

KIC 004042026

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})
004042026-01	OBS	1180.01	34.820070	163.015945	18905.1	11.184	753.4	760.9	0.78	5114	11.40	10.51
004042026-02	OBS	No	34.820340	138.389001	2287.1	12.731	101.5	102.2	0.78	5114	4.57	10.51

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
004042026-01	OBS	FP	0.00	0	1	0	0	MOD_SEC_DV—MOD_SEC_ALT—HAS_SEC_TCE
004042026-02	OBS	FP	0.00	1	1	0	0	IS_SEC_TCE

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.

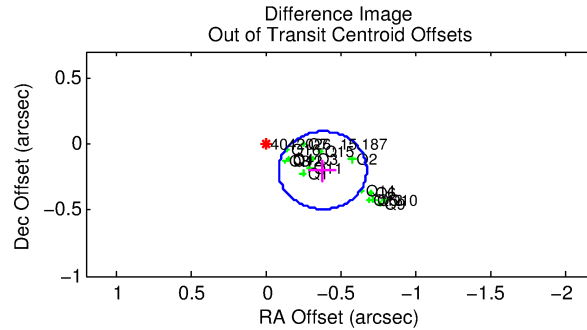
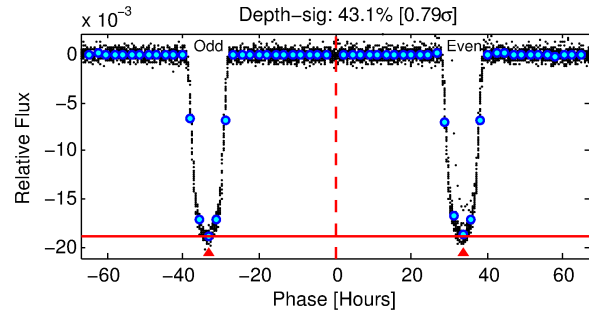
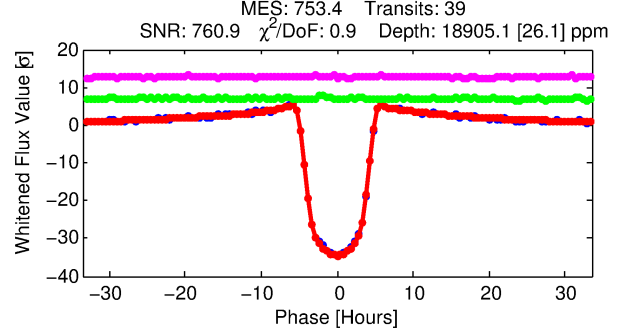
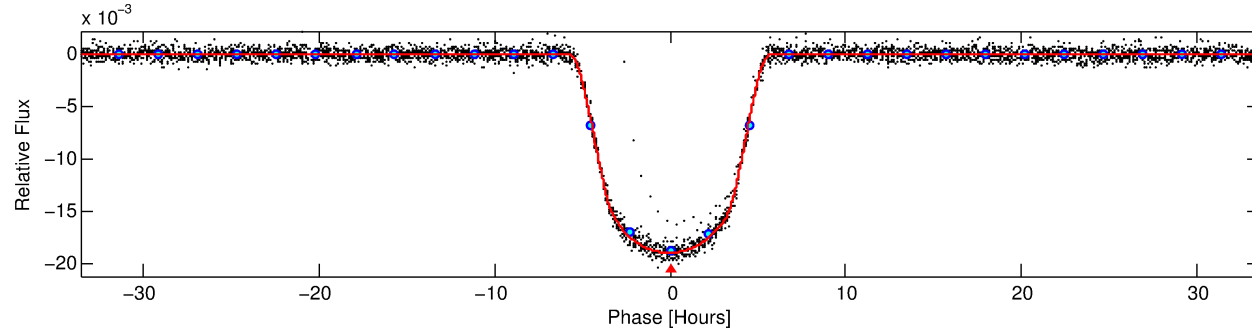
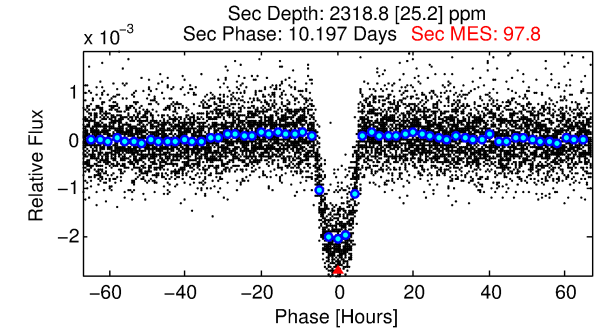
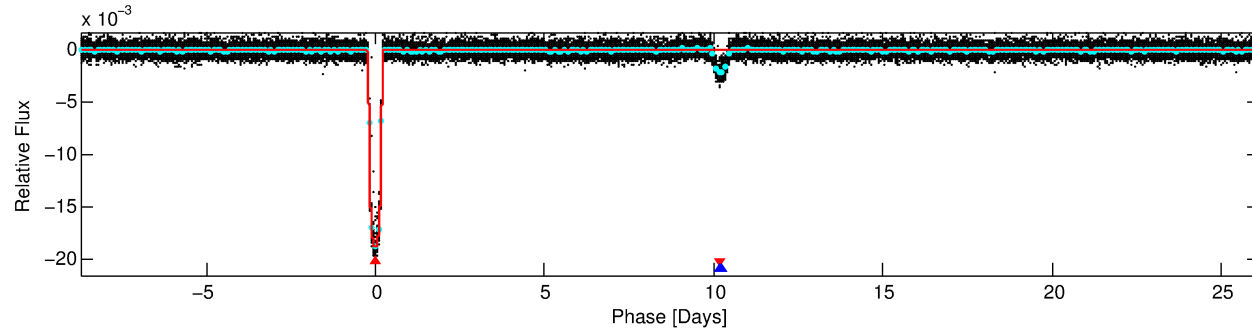
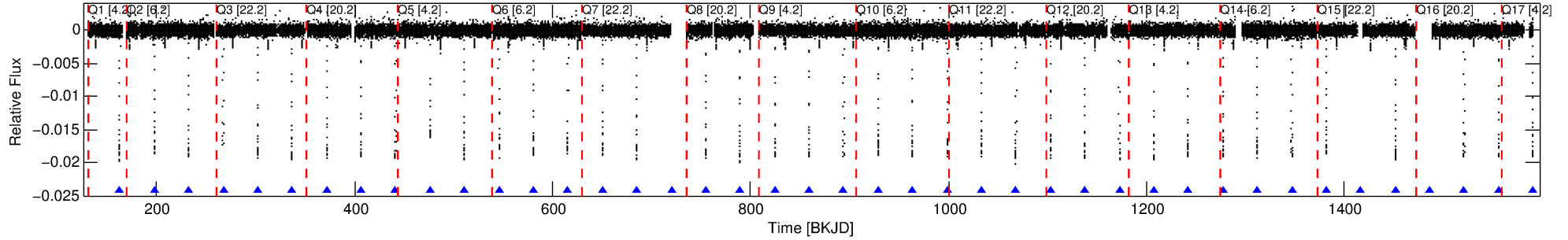
Ephemeris Match Information For 004042026-01

No Significant Match Found

DV One-Page Summary

KIC: 4042026 Candidate: 1 of 2 Period: 34.820 d
KOI: K01180.01 Corr: 0.999

Kp: 15.19 R*: 0.78 Rs Teff: 5114.0 K Logg: 4.52 Fe/H: -0.160



DV Fit Results:

Period = 34.82007 [0.00001] d
Epoch = 163.0159 [0.0003] BKJD
Rp/R* = 0.1333 [0.0002]
a/R* = 21.79 [0.10]
b = 0.67 [0.00]
Seff = 10.51 [1.98]
Teq = 459 [22] K
Rp = 11.40 [1.16] Re
a = 0.1893 [0.0177] AU
Ag = 351.60 [51.41] [6.82σ]
Teffp = 3074 [92] K [27.56σ]

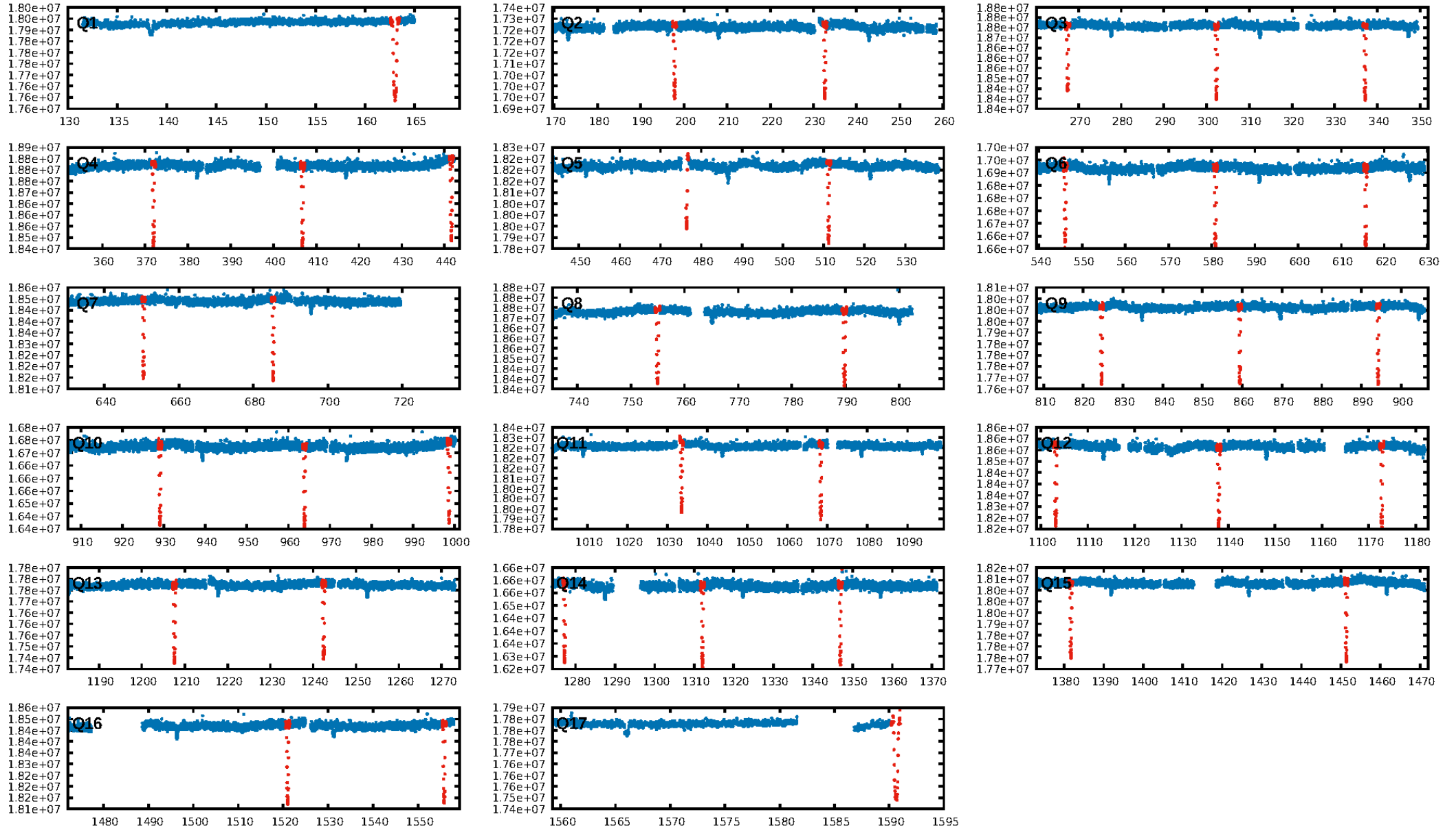
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: 0.0% [0.00σ]
ModelChiSquare2-sig: 0.0%
ModelChiSquareGof-sig: 100.0%
Bootstrap-pfa: 0.00e+00
RollingBand-fgt: 1.00 [37/37]
GhostDiagnostic-chr: 5.109
Centroid-sig: 0.0%
Centroid-so: 0.104 arcsec [6.66σ]
OotOffset-rm: 0.432 arcsec [4.41σ]
KicOffset-rm: 0.224 arcsec [3.12σ]
OotOffset-st: 4/4/4/4 [16]
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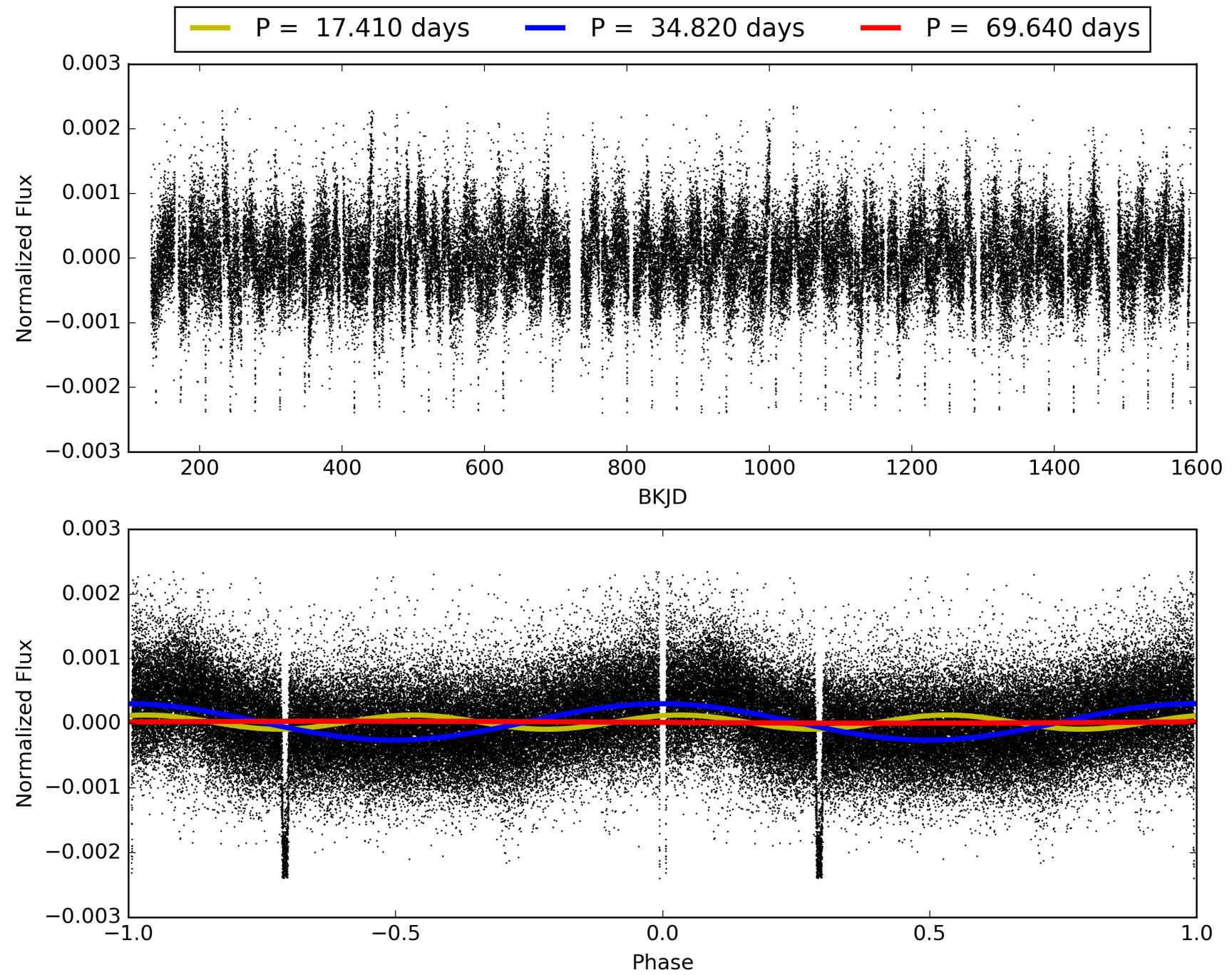
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This Data Validation Report Summary was produced in the Kepler Science Operations Center Pipeline at NASA Ames Research Center

