

KIC 004579321

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})
004579321-01	OBS	3657.01	2.112411	131.915828	344184.2	2.686	1719.2	953.1	1.00	5780	63.73	962.87
004579321-02	OBS	No	2.112405	132.974764	124596.1	2.582	626.9	439.1	1.00	5780	41.98	962.87

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
004579321-01	OBS	FP	0.00	0	1	0	0	MOD_SEC_DV—MOD_SEC_ALT—DEEP_V_SHAPED—HAS_SEC_TCE—SEASONAL_DEPTH_DV—SEASONAL_DEPTH_ALT—CENT_KIC_POS
004579321-02	OBS	FP	0.00	1	1	0	0	IS_SEC_TCE—CENT_KIC_POS

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.

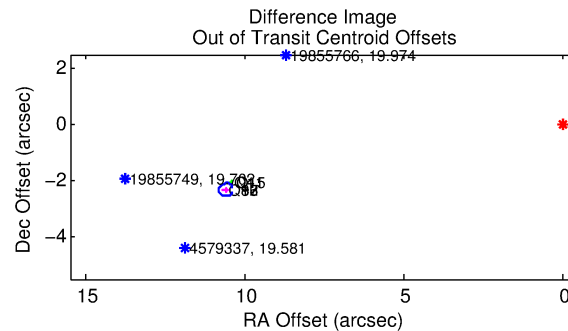
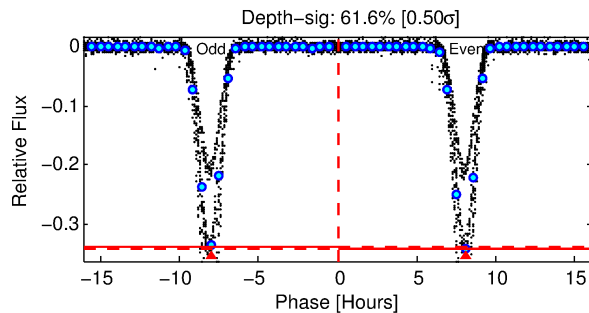
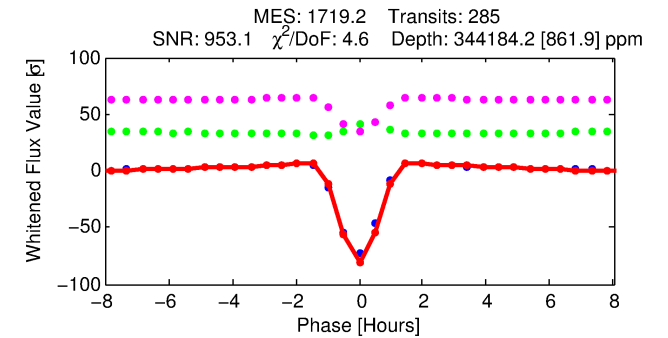
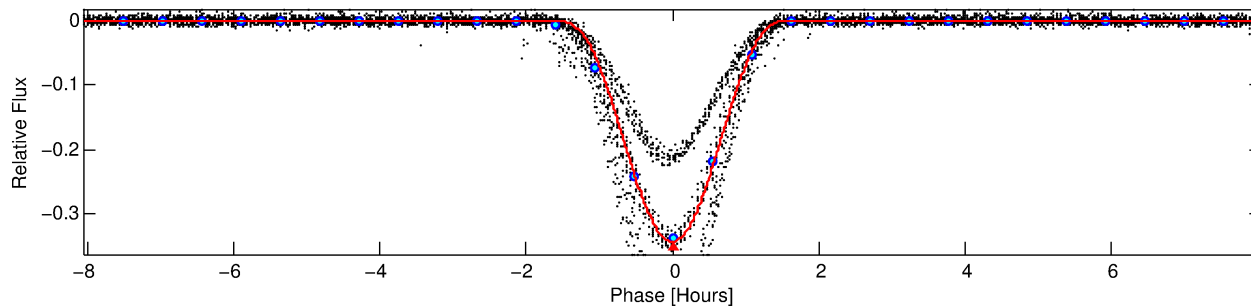
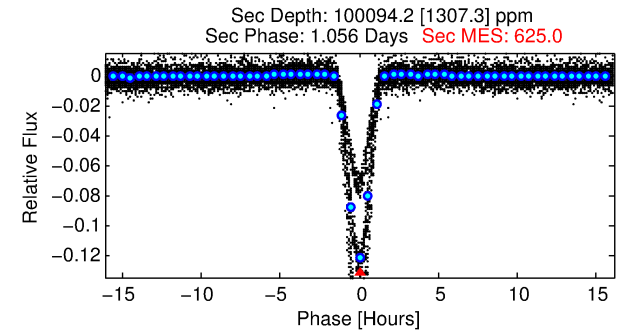
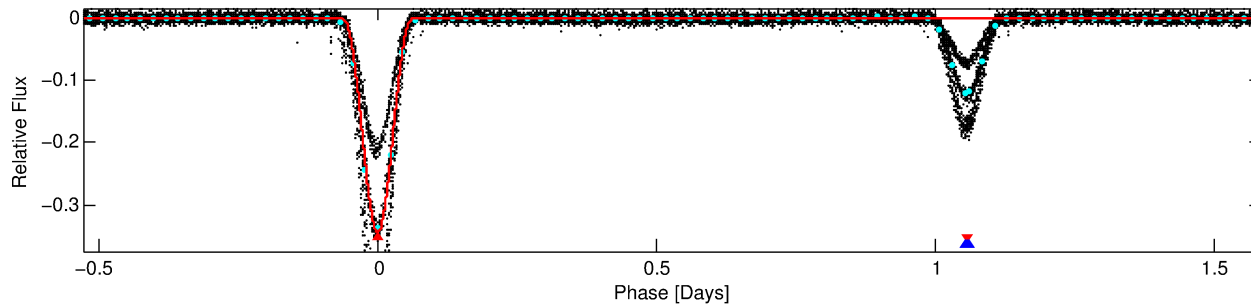
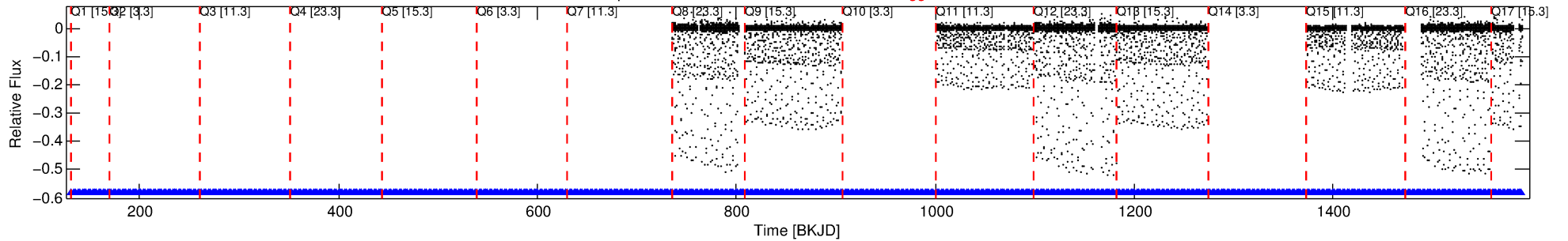
Ephemeris Match Information For 004579321-01

No Significant Match Found

DV One-Page Summary

KIC: 4579321 Candidate: 1 of 2 Period: 2.112 d
KOI: K03657.01 Corr: 0.972

Kp: 17.39 R*: 1.00 Rs Teff: 5780.0 K Logg: 4.44 Fe/H: 0.000



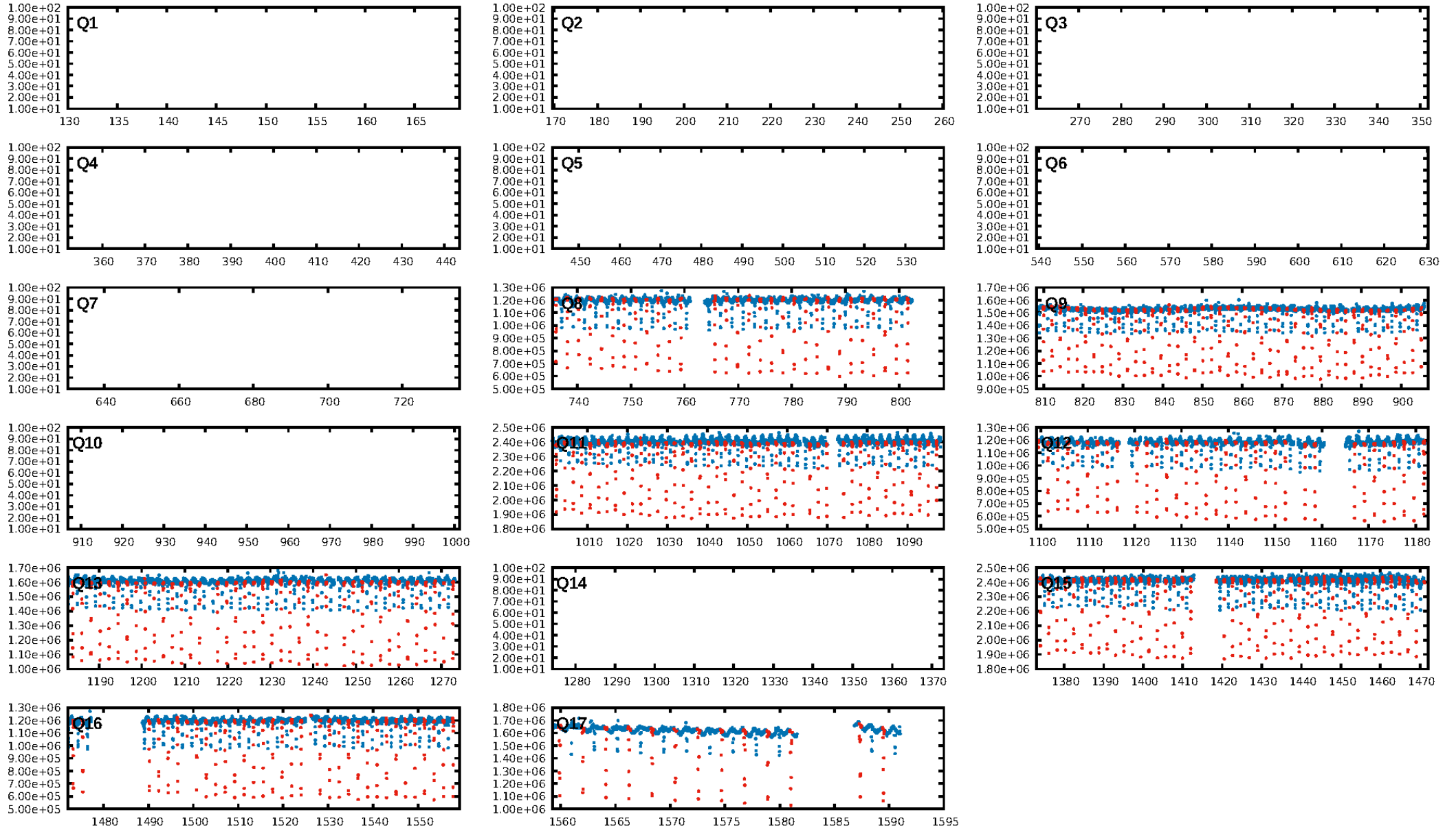
DV Fit Results:

Period = 2.11241 [0.00000] d
Epoch = 131.9158 [0.0000] BKJD
Rp/R* = 0.5840 [0.0108]
a/R* = 9.13 [0.02]
b = 0.48 [0.03]
Seff = 962.87 [0.00]
Teff = 1420 [0] K
Rp = 63.73 [1.18] Re
a = 0.0322 [0.0000] AU
Ag = 14.08 [0.55] [23.73 sigma]
Teffp = 4254 [42] K [68.06 sigma]

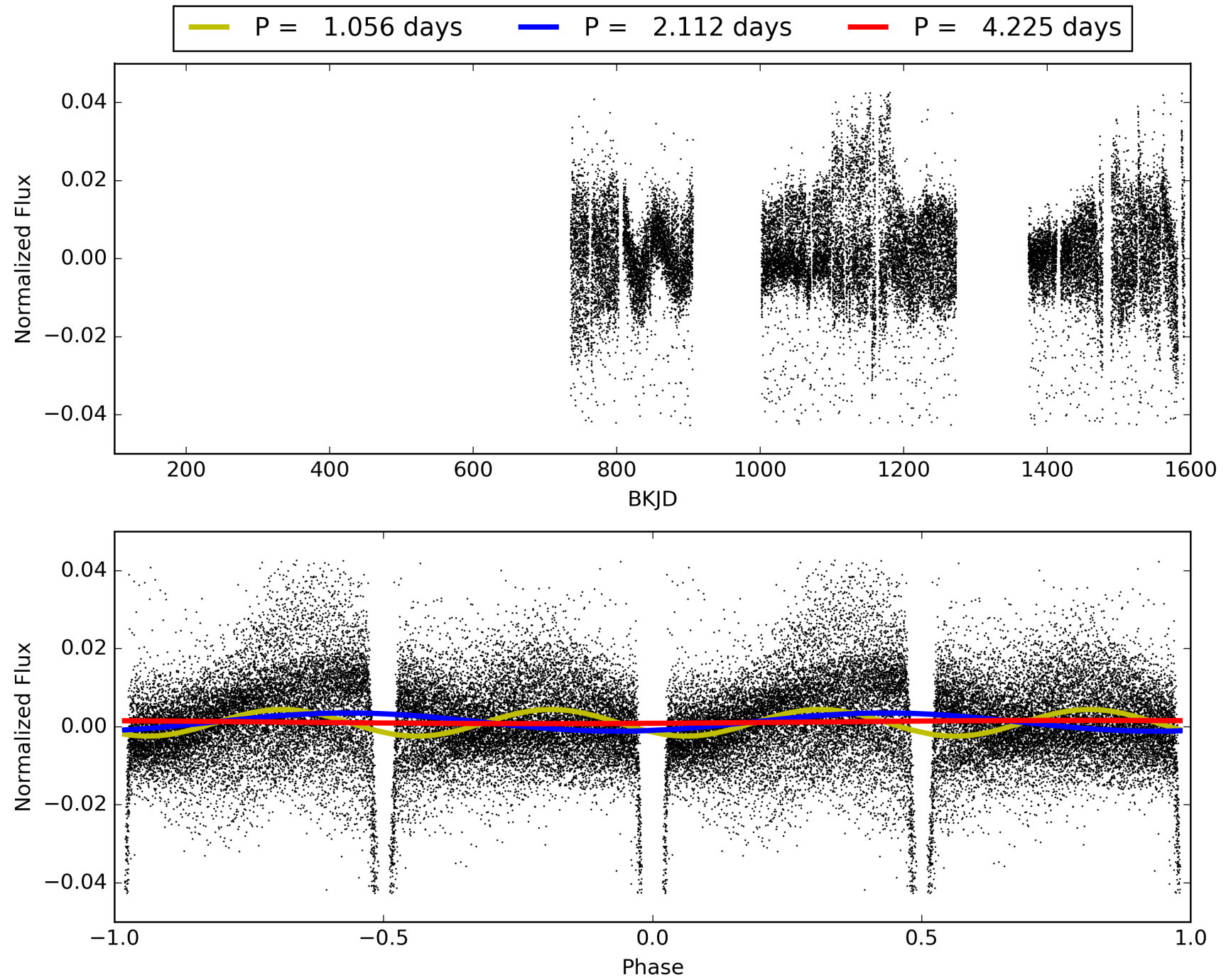
DV Diagnostic Results:

ShortPeriod-sig: 0.0% [0.00 sigma]
LongPeriod-sig: N/A
ModelChiSquare2-sig: N/A
ModelChiSquareGoF-sig: N/A
Bootstrap-pfa: N/A
RollingBand-fgt: 1.00 [272/272]
GhostDiagnostic-chr: 2.224
Centroid-sig: N/A
Centroid-so: 4.277 arcsec [5067.20 sigma]
OotOffset-rm: 10.860 arcsec [139.47 sigma]
KicOffset-rm: 0.227 arcsec [3.24 sigma]
OotOffset-st: 0/2/3/3 [8]
KicOffset-st: 0/2/3/3 [8]
DiffImageQuality-fgm: 1.00 [8/8]
DiffImageOverlap-fno: 1.00 [8/8]

