

KIC 008112324

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})
008112324-01	OBS	No	218.276665	190.664754	85220.4	1.616	181.6	44.9	0.68	5461	34.58	0.98
008112324-02	OBS	7867.01	0.575923	131.917244	39754.3	1.500	1101.1	-1.0	0.68	5461	13.67	2681.91

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
008112324-01	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_ZUMA_TRACKER—LPP_DV—ALL_TRANS_CHASES—MOD_TER_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—INCONSISTENT_TRANS
008112324-02	OBS	FP	0.00	0	1	0	0	SWEET_EB—CENT_NOFITS

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

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

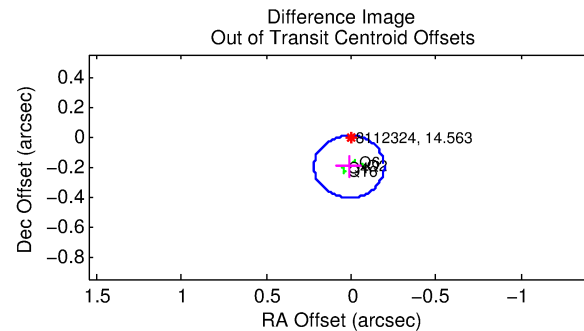
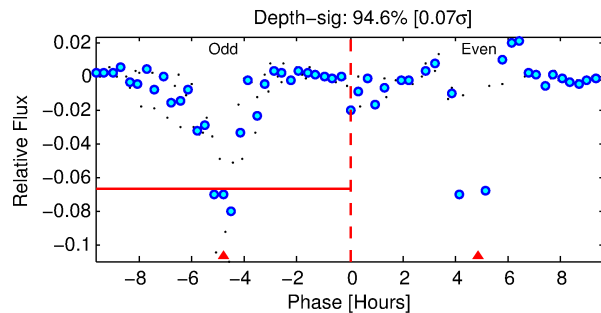
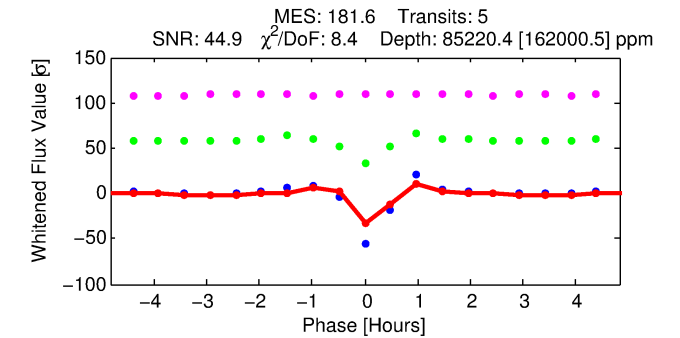
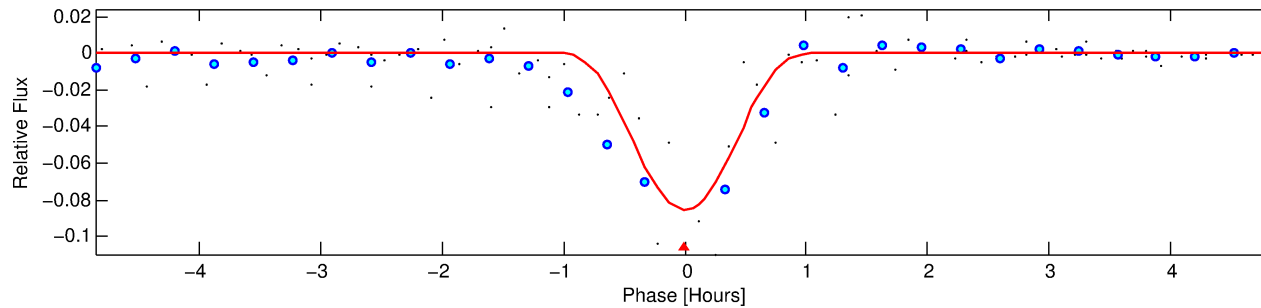
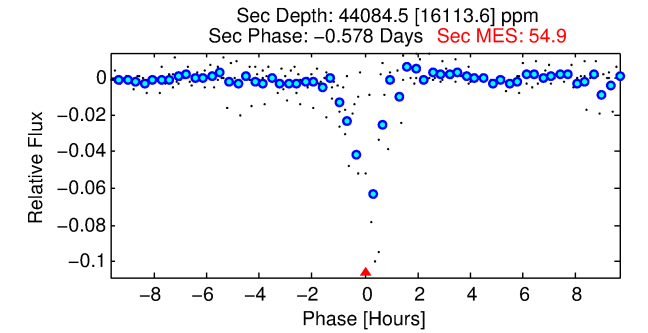
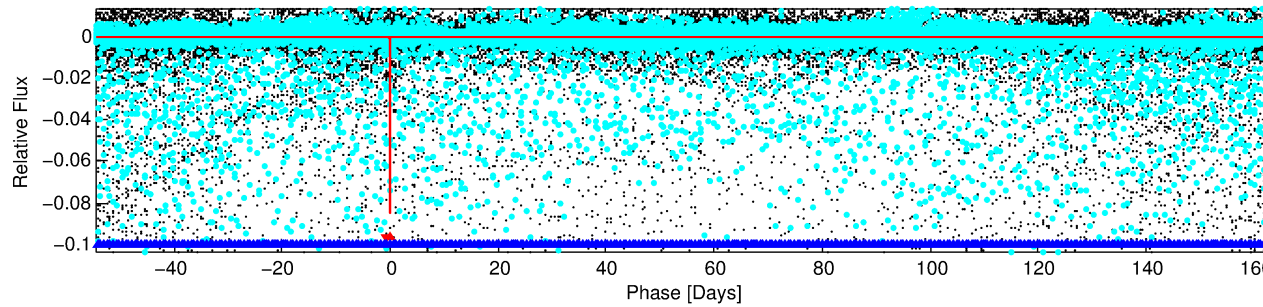
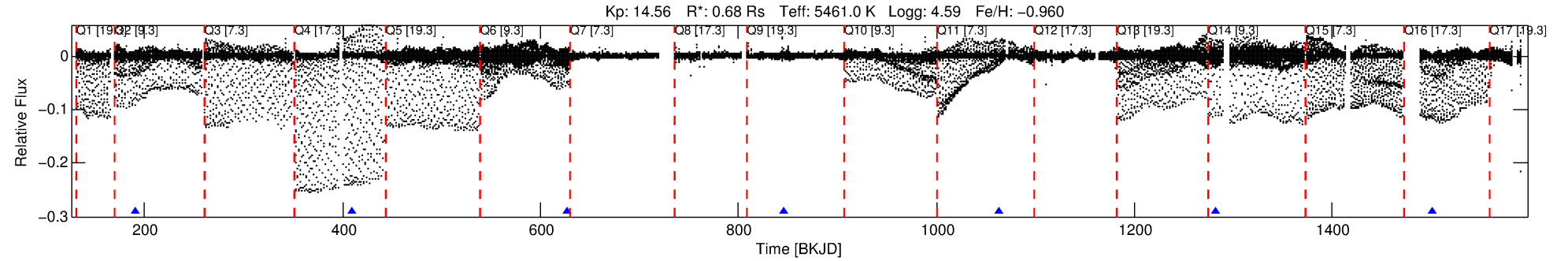
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 008112324-01

No Significant Match Found

DV One-Page Summary

KIC: 8112324 Candidate: 1 of 2 Period: 218.277 d



DV Fit Results:

Period = 218.27667 [0.00049] d
Epoch = 190.6648 [0.0016] BKJD
Rp/R* = 0.4640 [25.9803]
a/R* = 1107.92 [3711.20]
b = 0.99 [34.57]
Seff = 0.98 [0.19]
Teq = 254 [13] K
Rp = 34.58 [1936.34] Re
a = 0.6166 [0.0614] AU
Ag = 7710.44 [863512.51] [0.01σ]
Teffp = 3674 [102856] K [0.03σ]

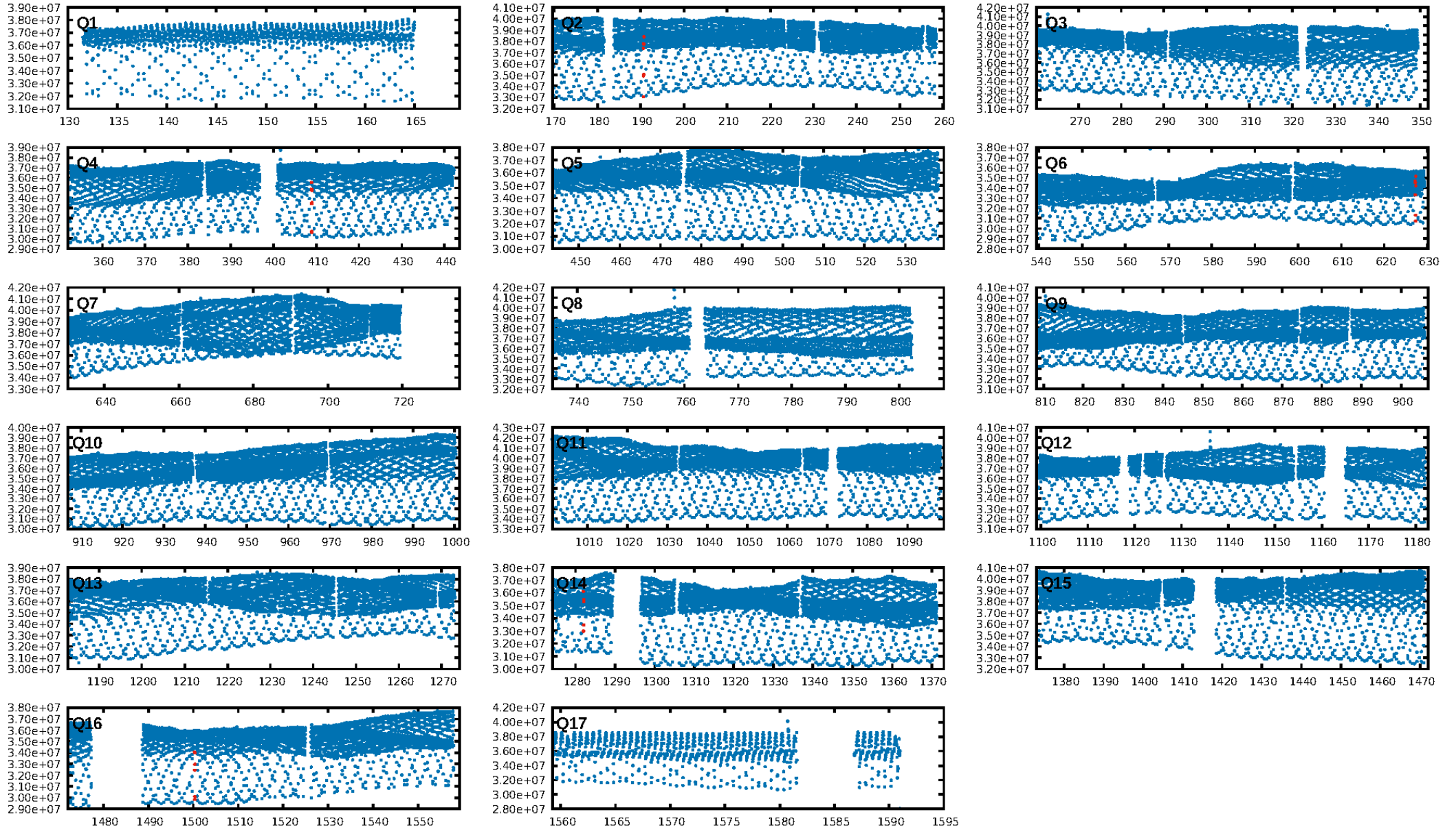
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [2369.42σ]
LongPeriod-sig: N/A
ModelChiSquare2-sig: 0.0%
ModelChiSquareGoF-sig: 0.0%
Bootstrap-pfa: N/A
RollingBand-fgt: 1.00 [5/5]
GhostDiagnostic-chr: 1.374
Centroid-sig: 0.0%
Centroid-so: 0.057 arcsec [3.05σ]
OotOffset-rm: 0.200 arcsec [2.90σ]
KicOffset-rm: 0.162 arcsec [2.31σ]
OotOffset-st: 2/0/2/0 [4]
KicOffset-st: 2/0/2/0 [4]
DiffImageQuality-fgm: 1.00 [4/4]
DiffImageOverlap-fno: 0.00 [0/4]

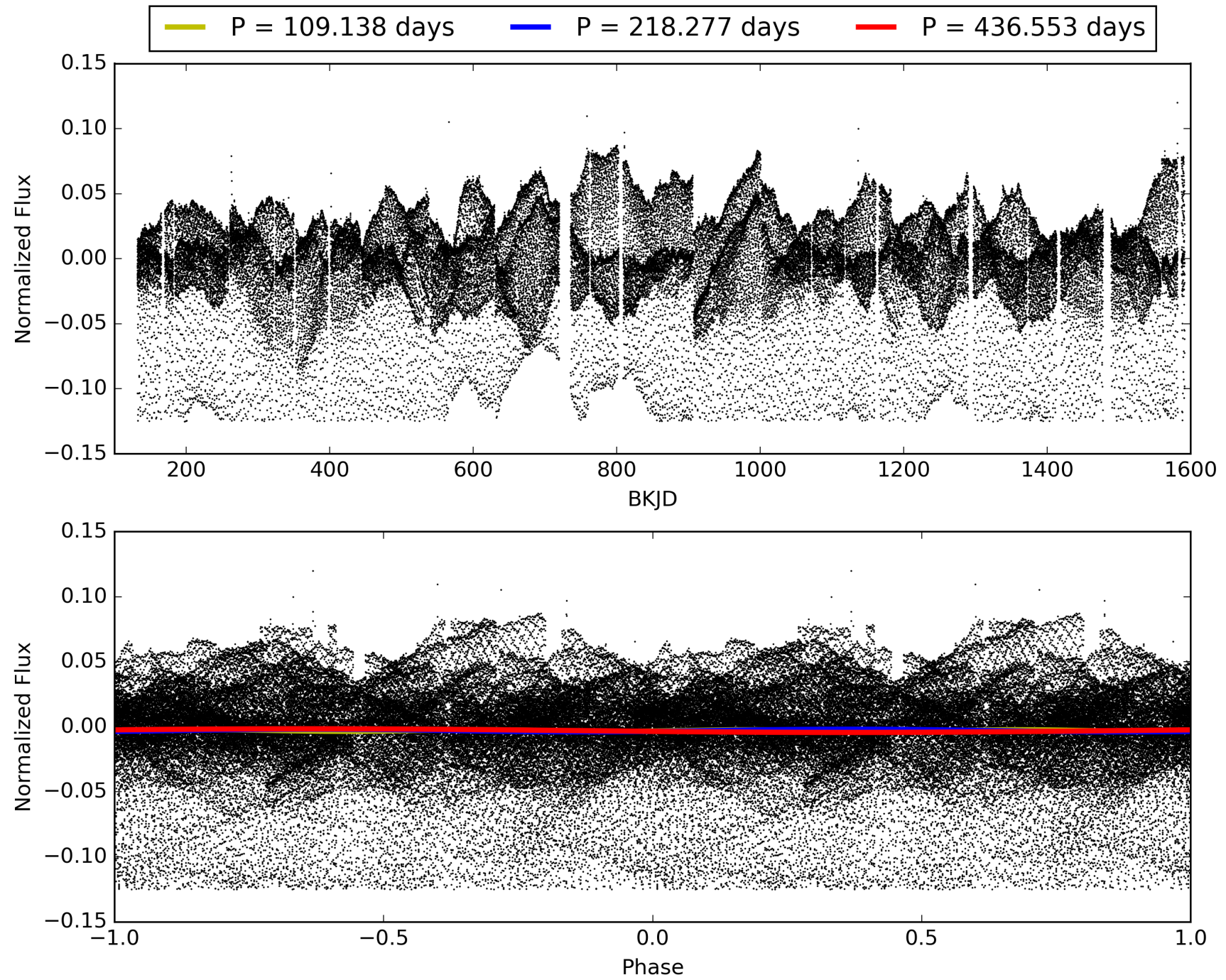
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 01-Feb-2016 00:34:57 Z

