

KIC 007703955

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})
007703955-01	OBS	1707.01	96.108179	187.705688	919.4	9.524	21.1	23.4	1.00	5792	3.83	6.61
007703955-02	OBS	1707.02	265.477831	151.066781	1030.3	10.295	15.1	15.4	1.00	5792	4.17	1.71

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
007703955-01	OBS	PC	1.00	0	0	0	0	NO_COMMENT
007703955-02	OBS	PC	0.99	0	0	0	0	NO_COMMENT

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.

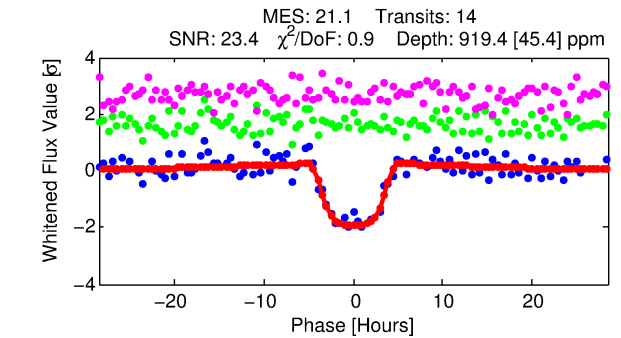
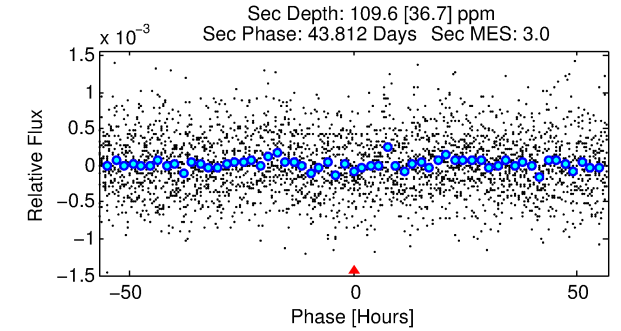
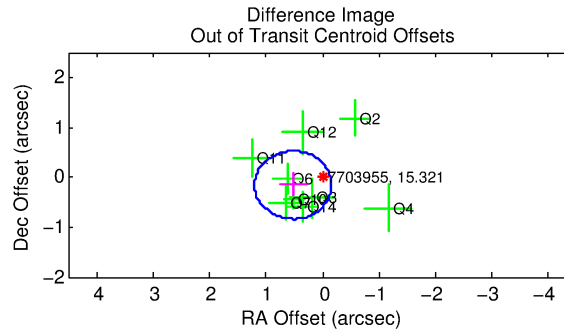
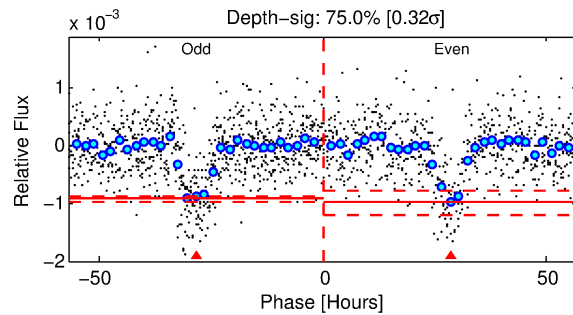
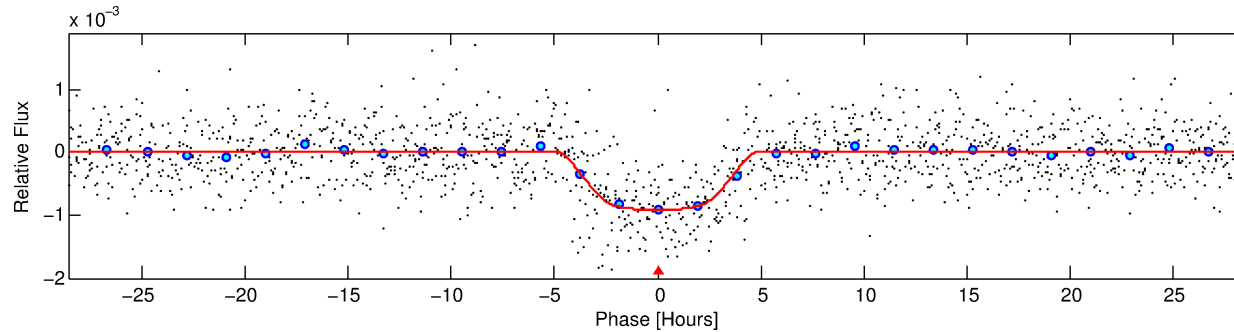
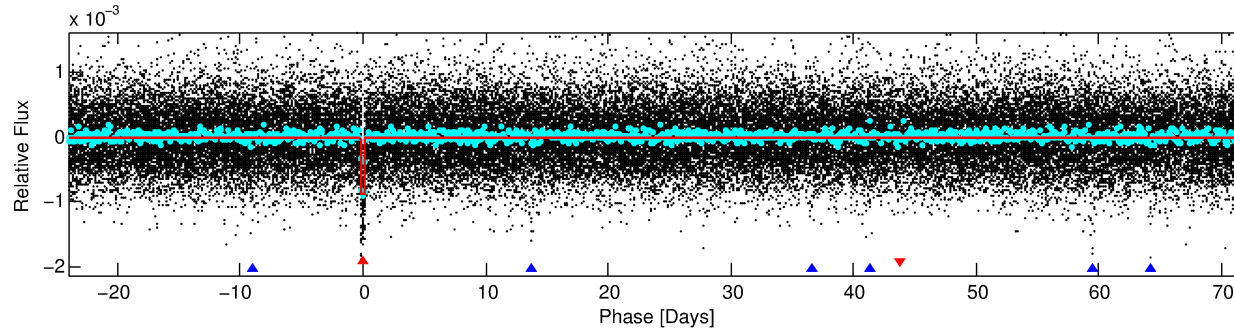
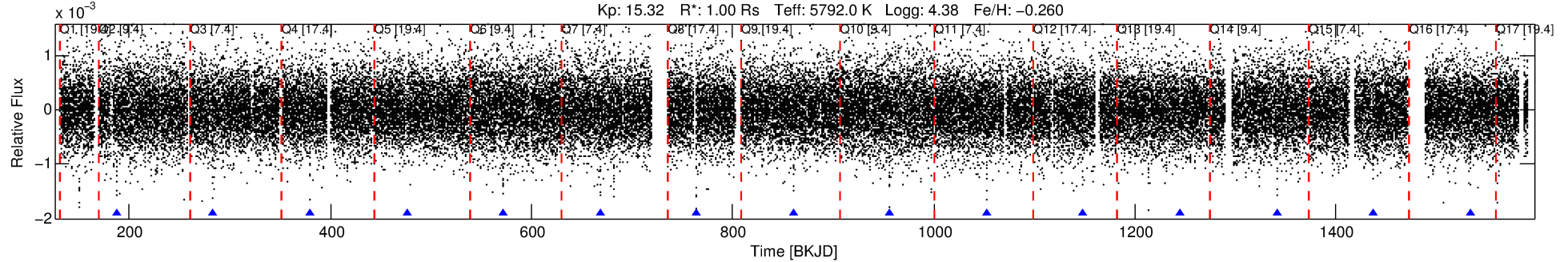
Ephemeris Match Information For 007703955-01

No Significant Match Found

DV One-Page Summary

KIC: 7703955 Candidate: 1 of 2 Period: 96.108 d
KOI: K01707.01 Name: Kepler-315b Corr: 0.934

Kp: 15.32 R*: 1.00 Rs Teff: 5792.0 K Logg: 4.38 Fe/H: -0.260



DV Fit Results:

Period = 96.10818 [0.00105] d
Epoch = 187.7057 [0.0087] BKJD
Rp/R* = 0.0349 [0.0014]
a/R* = 32.45 [3.63]
b = 0.95 [0.01]
Seff = 6.61 [1.49]
Teq = 409 [23] K
Rp = 3.83 [0.54] Re
a = 0.3926 [0.0519] AU
Ag = 635.03 [256.89] [2.47σ]
Teffp = 3173 [278] K [9.89σ]

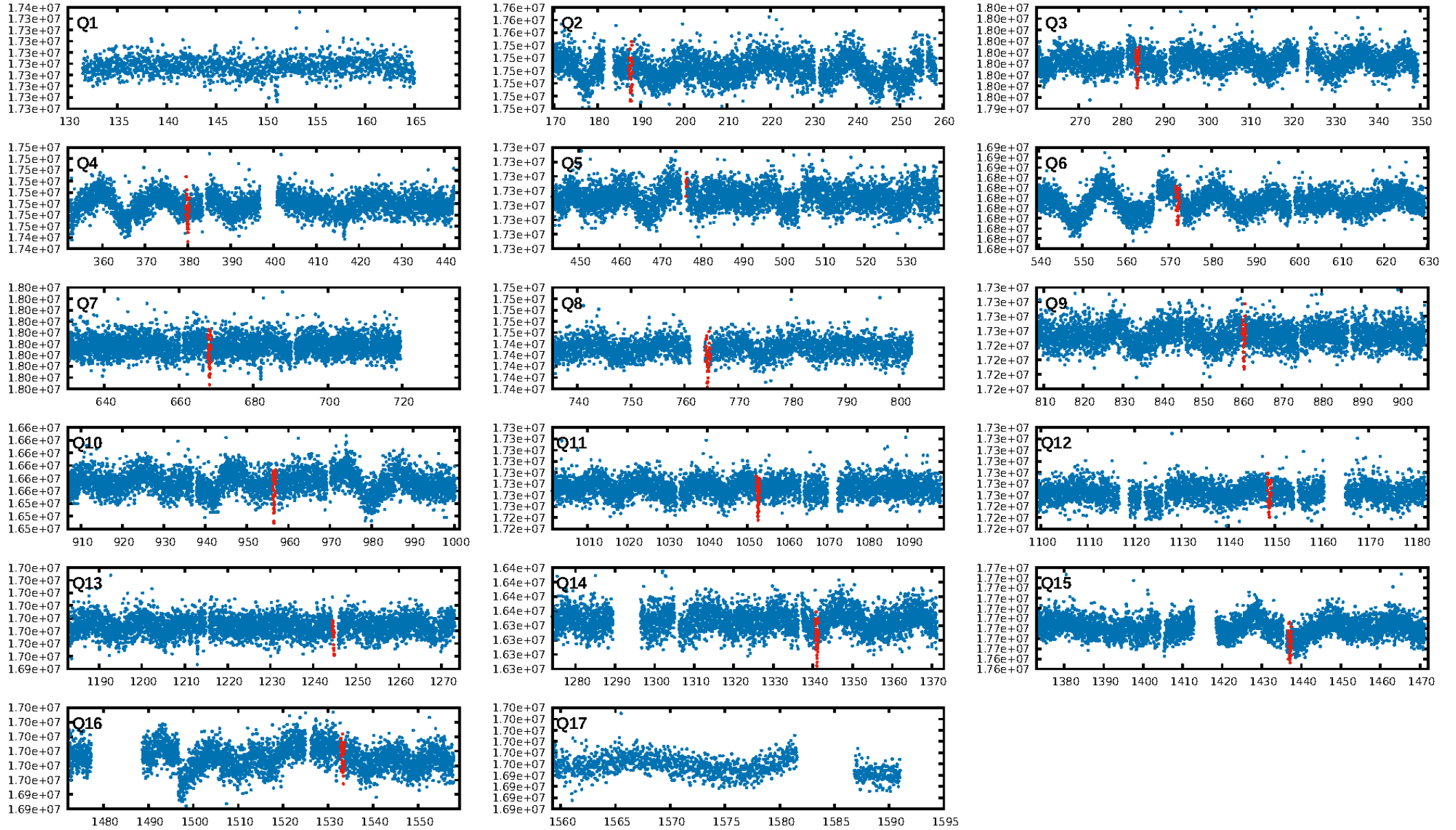
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: 100.0% [289.84σ]
ModelChiSquare2-sig: 2.7%
ModelChiSquareGof-sig: 100.0%
Bootstrap-pfa: 3.63e-82
RollingBand-fgt: 1.00 [14/14]
GhostDiagnostic-chr: 106.1
Centroid-sig: 82.9%
Centroid-so: 0.296 arcsec [0.53σ]
OotOffset-rm: 0.545 arcsec [2.41σ]
KicOffset-rm: 0.568 arcsec [2.31σ]
OotOffset-st: 4/3/2/0 [9]
KicOffset-st: 4/3/2/0 [9]
DiffImageQuality-fgm: 1.00 [9/9]
DiffImageOverlap-fno: 1.00 [10/10]

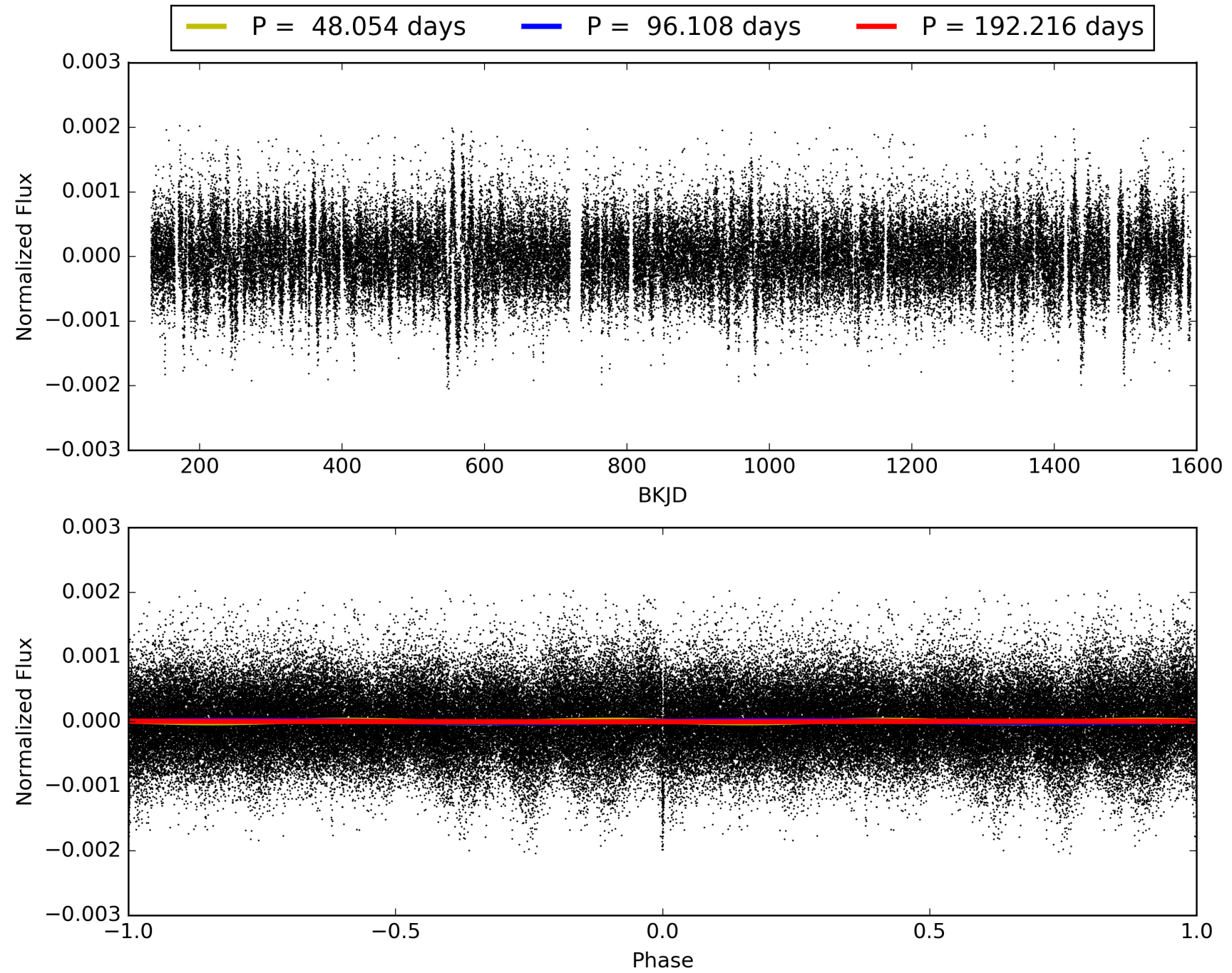
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 31-Jan-2016 01:21:46 Z