TCE 004579321-01, PDC Light Curves

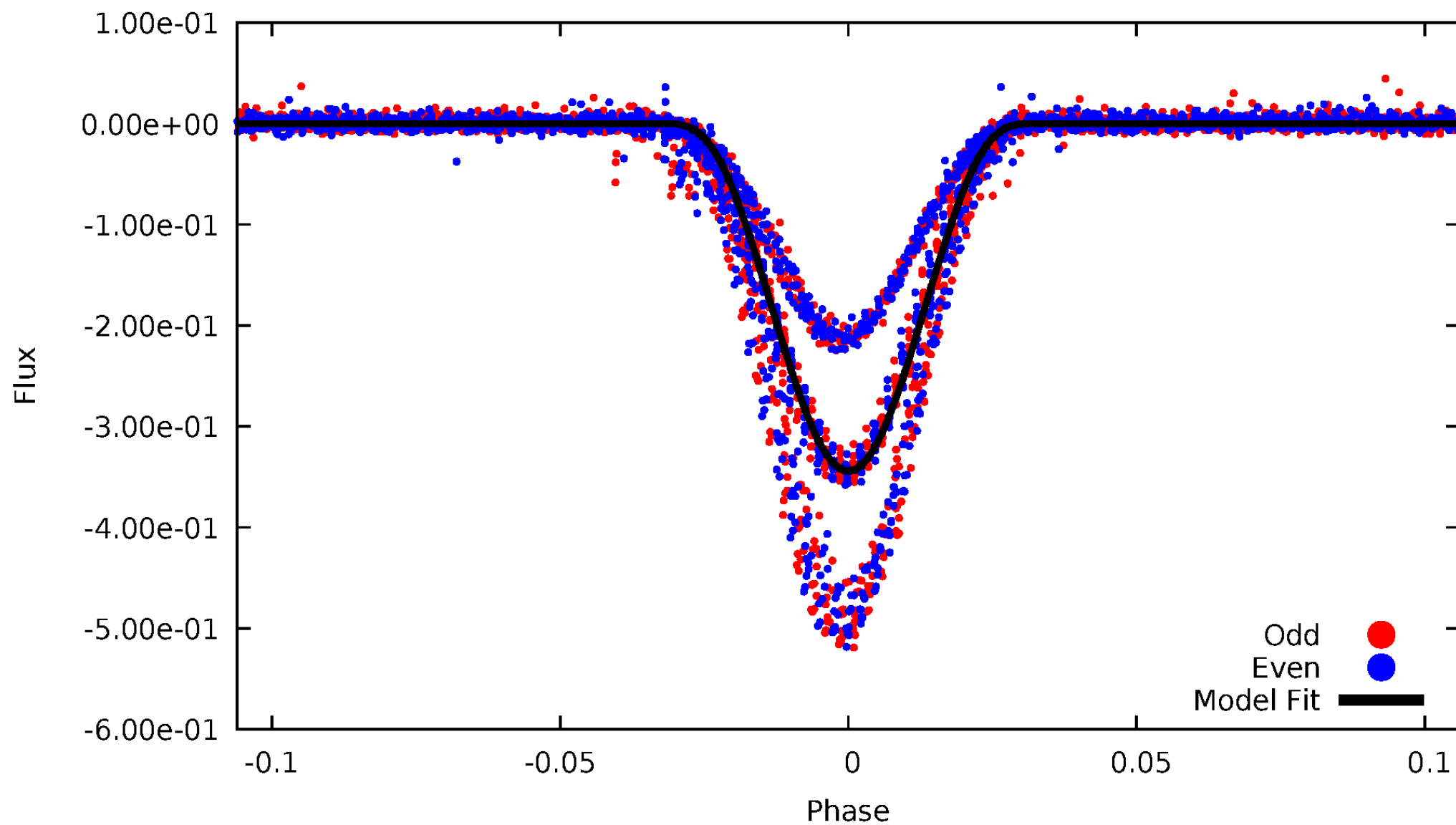


TCE 004579321-01



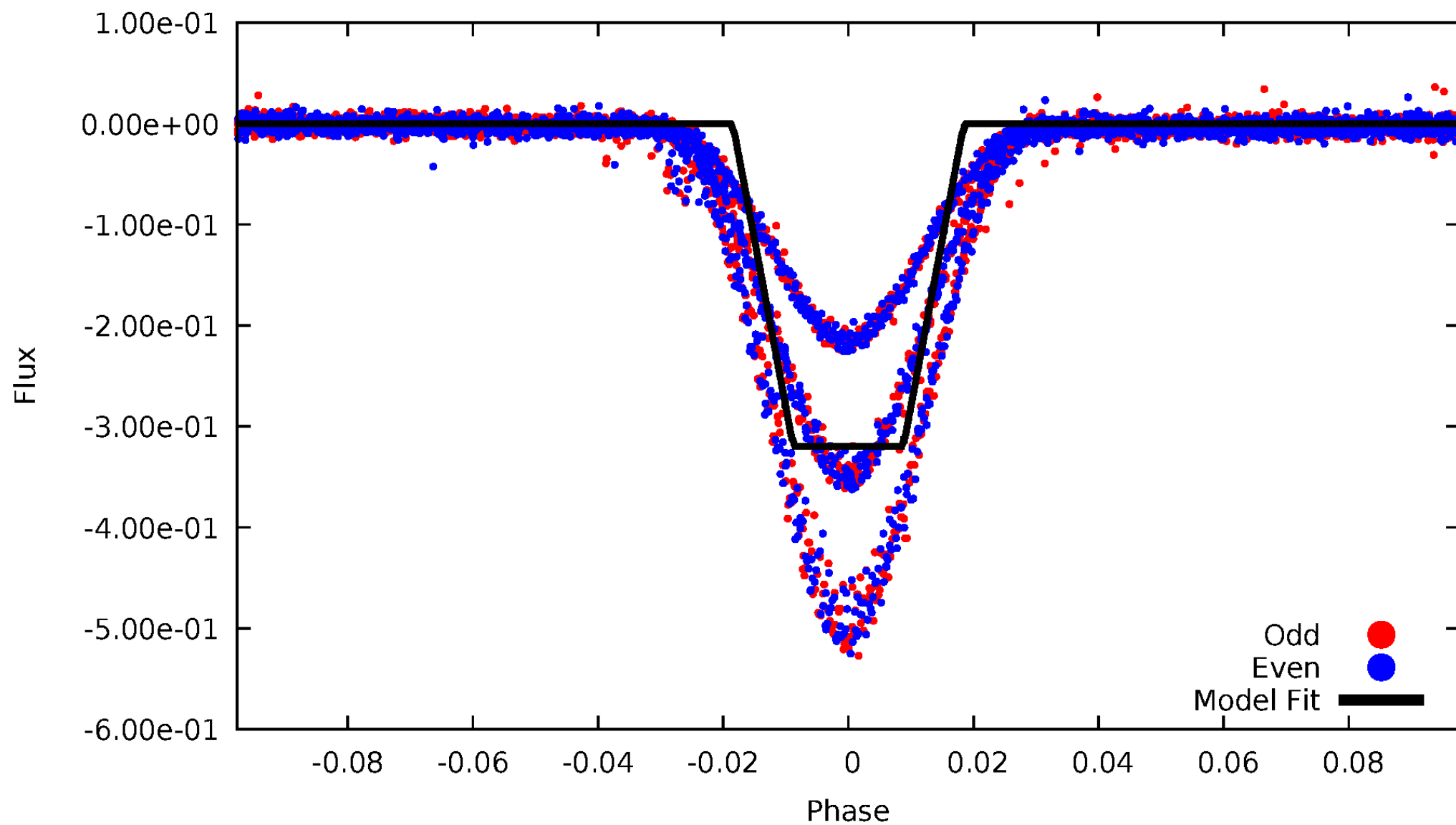
DV Odd/Even

TCE 004579321-01



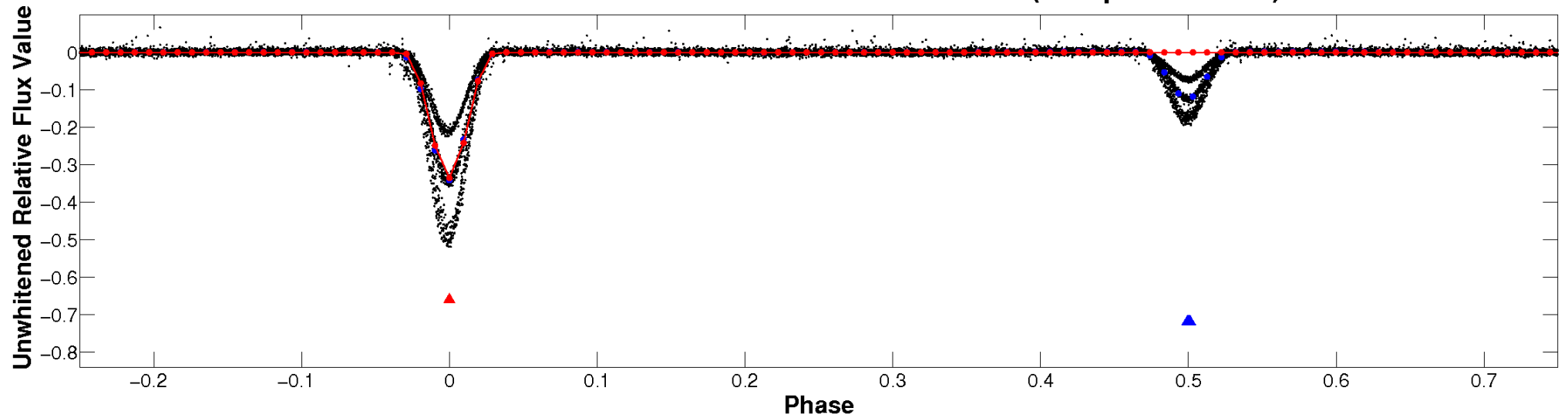
ALT Odd/Even

TCE 004579321-01

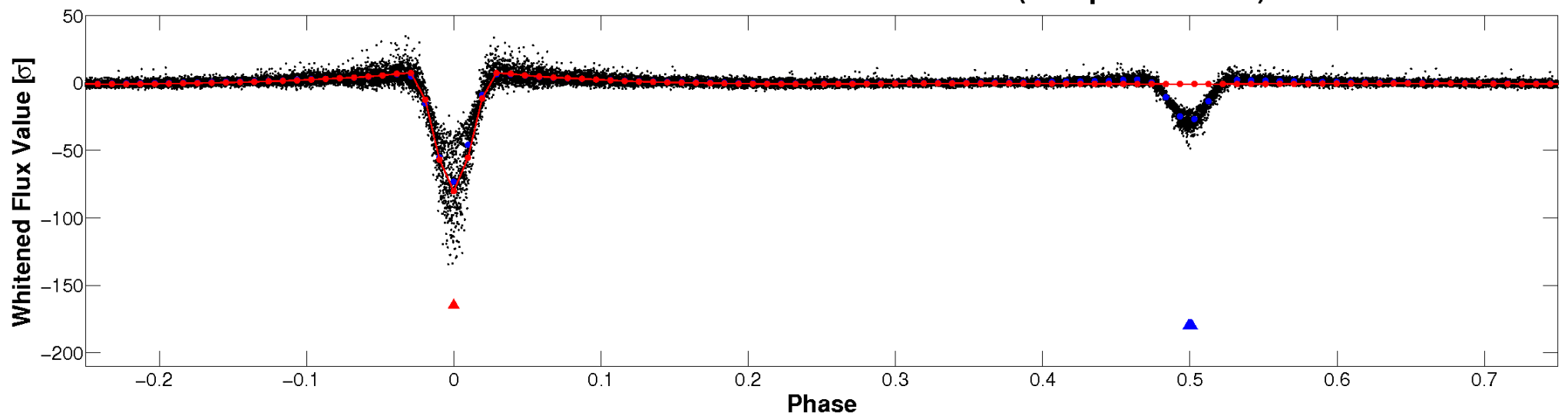


Non-Whitened Vs. Whitened Light Curve

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

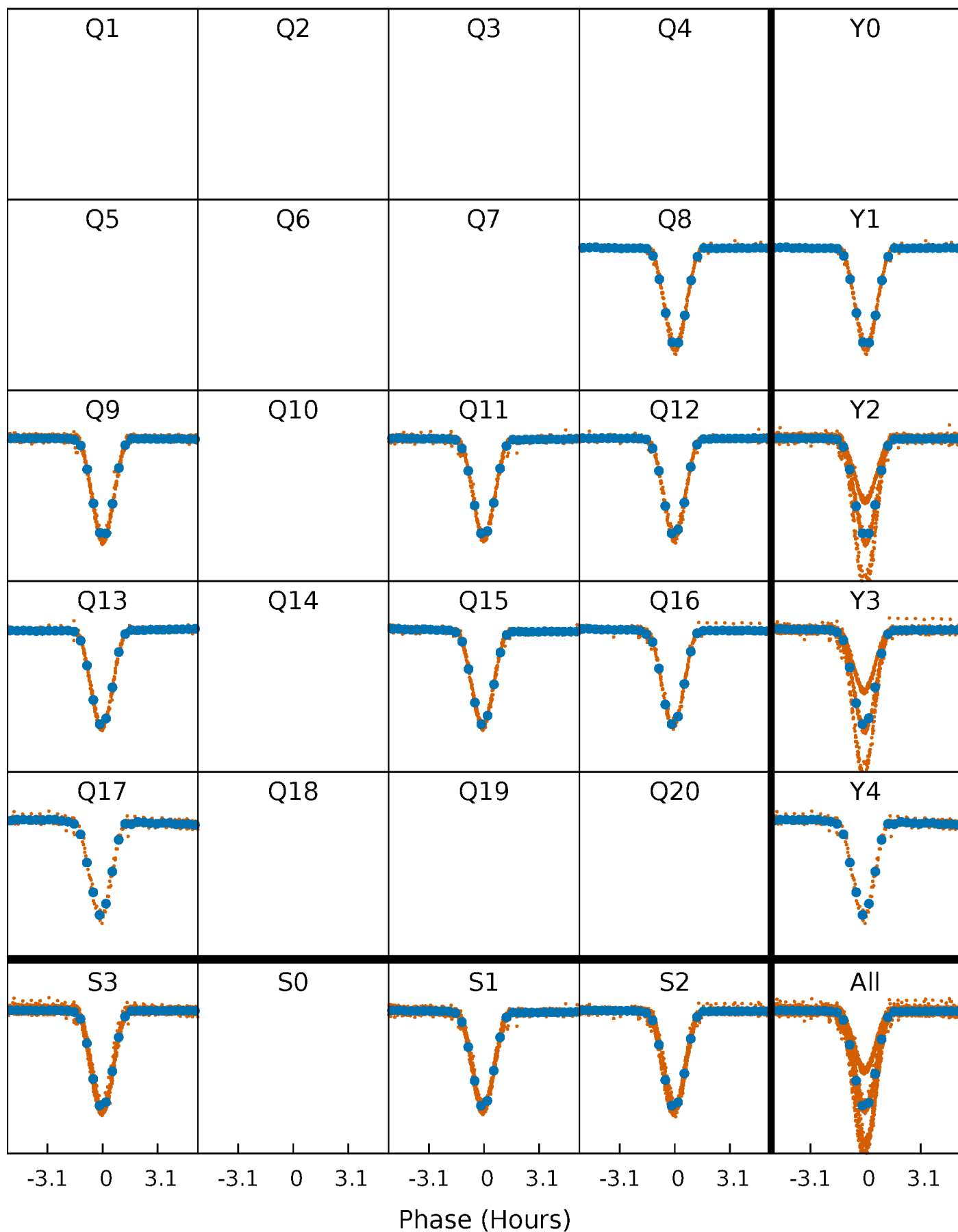


Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)



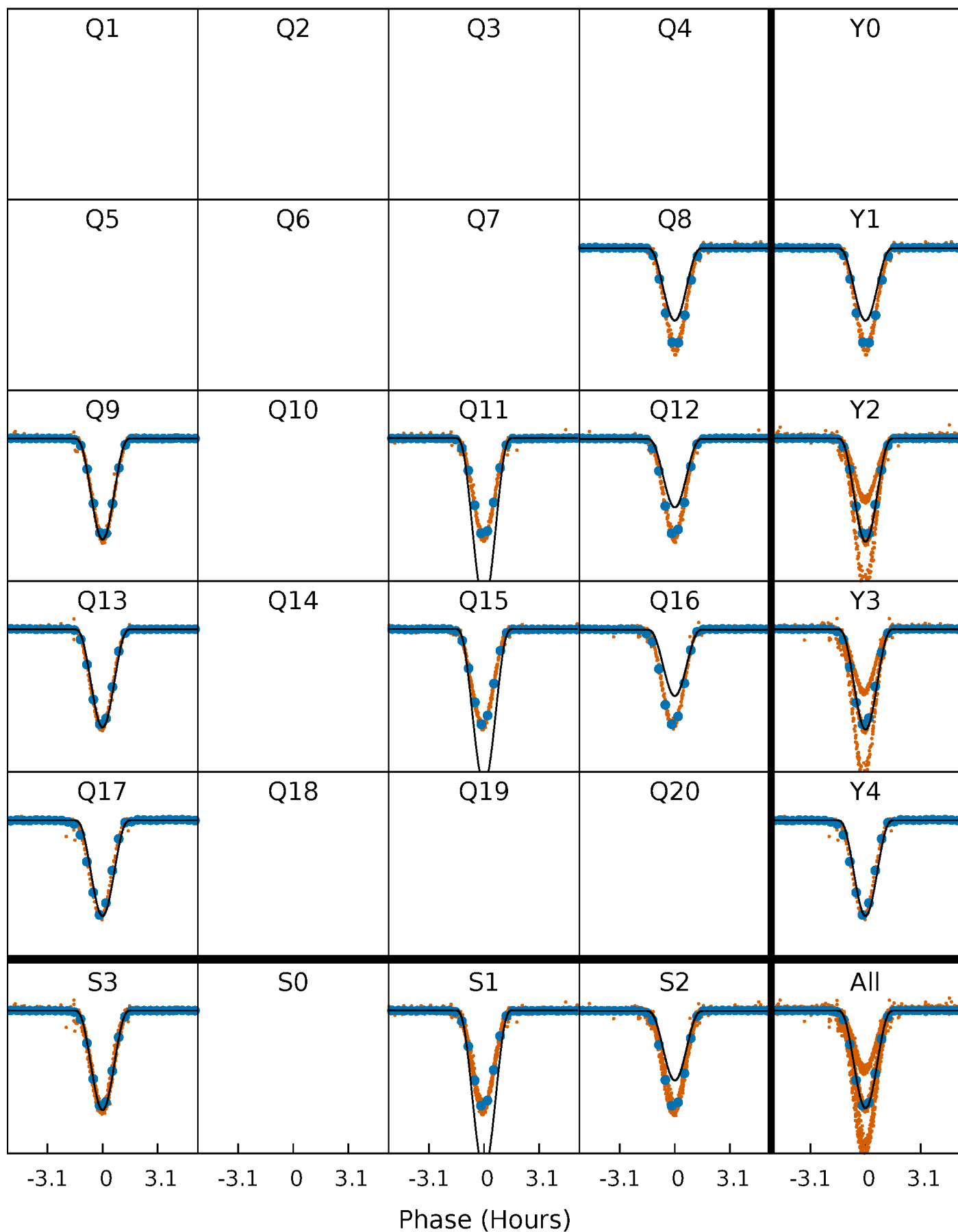
PDC Quarter-Phased Transit Curves

TCE 004579321-01 P= 2.112411 Days $T_0=131.915828$ (BKJD)