TCE 004042026-01, PDC Light Curves

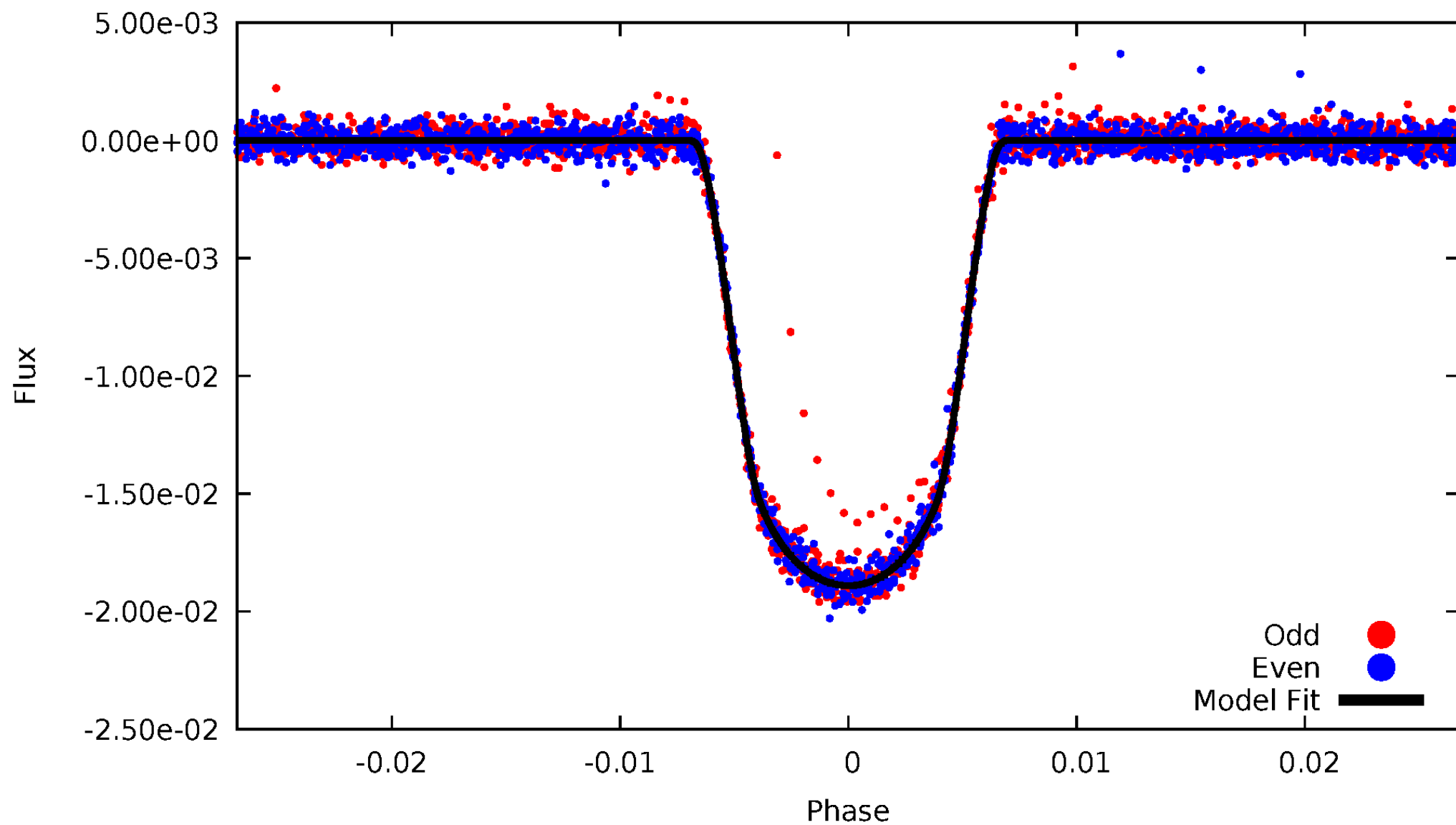


TCE 004042026-01



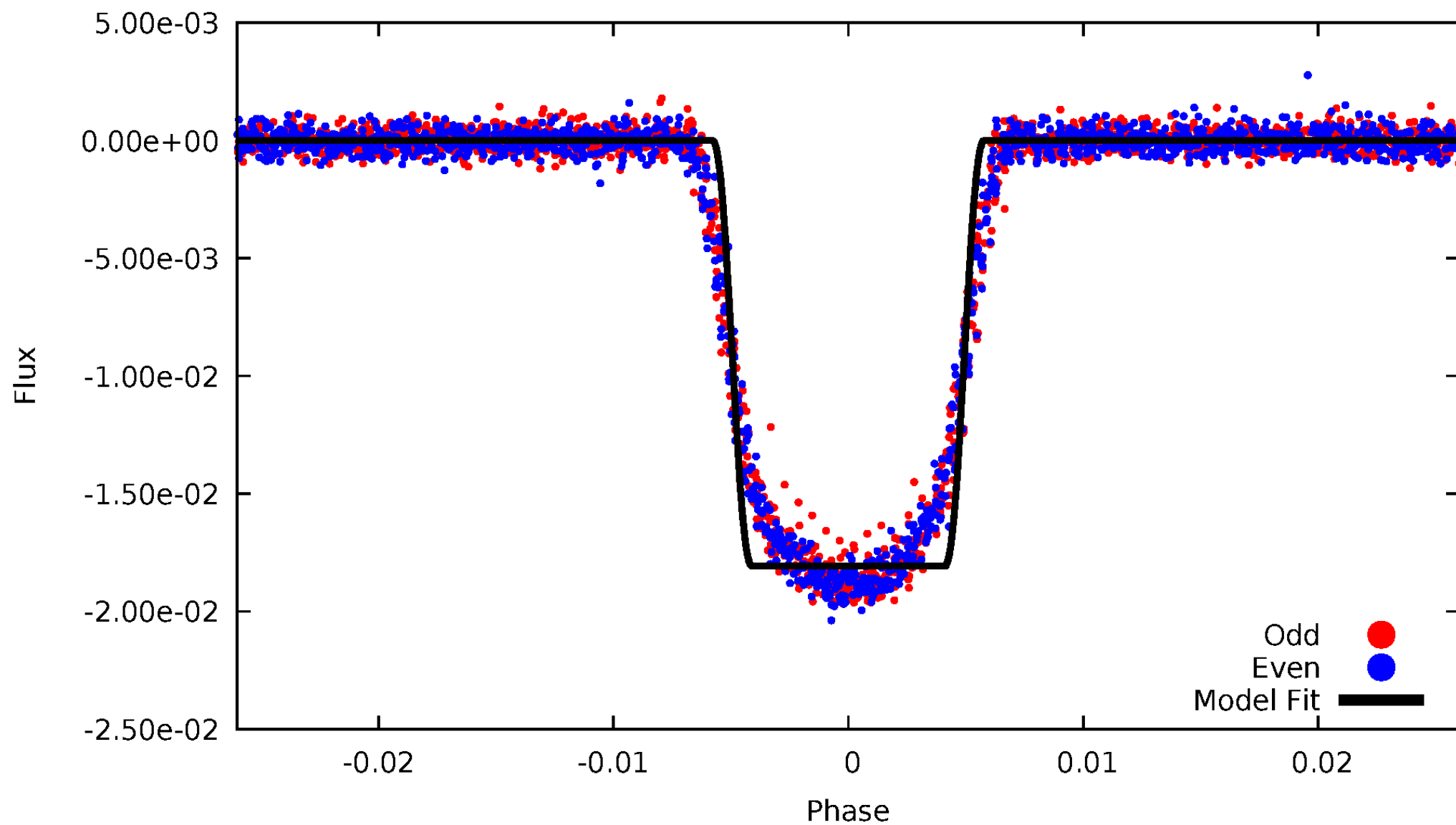
DV Odd/Even

TCE 004042026-01



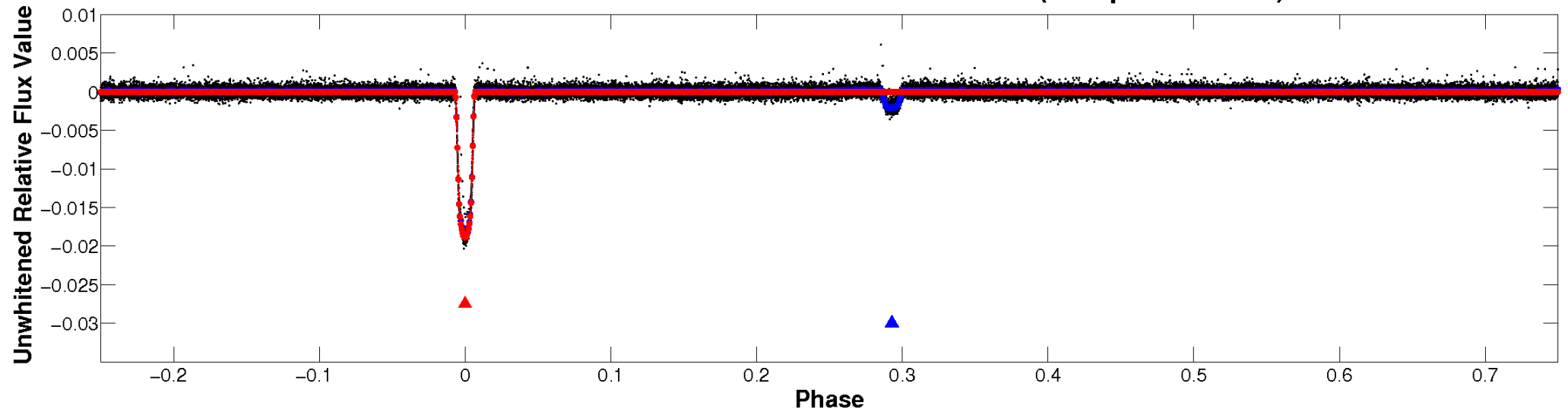
ALT Odd/Even

TCE 004042026-01

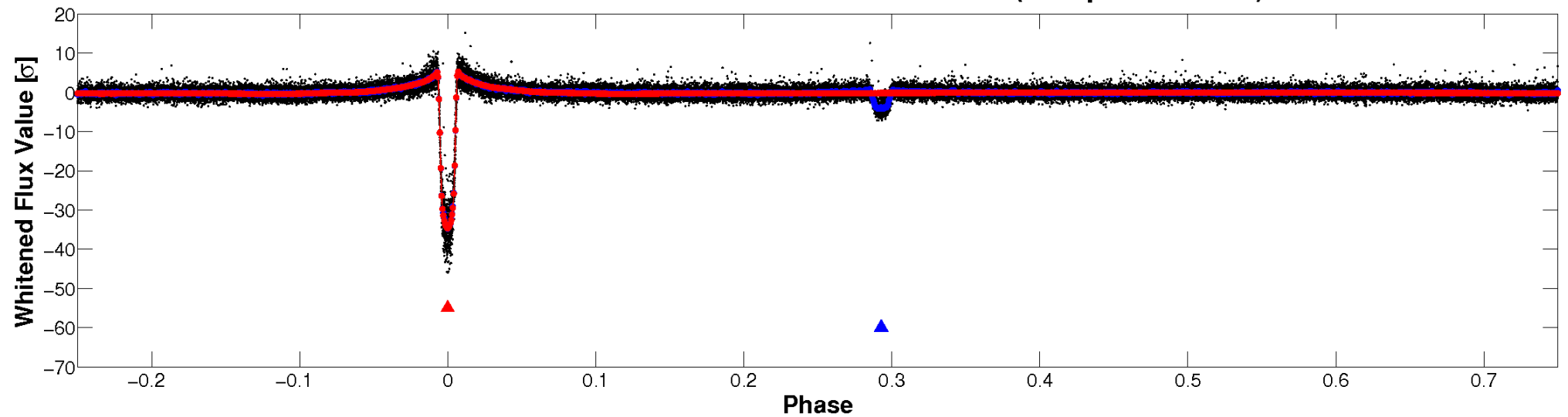


Non-Whitened Vs. Whitened Light Curve

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

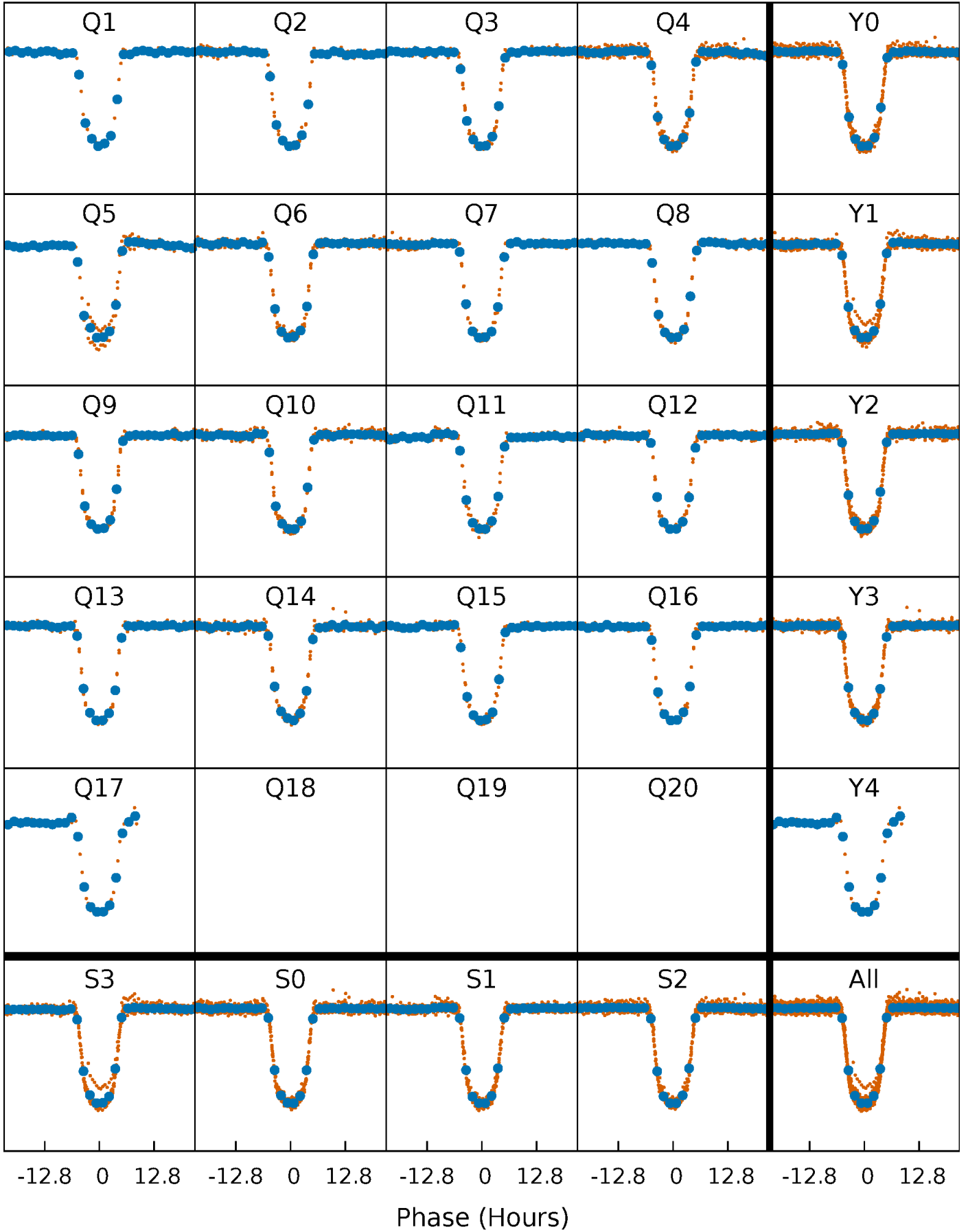


Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)



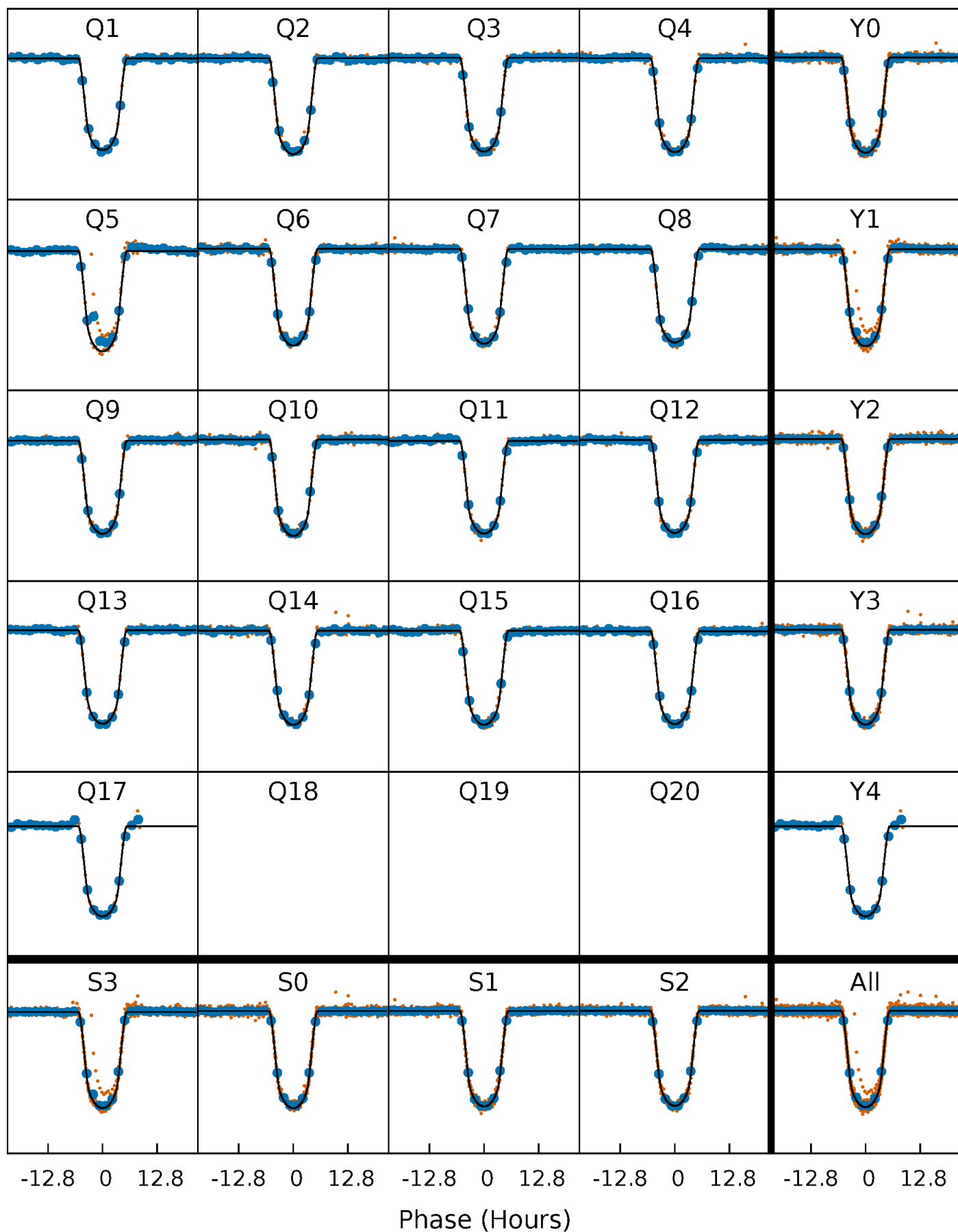
PDC Quarter-Phased Transit Curves

TCE 004042026-01 P= 34.820070 Days $T_0=163.015945$ (BKJD)



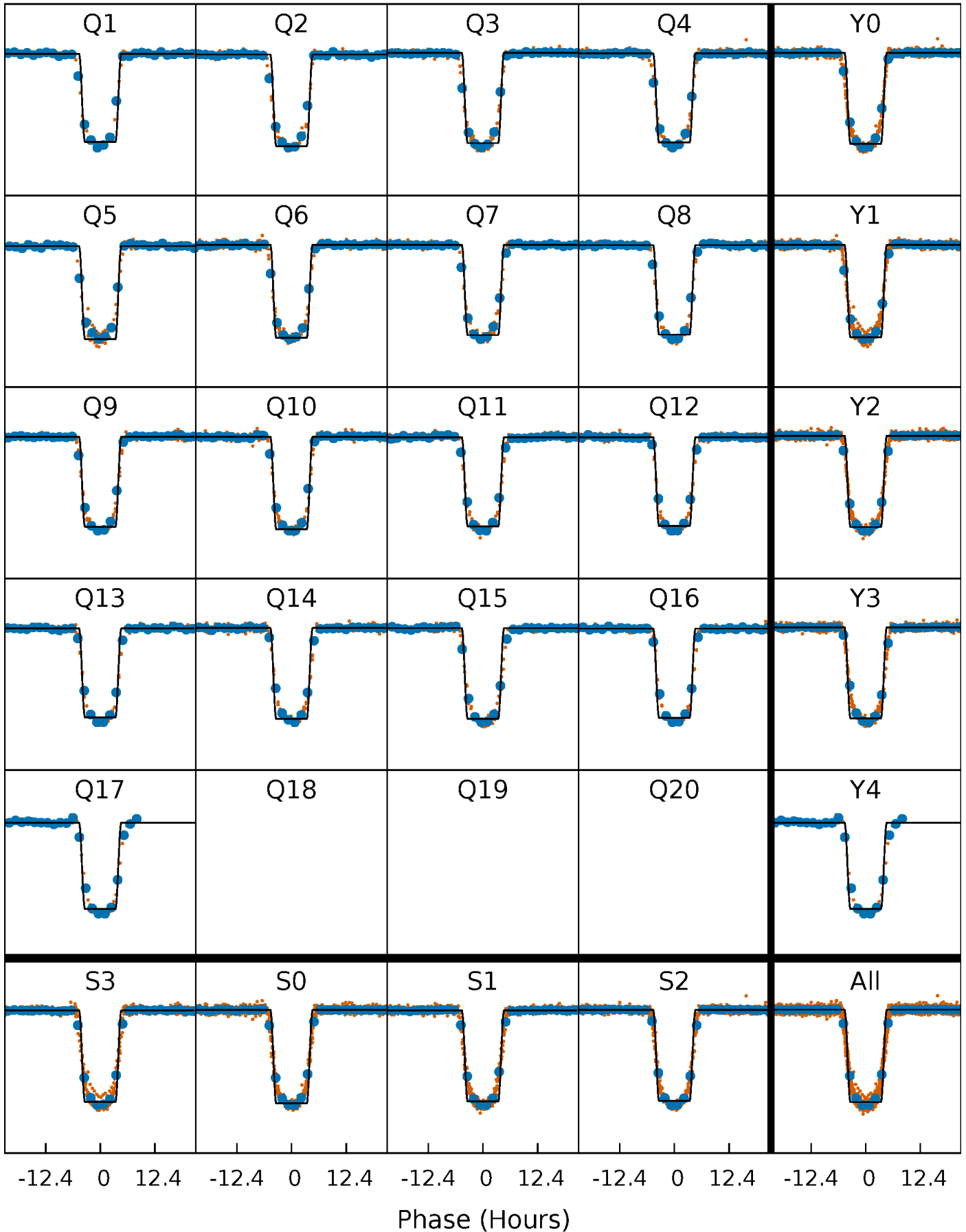
DV Quarter-Phased Transit Curves

TCE 004042026-01 P= 34.820070 Days $T_0=163.015945$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

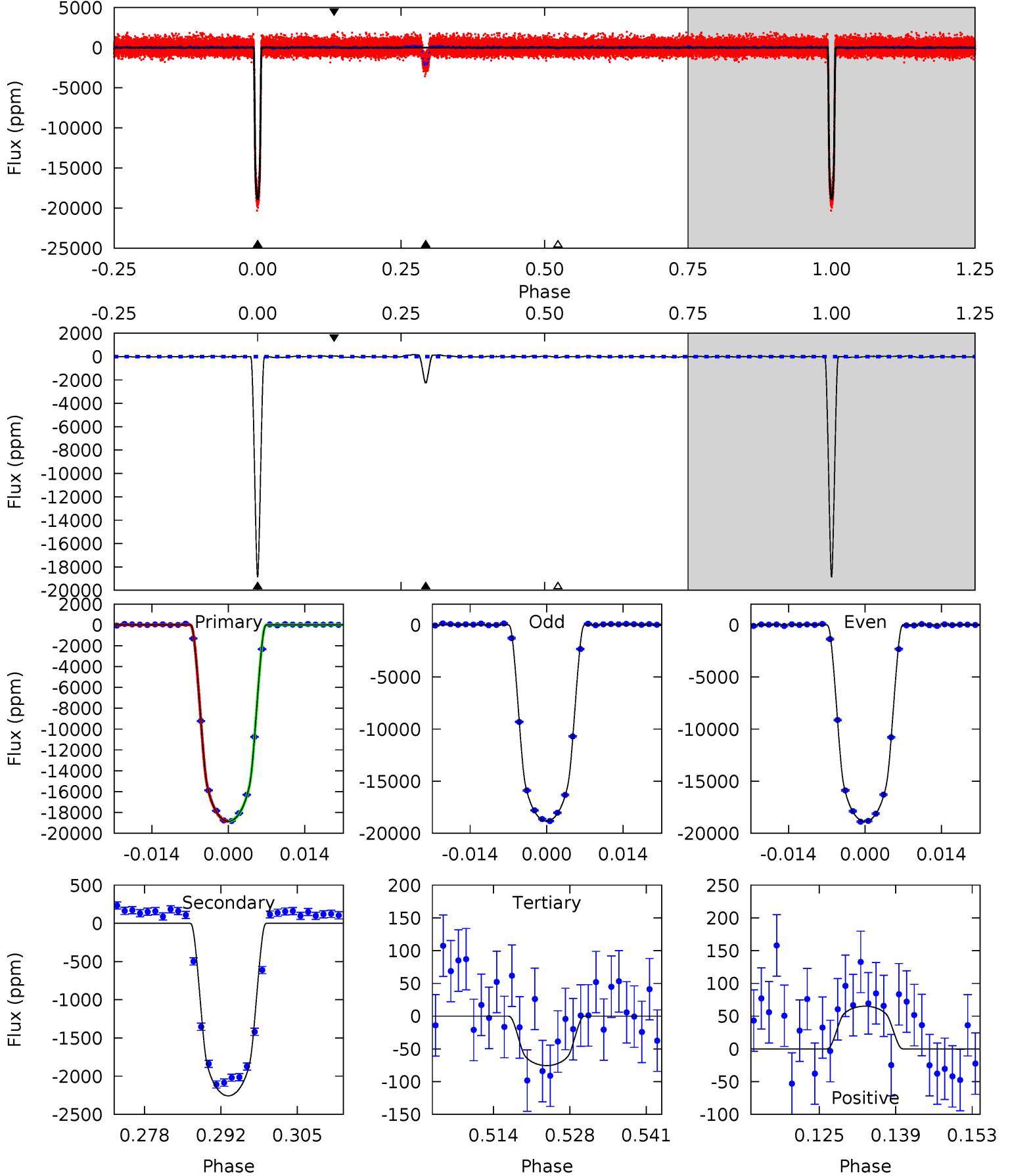
TCE 004042026-01 P= 34.819509 Days $T_0=163.027130$ (BKJD)



