

KIC 004934893

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})
004934893-01	OBS	No	0.852599	131.915155	13.9	3.461	10.7	9.0	2.88	7113	1.13	40961.31
004934893-02	OBS	No	327.652135	192.712912	66.1	9.000	7.4	-1.0	2.88	7113	2.37	14.66

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
004934893-01	OBS	FP	0.00	1	0	0	0	LPP_DV
004934893-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_NOFITS

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

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

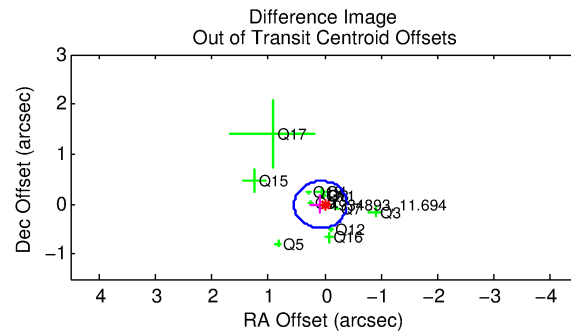
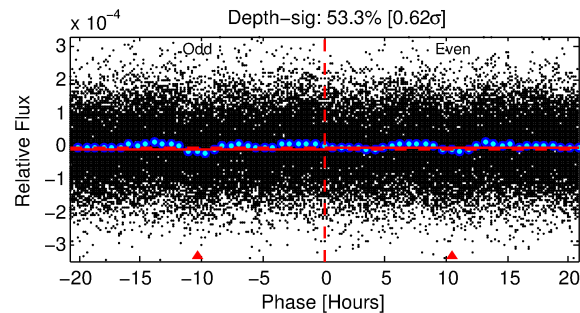
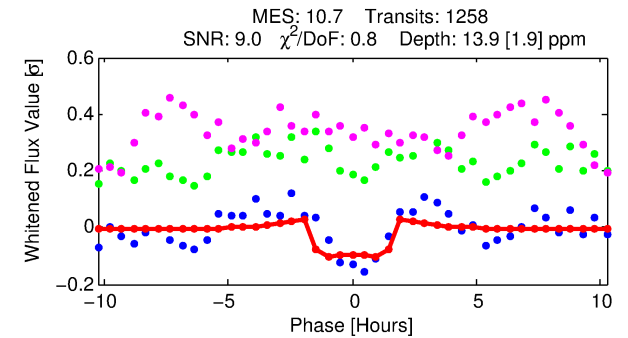
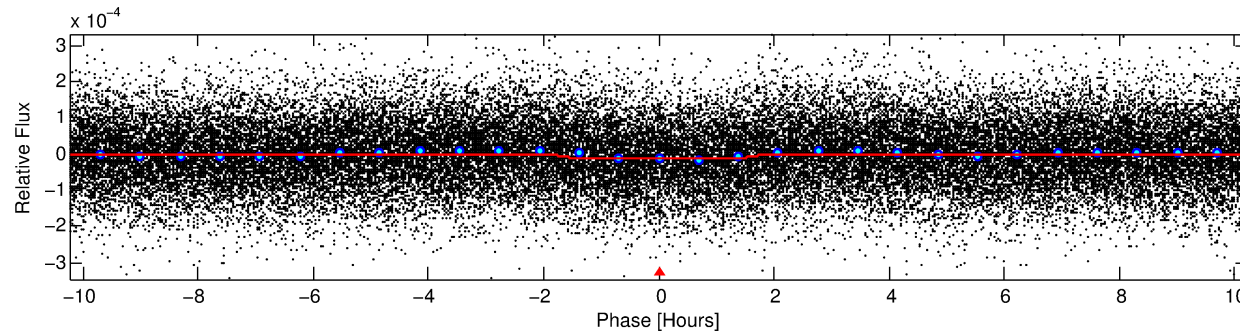
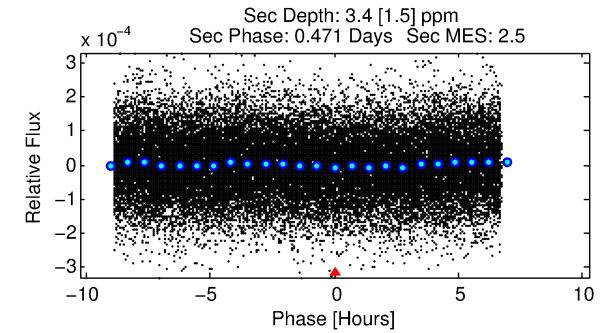
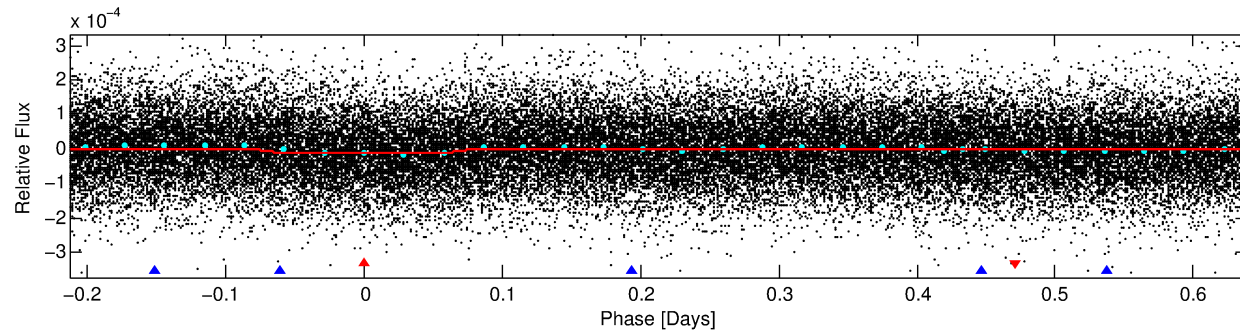
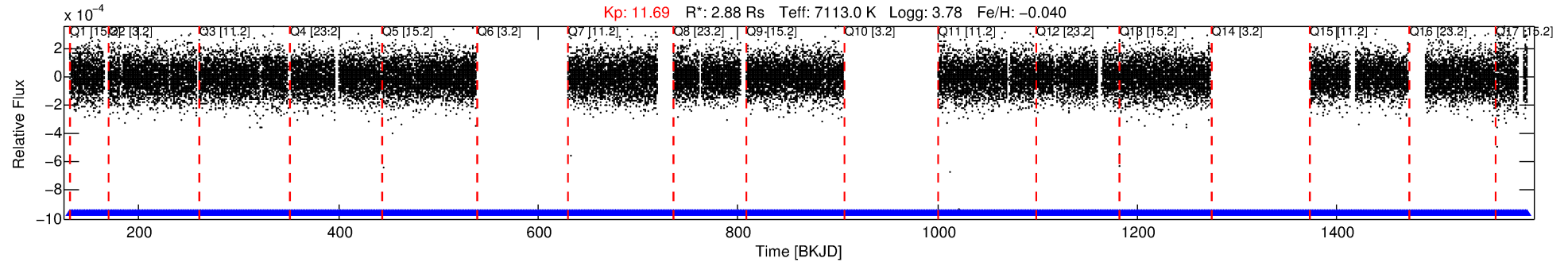
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 004934893-01

No Significant Match Found

DV One-Page Summary

KIC: 4934893 Candidate: 1 of 2 Period: 0.853 d



DV Fit Results:

Period = 0.85260 [0.00001] d
Epoch = 131.9152 [0.0030] BKJD
Rp/R* = 0.0036 [0.0006]
a/R* = 1.72 [1.03]
b = 0.58 [1.06]
Seff = 40961.31 [20673.33]
Teq = 3628 [458] K
Rp = 1.13 [0.43] Re
a = 0.0216 [0.0068] AU
Ag = 0.68 [0.50] [-0.64σ]
Teffp = 5091 [729] K [1.70σ]

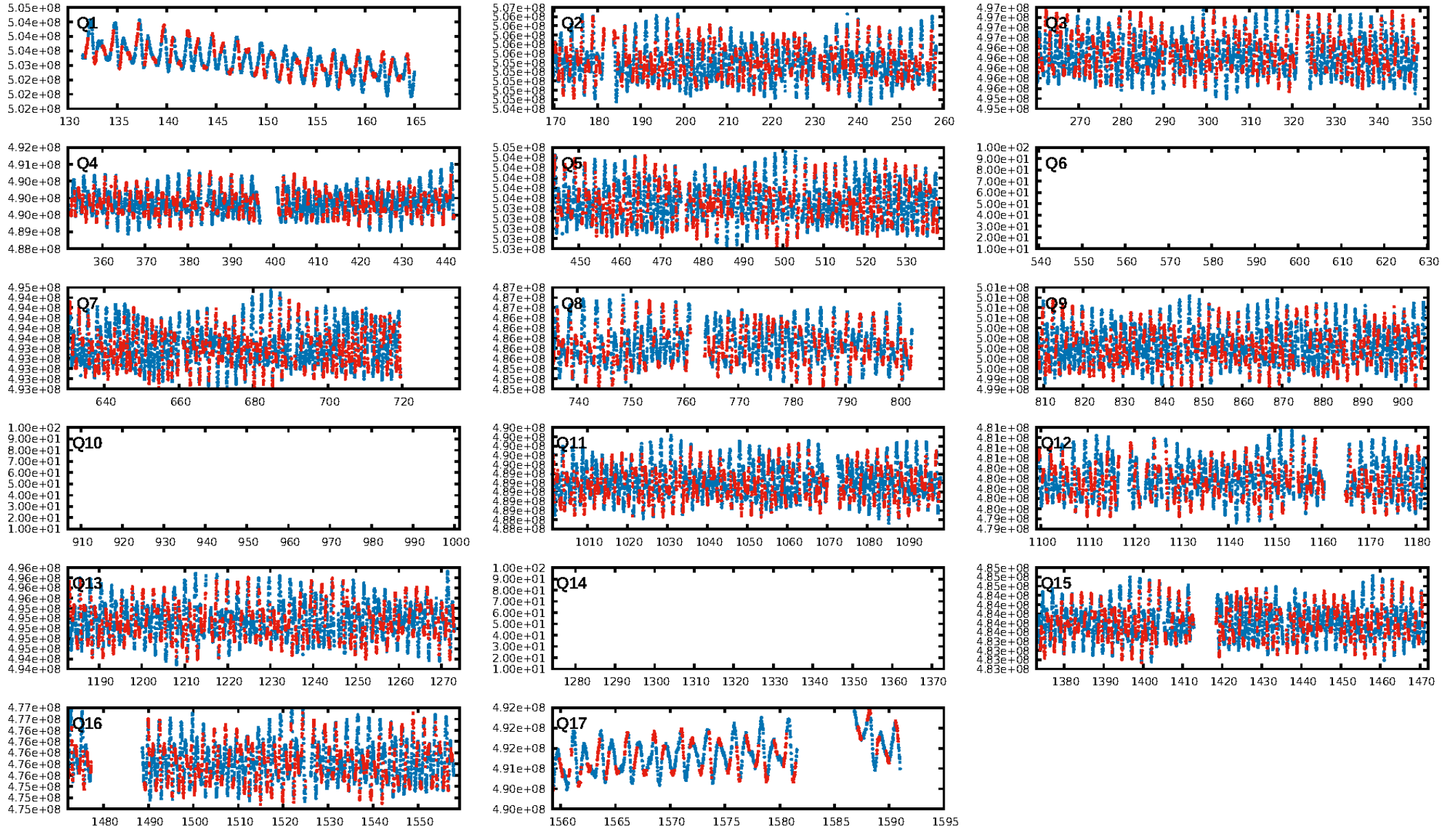
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: 100.0% [813.39σ]
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: 2.79e-17
RollingBand-fgt: 1.00 [1187/1187]
GhostDiagnostic-chr: 0.7808
Centroid-sig: 22.6%
Centroid-so: 0.771 arcsec [1.14σ]
OotOffset-rm: 0.071 arcsec [0.45σ]
KicOffset-rm: 0.136 arcsec [0.65σ]
OotOffset-st: 0/4/4/4 [12]
KicOffset-st: 0/4/4/4 [12]
DiffImageQuality-fgm: 0.92 [11/12]
DiffImageOverlap-fno: 1.00 [14/14]

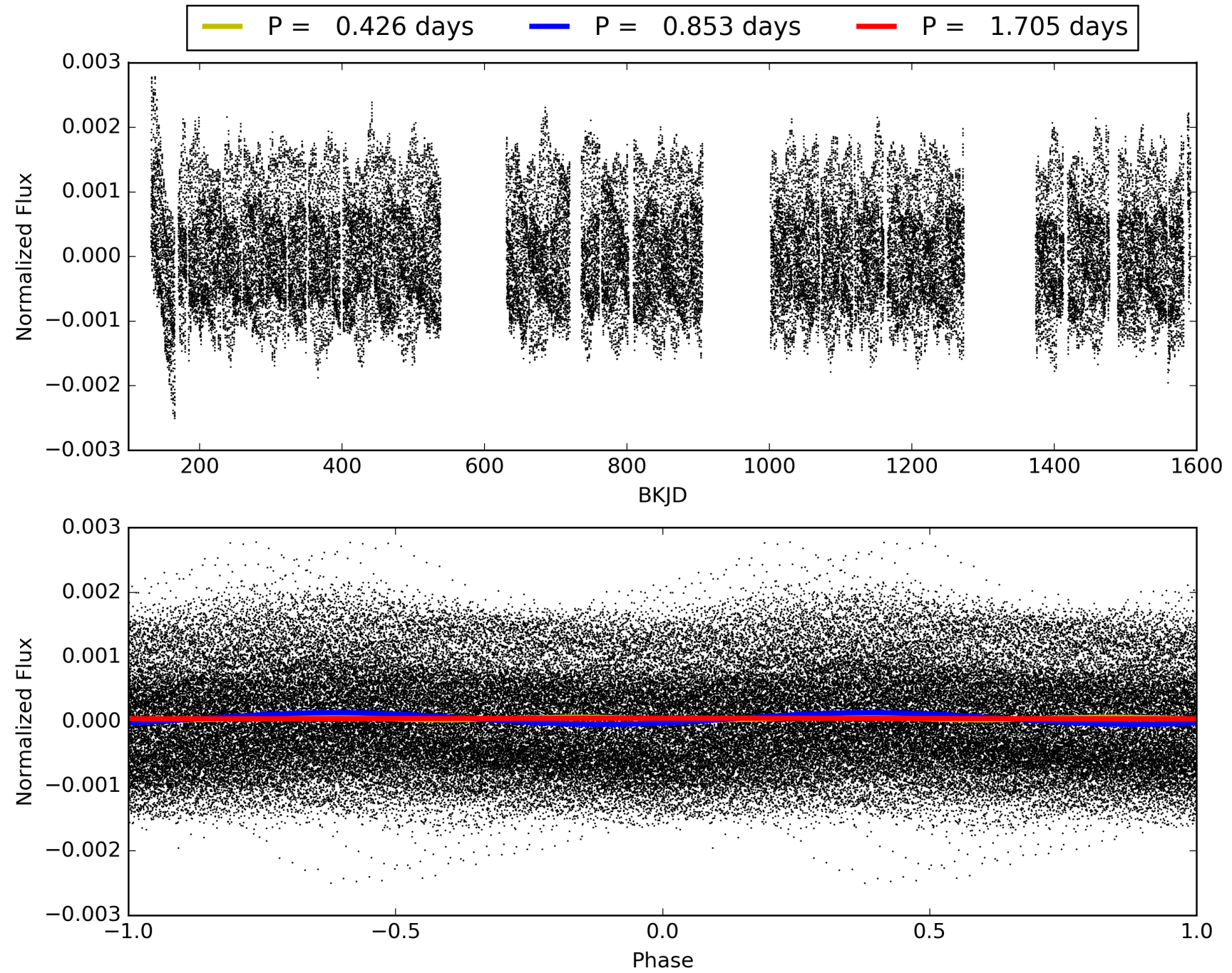
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 02:41:35 Z

