

KIC 003662358

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})
003662358-01	OBS	No	1.490092	132.974783	26.9	9.090	7.6	10.0	2.91	6522	1.81	17127.49
003662358-02	OBS	No	236.831772	168.141556	511.4	12.500	15.4	-1.0	2.91	6522	6.63	19.89

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
003662358-01	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT
003662358-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL—TRANS_GAPPED—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_NOFITS

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

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

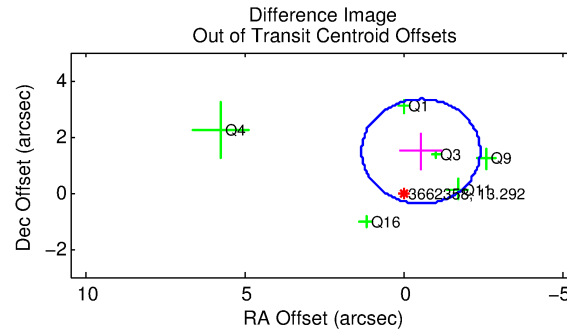
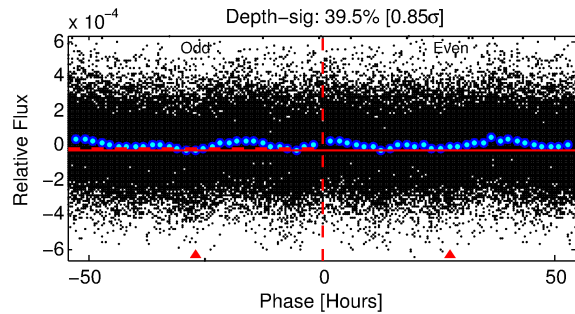
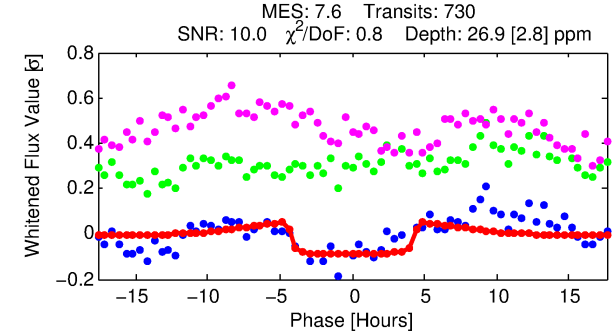
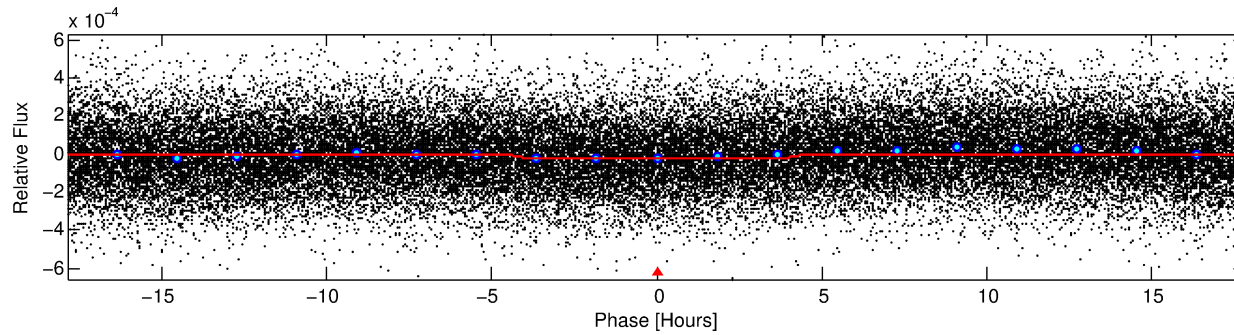
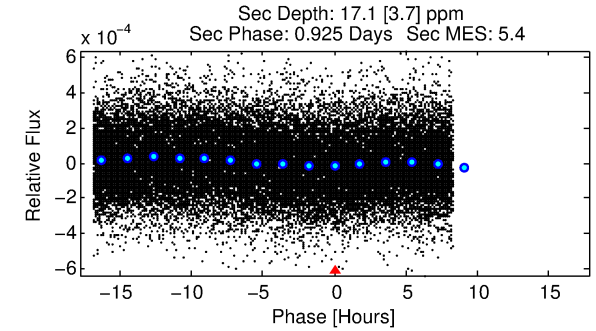
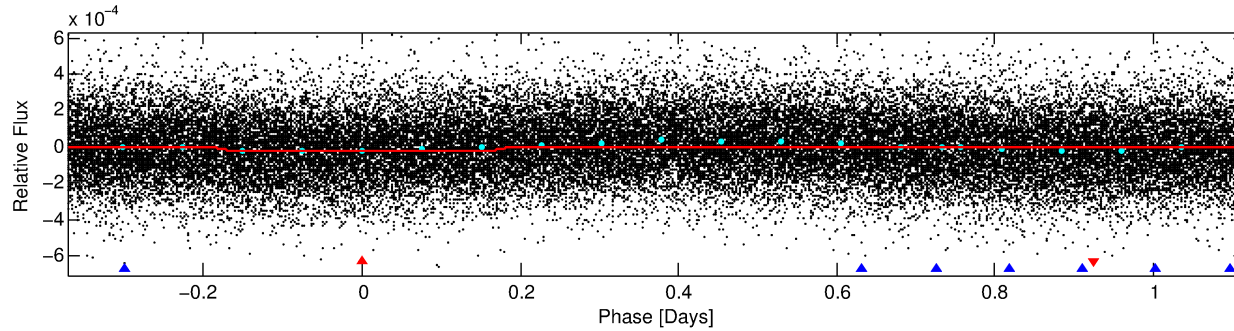
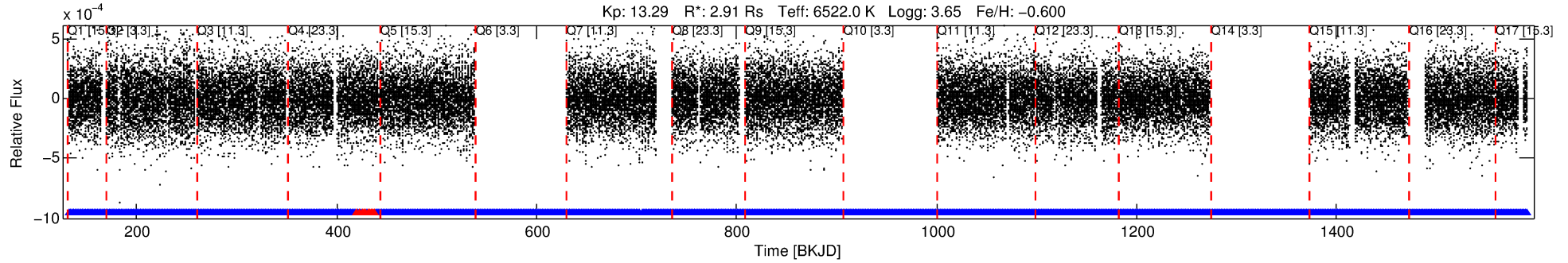
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 003662358-01

No Significant Match Found

DV One-Page Summary

KIC: 3662358 Candidate: 1 of 2 Period: 1.490 d



DV Fit Results:

Period = 1.49009 [0.00002] d
Epoch = 132.9748 [0.0055] BKJD
Rp/R* = 0.0057 [0.0010]
a/R* = 1.07 [0.14]
b = 0.93 [0.15]
Seff = 17127.49 [11133.91]
Teq = 2917 [474] K
Rp = 1.81 [0.80] Re
a = 0.0283 [0.0113] AU
Ag = 2.31 [1.74] [0.75σ]
Teffp = 5560 [584] K [3.51σ]

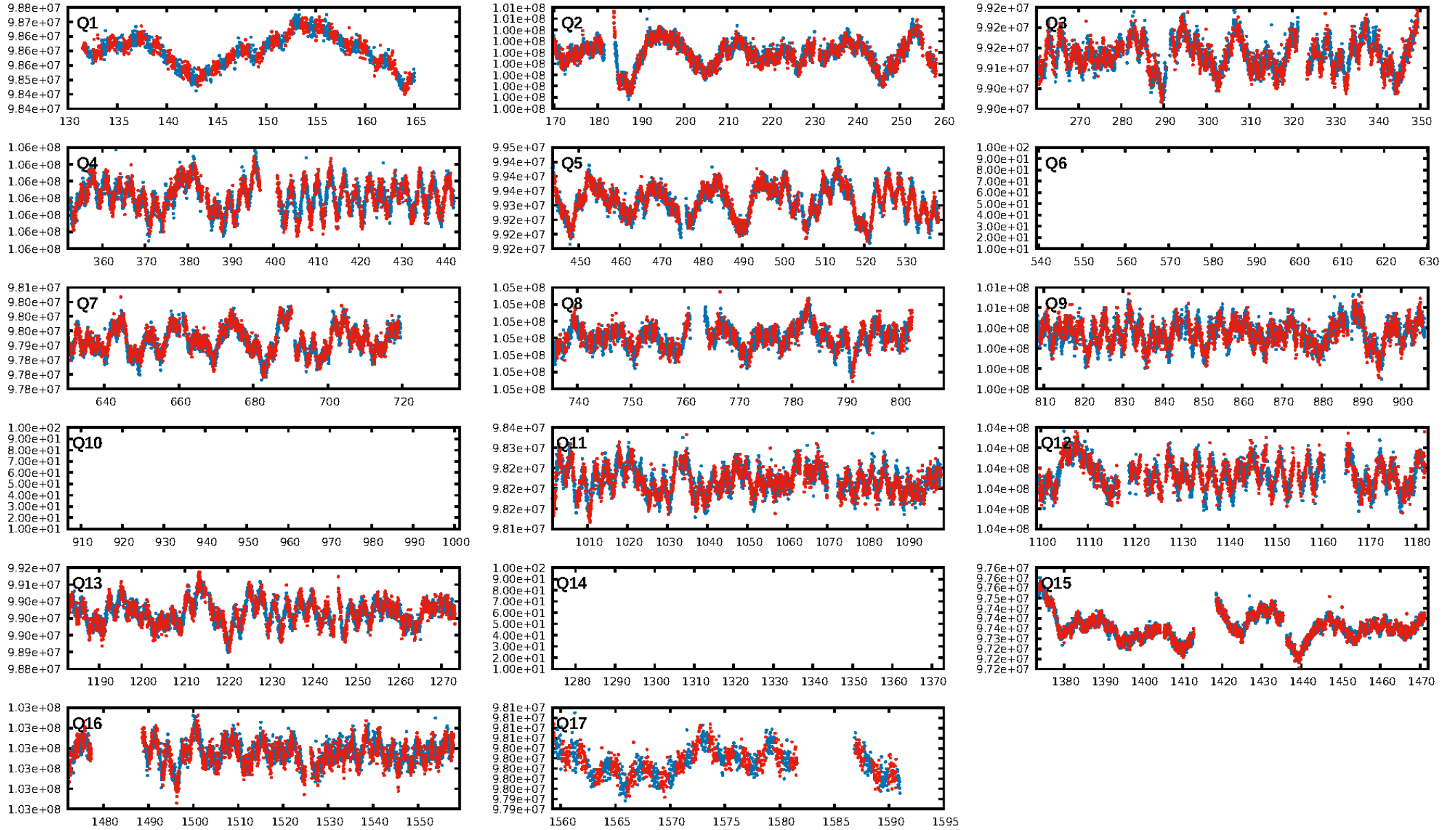
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: 100.0% [365.45σ]
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: 1.17e-09
RollingBand-fgt: 0.99 [679/689]
GhostDiagnostic-chr: 4.466
Centroid-sig: 1.9%
Centroid-so: 1.064 arcsec [1.41σ]
OotOffset-rm: 1.563 arcsec [2.52σ]
OotOffset-st: 0/2/2/2 [6]
KicOffset-rm: 1.445 arcsec [2.28σ]
KicOffset-st: 0/2/2/2 [6]
DiffImageQuality-fgm: 0.50 [3/6]
DiffImageOverlap-fno: 1.00 [14/14]

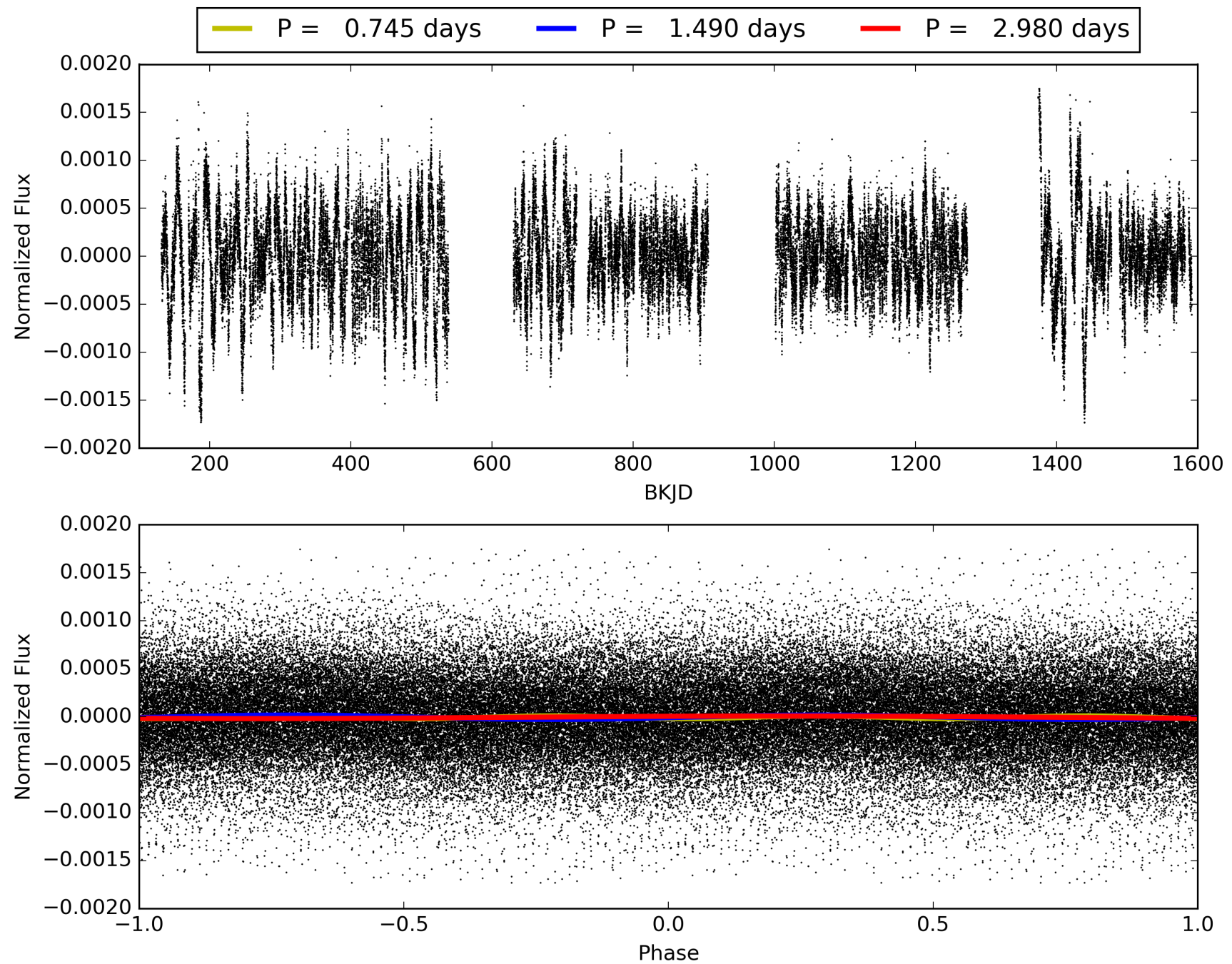
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 29-Jan-2016 23:11:08 Z