DV Model-Shift Uniqueness Test

004042026-01, P = 34.820070 Days, E = 128.195875 Days

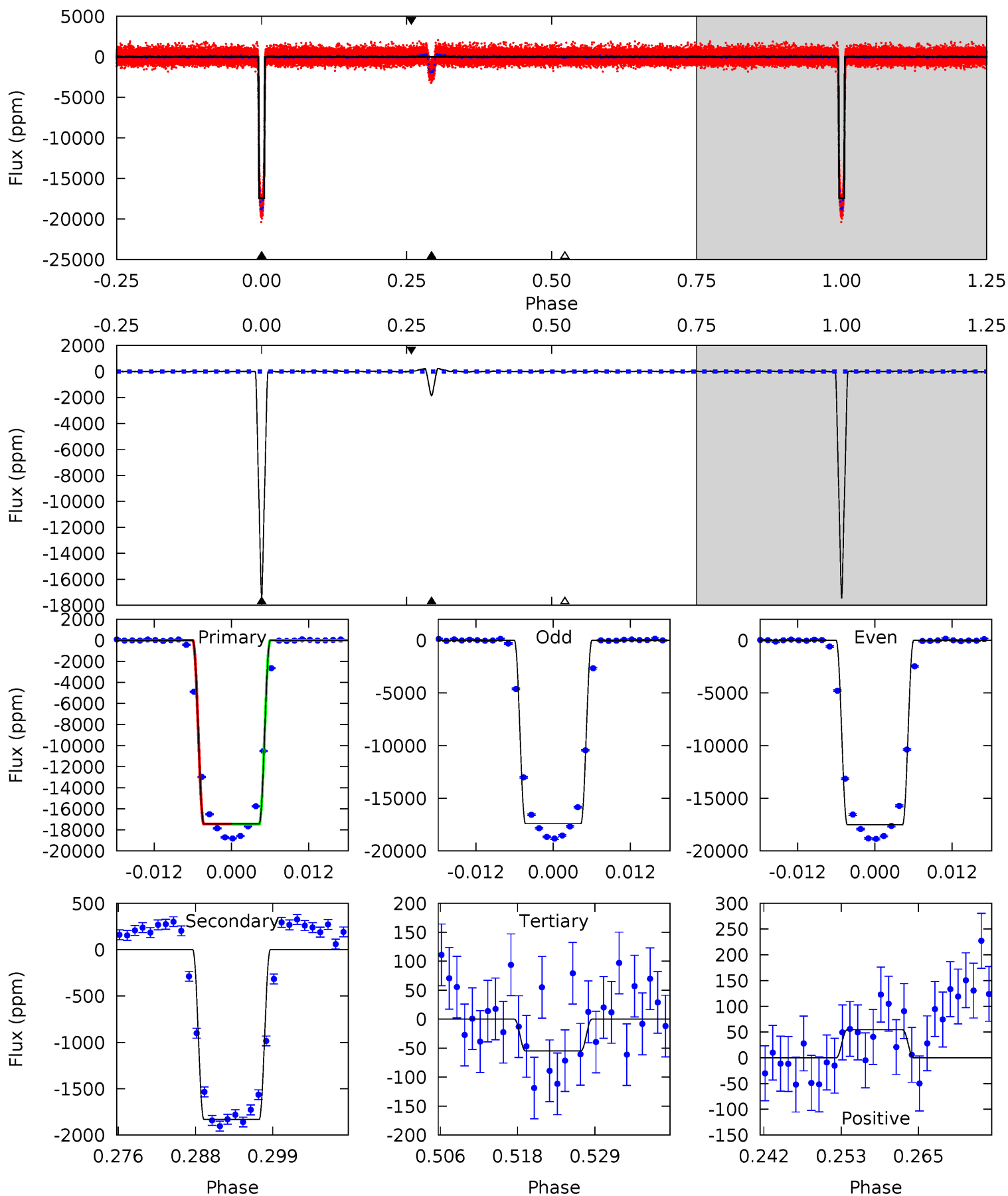
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
1256	150.3	5.03	4.34	4.96	2.46	2.51	1251	1251	145.3	145.9	1.55	1.00	0.01	0.05



Alt Model-Shift Uniqueness Test

004042026-01, P = 34.819509 Days, E = 128.207621 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
1036	108.8	3.26	3.24	5.00	2.53	1.92	1033	1033	105.5	105.6	2.61	1.00	0.01	0.08



Stellar Parameters For KIC 004042026

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	5114^{+153}_{-138}	$4.522^{+0.084}_{-0.063}$	$-0.160^{+0.300}_{-0.300}$	$0.784^{+0.080}_{-0.080}$	$0.746^{+0.103}_{-0.059}$	$2.183^{+0.809}_{-0.458}$
	+3%/-3%	+2%/-1%	+188%/-188%	+10%/-10%	+14%/-8%	+37%/-21%
Source	PHO1	KIC0	KIC0	DSEP		

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

Secondary Eclipse Parameters for KIC 004042026-01 / KOI 1180.01

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	-2257 ± 15	$11.36^{+0.77}_{-0.67}$	639^{+25}_{-25}	3499^{+73}_{-71}	349^{+38}_{-35}
Alt.	-1831 ± 17	$11.58^{+0.70}_{-0.76}$	642^{+23}_{-25}	3377^{+77}_{-69}	273^{+35}_{-26}

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 $A_{obs} \gg 1.0$

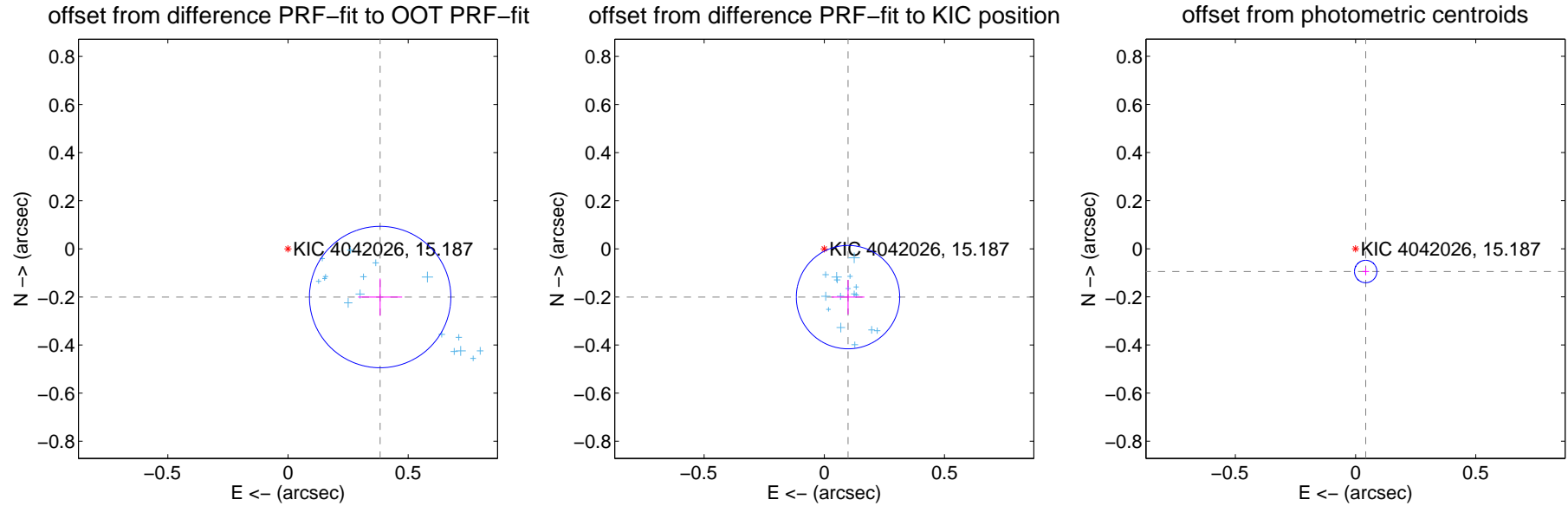
DV Centroid Data

Supplemental centroid analysis for 004042026-01. Kepler magnitude: 15.19. Transit SNR 760.87

There are 16 quarters with good PRF difference image offsets

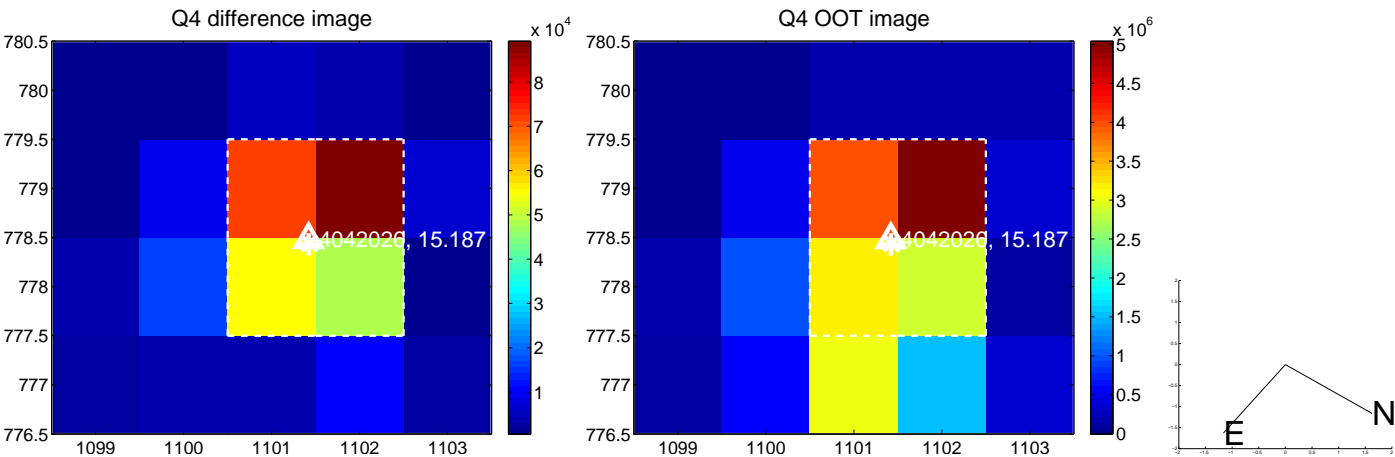
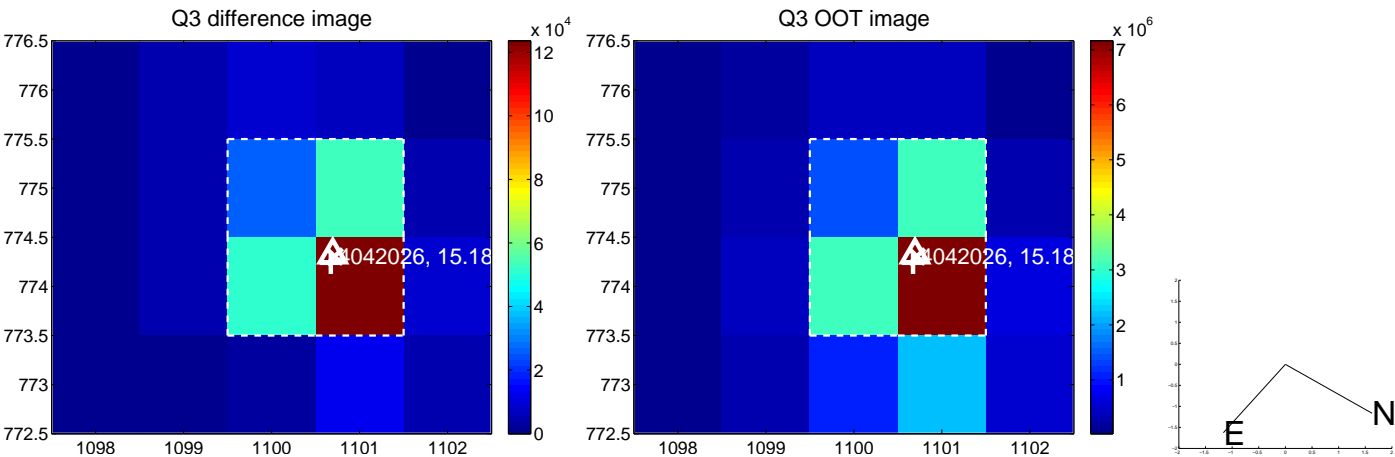
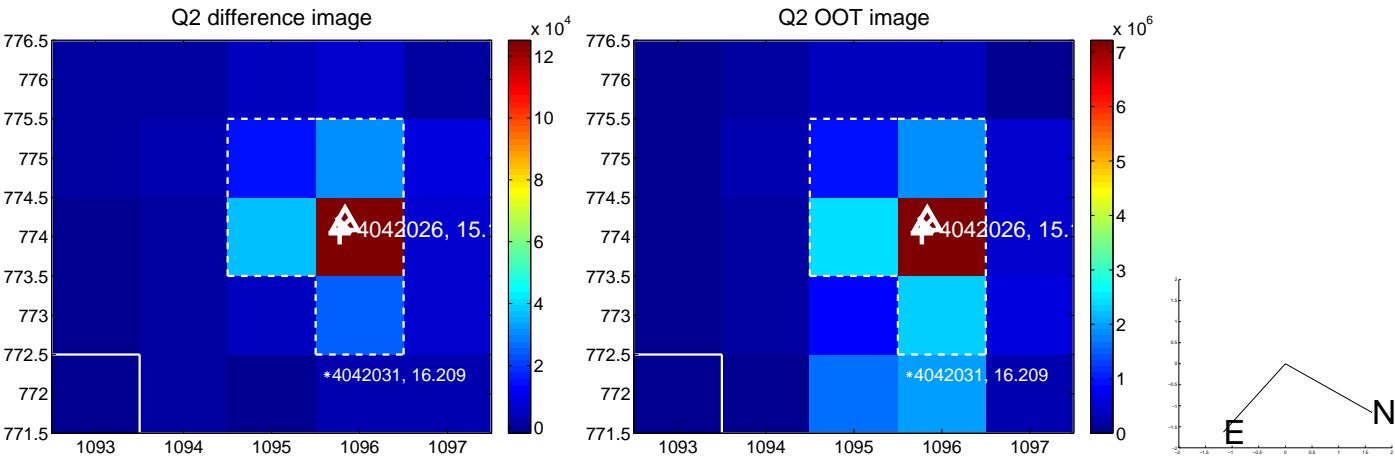
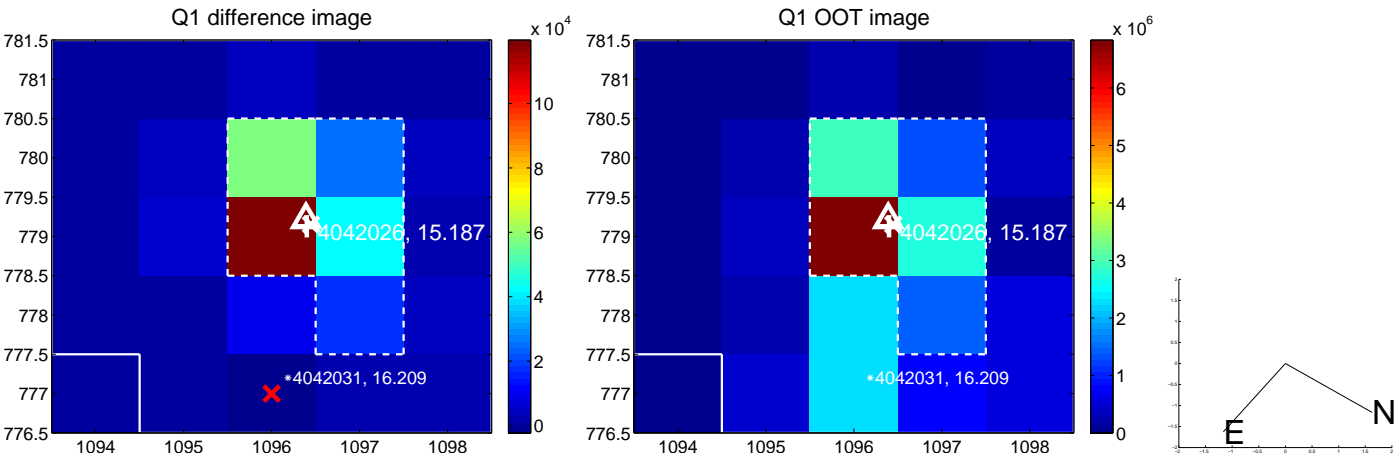
The direct PRF centroid is offset from the target star catalog position by about 0.12 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.432 ± 0.098	4.41	-0.383 ± 0.092	-0.201 ± 0.077
PRF-fit source offset from KIC position	0.224 ± 0.072	3.12	-0.099 ± 0.068	-0.201 ± 0.072
photometric centroid source offset	0.10 ± 0.02	6.66	-0.04 ± 0.01	-0.09 ± 0.02

