

KIC 004179972

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})
004179972-01	OBS	No	1.367913	131.900417	21.1	7.437	8.5	4.9	1.77	6437	0.85	7539.74
004179972-02	OBS	No	44.851812	134.958313	316.8	7.587	9.2	9.0	1.77	6437	3.42	71.84
004179972-03	OBS	No	133.767144	257.557391	431.6	6.975	8.0	7.6	1.77	6437	3.98	16.73

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
004179972-01	OBS	FP	0.00	1	0	0	0	LPP_DV
004179972-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_ALT
004179972-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_POS_ALT—INCONSISTENT_TRANS

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

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

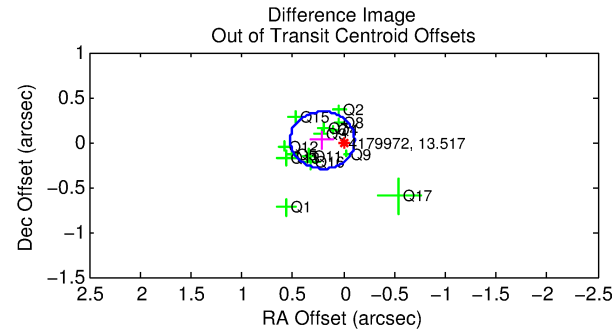
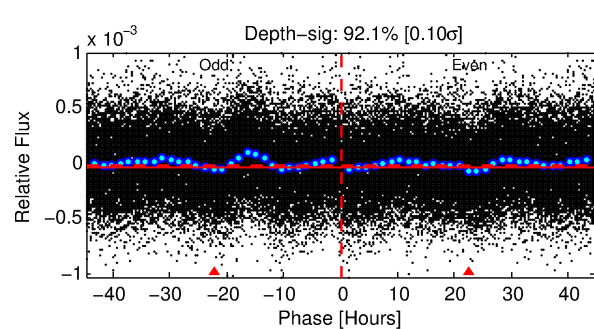
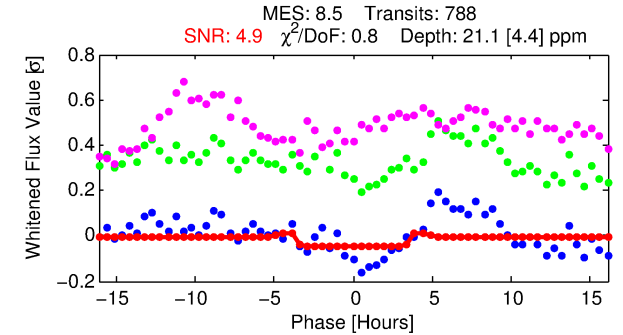
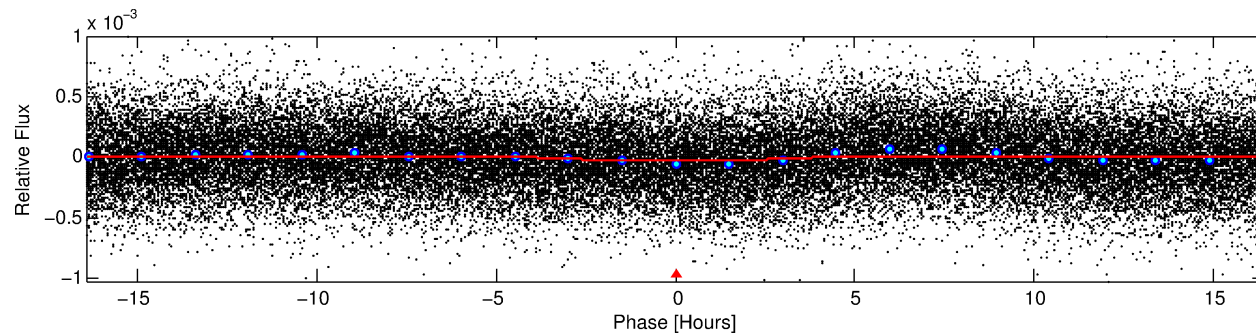
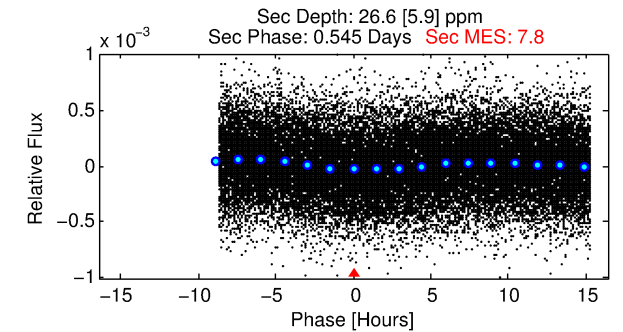
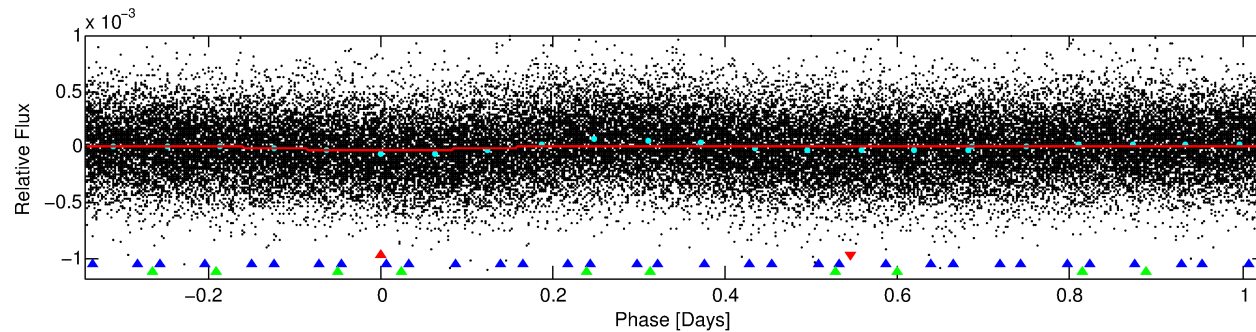
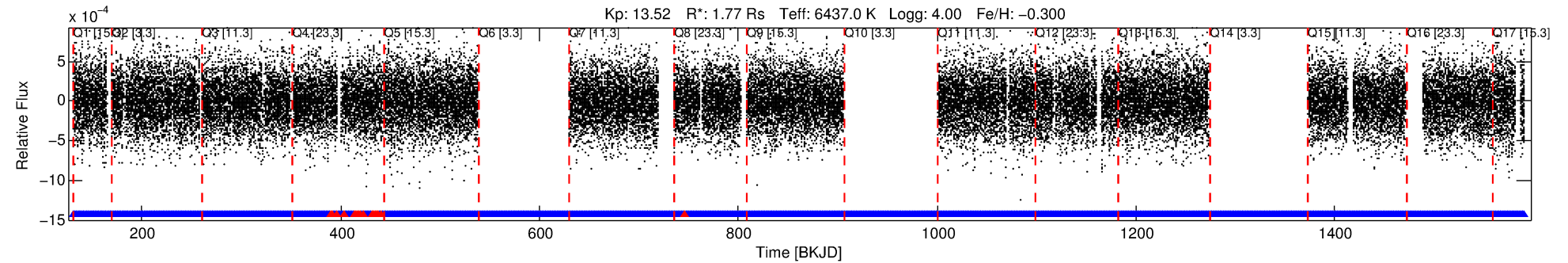
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 004179972-01

No Significant Match Found

DV One-Page Summary

KIC: 4179972 Candidate: 1 of 3 Period: 1.368 d



DV Fit Results:

Period = 1.36791 [0.00003] d
Epoch = 131.9004 [0.0085] BKJD
Rp/R* = 0.0044 [0.0036]
a/R* = 1.39 [2.97]
b = 0.56 [5.42]
Seff = 7539.74 [4499.44]
Teq = 2376 [354] K
Rp = 0.85 [0.76] Re
a = 0.0253 [0.0091] AU
Ag = 13.04 [22.67] [0.53σ]
Teffp = 6982 [2868] K [1.59σ]

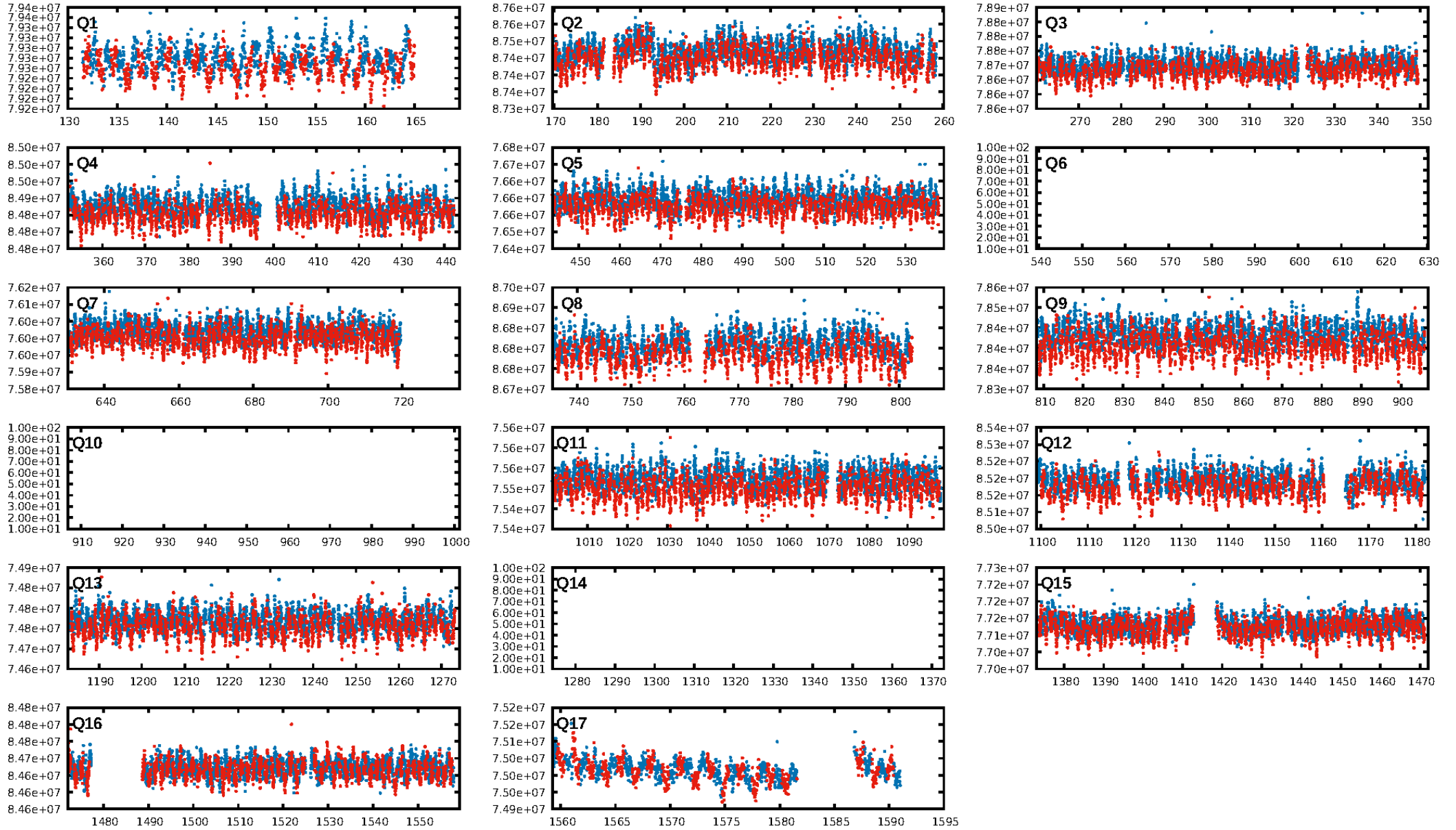
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: 100.0% [98.23σ]
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: 1.13e-09
RollingBand-fgt: 0.97 [725/744]
GhostDiagnostic-chr: 0.884
Centroid-sig: 0.0%
Centroid-so: 5.946 arcsec [4.28σ]
OotOffset-rm: 0.208 arcsec [1.97σ]
KicOffset-rm: 0.113 arcsec [1.07σ]
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]

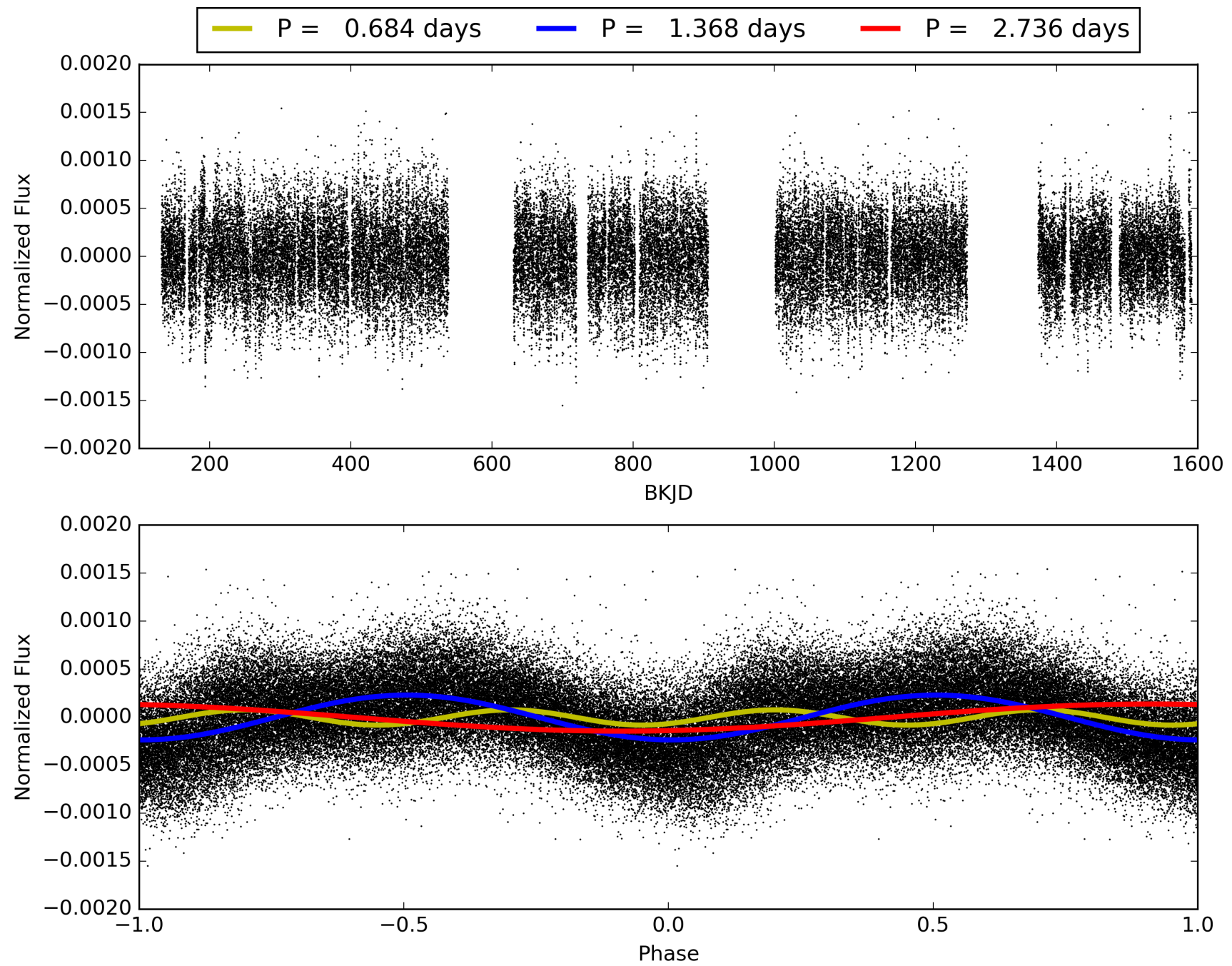
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 10:16:18 Z

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

TCE 004179972-01, PDC Light Curves

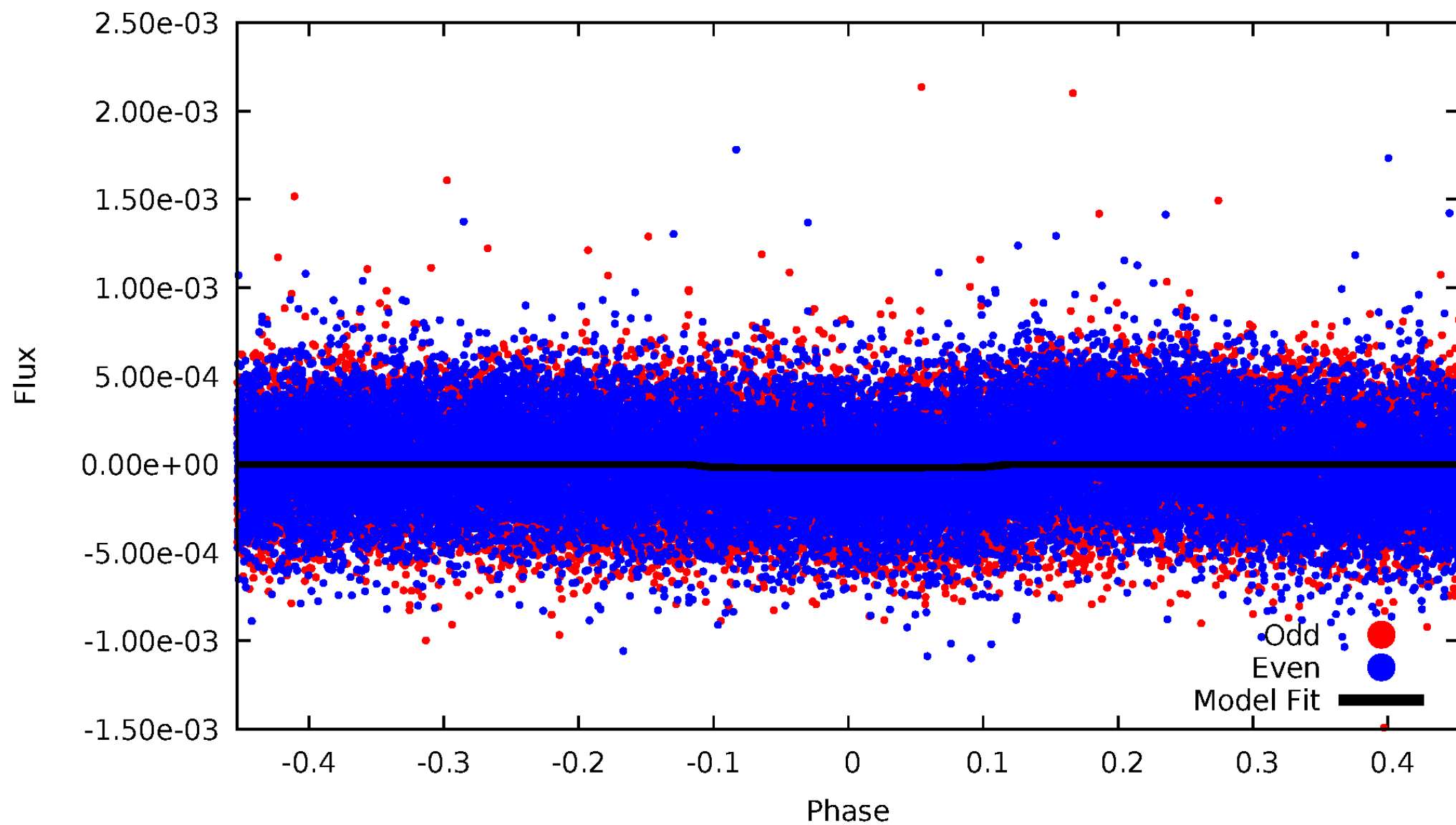


TCE 004179972-01



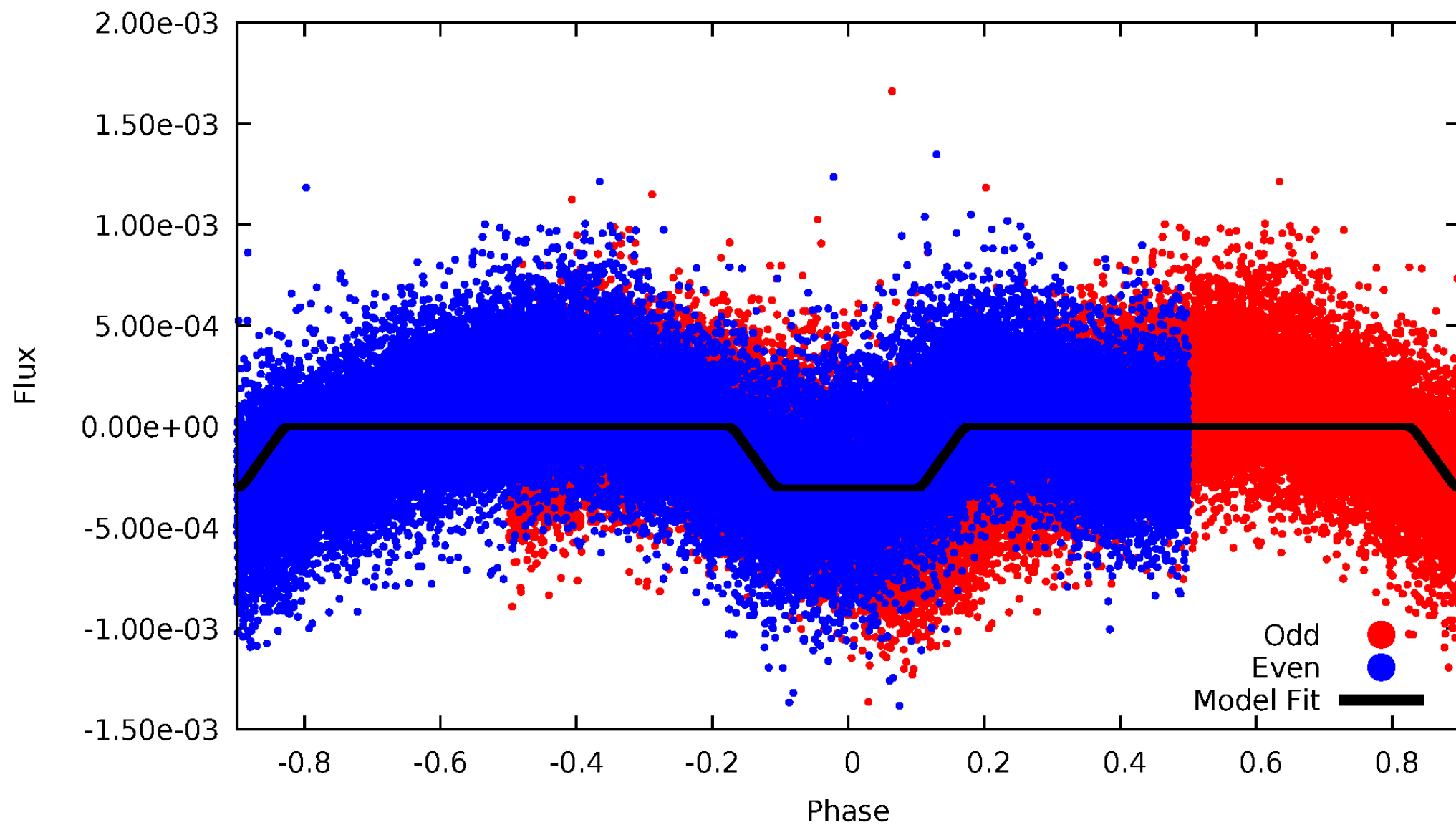
DV Odd/Even

TCE 004179972-01

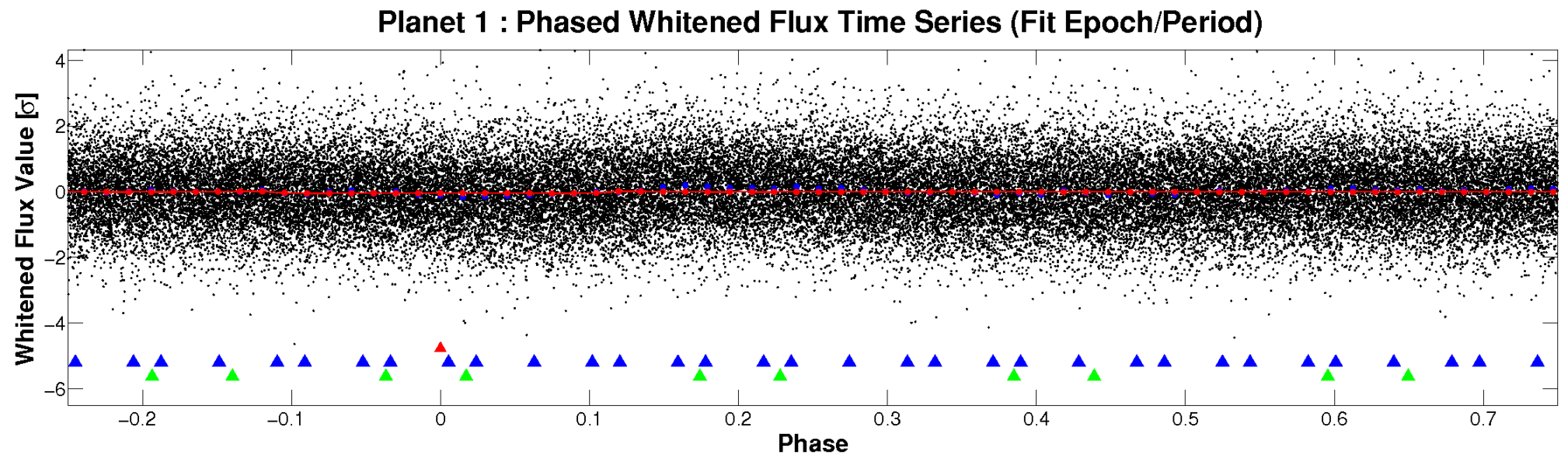
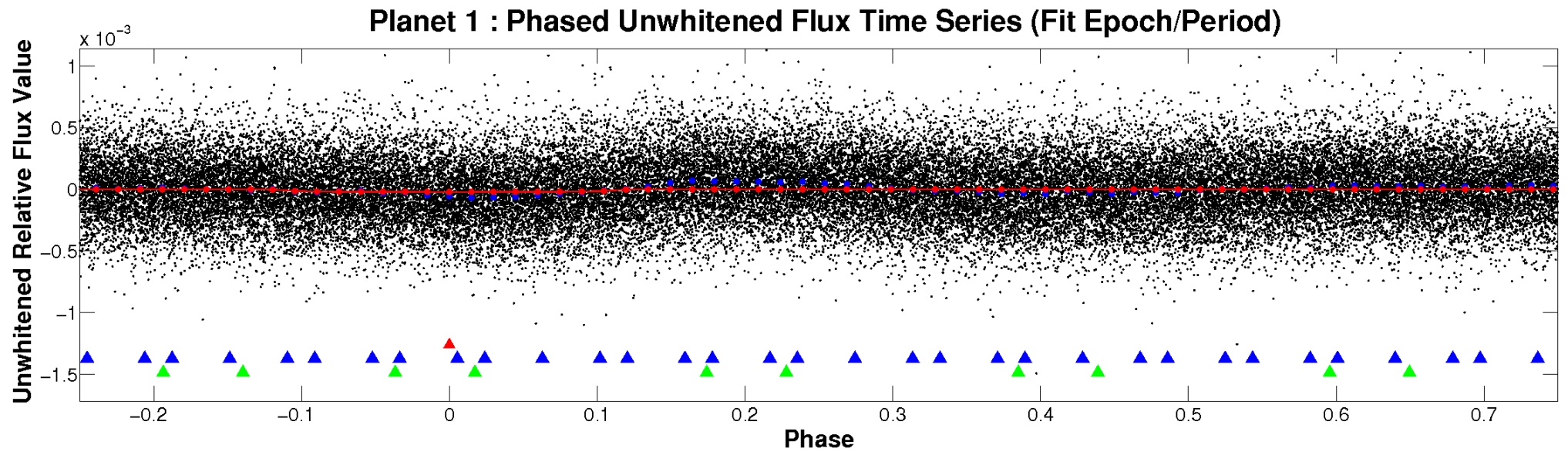


