

KIC 008219268

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})
008219268-01	OBS	2133.01	6.246762	136.377610	400.5	11.201	27.7	30.4	6.22	4604	14.68	3098.39
008219268-02	OBS	2133.02	43.517211	163.997151	404.9	2.287	7.5	8.1	6.22	4604	17.84	232.88

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
008219268-01	OBS	FP	0.06	1	0	0	0	LPP_DV
008219268-02	OBS	FP	0.03	1	0	0	0	INDIV_TRANS_RUBBLE_SKYE_ZUMA—MOD_NONUNIQ_ALT

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.

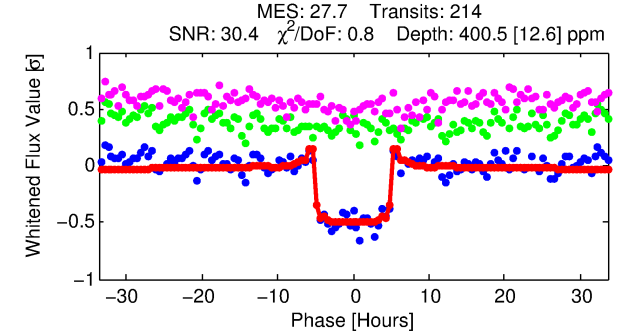
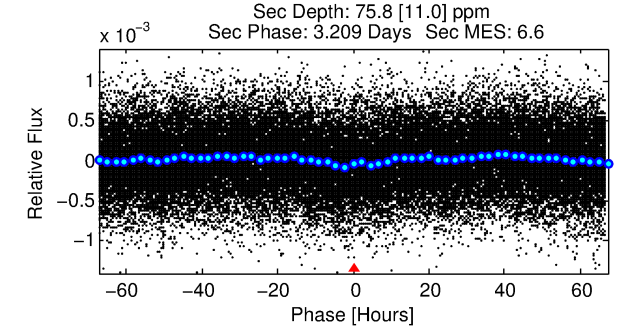
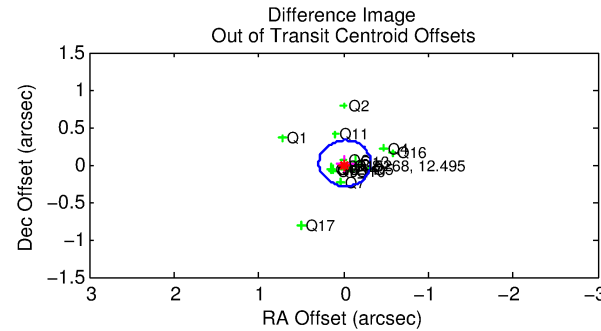
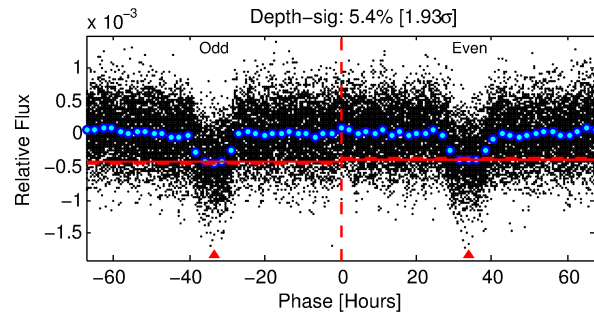
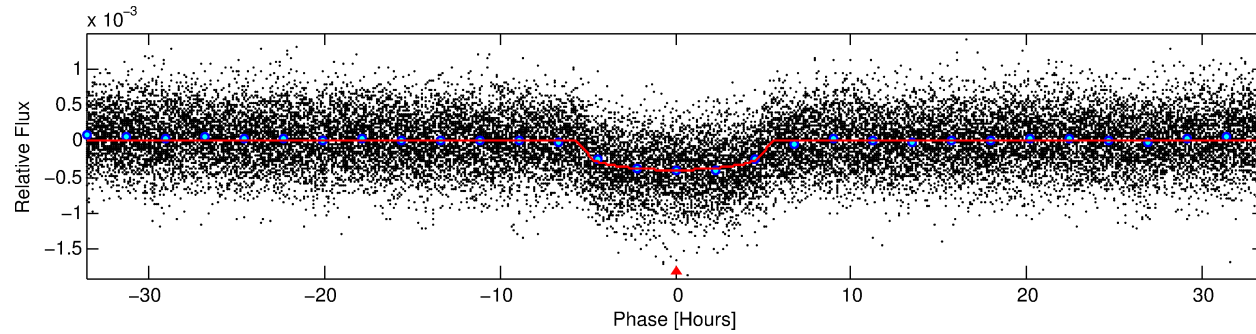
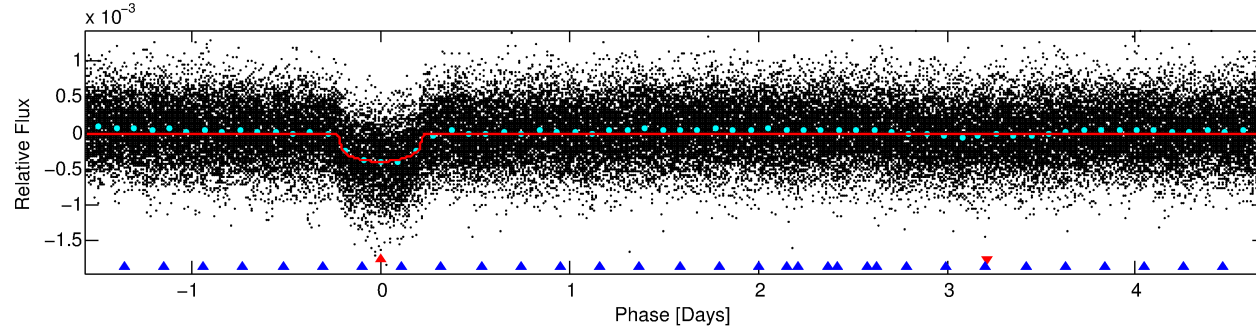
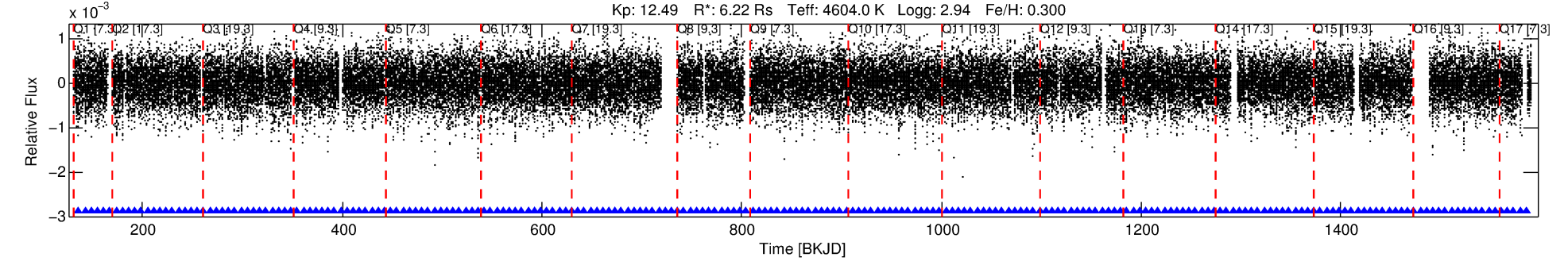
Ephemeris Match Information For 008219268-01

No Significant Match Found

DV One-Page Summary

KIC: 8219268 Candidate: 1 of 2 Period: 6.247 d
KOI: K02133.01 Name: Kepler-91b Corr: 0.990

Kp: 12.49 R*: 6.22 Rs Teff: 4604.0 K Logg: 2.94 Fe/H: 0.300



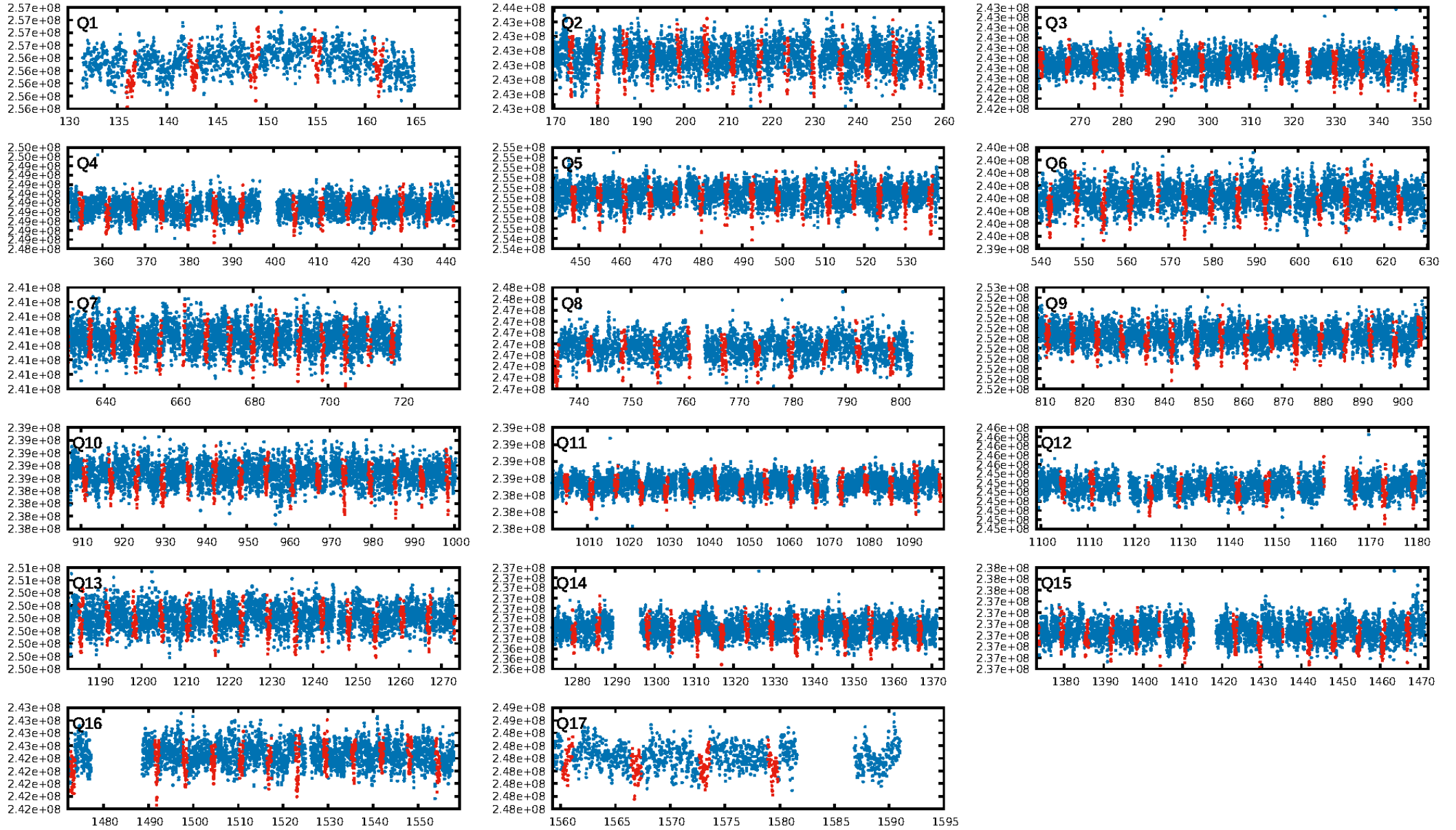
DV Fit Results:

Period = 6.24676 [0.00002] d
Epoch = 136.3776 [0.0025] BKJD
Rp/R* = 0.0216 [0.0006]
a/R* = 2.54 [0.17]
b = 0.86 [0.03]
Seff = 3098.39 [279.20]
Teff = 1902 [43] K
Rp = 14.68 [1.38] Re
a = 0.0709 [0.0043] AU
Ag = 0.97 [0.16] [-0.16σ]
Teffp = 2922 [123] K [7.81σ]

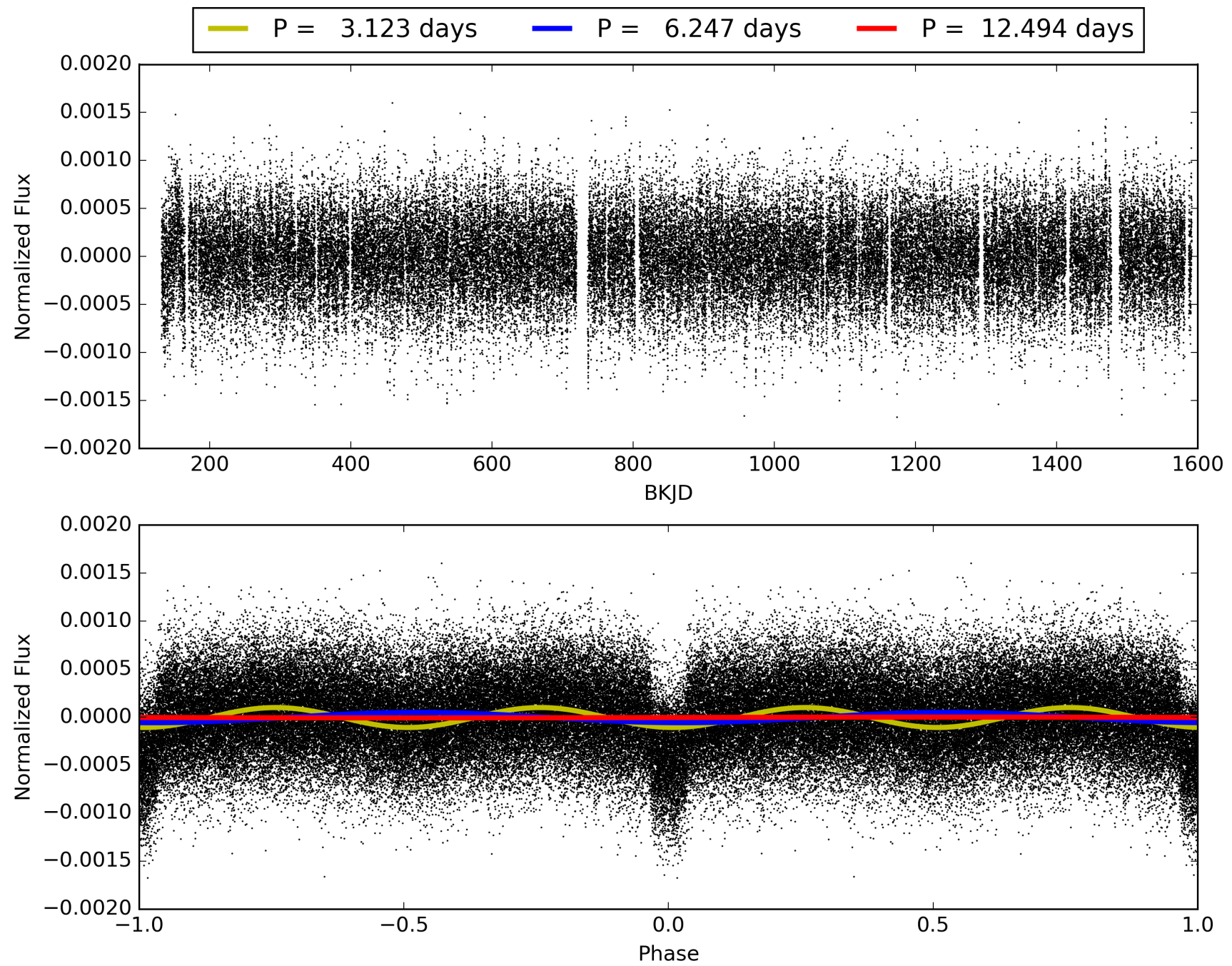
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: 100.0% [78.24σ]
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: 2.41e-123
RollingBand-fgt: 1.00 [205/205]
GhostDiagnostic-chr: 2.102
Centroid-sig: 5.6%
Centroid-so: 0.104 arcsec [2.16σ]
OotOffset-rm: 0.026 arcsec [0.25σ]
KicOffset-rm: 0.129 arcsec [1.20σ]
OotOffset-st: 4/4/4/5 [17]
KicOffset-st: 4/4/4/5 [17]
DiffImageQuality-fgm: 1.00 [17/17]
DiffImageOverlap-fno: 1.00 [17/17]