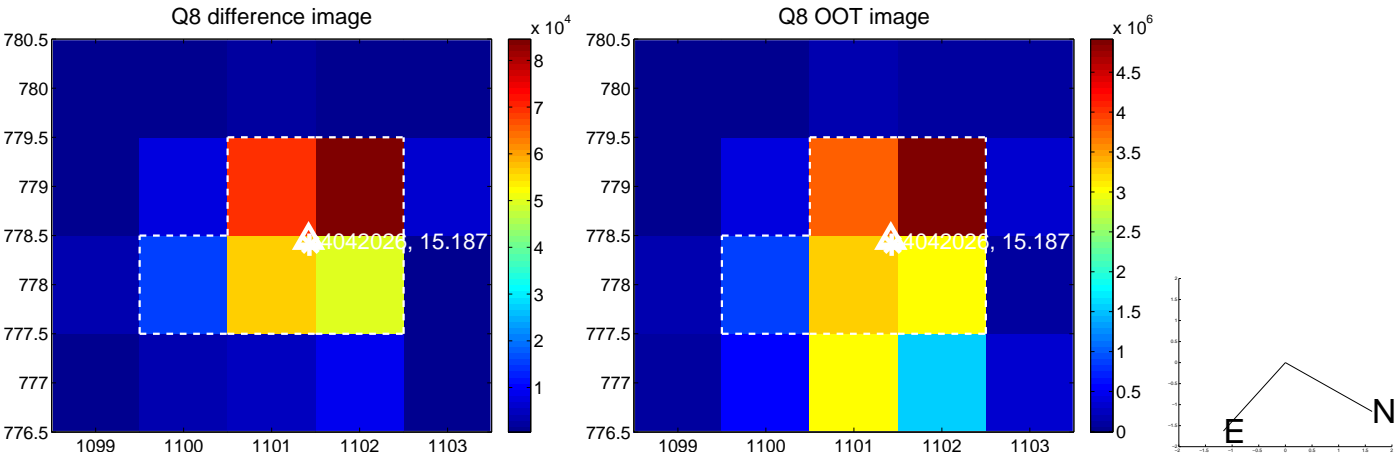
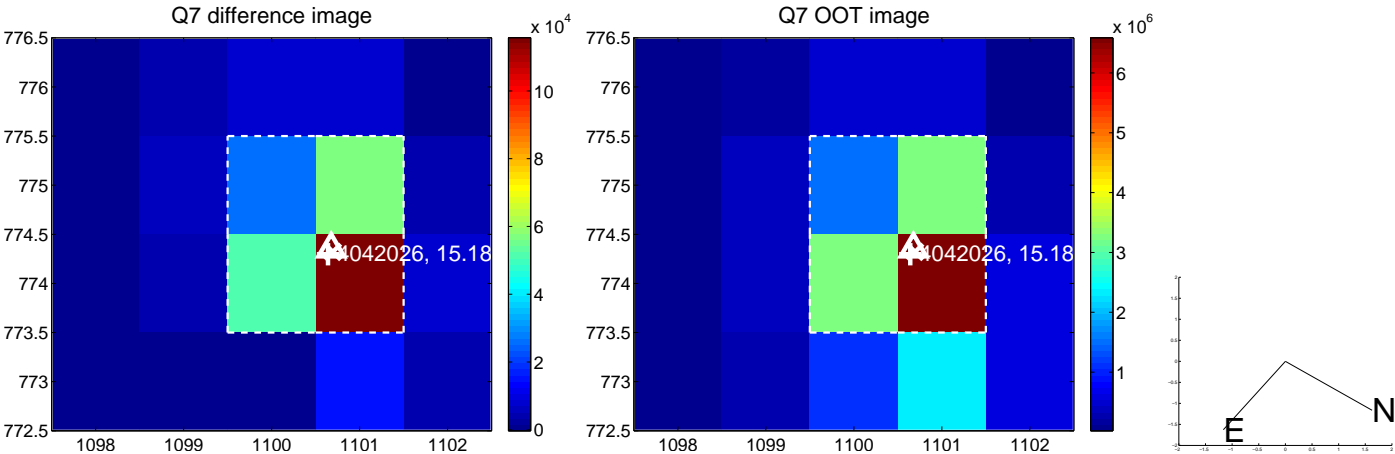
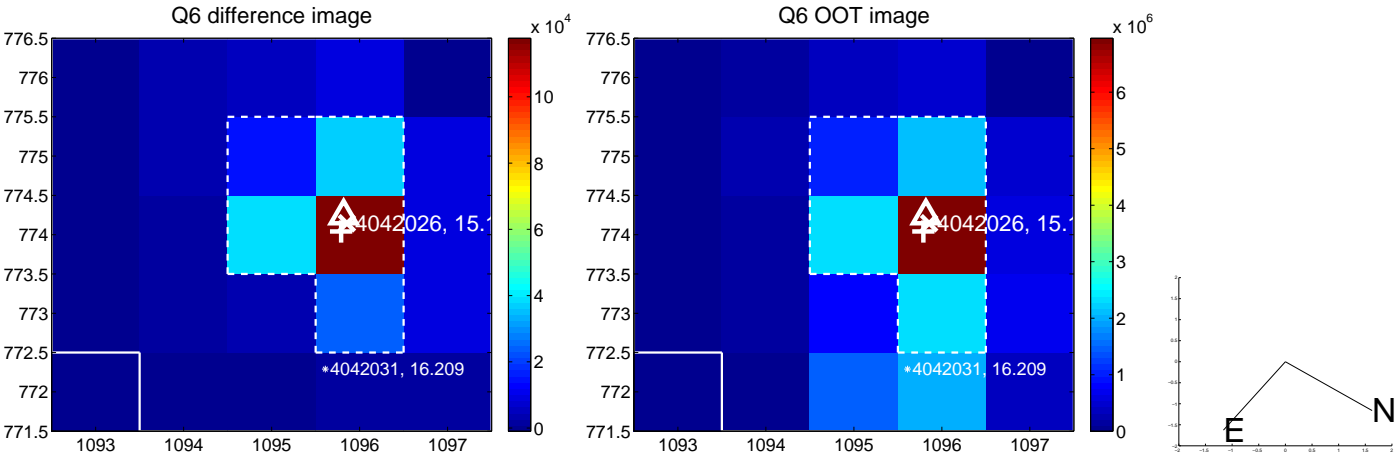
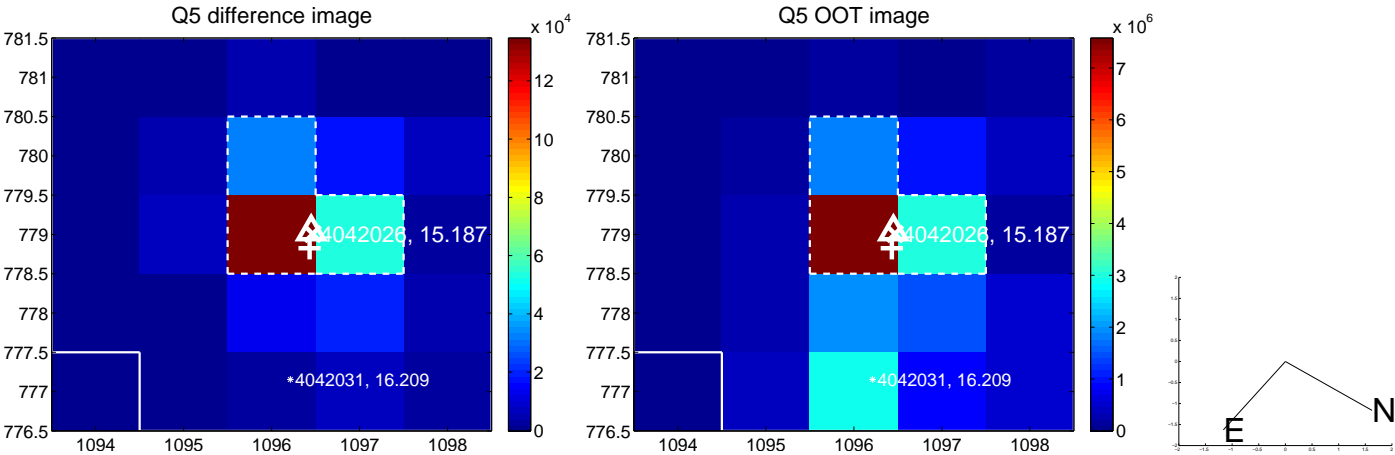


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses:** good quarterly centroid offsets; **Vermillion crosses:** bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

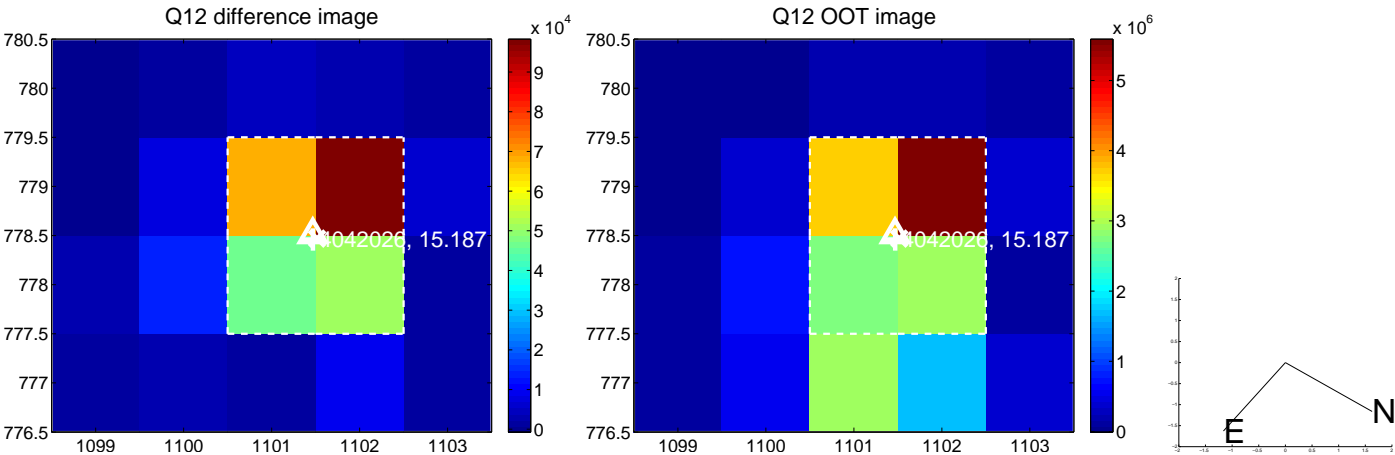
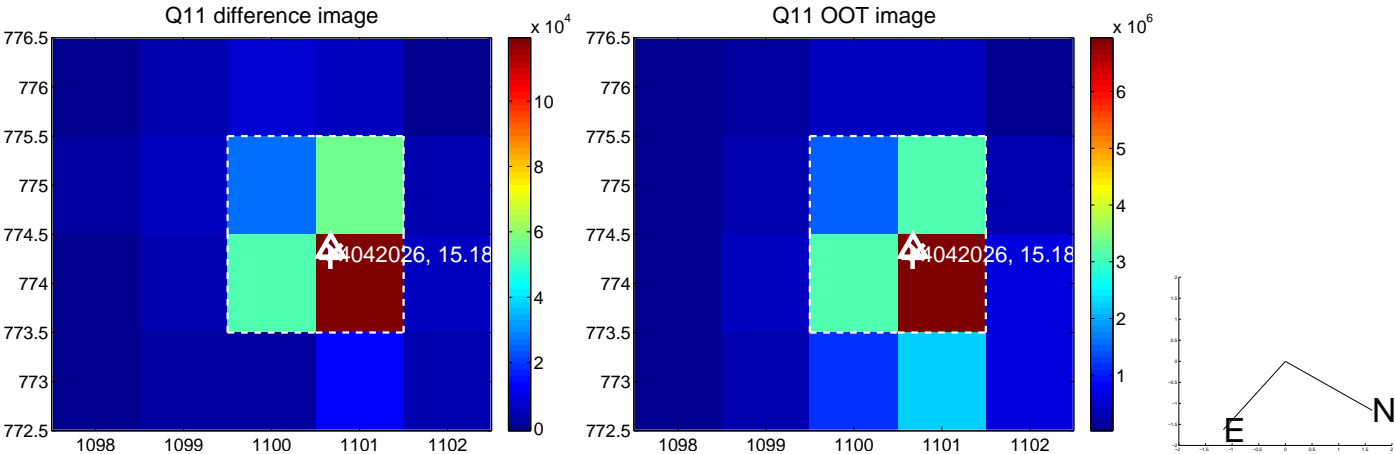
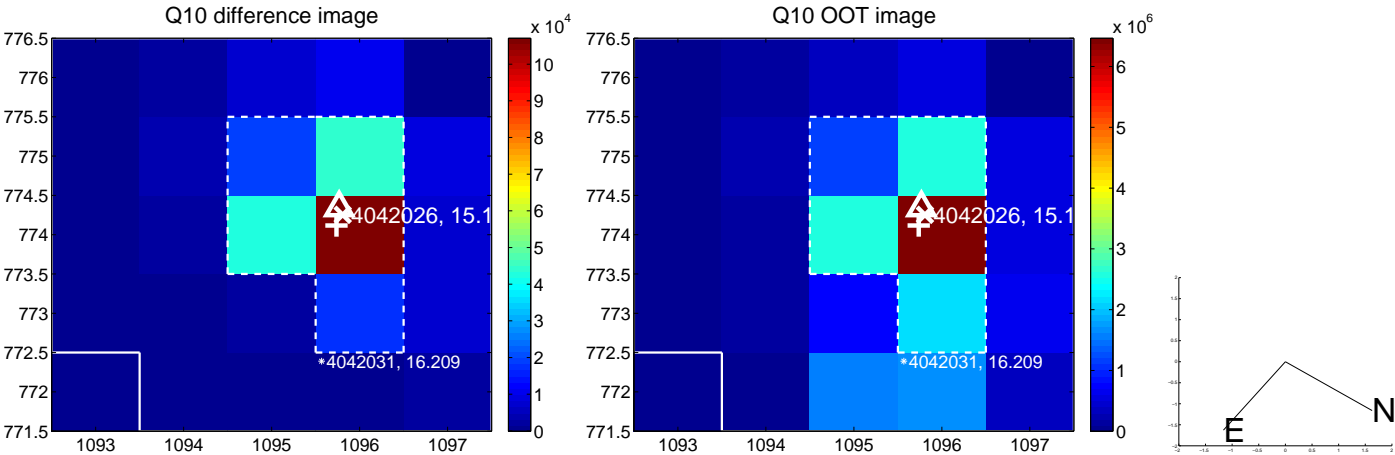
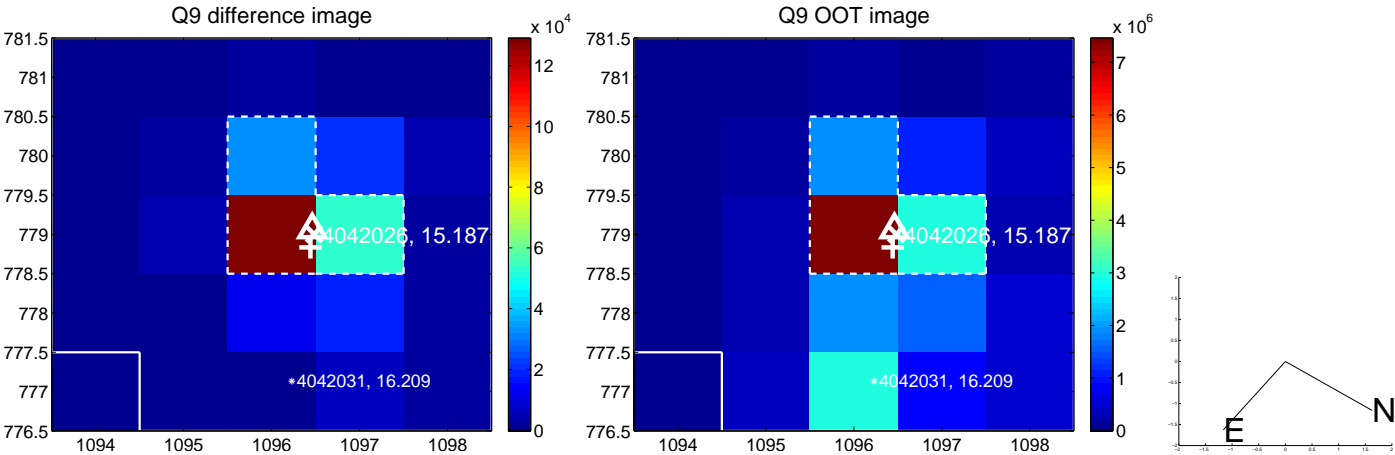
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



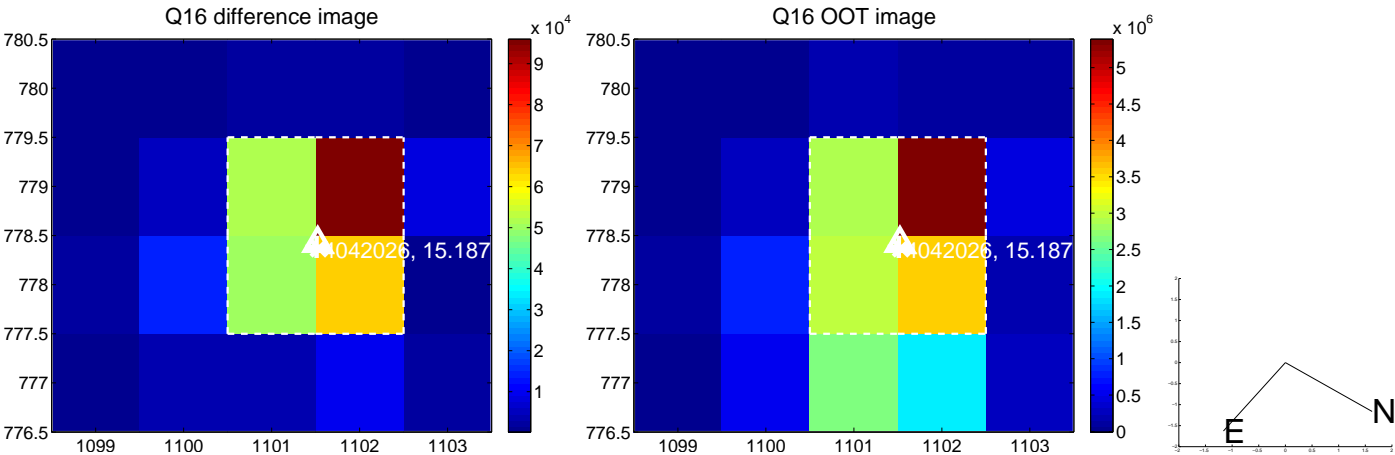
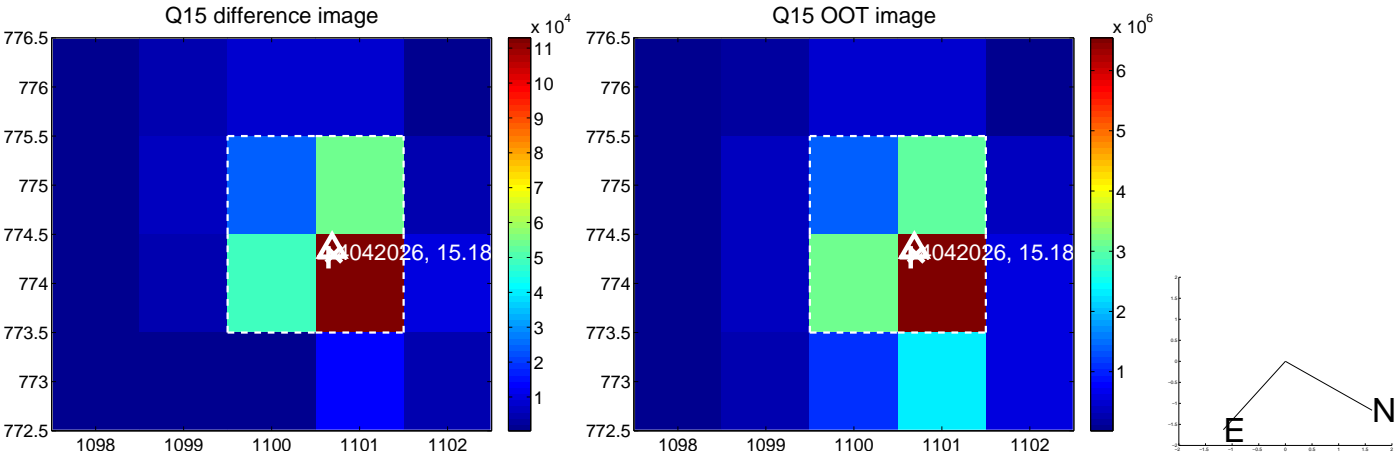
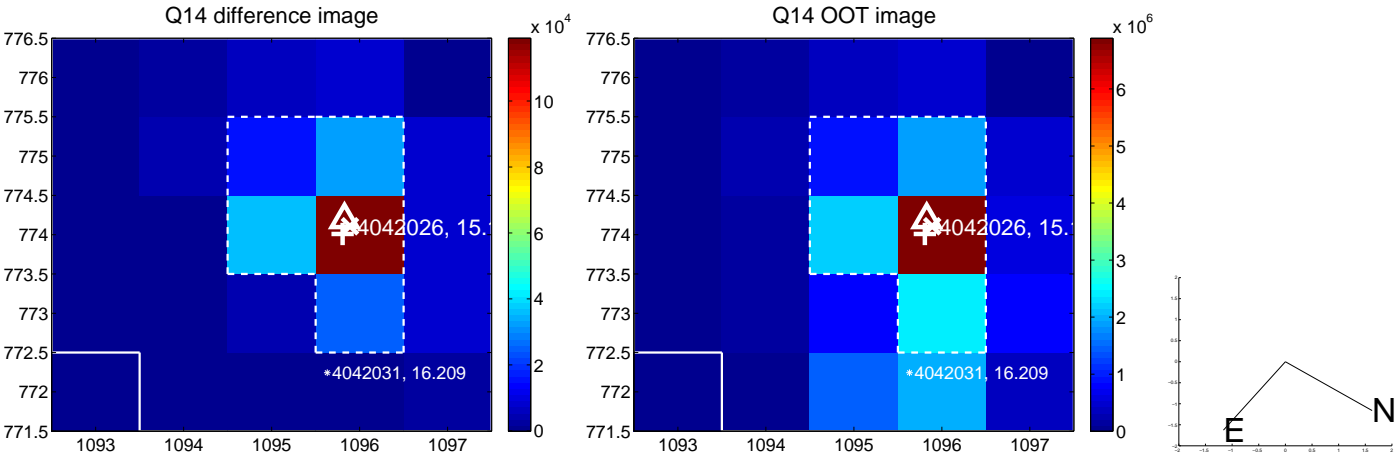
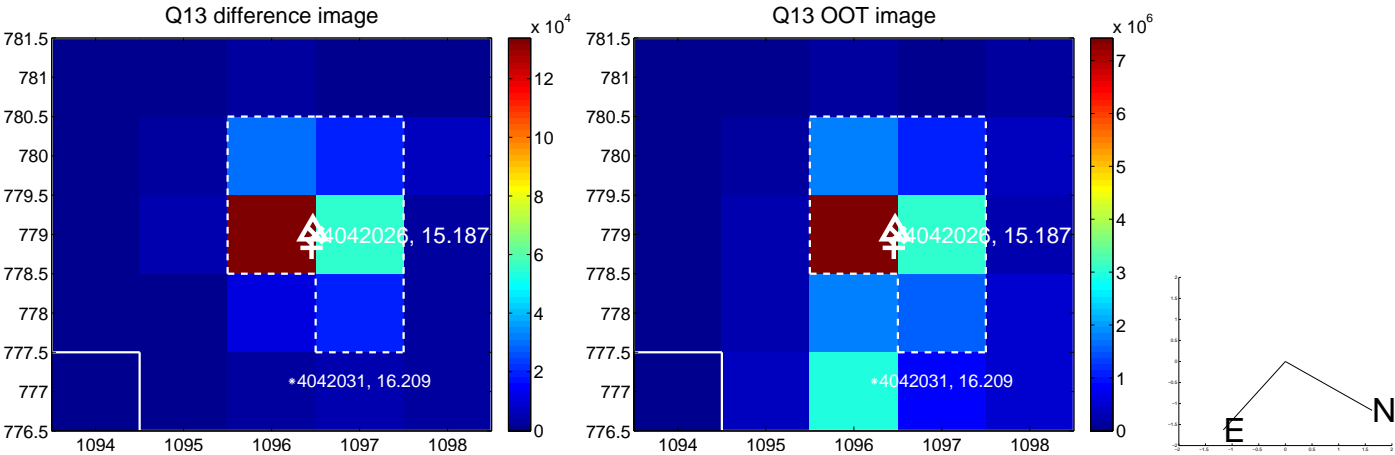
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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



