

KIC 008719324

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})
008719324-01	OBS	3716.02	10.232722	139.584938	1890.4	2.166	208.0	212.8	1.66	7023	13.14	602.24
008719324-02	OBS	3716.01	10.232897	139.852111	492.6	7.216	42.0	53.7	1.66	7023	6.09	602.22
008719324-03	OBS	No	10.232868	139.553739	408.5	21.454	18.5	21.0	1.66	7023	4.22	602.22
008719324-04	OBS	No	1.705506	133.192385	26.6	10.264	8.5	8.6	1.66	7023	0.92	6565.73
008719324-06	OBS	No	2.046559	131.844742	175.6	7.500	11.7	-1.0	1.66	7023	2.23	5148.98

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
008719324-01	OBS	FP	0.00	1	0	0	0	MOD_NONUNIQ_ALT
008719324-02	OBS	FP	0.00	1	0	0	0	LPP_DV—SAME_NTL_PERIOD
008719324-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_ZUMA—LPP_DV—MOD_NONUNIQ_DV—SAME_NTL_PERIOD
008719324-04	OBS	FP	0.00	1	0	0	0	LPP_DV—MOD_NONUNIQ_DV—SAME_NTL_PERIOD—CENT_FEW_DIFFS
008719324-06	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_SKYE_ZUMA—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_ALT—SAME_NTL_PERIOD—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.

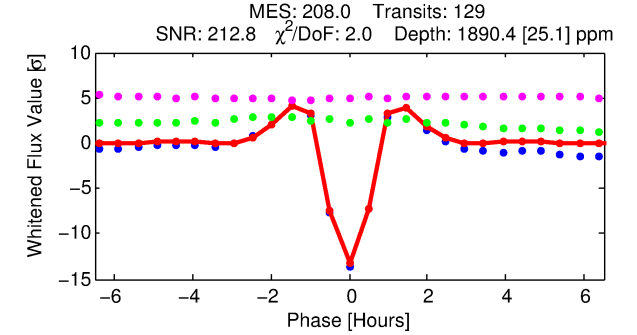
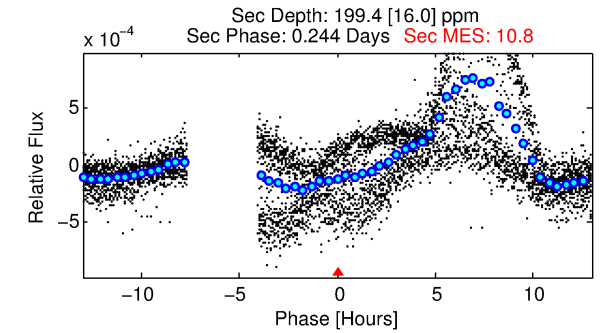
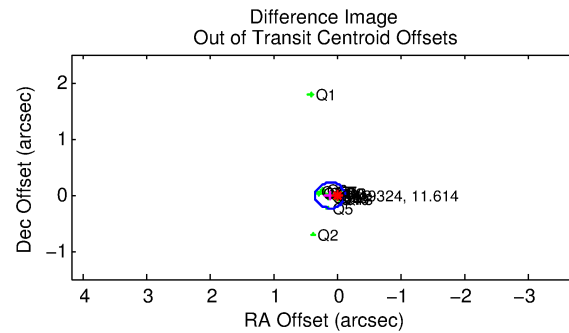
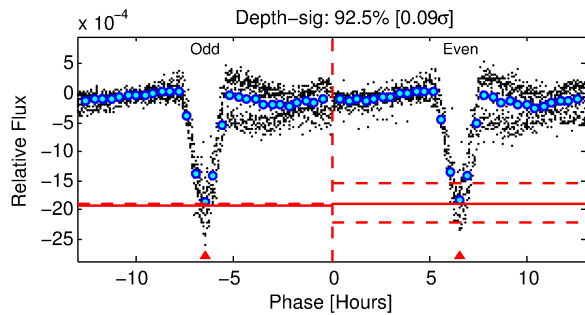
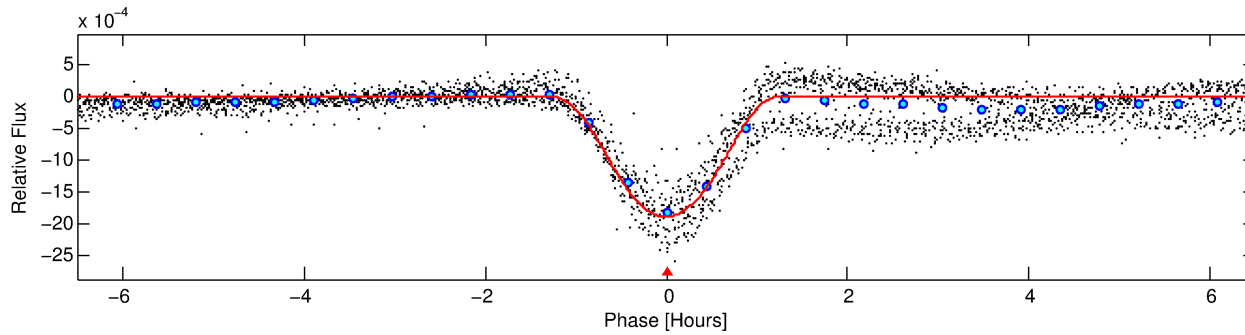
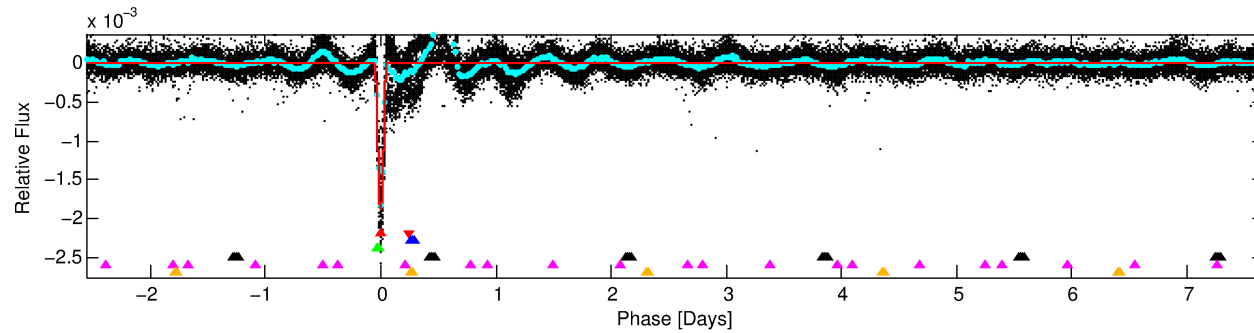
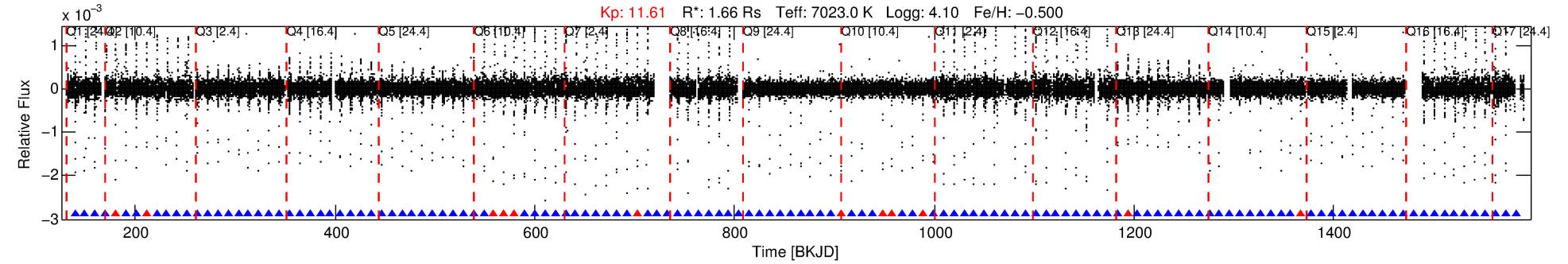
Ephemeris Match Information For 008719324-01

No Significant Match Found

DV One-Page Summary

KIC: 8719324 Candidate: 1 of 6 Period: 10.233 d

KOI: K03716.02 Corr: 0.846



DV Fit Results:

Period = 10.23272 [0.00000] d
Epoch = 139.5849 [0.0003] BKJD
Rp/R* = 0.0724 [0.0178]
a/R* = 14.21 [0.83]
b = 1.00 [0.03]
Seff = 602.23 [270.47]
Teff = 1263 [142] K
Rp = 13.14 [5.14] Re
a = 0.1001 [0.0271] AU
Ag = 6.36 [4.12] [1.30 σ]
Teffp = 3102 [410] K [4.23 σ]

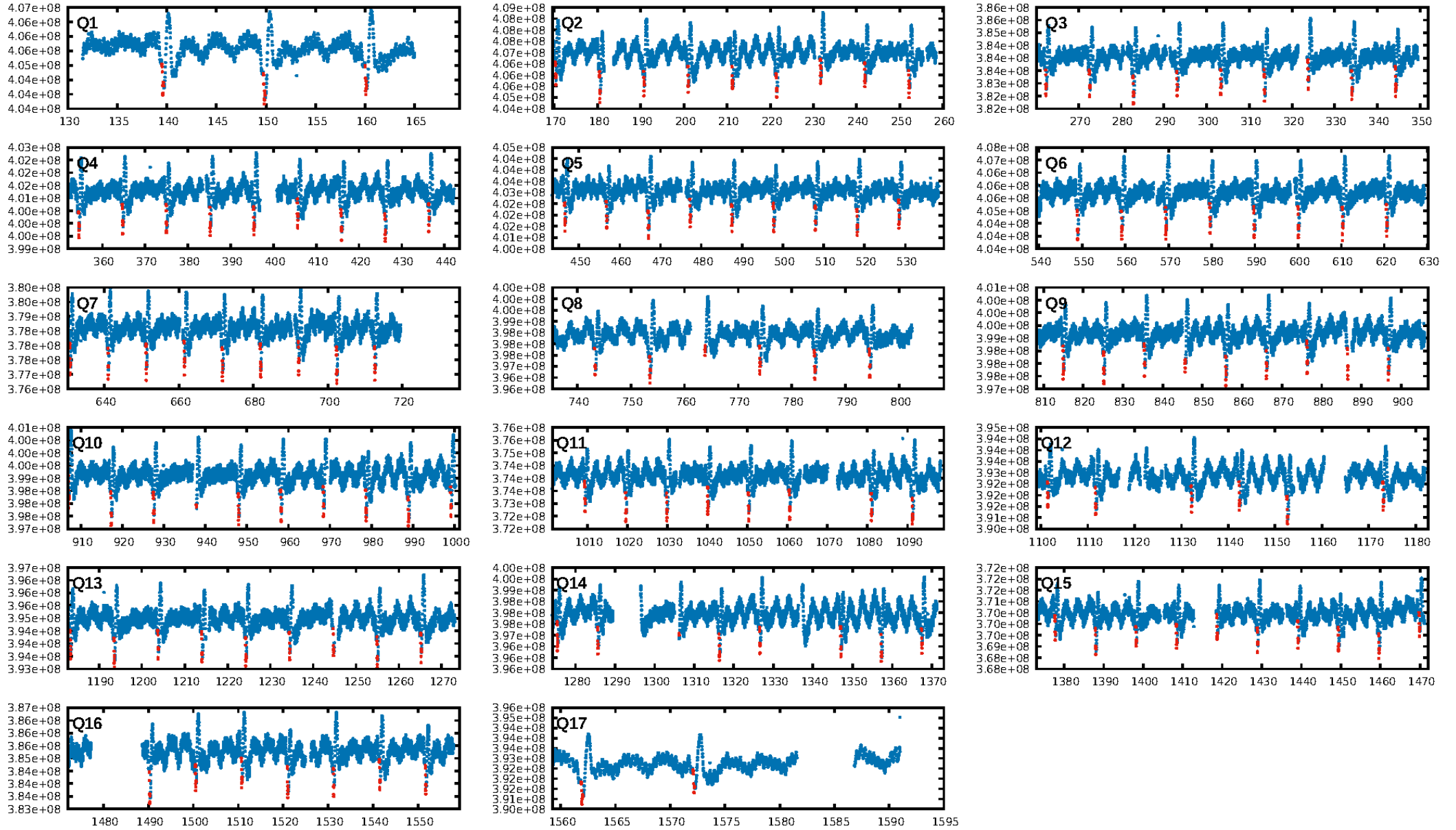
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [25.17 σ]
LongPeriod-sig: 0.0% [0.00 σ]
ModelChiSquare2-sig: 0.0%
ModelChiSquareGof-sig: 0.0%
Bootstrap-pfa: N/A
RollingBand-fgt: 0.90 [112/124]
GhostDiagnostic-chr: 5.451
Centroid-sig: 6.7%
Centroid-so: 0.141 arcsec [2.76 σ]
OotOffset-rm: 0.129 arcsec [1.70 σ]
KicOffset-rm: 0.131 arcsec [1.60 σ]
OotOffset-st: 4/4/4/5 [17]
KicOffset-st: 4/4/4/5 [17]
DiffImageQuality-fgm: 1.00 [17/17]
DiffImageOverlap-fno: 0.00 [0/17]

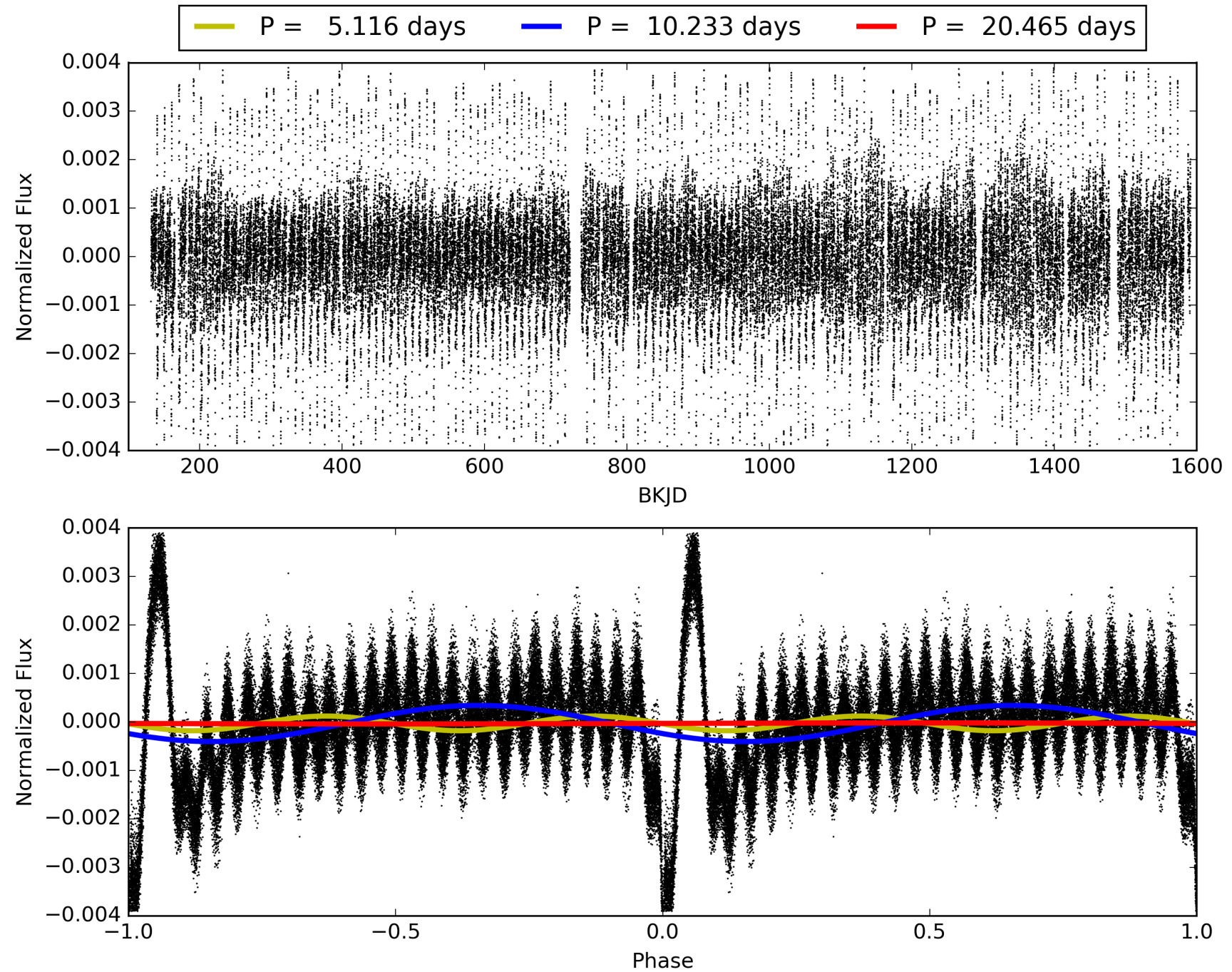
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 31-Jan-2016 06:14:47 Z

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

TCE 008719324-01, PDC Light Curves

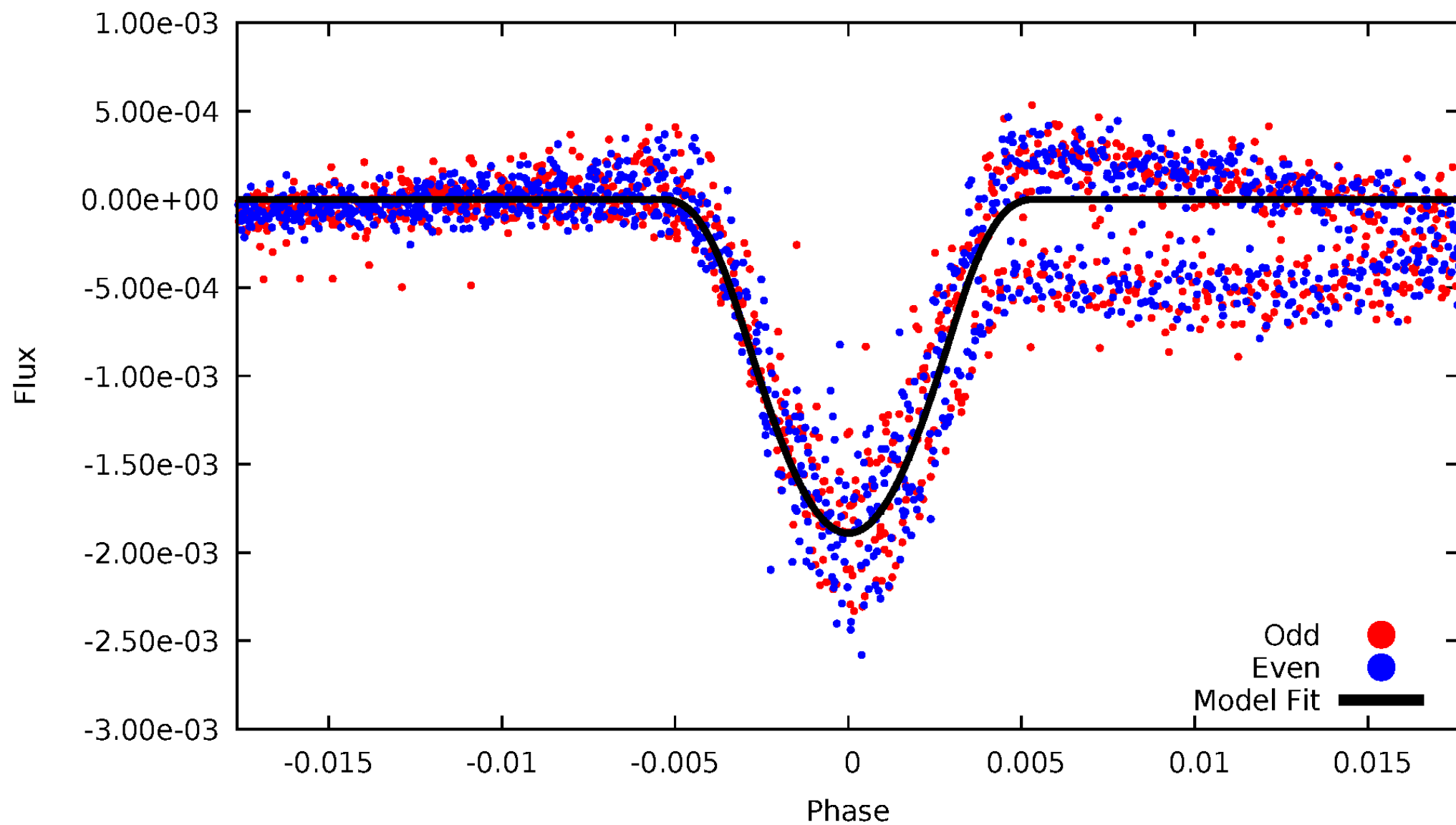


TCE 008719324-01



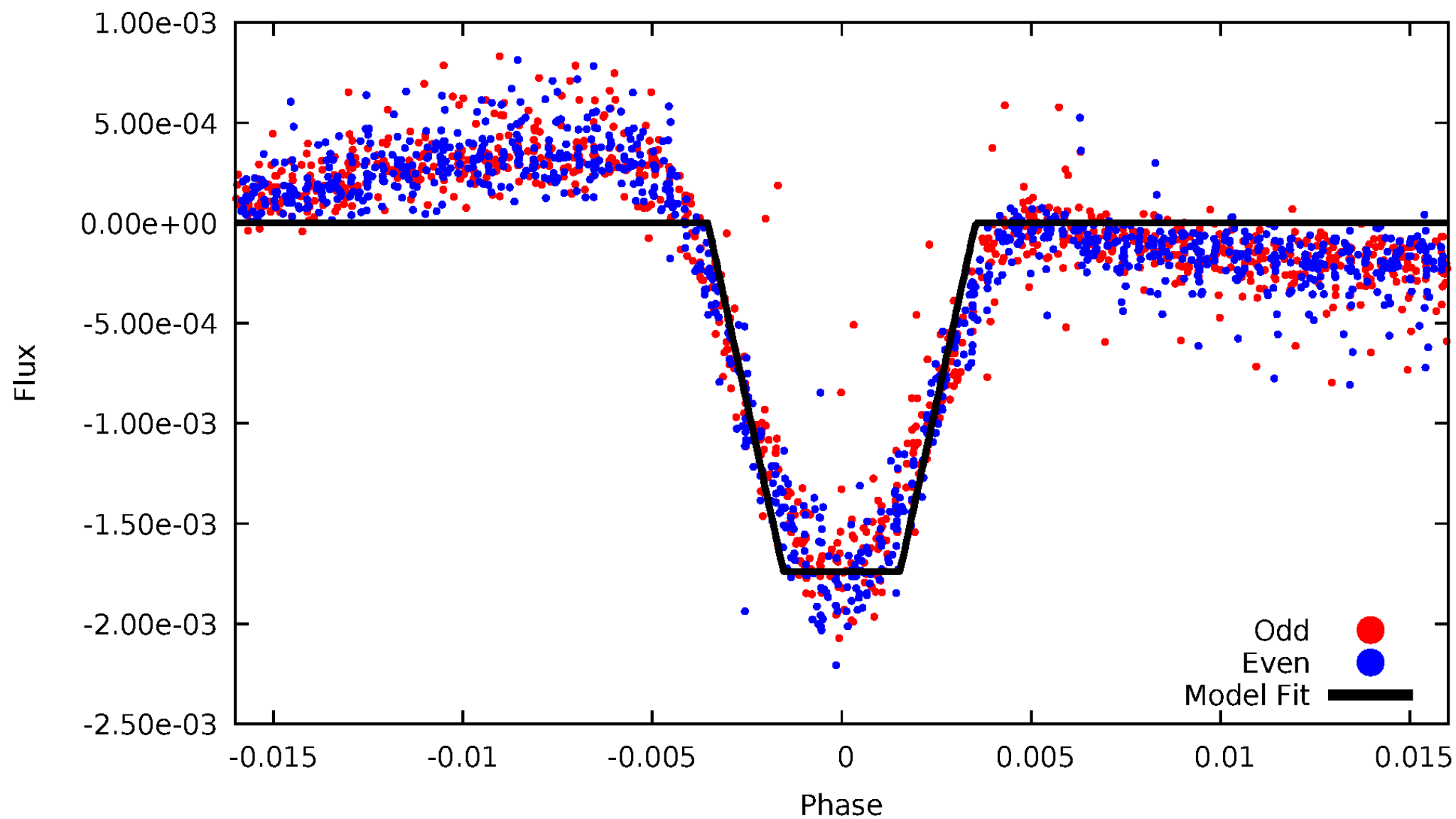
DV Odd/Even

TCE 008719324-01



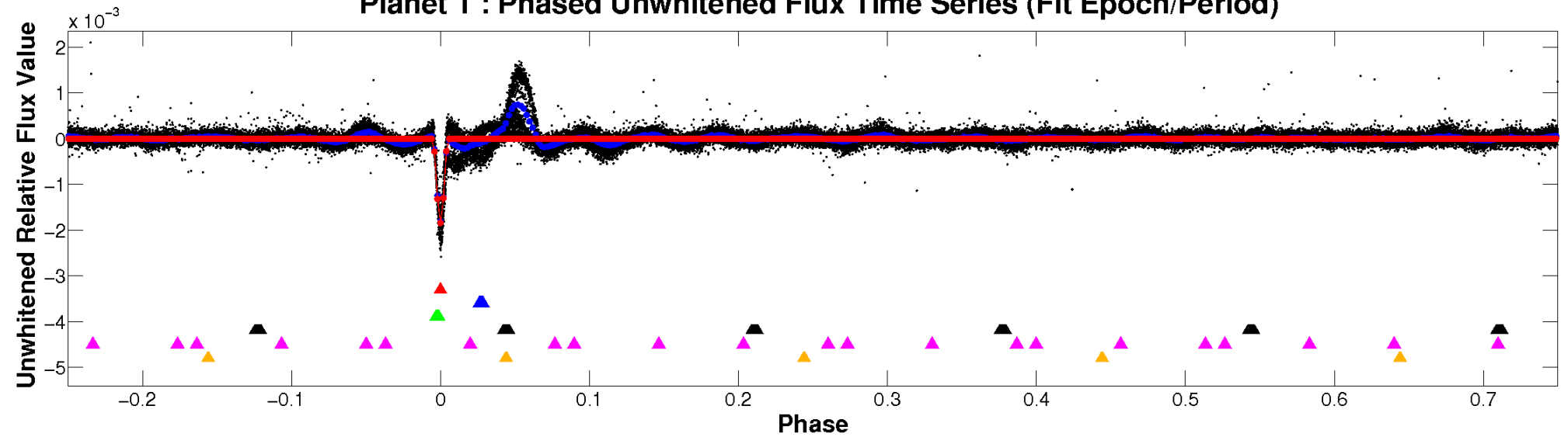
ALT Odd/Even

TCE 008719324-01

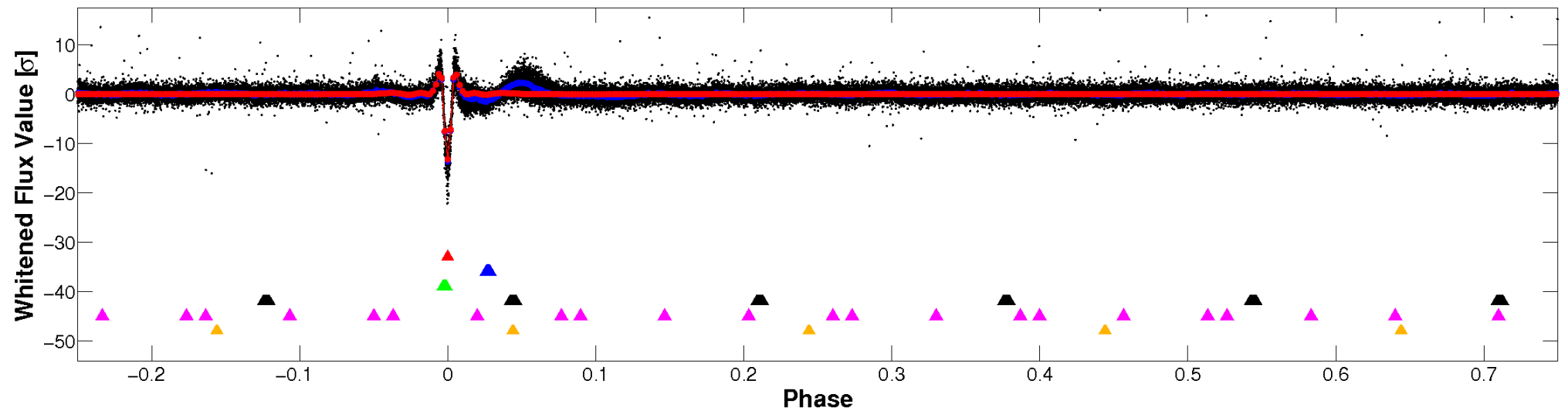


Non-Whitened Vs. Whitened Light Curve

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

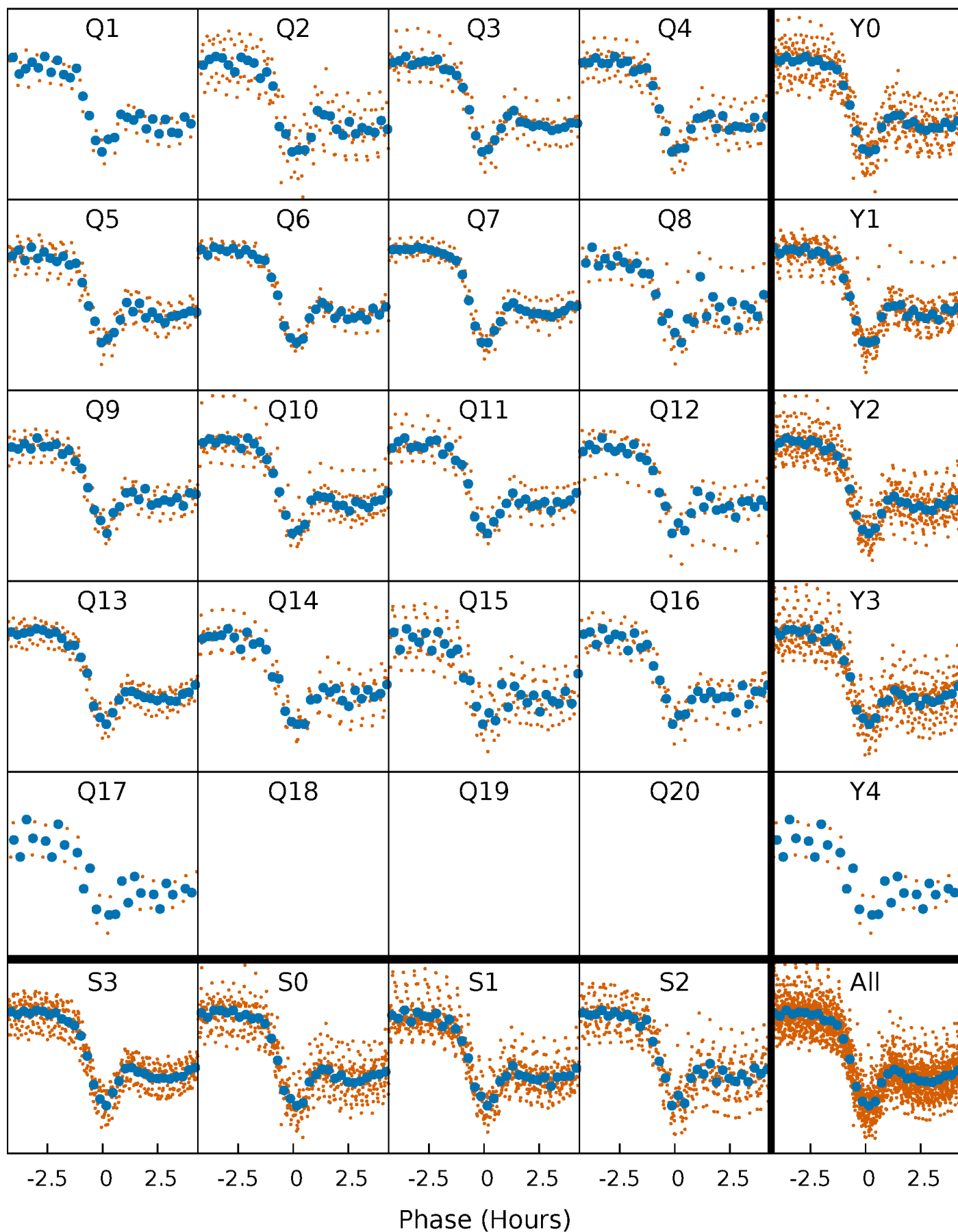


Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)



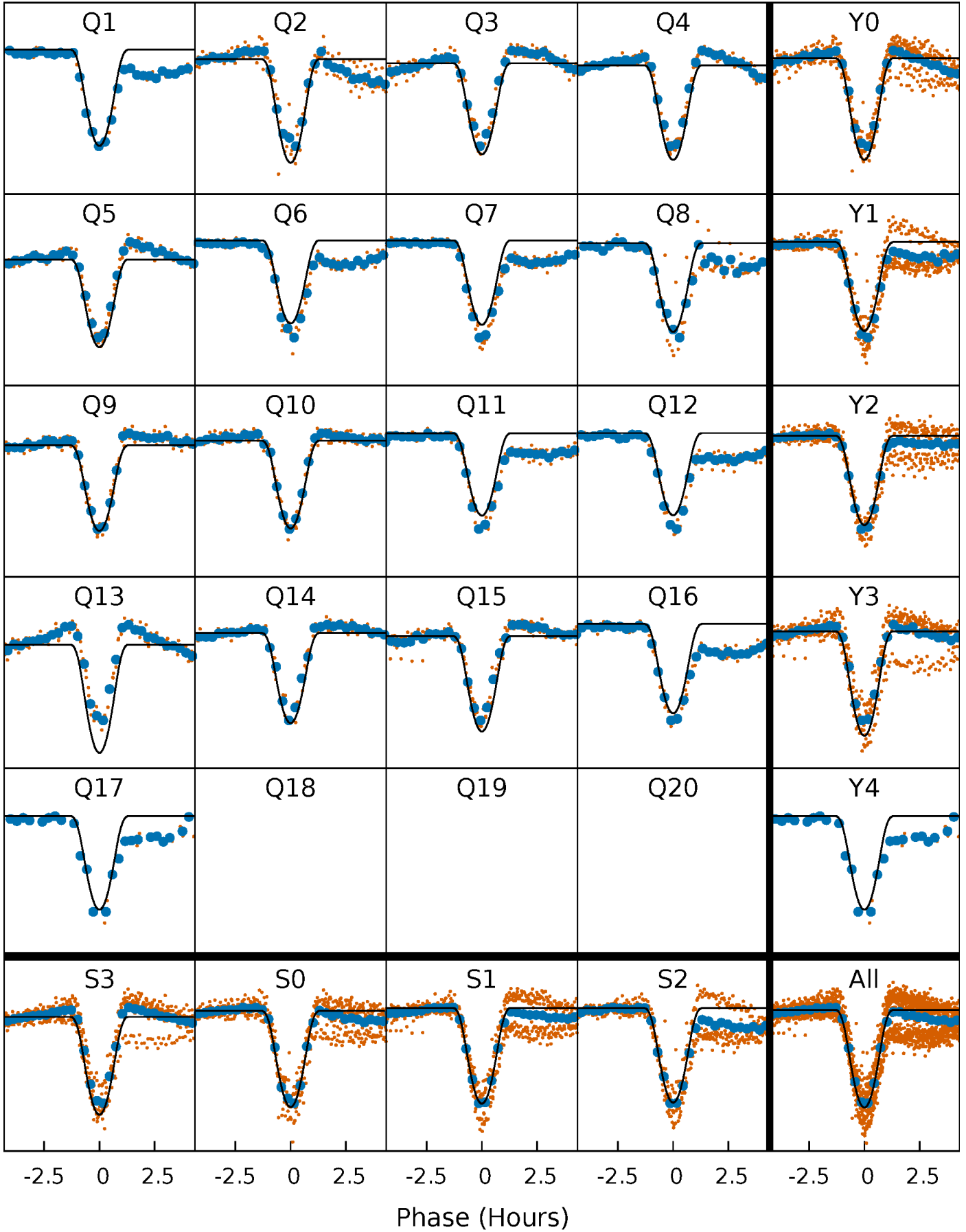
PDC Quarter-Phased Transit Curves

TCE 008719324-01 P= 10.232722 Days $T_0=139.584938$ (BKJD)



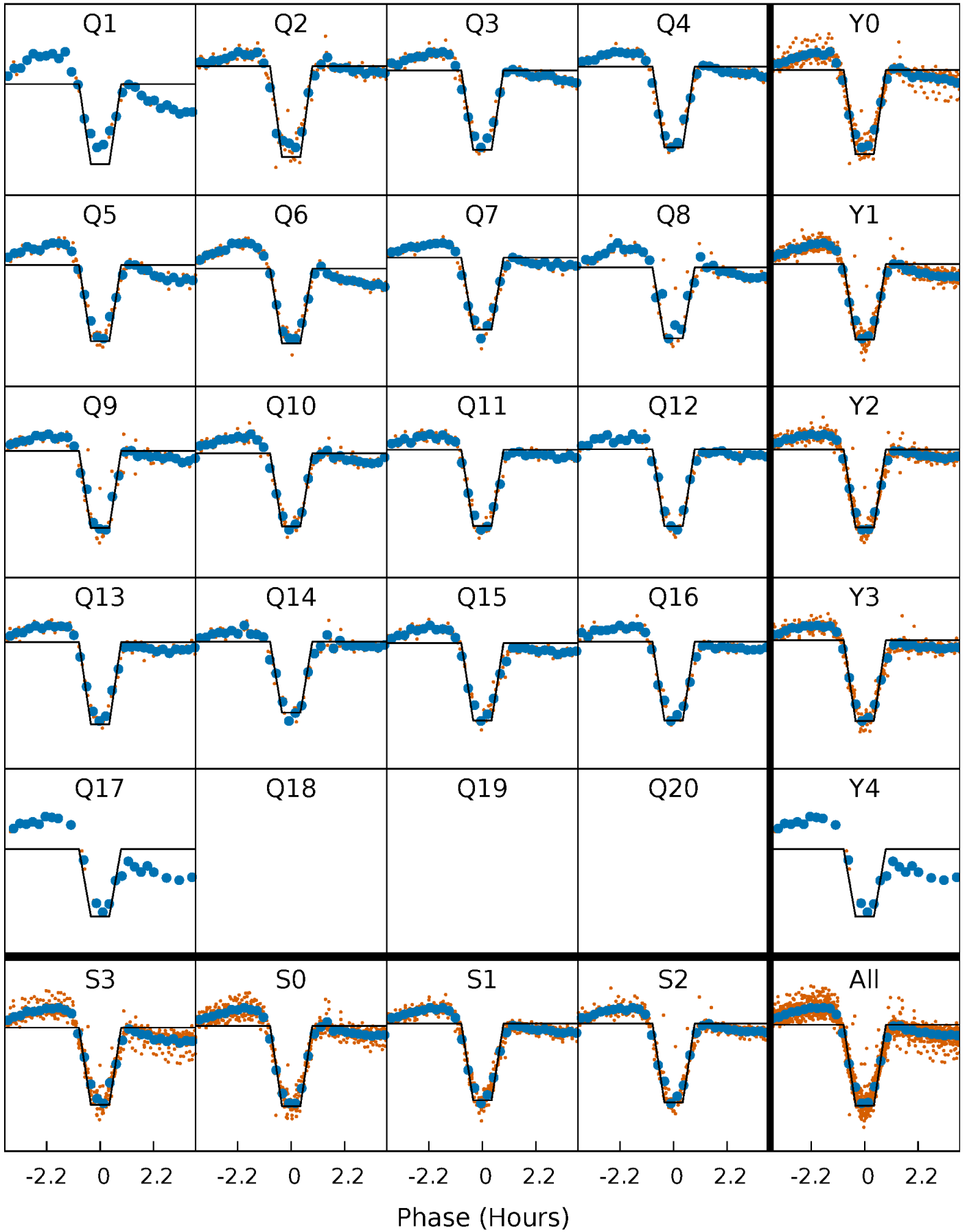
DV Quarter-Phased Transit Curves

TCE 008719324-01 P= 10.232722 Days $T_0=139.584938$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