TCE 008219268-01, PDC Light Curves

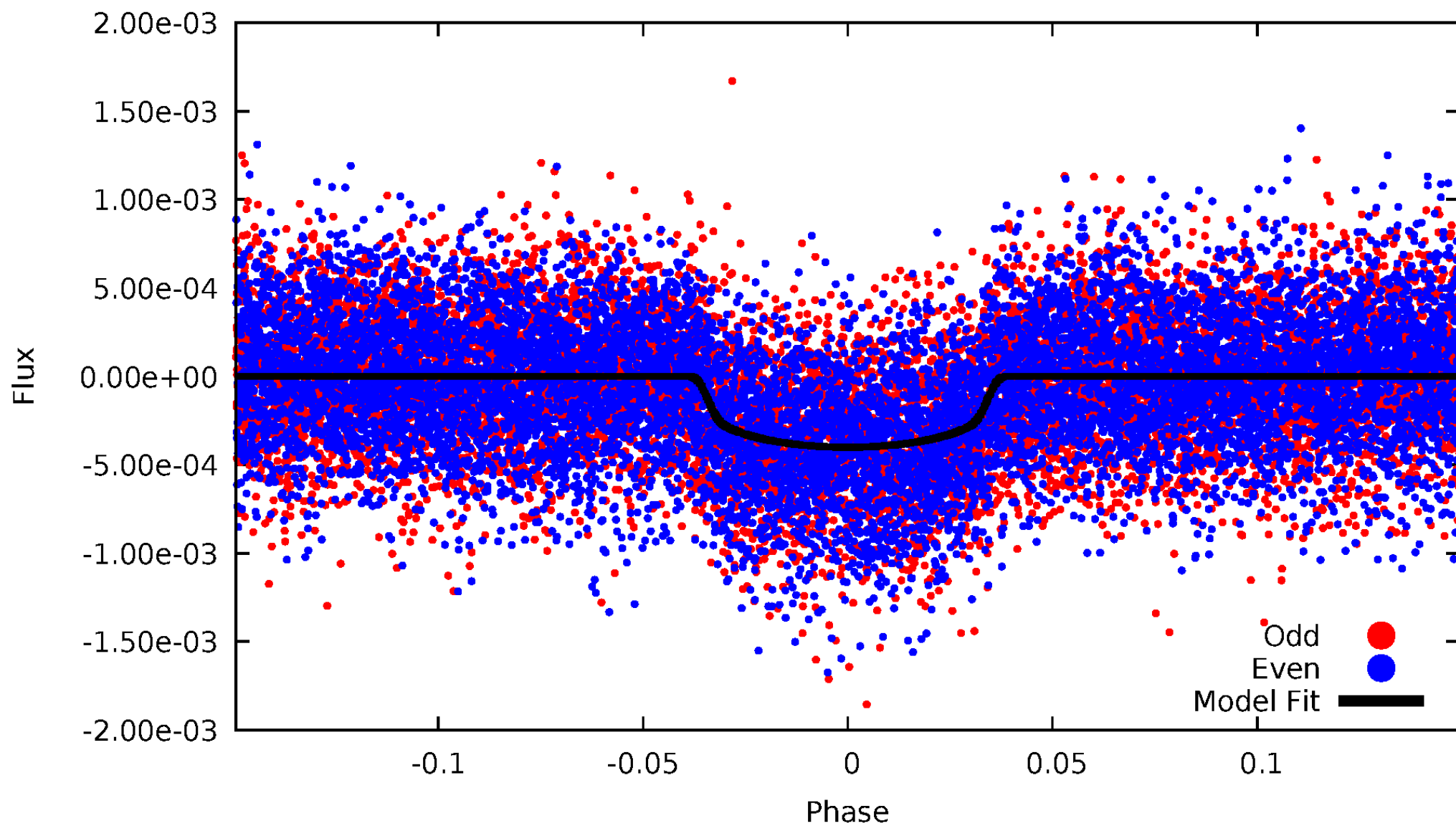


TCE 008219268-01



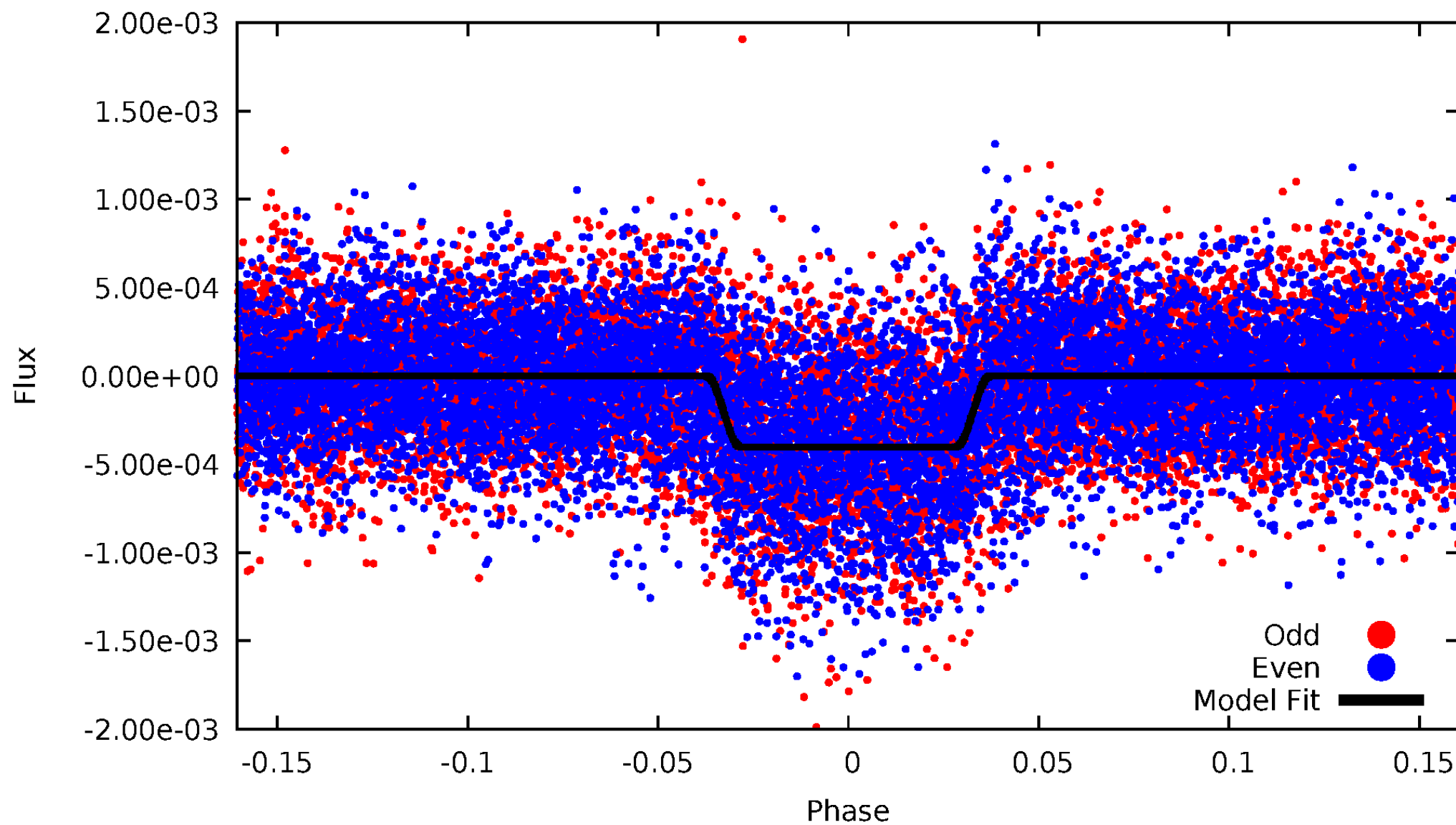
DV Odd/Even

TCE 008219268-01



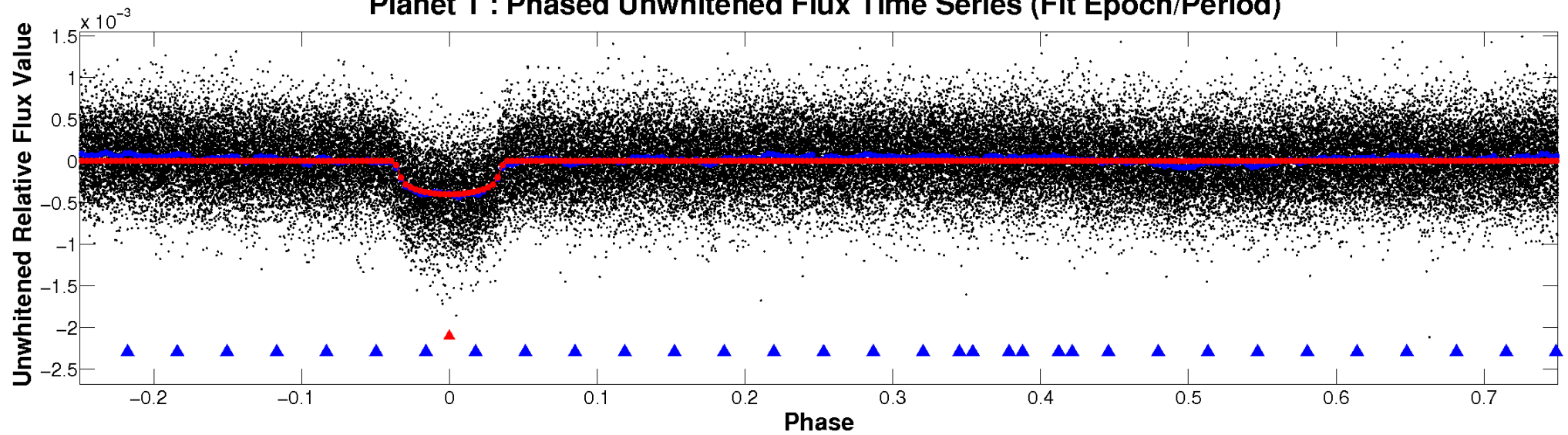
ALT Odd/Even

TCE 008219268-01

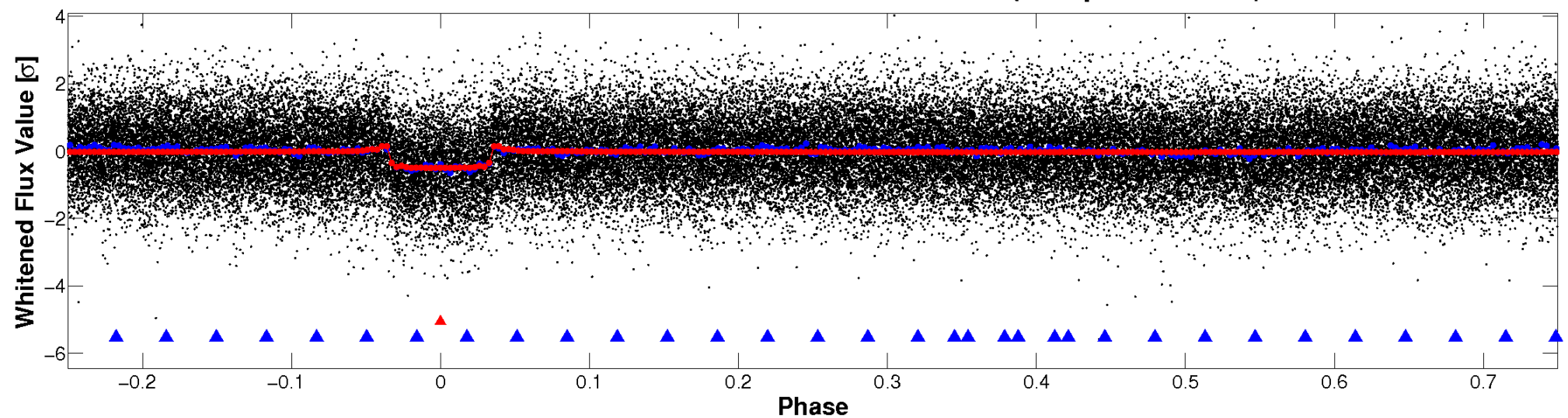


Non-Whitened Vs. Whitened Light Curve

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

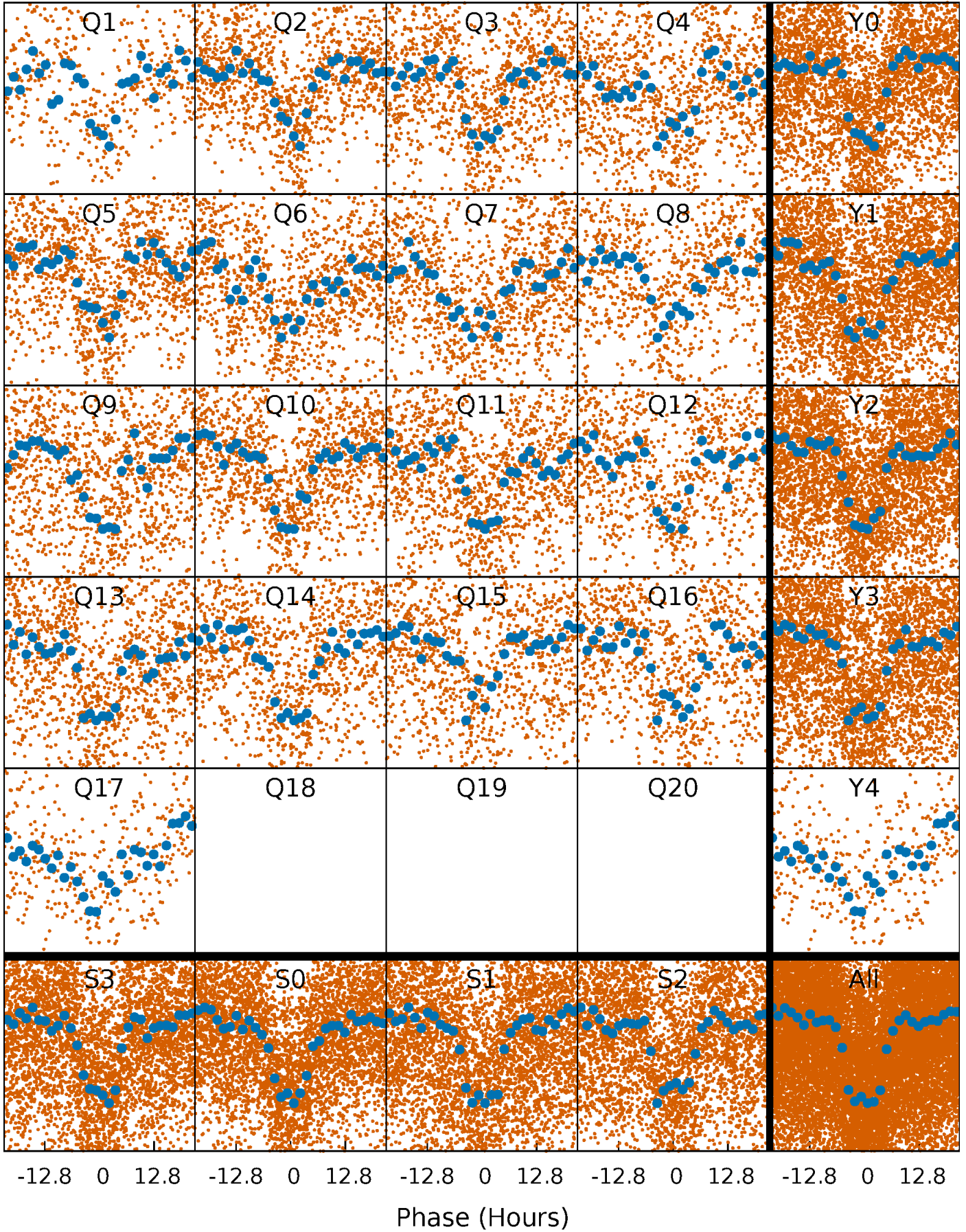


Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)



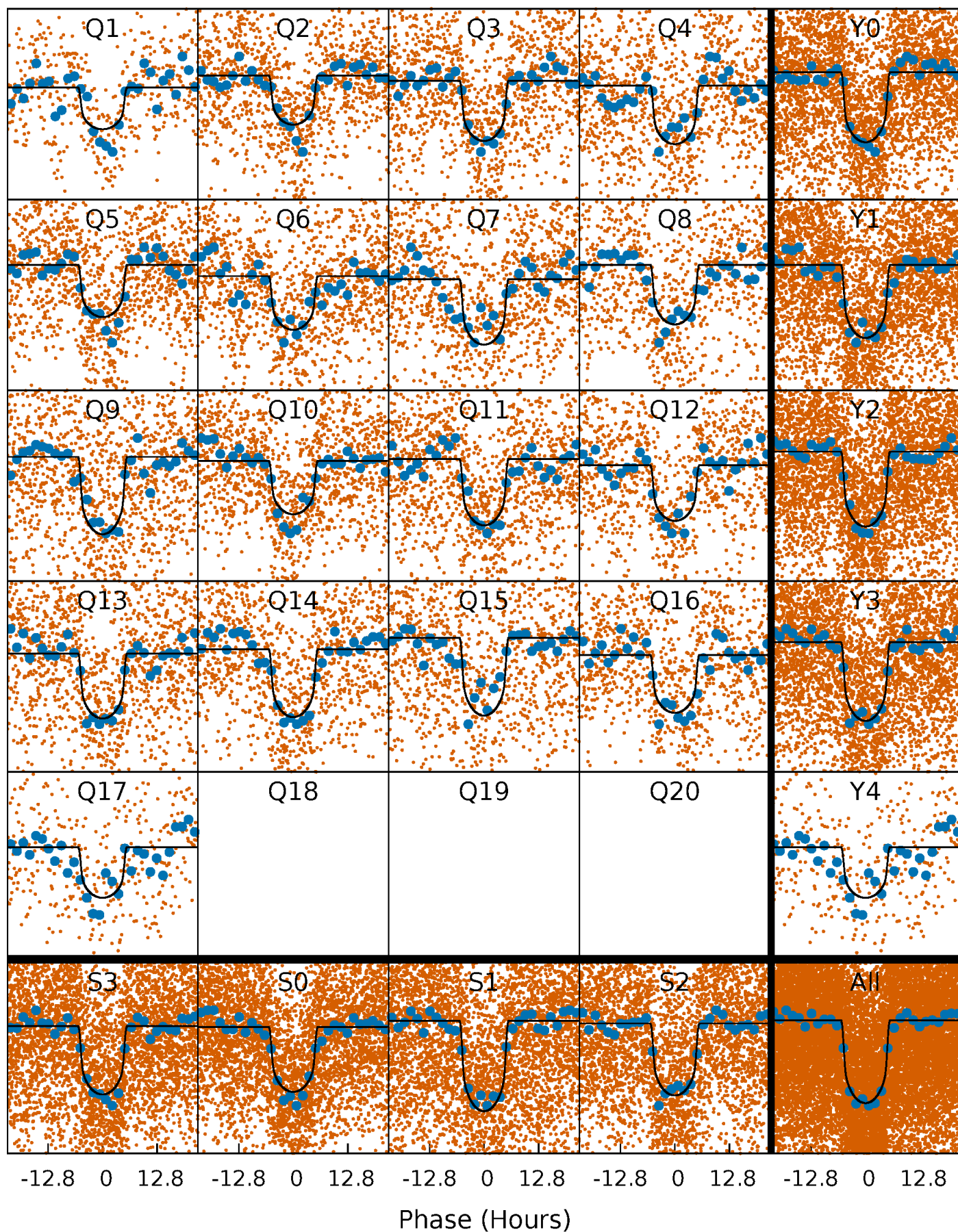
PDC Quarter-Phased Transit Curves

TCE 008219268-01 P= 6.246762 Days $T_0=136.377610$ (BKJD)



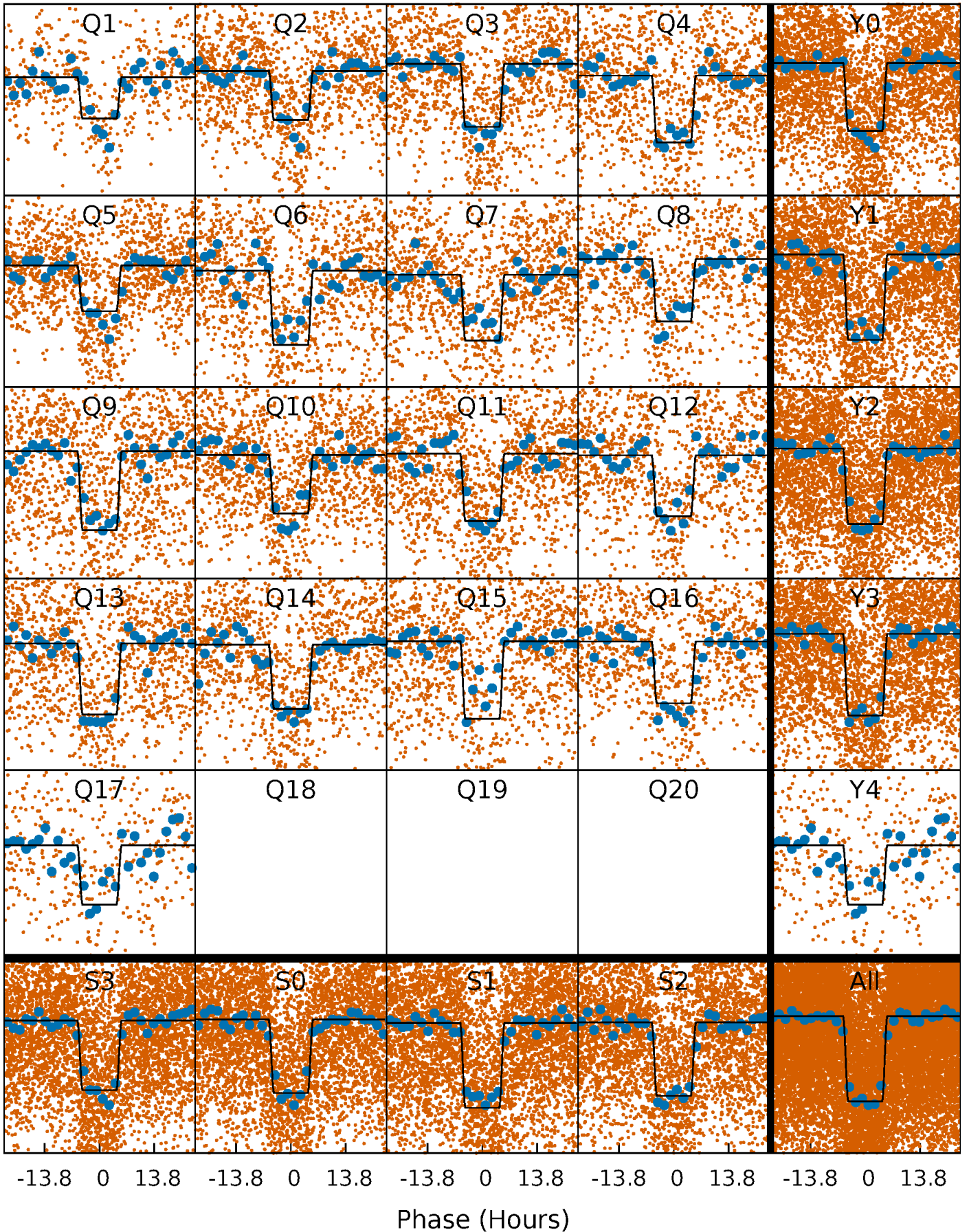
DV Quarter-Phased Transit Curves

TCE 008219268-01 P= 6.246762 Days $T_0=136.377610$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

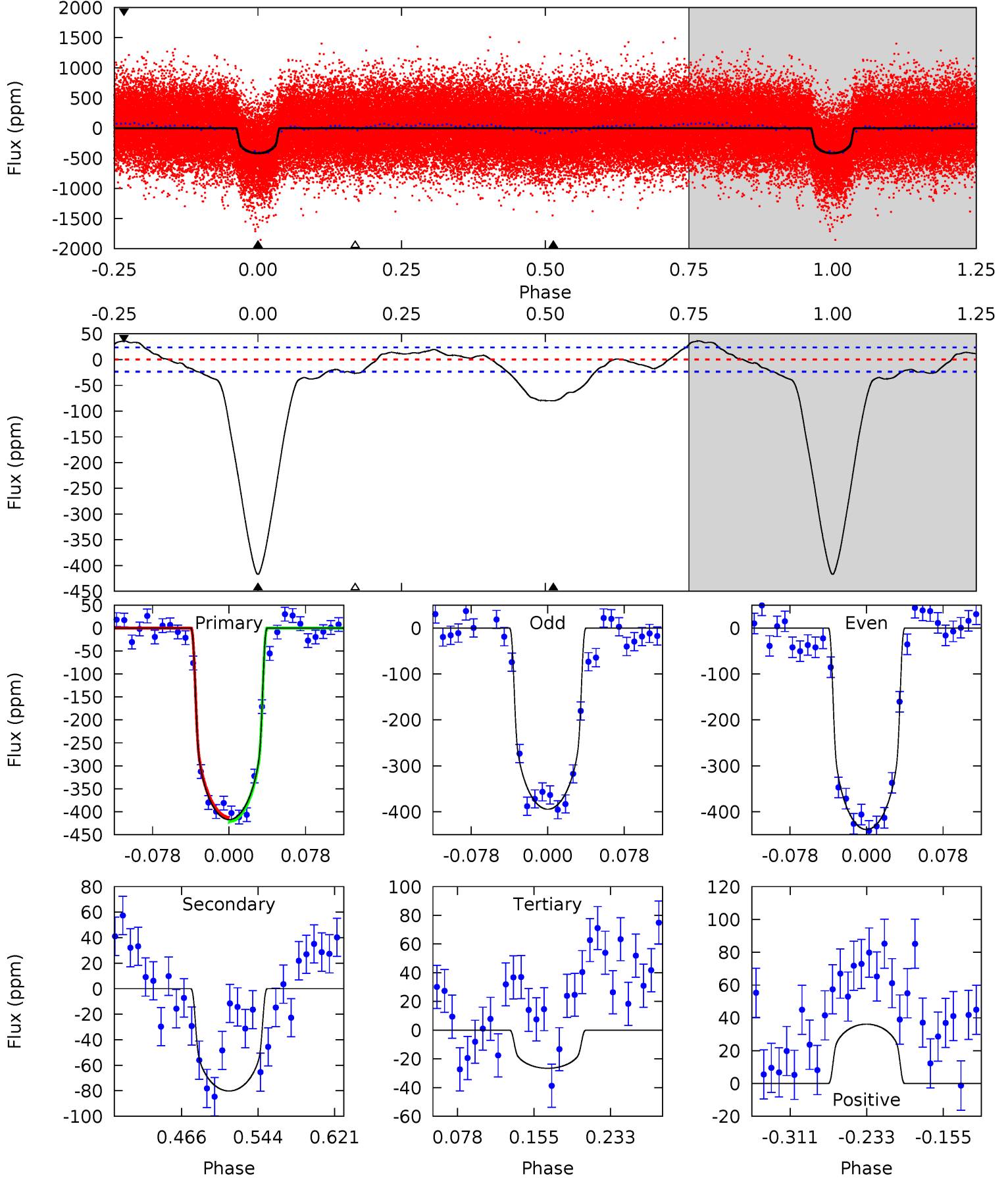
TCE 008219268-01 P= 6.246800 Days $T_0=136.373060$ (BKJD)



