

KIC 009784230

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})
009784230-01	OBS	No	0.798196	131.970550	229078.8	1.891	1535.1	999.8	1.00	5780	48.93	3524.73
009784230-02	OBS	3851.01	0.798200	131.564119	215044.0	1.500	1495.3	-1.0	1.00	5780	46.95	3524.71

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
009784230-01	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—CENT_KIC_POS
009784230-02	OBS	FP	0.00	1	0	0	0	SAME_NTL_PERIOD—CENT_NOFITS

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 009784230-01

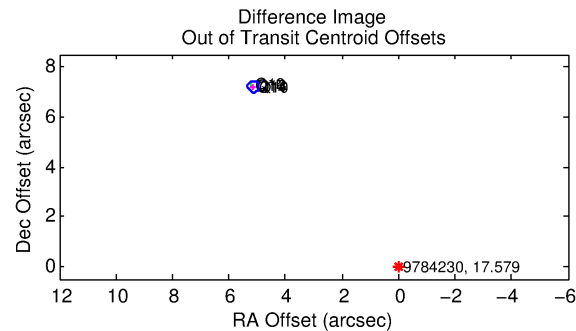
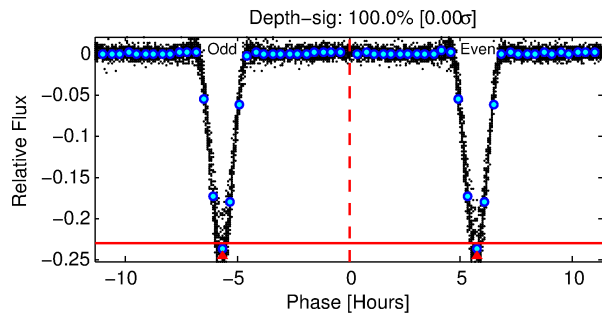
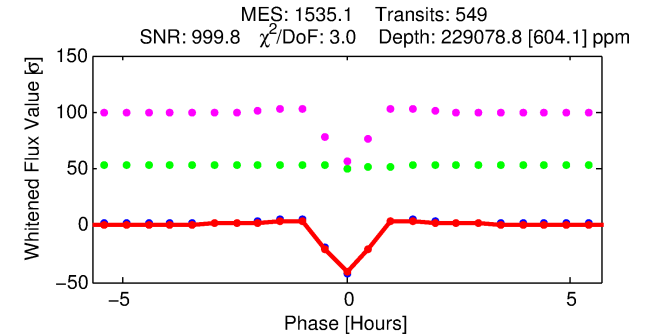
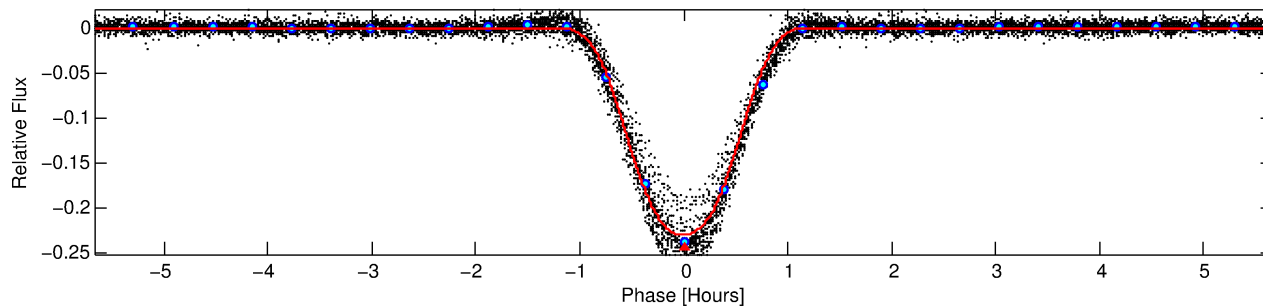
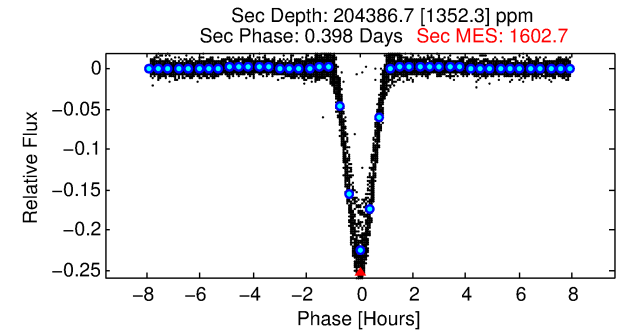
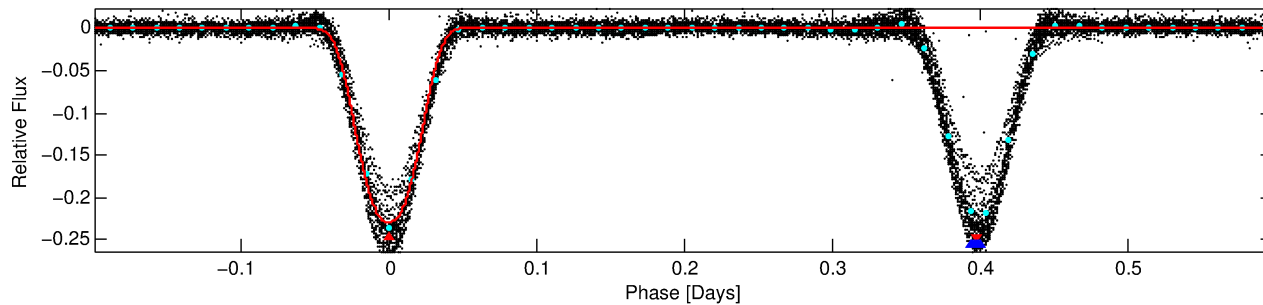
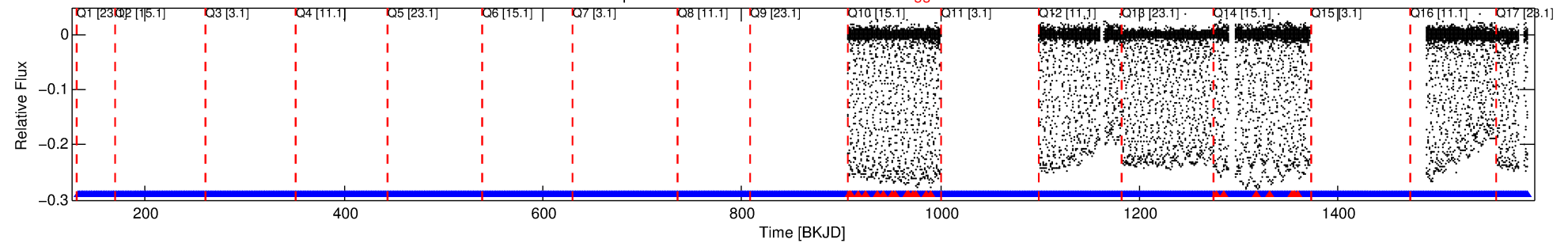
No Significant Match Found

DV One-Page Summary

KIC: 9784230 Candidate: 1 of 2 Period: 0.798 d

KOI: K03851 Corr: No Ephemeris Match

Kp: 17.58 R^* : 1.00 R_s Teff: 5780.0 K Logg: 4.44 Fe/H: 0.000



DV Fit Results:

Period = 0.79820 [0.00000] d
Epoch = 131.9705 [0.0000] BKJD
Rp/R* = 0.4484 [0.0011]
a/R* = 4.65 [0.02]
b = 0.30 [0.02]
Seff = 3524.73 [0.00]
Teq = 1965 [0] K
Rp = 48.93 [0.12] Re
a = 0.0168 [0.0000] AU
Ag = 13.32 [0.11] [111.36sigma]
Teffp = 5804 [12] K [318.55sigma]

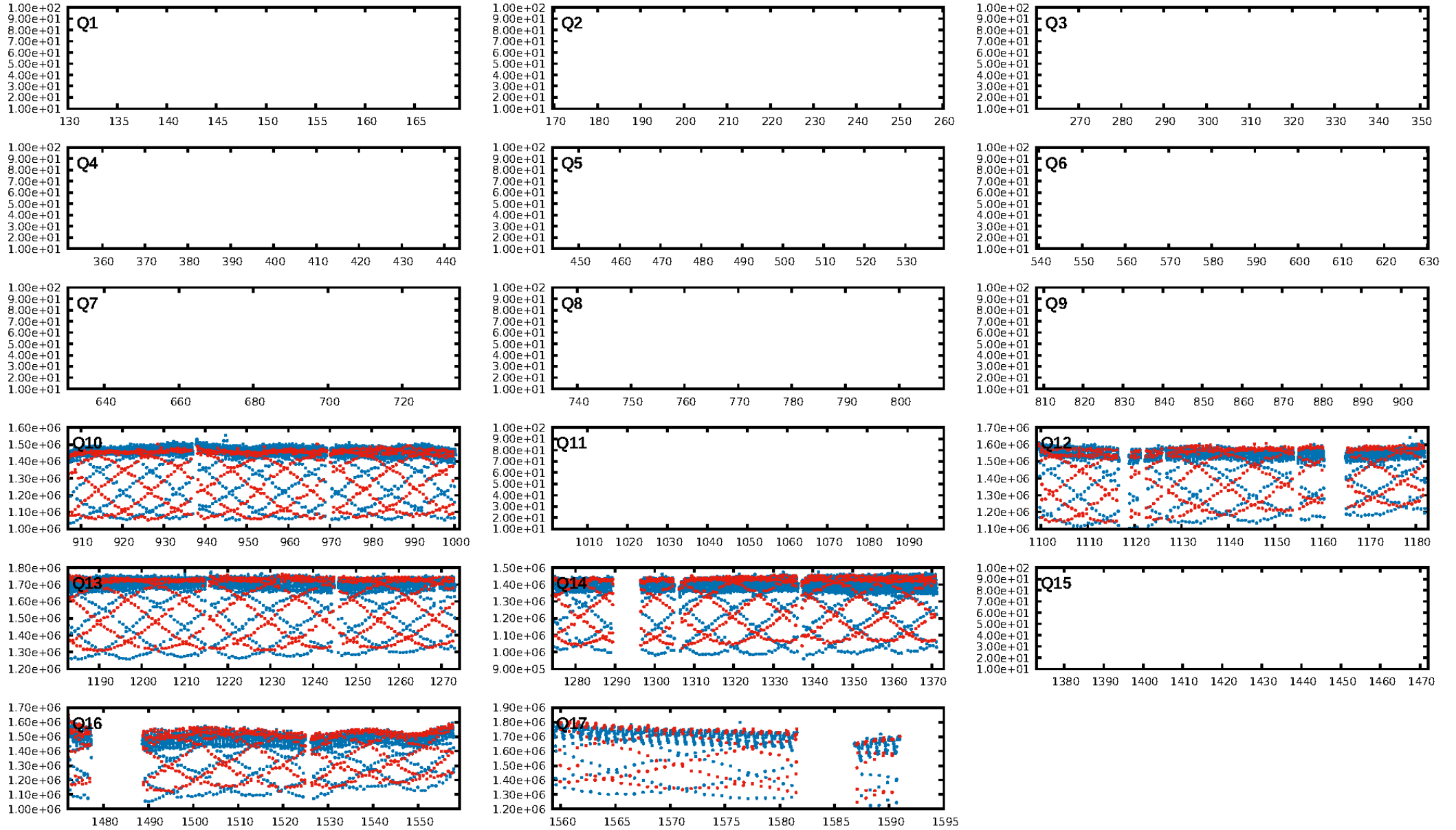
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: 0.0% [0.00sigma]
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: N/A
RollingBand-ftg: 0.96 [493/516]
GhostDiagnostic-chr: 2.732
Centroid-sig: 0.0%
Centroid-so: 4.503 arcsec [2372.97sigma]
OotOffset-rm: 8.856 arcsec [121.83sigma]
KicOffset-rm: 0.448 arcsec [6.67sigma]
OotOffset-st: 2/0/2/2 [6]
KicOffset-st: 2/0/2/2 [6]
DiffImageQuality-fgm: 1.00 [6/6]
DiffImageOverlap-fno: 1.00 [6/6]

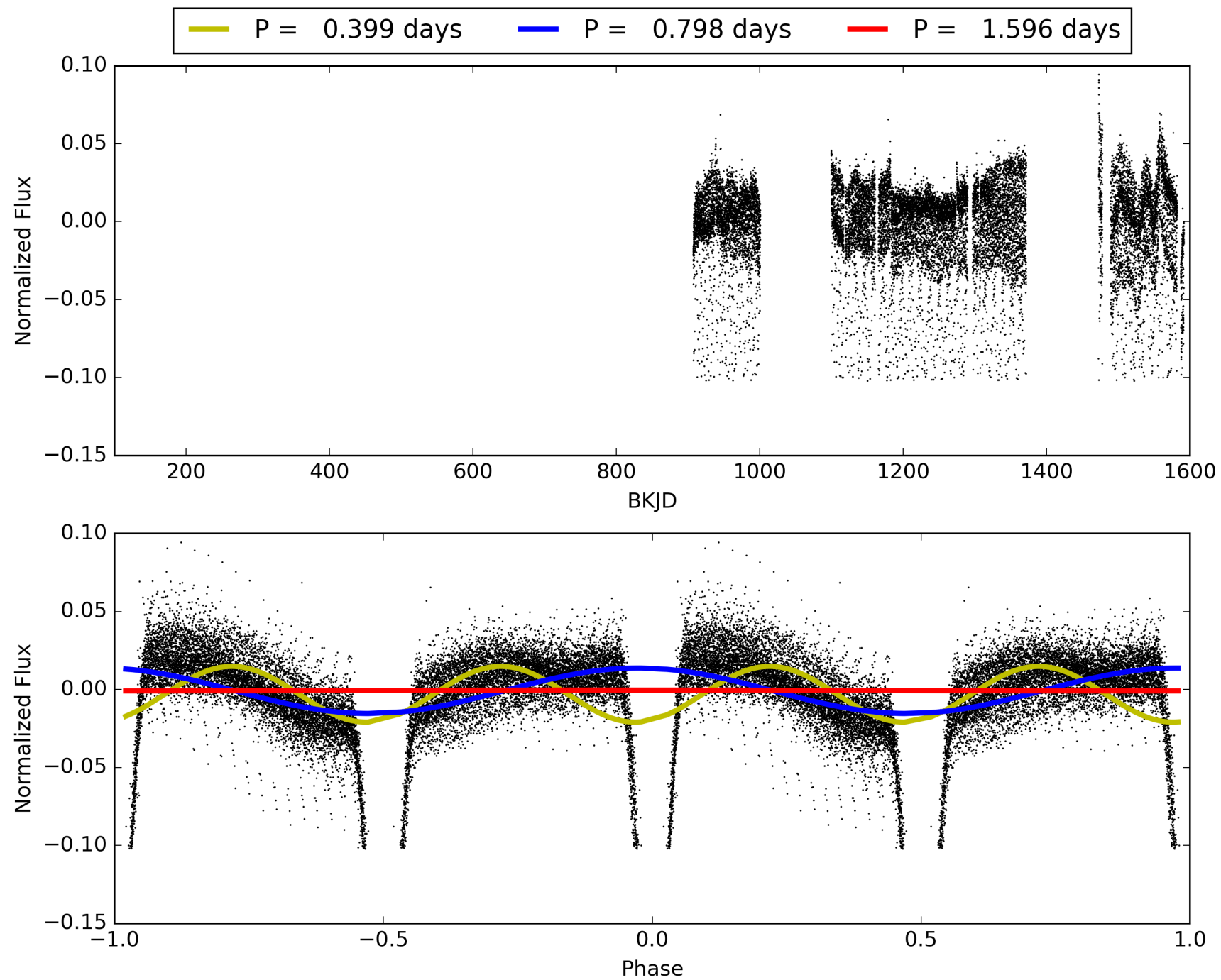
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 01-Feb-2016 17:59:45 Z