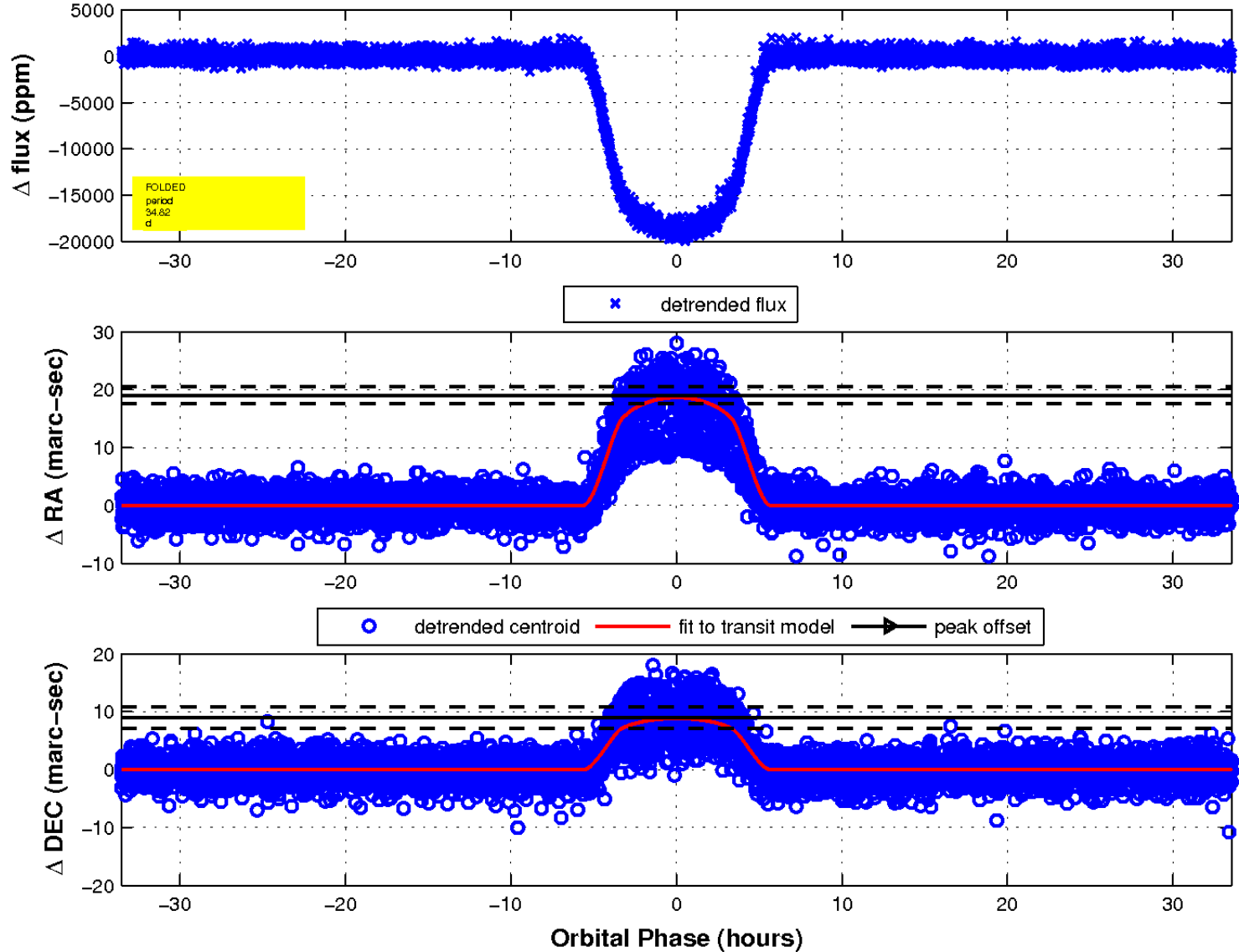
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.

Q17 no difference image

Q17 no OOT image

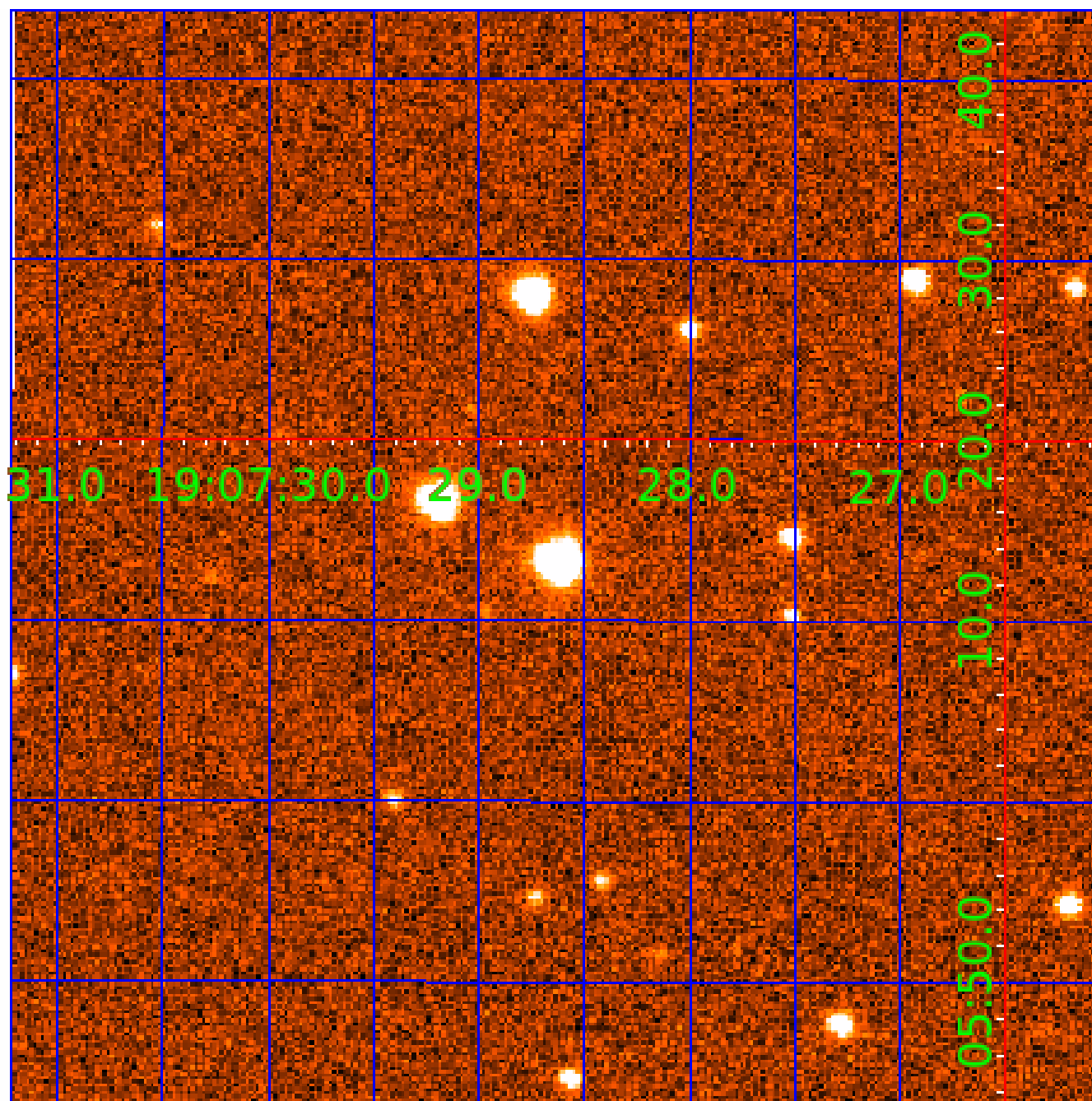


fluxWeightedCentroids, Planet 1 of 2



UKIRT Image

Declination



KIC 004042026

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})
004042026-01	OBS	1180.01	34.820070	163.015945	18905.1	11.184	753.4	760.9	0.78	5114	11.40	10.51
004042026-02	OBS	No	34.820340	138.389001	2287.1	12.731	101.5	102.2	0.78	5114	4.57	10.51

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
004042026-01	OBS	FP	0.00	0	1	0	0	MOD_SEC_DV—MOD_SEC_ALT—HAS_SEC_TCE
004042026-02	OBS	FP	0.00	1	1	0	0	IS_SEC_TCE

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.

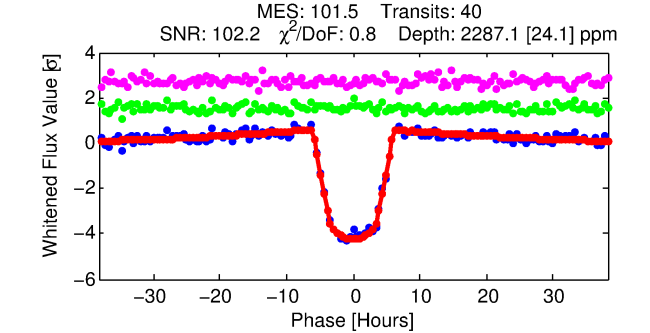
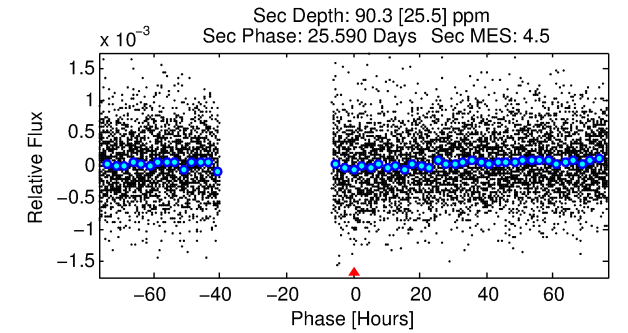
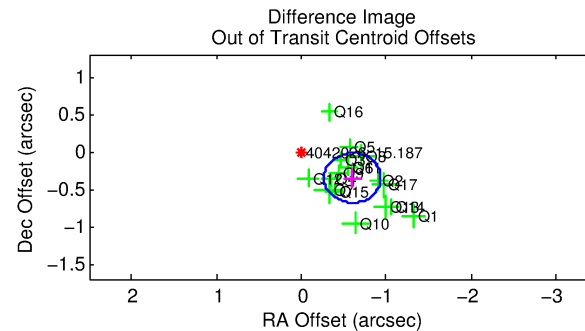
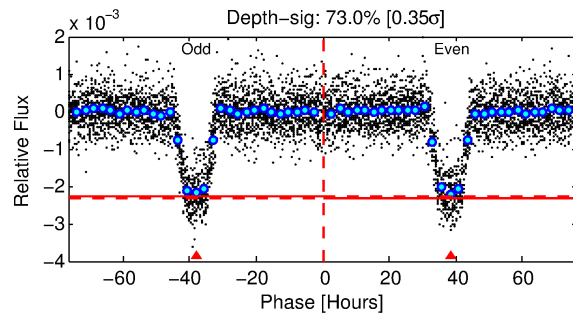
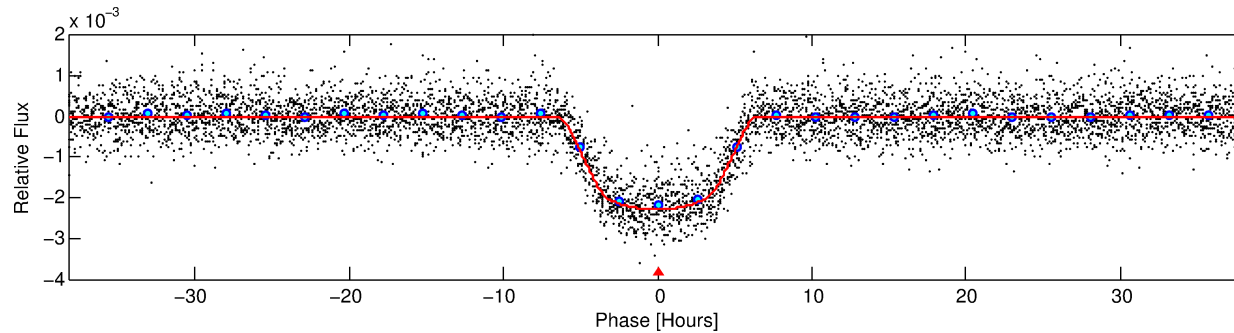
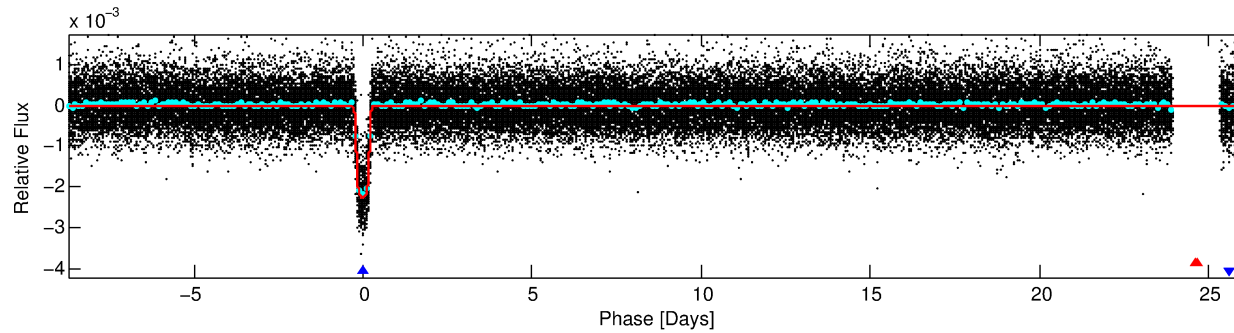
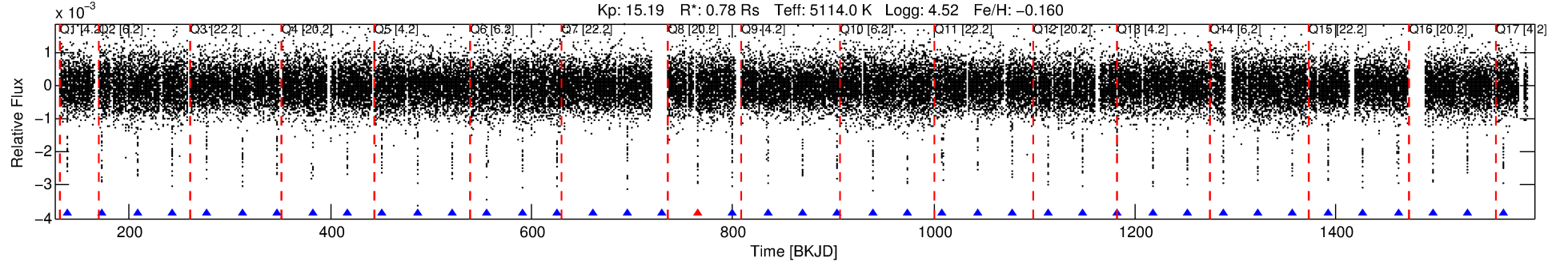
Ephemeris Match Information For 004042026-02

No Significant Match Found

DV One-Page Summary

KIC: 4042026 Candidate: 2 of 2 Period: 34.820 d
KOI: K01180 Corr: No Ephemeris Match

Kp: 15.19 R*: 0.78 Rs Teff: 5114.0 K Logg: 4.52 Fe/H: -0.160



DV Fit Results:

Period = 34.82034 [0.00011] d
Epoch = 138.3890 [0.0027] BKJD
Rp/R* = 0.0535 [0.0005]
a/R* = 11.34 [0.31]
b = 0.90 [0.01]
Seff = 10.51 [1.98]
Teq = 459 [22] K
Rp = 4.57 [0.47] Re
a = 0.1893 [0.0177] AU
Ag = 85.09 [27.11] [3.10σ]
Teffp = 2156 [166] K [10.15σ]

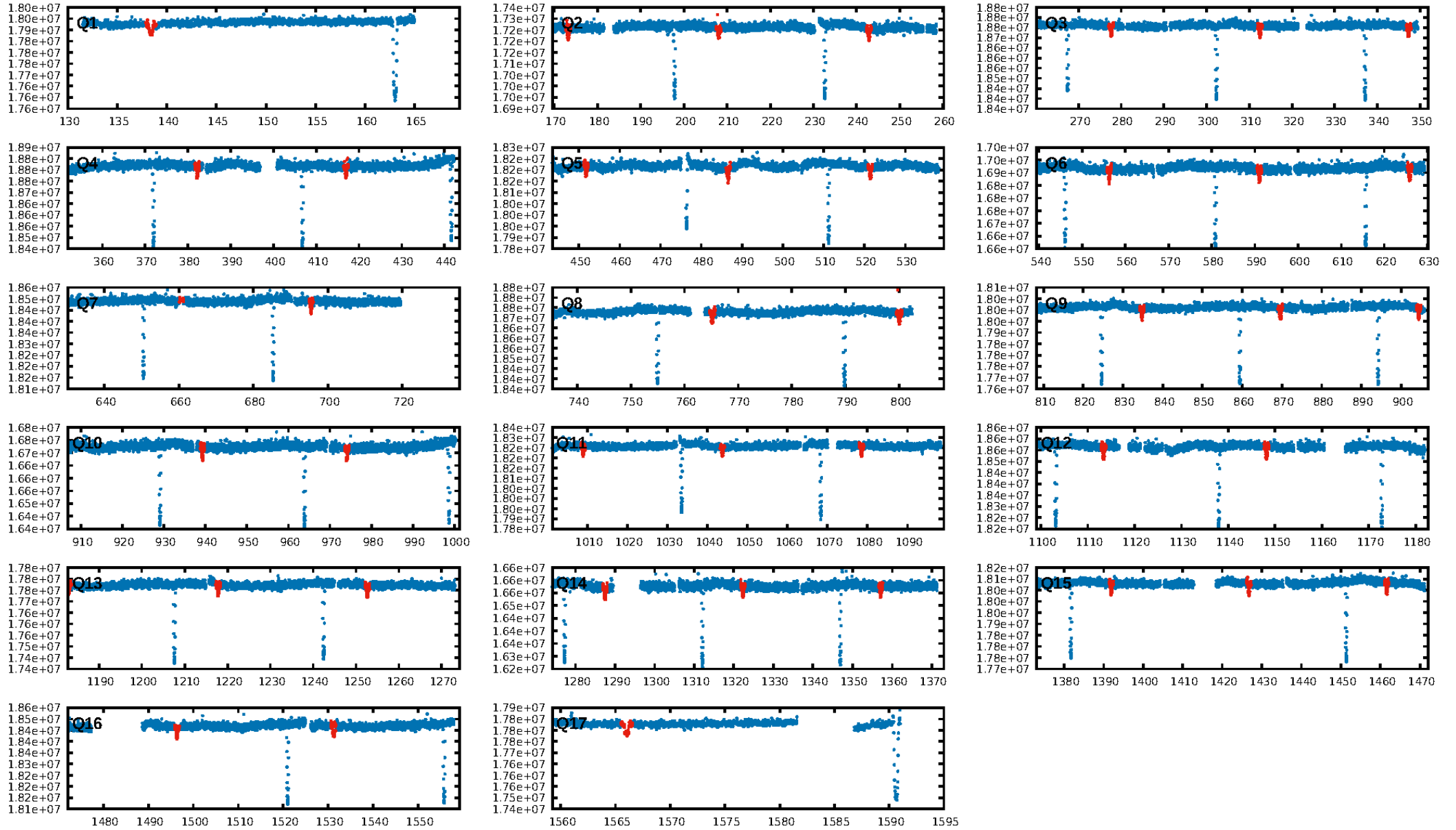
DV Diagnostic Results:

ShortPeriod-sig: 0.0% [0.00σ]
LongPeriod-sig: N/A
ModelChiSquare2-sig: 14.6%
ModelChiSquareGof-sig: 100.0%
Bootstrap-pfa: 0.00e+00
RollingBand-fgt: 0.97 [37/38]
GhostDiagnostic-chr: 4.641
Centroid-sig: 0.0%
Centroid-so: 0.093 arcsec [0.85σ]
OotOffset-rm: 0.698 arcsec [6.30σ]
KicOffset-rm: 0.379 arcsec [3.51σ]
OotOffset-st: 4/4/4/5 [17]
KicOffset-st: 4/4/4/5 [17]
DiffImageQuality-fgm: 1.00 [17/17]
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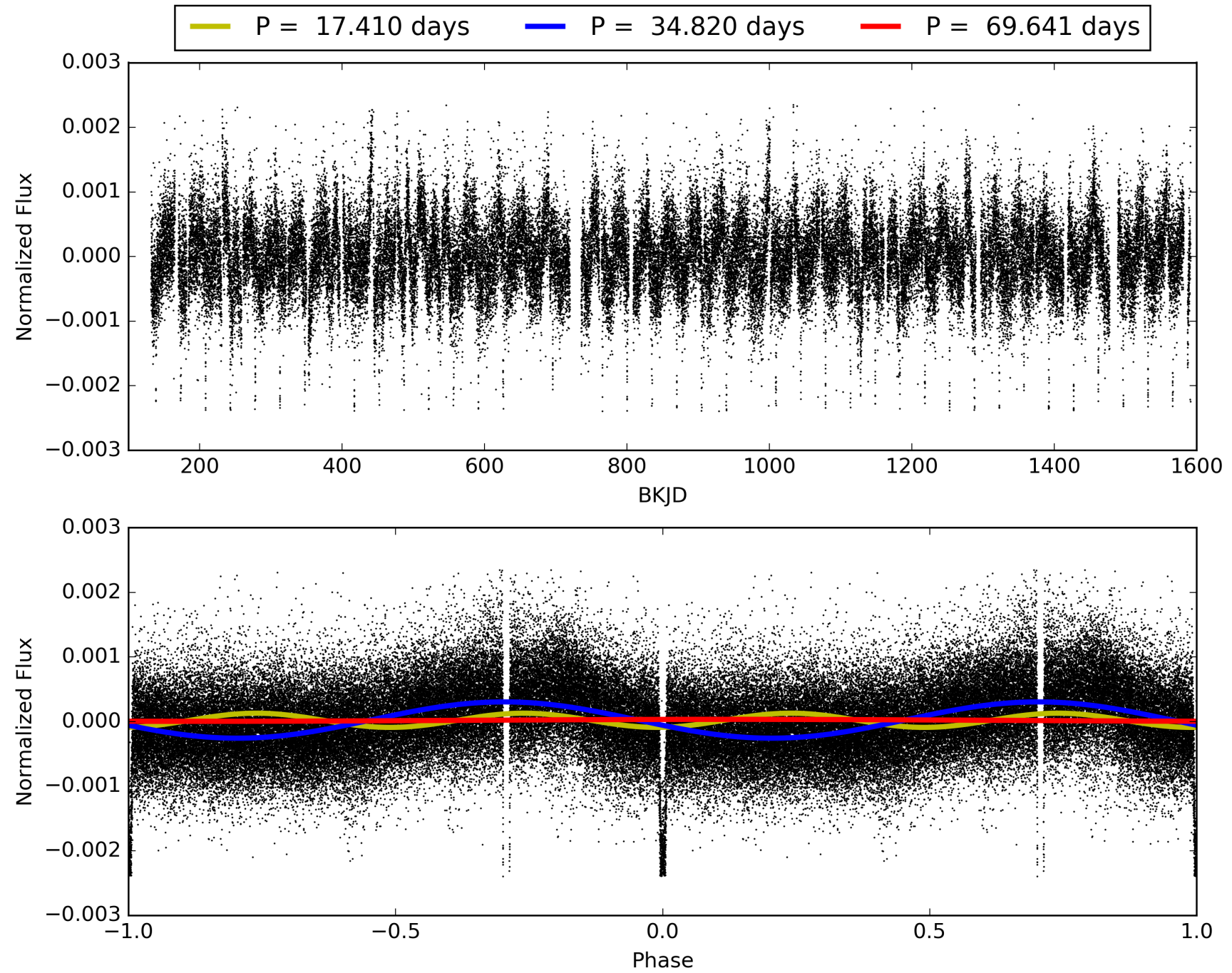
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 31-Jan-2016 21:40:20 Z

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

TCE 004042026-02, PDC Light Curves

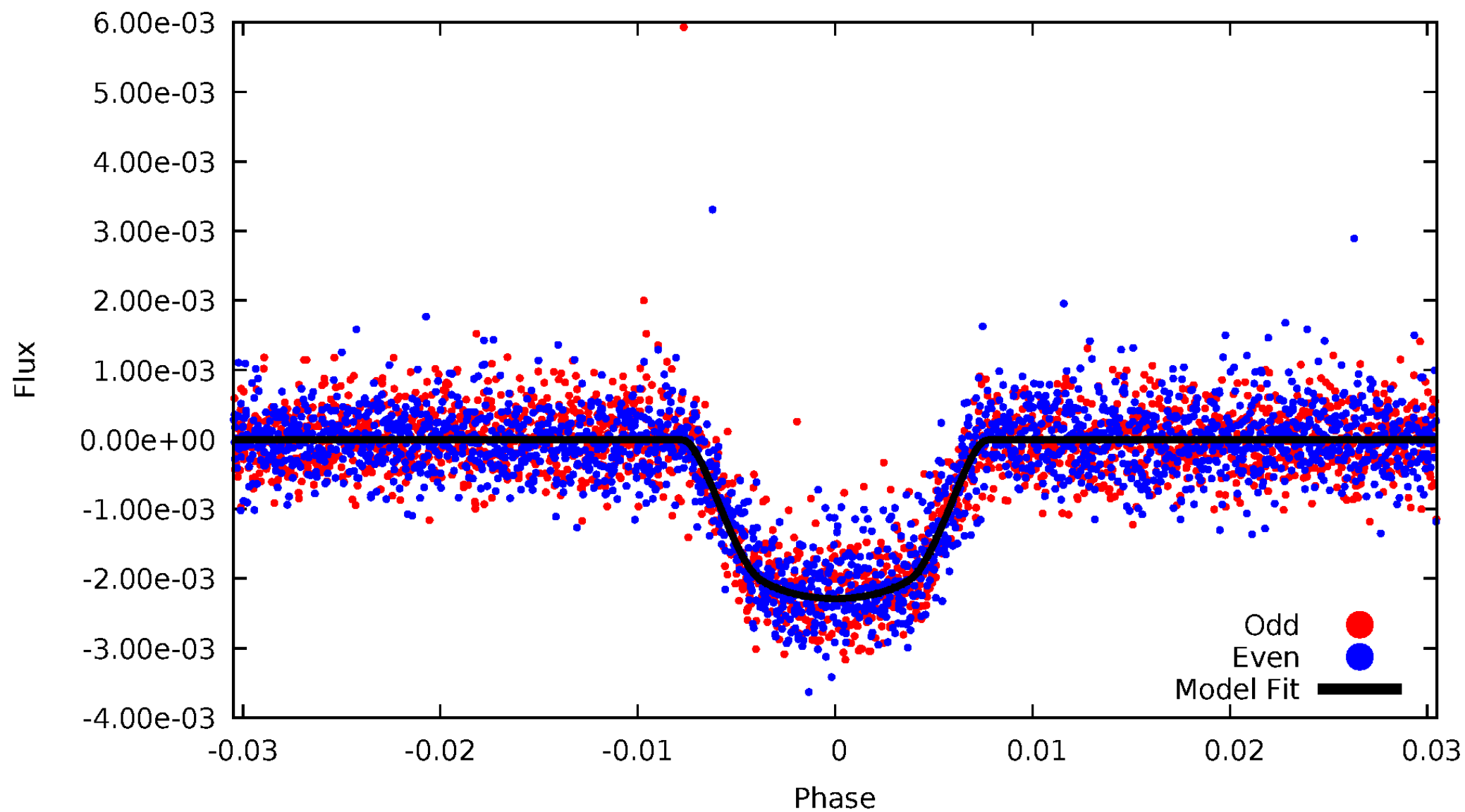


TCE 004042026-02



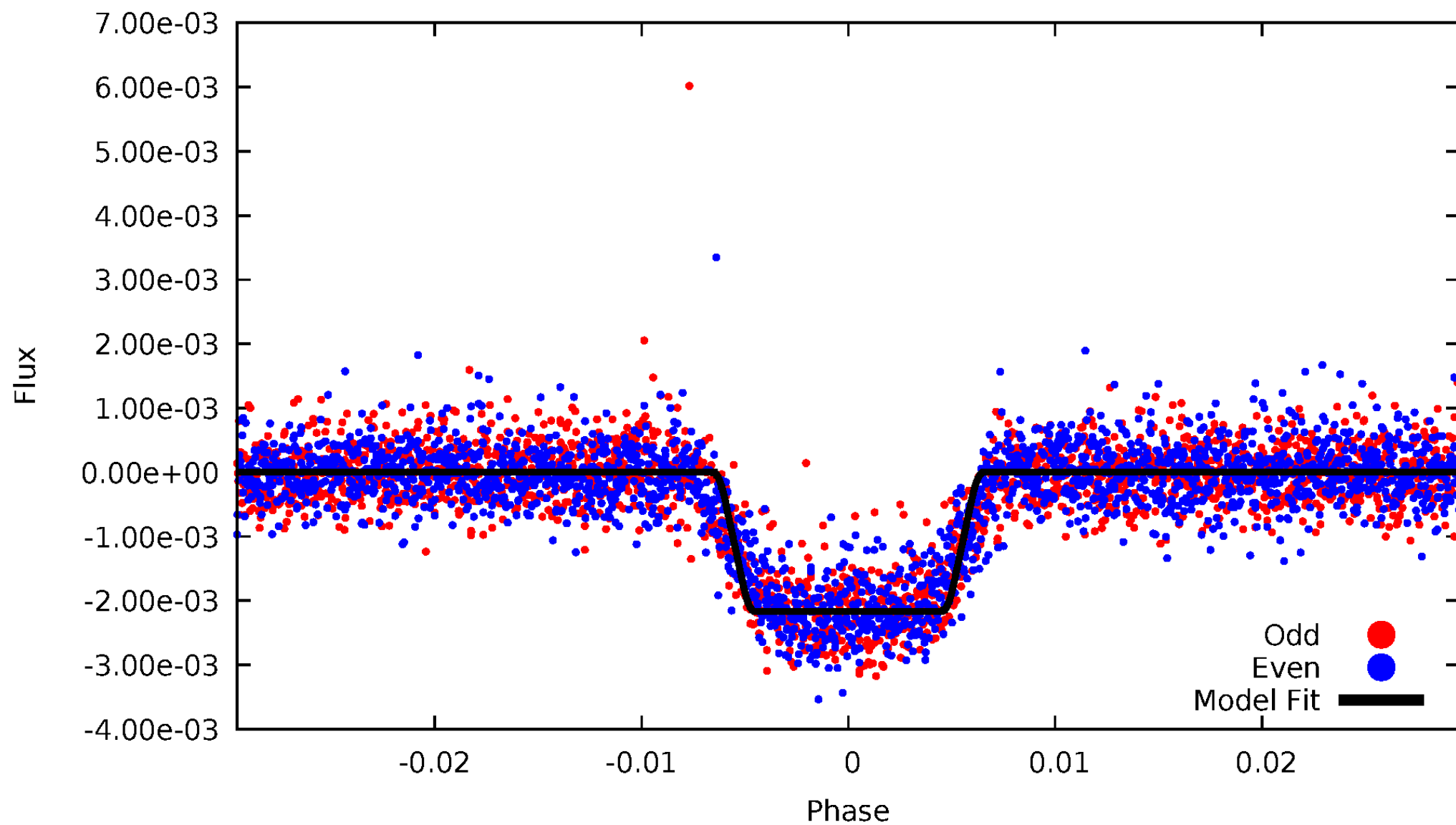
DV Odd/Even

TCE 004042026-02



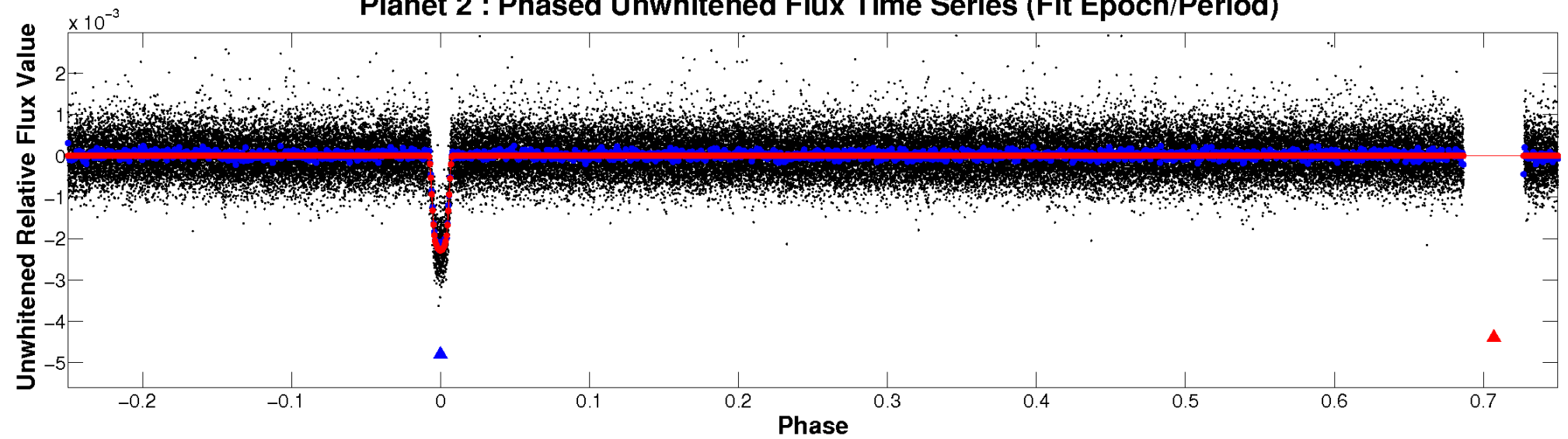
ALT Odd/Even

TCE 004042026-02

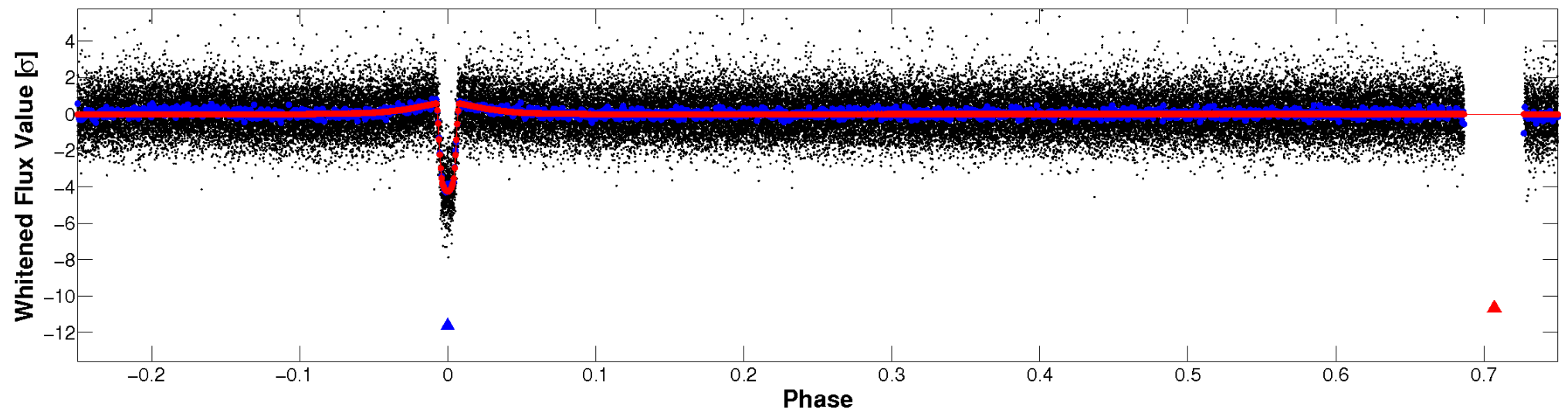


Non-Whitened Vs. Whitened Light Curve

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

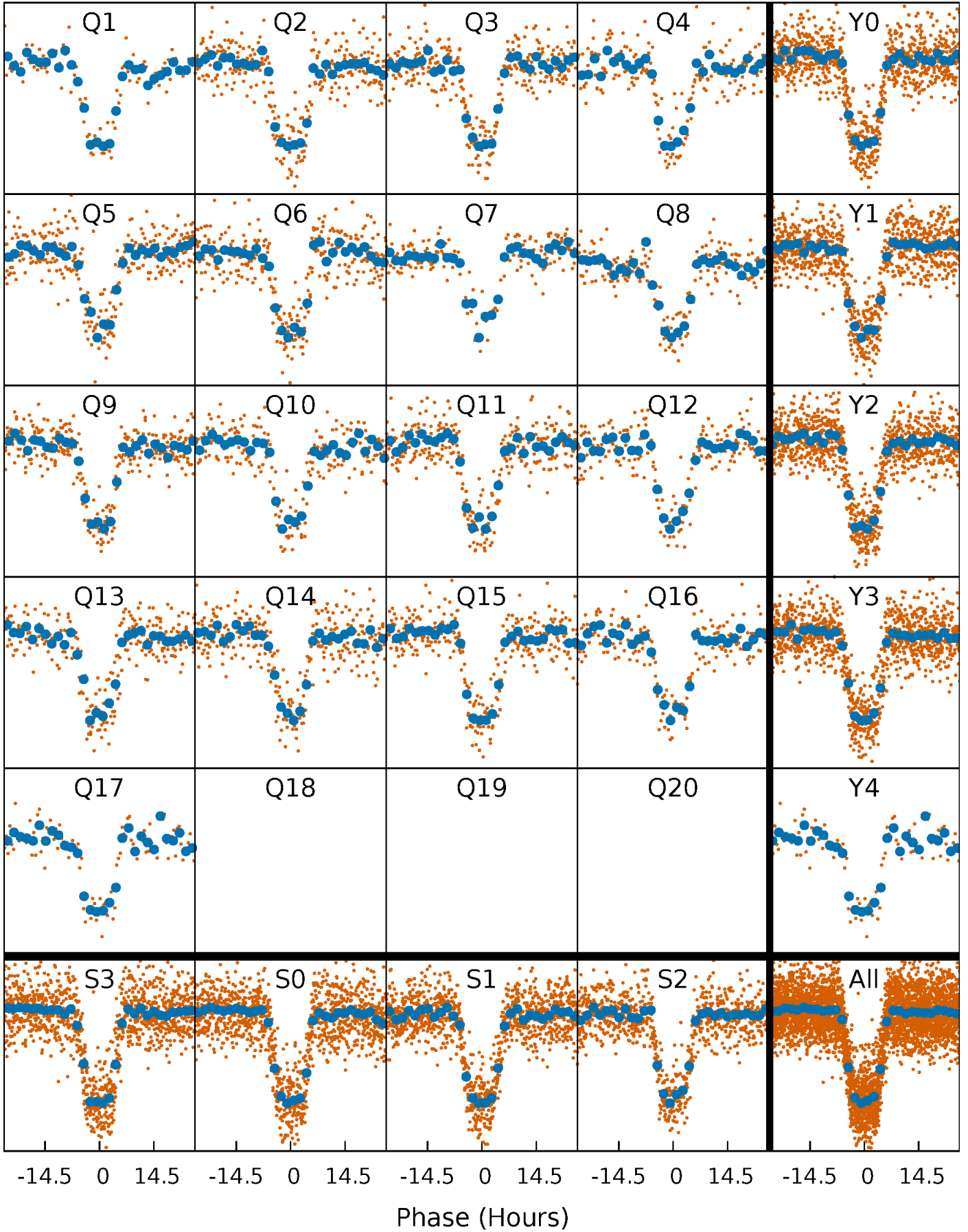


Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



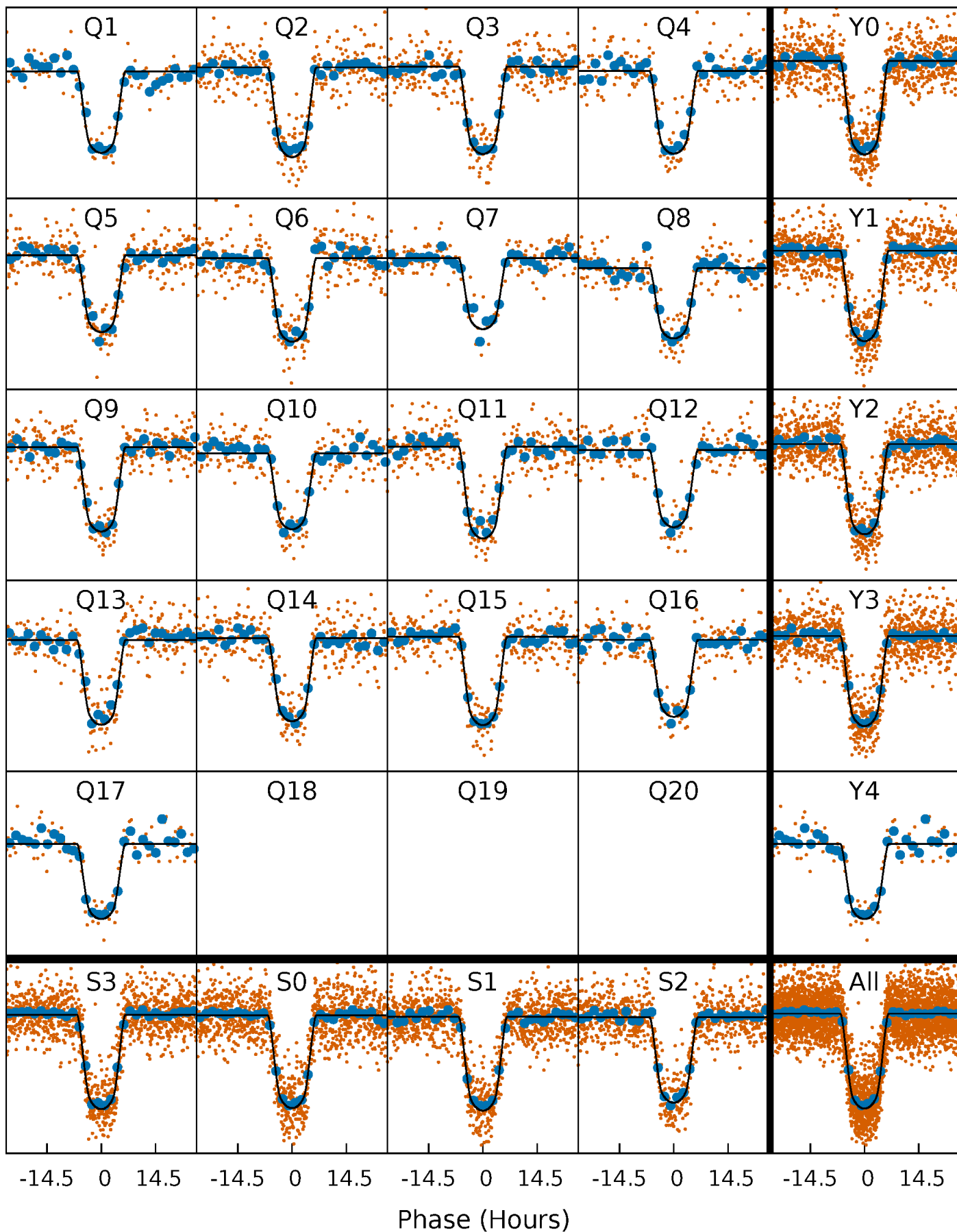
PDC Quarter-Phased Transit Curves

TCE 004042026-02 P= 34.820340 Days $T_0=138.389001$ (BKJD)



