

KIC 003848665

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})
003848665-01	OBS	5014.01	359.043912	274.208961	3909.2	14.369	11.8	12.3	0.70	4596	6.94	0.25
003848665-02	OBS	No	119.682586	176.076377	1836.8	21.752	9.8	10.1	0.70	4596	5.71	1.10

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
003848665-01	OBS	FP	0.00	1	0	0	1	INDIV_TRANS_MARSHALL_SKYE—CENT_FEW_DIFFS—EPHEM_MATCH
003848665-02	OBS	FP	0.00	1	0	0	1	INDIV_TRANS_SKYE—SAME_NTL_PERIOD—CENT_FEW_DIFFS—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 003848665-01

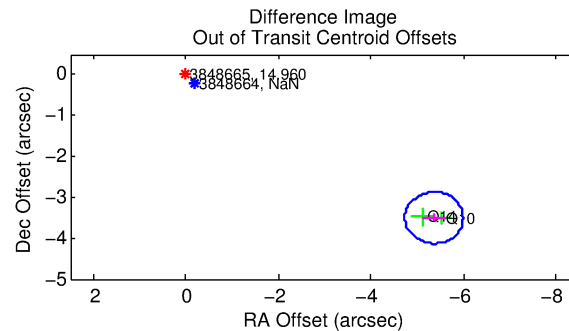
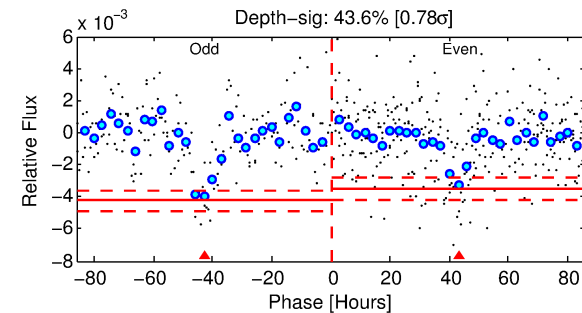
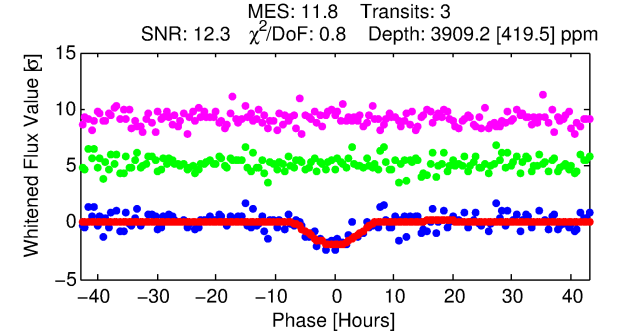
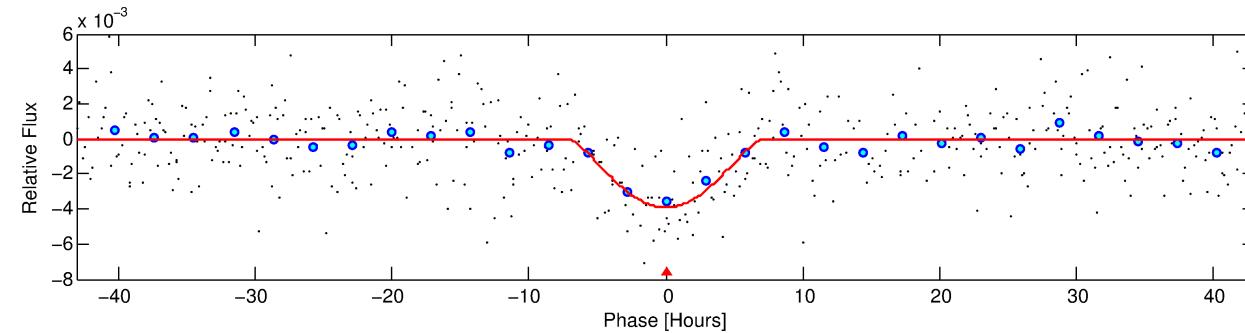
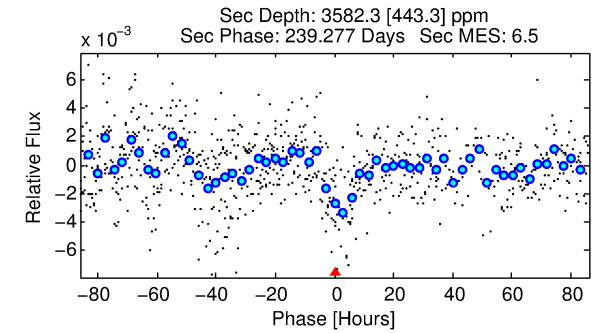
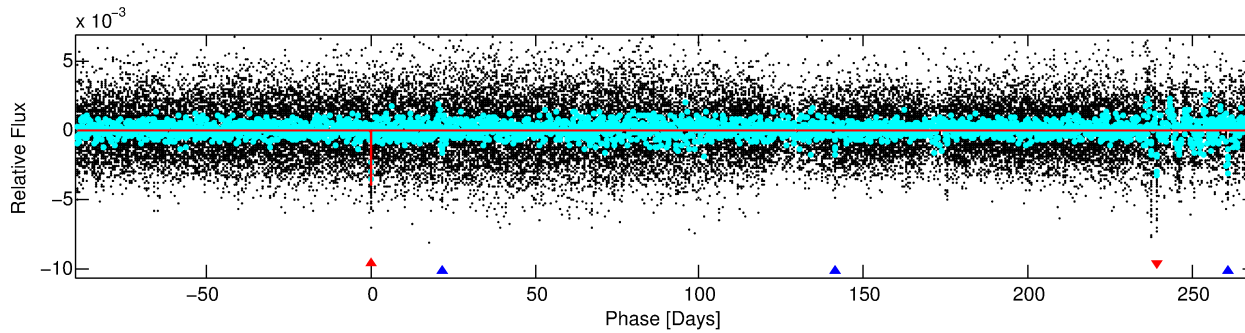
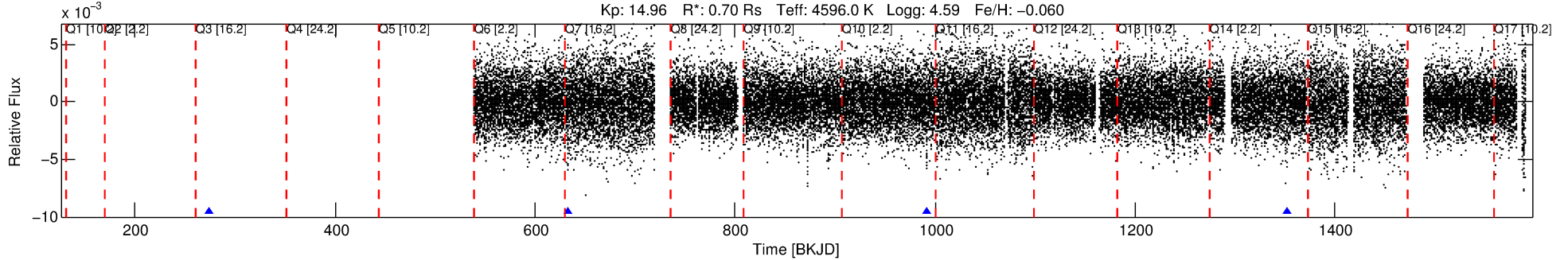
TCE (1)	KIC	Parent (2)	Parent KIC	$P_1:P_2$	Dist ($''$)	ΔRow	ΔCol	m_2	m_1	D_2/D_1	Mechanism	Flag	σ_P	σ_T
003848665-01	3848665	003644542-sec	3644542	3:1	993.1	-250	2	8.35	14.96	65.75	Direct-PRF	0	0.57	0.13

Notes: $P_1:P_2$ is the period ratio. Dist is the distance in arcseconds. ΔRow and ΔCol 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: 3848665 Candidate: 1 of 2 Period: 359.044 d
KOI: K05014.01 Corr: 0.971

Kp: 14.96 R^{*}: 0.70 R_s Teff: 4596.0 K Logg: 4.59 Fe/H: -0.060



DV Fit Results:

Period = 359.04391 [0.01905] d
Epoch = 274.2090 [0.0444] BKJD
Rp/R^{*} = 0.0914 [0.1662]
a/R^{*} = 96.32 [49.03]
b = 0.97 [0.29]
Seff = 0.25 [0.04]
Teq = 181 [8] K
Rp = 6.94 [12.64] Re
a = 0.8727 [0.0638] AU
Ag = 31180.19 [113568.44] [0.27σ]
Teff = 3720 [3389] K [1.04σ]

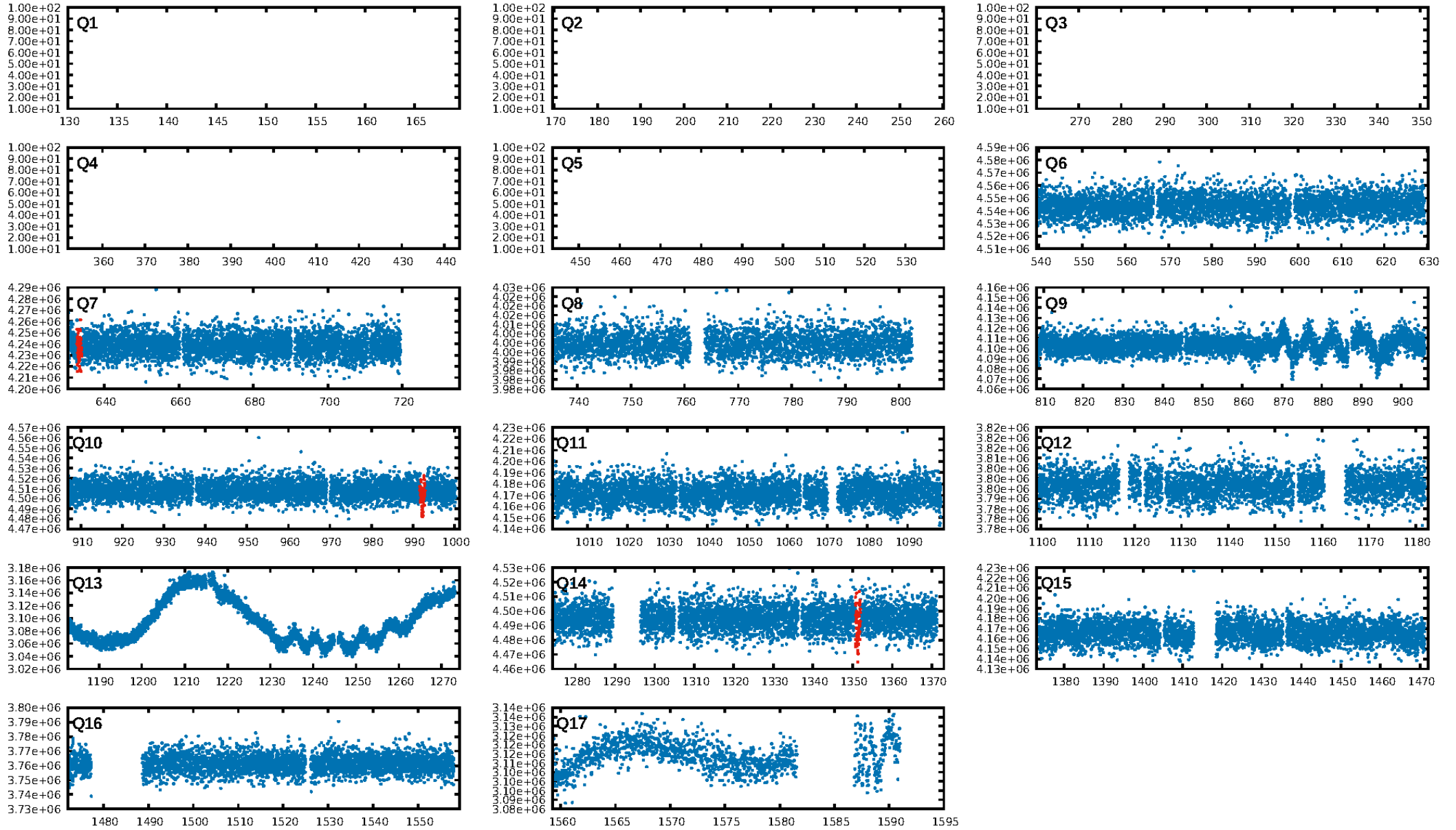
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [220.36σ]
LongPeriod-sig: N/A
ModelChiSquare2-sig: 3.6%
ModelChiSquareGof-sig: 100.0%
Bootstrap-pfa: 5.88e-19
RollingBand-fgt: 1.00 [3/3]
GhostDiagnostic-chr: 0.676
Centroid-sig: 0.0%
Centroid-so: 7.536 arcsec [5.55σ]
OotOffset-rm: 6.404 arcsec [30.43σ]
KicOffset-rm: 10.199 arcsec [71.65σ]
OotOffset-st: 2/0/0/0 [2]
KicOffset-st: 2/0/0/0 [2]
DiffImageQuality-fgm: 0.00 [0/2]
DiffImageOverlap-fno: 1.00 [2/2]

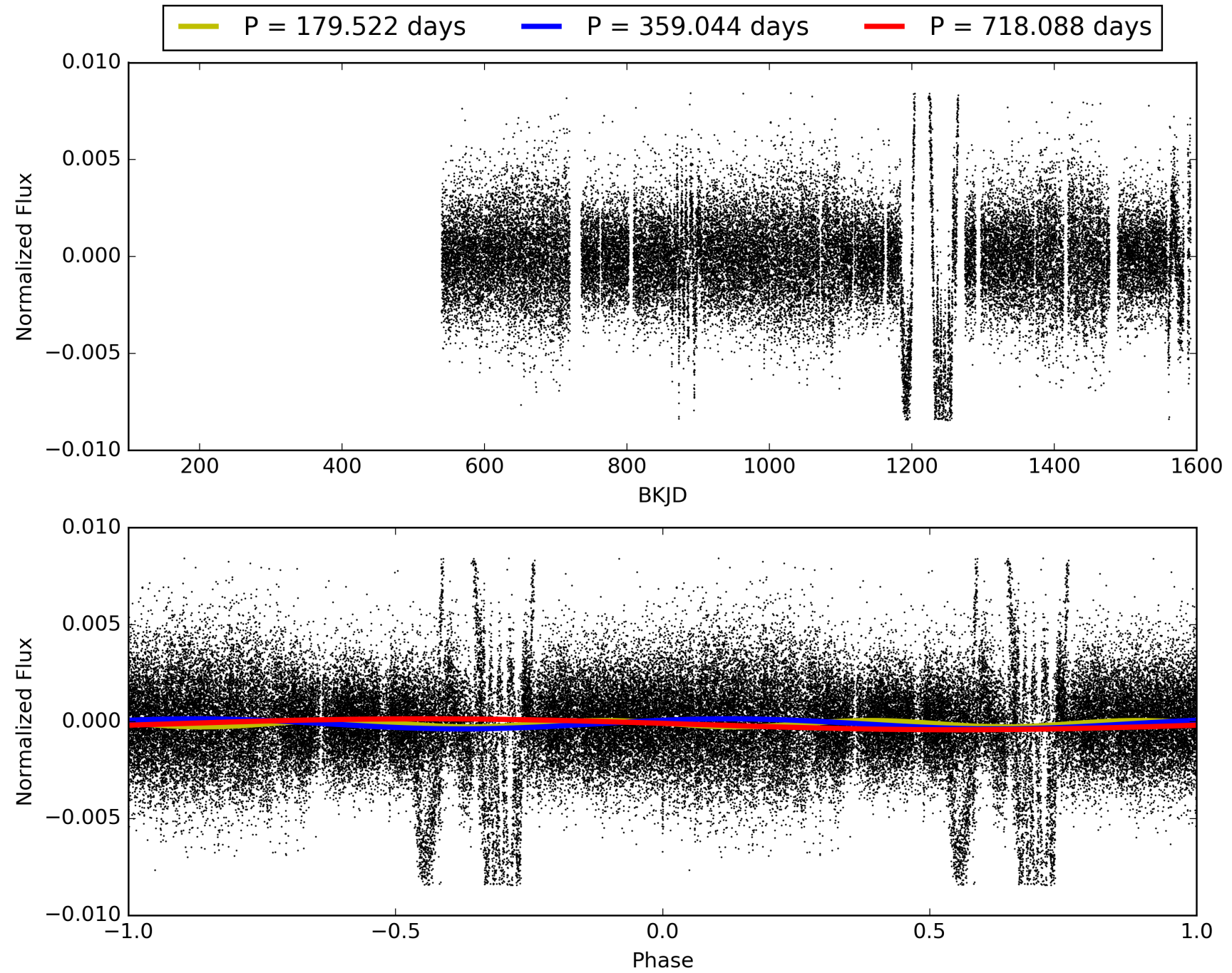
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 21:55:27 Z