ALT Odd/Even

TCE 004179972-01

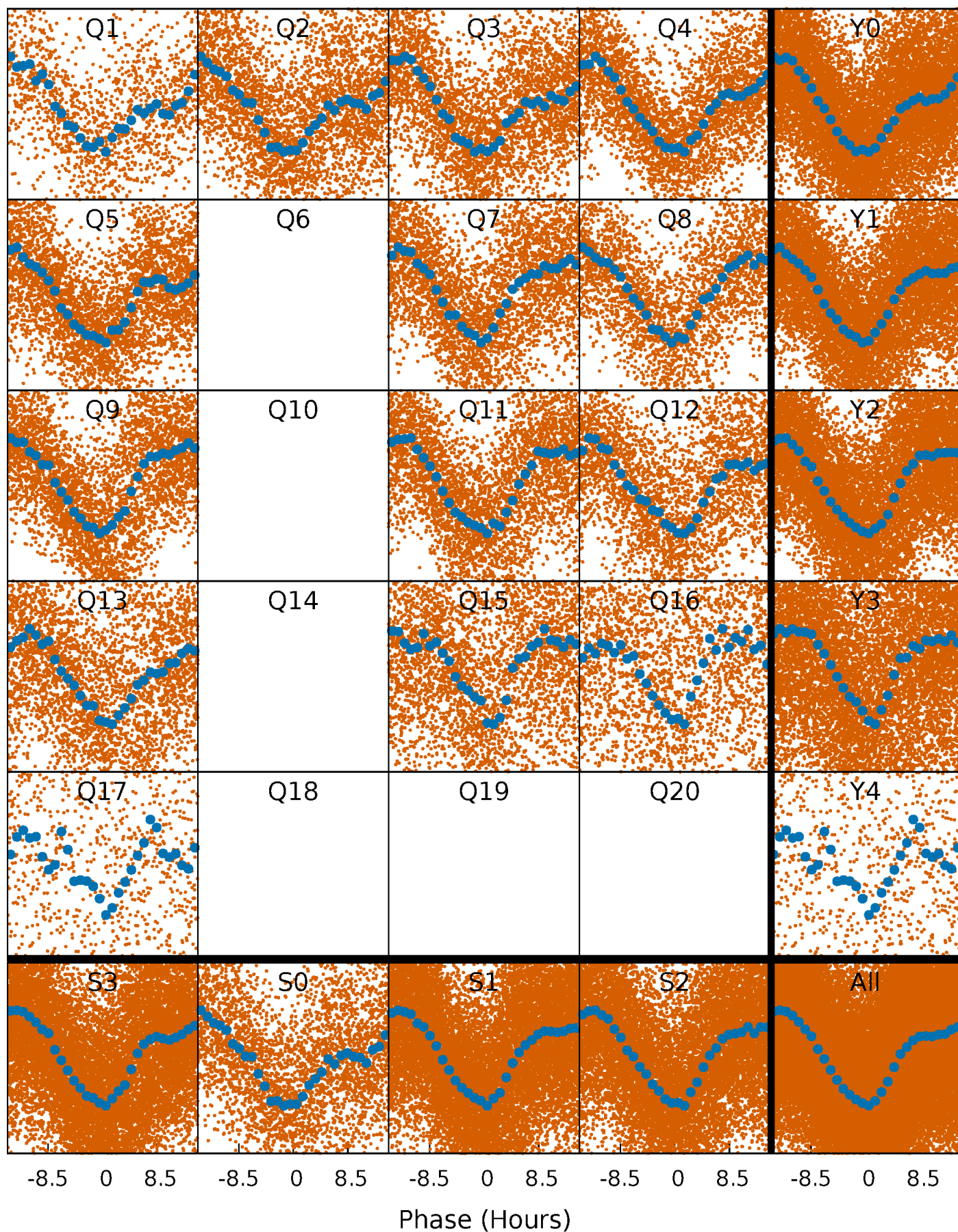


Non-Whitened Vs. Whitened Light Curve



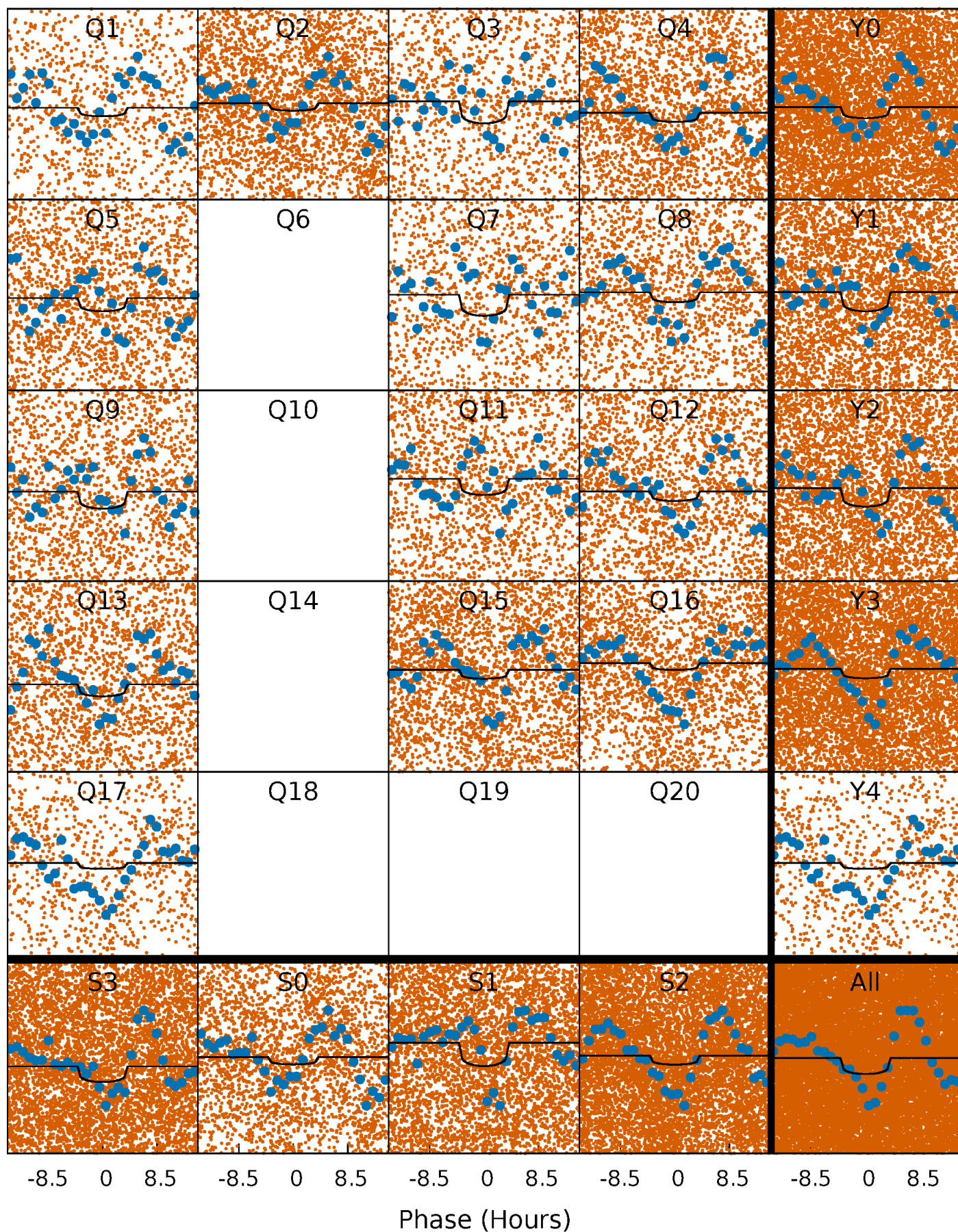
PDC Quarter-Phased Transit Curves

TCE 004179972-01 P= 1.367913 Days $T_0=131.900417$ (BKJD)



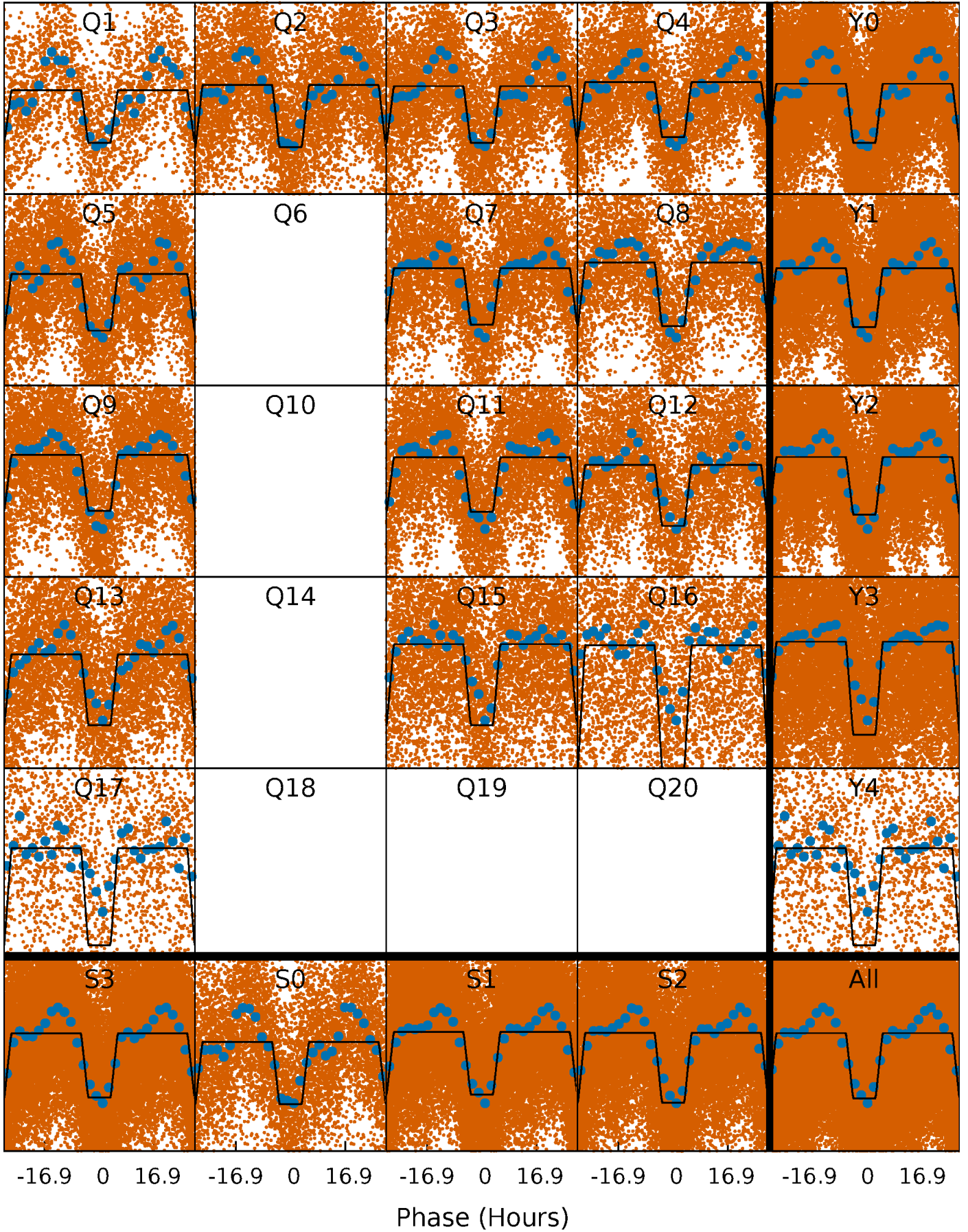
DV Quarter-Phased Transit Curves

TCE 004179972-01 P= 1.367913 Days $T_0=131.900417$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

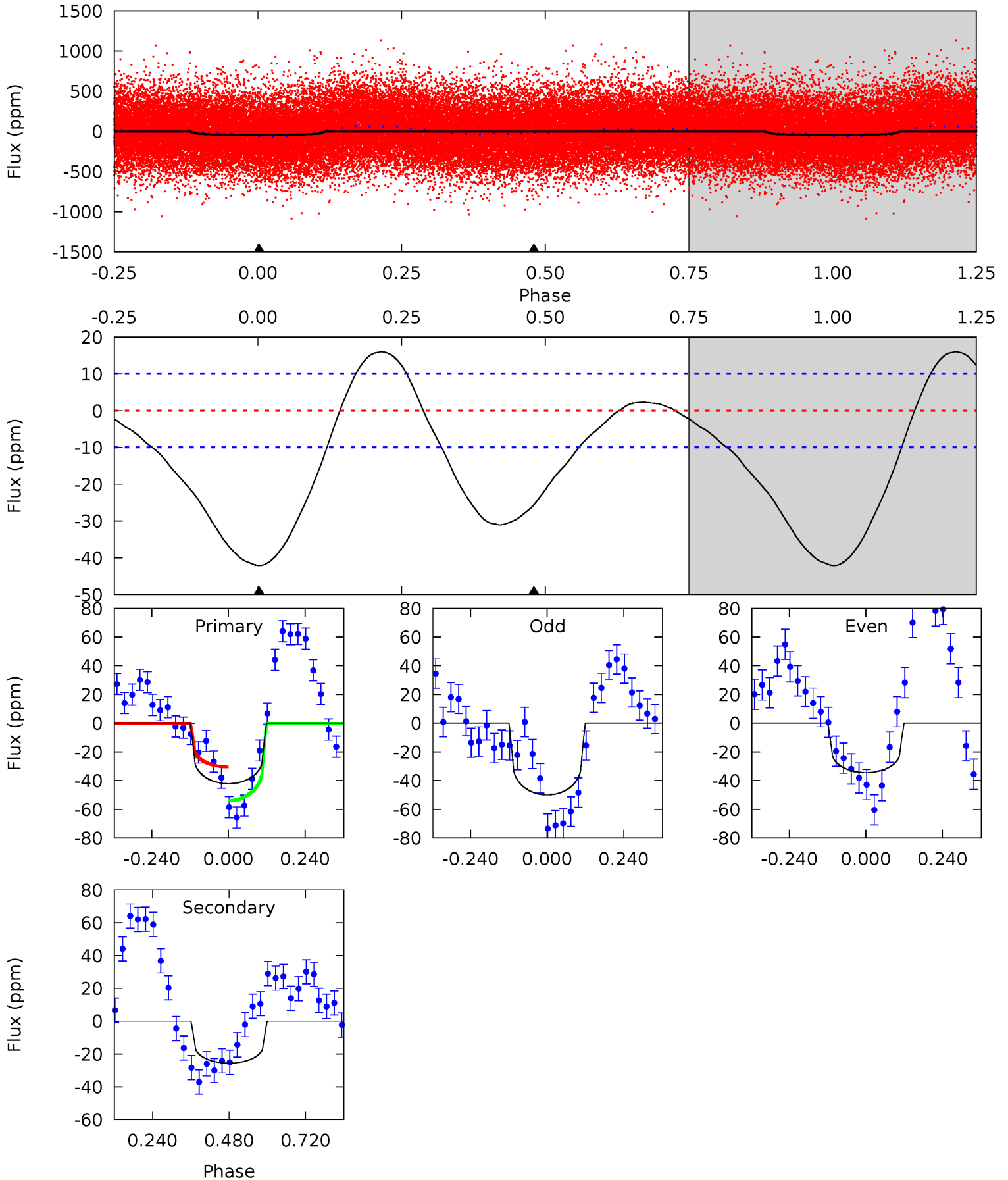
TCE 004179972-01 P= 1.367935 Days $T_0=131.871987$ (BKJD)



DV Model-Shift Uniqueness Test

004179972-01, P = 1.367913 Days, E = 130.532504 Days

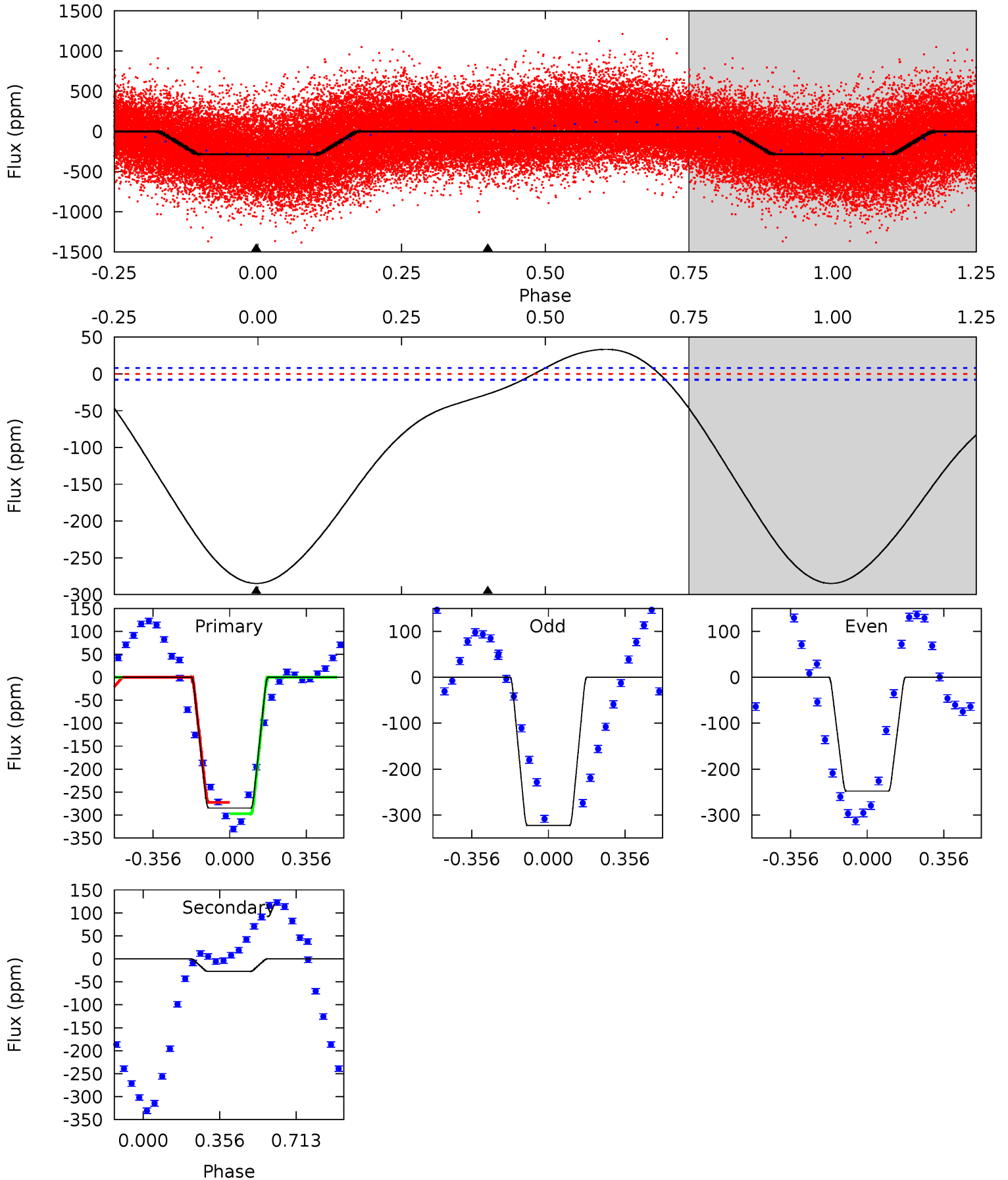
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
18.5	11.2	0	0	4.38	1.17	3.14	18.5	18.5	11.2	11.2	3.42	1.07	0.27	5.08



Alt Model-Shift Uniqueness Test

004179972-01, P = 1.367935 Days, E = 130.504052 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
152.4	14.6	0	0	4.29	0.92	11.4	152.4	152.4	14.6	14.6	19.7	0.98	0.10	6.07



Stellar Parameters For KIC 004179972

	$T_{\text{eff}} (K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R (R_{\odot})$	$M (M_{\odot})$	$\rho_{\star} (\text{g}\cdot\text{cm}^{-3})$
	6437^{+175}_{-214}	$4.004^{+0.343}_{-0.147}$	$-0.300^{+0.300}_{-0.300}$	$1.773^{+0.494}_{-0.658}$	$1.158^{+0.188}_{-0.188}$	$0.293^{+0.760}_{-0.124}$
	+3%/-3%	+9%/-4%	+100%/-100%	+28%/-37%	+16%/-16%	+260%/-42%
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 004179972-01 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-26 ± 2	$0.91^{+0.66}_{-0.55}$	3273^{+243}_{-326}	6431^{+5057}_{-1427}	11^{+59}_{-7}
Alt.	-27 ± 2	$3.25^{+0.89}_{-0.83}$	3272^{+260}_{-312}	3607^{+425}_{-346}	$0.932^{+0.733}_{-0.358}$

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

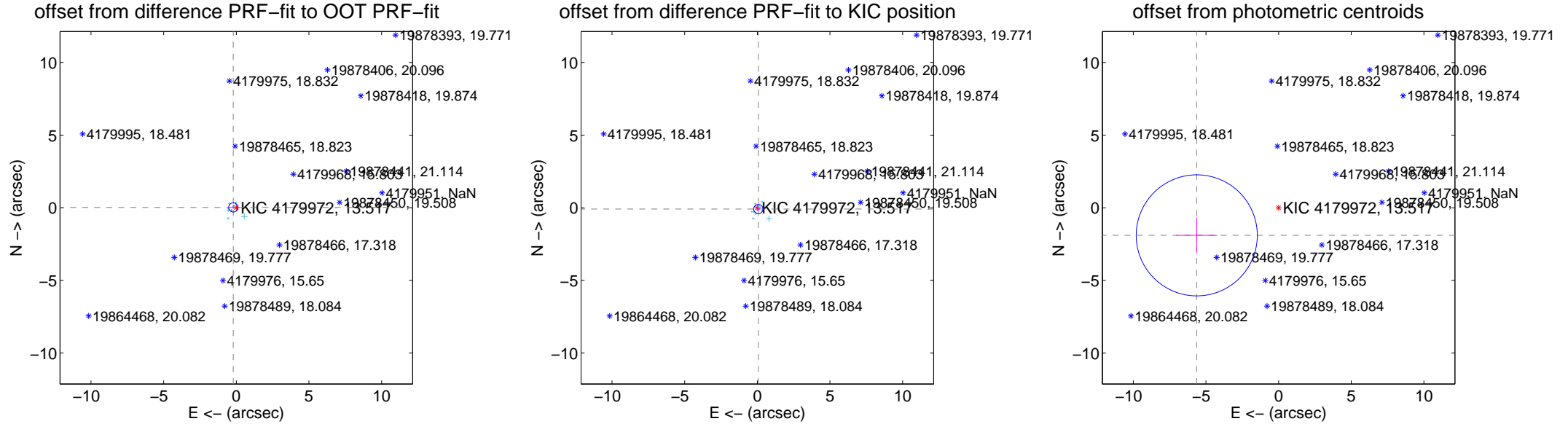
DV Centroid Data

Supplemental centroid analysis for 004179972-01. Kepler magnitude: 13.52. Transit SNR 4.90

There are 14 quarters with good PRF difference image offsets

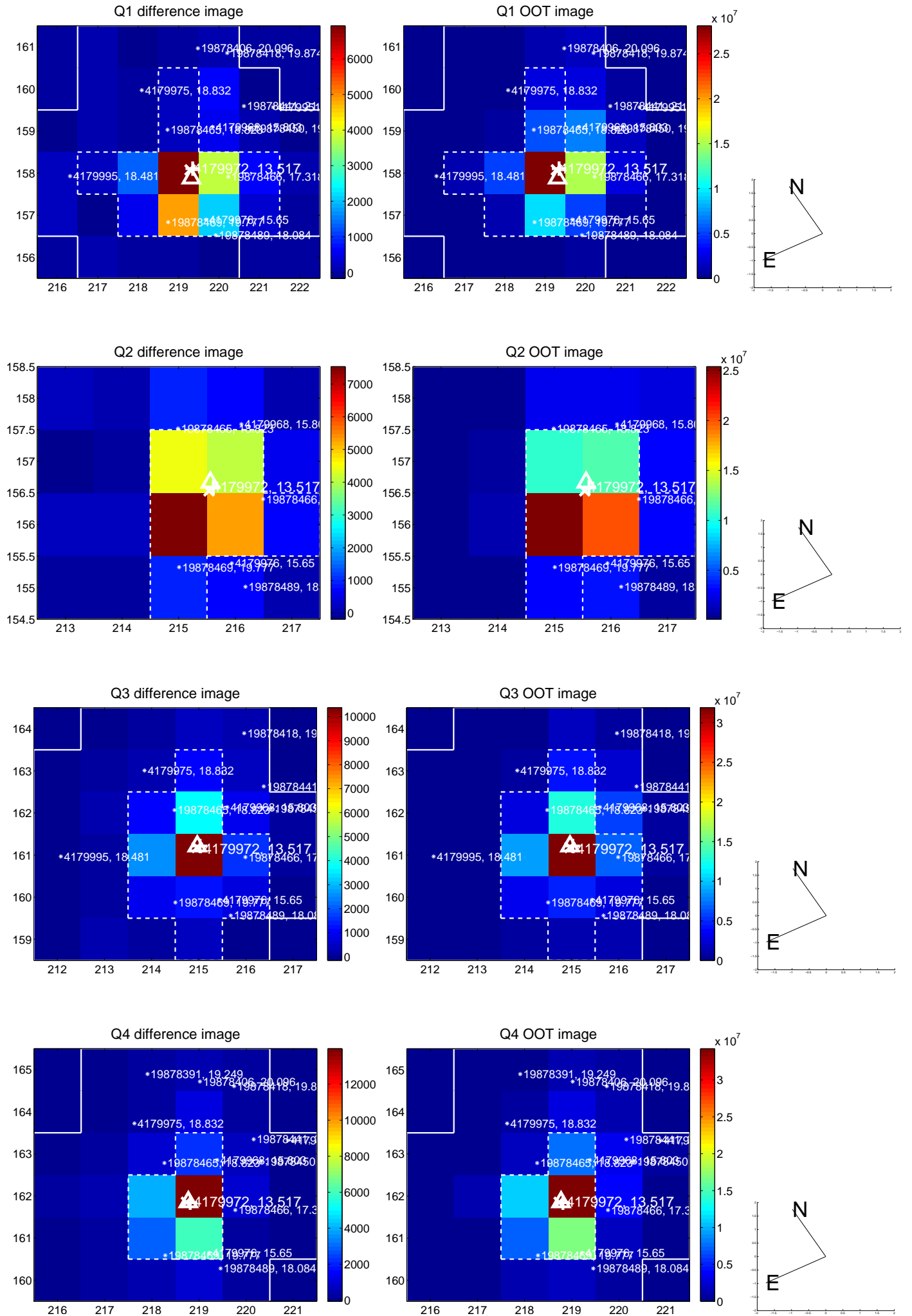
The direct PRF centroid is offset from the target star catalog position by about 0.29 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.208 ± 0.106	1.97	0.207 ± 0.106	0.022 ± 0.101
PRF-fit source offset from KIC position	0.113 ± 0.106	1.07	-0.069 ± 0.104	-0.090 ± 0.110
photometric centroid source offset	5.95 ± 1.39	4.28	5.63 ± 1.41	-1.90 ± 1.22