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

TCE 008112324-01, PDC Light Curves

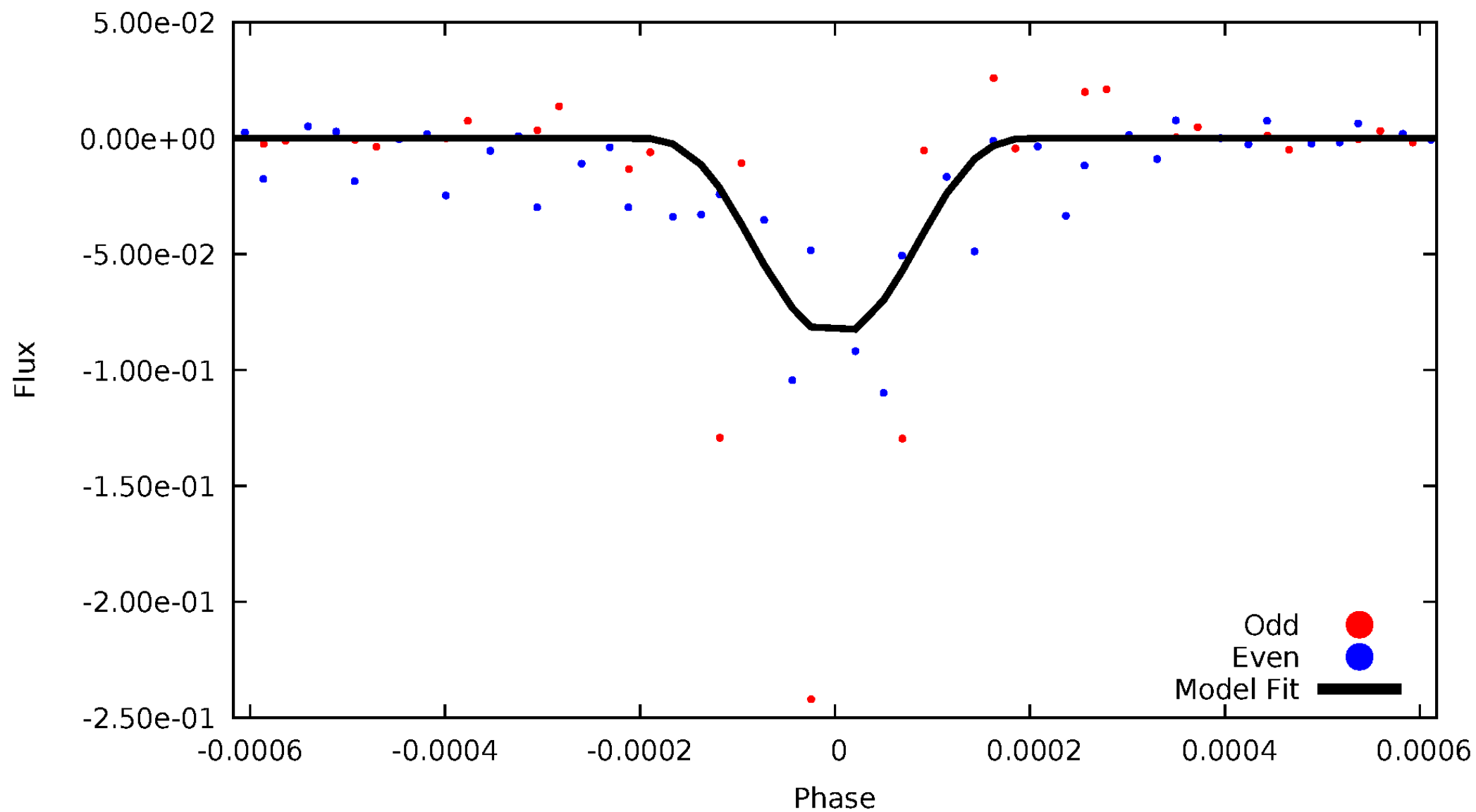


TCE 008112324-01



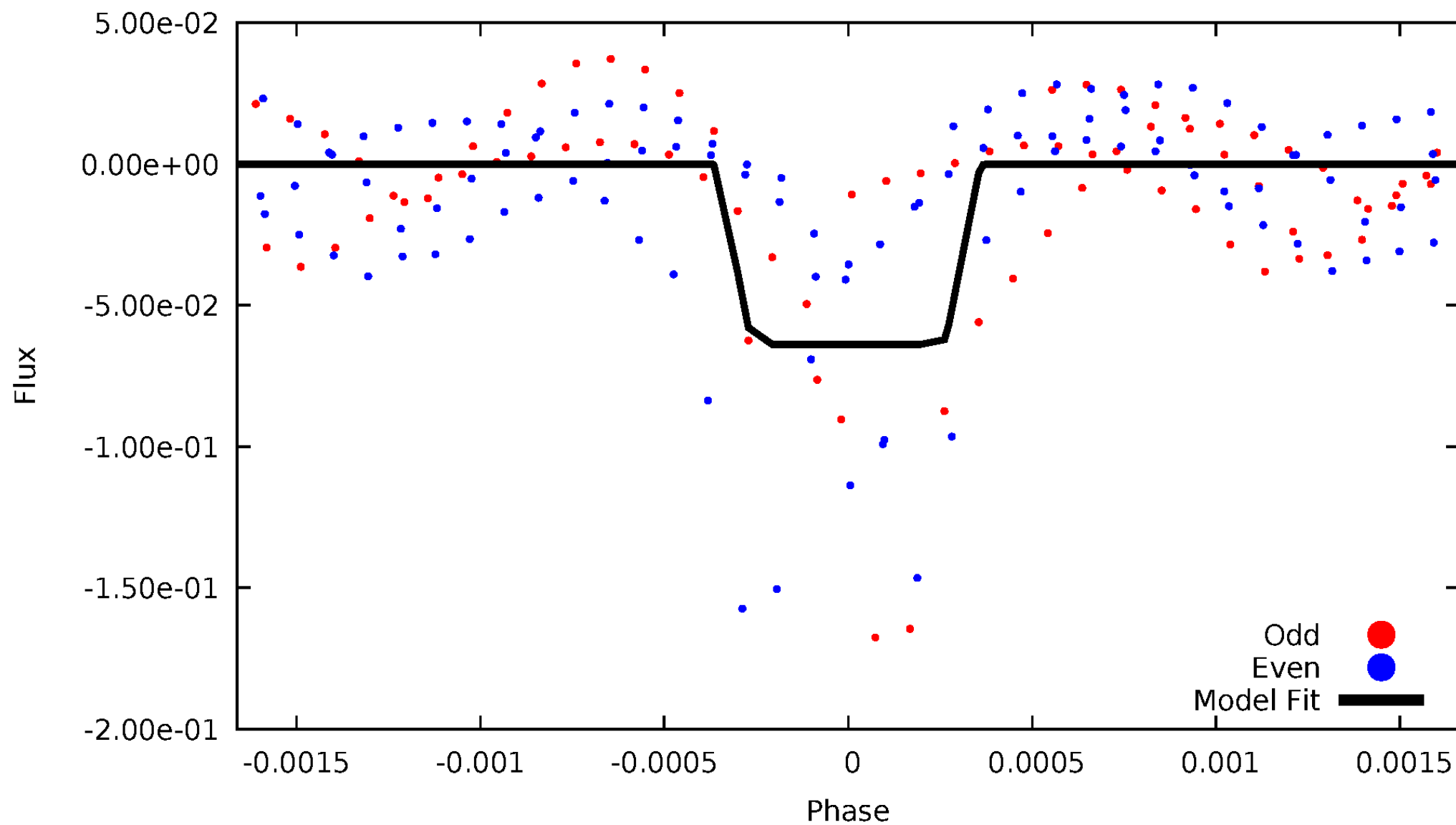
DV Odd/Even

TCE 008112324-01



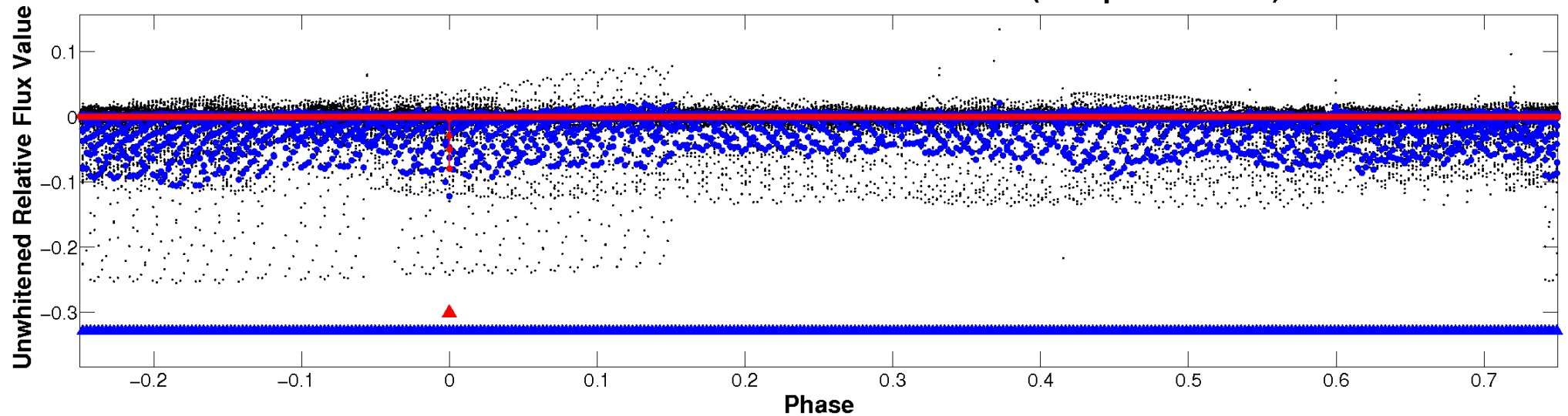
ALT Odd/Even

TCE 008112324-01

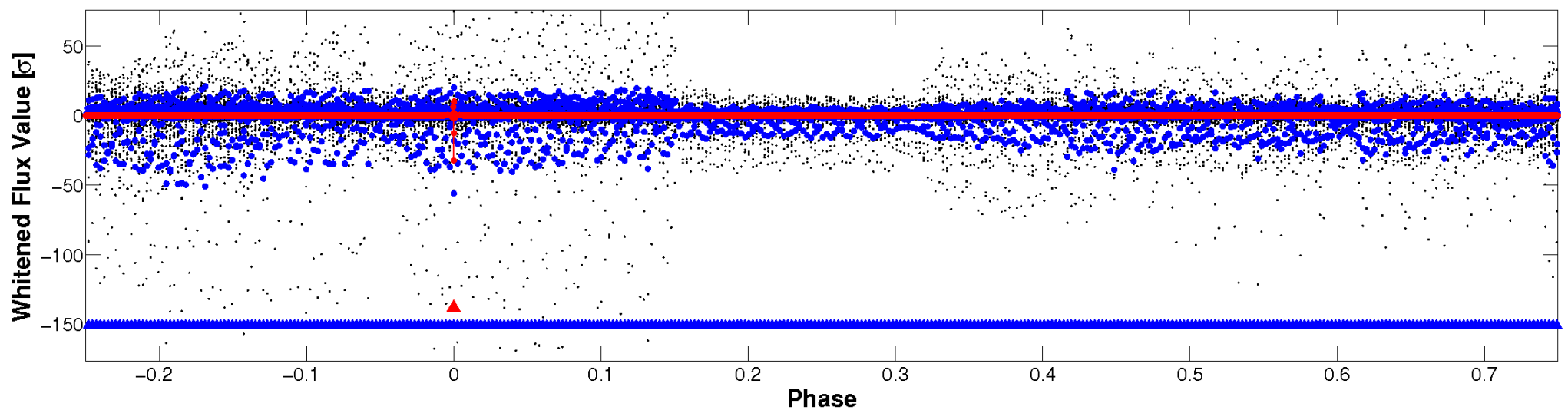


Non-Whitened Vs. Whitened Light Curve

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

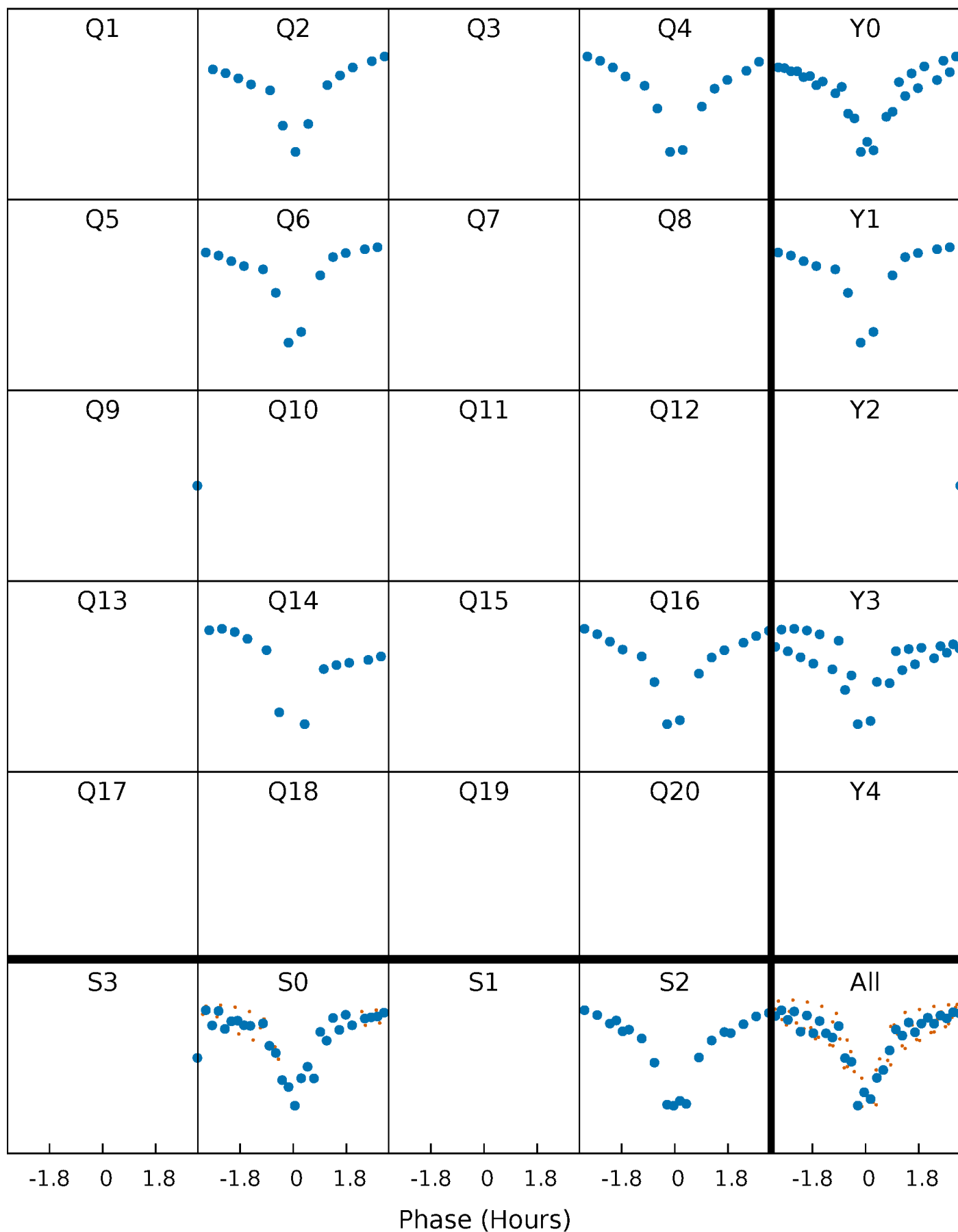


Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)



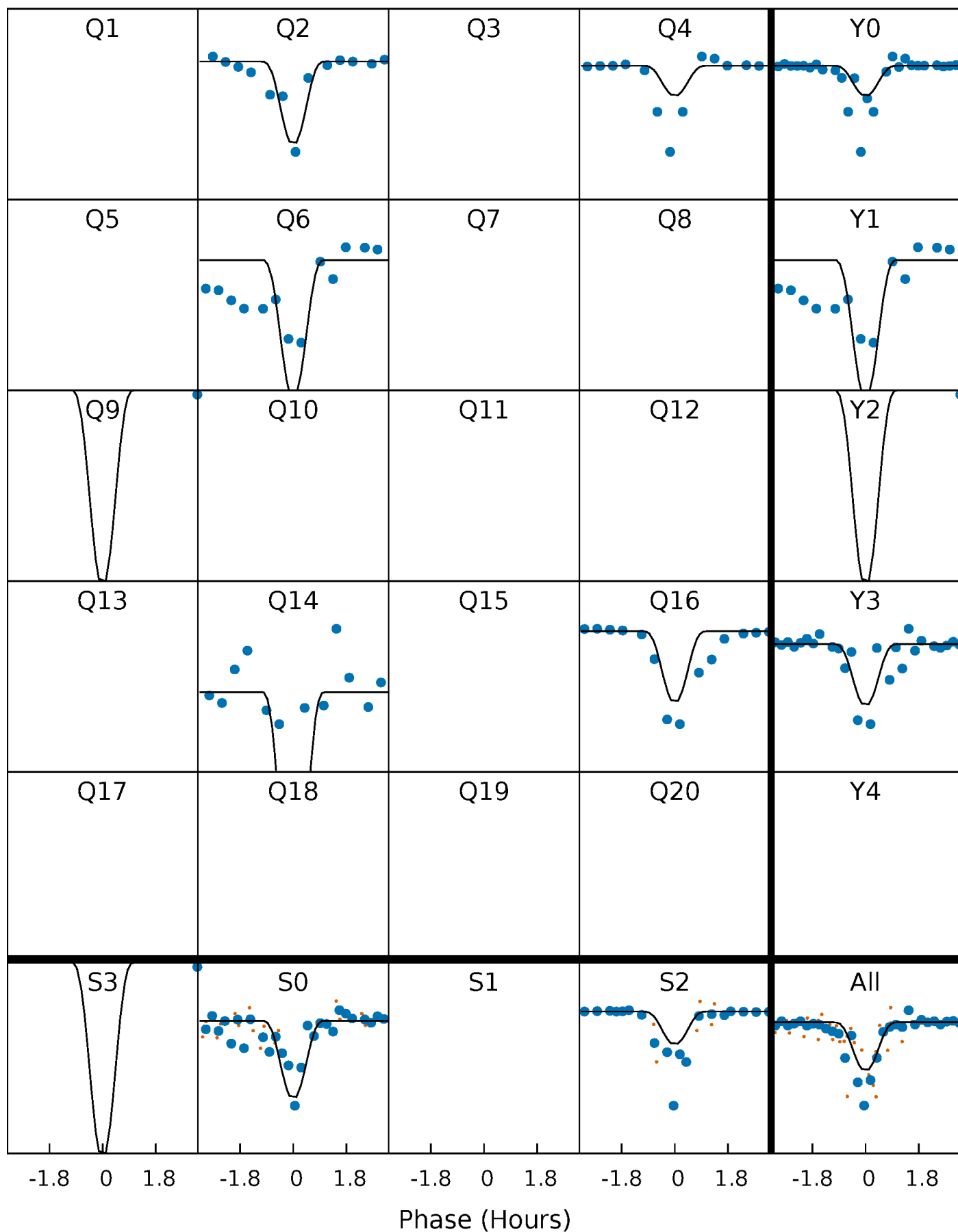
PDC Quarter-Phased Transit Curves

TCE 008112324-01 P=218.276665 Days $T_0=190.664754$ (BKJD)



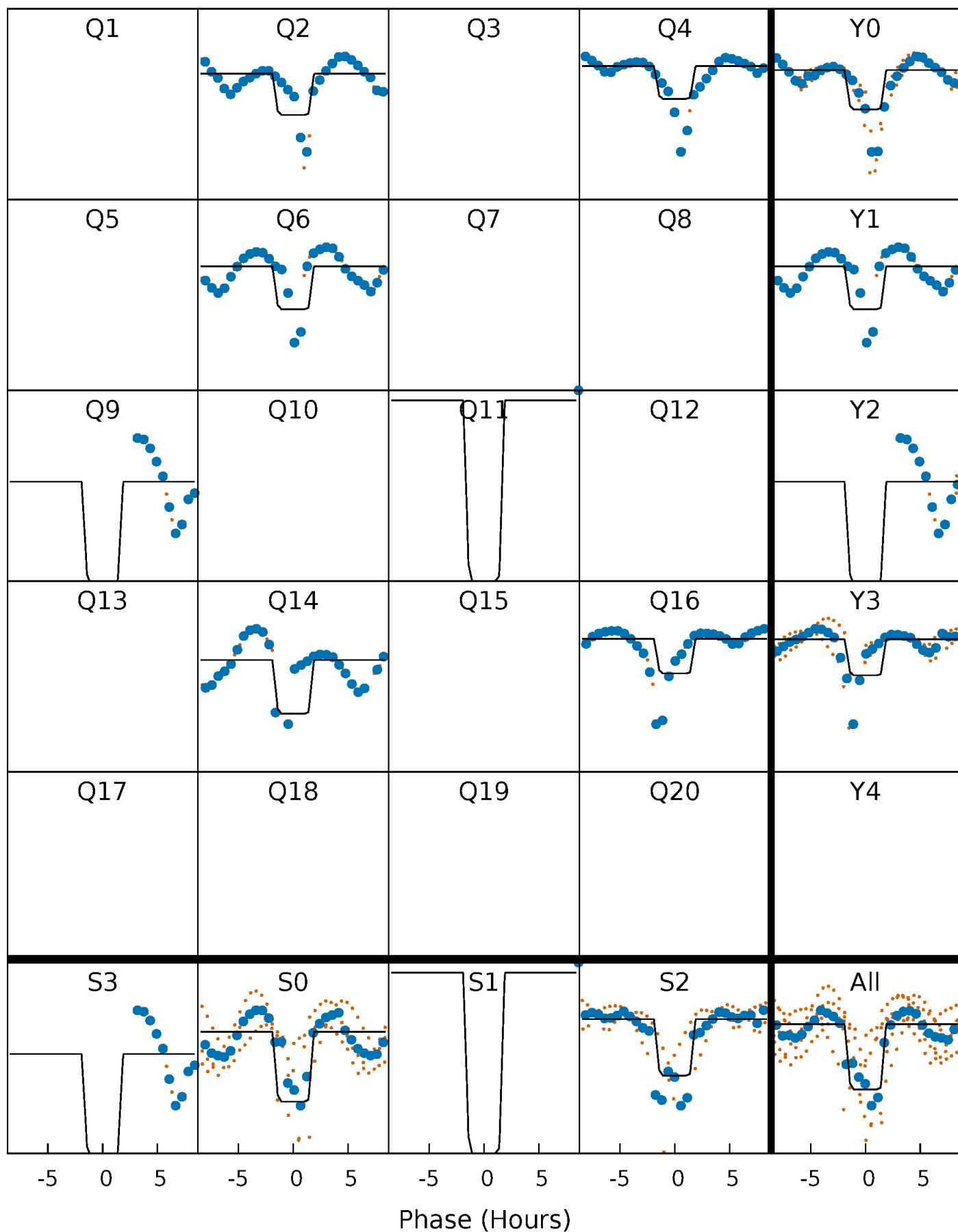
DV Quarter-Phased Transit Curves

TCE 008112324-01 P=218.276665 Days $T_0=190.664754$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