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

TCE 004934893-01, PDC Light Curves

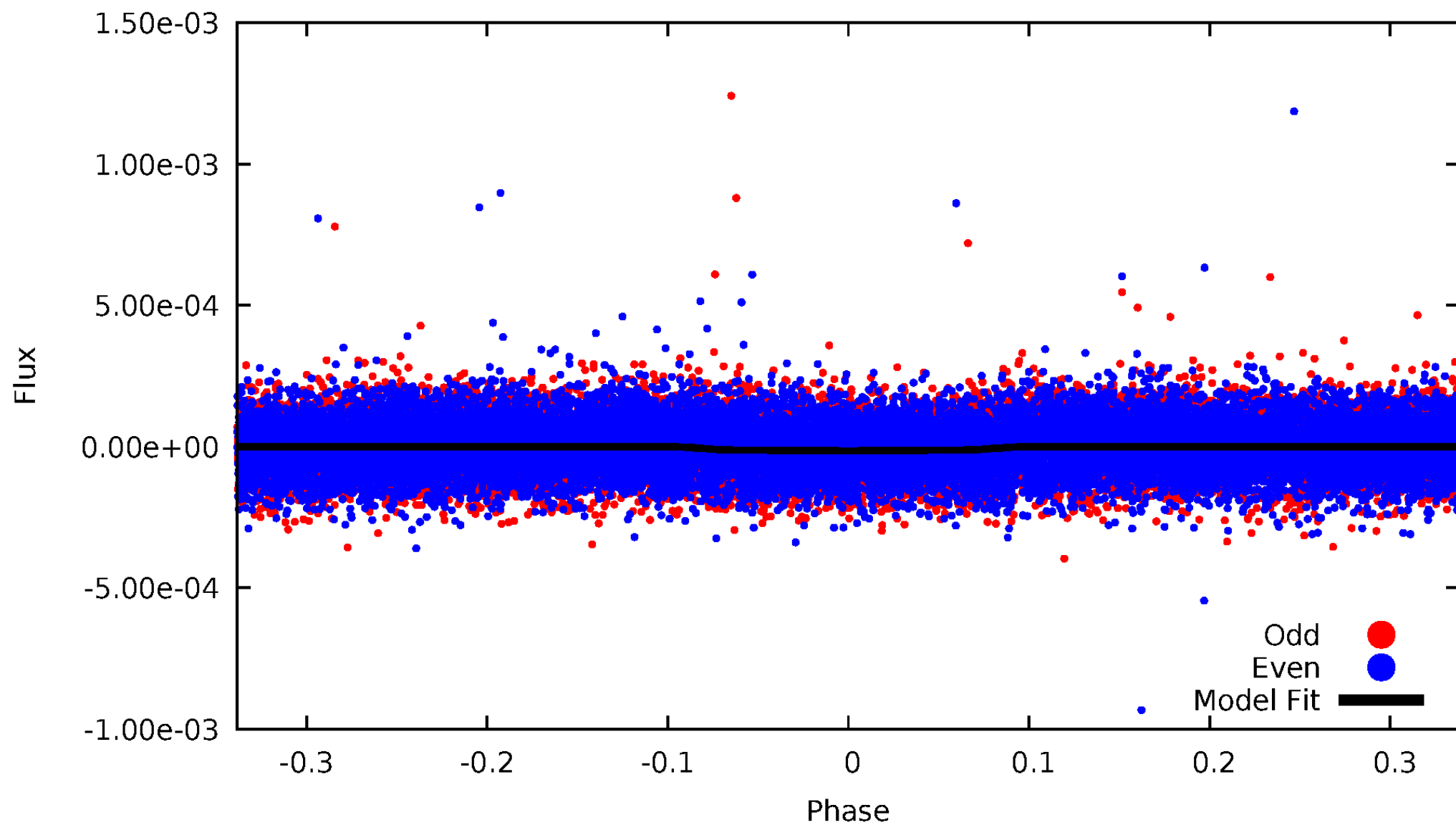


TCE 004934893-01



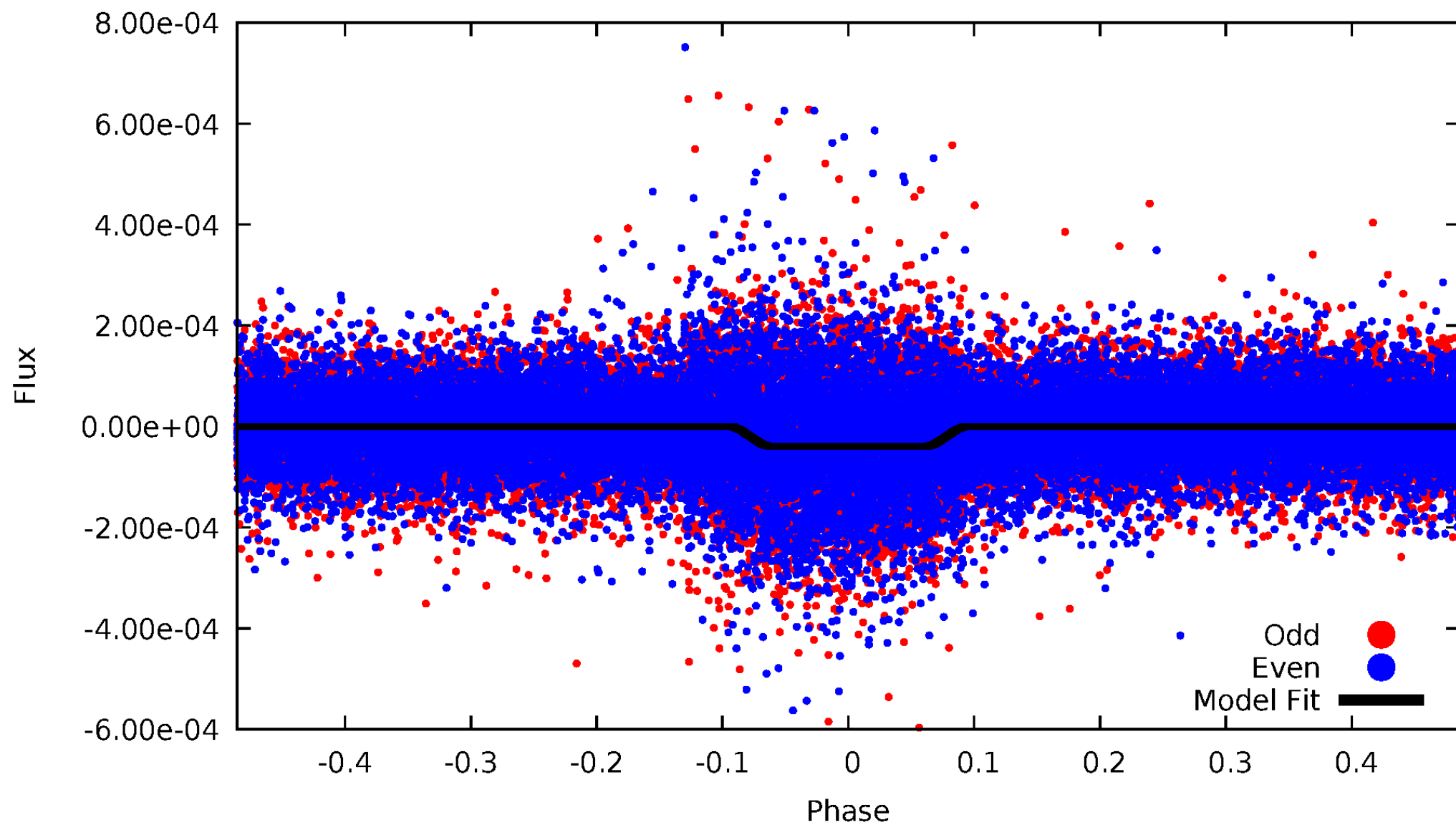
DV Odd/Even

TCE 004934893-01

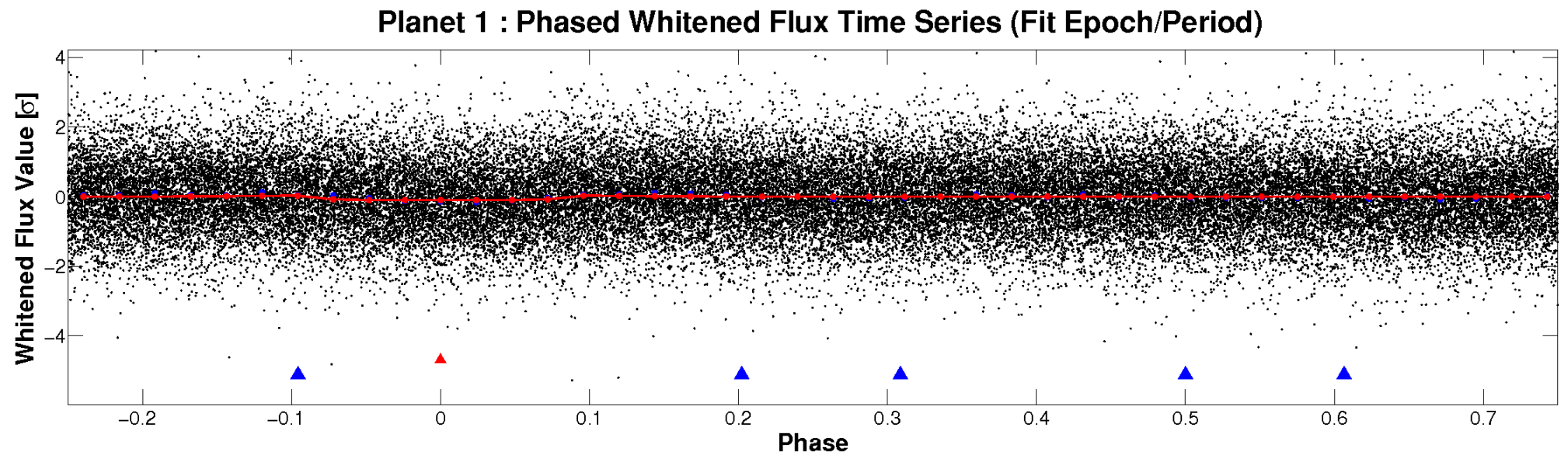
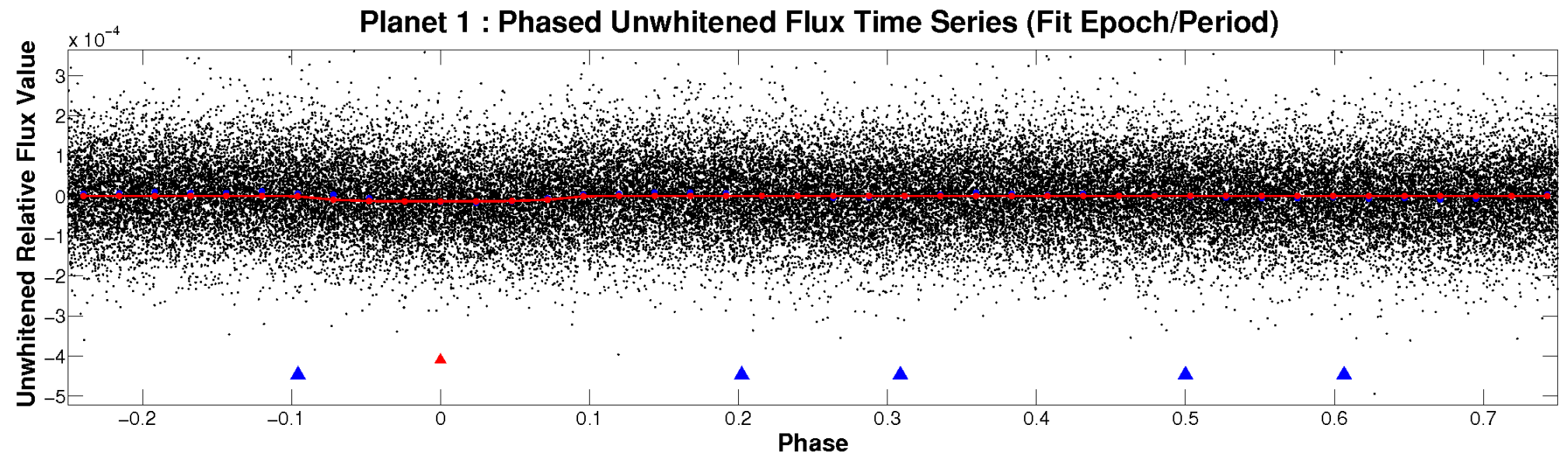


ALT Odd/Even

TCE 004934893-01

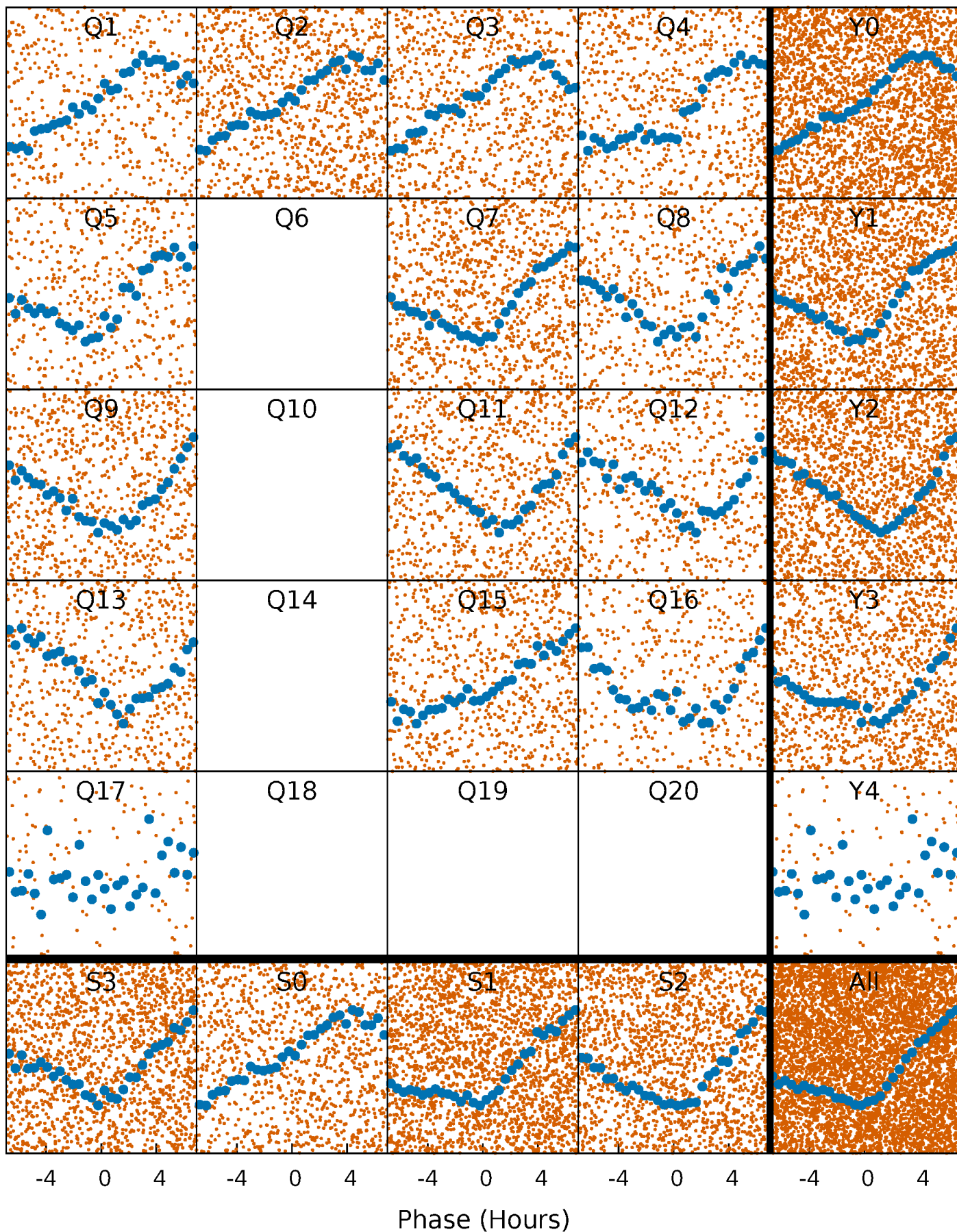


Non-Whitened Vs. Whitened Light Curve



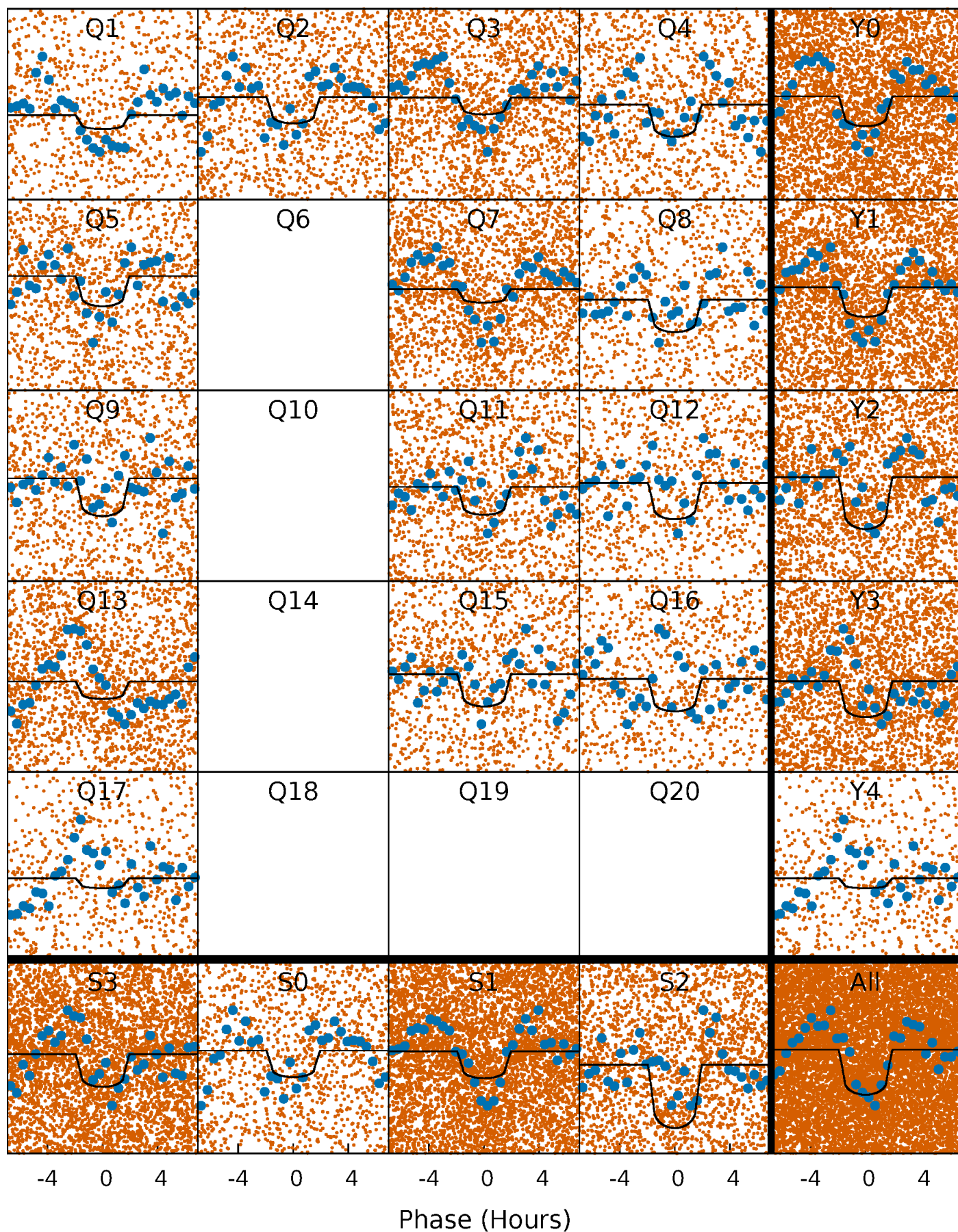
PDC Quarter-Phased Transit Curves

TCE 004934893-01 P= 0.852599 Days $T_0=131.915155$ (BKJD)



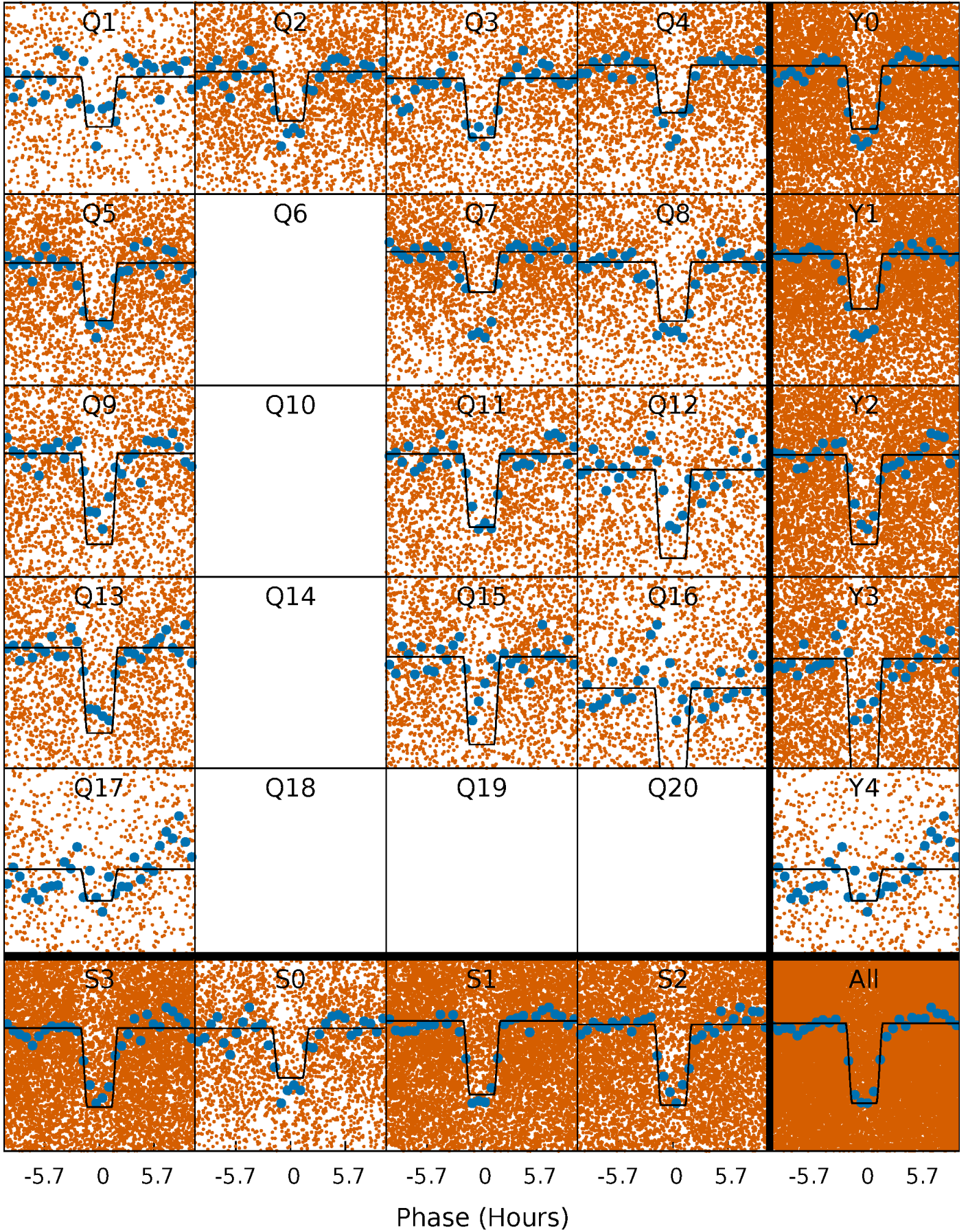
DV Quarter-Phased Transit Curves

TCE 004934893-01 P= 0.852599 Days $T_0=131.915155$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

