

KIC 005113822

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})
005113822-01	OBS	0638.01	23.641492	148.963777	1051.3	5.918	60.7	67.9	0.88	5750	3.51	29.71
005113822-02	OBS	0638.02	67.093336	146.568444	1241.0	7.342	53.5	53.7	0.88	5750	3.47	7.40

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
005113822-01	OBS	PC	1.00	0	0	0	0	NO_COMMENT
005113822-02	OBS	PC	0.95	0	0	0	0	NO_COMMENT

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.

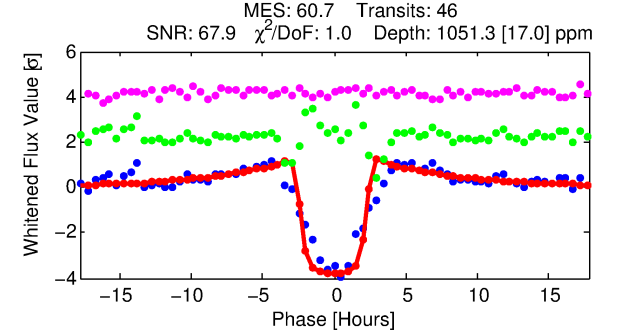
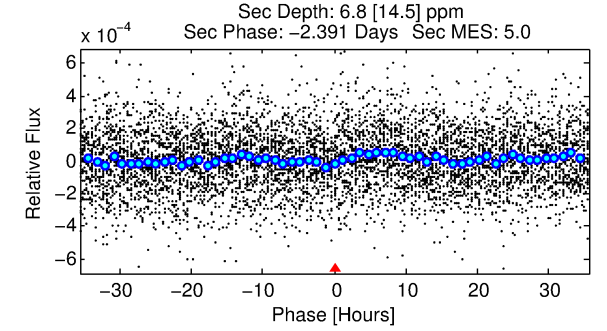
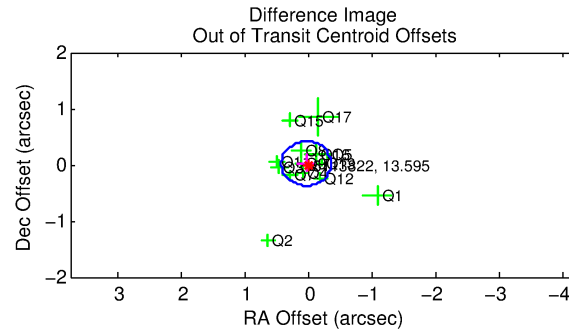
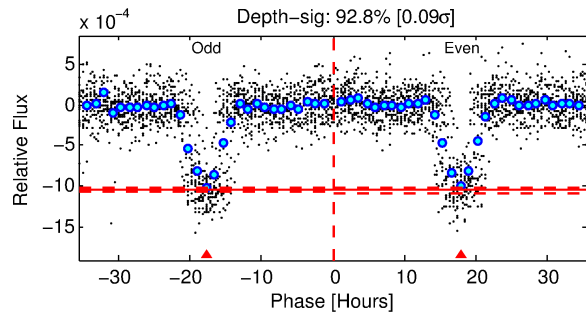
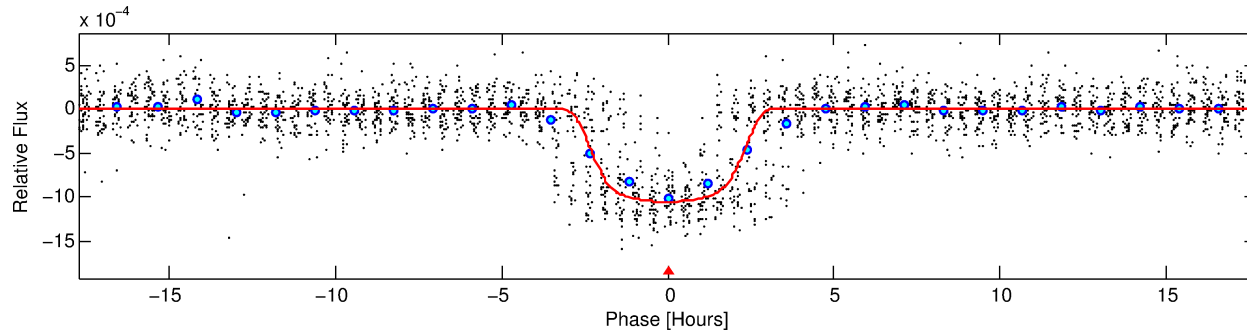
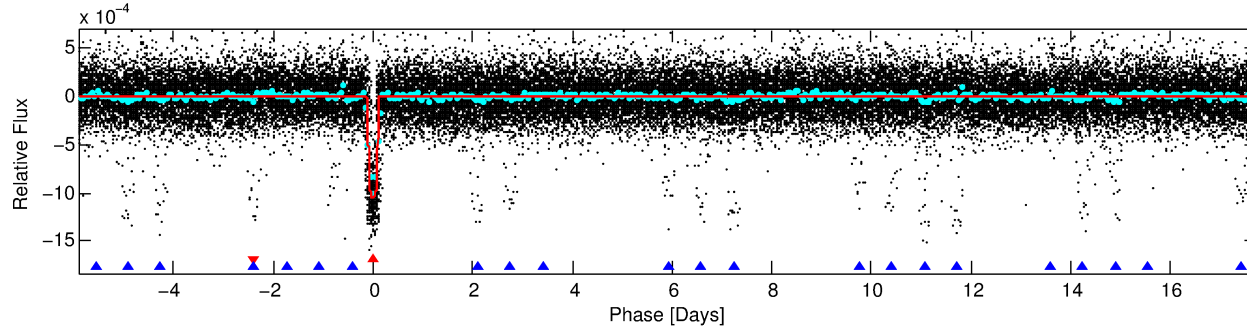
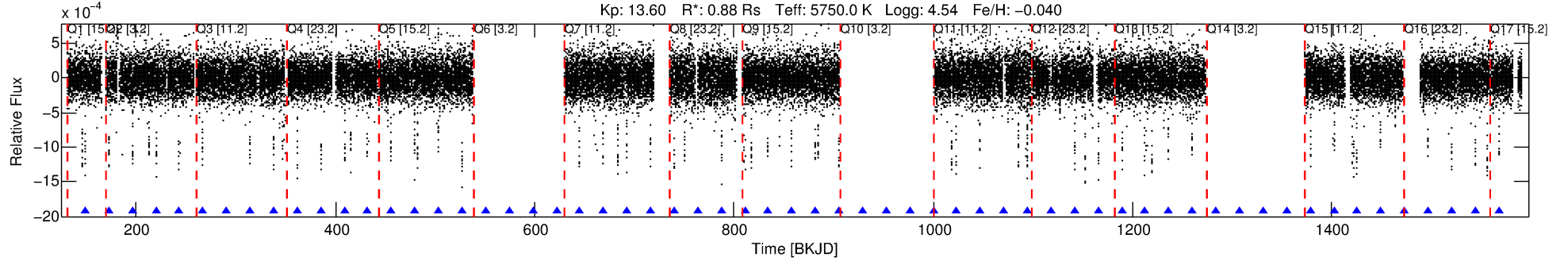
Ephemeris Match Information For 005113822-01

No Significant Match Found

DV One-Page Summary

KIC: 5113822 Candidate: 1 of 2 Period: 23.641 d
KOI: K00638.01 Name: Kepler-199b Corr: 0.917

Kp: 13.60 R*: 0.88 Rs Teff: 5750.0 K Logg: 4.54 Fe/H: -0.040



DV Fit Results:

Period = 23.64149 [0.00004] d
Epoch = 148.9638 [0.0014] BKJD
Rp/R* = 0.0365 [0.0005]
a/R* = 14.19 [0.58]
b = 0.93 [0.01]
Seff = 29.72 [6.26]
Teq = 595 [31] K
Rp = 3.51 [0.48] Re
a = 0.1601 [0.0199] AU
Ag = 7.79 [16.70] [0.41σ]
Teffp = 1538 [822] K [1.15σ]

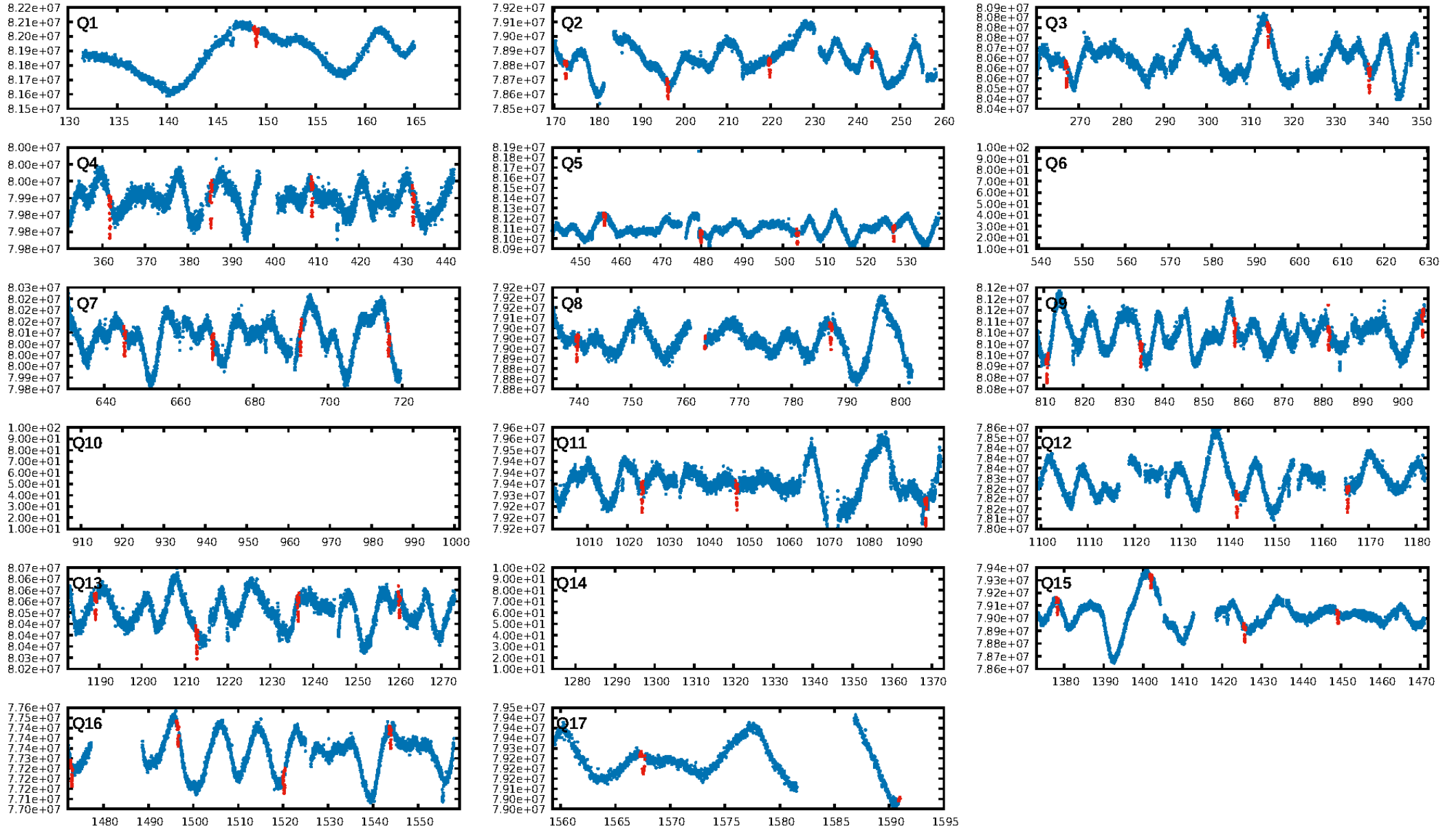
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: 100.0% [110.58σ]
ModelChiSquare2-sig: 78.3%
ModelChiSquareGof-sig: 100.0%
Bootstrap-pfa: 0.00e+00
RollingBand-fgt: 1.00 [43/43]
GhostDiagnostic-chr: 8.452
Centroid-sig: 0.0%
Centroid-so: 0.365 arcsec [3.51σ]
OotOffset-rm: 0.045 arcsec [0.34σ]
KicOffset-rm: 0.008 arcsec [0.06σ]
OotOffset-st: 1/4/4/5 [14]
KicOffset-st: 1/4/4/5 [14]
DiffImageQuality-fgm: 1.00 [14/14]
DiffImageOverlap-fno: 1.00 [14/14]

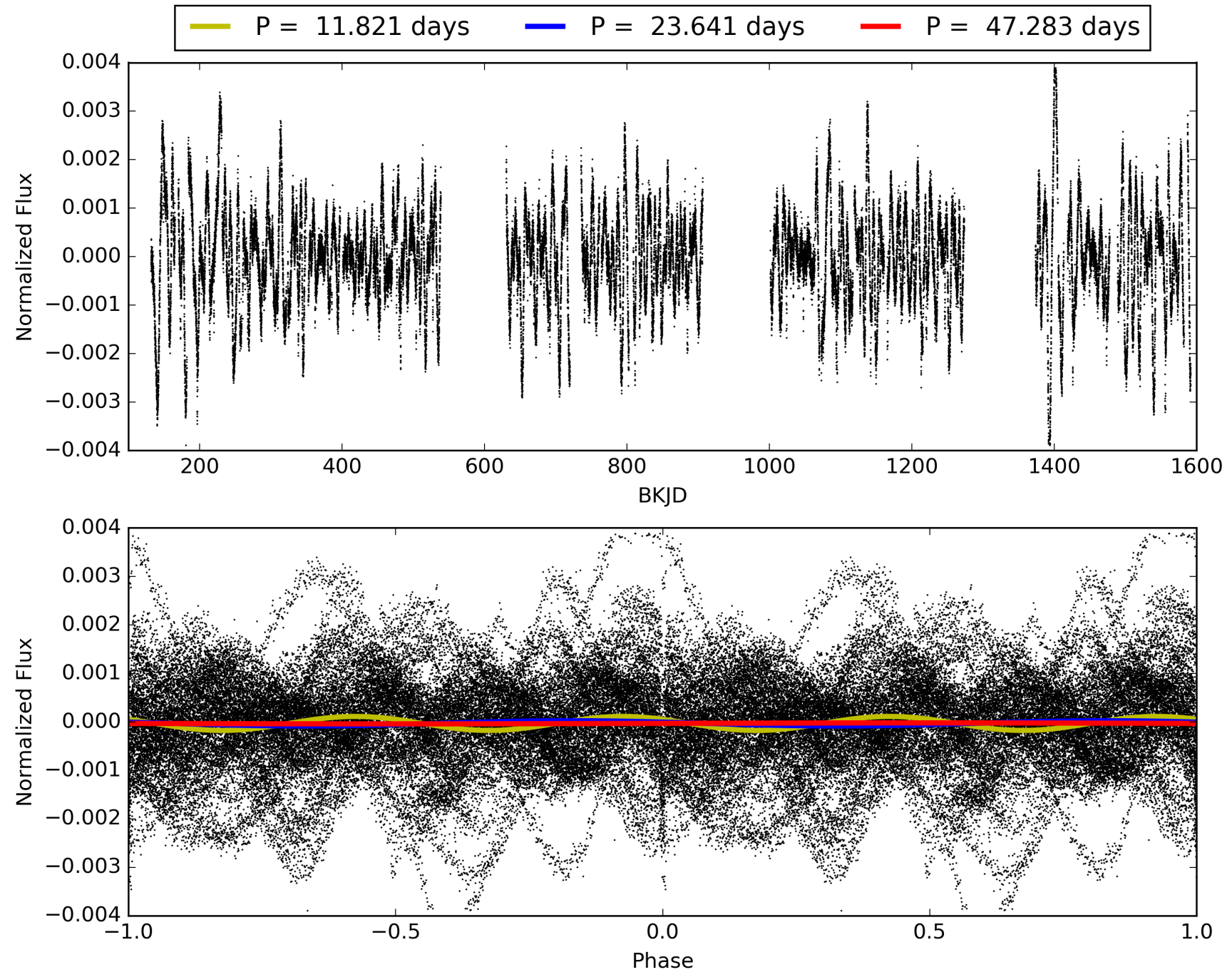
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 10:28:37 Z