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

TCE 007703955-01, PDC Light Curves

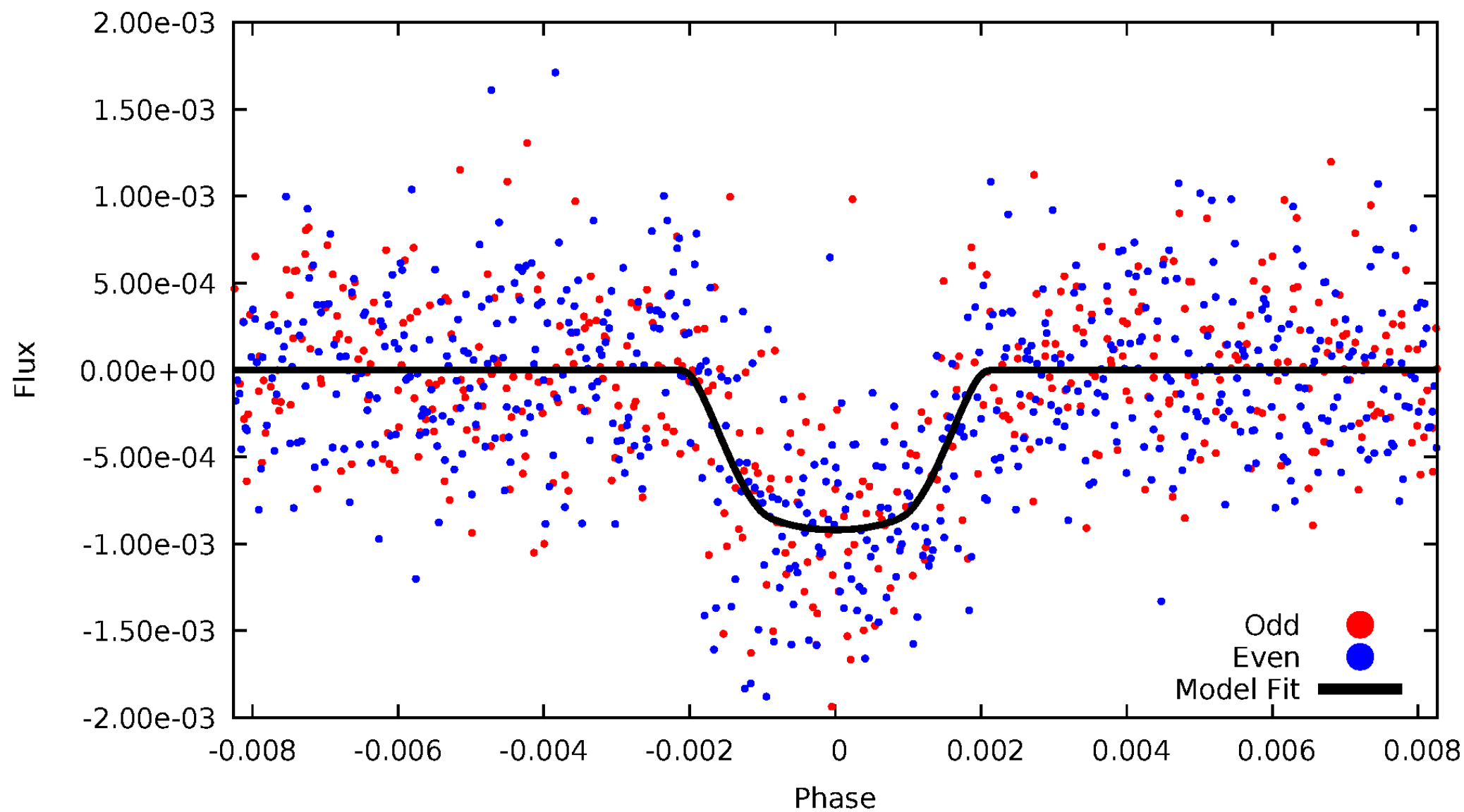


TCE 007703955-01



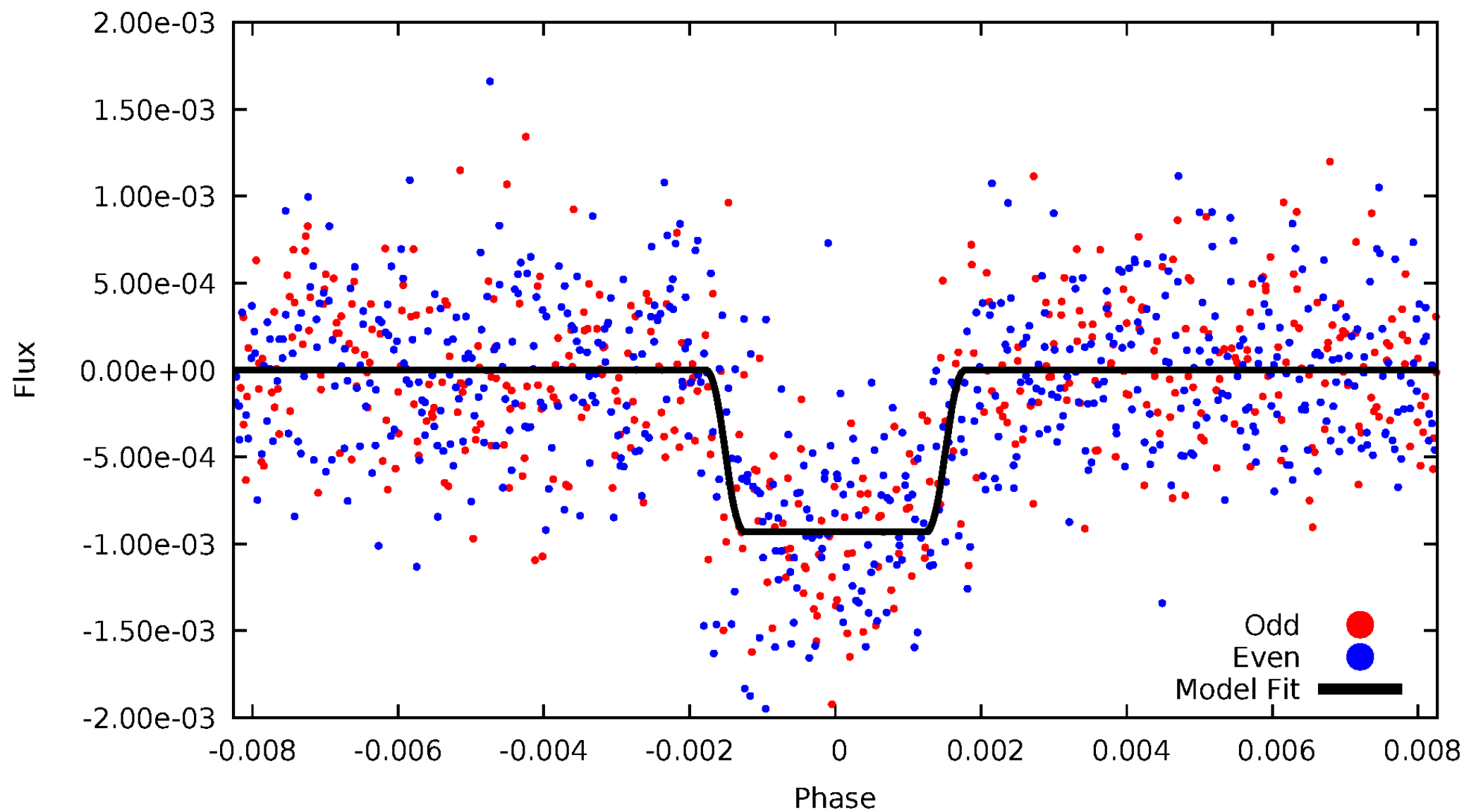
DV Odd/Even

TCE 007703955-01

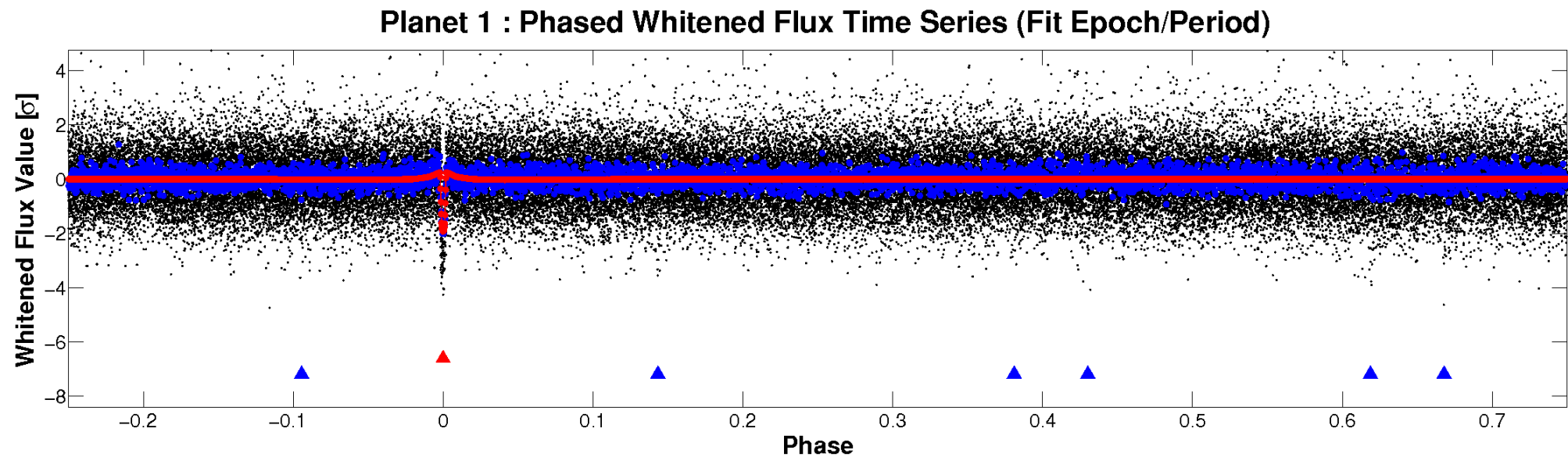
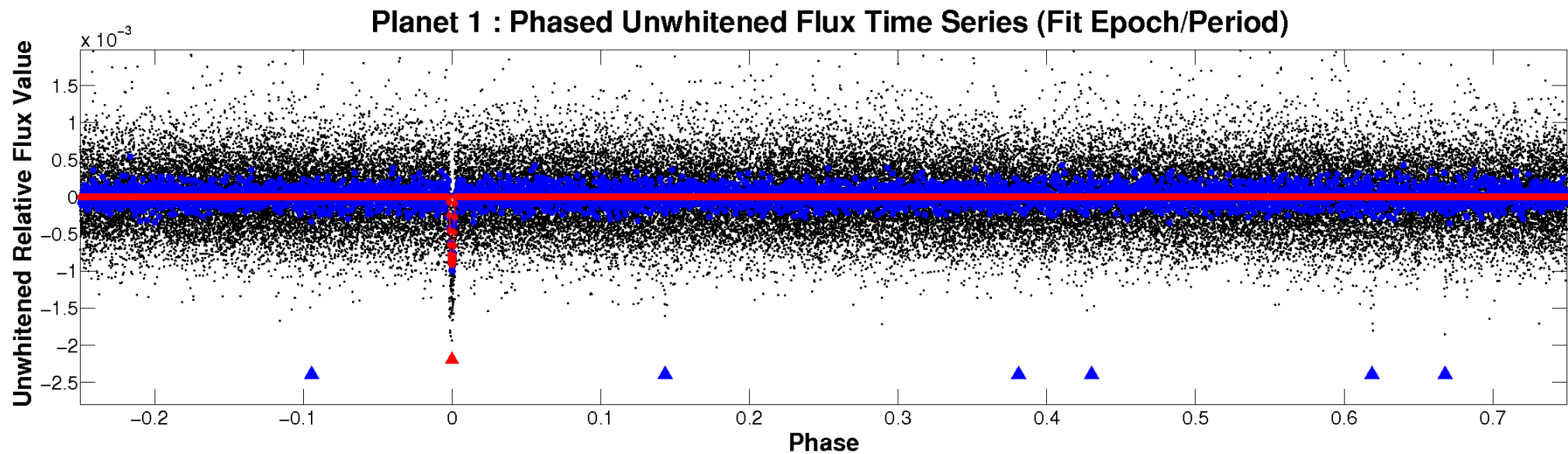


ALT Odd/Even

TCE 007703955-01

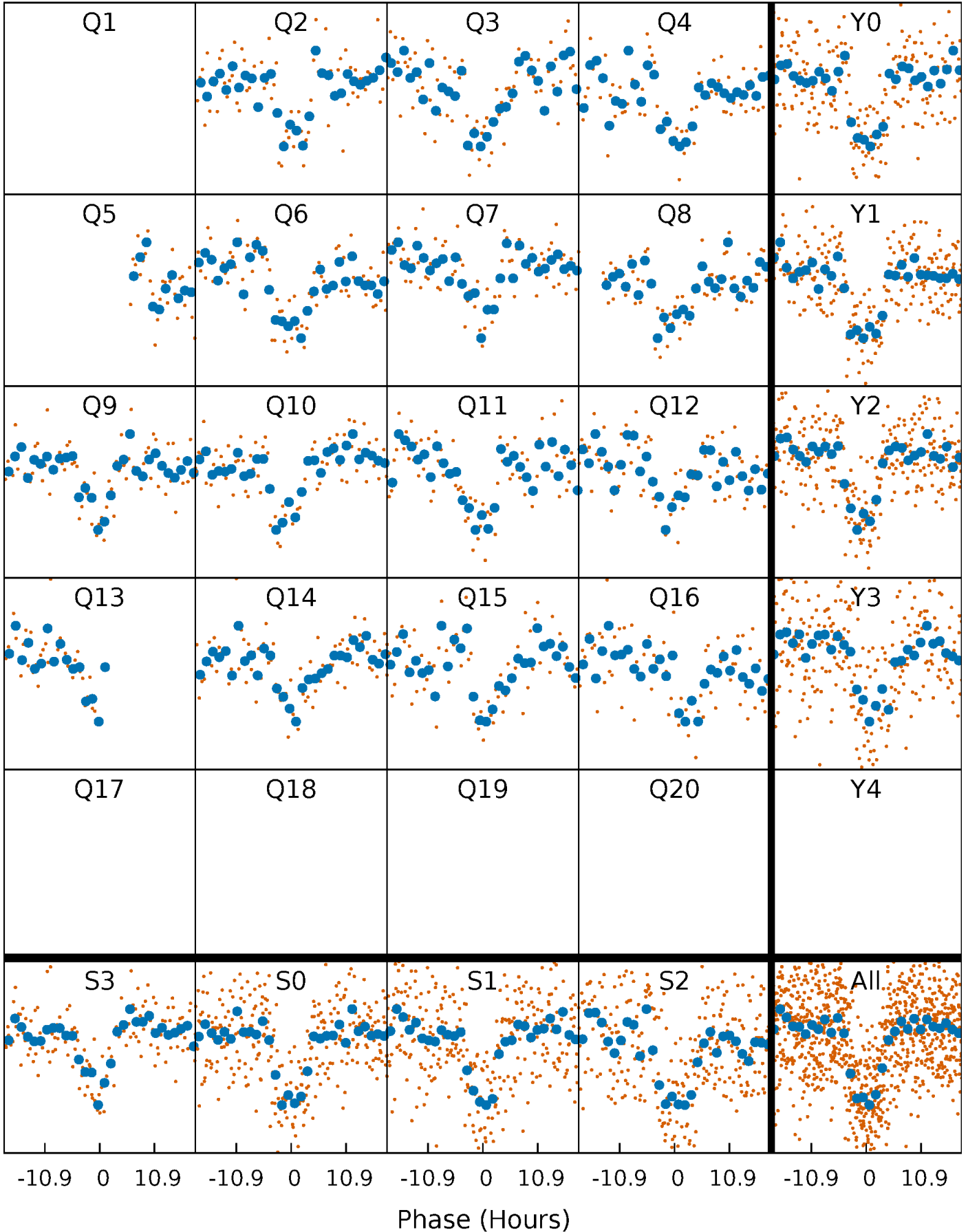


Non-Whitened Vs. Whitened Light Curve



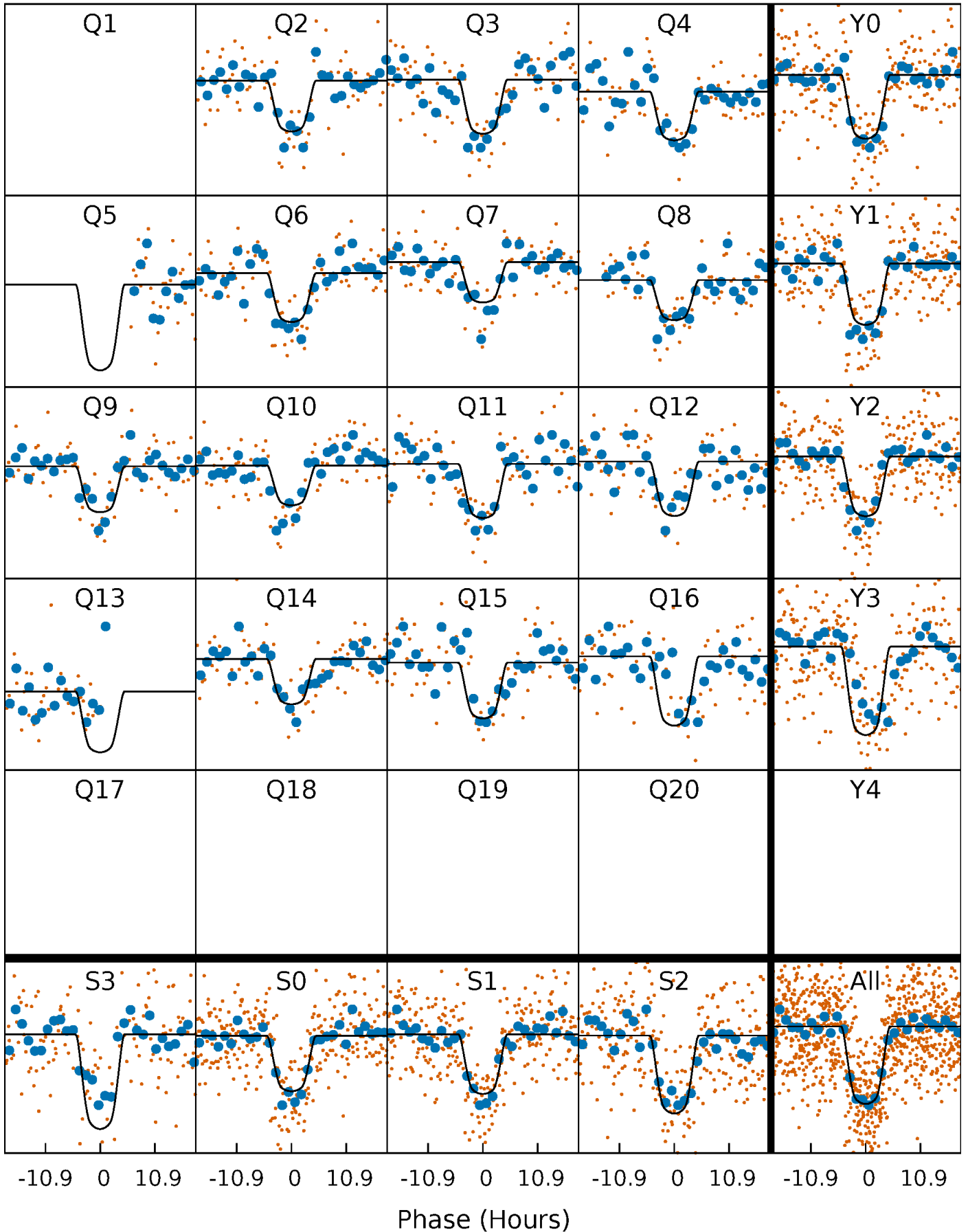
PDC Quarter-Phased Transit Curves

TCE 007703955-01 P= 96.108179 Days $T_0=187.705688$ (BKJD)



