

KIC 003858919

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})
003858919-01	OBS	No	25.952631	148.914783	485.3	19.577	10.7	11.1	0.87	5692	2.81	24.55
003858919-02	OBS	5990.01	25.952392	154.867930	509.7	11.432	11.2	11.4	0.87	5692	2.31	24.55

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
003858919-01	OBS	FP	0.00	1	0	1	1	LPP_DV—CENT_FEW_DIFFS—HALO_GHOST—EPHEM_MATCH
003858919-02	OBS	FP	0.00	1	0	1	1	SAME_NTL_PERIOD—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 003858919-01

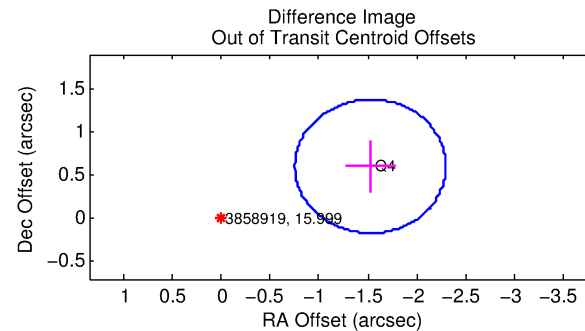
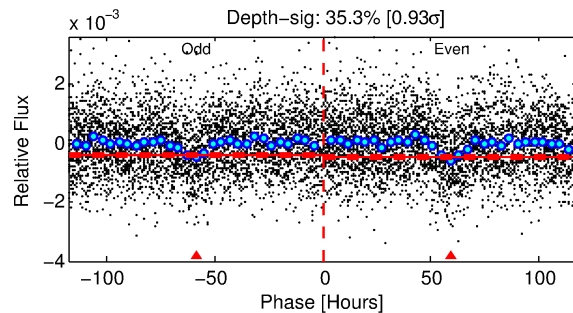
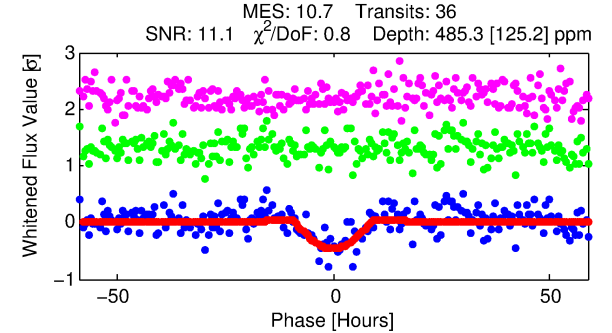
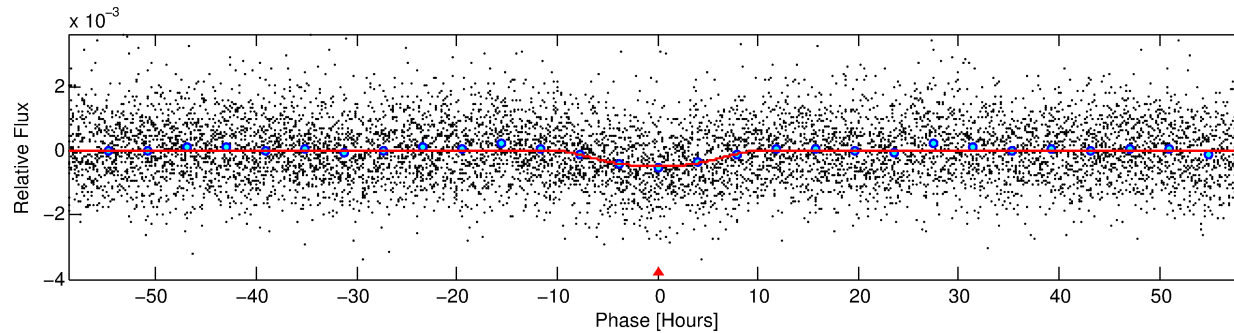
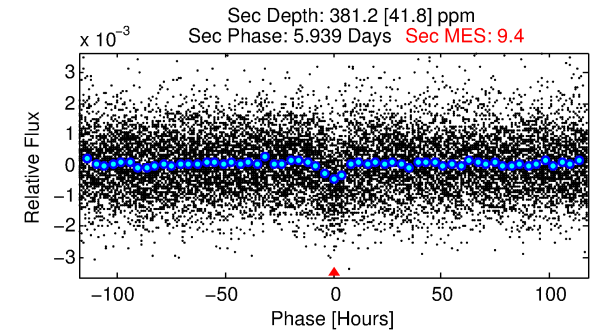
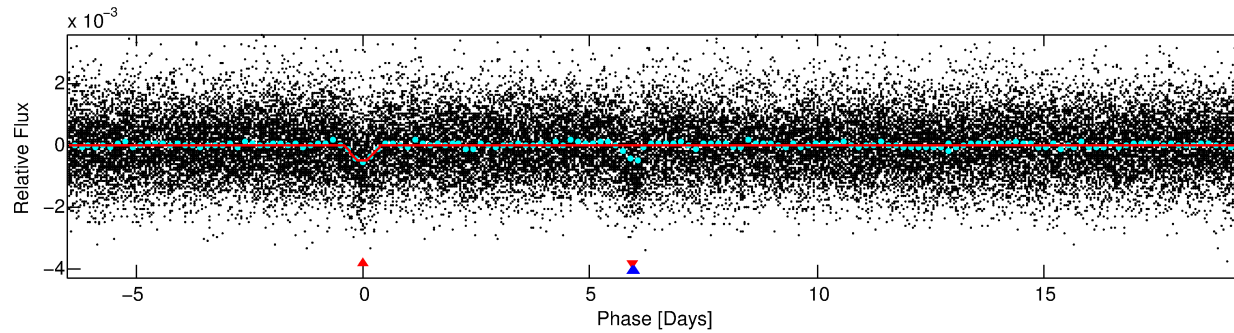
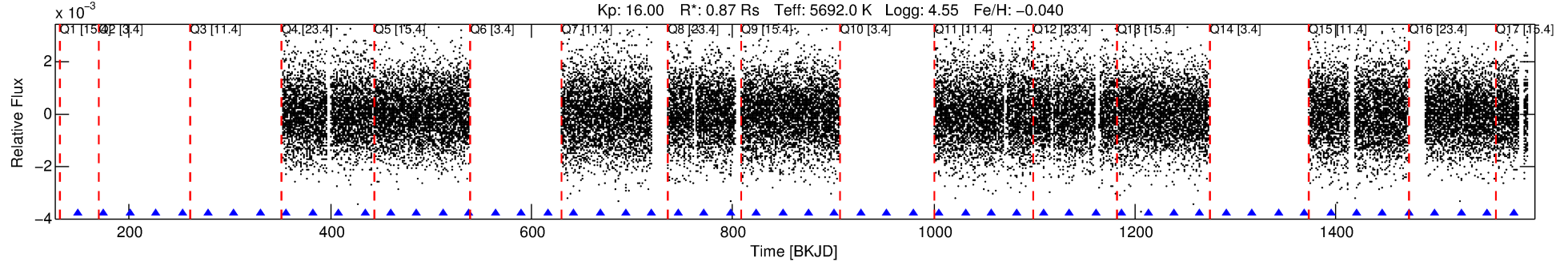
TCE (1)	KIC	Parent (2)	Parent KIC	$P_1:P_2$	Dist (μ)	Δ Row	Δ Col	m_2	m_1	D_2/D_1	Mechanism	Flag	σ_P	σ_T
003858919-01	3858919	003858884-02	3858884	1:1	97.7	-23	-7	9.28	16.00	695.12	Direct-PRF	0	1.01	0.35

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: 3858919 Candidate: 1 of 2 Period: 25.953 d
KOI: K05990 Corr: No Ephemeris Match

Kp: 16.00 R*: 0.87 Rs Teff: 5692.0 K Logg: 4.55 Fe/H: -0.040



DV Fit Results:

Period = 25.95263 [0.00141] d
Epoch = 148.9148 [0.0483] BKJD
Rp/R* = 0.0297 [0.0193]
a/R* = 3.33 [1.04]
b = 0.98 [0.04]
Seff = 24.55 [8.60]
Teff = 568 [50] K
Rp = 2.81 [1.95] Re
a = 0.1695 [0.0367] AU
Ag = 764.48 [1024.29] [0.75σ]
Teffp = 4614 [1509] K [2.68σ]

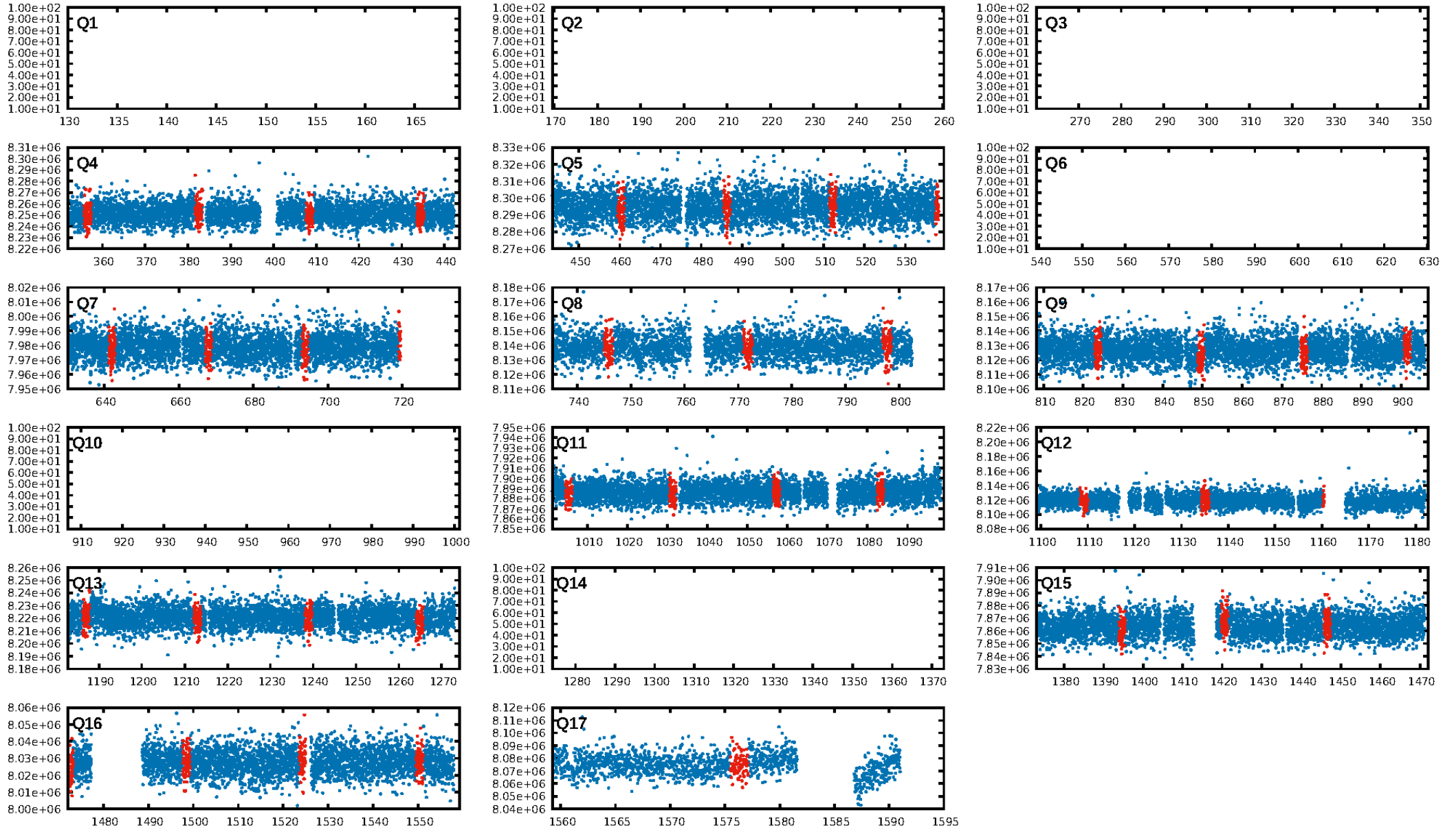
DV Diagnostic Results:

ShortPeriod-sig: 0.0% [0.00σ]
LongPeriod-sig: N/A
ModelChiSquare2-sig: 90.6%
ModelChiSquareGof-sig: 100.0%
Bootstrap-pfa: 1.83e-26
RollingBand-fgt: 1.00 [35/35]
GhostDiagnostic-chr: 0.0129
Centroid-sig: 0.0%
Centroid-so: 1.706 arcsec [4.17σ]
OotOffset-rm: 1.639 arcsec [6.36σ]
KicOffset-rm: 2.124 arcsec [1.42σ]
OotOffset-st: 0/0/1/0 [1]
KicOffset-st: 0/3/1/2 [6]
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DiffImageOverlap-fno: 1.00 [9/9]

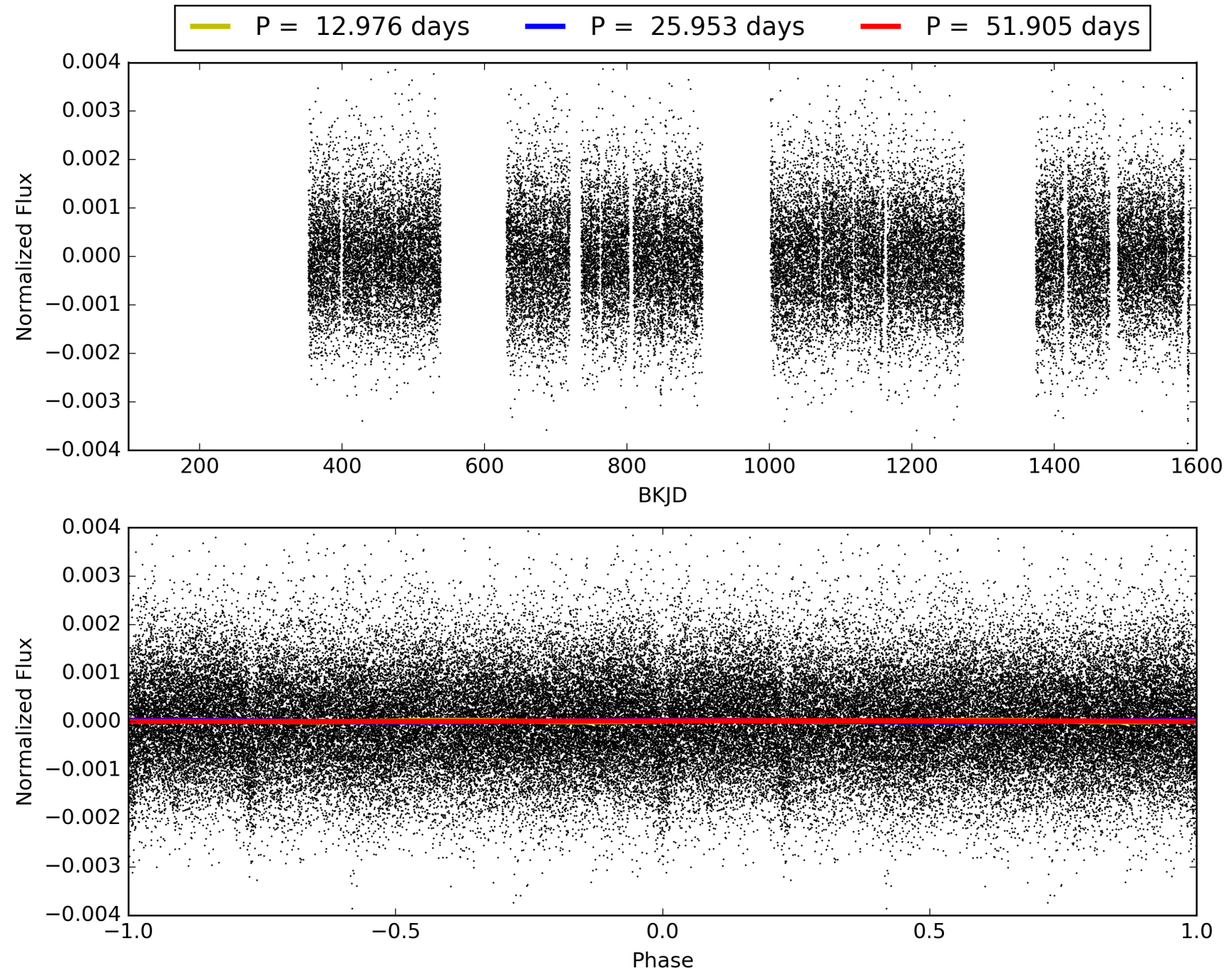
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 15:00:44 Z