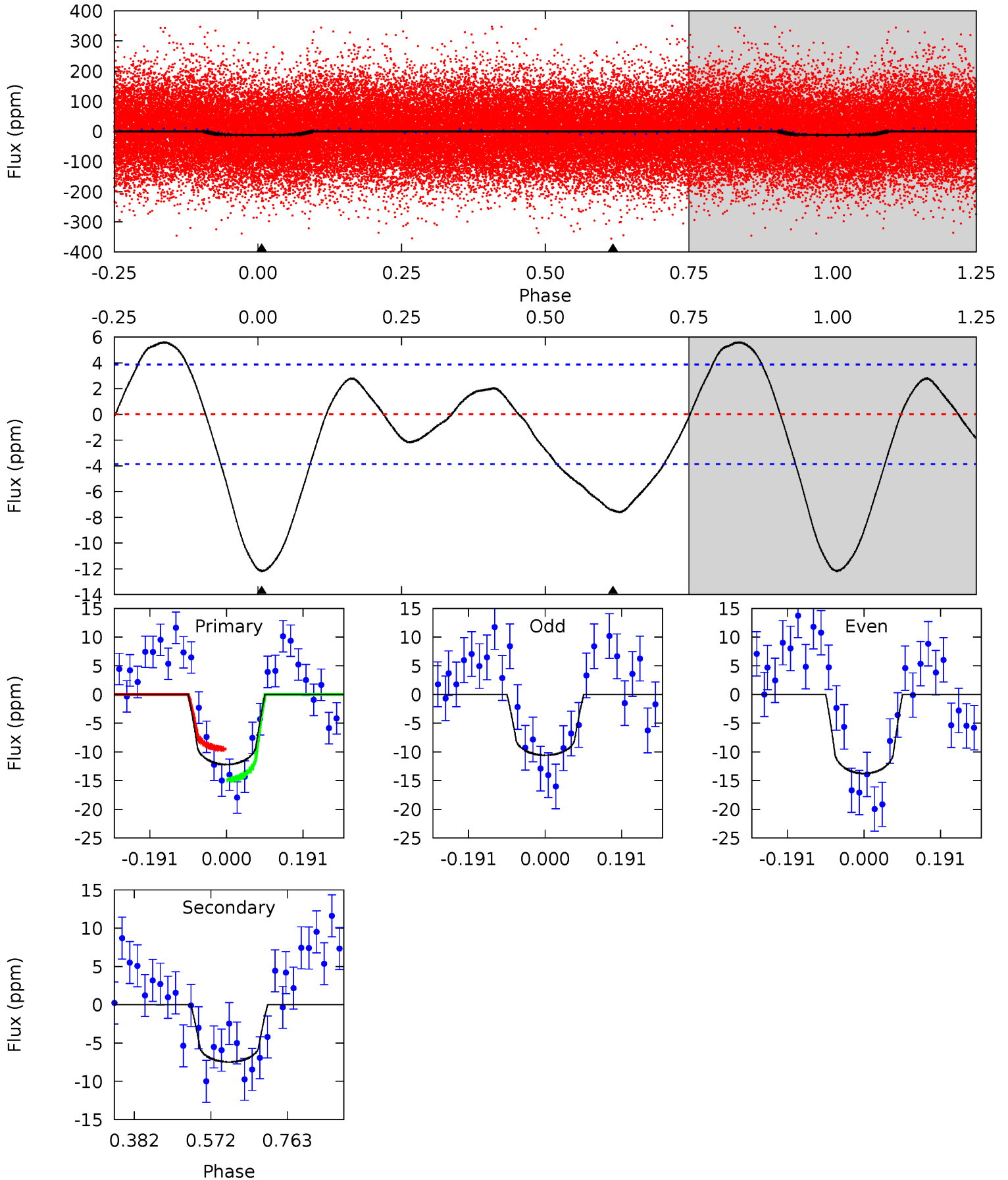
TCE 004934893-01 P= 0.852635 Days $T_0=131.897945$ (BKJD)



DV Model-Shift Uniqueness Test

004934893-01, P = 0.852599 Days, E = 131.062556 Days

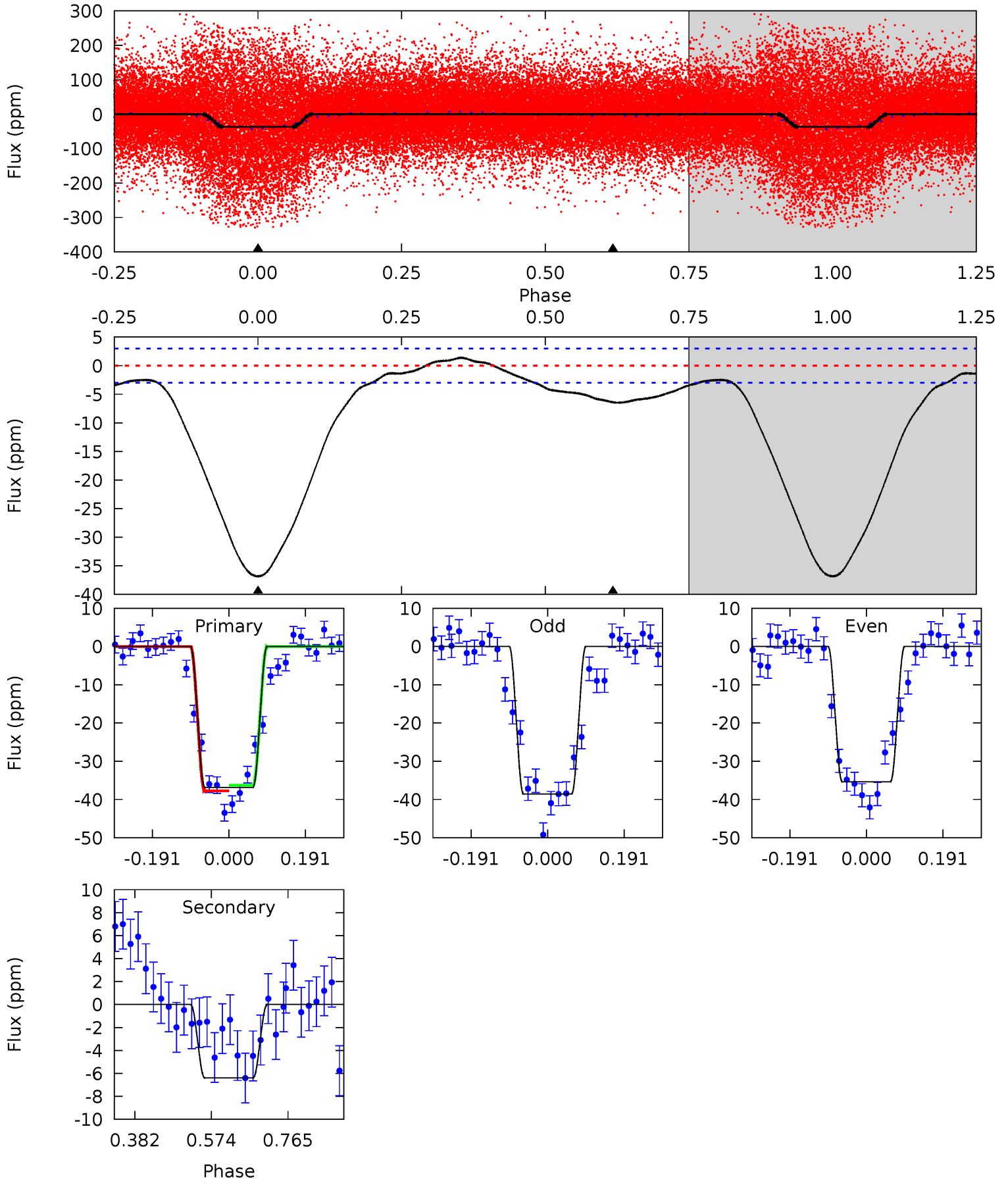
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
14.0	8.56	0	0	4.43	1.31	1.93	14.0	14.0	8.56	8.56	1.83	1.01	0.31	3.06



Alt Model-Shift Uniqueness Test

004934893-01, P = 0.852635 Days, E = 131.045310 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
54.6	9.48	0	0	4.43	1.31	1.83	54.6	54.6	9.48	9.48	2.35	1.03	0.04	1.07



Stellar Parameters For KIC 004934893

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	7113^{+172}_{-246}	$3.783^{+0.278}_{-0.093}$	$-0.040^{+0.250}_{-0.300}$	$2.880^{+0.428}_{-0.999}$	$1.834^{+0.165}_{-0.385}$	$0.108^{+0.204}_{-0.032}$
	+2%/-3%	+7%/-2%	+625%/-750%	+15%/-35%	+9%/-21%	+189%/-30%
Source	PHO1	FLK73	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 004934893-01 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	-7 ± 1	$1.05^{+0.26}_{-0.22}$	4965^{+302}_{-449}	5851^{+735}_{-555}	$1.712^{+0.983}_{-0.606}$
Alt.	-6 ± 1	$1.89^{+0.29}_{-0.35}$	4989^{+290}_{-433}	3789^{+445}_{-718}	$0.453^{+0.200}_{-0.119}$

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

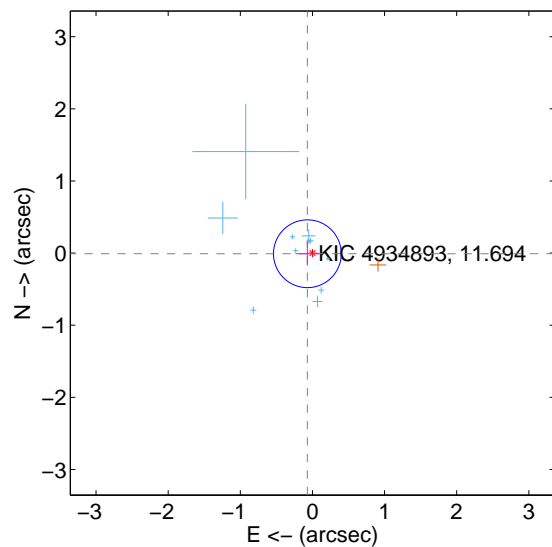
Supplemental centroid analysis for 004934893-01. **Kepler magnitude: 11.69.** Transit SNR 8.95

There are 11 quarters with good PRF difference image offsets

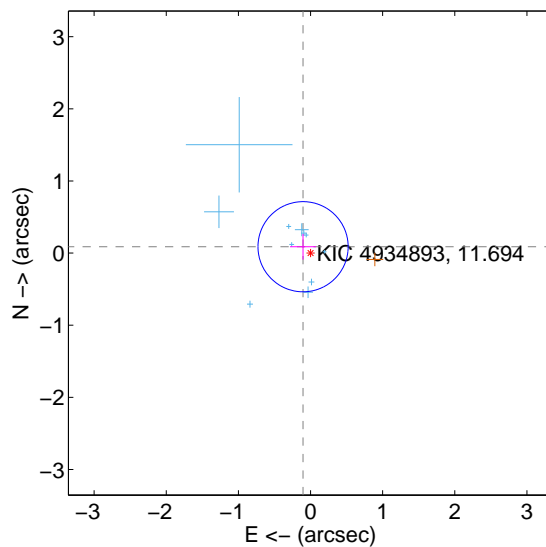
The direct PRF centroid is offset from the target star catalog position by about 0.11 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.071 ± 0.157	0.45	0.070 ± 0.164	-0.009 ± 0.164
PRF-fit source offset from KIC position	0.136 ± 0.208	0.65	0.103 ± 0.181	0.088 ± 0.178
photometric centroid source offset	0.77 ± 0.68	1.14	0.77 ± 0.67	0.07 ± 0.74

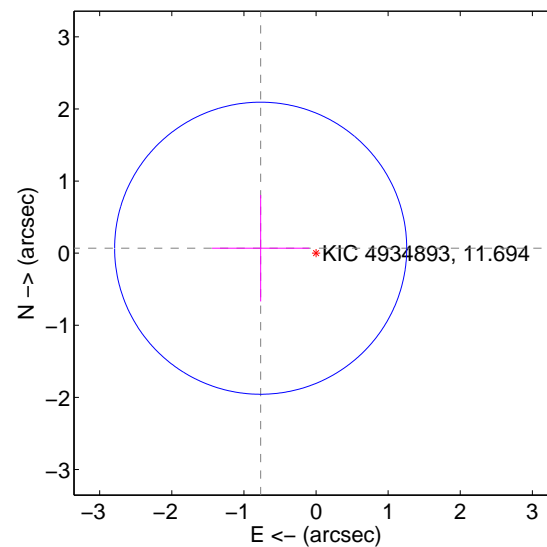
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position

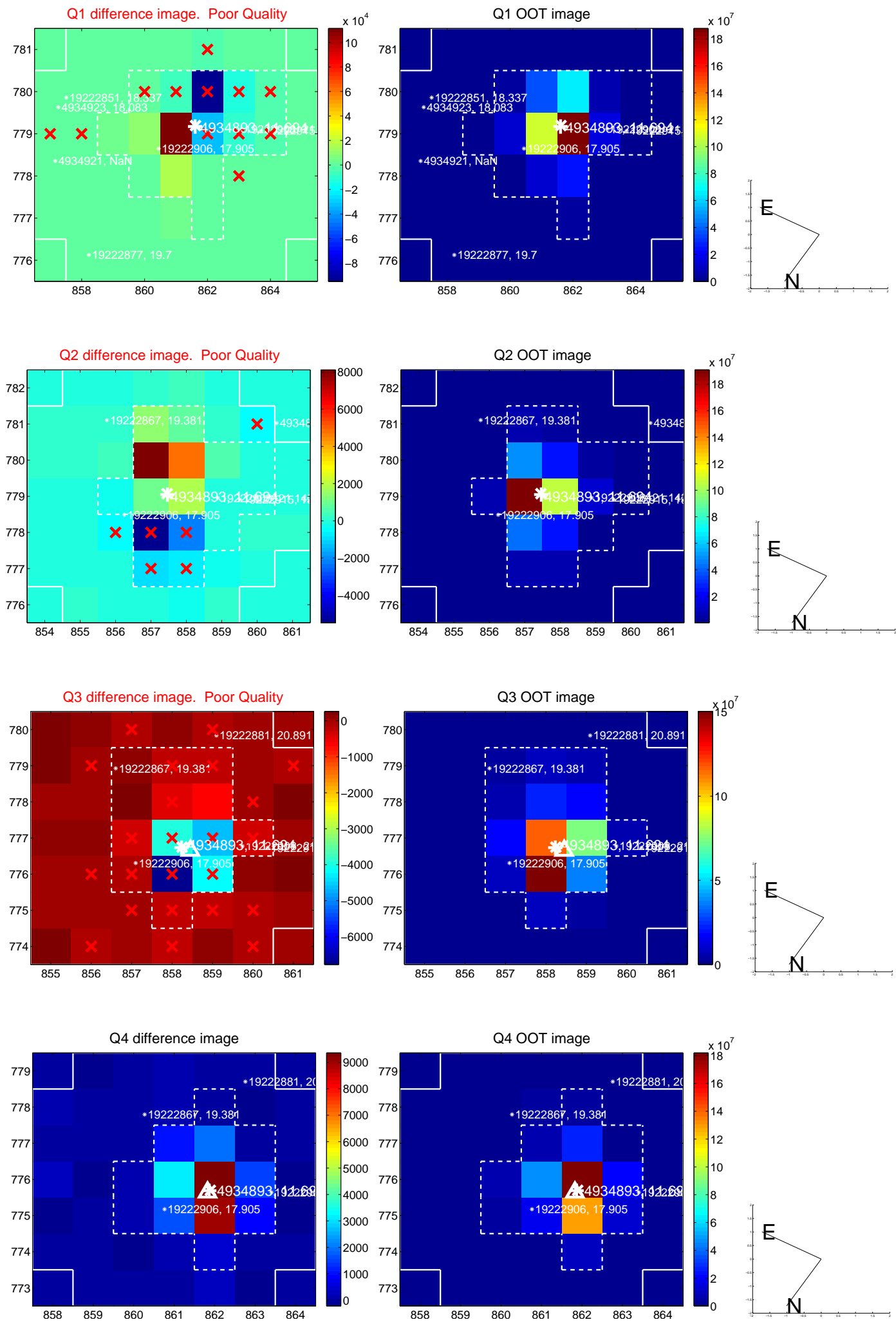


offset from photometric centroids

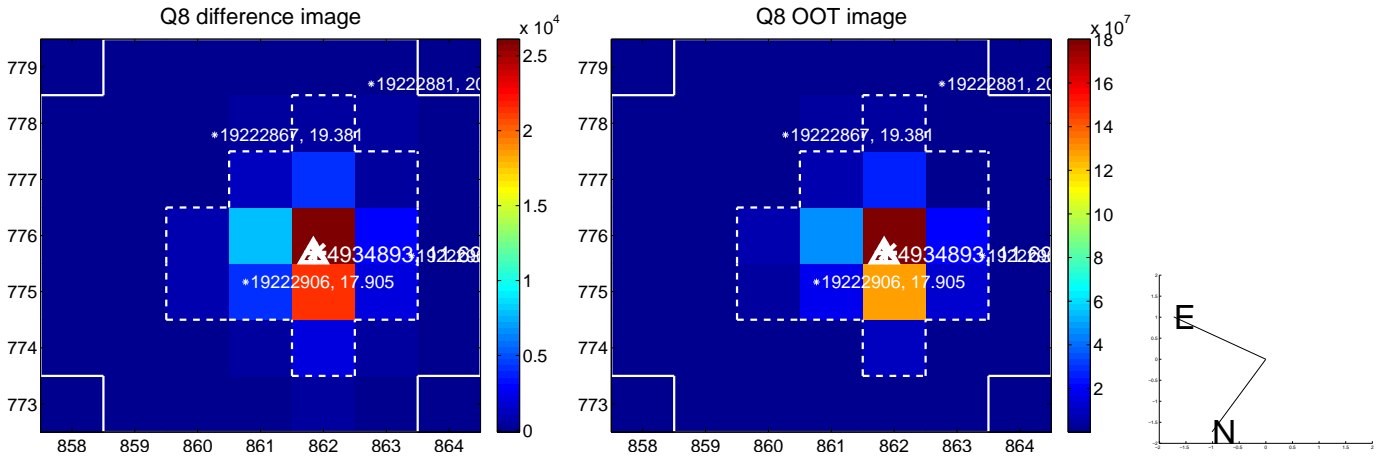
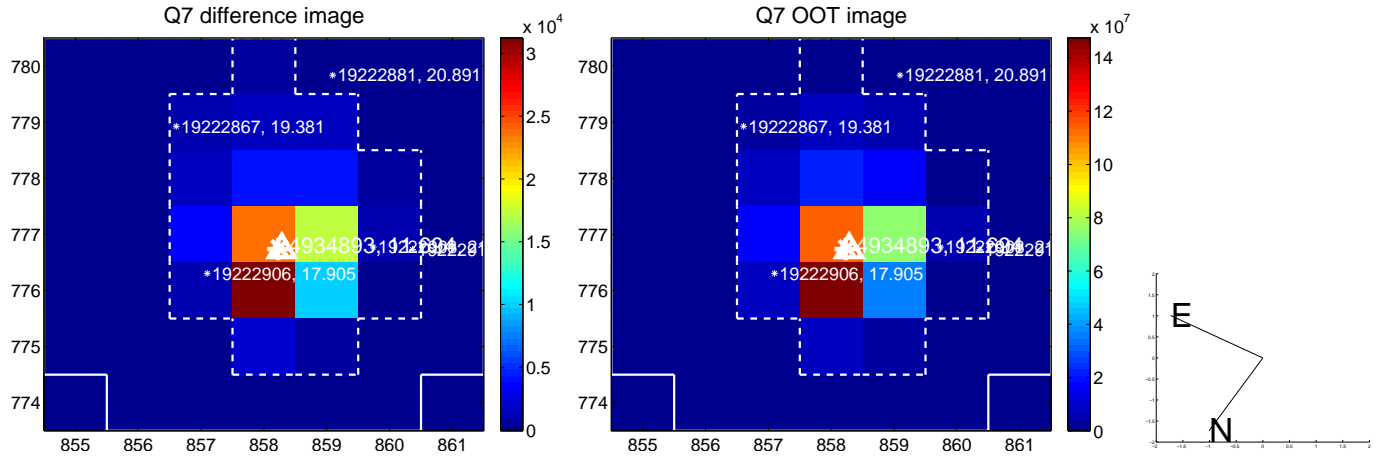
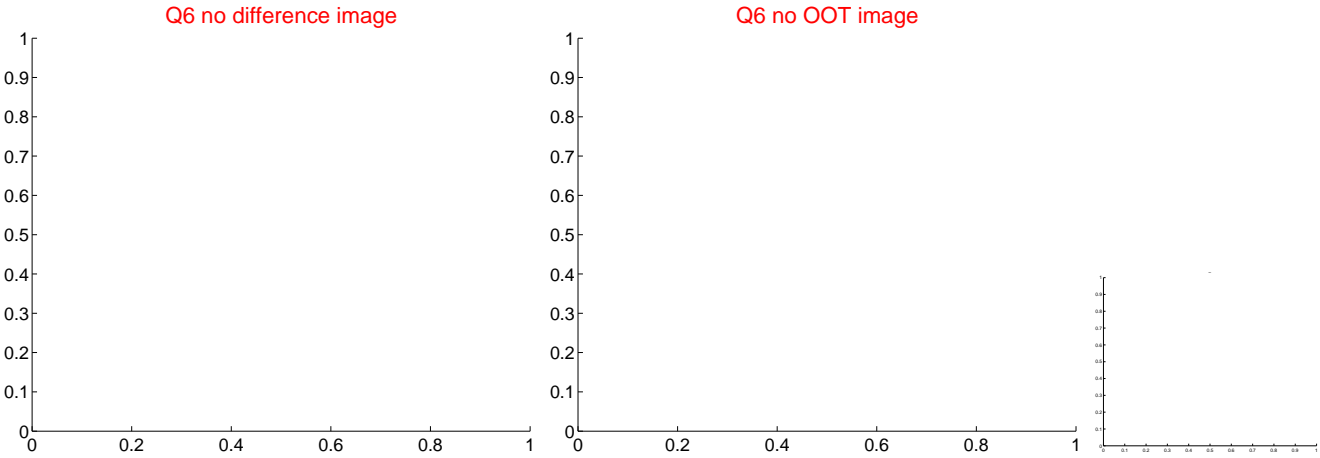
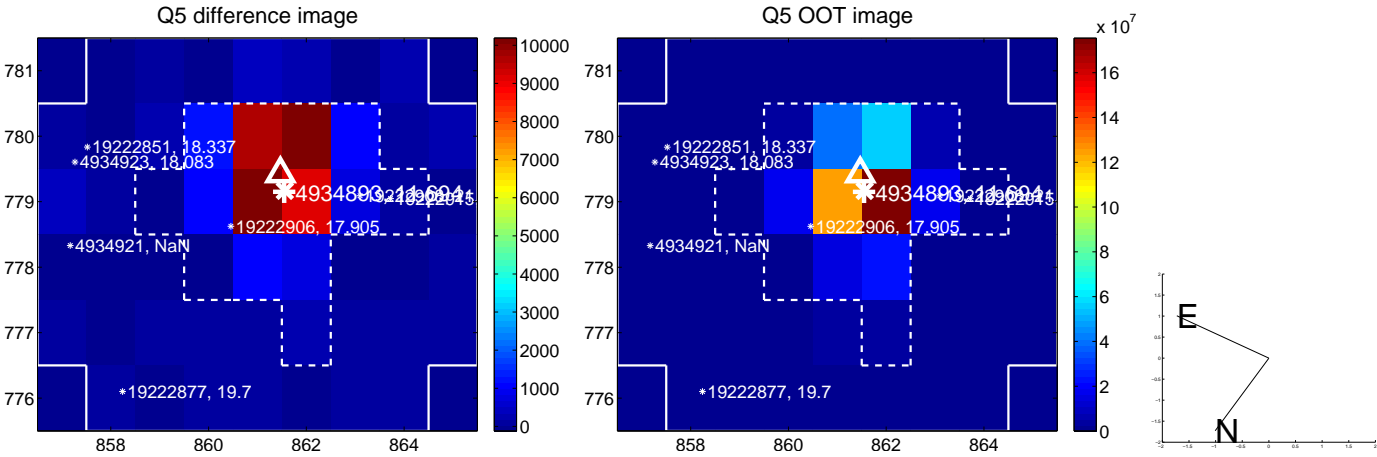


