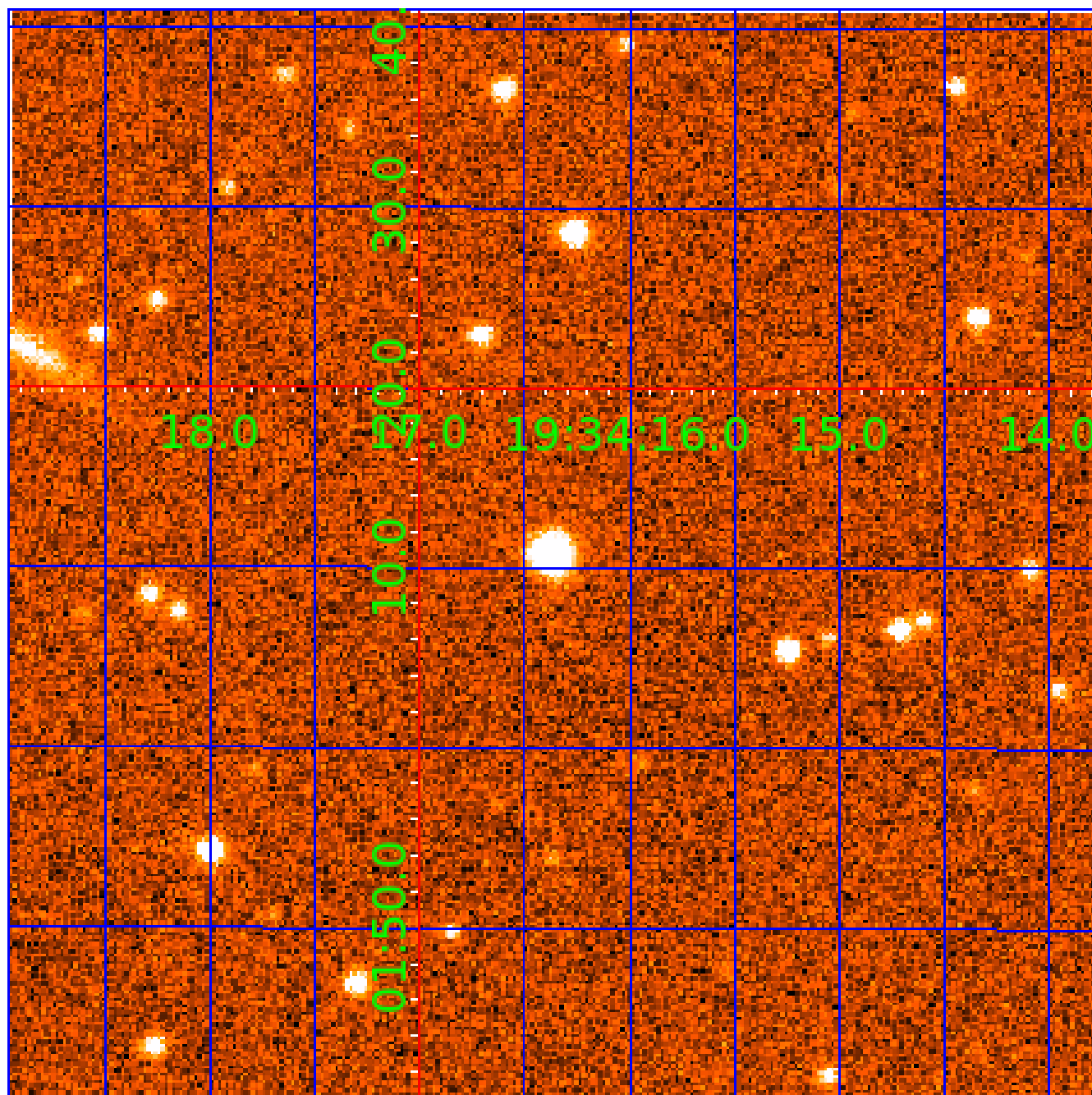


white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



# UKIRT Image

Declination





# KIC 003962243

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
003962243-01	OBS	1203.01	31.883933	160.211989	910.2	6.226	21.6	23.3	0.97	5779	3.69	23.87
003962243-02	OBS	1203.02	14.128523	142.894097	574.7	3.730	18.9	20.0	0.97	5779	2.71	70.67
003962243-03	OBS	1203.03	48.647478	172.131940	624.8	5.154	10.1	10.8	0.97	5779	3.71	13.59

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
003962243-01	OBS	PC	1.00	0	0	0	0	NO_COMMENT
003962243-02	OBS	PC	0.98	0	0	0	0	NO_COMMENT
003962243-03	OBS	PC	0.83	0	0	0	0	NO_COMMENT

**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.

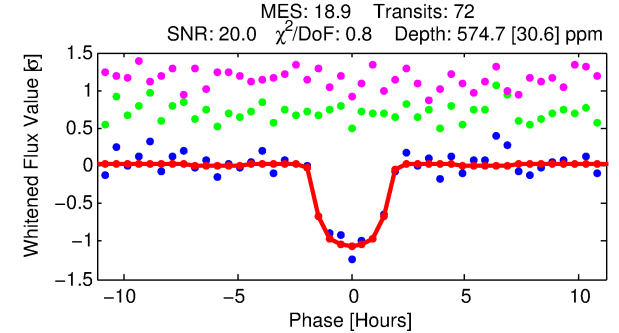
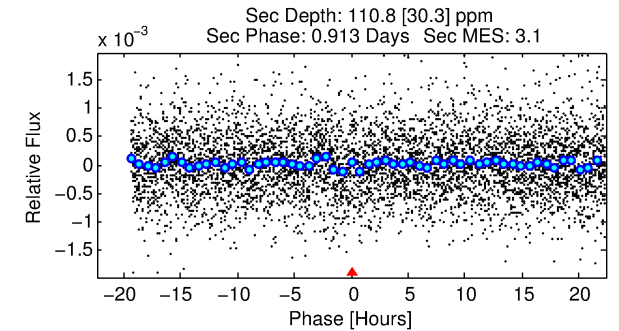
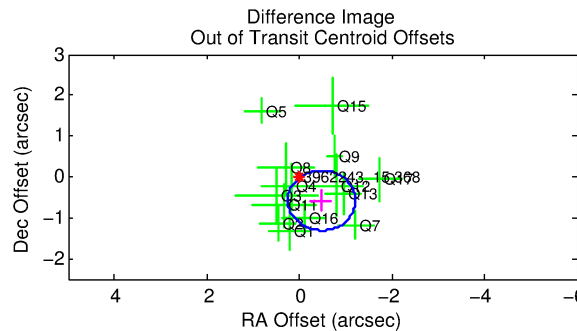
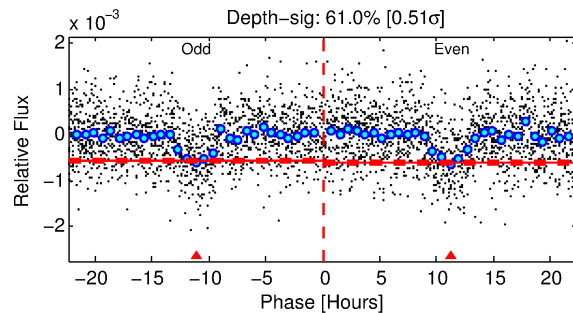
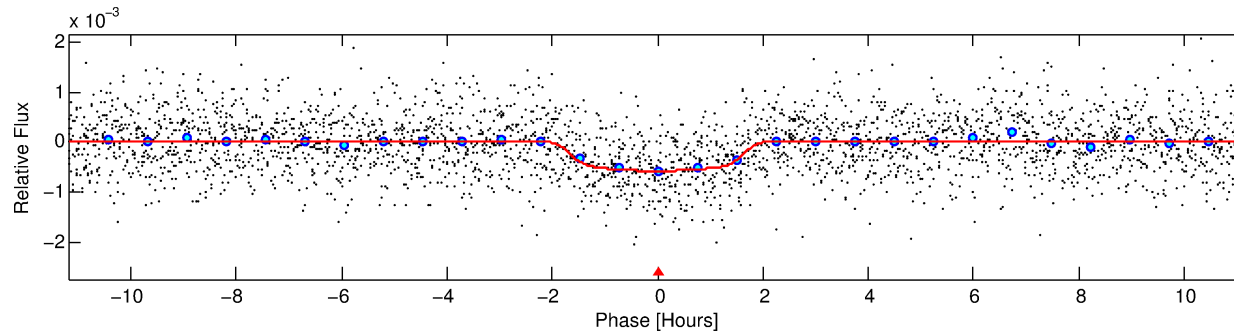
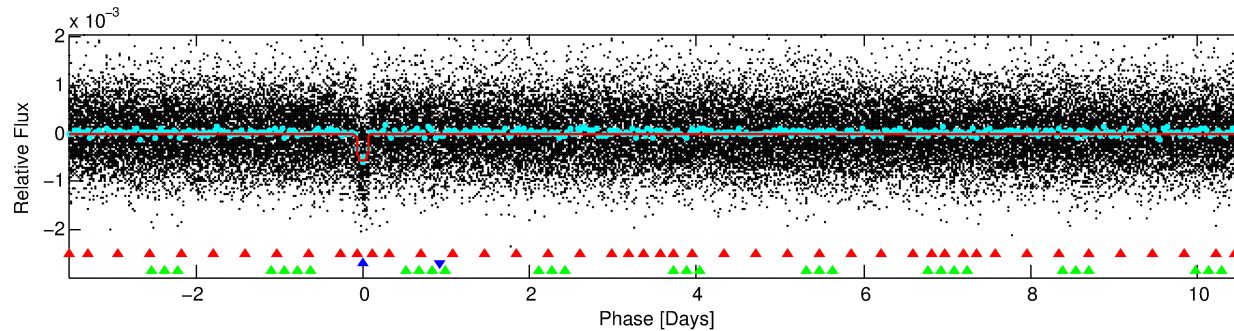
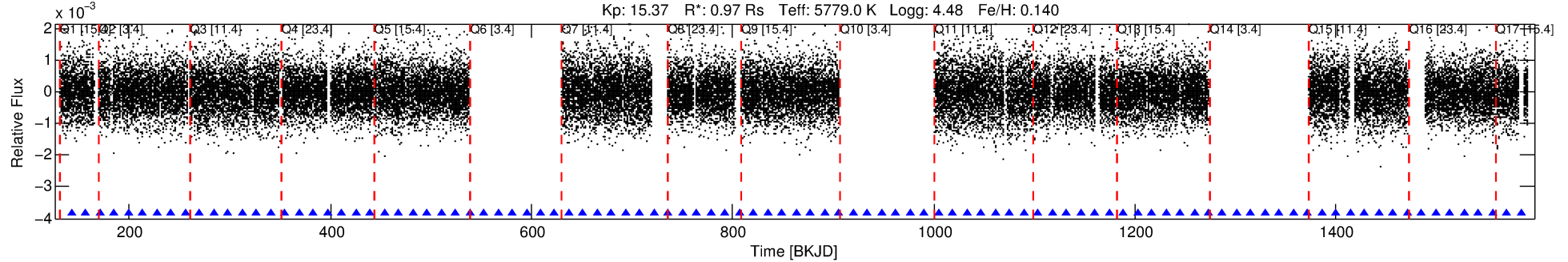
## Ephemeris Match Information For 003962243-02

No Significant Match Found

# DV One-Page Summary

KIC: 3962243 Candidate: 2 of 3 Period: 14.129 d  
KOI: K01203.02 Name: Kepler-276b Corr: 0.968

Kp: 15.37 R\*: 0.97 Rs Teff: 5779.0 K Logg: 4.48 Fe/H: 0.140



## DV Fit Results:

Period = 14.12852 [0.00007] d  
Epoch = 142.8941 [0.0039] BKJD  
Rp/R\* = 0.0255 [0.0049]  
a/R\* = 15.67 [13.29]  
b = 0.87 [0.24]  
Seff = 70.67 [16.40]  
Teq = 739 [43] K  
Rp = 2.71 [0.68] Re  
a = 0.1158 [0.0169] AU  
Ag = 111.05 [58.00] [1.90σ]  
Teffp = 3711 [441] K [6.71σ]

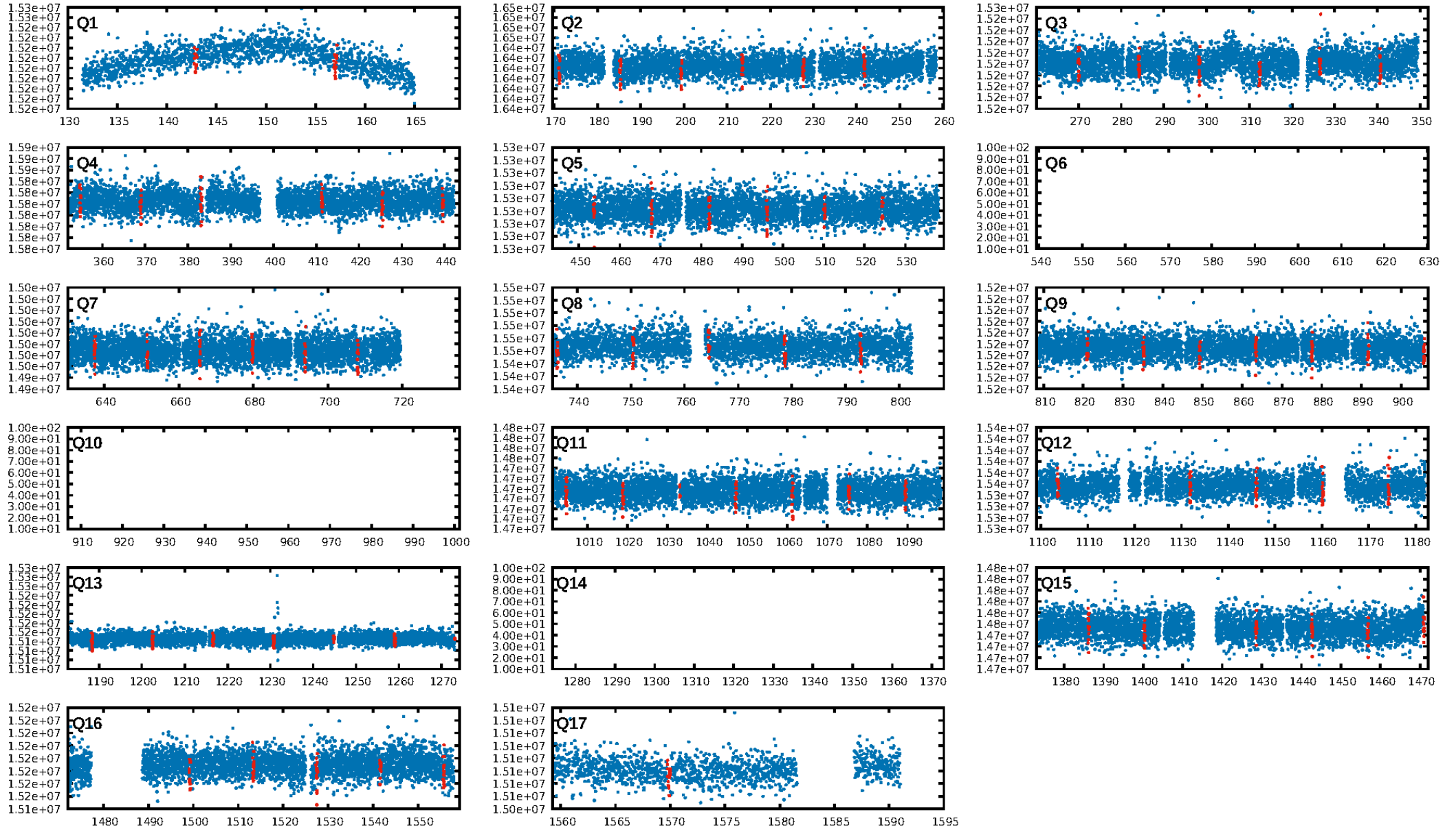
## DV Diagnostic Results:

ShortPeriod-sig: N/A  
LongPeriod-sig: 100.0% [58.72σ]  
ModelChiSquare2-sig: 91.6%  
ModelChiSquareGof-sig: 100.0%  
Bootstrap-pfa: 4.84e-78  
RollingBand-fgt: 1.00 [69/69]  
GhostDiagnostic-chr: 22.88  
Centroid-sig: 0.8%  
Centroid-so: 1.430 arcsec [1.80σ]  
OotOffset-rm: 0.748 arcsec [3.06σ]  
KicOffset-rm: 0.577 arcsec [2.23σ]  
OotOffset-st: 1/4/4/5 [14]  
KicOffset-st: 1/4/4/5 [14]  
DiffImageQuality-fgm: 0.93 [13/14]  
DiffImageOverlap-fno: 1.00 [14/14]

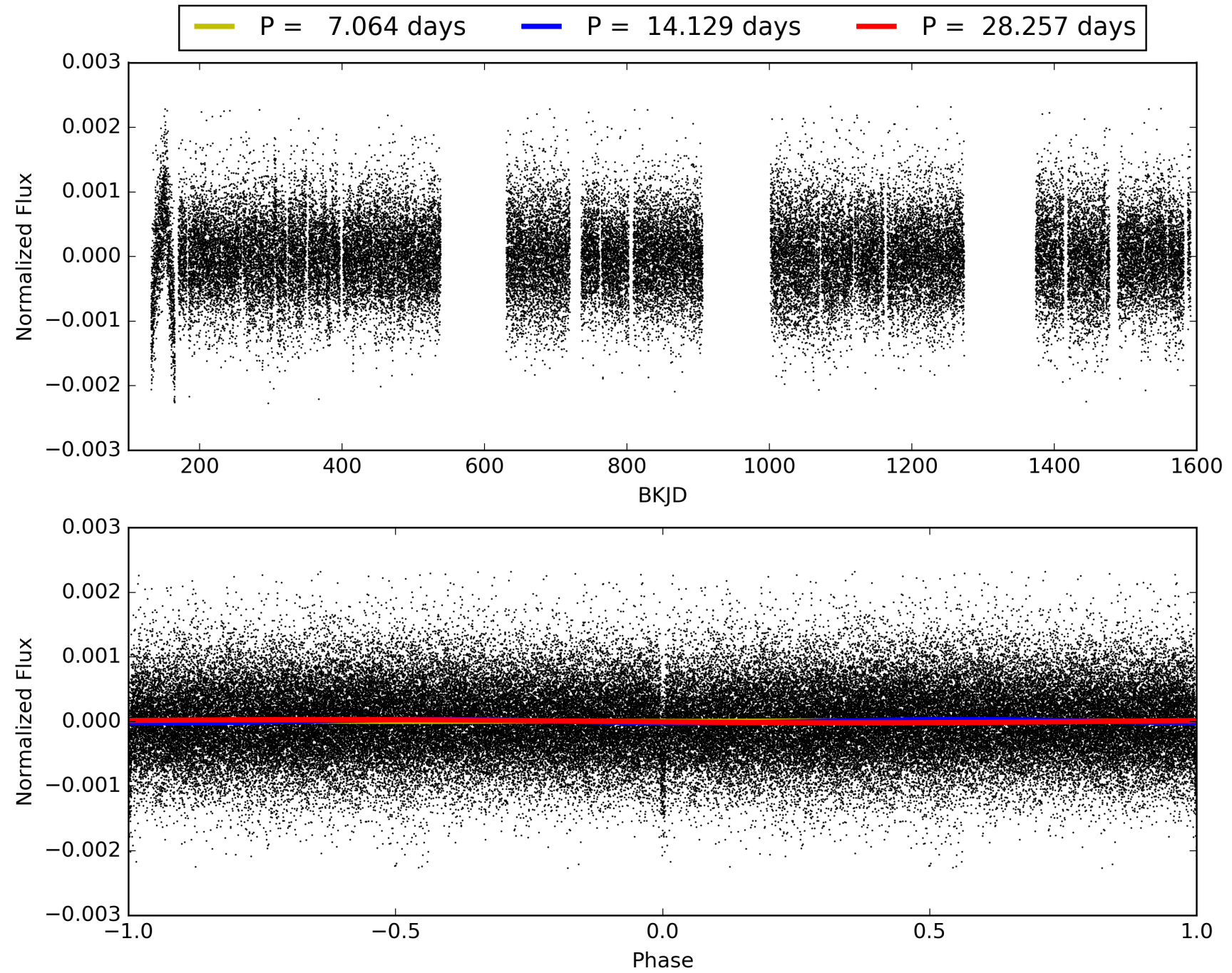
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 18:22:21 Z

