

KIC 005816811

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})
005816811-01	OBS	1042.01	4.455429	134.455538	1005.4	4.366	103.1	73.2	0.92	6038	4.99	360.66
005816811-02	OBS	No	4.455433	132.221589	400.8	3.811	42.8	33.8	0.92	6038	2.39	360.66

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
005816811-01	OBS	FP	0.00	0	1	1	1	MOD_SEC_DV—MOD_SEC_ALT—HAS_SEC_TCE—CENT_RESOLVED_OFFSET—EPHEM_MATCH
005816811-02	OBS	FP	0.00	1	1	1	1	IS_SEC_TCE—CENT_RESOLVED_OFFSET—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 005816811-01

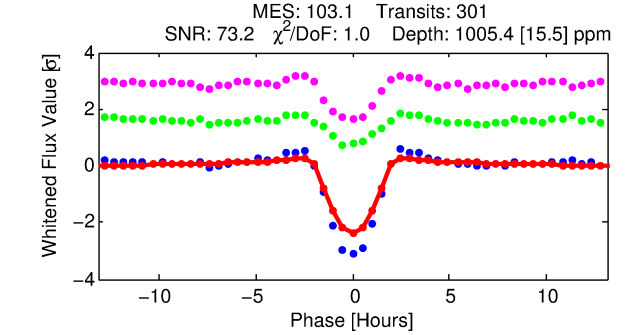
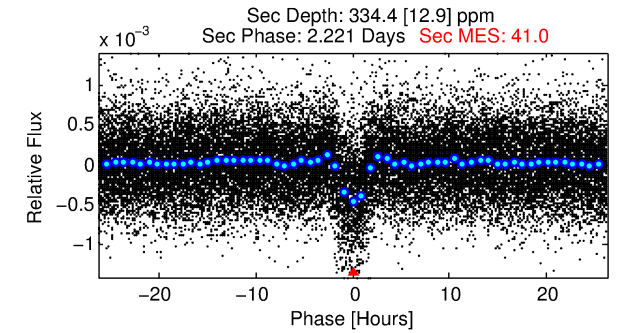
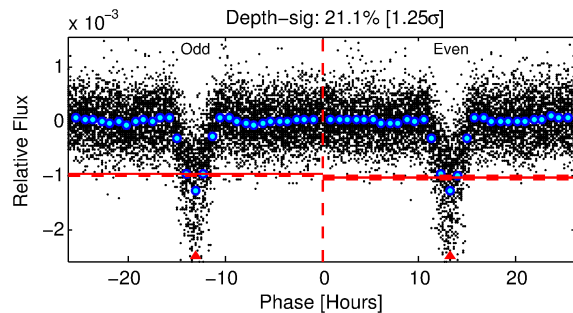
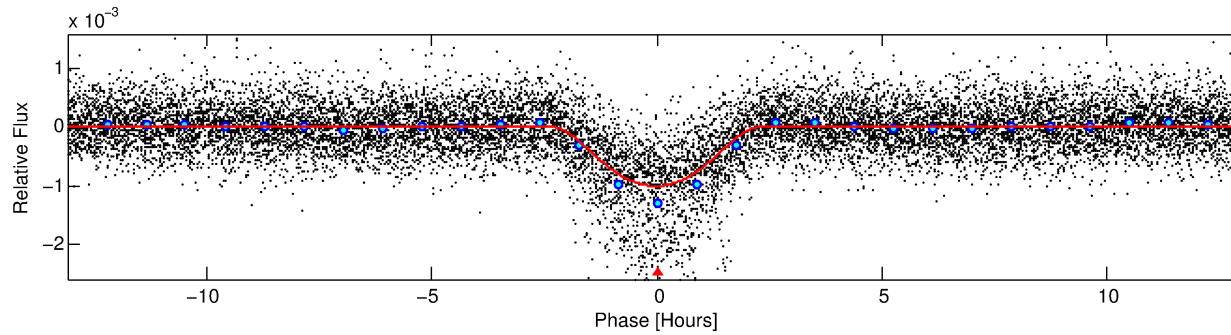
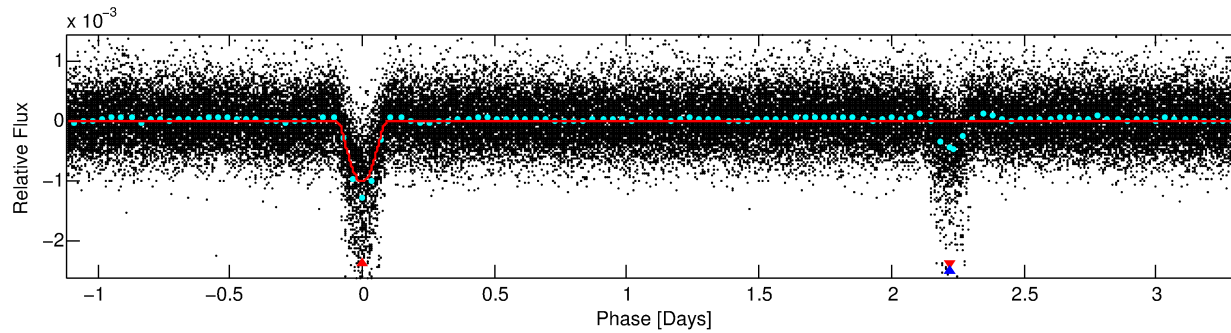
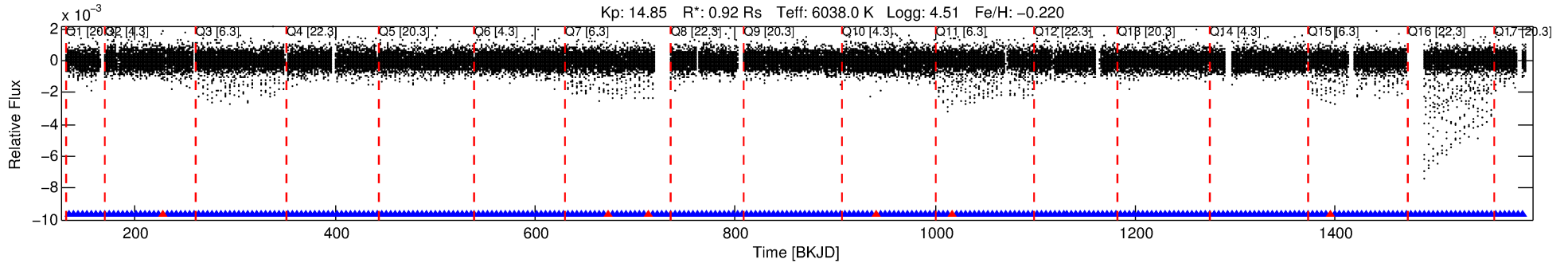
TCE (1)	KIC	Parent (2)	Parent KIC	$P_1:P_2$	Dist ($''$)	Δ Row	Δ Col	m_2	m_1	D_2/D_1	Mechanism	Flag	σ_P	σ_T
005816811-01	5816811	3645.01	5816806	1:1	7.0	-2	0	17.05	14.85	296.93	Direct-PRF	0	0.05	0.07

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: 5816811 Candidate: 1 of 2 Period: 4.455 d
KOI: K01042.02 Corr: 0.972

Kp: 14.85 R*: 0.92 Rs Teff: 6038.0 K Logg: 4.51 Fe/H: -0.220



DV Fit Results:

Period = 4.45543 [0.00001] d
Epoch = 134.4555 [0.0012] BKJD
Rp/R* = 0.0496 [0.0163]
a/R* = 2.89 [0.24]
b = 0.99 [0.03]
Seff = 360.66 [149.40]
Teq = 1111 [115] K
Rp = 4.99 [2.27] Re
a = 0.0530 [0.0142] AU
Ag = 20.75 [15.93] [1.24σ]
Teffp = 3667 [616] K [4.08σ]

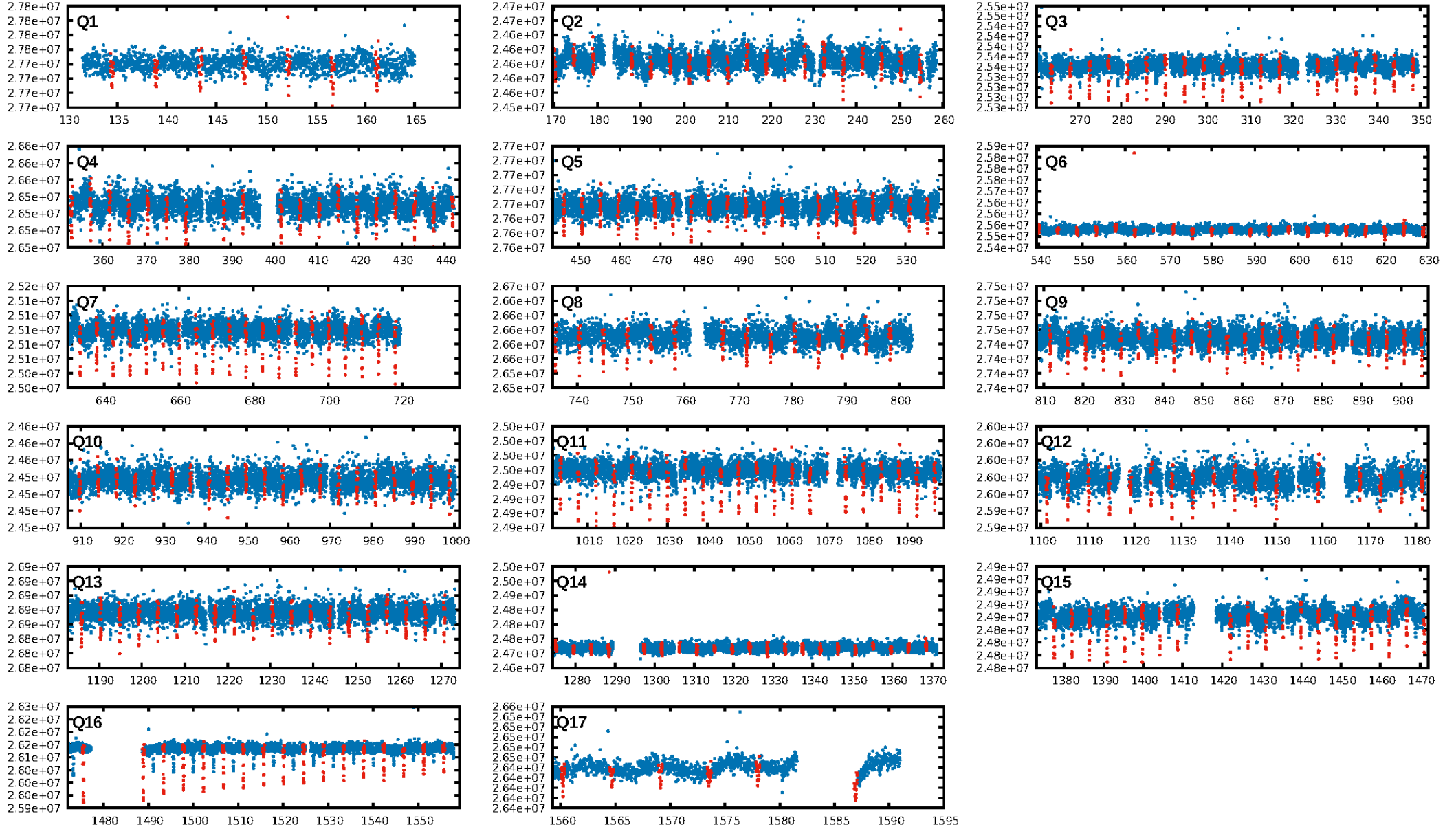
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: 0.0% [0.00σ]
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: 0.00e+00
RollingBand-fgt: 0.98 [282/288]
GhostDiagnostic-chr: -0.4615
Centroid-sig: N/A
Centroid-so: 48.028 arcsec [320.39σ]
OotOffset-rm: N/A
KicOffset-rm: N/A
OotOffset-st: 0/0/0/0 [0]
KicOffset-st: 0/0/0/0 [0]
DiffImageQuality-fgm: N/A
DiffImageOverlap-fno: 1.00 [17/17]

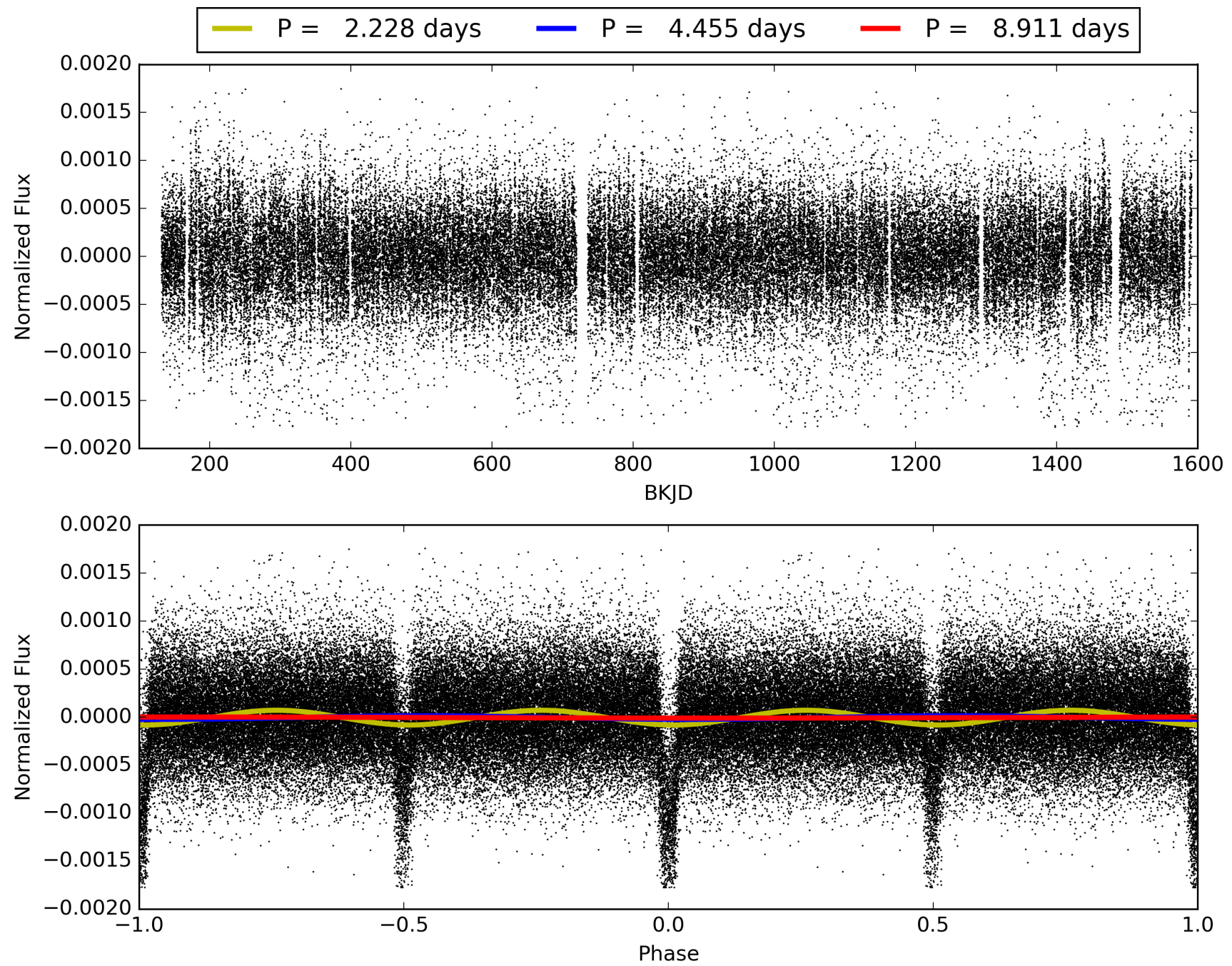
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 29-Jan-2016 22:05:23 Z