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets;** magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

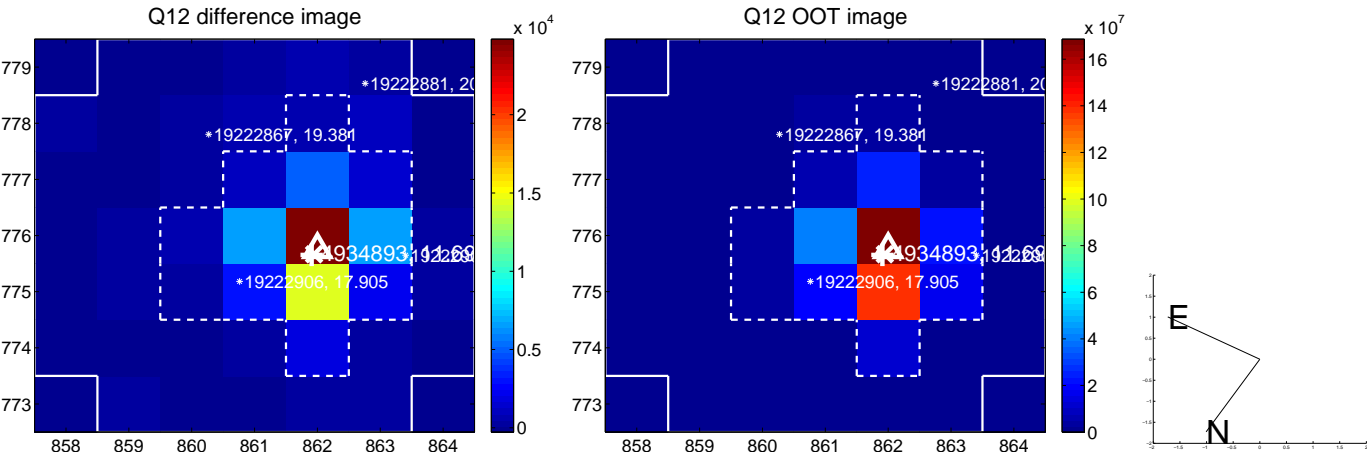
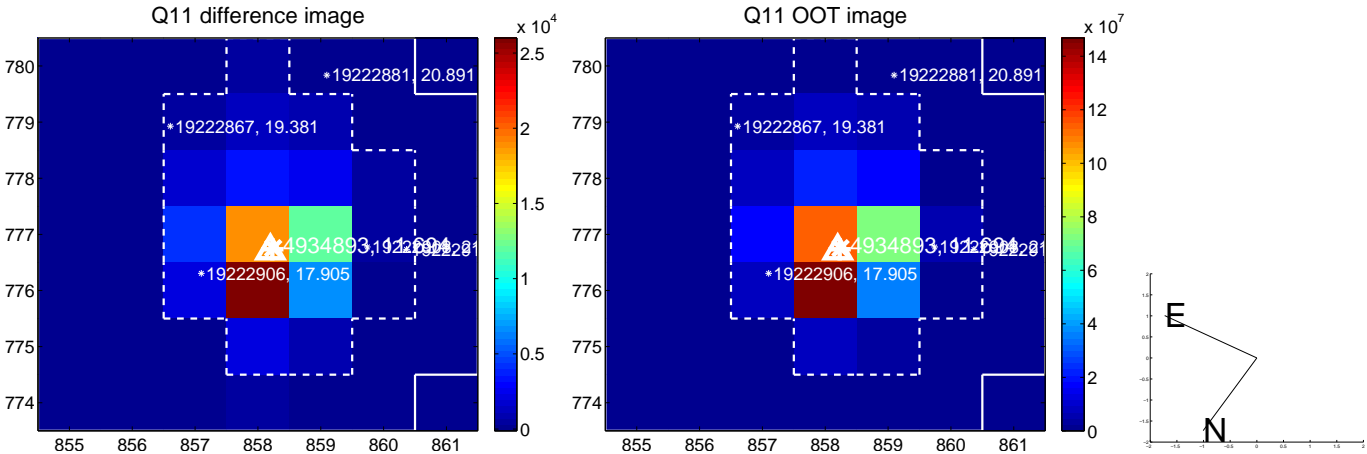
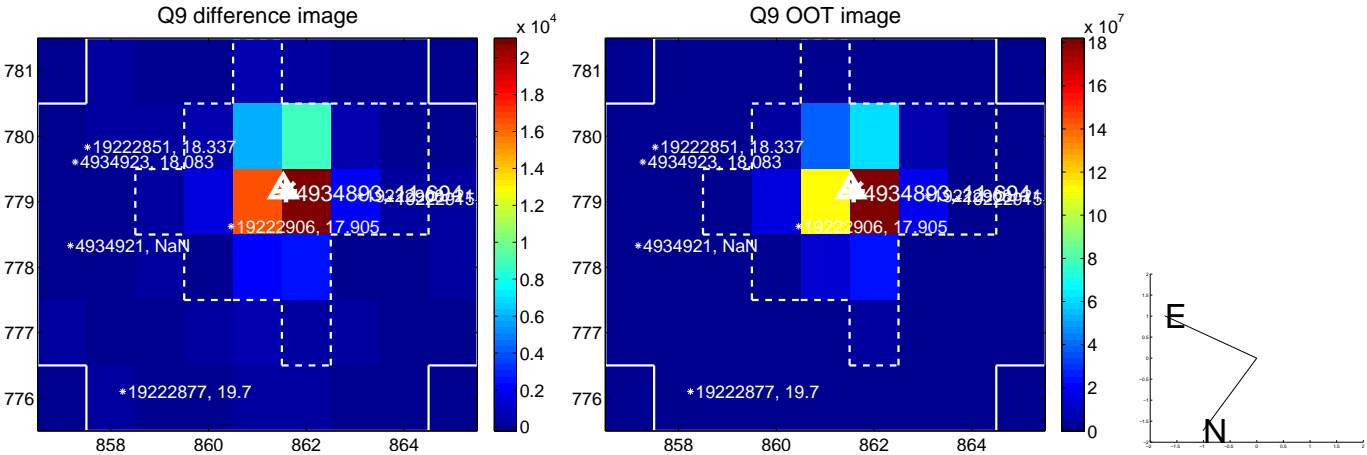
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



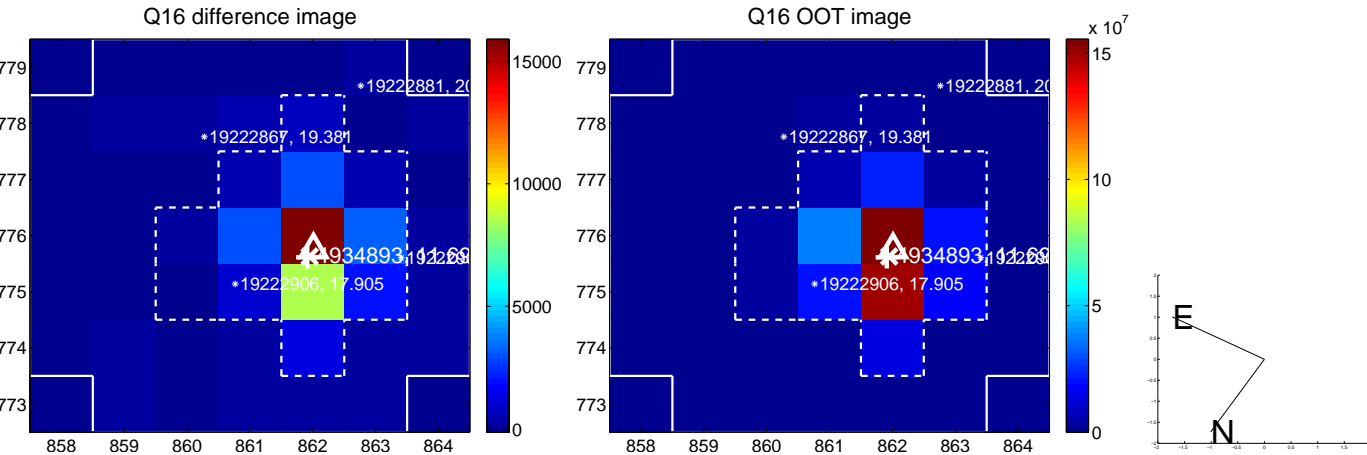
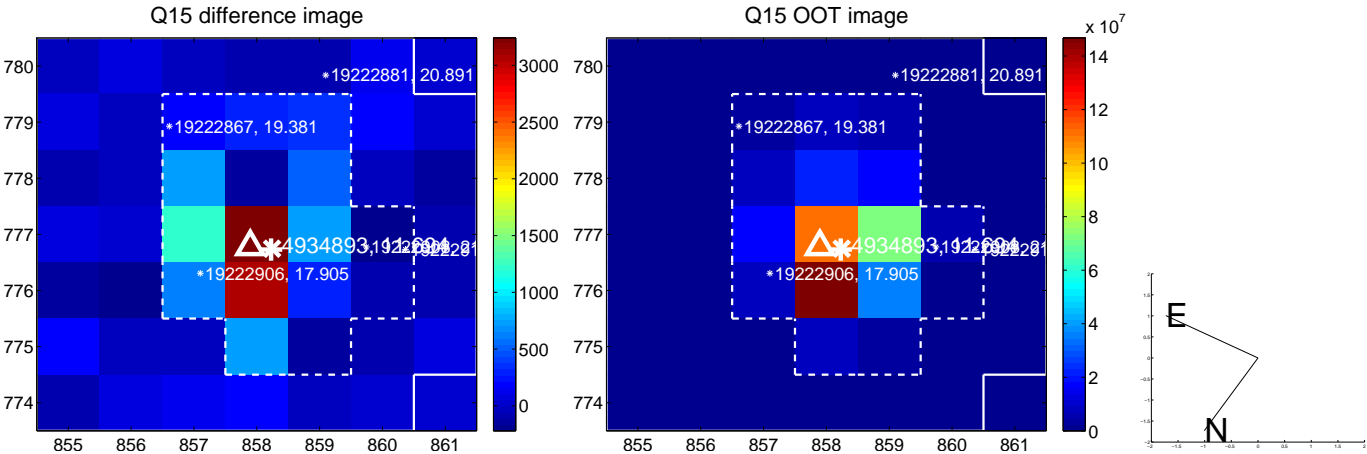
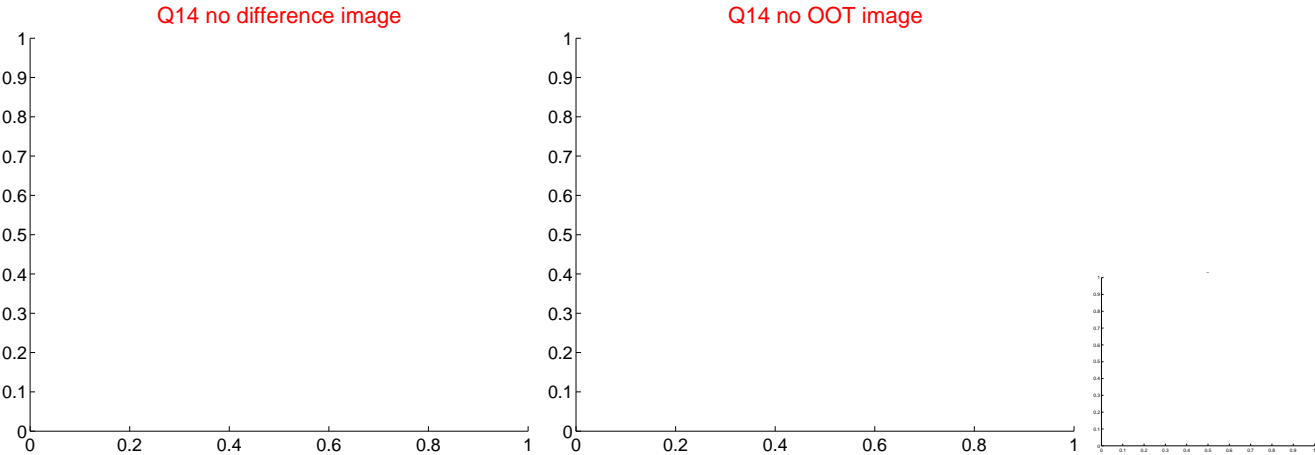
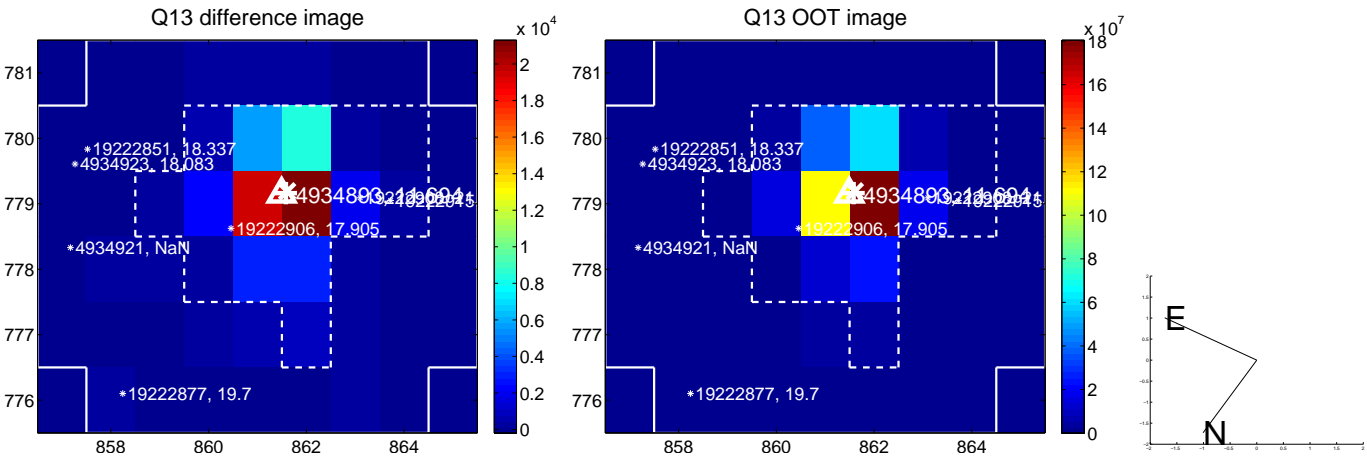
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