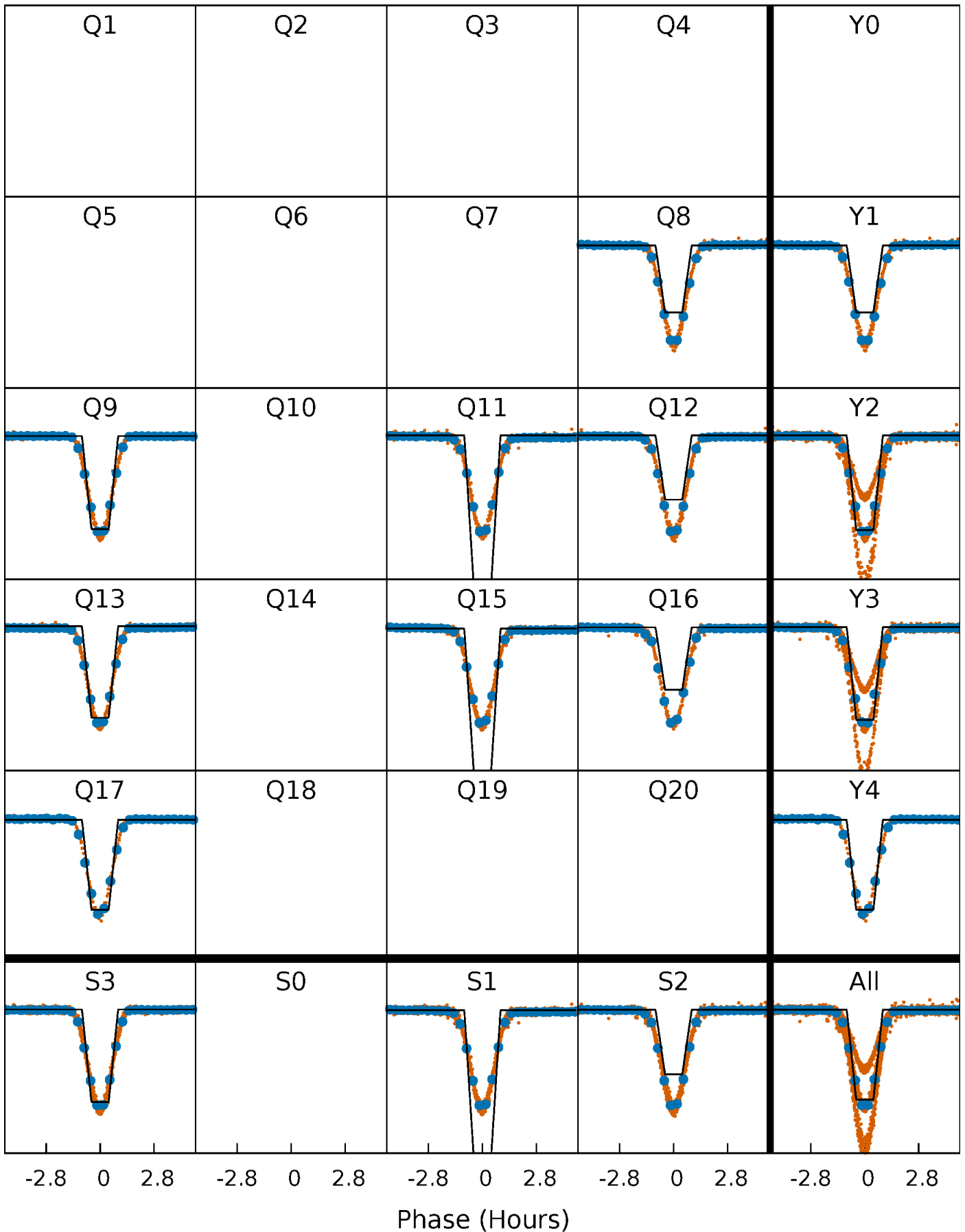
DV Quarter-Phased Transit Curves

TCE 004579321-01 P= 2.112411 Days $T_0=131.915828$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

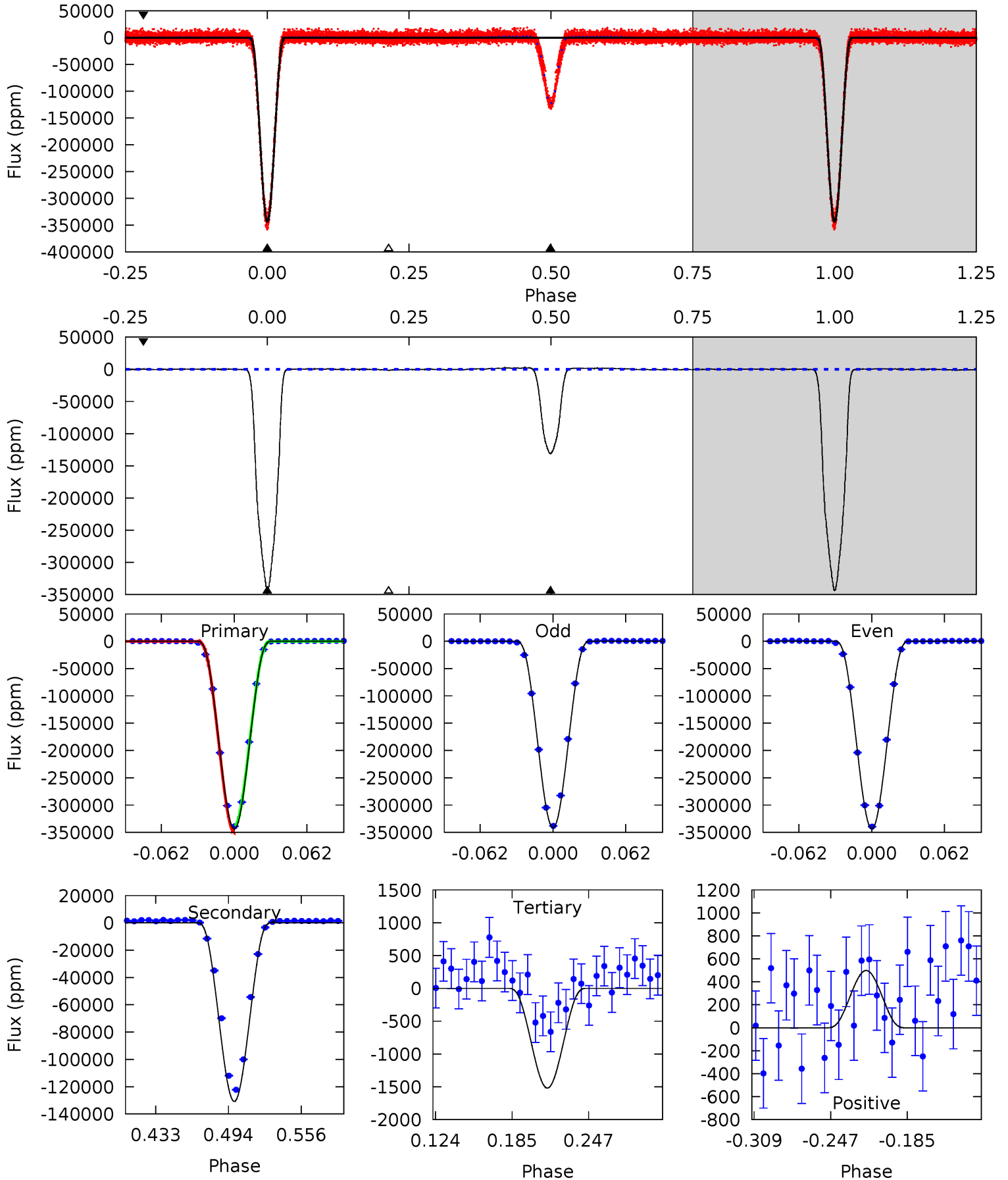
TCE 004579321-01 P= 2.112400 Days $T_0=131.919909$ (BKJD)



DV Model-Shift Uniqueness Test

004579321-01, P = 2.112411 Days, E = 131.915828 Days

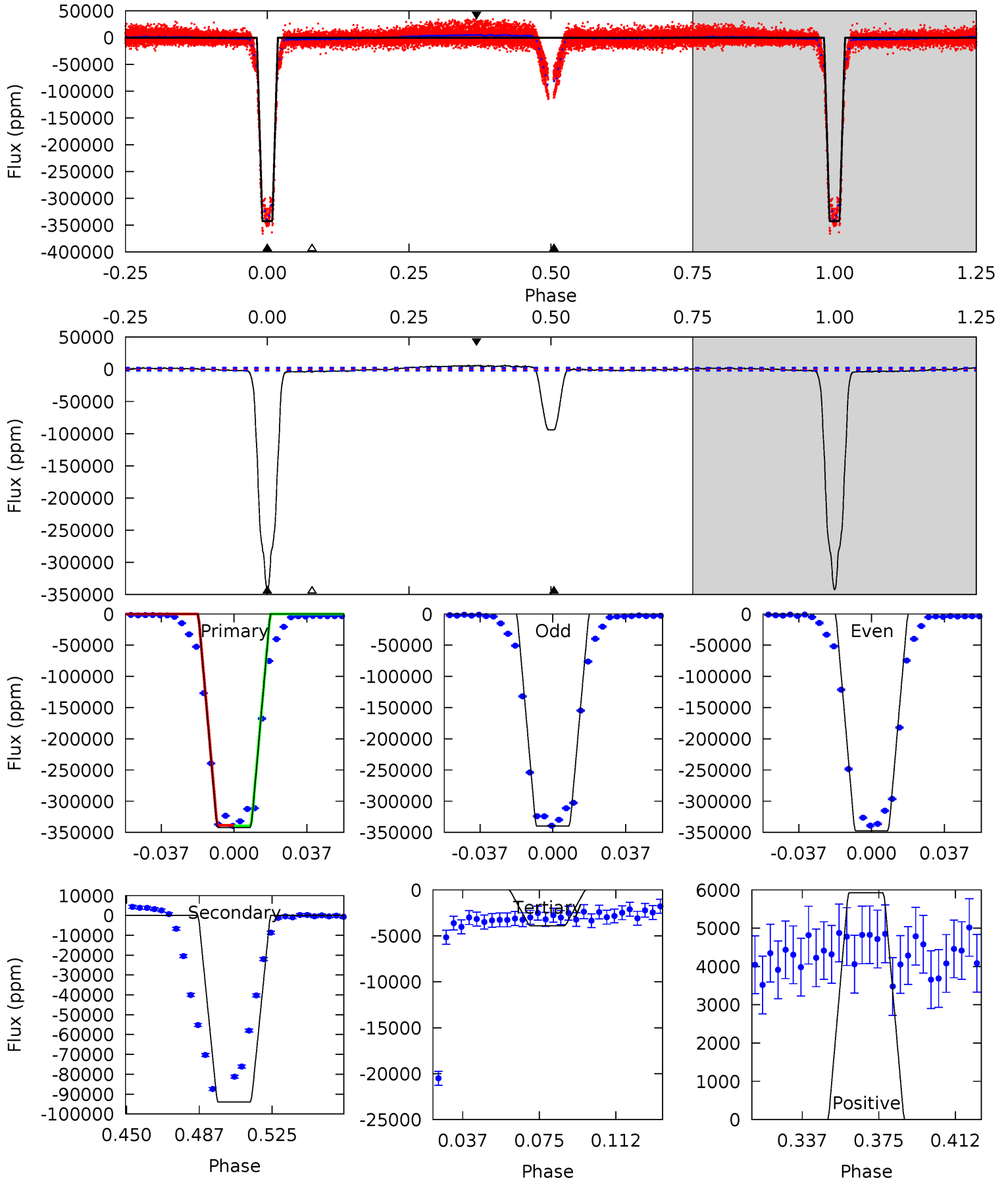
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
2379	905.6	10.5	3.45	4.66	1.87	4.89	2368	2375	895.0	902.1	6.49	1.03	0.01	40.4



Alt Model-Shift Uniqueness Test

004579321-01, P = 2.112400 Days, E = 131.919909 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
754.9	207.3	8.59	13.1	4.77	2.08	5.96	746.3	741.8	198.7	194.2	8.14	1.02	0.02	1.05



Stellar Parameters For KIC 004579321

	$T_{\text{eff}}(K)$	$\log(g)$	[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 004579321-01 / KOI 3657.01

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-130834 ± 144	$63.68^{+4.54}_{-4.33}$	1985^{+91}_{-95}	4825^{+133}_{-167}	21^{+3}_{-3}
Alt.	-94005 ± 453	$61.84^{+4.63}_{-4.40}$	1980^{+96}_{-93}	4513^{+133}_{-136}	16^{+2}_{-2}

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

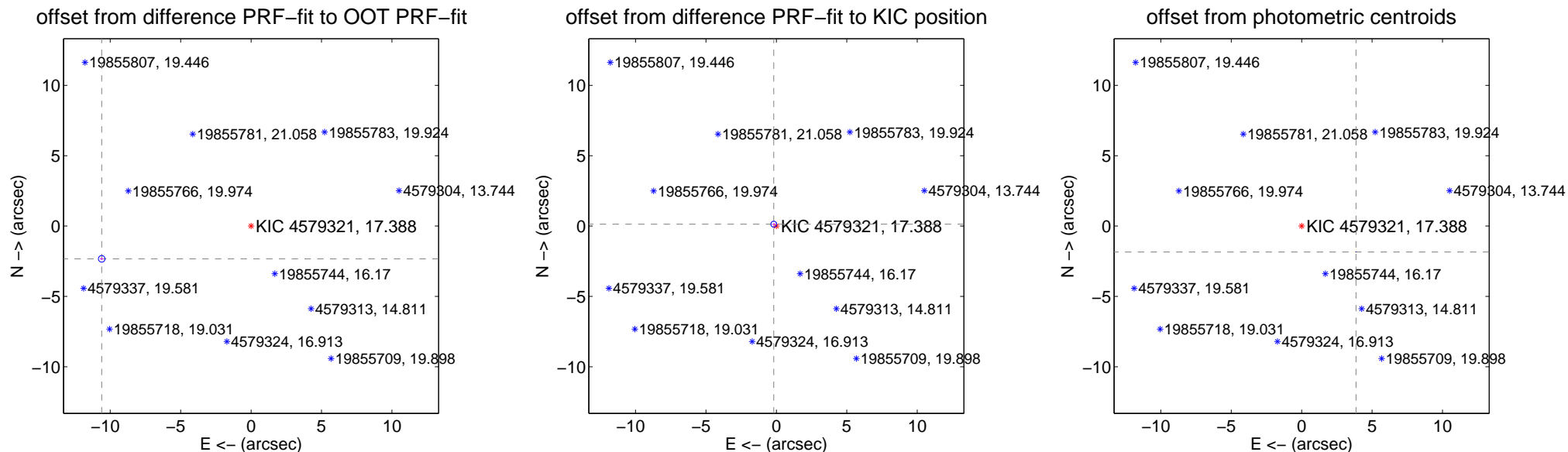
DV Centroid Data

Supplemental centroid analysis for 004579321-01. Kepler magnitude: 17.39. Transit SNR 953.07

There are 8 quarters with good PRF difference image offsets

The OOT PRF centroid is offset from the target star catalog position by about 10.81 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	10.860 ± 0.078	139.47	10.607 ± 0.078	-2.328 ± 0.069
PRF-fit source offset from KIC position	0.227 ± 0.070	3.24	0.183 ± 0.070	0.134 ± 0.070
photometric centroid source offset	4.28 ± 0.00	5067.20	-3.86 ± 0.00	-1.84 ± 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.

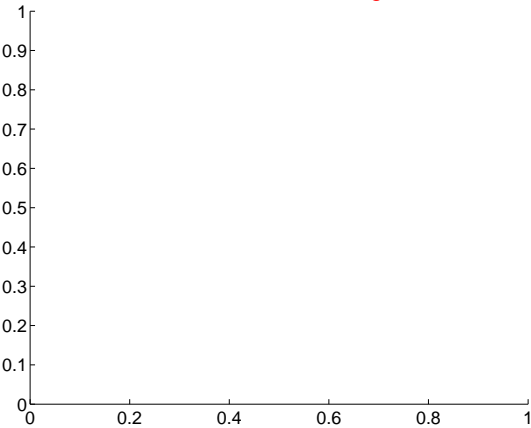
Q5 no difference image



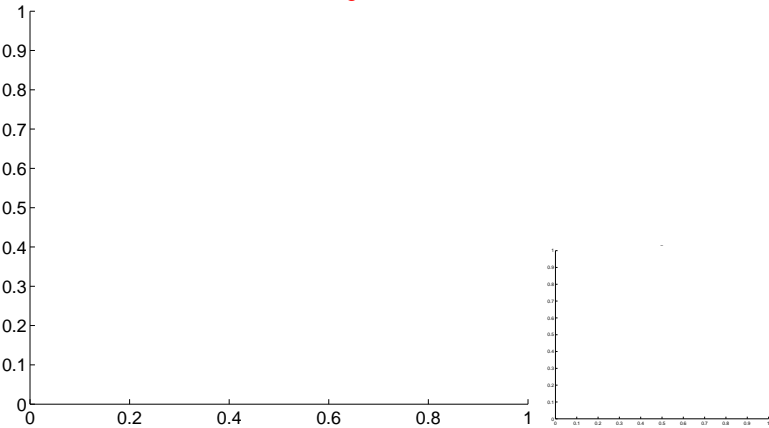
Q5 no OOT image



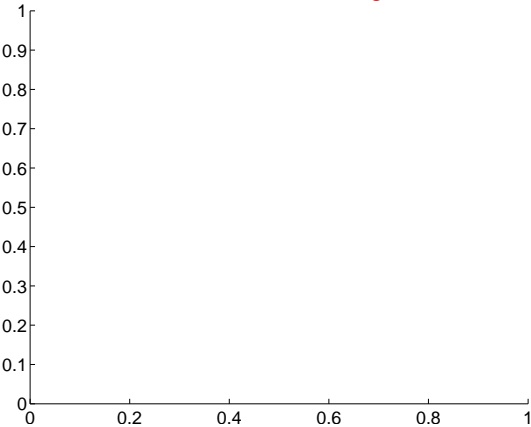
Q6 no difference image



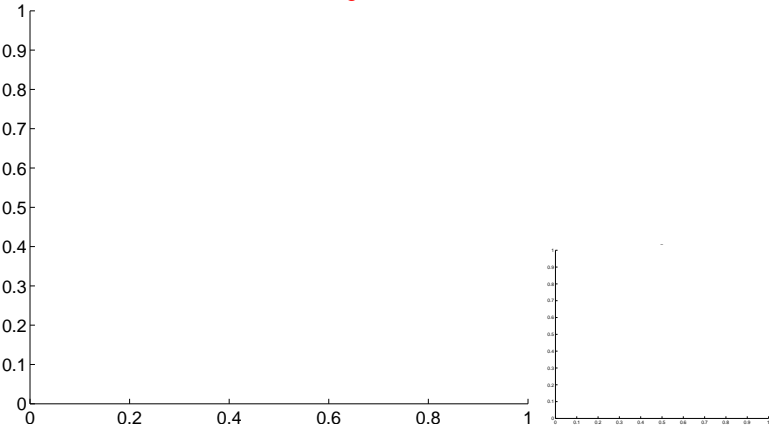
Q6 no OOT image



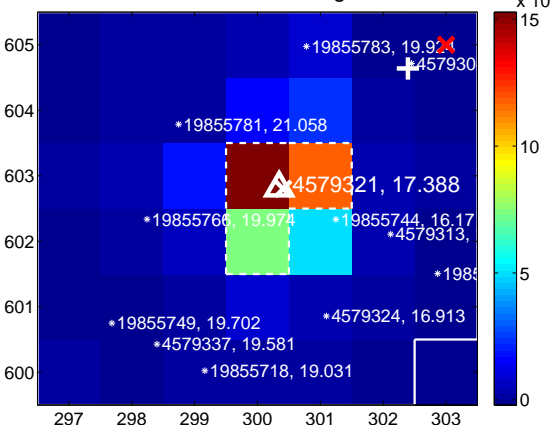
Q7 no difference image



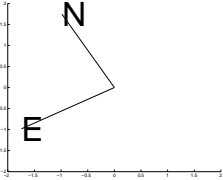
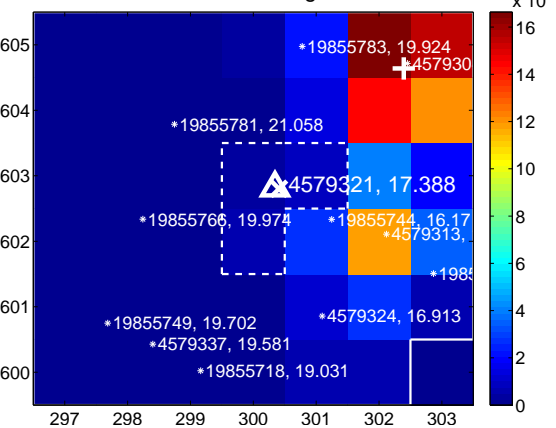
Q7 no OOT image