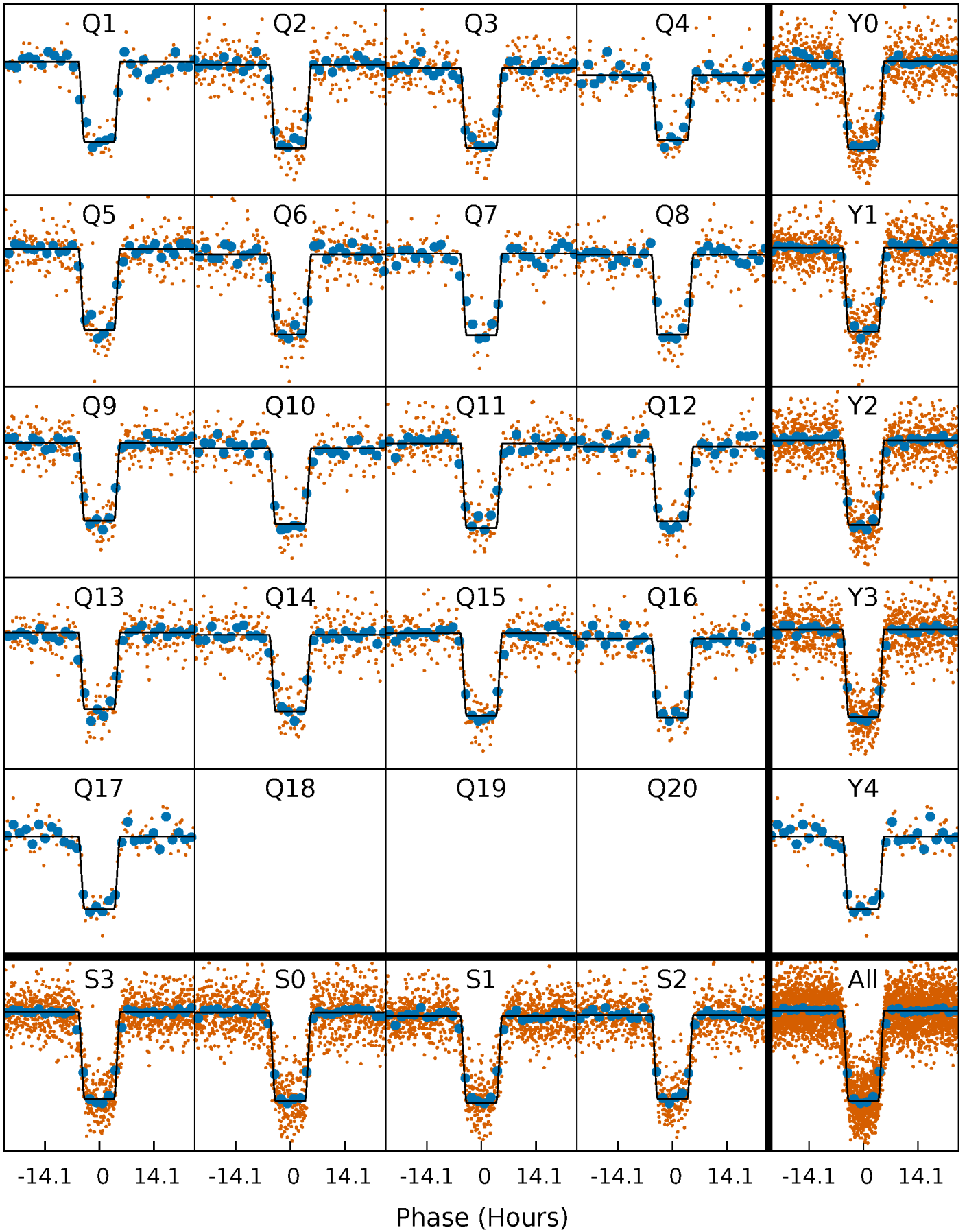
DV Quarter-Phased Transit Curves

TCE 004042026-02 P= 34.820340 Days $T_0=138.389001$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

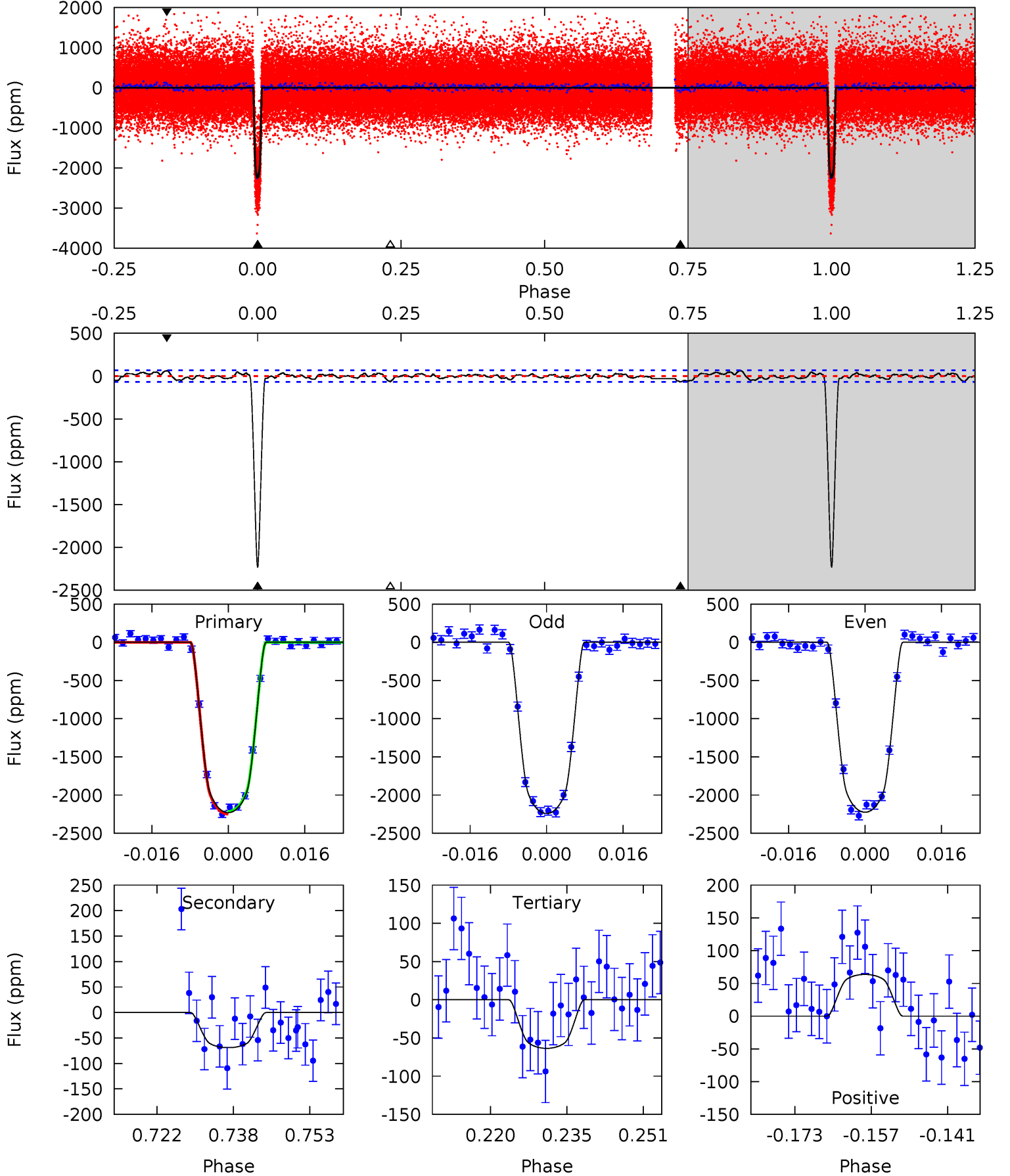
TCE 004042026-02 P= 34.820042 Days $T_0=138.395714$ (BKJD)



DV Model-Shift Uniqueness Test

004042026-02, P = 34.820340 Days, E = 103.568661 Days

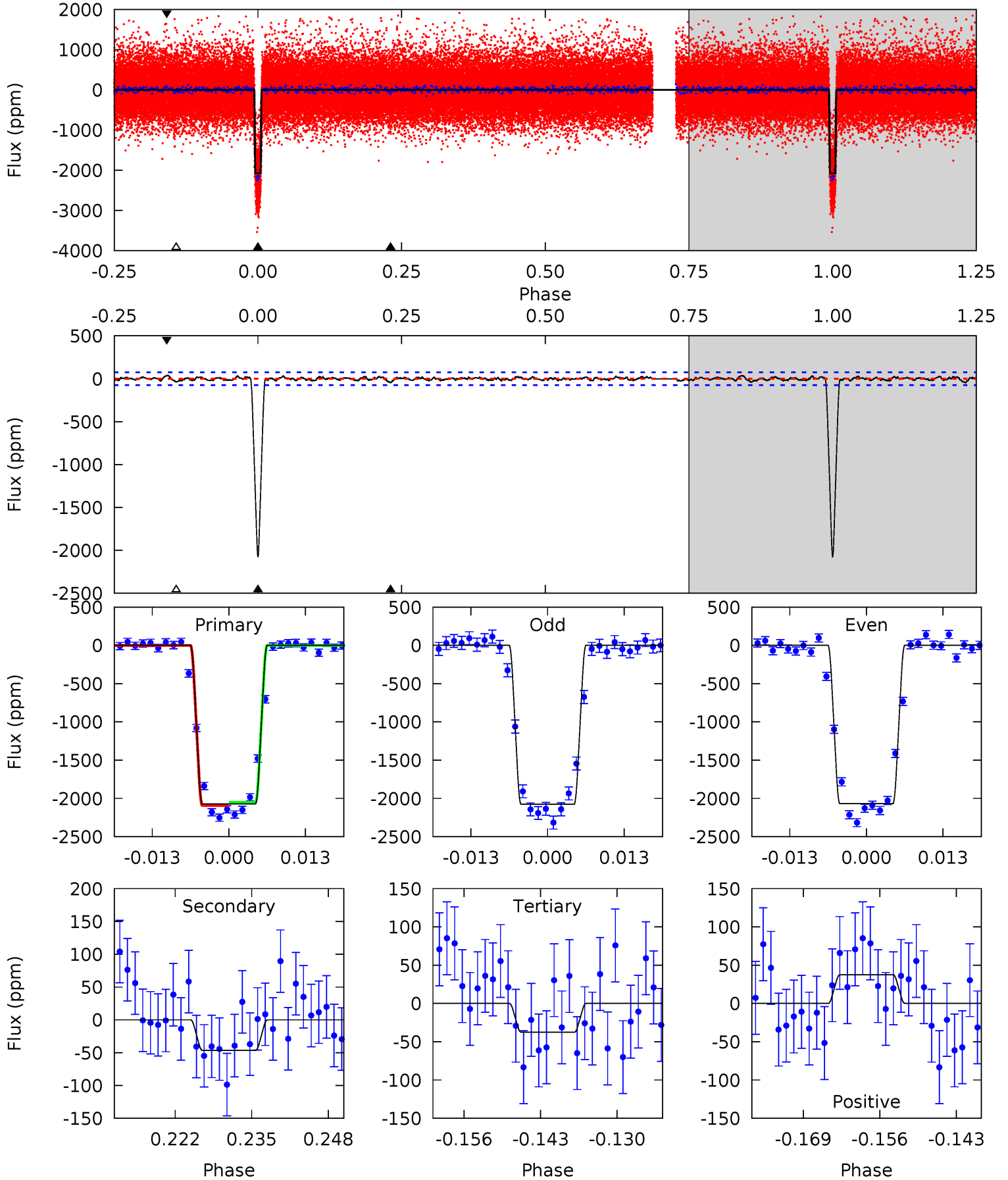
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
162.4	5.03	4.63	4.64	4.94	2.42	1.56	157.8	157.8	0.40	0.39	0.60	0.99	0.03	1.16



Alt Model-Shift Uniqueness Test

004042026-02, P = 34.820042 Days, E = 103.575672 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
139.5	3.13	2.53	2.52	4.98	2.48	0.86	136.9	136.9	0.60	0.61	0.28	0.99	0.02	1.35



Stellar Parameters For KIC 004042026

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	5114^{+153}_{-138}	$4.522^{+0.084}_{-0.063}$	$-0.160^{+0.300}_{-0.300}$	$0.784^{+0.080}_{-0.080}$	$0.746^{+0.103}_{-0.059}$	$2.183^{+0.809}_{-0.458}$
	+3%/-3%	+2%/-1%	+188%/-188%	+10%/-10%	+14%/-8%	+37%/-21%
Source	PHO1	KIC0	KIC0	DSEP		

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

Secondary Eclipse Parameters for KIC 004042026-02 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	-69 ± 14	$4.57^{+0.33}_{-0.27}$	641^{+29}_{-24}	2757^{+85}_{-96}	65^{+17}_{-13}
Alt.	-46 ± 15	$3.98^{+0.27}_{-0.25}$	639^{+27}_{-25}	2711^{+112}_{-148}	58^{+20}_{-19}

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 $A_{obs} \gg 1.0$

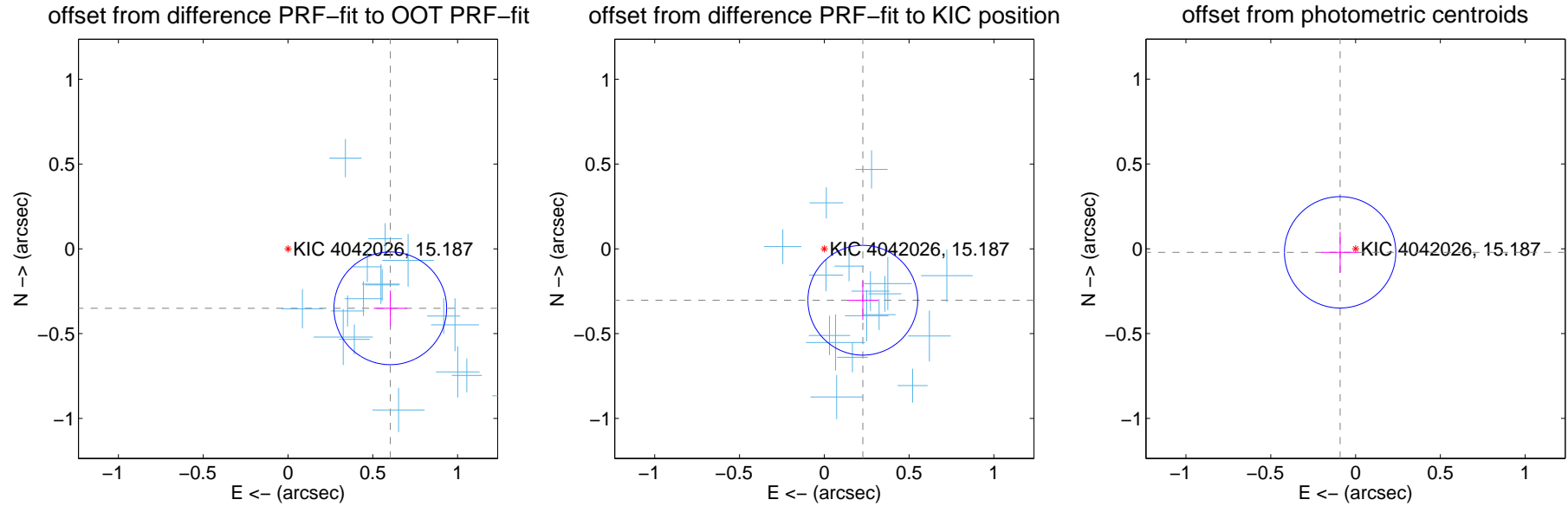
DV Centroid Data

Supplemental centroid analysis for 004042026-02. Kepler magnitude: 15.19. Transit SNR 102.25