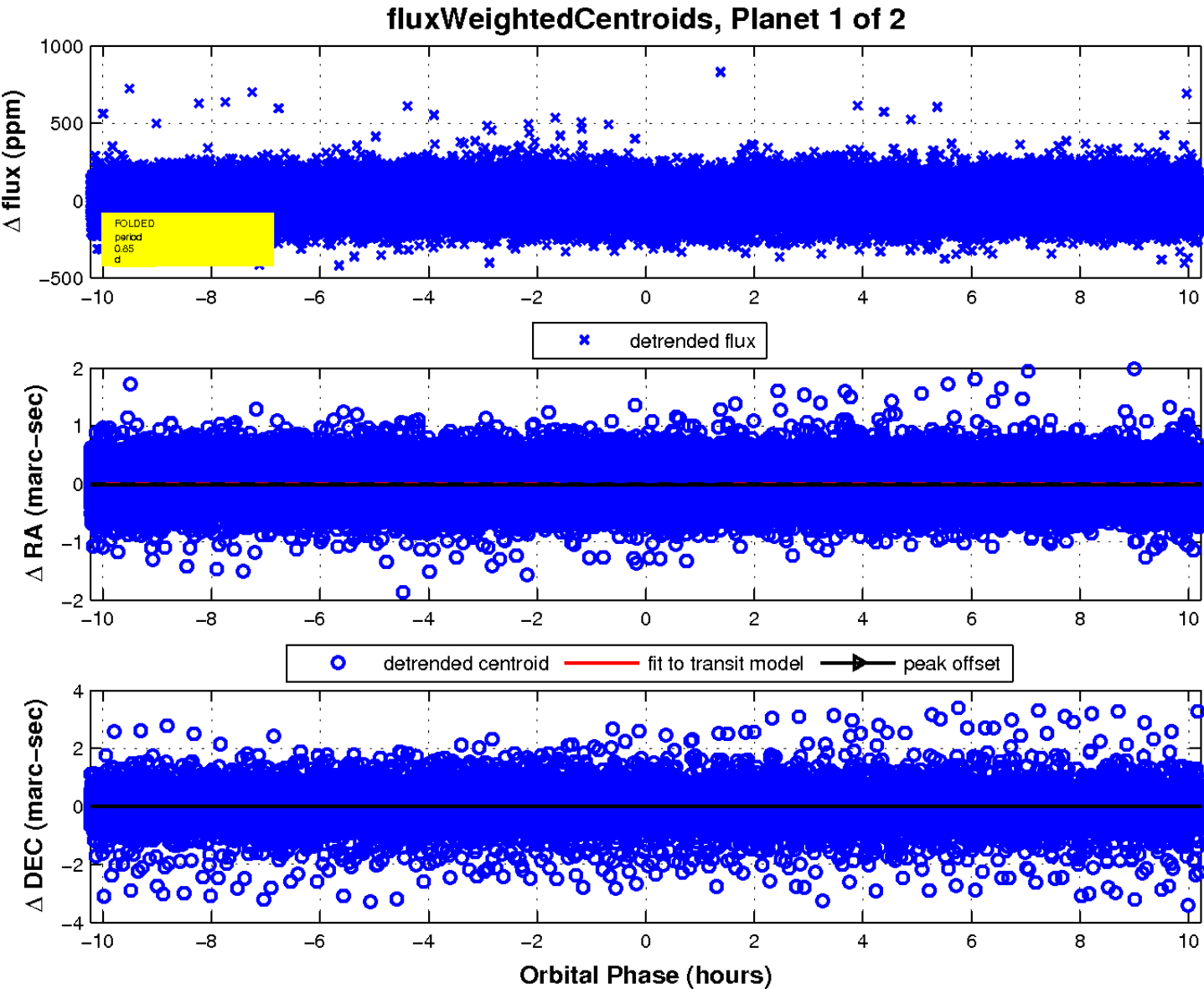
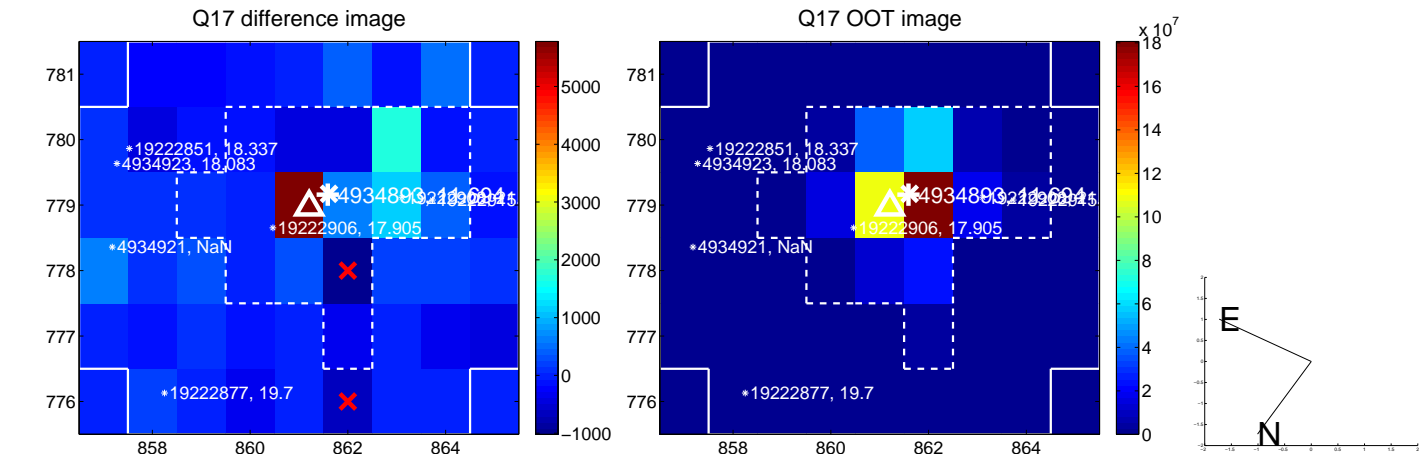
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



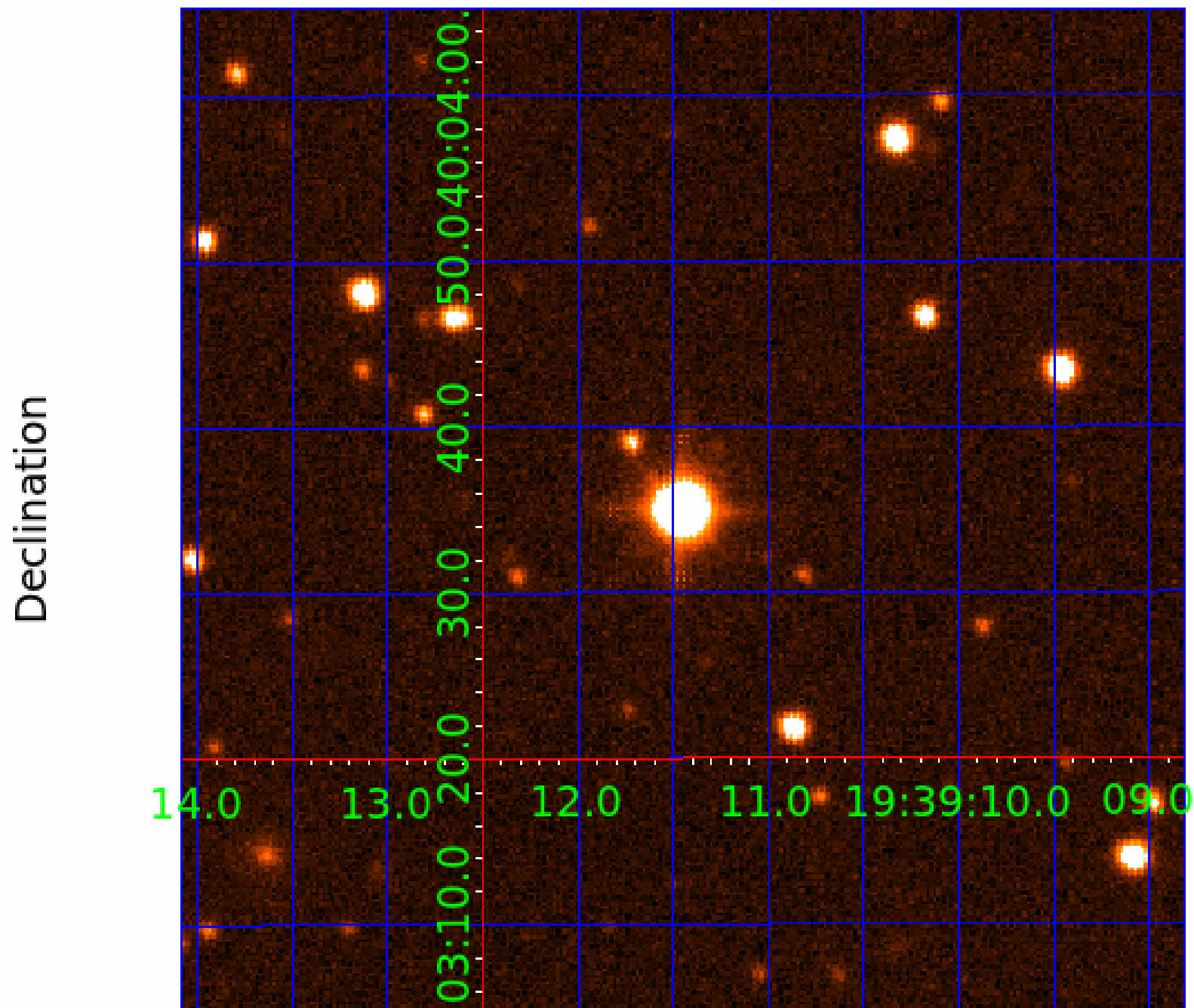
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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



UKIRT Image



KIC 004934893

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})
004934893-01	OBS	No	0.852599	131.915155	13.9	3.461	10.7	9.0	2.88	7113	1.13	40961.31
004934893-02	OBS	No	327.652135	192.712912	66.1	9.000	7.4	-1.0	2.88	7113	2.37	14.66

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
004934893-01	OBS	FP	0.00	1	0	0	0	LPP_DV
004934893-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_NOFITS

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

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

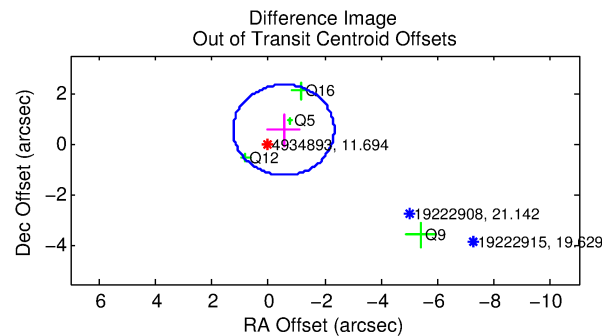
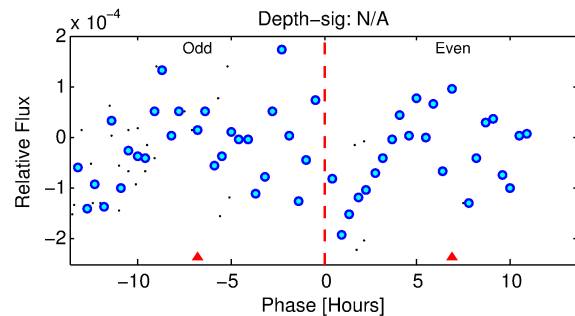
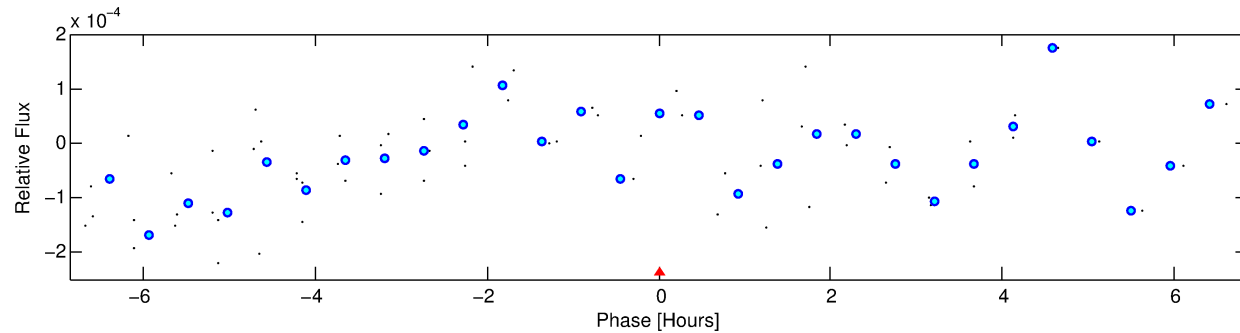
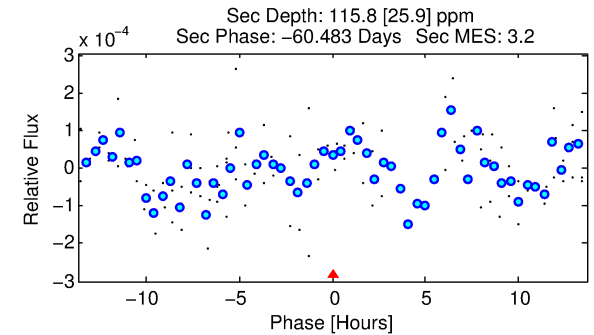
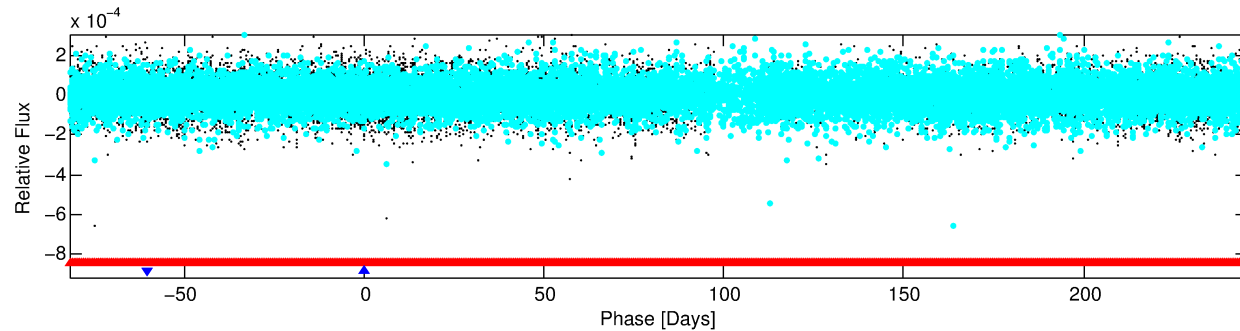
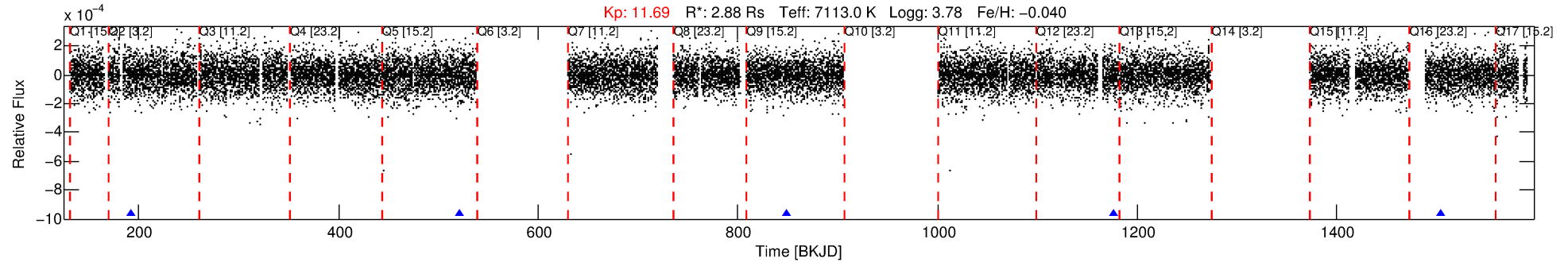
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 004934893-02

No Significant Match Found

DV One-Page Summary

KIC: 4934893 Candidate: 2 of 2 Period: 327.652 d



TPS TCE Results:

Period = 327.65213 d
Epoch = 192.7129 BKJD

DV fit results are unavailable

DV Diagnostic Results:

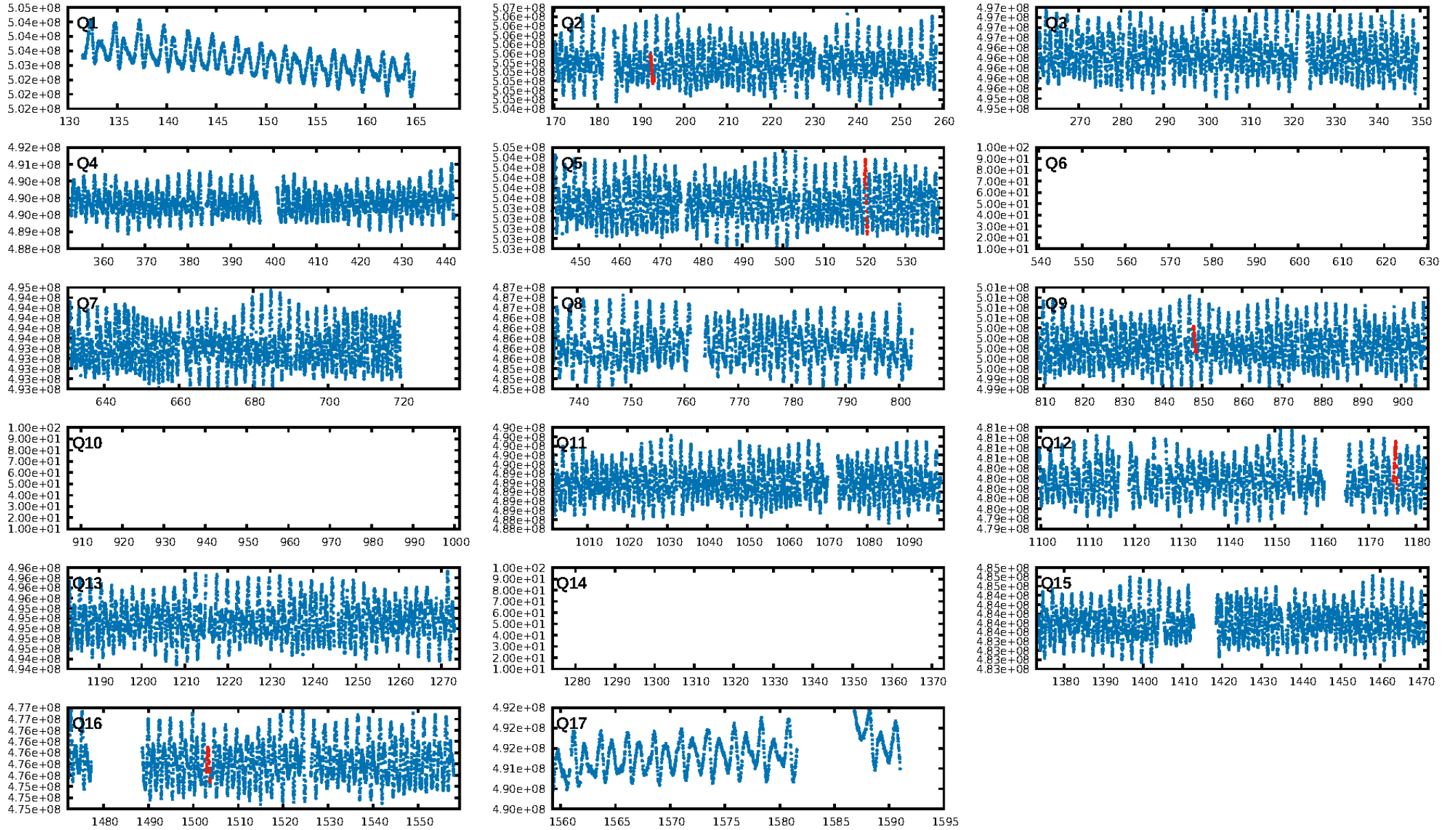
ShortPeriod-sig: 100.0% [813.39σ]
LongPeriod-sig: N/A
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: 3.57e-09
RollingBand-fgt: 1.00 [3/3]
GhostDiagnostic-chr: -0.991

Centroid-sig: 56.9%
Centroid-so: 0.231 arcsec [0.76σ]
OotOffset-rm: 0.789 arcsec [1.32σ]
KicOffset-rm: 0.878 arcsec [1.44σ]
OotOffset-st: 0/0/2/2 [4]
KicOffset-st: 0/0/2/2 [4]
DiffImageQuality-fgm: 0.50 [2/4]
DiffImageOverlap-fno: 0.20 [1/5]

