

KIC 007101828

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})
007101828-01	OBS	0455.01	47.878256	145.327895	789.5	3.995	31.7	29.2	0.62	4254	2.98	2.38
007101828-02	OBS	No	47.878408	154.176882	186.1	3.646	8.2	9.1	0.62	4254	0.94	2.38

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
007101828-01	OBS	FP	0.00	0	1	1	0	MOD_SEC_DV—HAS_SEC_TCE—CENT_RESOLVED_OFFSET—HALO_GHOST
007101828-02	OBS	FP	0.00	1	1	1	0	IS_SEC_TCE—CENT_RESOLVED_OFFSET

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.

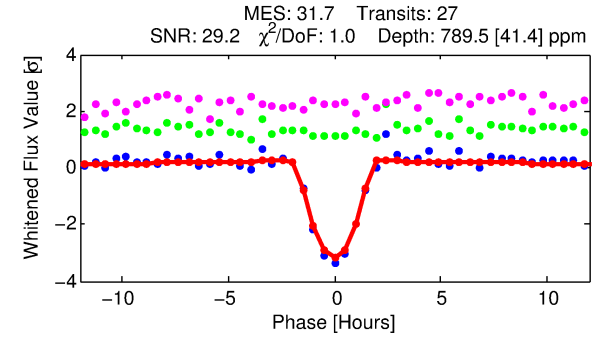
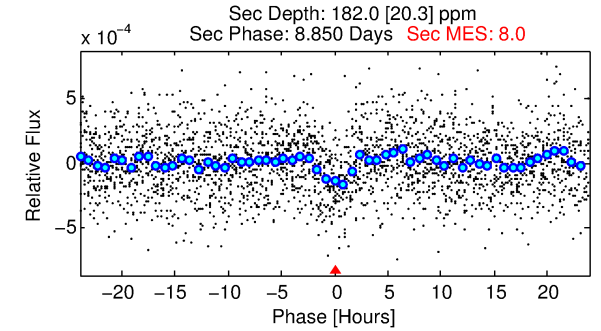
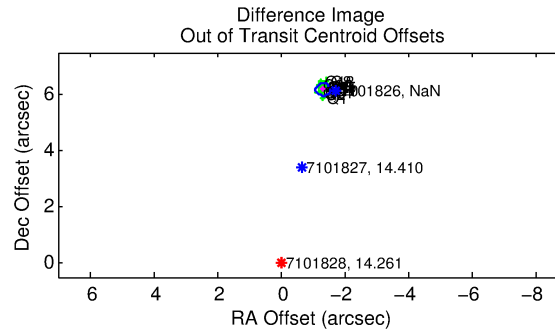
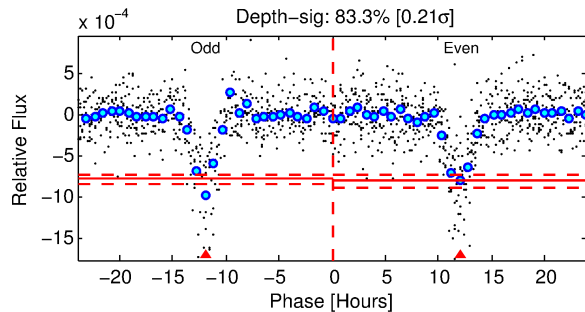
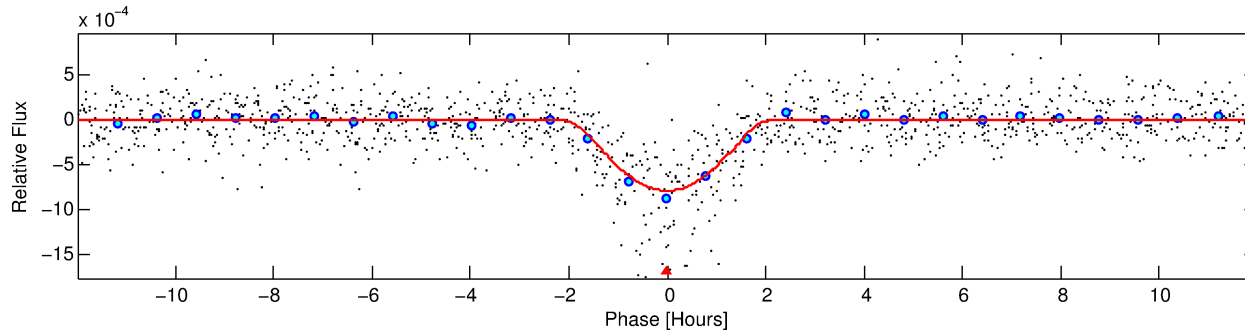
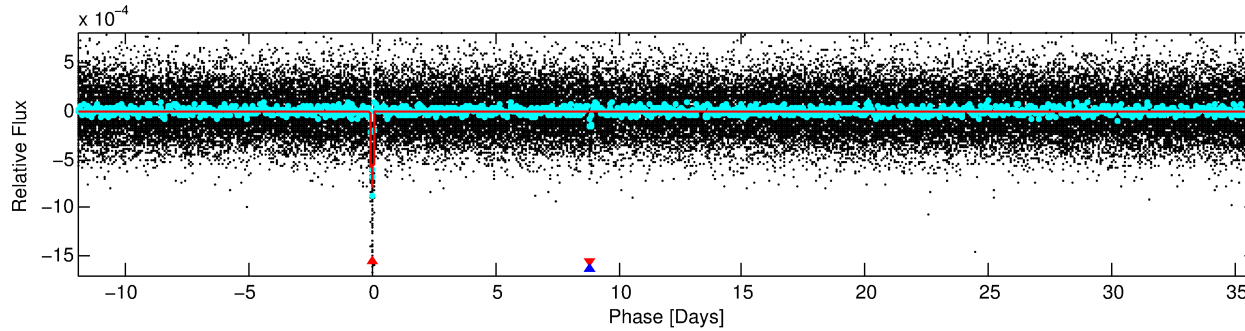
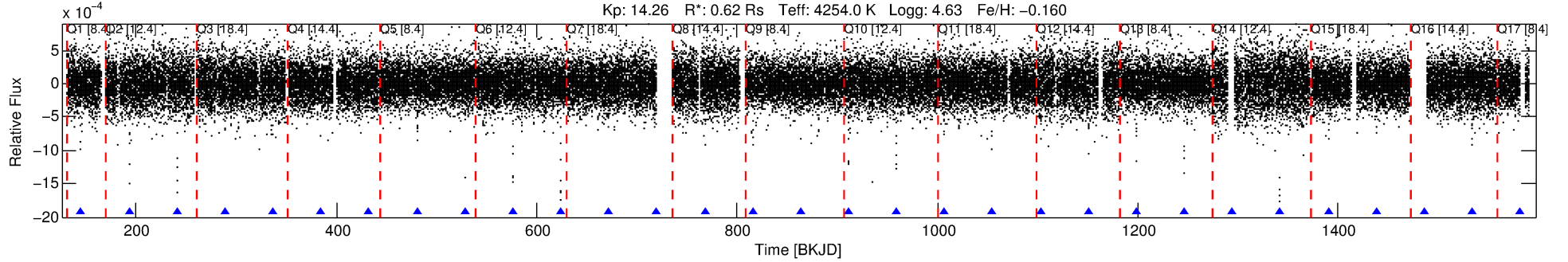
Ephemeris Match Information For 007101828-01

No Significant Match Found

DV One-Page Summary

KIC: 7101828 Candidate: 1 of 2 Period: 47.878 d
KOI: K00455.01 Corr: 0.988

Kp: 14.26 R*: 0.62 Rs Teff: 4254.0 K Logg: 4.63 Fe/H: -0.160



DV Fit Results:

Period = 47.87826 [0.00019] d
Epoch = 145.3279 [0.0032] BKJD
Rp/R* = 0.0437 [0.0287]
a/R* = 31.81 [7.15]
b = 0.98 [0.05]
Seff = 2.38 [0.37]
Teq = 317 [12] K
Rp = 2.98 [1.97] Re
a = 0.2191 [0.0153] AU
Ag = 541.97 [715.20] [0.76σ]
Teffp = 2363 [781] K [2.6σ]

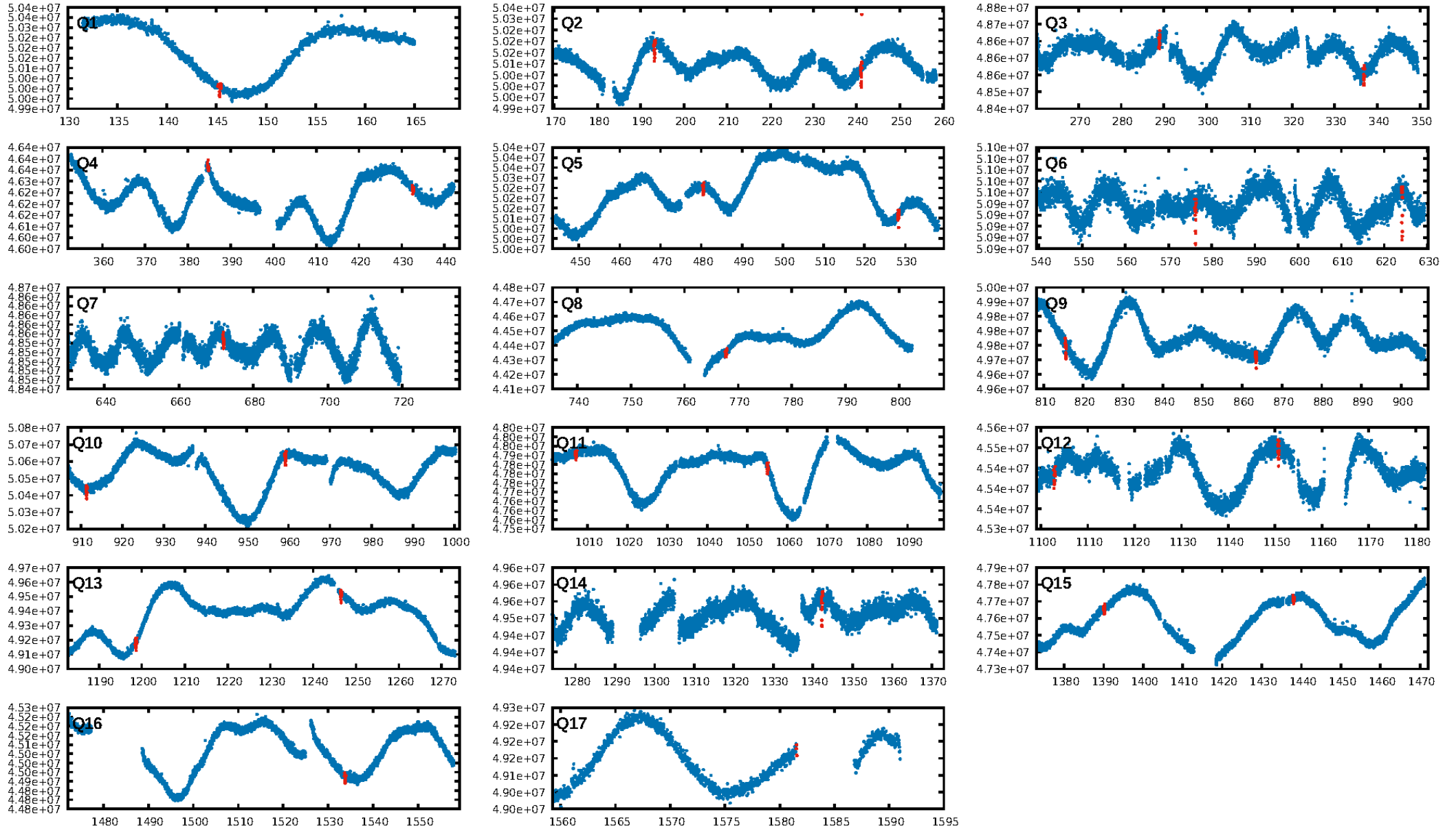
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: 0.1% [0.00σ]
ModelChiSquare2-sig: 0.0%
ModelChiSquareGof-sig: 95.4%
Bootstrap-pfa: 7.34e-211
RollingBand-fgt: 1.00 [26/26]
GhostDiagnostic-chr: -0.05161
Centroid-sig: 0.0%
Centroid-so: 21.068 arcsec [56.87σ]
OotOffset-rm: 6.321 arcsec [82.44σ]
KicOffset-rm: 6.176 arcsec [81.82σ]
OotOffset-st: 4/4/3/4 [15]
KicOffset-st: 4/4/3/4 [15]
DiffImageQuality-fgm: 1.00 [15/15]
DiffImageOverlap-fno: 1.00 [15/15]

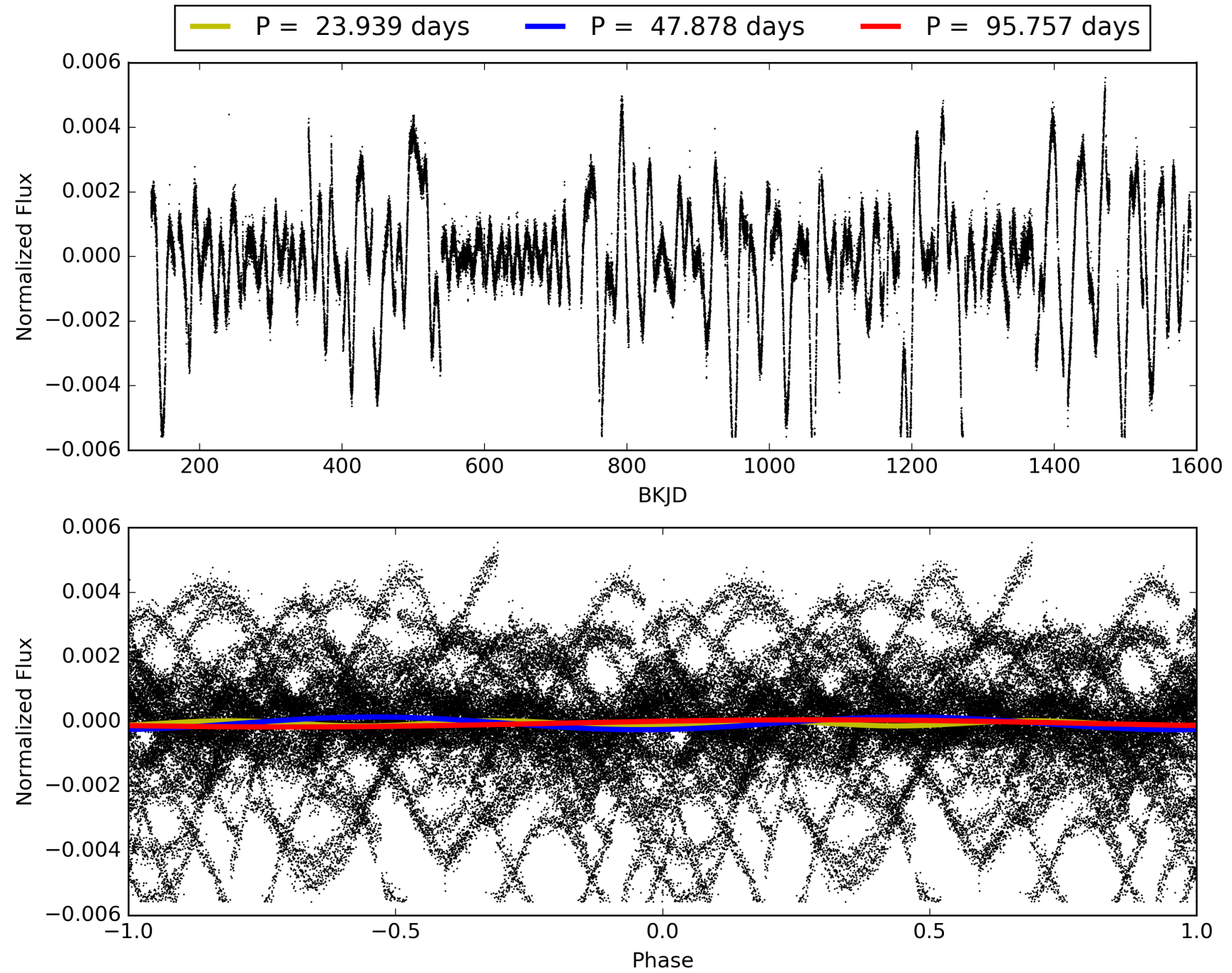
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This Data Validation Report Summary was produced in the Kepler Science Operations Center Pipeline at NASA Ames Research Center