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

# TCE 003962243-02, PDC Light Curves

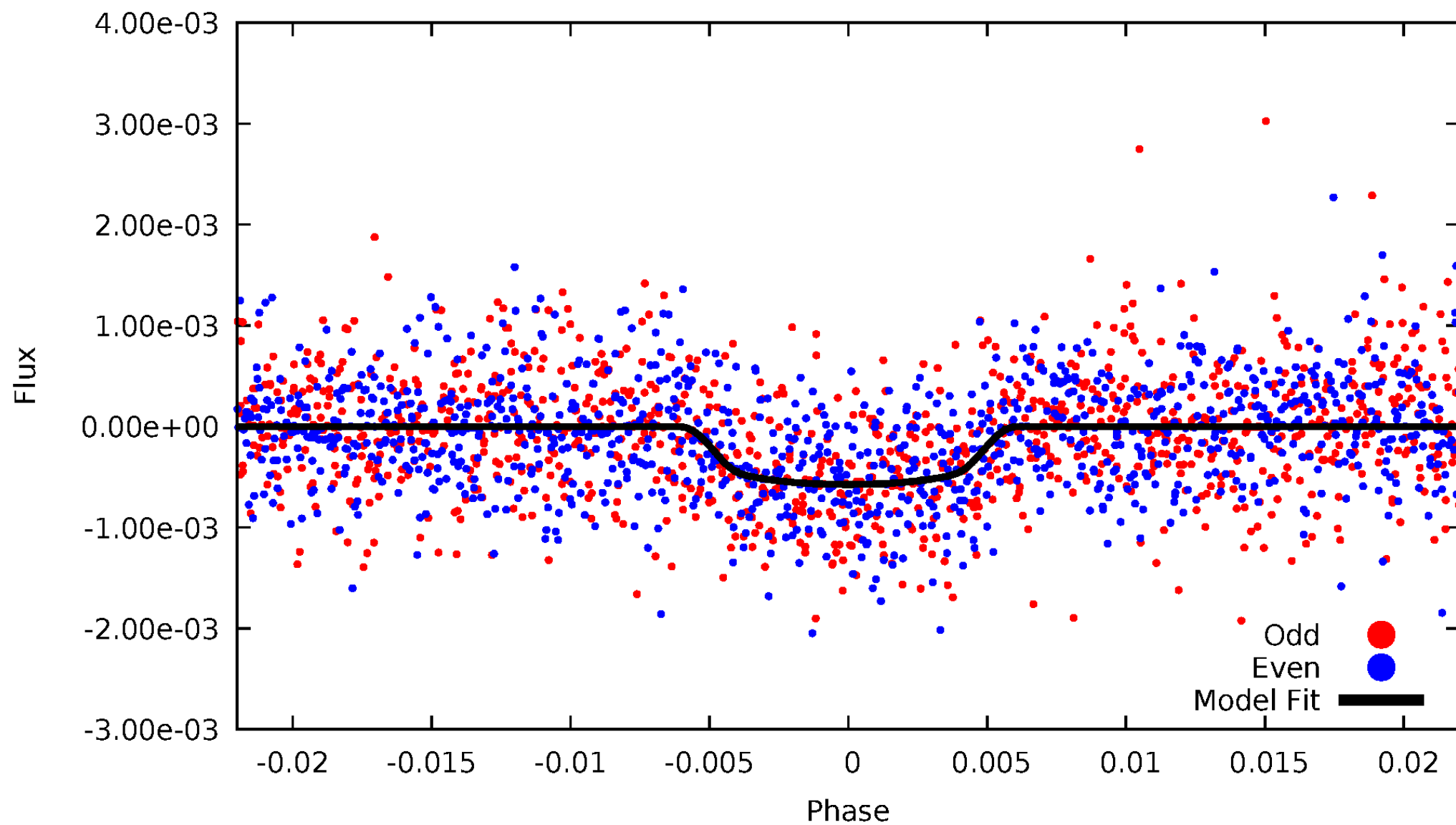


TCE 003962243-02



DV Odd/Even

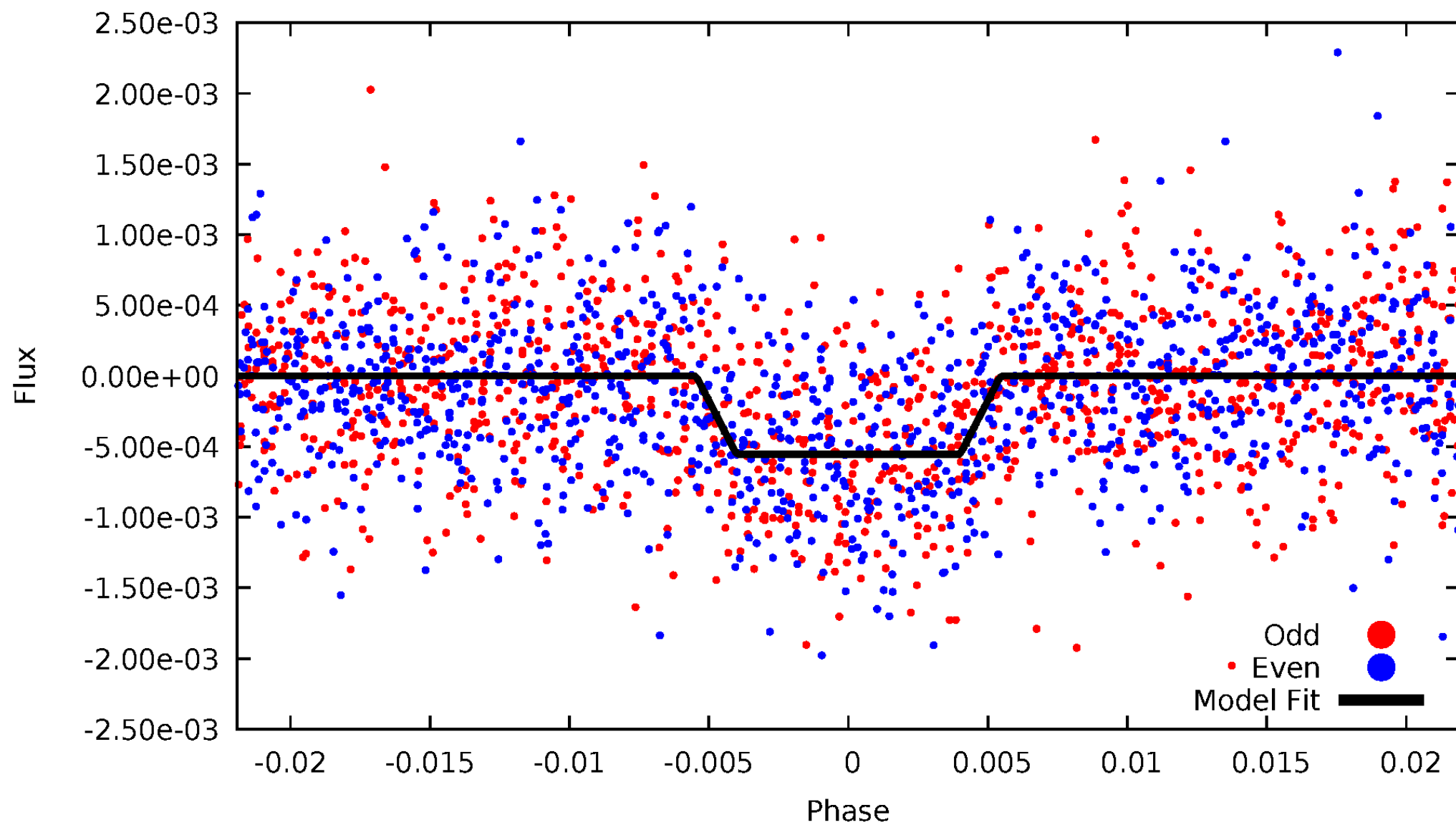
TCE 003962243-02





# ALT Odd/Even

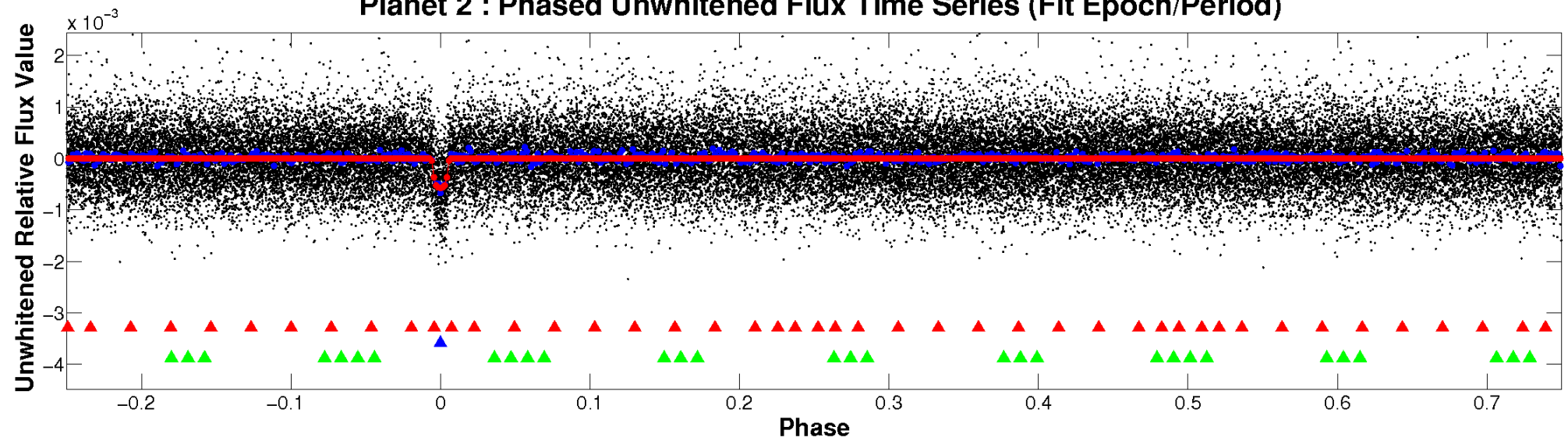
TCE 003962243-02



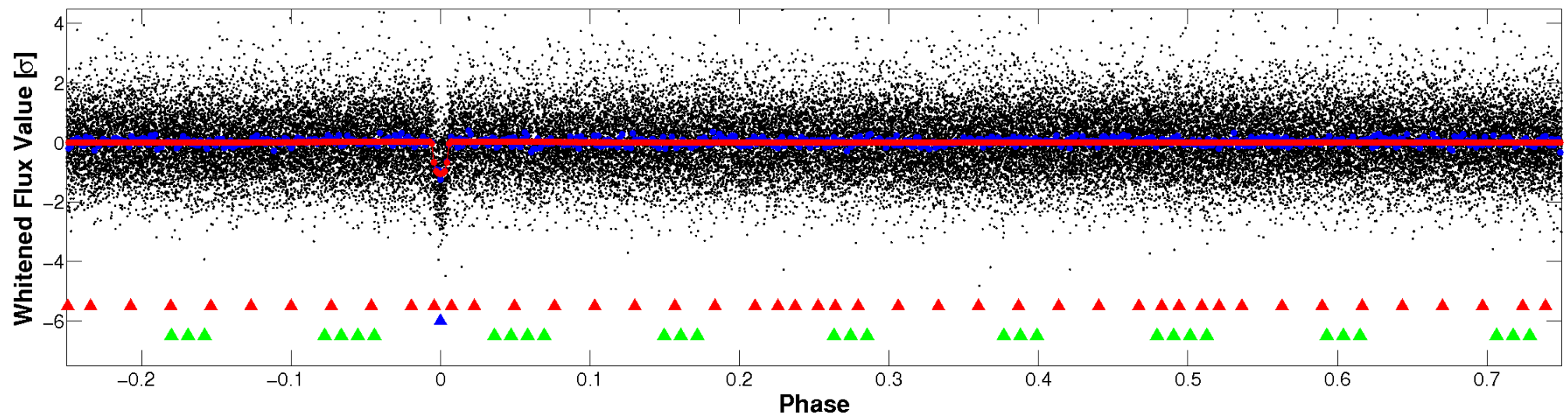


# Non-Whitened Vs. Whitened Light Curve

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

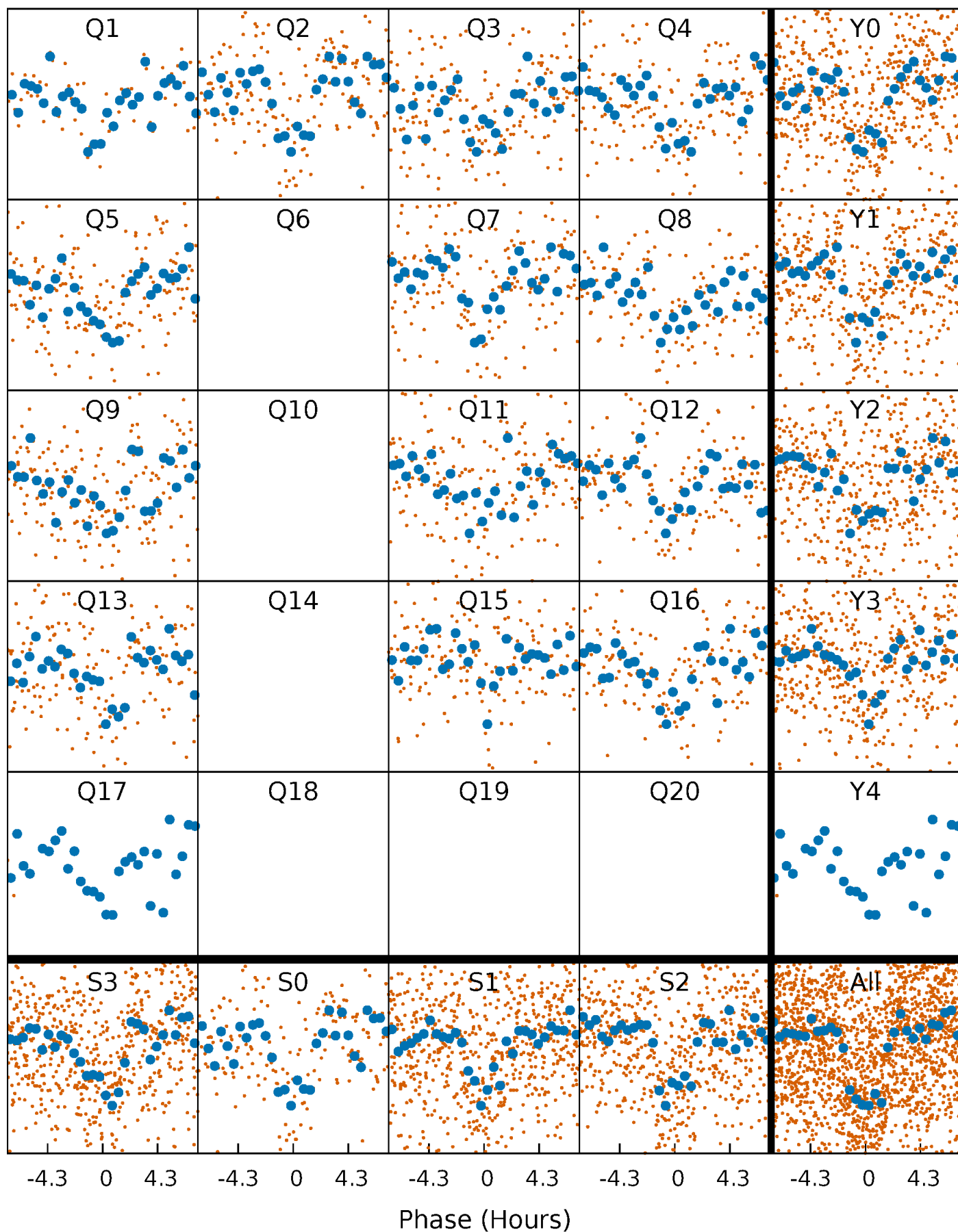


## Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



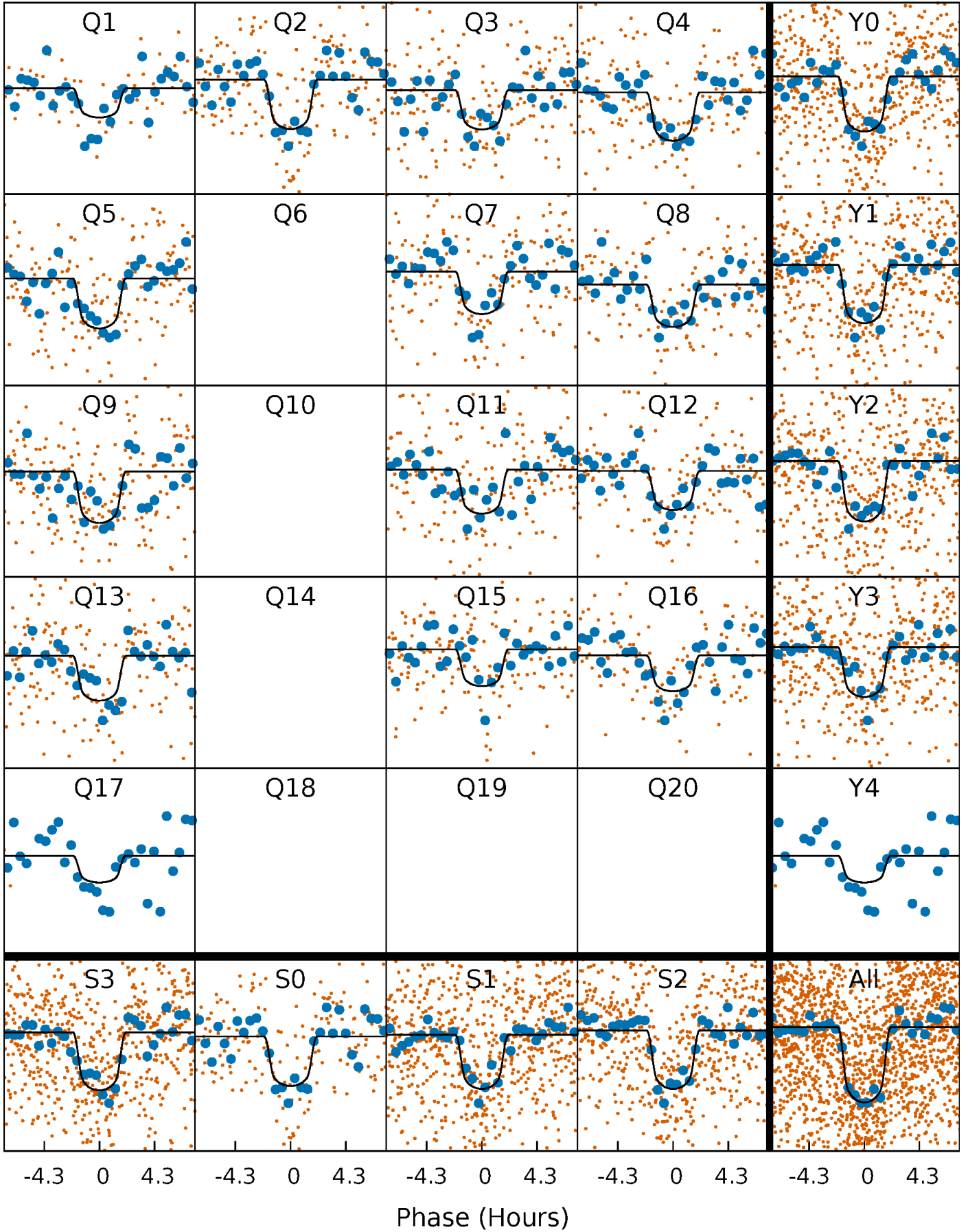
# PDC Quarter-Phased Transit Curves

TCE 003962243-02   P= 14.128523 Days    $T_0=142.894097$  (BKJD)



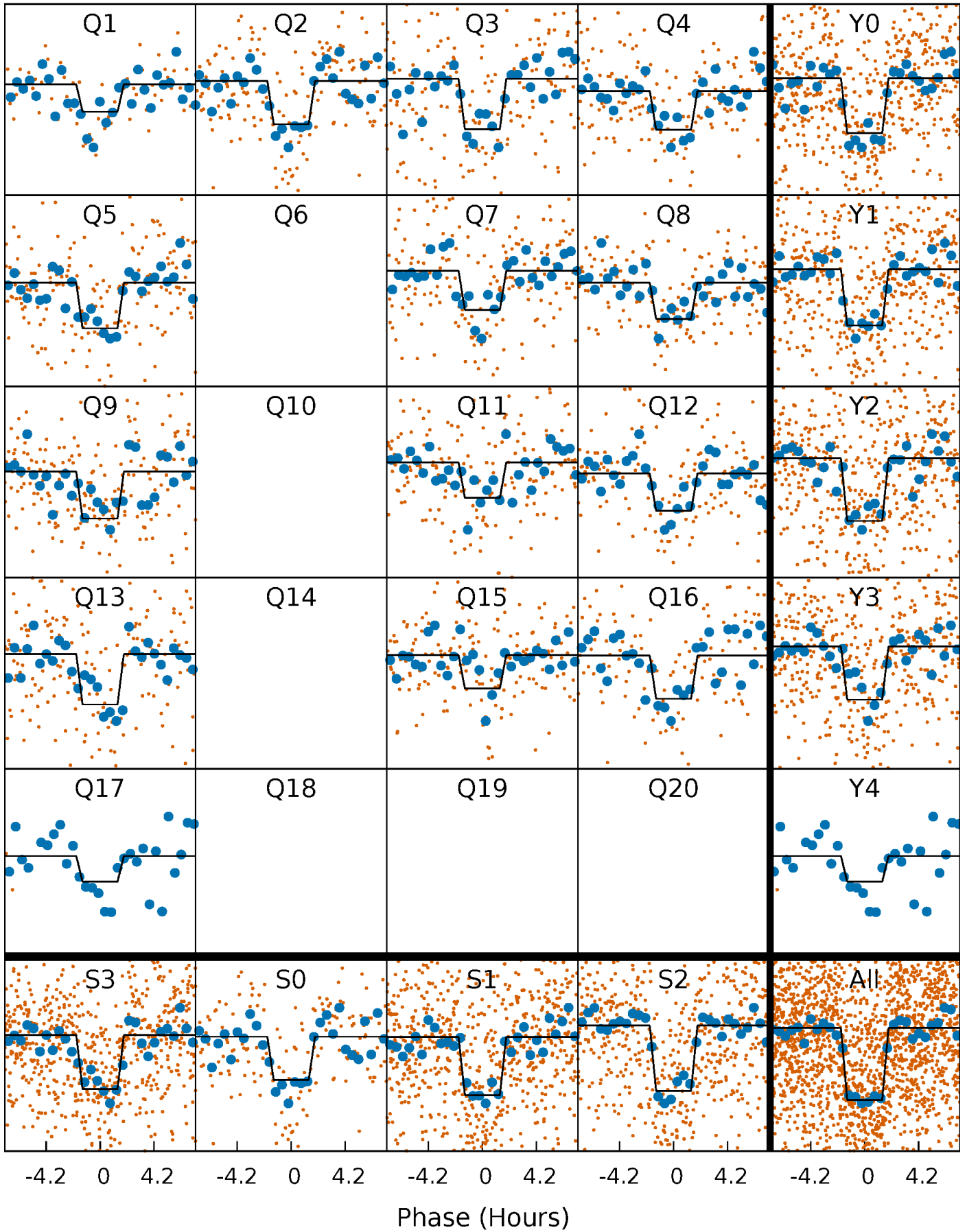
# DV Quarter-Phased Transit Curves

TCE 003962243-02   P= 14.128523 Days    $T_0=142.894097$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