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

TCE 005113822-01, PDC Light Curves

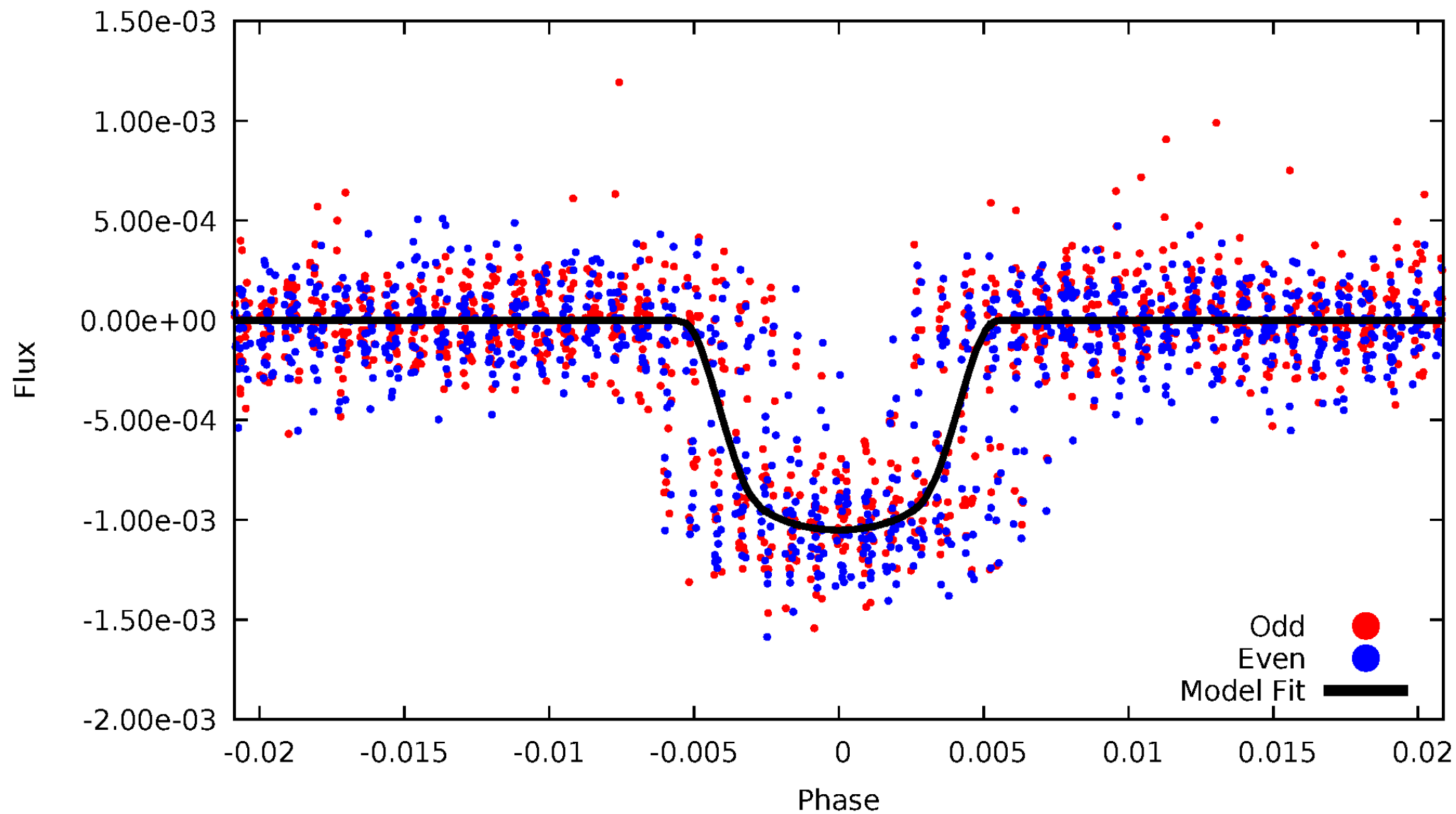


TCE 005113822-01



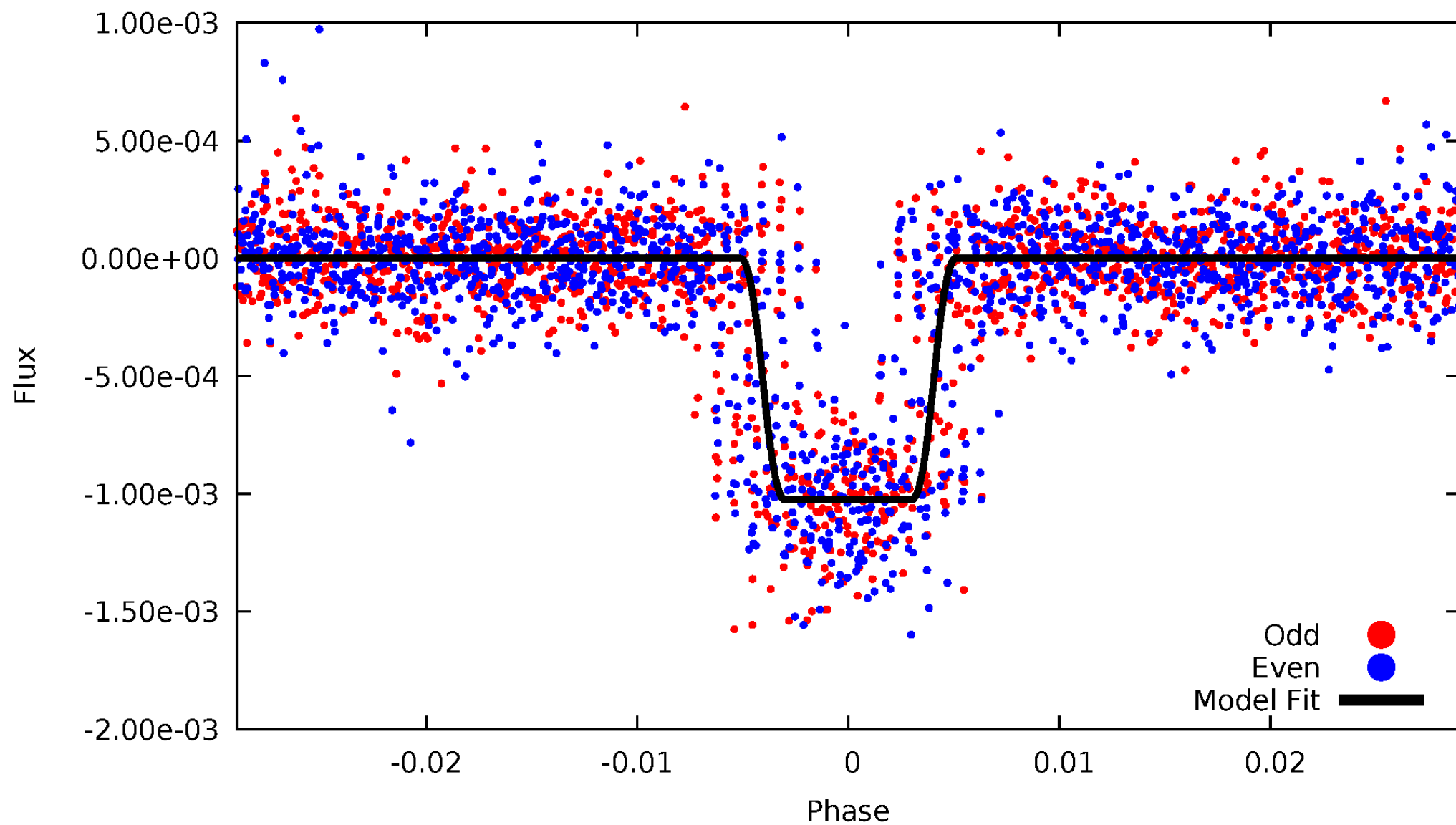
DV Odd/Even

TCE 005113822-01



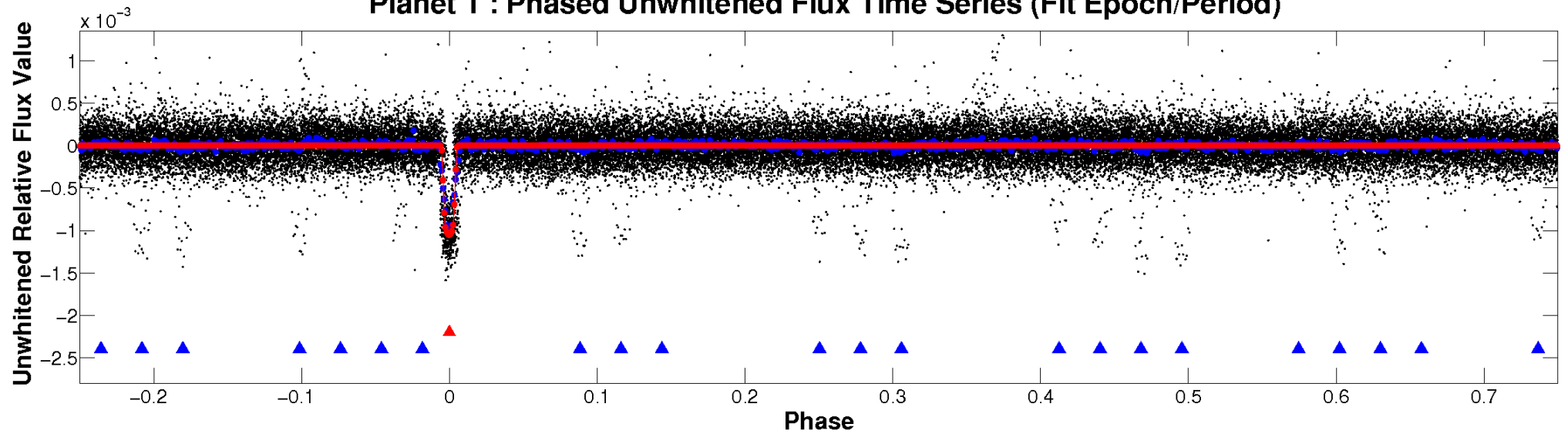
ALT Odd/Even

TCE 005113822-01

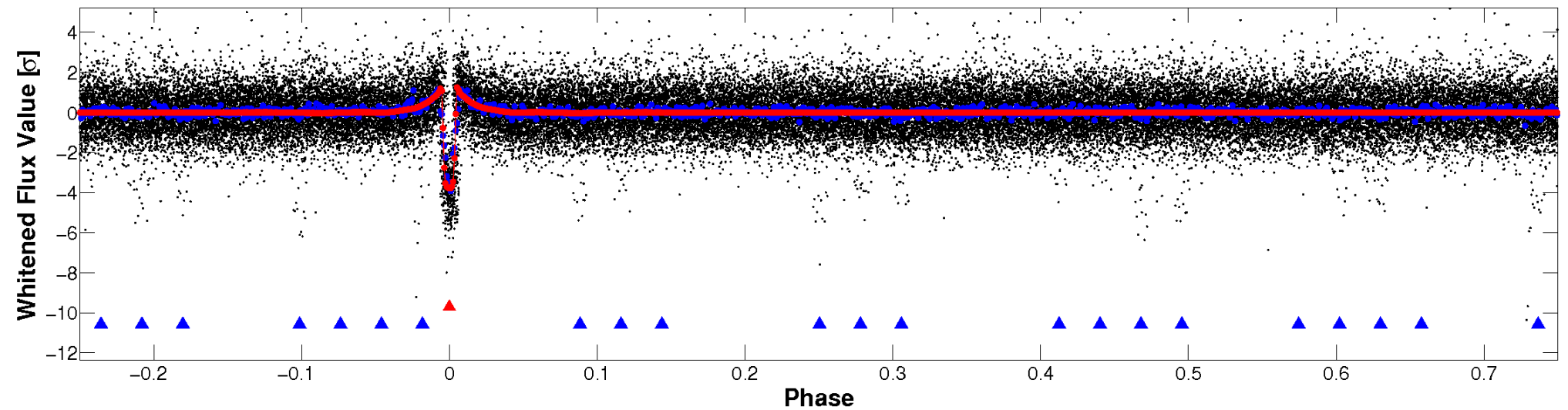


Non-Whitened Vs. Whitened Light Curve

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

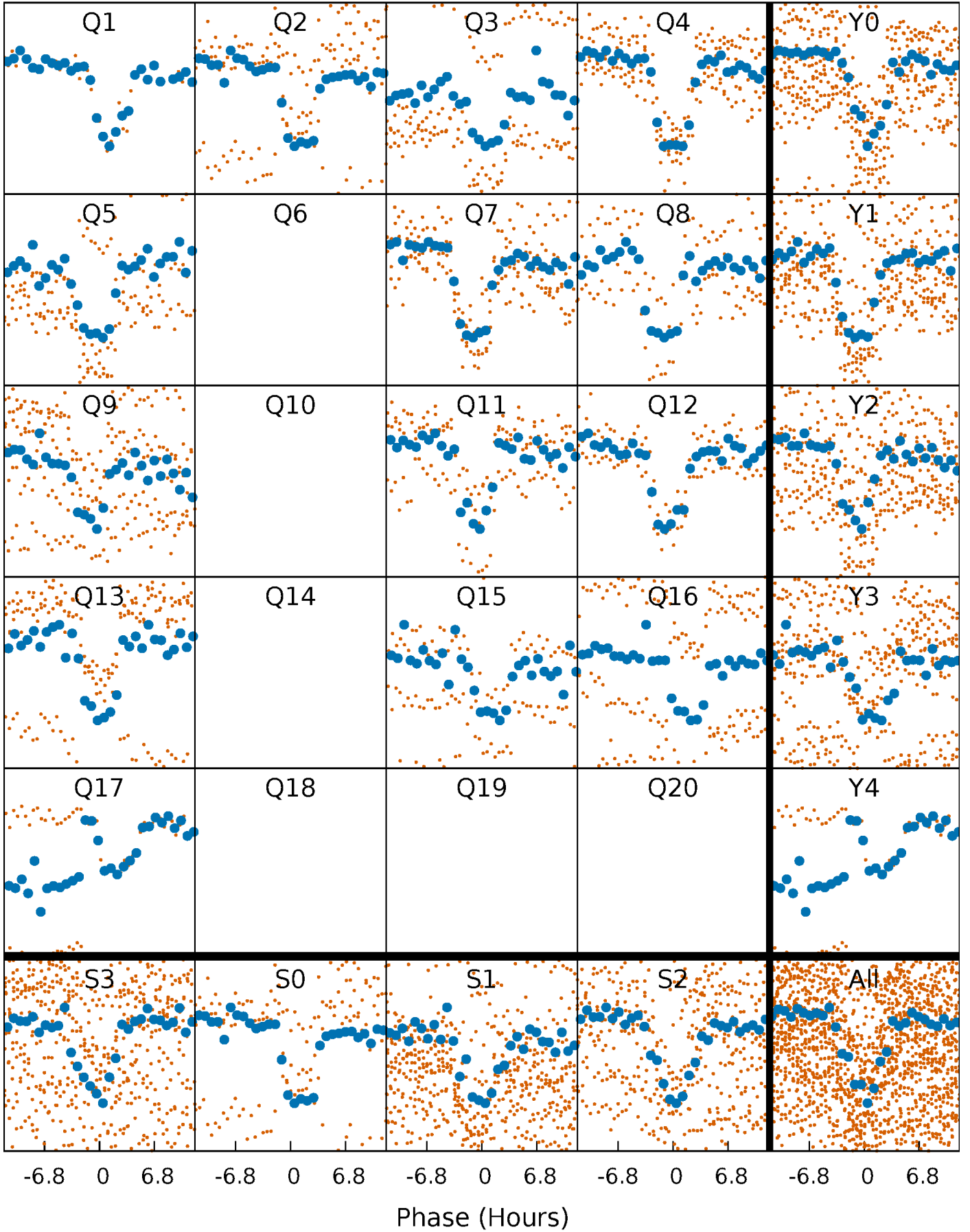


Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)



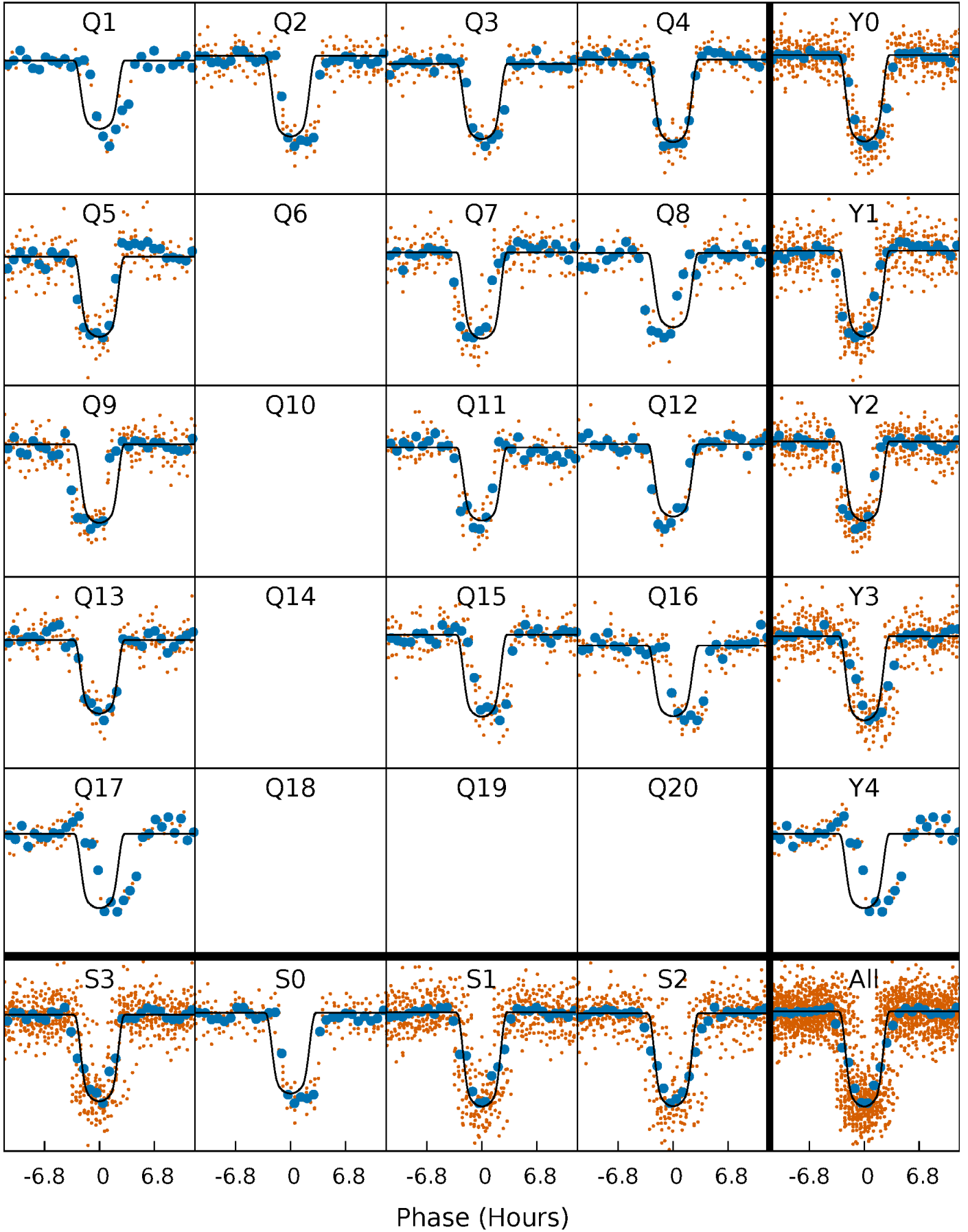
PDC Quarter-Phased Transit Curves

TCE 005113822-01 P= 23.641492 Days $T_0=148.963777$ (BKJD)



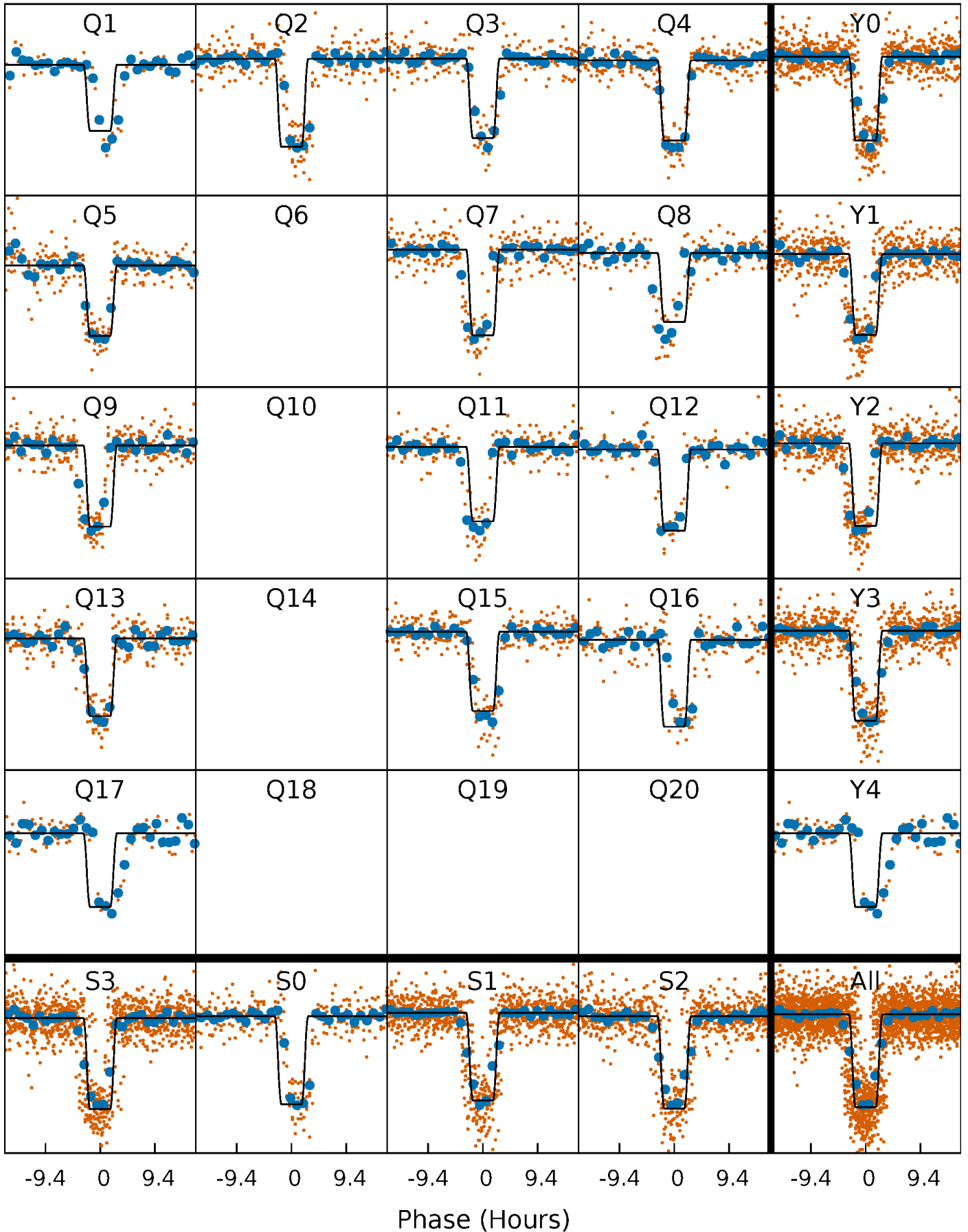
DV Quarter-Phased Transit Curves

TCE 005113822-01 P= 23.641492 Days $T_0=148.963777$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

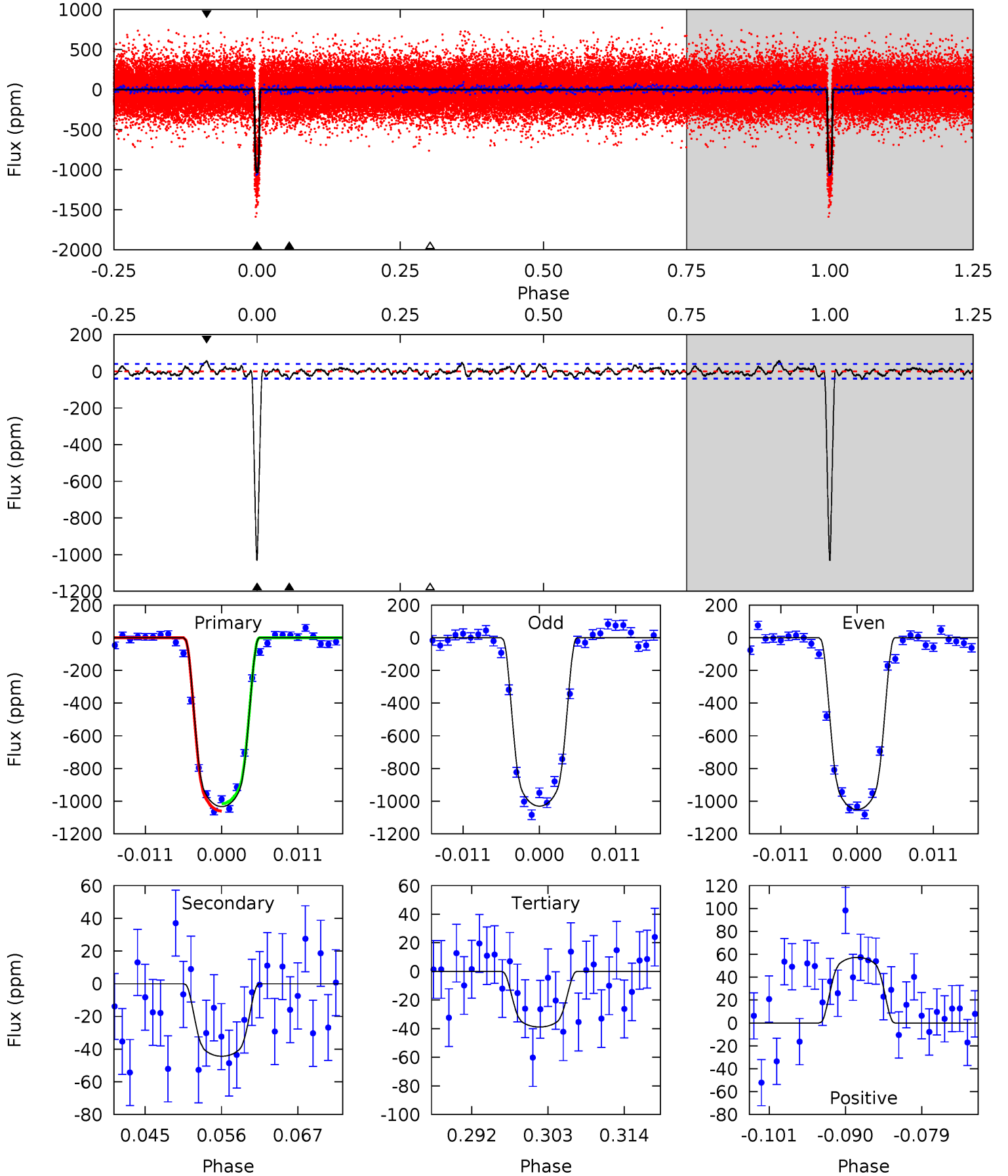
TCE 005113822-01 P= 23.641980 Days $T_0=148.957185$ (BKJD)



