

KIC 003858917

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})
003858917-01	OBS	3294.01	25.951960	154.882053	3314.3	14.987	150.8	139.4	0.90	5659	9.77	25.41
003858917-02	OBS	No	25.951982	148.923192	2698.0	20.433	151.3	150.7	0.90	5659	8.90	25.41

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
003858917-01	OBS	FP	0.00	0	1	1	1	MOD_SEC_DV—MOD_SEC_ALT—DEEP_V_SHAPED—HAS_SEC_TCE—CENT_RESOLVED_OFFSET—HALO_GHOST—EPHEM_MATCH
003858917-02	OBS	FP	0.00	1	1	1	1	IS_SEC_TCE—CENT_RESOLVED_OFFSET—HALO_GHOST—EPHEM_MATCH

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

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

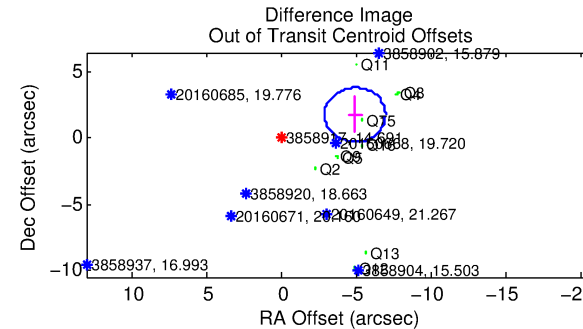
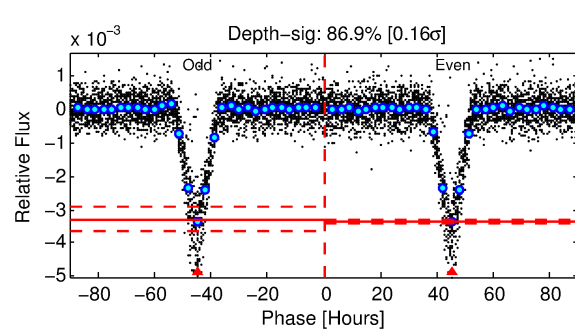
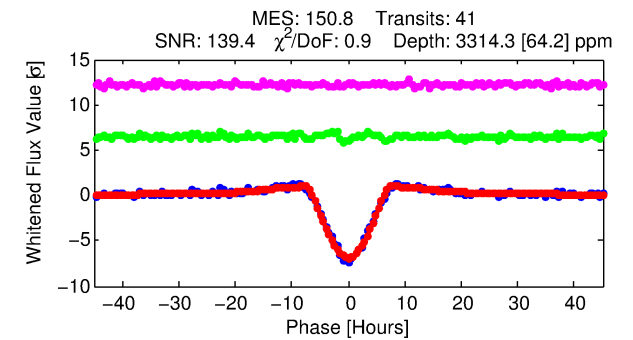
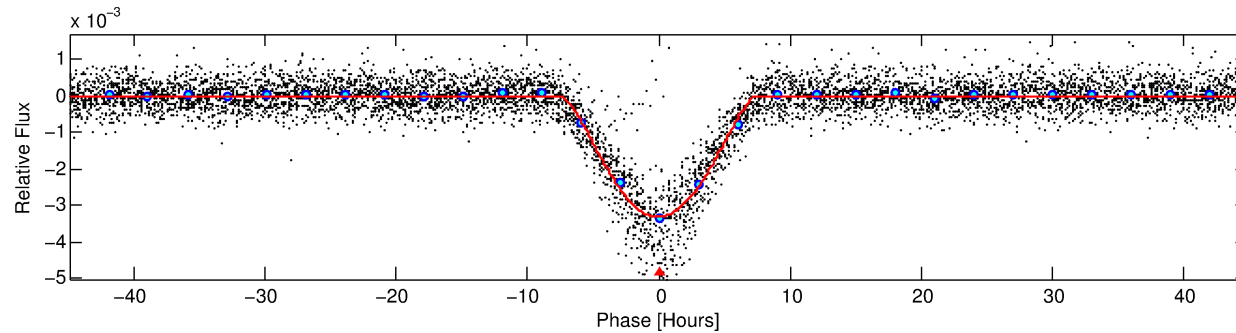
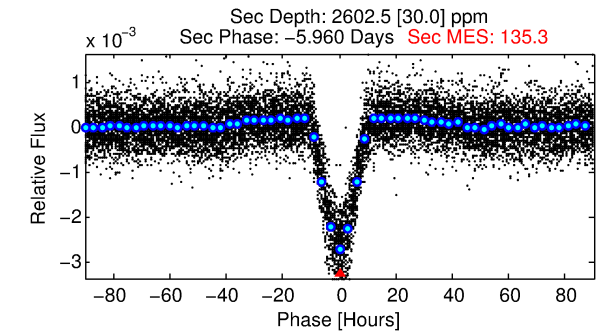
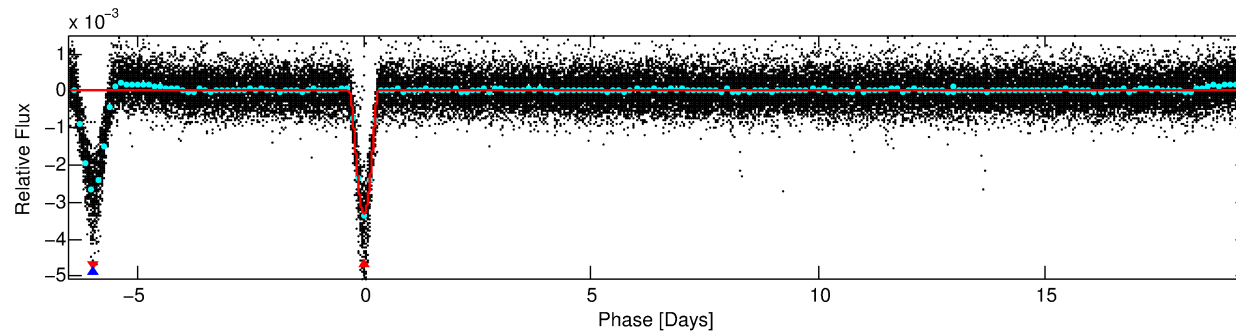
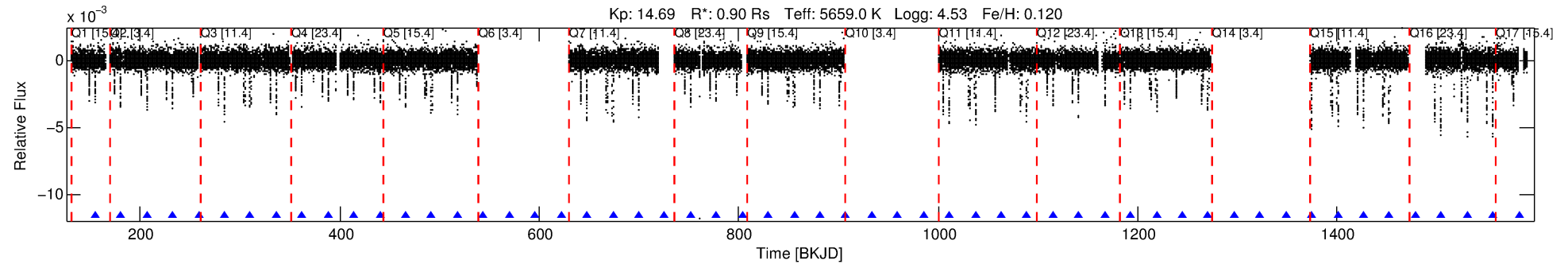
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 003858917-01

TCE (1)	KIC	Parent (2)	Parent KIC	$P_1:P_2$	Dist (μ)	Δ Row	Δ Col	m_2	m_1	D_2/D_1	Mechanism	Flag	σ_P	σ_T
003858917-01	3858917	003858884-01	3858884	1:1	33.0	-8	1	9.28	14.69	120.26	Direct-PRF	0	0.39	0.19

Notes: $P_1:P_2$ is the period ratio. Dist is the distance in arcseconds. Δ Row and Δ Col are the number of pixels apart in row and column. m_2 and m_1 are the magnitudes of the parent and child. D_2/D_1 is the parent's transit depth divided by the child's. σ_P and σ_T are the significance of the match in period and epoch. For a match to be considered significant $\sigma_P < 5.0$ and $\sigma_T < 5.0$. Matches which have σ_P and σ_T very close to this cutoff should receive extra scrutiny, especially if the period ratio is very large.

KOI: K03294 Corr: No Ephemeris Match



DV Fit Results:

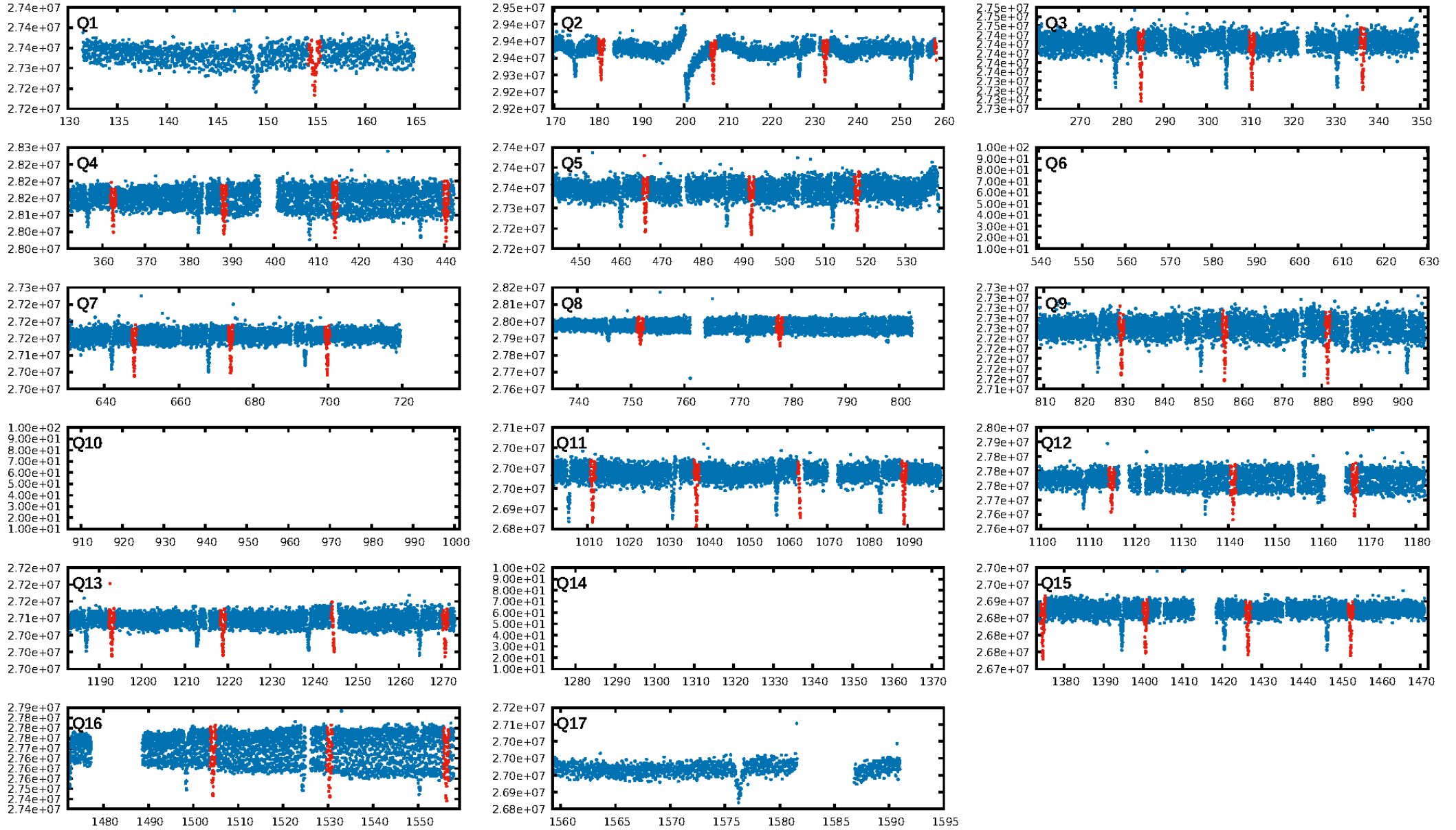
Period = 25.95196 [0.00007] d
 Epoch = 154.8821 [0.0021] BKJD
 Rp/R* = 0.0991 [0.0268]
 a/R* = 6.14 [0.31]
 b = 1.00 [0.04]
 Seff = 25.41 [9.34]
 Teq = 573 [53] K
 Rp = 9.77 [3.77] Re
 a = 0.1719 [0.0404] AU
 Ag = 442.80 [284.54] [1.55σ]
 Teffp = 4061 [563] K [6.1σ]

DV Diagnostic Results:

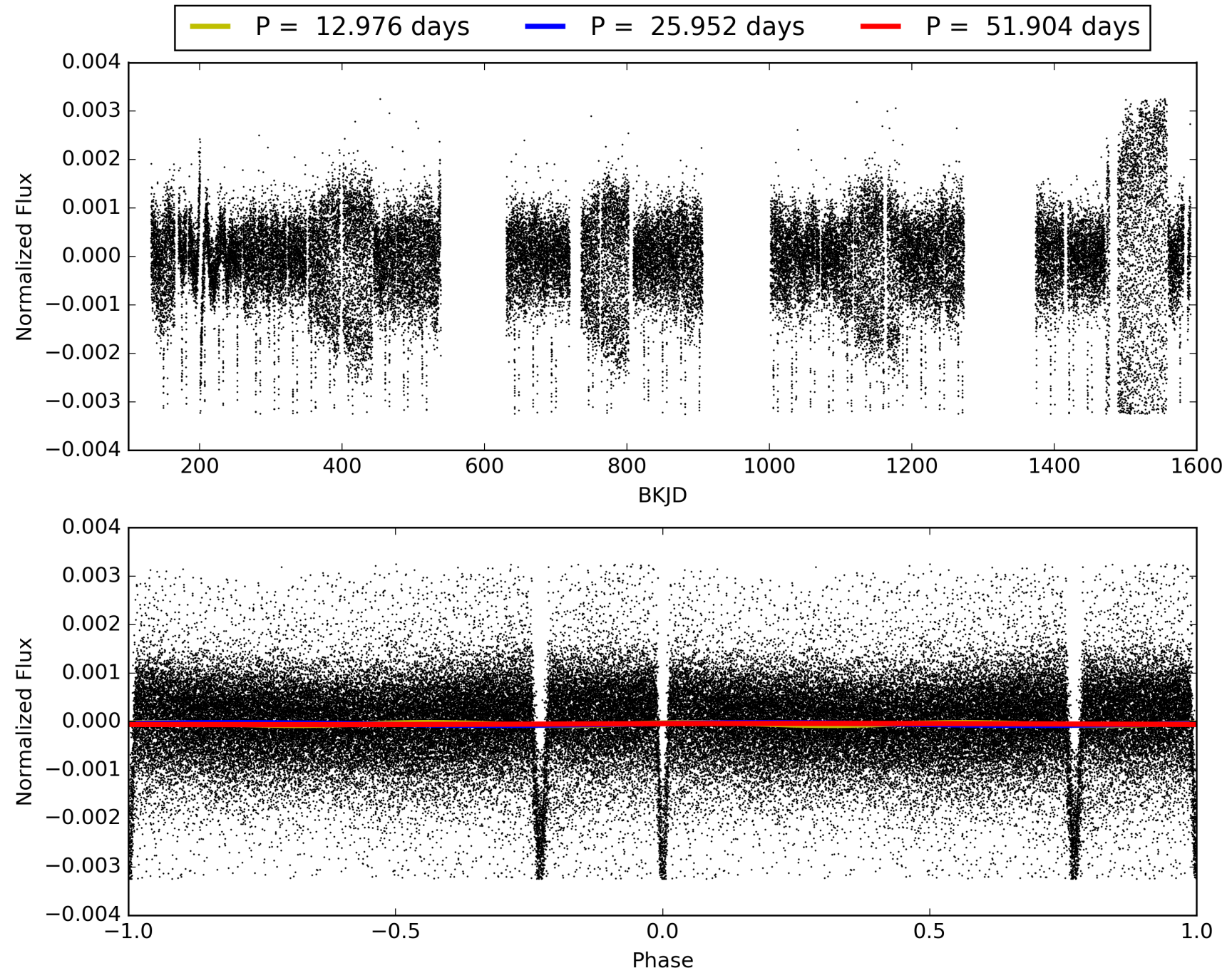
ShortPeriod-sig: N/A
 LongPeriod-sig: 0.0% [0.00σ]
 ModelChiSquare2-sig: 0.0%
 ModelChiSquareGof-sig: 100.0%
 Bootstrap-pfa: 0.00e+00
 RollingBand-fgt: 1.00 [40/40]
 GhostDiagnostic-chr: 0.001633

Centroid-sig: 0.0%
 Centroid-so: 4.432 arcsec [21.81σ]
 OotOffset-rm: 5.265 arcsec [7.70σ]
 KicOffset-rm: 5.338 arcsec [6.03σ]
 OotOffset-st: 1/3/4/3 [11]
 KicOffset-st: 1/3/4/3 [11]
 DiffImageQuality-fgm: 0.36 [4/11]
 DiffImageOverlap-fno: 1.00 [13/13]