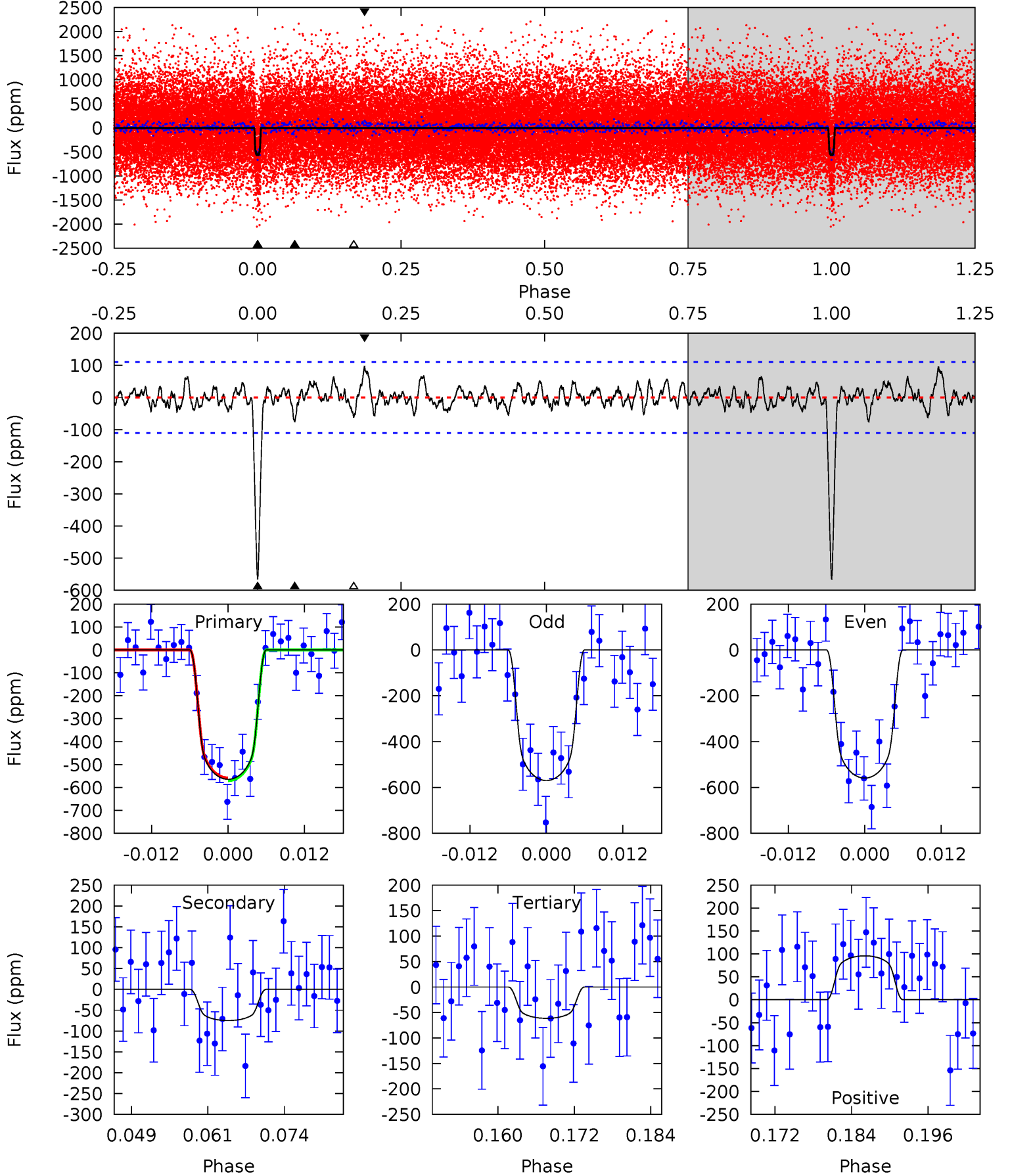
TCE 003962243-02 P= 14.128413 Days  $T_0=142.900034$  (BKJD)



# DV Model-Shift Uniqueness Test

003962243-02, P = 14.128523 Days, E = 128.765574 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
25.5	3.38	2.78	4.33	4.99	2.50	1.14	22.7	21.2	0.61	-0.94	0.24	0.95	0.15	0.26

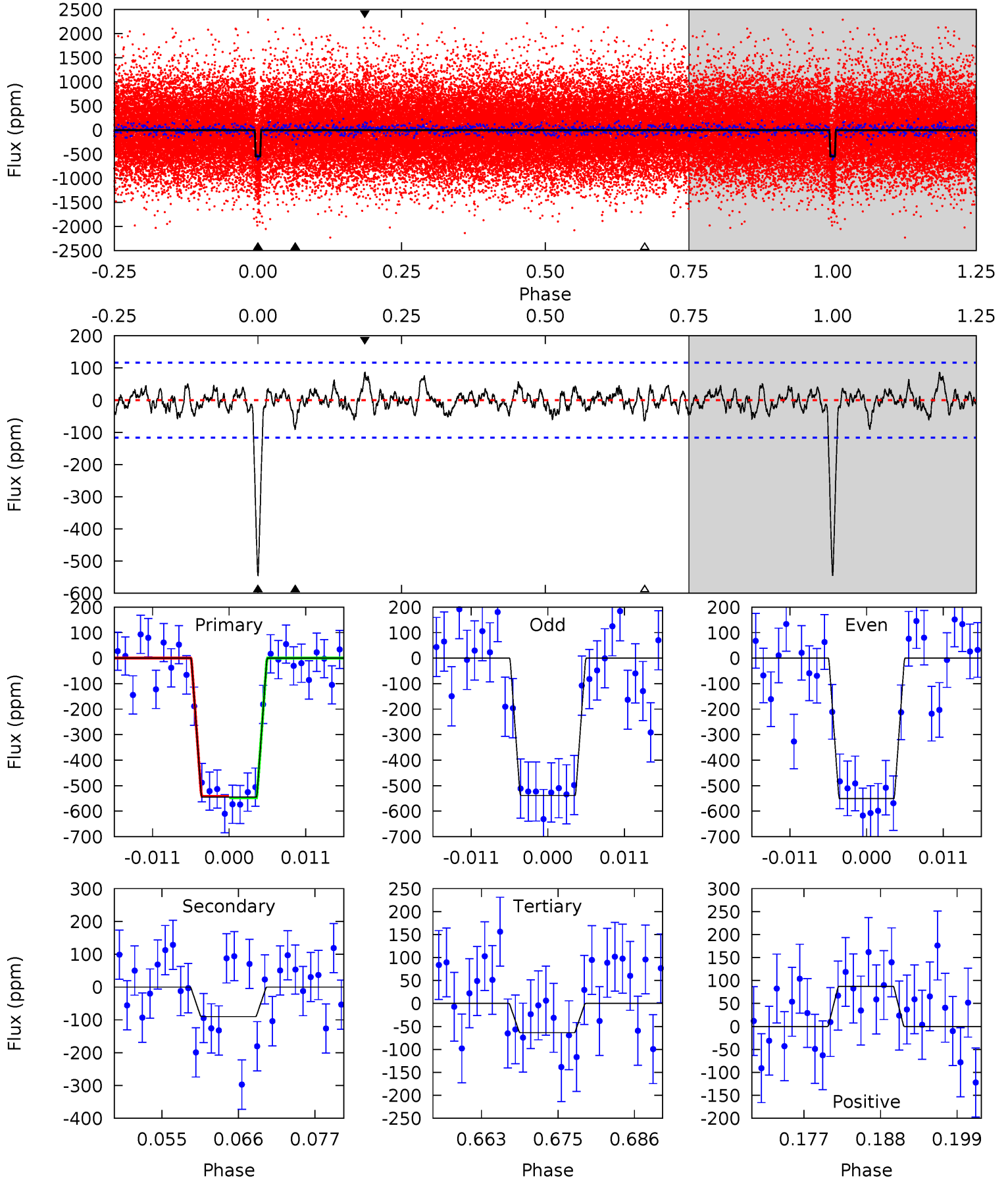




# Alt Model-Shift Uniqueness Test

003962243-02,  $P = 14.128413$  Days,  $E = 128.771621$  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
23.4	3.87	2.74	3.75	5.01	2.54	1.05	20.7	19.7	1.14	0.13	0.27	1.01	0.14	0.12





### Stellar Parameters For KIC 003962243

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	$5779^{+78}_{-86}$	$4.477^{+0.032}_{-0.128}$	$0.140^{+0.150}_{-0.150}$	$0.974^{+0.158}_{-0.053}$	$1.037^{+0.056}_{-0.068}$	$1.582^{+0.192}_{-0.553}$
	+1%/-1%	+1%/-3%	+107%/-107%	+16%/-5%	+5%/-7%	+12%/-35%
Source	SPE90	SPE90	SPE90	DSEP		

KIC = Kepler Input Catalog; PHO = Photometry; SPE = Spectroscopy; AST = Asteroseismology  
 TRA = Transits; DESP = Dartmouth Models; MULT = Multiple Models

### Secondary Eclipse Parameters for KIC 003962243-02 / KOI 1203.02

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	$A_{obs}$
DV	$-75 \pm 22$	$2.77^{+0.57}_{-0.56}$	$1044^{+44}_{-26}$	$3748^{+378}_{-291}$	$69^{+50}_{-26}$
Alt.	$-90 \pm 23$	$2.58^{+0.65}_{-0.52}$	$1043^{+46}_{-27}$	$3957^{+401}_{-318}$	$95^{+70}_{-38}$

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

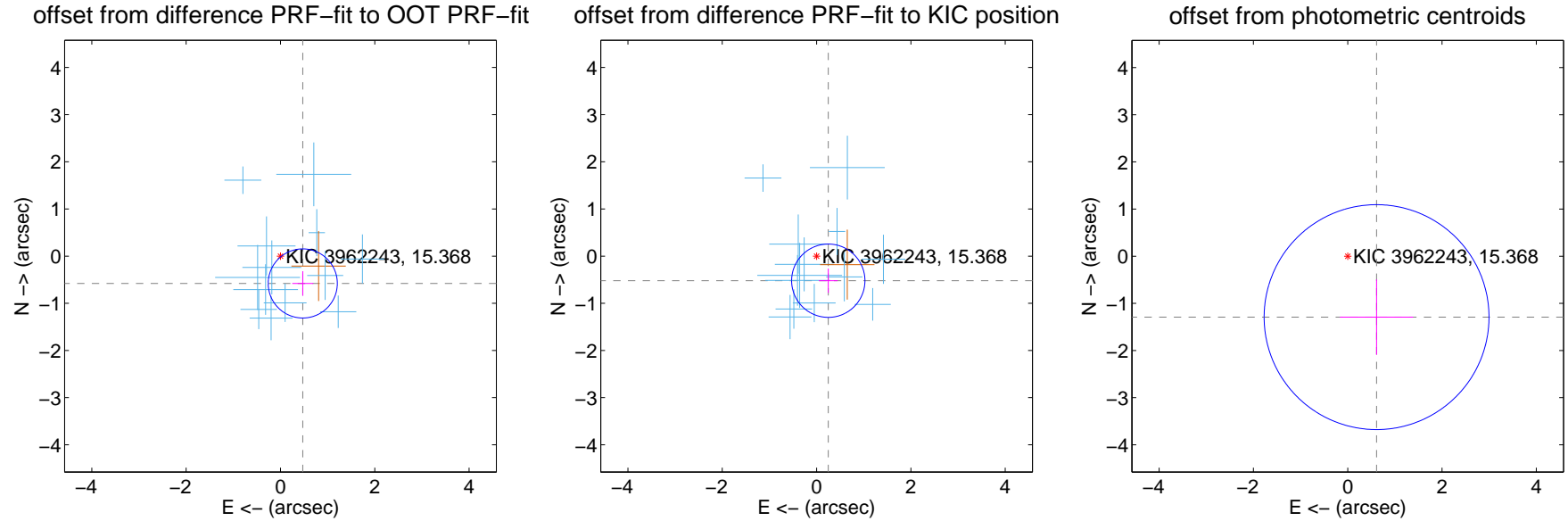
## DV Centroid Data

Supplemental centroid analysis for 003962243-02. Kepler magnitude: 15.37. Transit SNR 20.02

There are 13 quarters with good PRF difference image offsets

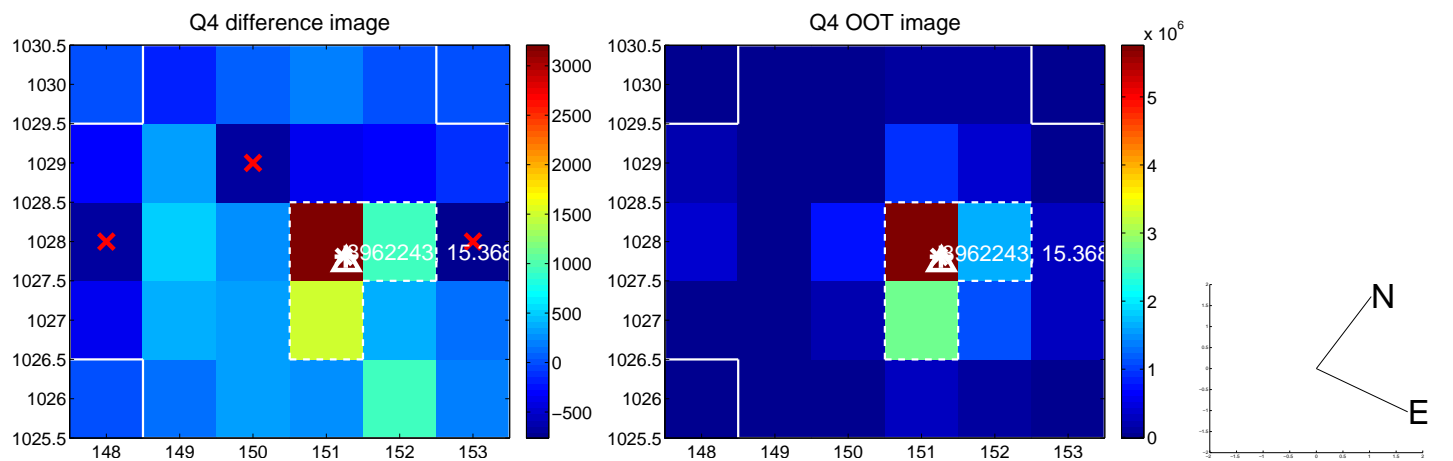
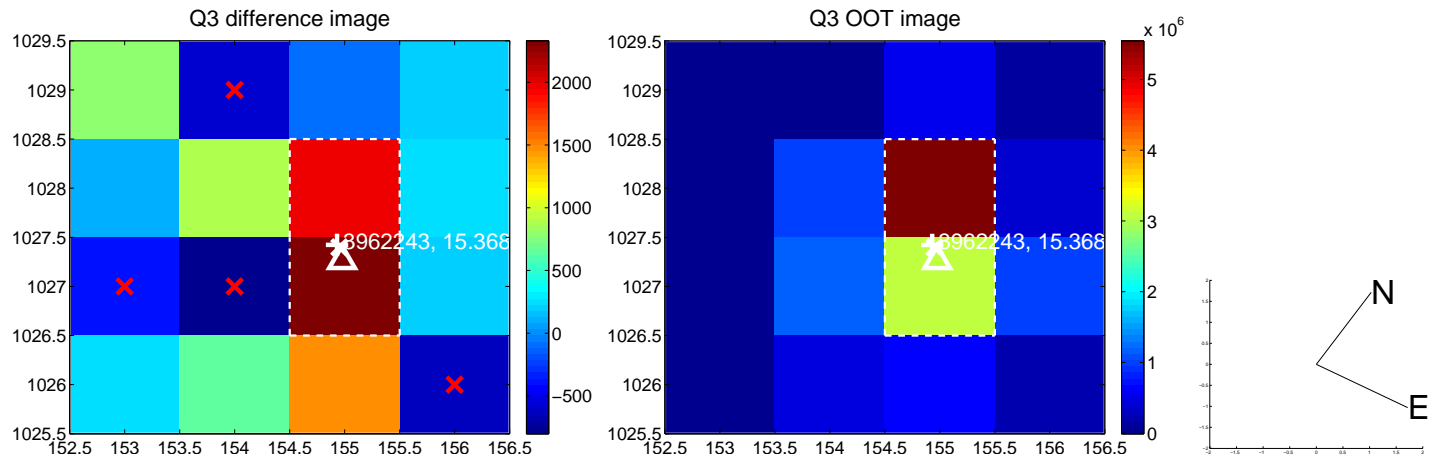
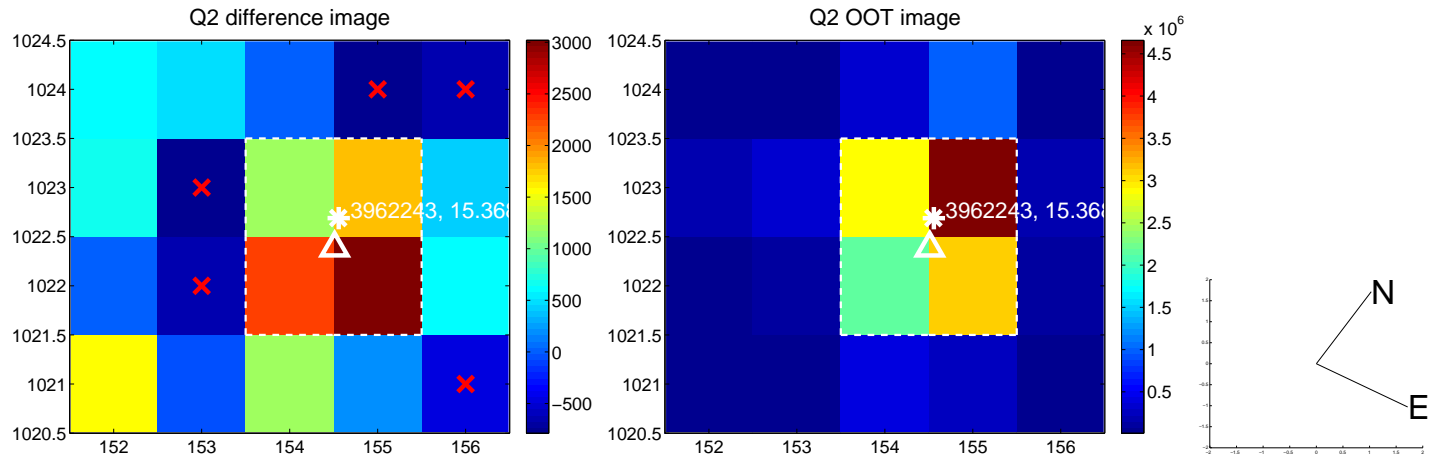
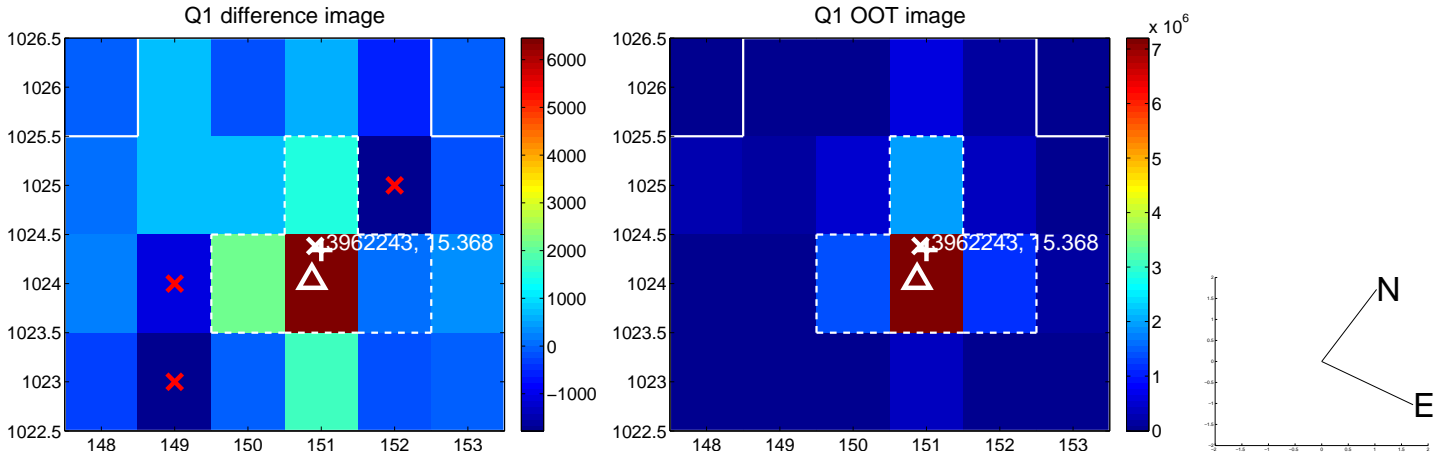
The direct PRF centroid is offset from the target star catalog position by about 0.32 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	<b><math>0.748 \pm 0.244</math></b>	<b>3.06</b>	$-0.473 \pm 0.223$	$-0.579 \pm 0.261$
PRF-fit source offset from KIC position	$0.577 \pm 0.259$	2.23	$-0.248 \pm 0.200$	$-0.521 \pm 0.258$
photometric centroid source offset	$1.43 \pm 0.80$	1.80	$-0.61 \pm 0.78$	$-1.29 \pm 0.80$