TCE 007101828-01, PDC Light Curves

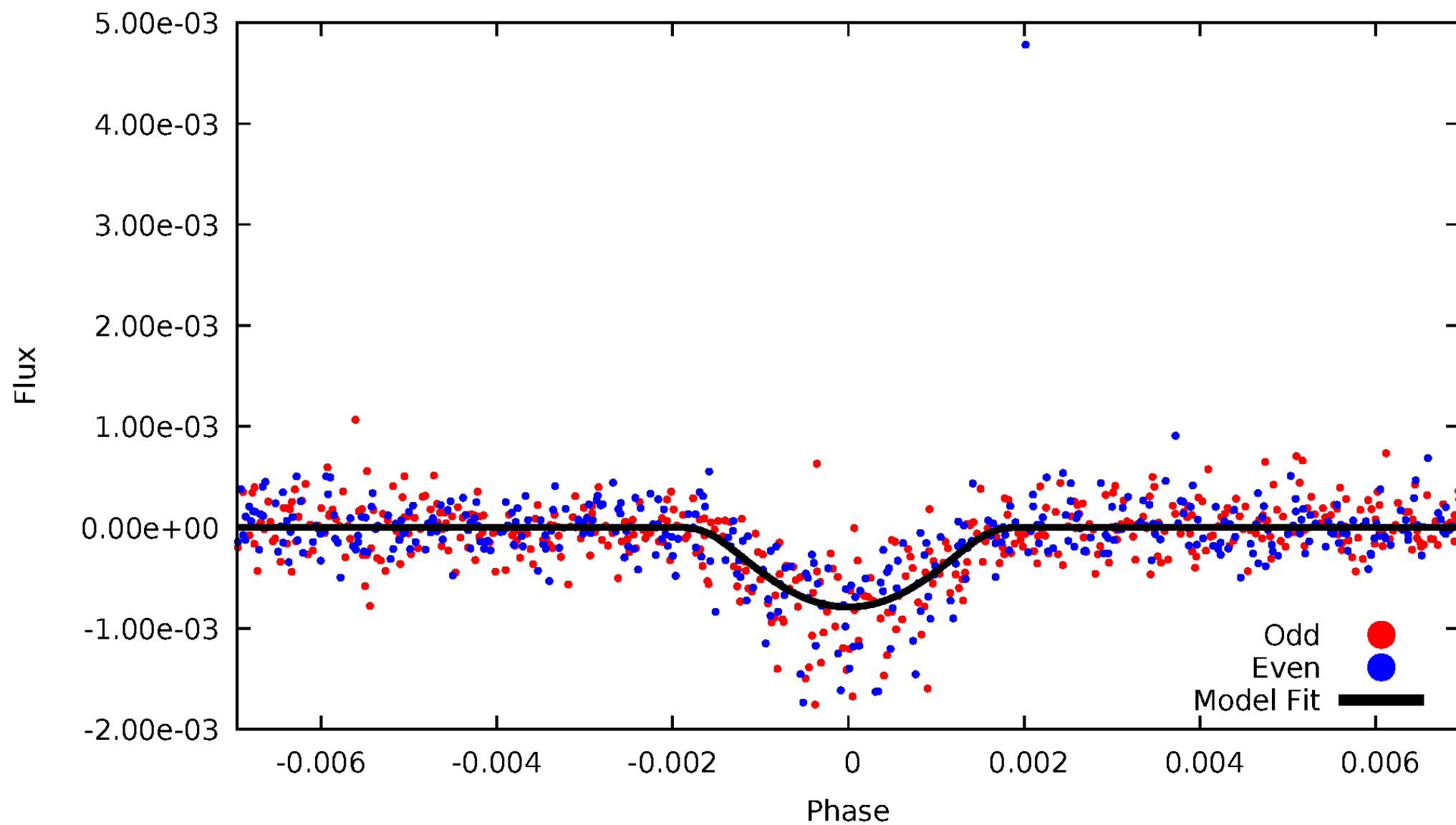


TCE 007101828-01



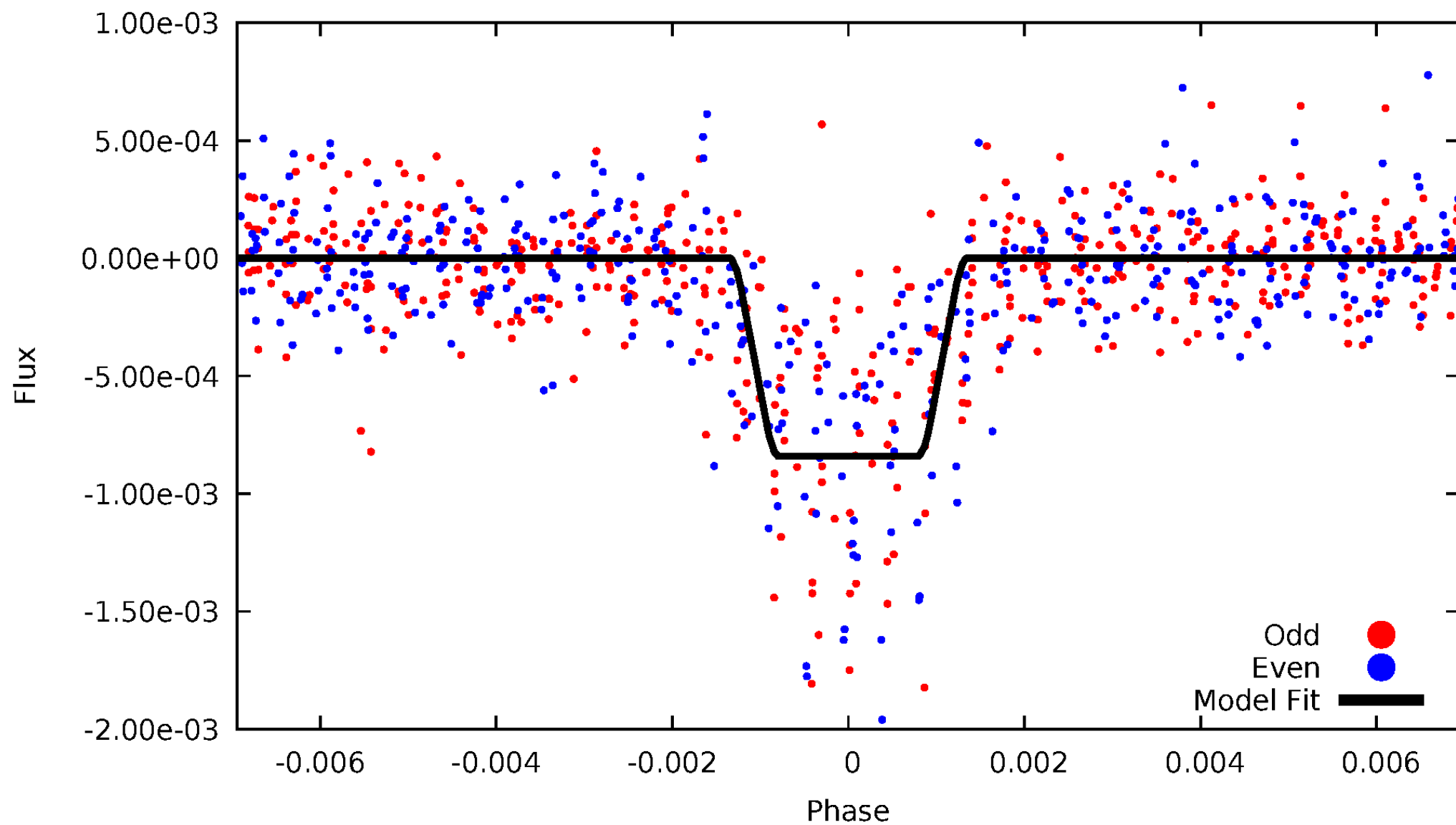
DV Odd/Even

TCE 007101828-01

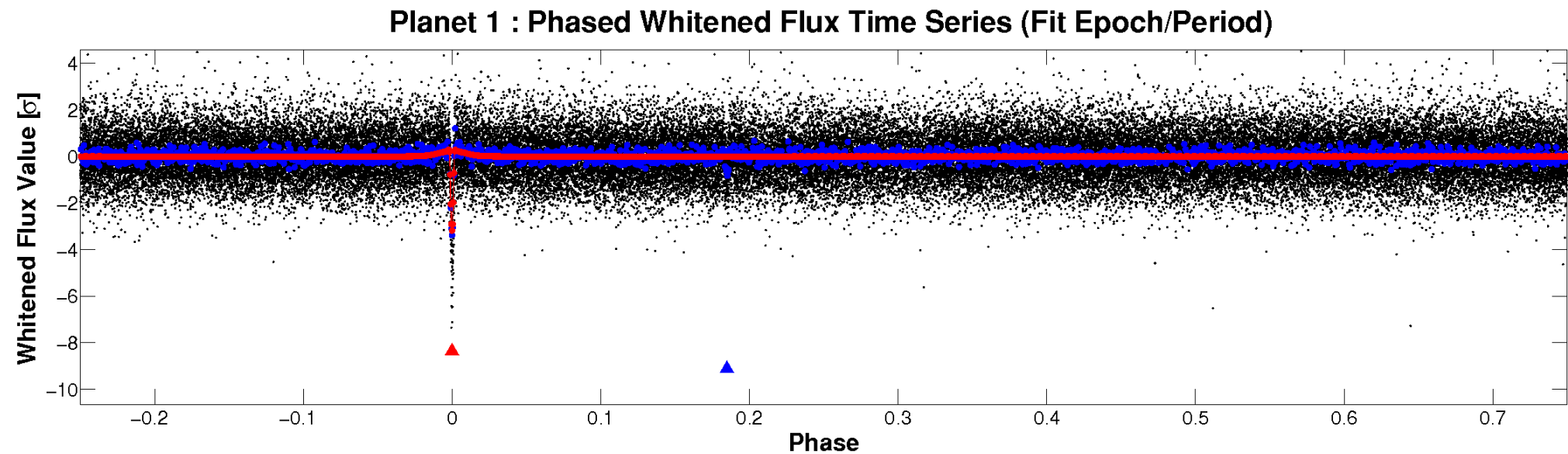
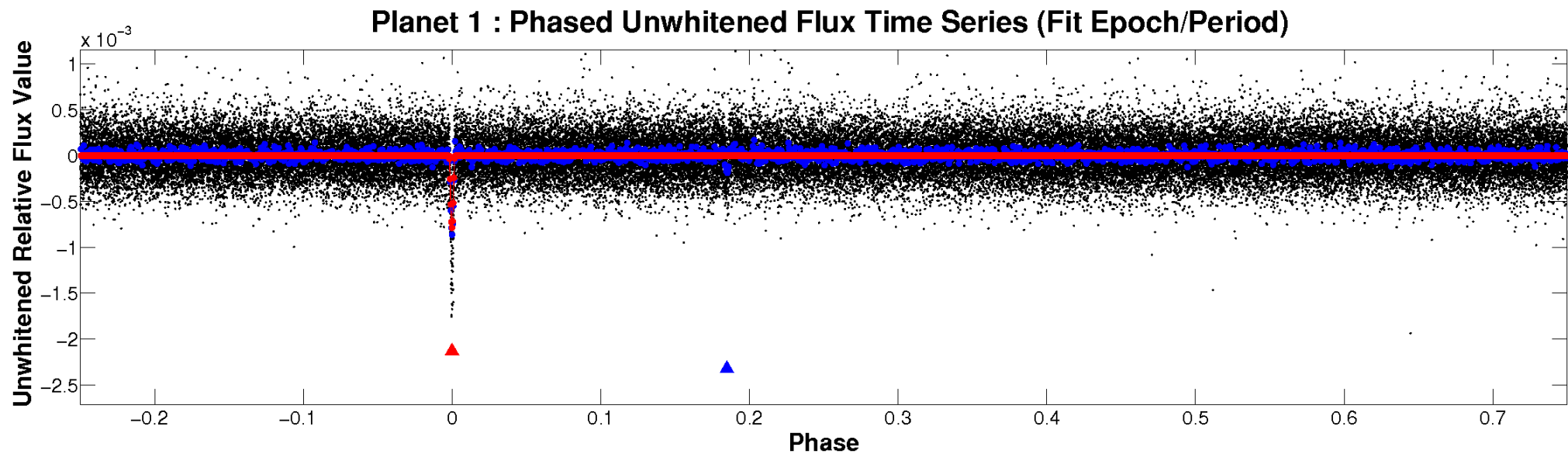


ALT Odd/Even

TCE 007101828-01

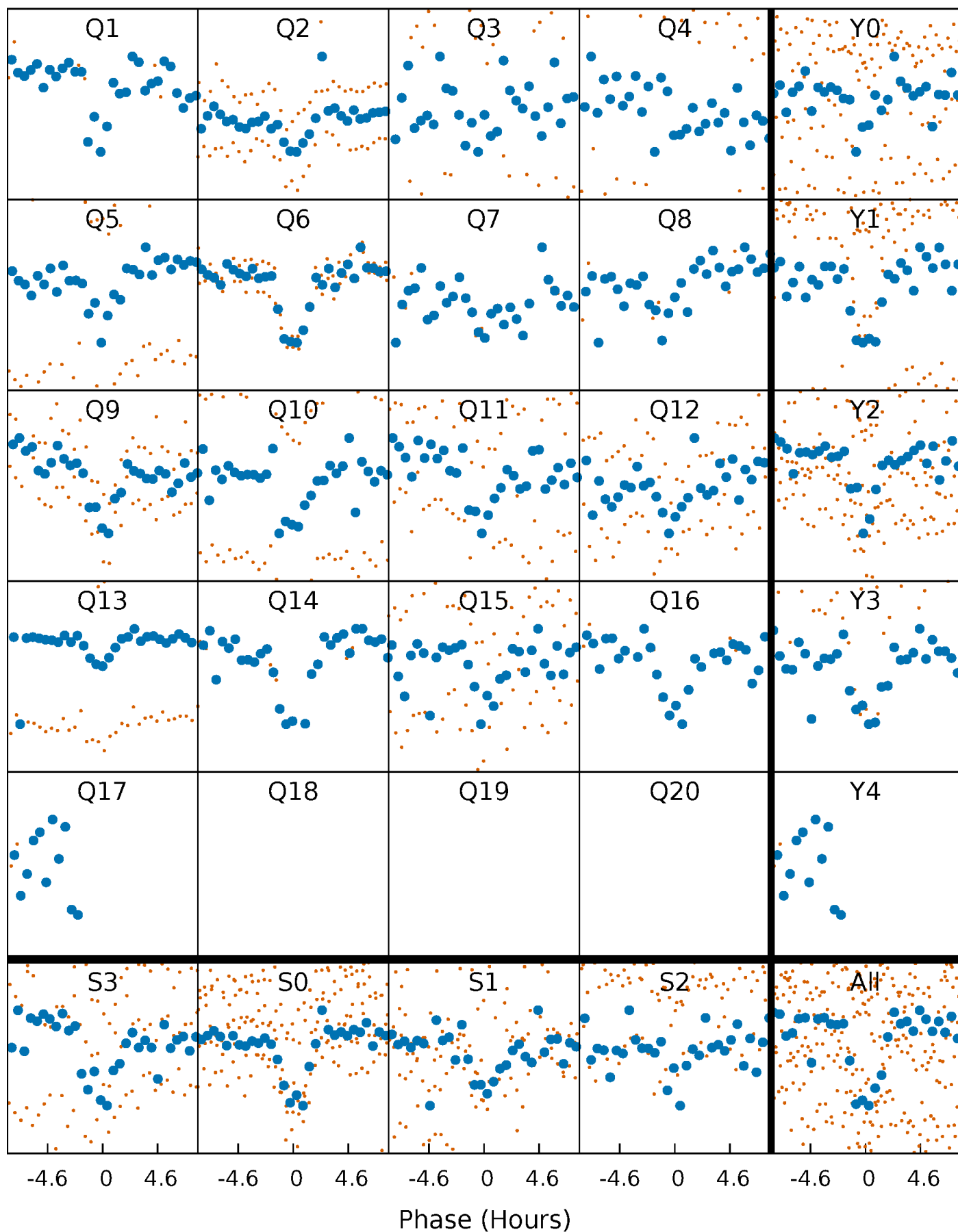


Non-Whitened Vs. Whitened Light Curve



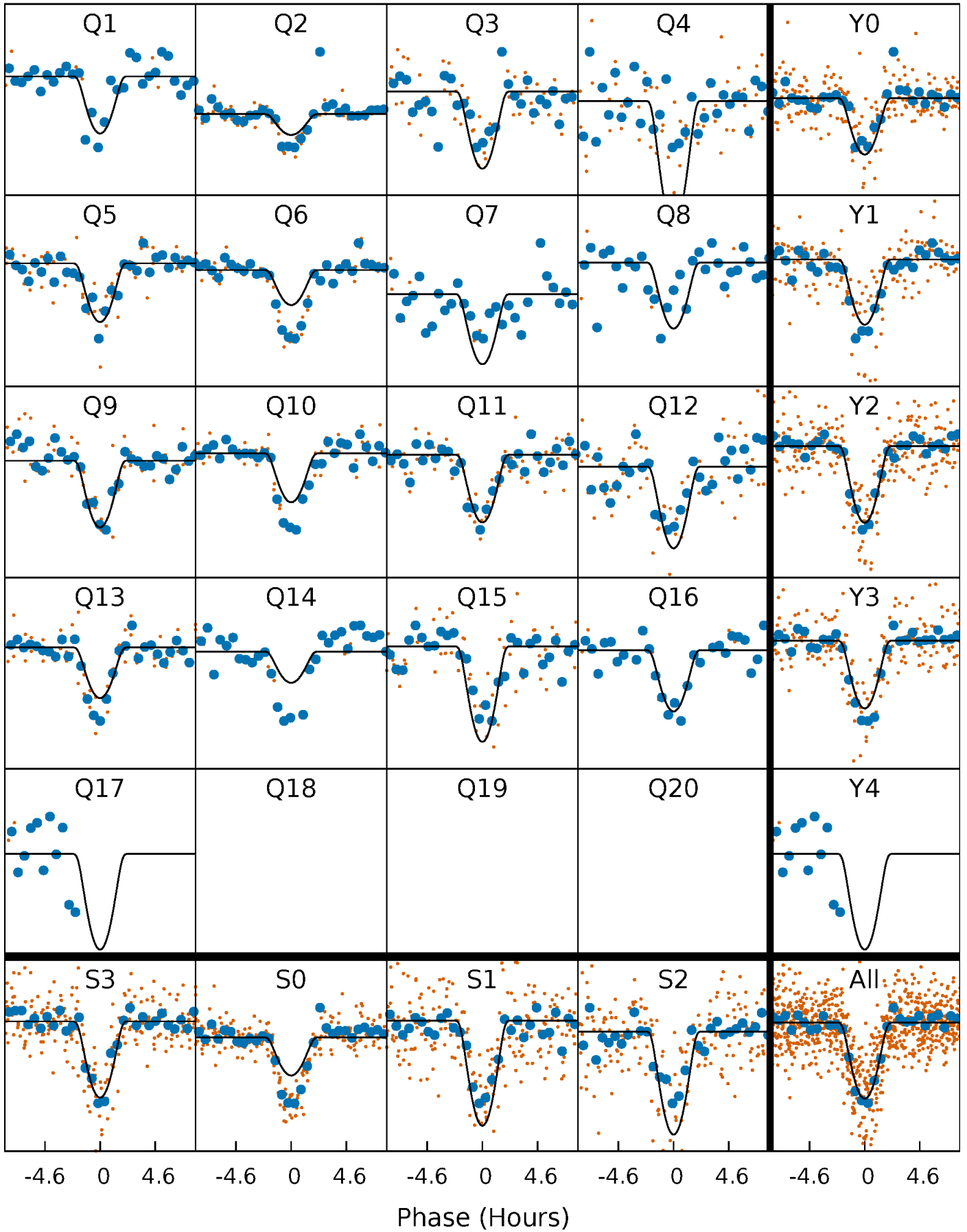
PDC Quarter-Phased Transit Curves

TCE 007101828-01 P= 47.878256 Days $T_0=145.327895$ (BKJD)



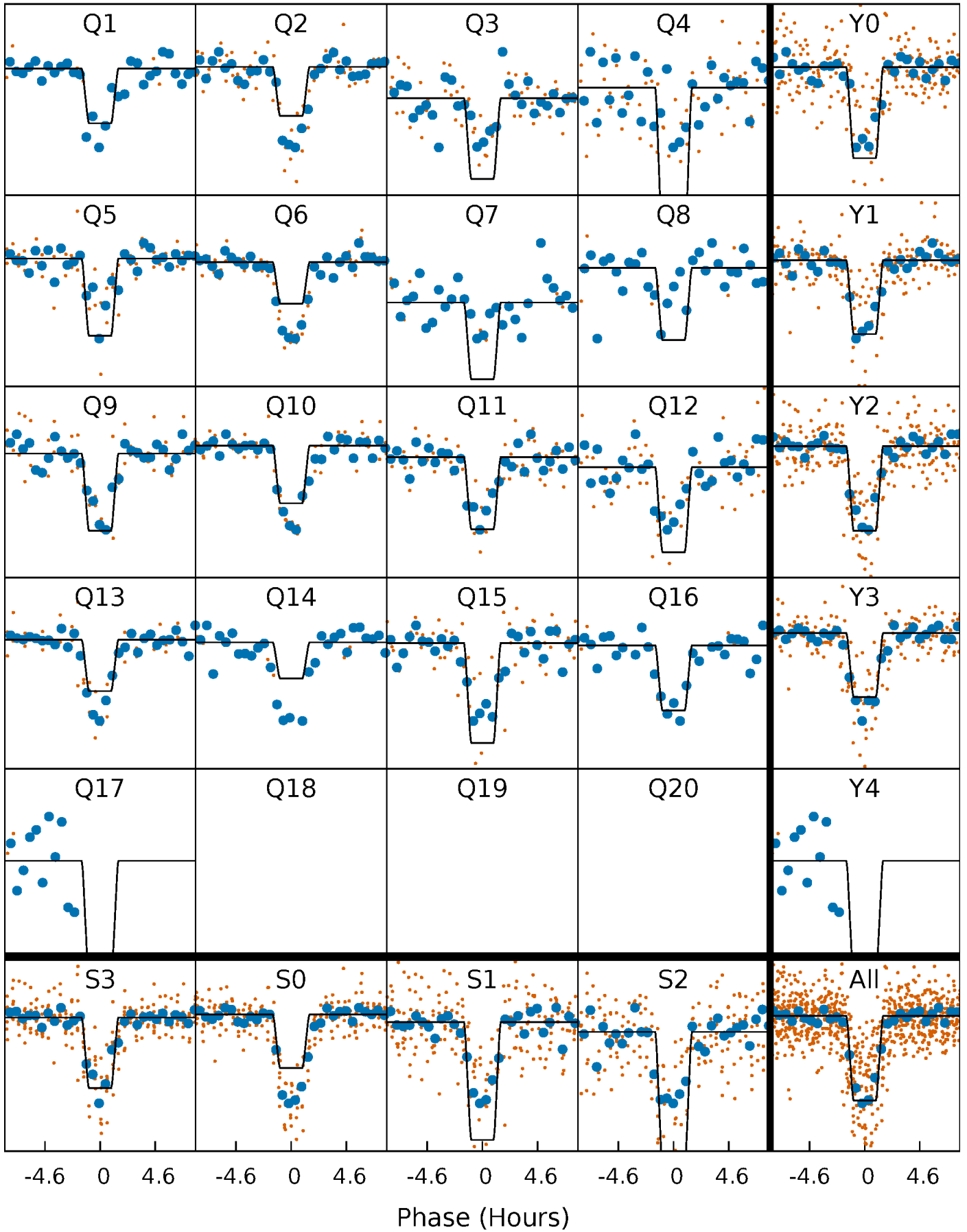
DV Quarter-Phased Transit Curves

TCE 007101828-01 P= 47.878256 Days $T_0=145.327895$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

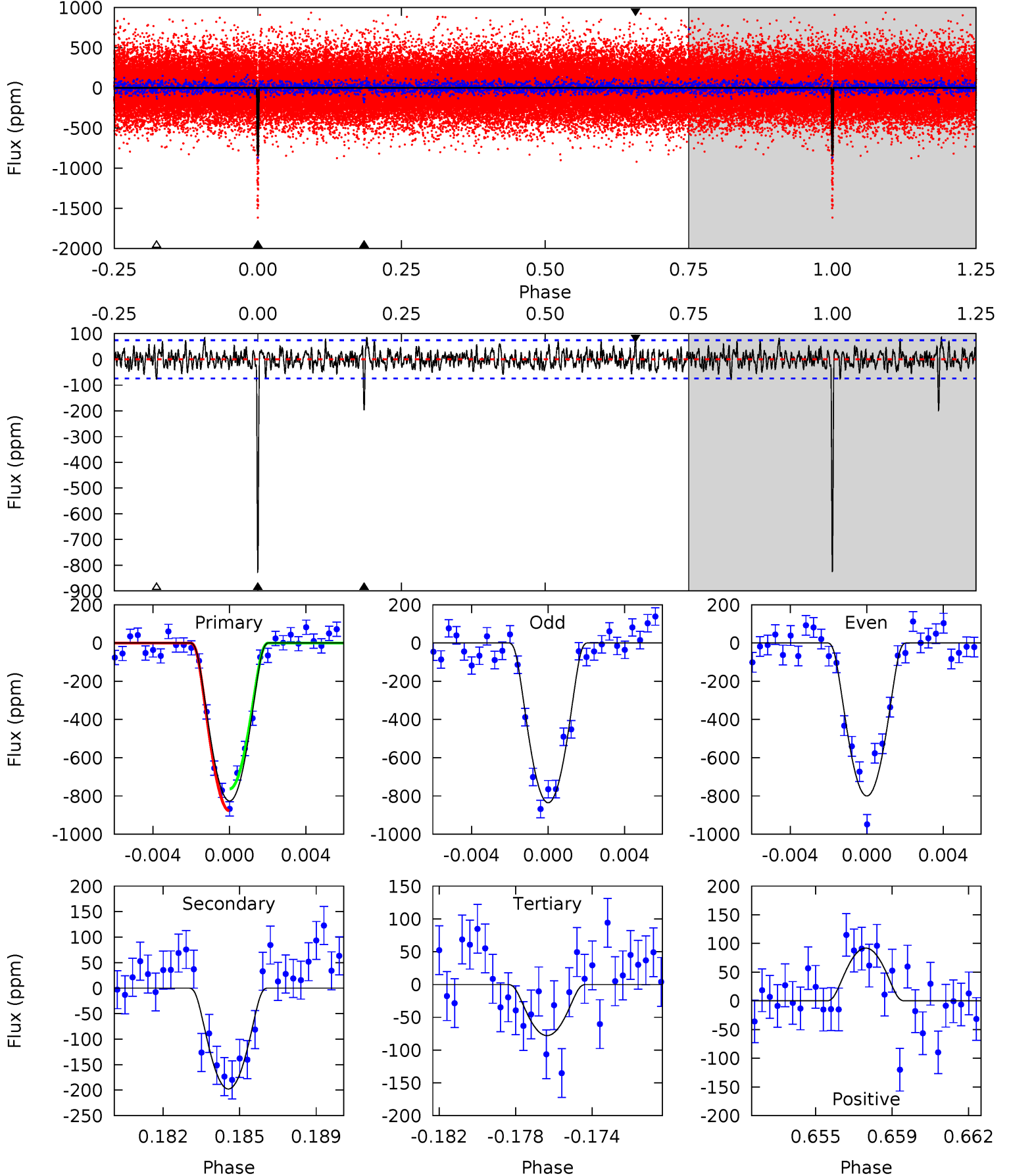
TCE 007101828-01 P= 47.878486 Days $T_0=145.323911$ (BKJD)