TCE 003858917-01, PDC Light Curves

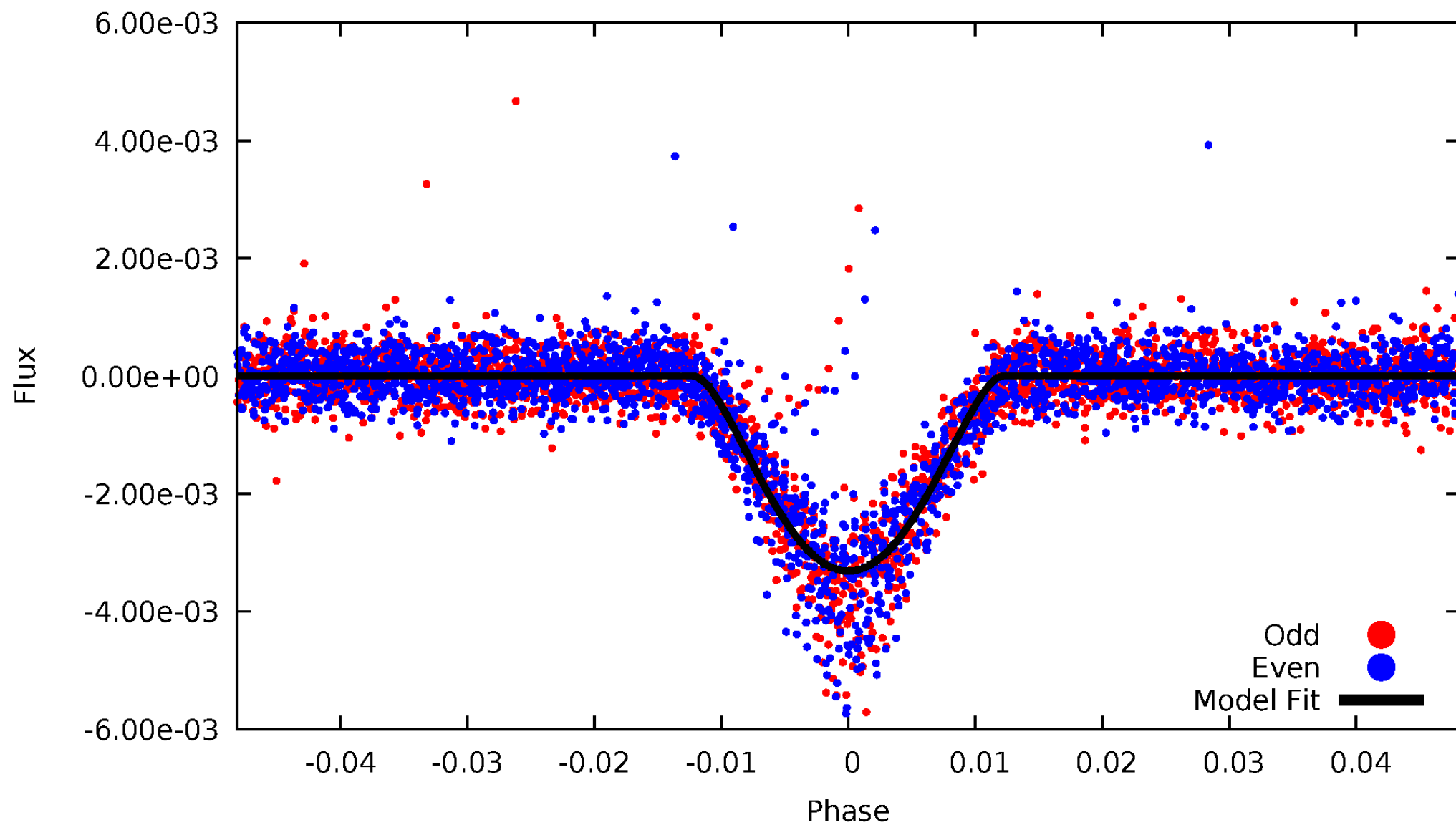


TCE 003858917-01



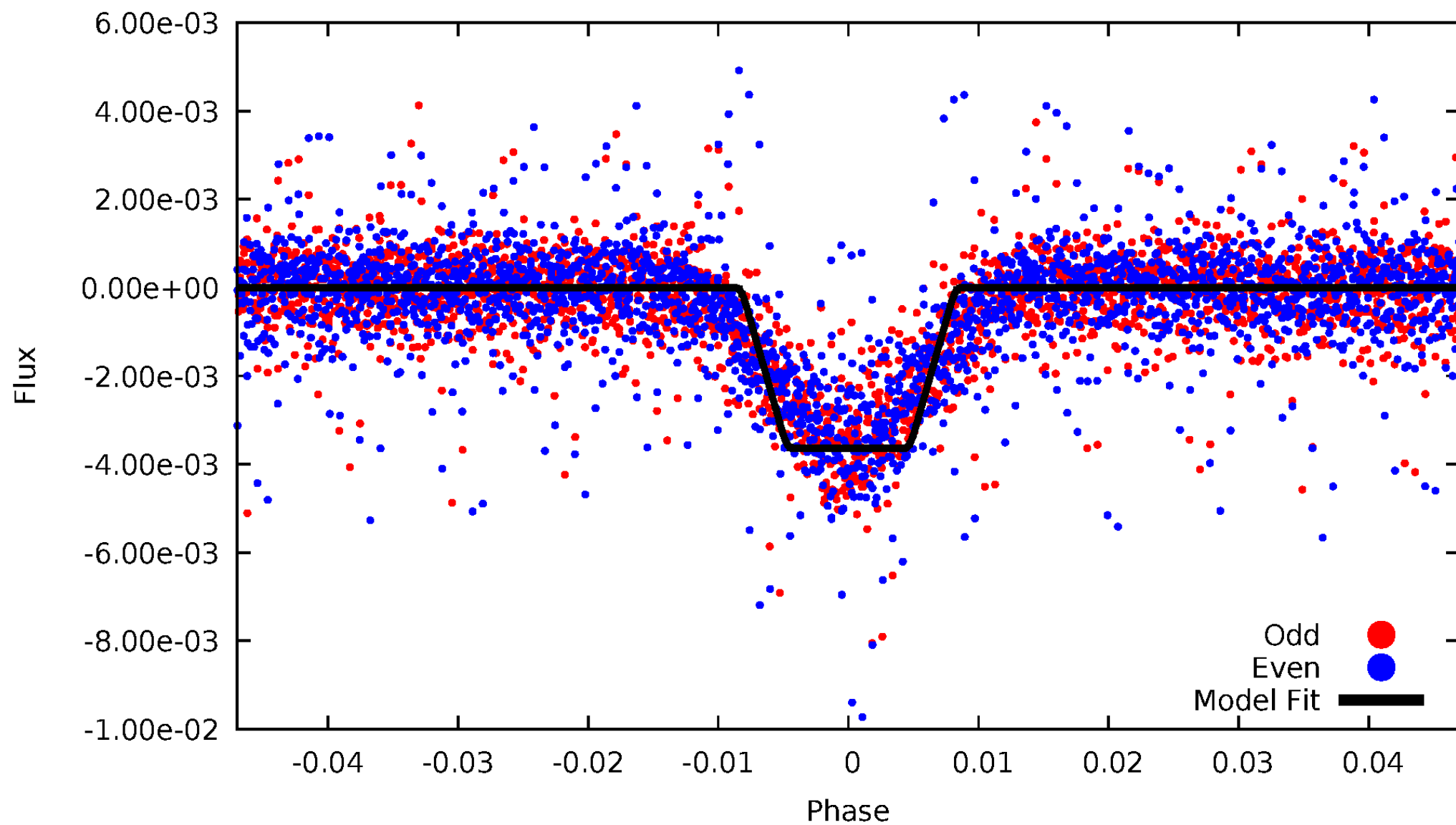
DV Odd/Even

TCE 003858917-01



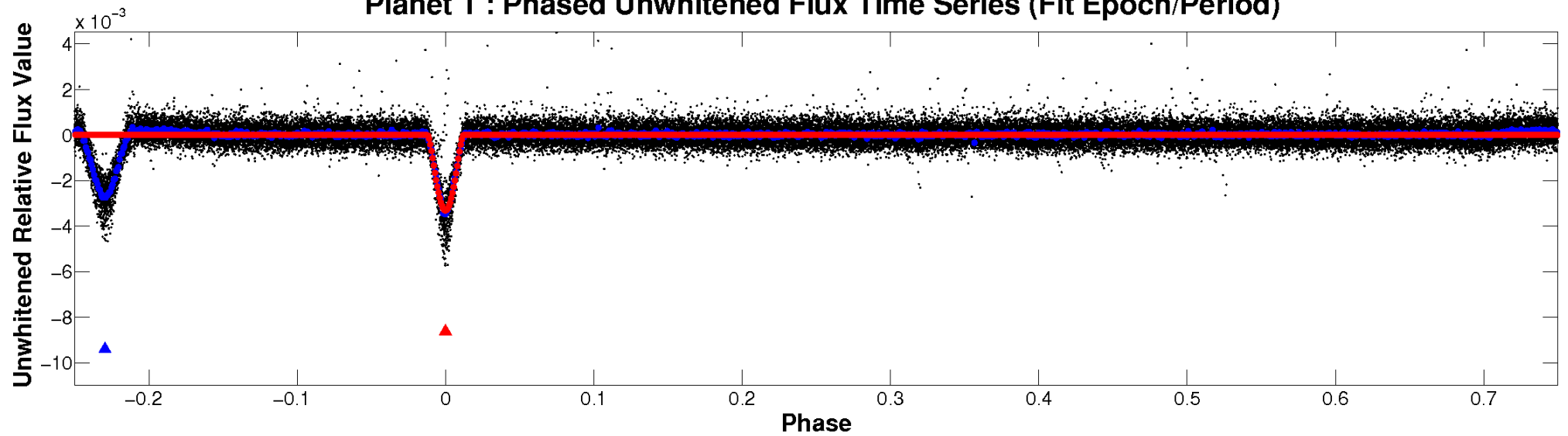
ALT Odd/Even

TCE 003858917-01

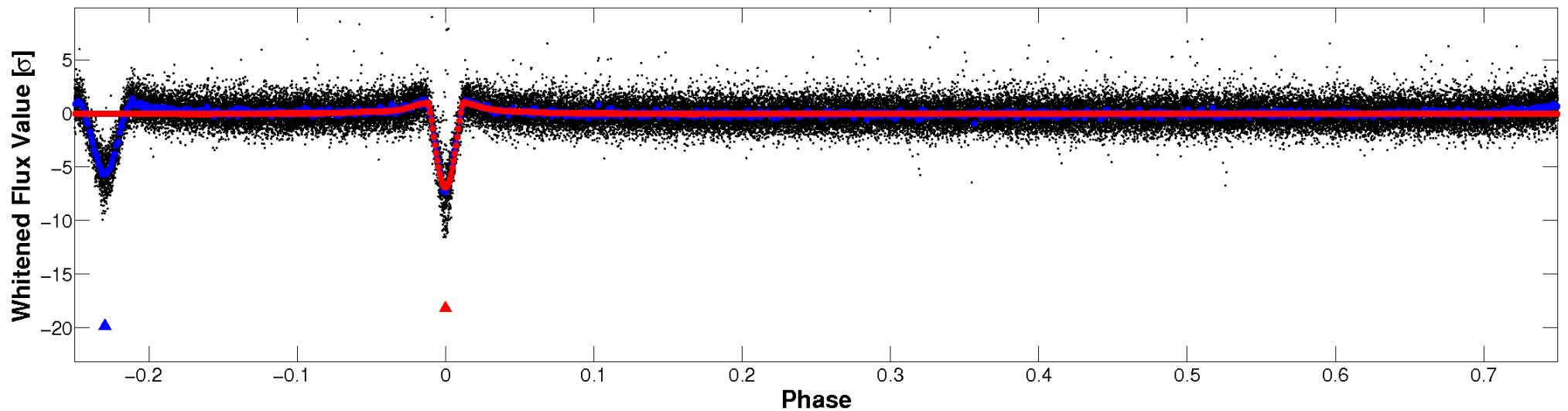


Non-Whitened Vs. Whitened Light Curve

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

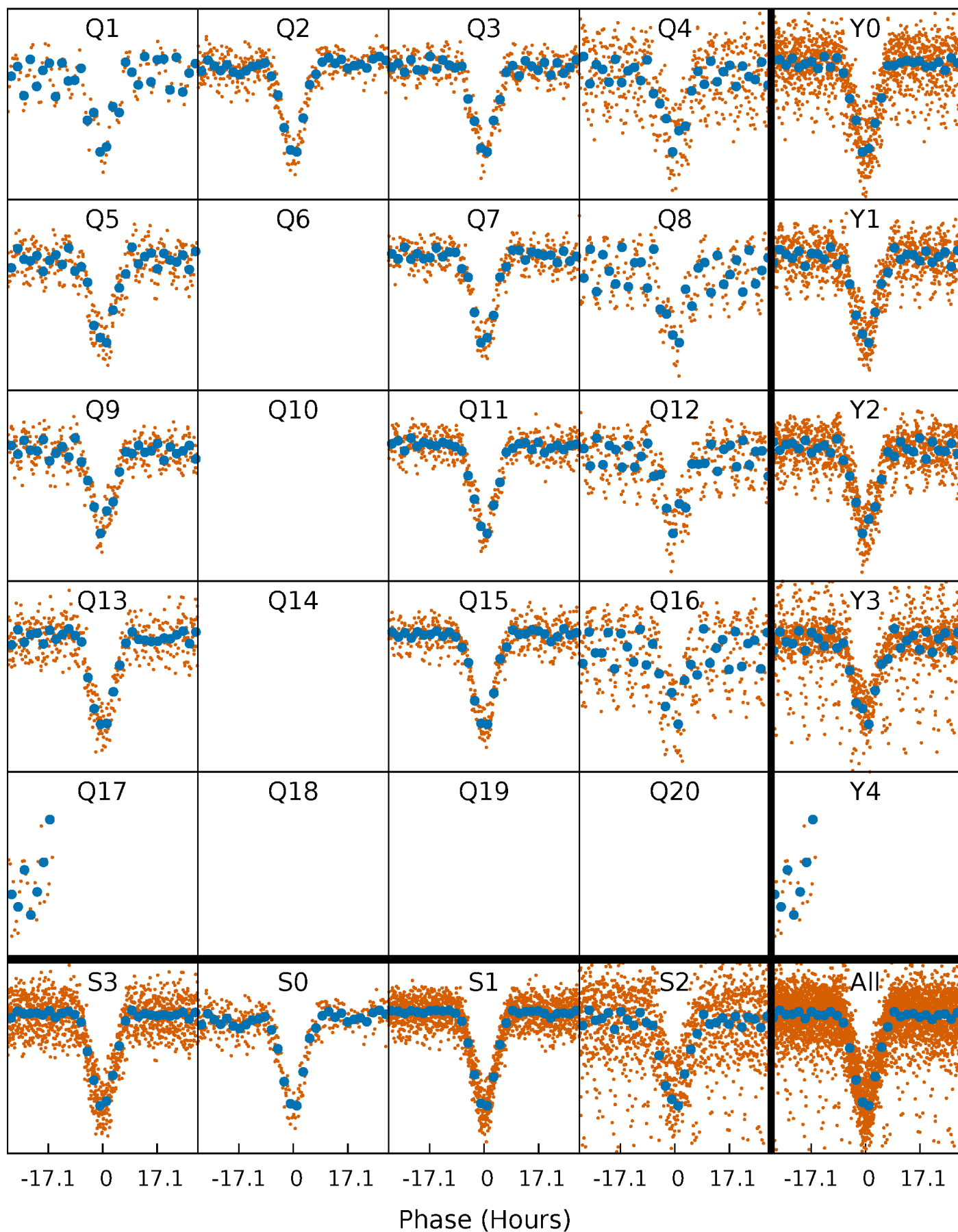


Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)



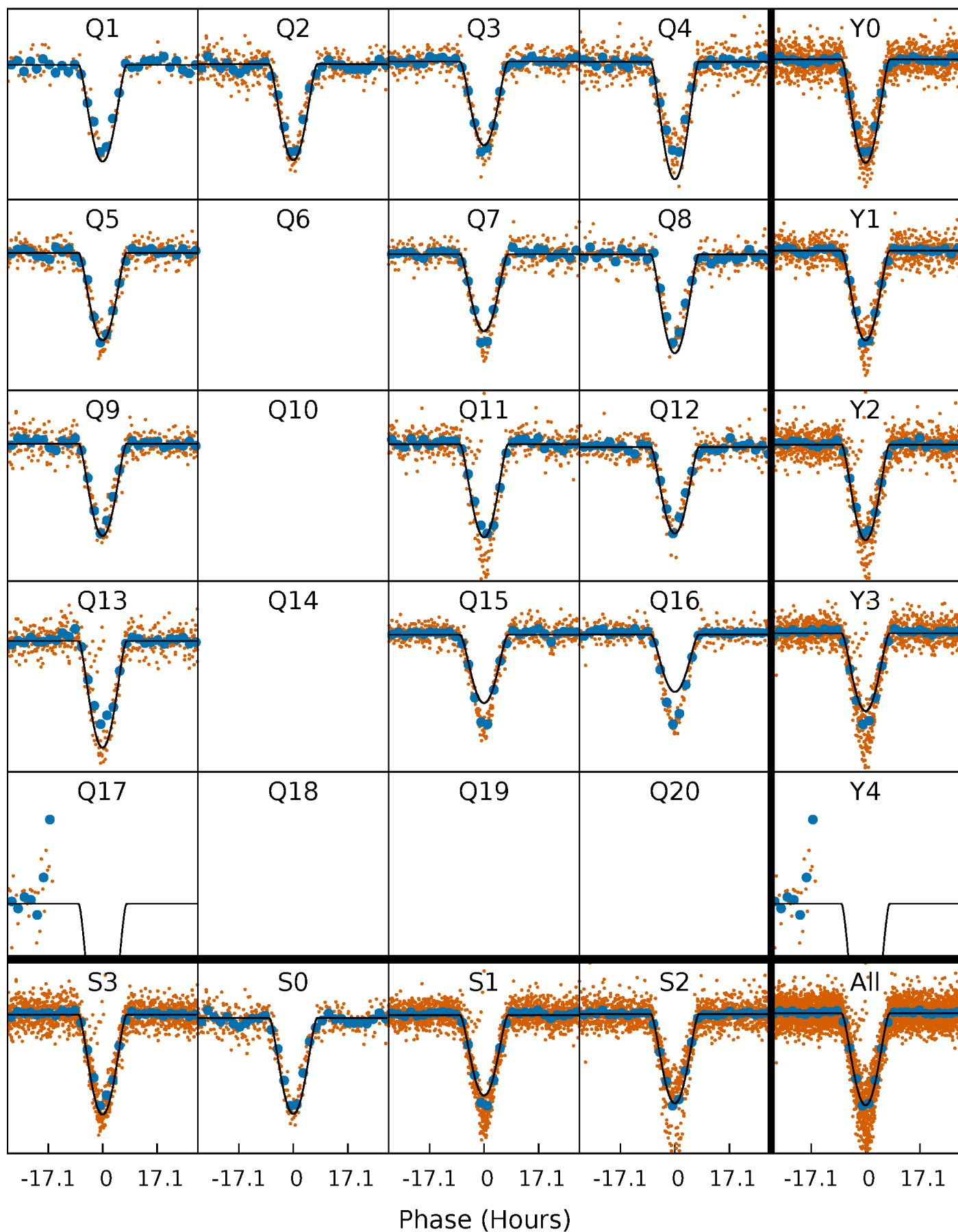
PDC Quarter-Phased Transit Curves

TCE 003858917-01 P= 25.951960 Days $T_0=154.882053$ (BKJD)



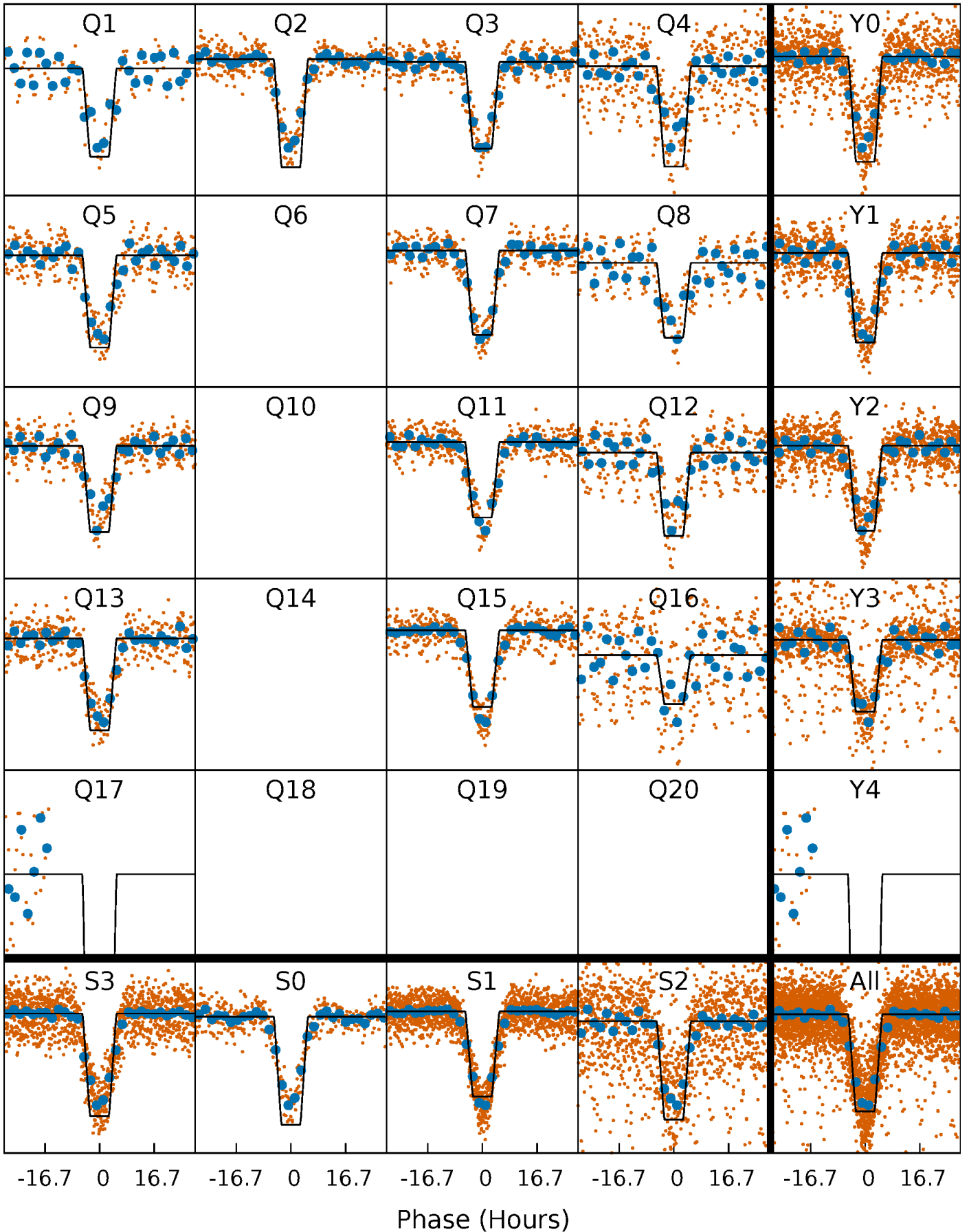
DV Quarter-Phased Transit Curves

TCE 003858917-01 P= 25.951960 Days $T_0=154.882053$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