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

TCE 005816811-01, PDC Light Curves

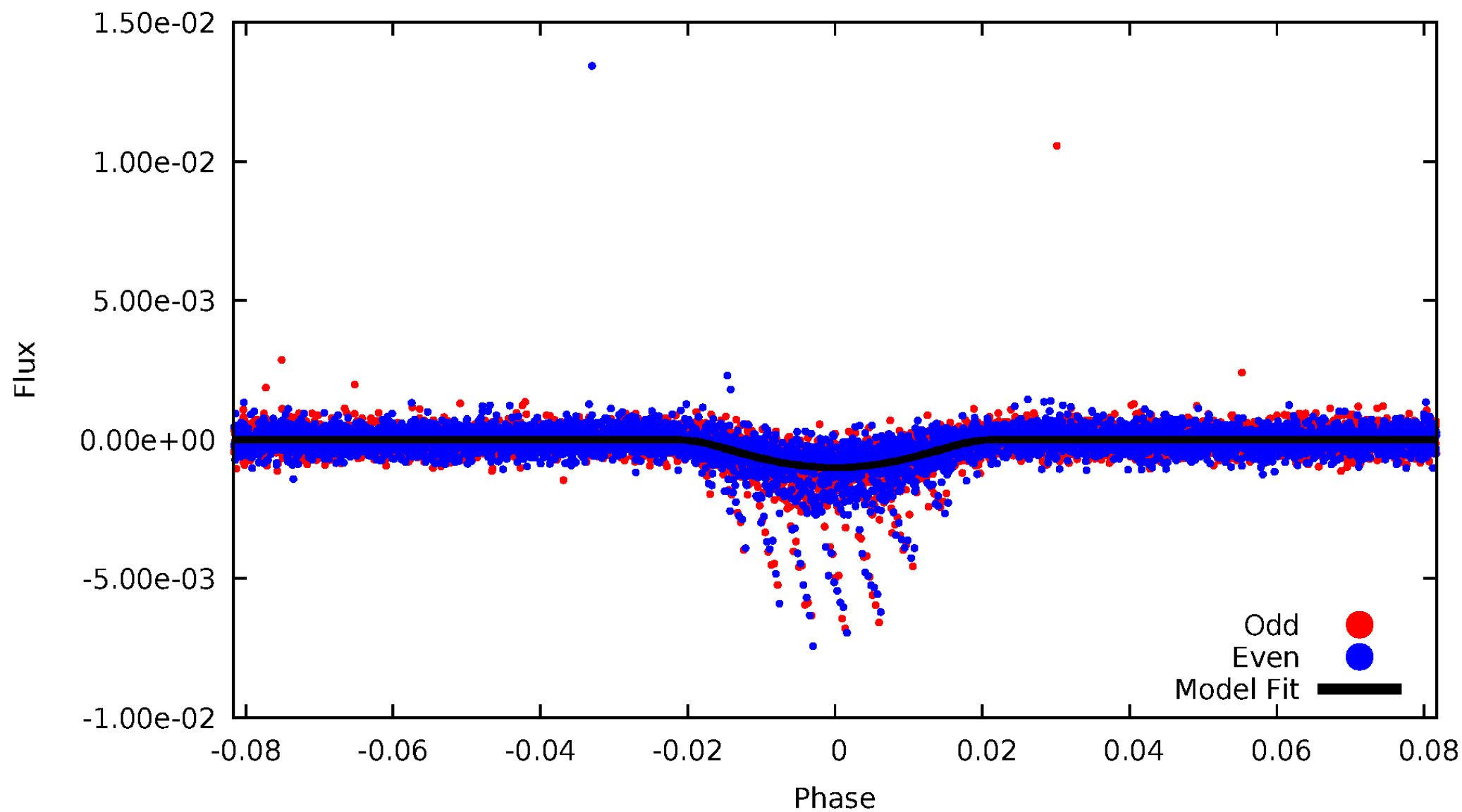


TCE 005816811-01



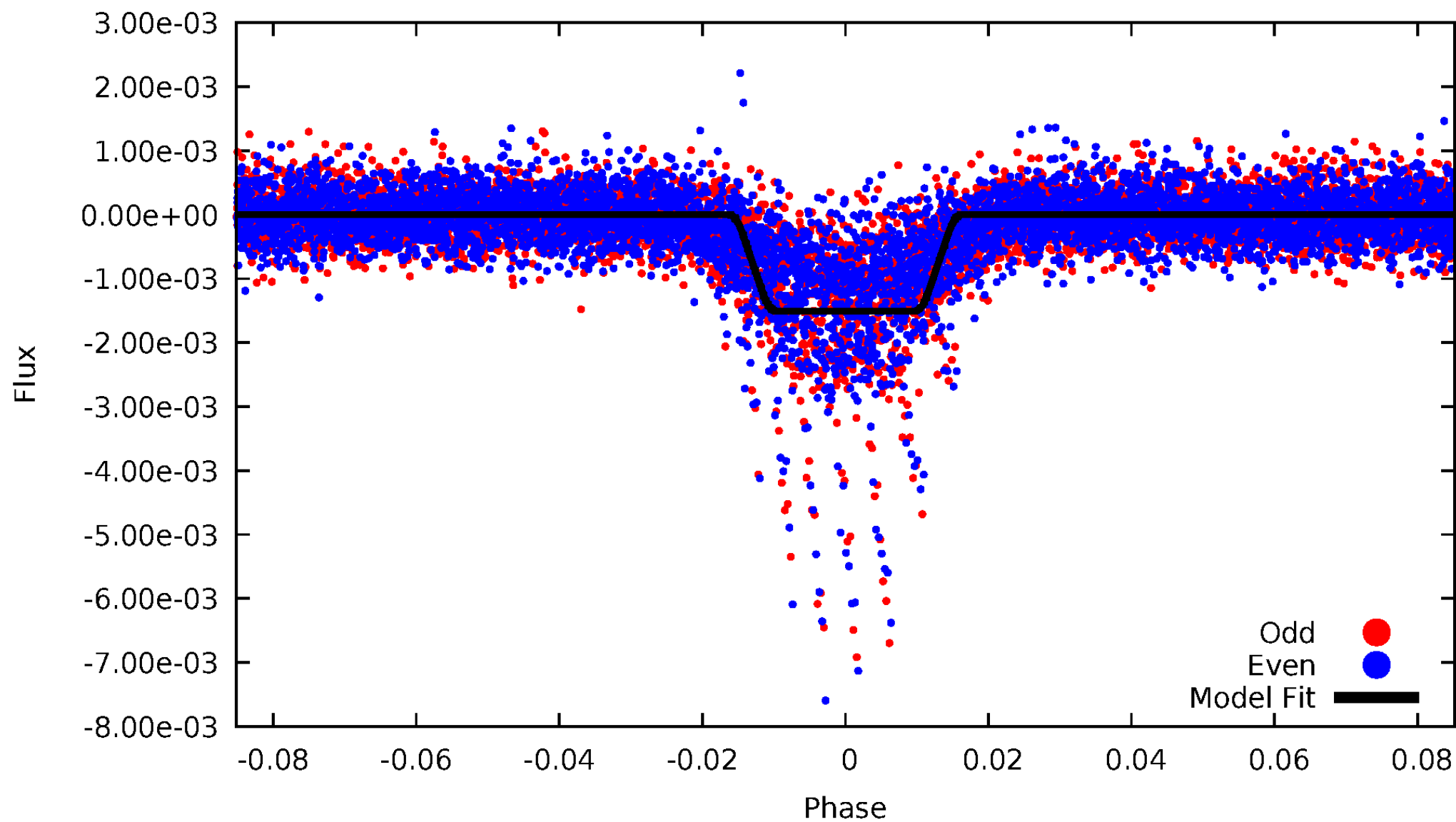
DV Odd/Even

TCE 005816811-01



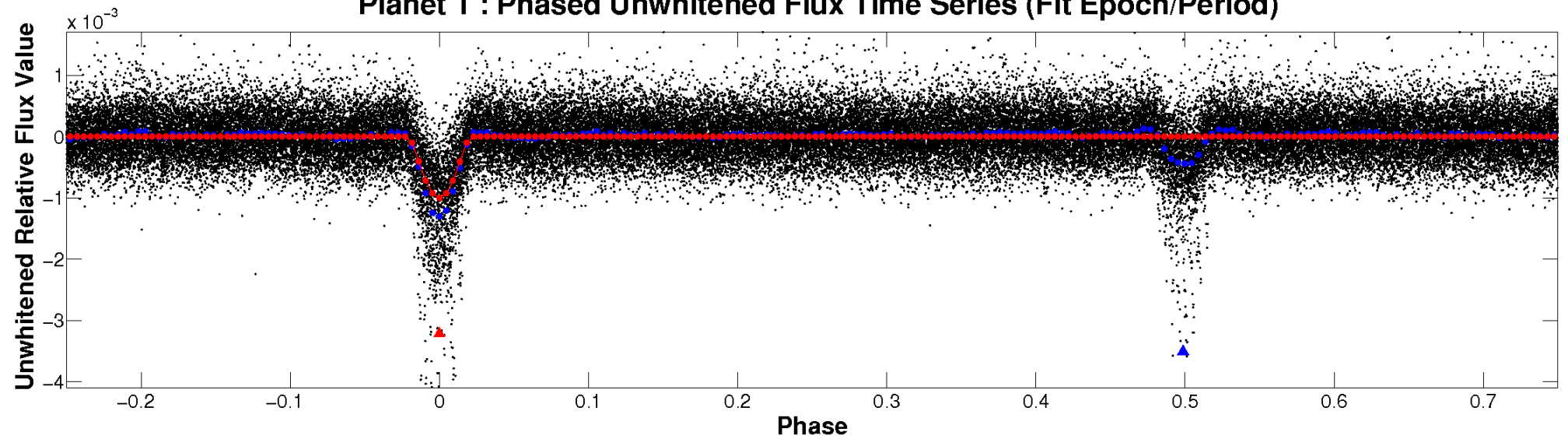
ALT Odd/Even

TCE 005816811-01

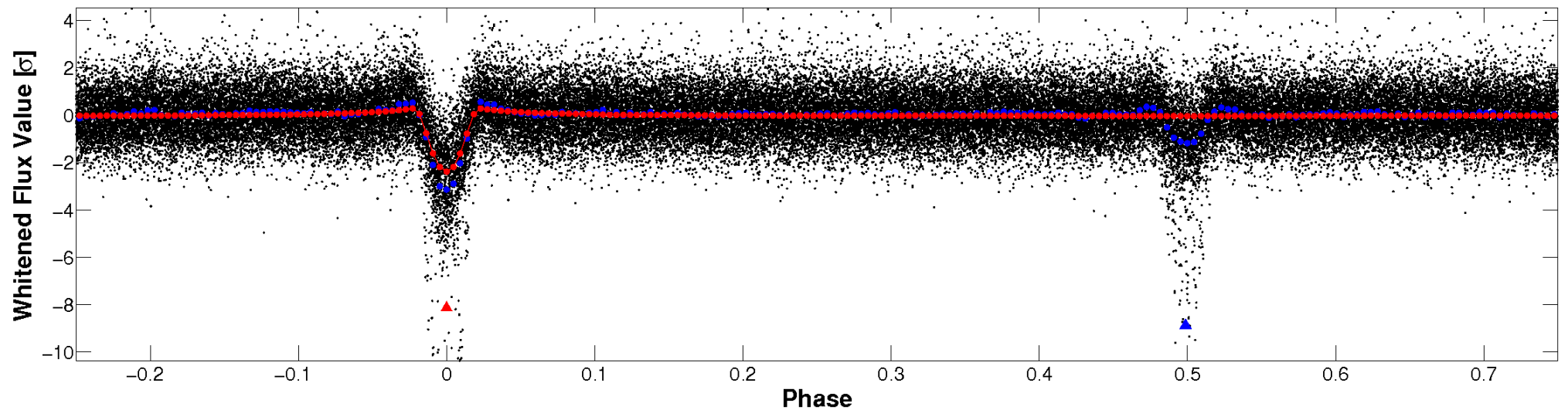


Non-Whitened Vs. Whitened Light Curve

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

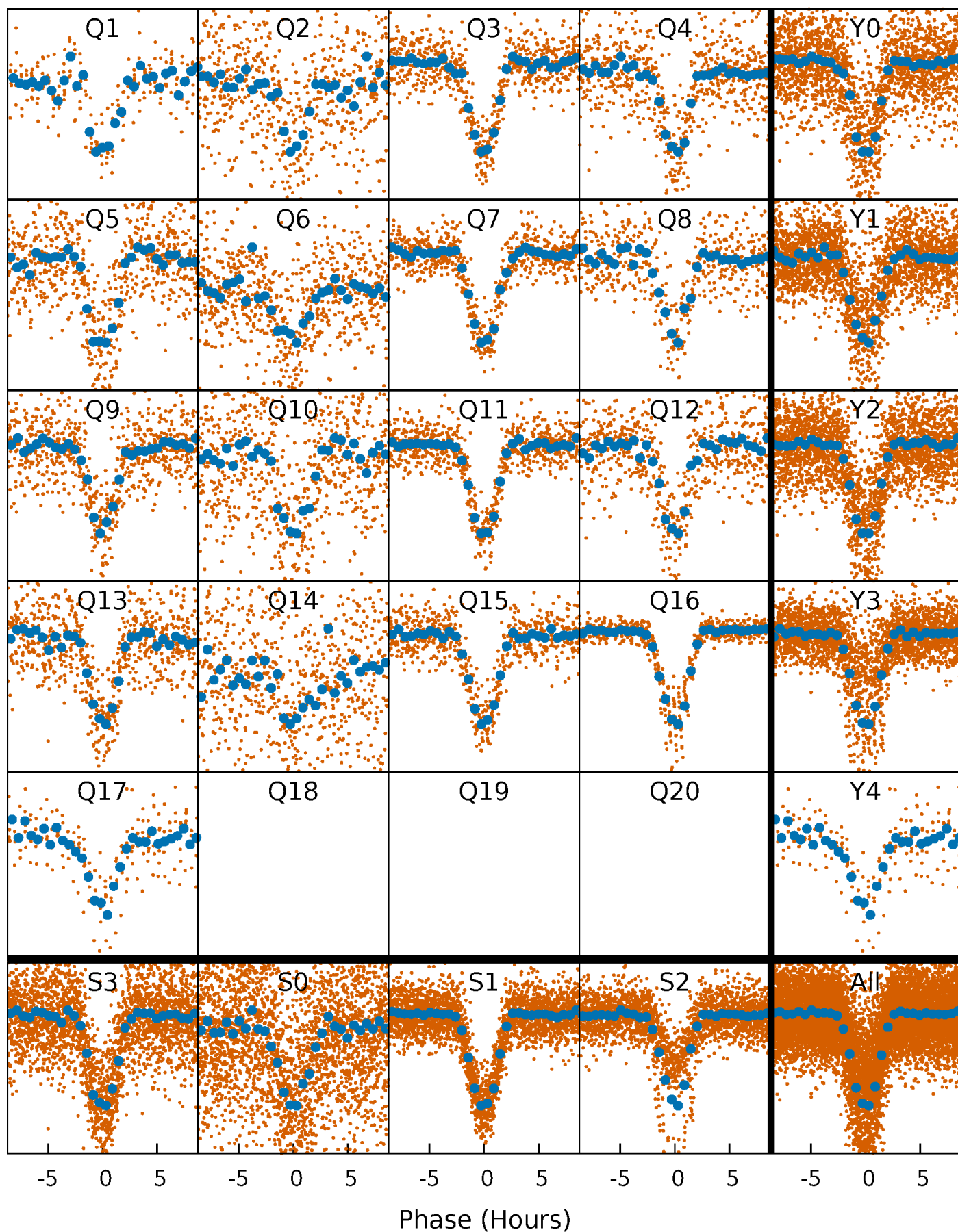


Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)



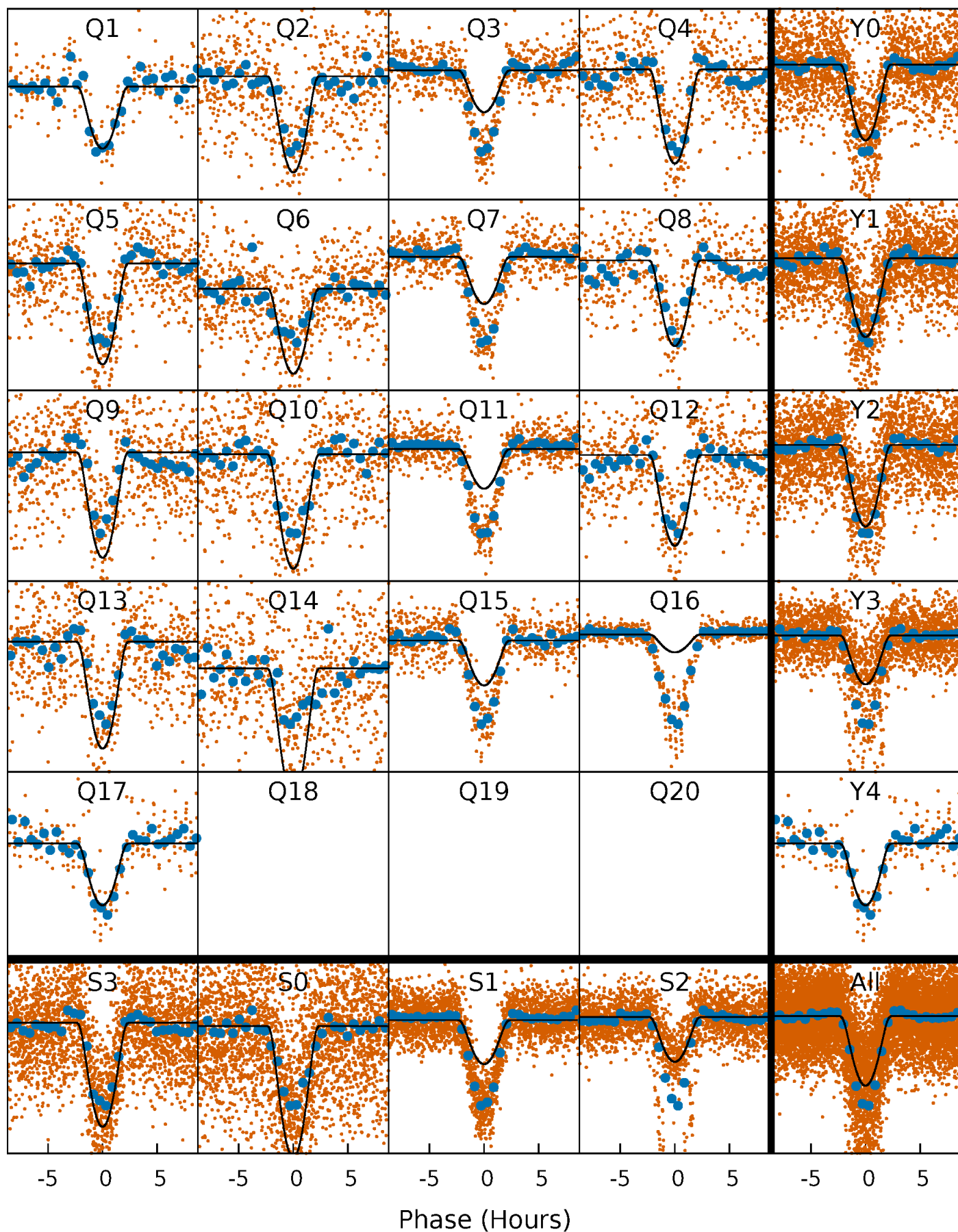
PDC Quarter-Phased Transit Curves

TCE 005816811-01 P= 4.455429 Days $T_0=134.455538$ (BKJD)



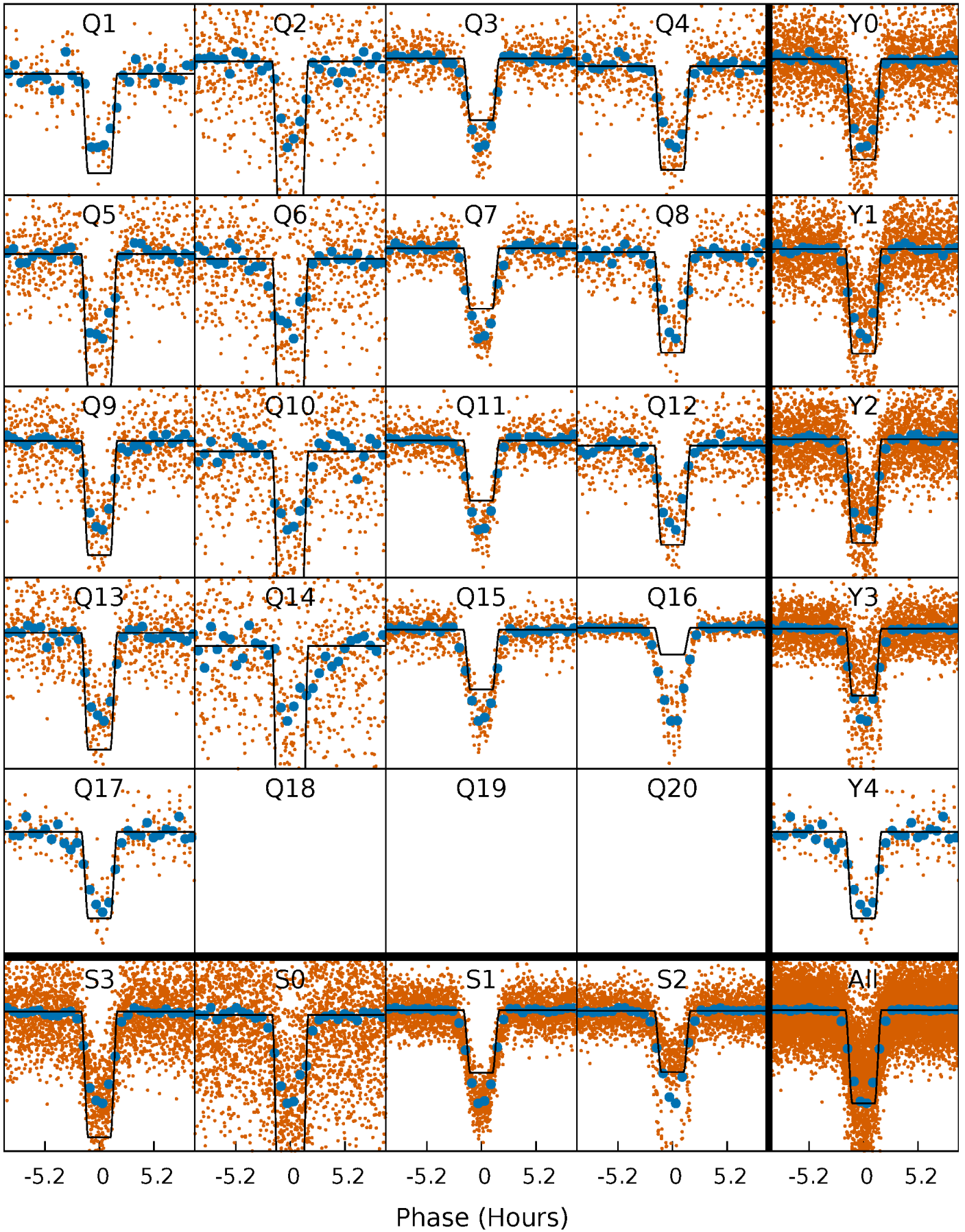
DV Quarter-Phased Transit Curves

TCE 005816811-01 P= 4.455429 Days $T_0=134.455538$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