DV Model-Shift Uniqueness Test

007101828-01, P = 47.878256 Days, E = 97.449639 Days

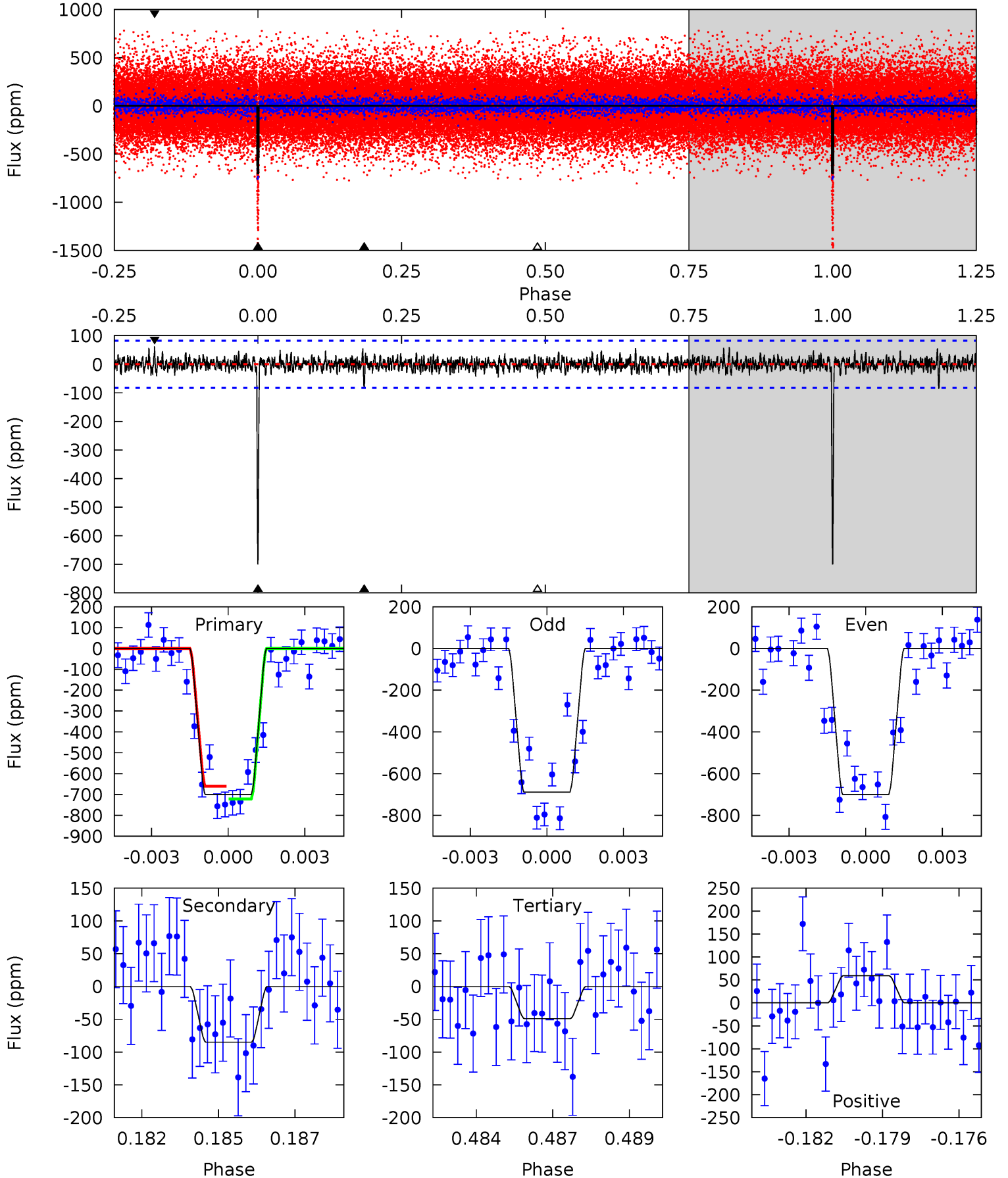
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
57.8	13.8	5.45	6.44	5.21	2.90	1.71	52.4	51.4	8.39	7.40	1.24	1.10	0.10	3.99



Alt Model-Shift Uniqueness Test

007101828-01, P = 47.878486 Days, E = 97.445425 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
44.8	5.44	3.14	3.80	5.27	3.00	0.96	41.7	41.0	2.29	1.64	0.39	1.05	0.08	0



Stellar Parameters For KIC 007101828

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (g \cdot \text{cm}^{-3})$
	4254^{+128}_{-128}	$4.634^{+0.049}_{-0.021}$	$-0.160^{+0.300}_{-0.300}$	$0.624^{+0.040}_{-0.055}$	$0.612^{+0.062}_{-0.050}$	$3.544^{+0.822}_{-0.376}$
	+3%/-3%	+1%/-0%	+188%/-188%	+6%/-9%	+10%/-8%	+23%/-11%
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 007101828-01 / KOI 0455.01

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	-198 ± 14	$3.24^{+1.98}_{-1.80}$	440^{+15}_{-14}	2886^{+787}_{-333}	507^{+2116}_{-312}
Alt.	-85 ± 16	$2.32^{+1.73}_{-1.44}$	440^{+15}_{-16}	2808^{+943}_{-372}	418^{+2583}_{-283}

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 $A_{obs} \gg 1.0$

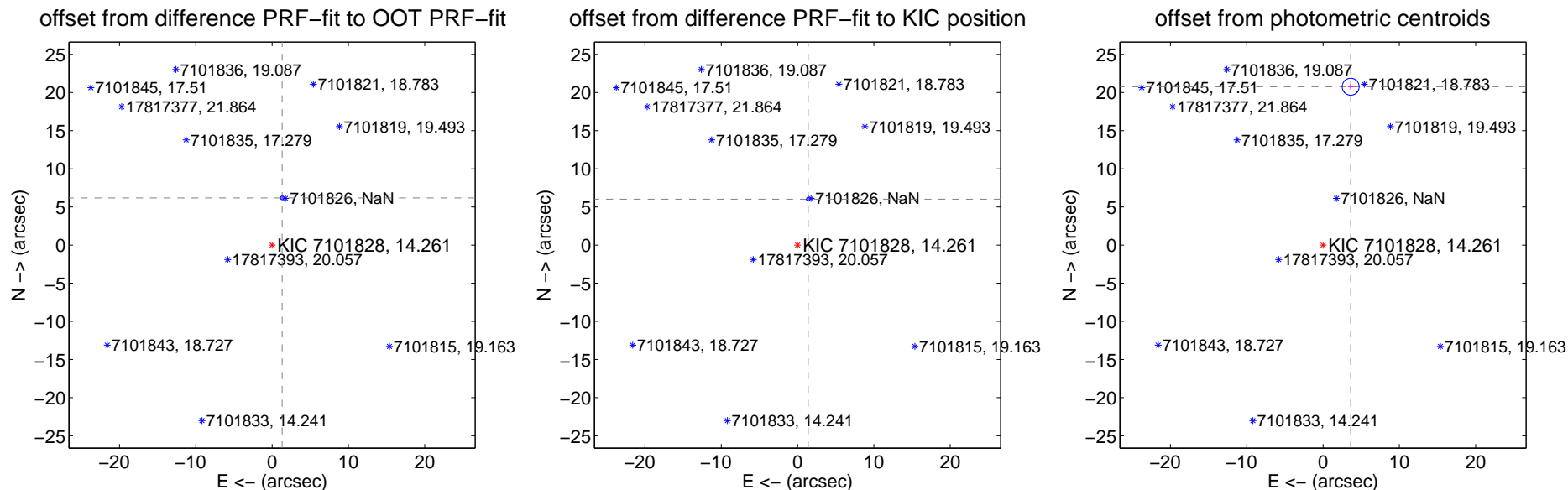
DV Centroid Data

Supplemental centroid analysis for 007101828-01. Kepler magnitude: 14.26. Transit SNR 29.21

There are 15 quarters with good PRF difference image offsets

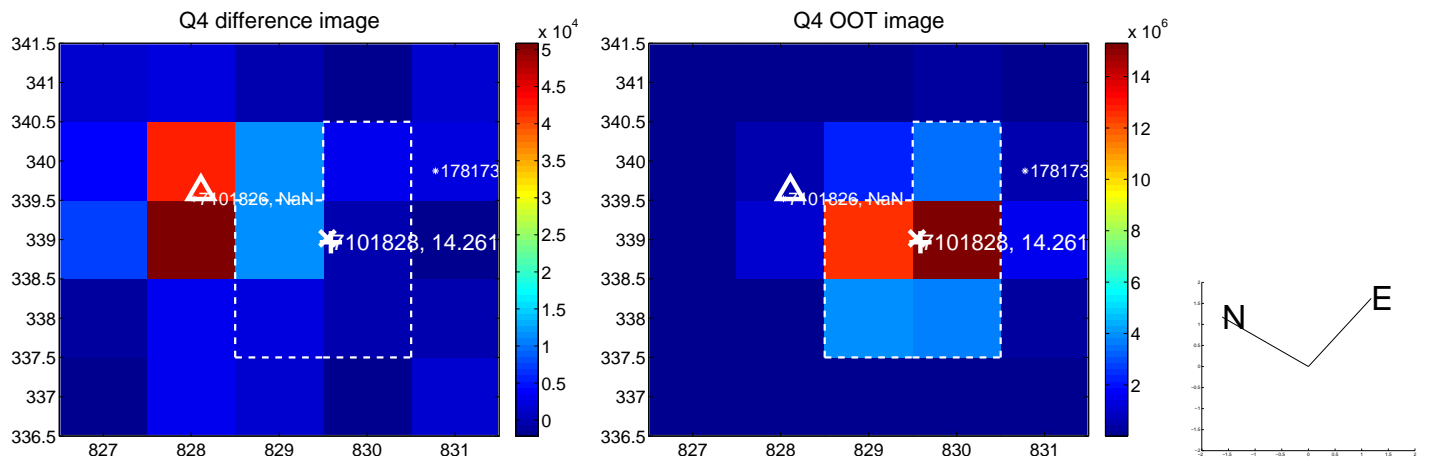
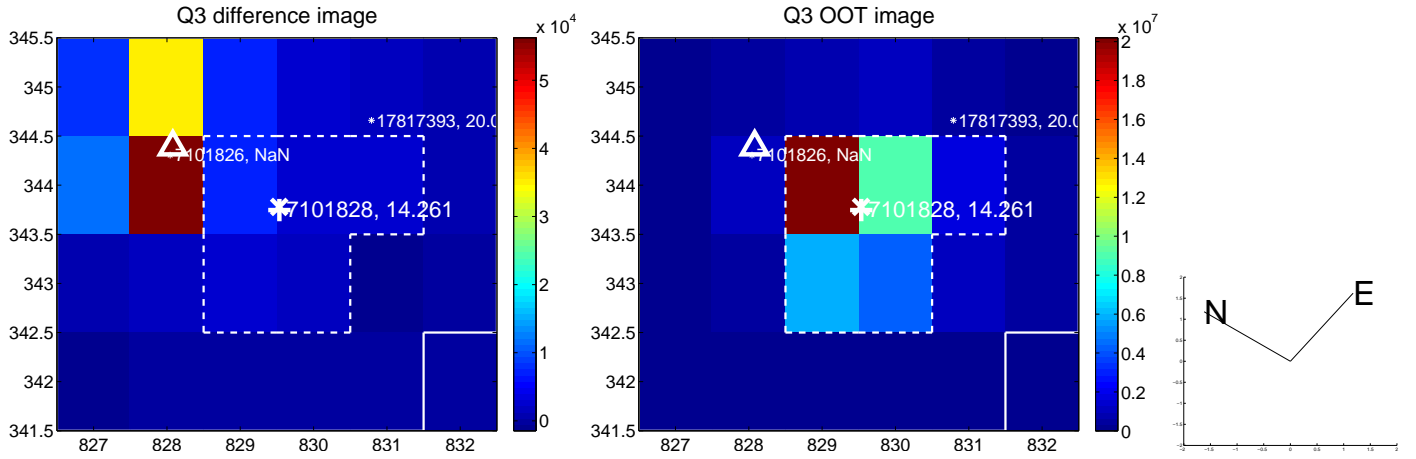
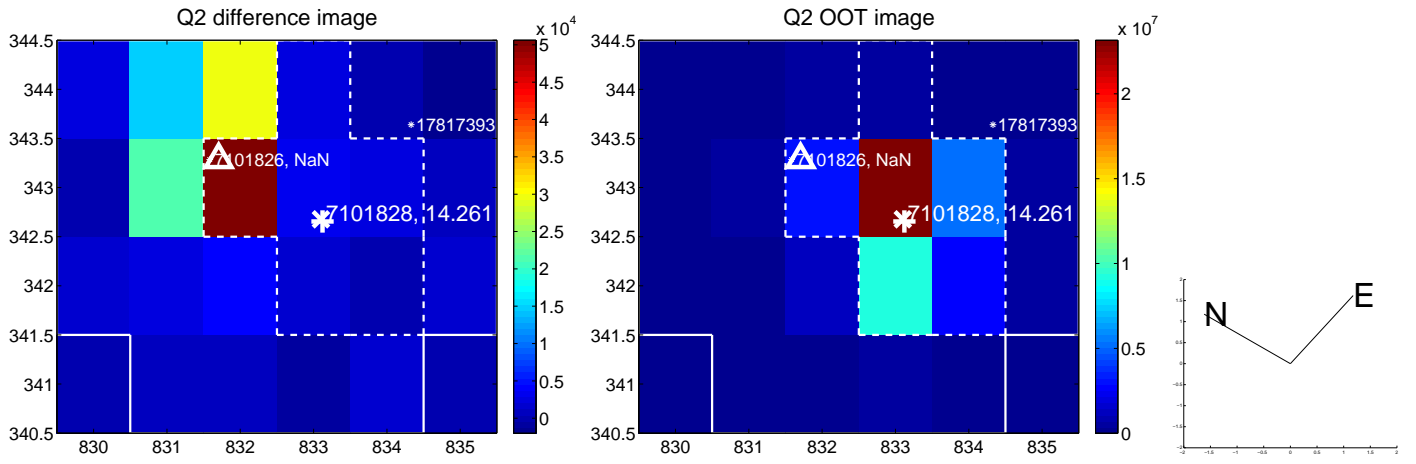
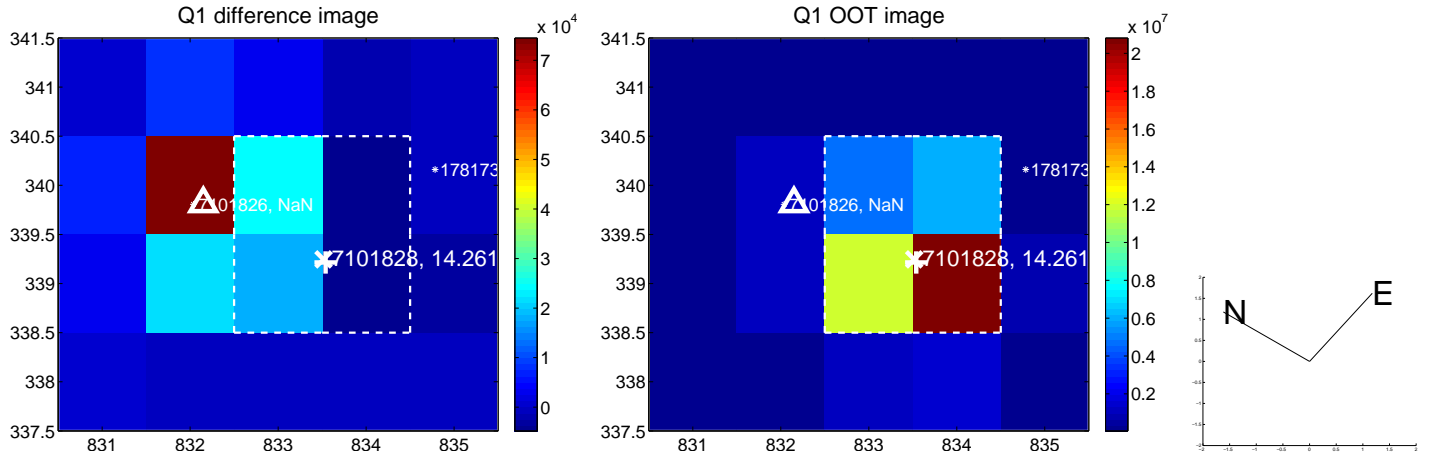
The direct PRF centroid is offset from the target star catalog position by about 0.21 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	6.321 \pm 0.077	82.44	-1.318 \pm 0.069	6.182 \pm 0.077
PRF-fit source offset from KIC position	6.176 \pm 0.075	81.82	-1.392 \pm 0.070	6.017 \pm 0.075
photometric centroid source offset	21.07 \pm 0.37	56.87	-3.62 \pm 0.35	20.75 \pm 0.37

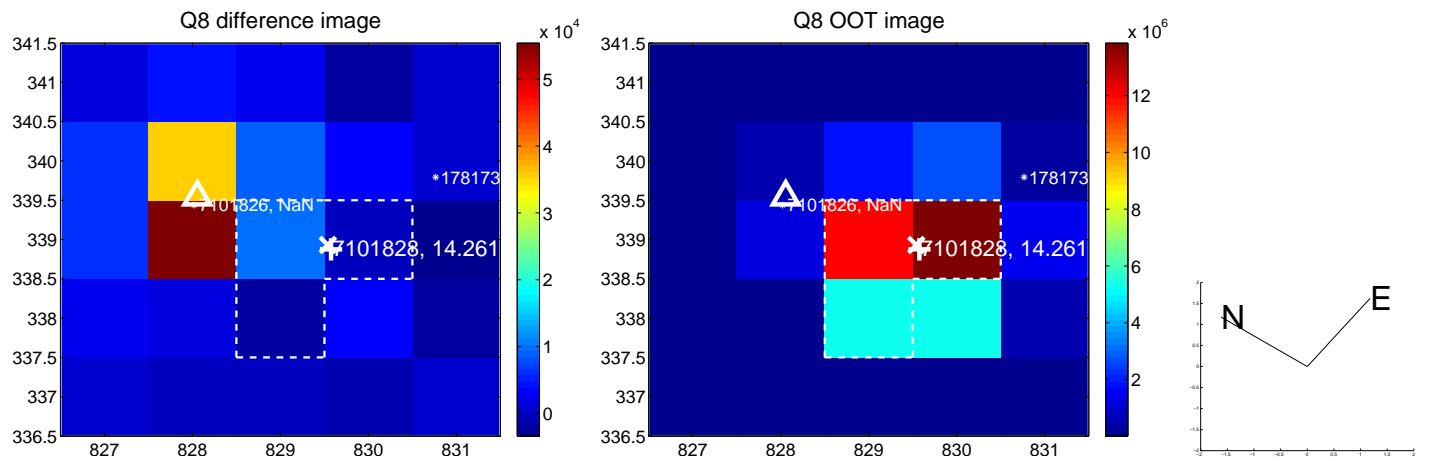
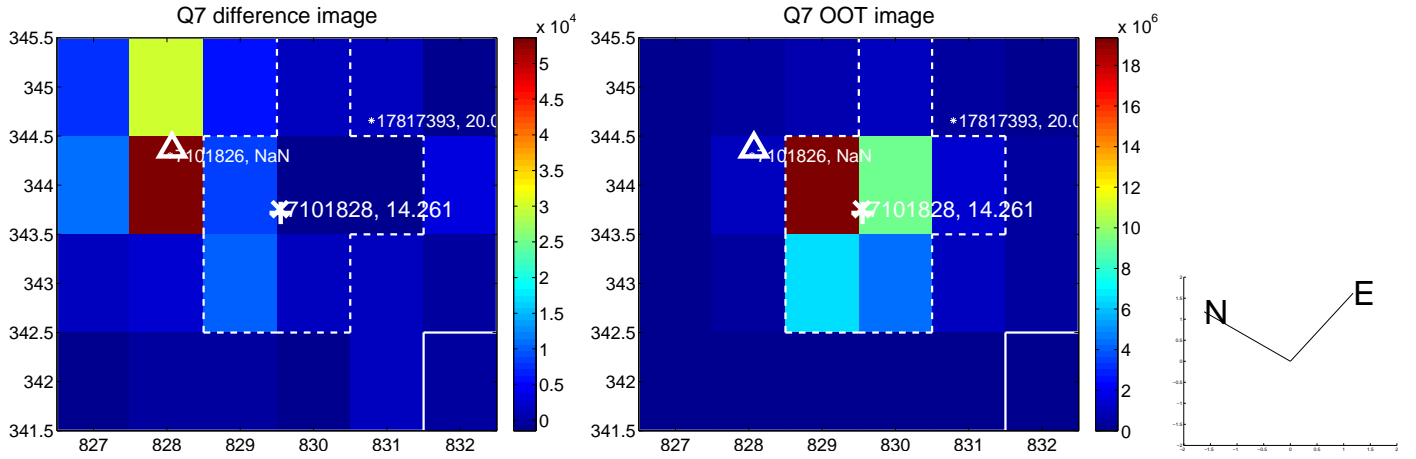
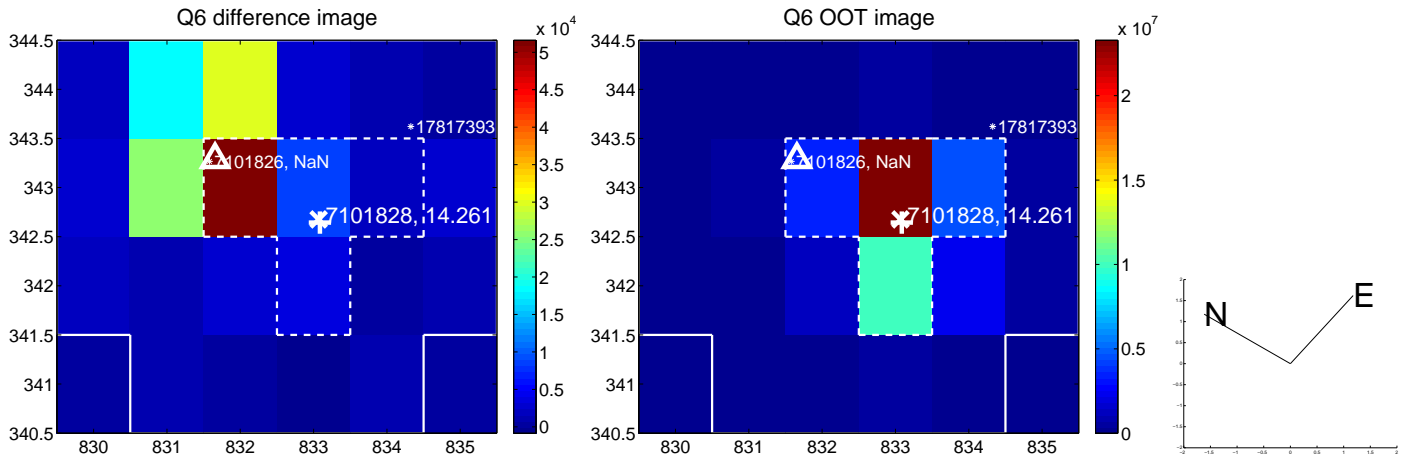
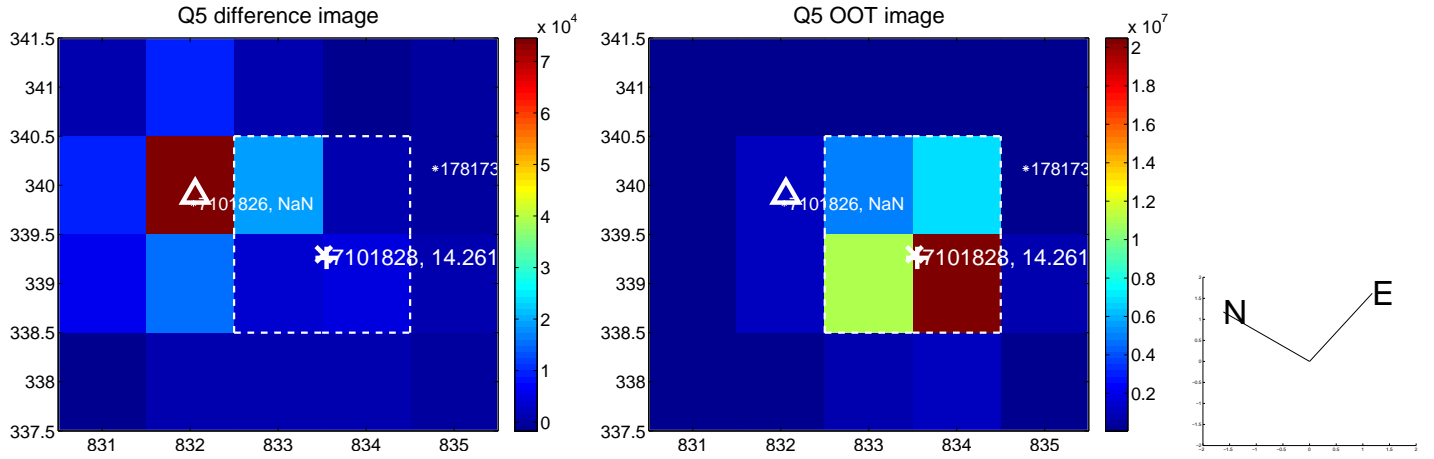