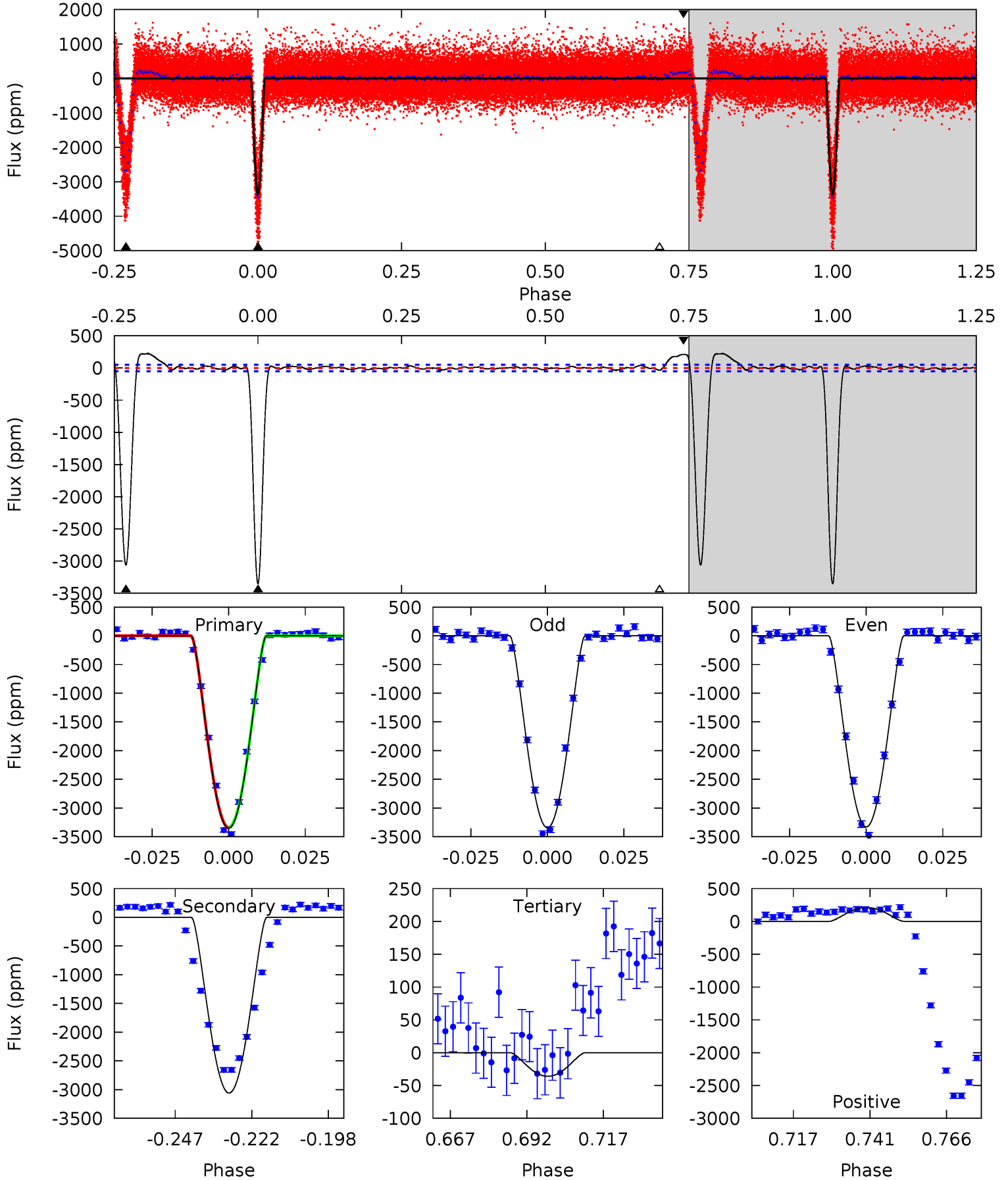
TCE 003858917-01 P= 25.951589 Days $T_0=154.890909$ (BKJD)



DV Model-Shift Uniqueness Test

003858917-01, P = 25.951960 Days, E = 128.930093 Days

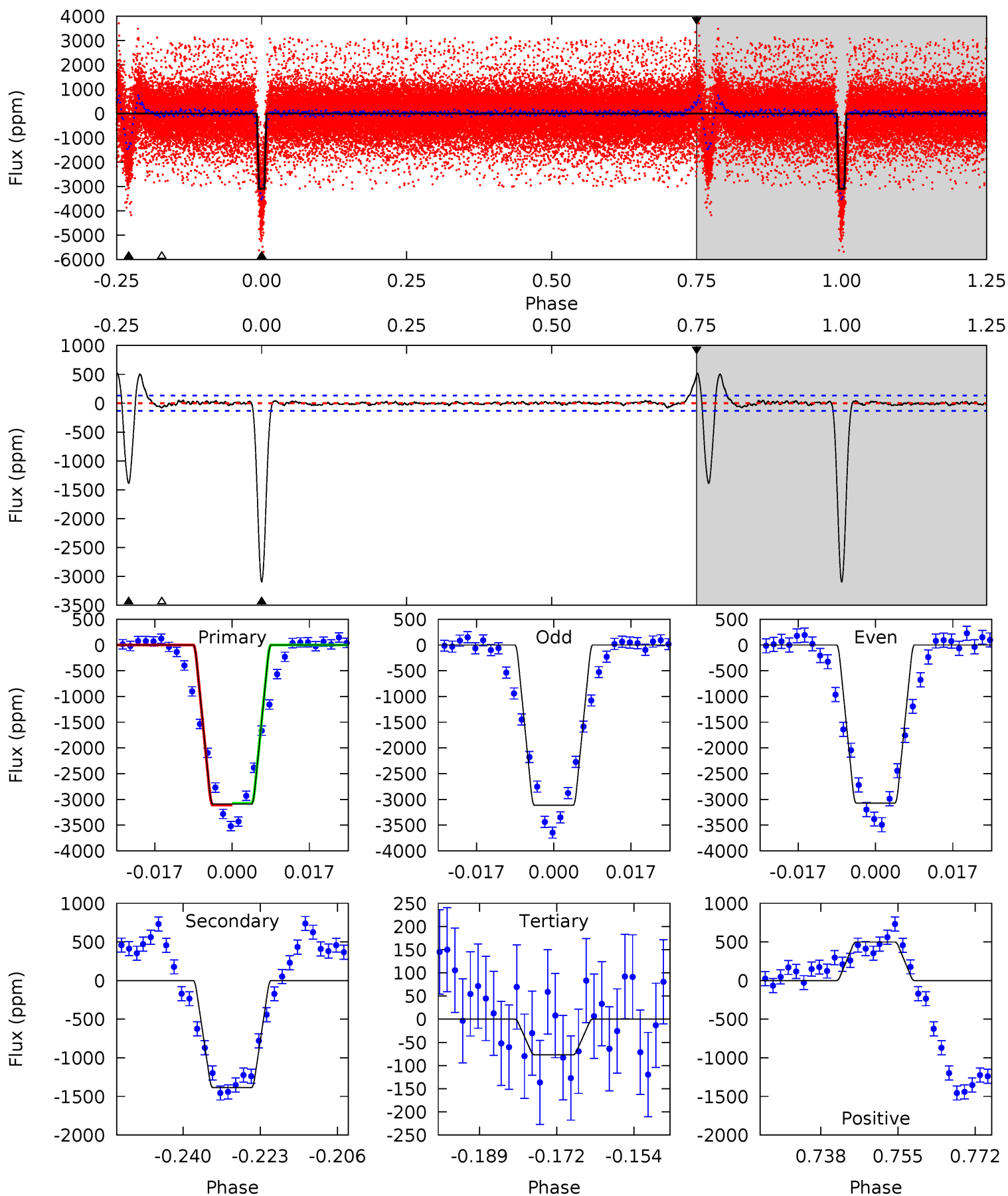
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
312.0	284.8	3.36	19.7	4.85	2.25	5.06	308.6	292.3	281.4	265.1	0.70	1.02	0.06	0.19



Alt Model-Shift Uniqueness Test

003858917-01, P = 25.951589 Days, E = 128.939320 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
114.1	51.1	2.83	18.4	4.92	2.38	2.61	111.3	95.7	48.3	32.7	0.84	1.06	0.14	0.68



Stellar Parameters For KIC 003858917

	$T_{\text{eff}} (K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R (R_{\odot})$	$M (M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	5659^{+154}_{-171}	$4.528^{+0.036}_{-0.192}$	$0.120^{+0.250}_{-0.300}$	$0.904^{+0.248}_{-0.083}$	$1.005^{+0.090}_{-0.120}$	$1.919^{+0.359}_{-0.945}$
	+3%/-3%	+1%/-4%	+208%/-250%	+27%/-9%	+9%/-12%	+19%/-49%
Source	PHO1	KIC0	KIC0	DSEP		

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

Secondary Eclipse Parameters for KIC 003858917-01 / KOI 3294.01

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-3060 ± 11	$10.33^{+3.14}_{-2.97}$	821^{+51}_{-36}	4427^{+603}_{-410}	458^{+442}_{-185}
Alt.	-1384 ± 27	$6.11^{+2.96}_{-2.63}$	815^{+52}_{-35}	4629^{+1310}_{-613}	589^{+1248}_{-315}

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

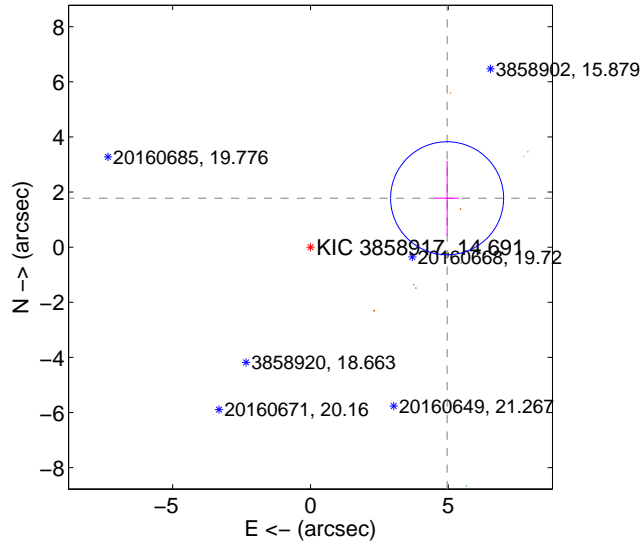
Supplemental centroid analysis for 003858917-01. Kepler magnitude: 14.69. Transit SNR 139.43

There are 4 quarters with good PRF difference image offsets

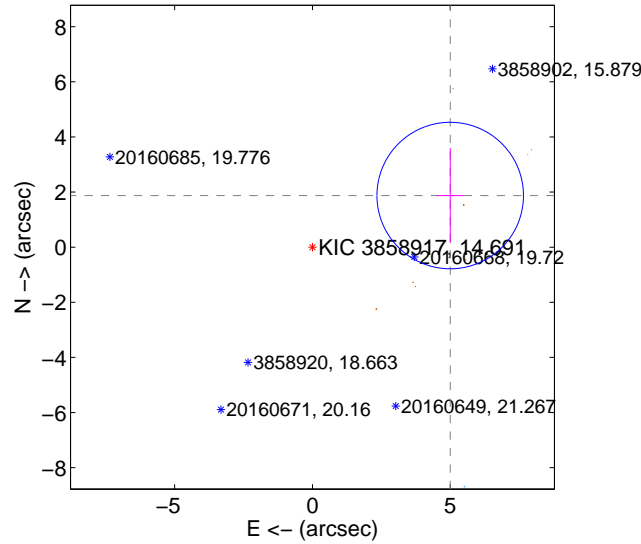
The direct PRF centroid is offset from the target star catalog position by about 0.14 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	5.265 ± 0.683	7.70	-4.957 ± 0.426	1.775 ± 1.354
PRF-fit source offset from KIC position	5.338 ± 0.886	6.03	-4.998 ± 0.494	1.873 ± 1.726
photometric centroid source offset	4.43 ± 0.20	21.81	-4.05 ± 0.18	1.80 ± 0.28

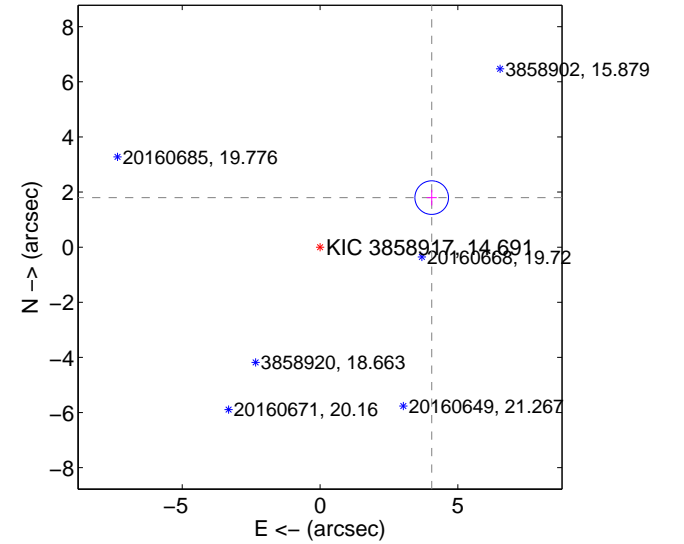
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position