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

TCE 003858919-01, PDC Light Curves

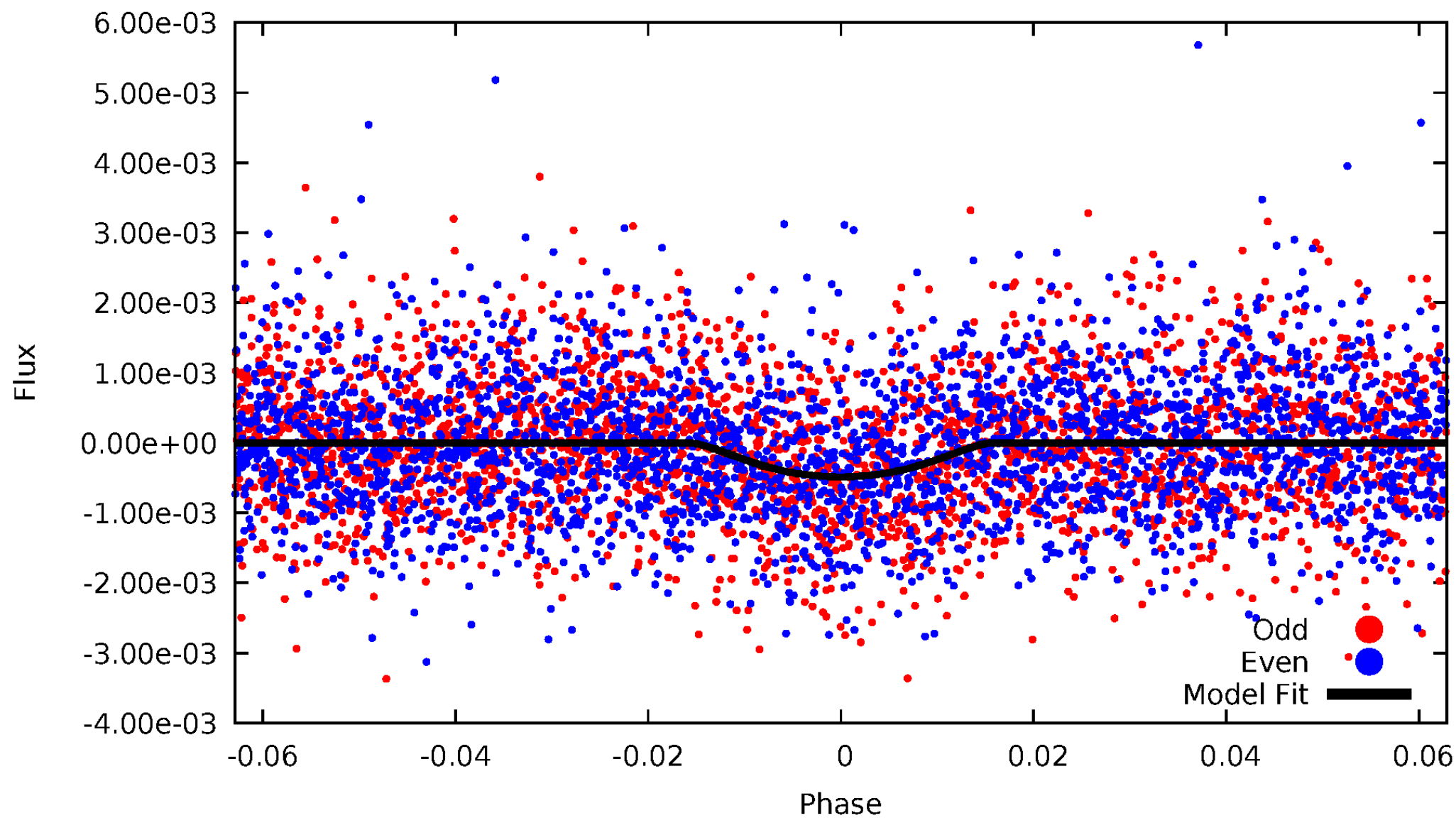


TCE 003858919-01



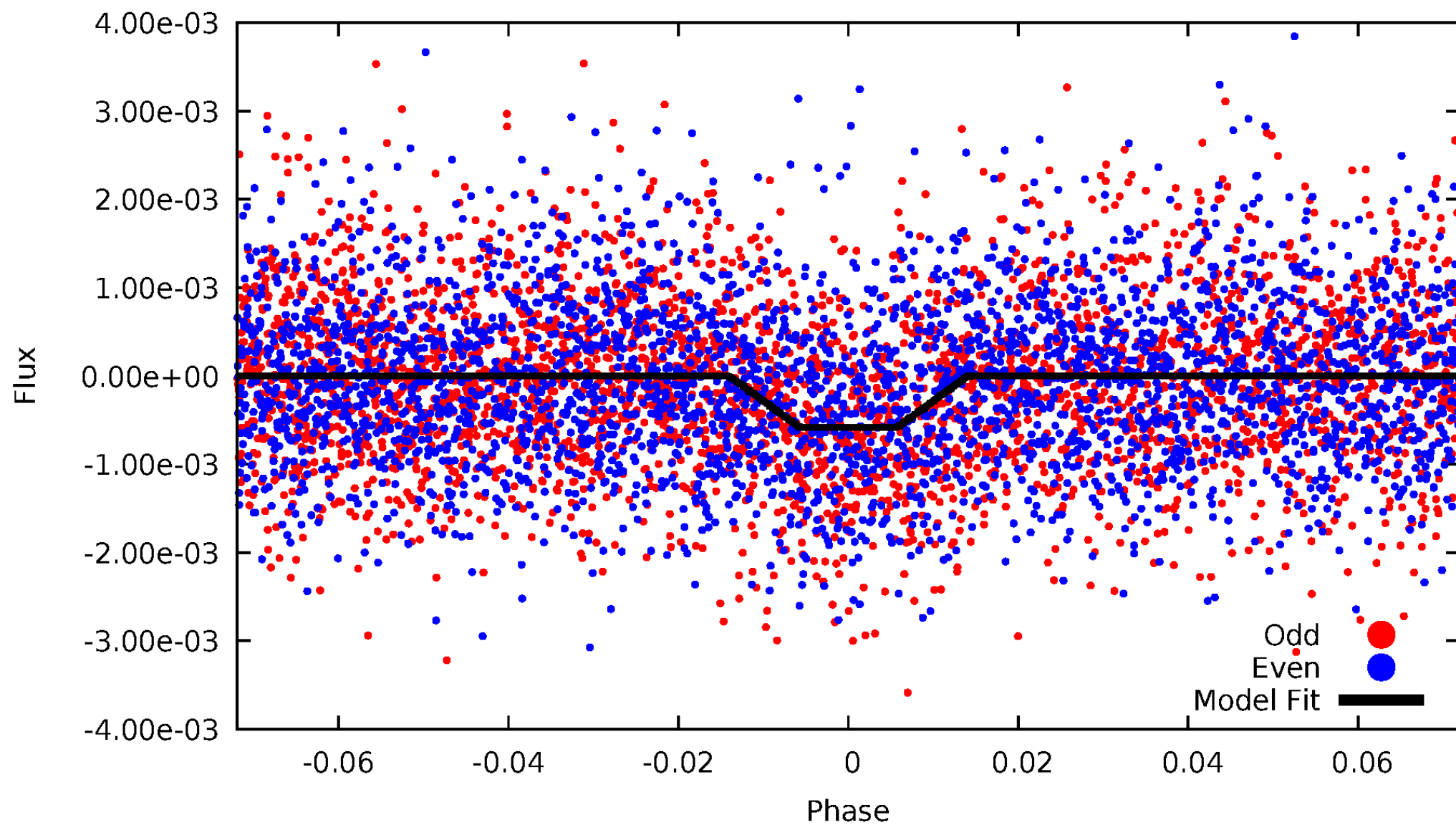
DV Odd/Even

TCE 003858919-01



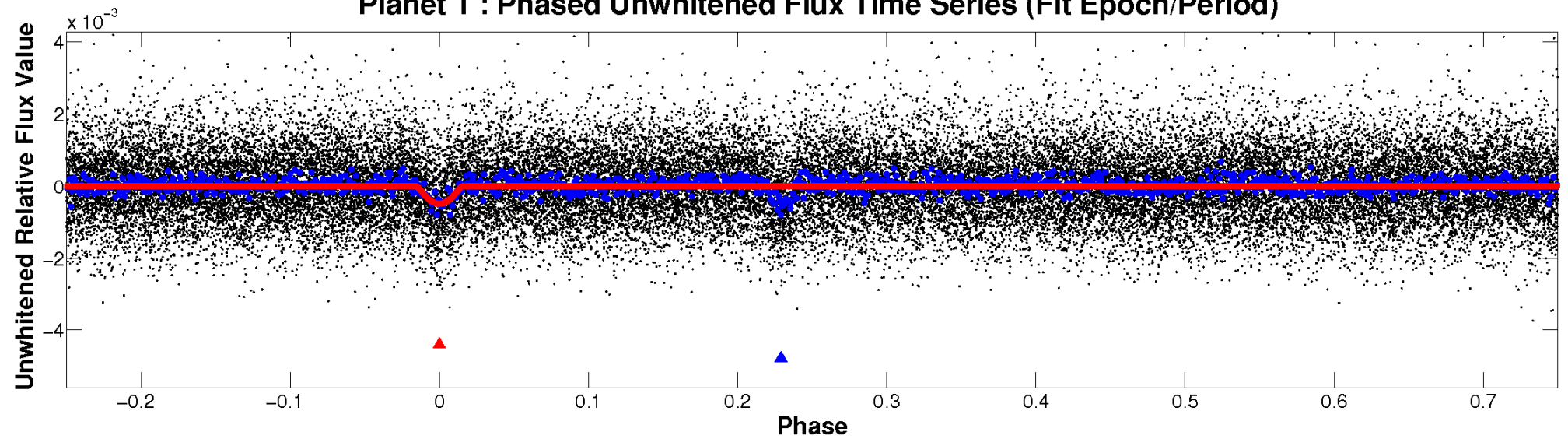
ALT Odd/Even

TCE 003858919-01

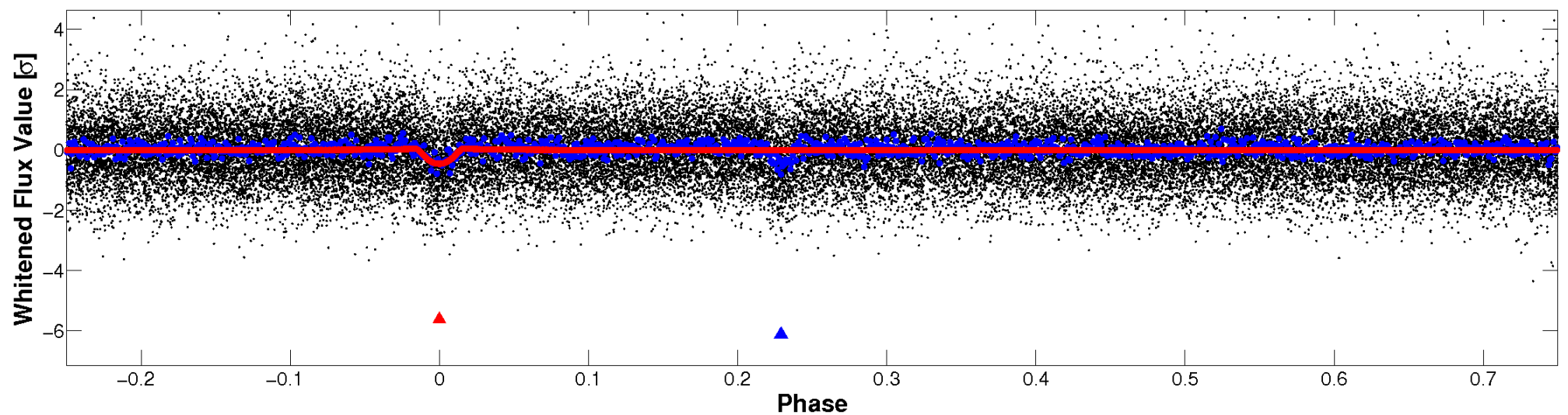


Non-Whitened Vs. Whitened Light Curve

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

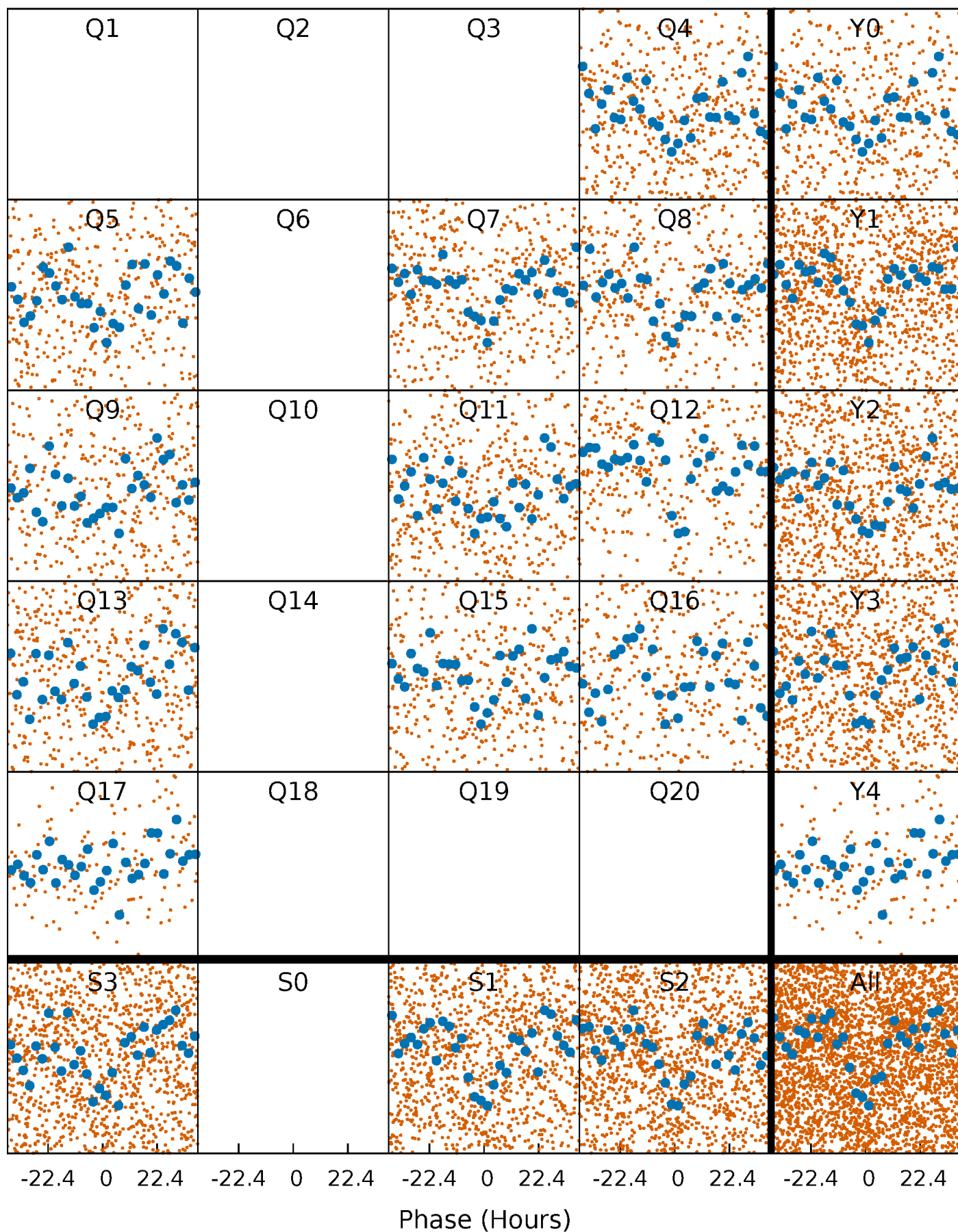


Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)



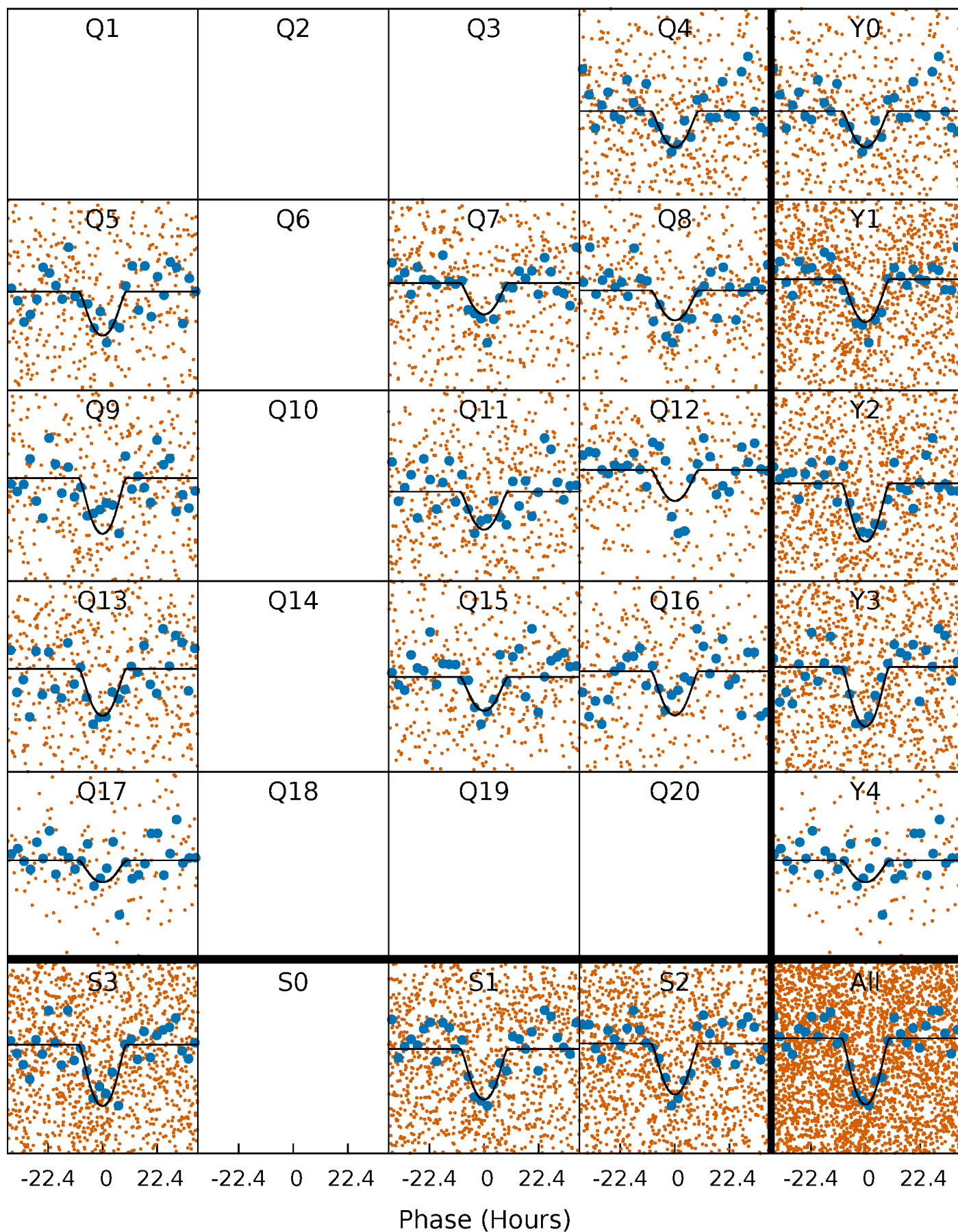
PDC Quarter-Phased Transit Curves

TCE 003858919-01 P= 25.952631 Days $T_0=148.914783$ (BKJD)



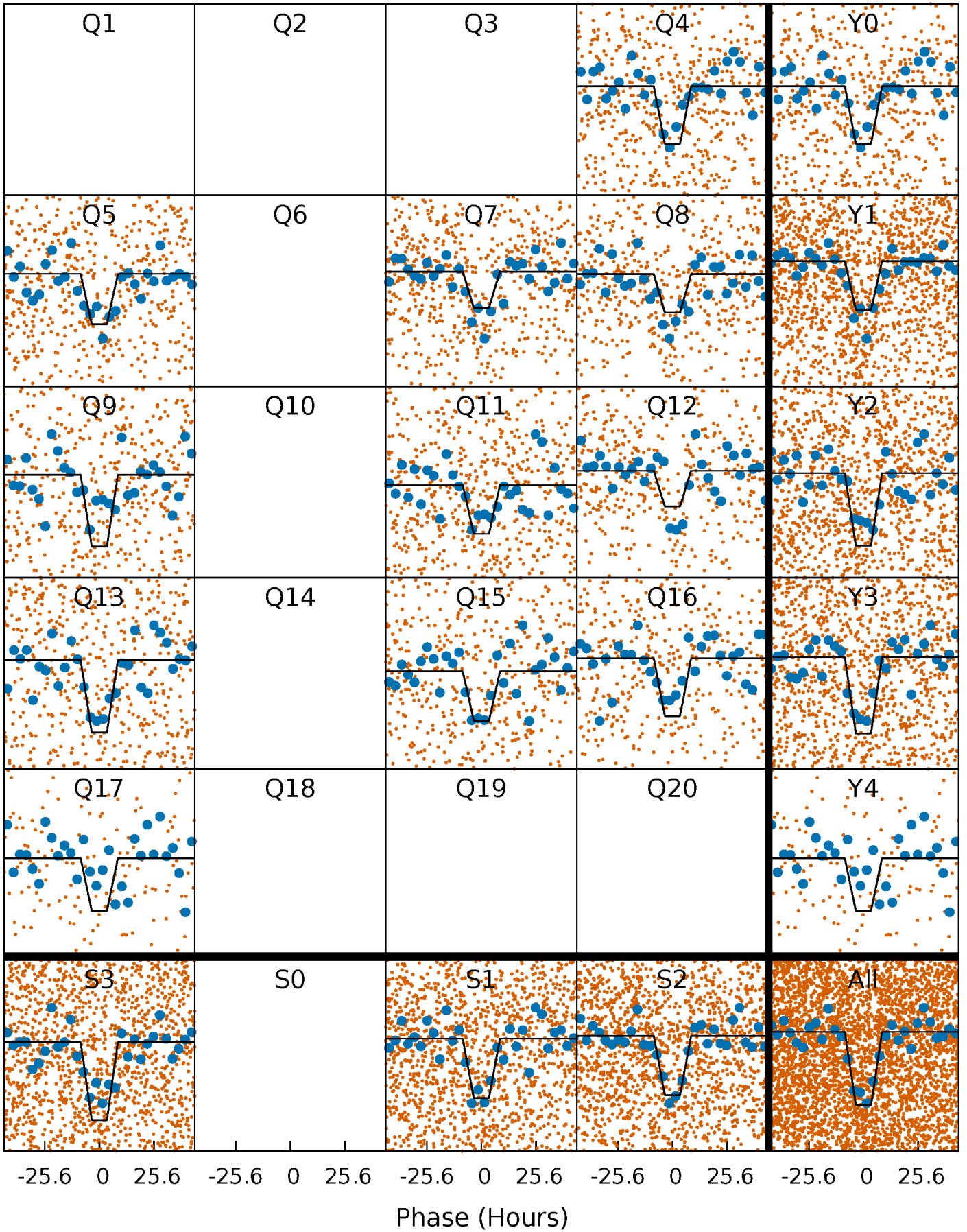
DV Quarter-Phased Transit Curves

TCE 003858919-01 P= 25.952631 Days $T_0=148.914783$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

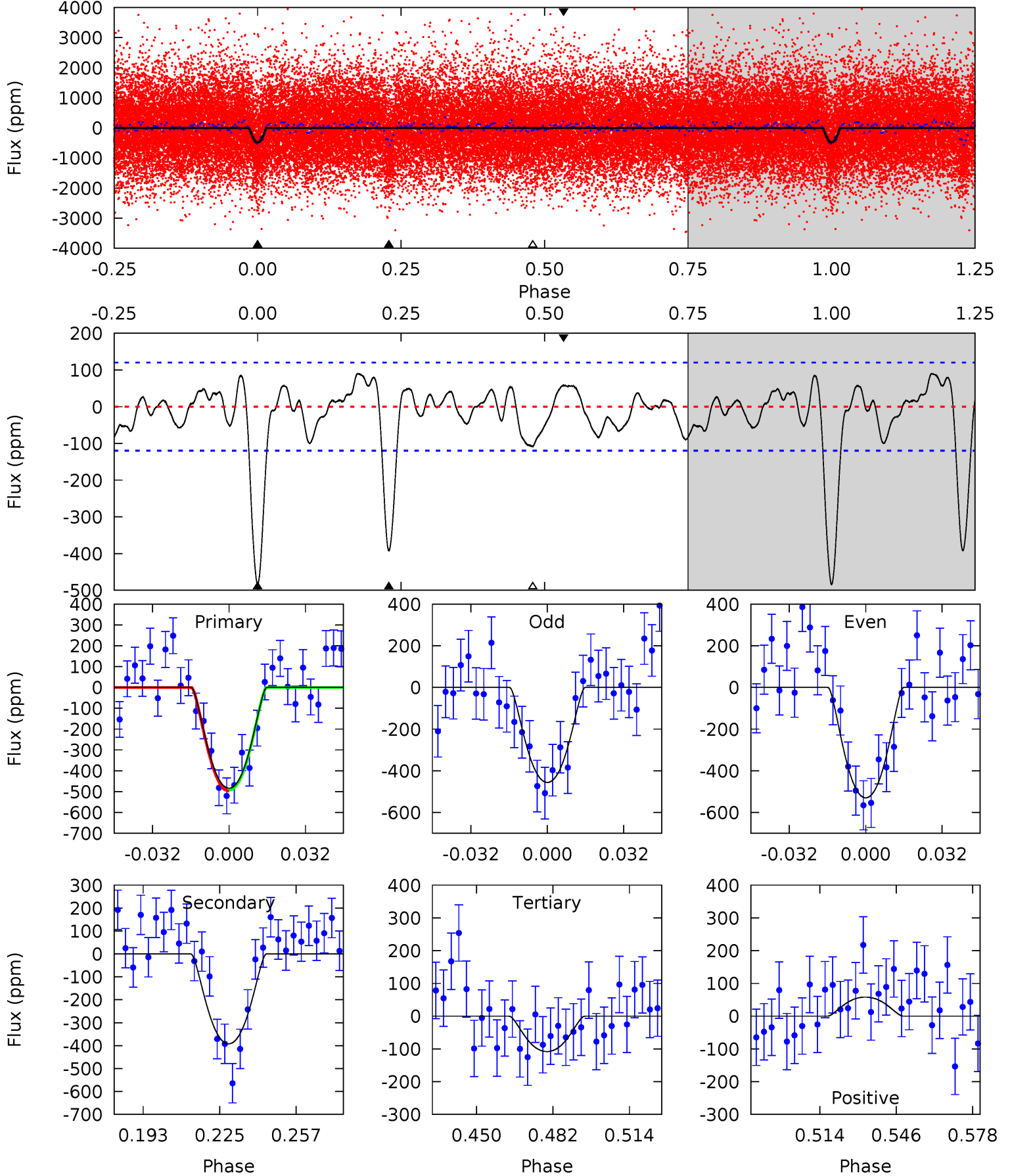
TCE 003858919-01 P= 25.952751 Days $T_0=148.910451$ (BKJD)