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

TCE 009784230-01, PDC Light Curves

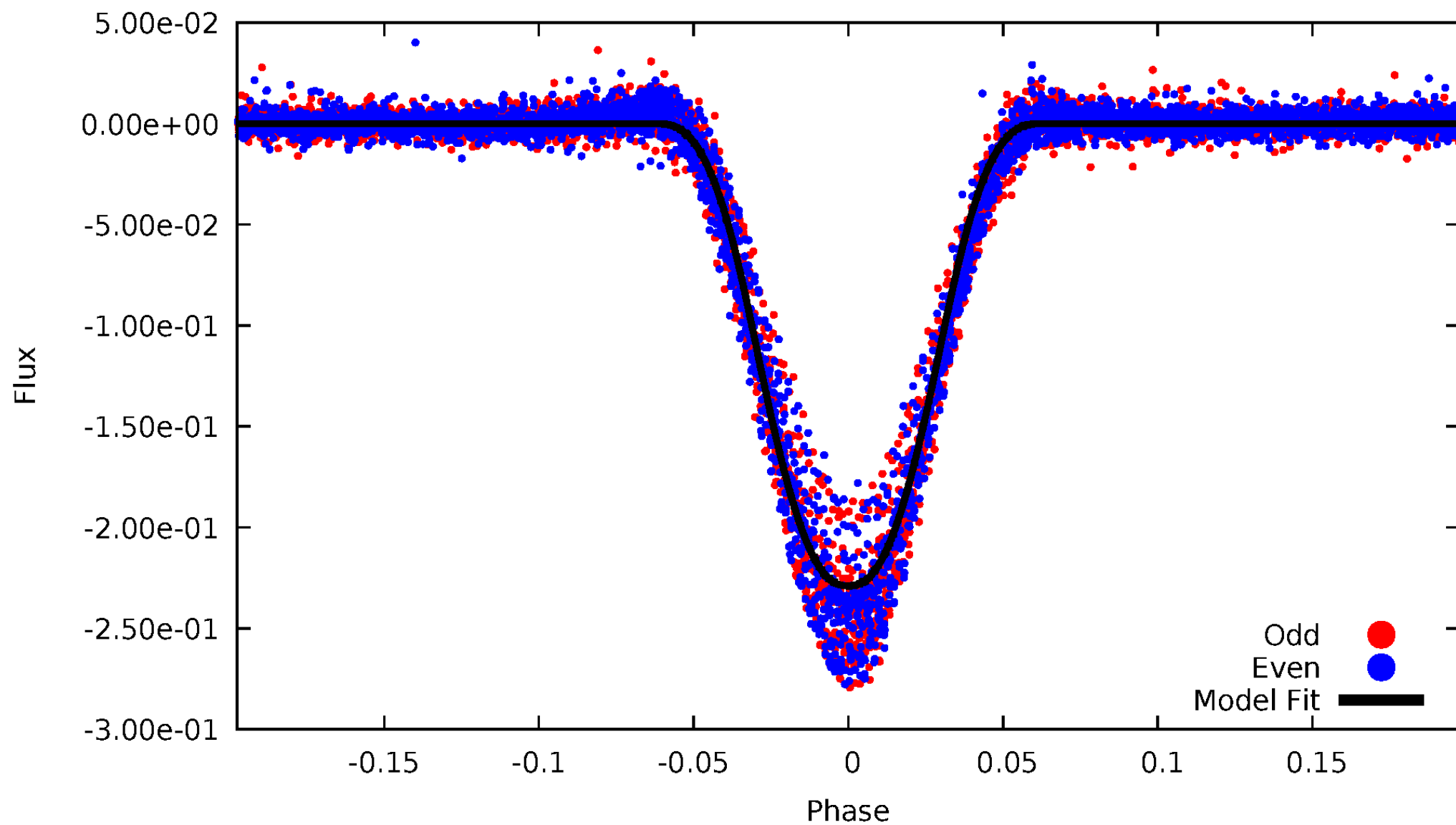


TCE 009784230-01



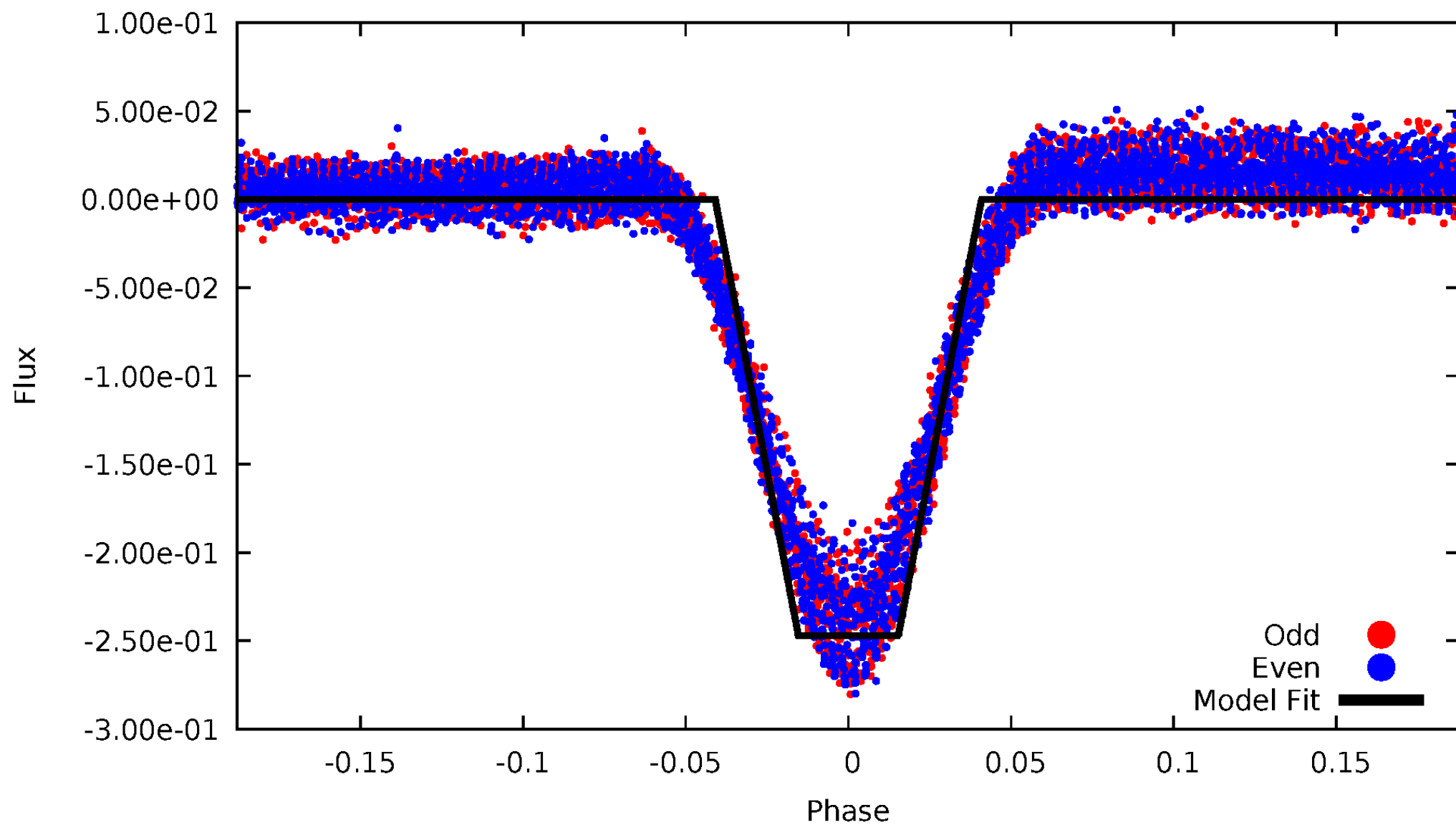
DV Odd/Even

TCE 009784230-01



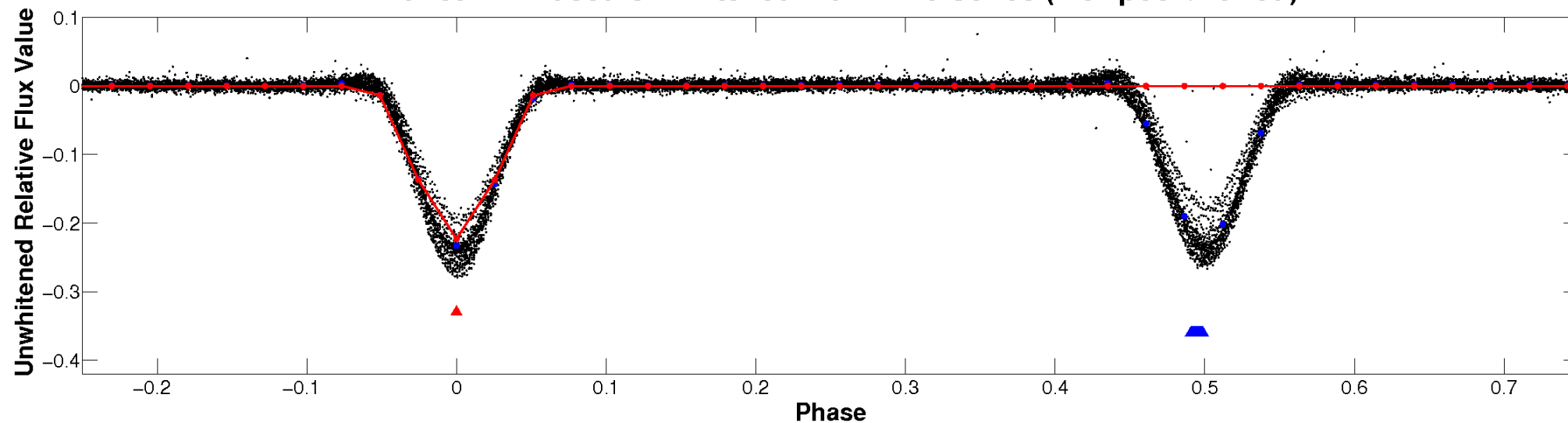
ALT Odd/Even

TCE 009784230-01

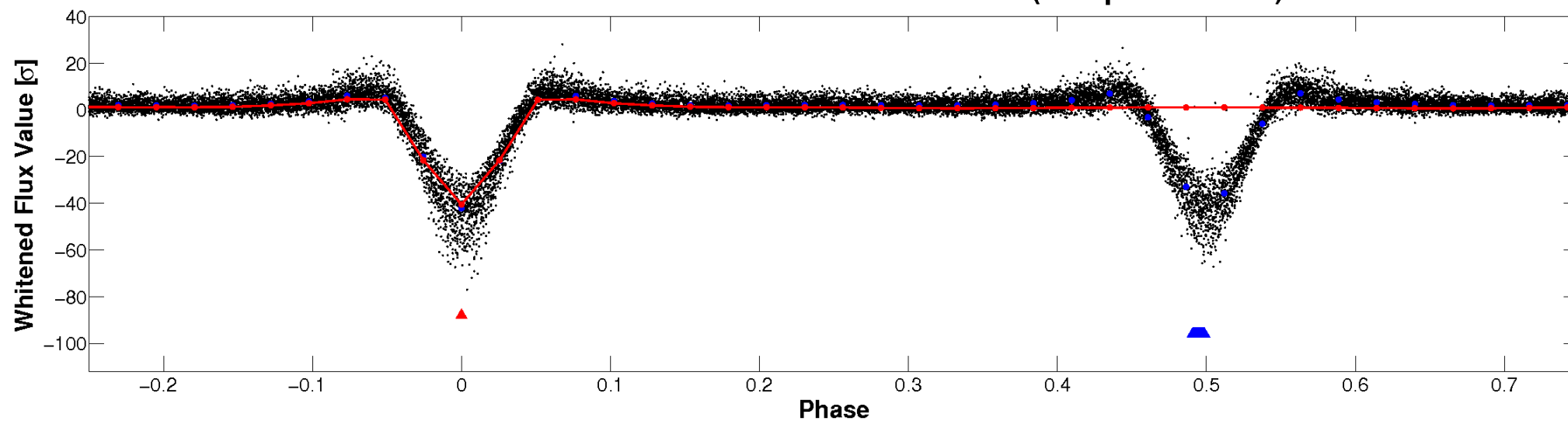


Non-Whitened Vs. Whitened Light Curve

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

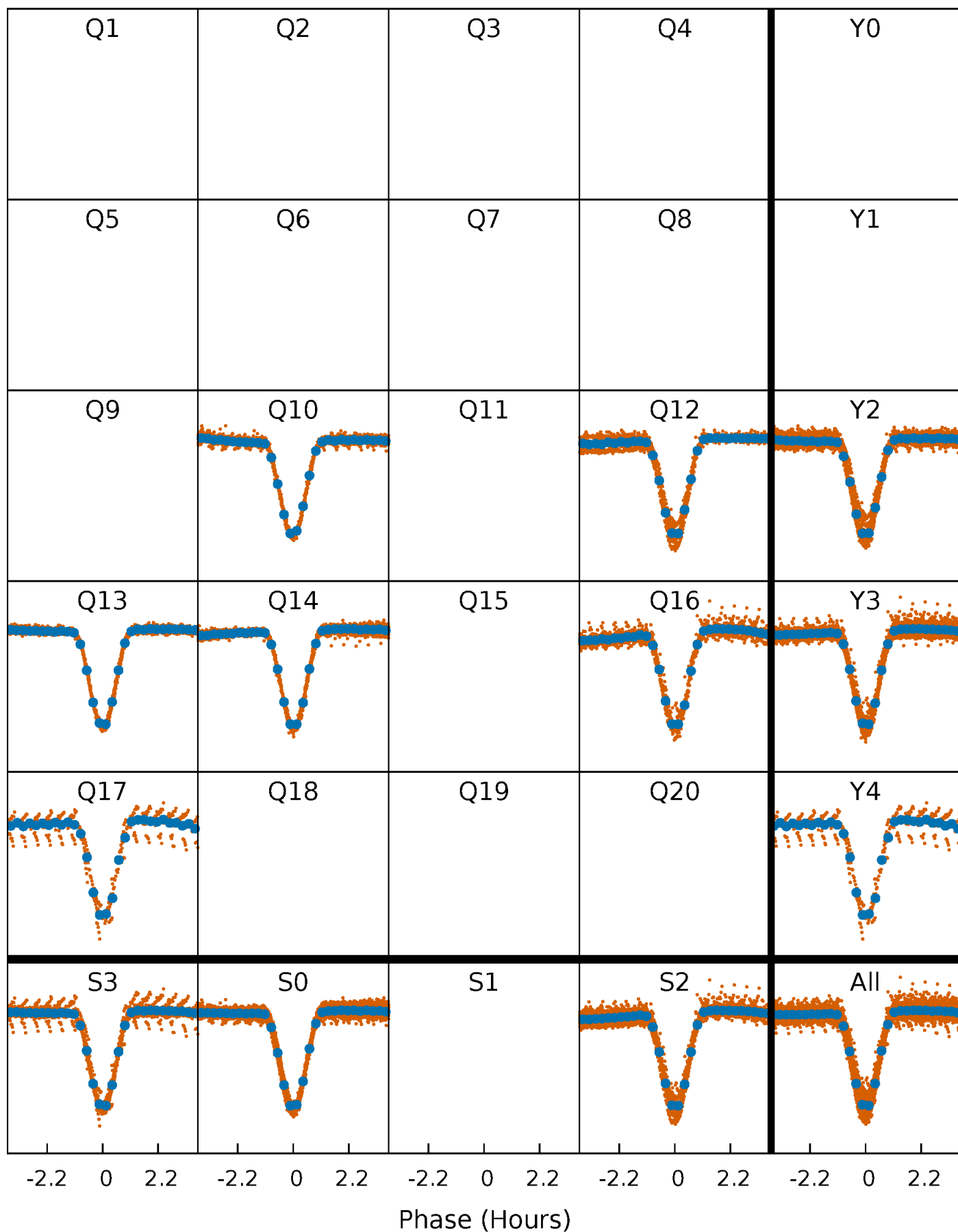


Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)



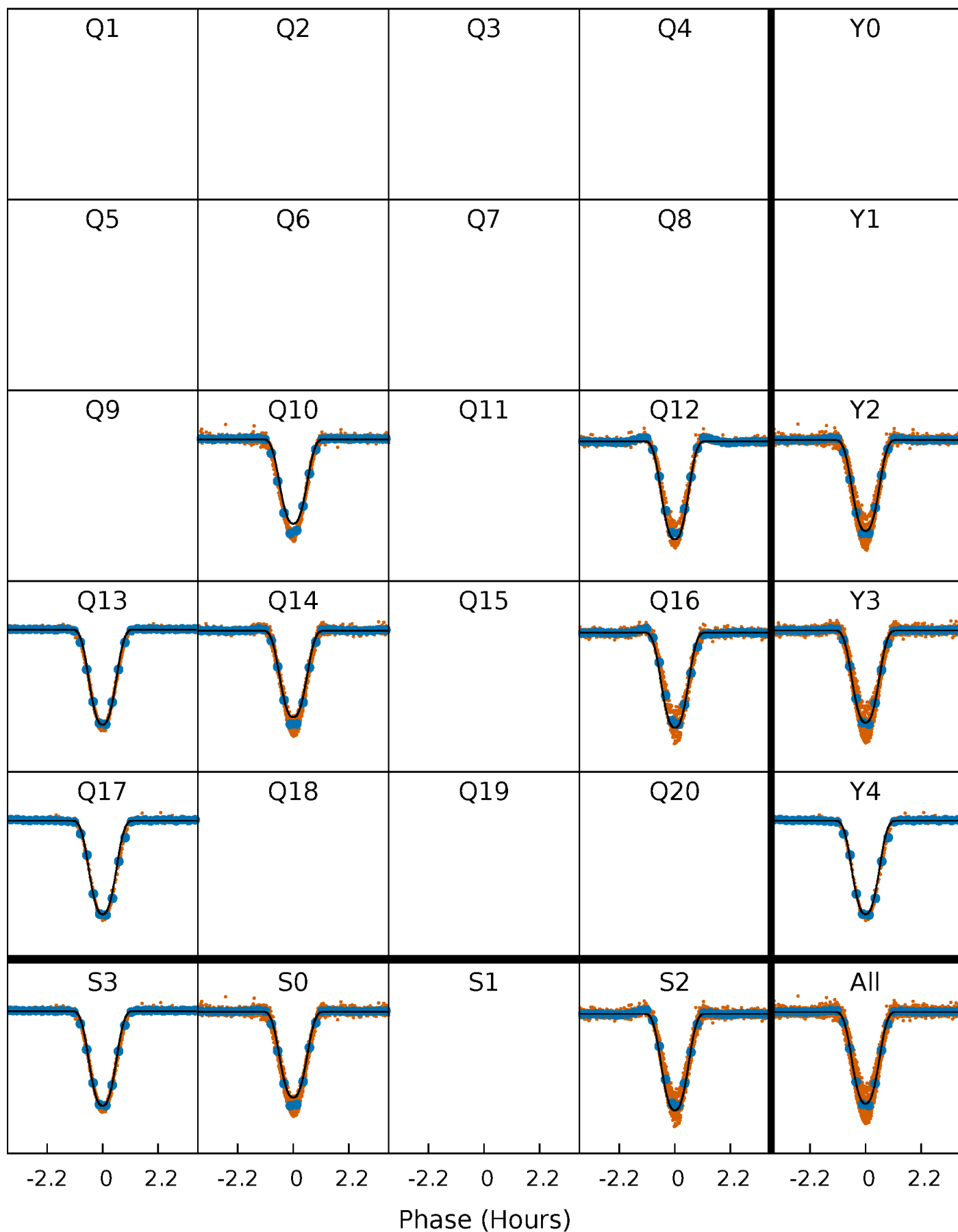
PDC Quarter-Phased Transit Curves

TCE 009784230-01 P= 0.798196 Days $T_0=131.970550$ (BKJD)