DV Model-Shift Uniqueness Test

008219268-01, P = 6.246762 Days, E = 130.130848 Days

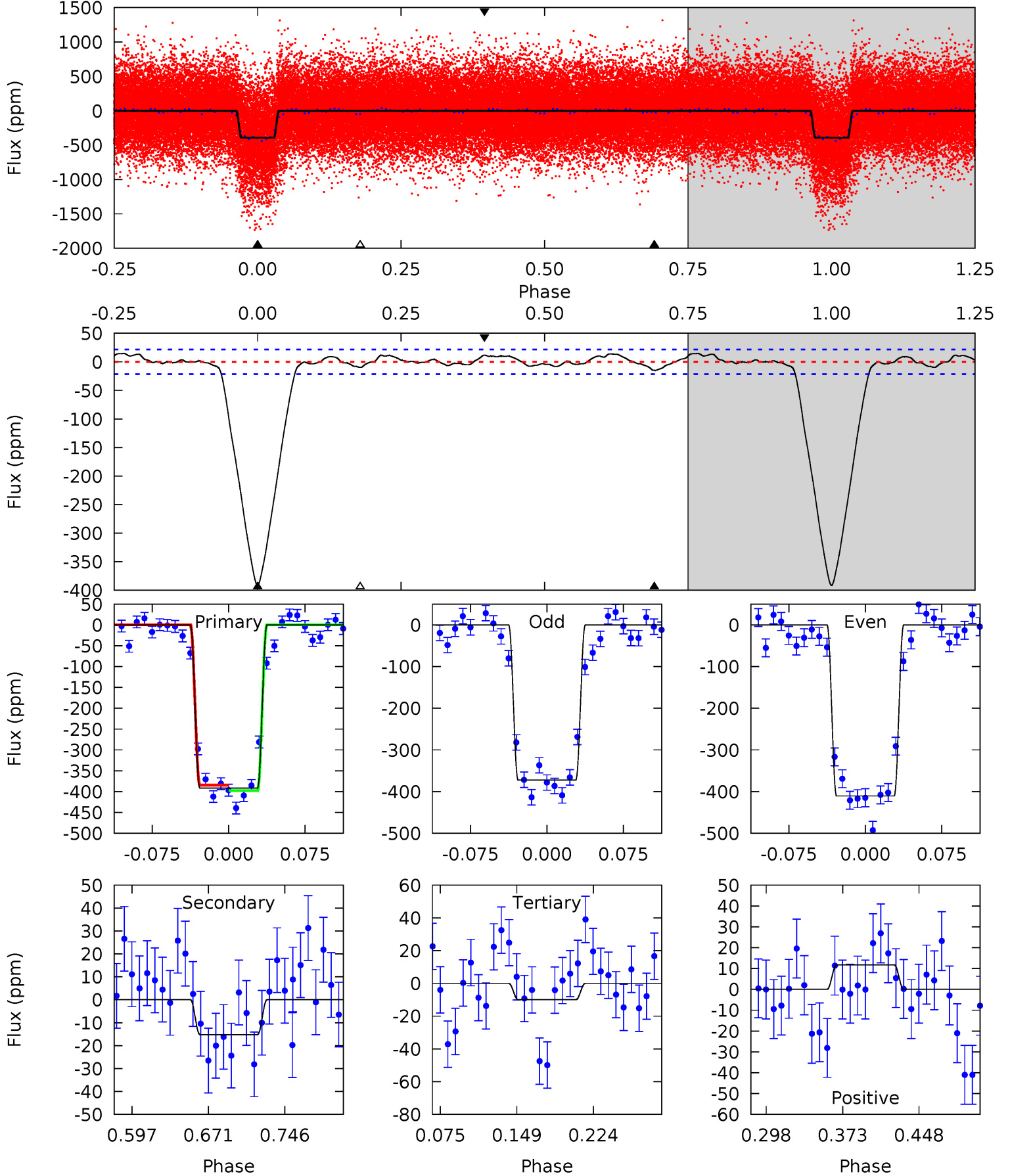
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
82.2	15.8	5.23	7.13	4.62	1.76	3.64	76.9	75.1	10.6	8.67	4.36	1.06	0.08	0.83



Alt Model-Shift Uniqueness Test

008219268-01, P = 6.246800 Days, E = 130.126260 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
84.0	3.26	2.14	2.52	4.63	1.78	1.28	81.8	81.5	1.11	0.74	4.07	1.03	0.04	1.38



Stellar Parameters For KIC 008219268

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	4604^{+74}_{-54}	$2.936^{+0.013}_{-0.012}$	$0.300^{+0.100}_{-0.150}$	$6.221^{+0.559}_{-0.509}$	$1.218^{+0.226}_{-0.185}$	$0.007^{+0.001}_{-0.001}$
	+2%/-1%	+0%/-0%	+33%/-50%	+9%/-8%	+19%/-15%	+10%/-10%
Source	SPE8	AST8	SPE8	DSEP		

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

Secondary Eclipse Parameters for KIC 008219268-01 / KOI 2133.01

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	-80 ± 5	$14.72^{+1.09}_{-0.93}$	2664^{+47}_{-48}	3216^{+66}_{-73}	$1.022^{+0.104}_{-0.092}$
Alt.	-15 ± 5	$13.69^{+1.00}_{-0.96}$	2665^{+53}_{-46}	-2361^{+4156}_{-219}	$0.232^{+0.073}_{-0.074}$

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 $A_{obs} \gg 1.0$

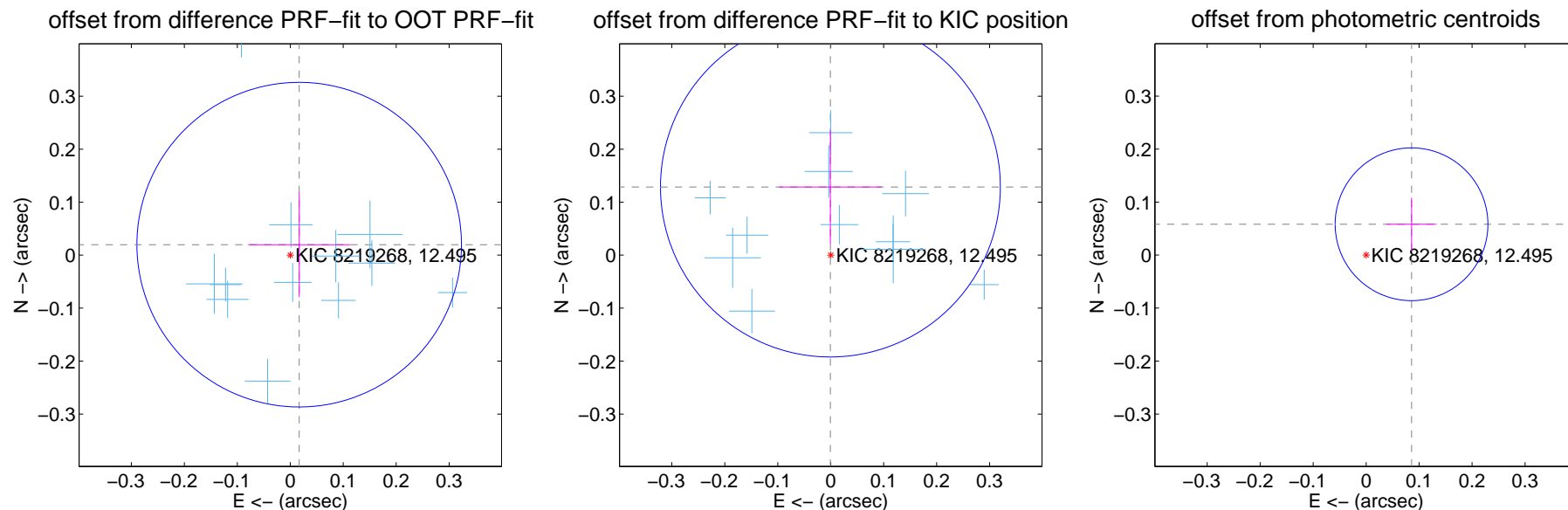
DV Centroid Data

Supplemental centroid analysis for 008219268-01. Kepler magnitude: 12.49. Transit SNR 30.44

There are 17 quarters with good PRF difference image offsets

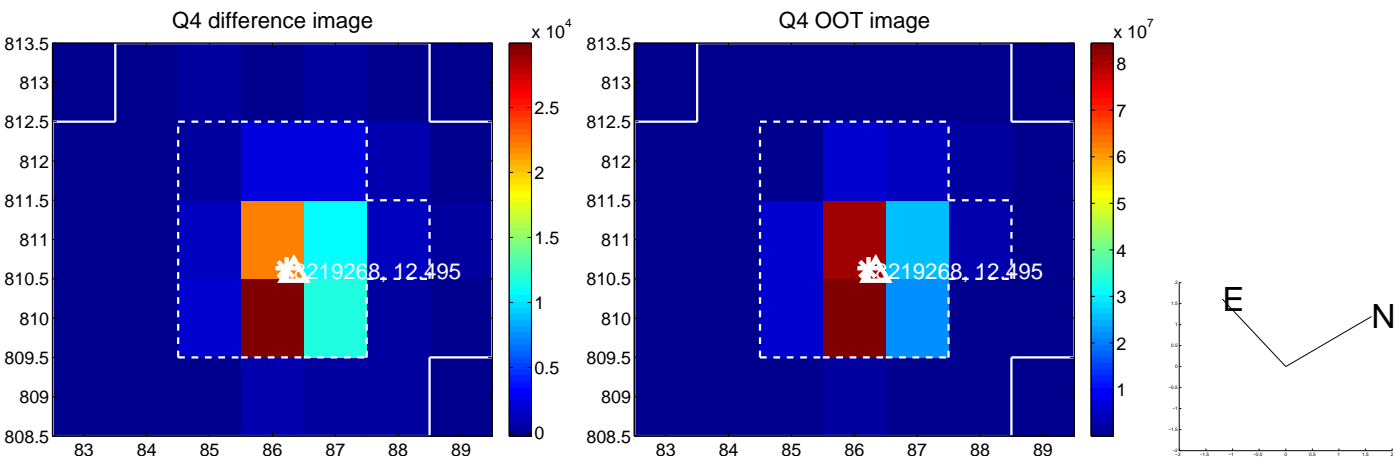
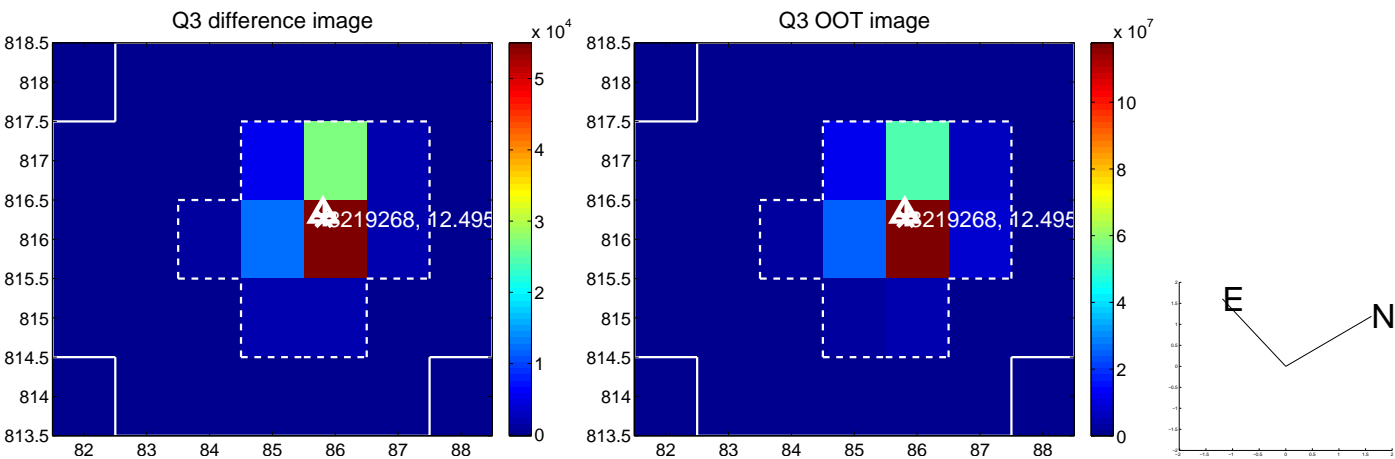
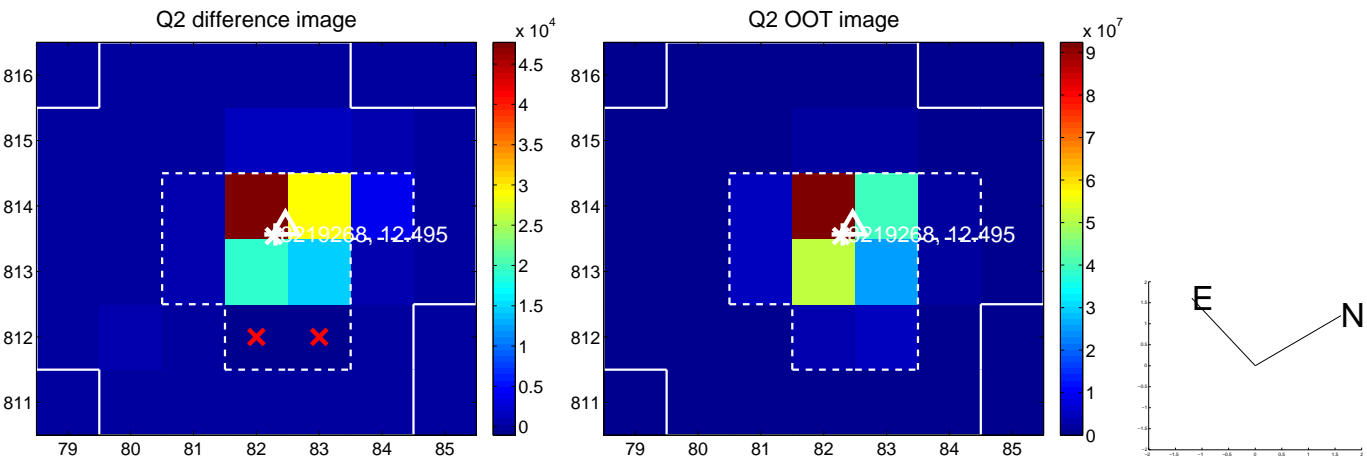
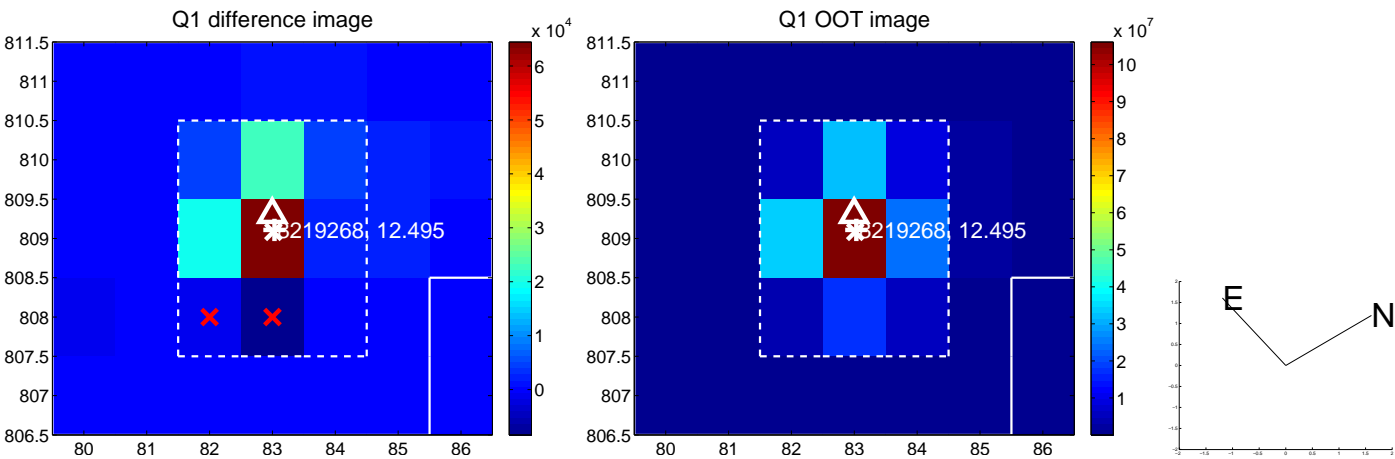
The direct PRF centroid is offset from the target star catalog position by about 0.14 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.026 ± 0.102	0.25	-0.017 ± 0.096	0.020 ± 0.099
PRF-fit source offset from KIC position	0.129 ± 0.107	1.20	0.001 ± 0.097	0.129 ± 0.107
photometric centroid source offset	0.10 ± 0.05	2.16	-0.09 ± 0.05	0.06 ± 0.05

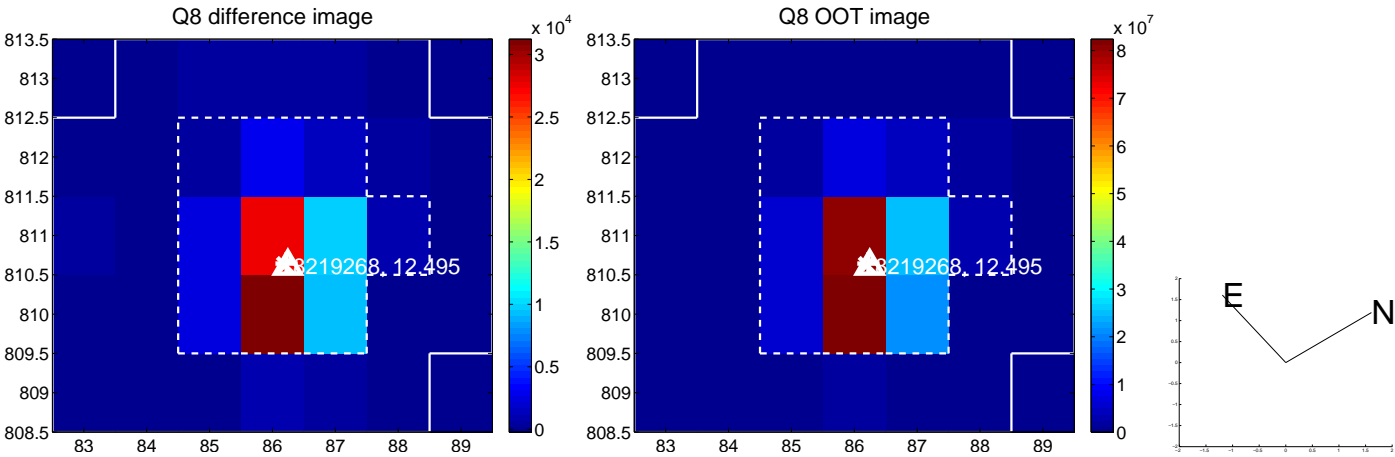
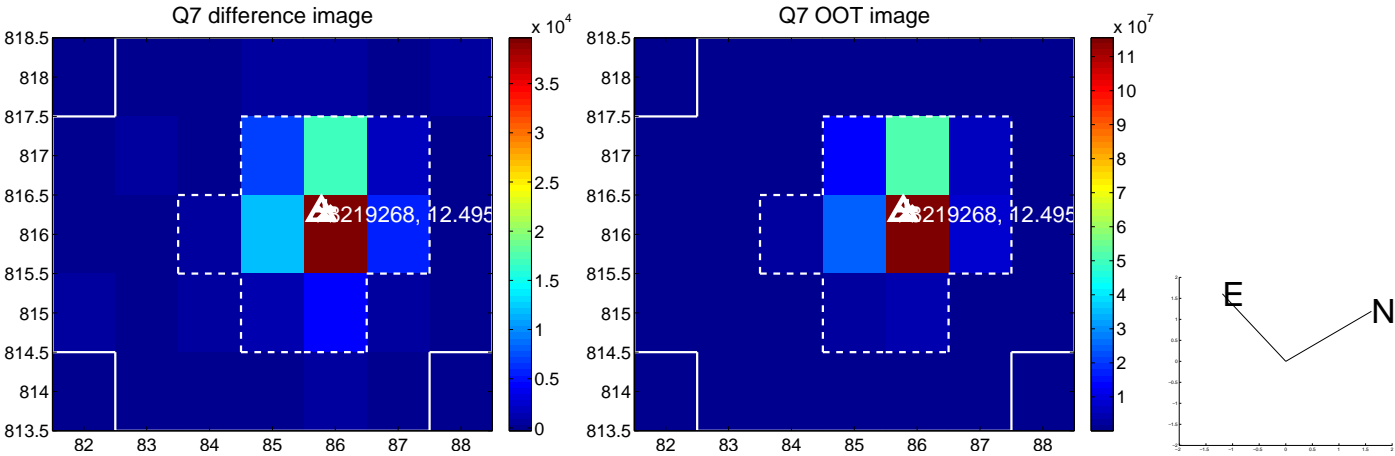
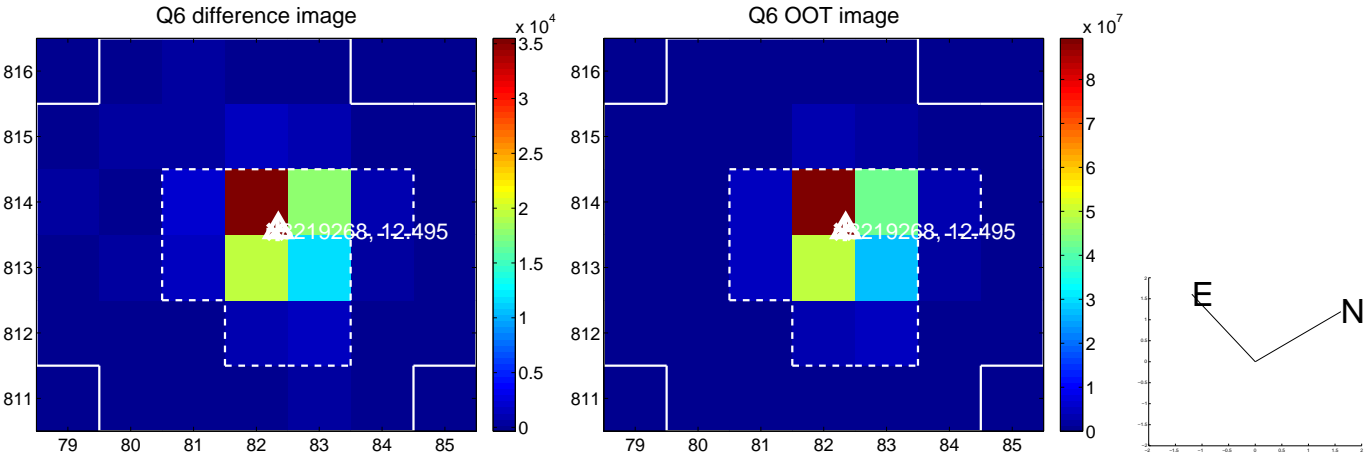
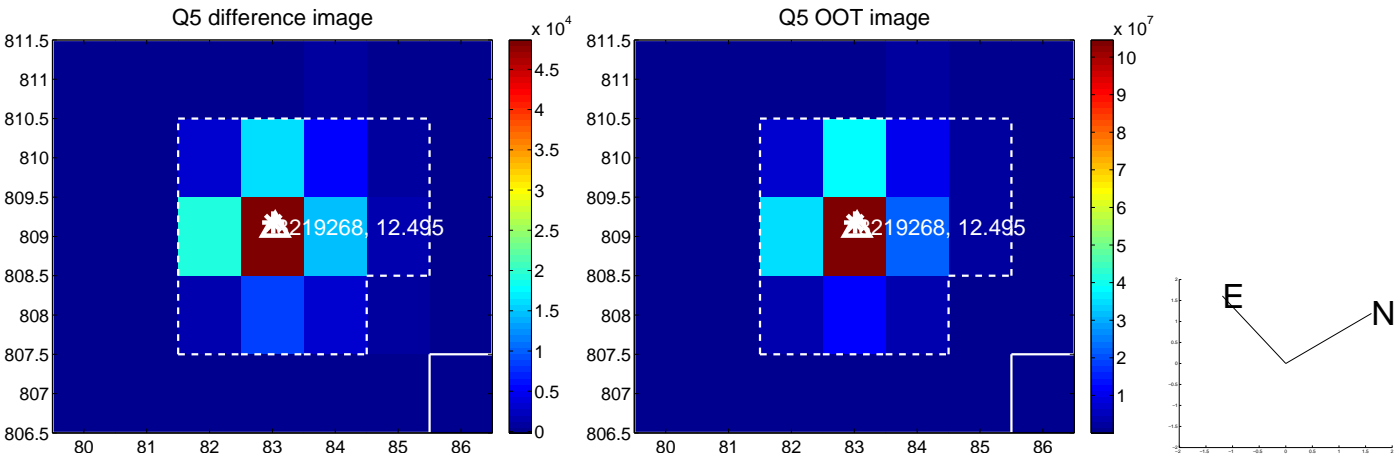