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

TCE 003662358-01, PDC Light Curves

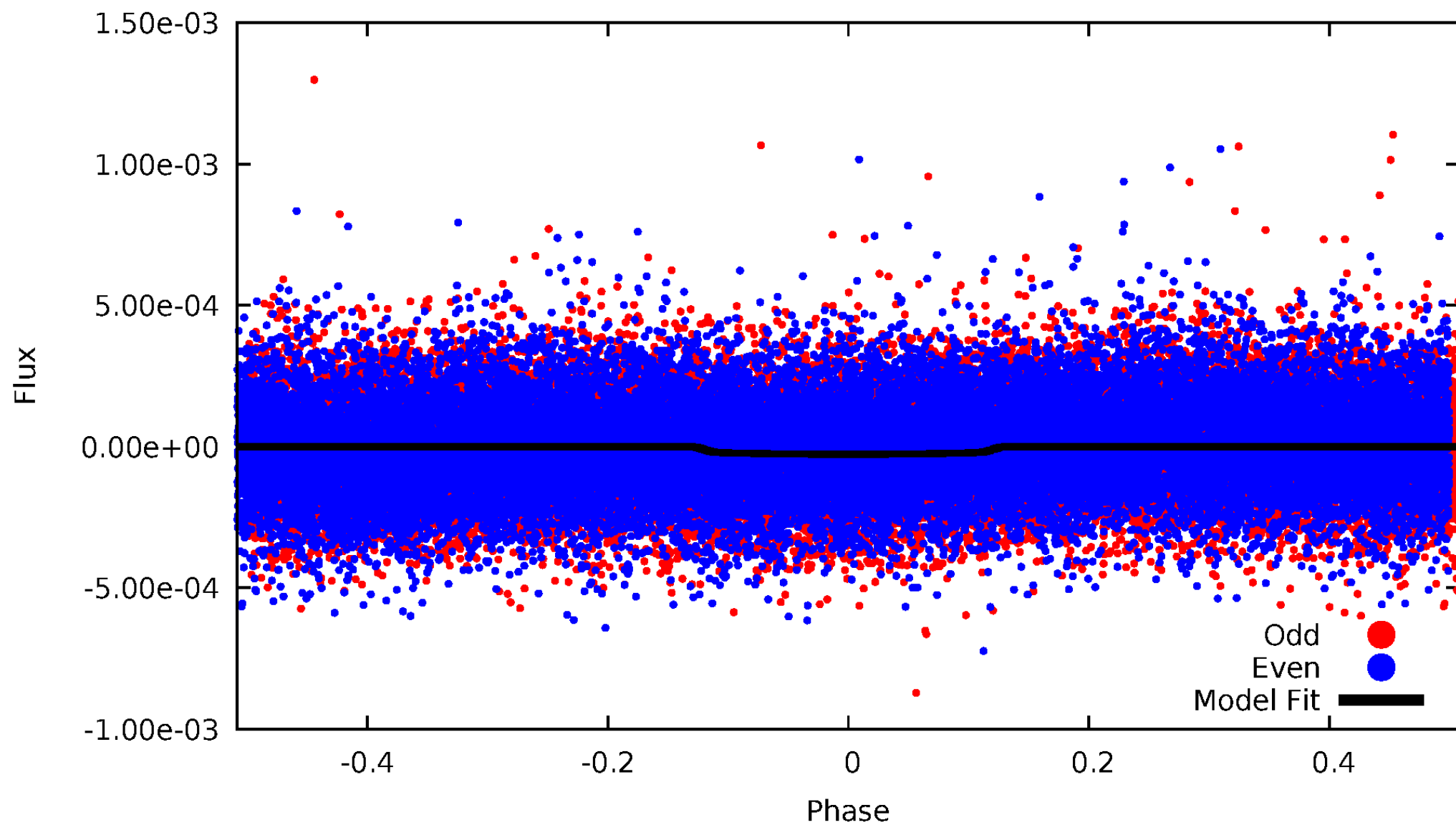


TCE 003662358-01



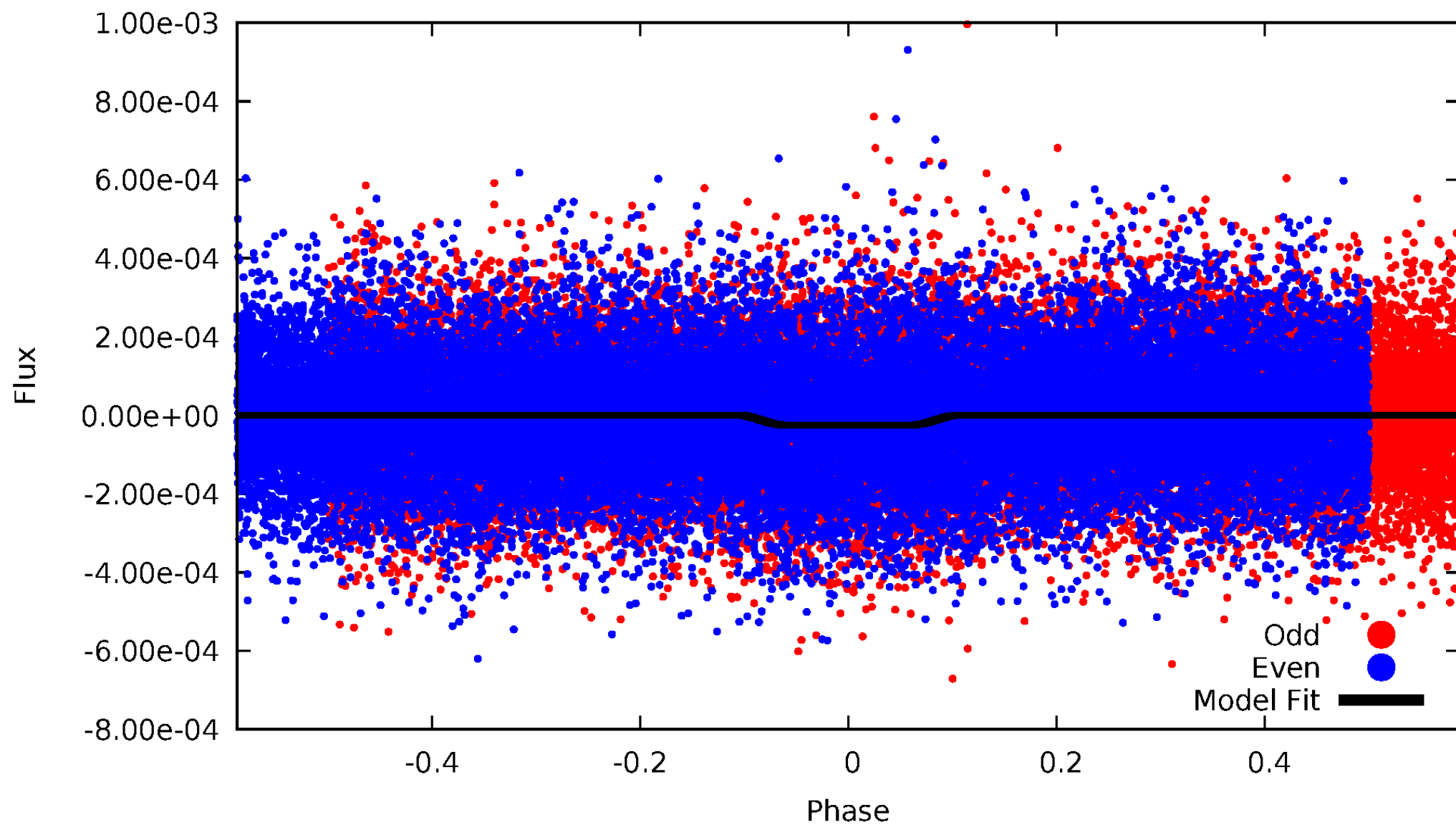
DV Odd/Even

TCE 003662358-01



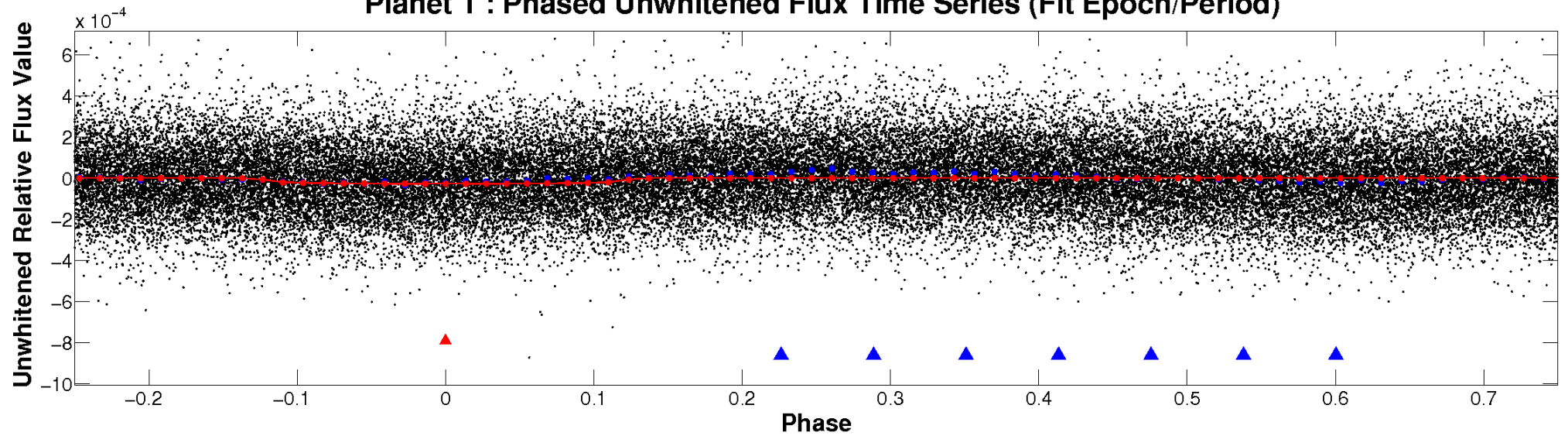
ALT Odd/Even

TCE 003662358-01

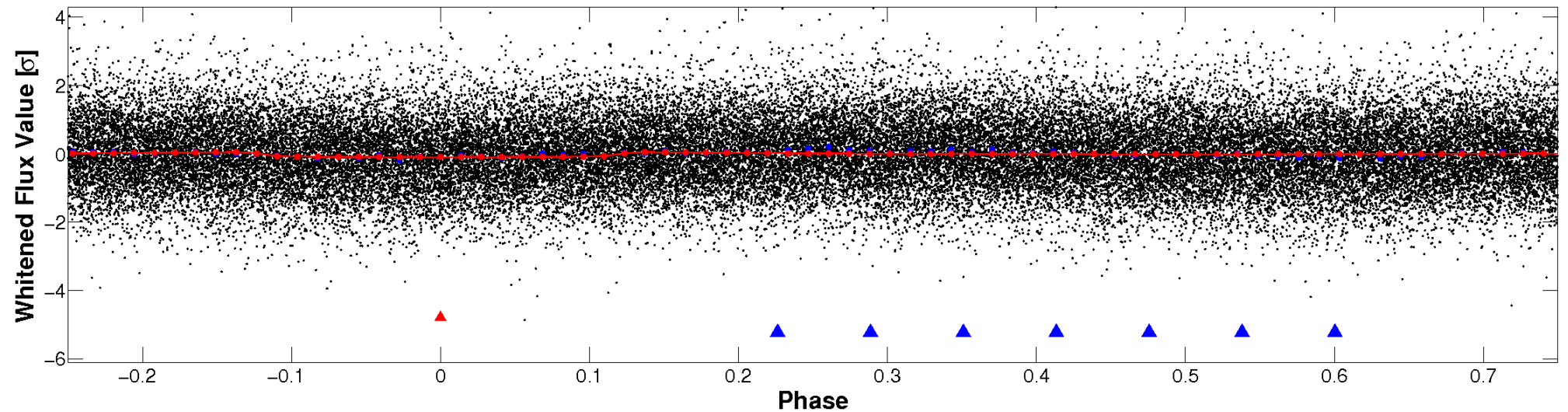


Non-Whitened Vs. Whitened Light Curve

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

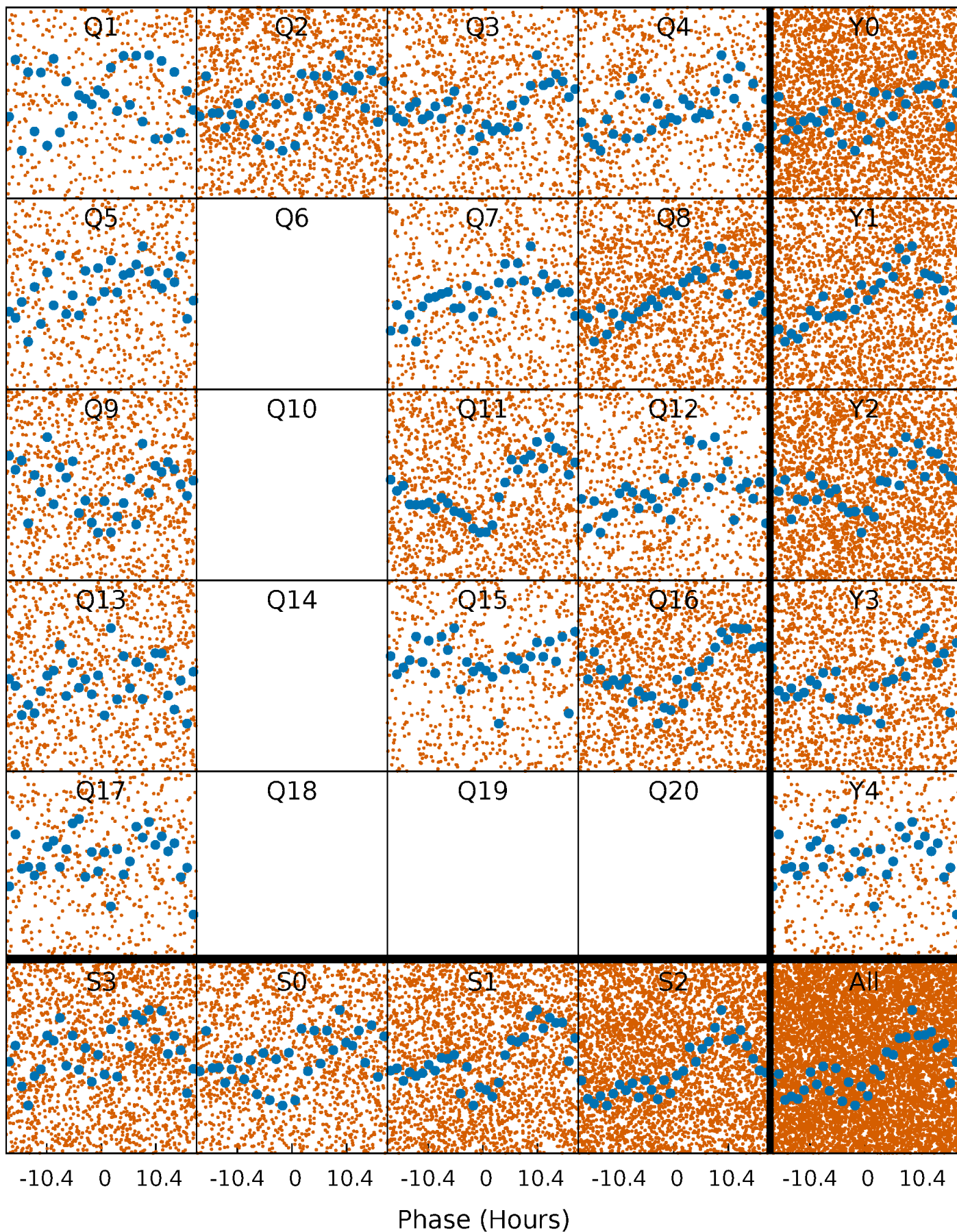


Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)



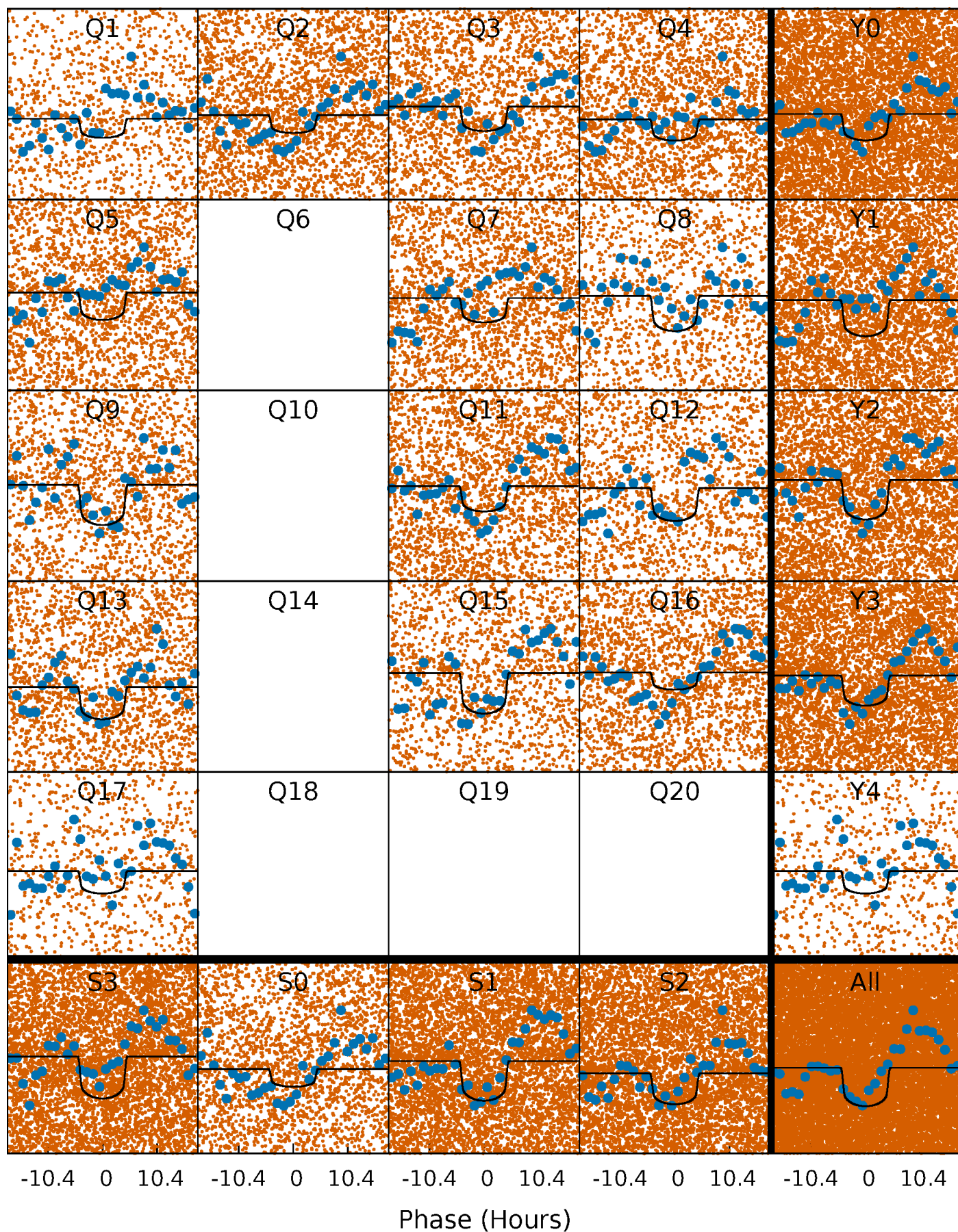
PDC Quarter-Phased Transit Curves

TCE 003662358-01 P= 1.490092 Days $T_0=132.974783$ (BKJD)



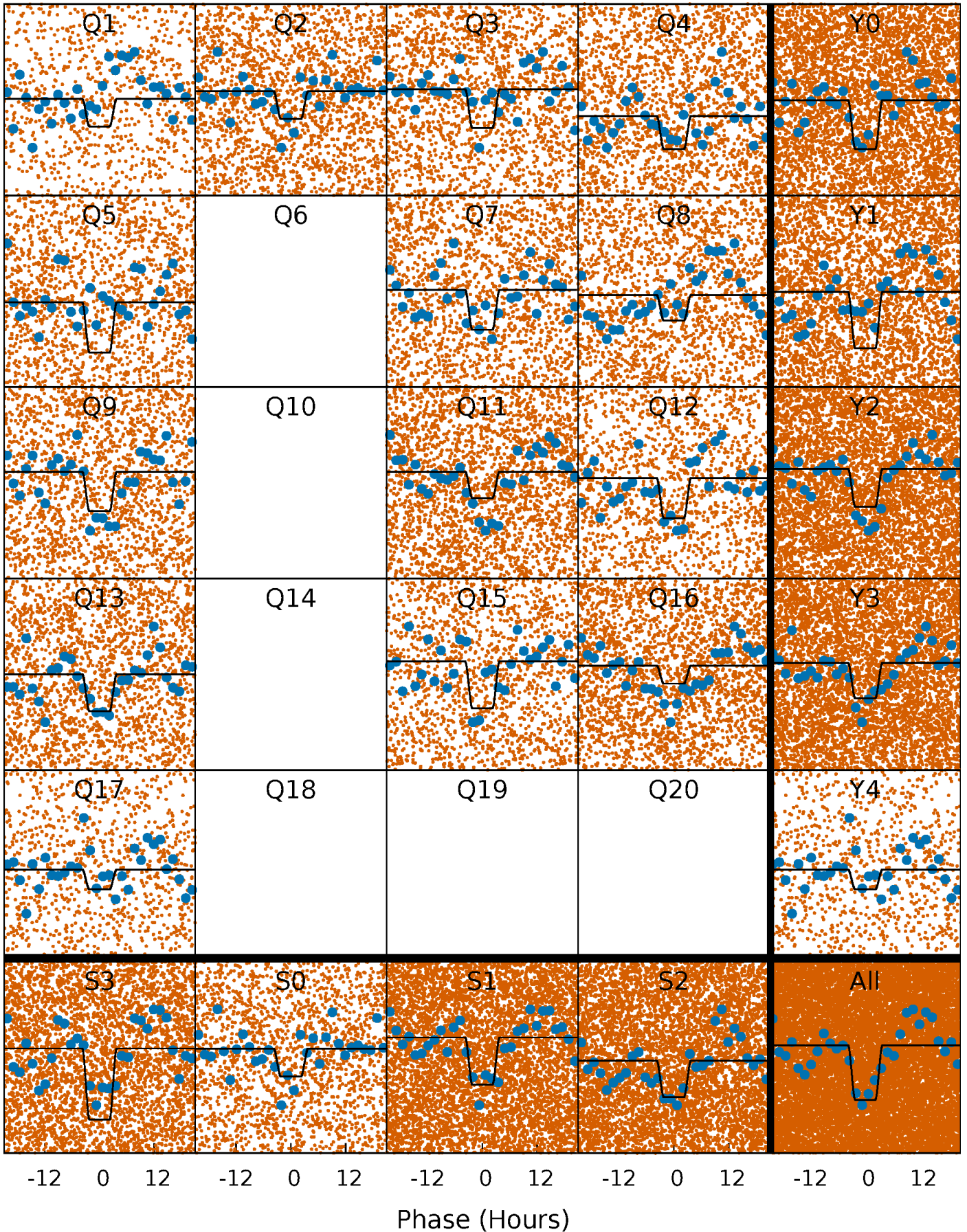
DV Quarter-Phased Transit Curves

TCE 003662358-01 P= 1.490092 Days $T_0=132.974783$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