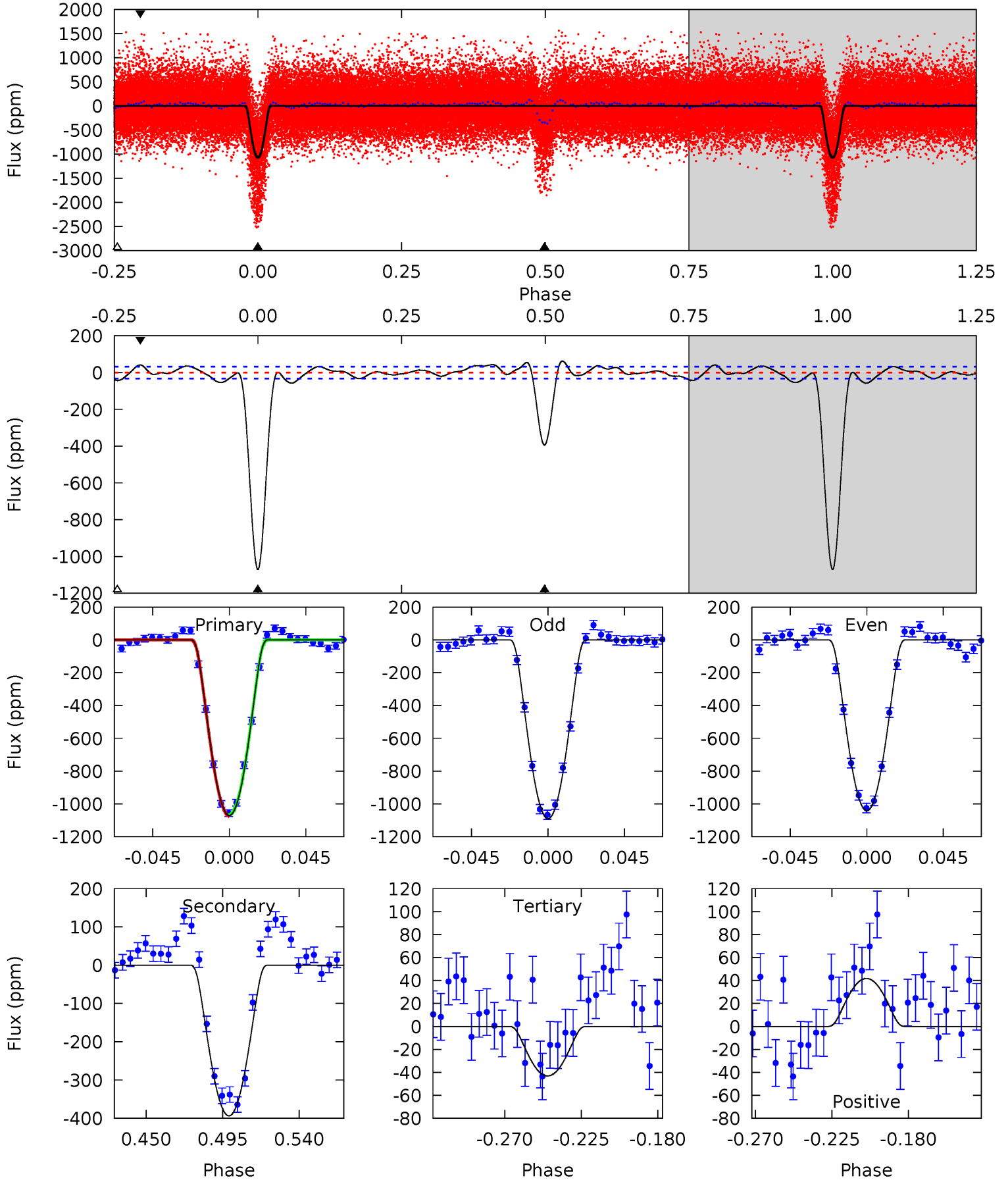
TCE 005816811-01 P= 4.455425 Days $T_0=134.456074$ (BKJD)



DV Model-Shift Uniqueness Test

005816811-01, P = 4.455429 Days, E = 130.000109 Days

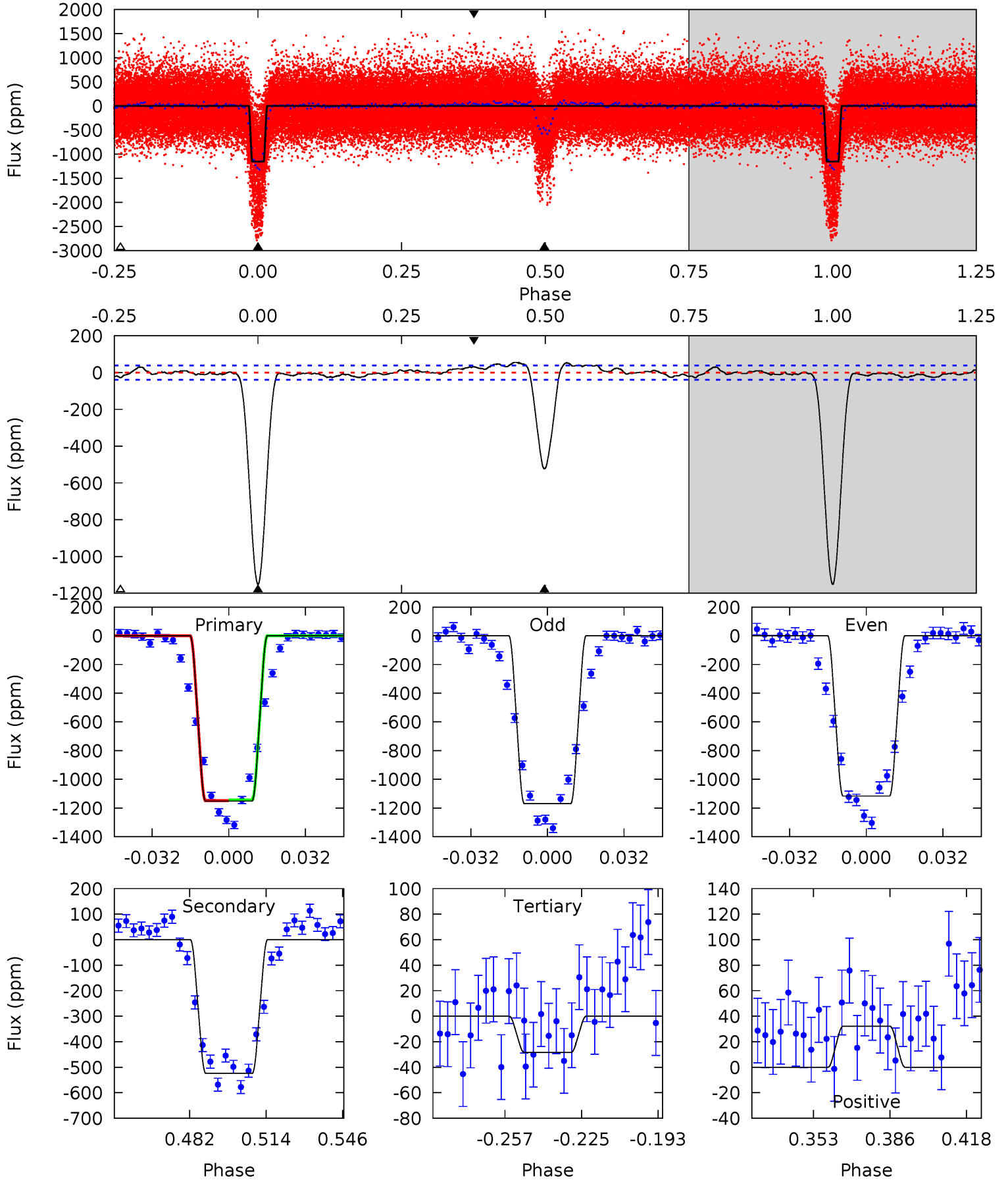
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
156.7	57.6	6.31	6.11	4.73	2.00	3.36	150.4	150.6	51.3	51.5	3.52	1.44	0.06	0.51



Alt Model-Shift Uniqueness Test

005816811-01, P = 4.455425 Days, E = 130.000649 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
142.4	64.8	3.52	3.98	4.80	2.14	2.47	138.9	138.4	61.2	60.8	3.22	1.23	0.05	0.31



Stellar Parameters For KIC 005816811

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	6038^{+181}_{-199}	$4.508^{+0.054}_{-0.216}$	$-0.220^{+0.300}_{-0.300}$	$0.922^{+0.291}_{-0.097}$	$1.000^{+0.130}_{-0.143}$	$1.795^{+0.389}_{-0.982}$
	+3%/-3%	+1%/-5%	+136%/-136%	+32%/-11%	+13%/-14%	+22%/-55%
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 005816811-01 / KOI 1042.01

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-394 ± 7	$5.27^{+2.01}_{-1.81}$	1585^{+122}_{-79}	4090^{+688}_{-422}	22^{+27}_{-10}
Alt.	-524 ± 8	$4.09^{+1.85}_{-1.65}$	1589^{+112}_{-84}	4750^{+1243}_{-606}	47^{+86}_{-24}

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

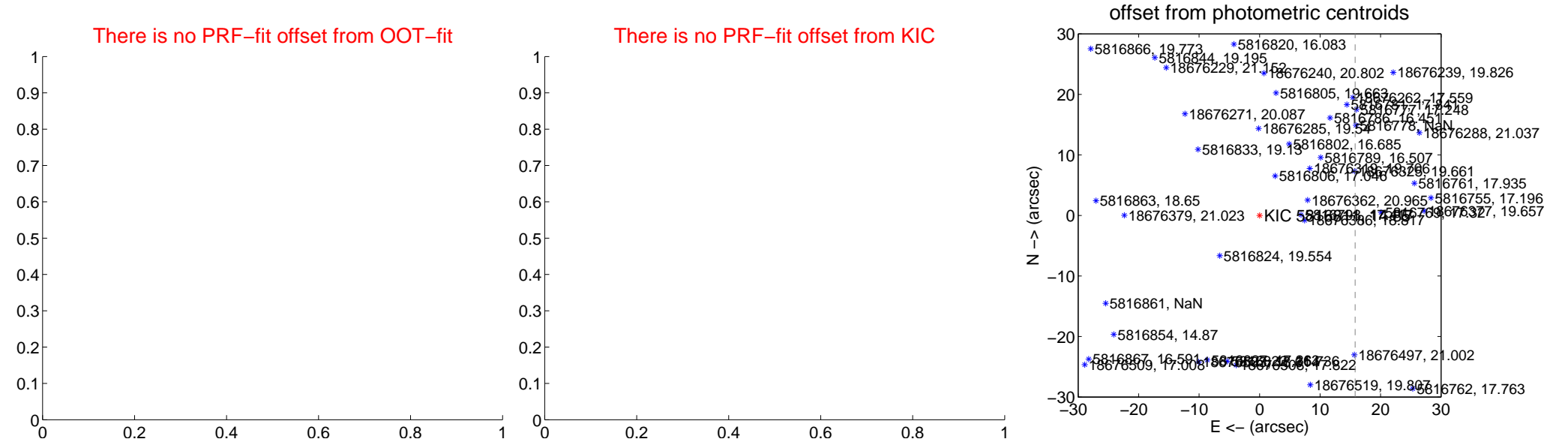
DV Centroid Data

Supplemental centroid analysis for 005816811-01. Kepler magnitude: 14.85. Transit SNR 73.16

There are 0 quarters with good PRF difference image offsets

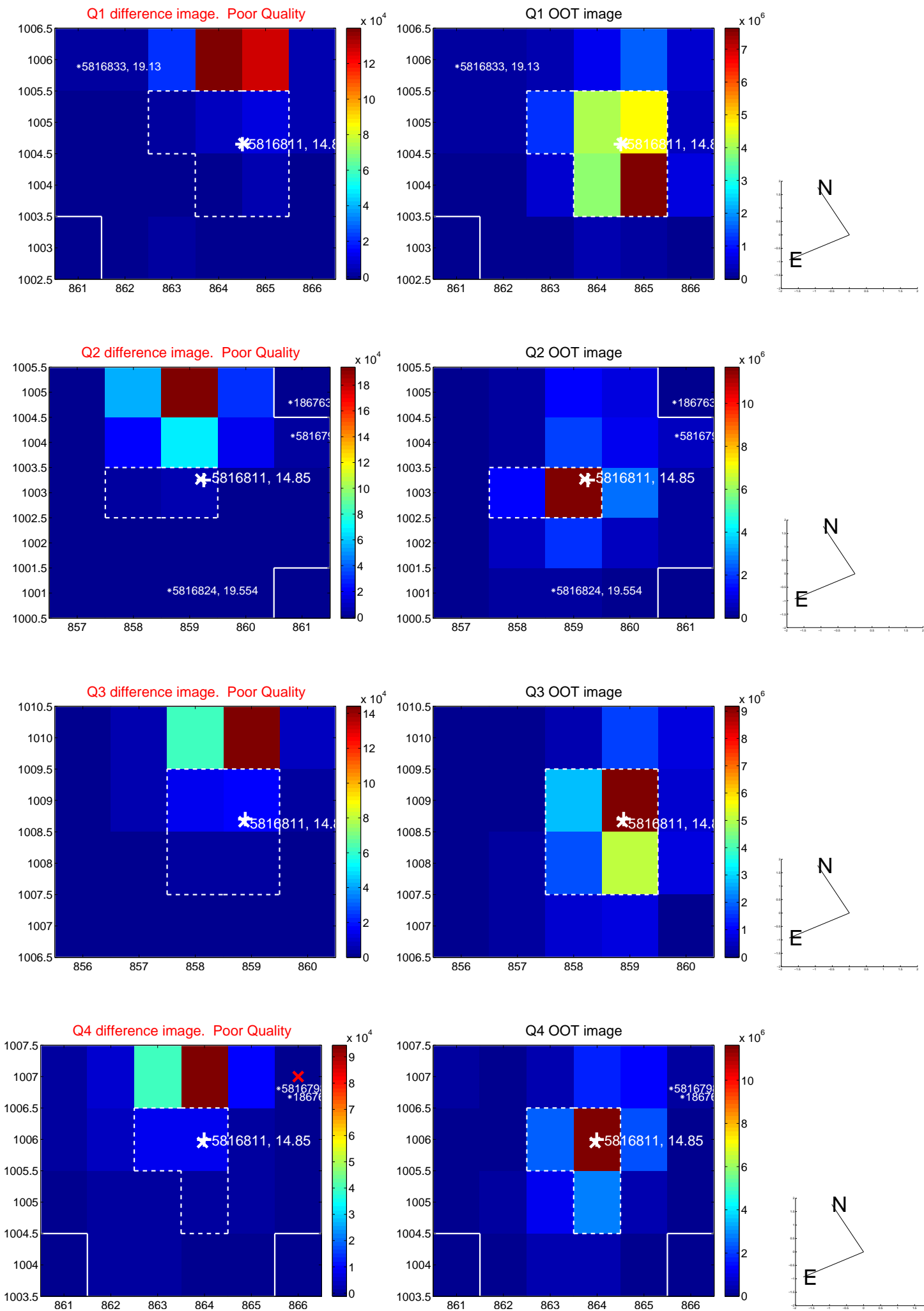
The direct PRF centroid is offset from the target star catalog position by about NaN arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	—	—	—	—
PRF-fit source offset from KIC position	—	—	—	—
photometric centroid source offset	48.03 ± 0.15	320.39	-15.79 ± 0.19	45.36 ± 0.14

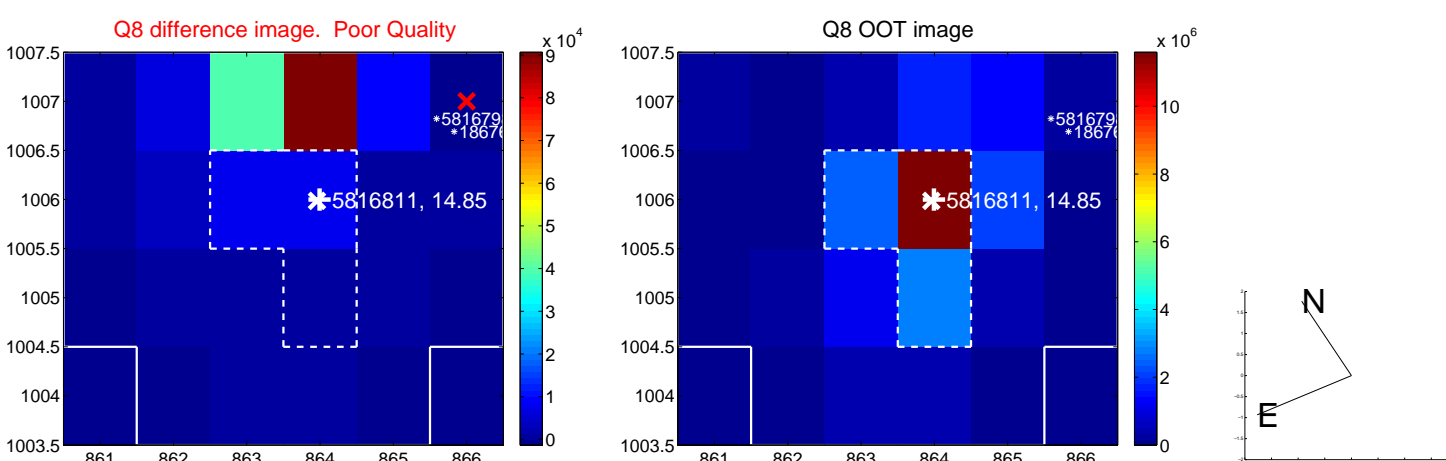
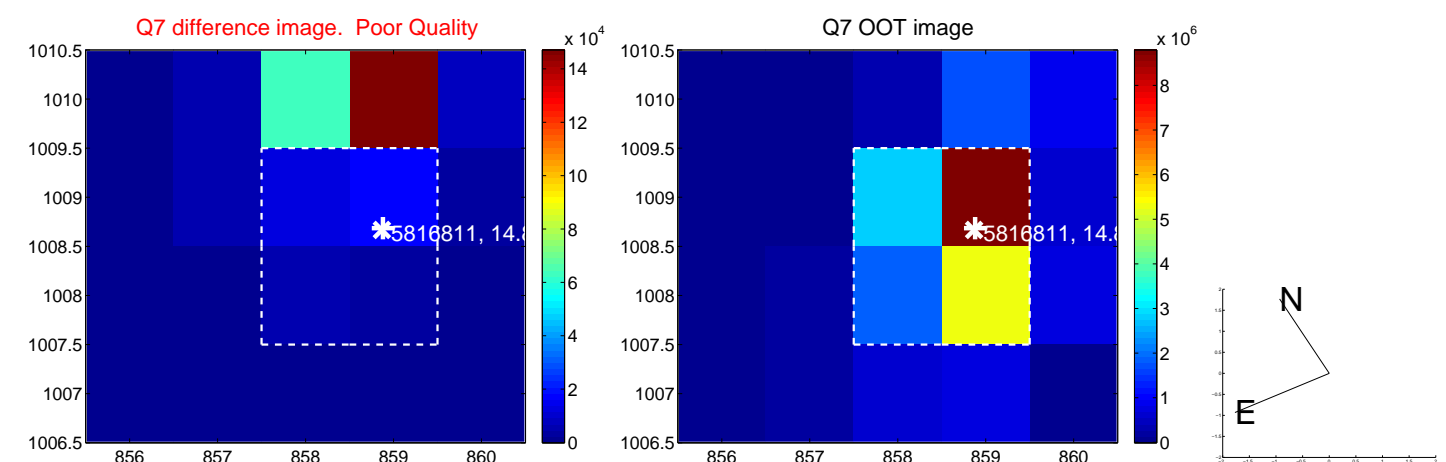
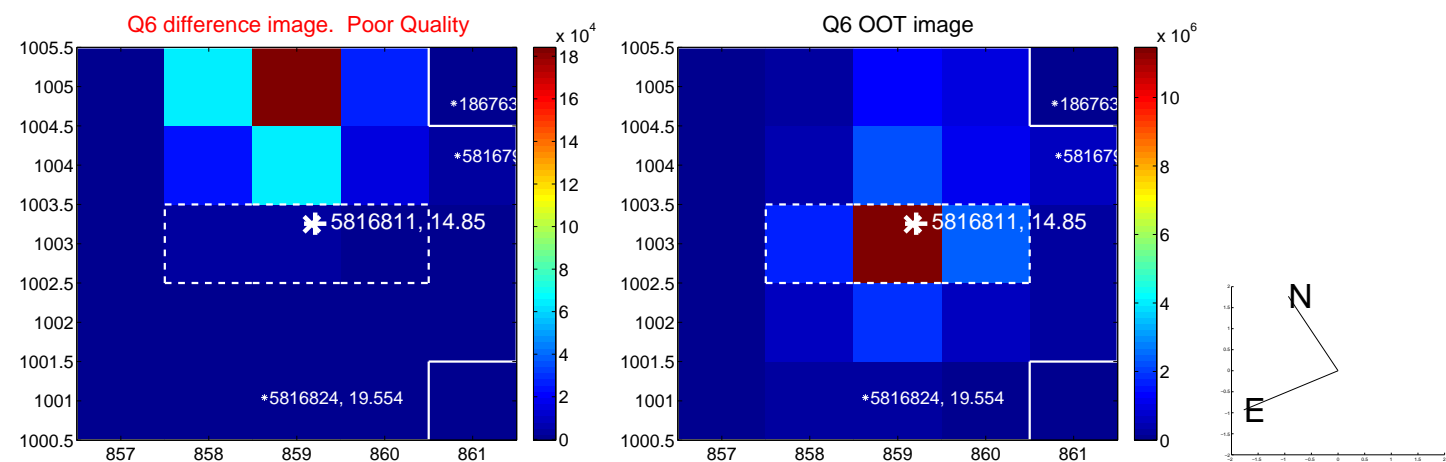
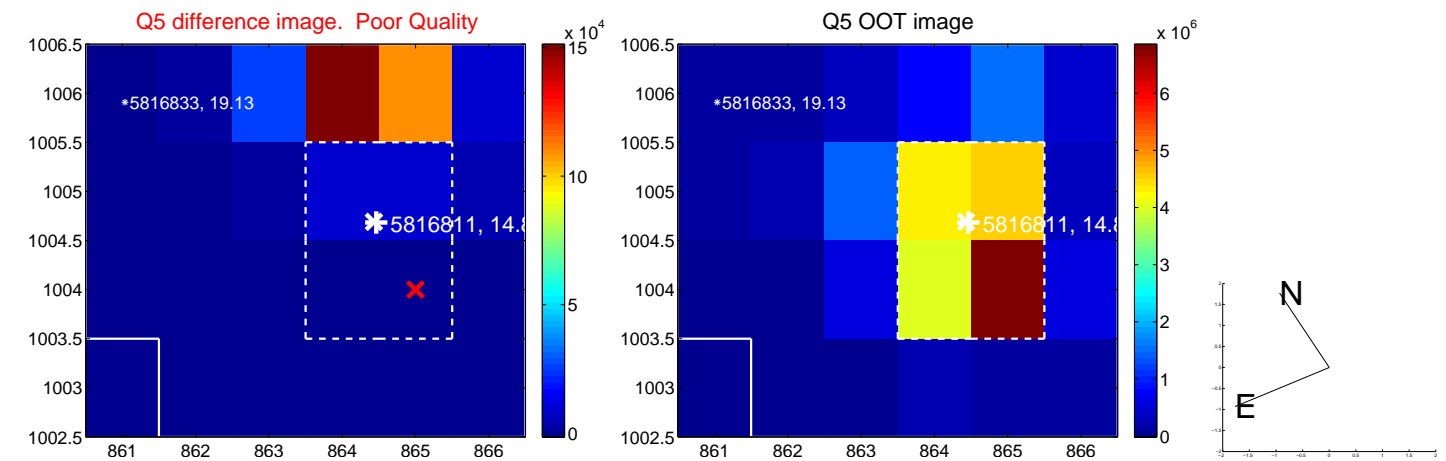