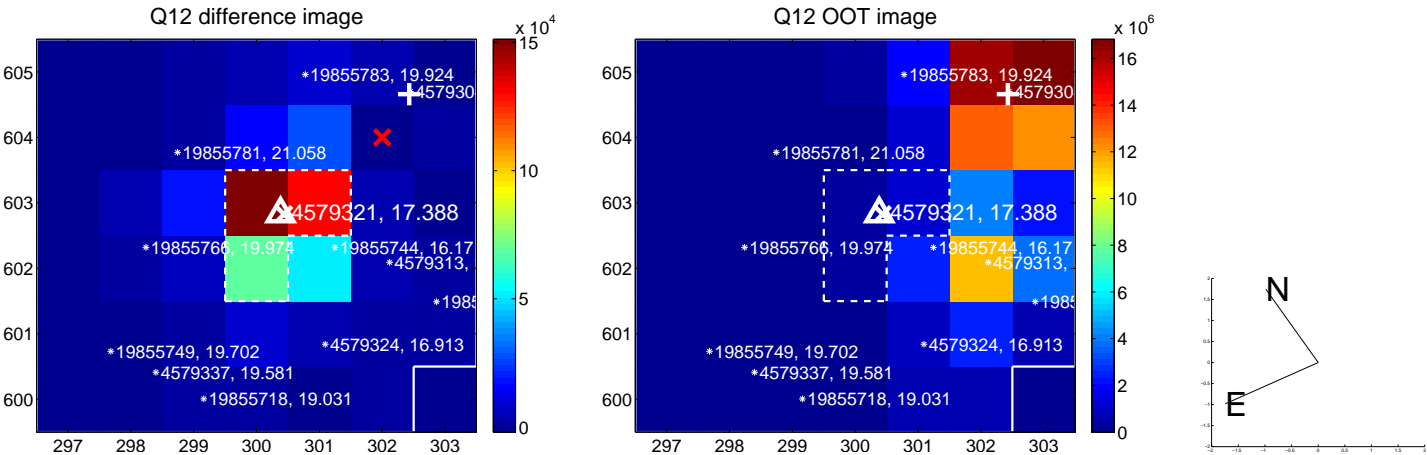
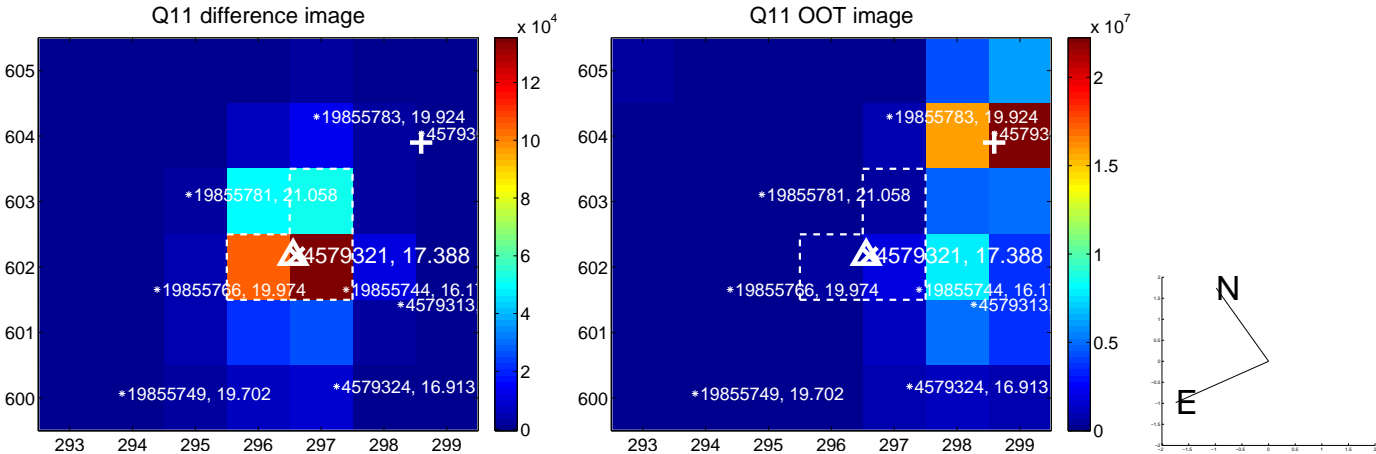
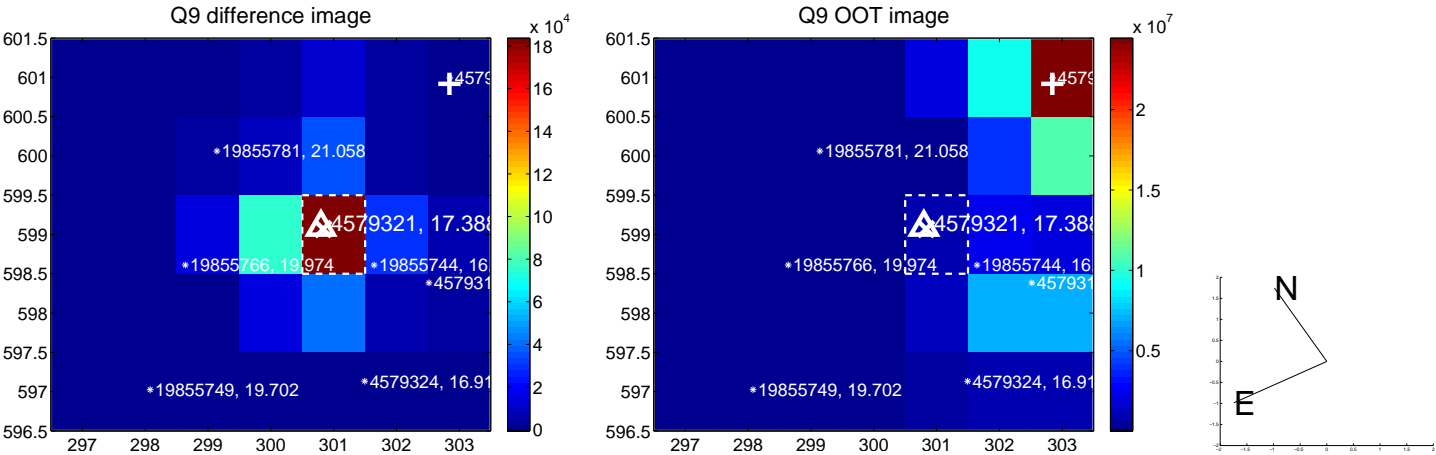
Q8 difference image



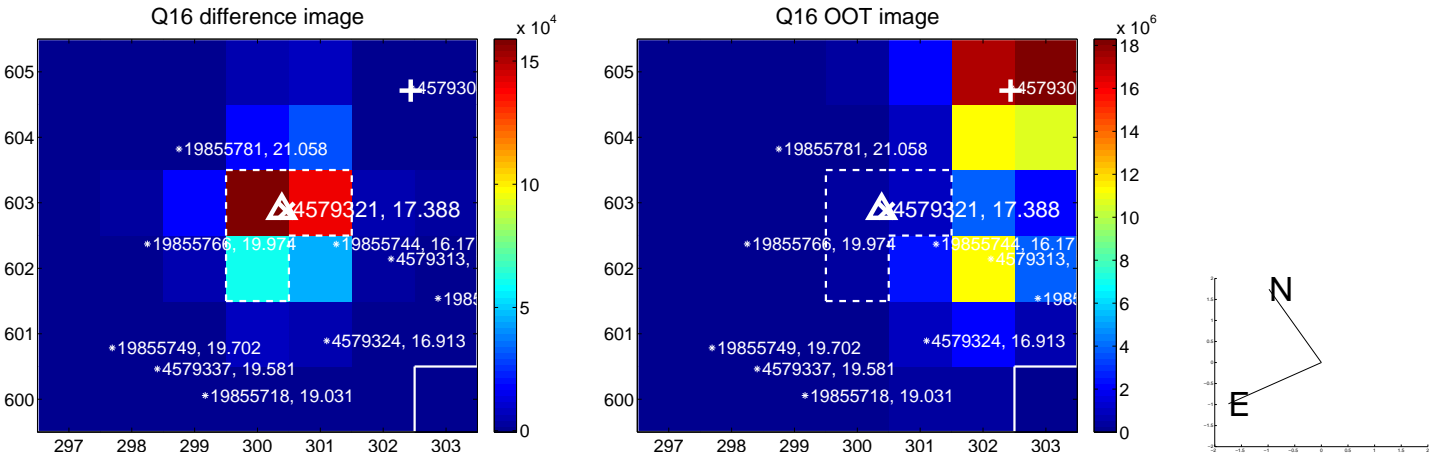
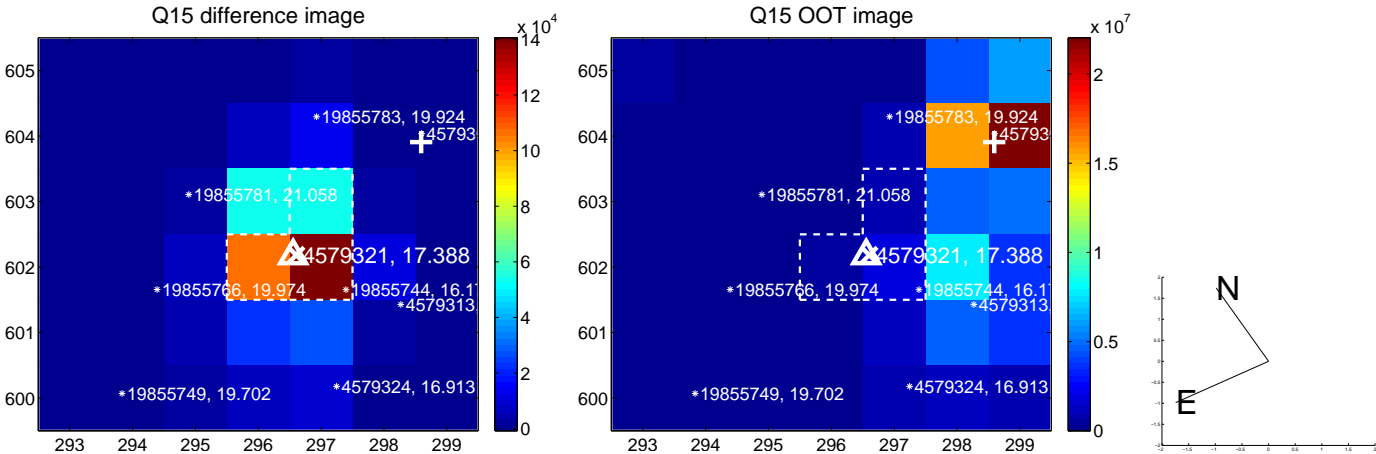
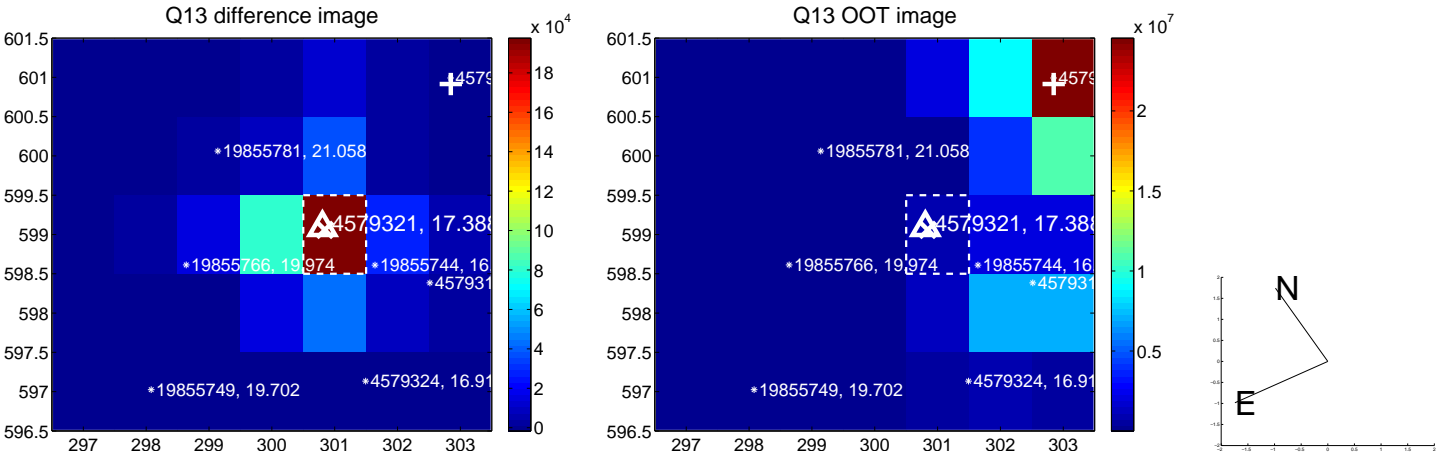
Q8 OOT image



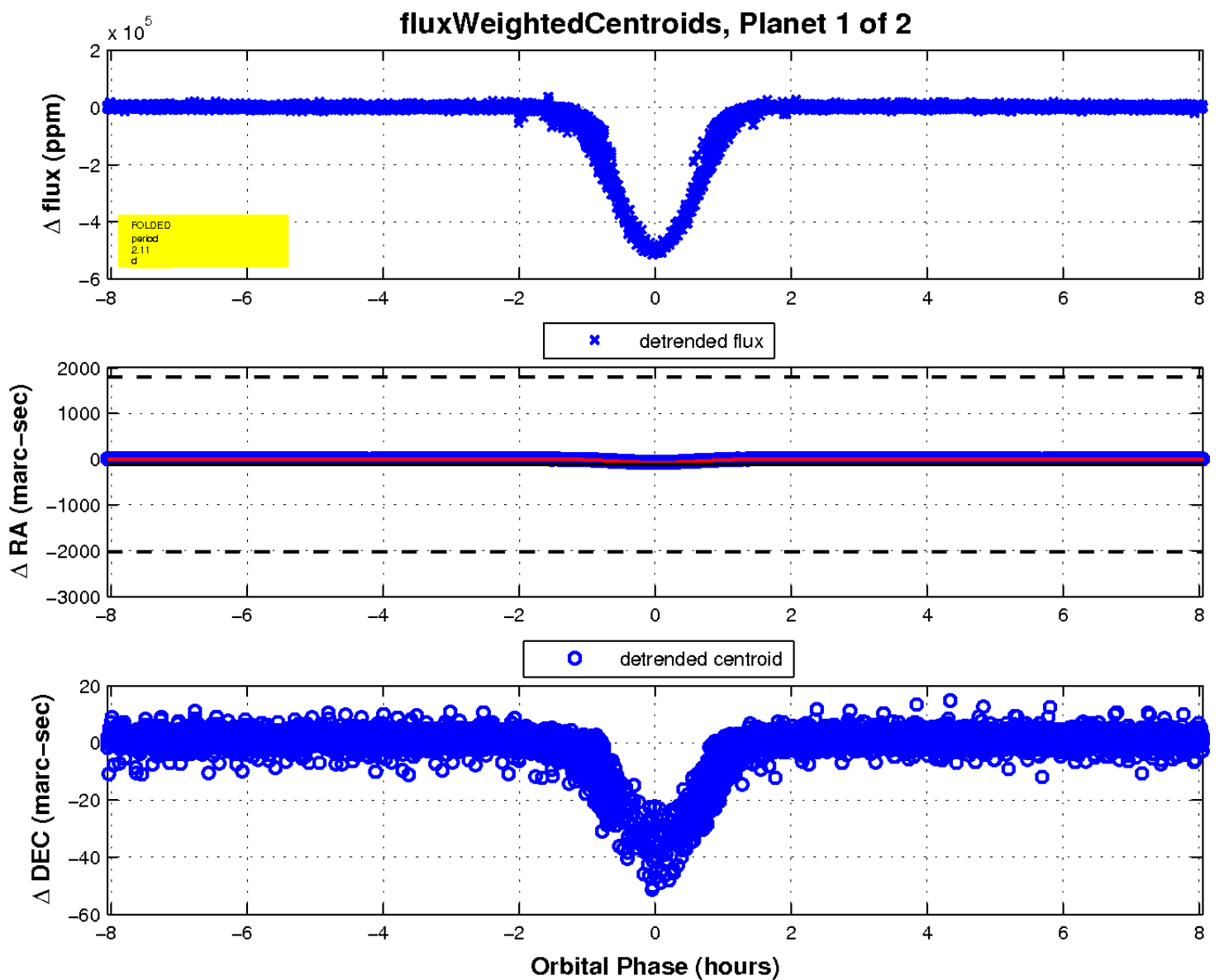
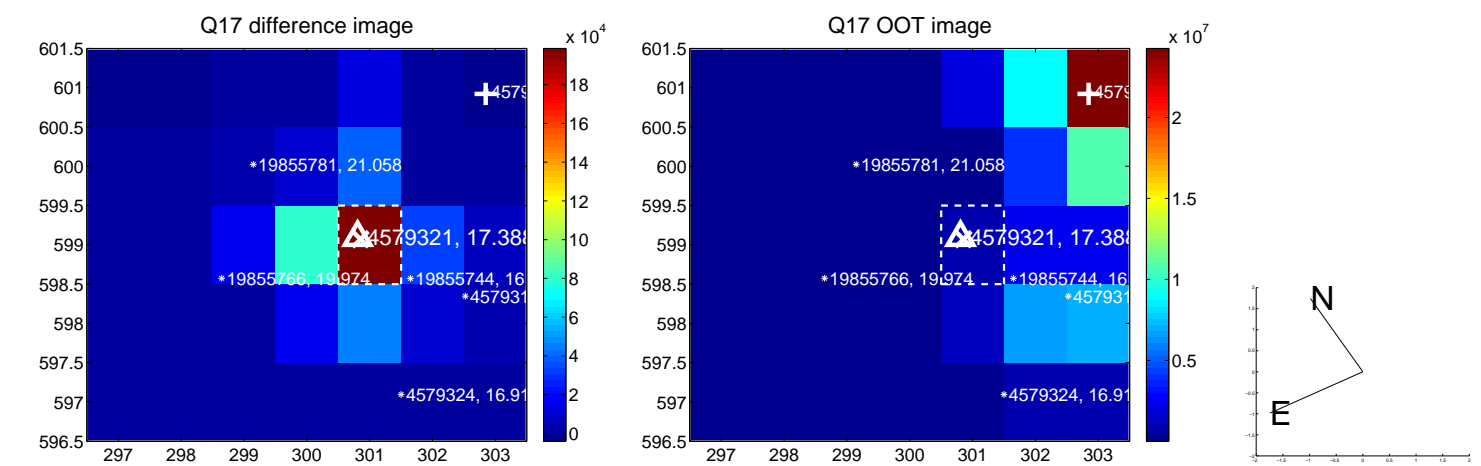
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