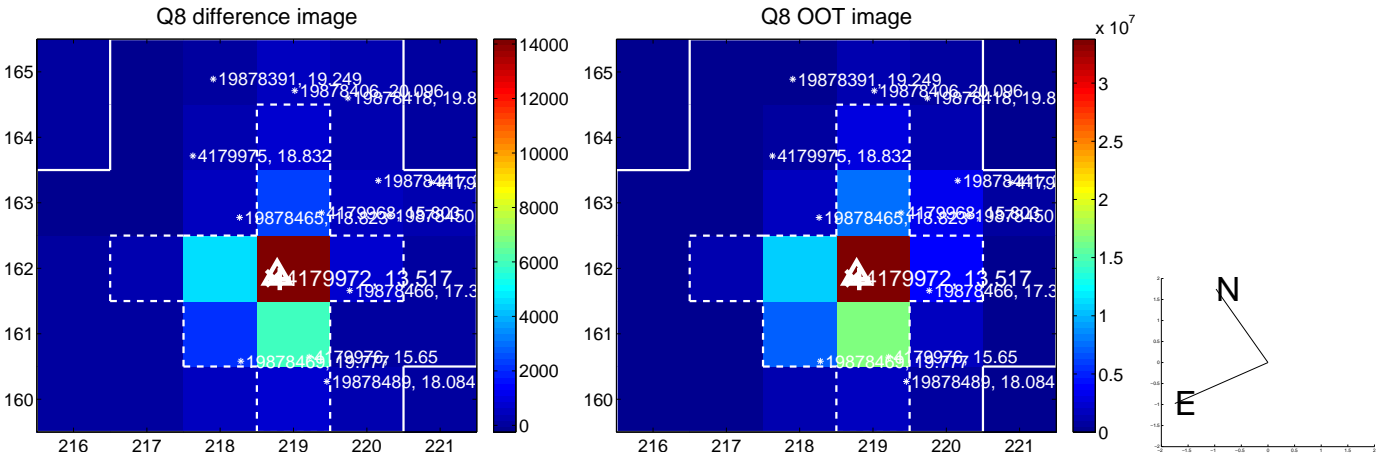
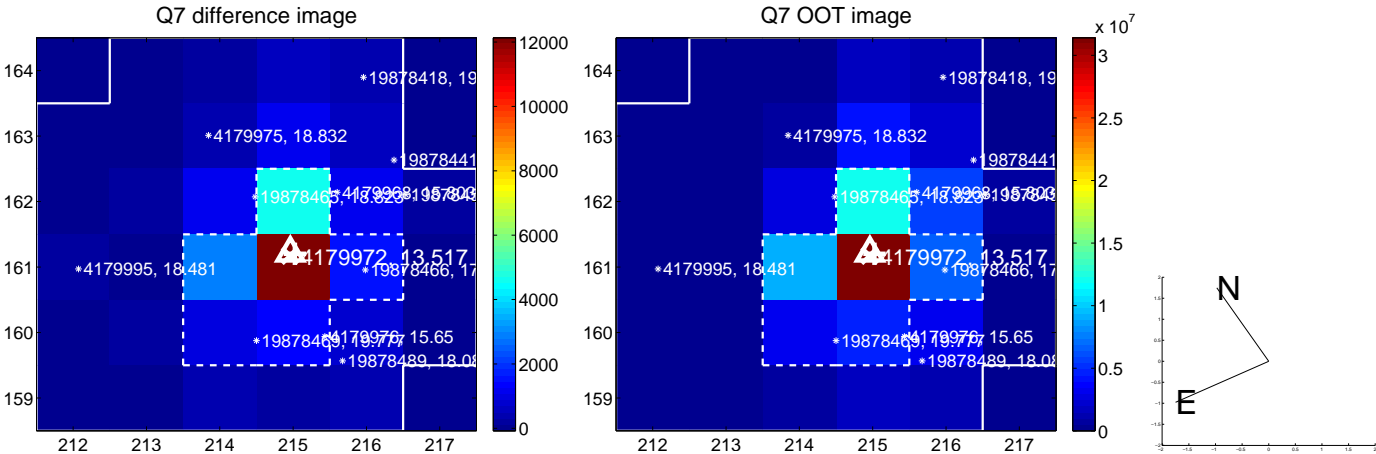
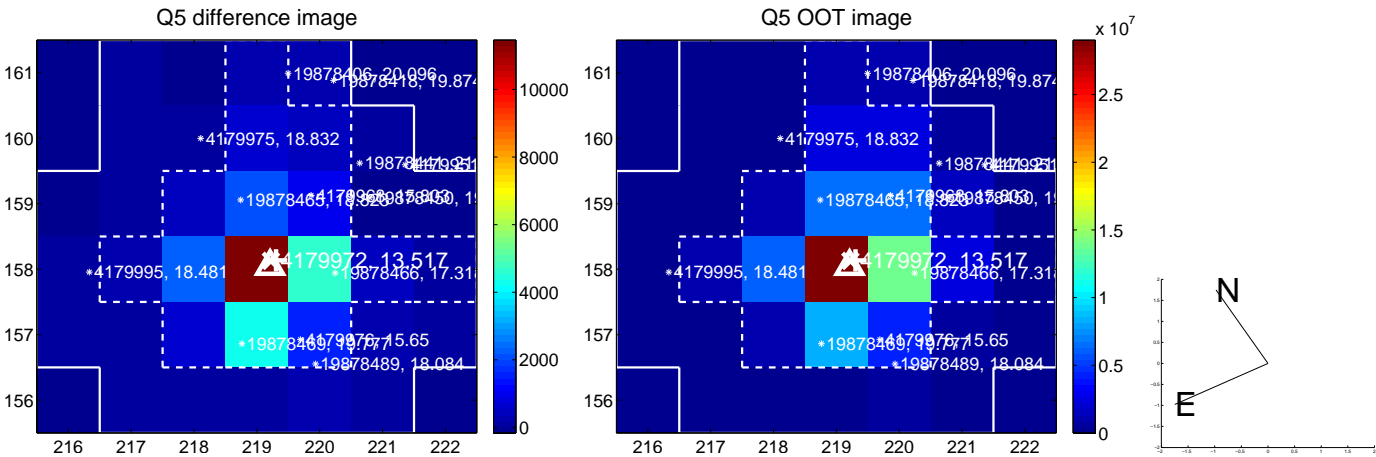


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets;** magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

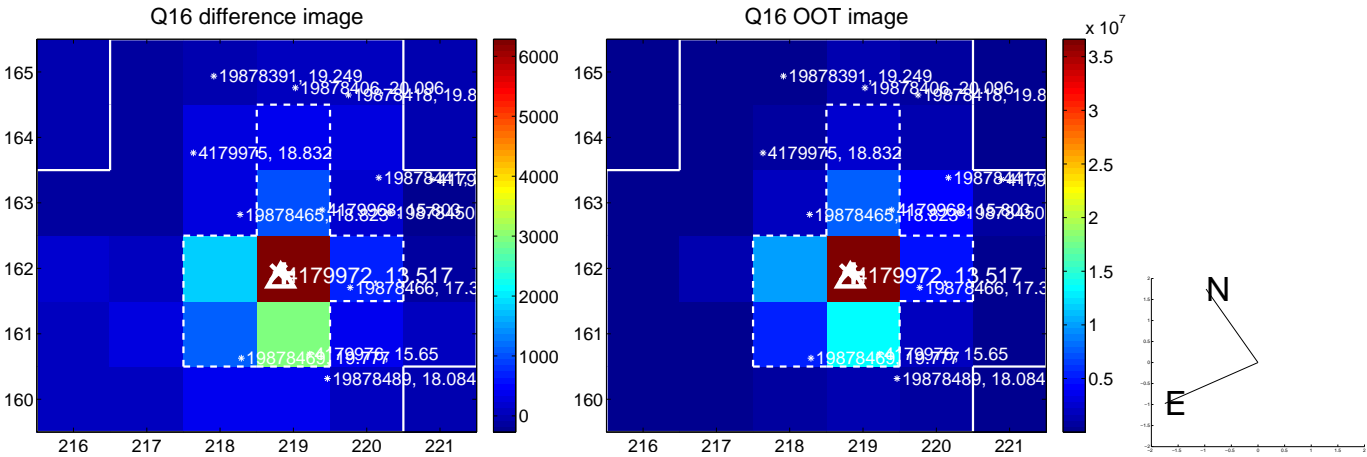
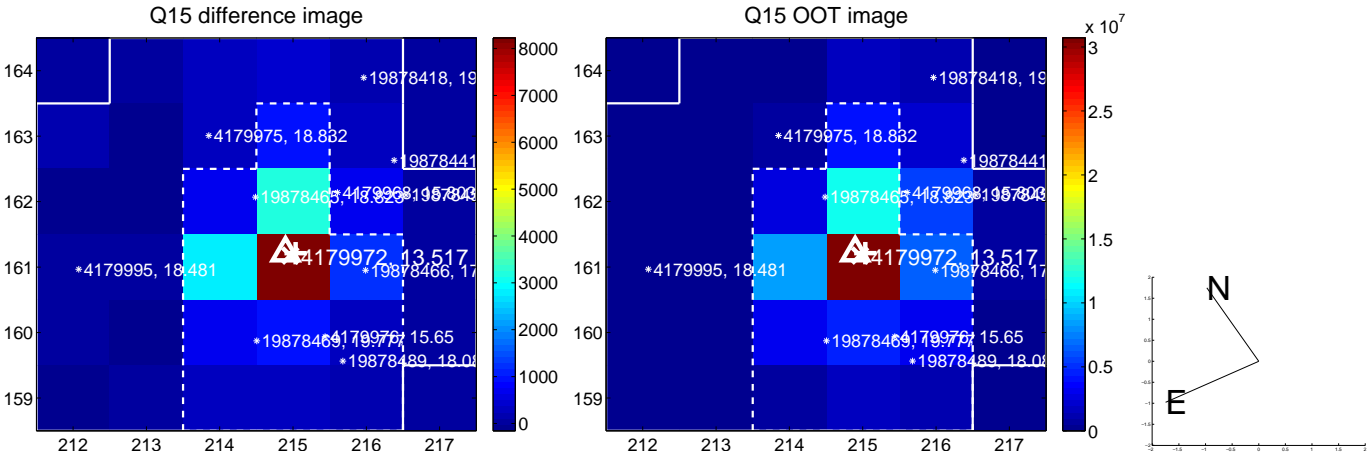
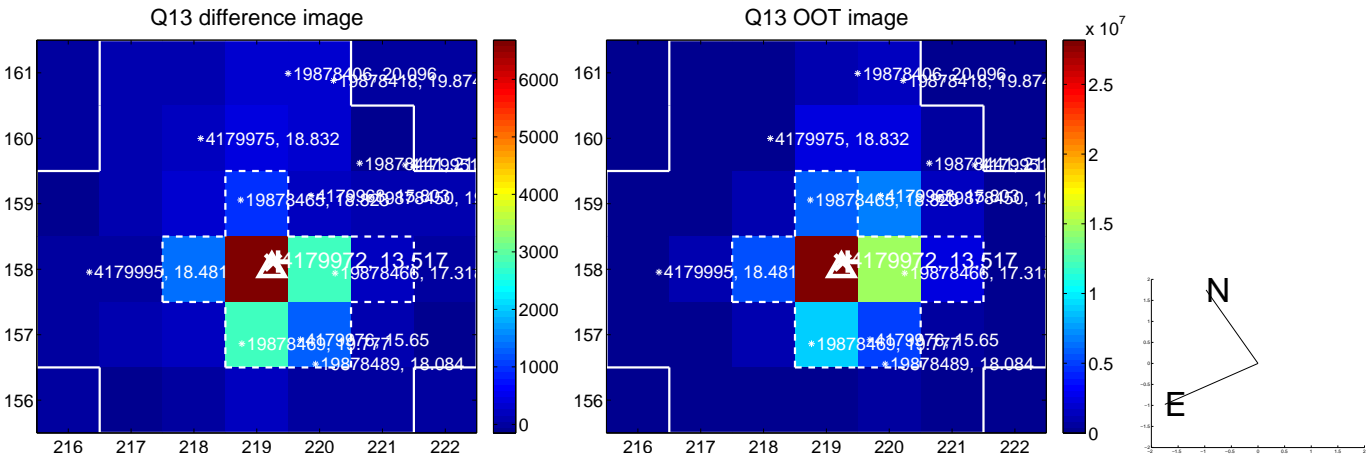
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

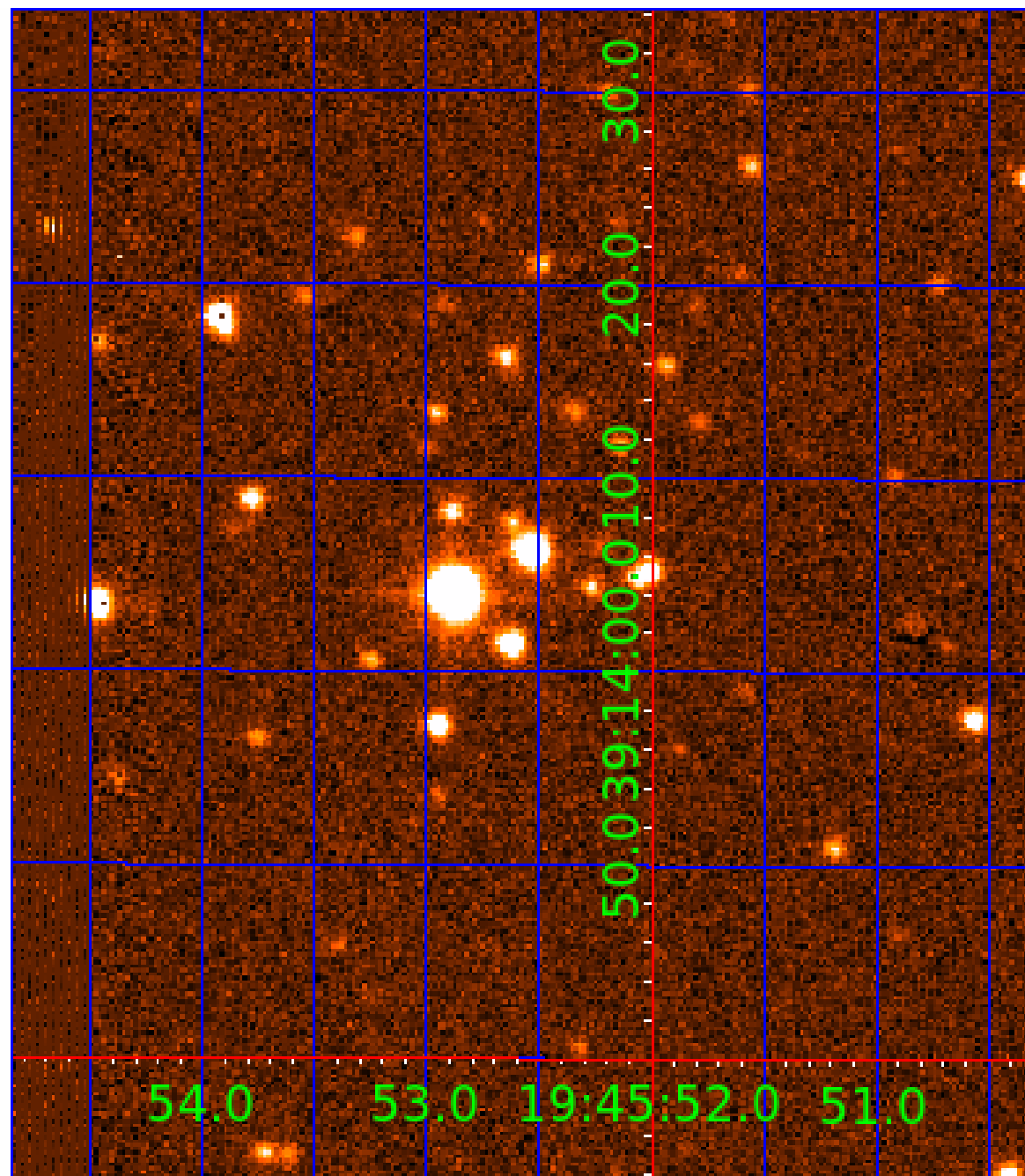


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 004179972

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})
004179972-01	OBS	No	1.367913	131.900417	21.1	7.437	8.5	4.9	1.77	6437	0.85	7539.74
004179972-02	OBS	No	44.851812	134.958313	316.8	7.587	9.2	9.0	1.77	6437	3.42	71.84
004179972-03	OBS	No	133.767144	257.557391	431.6	6.975	8.0	7.6	1.77	6437	3.98	16.73

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
004179972-01	OBS	FP	0.00	1	0	0	0	LPP_DV
004179972-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_ALT
004179972-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_POS_ALT—INCONSISTENT_TRANS

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

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

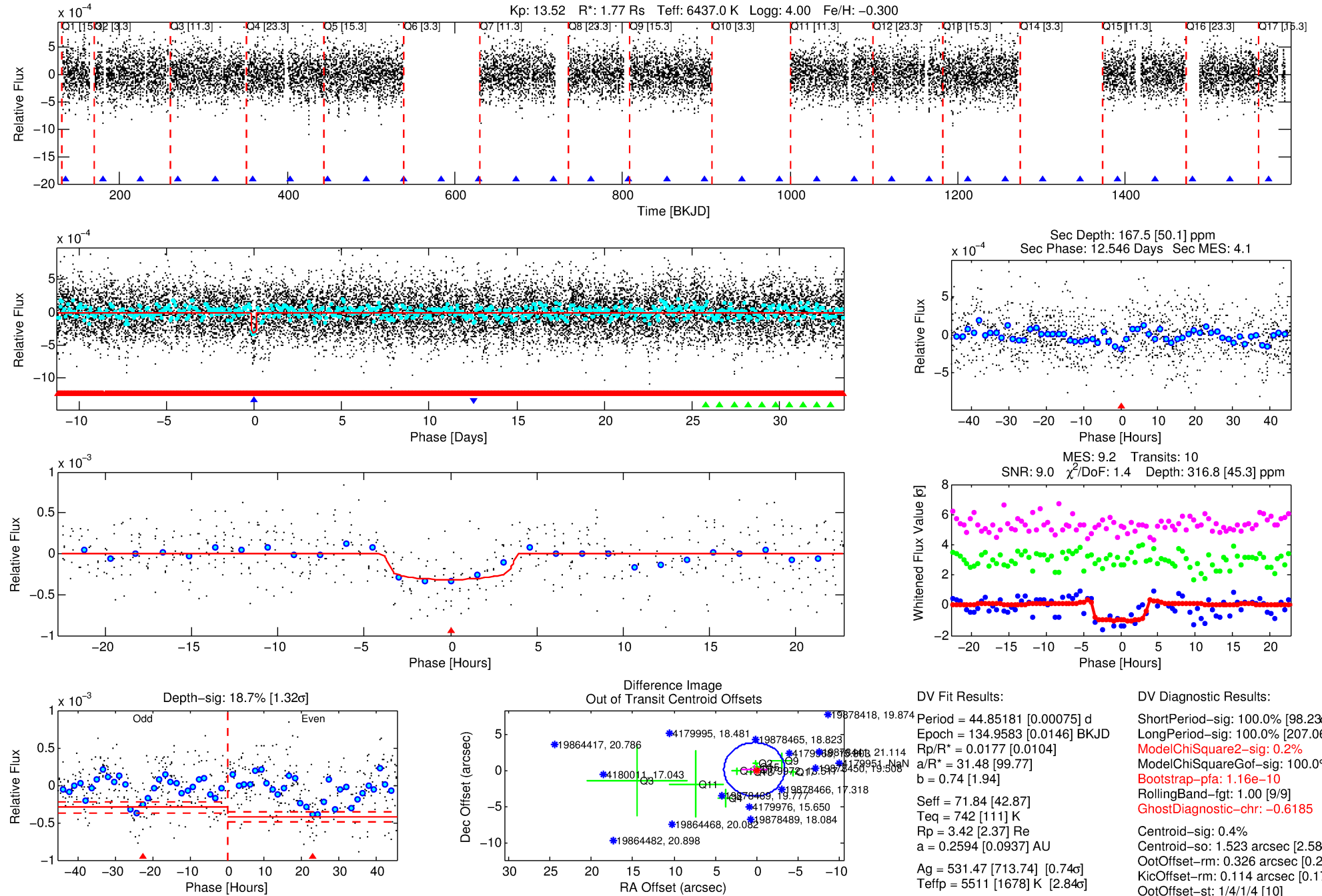
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 004179972-02

No Significant Match Found

DV One-Page Summary

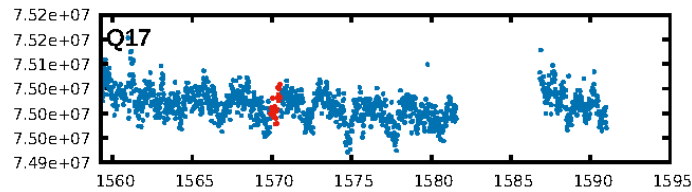
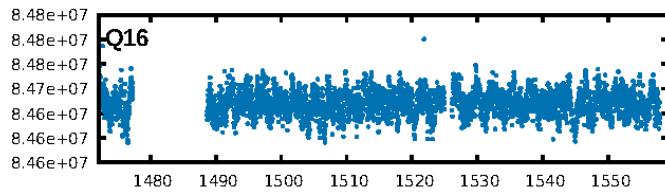
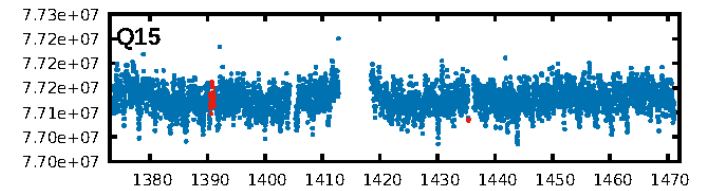
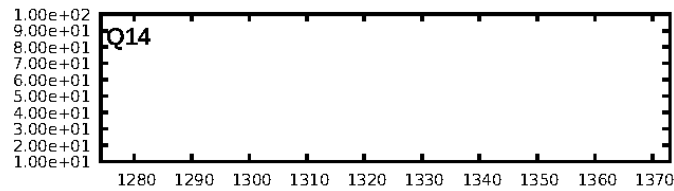
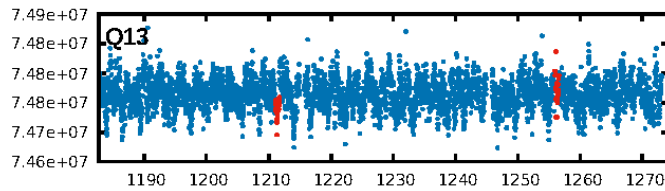
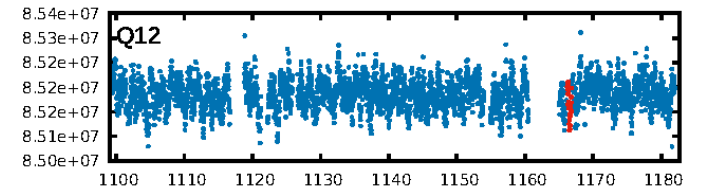
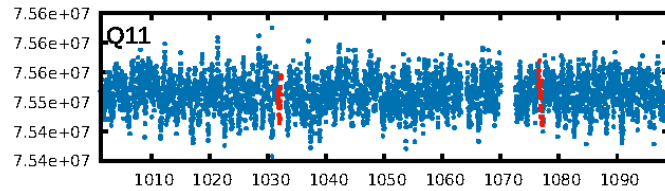
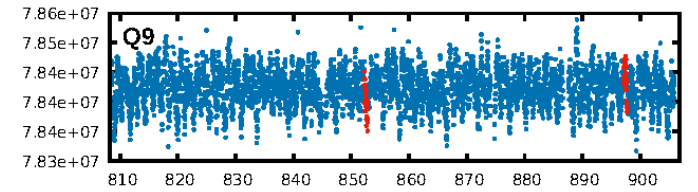
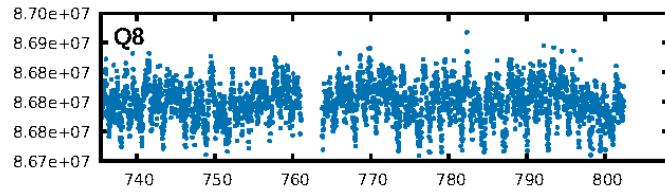
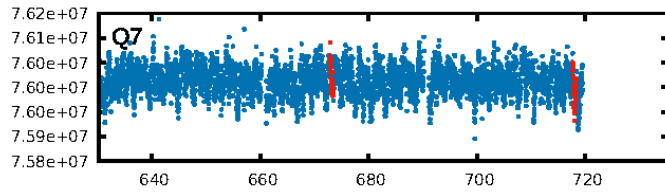
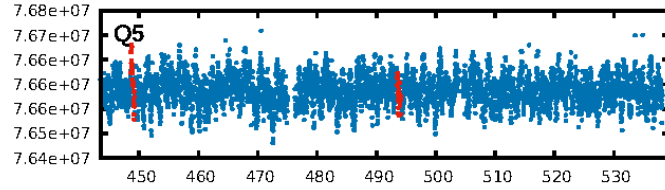
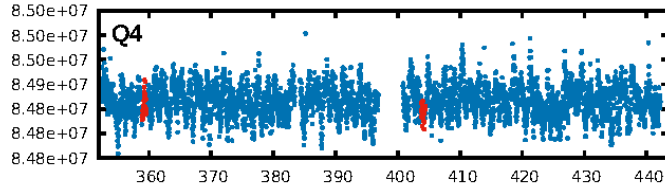
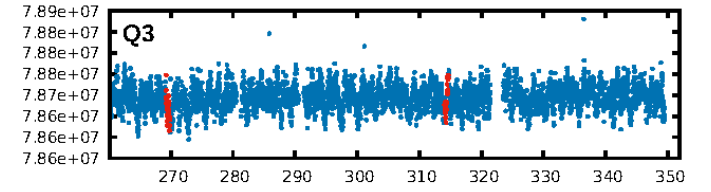
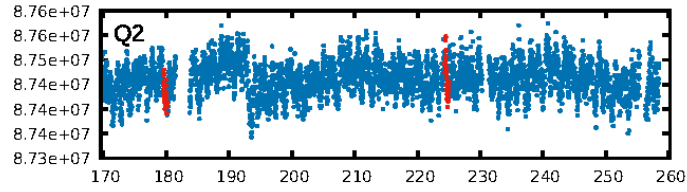
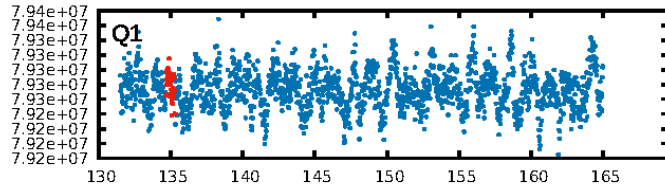
KIC: 4179972 Candidate: 2 of 3 Period: 44.852 d



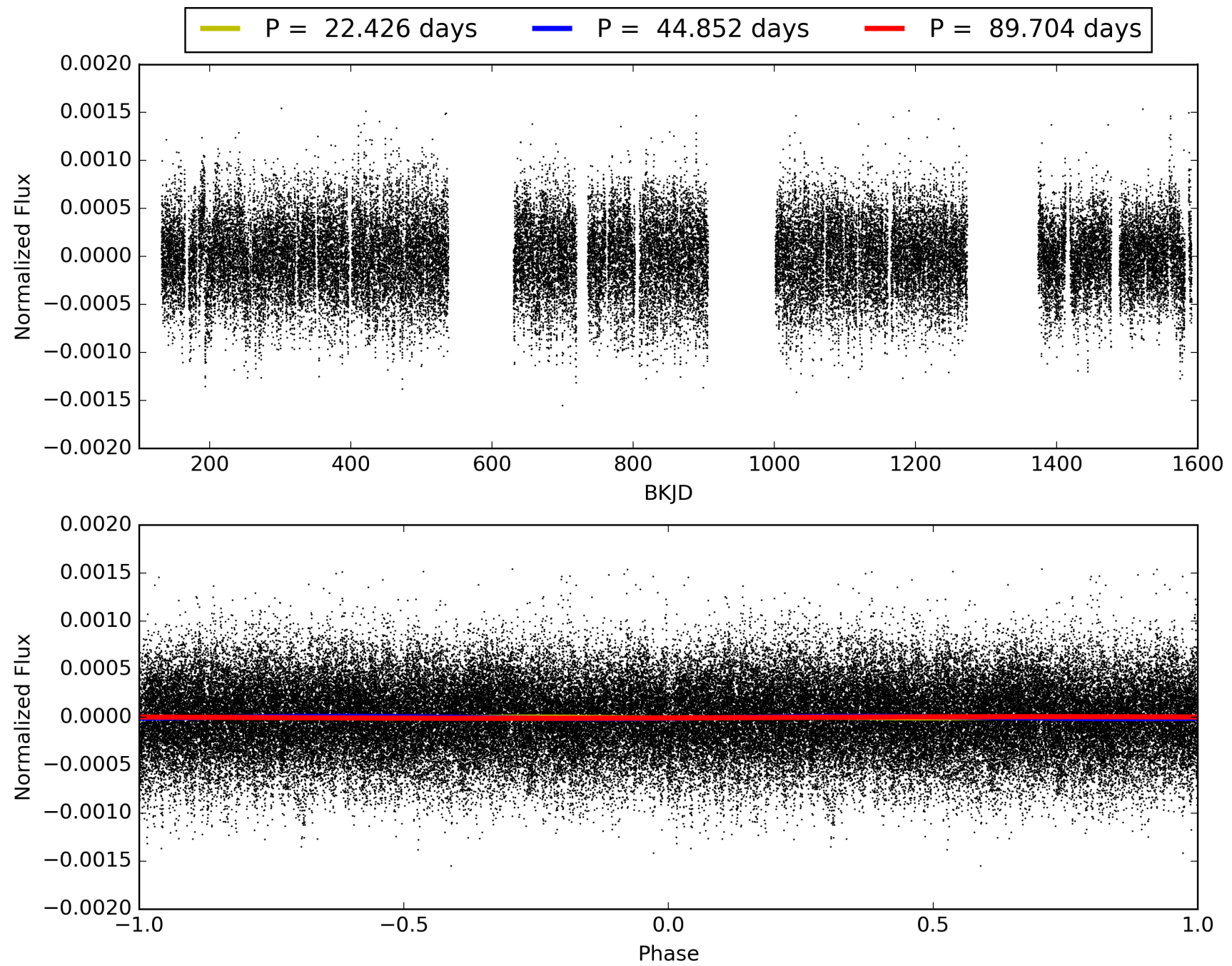
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 10:16:27 Z