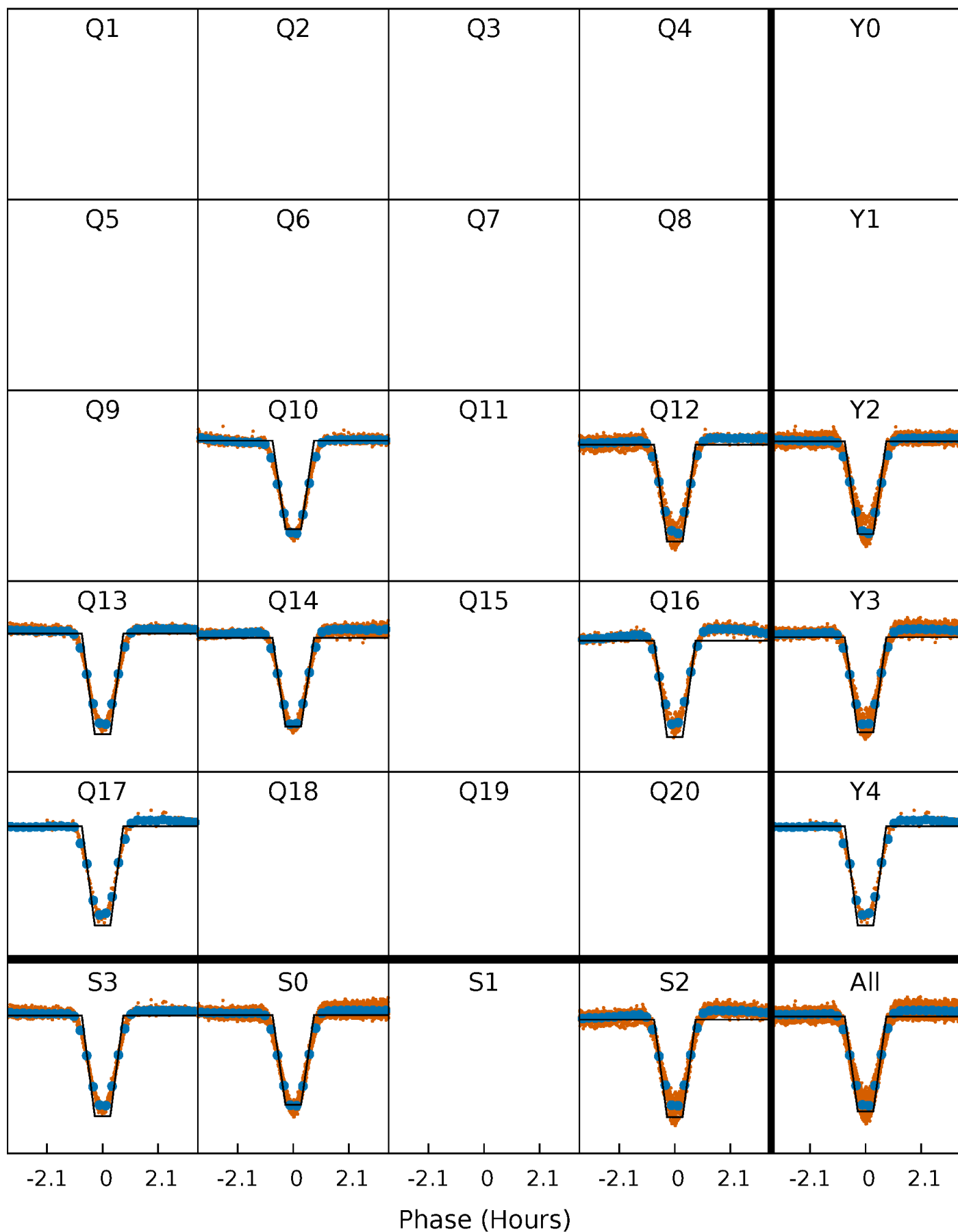
DV Quarter-Phased Transit Curves

TCE 009784230-01 P= 0.798196 Days $T_0=131.970550$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

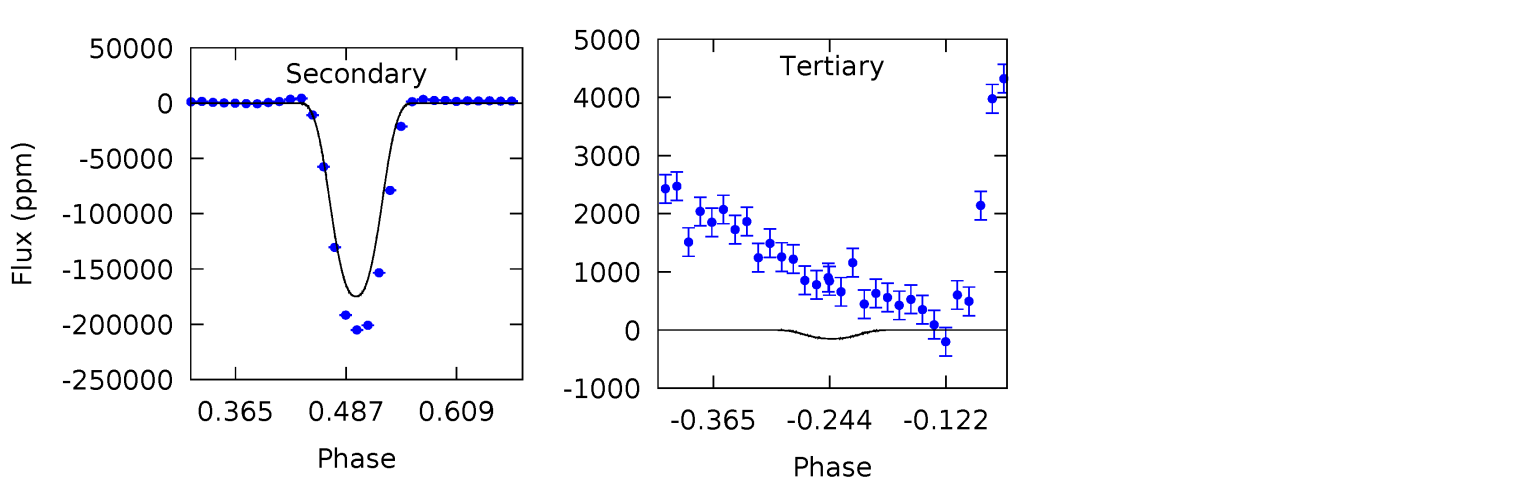
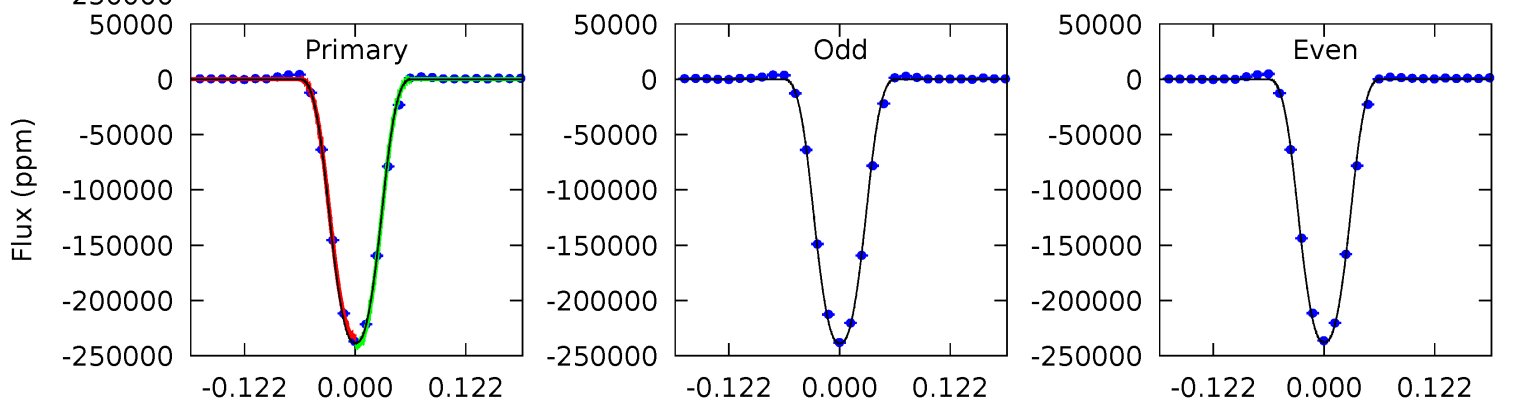
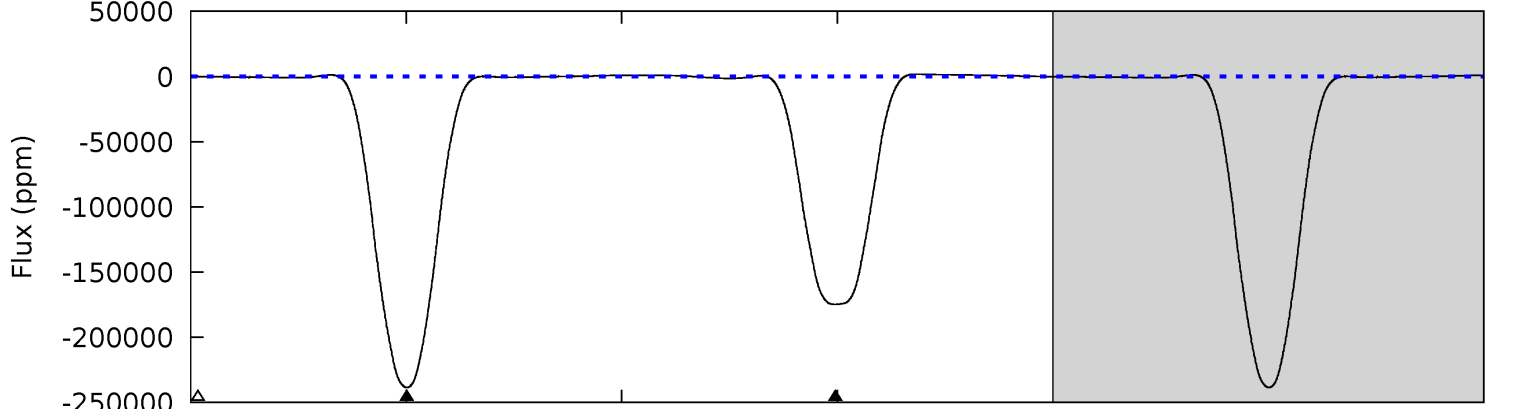
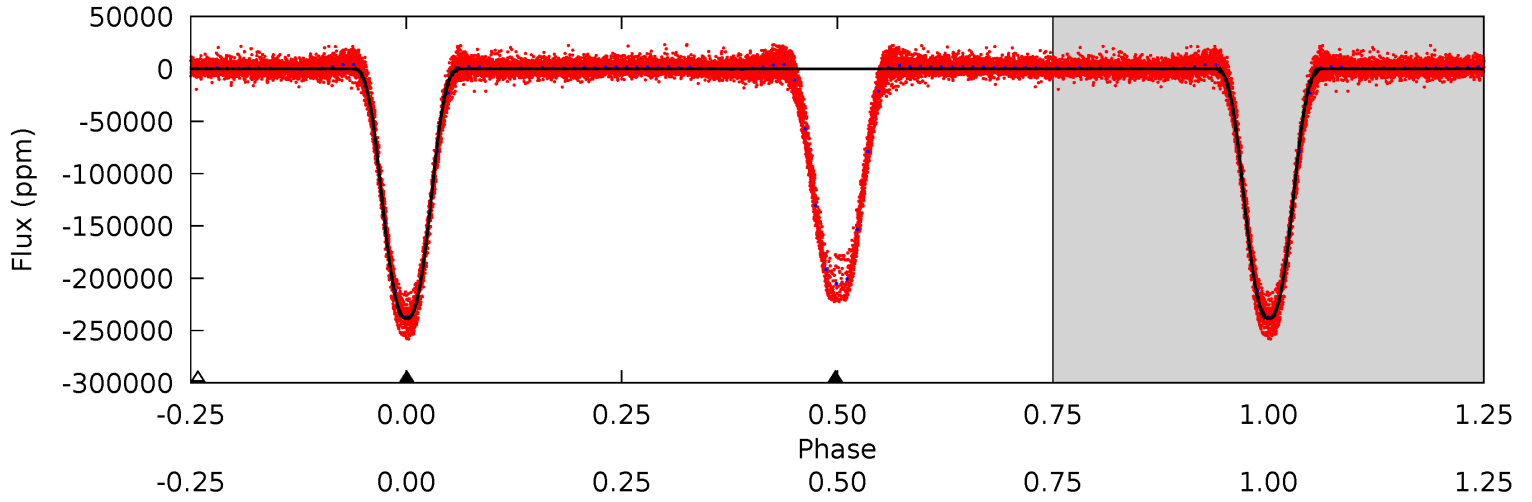
TCE 009784230-01 P= 0.798200 Days $T_0=131.965916$ (BKJD)



DV Model-Shift Uniqueness Test

009784230-01, P = 0.798196 Days, E = 131.970550 Days

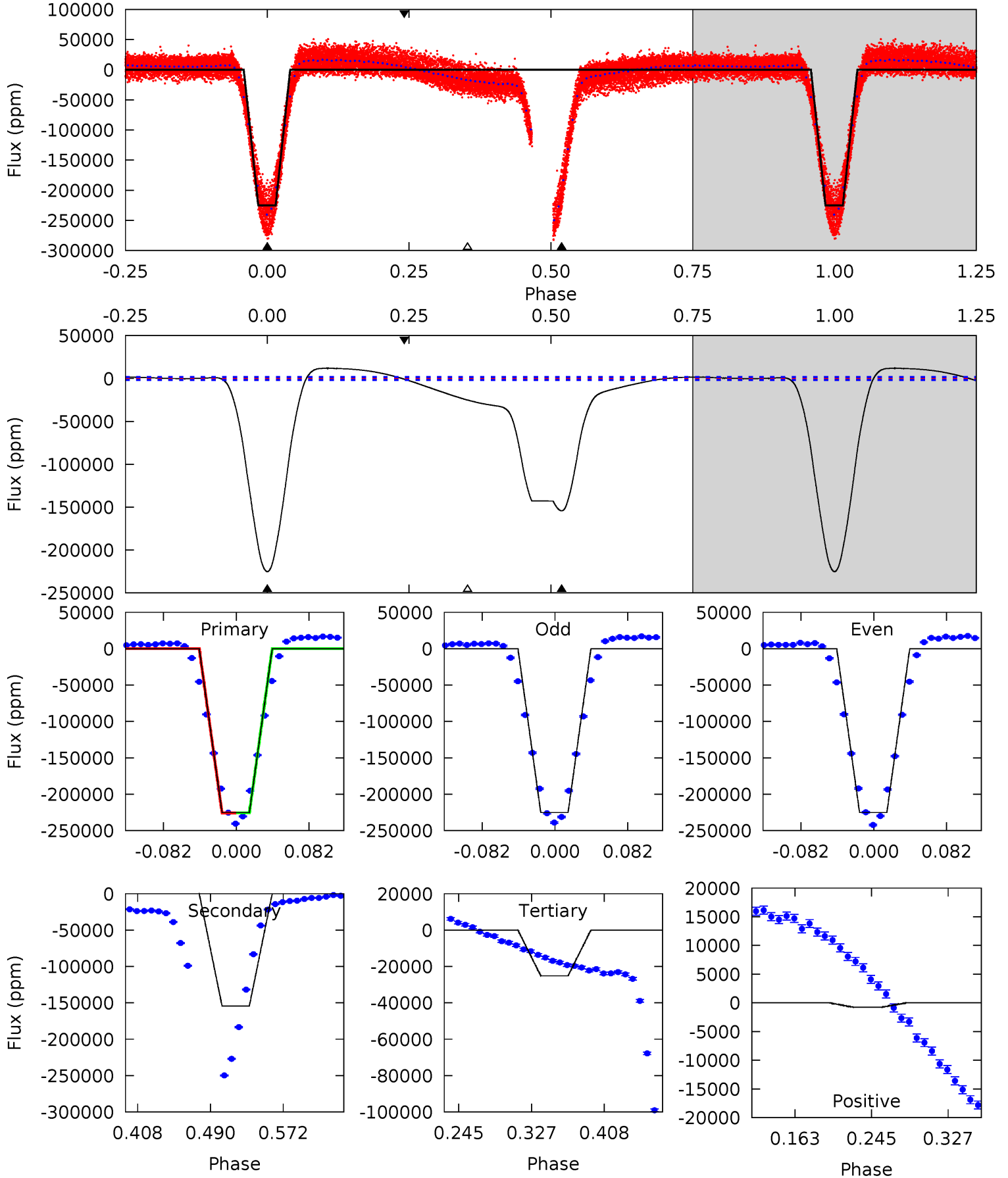
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
2547	1866	1.59	0	4.52	1.55	7.46	2546	2547	1865	1866	4.79	1.00	0.01	47.8



Alt Model-Shift Uniqueness Test

009784230-01, P = 0.798200 Days, E = 131.965916 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
601.2	411.7	67.1	-2.00	4.61	1.74	35.5	534.1	603.2	344.5	413.7	0.02	1.00	0.05	0.16



Stellar Parameters For KIC 009784230

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	5780^{+1}_{-1}	$4.438^{+1.000}_{-1.000}$	$0.000^{+1.000}_{-1.000}$	$1.000^{+1.000}_{-1.000}$	$-1.000^{+1.000}_{-1.000}$	$-1.000^{+1.000}_{-1.000}$
	+0%/-0%	+23%/-23%	+inf%/-inf%	+100%/-100%	+100%/-100%	+100%/-100%
Source	Solar	Solar	Solar	Solar		

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

Secondary Eclipse Parameters for KIC 009784230-01 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	-174734 ± 94	$49.18^{+3.45}_{-3.45}$	2752^{+124}_{-126}	5830^{+196}_{-205}	14^{+2}_{-2}
Alt.	-154171 ± 375	$54.46^{+3.96}_{-3.81}$	2746^{+132}_{-123}	5346^{+169}_{-175}	$9.644^{+1.349}_{-1.255}$

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 $A_{obs} \gg 1.0$

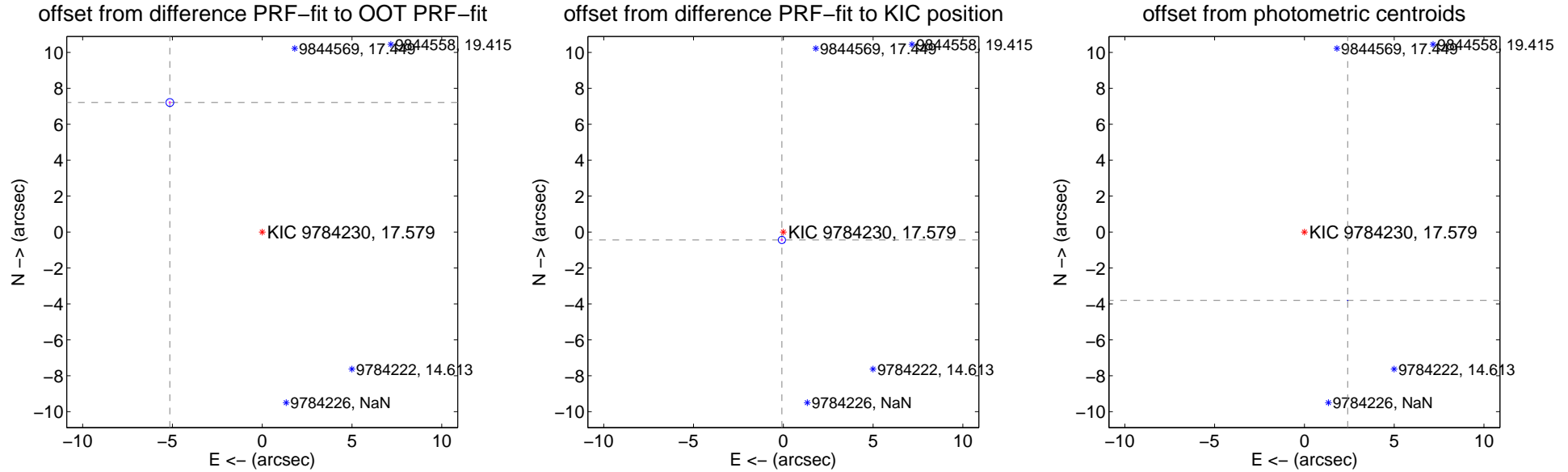
DV Centroid Data

Supplemental centroid analysis for 009784230-01. Kepler magnitude: 17.58. Transit SNR 999.81

There are 6 quarters with good PRF difference image offsets

The OOT PRF centroid is offset from the target star catalog position by about 9.22 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	8.856 ± 0.073	121.83	5.143 ± 0.070	7.210 ± 0.070
PRF-fit source offset from KIC position	0.448 ± 0.067	6.67	0.080 ± 0.069	-0.440 ± 0.067
photometric centroid source offset	4.50 ± 0.00	2372.98	-2.41 ± 0.00	-3.81 ± 0.00



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.