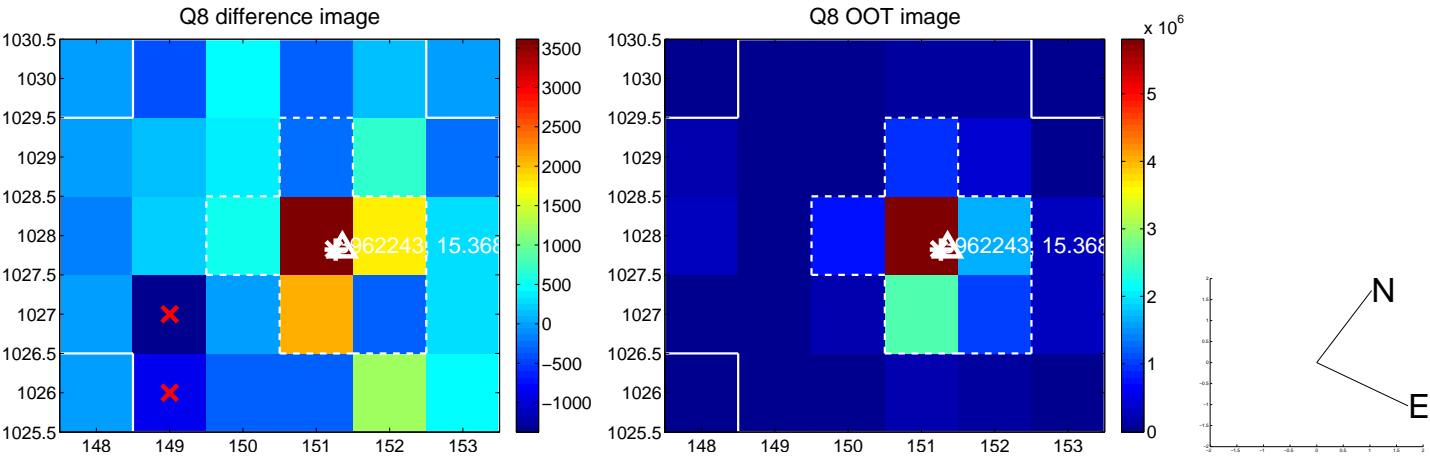
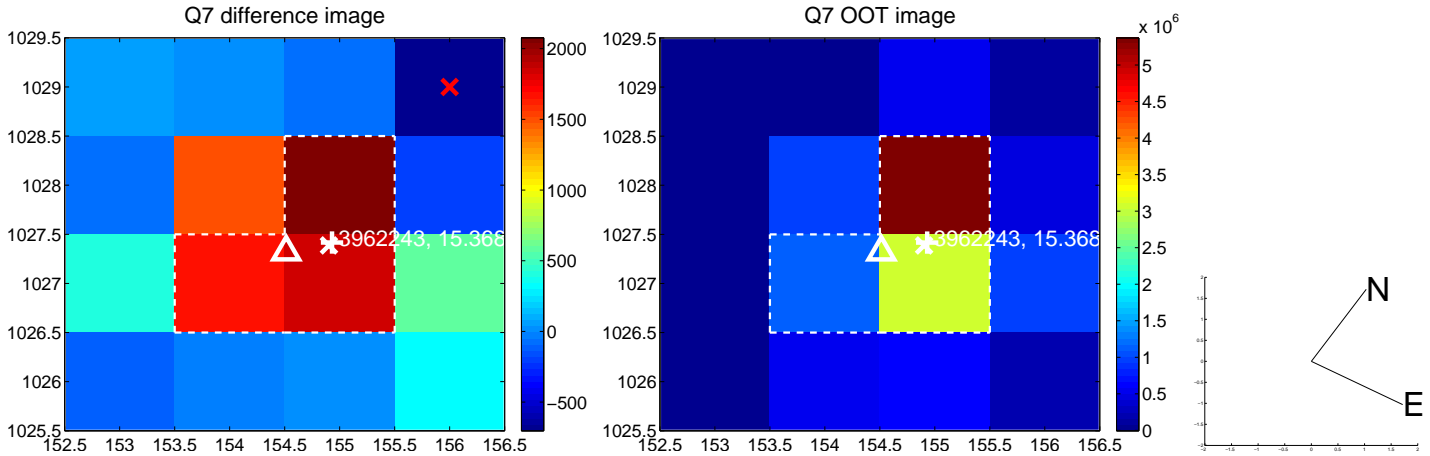
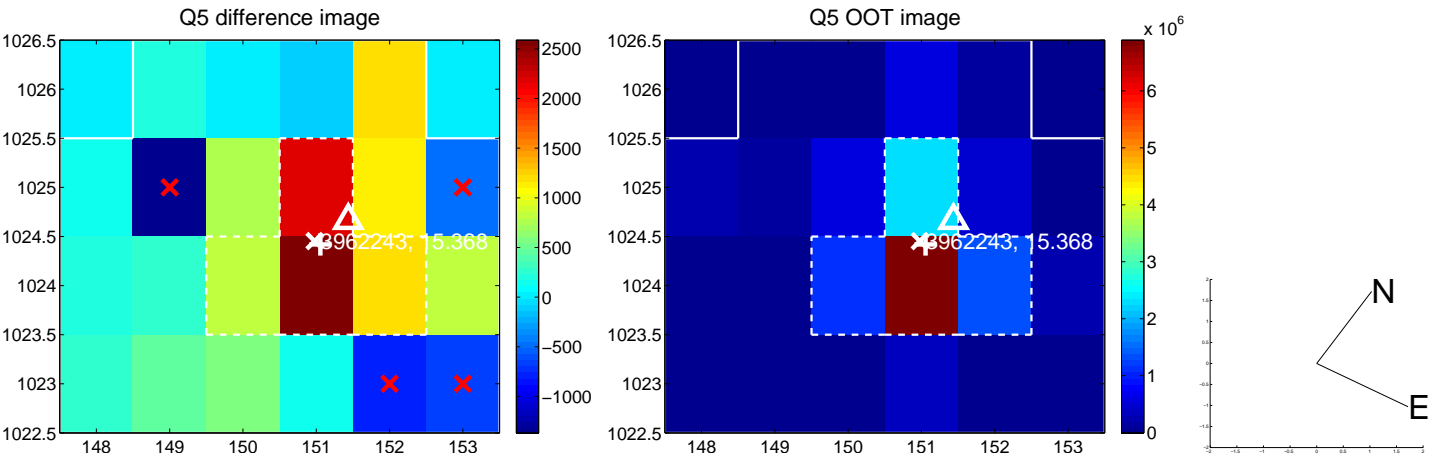


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: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

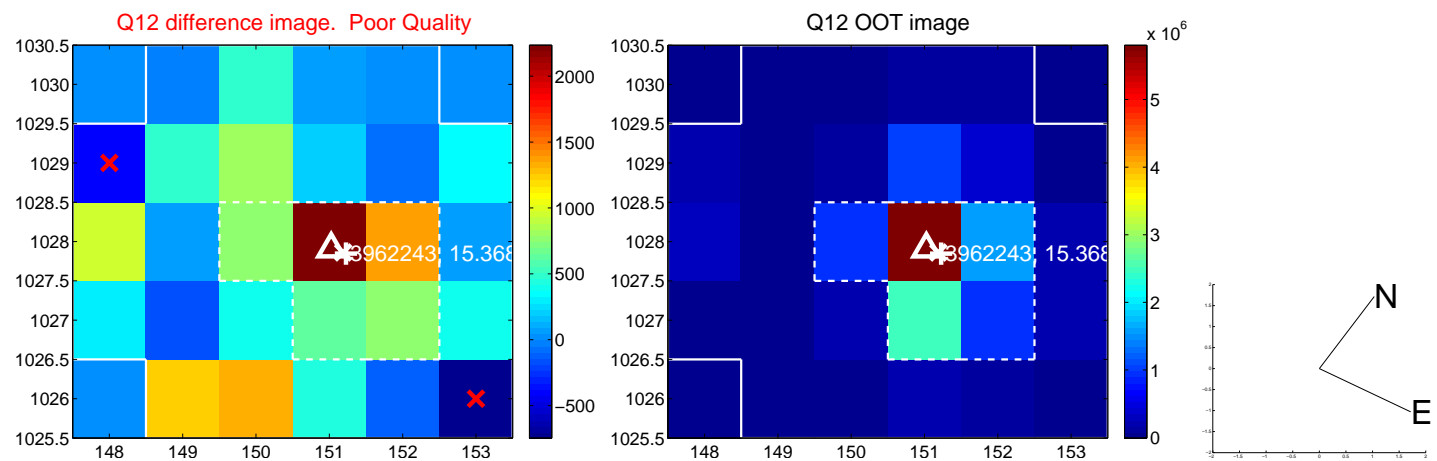
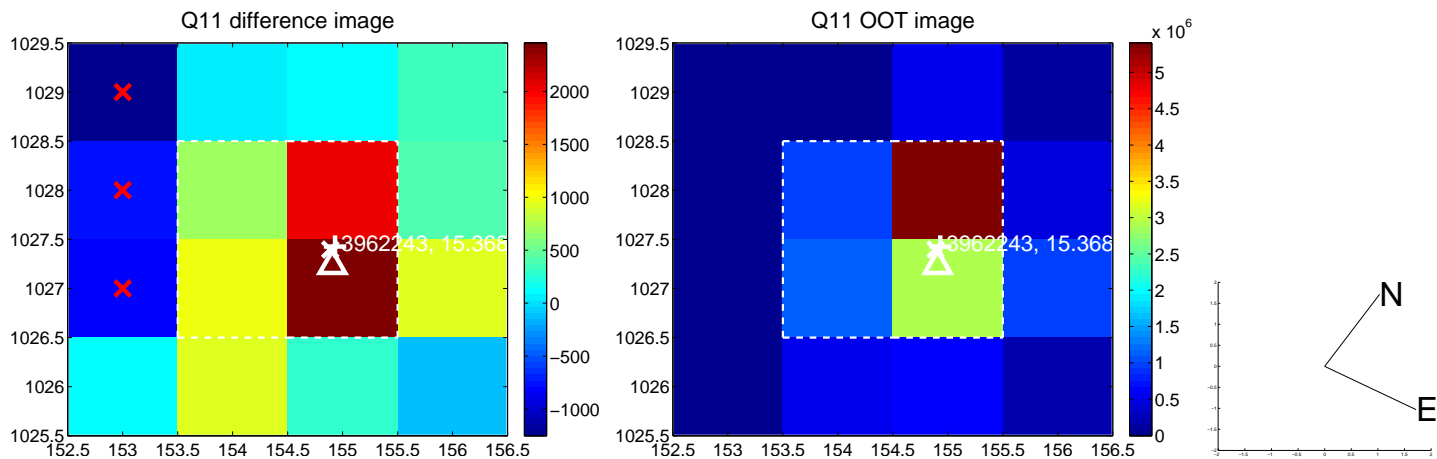
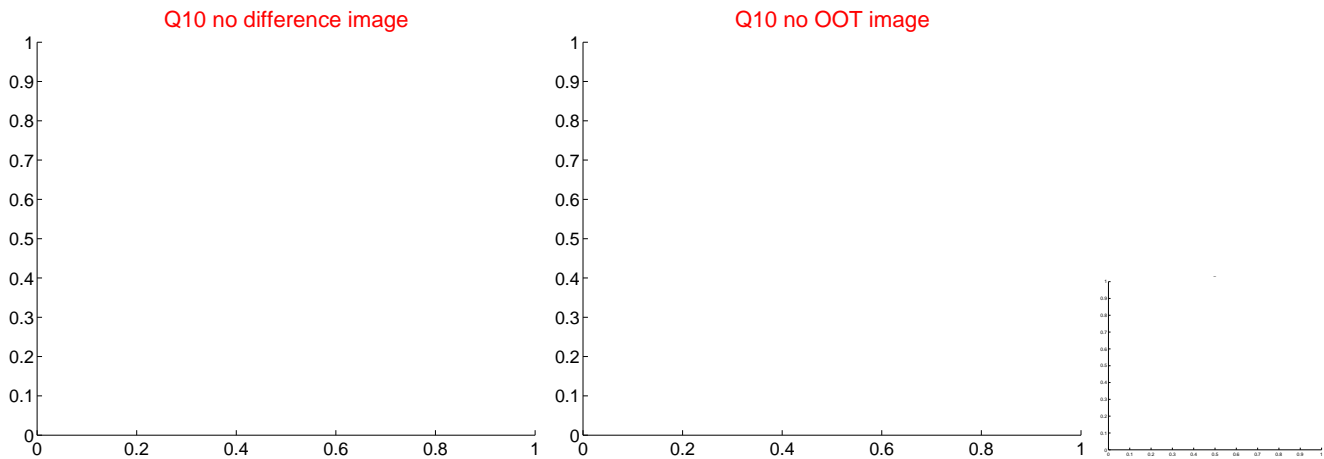
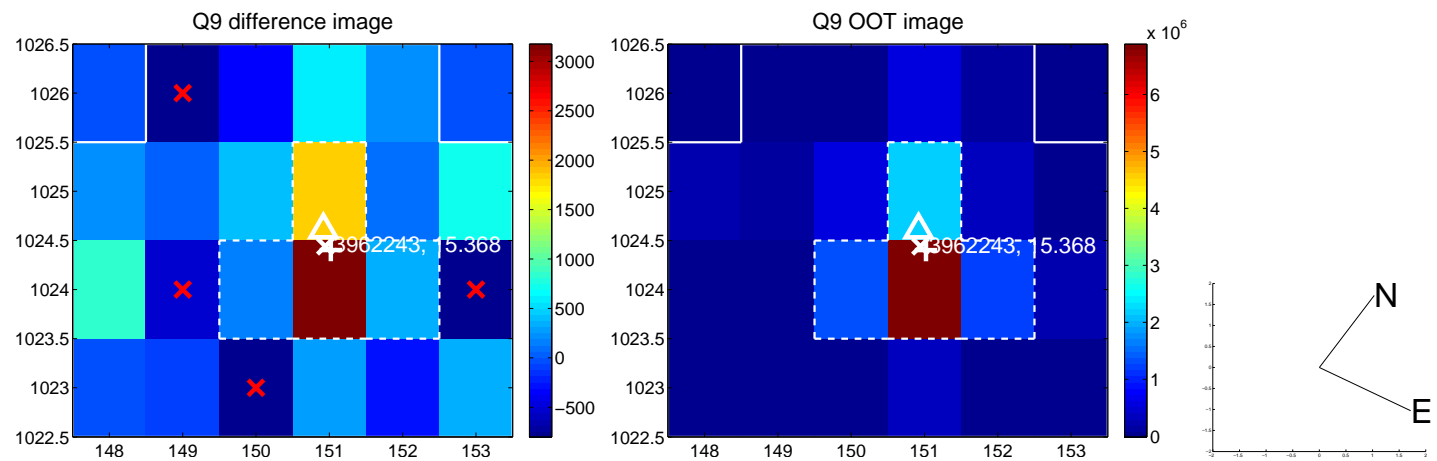
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



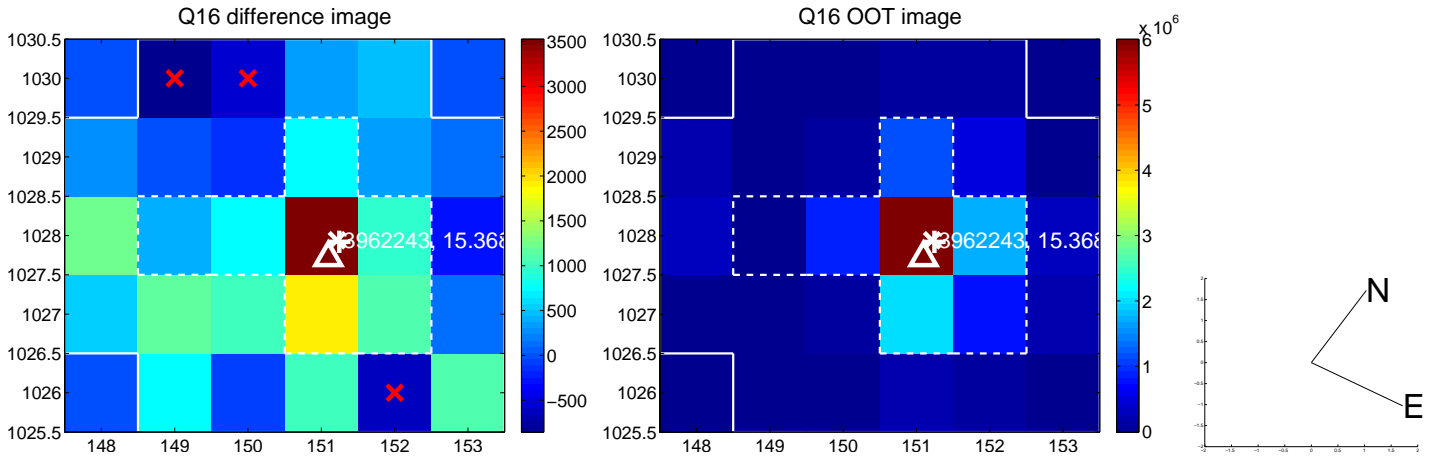
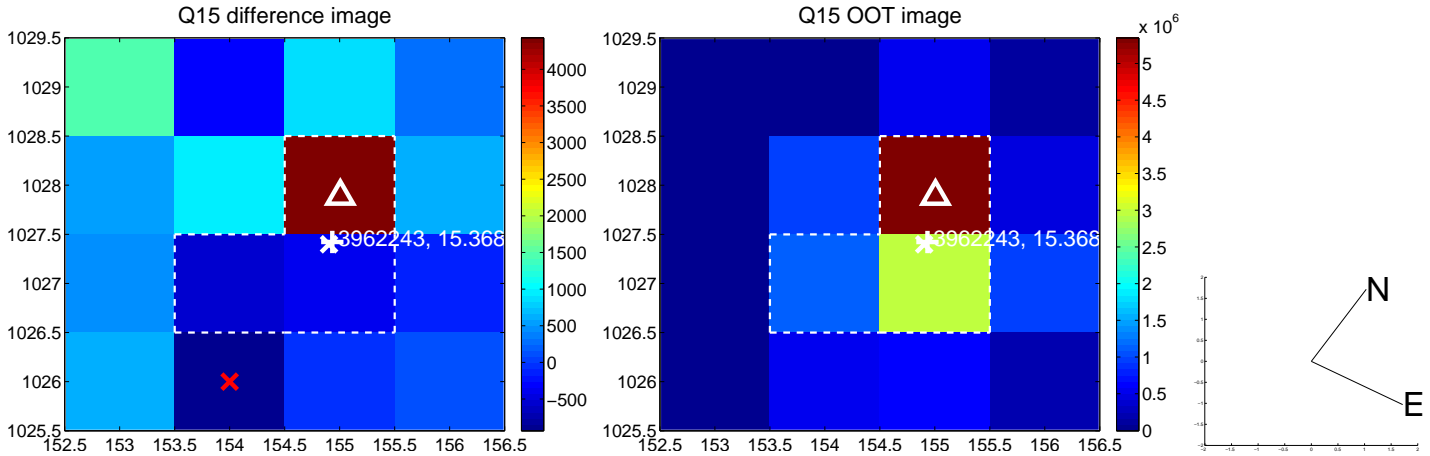
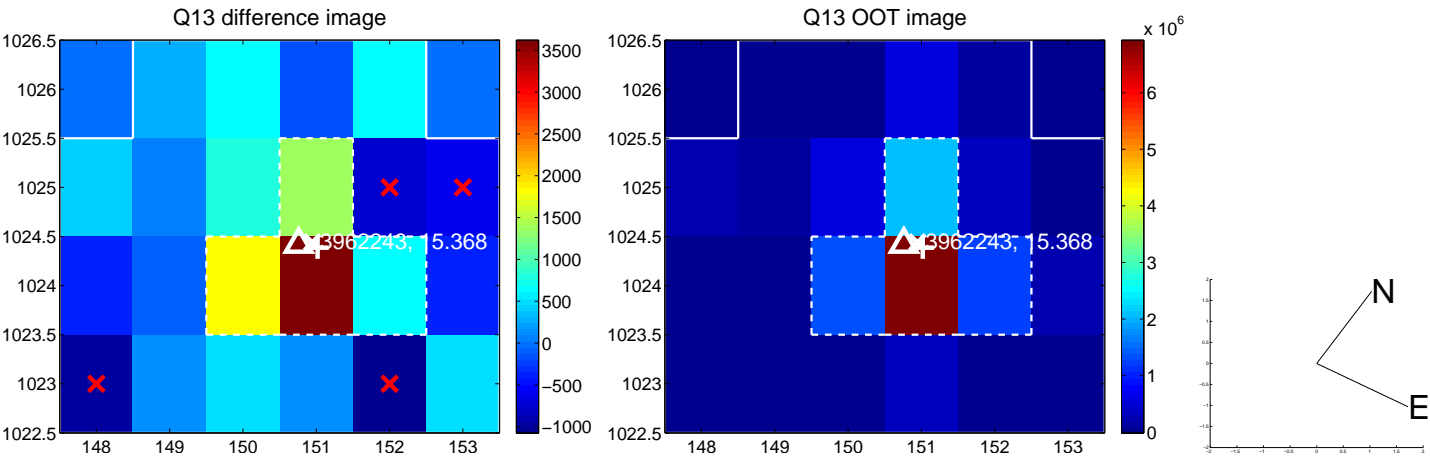
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



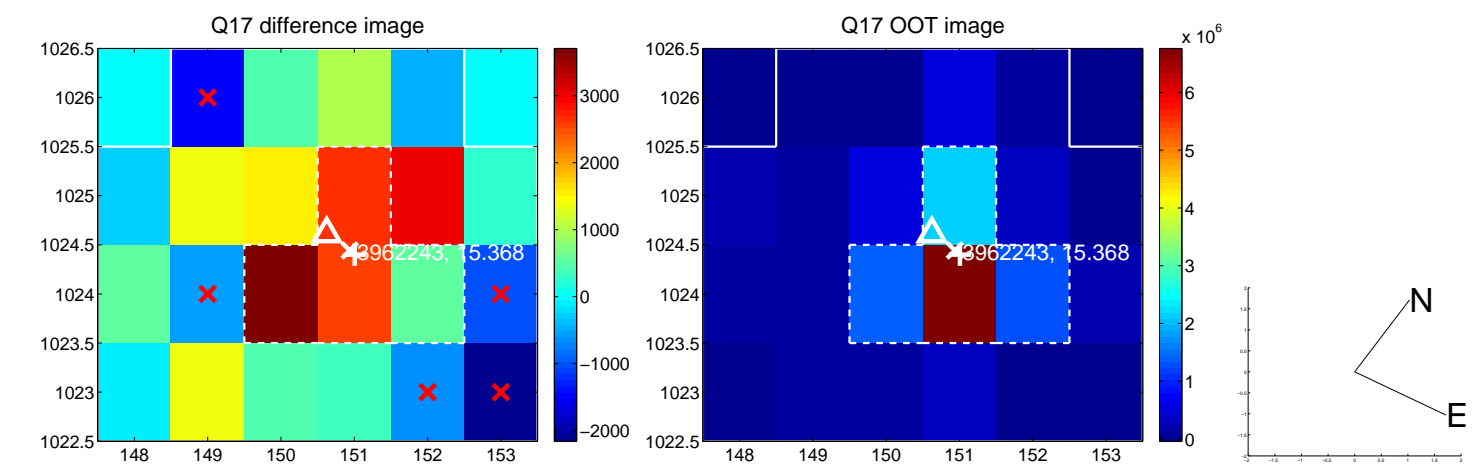
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