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses:** good quarterly centroid offsets; **Vermillion crosses:** bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

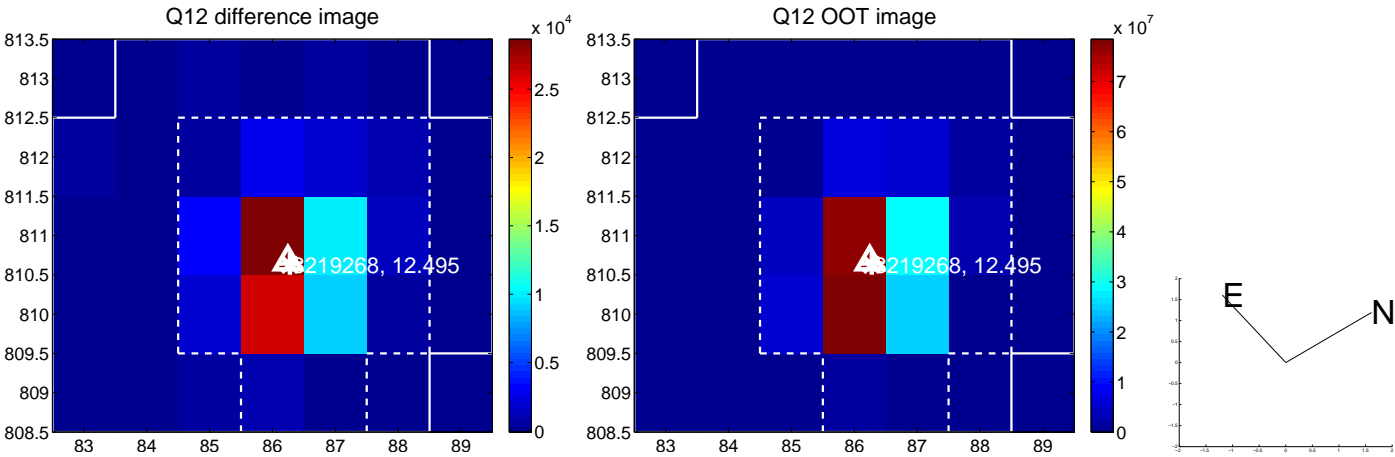
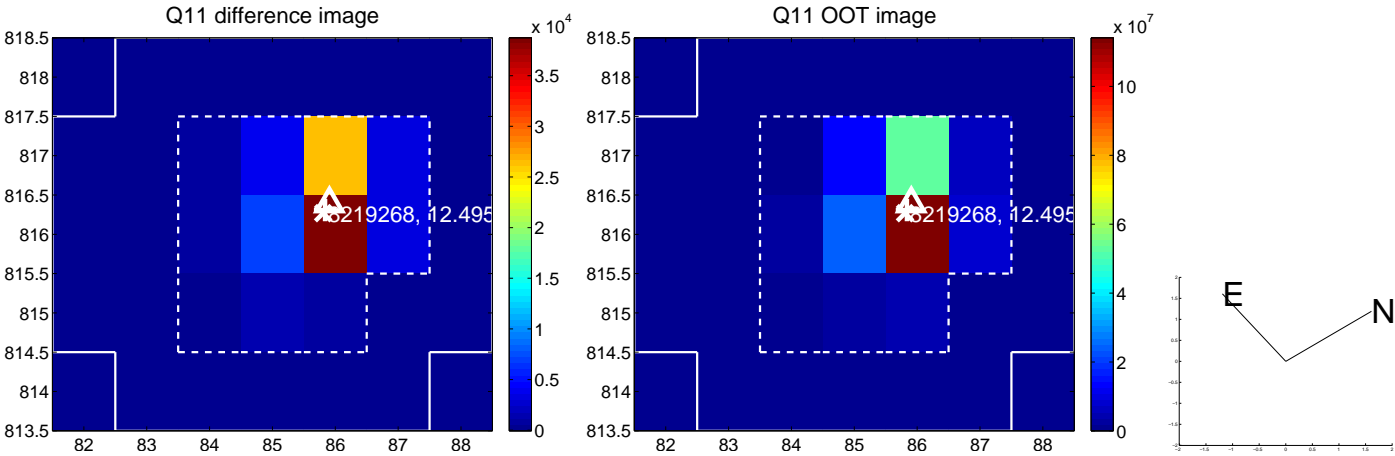
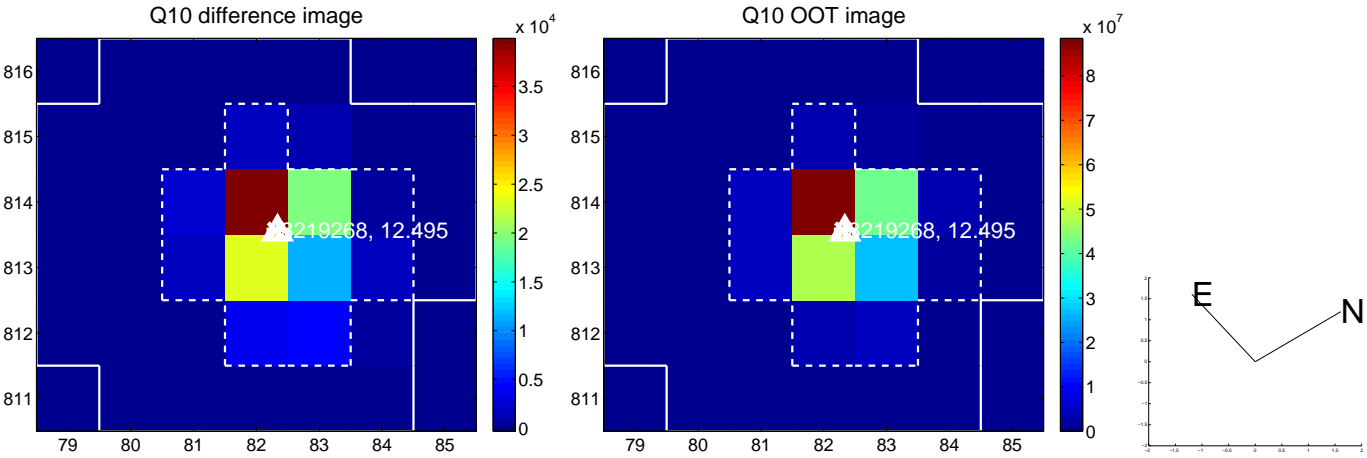
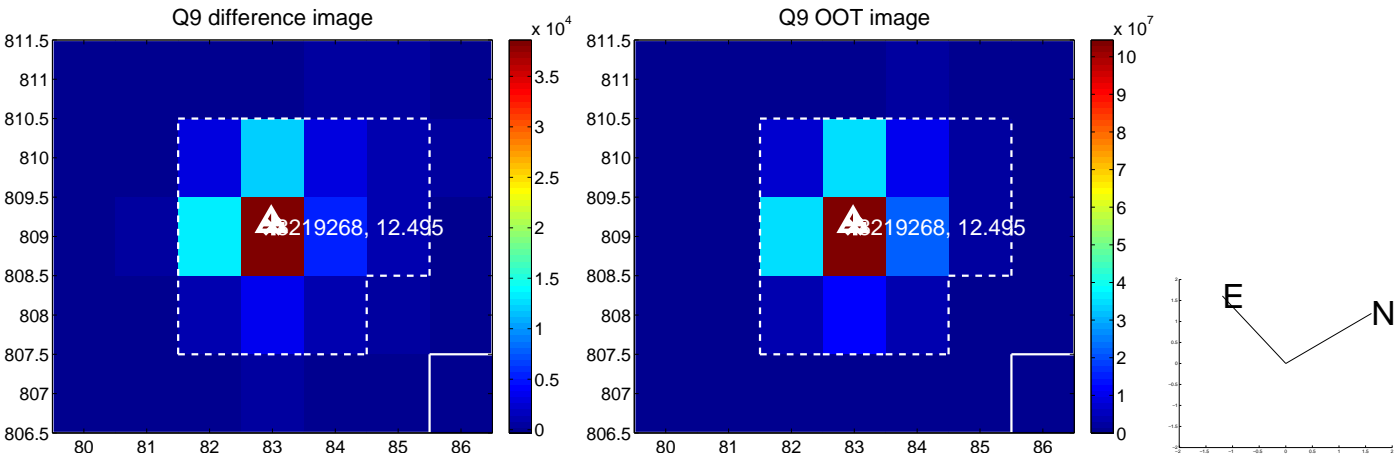
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



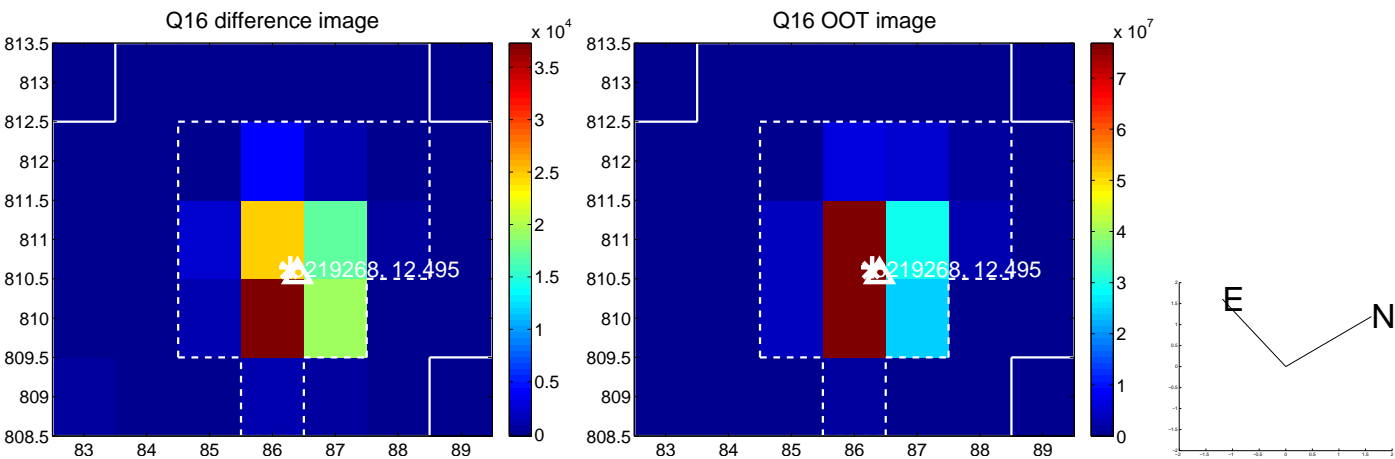
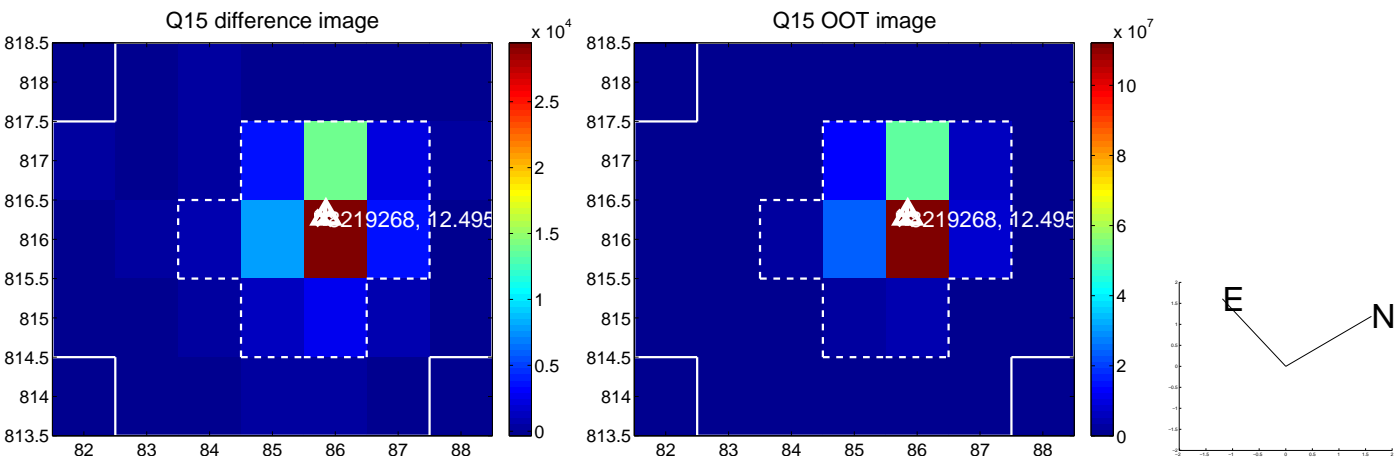
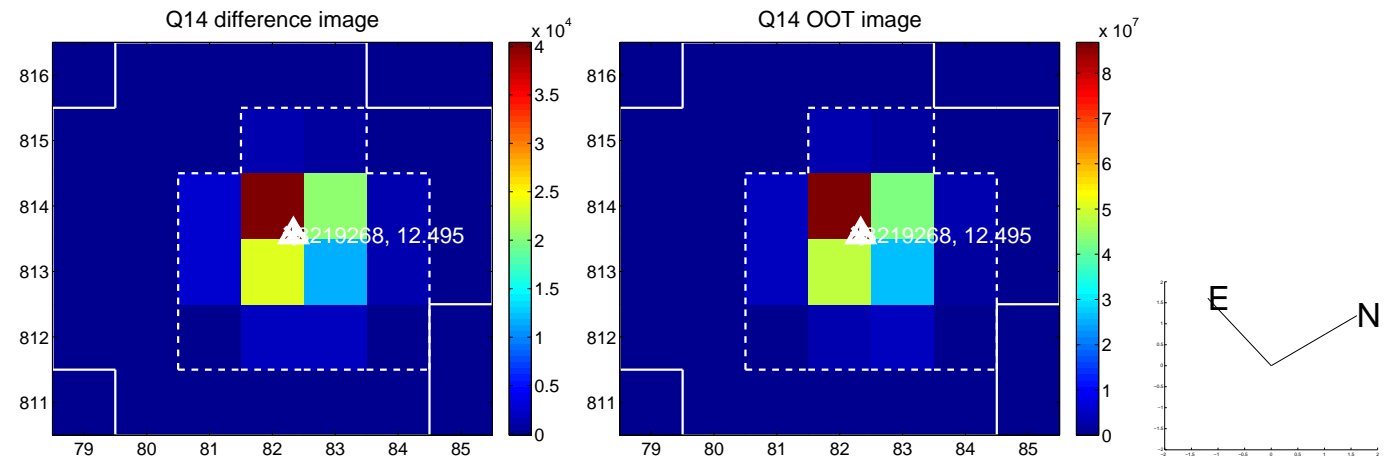
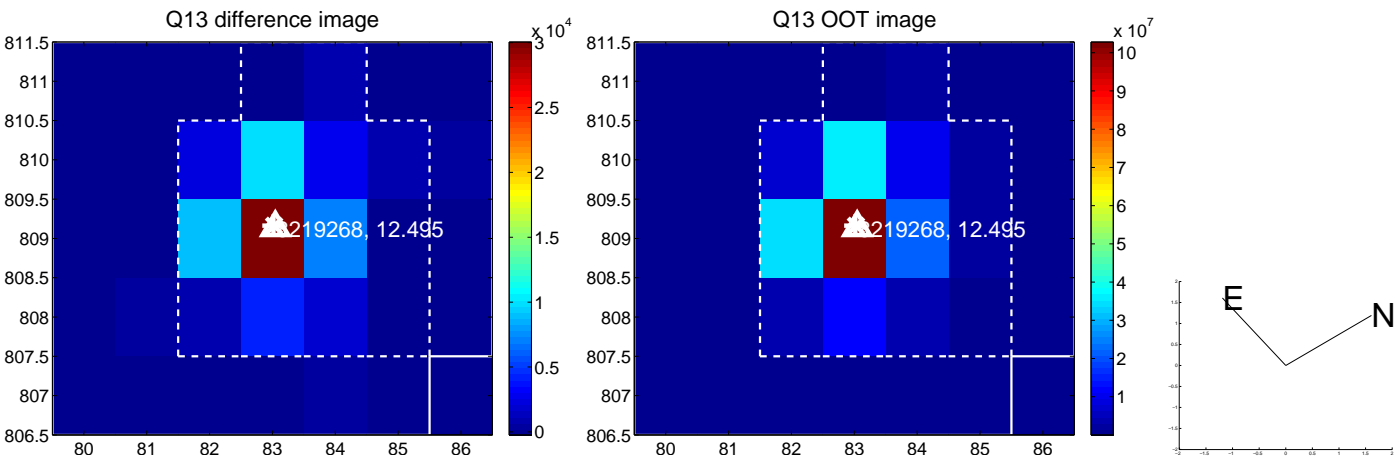
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



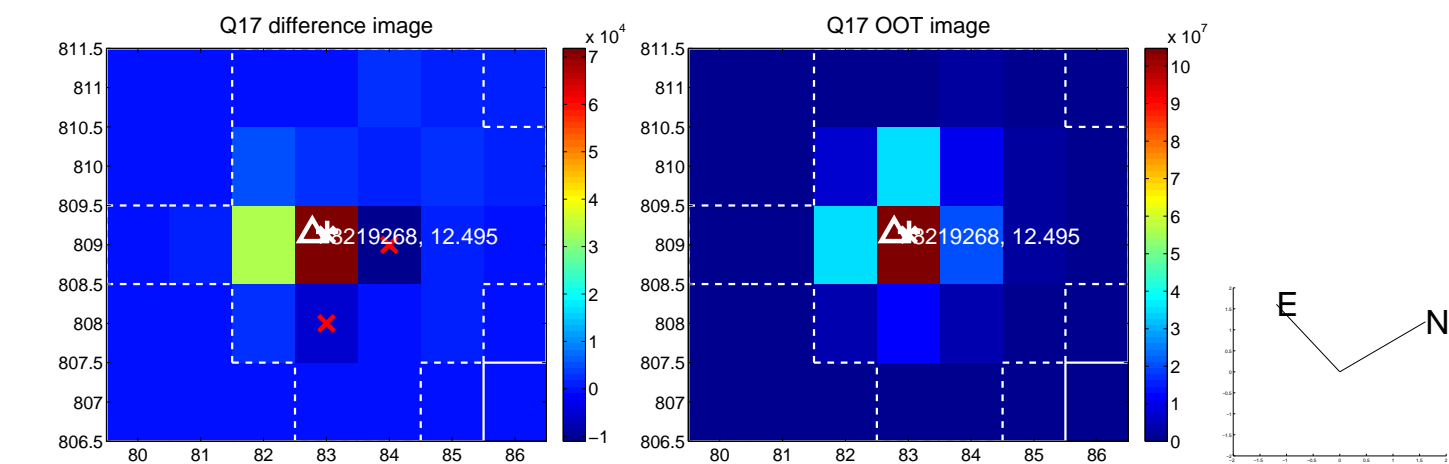
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