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

TCE 003848665-01, PDC Light Curves

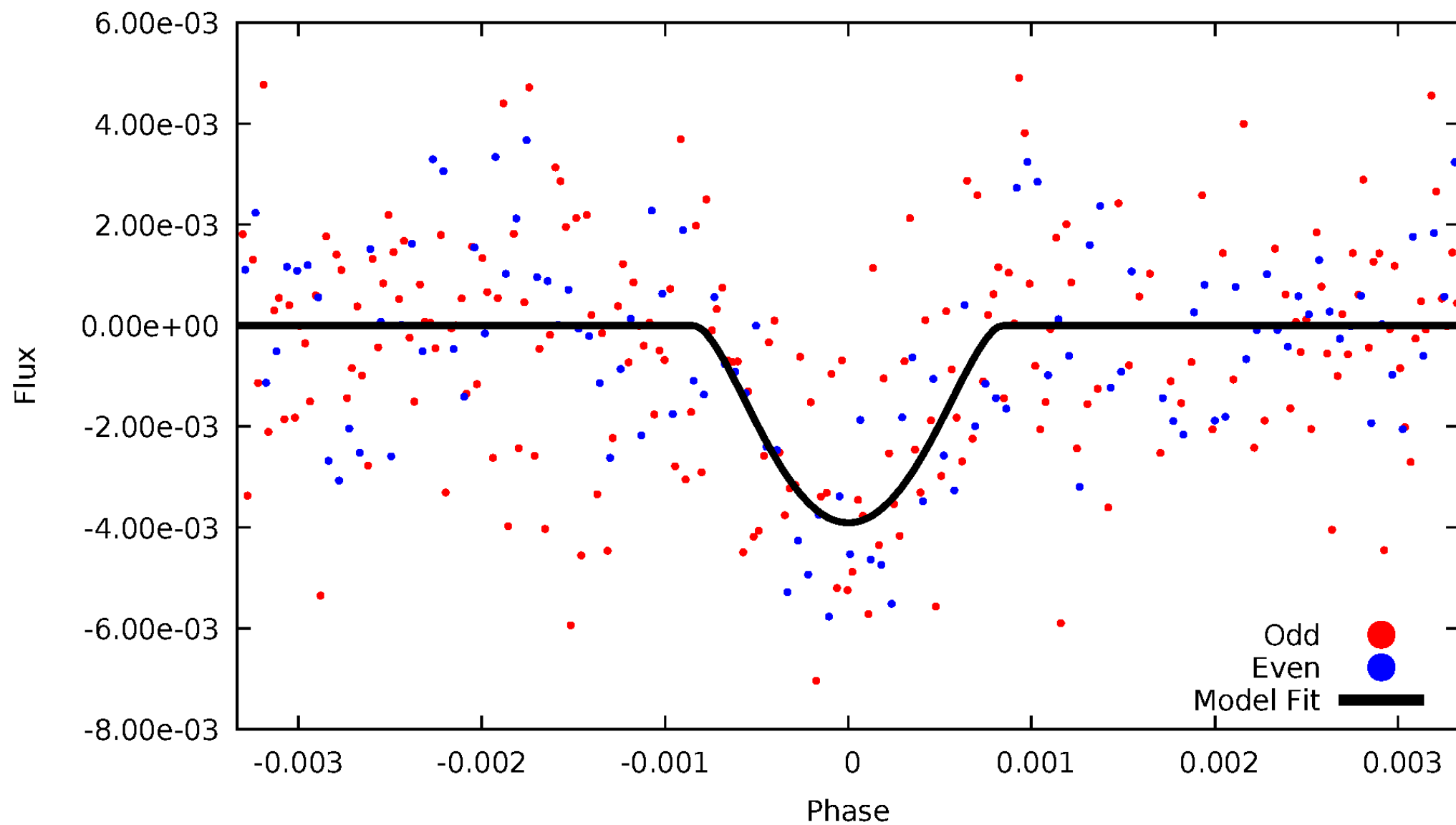


TCE 003848665-01



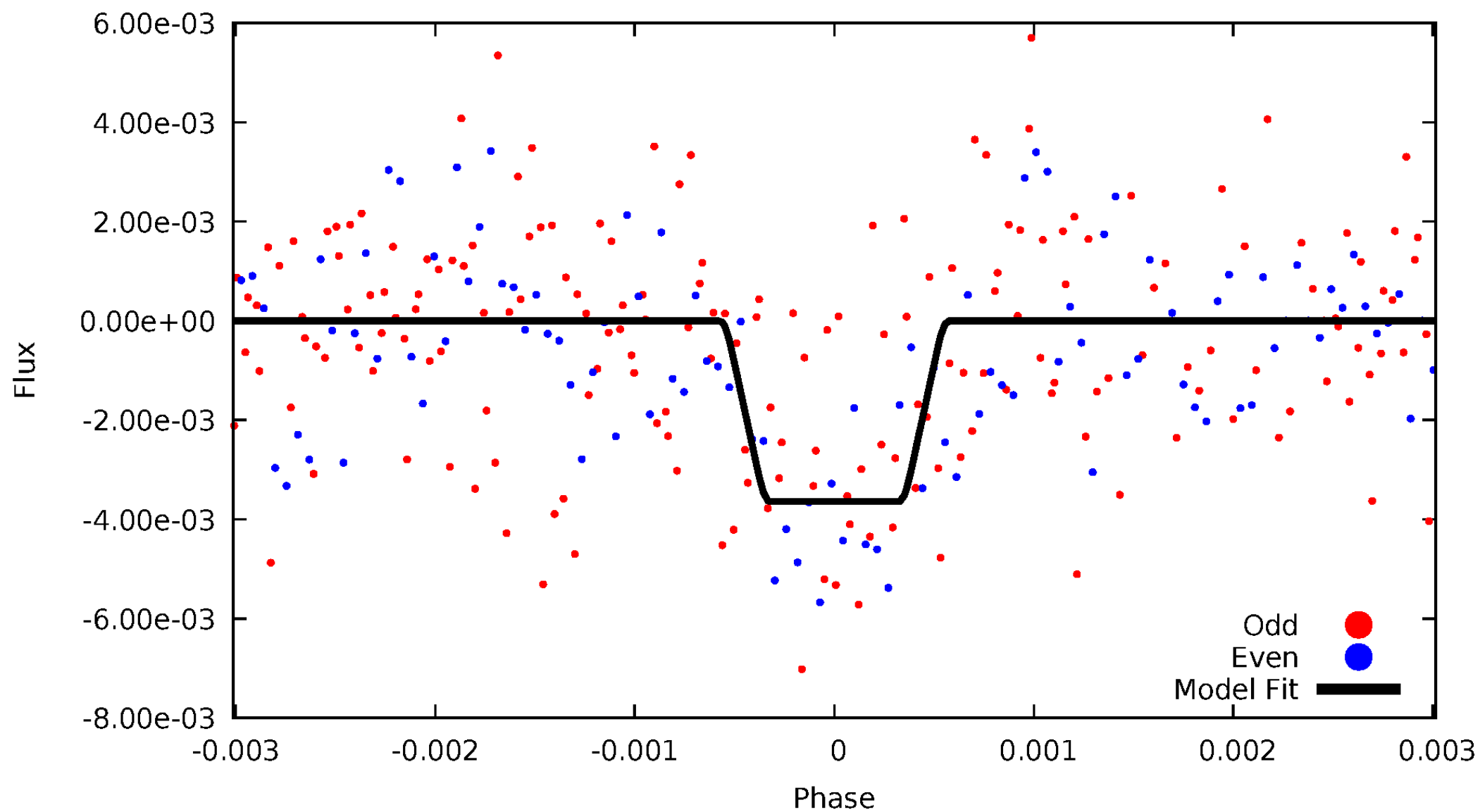
DV Odd/Even

TCE 003848665-01



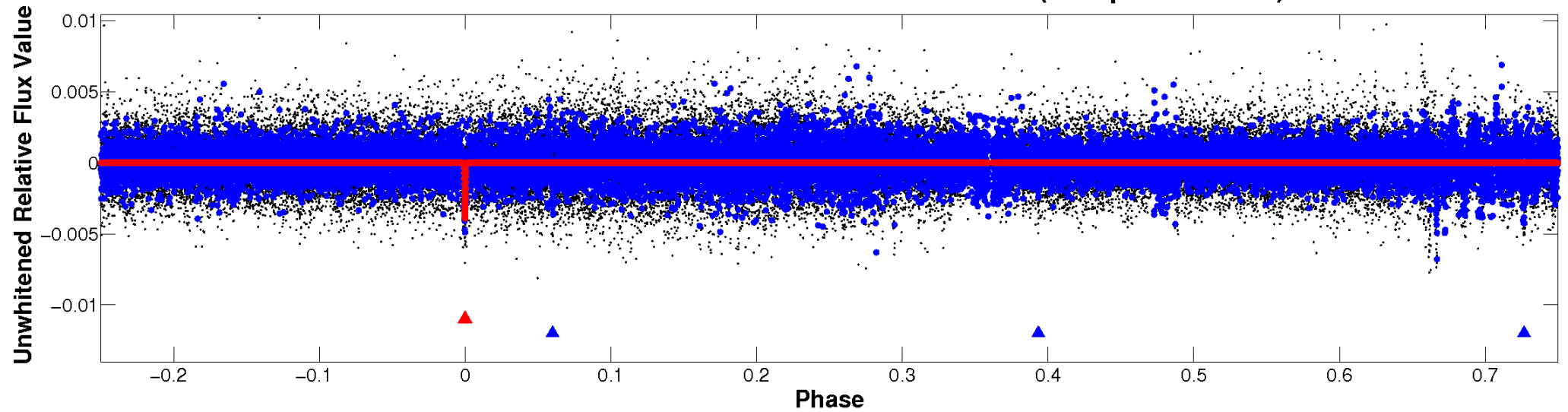
ALT Odd/Even

TCE 003848665-01

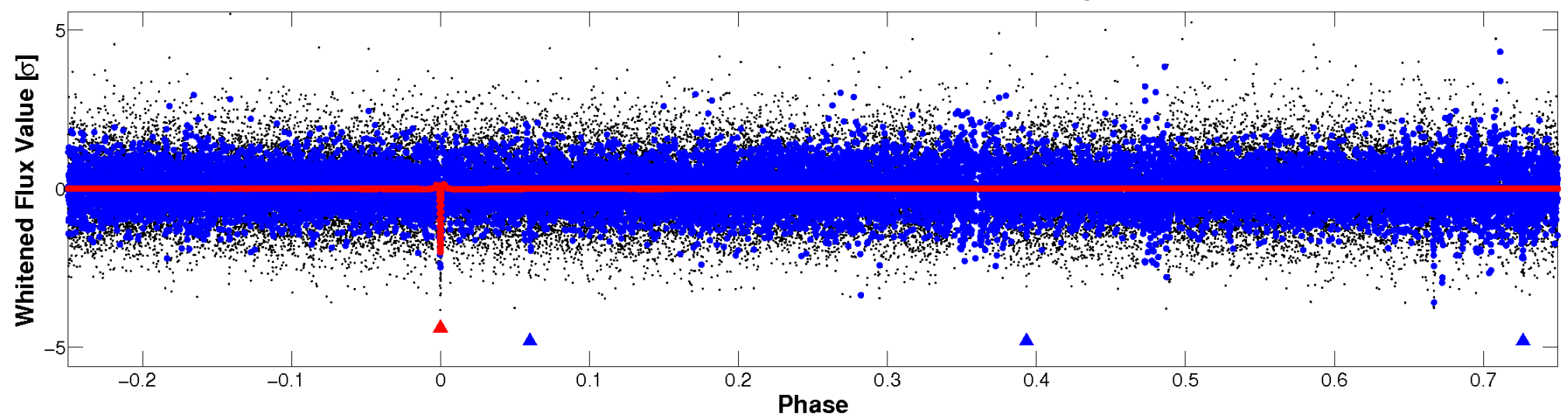


Non-Whitened Vs. Whitened Light Curve

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

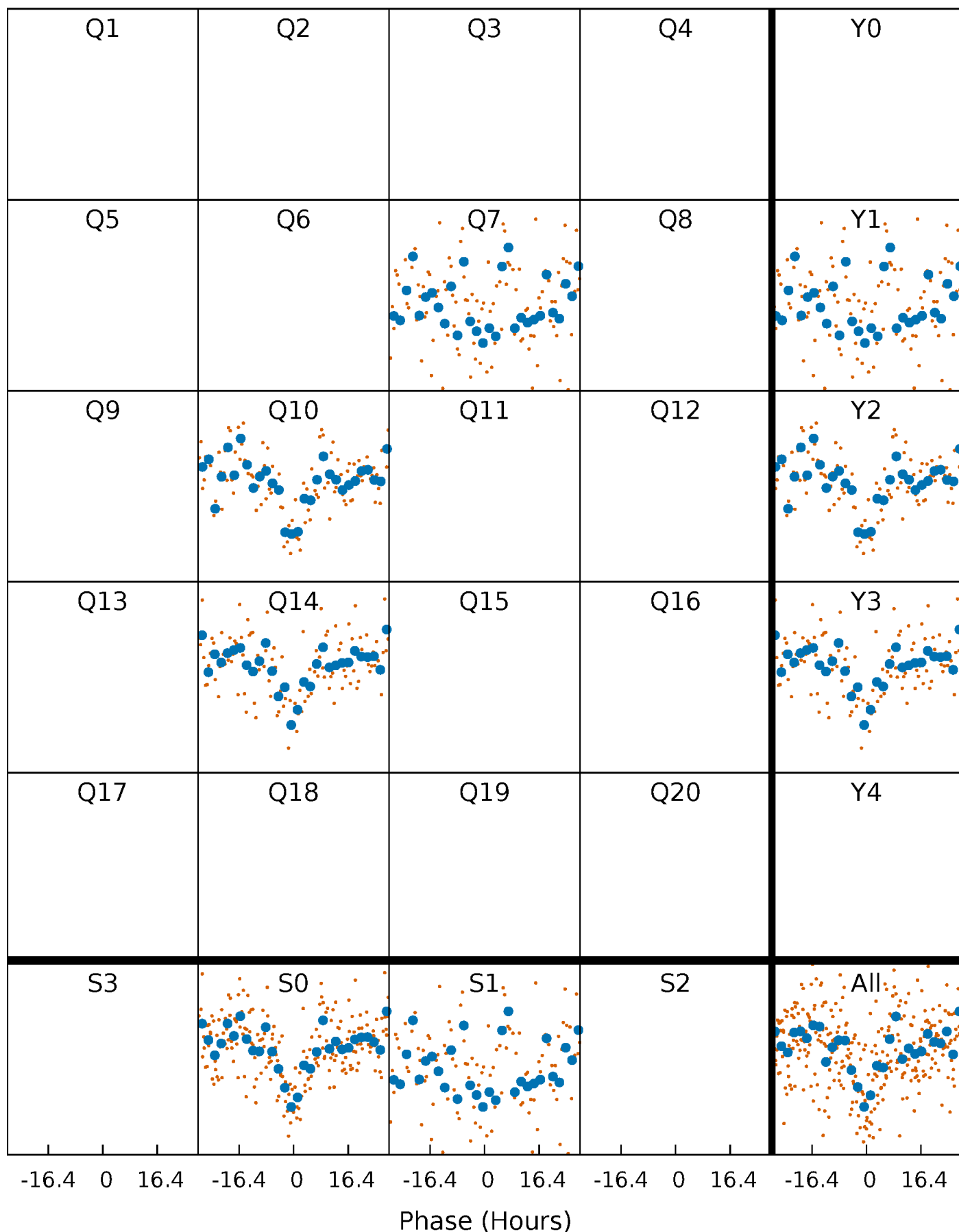


Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)



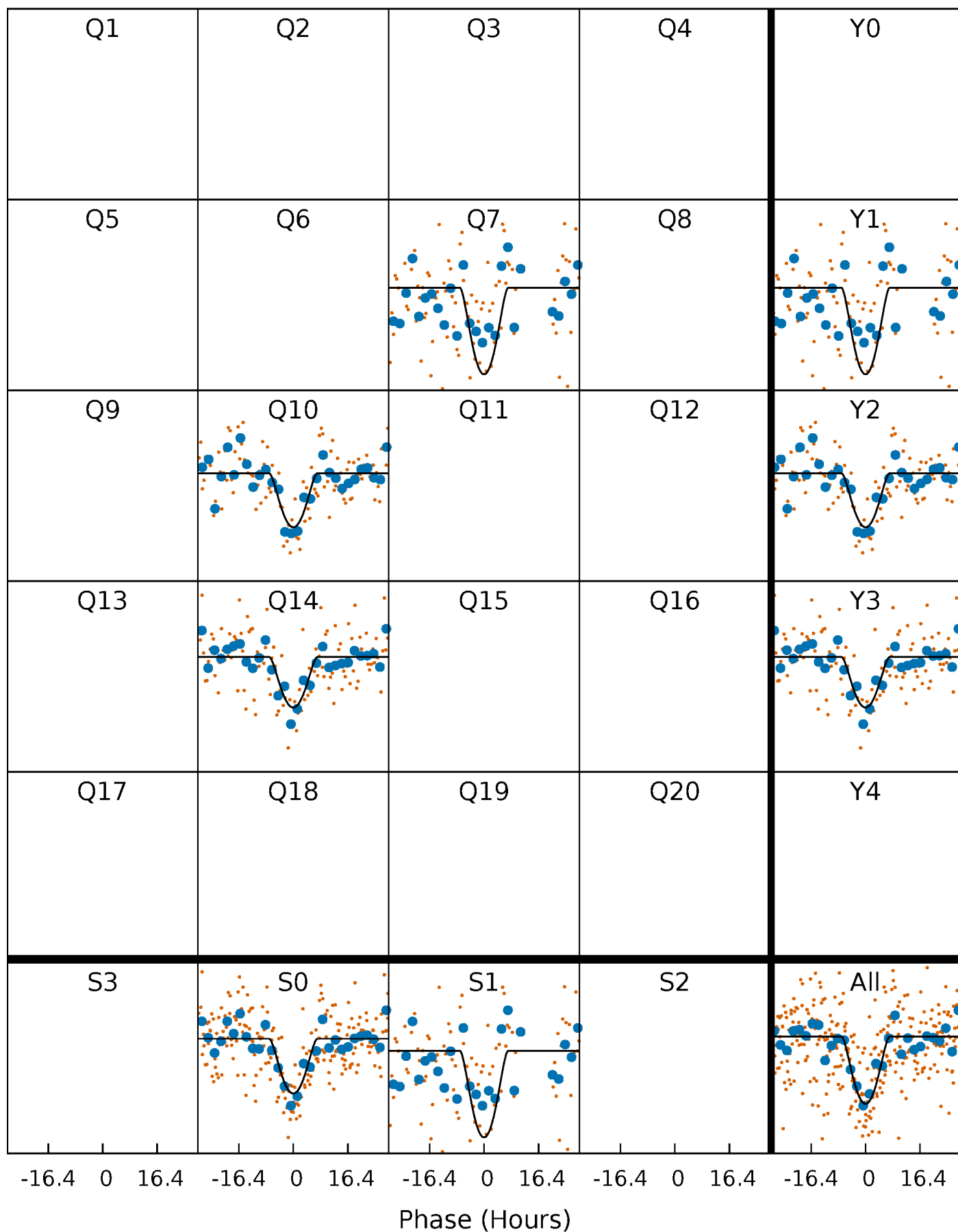
PDC Quarter-Phased Transit Curves

TCE 003848665-01 P=359.043912 Days $T_0=274.208961$ (BKJD)