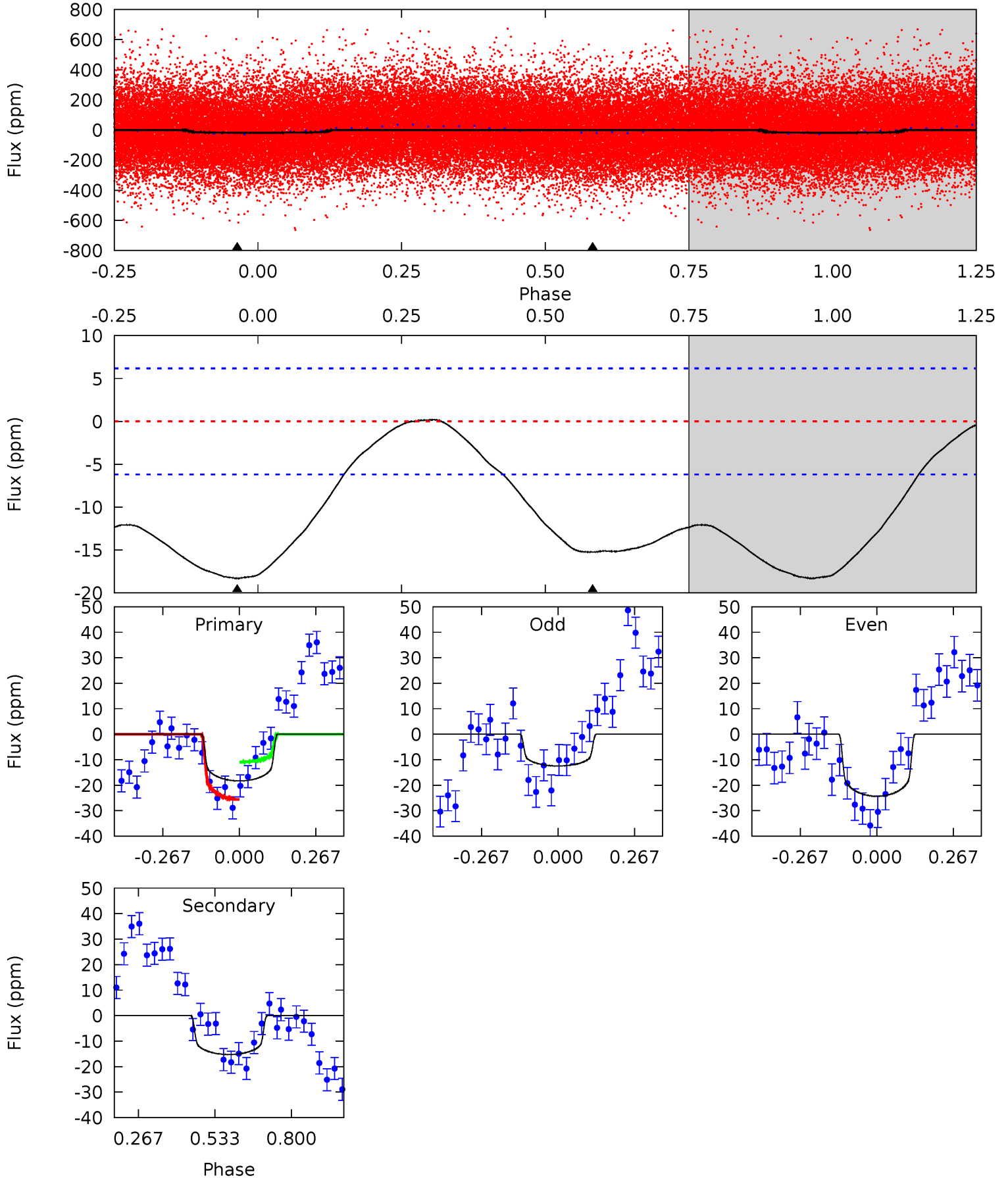
TCE 003662358-01 P= 1.490022 Days $T_0=132.965968$ (BKJD)



DV Model-Shift Uniqueness Test

003662358-01, P = 1.490092 Days, E = 131.484691 Days

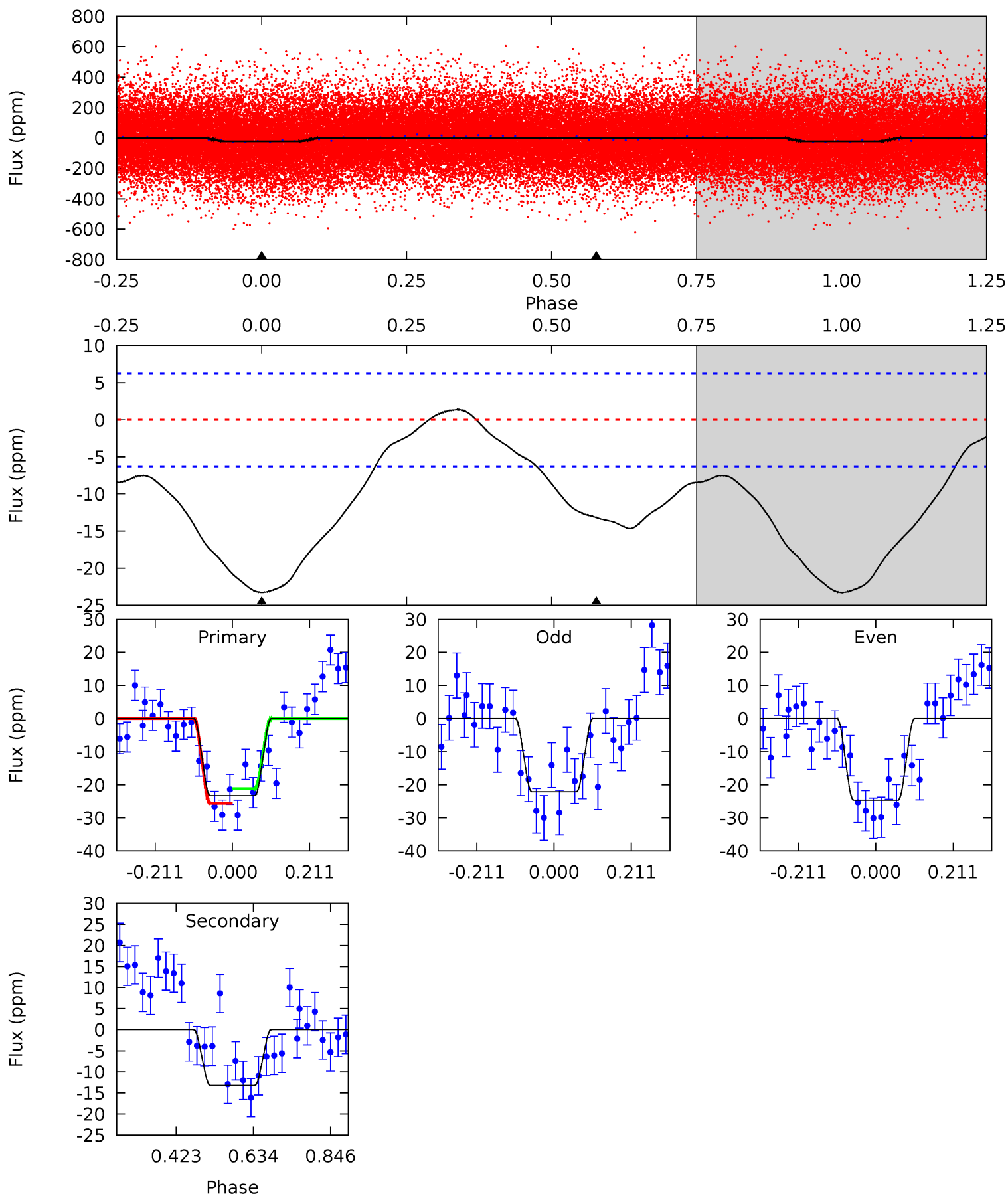
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
12.9	10.7	0	0	4.35	1.11	0.33	12.9	12.9	10.7	10.7	4.27	1.07	0.01	5.35



Alt Model-Shift Uniqueness Test

003662358-01, P = 1.490022 Days, E = 131.475946 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
16.3	9.24	0	0	4.41	1.25	1.24	16.3	16.3	9.24	9.24	0.87	1.00	0.06	1.58



Stellar Parameters For KIC 003662358

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	M (M_{\odot})	p_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	6522^{+199}_{-199}	$3.645^{+0.376}_{-0.094}$	$-0.600^{+0.350}_{-0.300}$	$2.913^{+0.511}_{-1.193}$	$1.366^{+0.213}_{-0.319}$	$0.078^{+0.227}_{-0.027}$
	+3%/-3%	+10%/-3%	+58%/-50%	+18%/-41%	+16%/-23%	+291%/-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 003662358-01 / KOI

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	-15 ± 1	$1.68^{+0.45}_{-0.42}$	3963^{+270}_{-405}	5248^{+557}_{-417}	$2.415^{+1.656}_{-0.876}$
Alt.	-13 ± 1	$1.52^{+0.39}_{-0.43}$	3985^{+259}_{-375}	5396^{+728}_{-522}	$2.571^{+2.371}_{-0.945}$

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

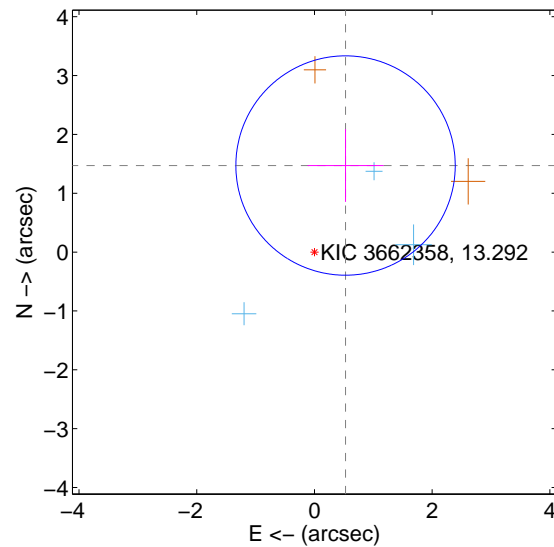
Supplemental centroid analysis for 003662358-01. Kepler magnitude: 13.29. Transit SNR 9.99

There are 3 quarters with good PRF difference image offsets

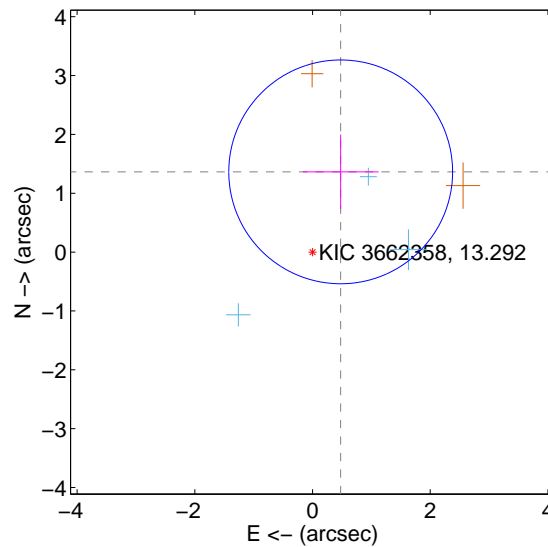
The direct PRF centroid is offset from the target star catalog position by about 0.07 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	1.563 ± 0.621	2.52	-0.528 ± 0.645	1.471 ± 0.618
PRF-fit source offset from KIC position	1.445 ± 0.634	2.28	-0.479 ± 0.644	1.363 ± 0.632
photometric centroid source offset	1.06 ± 0.75	1.41	0.97 ± 0.73	0.43 ± 0.85

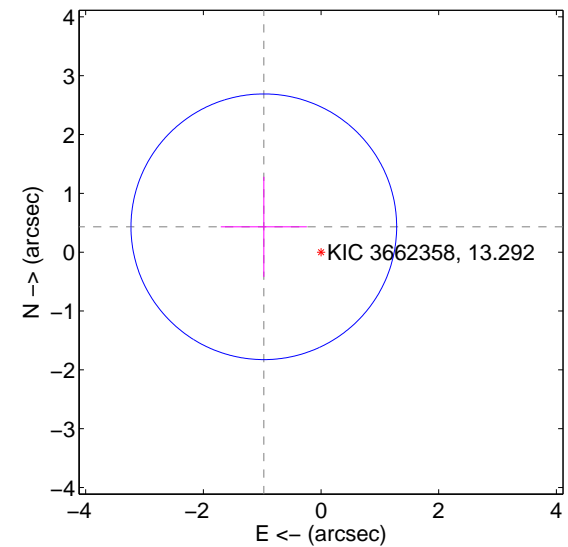
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position

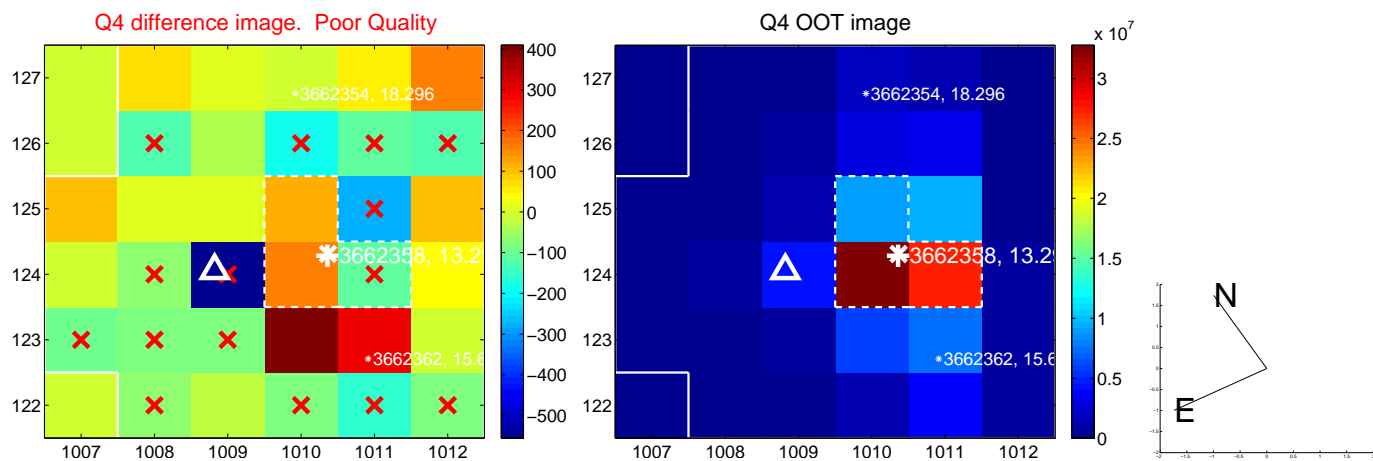
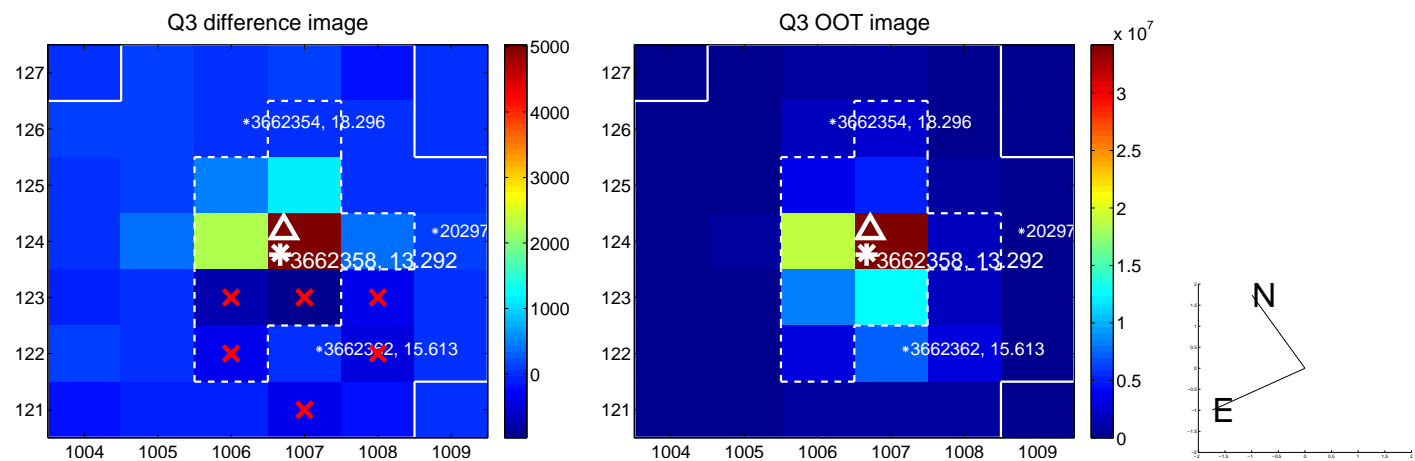
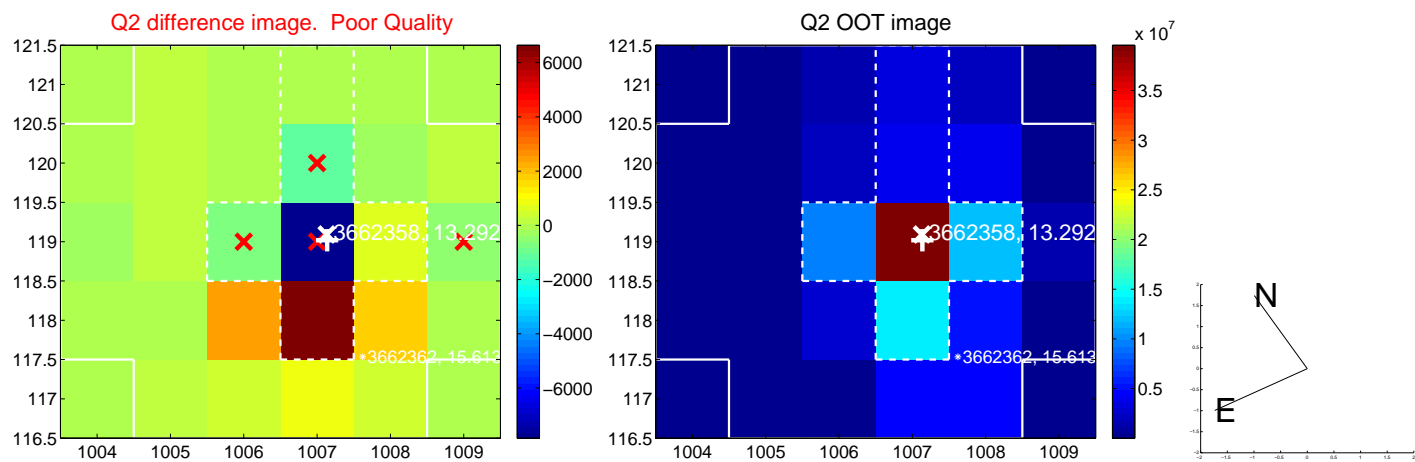
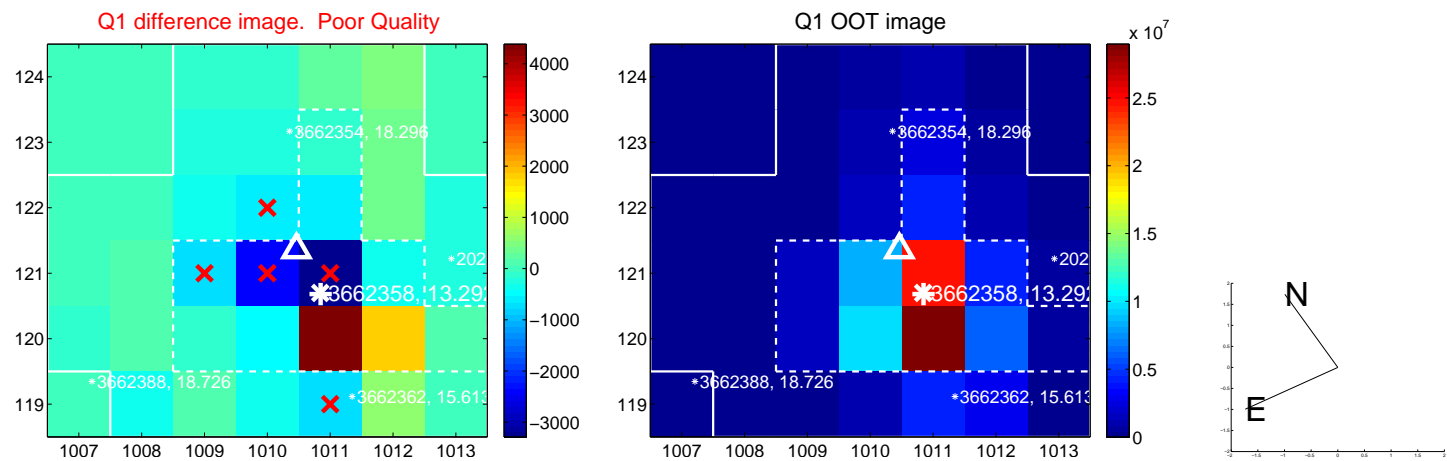