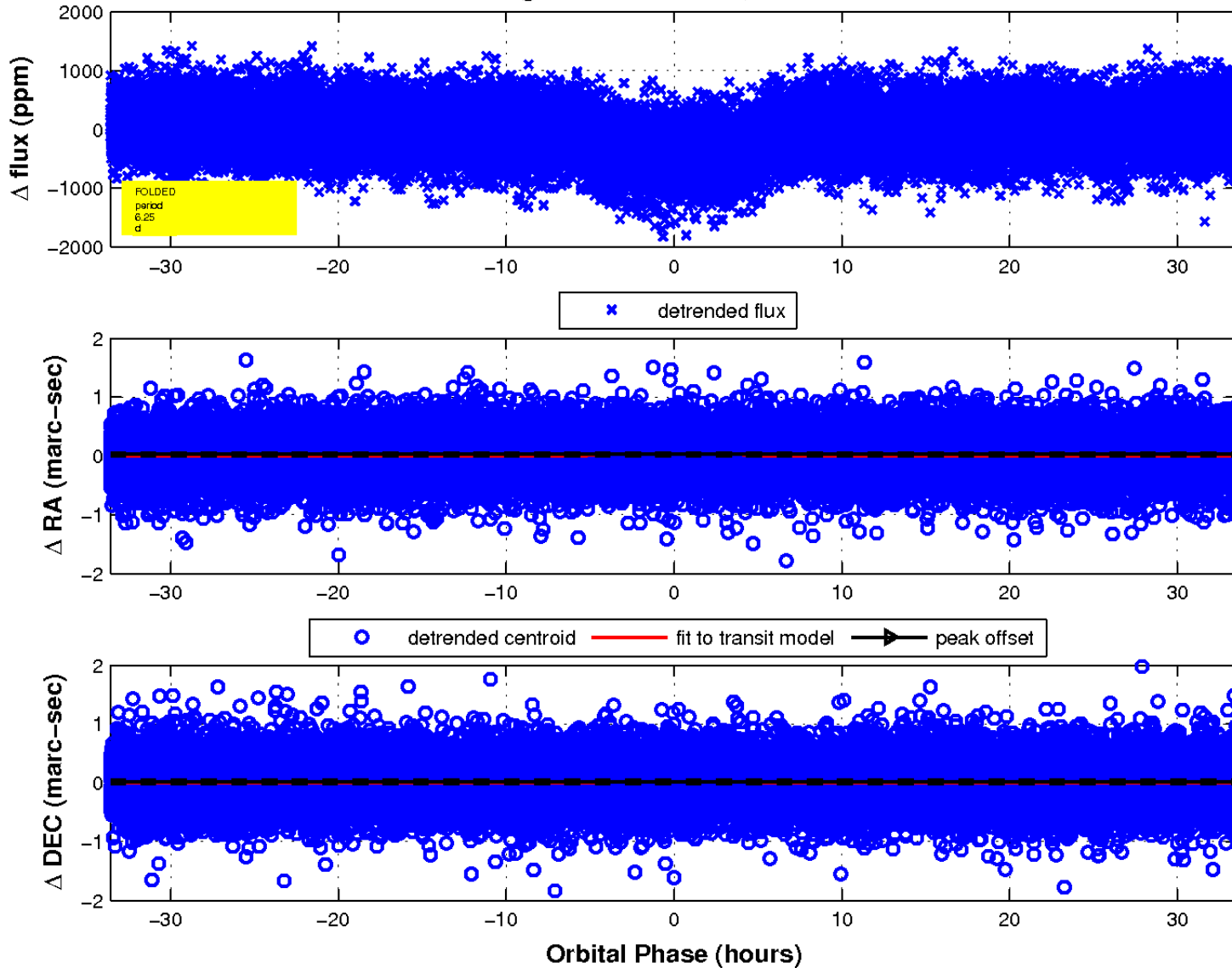
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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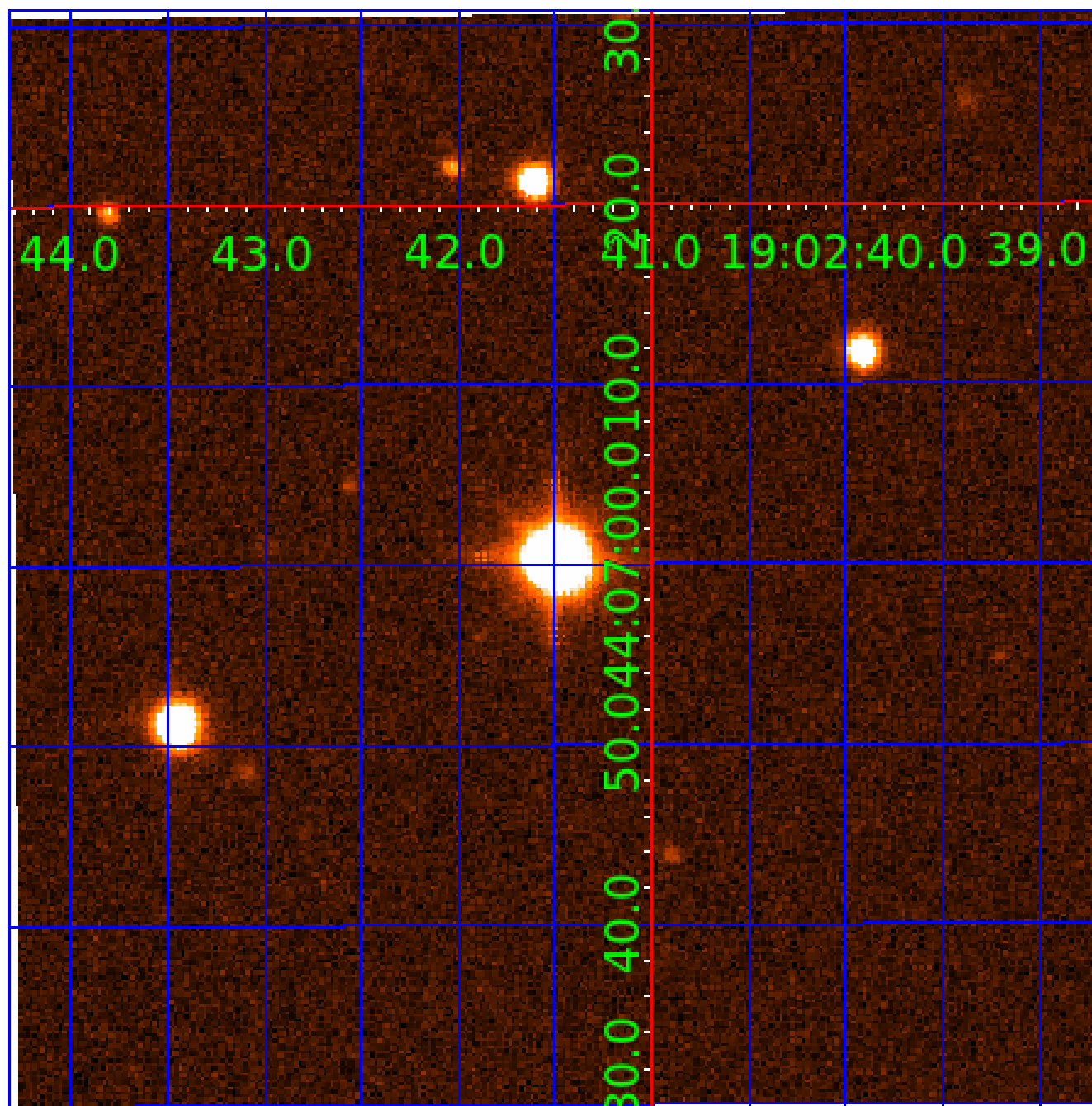


fluxWeightedCentroids, Planet 1 of 2



UKIRT Image

Declination



KIC 008219268

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})
008219268-01	OBS	2133.01	6.246762	136.377610	400.5	11.201	27.7	30.4	6.22	4604	14.68	3098.39
008219268-02	OBS	2133.02	43.517211	163.997151	404.9	2.287	7.5	8.1	6.22	4604	17.84	232.88

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
008219268-01	OBS	FP	0.06	1	0	0	0	LPP_DV
008219268-02	OBS	FP	0.03	1	0	0	0	INDIV_TRANS_RUBBLE_SKYE_ZUMA—MOD_NONUNIQ_ALT

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

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

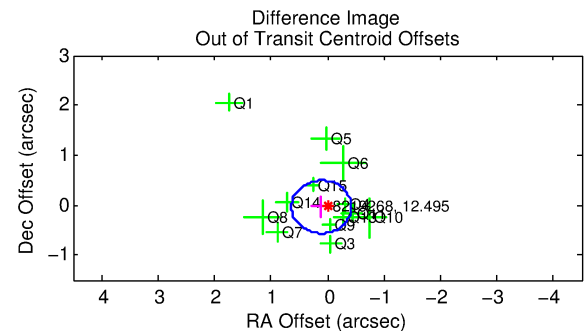
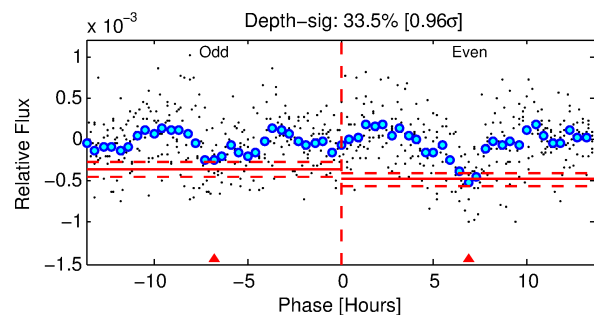
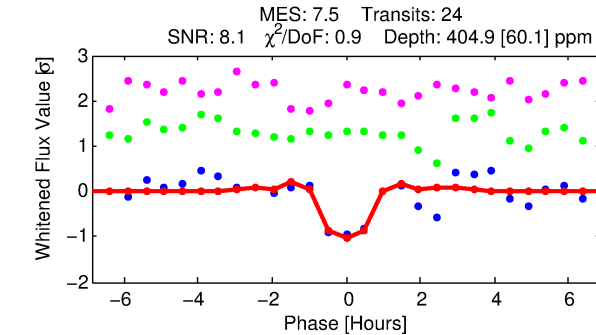
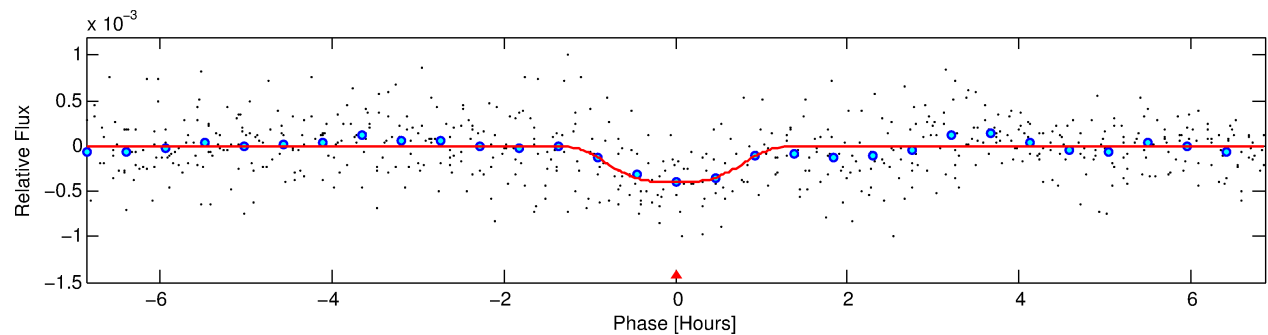
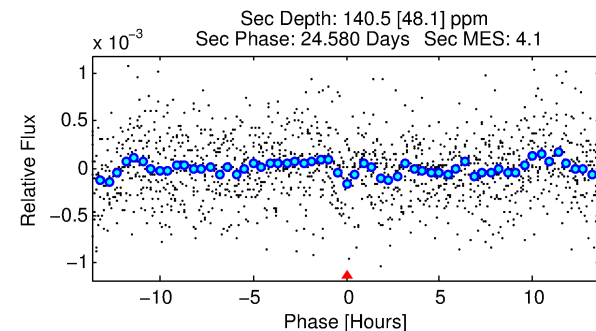
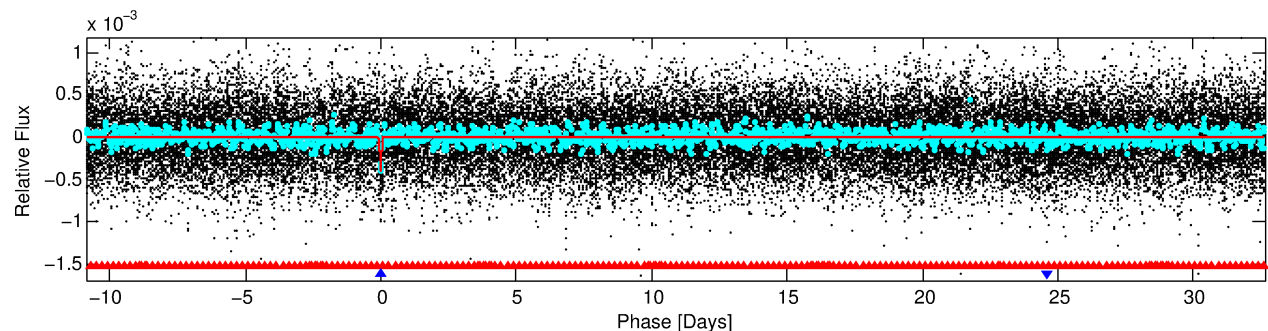
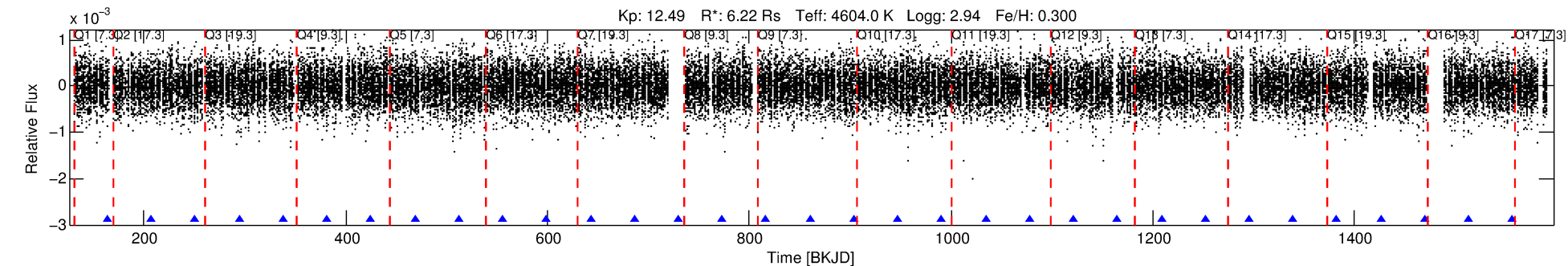
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 008219268-02

No Significant Match Found

DV One-Page Summary

KIC: 8219268 Candidate: 2 of 2 Period: 43.517 d
KOI: K02133 Name: Kepler-91 Corr: No Ephemeris Match



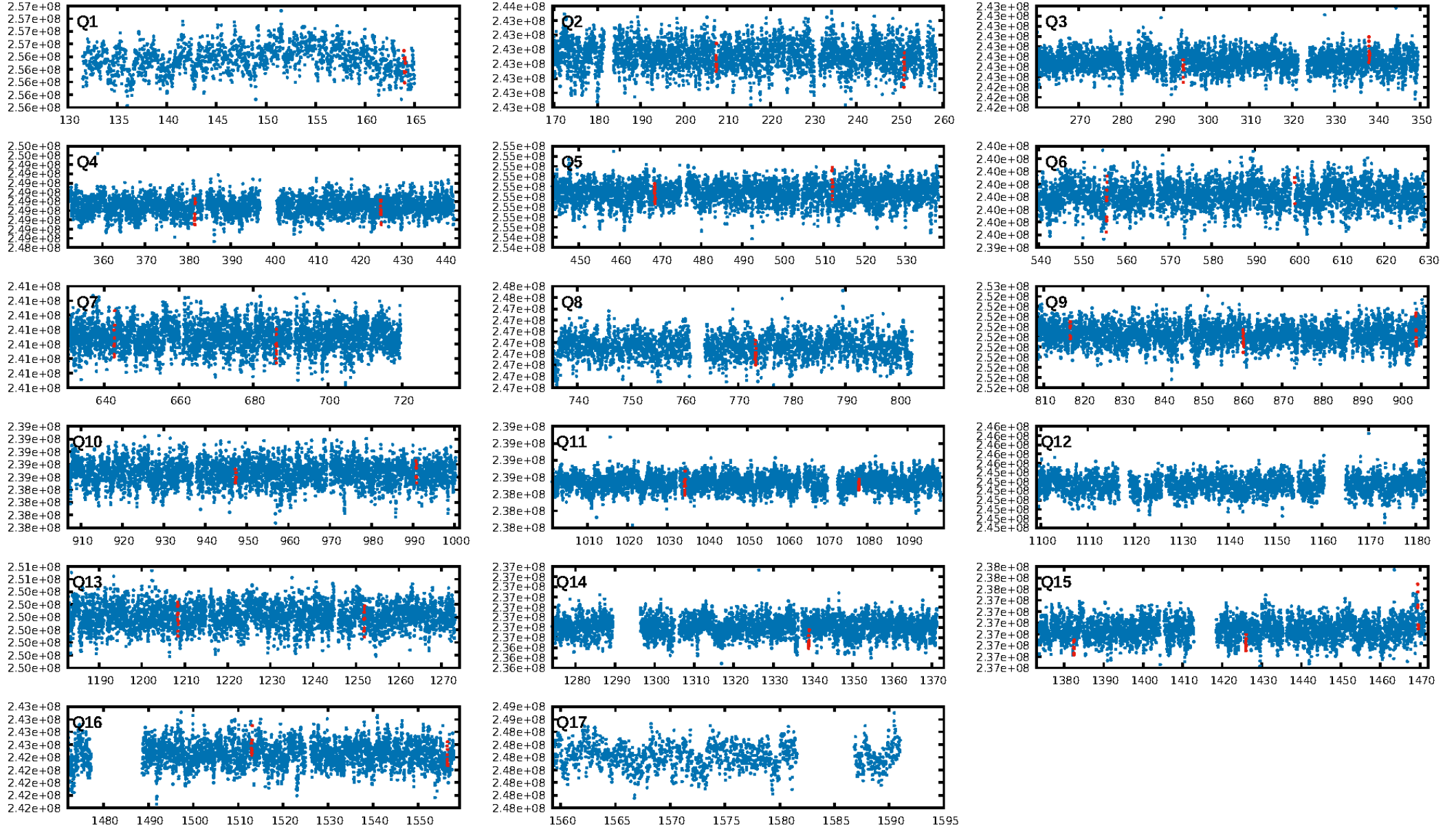
DV Fit Results:

Period = 43.51721 [0.00025] d
Epoch = 163.9972 [0.0051] BKJD
Rp/R* = 0.0263 [0.0028]
a/R* = 49.40 [9.82]
b = 0.97 [0.01]
Seff = 232.88 [20.99]
T_{eq} = 996 [22] K
Rp = 17.84 [2.47] Re
a = 0.2586 [0.0157] AU
Ag = 16.24 [6.61] [2.31σ]
T_{eff} = 3092 [315] K [6.64σ]

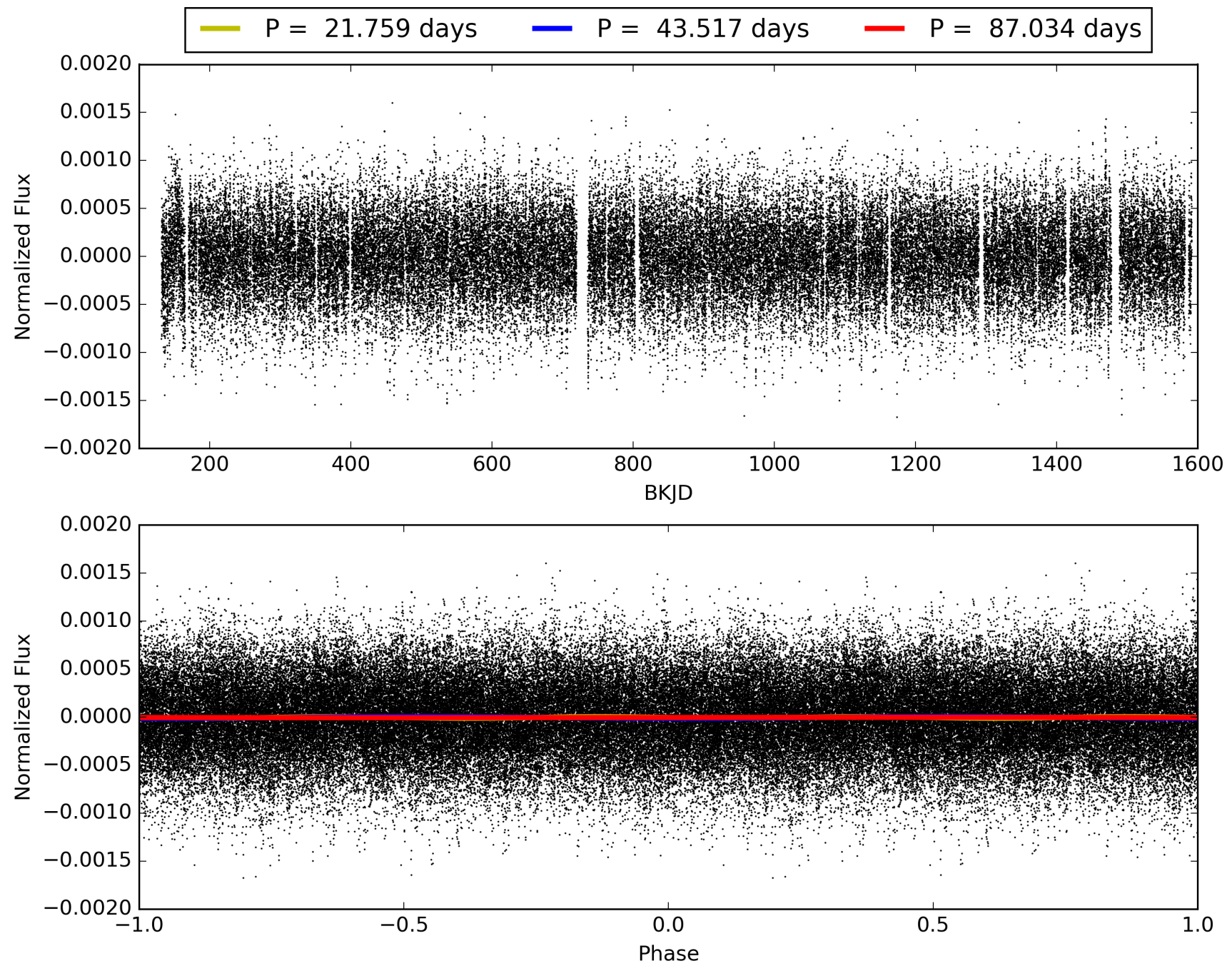
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [78.24σ]
LongPeriod-sig: N/A
ModelChiSquare2-sig: 88.5%
ModelChiSquareGof-sig: 100.0%
Bootstrap-pfa: 1.55e-10
RollingBand-fgt: 1.00 [23/23]
GhostDiagnostic-chr: 3.388
Centroid-sig: 21.0%
Centroid-so: 0.369 arcsec [1.32σ]
OotOffset-rm: 0.114 arcsec [0.64σ]
KicOffset-rm: 0.179 arcsec [0.79σ]
OotOffset-st: 3/4/2/4 [13]
KicOffset-st: 3/4/2/4 [13]
DiffImageQuality-fgm: 1.00 [13/13]
DiffImageOverlap-fno: 0.87 [13/15]