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ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

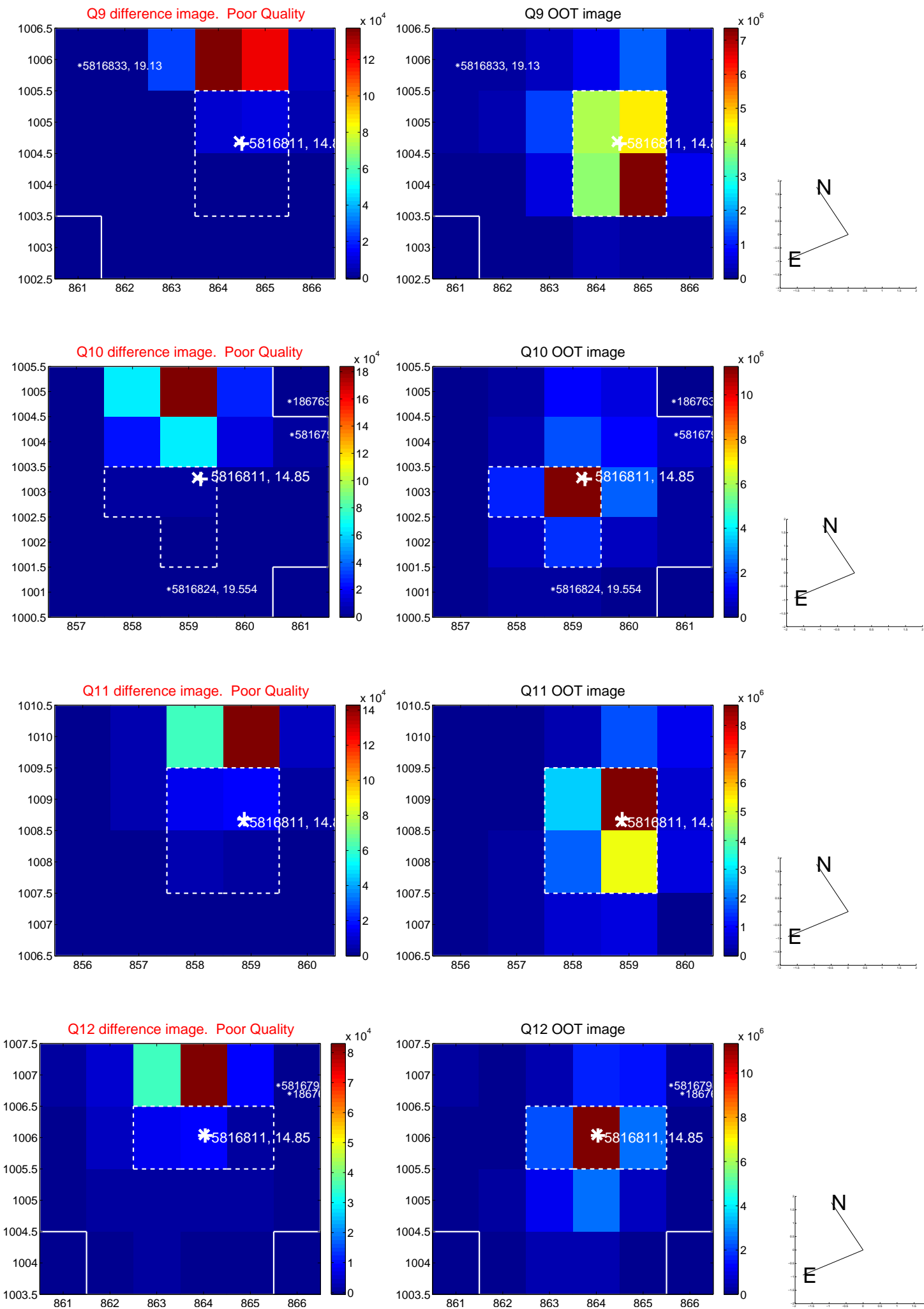
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



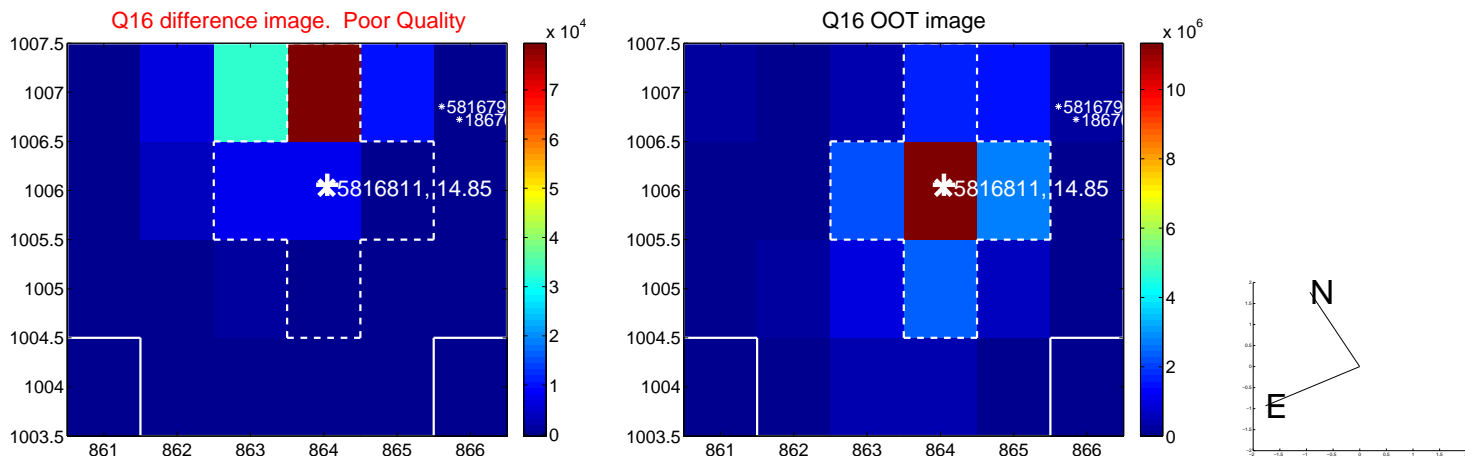
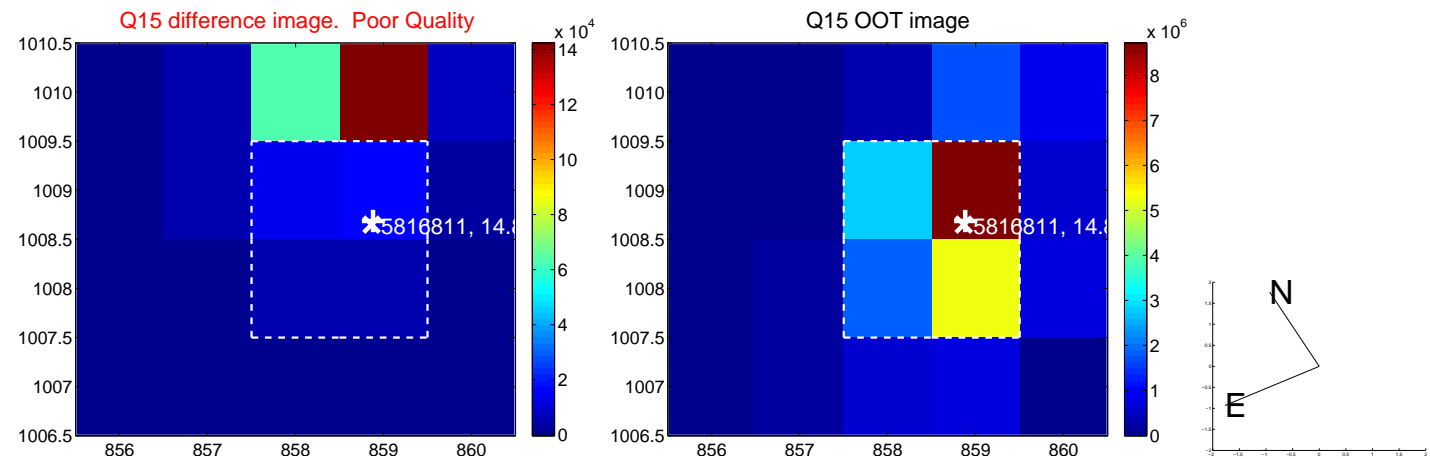
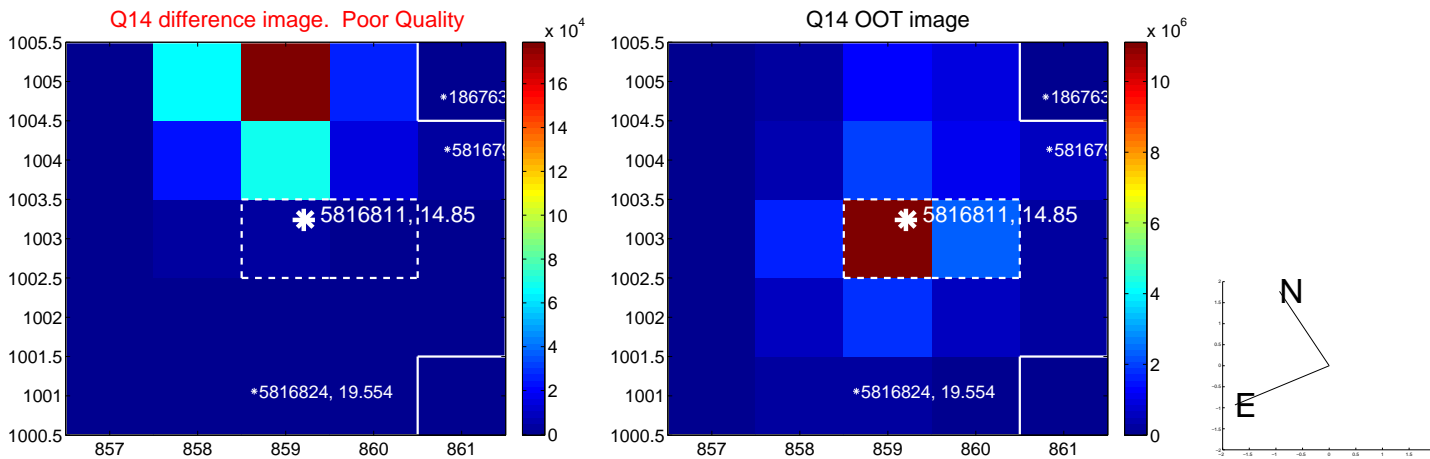
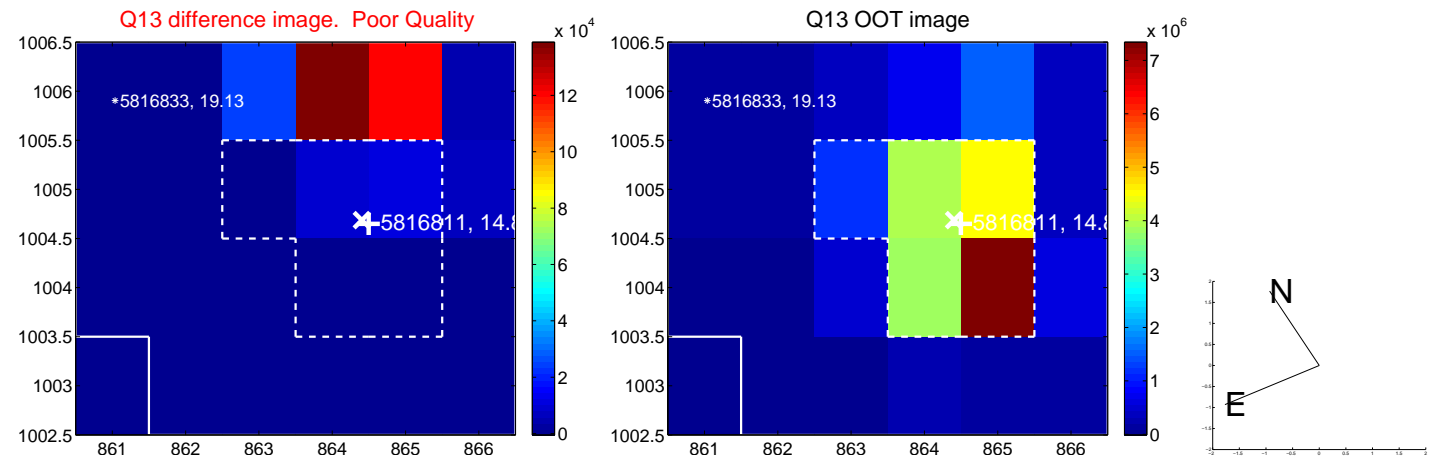
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



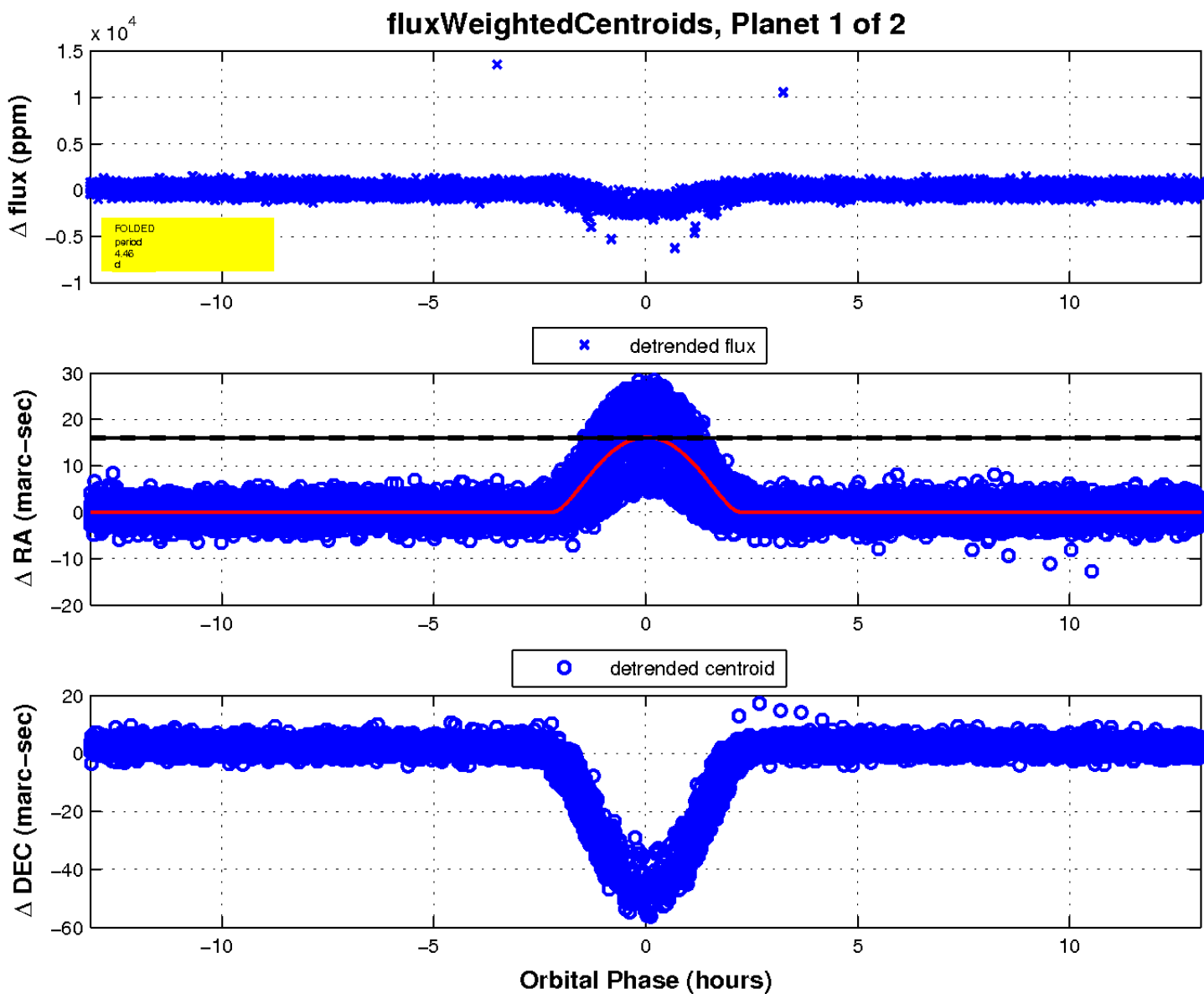
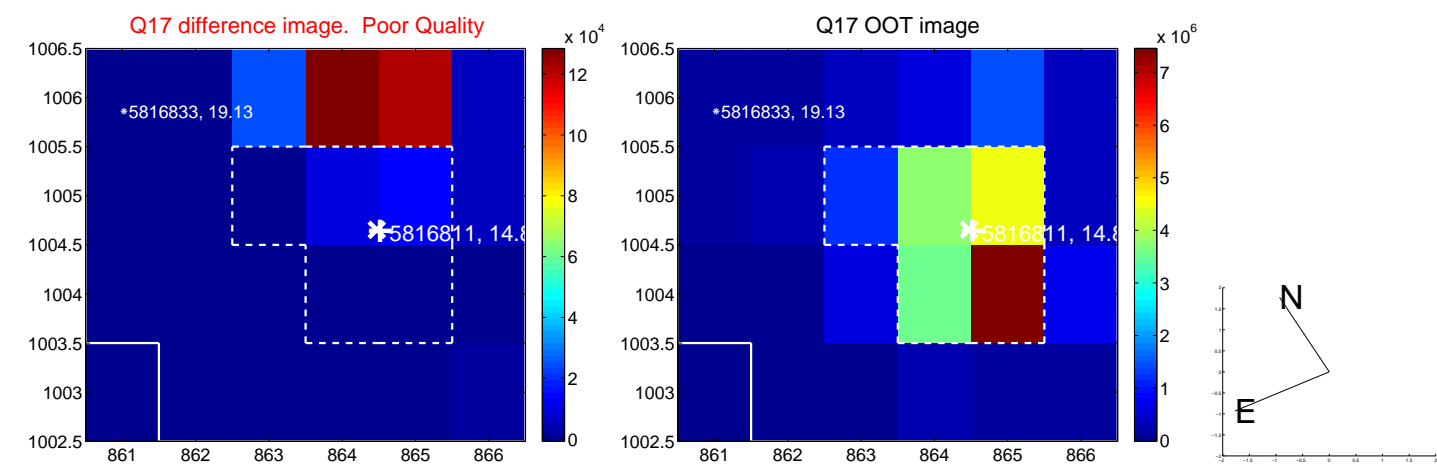
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

