

# KIC 003662838

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
003662838-01	OBS	0302.01	24.854594	149.146740	732.0	9.013	75.0	73.7	2.53	6967	7.26	340.10
003662838-02	OBS	No	5.489431	136.003088	22.6	22.912	8.9	5.7	2.53	6967	1.38	2547.48
003662838-03	OBS	No	5.494409	132.610414	38.6	16.255	7.8	8.8	2.53	6967	1.76	2544.41

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
003662838-01	OBS	PC	1.00	0	0	0	0	NO_COMMENT
003662838-02	OBS	FP	0.00	1	0	0	0	LPP_DV
003662838-03	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT

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

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

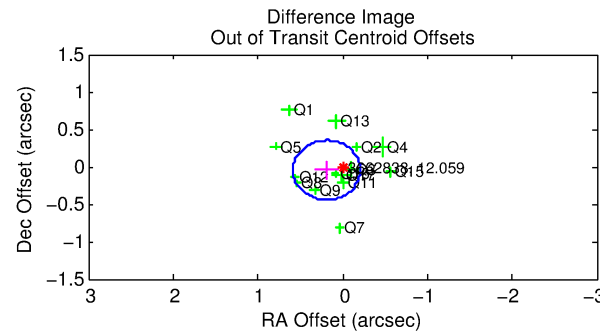
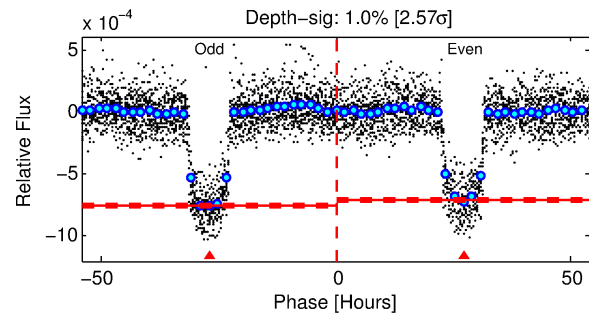
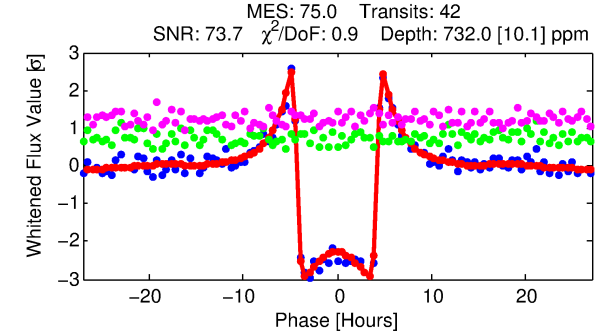
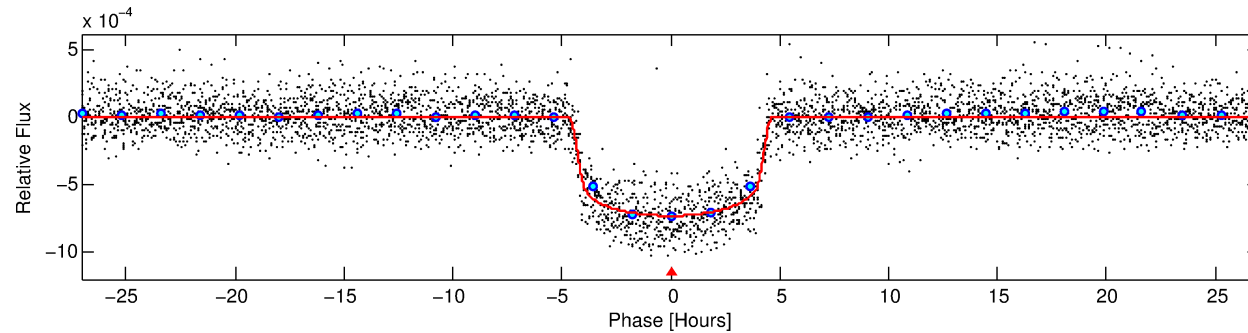
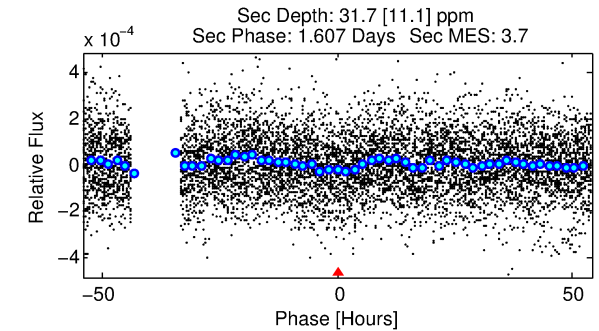
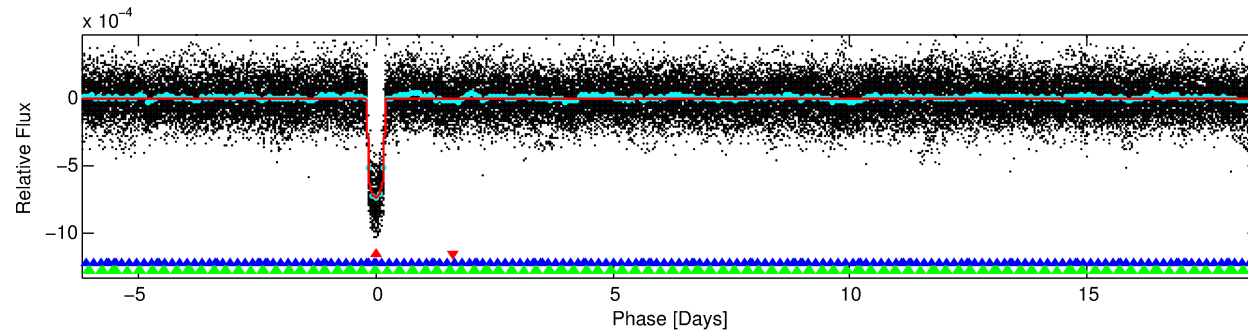
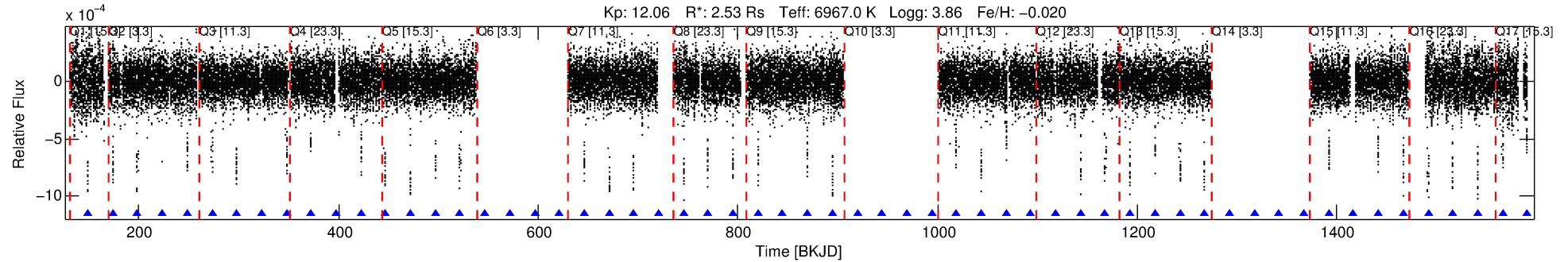
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

Ephemeris Match Information For 003662838-01

No Significant Match Found

# DV One-Page Summary

KIC: 3662838 Candidate: 1 of 3 Period: 24.855 d  
KOI: K00302.01 Corr: 0.997



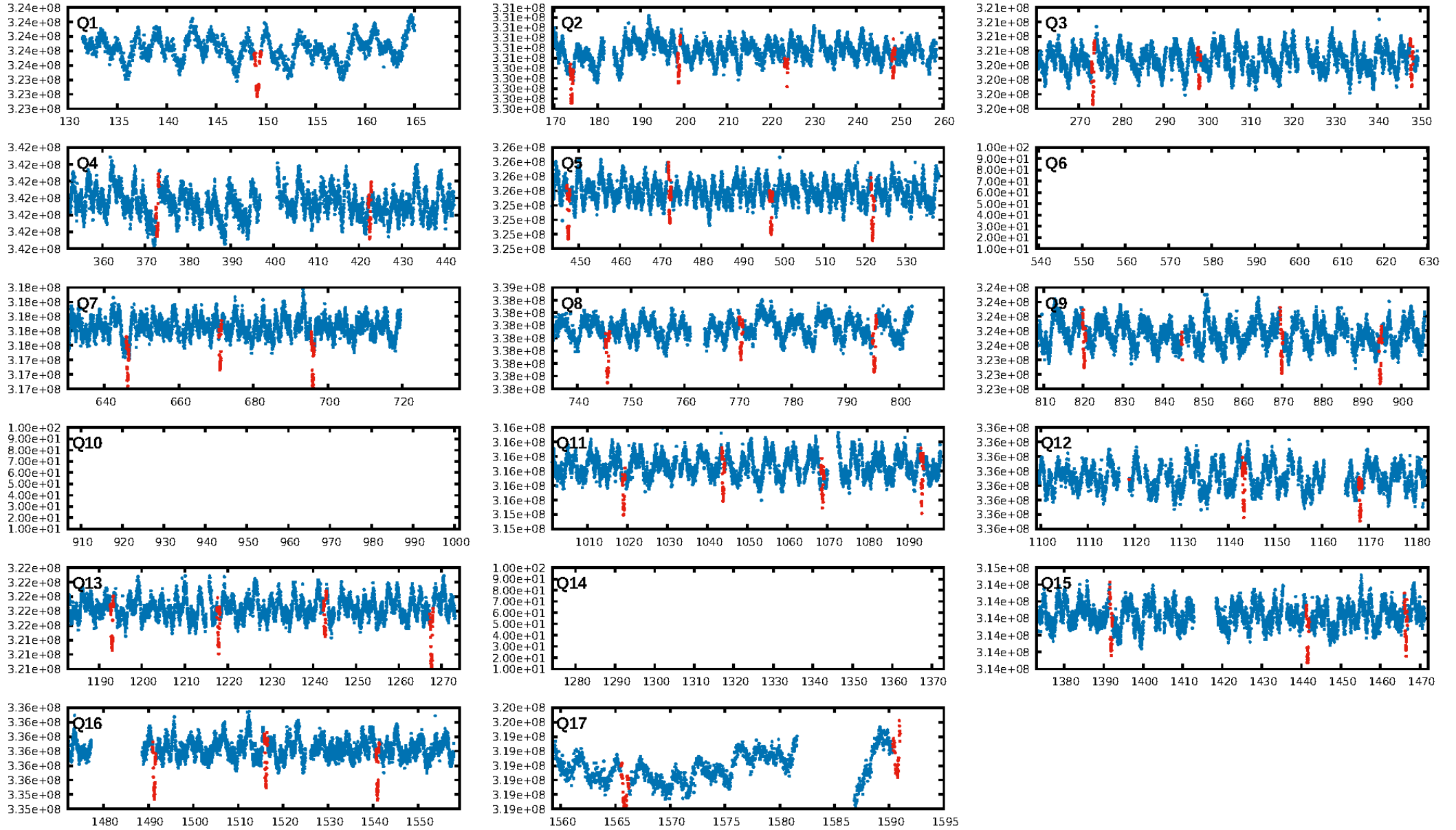
## DV Fit Results:

Period = 24.85459 [0.00003] d  
Epoch = 149.1467 [0.0009] BKJD  
Rp/R\* = 0.0263 [0.0006]  
a/R\* = 16.53 [1.85]  
b = 0.66 [0.10]  
Seff = 340.10 [161.60]  
Teq = 1095 [130] K  
Rp = 7.26 [2.45] Re  
a = 0.1991 [0.0597] AU  
Ag = 13.11 [7.57] [1.60σ]  
Teffp = 3221 [304] K [6.43σ]

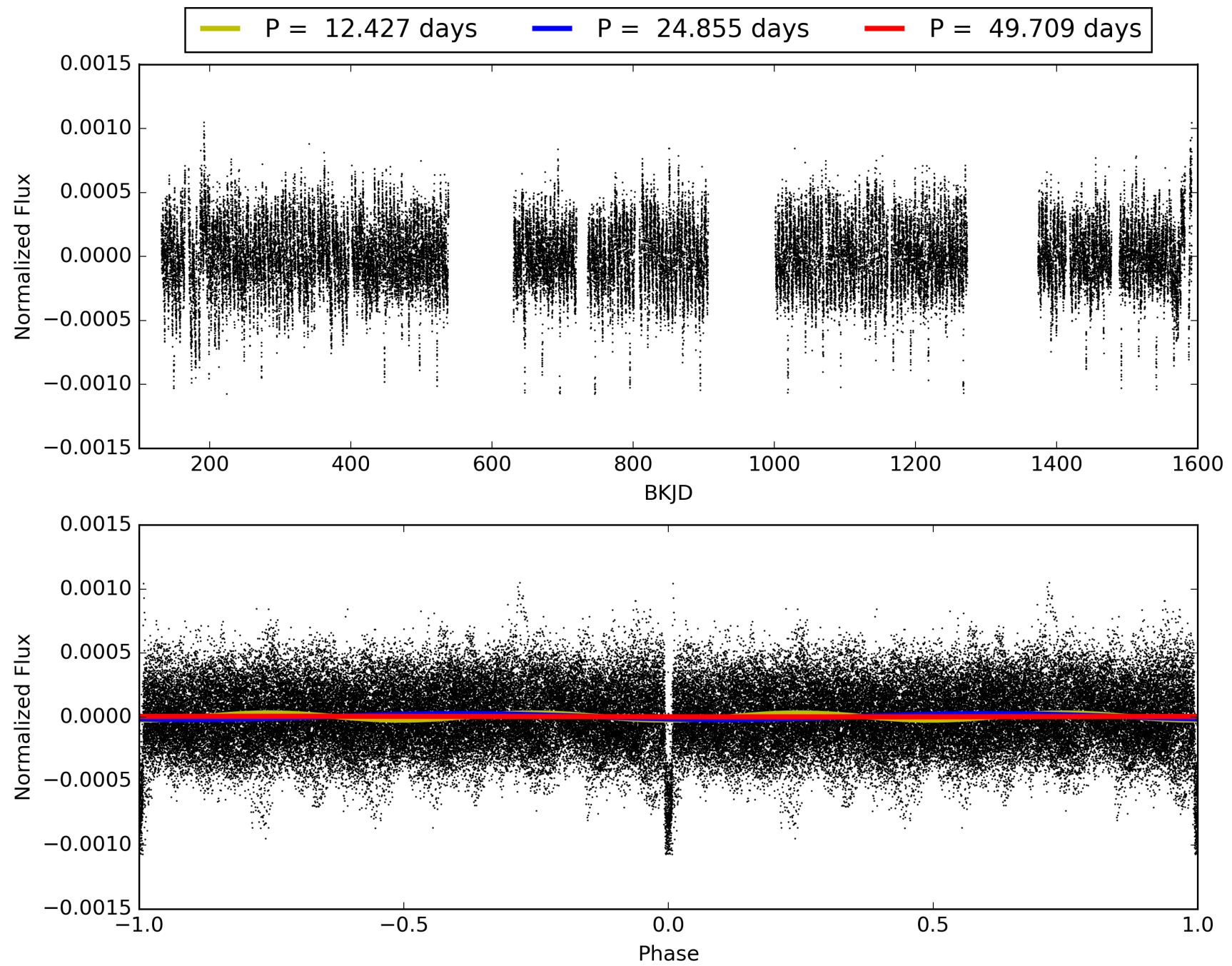
## DV Diagnostic Results:

ShortPeriod-sig: 100.0% [25.00σ]  
LongPeriod-sig: N/A  
ModelChiSquare2-sig: 63.6%  
ModelChiSquareGof-sig: 100.0%  
Bootstrap-pfa: 0.00e+00  
RollingBand-fgt: 1.00 [39/39]  
GhostDiagnostic-chr: 2.663  
Centroid-sig: 1.3%  
Centroid-so: 0.187 arcsec [2.63σ]  
OotOffset-rm: 0.196 arcsec [1.48σ]  
KicOffset-rm: 0.184 arcsec [1.39σ]  
OotOffset-st: 1/4/4/5 [14]  
KicOffset-st: 1/4/4/5 [14]  
DiffImageQuality-fgm: 1.00 [14/14]  
DiffImageOverlap-fno: 0.29 [4/14]

# TCE 003662838-01, PDC Light Curves



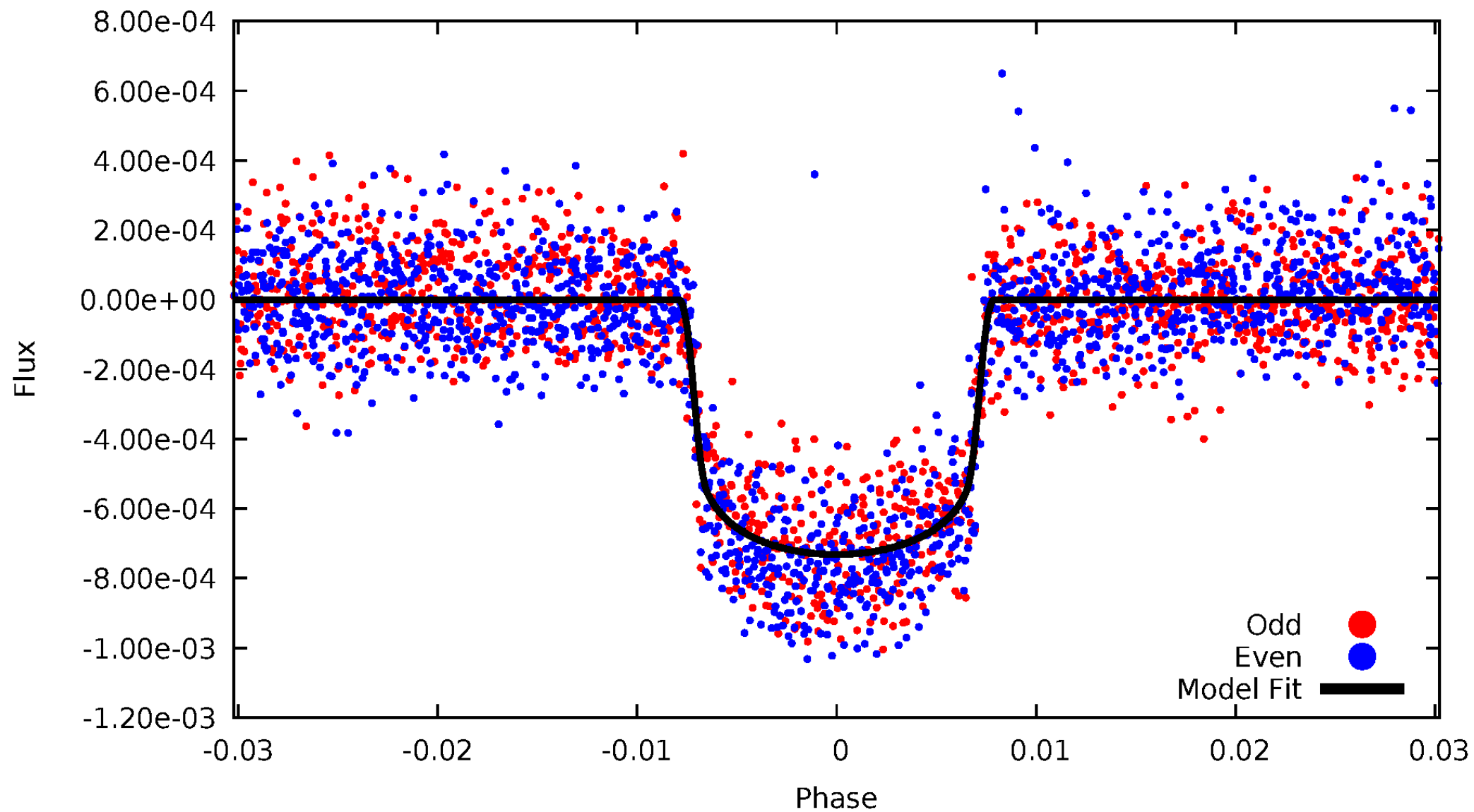
TCE 003662838-01





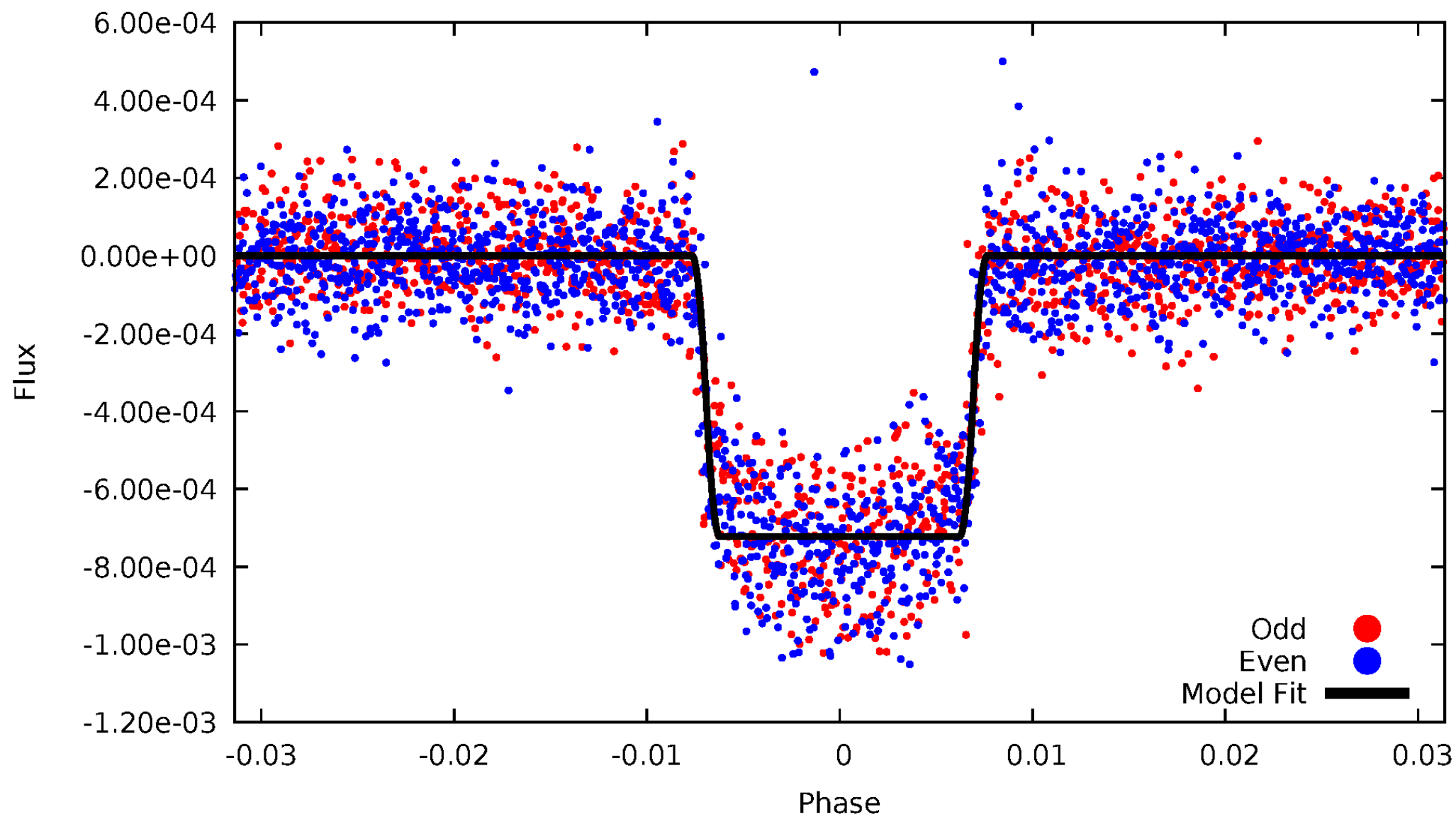
# DV Odd/Even

TCE 003662838-01

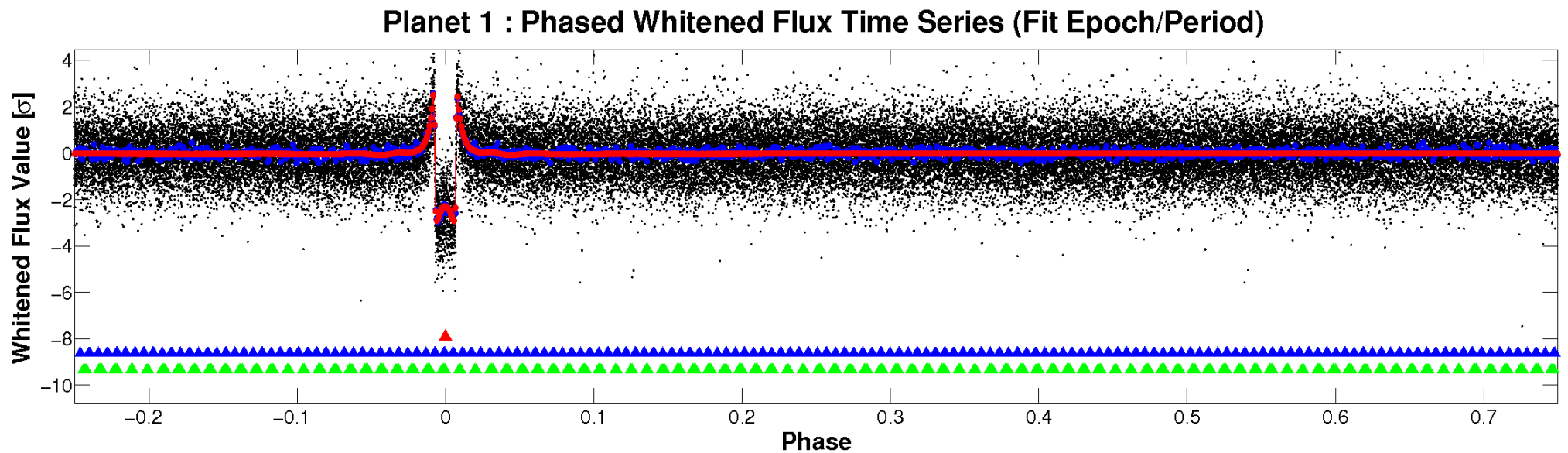
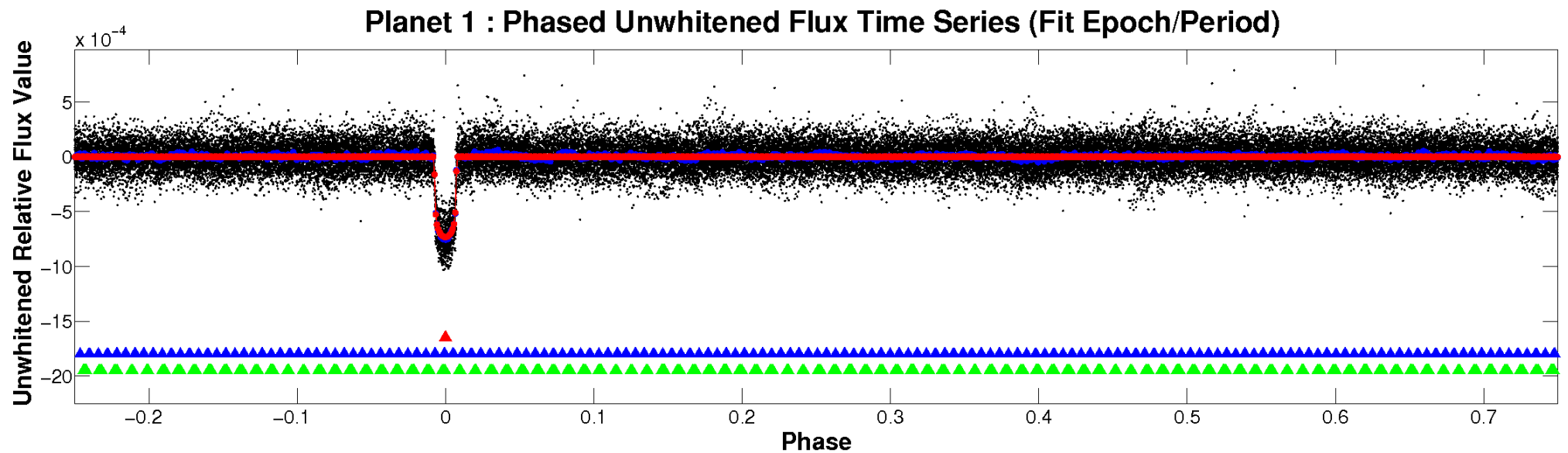


# ALT Odd/Even

TCE 003662838-01

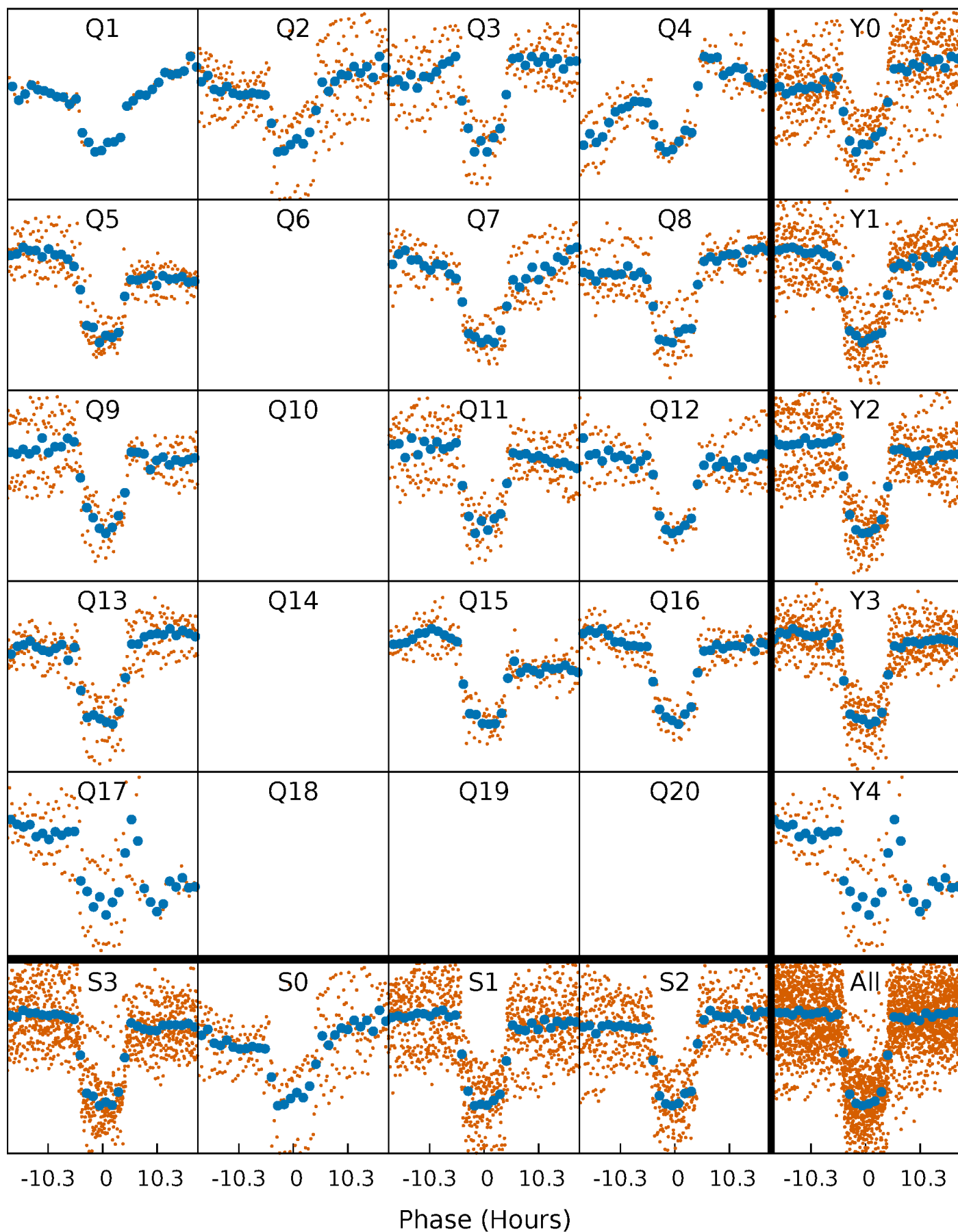


# Non-Whitened Vs. Whitened Light Curve



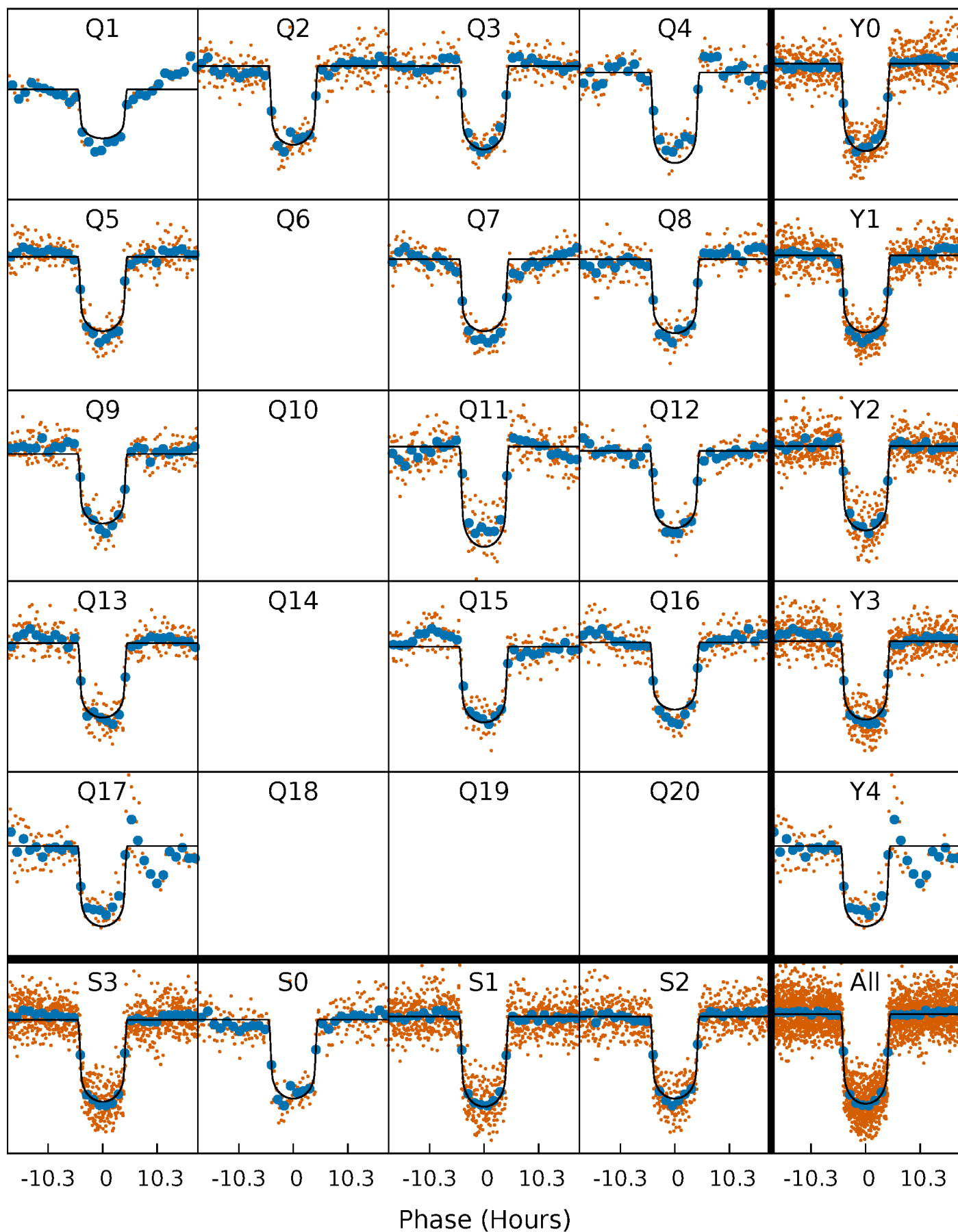
# PDC Quarter-Phased Transit Curves

TCE 003662838-01 P= 24.854594 Days  $T_0=149.146740$  (BKJD)