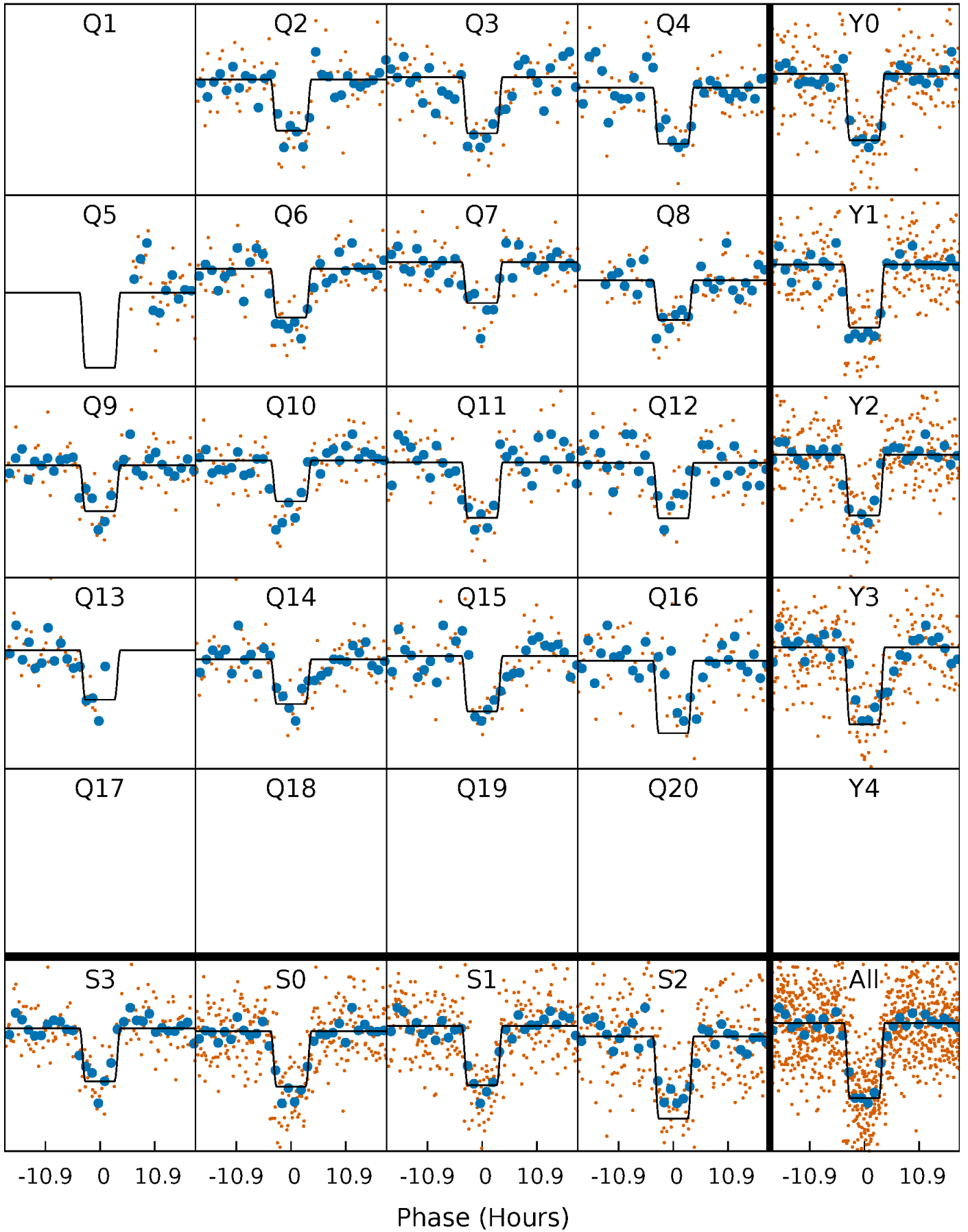
DV Quarter-Phased Transit Curves

TCE 007703955-01 P= 96.108179 Days $T_0=187.705688$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

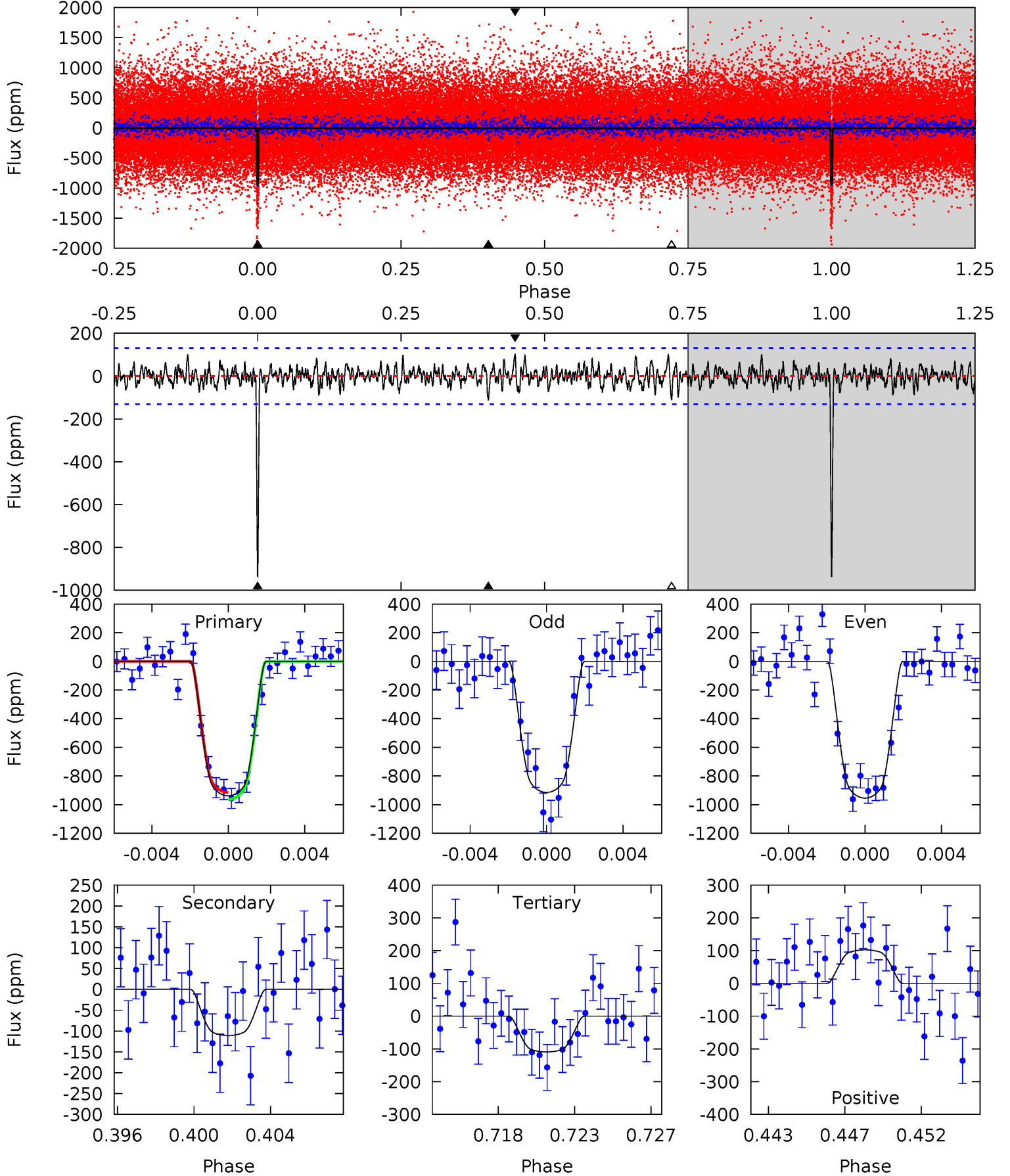
TCE 007703955-01 P= 96.108463 Days $T_0=187.704255$ (BKJD)



DV Model-Shift Uniqueness Test

007703955-01, P = 96.108179 Days, E = 91.597509 Days

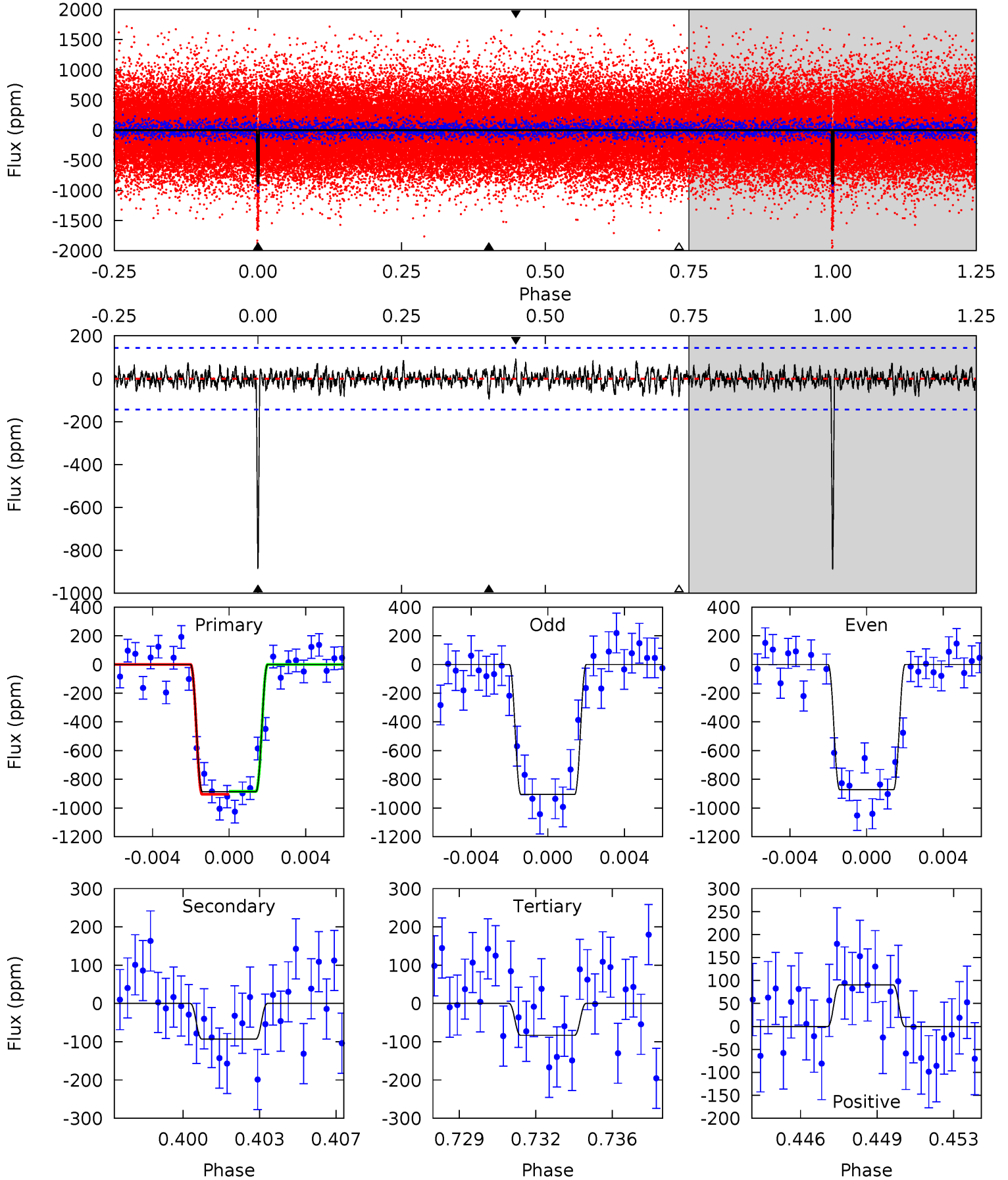
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
37.1	4.38	4.33	4.04	5.19	2.86	1.29	32.8	33.1	0.05	0.34	0.78	0.93	0.10	0.95



Alt Model-Shift Uniqueness Test

007703955-01, P = 96.108463 Days, E = 91.595792 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
32.3	3.40	3.04	3.29	5.22	2.92	0.96	29.2	29.0	0.36	0.10	0.60	0.96	0.09	0.36



Stellar Parameters For KIC 007703955

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	$M(M_{\odot})$	p_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	5792^{+104}_{-104}	$4.375^{+0.126}_{-0.103}$	$-0.260^{+0.150}_{-0.150}$	$1.005^{+0.136}_{-0.136}$	$0.875^{+0.070}_{-0.051}$	$1.214^{+0.652}_{-0.393}$
	+2%/-2%	+3%/-2%	+58%/-58%	+14%/-14%	+8%/-6%	+54%/-32%
Source	SPE58	SPE58	SPE58	DSEP		

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

Secondary Eclipse Parameters for KIC 007703955-01 / KOI 1707.01

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	-111 ± 25	$3.82^{+0.35}_{-0.32}$	569^{+25}_{-23}	3622^{+144}_{-164}	650^{+206}_{-183}
Alt.	-93 ± 27	$3.36^{+0.30}_{-0.31}$	570^{+22}_{-24}	3674^{+178}_{-200}	716^{+260}_{-216}

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 $A_{obs} \gg 1.0$

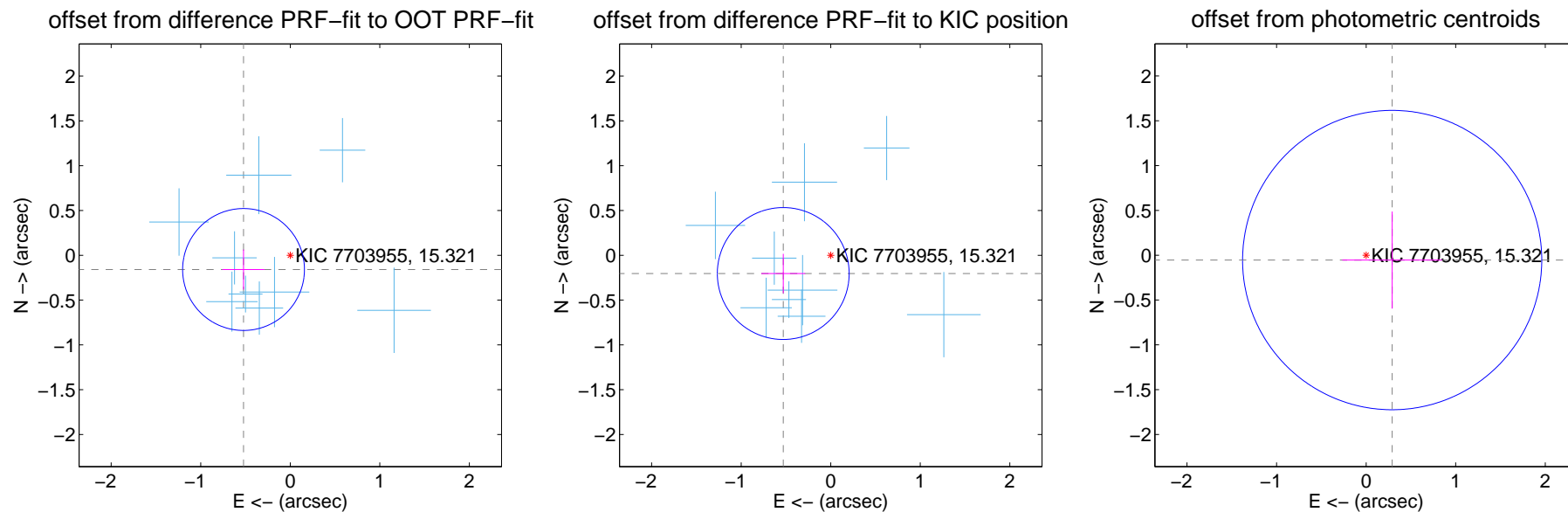
DV Centroid Data

Supplemental centroid analysis for 007703955-01. Kepler magnitude: 15.32. Transit SNR 23.43

There are 9 quarters with good PRF difference image offsets

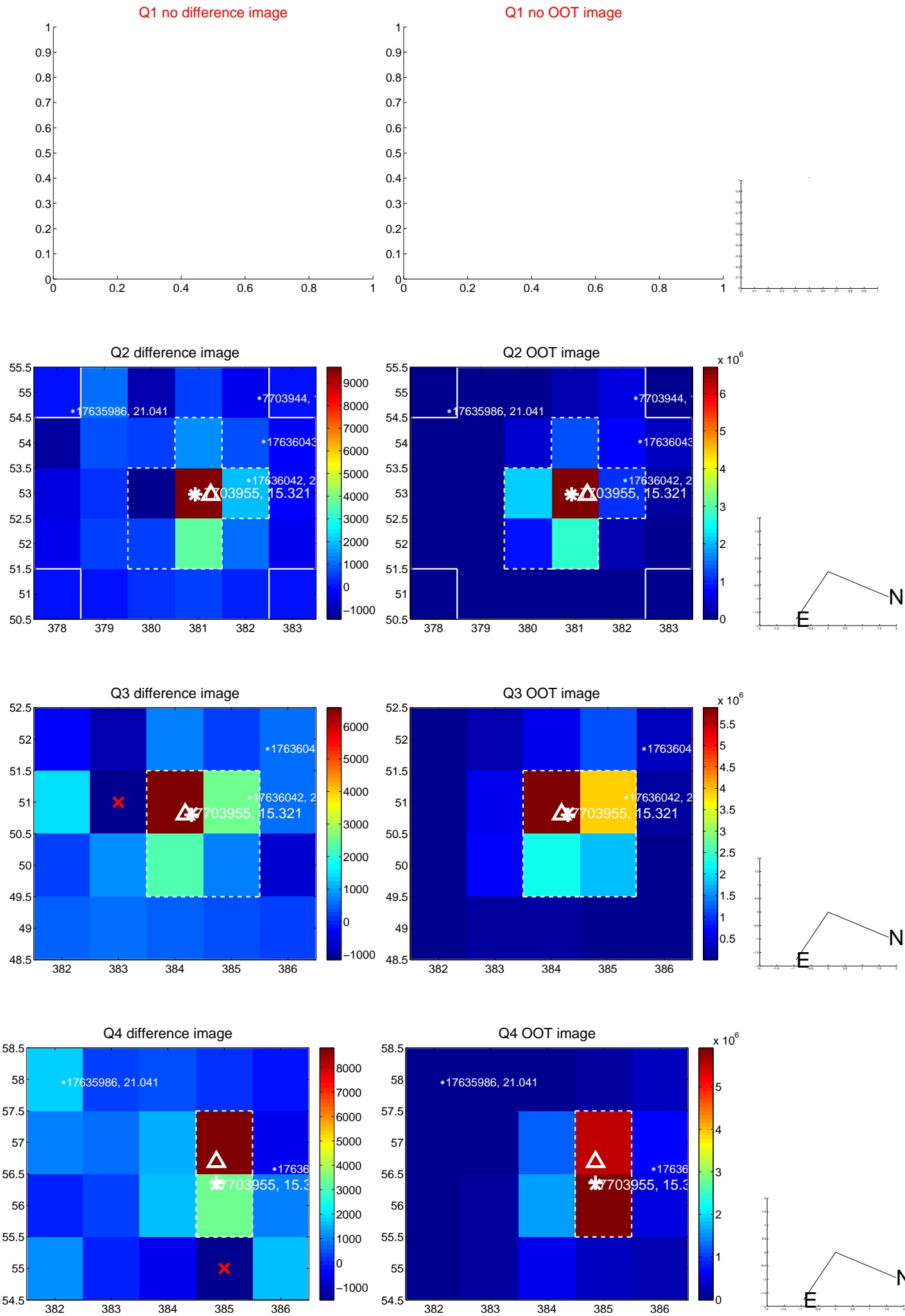
The direct PRF centroid is offset from the target star catalog position by about 0.09 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.545 ± 0.227	2.41	0.522 ± 0.234	-0.159 ± 0.223
PRF-fit source offset from KIC position	0.568 ± 0.245	2.31	0.530 ± 0.245	-0.204 ± 0.220
photometric centroid source offset	0.30 ± 0.56	0.53	-0.29 ± 0.56	-0.05 ± 0.54