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

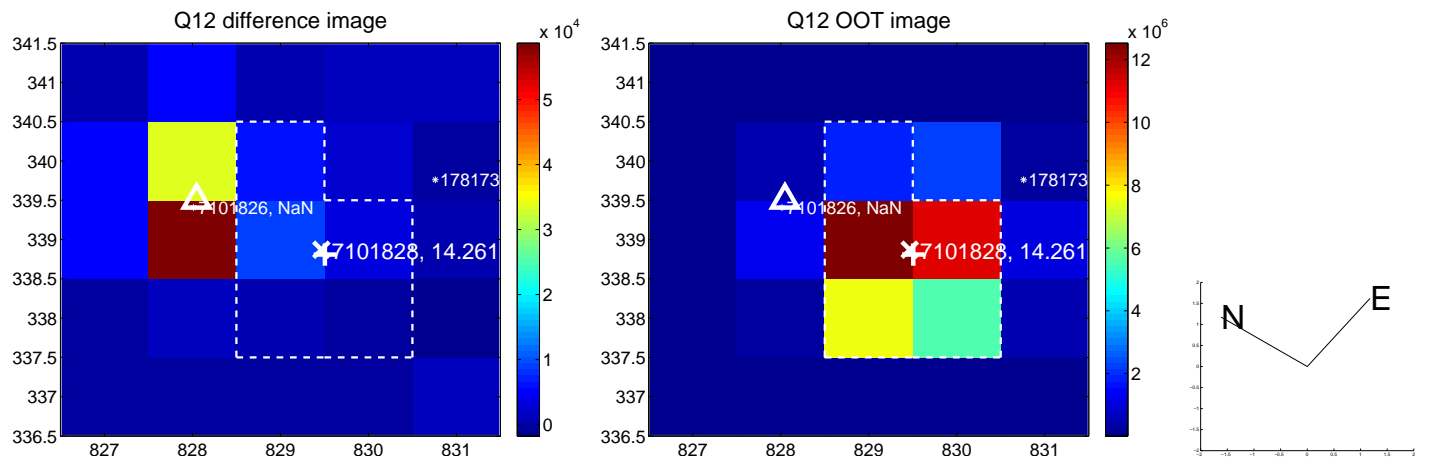
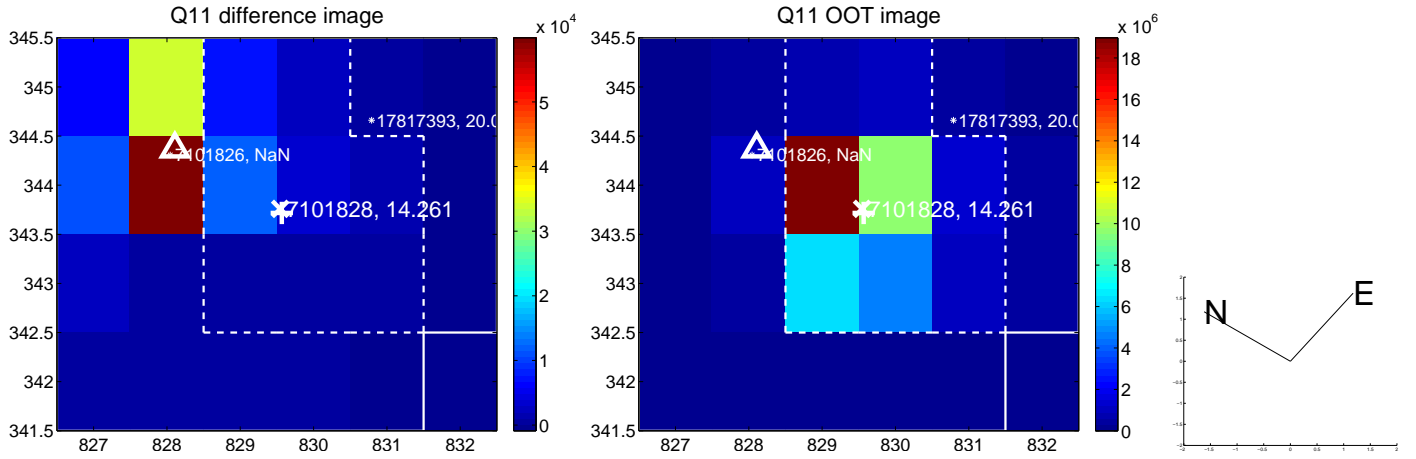
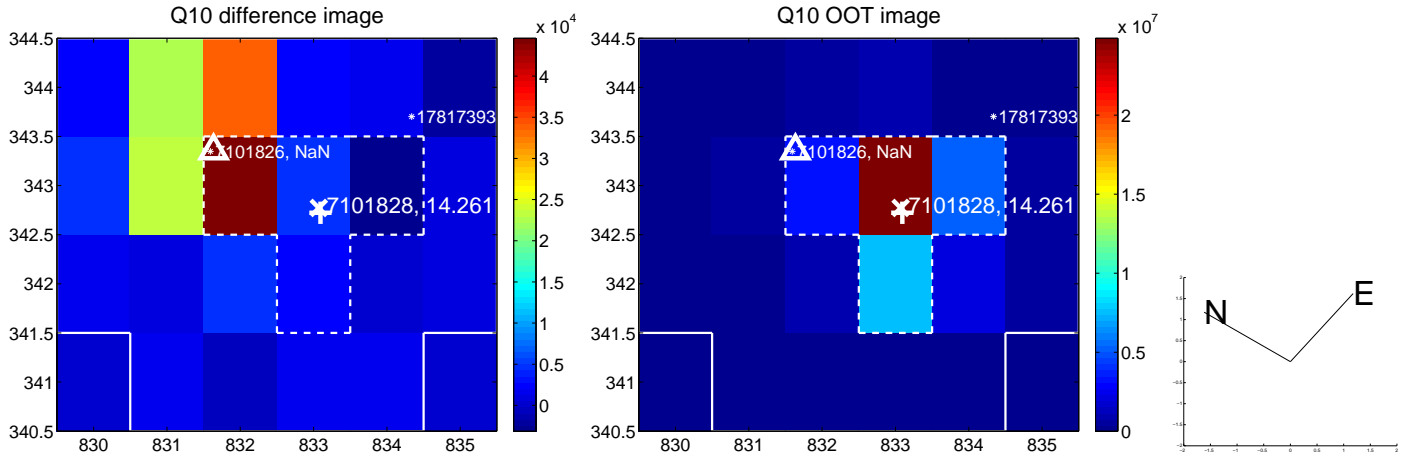
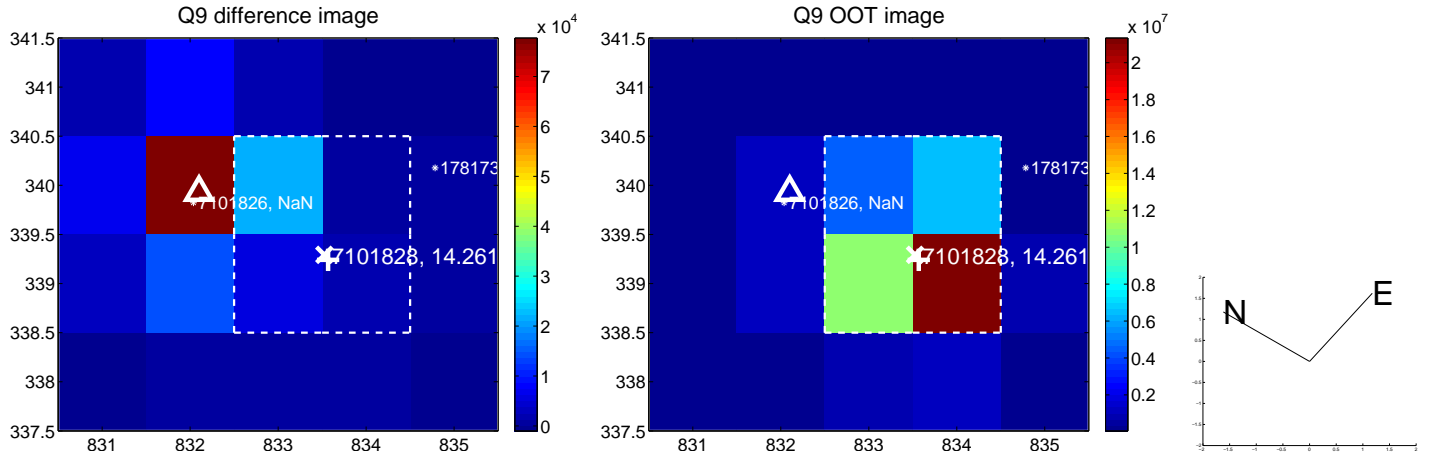
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



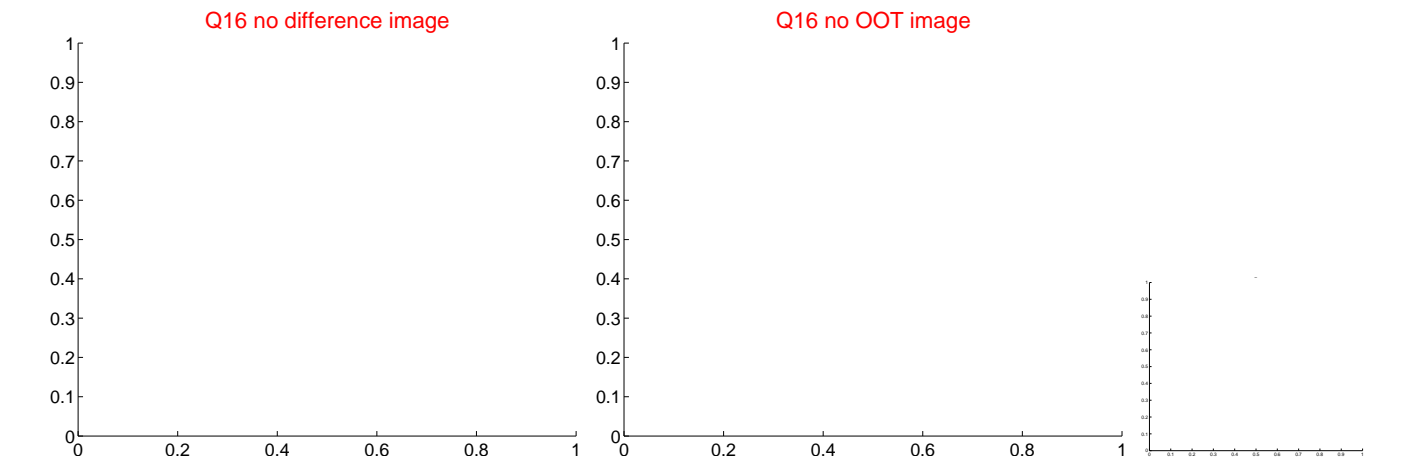
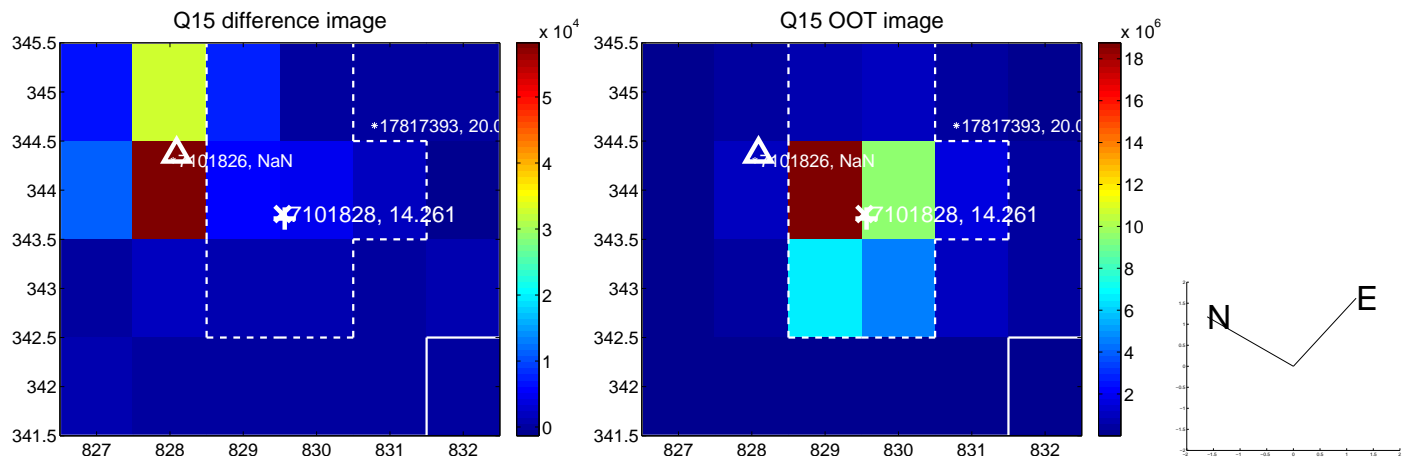
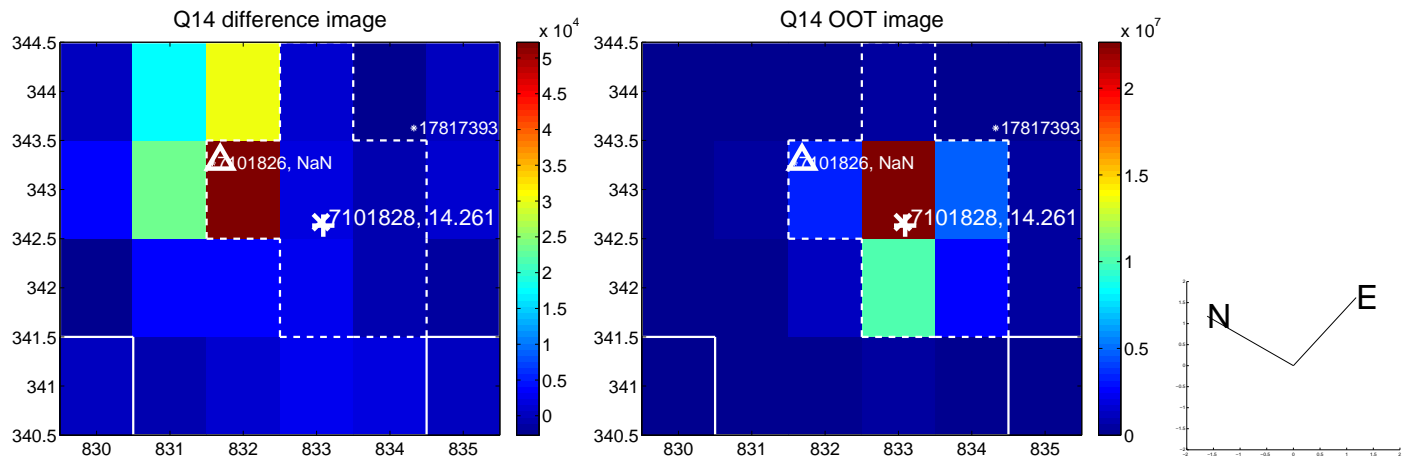
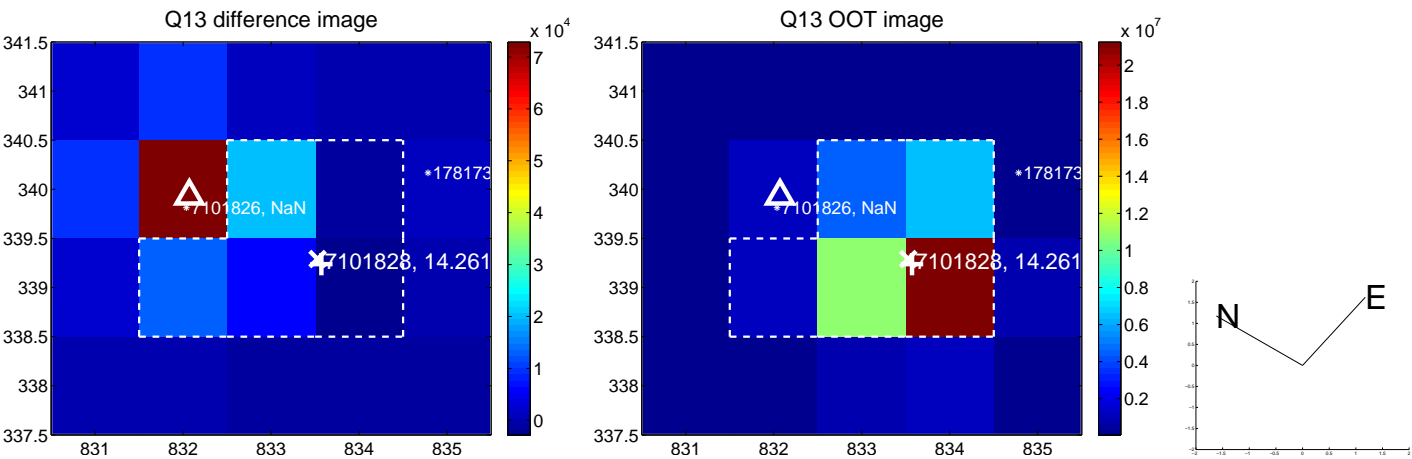
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



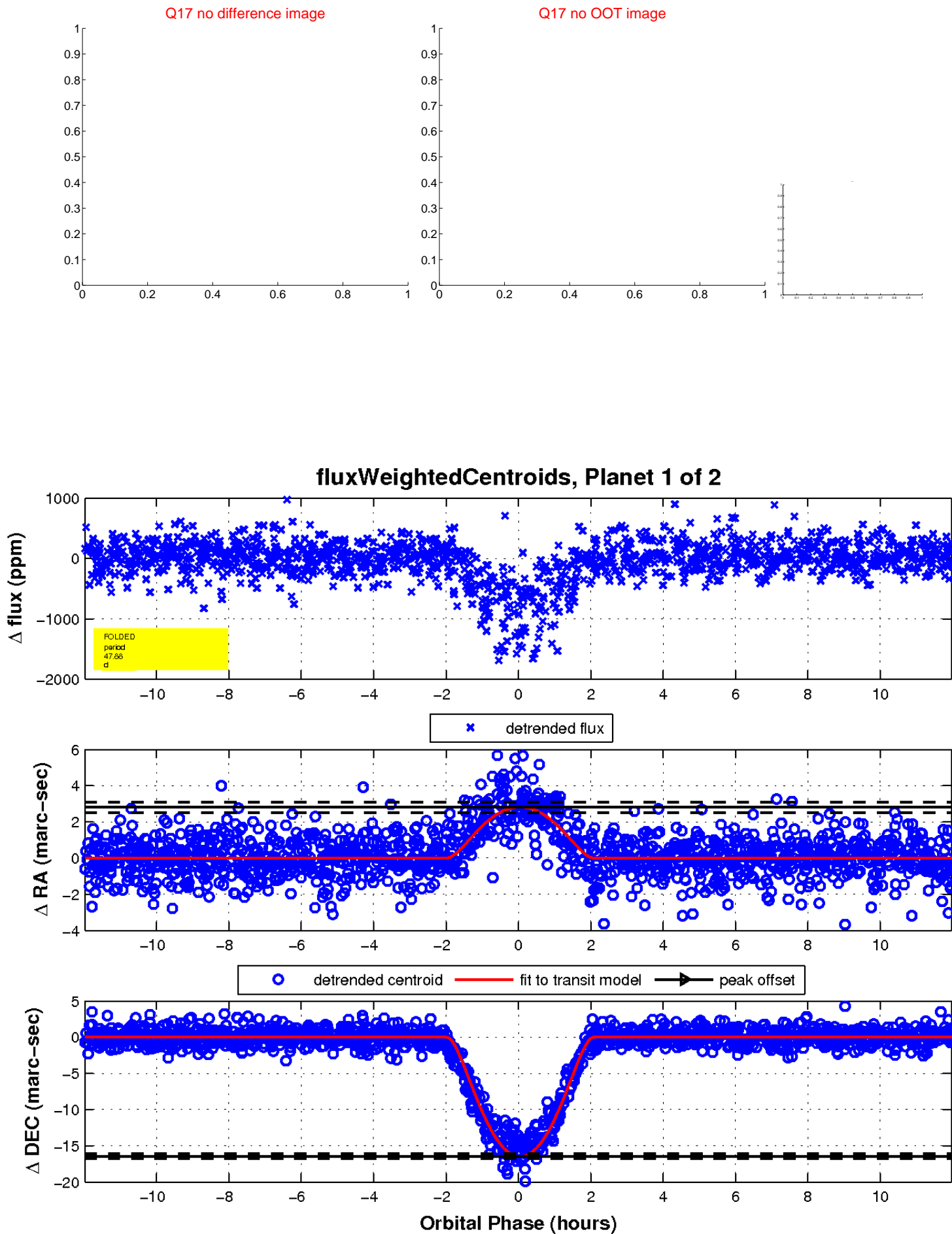
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white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.