# DV Quarter-Phased Transit Curves

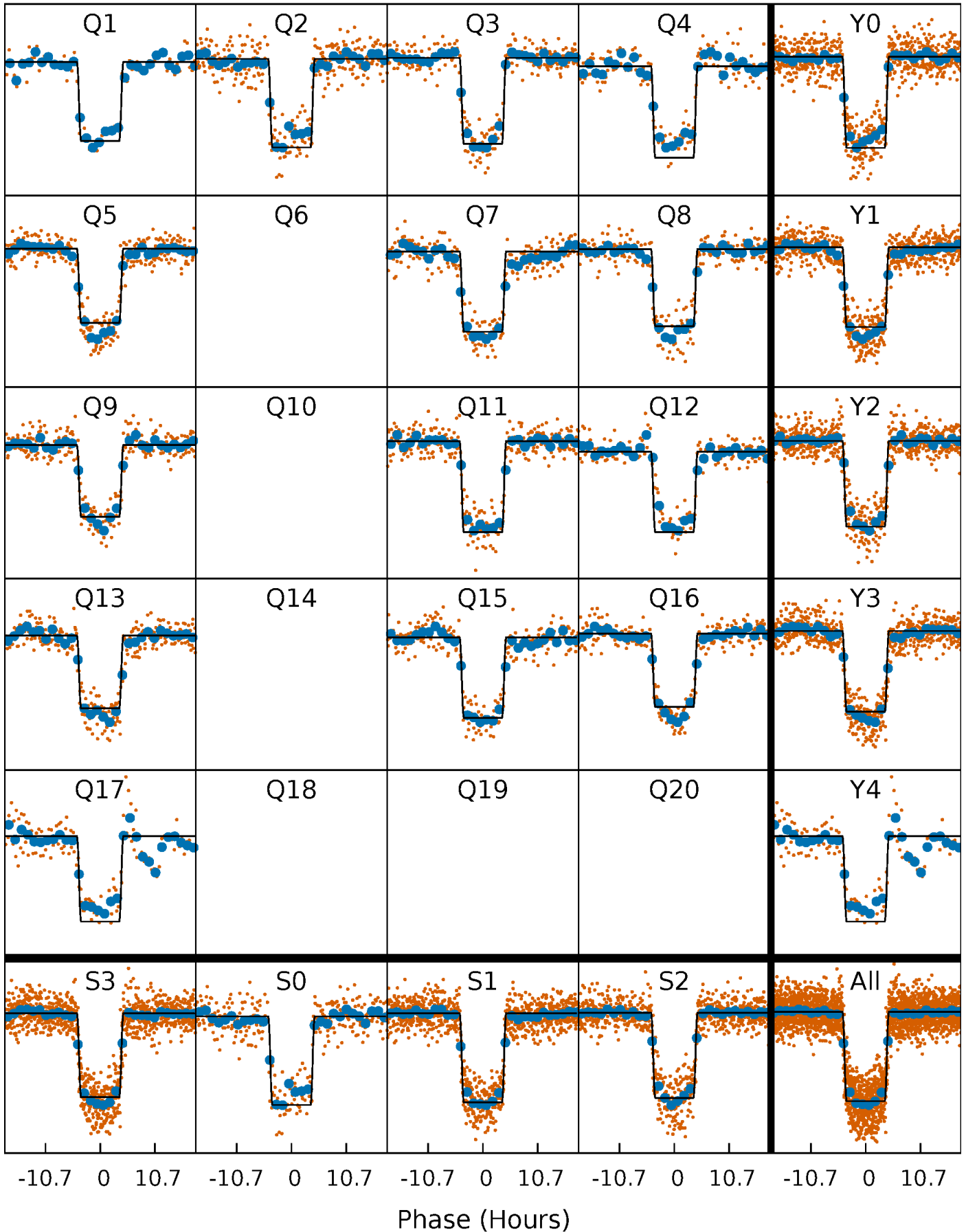
TCE 003662838-01   P= 24.854594 Days    $T_0=149.146740$  (BKJD)





## Alt. Detrend Quarter-Phased Transit Curves

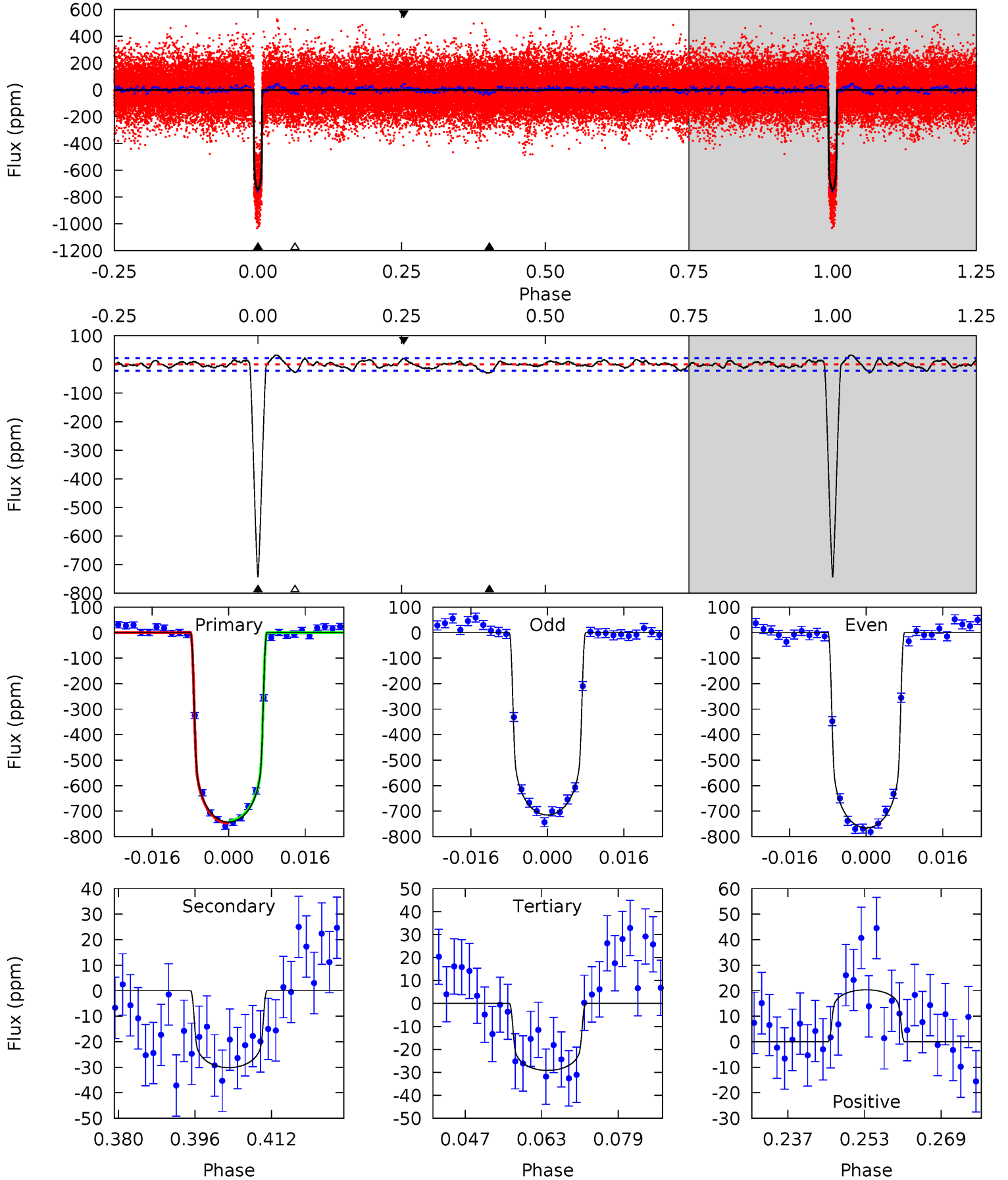
TCE 003662838-01   P= 24.854418 Days    $T_0=149.152753$  (BKJD)



# DV Model-Shift Uniqueness Test

003662838-01, P = 24.854594 Days, E = 124.292146 Days

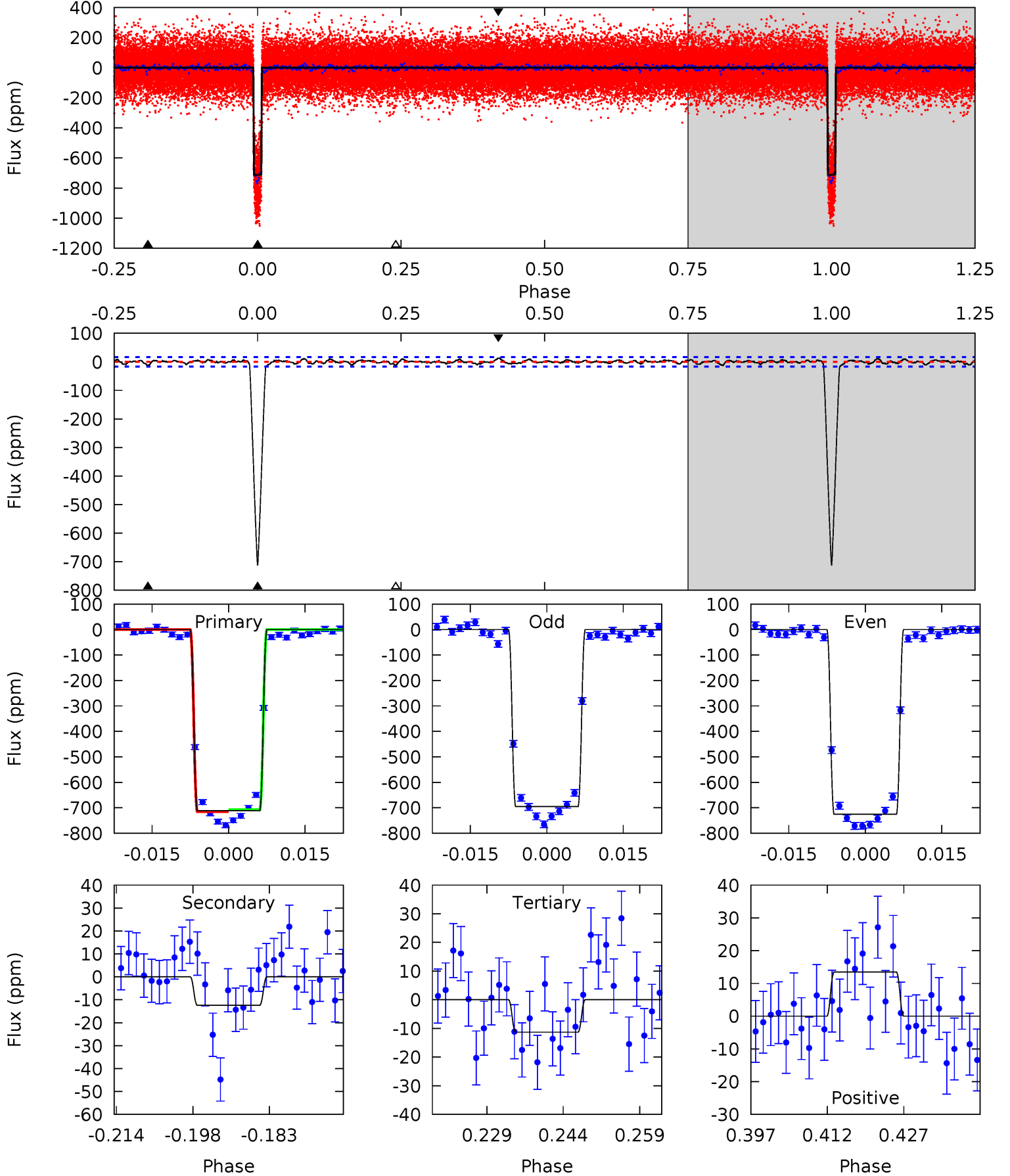
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
168.7	6.85	6.63	4.62	4.94	2.41	2.16	162.1	164.1	0.22	2.22	5.77	0.96	0.04	0.96



# Alt Model-Shift Uniqueness Test

003662838-01, P = 24.854418 Days, E = 124.298335 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
213.1	3.73	3.39	4.03	4.94	2.43	1.26	209.7	209.1	0.34	-0.30	4.47	1.02	0.02	1.21



### Stellar Parameters For KIC 003662838

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R$ ( $R_{\odot}$ )	$M(M_{\odot})$	$p_{\star}$ ( $\text{g}\cdot\text{cm}^{-3}$ )
	$6967^{+167}_{-229}$	$3.864^{+0.259}_{-0.111}$	$-0.020^{+0.250}_{-0.350}$	$2.527^{+0.458}_{-0.851}$	$1.700^{+0.149}_{-0.349}$	$0.148^{+0.252}_{-0.051}$
	+2%/-3%	+7%/-3%	+1250%/-1750%	+18%/-34%	+9%/-21%	+170%/-34%
Source	PHO1	FLK73	KIC0	DSEP		

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

### Secondary Eclipse Parameters for KIC 003662838-01 / KOI 0302.01

Detrend	Depth (ppm)	$R_p$ ( $R_{\oplus}$ )	$T_{\text{max}}$ (K)	$T_{\text{obs}}$ (K)	$A_{\text{obs}}$
DV	$-30 \pm 4$	$7.09^{+0.80}_{-1.29}$	$1509^{+95}_{-131}$	$3592^{+111}_{-115}$	$13^{+6}_{-3}$
Alt.	$-12 \pm 3$	$7.25^{+0.89}_{-1.23}$	$1511^{+95}_{-125}$	$3097^{+123}_{-147}$	$5.097^{+2.596}_{-1.638}$

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

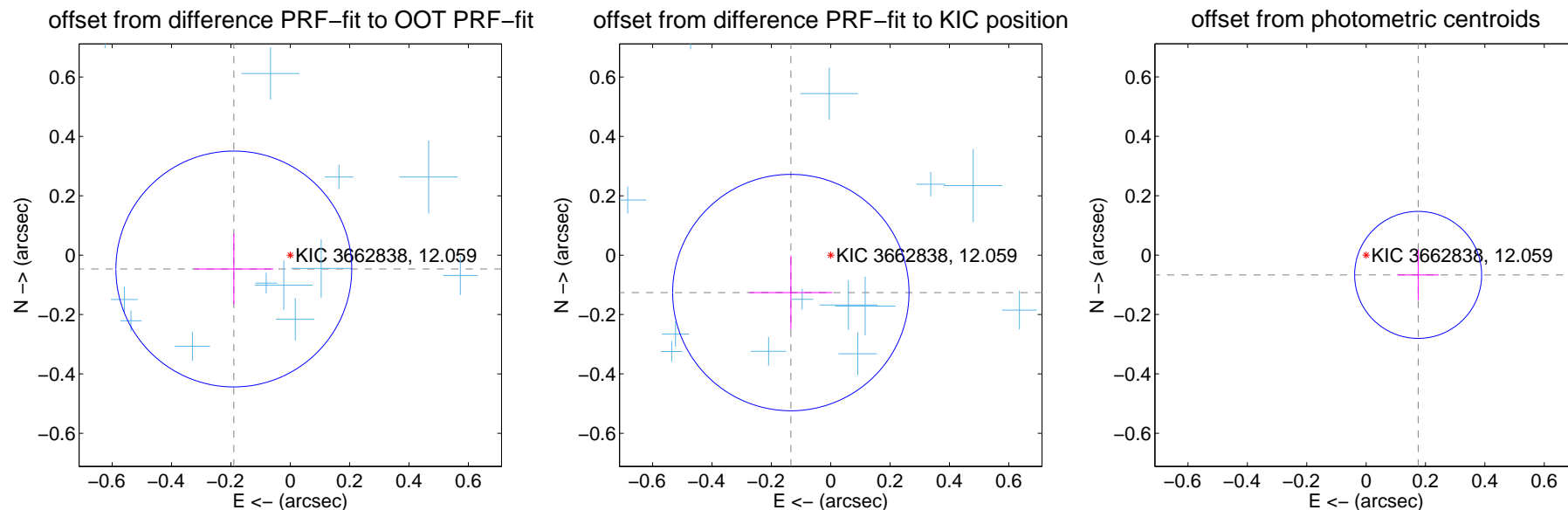
## DV Centroid Data

Supplemental centroid analysis for 003662838-01. Kepler magnitude: 12.06. Transit SNR 73.71

There are 14 quarters with good PRF difference image offsets

The direct PRF centroid is offset from the target star catalog position by about 0.11 arcsec

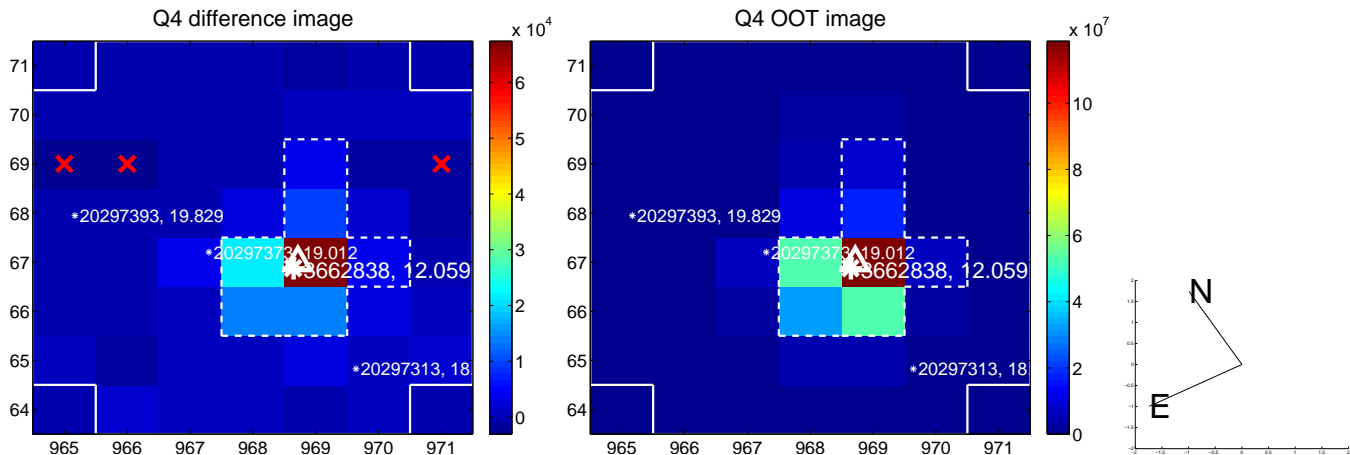
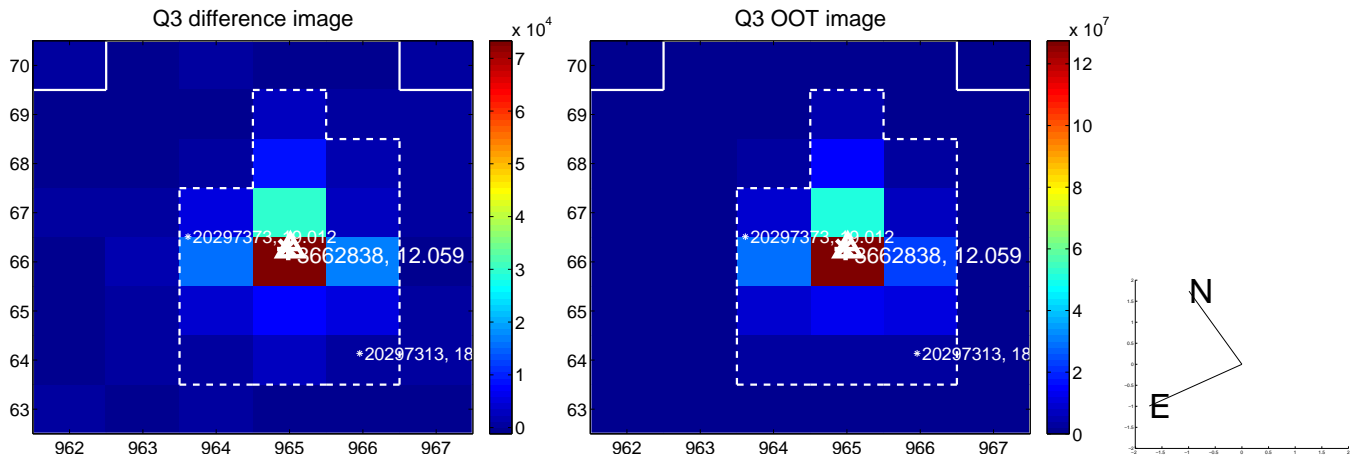
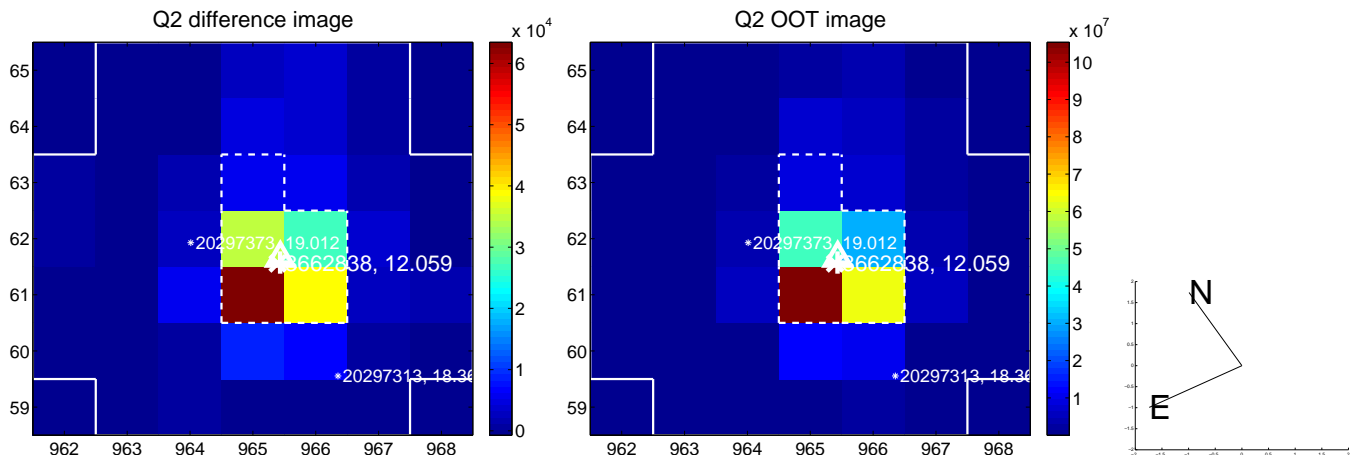
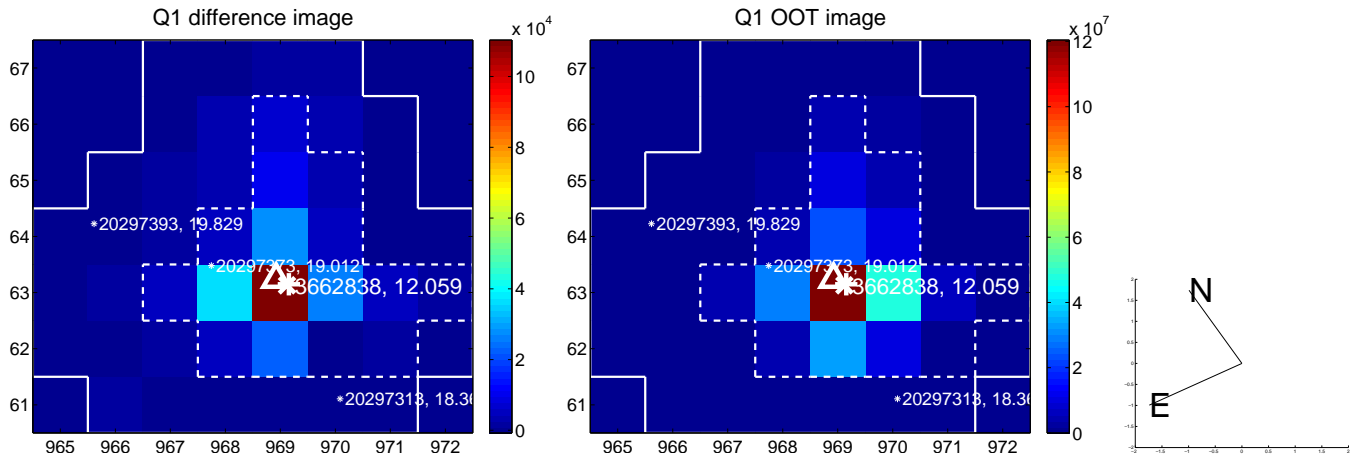
	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$0.196 \pm 0.132$	1.48	$0.190 \pm 0.133$	$-0.047 \pm 0.119$
PRF-fit source offset from KIC position	$0.184 \pm 0.133$	1.39	$0.134 \pm 0.140$	$-0.126 \pm 0.124$
photometric centroid source offset	$0.19 \pm 0.07$	2.63	$-0.18 \pm 0.07$	$-0.07 \pm 0.08$



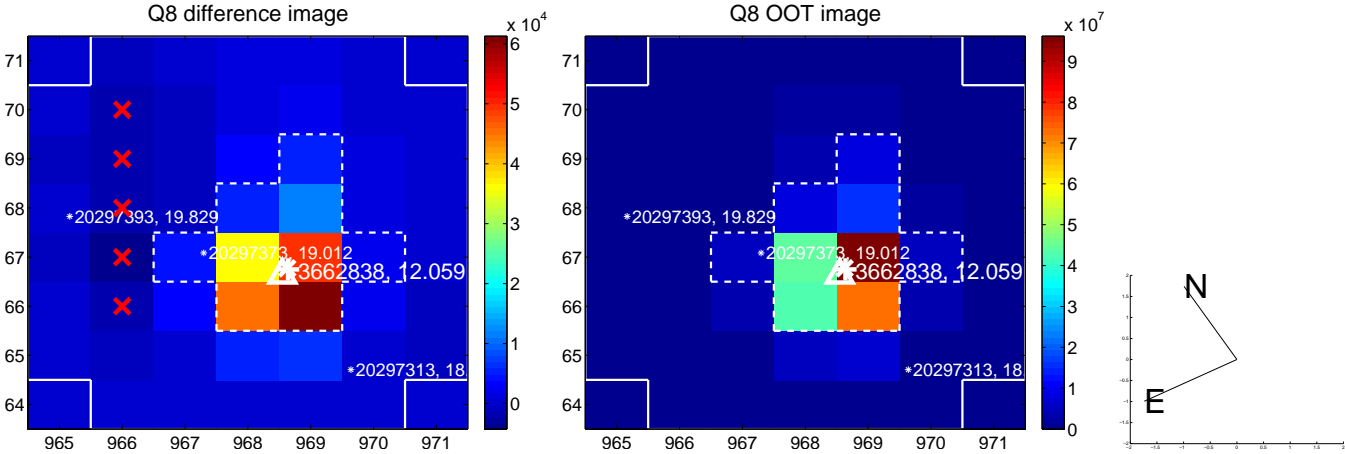
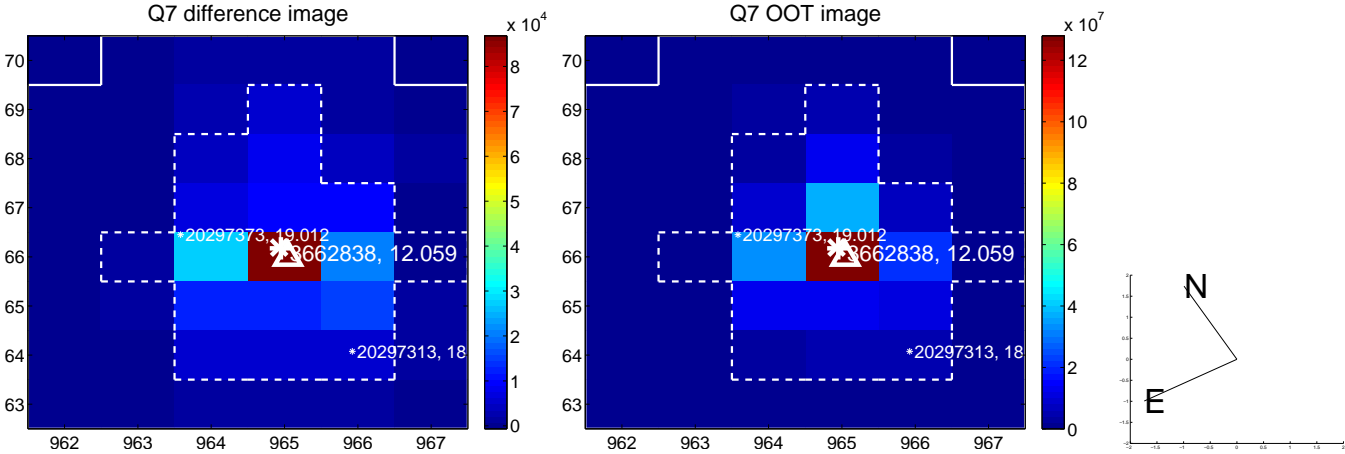
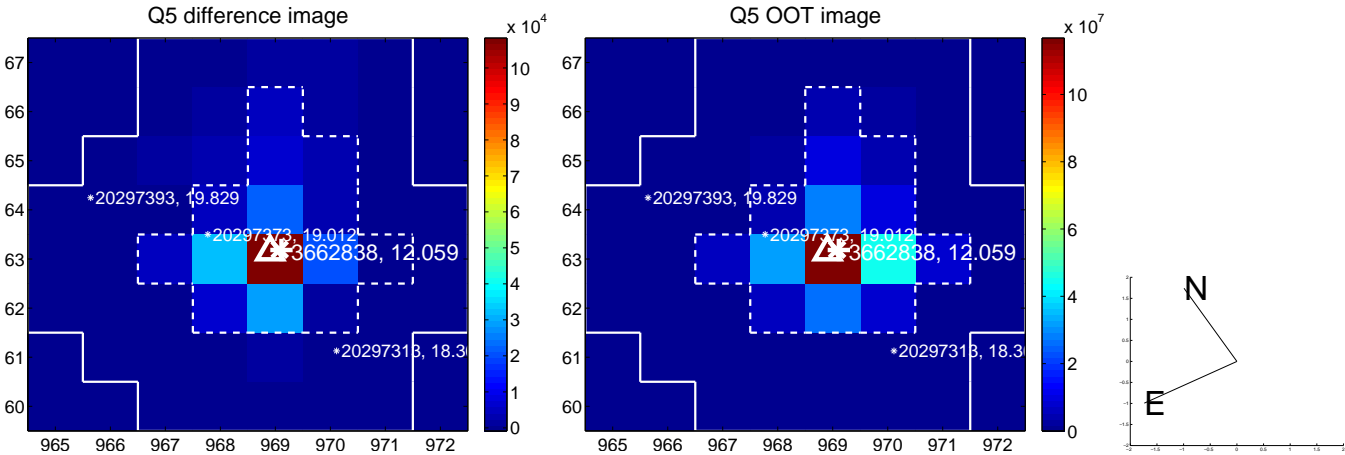
Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses:** good quarterly centroid offsets; **Vermillion crosses:** bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: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