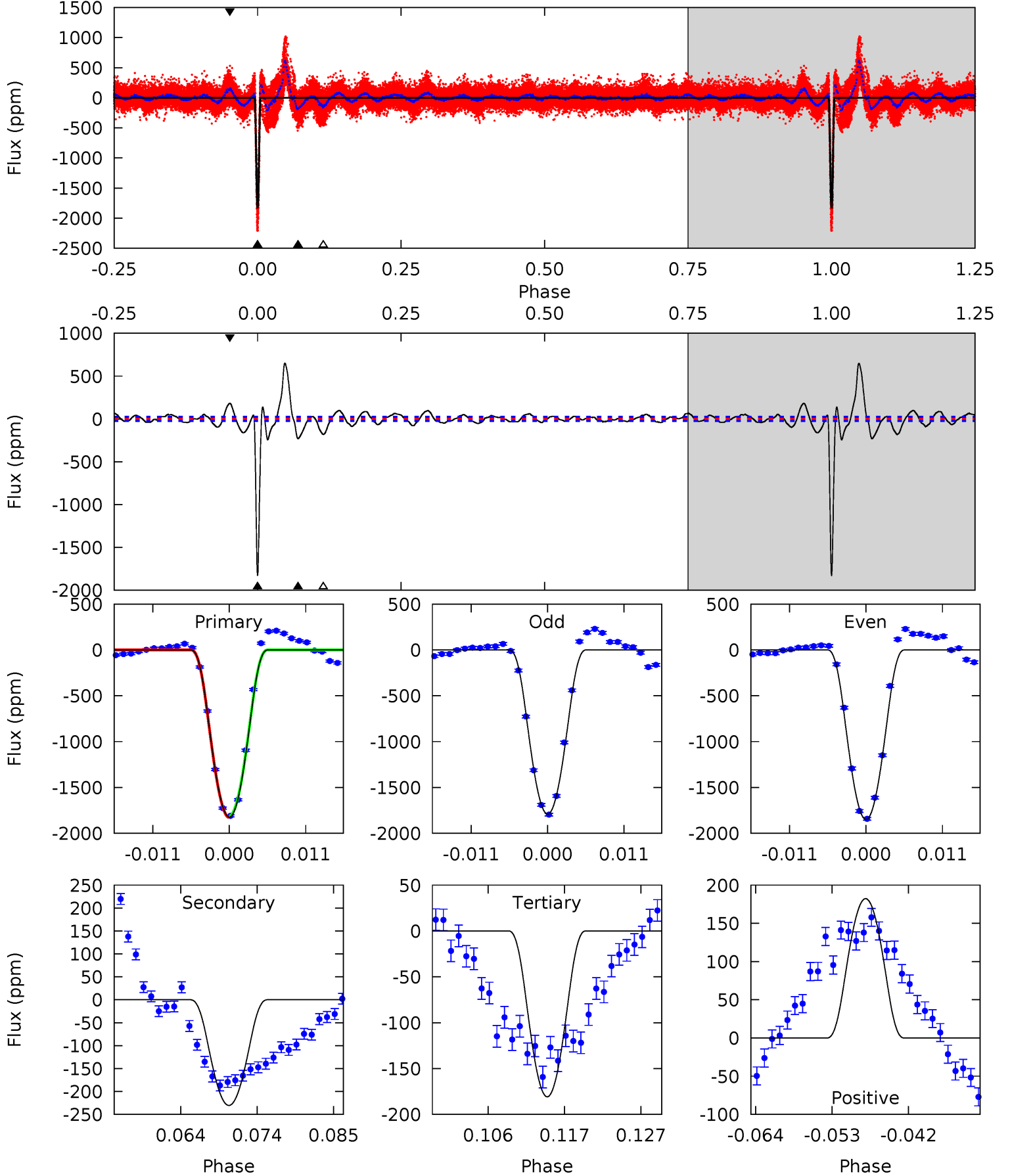
TCE 008719324-01 P= 10.232698 Days $T_0=139.588296$ (BKJD)



DV Model-Shift Uniqueness Test

008719324-01, P = 10.232722 Days, E = 129.352216 Days

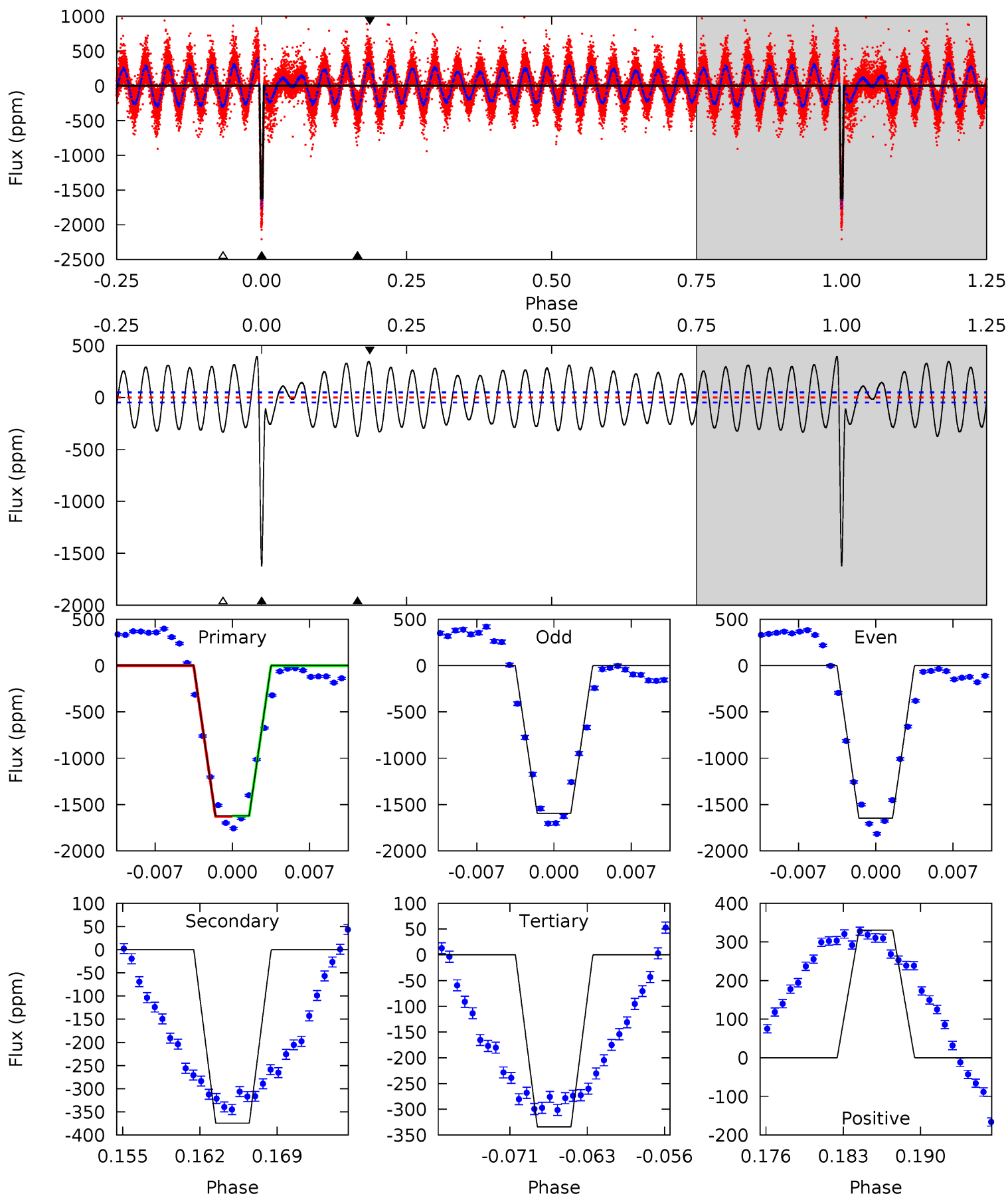
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
374.3	47.3	37.1	37.4	5.01	2.55	15.1	337.2	336.9	10.2	9.87	6.08	1.02	0.26	0



Alt Model-Shift Uniqueness Test

008719324-01, P = 10.232698 Days, E = 129.355598 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
171.7	39.6	35.3	35.0	5.09	2.69	20.7	136.3	136.7	4.25	4.61	2.74	1.00	0.20	0.36



Stellar Parameters For KIC 008719324

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	M (M_{\odot})	p_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	7023^{+216}_{-312}	$4.102^{+0.234}_{-0.156}$	$-0.500^{+0.250}_{-0.300}$	$1.664^{+0.460}_{-0.506}$	$1.276^{+0.178}_{-0.218}$	$0.390^{+0.516}_{-0.182}$
	+3%/-4%	+6%/-4%	+50%/-60%	+28%/-30%	+14%/-17%	+132%/-47%
Source	PHO54	PHO54	PHO54	DSEP		

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

Secondary Eclipse Parameters for KIC 008719324-01 / KOI 3716.02

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	-230 ± 5	$12.96^{+3.78}_{-3.38}$	1741^{+144}_{-132}	3596^{+358}_{-252}	$7.660^{+5.999}_{-3.054}$
Alt.	-374 ± 9	$7.33^{+3.44}_{-3.08}$	1742^{+148}_{-145}	4824^{+1309}_{-590}	38^{+72}_{-21}

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

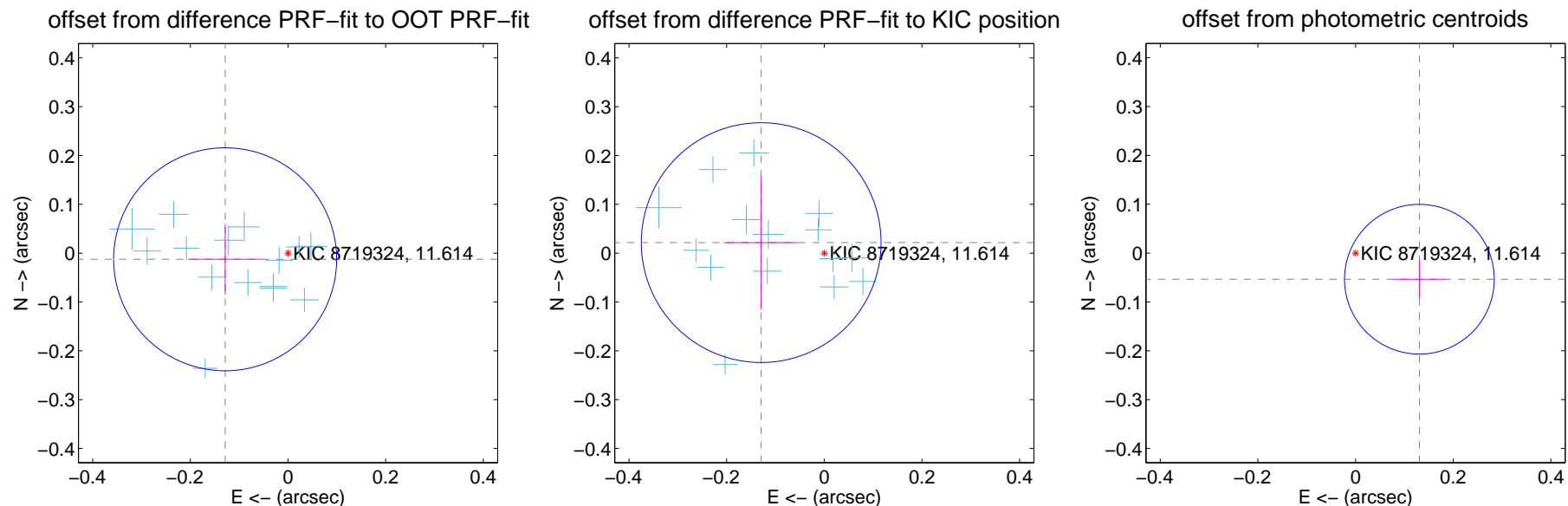
DV Centroid Data

Supplemental centroid analysis for 008719324-01. **Kepler magnitude: 11.61.** Transit SNR 212.85

There are 17 quarters with good PRF difference image offsets

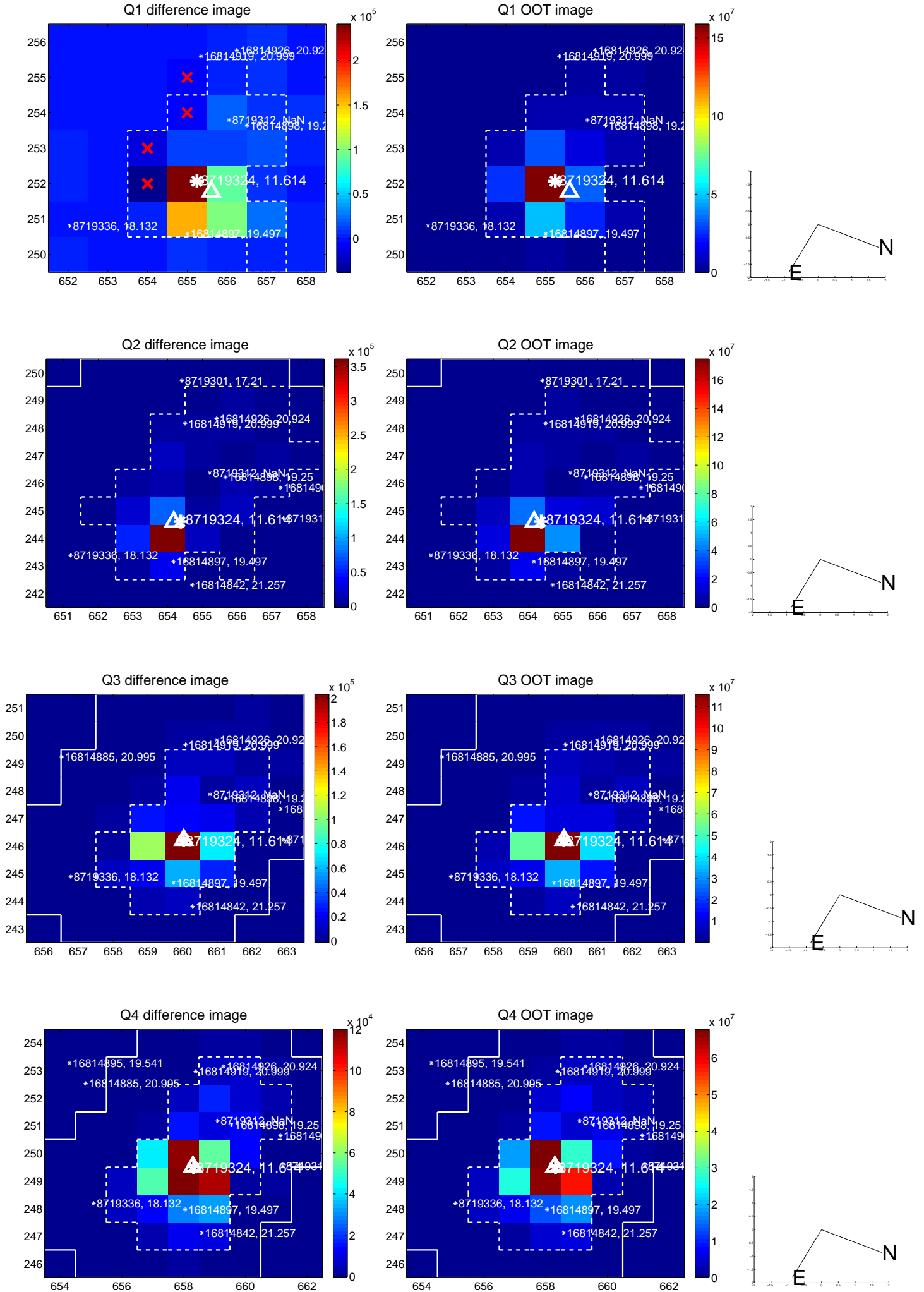
The direct PRF centroid is offset from the target star catalog position by about 0.05 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.129 ± 0.076	1.70	0.129 ± 0.076	-0.013 ± 0.072
PRF-fit source offset from KIC position	0.131 ± 0.082	1.60	0.129 ± 0.076	0.022 ± 0.137
photometric centroid source offset	0.14 ± 0.05	2.76	-0.13 ± 0.05	-0.05 ± 0.04

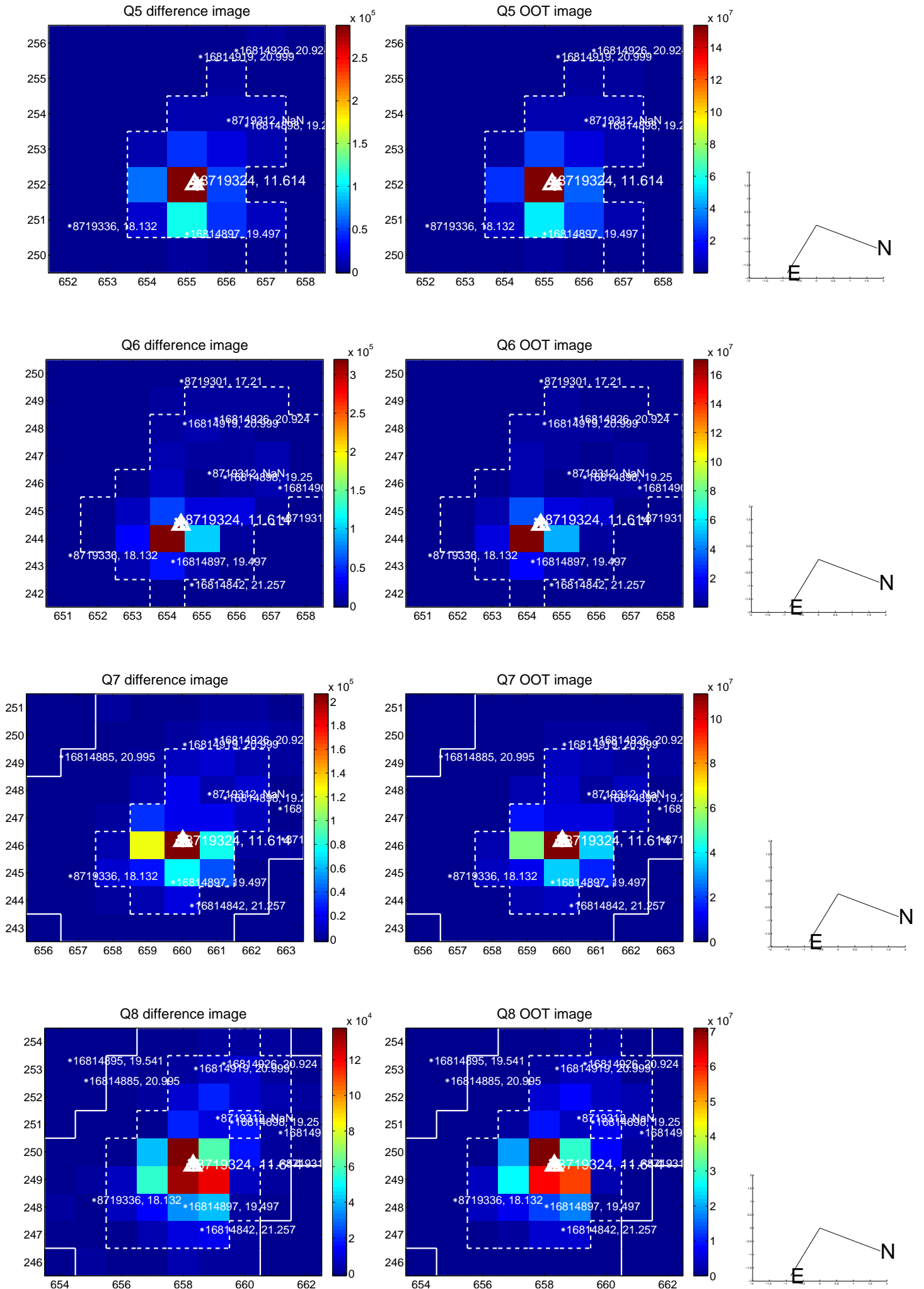


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets;** magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

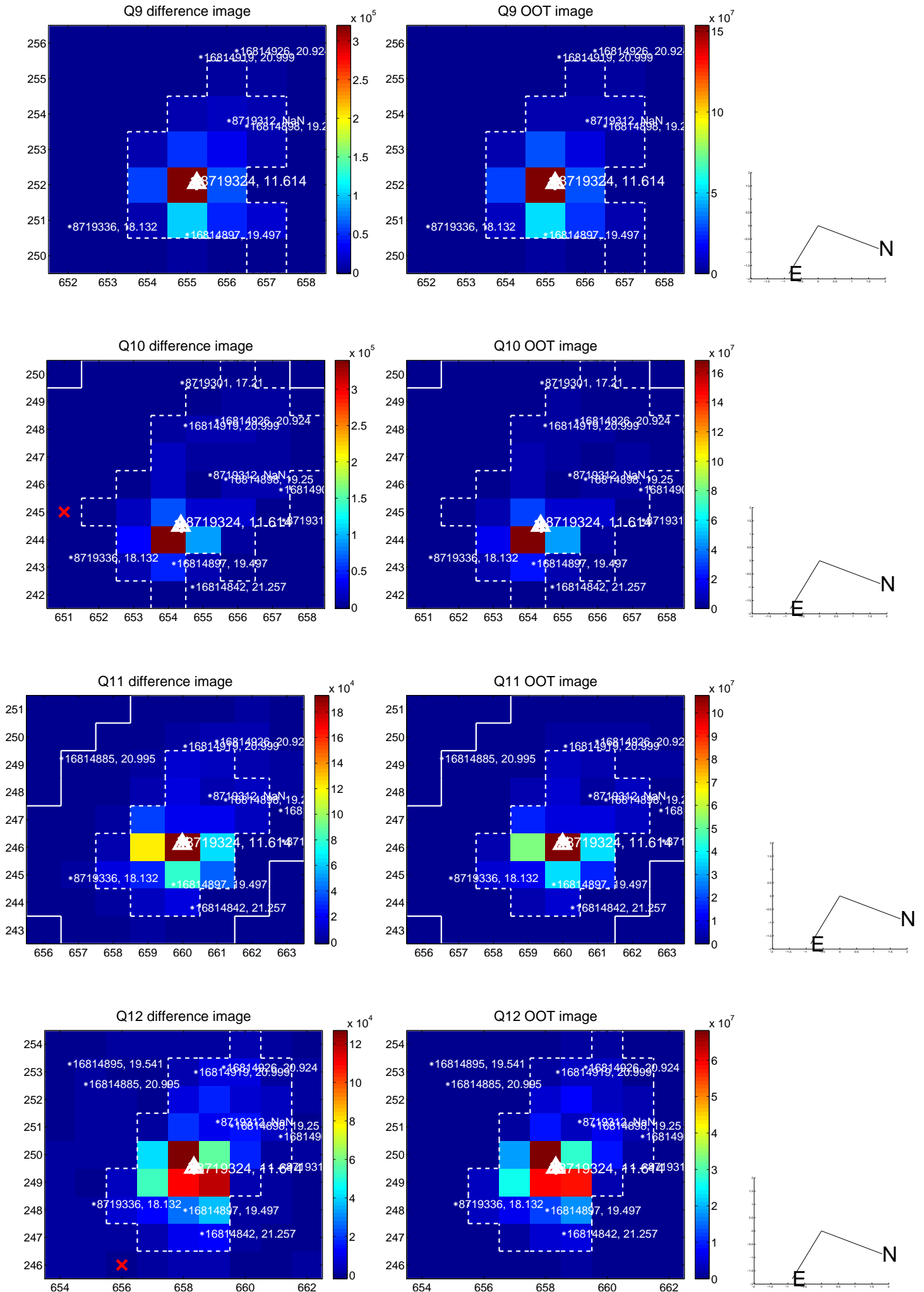
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



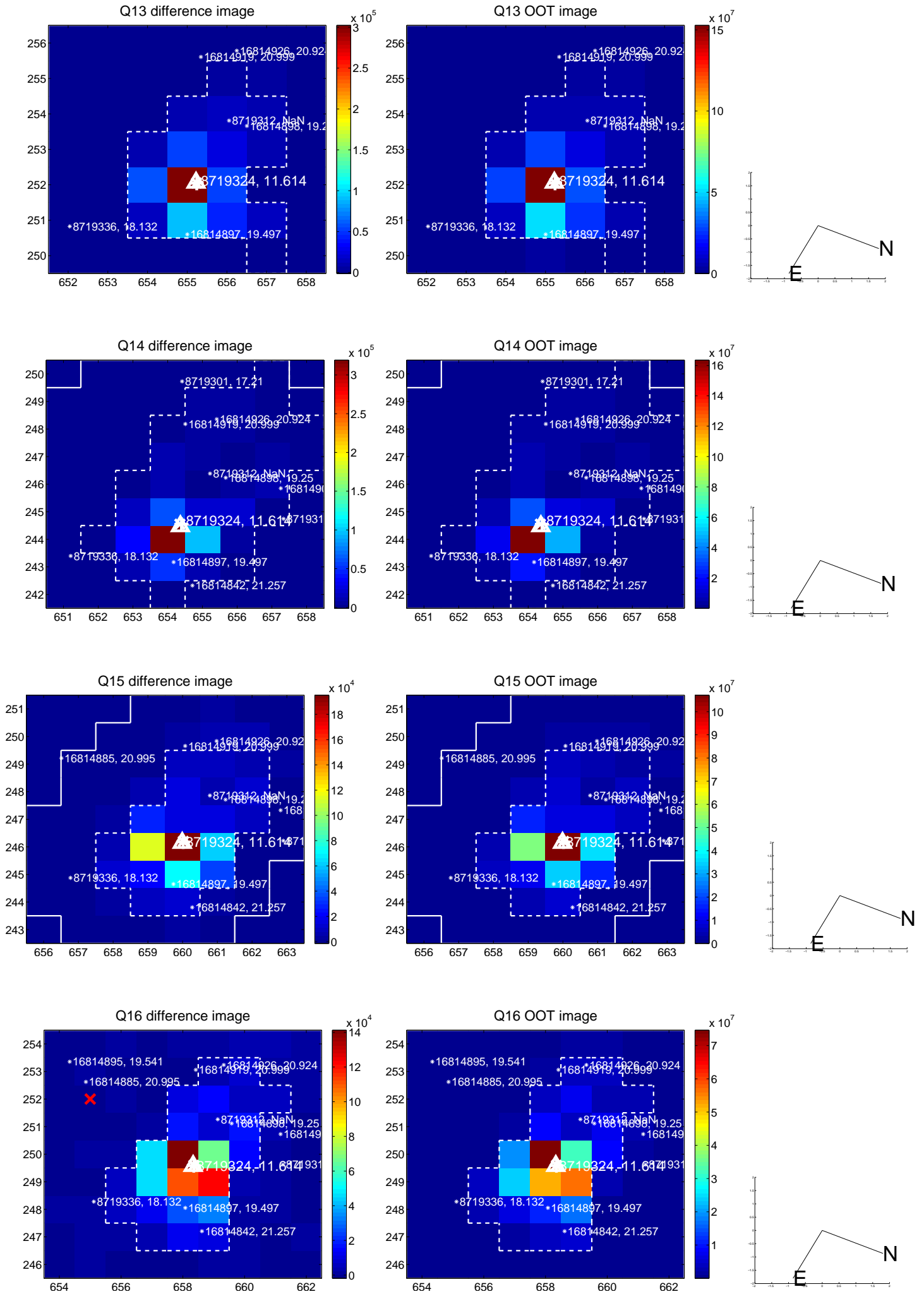
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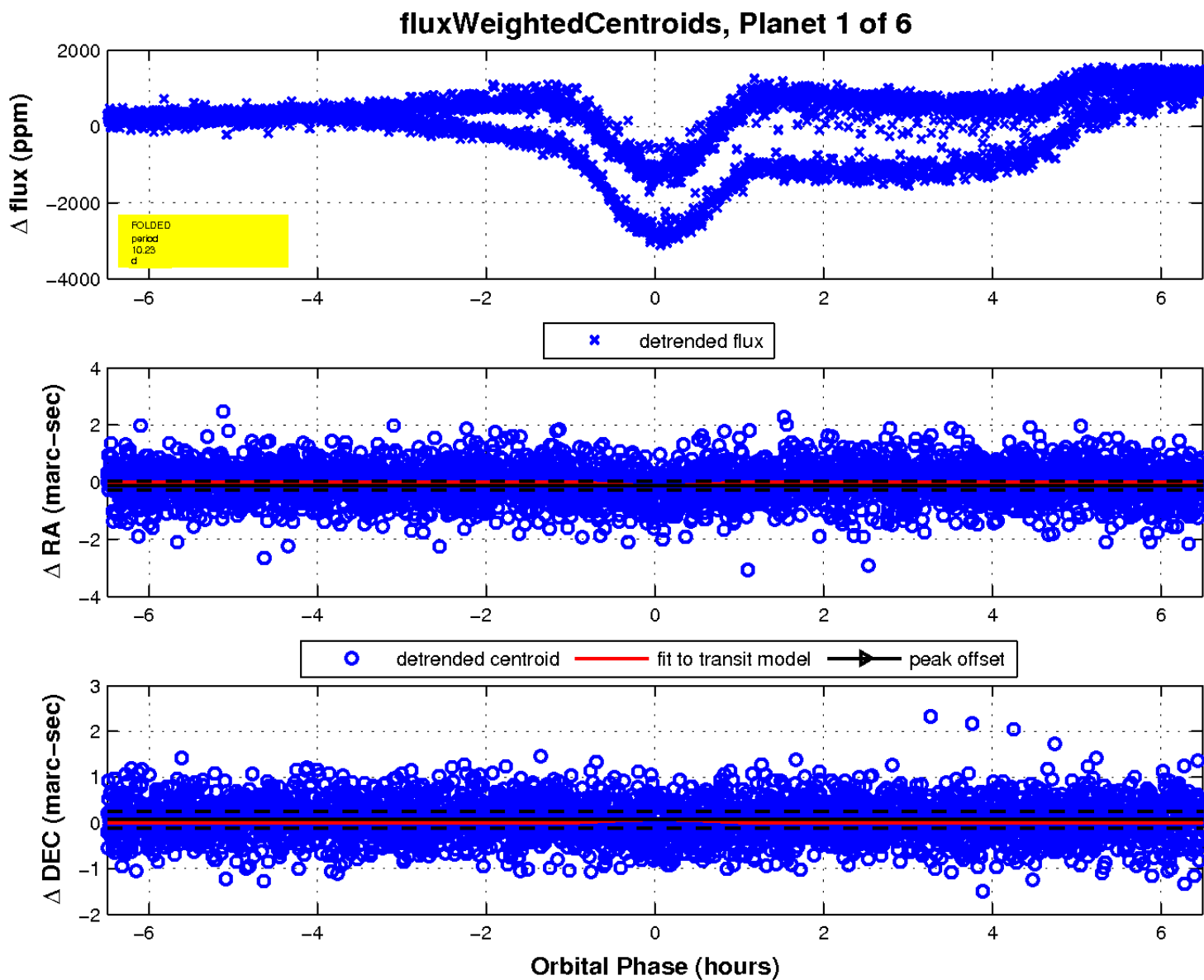
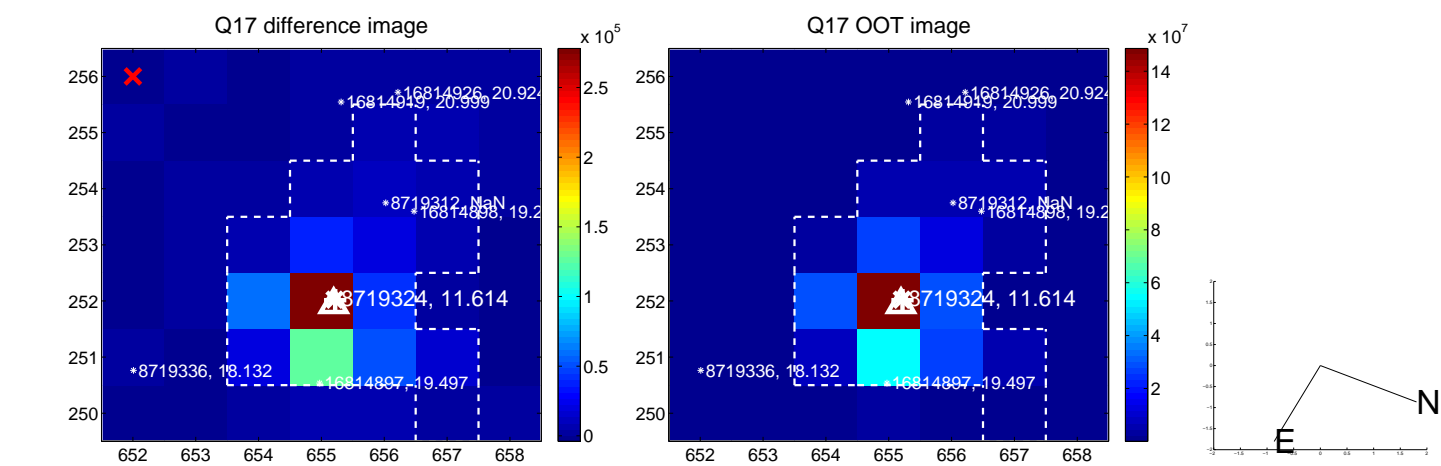
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



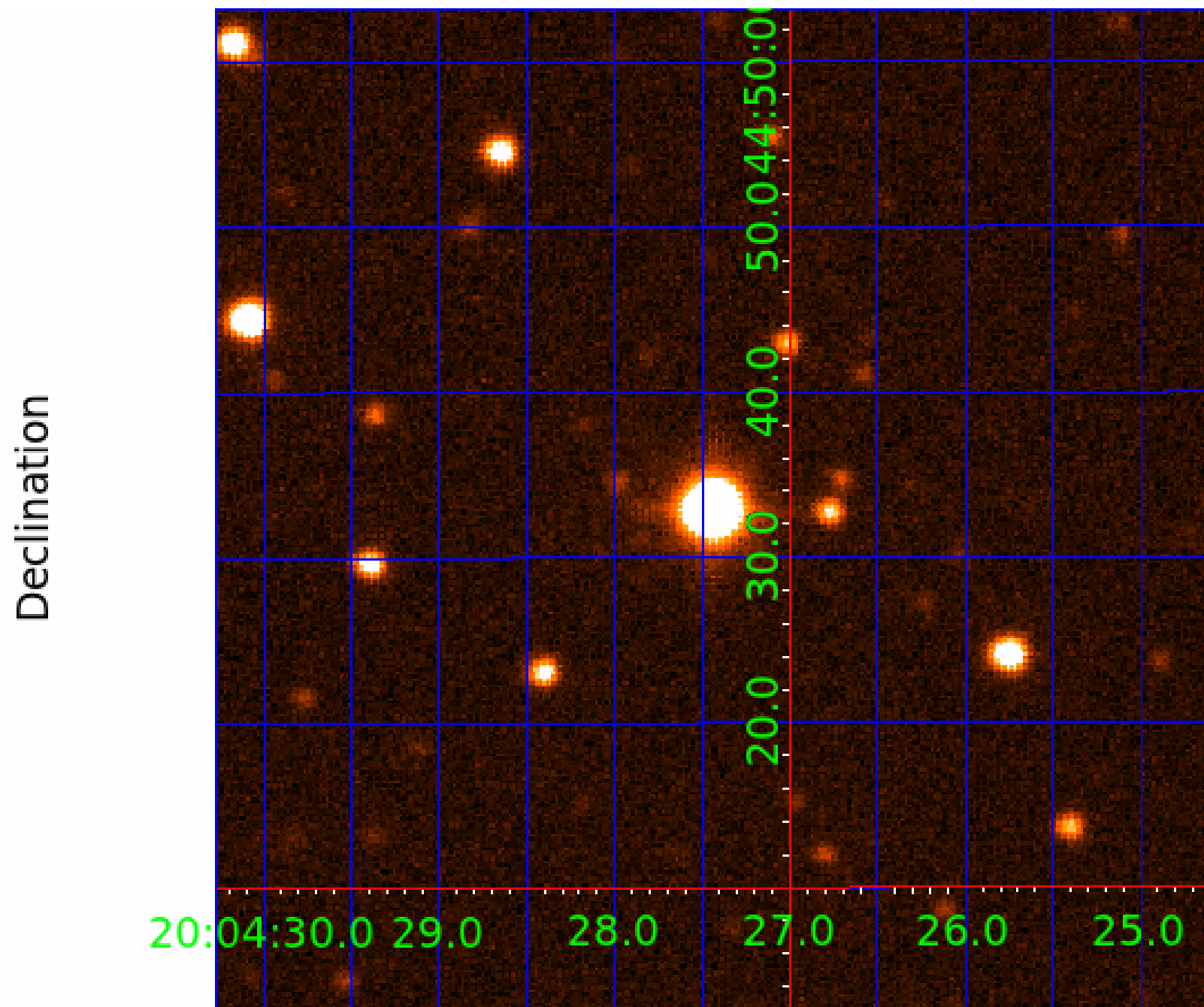
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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



UKIRT Image



KIC 008719324

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})
008719324-01	OBS	3716.02	10.232722	139.584938	1890.4	2.166	208.0	212.8	1.66	7023	13.14	602.24
008719324-02	OBS	3716.01	10.232897	139.852111	492.6	7.216	42.0	53.7	1.66	7023	6.09	602.22
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Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
008719324-01	OBS	FP	0.00	1	0	0	0	MOD_NONUNIQ_ALT
008719324-02	OBS	FP	0.00	1	0	0	0	LPP_DV—SAME_NTL_PERIOD
008719324-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_ZUMA—LPP_DV—MOD_NONUNIQ_DV—SAME_NTL_PERIOD
008719324-04	OBS	FP	0.00	1	0	0	0	LPP_DV—MOD_NONUNIQ_DV—SAME_NTL_PERIOD—CENT_FEW_DIFFS
008719324-06	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_SKYE_ZUMA—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_ALT—SAME_NTL_PERIOD—CENT_NOFITS