TCE 008219268-02, PDC Light Curves

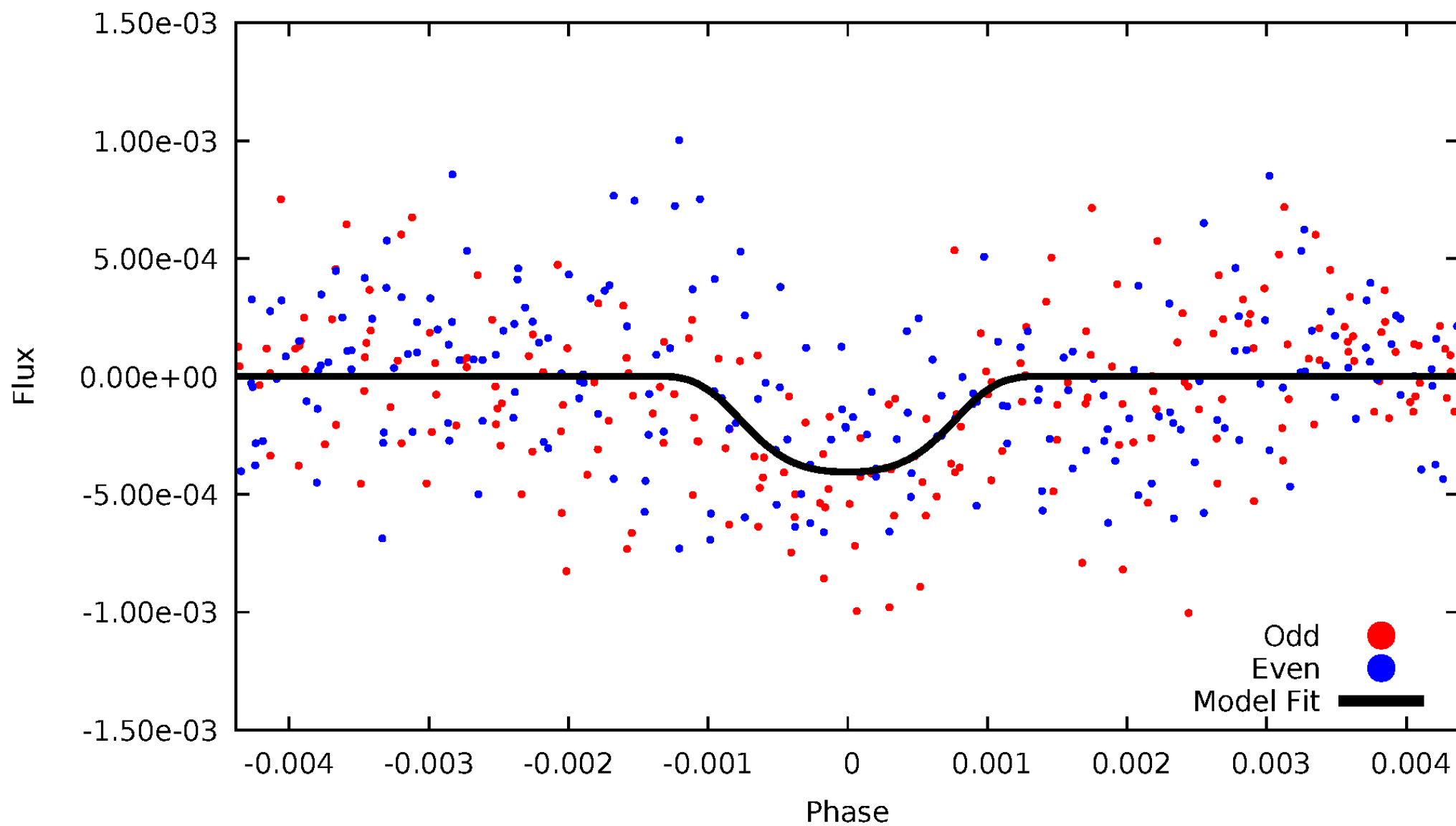


TCE 008219268-02



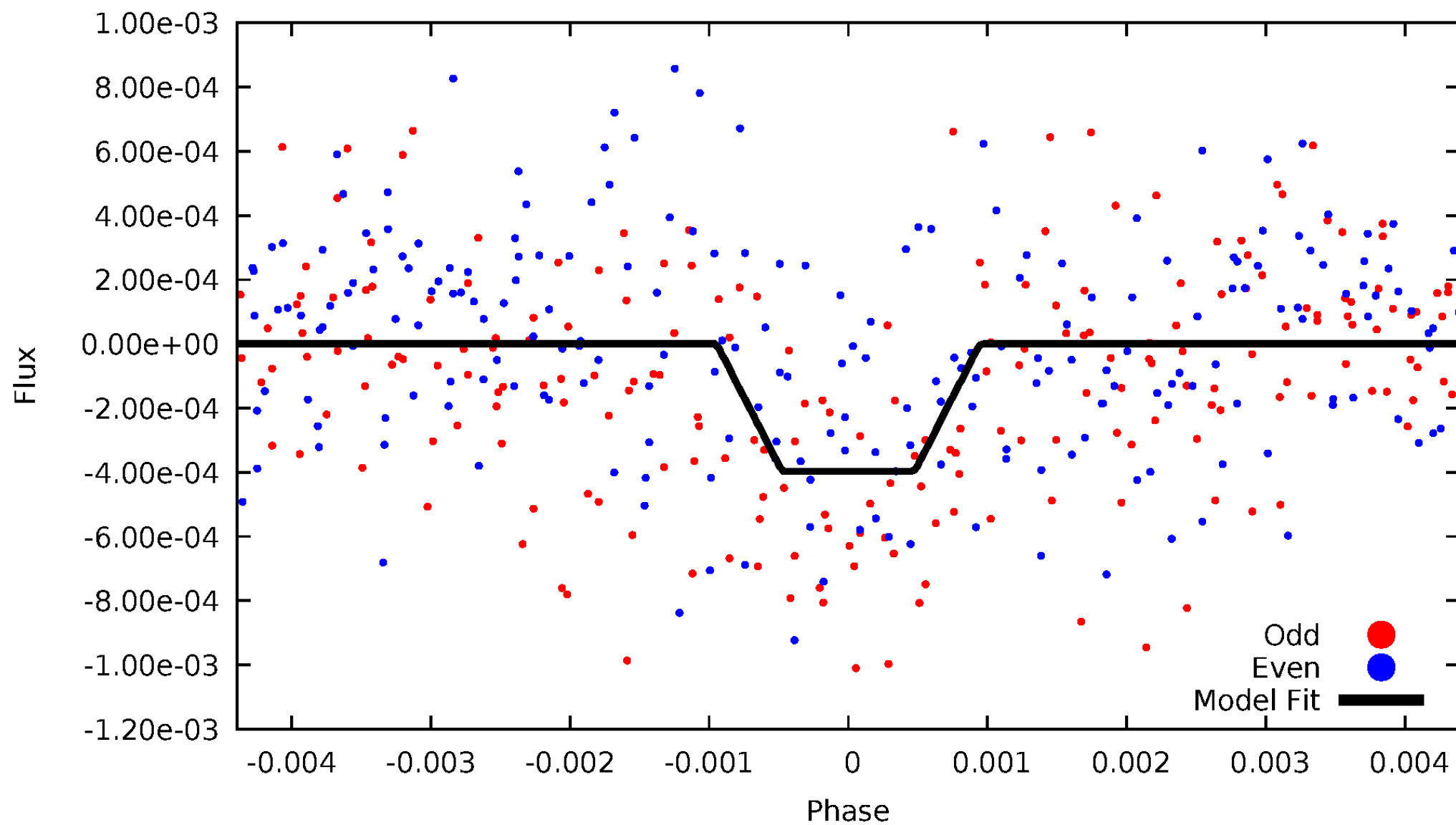
DV Odd/Even

TCE 008219268-02



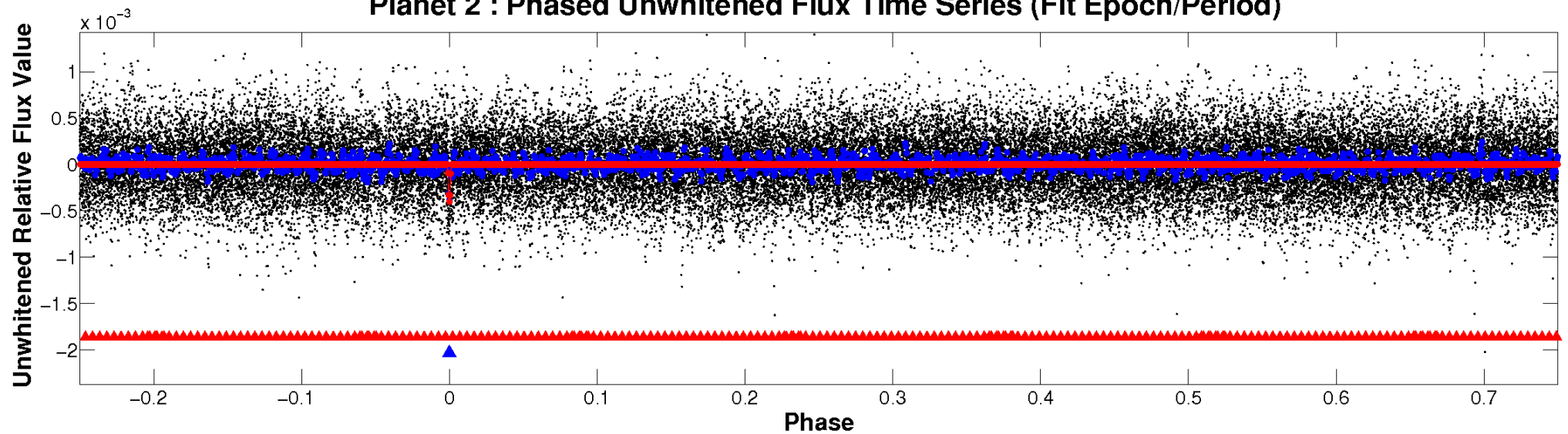
ALT Odd/Even

TCE 008219268-02

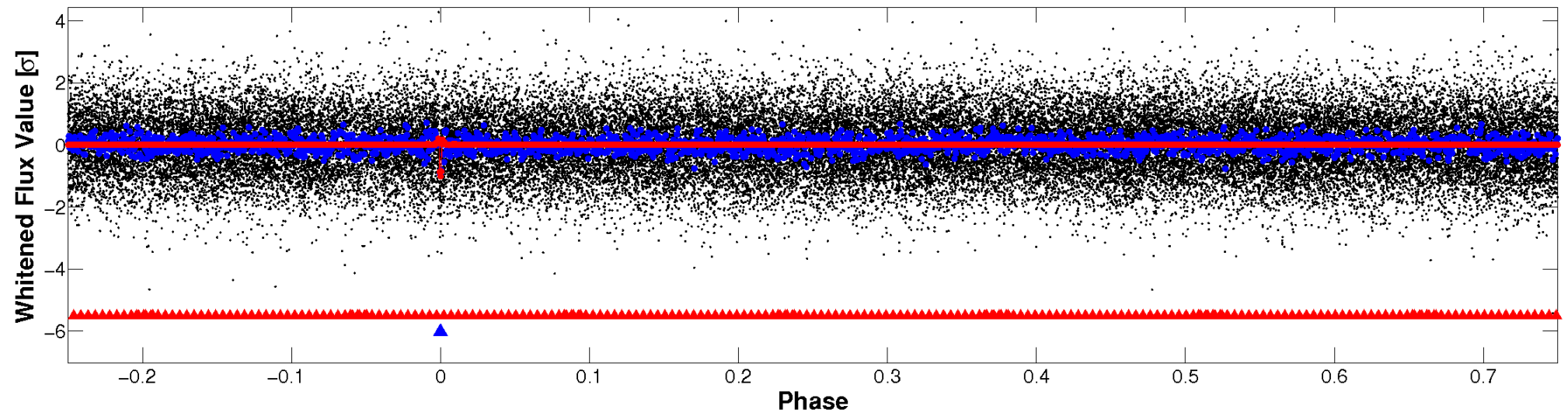


Non-Whitened Vs. Whitened Light Curve

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

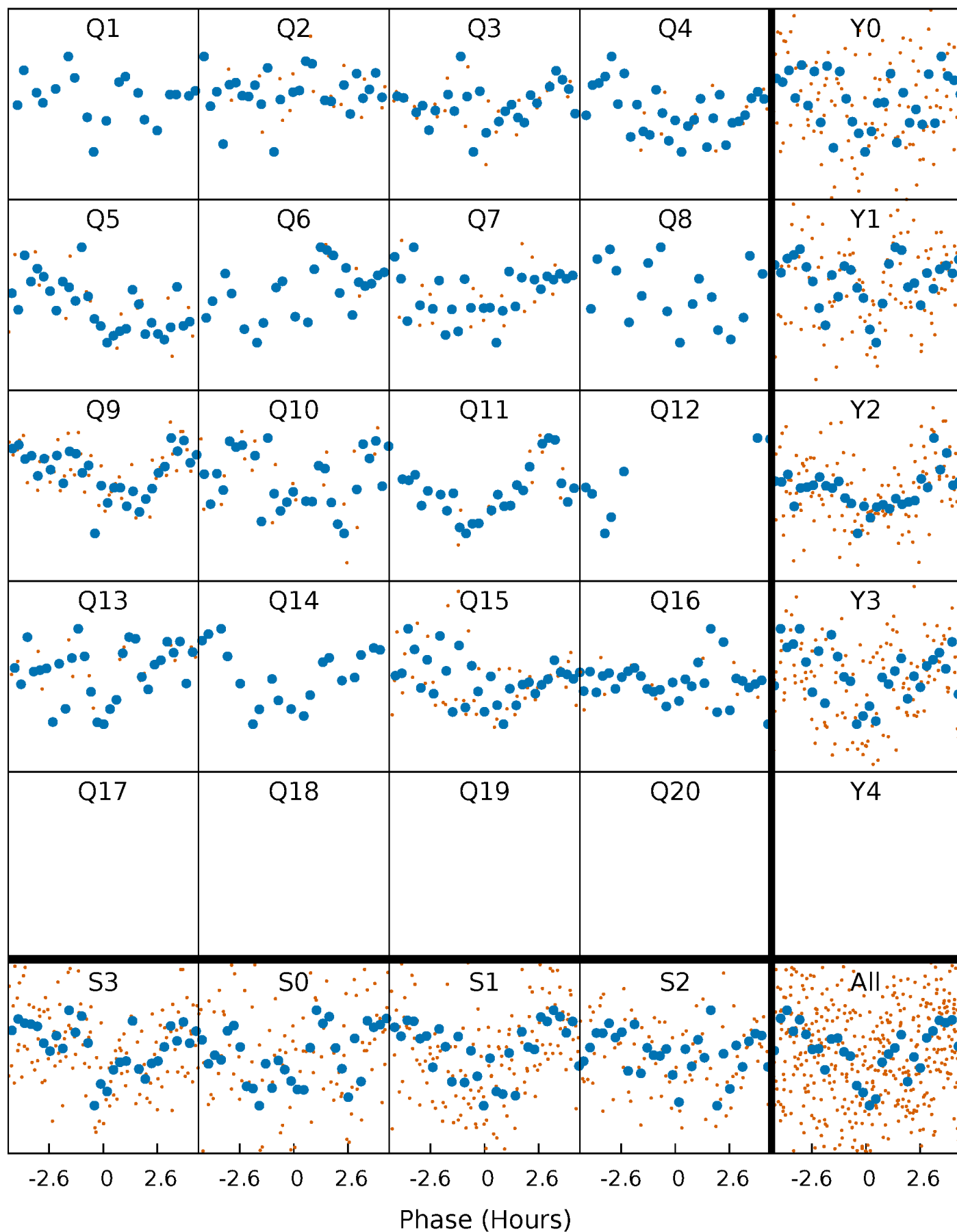


Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



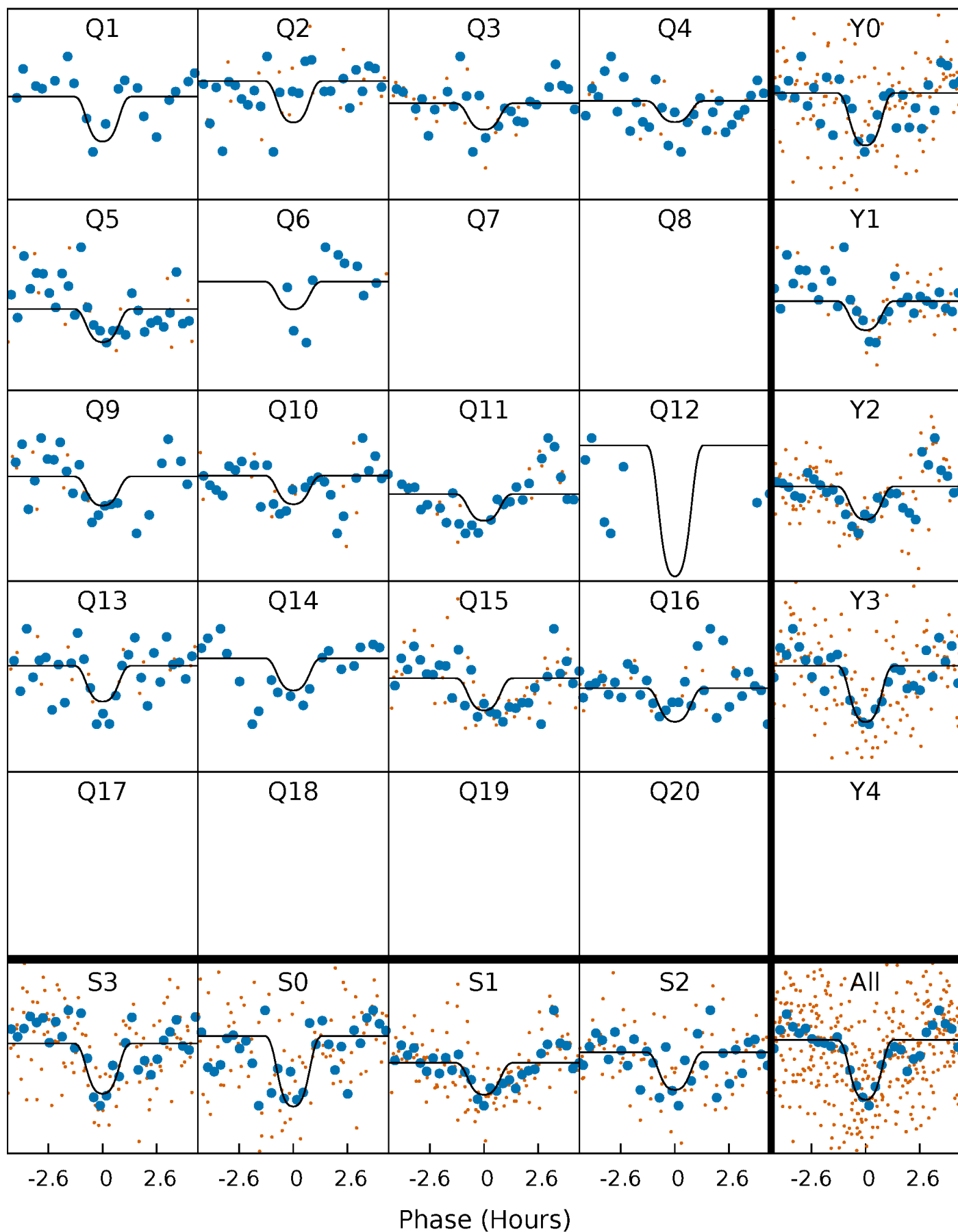
PDC Quarter-Phased Transit Curves

TCE 008219268-02 P= 43.517211 Days $T_0=163.997151$ (BKJD)



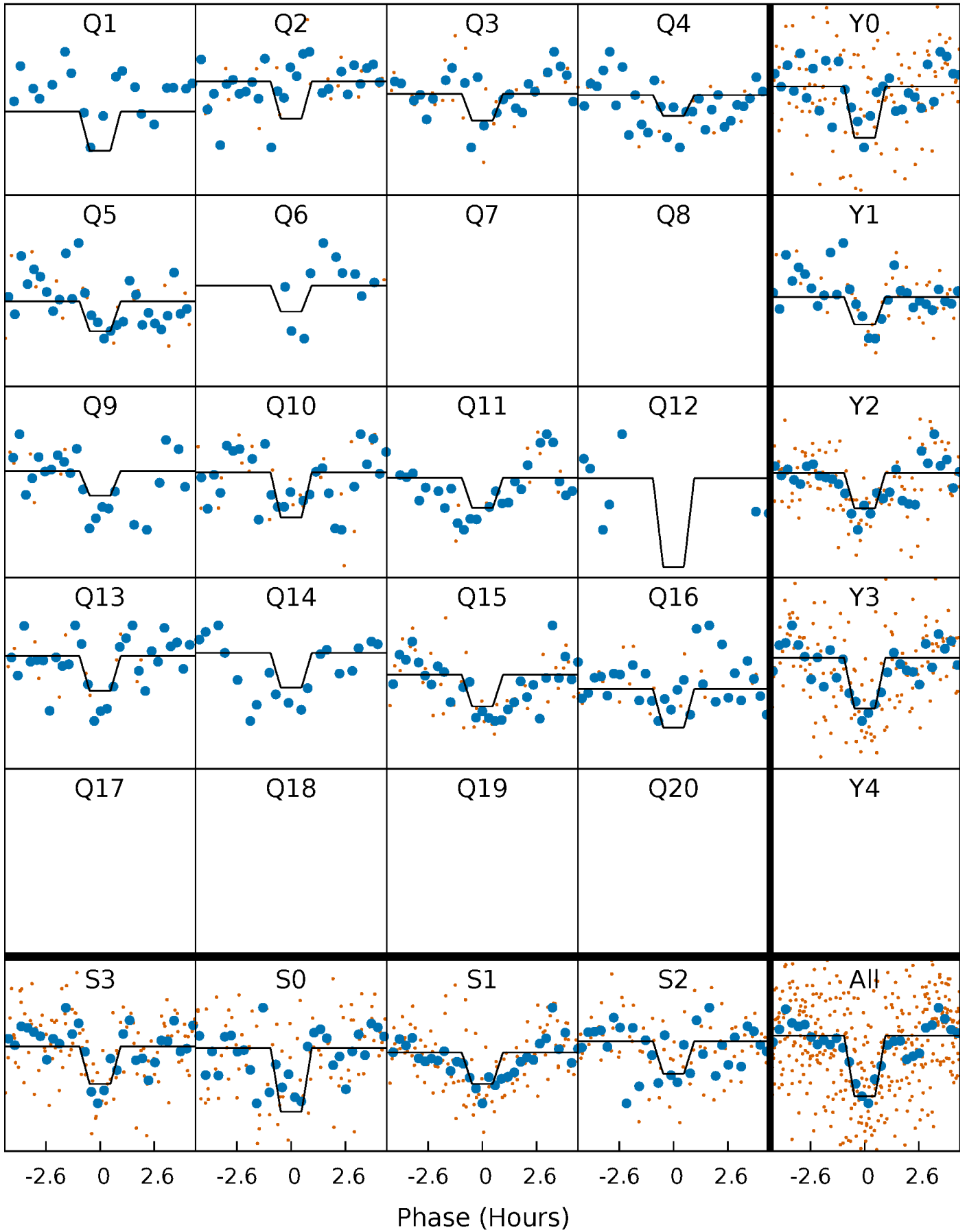
DV Quarter-Phased Transit Curves

TCE 008219268-02 P= 43.517211 Days $T_0=163.997151$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