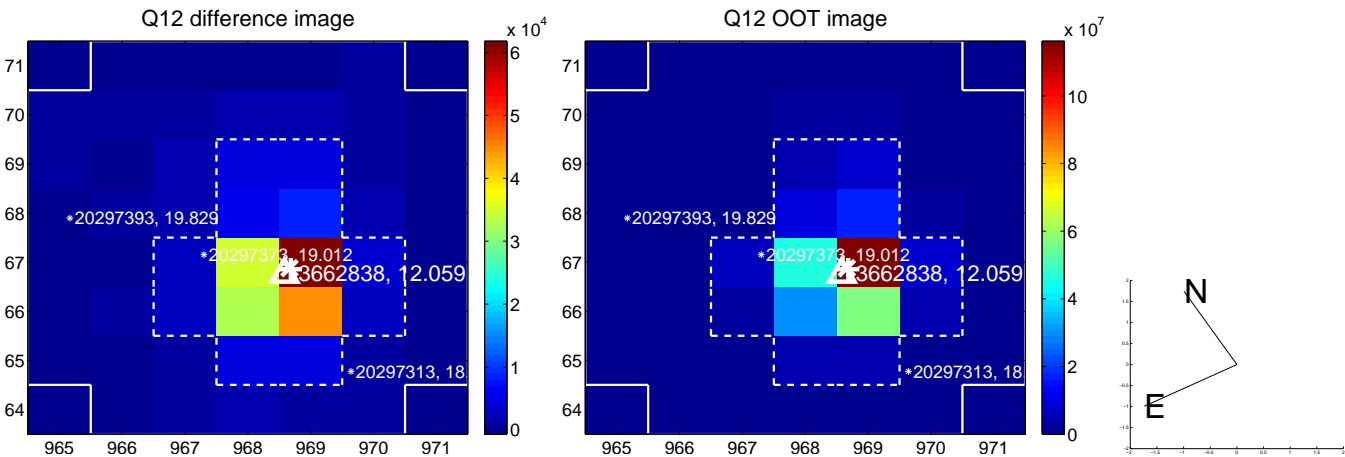
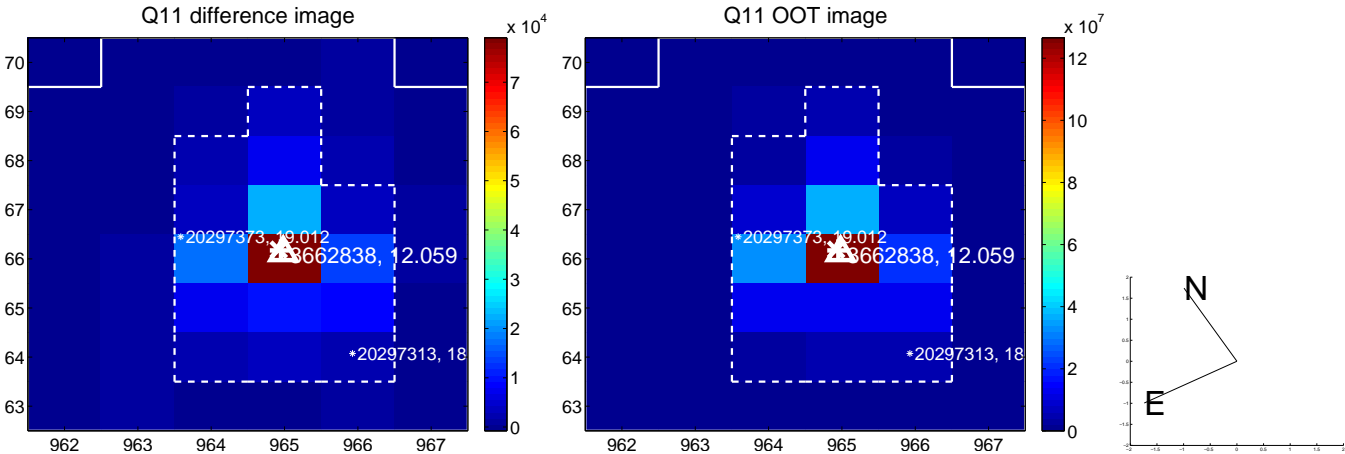
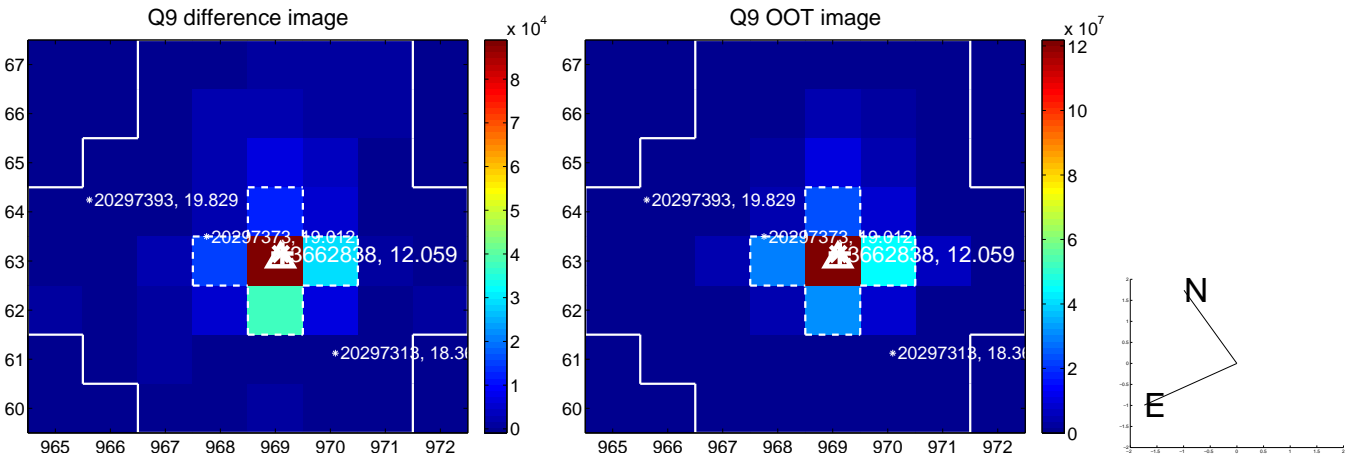
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



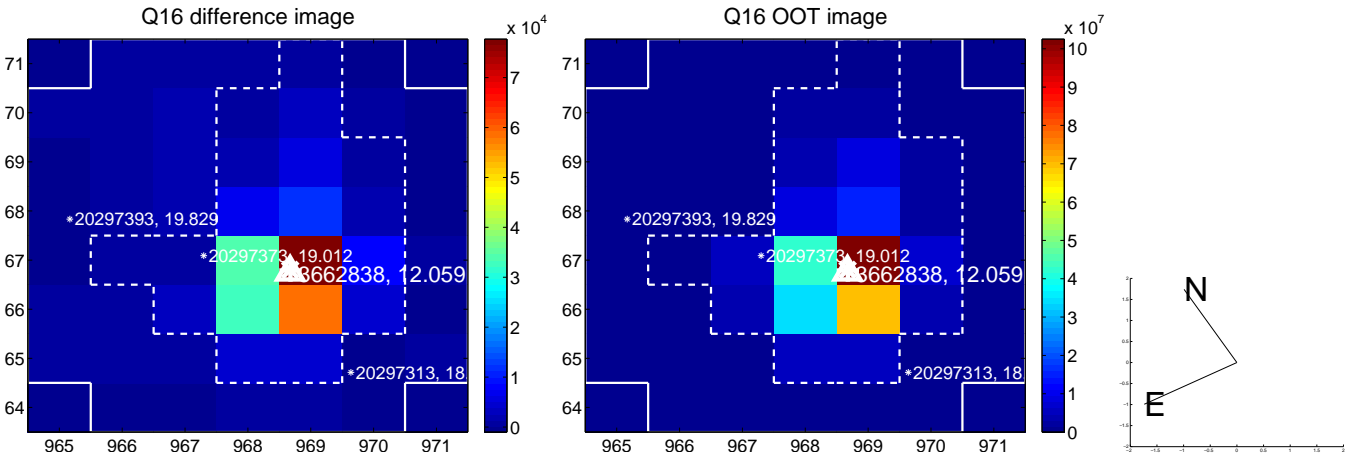
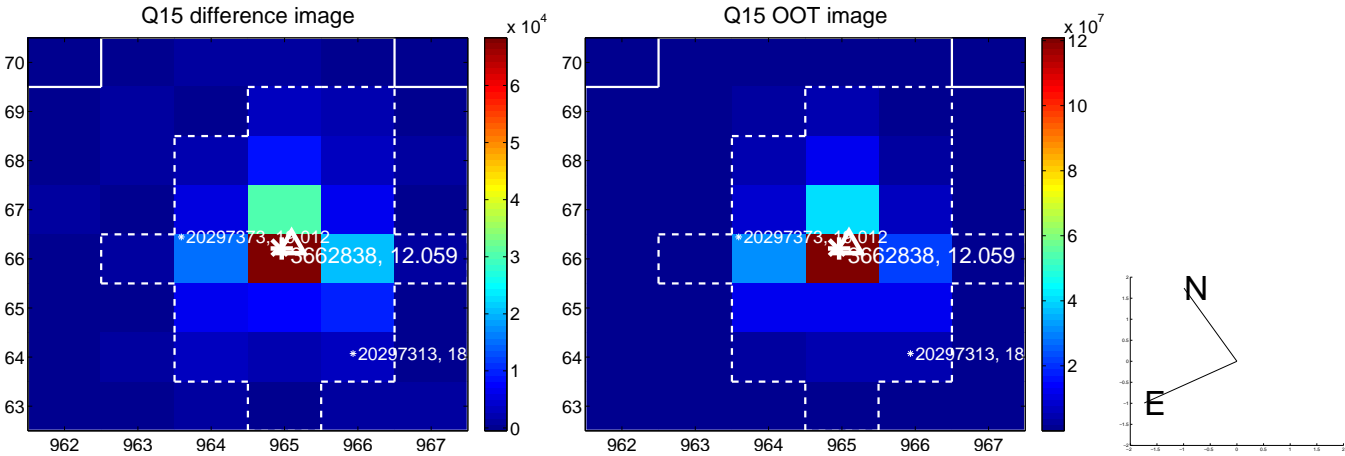
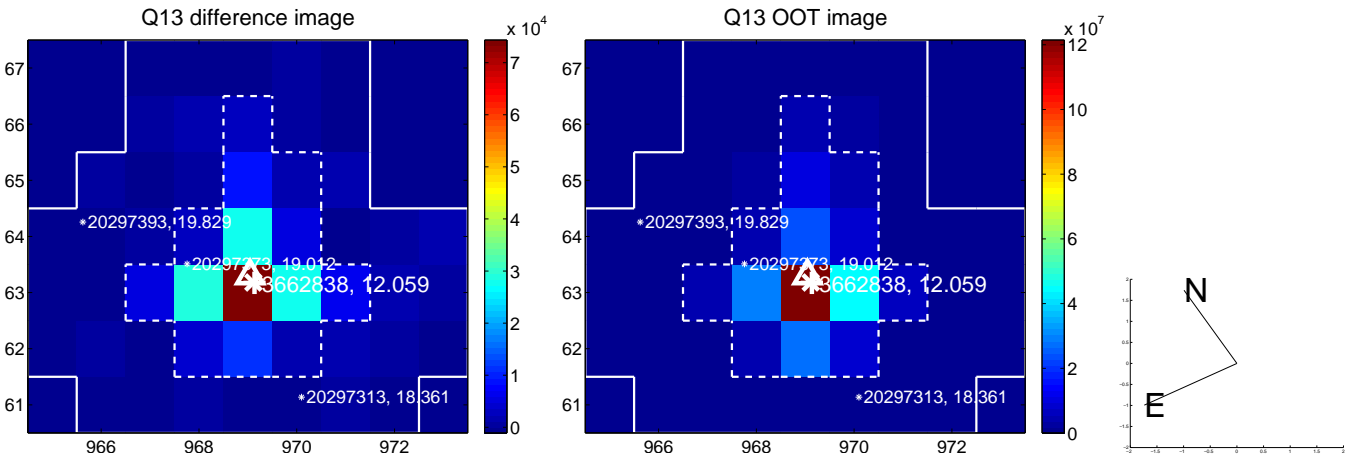
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



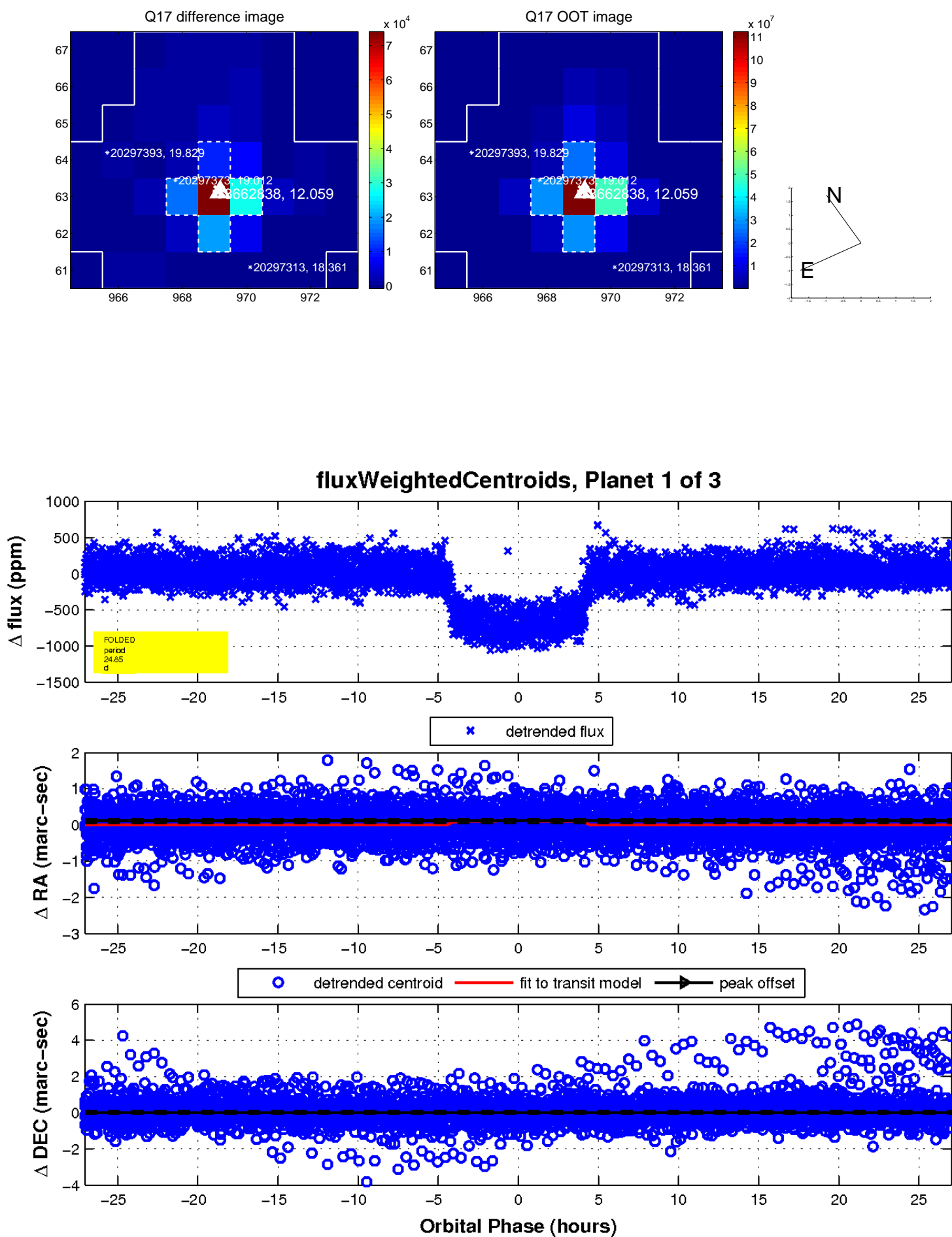
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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



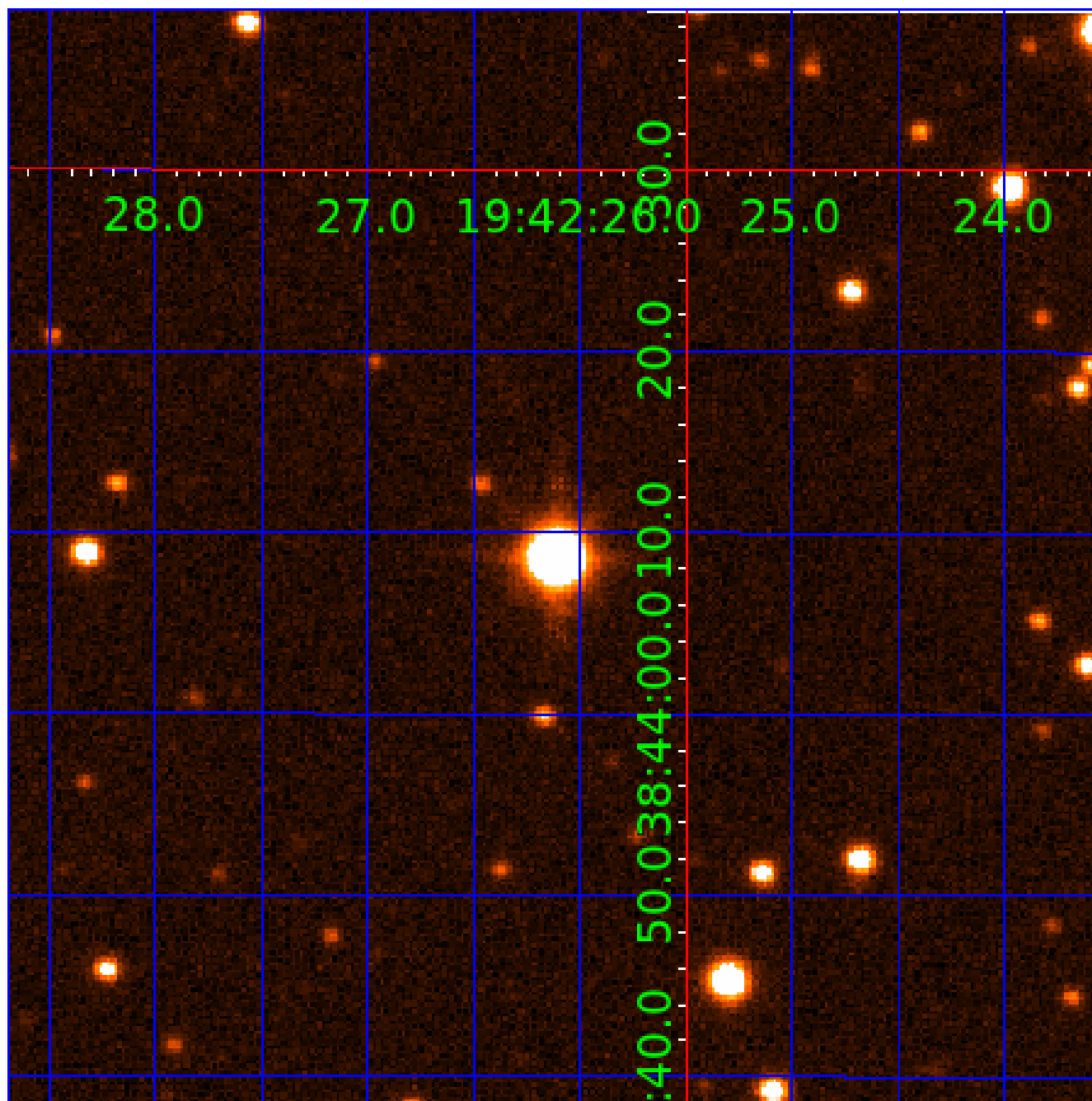
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.





UKIRT Image

Declination



# KIC 003662838

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
003662838-01	OBS	0302.01	24.854594	149.146740	732.0	9.013	75.0	73.7	2.53	6967	7.26	340.10
003662838-02	OBS	No	5.489431	136.003088	22.6	22.912	8.9	5.7	2.53	6967	1.38	2547.48
003662838-03	OBS	No	5.494409	132.610414	38.6	16.255	7.8	8.8	2.53	6967	1.76	2544.41

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
003662838-01	OBS	PC	1.00	0	0	0	0	NO_COMMENT
003662838-02	OBS	FP	0.00	1	0	0	0	LPP_DV
003662838-03	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT

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

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

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

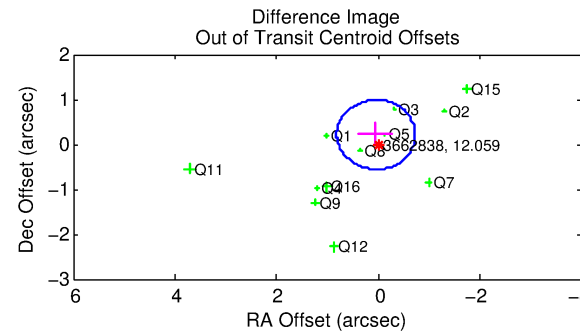
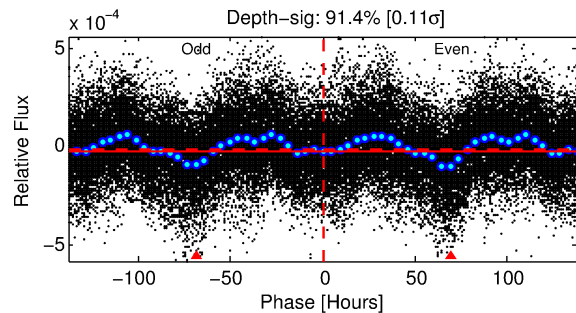
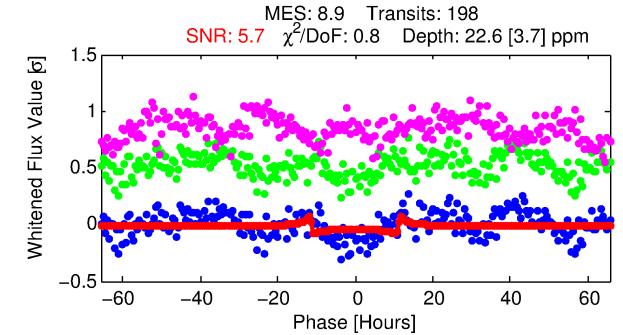
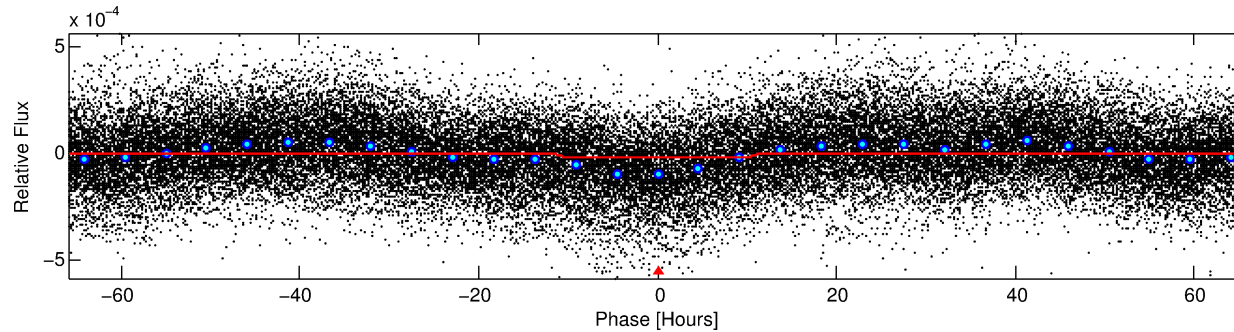
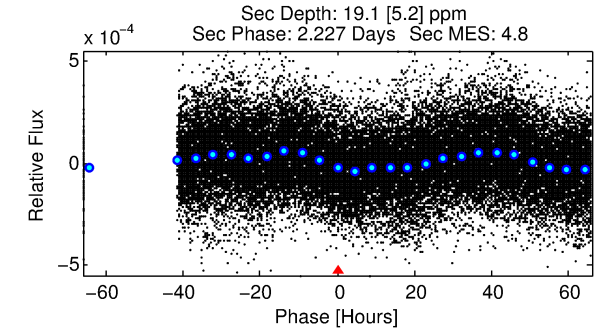
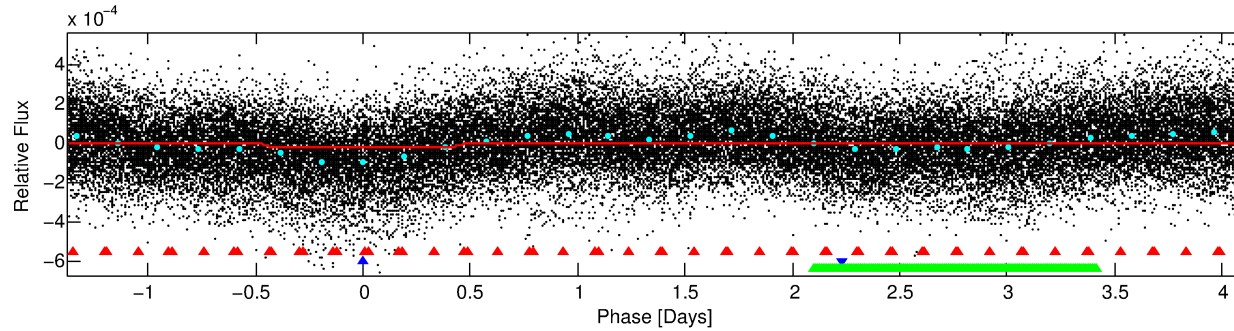
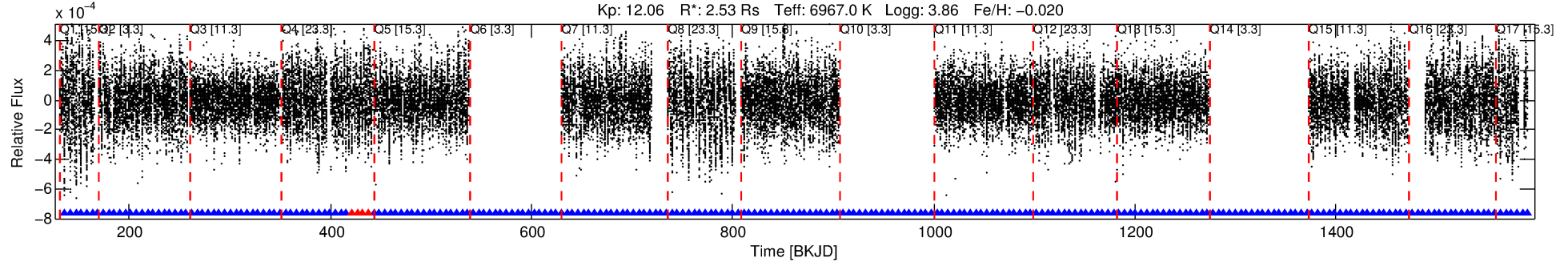
## Ephemeris Match Information For 003662838-02

No Significant Match Found

# DV One-Page Summary

KIC: 3662838 Candidate: 2 of 3 Period: 5.489 d  
KOI: K00302 Corr: No Ephemeris Match

Kp: 12.06 R\*: 2.53 Rs Teff: 6967.0 K Logg: 3.86 Fe/H: -0.020



## DV Fit Results:

Period = 5.48943 [0.00010] d  
Epoch = 136.0031 [0.0129] BKJD  
Rp/R\* = 0.0050 [0.0006]  
a/R\* = 1.29 [0.27]  
b = 0.88 [0.14]  
Seff = 2547.48 [1210.42]  
Teq = 1812 [215] K  
Rp = 1.37 [0.49] Re  
a = 0.0727 [0.0218] AU  
Ag = 29.36 [17.26] [1.64σ]  
Teffp = 6520 [640] K [6.97σ]

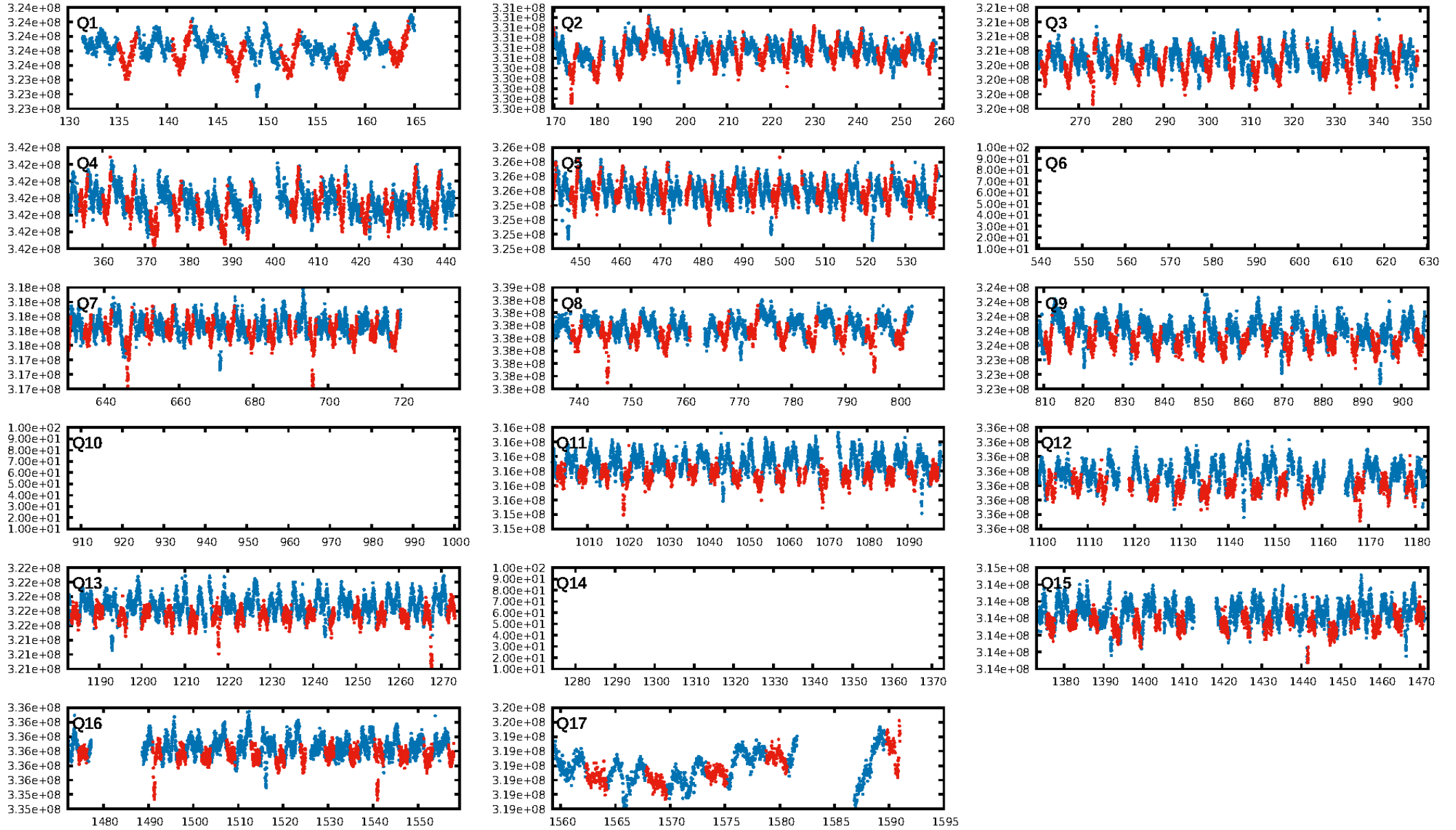
## DV Diagnostic Results:

ShortPeriod-sig: N/A  
LongPeriod-sig: 0.3% [0.00σ]  
ModelChiSquare2-sig: 97.0%  
ModelChiSquareGof-sig: 100.0%  
**Bootstrap-pfa: 3.94e-12**  
RollingBand-fgt: 0.98 [184/188]  
GhostDiagnostic-chr: 1.525  
Centroid-sig: 66.3%  
Centroid-so: 0.430 arcsec [0.43σ]  
OotOffset-rm: 0.218 arcsec [0.84σ]  
OotOffset-st: 1/4/4/3 [12]  
KicOffset-rm: 0.147 arcsec [0.57σ]  
KicOffset-st: 1/4/4/3 [12]  
DiffImageQuality-fgm: 0.83 [10/12]  
DiffImageOverlap-fno: 1.00 [14/14]