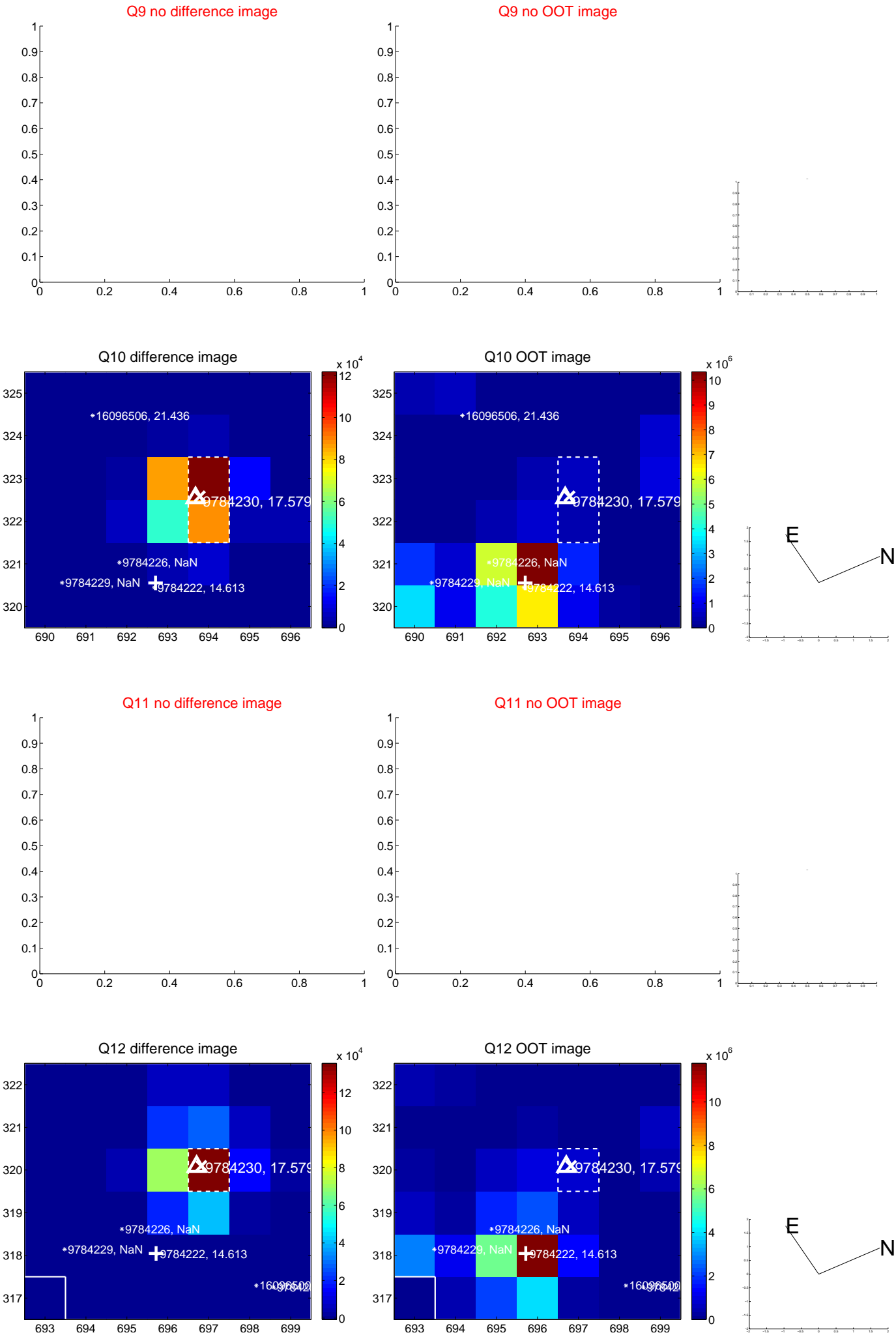
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



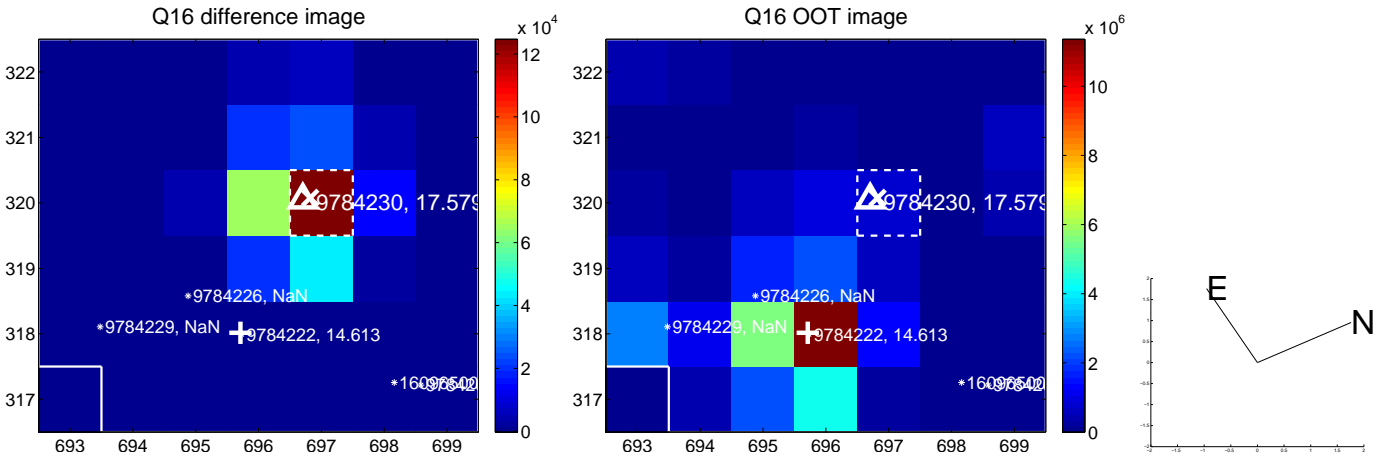
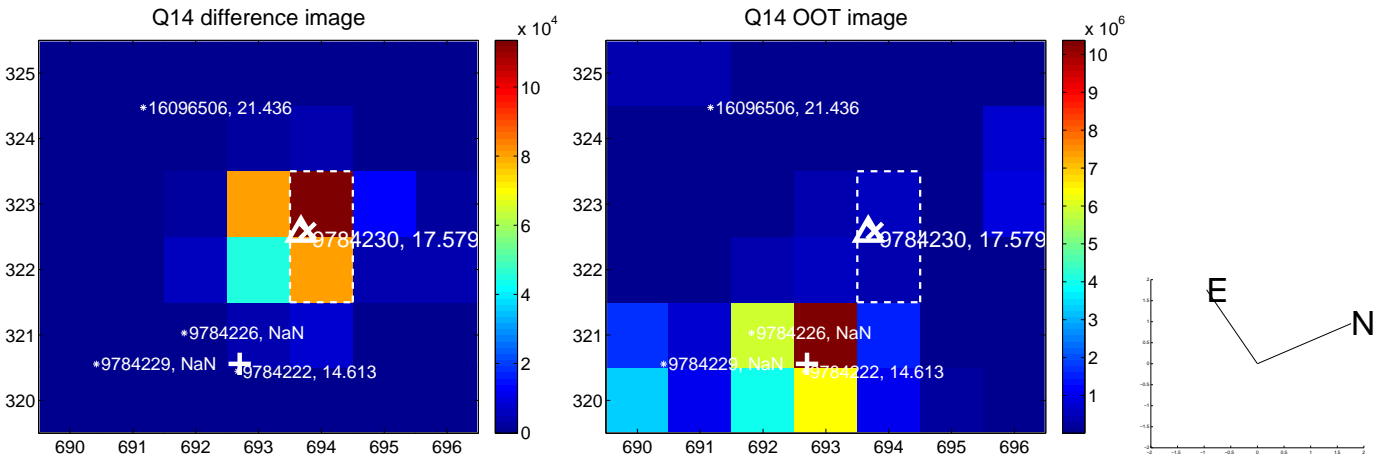
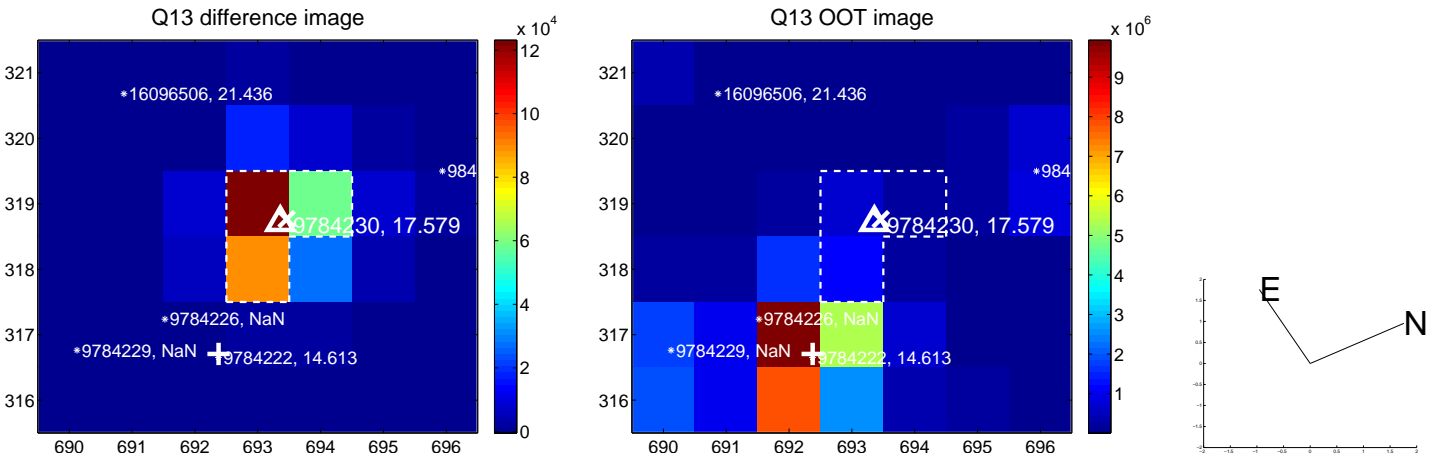
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



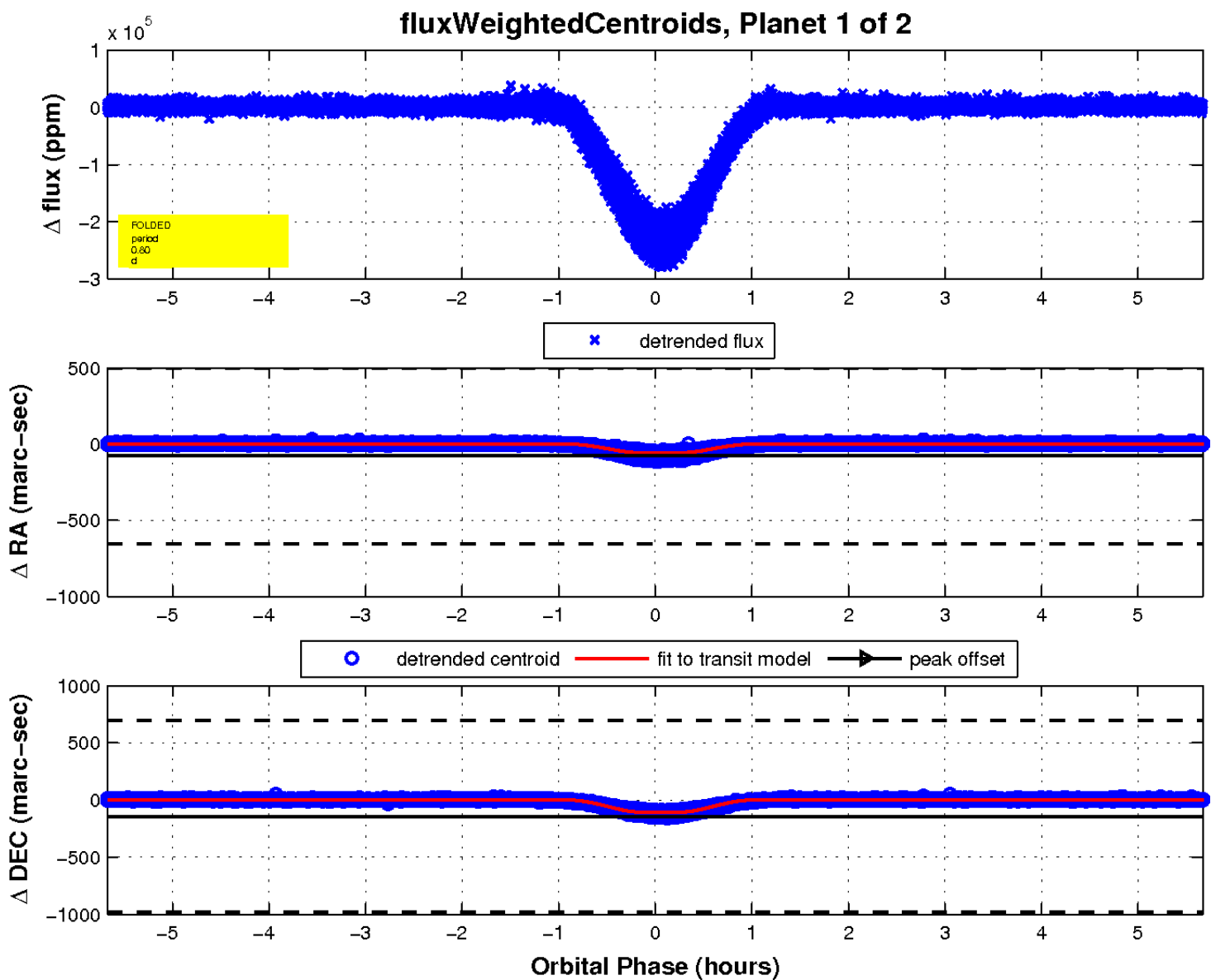
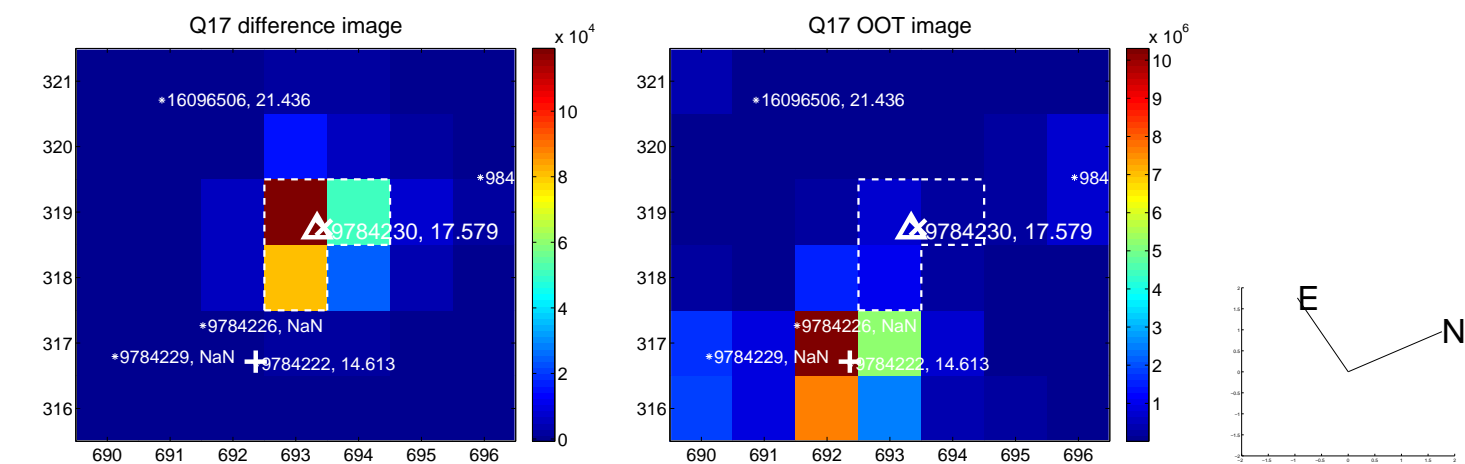
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