DV Model-Shift Uniqueness Test

003858919-01, P = 25.952631 Days, E = 148.914783 Days

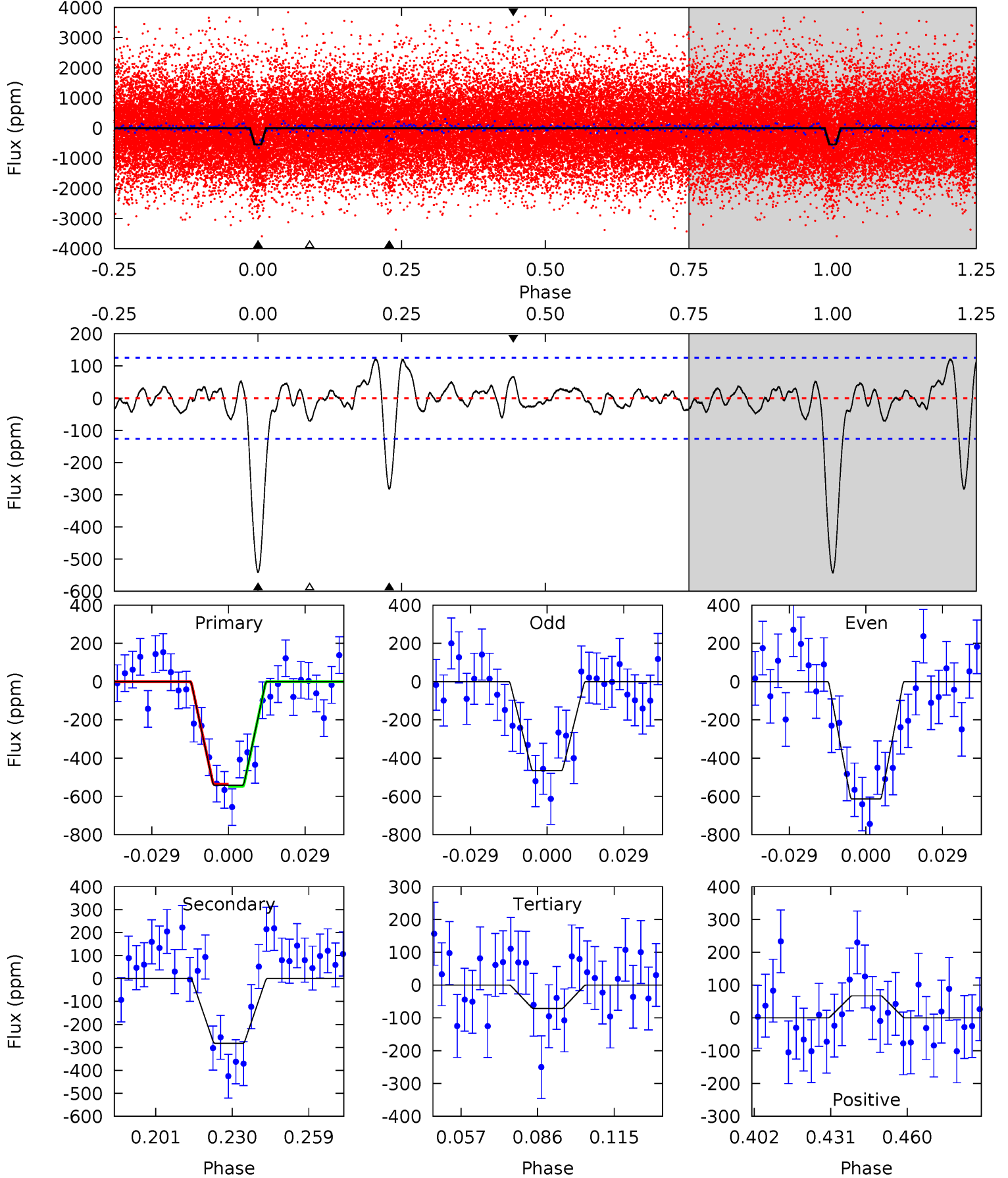
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
19.4	15.7	4.33	2.33	4.80	2.14	1.75	15.0	17.0	11.4	13.4	1.48	0.83	0.16	0.10



Alt Model-Shift Uniqueness Test

003858919-01, P = 25.952751 Days, E = 148.910451 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
20.7	10.8	2.72	2.57	4.82	2.19	1.11	18.0	18.1	8.05	8.20	2.83	0.87	0.18	0.18



Stellar Parameters For KIC 003858919

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	5692^{+177}_{-197}	$4.547^{+0.032}_{-0.179}$	$-0.040^{+0.300}_{-0.300}$	$0.866^{+0.217}_{-0.078}$	$0.965^{+0.094}_{-0.115}$	$2.090^{+0.363}_{-0.986}$
	+3%/-3%	+1%/-4%	+750%/-750%	+25%/-9%	+10%/-12%	+17%/-47%
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 003858919-01 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	-392 ± 25	$3.05^{+2.01}_{-1.67}$	813^{+50}_{-36}	4685^{+1997}_{-762}	667^{+2395}_{-429}
Alt.	-282 ± 26	$2.73^{+1.68}_{-1.65}$	814^{+50}_{-38}	4576^{+2413}_{-731}	588^{+3276}_{-370}

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 $A_{obs} \gg 1.0$

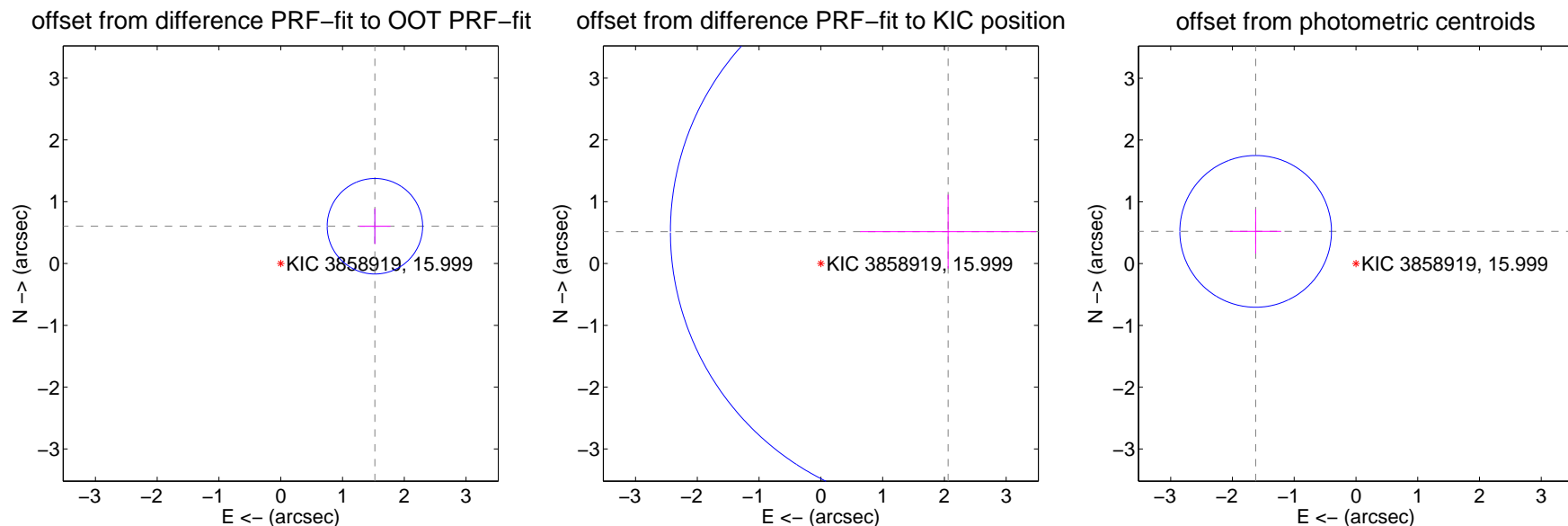
DV Centroid Data

Supplemental centroid analysis for 003858919-01. Kepler magnitude: 16.00. Transit SNR 11.14

There are 1 quarters with good PRF difference image offsets

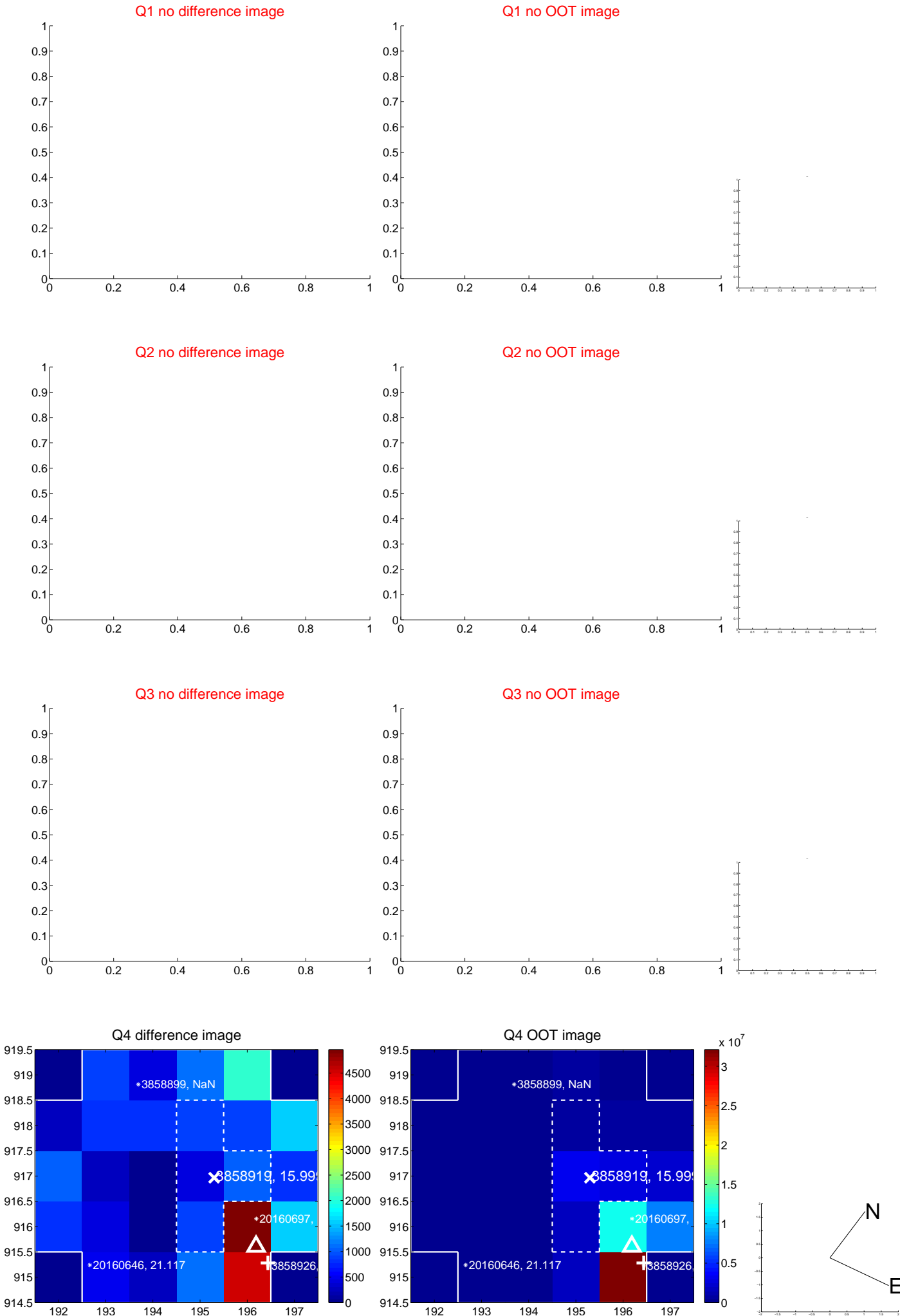
The OOT PRF centroid is offset from the target star catalog position by about 8.09 arcsec so the offset from difference PRF-fit to OOT-fit may be invalid.

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	1.639 ± 0.258	6.36	-1.524 ± 0.253	0.603 ± 0.287
PRF-fit source offset from KIC position	2.124 ± 1.499	1.42	-2.061 ± 1.425	0.516 ± 0.597
photometric centroid source offset	1.71 ± 0.41	4.17	1.62 ± 0.41	0.52 ± 0.36

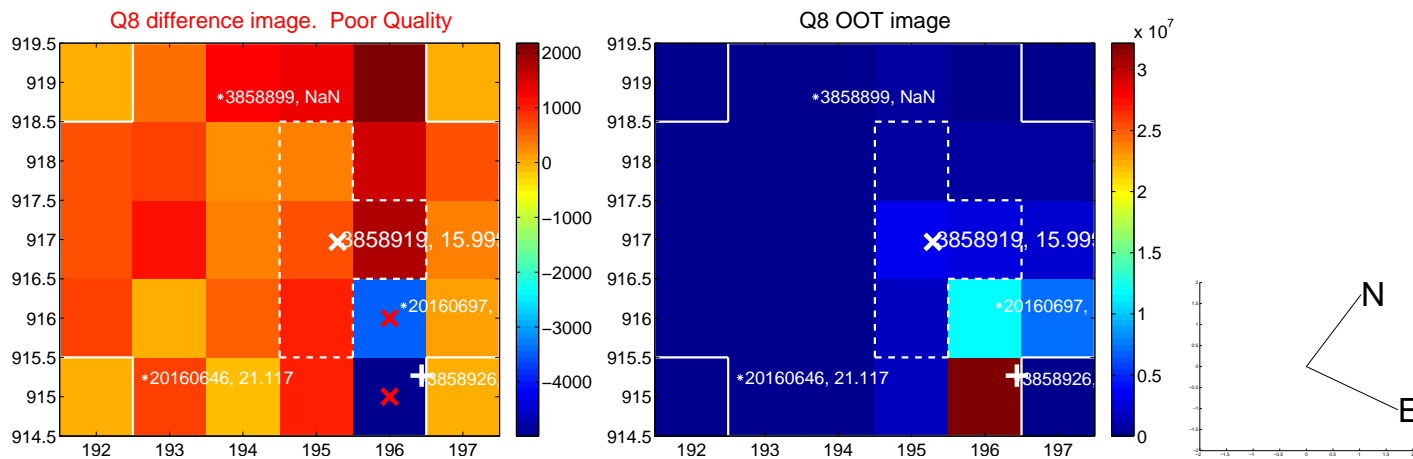
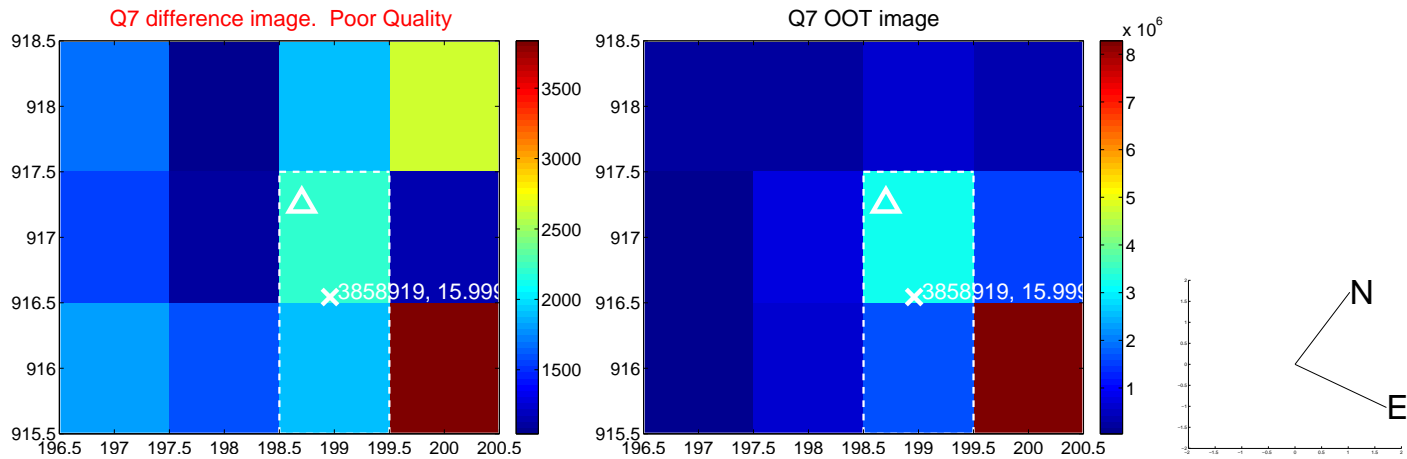
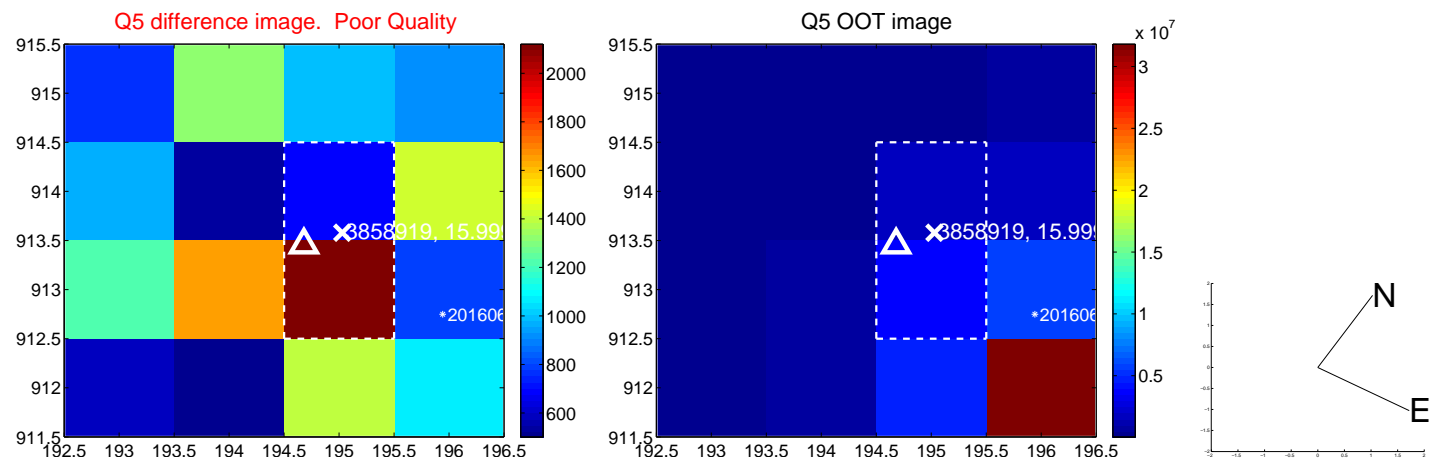


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ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