DV Model-Shift Uniqueness Test

005113822-01, P = 23.641492 Days, E = 125.322285 Days

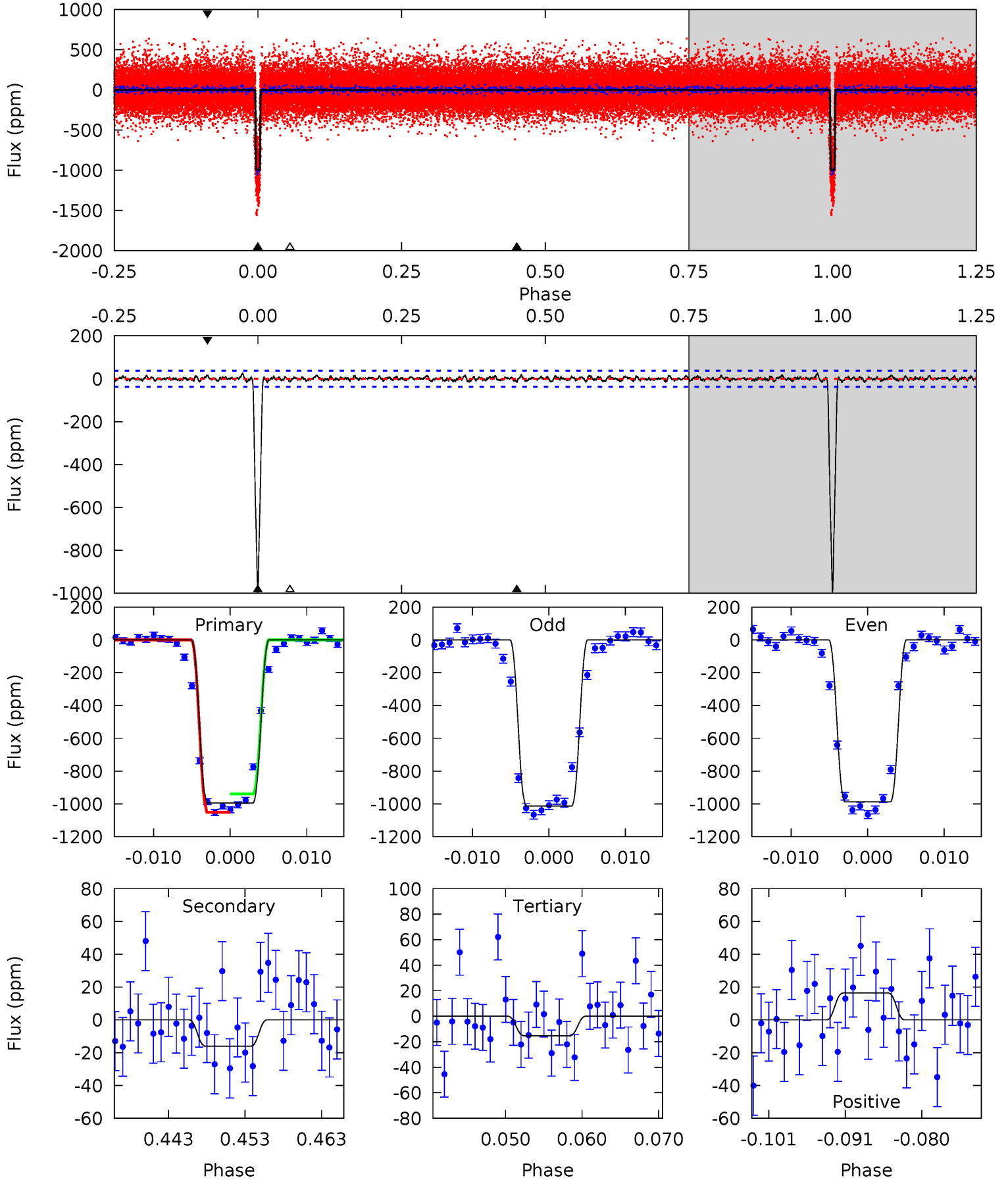
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
128.7	5.53	4.84	7.13	5.00	2.54	1.85	123.9	121.6	0.69	-1.60	1.31	1.01	0.05	2.80



Alt Model-Shift Uniqueness Test

005113822-01, P = 23.641980 Days, E = 125.315205 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
133.4	2.16	2.07	2.19	5.03	2.57	0.81	131.4	131.2	0.09	-0.03	1.68	1.01	0.02	7.42



Stellar Parameters For KIC 005113822

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (g \cdot \text{cm}^{-3})$
	5750^{+102}_{-125}	$4.538^{+0.026}_{-0.110}$	$-0.040^{+0.150}_{-0.150}$	$0.882^{+0.121}_{-0.043}$	$0.980^{+0.046}_{-0.081}$	$2.011^{+0.204}_{-0.643}$
	+2%/-2%	+1%/-2%	+375%/-375%	+14%/-5%	+5%/-8%	+10%/-32%
Source	SPE59	SPE59	SPE59	DSEP		

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

Secondary Eclipse Parameters for KIC 005113822-01 / KOI 0638.01

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	-44 ± 8	$3.55^{+0.24}_{-0.15}$	841^{+29}_{-24}	3086^{+83}_{-91}	48^{+10}_{-10}
Alt.	-16 ± 7	$3.12^{+0.24}_{-0.13}$	842^{+30}_{-24}	2784^{+154}_{-204}	23^{+11}_{-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 $T_{obs} \gg T_{max}$ AND $A_{obs} \gg 1.0$

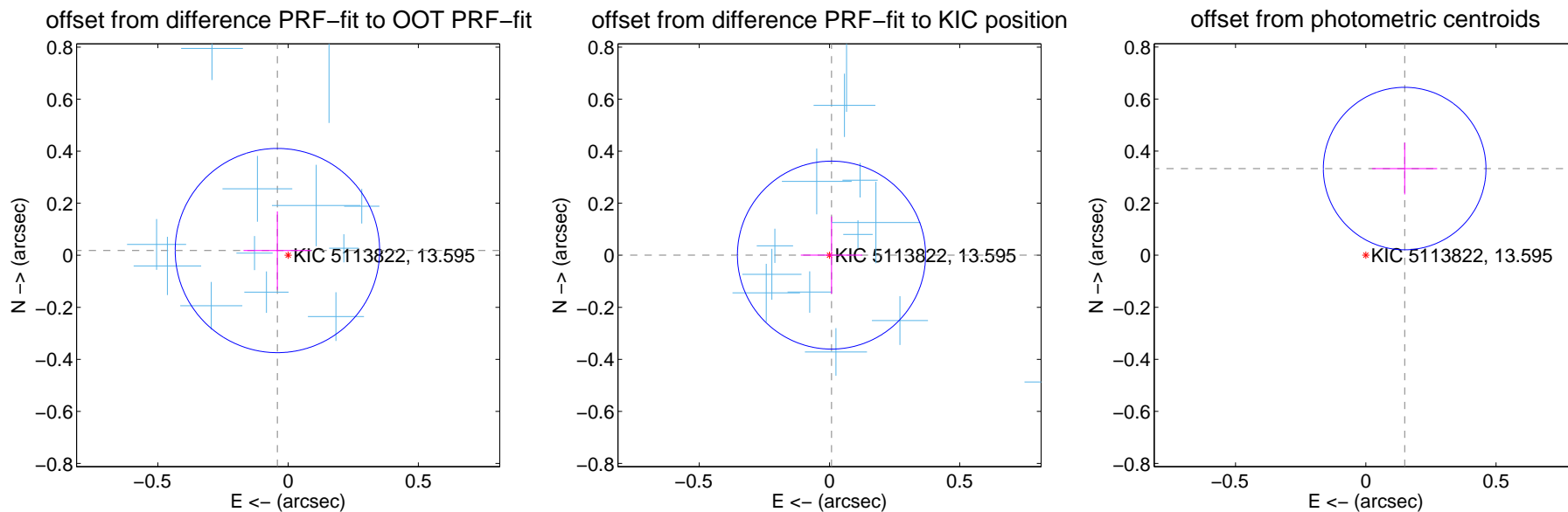
DV Centroid Data

Supplemental centroid analysis for 005113822-01. Kepler magnitude: 13.60. Transit SNR 67.88

There are 14 quarters with good PRF difference image offsets

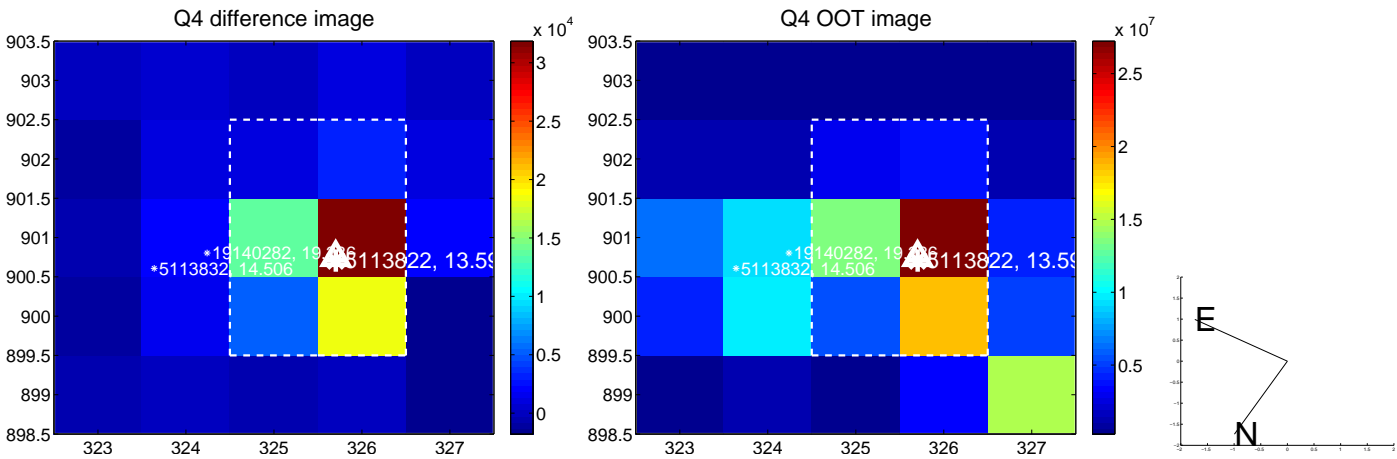
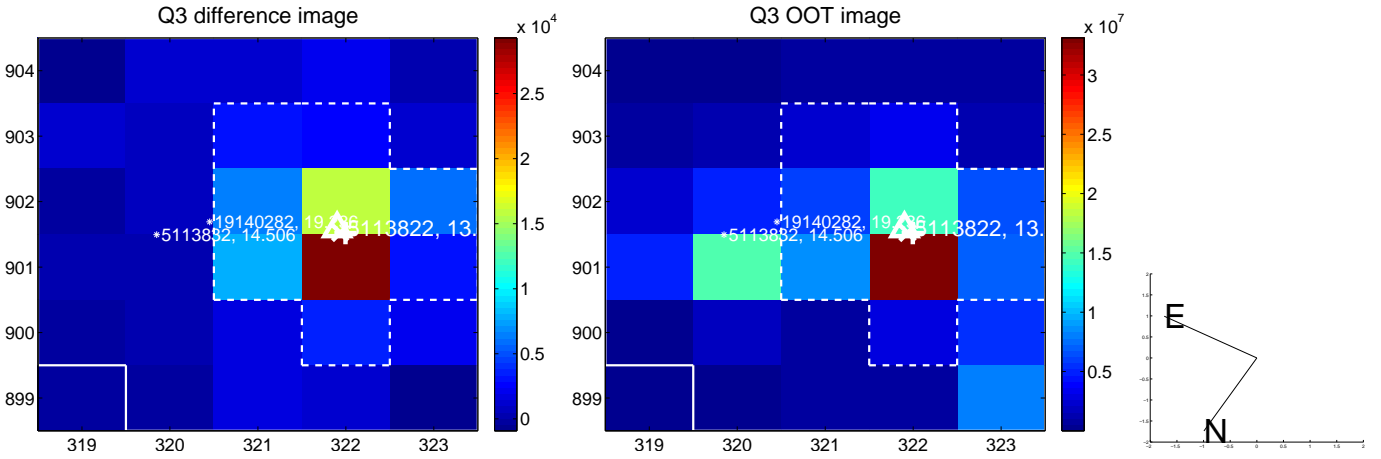
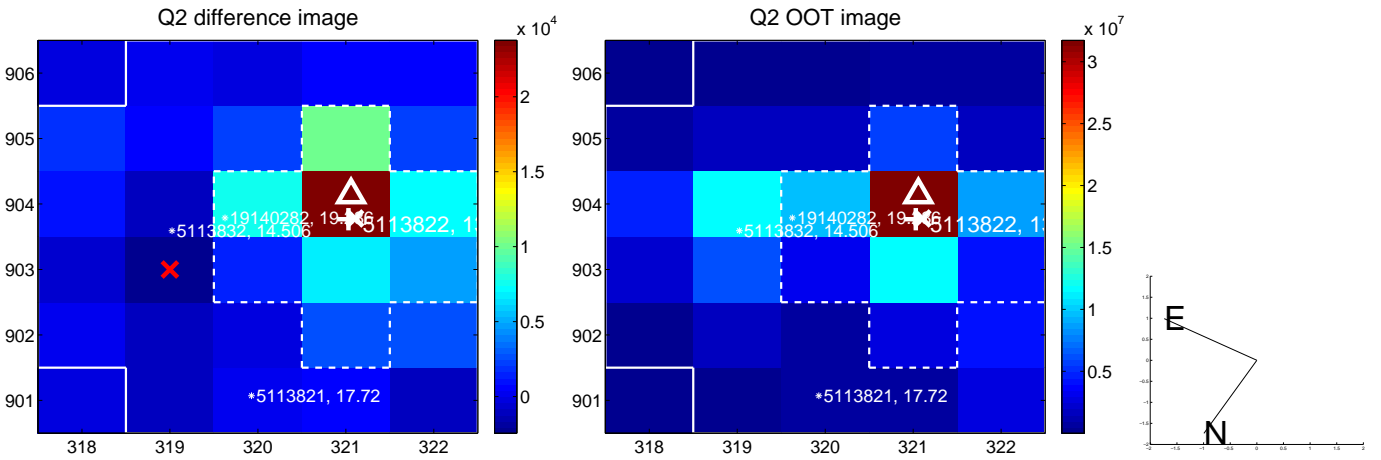
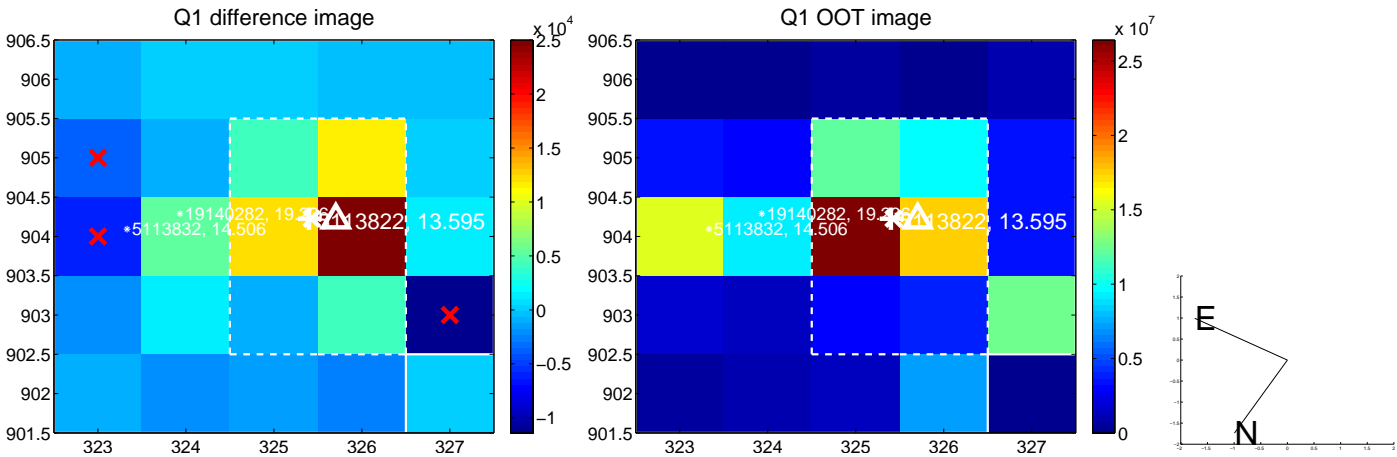
The direct PRF centroid is offset from the target star catalog position by about 0.10 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.045 ± 0.131	0.34	0.041 ± 0.130	0.018 ± 0.150
PRF-fit source offset from KIC position	0.008 ± 0.120	0.06	-0.008 ± 0.118	0.001 ± 0.149
photometric centroid source offset	0.36 ± 0.10	3.51	-0.15 ± 0.12	0.33 ± 0.10

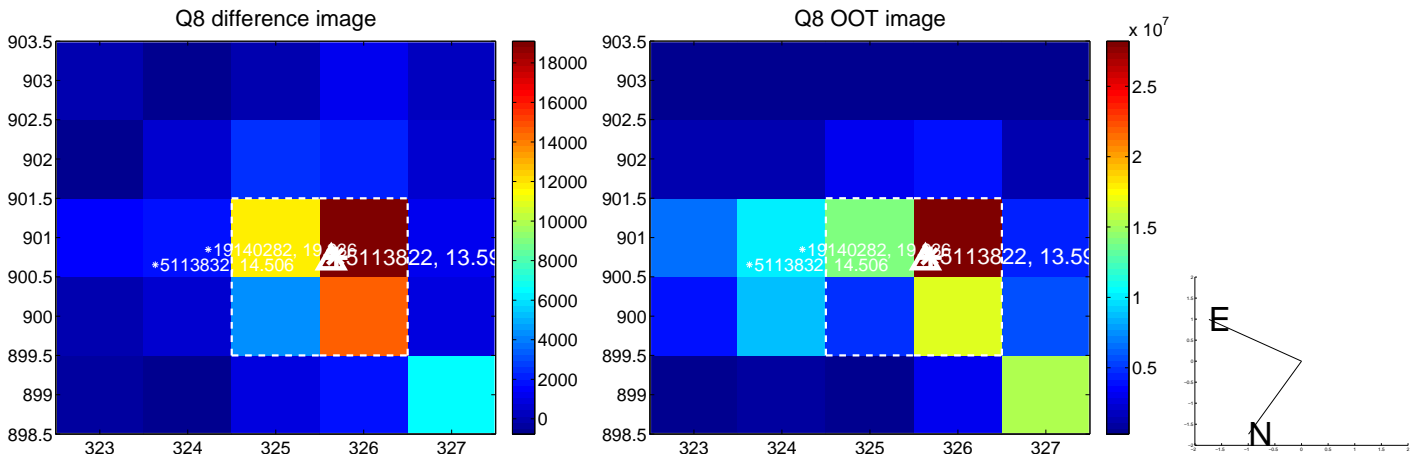
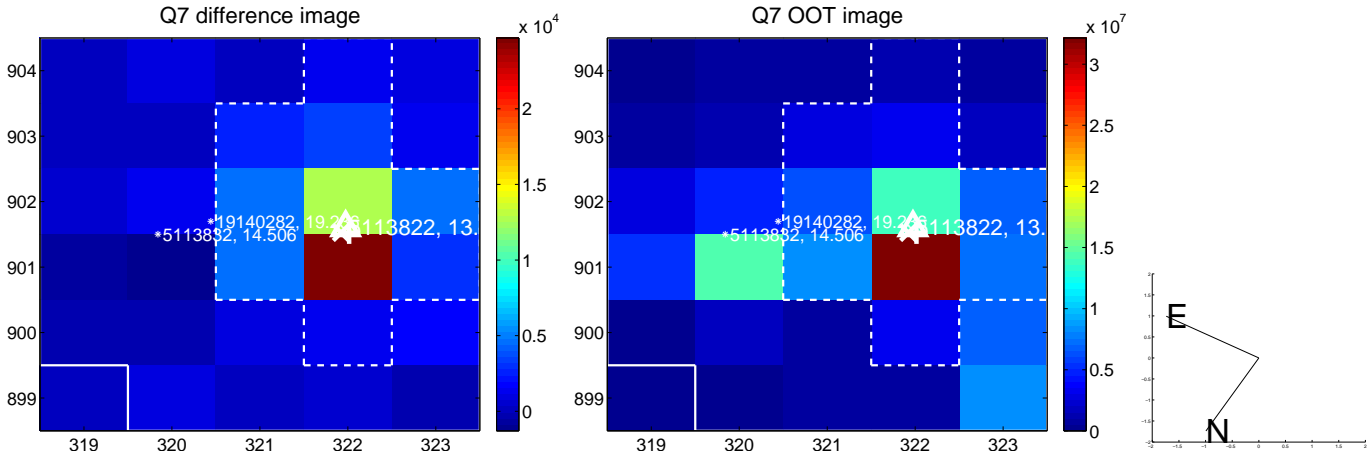
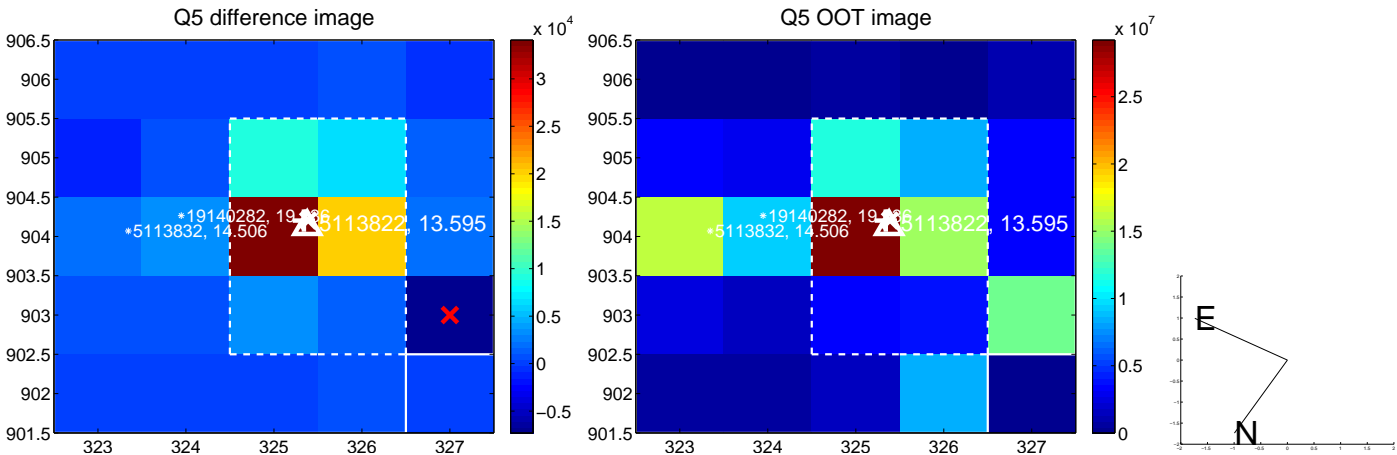


