

KIC 003858851

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})
003858851-01	OBS	3293.01	25.951997	154.881297	5063.8	14.610	100.6	102.2	1.03	6363	13.25	50.58
003858851-02	OBS	No	25.952149	148.919040	3811.2	20.505	95.8	102.5	1.03	6363	11.60	50.58

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
003858851-01	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
003858851-02	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 003858851-01

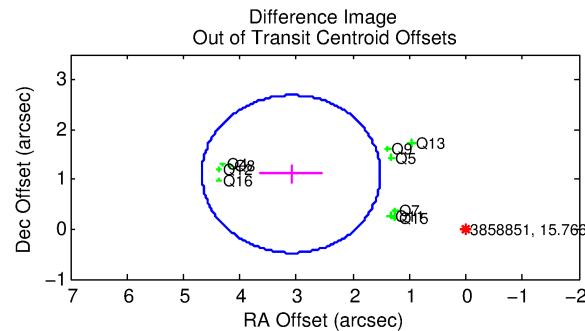
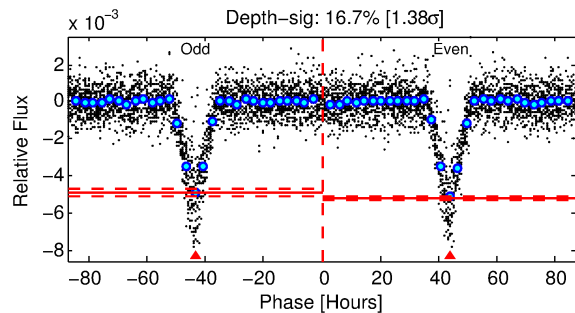
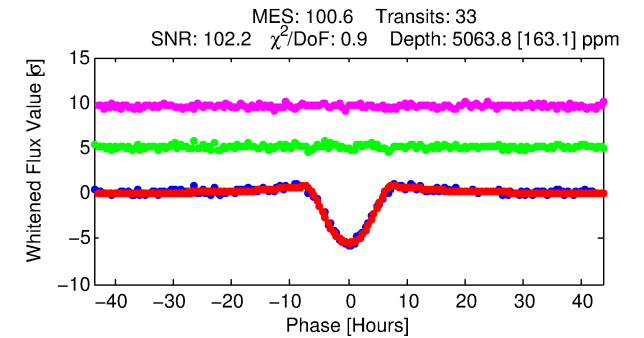
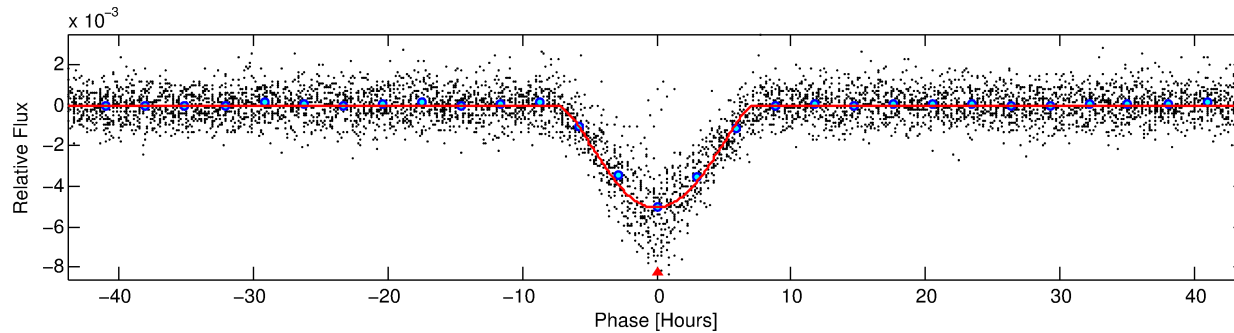
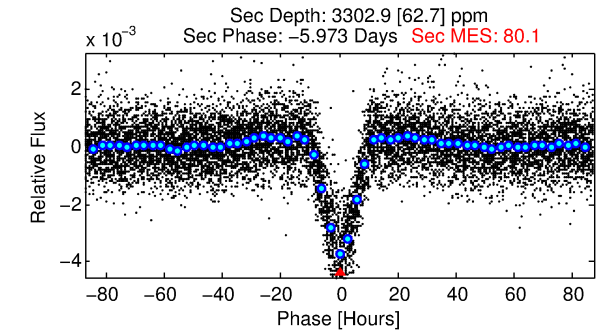
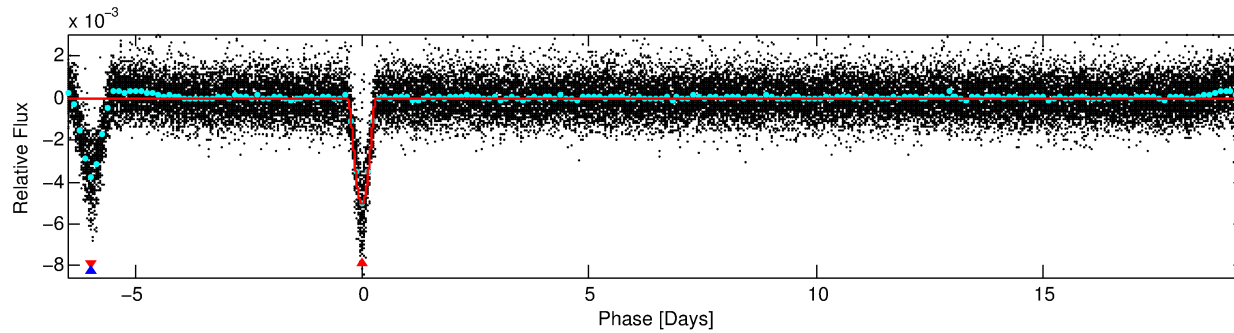
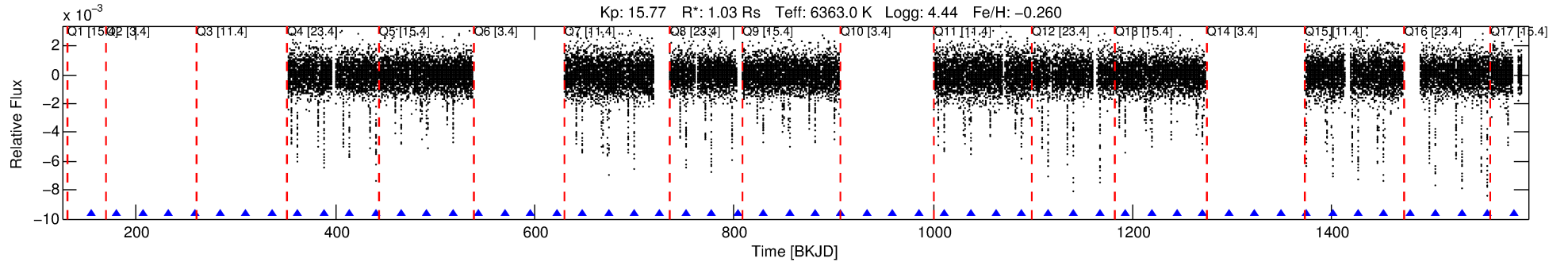
TCE (1)	KIC	Parent (2)	Parent KIC	$P_1:P_2$	Dist (μ)	Δ Row	Δ Col	m_2	m_1	D_2/D_1	Mechanism	Flag	σ_P	σ_T
003858851-01	3858851	003858884-01	3858884	1:1	54.6	14	-1	9.28	15.77	78.70	Direct-PRF	0	0.42	0.20

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: 3858851 Candidate: 1 of 2 Period: 25.952 d

KOI: K03293.01 Corr: 0.992



DV Fit Results:

Period = 25.95200 [0.00010] d
Epoch = 154.8813 [0.0035] BKJD
Rp/R* = 0.1174 [0.0443]
a/R* = 6.85 [0.47]
b = 1.00 [0.07]
Seff = 50.58 [18.92]
Teq = 680 [64] K
Rp = 13.25 [6.19] Re
a = 0.1764 [0.0411] AU
Ag = 321.79 [266.88] [1.20 σ]
Teffp = 4453 [858] K [4.38 σ]

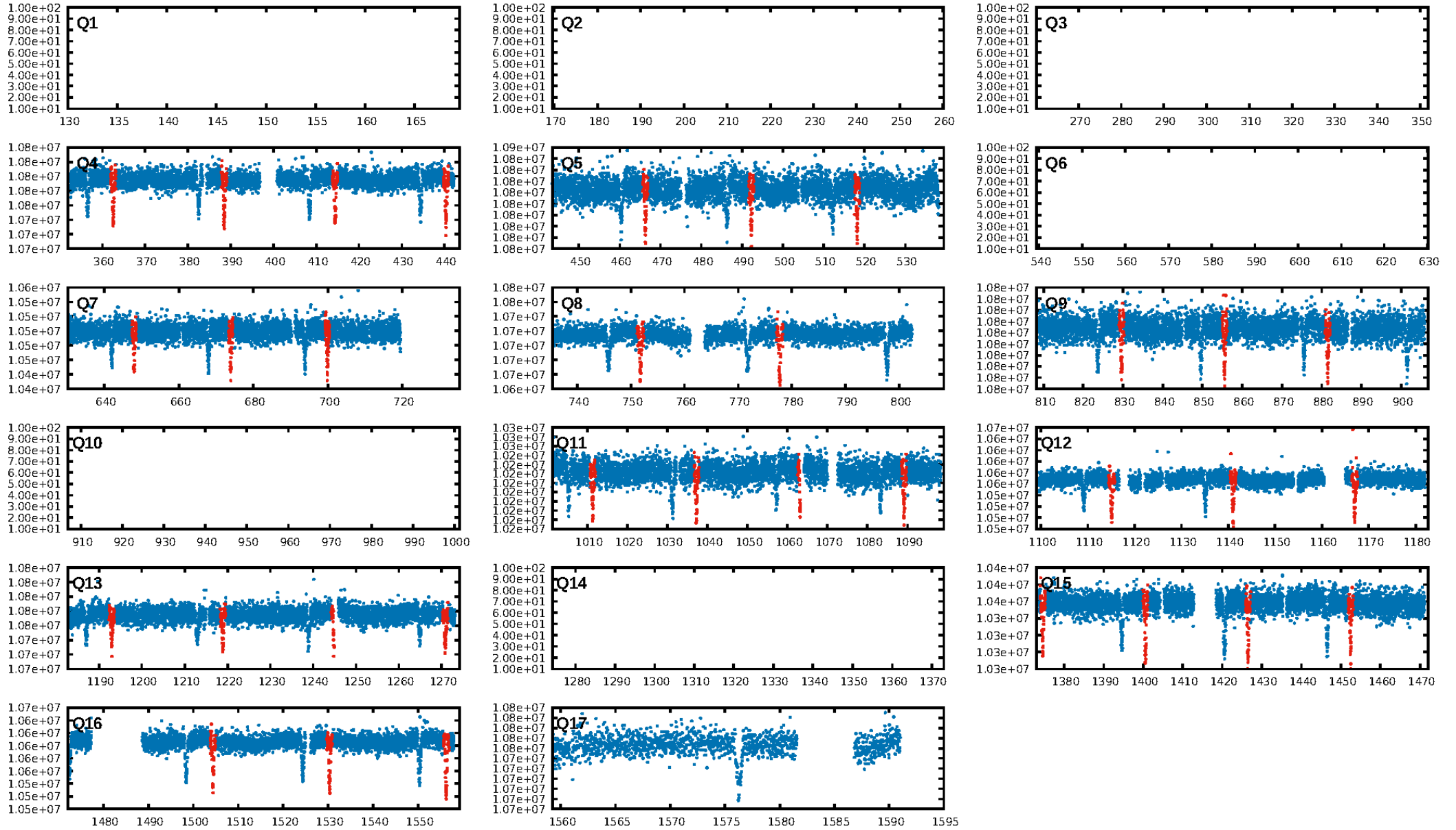
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: 0.0% [0.00 σ]
ModelChiSquare2-sig: 0.0%
ModelChiSquareGof-sig: 100.0%
Bootstrap-pfa: 0.00e+00
RollingBand-fgt: 1.00 [33/33]
GhostDiagnostic-chr: -0.08597
Centroid-sig: 0.0%
Centroid-so: 3.809 arcsec [34.85 σ]
OotOffset-rm: 3.281 arcsec [6.23 σ]
KicOffset-rm: 3.293 arcsec [5.62 σ]
OotOffset-st: 0/3/4/3 [10]
KicOffset-st: 0/3/4/3 [10]
DiffImageQuality-fgm: 0.00 [0/10]
DiffImageOverlap-fno: 1.00 [10/10]

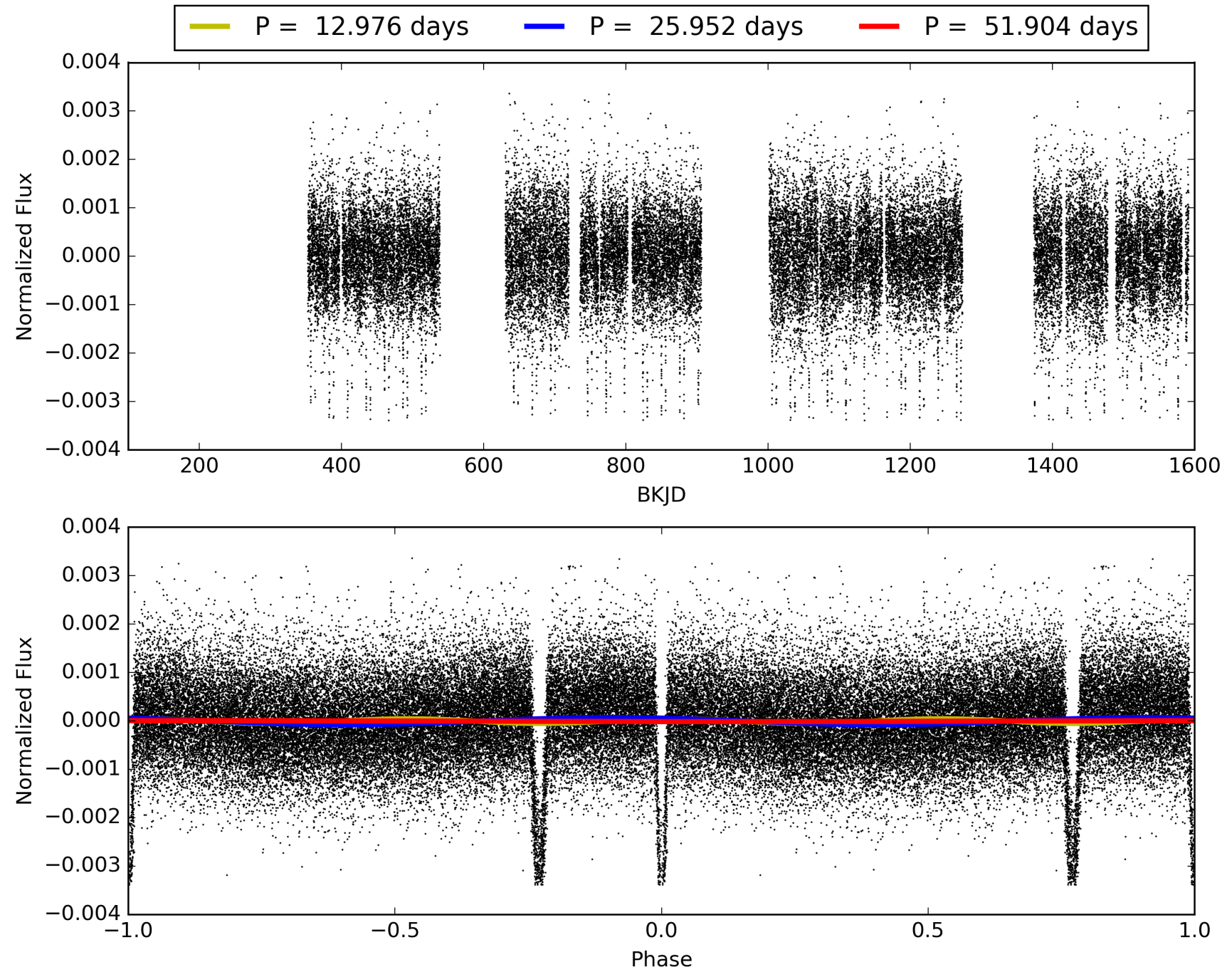
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 18:27:01 Z