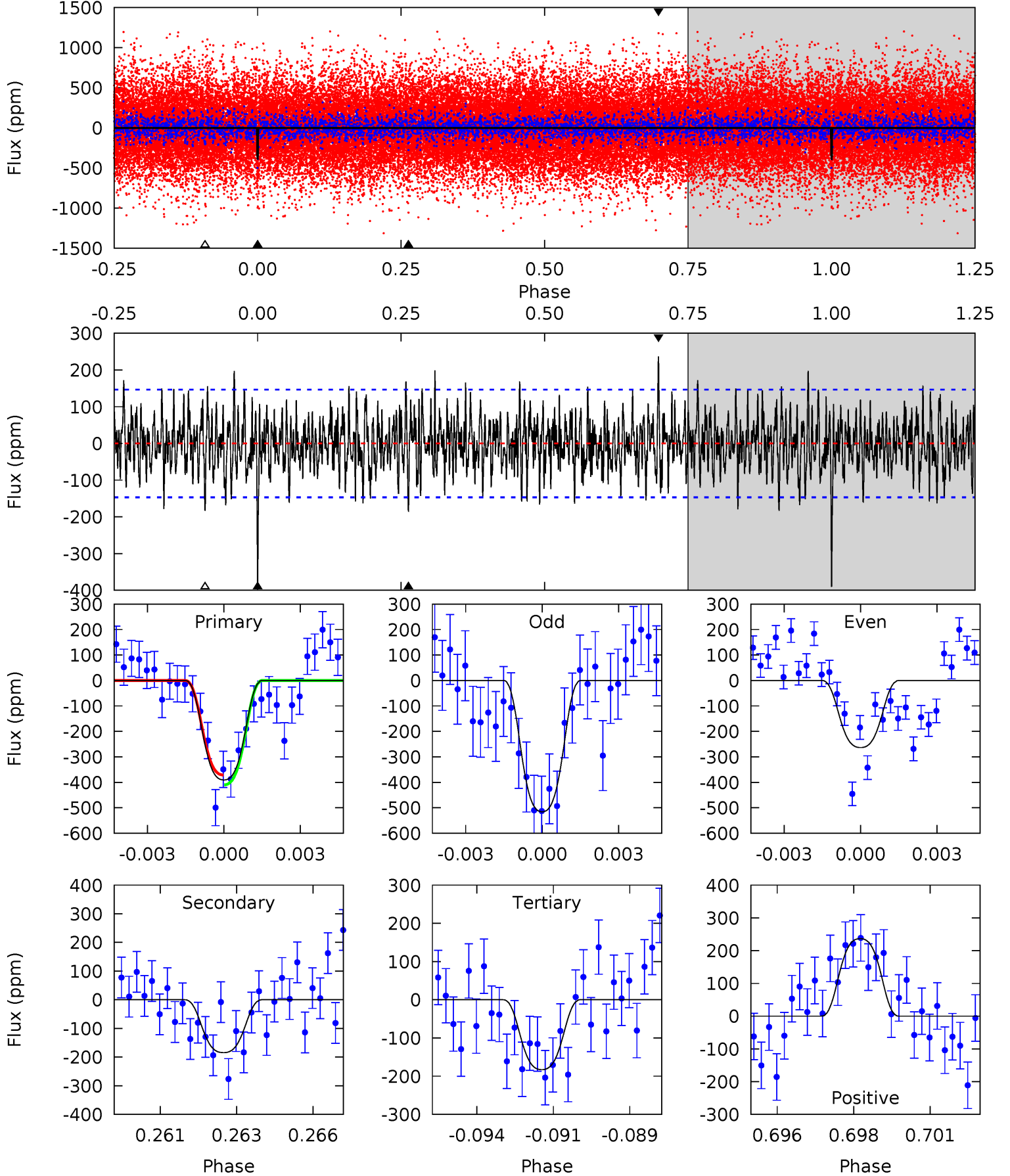
TCE 008219268-02 P= 43.517201 Days $T_0=163.997630$ (BKJD)



DV Model-Shift Uniqueness Test

008219268-02, P = 43.517211 Days, E = 120.479940 Days

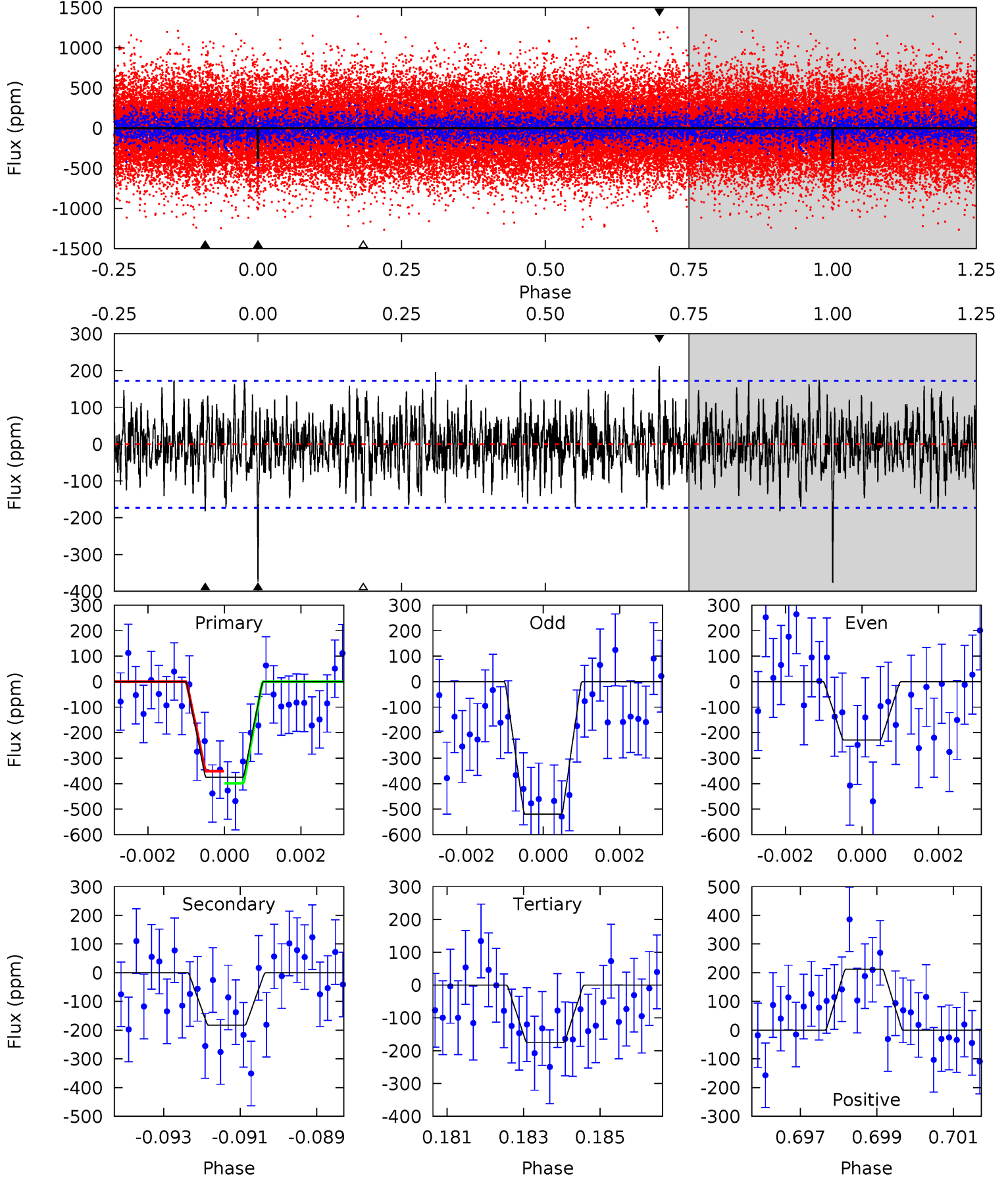
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
14.1	6.64	6.58	8.52	5.28	3.01	2.18	7.47	5.54	0.06	-1.88	4.54	1.07	0.38	0.69



Alt Model-Shift Uniqueness Test

008219268-02, $P = 43.517201$ Days, $E = 120.480429$ Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
11.6	5.64	5.41	6.56	5.34	3.10	1.78	6.17	5.02	0.22	-0.92	4.49	0.95	0.36	0.74



Stellar Parameters For KIC 008219268

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	M (M_{\odot})	p_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	4604^{+74}_{-54}	$2.936^{+0.013}_{-0.012}$	$0.300^{+0.100}_{-0.150}$	$6.221^{+0.559}_{-0.509}$	$1.218^{+0.226}_{-0.185}$	$0.007^{+0.001}_{-0.001}$
	+2%/-1%	+0%/-0%	+33%/-50%	+9%/-8%	+19%/-15%	+10%/-10%
Source	SPE8	AST8	SPE8	DSEP		

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

Secondary Eclipse Parameters for KIC 008219268-02 / KOI 2133.02

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	-185 ± 28	$17.96^{+2.26}_{-2.06}$	1396^{+26}_{-26}	3631^{+173}_{-156}	21^{+7}_{-5}
Alt.	-182 ± 32	$13.51^{+2.05}_{-1.92}$	1393^{+27}_{-24}	3977^{+270}_{-225}	36^{+15}_{-10}

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

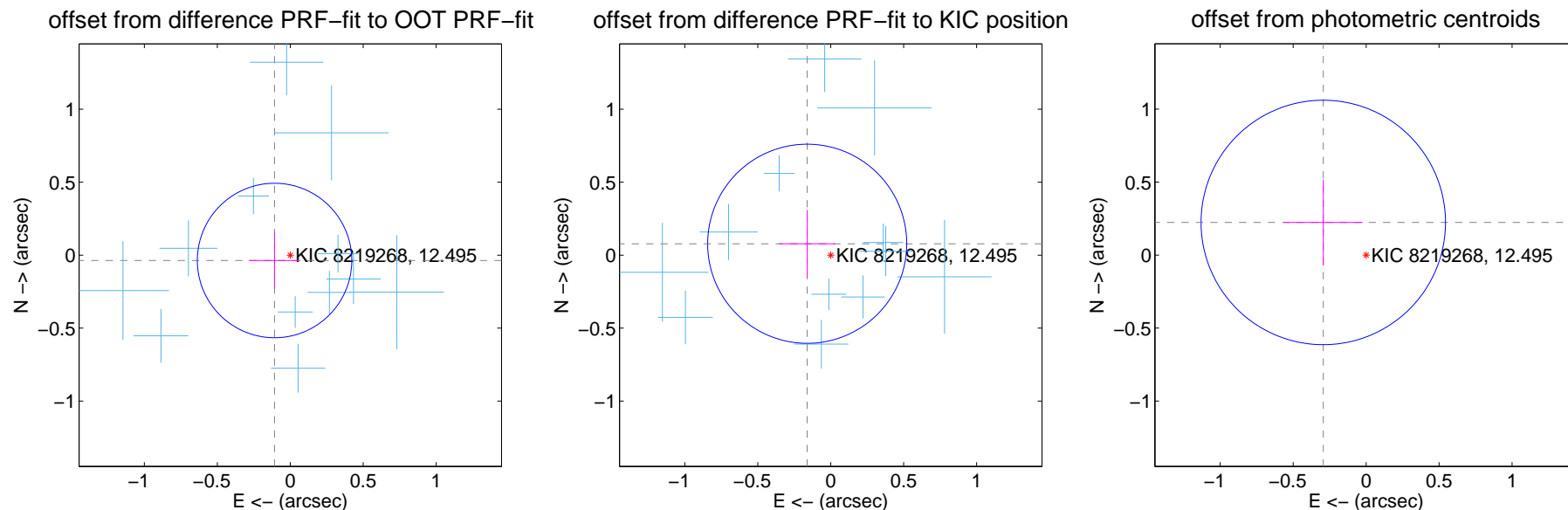
DV Centroid Data

Supplemental centroid analysis for 008219268-02. Kepler magnitude: 12.49. Transit SNR 8.08

There are 13 quarters with good PRF difference image offsets

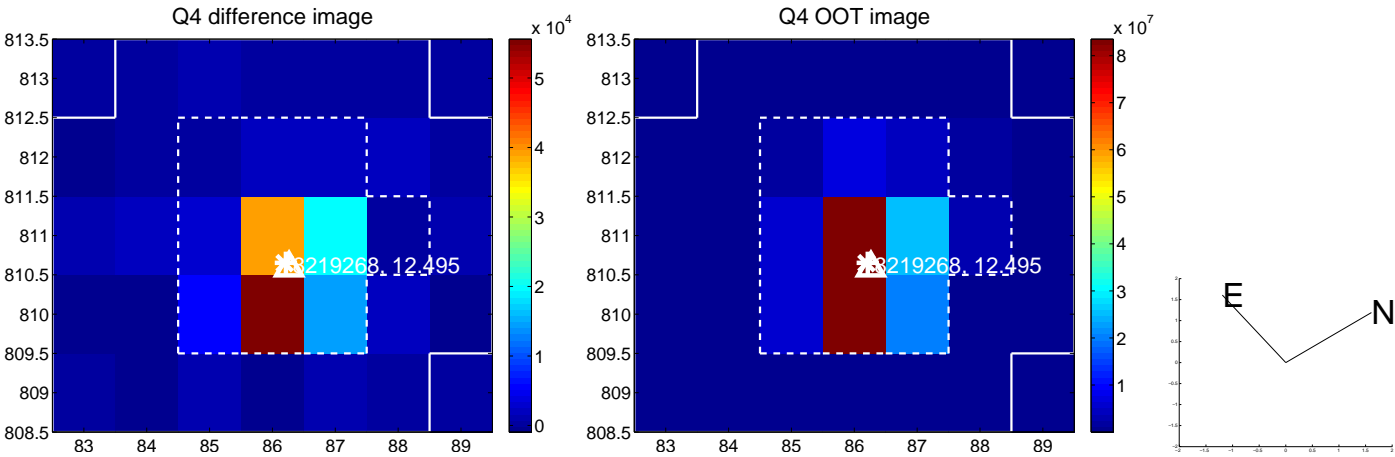
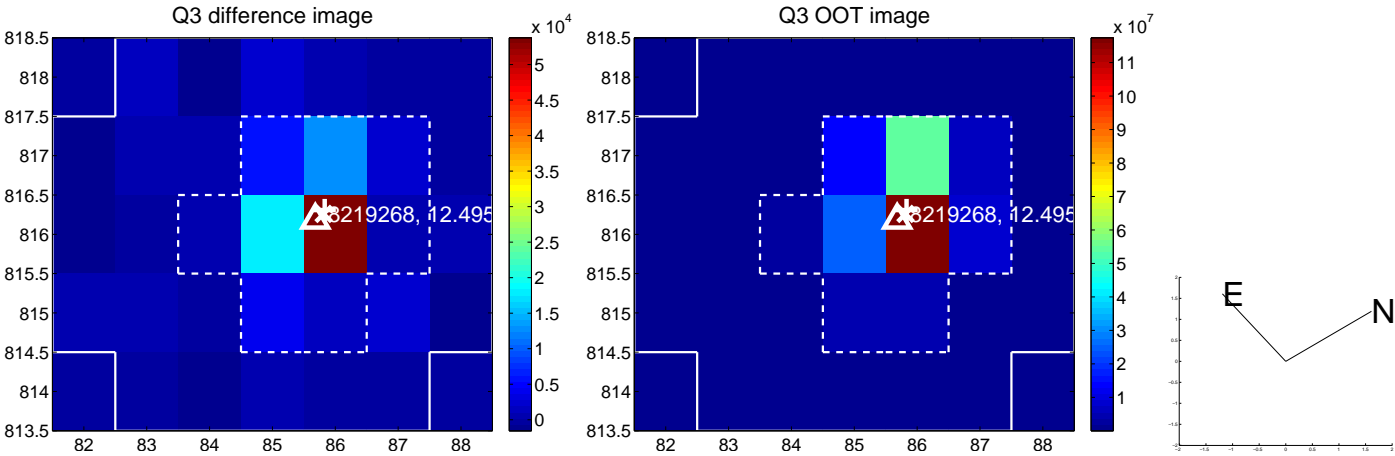
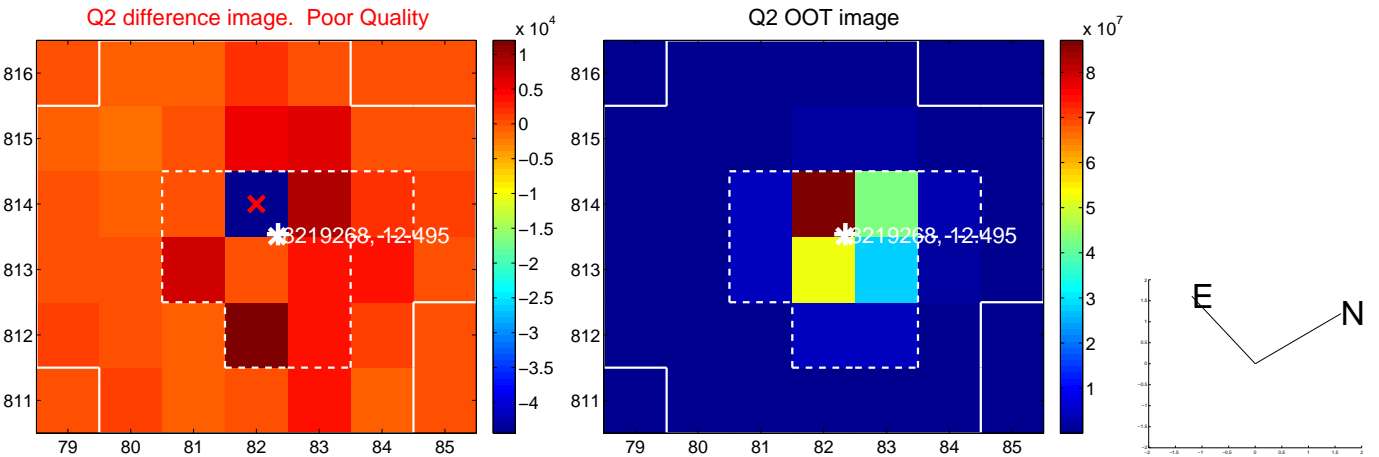
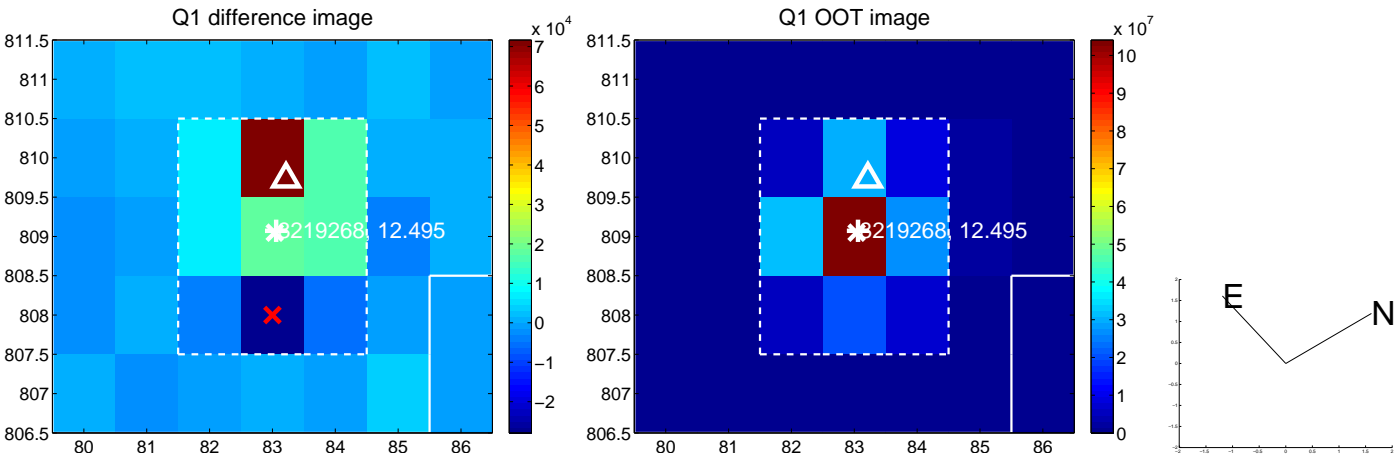
The direct PRF centroid is offset from the target star catalog position by about 0.19 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.114 ± 0.176	0.64	0.108 ± 0.174	-0.037 ± 0.192
PRF-fit source offset from KIC position	0.179 ± 0.227	0.79	0.161 ± 0.194	0.078 ± 0.231
photometric centroid source offset	0.37 ± 0.28	1.32	0.29 ± 0.27	0.22 ± 0.30