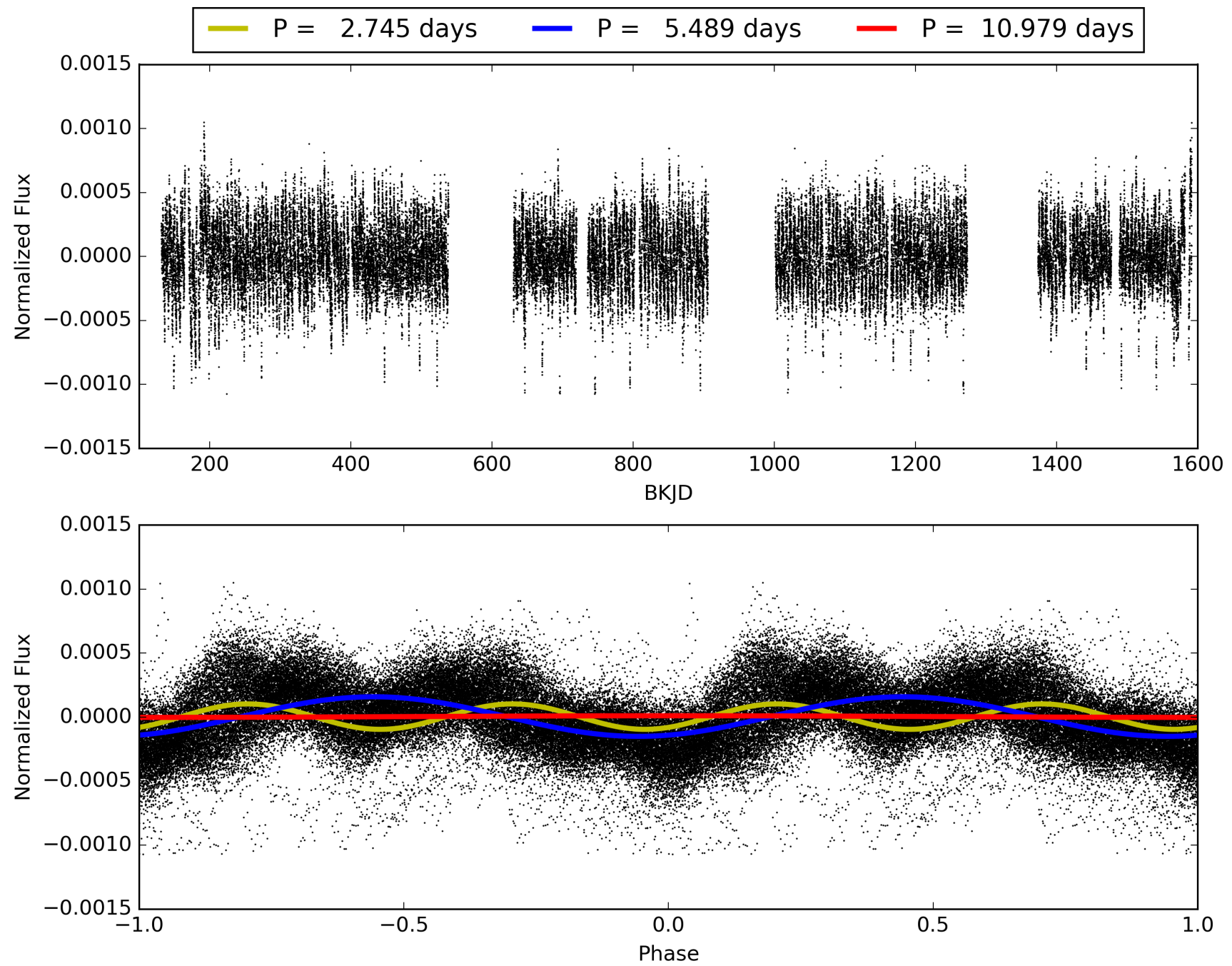
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 07:17:45 Z

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

# TCE 003662838-02, PDC Light Curves



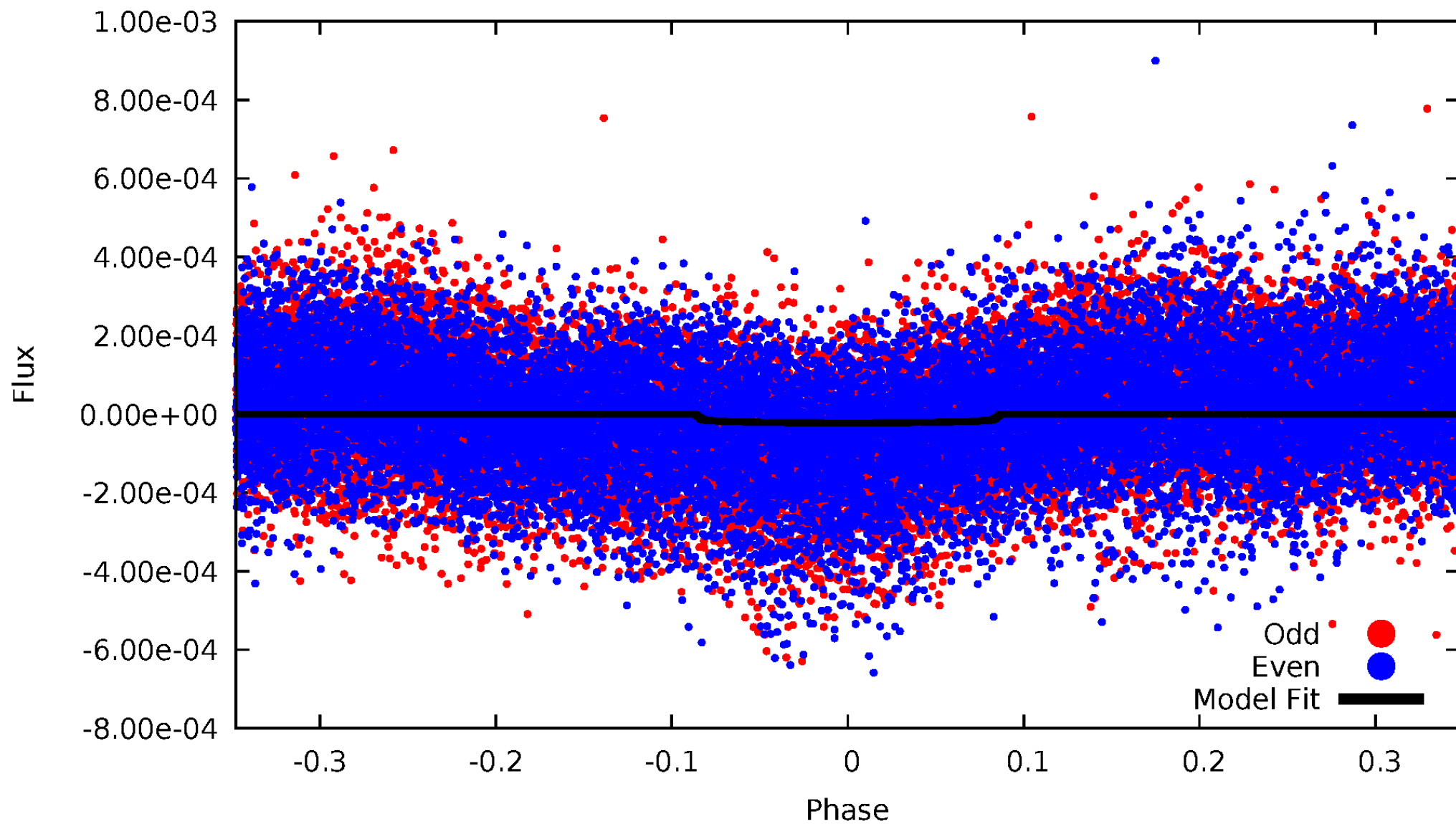
TCE 003662838-02





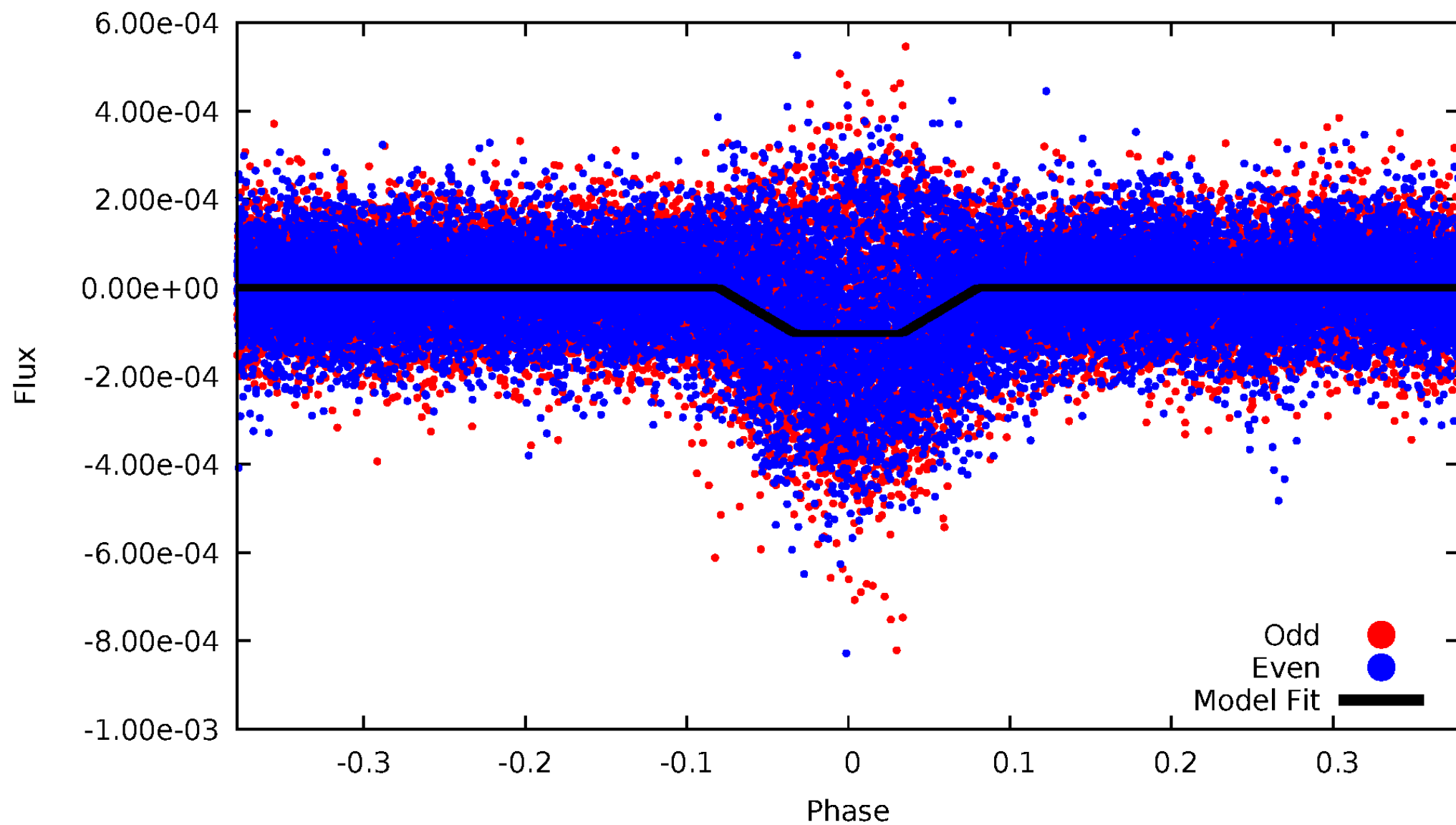
# DV Odd/Even

TCE 003662838-02



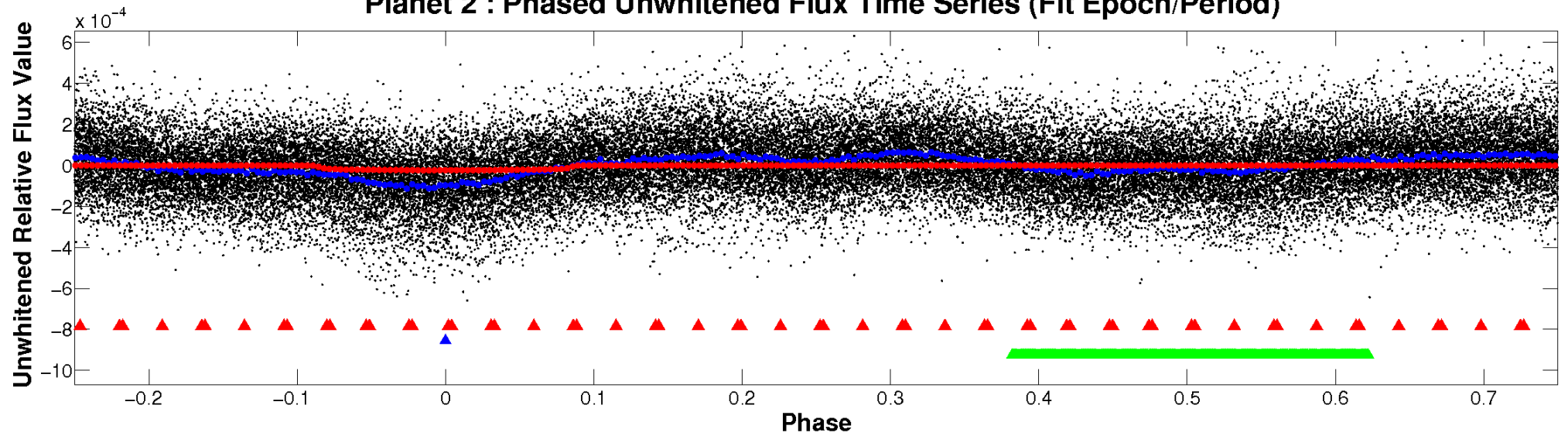
# ALT Odd/Even

TCE 003662838-02

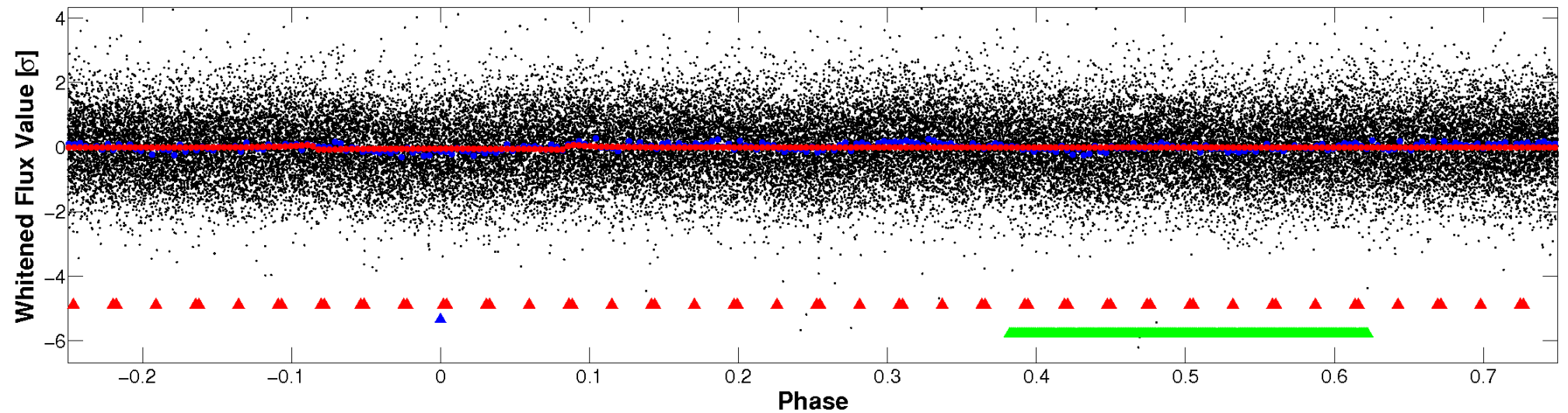


# Non-Whitened Vs. Whitened Light Curve

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

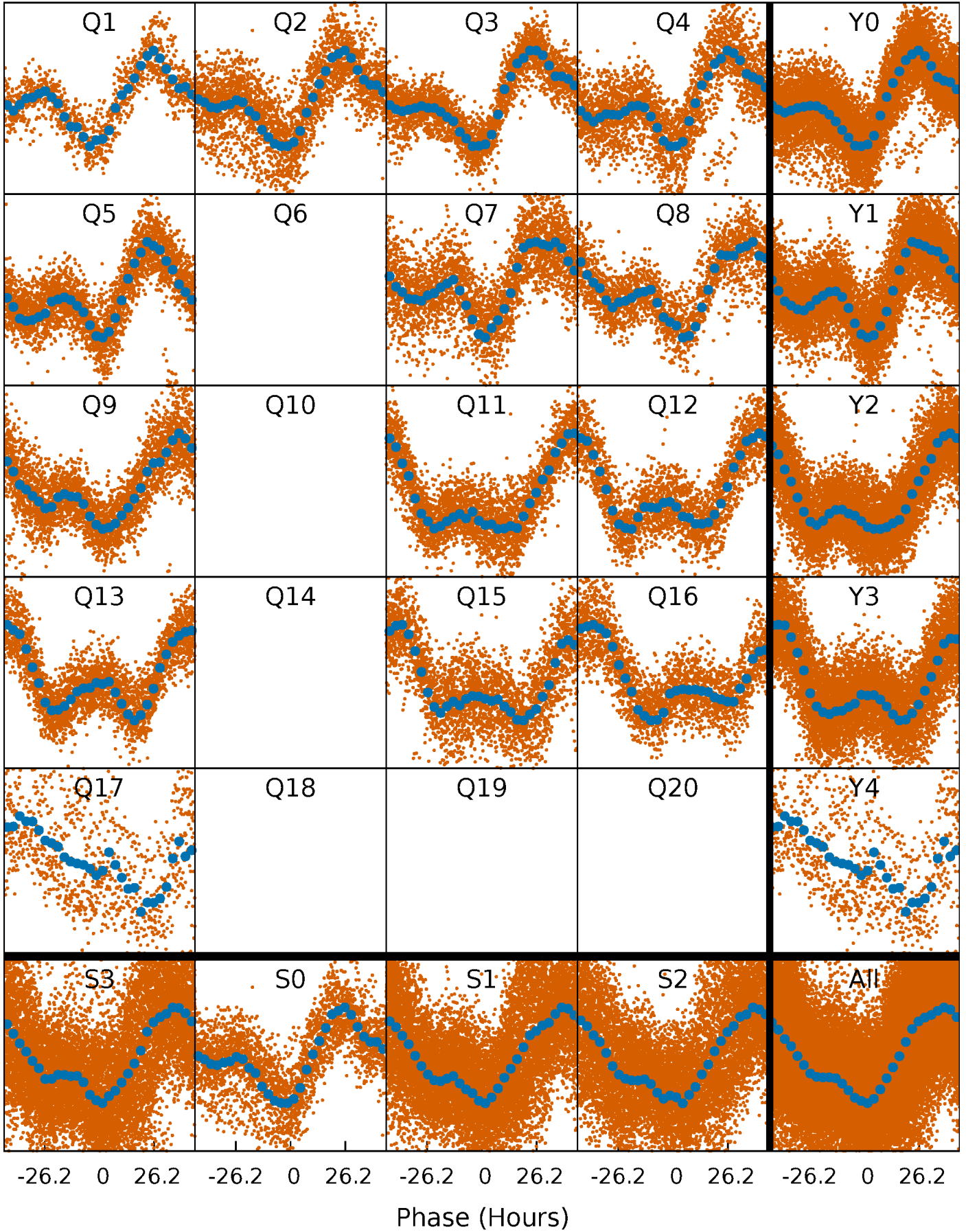


## Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



# PDC Quarter-Phased Transit Curves

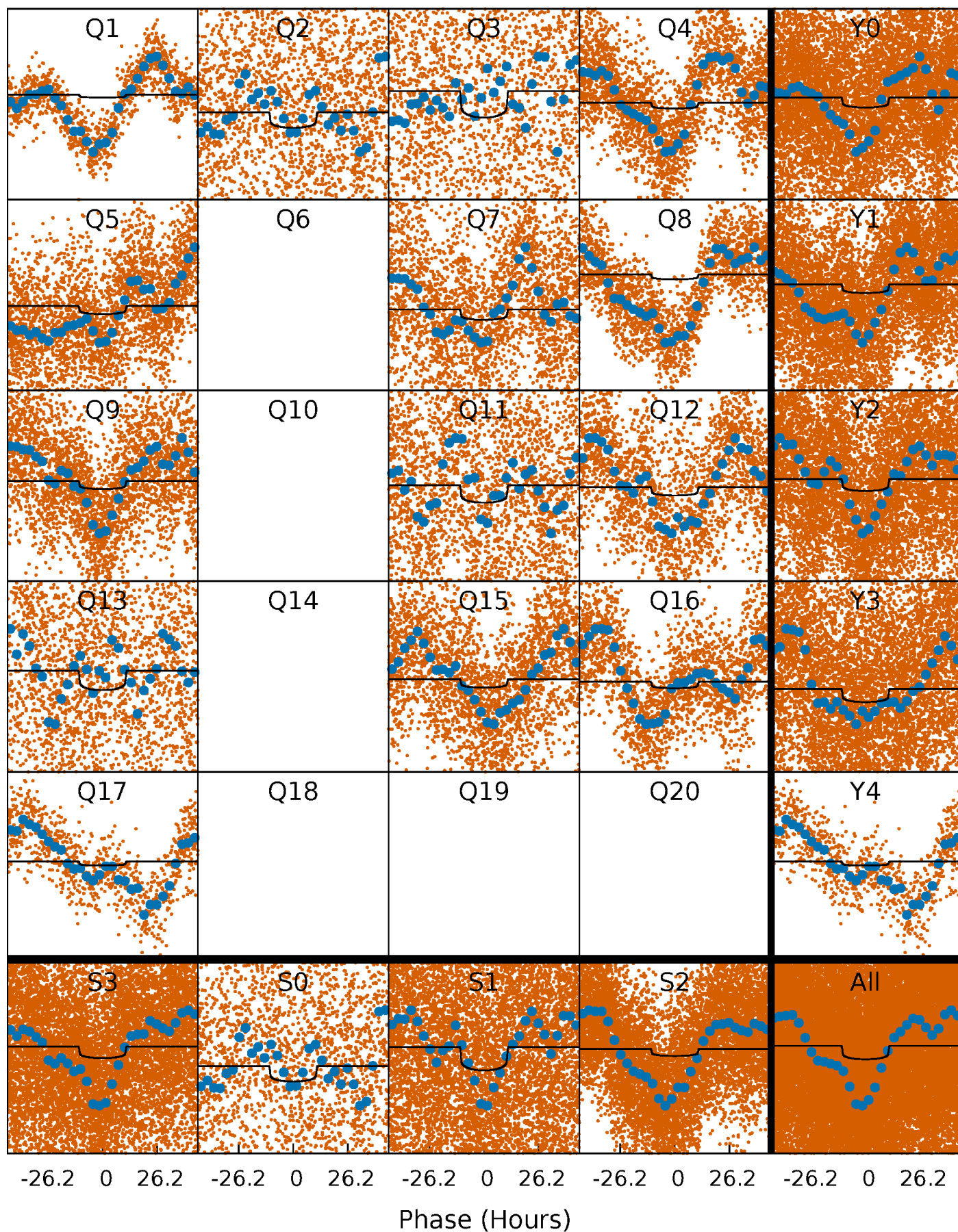
TCE 003662838-02   P= 5.489431 Days    $T_0=136.003088$  (BKJD)





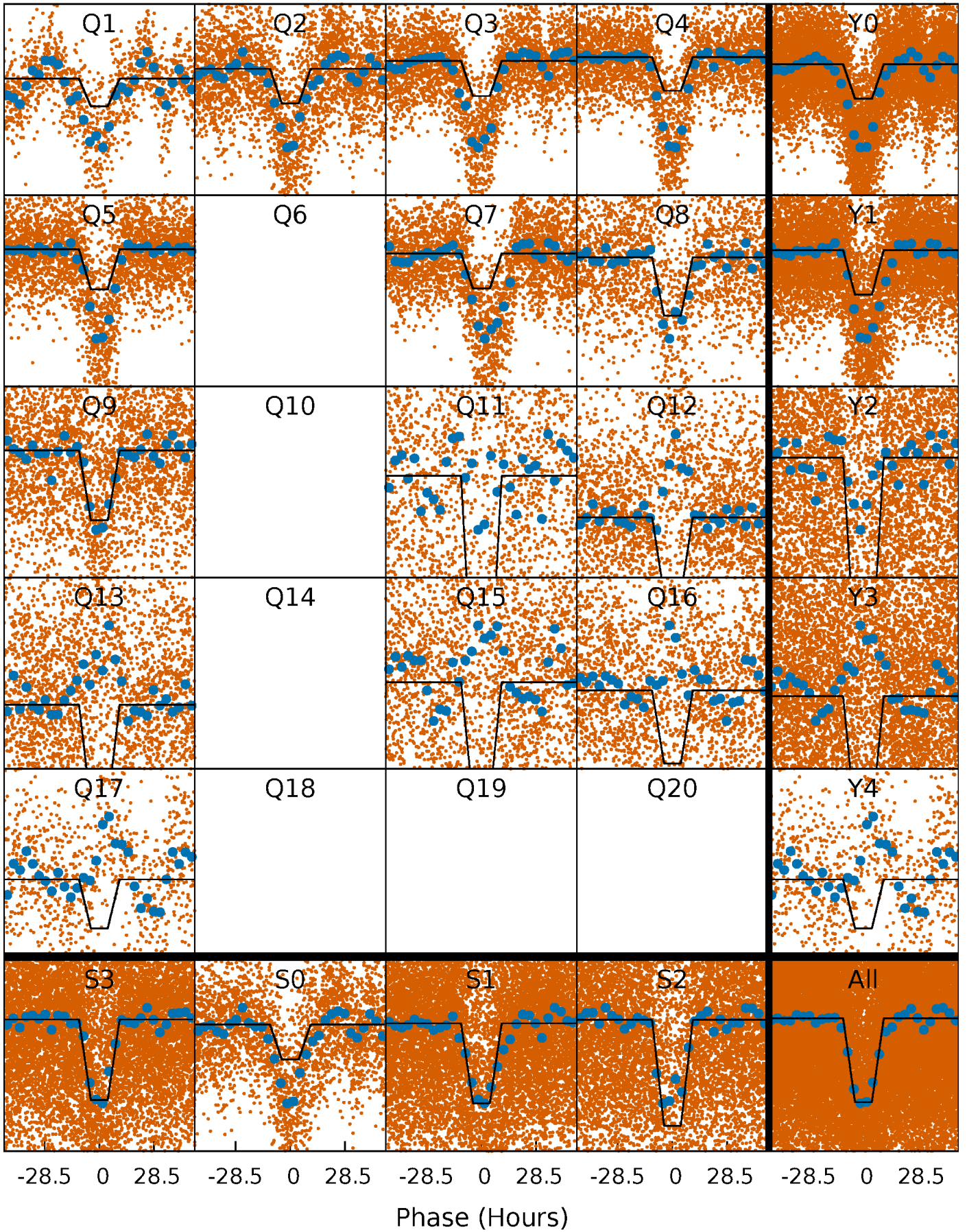
# DV Quarter-Phased Transit Curves

TCE 003662838-02   P= 5.489431 Days    $T_0=136.003088$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

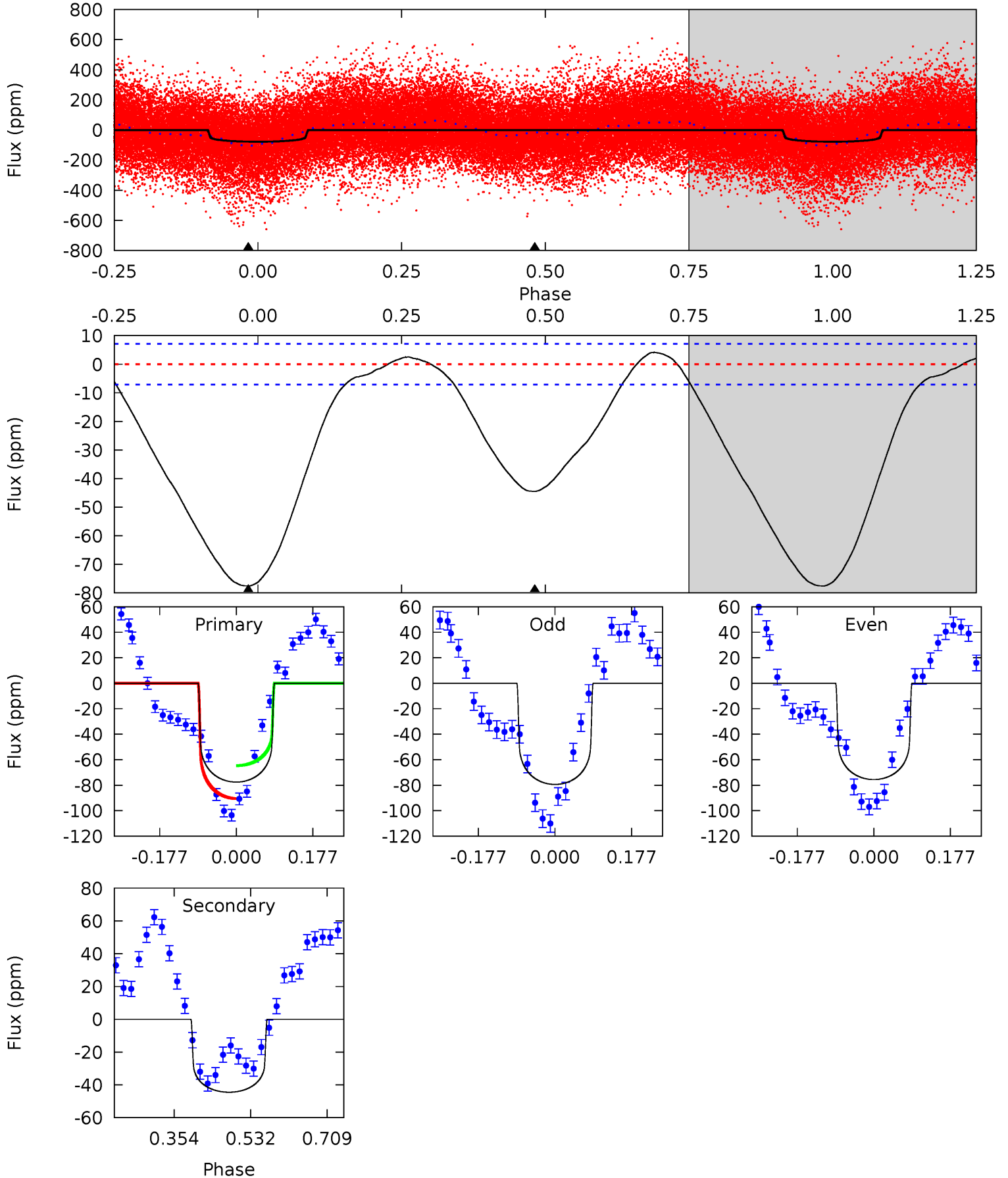
TCE 003662838-02 P= 5.489311 Days  $T_0=136.032279$  (BKJD)



# DV Model-Shift Uniqueness Test

003662838-02, P = 5.489431 Days, E = 130.513657 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
48.2	27.7	0	0	4.44	1.35	4.55	48.2	48.2	27.7	27.7	1.19	1.19	0.05	8.08

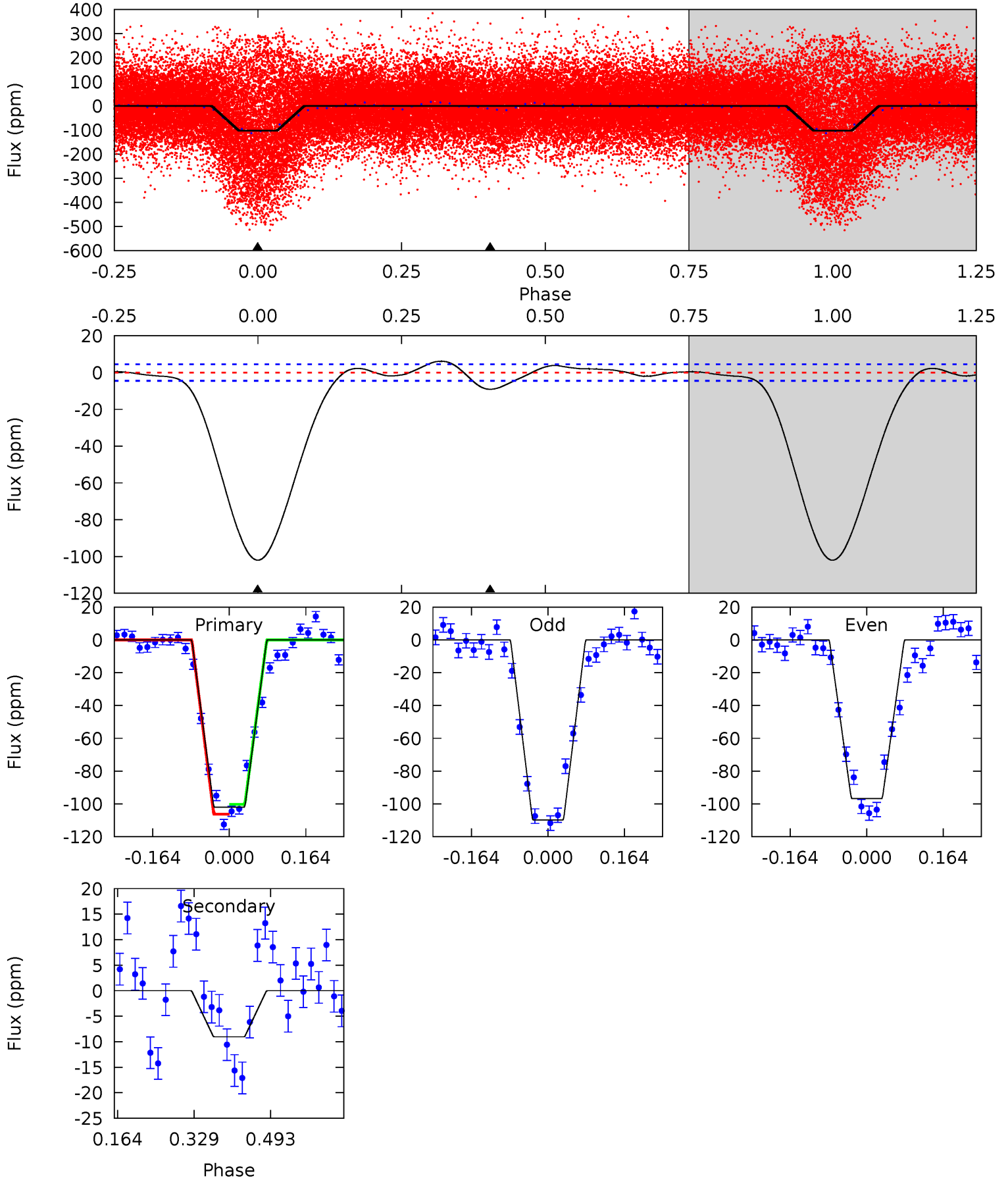




# Alt Model-Shift Uniqueness Test

003662838-02, P = 5.489311 Days, E = 130.542968 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
101.7	9.02	0	0	4.46	1.39	1.33	101.7	101.7	9.02	9.02	6.48	1.06	0.06	2.99