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

TCE 003858851-01, PDC Light Curves

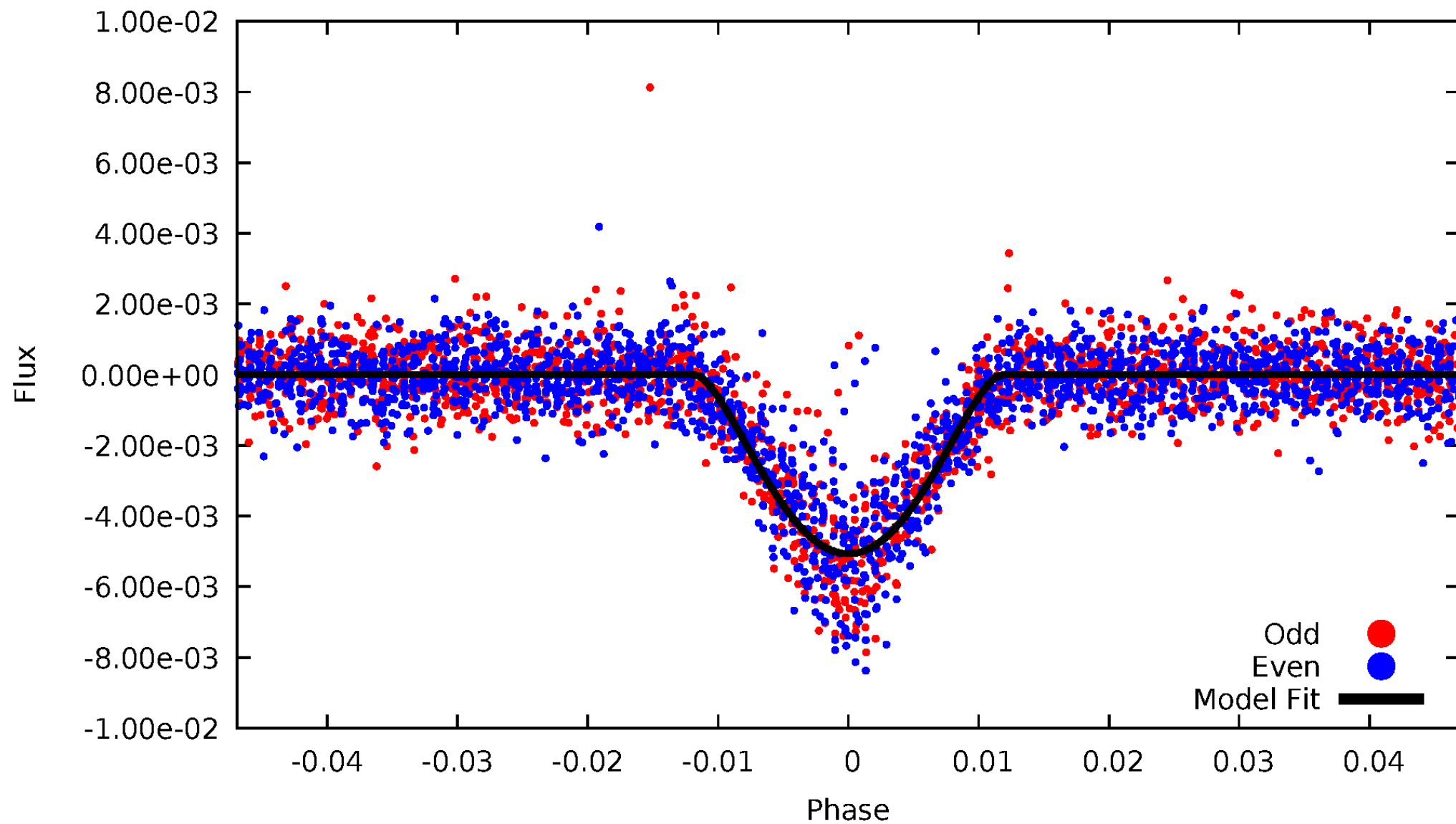


TCE 003858851-01



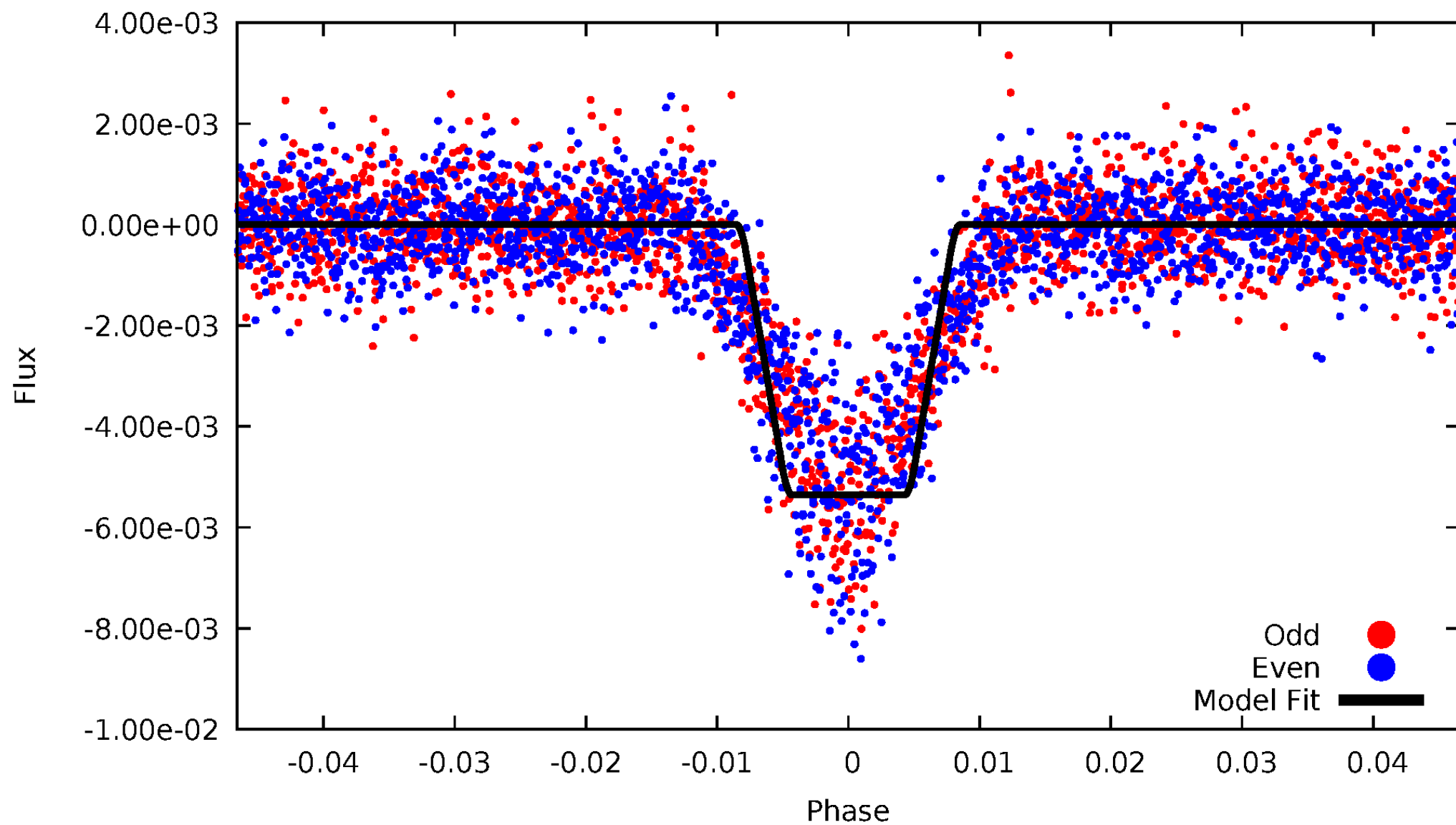
DV Odd/Even

TCE 003858851-01

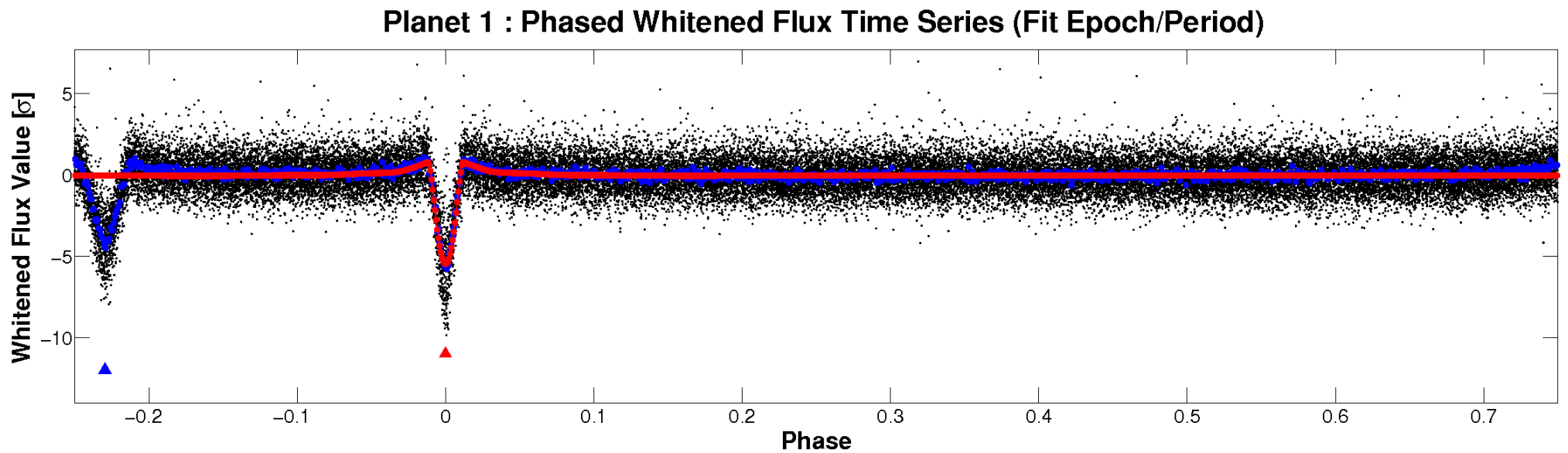
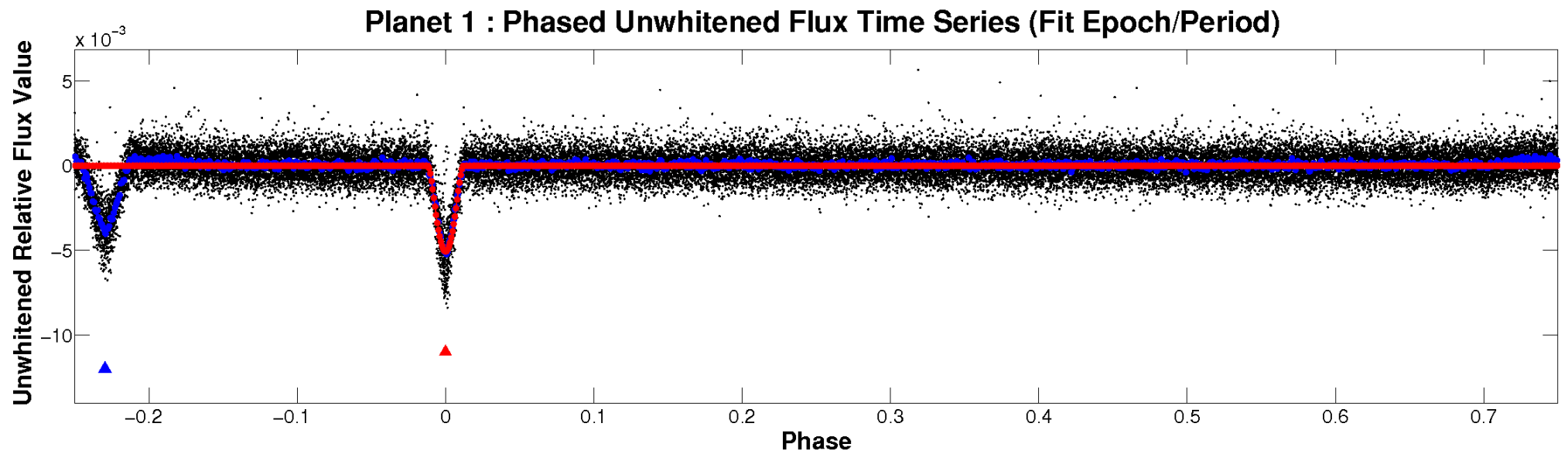


ALT Odd/Even

TCE 003858851-01

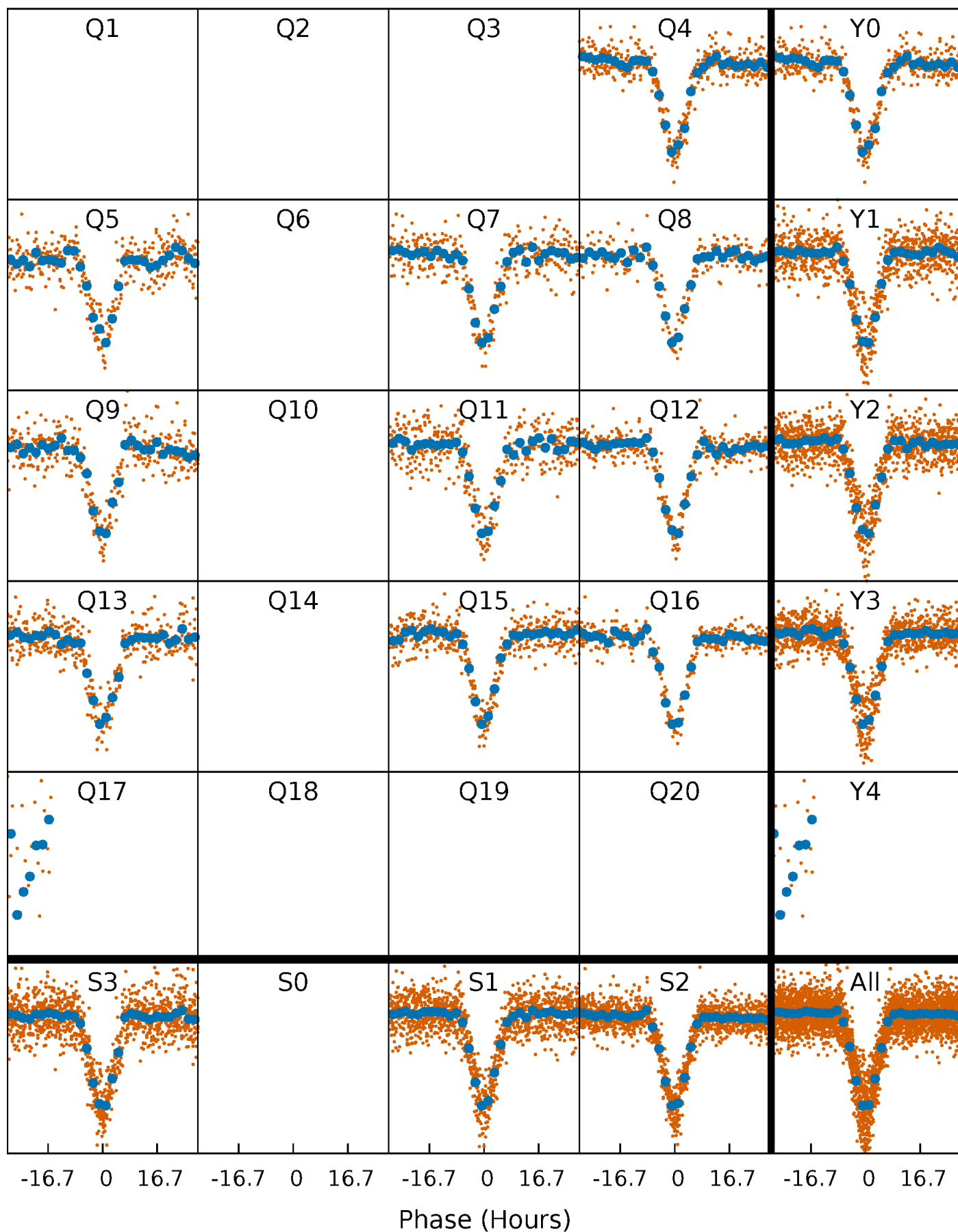


Non-Whitened Vs. Whitened Light Curve



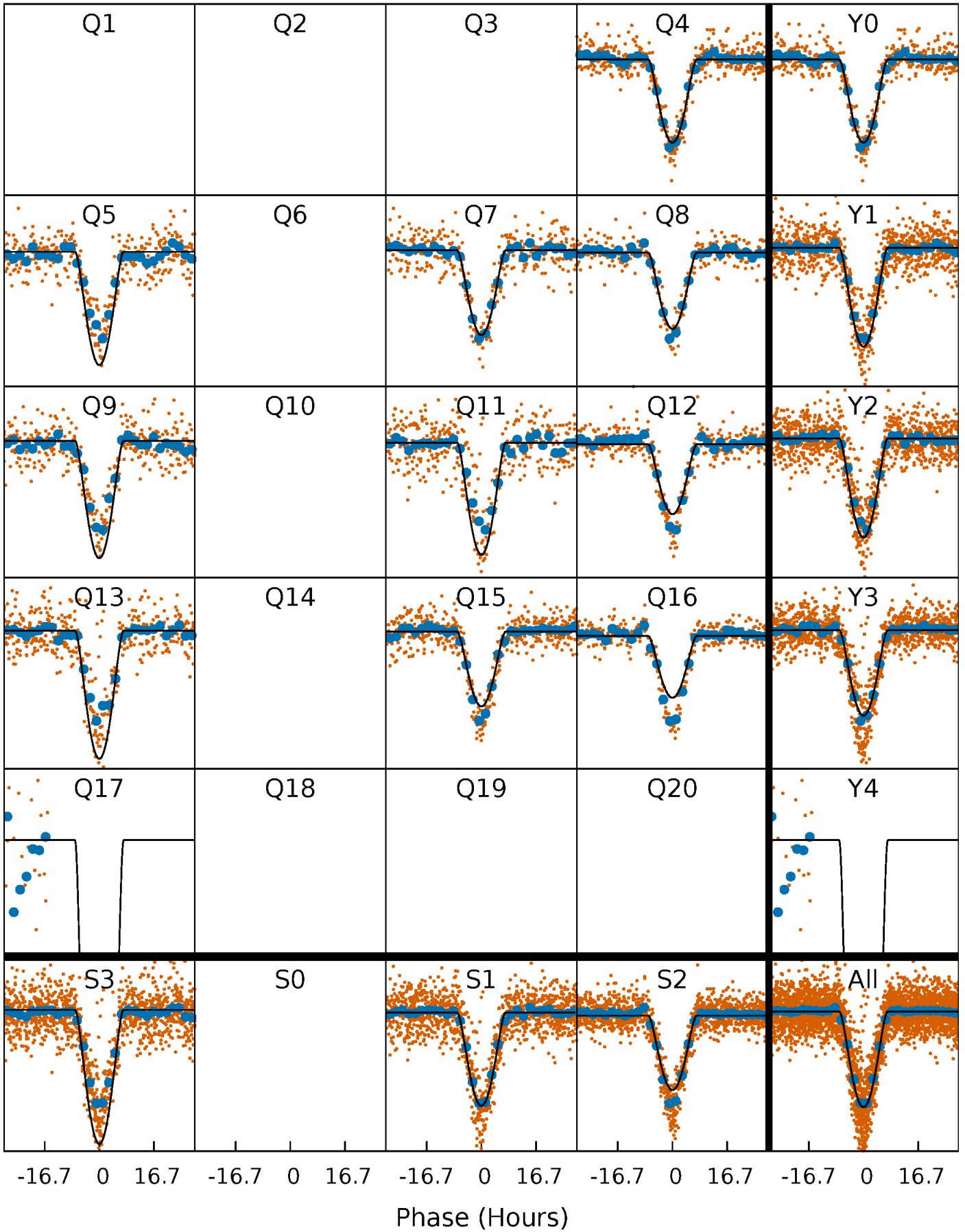
PDC Quarter-Phased Transit Curves

TCE 003858851-01 P= 25.951997 Days $T_0=154.881297$ (BKJD)



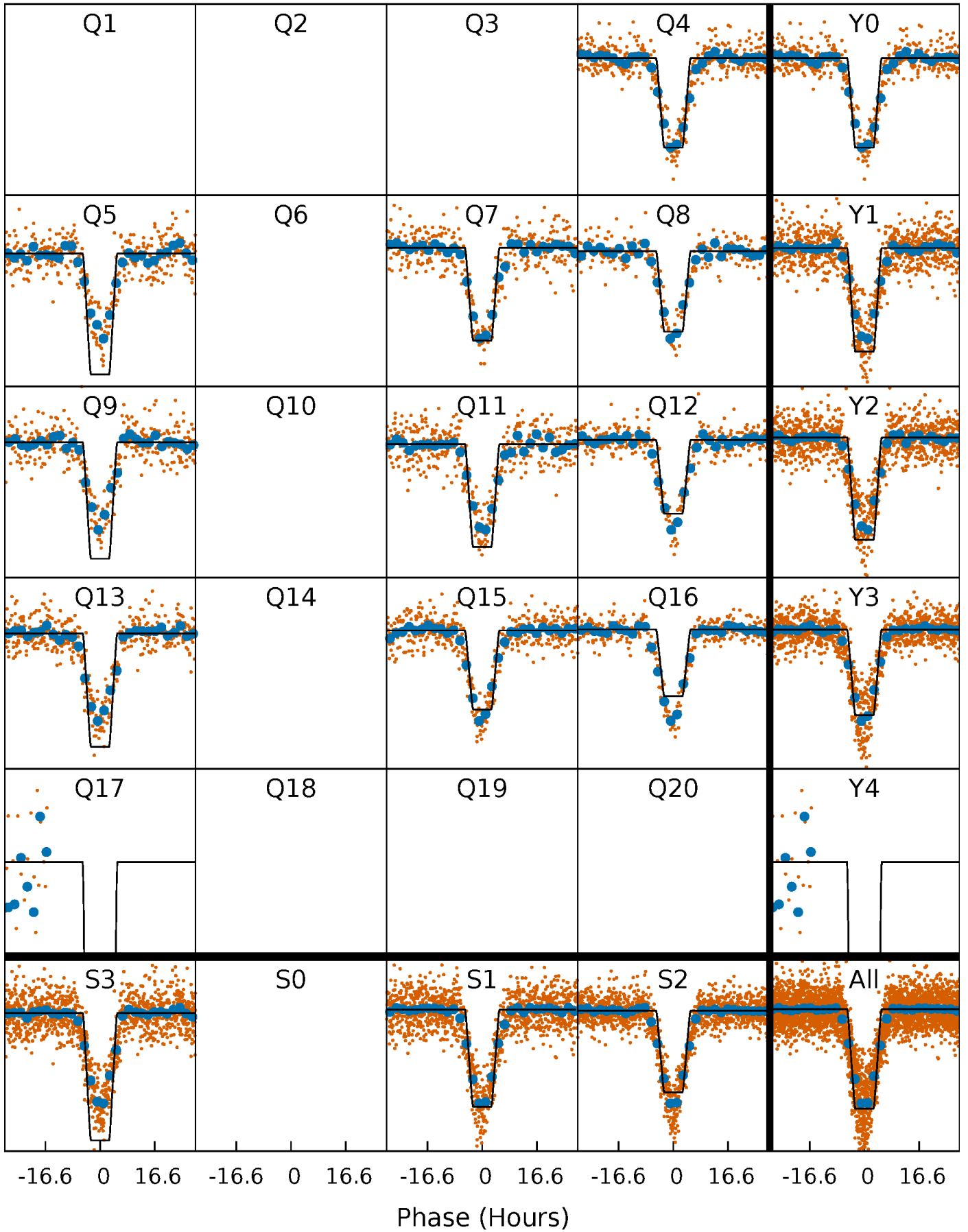
DV Quarter-Phased Transit Curves

TCE 003858851-01 P= 25.951997 Days $T_0=154.881297$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