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

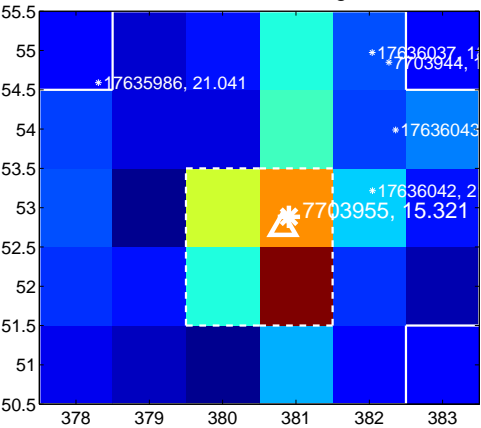
Q5 no difference image



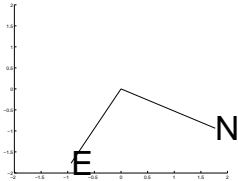
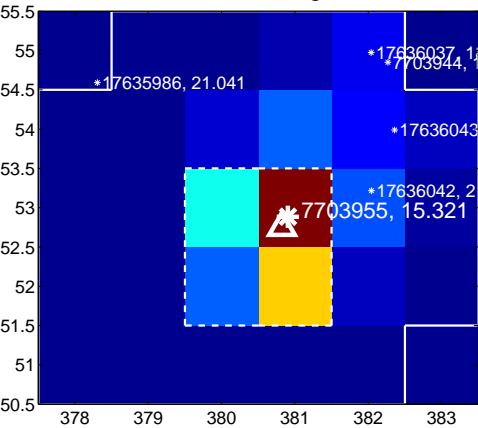
Q5 no OOT image



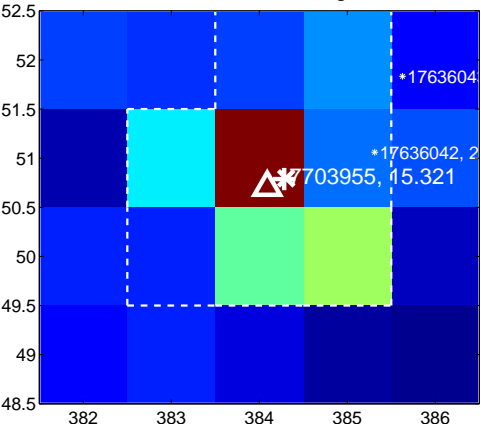
Q6 difference image



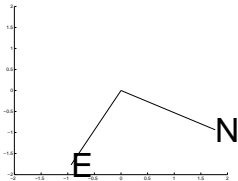
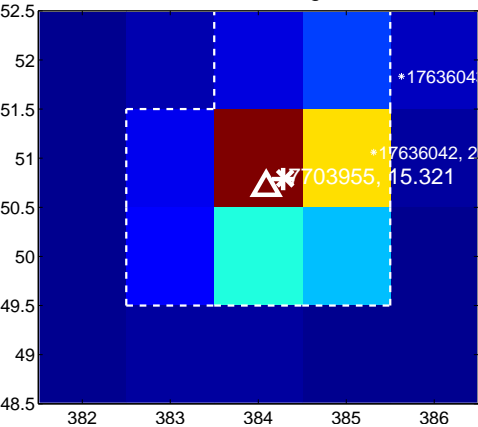
Q6 OOT image



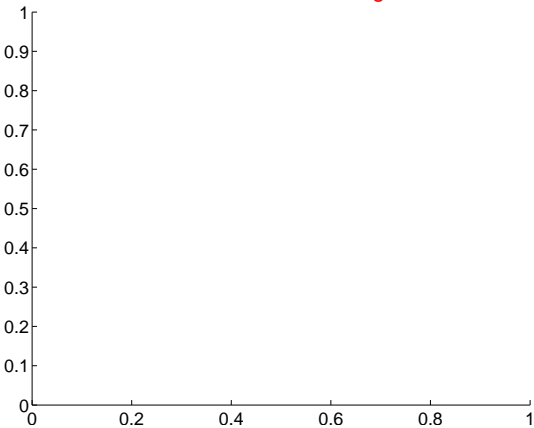
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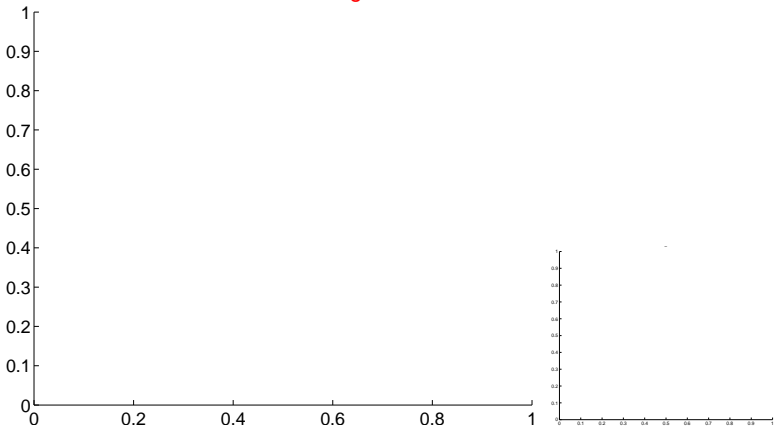
Q7 OOT image



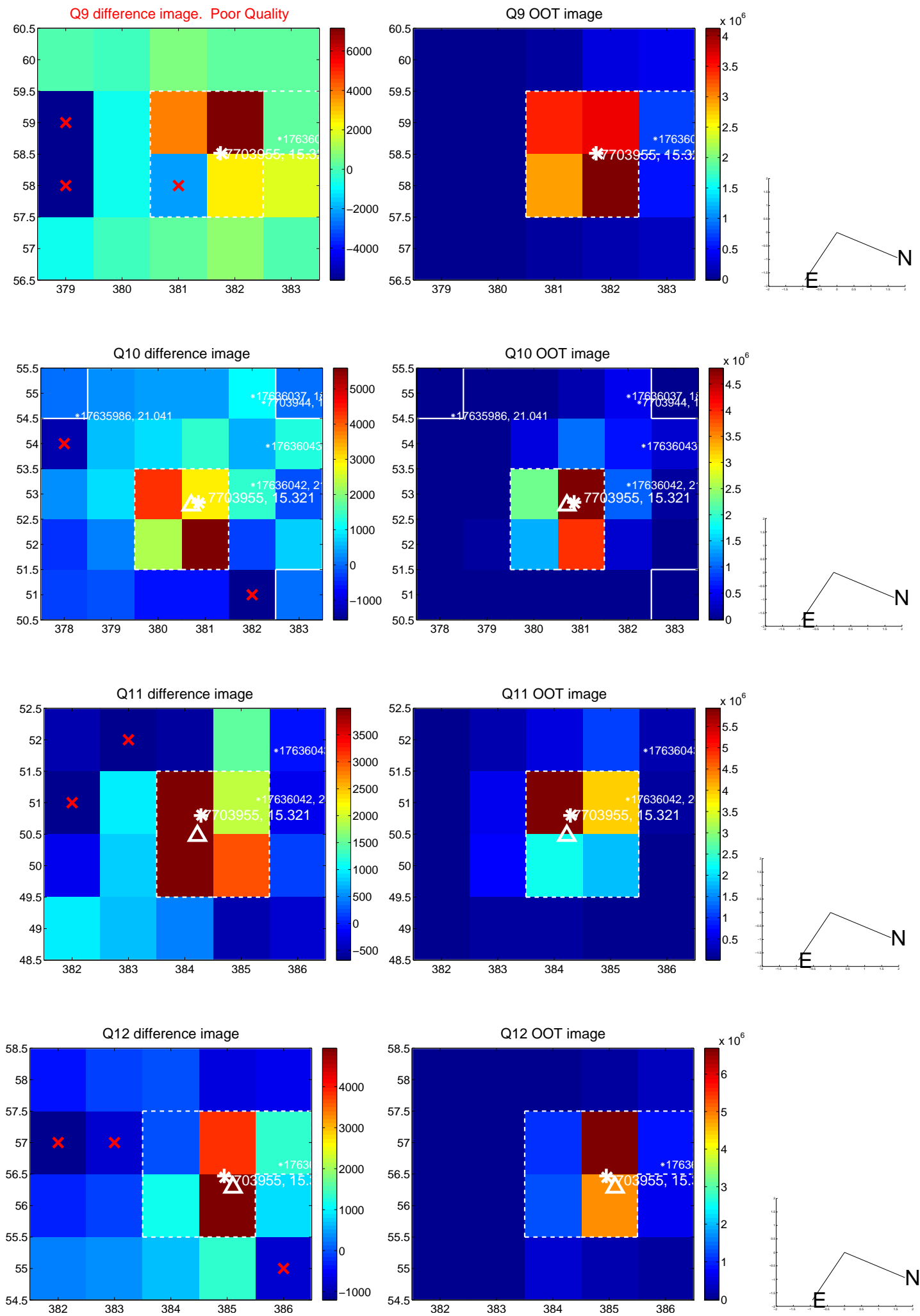
Q8 no difference image



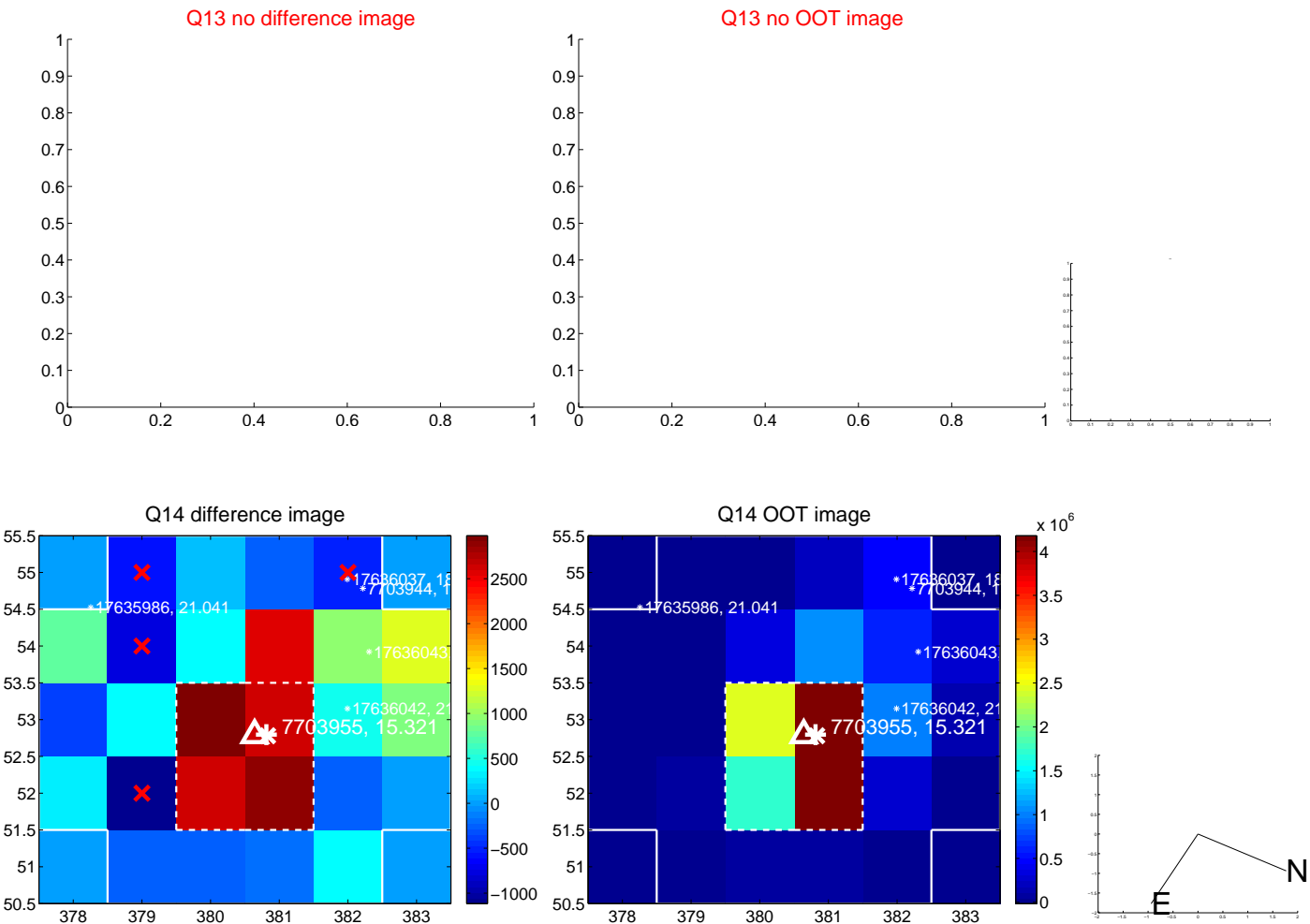
Q8 no OOT image



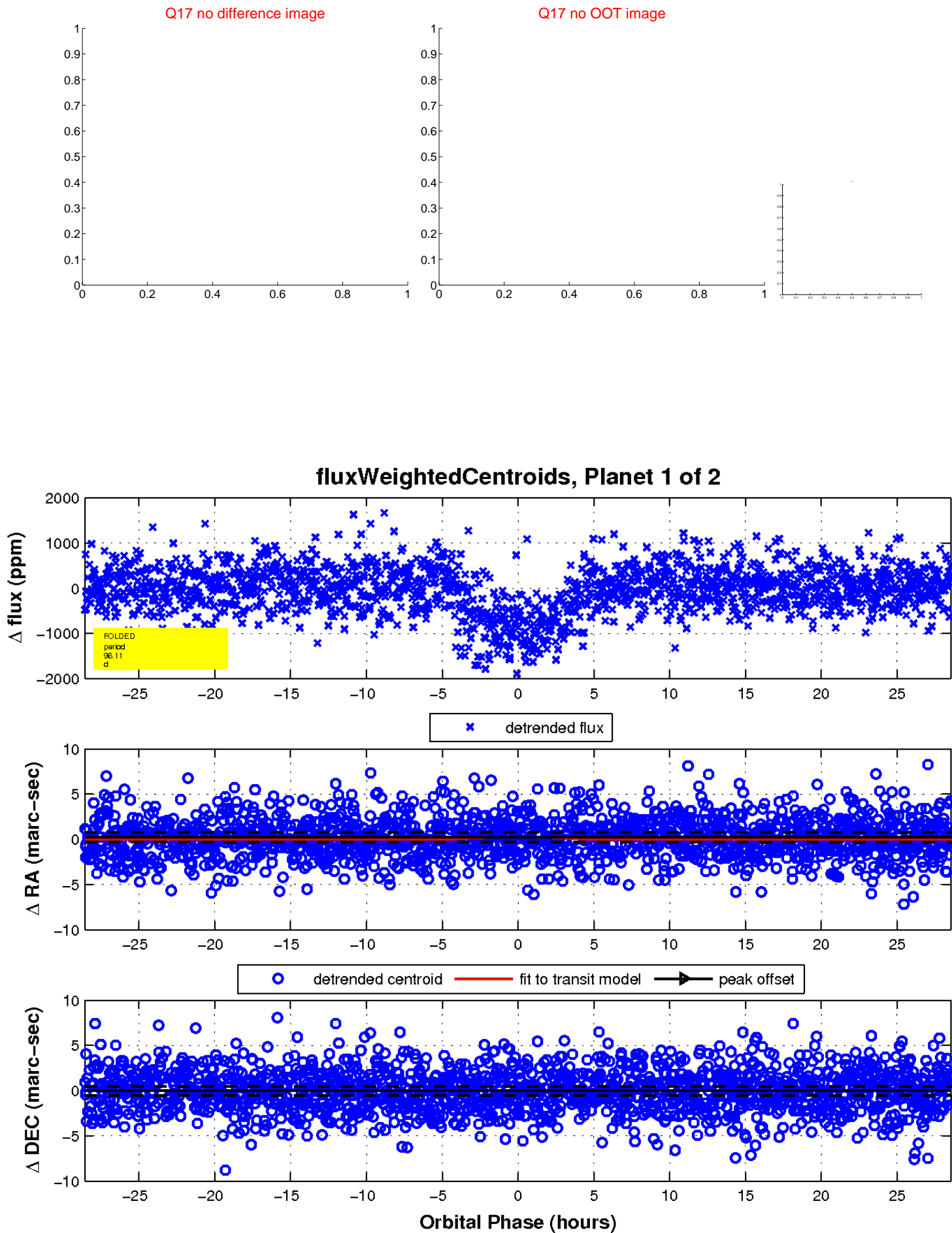
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

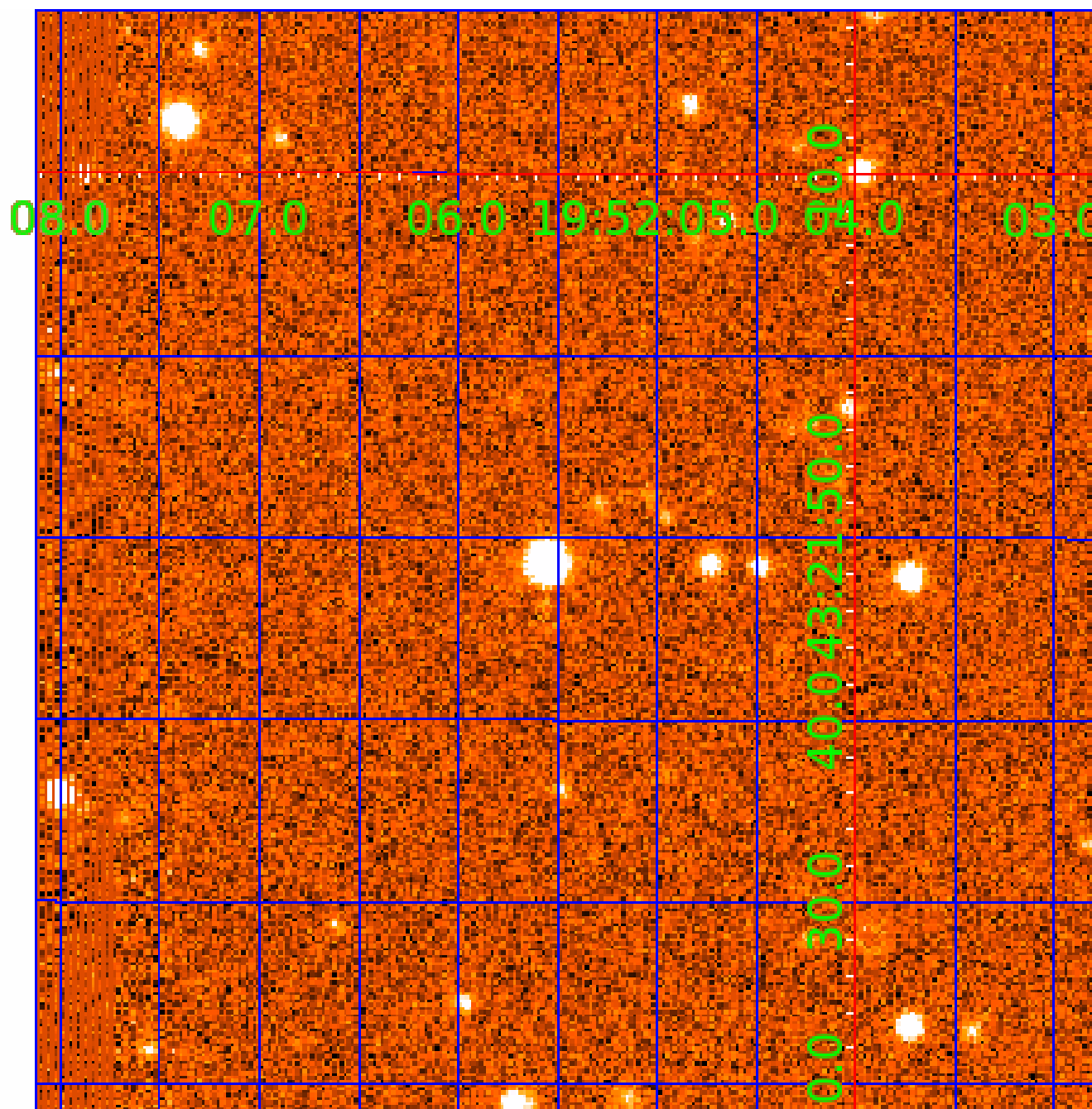


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 007703955

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})
007703955-01	OBS	1707.01	96.108179	187.705688	919.4	9.524	21.1	23.4	1.00	5792	3.83	6.61
007703955-02	OBS	1707.02	265.477831	151.066781	1030.3	10.295	15.1	15.4	1.00	5792	4.17	1.71

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
007703955-01	OBS	PC	1.00	0	0	0	0	NO_COMMENT
007703955-02	OBS	PC	0.99	0	0	0	0	NO_COMMENT

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.