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses:** good quarterly centroid offsets; **Vermillion crosses:** bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

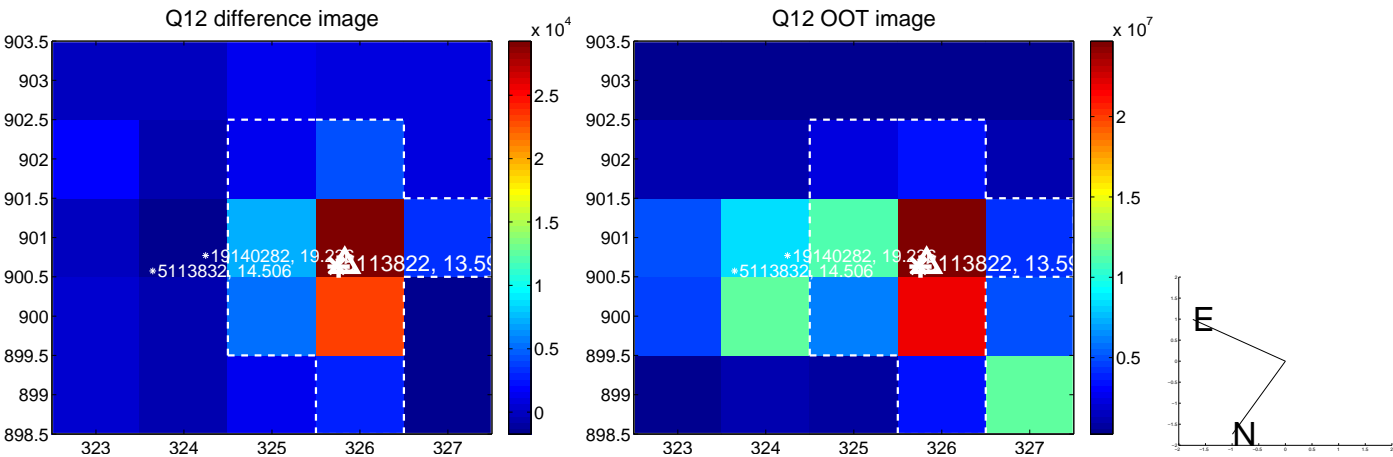
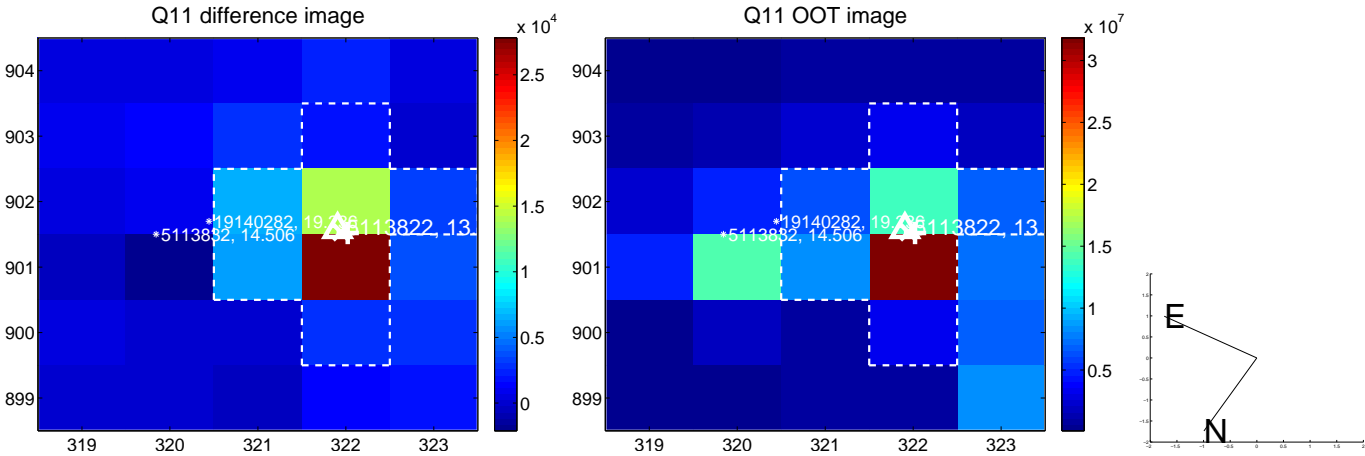
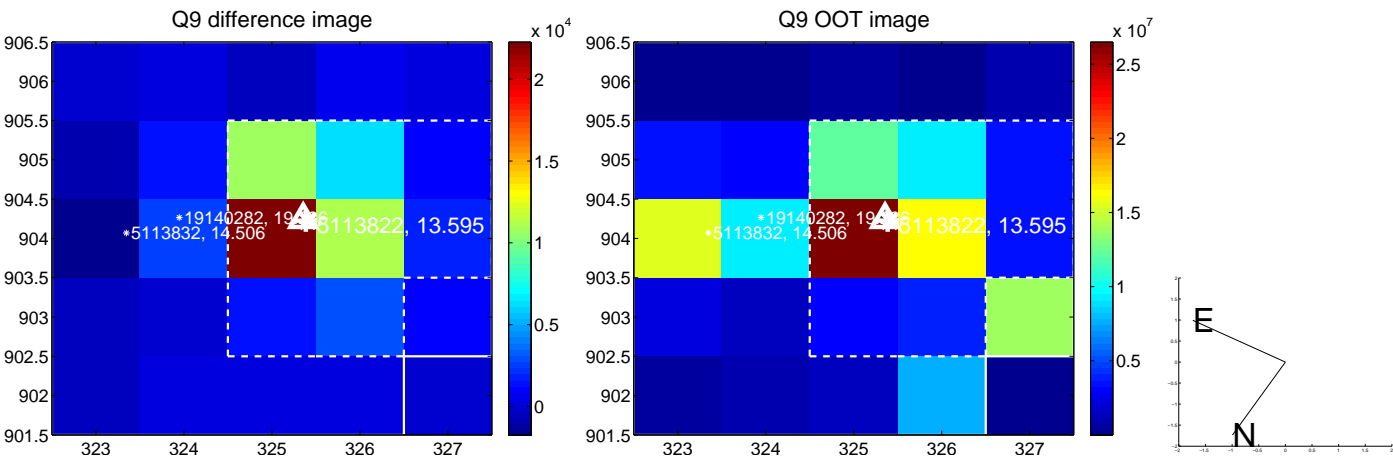
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



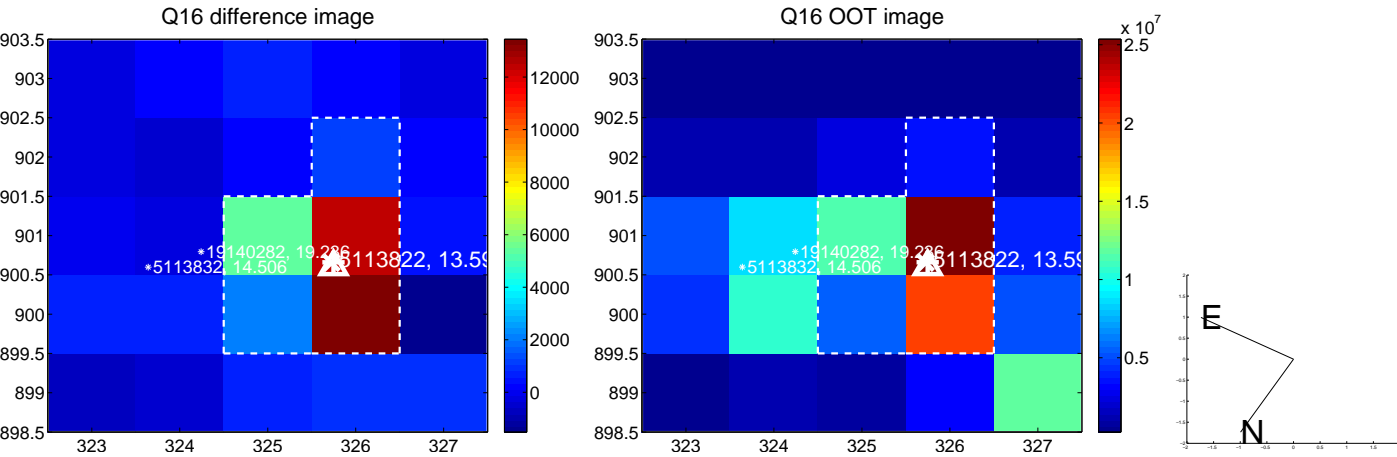
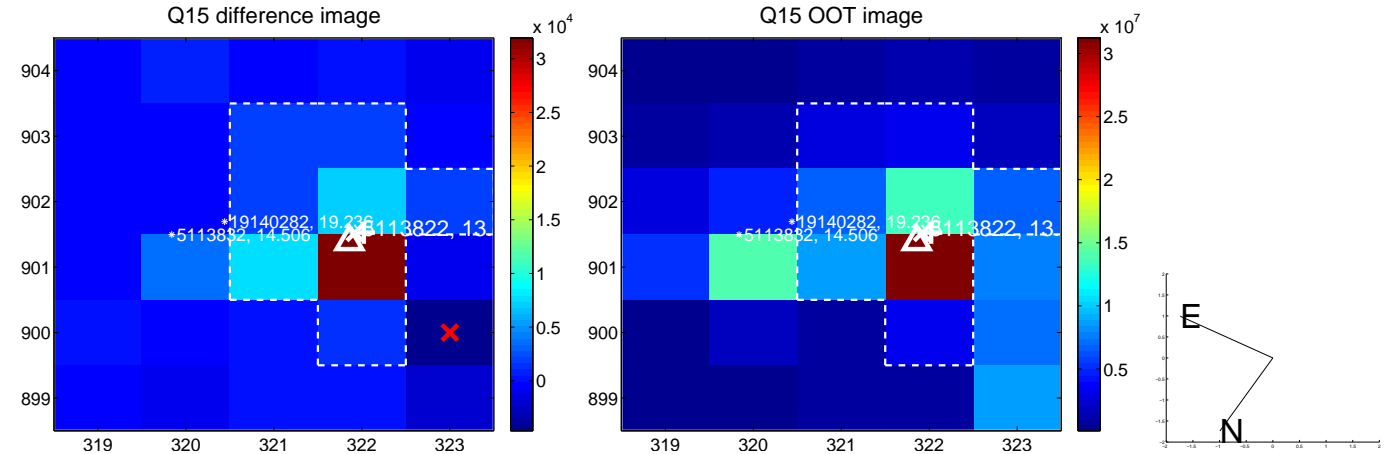
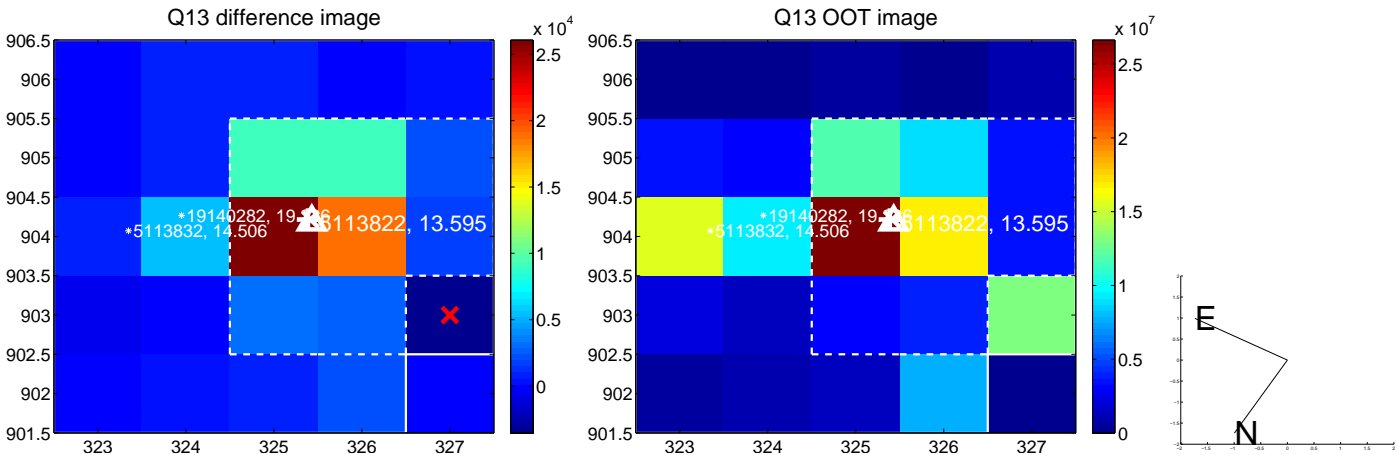
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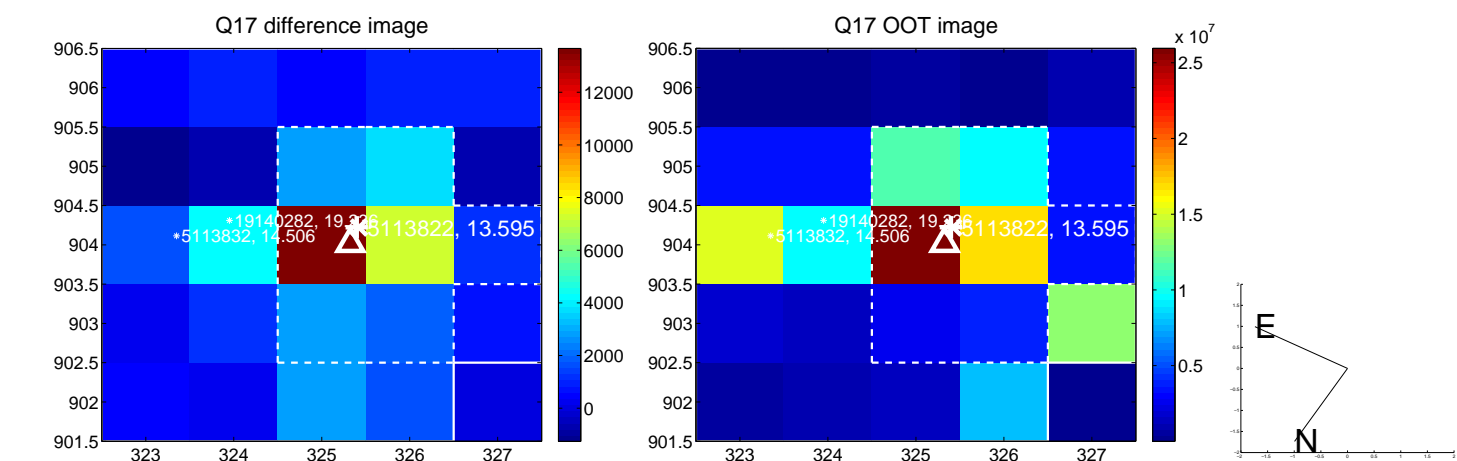
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



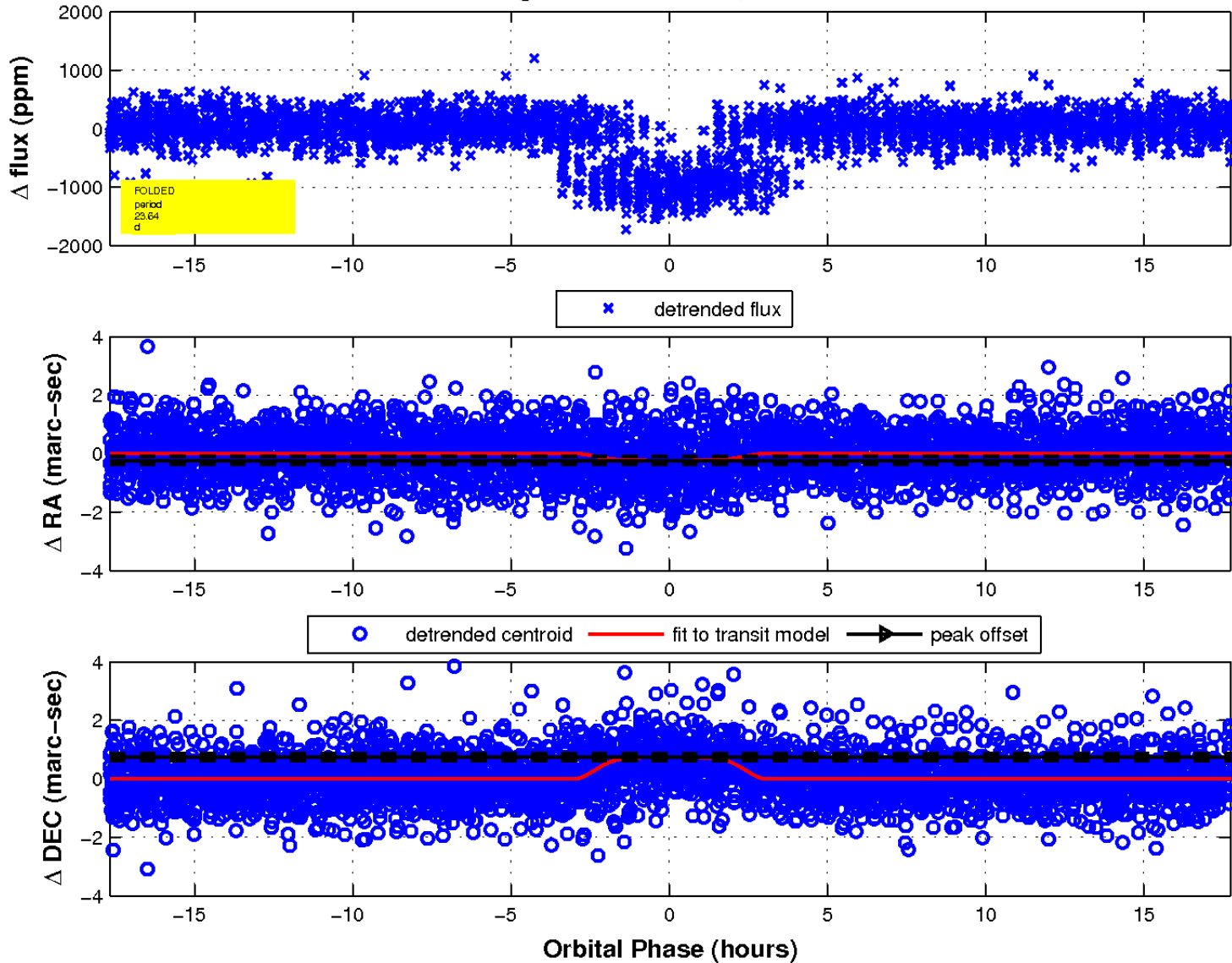
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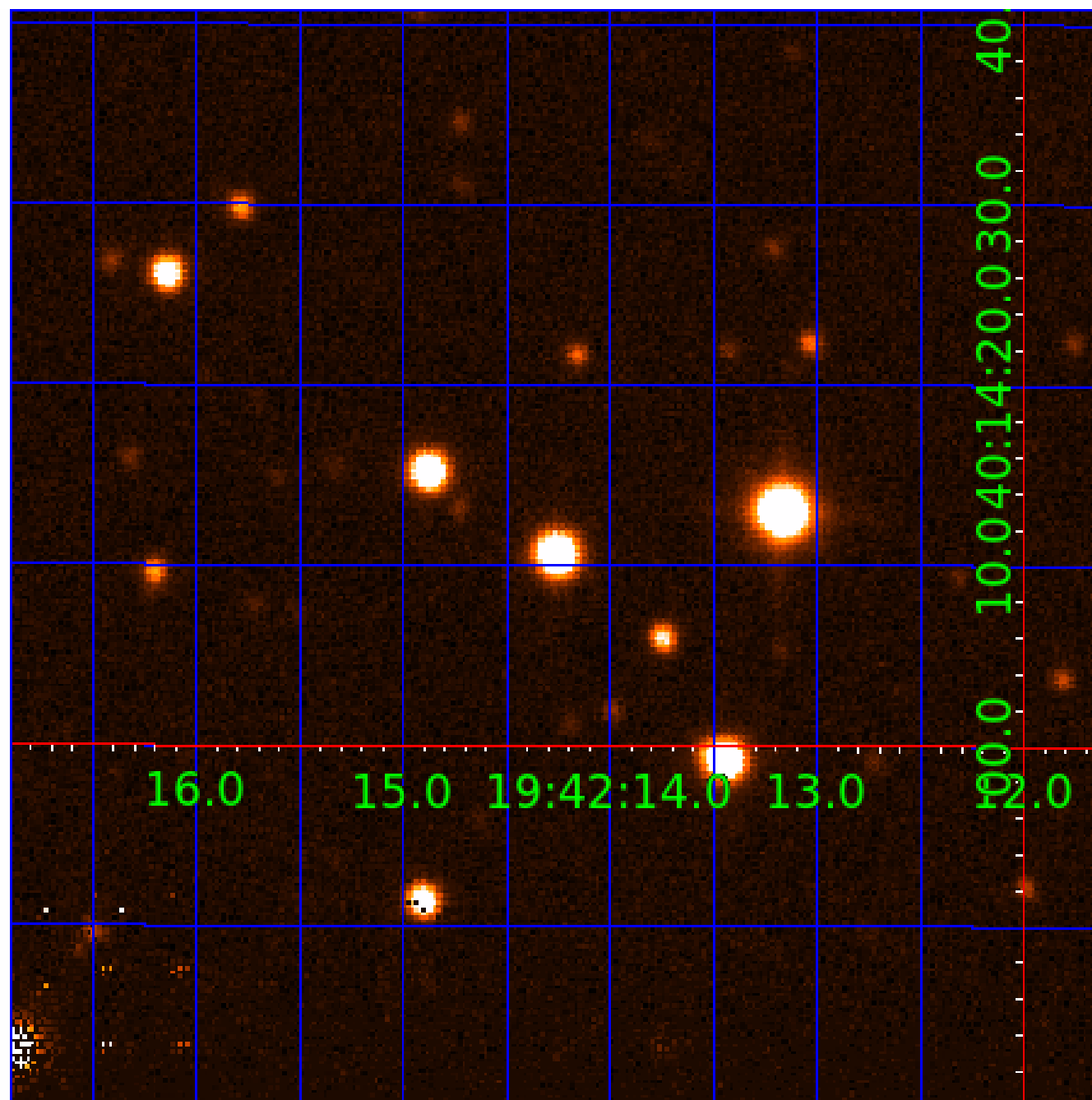