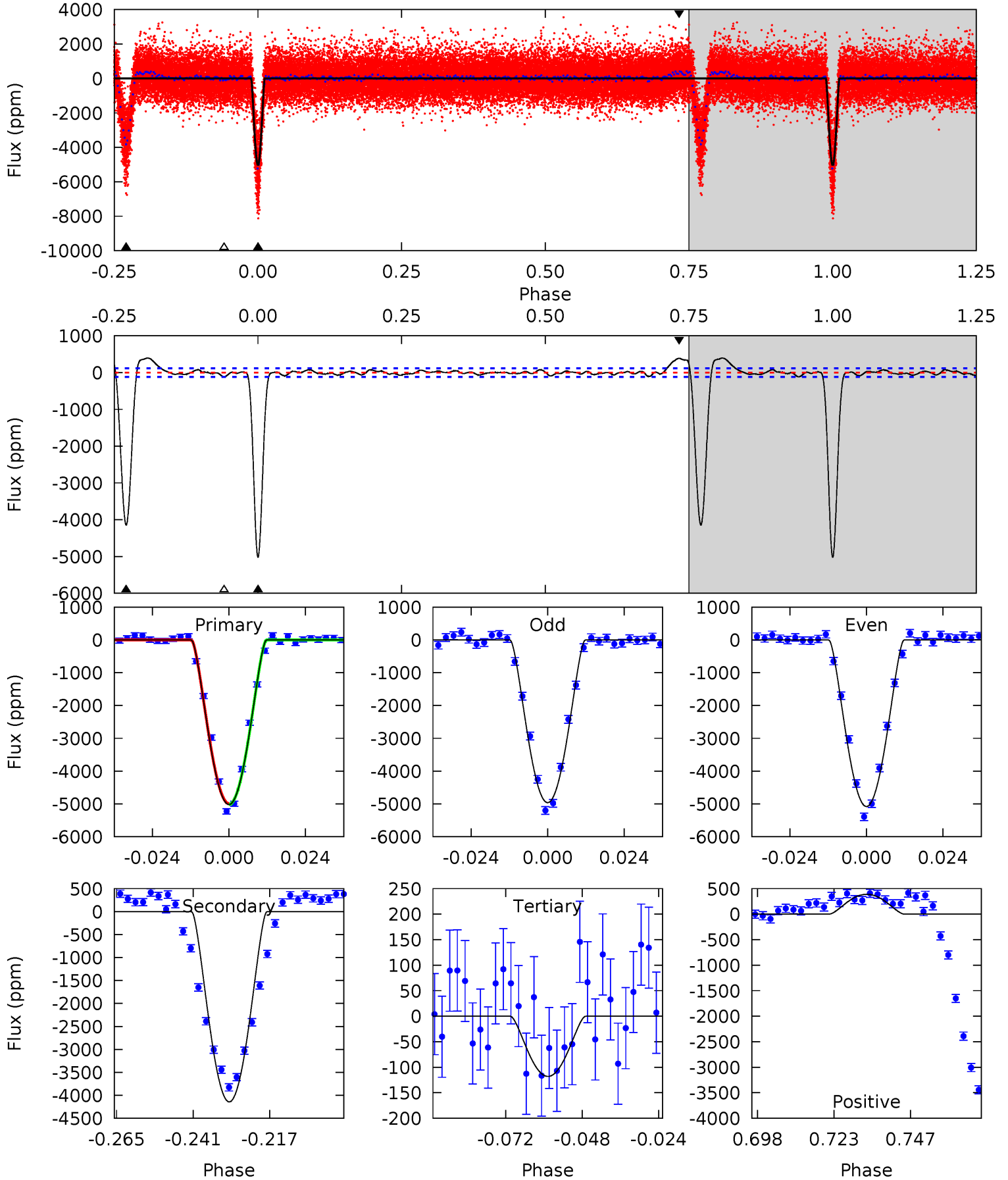
TCE 003858851-01 P= 25.952485 Days $T_0=154.865019$ (BKJD)



DV Model-Shift Uniqueness Test

003858851-01, P = 25.951997 Days, E = 154.881297 Days

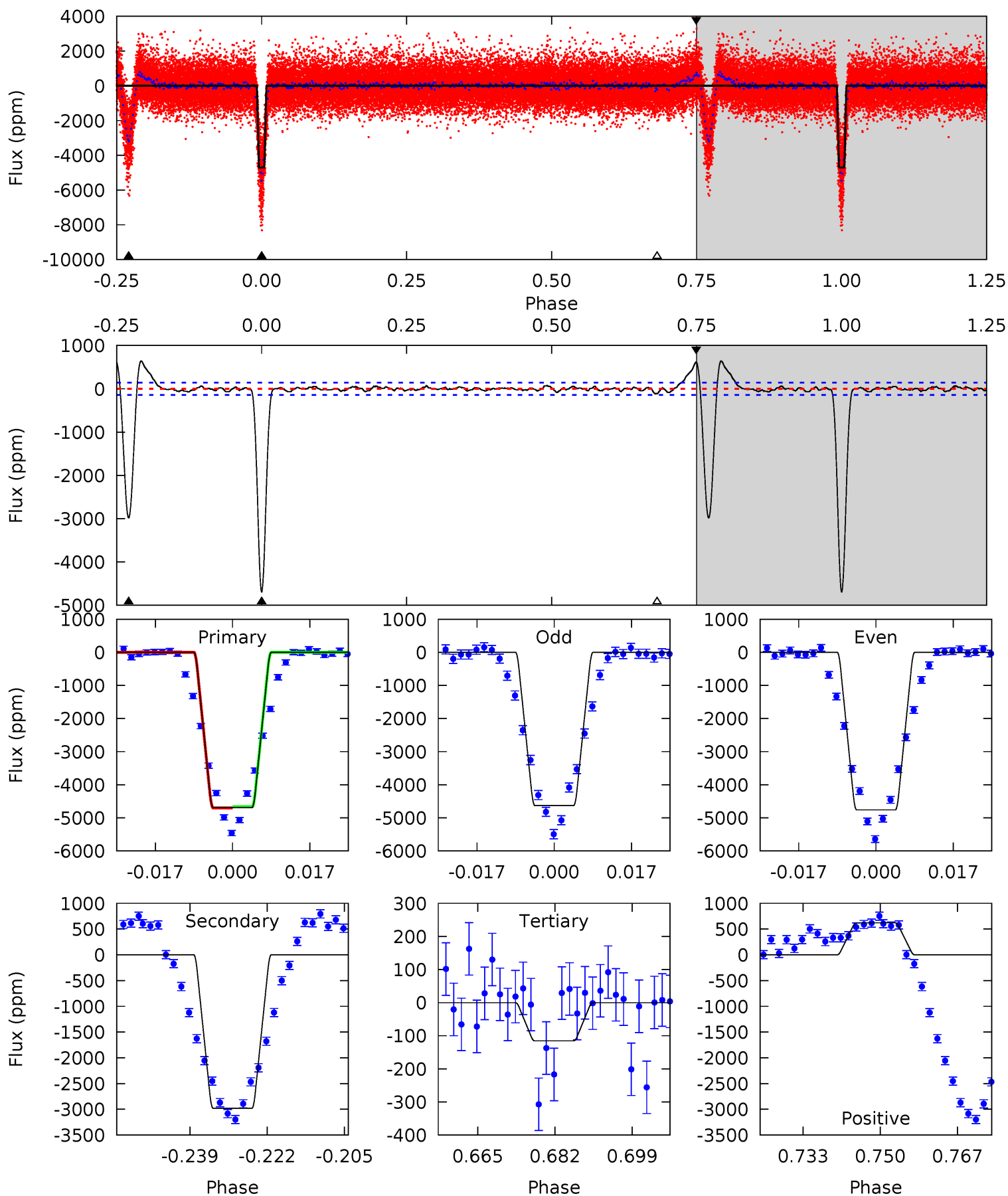
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
207.9	171.6	4.88	16.1	4.85	2.26	4.05	203.0	191.8	166.7	155.5	2.45	0.95	0.07	0.52



Alt Model-Shift Uniqueness Test

003858851-01, P = 25.952485 Days, E = 154.865019 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
164.1	104.3	4.05	21.7	4.92	2.39	3.96	160.1	142.4	100.2	82.6	2.27	0.96	0.12	0.56



Stellar Parameters For KIC 003858851

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	6363^{+176}_{-242}	$4.444^{+0.062}_{-0.188}$	$-0.260^{+0.250}_{-0.350}$	$1.035^{+0.284}_{-0.122}$	$1.083^{+0.143}_{-0.143}$	$1.375^{+0.458}_{-0.677}$
	+3%/-4%	+1%/-4%	+96%/-135%	+27%/-12%	+13%/-13%	+33%/-49%
Source	KIC0	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 003858851-01 / KOI 3293.01

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	-4143 ± 24	$13.97^{+5.86}_{-5.06}$	964^{+62}_{-49}	4780^{+1113}_{-576}	358^{+517}_{-178}
Alt.	-2981 ± 29	$9.04^{+4.92}_{-4.87}$	963^{+66}_{-50}	5387^{+2764}_{-930}	610^{+2304}_{-351}

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 $A_{obs} \gg 1.0$

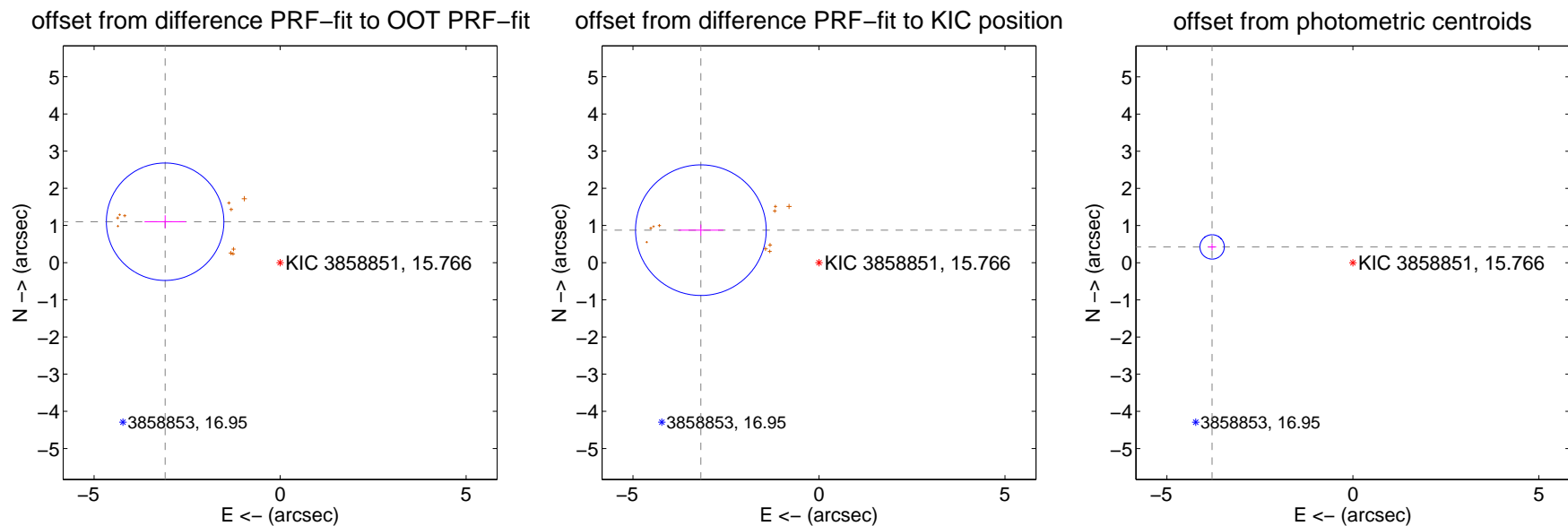
DV Centroid Data

Supplemental centroid analysis for 003858851-01. Kepler magnitude: 15.77. Transit SNR 102.18

There are 0 quarters with good PRF difference image offsets

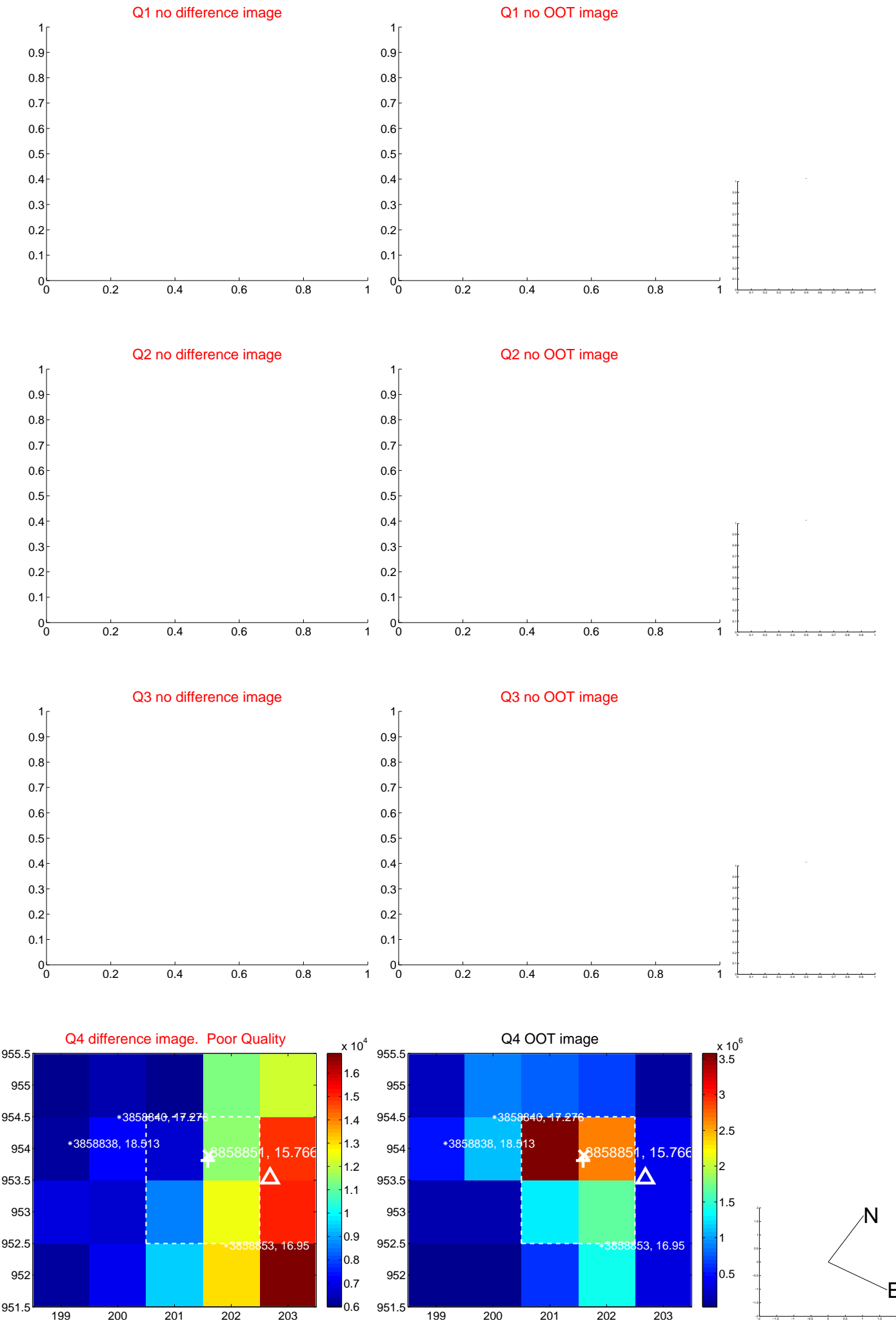
The direct PRF centroid is offset from the target star catalog position by about 0.51 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	3.281 ± 0.527	6.23	3.091 ± 0.555	1.101 ± 0.174
PRF-fit source offset from KIC position	3.293 ± 0.586	5.62	3.175 ± 0.606	0.873 ± 0.152
photometric centroid source offset	3.81 ± 0.11	34.85	3.78 ± 0.11	0.43 ± 0.09

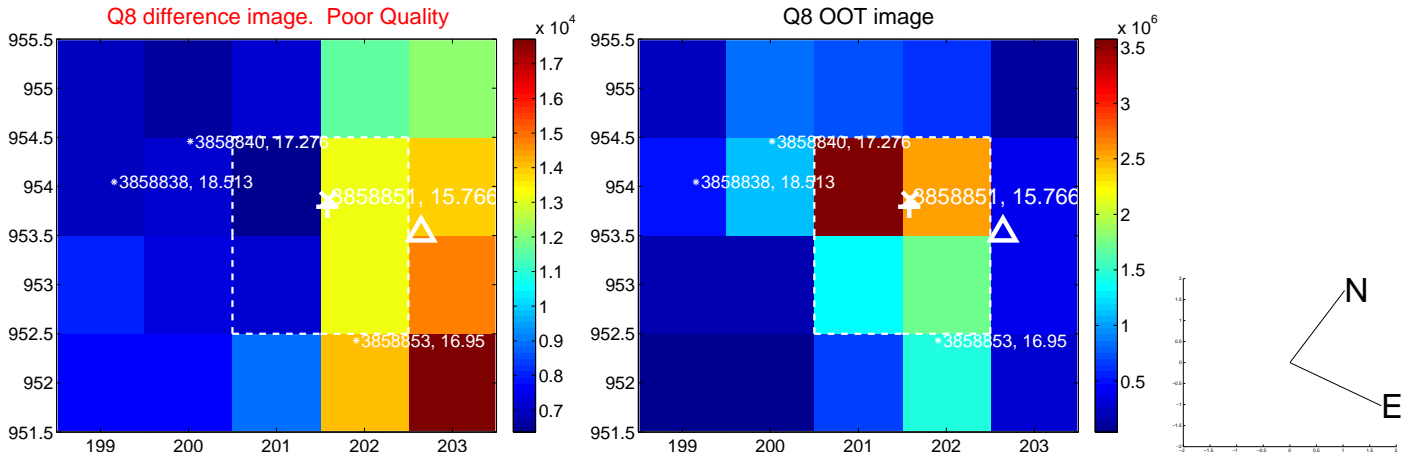
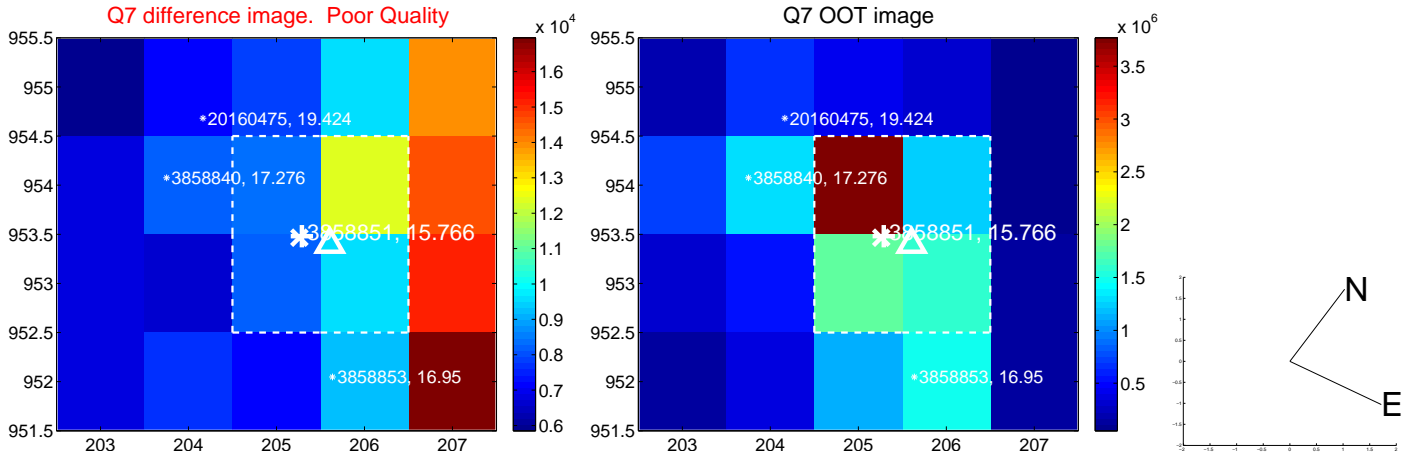
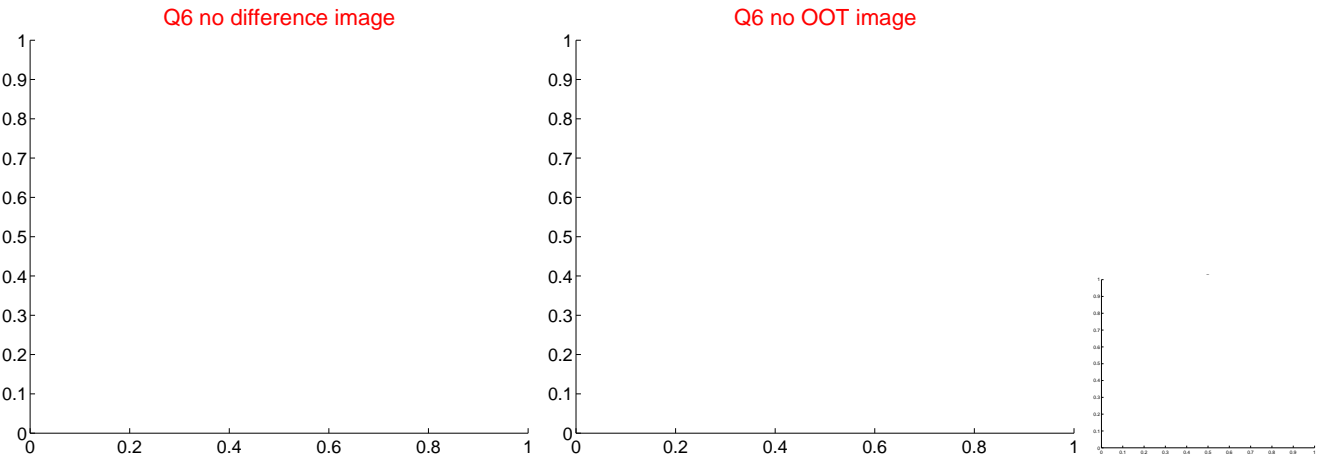
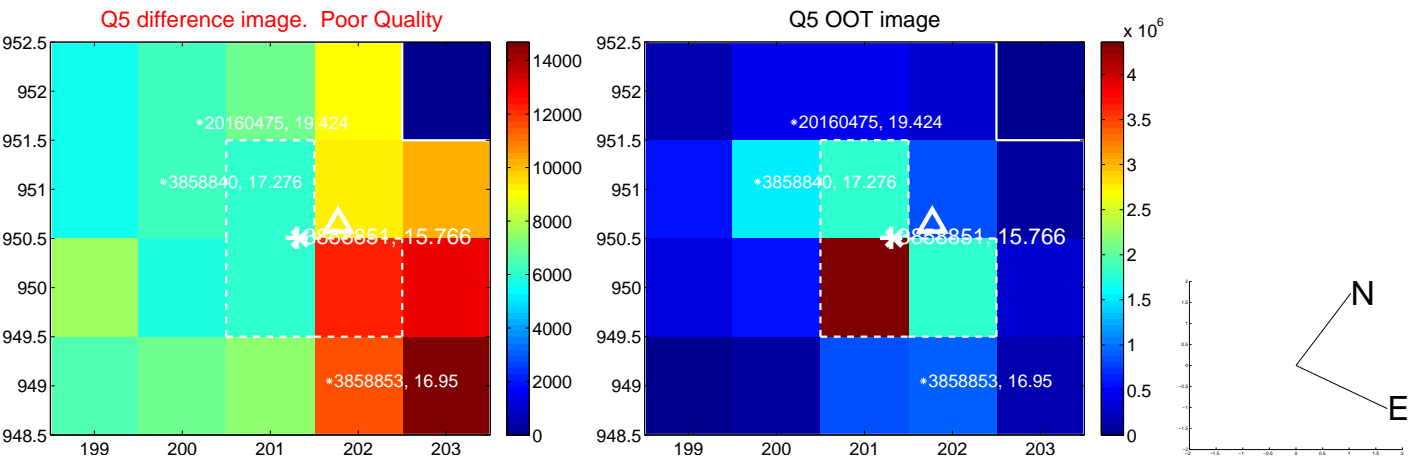