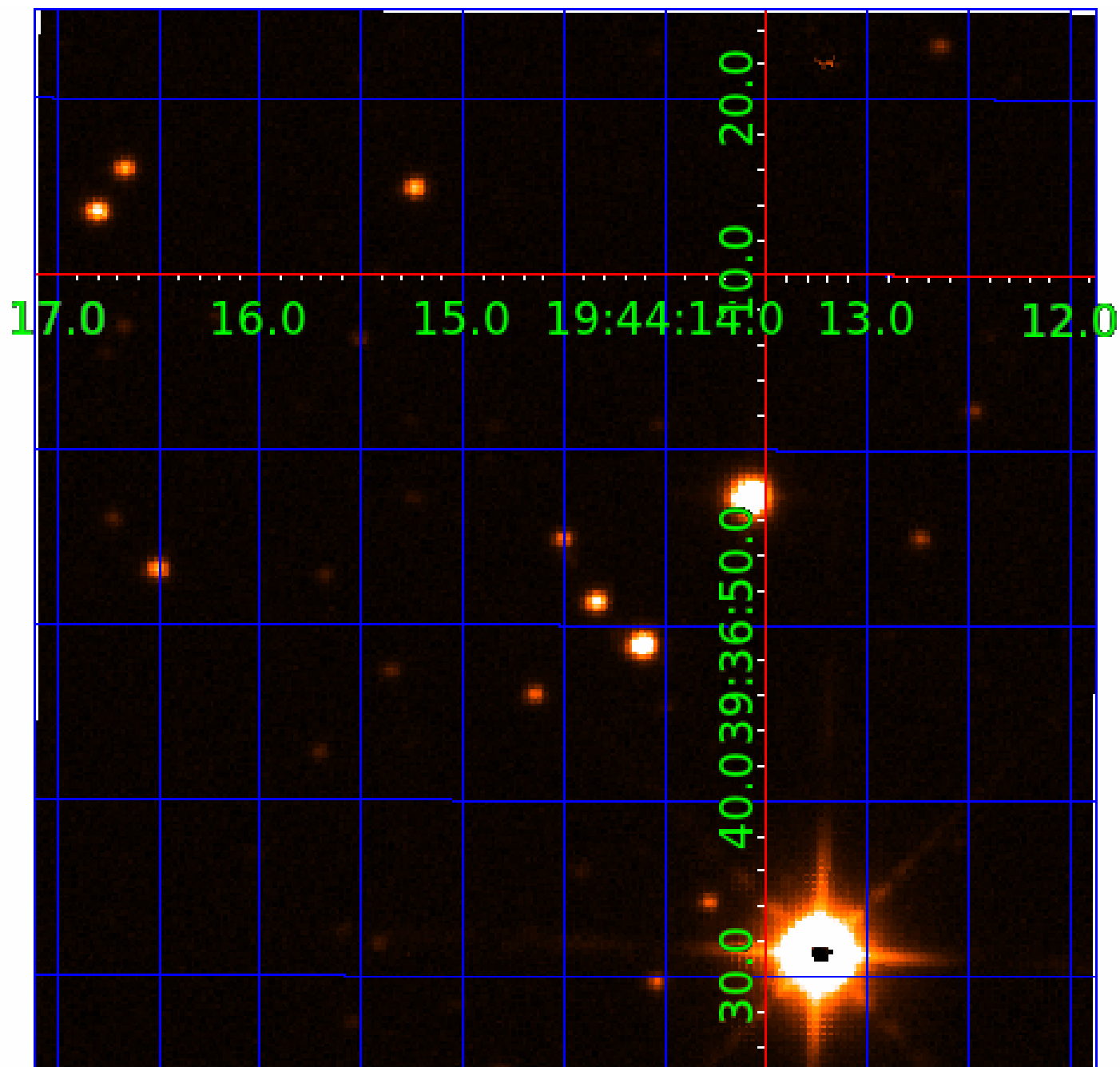


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 004579321

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})
004579321-01	OBS	3657.01	2.112411	131.915828	344184.2	2.686	1719.2	953.1	1.00	5780	63.73	962.87
004579321-02	OBS	No	2.112405	132.974764	124596.1	2.582	626.9	439.1	1.00	5780	41.98	962.87

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
004579321-01	OBS	FP	0.00	0	1	0	0	MOD_SEC_DV—MOD_SEC_ALT—DEEP_V_SHAPED—HAS_SEC_TCE—SEASONAL_DEPTH_DV—SEASONAL_DEPTH_ALT—CENT_KIC_POS
004579321-02	OBS	FP	0.00	1	1	0	0	IS_SEC_TCE—CENT_KIC_POS

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.

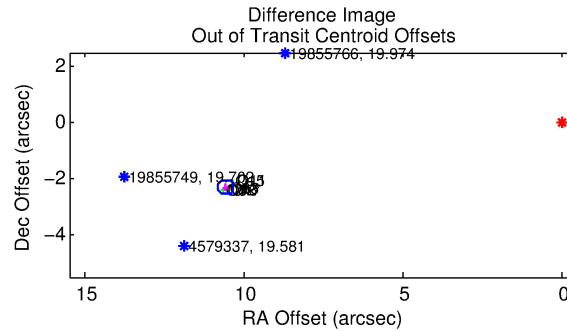
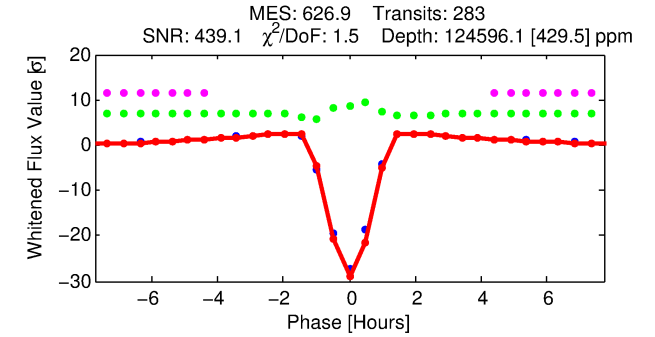
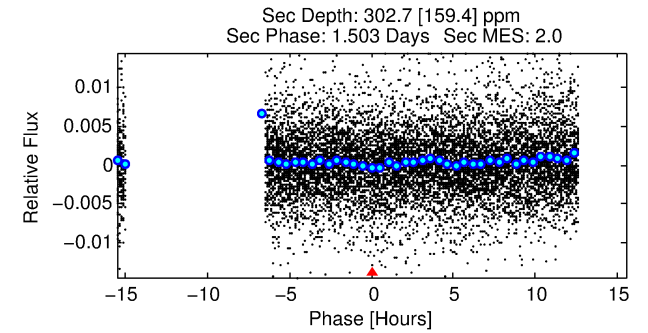
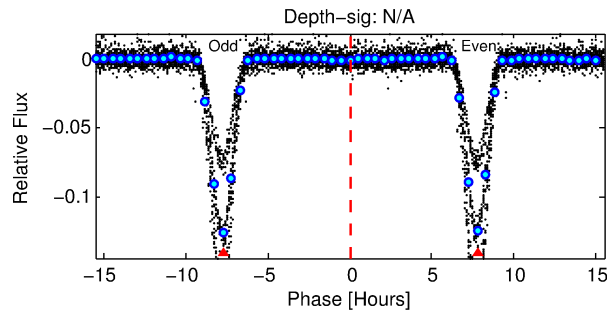
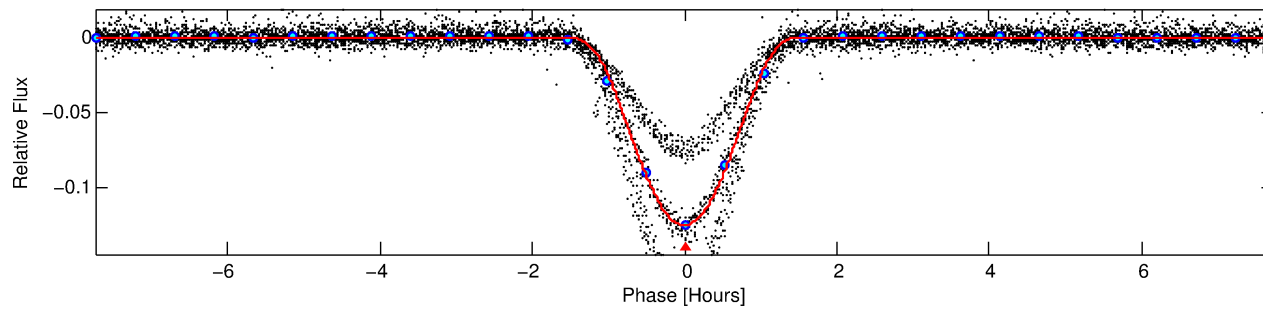
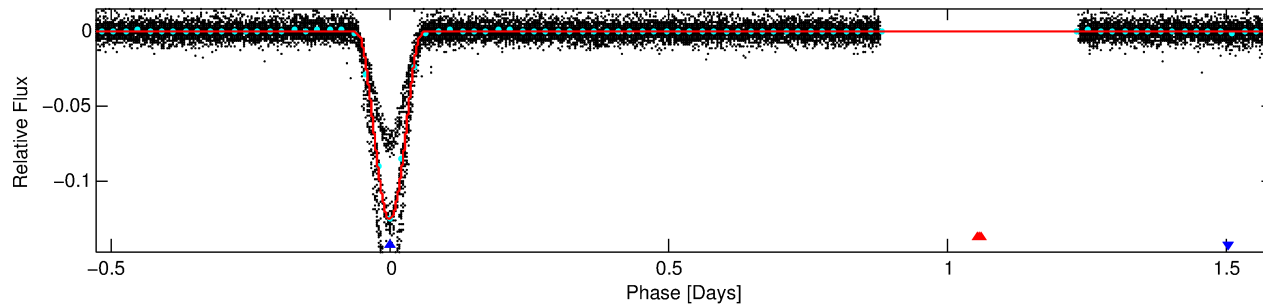
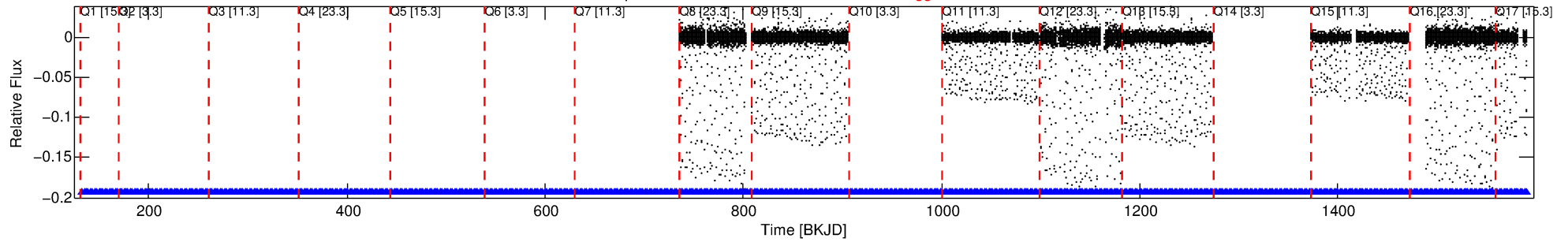
Ephemeris Match Information For 004579321-02

No Significant Match Found

DV One-Page Summary

KIC: 4579321 Candidate: 2 of 2 Period: 2.112 d
KOI: K03657 Corr: No Ephemeris Match

Kp: 17.39 R*: 1.00 Rs Teff: 5780.0 K Logg: 4.44 Fe/H: 0.000



DV Fit Results:

Period = 2.11240 [0.00000] d
Epoch = 132.9748 [0.0001] BKJD
Rp/R* = 0.3847 [0.0137]
a/R* = 7.39 [0.03]
b = 0.74 [0.03]
Seff = 962.87 [0.00]
Teq = 1420 [0] K
Rp = 41.98 [1.49] Re
a = 0.0322 [0.0000] AU
Ag = 0.10 [0.05] [-17.29σ]
Teffp = 1229 [163] K [-1.17σ]

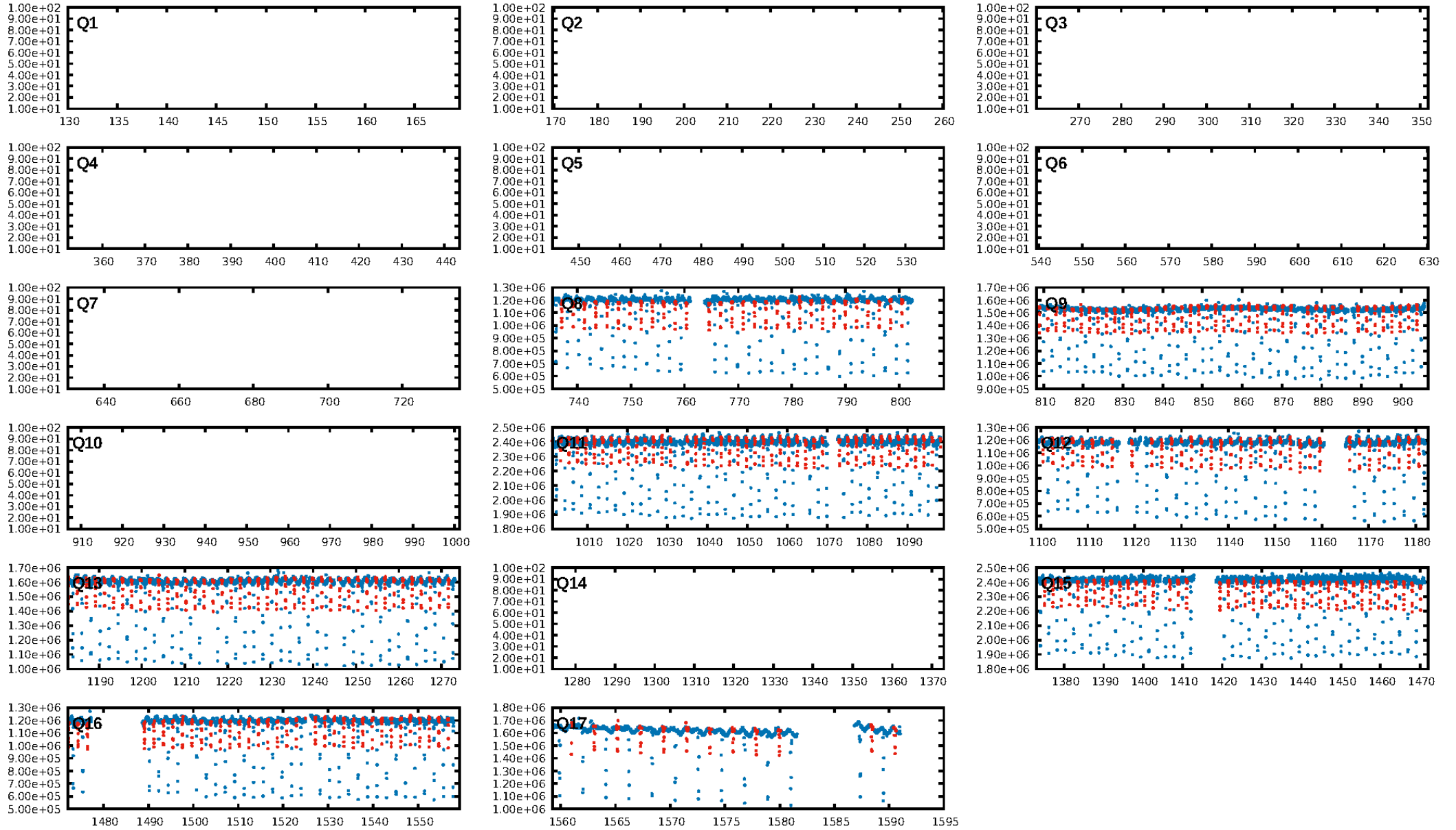
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: 0.0% [0.00σ]
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: N/A
RollingBand-fgt: 1.00 [271/271]
GhostDiagnostic-chr: 4.151
Centroid-sig: N/A
Centroid-so: 4.285 arcsec [2321.67σ]
OotOffset-rm: 10.836 arcsec [124.86σ]
KicOffset-rm: 0.189 arcsec [2.59σ]
OotOffset-st: 0/2/3/3 [8]
KicOffset-st: 0/2/3/3 [8]
DiffImageQuality-fgm: 1.00 [8/8]
DiffImageOverlap-fno: 1.00 [8/8]

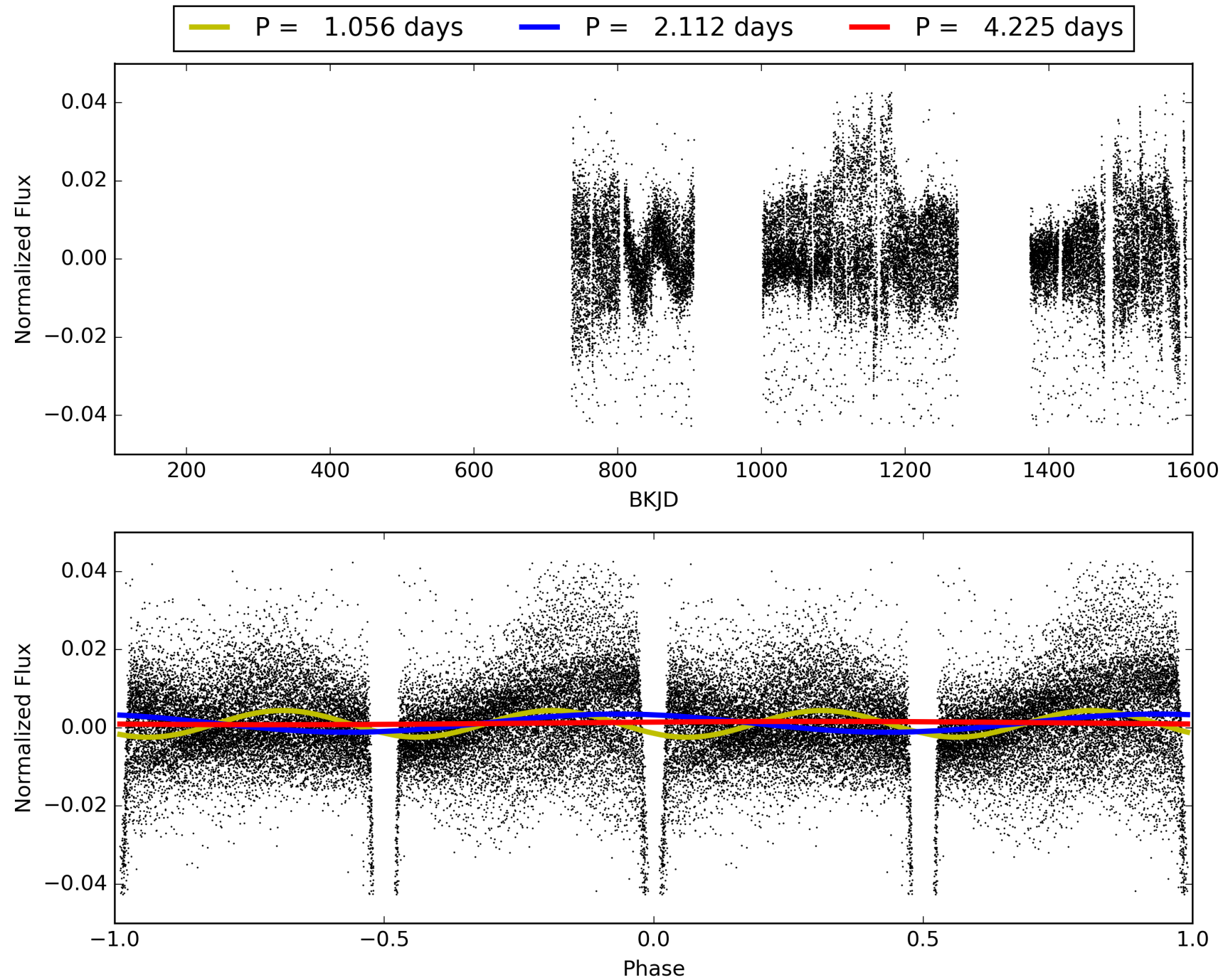
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 31-Jan-2016 06:05:20 Z