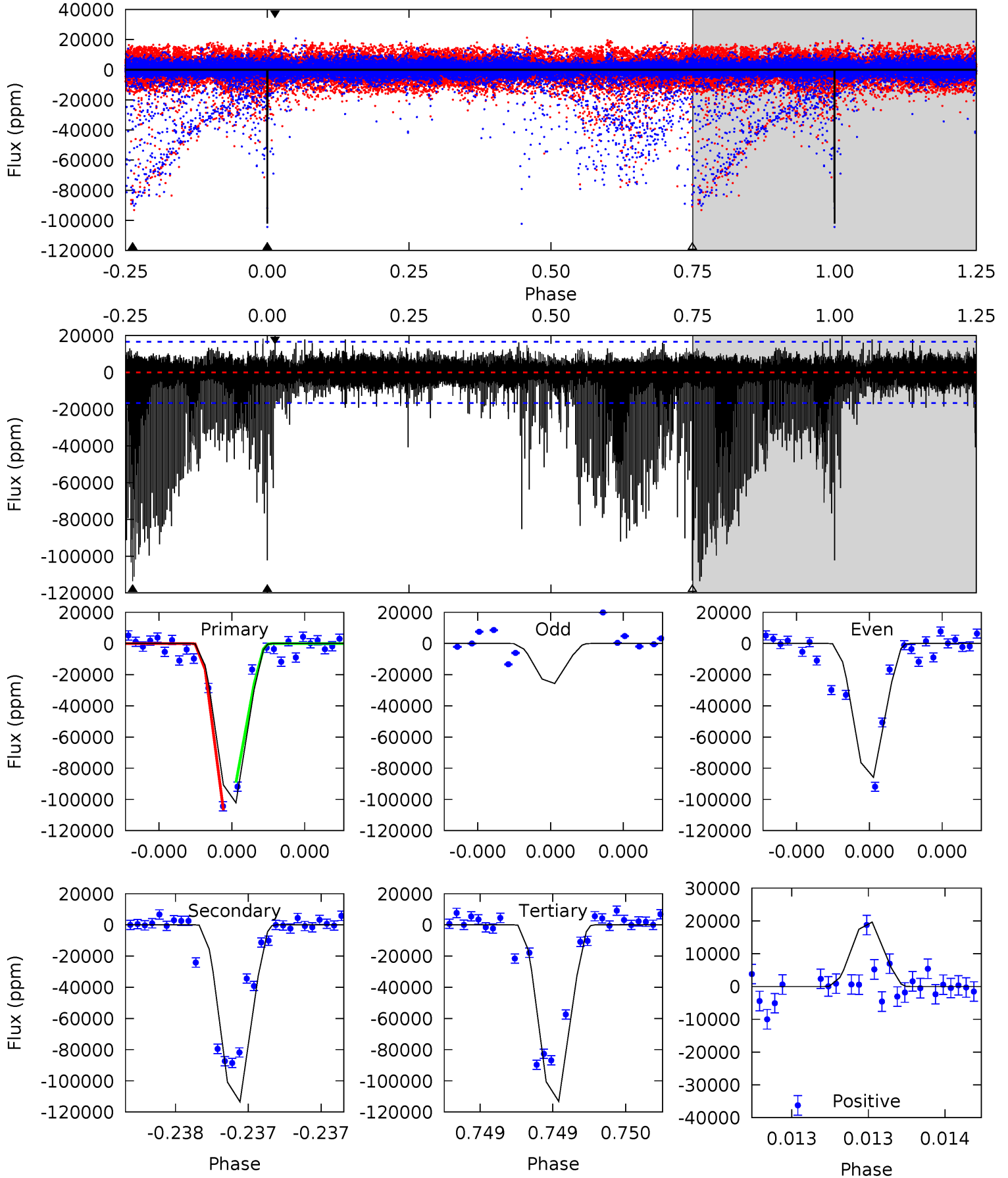
TCE 008112324-01 P=218.291624 Days $T_0=190.628347$ (BKJD)



DV Model-Shift Uniqueness Test

008112324-01, P = 218.276665 Days, E = 190.664754 Days

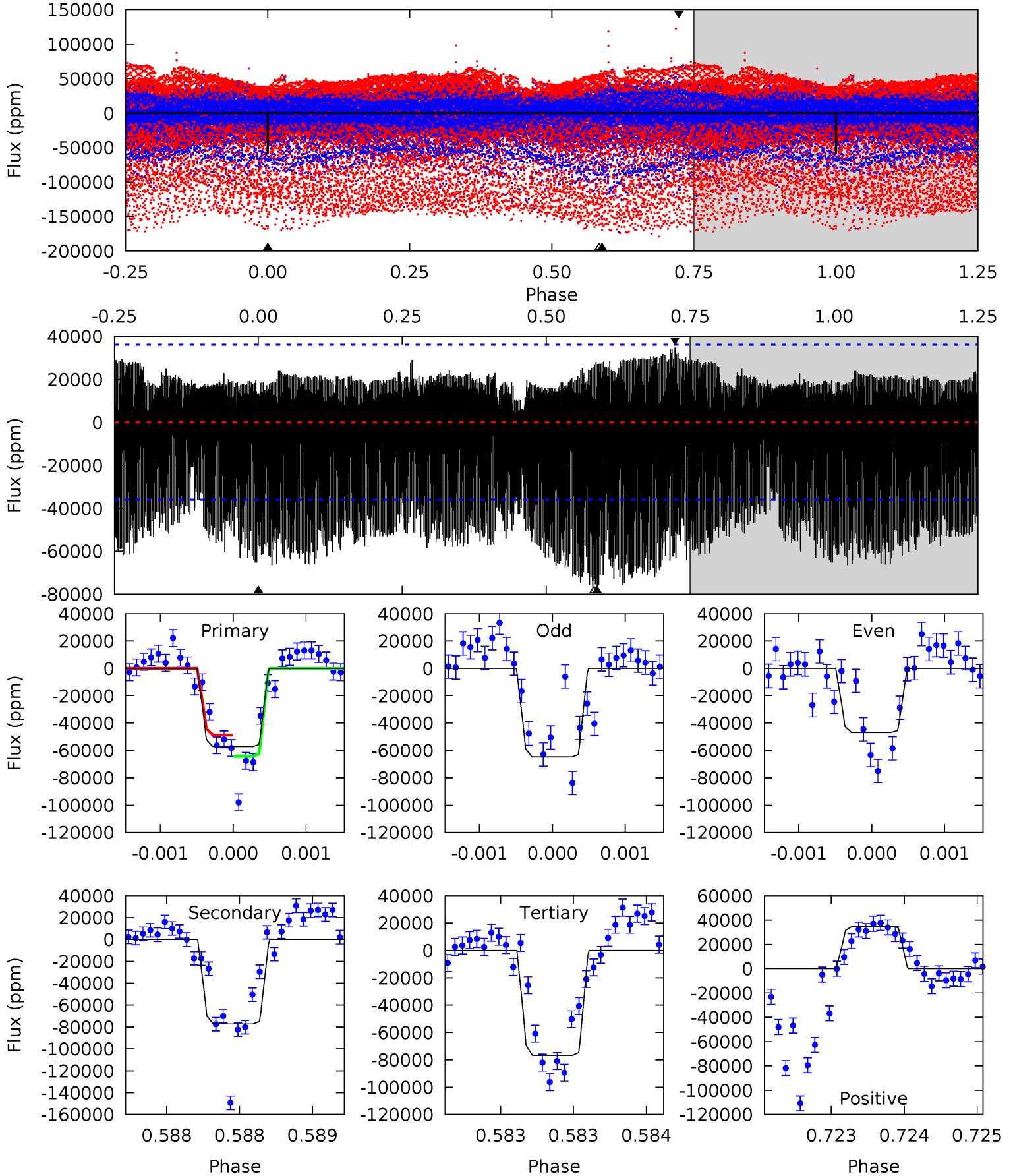
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
34.4	38.2	38.1	6.62	5.62	3.56	2.54	-3.71	27.8	0.11	31.6	7.80	1.31	0.15	0



Alt Model-Shift Uniqueness Test

008112324-01, P = 218.291624 Days, E = 190.628347 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
8.74	11.8	11.7	5.29	5.50	3.37	3.38	-2.99	3.44	0.05	6.48	1.33	0.93	0.31	1.19



Stellar Parameters For KIC 008112324

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (g \cdot \text{cm}^{-3})$
	5461^{+181}_{-164}	$4.586^{+0.082}_{-0.067}$	$-0.960^{+0.300}_{-0.300}$	$0.683^{+0.079}_{-0.057}$	$0.656^{+0.073}_{-0.024}$	$2.903^{+0.889}_{-0.682}$
	+3%/-3%	+2%/-1%	+31%/-31%	+12%/-8%	+11%/-4%	+31%/-23%
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 008112324-01 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	-113499 ± 2968	$1315.80^{+1413.76}_{-933.08}$	353^{+15}_{-13}	1803^{+553}_{-228}	16^{+171}_{-12}
Alt.	-77171 ± 6553	$1396.10^{+1300.68}_{-970.32}$	353^{+14}_{-14}	1722^{+450}_{-199}	$9.279^{+86.627}_{-6.815}$

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 $A_{obs} \gg 1.0$

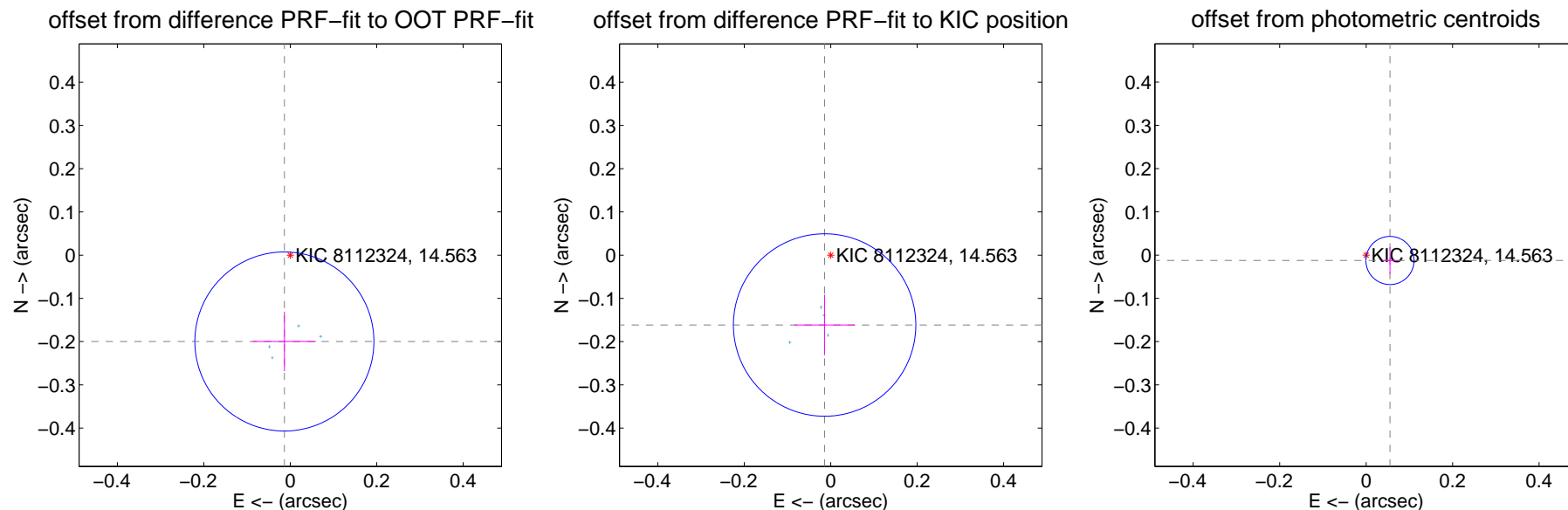
DV Centroid Data

Supplemental centroid analysis for 008112324-01. Kepler magnitude: 14.56. Transit SNR 44.90

There are 4 quarters with good PRF difference image offsets

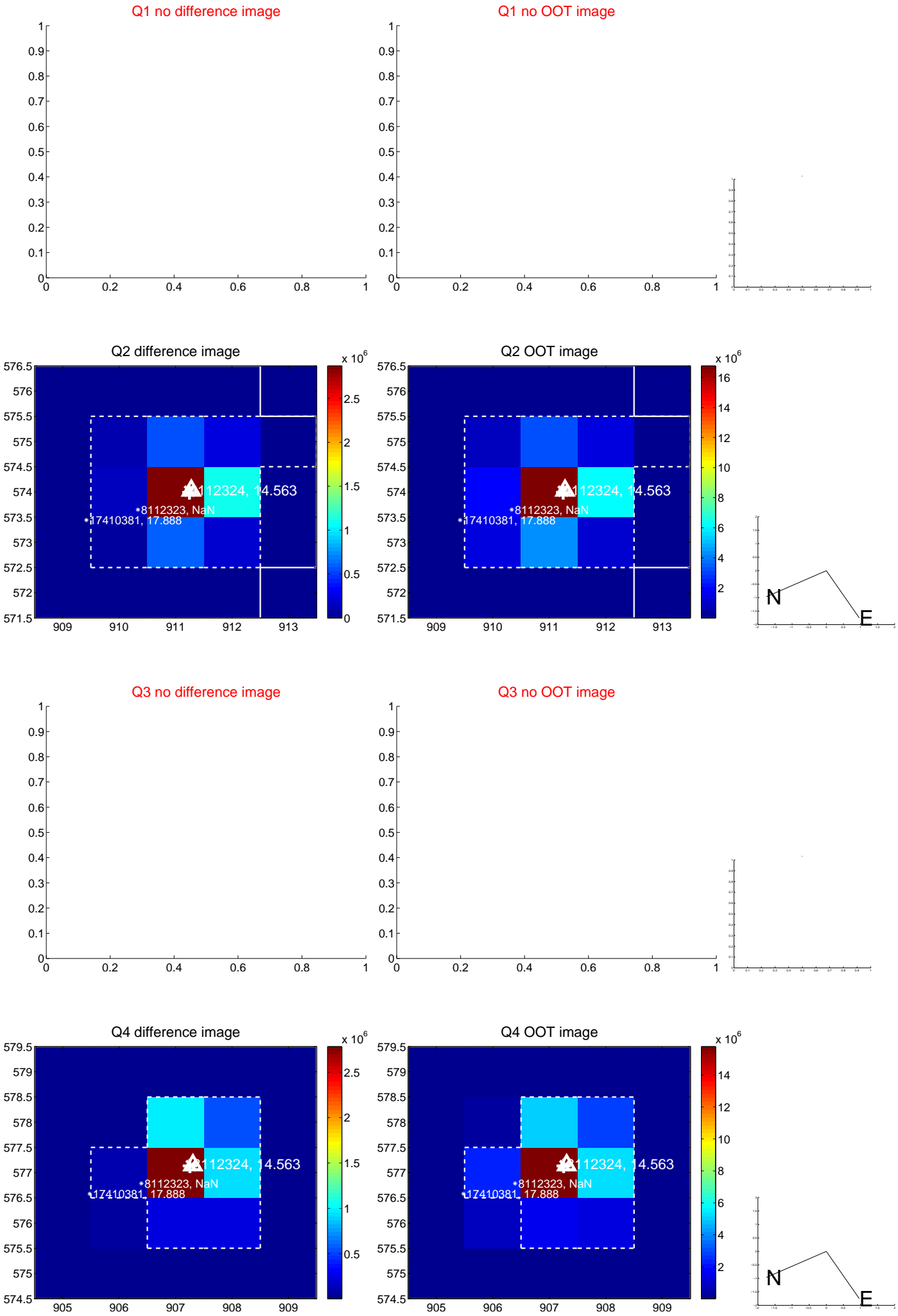
The direct PRF centroid is offset from the target star catalog position by about 0.06 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.200 ± 0.069	2.90	0.014 ± 0.073	-0.200 ± 0.069
PRF-fit source offset from KIC position	0.162 ± 0.070	2.31	0.014 ± 0.070	-0.162 ± 0.070
photometric centroid source offset	0.06 ± 0.02	3.05	-0.06 ± 0.02	-0.01 ± 0.03



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.