fluxWeightedCentroids, Planet 1 of 2



UKIRT Image

Declination



KIC 005113822

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})
005113822-01	OBS	0638.01	23.641492	148.963777	1051.3	5.918	60.7	67.9	0.88	5750	3.51	29.71
005113822-02	OBS	0638.02	67.093336	146.568444	1241.0	7.342	53.5	53.7	0.88	5750	3.47	7.40

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
005113822-01	OBS	PC	1.00	0	0	0	0	NO_COMMENT
005113822-02	OBS	PC	0.95	0	0	0	0	NO_COMMENT

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.

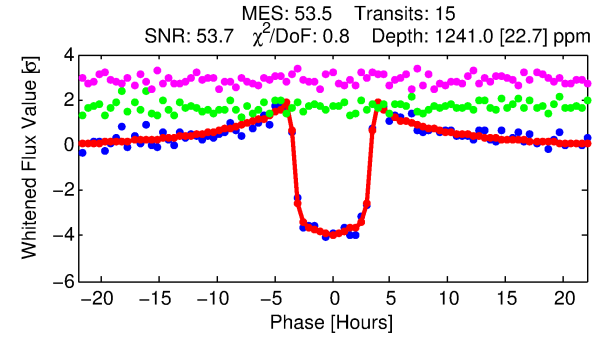
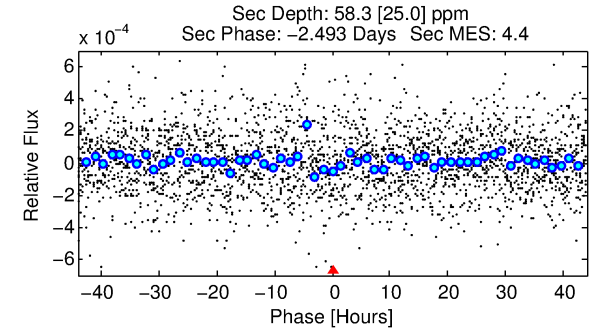
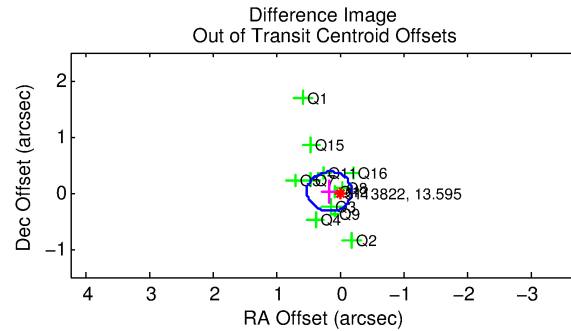
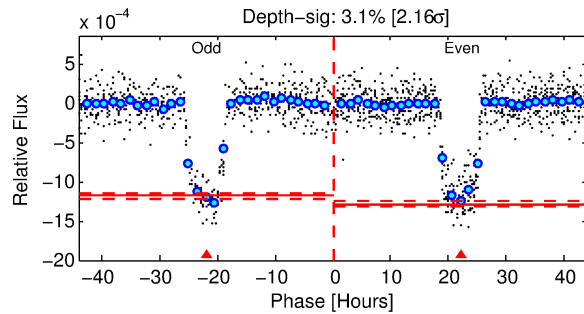
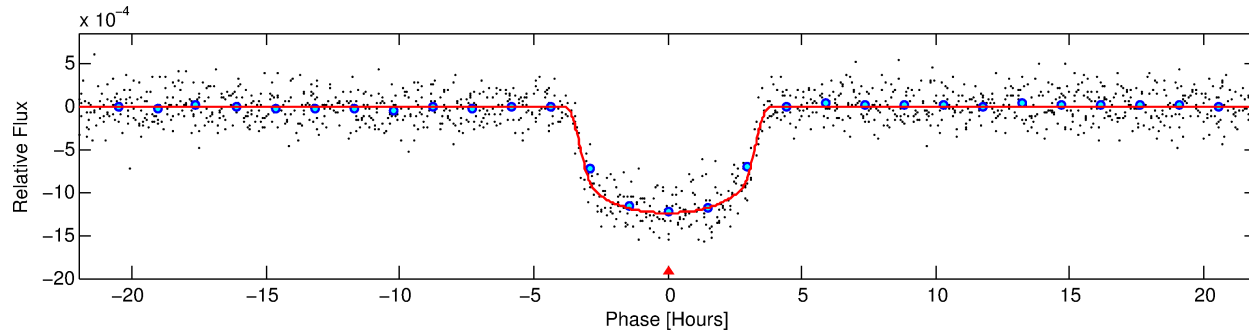
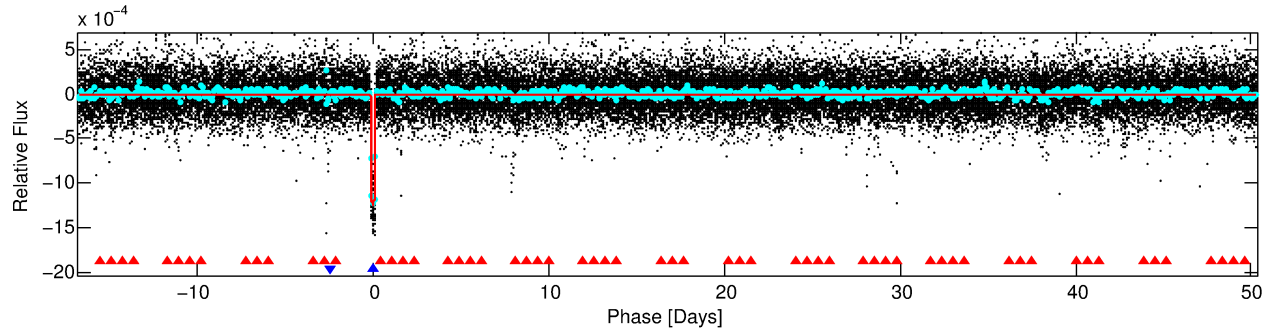
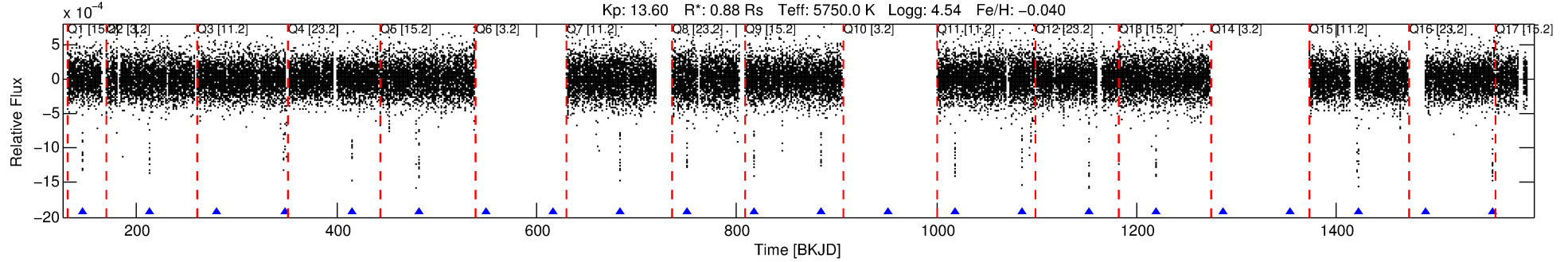
Ephemeris Match Information For 005113822-02

No Significant Match Found

DV One-Page Summary

KIC: 5113822 Candidate: 2 of 2 Period: 67.093 d
KOI: K00638.02 Name: Kepler-199c Corr: 0.970

Kp: 13.60 R*: 0.88 Rs Teff: 5750.0 K Logg: 4.54 Fe/H: -0.040



DV Fit Results:

Period = 67.09334 [0.00015] d
Epoch = 146.5684 [0.0018] BKJD
Rp/R* = 0.0361 [0.0010]
a/R* = 44.86 [4.66]
b = 0.81 [0.04]
Seff = 7.40 [1.56]
Teq = 421 [22] K
Rp = 3.47 [0.49] Re
a = 0.3210 [0.0400] AU
Ag = 273.84 [129.33] [2.11σ]
Teffp = 2645 [291] K [7.62σ]

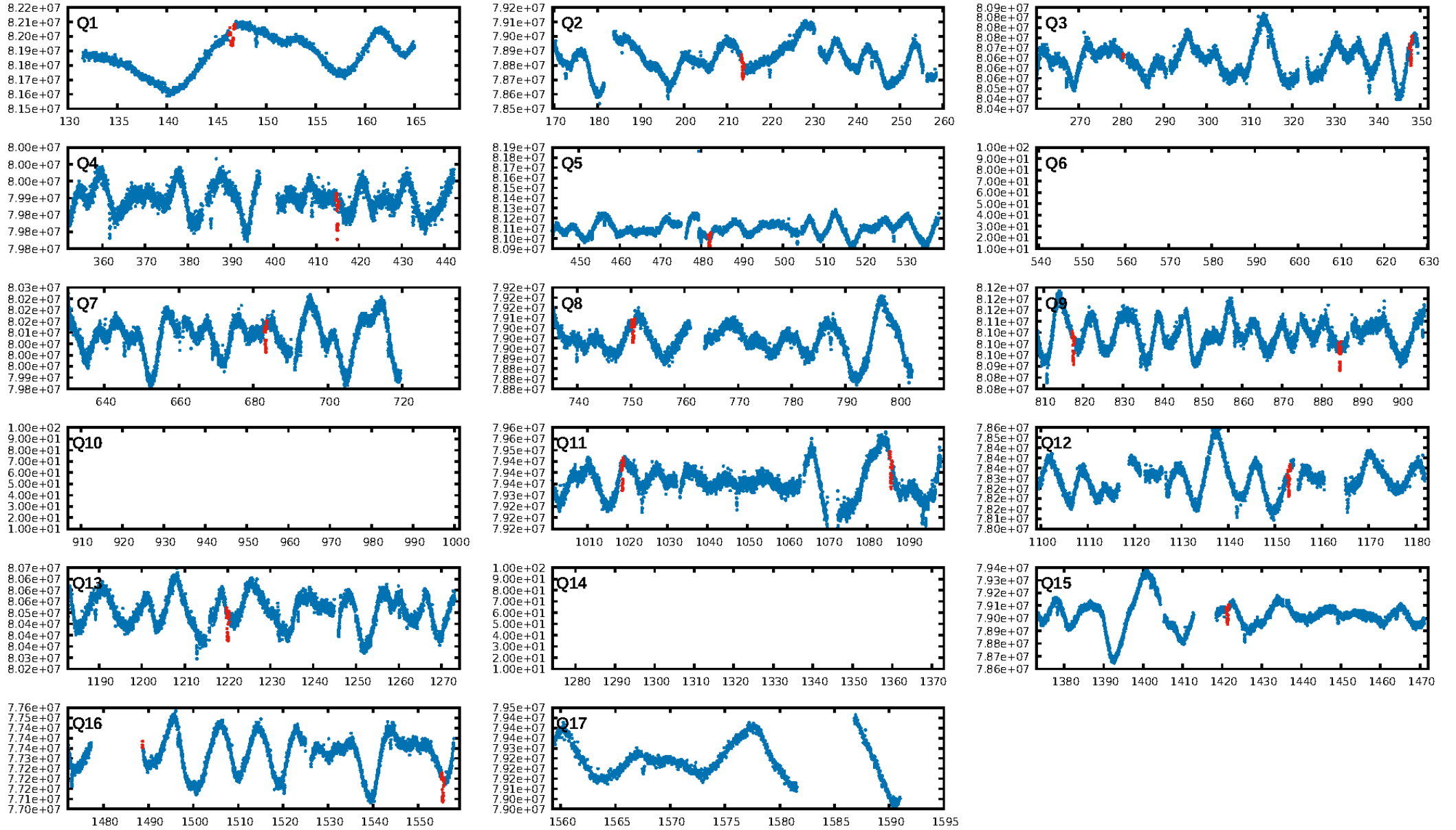
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [110.58σ]
LongPeriod-sig: N/A
ModelChiSquare2-sig: 53.2%
ModelChiSquareGof-sig: 100.0%
Bootstrap-pfa: 0.00e+00
RollingBand-fgt: 1.00 [14/14]
GhostDiagnostic-chr: 4.522
Centroid-sig: 0.0%
Centroid-so: 0.661 arcsec [5.17σ]
OotOffset-rm: 0.176 arcsec [1.50σ]
KicOffset-rm: 0.132 arcsec [1.17σ]
OotOffset-st: 1/4/4/3 [12]
KicOffset-st: 1/4/4/3 [12]
DiffImageQuality-fgm: 1.00 [12/12]
DiffImageOverlap-fno: 1.00 [12/12]

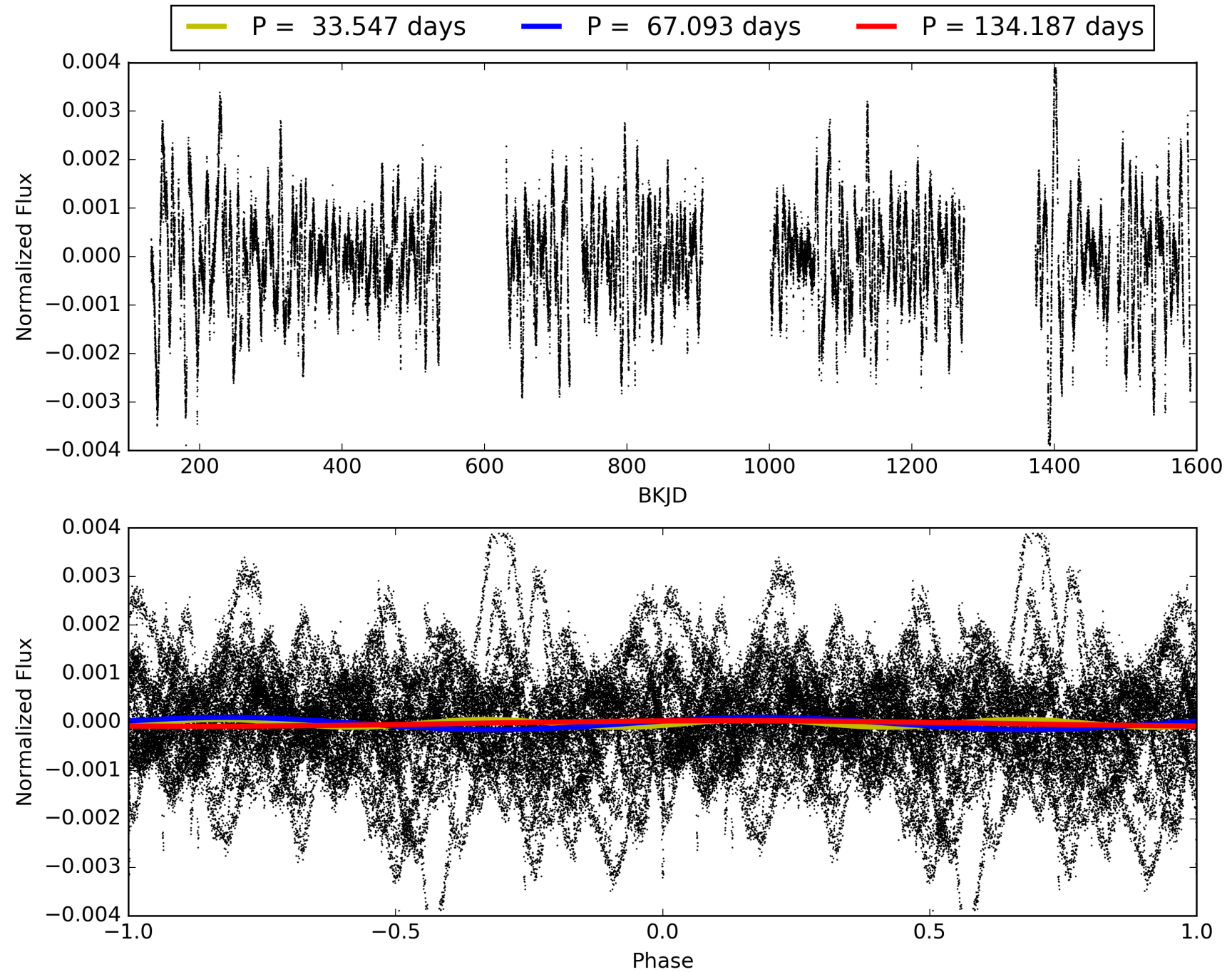
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 10:28:43 Z

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TCE 005113822-02, PDC Light Curves