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TCE 004179972-02, PDC Light Curves

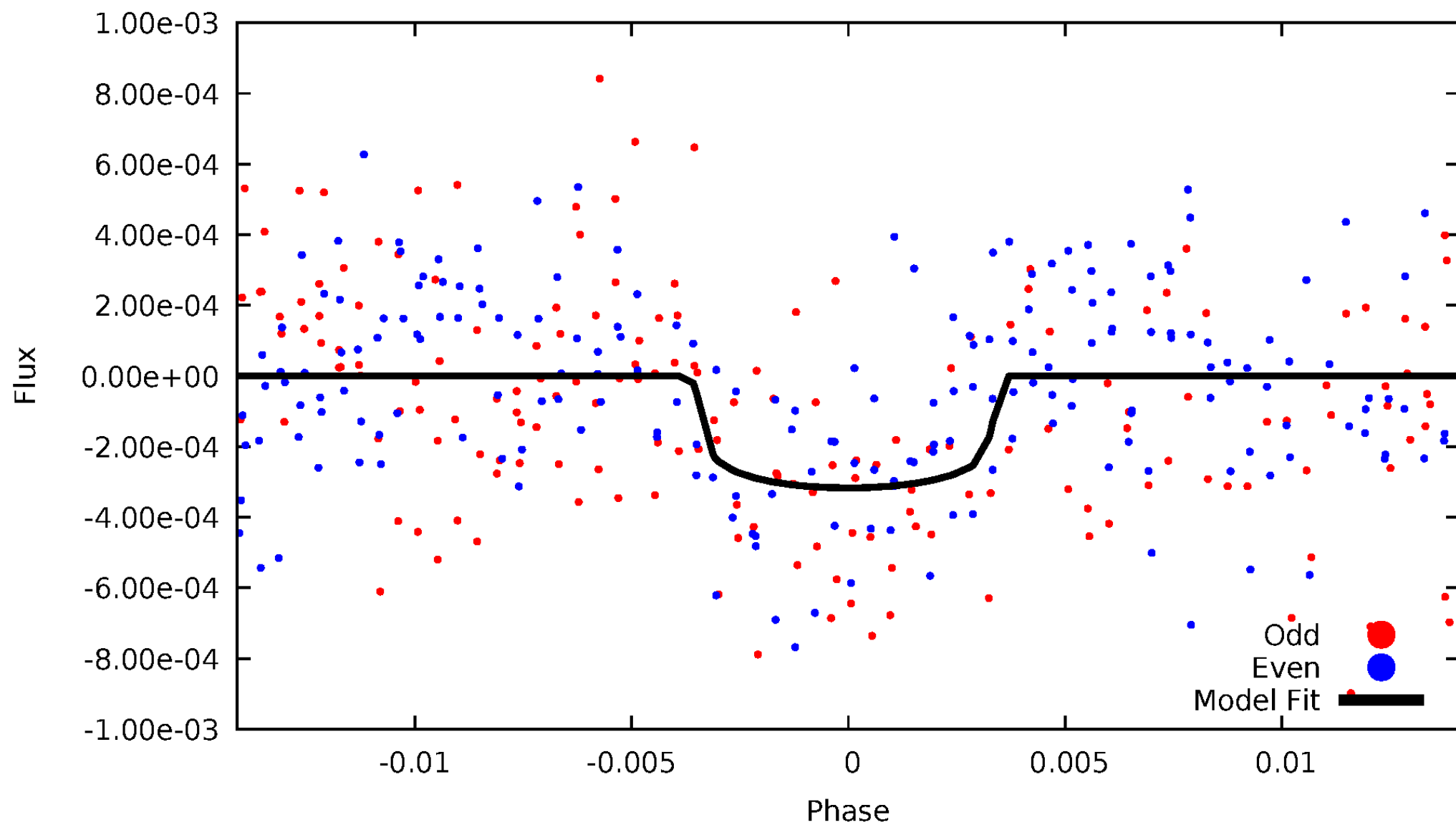


TCE 004179972-02



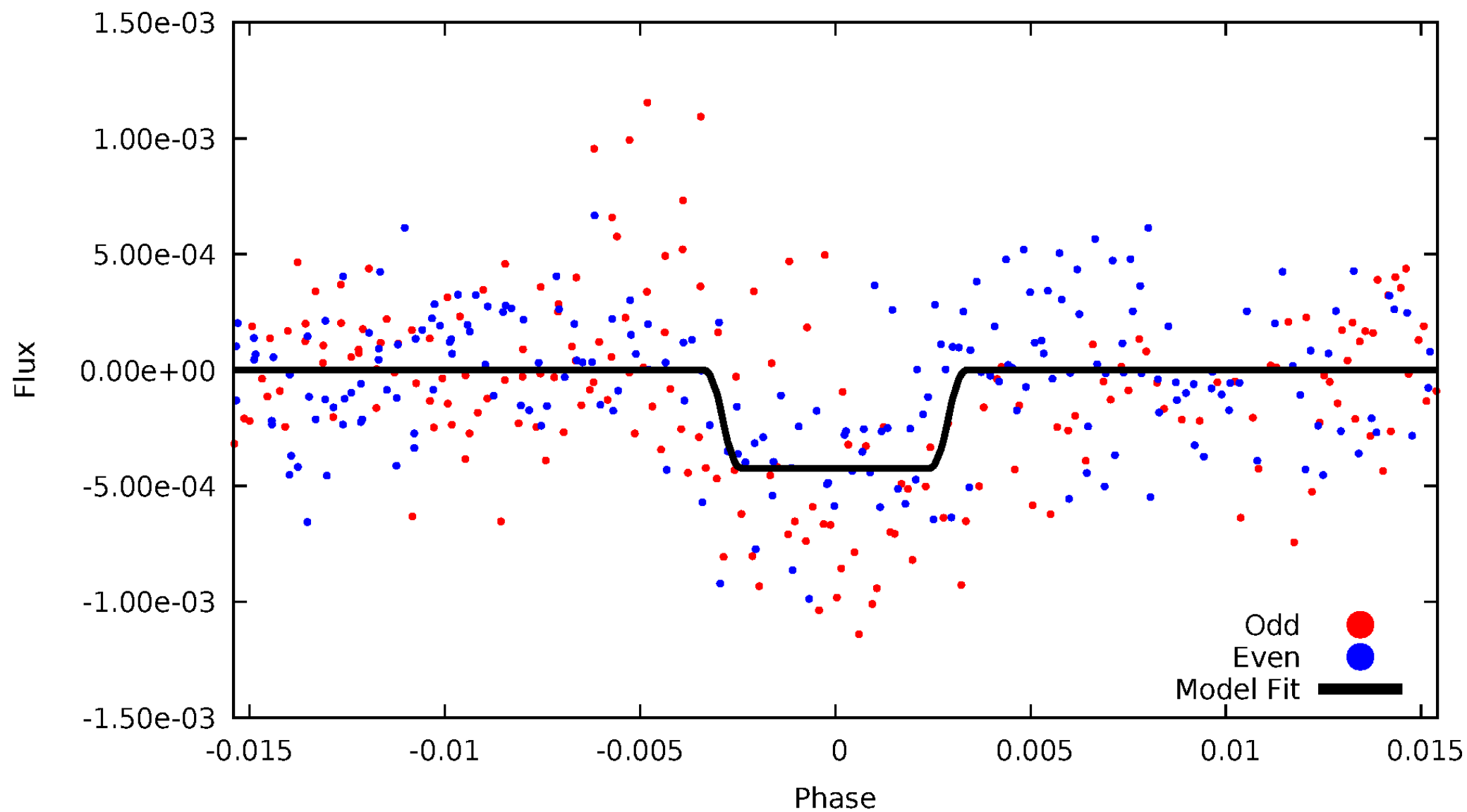
DV Odd/Even

TCE 004179972-02



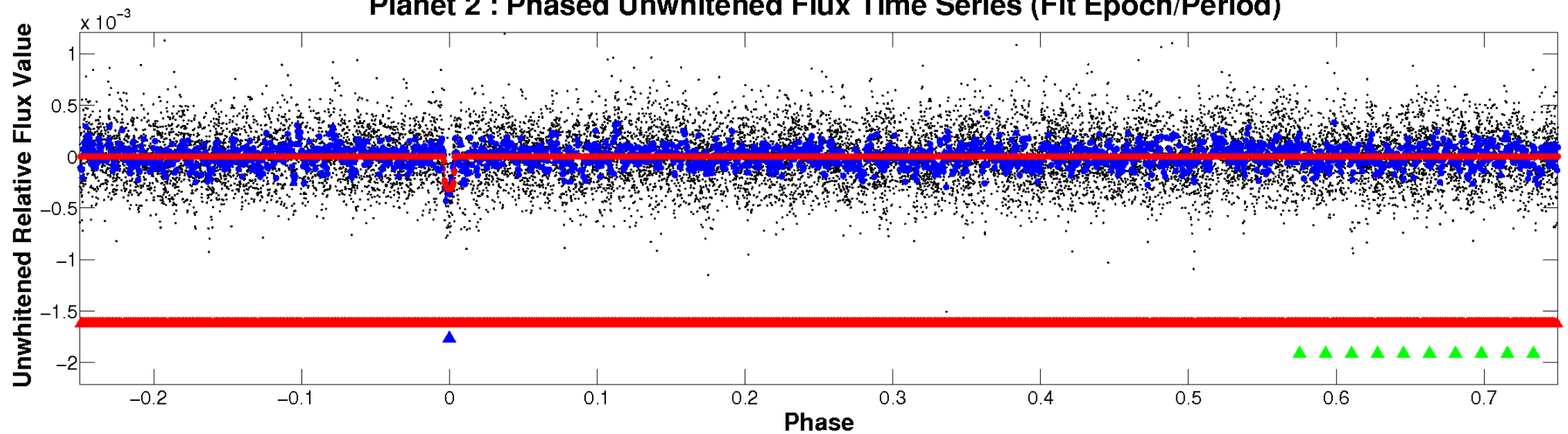
ALT Odd/Even

TCE 004179972-02

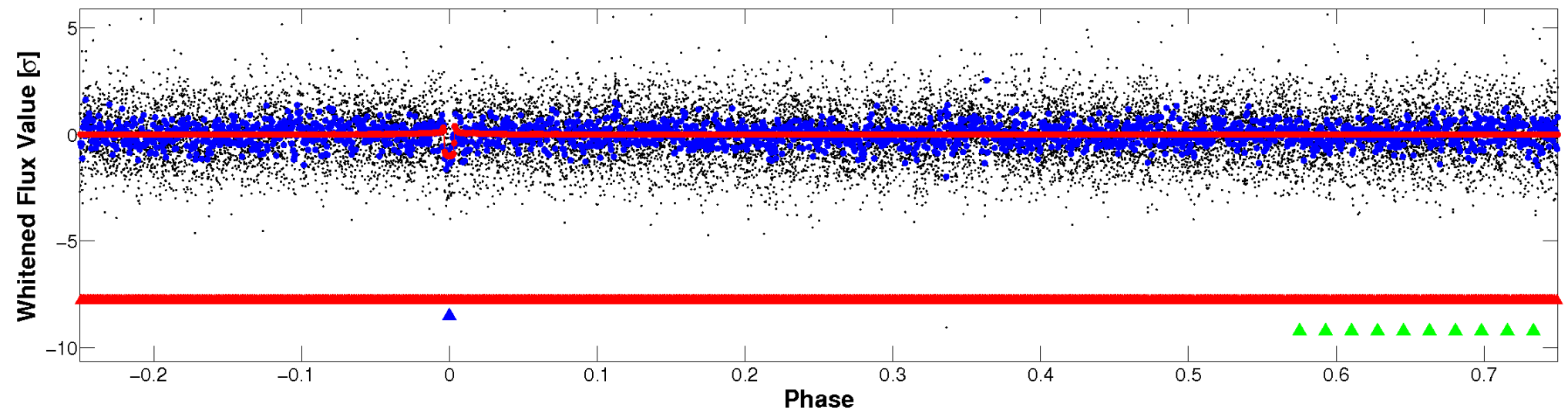


Non-Whitened Vs. Whitened Light Curve

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

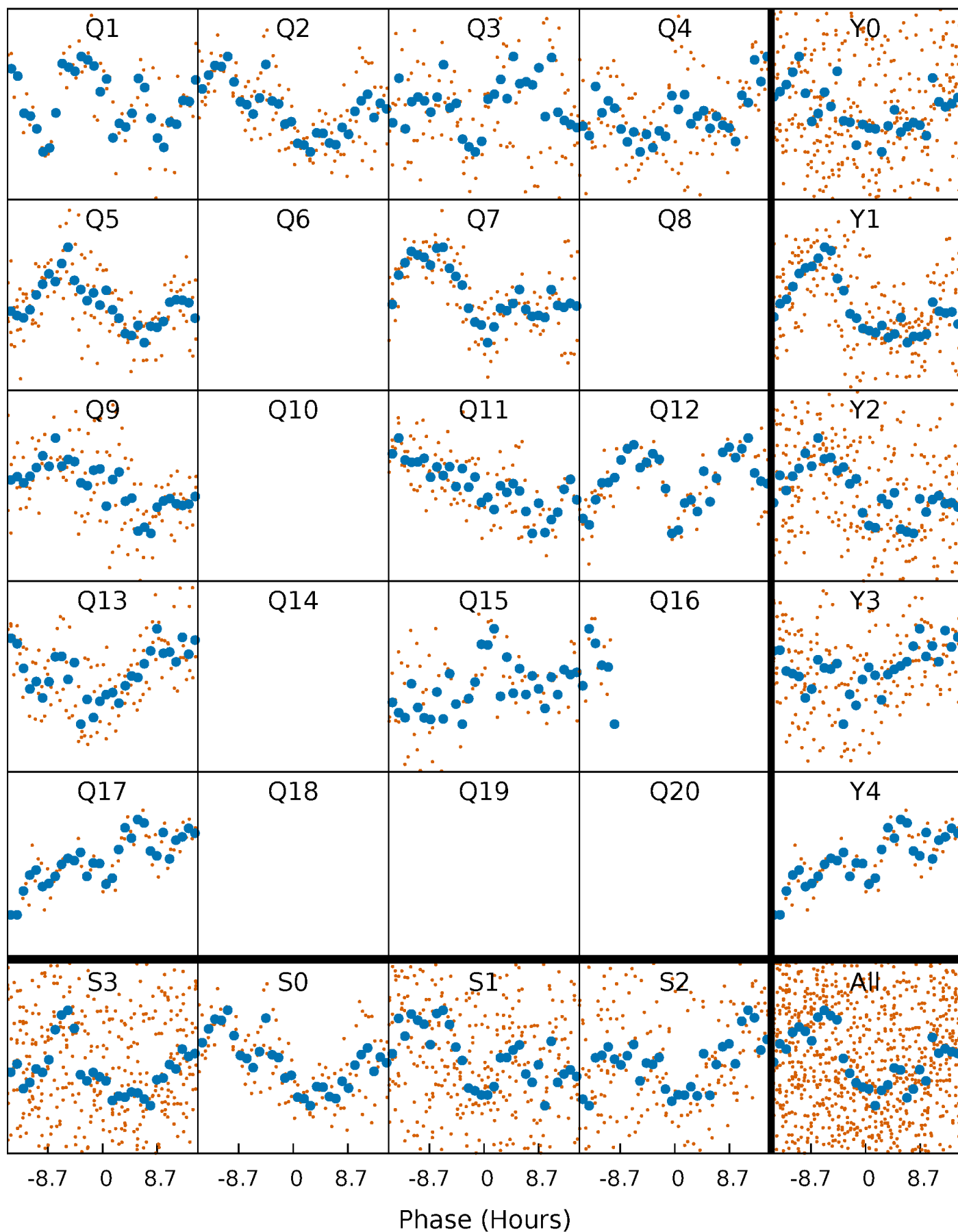


Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



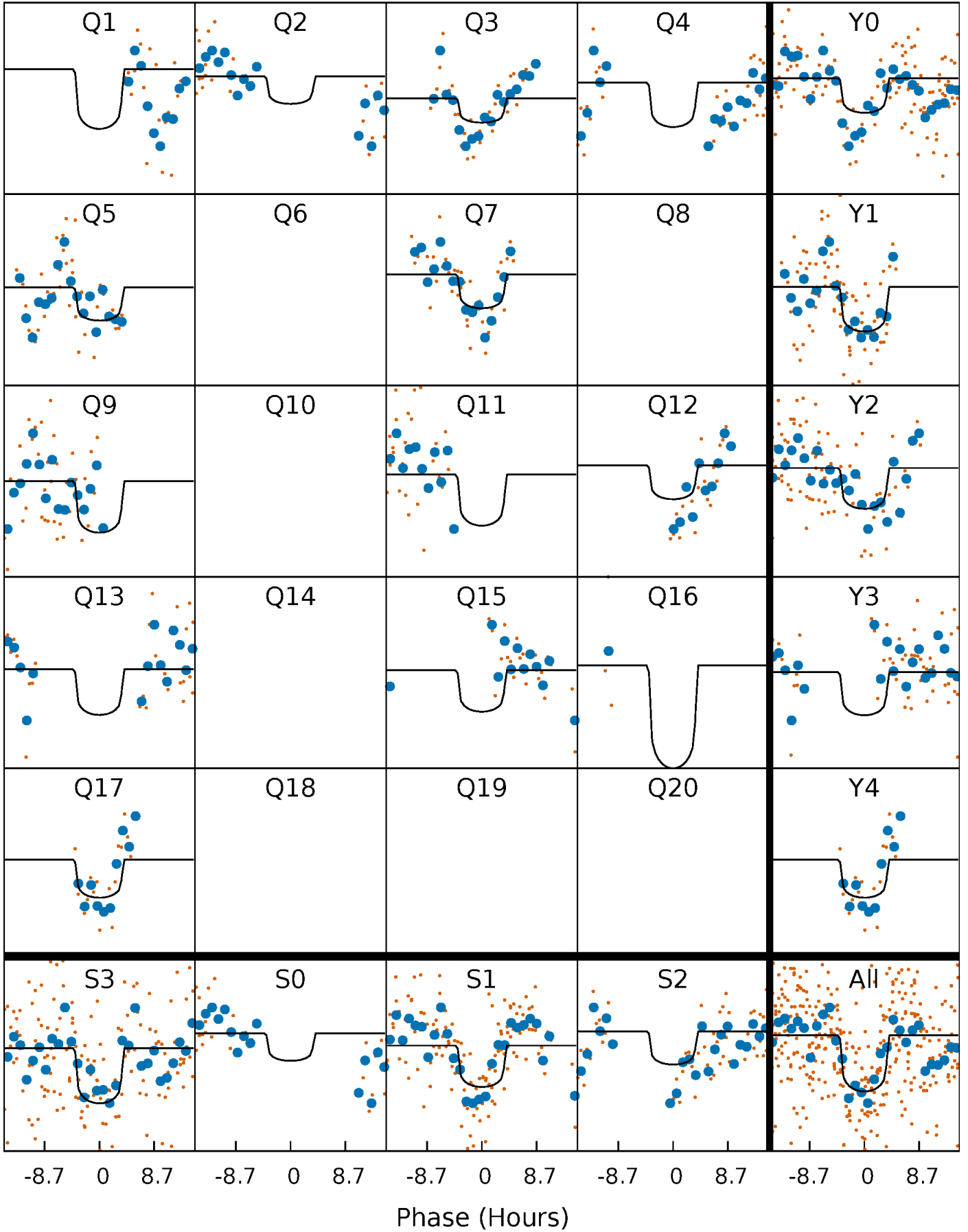
PDC Quarter-Phased Transit Curves

TCE 004179972-02 P= 44.851812 Days $T_0=134.958313$ (BKJD)



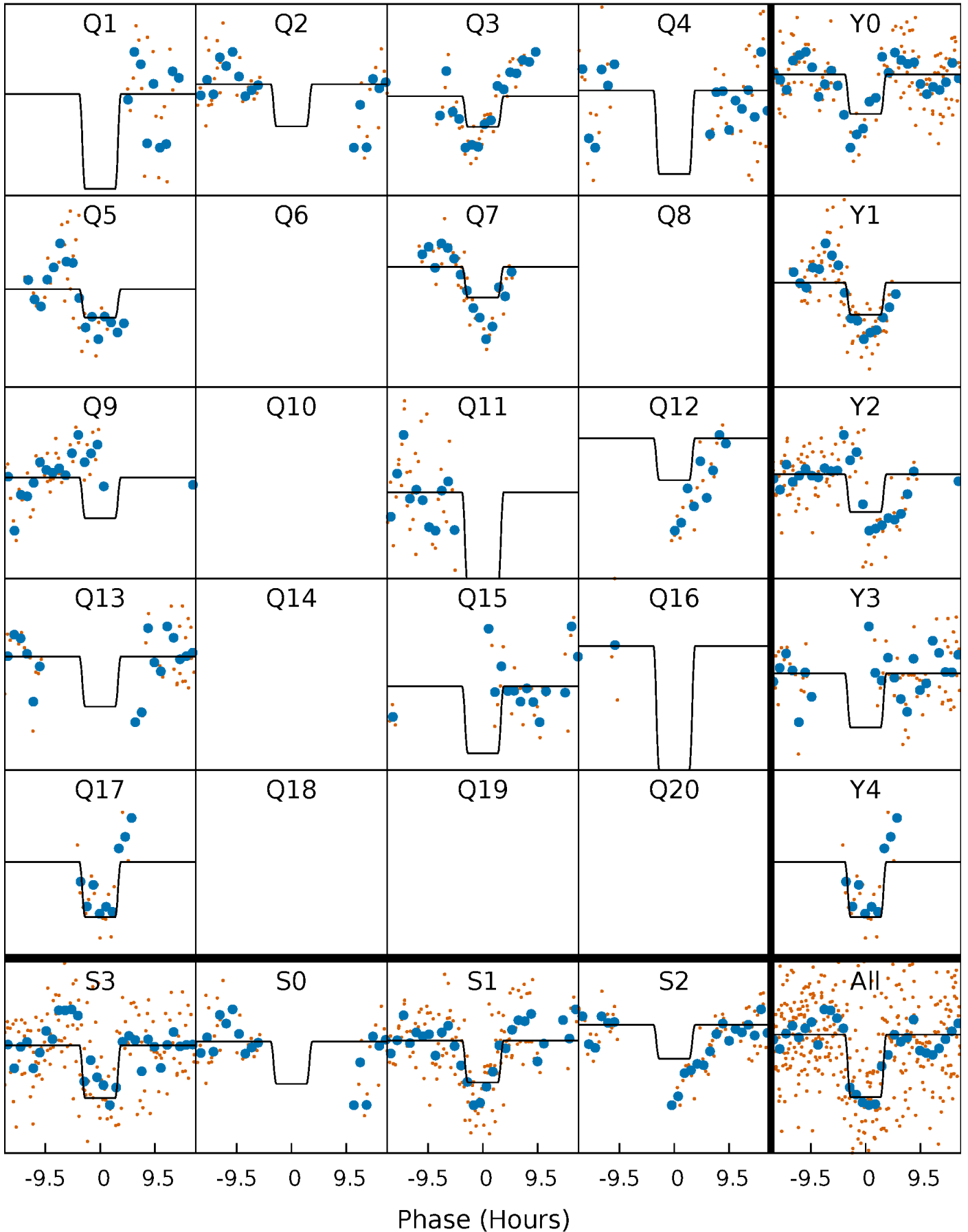
DV Quarter-Phased Transit Curves

TCE 004179972-02 P= 44.851812 Days $T_0=134.958313$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

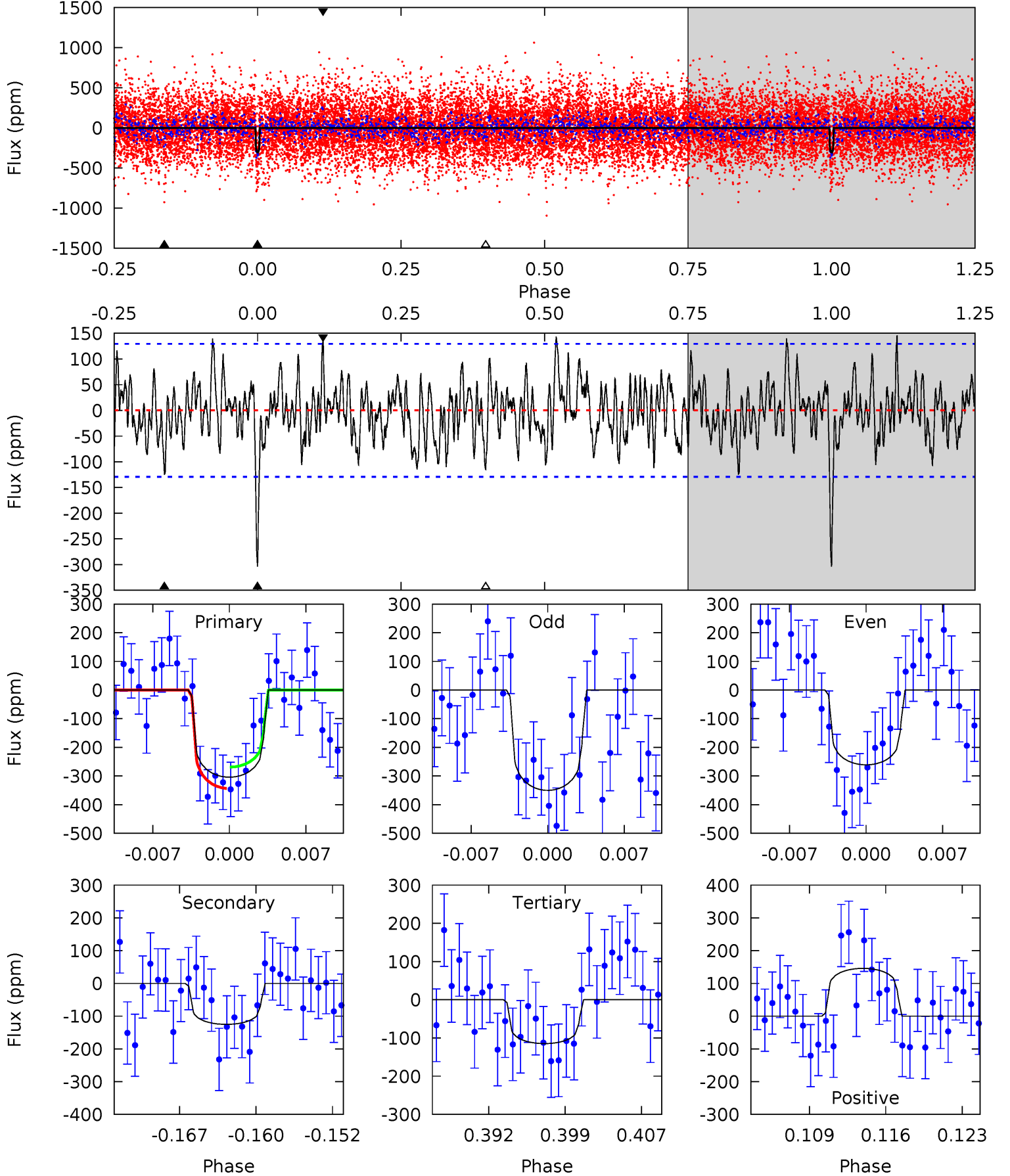
TCE 004179972-02 $P = 44.852164$ Days $T_0 = 134.951174$ (BKJD)