offset from photometric centroids

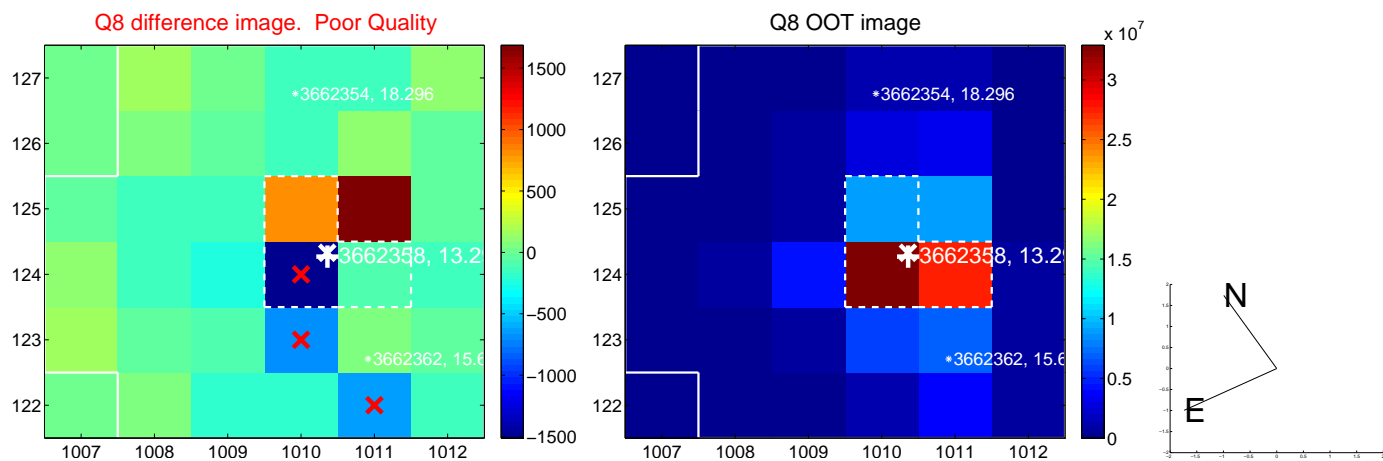
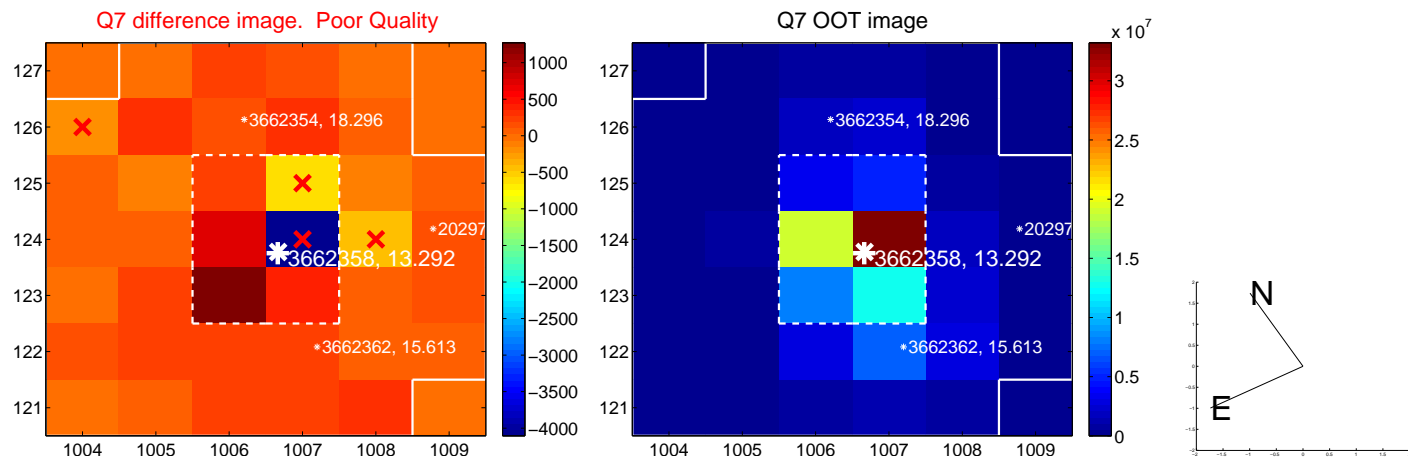
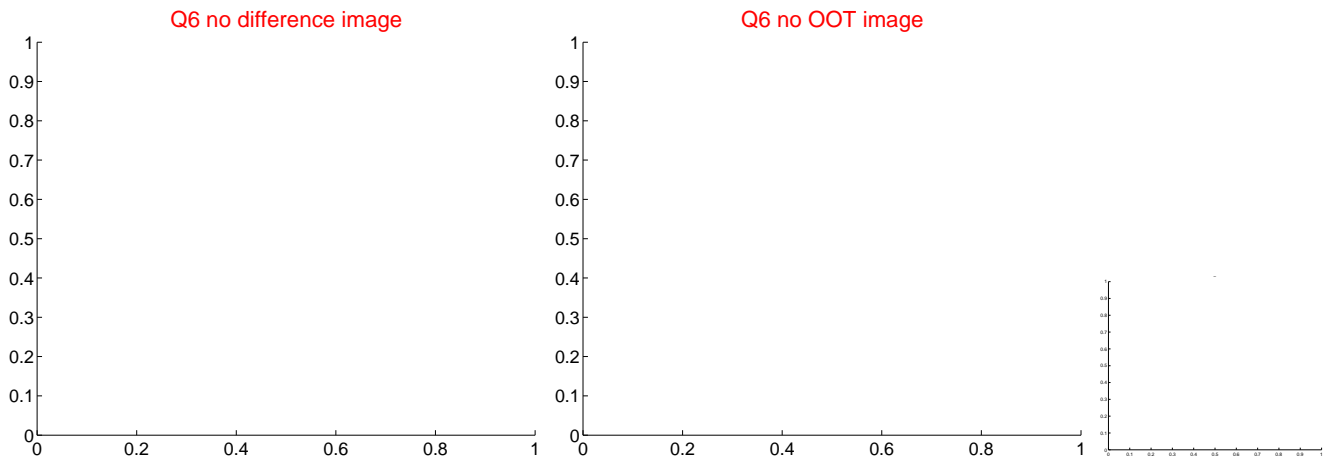
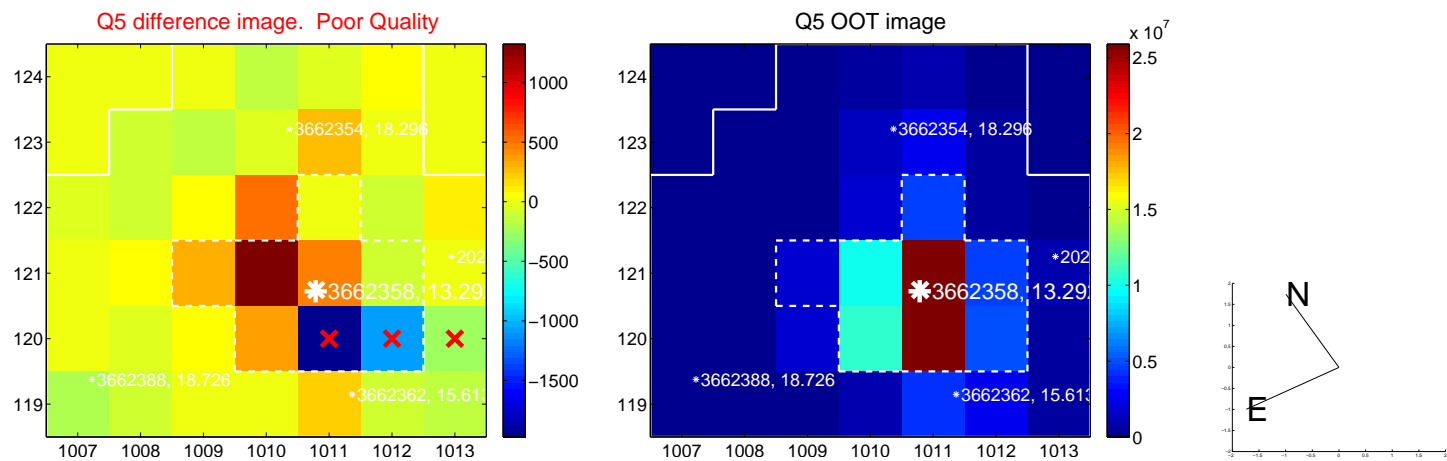


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ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

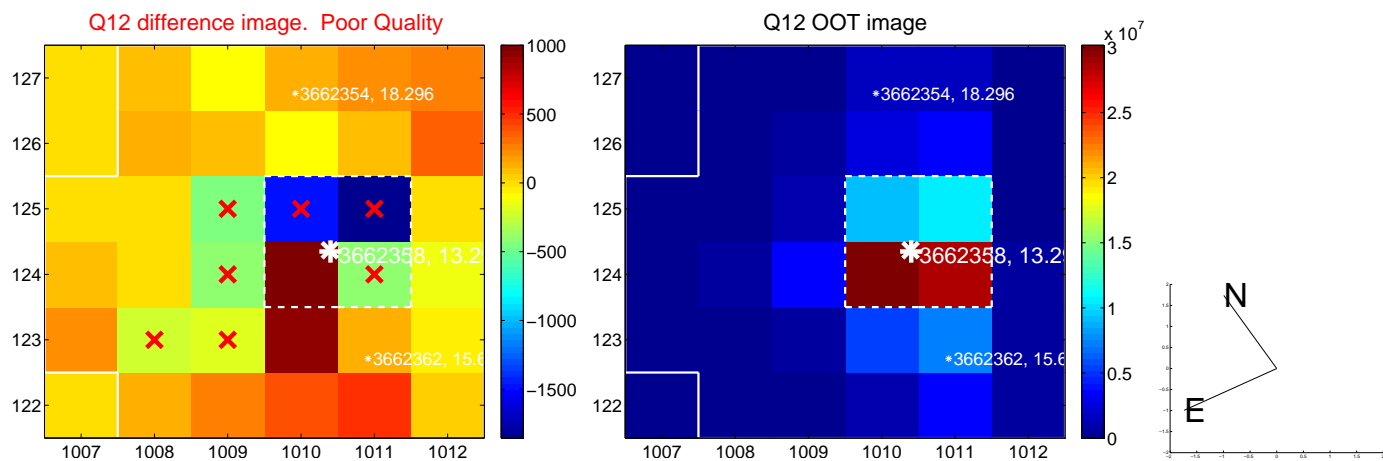
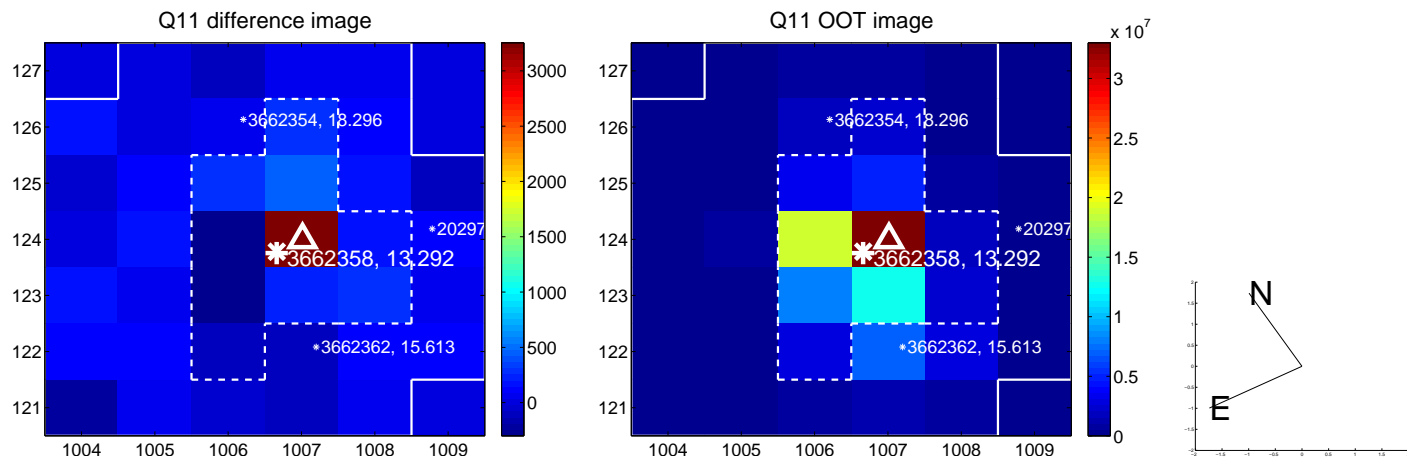
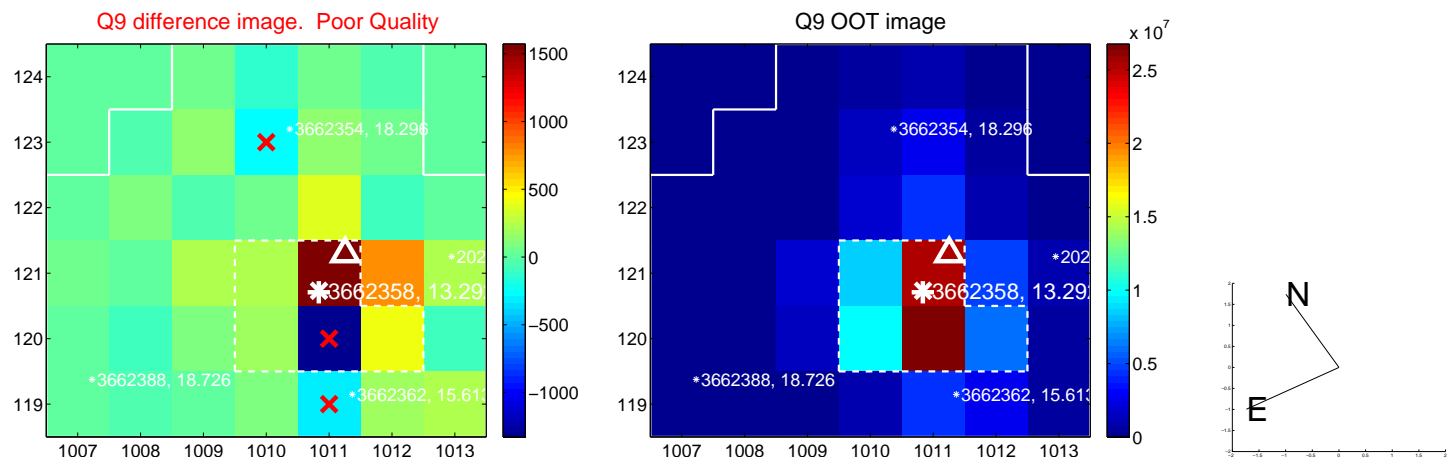
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