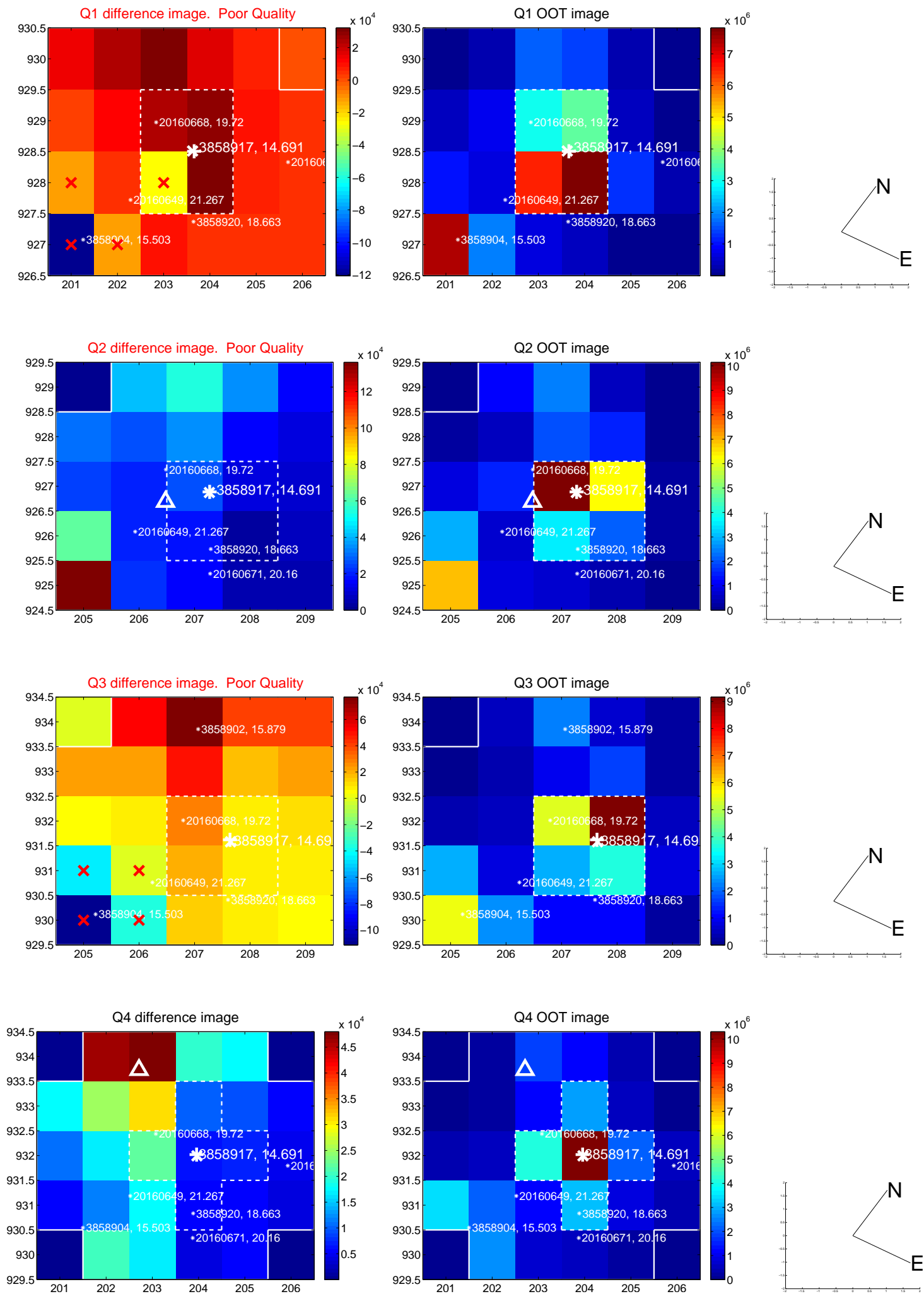


offset from photometric centroids

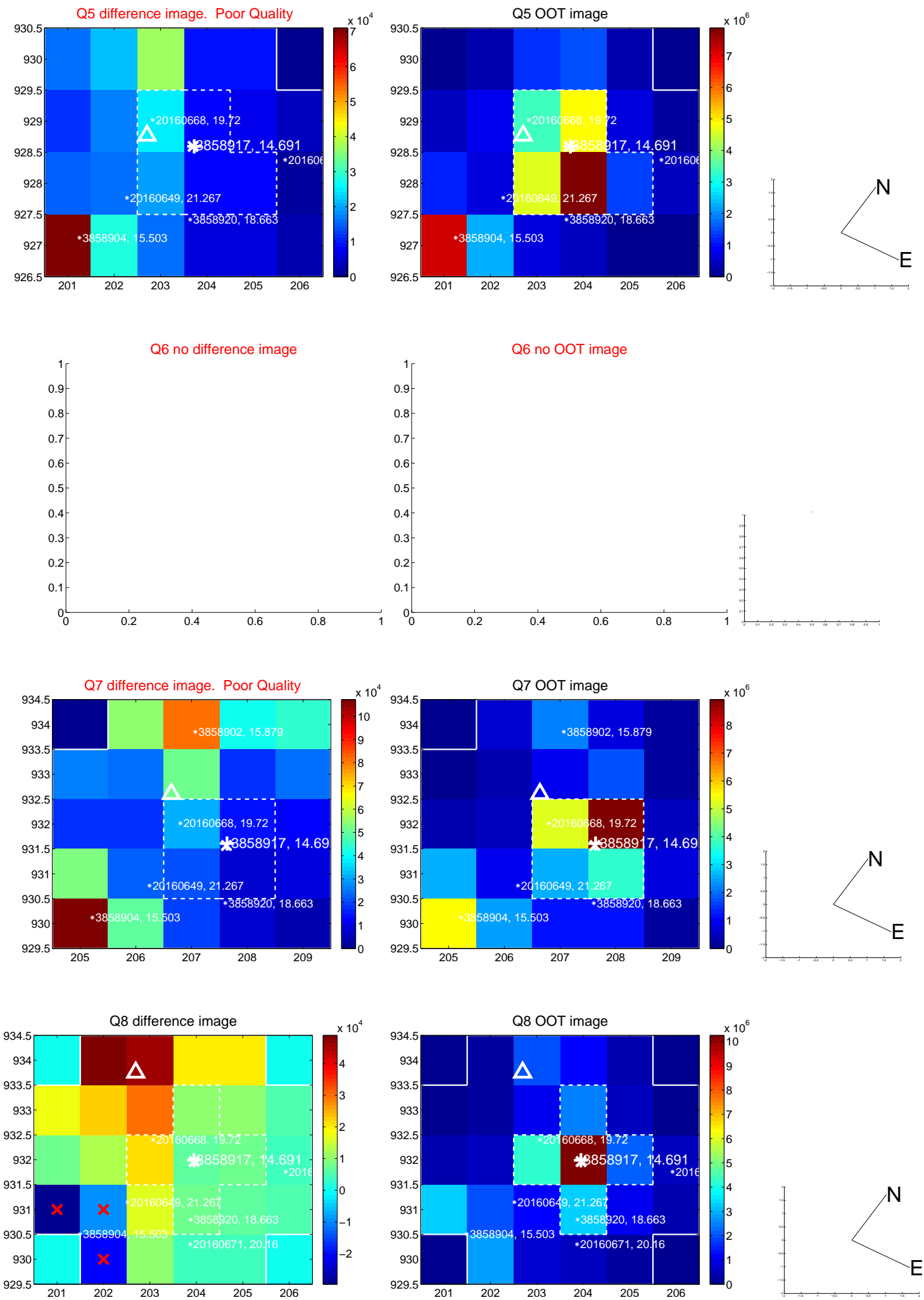


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

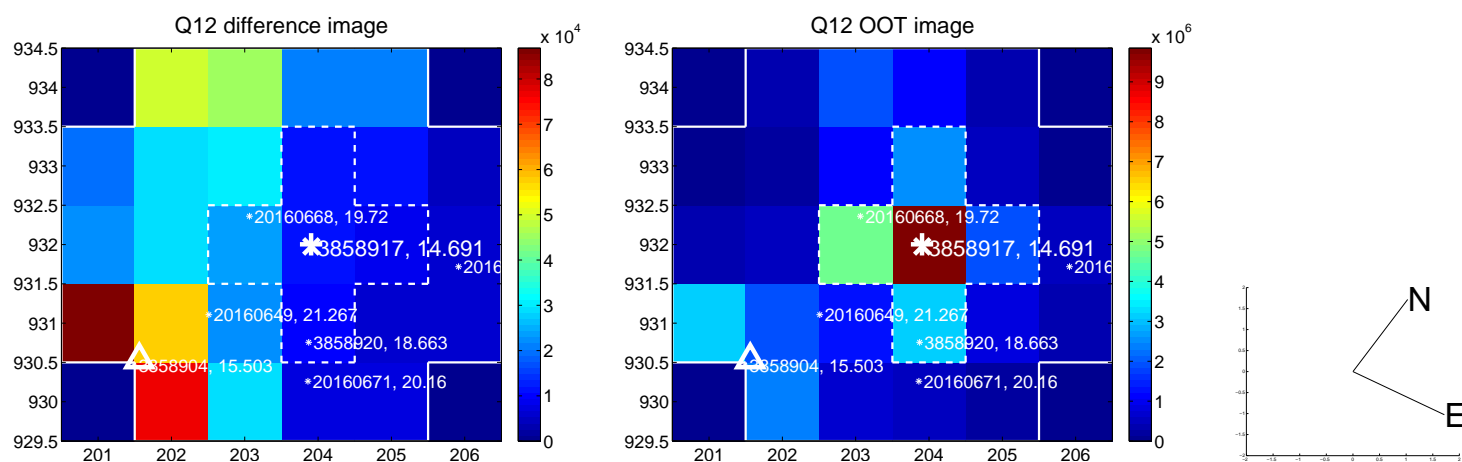
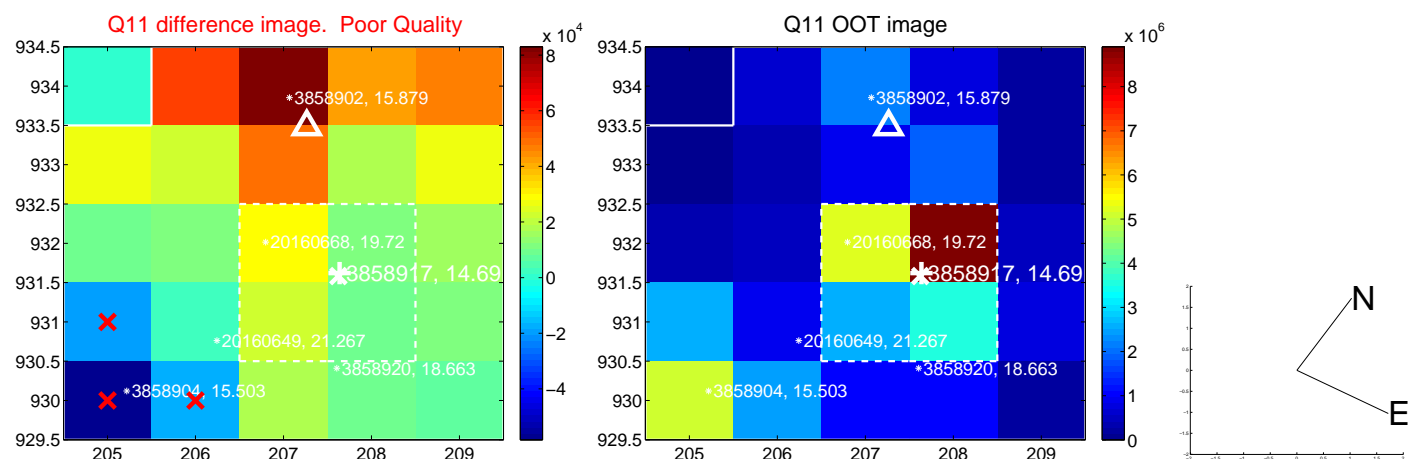
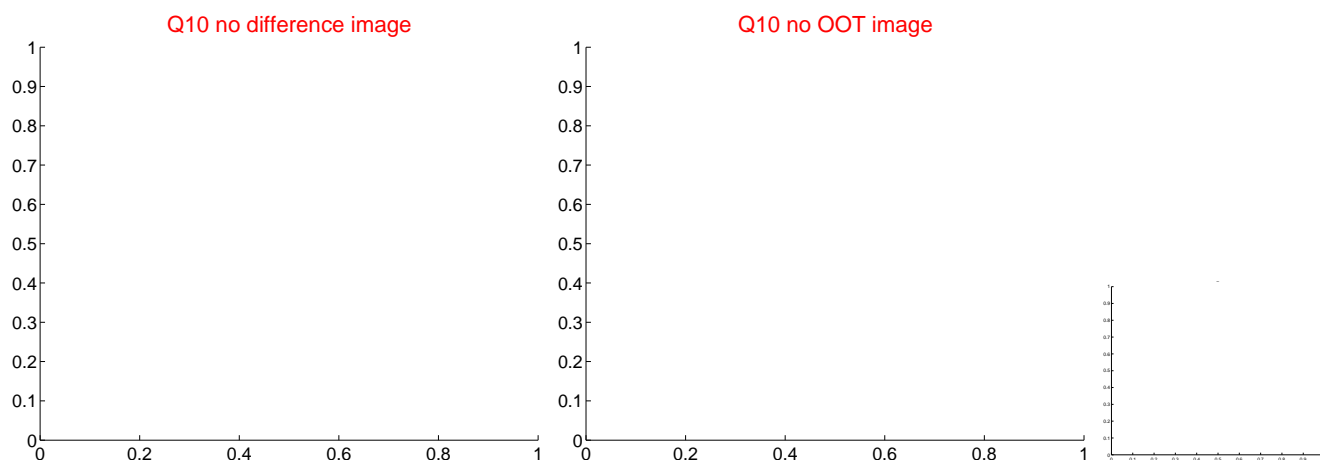
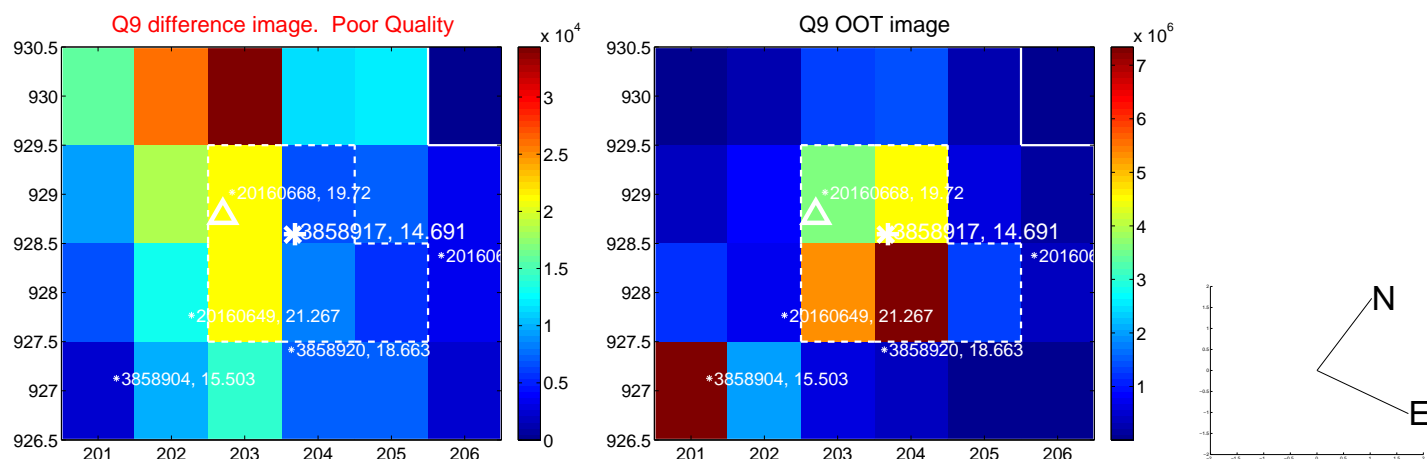
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



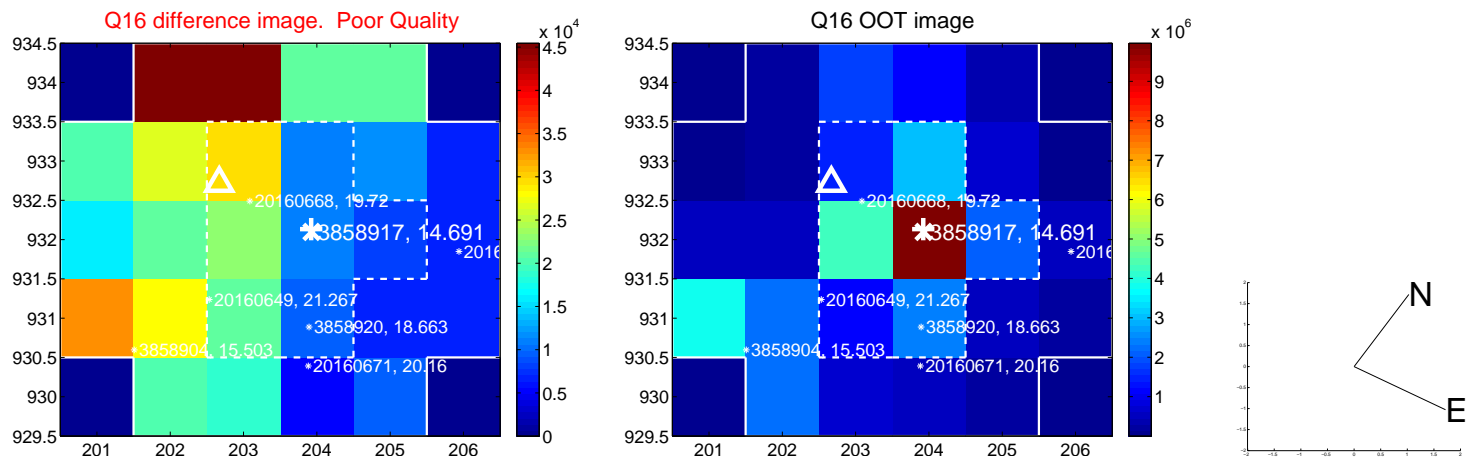
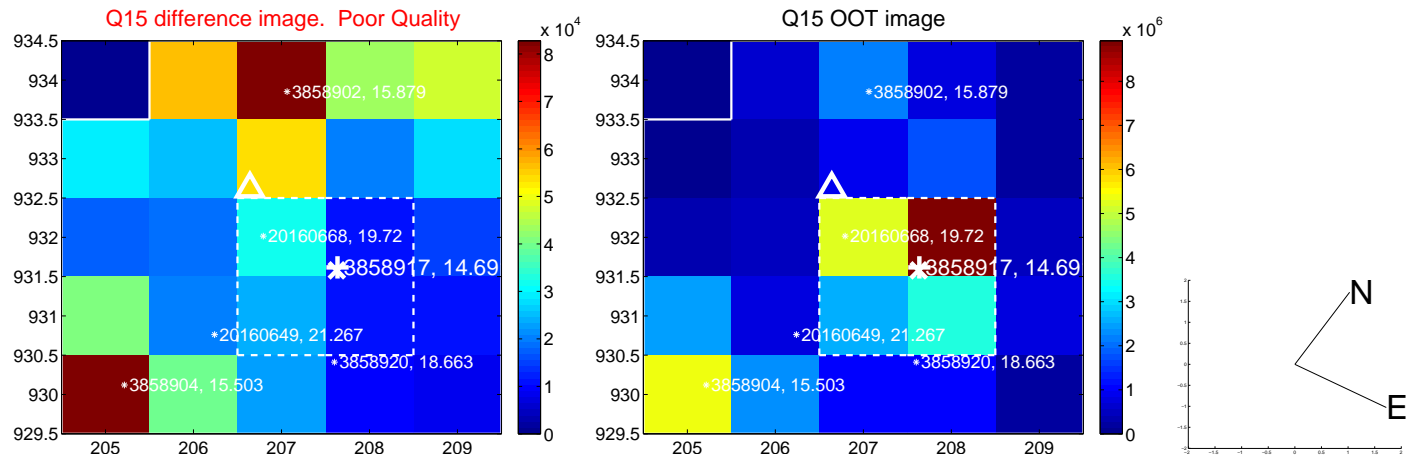
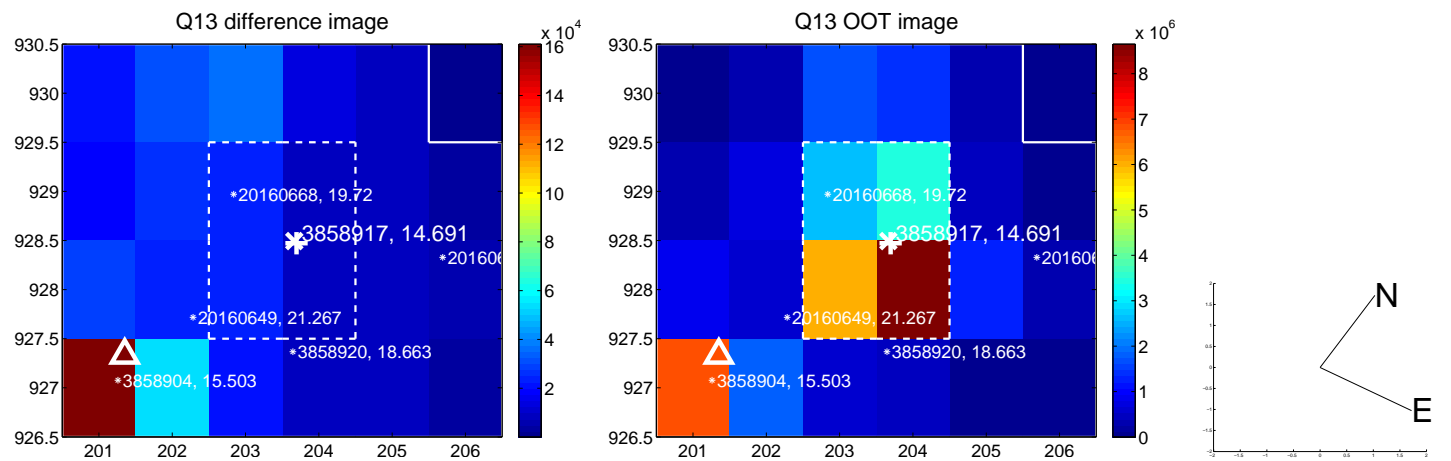
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



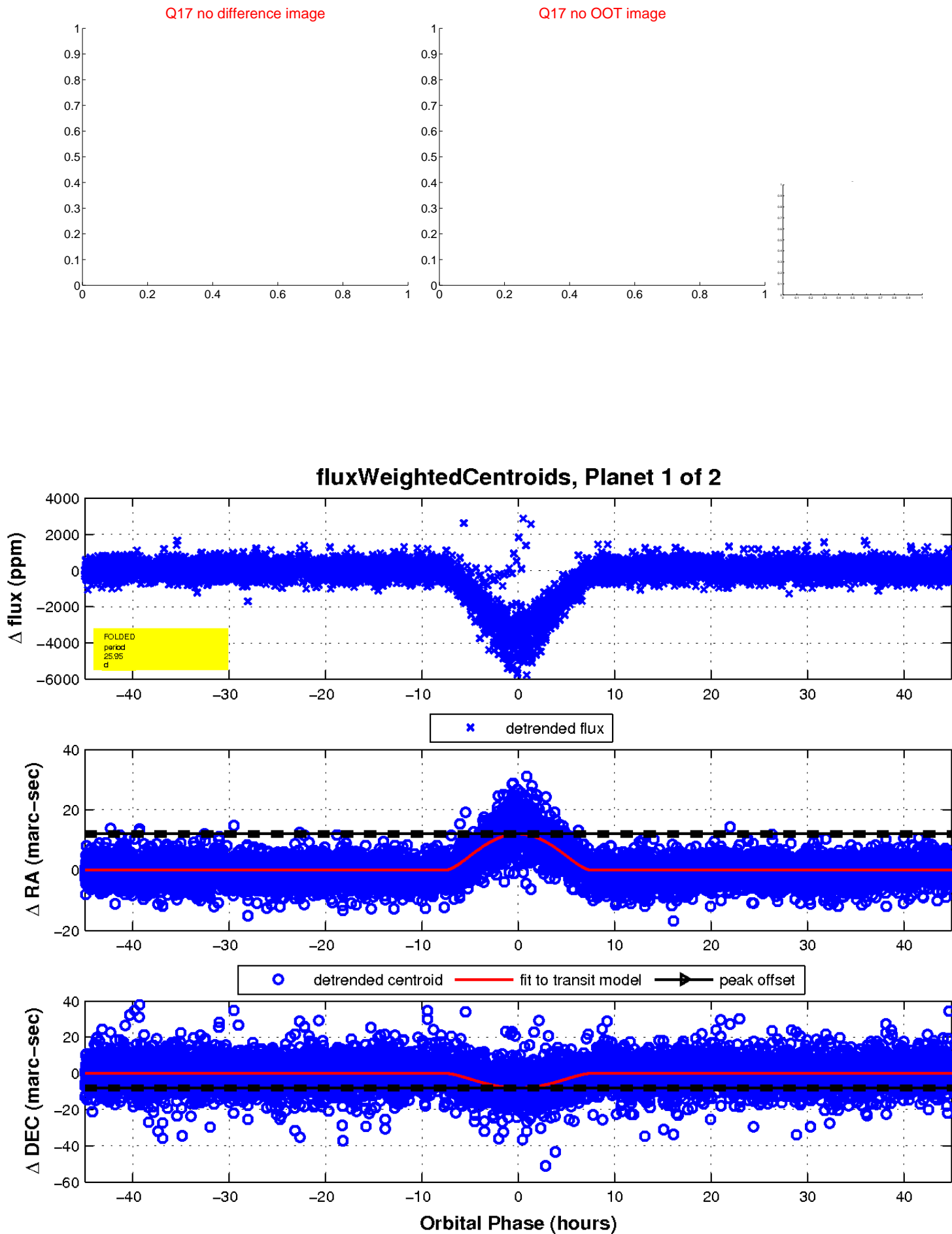
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



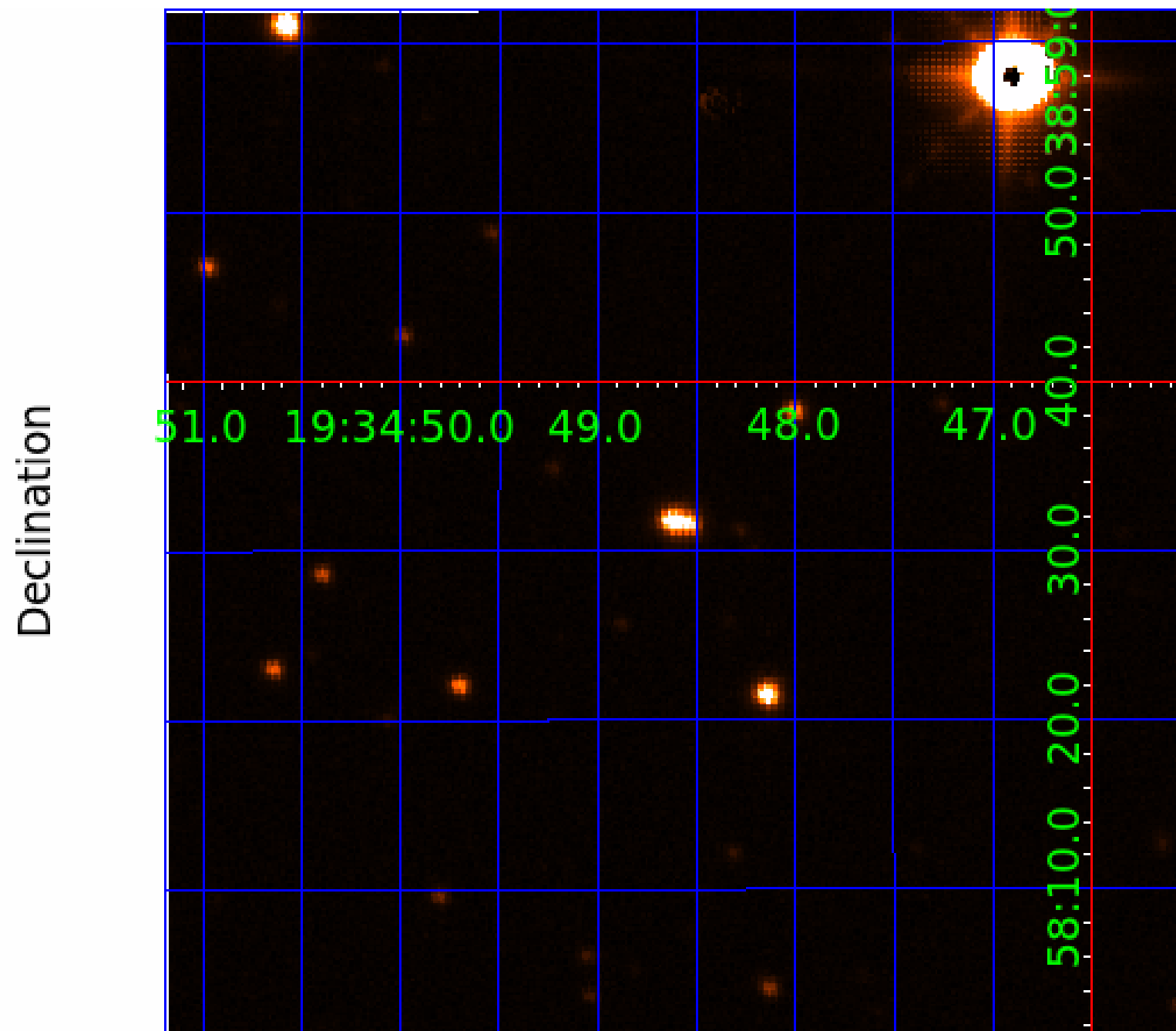
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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



UKIRT Image



KIC 003858917

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})
003858917-01	OBS	3294.01	25.951960	154.882053	3314.3	14.987	150.8	139.4	0.90	5659	9.77	25.41
003858917-02	OBS	No	25.951982	148.923192	2698.0	20.433	151.3	150.7	0.90	5659	8.90	25.41

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
003858917-01	OBS	FP	0.00	0	1	1	1	MOD_SEC_DV—MOD_SEC_ALT—DEEP_V_SHAPED—HAS_SEC_TCE—CENT_RESOLVED_OFFSET—HALO_GHOST—EPHEM_MATCH
003858917-02	OBS	FP	0.00	1	1	1	1	IS_SEC_TCE—CENT_RESOLVED_OFFSET—HALO_GHOST—EPHEM_MATCH

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.