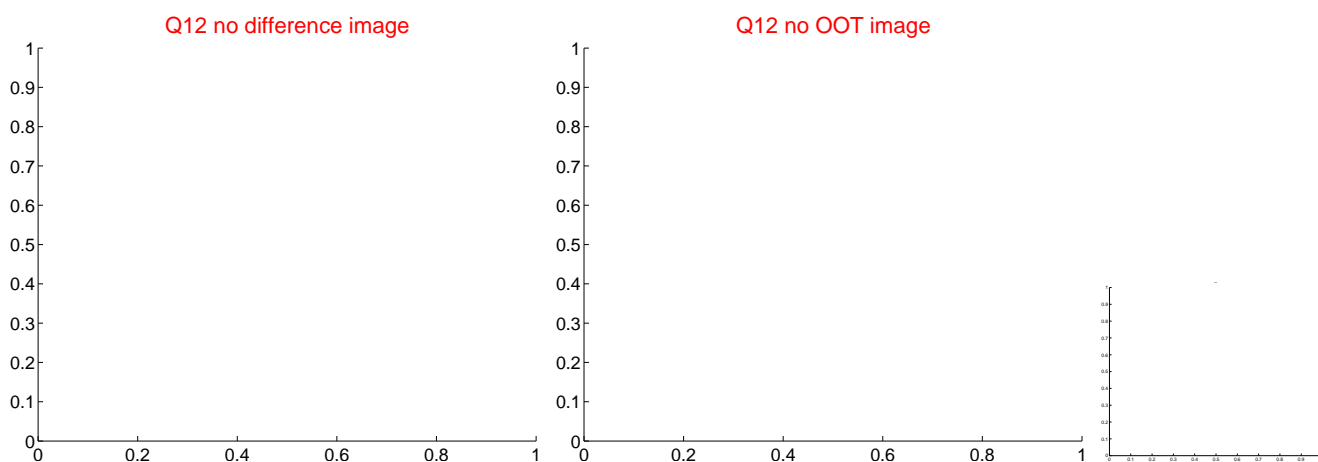
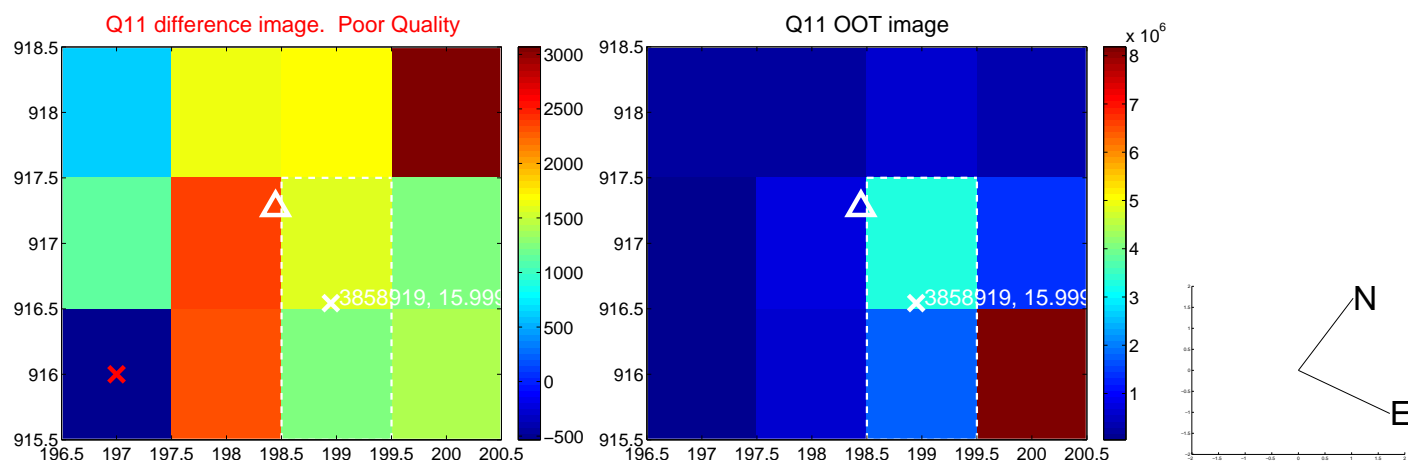
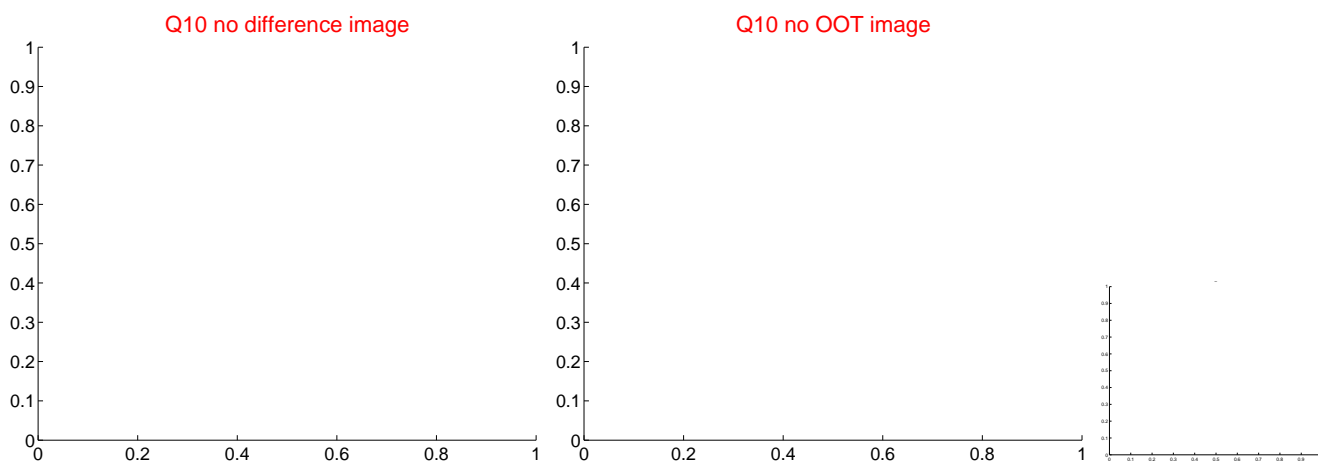
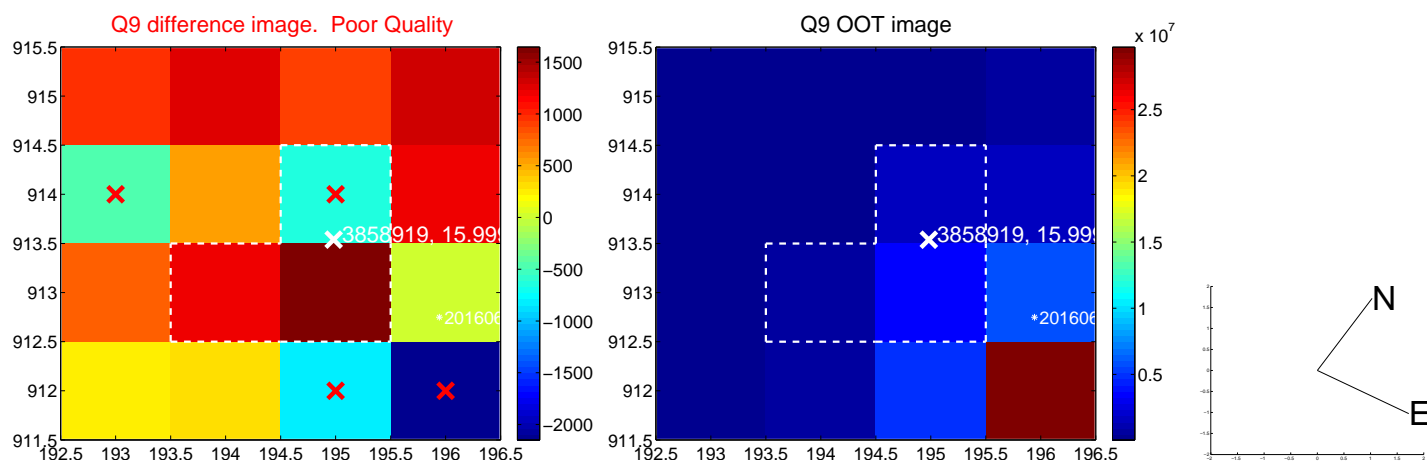
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



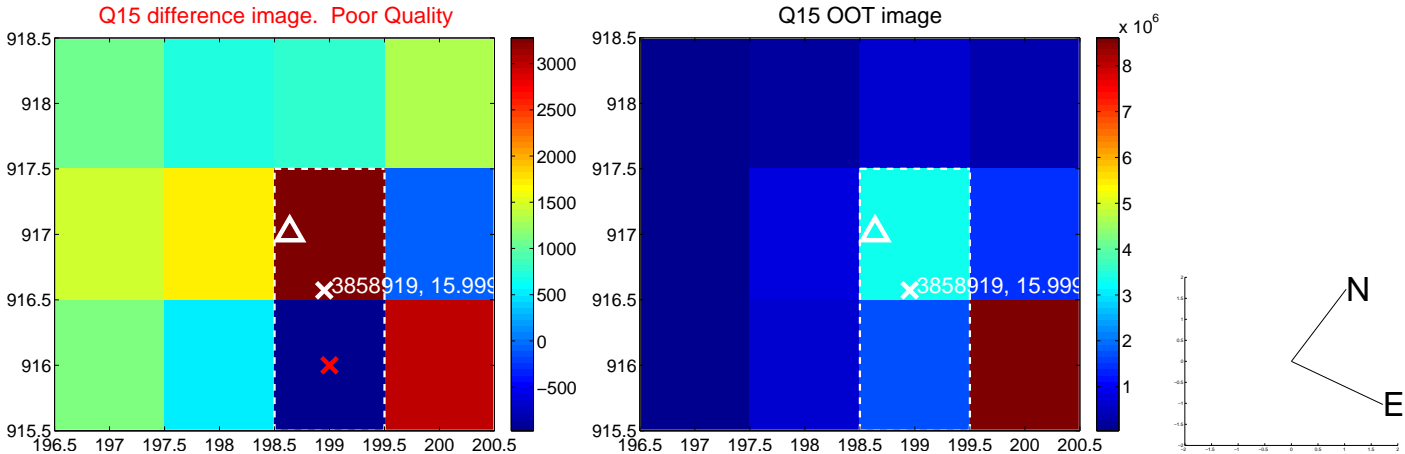
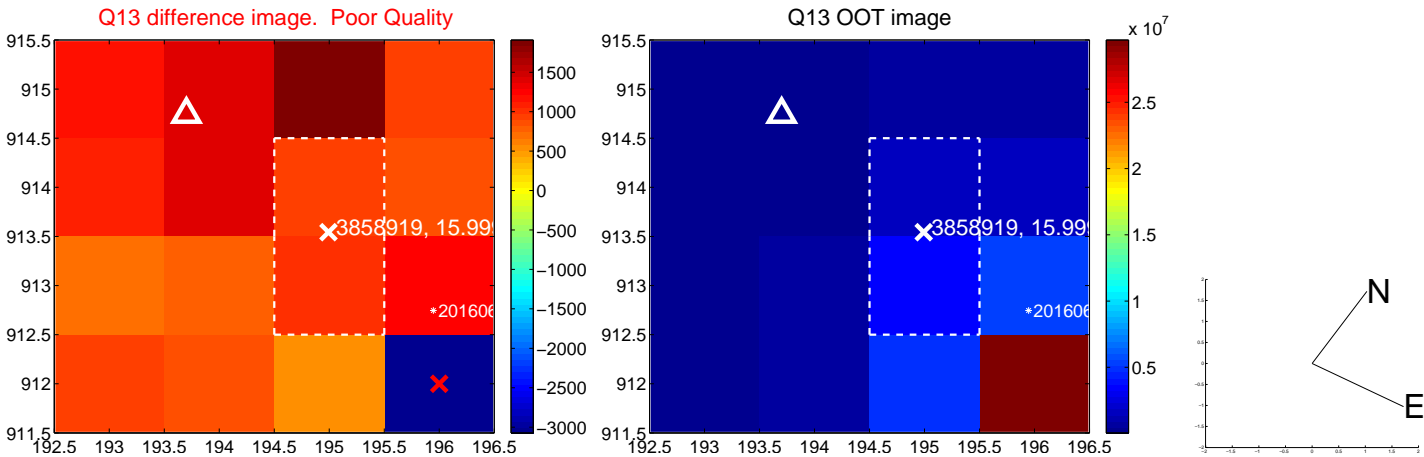
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



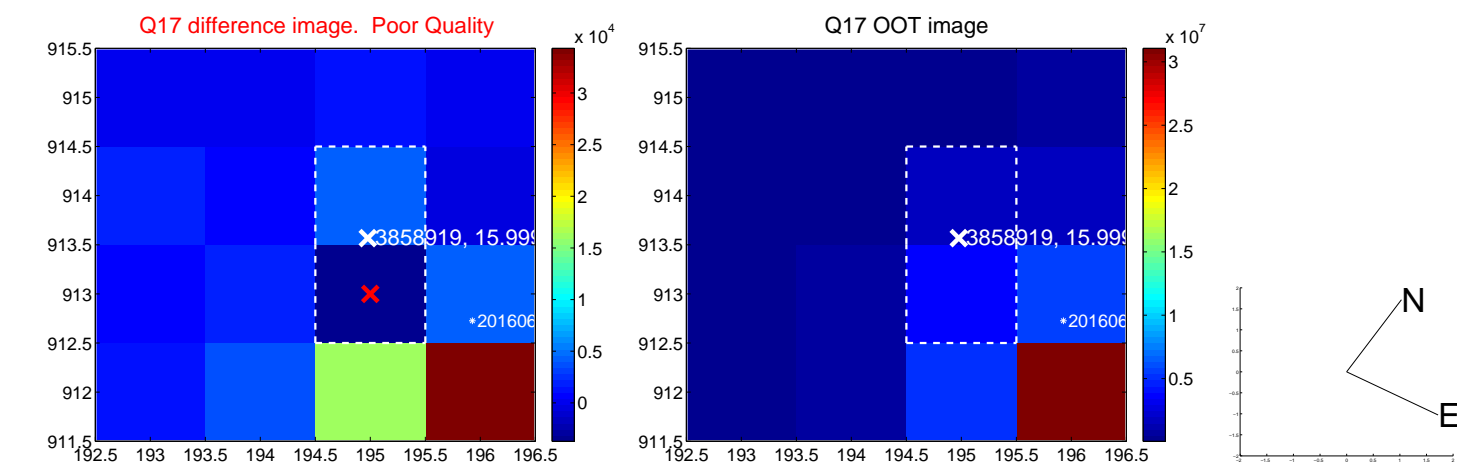
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



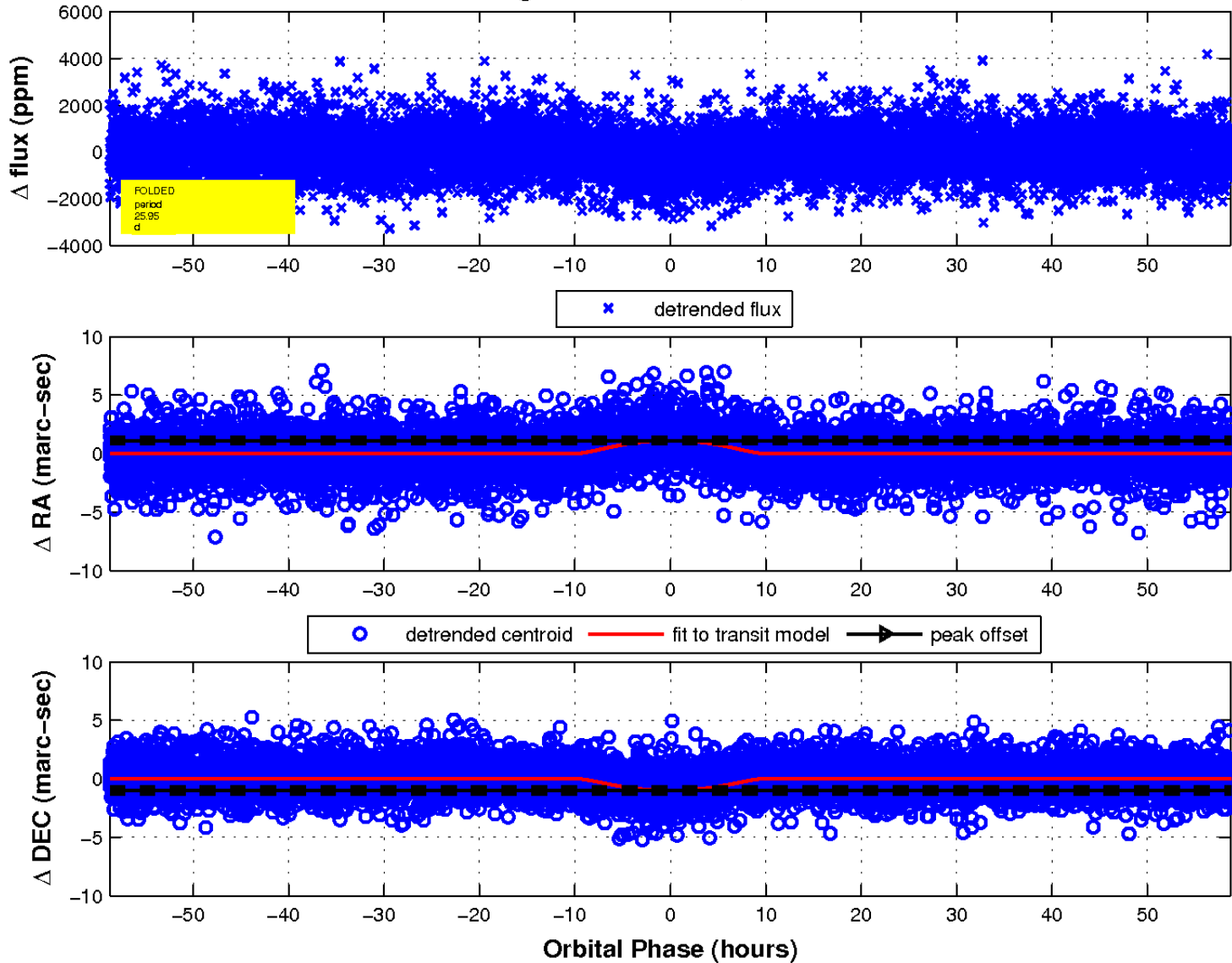
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

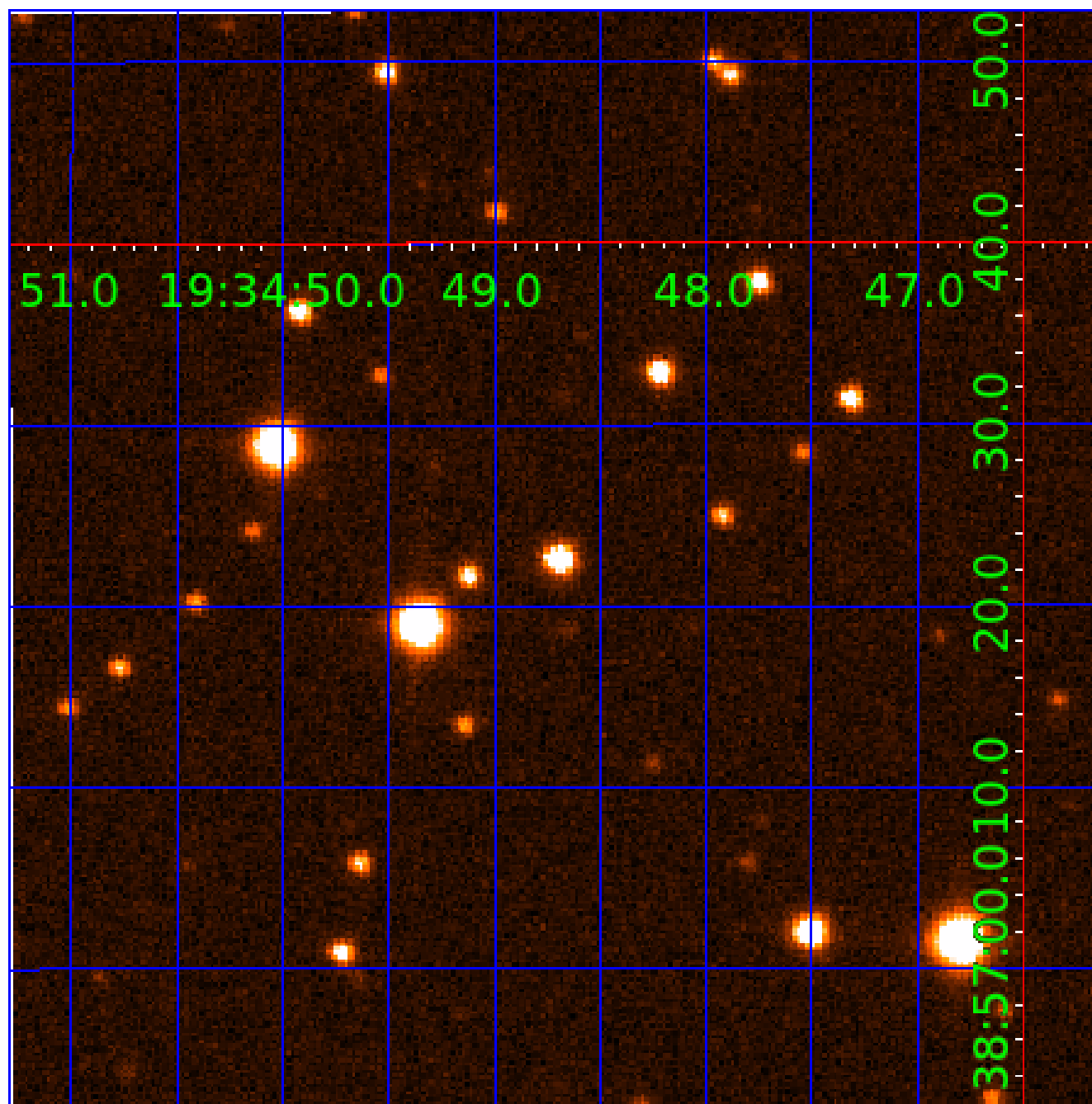


fluxWeightedCentroids, Planet 1 of 2



UKIRT Image

Declination



KIC 003858919

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})
003858919-01	OBS	No	25.952631	148.914783	485.3	19.577	10.7	11.1	0.87	5692	2.81	24.55
003858919-02	OBS	5990.01	25.952392	154.867930	509.7	11.432	11.2	11.4	0.87	5692	2.31	24.55