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

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

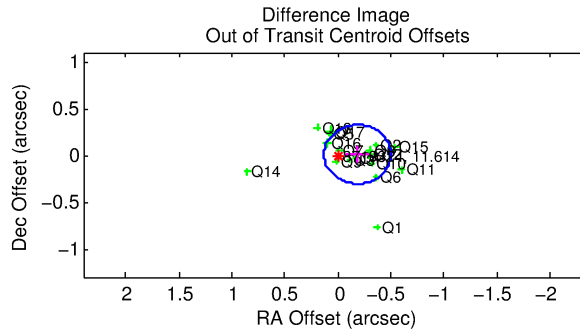
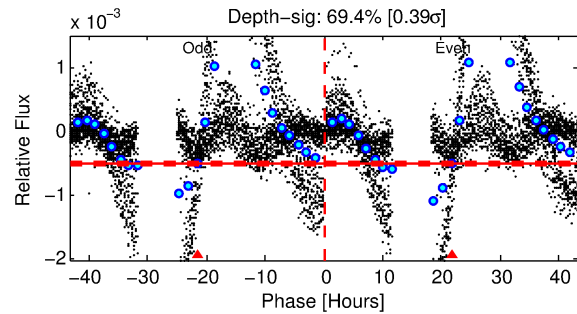
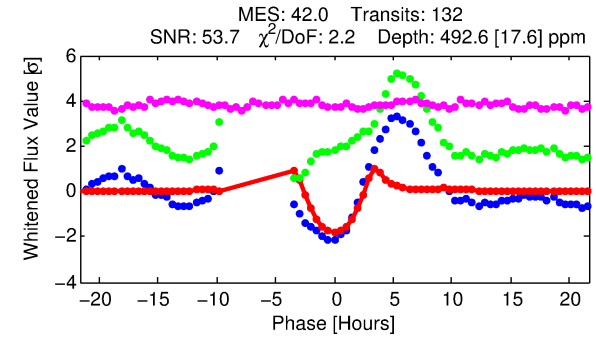
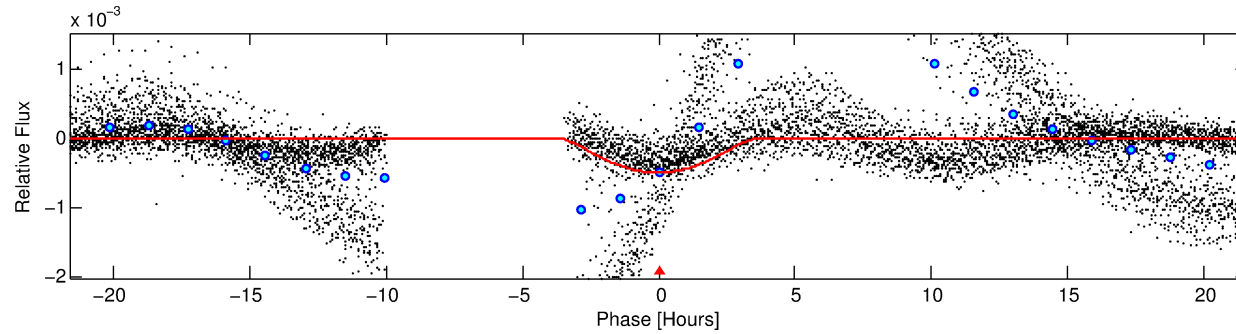
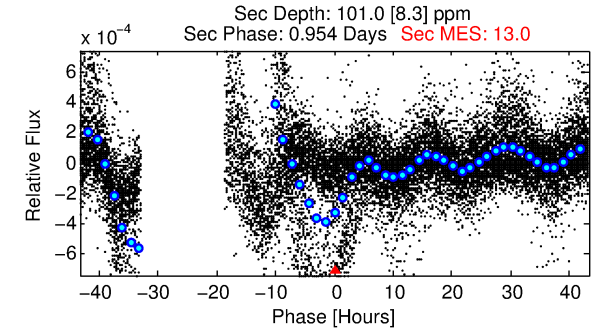
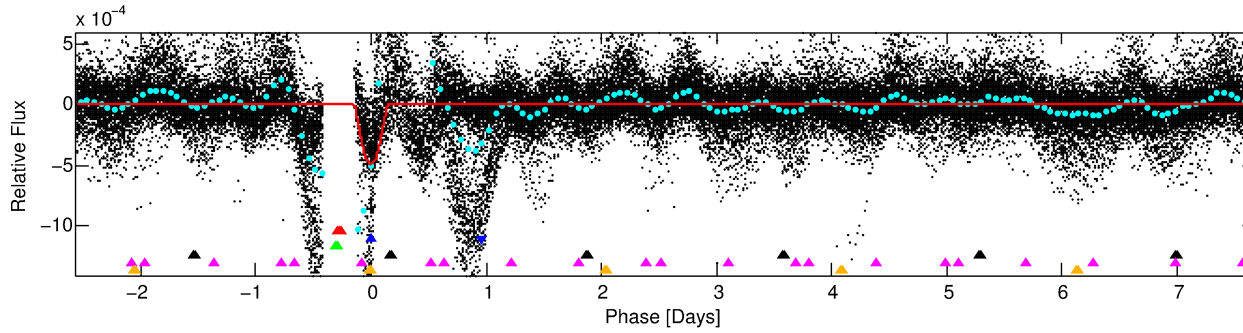
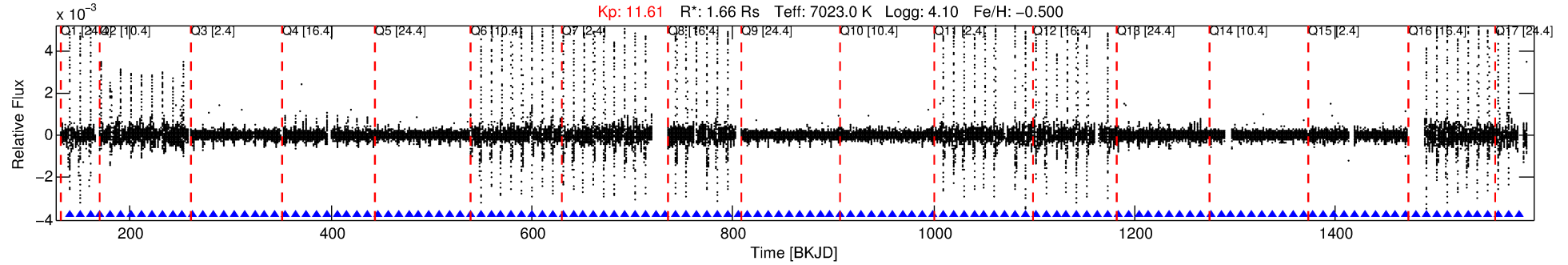
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 008719324-02

No Significant Match Found

DV One-Page Summary

KIC: 8719324 Candidate: 2 of 6 Period: 10.233 d
KOI: K03716.01 Corr: 0.896



DV Fit Results:

Period = 10.23290 [0.00004] d
Epoch = 139.8521 [0.0033] BKJD
Rp/R* = 0.0335 [0.0080]
a/R* = 3.31 [0.23]
b = 0.99 [0.01]
Seff = 602.22 [270.46]
Teq = 1263 [142] K
Rp = 6.09 [2.36] Re
a = 0.1001 [0.0271] AU
Ag = 15.01 [9.57] [1.46σ]
Teffp = 3844 [498] K [4.99σ]

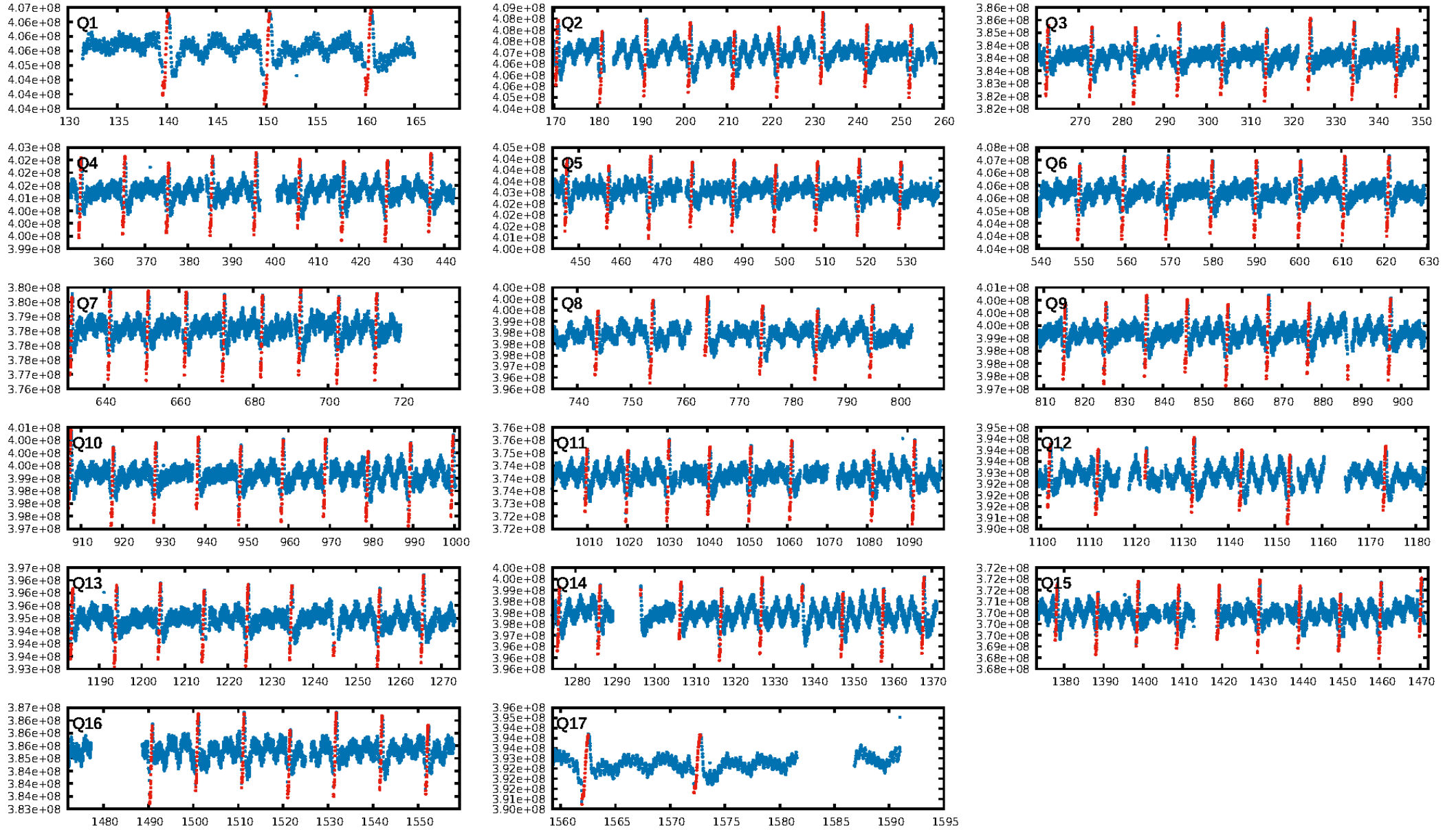
DV Diagnostic Results:

ShortPeriod-sig: 0.0% [0.00σ]
LongPeriod-sig: 100.0% [174.83σ]
ModelChiSquare2-sig: 0.0%
ModelChiSquareGof-sig: 0.0%
Bootstrap-pfa: N/A
RollingBand-fgt: 1.00 [127/127]
GhostDiagnostic-chr: 2.33
Centroid-sig: 0.0%
Centroid-so: 0.675 arcsec [4.81σ]
OotOffset-rm: 0.186 arcsec [1.78σ]
KicOffset-rm: 0.196 arcsec [1.97σ]
OotOffset-st: 4/4/4/5 [17]
KicOffset-st: 4/4/4/5 [17]
DiffImageQuality-fgm: 1.00 [17/17]
DiffImageOverlap-fno: 0.00 [0/17]

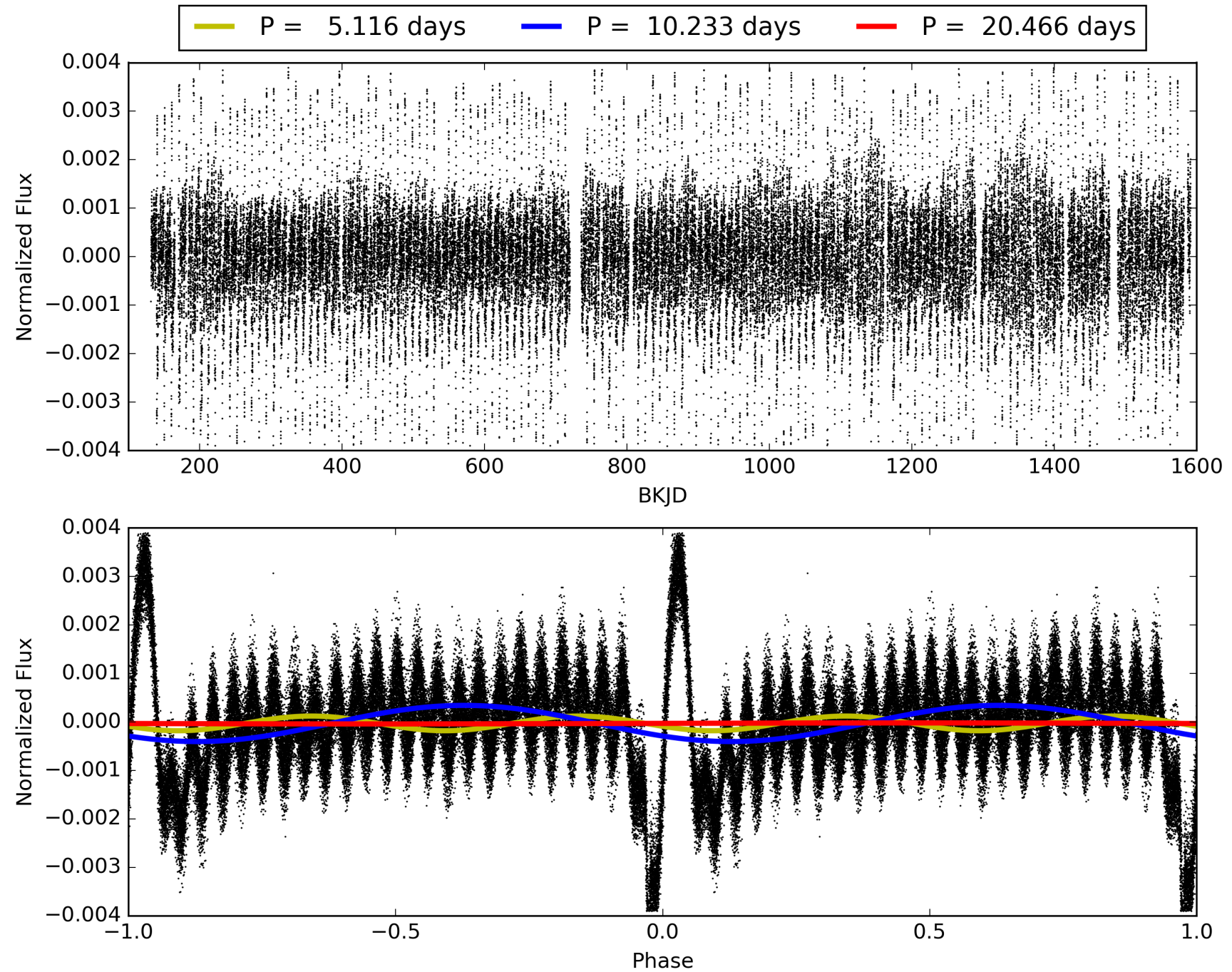
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 31-Jan-2016 06:14:54 Z

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

TCE 008719324-02, PDC Light Curves

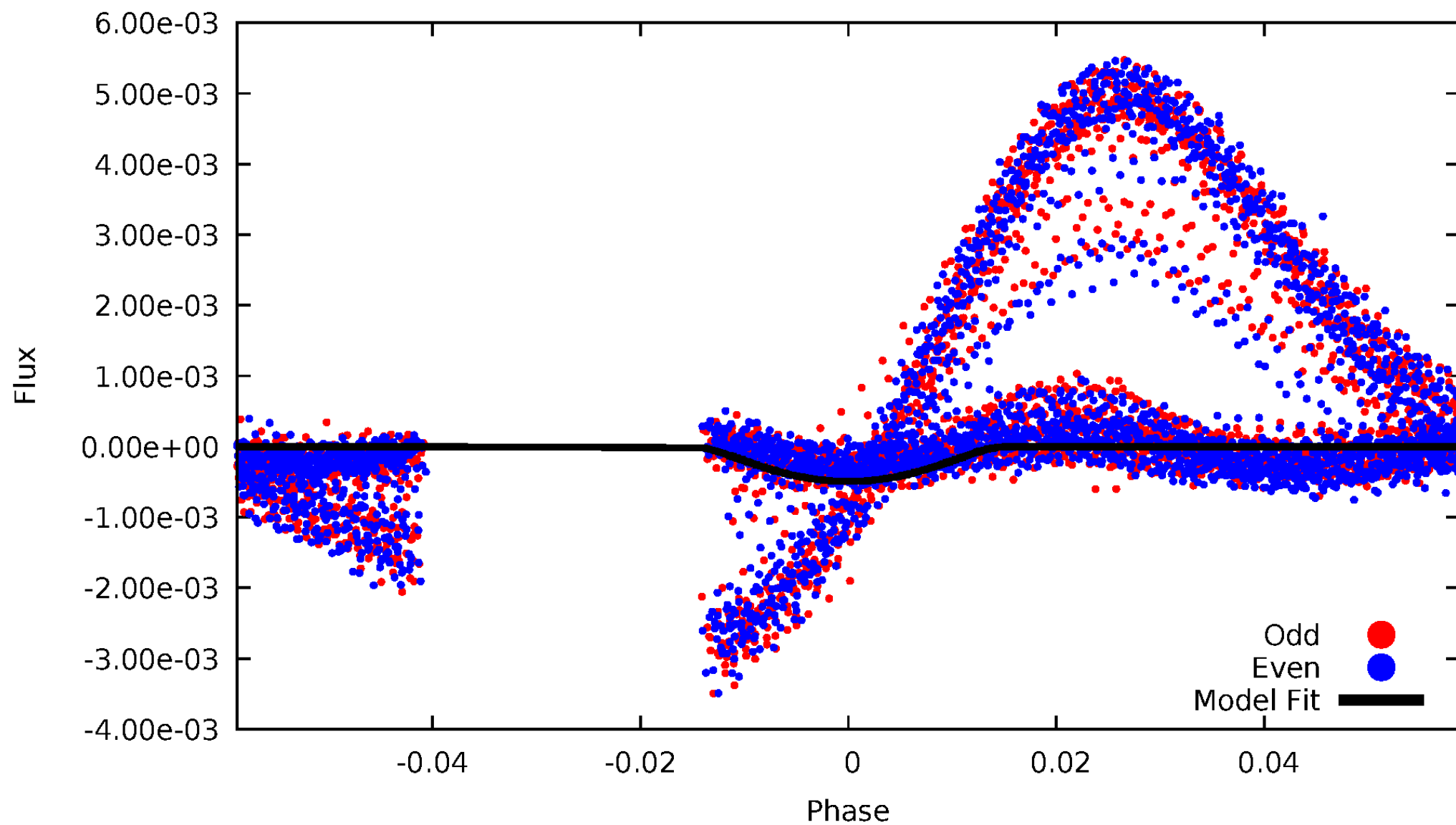


TCE 008719324-02



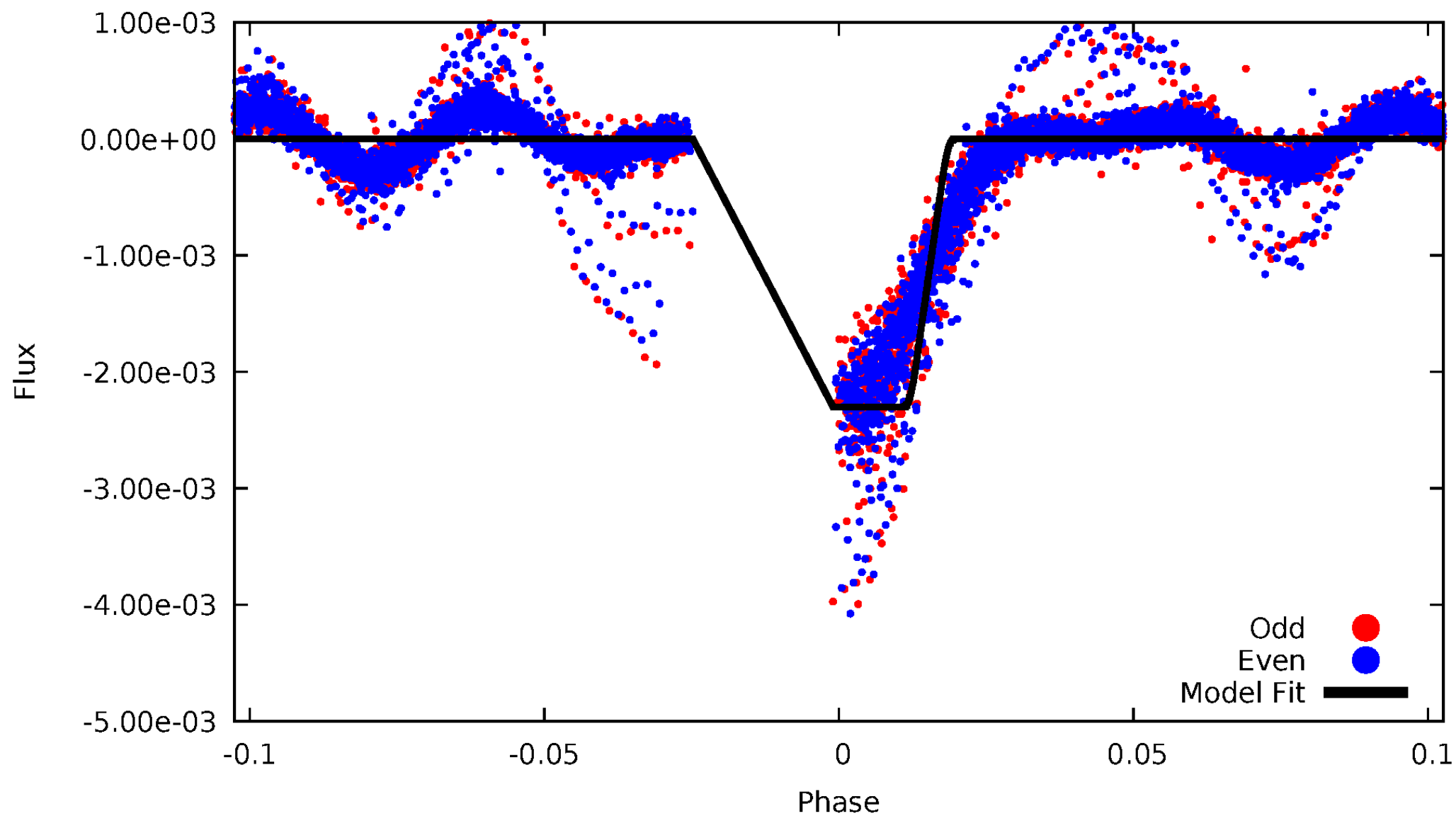
DV Odd/Even

TCE 008719324-02



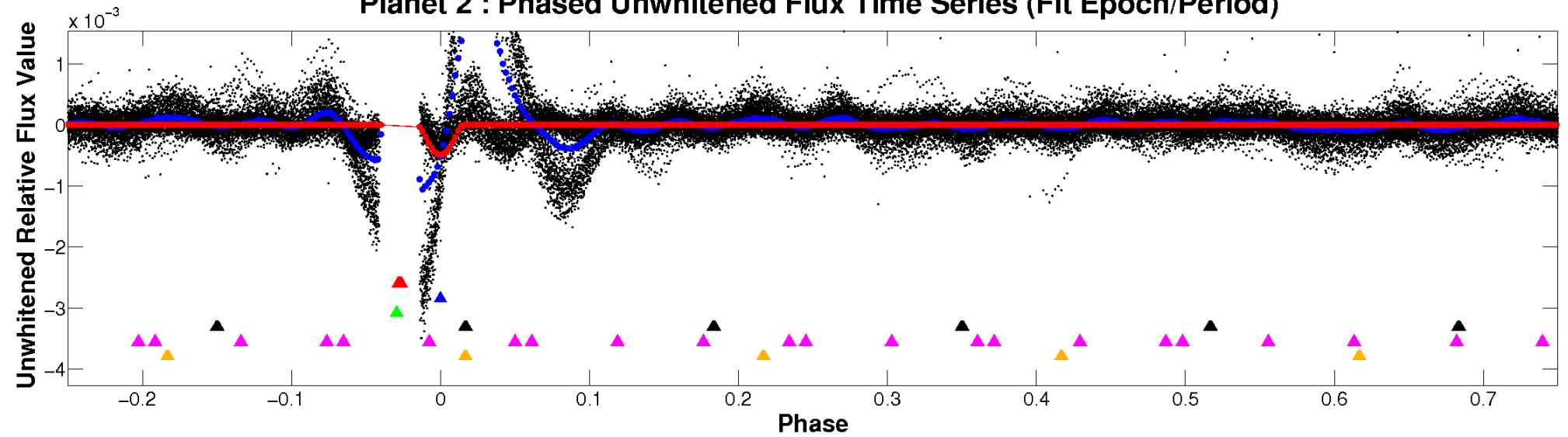
ALT Odd/Even

TCE 008719324-02

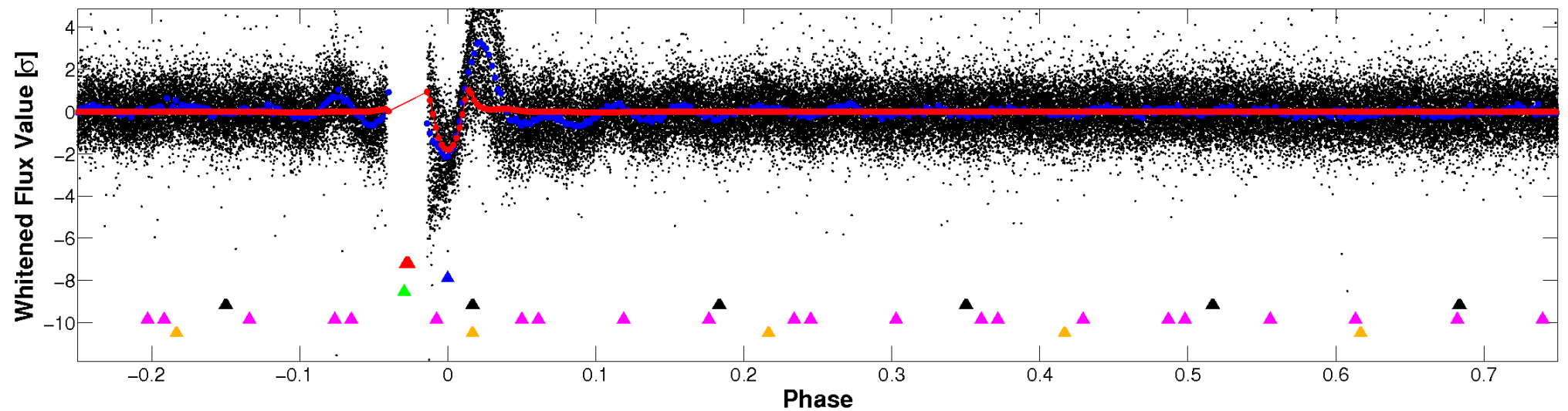


Non-Whitened Vs. Whitened Light Curve

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

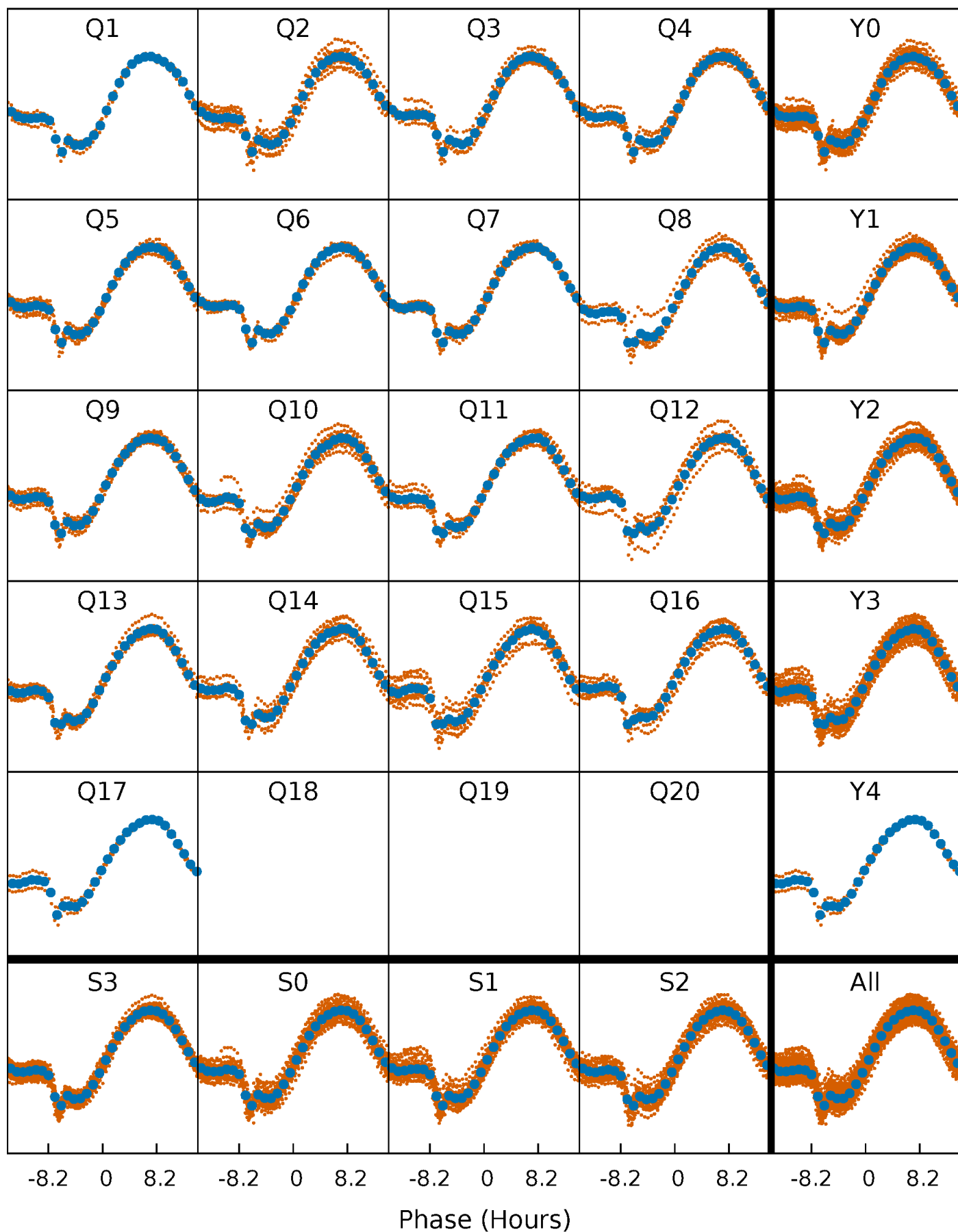


Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



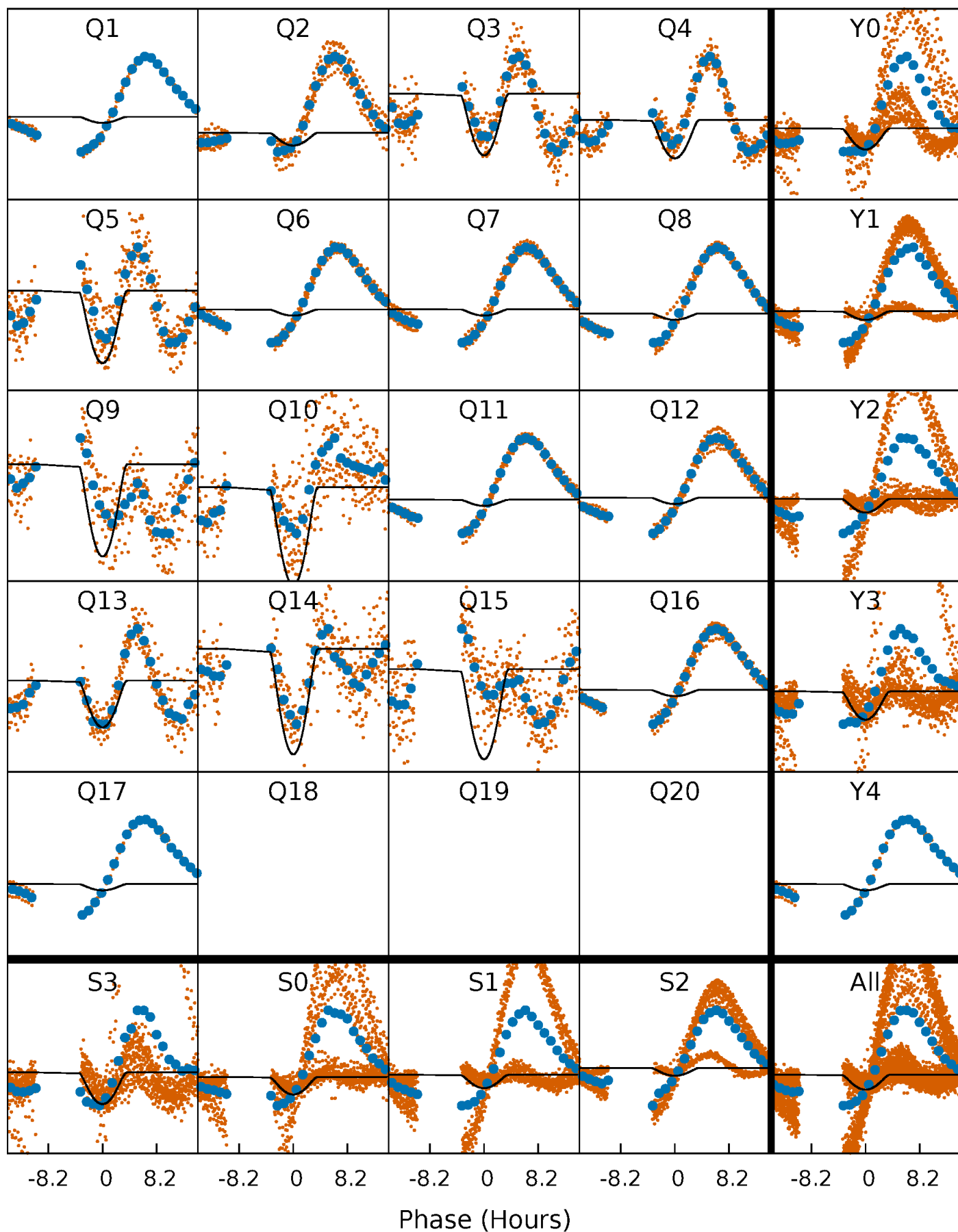
PDC Quarter-Phased Transit Curves

TCE 008719324-02 P= 10.232897 Days $T_0=139.852111$ (BKJD)



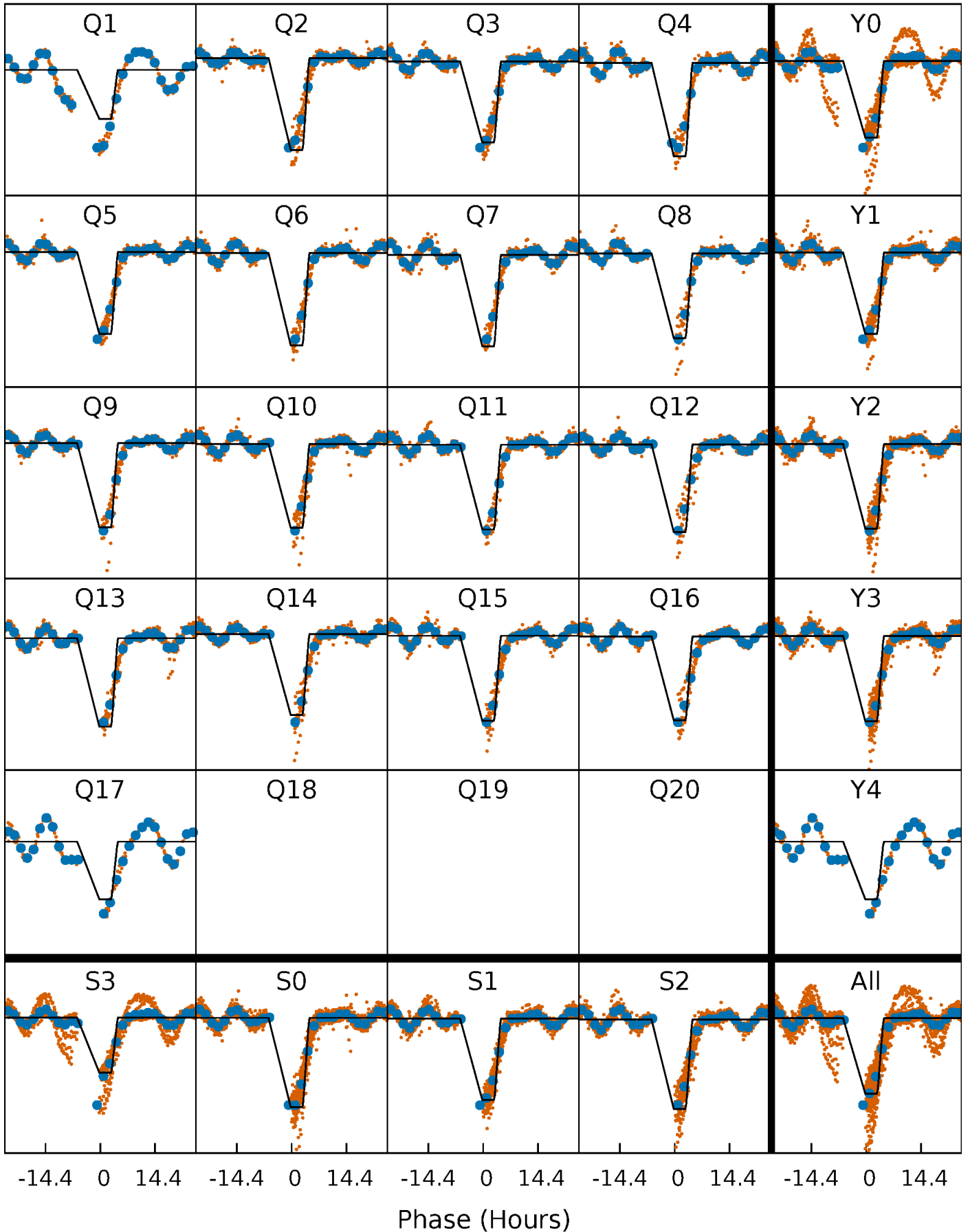
DV Quarter-Phased Transit Curves

TCE 008719324-02 P= 10.232897 Days $T_0=139.852111$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