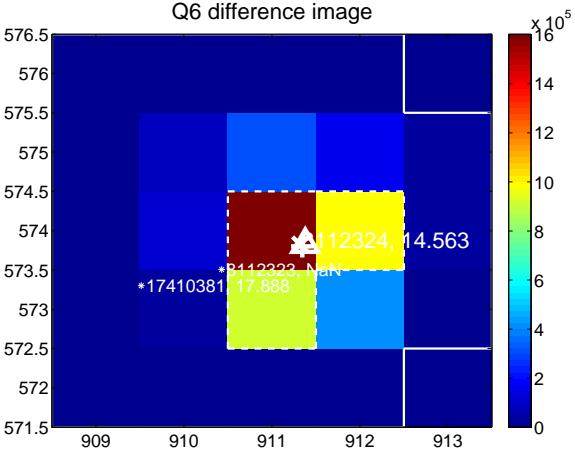
Q5 no difference image



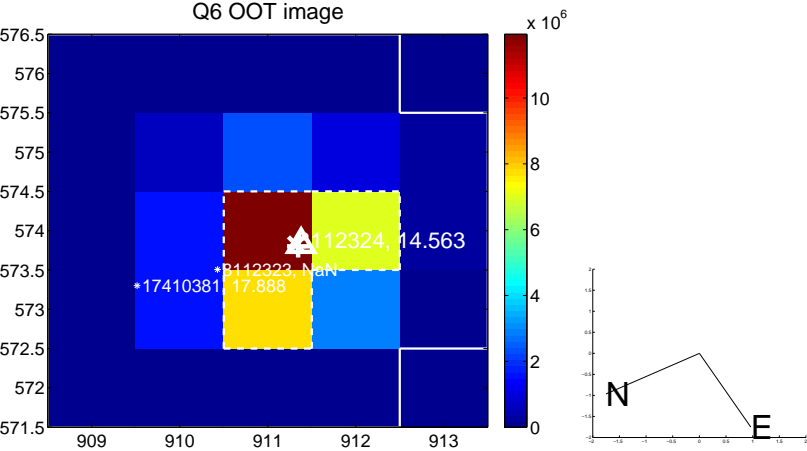
Q5 no OOT image



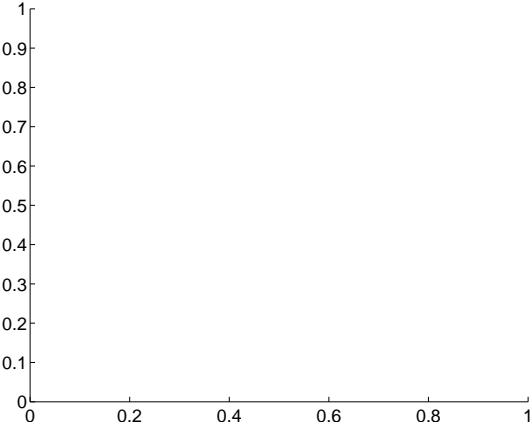
Q6 difference image



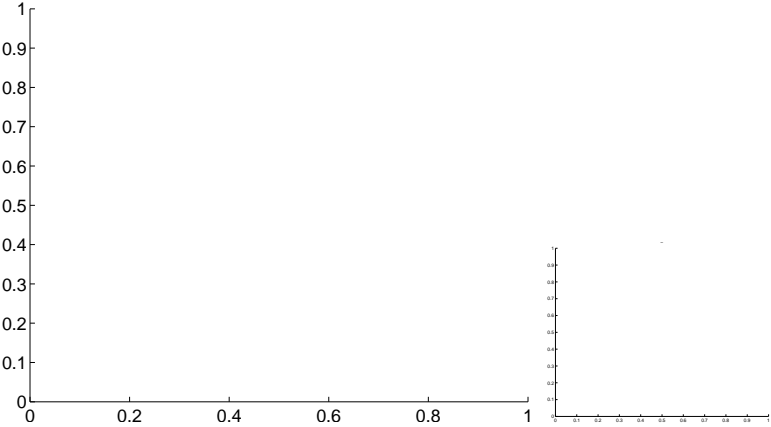
Q6 OOT image



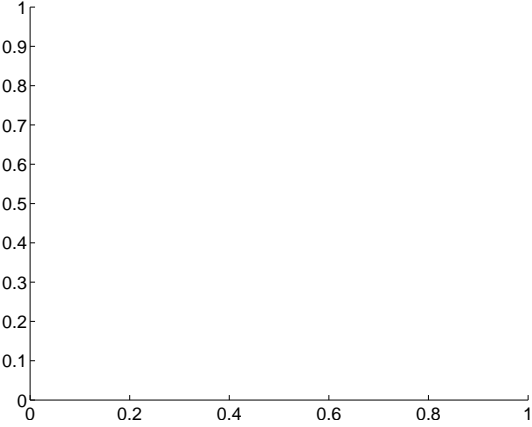
Q7 no difference image



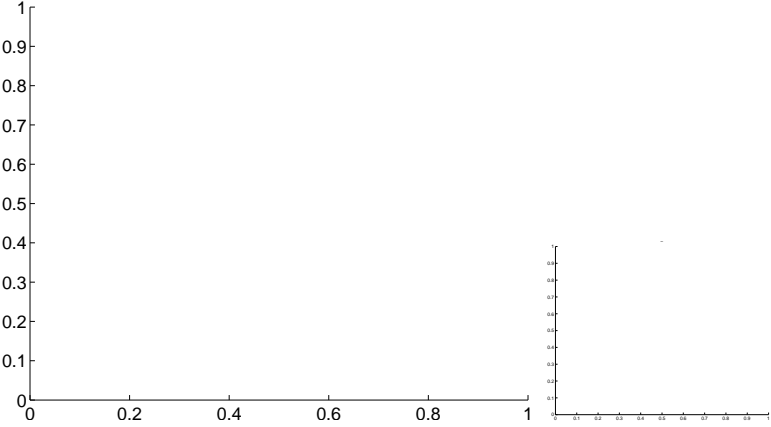
Q7 no OOT image



Q8 no difference image



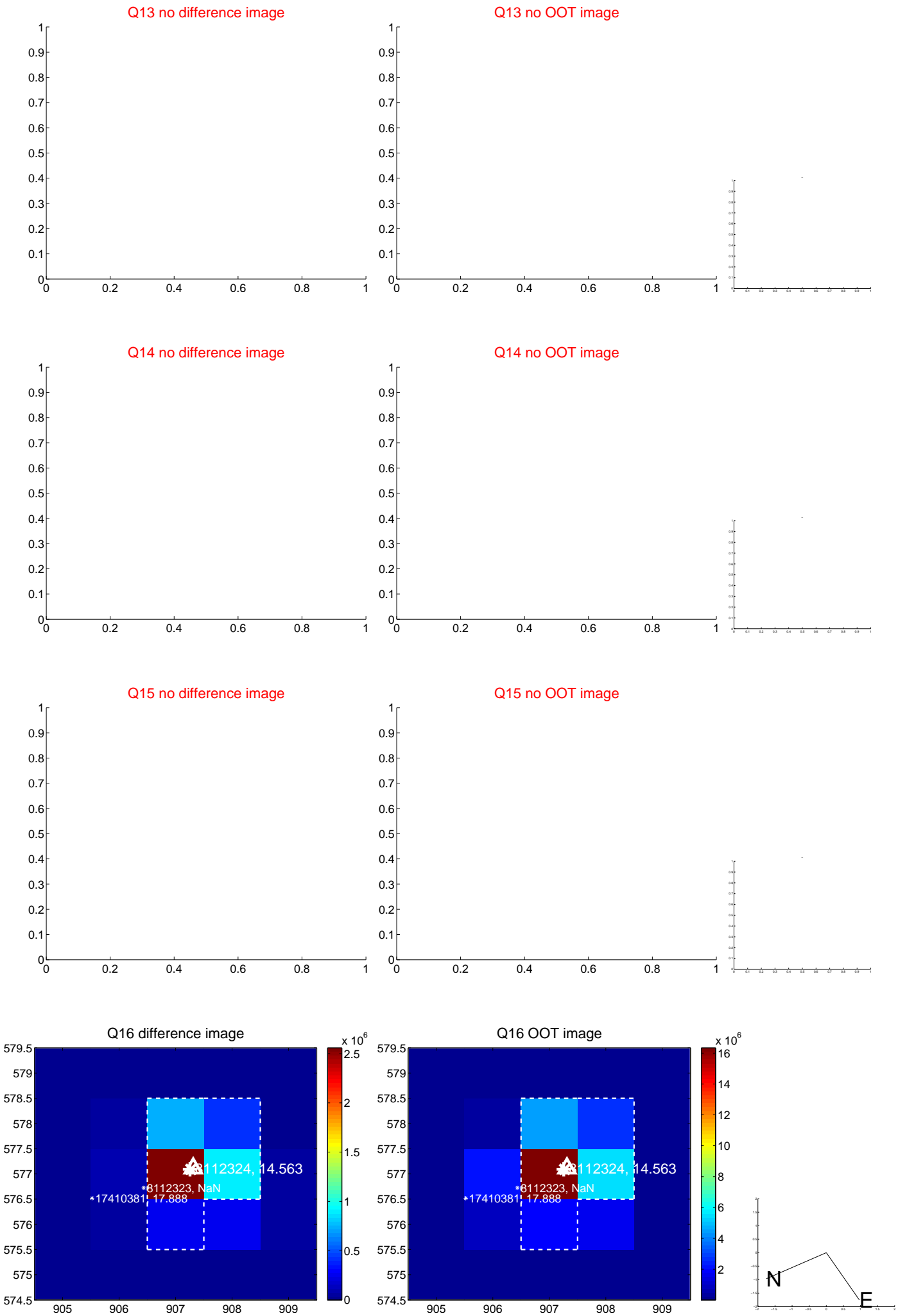
Q8 no OOT image



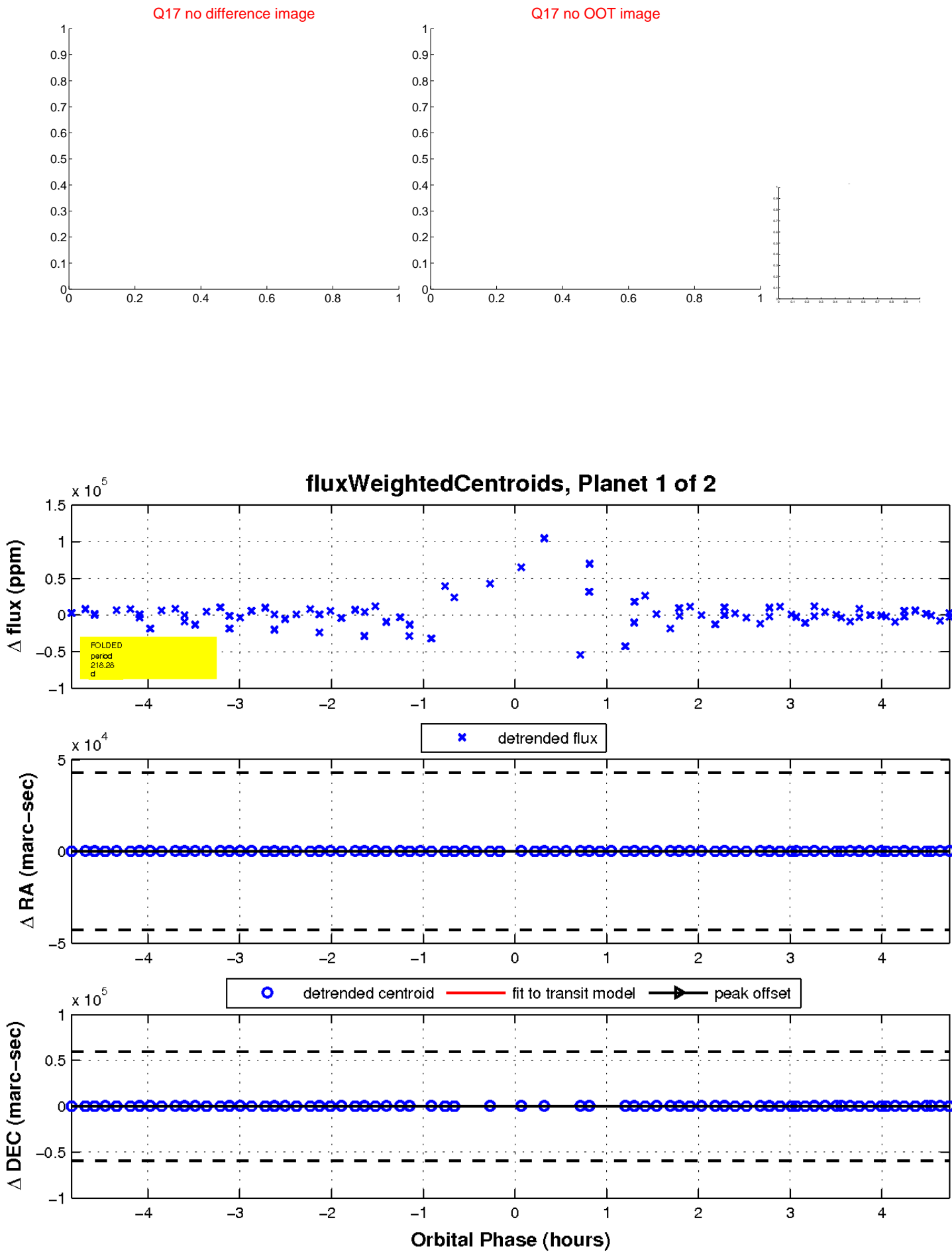
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



white ×: KIC target position; +: OOT centroid; △: difference centroid. red ✕: large negative pixel value.

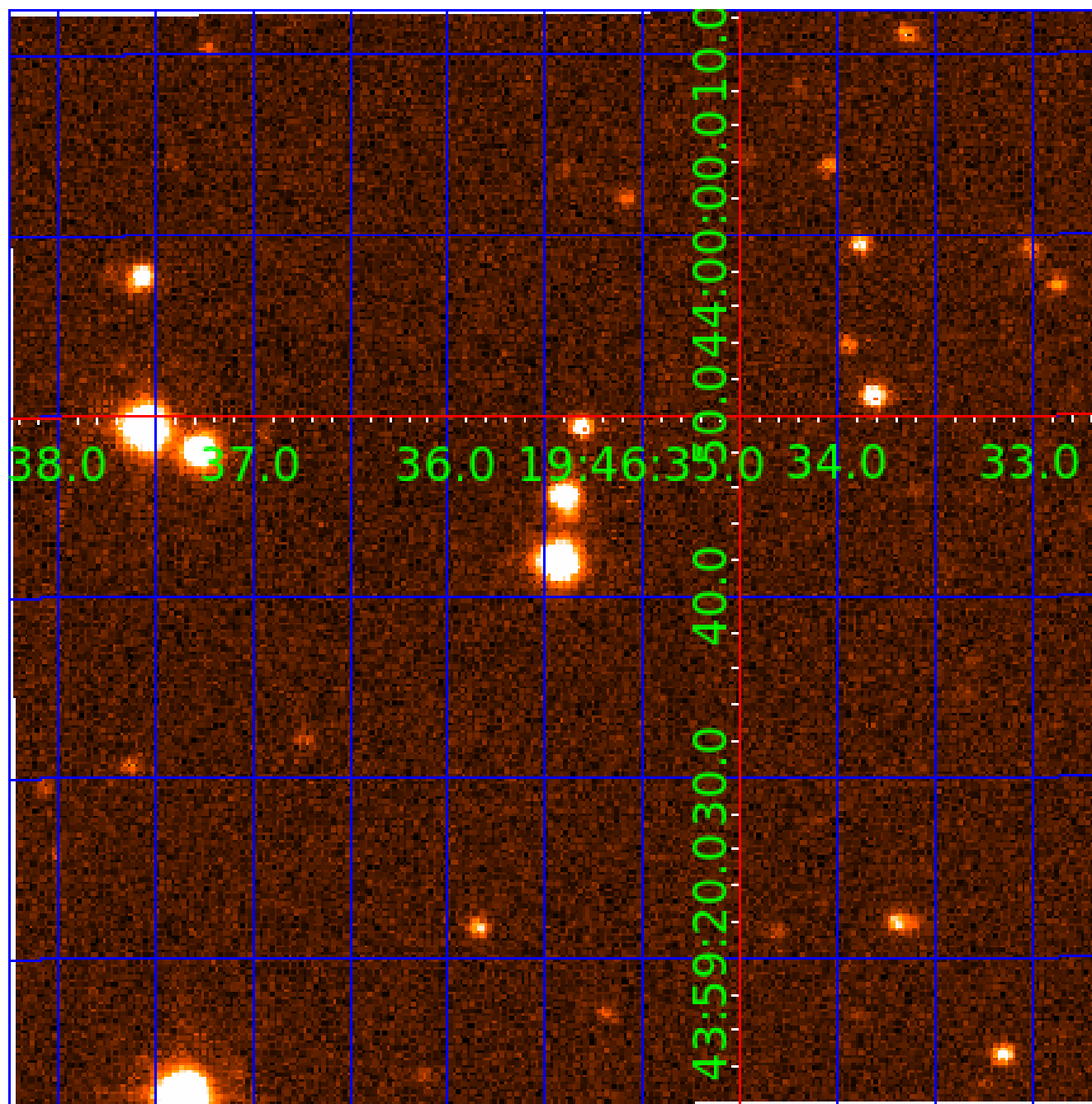


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 008112324

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})
008112324-01	OBS	No	218.276665	190.664754	85220.4	1.616	181.6	44.9	0.68	5461	34.58	0.98
008112324-02	OBS	7867.01	0.575923	131.917244	39754.3	1.500	1101.1	-1.0	0.68	5461	13.67	2681.91

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
008112324-01	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_ZUMA_TRACKER—LPP_DV—ALL_TRANS_CHASES—MOD_TER_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—INCONSISTENT_TRANS
008112324-02	OBS	FP	0.00	0	1	0	0	SWEET_EB—CENT_NOFITS