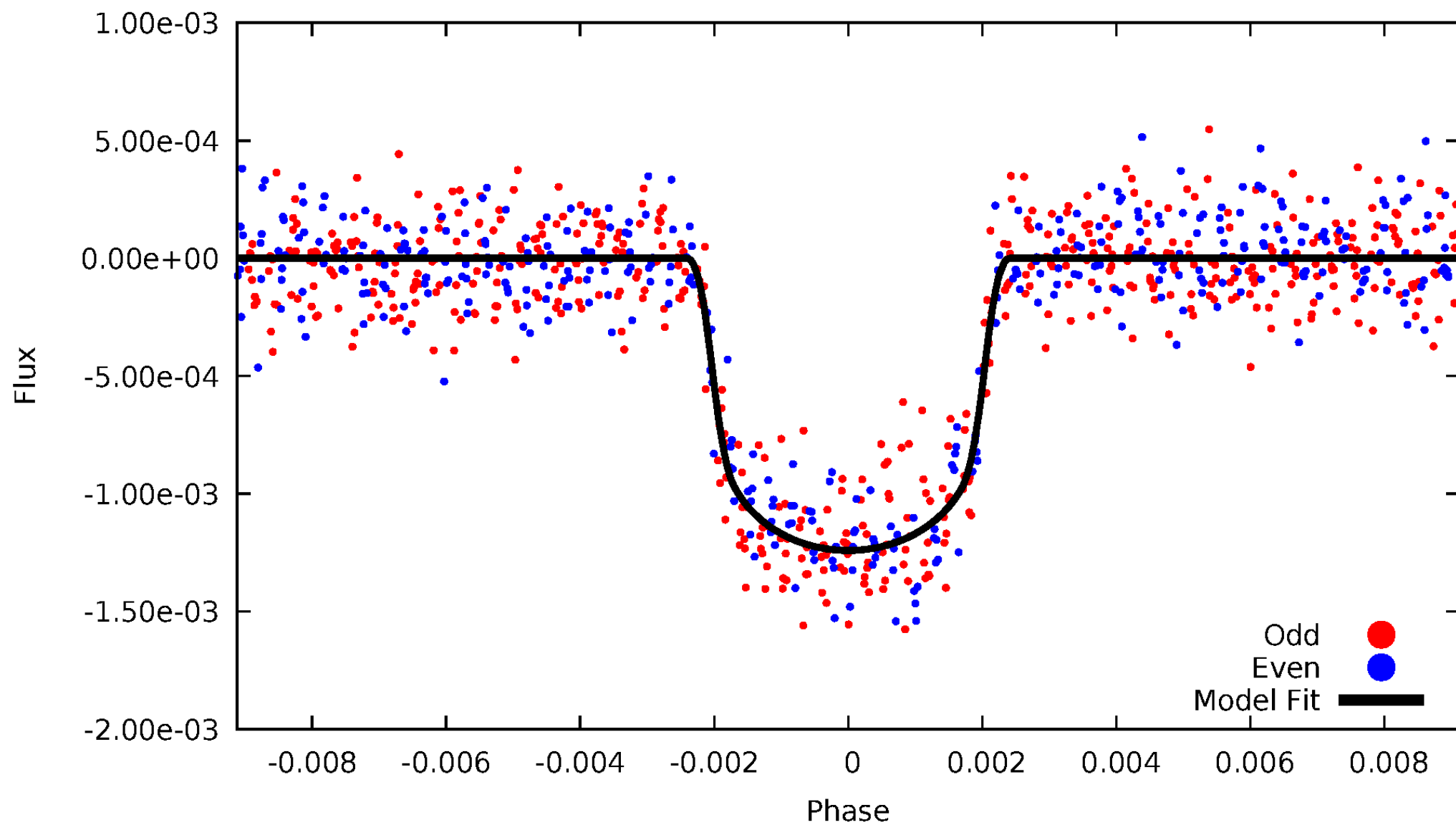


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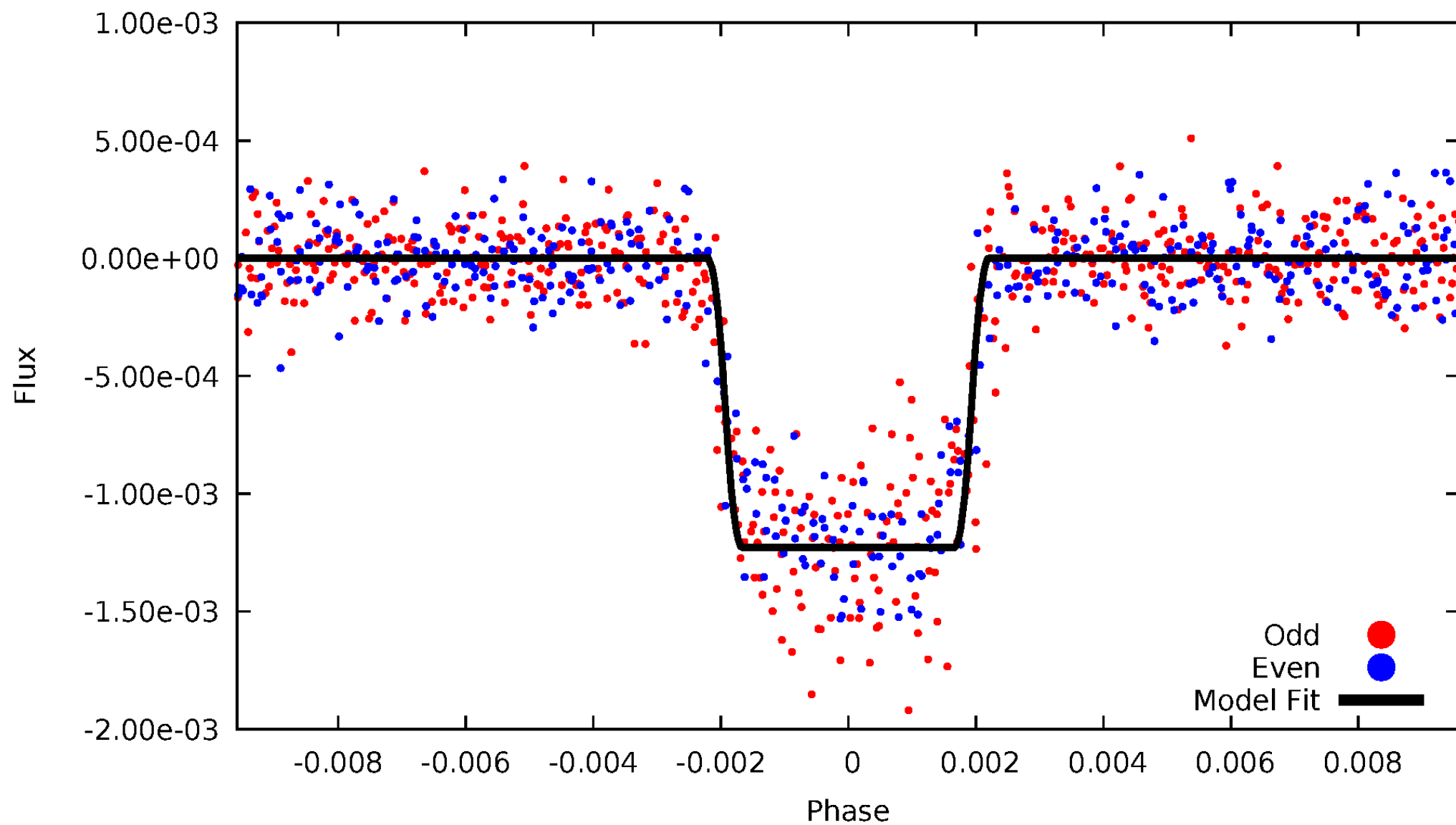
DV Odd/Even

TCE 005113822-02



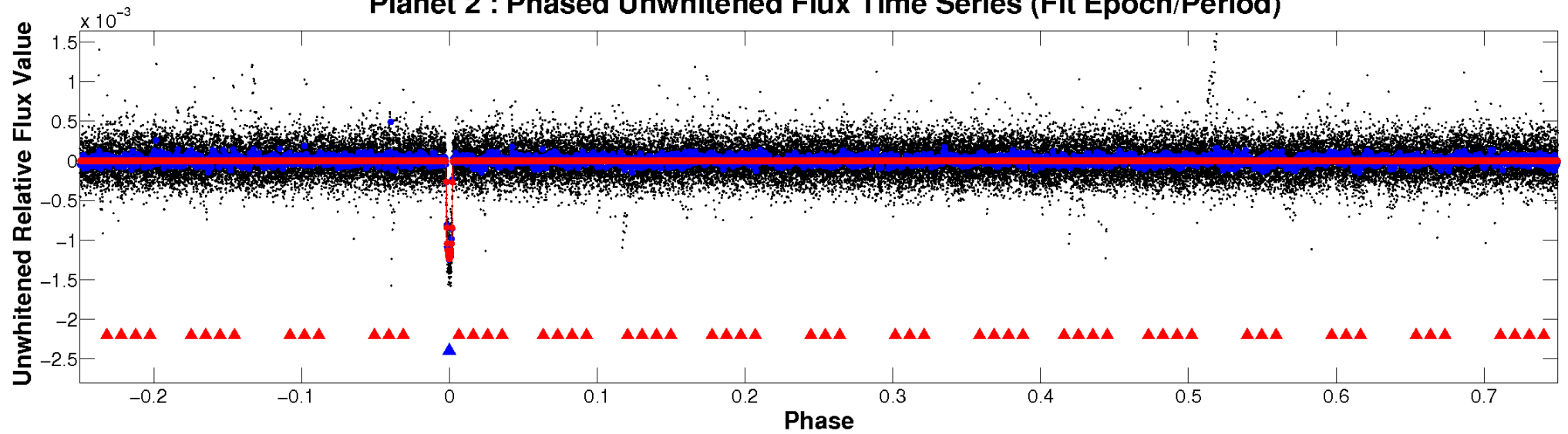
ALT Odd/Even

TCE 005113822-02

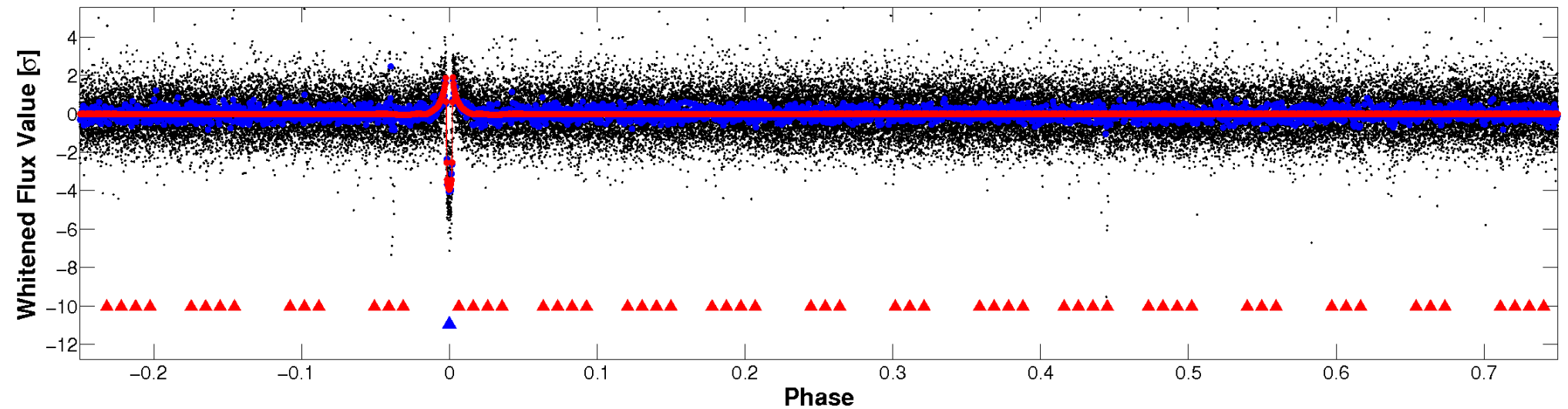


Non-Whitened Vs. Whitened Light Curve

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

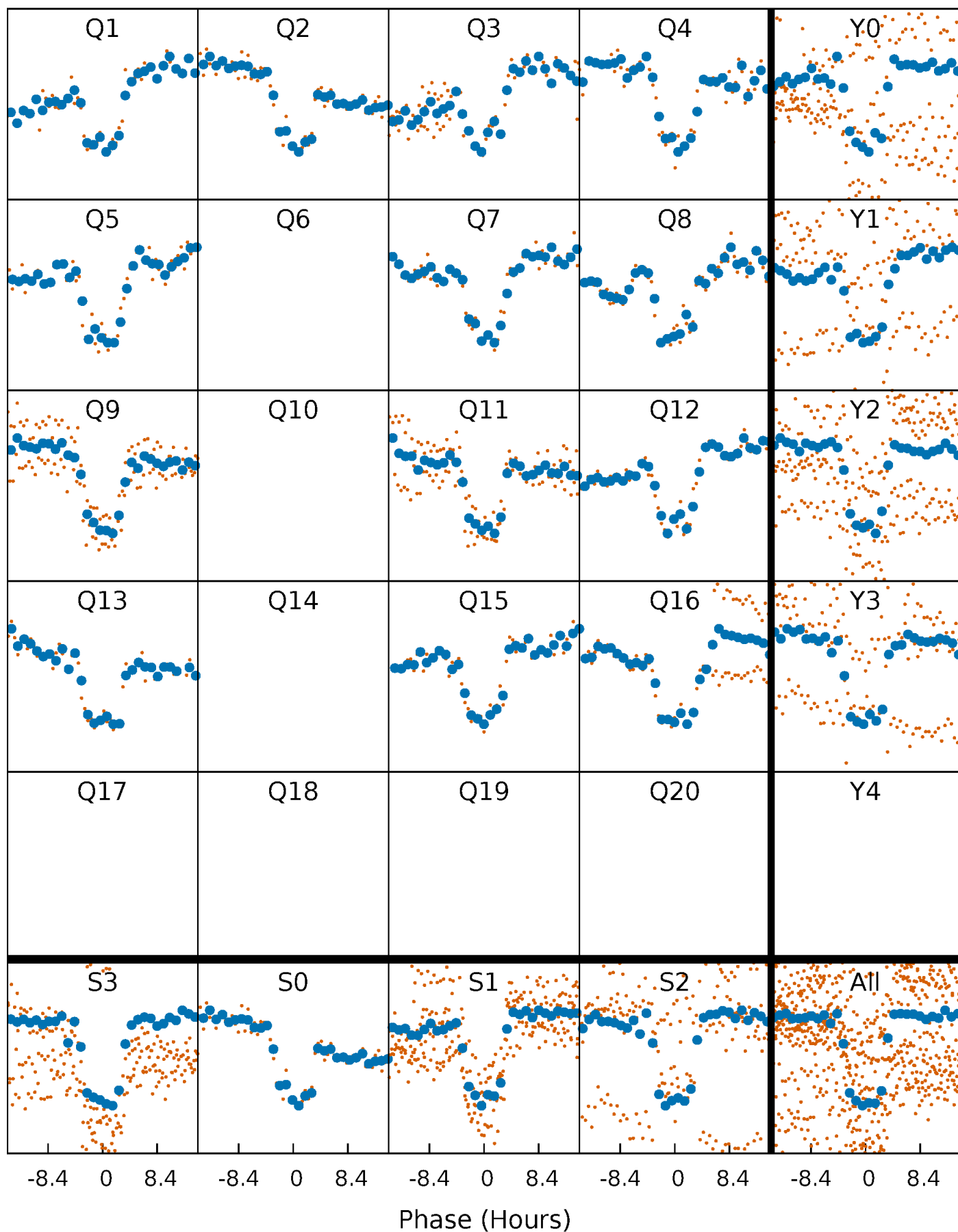


Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



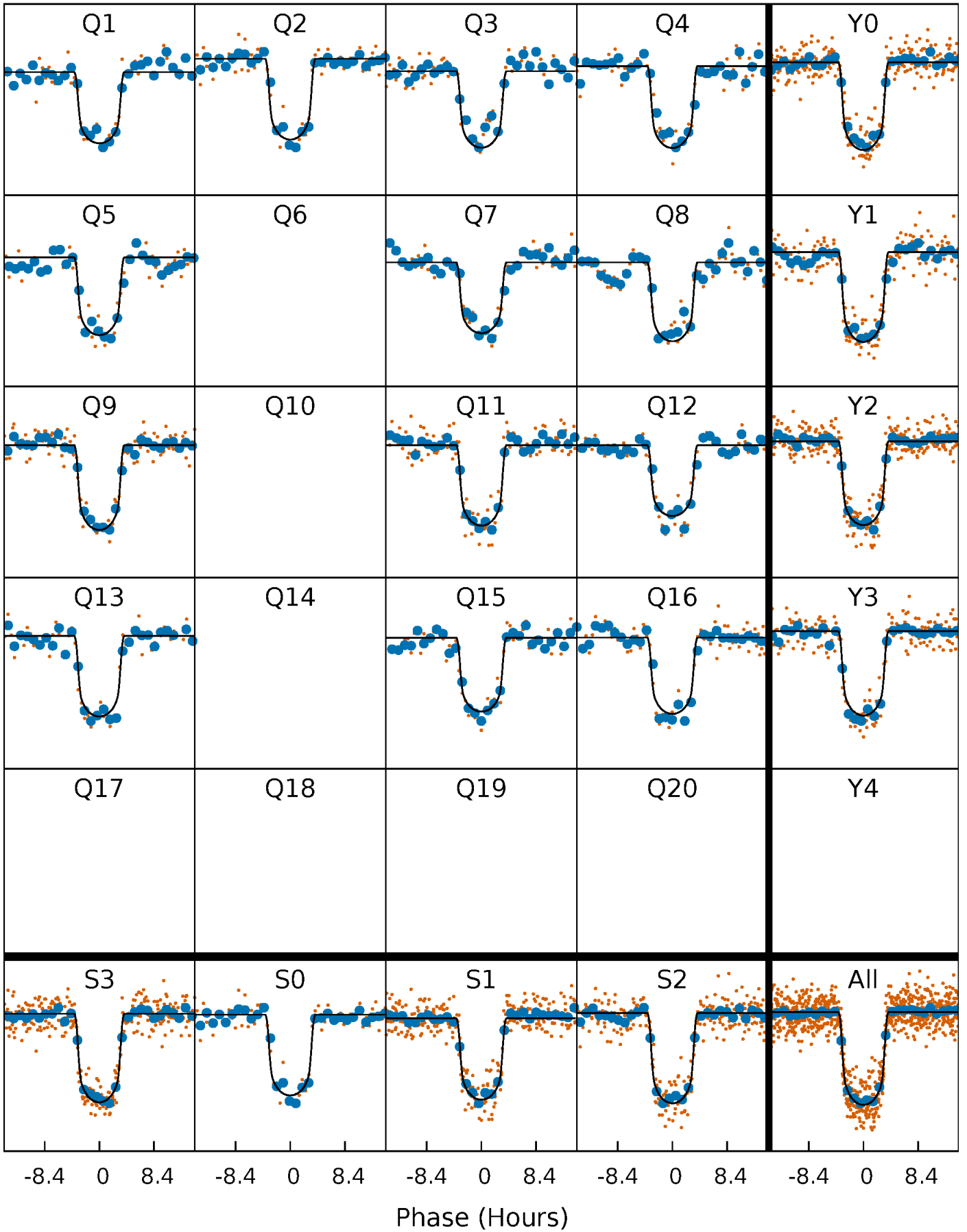
PDC Quarter-Phased Transit Curves

TCE 005113822-02 P= 67.093336 Days $T_0=146.568444$ (BKJD)



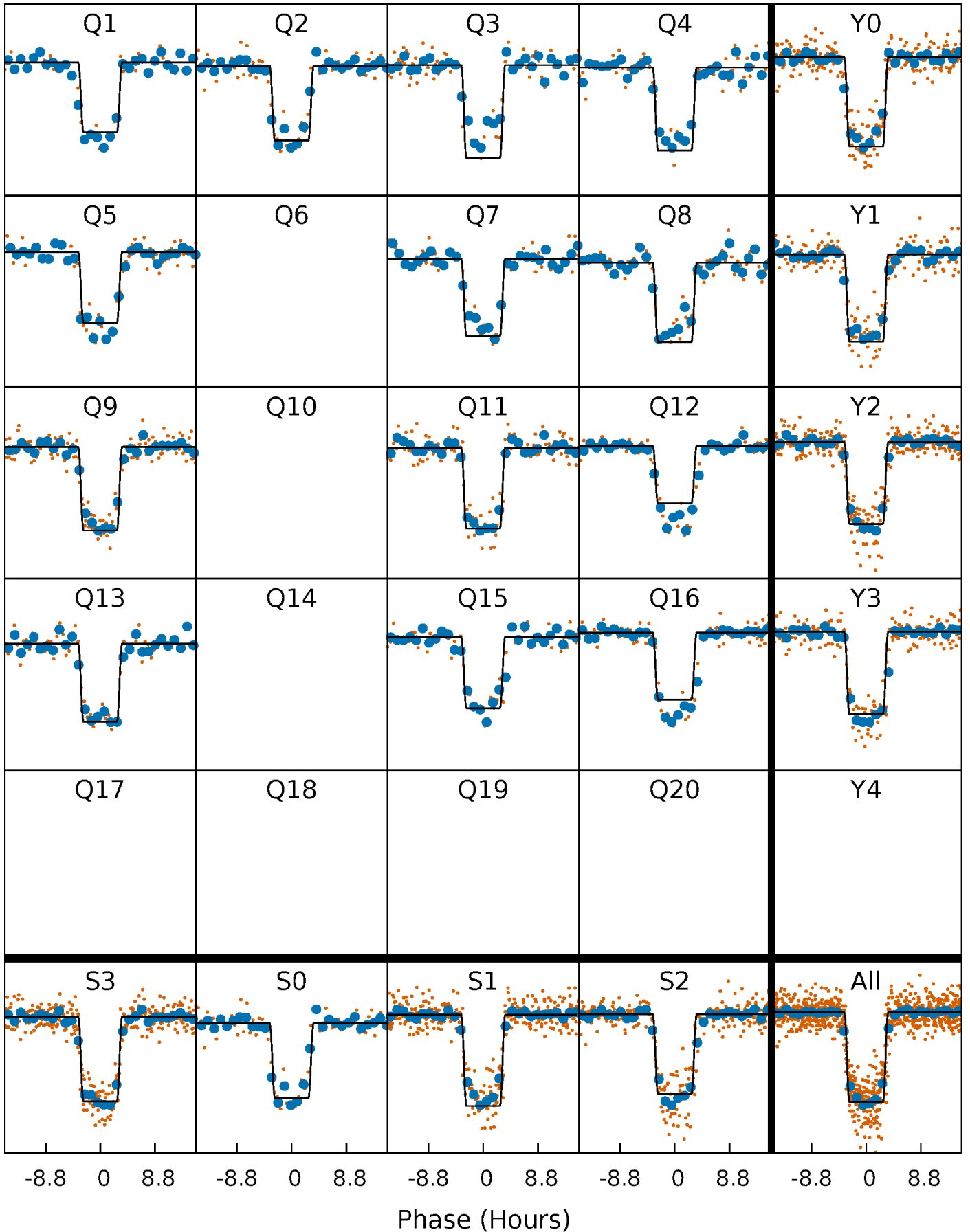
DV Quarter-Phased Transit Curves

TCE 005113822-02 P= 67.093336 Days $T_0=146.568444$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