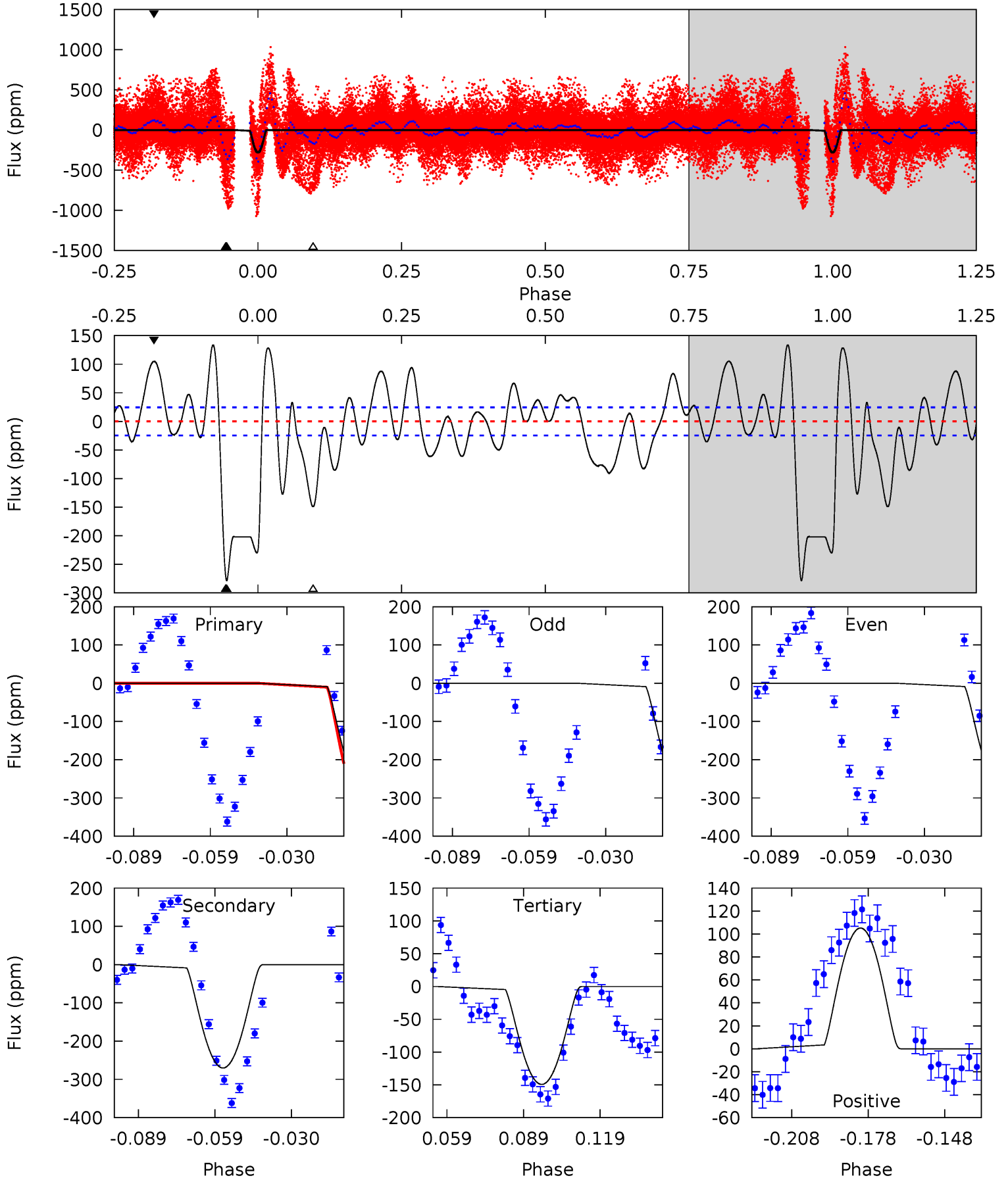
TCE 008719324-02 P= 10.232352 Days $T_0=139.741833$ (BKJD)



DV Model-Shift Uniqueness Test

008719324-02, P = 10.232897 Days, E = 129.619214 Days

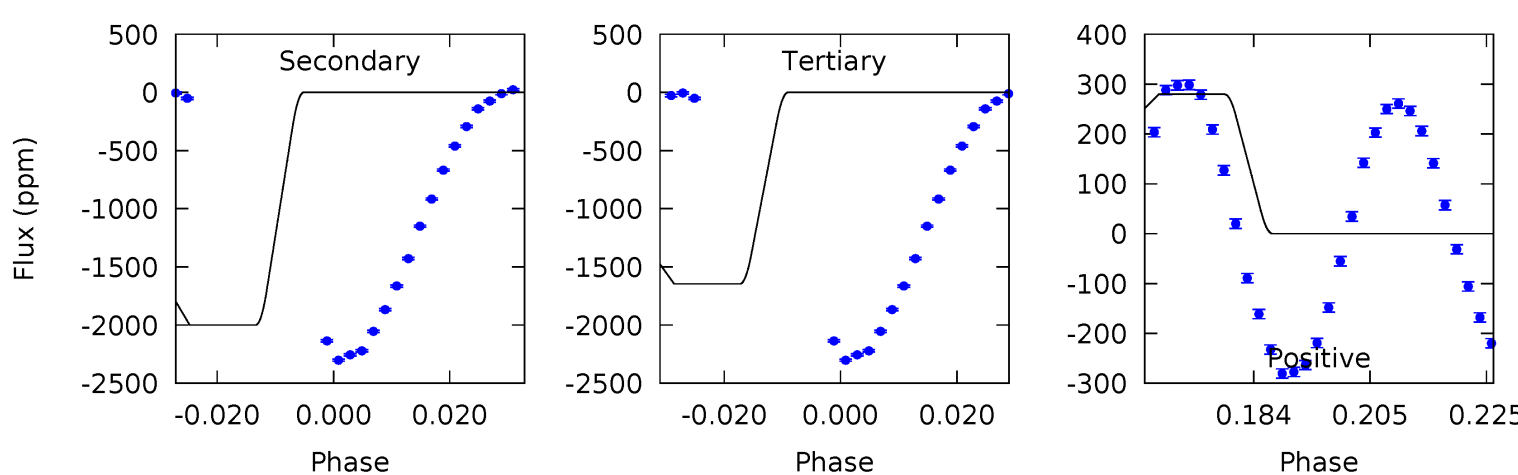
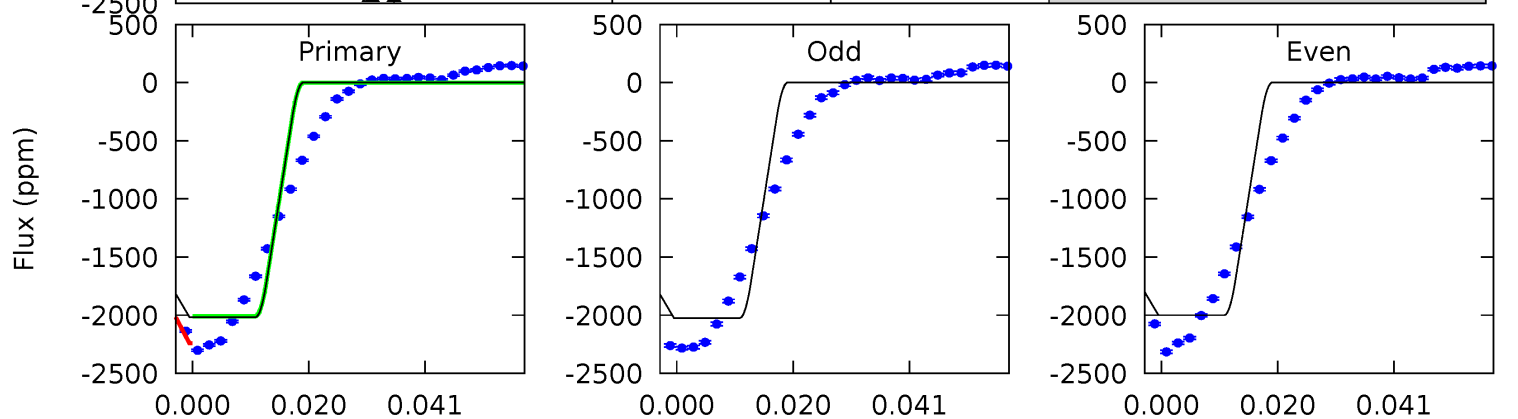
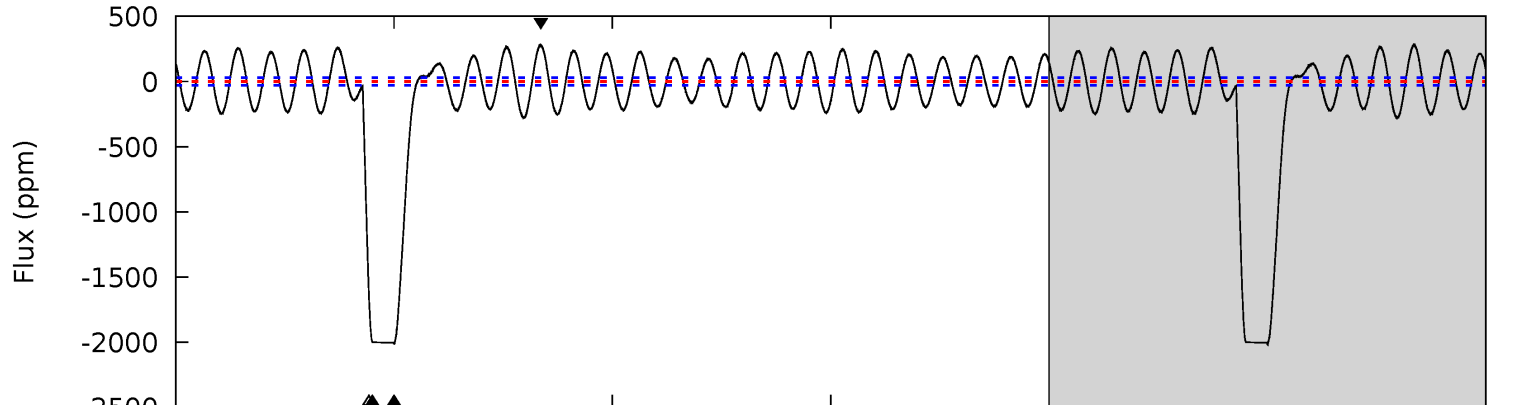
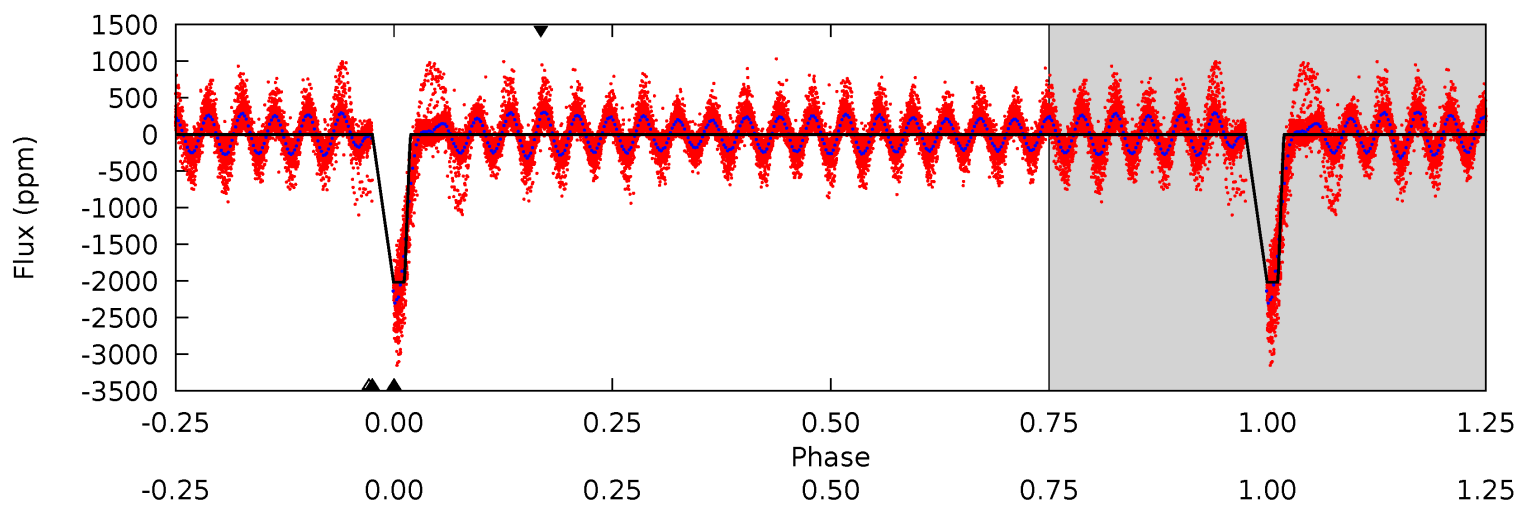
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
54.7	53.1	29.3	20.7	4.81	2.17	11.0	25.4	34.1	23.7	32.4	0.67	1.24	0.32	9.09



Alt Model-Shift Uniqueness Test

008719324-02, P = 10.232352 Days, E = 129.509481 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
338.2	335.5	276.0	46.9	4.89	2.32	31.1	62.2	291.3	59.4	288.6	2.06	1.03	0.12	2.58



Stellar Parameters For KIC 008719324

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	$M(M_{\odot})$	p_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	7023^{+216}_{-312}	$4.102^{+0.234}_{-0.156}$	$-0.500^{+0.250}_{-0.300}$	$1.664^{+0.460}_{-0.506}$	$1.276^{+0.178}_{-0.218}$	$0.390^{+0.516}_{-0.182}$
	+3%/-4%	+6%/-4%	+50%/-60%	+28%/-30%	+14%/-17%	+132%/-47%
Source	PHO54	PHO54	PHO54	DSEP		

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

Secondary Eclipse Parameters for KIC 008719324-02 / KOI 3716.01

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	-270 ± 5	$5.95^{+1.83}_{-1.61}$	1746^{+141}_{-144}	4933^{+676}_{-420}	43^{+36}_{-18}
Alt.	-2000 ± 6	$8.49^{+2.00}_{-1.84}$	1746^{+143}_{-144}	6751^{+794}_{-594}	153^{+87}_{-52}

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

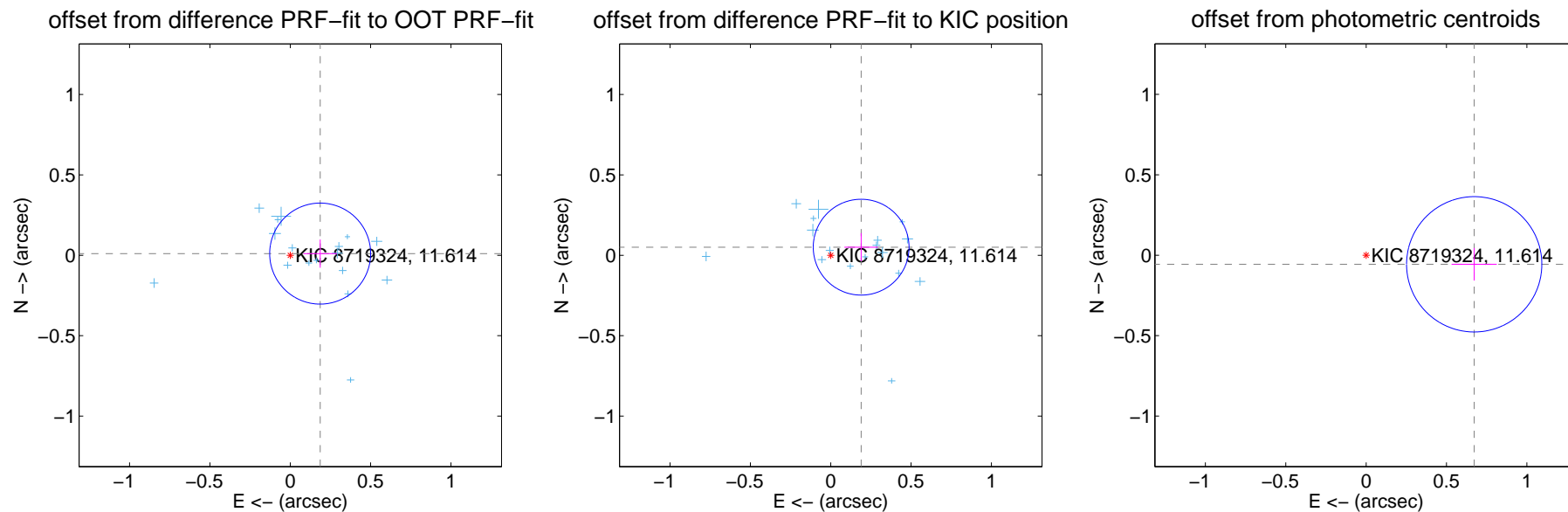
DV Centroid Data

Supplemental centroid analysis for 008719324-02. **Kepler magnitude: 11.61.** Transit SNR 53.66

There are 17 quarters with good PRF difference image offsets

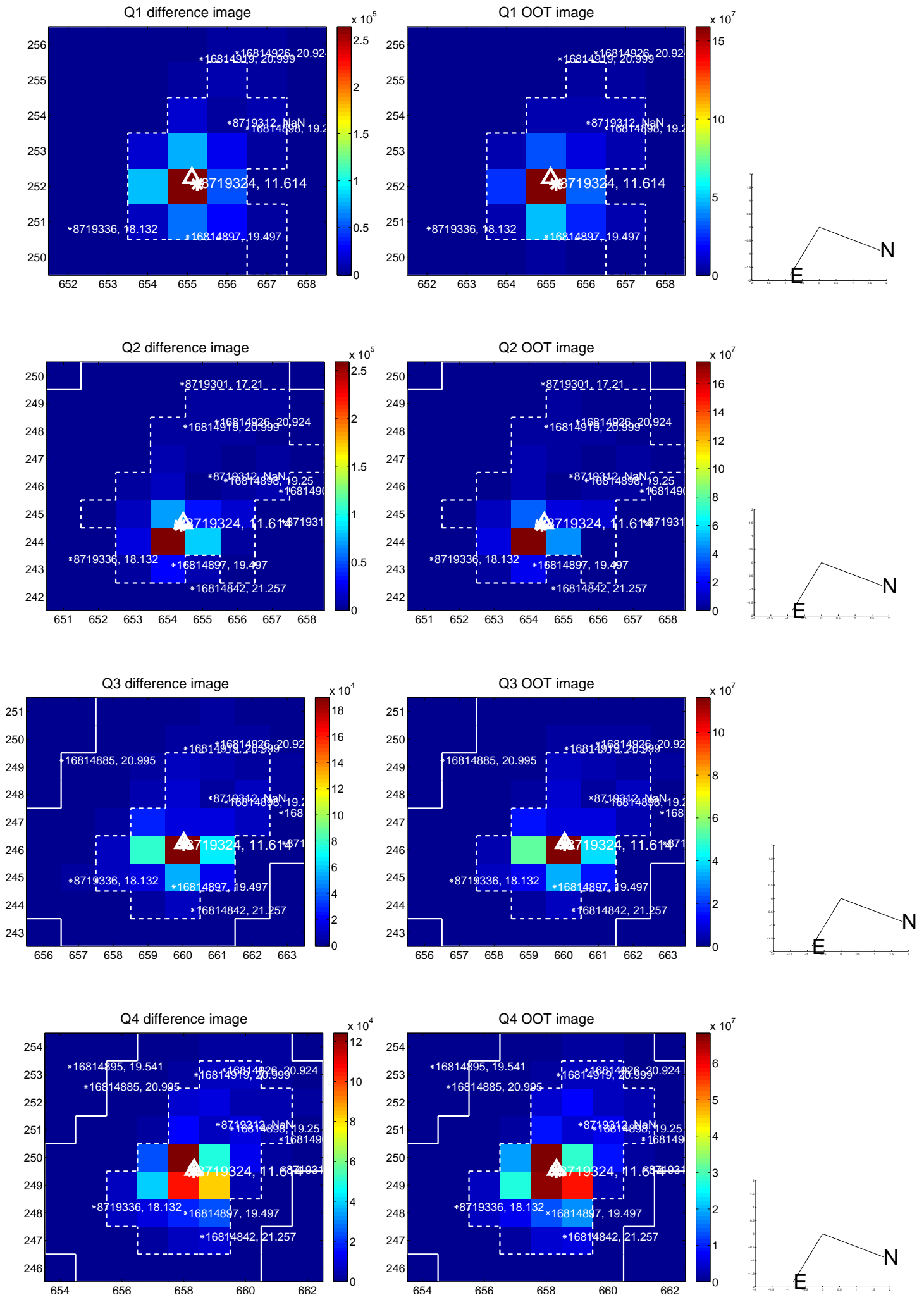
The direct PRF centroid is offset from the target star catalog position by about 0.05 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.186 ± 0.105	1.78	-0.186 ± 0.105	0.010 ± 0.088
PRF-fit source offset from KIC position	0.196 ± 0.099	1.97	-0.189 ± 0.104	0.050 ± 0.088
photometric centroid source offset	0.67 ± 0.14	4.81	-0.67 ± 0.14	-0.06 ± 0.10

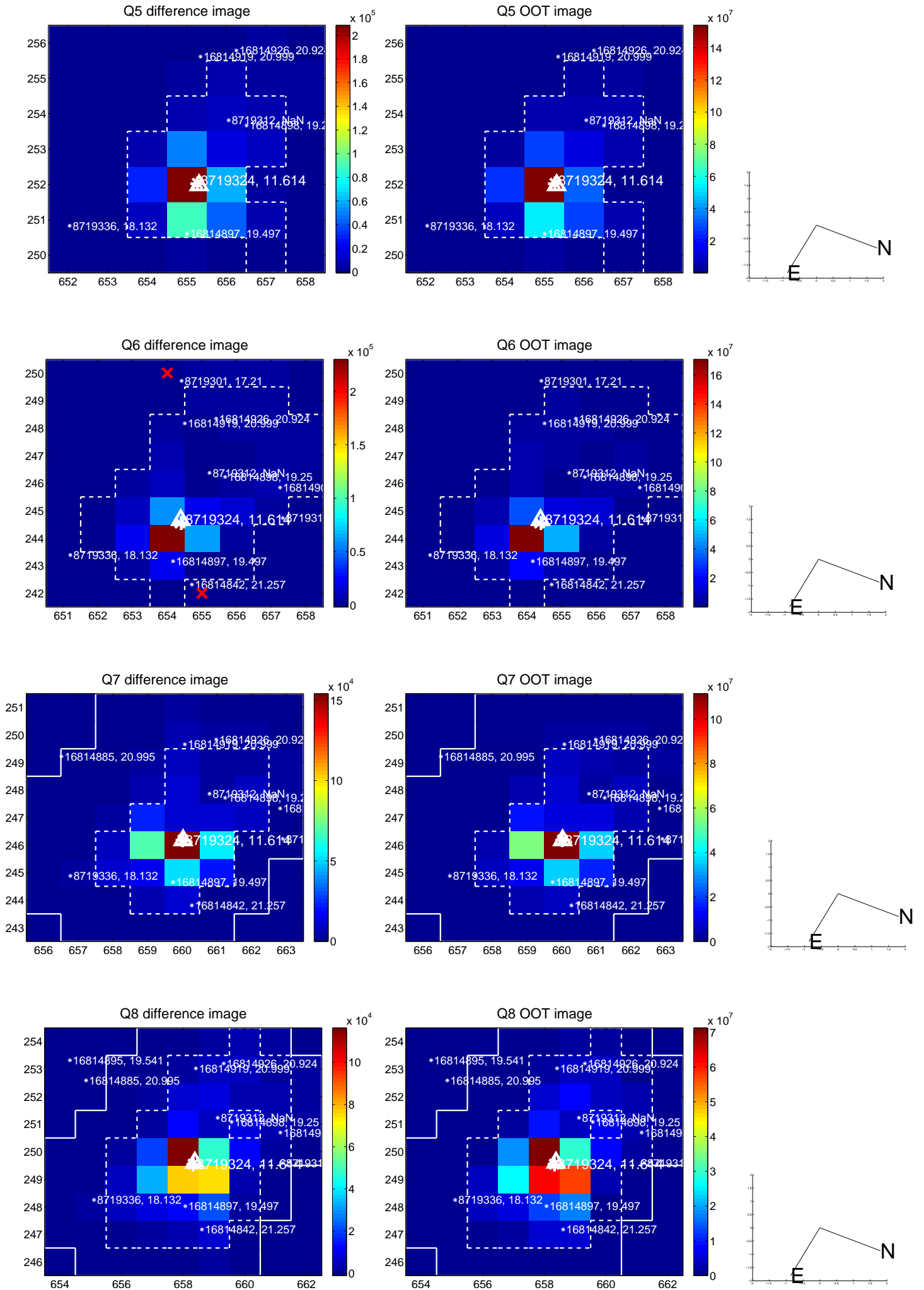


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets;** magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

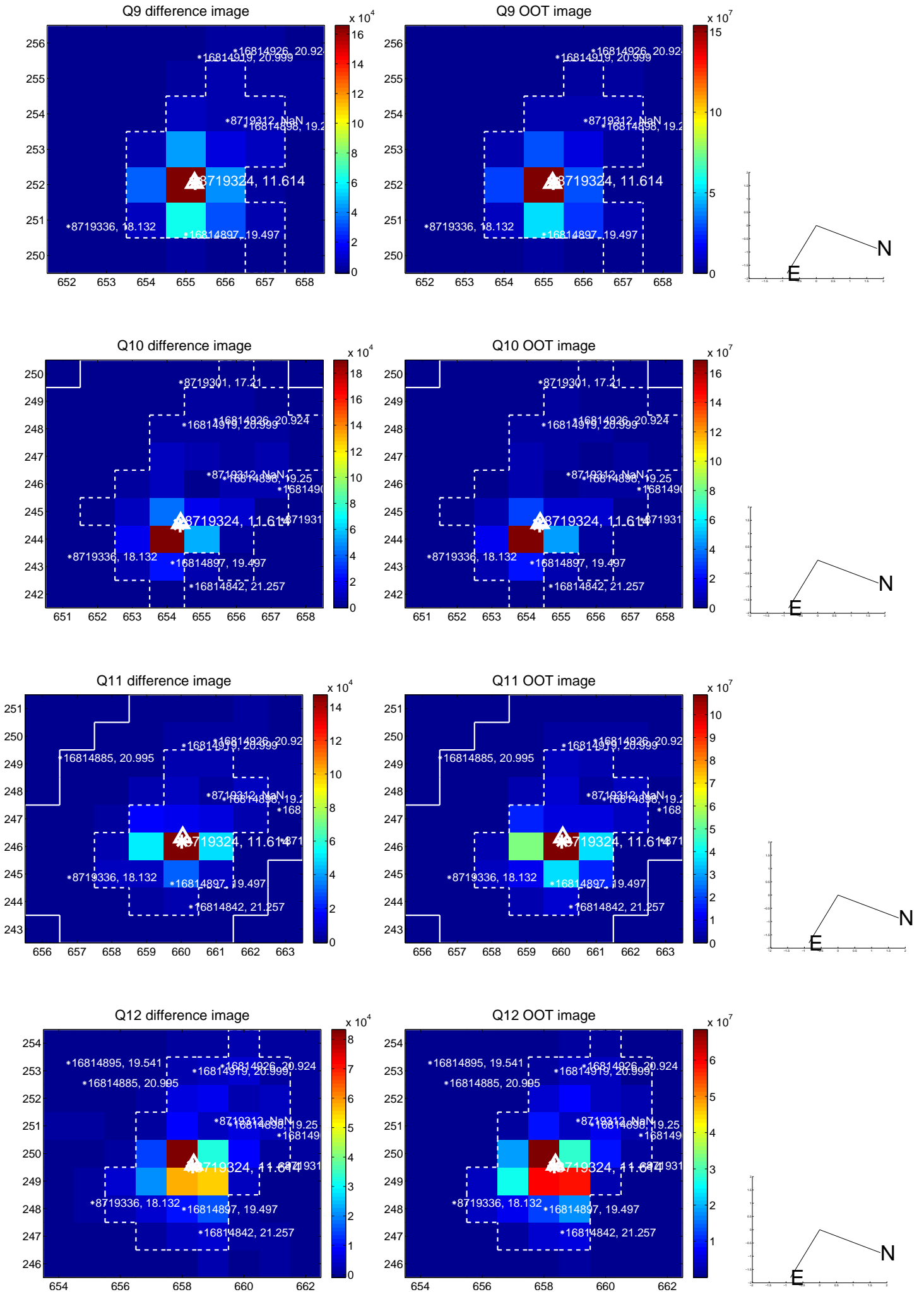
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



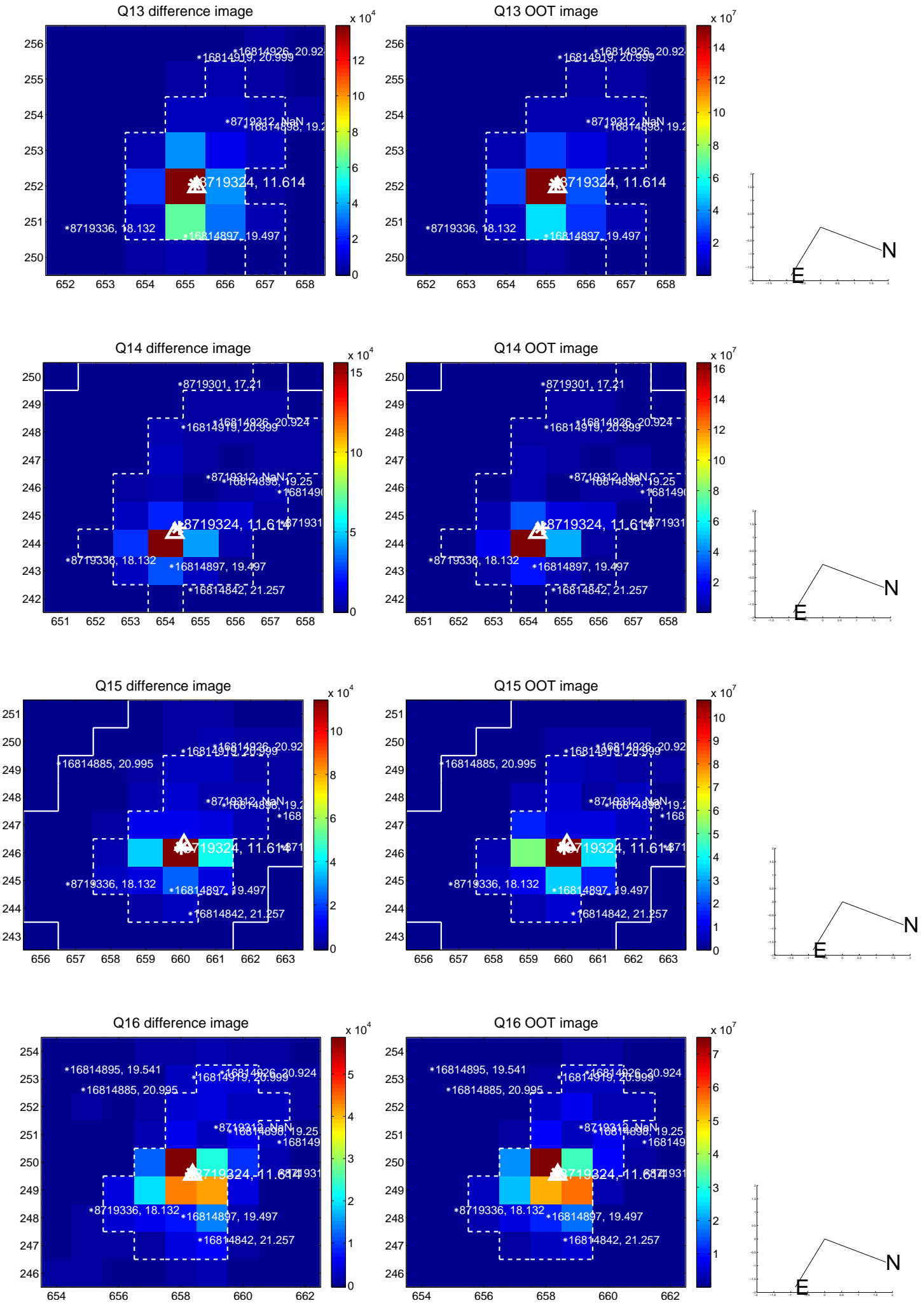
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



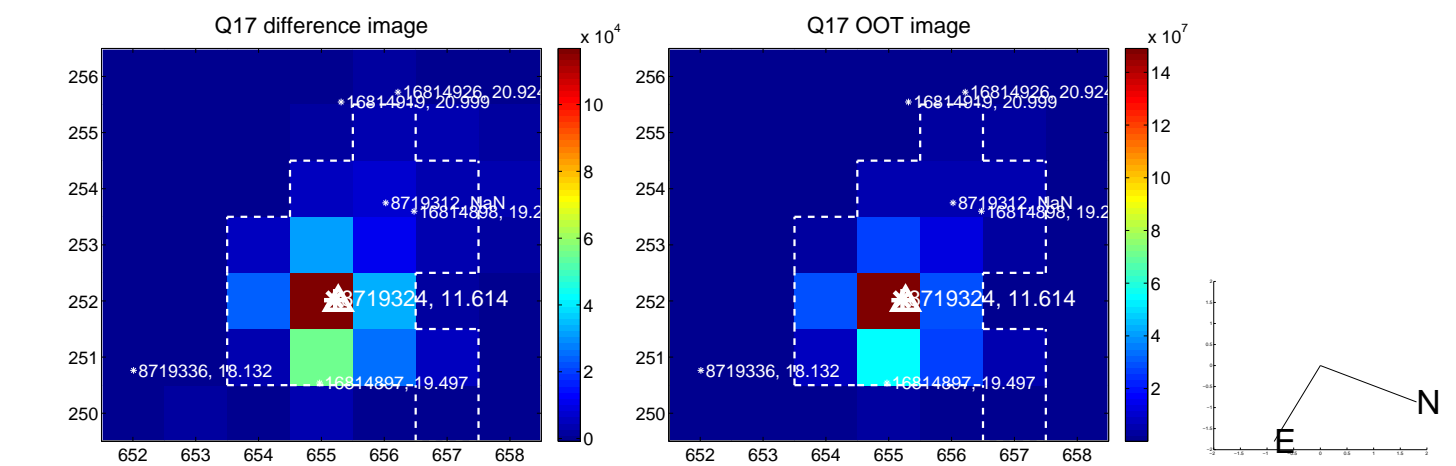
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



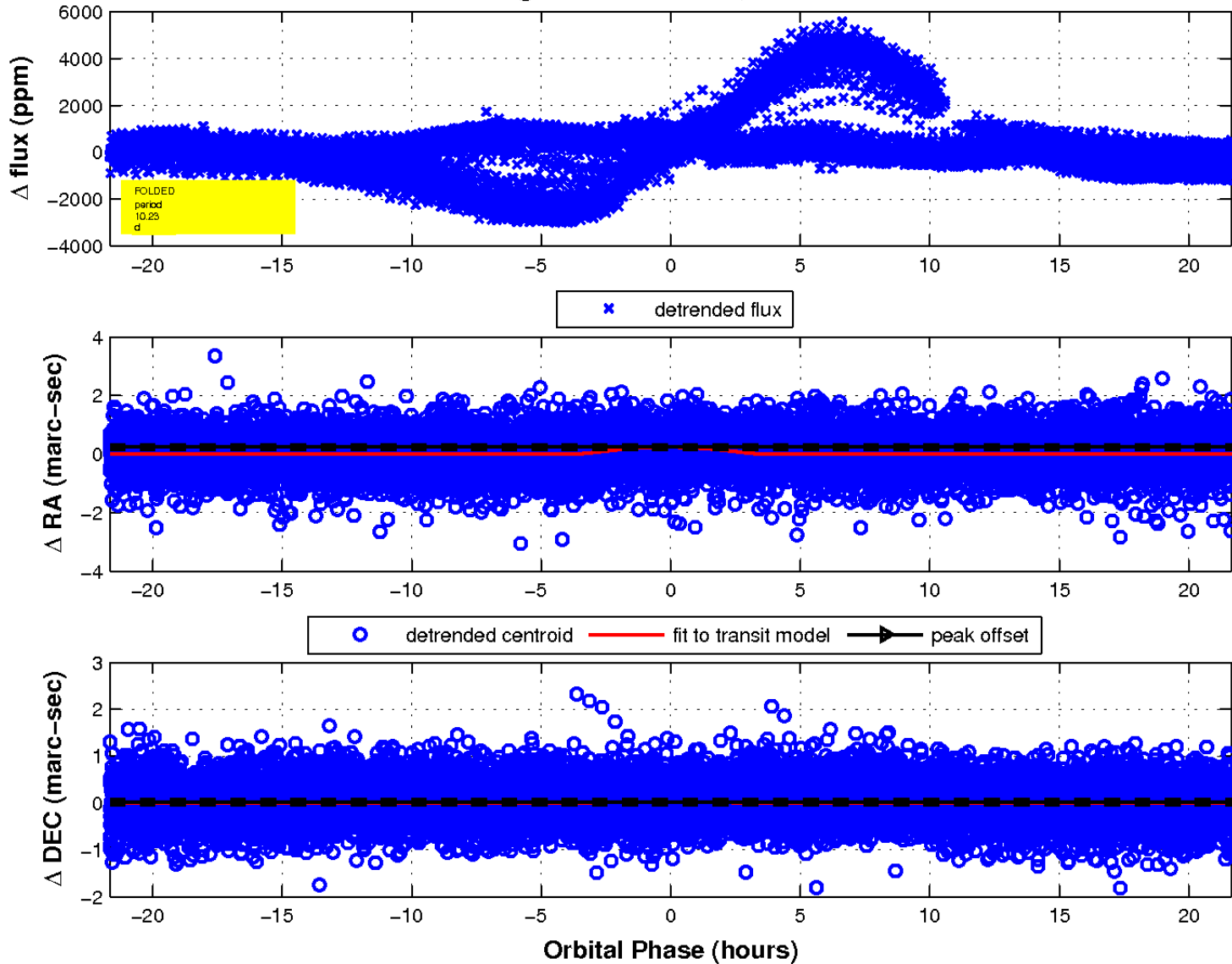
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