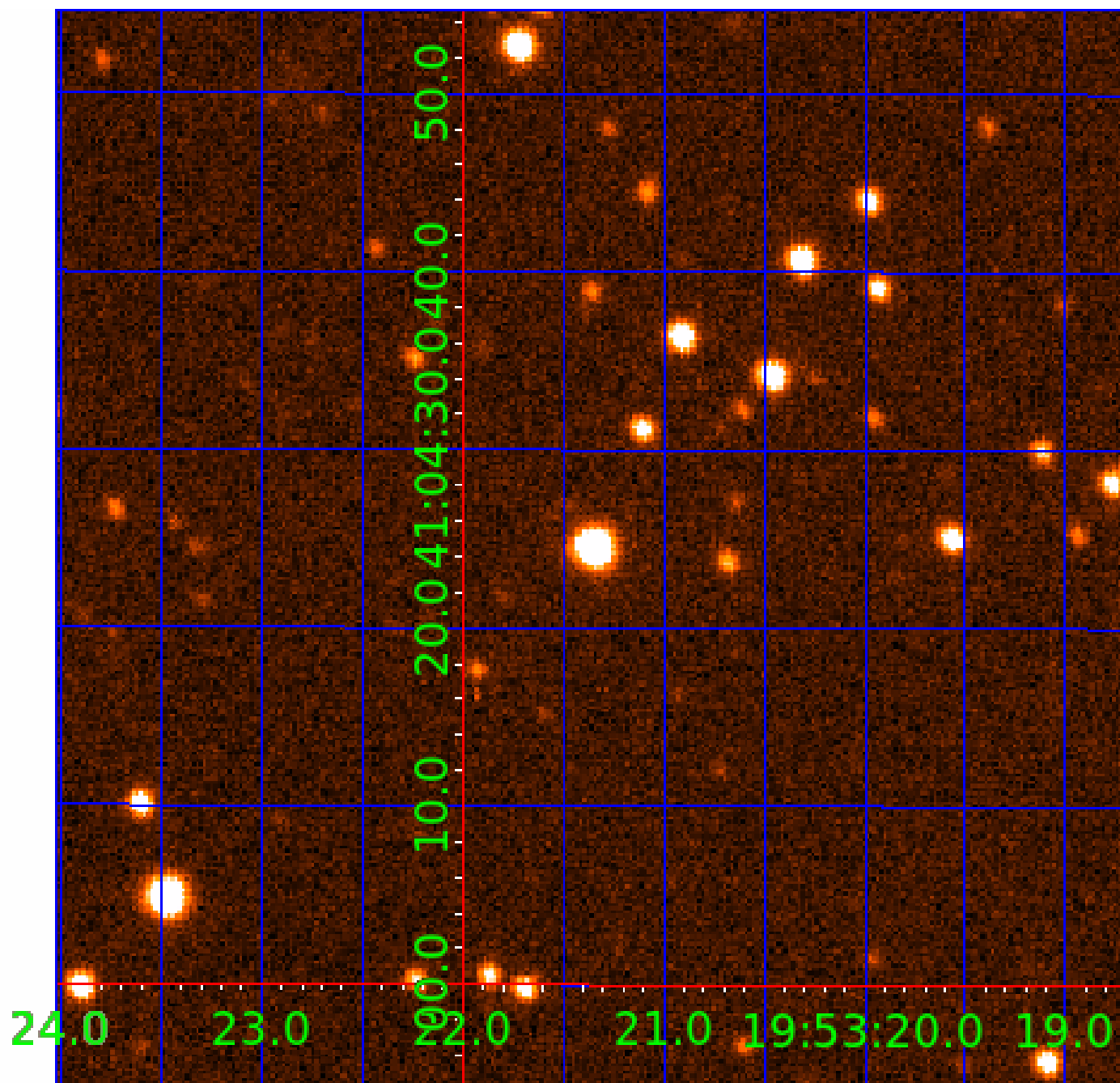


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 005816811

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})
005816811-01	OBS	1042.01	4.455429	134.455538	1005.4	4.366	103.1	73.2	0.92	6038	4.99	360.66
005816811-02	OBS	No	4.455433	132.221589	400.8	3.811	42.8	33.8	0.92	6038	2.39	360.66

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
005816811-01	OBS	FP	0.00	0	1	1	1	MOD_SEC_DV—MOD_SEC_ALT—HAS_SEC_TCE—CENT_RESOLVED_OFFSET—EPHEM_MATCH
005816811-02	OBS	FP	0.00	1	1	1	1	IS_SEC_TCE—CENT_RESOLVED_OFFSET—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 005816811-02

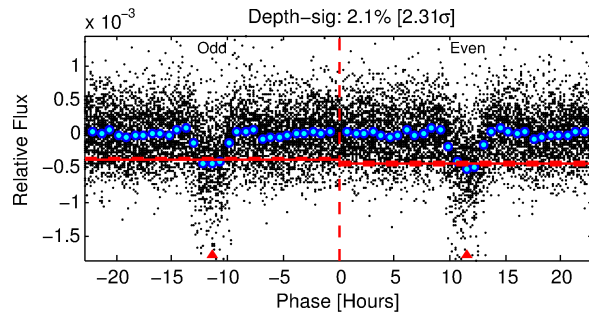
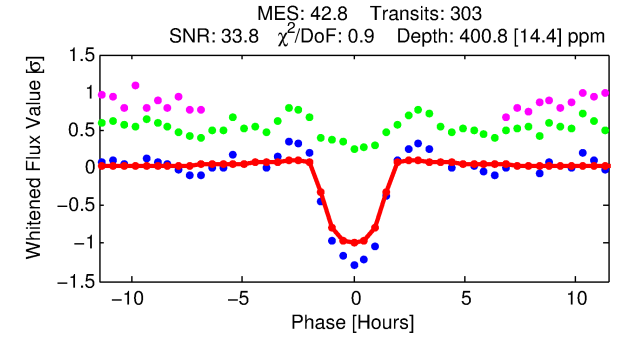
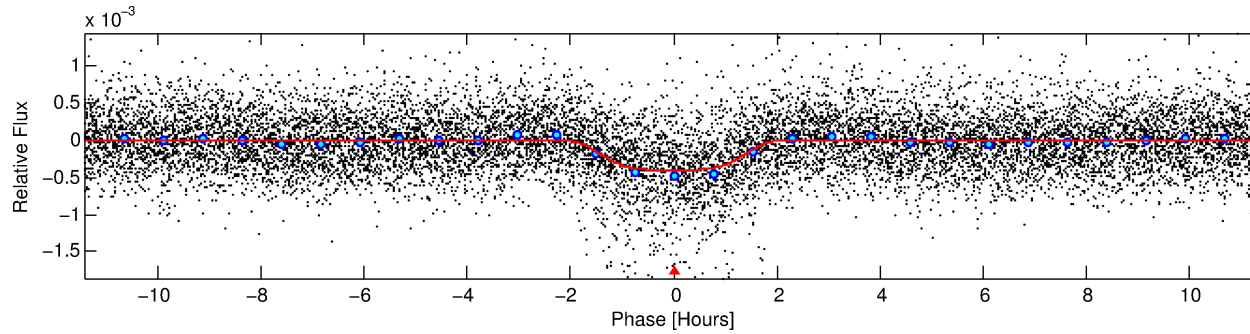
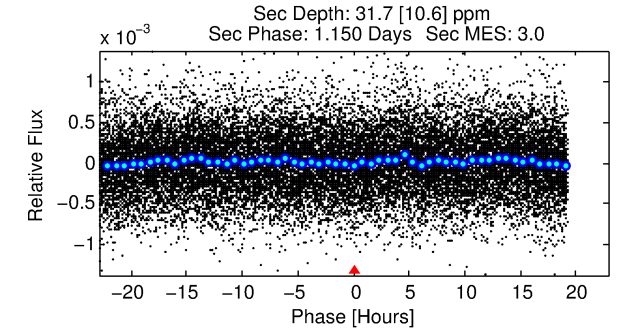
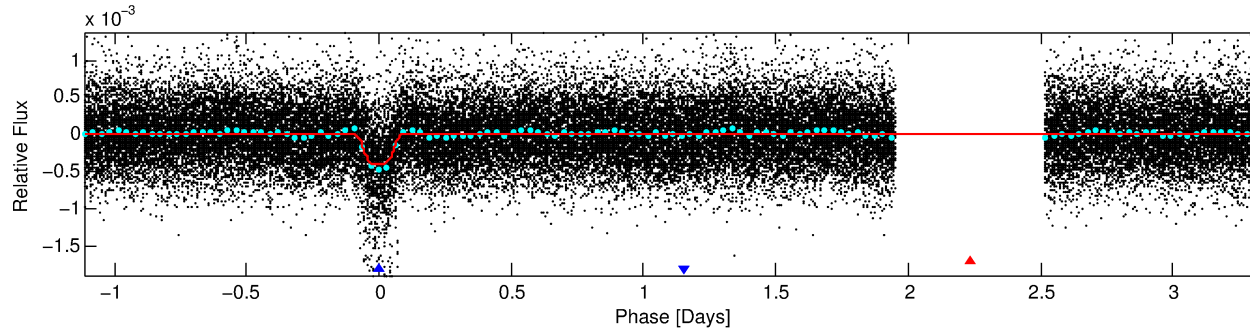
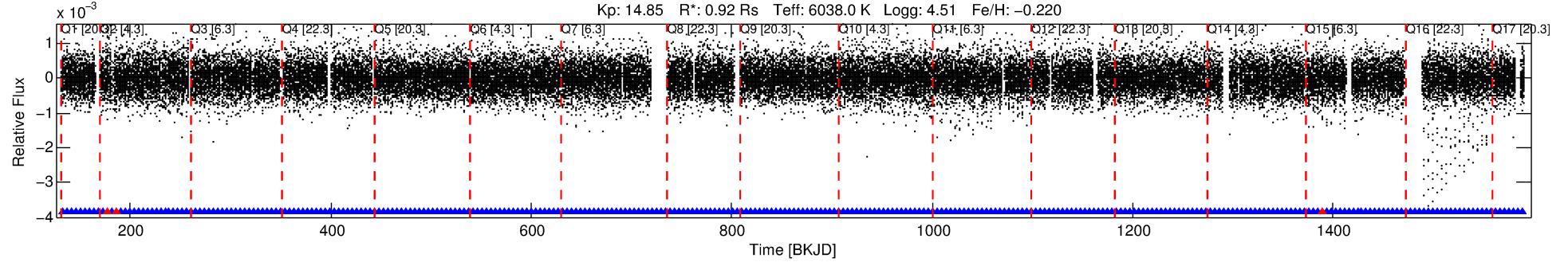
TCE (1)	KIC	Parent (2)	Parent KIC	$P_1:P_2$	Dist ($''$)	Δ Row	Δ Col	m_2	m_1	D_2/D_1	Mechanism	Flag	σ_P	σ_T
005816811-02	5816811	005816806-01	5816806	2:1	7.0	-2	0	17.05	14.85	479.15	Direct-PRF	0	0.44	0.07

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: 5816811 Candidate: 2 of 2 Period: 4.455 d
KOI: K01042 Corr: No Ephemeris Match

Kp: 14.85 R*: 0.92 Rs Teff: 6038.0 K Logg: 4.51 Fe/H: -0.220



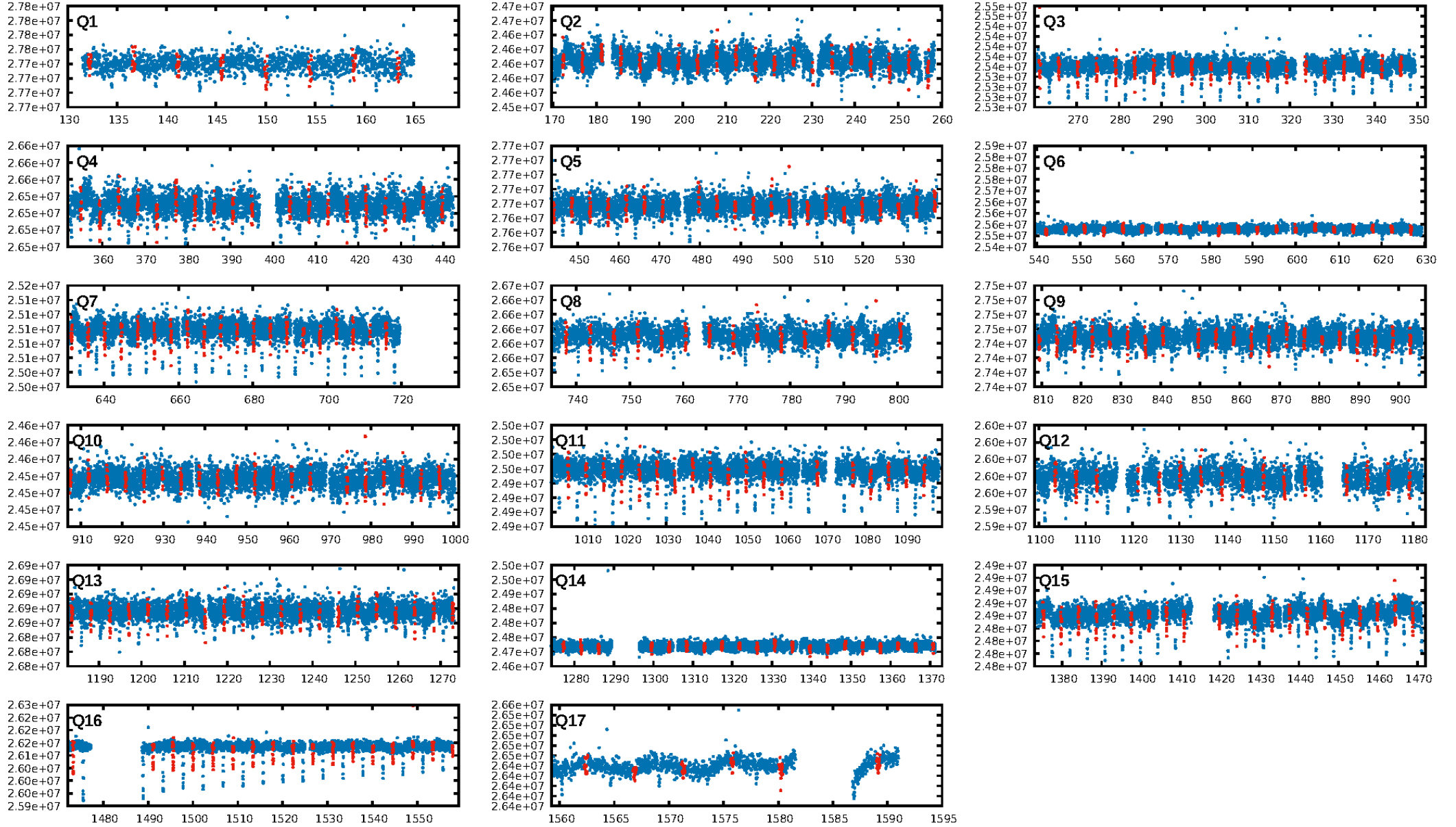
DV Fit Results:

Period = 4.45543 [0.00001] d
Epoch = 132.2216 [0.0021] BKJD
Rp/R* = 0.0238 [0.0007]
a/R* = 3.18 [0.25]
b = 0.97 [0.01]
Seff = 360.66 [149.40]
Teq = 1111 [115] K
Rp = 2.39 [0.76] Re
a = 0.0530 [0.0142] AU
Ag = 8.54 [4.44] [1.70σ]
Teffp = 2937 [268] K [6.27σ]

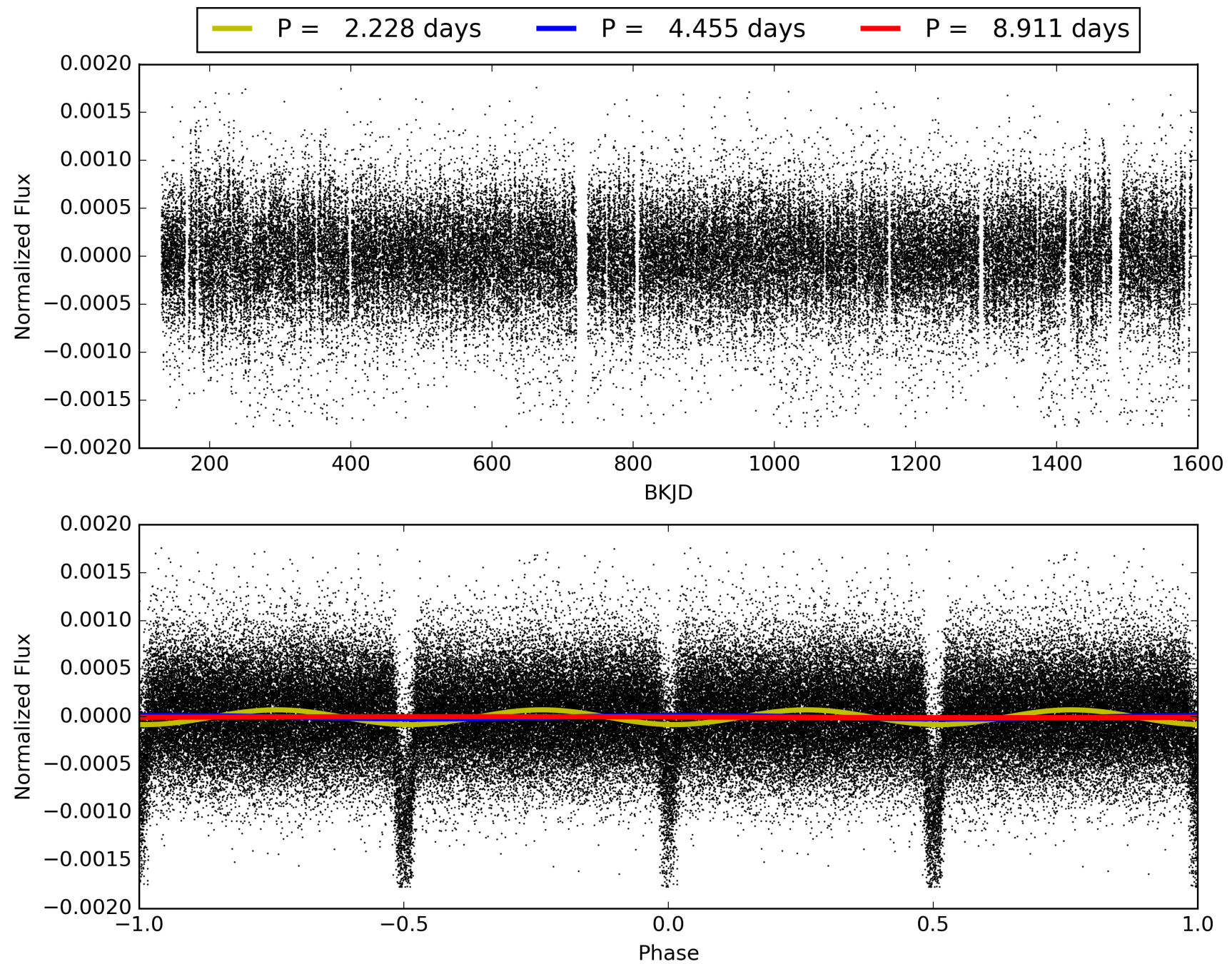
DV Diagnostic Results:

ShortPeriod-sig: 0.0% [0.00σ]
LongPeriod-sig: N/A
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: 0.00e+00
RollingBand-fgt: 0.99 [286/289]
GhostDiagnostic-chr: -0.3879
Centroid-sig: N/A
Centroid-so: 58.545 arcsec [166.92σ]
OotOffset-rm: N/A
KicOffset-rm: N/A
OotOffset-st: 0/0/0/0 [0]
KicOffset-st: 0/0/0/0 [0]
DiffImageQuality-fgm: N/A
DiffImageOverlap-fno: 1.00 [17/17]