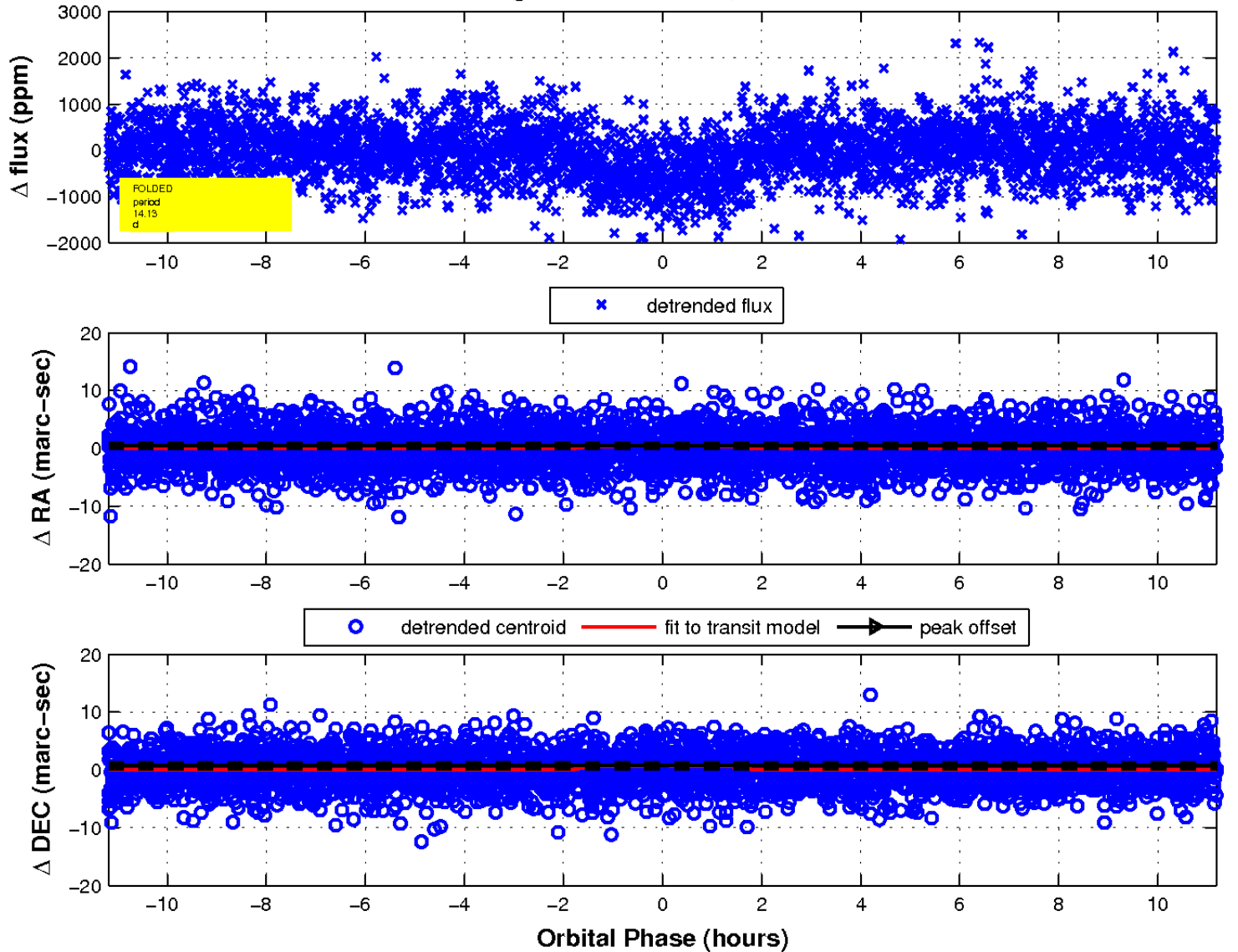
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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



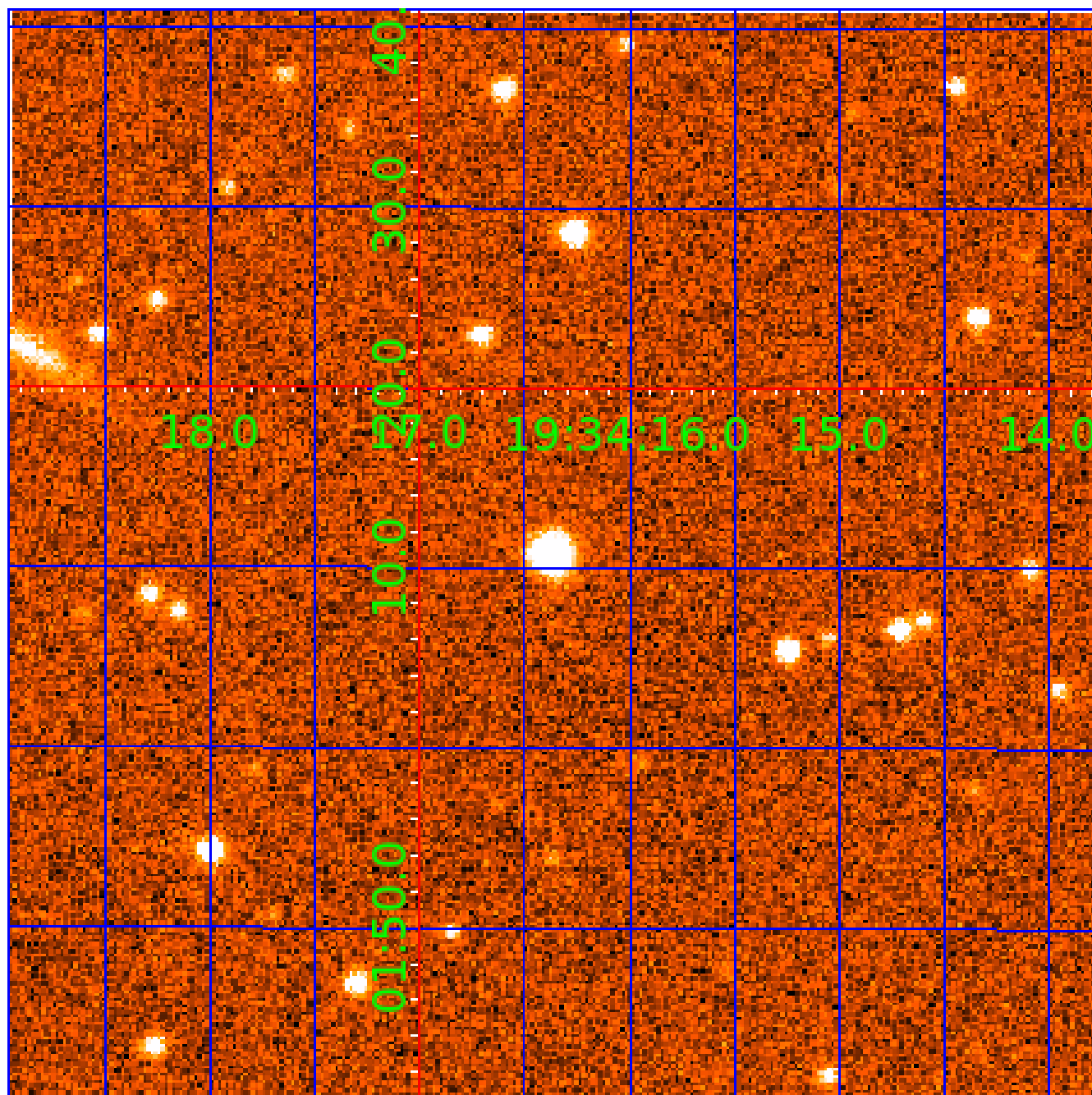
fluxWeightedCentroids, Planet 2 of 3





# UKIRT Image

Declination



# KIC 003962243

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
003962243-01	OBS	1203.01	31.883933	160.211989	910.2	6.226	21.6	23.3	0.97	5779	3.69	23.87
003962243-02	OBS	1203.02	14.128523	142.894097	574.7	3.730	18.9	20.0	0.97	5779	2.71	70.67
003962243-03	OBS	1203.03	48.647478	172.131940	624.8	5.154	10.1	10.8	0.97	5779	3.71	13.59

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
003962243-01	OBS	PC	1.00	0	0	0	0	NO_COMMENT
003962243-02	OBS	PC	0.98	0	0	0	0	NO_COMMENT
003962243-03	OBS	PC	0.83	0	0	0	0	NO_COMMENT

**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.

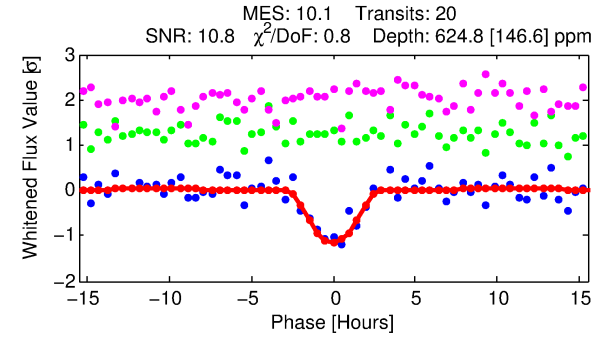
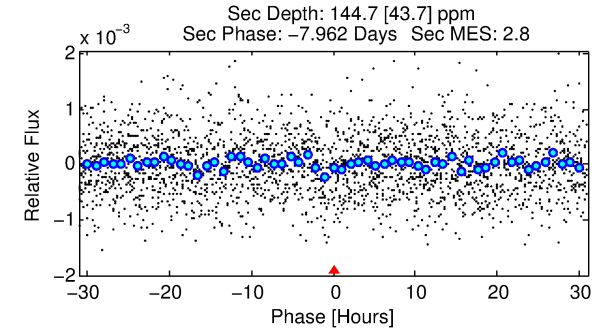
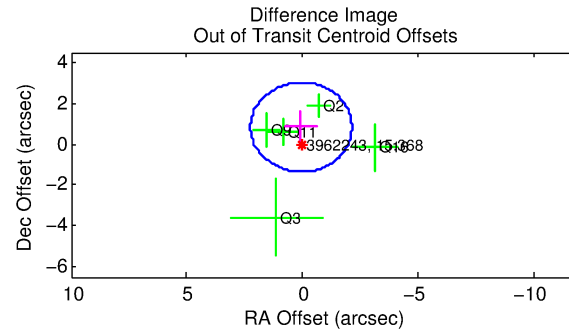
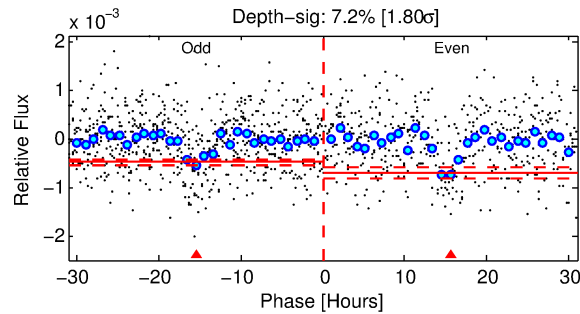
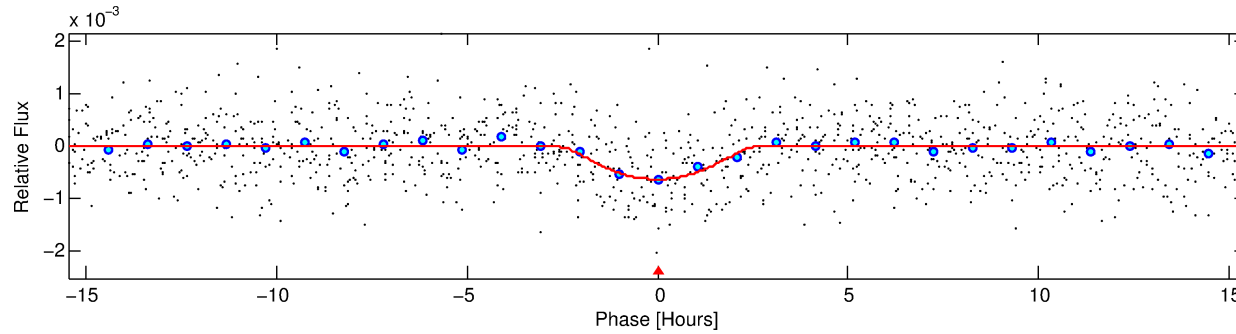
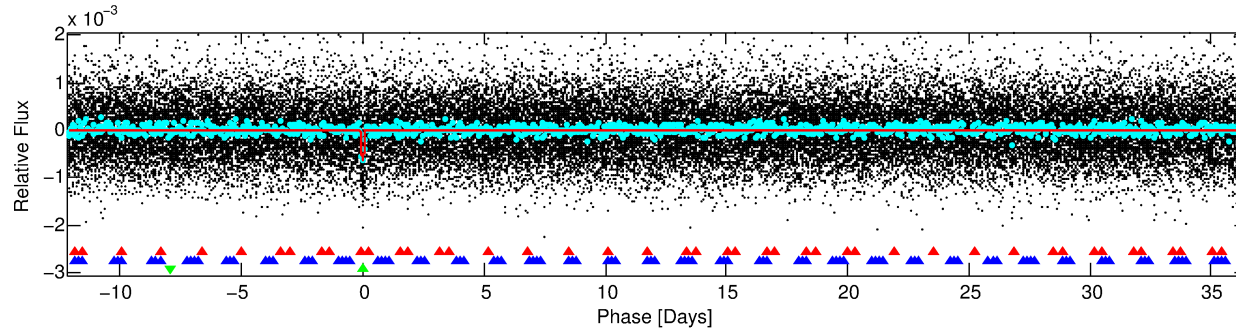
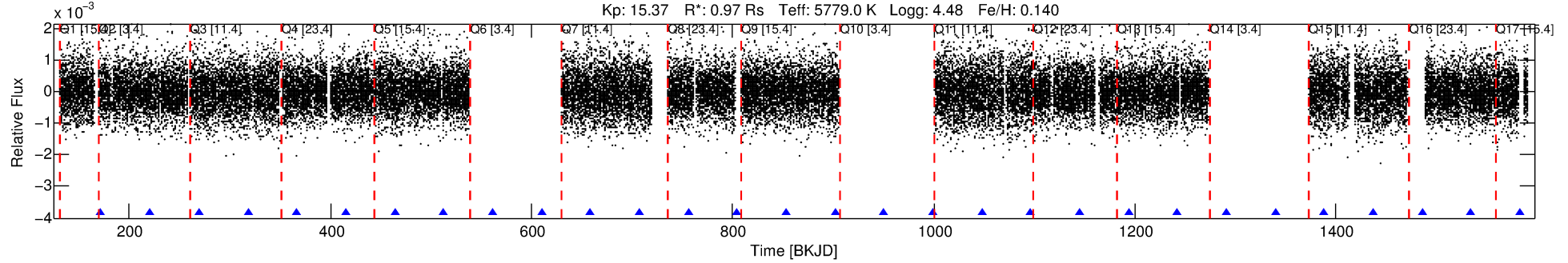
## Ephemeris Match Information For 003962243-03

No Significant Match Found

# DV One-Page Summary

KIC: 3962243 Candidate: 3 of 3 Period: 48.647 d  
KOI: K01203.03 Name: Kepler-276d Corr: 0.941

Kp: 15.37 R\*: 0.97 Rs Teff: 5779.0 K Logg: 4.48 Fe/H: 0.140



## DV Fit Results:

Period = 48.64748 [0.00071] d  
Epoch = 172.1319 [0.0112] BKJD  
Rp/R\* = 0.0349 [0.0397]  
a/R\* = 23.67 [12.03]  
b = 0.98 [0.08]  
Seff = 13.59 [3.15]  
Teq = 490 [28] K  
Rp = 3.71 [4.26] Re  
a = 0.2641 [0.0386] AU  
Ag = 404.47 [933.88] [0.43σ]  
Teffp = 3395 [1951] K [1.49σ]

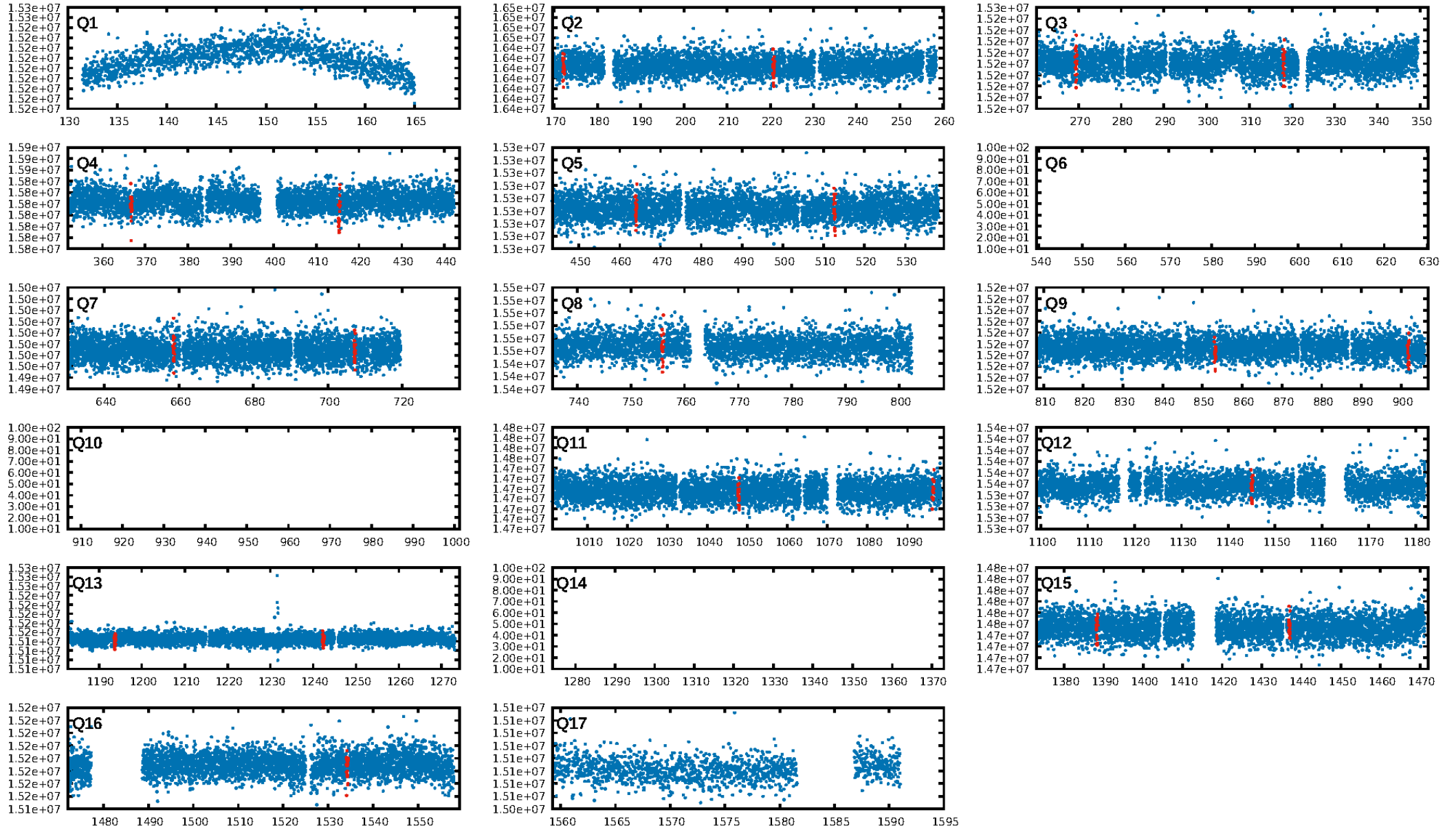
## DV Diagnostic Results:

ShortPeriod-sig: 100.0% [49.78σ]  
LongPeriod-sig: N/A  
ModelChiSquare2-sig: 86.7%  
ModelChiSquareGof-sig: 100.0%  
Bootstrap-pfa: 2.41e-23  
RollingBand-fgt: 1.00 [20/20]  
GhostDiagnostic-chr: 2.142  
Centroid-sig: 32.1%  
Centroid-so: 1.582 arcsec [1.15σ]  
OotOffset-rm: 0.836 arcsec [1.14σ]  
KicOffset-rm: 0.944 arcsec [0.92σ]  
OotOffset-st: 1/2/1/1 [5]  
KicOffset-st: 1/2/1/1 [5]  
DiffImageQuality-fgm: 0.60 [3/5]  
DiffImageOverlap-fno: 1.00 [12/12]

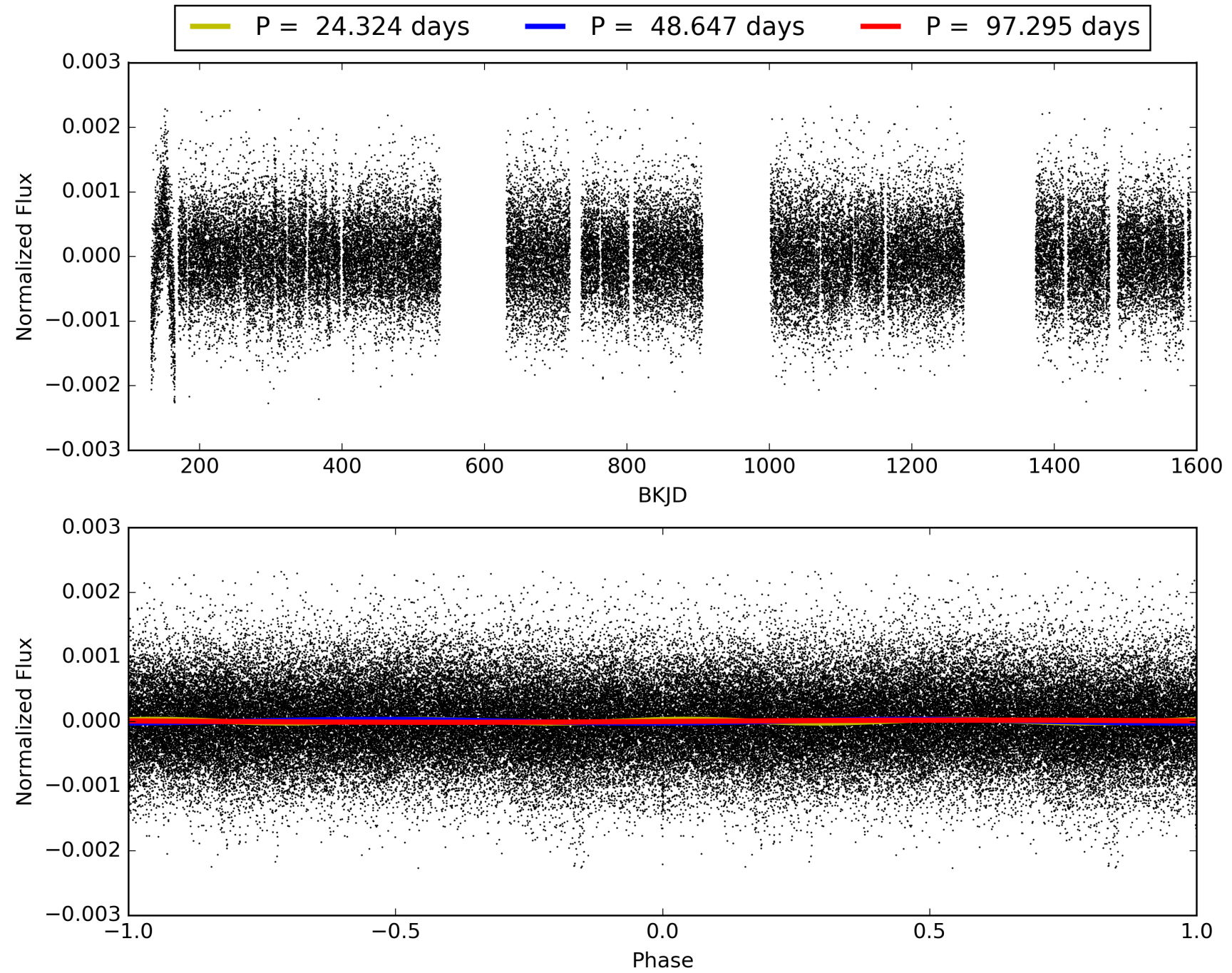
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 18:22:28 Z