### Stellar Parameters For KIC 003662838

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R$ ( $R_{\odot}$ )	$M(M_{\odot})$	$p_{\star}$ ( $\text{g}\cdot\text{cm}^{-3}$ )
	$6967^{+167}_{-229}$	$3.864^{+0.259}_{-0.111}$	$-0.020^{+0.250}_{-0.350}$	$2.527^{+0.458}_{-0.851}$	$1.700^{+0.149}_{-0.349}$	$0.148^{+0.252}_{-0.051}$
	+2%/-3%	+7%/-3%	+1250%/-1750%	+18%/-34%	+9%/-21%	+170%/-34%
Source	PHO1	FLK73	KIC0	DSEP		

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

### Secondary Eclipse Parameters for KIC 003662838-02 / KOI

Detrend	Depth (ppm)	$R_p$ ( $R_{\oplus}$ )	$T_{max}$ (K)	$T_{obs}$ (K)	$A_{obs}$
DV	$-45 \pm 2$	$1.33^{+0.27}_{-0.27}$	$2503^{+146}_{-207}$	$8240^{+795}_{-647}$	$72^{+38}_{-22}$
Alt.	$-9 \pm 1$	$2.75^{+0.35}_{-0.51}$	$2498^{+156}_{-199}$	$4005^{+139}_{-153}$	$3.515^{+1.482}_{-0.849}$

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

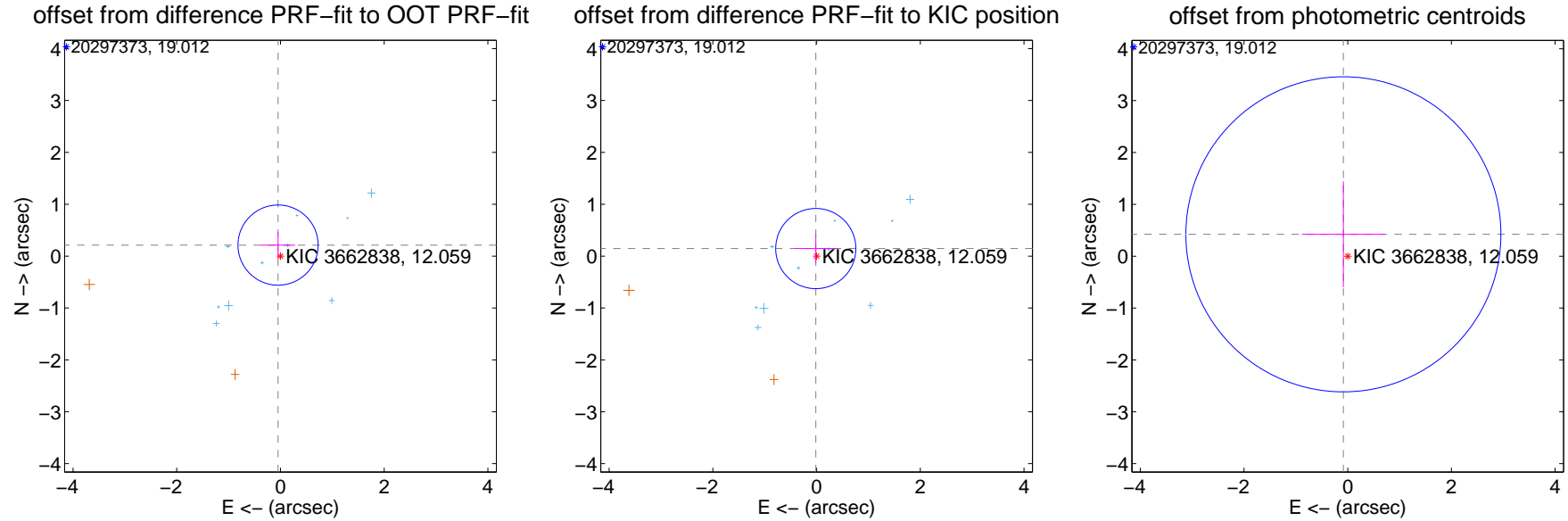
## DV Centroid Data

Supplemental centroid analysis for 003662838-02. Kepler magnitude: 12.06. Transit SNR 5.72

There are 10 quarters with good PRF difference image offsets

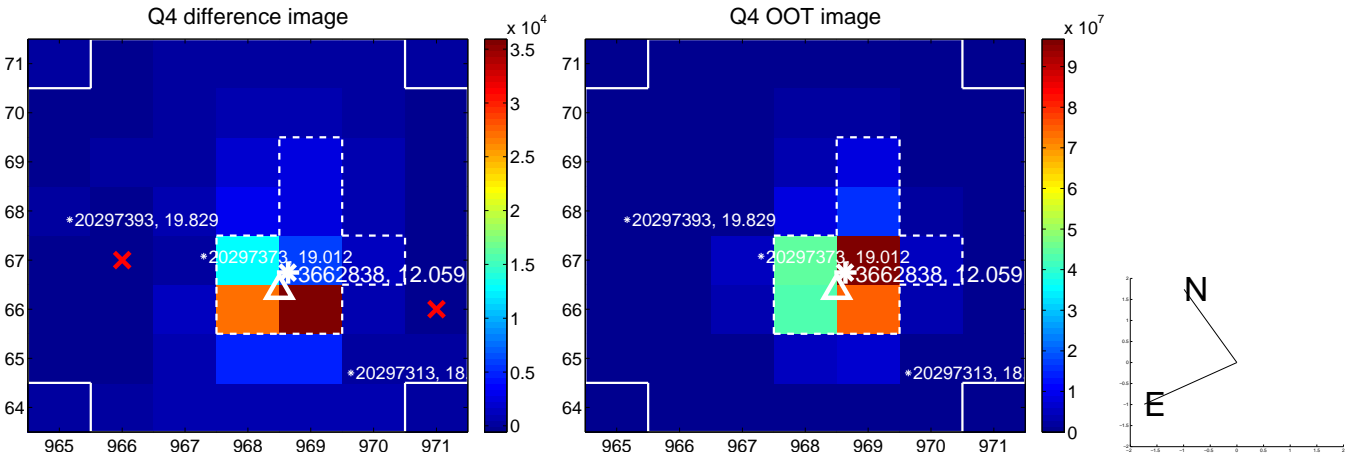
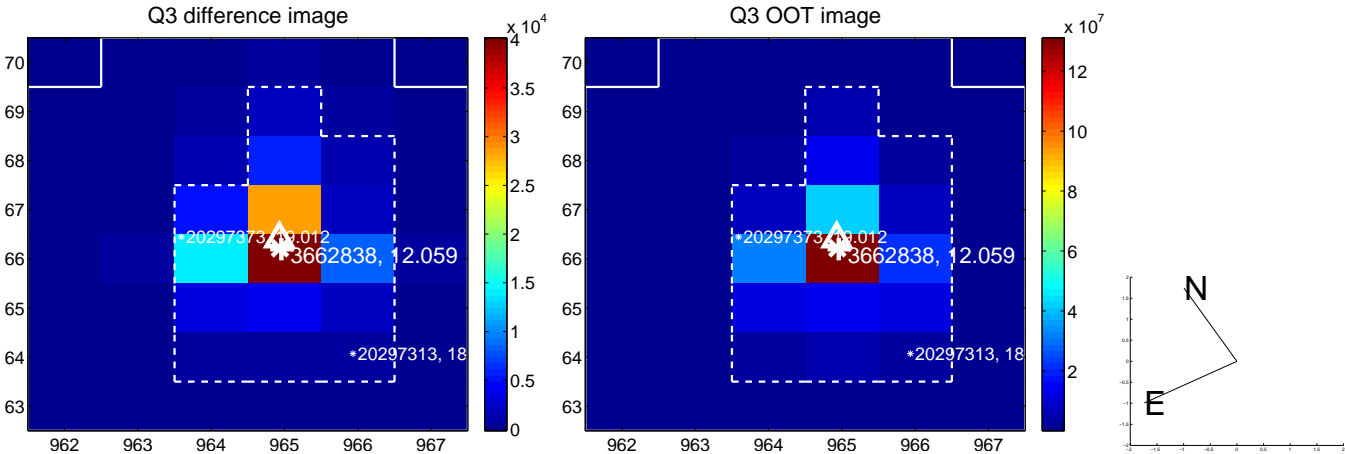
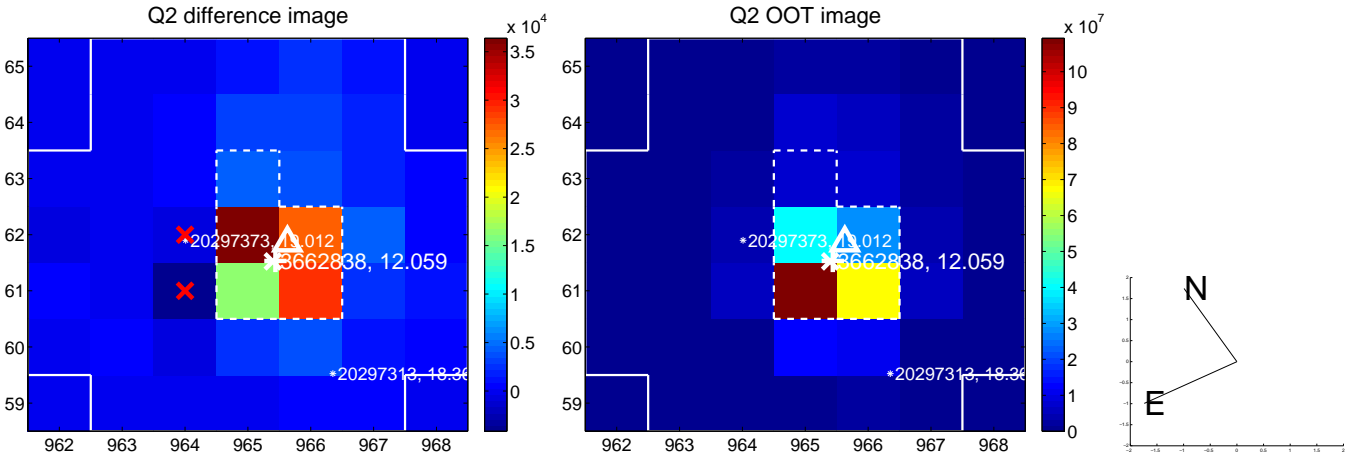
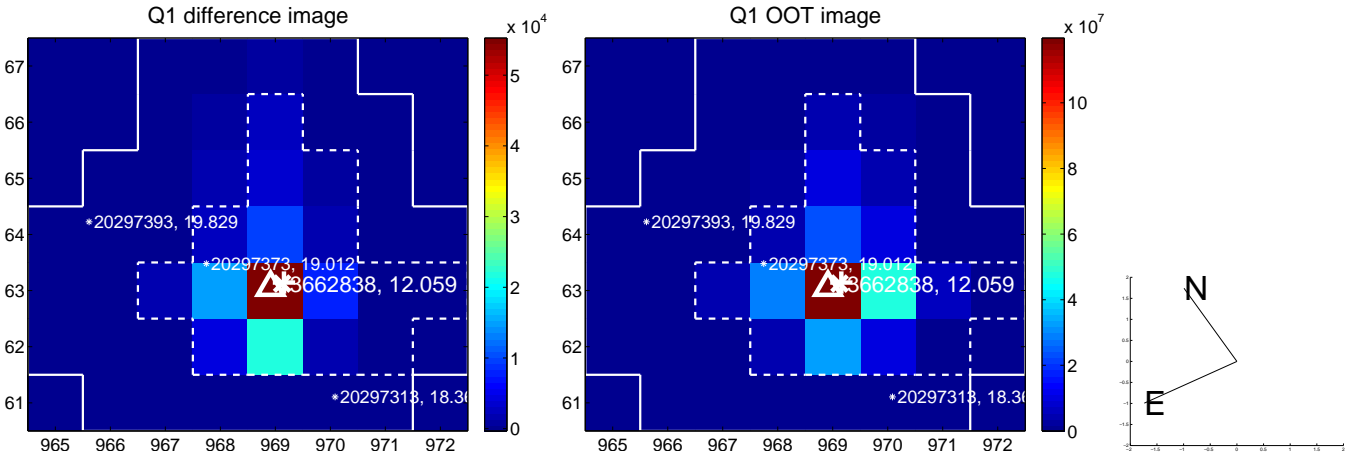
The direct PRF centroid is offset from the target star catalog position by about 0.05 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$0.218 \pm 0.258$	0.84	$0.046 \pm 0.331$	$0.213 \pm 0.254$
PRF-fit source offset from KIC position	$0.147 \pm 0.258$	0.57	$0.015 \pm 0.419$	$0.146 \pm 0.278$
photometric centroid source offset	$0.43 \pm 1.01$	0.43	$0.08 \pm 0.80$	$0.42 \pm 1.02$

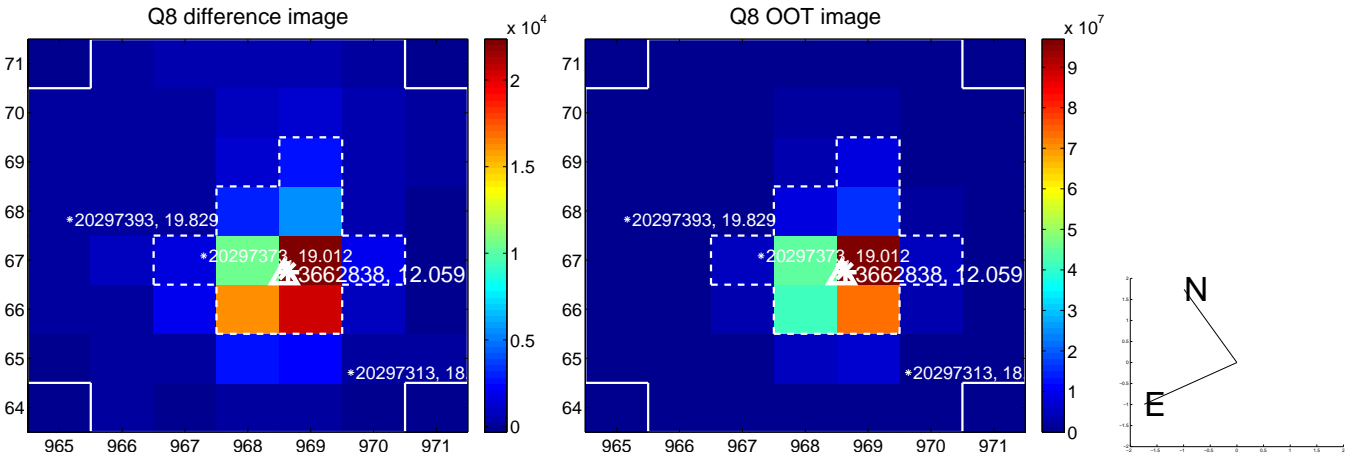
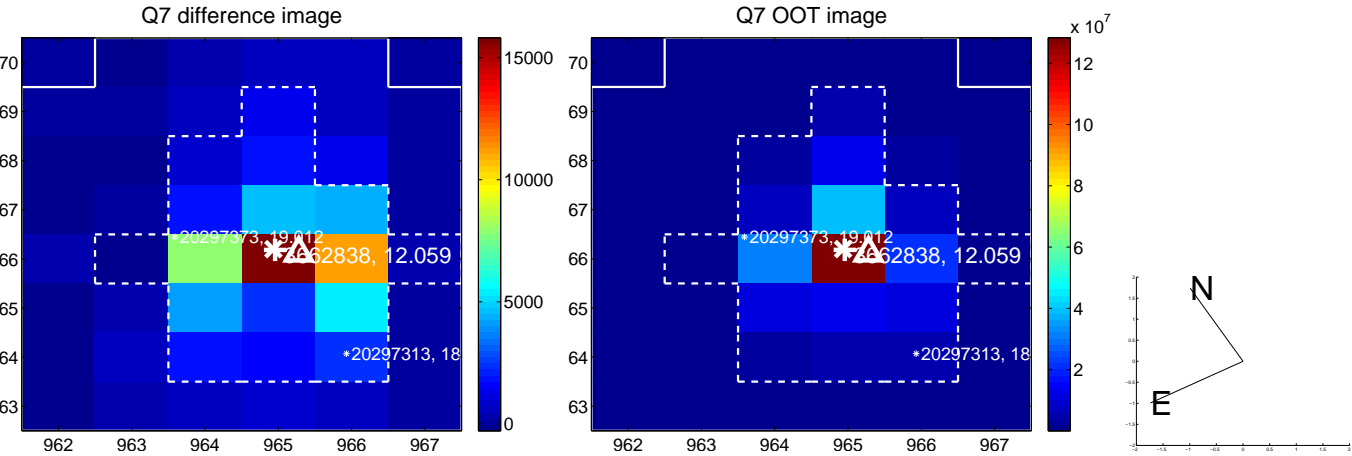
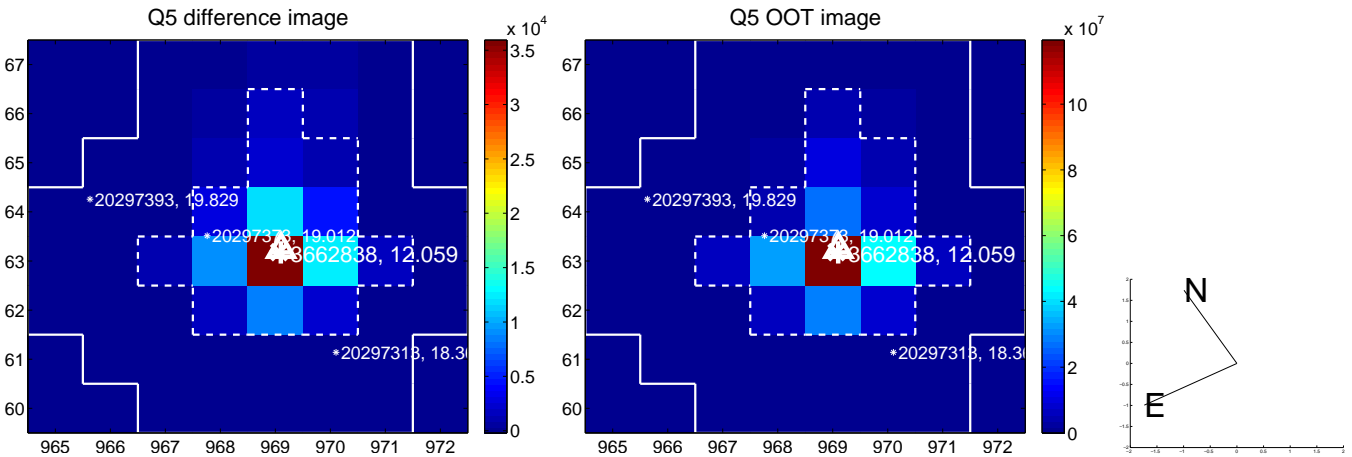


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets**; **Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: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

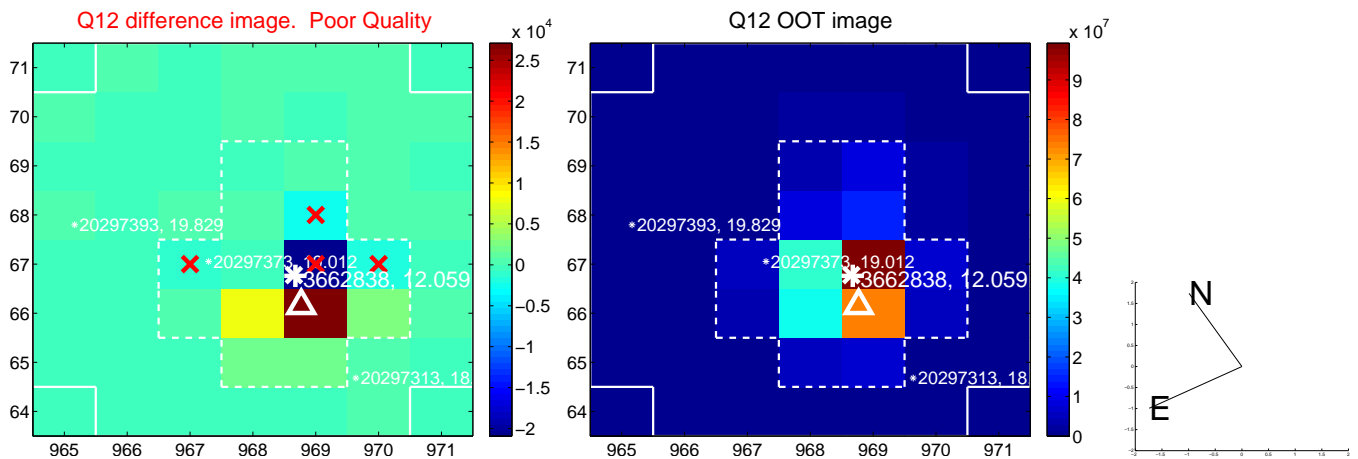
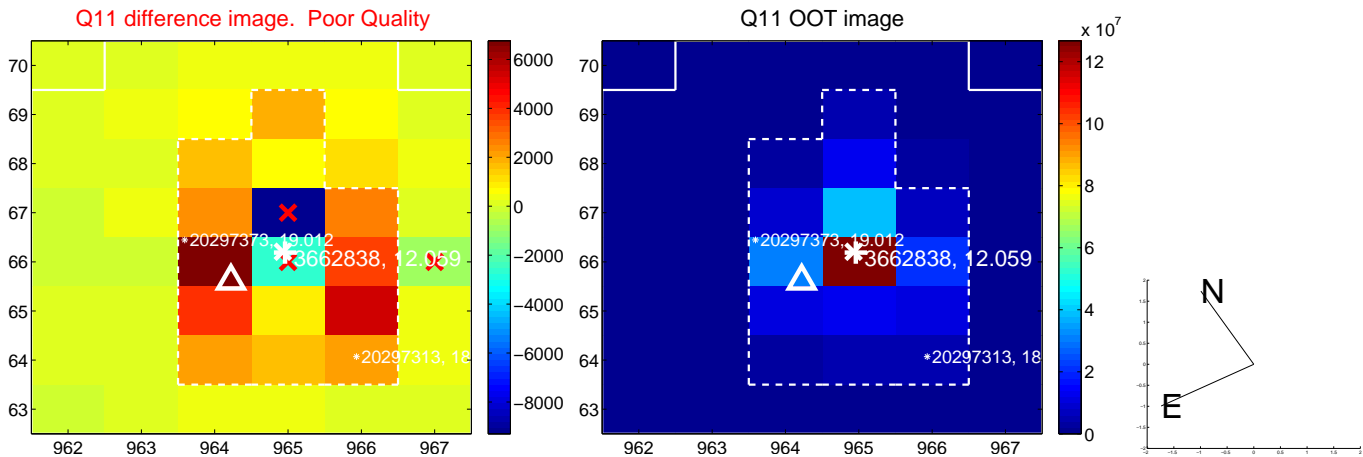
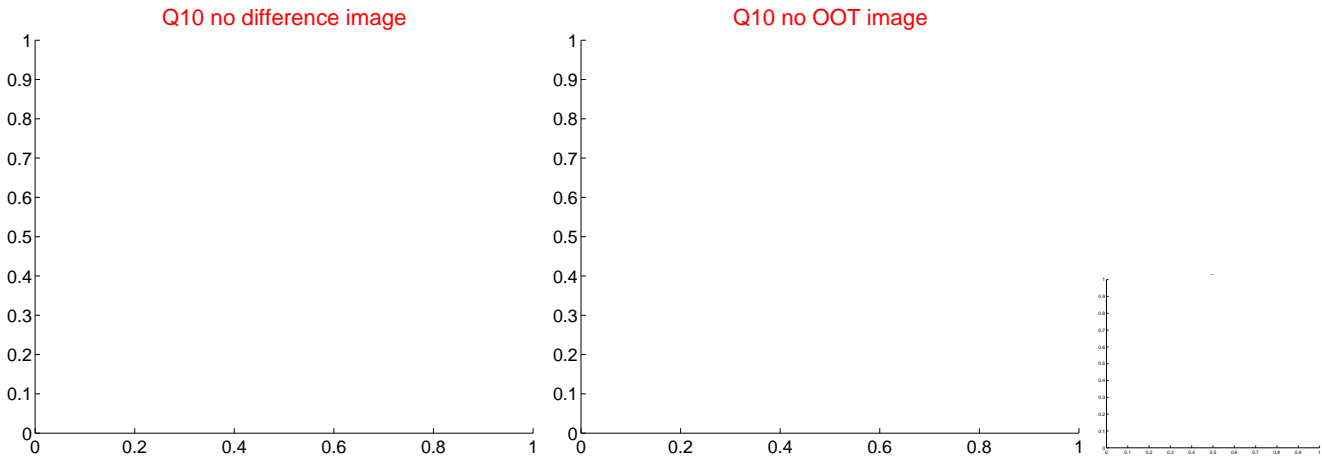
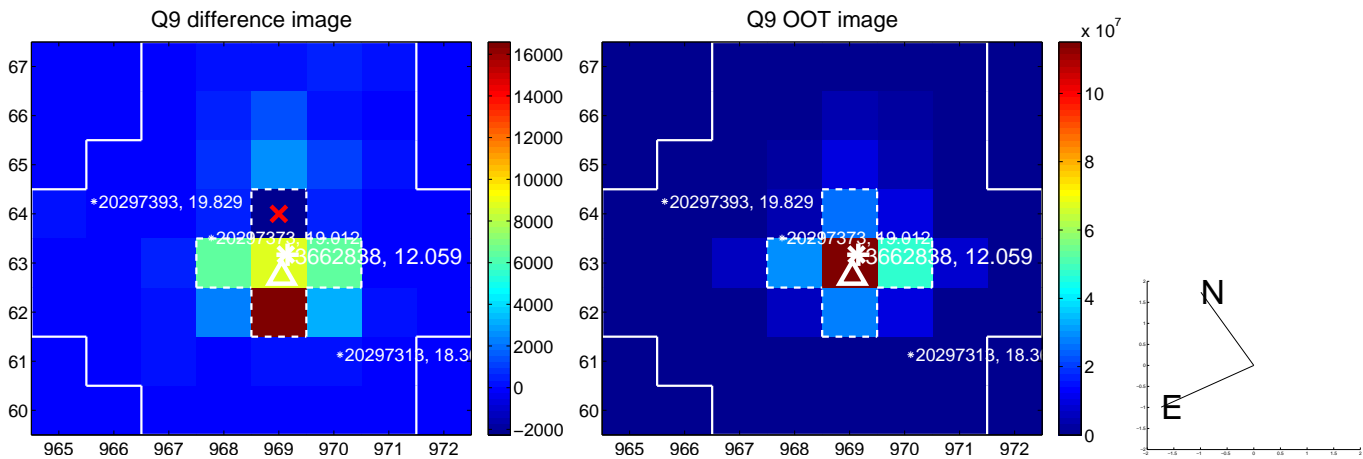
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



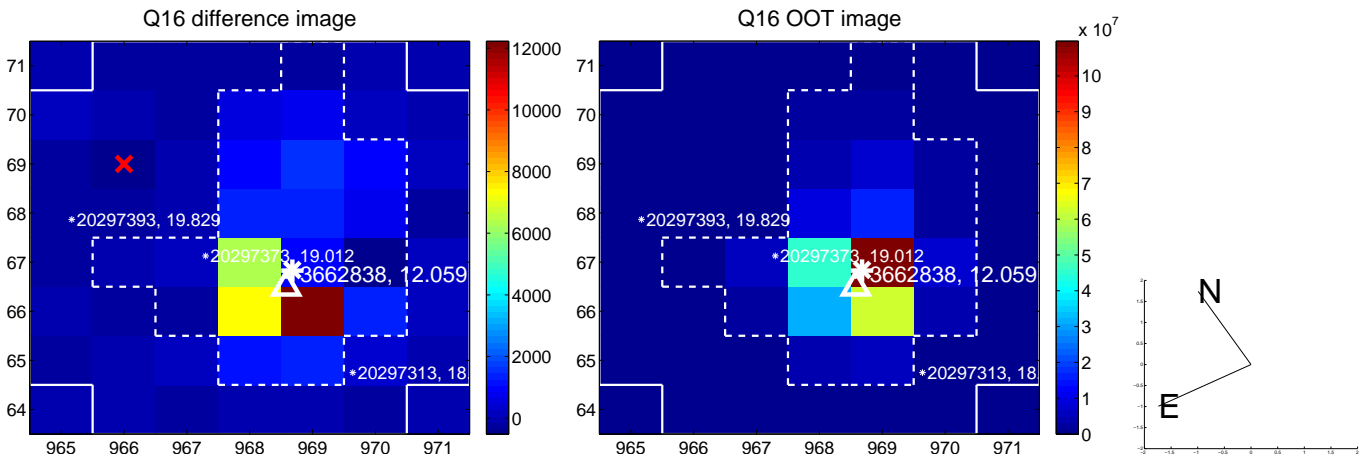
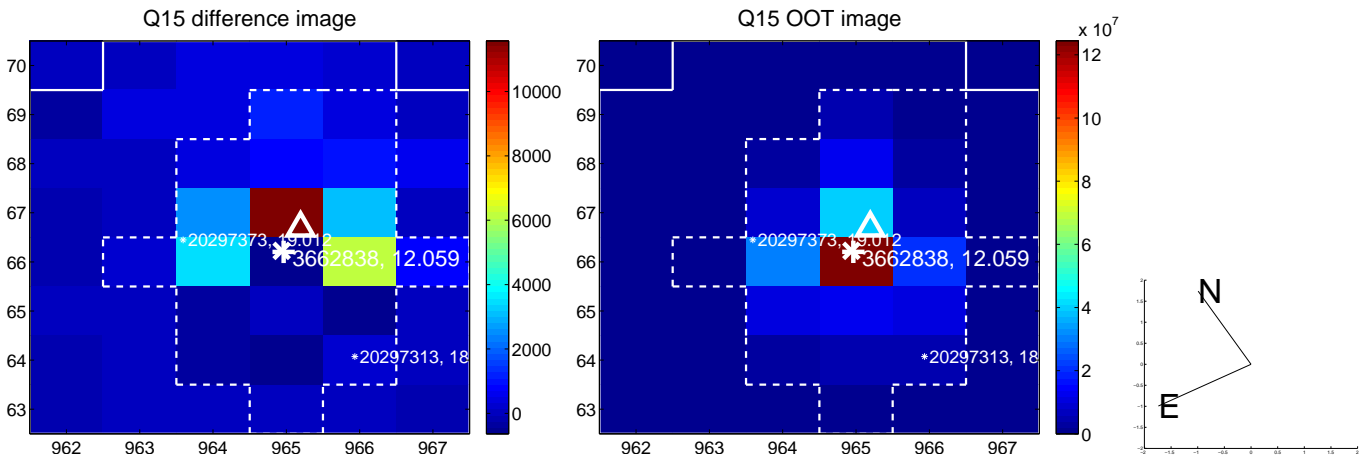
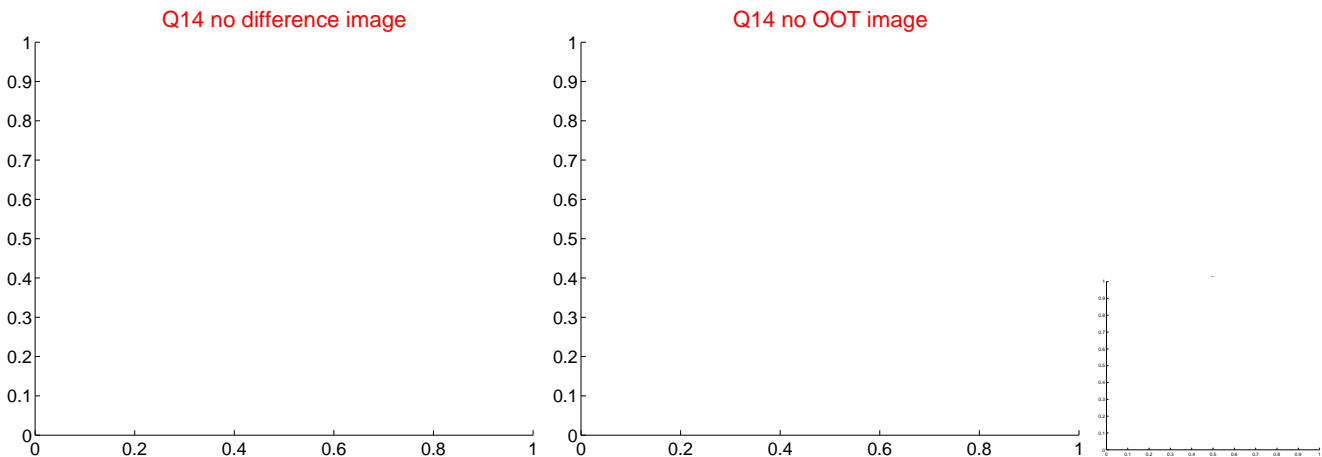
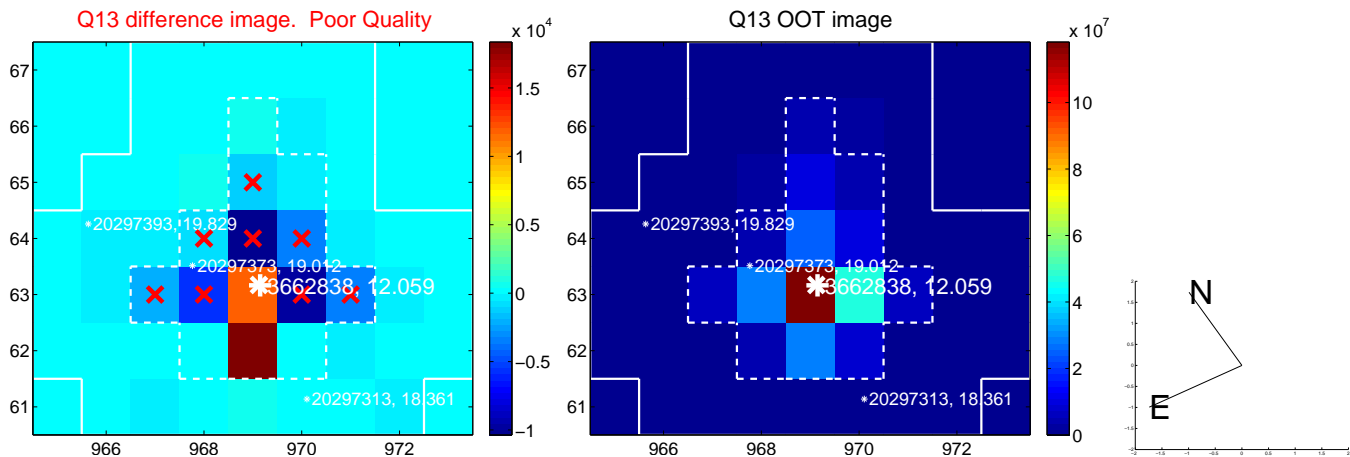
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