There are 17 quarters with good PRF difference image offsets

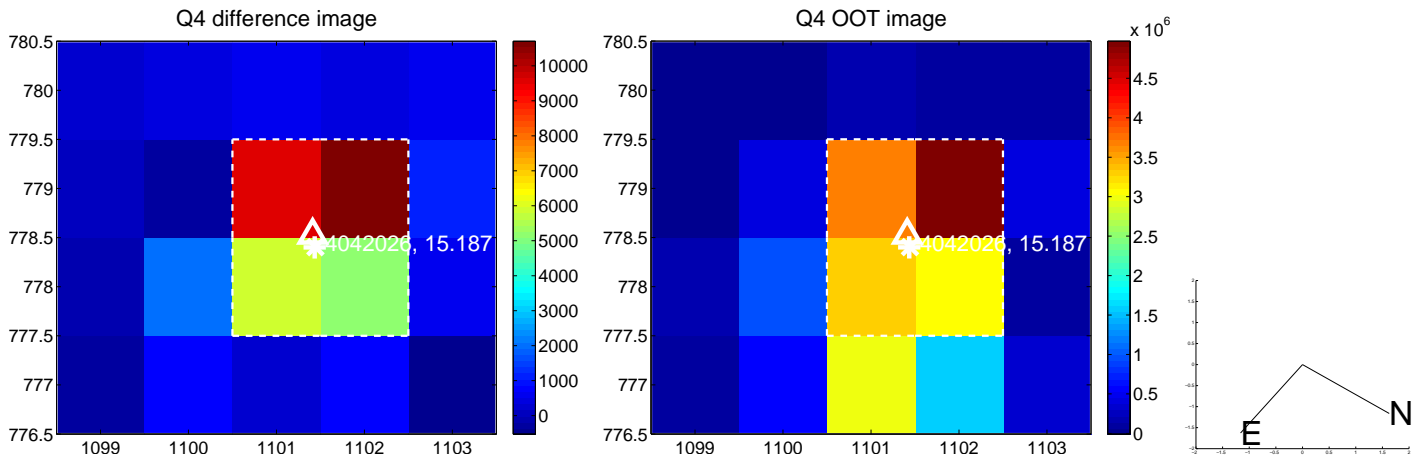
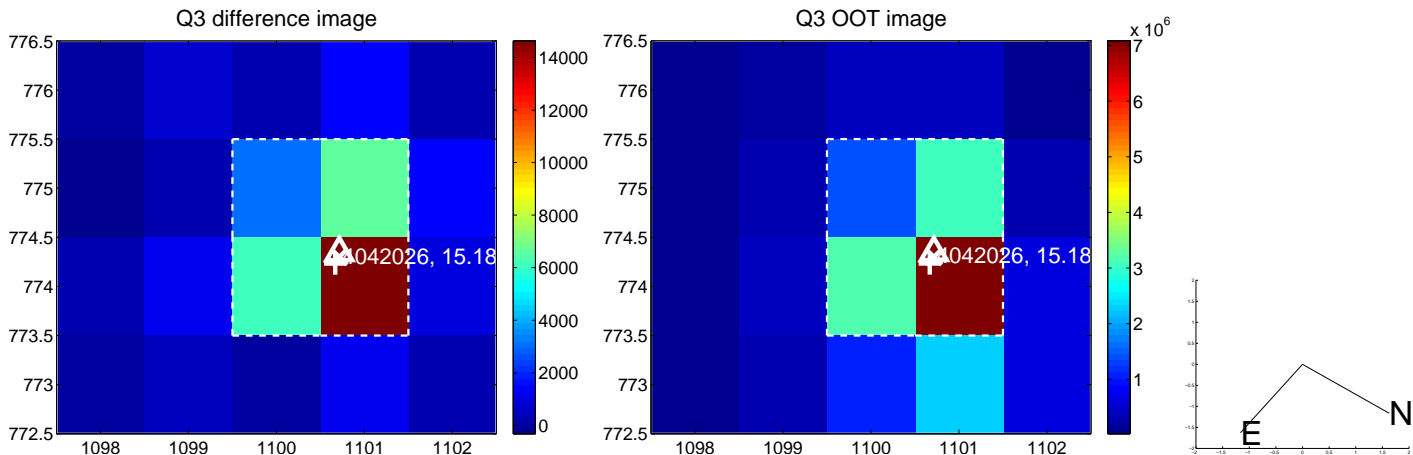
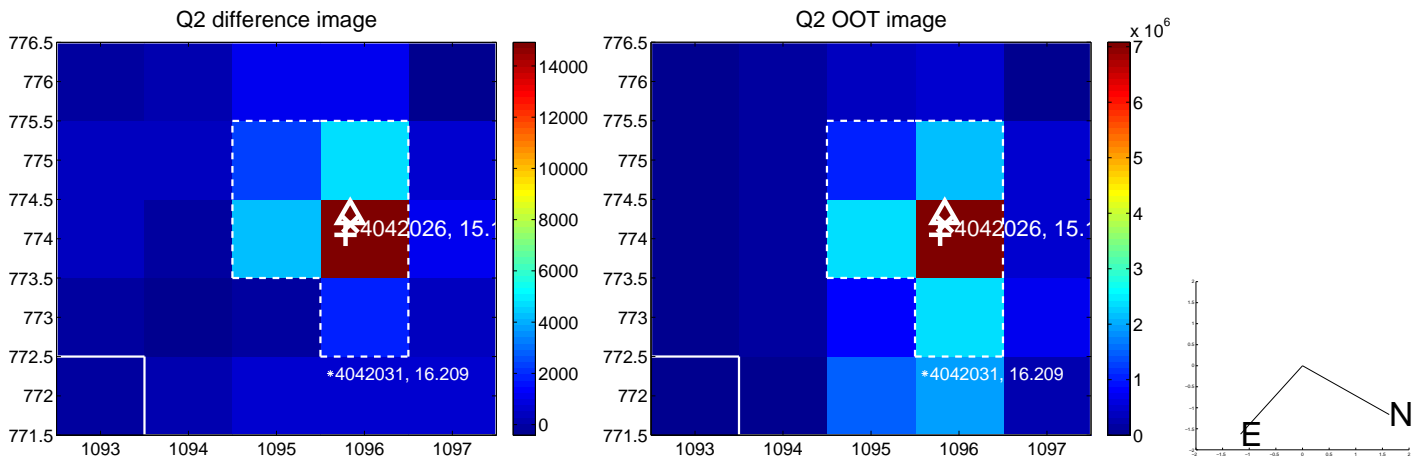
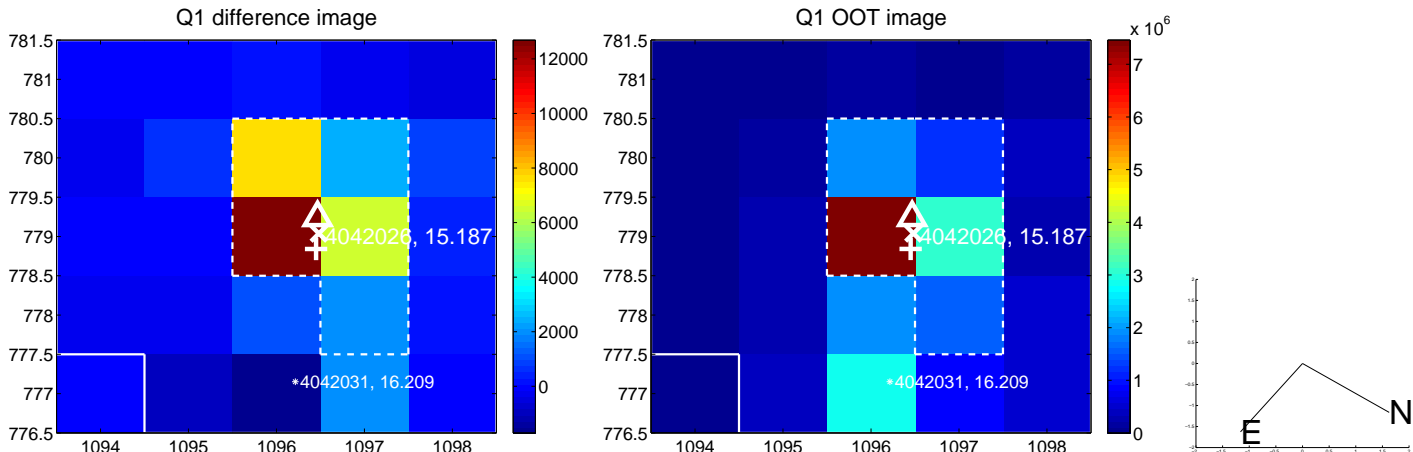
The direct PRF centroid is offset from the target star catalog position by about 0.66 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.698 ± 0.111	6.30	-0.603 ± 0.098	-0.351 ± 0.105
PRF-fit source offset from KIC position	0.379 ± 0.108	3.51	-0.227 ± 0.092	-0.303 ± 0.116
photometric centroid source offset	0.09 ± 0.11	0.85	0.09 ± 0.11	-0.02 ± 0.12

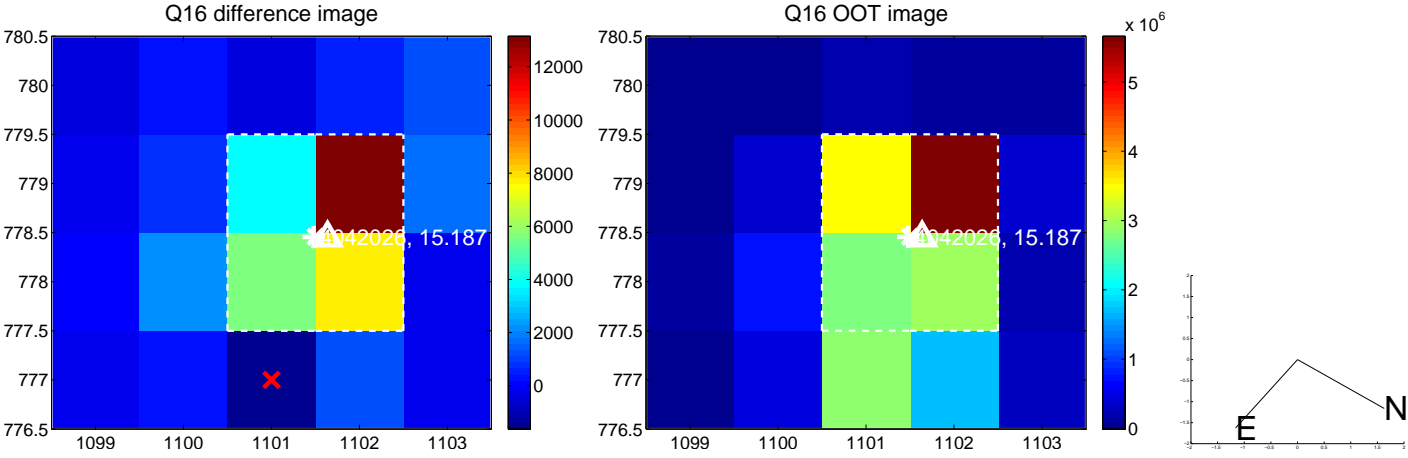
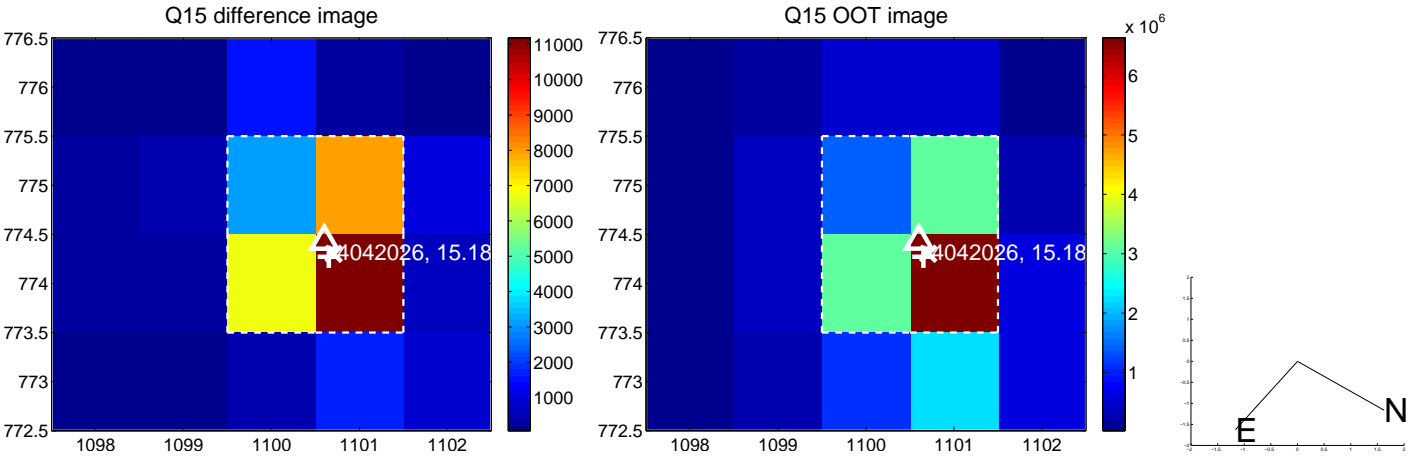
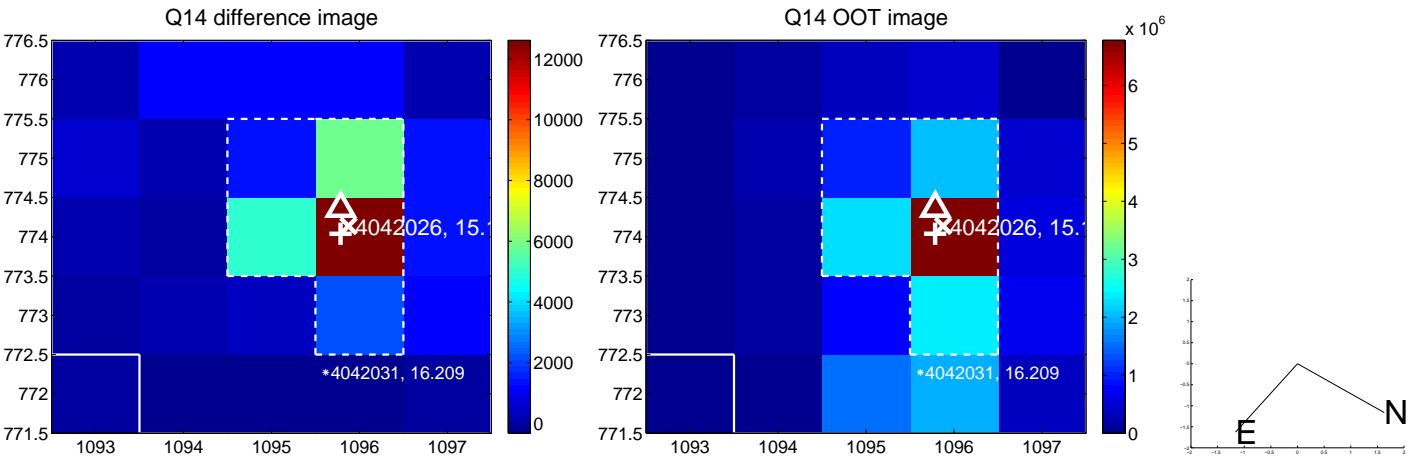
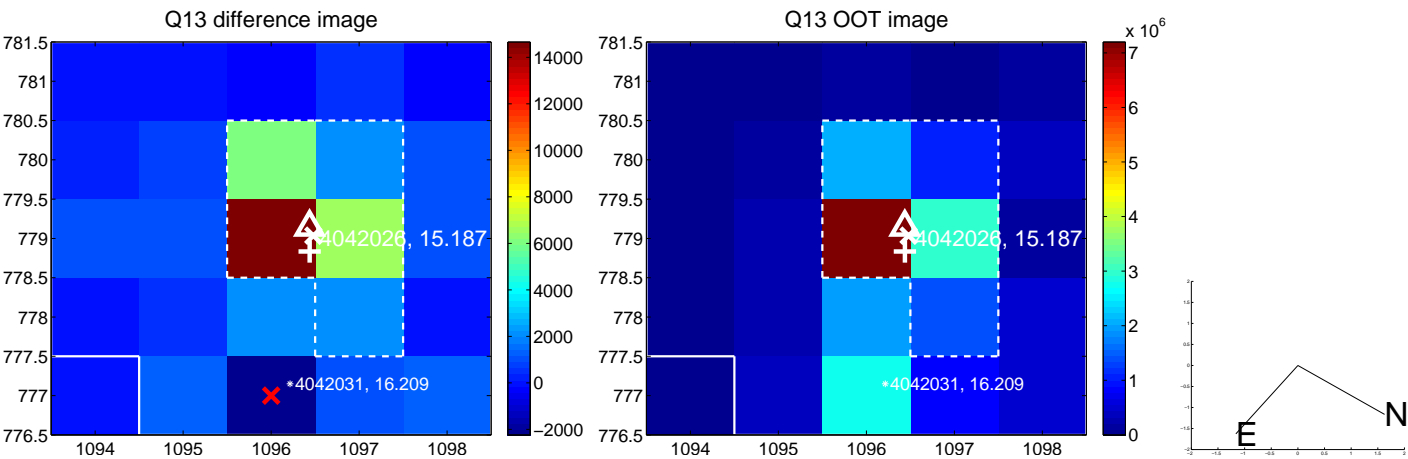


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses:** good quarterly centroid offsets; **Vermillion crosses:** bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

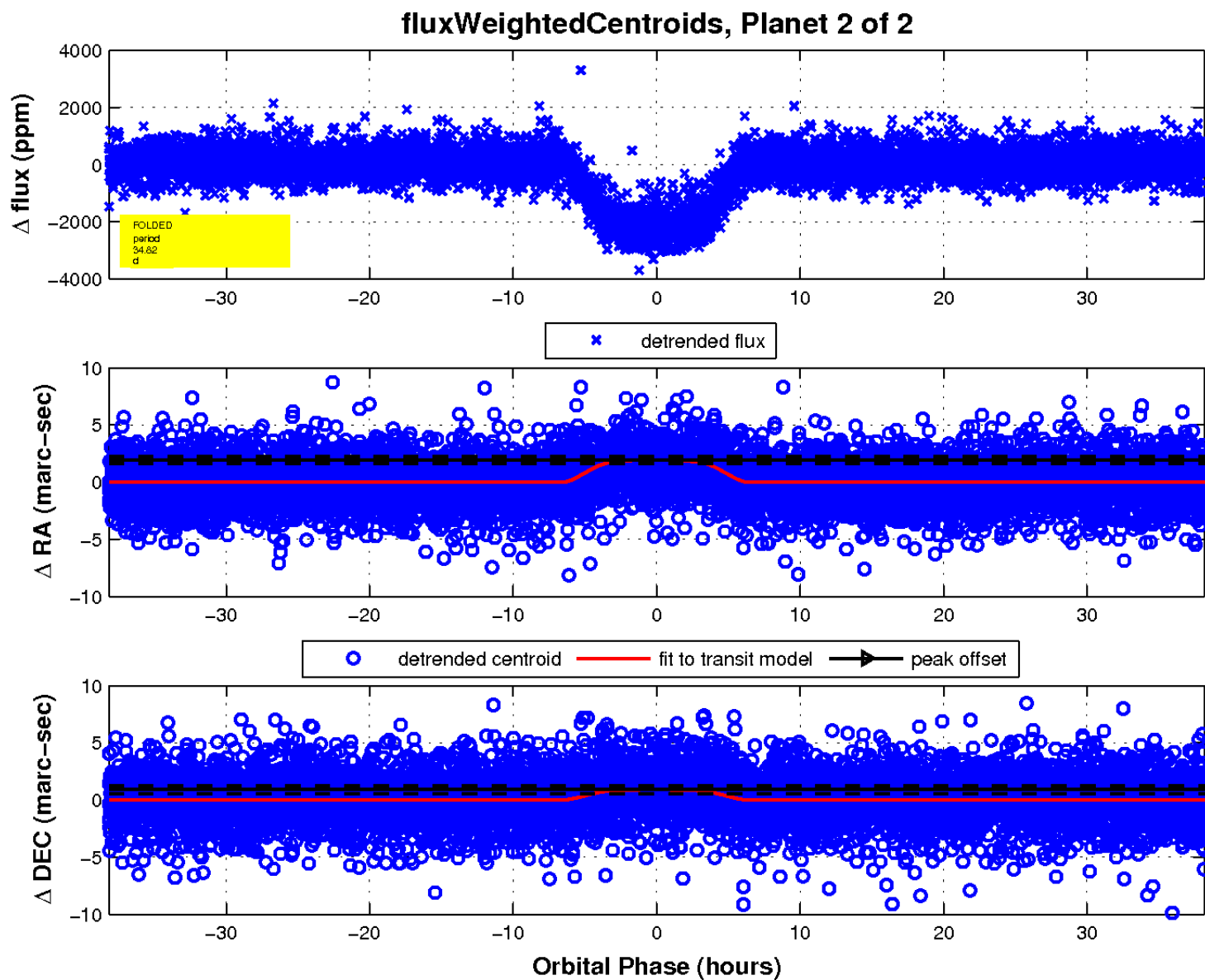
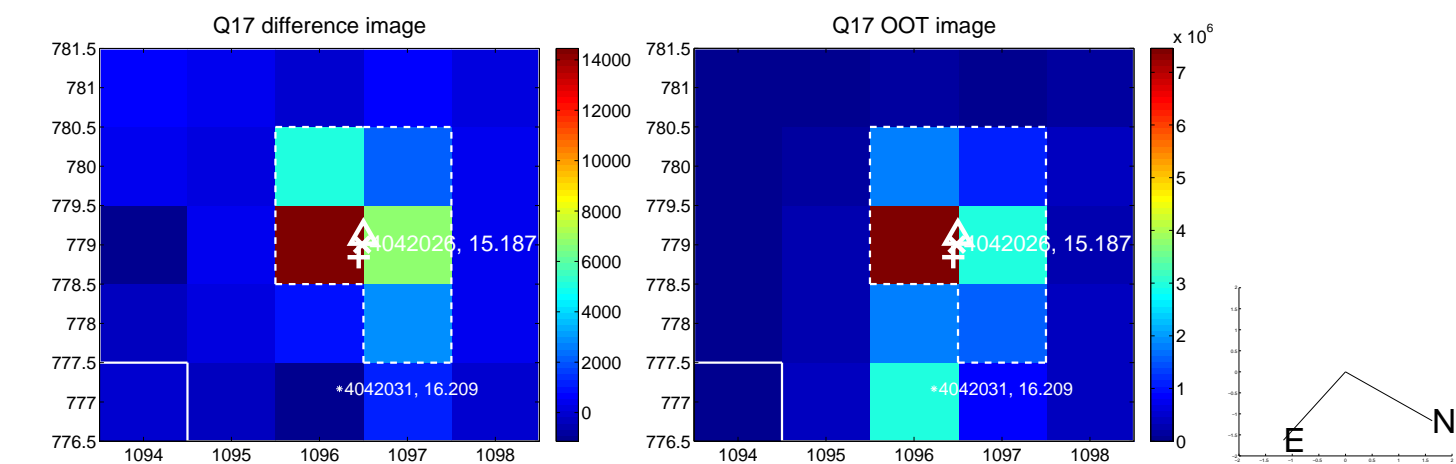
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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.



UKIRT Image

Declination