DV Model-Shift Uniqueness Test

004179972-02, P = 44.851812 Days, E = 90.106501 Days

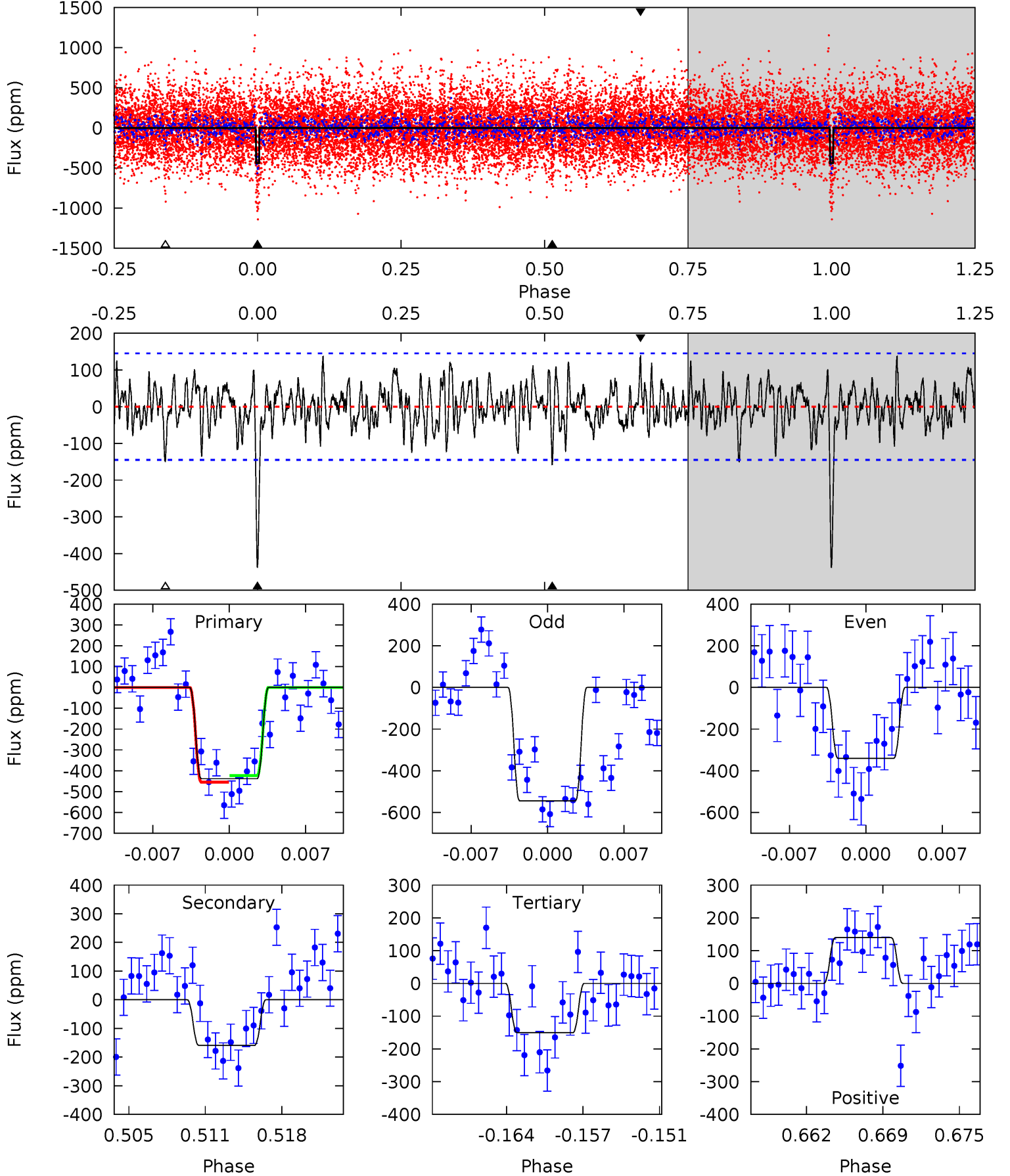
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
12.0	4.92	4.51	5.73	5.09	2.68	1.83	7.45	6.23	0.41	-0.81	1.75	0.88	0.32	1.47



Alt Model-Shift Uniqueness Test

004179972-02, P = 44.852164 Days, E = 90.099010 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
15.4	5.60	5.30	4.92	5.11	2.72	1.64	10.1	10.5	0.30	0.68	3.57	1.14	0.24	0.55



Stellar Parameters For KIC 004179972

	$T_{\text{eff}} (K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R (R_{\odot})$	$M (M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	6437^{+175}_{-214}	$4.004^{+0.343}_{-0.147}$	$-0.300^{+0.300}_{-0.300}$	$1.773^{+0.494}_{-0.658}$	$1.158^{+0.188}_{-0.188}$	$0.293^{+0.760}_{-0.124}$
	+3%/-3%	+9%/-4%	+100%/-100%	+28%/-37%	+16%/-16%	+260%/-42%
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 004179972-02 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-125 ± 25	$3.30^{+2.05}_{-1.68}$	1015^{+77}_{-103}	5096^{+2038}_{-865}	433^{+1382}_{-277}
Alt.	-159 ± 28	$3.91^{+2.25}_{-1.89}$	1027^{+76}_{-99}	5020^{+1831}_{-790}	390^{+1024}_{-238}

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

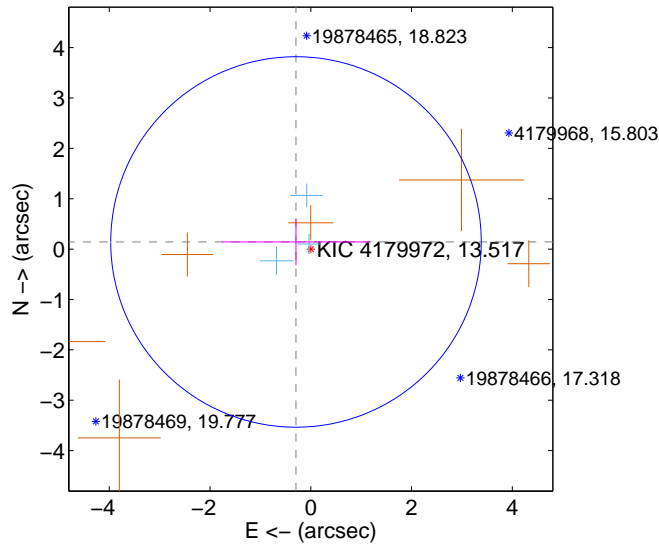
Supplemental centroid analysis for 004179972-02. Kepler magnitude: 13.52. Transit SNR 8.96

There are 3 quarters with good PRF difference image offsets

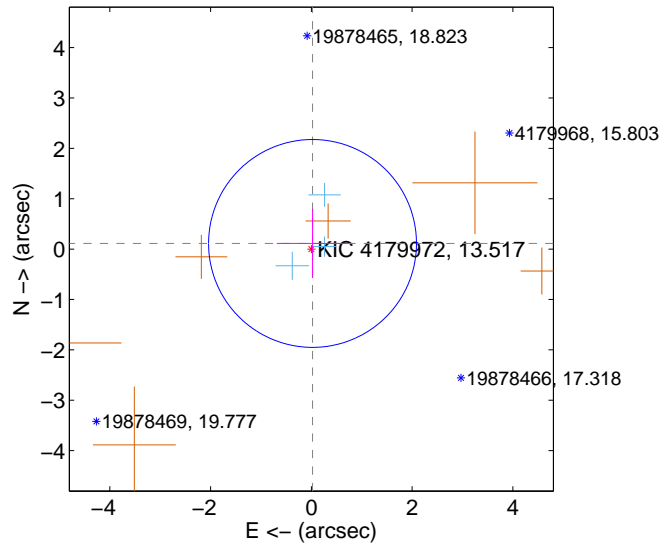
The direct PRF centroid is offset from the target star catalog position by about 0.29 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.326 ± 1.226	0.27	0.294 ± 1.469	0.142 ± 0.465
PRF-fit source offset from KIC position	0.114 ± 0.688	0.17	-0.023 ± 0.711	0.112 ± 0.687
photometric centroid source offset	1.52 ± 0.59	2.58	-1.36 ± 0.61	0.69 ± 0.51

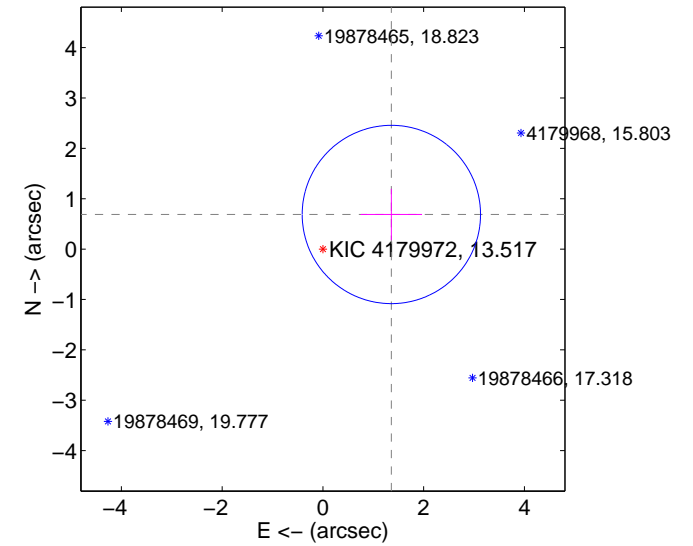
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position

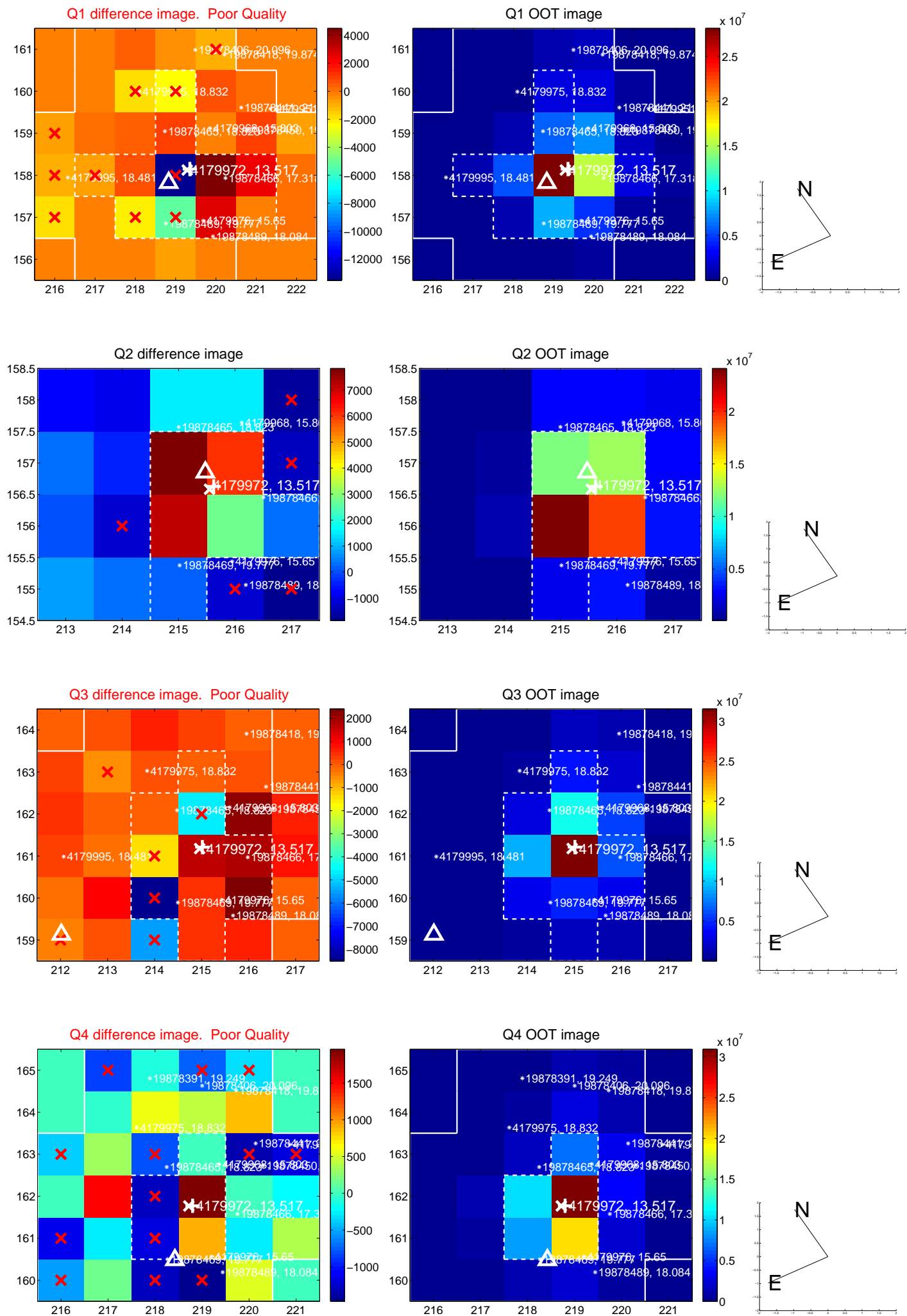


offset from photometric centroids

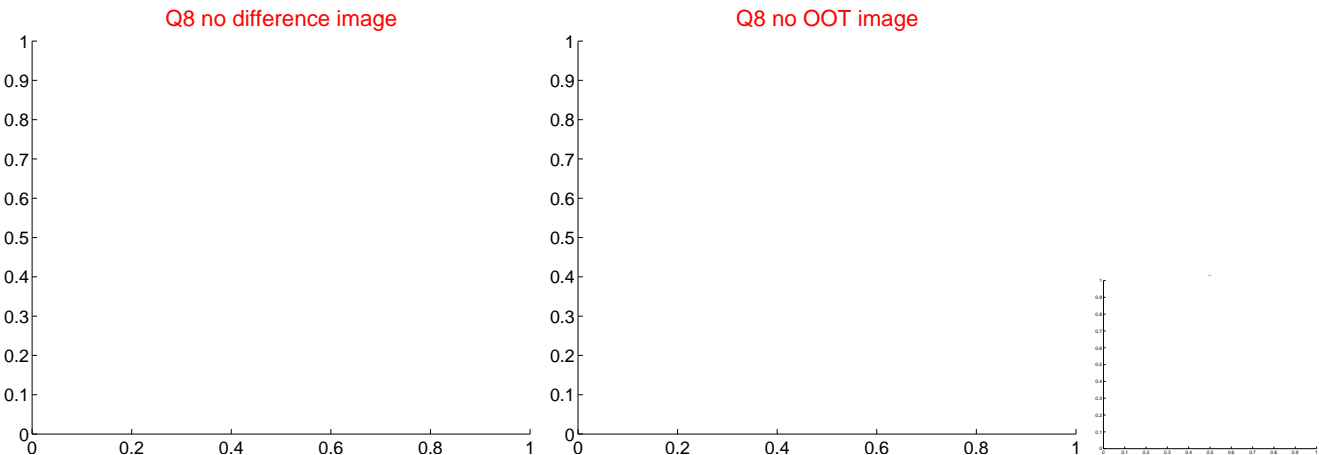
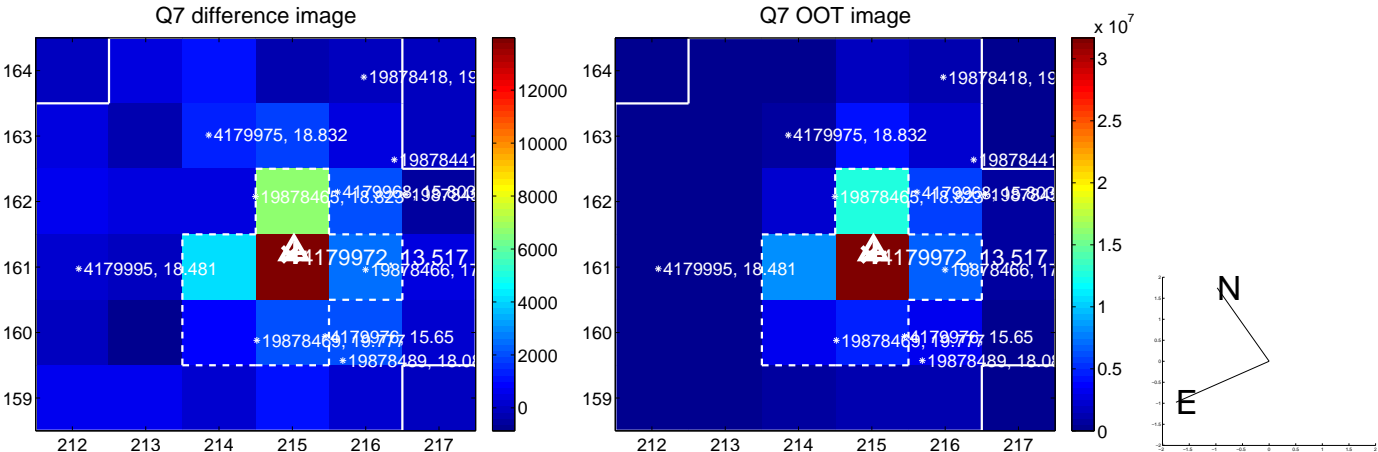
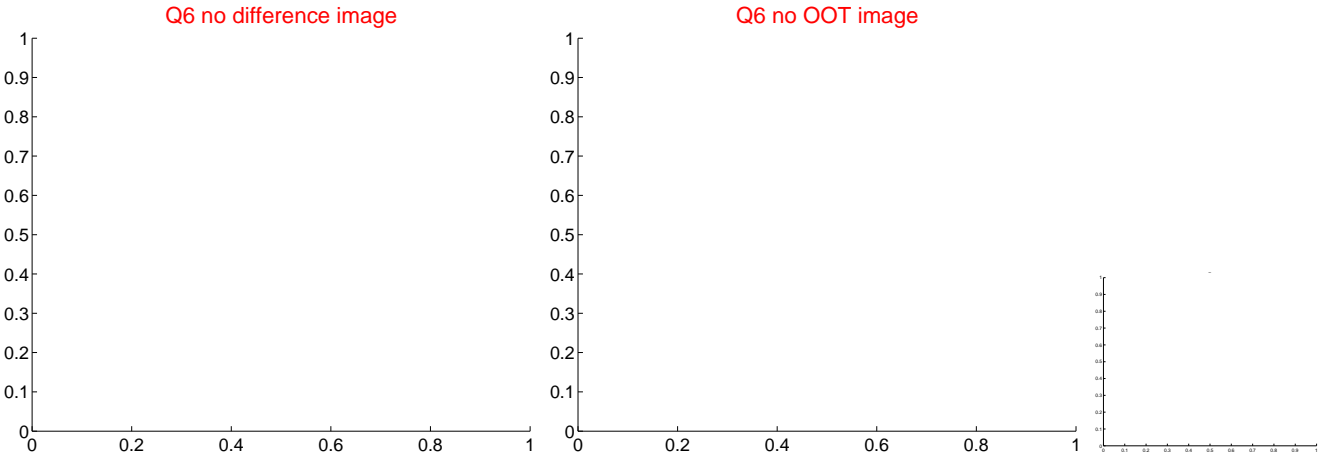
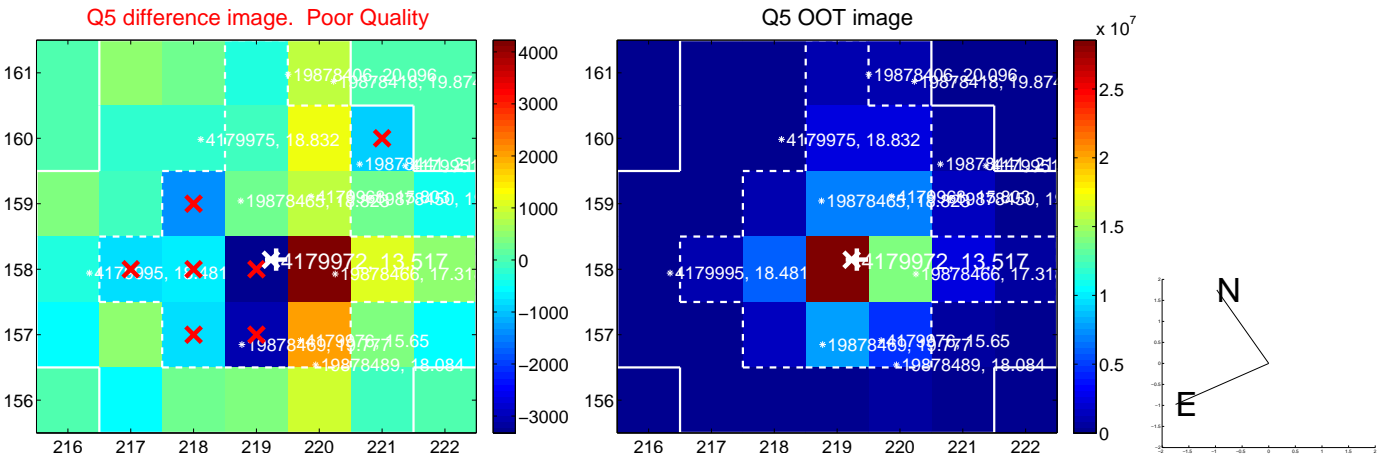


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ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

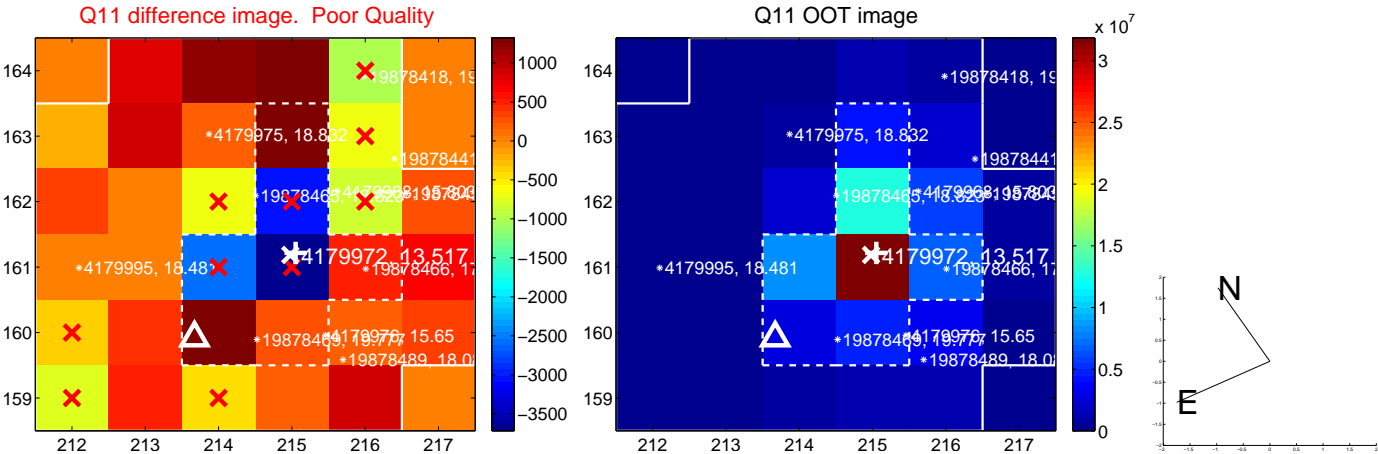
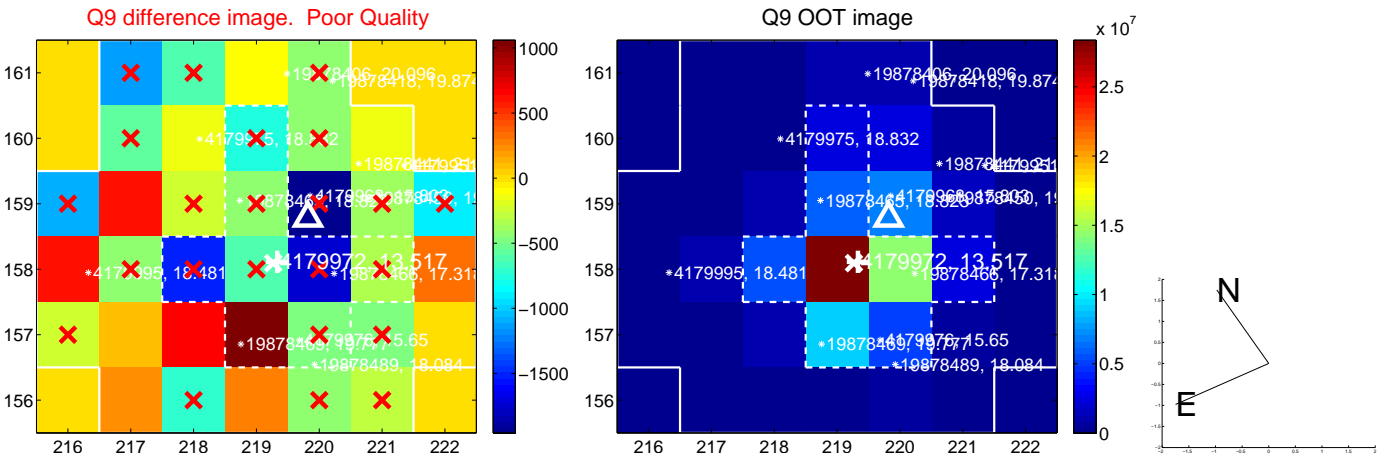
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