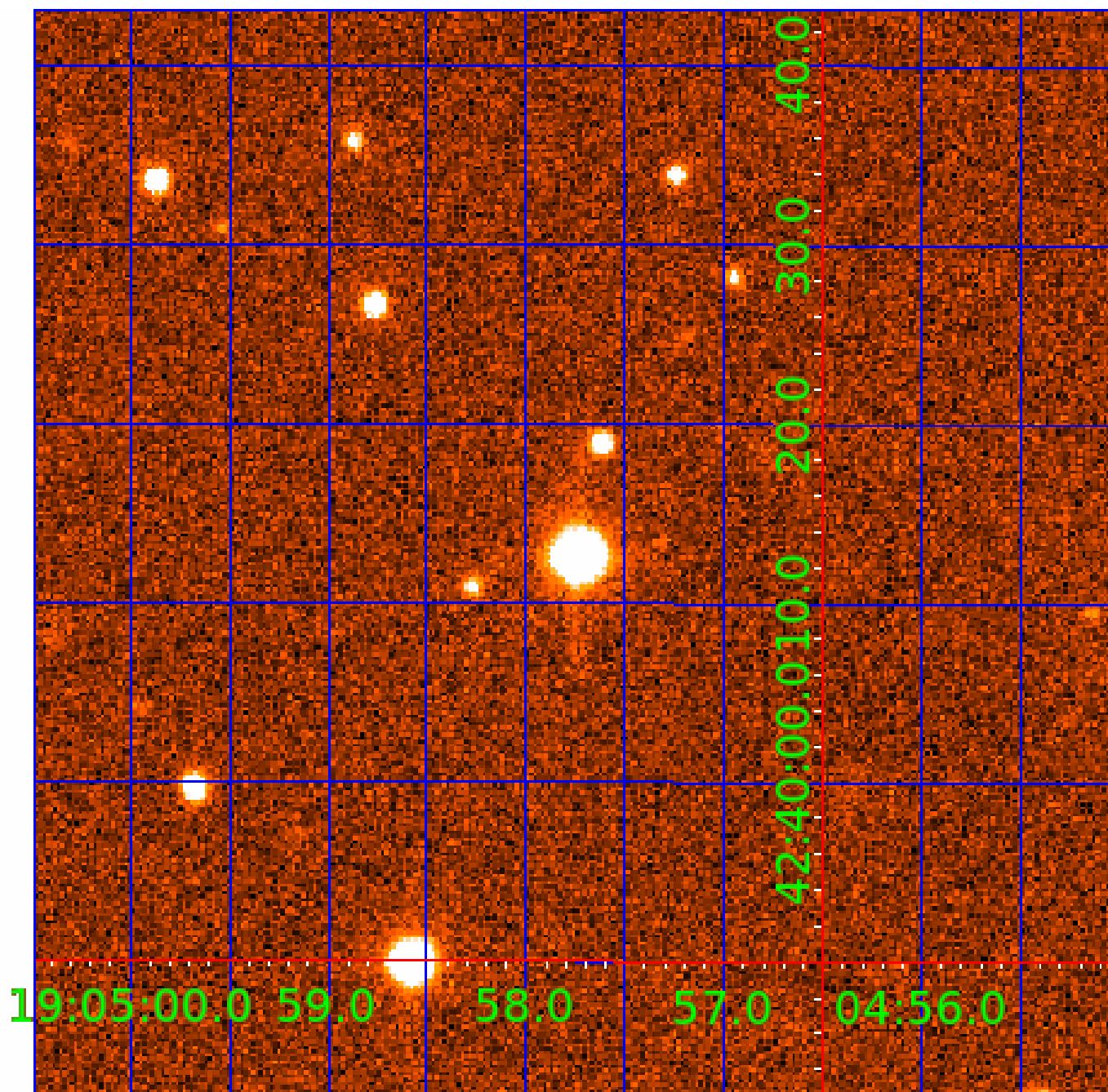


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 007101828

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})
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Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
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007101828-02	OBS	FP	0.00	1	1	1	0	IS_SEC_TCE—CENT_RESOLVED_OFFSET

Notes: OBS = Observed. INJ = Injected. INV = Inverted. SCR = Scrambled.

N = Not Transit-Like. S = Stellar Eclipse. C = Centroid Offset. E = Ephemeris Match.

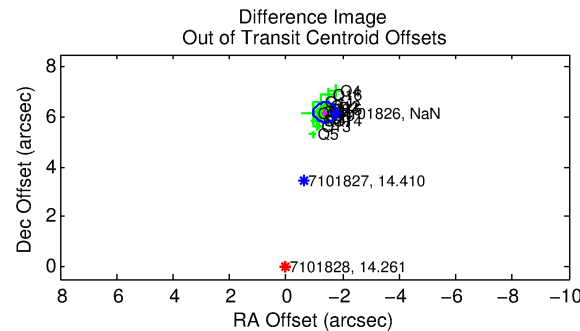
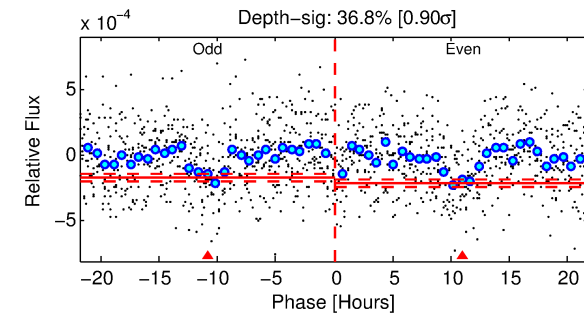
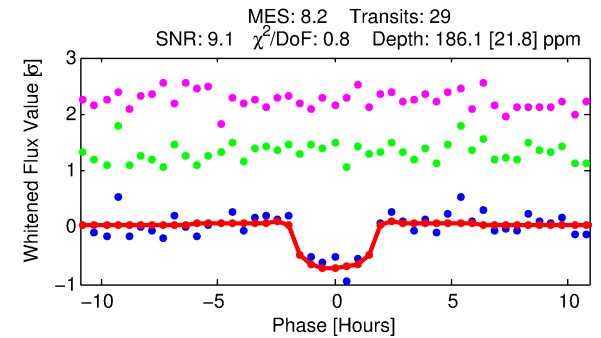
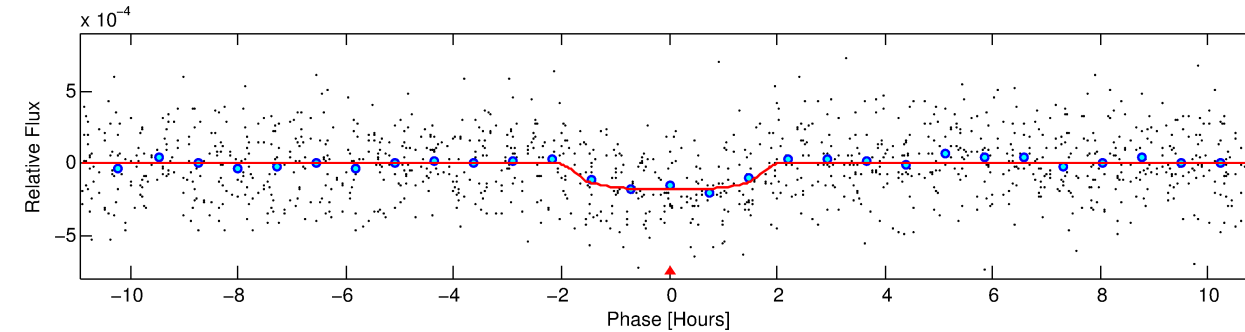
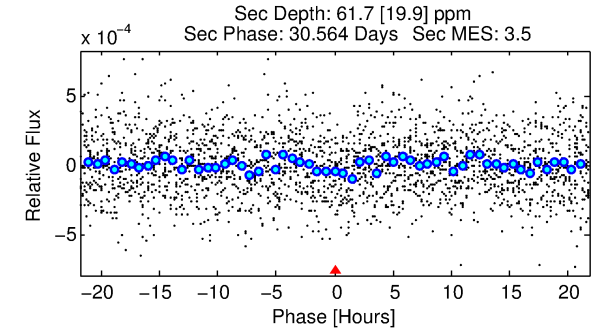
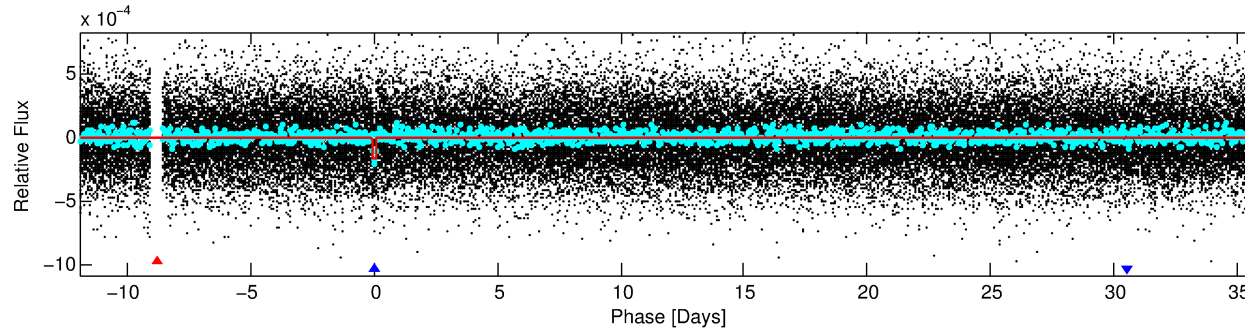
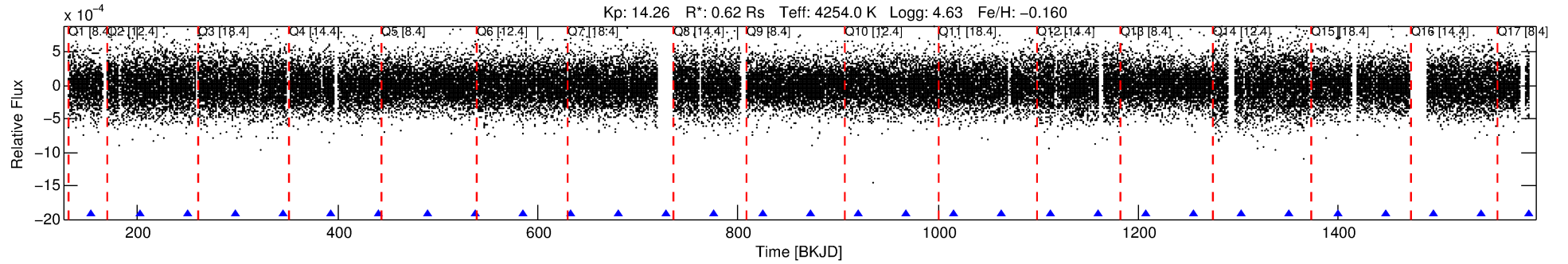
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 007101828-02

No Significant Match Found

DV One-Page Summary

KIC: 7101828 Candidate: 2 of 2 Period: 47.878 d
KOI: K00455 Corr: No Ephemeris Match



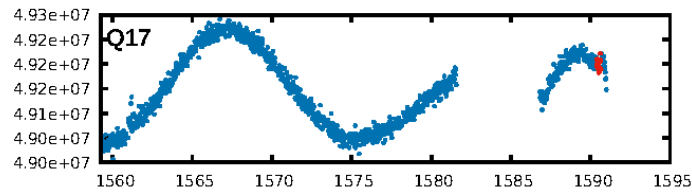
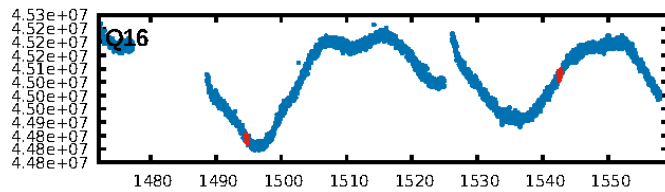
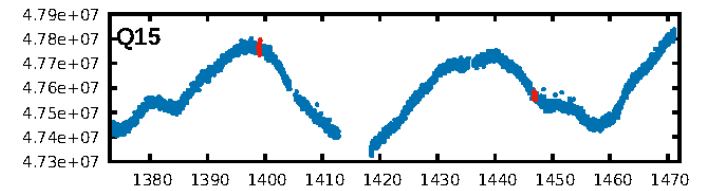
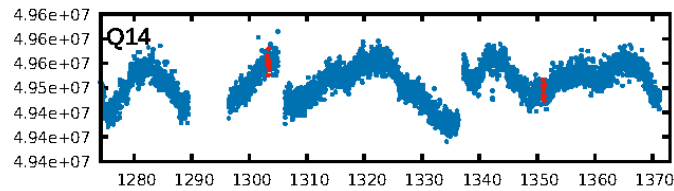
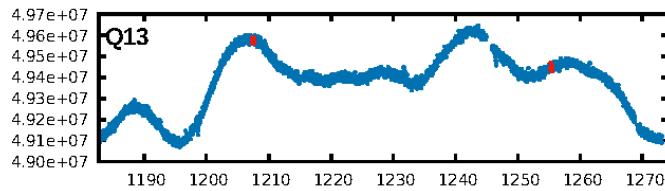
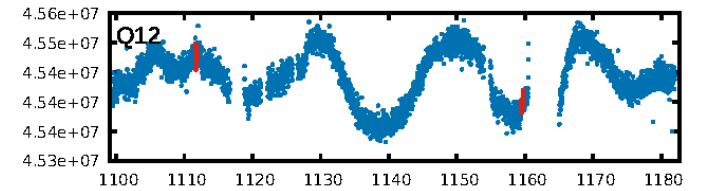
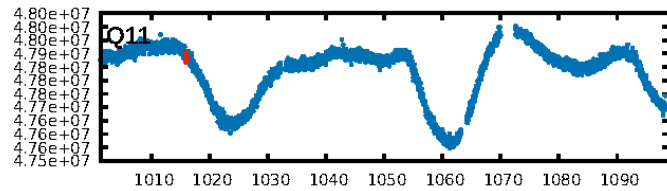
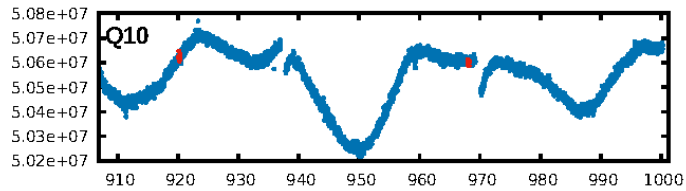
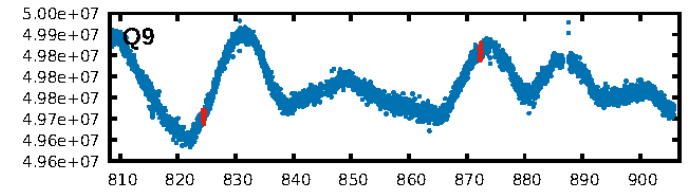
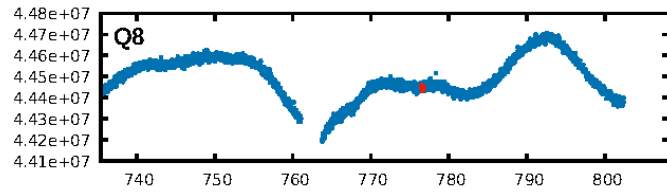
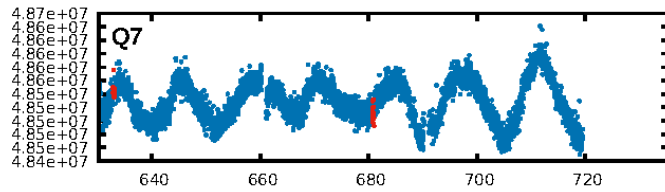
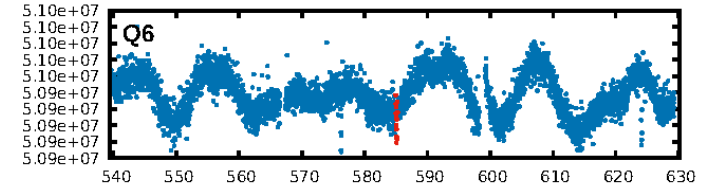
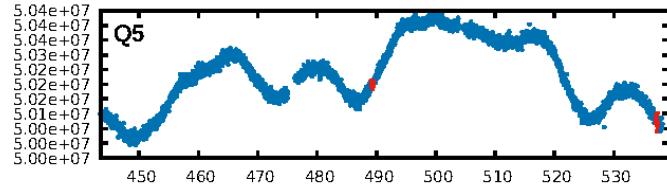
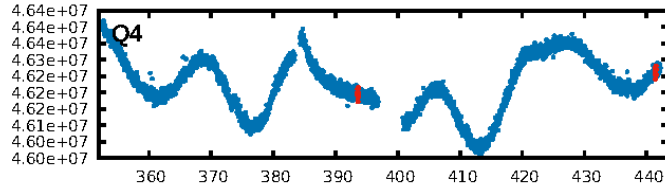
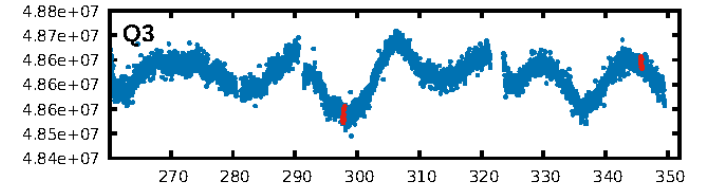
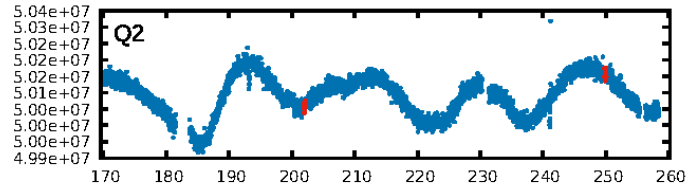
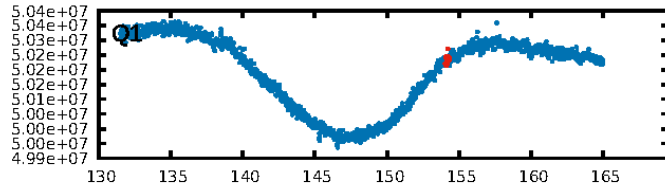
DV Fit Results:

Period = 47.87841 [0.00045] d
Epoch = 154.1769 [0.0080] BKJD
Rp/R* = 0.0138 [0.0121]
a/R* = 65.85 [201.38]
b = 0.77 [1.63]
Seff = 2.38 [0.37]
Teq = 317 [12] K
Rp = 0.94 [0.83] Re
a = 0.2191 [0.0153] AU
Ag = 1839.86 [3280.96] [0.56σ]
Teffp = 3207 [1431] K [2.02σ]

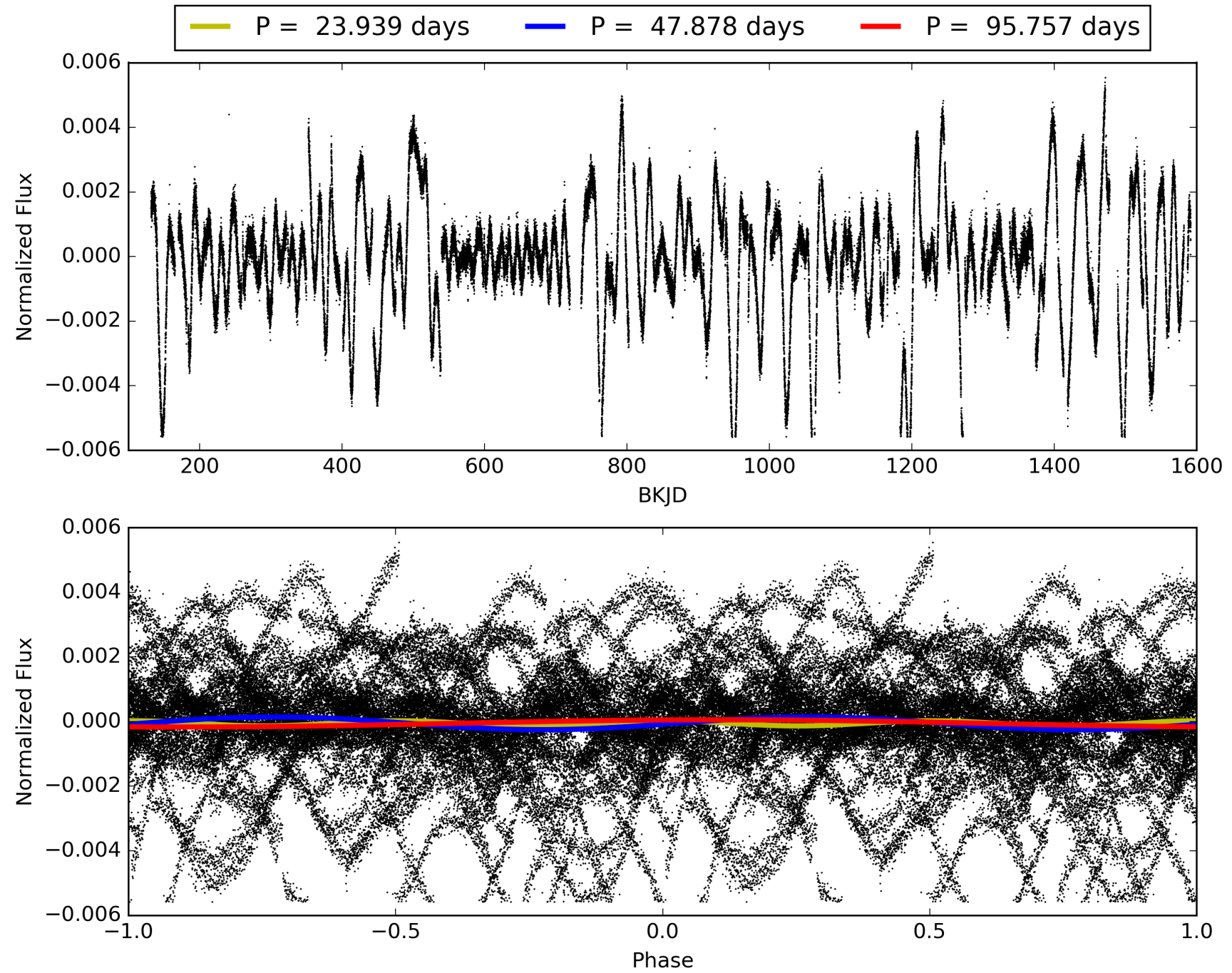
DV Diagnostic Results:

ShortPeriod-sig: 0.1% [0.00σ]
LongPeriod-sig: N/A
ModelChiSquare2-sig: 73.2%
ModelChiSquareGof-sig: 100.0%
Bootstrap-pfa: 1.98e-16
RollingBand-fgt: 1.00 [27/27]
GhostDiagnostic-chr: 0.3405
Centroid-sig: 0.0%
Centroid-so: 18.529 arcsec [14.62σ]
OotOffset-rm: 6.322 arcsec [47.88σ]
KicOffset-rm: 6.176 arcsec [45.31σ]
OotOffset-st: 4/4/4/4 [16]
KicOffset-st: 4/4/4/4 [16]
DiffImageQuality-fgm: 1.00 [16/16]
DiffImageOverlap-fno: 1.00 [17/17]

TCE 007101828-02, PDC Light Curves

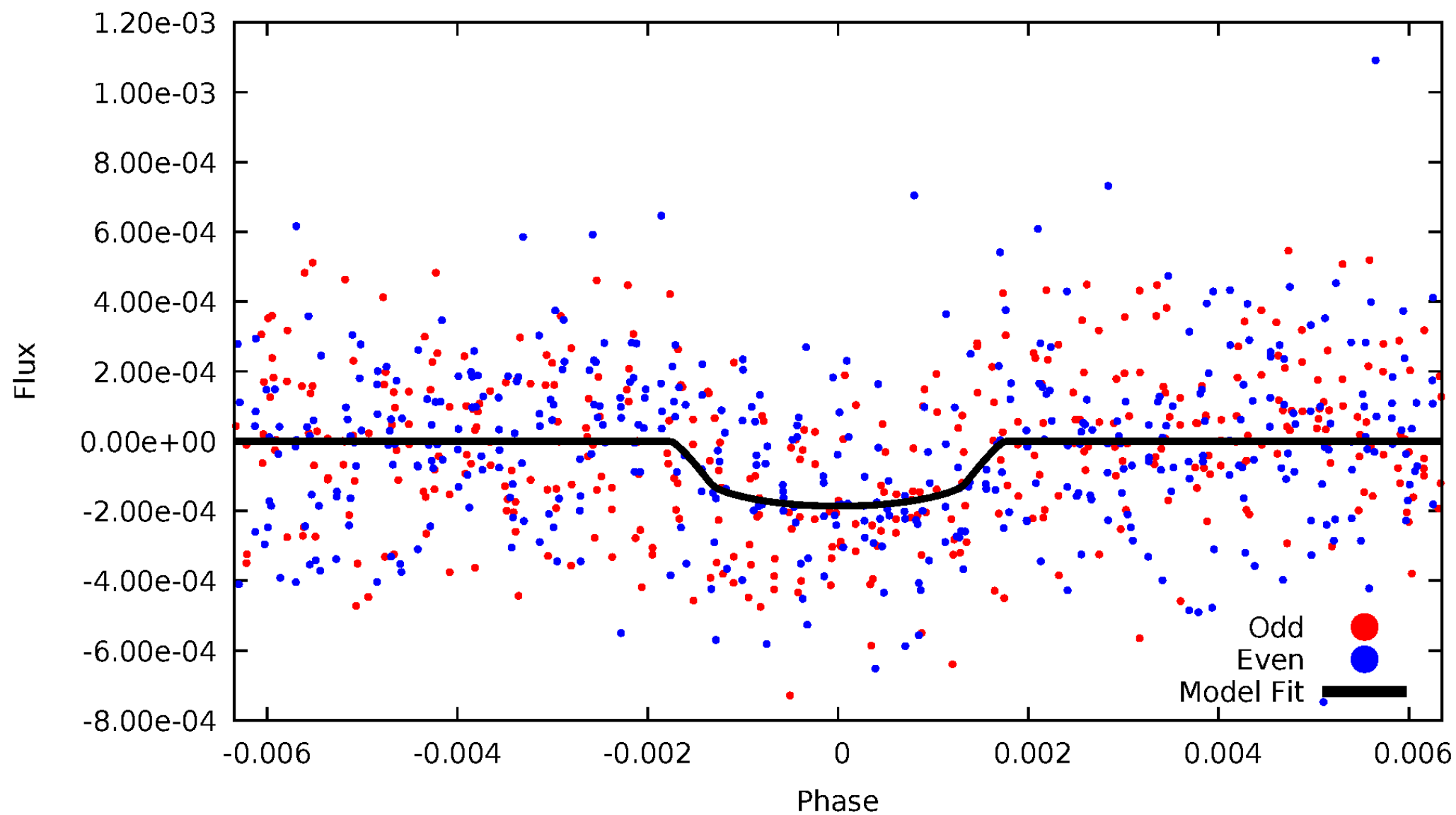


TCE 007101828-02



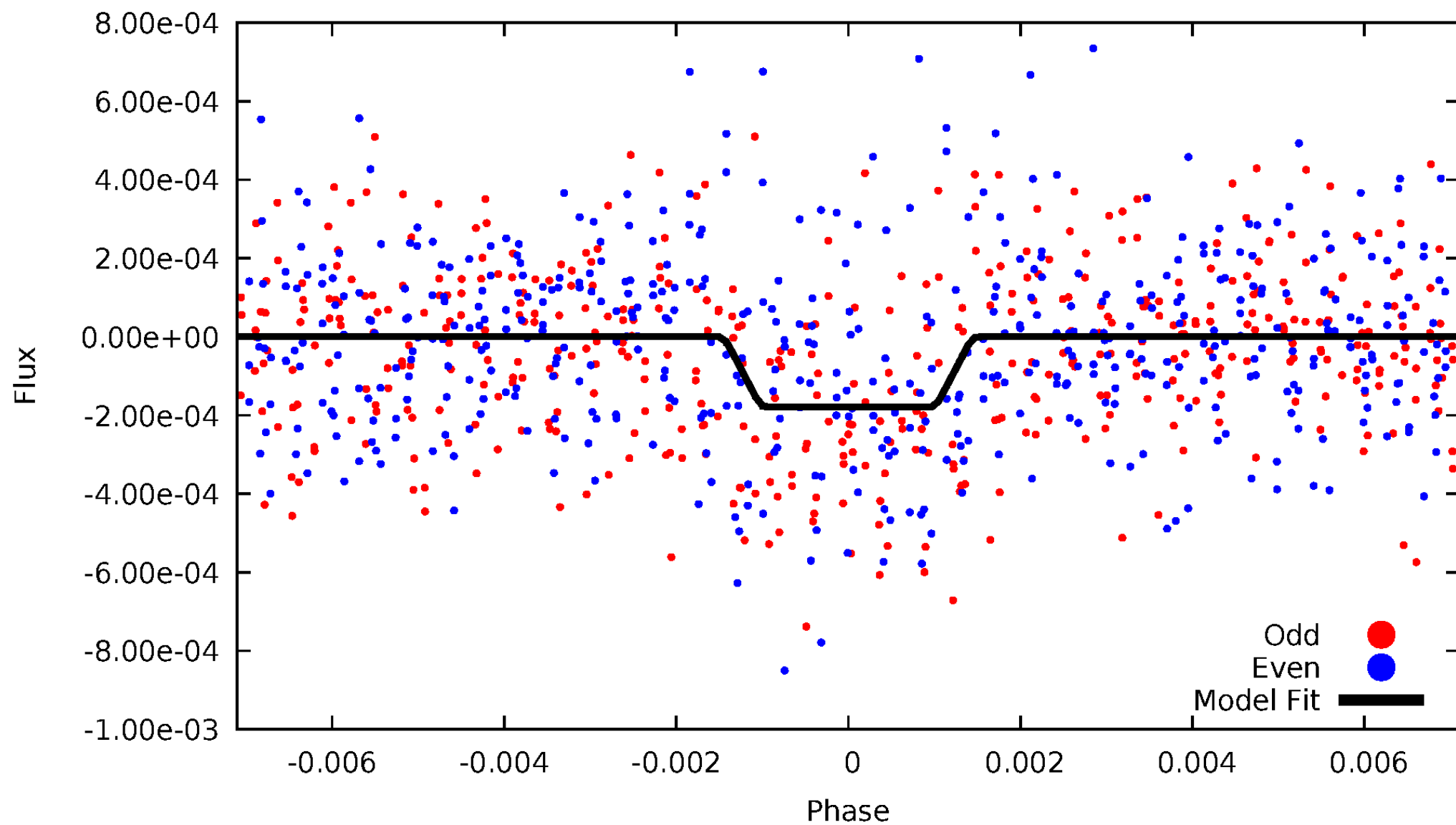
DV Odd/Even

TCE 007101828-02



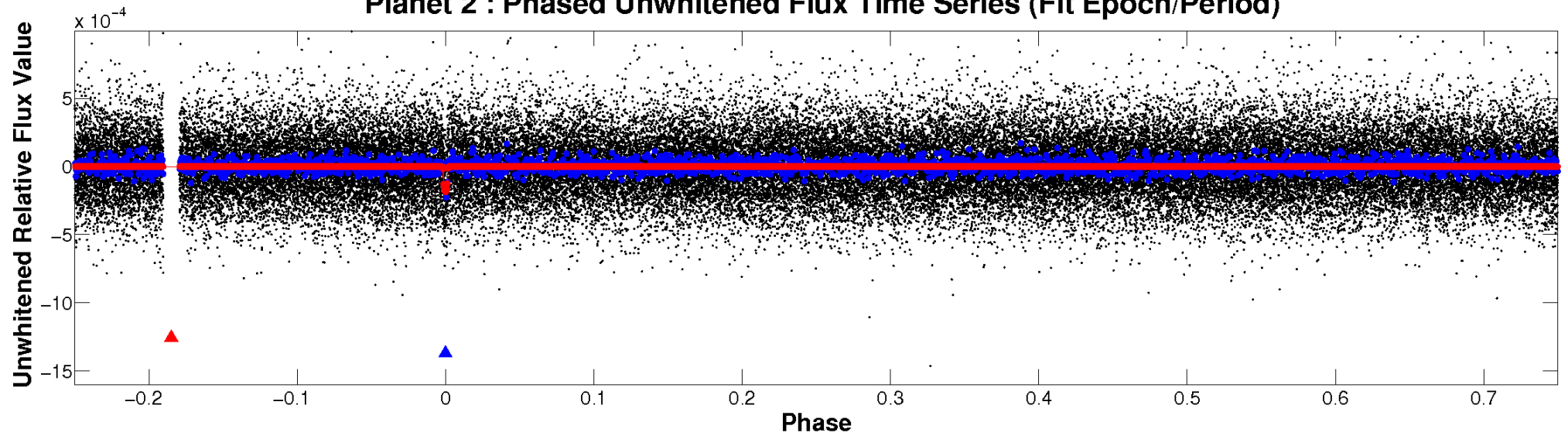
ALT Odd/Even

TCE 007101828-02

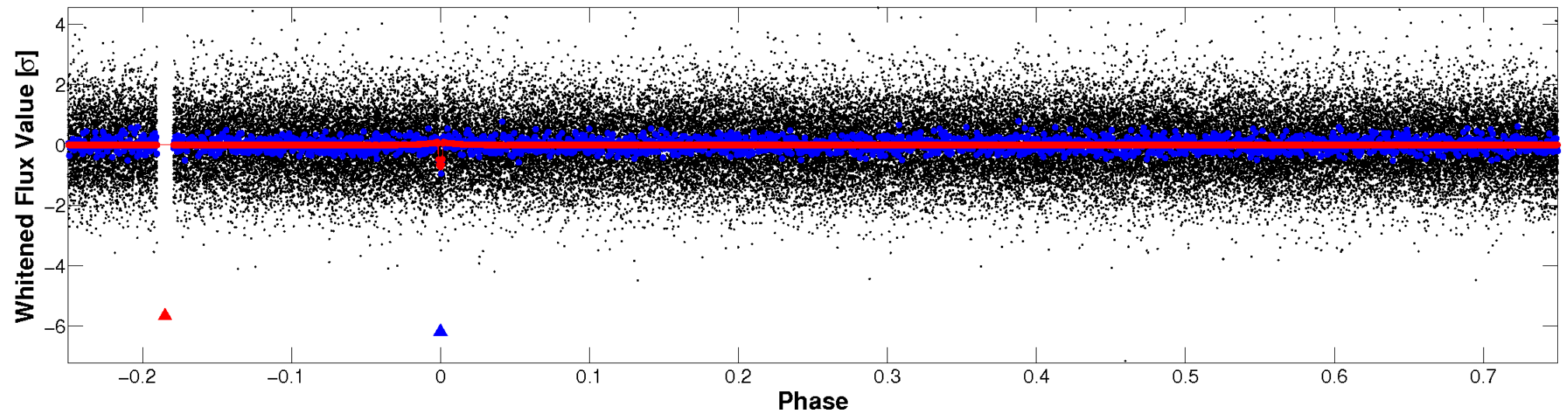


Non-Whitened Vs. Whitened Light Curve

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

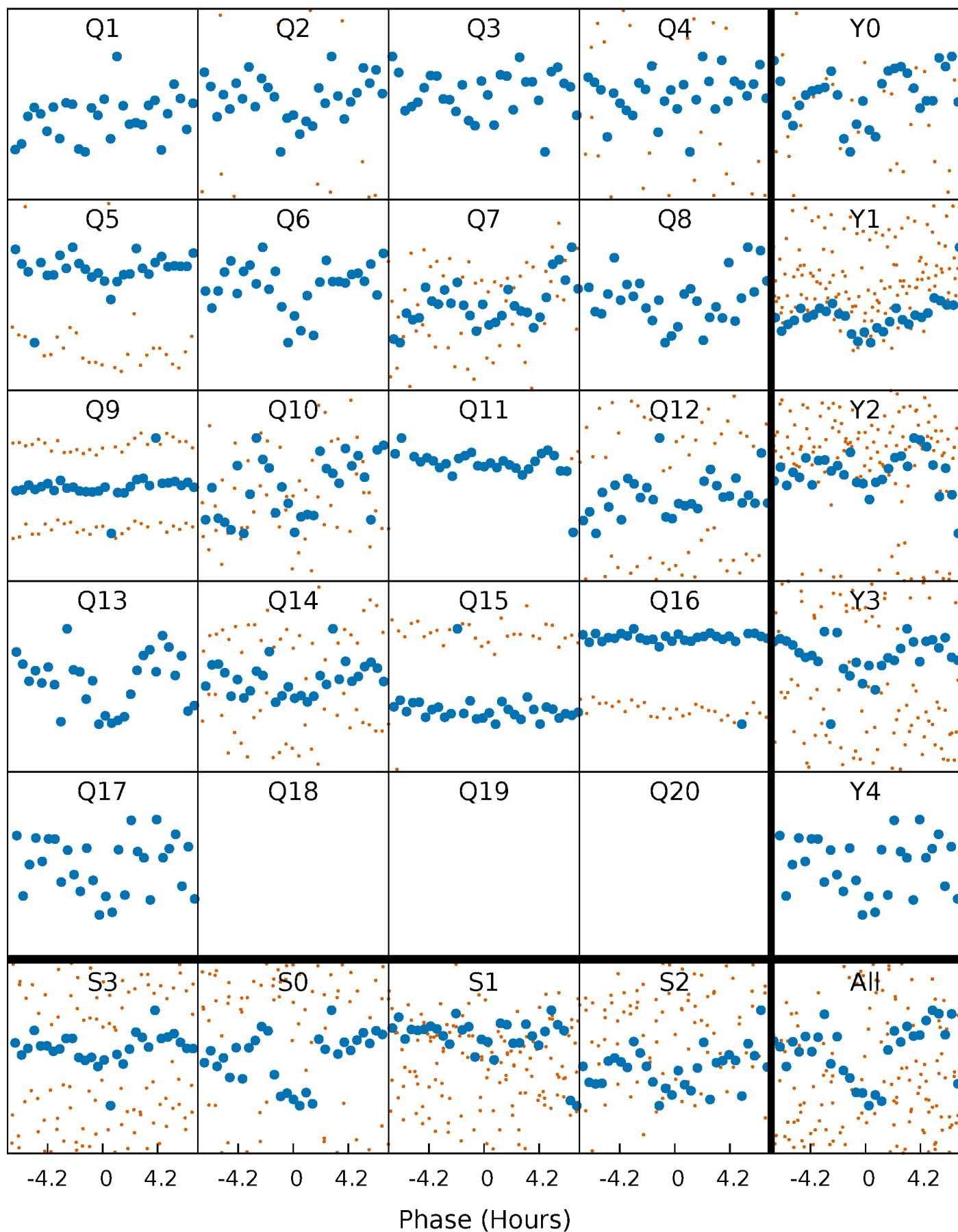


Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



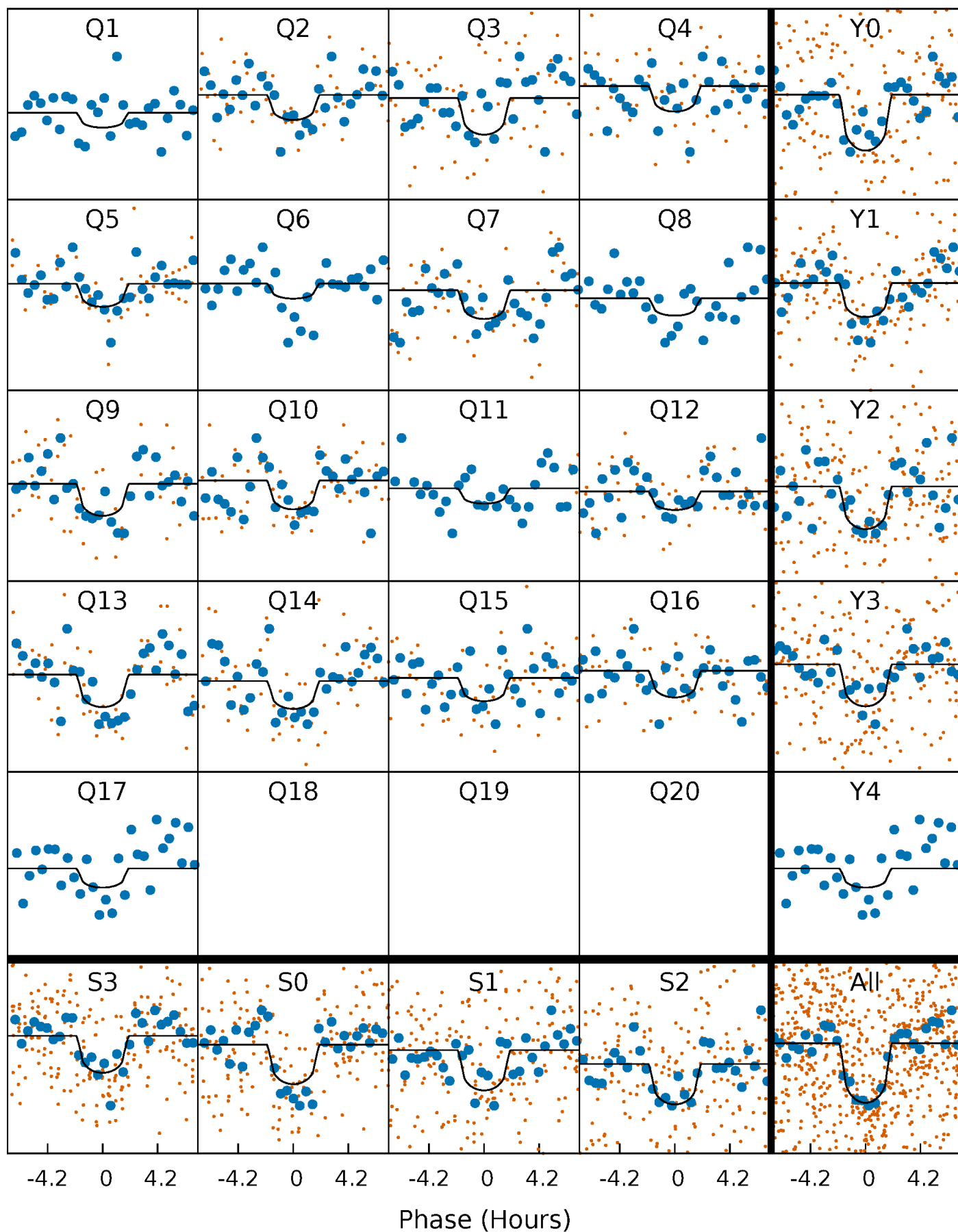
PDC Quarter-Phased Transit Curves

TCE 007101828-02 P= 47.878408 Days $T_0=154.176882$ (BKJD)



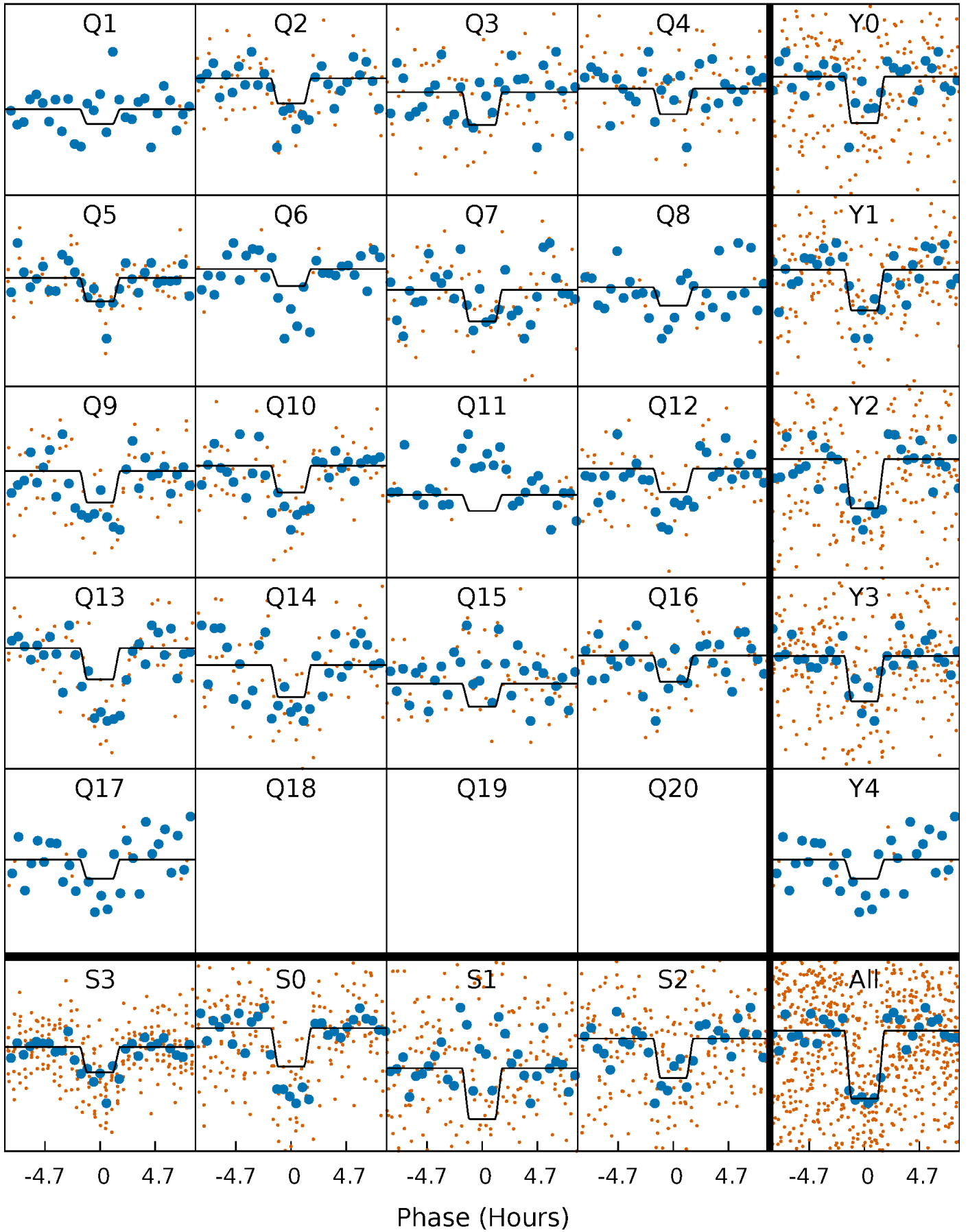
DV Quarter-Phased Transit Curves

TCE 007101828-02 P= 47.878408 Days $T_0=154.176882$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