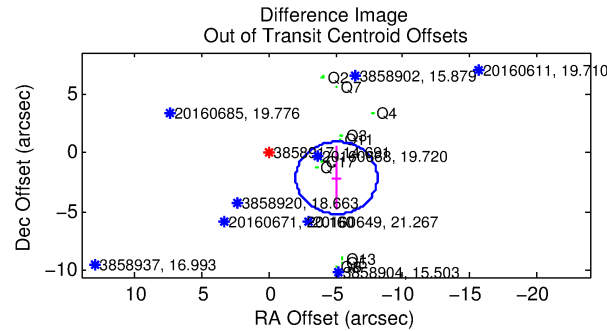
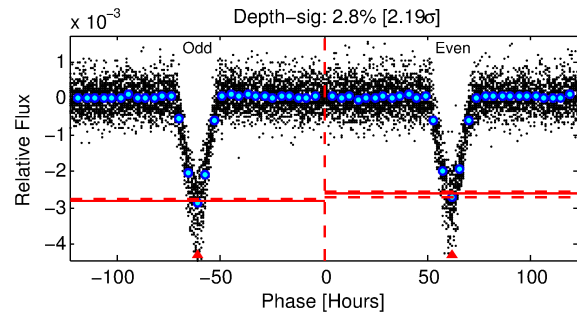
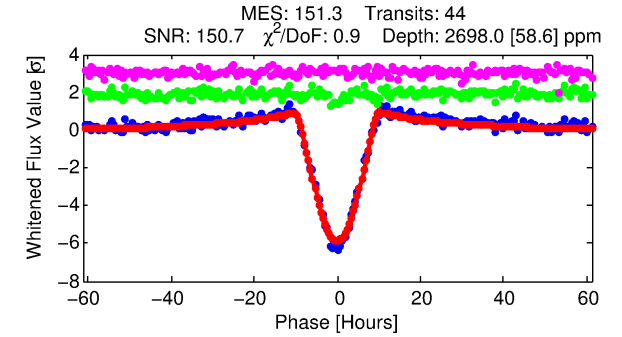
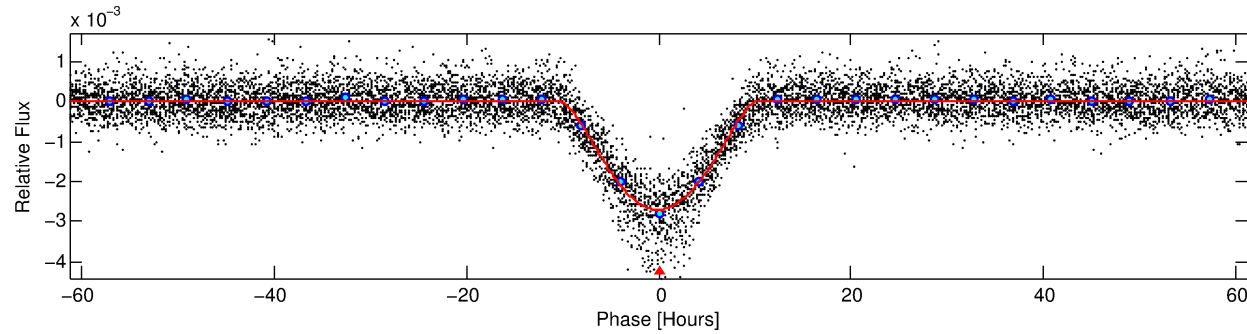
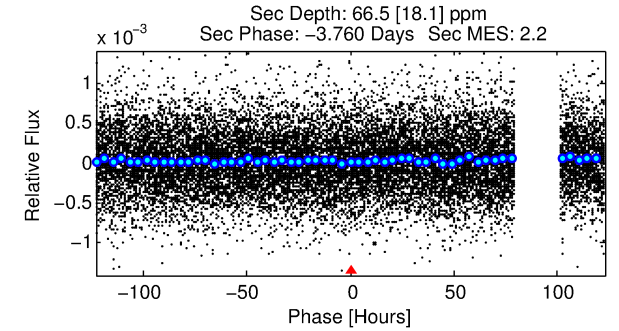
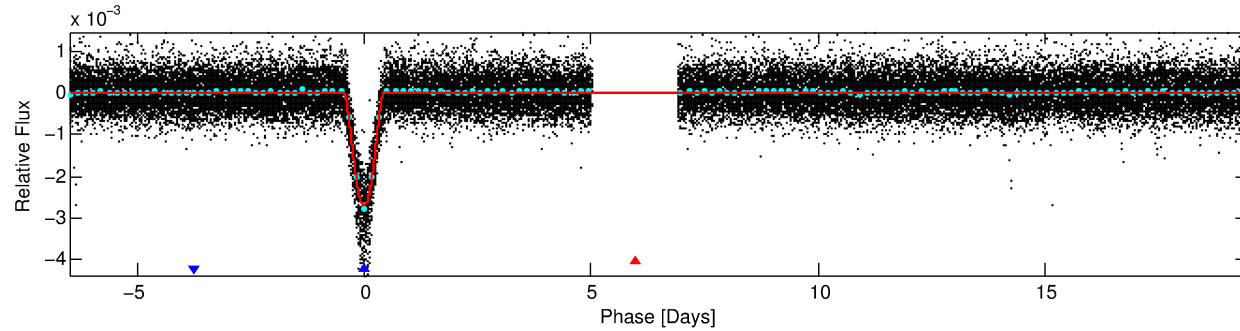
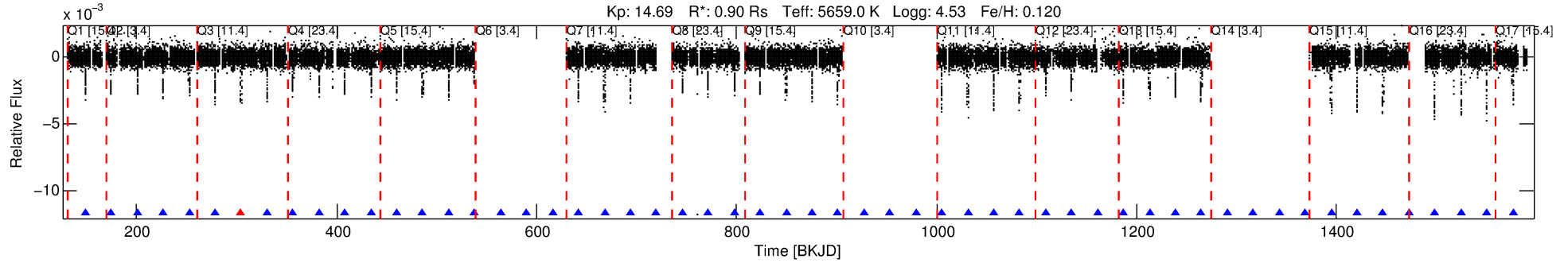
Ephemeris Match Information For 003858917-02

TCE (1)	KIC	Parent (2)	Parent KIC	$P_1:P_2$	Dist (μ)	Δ Row	Δ Col	m_2	m_1	D_2/D_1	Mechanism	Flag	σ_P	σ_T
003858917-02	3858917	003858884-02	3858884	1:1	33.0	-8	1	9.28	14.69	124.96	Direct-PRF	0	0.34	0.17

Notes: $P_1:P_2$ is the period ratio. Dist is the distance in arcseconds. Δ Row and Δ Col are the number of pixels apart in row and column. m_2 and m_1 are the magnitudes of the parent and child. D_2/D_1 is the parent's transit depth divided by the child's. σ_P and σ_T are the significance of the match in period and epoch. For a match to be considered significant $\sigma_P < 5.0$ and $\sigma_T < 5.0$. Matches which have σ_P and σ_T very close to this cutoff should receive extra scrutiny, especially if the period ratio is very large.

DV One-Page Summary

KIC: 3858917 Candidate: 2 of 2 Period: 25.952 d
KOI: K03294.01 Corr: 0.998



DV Fit Results:

Period = 25.95198 [0.00009] d
Epoch = 148.9232 [0.0028] BKJD
Rp/R* = 0.0902 [0.0232]
a/R* = 4.35 [0.21]
b = 1.00 [0.03]
Seff = 25.41 [9.34]
Teff = 573 [53] K
Rp = 8.90 [3.35] Re
a = 0.1719 [0.0404] AU
Ag = 13.66 [9.27] [1.37σ]
Teffp = 1702 [253] K [4.36σ]

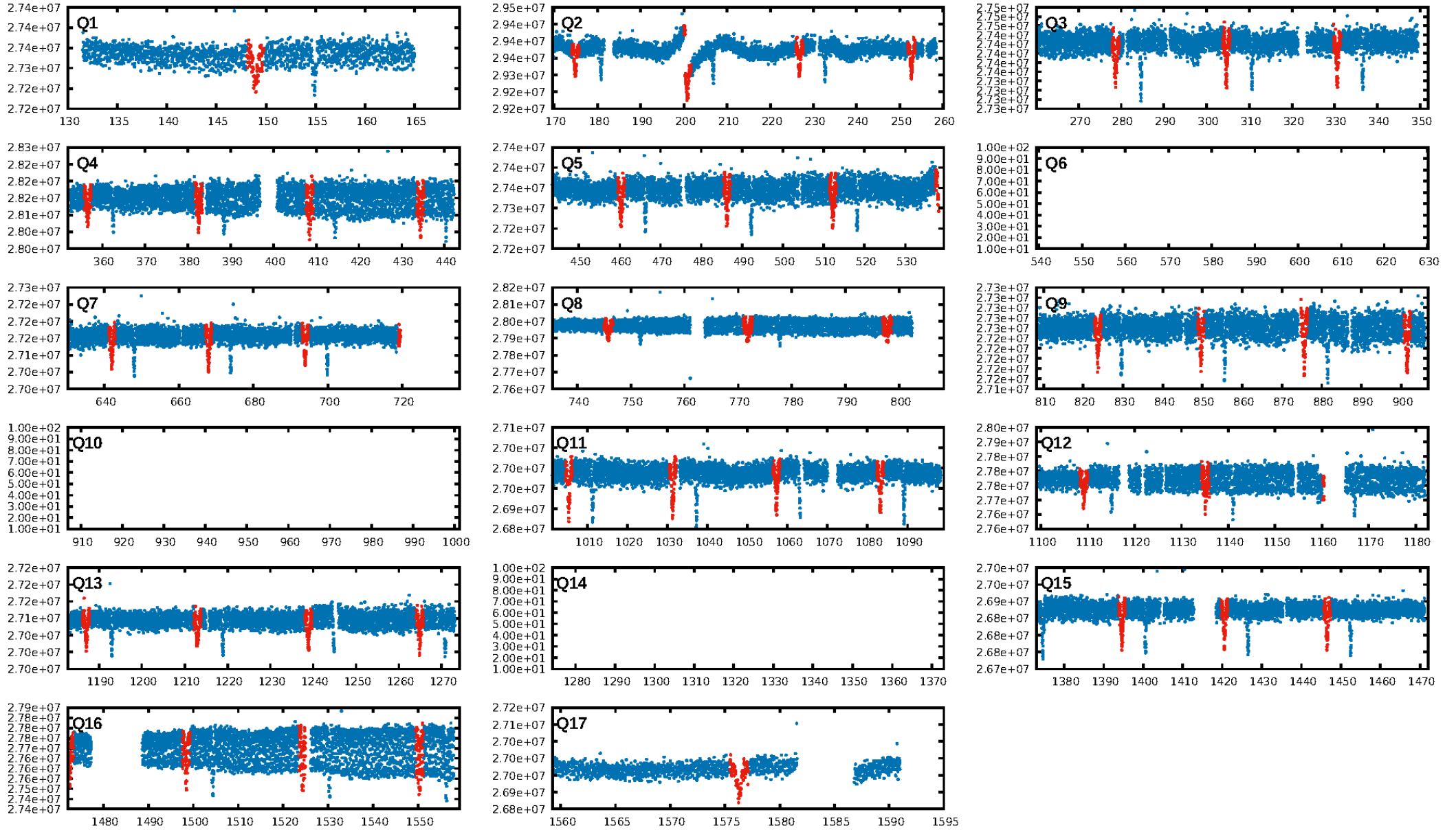
DV Diagnostic Results:

ShortPeriod-sig: 0.0% [0.00σ]
LongPeriod-sig: N/A
ModelChiSquare2-sig: 0.0%
ModelChiSquareGof-sig: 100.0%
Bootstrap-pfa: 0.00e+00
RollingBand-fgt: 0.98 [41/42]
GhostDiagnostic-chr: -0.04862
Centroid-sig: 0.0%
Centroid-so: 3.971 arcsec [19.62σ]
OotOffset-rm: 5.487 arcsec [5.40σ]
KicOffset-rm: 5.647 arcsec [5.97σ]
OotOffset-st: 1/3/2/4 [10]
KicOffset-st: 1/3/2/4 [10]
DiffImageQuality-fgm: 0.50 [5/10]
DiffImageOverlap-fno: 1.00 [12/12]

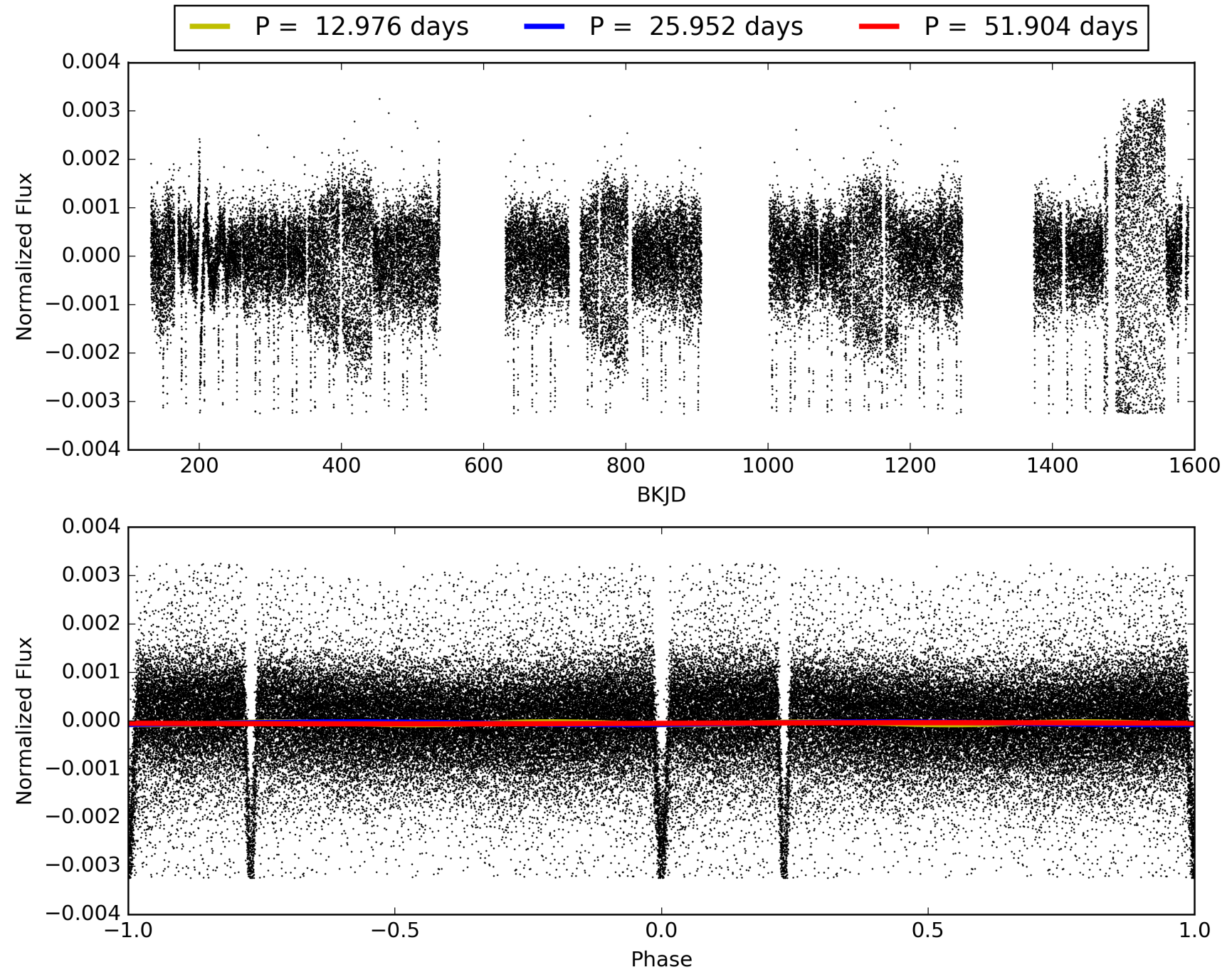
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 20:33:32 Z