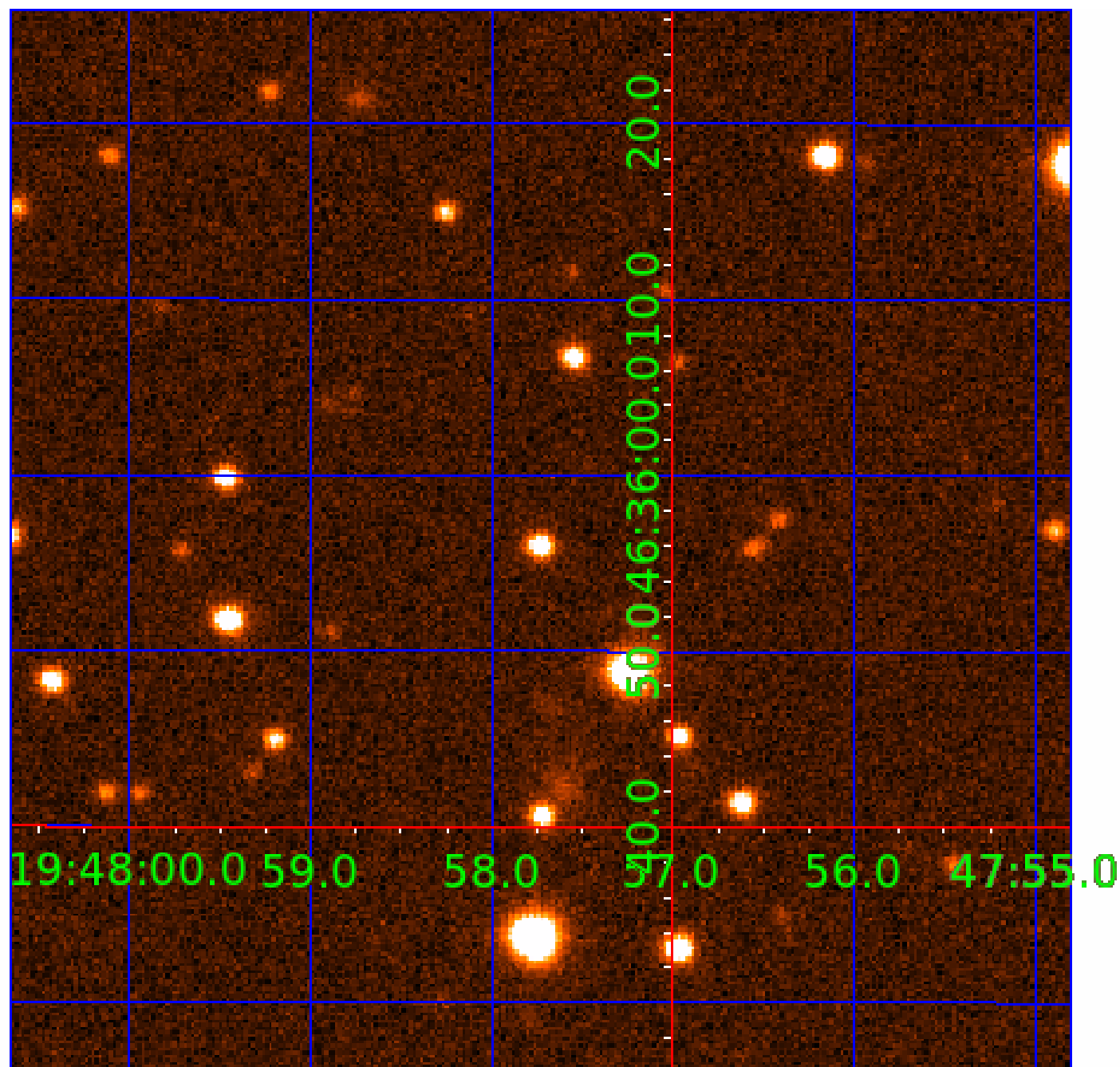


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 009784230

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})
009784230-01	OBS	No	0.798196	131.970550	229078.8	1.891	1535.1	999.8	1.00	5780	48.93	3524.73
009784230-02	OBS	3851.01	0.798200	131.564119	215044.0	1.500	1495.3	-1.0	1.00	5780	46.95	3524.71

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
009784230-01	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—CENT_KIC_POS
009784230-02	OBS	FP	0.00	1	0	0	0	SAME_NTL_PERIOD—CENT_NOFITS

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 009784230-02

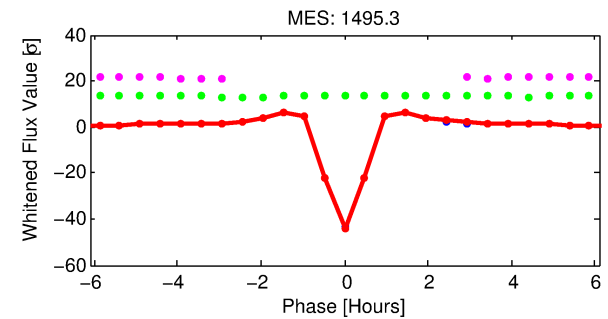
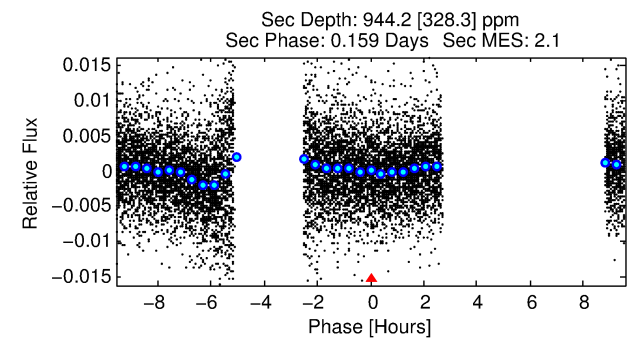
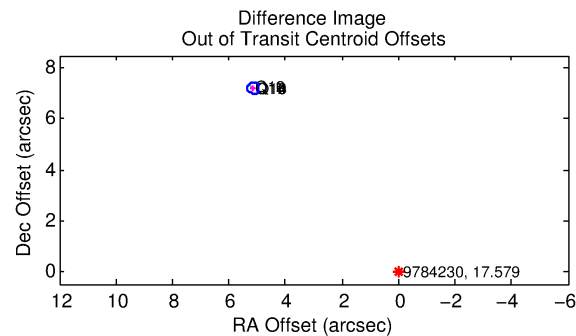
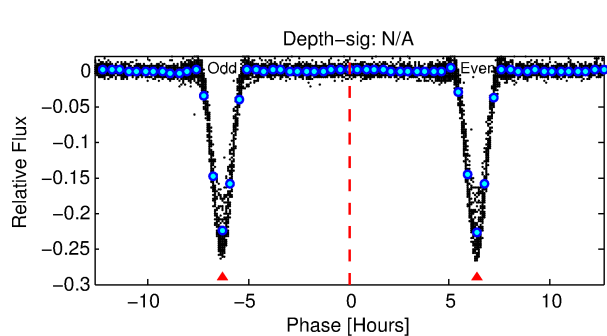
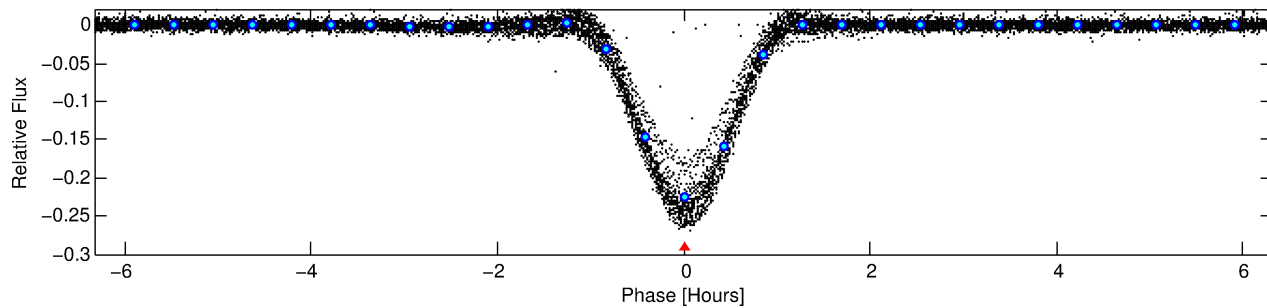
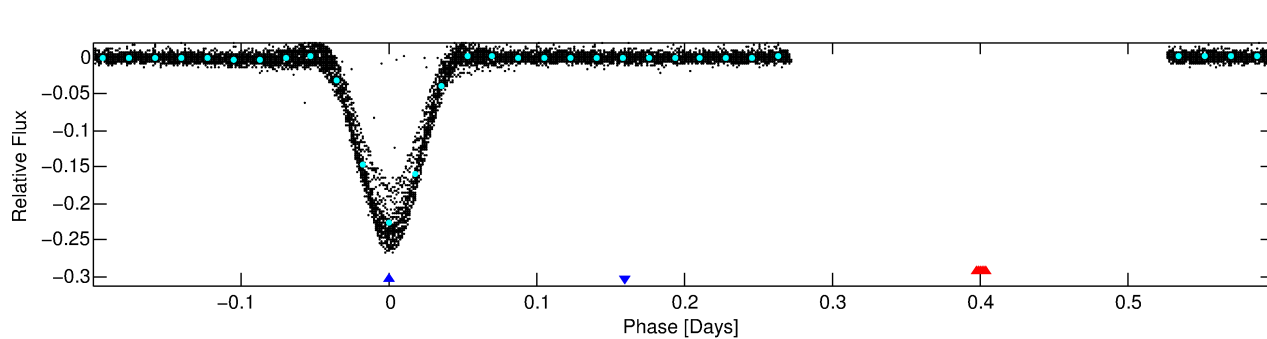
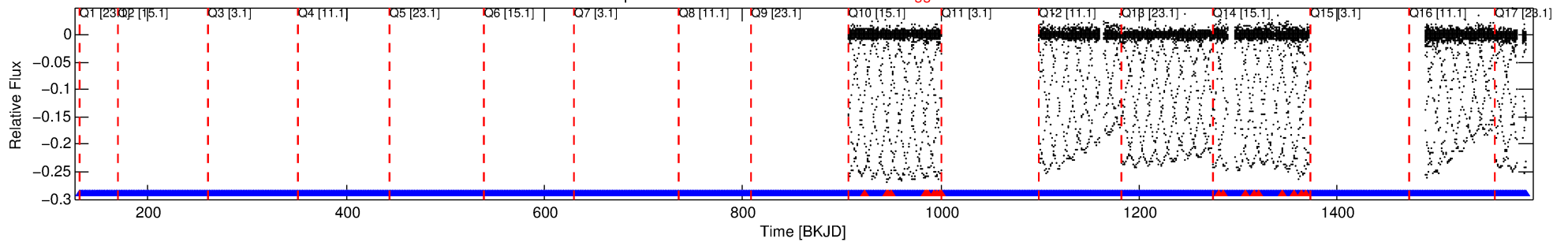
No Significant Match Found

DV One-Page Summary

KIC: 9784230 Candidate: 2 of 2 Period: 0.798 d

KOI: K03851.01 Corr: 0.831

Kp: 17.58 R*: 1.00 Rs Teff: 5780.0 K Logg: 4.44 Fe/H: 0.000



TPS TCE Results:

Period = 0.79820 d

Epoch = 131.5641 BKJD

DV fit results are unavailable

DV Diagnostic Results:

ShortPeriod-sig: 0.0% [0.00σ]

LongPeriod-sig: N/A

ModelChiSquare2-sig: N/A

ModelChiSquareGof-sig: N/A

Bootstrap-pfa: N/A

RollingBand-fgt: 0.96 [491/512]

GhostDiagnostic-chr: 2.824

Centroid-sig: 0.0%

Centroid-so: 4.648 arcsec [2936.40σ]

OotOffset-rm: 8.860 arcsec [126.10σ]

KicOffset-rm: 0.444 arcsec [6.62σ]

OotOffset-st: 2/0/2/2 [6]

KicOffset-st: 2/0/2/2 [6]

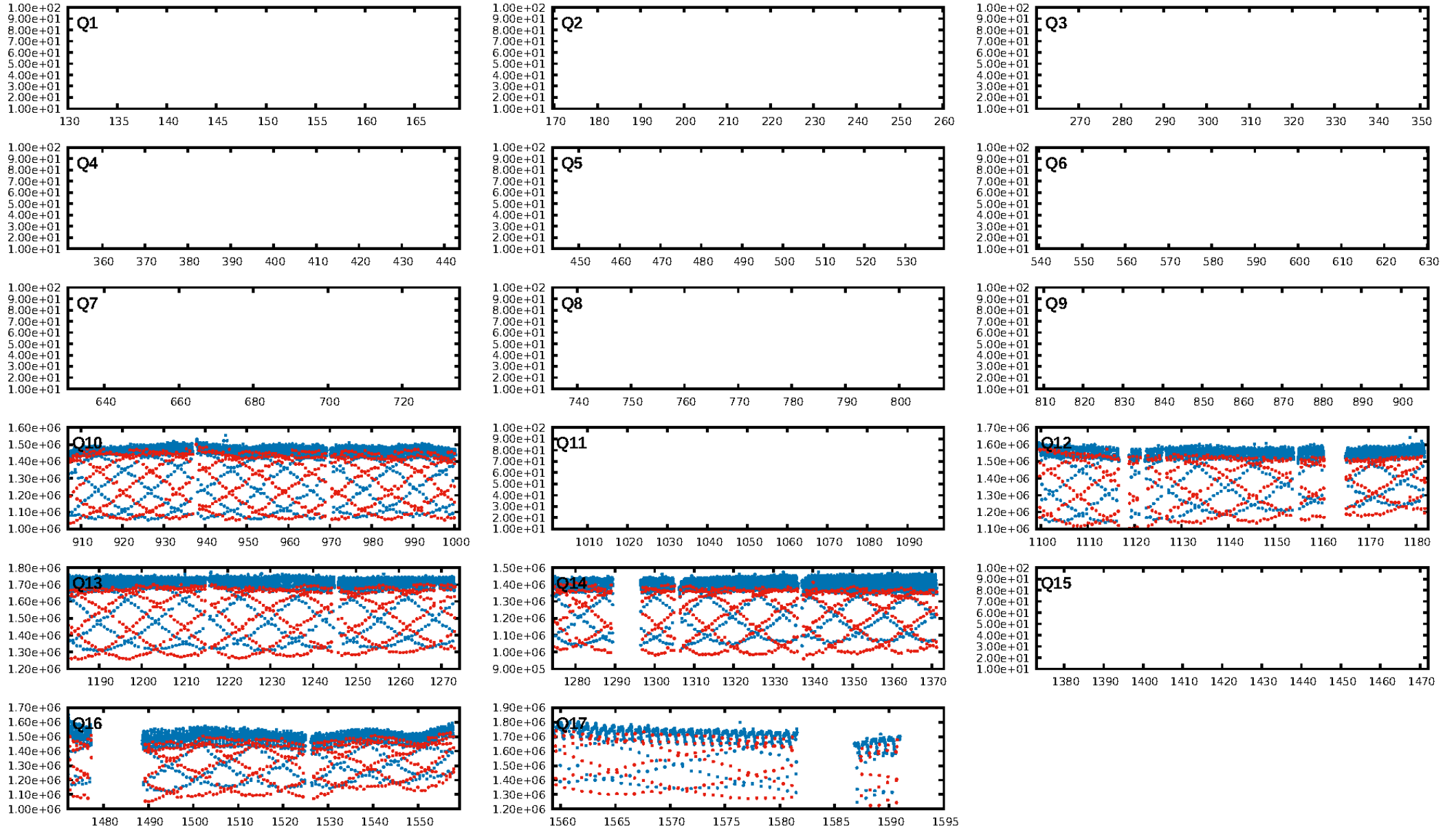
DiffImageQuality-fgm: 1.00 [6/6]

DiffImageOverlap-fno: 1.00 [6/6]

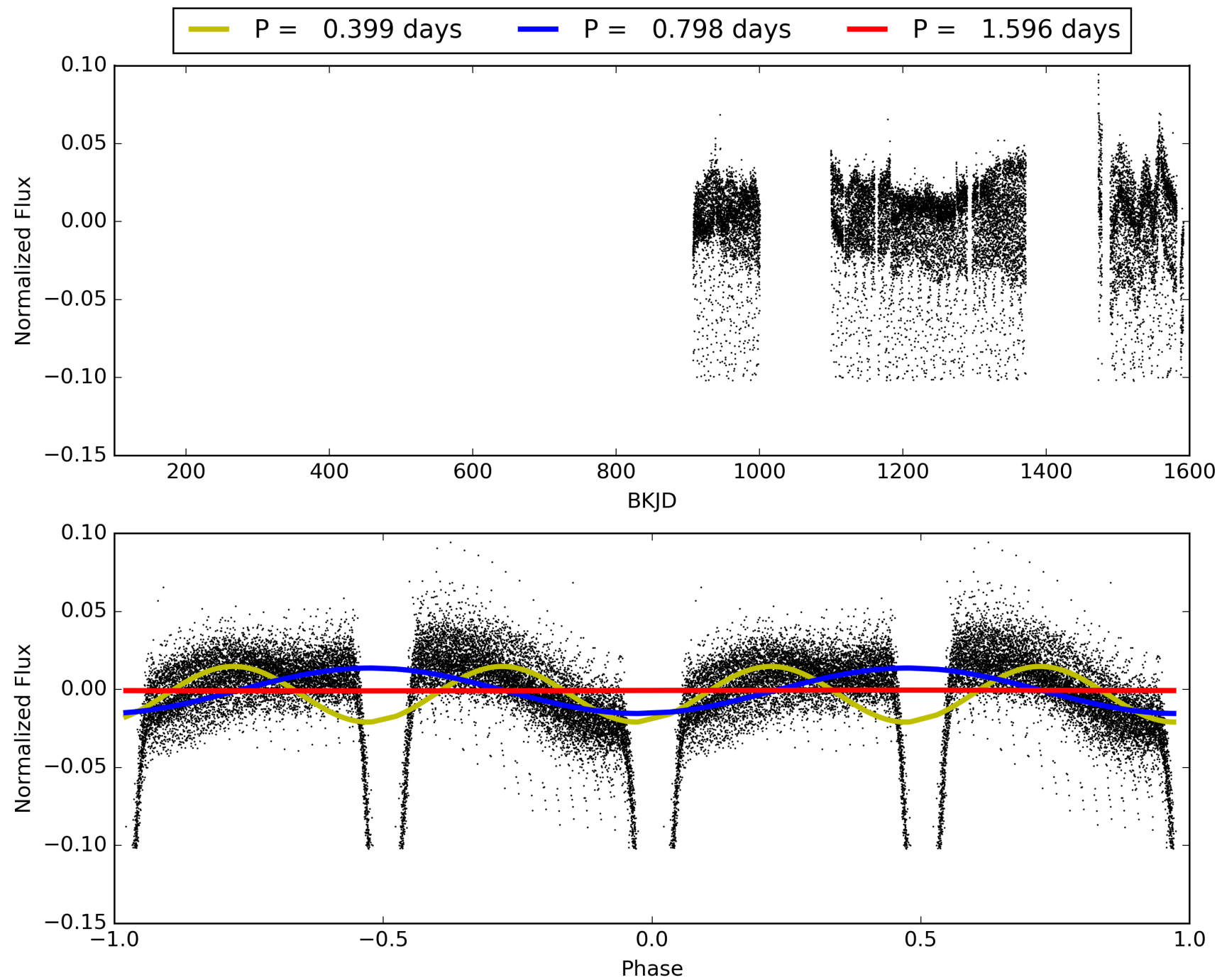
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 01-Feb-2016 17:59:51 Z