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

# TCE 003962243-03, PDC Light Curves

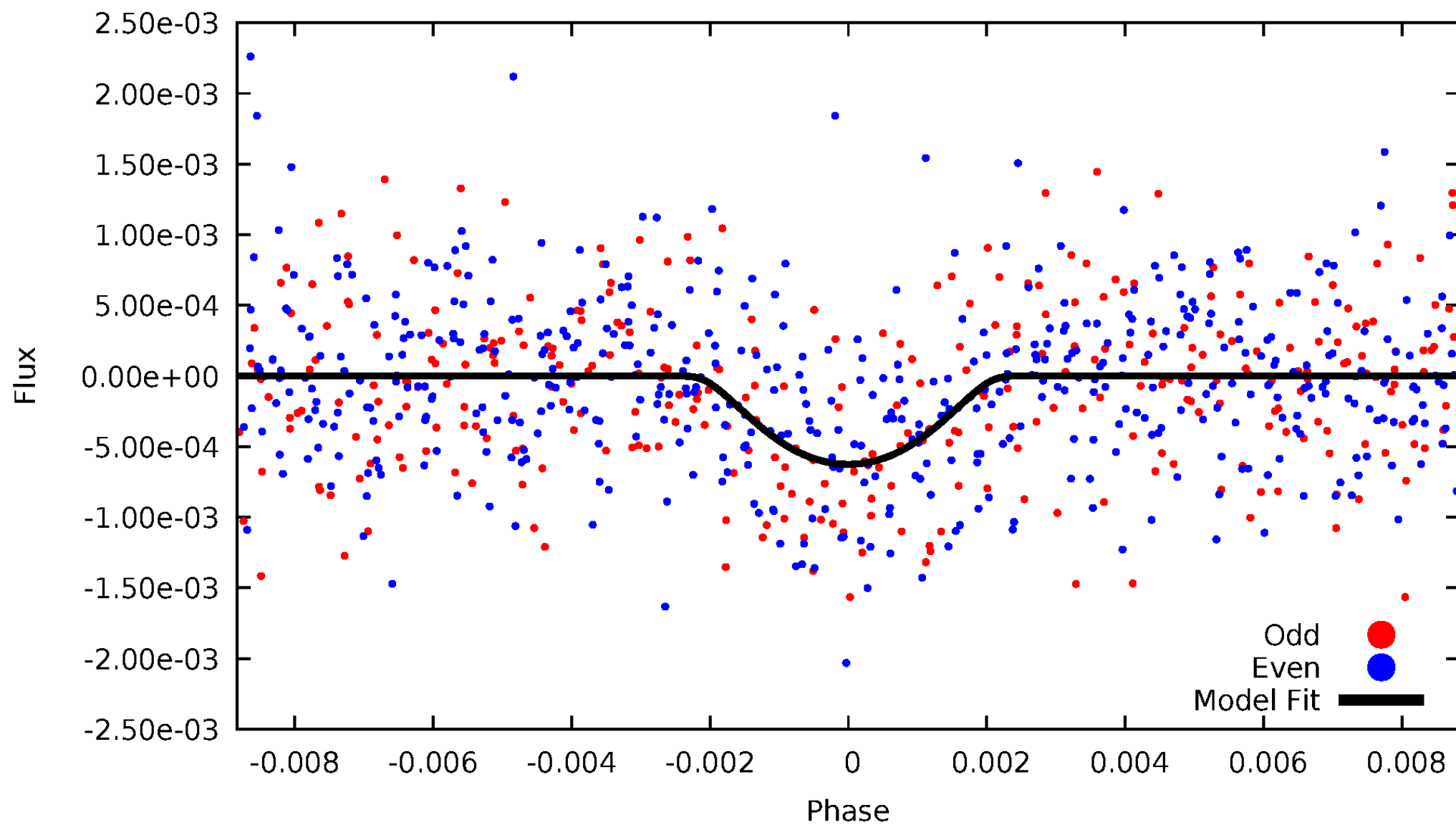


TCE 003962243-03



# DV Odd/Even

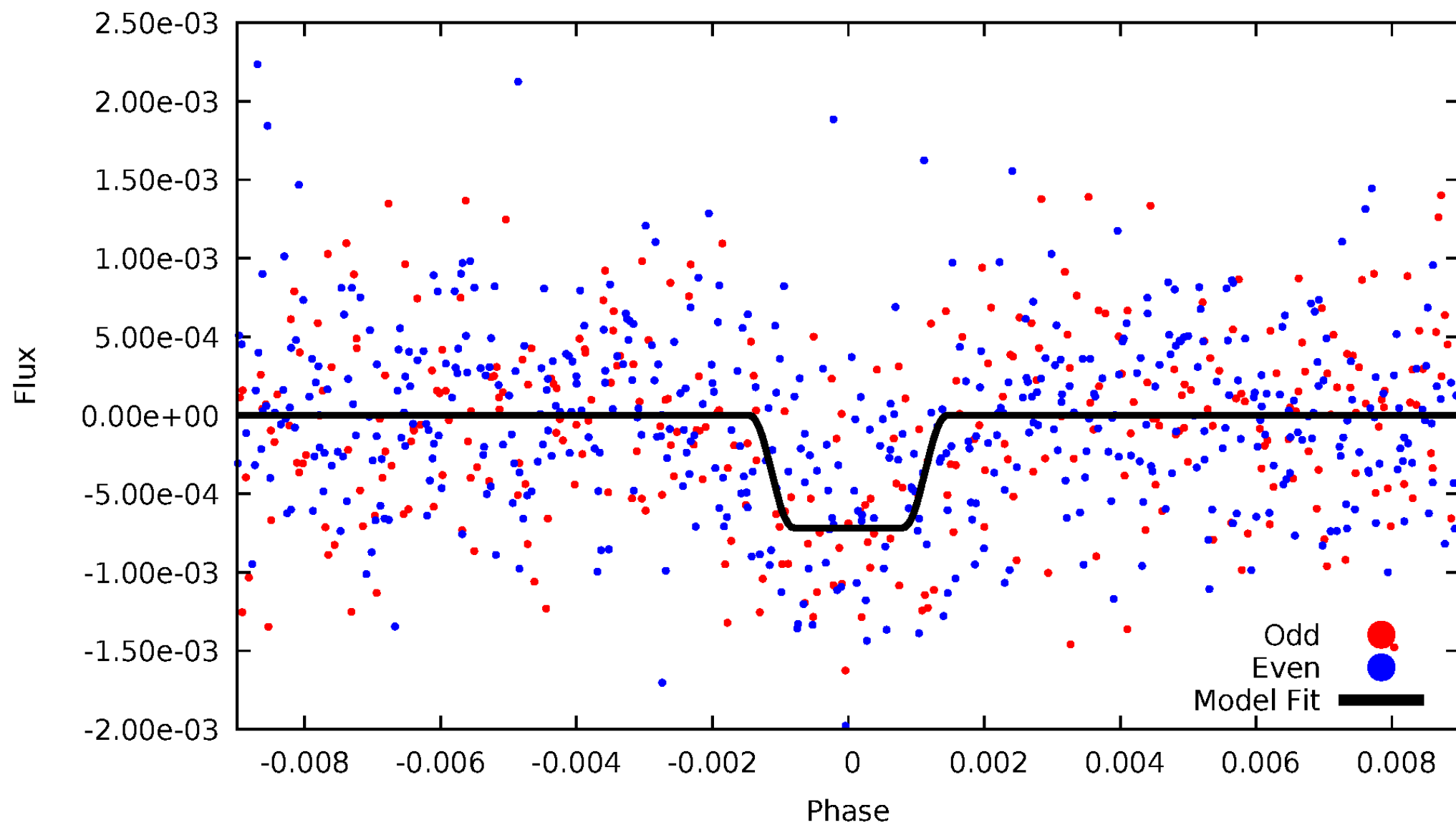
TCE 003962243-03





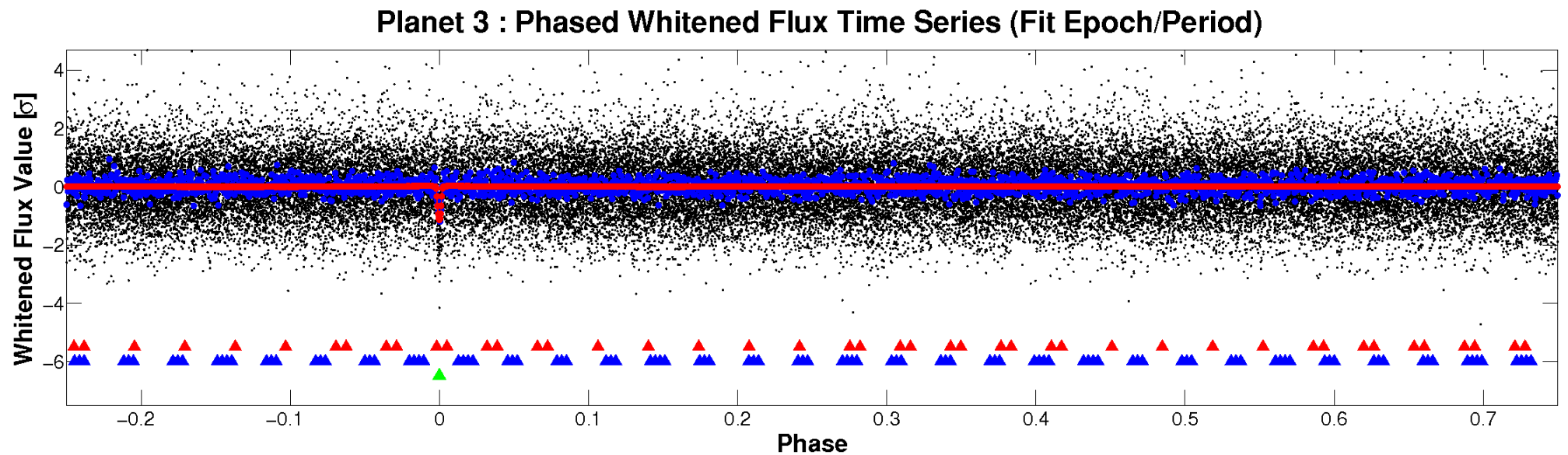
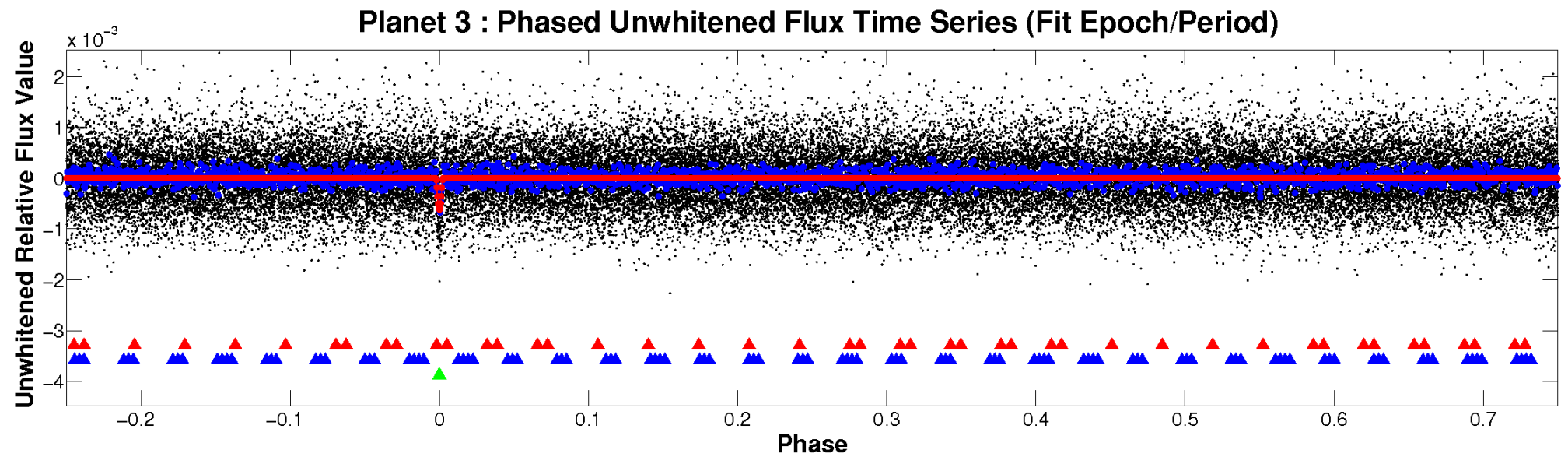
# ALT Odd/Even

TCE 003962243-03



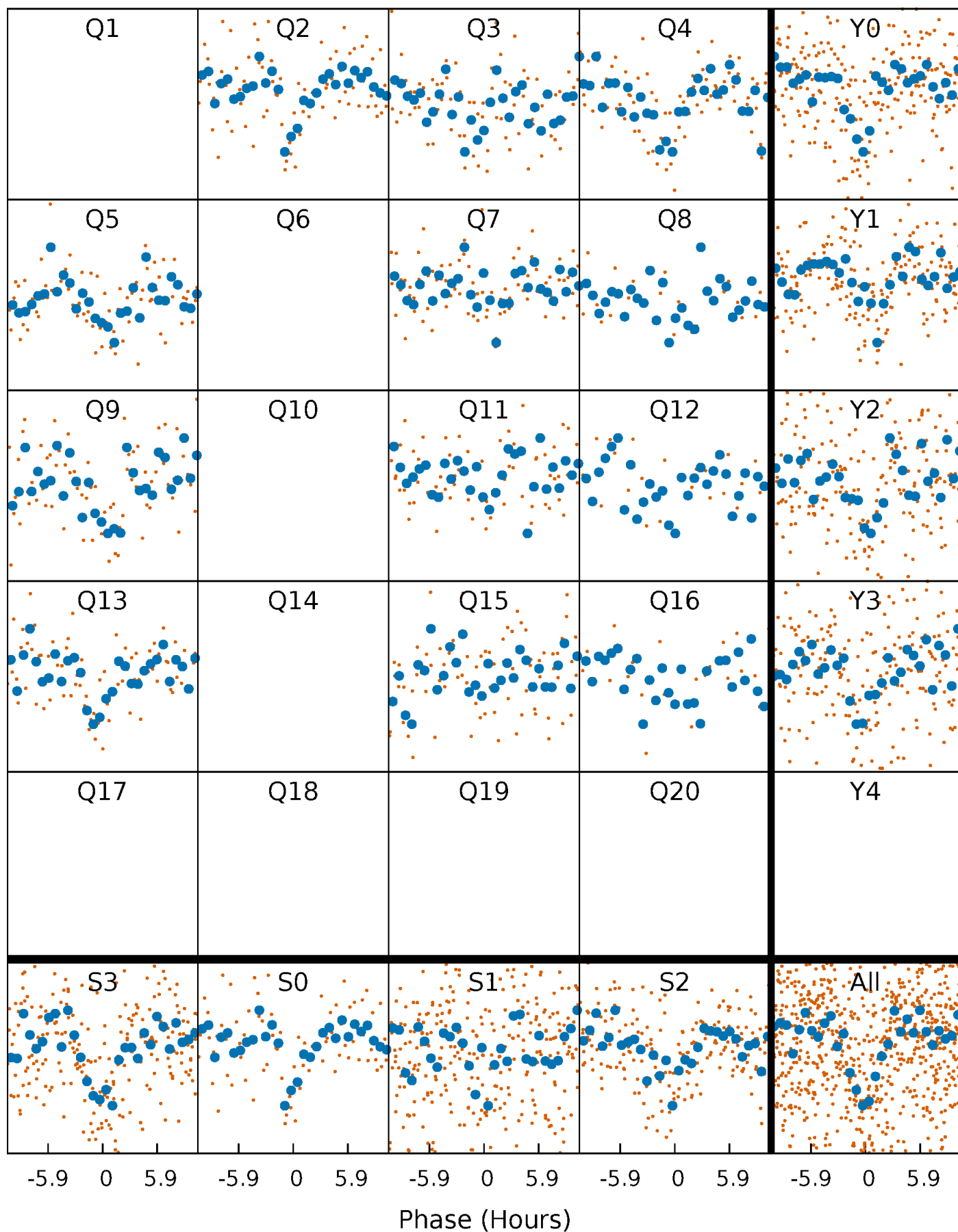


# Non-Whitened Vs. Whitened Light Curve



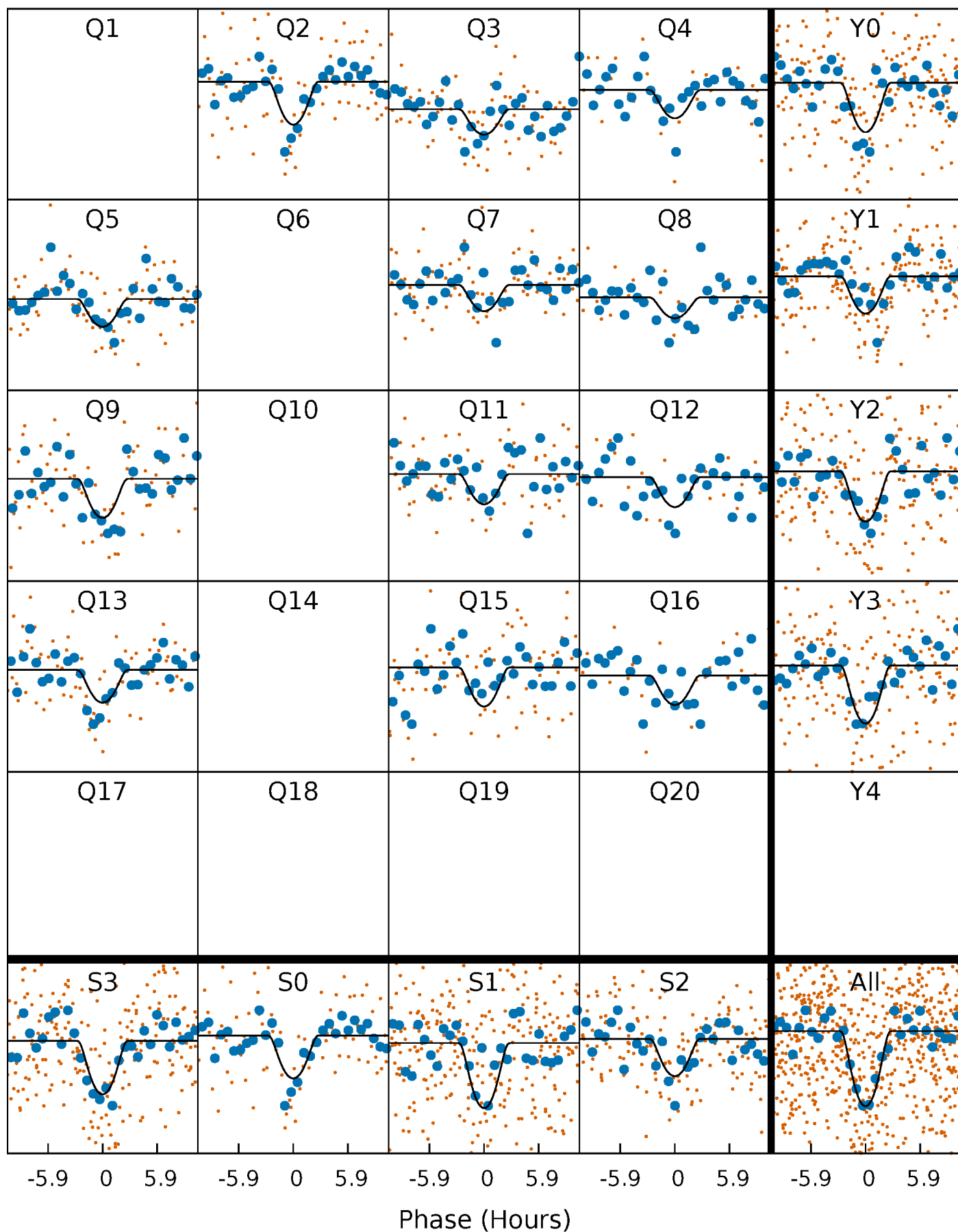
# PDC Quarter-Phased Transit Curves

TCE 003962243-03   P= 48.647478 Days    $T_0=172.131941$  (BKJD)



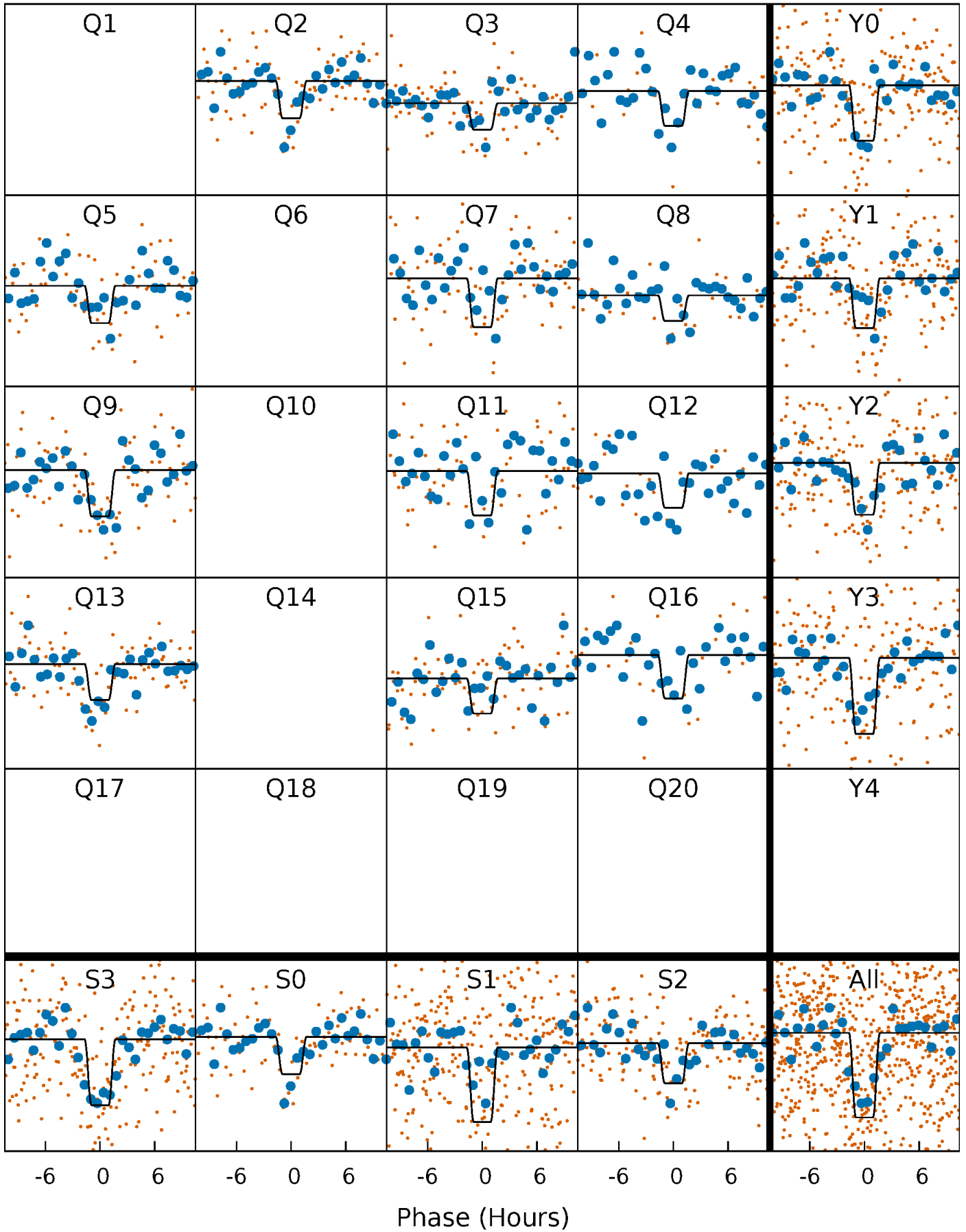
# DV Quarter-Phased Transit Curves

TCE 003962243-03   P= 48.647478 Days    $T_0=172.131941$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