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
003858919-01	OBS	FP	0.00	1	0	1	1	LPP_DV—CENT_FEW_DIFFS—HALO_GHOST—EPHEM_MATCH
003858919-02	OBS	FP	0.00	1	0	1	1	SAME_NTL_PERIOD—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 003858919-02

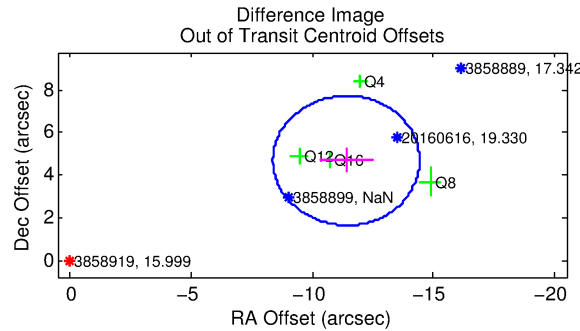
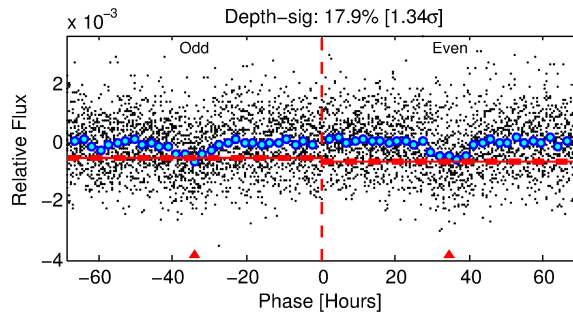
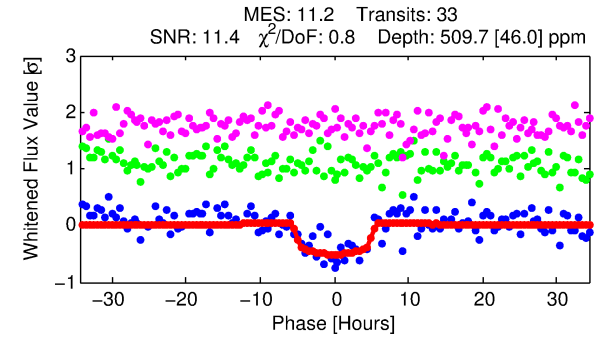
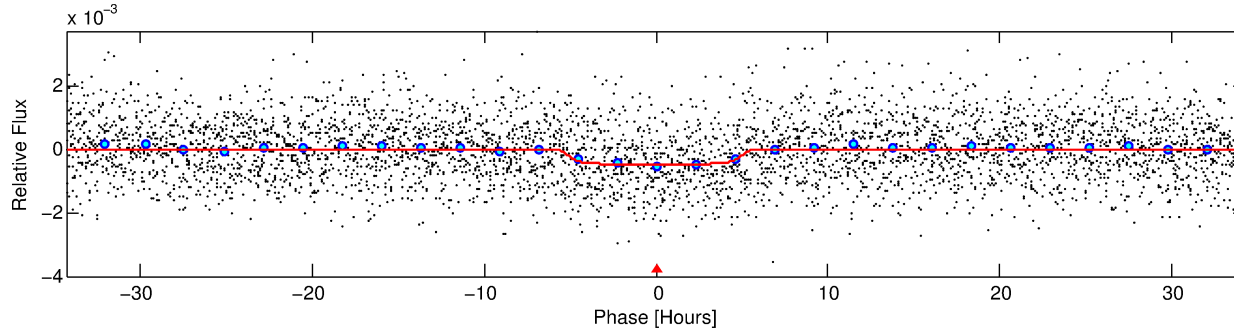
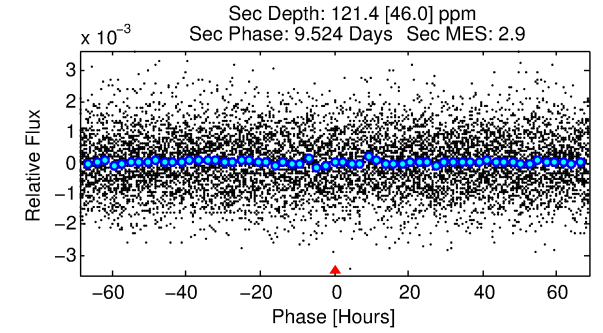
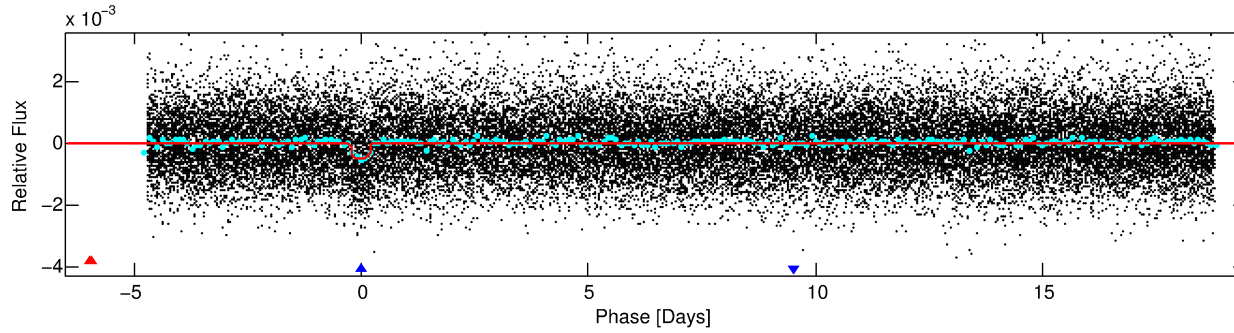
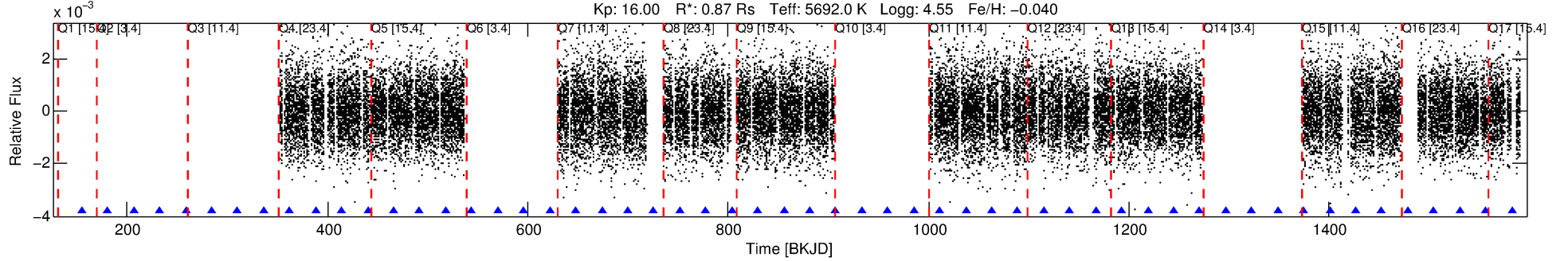
TCE (1)	KIC	Parent (2)	Parent KIC	$P_1:P_2$	Dist (μ)	Δ Row	Δ Col	m_2	m_1	D_2/D_1	Mechanism	Flag	σ_P	σ_T
003858919-02	3858919	003858884-01	3858884	1:1	97.7	-23	-7	9.28	16.00	781.49	Direct-PRF	0	0.83	0.50

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: 3858919 Candidate: 2 of 2 Period: 25.952 d
KOI: K05990.01 Corr: 0.963

Kp: 16.00 R*: 0.87 Rs Teff: 5692.0 K Logg: 4.55 Fe/H: -0.040



DV Fit Results:

Period = 25.95239 [0.00069] d
Epoch = 154.8679 [0.0237] BKJD
Rp/R* = 0.0244 [0.0031]
a/R* = 8.86 [4.72]
b = 0.89 [0.13]
Seff = 24.55 [8.60]
Teq = 568 [50] K
Rp = 2.31 [0.65] Re
a = 0.1695 [0.0367] AU
Ag = 360.95 [202.00] [1.78σ]
Teff = 3825 [458] K [7.08σ]

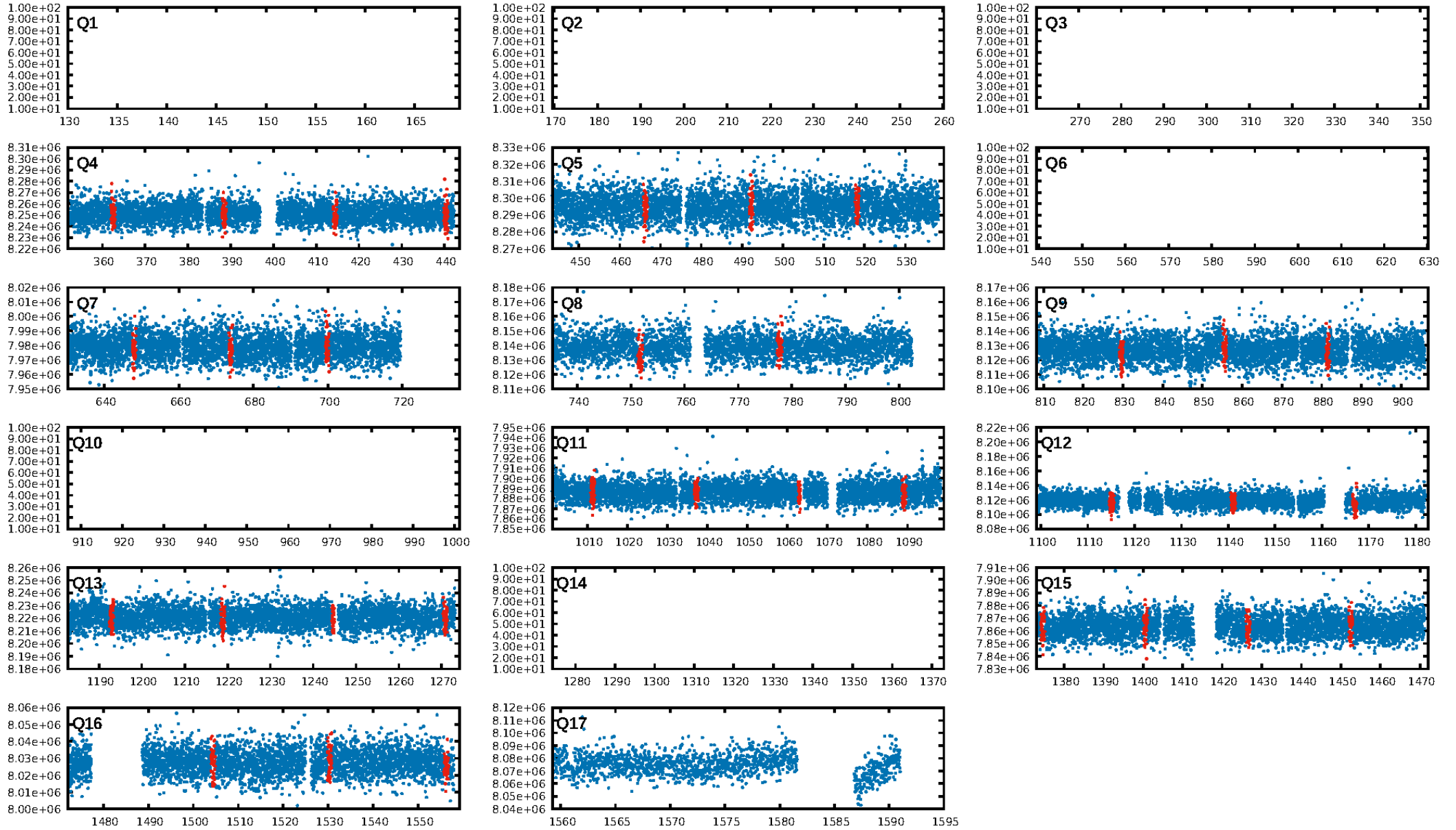
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: 0.0% [0.00σ]
ModelChiSquare2-sig: 55.0%
ModelChiSquareGof-sig: 100.0%
Bootstrap-pfa: 2.84e-26
RollingBand-fgt: 1.00 [33/33]
GhostDiagnostic-chr: 0.09276
Centroid-sig: 0.0%
Centroid-so: 1.475 arcsec [3.56σ]
OotOffset-rm: 12.330 arcsec [12.22σ]
KicOffset-rm: 4.306 arcsec [9.08σ]
OotOffset-st: 0/0/4/0 [4]
KicOffset-st: 0/3/4/1 [8]
DiffImageQuality-fgm: 0.00 [0/8]
DiffImageOverlap-fno: 1.00 [10/10]

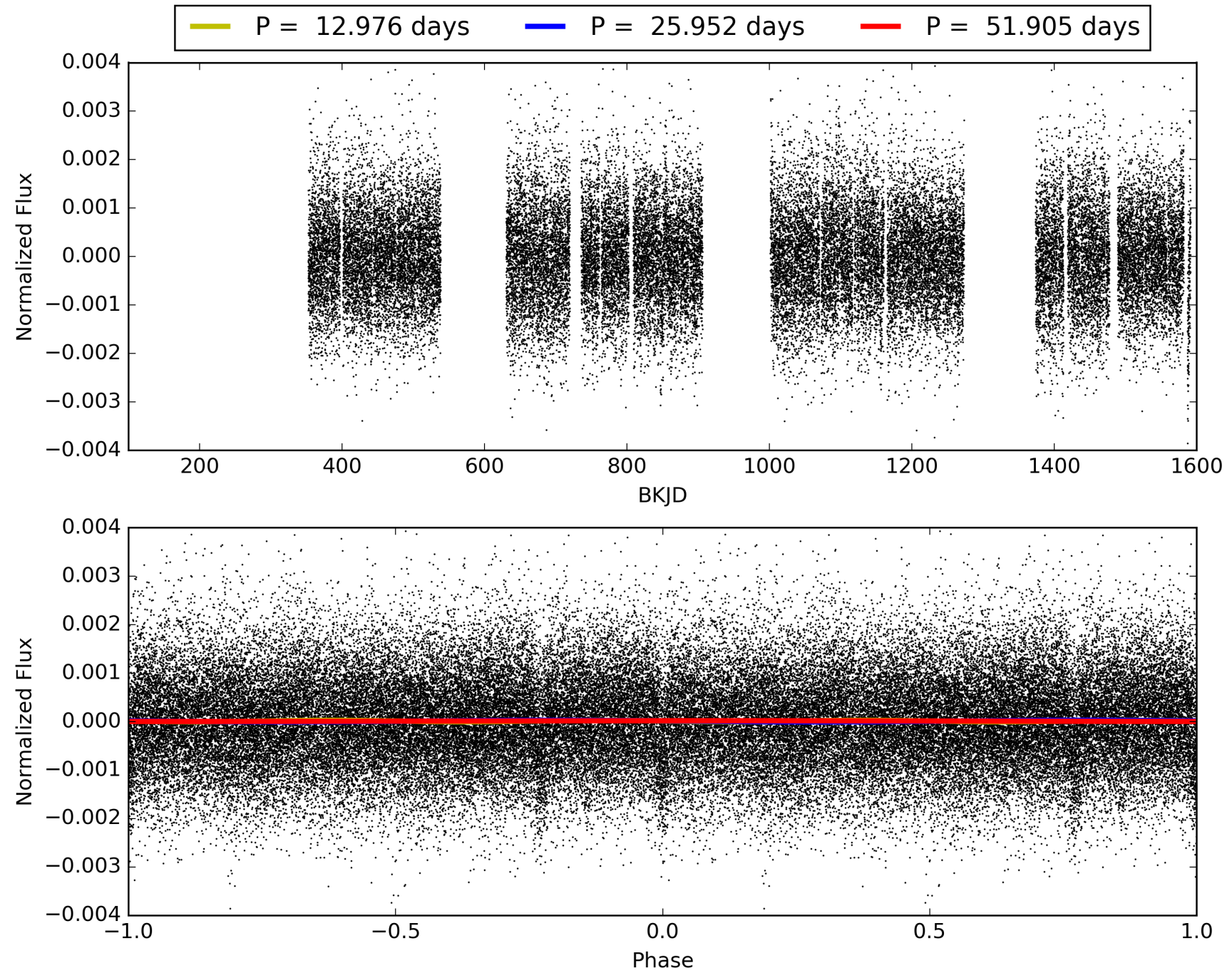
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 15:00:50 Z