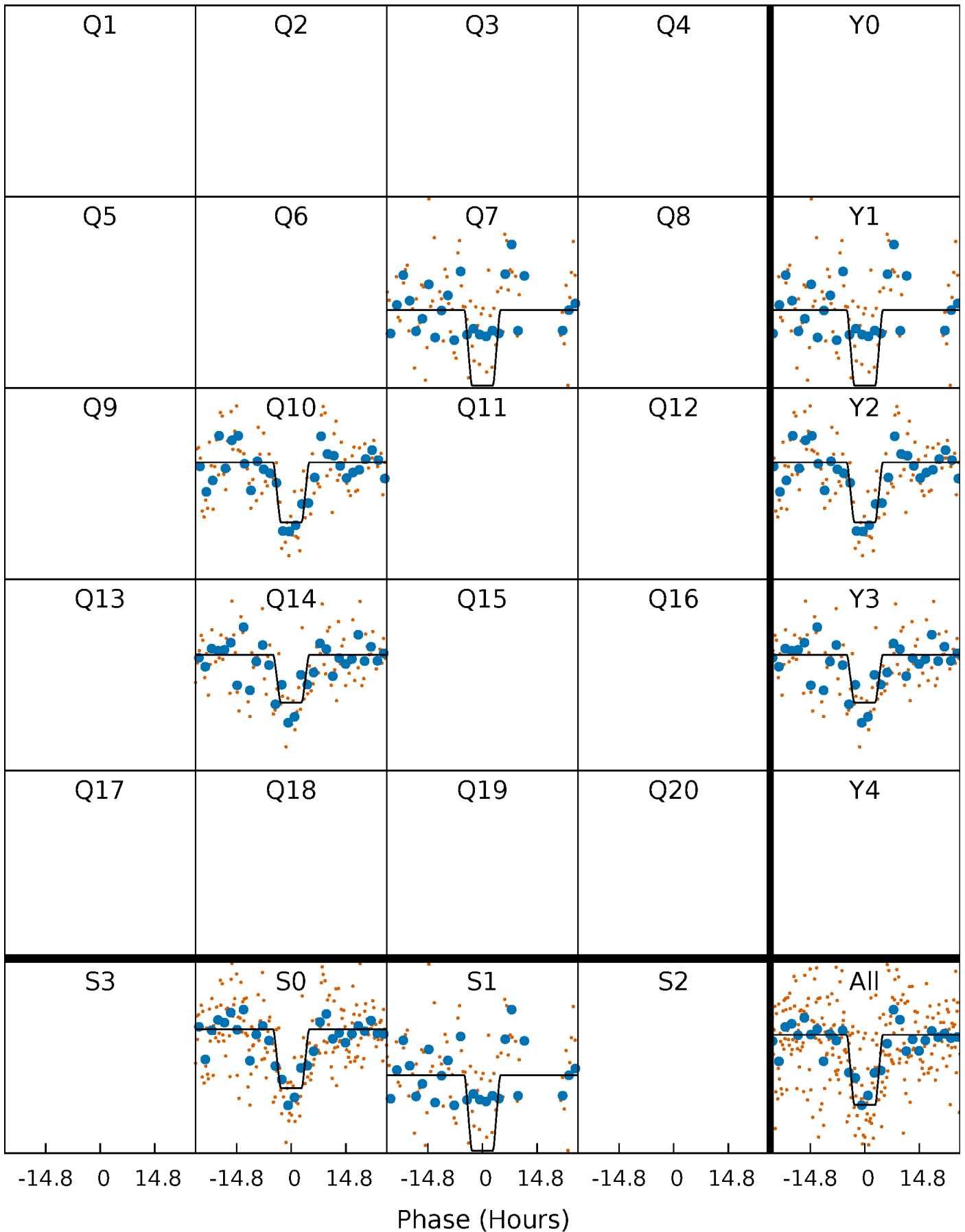
DV Quarter-Phased Transit Curves

TCE 003848665-01 P=359.043912 Days $T_0=274.208961$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

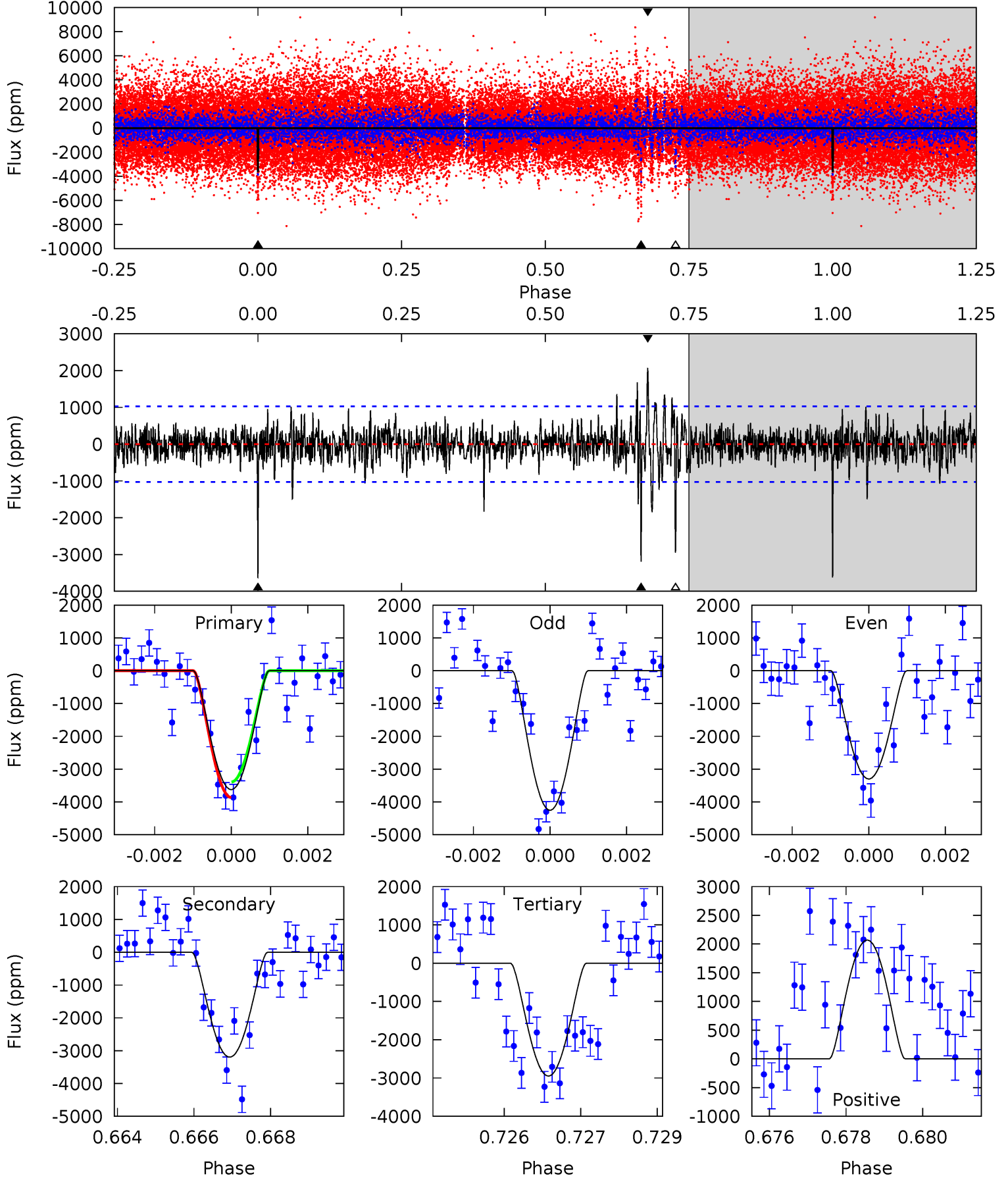
TCE 003848665-01 P=359.051705 Days $T_0=274.181166$ (BKJD)



DV Model-Shift Uniqueness Test

003848665-01, P = 359.043912 Days, E = 274.208961 Days

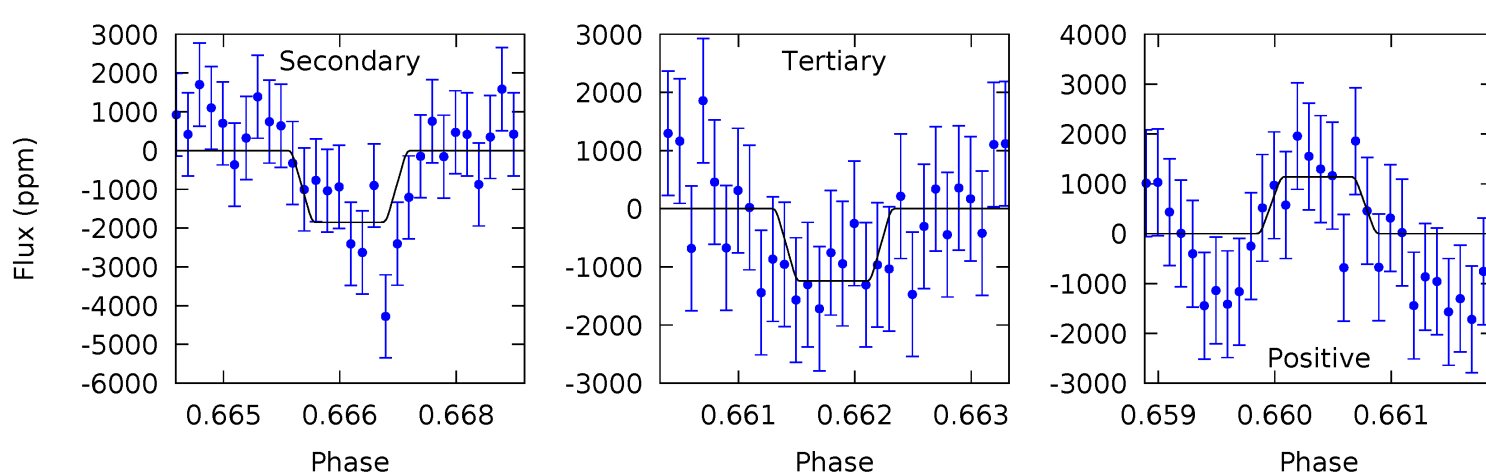
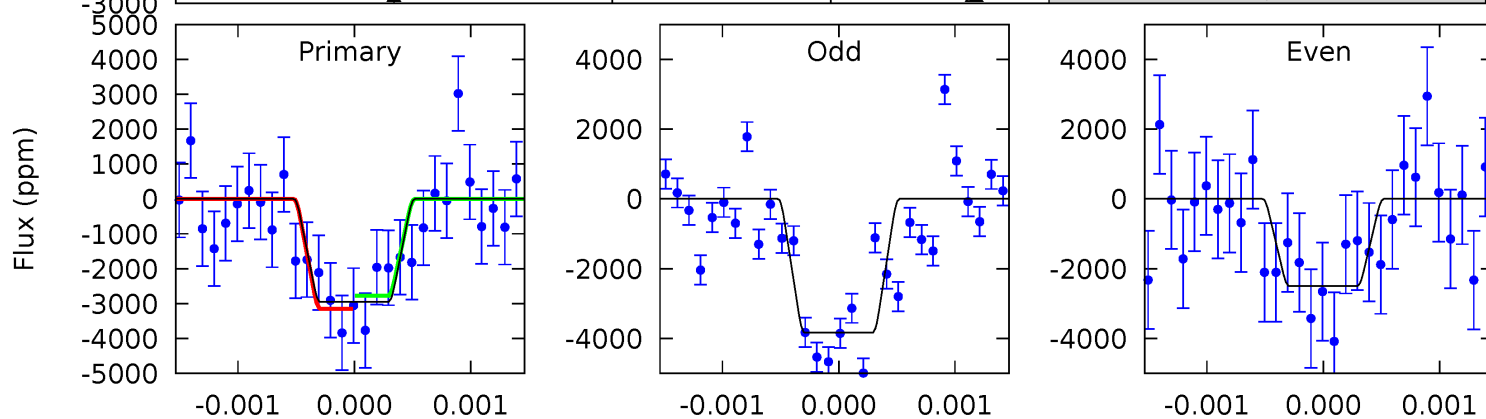
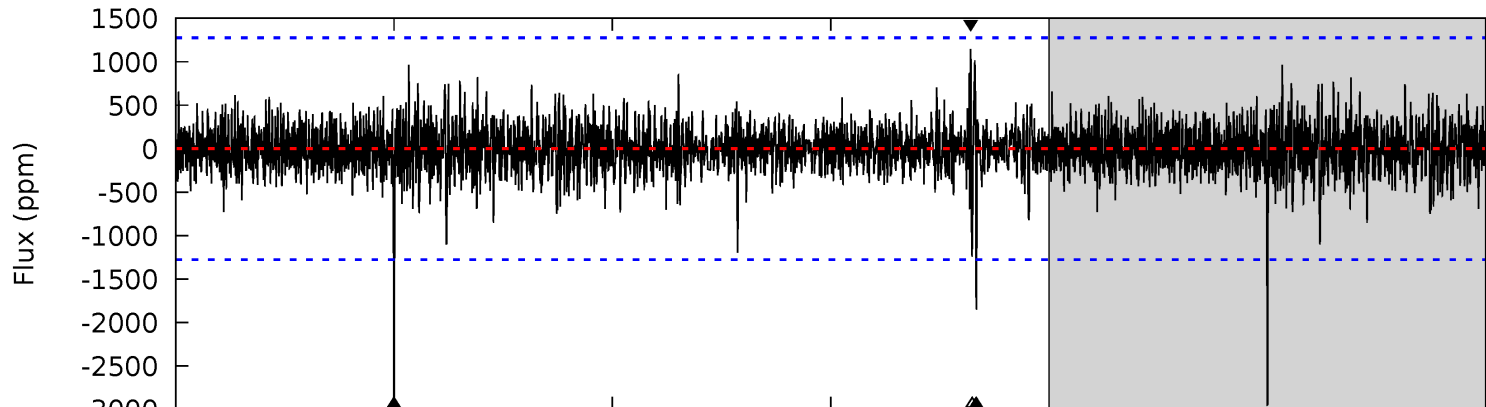
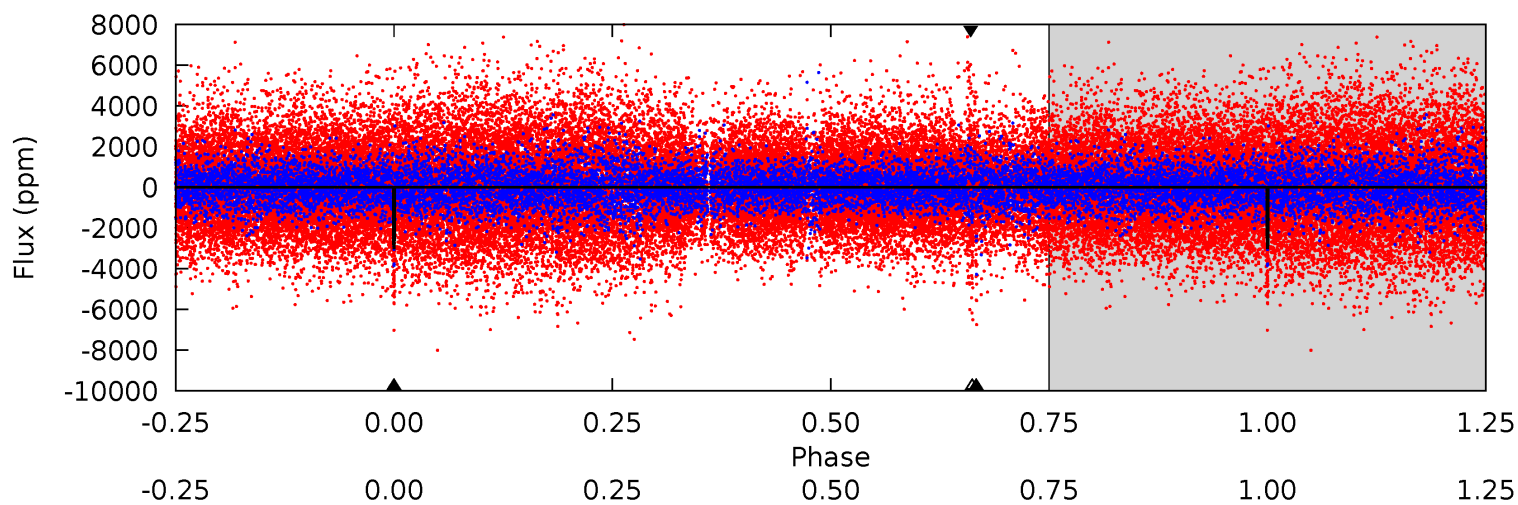
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
18.9	16.6	15.3	10.8	5.36	3.14	1.89	3.53	8.10	1.29	5.87	2.37	0.86	0.36	1.23



Alt Model-Shift Uniqueness Test

003848665-01, P = 359.051705 Days, E = 274.181166 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
12.6	7.87	5.29	4.85	5.43	3.26	0.99	7.29	7.74	2.58	3.02	2.70	0.78	0.28	0.80



Stellar Parameters For KIC 003848665

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (g \cdot \text{cm}^{-3})$
	4596^{+161}_{-161}	$4.590^{+0.052}_{-0.028}$	$-0.060^{+0.300}_{-0.300}$	$0.696^{+0.050}_{-0.064}$	$0.688^{+0.074}_{-0.056}$	$2.871^{+0.725}_{-0.328}$
	+4%/-4%	+1%/-1%	+500%/-500%	+7%/-9%	+11%/-8%	+25%/-11%
Source	PHO54	PHO54	PHO54	DSEP		

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

Secondary Eclipse Parameters for KIC 003848665-01 / KOI 5014.01

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	-3196 ± 192	$11.14^{+10.70}_{-7.63}$	252^{+10}_{-10}	3315^{+1661}_{-588}	10913^{+99818}_{-8046}
Alt.	-1848 ± 235	$10.14^{+10.43}_{-7.29}$	252^{+10}_{-10}	3162^{+1670}_{-578}	7646^{+80775}_{-5769}

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

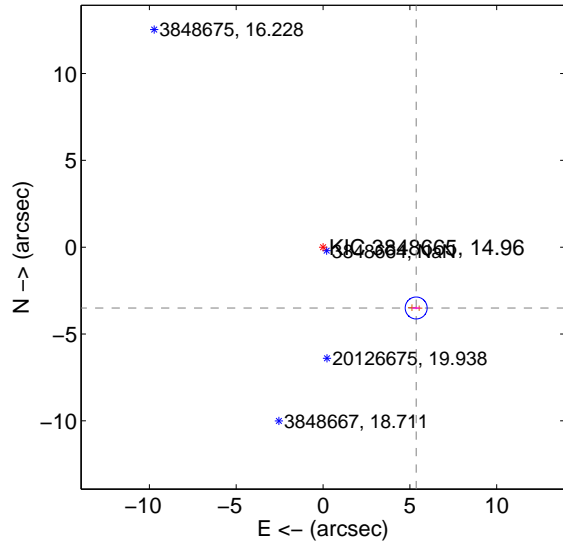
Supplemental centroid analysis for 003848665-01. Kepler magnitude: 14.96. Transit SNR 12.26

There are 0 quarters with good PRF difference image offsets

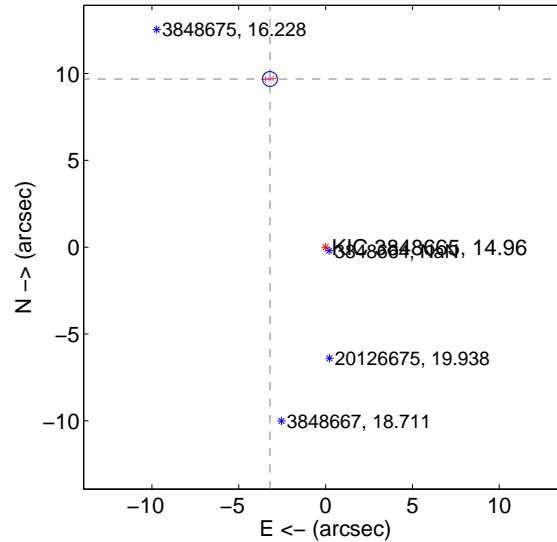
The OOT PRF centroid is offset from the target star catalog position by about 15.69 arcsec so the offset from difference PRF-fit to OOT-fit may be invalid.