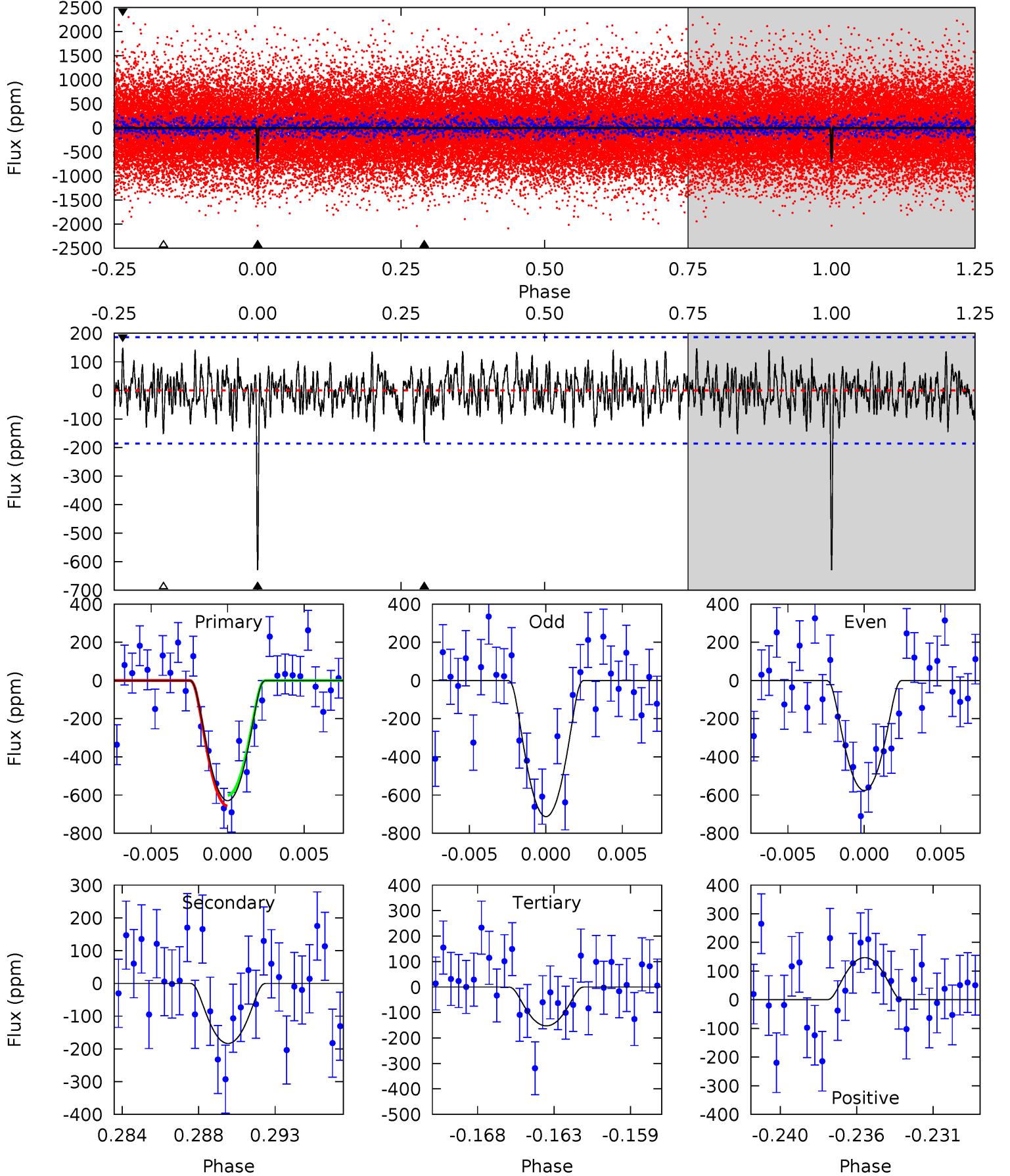
TCE 003962243-03   P= 48.647640 Days    $T_0=172.131818$  (BKJD)



# DV Model-Shift Uniqueness Test

003962243-03,  $P = 48.647478$  Days,  $E = 123.484463$  Days

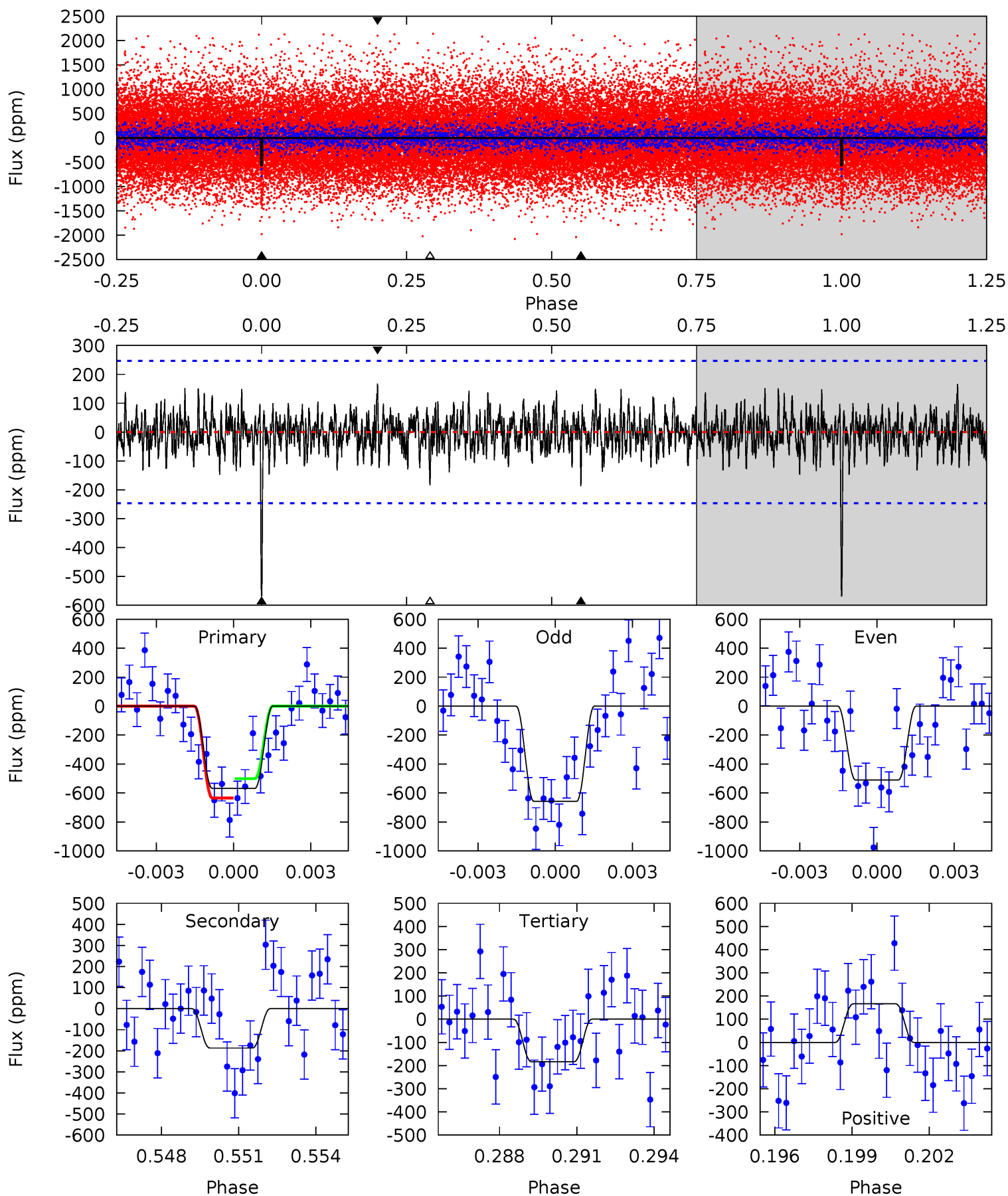
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
17.5	5.09	4.23	4.08	5.17	2.82	1.42	13.2	13.4	0.86	1.01	1.86	0.95	0.19	0.77



# Alt Model-Shift Uniqueness Test

003962243-03, P = 48.647640 Days, E = 123.484178 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
12.1	3.99	3.92	3.54	5.26	2.98	1.09	8.20	8.58	0.07	0.44	1.53	0.93	0.23	1.43



### Stellar Parameters For KIC 003962243

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	$5779^{+78}_{-86}$	$4.477^{+0.032}_{-0.128}$	$0.140^{+0.150}_{-0.150}$	$0.974^{+0.158}_{-0.053}$	$1.037^{+0.056}_{-0.068}$	$1.582^{+0.192}_{-0.553}$
	+1%/-1%	+1%/-3%	+107%/-107%	+16%/-5%	+5%/-7%	+12%/-35%
Source	SPE90	SPE90	SPE90	DSEP		

KIC = Kepler Input Catalog; PHO = Photometry; SPE = Spectroscopy; AST = Asteroseismology  
 TRA = Transits; DESP = Dartmouth Models; MULT = Multiple Models

### Secondary Eclipse Parameters for KIC 003962243-03 / KOI 1203.03

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	$A_{obs}$
DV	-184±36	$4.78^{+3.83}_{-3.20}$	$692^{+28}_{-16}$	$3623^{+2019}_{-599}$	$299^{+2515}_{-208}$
Alt.	-187±47	$4.34^{+3.65}_{-2.86}$	$691^{+28}_{-17}$	$3782^{+1976}_{-698}$	$377^{+2648}_{-271}$

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



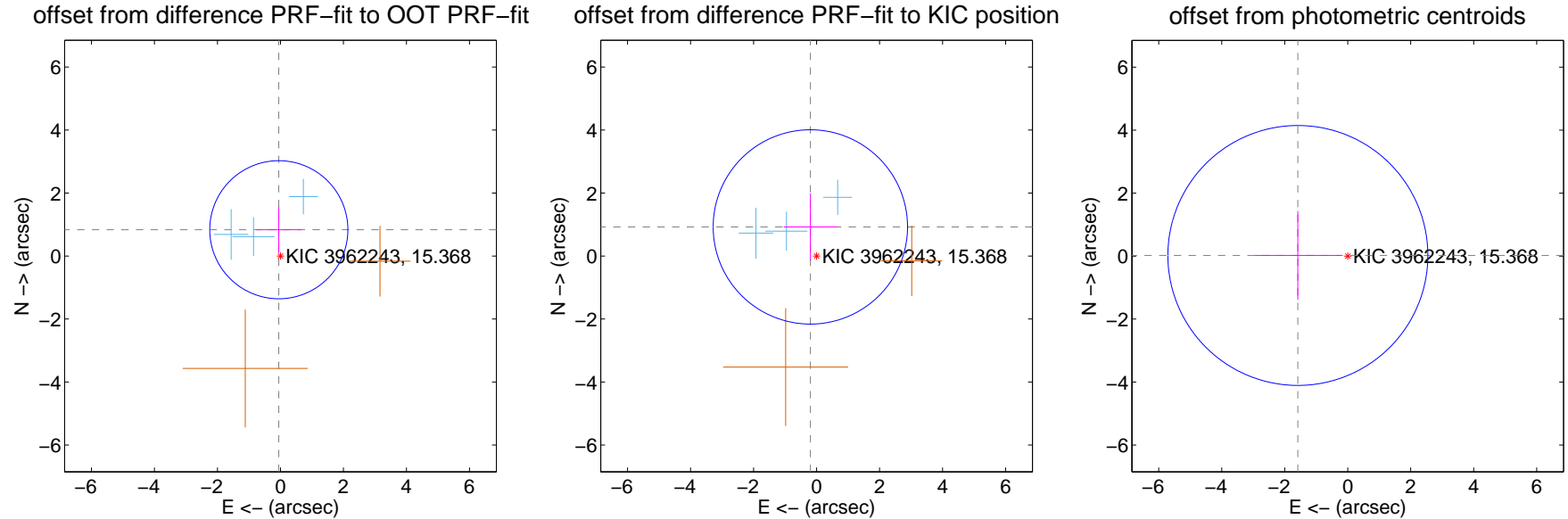
## DV Centroid Data

Supplemental centroid analysis for 003962243-03. Kepler magnitude: 15.37. Transit SNR 10.85

There are 3 quarters with good PRF difference image offsets

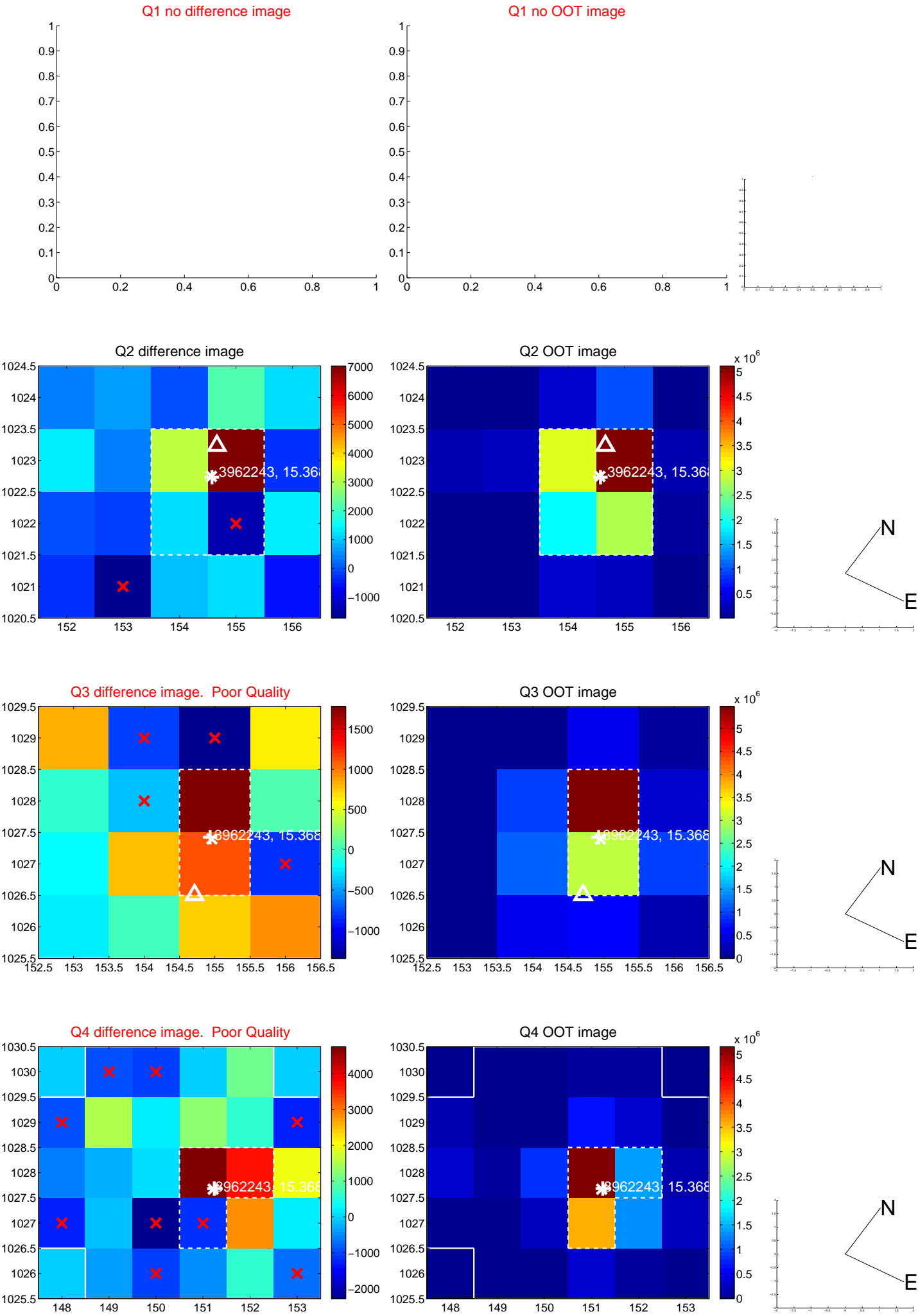
The direct PRF centroid is offset from the target star catalog position by about 0.14 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$0.836 \pm 0.731$	1.14	$0.052 \pm 0.710$	$0.835 \pm 0.734$
PRF-fit source offset from KIC position	$0.944 \pm 1.028$	0.92	$0.197 \pm 0.850$	$0.923 \pm 1.062$
photometric centroid source offset	$1.58 \pm 1.38$	1.15	$1.58 \pm 1.38$	$0.02 \pm 1.41$

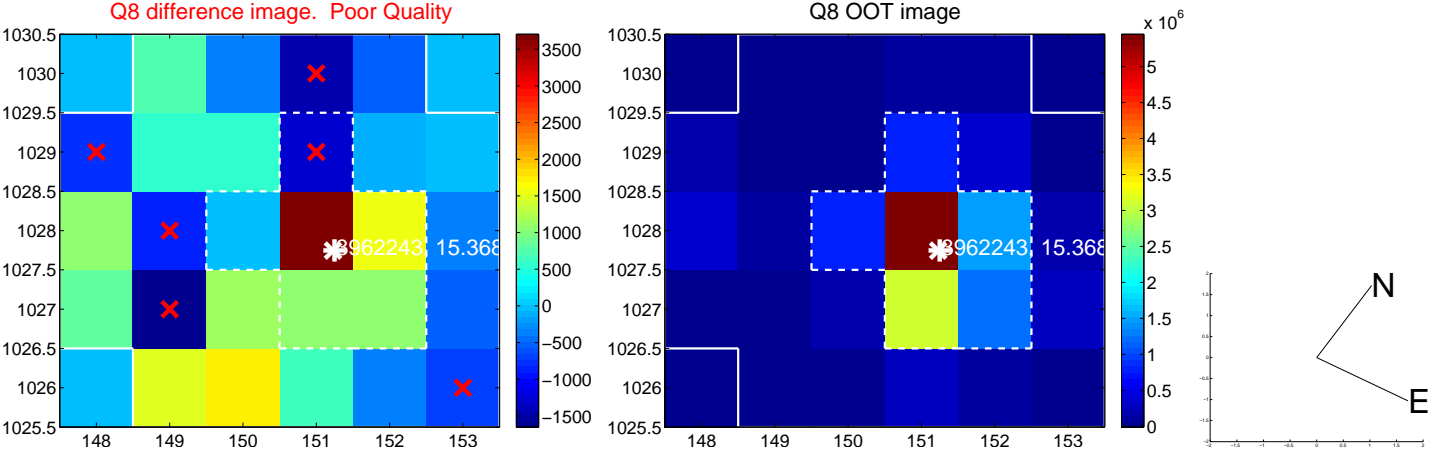
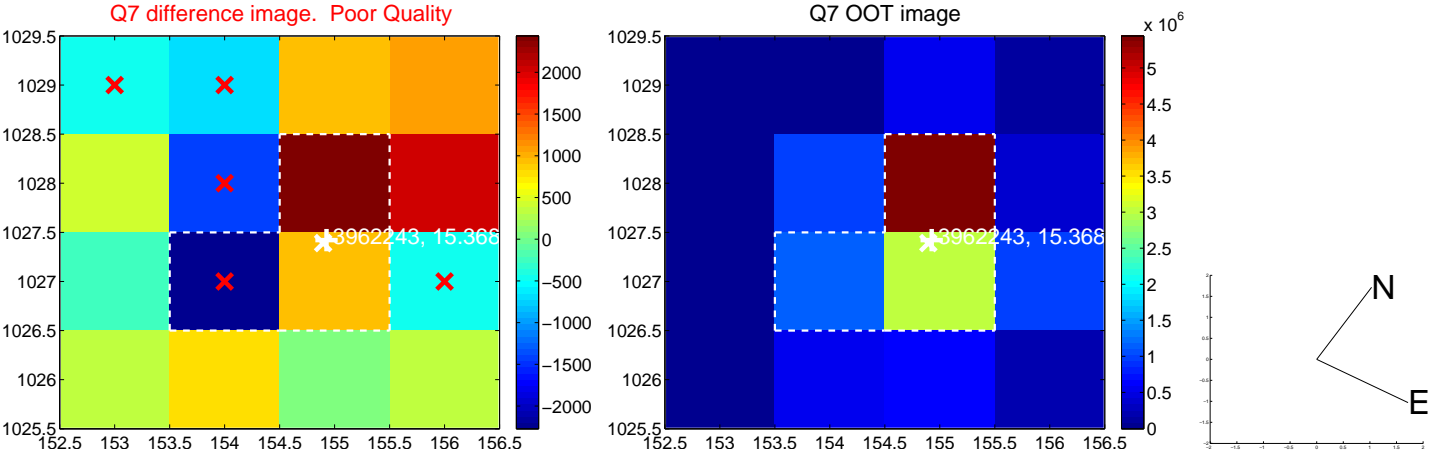
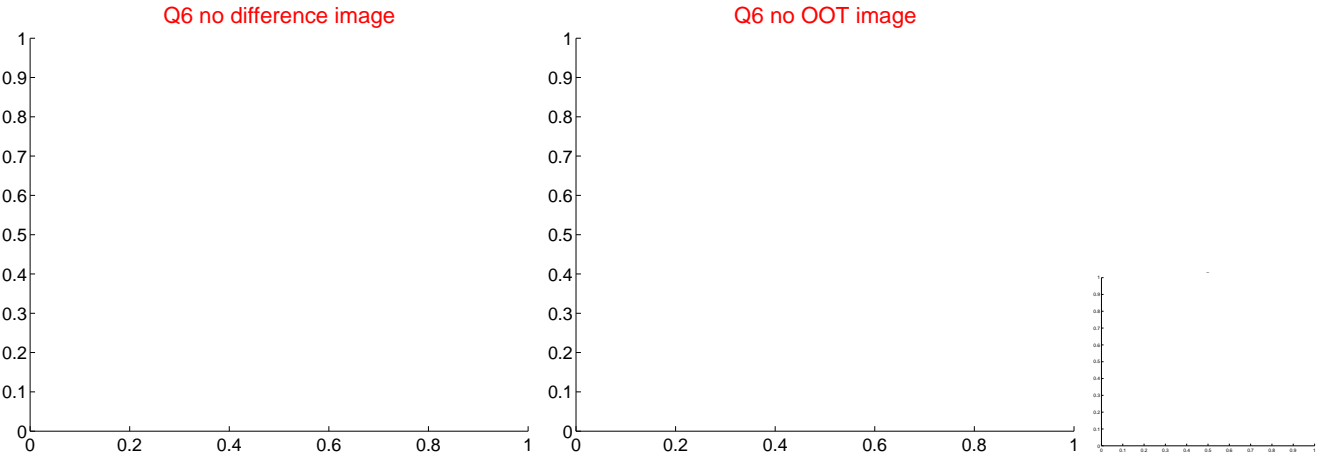
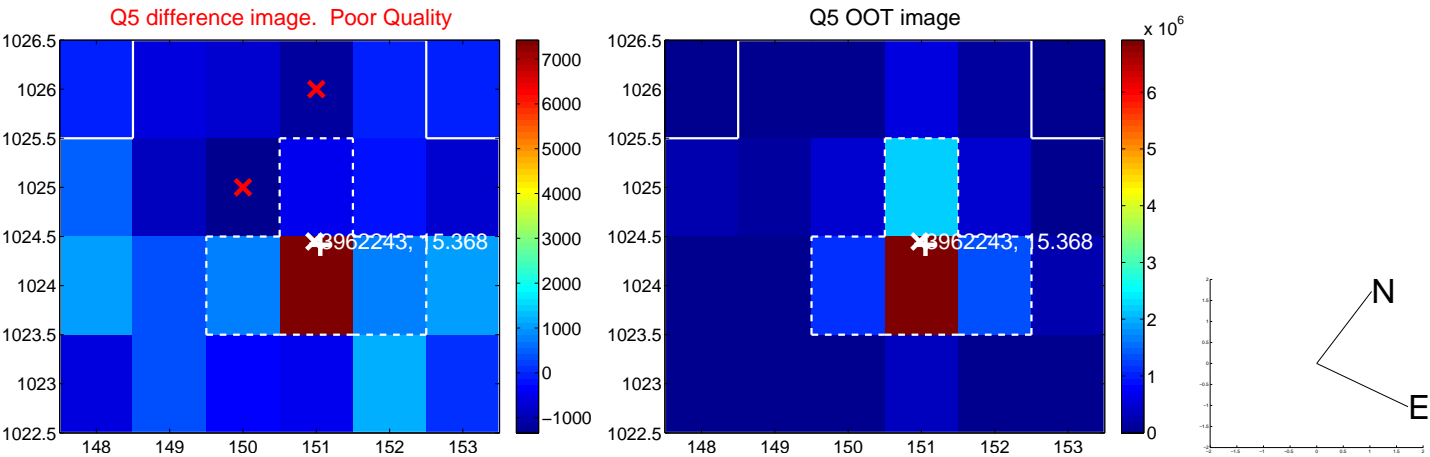