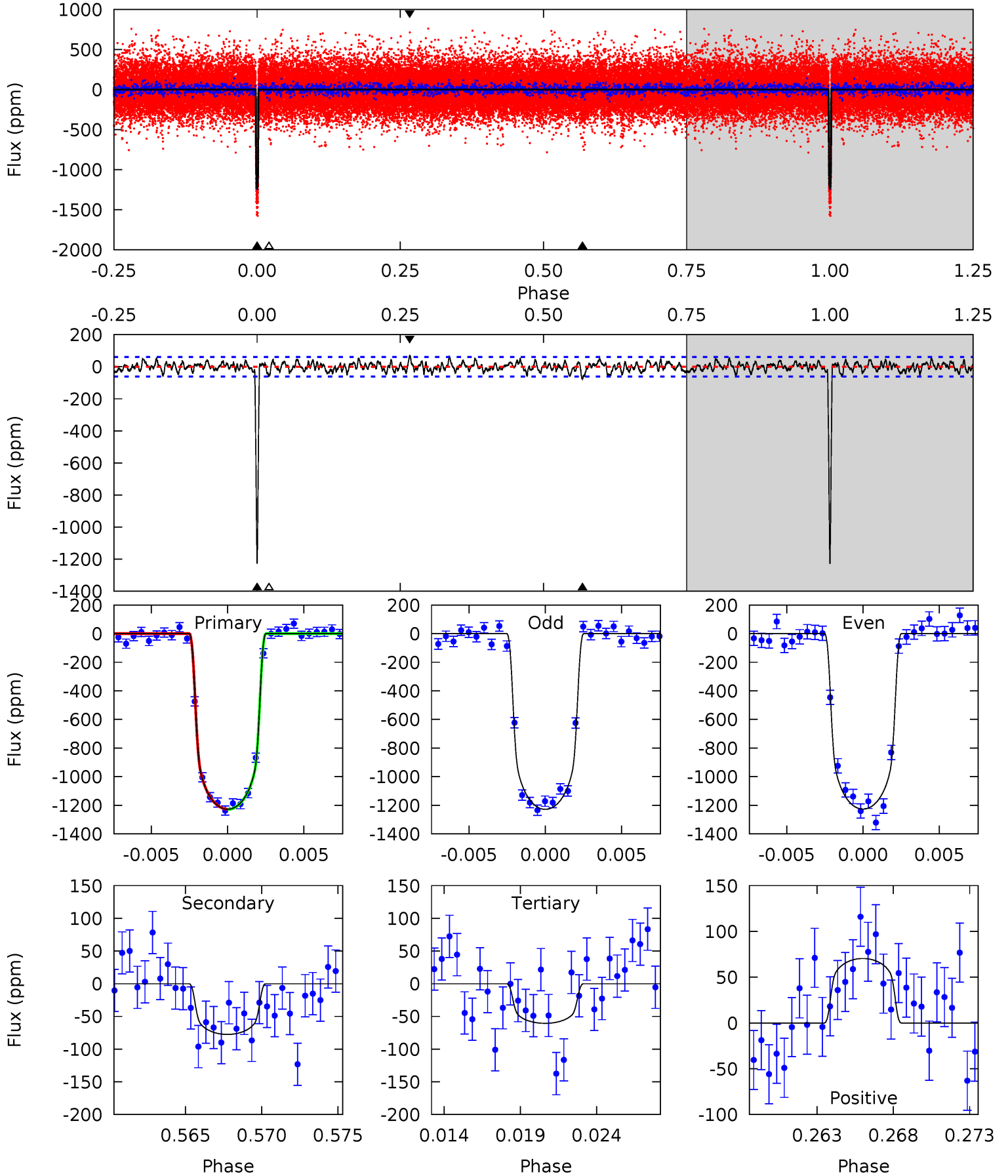
TCE 005113822-02 P= 67.092175 Days $T_0=146.579417$ (BKJD)



DV Model-Shift Uniqueness Test

005113822-02, P = 67.093336 Days, E = 79.475108 Days

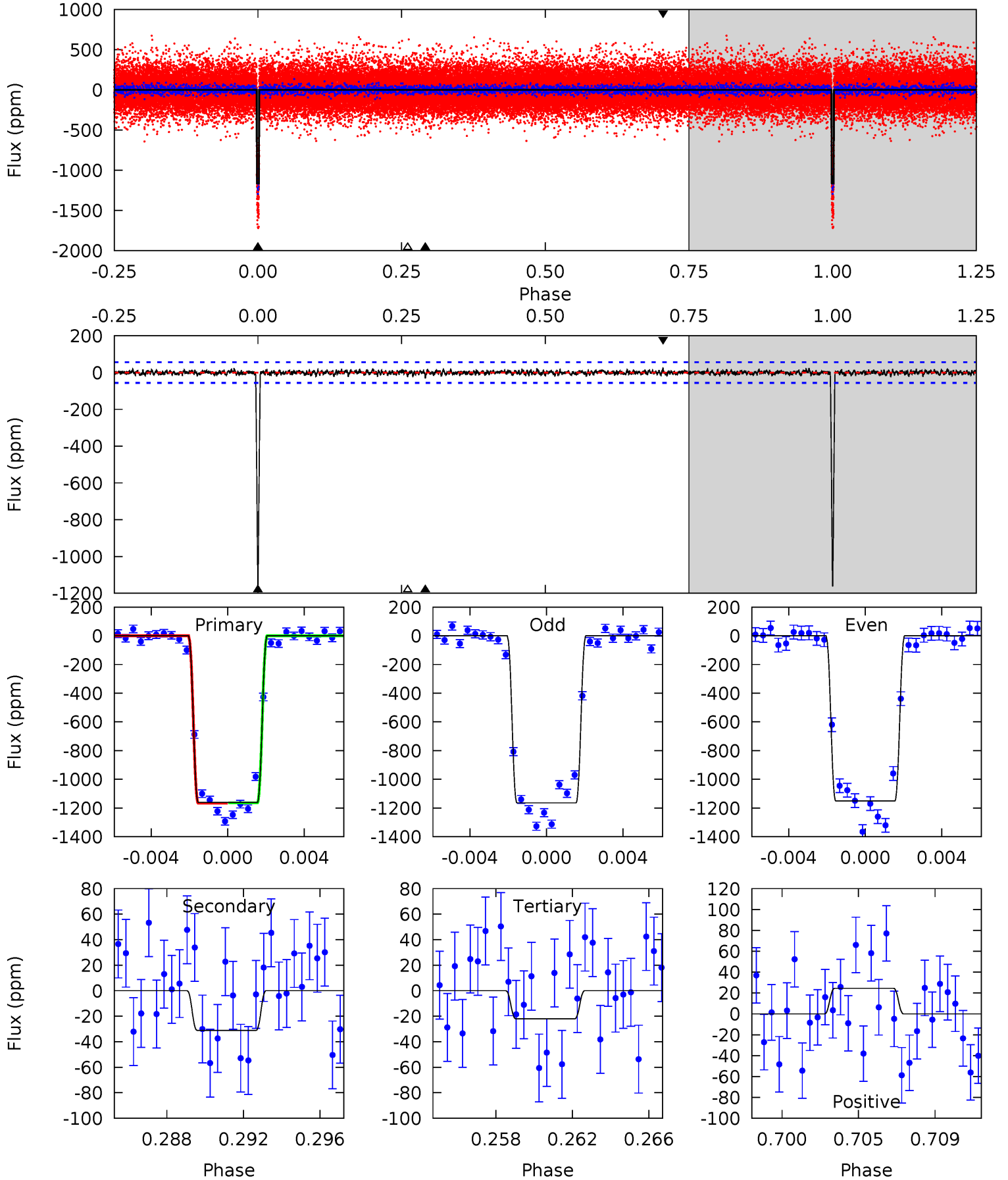
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
103.4	6.53	5.10	5.93	5.17	2.82	1.84	98.3	97.5	1.43	0.61	0.07	0.99	0.05	0.11



Alt Model-Shift Uniqueness Test

005113822-02, P = 67.092175 Days, E = 79.487242 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
106.8	2.86	2.02	2.25	5.19	2.86	0.62	104.8	104.5	0.84	0.61	0.62	1.01	0.02	0.10



Stellar Parameters For KIC 005113822

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (g \cdot \text{cm}^{-3})$
	5750^{+102}_{-125}	$4.538^{+0.026}_{-0.110}$	$-0.040^{+0.150}_{-0.150}$	$0.882^{+0.121}_{-0.043}$	$0.980^{+0.046}_{-0.081}$	$2.011^{+0.204}_{-0.643}$
	+2%/-2%	+1%/-2%	+375%/-375%	+14%/-5%	+5%/-8%	+10%/-32%
Source	SPE59	SPE59	SPE59	DSEP		

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

Secondary Eclipse Parameters for KIC 005113822-02 / KOI 0638.02

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	-78 ± 12	$3.52^{+0.28}_{-0.18}$	594^{+21}_{-17}	3360^{+90}_{-90}	341^{+64}_{-60}
Alt.	-31 ± 11	$3.41^{+0.27}_{-0.17}$	592^{+22}_{-16}	2975^{+127}_{-182}	148^{+51}_{-55}

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 $A_{obs} \gg 1.0$

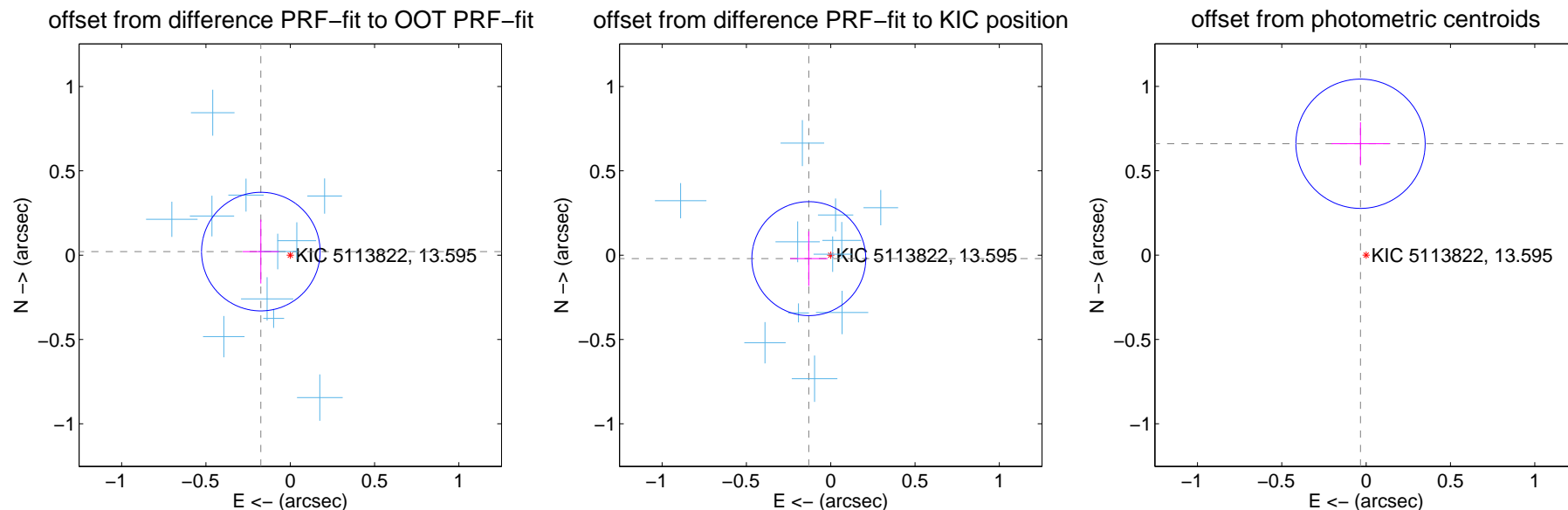
DV Centroid Data

Supplemental centroid analysis for 005113822-02. Kepler magnitude: 13.60. Transit SNR 53.70

There are 12 quarters with good PRF difference image offsets

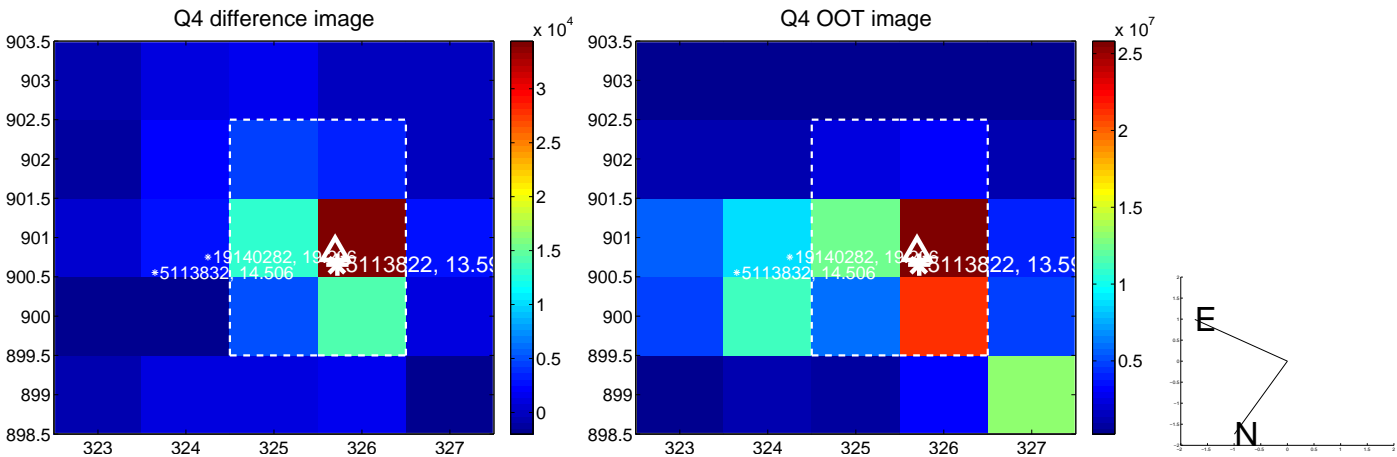
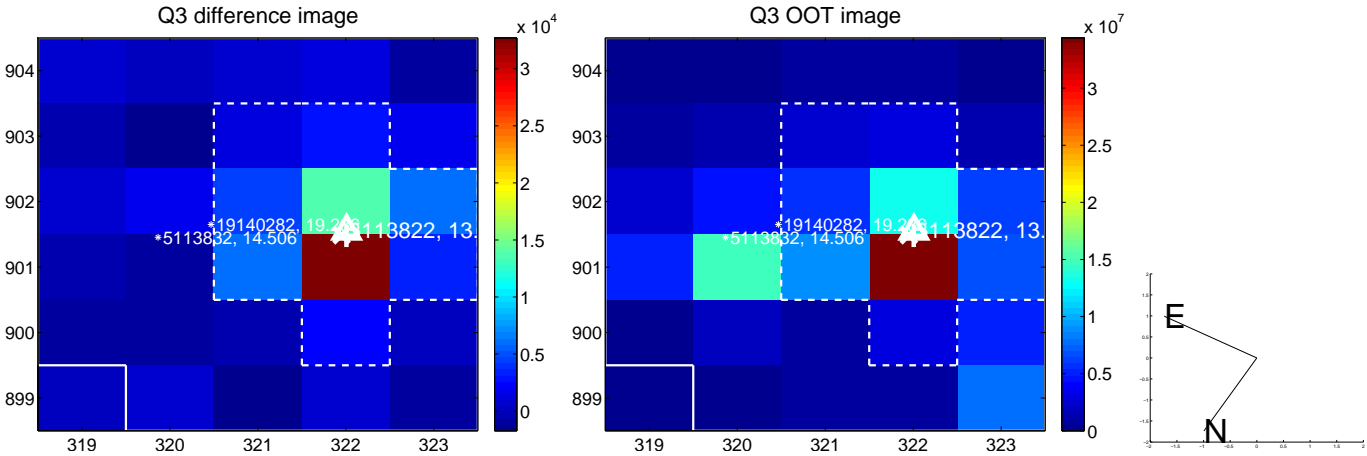
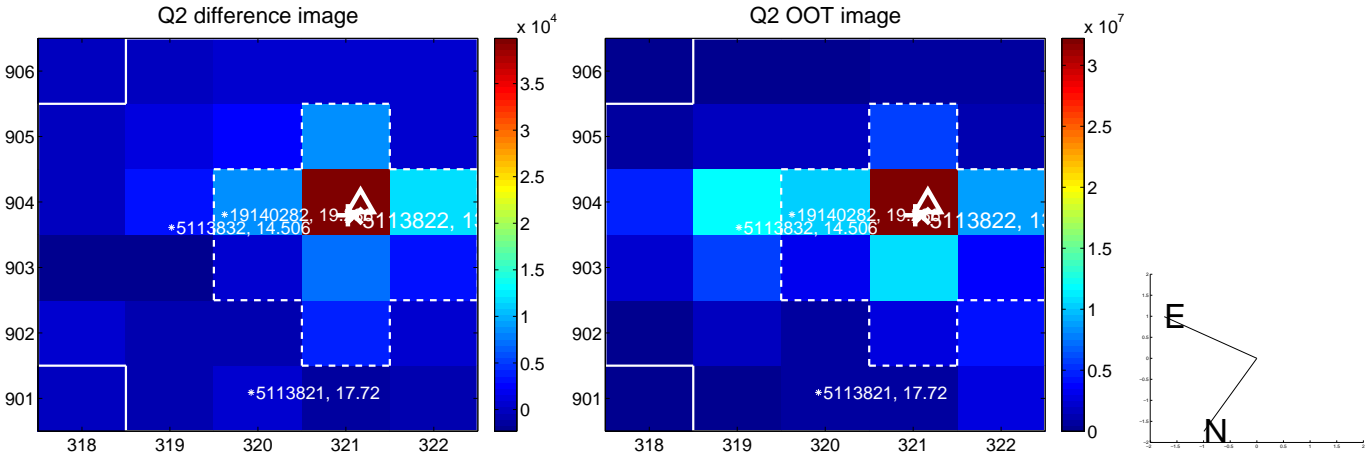
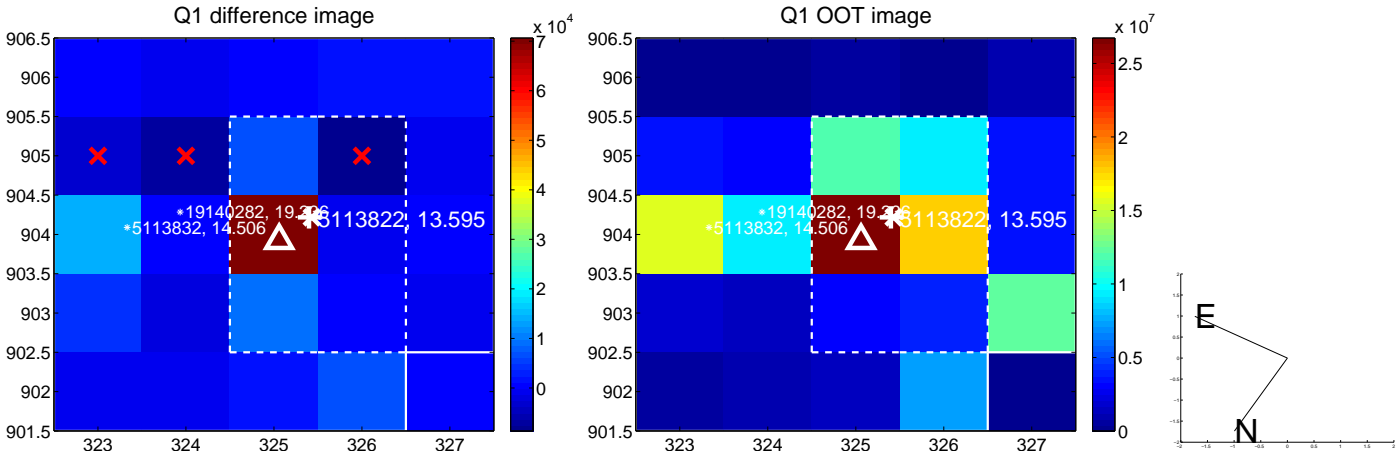
The direct PRF centroid is offset from the target star catalog position by about 0.12 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.176 ± 0.117	1.50	0.175 ± 0.107	0.021 ± 0.189
PRF-fit source offset from KIC position	0.132 ± 0.113	1.17	0.130 ± 0.111	-0.021 ± 0.162
photometric centroid source offset	0.66 ± 0.13	5.17	0.03 ± 0.17	0.66 ± 0.13