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

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

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

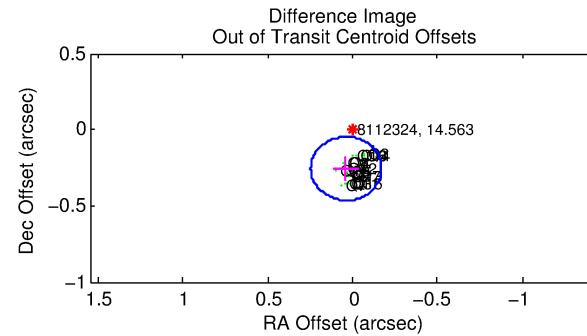
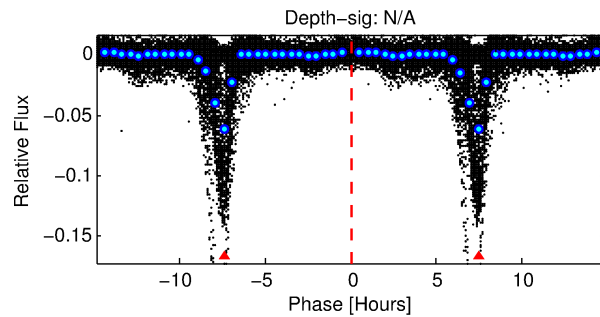
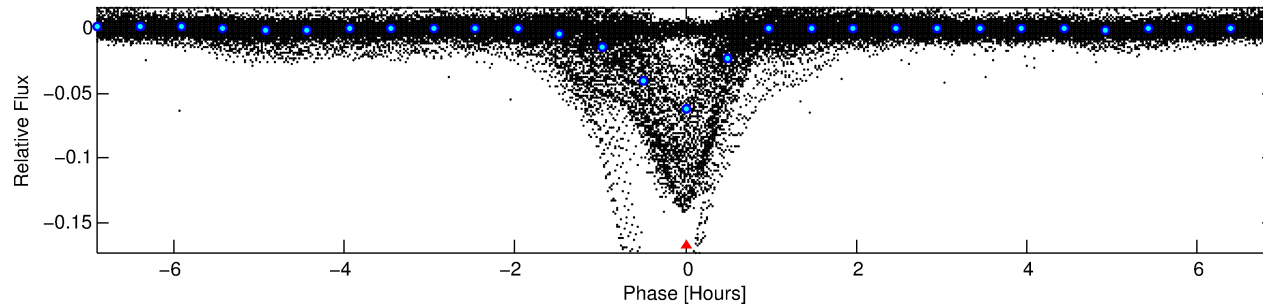
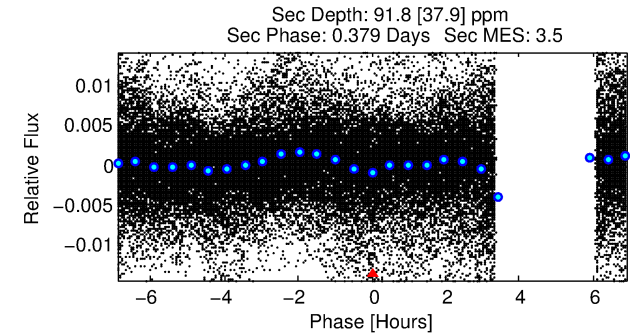
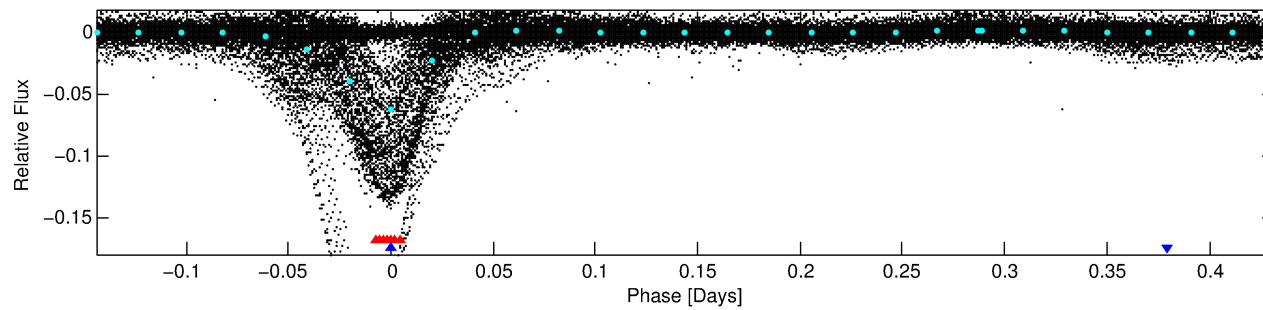
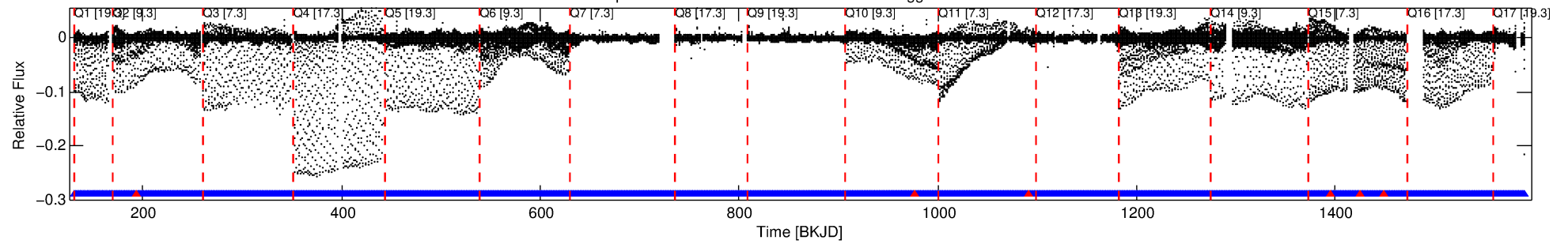
Ephemeris Match Information For 008112324-02

No Significant Match Found

DV One-Page Summary

KIC: 8112324 Candidate: 2 of 2 Period: 0.576 d

Kp: 14.56 R*: 0.68 Rs Teff: 5461.0 K Logg: 4.59 Fe/H: -0.960



TPS TCE Results:

Period = 0.57592 d
Epoch = 131.9172 BKJD

DV fit results are unavailable

DV Diagnostic Results:

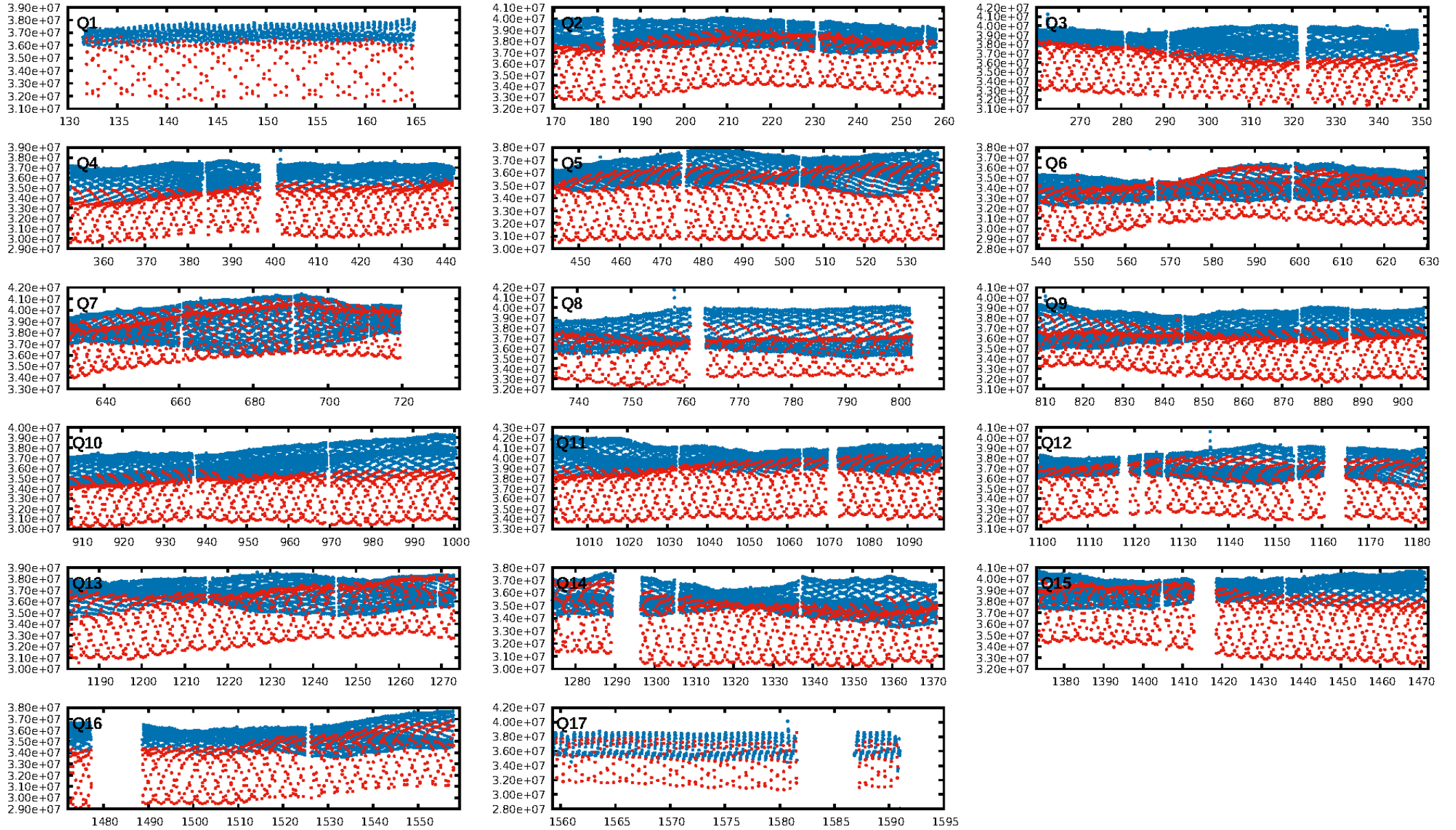
ShortPeriod-sig: N/A
LongPeriod-sig: 100.0% [2369.42σ]
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: N/A
RollingBand-fgt: 1.00 [2211/2218]
GhostDiagnostic-chr: 1.833

Centroid-sig: 0.0%
Centroid-so: 0.099 arcsec [161.58σ]
OotOffset-rm: 0.259 arcsec [3.71σ]
KicOffset-rm: 0.158 arcsec [2.36σ]
OotOffset-st: 4/4/4/5 [17]
KicOffset-st: 4/4/4/5 [17]
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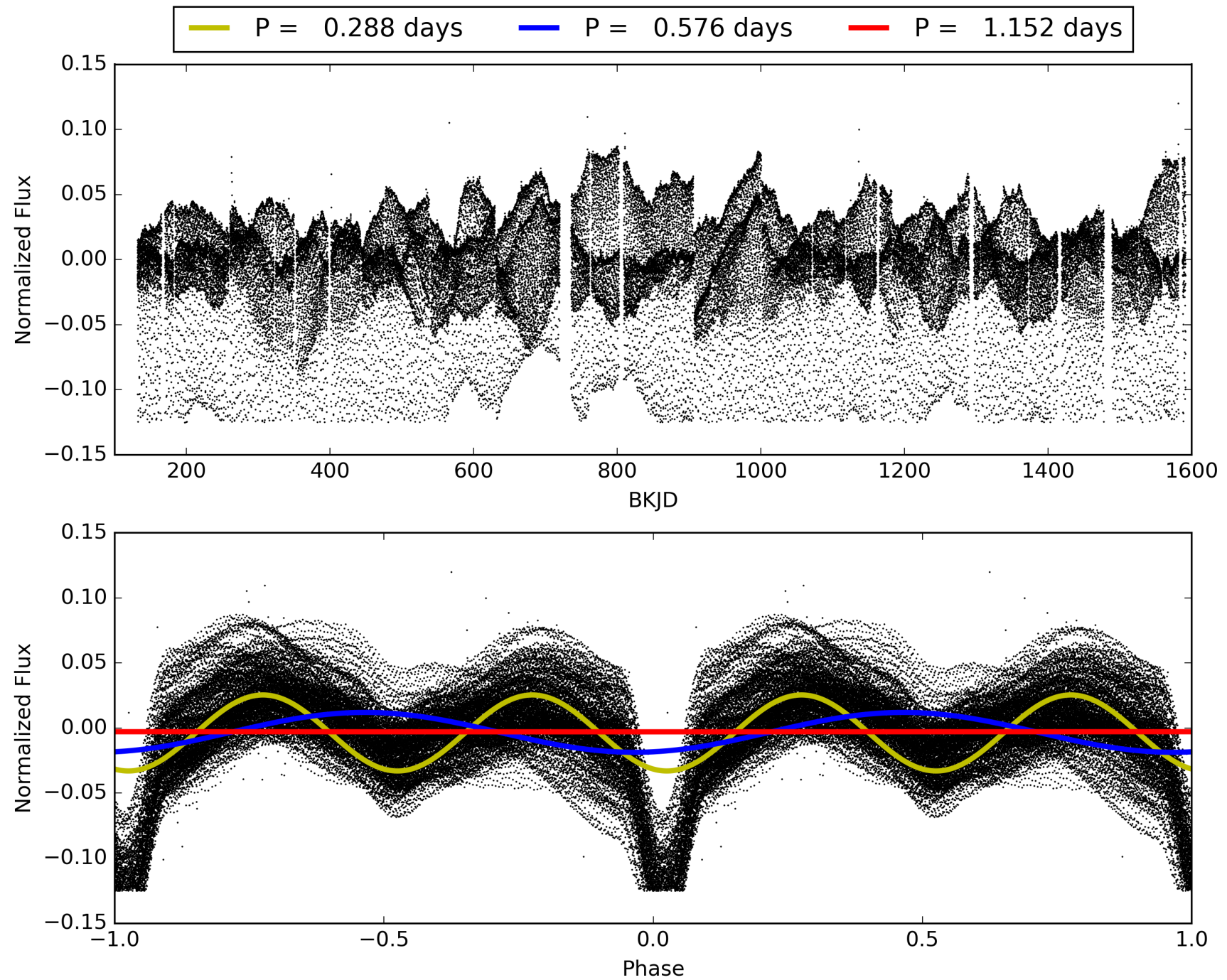
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 01-Feb-2016 00:35:04 Z