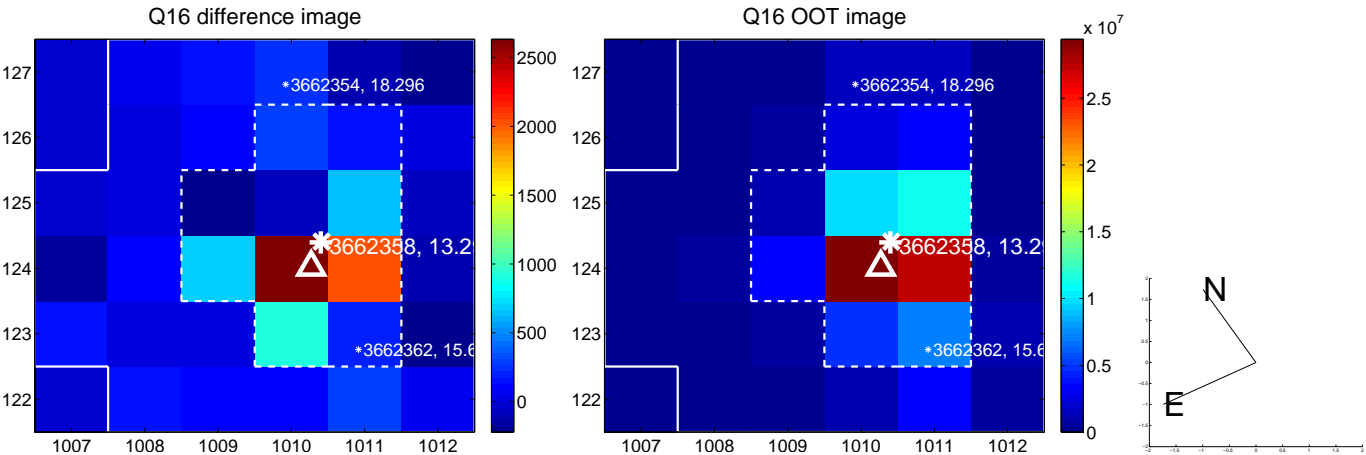
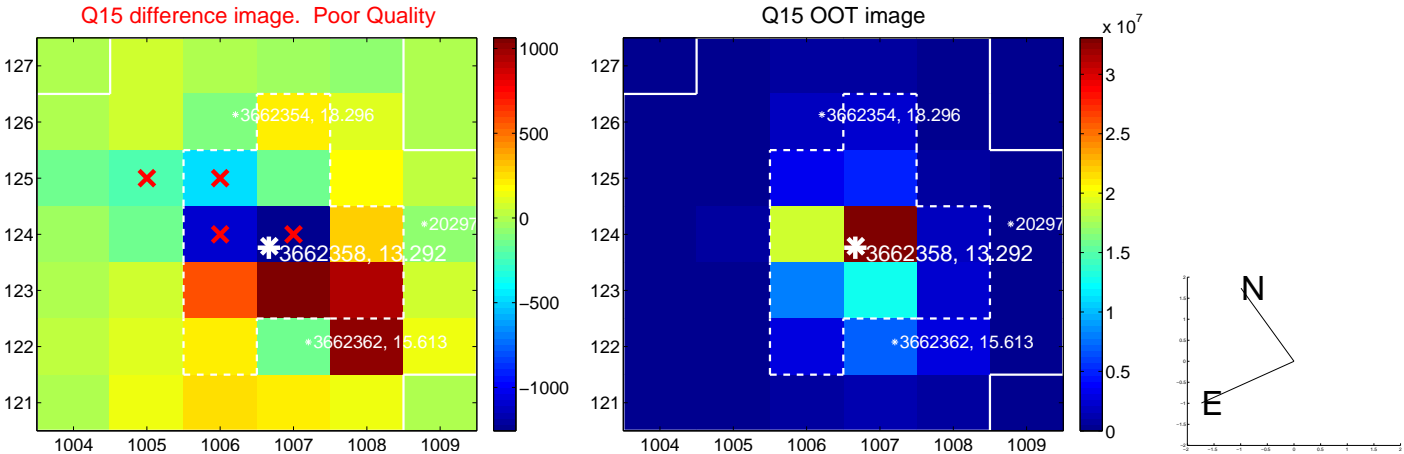
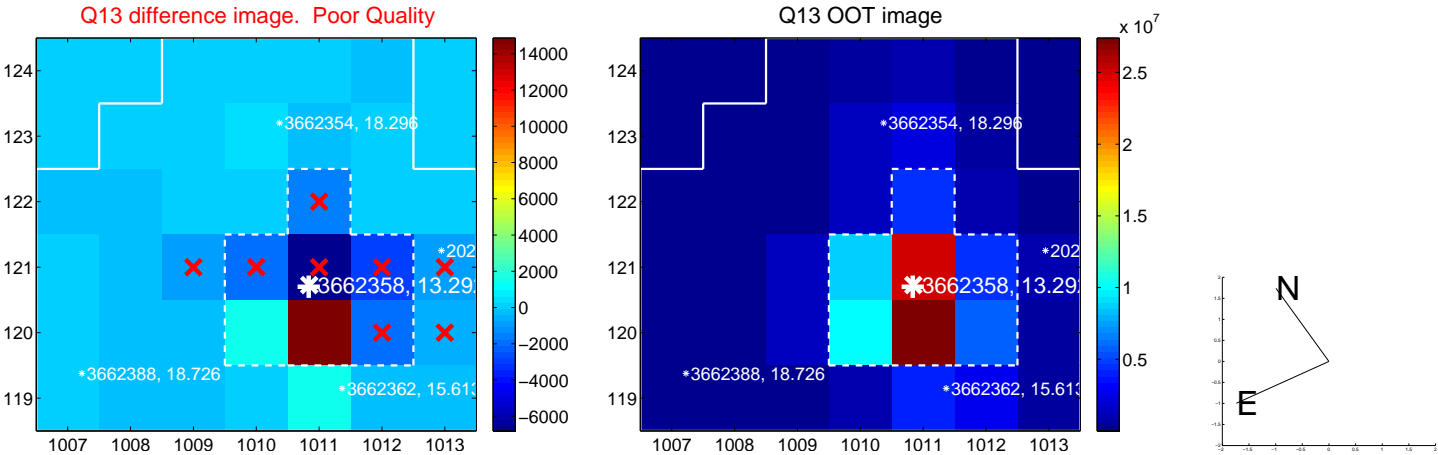
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



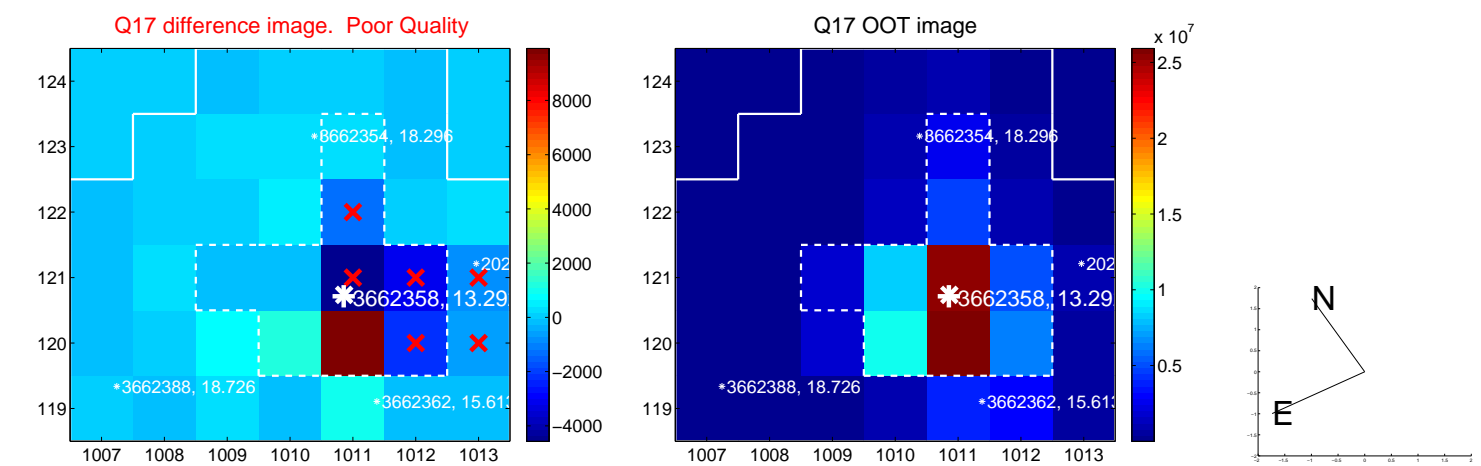
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



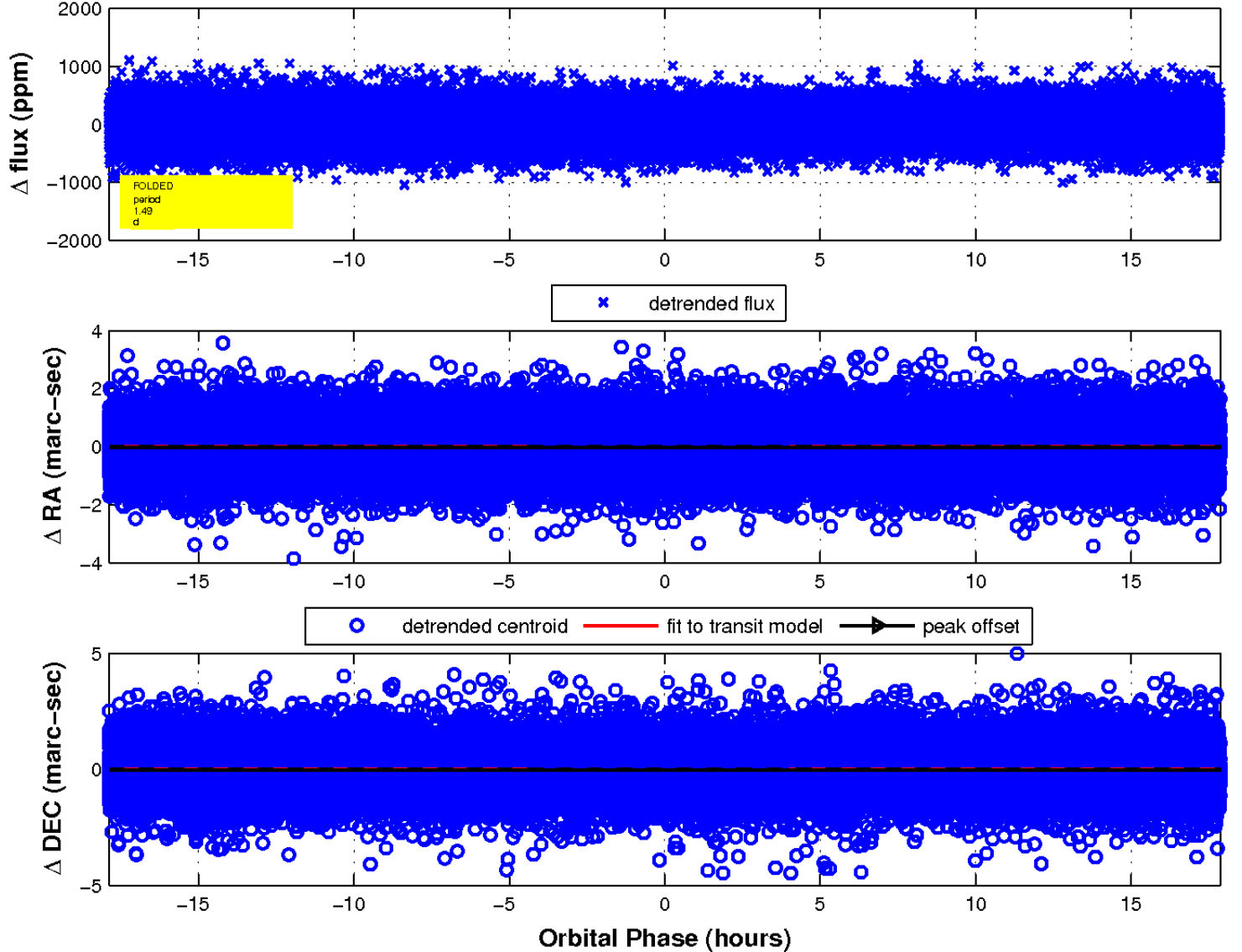
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

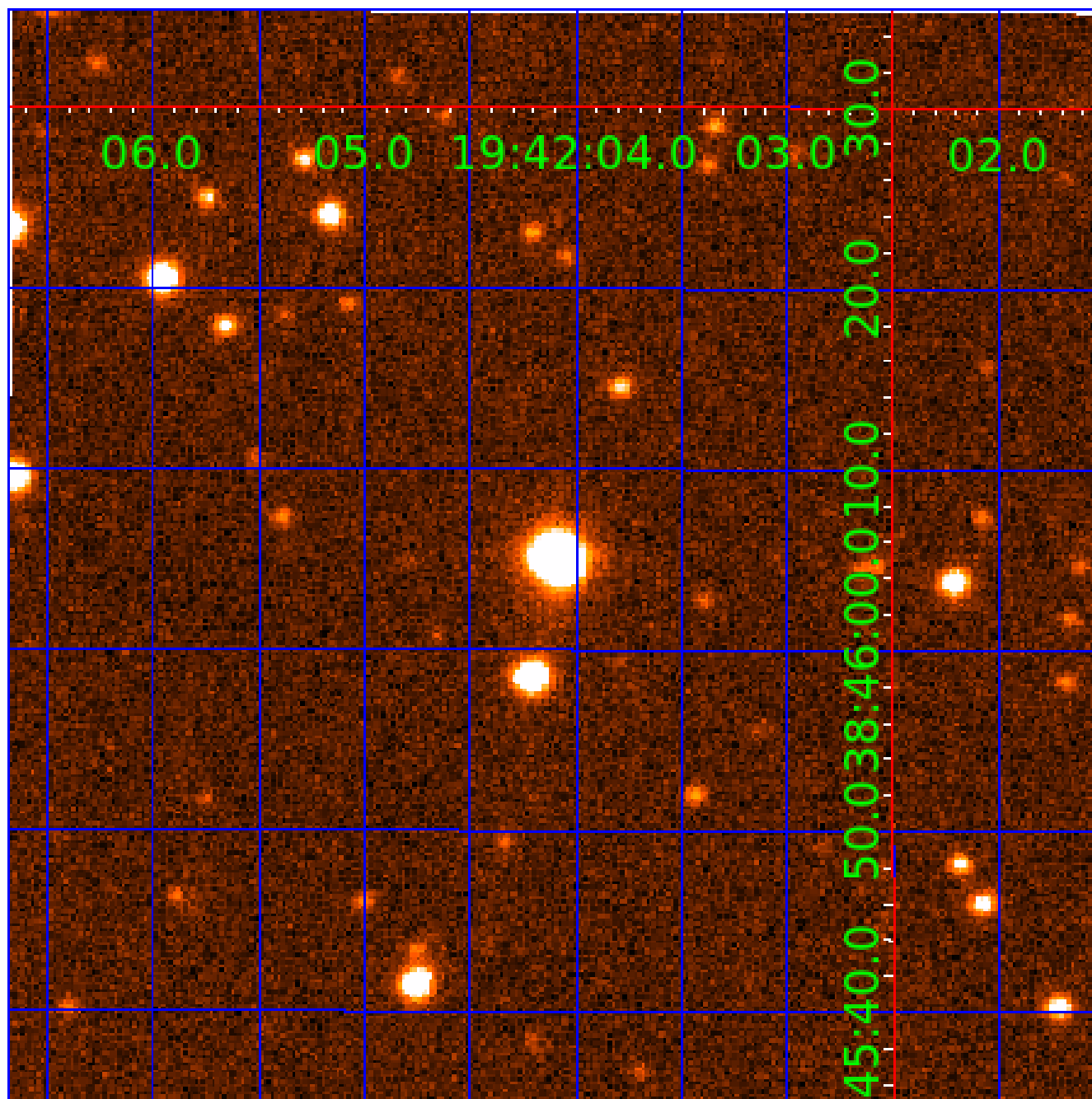


fluxWeightedCentroids, Planet 1 of 2



UKIRT Image

Declination



KIC 003662358

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})
003662358-01	OBS	No	1.490092	132.974783	26.9	9.090	7.6	10.0	2.91	6522	1.81	17127.49
003662358-02	OBS	No	236.831772	168.141556	511.4	12.500	15.4	-1.0	2.91	6522	6.63	19.89

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
003662358-01	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT
003662358-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL—TRANS_GAPPED—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_NOFITS

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

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

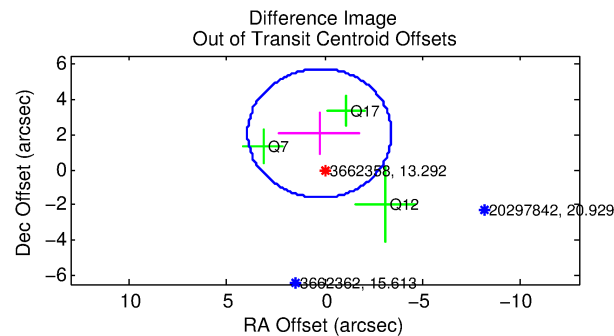
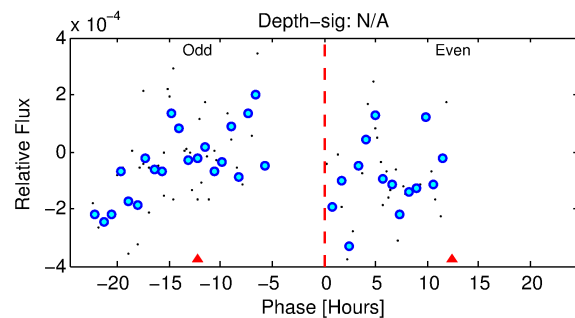
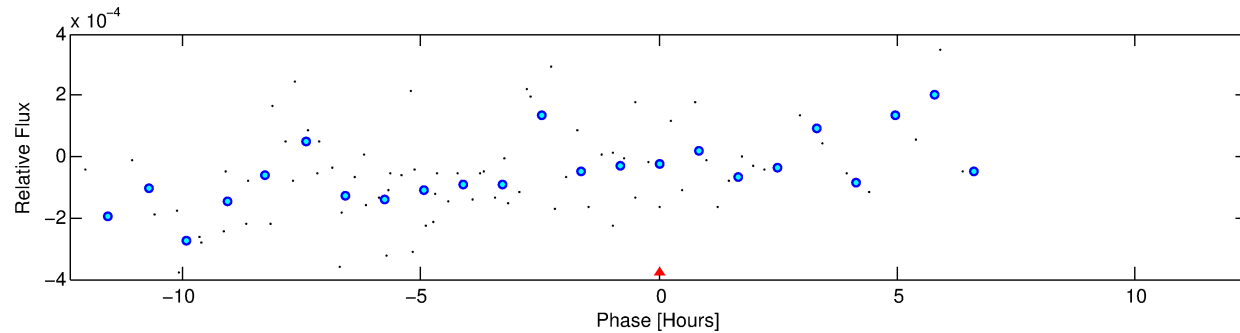
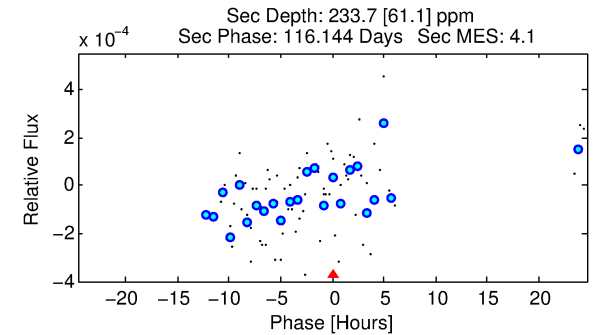
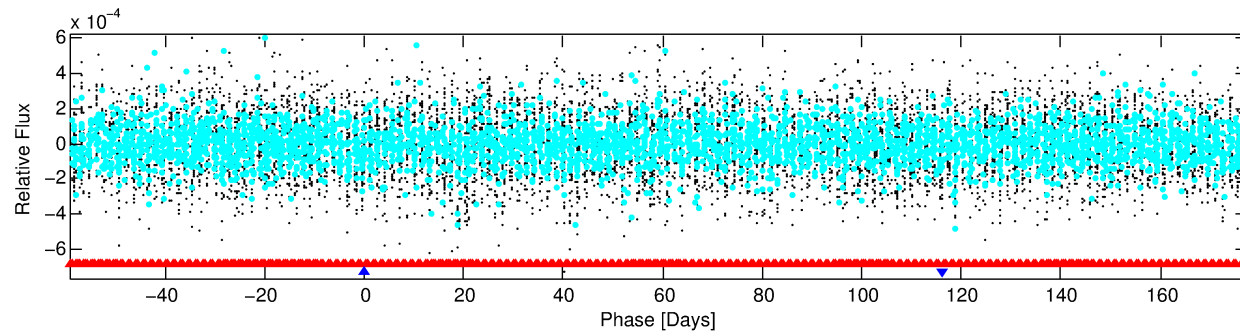
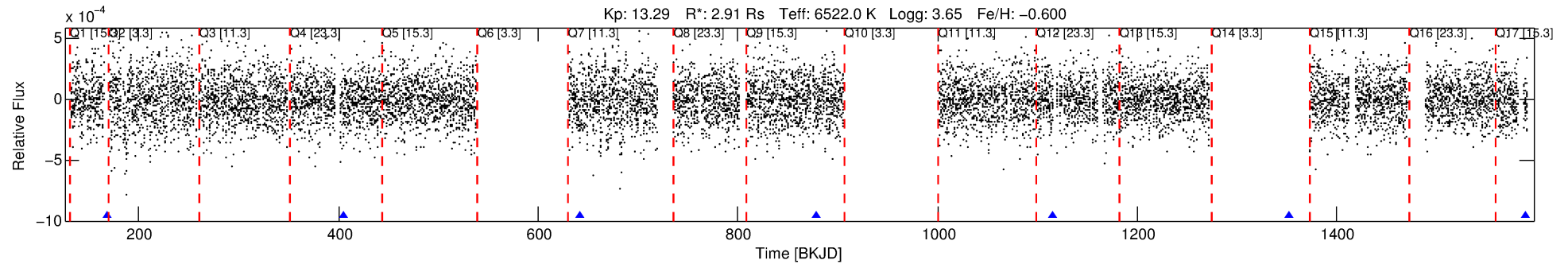
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 003662358-02