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

TCE 009784230-02, PDC Light Curves

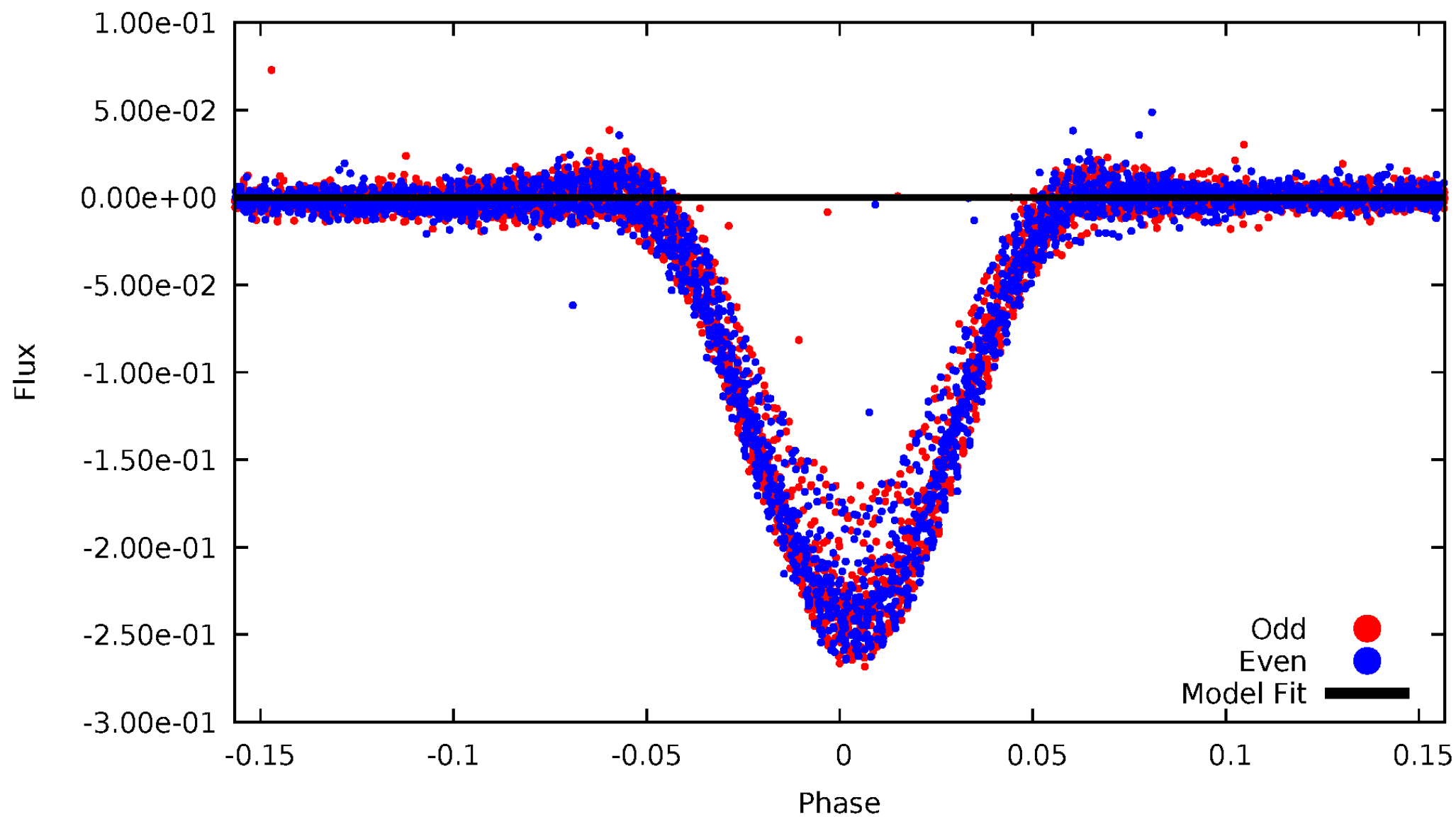


TCE 009784230-02



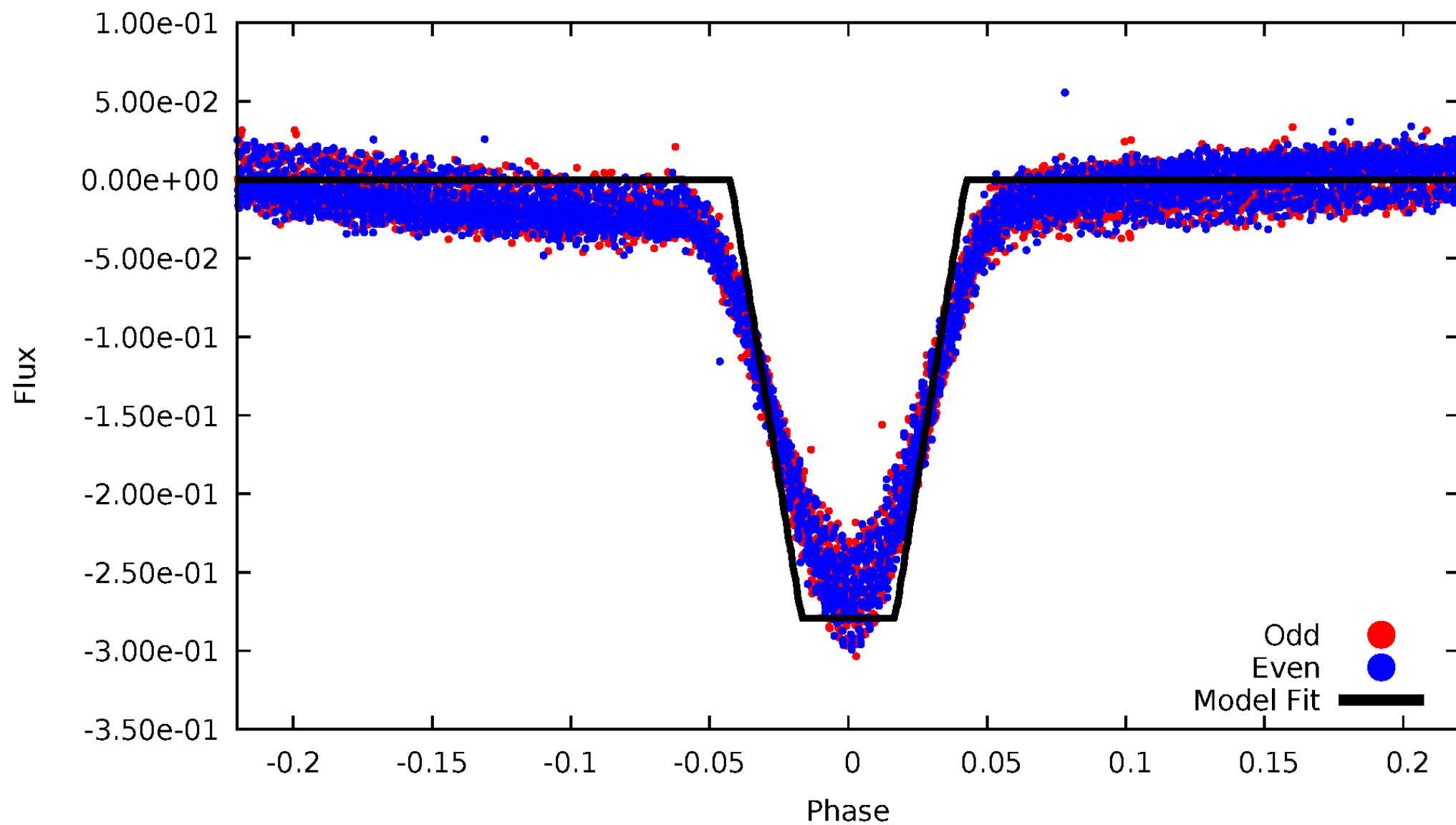
DV Odd/Even

TCE 009784230-02



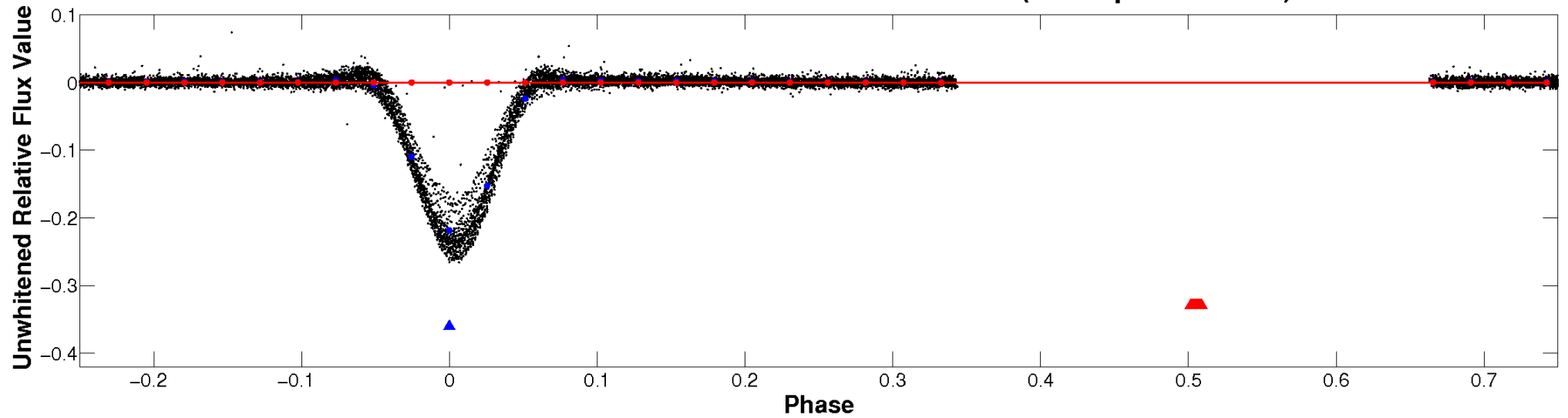
ALT Odd/Even

TCE 009784230-02

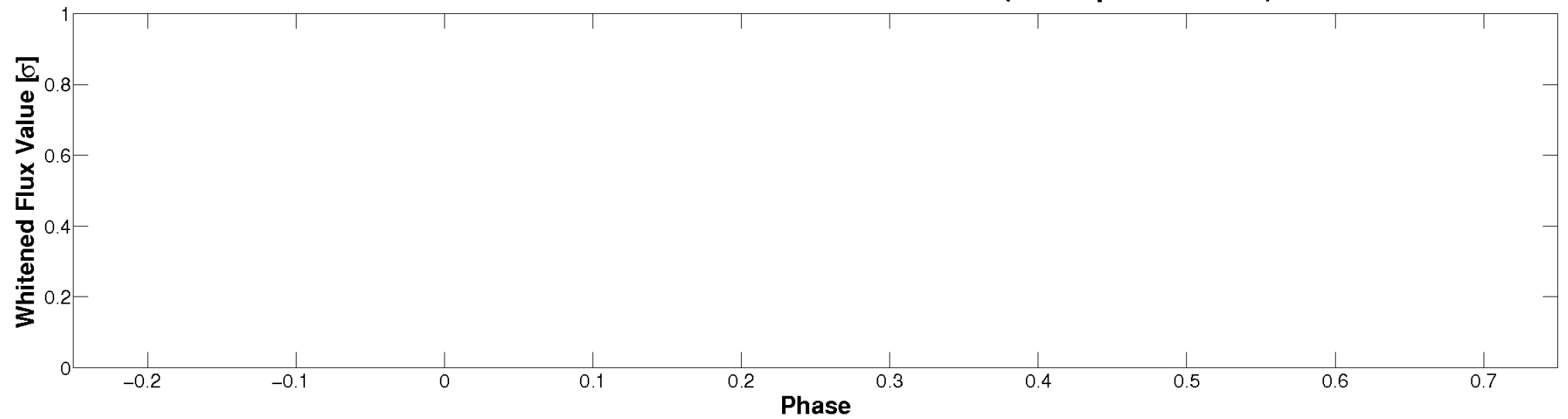


Non-Whitened Vs. Whitened Light Curve

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

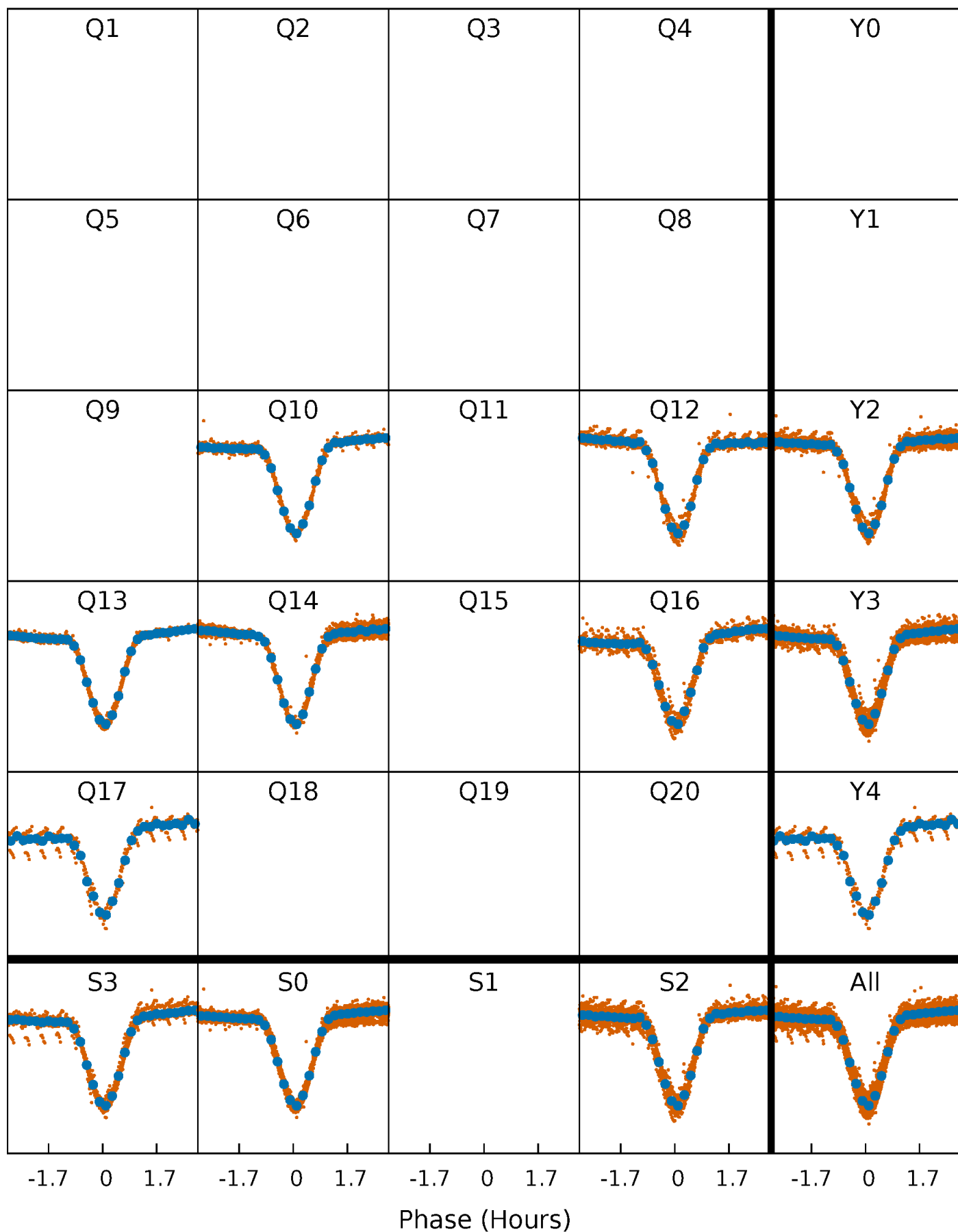


Planet 2 : Phased Whitened Flux Time Series (TPS Epoch/Period)