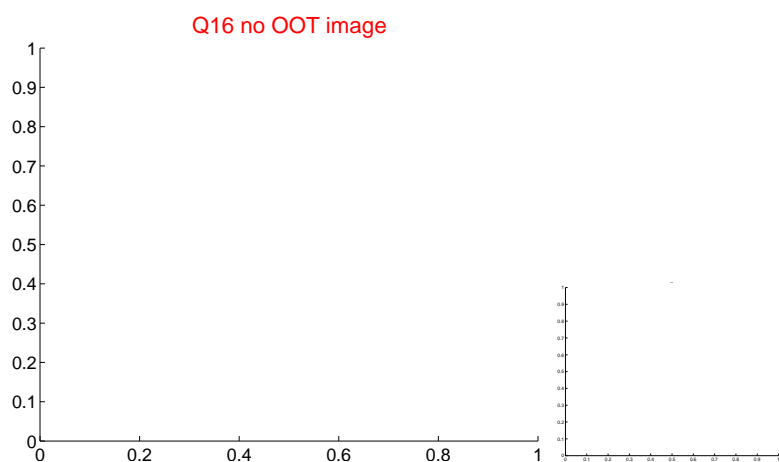
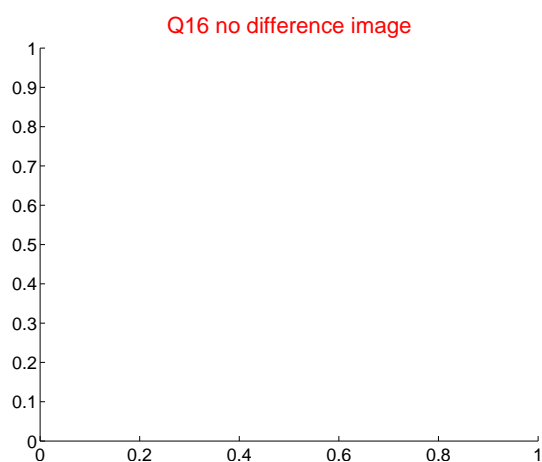
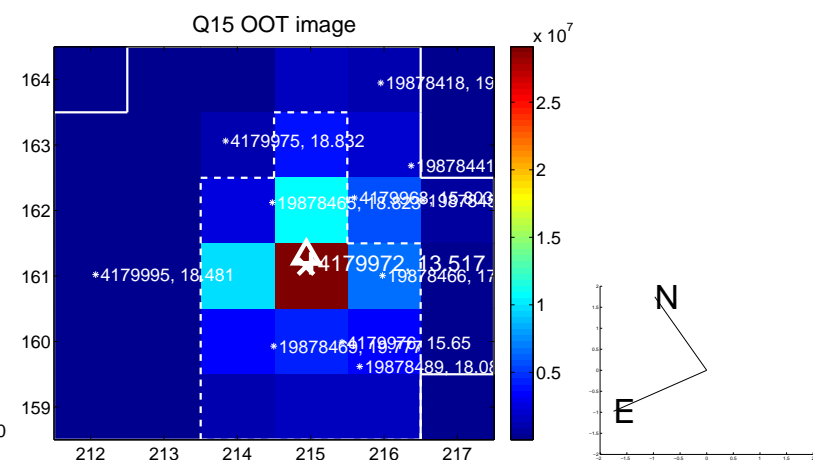
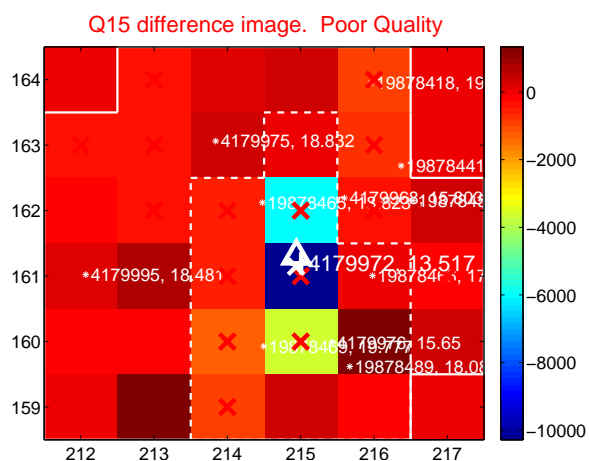
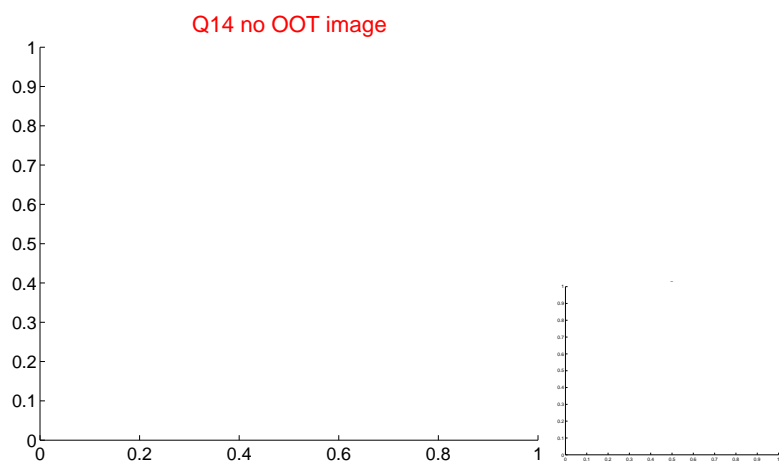
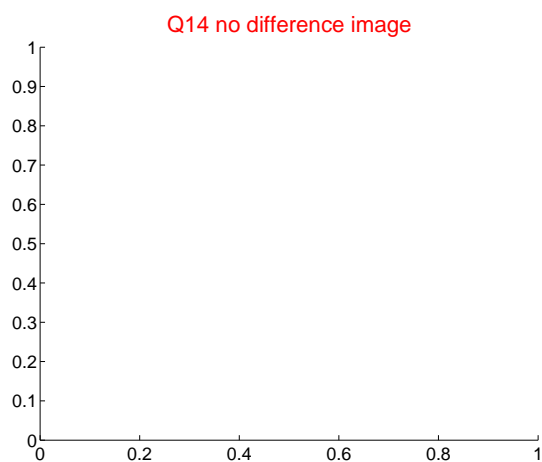
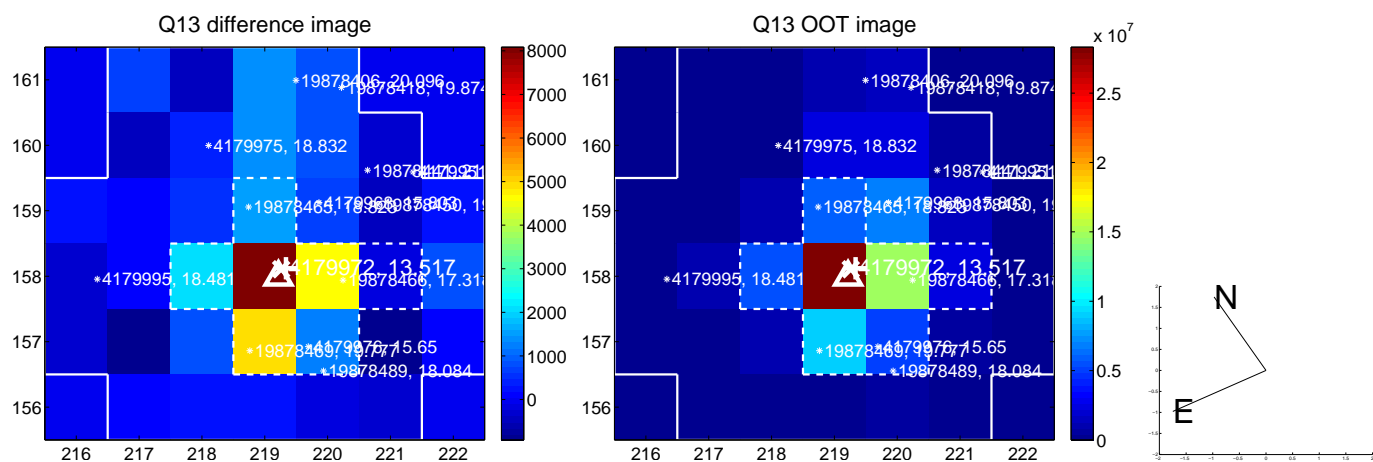
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

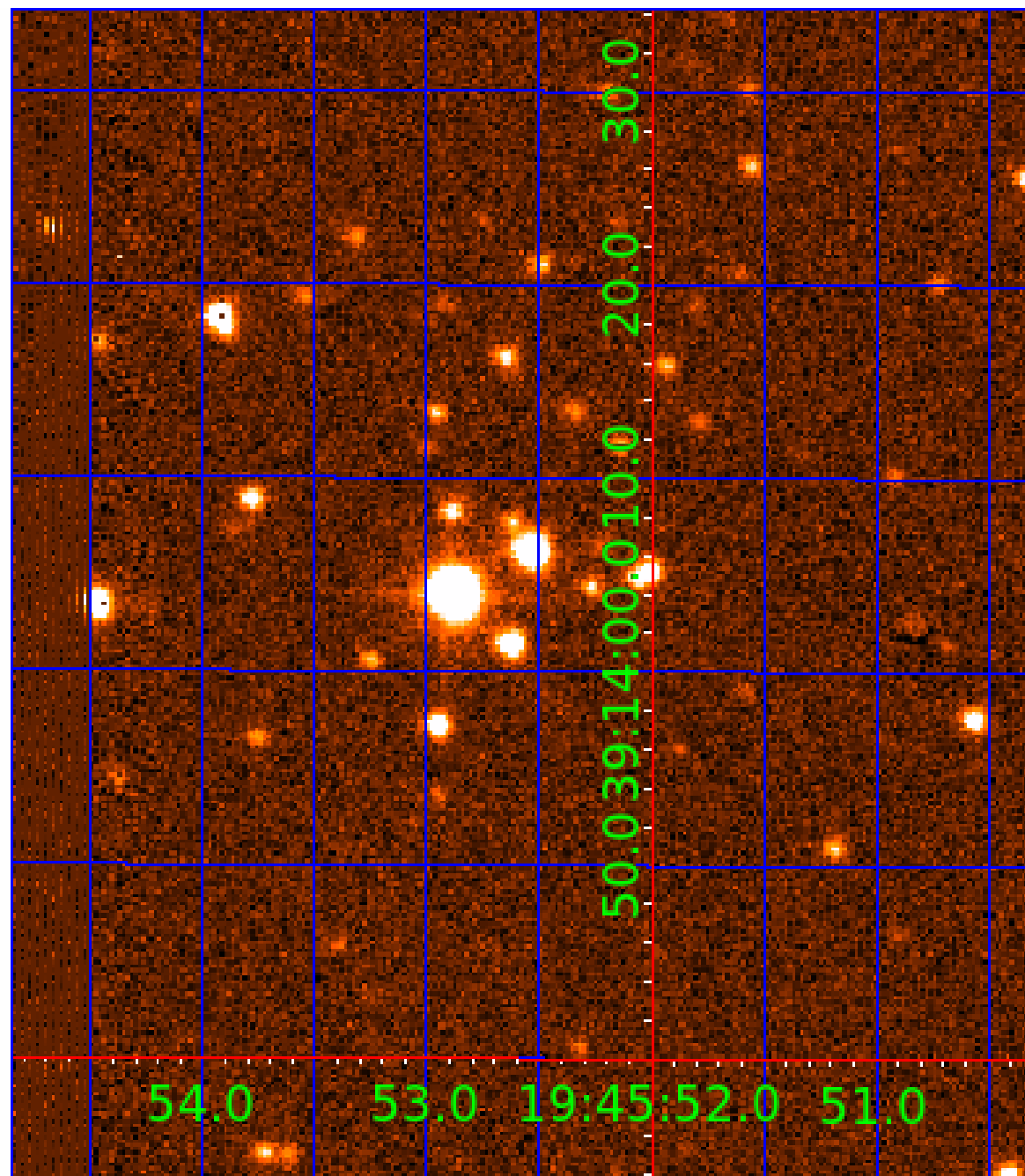


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 004179972

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})
004179972-01	OBS	No	1.367913	131.900417	21.1	7.437	8.5	4.9	1.77	6437	0.85	7539.74
004179972-02	OBS	No	44.851812	134.958313	316.8	7.587	9.2	9.0	1.77	6437	3.42	71.84
004179972-03	OBS	No	133.767144	257.557391	431.6	6.975	8.0	7.6	1.77	6437	3.98	16.73

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
004179972-01	OBS	FP	0.00	1	0	0	0	LPP_DV
004179972-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_ALT
004179972-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_POS_ALT—INCONSISTENT_TRANS

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

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

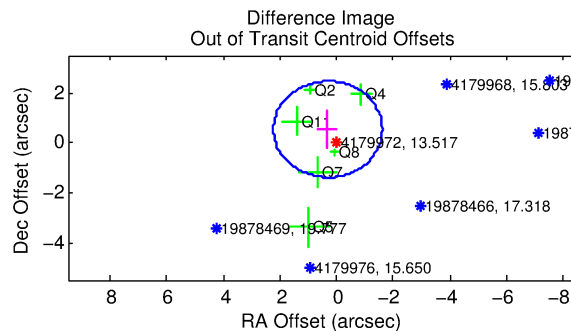
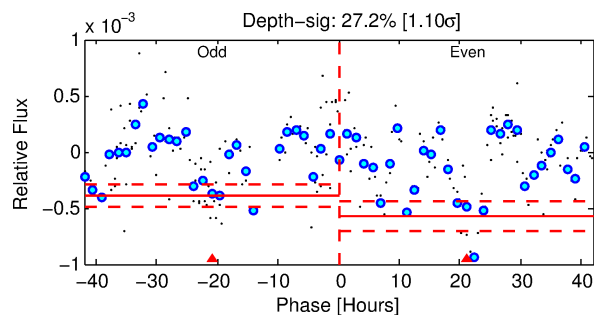
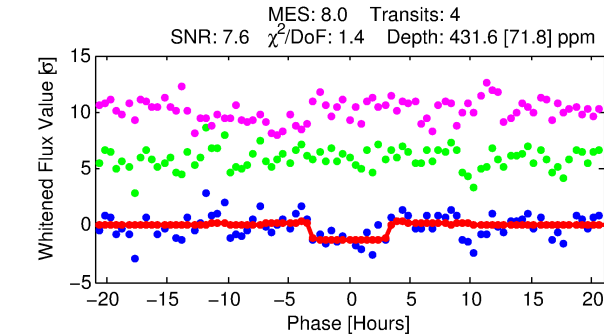
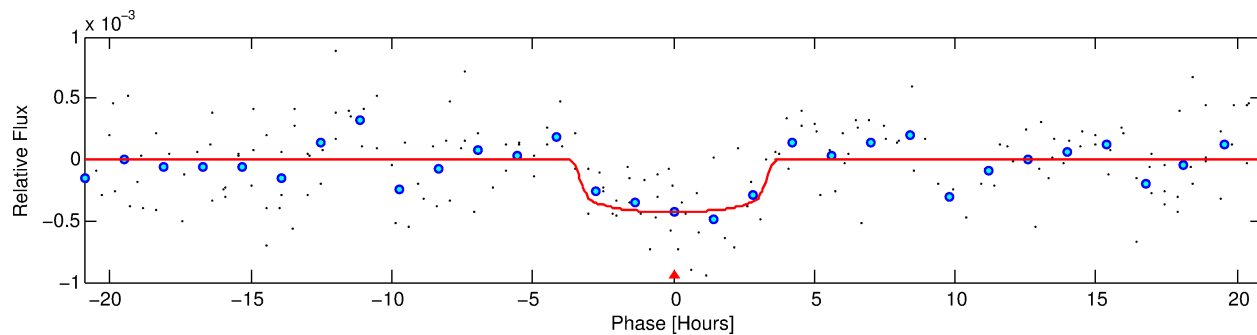
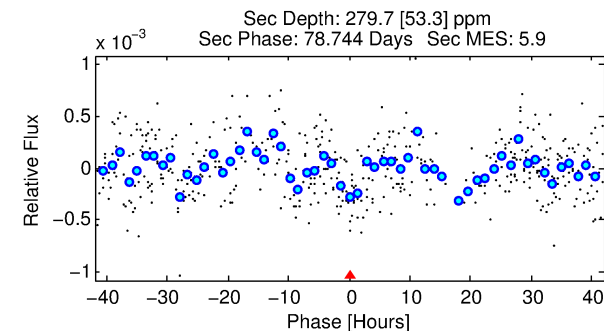
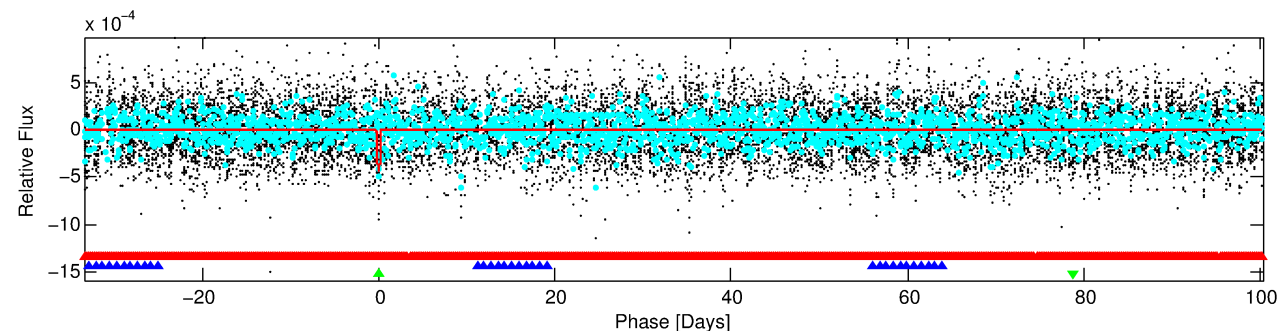
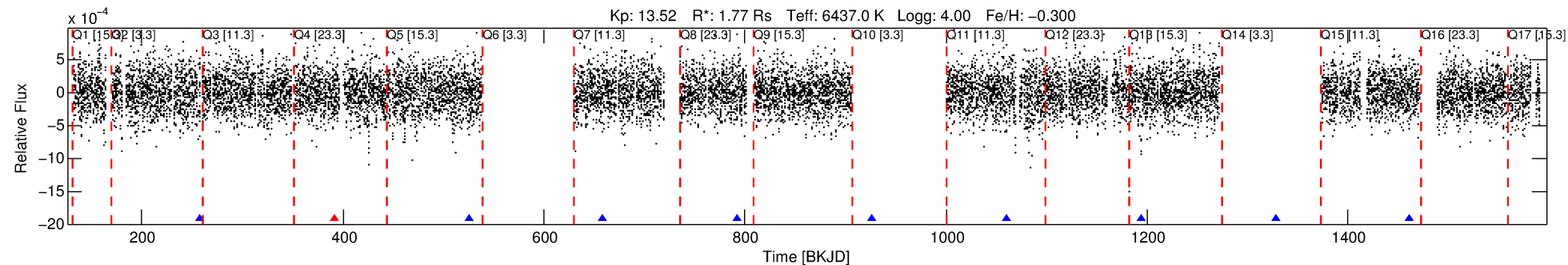
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 004179972-03

No Significant Match Found

DV One-Page Summary

KIC: 4179972 Candidate: 3 of 3 Period: 133.767 d



DV Fit Results:

Period = 133.76714 [0.00414] d
Epoch = 257.5574 [0.0192] BKJD
Rp/R* = 0.0206 [0.0114]
a/R* = 104.02 [307.69]
b = 0.73 [1.88]
Seff = 16.74 [9.99]
Teq = 516 [77] K
Rp = 3.98 [2.65] Re
a = 0.5375 [0.1942] AU
Ag = 2810.09 [3556.93] [0.79 σ]
Teffp = 5806 [1643] K [3.22 σ]

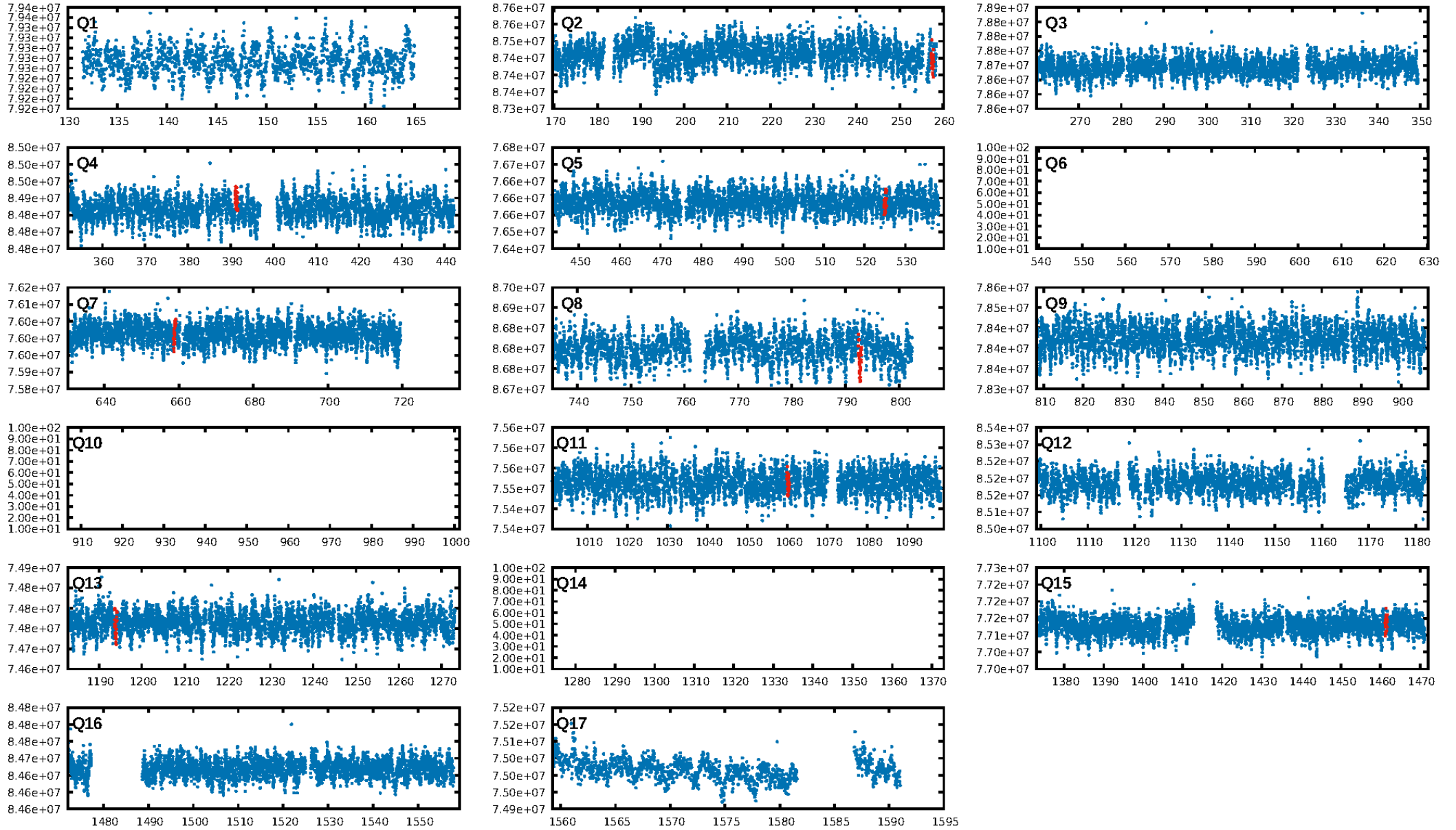
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [207.06 σ]
LongPeriod-sig: N/A
ModelChiSquare2-sig: 3.9%
ModelChiSquareGof-sig: 99.9%
Bootstrap-pfa: 4.52e-08
RollingBand-fgt: 0.75 [3/4]
GhostDiagnostic-chr: 1.019
Centroid-sig: 11.0%
Centroid-so: 1.119 arcsec [1.63 σ]
OotOffset-rm: 0.617 arcsec [0.96 σ]
KicOffset-rm: 0.384 arcsec [0.46 σ]
OotOffset-st: 1/2/2/1 [6]
KicOffset-st: 1/2/2/1 [6]
DiffImageQuality-fgm: 0.50 [3/6]
DiffImageOverlap-fno: 0.00 [0/7]

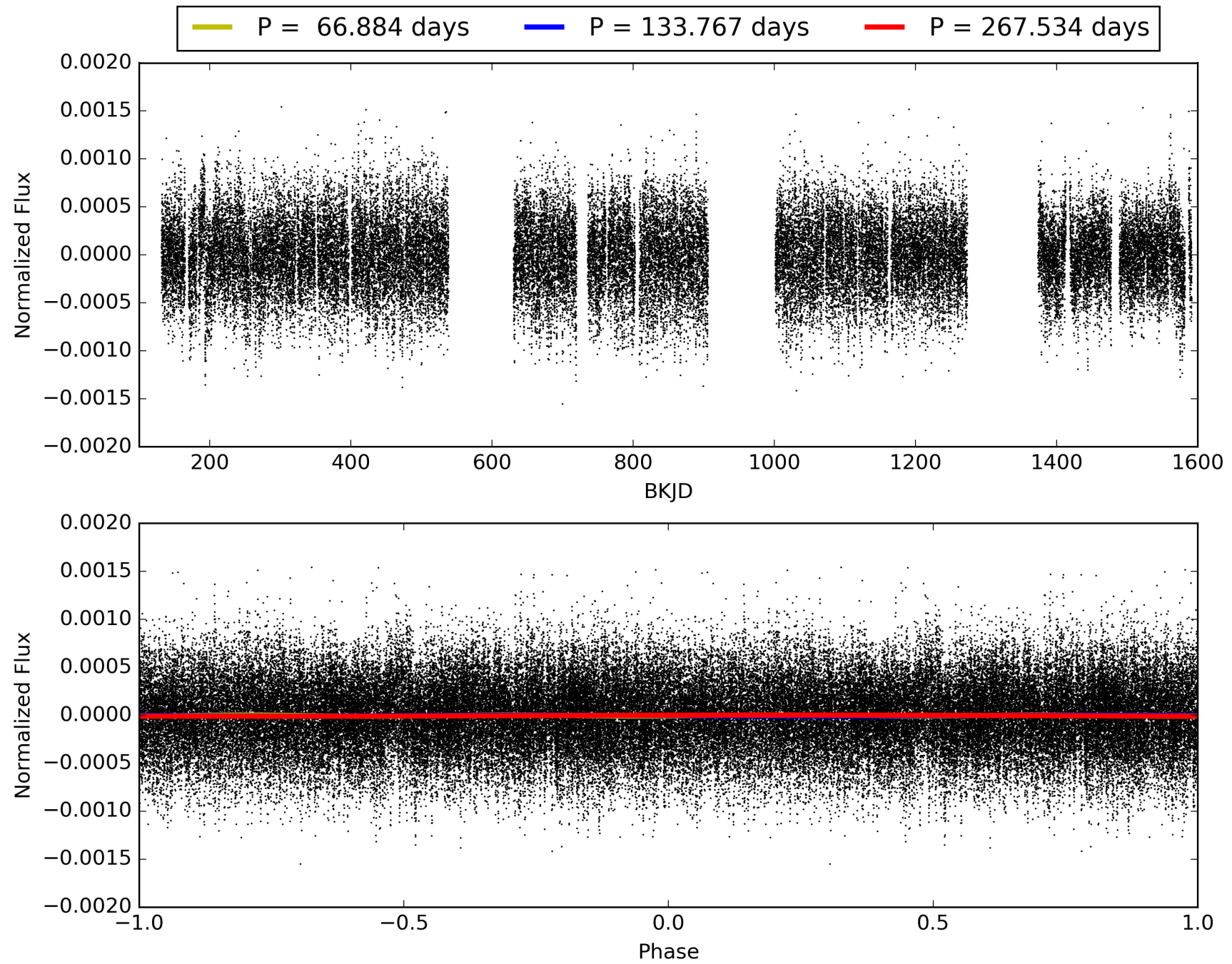
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 10:16:31 Z