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	6.404 ± 0.210	30.43	-5.362 ± 0.247	-3.501 ± 0.069
PRF-fit source offset from KIC position	10.199 ± 0.142	71.65	3.204 ± 0.163	9.683 ± 0.140
photometric centroid source offset	7.54 ± 1.36	5.55	1.89 ± 1.23	7.29 ± 1.37

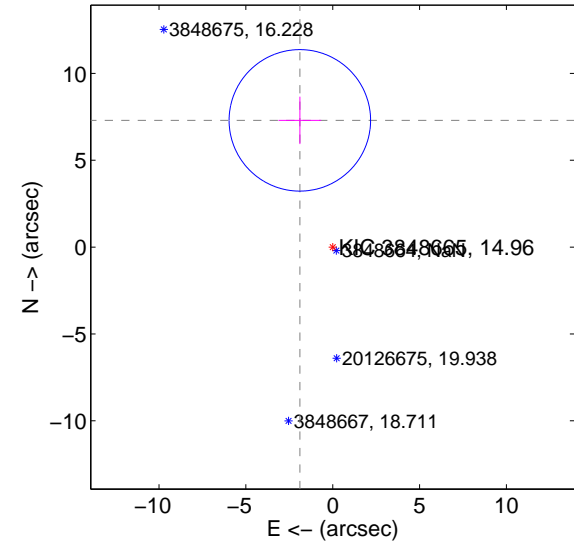
offset from difference PRF-fit to OOT PRF-fit



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.

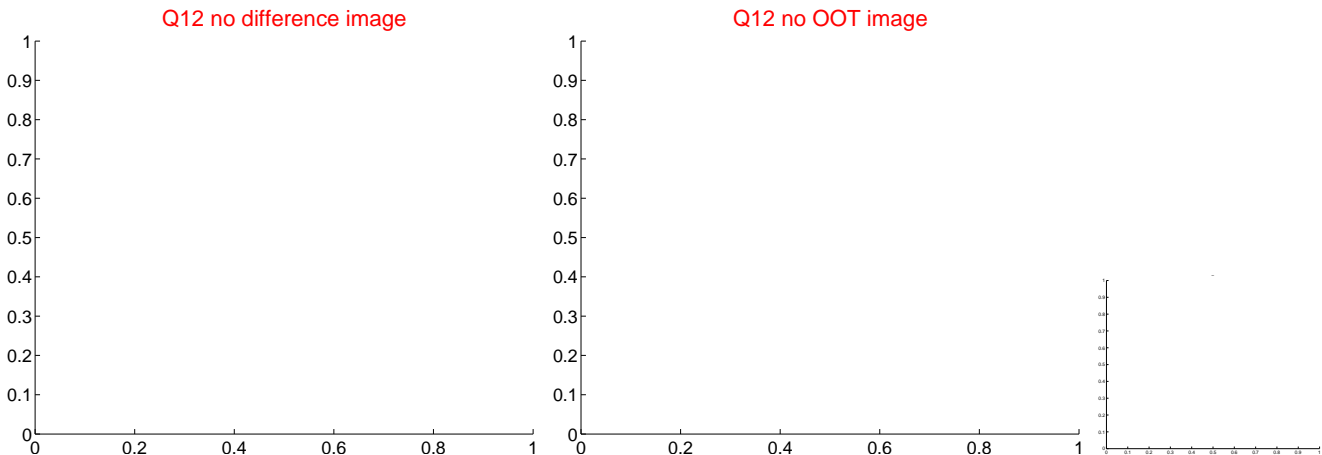
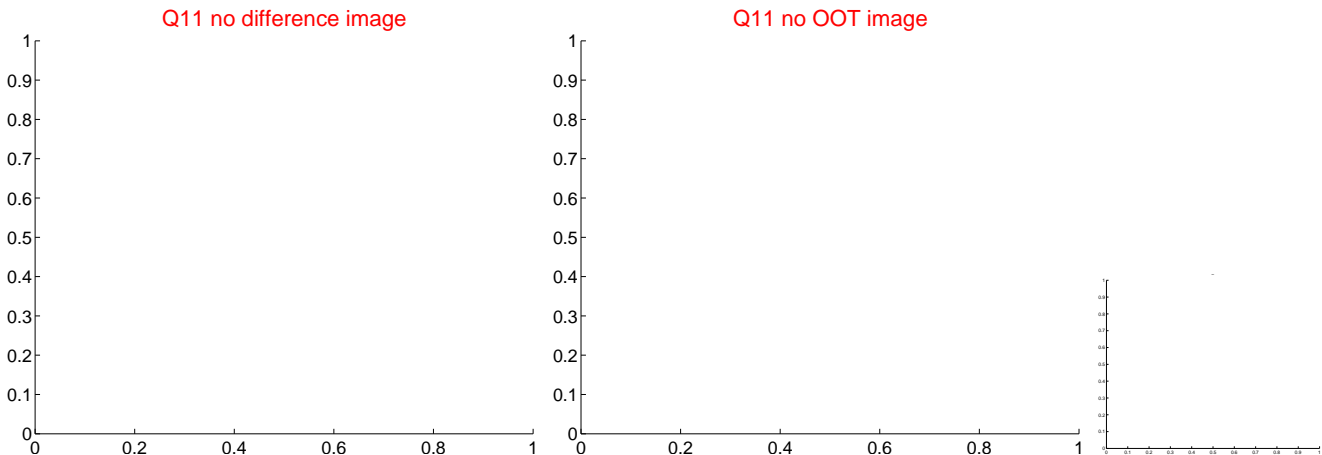
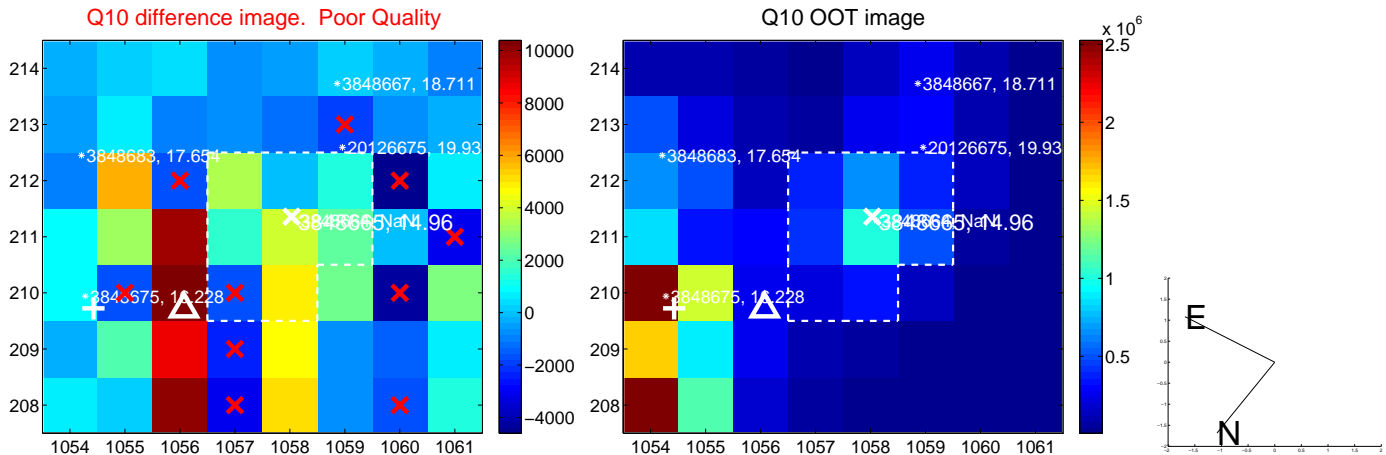
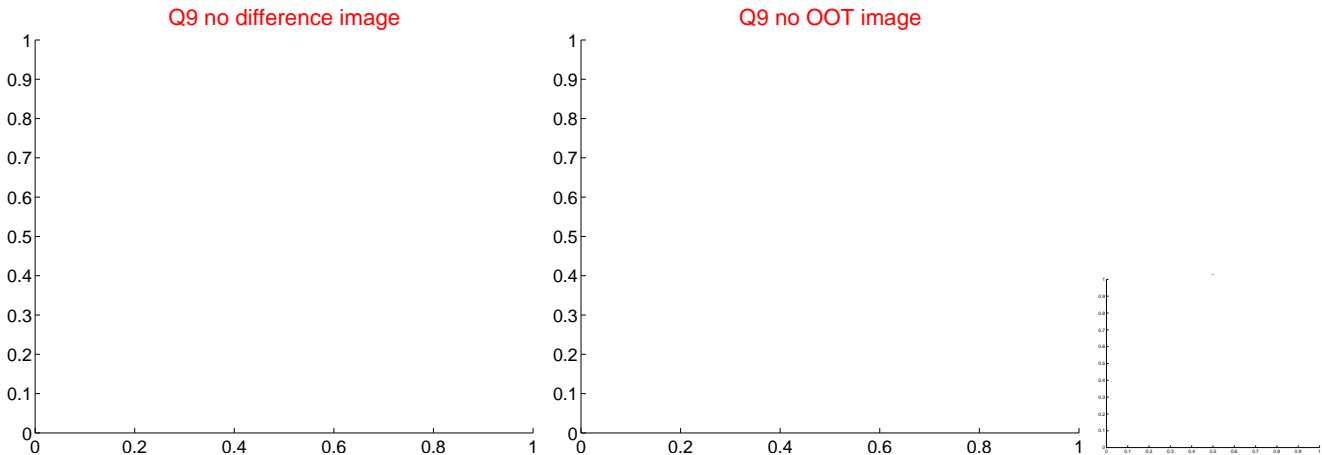
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



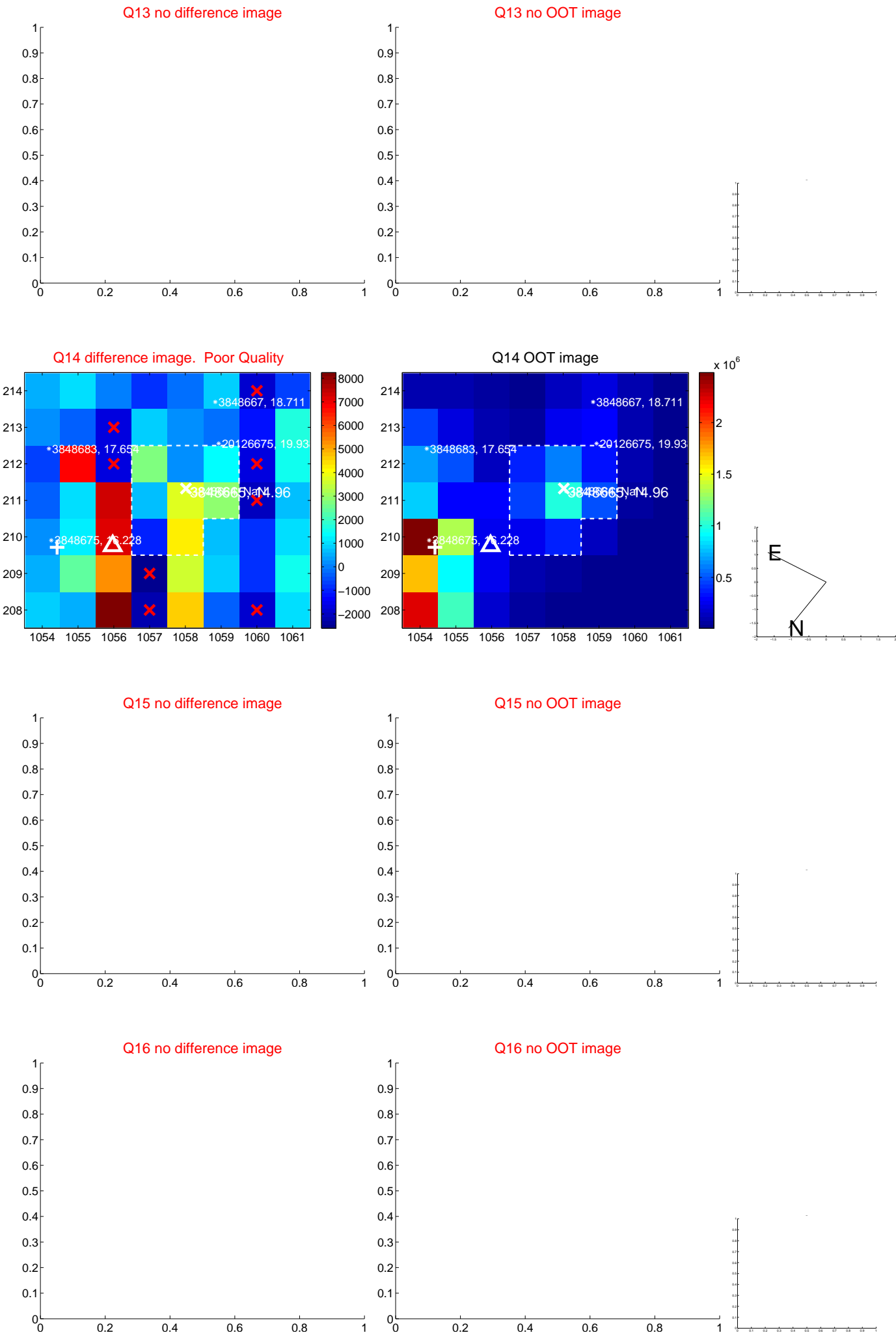
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



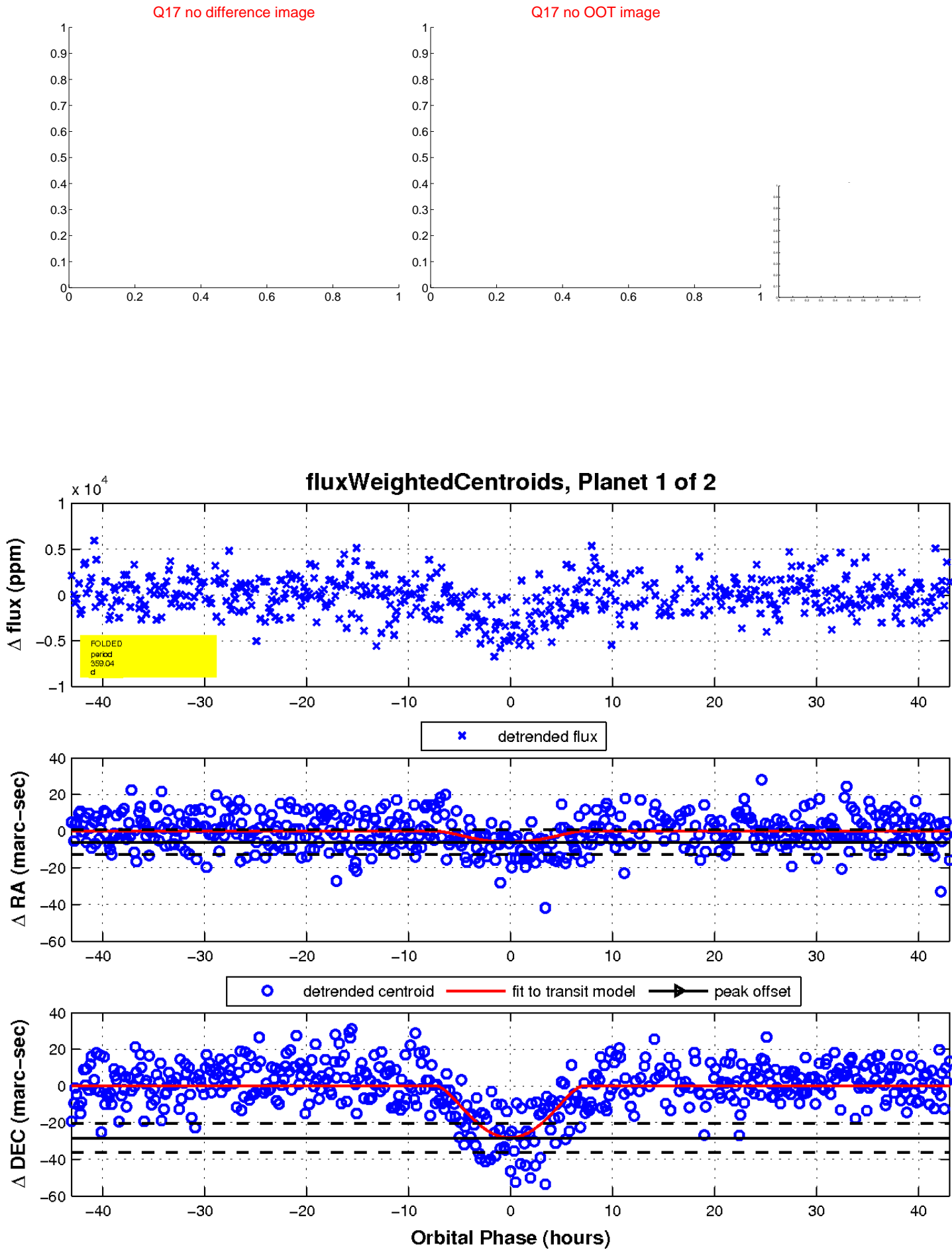
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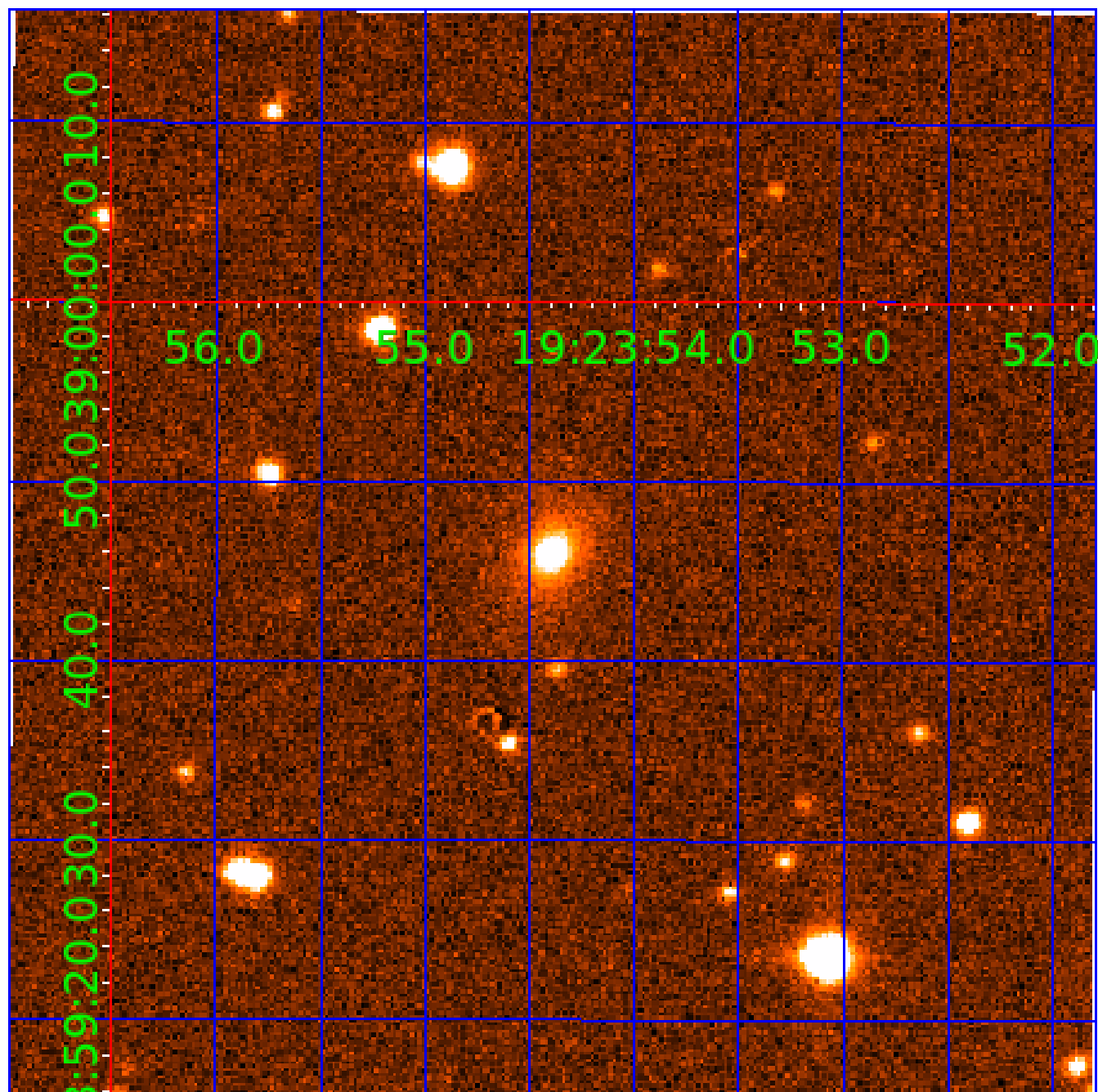