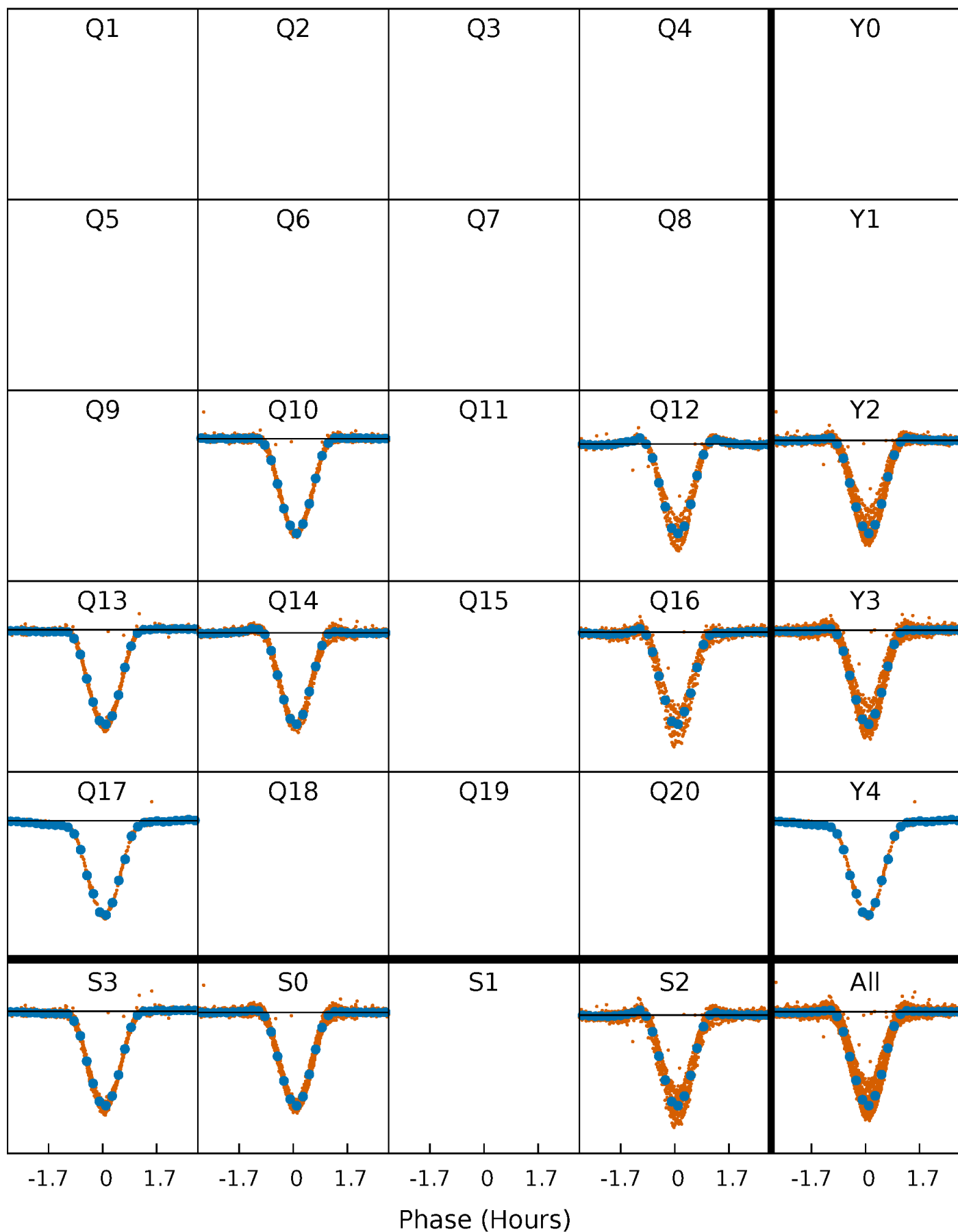
PDC Quarter-Phased Transit Curves

TCE 009784230-02 P= 0.798200 Days $T_0=131.564119$ (BKJD)



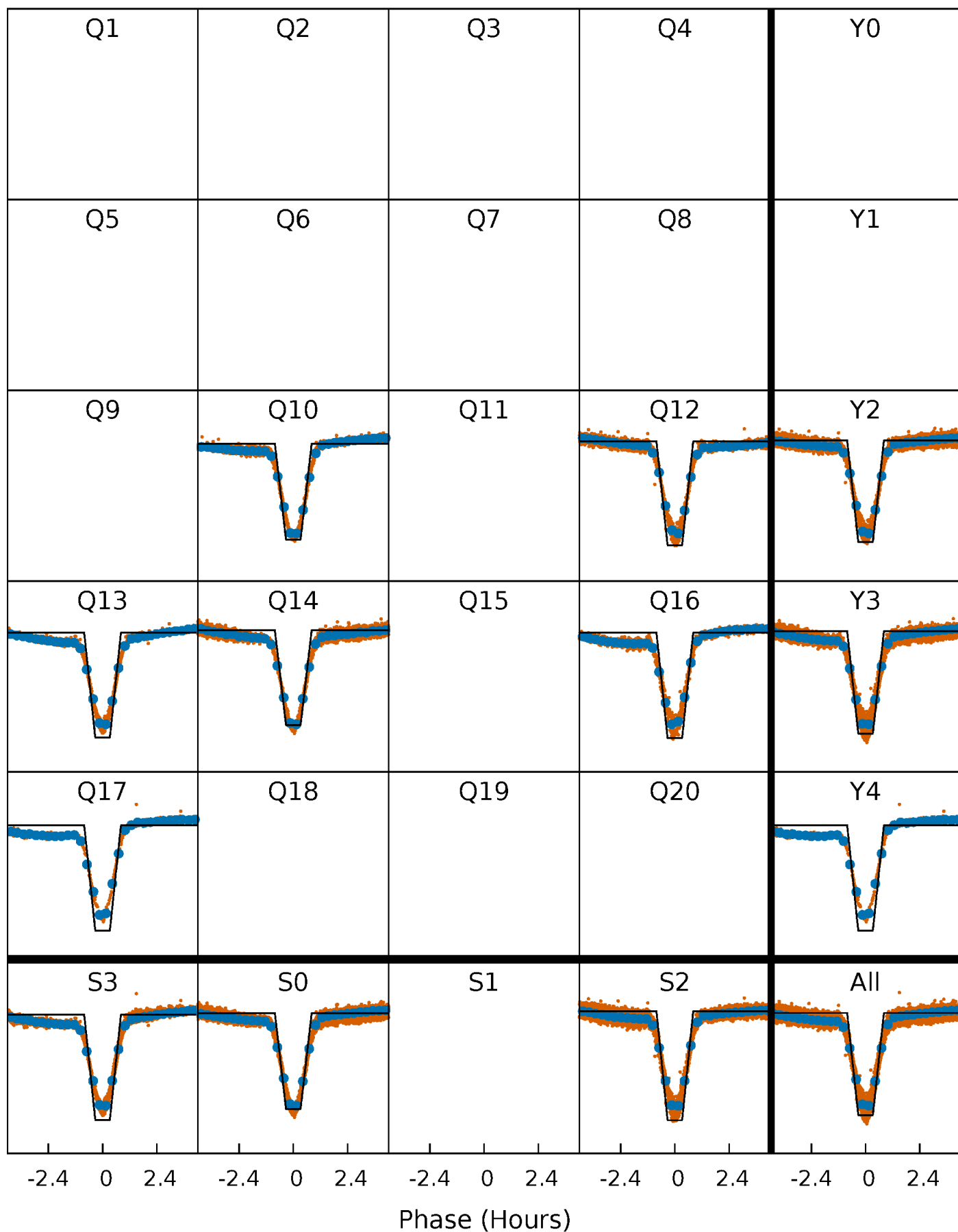
DV Quarter-Phased Transit Curves

TCE 009784230-02 P= 0.798200 Days $T_0=131.564119$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

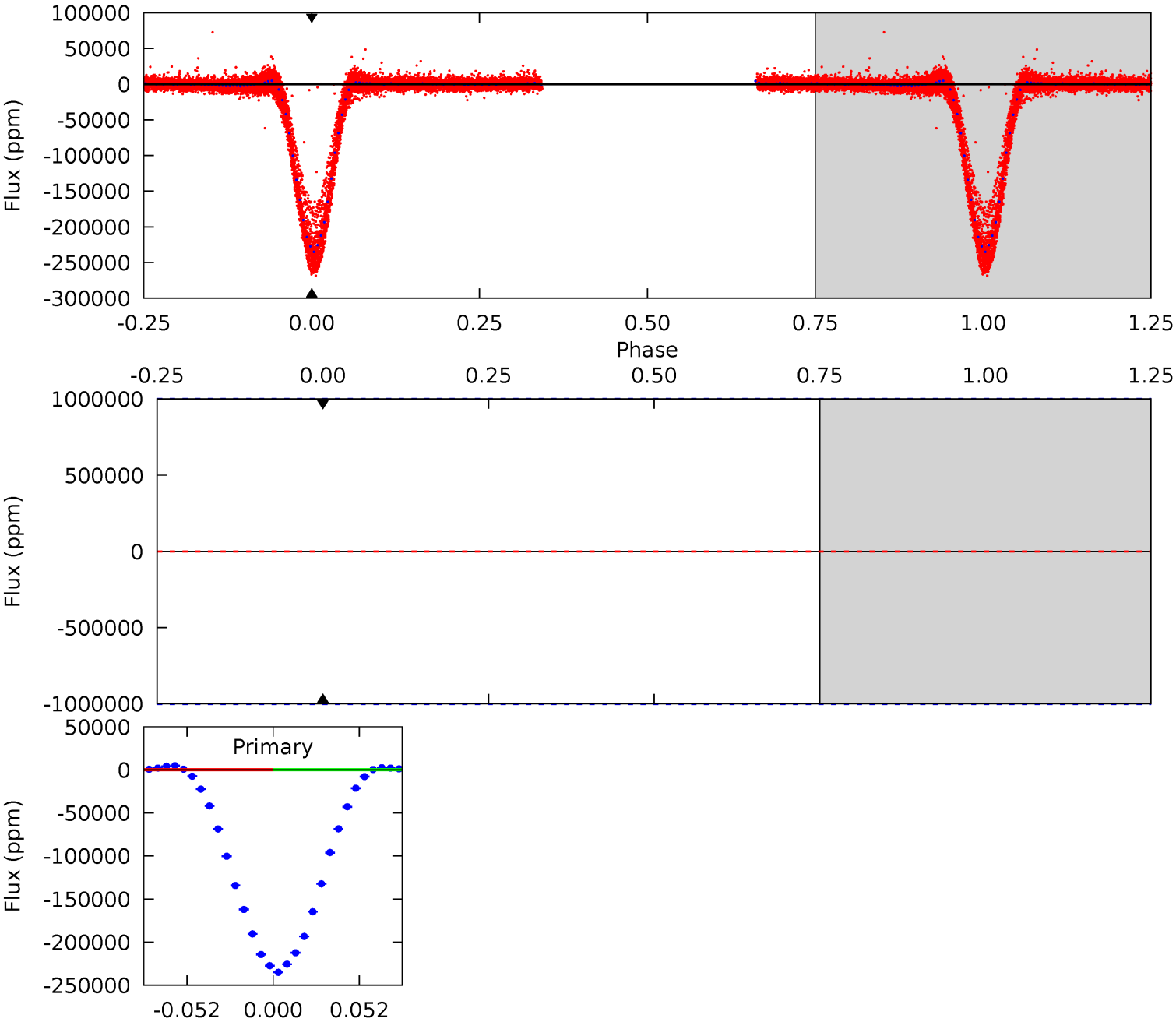
TCE 009784230-02 P= 0.798200 Days $T_0=131.566353$ (BKJD)



DV Model-Shift Uniqueness Test

009784230-02, P = 0.798200 Days, E = 131.564119 Days

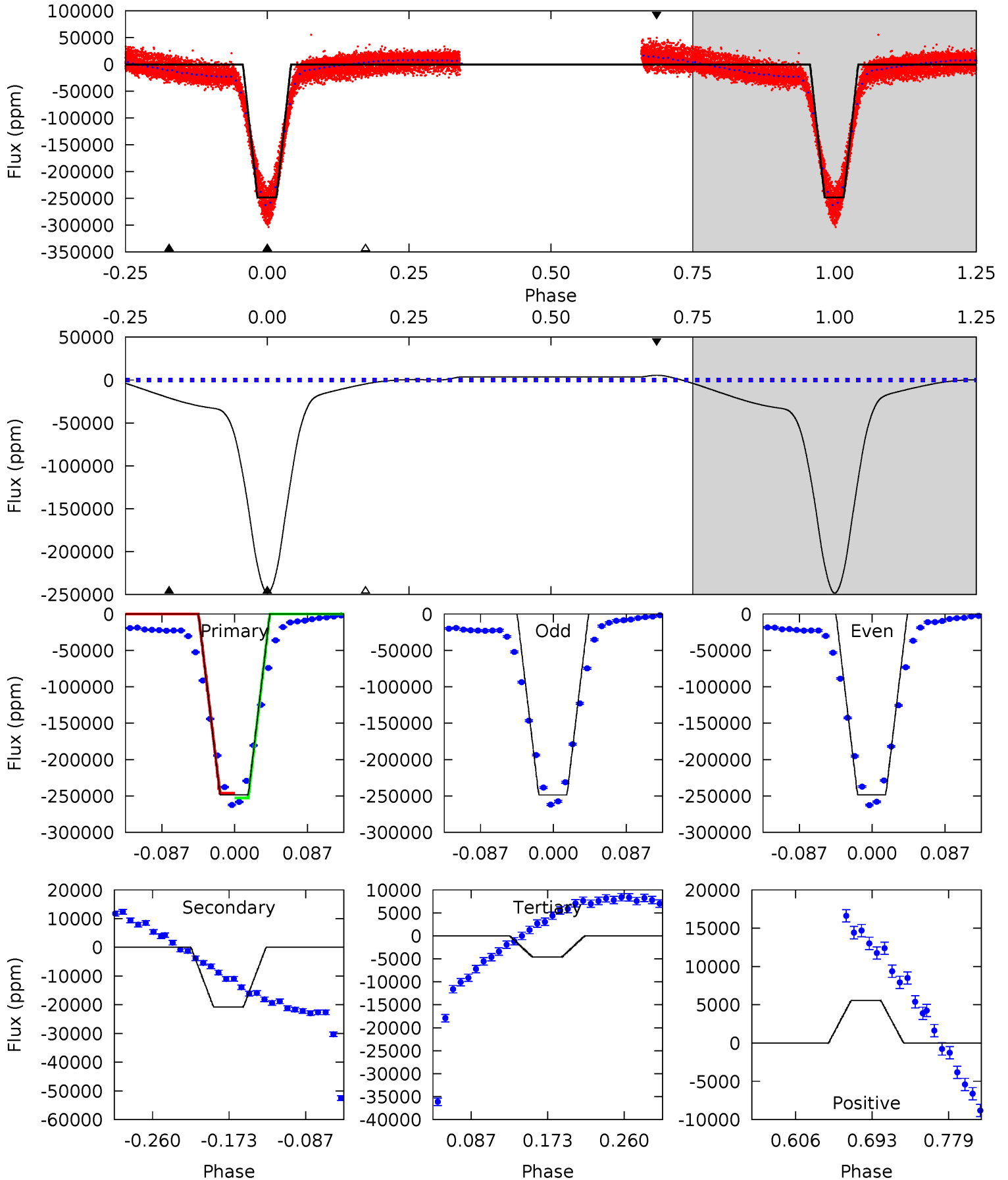
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
0	0	0	0	1.00	1.00	1.00	0	0	0	0	0	0	0	0



Alt Model-Shift Uniqueness Test

009784230-02, P = 0.798200 Days, E = 131.566353 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
808.1	67.7	14.9	18.1	4.59	1.71	19.2	793.2	790.0	52.8	49.6	0.28	1.00	0.02	9.32



Stellar Parameters For KIC 009784230

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	5780^{+1}_{-1}	$4.438^{+1.000}_{-1.000}$	$0.000^{+1.000}_{-1.000}$	$1.000^{+1.000}_{-1.000}$	$-1.000^{+1.000}_{-1.000}$	$-1.000^{+1.000}_{-1.000}$
	+0%/-0%	+23%/-23%	+inf%/-inf%	+100%/-100%	+100%/-100%	+100%/-100%
Source	Solar	Solar	Solar	Solar		

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

Secondary Eclipse Parameters for KIC 009784230-02 / KOI 3851.01

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	0 ± 1000000	$47.35^{+11.61}_{-10.81}$	2741^{+131}_{-124}	-2707^{+7929}_{-2251}	$0.147^{+8.419}_{-6.537}$
Alt.	-20816 ± 307	$57.35^{+12.44}_{-11.03}$	2743^{+131}_{-123}	3318^{+319}_{-261}	$1.001^{+0.549}_{-0.298}$

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 $A_{obs} \gg 1.0$

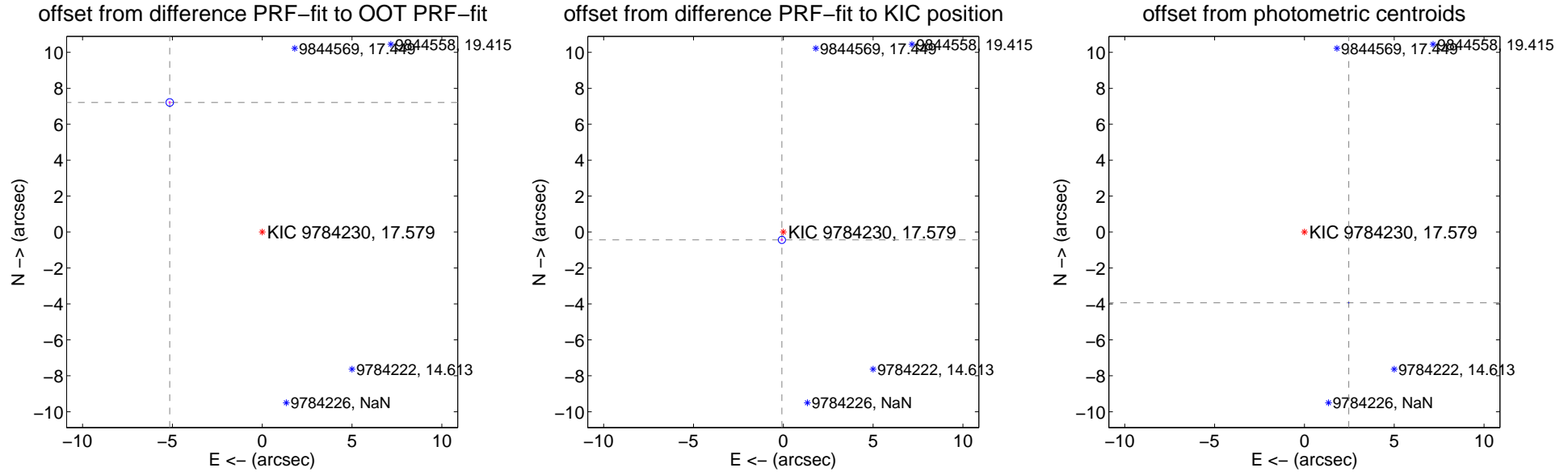
DV Centroid Data

Supplemental centroid analysis for 009784230-02. Kepler magnitude: 17.58. Transit SNR -1.00

There are 6 quarters with good PRF difference image offsets

The OOT PRF centroid is offset from the target star catalog position by about 9.22 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	8.860 ± 0.070	126.10	5.148 ± 0.068	7.211 ± 0.069
PRF-fit source offset from KIC position	0.444 ± 0.067	6.62	0.080 ± 0.069	-0.437 ± 0.067
photometric centroid source offset	4.65 ± 0.00	2936.41	-2.47 ± 0.00	-3.94 ± 0.00



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.