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ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

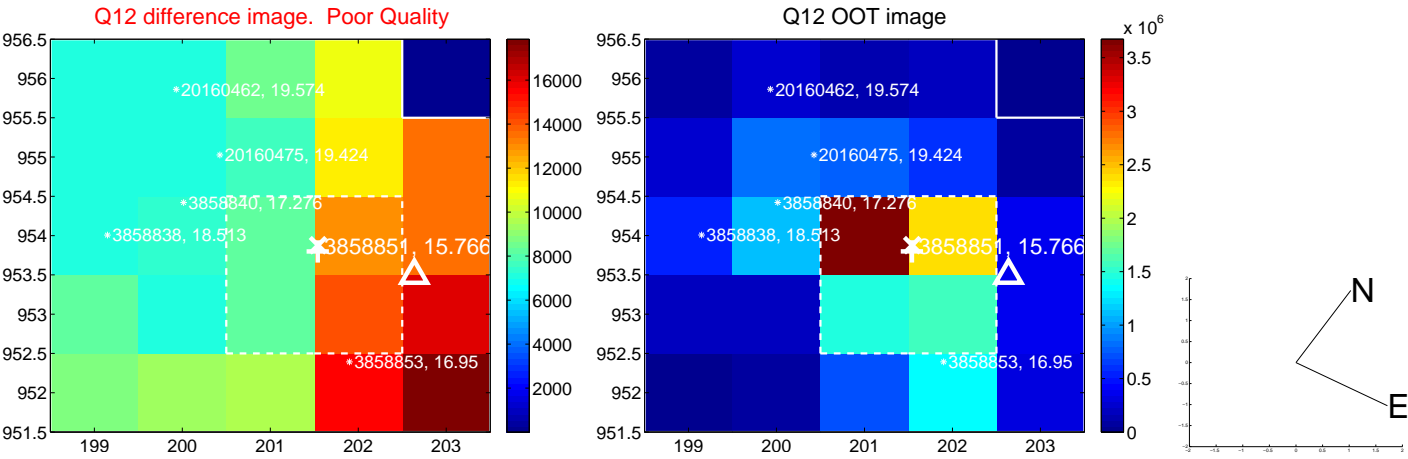
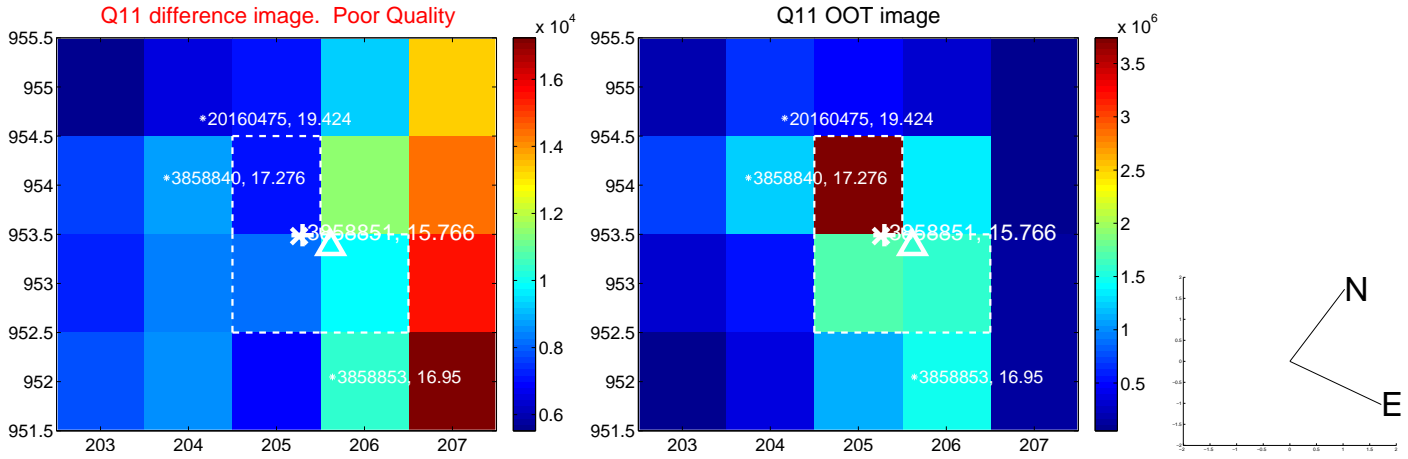
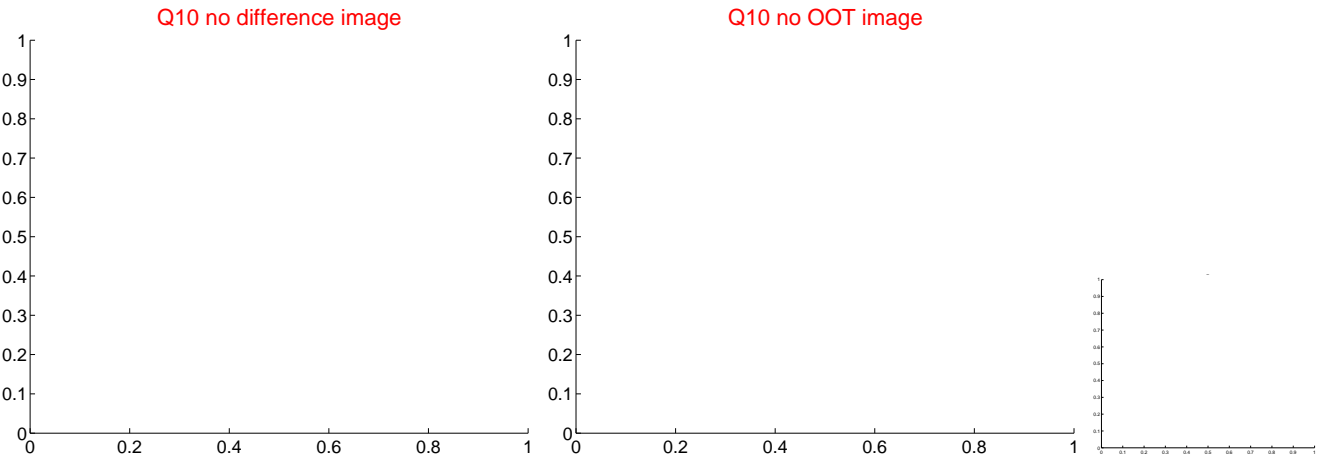
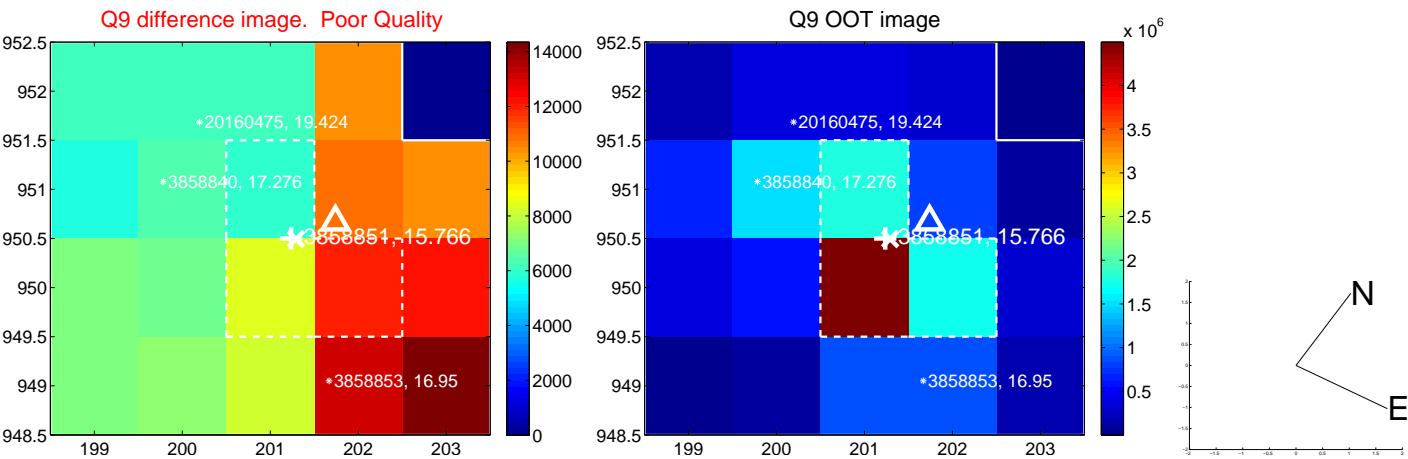
white ×: KIC target position; +: OOT centroid; △: difference centroid. red ✕: large negative pixel value.



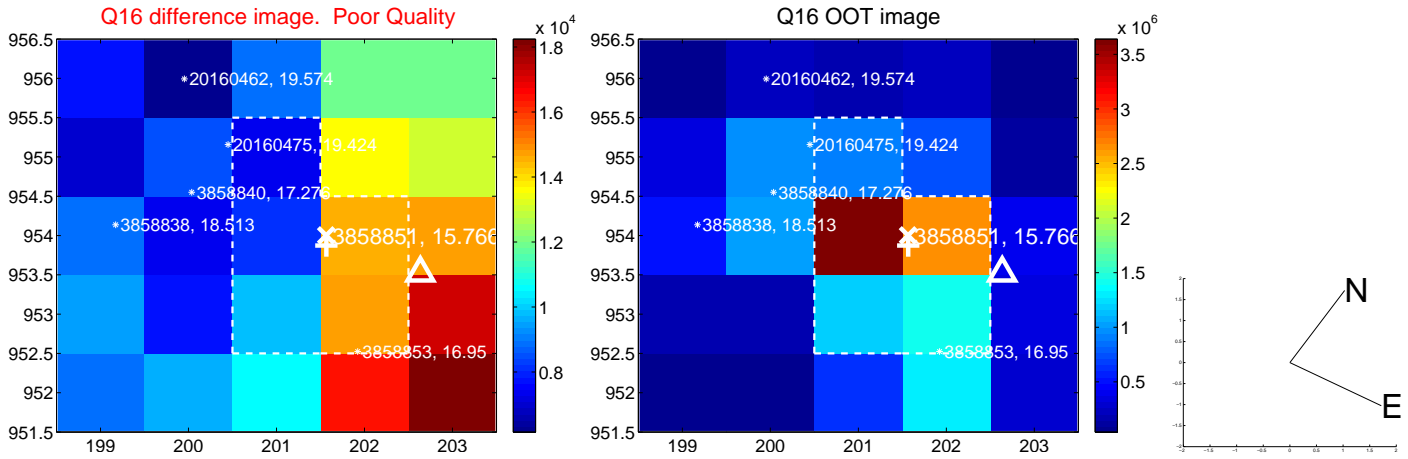
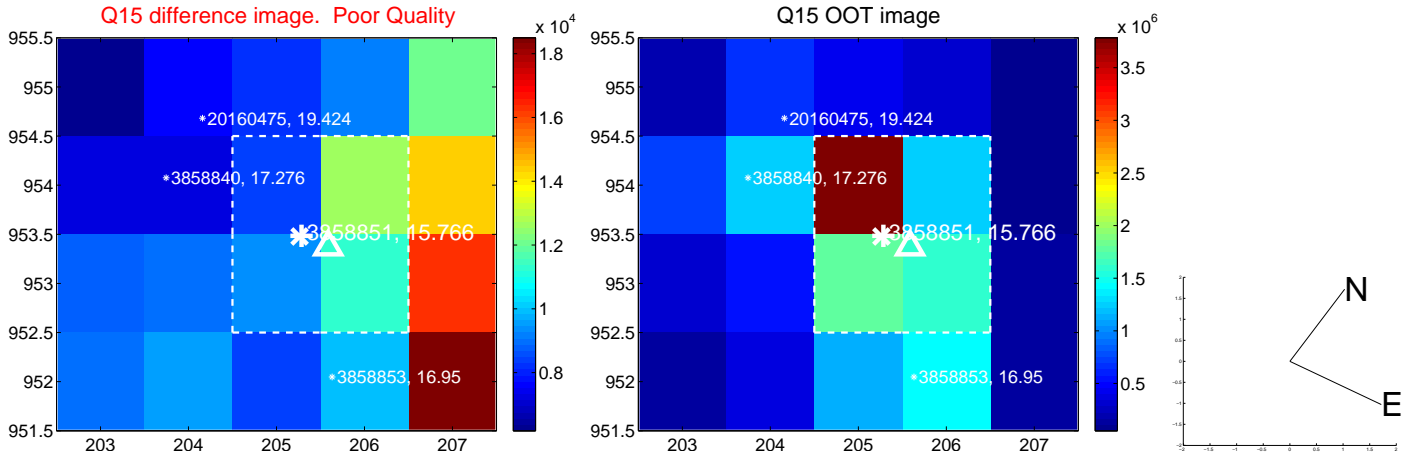
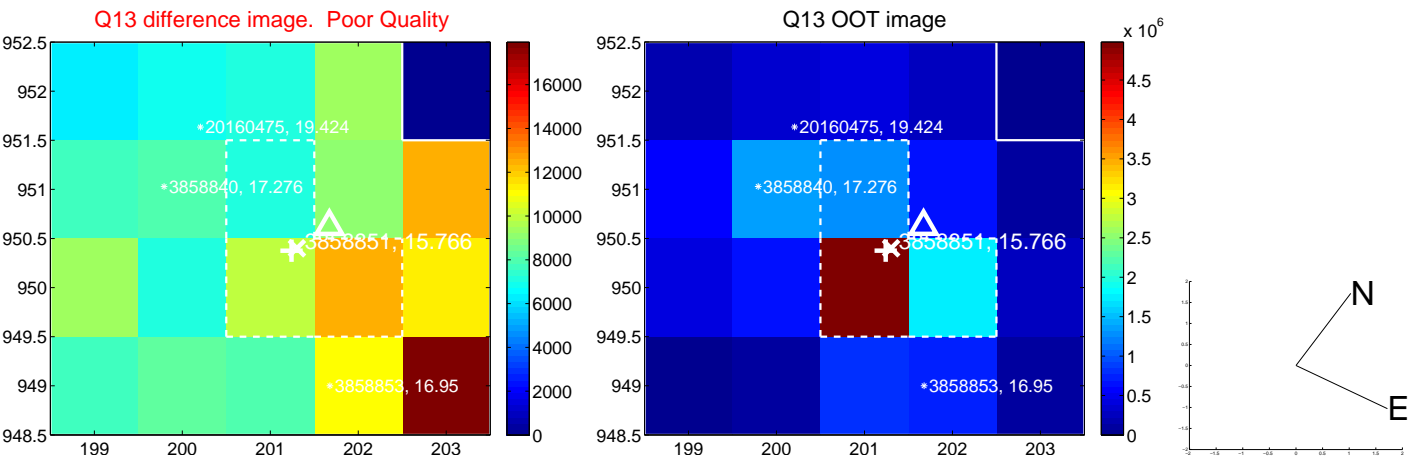
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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



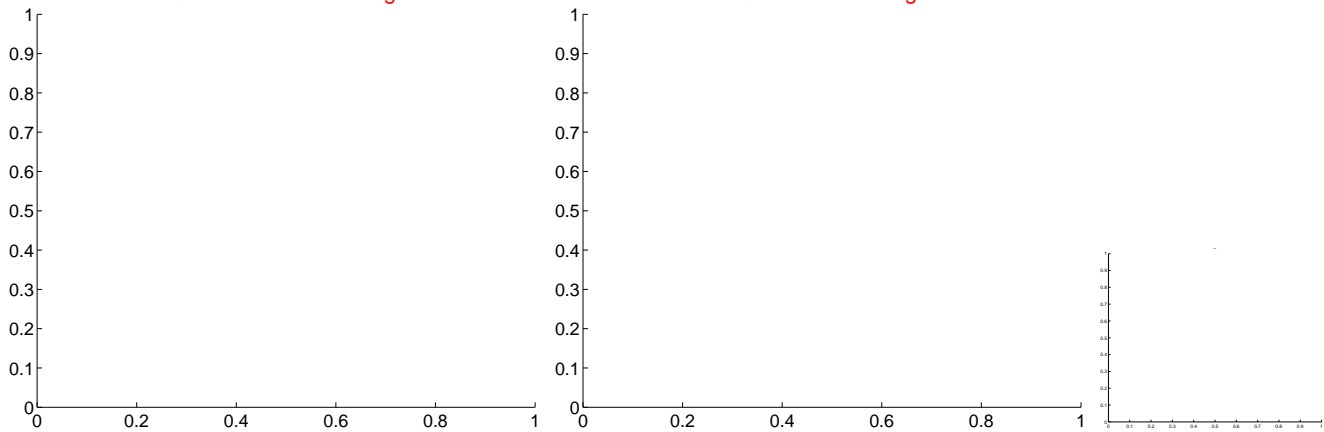
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



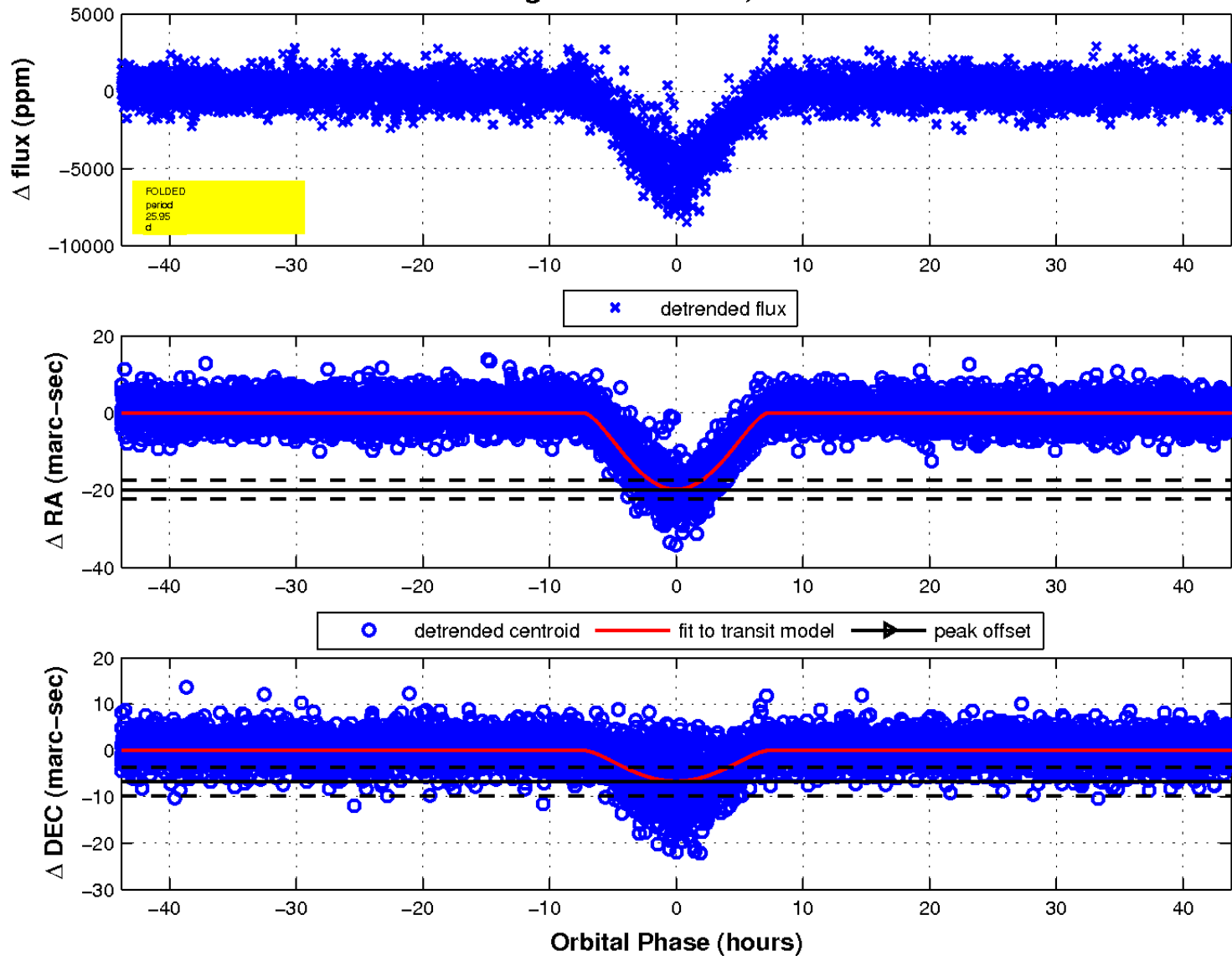
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.