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

TCE 003858919-02, PDC Light Curves

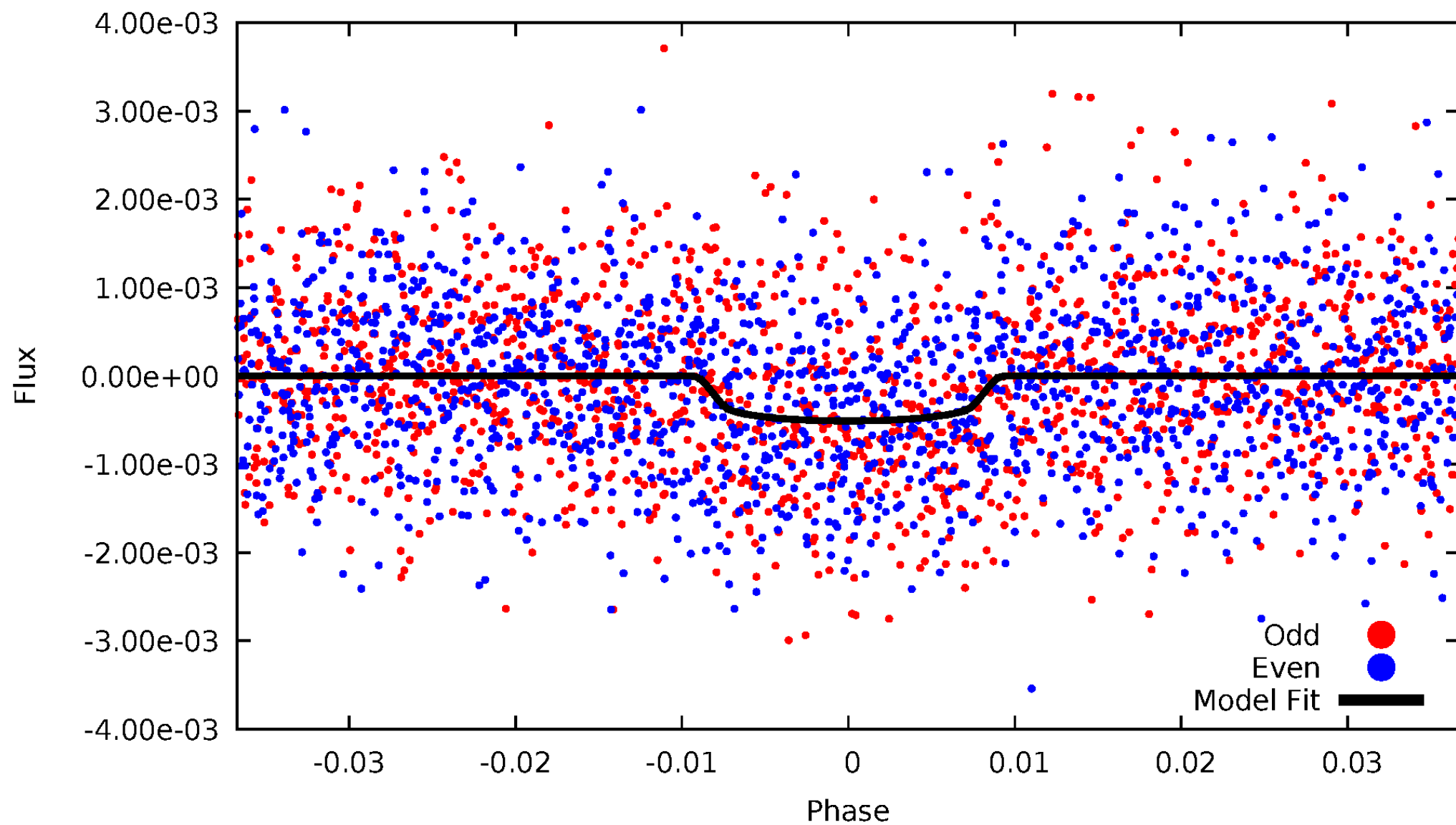


TCE 003858919-02



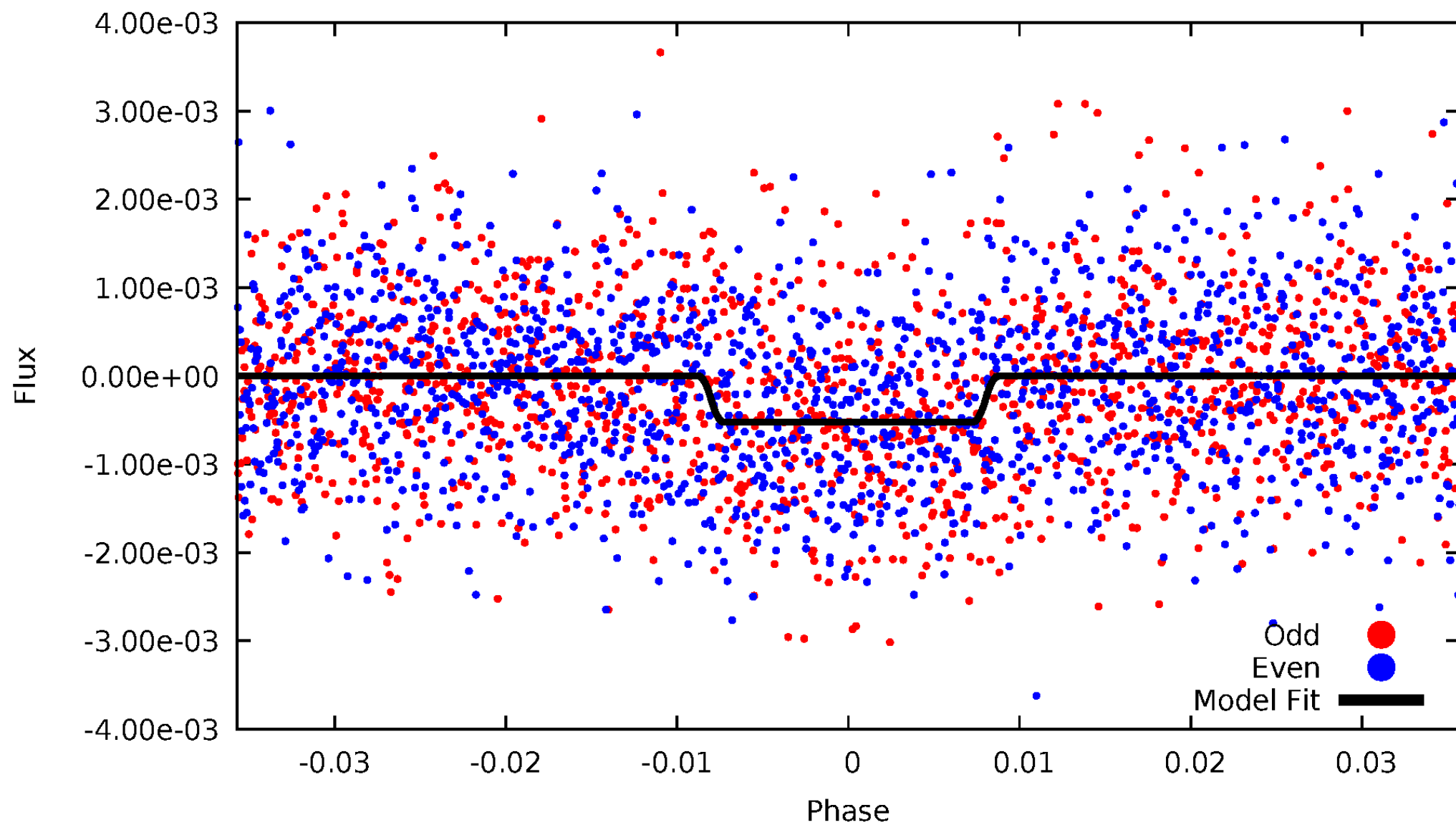
DV Odd/Even

TCE 003858919-02



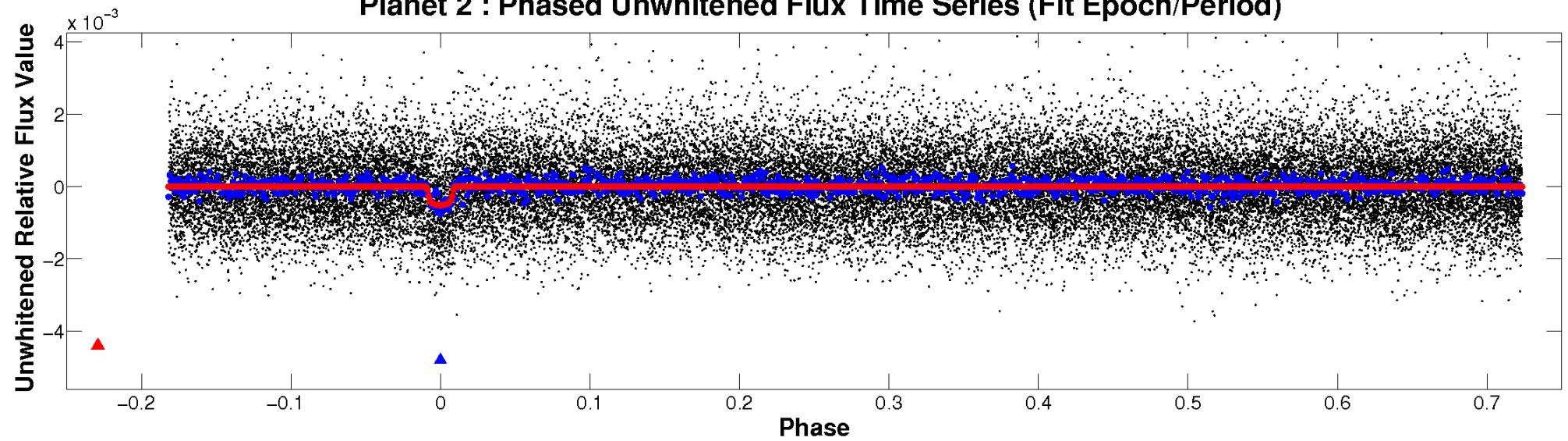
ALT Odd/Even

TCE 003858919-02

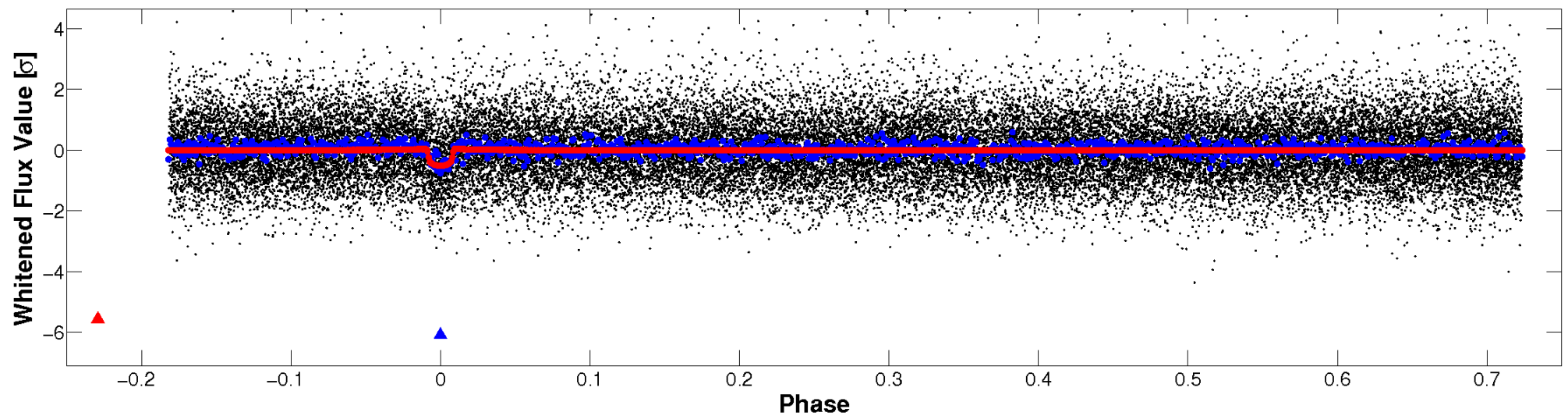


Non-Whitened Vs. Whitened Light Curve

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

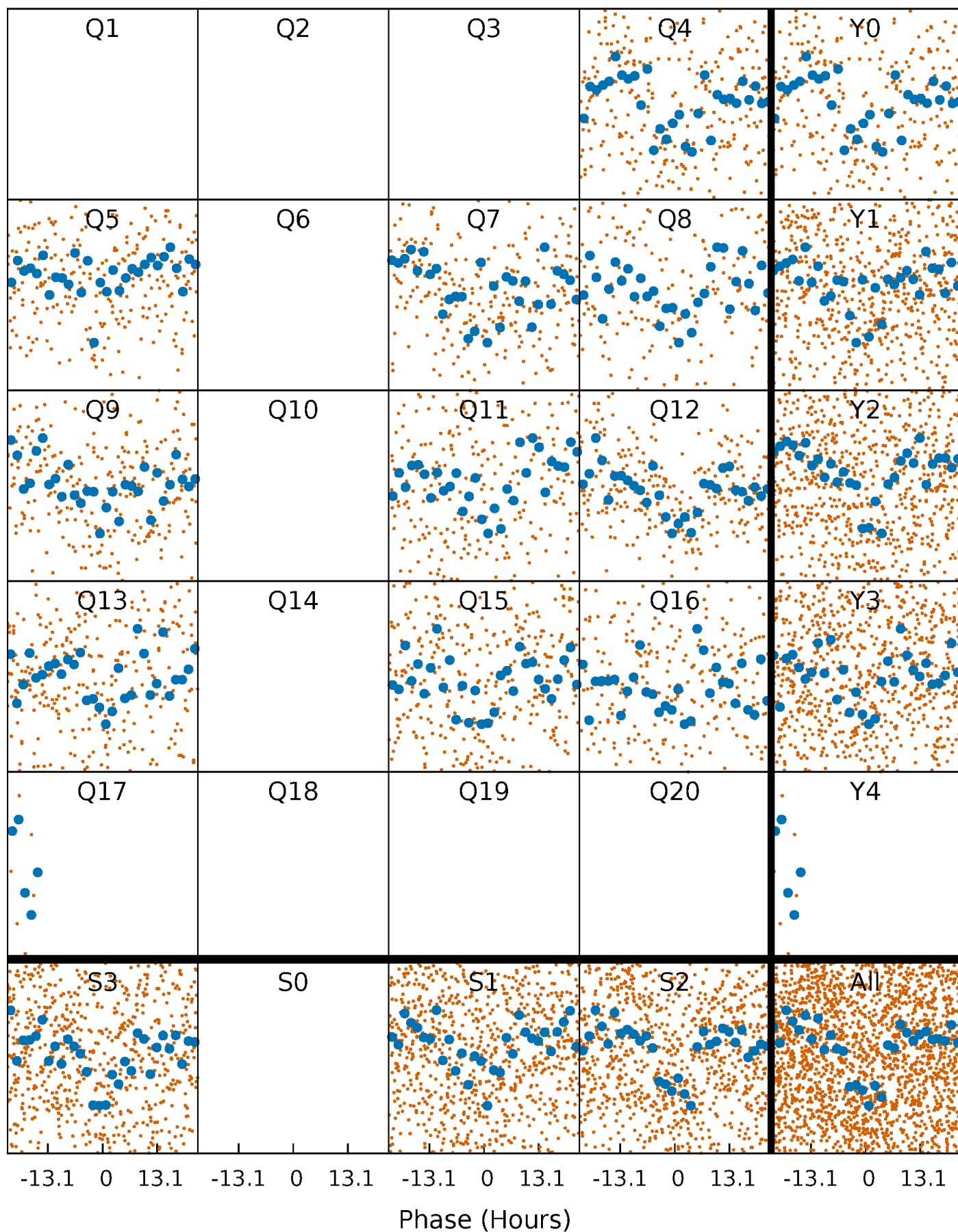


Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



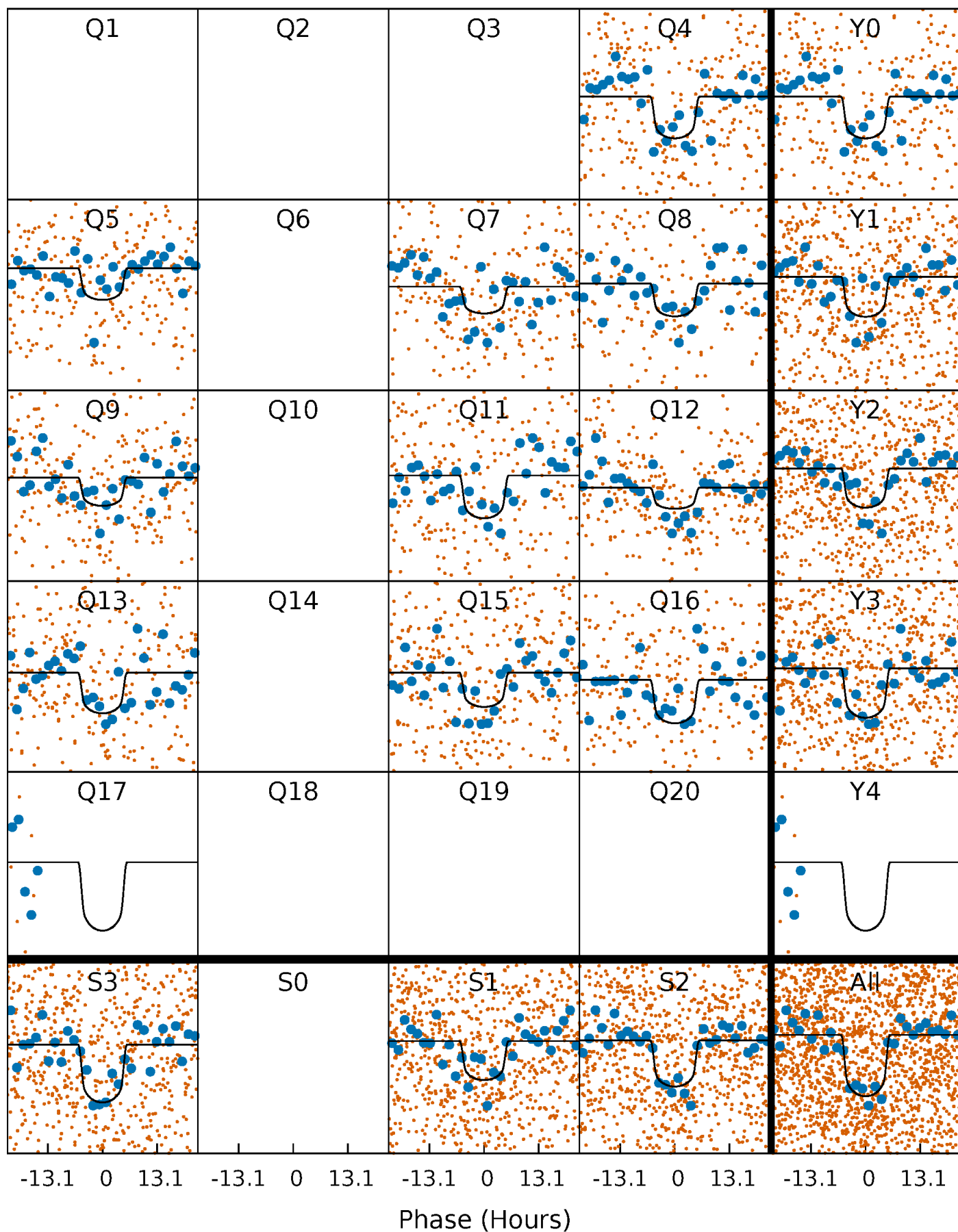
PDC Quarter-Phased Transit Curves

TCE 003858919-02 P= 25.952392 Days $T_0=154.867930$ (BKJD)



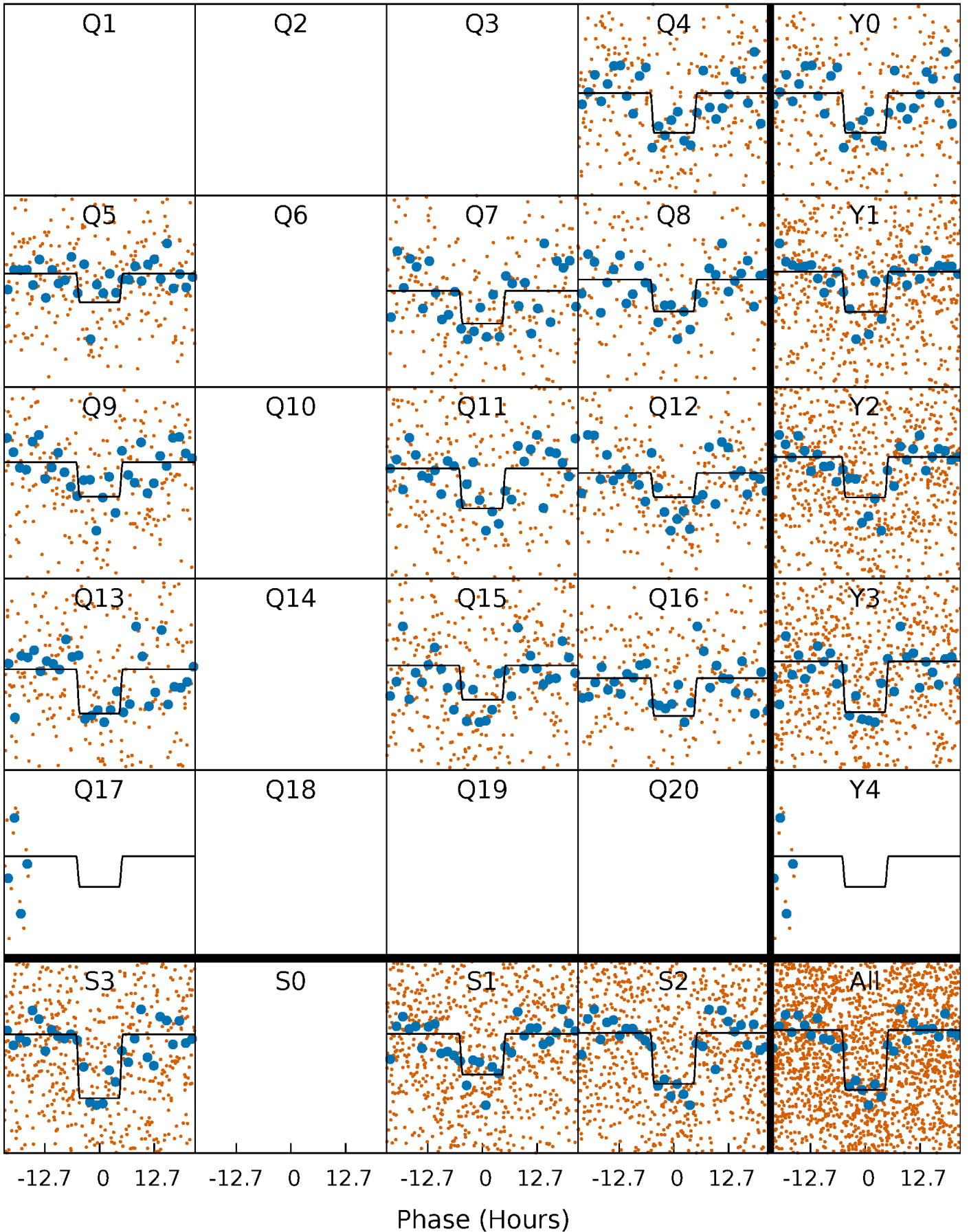
DV Quarter-Phased Transit Curves

TCE 003858919-02 P= 25.952392 Days $T_0=154.867930$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

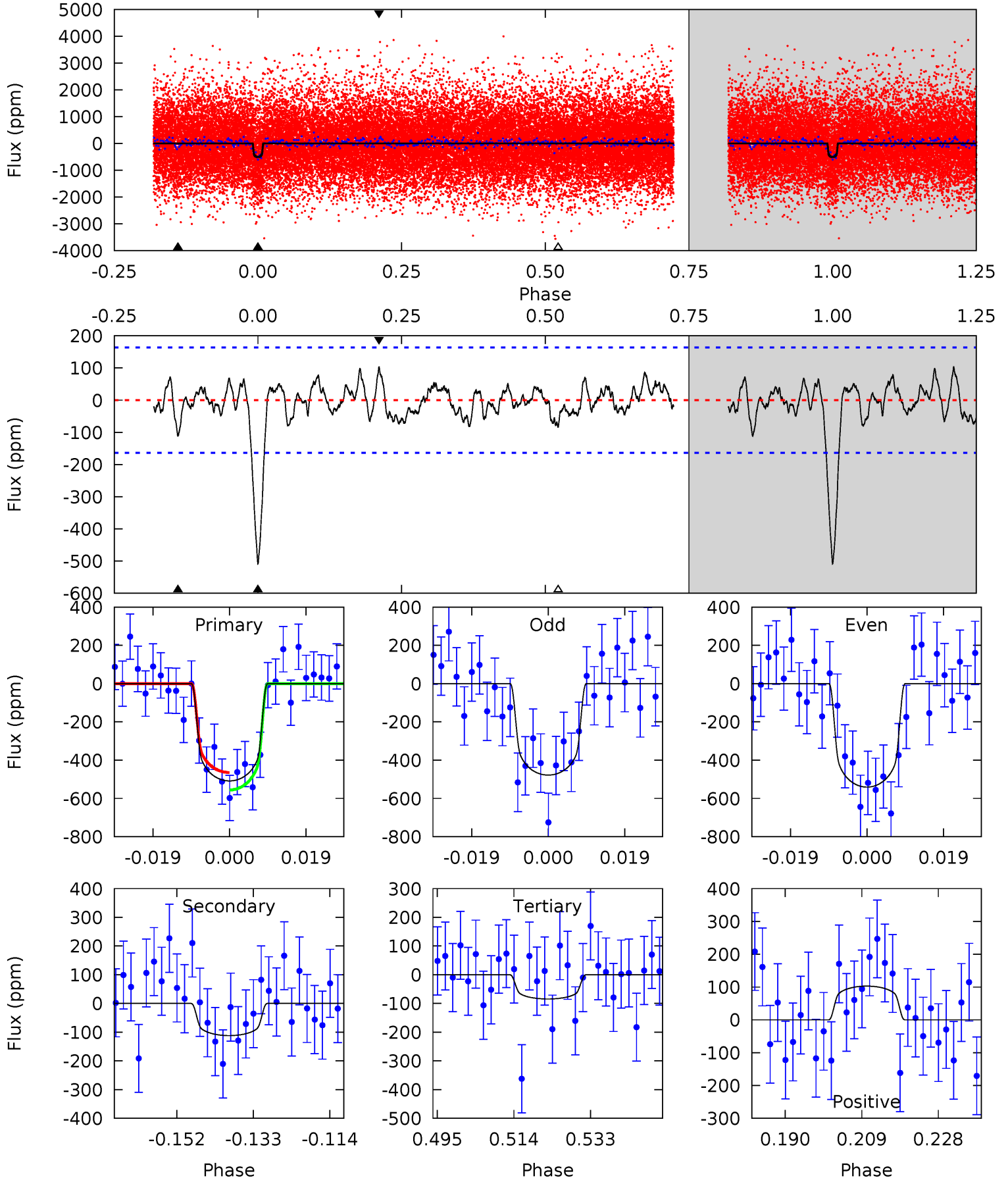
TCE 003858919-02 P= 25.952485 Days $T_0=154.864357$ (BKJD)