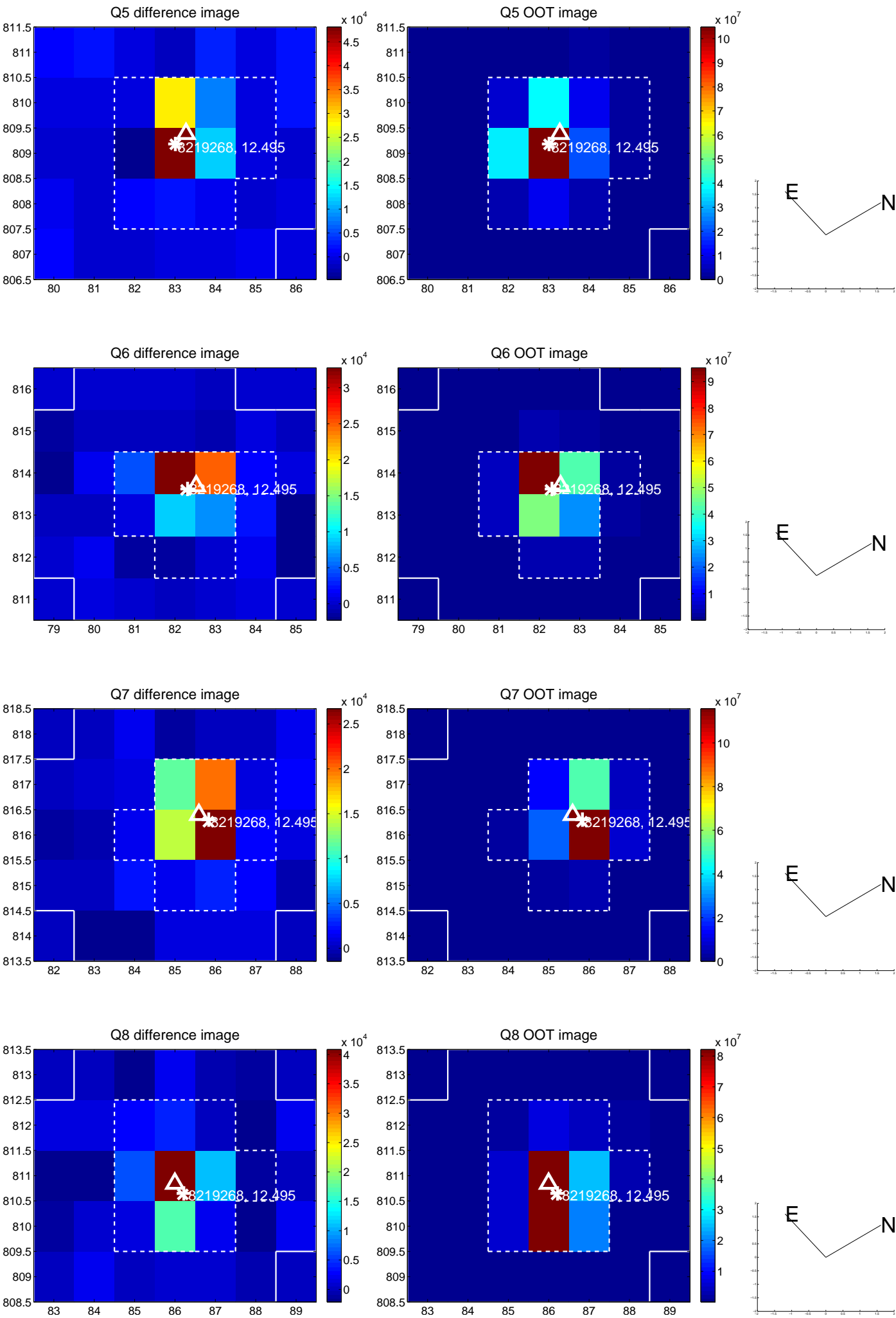


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses:** good quarterly centroid offsets; **Vermillion crosses:** bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

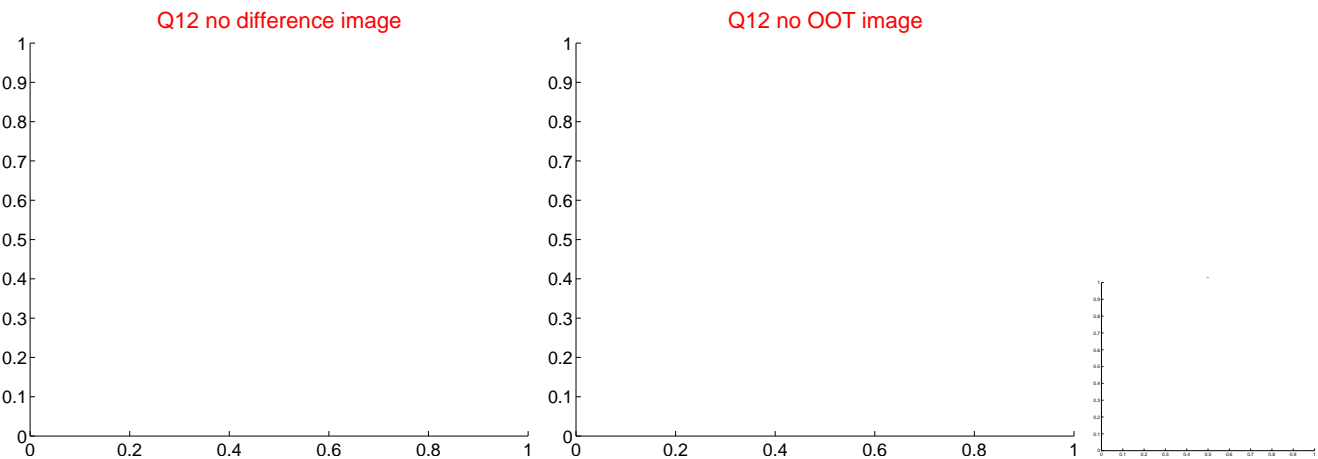
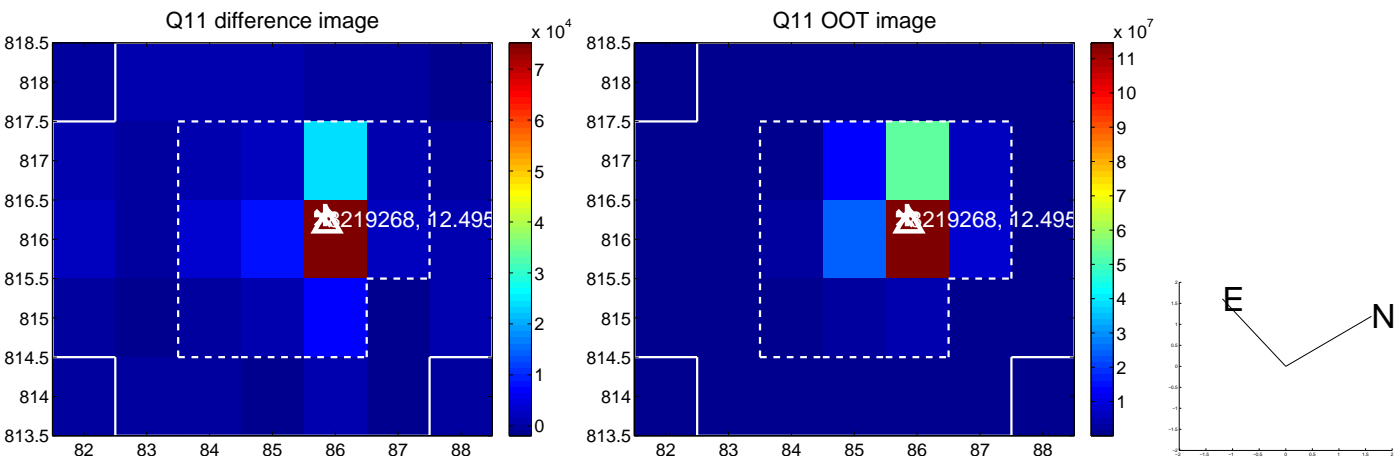
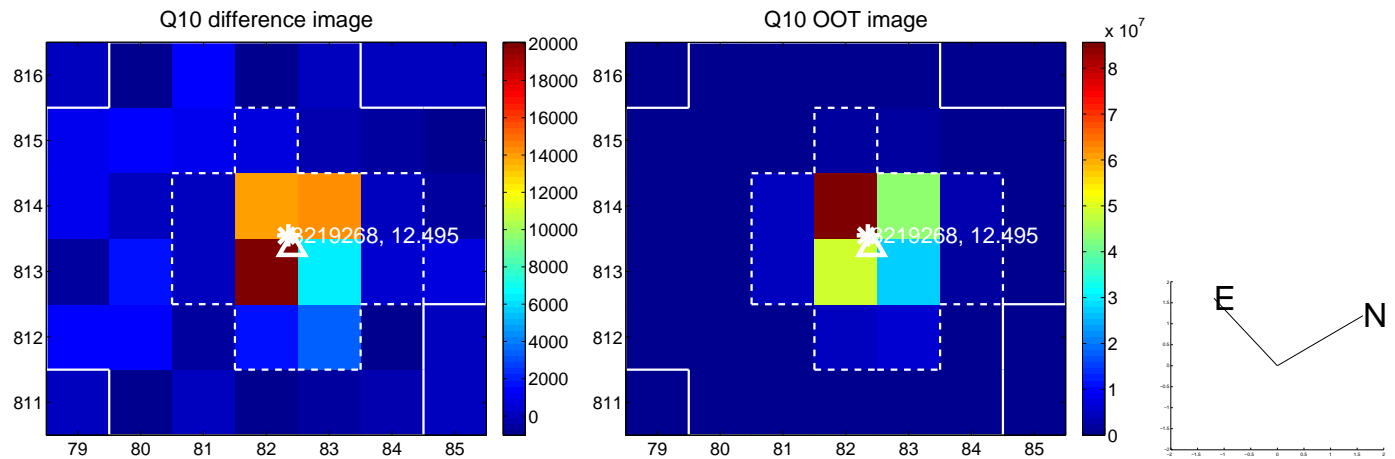
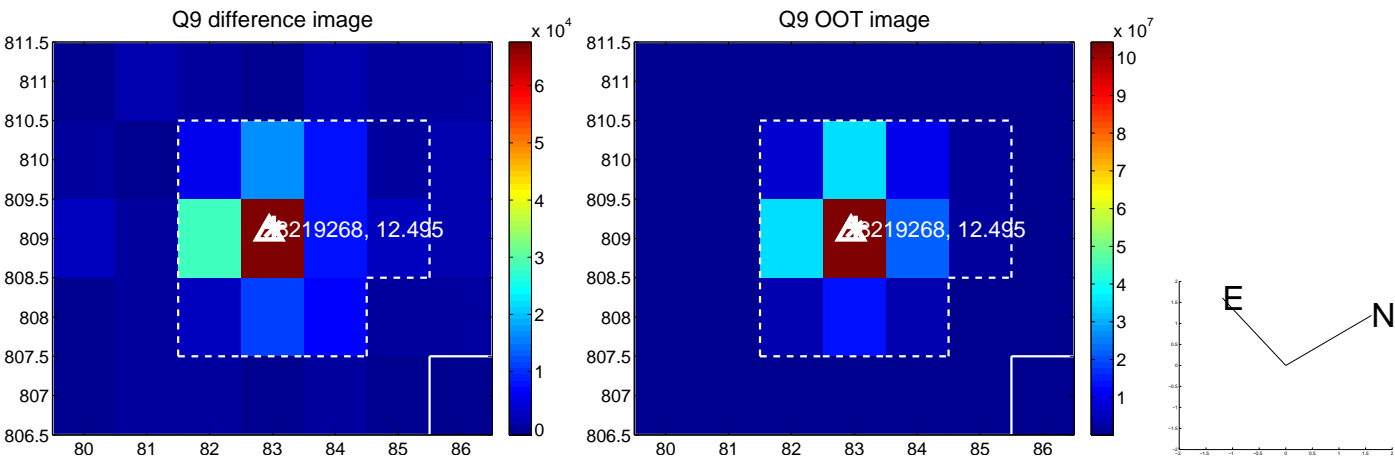
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



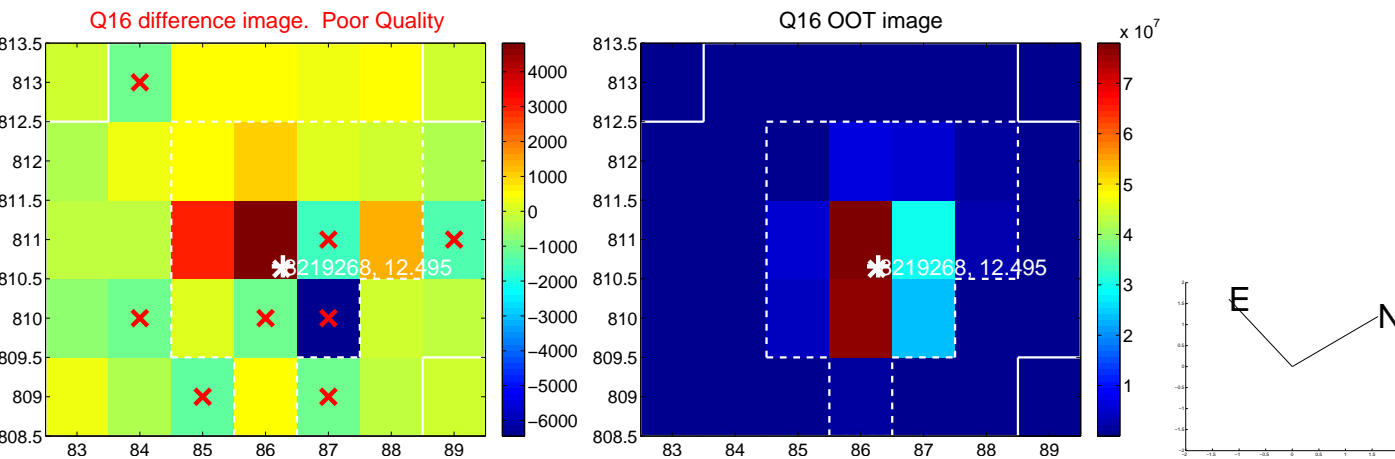
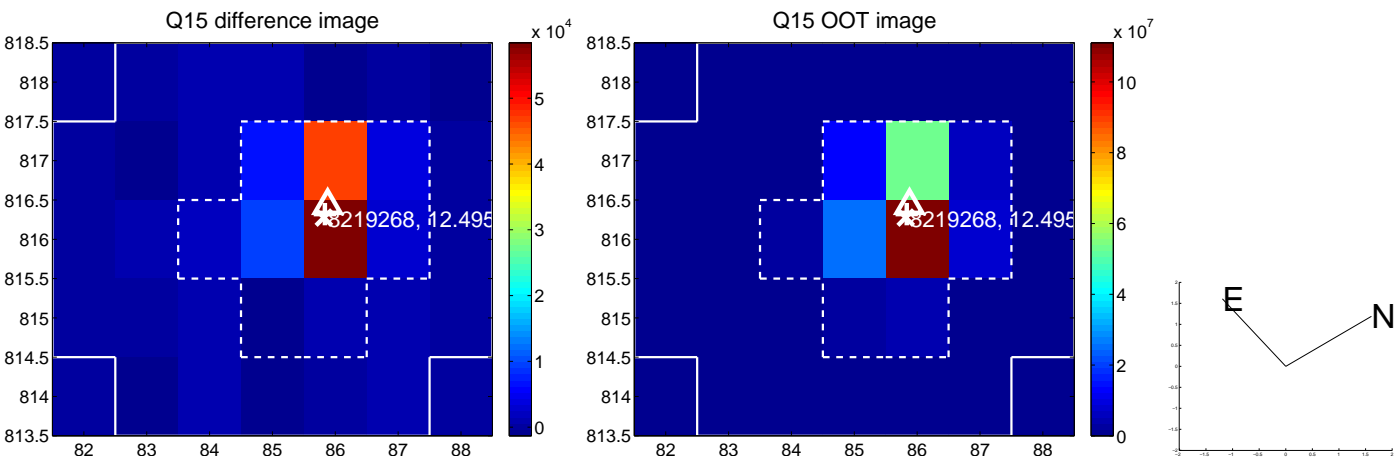
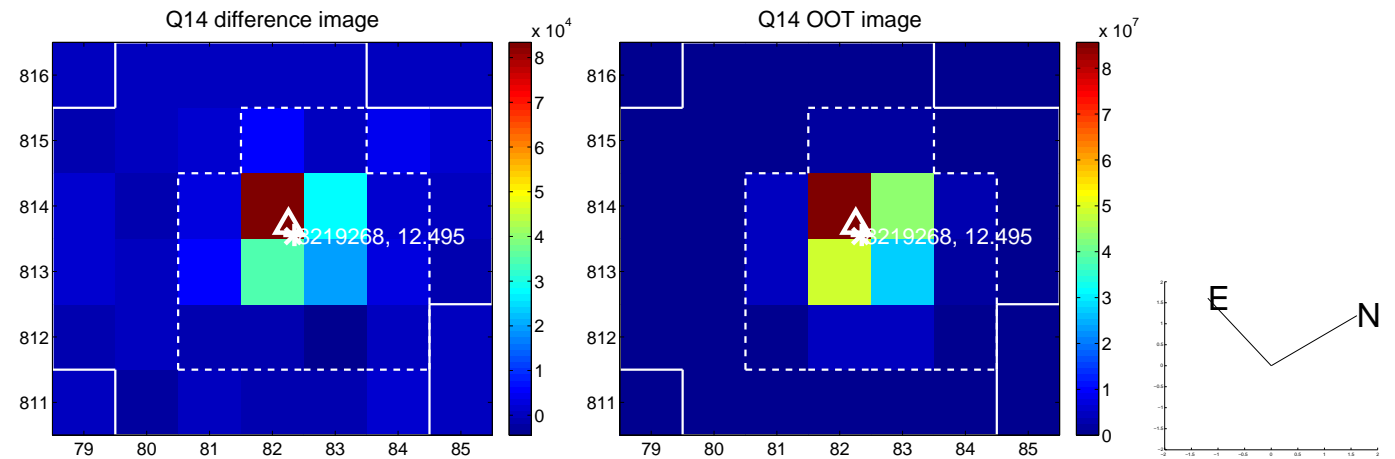
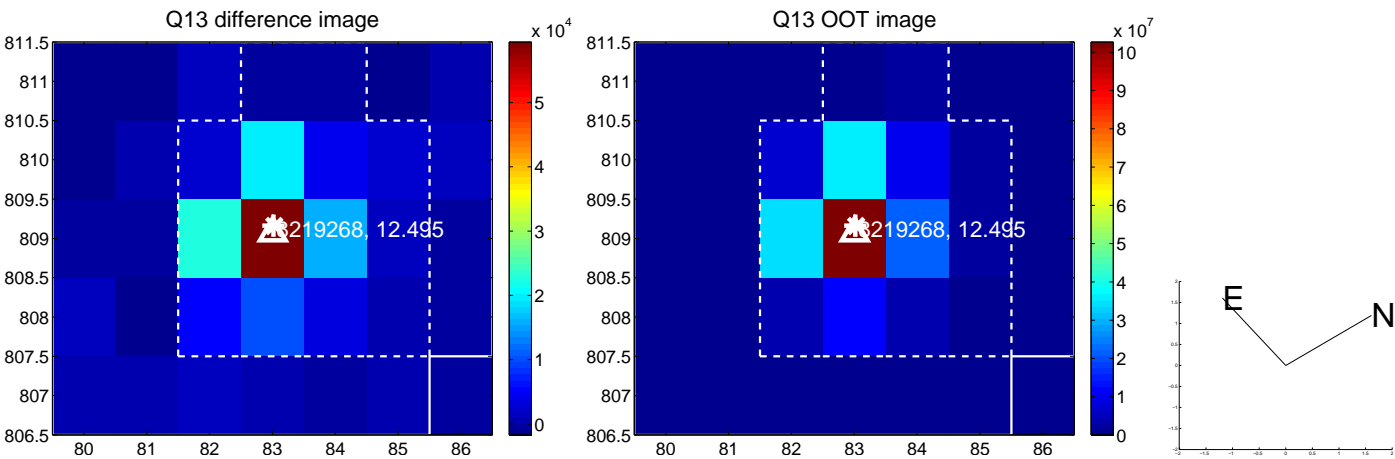
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



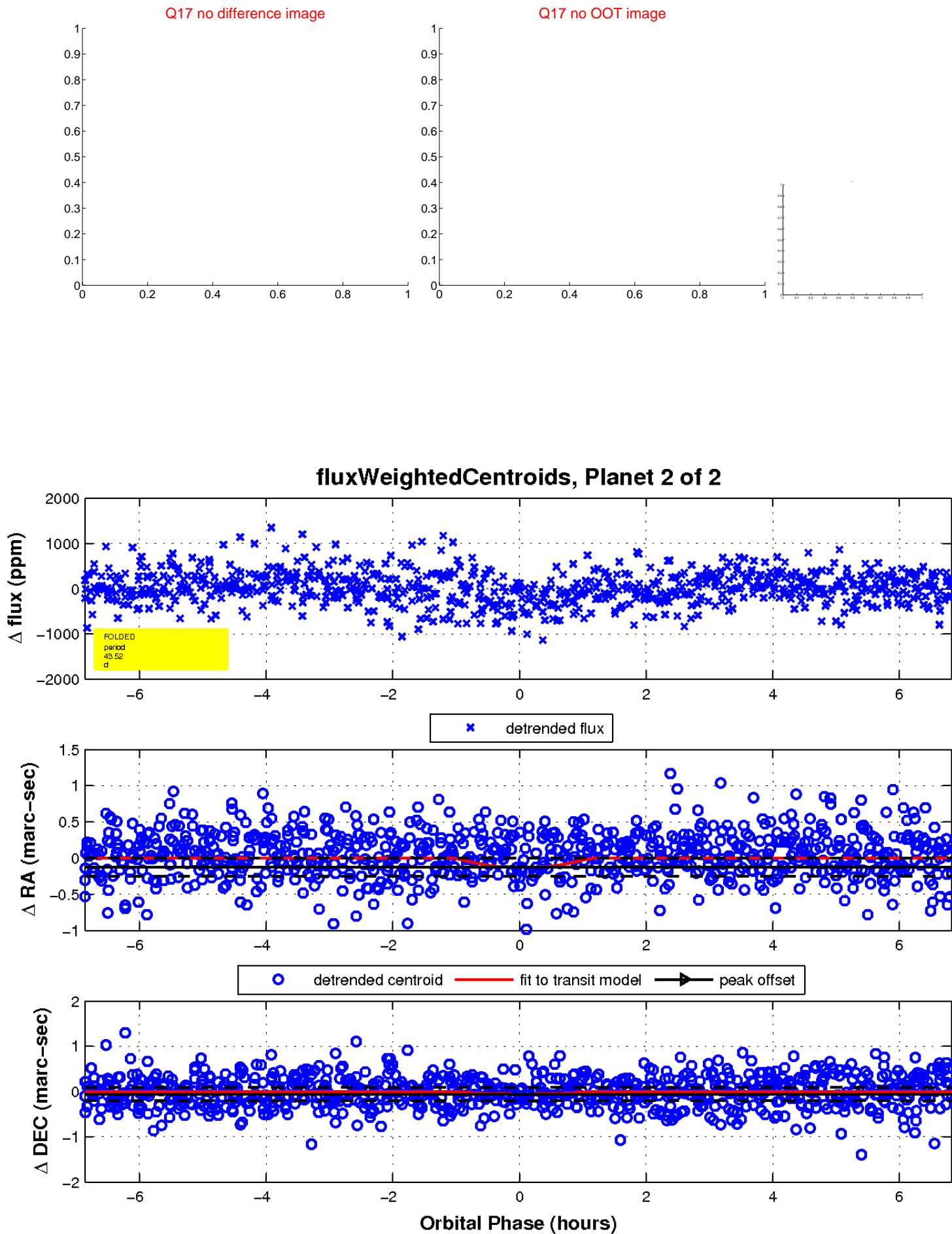
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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



UKIRT Image

Declination