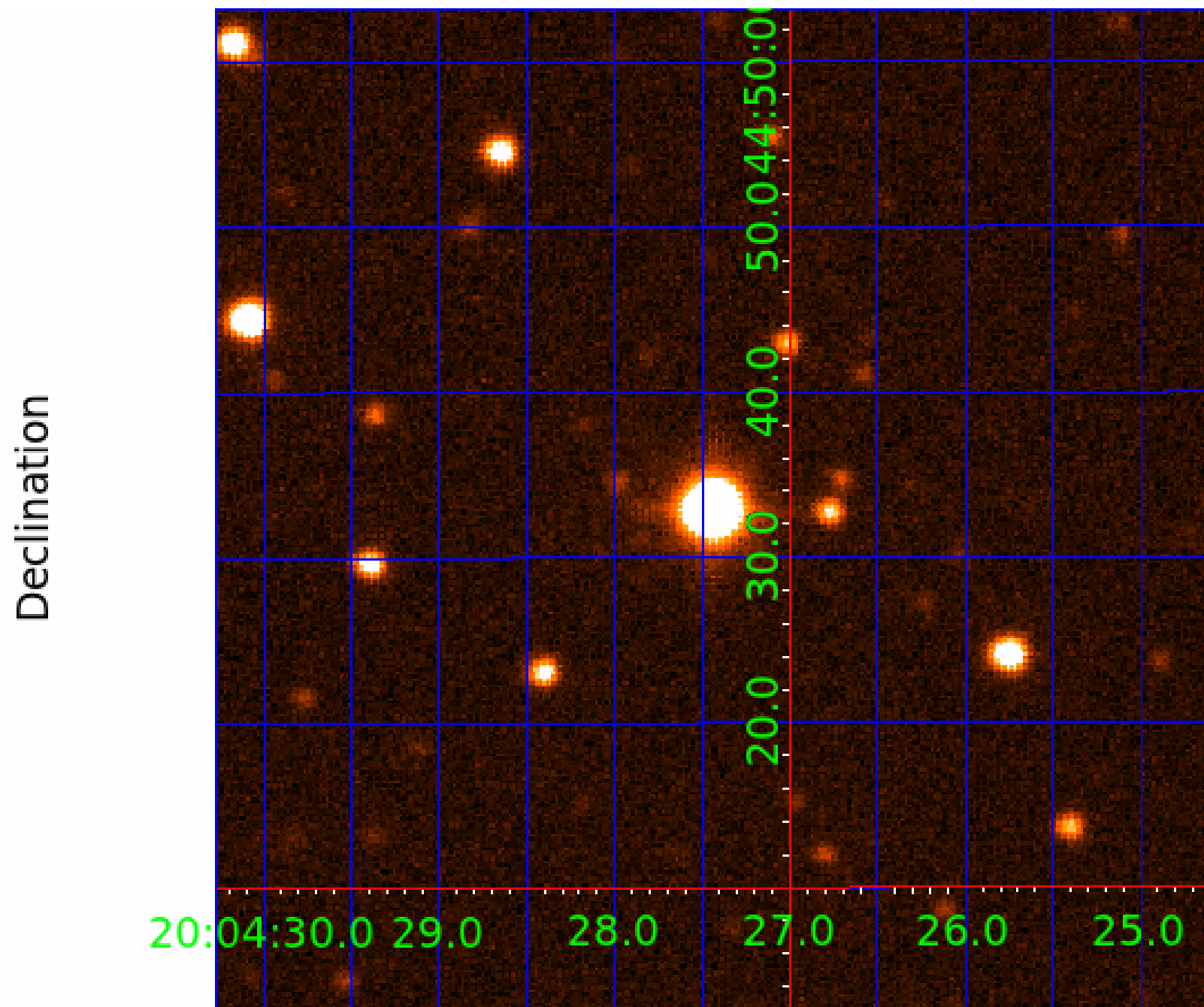
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



fluxWeightedCentroids, Planet 2 of 6



UKIRT Image



KIC 008719324

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})
008719324-01	OBS	3716.02	10.232722	139.584938	1890.4	2.166	208.0	212.8	1.66	7023	13.14	602.24
008719324-02	OBS	3716.01	10.232897	139.852111	492.6	7.216	42.0	53.7	1.66	7023	6.09	602.22
008719324-03	OBS	No	10.232868	139.553739	408.5	21.454	18.5	21.0	1.66	7023	4.22	602.22
008719324-04	OBS	No	1.705506	133.192385	26.6	10.264	8.5	8.6	1.66	7023	0.92	6565.73
008719324-06	OBS	No	2.046559	131.844742	175.6	7.500	11.7	-1.0	1.66	7023	2.23	5148.98

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
008719324-01	OBS	FP	0.00	1	0	0	0	MOD_NONUNIQ_ALT
008719324-02	OBS	FP	0.00	1	0	0	0	LPP_DV—SAME_NTL_PERIOD
008719324-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_ZUMA—LPP_DV—MOD_NONUNIQ_DV—SAME_NTL_PERIOD
008719324-04	OBS	FP	0.00	1	0	0	0	LPP_DV—MOD_NONUNIQ_DV—SAME_NTL_PERIOD—CENT_FEW_DIFFS
008719324-06	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_SKYE_ZUMA—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_ALT—SAME_NTL_PERIOD—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 008719324-03

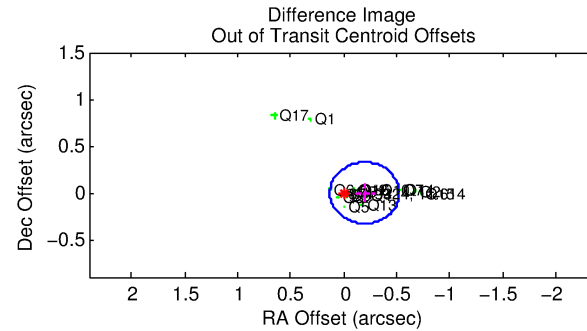
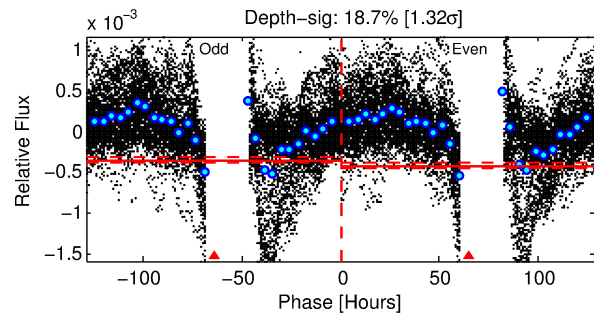
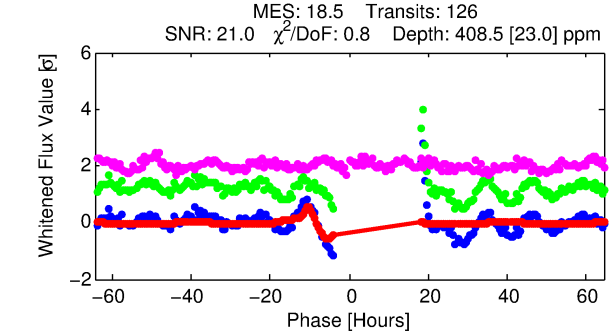
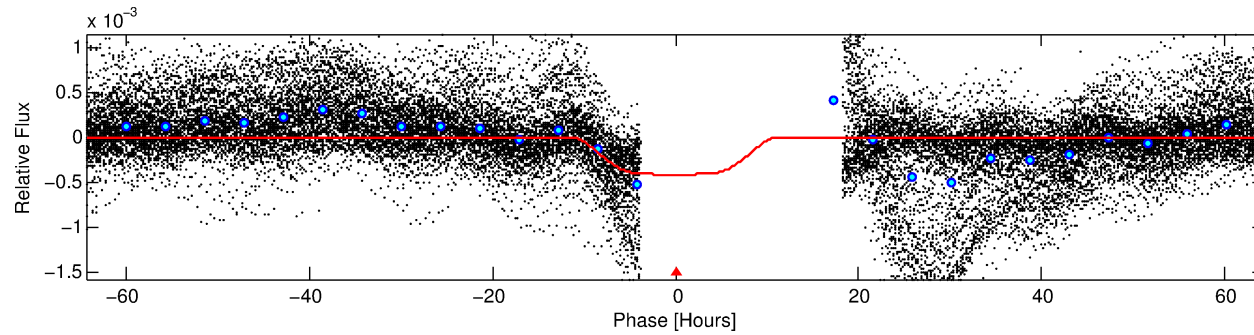
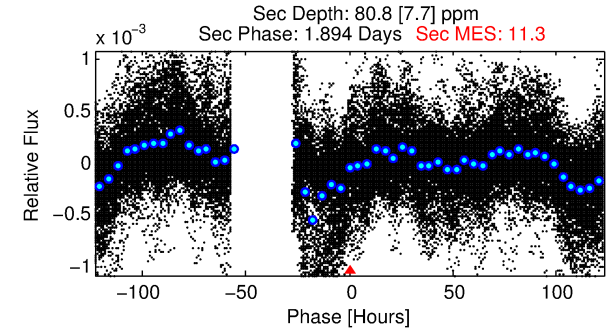
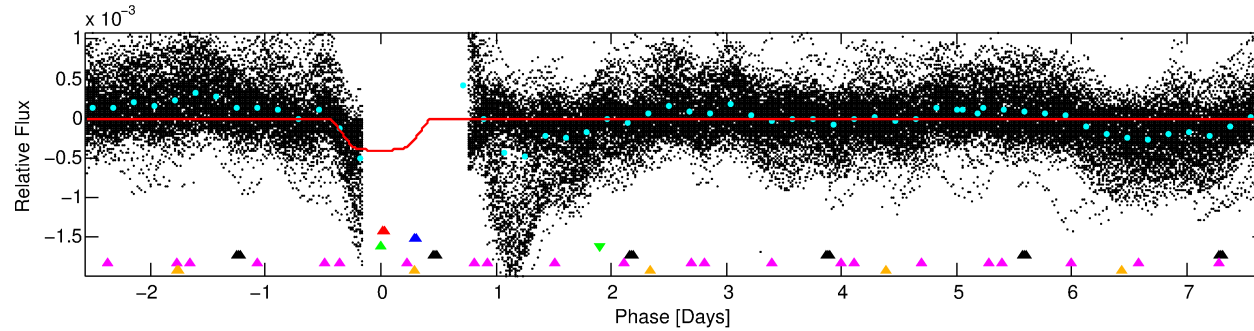
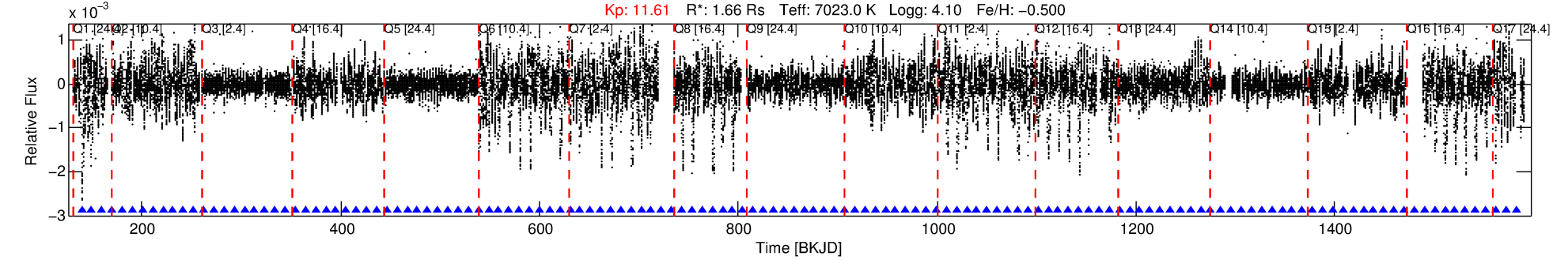
No Significant Match Found

DV One-Page Summary

KIC: 8719324 Candidate: 3 of 6 Period: 10.233 d

KOI: K03716 Corr: No Ephemeris Match

Kp: 11.61 R*: 1.66 Rs Teff: 7023.0 K Logg: 4.10 Fe/H: -0.500



DV Fit Results:

Period = 10.23287 [0.00010] d
Epoch = 139.5537 [0.0253] BKJD
Rp/R* = 0.0232 [0.0007]
a/R* = 1.59 [0.04]
b = 0.96 [0.00]
Seff = 602.22 [270.47]
Teff = 1263 [142] K
Rp = 4.22 [1.29] Re
a = 0.1001 [0.0271] AU
Ag = 25.01 [10.68] [2.25σ]
Teffp = 4368 [229] K [11.54σ]

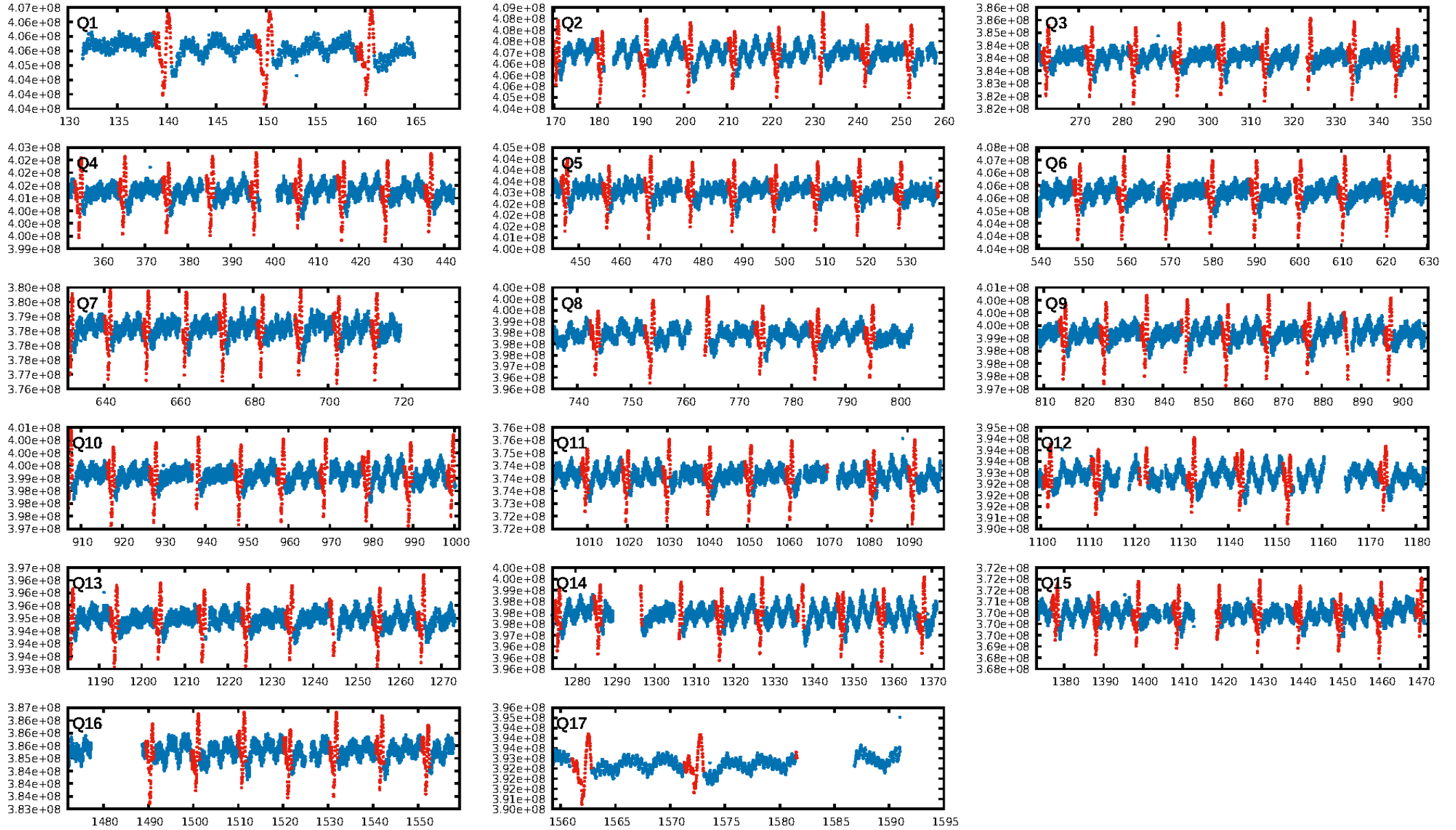
DV Diagnostic Results:

ShortPeriod-sig: 0.0% [0.00σ]
LongPeriod-sig: 0.0% [0.00σ]
ModelChiSquare2-sig: 0.1%
ModelChiSquareGof-sig: 100.0%
Bootstrap-pfa: N/A
RollingBand-fgt: 1.00 [121/121]
GhostDiagnostic-chr: 0.97
Centroid-sig: 0.0%
Centroid-so: 0.676 arcsec [6.46σ]
OotOffset-rm: 0.199 arcsec [1.82σ]
KicOffset-rm: 0.202 arcsec [2.04σ]
OotOffset-st: 4/4/4/5 [17]
KicOffset-st: 4/4/4/5 [17]
DiffImageQuality-fgm: 1.00 [17/17]
DiffImageOverlap-fno: 0.00 [0/17]

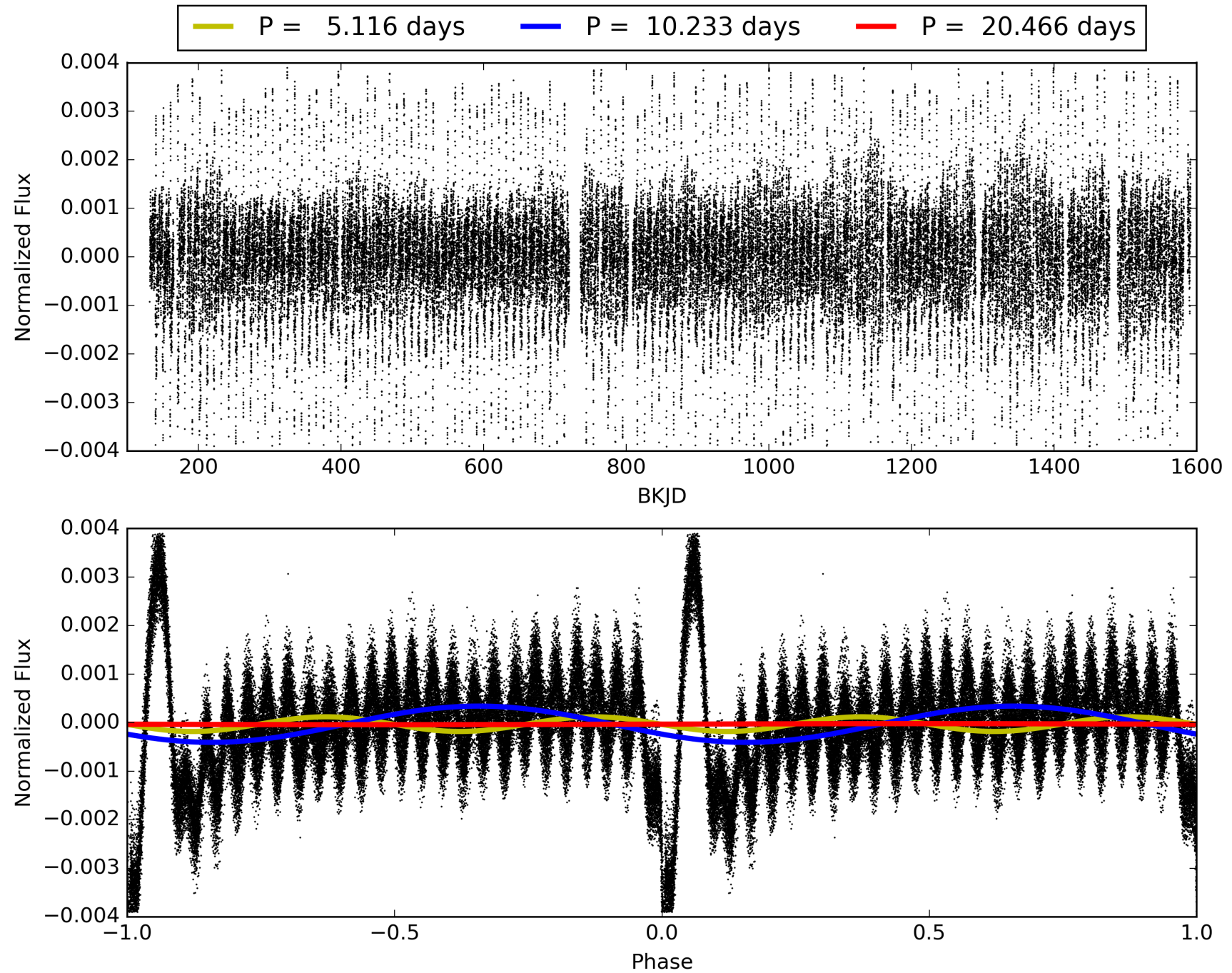
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 31-Jan-2016 06:15:02 Z

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

TCE 008719324-03, PDC Light Curves

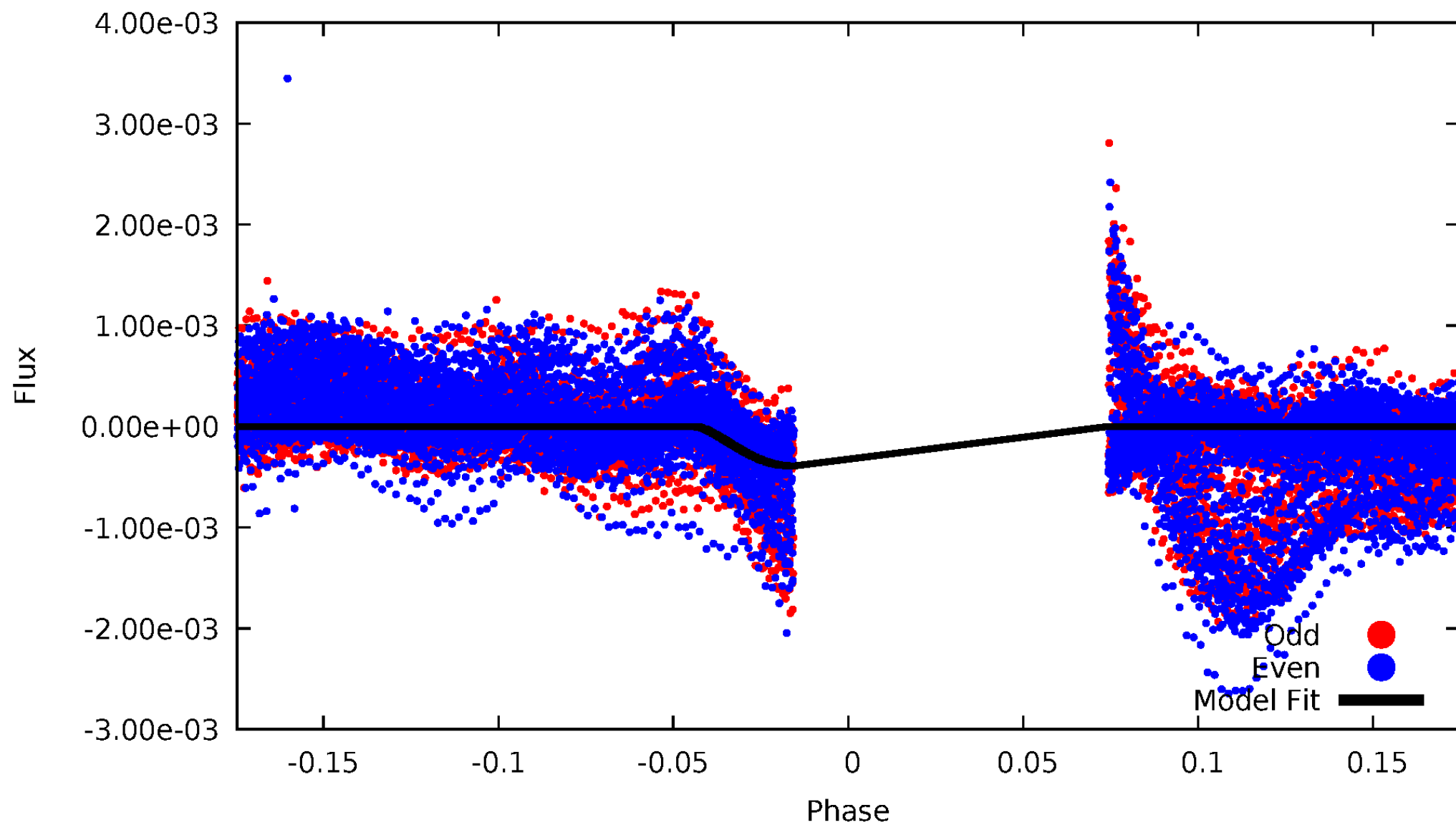


TCE 008719324-03



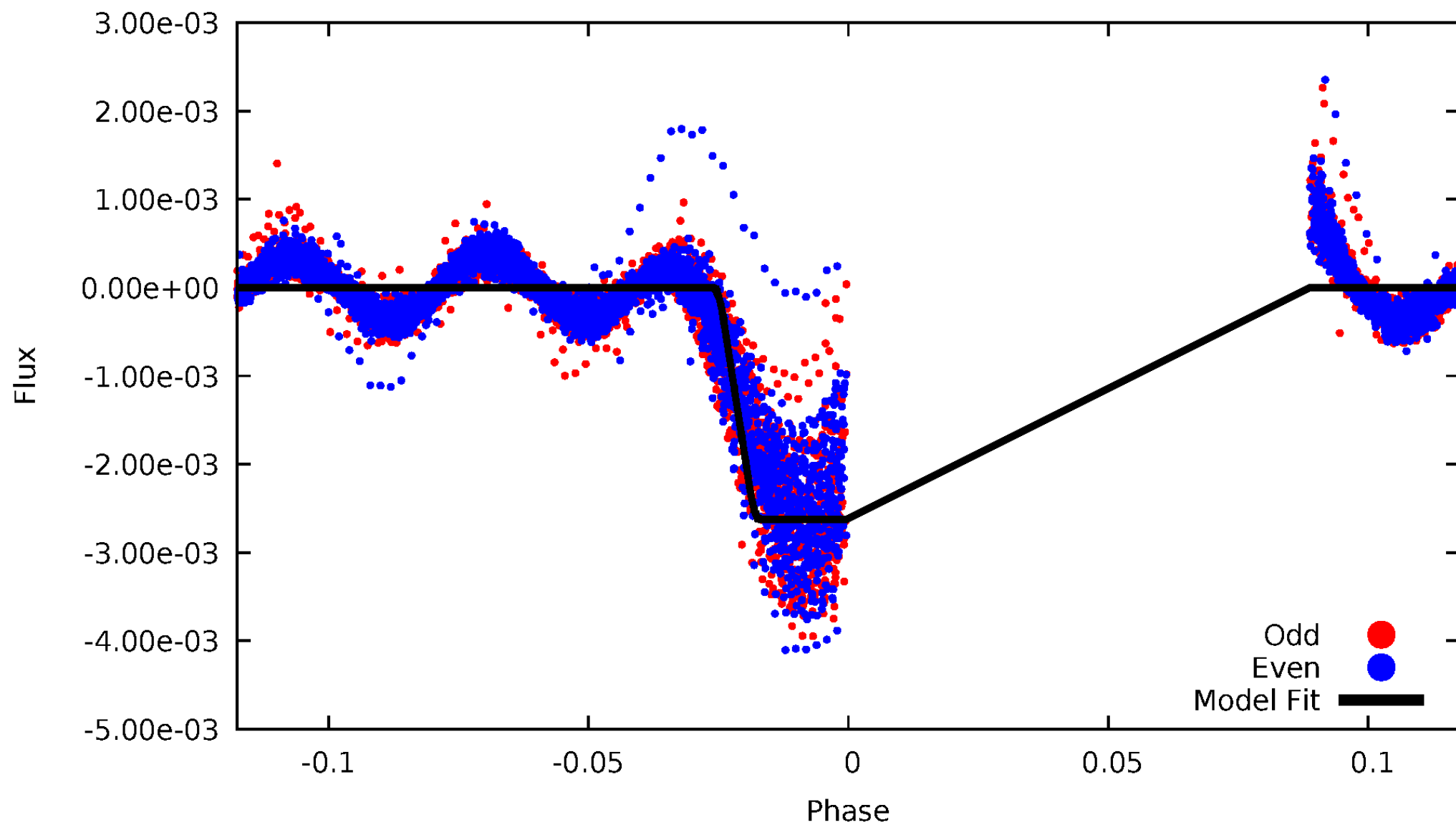
DV Odd/Even

TCE 008719324-03



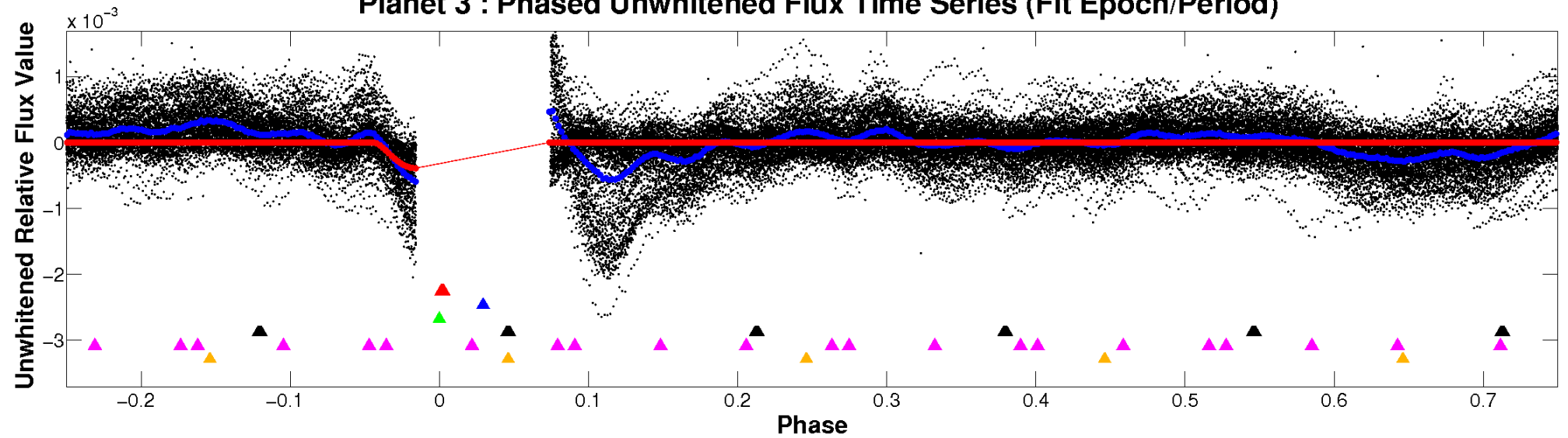
ALT Odd/Even

TCE 008719324-03

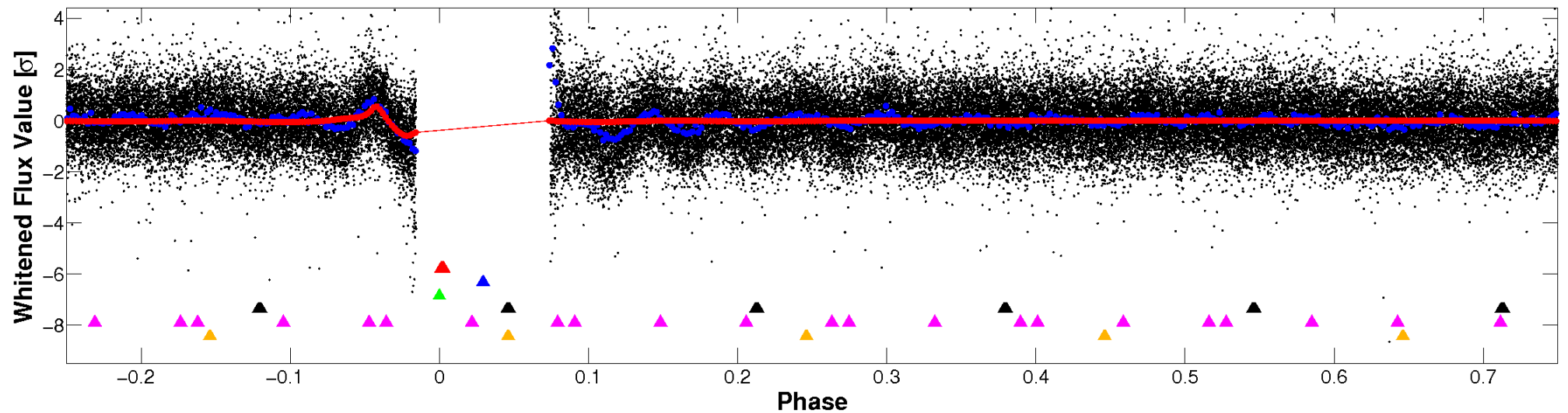


Non-Whitened Vs. Whitened Light Curve

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

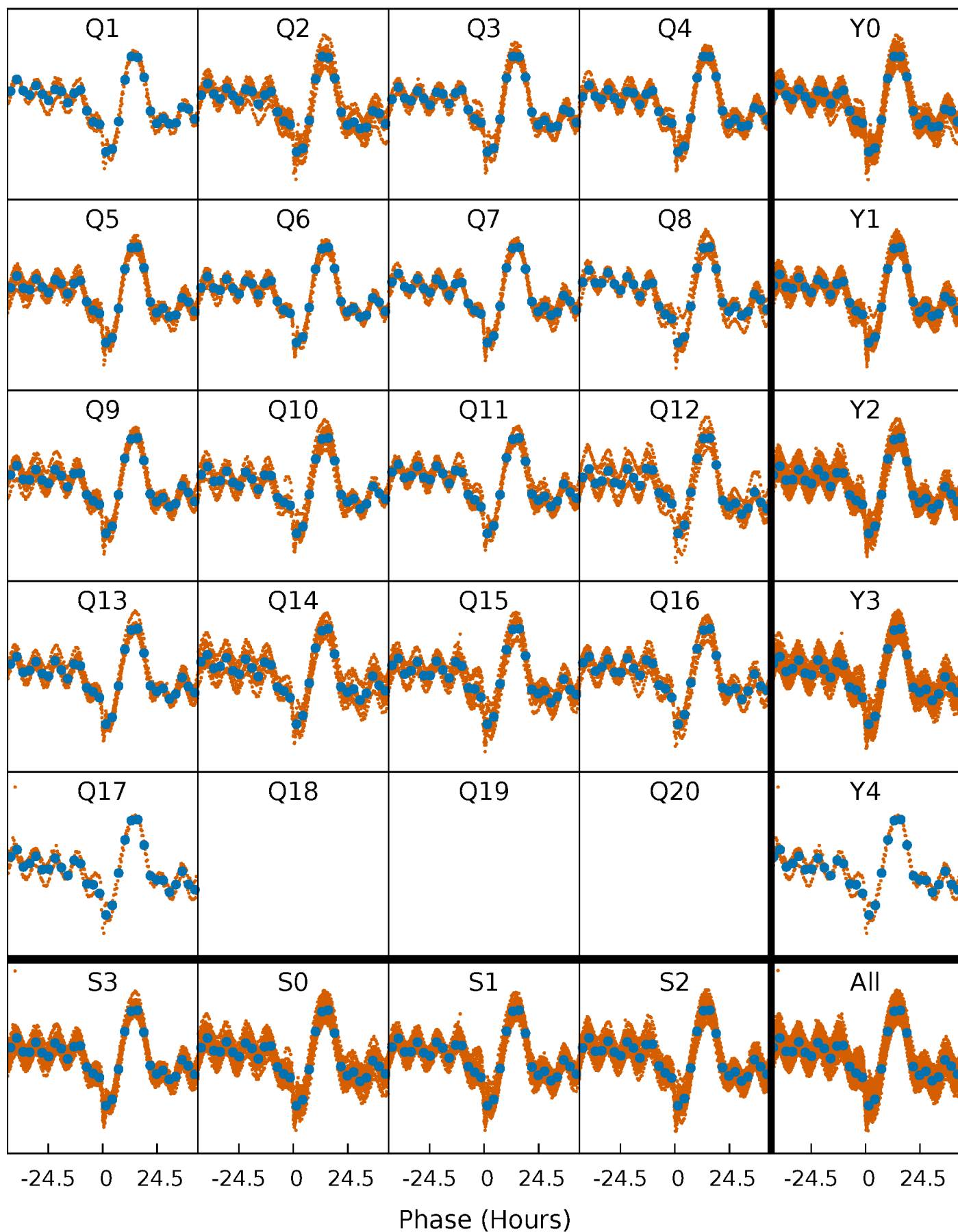


Planet 3 : Phased Whitened Flux Time Series (Fit Epoch/Period)



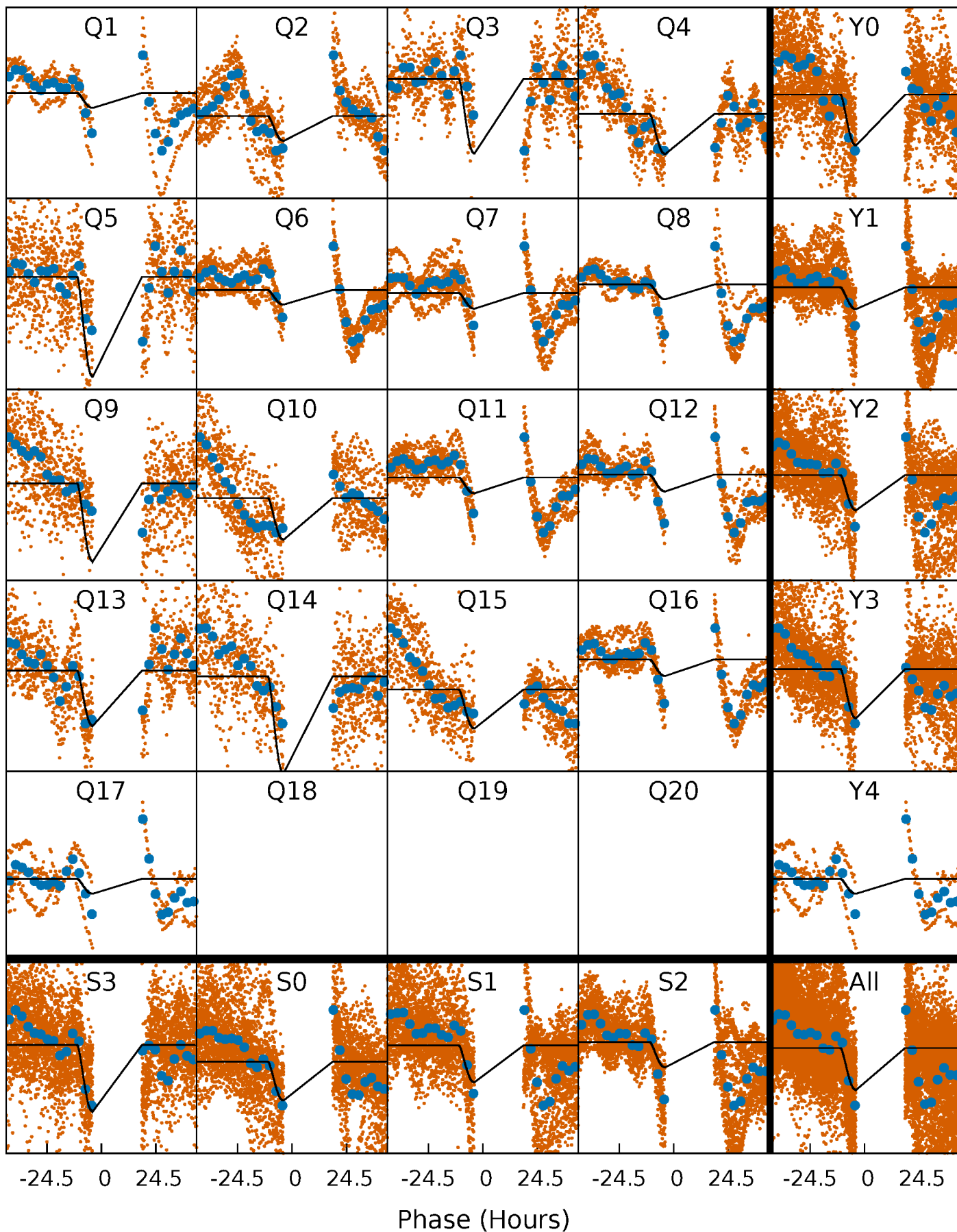
PDC Quarter-Phased Transit Curves

TCE 008719324-03 $P = 10.232868$ Days $T_0 = 139.553739$ (BKJD)