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

TCE 004179972-03, PDC Light Curves

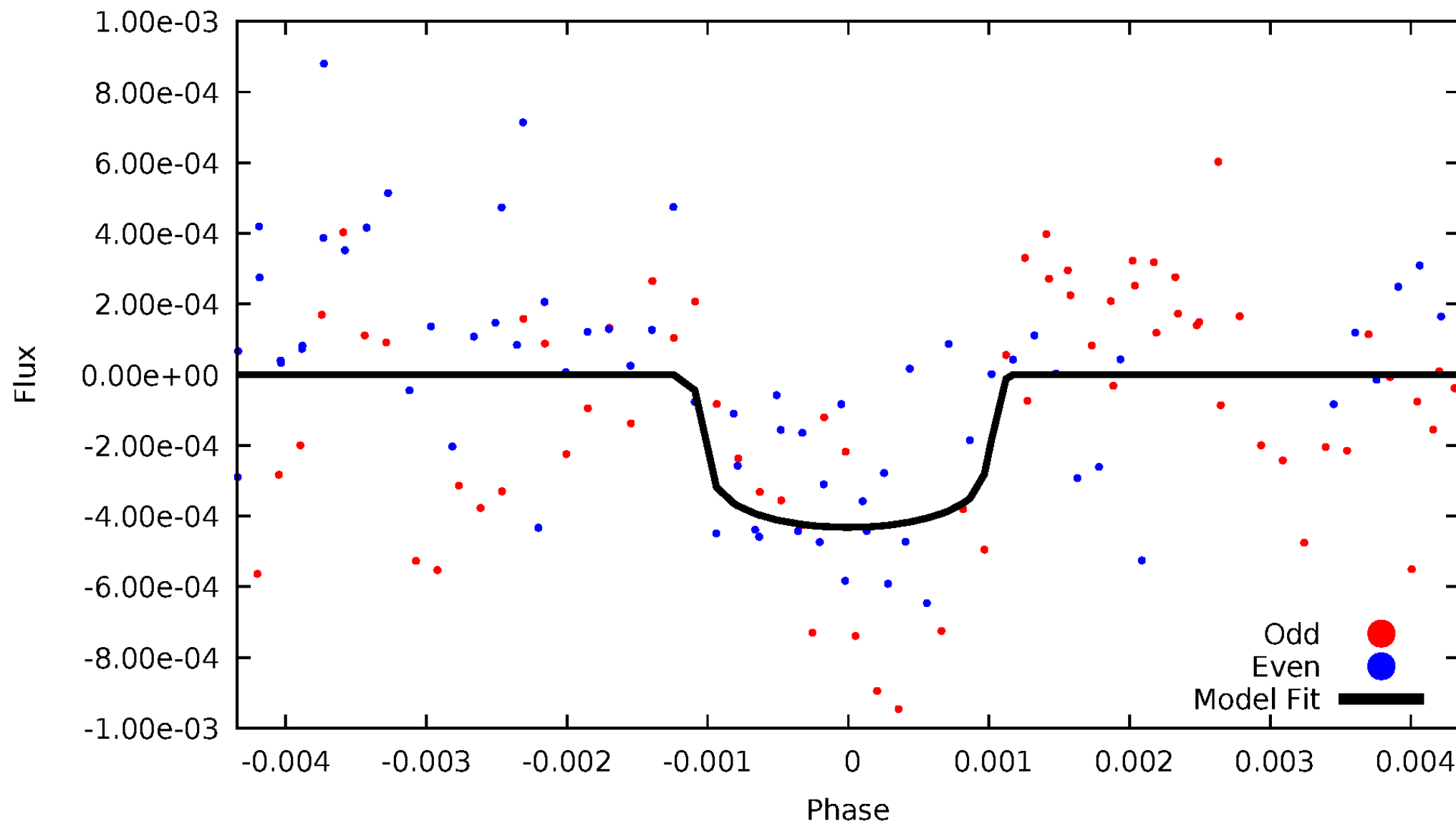


TCE 004179972-03



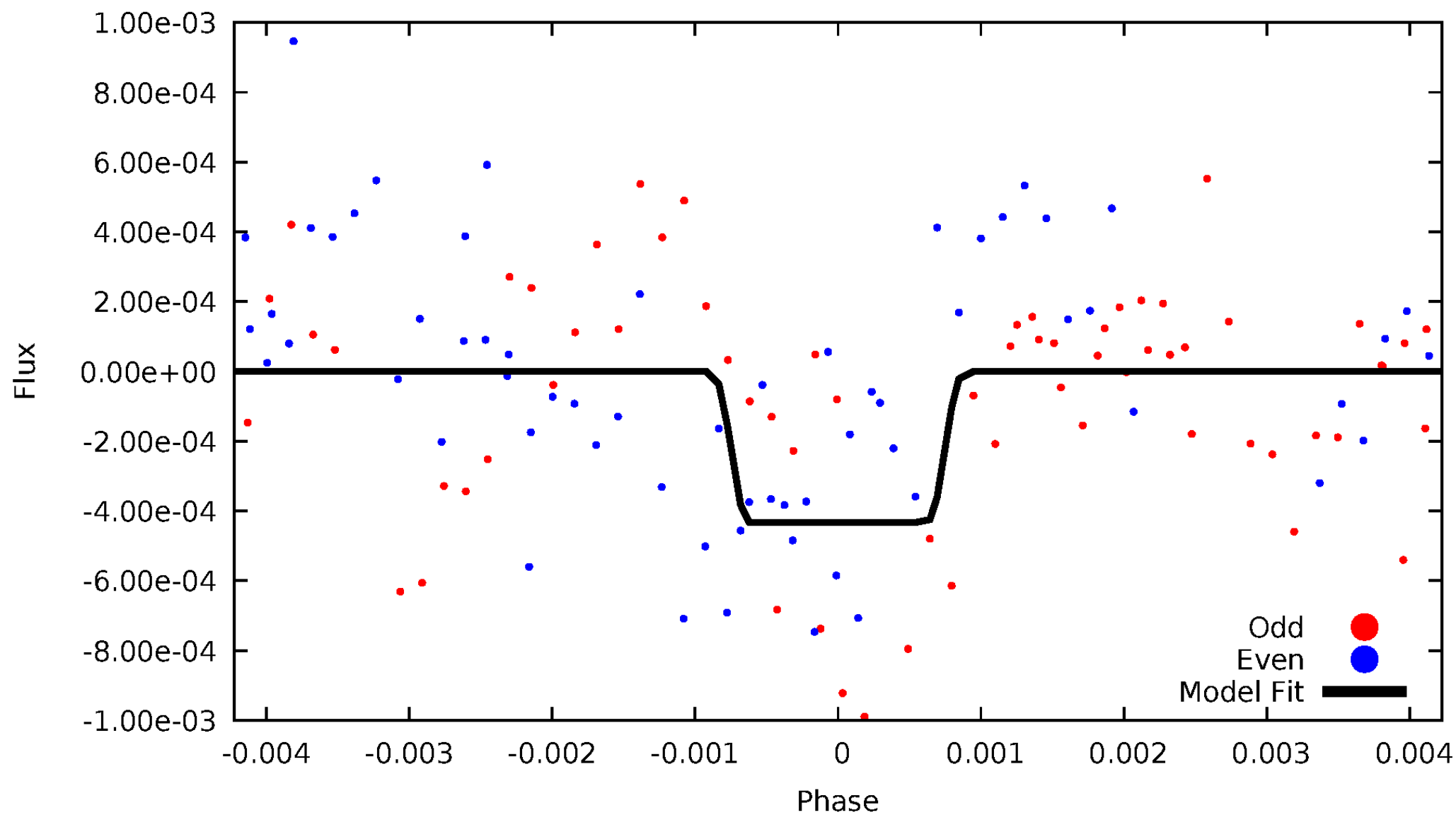
DV Odd/Even

TCE 004179972-03



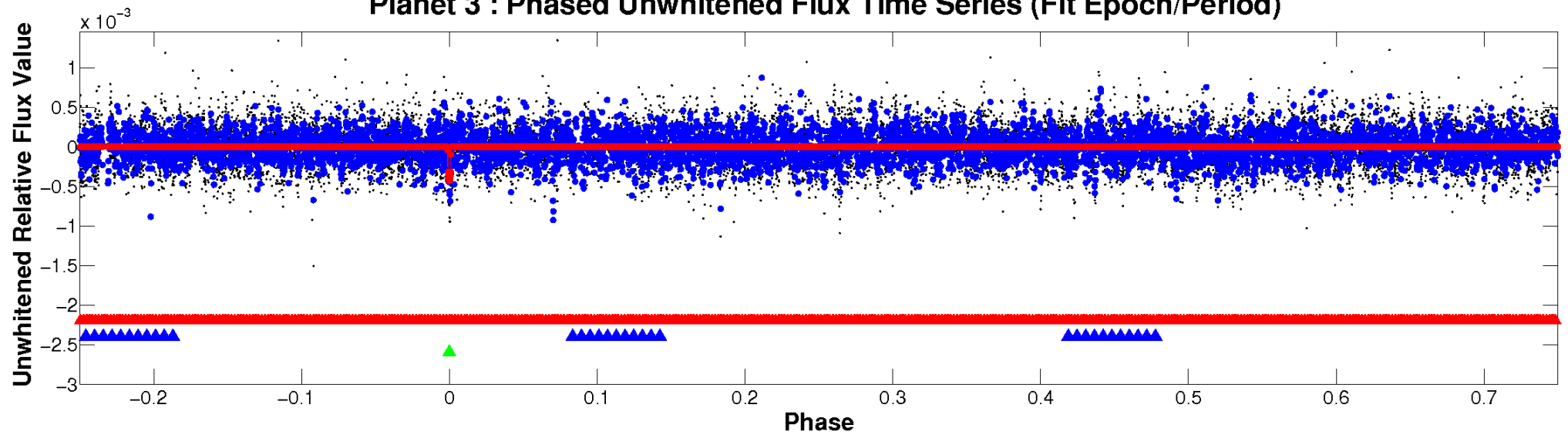
ALT Odd/Even

TCE 004179972-03

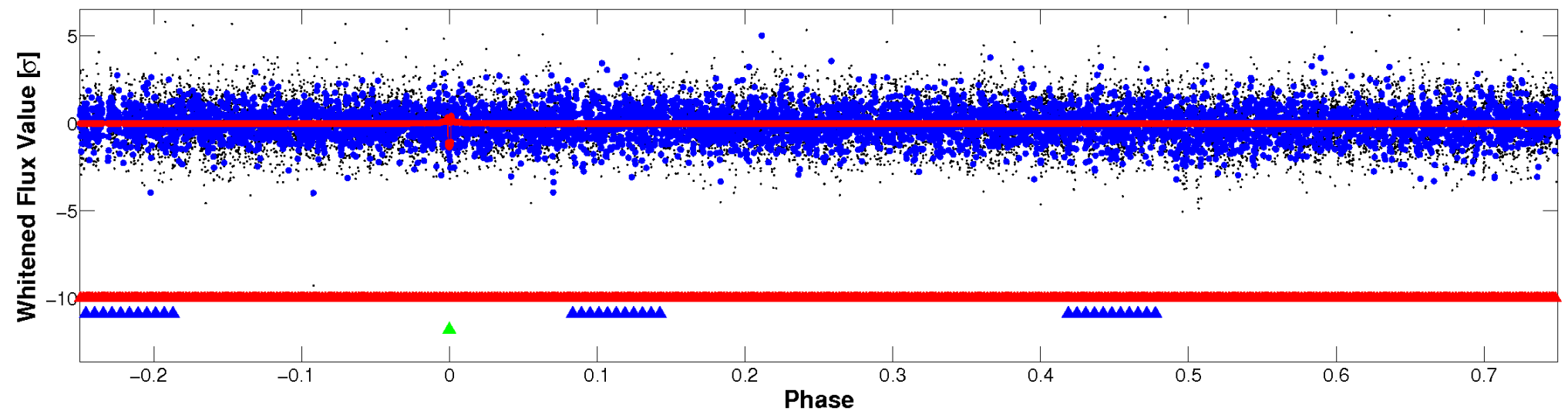


Non-Whitened Vs. Whitened Light Curve

Planet 3 : Phased Unwhitened Flux Time Series (Fit Epoch/Period)

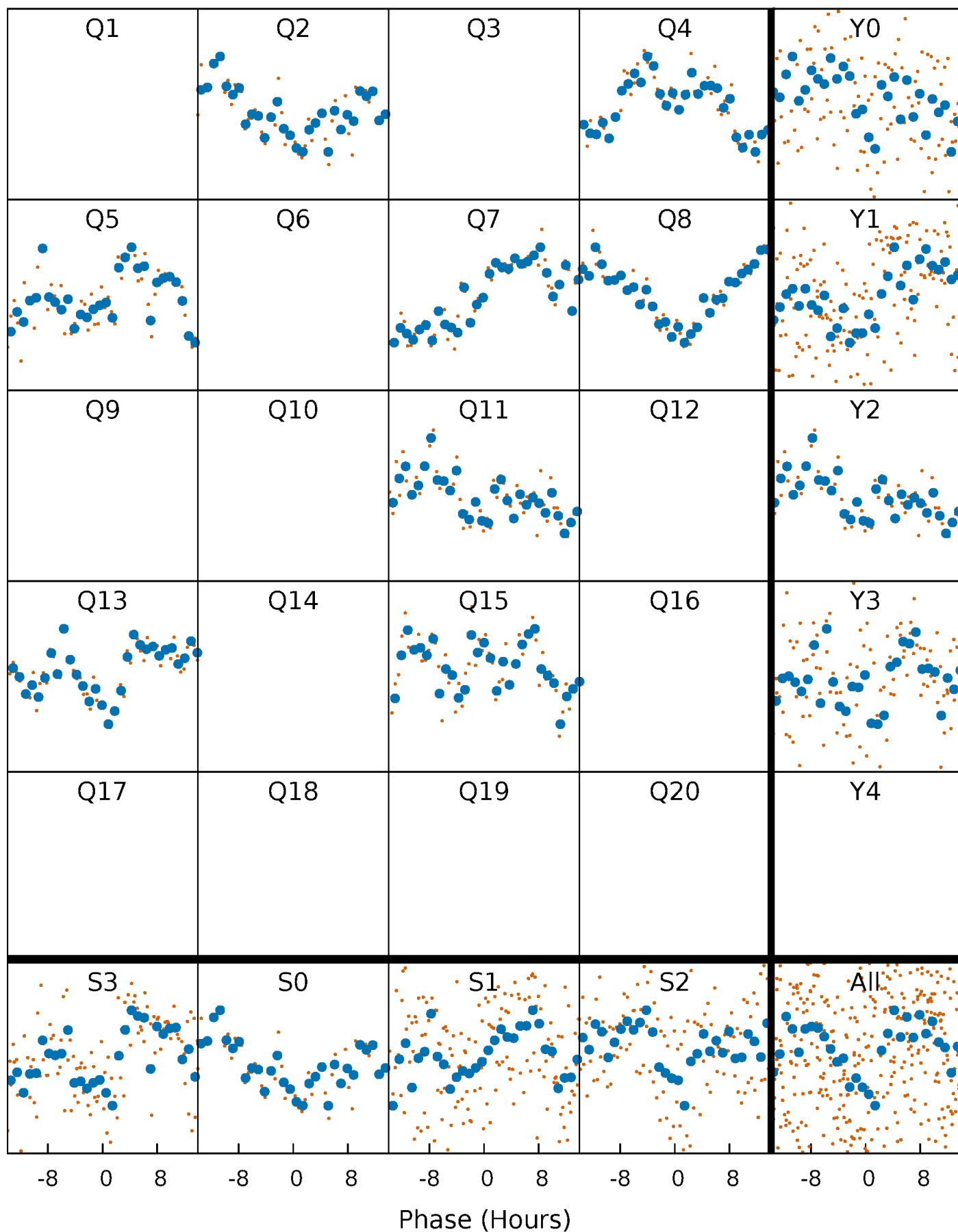


Planet 3 : Phased Whitened Flux Time Series (Fit Epoch/Period)



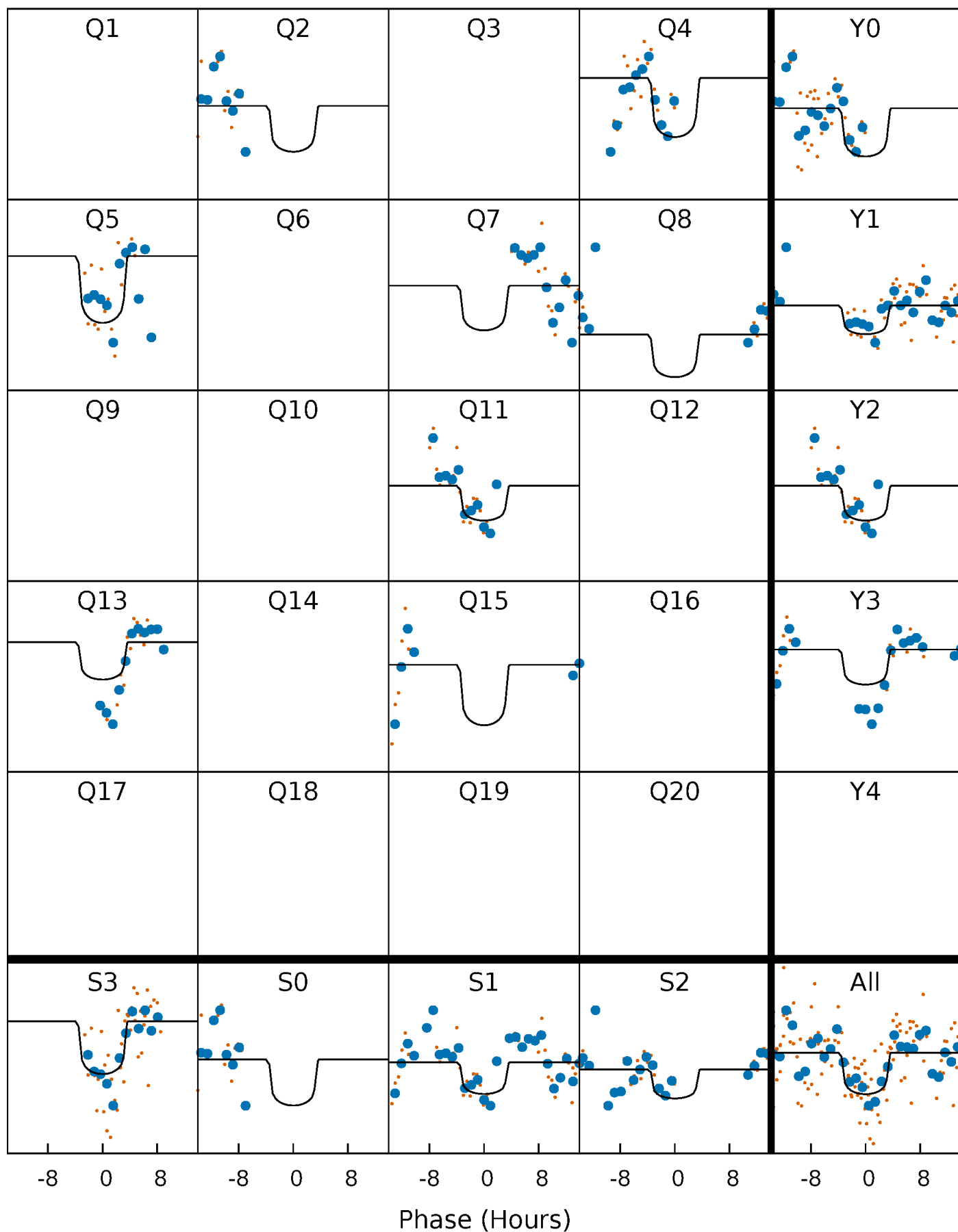
PDC Quarter-Phased Transit Curves

TCE 004179972-03 P=133.767144 Days $T_0=257.557391$ (BKJD)



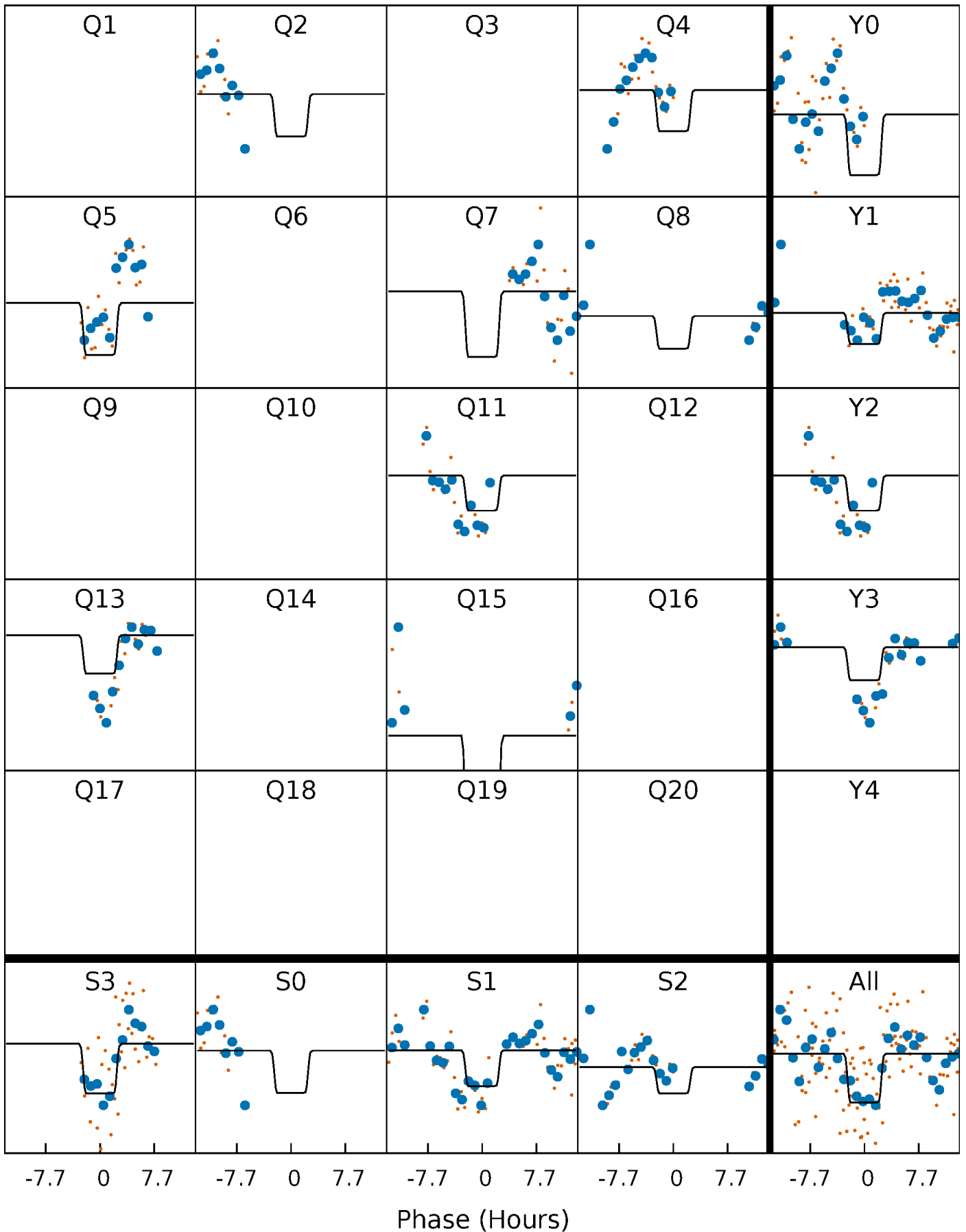
DV Quarter-Phased Transit Curves

TCE 004179972-03 P=133.767144 Days $T_0=257.557391$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

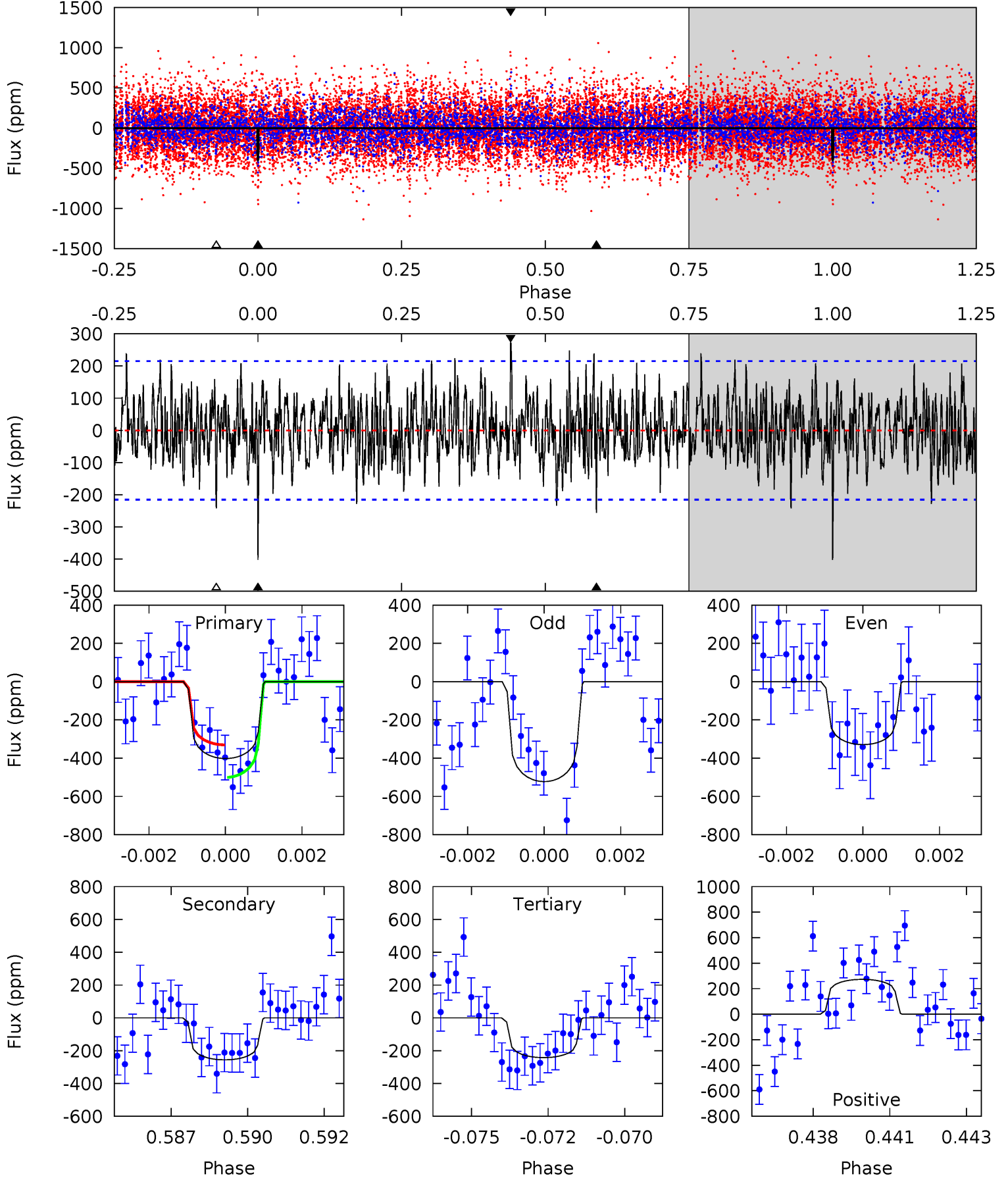
TCE 004179972-03 $P=133.771265$ Days $T_0=257.551681$ (BKJD)



DV Model-Shift Uniqueness Test

004179972-03, P = 133.767144 Days, E = 123.790247 Days

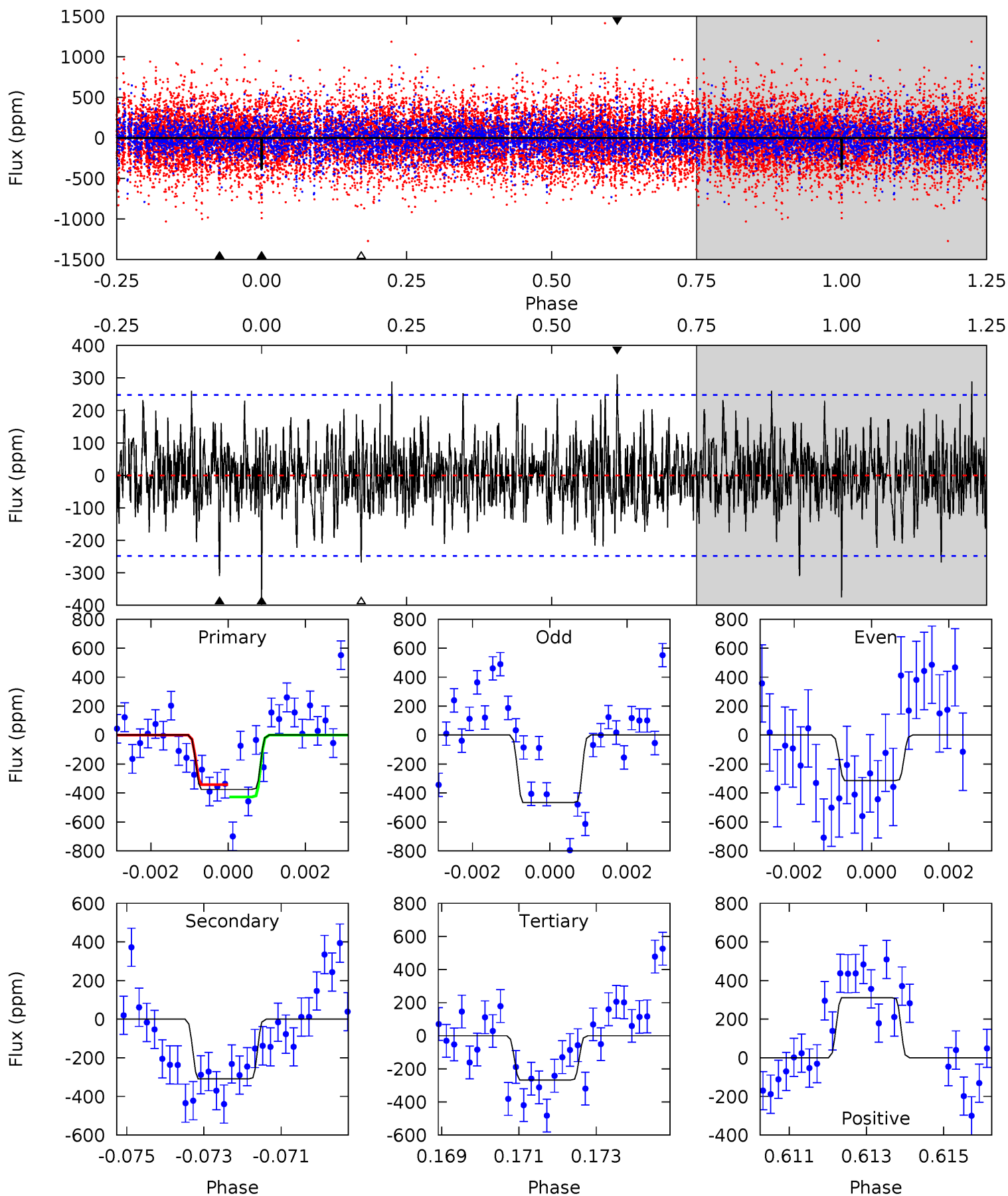
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
9.91	6.31	5.98	6.73	5.30	3.05	1.92	3.93	3.18	0.33	-0.42	2.33	1.29	0.40	2.08