TCE 005816811-02, PDC Light Curves

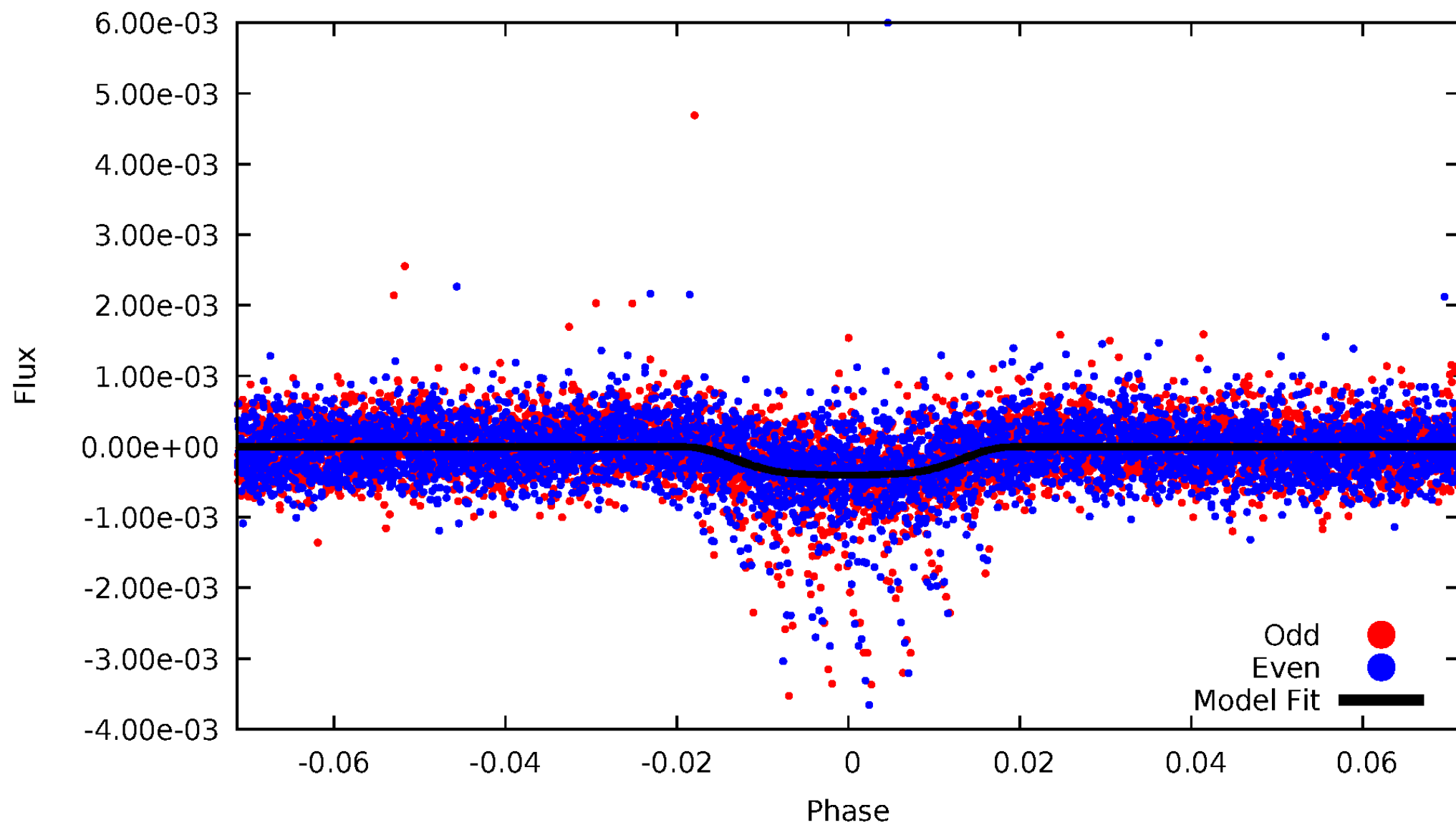


TCE 005816811-02



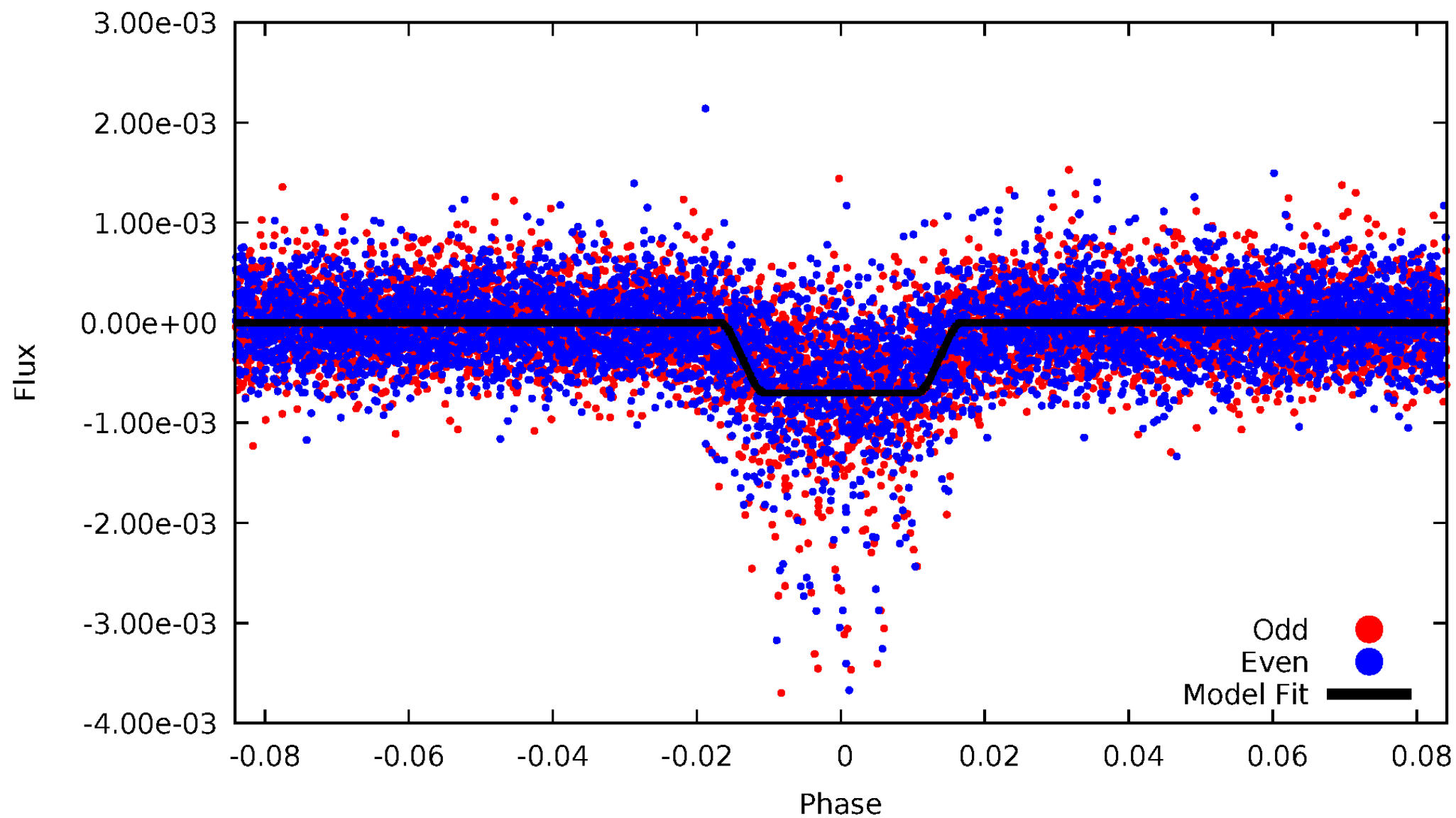
DV Odd/Even

TCE 005816811-02



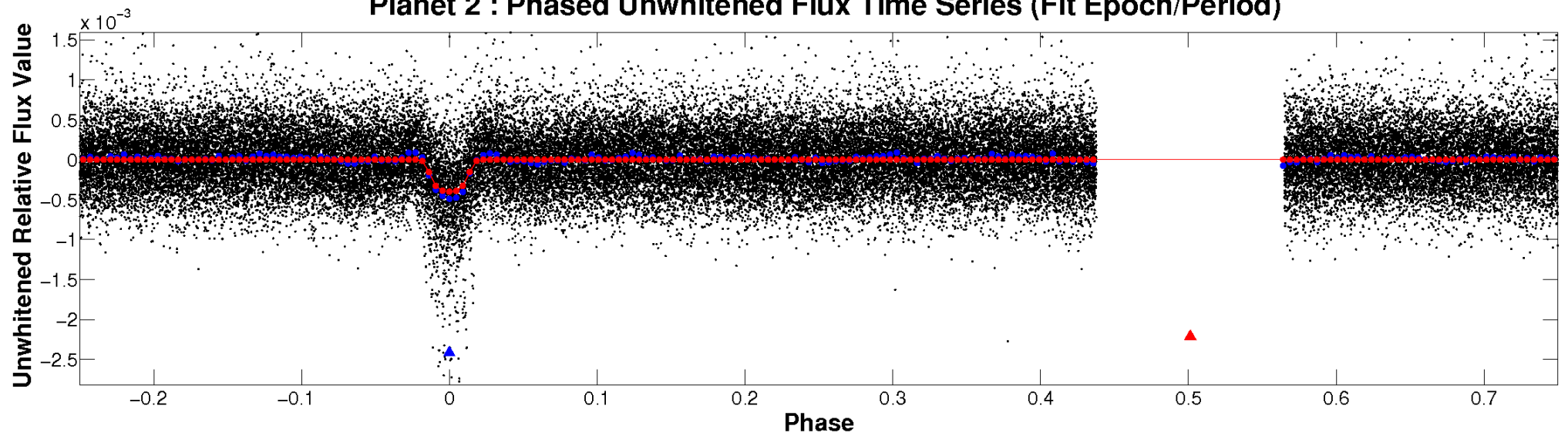
ALT Odd/Even

TCE 005816811-02

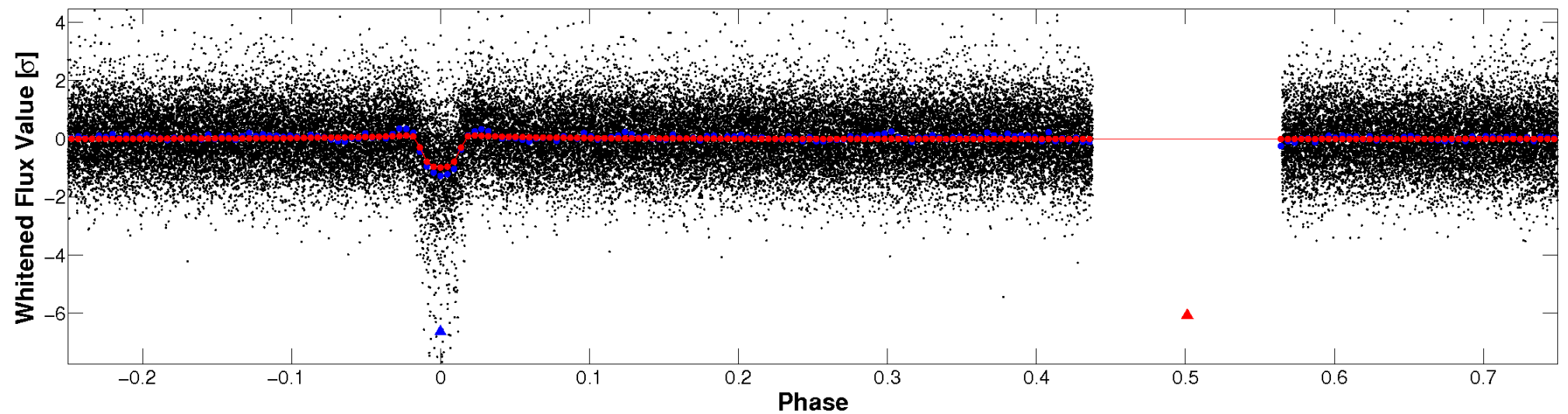


Non-Whitened Vs. Whitened Light Curve

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

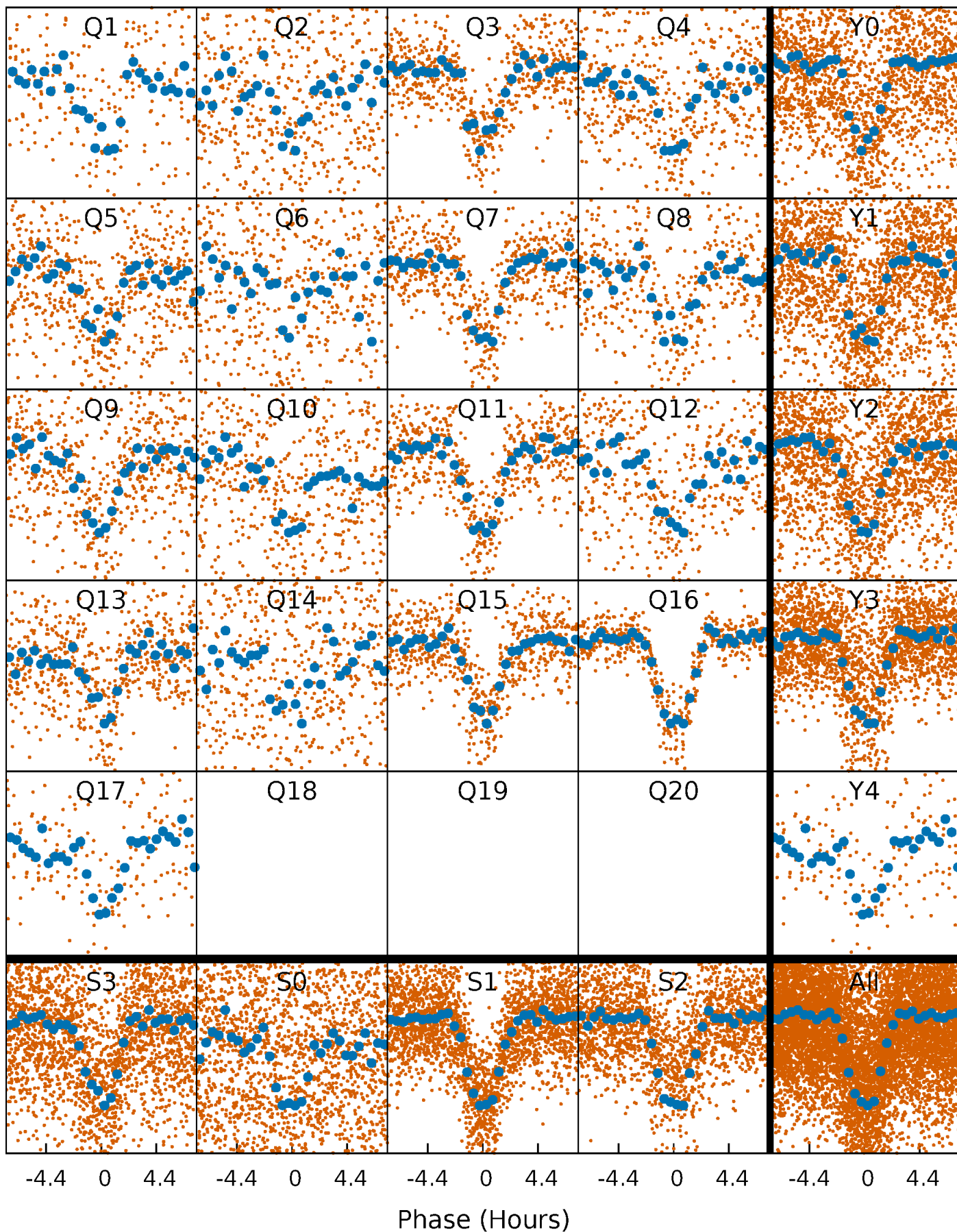


Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



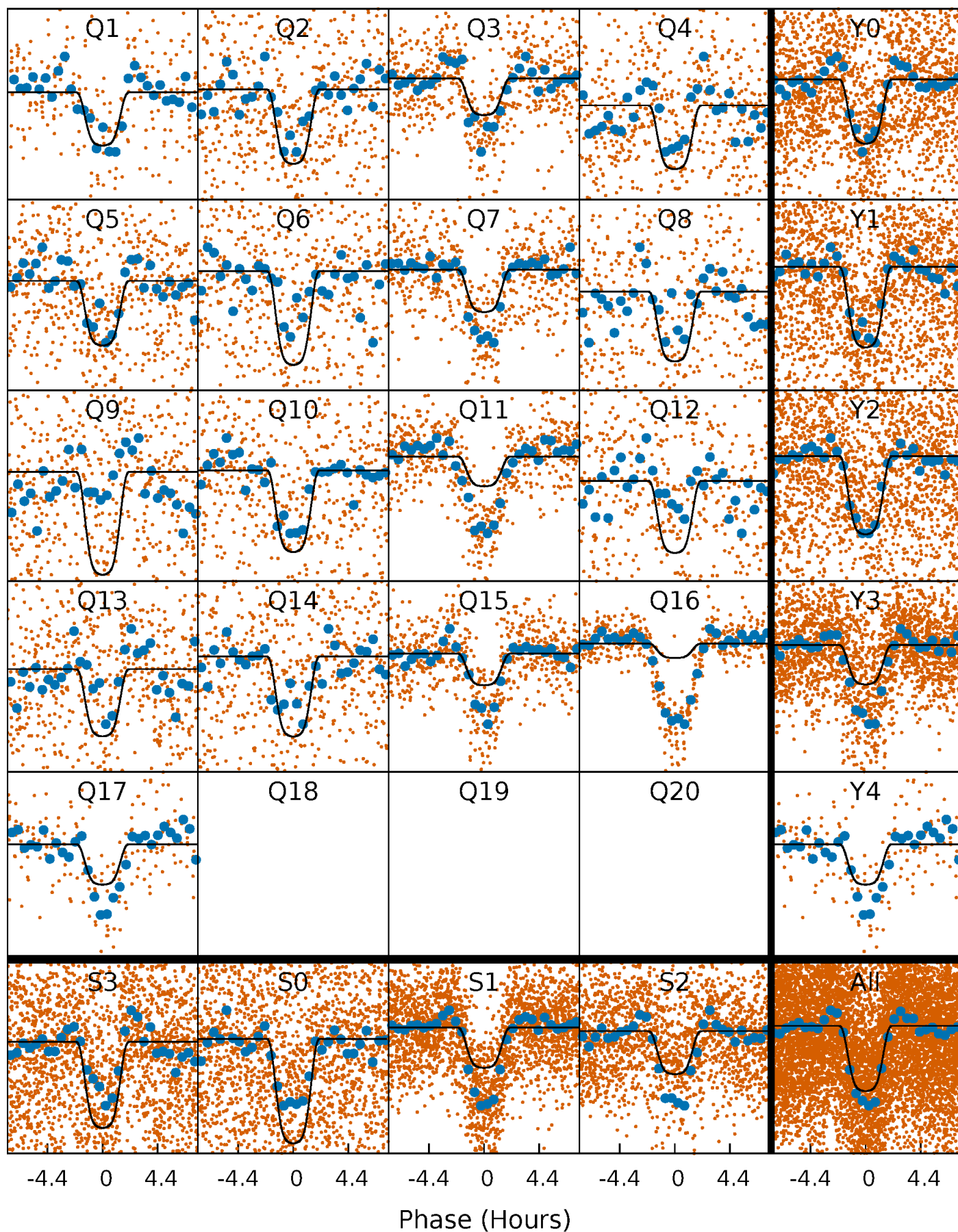
PDC Quarter-Phased Transit Curves

TCE 005816811-02 P= 4.455433 Days $T_0=132.221589$ (BKJD)