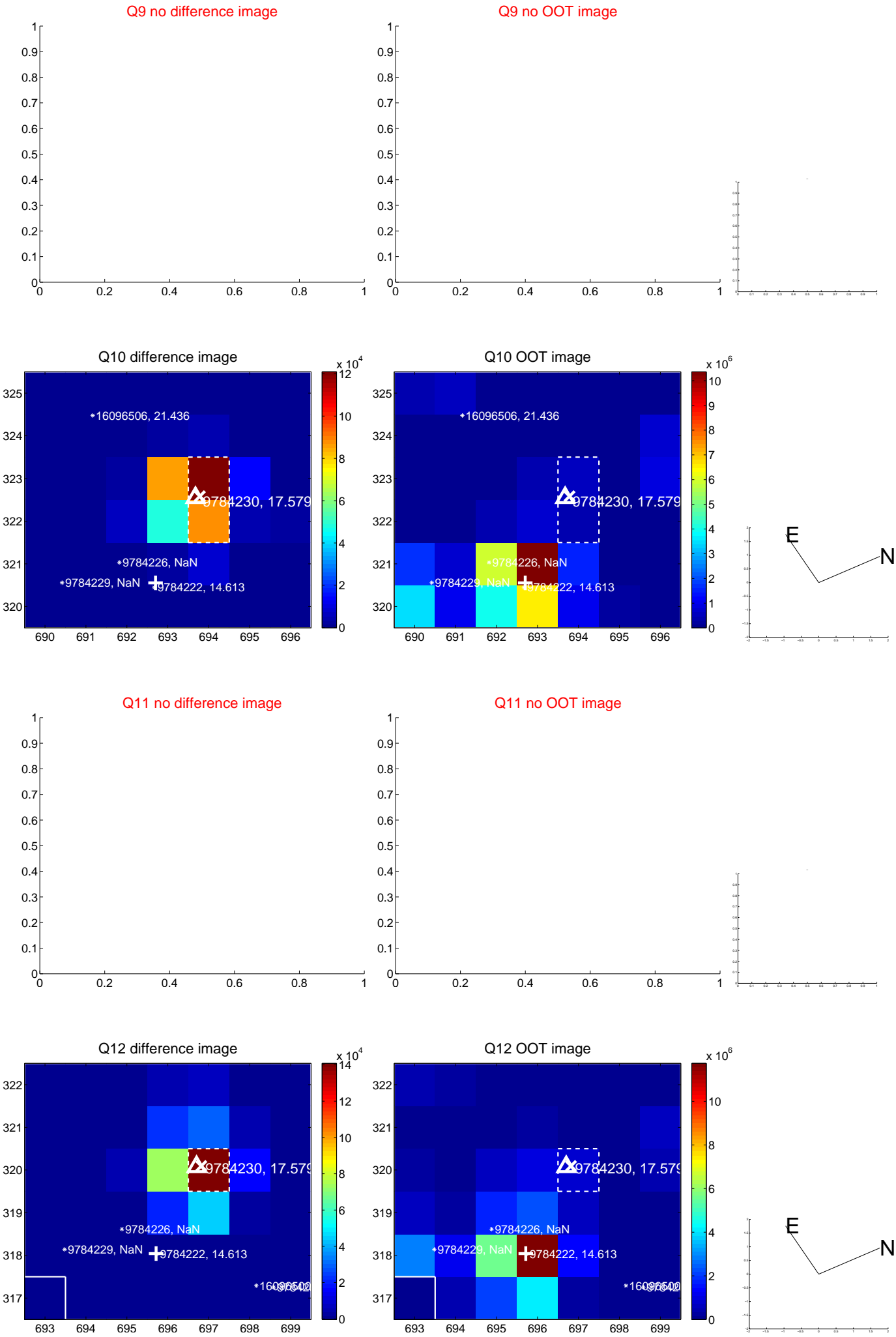
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



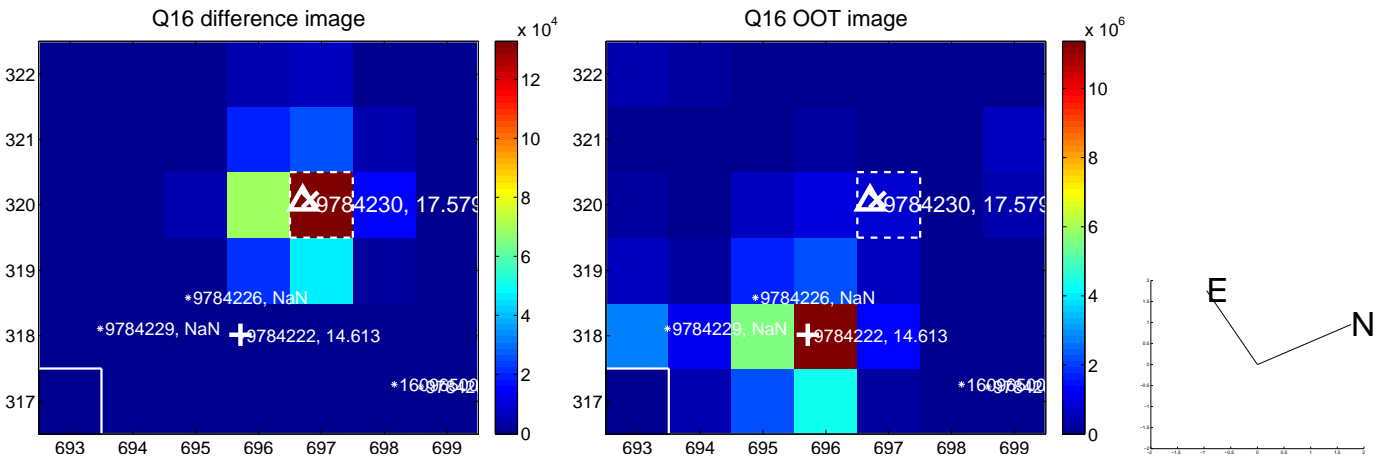
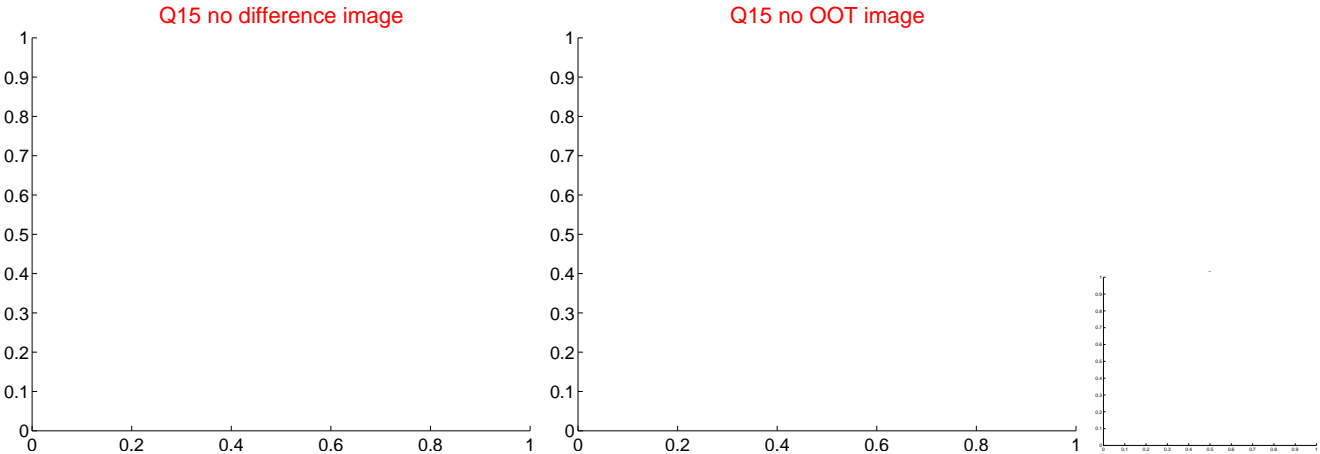
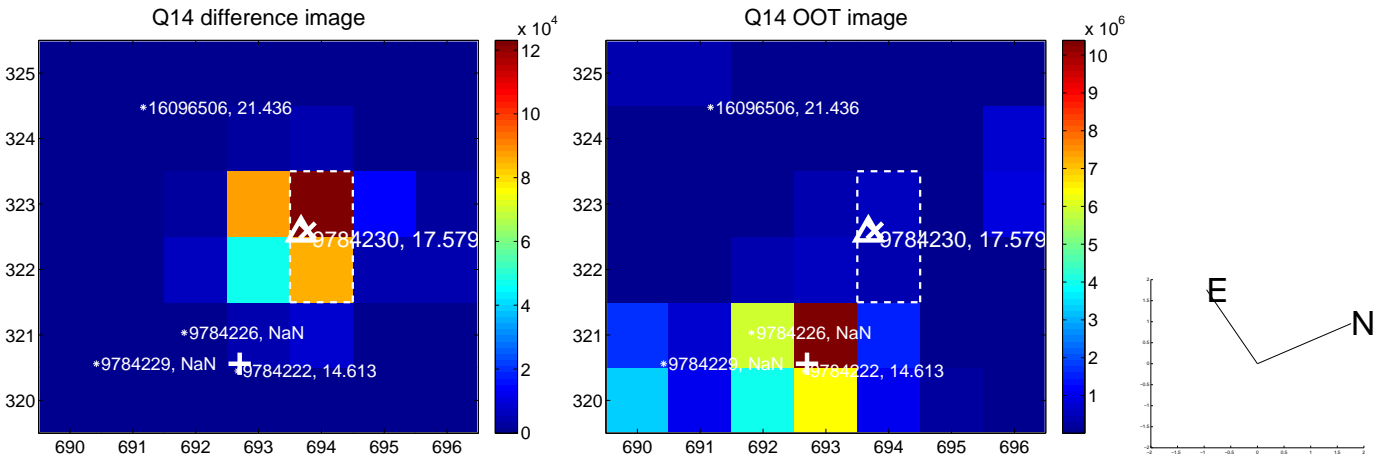
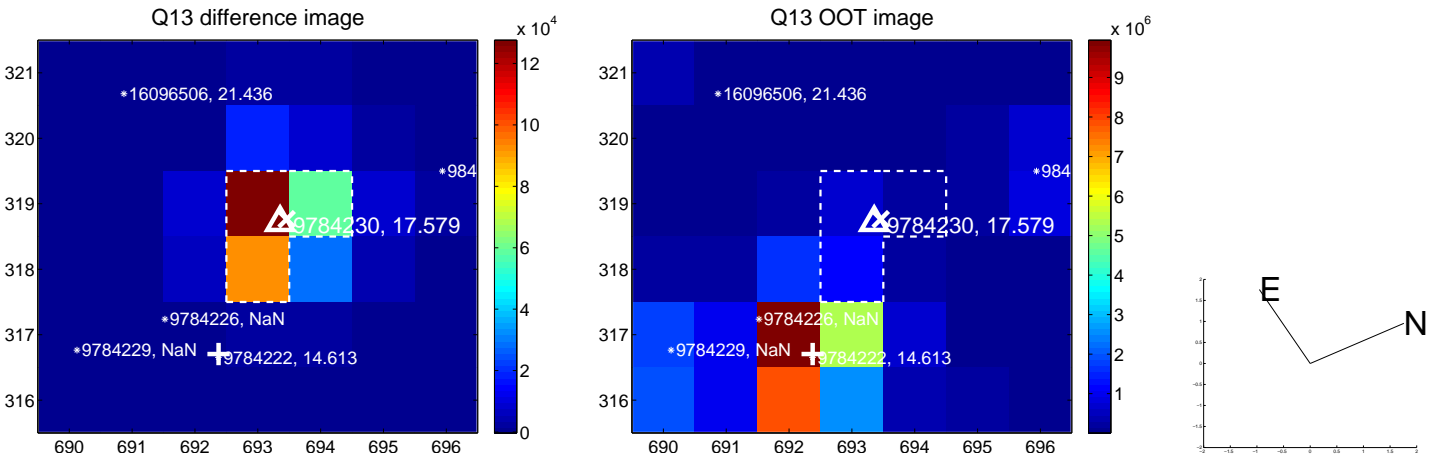
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



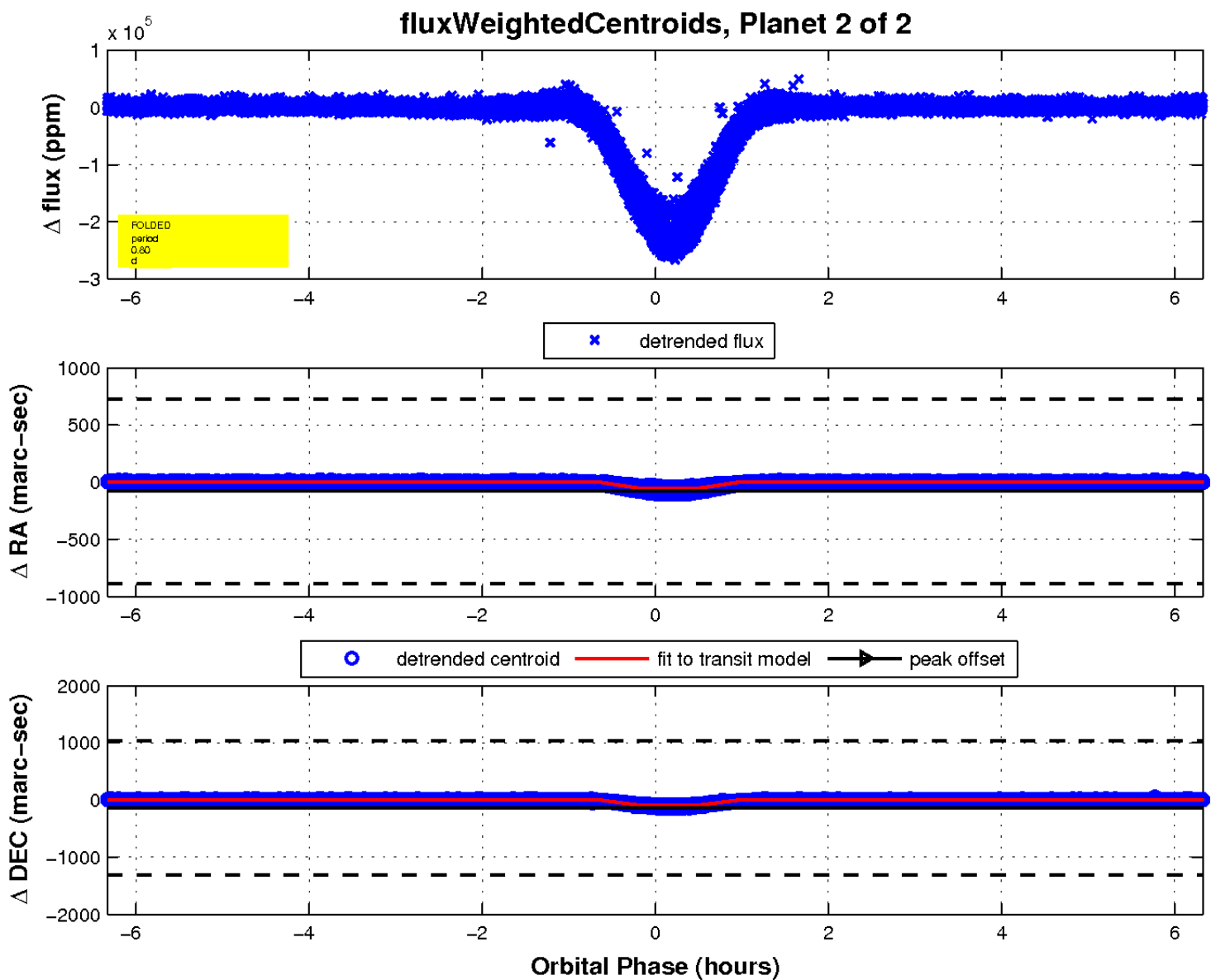
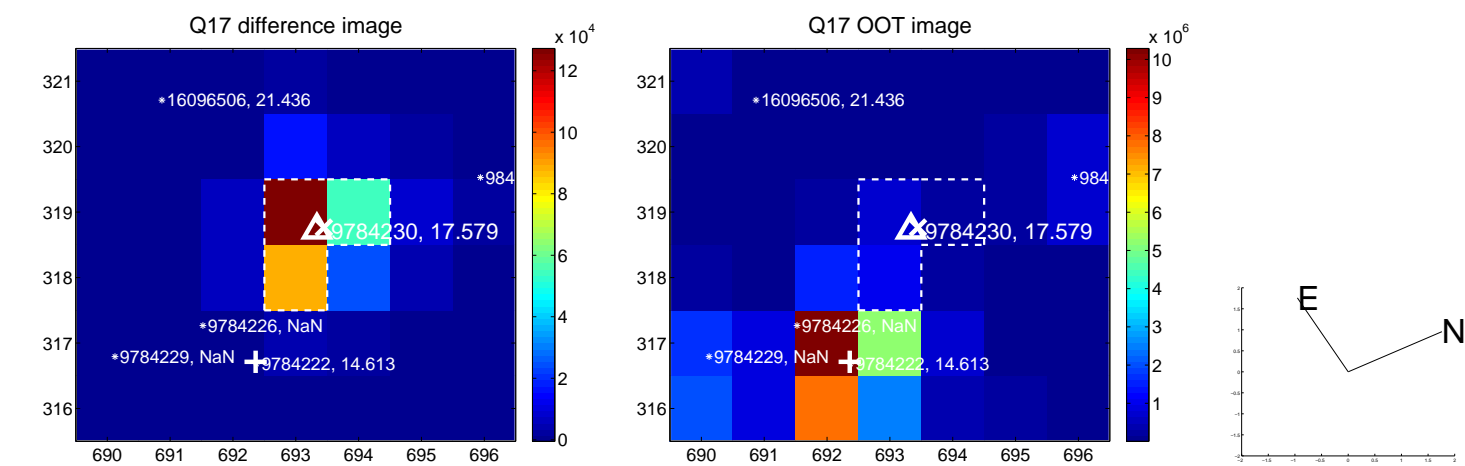
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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



UKIRT Image

Declination