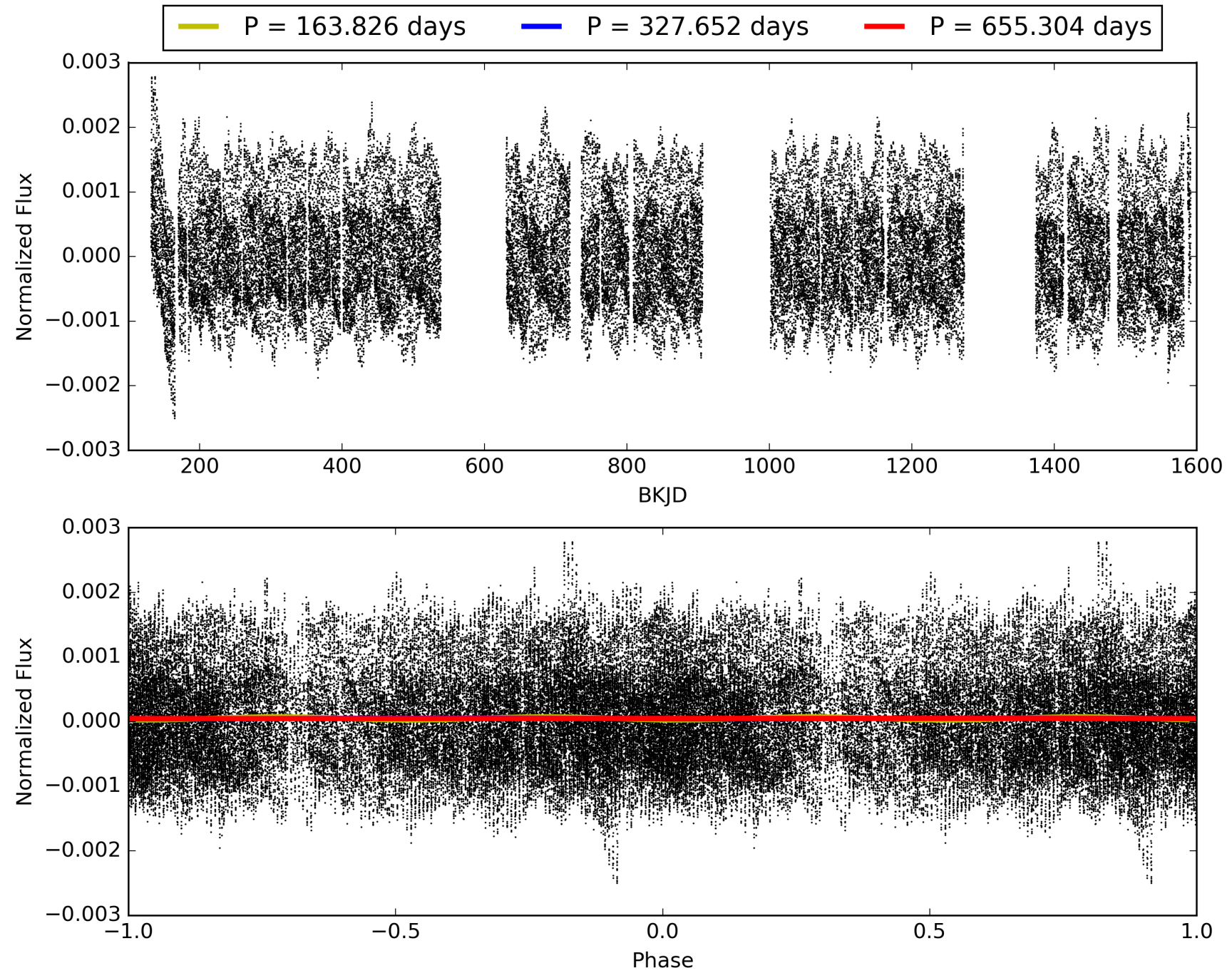
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 02:41:49 Z

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

TCE 004934893-02, PDC Light Curves

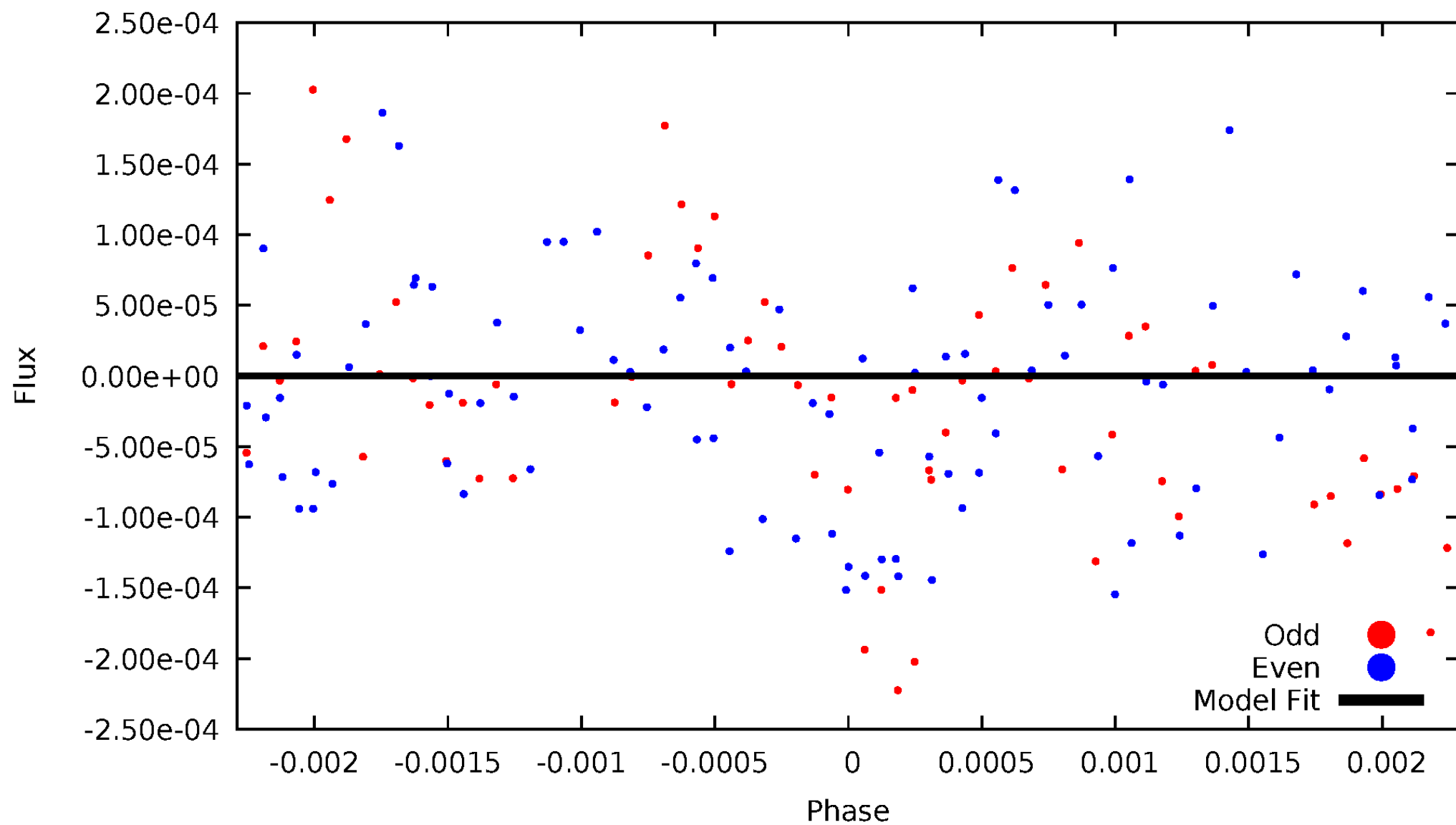


TCE 004934893-02



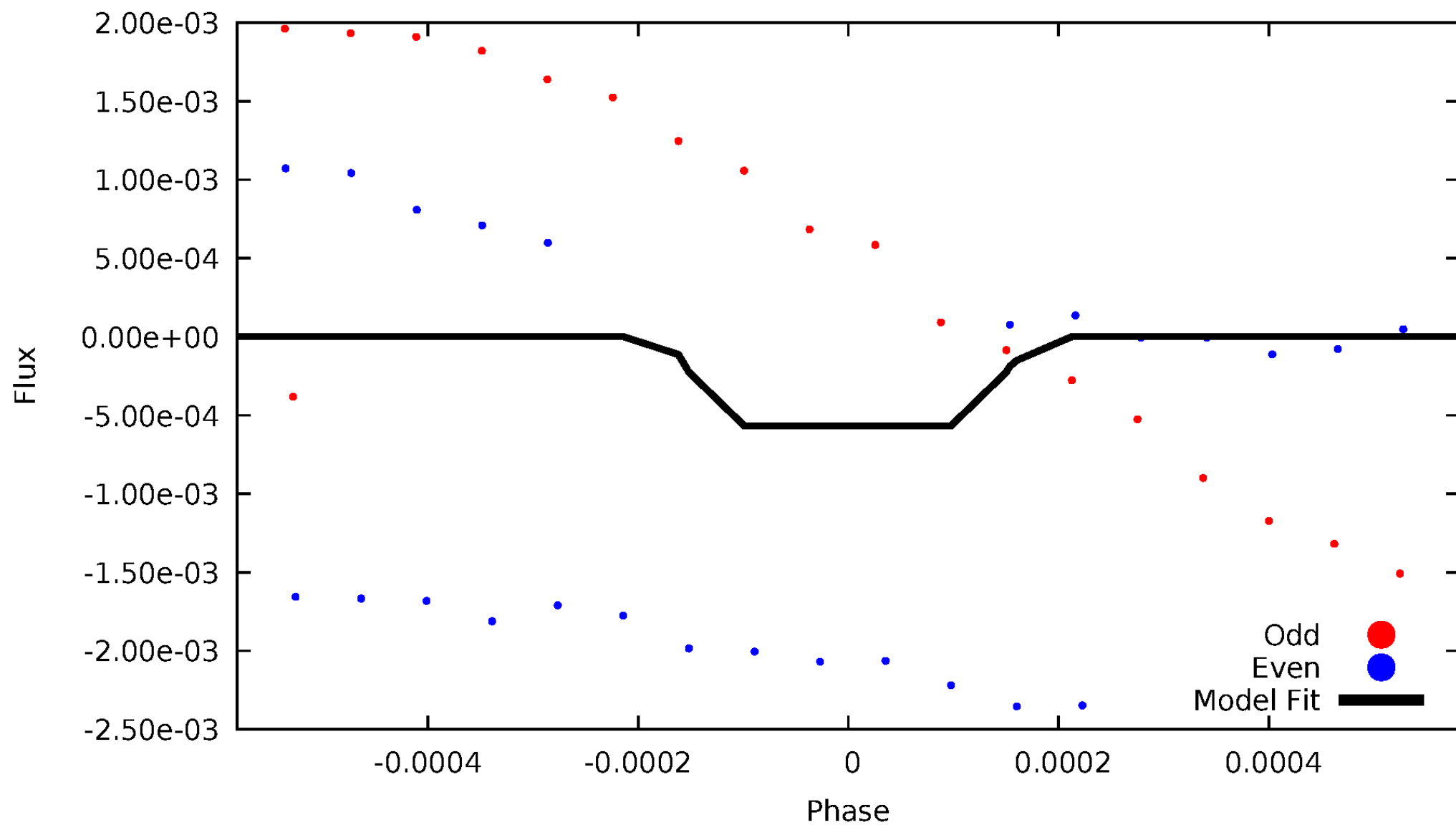
DV Odd/Even

TCE 004934893-02



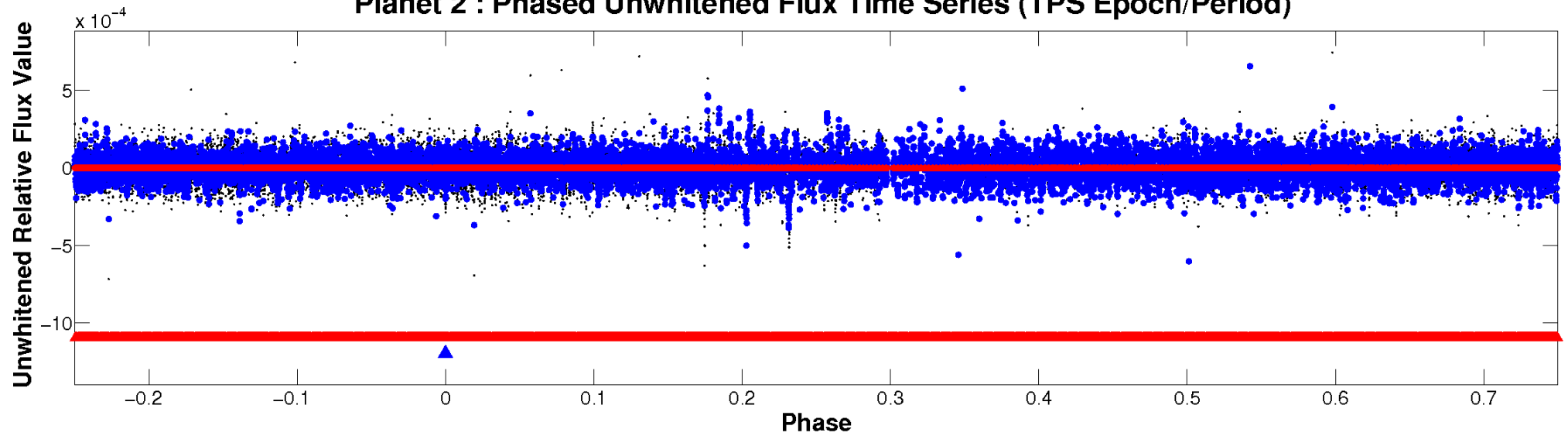
ALT Odd/Even

TCE 004934893-02



Non-Whitened Vs. Whitened Light Curve

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

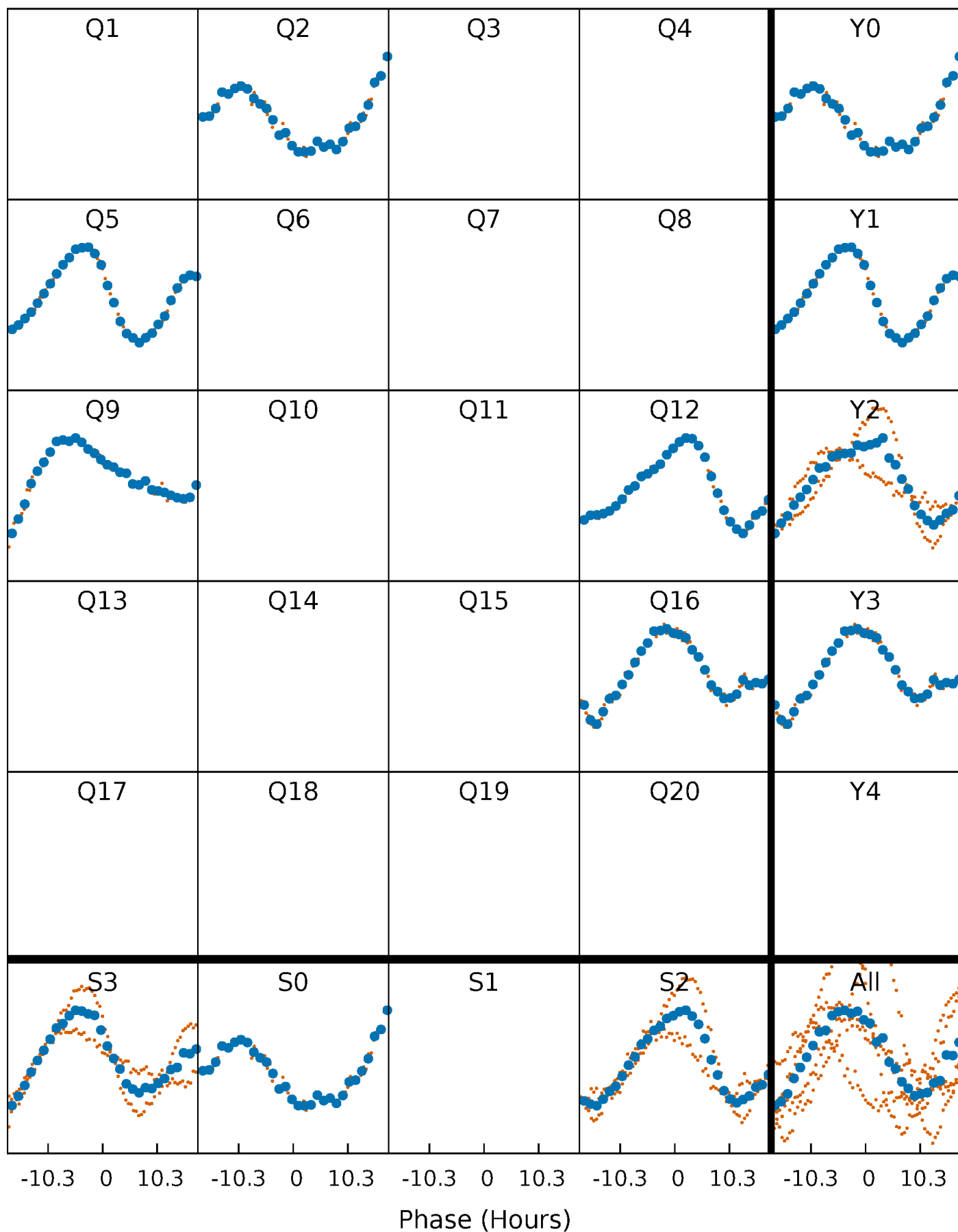


Planet 2 : Phased Whitened Flux Time Series (TPS Epoch/Period)



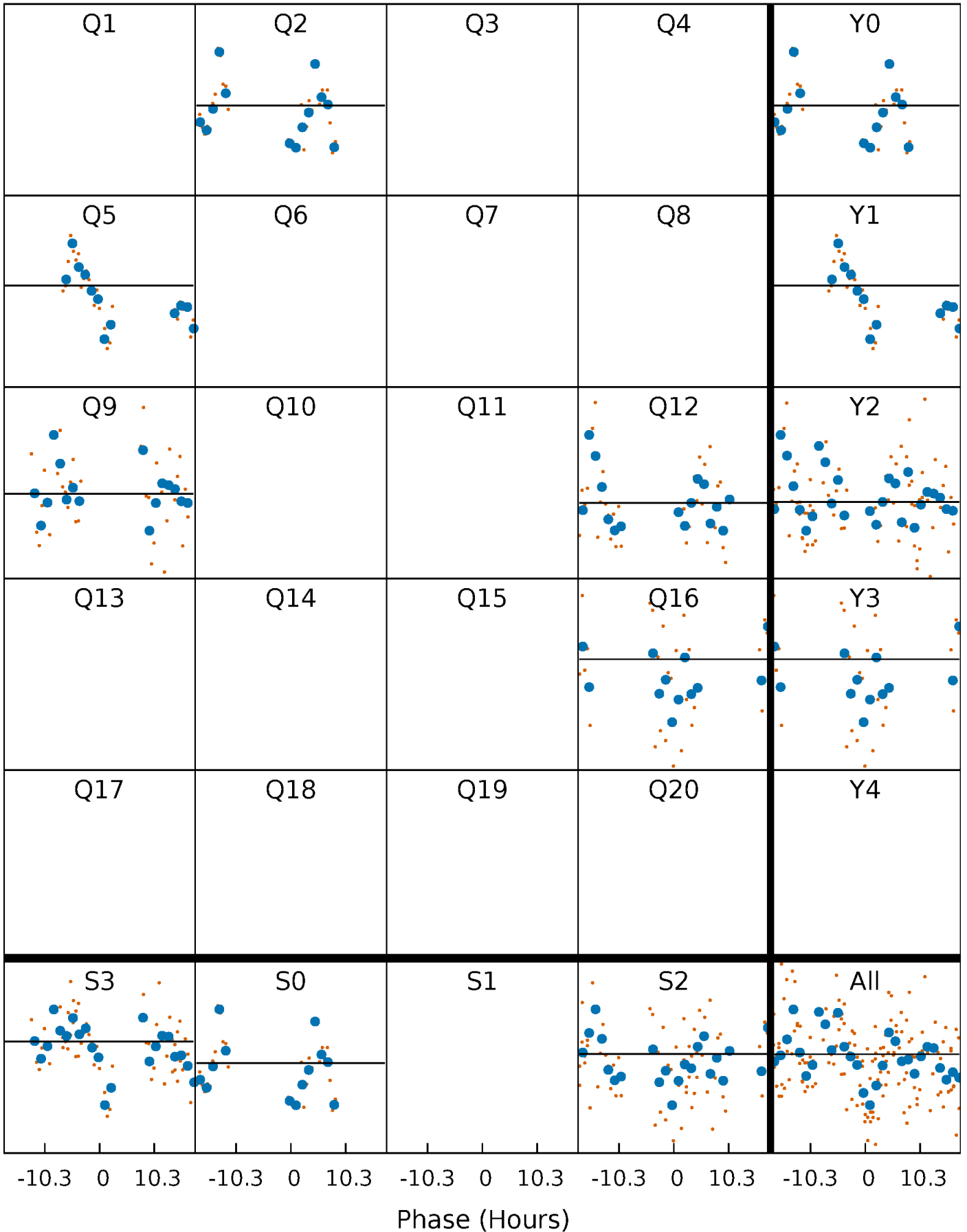
PDC Quarter-Phased Transit Curves

TCE 004934893-02 $P=327.652135$ Days $T_0=192.712912$ (BKJD)