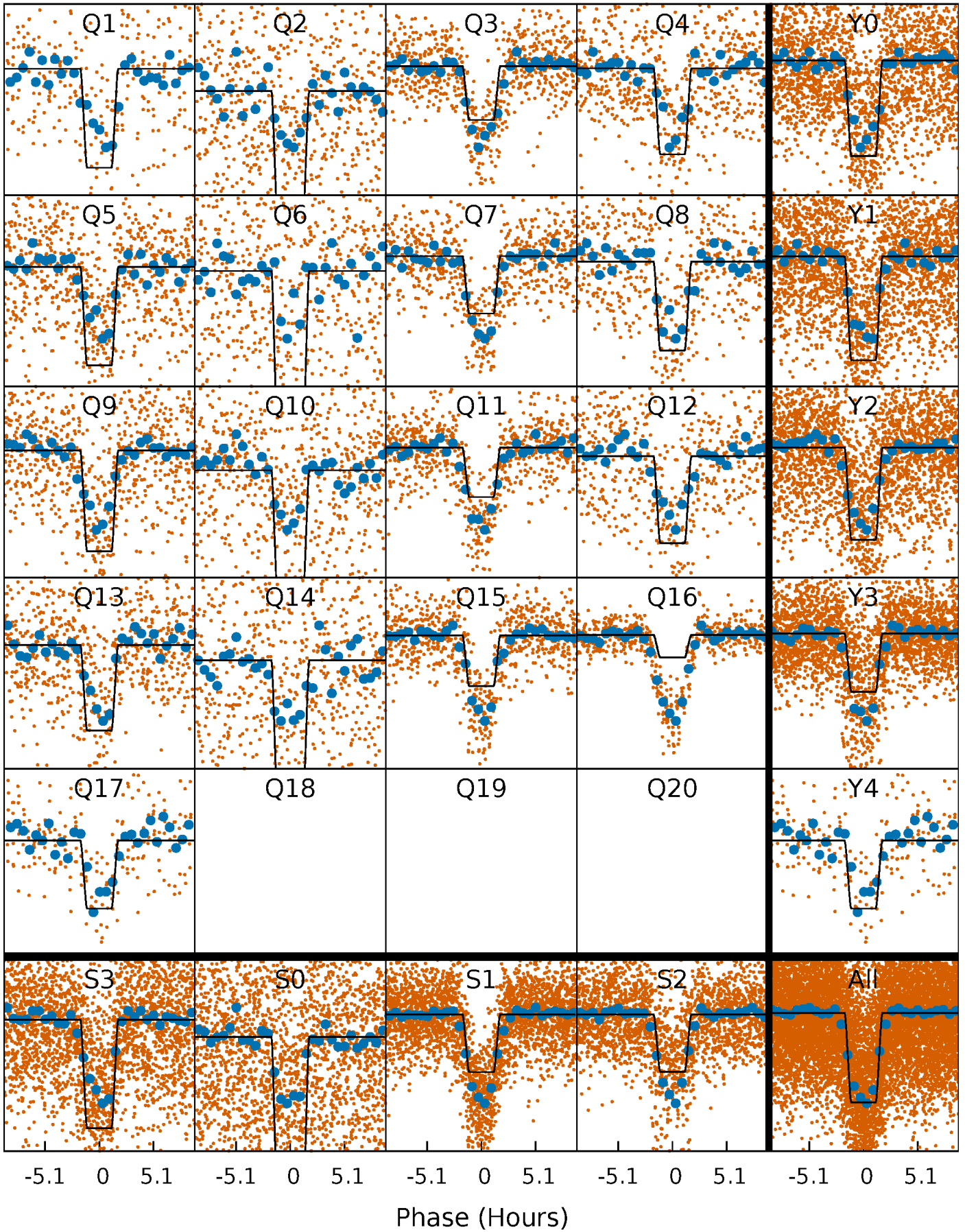
DV Quarter-Phased Transit Curves

TCE 005816811-02 P= 4.455433 Days $T_0=132.221589$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

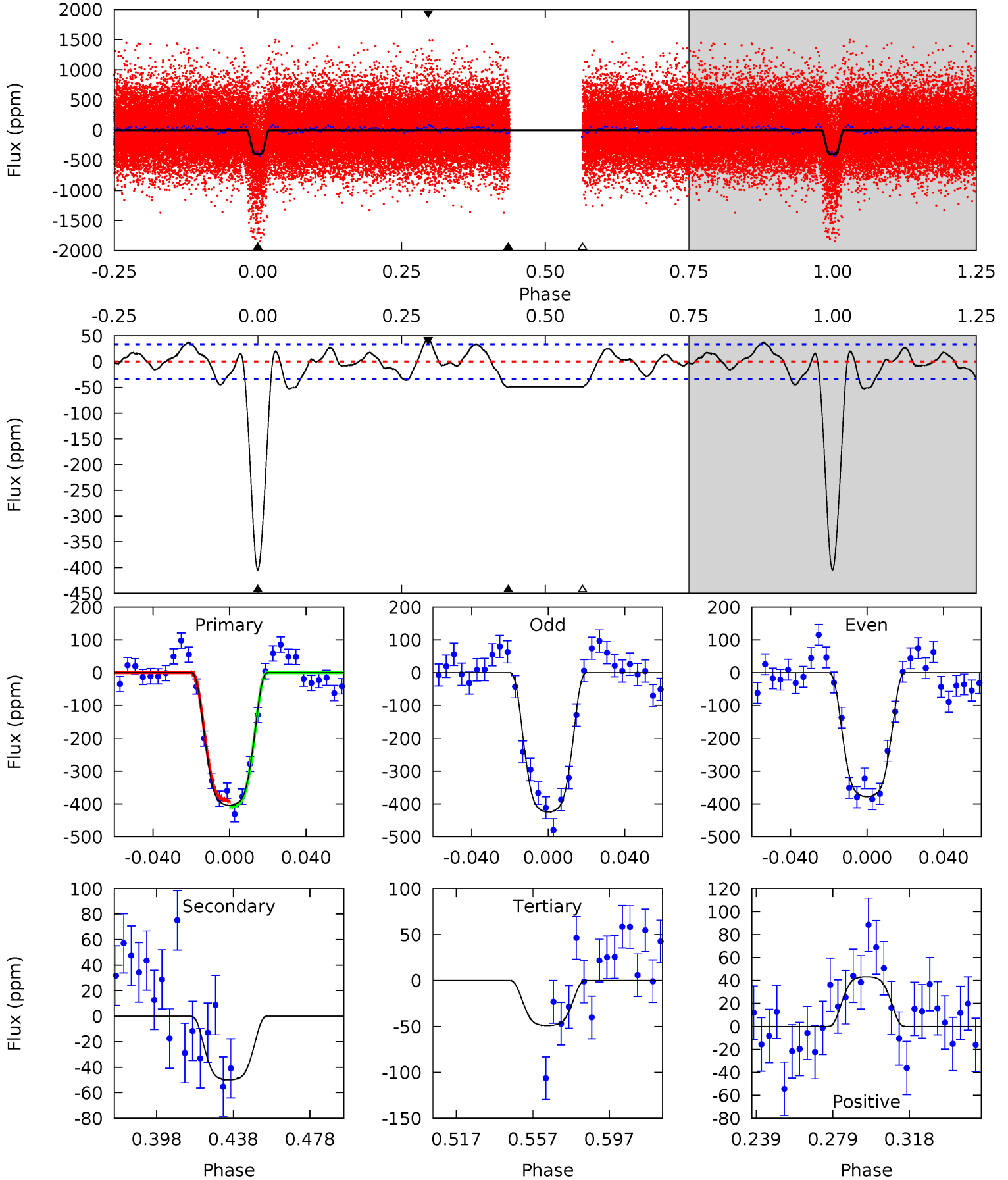
TCE 005816811-02 P= 4.455471 Days $T_0=132.215652$ (BKJD)



DV Model-Shift Uniqueness Test

005816811-02, P = 4.455433 Days, E = 127.766156 Days

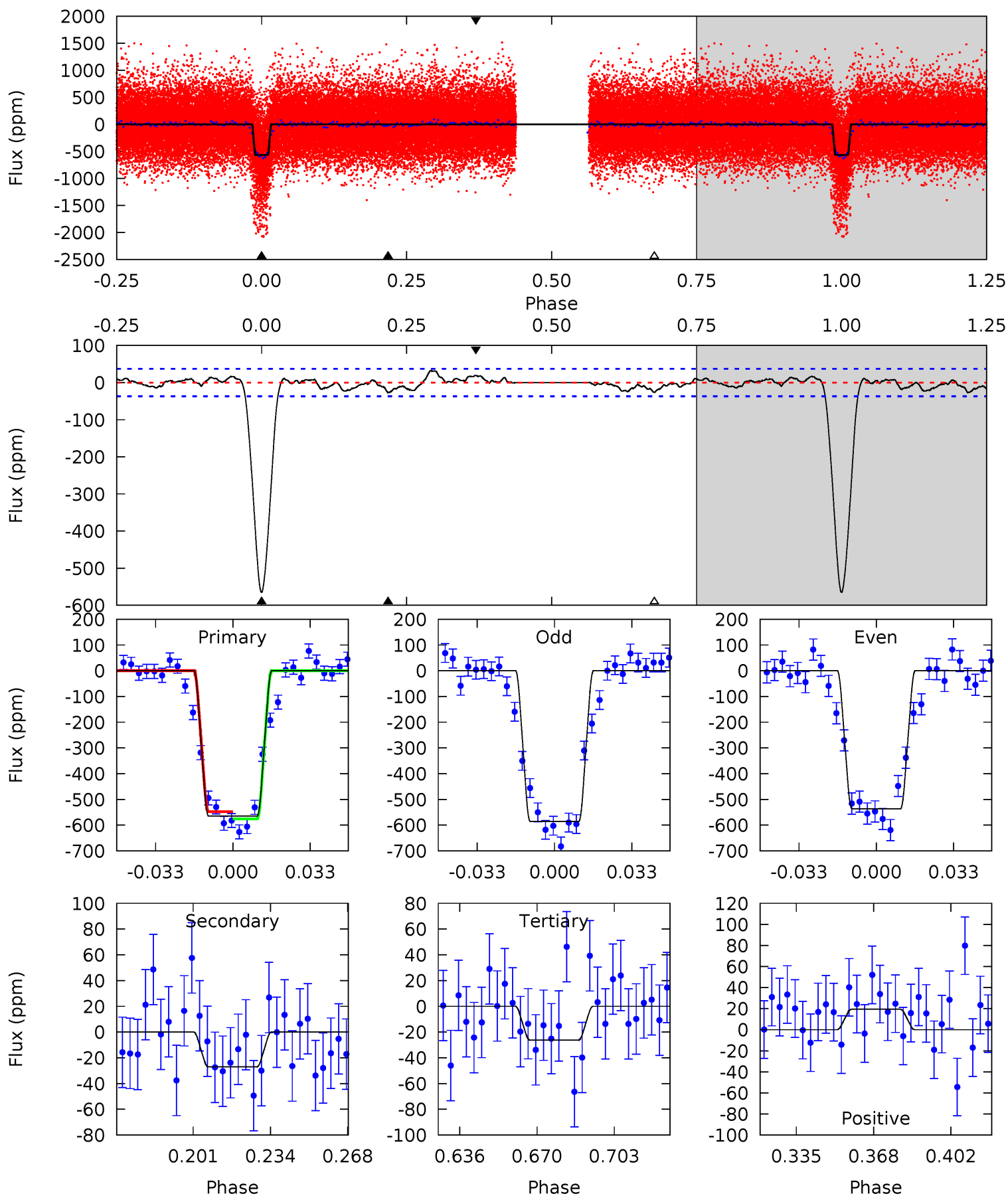
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
56.8	7.02	6.91	6.08	4.75	2.06	2.90	49.9	50.8	0.11	0.93	3.27	1.39	0.10	1.37



Alt Model-Shift Uniqueness Test

005816811-02, P = 4.455471 Days, E = 127.760181 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
72.8	3.48	3.38	2.50	4.79	2.13	1.45	69.4	70.3	0.10	0.98	3.15	1.21	0.05	1.76



Stellar Parameters For KIC 005816811

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	6038^{+181}_{-199}	$4.508^{+0.054}_{-0.216}$	$-0.220^{+0.300}_{-0.300}$	$0.922^{+0.291}_{-0.097}$	$1.000^{+0.130}_{-0.143}$	$1.795^{+0.389}_{-0.982}$
	+3%/-3%	+1%/-5%	+136%/-136%	+32%/-11%	+13%/-14%	+22%/-55%
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 005816811-02 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-50 ± 7	$2.46^{+0.40}_{-0.21}$	1585^{+111}_{-83}	3680^{+122}_{-117}	12^{+3}_{-3}
Alt.	-27 ± 8	$2.71^{+0.45}_{-0.23}$	1581^{+109}_{-75}	3199^{+167}_{-173}	$5.130^{+2.094}_{-1.783}$

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

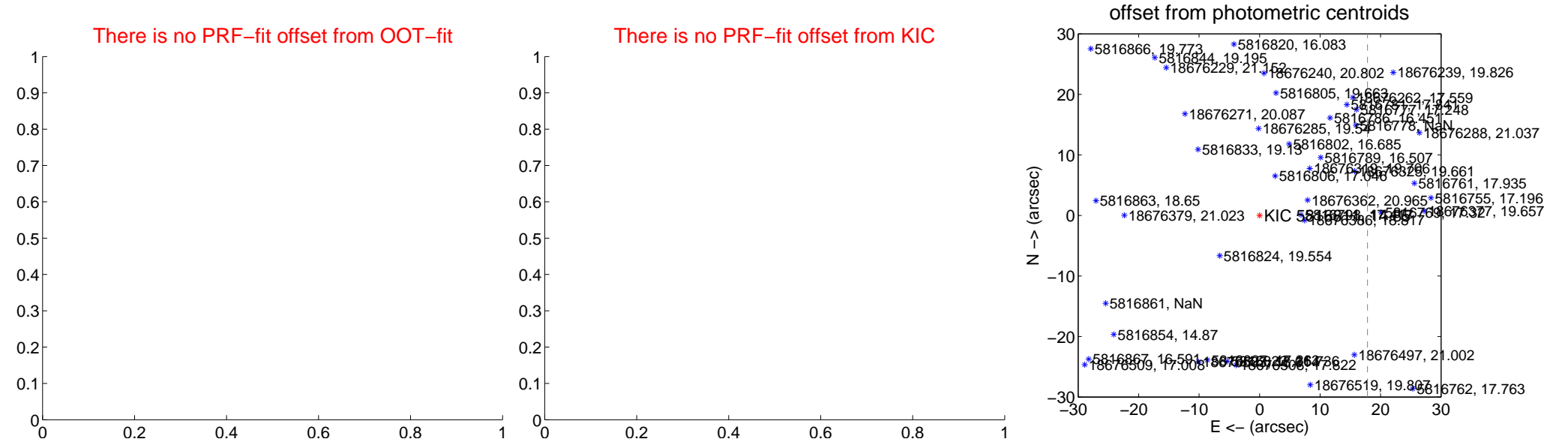
DV Centroid Data

Supplemental centroid analysis for 005816811-02. Kepler magnitude: 14.85. Transit SNR 33.84

There are 0 quarters with good PRF difference image offsets

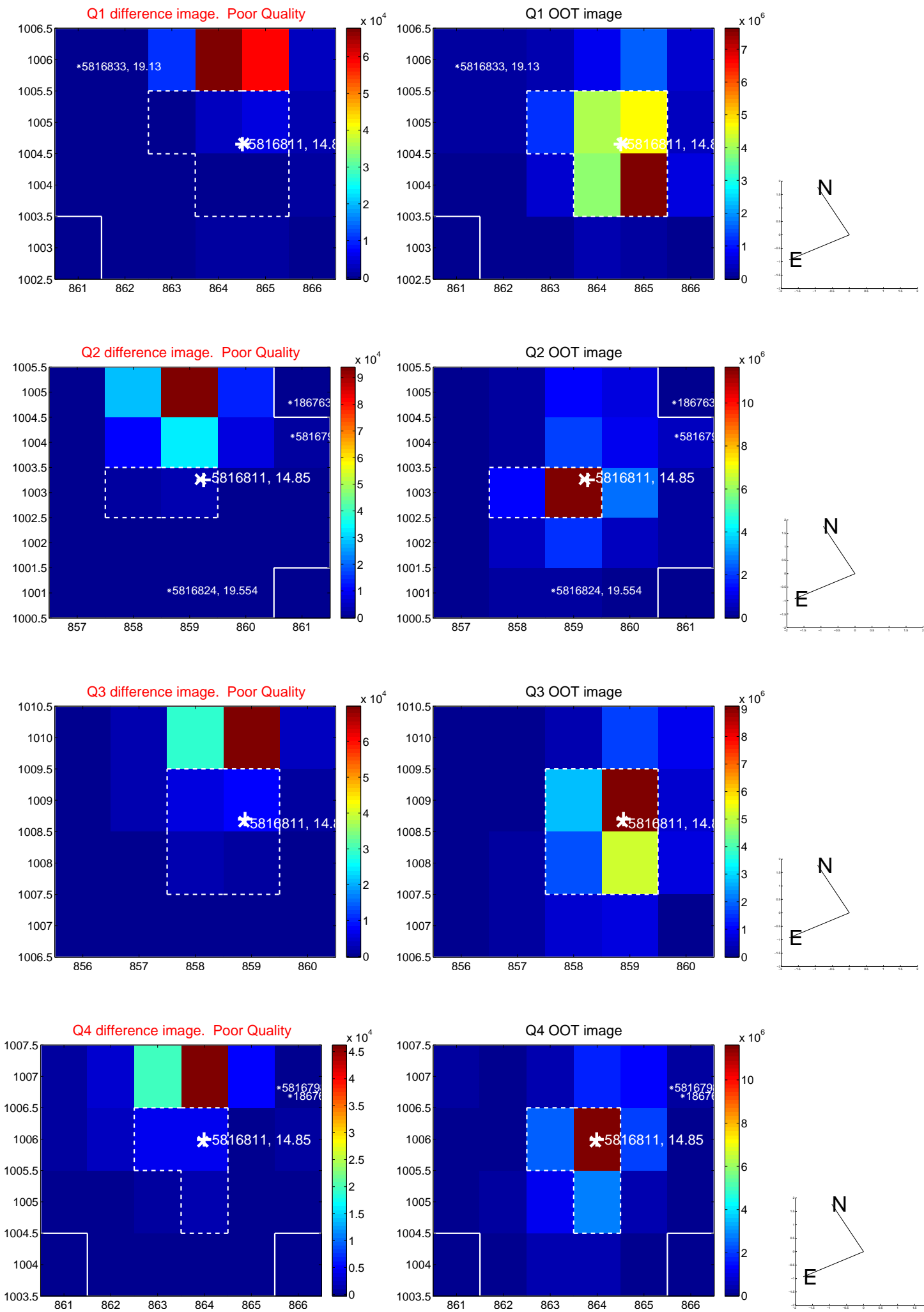
The direct PRF centroid is offset from the target star catalog position by about NaN arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	—	—	—	—
PRF-fit source offset from KIC position	—	—	—	—
photometric centroid source offset	58.54 ± 0.35	166.93	-17.84 ± 0.44	55.76 ± 0.34