Q17 no difference image

Q17 no OOT image

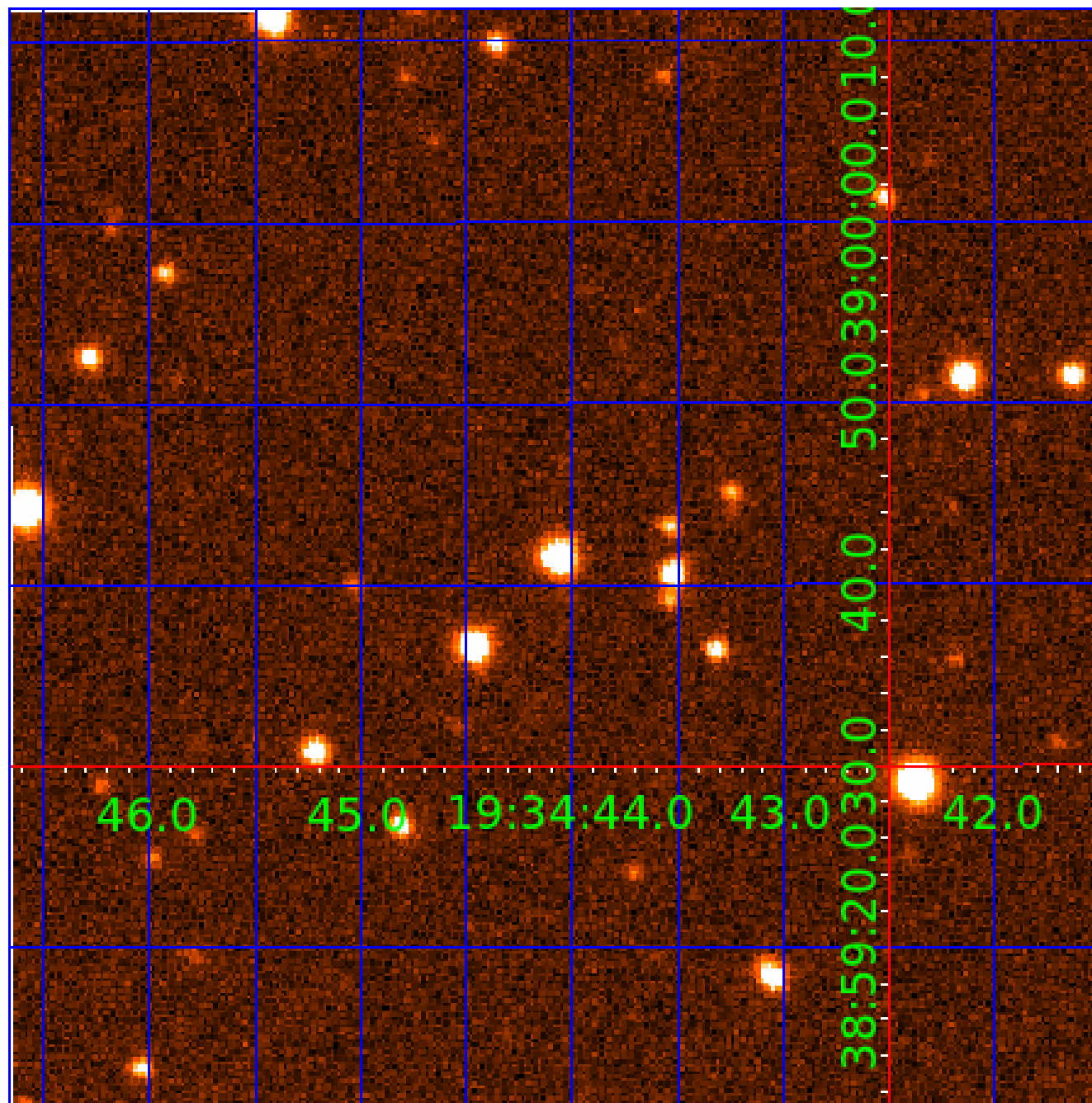


fluxWeightedCentroids, Planet 1 of 2



UKIRT Image

Declination



KIC 003858851

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})
003858851-01	OBS	3293.01	25.951997	154.881297	5063.8	14.610	100.6	102.2	1.03	6363	13.25	50.58
003858851-02	OBS	No	25.952149	148.919040	3811.2	20.505	95.8	102.5	1.03	6363	11.60	50.58

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
003858851-01	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
003858851-02	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 003858851-02

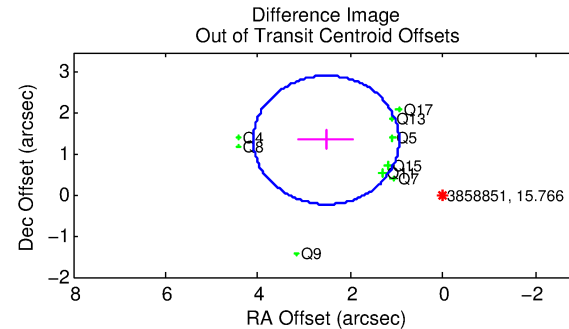
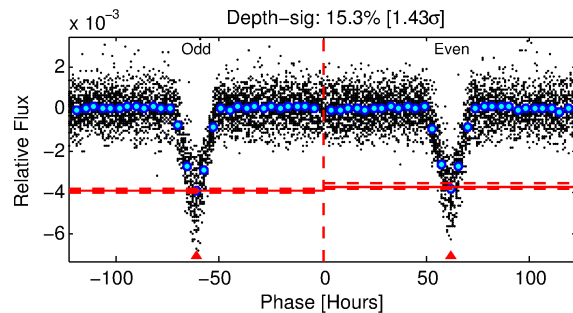
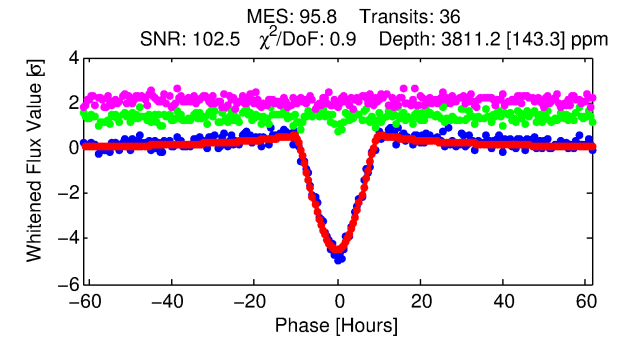
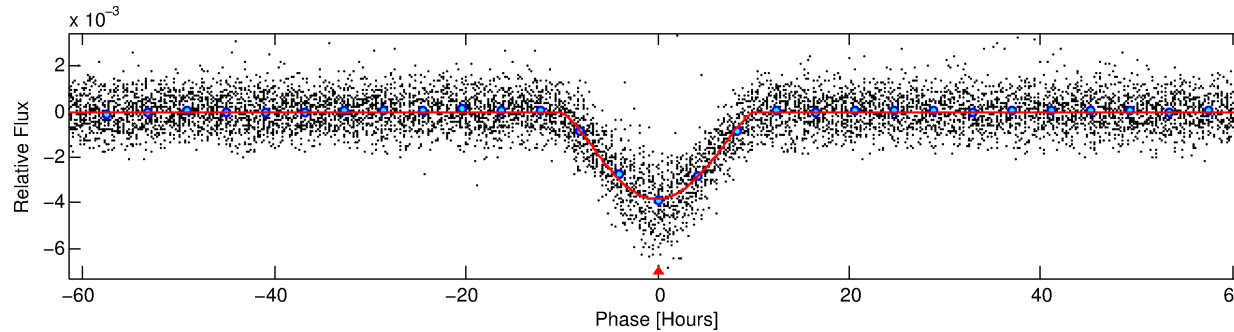
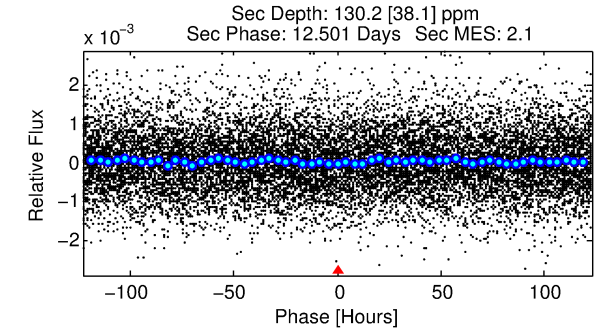
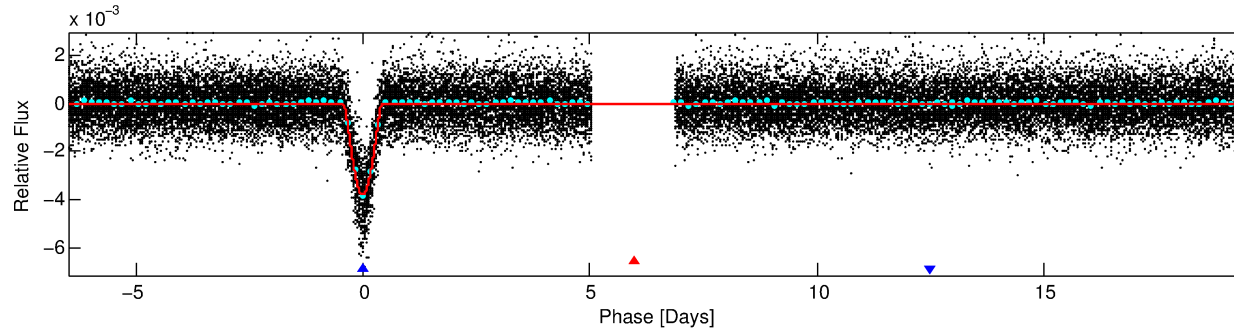
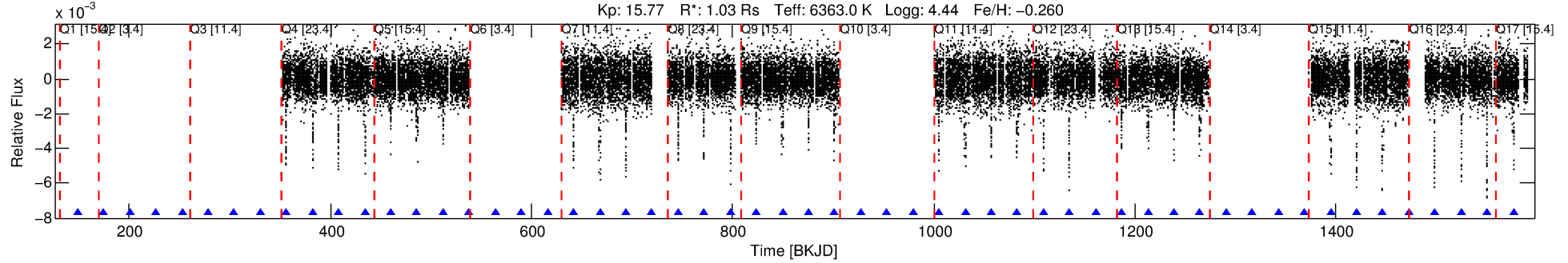
TCE (1)	KIC	Parent (2)	Parent KIC	$P_1:P_2$	Dist (μ)	Δ Row	Δ Col	m_2	m_1	D_2/D_1	Mechanism	Flag	σ_P	σ_T
003858851-02	3858851	003858884-02	3858884	1:1	54.6	14	-1	9.28	15.77	88.46	Direct-PRF	0	0.51	0.26

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: 3858851 Candidate: 2 of 2 Period: 25.952 d
KOI: K03293 Corr: No Ephemeris Match

Kp: 15.77 R*: 1.03 Rs Teff: 6363.0 K Logg: 4.44 Fe/H: -0.260



DV Fit Results:

Period = 25.95215 [0.00016] d
Epoch = 148.9190 [0.0052] BKJD
Rp/R* = 0.1027 [0.0389]
a/R* = 4.62 [0.32]
b = 1.00 [0.06]
Seff = 50.58 [18.92]
Teq = 680 [64] K
Rp = 11.60 [5.43] Re
a = 0.1764 [0.0411] AU
Ag = 16.56 [14.60] [1.07σ]
Teffp = 2121 [438] K [3.25σ]

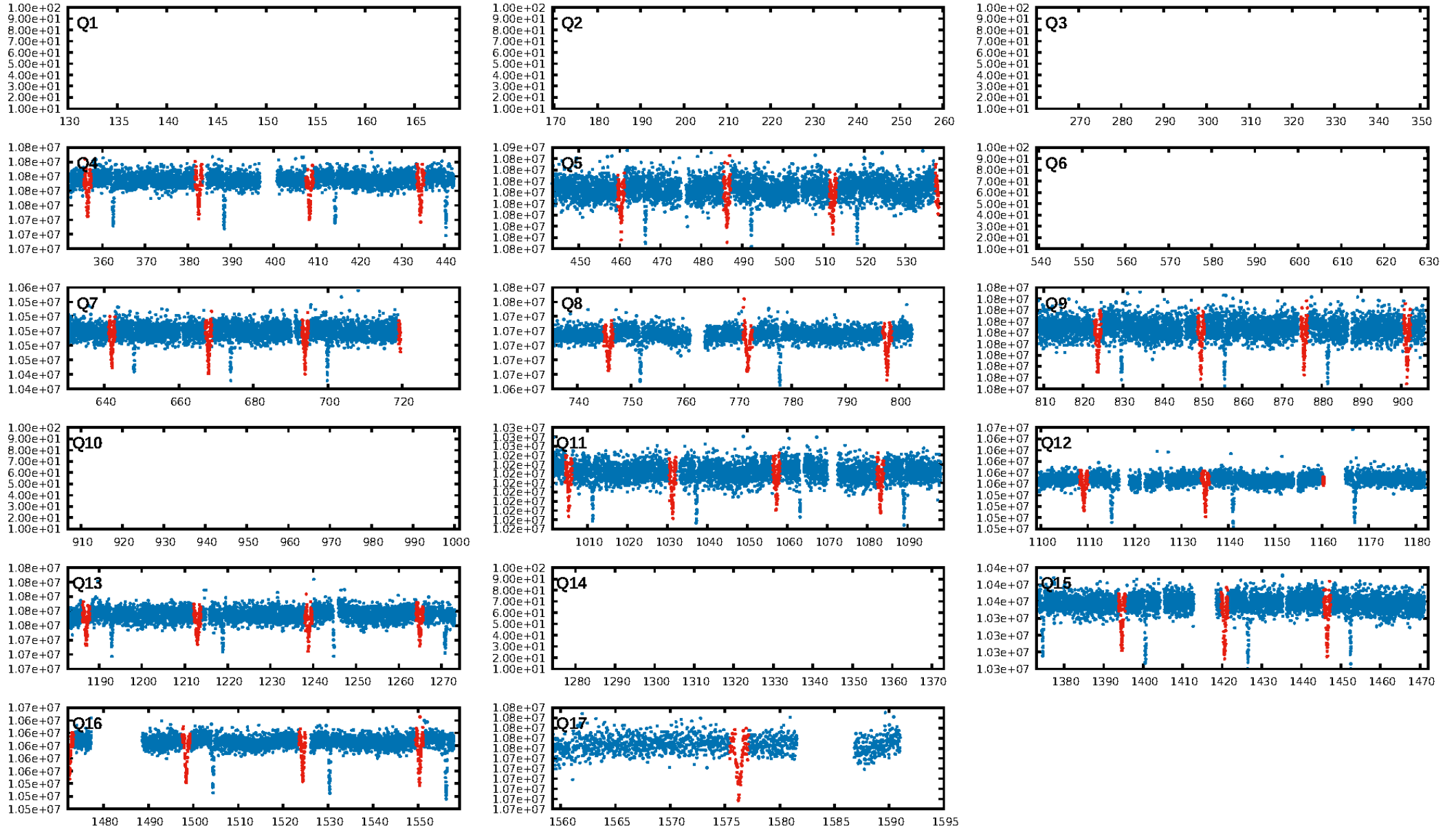
DV Diagnostic Results:

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: 1.00 [35/35]
GhostDiagnostic-chr: -0.05586
Centroid-sig: 0.0%
Centroid-so: 4.157 arcsec [32.63σ]
OotOffset-rm: 2.867 arcsec [5.46σ]
KicOffset-rm: 2.733 arcsec [4.92σ]
OotOffset-st: 0/3/2/4 [9]
KicOffset-st: 0/3/2/4 [9]
DiffImageQuality-fgm: 0.00 [0/9]
DiffImageOverlap-fno: 1.00 [9/9]

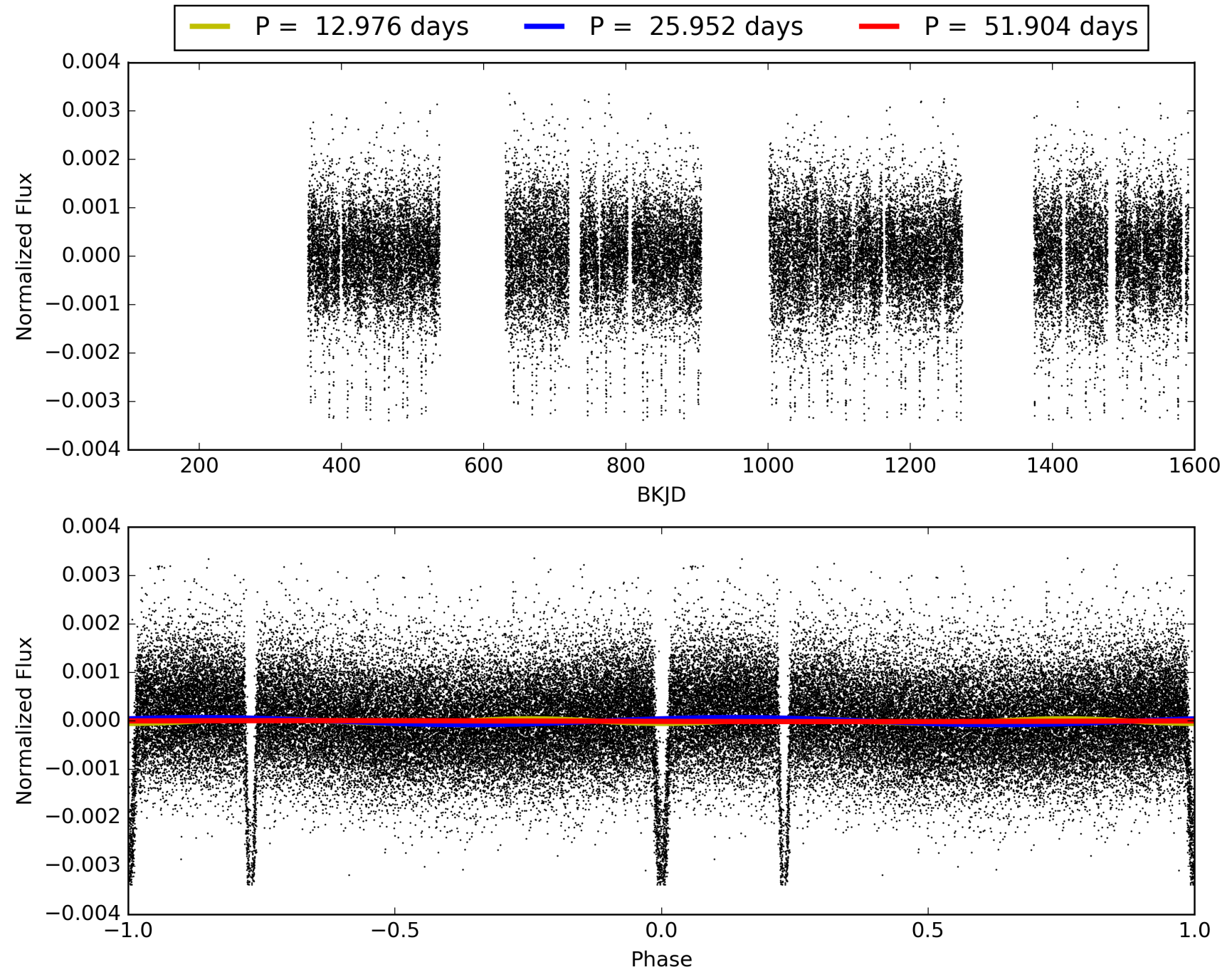
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 18:27:09 Z