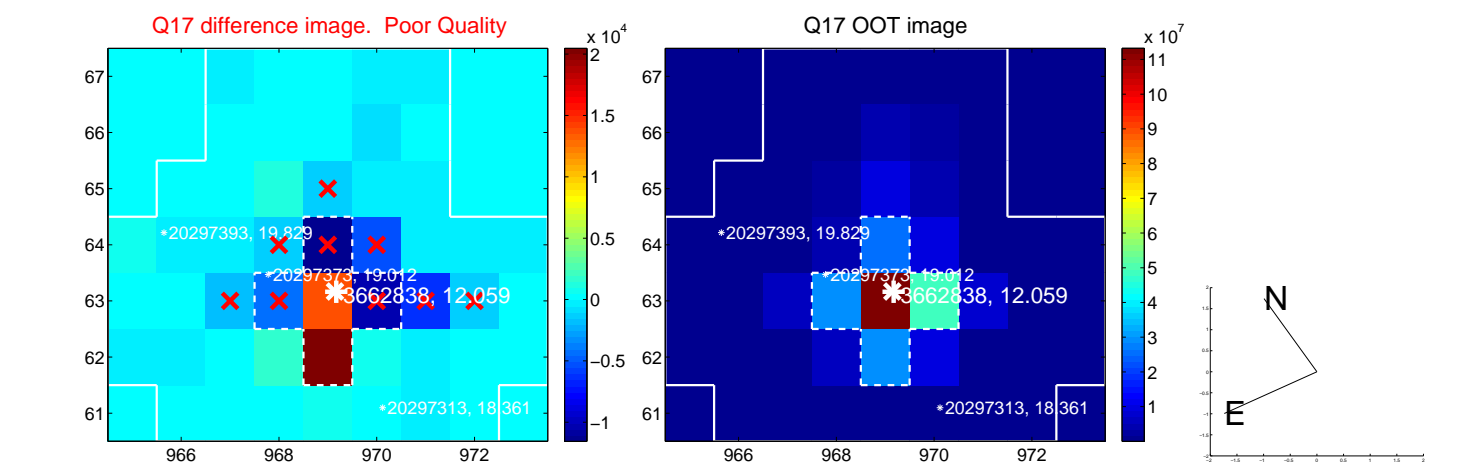
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



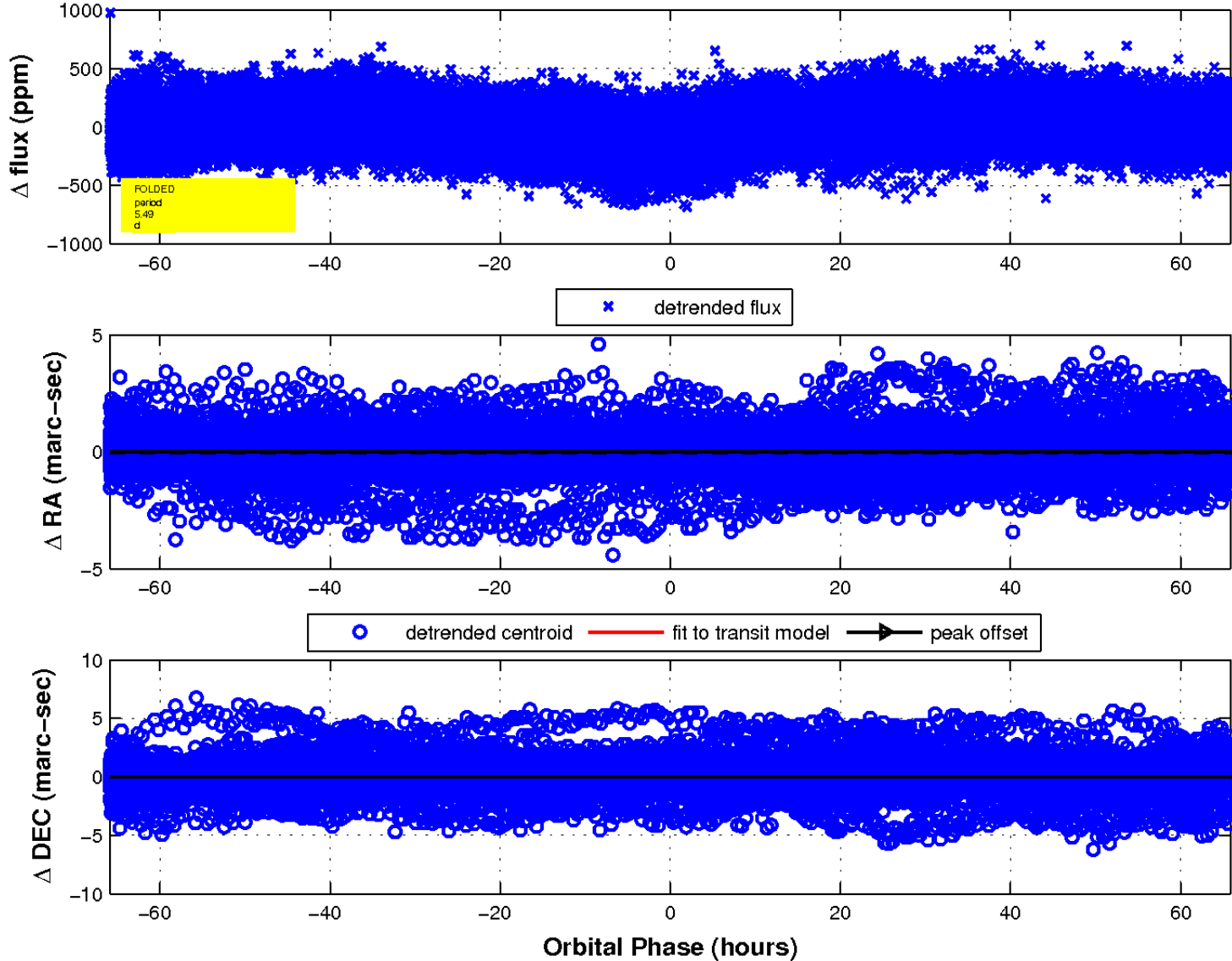
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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



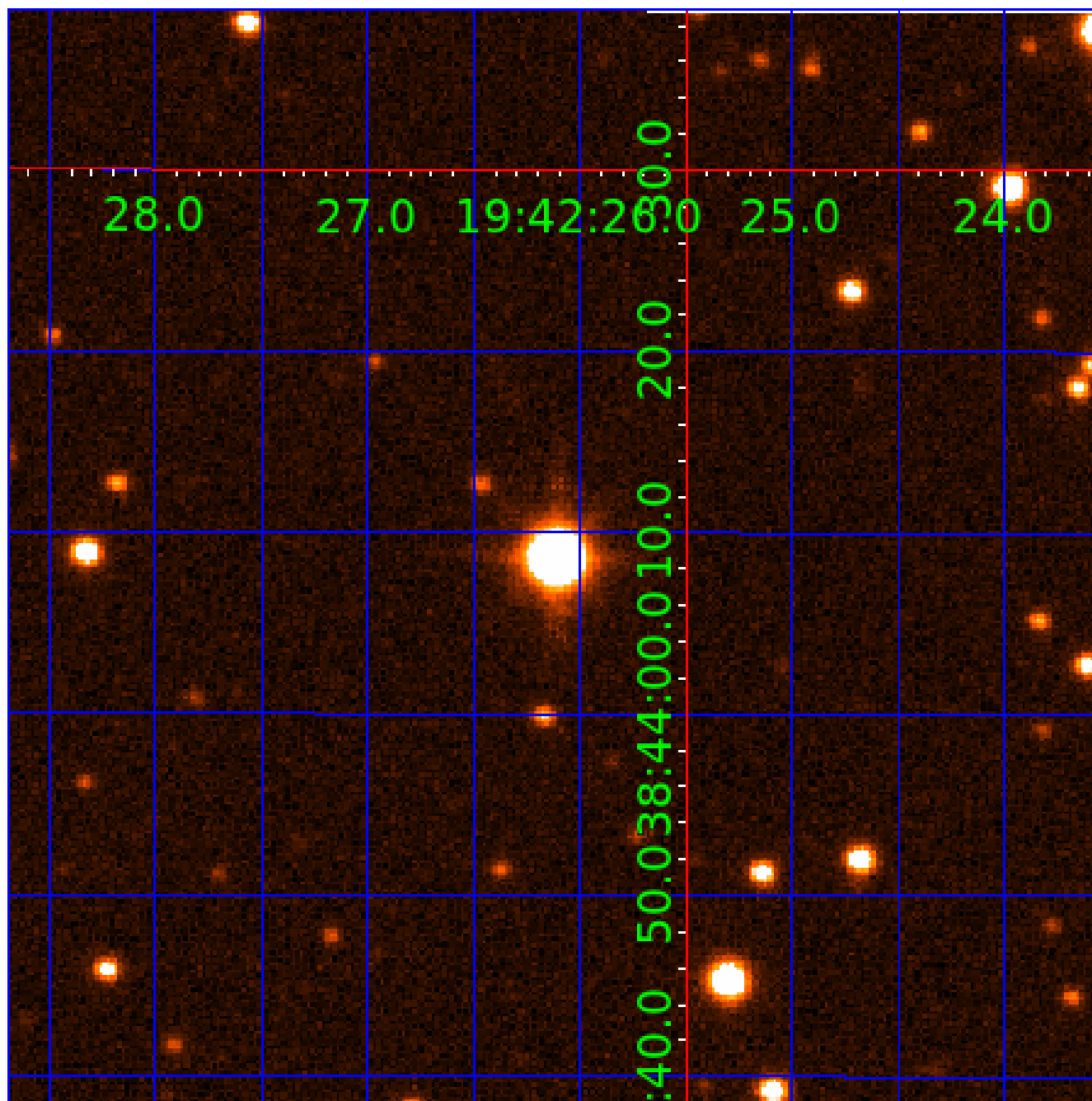
fluxWeightedCentroids, Planet 2 of 3





UKIRT Image

Declination



# KIC 003662838

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
003662838-01	OBS	0302.01	24.854594	149.146740	732.0	9.013	75.0	73.7	2.53	6967	7.26	340.10
003662838-02	OBS	No	5.489431	136.003088	22.6	22.912	8.9	5.7	2.53	6967	1.38	2547.48
003662838-03	OBS	No	5.494409	132.610414	38.6	16.255	7.8	8.8	2.53	6967	1.76	2544.41

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
003662838-01	OBS	PC	1.00	0	0	0	0	NO_COMMENT
003662838-02	OBS	FP	0.00	1	0	0	0	LPP_DV
003662838-03	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT

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

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

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

## Ephemeris Match Information For 003662838-03

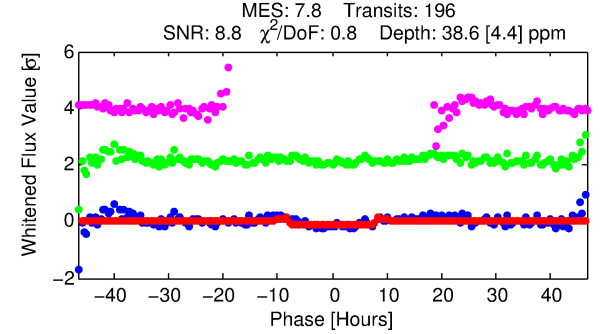
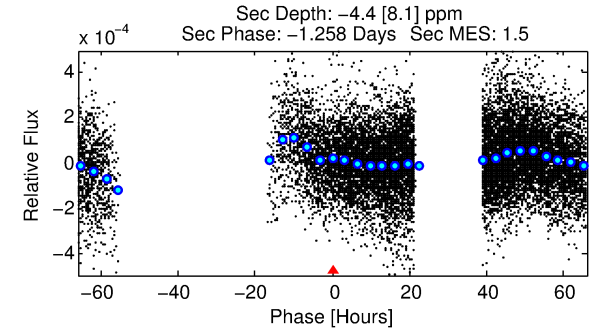
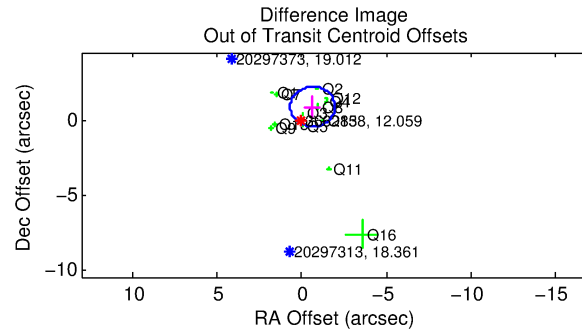
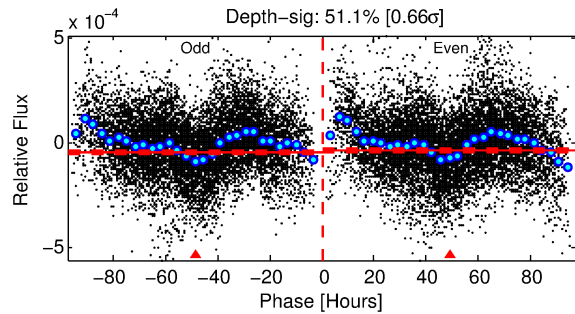
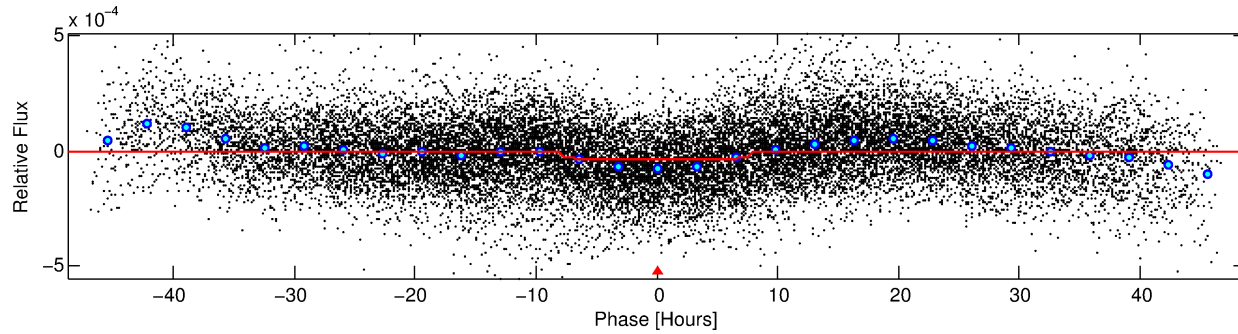
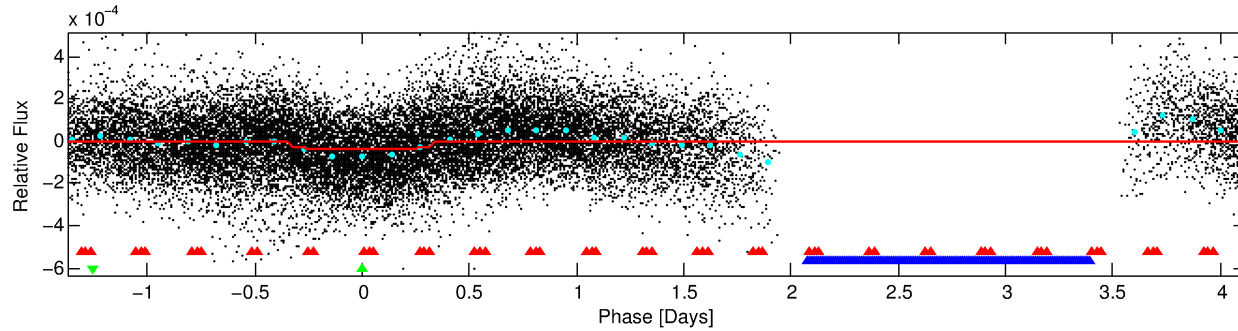
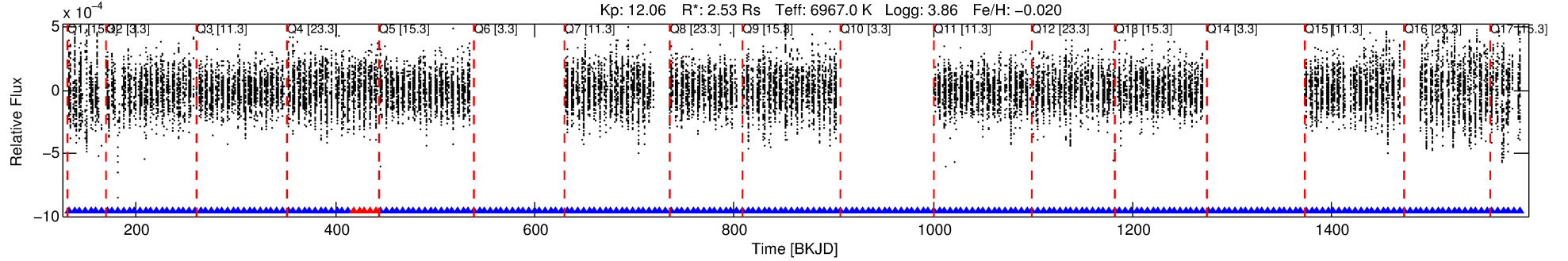
No Significant Match Found

# DV One-Page Summary

KIC: 3662838 Candidate: 3 of 3 Period: 5.494 d

KOI: K00302 Corr: No Ephemeris Match

Kp: 12.06 R\*: 2.53 Rs Teff: 6967.0 K Logg: 3.86 Fe/H: -0.020



## DV Fit Results:

Period = 5.49441 [0.00005] d  
Epoch = 132.6104 [0.0063] BKJD  
Rp/R\* = 0.0064 [0.0007]  
a/R\* = 1.71 [0.57]  
b = 0.83 [0.18]  
Seff = 2544.41 [1208.95]  
Teq = 1811 [215] K  
Rp = 1.76 [0.62] Re  
a = 0.0728 [0.0218] AU  
Ag = N/A  
Teffp = N/A

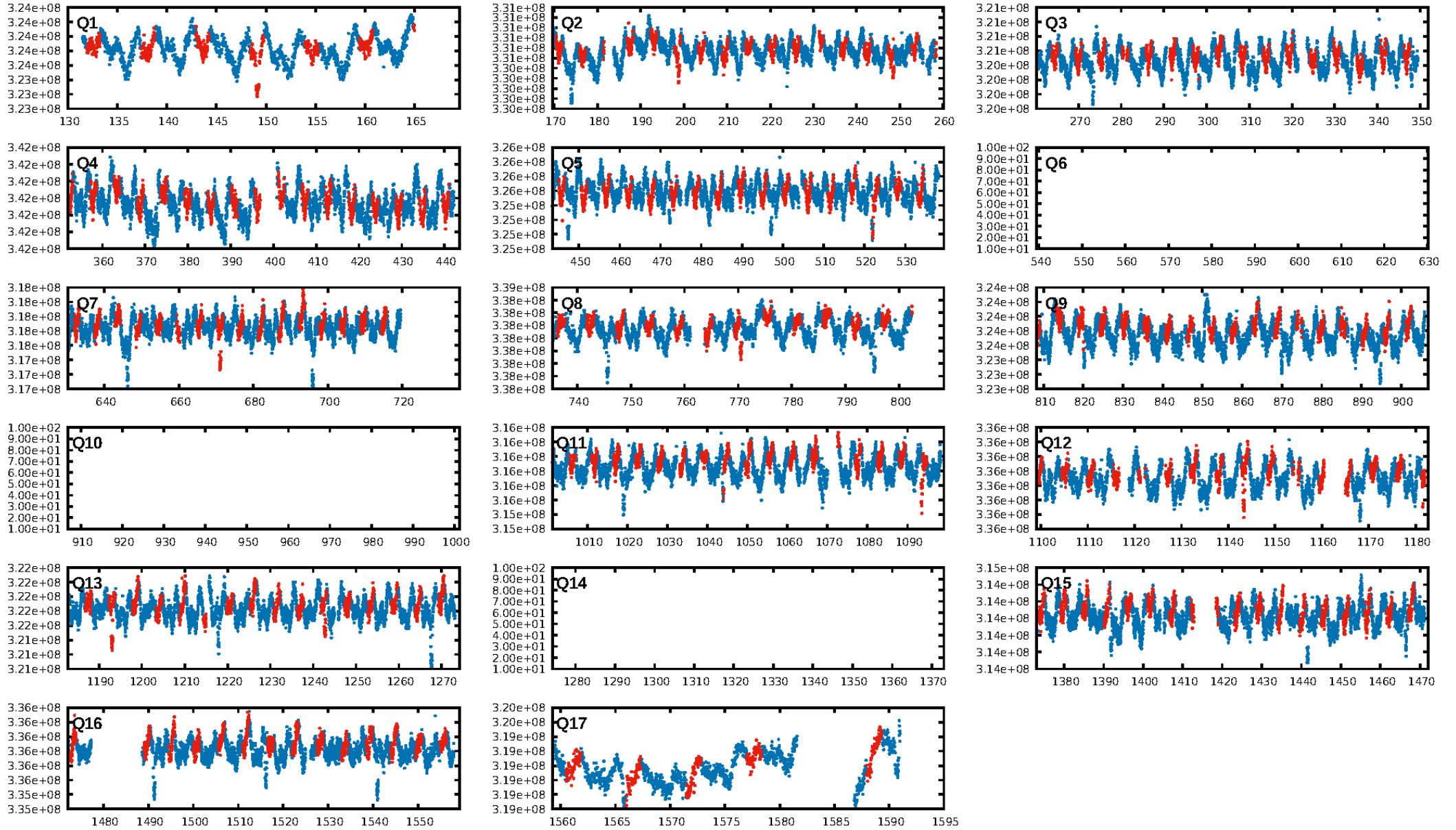
## DV Diagnostic Results:

ShortPeriod-sig: 0.3% [0.00σ]  
LongPeriod-sig: 100.0% [25.00σ]  
ModelChiSquare2-sig: 100.0%  
ModelChiSquareGof-sig: 100.0%  
**Bootstrap-pfa: 1.76e-09**  
RollingBand-fgt: 0.97 [181/186]  
GhostDiagnostic-chr: 4.848  
Centroid-sig: 5.0%  
Centroid-so: 0.924 arcsec [1.48σ]  
OotOffset-rm: 1.076 arcsec [2.45σ]  
KicOffset-rm: 1.072 arcsec [2.35σ]  
OotOffset-st: 1/4/4/4 [13]  
KicOffset-st: 1/4/4/4 [13]  
DiffImageQuality-fgm: 0.77 [10/13]  
DiffImageOverlap-fno: 1.00 [14/14]

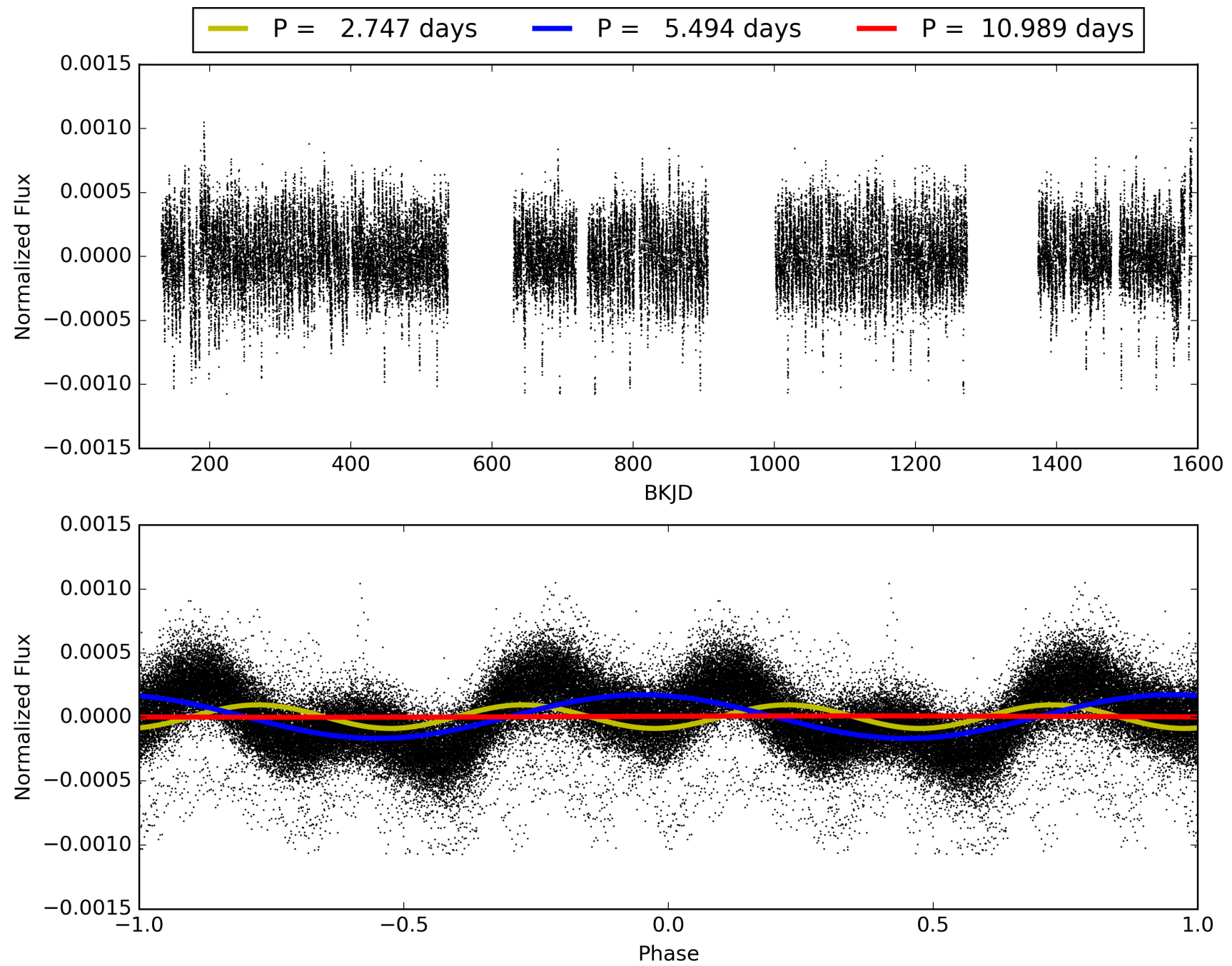
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 07:17:57 Z