Alt Model-Shift Uniqueness Test

004179972-03, P = 133.771265 Days, E = 123.780416 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
8.10	6.67	5.78	6.72	5.35	3.12	1.62	2.32	1.38	0.90	-0.04	1.62	1.15	0.45	0.91



Stellar Parameters For KIC 004179972

	$T_{\text{eff}}(K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R (R_{\odot})$	$M(M_{\odot})$	$\rho_{\star} (\text{g}\cdot\text{cm}^{-3})$
	6437^{+175}_{-214}	$4.004^{+0.343}_{-0.147}$	$-0.300^{+0.300}_{-0.300}$	$1.773^{+0.494}_{-0.658}$	$1.158^{+0.188}_{-0.188}$	$0.293^{+0.760}_{-0.124}$
	+3%/-3%	+9%/-4%	+100%/-100%	+28%/-37%	+16%/-16%	+260%/-42%
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 004179972-03 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-256 ± 41	$3.87^{+2.14}_{-2.06}$	708^{+51}_{-75}	5601^{+2724}_{-949}	2743^{+9602}_{-1647}
Alt.	-309 ± 46	$3.85^{+2.37}_{-1.82}$	710^{+54}_{-67}	5858^{+2489}_{-1027}	3311^{+7926}_{-1964}

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

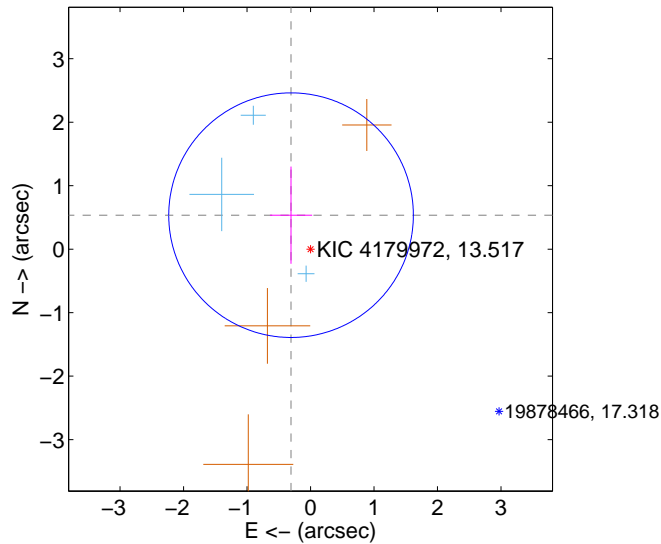
Supplemental centroid analysis for 004179972-03. Kepler magnitude: 13.52. Transit SNR 7.58

There are 3 quarters with good PRF difference image offsets

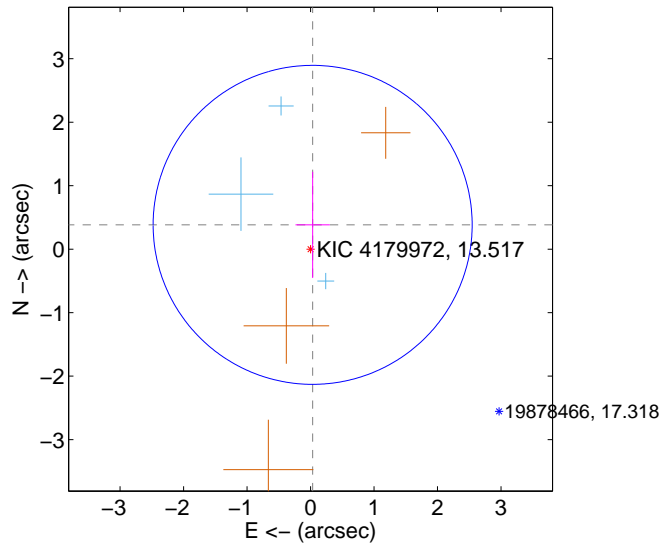
The direct PRF centroid is offset from the target star catalog position by about 0.30 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.617 ± 0.642	0.96	0.307 ± 0.333	0.535 ± 0.766
PRF-fit source offset from KIC position	0.384 ± 0.838	0.46	-0.033 ± 0.270	0.383 ± 0.836
photometric centroid source offset	1.12 ± 0.69	1.63	-0.85 ± 0.71	0.73 ± 0.65

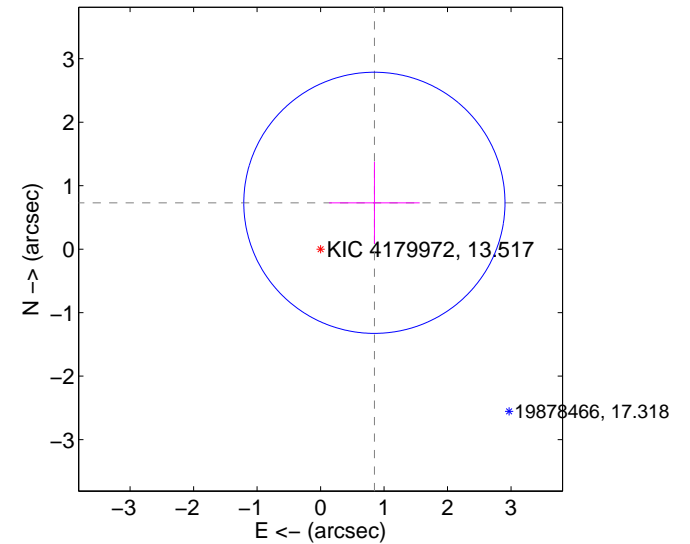
offset from difference PRF-fit to OOT PRF-fit



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.

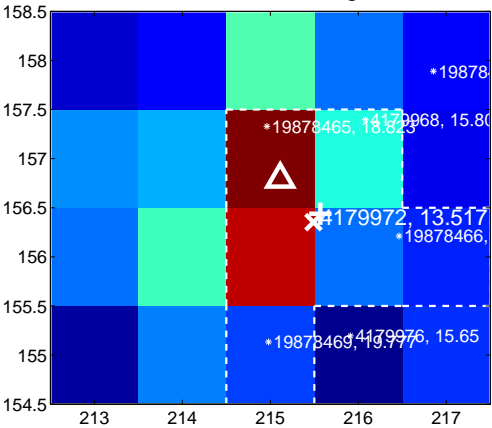
Q1 no difference image



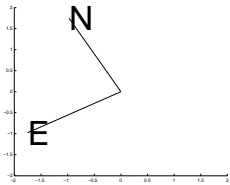
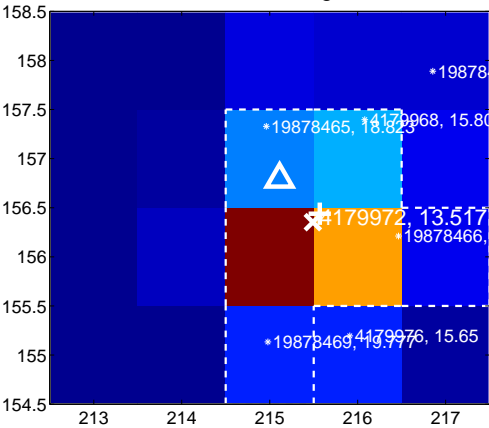
Q1 no OOT image



Q2 difference image



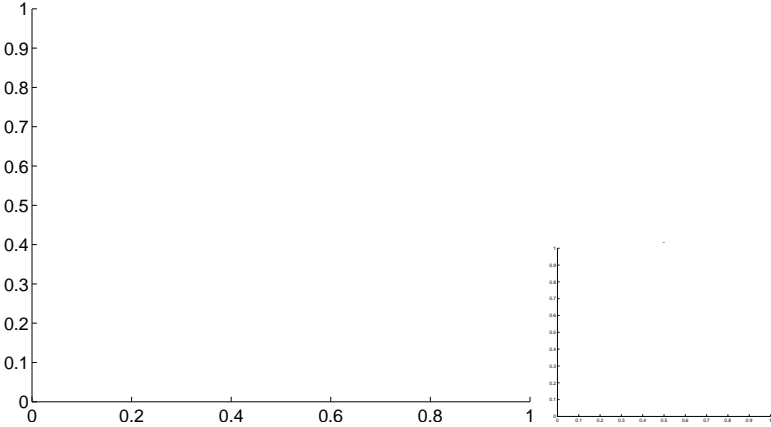
Q2 OOT image



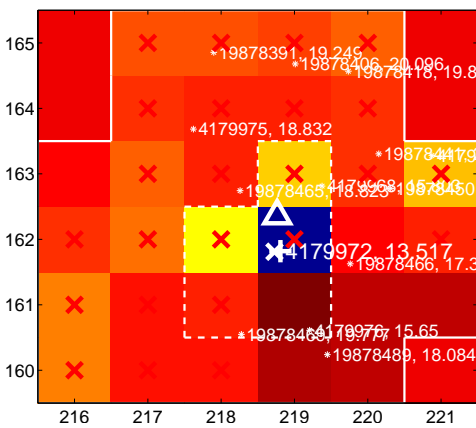
Q3 no difference image



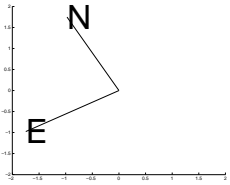
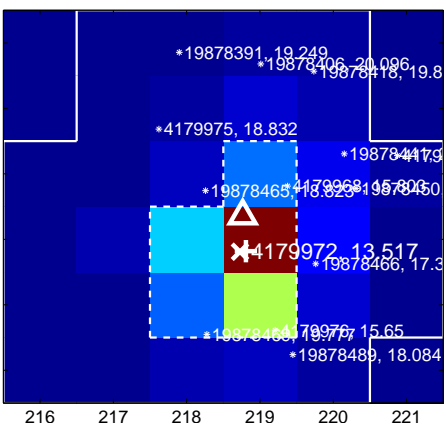
Q3 no OOT image



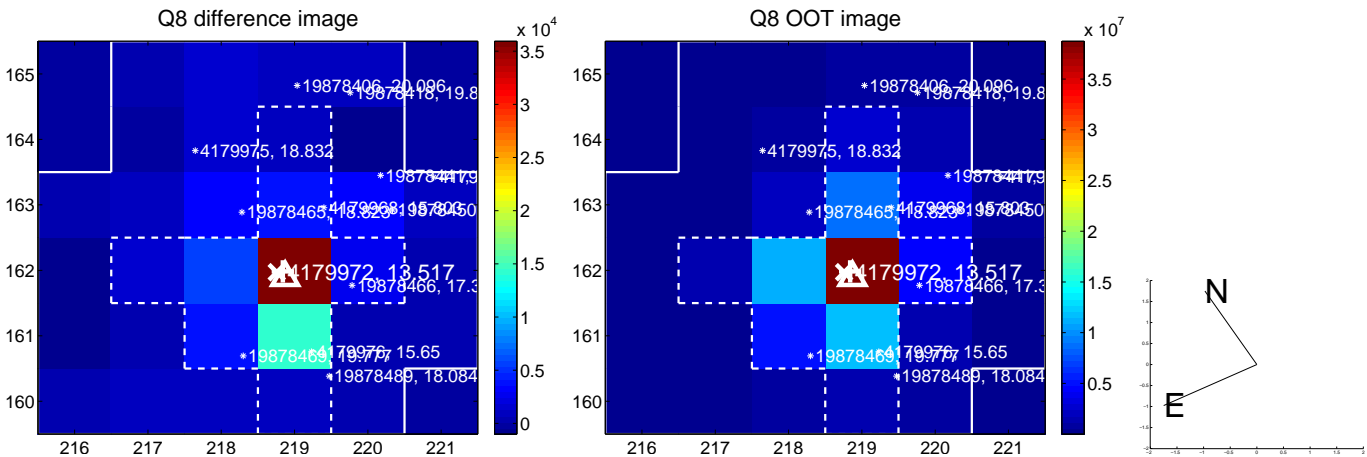
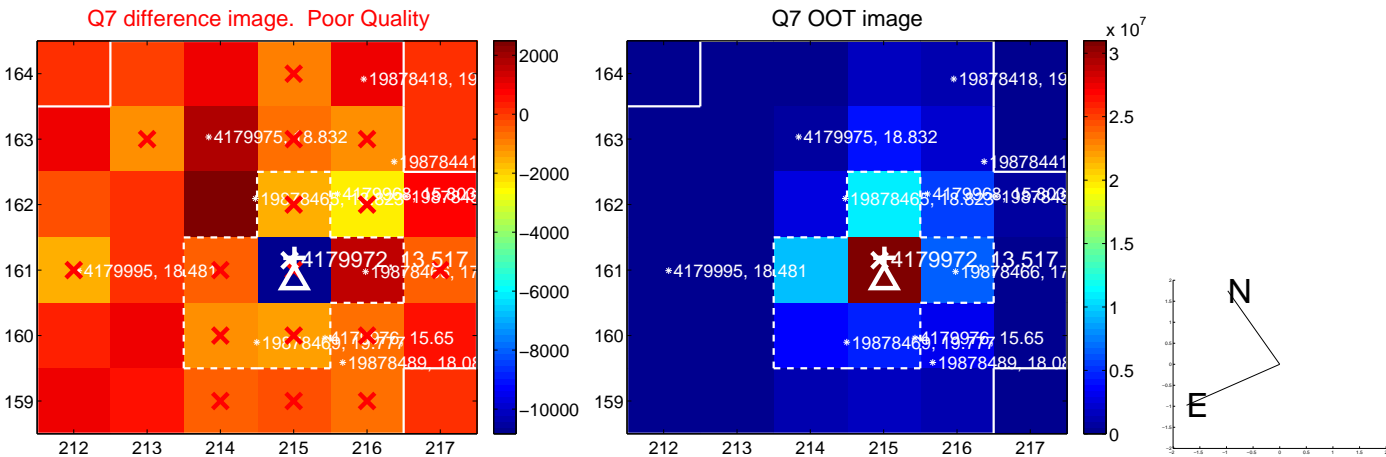
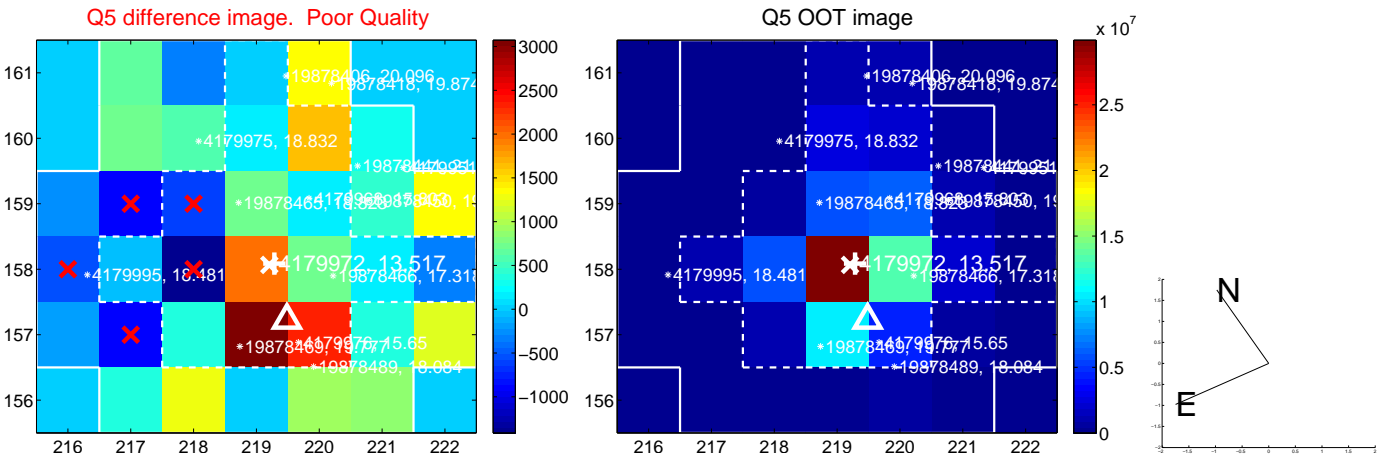
Q4 difference image. Poor Quality



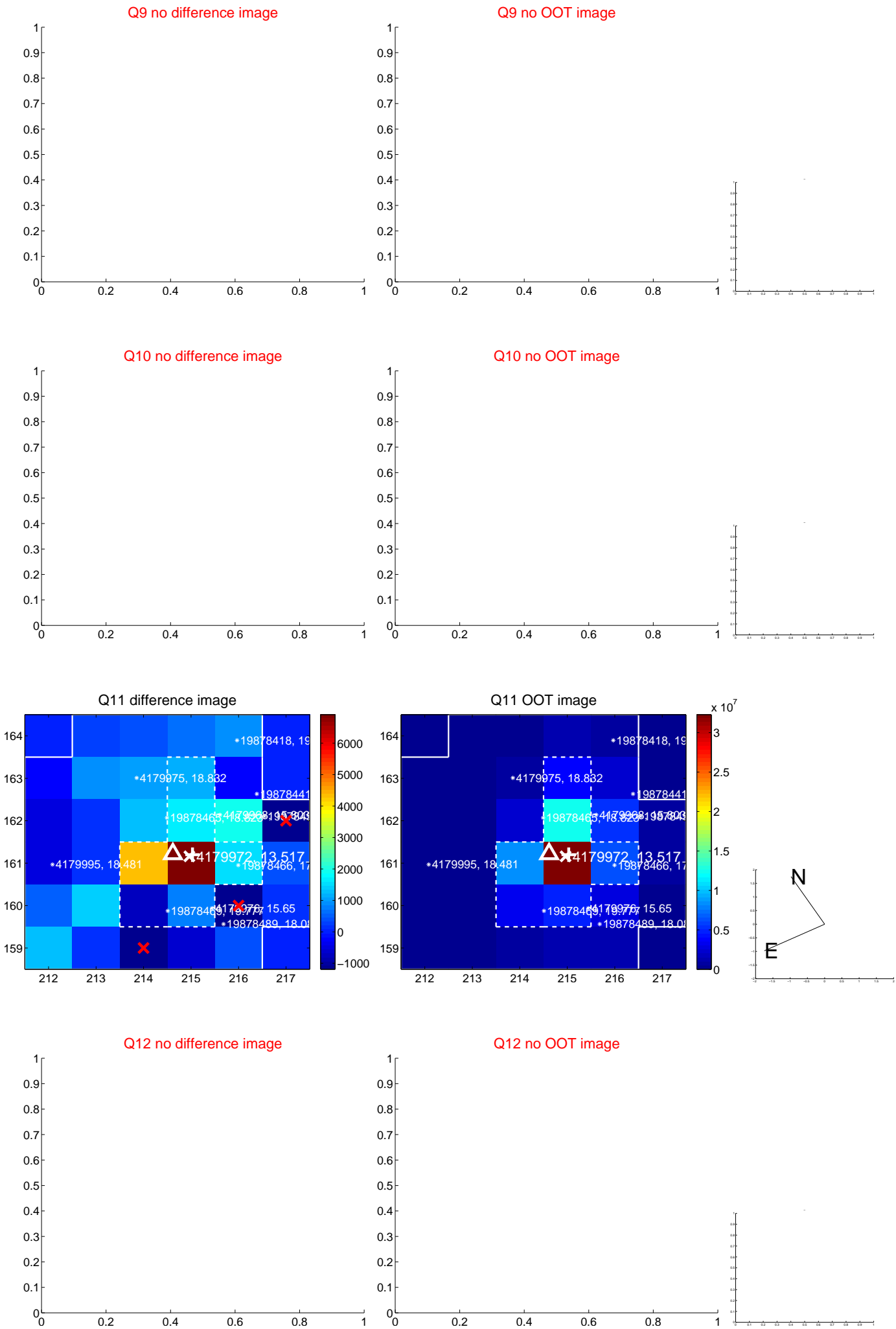
Q4 OOT image



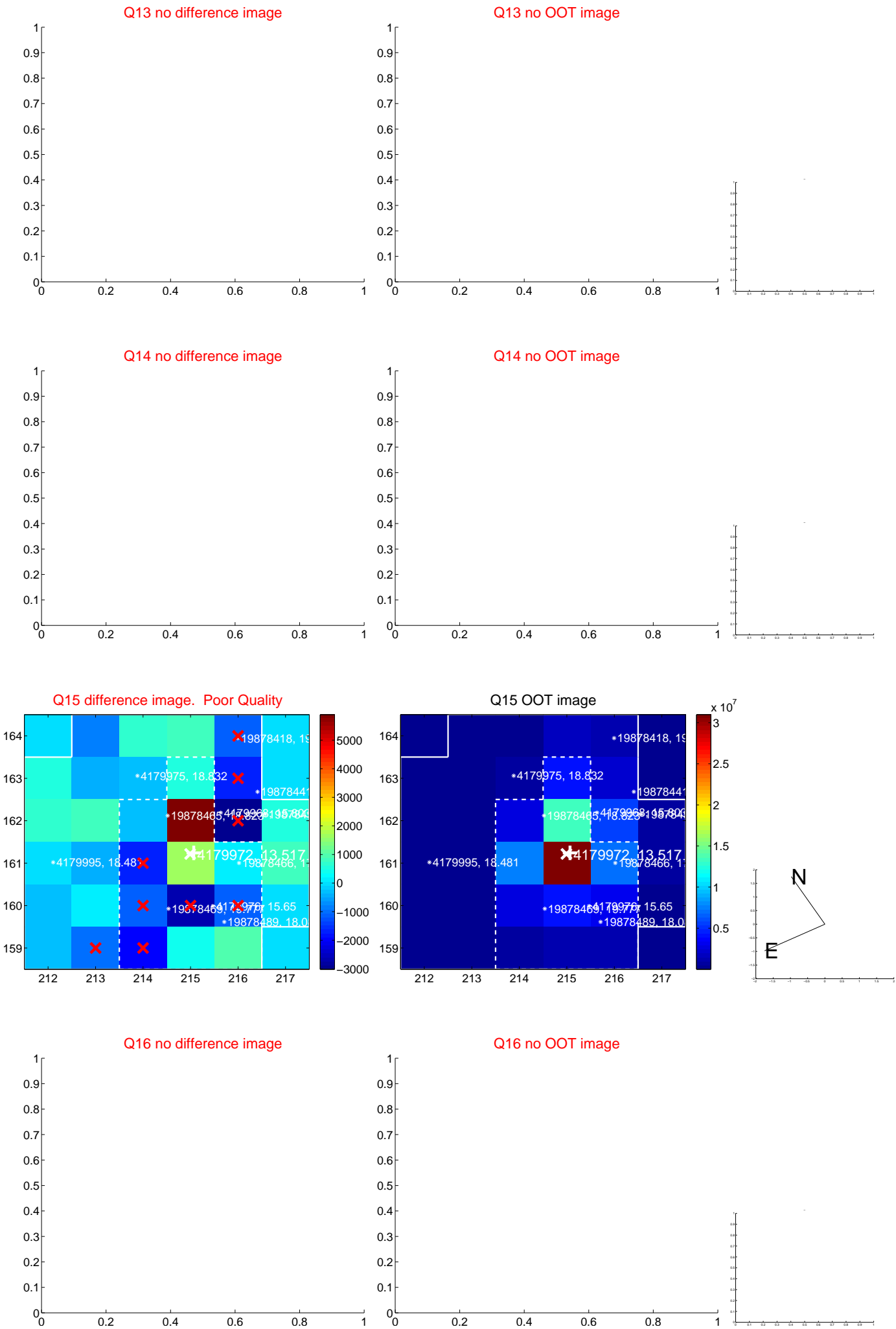
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



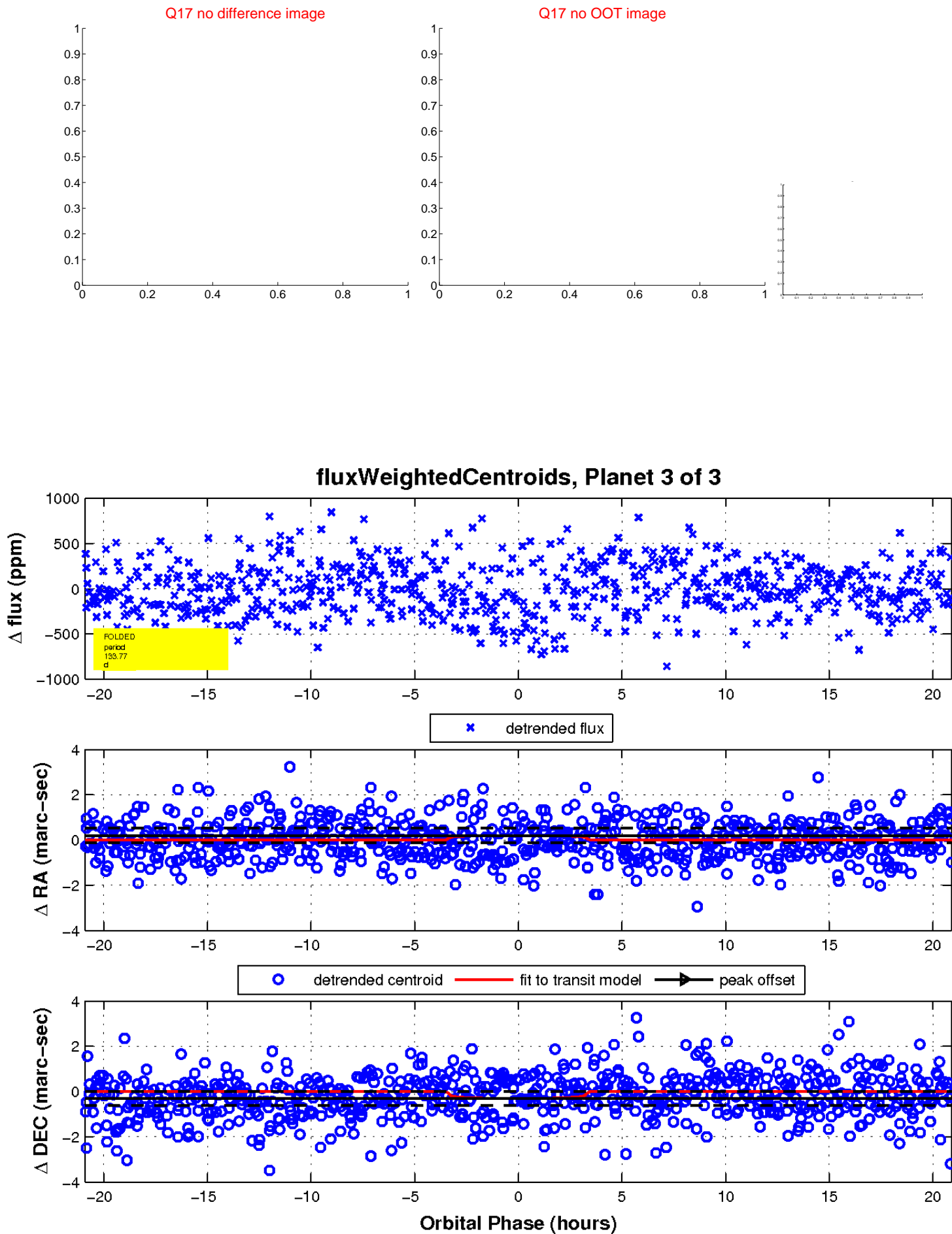
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

Declination