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

TCE 008112324-02, PDC Light Curves

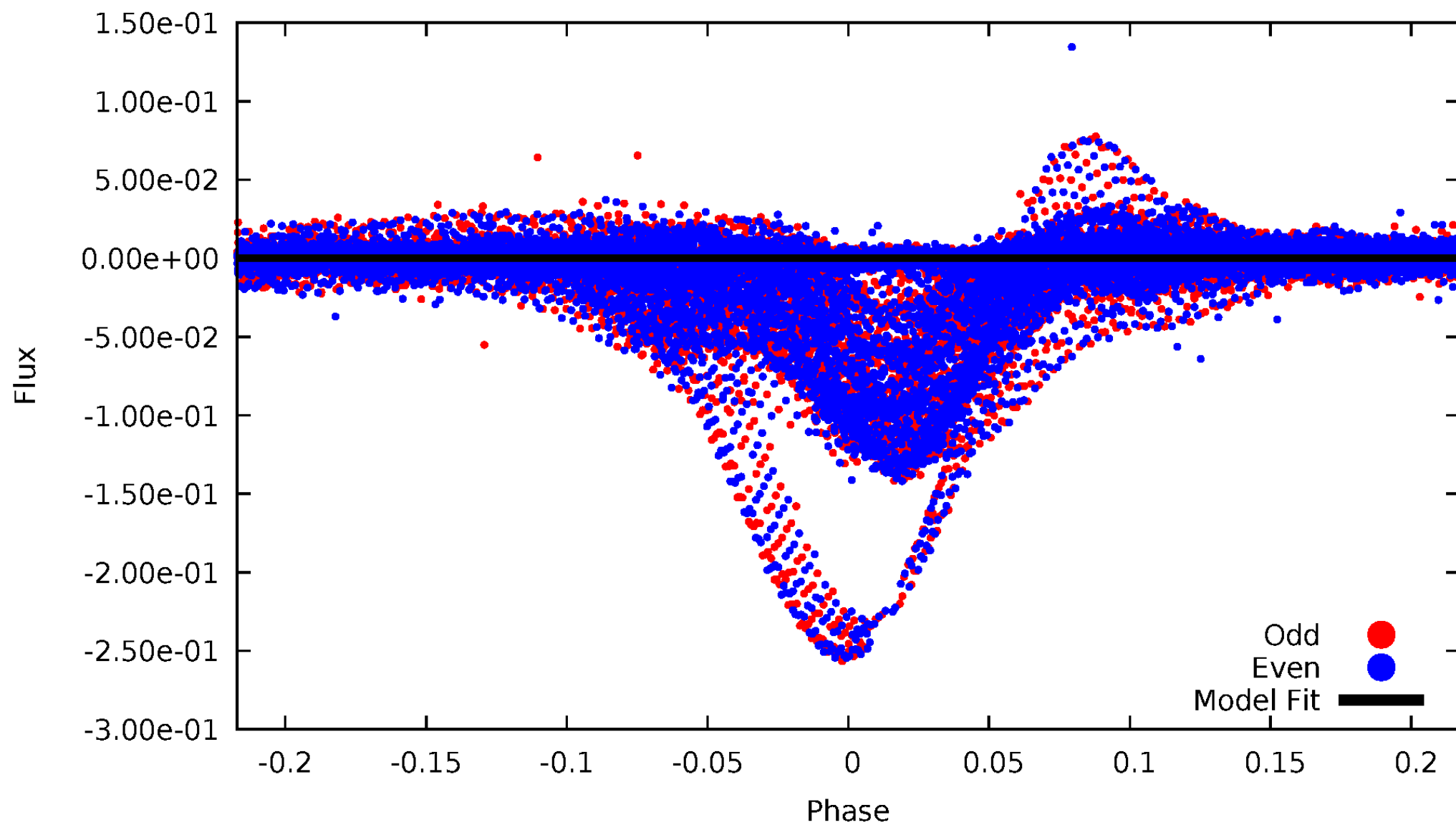


TCE 008112324-02



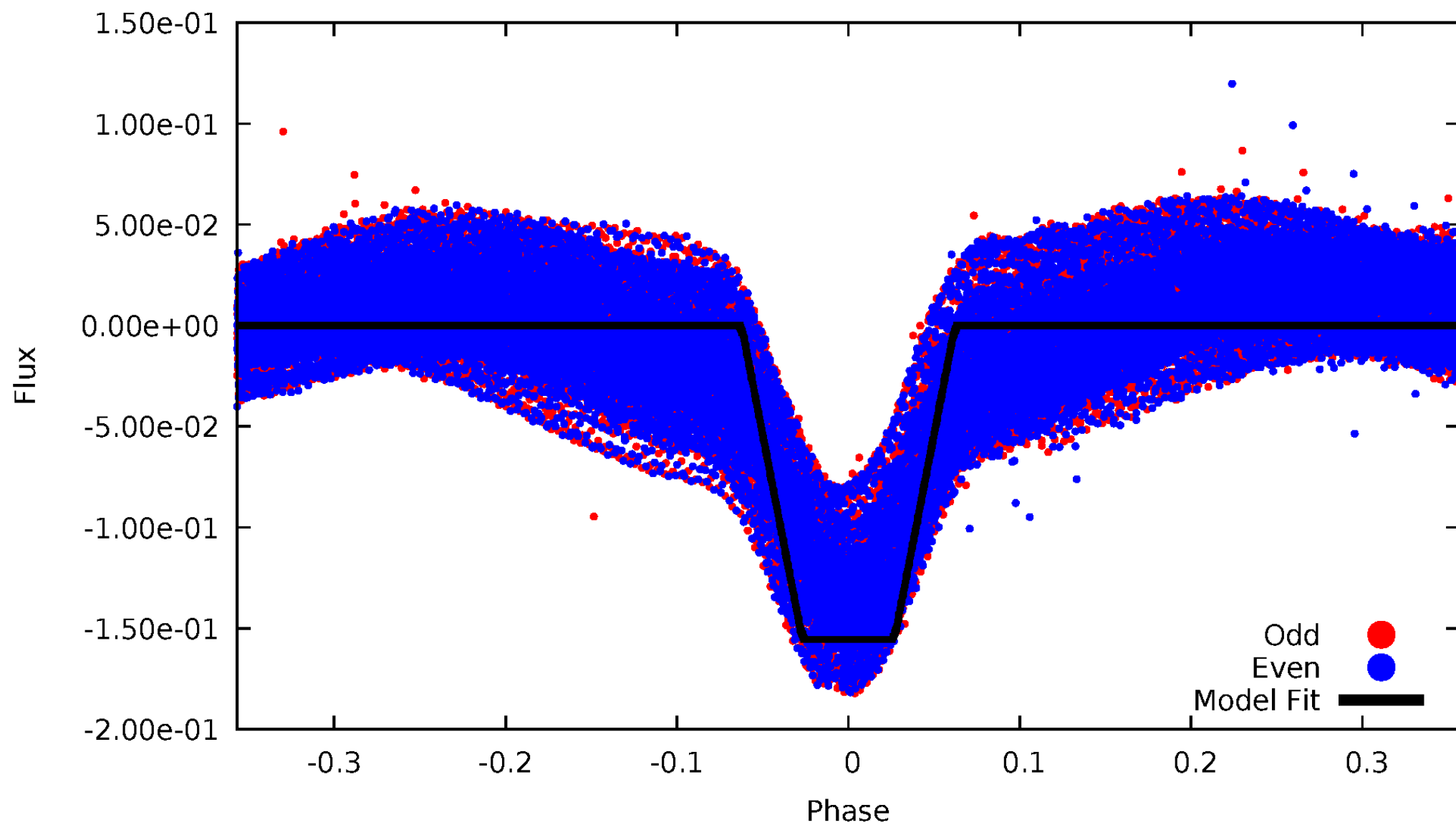
DV Odd/Even

TCE 008112324-02



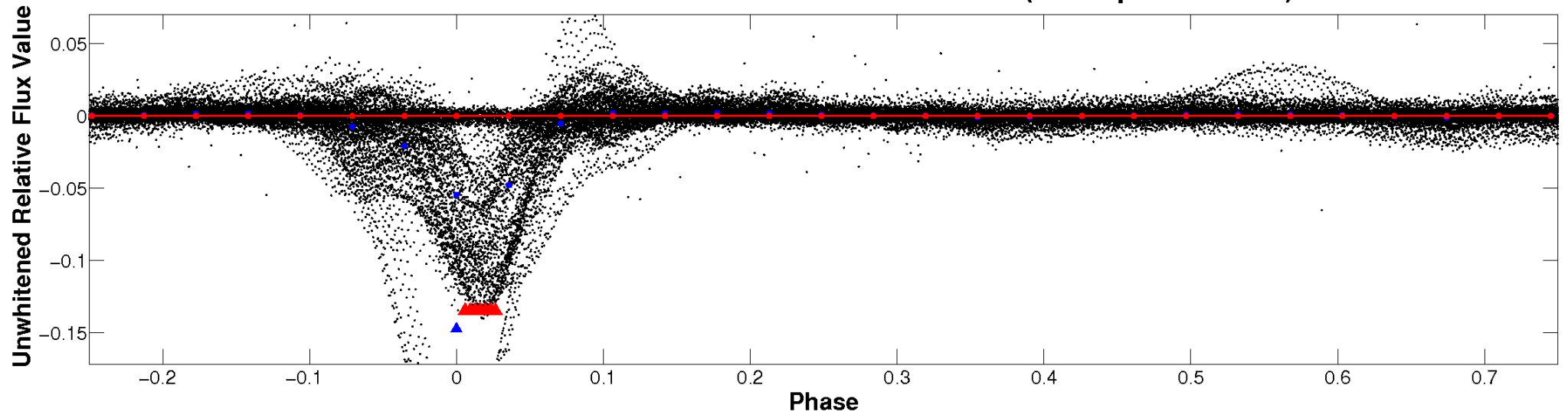
ALT Odd/Even

TCE 008112324-02

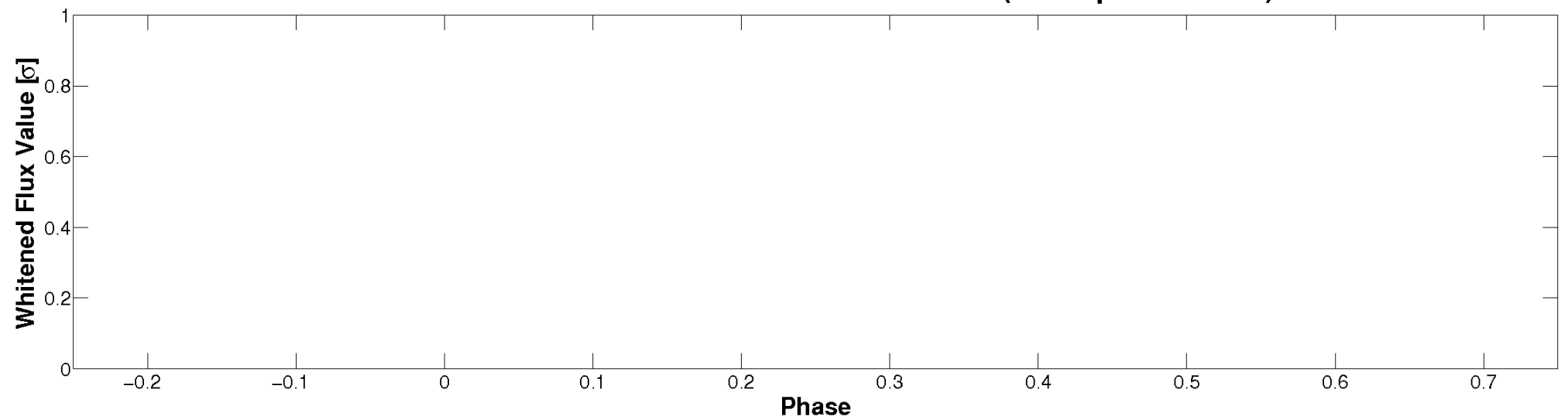


Non-Whitened Vs. Whitened Light Curve

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

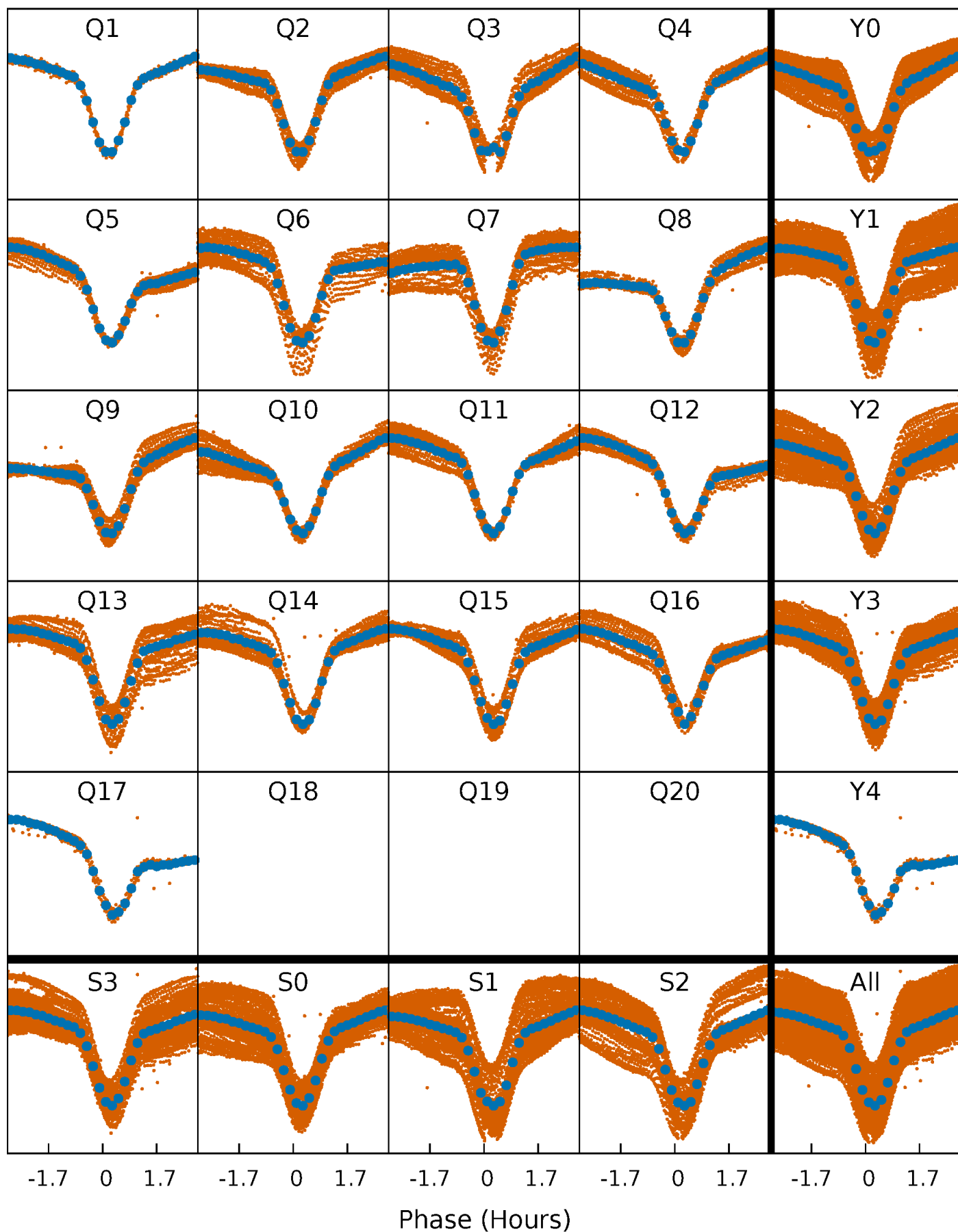


Planet 2 : Phased Whitened Flux Time Series (TPS Epoch/Period)



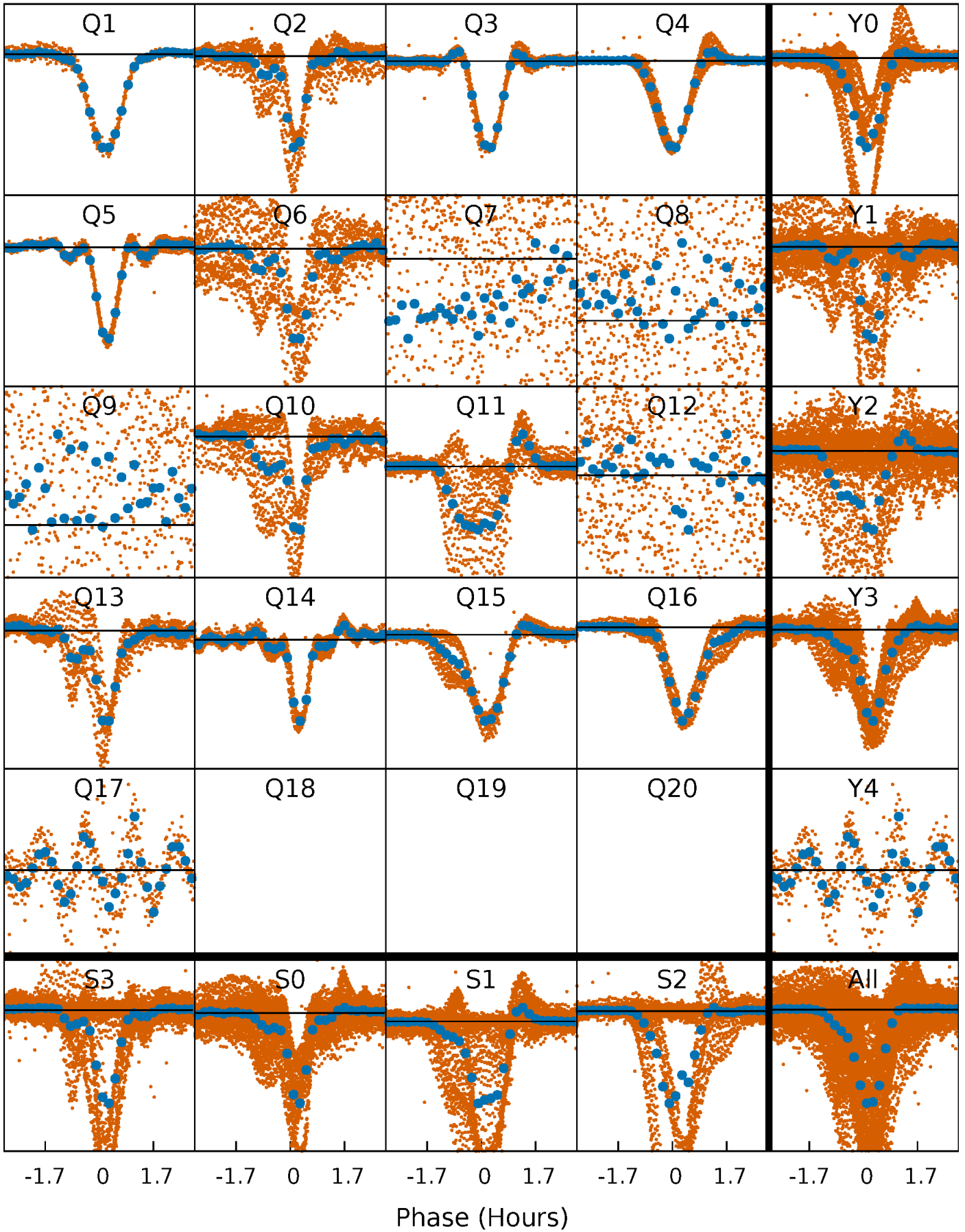
PDC Quarter-Phased Transit Curves

TCE 008112324-02 P= 0.575923 Days $T_0=131.917244$ (BKJD)



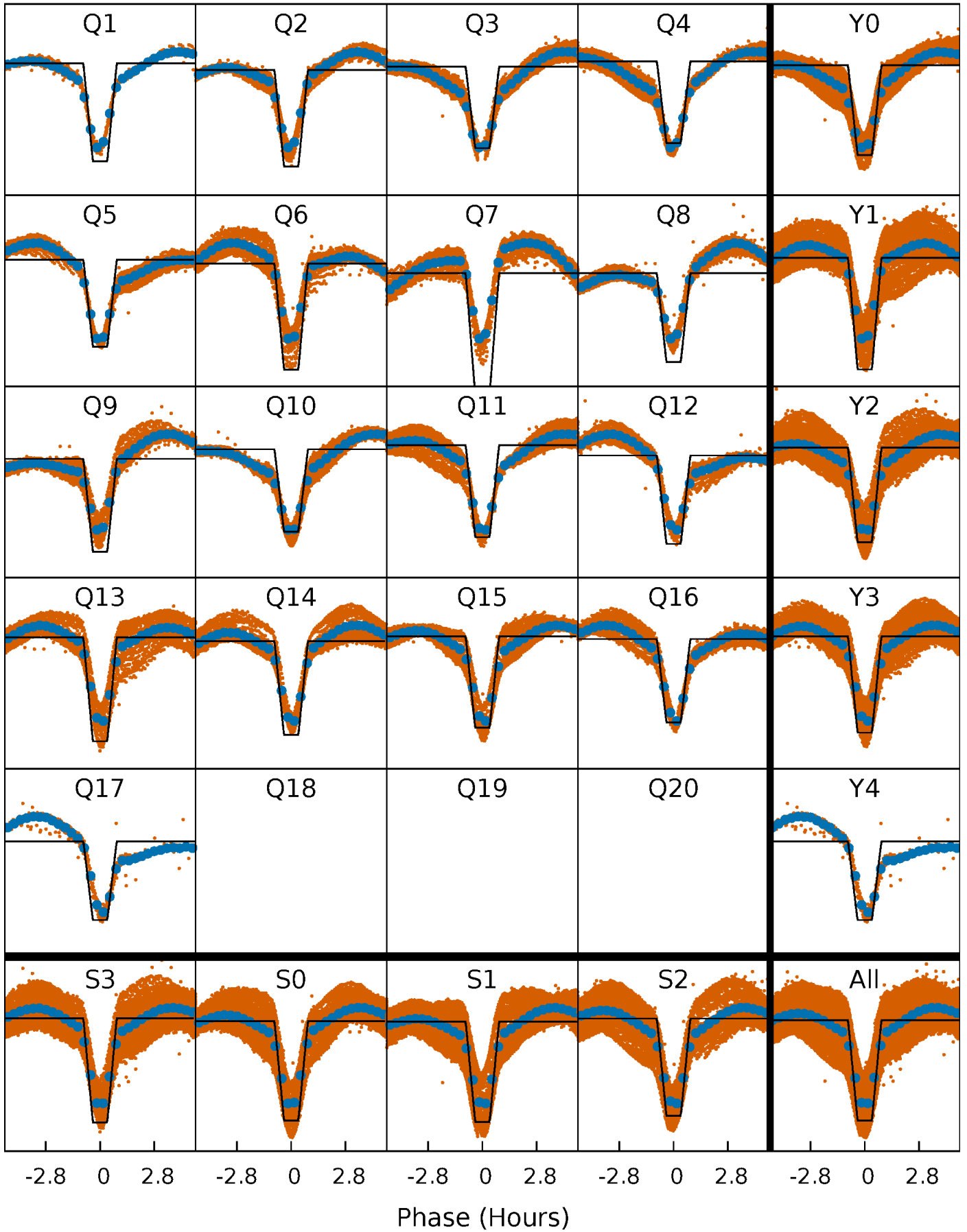
DV Quarter-Phased Transit Curves

TCE 008112324-02 P= 0.575923 Days $T_0=131.917244$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

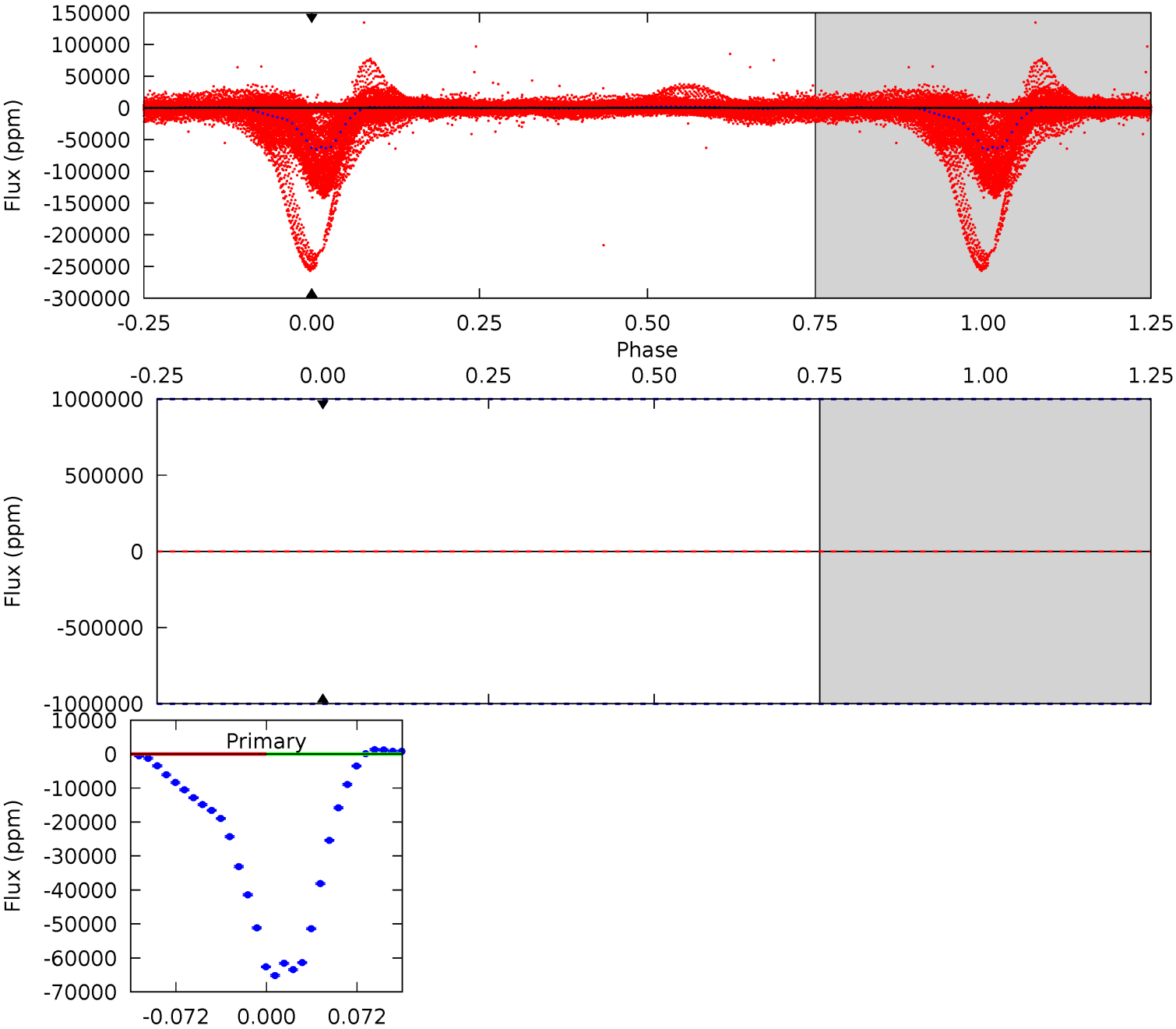
TCE 008112324-02 P= 0.575923 Days $T_0=131.928293$ (BKJD)