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 003848665

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})
003848665-01	OBS	5014.01	359.043912	274.208961	3909.2	14.369	11.8	12.3	0.70	4596	6.94	0.25
003848665-02	OBS	No	119.682586	176.076377	1836.8	21.752	9.8	10.1	0.70	4596	5.71	1.10

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
003848665-01	OBS	FP	0.00	1	0	0	1	INDIV_TRANS_MARSHALL_SKYE—CENT_FEW_DIFFS—EPHEM_MATCH
003848665-02	OBS	FP	0.00	1	0	0	1	INDIV_TRANS_SKYE—SAME_NTL_PERIOD—CENT_FEW_DIFFS—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.

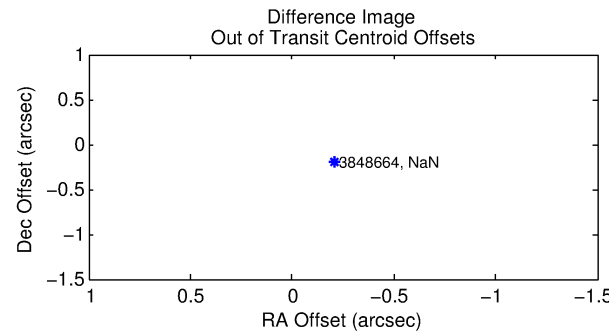
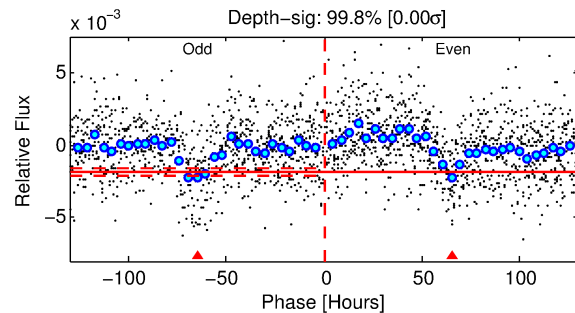
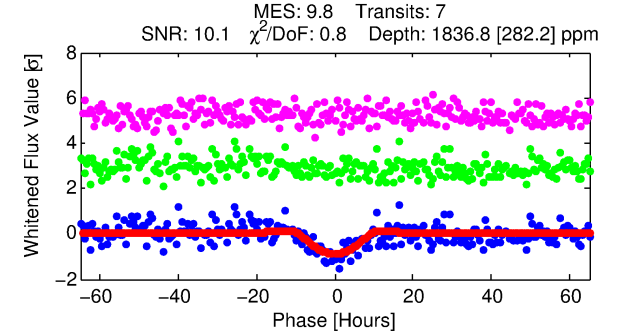
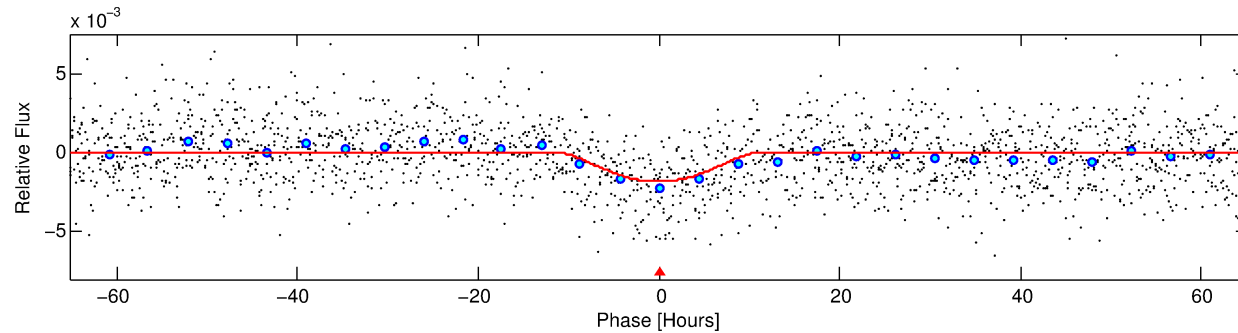
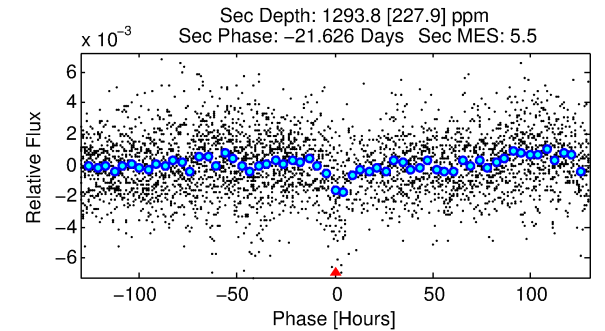
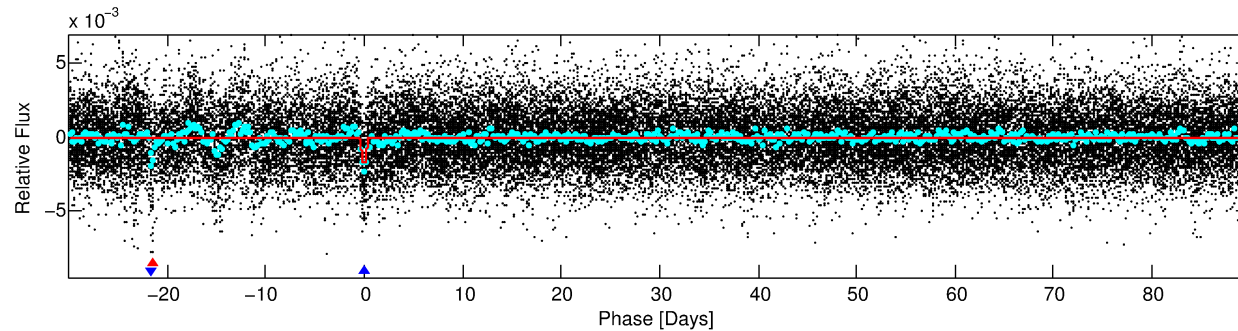
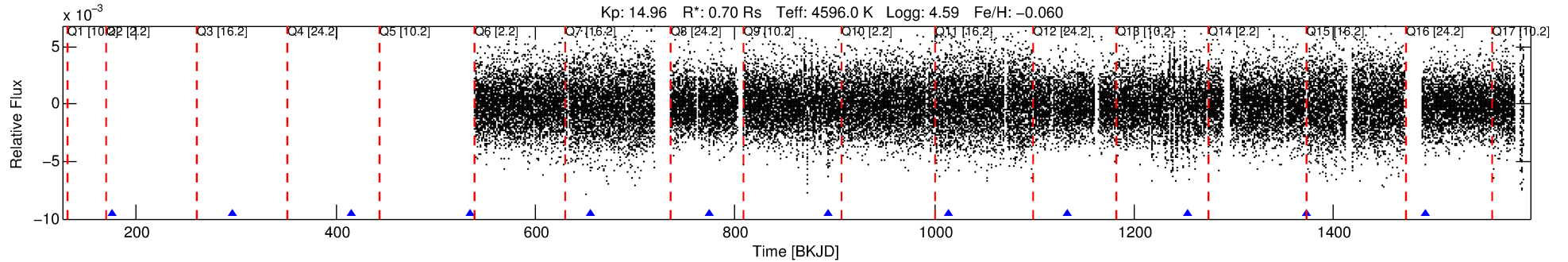
Ephemeris Match Information For 003848665-02

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
003848665-02	3848665	3511.01	3644542	1:1	993.1	-250	2	8.35	14.96	162.77	Direct-PRF	0	0.37	0.39

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: 3848665 Candidate: 2 of 2 Period: 119.683 d
KOI: K05014 Corr: No Ephemeris Match



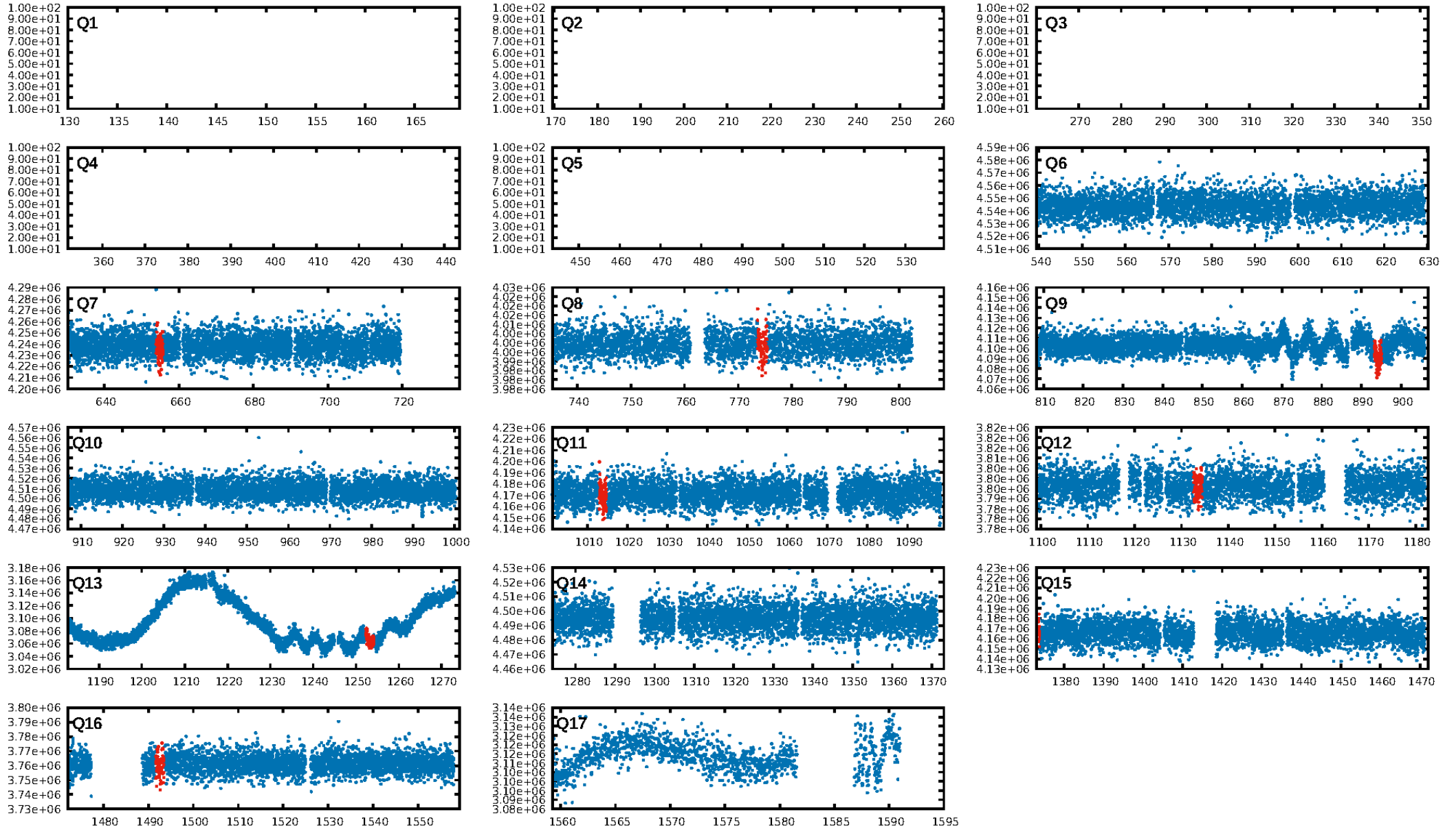
DV Fit Results:

Period = 119.68259 [0.01030] d
Epoch = 176.0764 [0.0803] BKJD
Rp/R* = 0.0752 [0.2464]
a/R* = 17.25 [12.71]
b = 0.99 [0.37]
Seff = 1.10 [0.19]
Teq = 261 [11] K
Rp = 5.71 [18.73] Re
a = 0.4196 [0.0307] AU
Ag = 3844.64 [25223.72] [0.15σ]
Teffp = 3179 [5215] K [0.56σ]