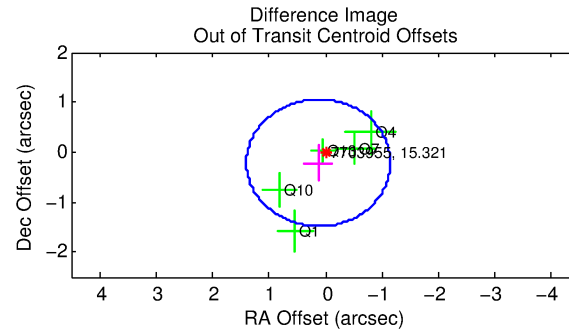
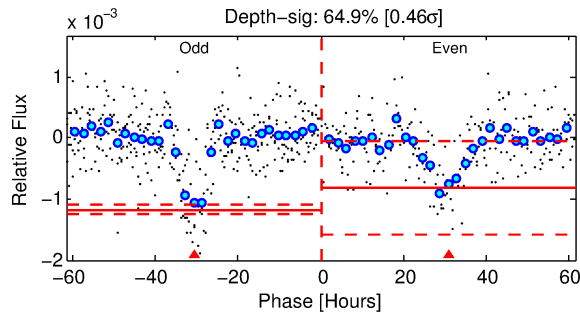
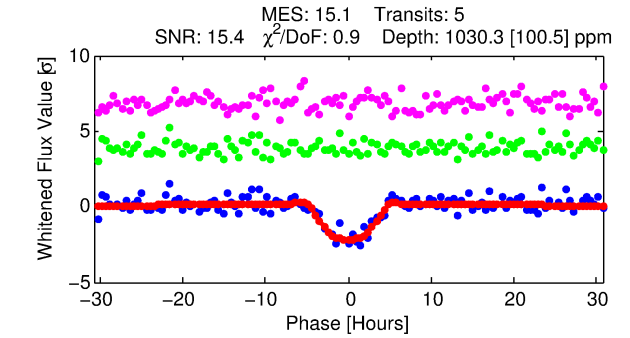
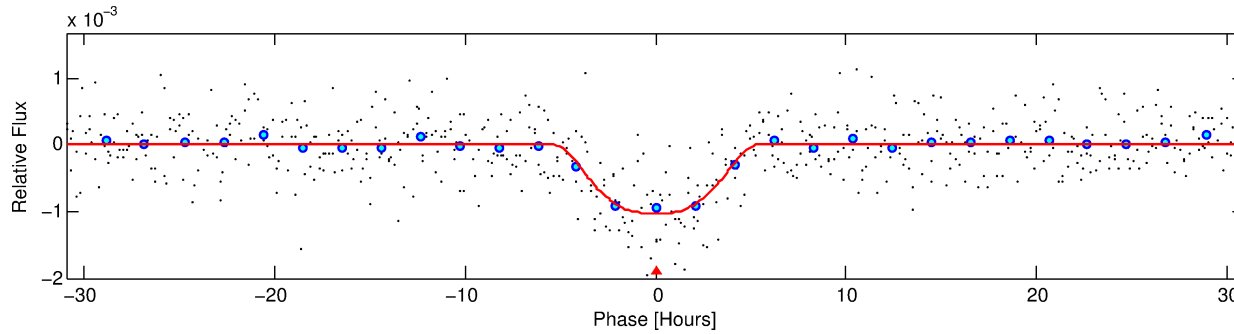
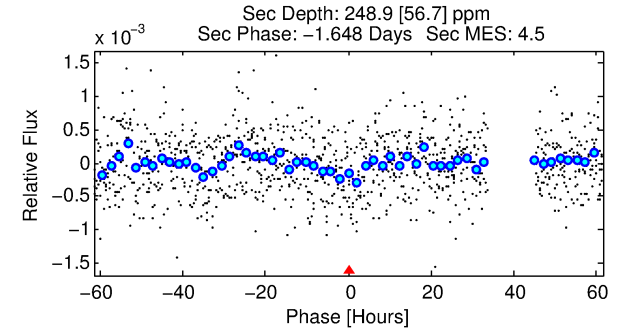
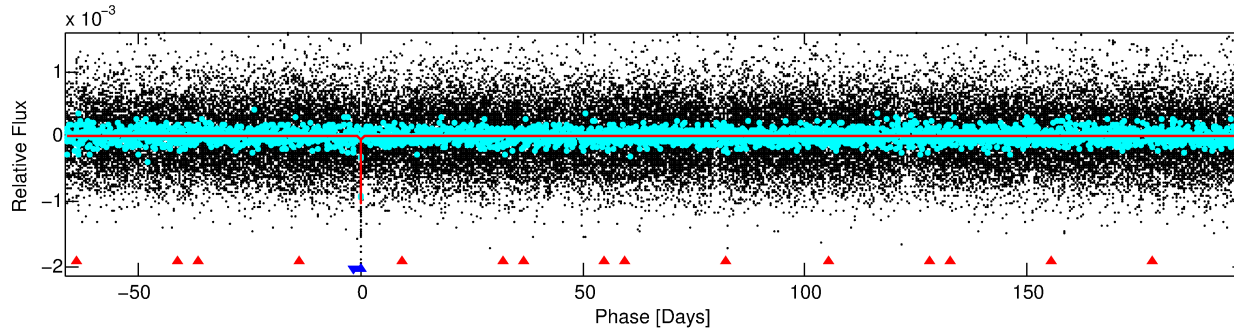
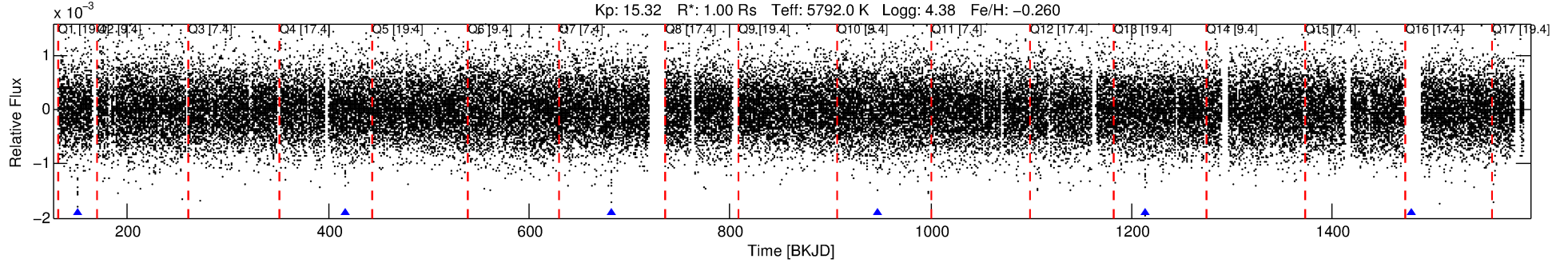
Ephemeris Match Information For 007703955-02

No Significant Match Found

DV One-Page Summary

KIC: 7703955 Candidate: 2 of 2 Period: 265.478 d
KOI: K01707.02 Name: Kepler-315c Corr: 0.946

Kp: 15.32 R*: 1.00 Rs Teff: 5792.0 K Logg: 4.38 Fe/H: -0.260



DV Fit Results:

Period = 265.47783 [0.00525] d
Epoch = 151.0668 [0.0132] BKJD
Rp/R* = 0.0380 [0.0029]
a/R* = 78.35 [10.25]
b = 0.96 [0.01]
Seff = 1.70 [0.38]
Teq = 291 [16] K
Rp = 4.17 [0.65] Re
a = 0.7730 [0.1022] AU
Ag = 4705.55 [1633.57] [2.88σ]
Teffp = 3731 [264] K [13.00σ]

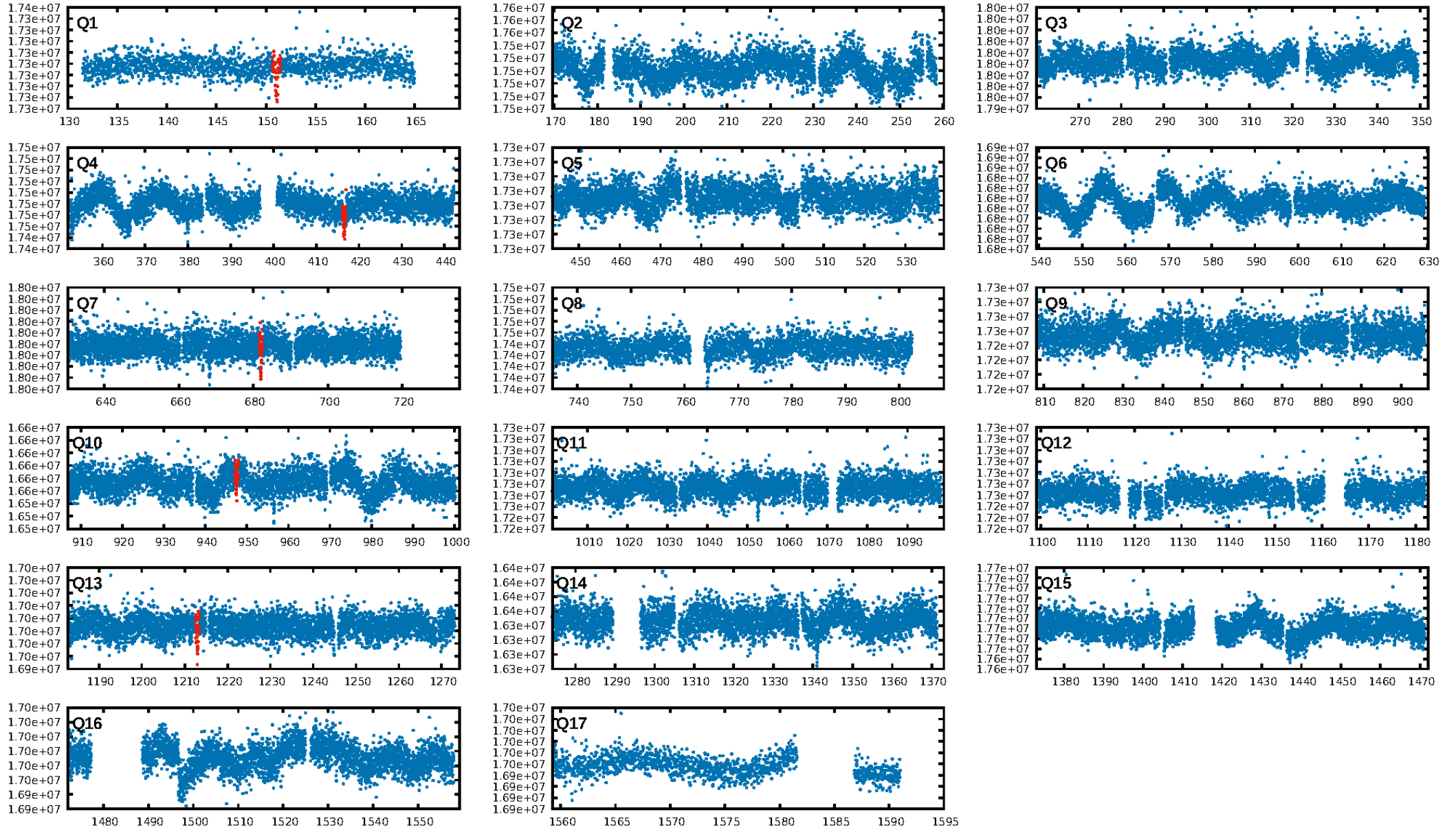
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [289.84σ]
LongPeriod-sig: N/A
ModelChiSquare2-sig: 35.7%
ModelChiSquareGof-sig: 99.5%
Bootstrap-pfa: 3.22e-37
RollingBand-fgt: 1.00 [4/4]
GhostDiagnostic-chr: 1.989
Centroid-sig: 0.0%
Centroid-so: 1.868 arcsec [2.36σ]
OotOffset-rm: 0.248 arcsec [0.58σ]
KicOffset-rm: 0.320 arcsec [0.68σ]
OotOffset-st: 1/1/1/2 [5]
KicOffset-st: 1/1/1/2 [5]
DiffImageQuality-fgm: 1.00 [5/5]
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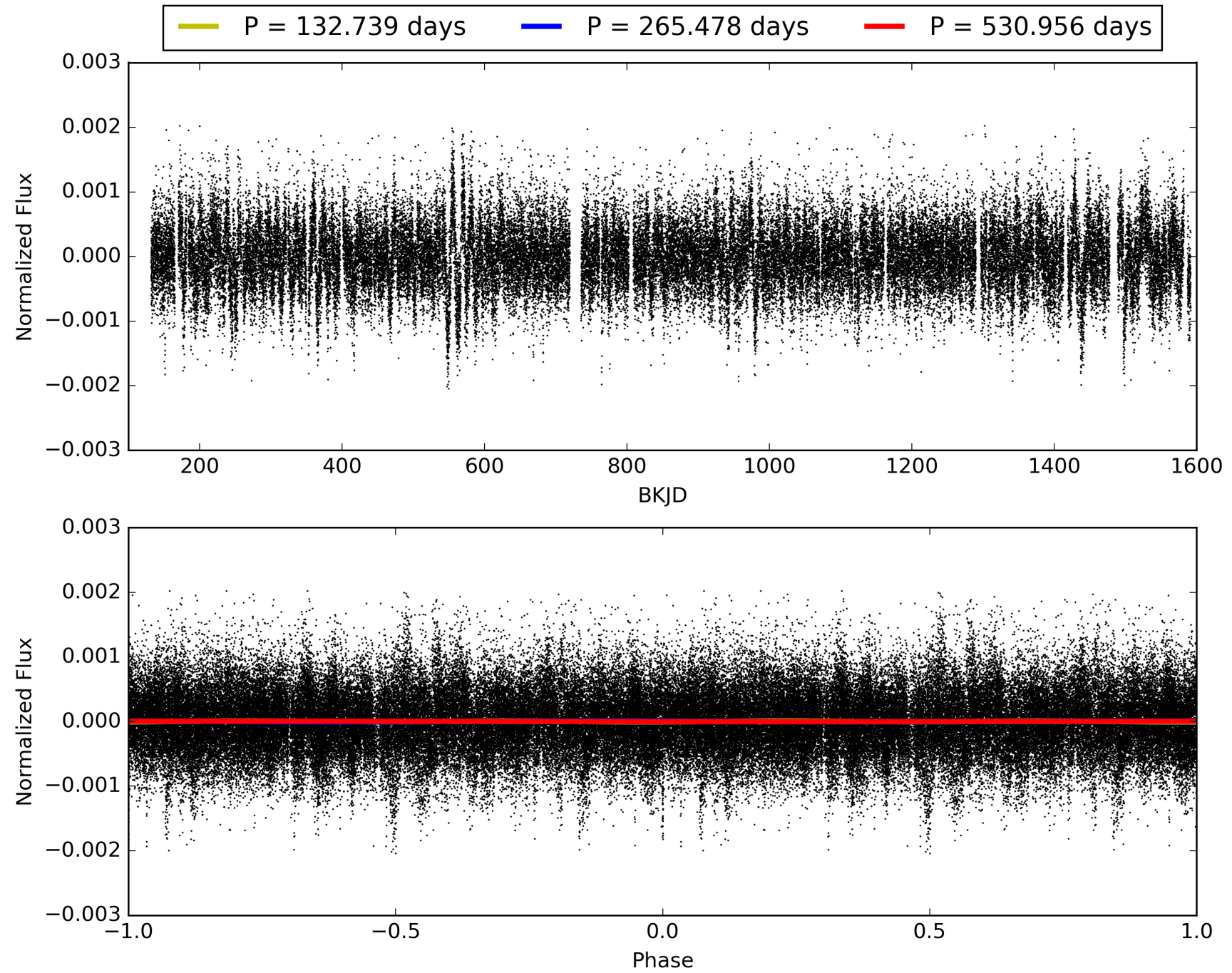
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TCE 007703955-02, PDC Light Curves