DV Model-Shift Uniqueness Test

008112324-02, P = 0.575923 Days, E = 131.341321 Days

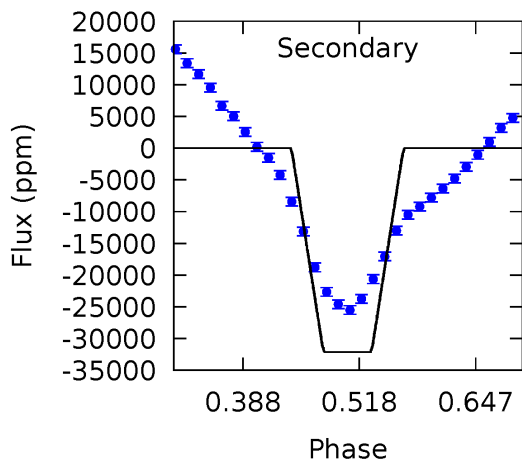
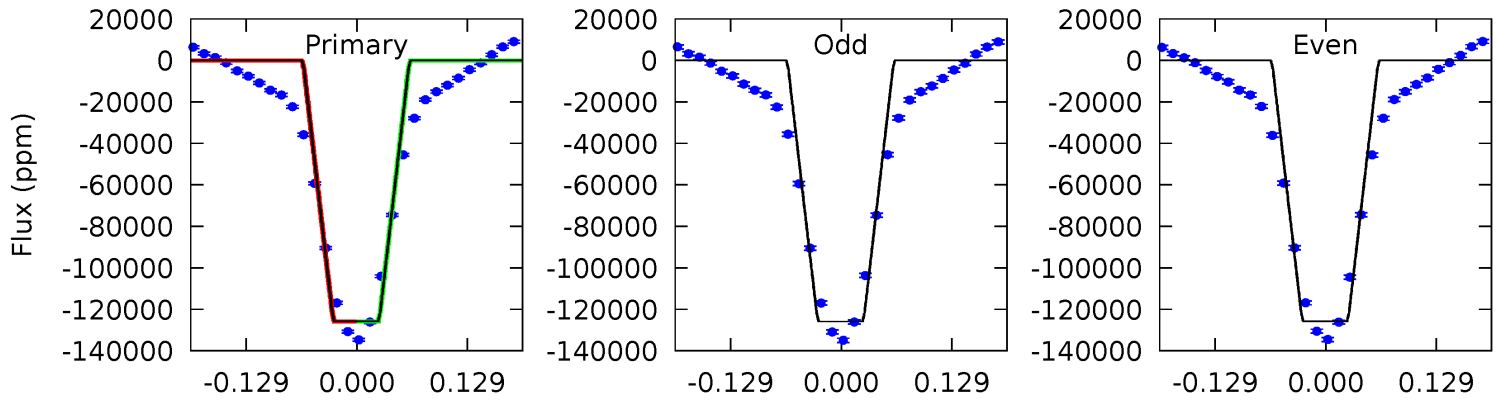
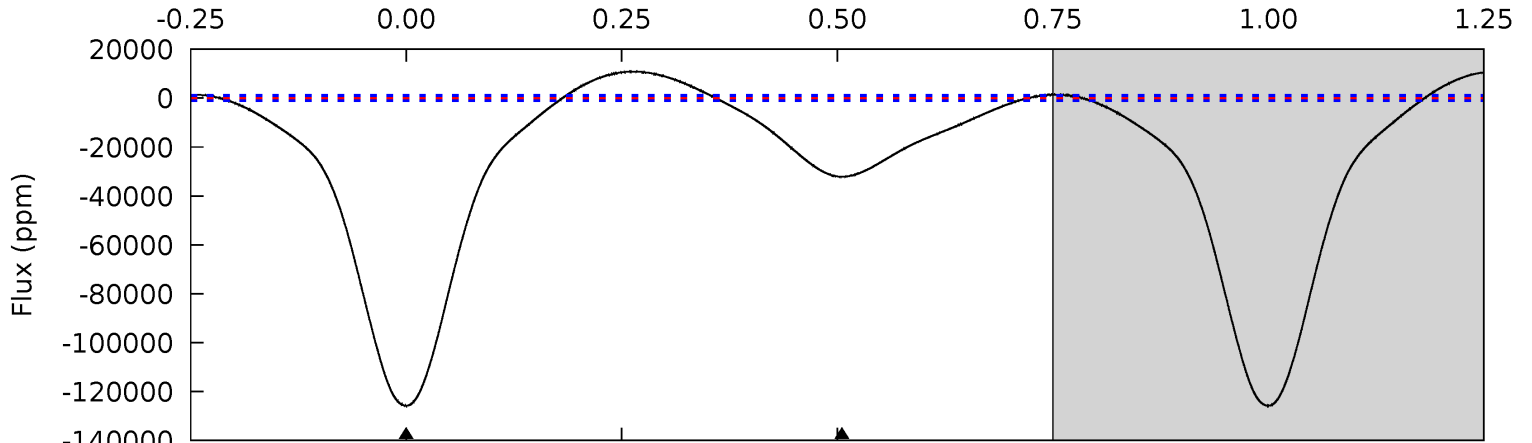
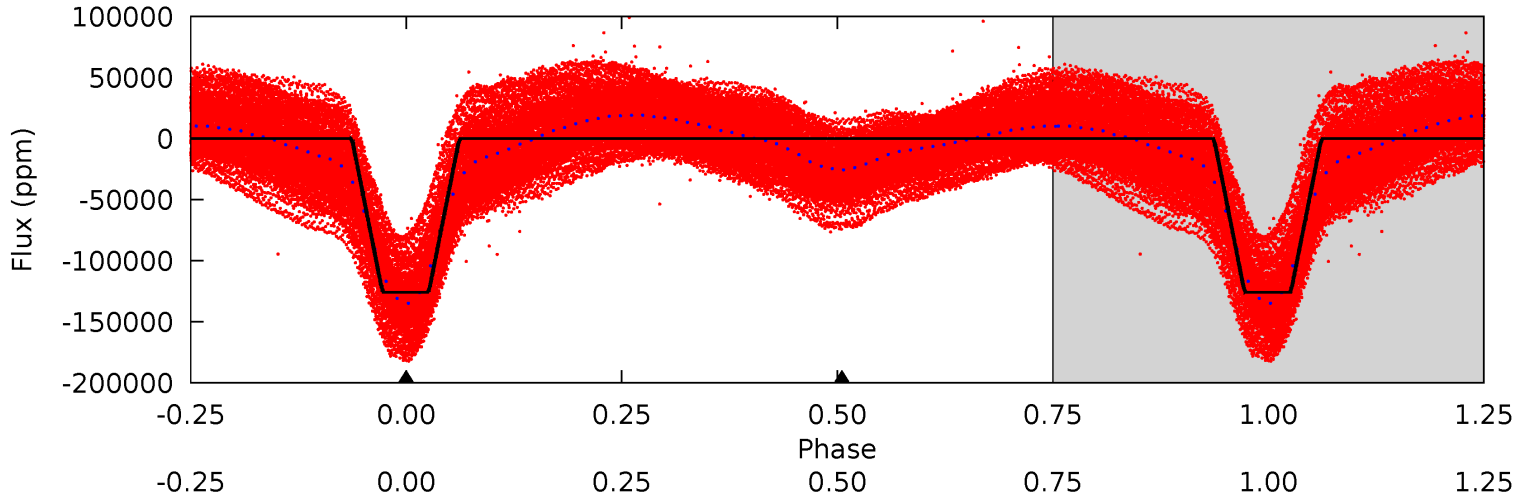
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
0	0	0	0	1.00	1.00	1.00	0	0	0	0	0	0	0	0



Alt Model-Shift Uniqueness Test

008112324-02, P = 0.575923 Days, E = 131.352370 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
527.6	134.8	0	0	4.51	1.52	29.8	527.6	527.6	134.8	134.8	0.28	0.97	0.08	0.02



Stellar Parameters For KIC 008112324

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	M (M_{\odot})	p_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	5461^{+181}_{-164}	$4.586^{+0.082}_{-0.067}$	$-0.960^{+0.300}_{-0.300}$	$0.683^{+0.079}_{-0.057}$	$0.656^{+0.073}_{-0.024}$	$2.903^{+0.889}_{-0.682}$
	+3%/-3%	+2%/-1%	+31%/-31%	+12%/-8%	+11%/-4%	+31%/-23%
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 008112324-02 / KOI 7867.01

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	0 ± 1000000	$14.60^{+6.80}_{-7.45}$	2566^{+101}_{-103}	3694^{+4322}_{-10824}	$1.915^{+58.909}_{-40.565}$
Alt.	-32138 ± 238	$29.24^{+7.71}_{-7.94}$	2556^{+110}_{-103}	3970^{+512}_{-350}	$3.051^{+2.617}_{-1.157}$

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 $A_{obs} \gg 1.0$

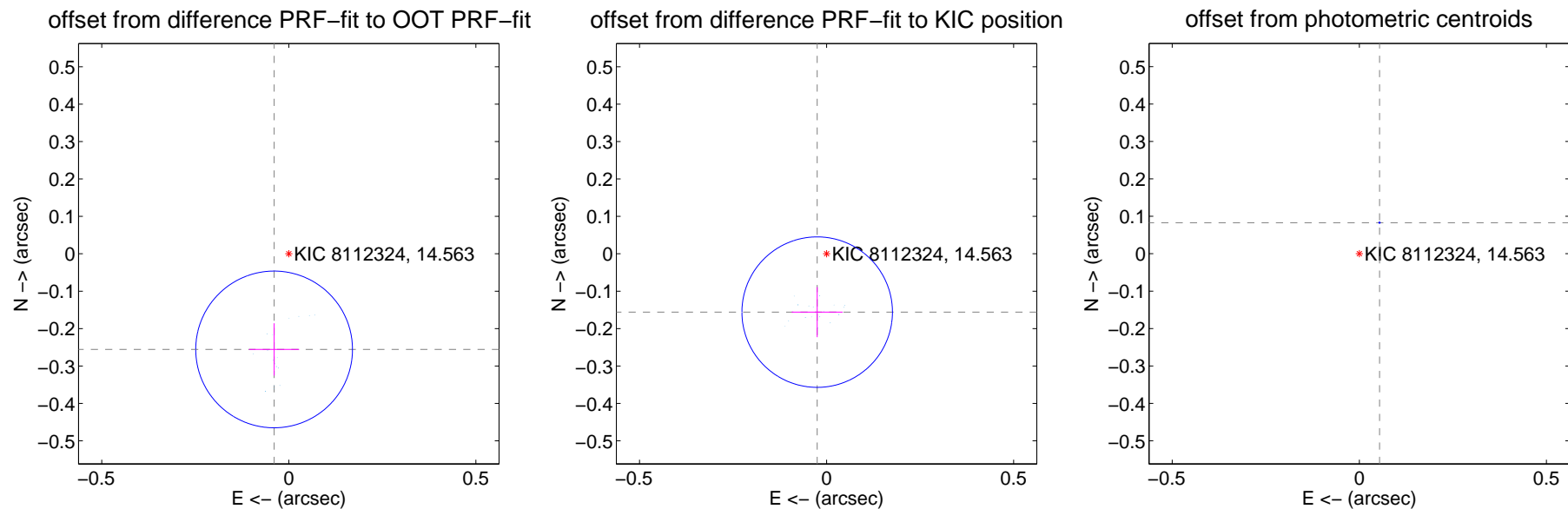
DV Centroid Data

Supplemental centroid analysis for 008112324-02. Kepler magnitude: 14.56. Transit SNR -1.00

There are 17 quarters with good PRF difference image offsets

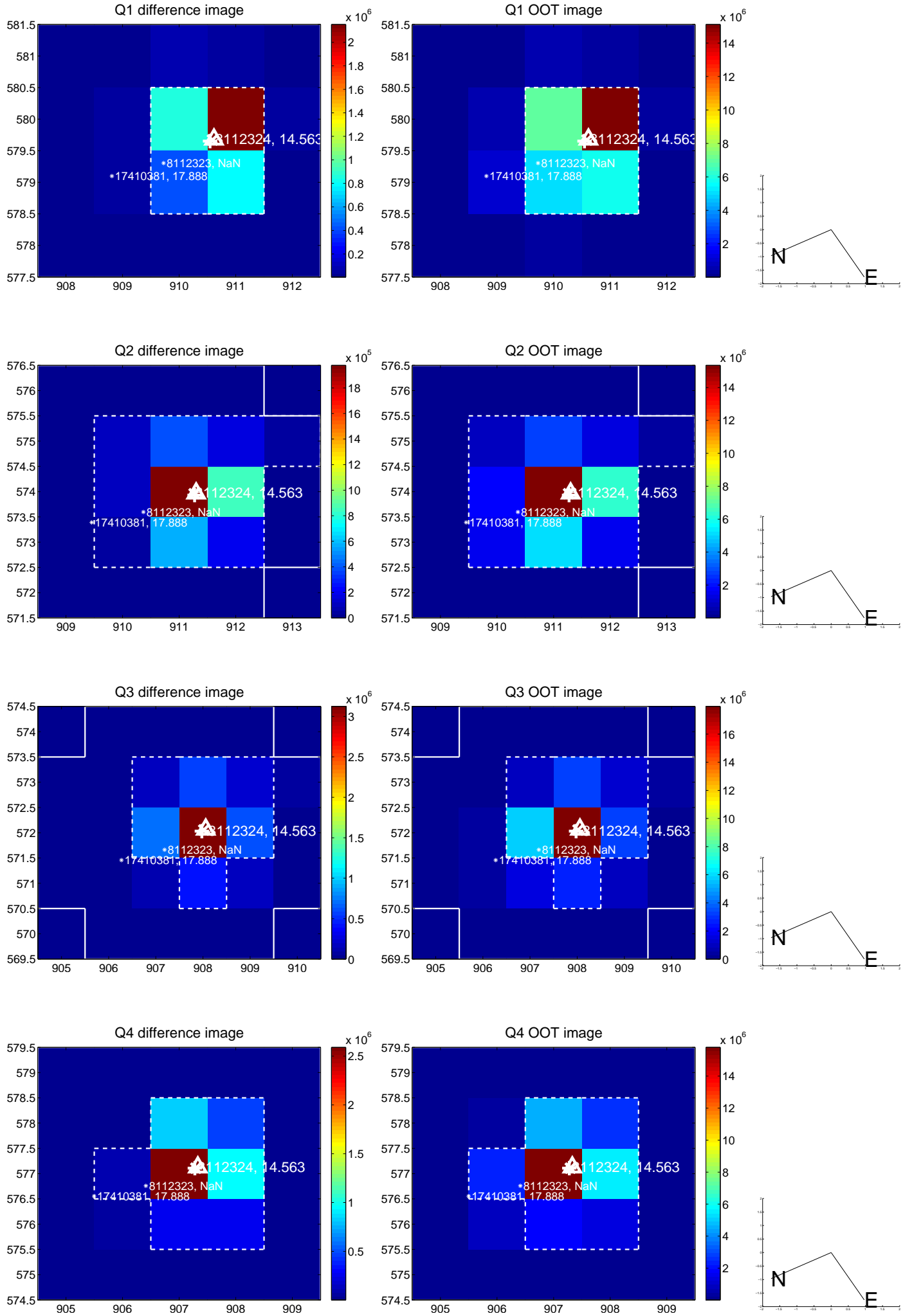
The direct PRF centroid is offset from the target star catalog position by about 0.15 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.259 ± 0.070	3.71	0.039 ± 0.067	-0.256 ± 0.070
PRF-fit source offset from KIC position	0.158 ± 0.067	2.36	0.025 ± 0.068	-0.156 ± 0.067
photometric centroid source offset	0.10 ± 0.00	161.58	-0.05 ± 0.00	0.08 ± 0.00