DV Model-Shift Uniqueness Test

003858919-02, P = 25.952392 Days, E = 154.867930 Days

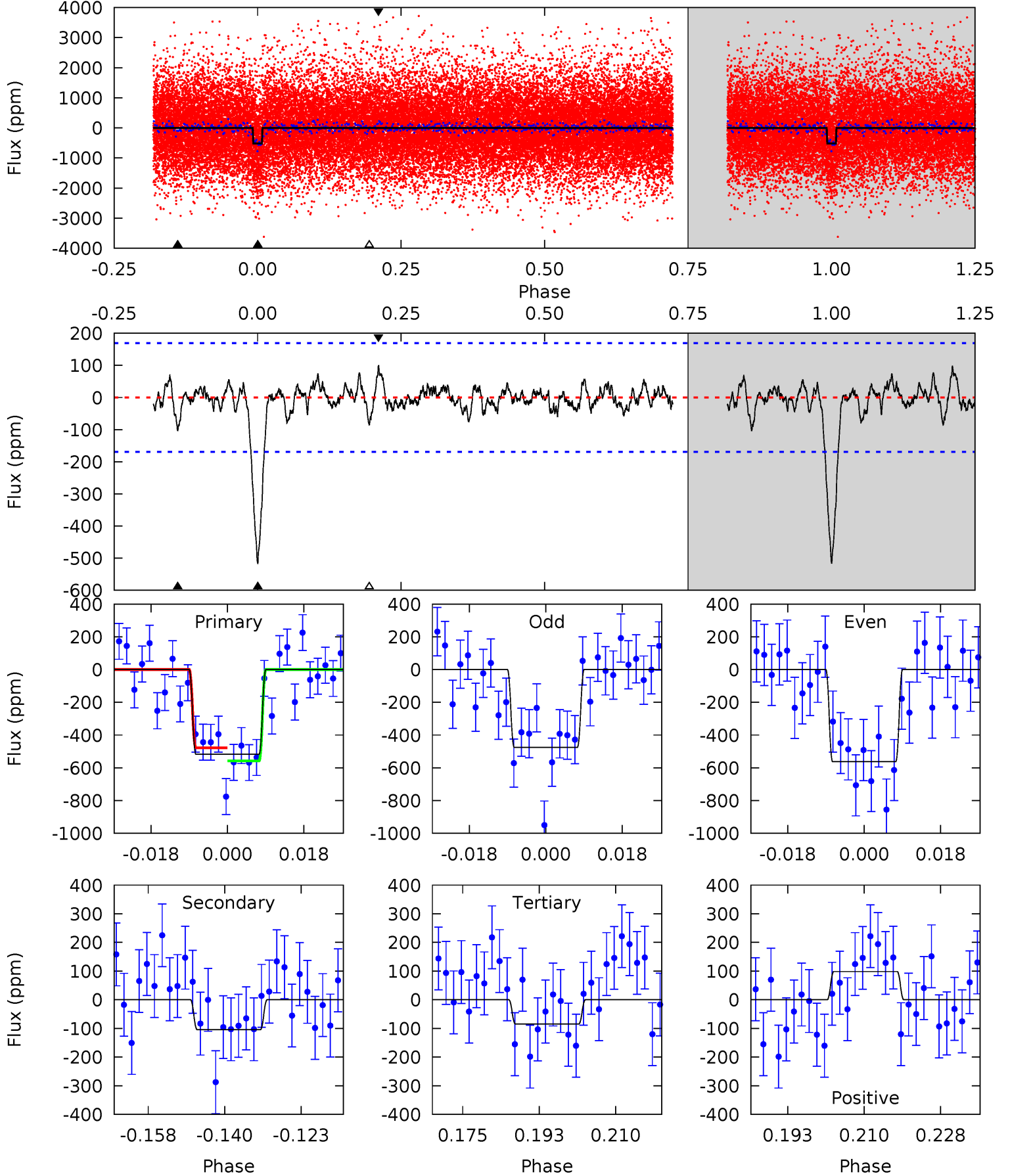
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
15.2	3.35	2.53	3.08	4.90	2.34	1.12	12.7	12.1	0.83	0.27	0.94	1.11	0.17	1.37



Alt Model-Shift Uniqueness Test

003858919-02, $P = 25.952485$ Days, $E = 154.864357$ Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
15.0	3.03	2.47	2.87	4.92	2.38	0.80	12.6	12.2	0.56	0.16	1.27	1.11	0.16	1.15



Stellar Parameters For KIC 003858919

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	M (M_{\odot})	p_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	5692^{+177}_{-197}	$4.547^{+0.032}_{-0.179}$	$-0.040^{+0.300}_{-0.300}$	$0.866^{+0.217}_{-0.078}$	$0.965^{+0.094}_{-0.115}$	$2.090^{+0.363}_{-0.986}$
	+3%/-3%	+1%/-4%	+750%/-750%	+25%/-9%	+10%/-12%	+17%/-47%
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 003858919-02 / KOI 5990.01

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	-112 ± 33	$2.40^{+0.44}_{-0.37}$	812^{+50}_{-36}	4046^{+328}_{-301}	299^{+153}_{-114}
Alt.	-104 ± 34	$2.24^{+0.41}_{-0.36}$	811^{+43}_{-37}	4073^{+351}_{-315}	316^{+169}_{-125}

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 $A_{obs} \gg 1.0$

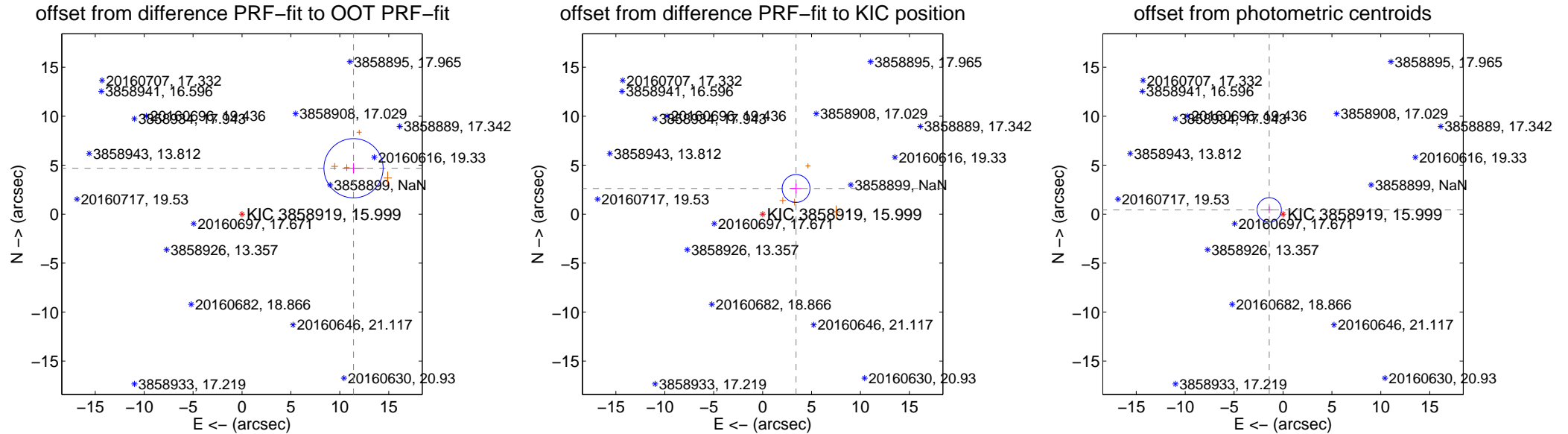
DV Centroid Data

Supplemental centroid analysis for 003858919-02. Kepler magnitude: 16.00. Transit SNR 11.39

There are 0 quarters with good PRF difference image offsets

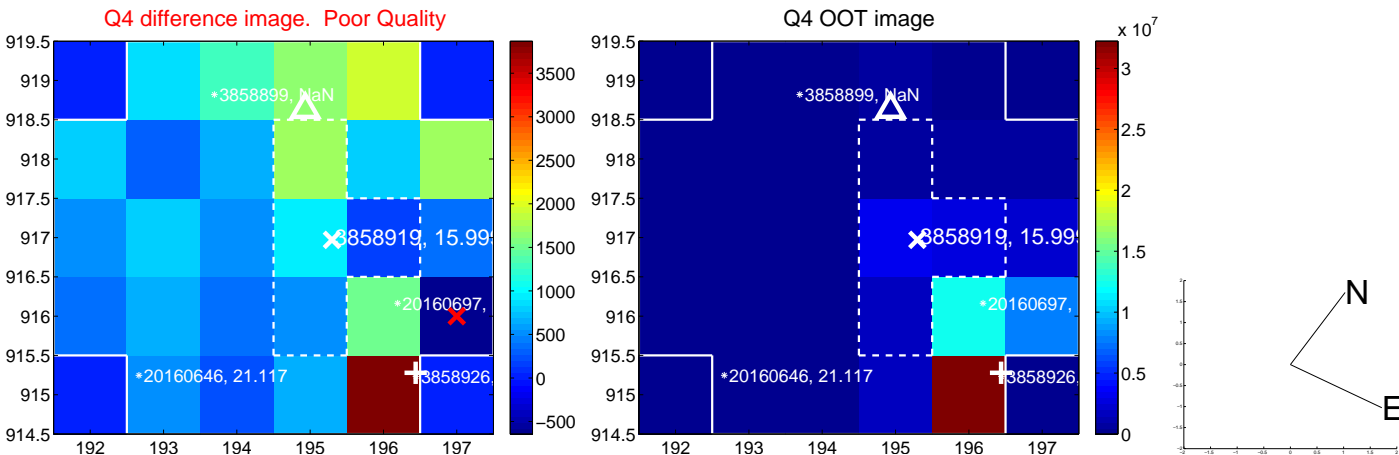
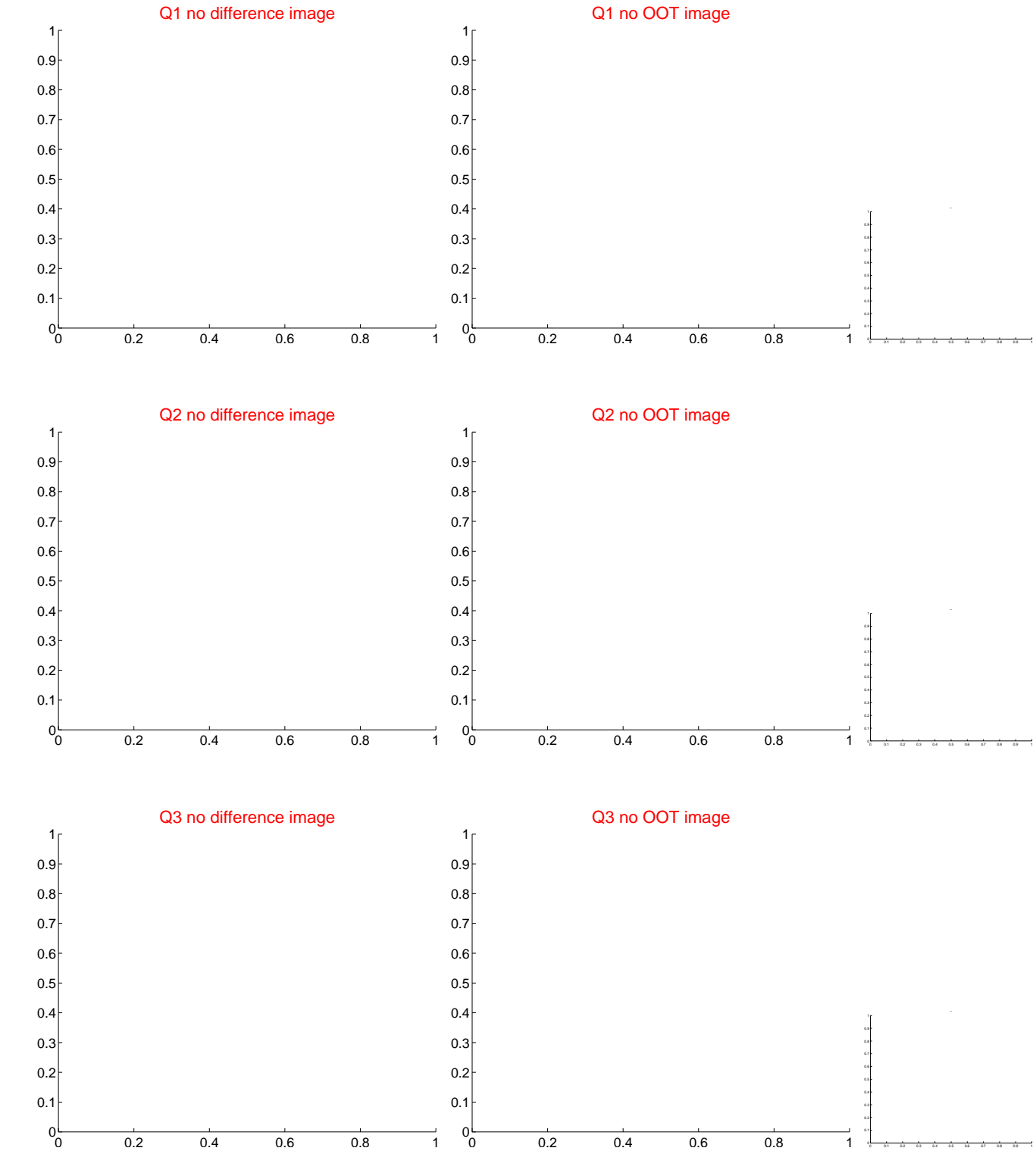
The OOT PRF centroid is offset from the target star catalog position by about 8.24 arcsec so the offset from difference PRF-fit to OOT-PRF-fit may be invalid.

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	12.330 ± 1.009	12.22	-11.403 ± 1.069	4.690 ± 0.530
PRF-fit source offset from KIC position	4.306 ± 0.474	9.08	-3.417 ± 0.586	2.621 ± 0.499
photometric centroid source offset	1.47 ± 0.41	3.56	1.41 ± 0.42	0.43 ± 0.36

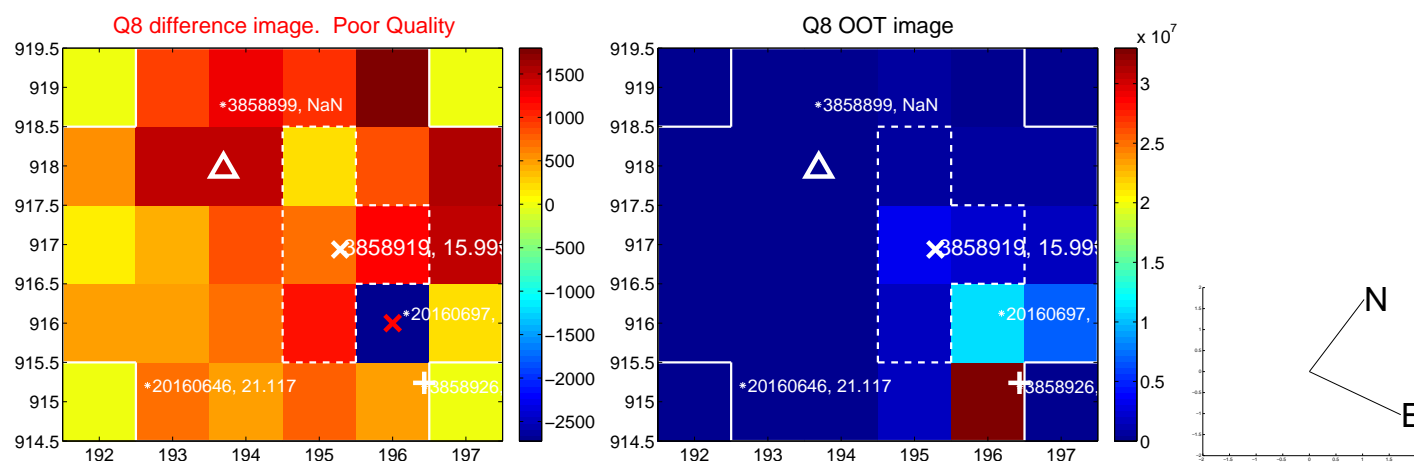
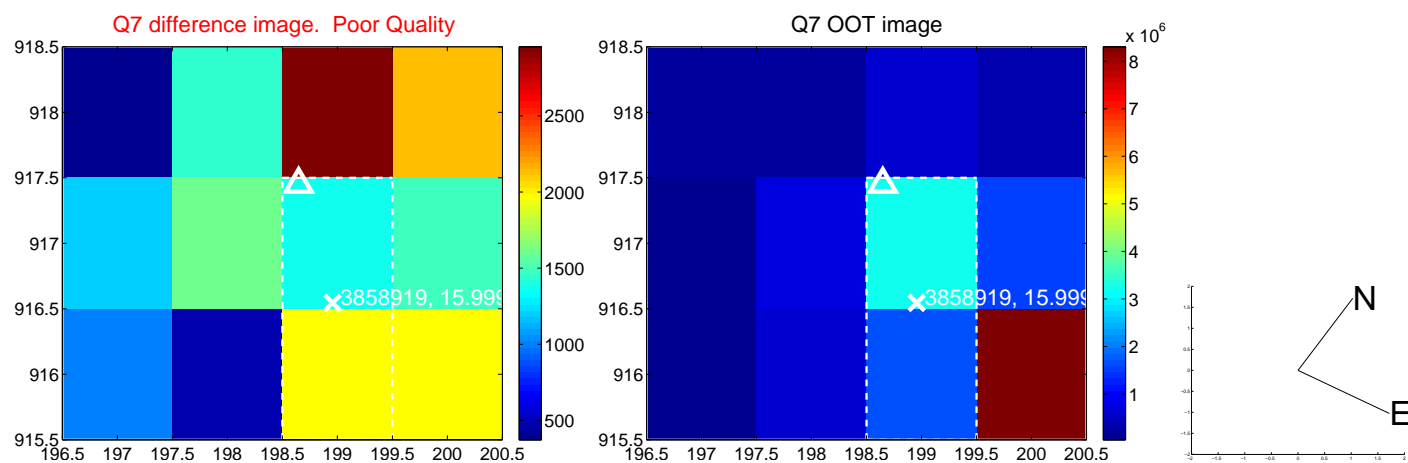
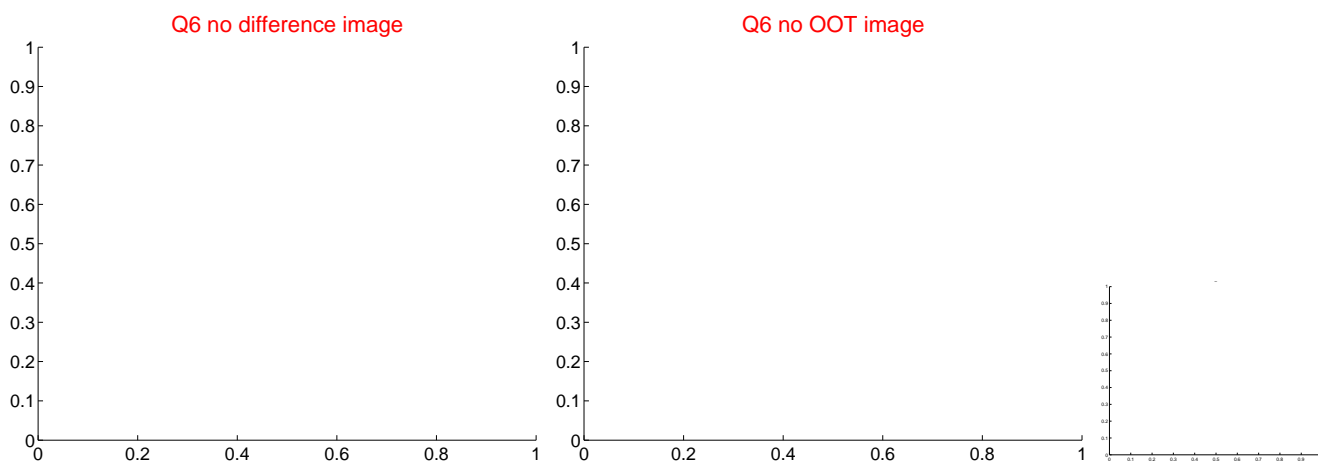
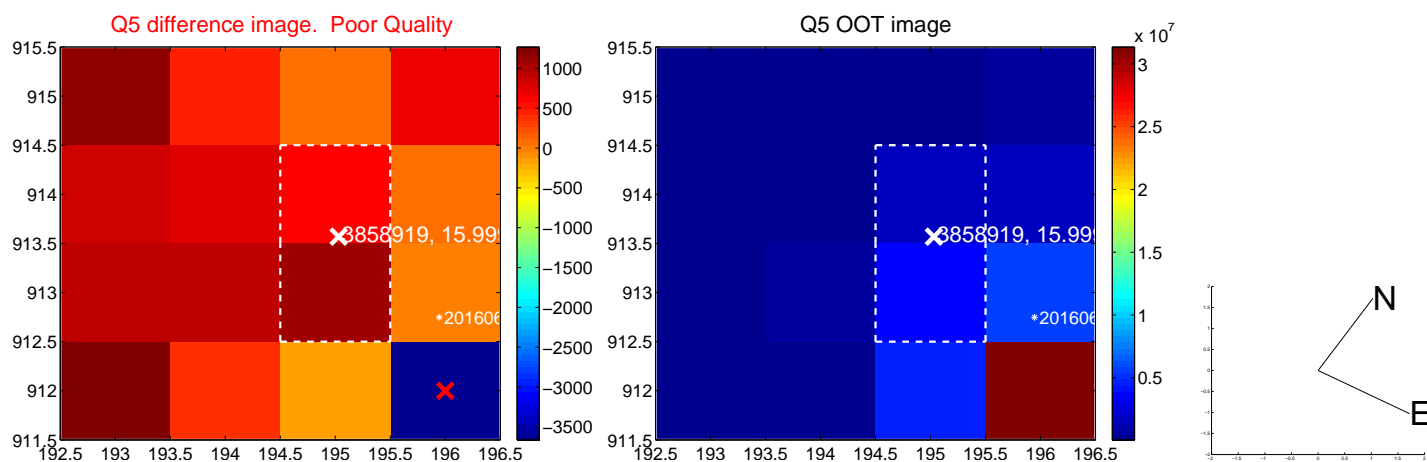