No Significant Match Found

DV One-Page Summary

KIC: 3662358 Candidate: 2 of 2 Period: 236.832 d



TPS TCE Results:

Period = 236.83177 d
Epoch = 168.1416 BKJD

DV fit results are unavailable

DV Diagnostic Results:

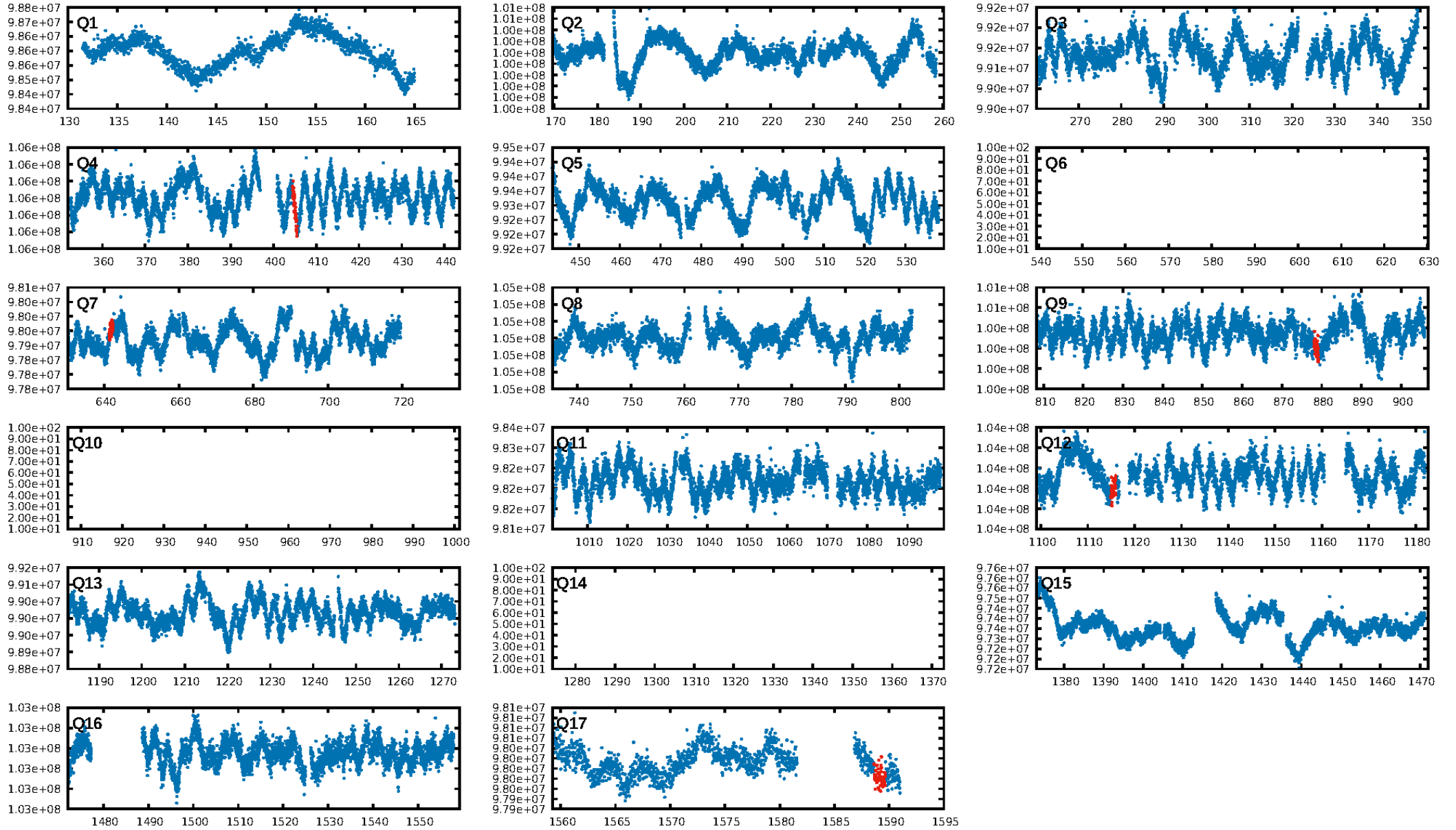
ShortPeriod-sig: 100.0% [365.45σ]
LongPeriod-sig: N/A
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: 2.13e-34
RollingBand-fgt: 1.00 [3/3]
GhostDiagnostic-chr: -2.683

Centroid-sig: 46.2%
Centroid-so: 2.554 arcsec [0.83σ]
OotOffset-rm: 2.094 arcsec [1.71σ]
KicOffset-rm: 2.042 arcsec [1.24σ]
OotOffset-st: 0/1/1/1 [3]
KicOffset-st: 0/1/1/1 [3]
DiffImageQuality-fgm: 0.00 [0/3]
DiffImageOverlap-fno: 0.40 [2/5]

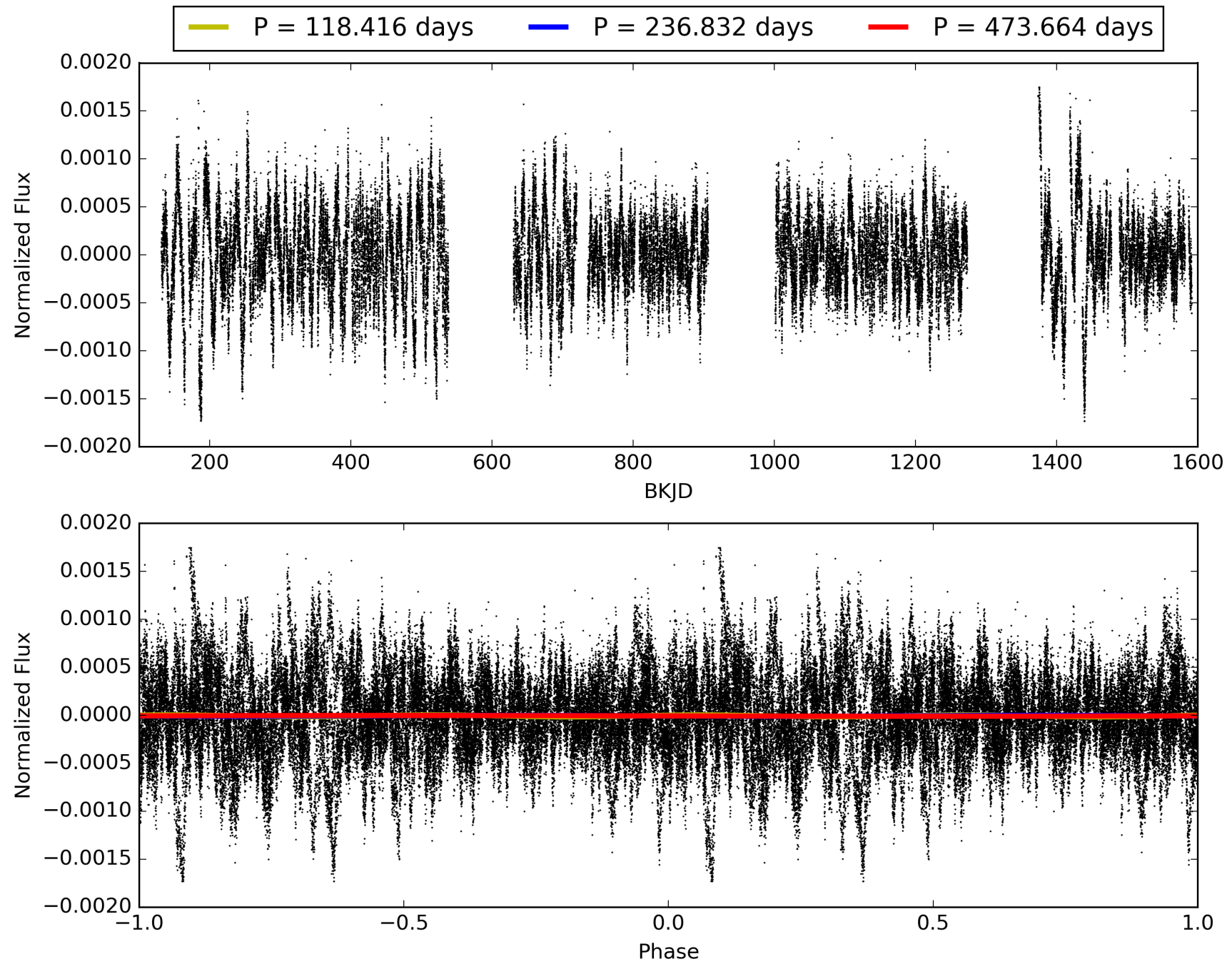
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 29-Jan-2016 23:11:18 Z