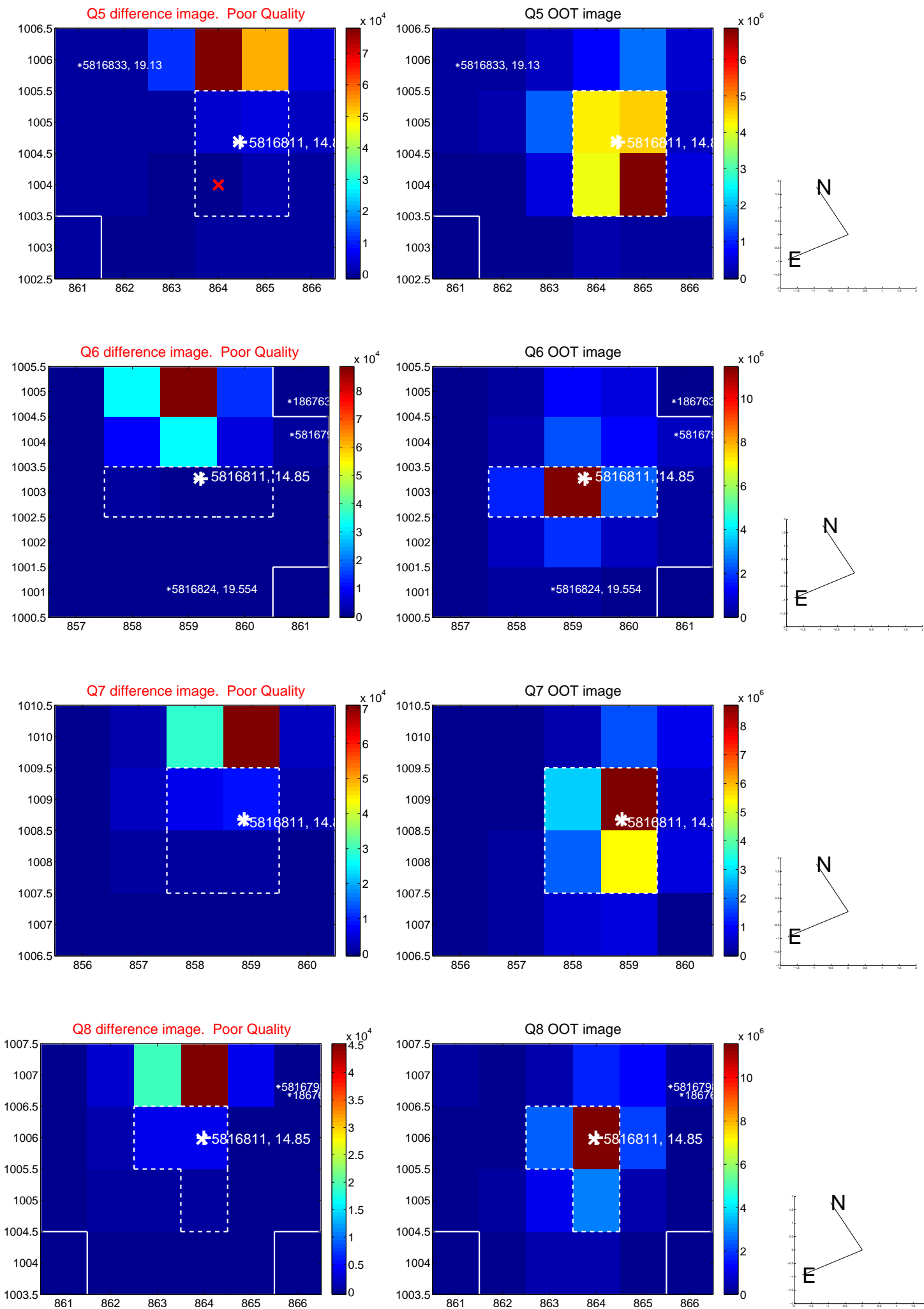


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ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

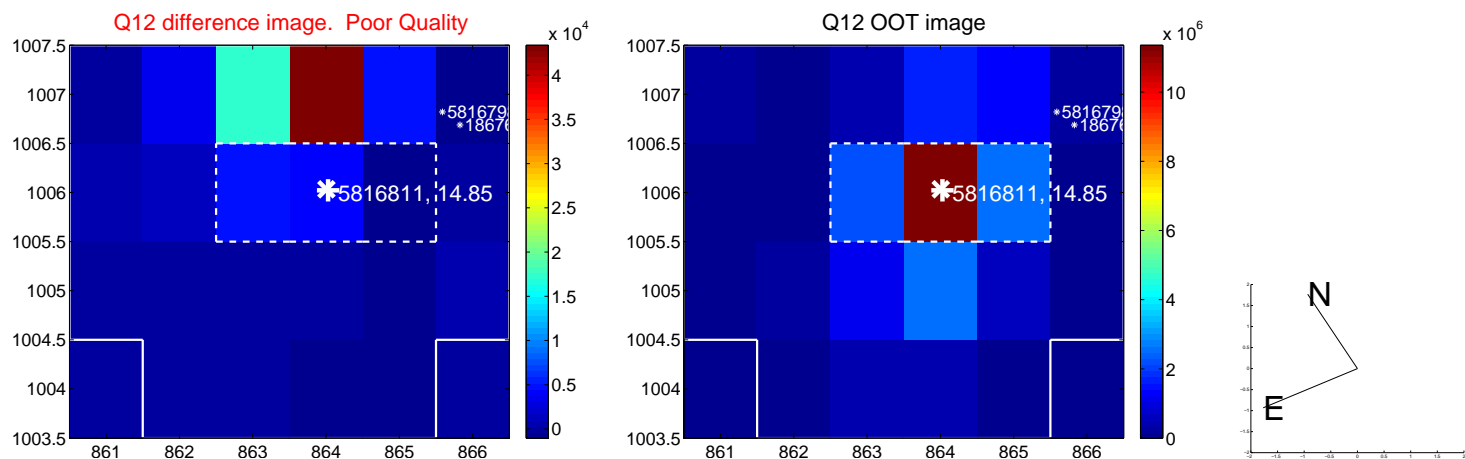
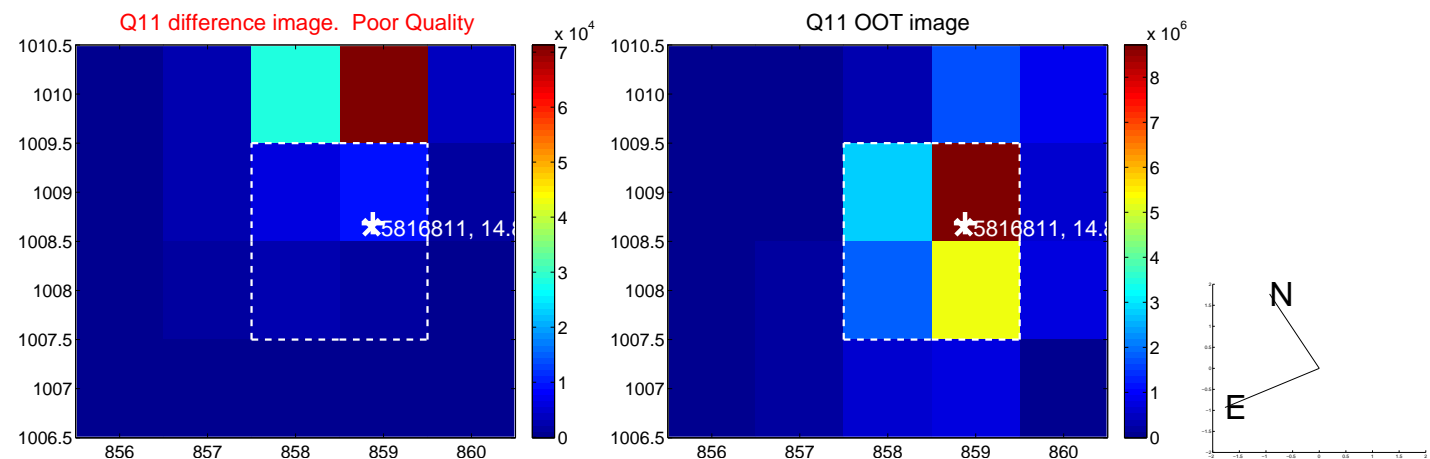
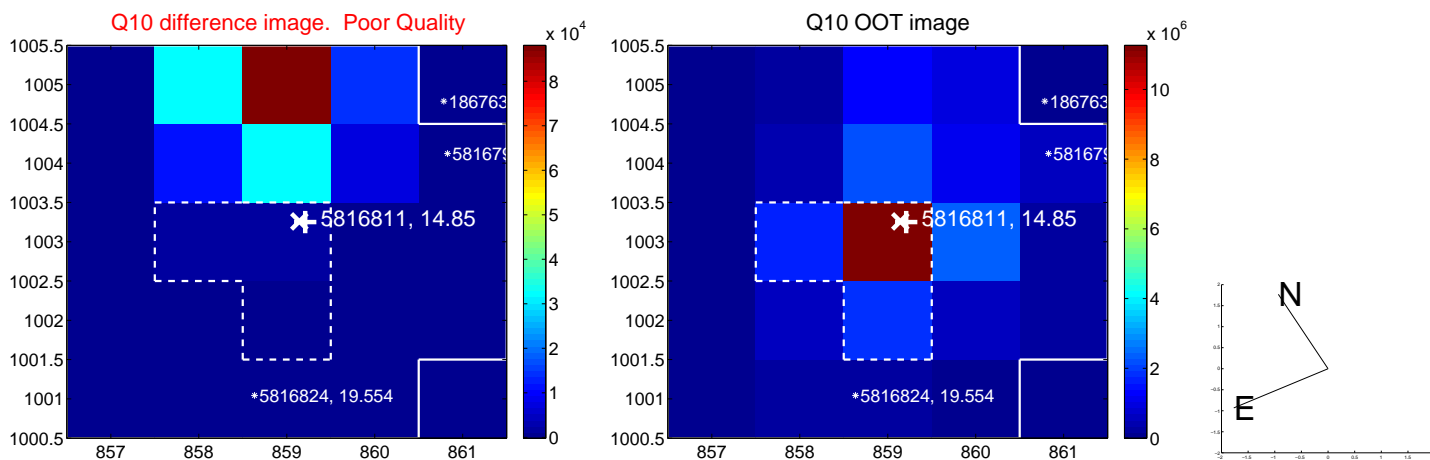
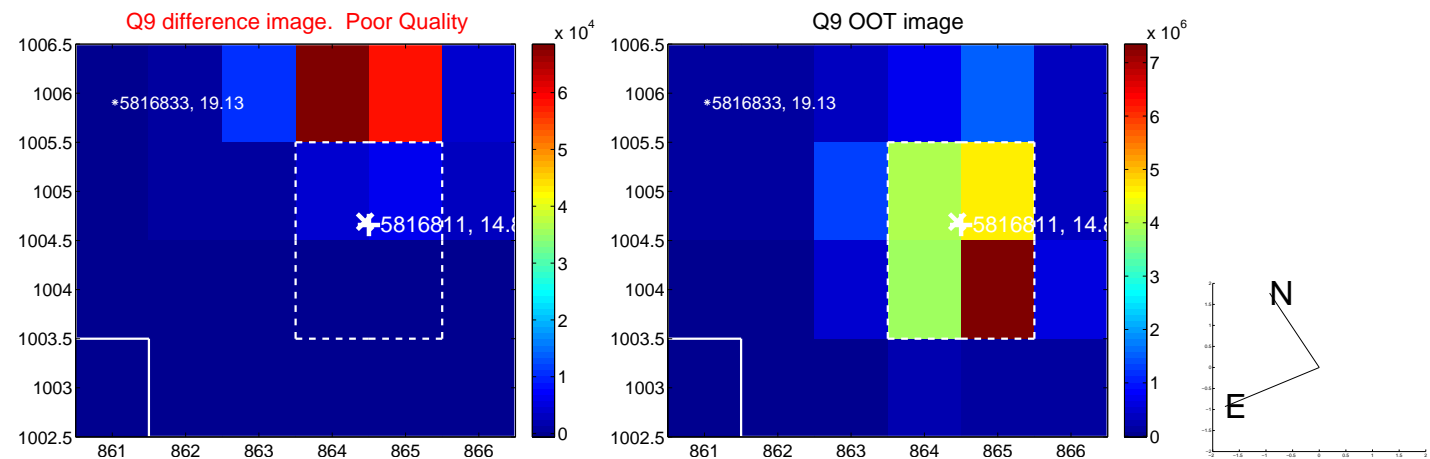
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



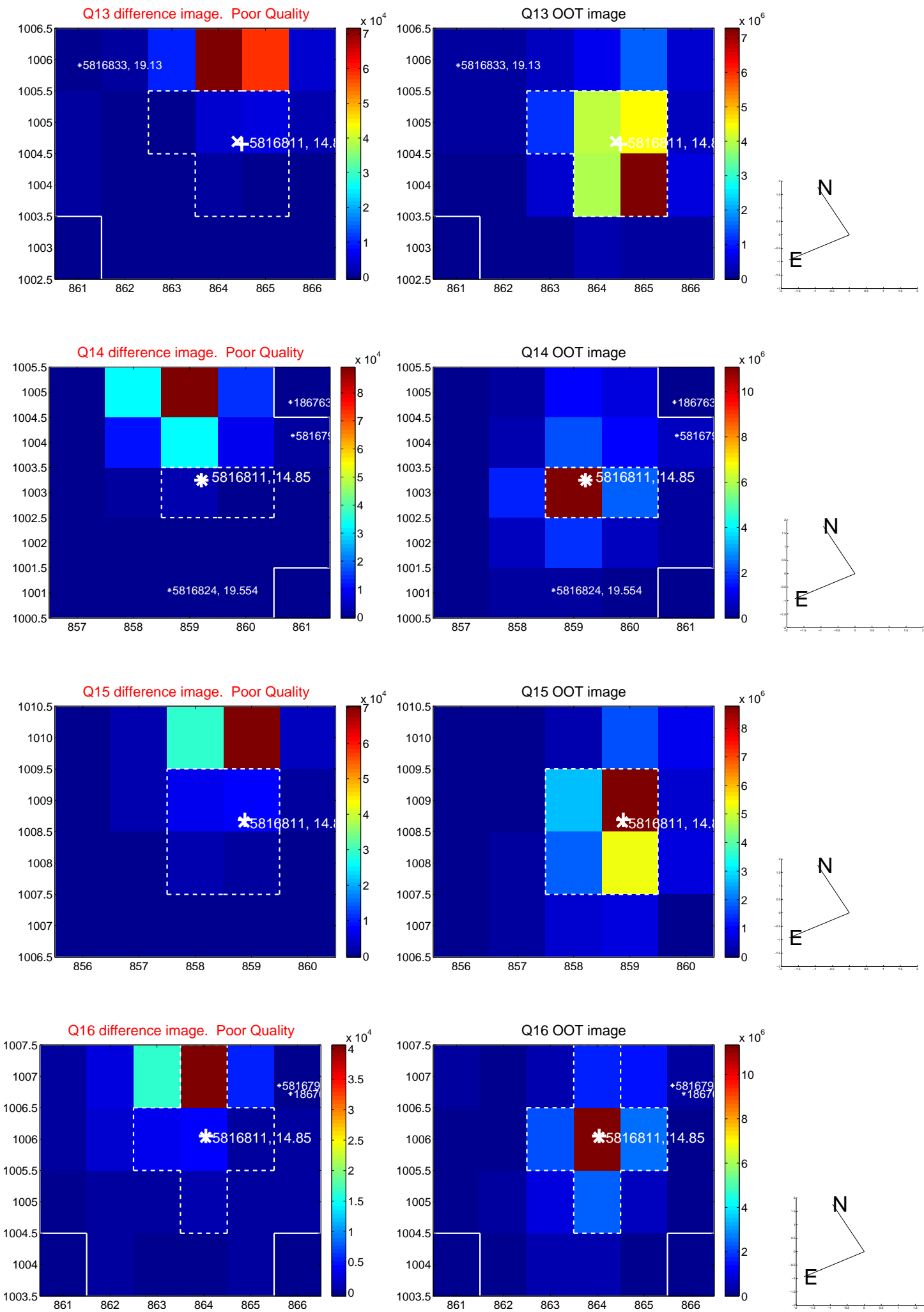
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



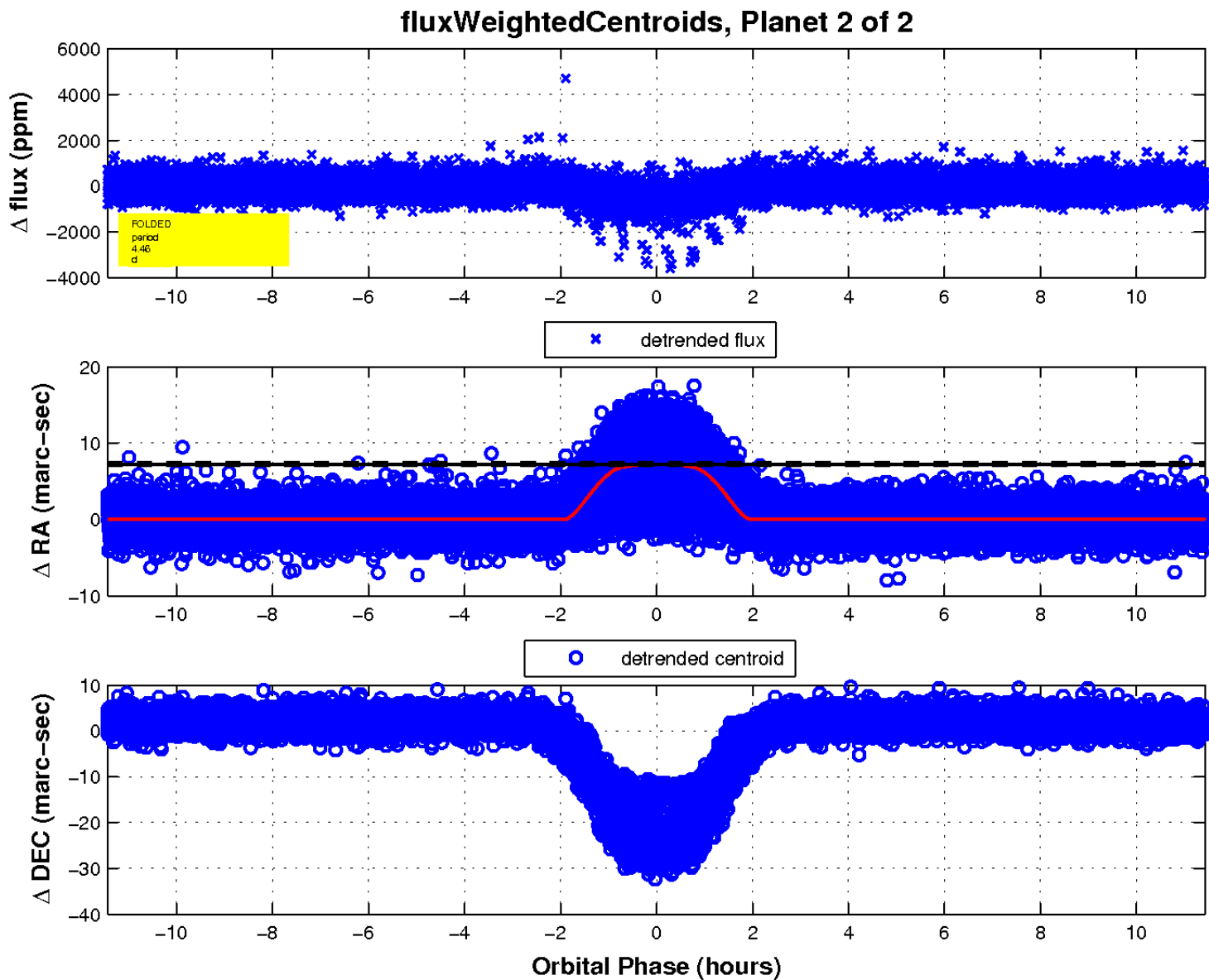
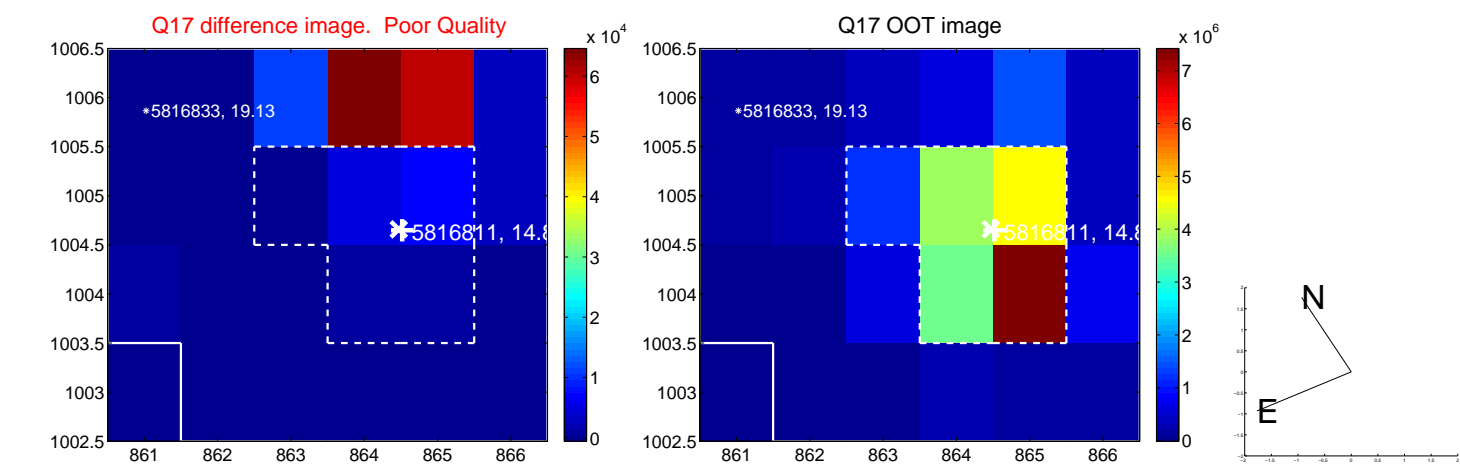
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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



UKIRT Image

Declination