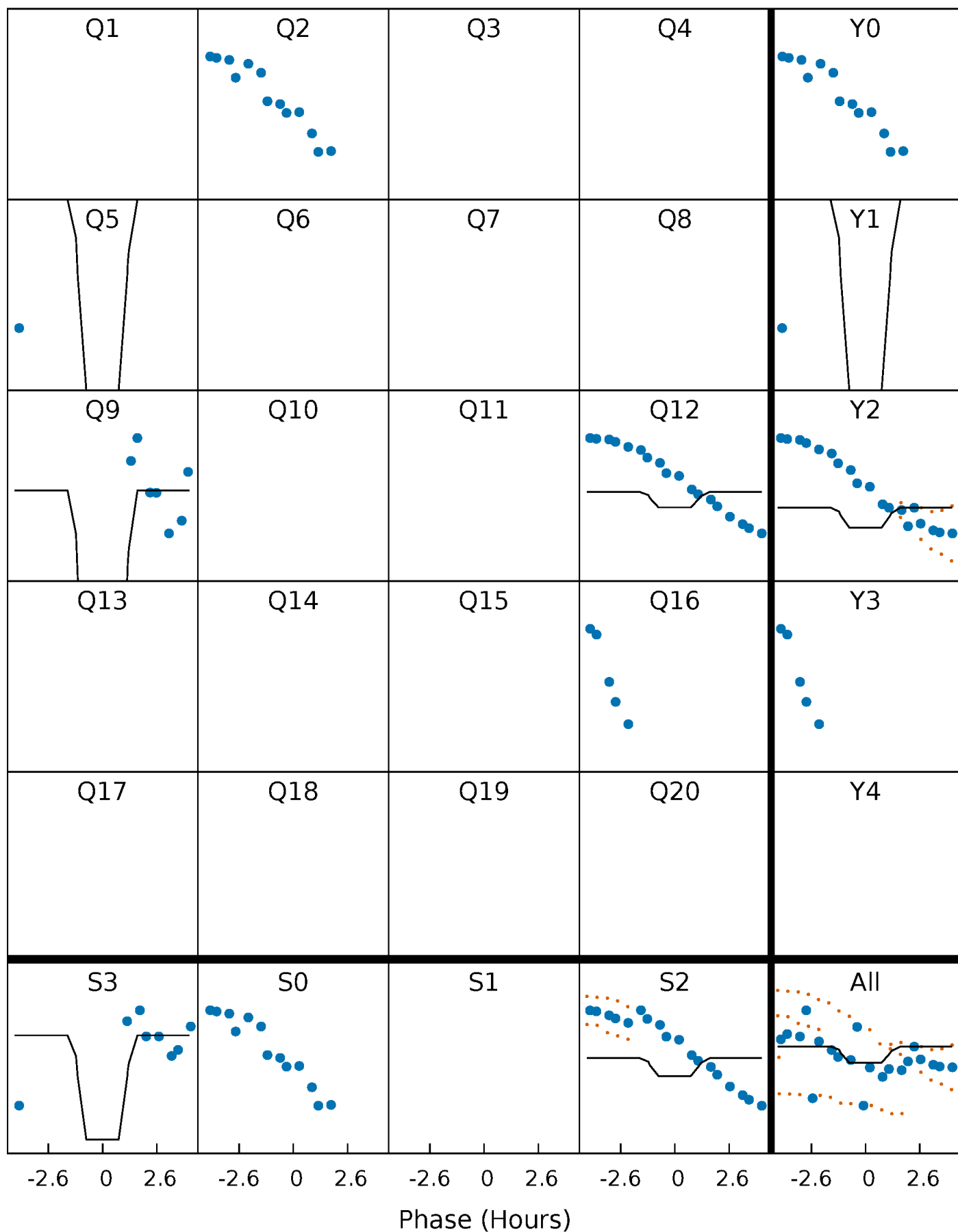
DV Quarter-Phased Transit Curves

TCE 004934893-02 $P=327.652135$ Days $T_0=192.712912$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

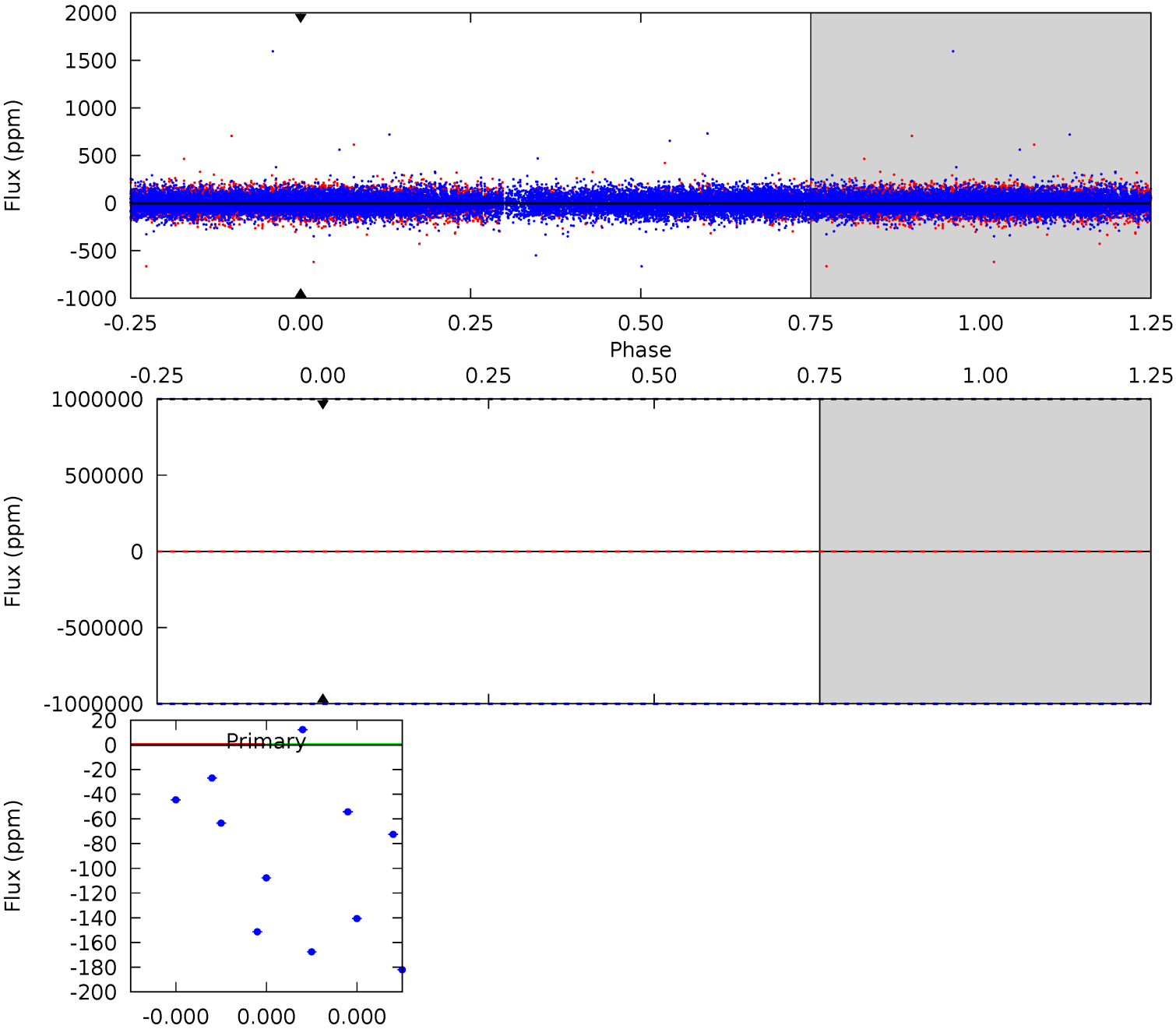
TCE 004934893-02 P=327.652135 Days $T_0=192.987549$ (BKJD)



DV Model-Shift Uniqueness Test

004934893-02, P = 327.652135 Days, E = 192.712912 Days

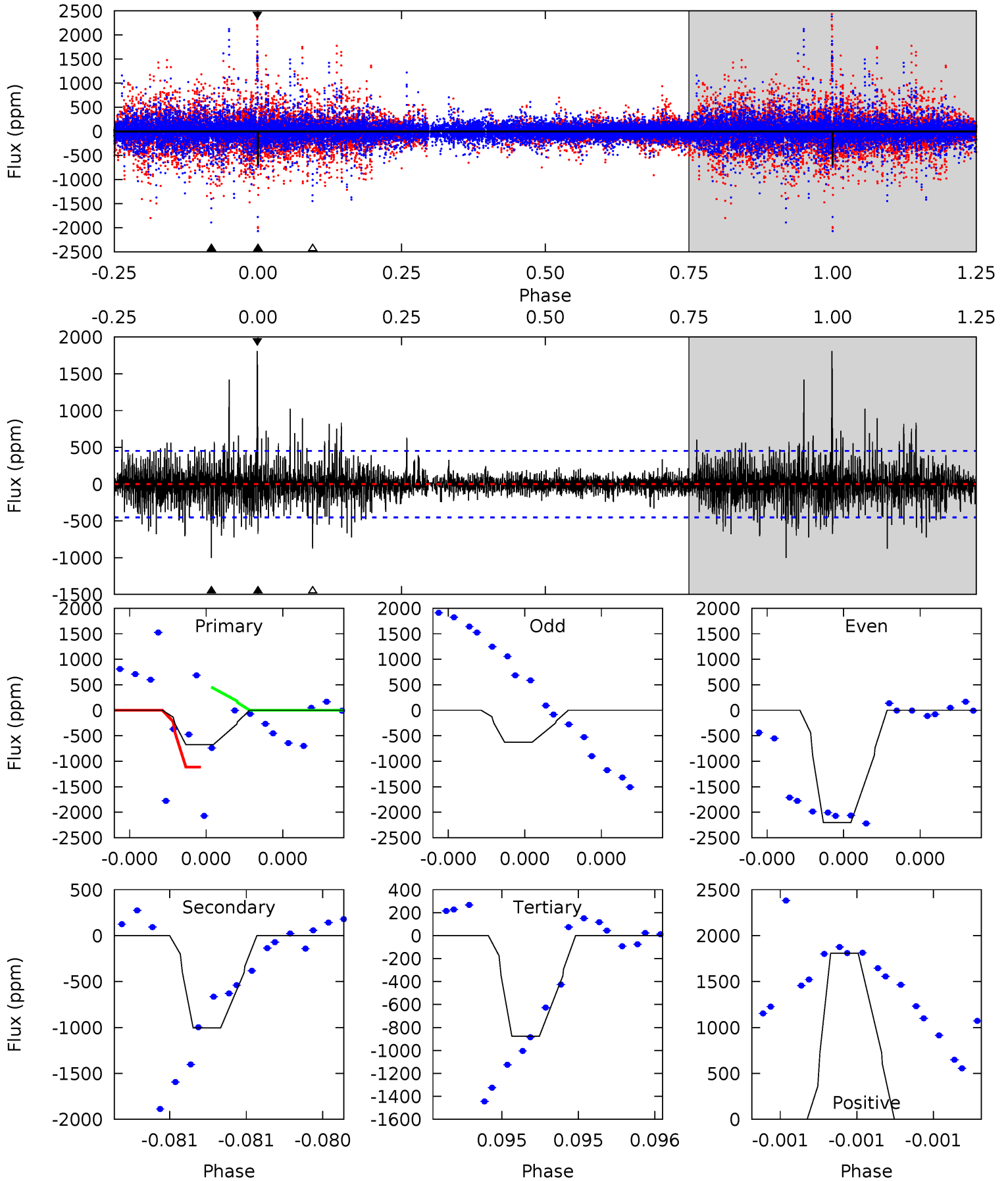
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
0	0	0	0	1.00	1.00	1.00	0	0	0	0	0	0	0	0



Alt Model-Shift Uniqueness Test

004934893-02, P = 327.652135 Days, E = 192.987549 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
8.39	12.5	10.9	22.5	5.62	3.56	1.89	-2.50	-14.1	1.60	-10.00	9.26	1.00	0.64	3.63



Stellar Parameters For KIC 004934893

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	7113^{+172}_{-246}	$3.783^{+0.278}_{-0.093}$	$-0.040^{+0.250}_{-0.300}$	$2.880^{+0.428}_{-0.999}$	$1.834^{+0.165}_{-0.385}$	$0.108^{+0.204}_{-0.032}$
	+2%/-3%	+7%/-2%	+625%/-750%	+15%/-35%	+9%/-21%	+189%/-30%
Source	PHO1	FLK73	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 004934893-02 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	0 ± 1000000	$21.17^{+23.63}_{-14.37}$	686^{+40}_{-59}	5365^{+33588}_{-37765}	$2872^{+283054}_{-254887}$
Alt.	-1004 ± 80	$23.33^{+23.82}_{-16.60}$	684^{+39}_{-57}	4536^{+4071}_{-957}	1295^{+13605}_{-968}

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

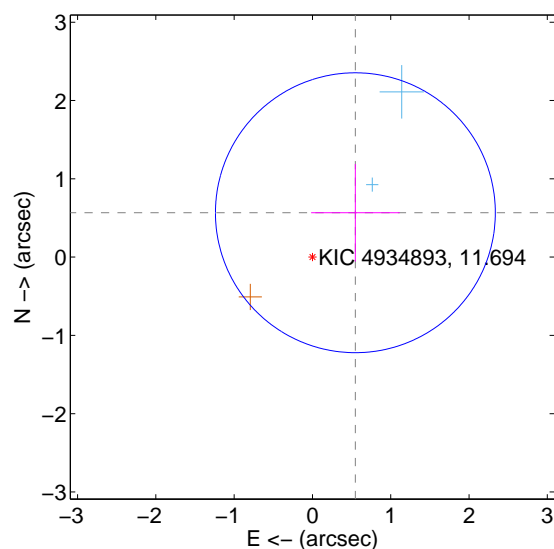
Supplemental centroid analysis for 004934893-02. **Kepler magnitude: 11.69.** Transit SNR -1.00

There are 2 quarters with good PRF difference image offsets

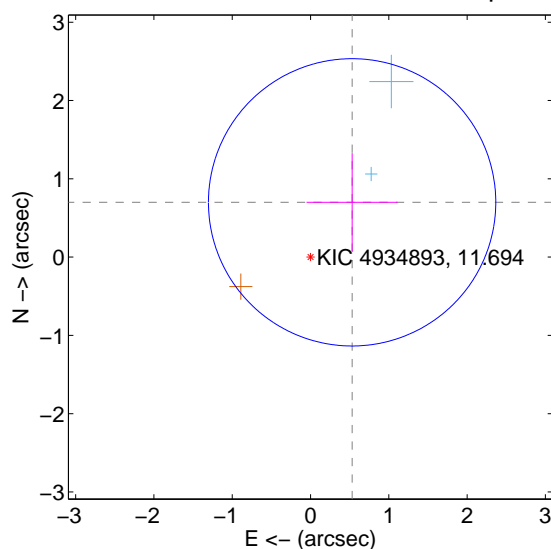
The direct PRF centroid is offset from the target star catalog position by about 0.17 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.789 ± 0.596	1.32	-0.548 ± 0.566	0.567 ± 0.623
PRF-fit source offset from KIC position	0.878 ± 0.612	1.44	-0.531 ± 0.581	0.699 ± 0.629
photometric centroid source offset	0.23 ± 0.30	0.76	0.22 ± 0.30	0.06 ± 0.34

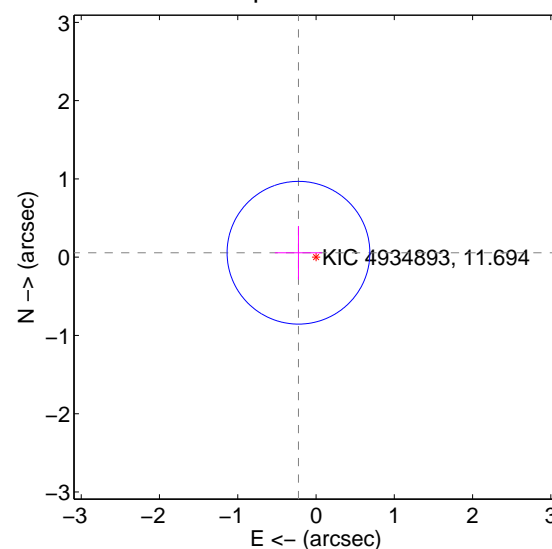
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position



offset from photometric centroids



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.

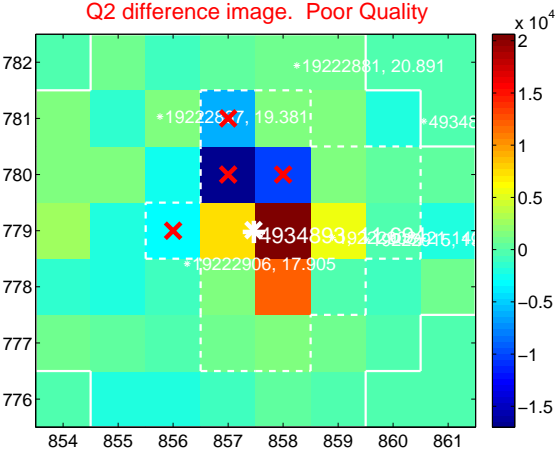
Q1 no difference image



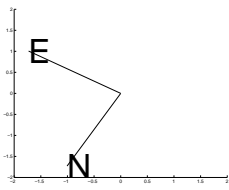
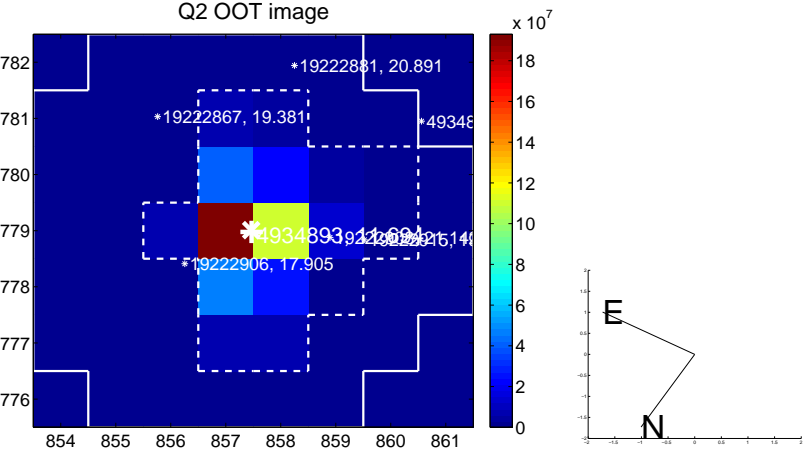
Q1 no OOT image