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

TCE 004579321-02, PDC Light Curves

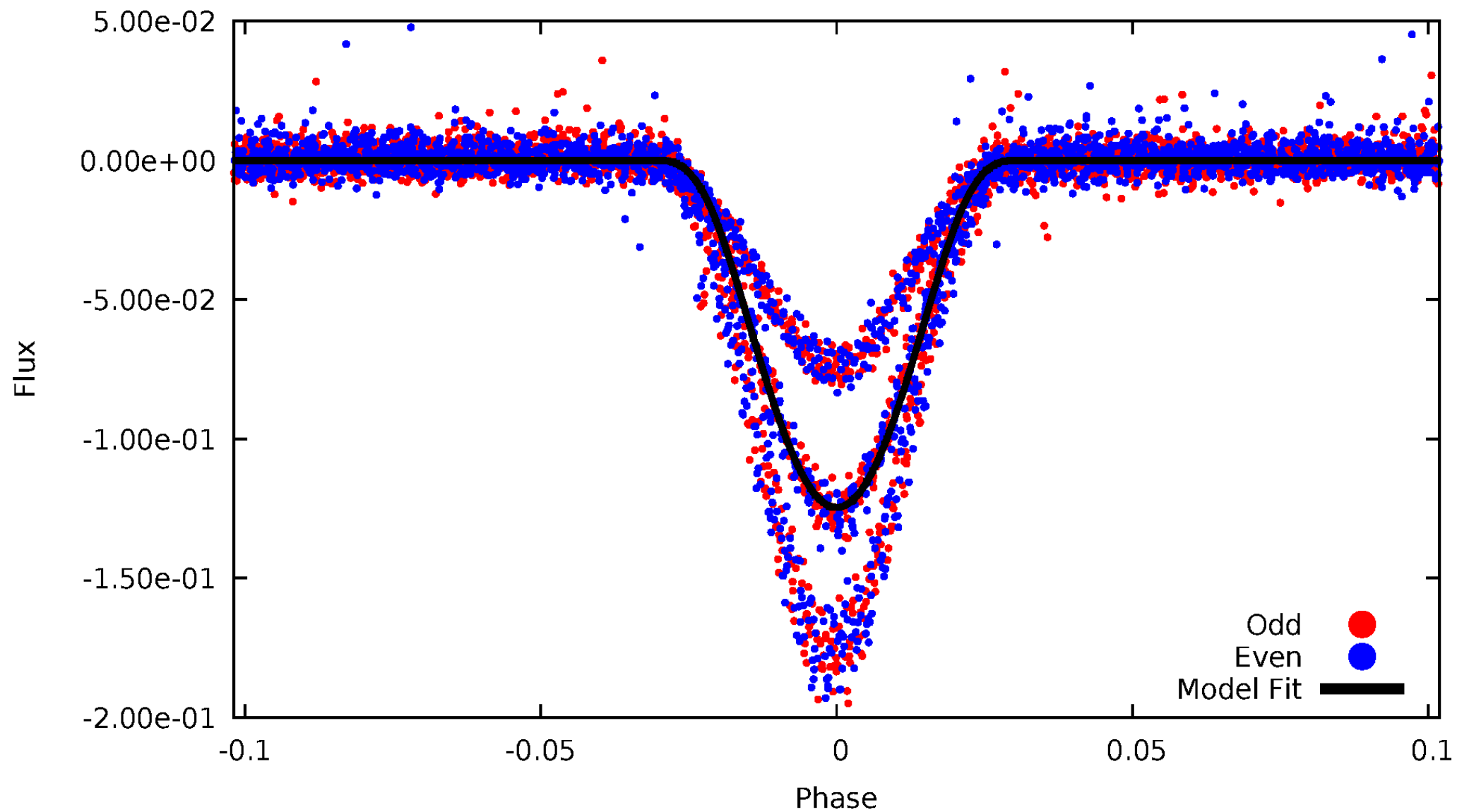


TCE 004579321-02



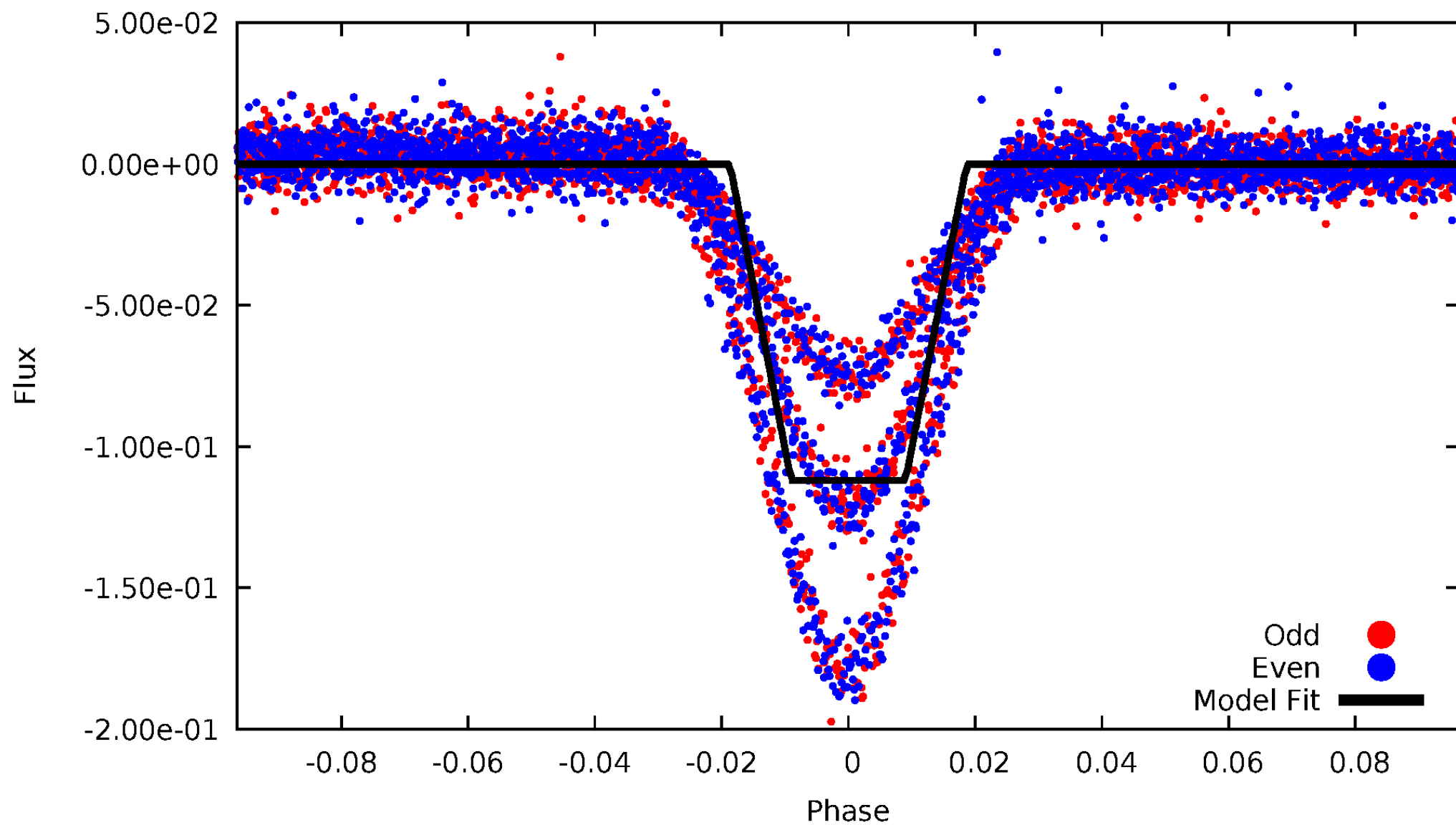
DV Odd/Even

TCE 004579321-02



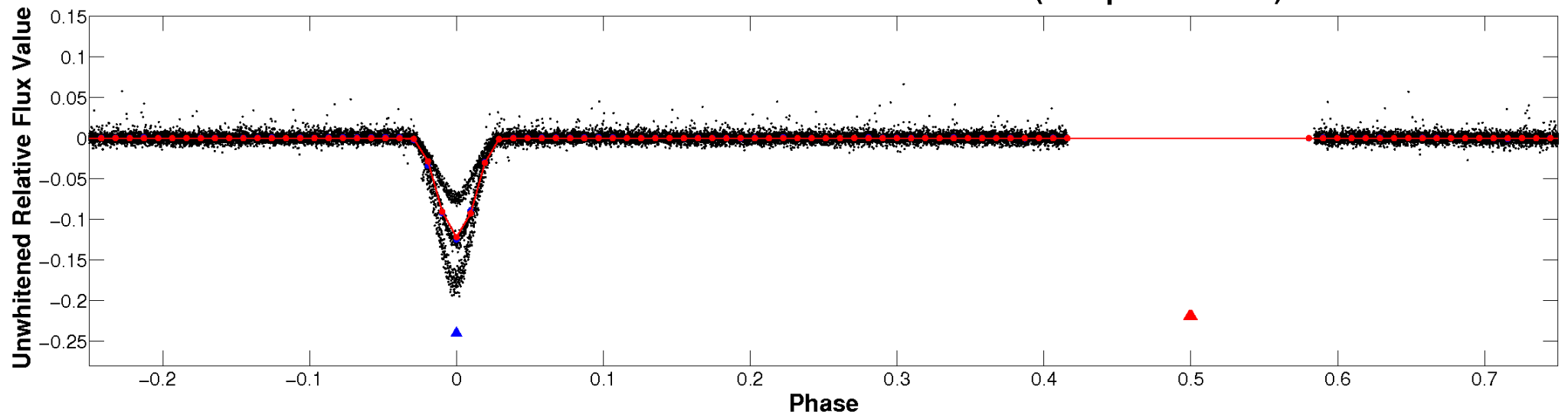
ALT Odd/Even

TCE 004579321-02

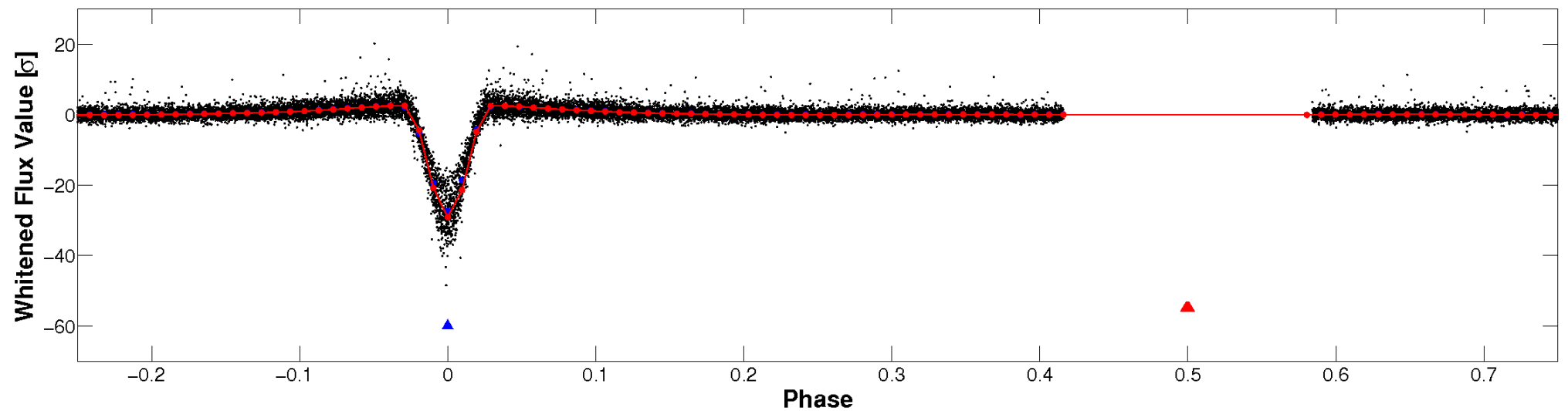


Non-Whitened Vs. Whitened Light Curve

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

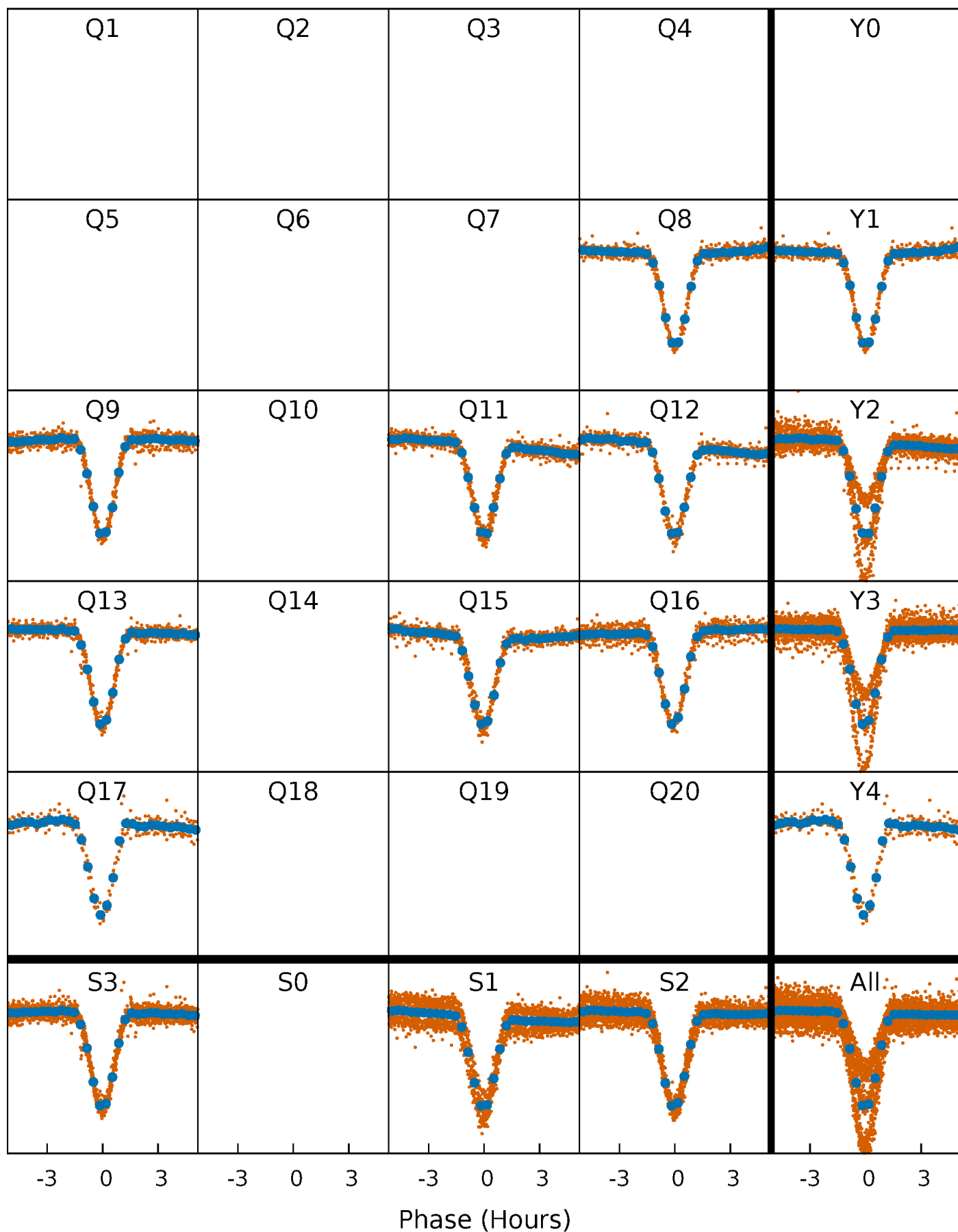


Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



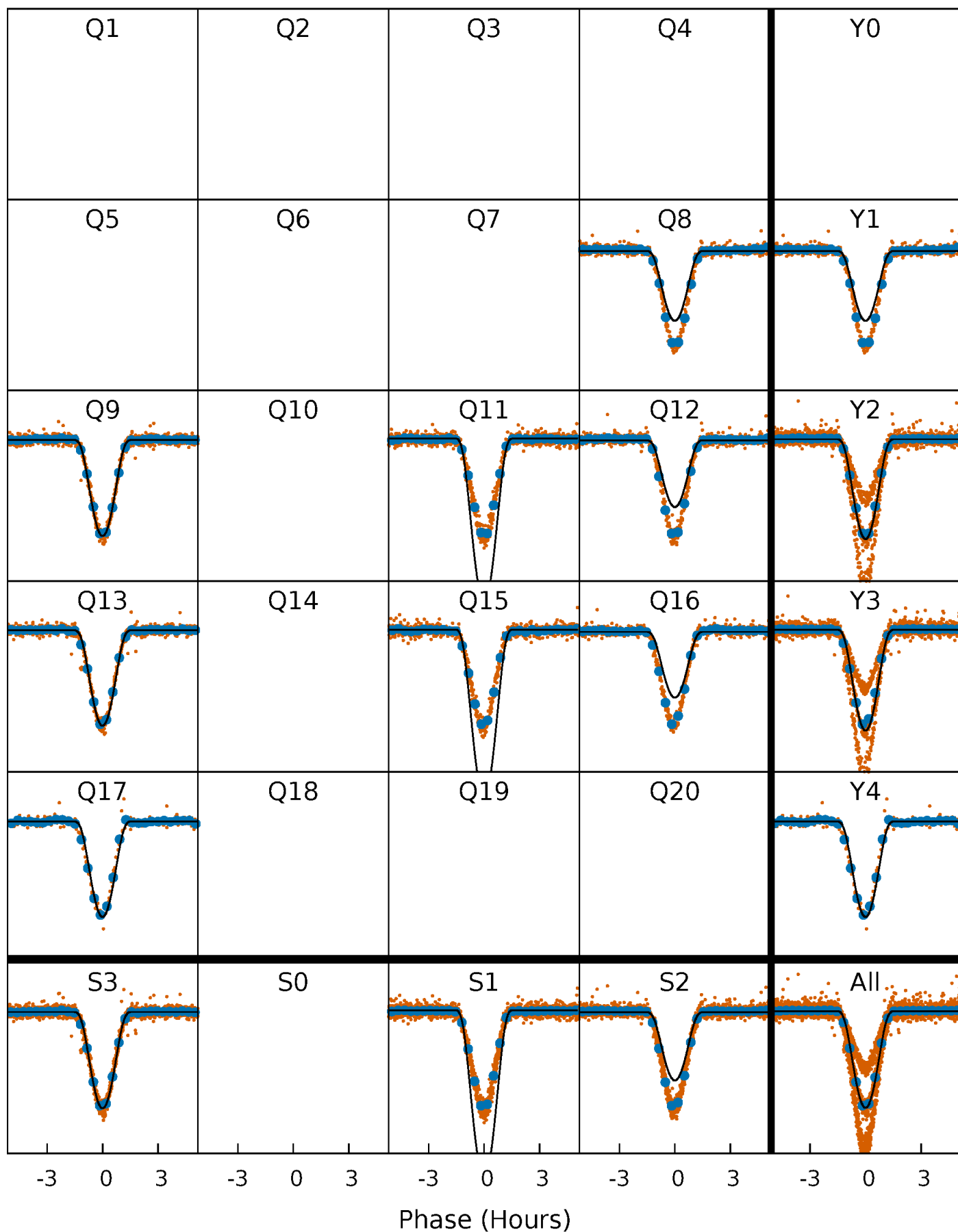
PDC Quarter-Phased Transit Curves

TCE 004579321-02 P= 2.112405 Days $T_0=132.974764$ (BKJD)