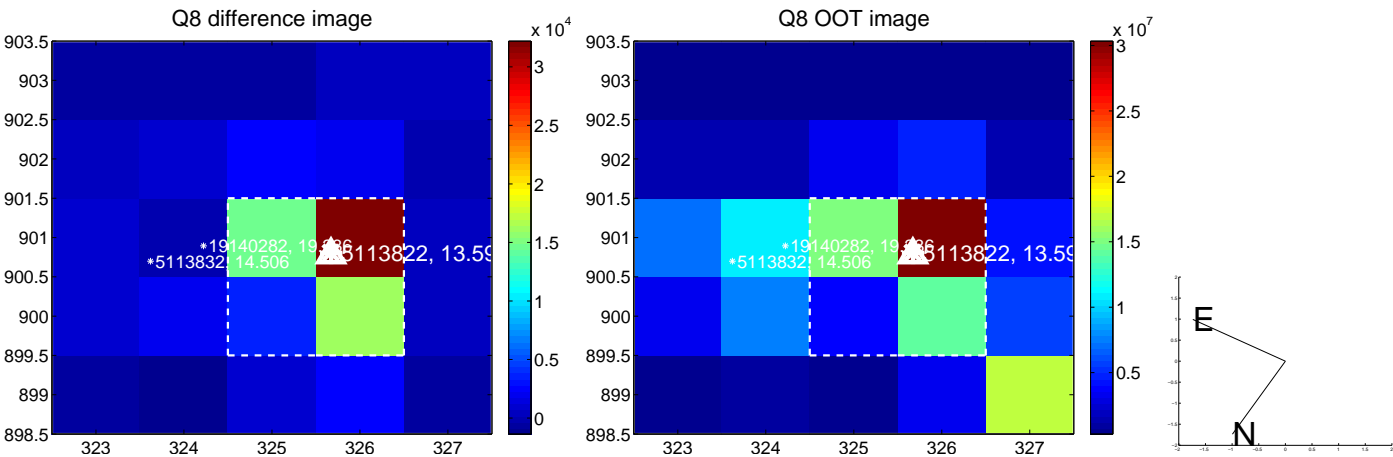
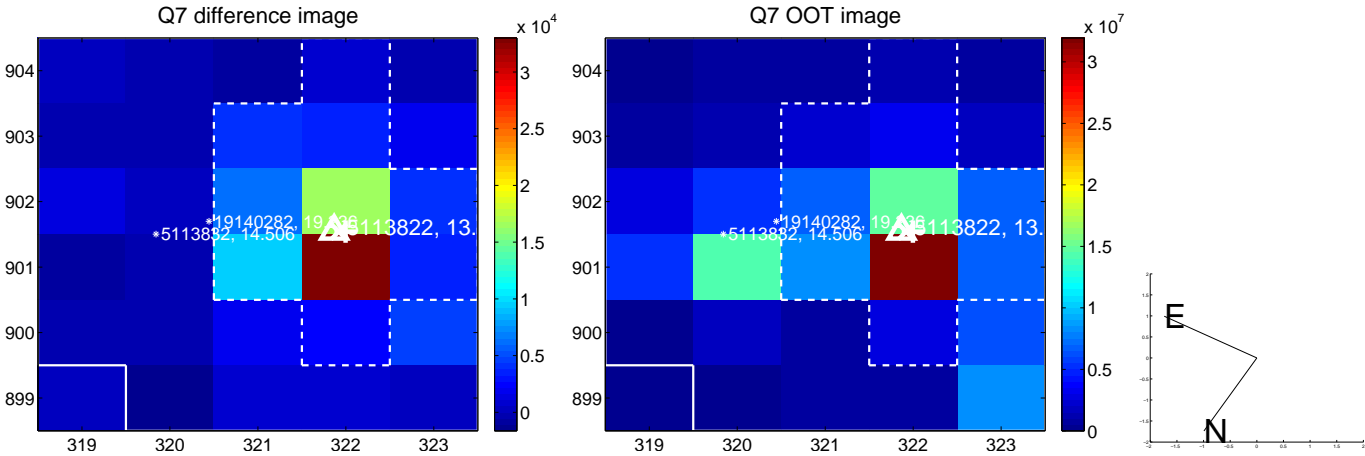
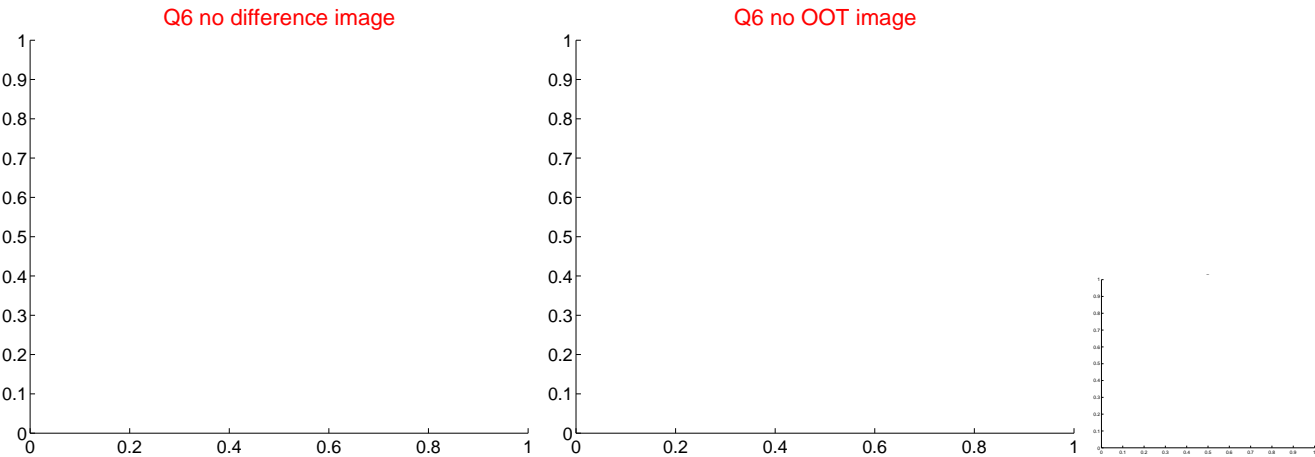
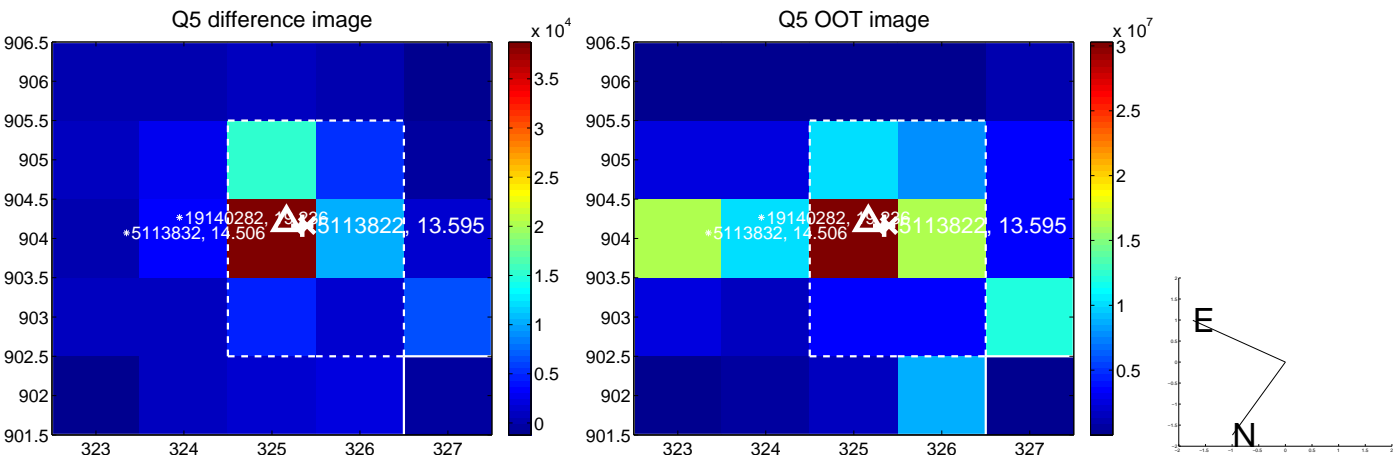


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses:** good quarterly centroid offsets; **Vermillion crosses:** bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

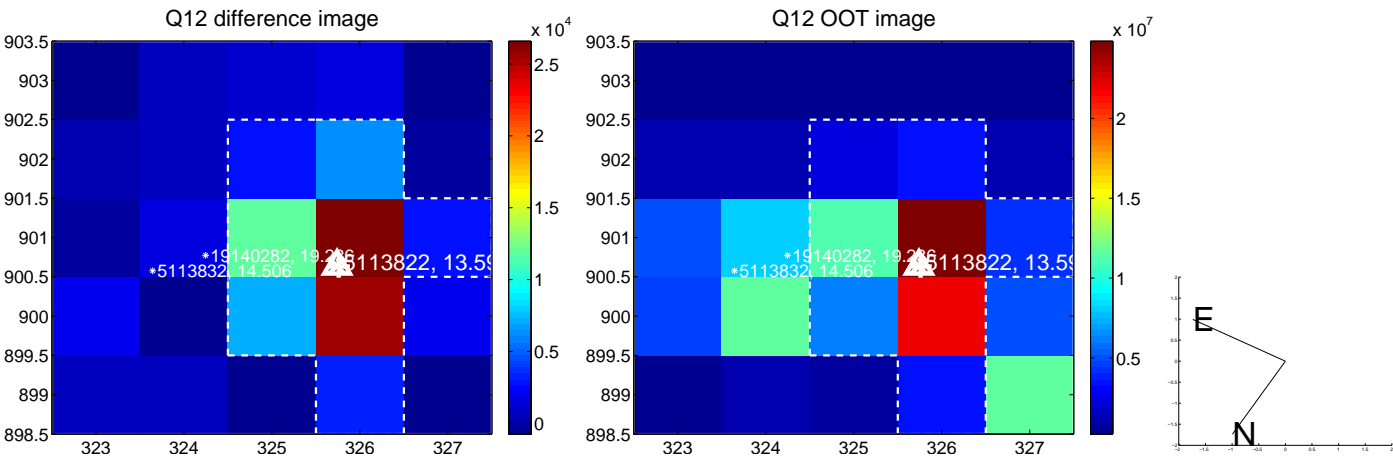
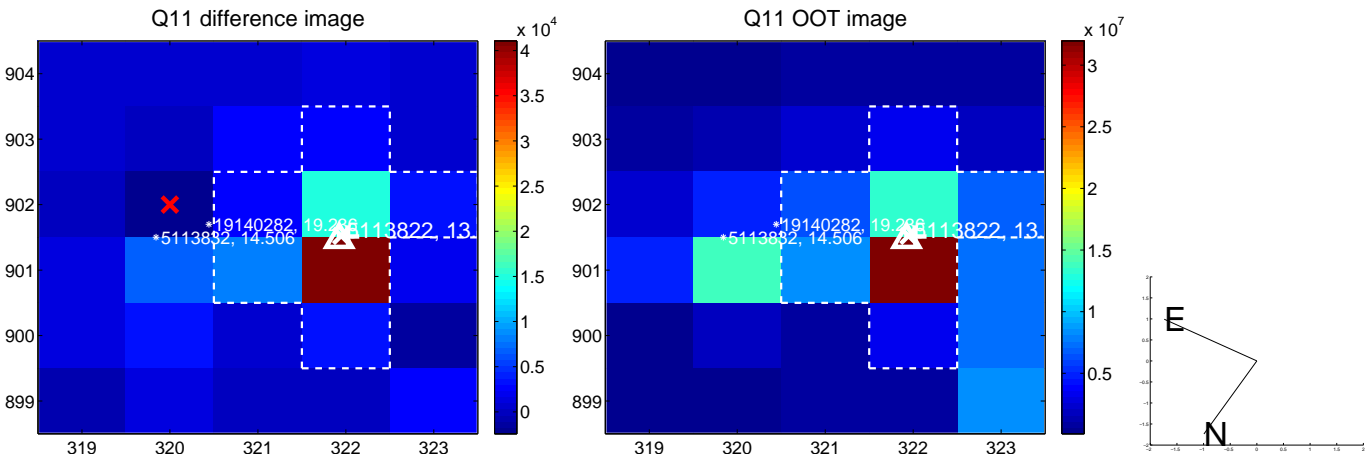
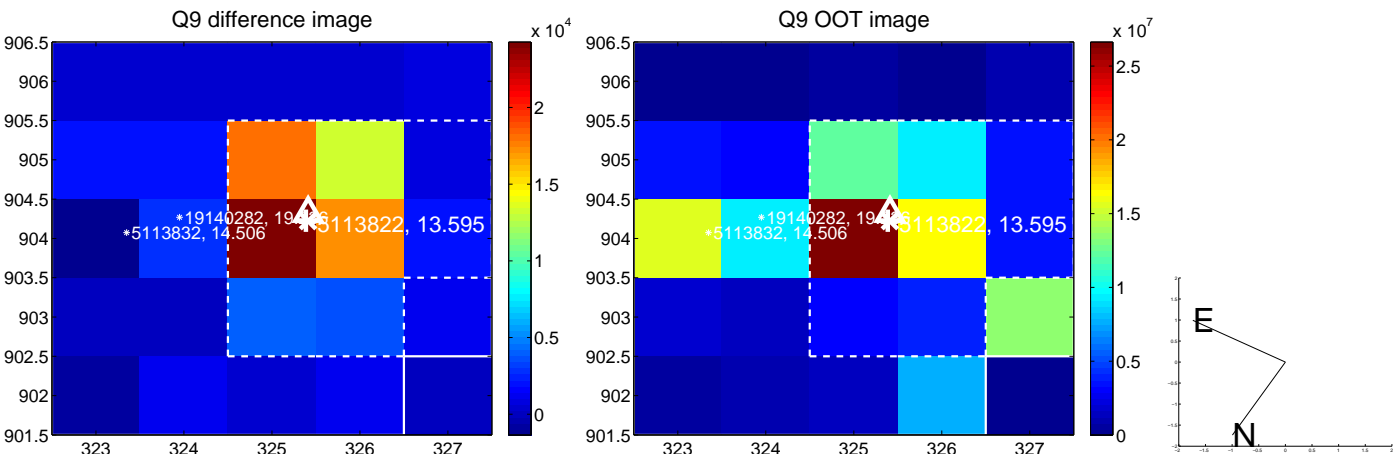
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



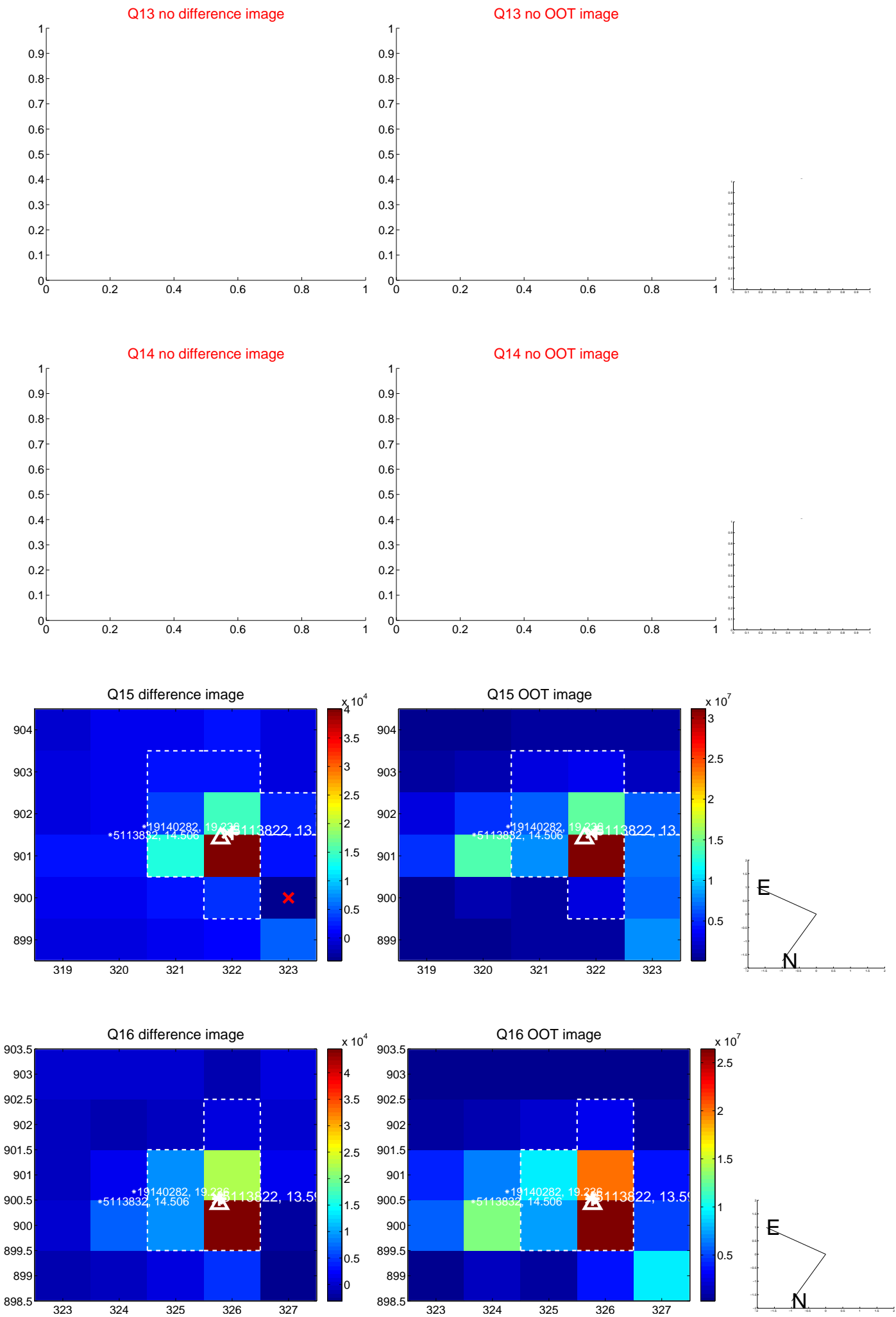
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



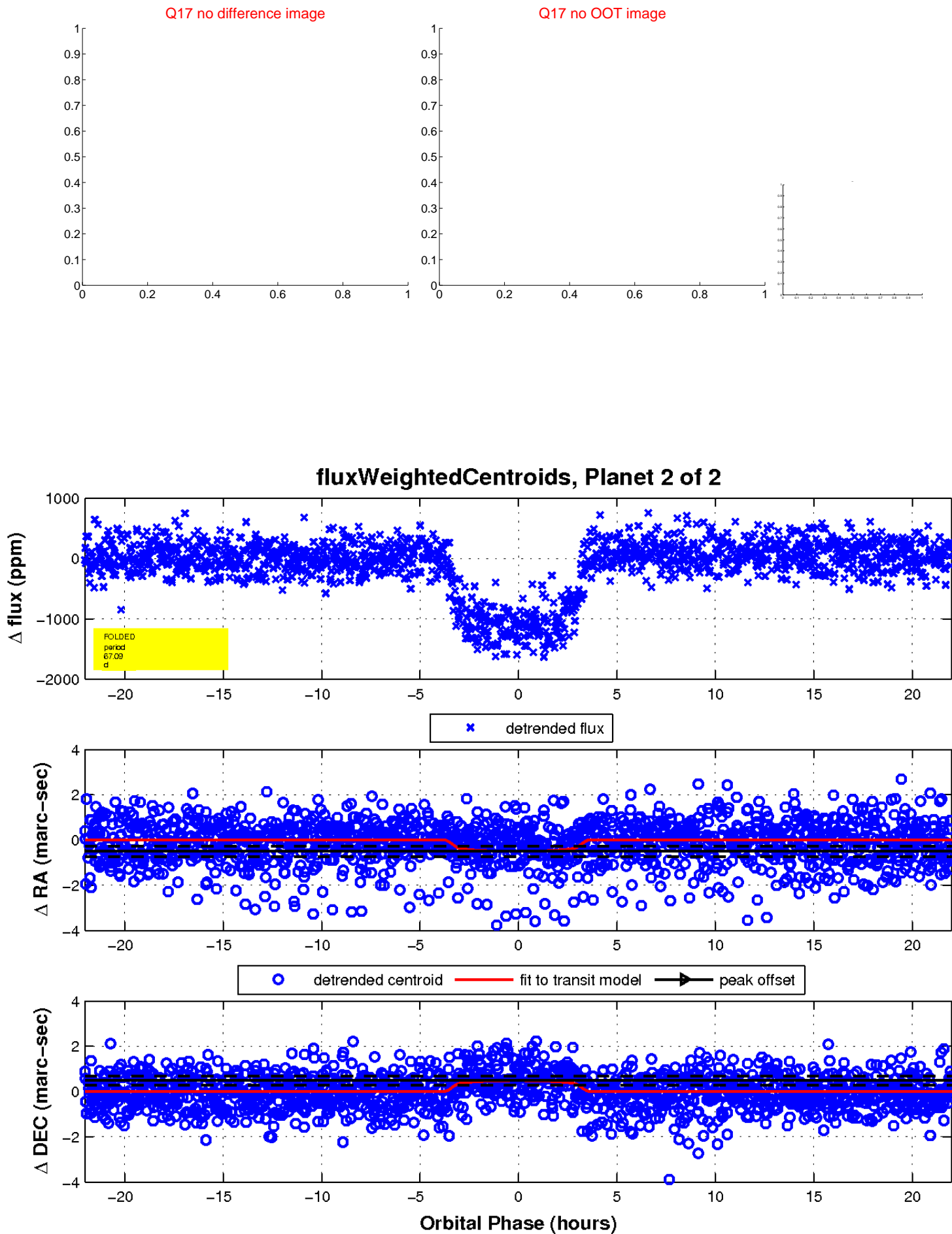
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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



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



UKIRT Image