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: three-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

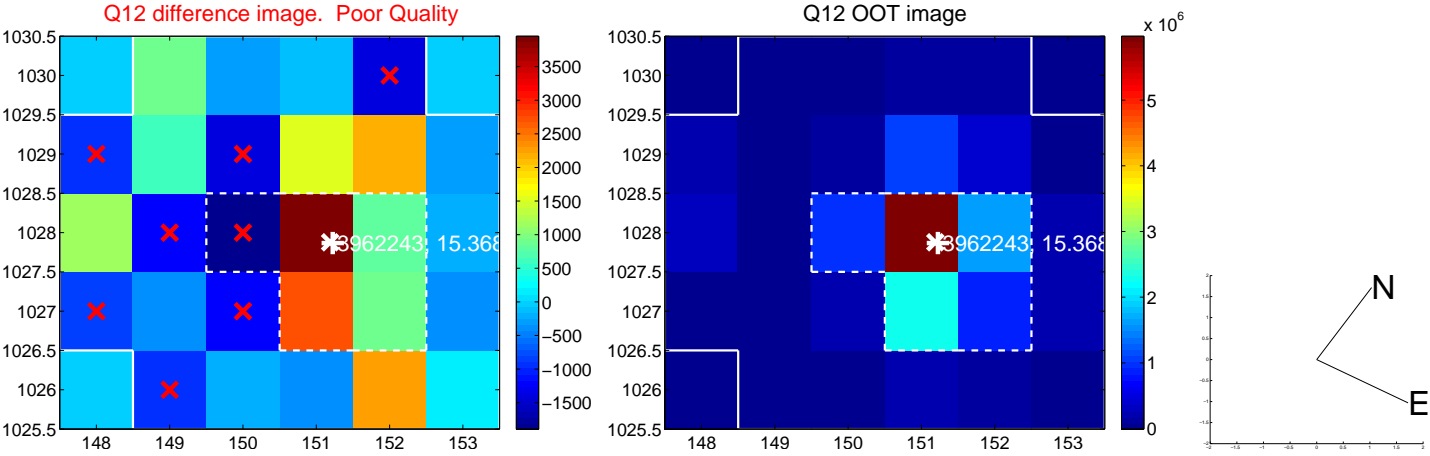
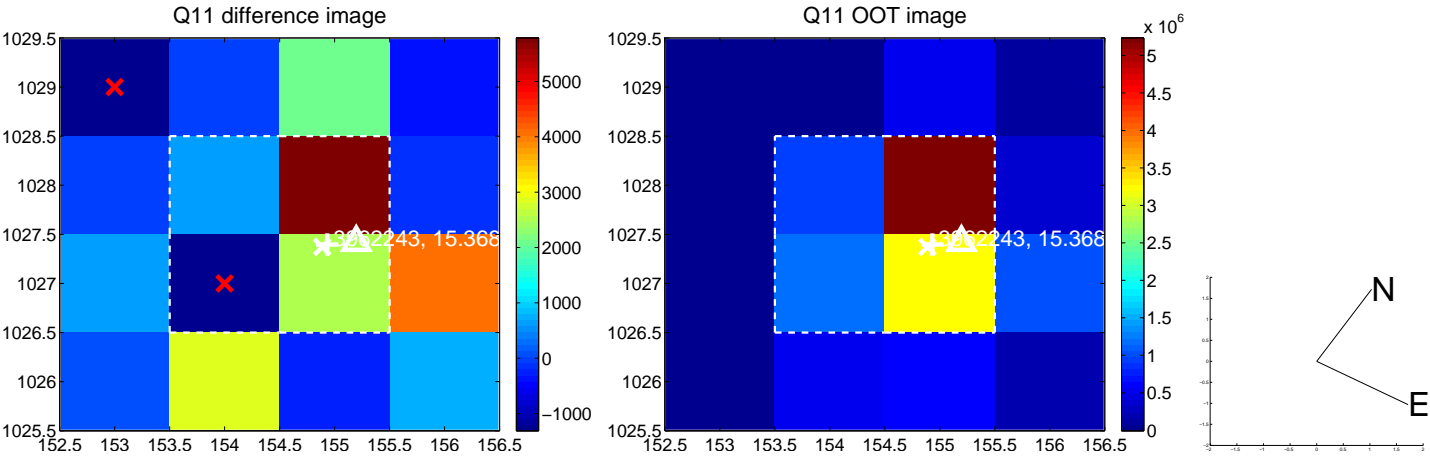
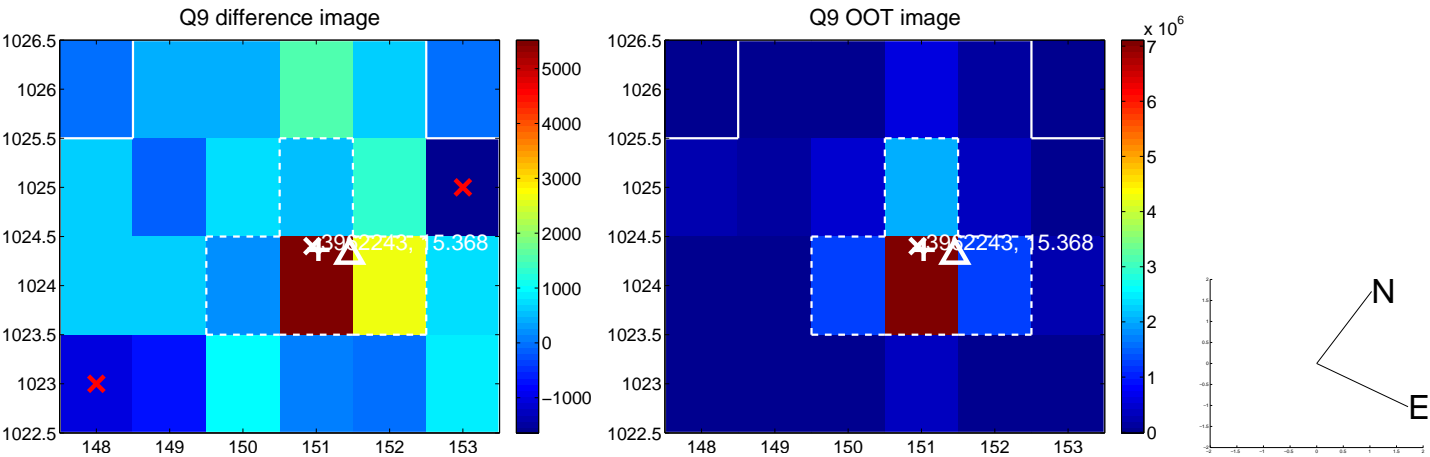
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



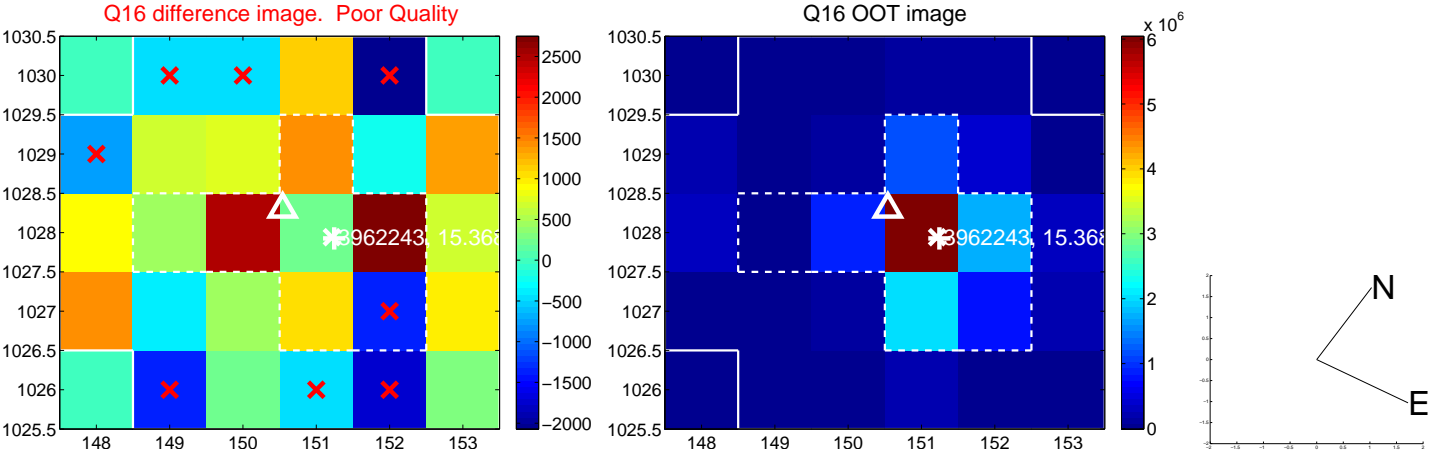
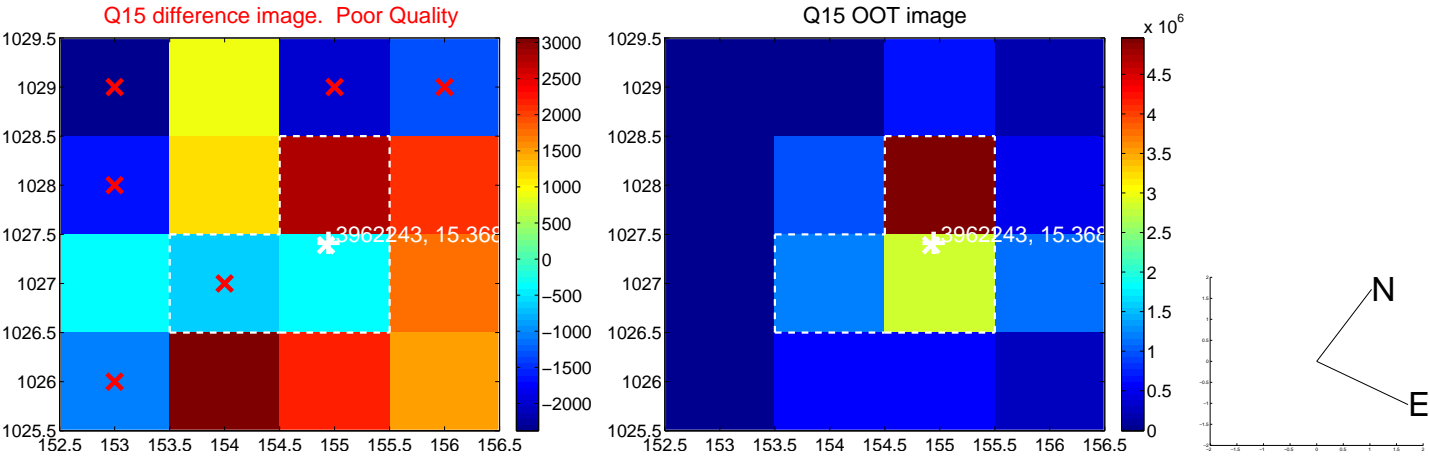
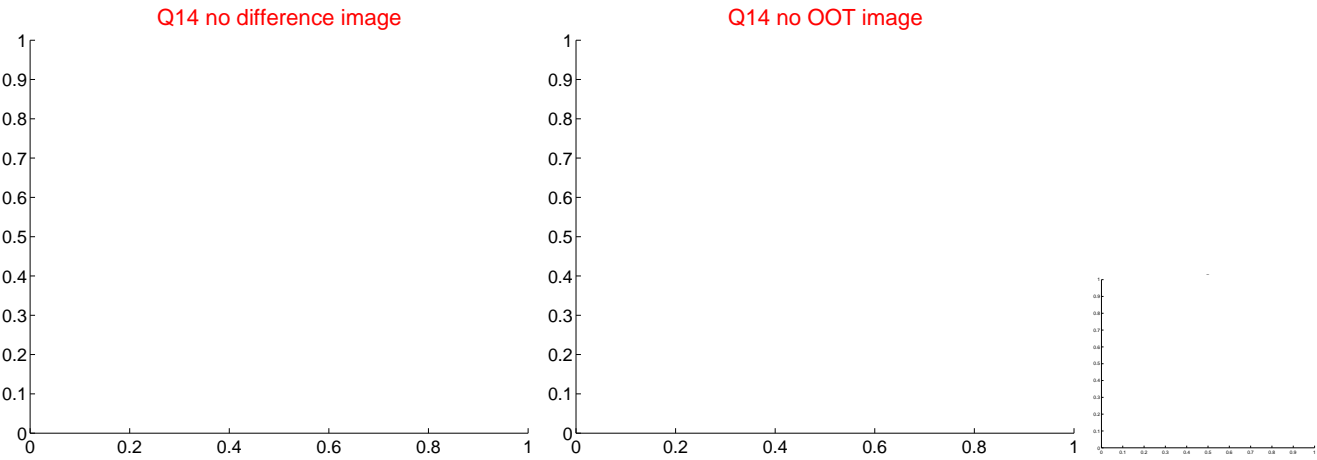
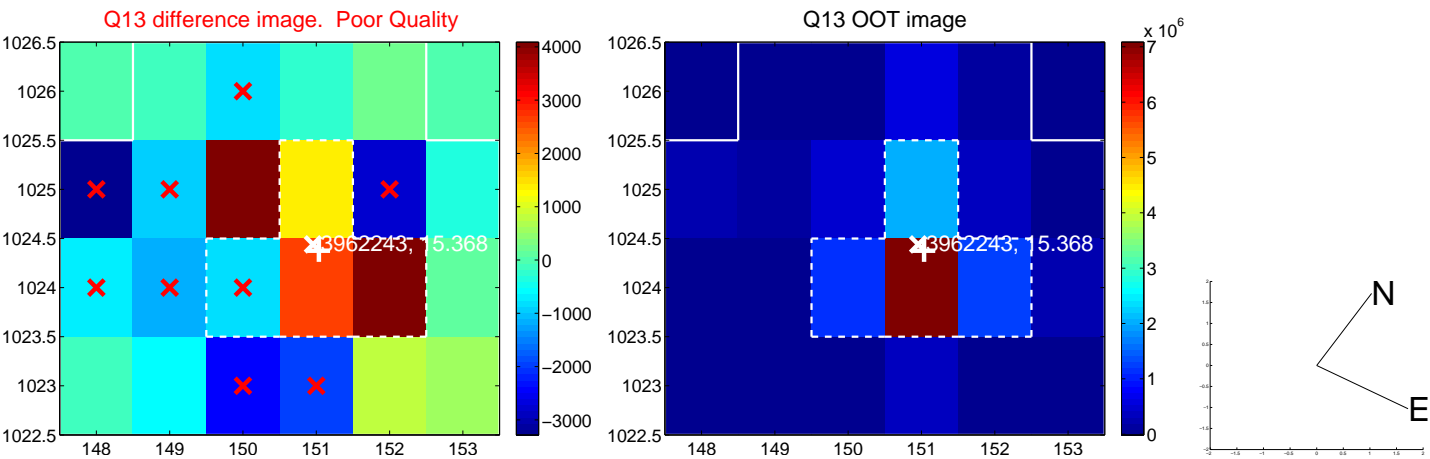
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



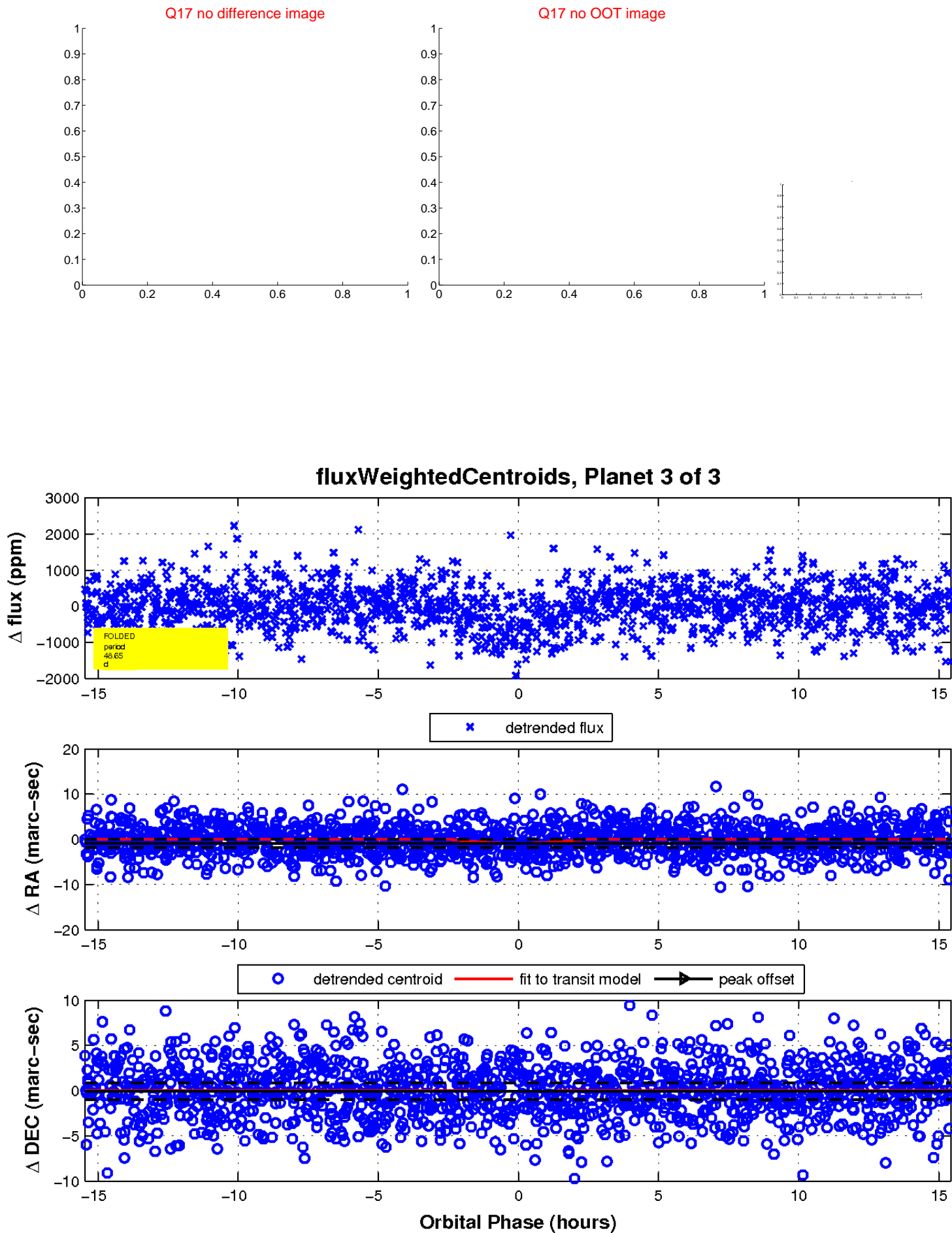
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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