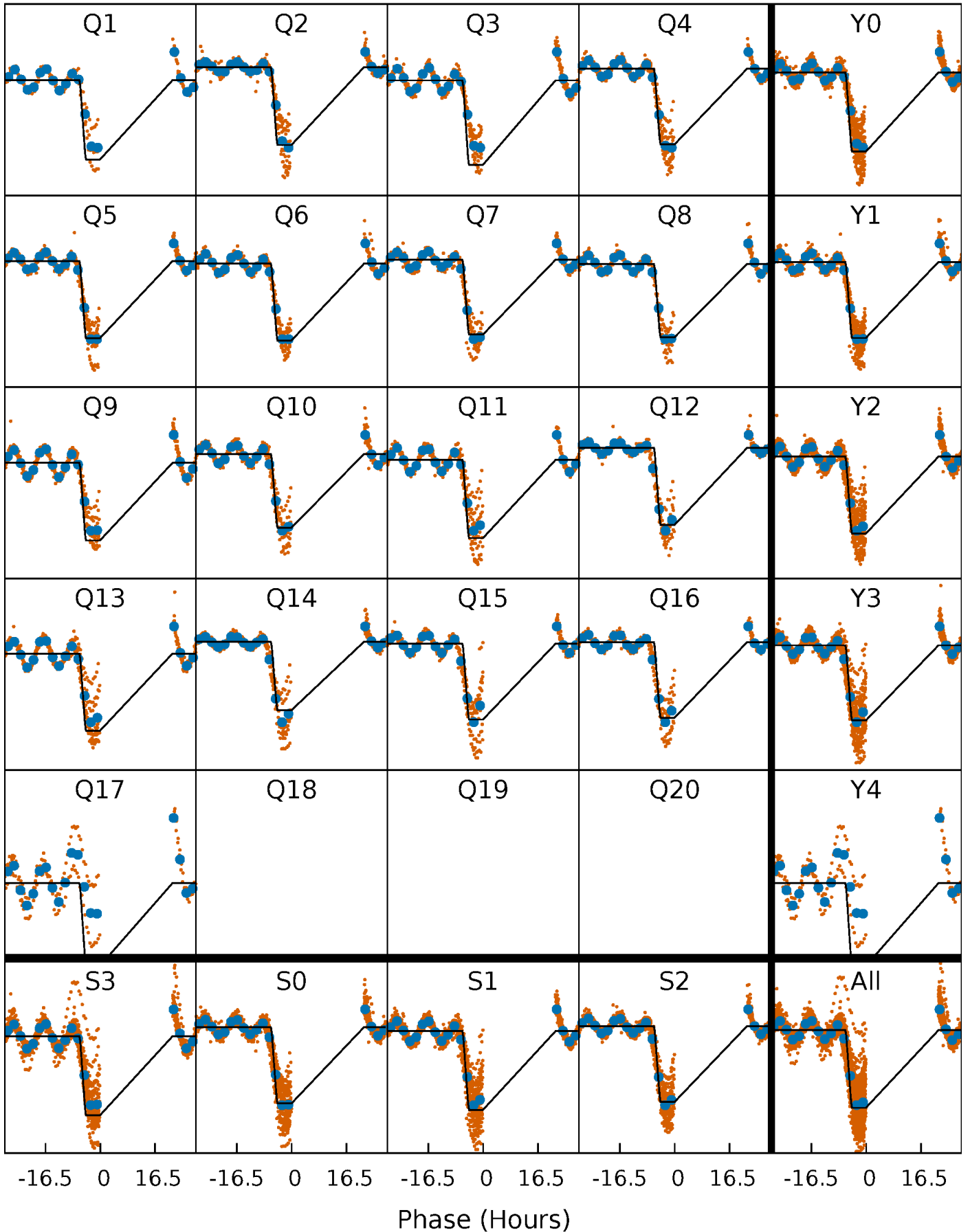
DV Quarter-Phased Transit Curves

TCE 008719324-03 P= 10.232868 Days $T_0=139.553739$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

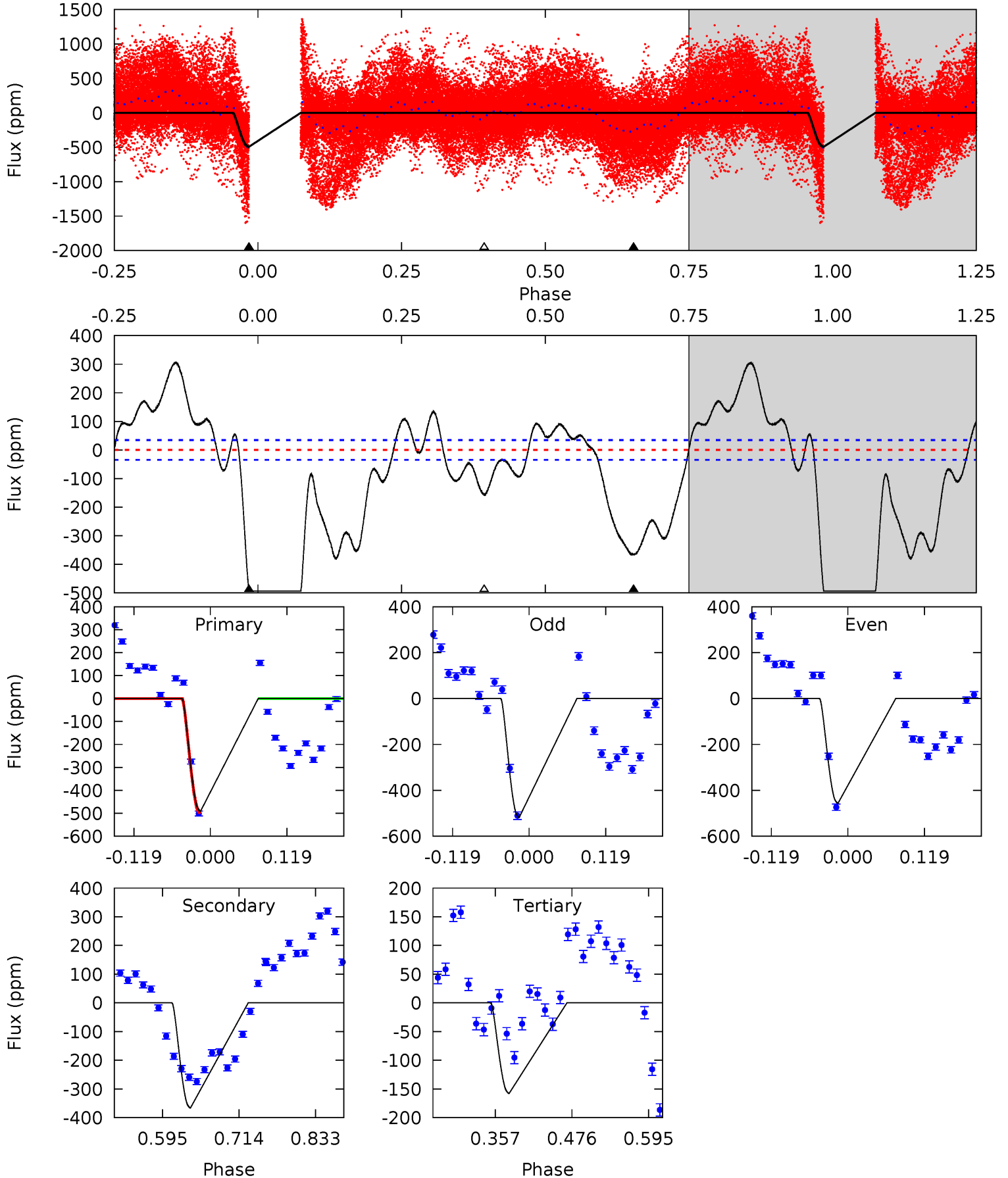
TCE 008719324-03 P= 10.232789 Days $T_0=139.407672$ (BKJD)



DV Model-Shift Uniqueness Test

008719324-03, $P = 10.232868$ Days, $E = 129.320871$ Days

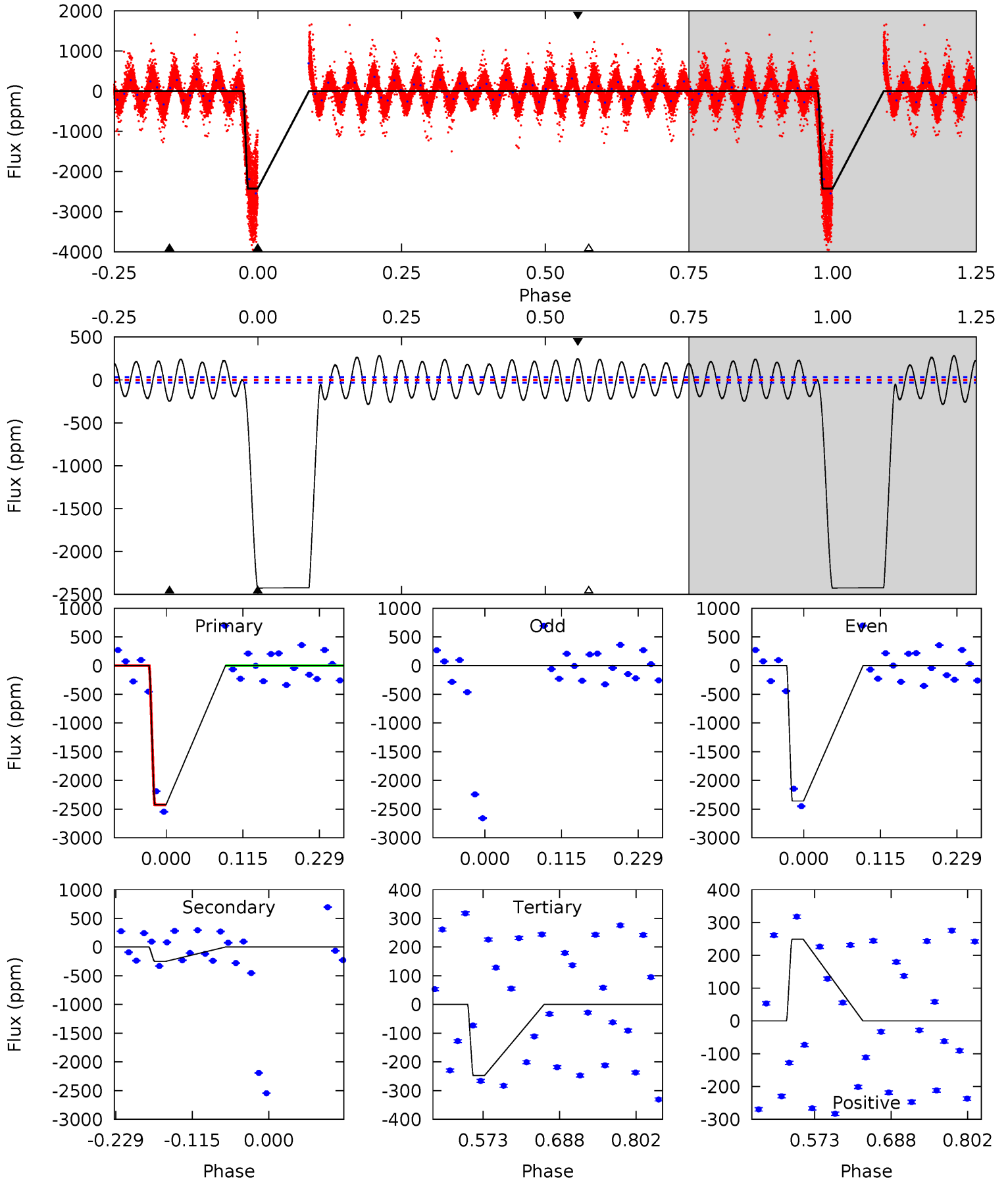
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
64.2	47.8	20.6	0	4.53	1.56	19.4	43.6	64.2	27.2	47.8	4.07	0	0.38	0



Alt Model-Shift Uniqueness Test

008719324-03, P = 10.232789 Days, E = 129.174883 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
361.0	37.0	36.9	37.1	4.54	1.58	23.4	324.1	324.0	0.15	-0.01	0	0	0.10	0



Stellar Parameters For KIC 008719324

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	M (M_{\odot})	p_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	7023^{+216}_{-312}	$4.102^{+0.234}_{-0.156}$	$-0.500^{+0.250}_{-0.300}$	$1.664^{+0.460}_{-0.506}$	$1.276^{+0.178}_{-0.218}$	$0.390^{+0.516}_{-0.182}$
	+3%/-4%	+6%/-4%	+50%/-60%	+28%/-30%	+14%/-17%	+132%/-47%
Source	PHO54	PHO54	PHO54	DSEP		

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

Secondary Eclipse Parameters for KIC 008719324-03 / KOI

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	-367 ± 8	$4.18^{+0.67}_{-0.65}$	1741^{+146}_{-139}	6313^{+243}_{-262}	116^{+42}_{-28}
Alt.	-249 ± 7	$9.29^{+1.26}_{-1.48}$	1754^{+131}_{-152}	4131^{+86}_{-112}	16^{+6}_{-3}

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

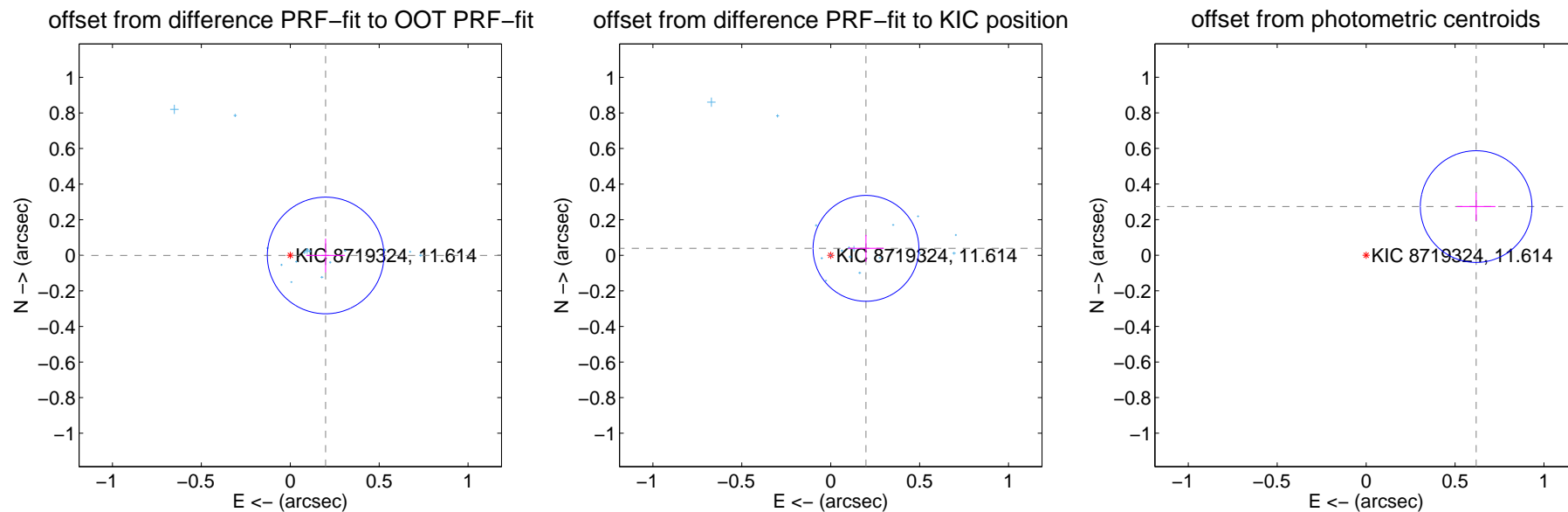
DV Centroid Data

Supplemental centroid analysis for 008719324-03. **Kepler magnitude: 11.61.** Transit SNR 20.99

There are 17 quarters with good PRF difference image offsets

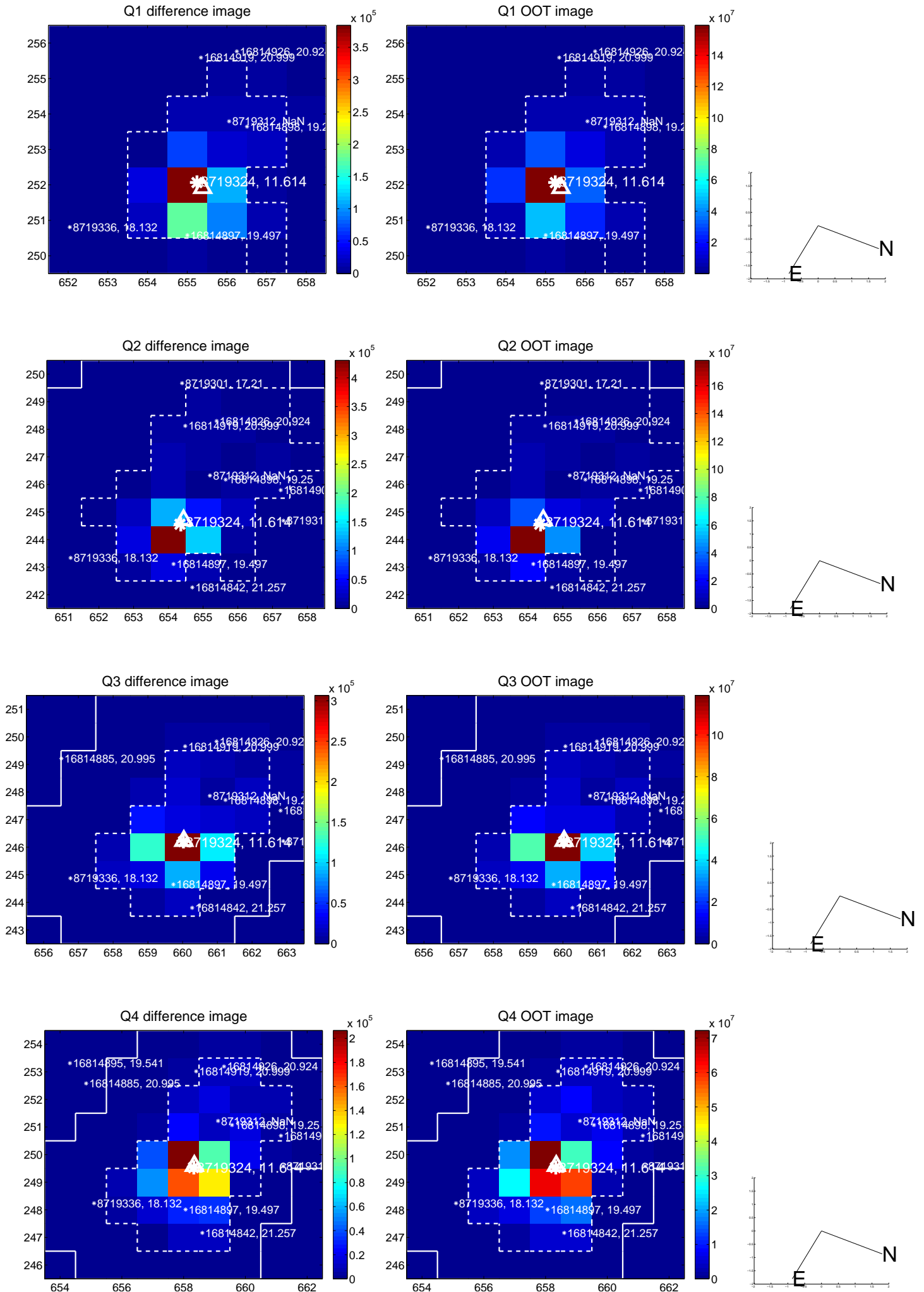
The direct PRF centroid is offset from the target star catalog position by about 0.04 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.199 ± 0.109	1.82	-0.199 ± 0.109	-0.001 ± 0.095
PRF-fit source offset from KIC position	0.202 ± 0.099	2.04	-0.198 ± 0.100	0.039 ± 0.075
photometric centroid source offset	0.68 ± 0.10	6.46	-0.62 ± 0.11	0.27 ± 0.08

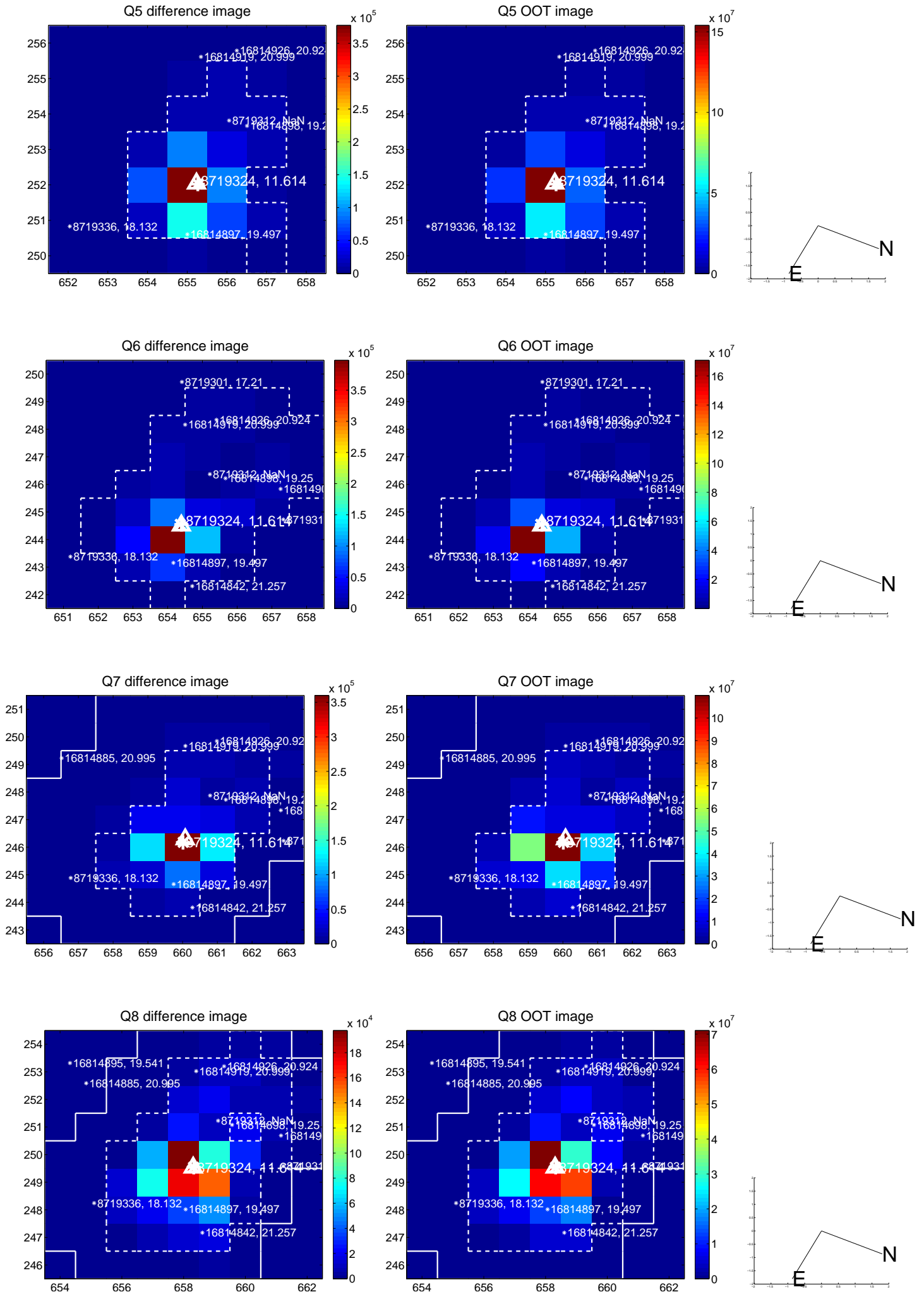


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets;** magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

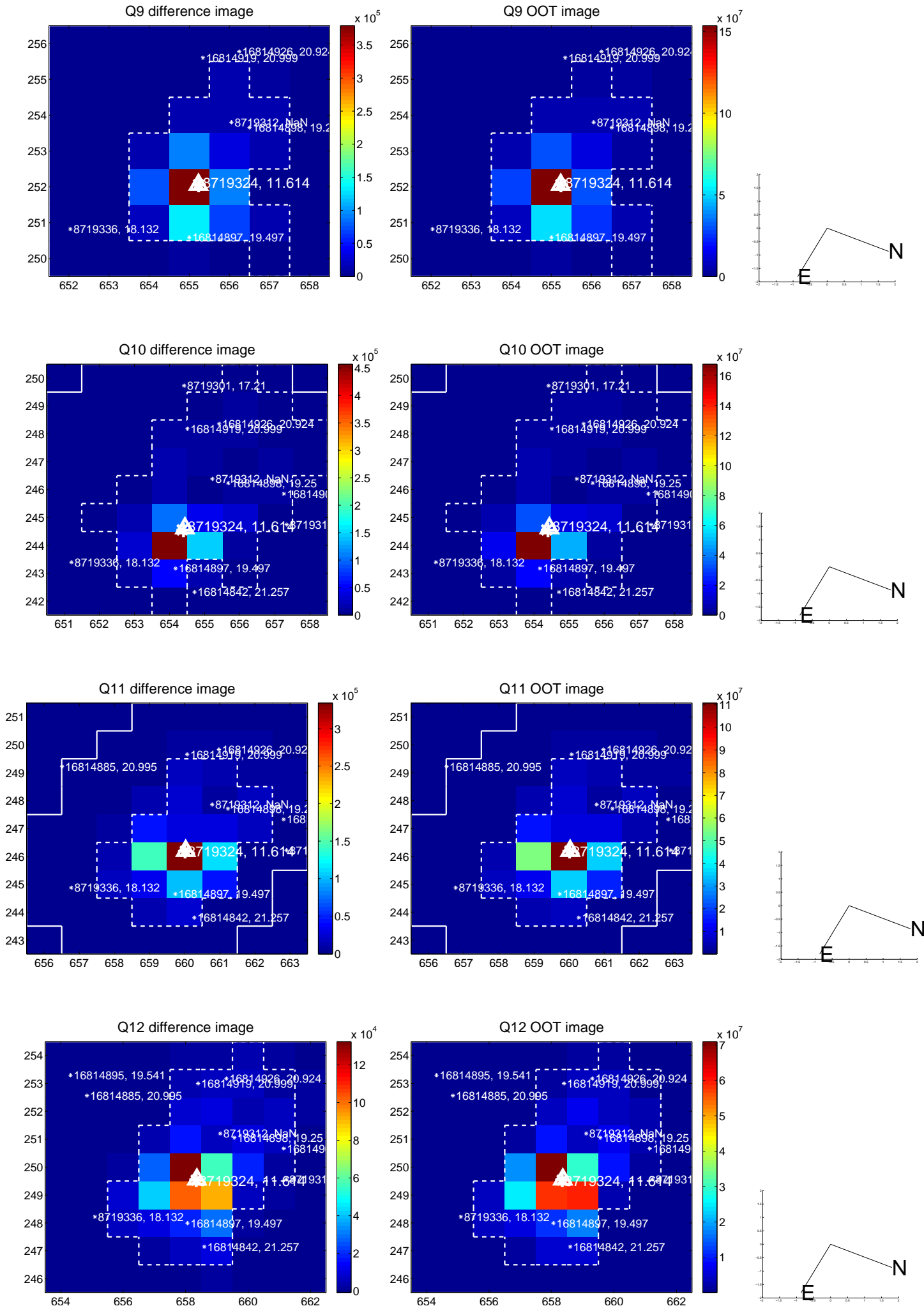
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



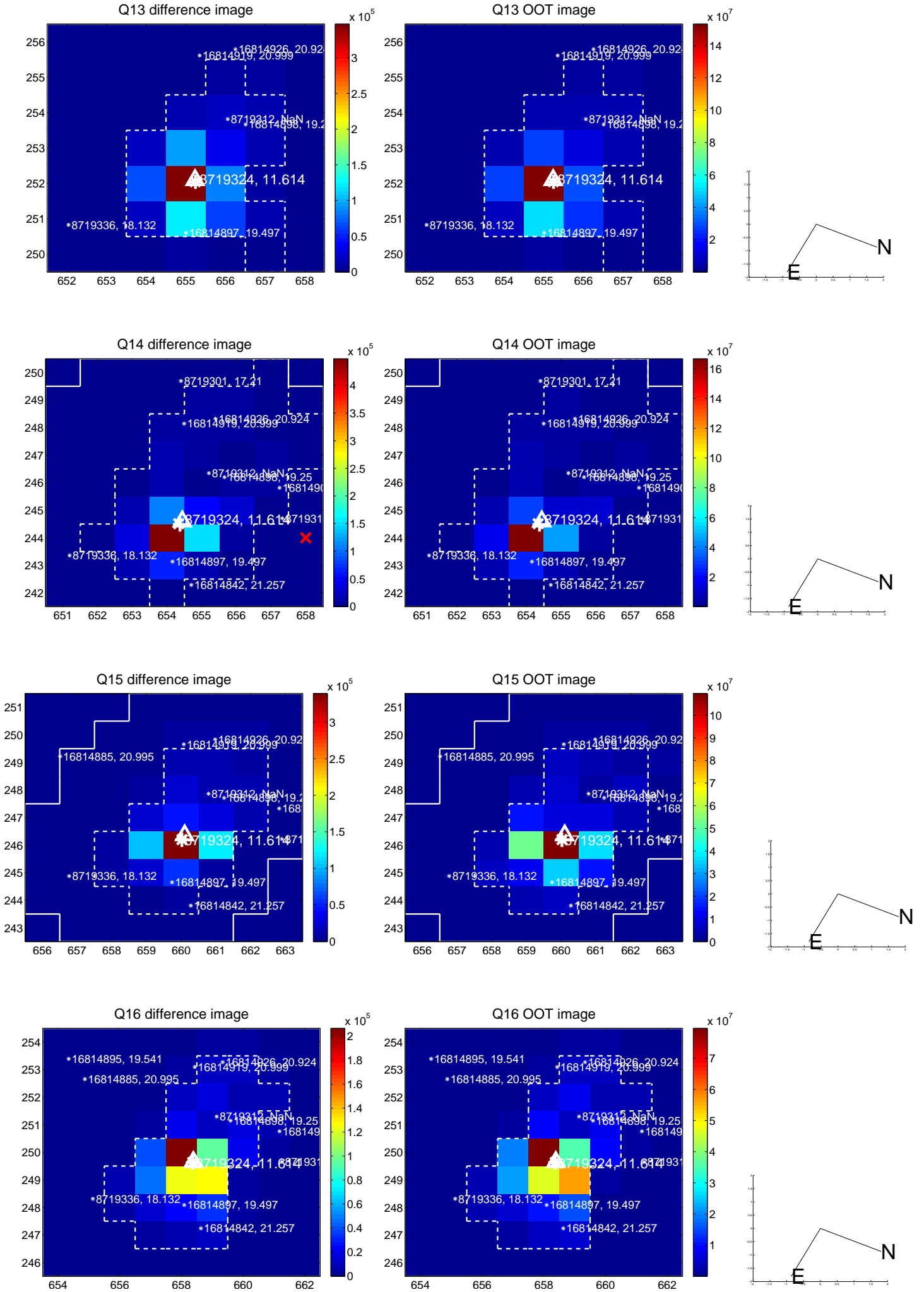
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



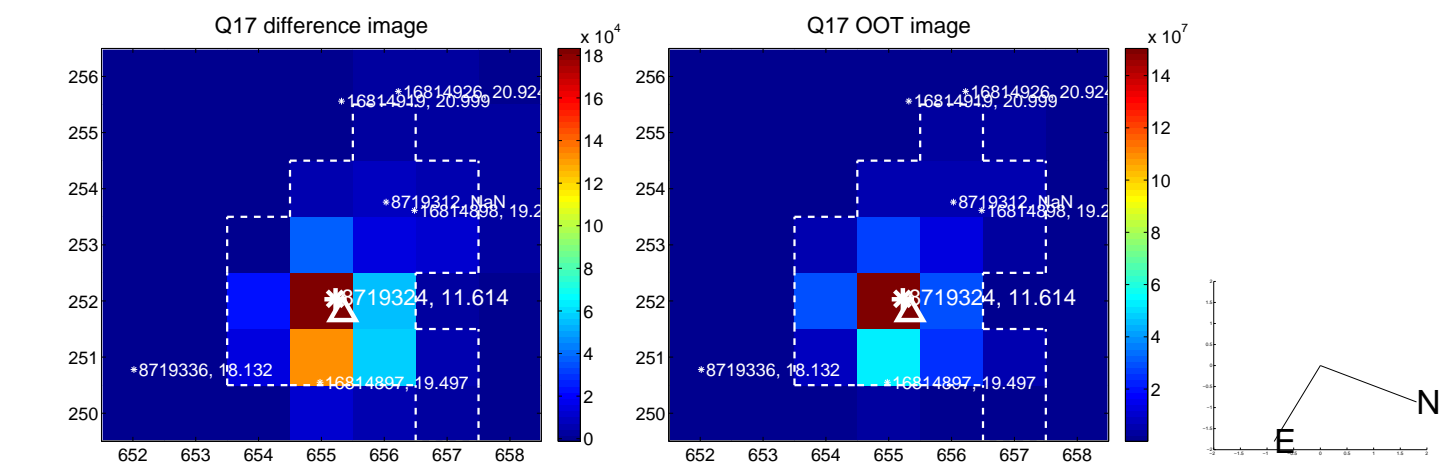
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



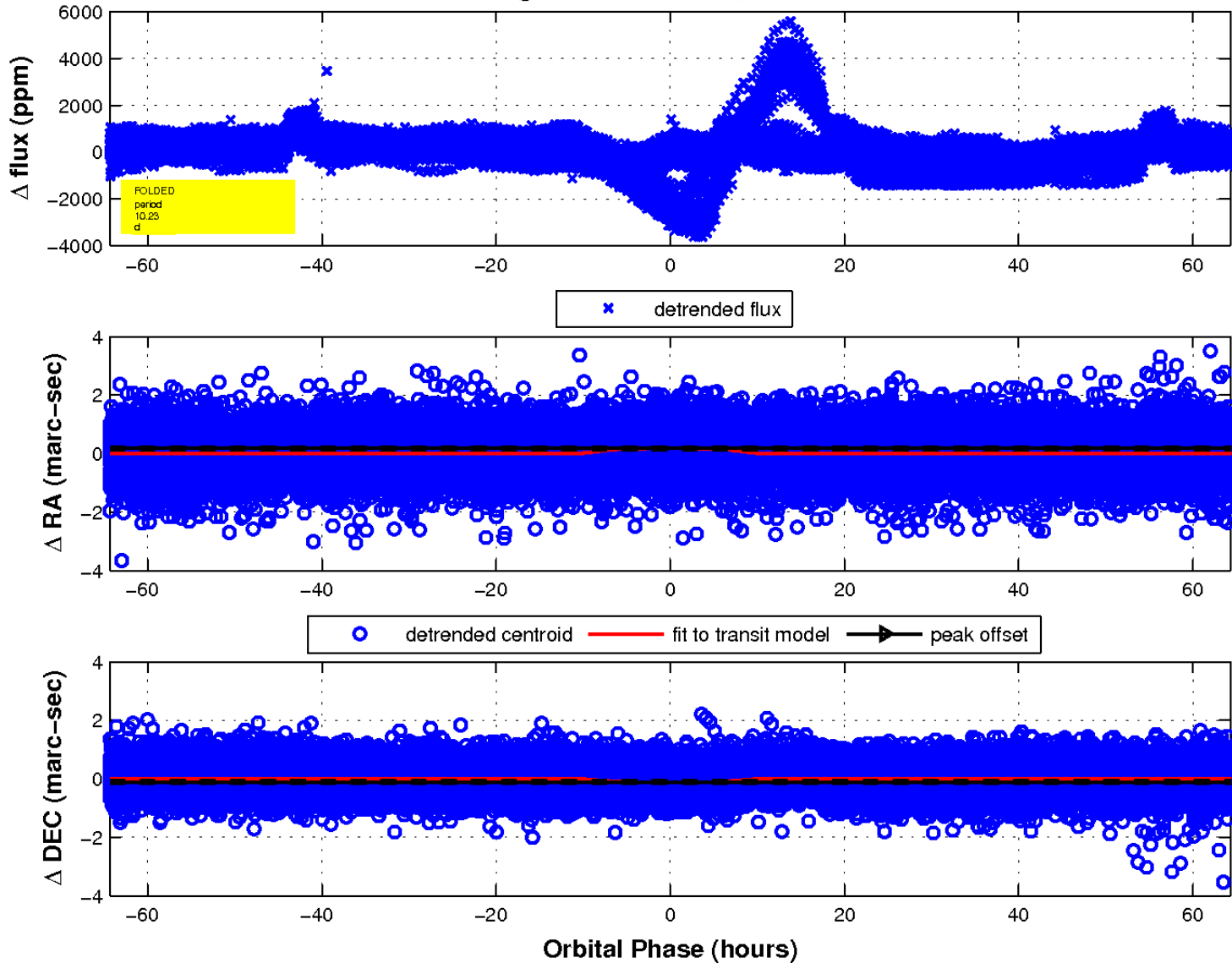
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



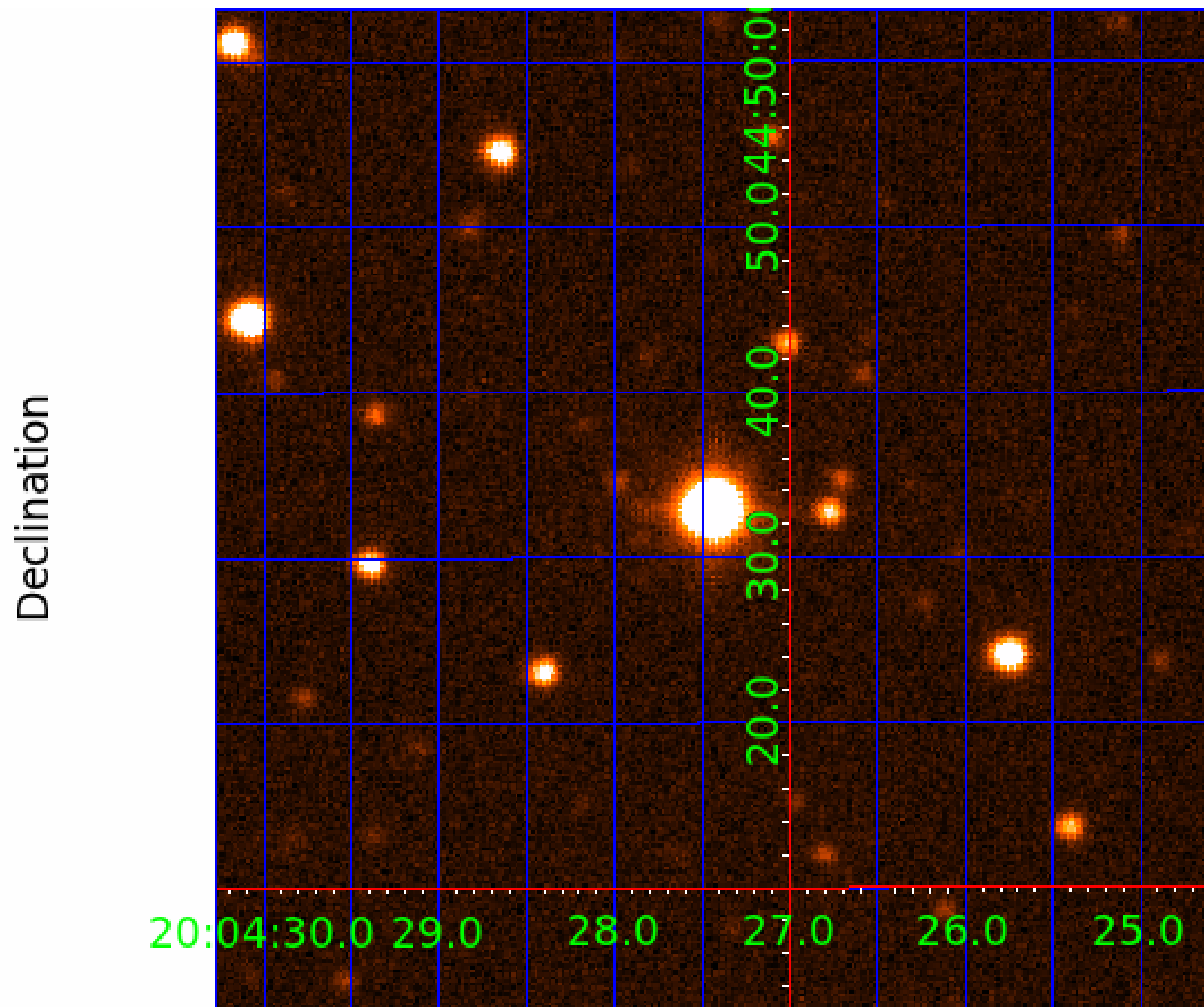
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



fluxWeightedCentroids, Planet 3 of 6



UKIRT Image



KIC 008719324

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})
008719324-01	OBS	3716.02	10.232722	139.584938	1890.4	2.166	208.0	212.8	1.66	7023	13.14	602.24
008719324-02	OBS	3716.01	10.232897	139.852111	492.6	7.216	42.0	53.7	1.66	7023	6.09	602.22
008719324-03	OBS	No	10.232868	139.553739	408.5	21.454	18.5	21.0	1.66	7023	4.22	602.22
008719324-04	OBS	No	1.705506	133.192385	26.6	10.264	8.5	8.6	1.66	7023	0.92	6565.73
008719324-06	OBS	No	2.046559	131.844742	175.6	7.500	11.7	-1.0	1.66	7023	2.23	5148.98