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ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

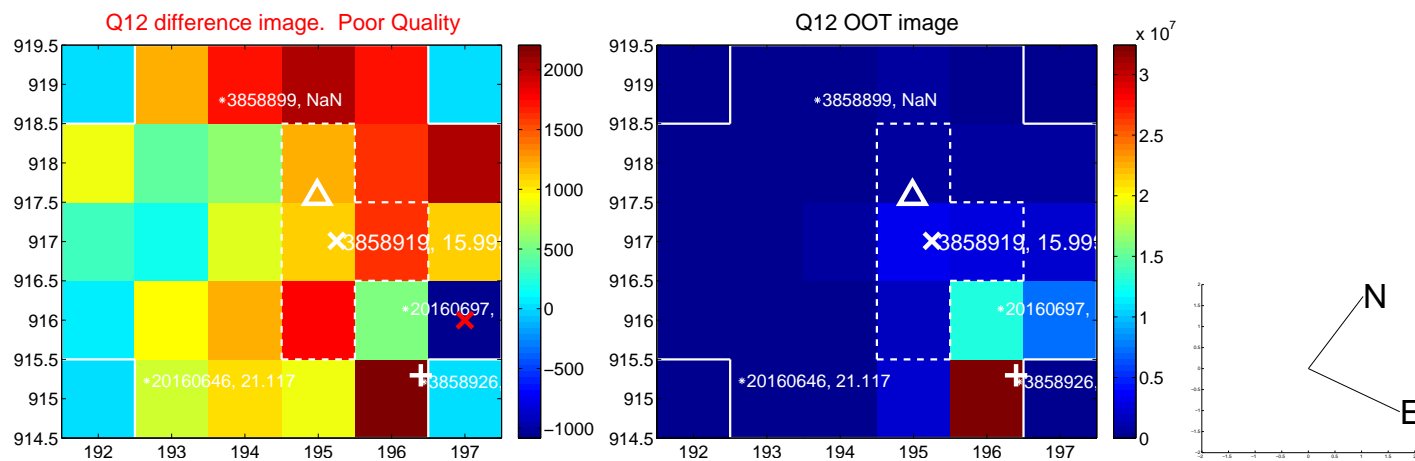
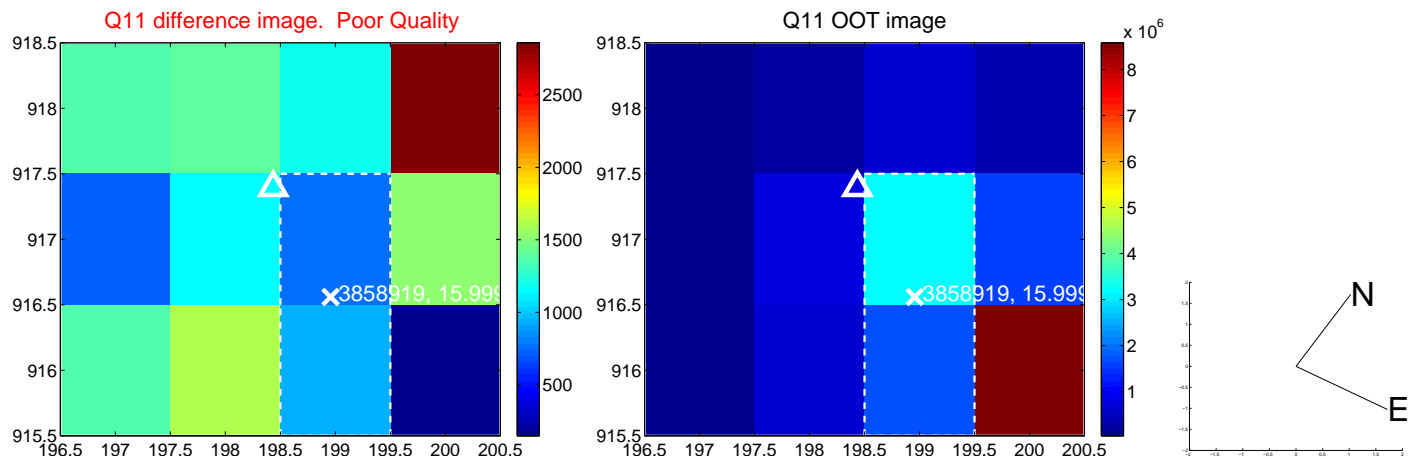
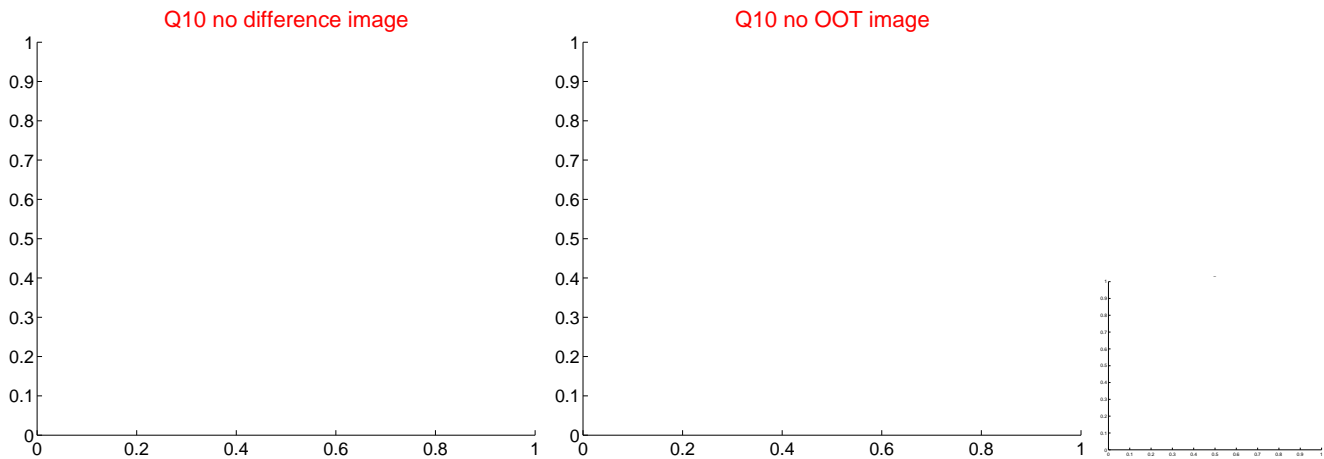
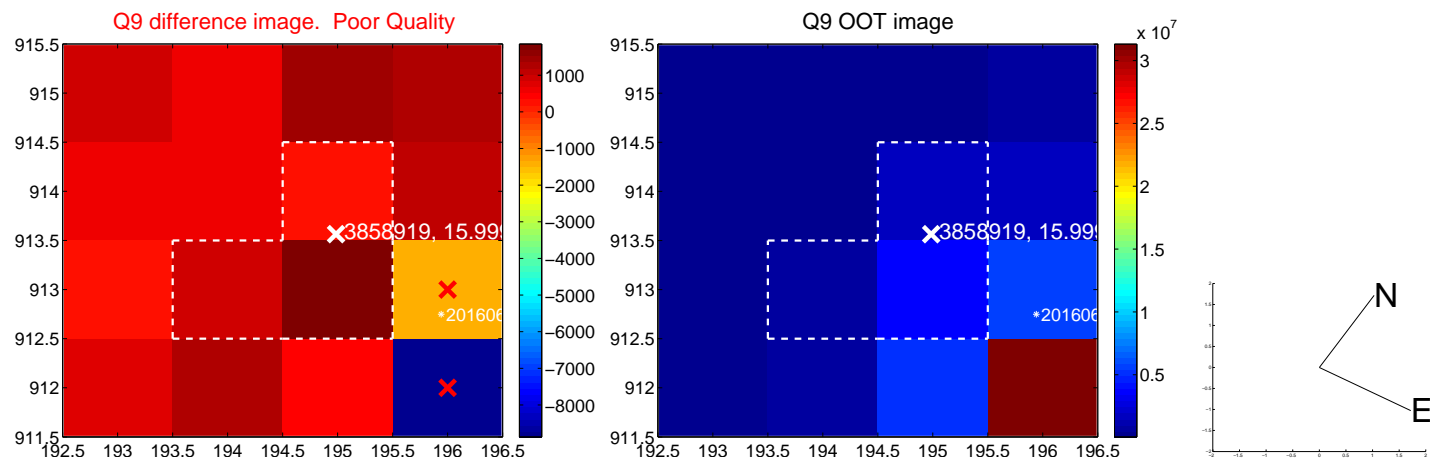
white ×: KIC target position; +: OOT centroid; △: difference centroid. red ✕: large negative pixel value.



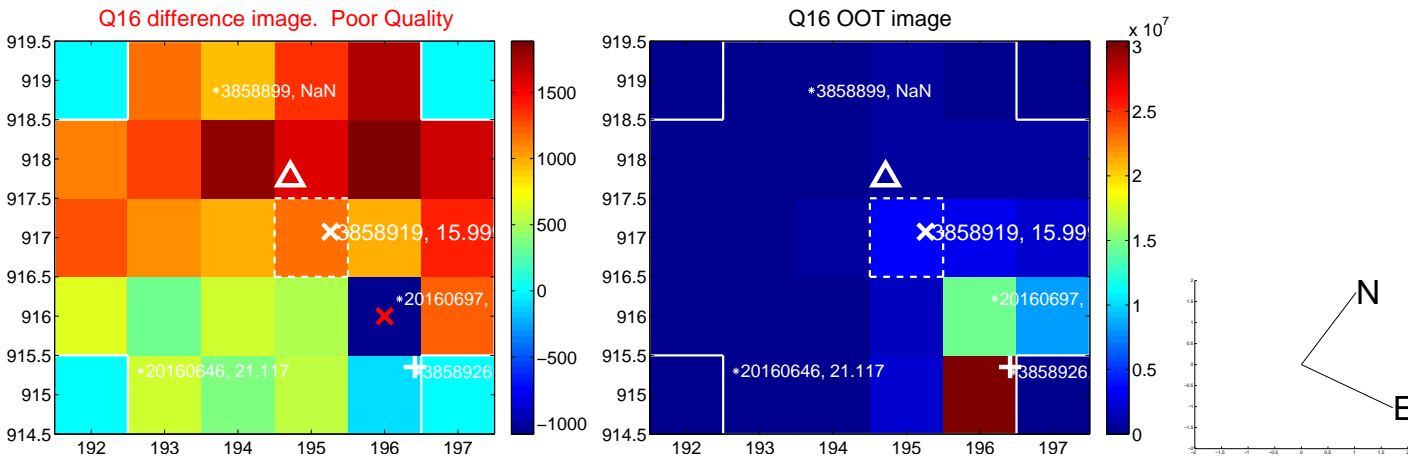
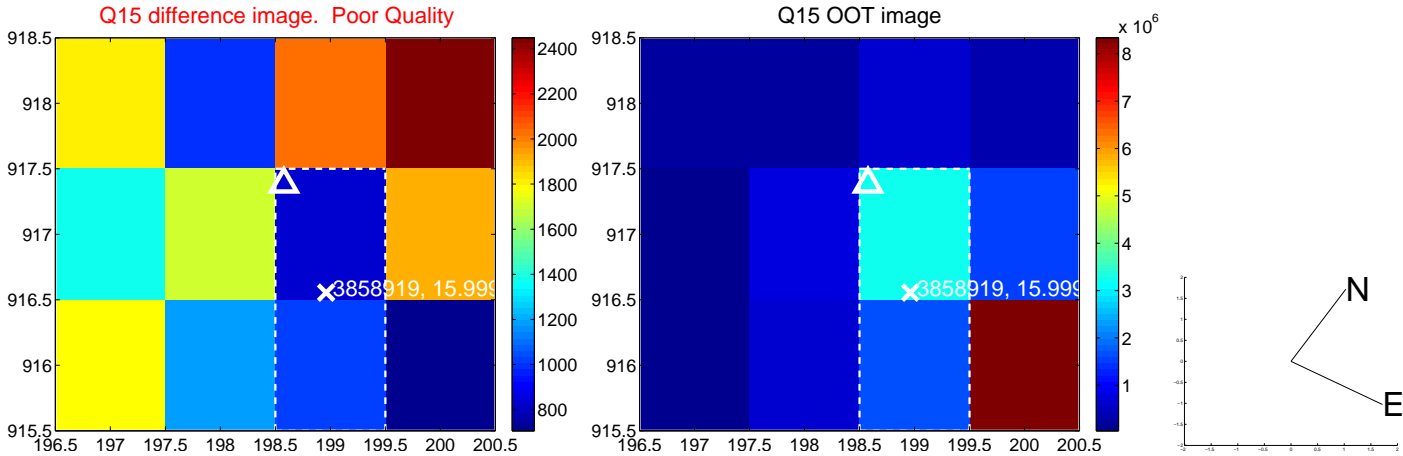
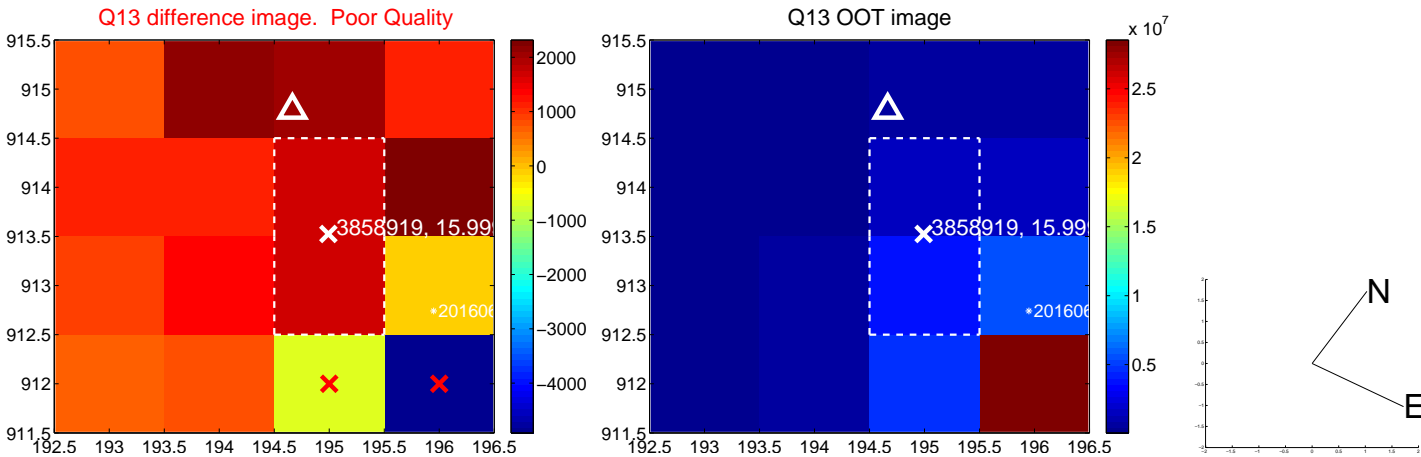
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value



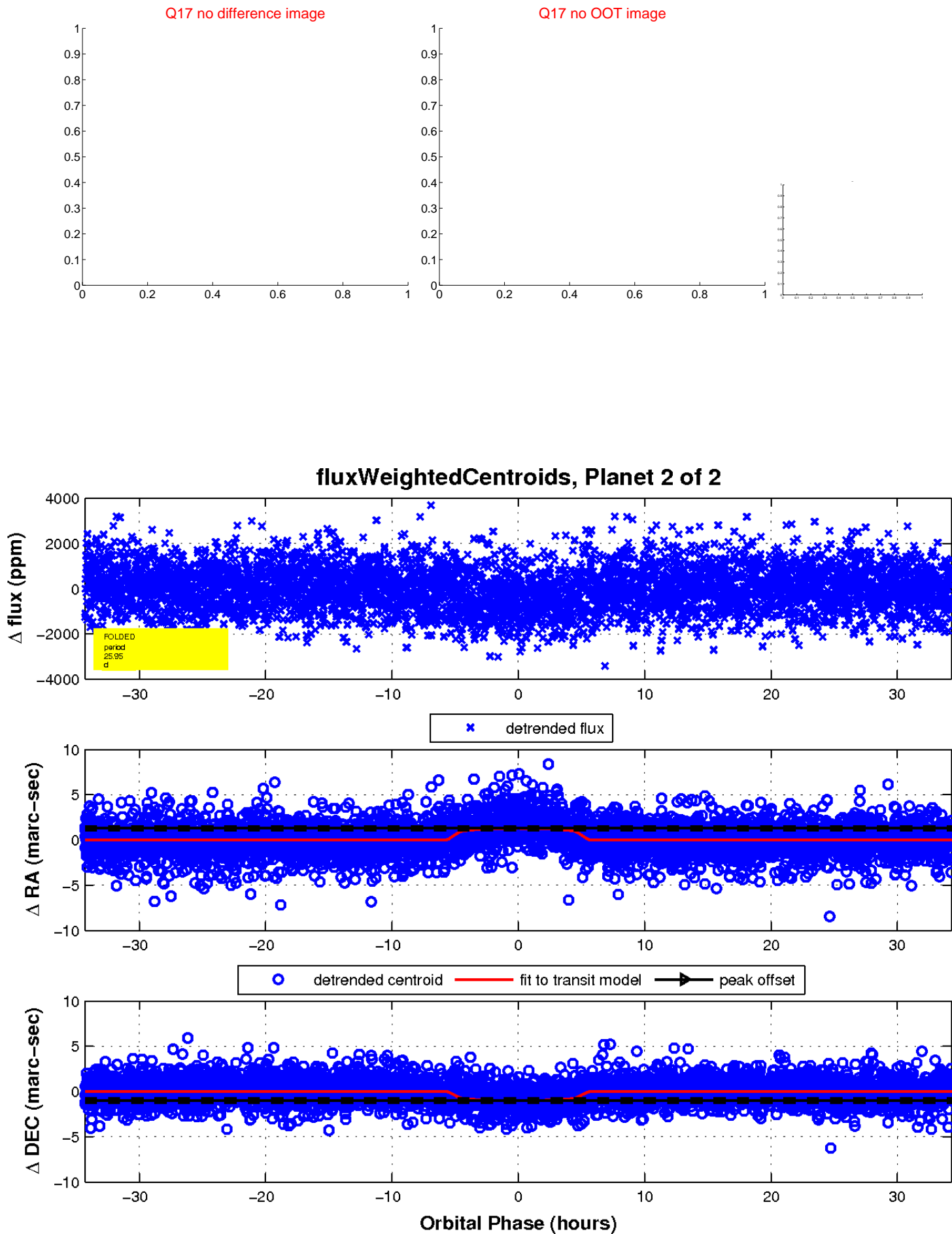
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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.



UKIRT Image

Declination