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

TCE 003858851-02, PDC Light Curves

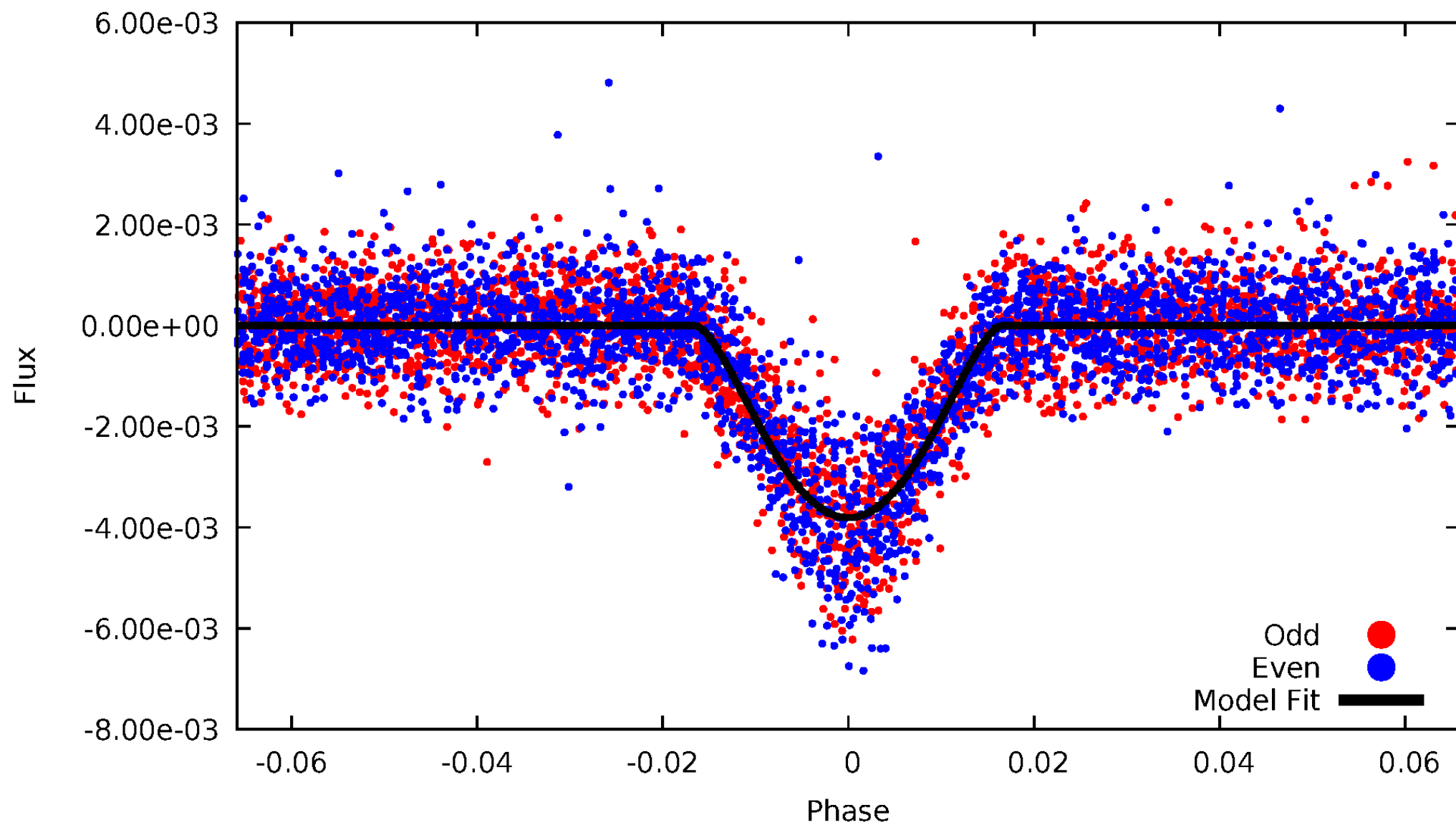


TCE 003858851-02



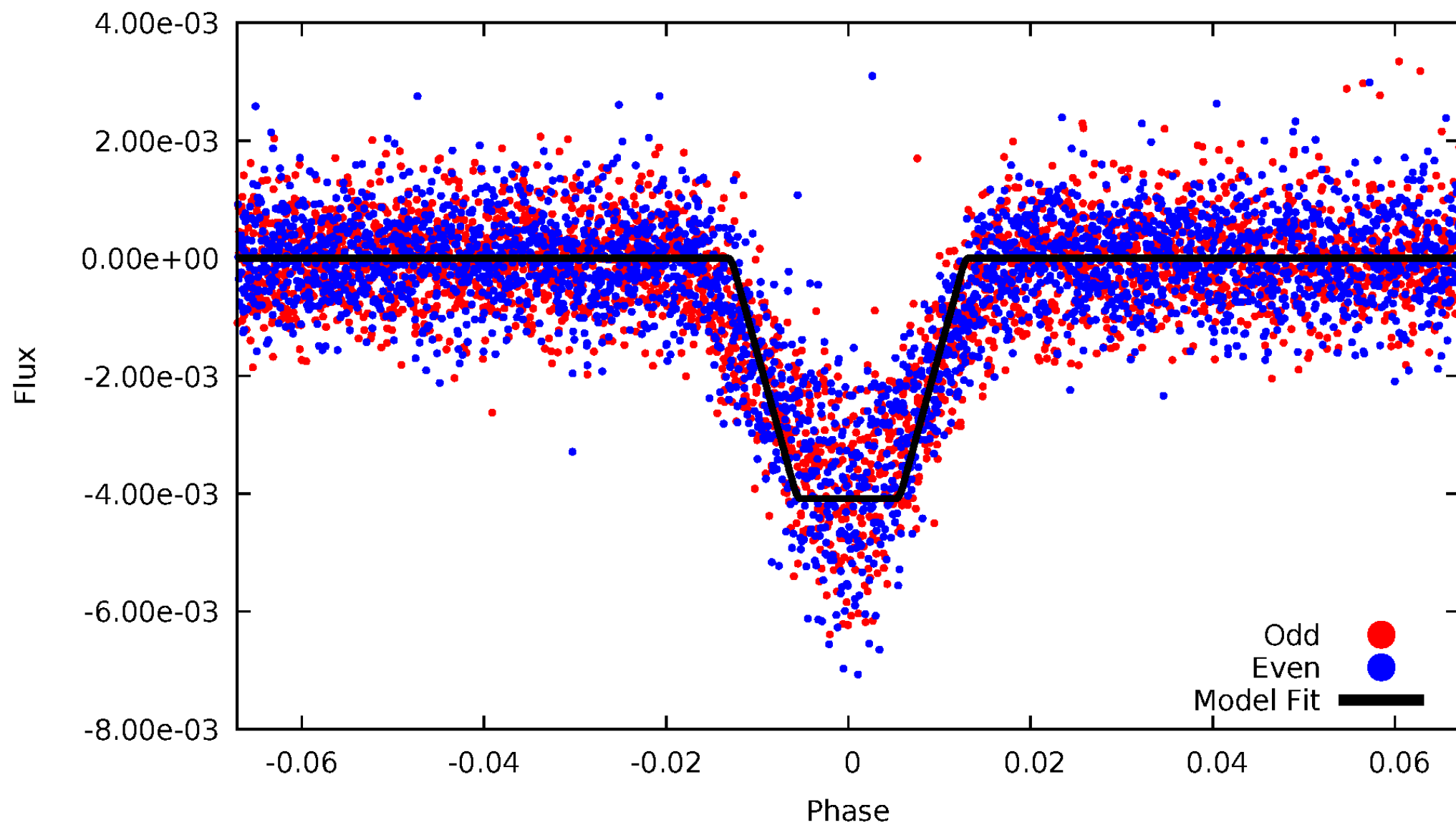
DV Odd/Even

TCE 003858851-02



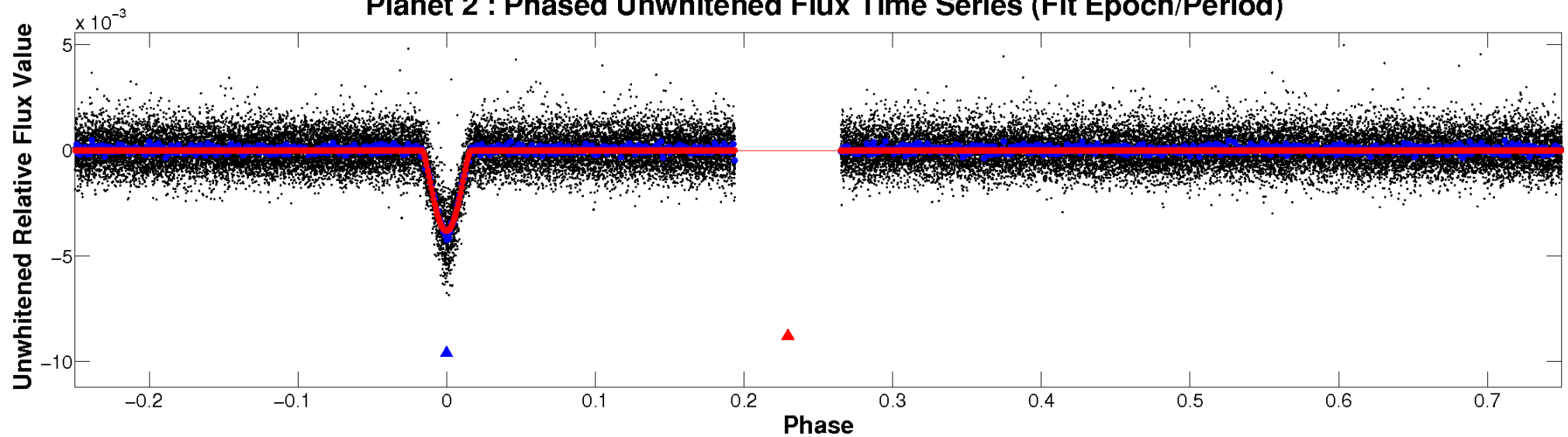
ALT Odd/Even

TCE 003858851-02

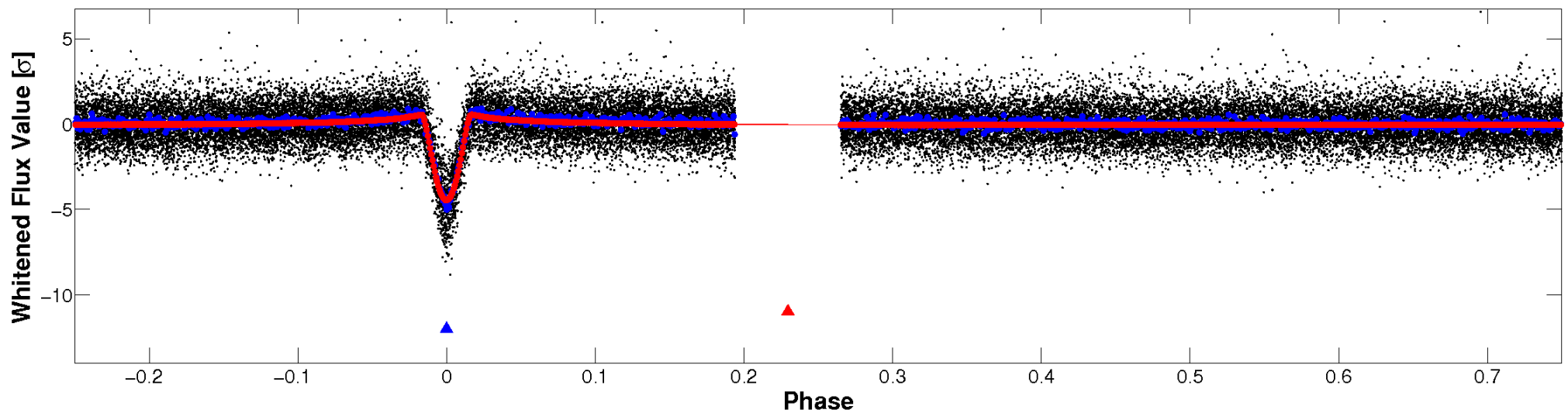


Non-Whitened Vs. Whitened Light Curve

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

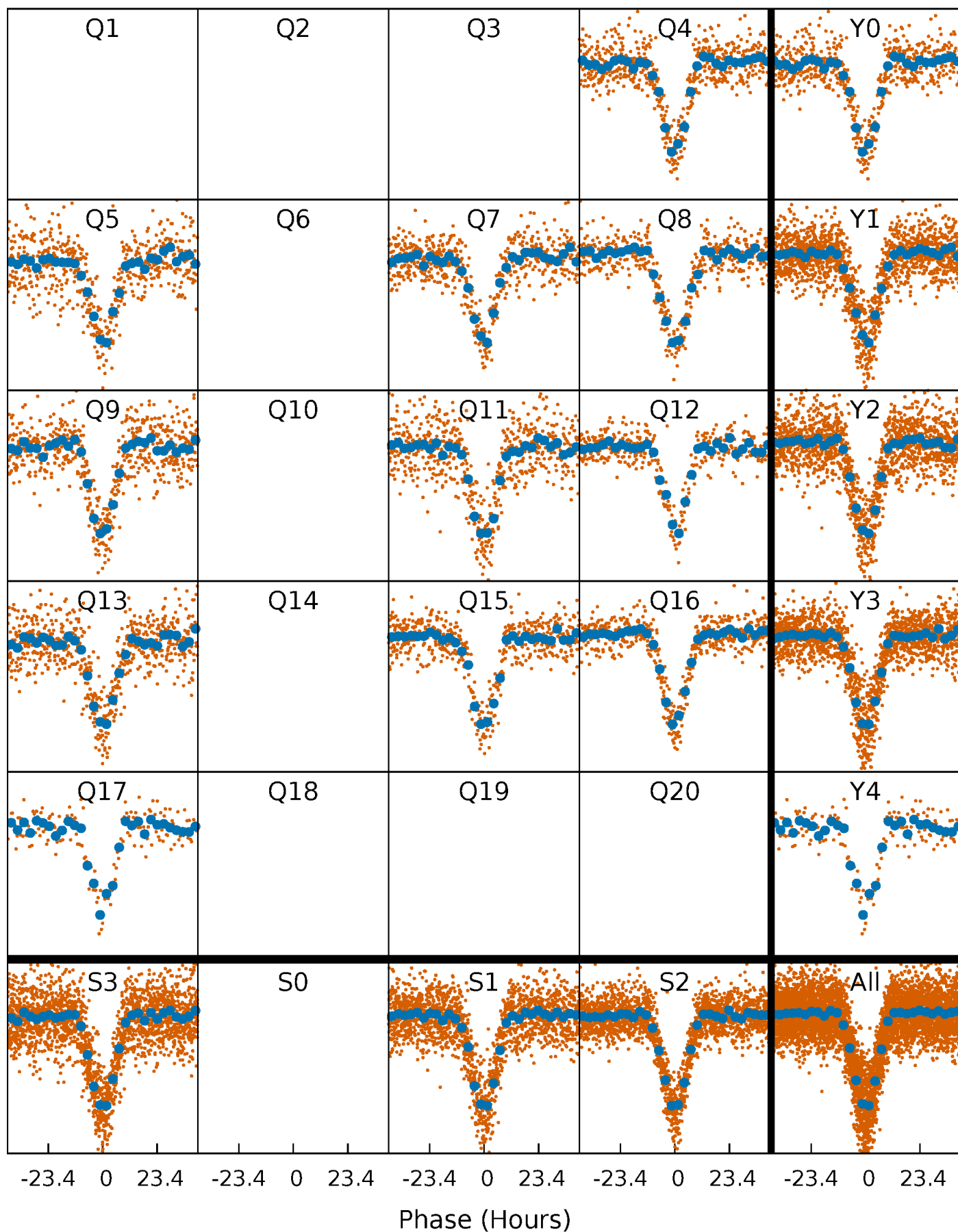


Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



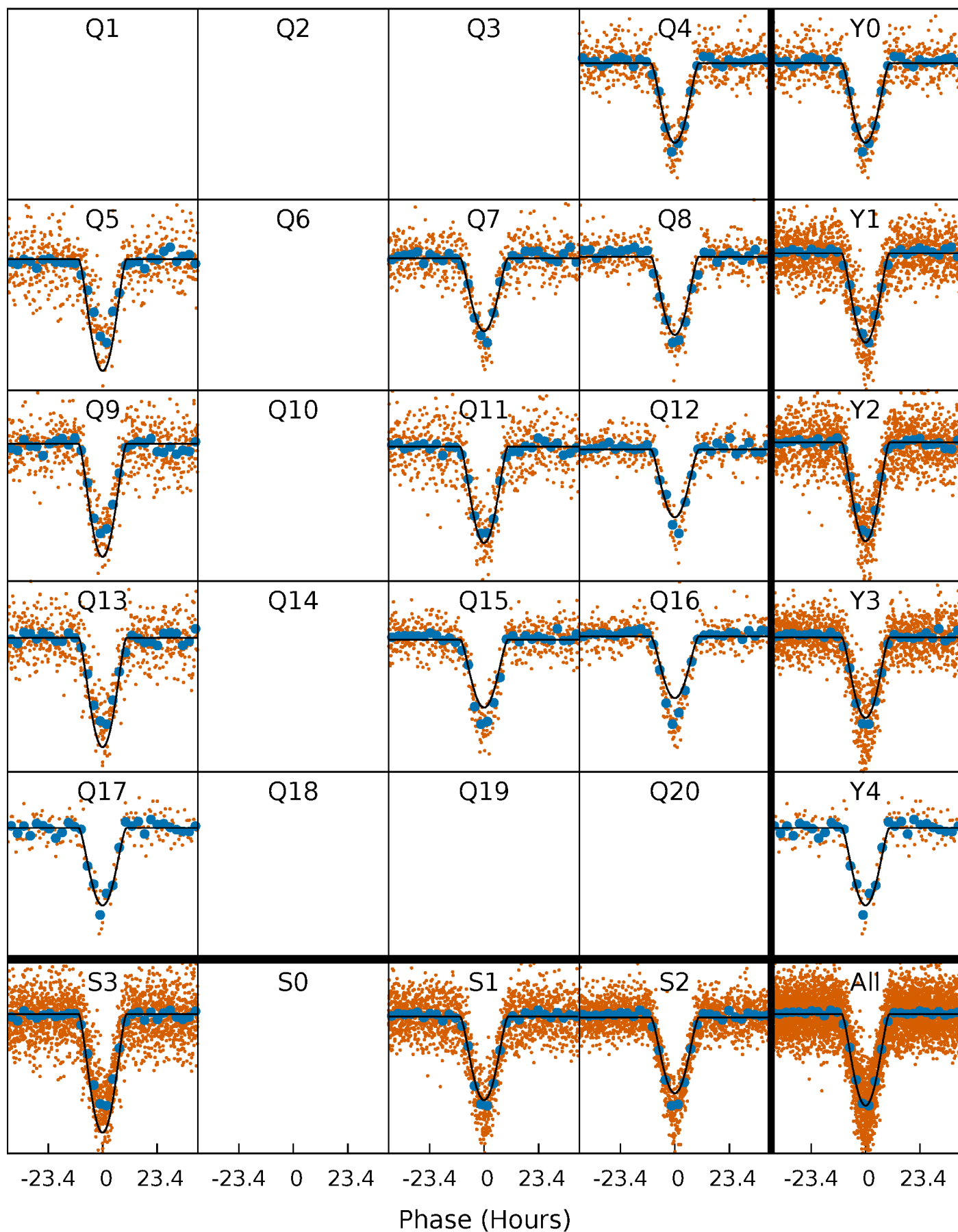
PDC Quarter-Phased Transit Curves

TCE 003858851-02 P= 25.952149 Days $T_0=148.919040$ (BKJD)