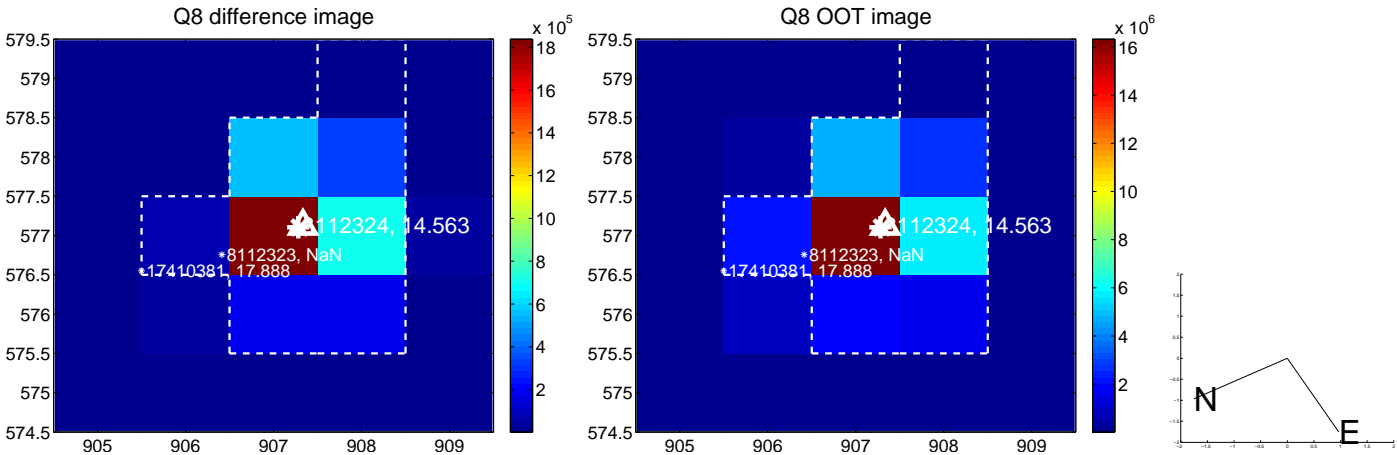
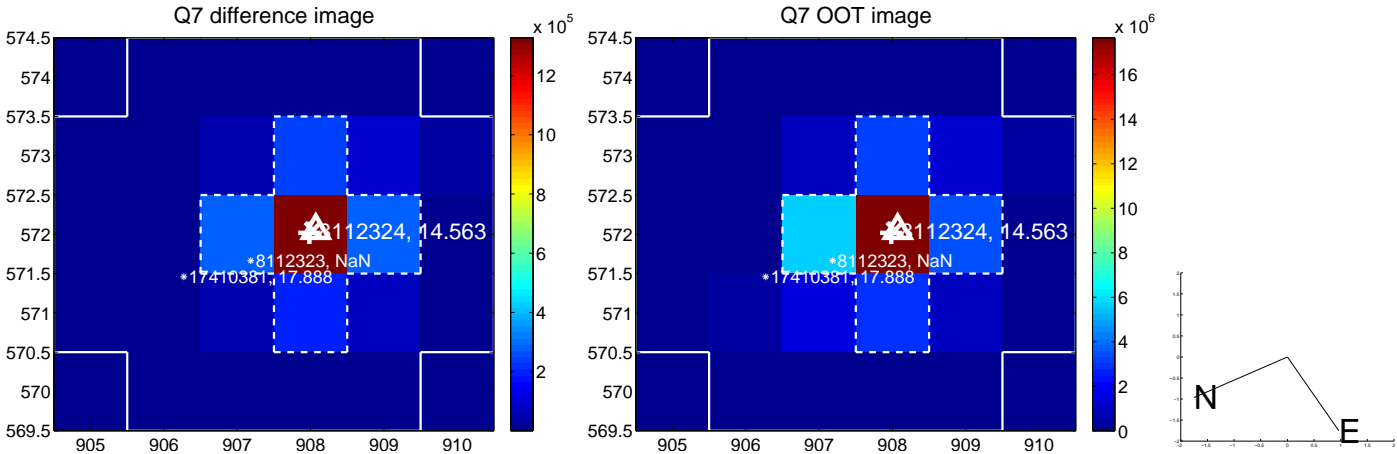
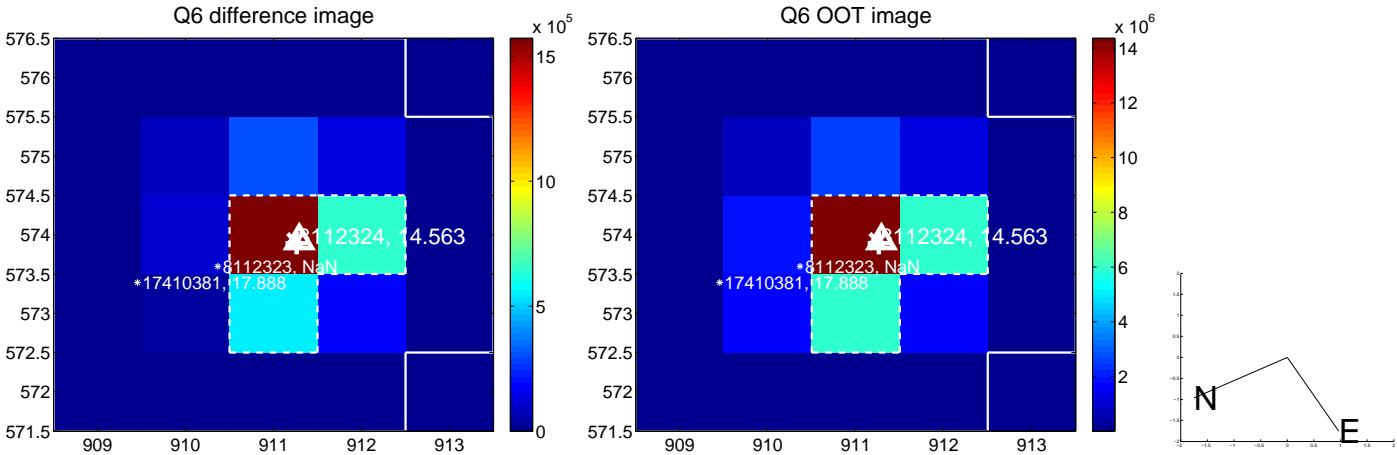
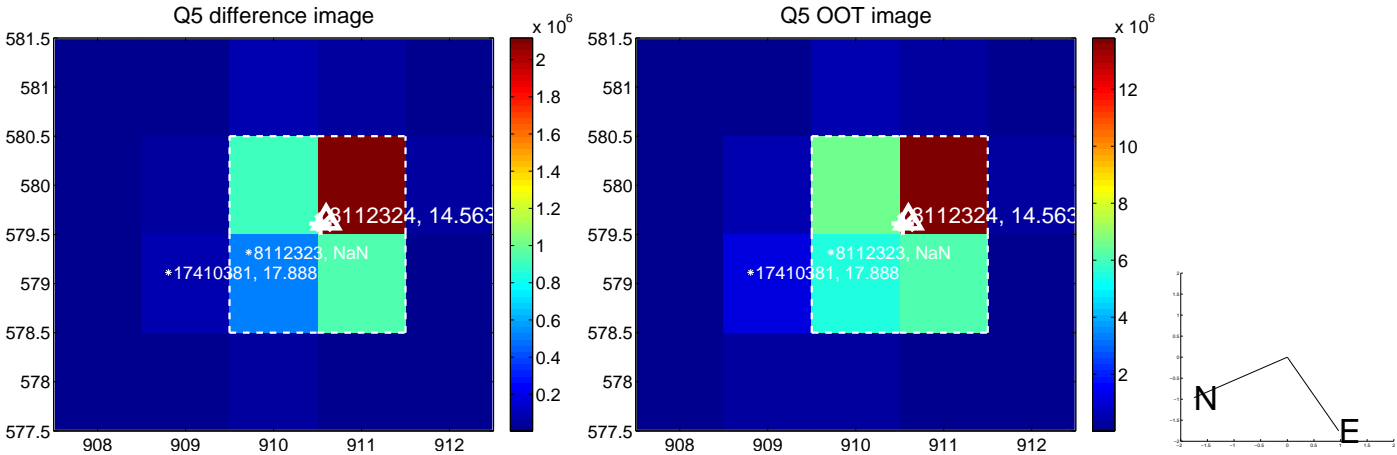


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

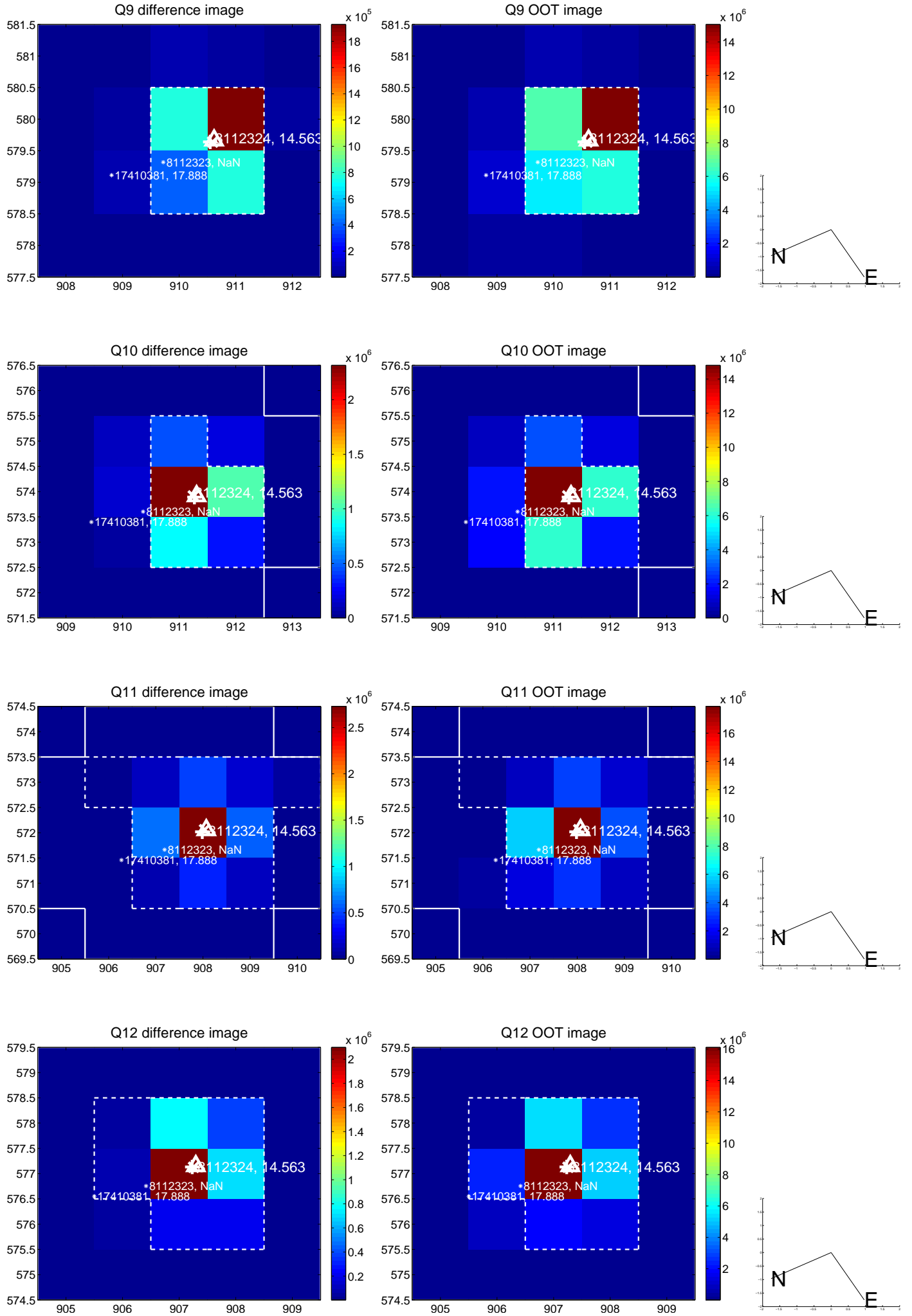
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



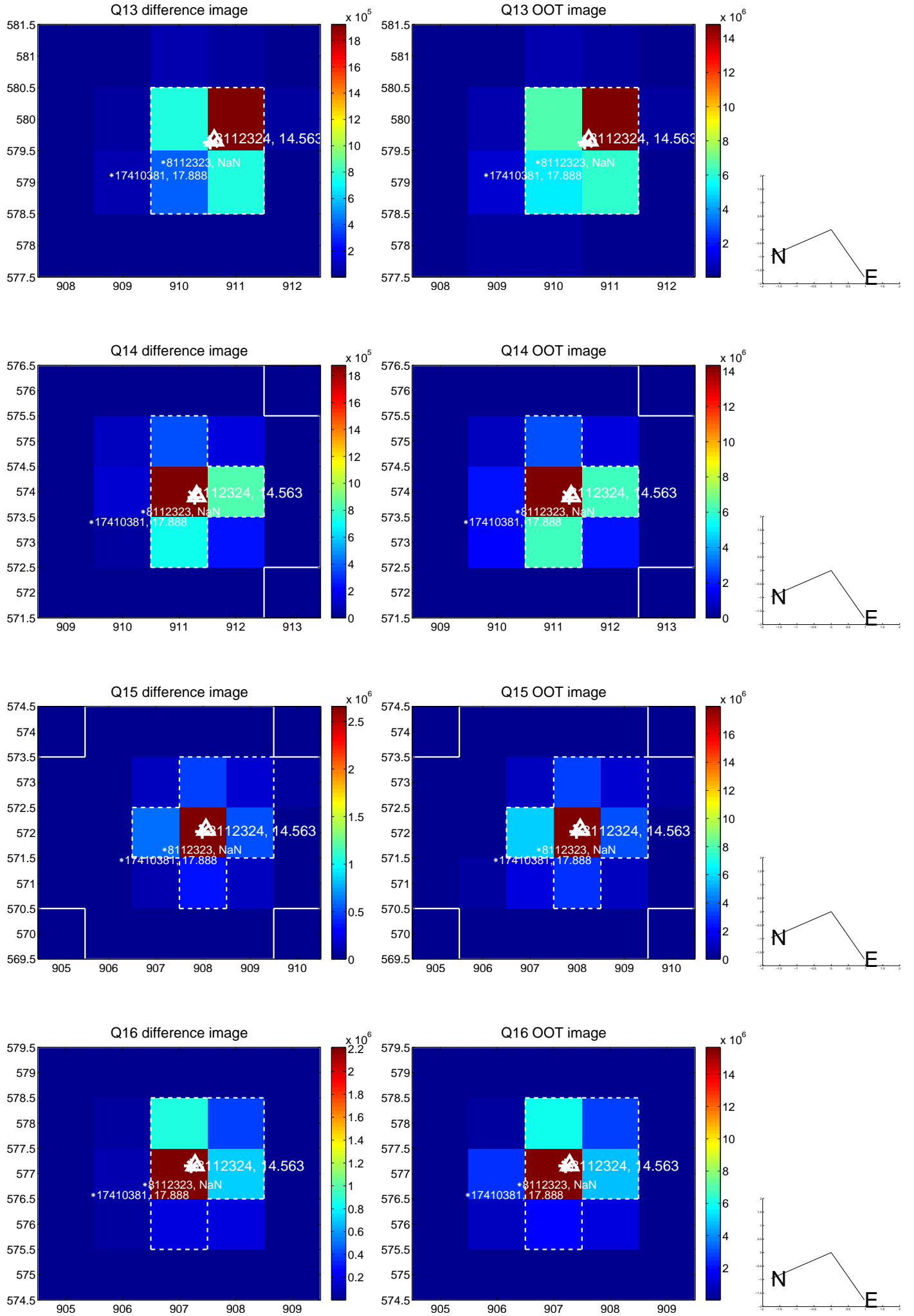
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



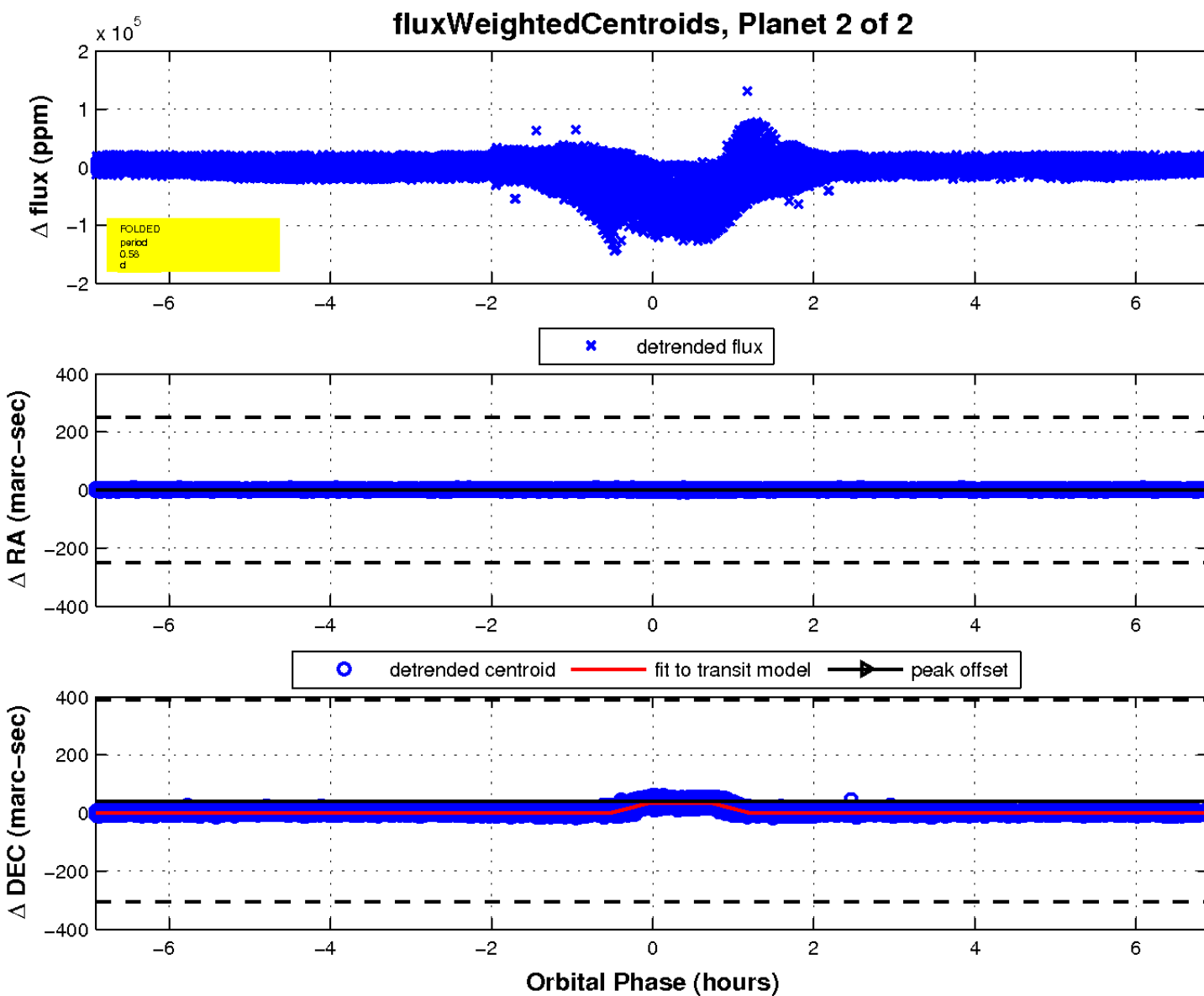
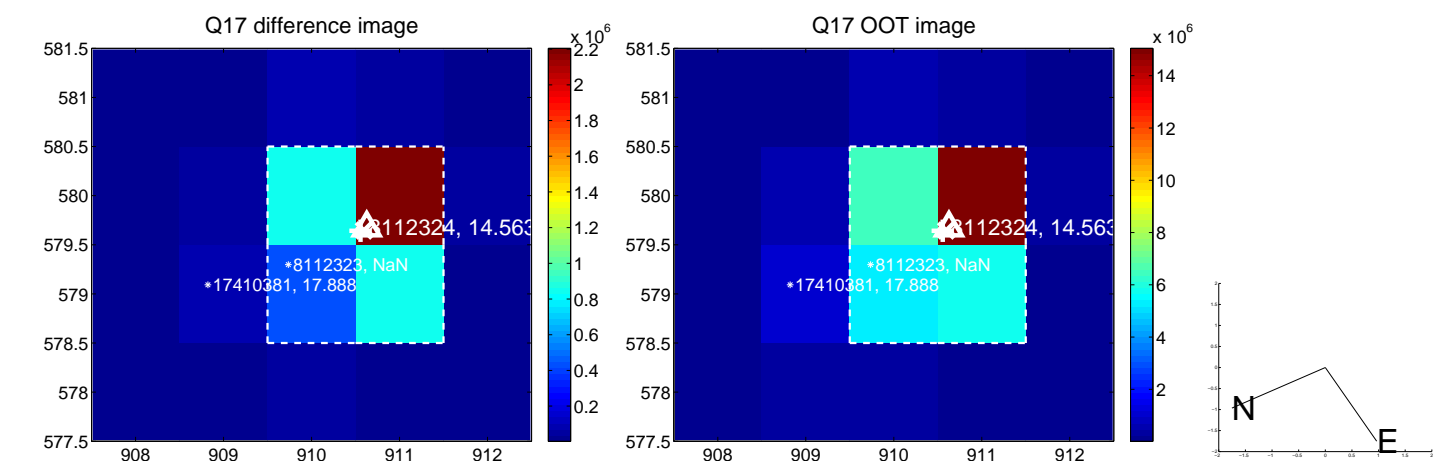
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UKIRT Image

Declination