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
008719324-01	OBS	FP	0.00	1	0	0	0	MOD_NONUNIQ_ALT
008719324-02	OBS	FP	0.00	1	0	0	0	LPP_DV—SAME_NTL_PERIOD
008719324-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_ZUMA—LPP_DV—MOD_NONUNIQ_DV—SAME_NTL_PERIOD
008719324-04	OBS	FP	0.00	1	0	0	0	LPP_DV—MOD_NONUNIQ_DV—SAME_NTL_PERIOD—CENT_FEW_DIFFS
008719324-06	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_SKYE_ZUMA—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_ALT—SAME_NTL_PERIOD—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 008719324-04

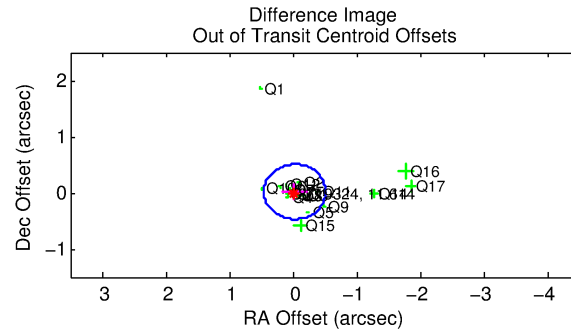
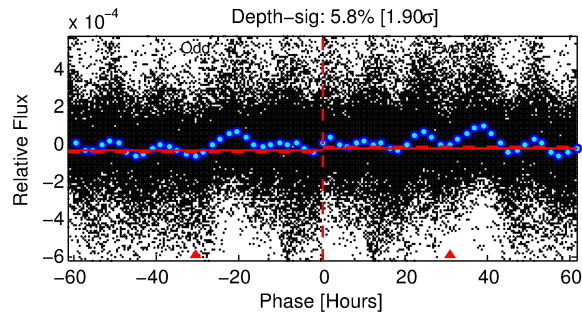
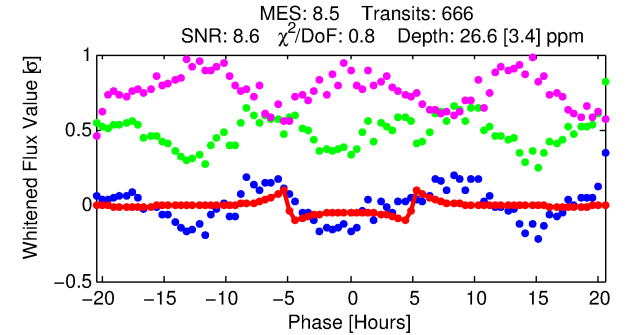
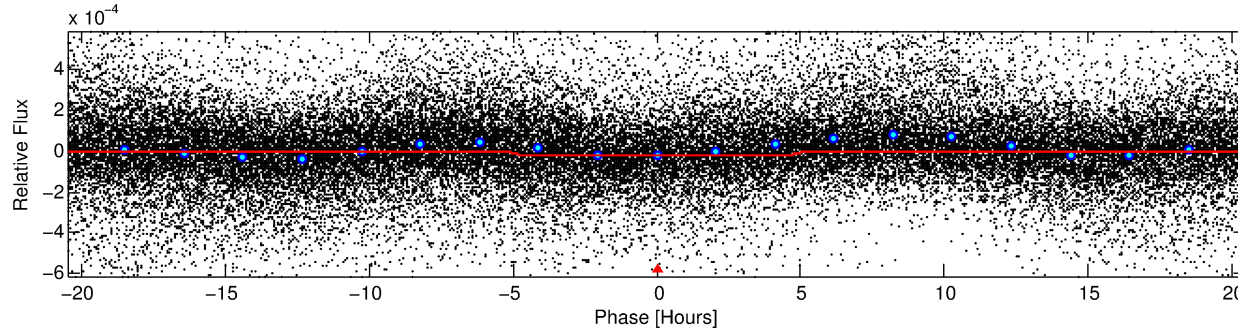
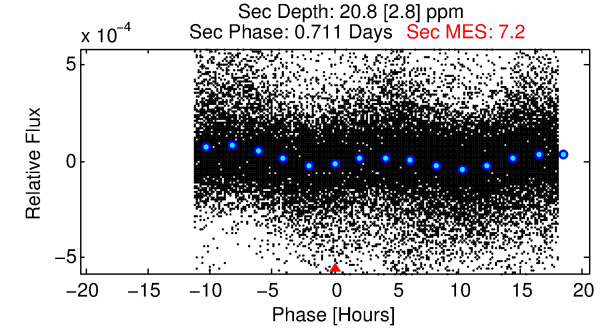
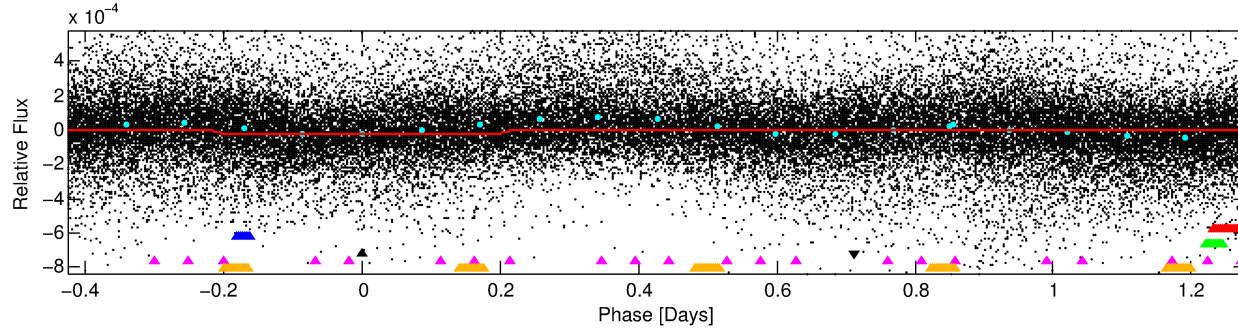
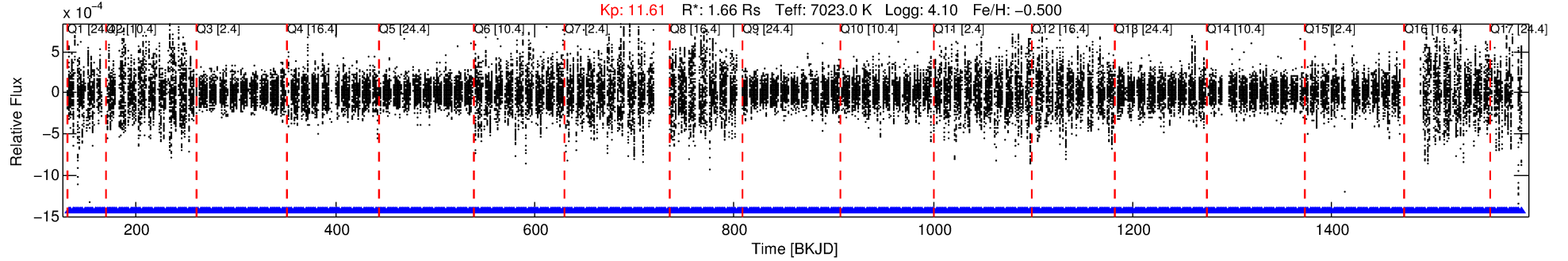
No Significant Match Found

DV One-Page Summary

KIC: 8719324 Candidate: 4 of 6 Period: 1.706 d

KOI: K03716 Corr: No Ephemeris Match

Kp: 11.61 R*: 1.66 Rs Teff: 7023.0 K Logg: 4.10 Fe/H: -0.500



DV Fit Results:

Period = 1.70551 [0.00001] d
Epoch = 133.1924 [0.0031] BKJD
Rp/R* = 0.0051 [0.0011]
a/R* = 1.24 [0.52]
b = 0.70 [0.89]
Seff = 6565.73 [2948.75]
Teq = 2295 [258] K
Rp = 0.92 [0.34] Re
a = 0.0303 [0.0082] AU
Ag = 12.45 [7.55] [1.52σ]
Teffp = 6666 [797] K [5.22σ]

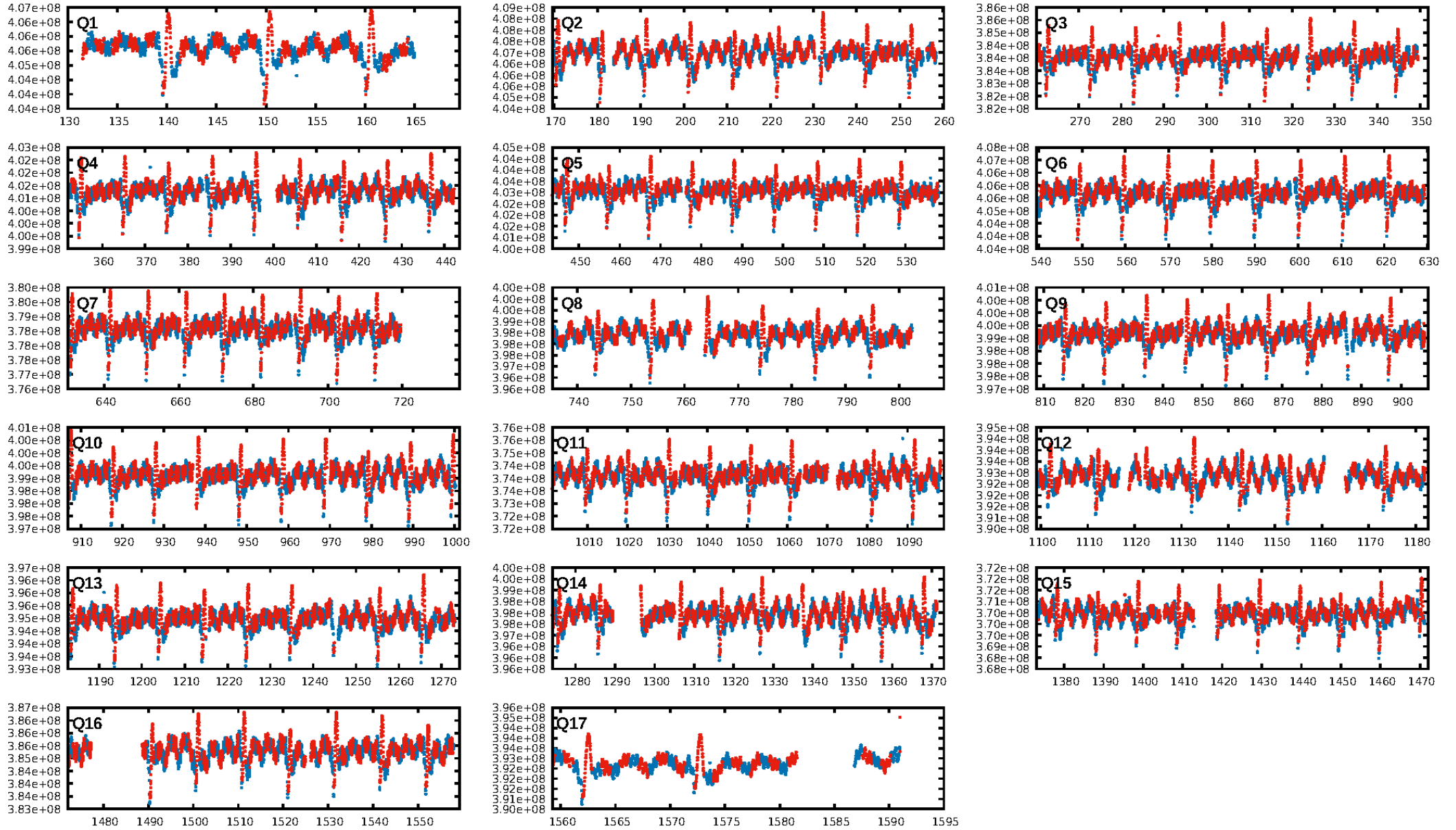
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: 48.0% [0.64σ]
ModelChiSquare2-sig: N/A
ModelChiSquareGoF-sig: N/A
Bootstrap-pfa: N/A
RollingBand-fgt: 1.00 [636/636]
GhostDiagnostic-chr: 1.168
Centroid-sig: 2.4%
Centroid-so: 1.431 arcsec [2.30σ]
OotOffset-rm: 0.032 arcsec [0.20σ]
KicOffset-rm: 0.048 arcsec [0.31σ]
OotOffset-st: 4/4/4/5 [17]
KicOffset-st: 4/4/4/5 [17]
DiffImageQuality-fgm: 0.12 [2/17]
DiffImageOverlap-fno: 0.24 [4/17]

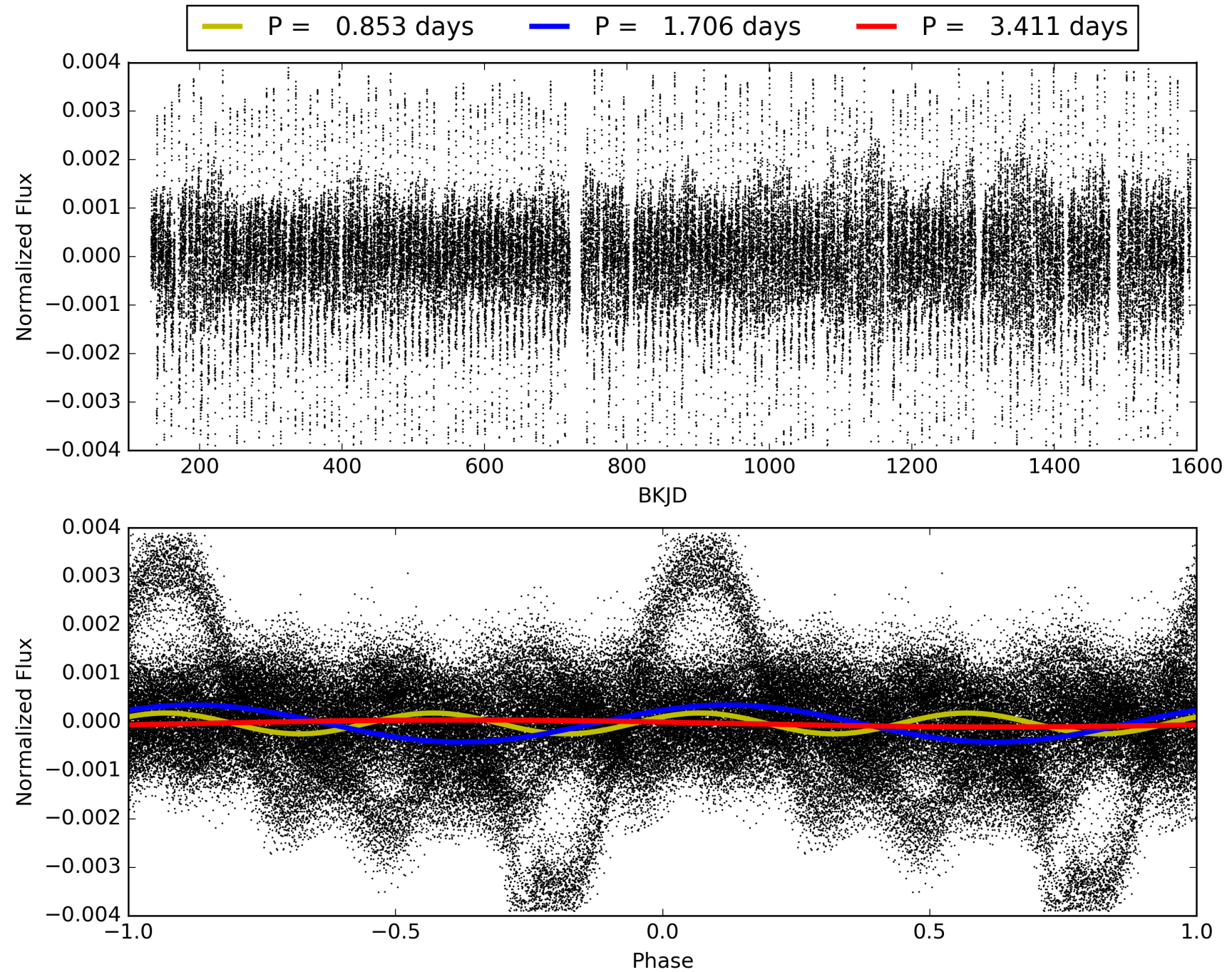
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 31-Jan-2016 06:15:14 Z

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

TCE 008719324-04, PDC Light Curves

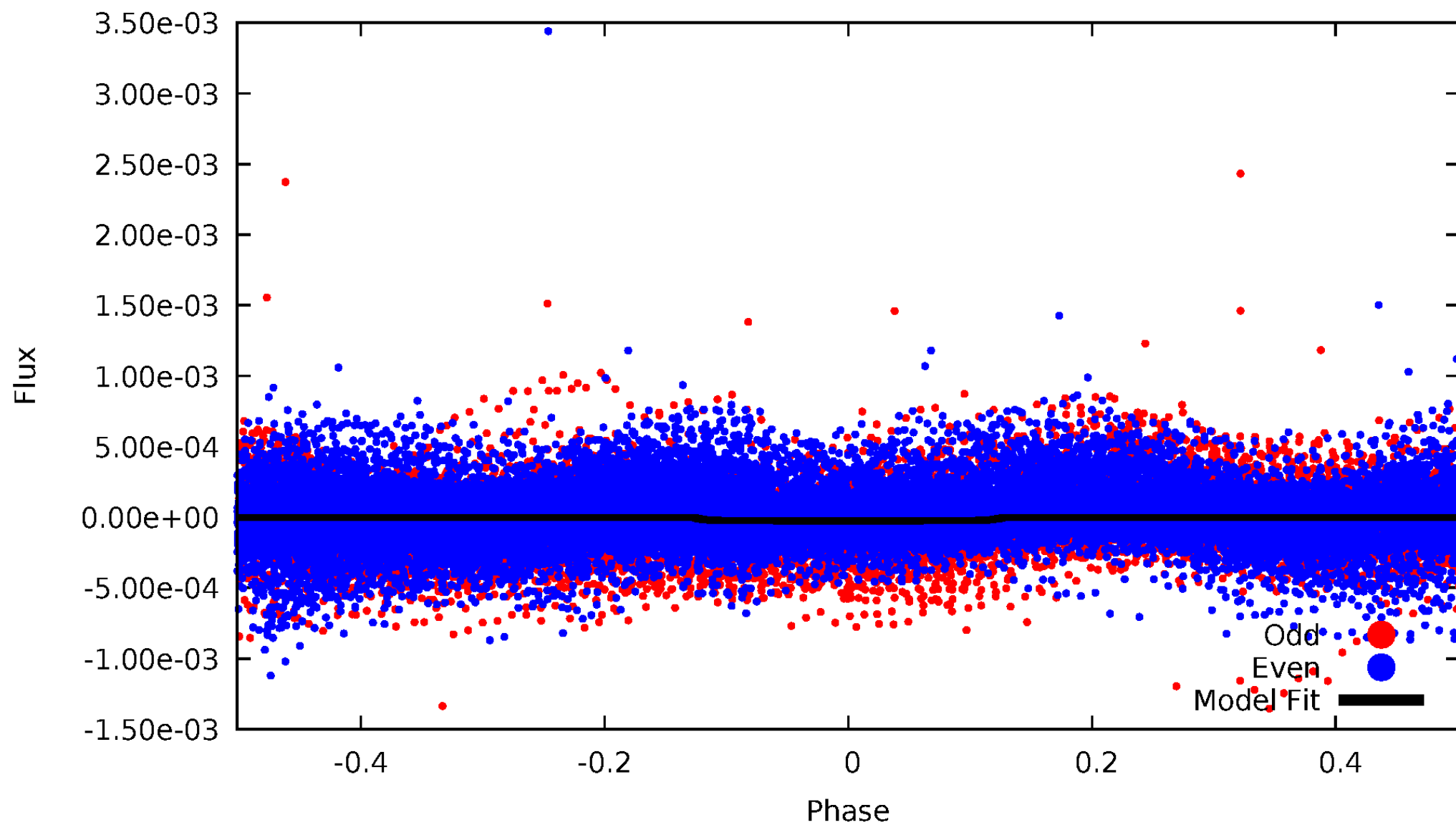


TCE 008719324-04



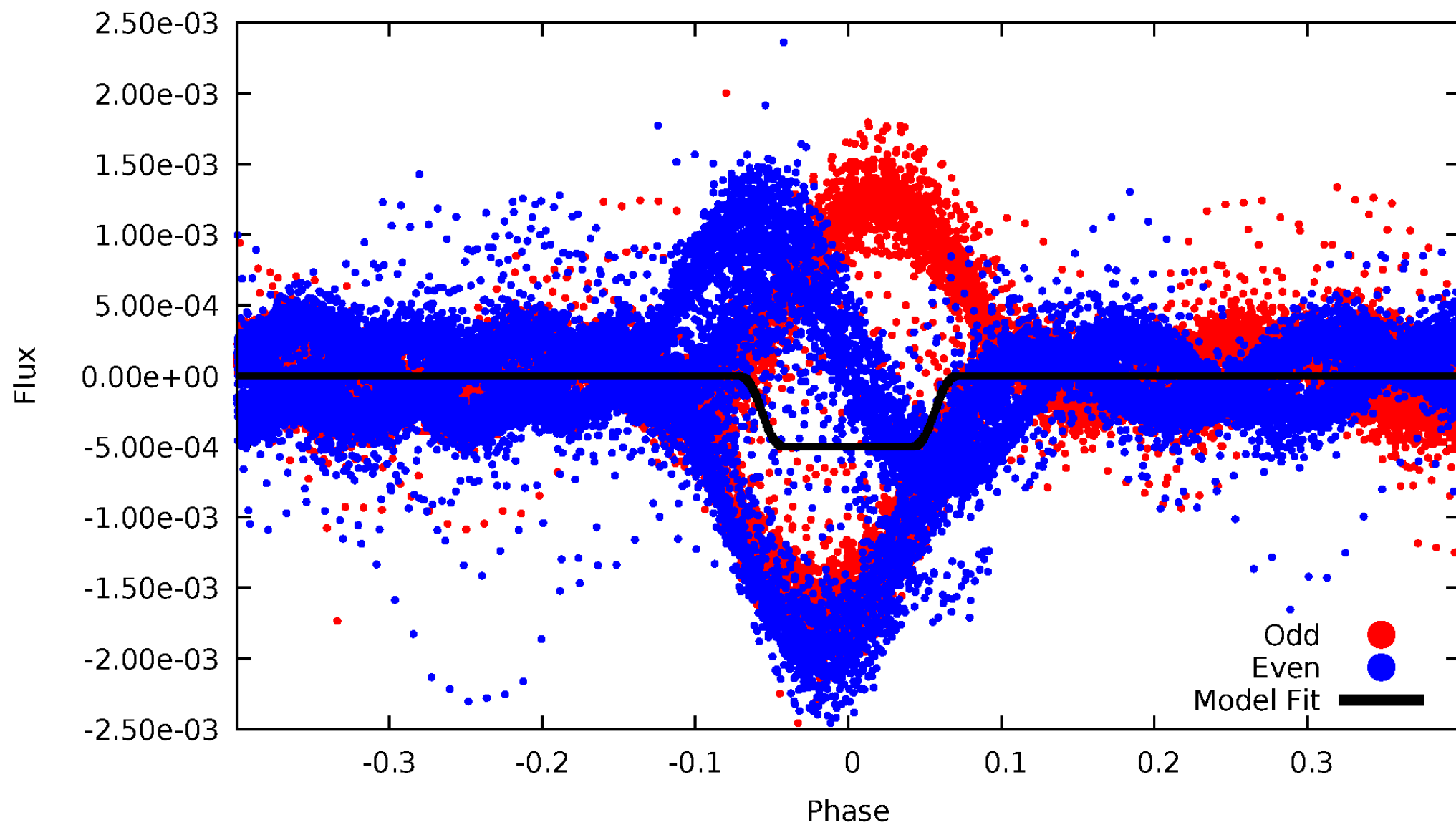
DV Odd/Even

TCE 008719324-04



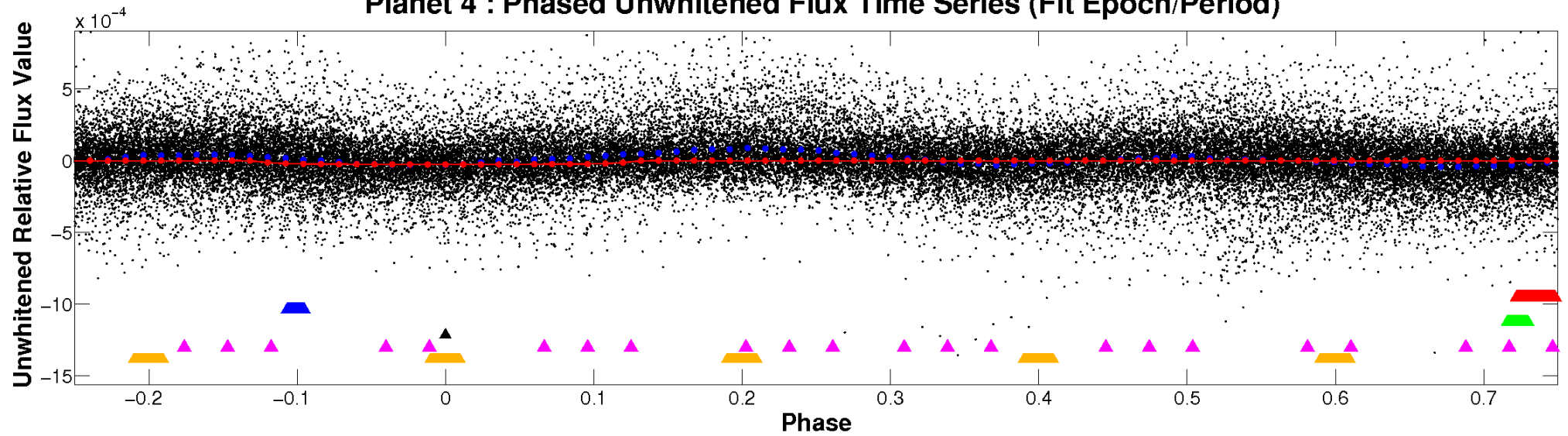
ALT Odd/Even

TCE 008719324-04

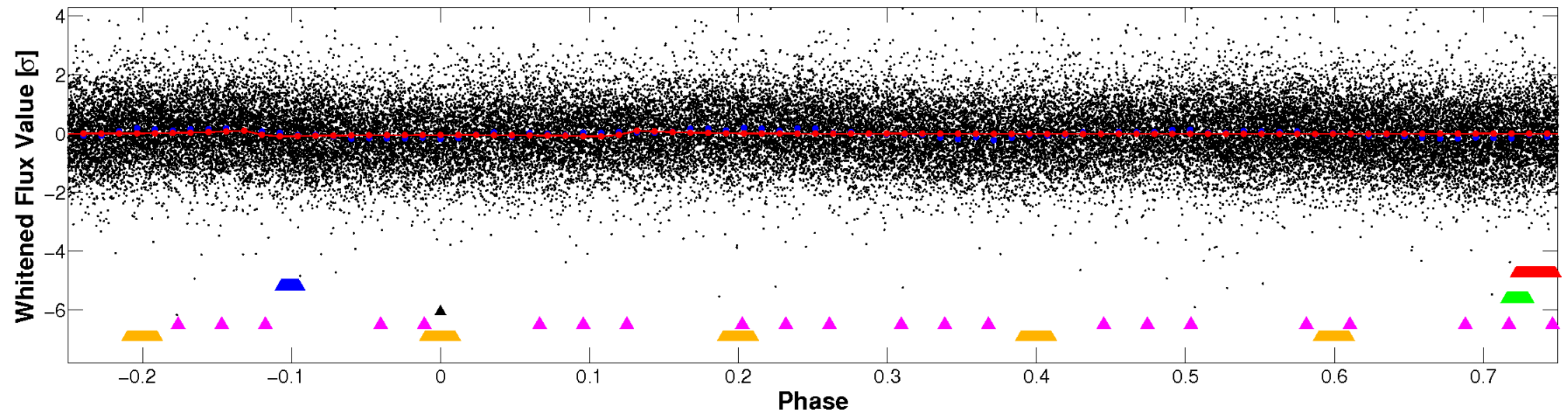


Non-Whitened Vs. Whitened Light Curve

Planet 4 : Phased Unwhitened Flux Time Series (Fit Epoch/Period)

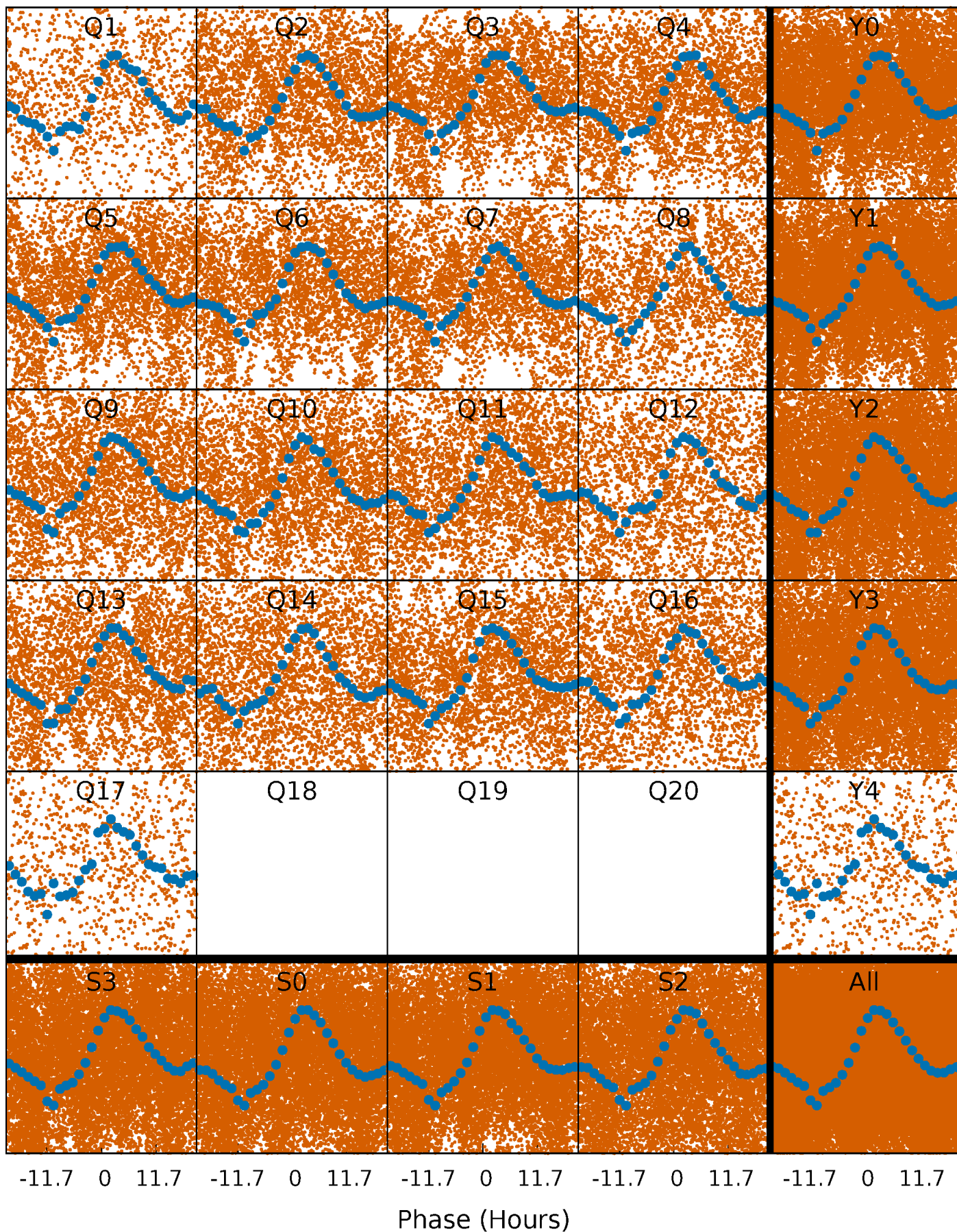


Planet 4 : Phased Whitened Flux Time Series (Fit Epoch/Period)



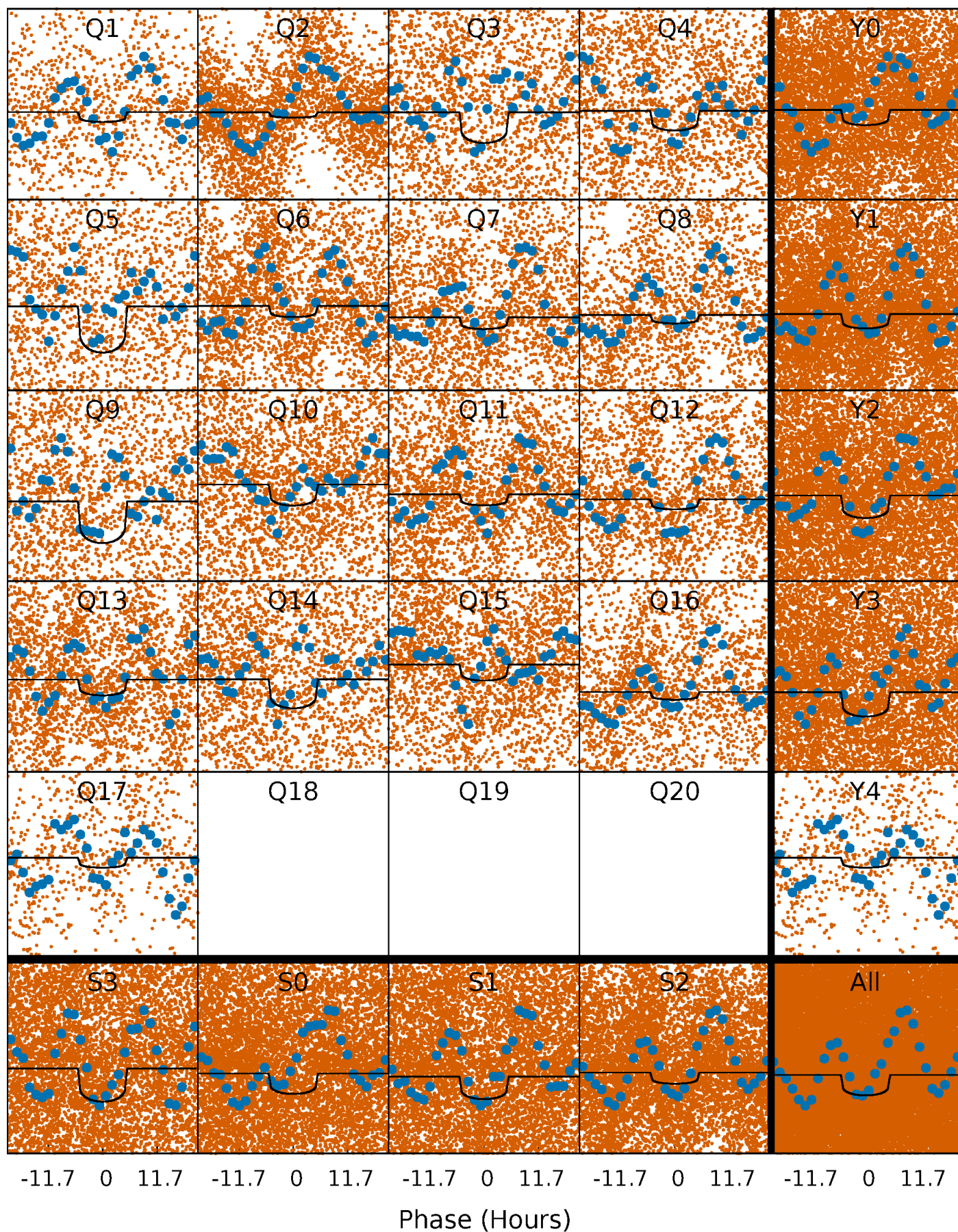
PDC Quarter-Phased Transit Curves

TCE 008719324-04 P= 1.705506 Days $T_0=133.192385$ (BKJD)



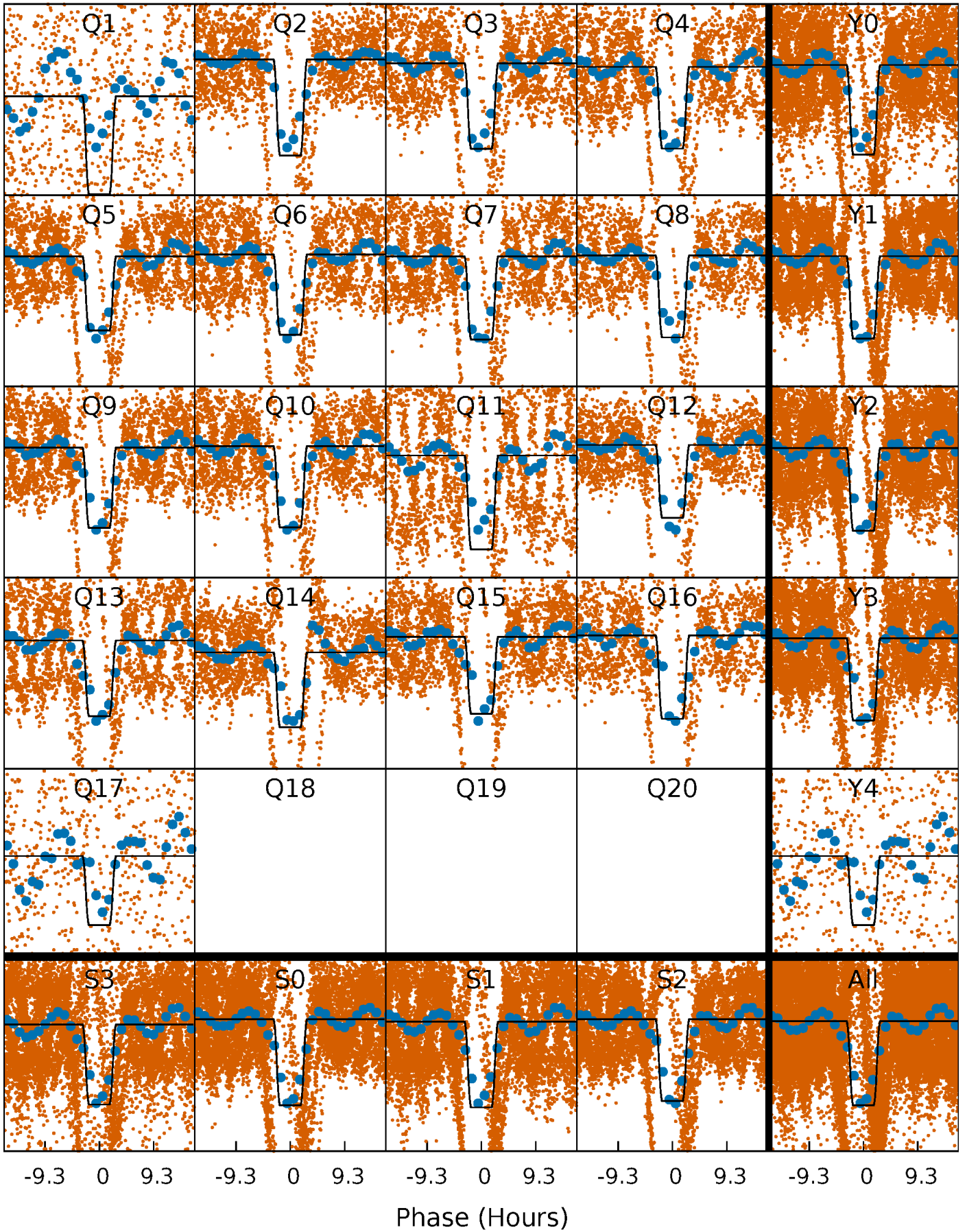
DV Quarter-Phased Transit Curves

TCE 008719324-04 P= 1.705506 Days $T_0=133.192385$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