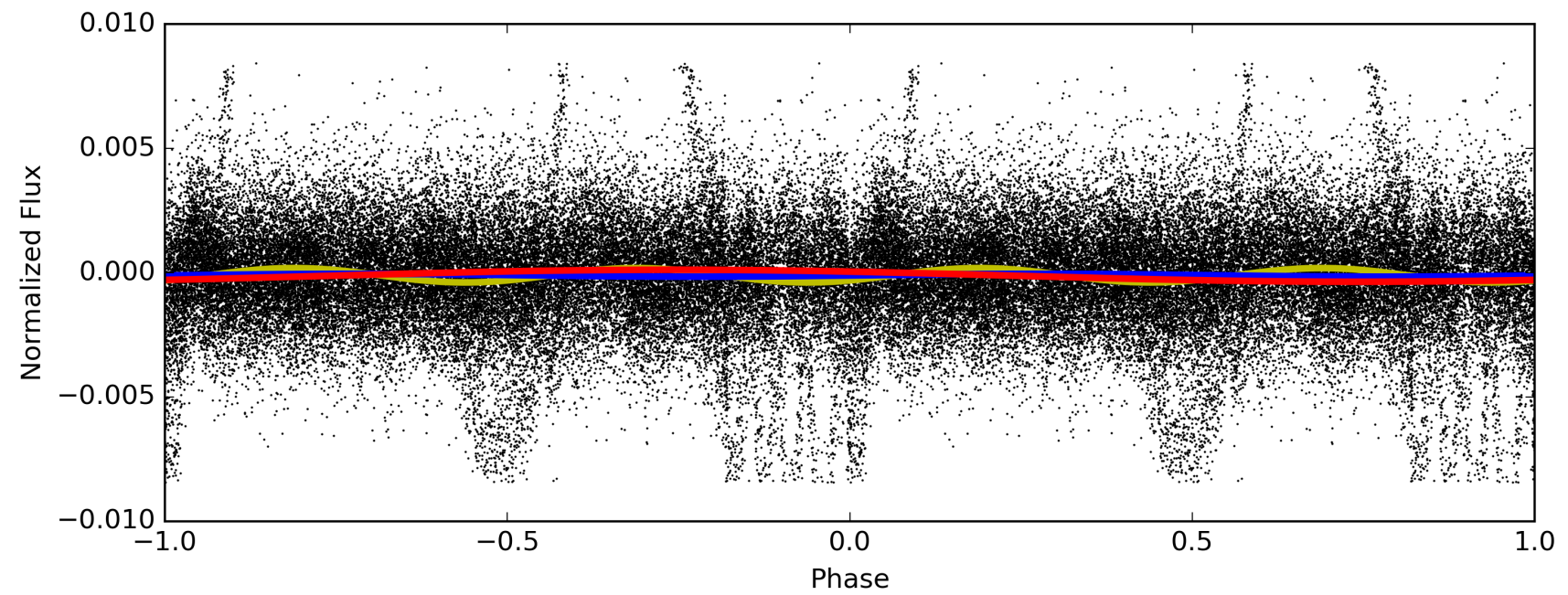
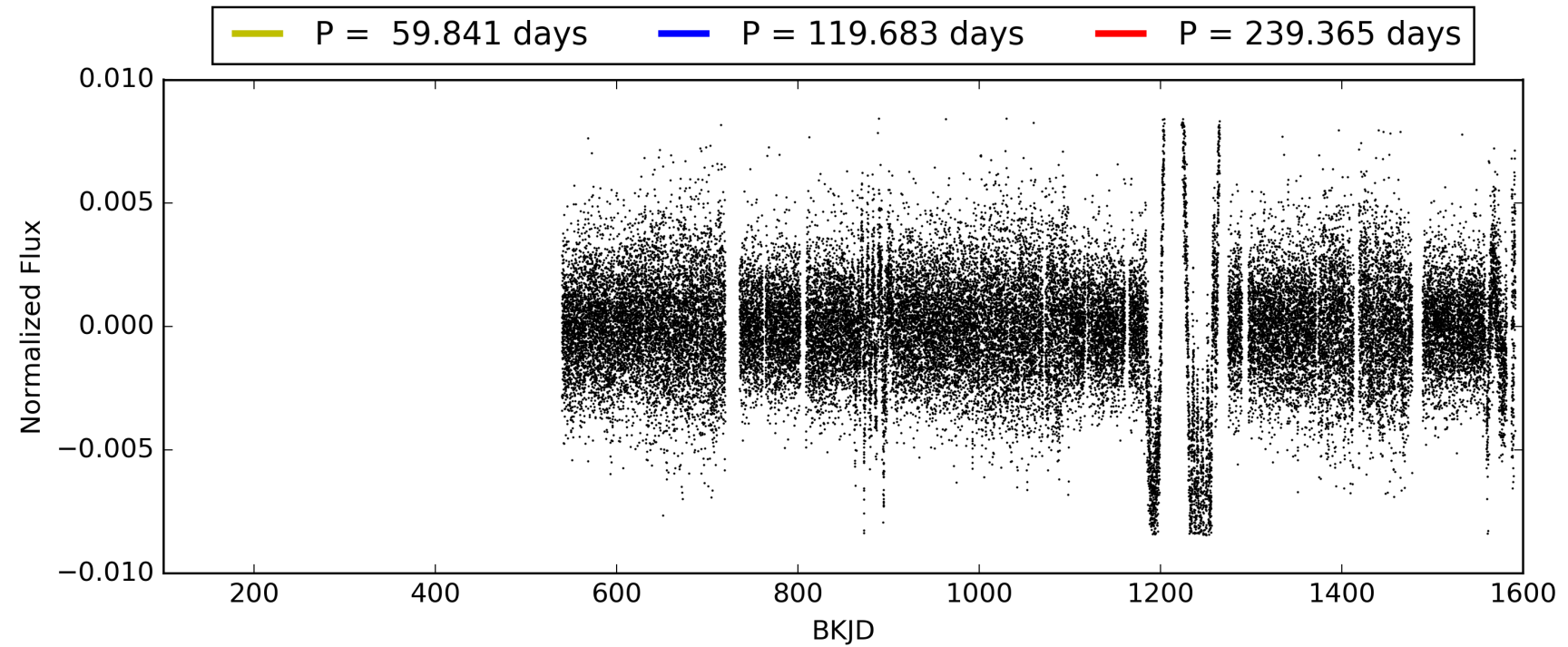
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: 100.0% [220.36σ]
ModelChiSquare2-sig: 0.1%
ModelChiSquareGof-sig: 100.0%
Bootstrap-pfa: 1.77e-21
RollingBand-fgt: 1.00 [7/7]
GhostDiagnostic-chr: 1.365
Centroid-sig: 0.0%
Centroid-so: 9.059 arcsec [7.27σ]
OotOffset-rm: N/A
KicOffset-rm: 1.376 arcsec [1.41σ]
OotOffset-st: 0/0/0 [0]
KicOffset-st: 0/0/2 [2]
DiffImageQuality-fgm: 0.00 [0/2]
DiffImageOverlap-fno: 1.00 [6/6]