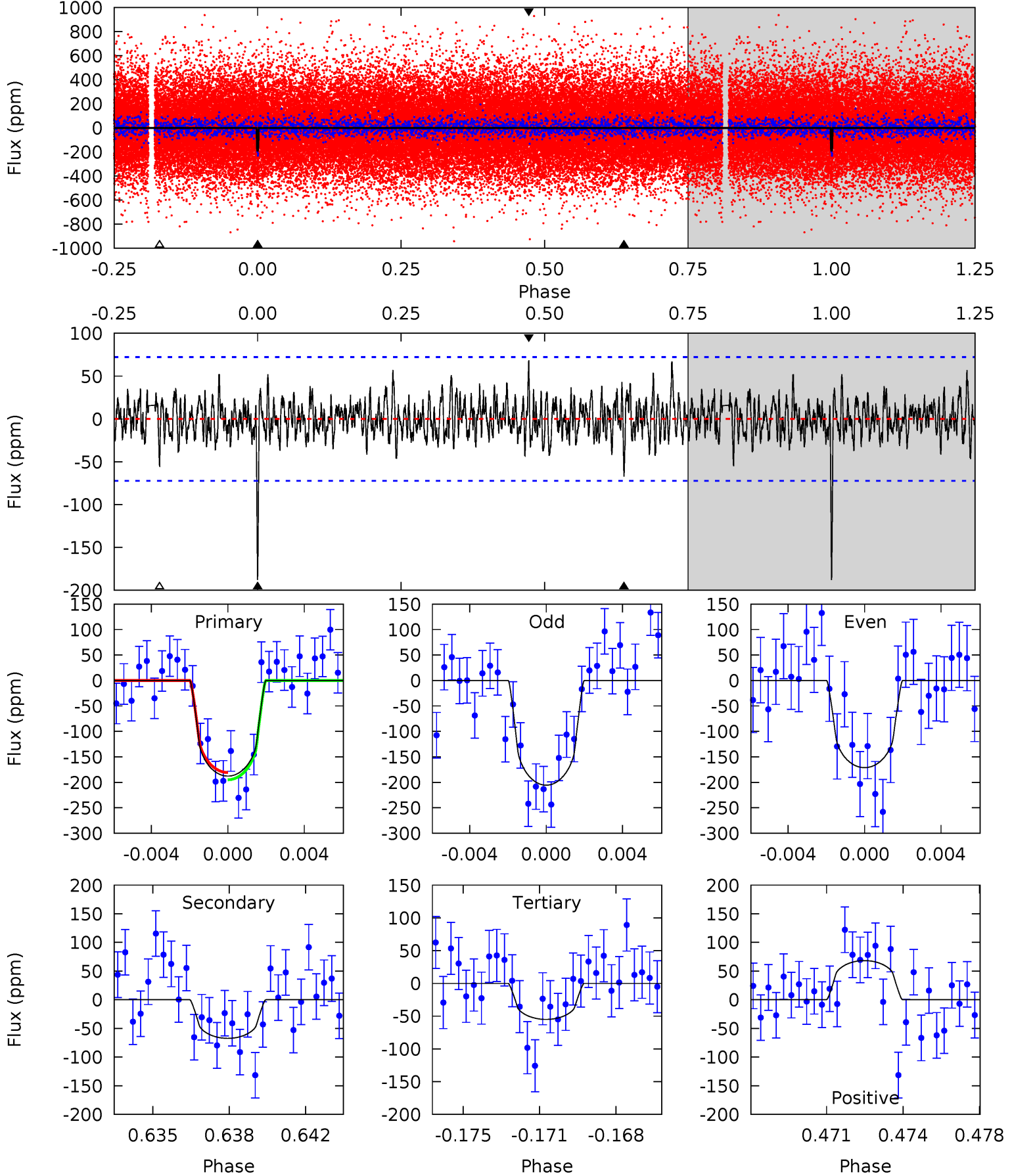
TCE 007101828-02 P= 47.878435 Days $T_0=154.175929$ (BKJD)



DV Model-Shift Uniqueness Test

007101828-02, $P = 47.878408$ Days, $E = 106.298474$ Days

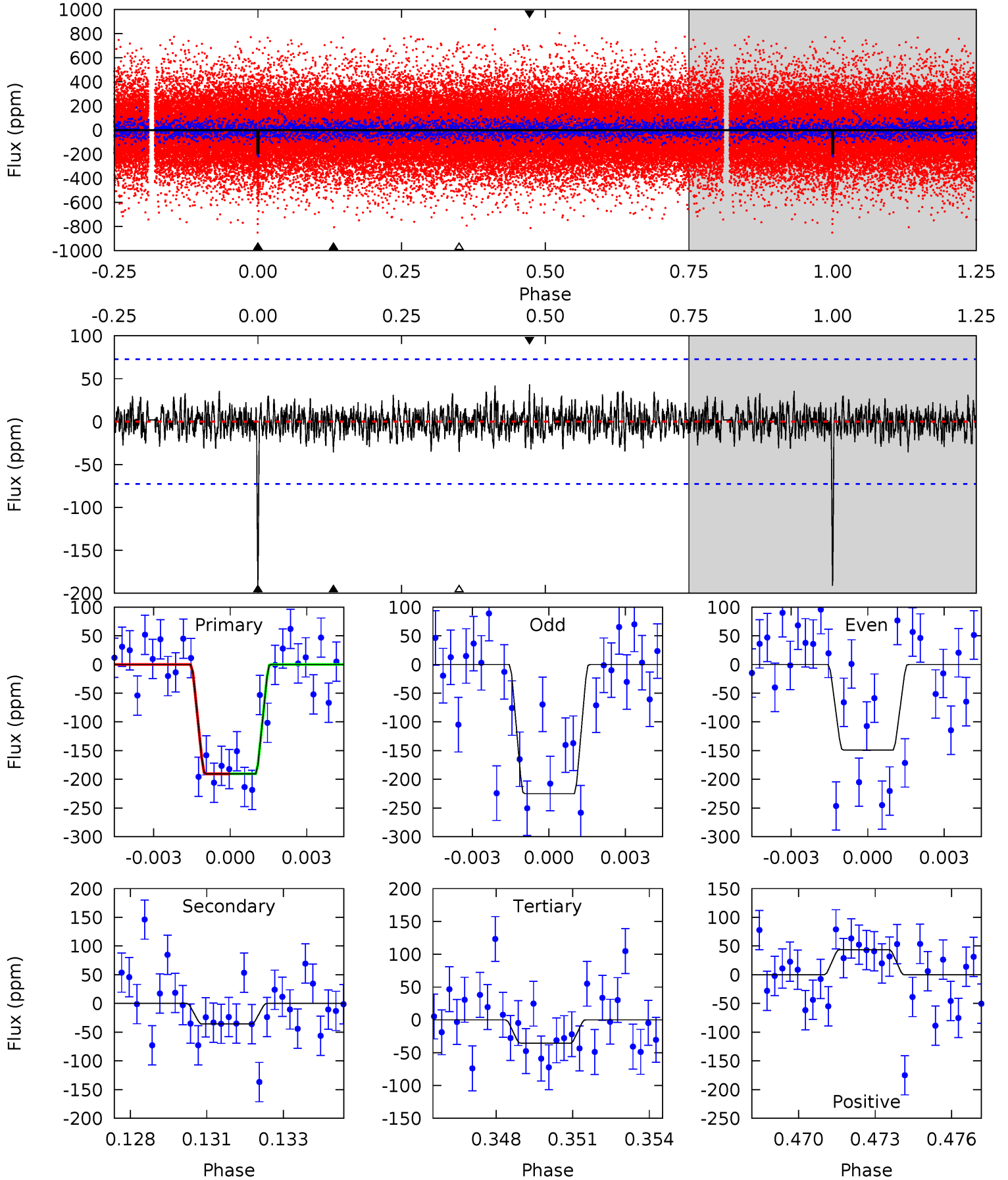
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
13.6	4.87	3.97	4.94	5.22	2.91	1.29	9.60	8.63	0.89	-0.07	1.25	0.98	0.27	0.51



Alt Model-Shift Uniqueness Test

007101828-02, $P = 47.878435$ Days, $E = 106.297494$ Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
13.8	2.58	2.57	3.15	5.26	2.98	0.86	11.2	10.6	0.01	-0.56	2.75	0.94	0.19	0.01



Stellar Parameters For KIC 007101828

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (g \cdot \text{cm}^{-3})$
	4254^{+128}_{-128}	$4.634^{+0.049}_{-0.021}$	$-0.160^{+0.300}_{-0.300}$	$0.624^{+0.040}_{-0.055}$	$0.612^{+0.062}_{-0.050}$	$3.544^{+0.822}_{-0.376}$
	+3%/-3%	+1%/-0%	+188%/-188%	+6%/-9%	+10%/-8%	+23%/-11%
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 007101828-02 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	-67 ± 14	$1.10^{+0.76}_{-0.71}$	439^{+14}_{-15}	3381^{+1391}_{-505}	1468^{+9879}_{-957}
Alt.	-36 ± 14	$1.05^{+0.76}_{-0.64}$	440^{+14}_{-13}	3079^{+1100}_{-454}	806^{+4597}_{-552}

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 $A_{obs} \gg 1.0$

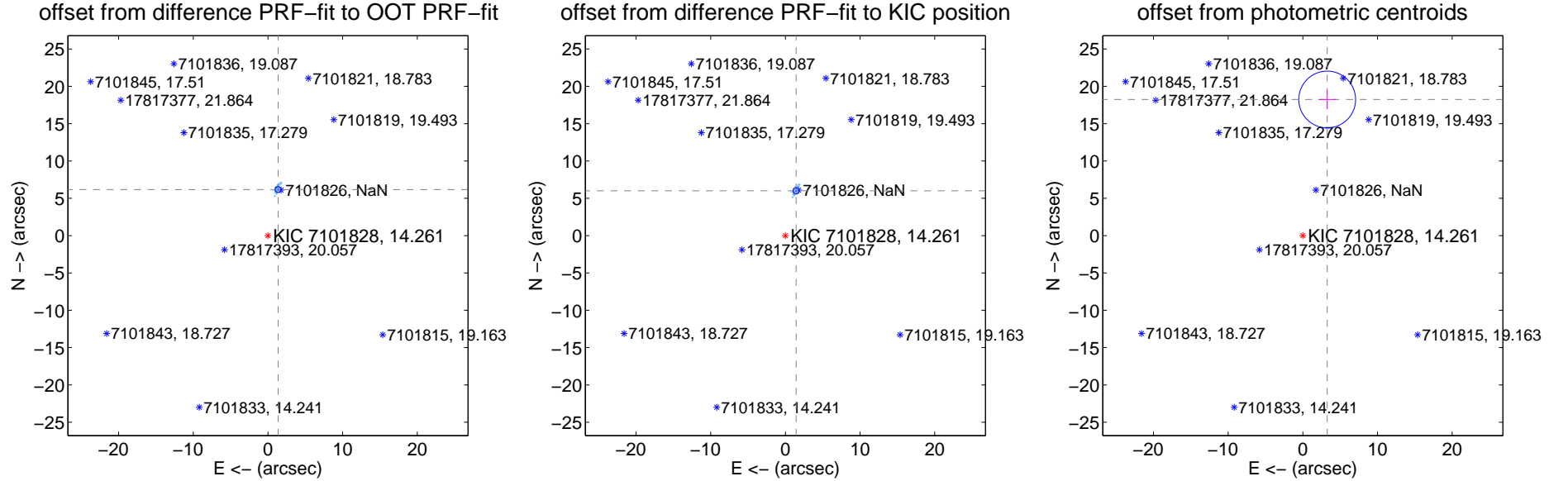
DV Centroid Data

Supplemental centroid analysis for 007101828-02. Kepler magnitude: 14.26. Transit SNR 9.05

There are 16 quarters with good PRF difference image offsets

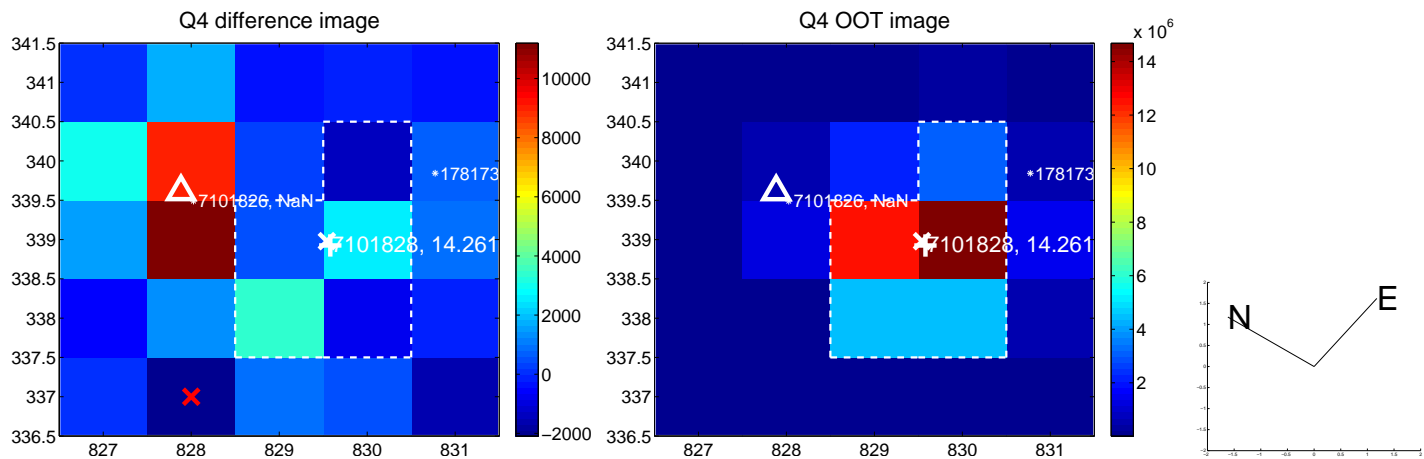
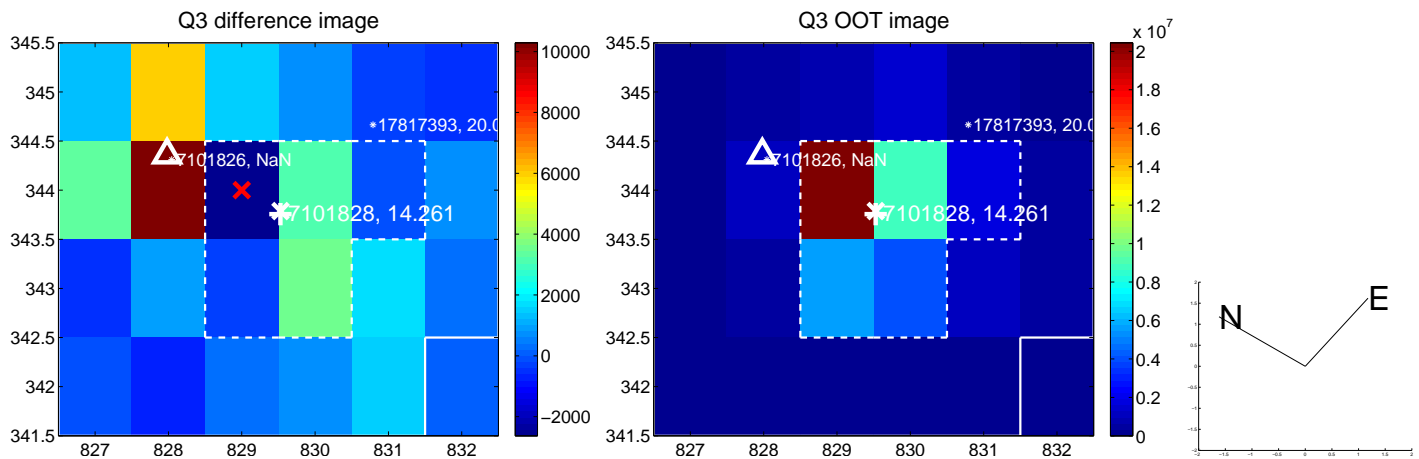
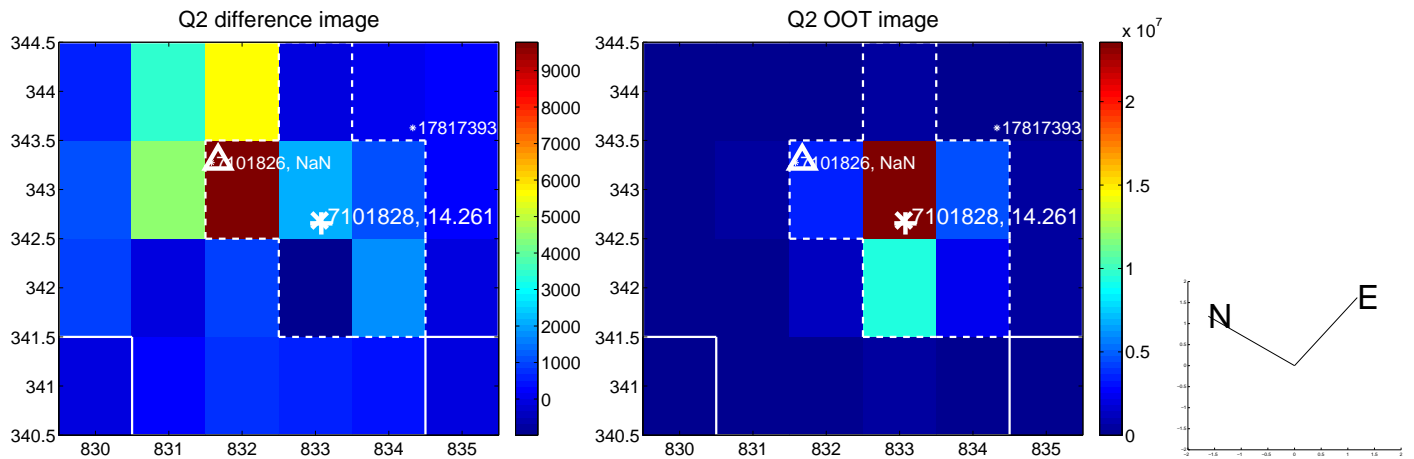
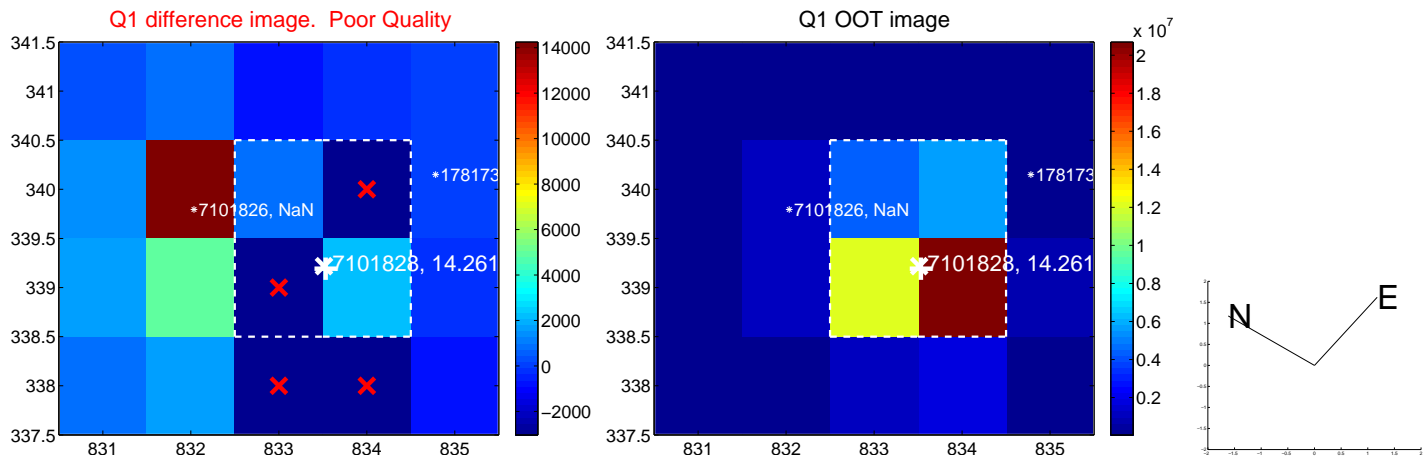
The direct PRF centroid is offset from the target star catalog position by about 0.28 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	6.322 \pm 0.132	47.88	-1.367 \pm 0.089	6.173 \pm 0.127
PRF-fit source offset from KIC position	6.176 \pm 0.136	45.31	-1.442 \pm 0.087	6.006 \pm 0.130
photometric centroid source offset	18.53 \pm 1.27	14.62	-3.27 \pm 1.17	18.24 \pm 1.27