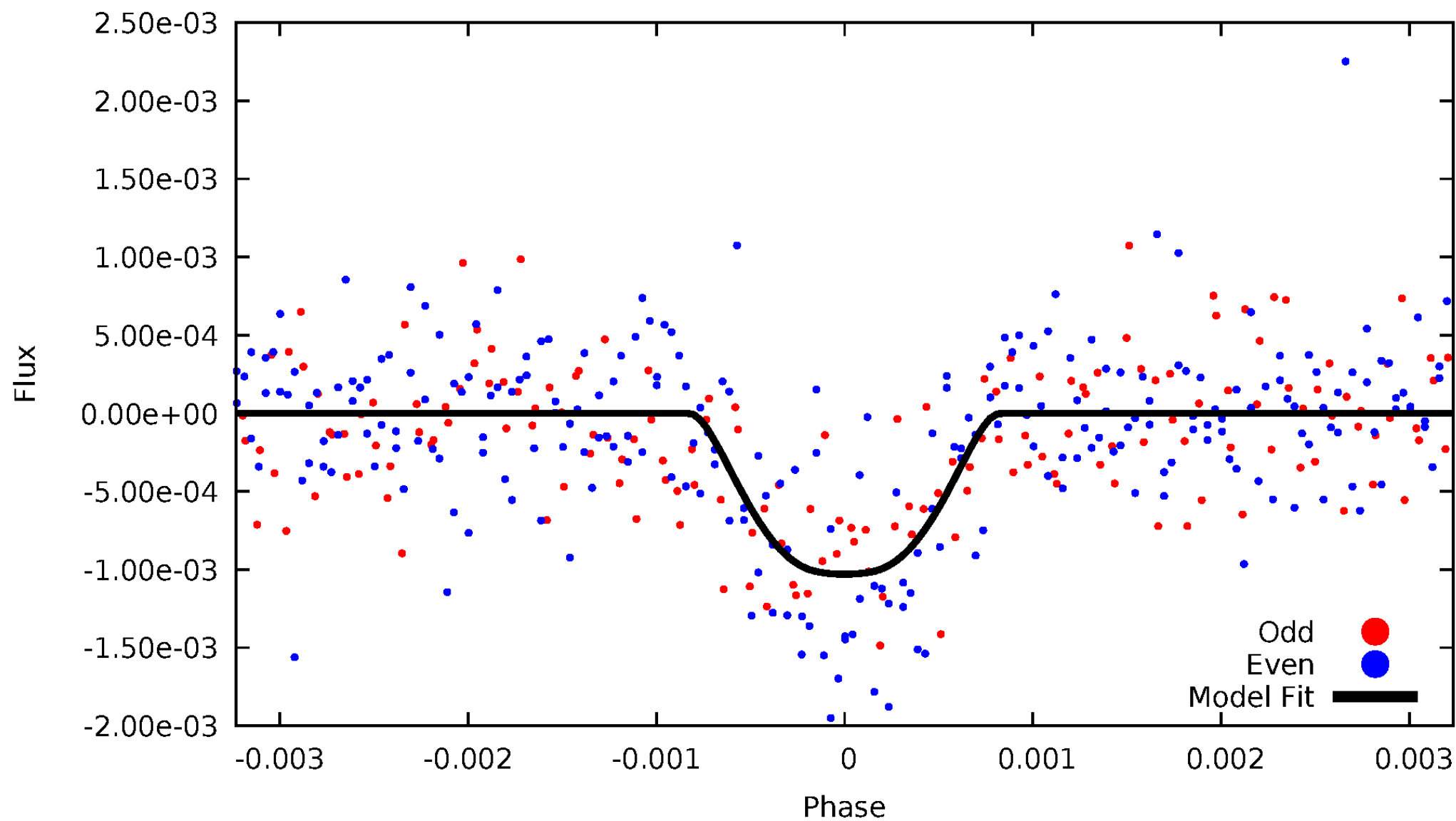


TCE 007703955-02



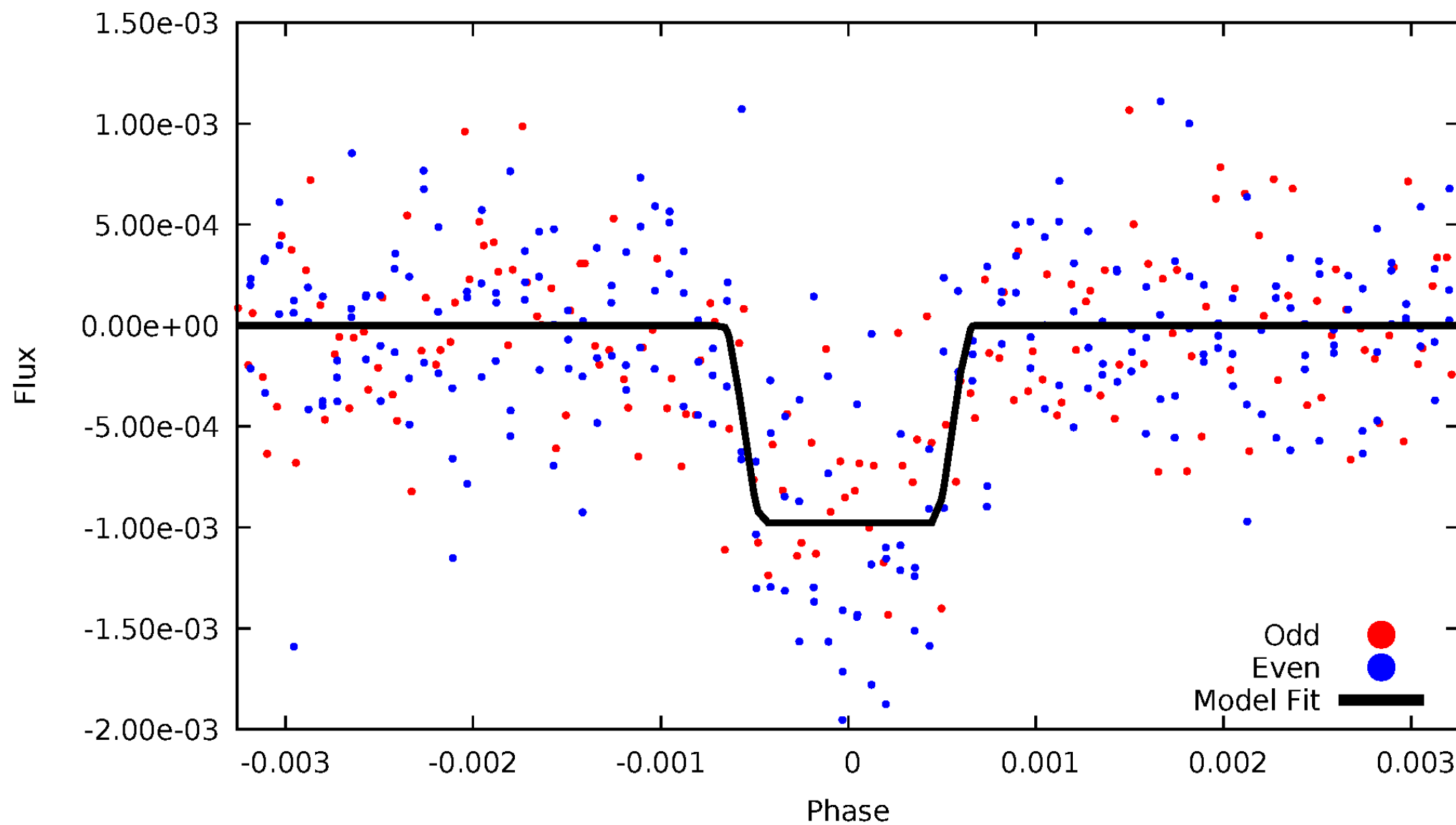
DV Odd/Even

TCE 007703955-02



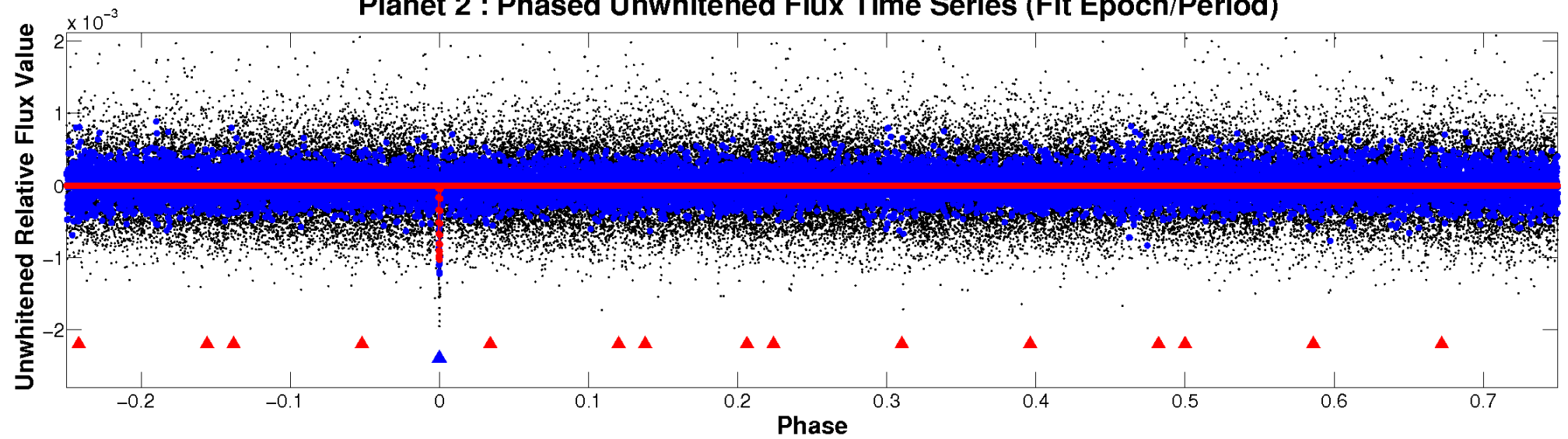
ALT Odd/Even

TCE 007703955-02

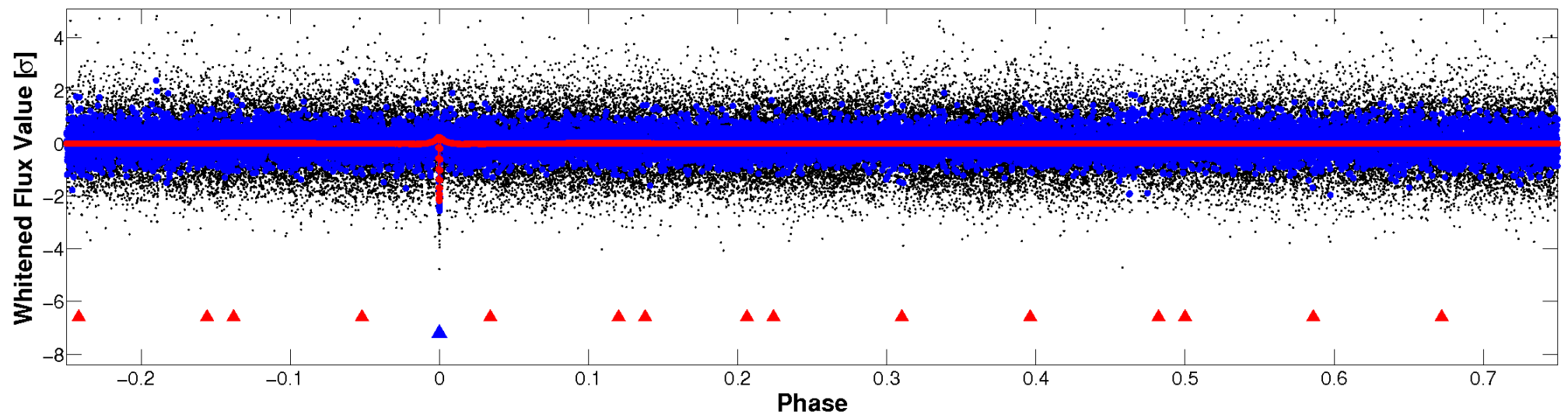


Non-Whitened Vs. Whitened Light Curve

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

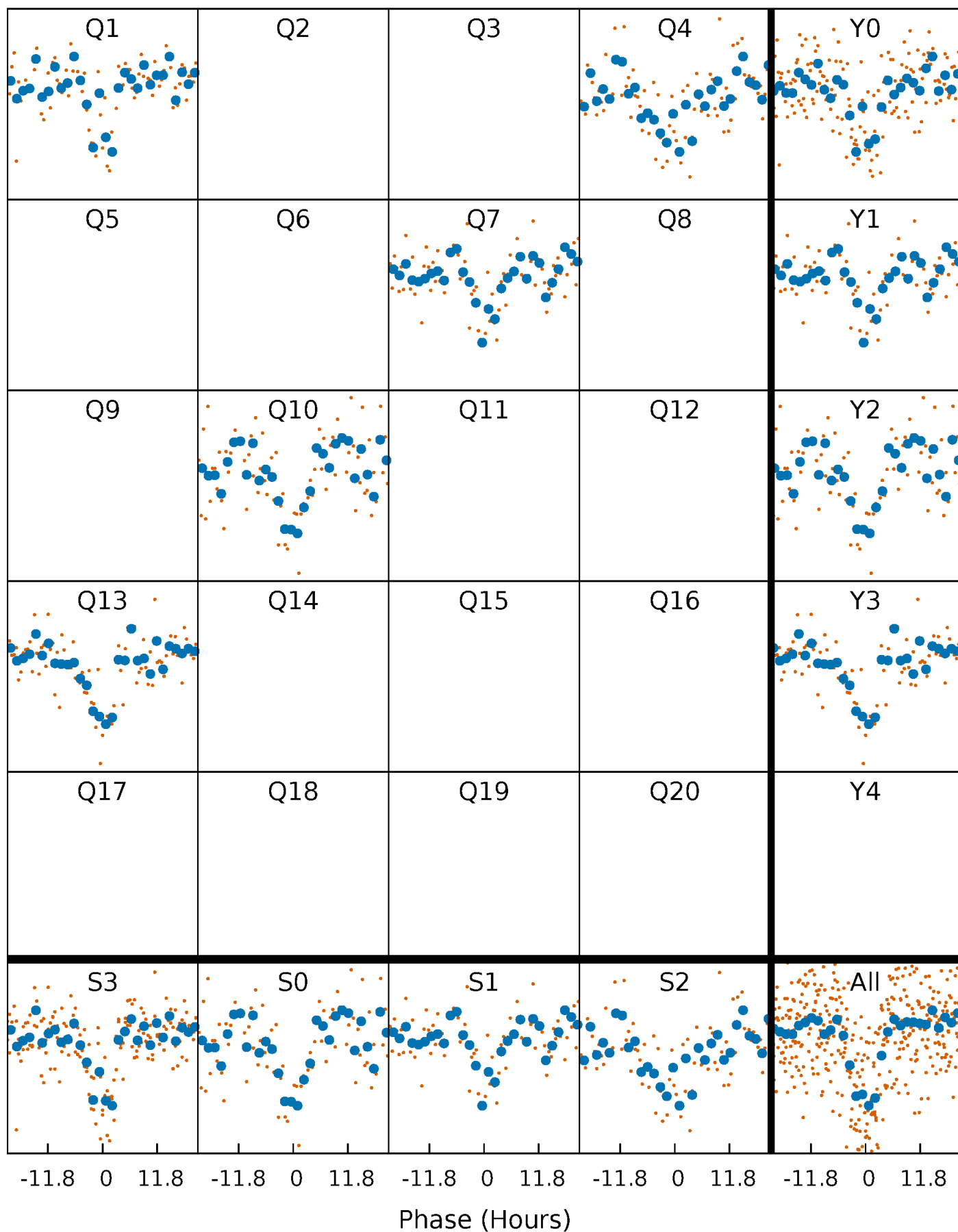


Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



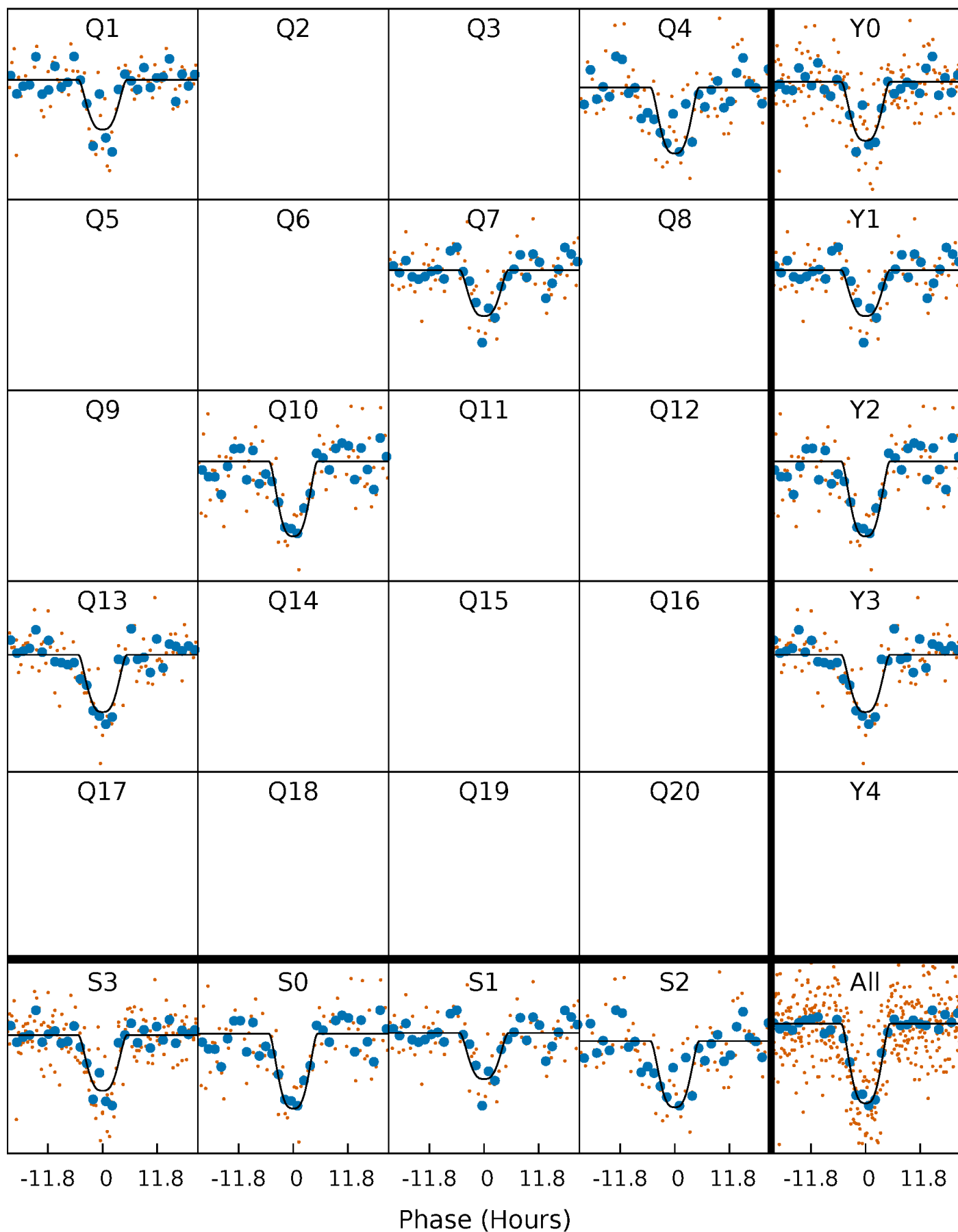
PDC Quarter-Phased Transit Curves

TCE 007703955-02 $P=265.477831$ Days $T_0=151.066781$ (BKJD)