TCE 003848665-02, PDC Light Curves

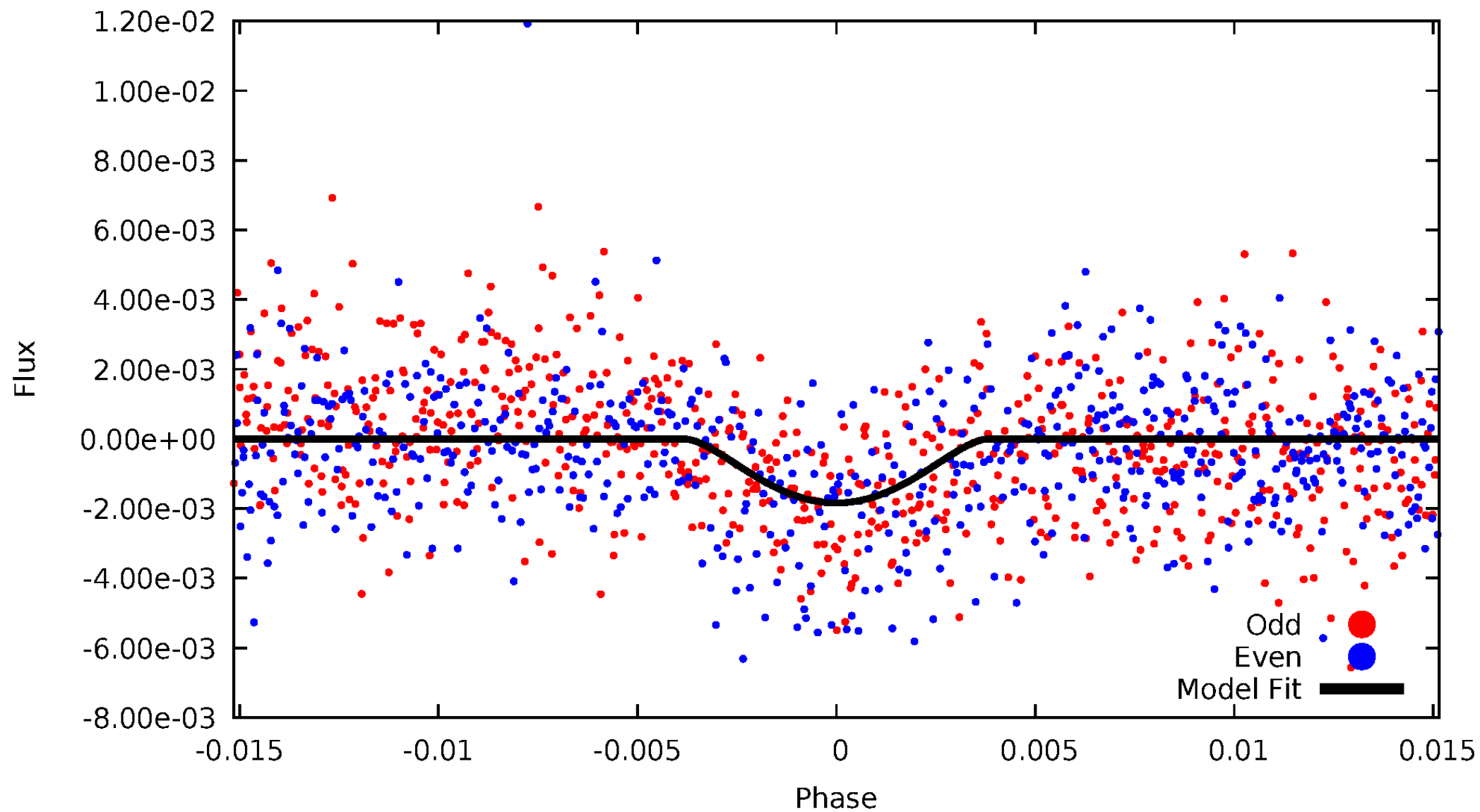


TCE 003848665-02



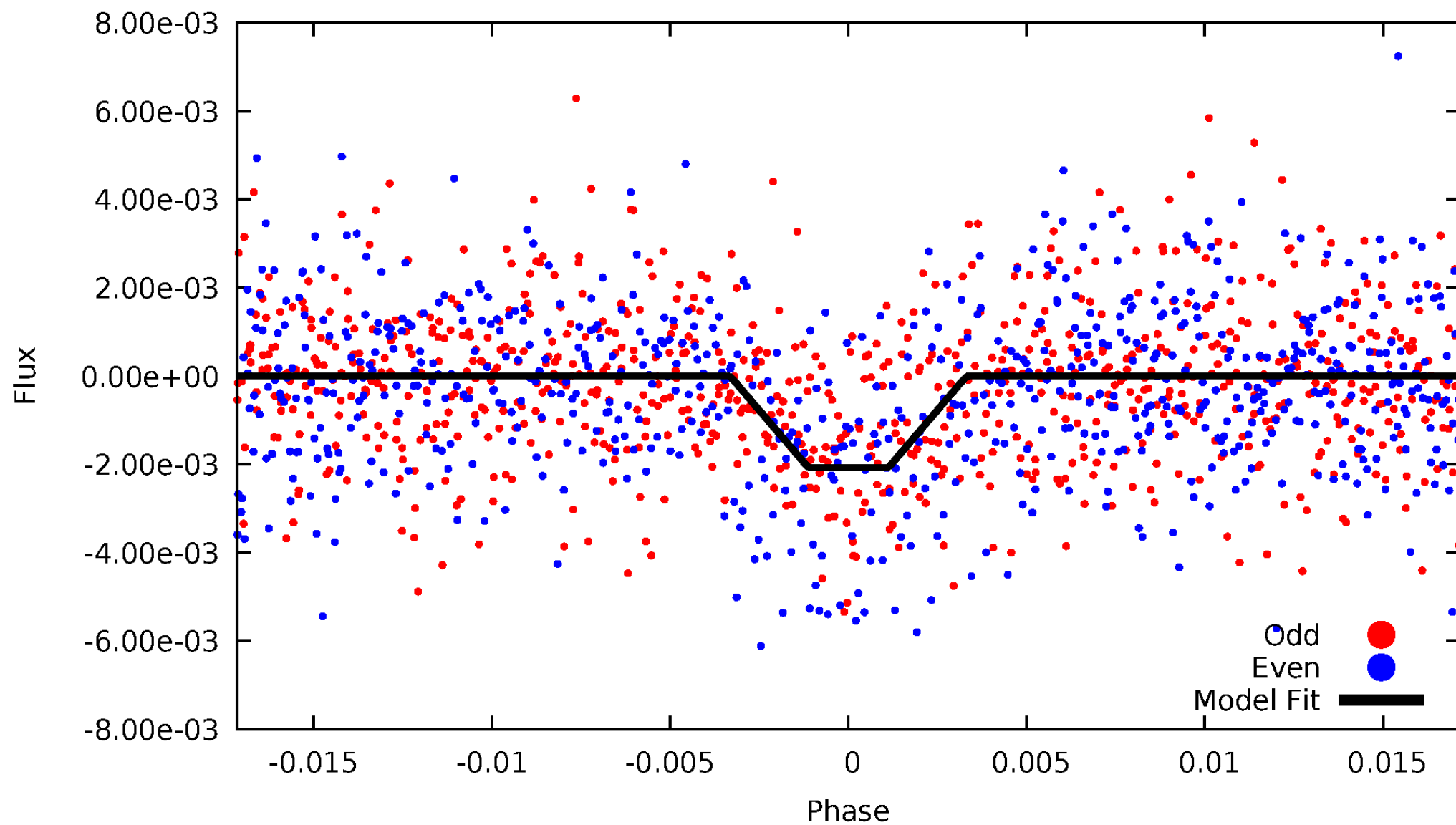
DV Odd/Even

TCE 003848665-02



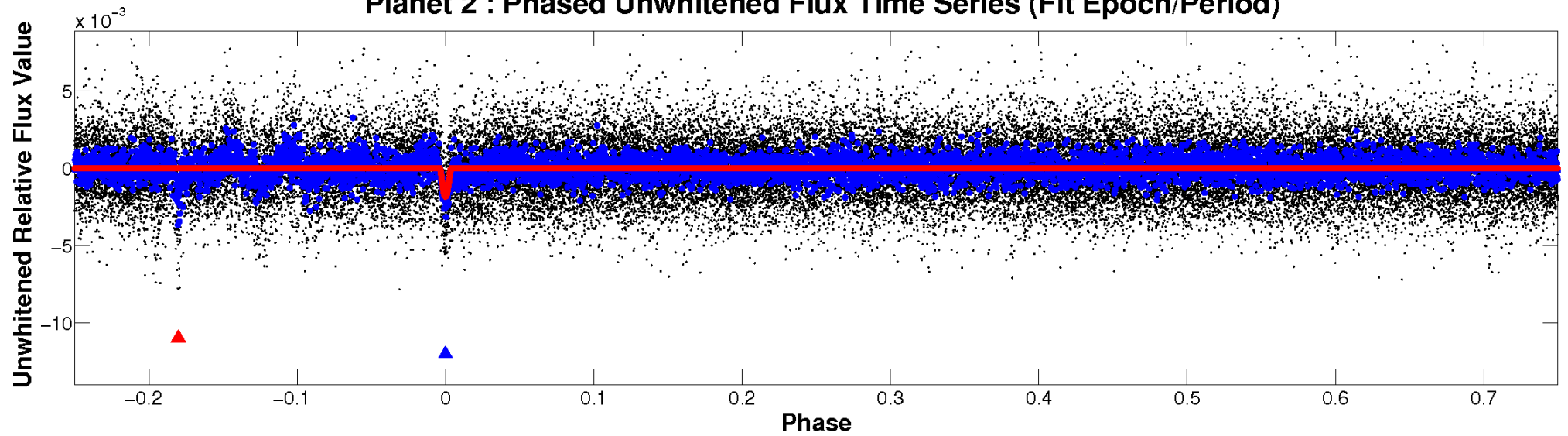
ALT Odd/Even

TCE 003848665-02

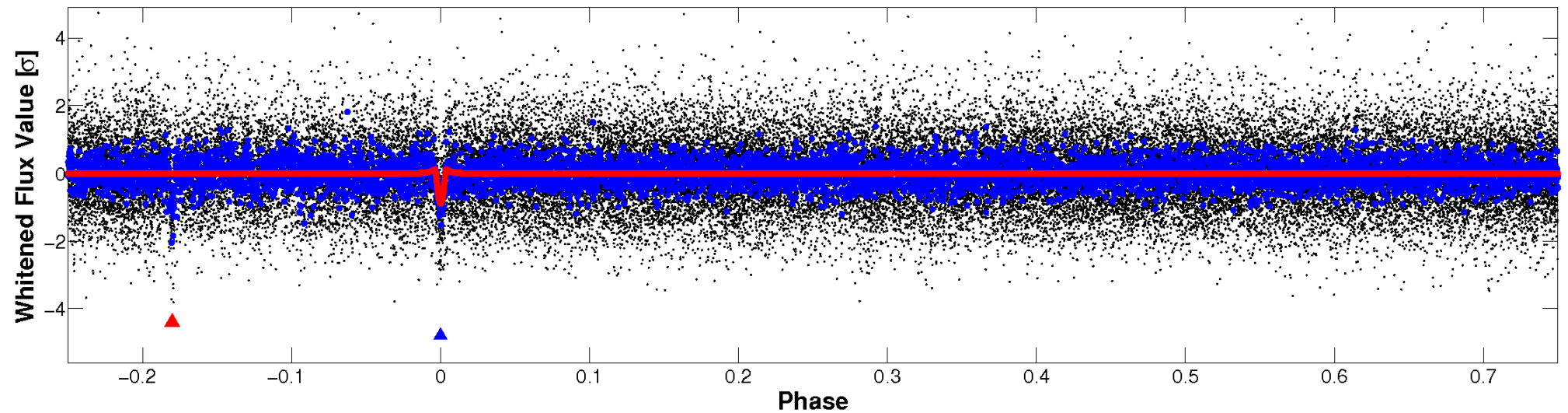


Non-Whitened Vs. Whitened Light Curve

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

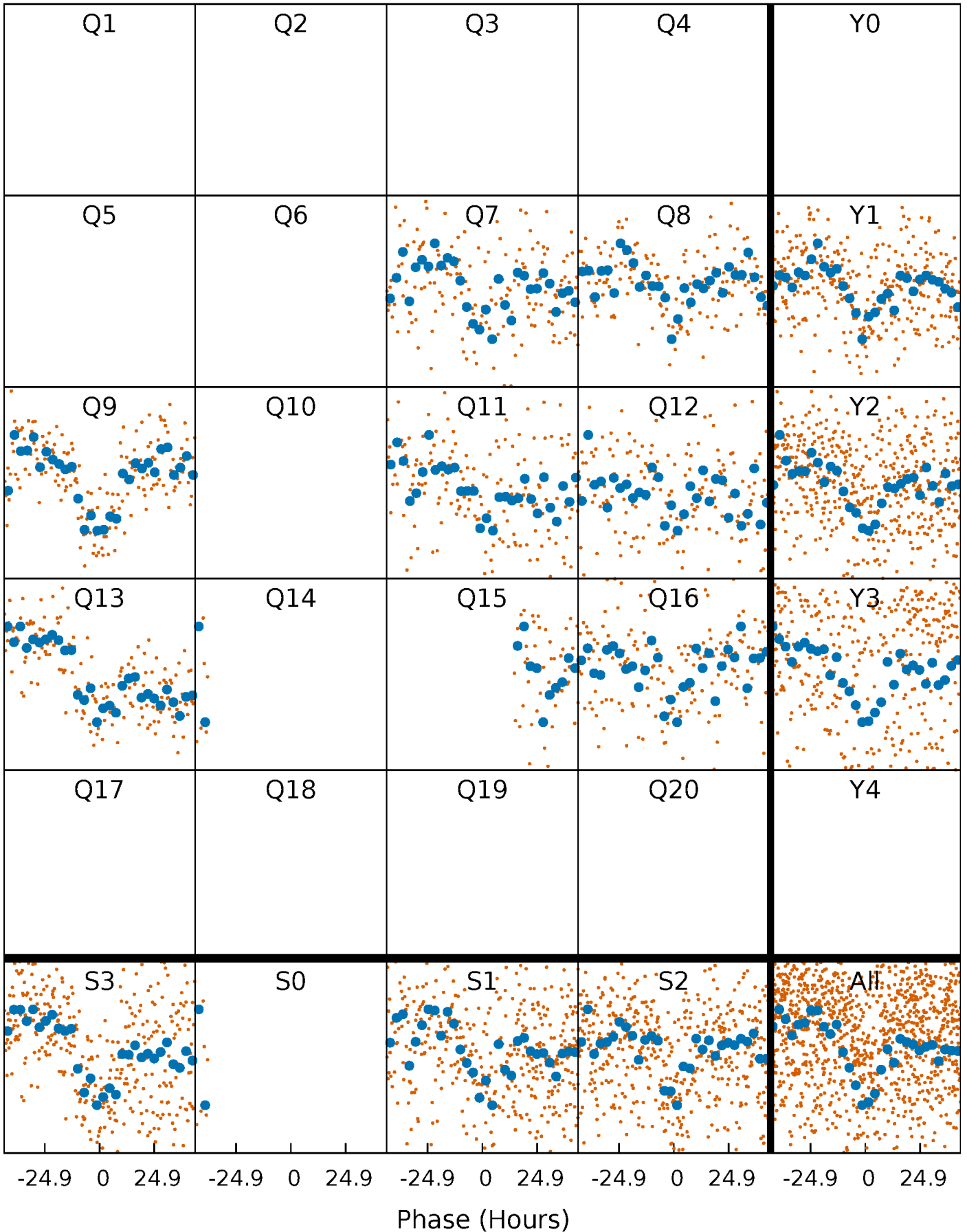


Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



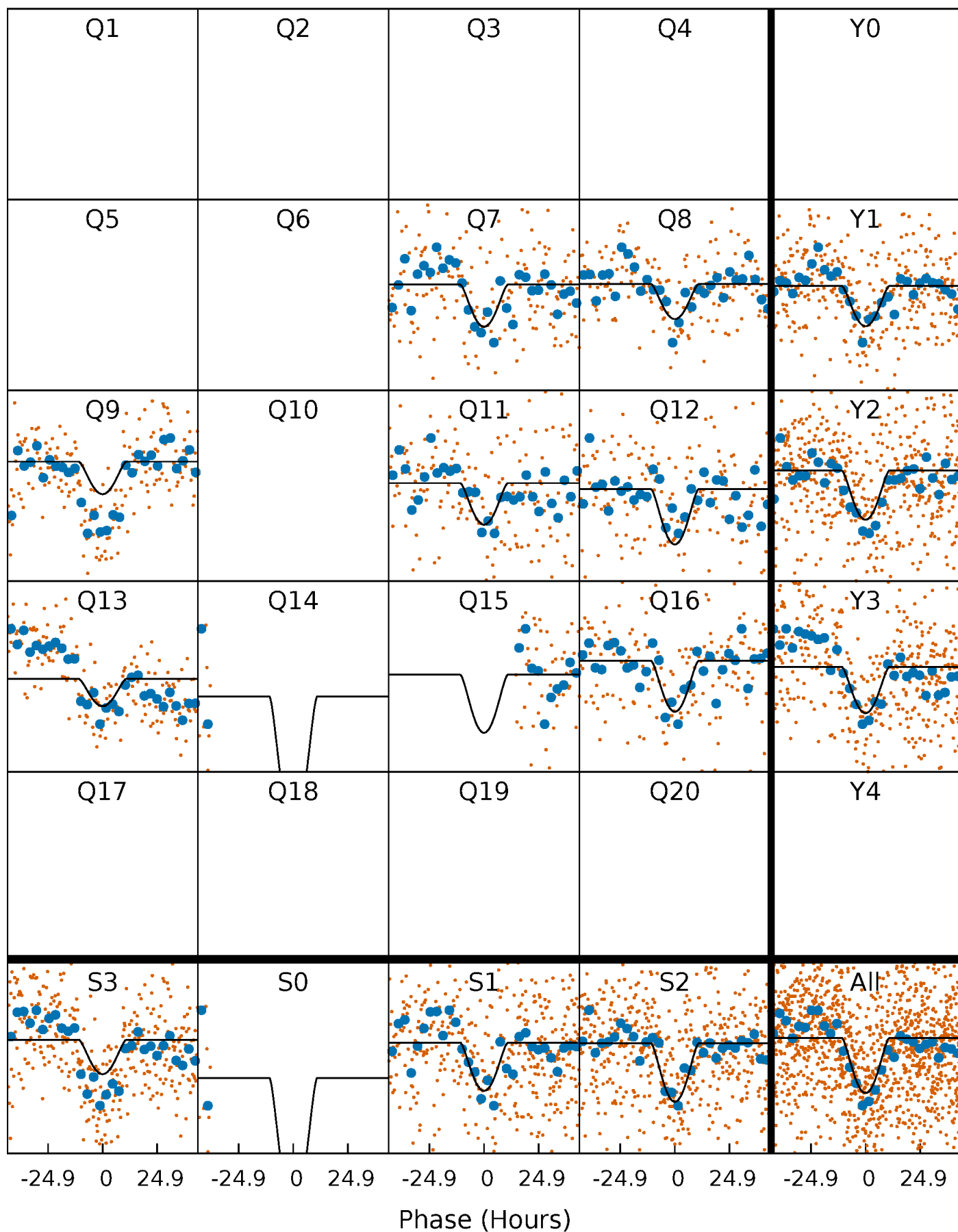
PDC Quarter-Phased Transit Curves

TCE 003848665-02 $P=119.682586$ Days $T_0=176.076377$ (BKJD)



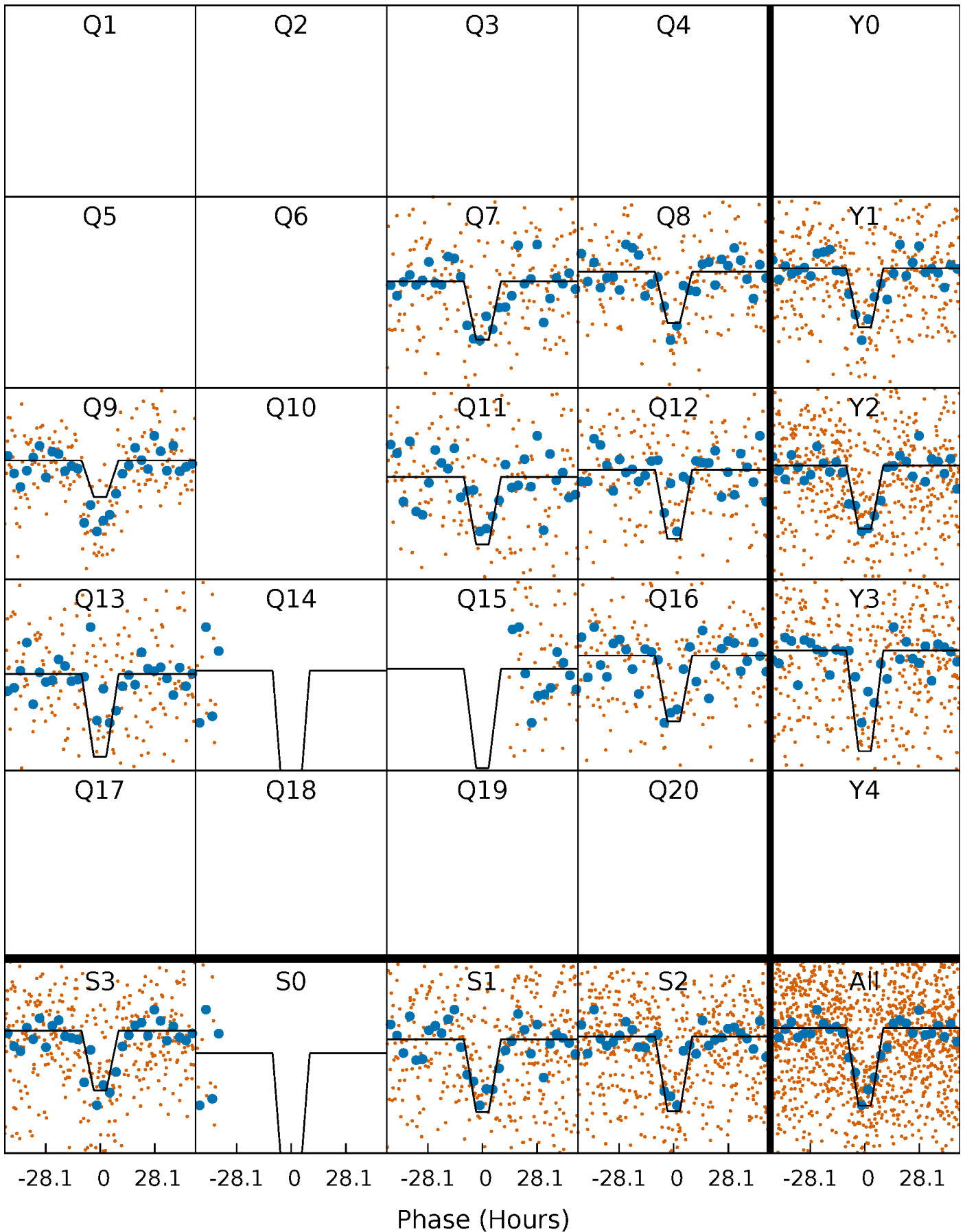
DV Quarter-Phased Transit Curves

TCE 003848665-02 P=119.682586 Days $T_0=176.076377$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

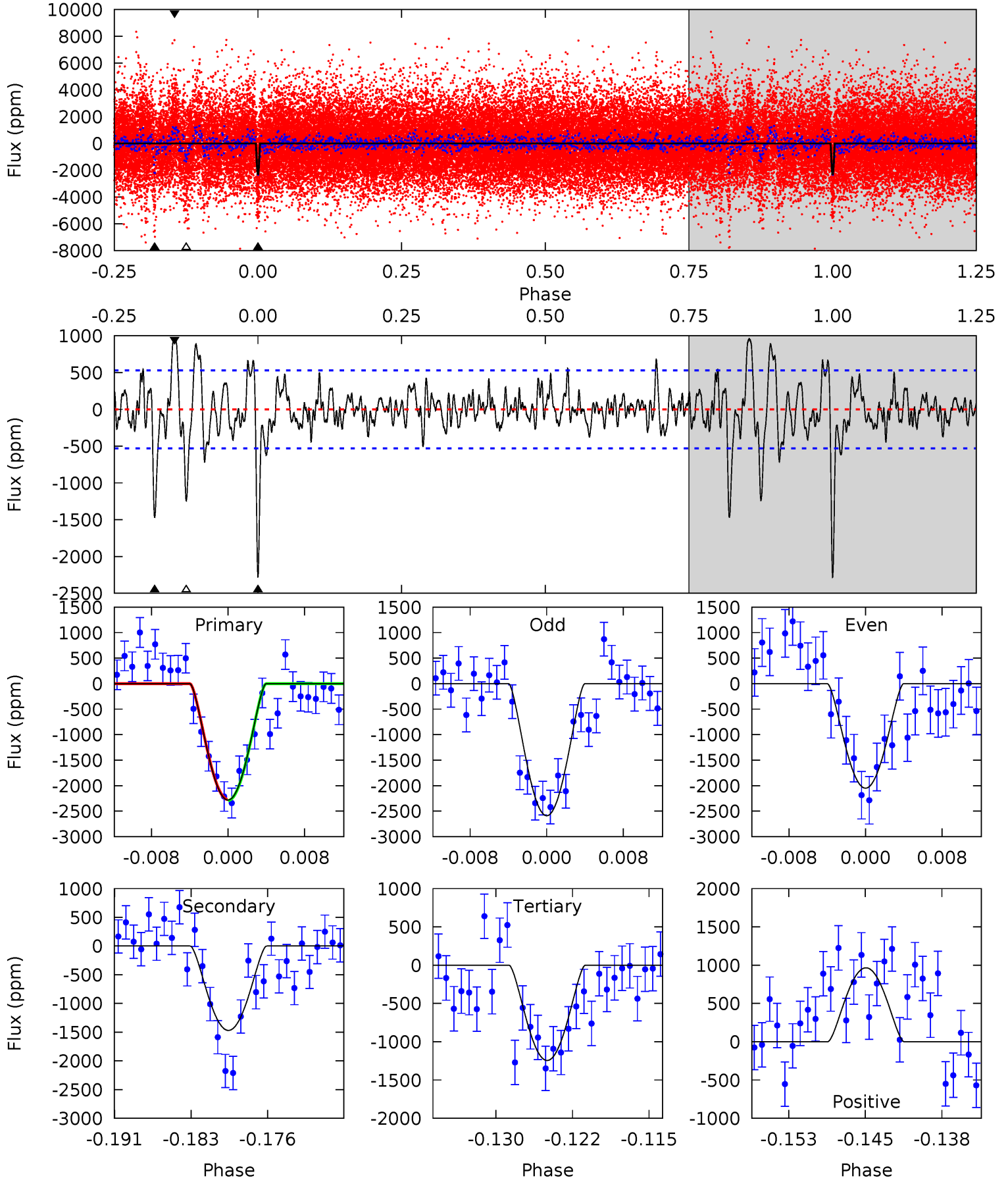
TCE 003848665-02 P=119.686172 Days $T_0=176.067644$ (BKJD)



DV Model-Shift Uniqueness Test

003848665-02, P = 119.682586 Days, E = 176.076377 Days

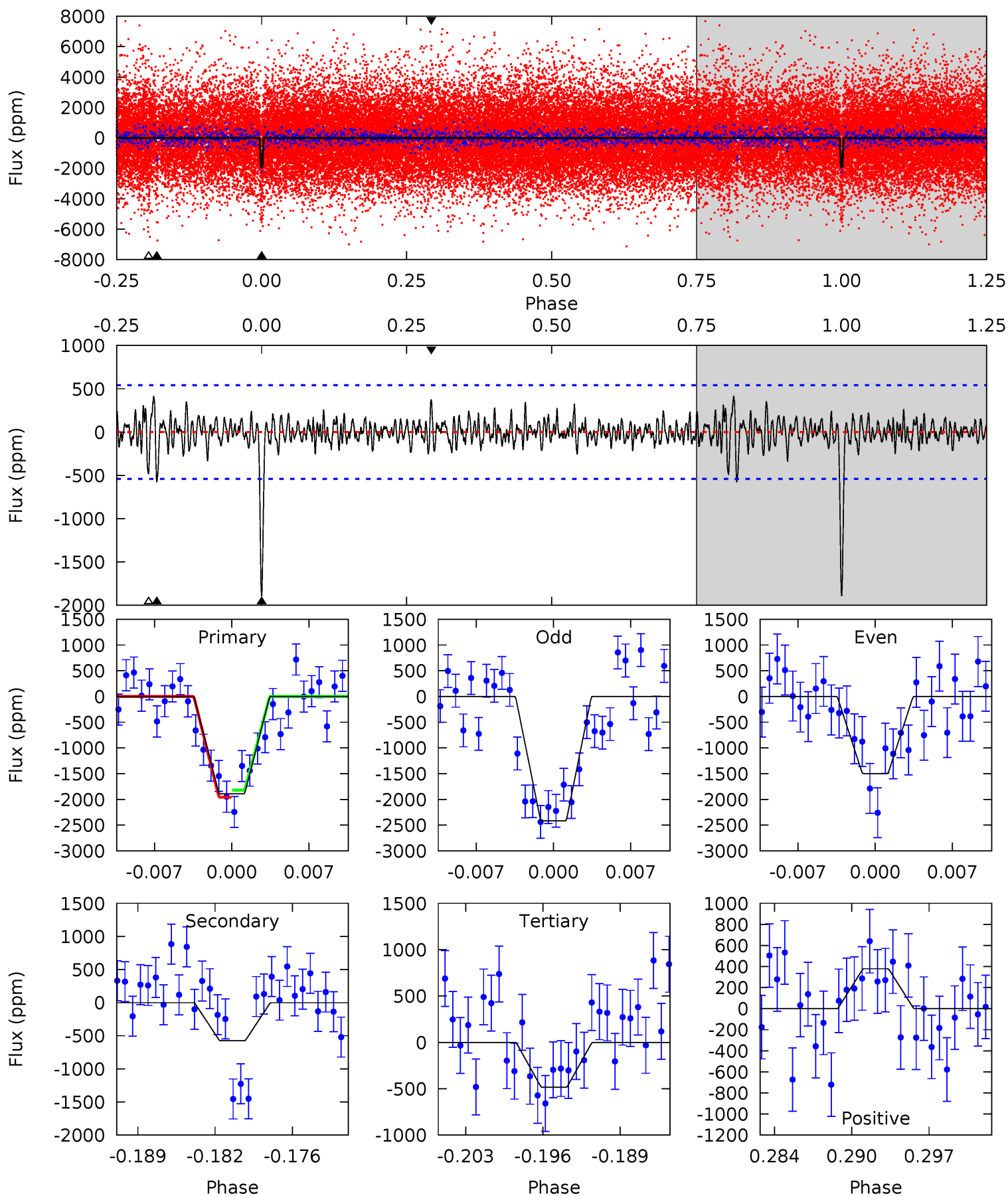
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
21.9	14.1	11.9	9.26	5.08	2.67	2.35	9.94	12.6	2.16	4.84	2.57	1.14	0.30	0.10



Alt Model-Shift Uniqueness Test

003848665-02, P = 119.686172 Days, E = 176.067644 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
17.8	5.42	4.57	3.56	5.10	2.71	1.04	13.2	14.2	0.85	1.86	4.27	1.06	0.18	0.66



Stellar Parameters For KIC 003848665

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (g \cdot \text{cm}^{-3})$
	4596^{+161}_{-161}	$4.590^{+0.052}_{-0.028}$	$-0.060^{+0.300}_{-0.300}$	$0.696^{+0.050}_{-0.064}$	$0.688^{+0.074}_{-0.056}$	$2.871^{+0.725}_{-0.328}$
	+4%/-4%	+1%/-1%	+500%/-500%	+7%/-9%	+11%/-8%	+25%/-11%
Source	PHO54	PHO54	PHO54	DSEP		

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

Secondary Eclipse Parameters for KIC 003848665-02 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	-1470 ± 104	$14.86^{+15.27}_{-10.20}$	362^{+15}_{-13}	2730^{+1142}_{-444}	668^{+6047}_{-510}
Alt.	-576 ± 106	$14.36^{+15.17}_{-10.02}$	363^{+14}_{-15}	2443^{+976}_{-366}	264^{+2723}_{-200}