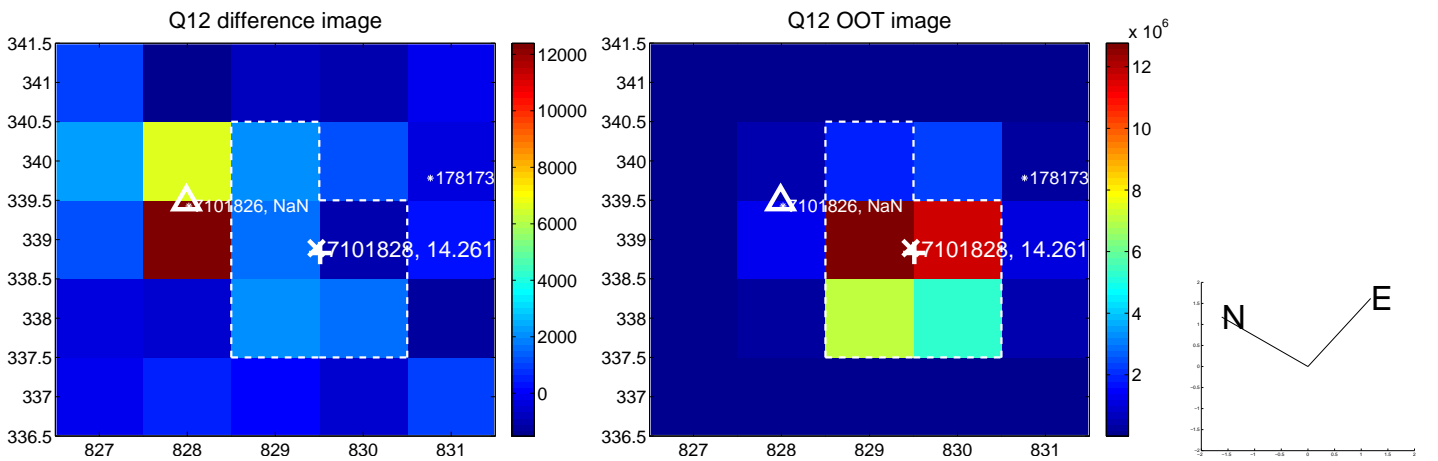
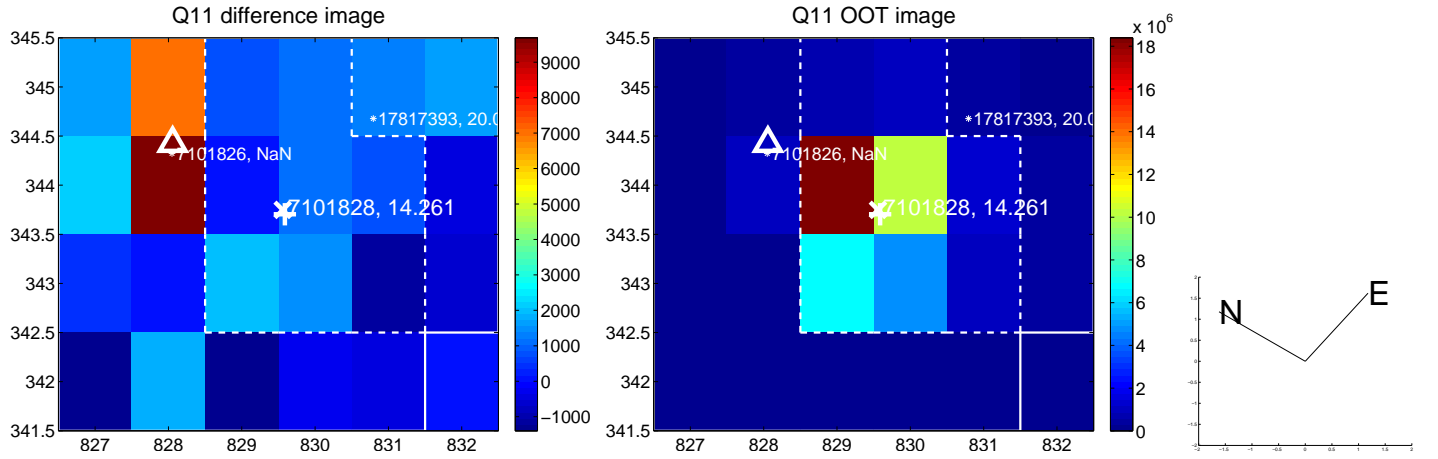
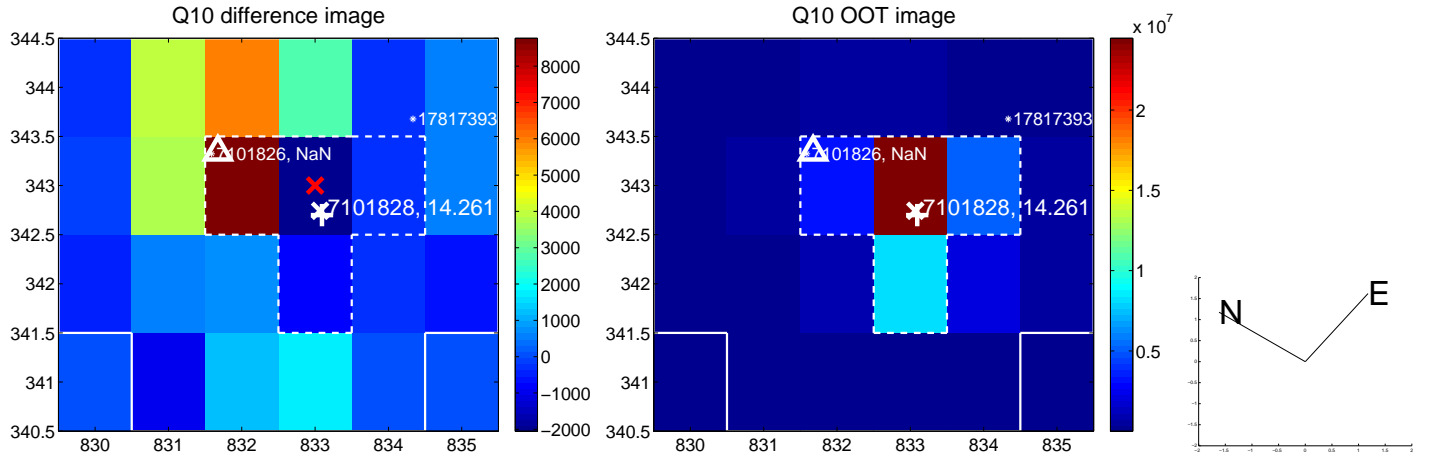
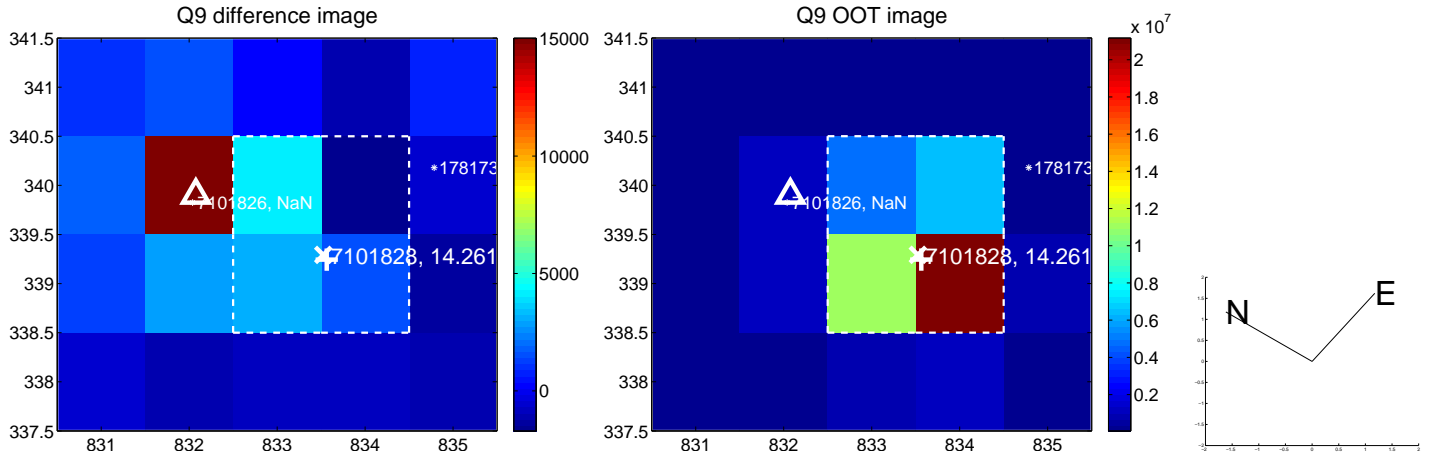


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

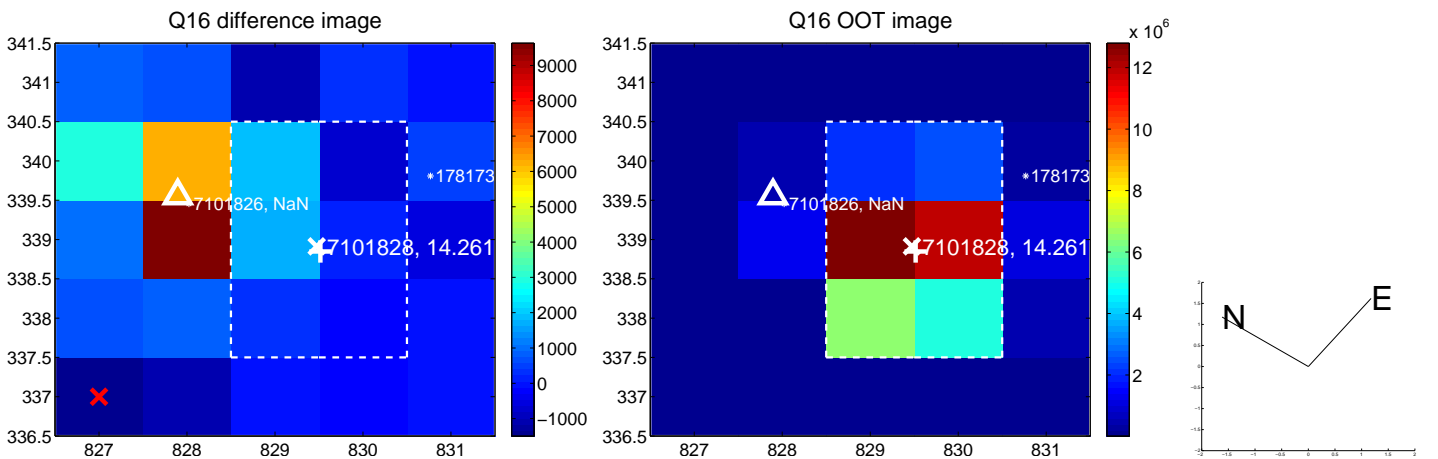
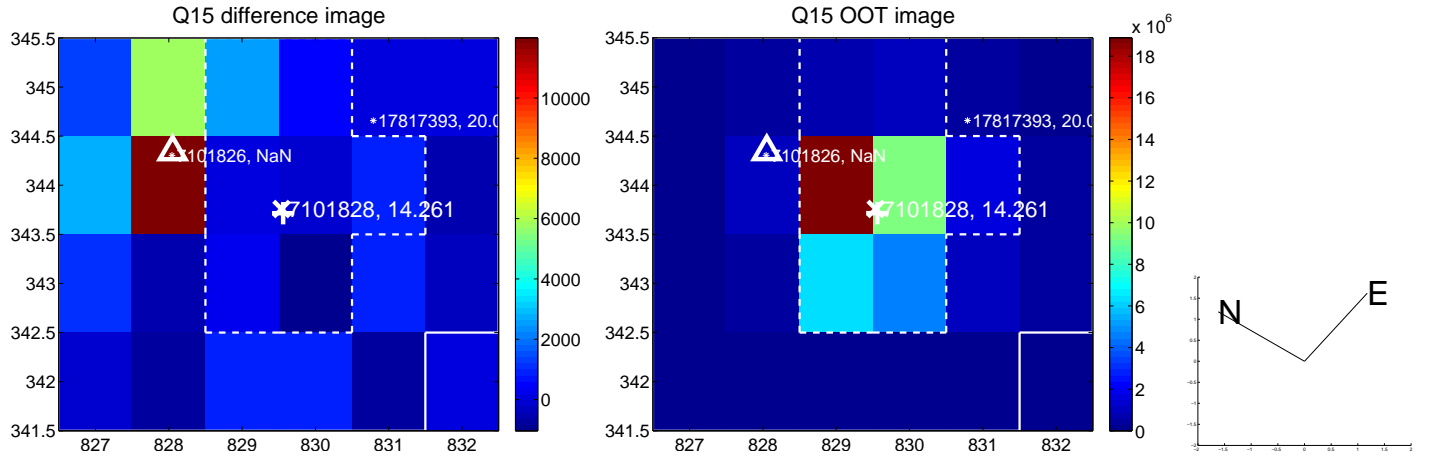
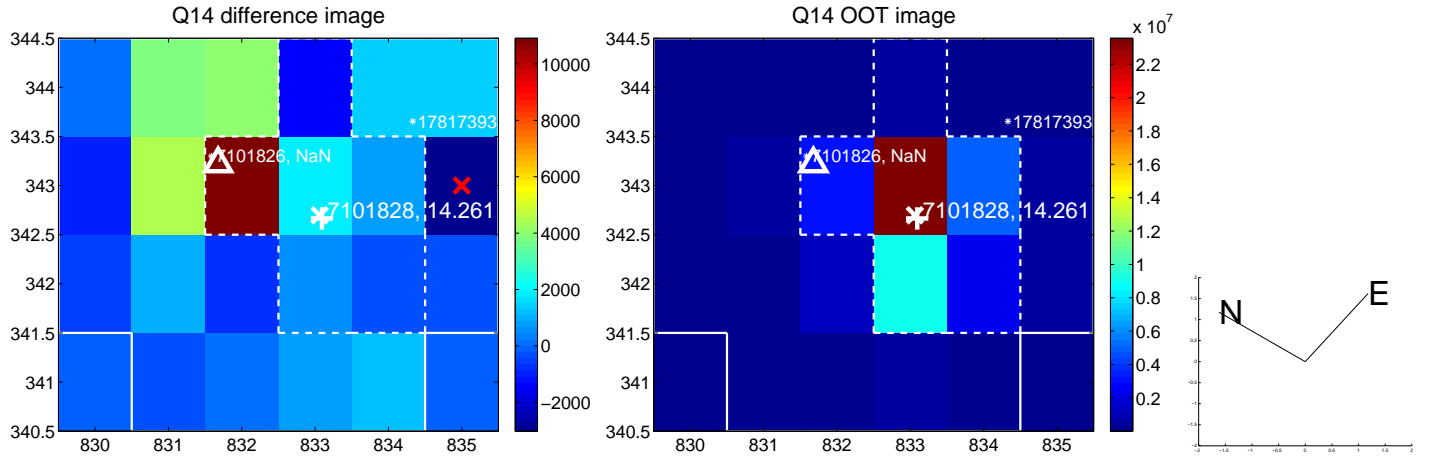
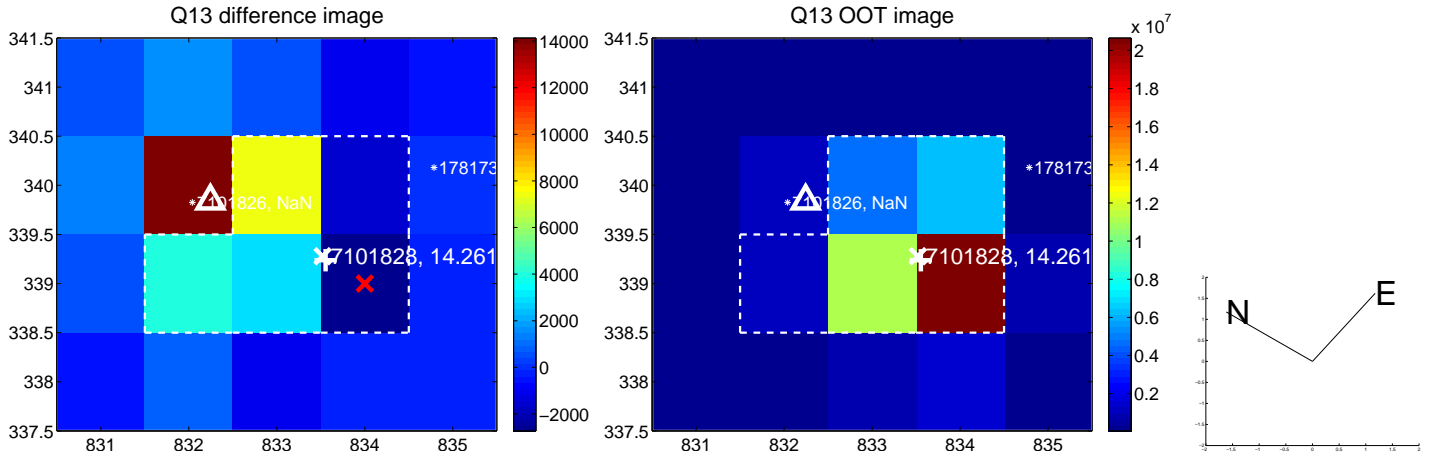
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



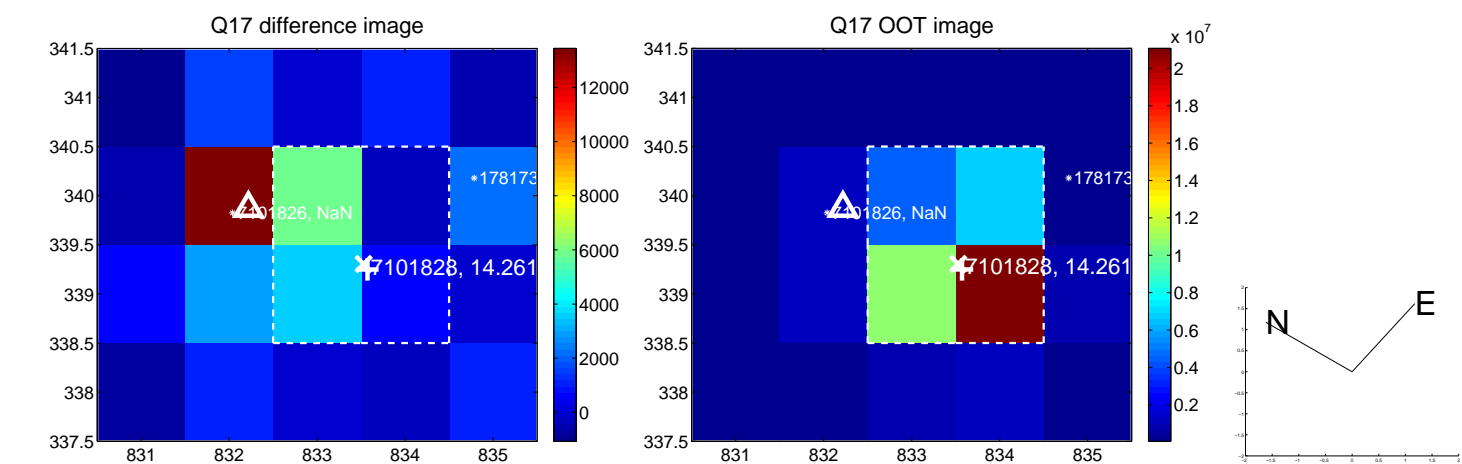
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



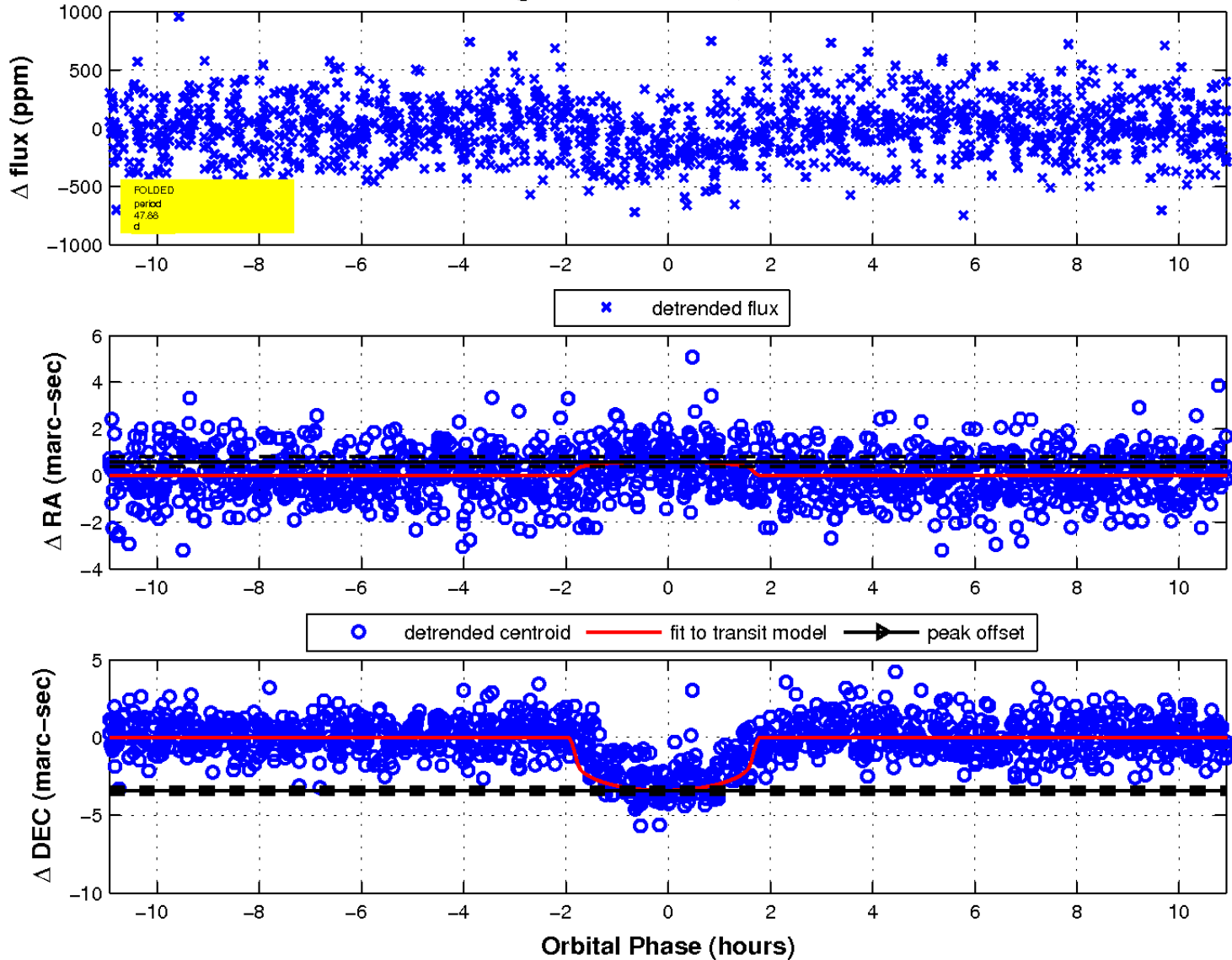
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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



fluxWeightedCentroids, Planet 2 of 2



UKIRT Image

Declination