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

TCE 003858917-02, PDC Light Curves

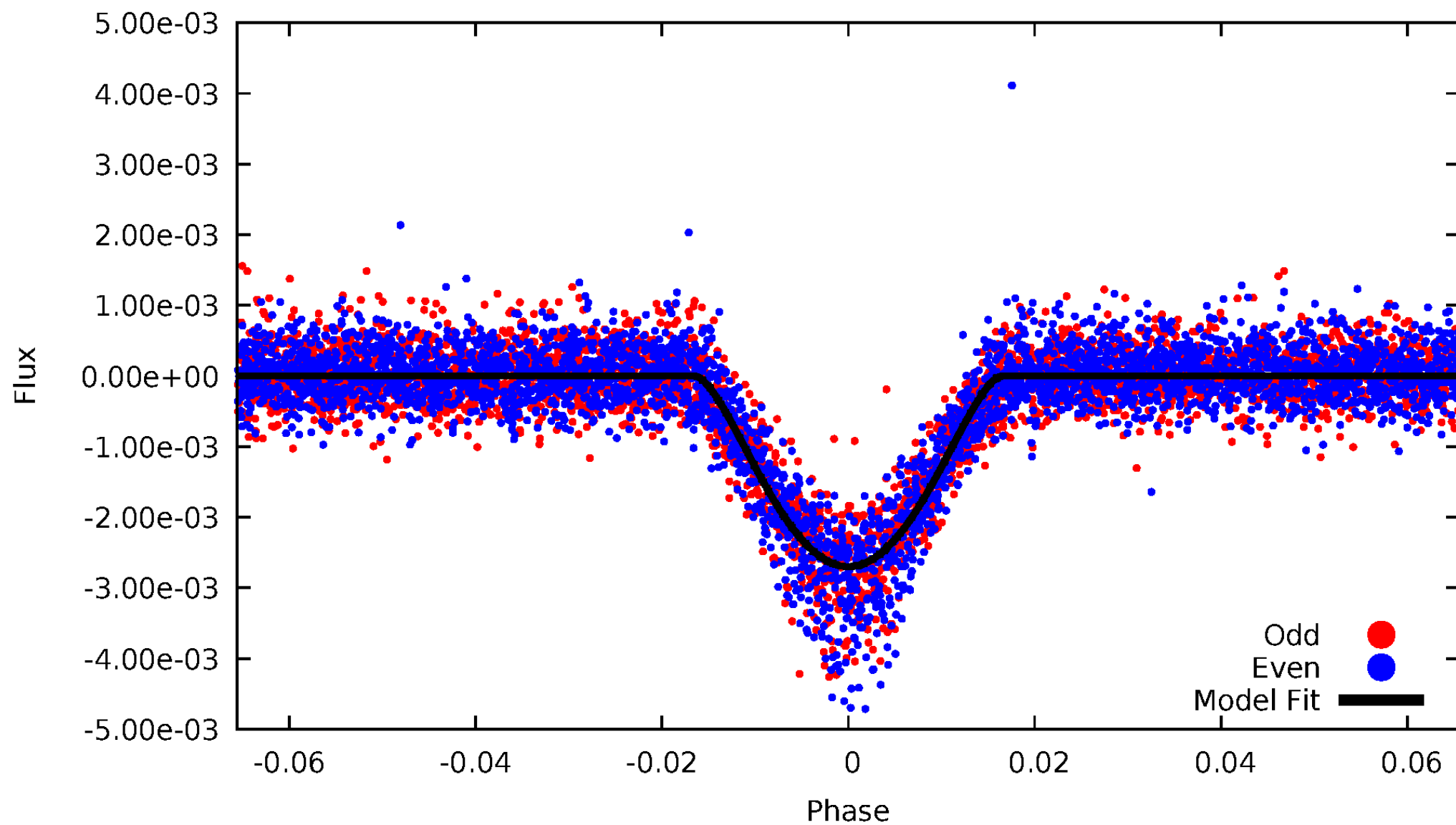


TCE 003858917-02



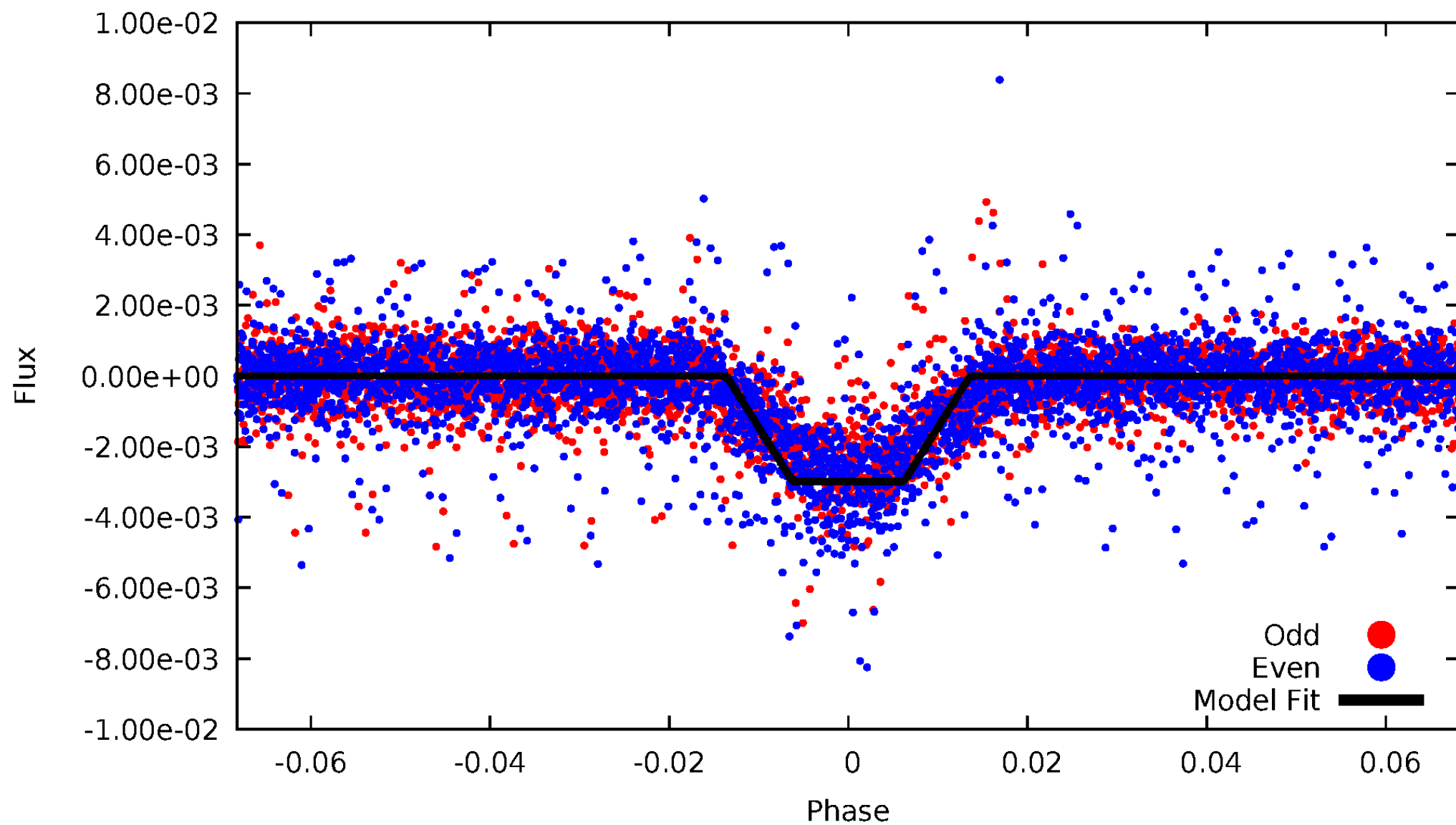
DV Odd/Even

TCE 003858917-02



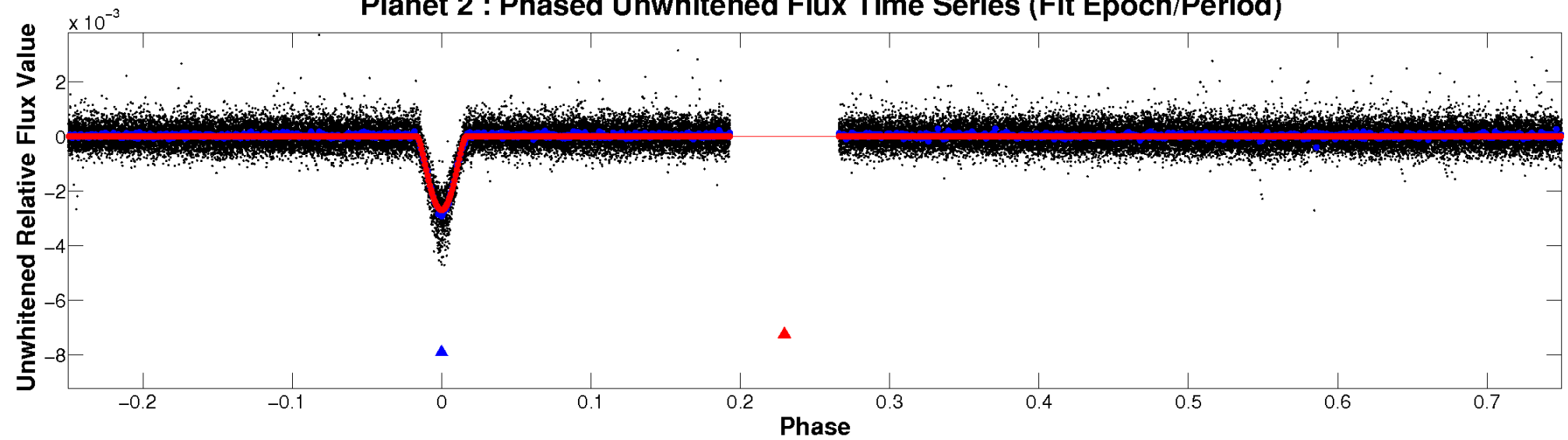
ALT Odd/Even

TCE 003858917-02

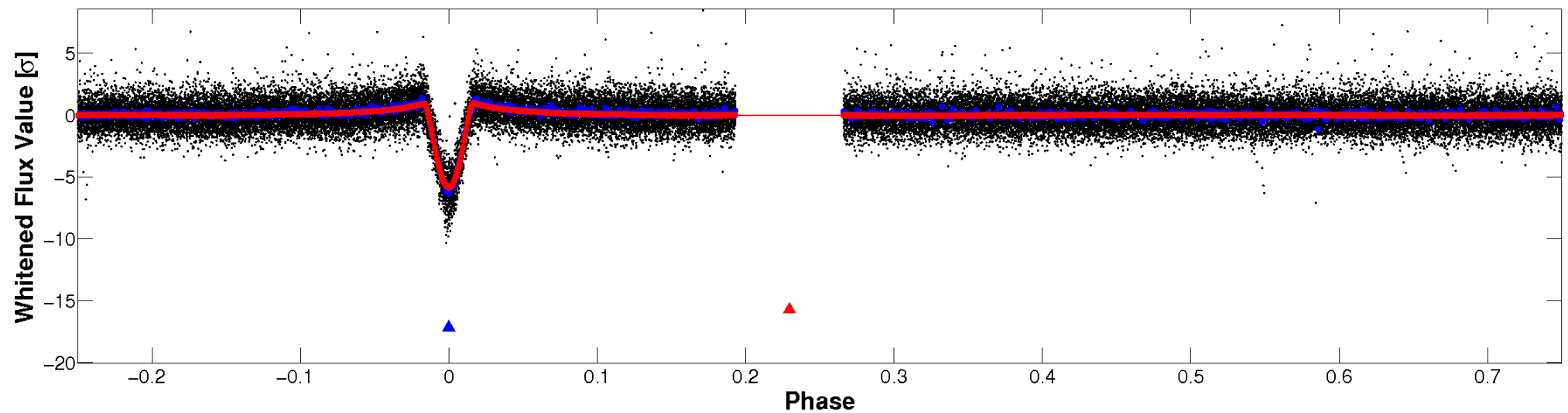


Non-Whitened Vs. Whitened Light Curve

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

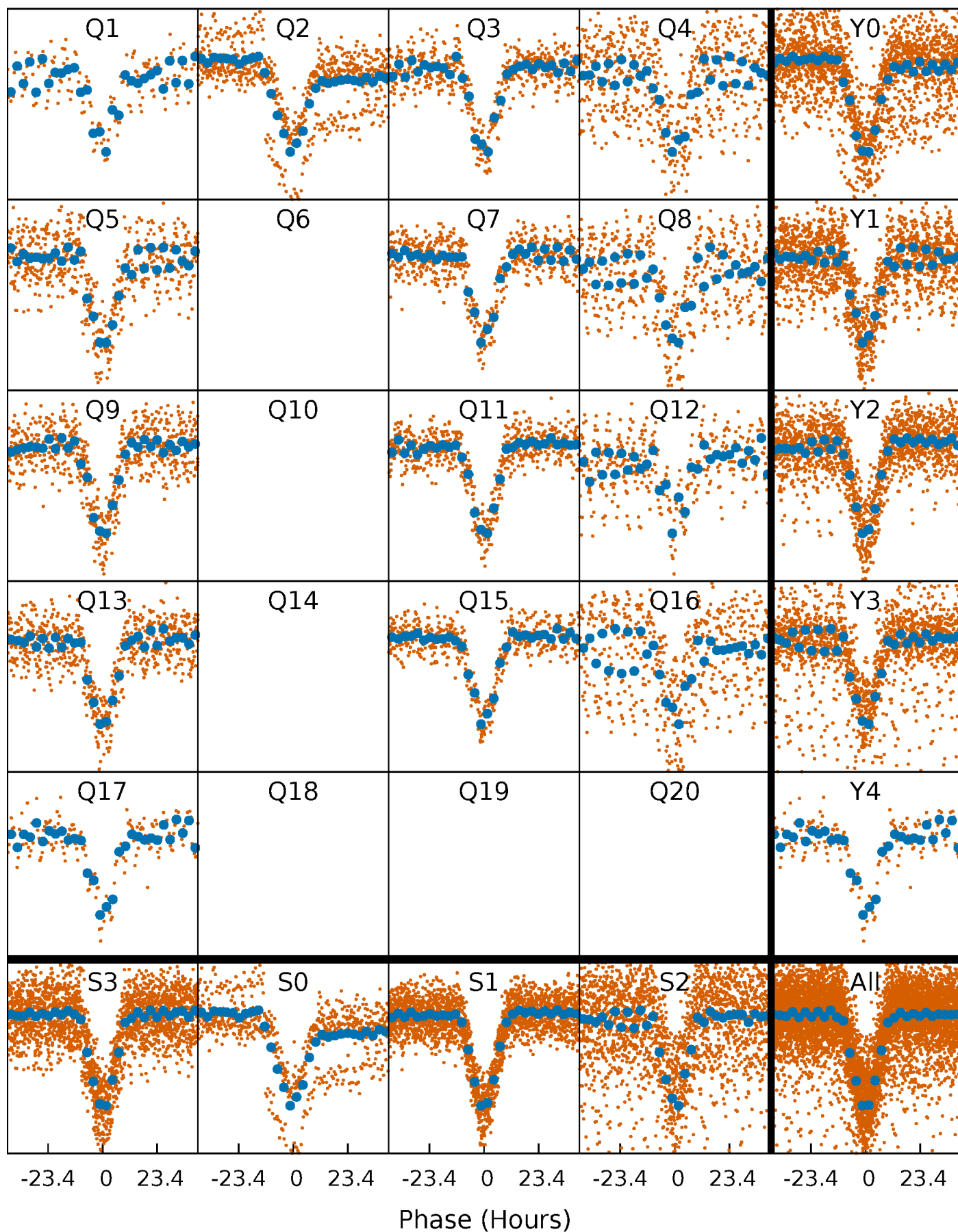


Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



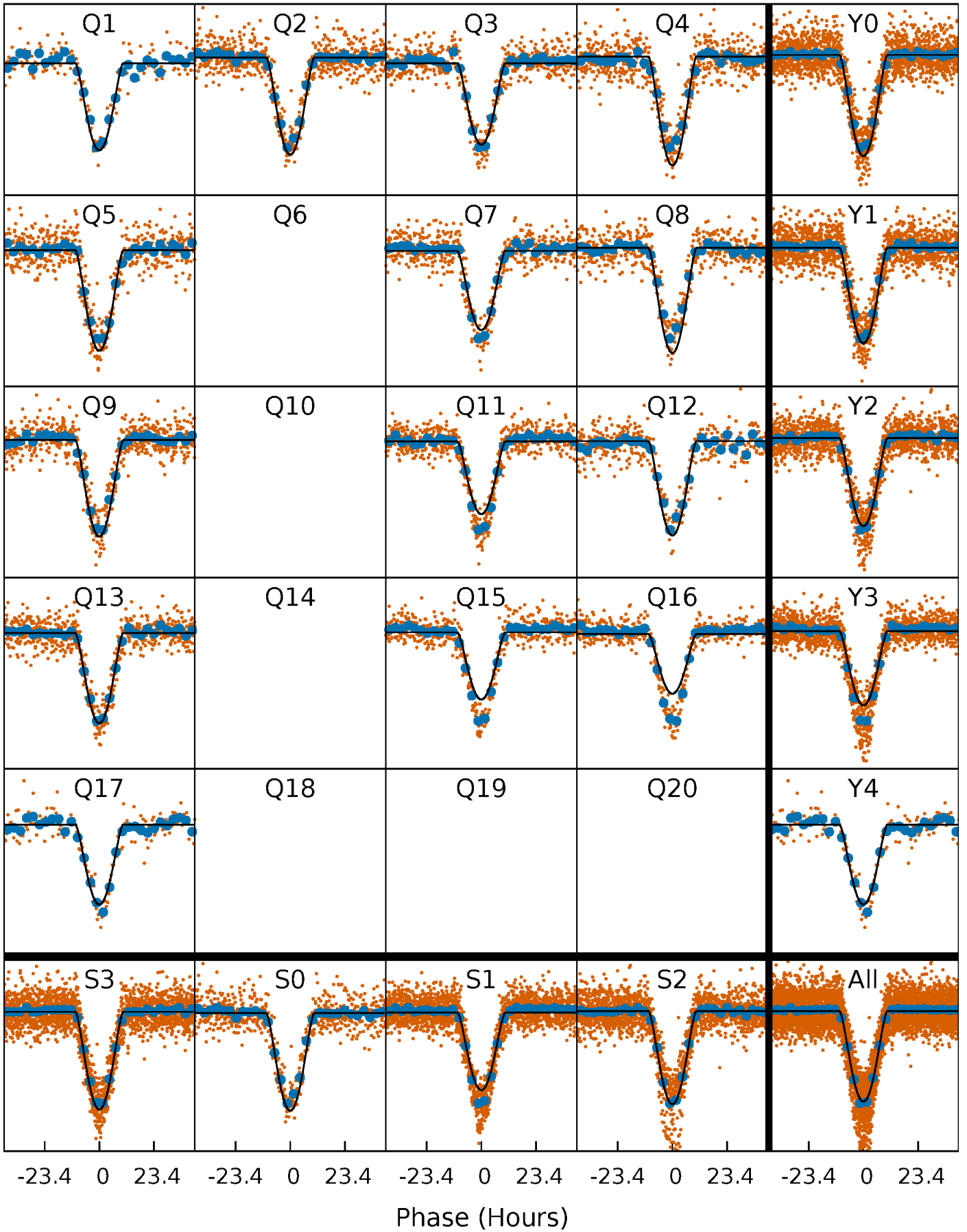
PDC Quarter-Phased Transit Curves

TCE 003858917-02 P= 25.951982 Days $T_0=148.923192$ (BKJD)



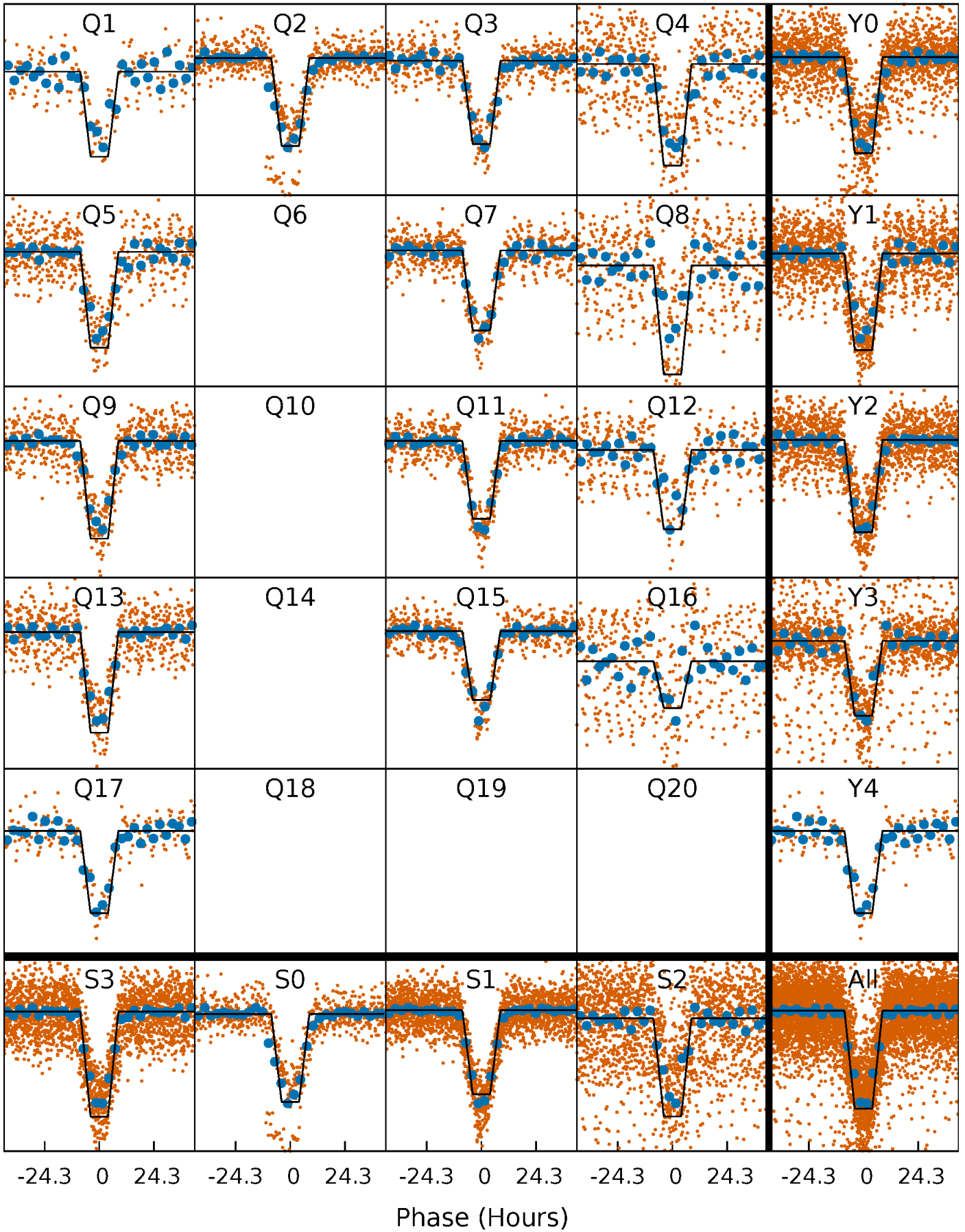
DV Quarter-Phased Transit Curves

TCE 003858917-02 $P = 25.951982$ Days $T_0 = 148.923192$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

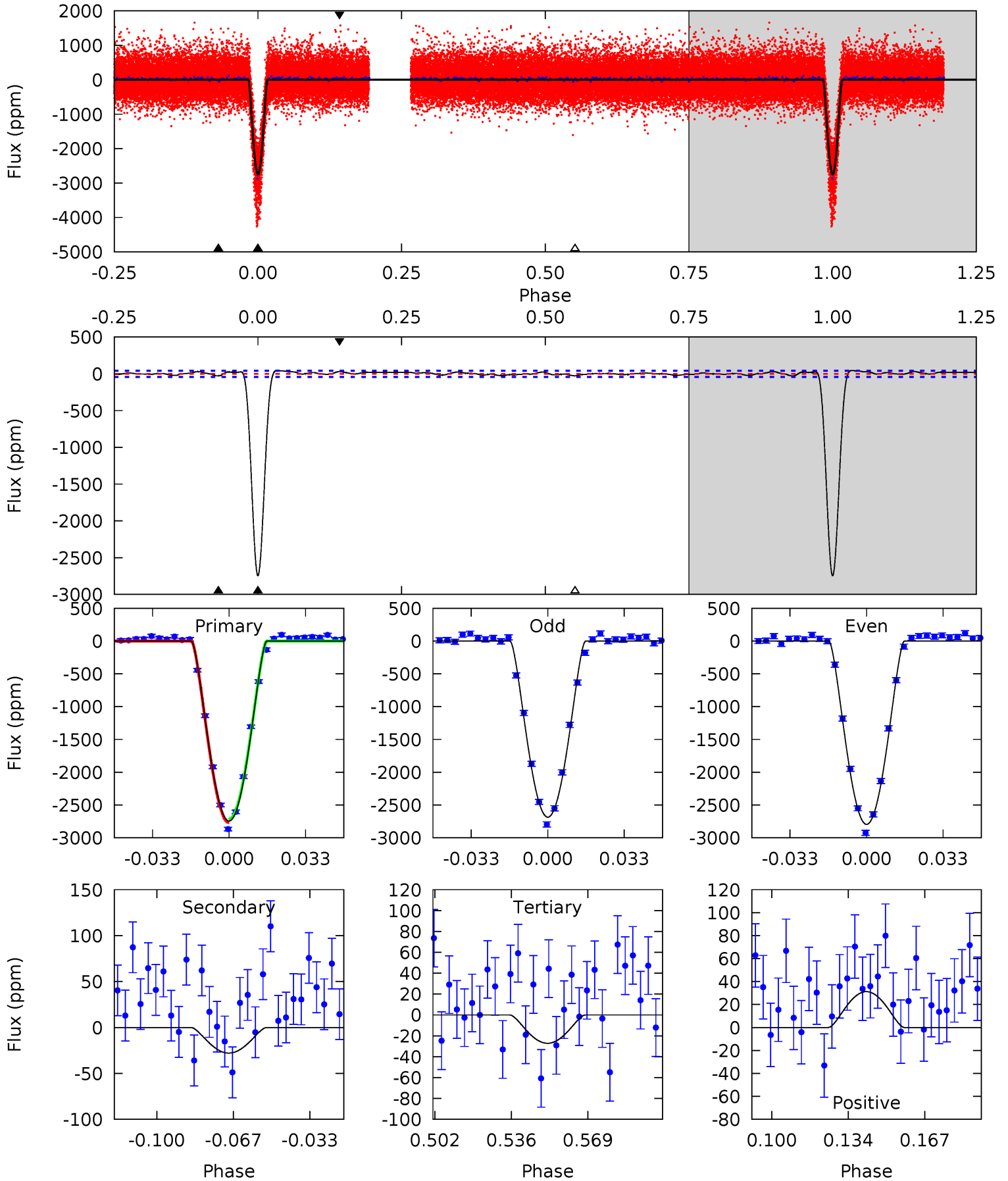
TCE 003858917-02 P= 25.952751 Days $T_0=148.898815$ (BKJD)