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

# TCE 003662838-03, PDC Light Curves

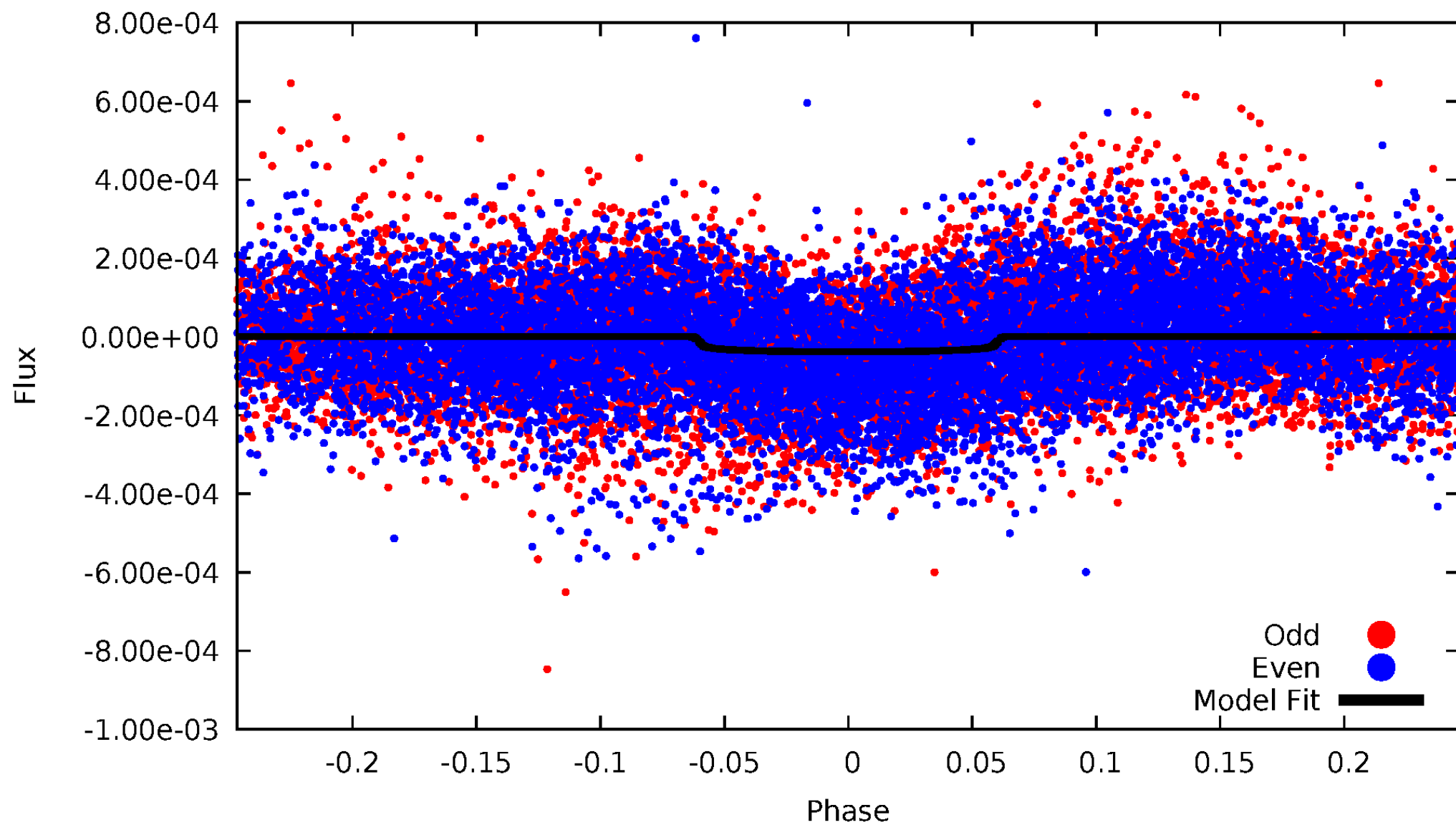


TCE 003662838-03



DV Odd/Even

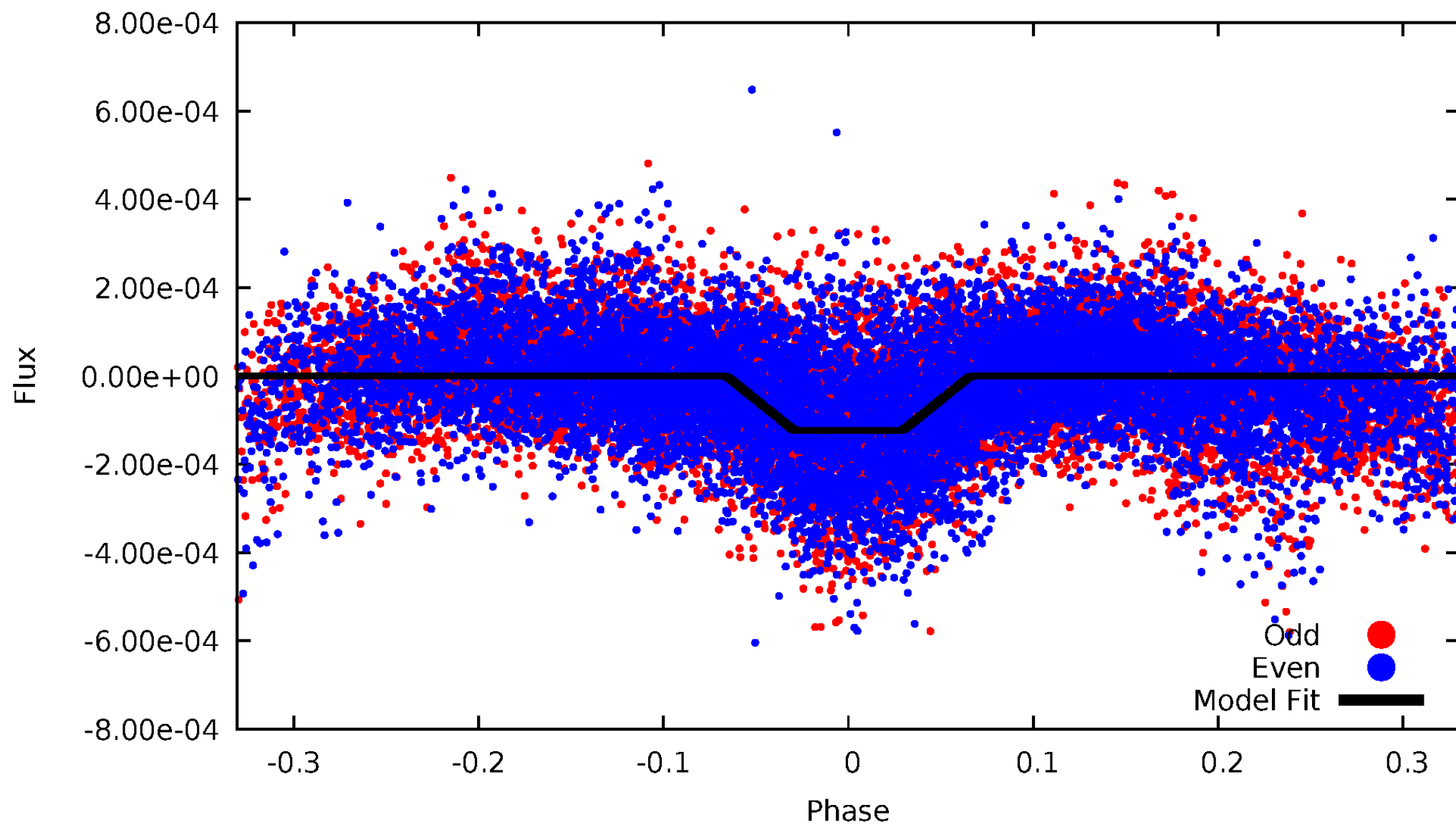
TCE 003662838-03





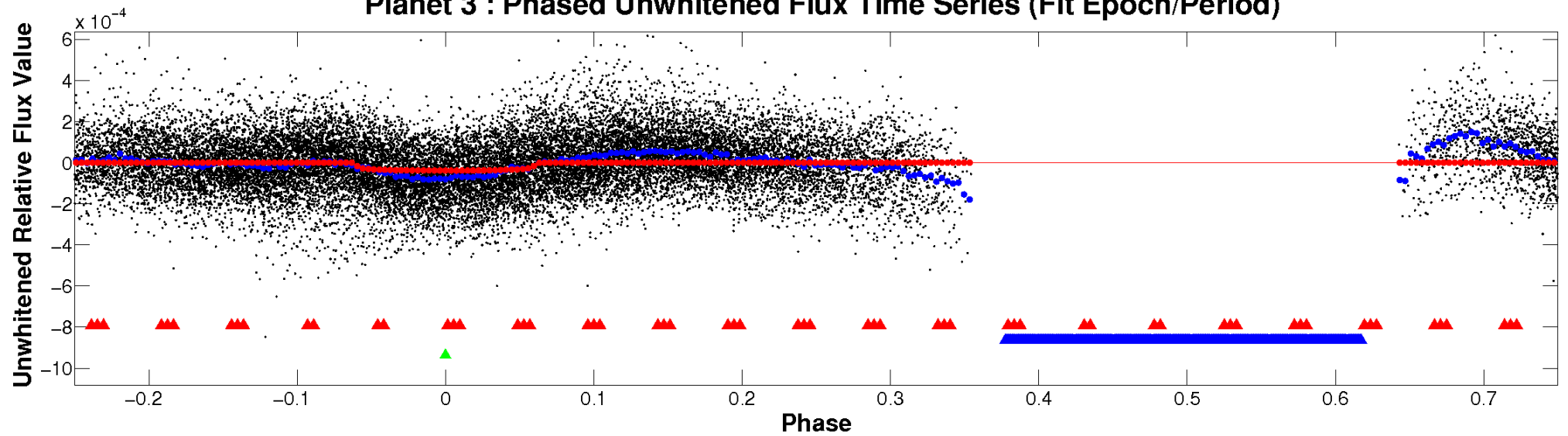
# ALT Odd/Even

TCE 003662838-03

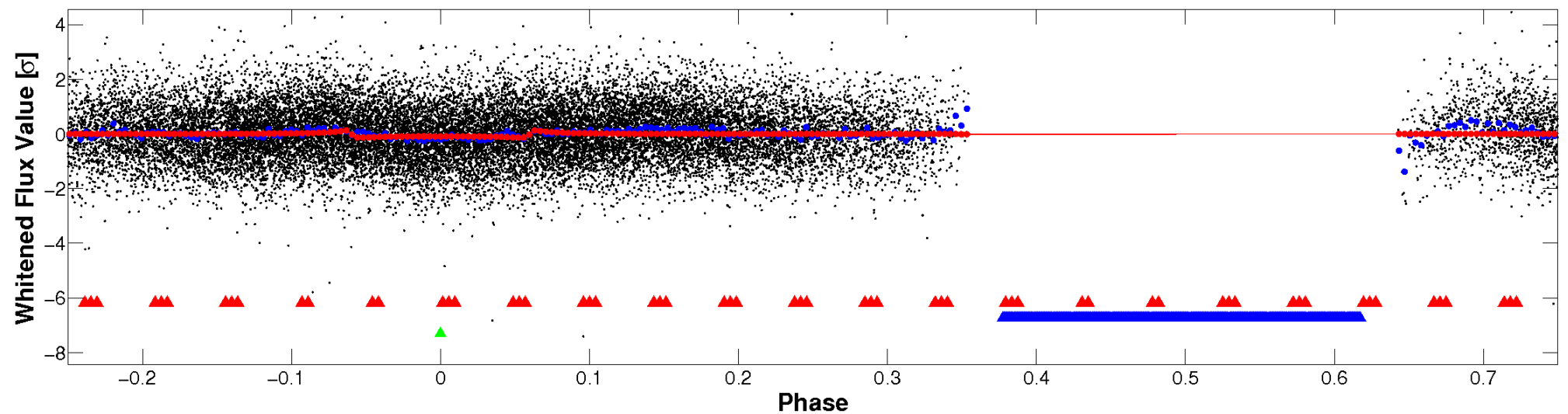


# Non-Whitened Vs. Whitened Light Curve

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



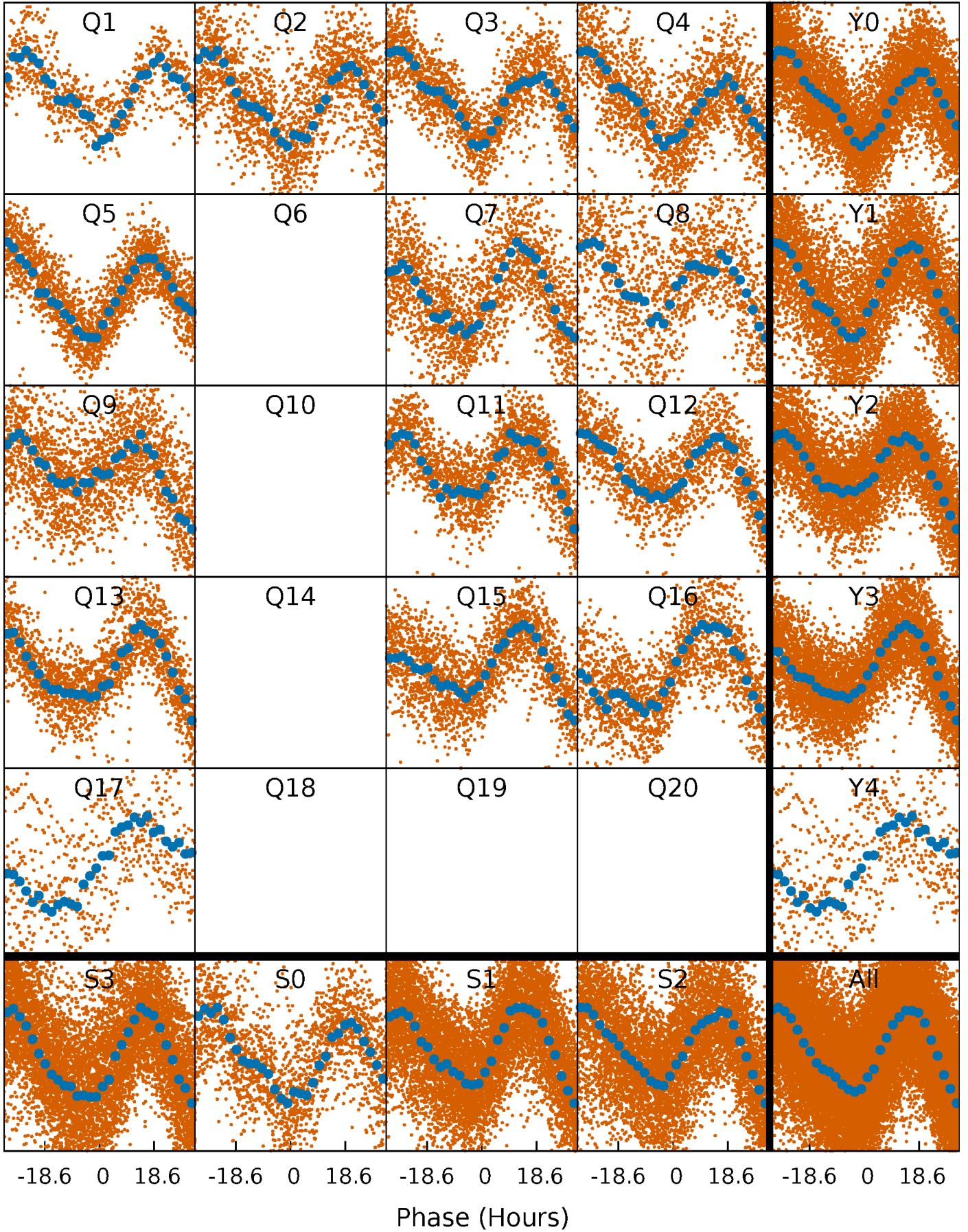
## Planet 3 : Phased Whitened Flux Time Series (Fit Epoch/Period)





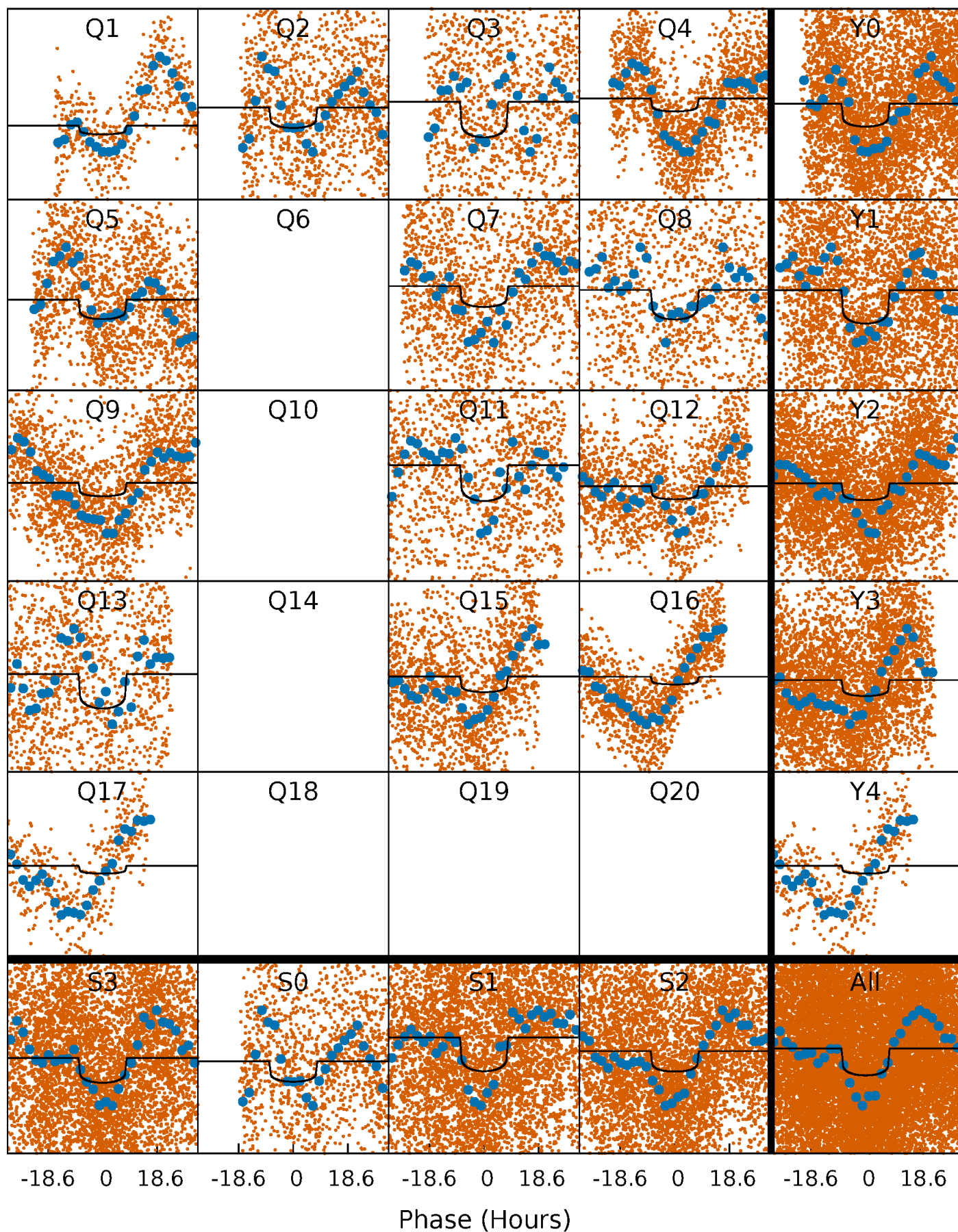
# PDC Quarter-Phased Transit Curves

TCE 003662838-03   P= 5.494409 Days    $T_0=132.610414$  (BKJD)



# DV Quarter-Phased Transit Curves

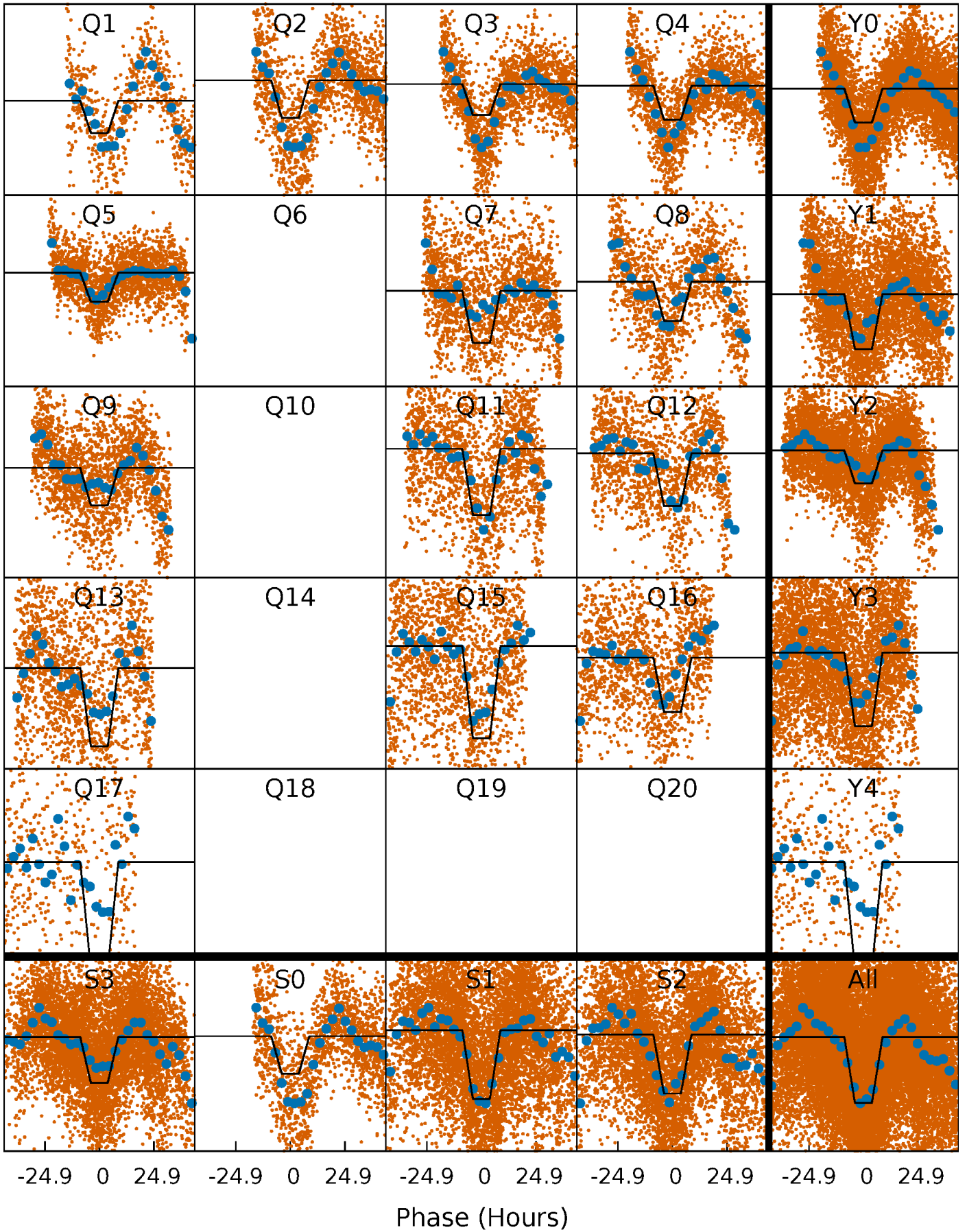
TCE 003662838-03   P= 5.494409 Days    $T_0=132.610414$  (BKJD)





# Alt. Detrend Quarter-Phased Transit Curves

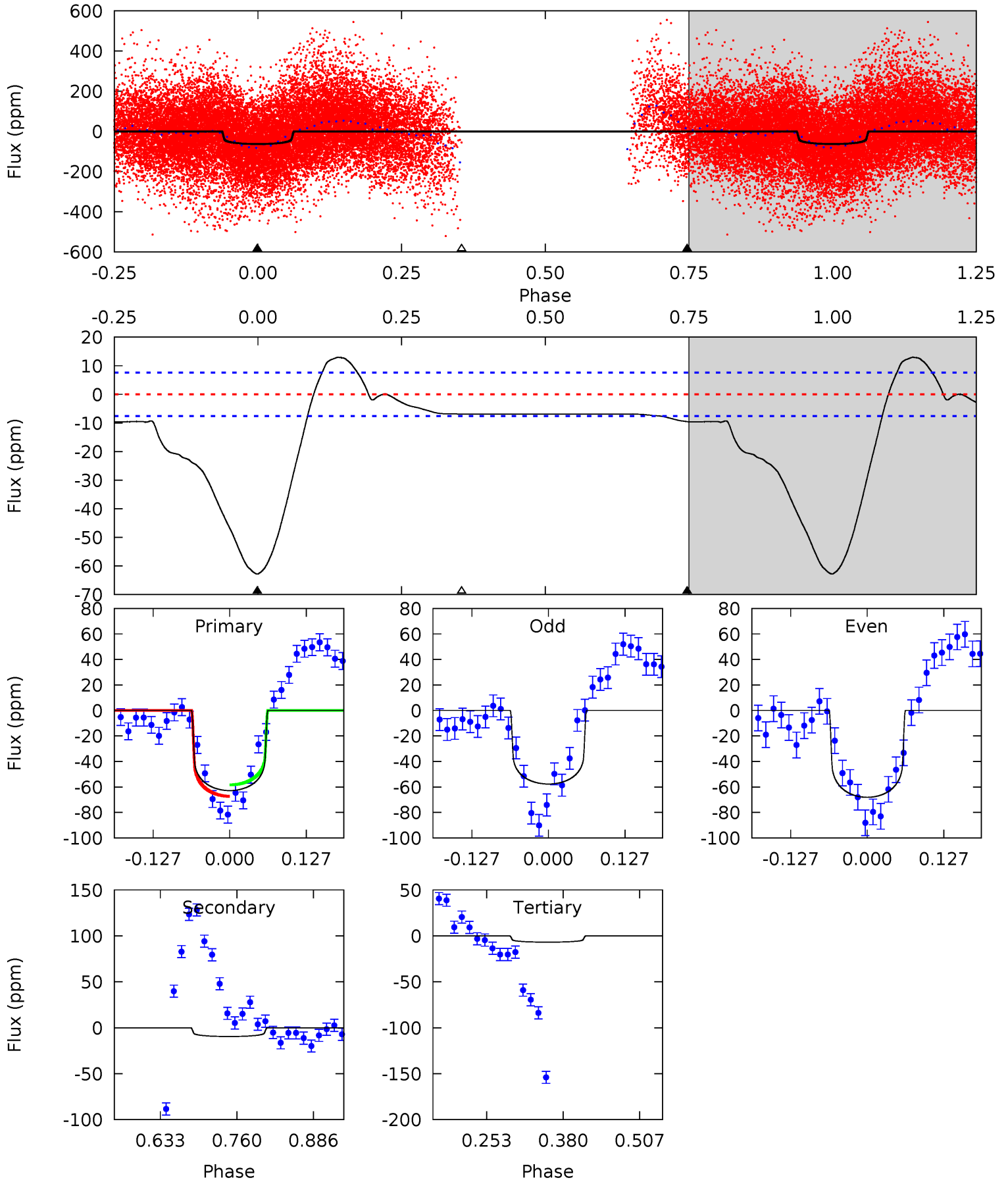
TCE 003662838-03 P= 5.494384 Days  $T_0=132.558972$  (BKJD)



# DV Model-Shift Uniqueness Test

003662838-03, P = 5.494409 Days, E = 127.116005 Days

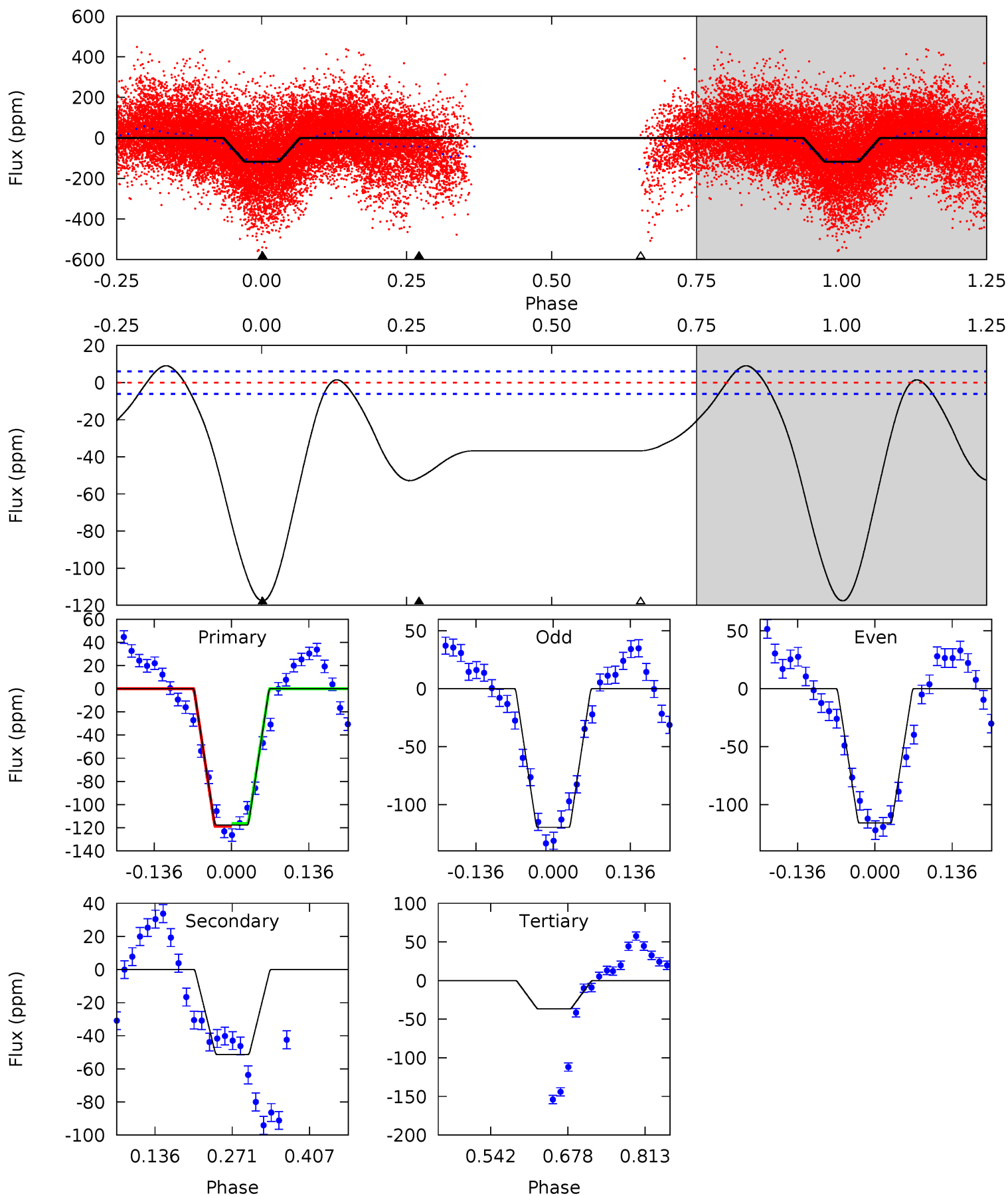
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
37.5	5.70	4.10	0	4.52	1.53	4.15	33.4	37.5	1.60	5.70	3.10	1.05	0.17	2.78



# Alt Model-Shift Uniqueness Test

003662838-03, P = 5.494384 Days, E = 127.064588 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
87.0	38.0	27.2	0	4.50	1.49	10.7	59.8	87.0	10.8	38.0	1.36	0.98	0.07	1.01



### Stellar Parameters For KIC 003662838

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R$ ( $R_{\odot}$ )	$M(M_{\odot})$	$p_{\star}$ ( $\text{g}\cdot\text{cm}^{-3}$ )
	$6967^{+167}_{-229}$	$3.864^{+0.259}_{-0.111}$	$-0.020^{+0.250}_{-0.350}$	$2.527^{+0.458}_{-0.851}$	$1.700^{+0.149}_{-0.349}$	$0.148^{+0.252}_{-0.051}$
	+2%/-3%	+7%/-3%	+1250%/-1750%	+18%/-34%	+9%/-21%	+170%/-34%
Source	PHO1	FLK73	KIC0	DSEP		

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

### Secondary Eclipse Parameters for KIC 003662838-03 / KOI

Detrend	Depth (ppm)	$R_p$ ( $R_{\oplus}$ )	$T_{max}$ (K)	$T_{obs}$ (K)	$A_{obs}$
DV	$-10 \pm 2$	$1.68^{+0.29}_{-0.31}$	$2493^{+146}_{-207}$	$4877^{+326}_{-302}$	$9.725^{+4.925}_{-3.004}$
Alt.	$-51 \pm 1$	$2.97^{+0.41}_{-0.56}$	$2490^{+164}_{-213}$	$5545^{+218}_{-196}$	$17^{+7}_{-4}$

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

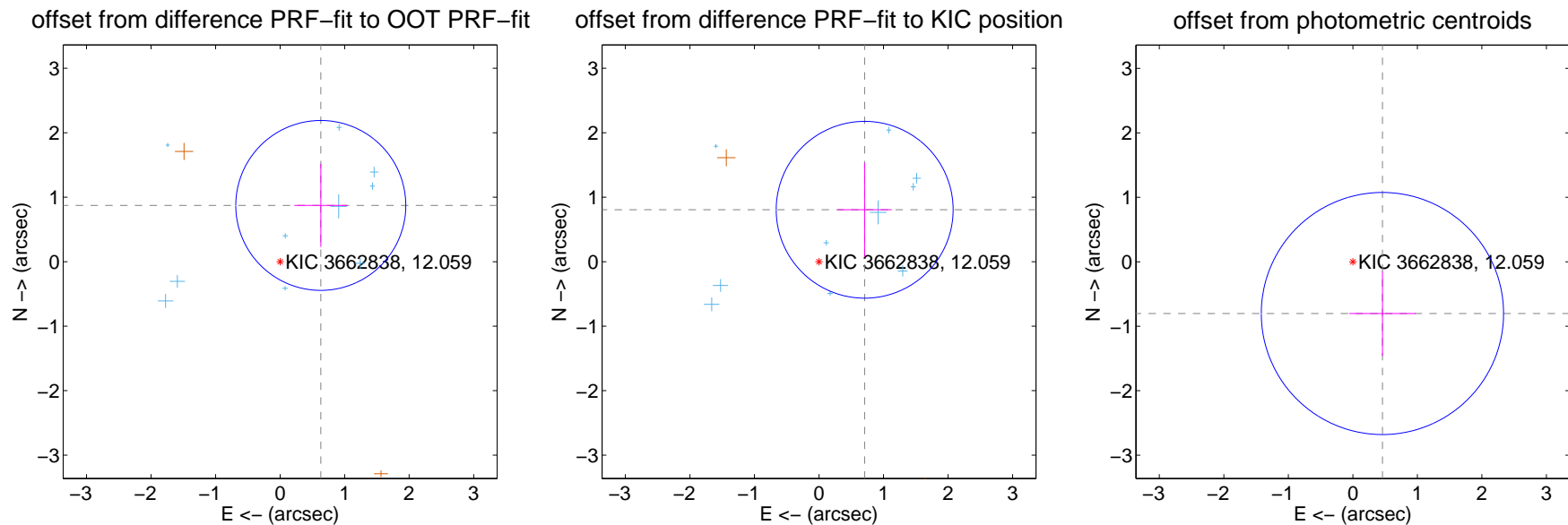
## DV Centroid Data

Supplemental centroid analysis for 003662838-03. Kepler magnitude: 12.06. Transit SNR 8.80

There are 10 quarters with good PRF difference image offsets

The direct PRF centroid is offset from the target star catalog position by about 0.06 arcsec