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 $A_{obs} \gg 1.0$

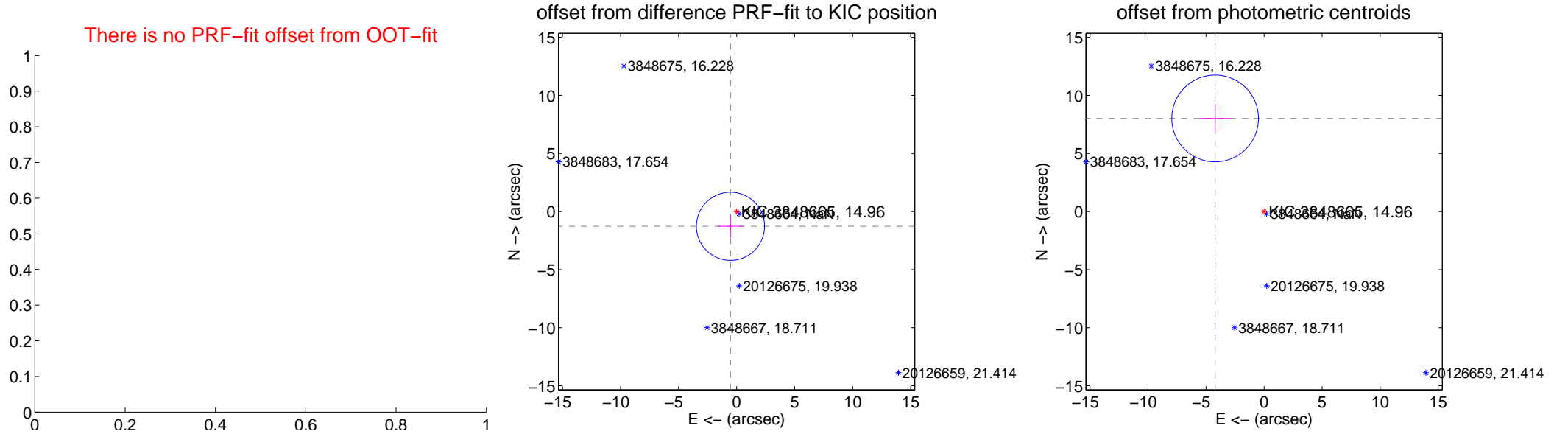
DV Centroid Data

Supplemental centroid analysis for 003848665-02. Kepler magnitude: 14.96. Transit SNR 10.07

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

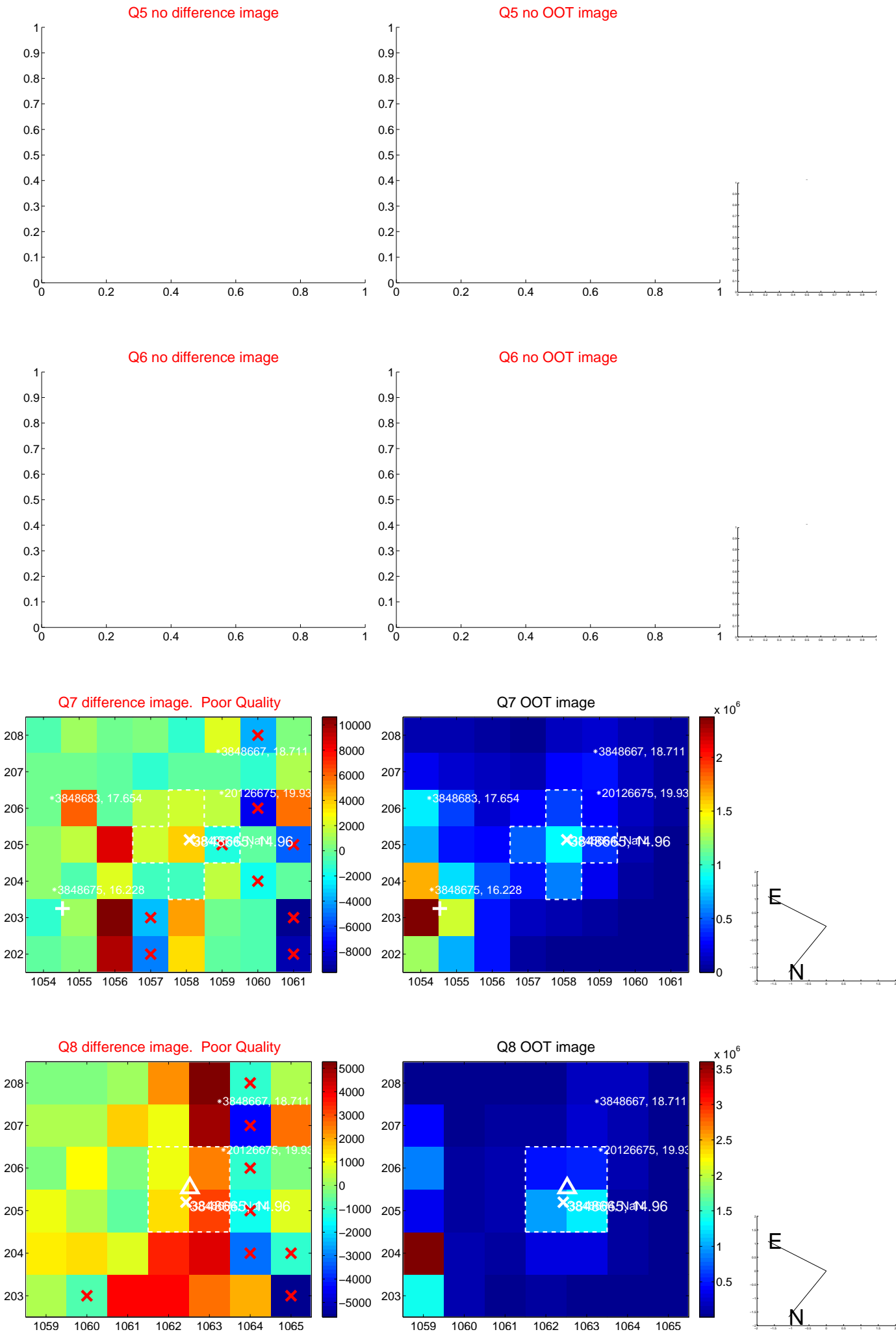
	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	—	—	—	—
PRF-fit source offset from KIC position	1.376 ± 0.979	1.41	0.530 ± 1.063	-1.270 ± 0.963
photometric centroid source offset	9.06 ± 1.25	7.27	4.22 ± 1.33	8.02 ± 1.22



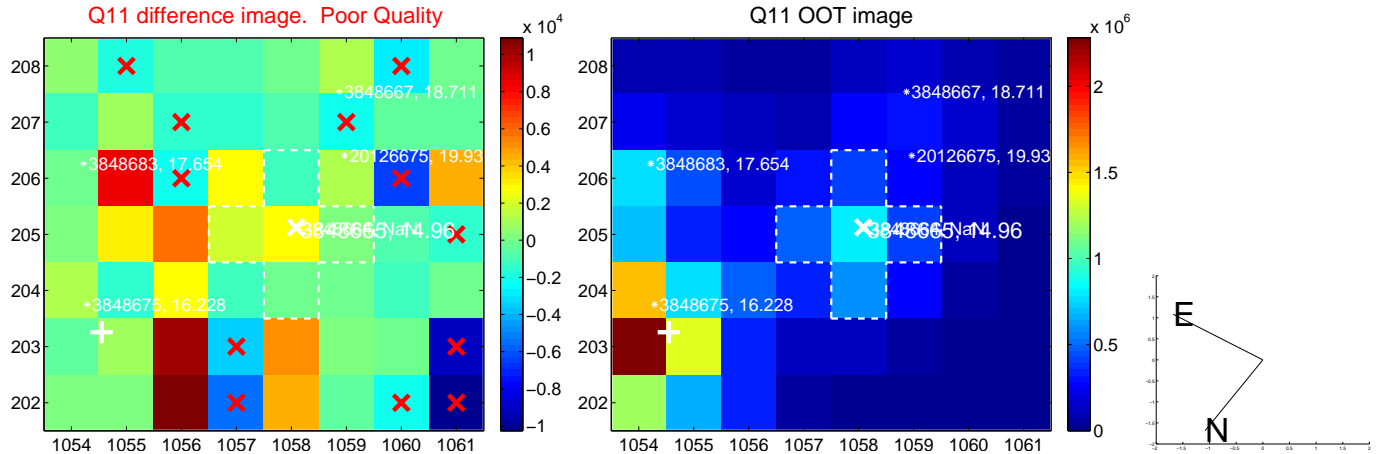
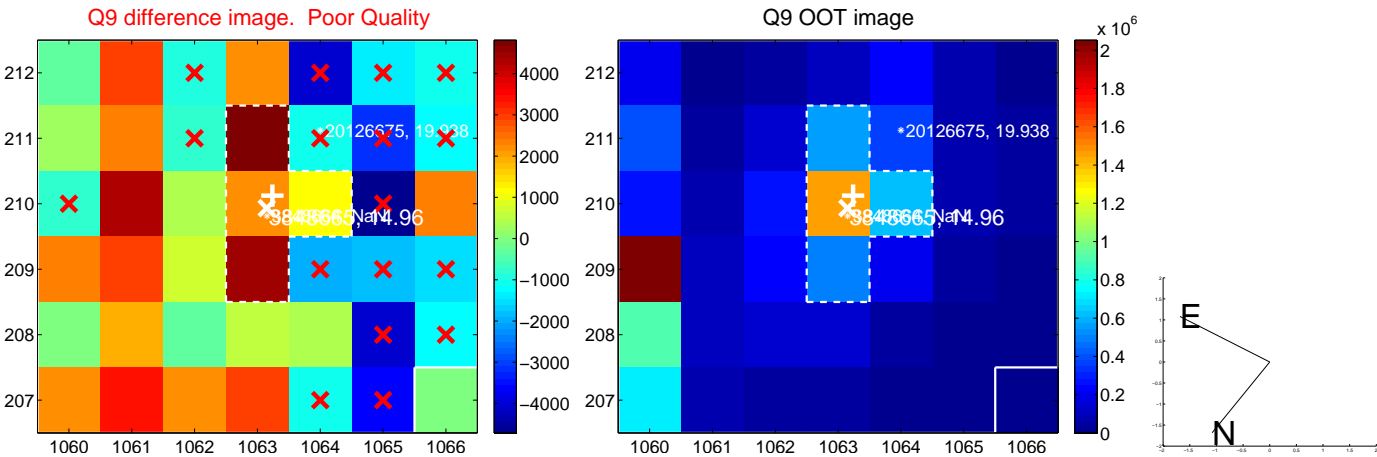
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



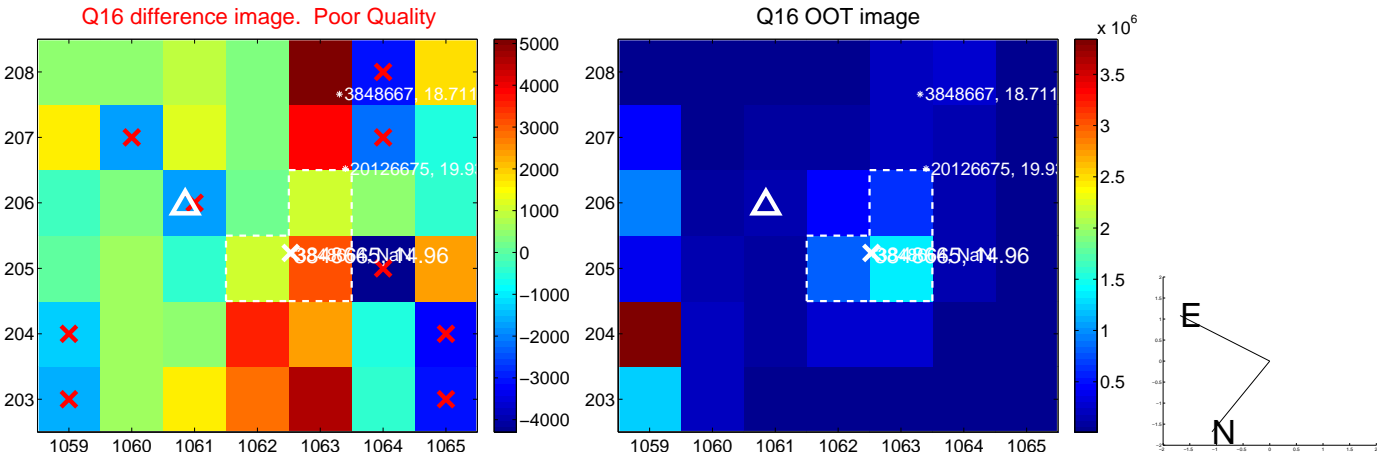
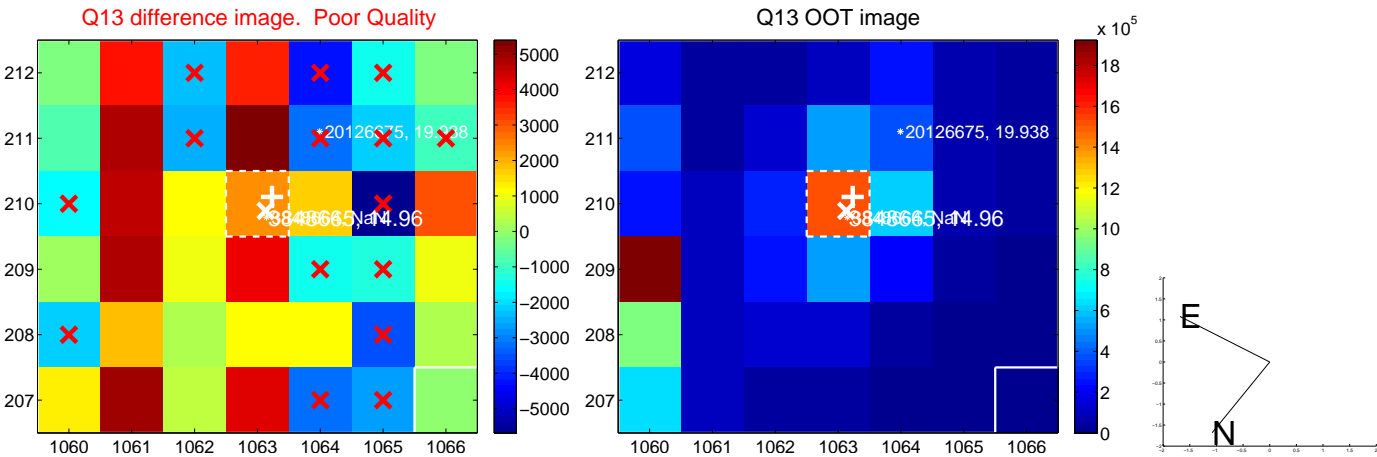
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



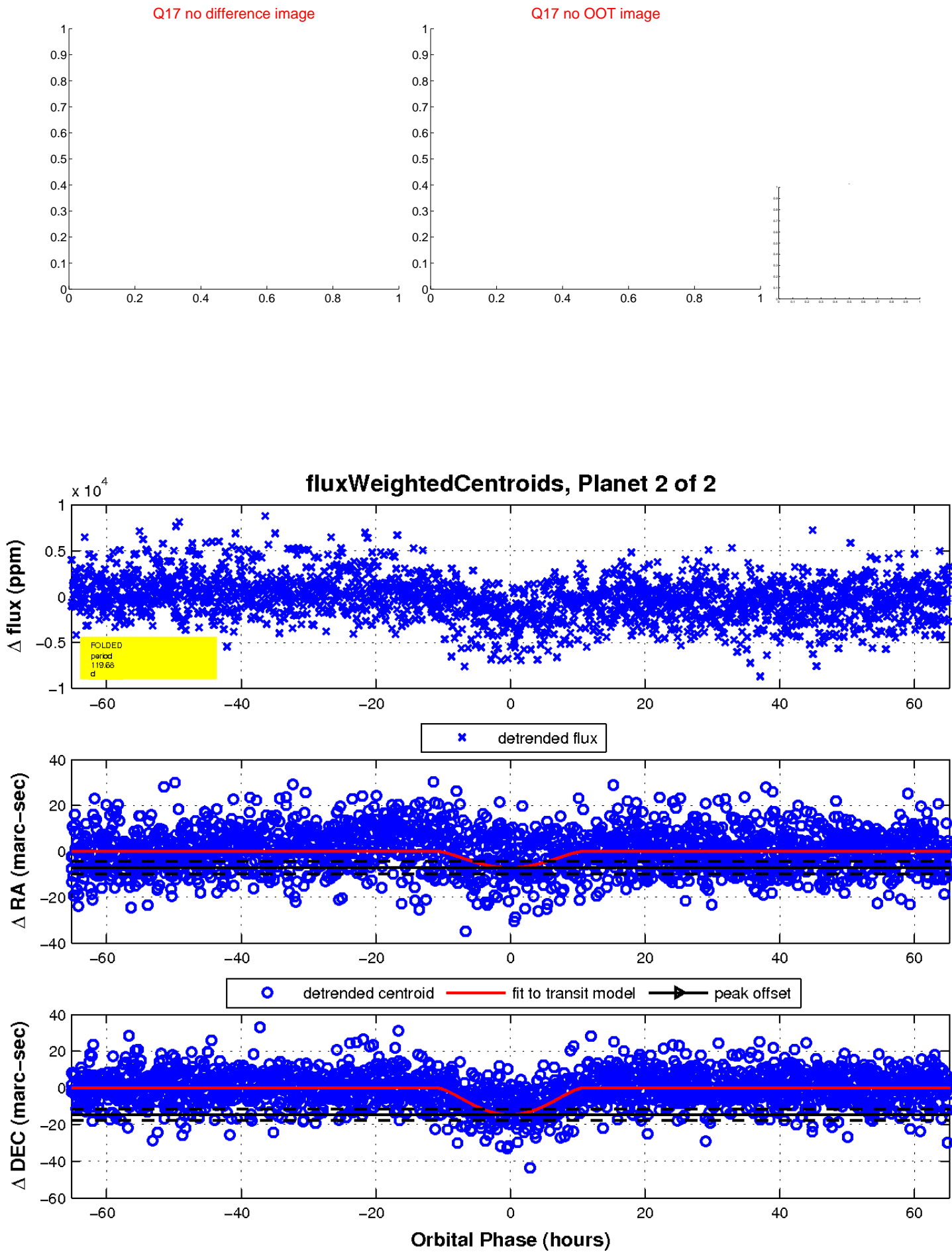
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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



UKIRT Image

Declination