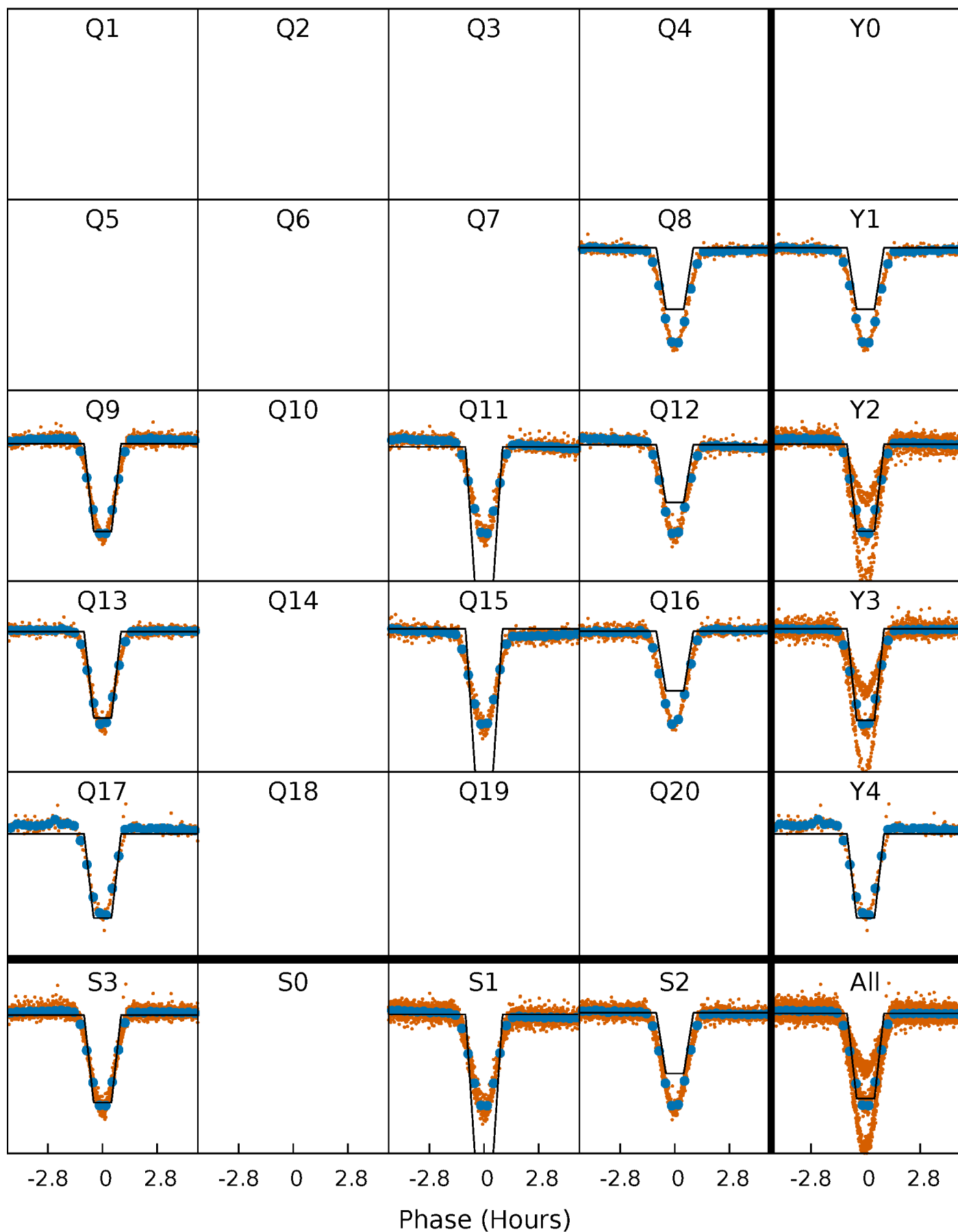
DV Quarter-Phased Transit Curves

TCE 004579321-02 P= 2.112405 Days $T_0=132.974764$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

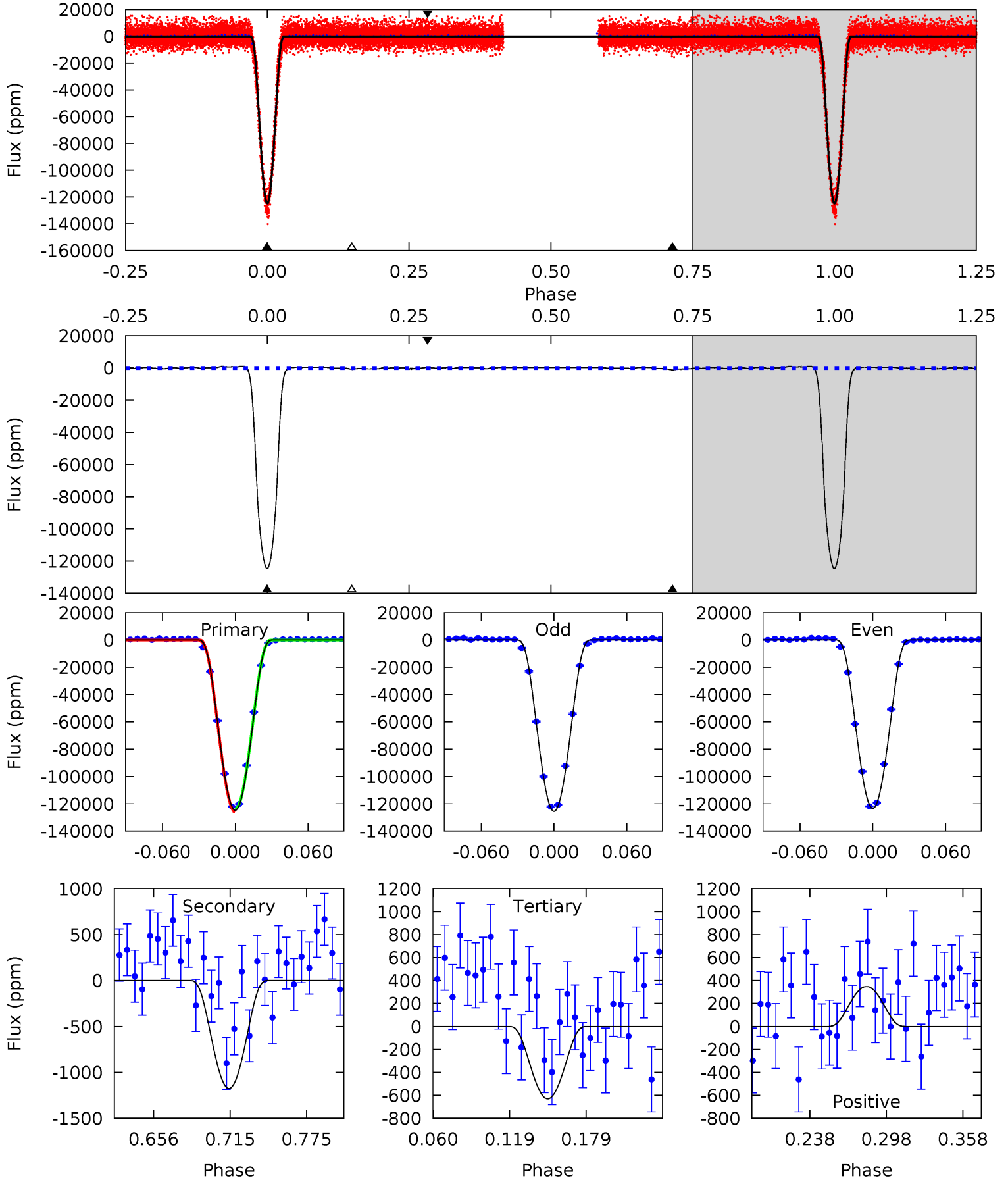
TCE 004579321-02 $P = 2.112400$ Days $T_0 = 132.976248$ (BKJD)



DV Model-Shift Uniqueness Test

004579321-02, P = 2.112405 Days, E = 132.974764 Days

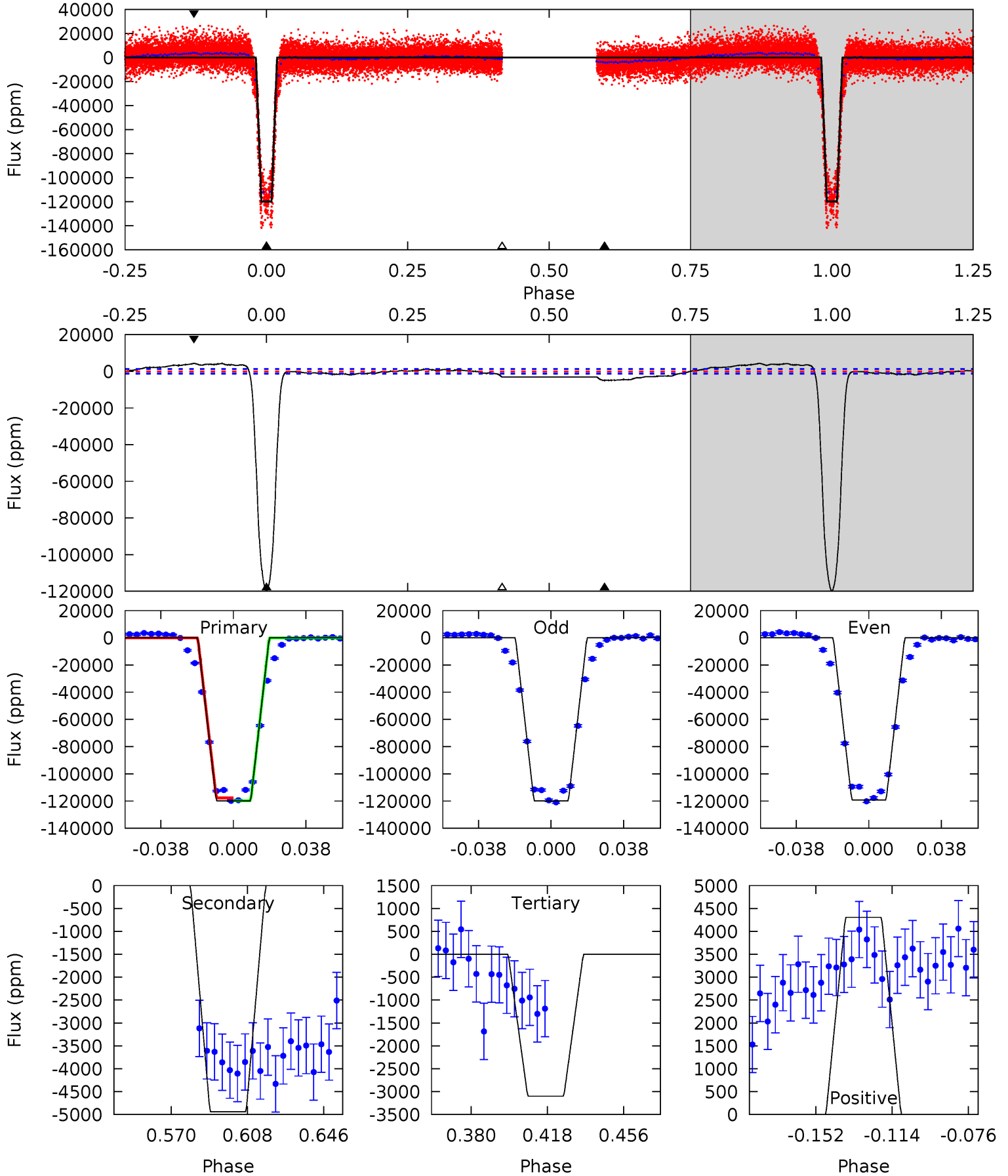
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
997.4	9.40	5.04	2.78	4.67	1.88	2.39	992.3	994.6	4.36	6.62	8.50	1.01	0.01	0



Alt Model-Shift Uniqueness Test

004579321-02, P = 2.112400 Days, E = 132.976248 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
459.3	18.9	11.9	16.5	4.76	2.08	8.26	447.4	442.7	7.06	2.43	1.38	1.03	0.03	0



Stellar Parameters For KIC 004579321

	$T_{\text{eff}}(K)$	$\log(g)$	[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 004579321-02 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	-1175 ± 125	$41.97^{+3.45}_{-3.18}$	1983^{+89}_{-83}	2136^{+147}_{-287}	$0.379^{+0.075}_{-0.061}$
Alt.	-4941 ± 261	$36.57^{+3.19}_{-3.12}$	1984^{+94}_{-93}	3157^{+85}_{-87}	$2.123^{+0.368}_{-0.328}$

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 $A_{obs} \gg 1.0$

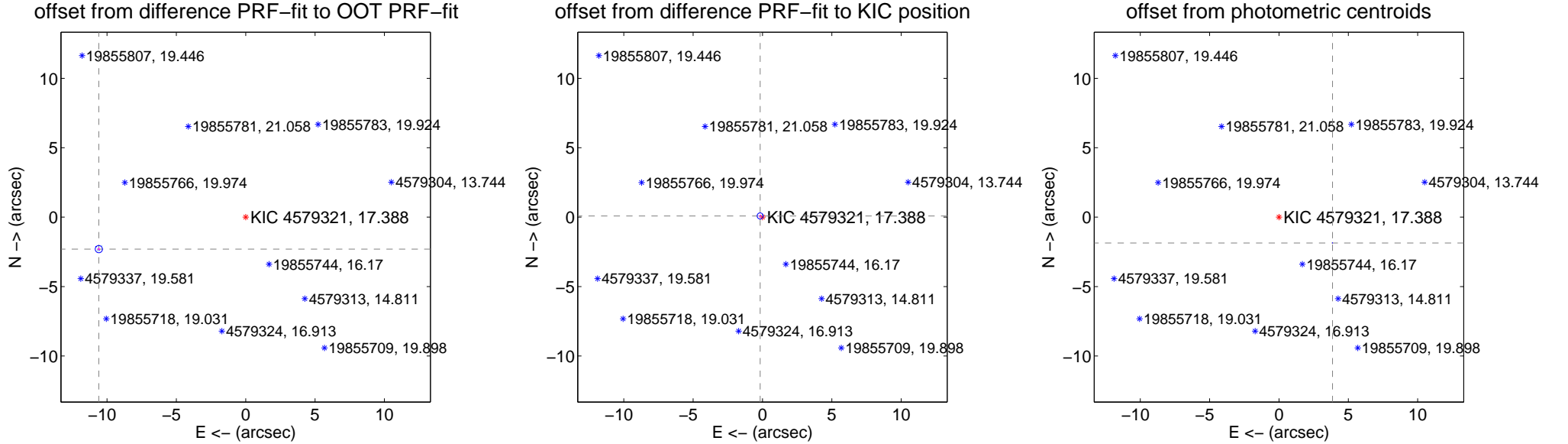
DV Centroid Data

Supplemental centroid analysis for 004579321-02. Kepler magnitude: 17.39. Transit SNR 439.11

There are 8 quarters with good PRF difference image offsets

The OOT PRF centroid is offset from the target star catalog position by about 10.81 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	10.836 ± 0.087	124.86	10.588 ± 0.087	-2.303 ± 0.088
PRF-fit source offset from KIC position	0.189 ± 0.073	2.59	0.168 ± 0.074	0.088 ± 0.071
photometric centroid source offset	4.29 ± 0.00	2321.67	-3.86 ± 0.00	-1.86 ± 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.