Q2 difference image. Poor Quality



Q2 OOT image



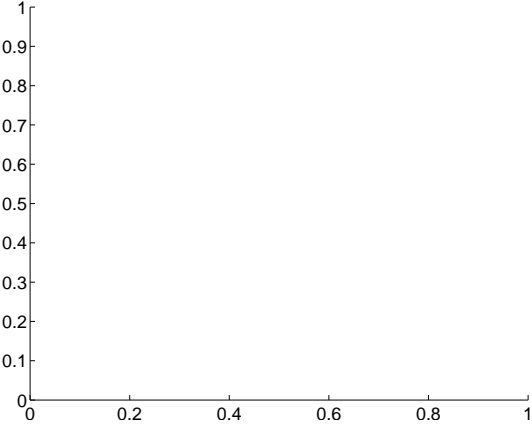
Q3 no difference image



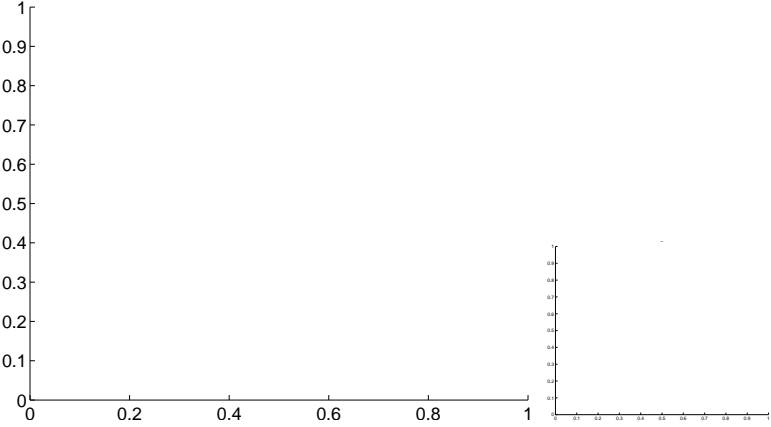
Q3 no OOT image



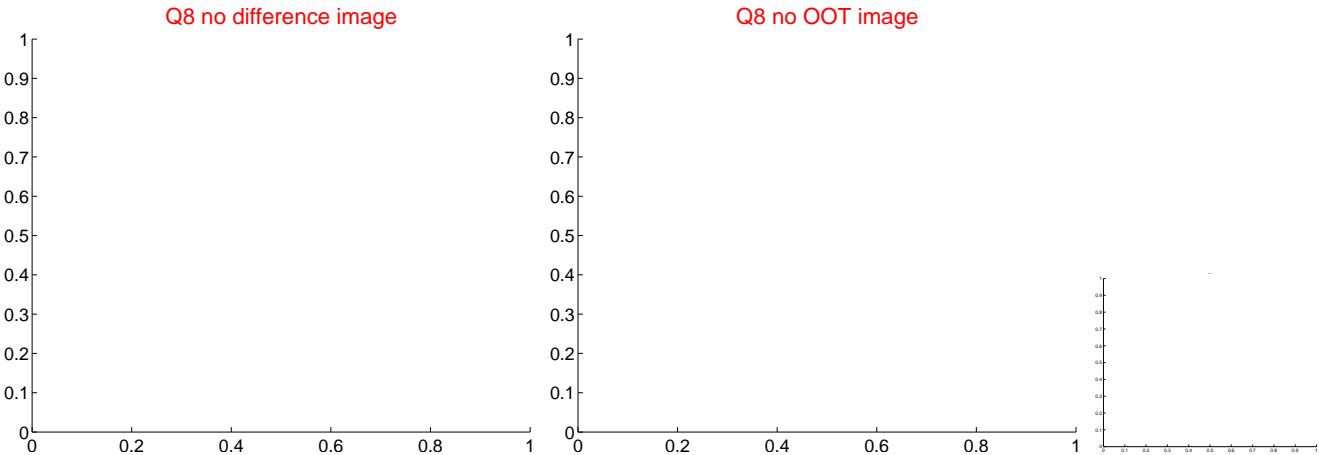
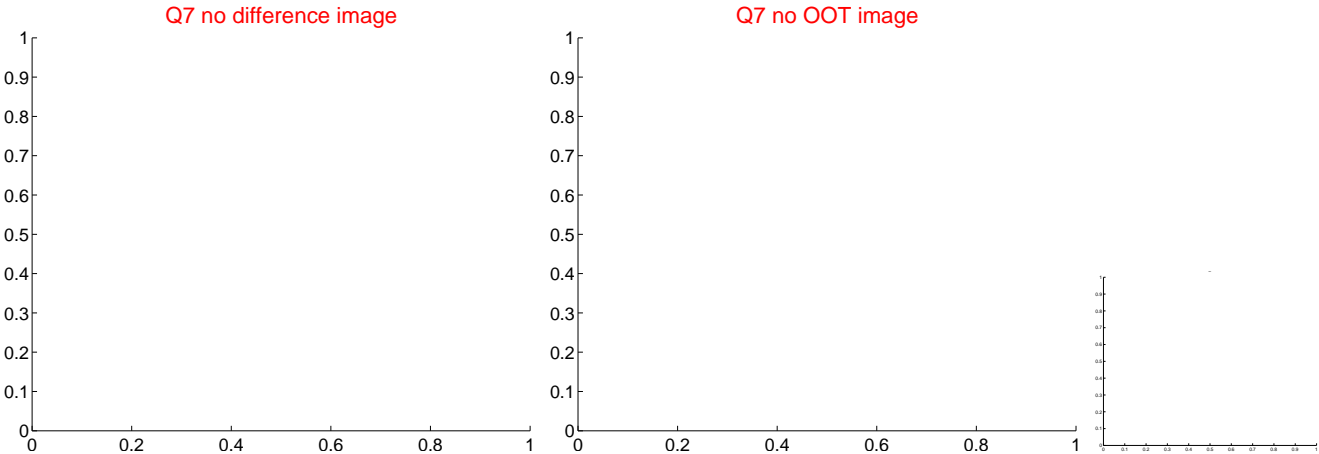
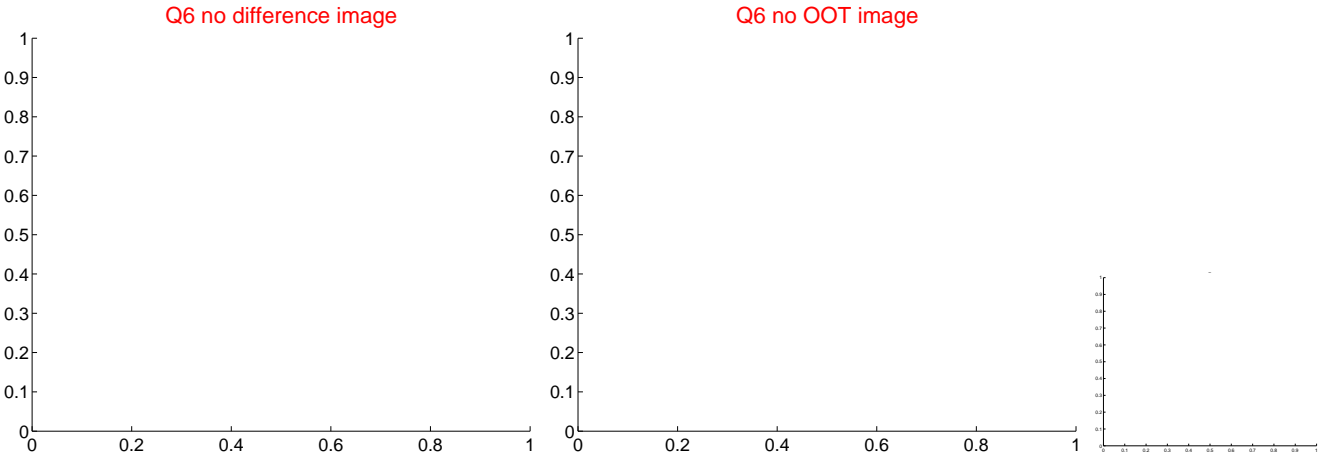
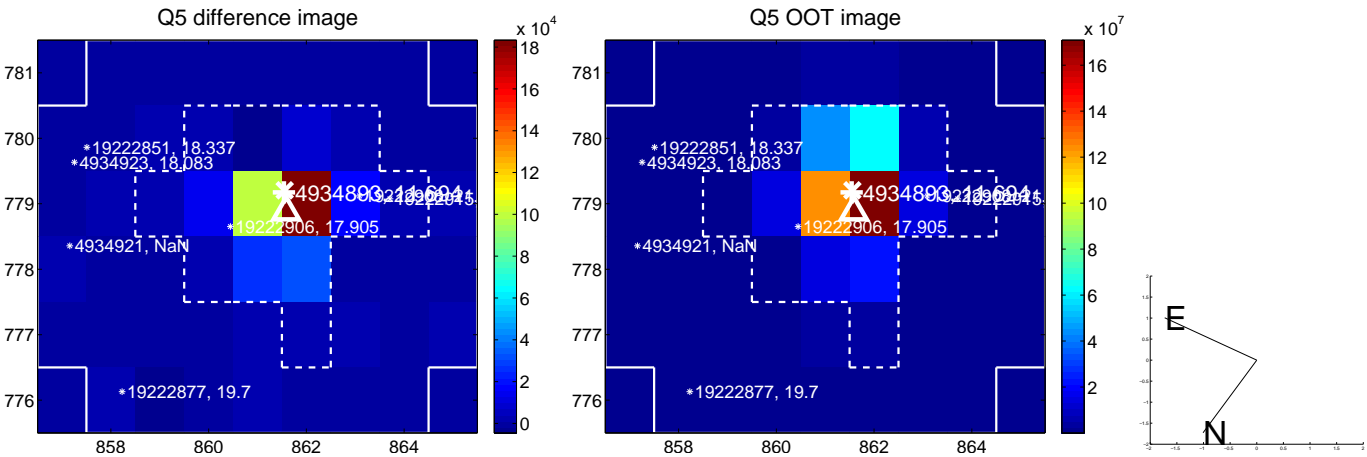
Q4 no difference image



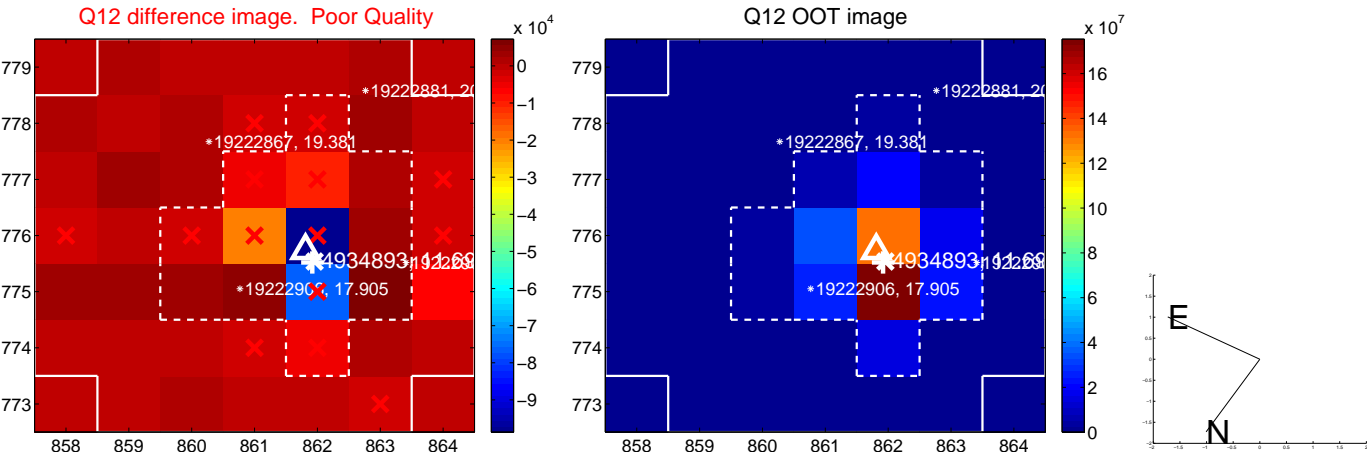
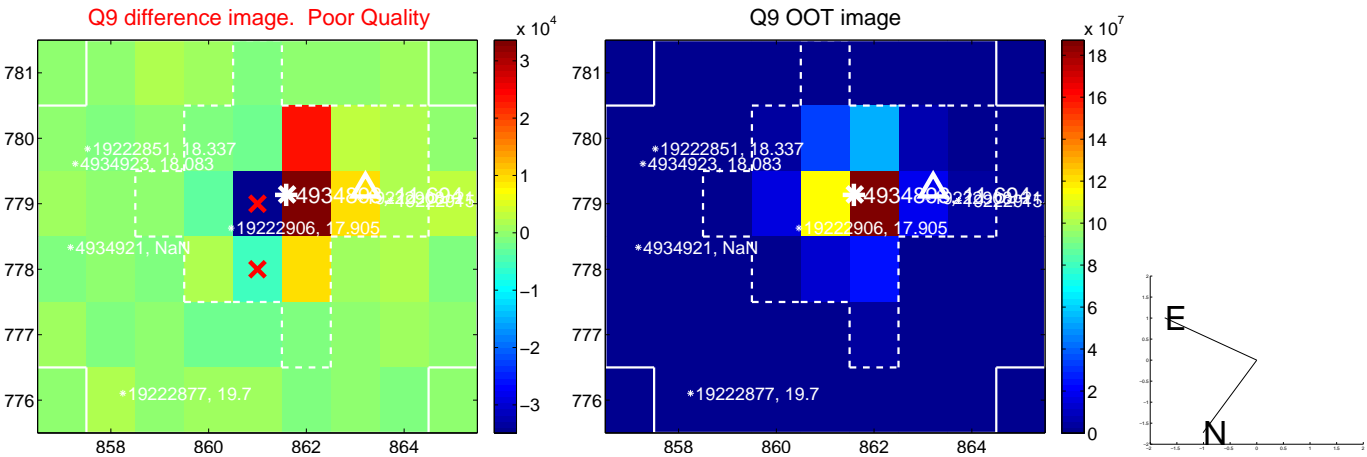
Q4 no OOT image



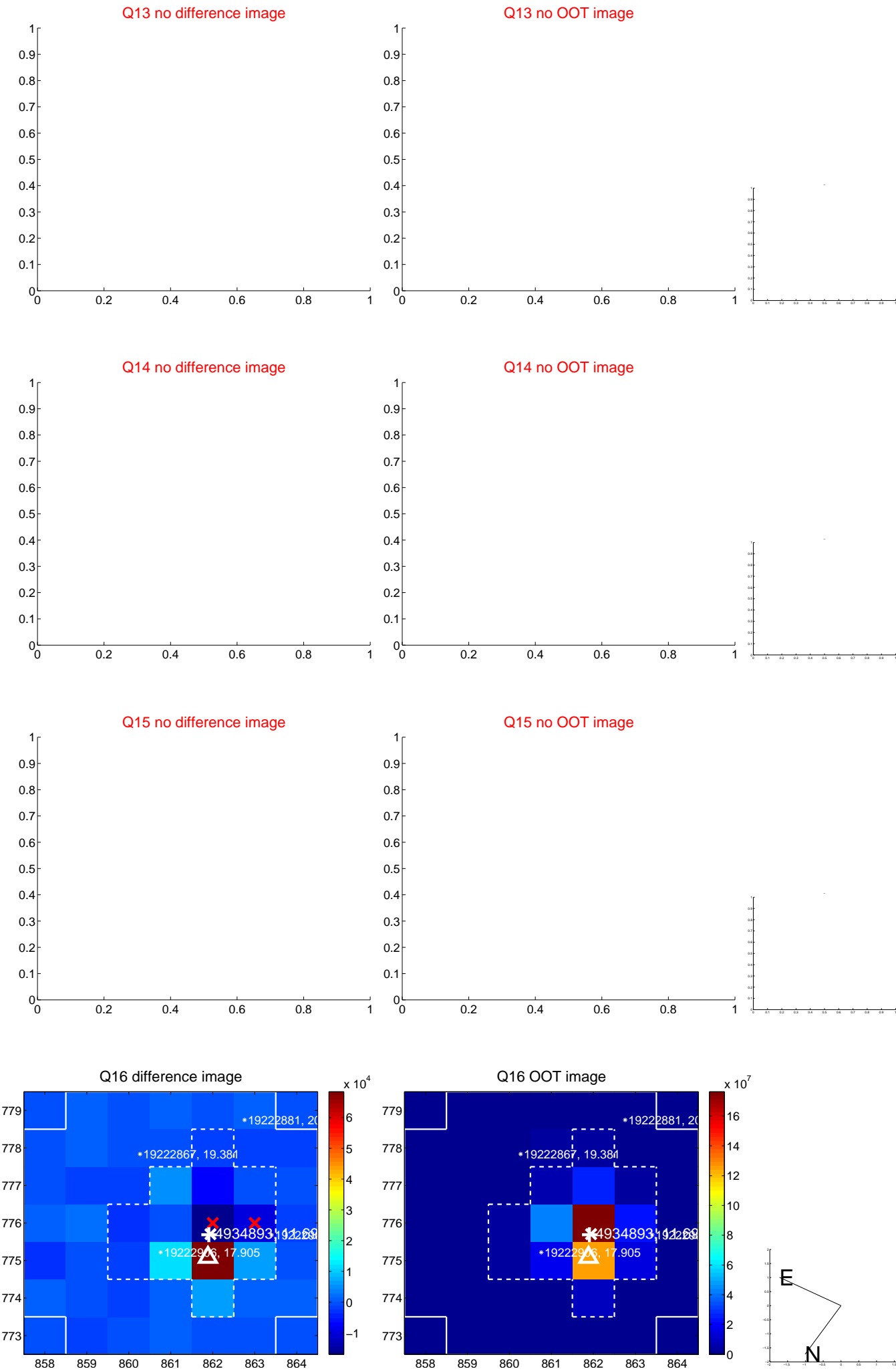
white ×: KIC target position; +: OOT centroid; △: difference centroid. red ×: large negative pixel value.



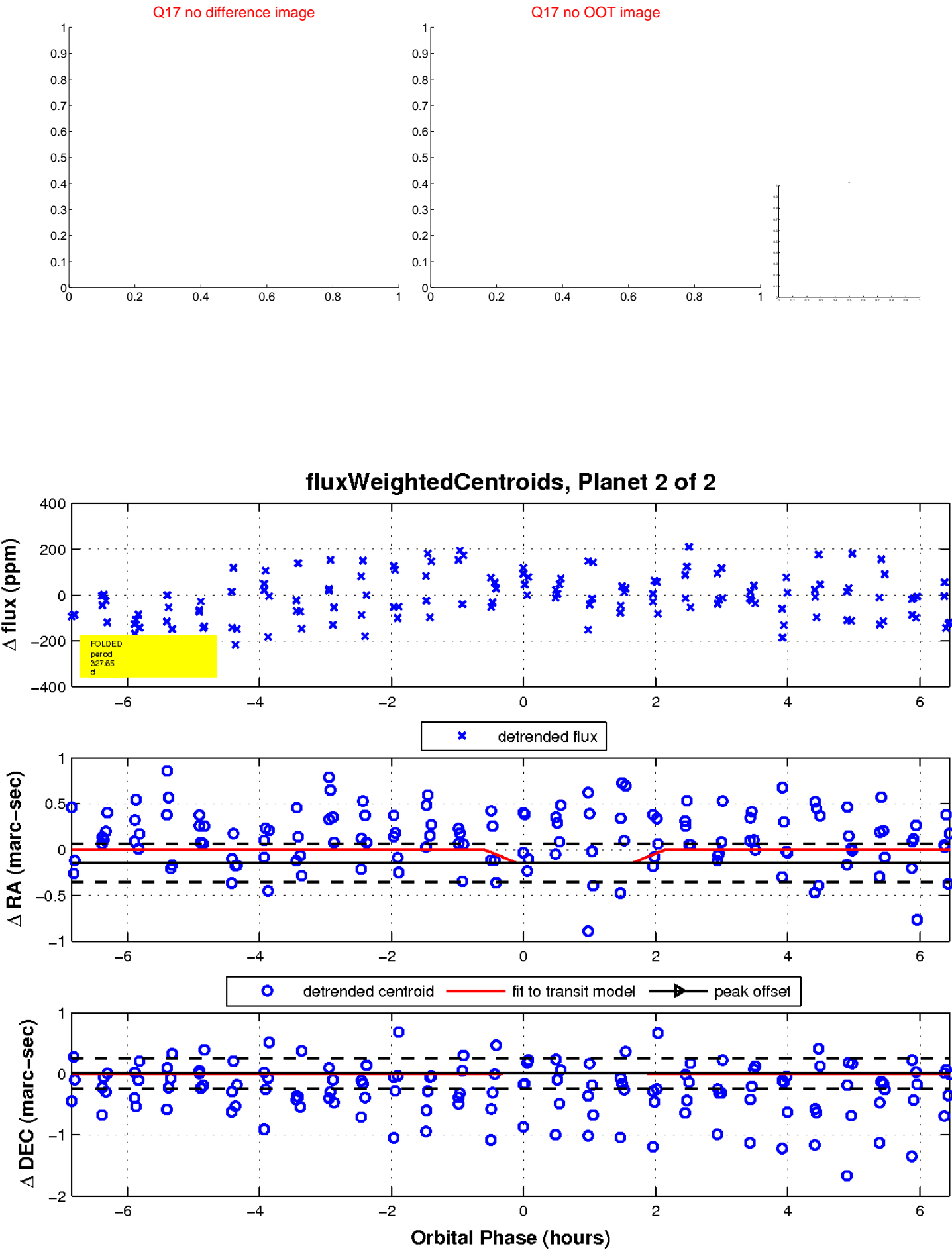
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