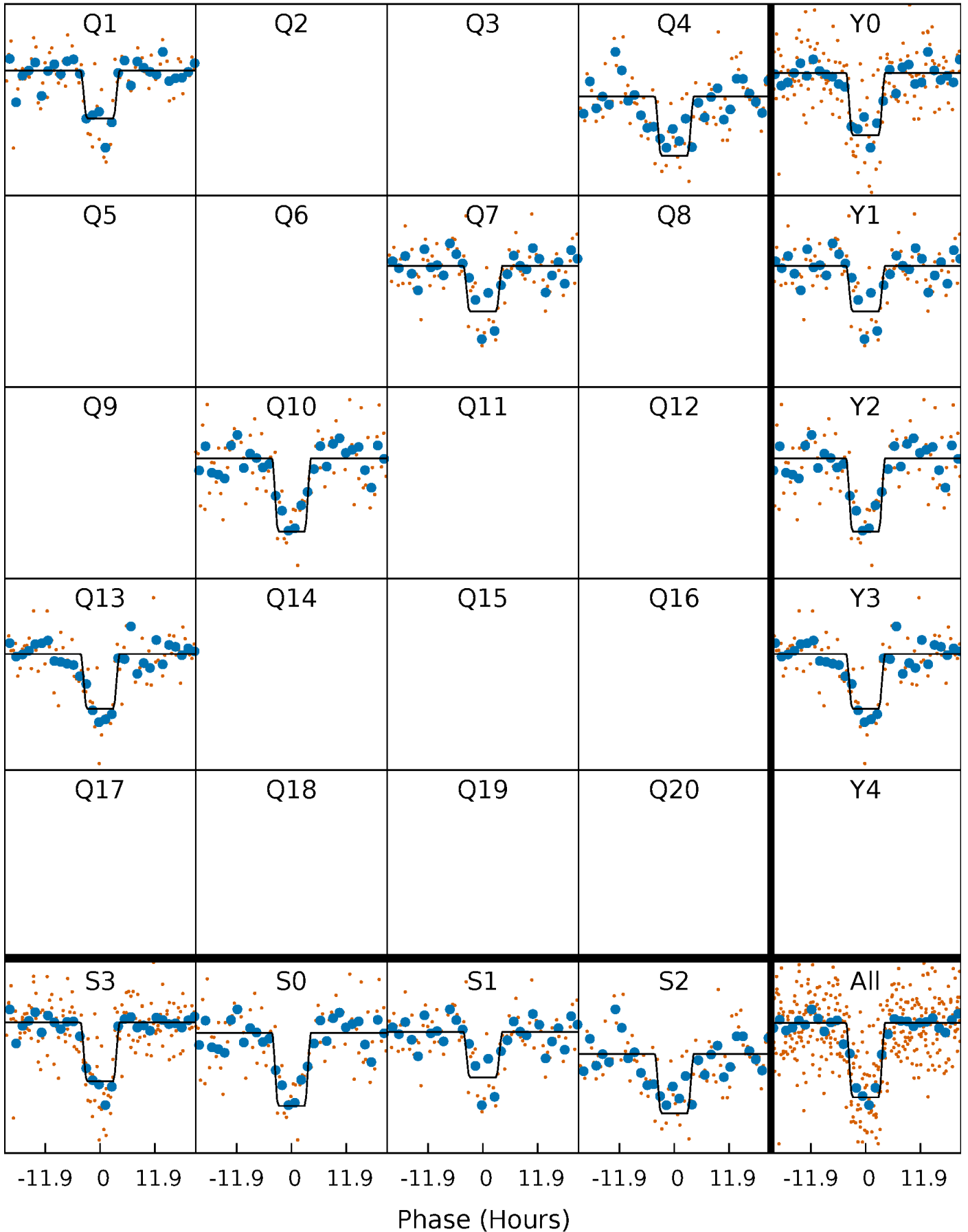
DV Quarter-Phased Transit Curves

TCE 007703955-02 $P=265.477831$ Days $T_0=151.066781$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

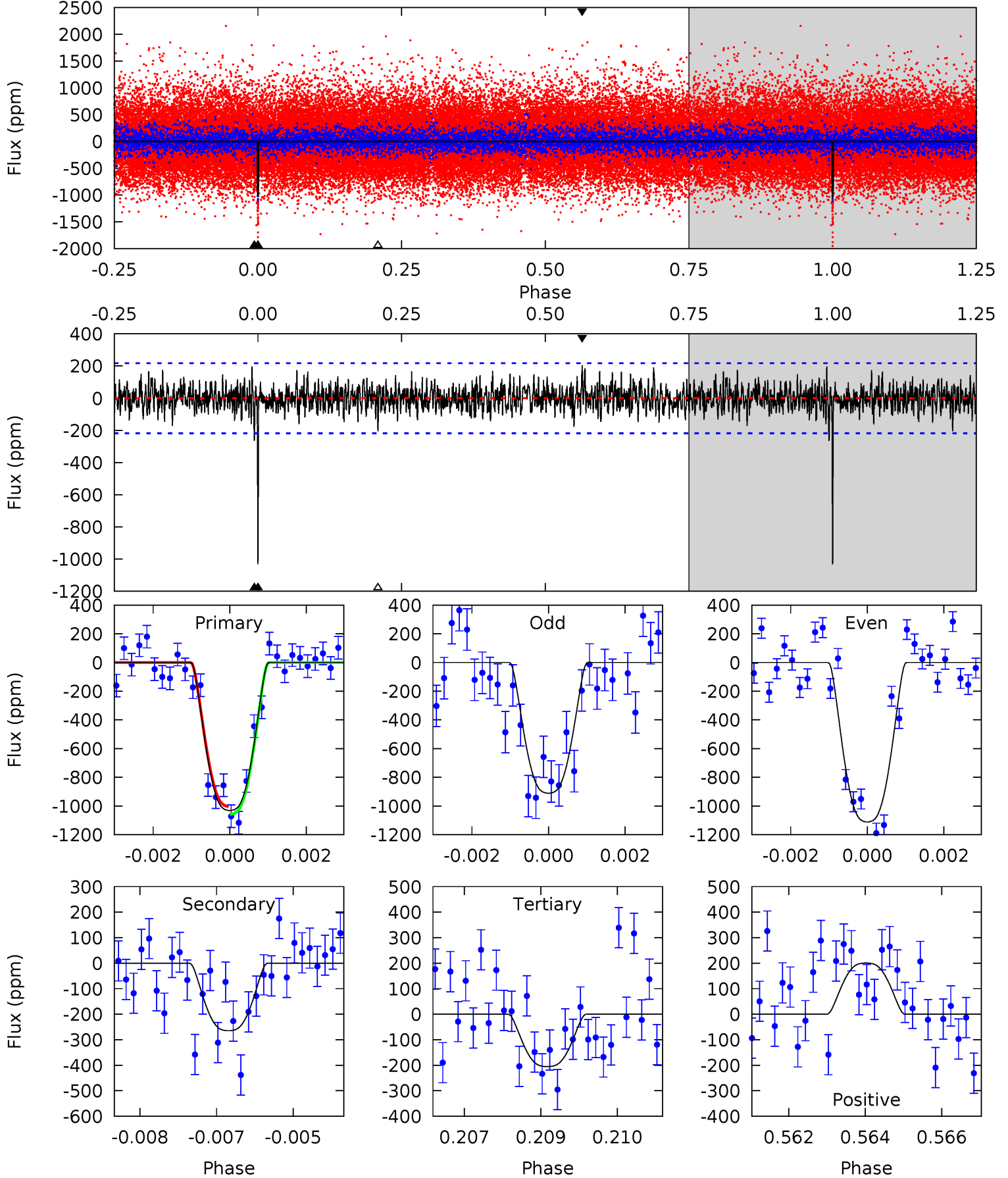
TCE 007703955-02 P=265.472811 Days $T_0=151.075748$ (BKJD)



DV Model-Shift Uniqueness Test

007703955-02, $P = 265.477831$ Days, $E = 151.066781$ Days

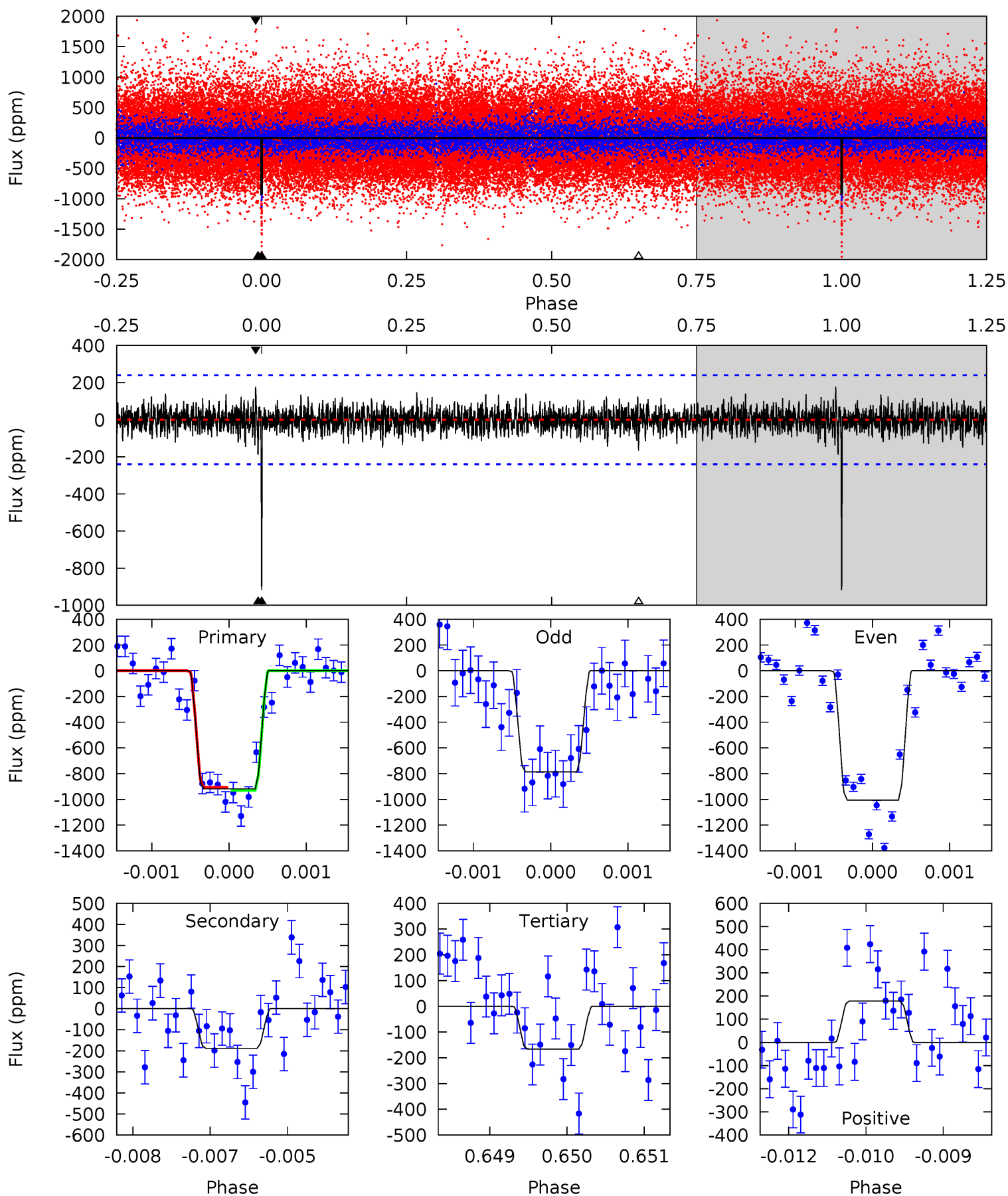
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
25.4	6.52	5.06	4.95	5.36	3.15	1.43	20.4	20.5	1.46	1.57	2.43	0.99	0.16	0.66



Alt Model-Shift Uniqueness Test

007703955-02, P = 265.472811 Days, E = 151.075748 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	4.25	3.74	4.01	5.40	3.21	0.98	16.9	16.7	0.50	0.24	2.41	0.94	0.16	0.24



Stellar Parameters For KIC 007703955

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	$M(M_{\odot})$	p_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	5792^{+104}_{-104}	$4.375^{+0.126}_{-0.103}$	$-0.260^{+0.150}_{-0.150}$	$1.005^{+0.136}_{-0.136}$	$0.875^{+0.070}_{-0.051}$	$1.214^{+0.652}_{-0.393}$
	+2%/-2%	+3%/-2%	+58%/-58%	+14%/-14%	+8%/-6%	+54%/-32%
Source	SPE58	SPE58	SPE58	DSEP		

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

Secondary Eclipse Parameters for KIC 007703955-02 / KOI 1707.02

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	-265 ± 41	$4.18^{+0.46}_{-0.47}$	406^{+16}_{-17}	4075^{+164}_{-167}	5041^{+1473}_{-1210}
Alt.	-188 ± 44	$3.41^{+0.43}_{-0.41}$	406^{+16}_{-17}	4118^{+230}_{-233}	5309^{+2133}_{-1607}

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 $A_{obs} \gg 1.0$

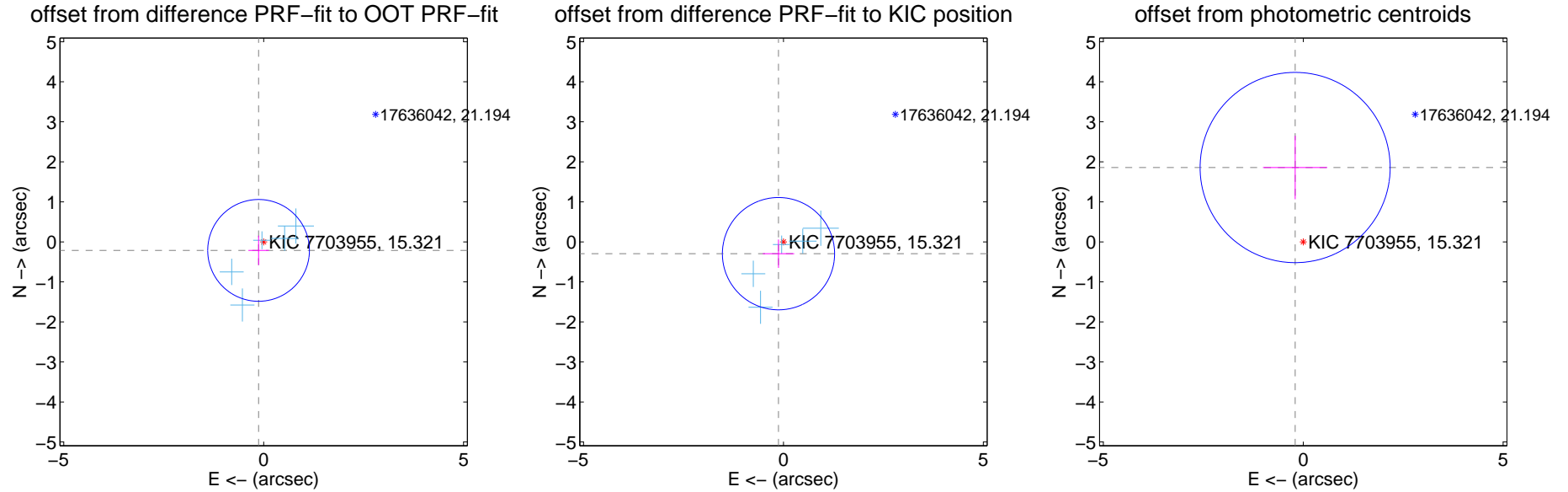
DV Centroid Data

Supplemental centroid analysis for 007703955-02. Kepler magnitude: 15.32. Transit SNR 15.41

There are 5 quarters with good PRF difference image offsets

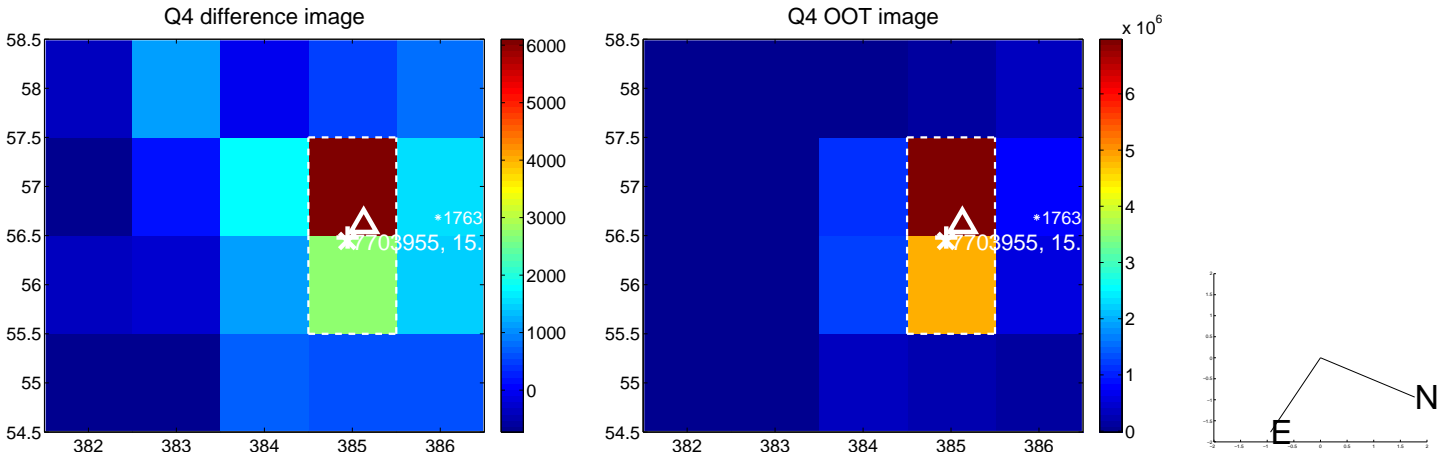
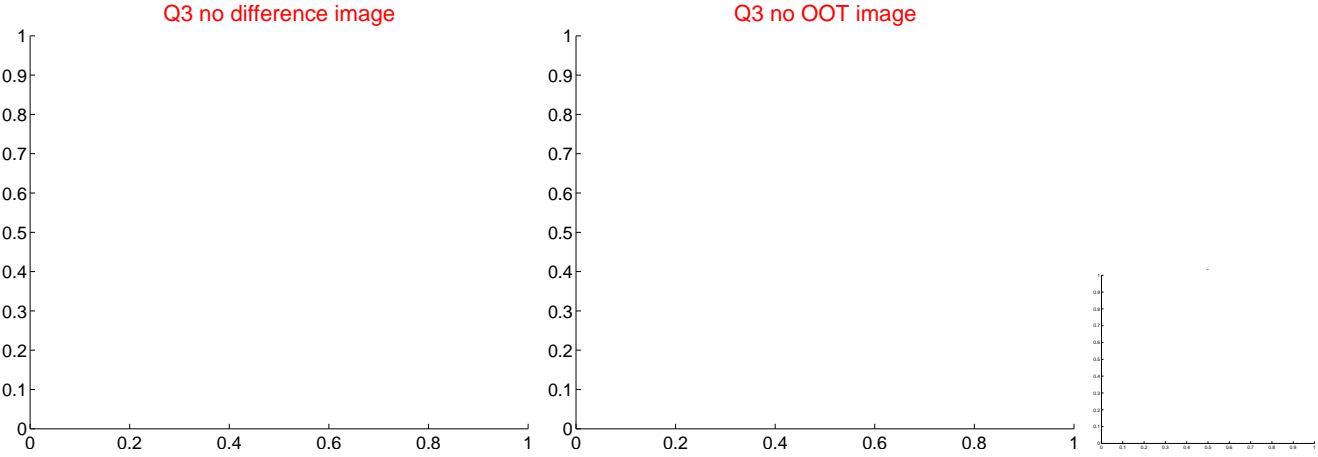
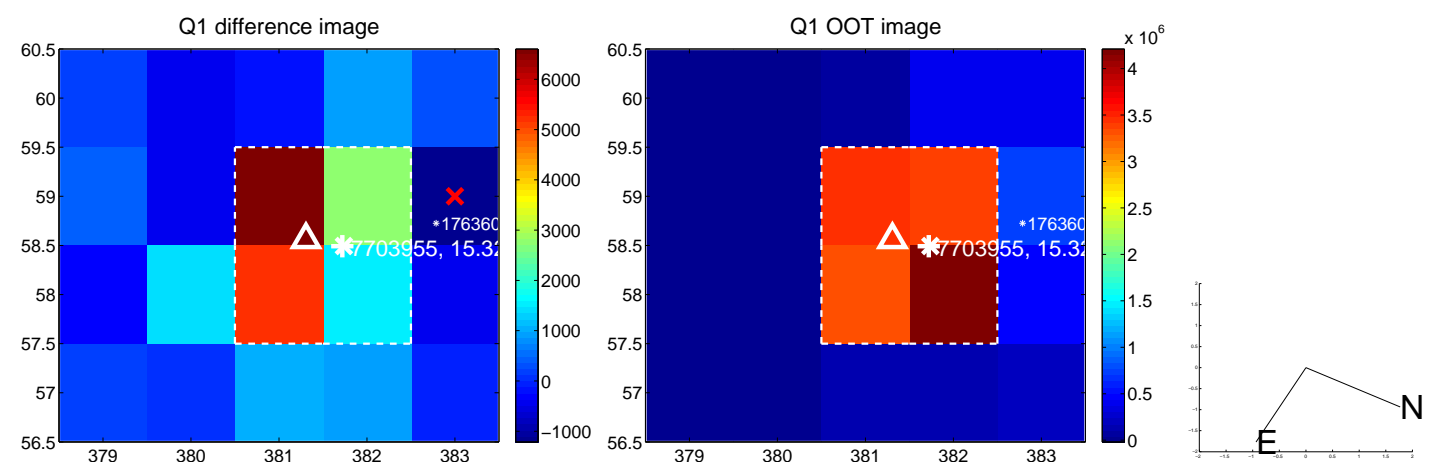
The direct PRF centroid is offset from the target star catalog position by about 0.11 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.248 ± 0.424	0.58	0.127 ± 0.256	-0.213 ± 0.368
PRF-fit source offset from KIC position	0.320 ± 0.468	0.68	0.124 ± 0.393	-0.295 ± 0.355
photometric centroid source offset	1.87 ± 0.79	2.36	0.20 ± 0.80	1.86 ± 0.79