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

TCE 003662358-02, PDC Light Curves

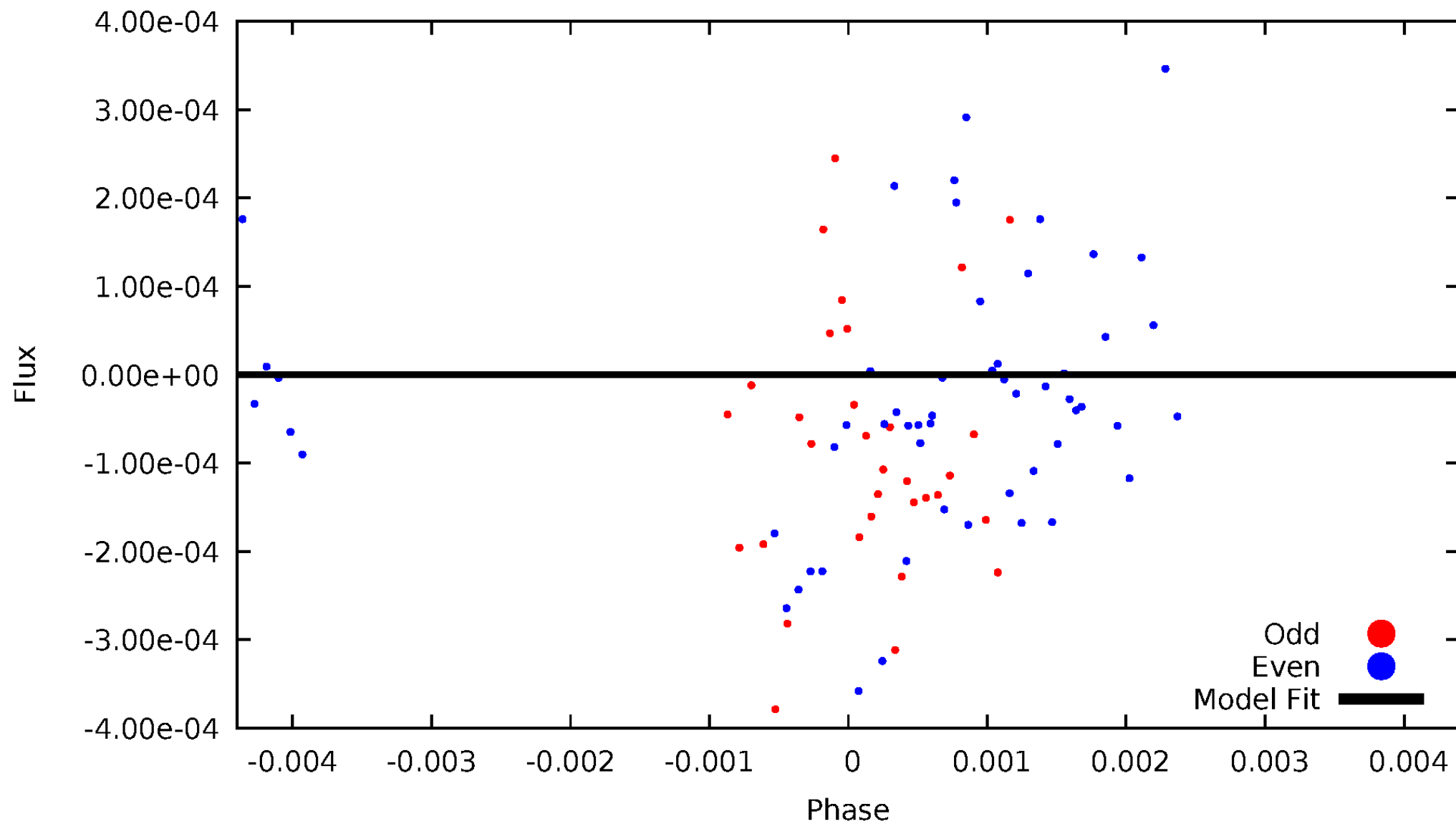


TCE 003662358-02



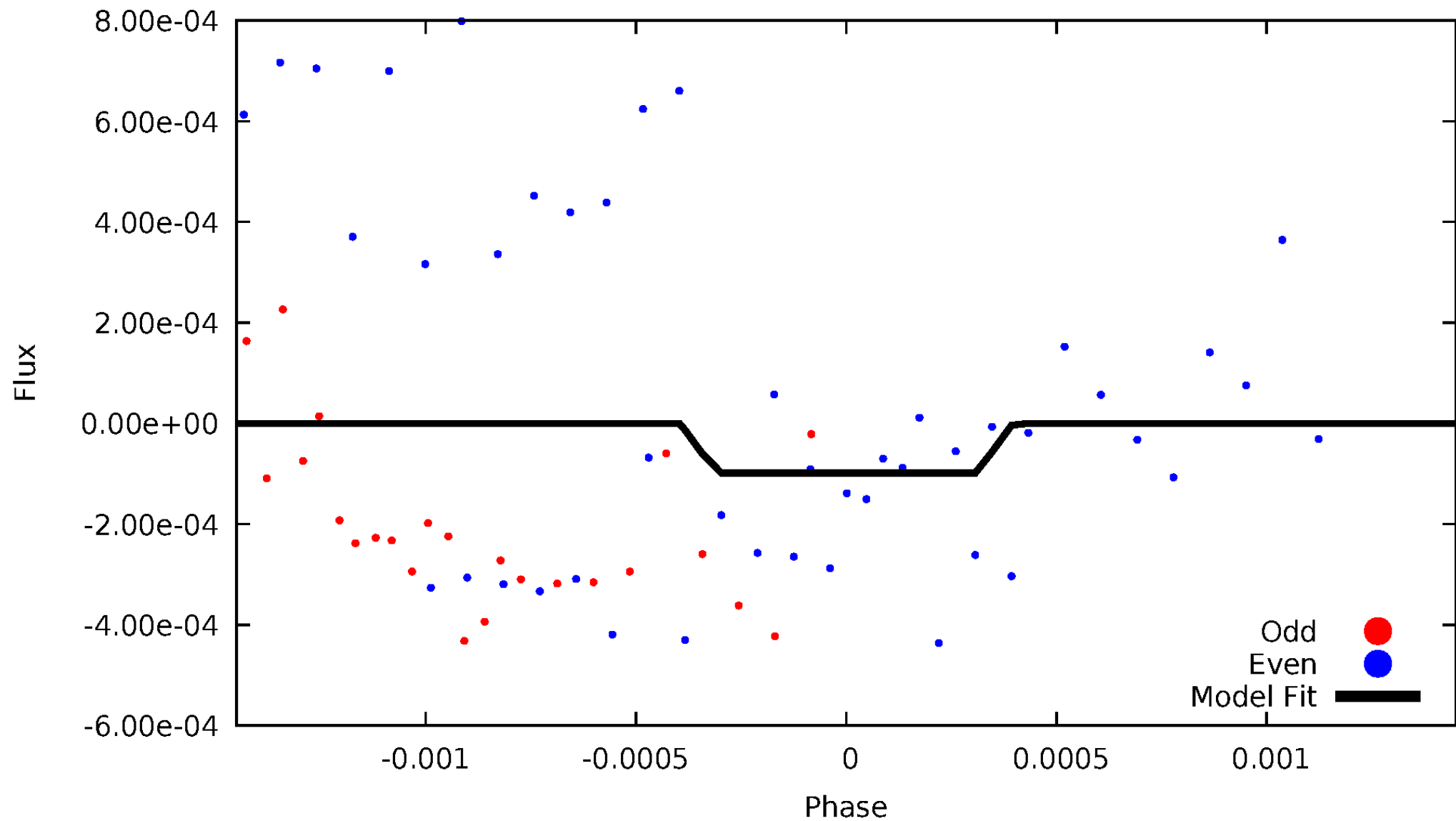
DV Odd/Even

TCE 003662358-02



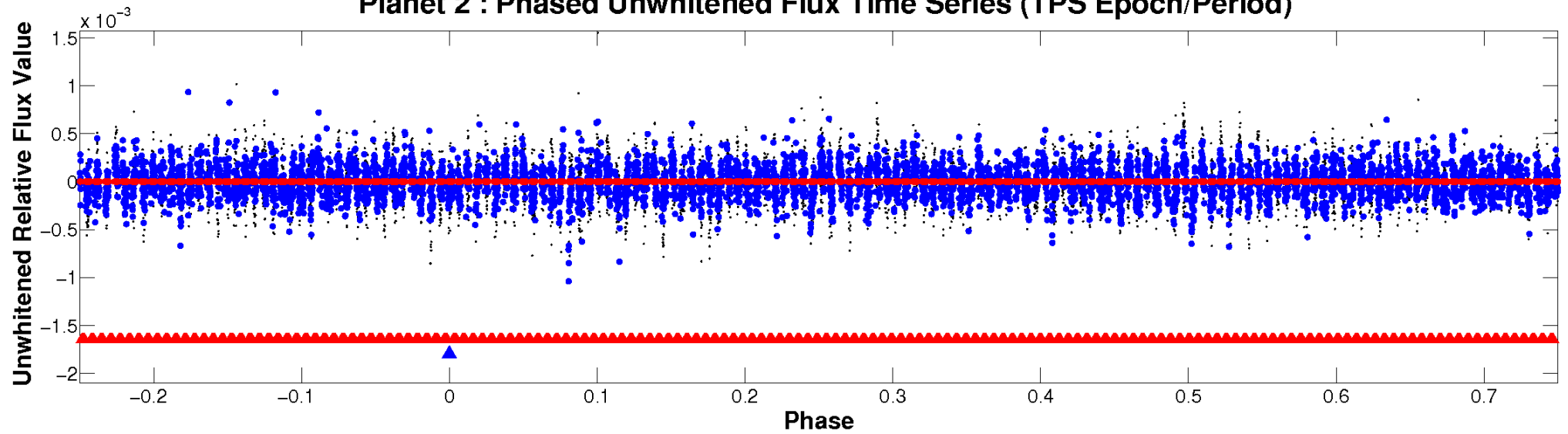
ALT Odd/Even

TCE 003662358-02



Non-Whitened Vs. Whitened Light Curve

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

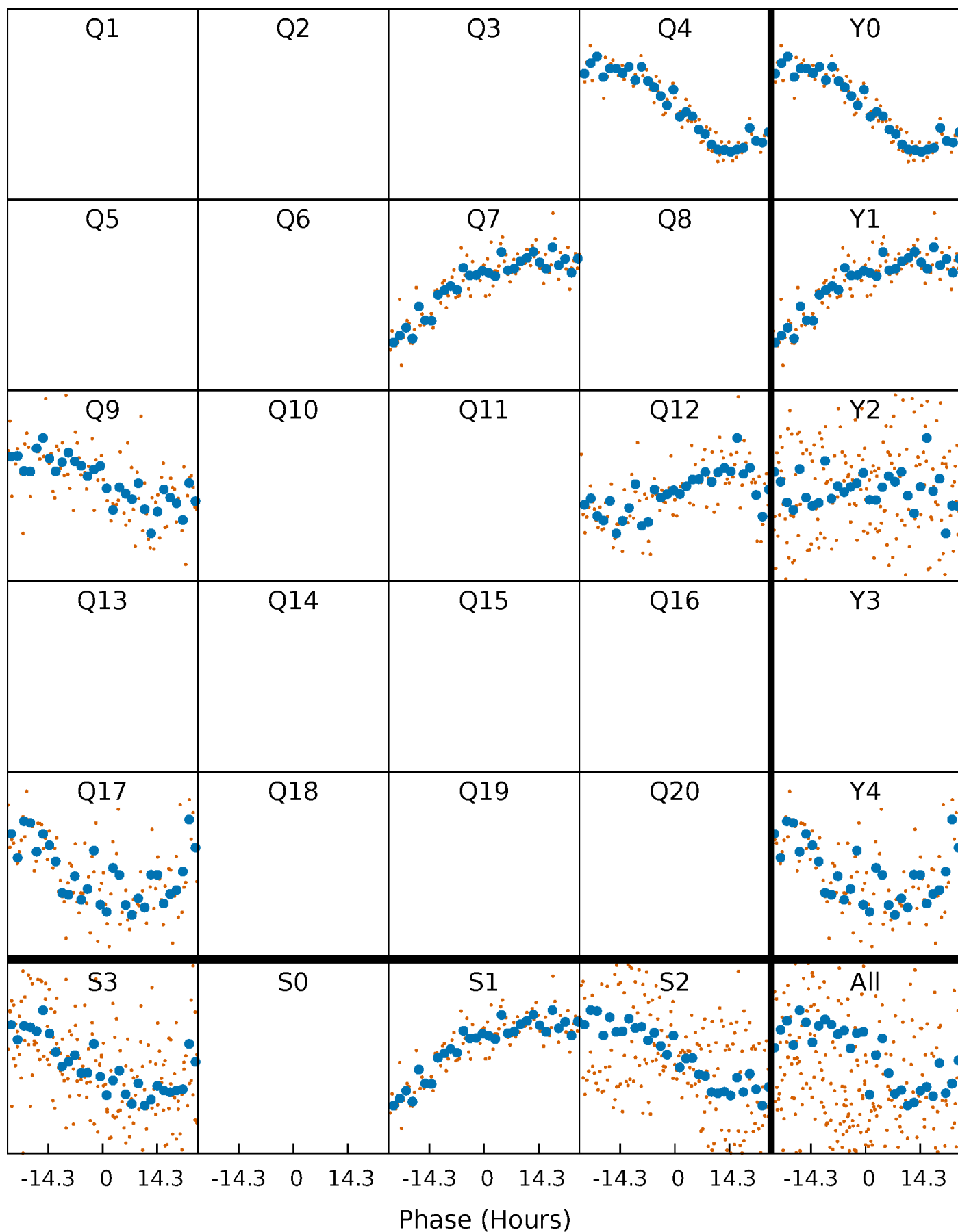


Planet 2 : Phased Whitened Flux Time Series (TPS Epoch/Period)



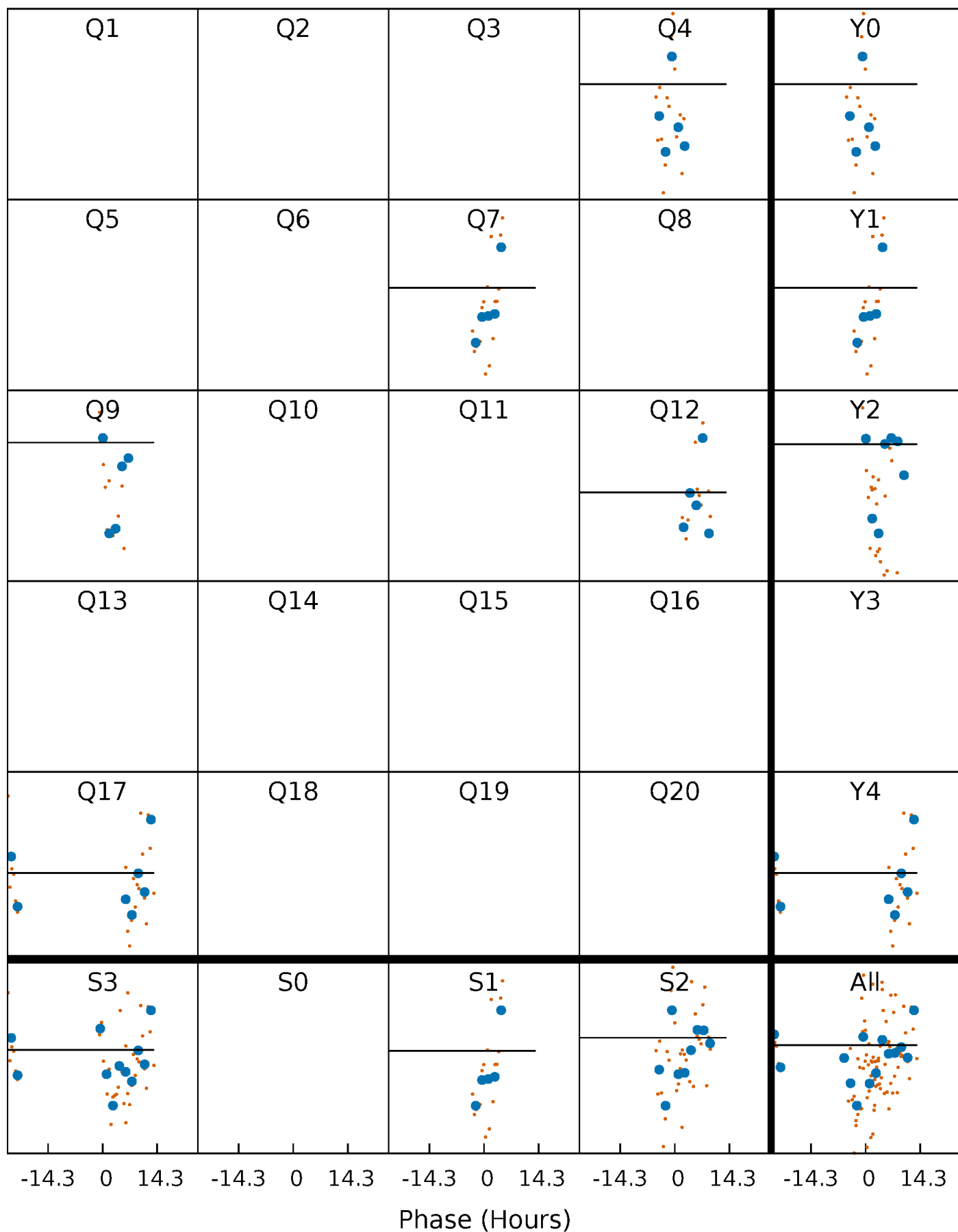
PDC Quarter-Phased Transit Curves

TCE 003662358-02 $P=236.831772$ Days $T_0=168.141556$ (BKJD)



DV Quarter-Phased Transit Curves

TCE 003662358-02 $P=236.831772$ Days $T_0=168.141556$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

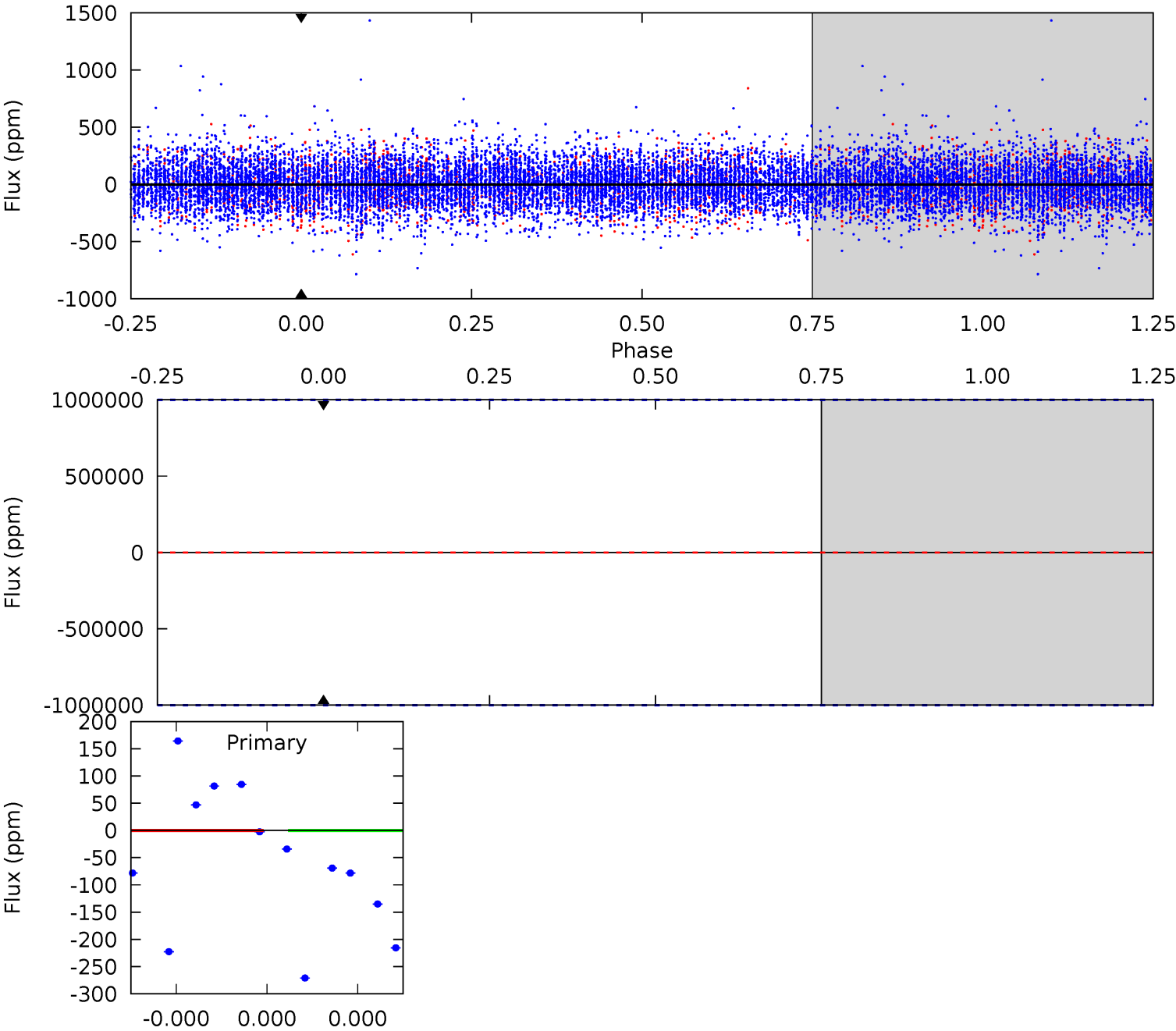
TCE 003662358-02 P=236.831772 Days $T_0=168.436717$ (BKJD)



DV Model-Shift Uniqueness Test

003662358-02, P = 236.831772 Days, E = 168.141556 Days

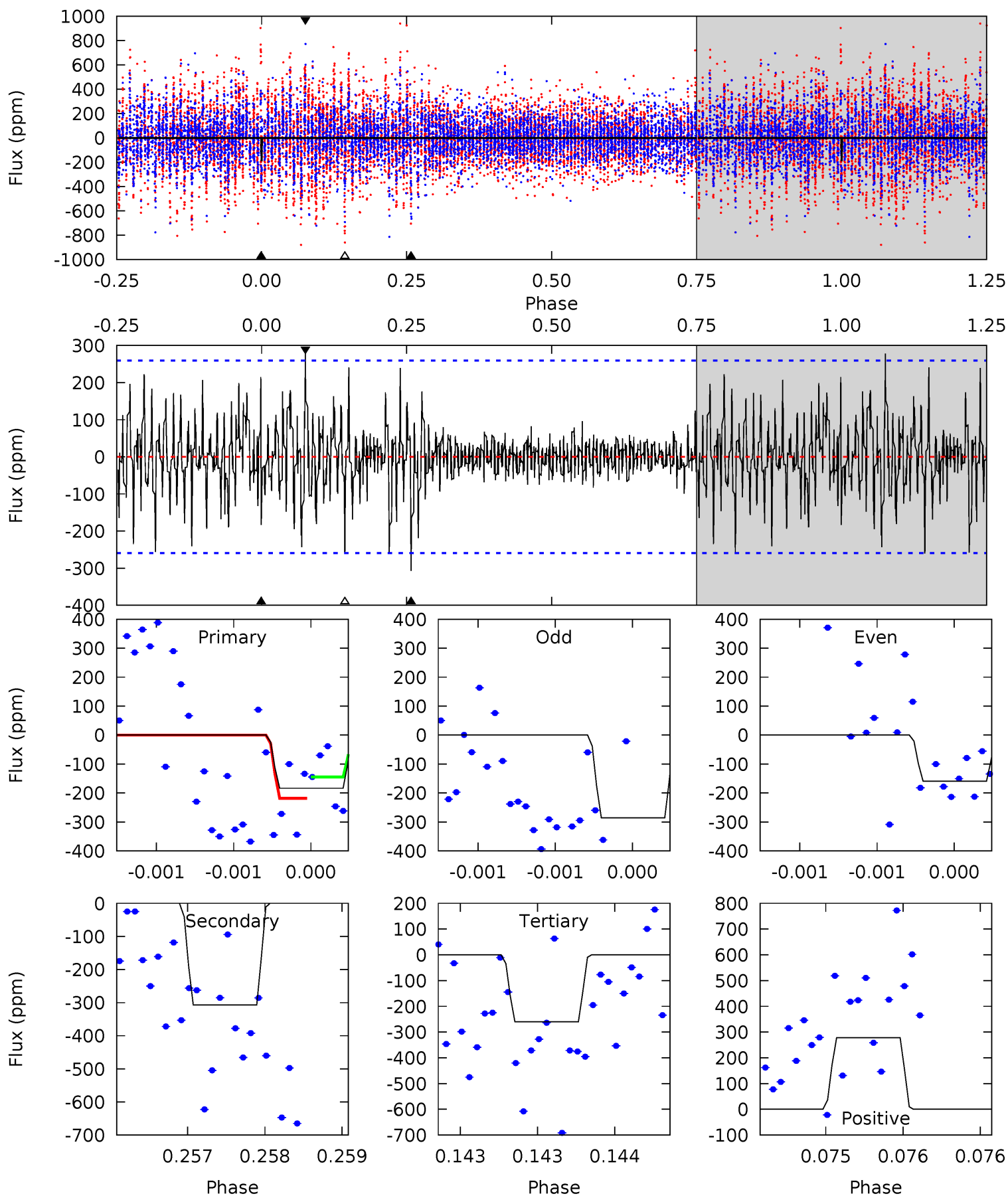
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
0	0	0	0	1.00	1.00	1.00	0	0	0	0	0	0	0	0



Alt Model-Shift Uniqueness Test

003662358-02, P = 236.831772 Days, E = 168.436717 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
3.89	6.51	5.52	5.90	5.51	3.38	1.47	-1.62	-2.01	0.99	0.61	0.98	0.78	0.48	0.78



Stellar Parameters For KIC 003662358

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	M (M_{\odot})	p_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	6522^{+199}_{-199}	$3.645^{+0.376}_{-0.094}$	$-0.600^{+0.350}_{-0.300}$	$2.913^{+0.511}_{-1.193}$	$1.366^{+0.213}_{-0.319}$	$0.078^{+0.227}_{-0.027}$
	+3%/-3%	+10%/-3%	+58%/-50%	+18%/-41%	+16%/-23%	+291%/-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 003662358-02 / KOI

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	0 ± 1000000	$21.67^{+24.82}_{-15.68}$	729^{+53}_{-77}	2226^{+25572}_{-30949}	$4.645^{+141606.966}_{-155490.643}$
Alt.	-307 ± 47	$19.39^{+24.47}_{-13.93}$	733^{+49}_{-75}	3710^{+2385}_{-775}	298^{+3548}_{-235}

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

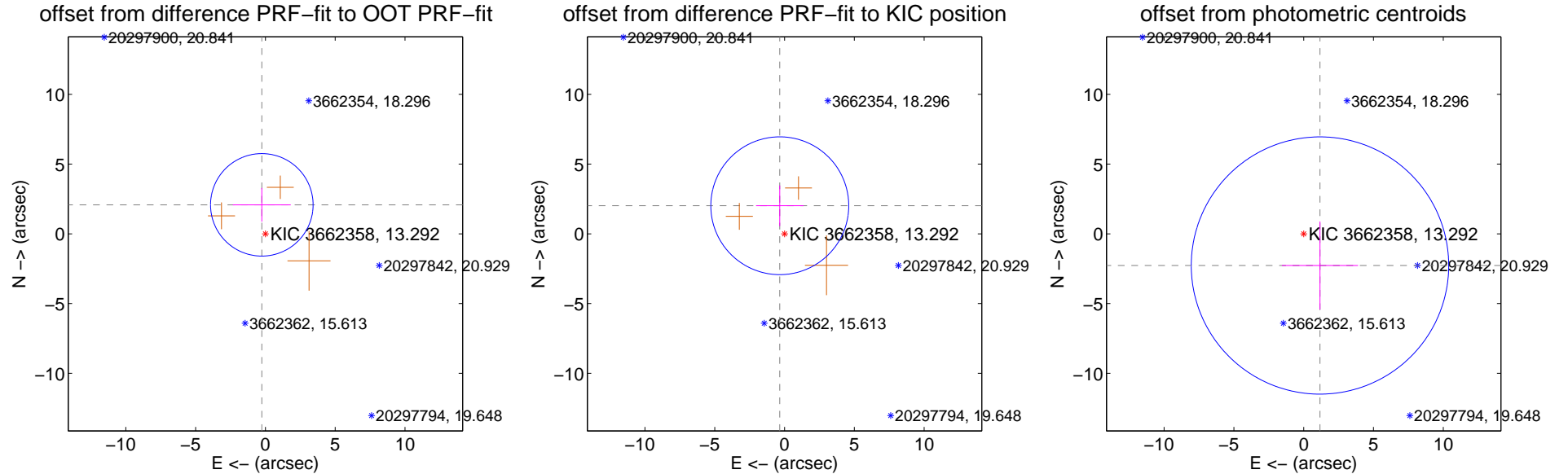
DV Centroid Data

Supplemental centroid analysis for 003662358-02. Kepler magnitude: 13.29. Transit SNR -1.00