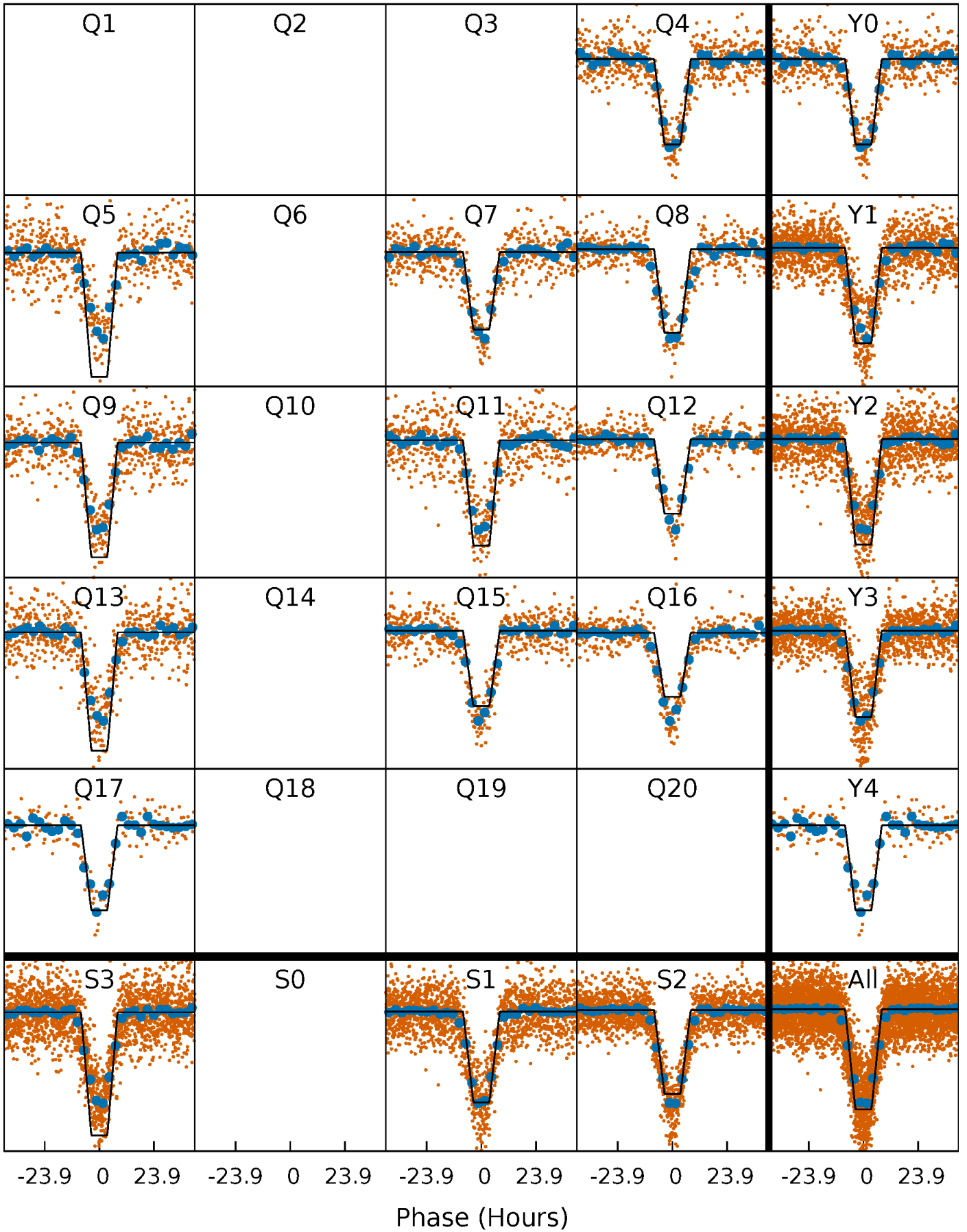
DV Quarter-Phased Transit Curves

TCE 003858851-02 P= 25.952149 Days $T_0=148.919040$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

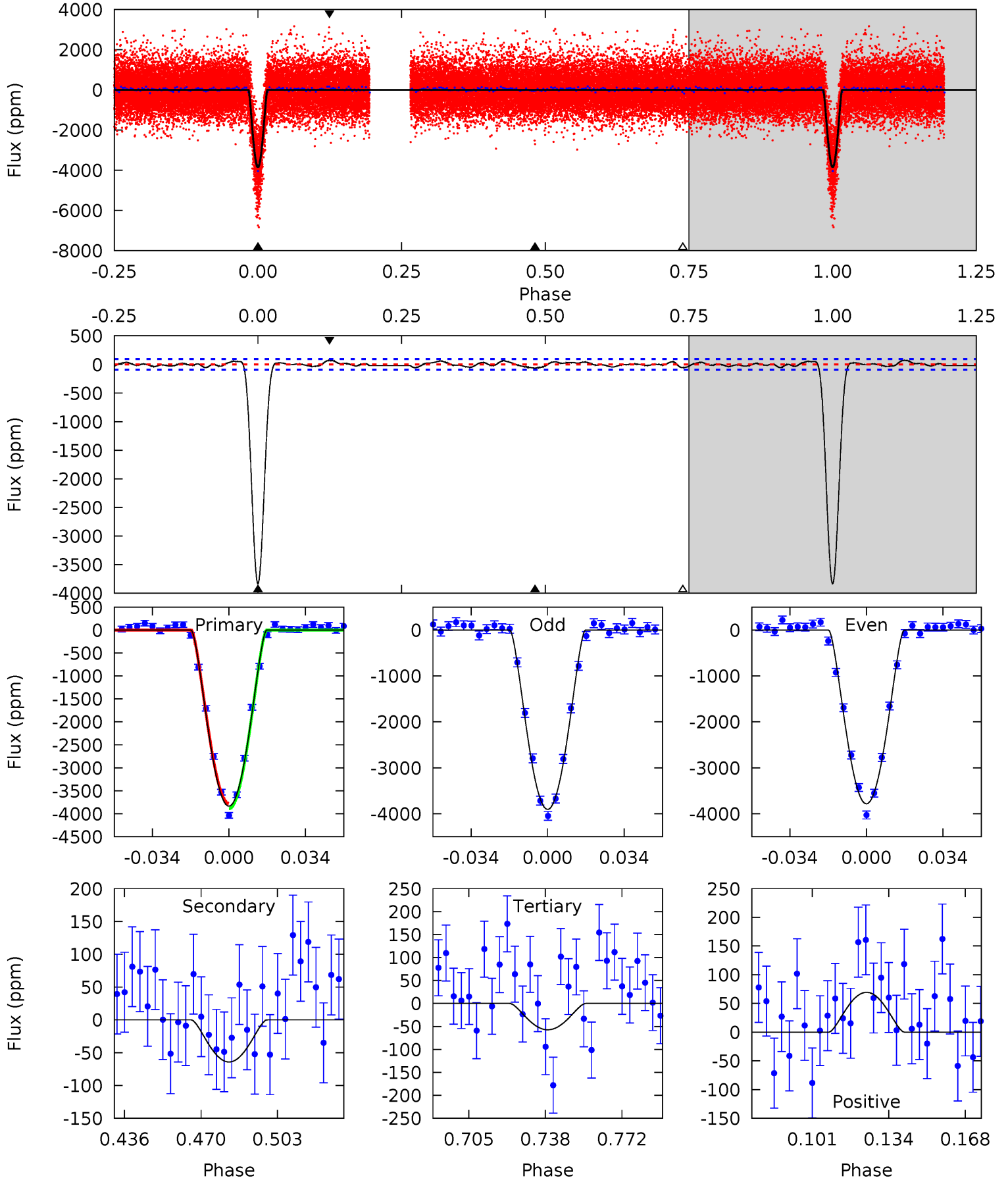
TCE 003858851-02 P= 25.952751 Days $T_0=148.901804$ (BKJD)



DV Model-Shift Uniqueness Test

003858851-02, P = 25.952149 Days, E = 148.919040 Days

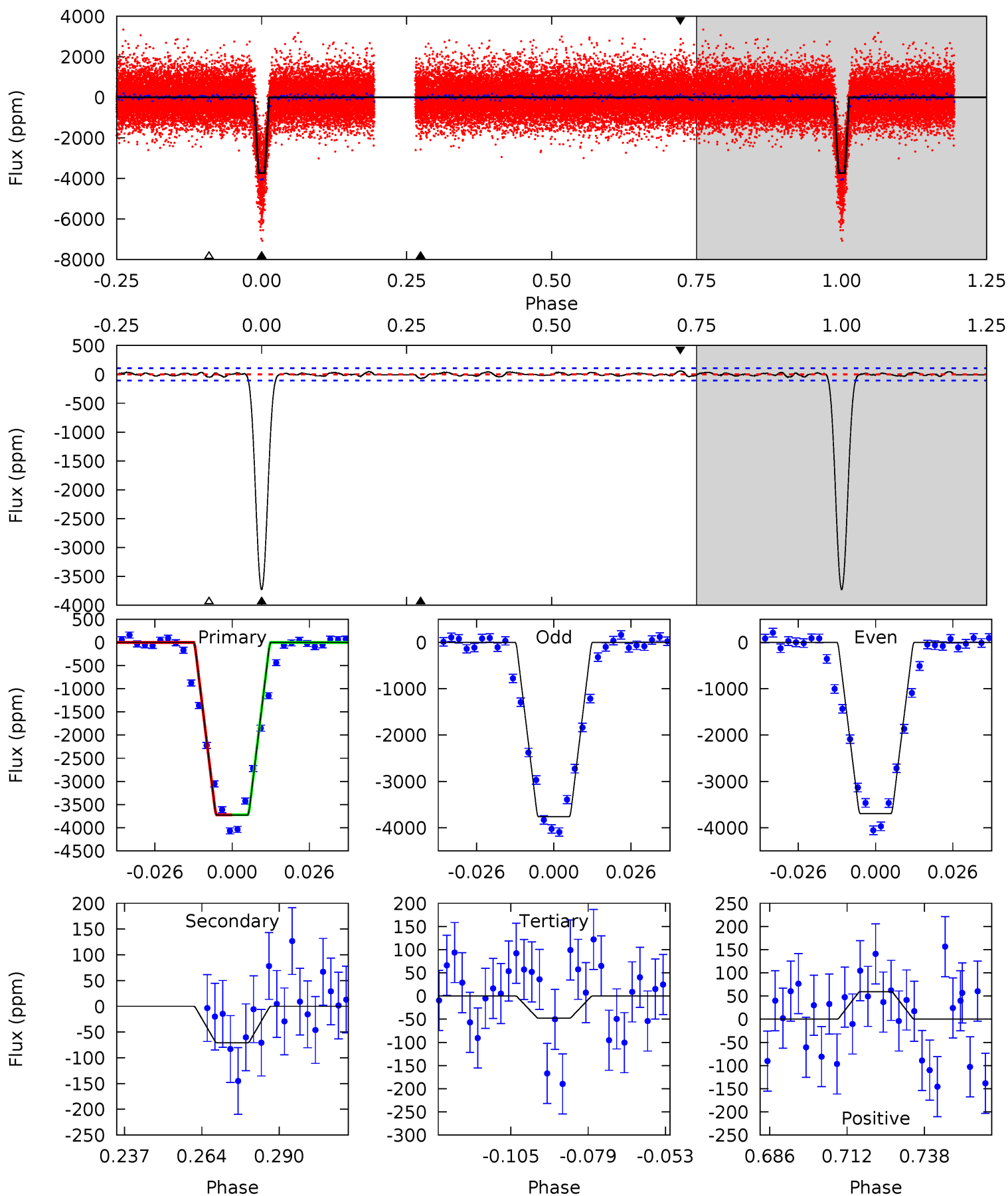
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
195.9	3.28	2.93	3.54	4.79	2.13	1.44	193.0	192.4	0.35	-0.27	3.10	0.95	0.02	2.87



Alt Model-Shift Uniqueness Test

003858851-02, P = 25.952751 Days, E = 148.901804 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
169.1	3.21	2.17	2.70	4.84	2.22	0.93	166.9	166.4	1.04	0.51	1.59	0.95	0.02	0.07



Stellar Parameters For KIC 003858851

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	M (M_{\odot})	p_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	6363^{+176}_{-242}	$4.444^{+0.062}_{-0.188}$	$-0.260^{+0.250}_{-0.350}$	$1.035^{+0.284}_{-0.122}$	$1.083^{+0.143}_{-0.143}$	$1.375^{+0.458}_{-0.677}$
	+3%/-4%	+1%/-4%	+96%/-135%	+27%/-12%	+13%/-13%	+33%/-49%
Source	KIC0	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 003858851-02 / KOI

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	-64 ± 20	$12.06^{+4.63}_{-4.71}$	967^{+59}_{-50}	2573^{+375}_{-230}	$7.224^{+12.422}_{-3.761}$
Alt.	-71 ± 22	$8.11^{+4.92}_{-4.31}$	964^{+62}_{-50}	2889^{+720}_{-363}	18^{+64}_{-12}

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 $A_{obs} \gg 1.0$

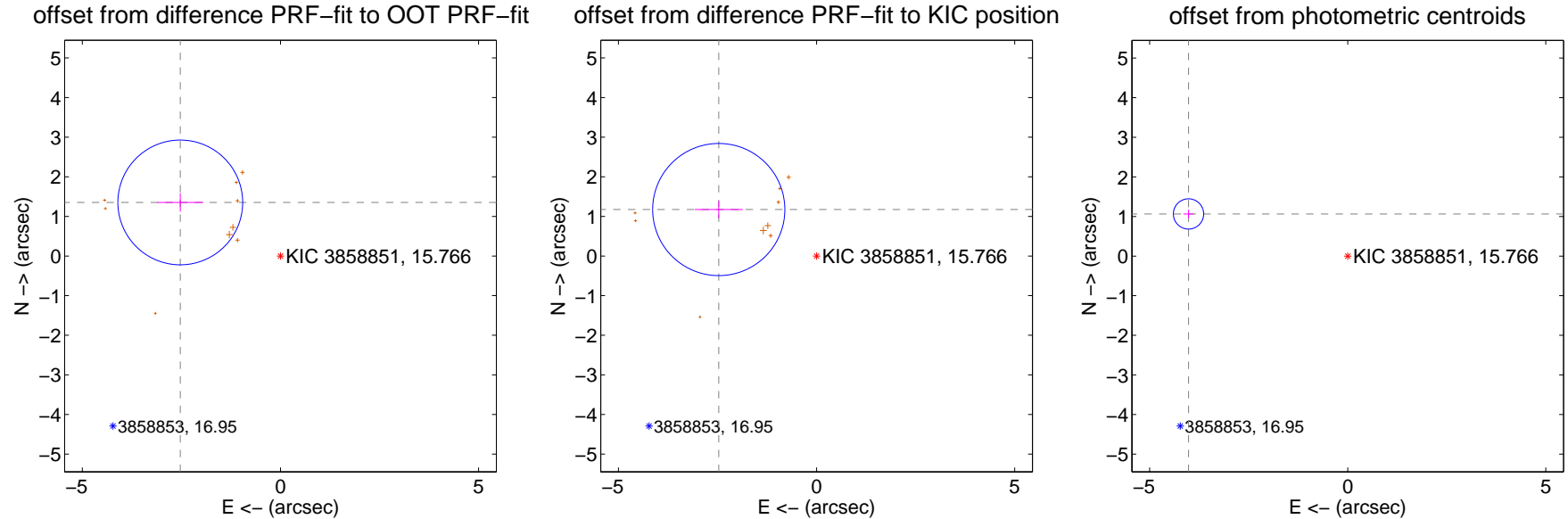
DV Centroid Data

Supplemental centroid analysis for 003858851-02. Kepler magnitude: 15.77. Transit SNR 102.49

There are 0 quarters with good PRF difference image offsets

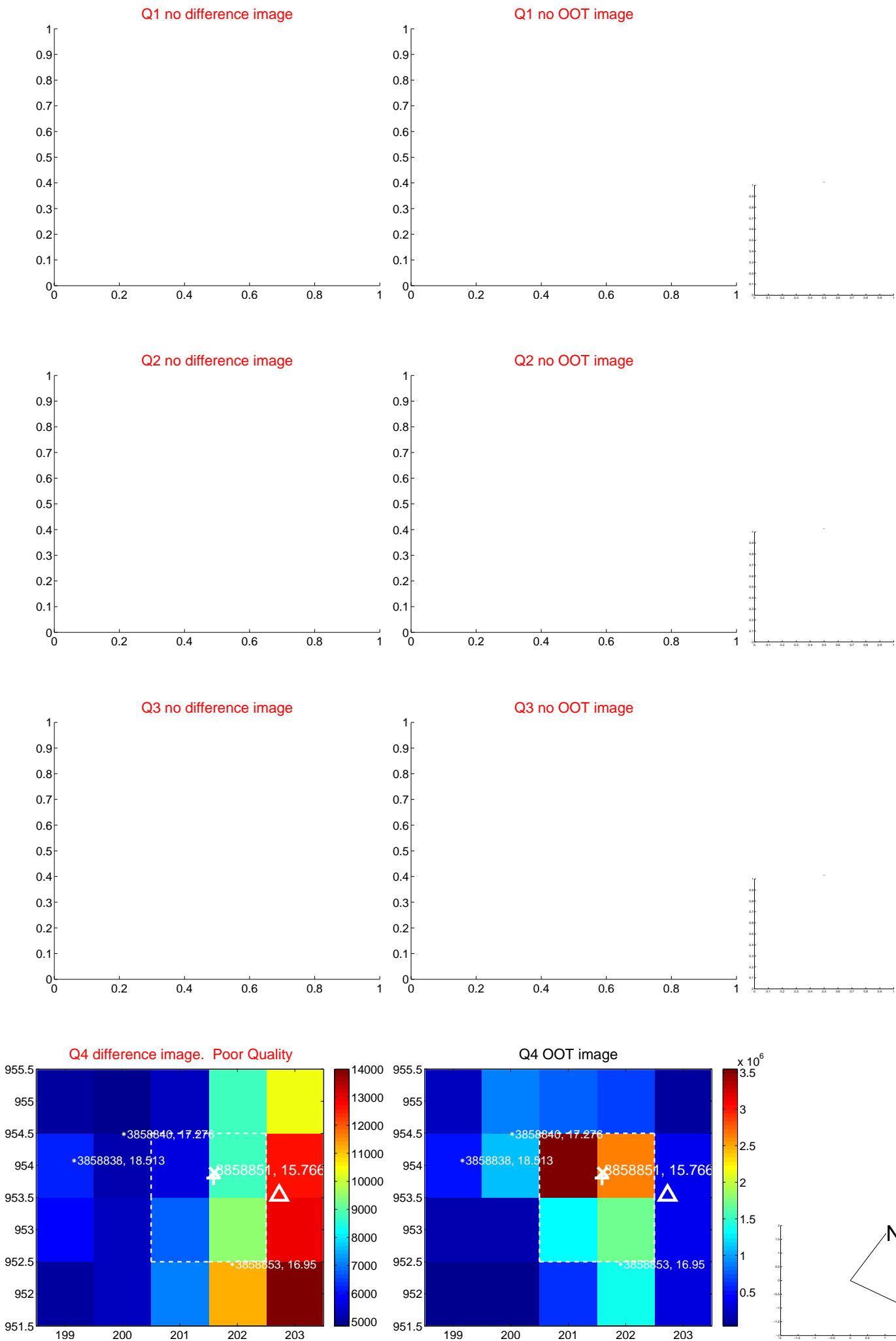
The direct PRF centroid is offset from the target star catalog position by about 0.28 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	2.867 ± 0.525	5.46	2.528 ± 0.582	1.352 ± 0.231
PRF-fit source offset from KIC position	2.733 ± 0.556	4.92	2.469 ± 0.607	1.173 ± 0.216
photometric centroid source offset	4.16 ± 0.13	32.63	4.02 ± 0.13	1.06 ± 0.11