DV Model-Shift Uniqueness Test

003858917-02, P = 25.951982 Days, E = 122.971210 Days

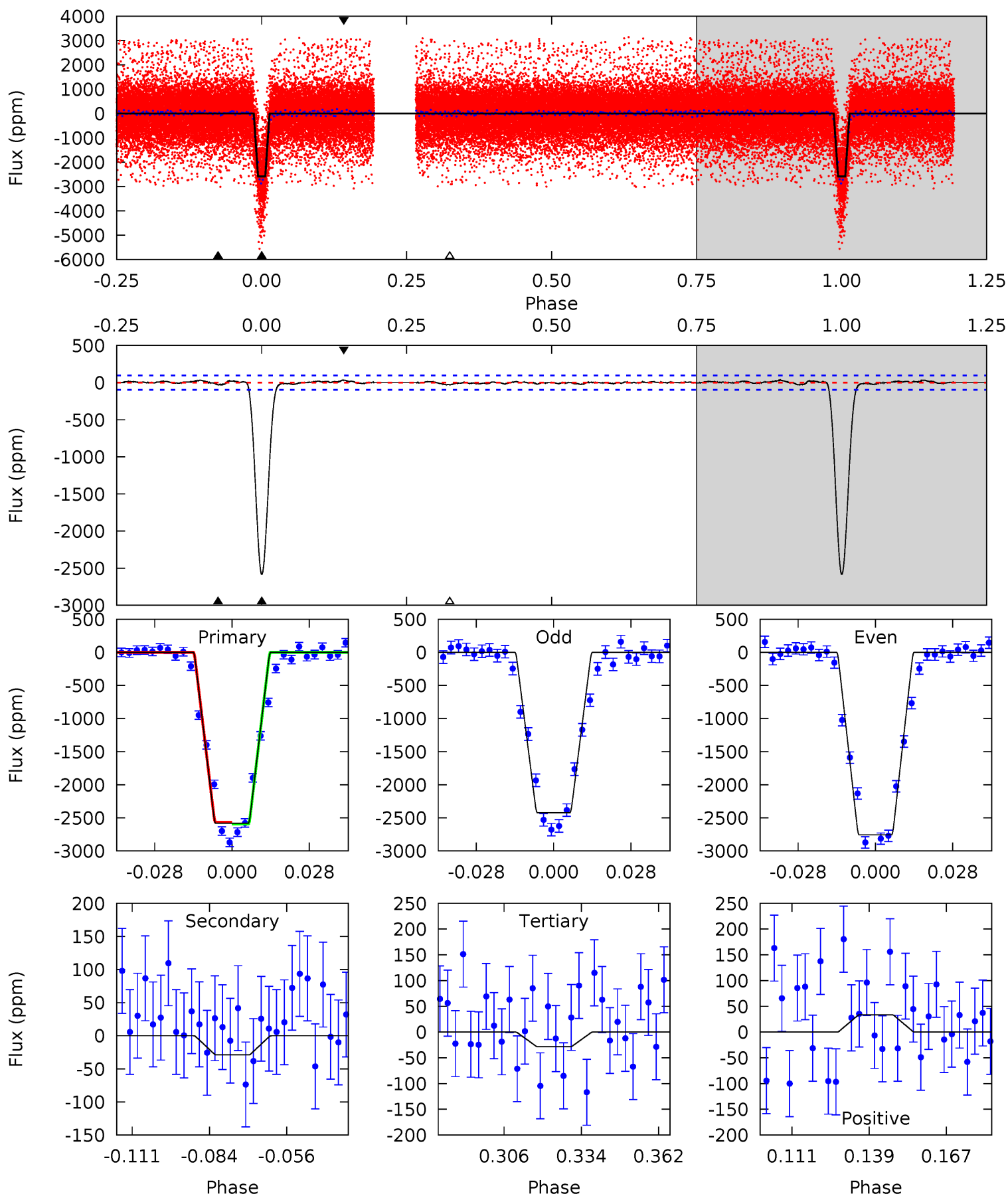
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
315.8	3.21	3.12	3.59	4.79	2.13	1.60	312.7	312.3	0.09	-0.38	6.34	1.02	0.02	3.01



Alt Model-Shift Uniqueness Test

003858917-02, P = 25.952751 Days, E = 122.946064 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
128.6	1.44	1.42	1.67	4.83	2.20	0.55	127.2	126.9	0.02	-0.23	8.41	0.96	0.01	0.62



Stellar Parameters For KIC 003858917

	$T_{\text{eff}} (K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R (R_{\odot})$	$M (M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	5659^{+154}_{-171}	$4.528^{+0.036}_{-0.192}$	$0.120^{+0.250}_{-0.300}$	$0.904^{+0.248}_{-0.083}$	$1.005^{+0.090}_{-0.120}$	$1.919^{+0.359}_{-0.945}$
	+3%/-3%	+1%/-4%	+208%/-250%	+27%/-9%	+9%/-12%	+19%/-49%
Source	PHO1	KIC0	KIC0	DSEP		

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

Secondary Eclipse Parameters for KIC 003858917-02 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-28 ± 9	$9.30^{+2.57}_{-2.47}$	816^{+49}_{-37}	2262^{+202}_{-147}	$5.041^{+4.715}_{-2.301}$
Alt.	-29 ± 20	$5.74^{+2.51}_{-2.32}$	821^{+50}_{-39}	2557^{+454}_{-412}	13^{+29}_{-10}

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 $A_{\text{obs}} \gg 1.0$

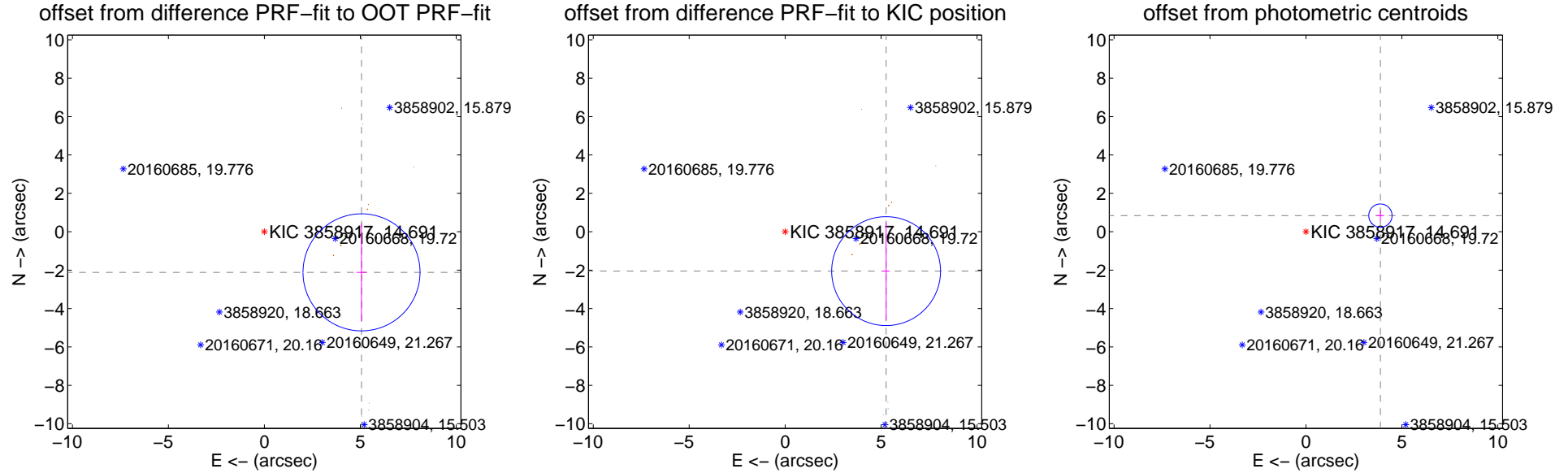
DV Centroid Data

Supplemental centroid analysis for 003858917-02. Kepler magnitude: 14.69. Transit SNR 150.74

There are 5 quarters with good PRF difference image offsets

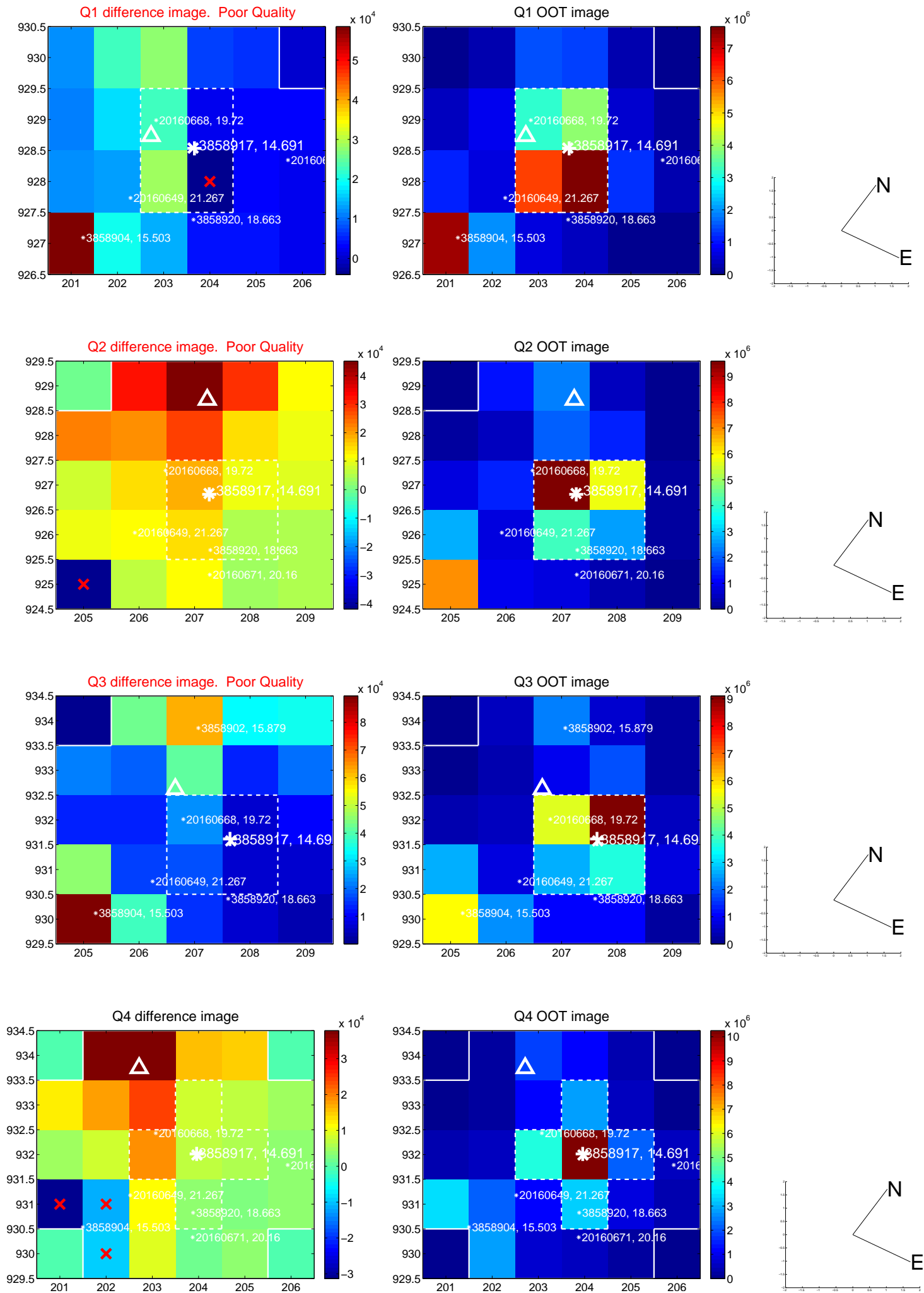
The direct PRF centroid is offset from the target star catalog position by about 0.12 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	5.487 ± 1.016	5.40	-5.063 ± 0.264	-2.115 ± 2.560
PRF-fit source offset from KIC position	5.647 ± 0.945	5.97	-5.261 ± 0.184	-2.050 ± 2.560
photometric centroid source offset	3.97 ± 0.20	19.62	-3.88 ± 0.20	0.84 ± 0.29

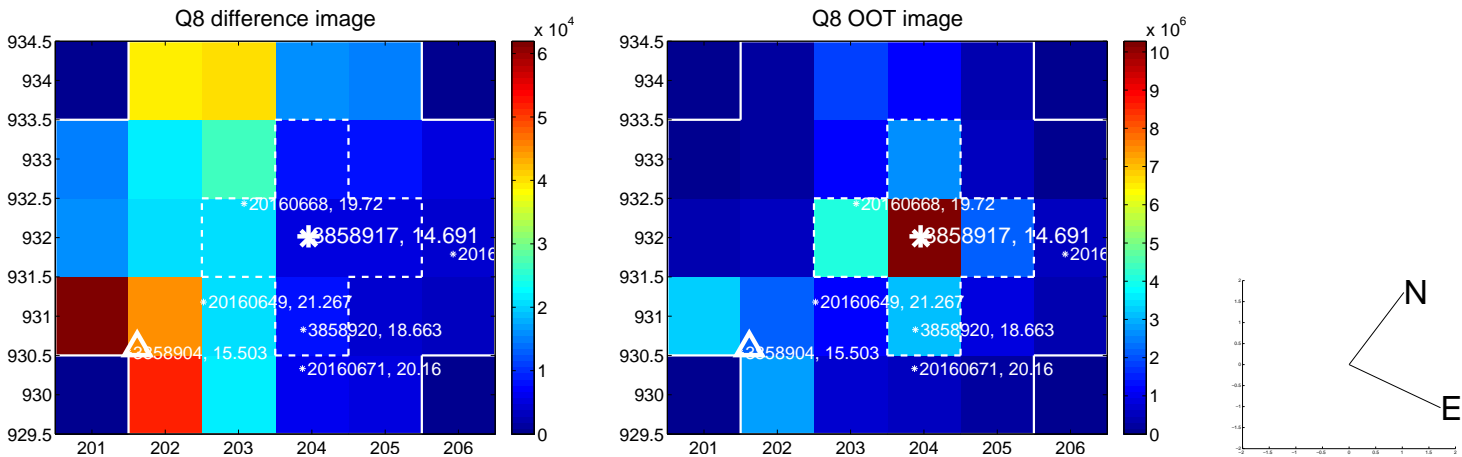
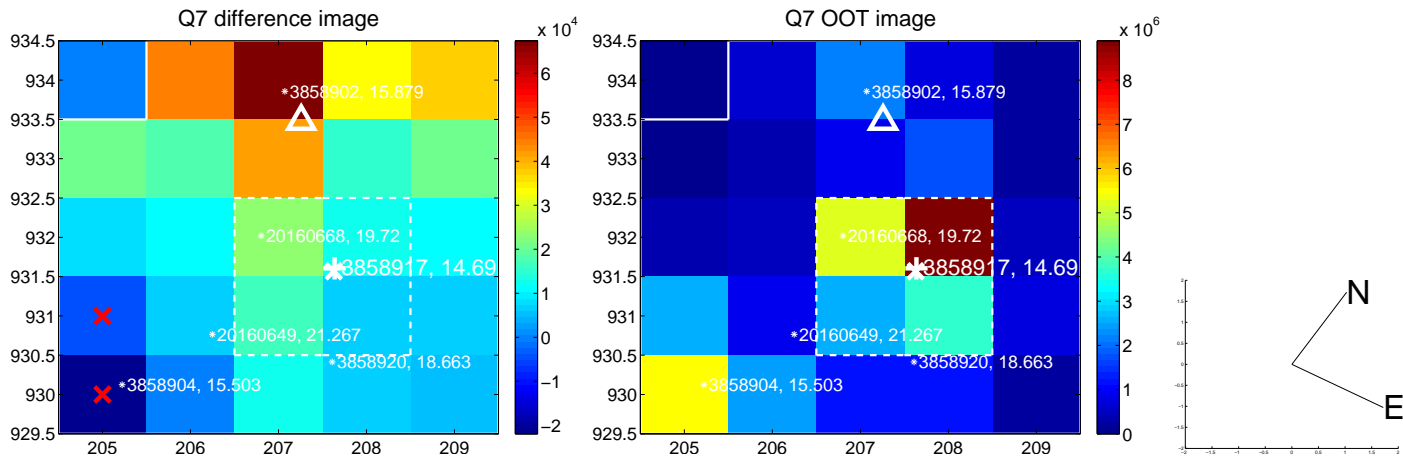
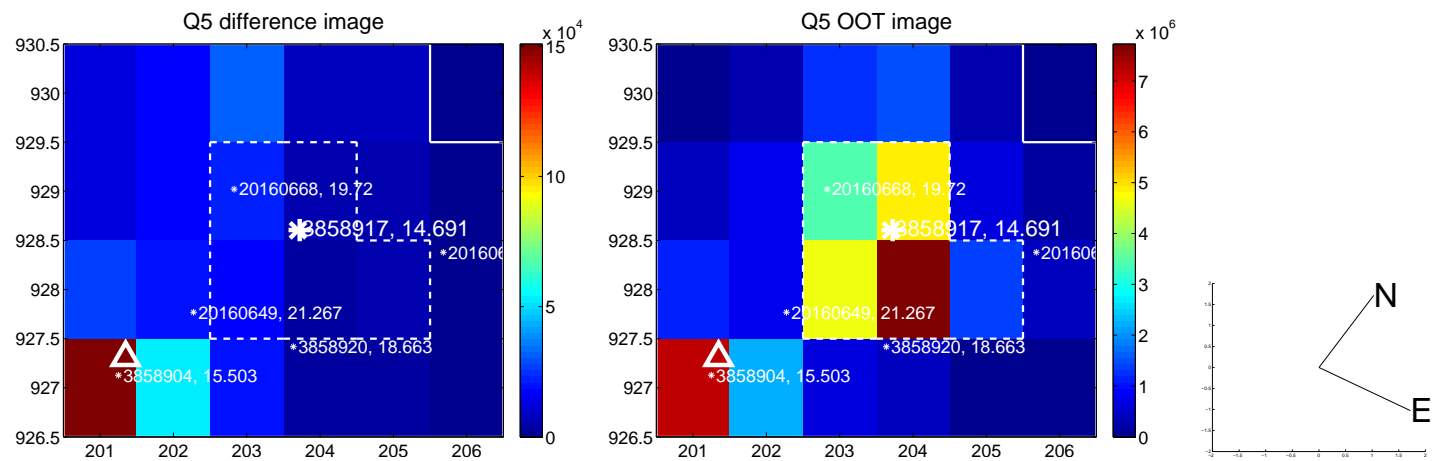


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses:** good quarterly centroid offsets; **Vermillion crosses:** bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