There are 0 quarters with good PRF difference image offsets

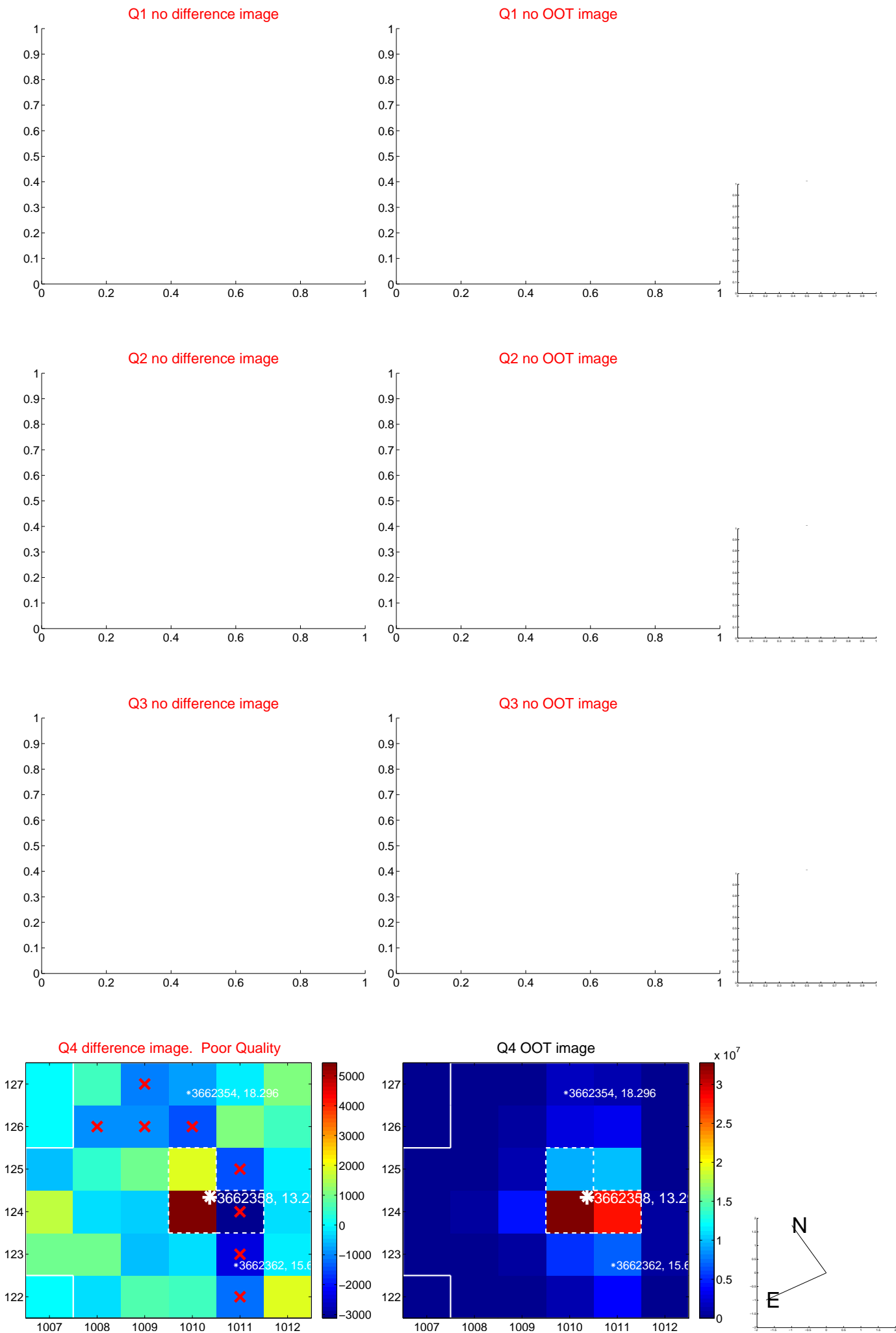
The direct PRF centroid is offset from the target star catalog position by about 0.09 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	2.094 ± 1.225	1.71	0.258 ± 2.072	2.078 ± 1.207
PRF-fit source offset from KIC position	2.042 ± 1.647	1.24	0.342 ± 1.700	2.013 ± 1.455
photometric centroid source offset	2.55 ± 3.07	0.83	-1.17 ± 2.73	-2.27 ± 3.16

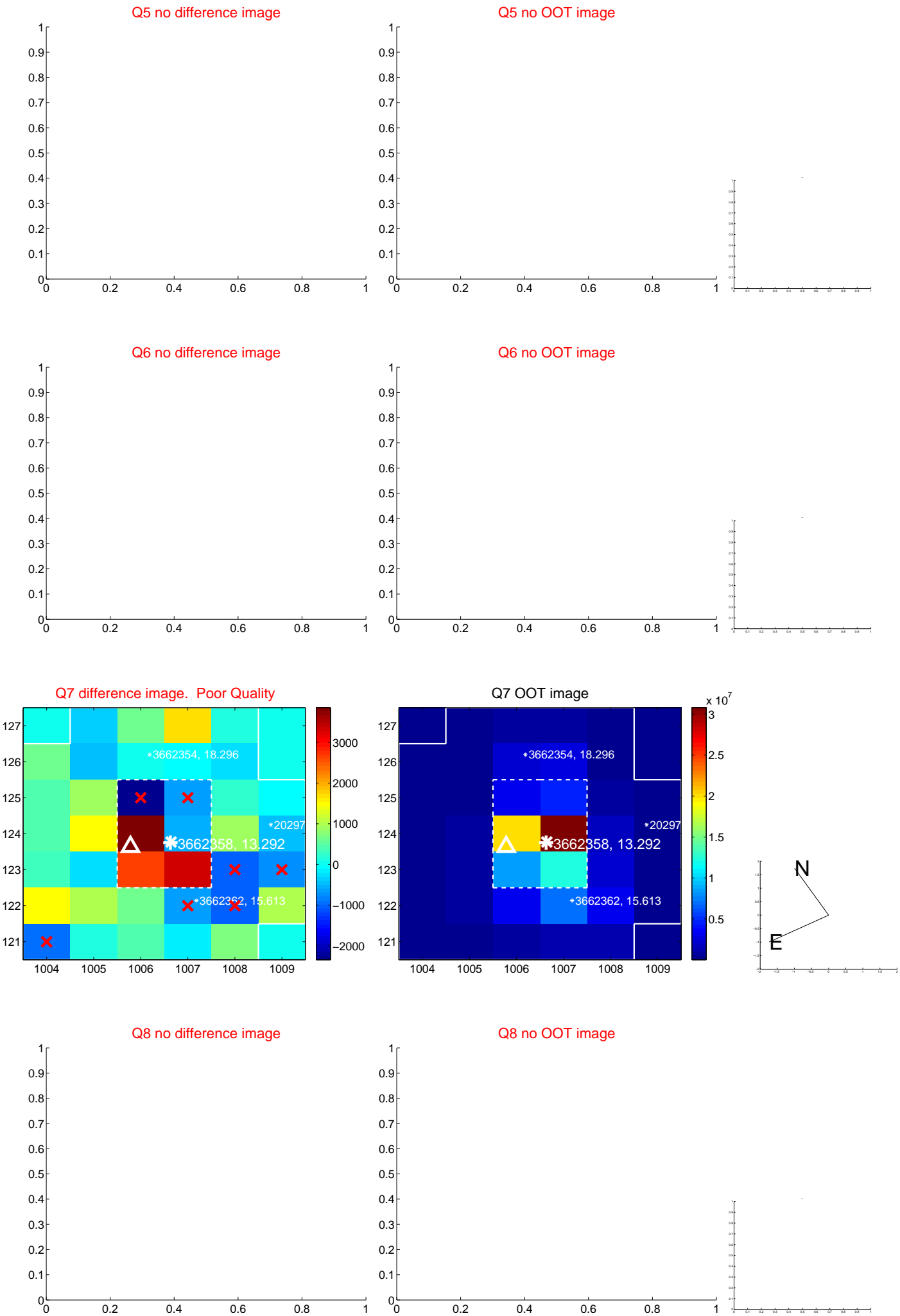


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

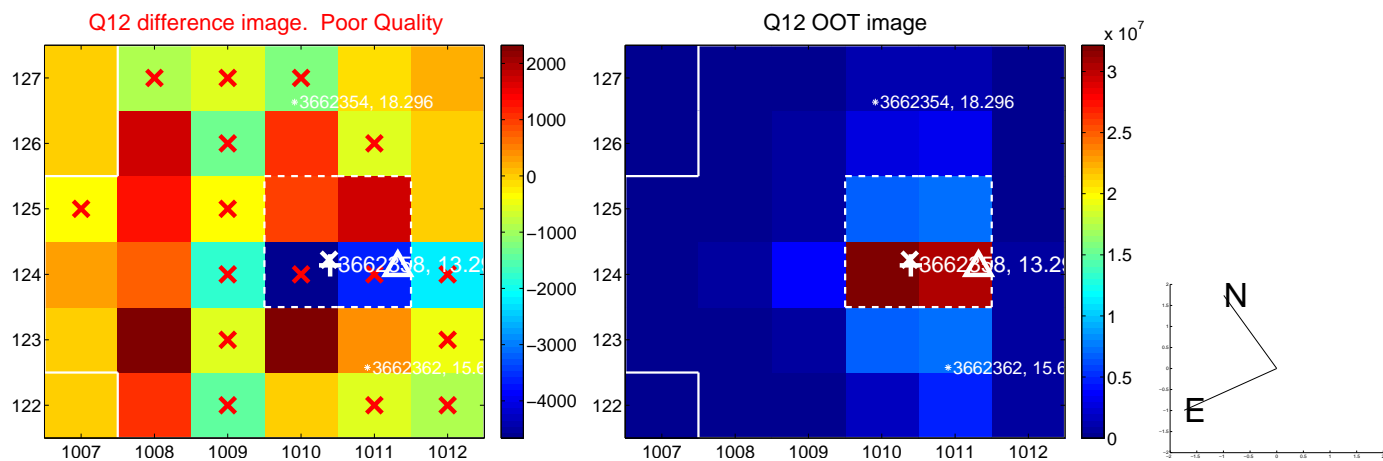
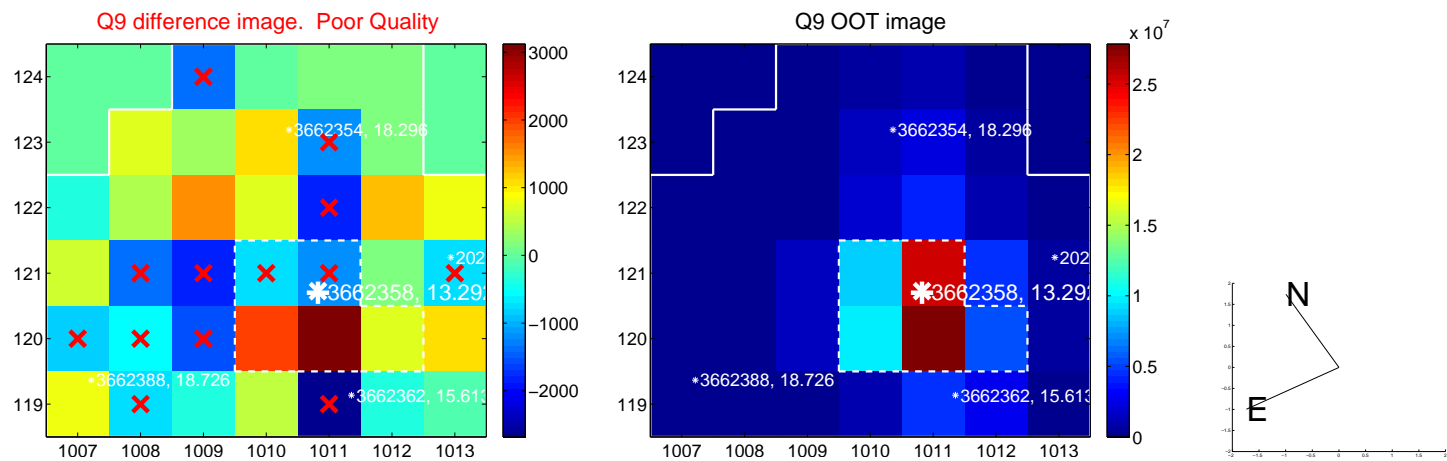
white ×: KIC target position; +: OOT centroid; △: difference centroid. red ✕: large negative pixel value.



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



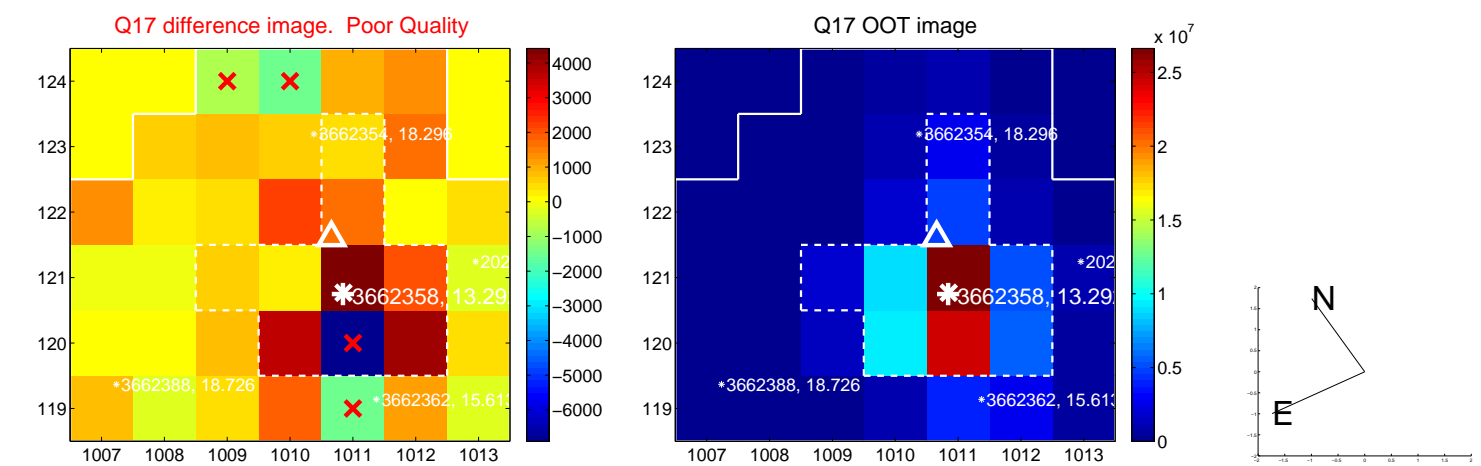
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



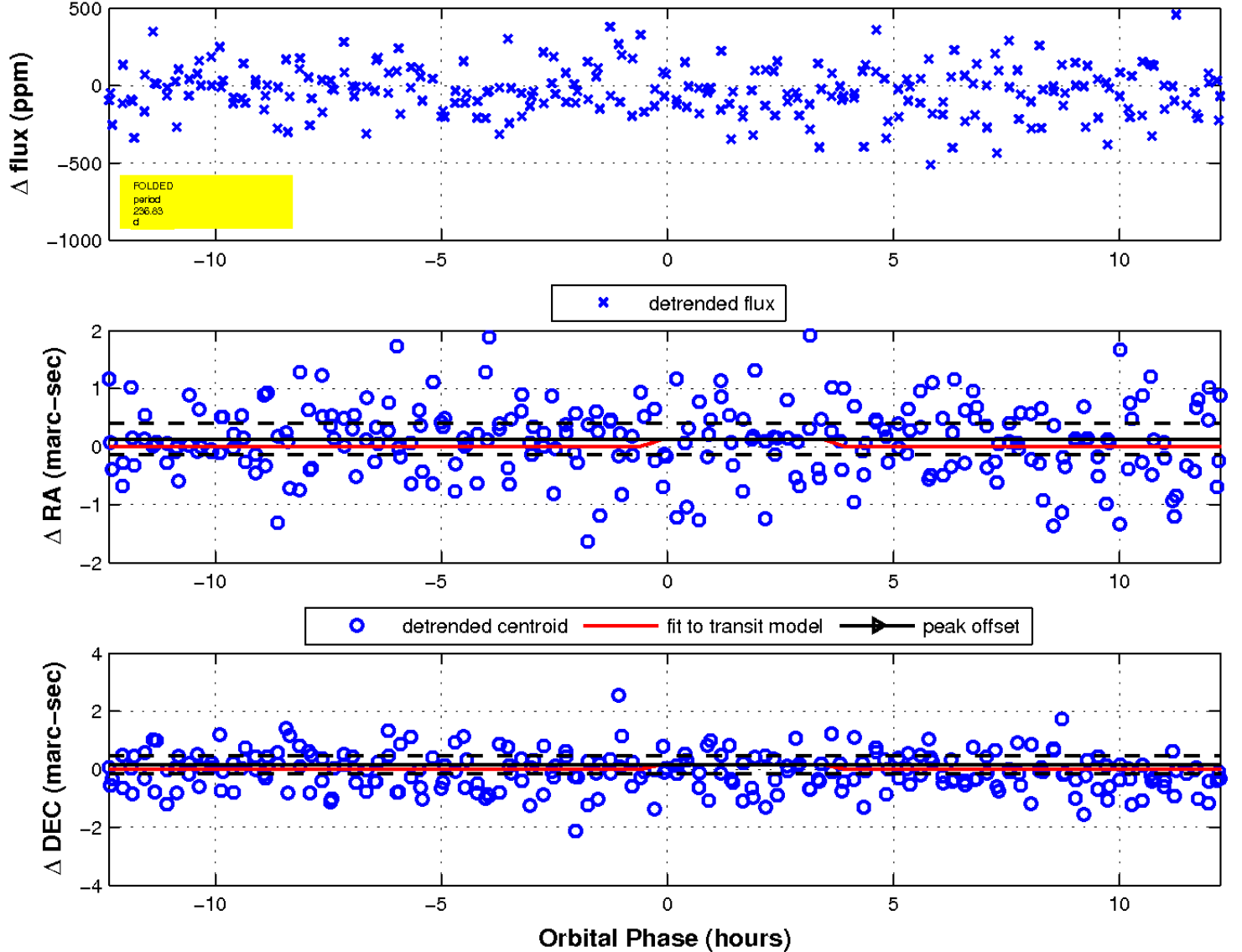
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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



fluxWeightedCentroids, Planet 2 of 2



UKIRT Image

Declination