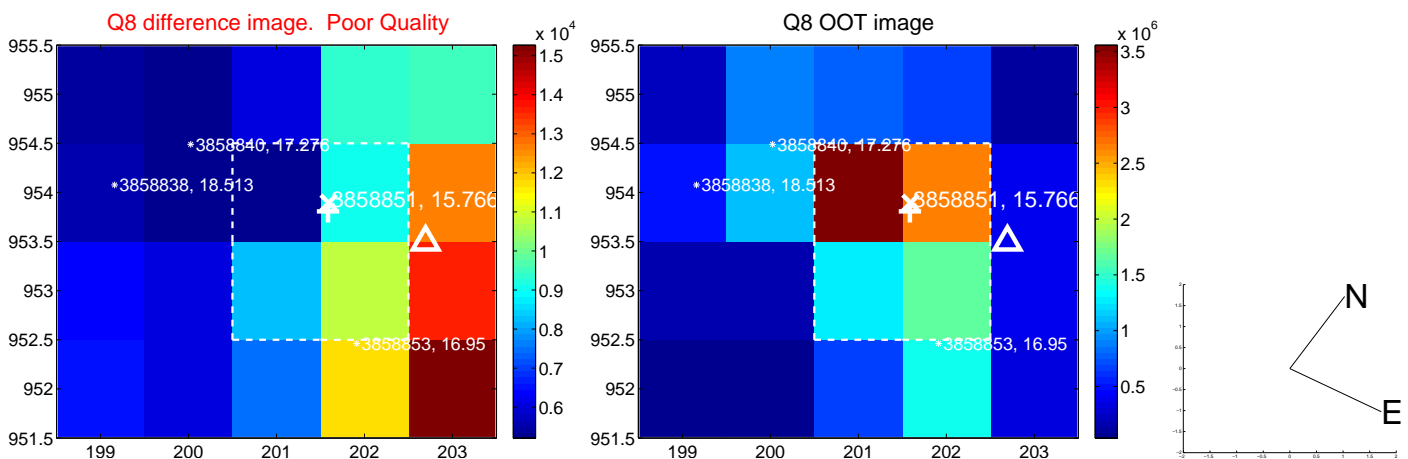
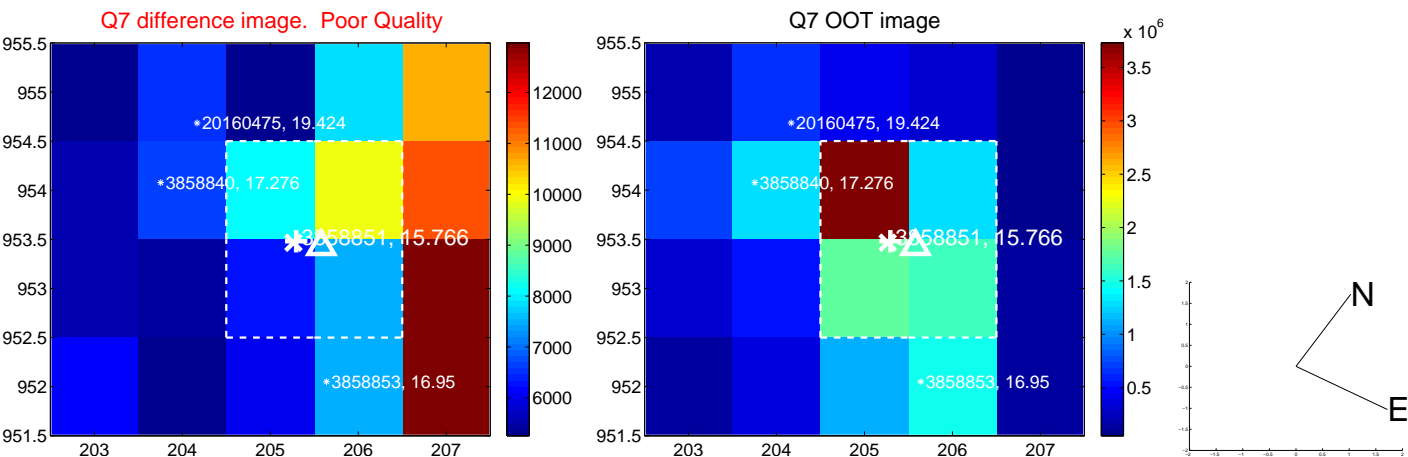
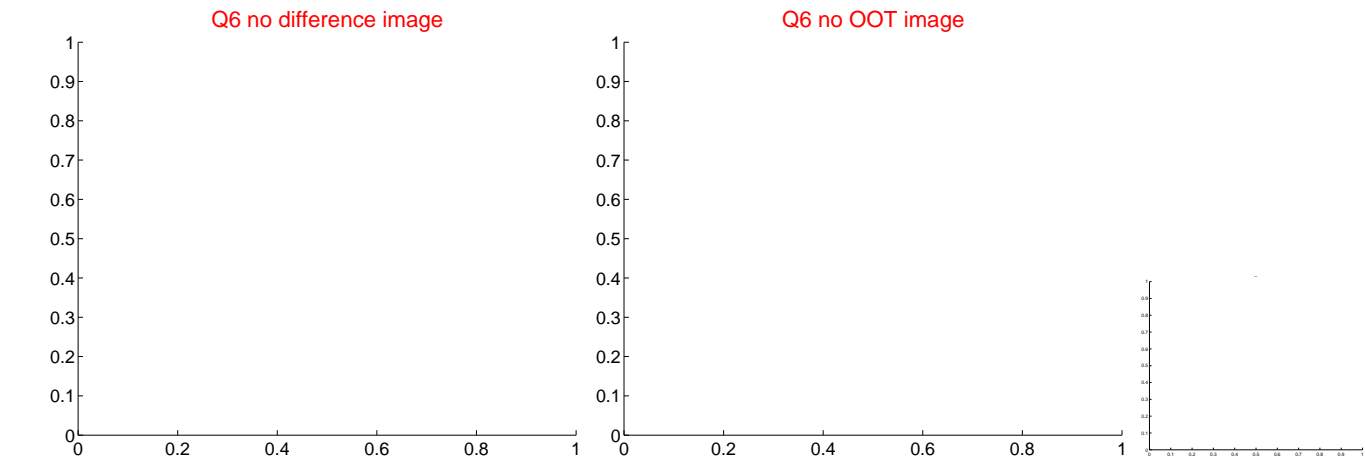
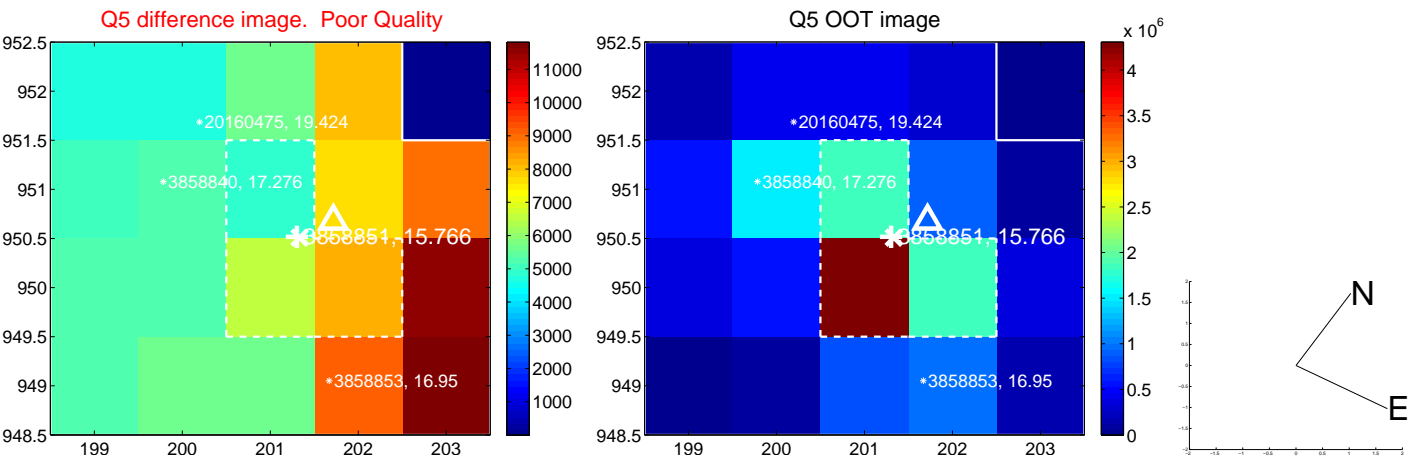


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ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

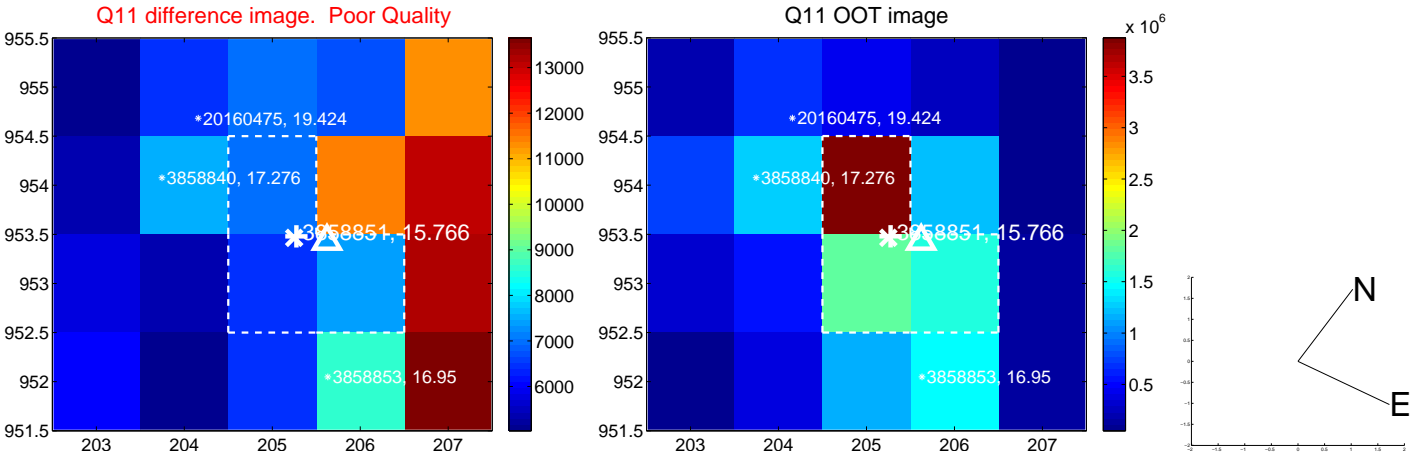
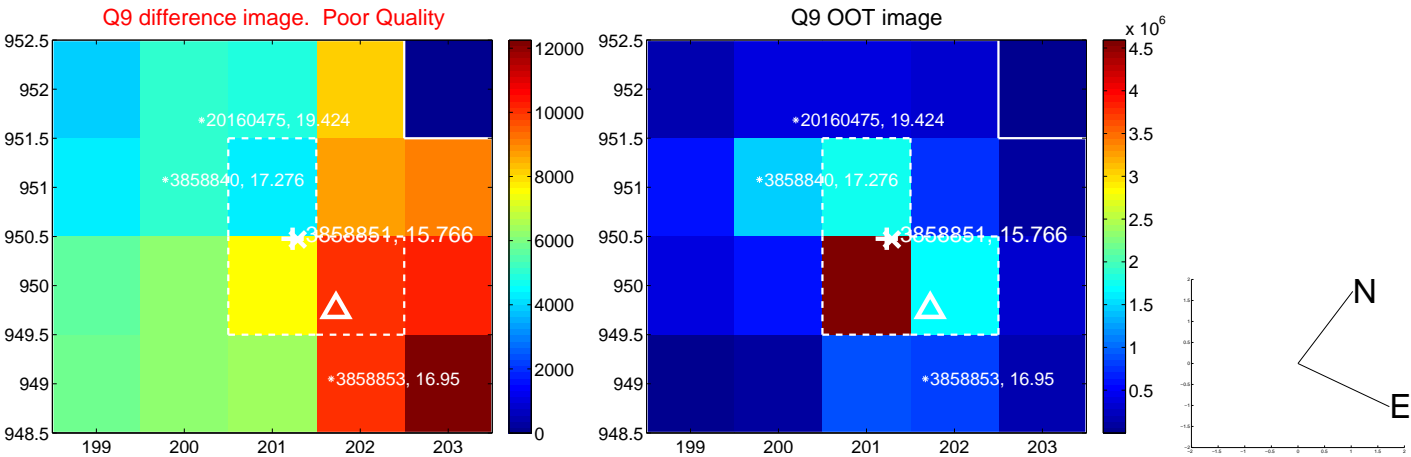
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



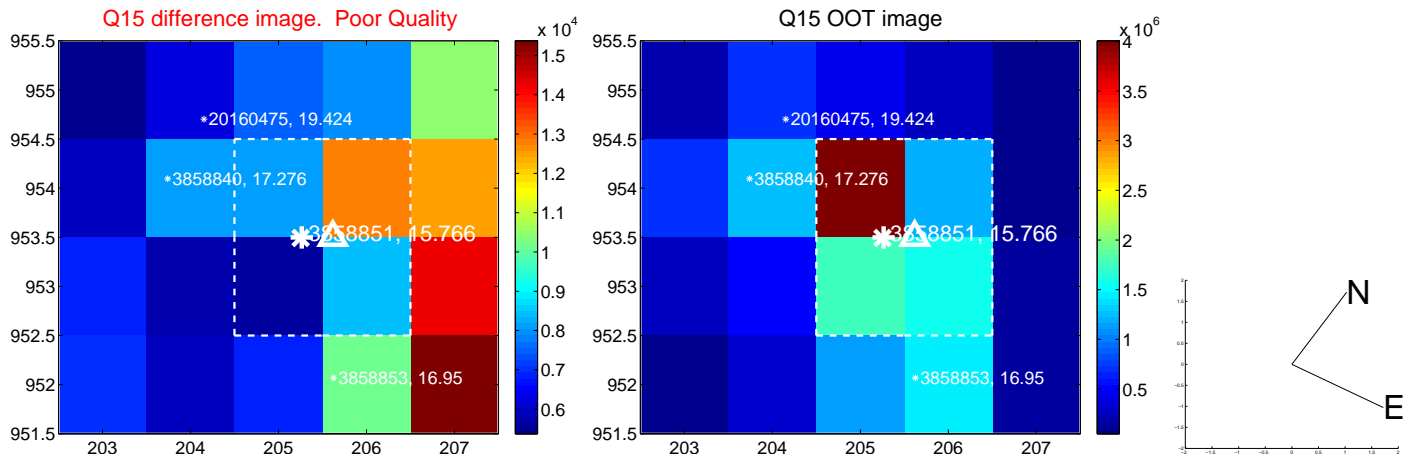
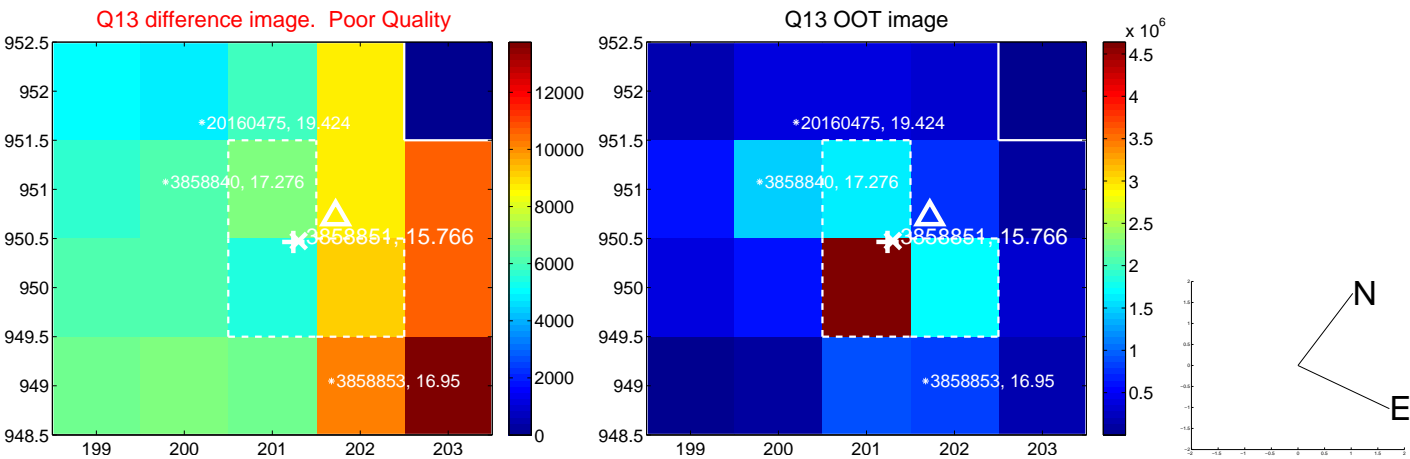
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



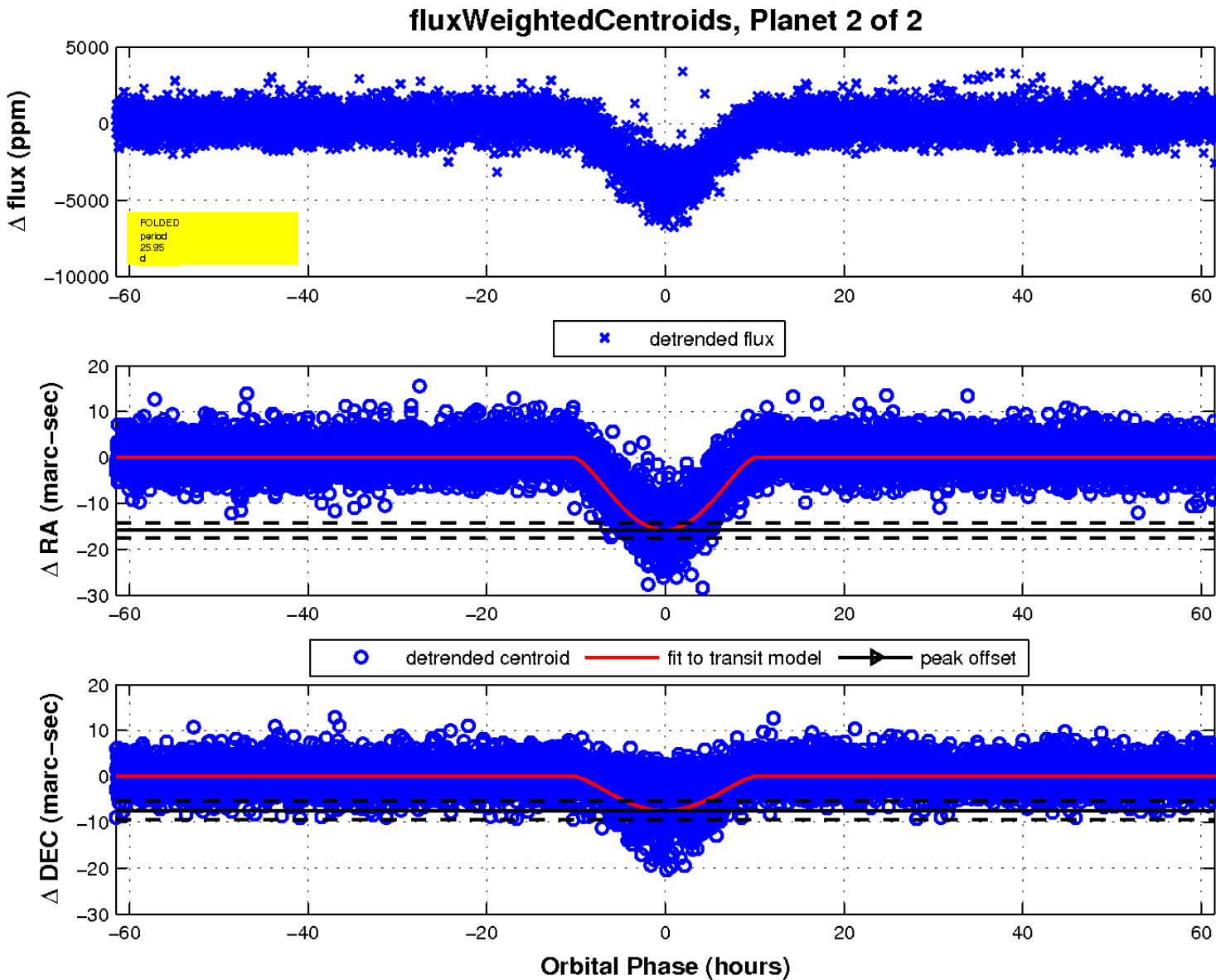
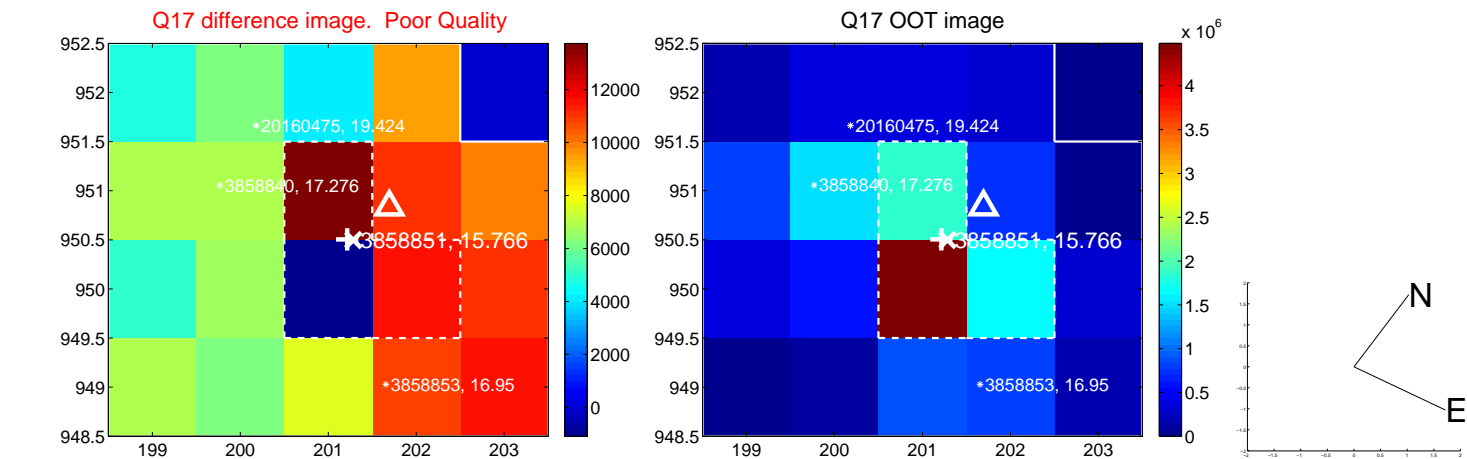
white ×: KIC target position; +: OOT centroid; △: difference centroid. red ✕: large negative pixel value.



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.



UKIRT Image

Declination