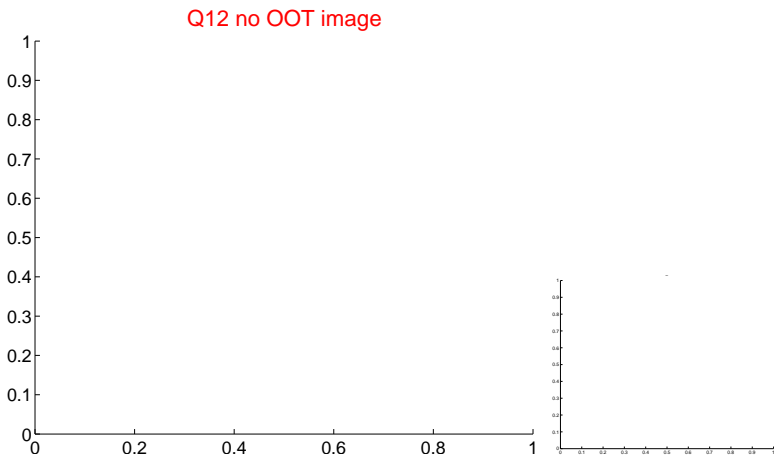
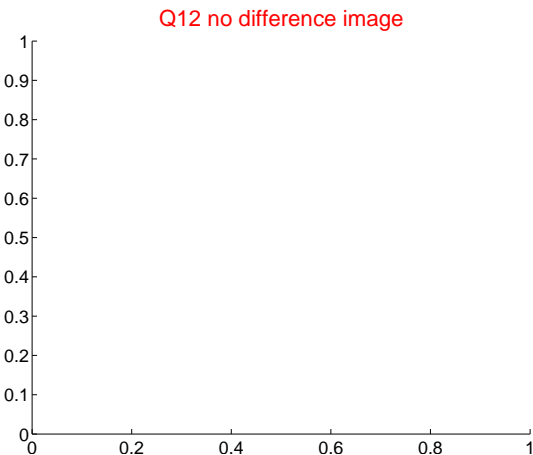
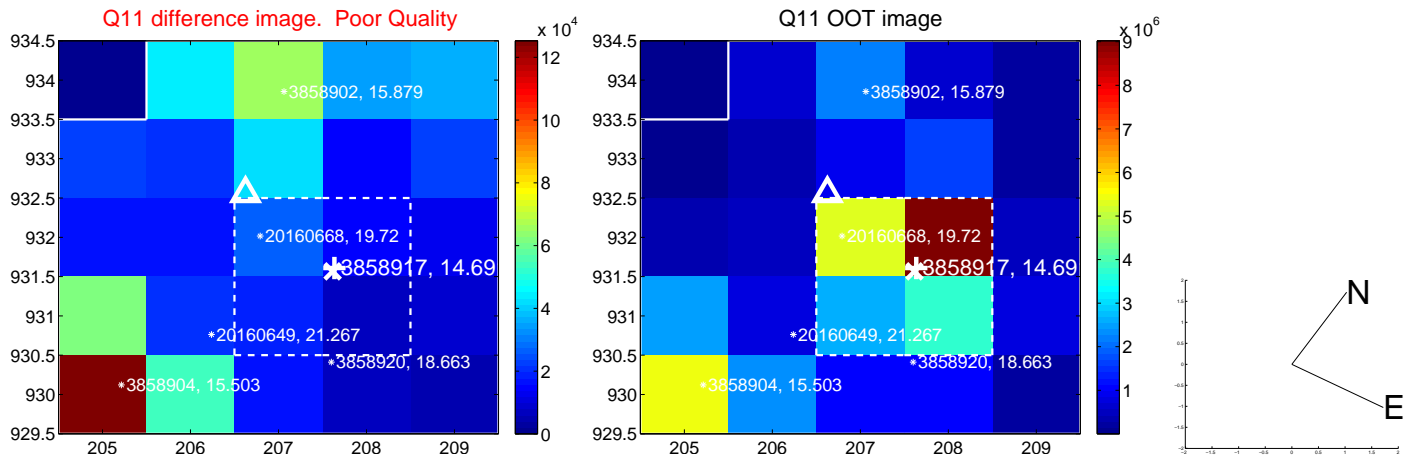
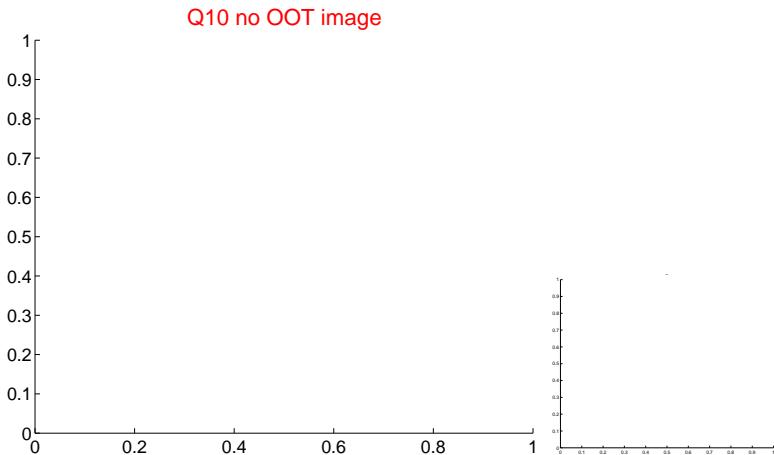
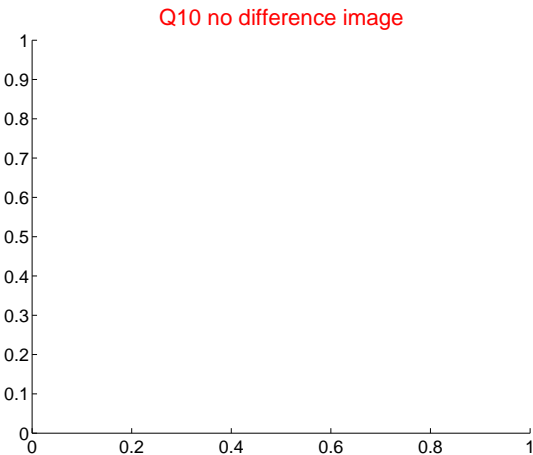
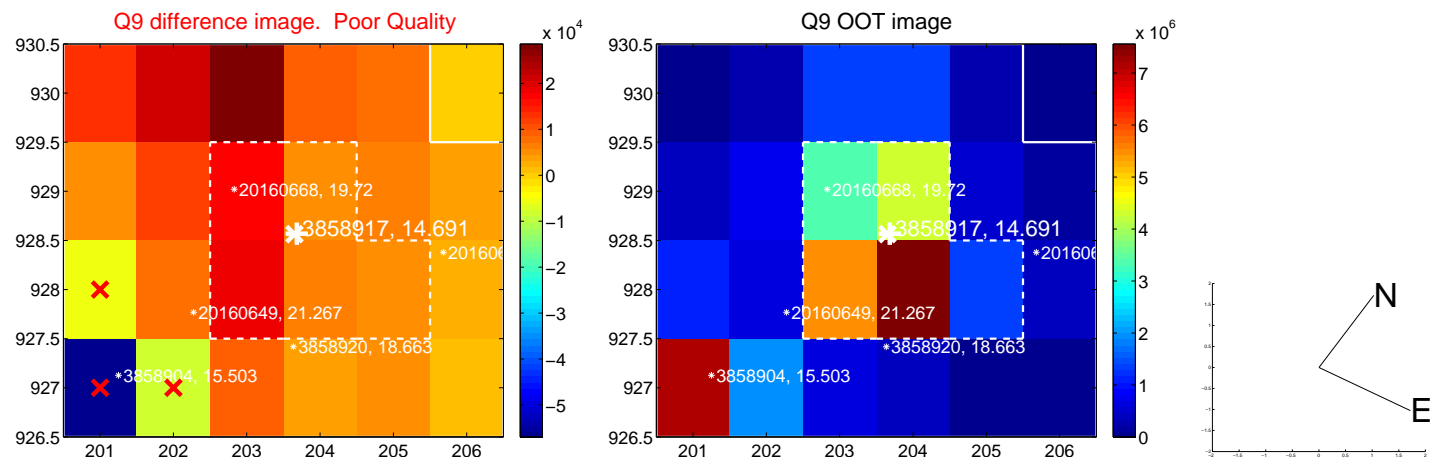
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



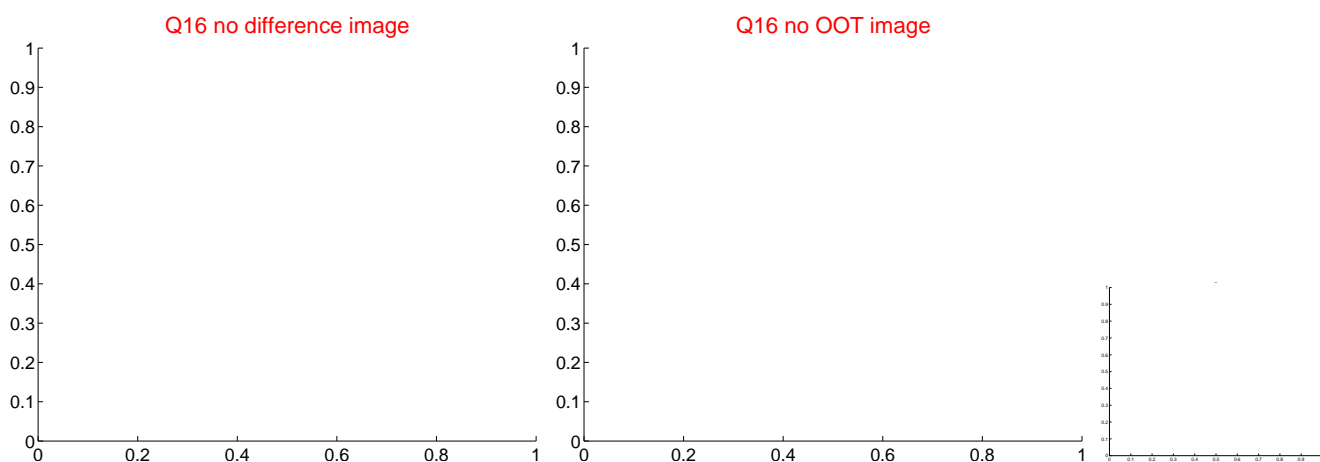
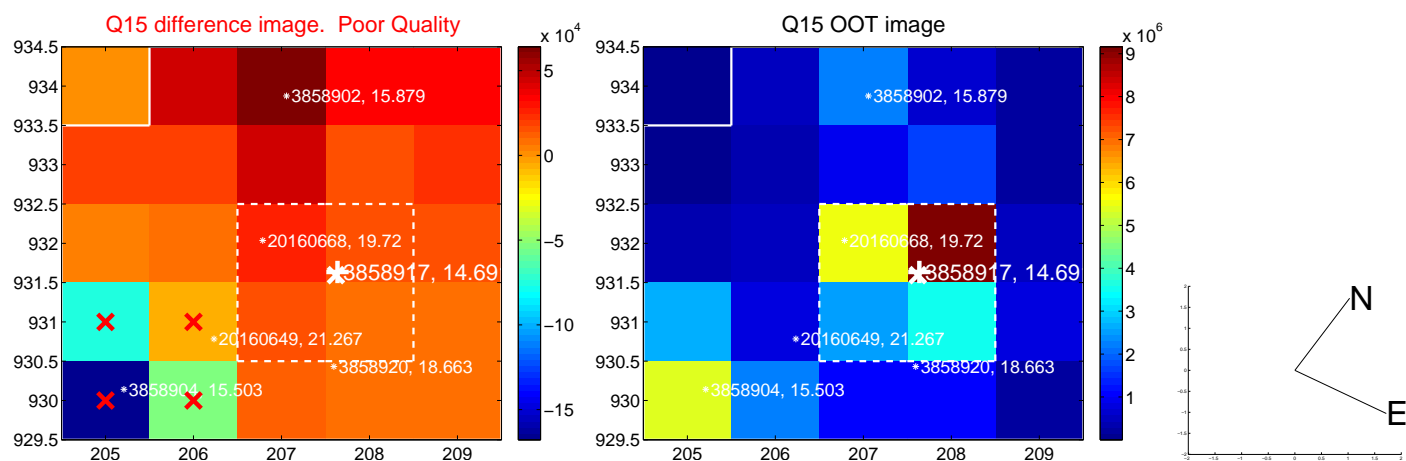
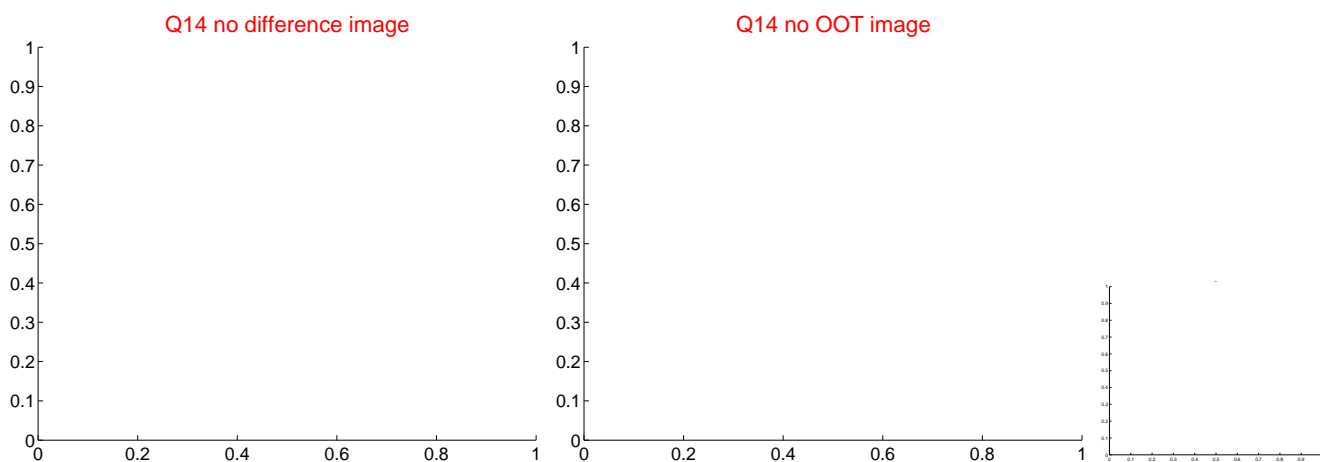
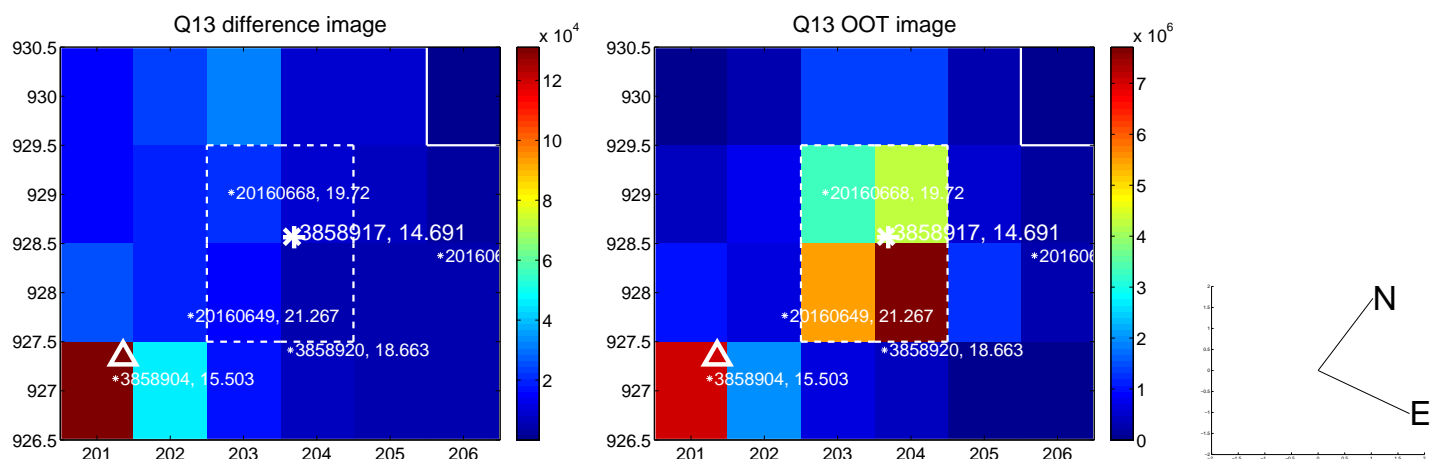
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



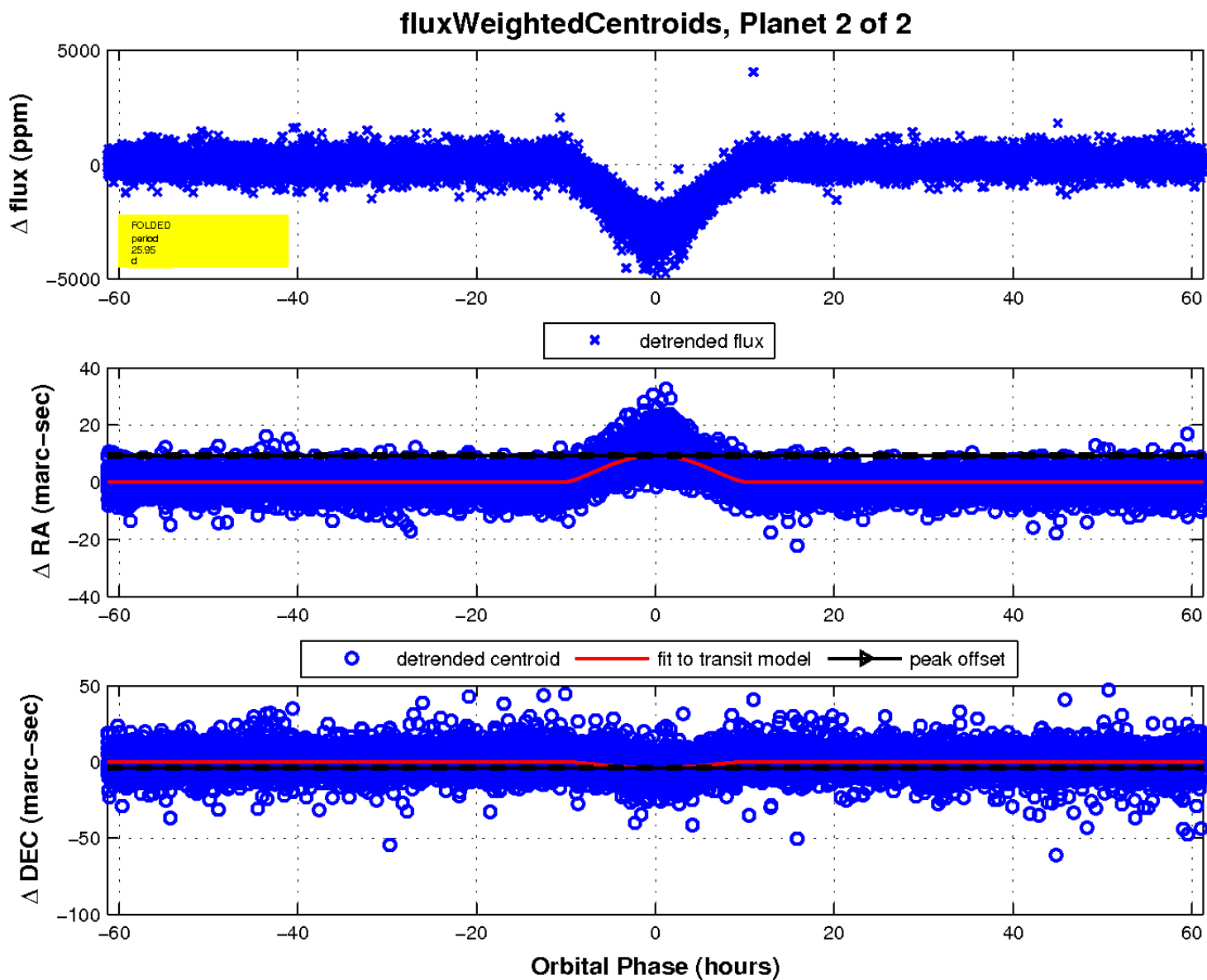
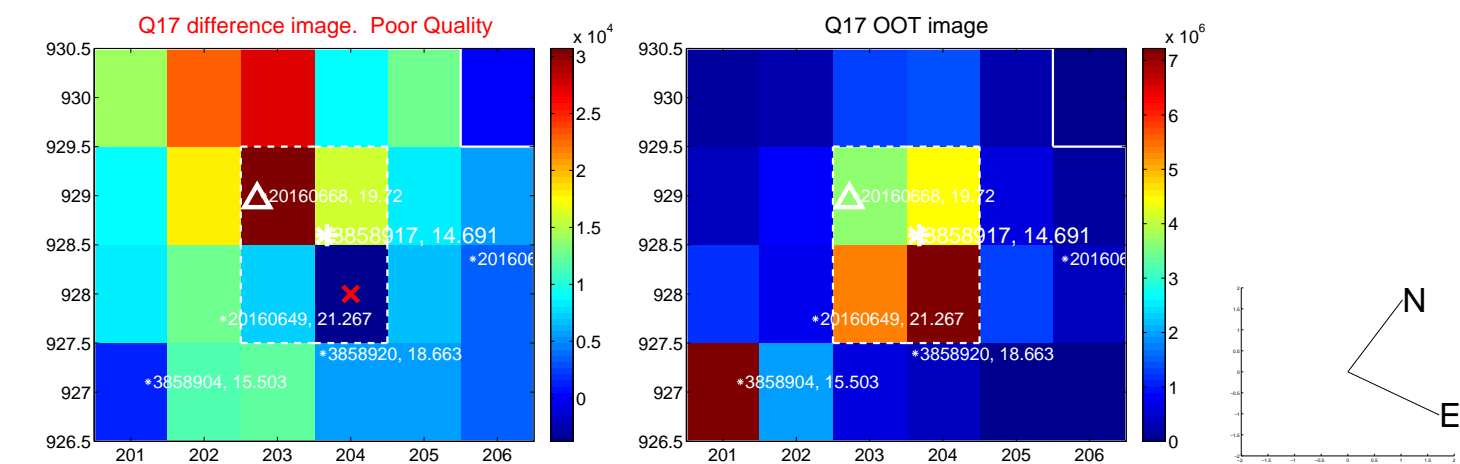
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UKIRT Image