Q5 no difference image



Q5 no OOT image



Q6 no difference image



Q6 no OOT image



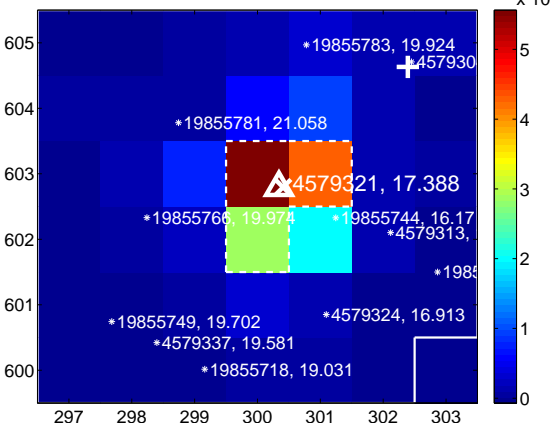
Q7 no difference image



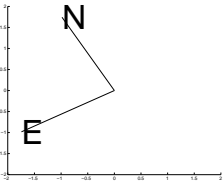
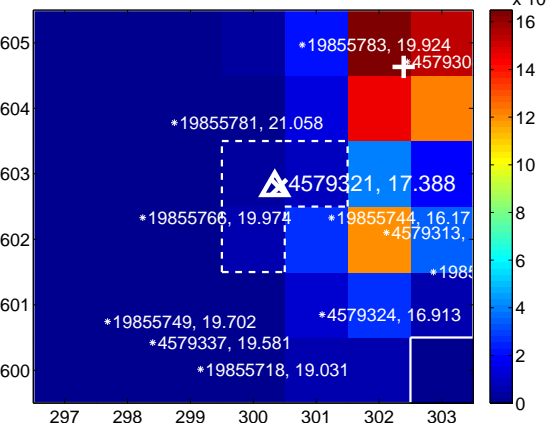
Q7 no OOT image



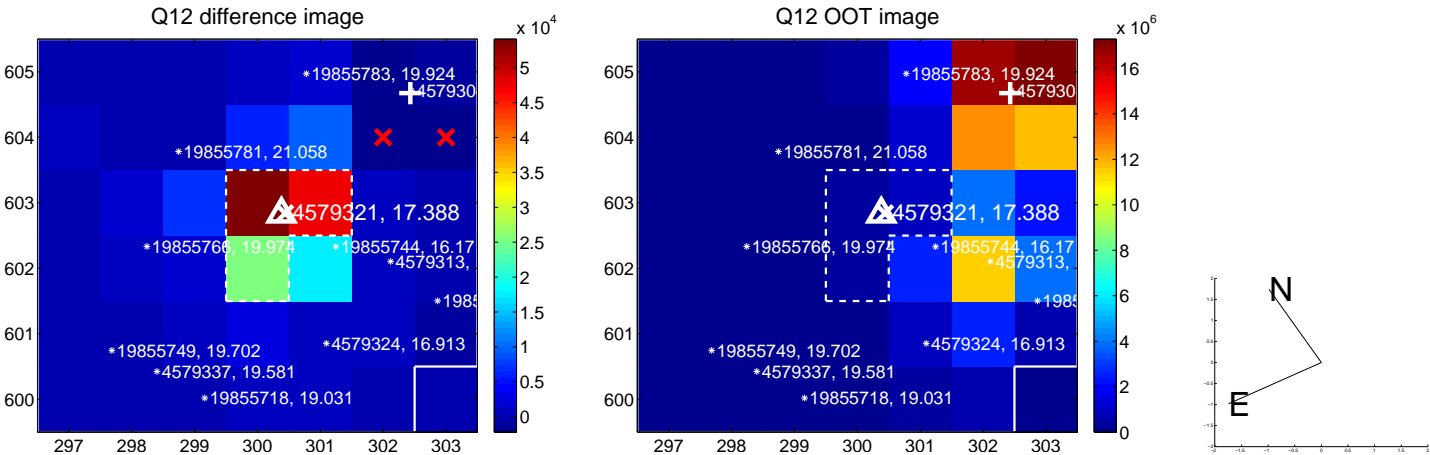
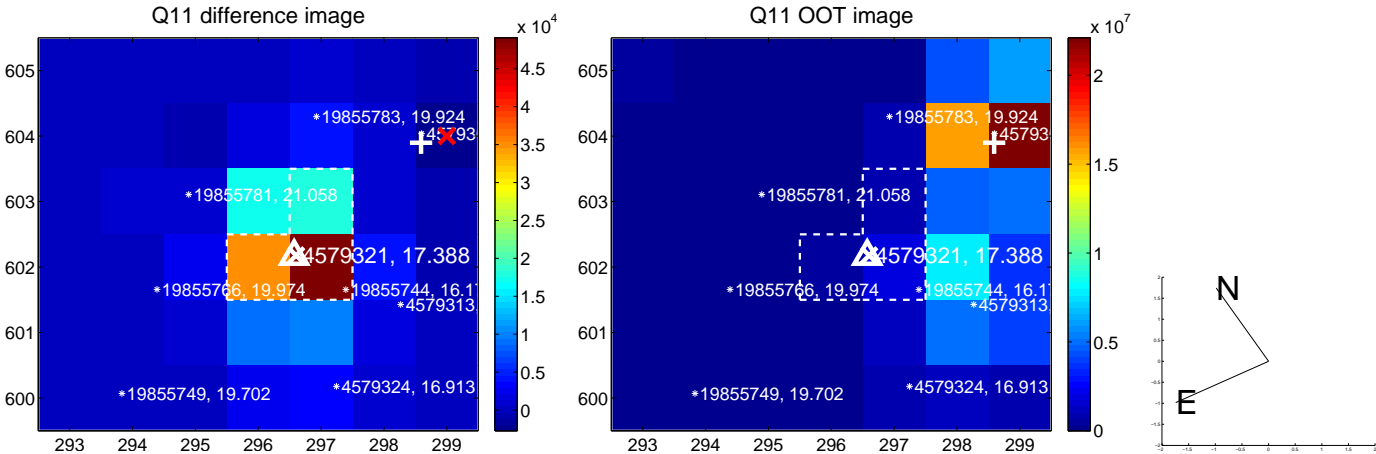
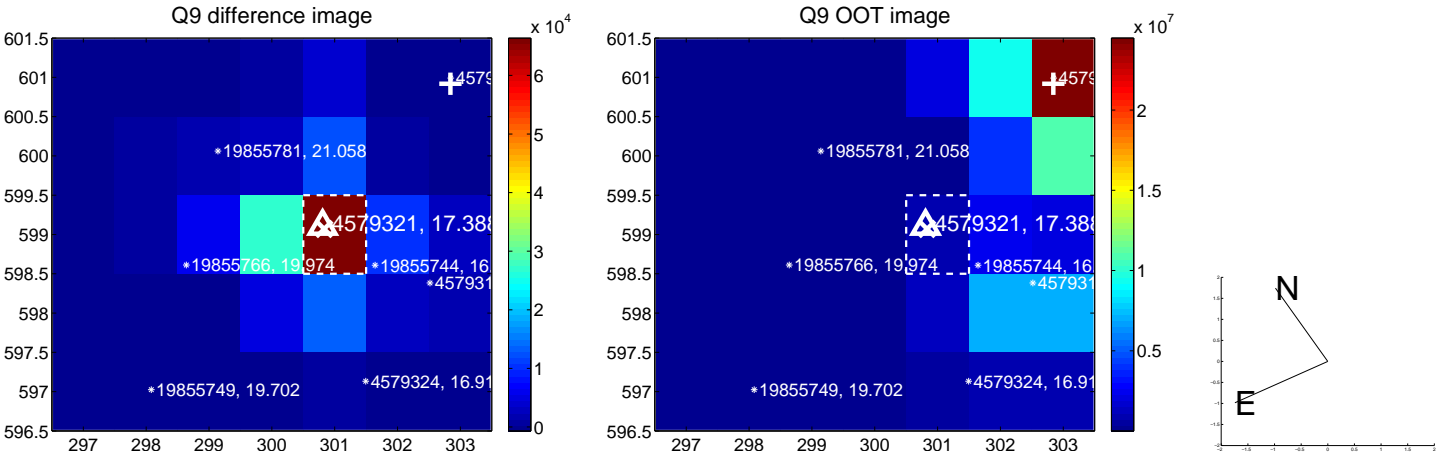
Q8 difference image



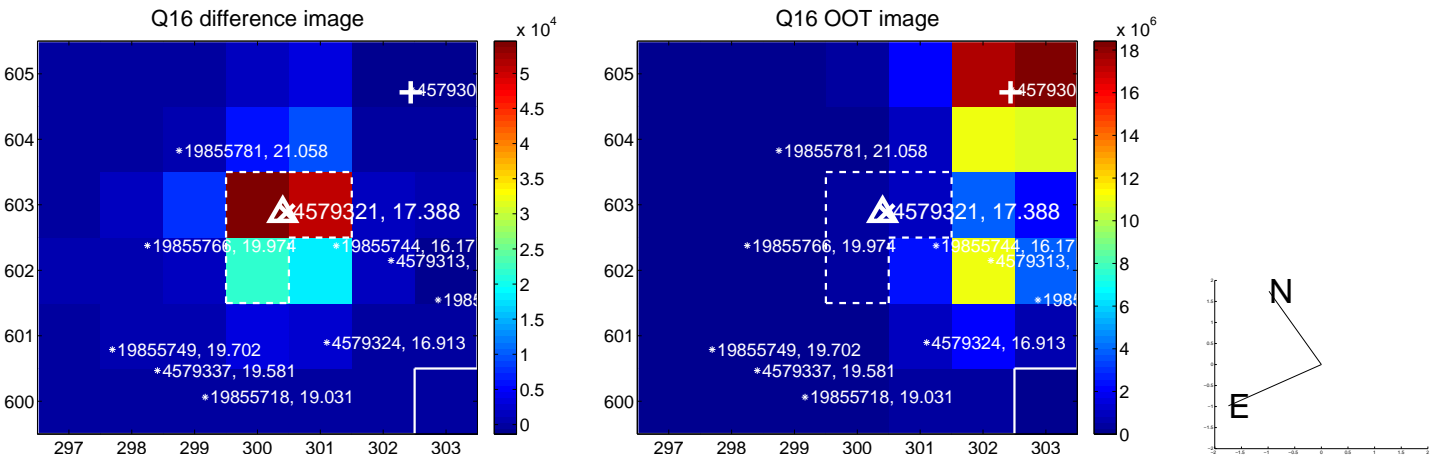
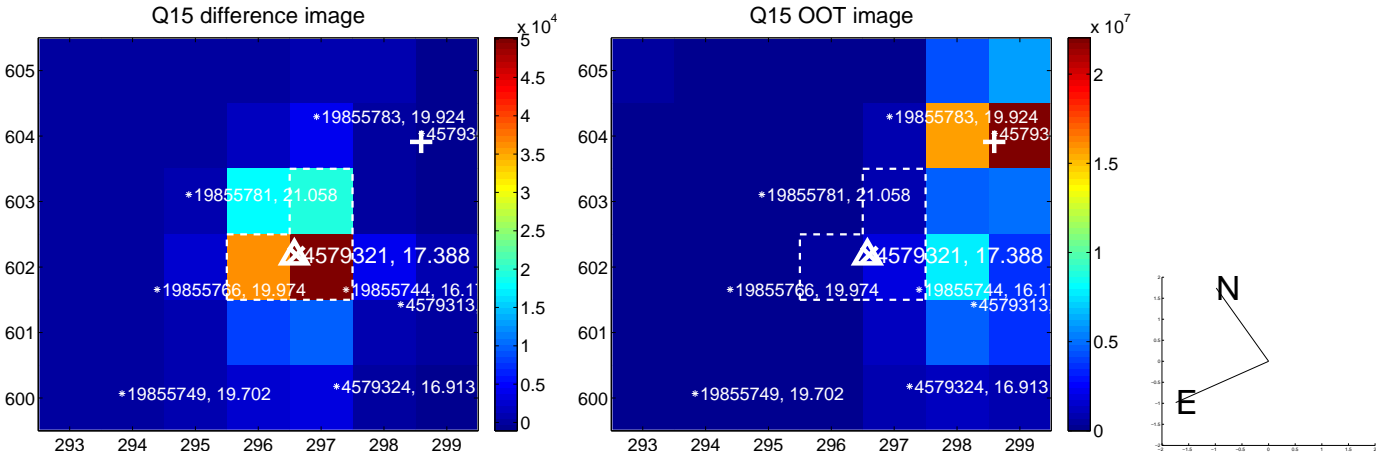
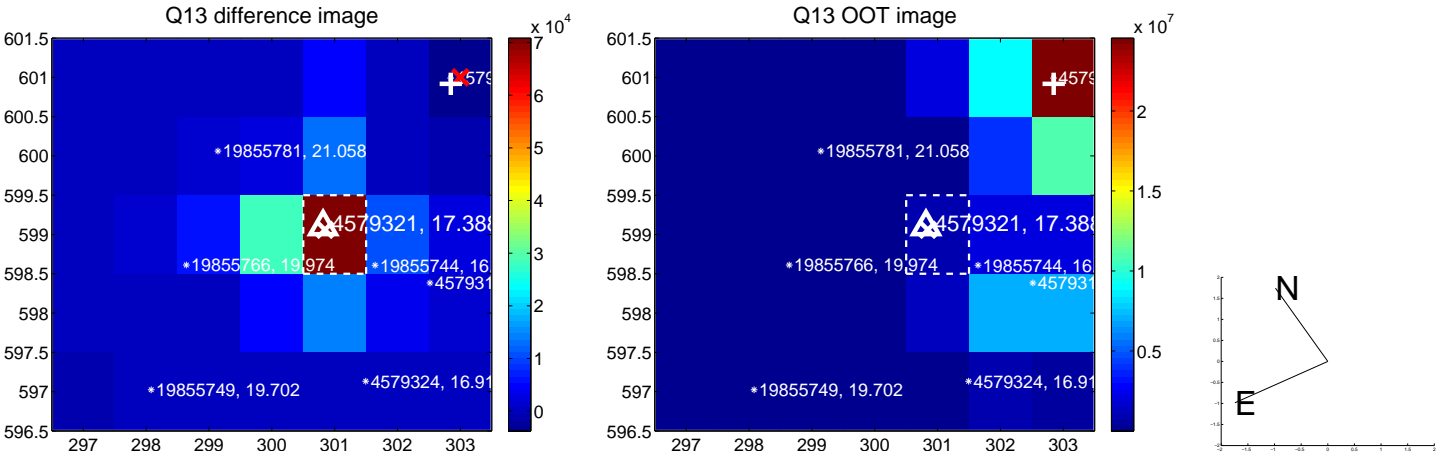
Q8 OOT image



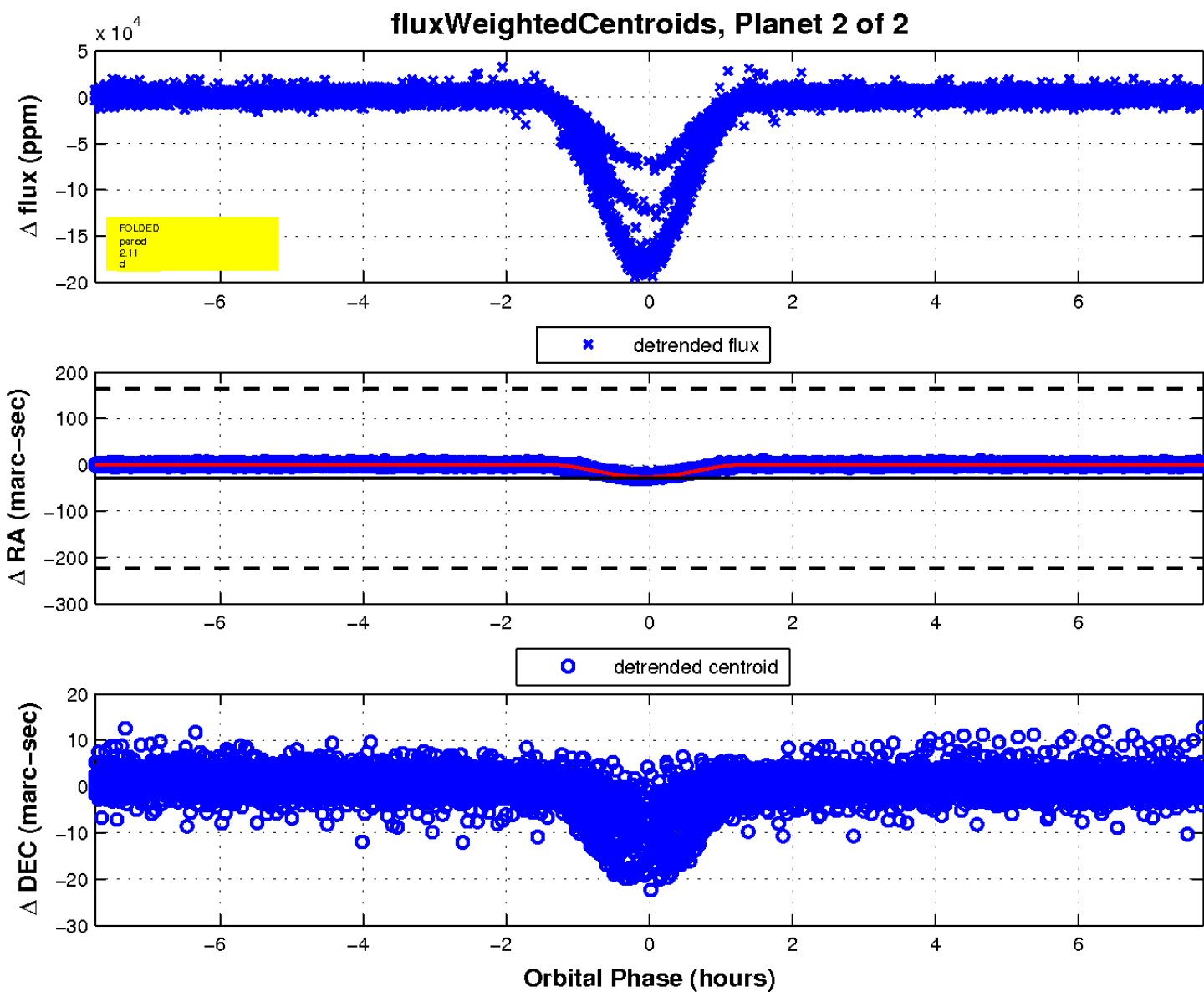
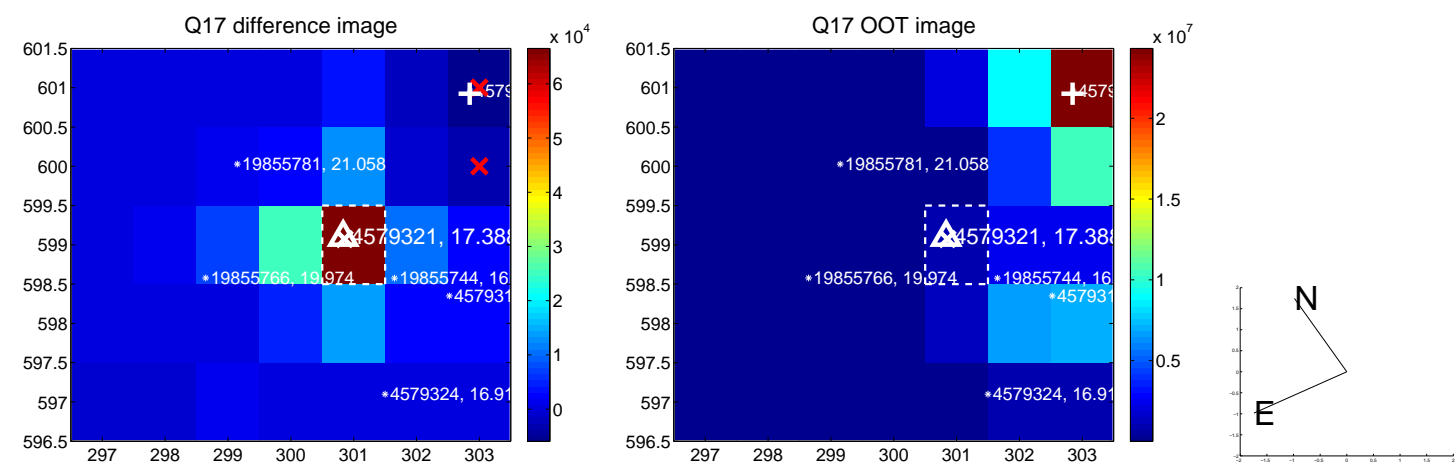
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