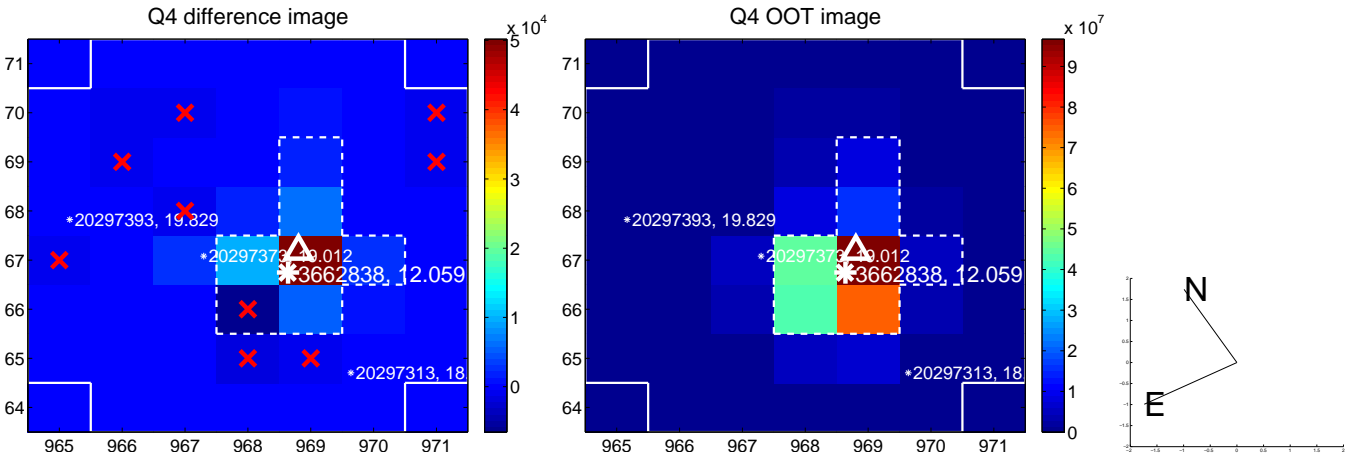
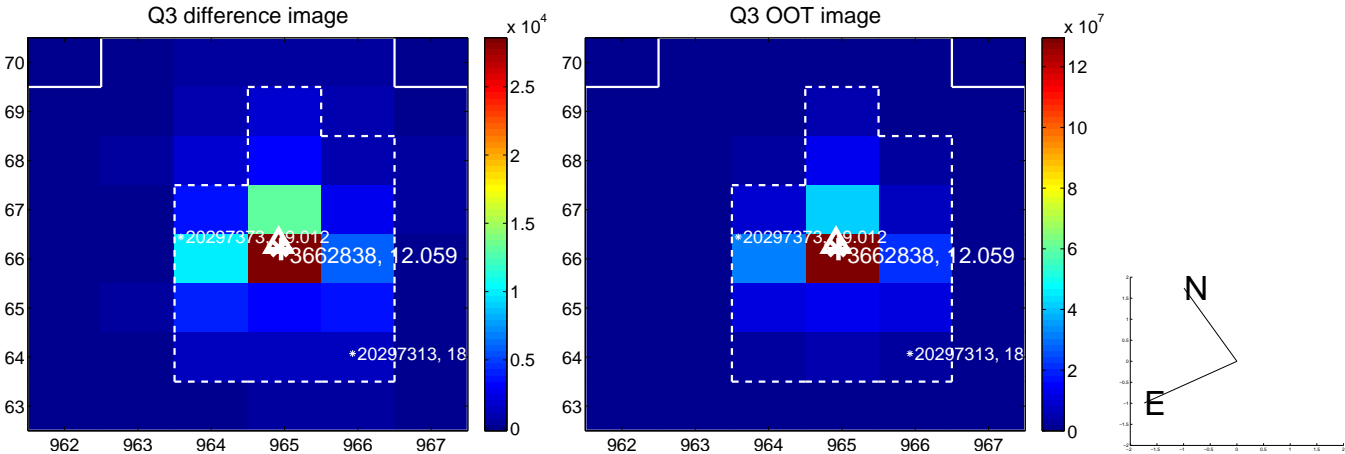
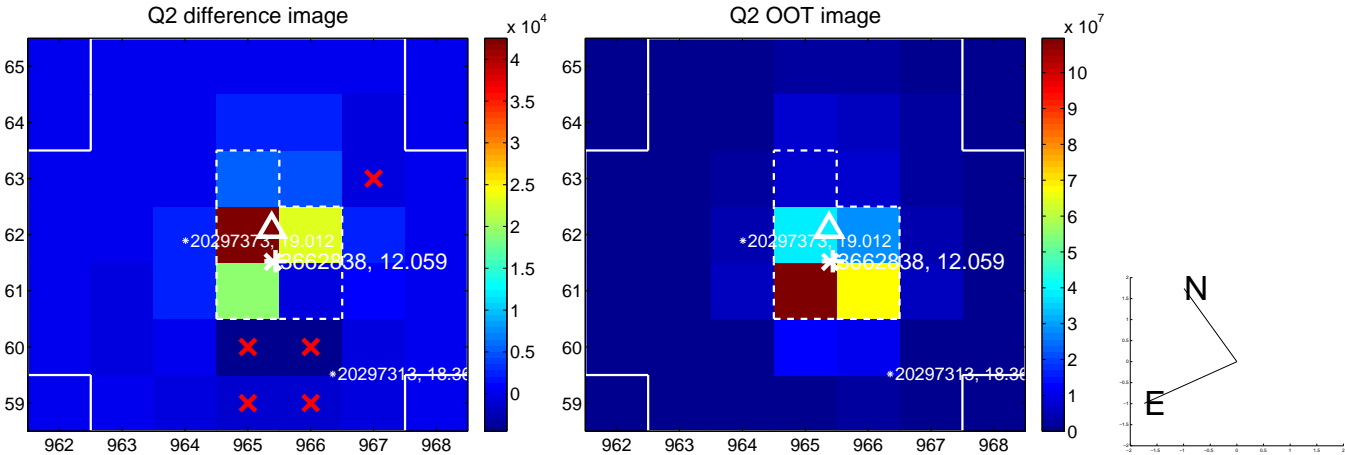
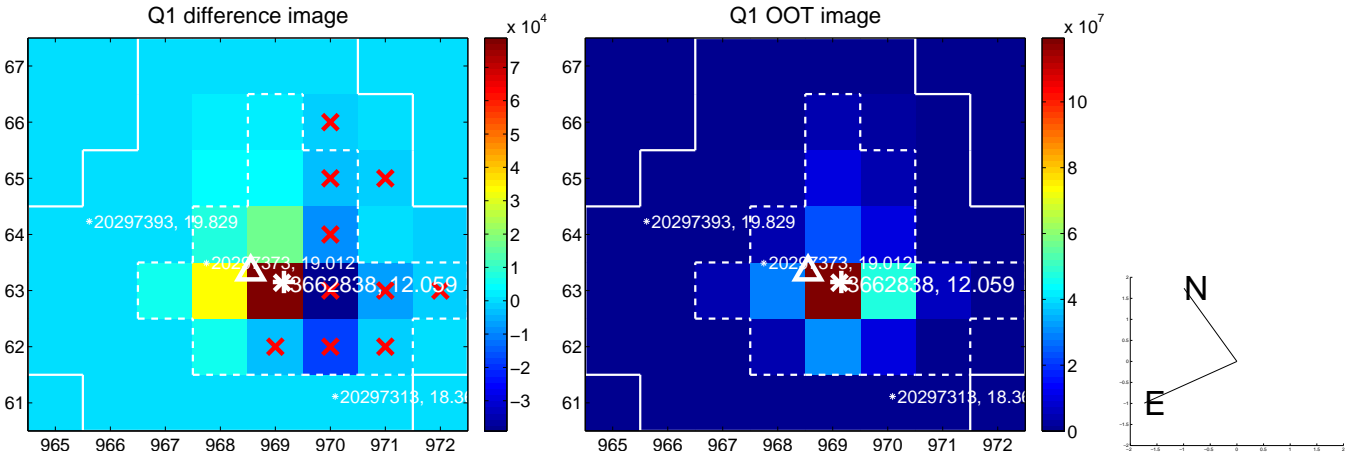
	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$1.076 \pm 0.439$	2.45	$-0.630 \pm 0.411$	$0.872 \pm 0.644$
PRF-fit source offset from KIC position	$1.072 \pm 0.457$	2.35	$-0.708 \pm 0.421$	$0.805 \pm 0.730$
photometric centroid source offset	$0.92 \pm 0.63$	1.48	$-0.46 \pm 0.52$	$-0.80 \pm 0.66$



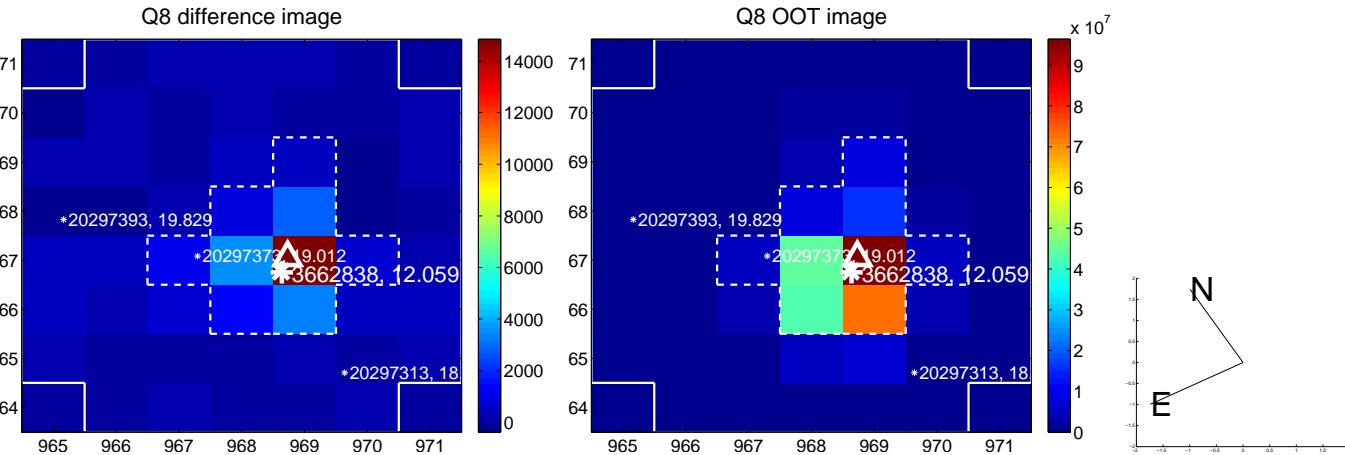
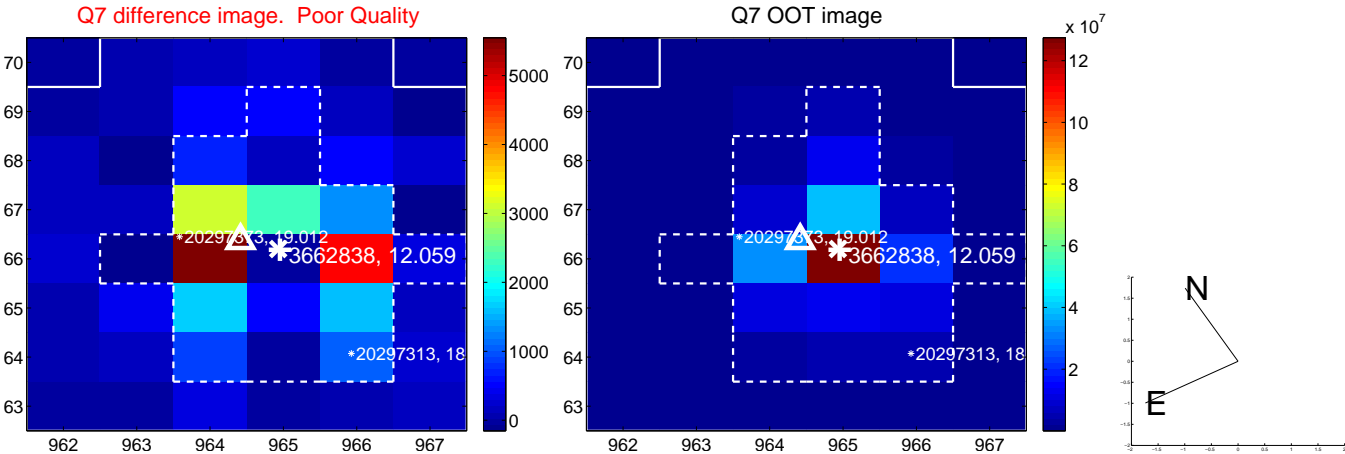
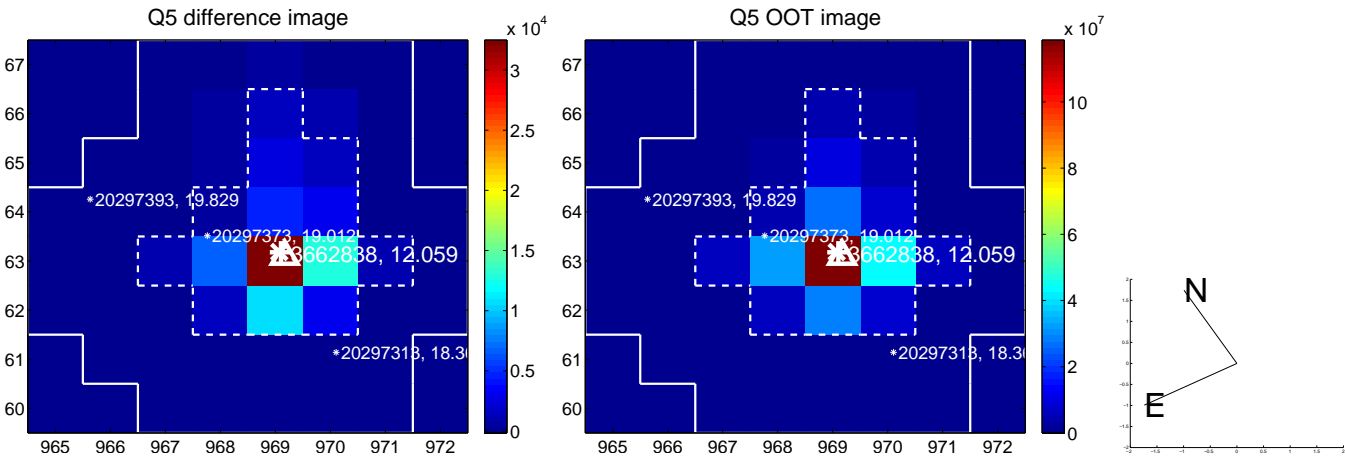
Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses:** good quarterly centroid offsets; **Vermillion crosses:** bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: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



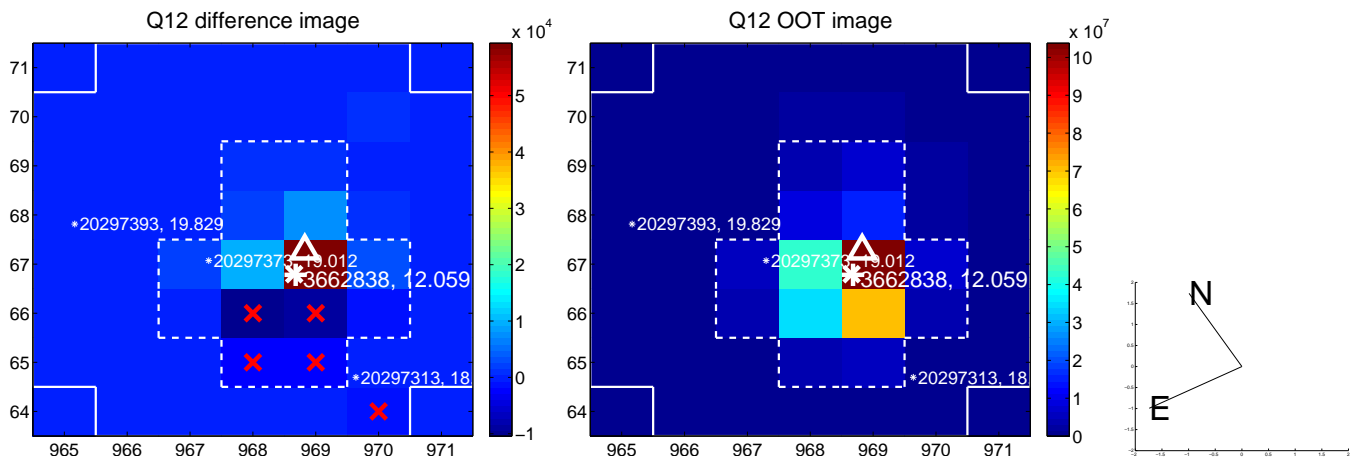
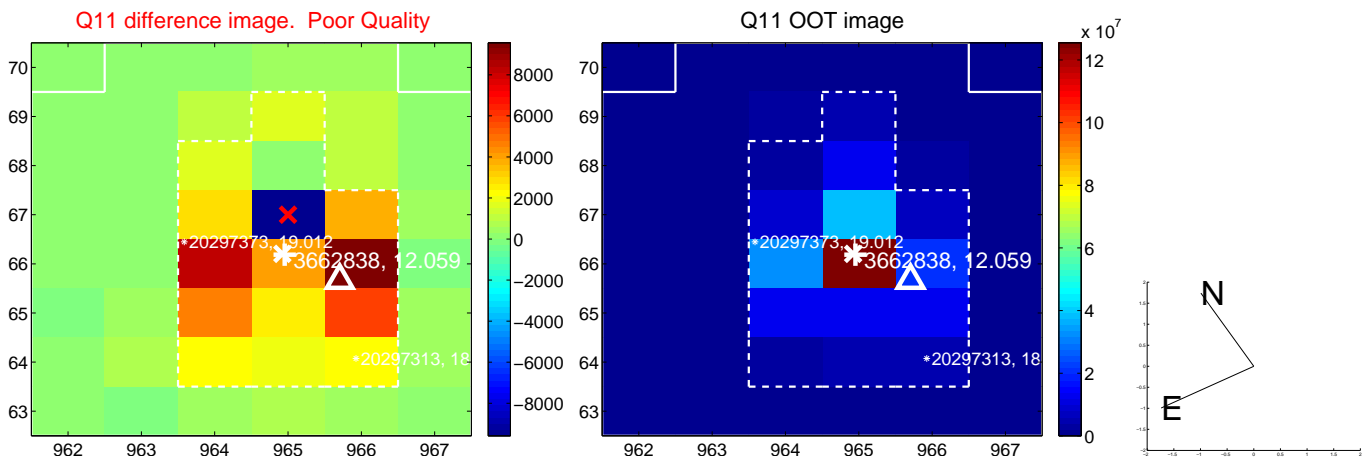
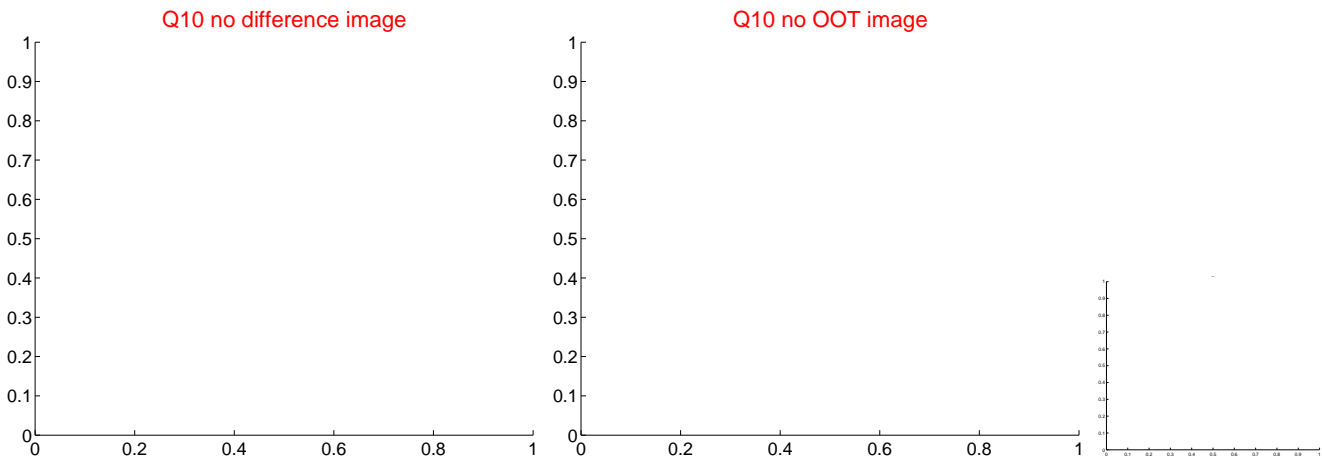
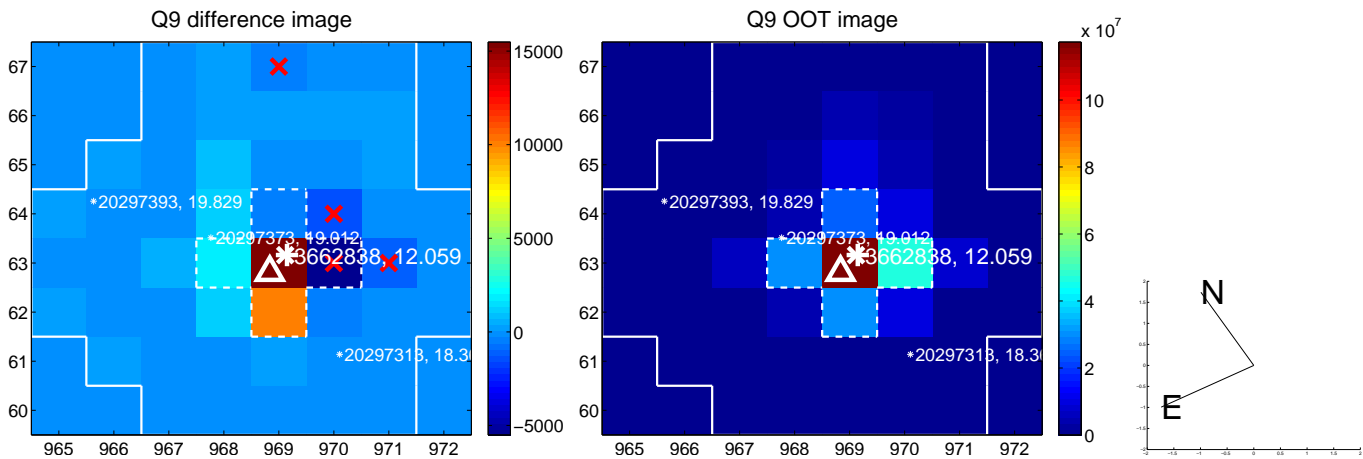
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



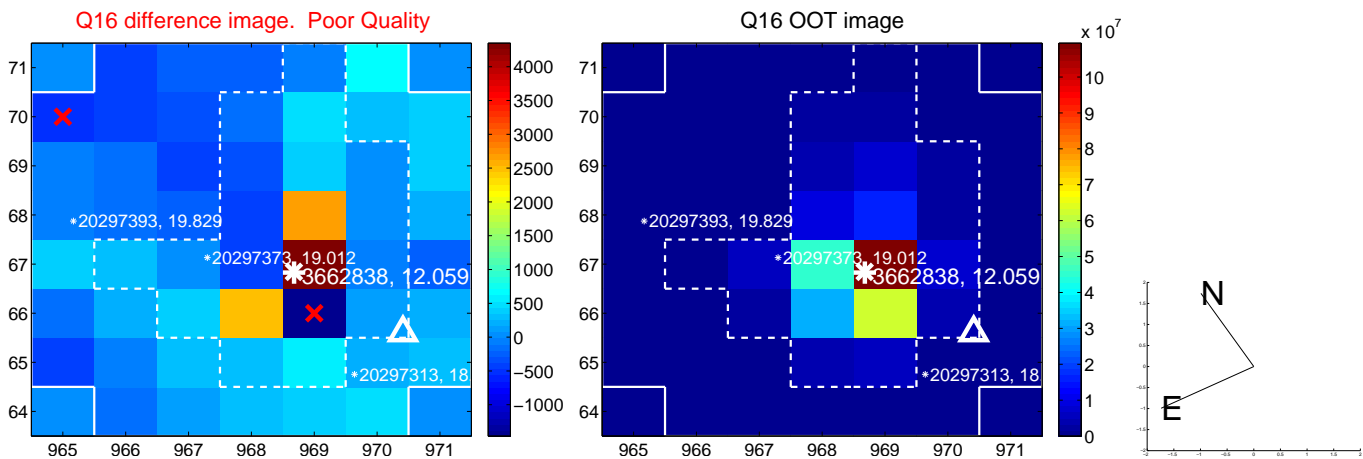
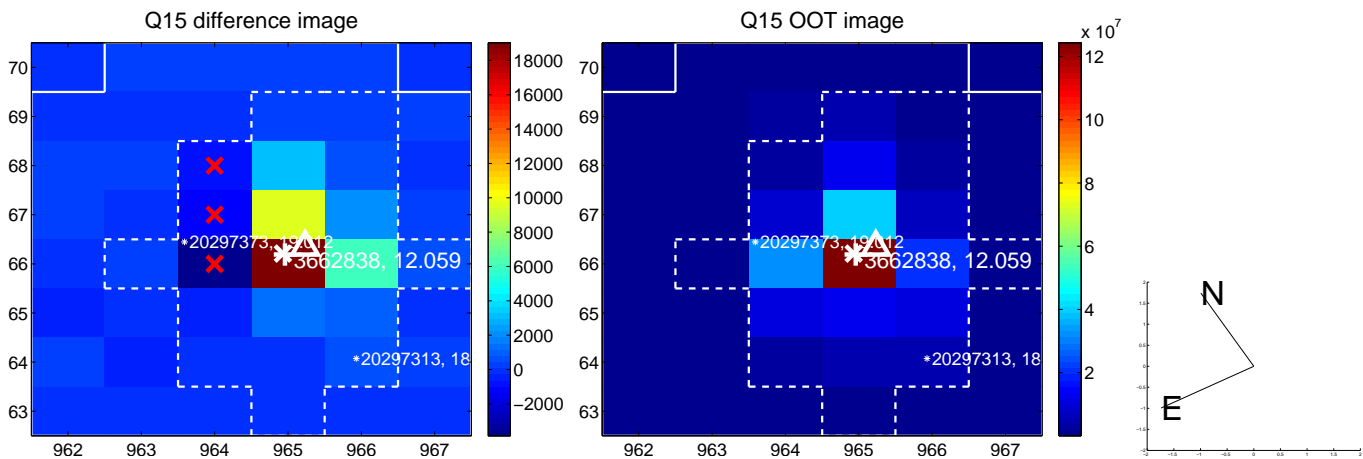
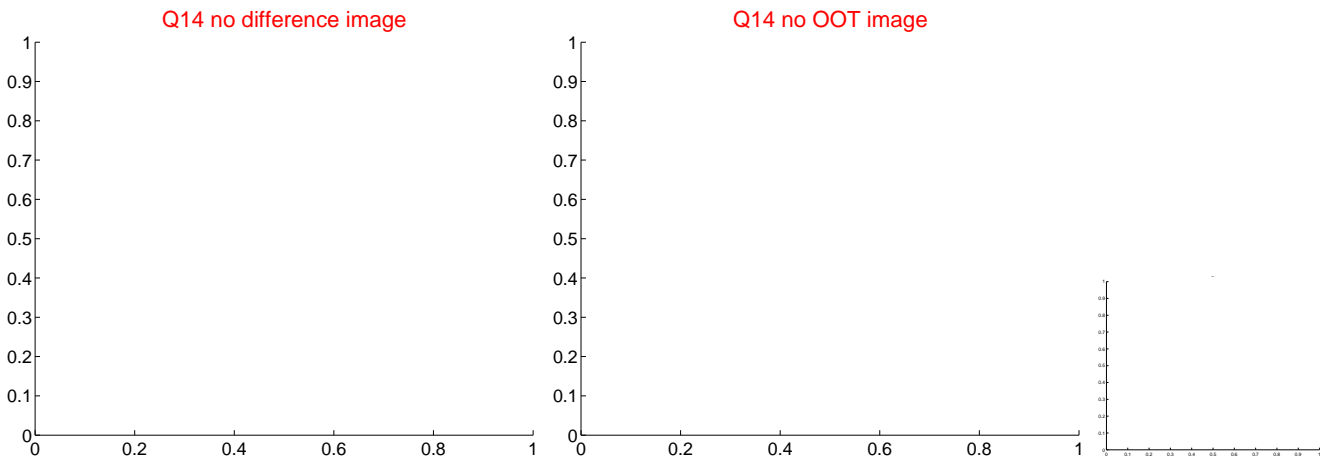
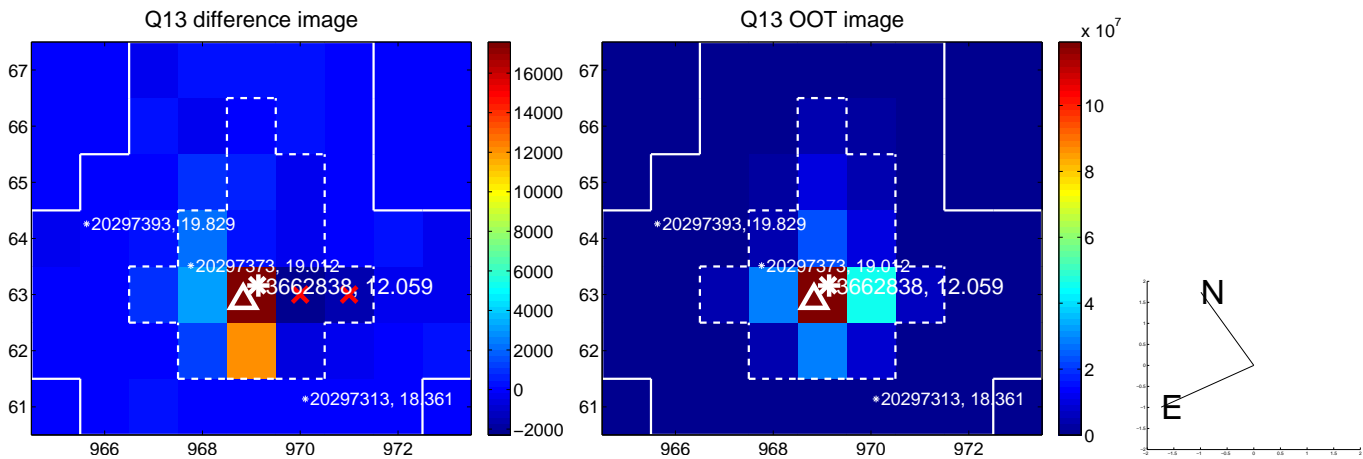
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



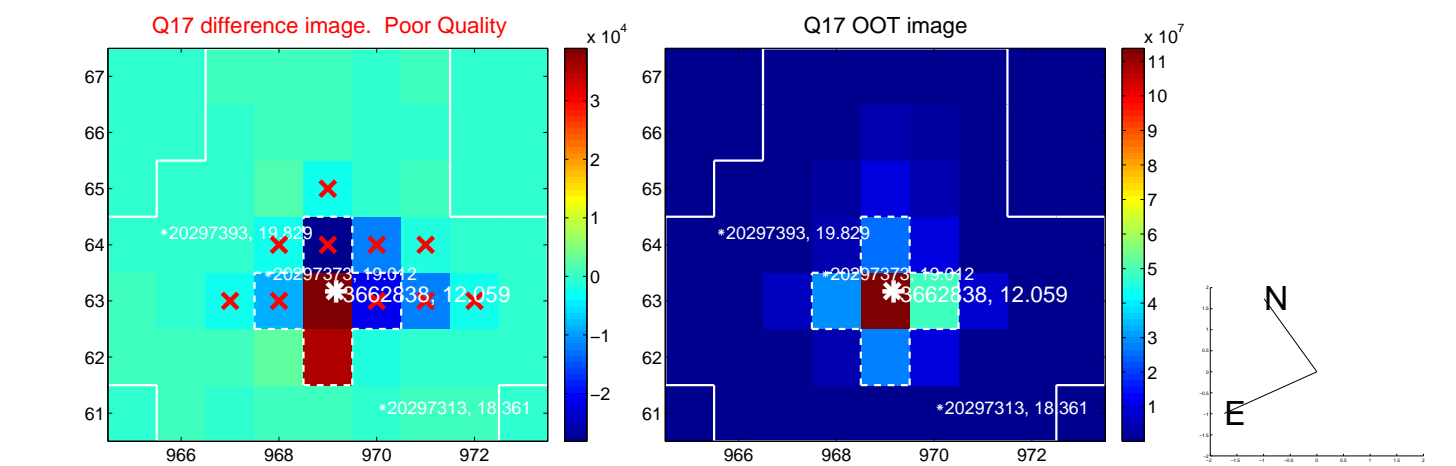
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



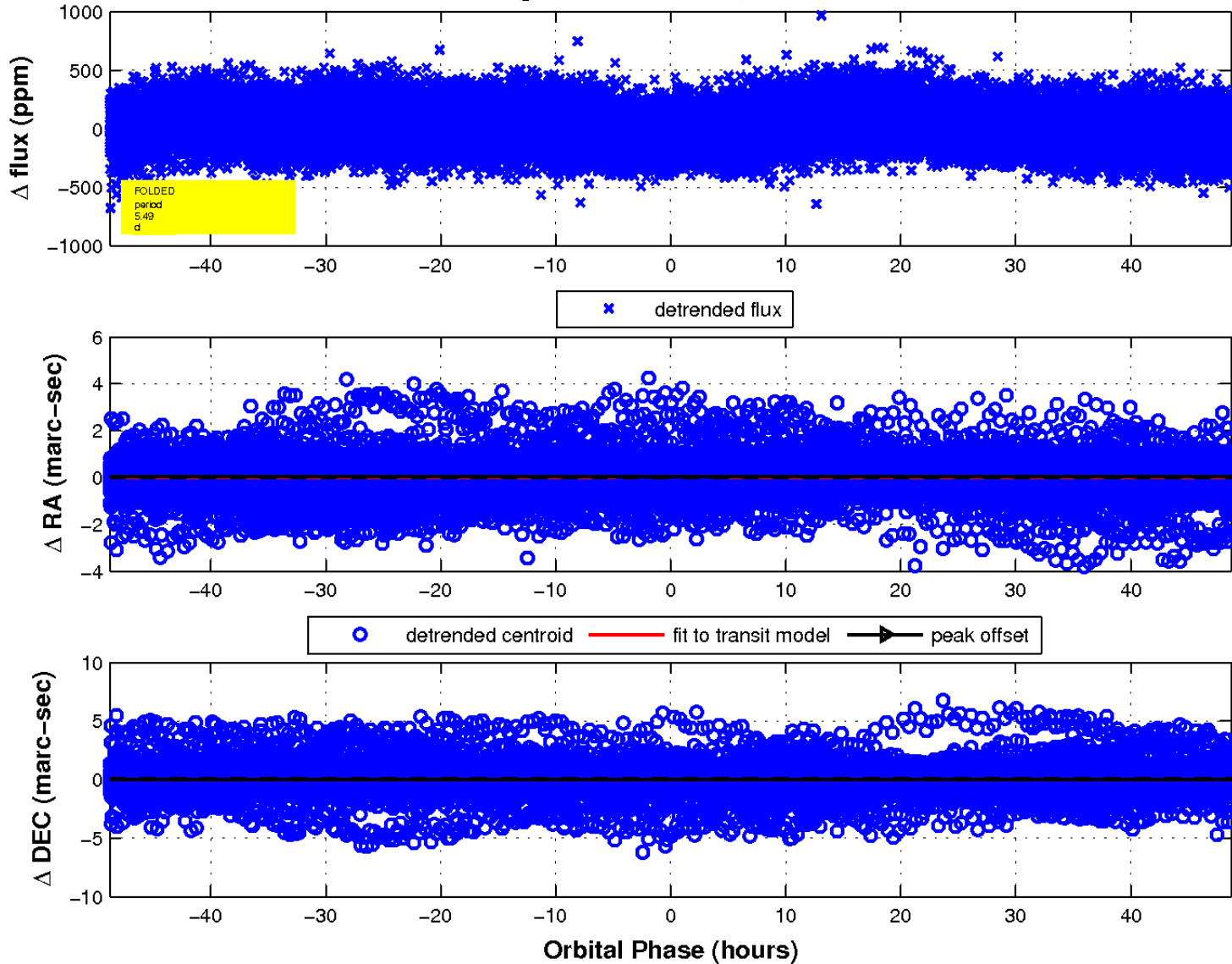
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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



fluxWeightedCentroids, Planet 3 of 3



UKIRT Image

Declination