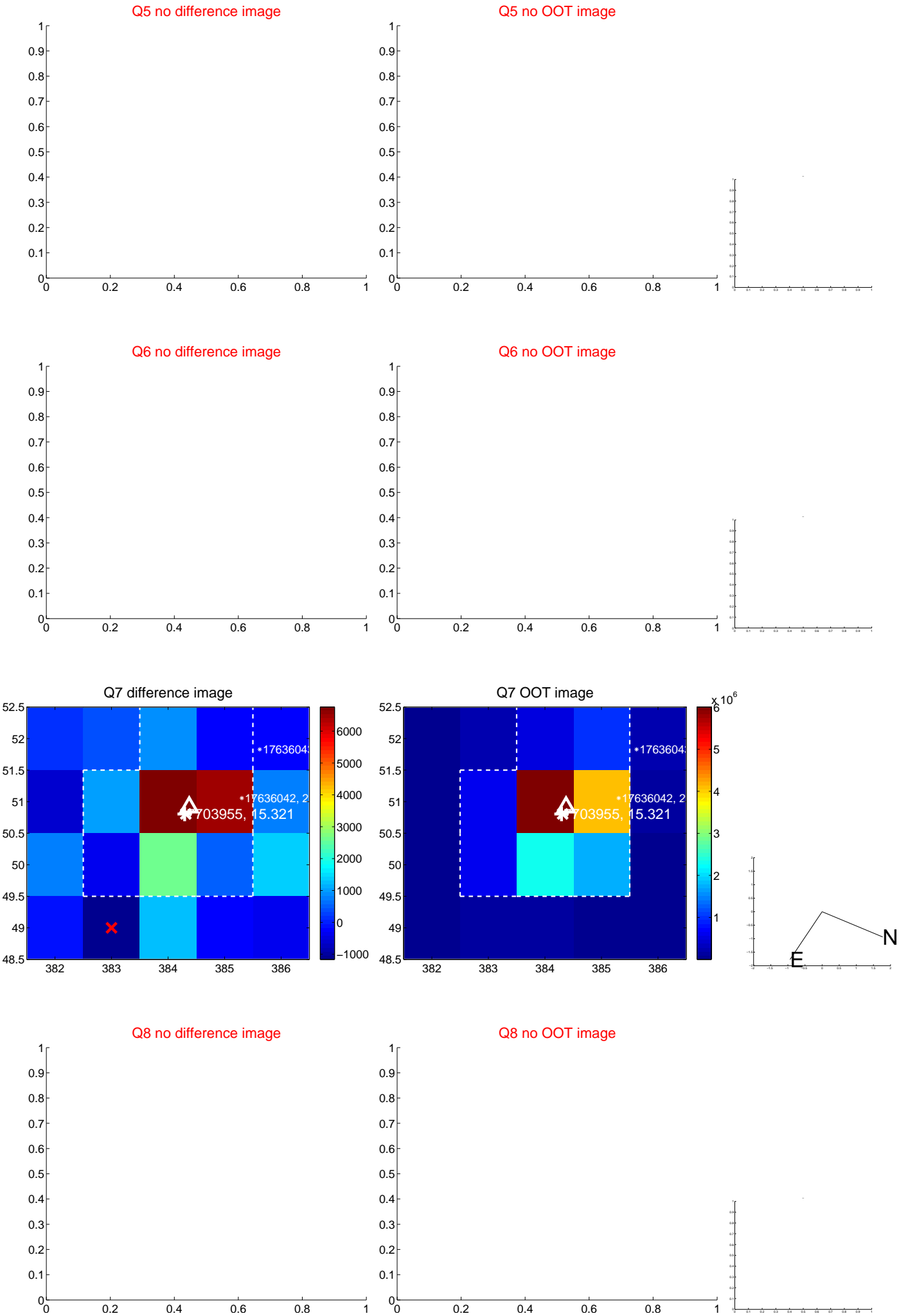


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses:** good quarterly centroid offsets; **Vermillion crosses:** bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

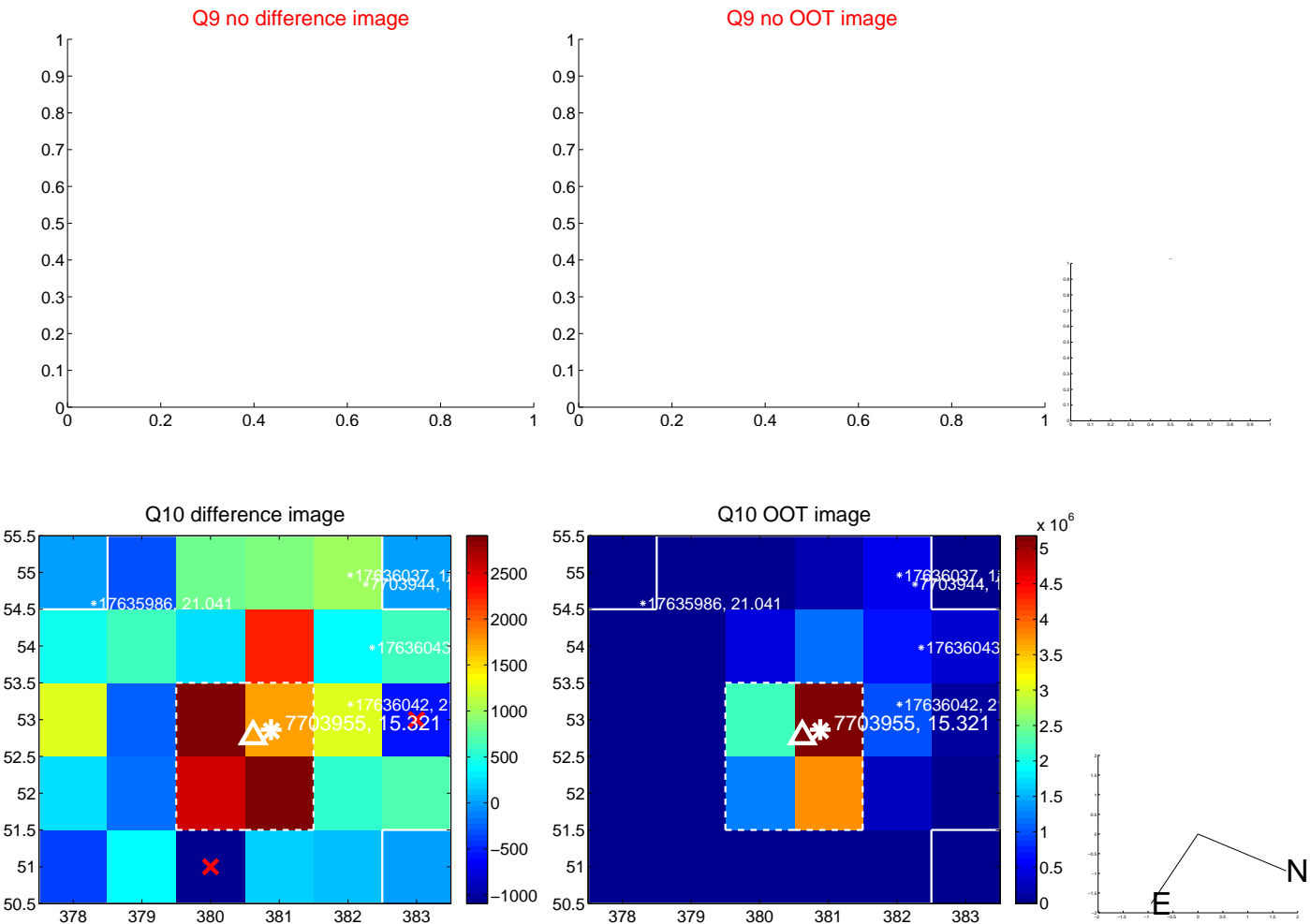
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



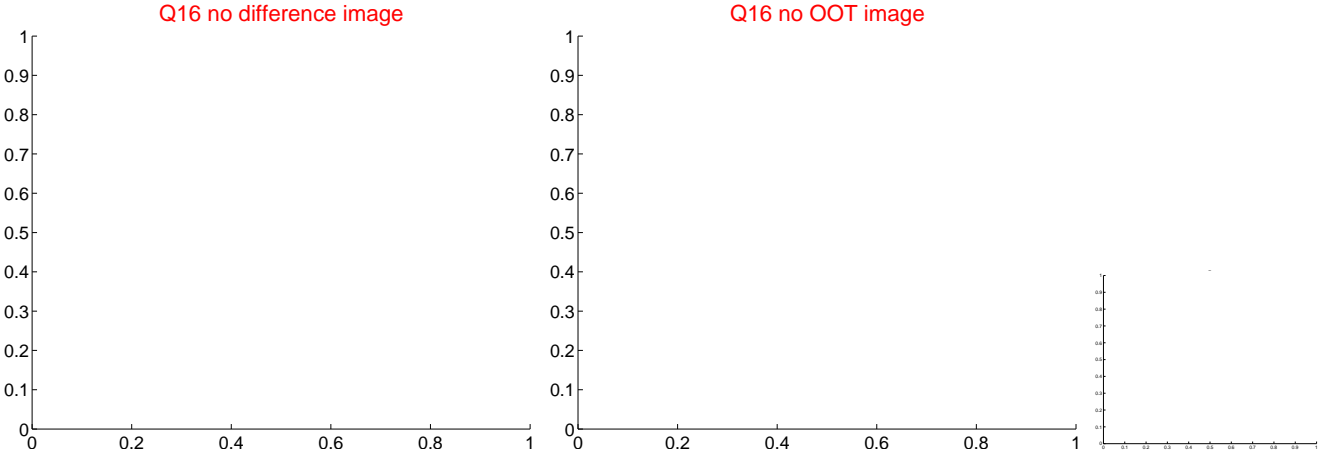
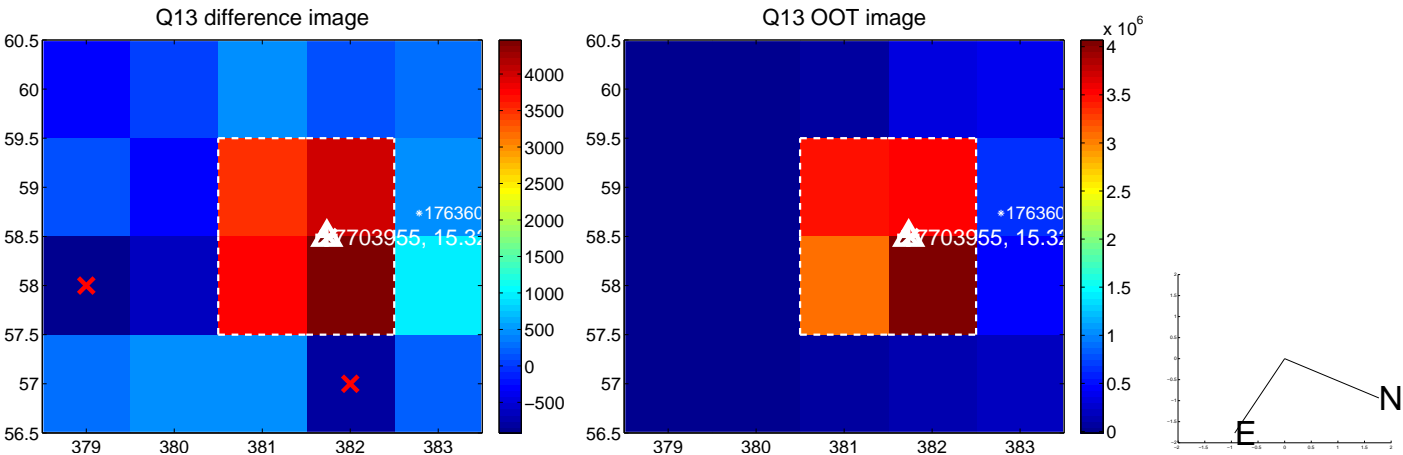
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



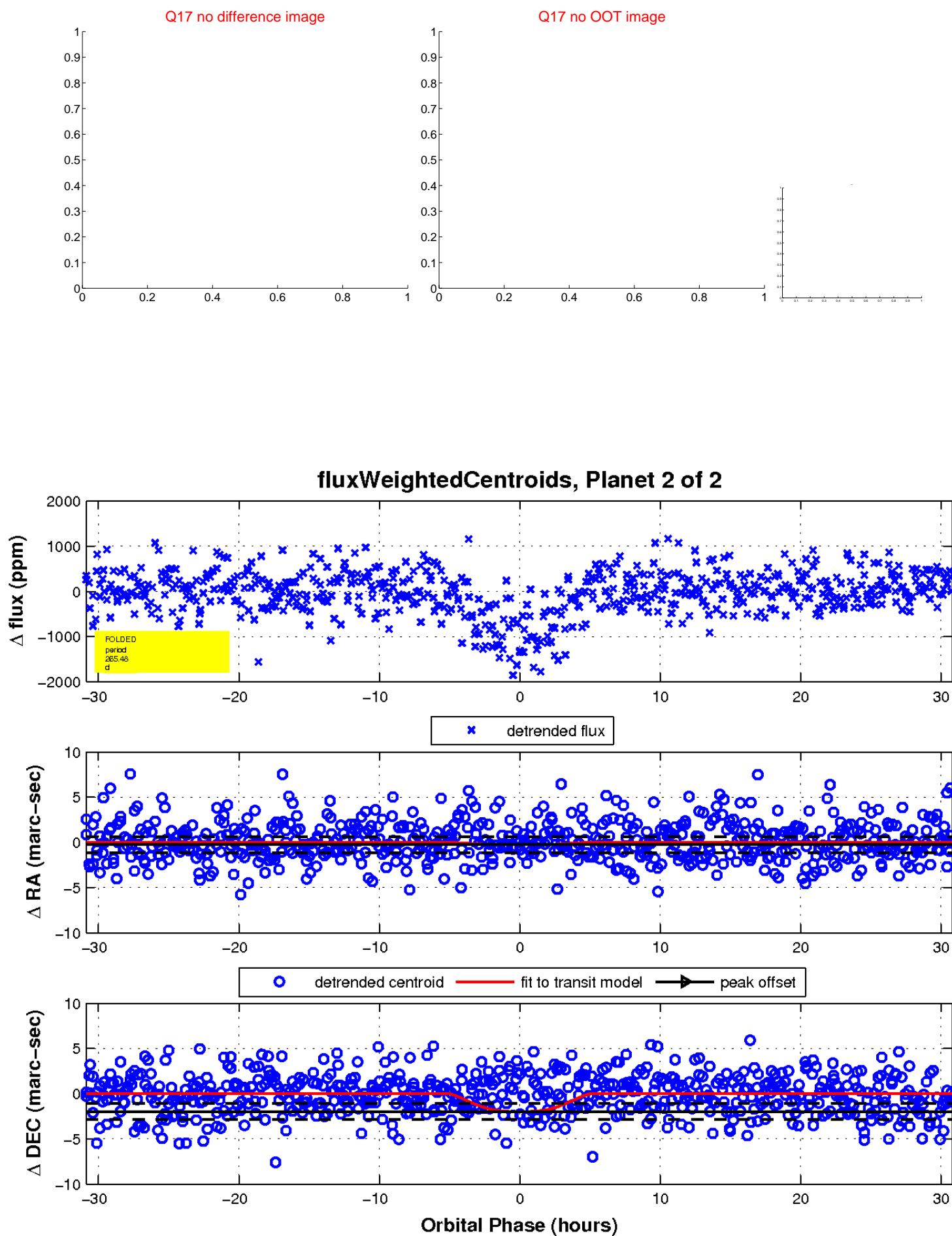
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