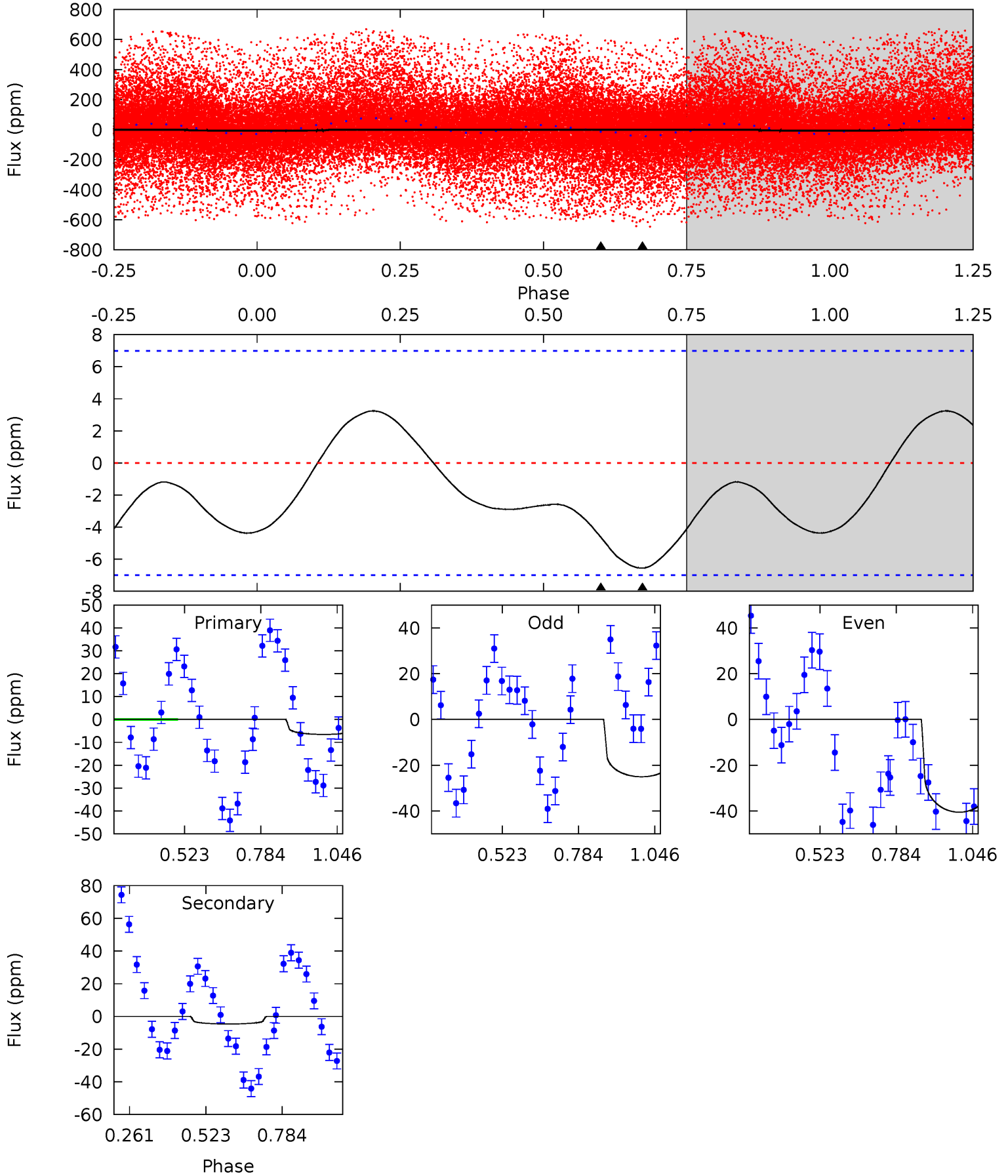
TCE 008719324-04 P= 1.705401 Days $T_0=133.195121$ (BKJD)



DV Model-Shift Uniqueness Test

008719324-04, P = 1.705506 Days, E = 131.486879 Days

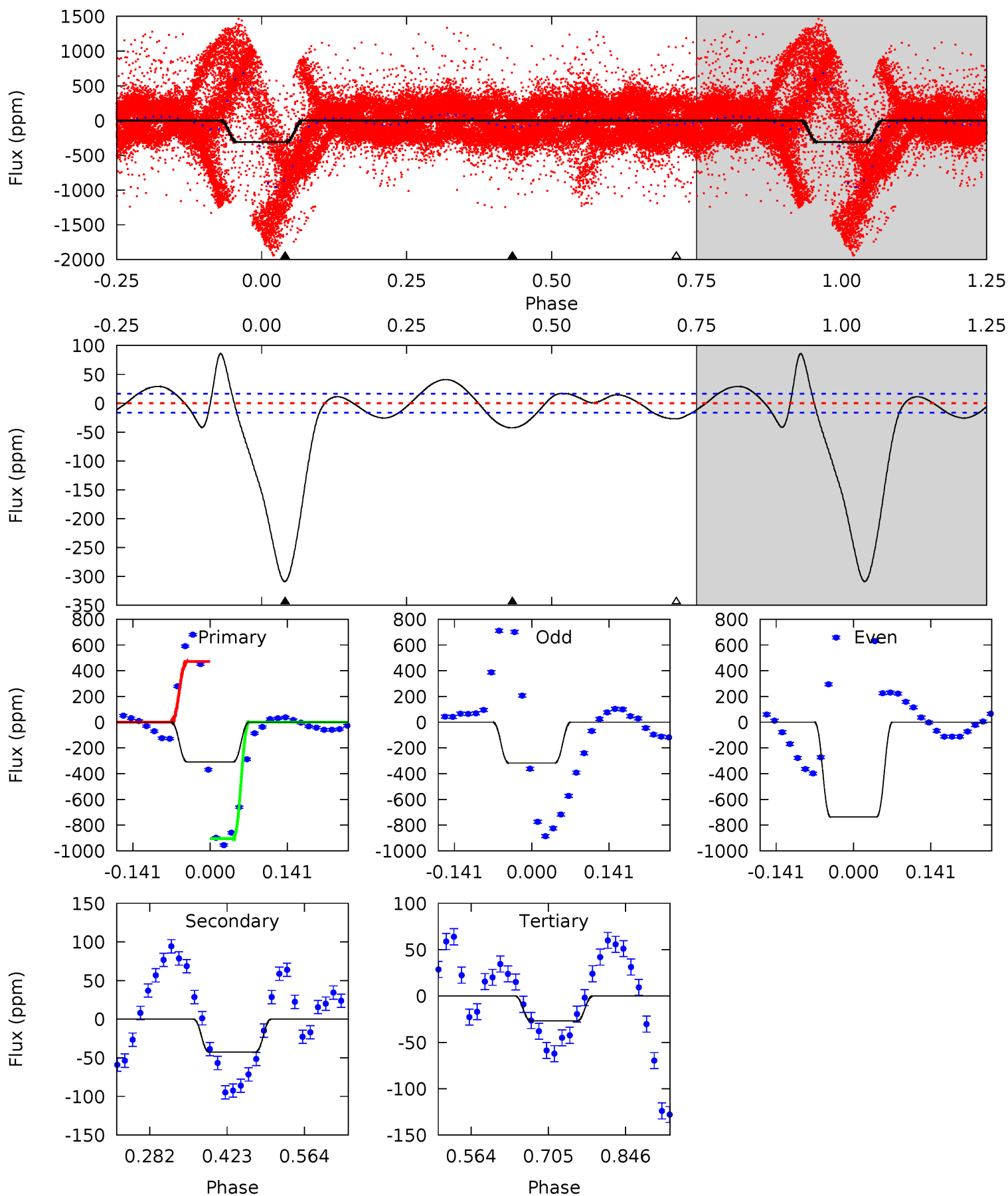
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
4.09	2.88	0	0	4.36	1.12	1.71	4.09	4.09	2.88	2.88	4.66	-2.14	0.33	4.08



Alt Model-Shift Uniqueness Test

008719324-04, P = 1.705401 Days, E = 131.489720 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
84.4	11.7	7.35	0	4.49	1.47	5.18	77.1	84.4	4.31	11.7	60.7	-41.1	0.22	0



Stellar Parameters For KIC 008719324

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	$M(M_{\odot})$	p_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	7023^{+216}_{-312}	$4.102^{+0.234}_{-0.156}$	$-0.500^{+0.250}_{-0.300}$	$1.664^{+0.460}_{-0.506}$	$1.276^{+0.178}_{-0.218}$	$0.390^{+0.516}_{-0.182}$
	+3%/-4%	+6%/-4%	+50%/-60%	+28%/-30%	+14%/-17%	+132%/-47%
Source	PHO54	PHO54	PHO54	DSEP		

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

Secondary Eclipse Parameters for KIC 008719324-04 / KOI

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	-5 ± 2	$0.91^{+0.25}_{-0.23}$	3178^{+254}_{-290}	4537^{+642}_{-499}	$2.774^{+2.536}_{-1.241}$
Alt.	-43 ± 4	$4.03^{+0.63}_{-0.68}$	3176^{+249}_{-274}	3870^{+152}_{-156}	$1.319^{+0.545}_{-0.336}$

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

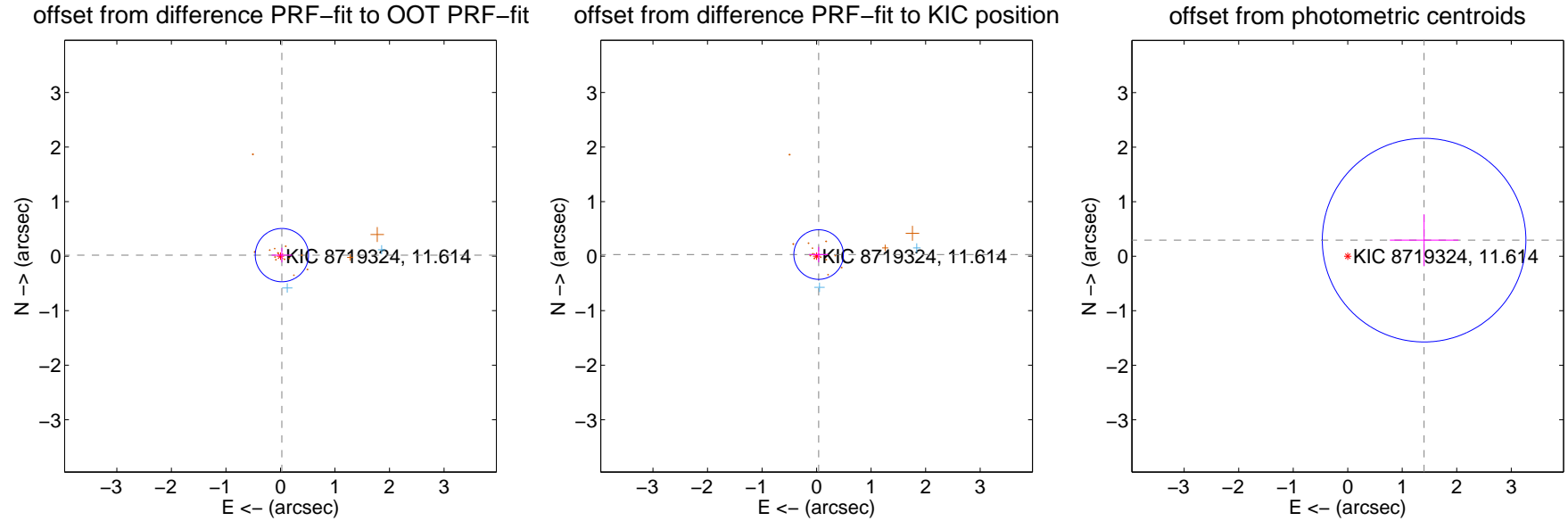
DV Centroid Data

Supplemental centroid analysis for 008719324-04. **Kepler magnitude: 11.61.** Transit SNR 8.59

There are 2 quarters with good PRF difference image offsets

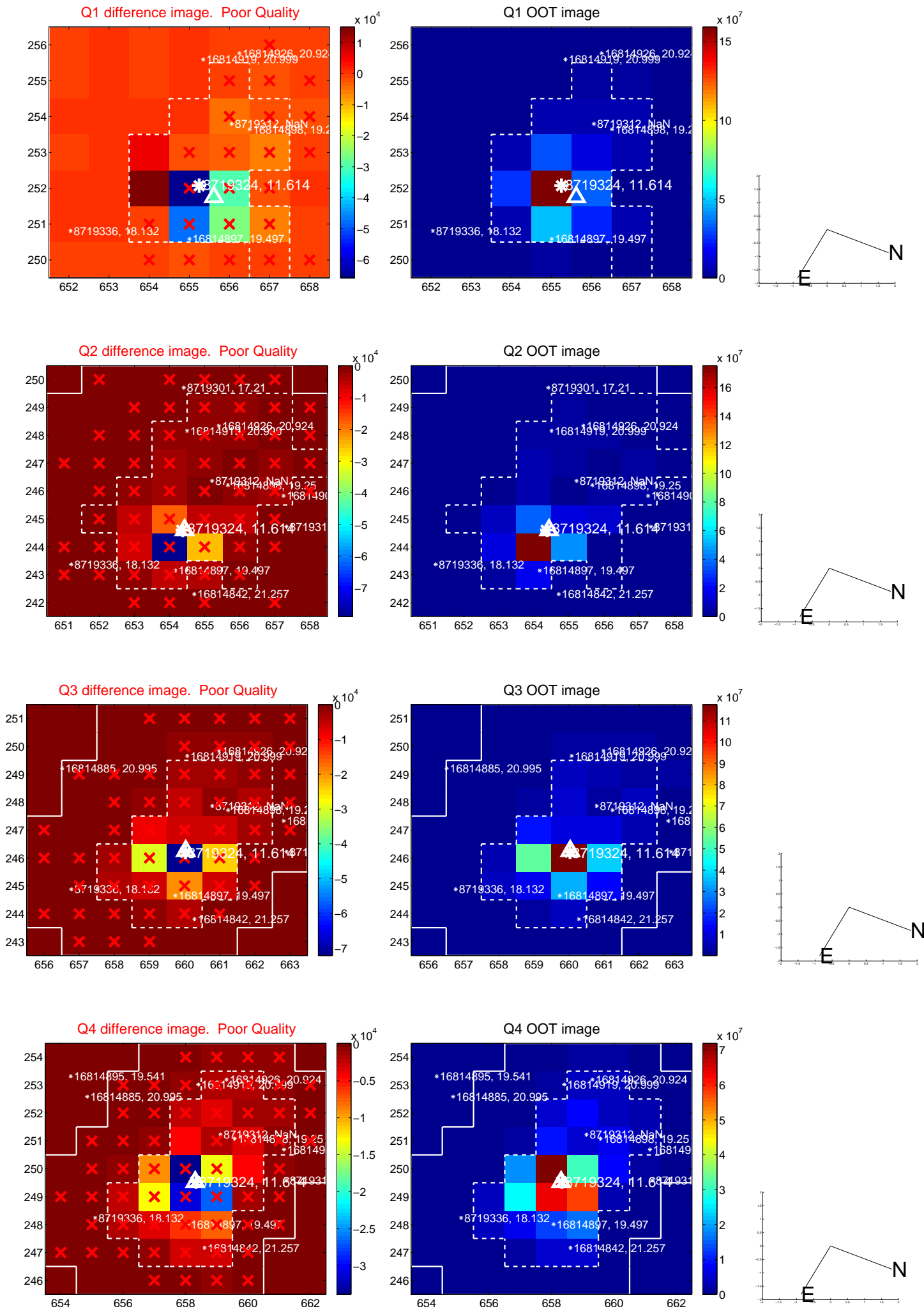
The direct PRF centroid is offset from the target star catalog position by about 0.04 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.032 ± 0.163	0.20	-0.026 ± 0.188	0.019 ± 0.133
PRF-fit source offset from KIC position	0.048 ± 0.152	0.31	-0.038 ± 0.175	0.029 ± 0.140
photometric centroid source offset	1.43 ± 0.62	2.30	-1.40 ± 0.63	0.29 ± 0.47

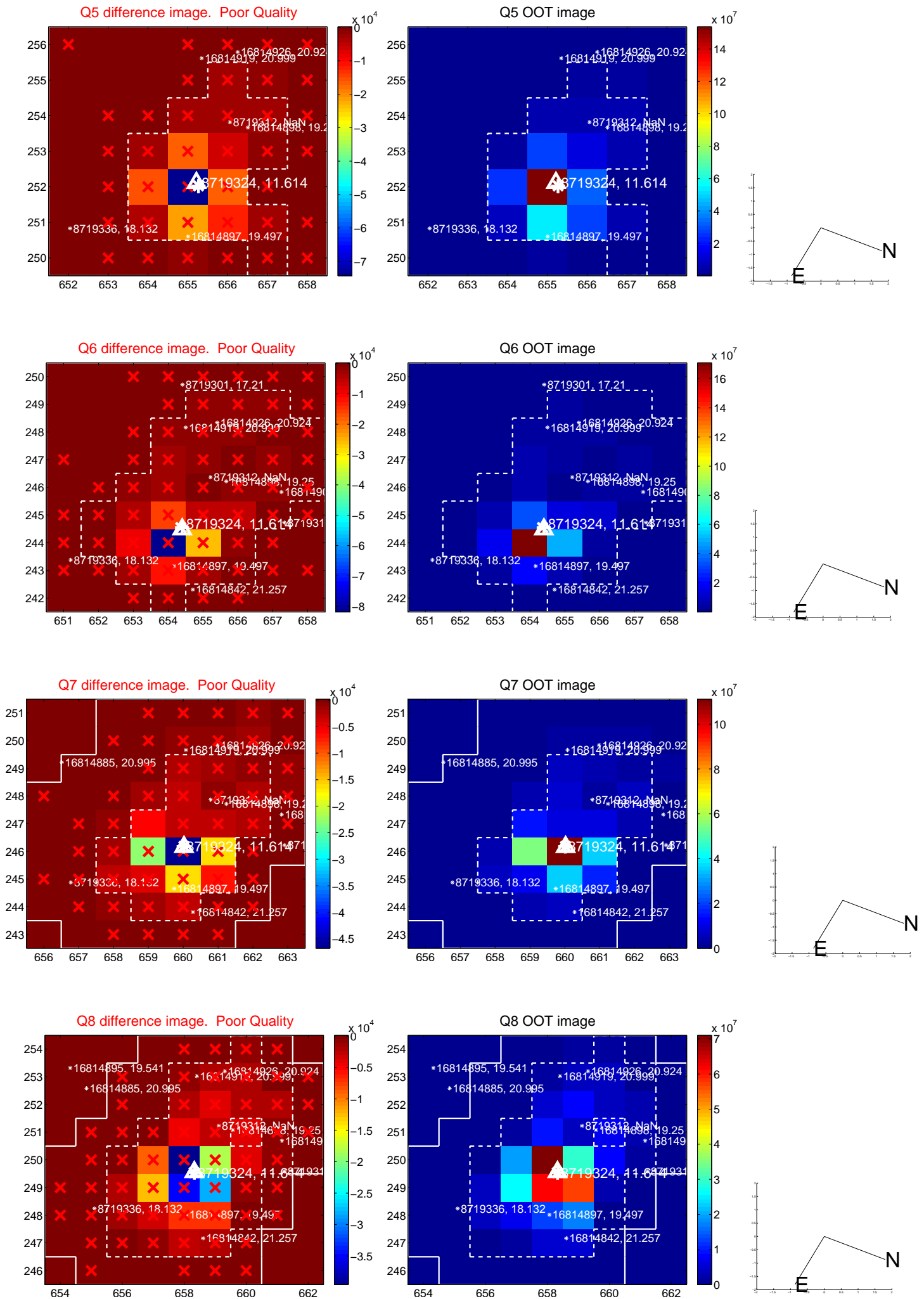


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets;** magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

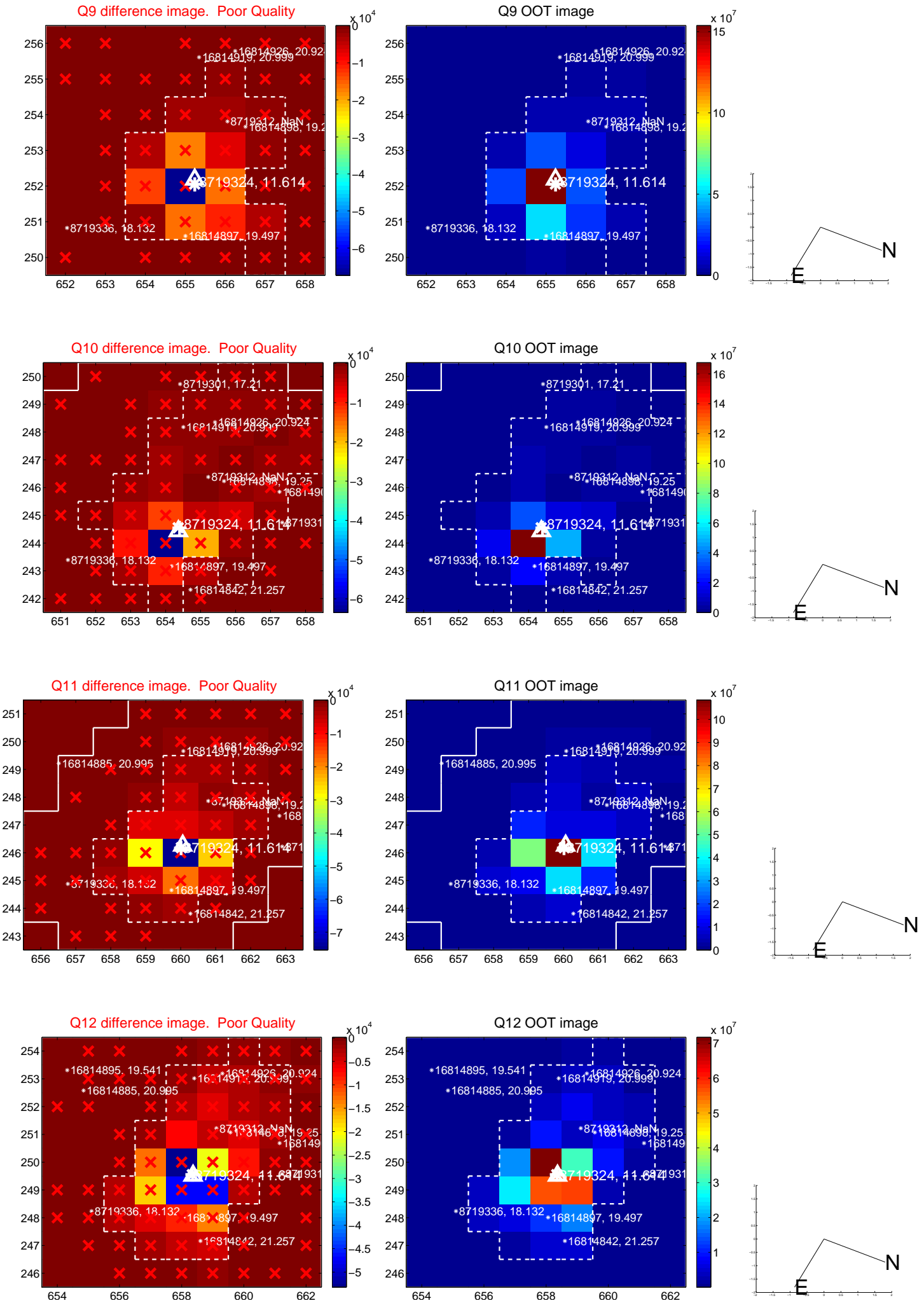
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



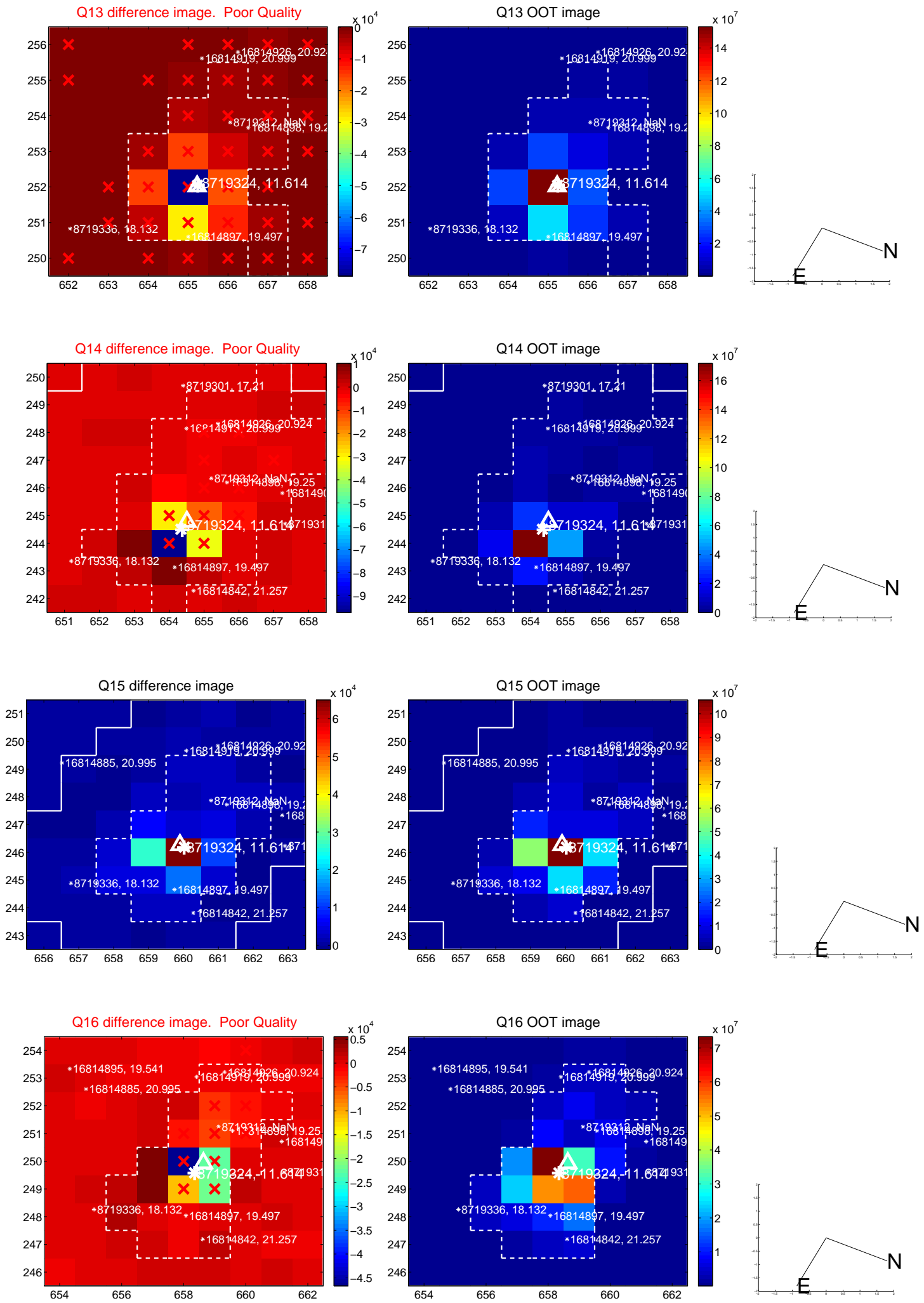
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



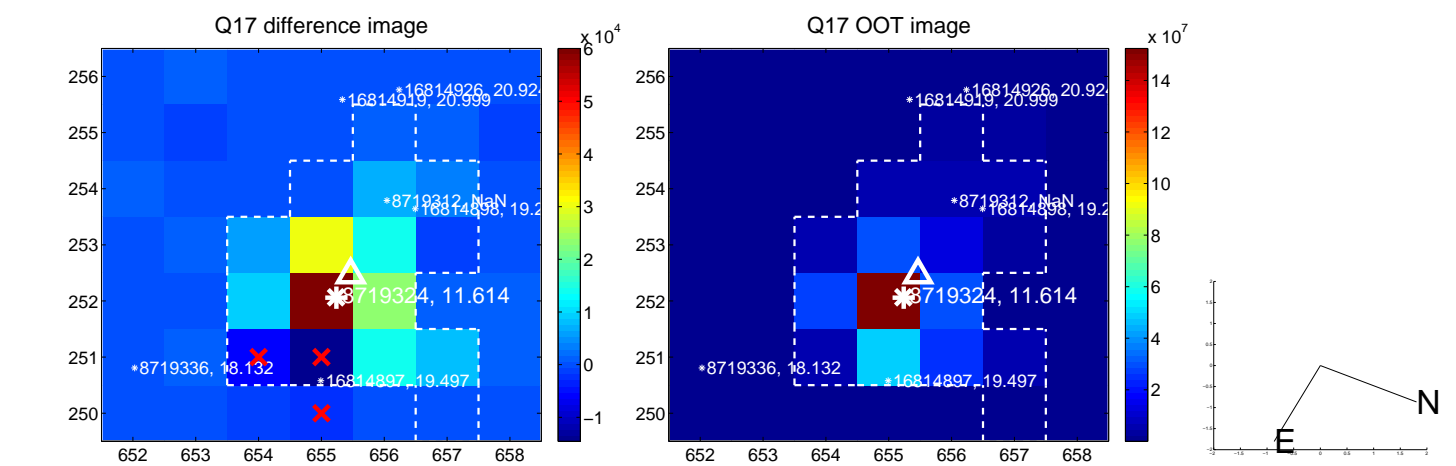
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



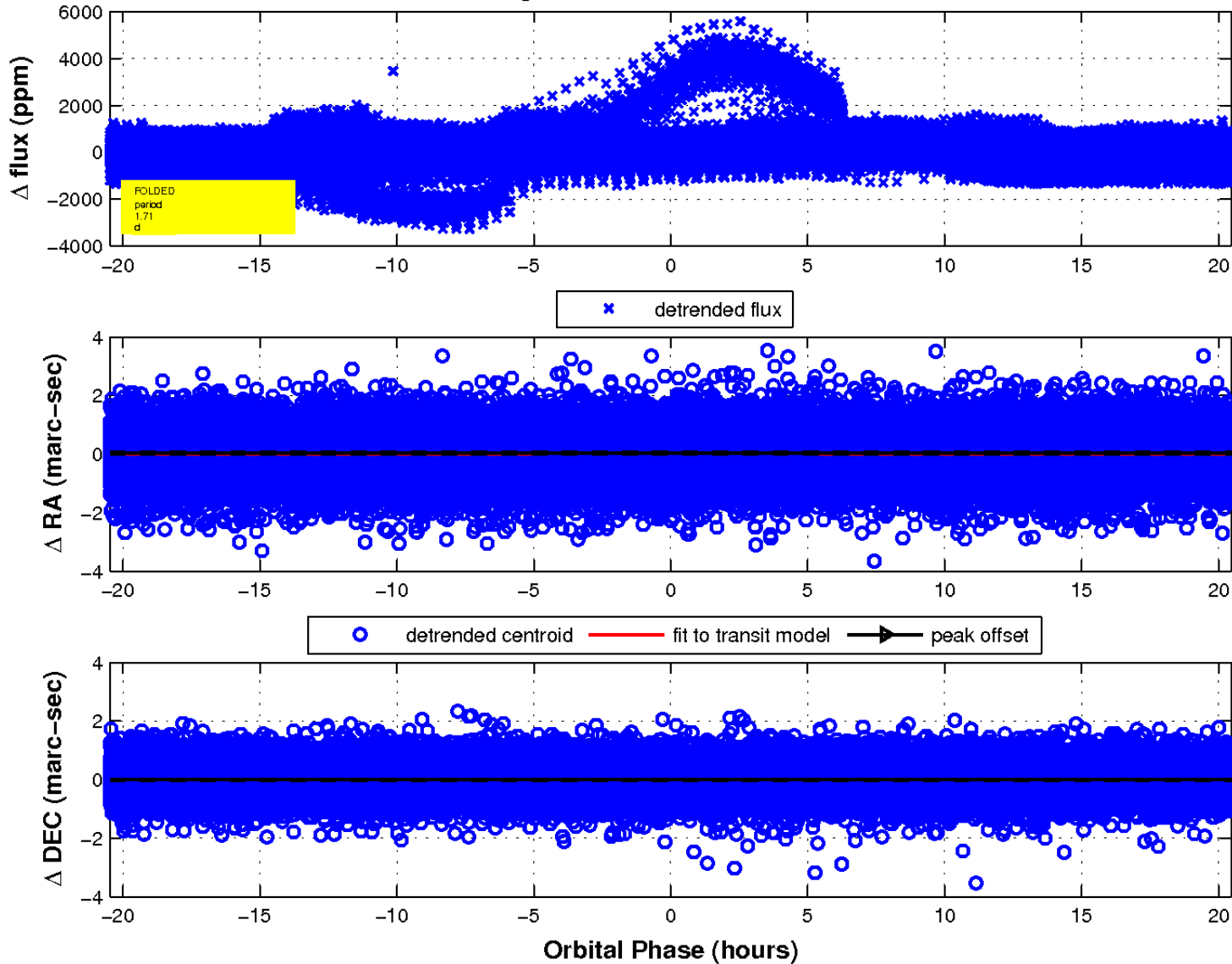
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



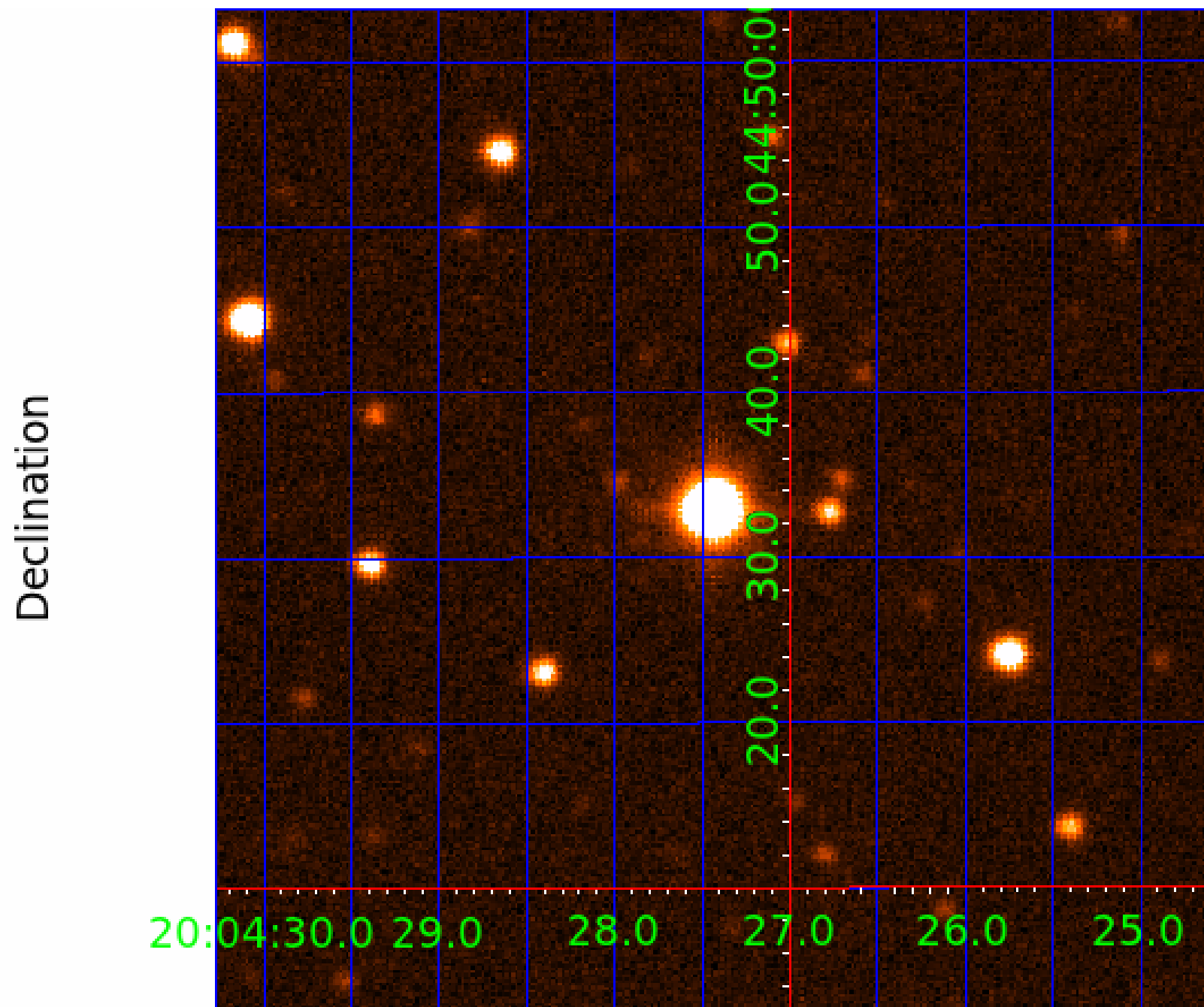
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



fluxWeightedCentroids, Planet 4 of 6



UKIRT Image



KIC 008719324

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})
008719324-01	OBS	3716.02	10.232722	139.584938	1890.4	2.166	208.0	212.8	1.66	7023	13.14	602.24
008719324-02	OBS	3716.01	10.232897	139.852111	492.6	7.216	42.0	53.7	1.66	7023	6.09	602.22
008719324-03	OBS	No	10.232868	139.553739	408.5	21.454	18.5	21.0	1.66	7023	4.22	602.22
008719324-04	OBS	No	1.705506	133.192385	26.6	10.264	8.5	8.6	1.66	7023	0.92	6565.73
008719324-06	OBS	No	2.046559	131.844742	175.6	7.500	11.7	-1.0	1.66	7023	2.23	5148.98

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
008719324-01	OBS	FP	0.00	1	0	0	0	MOD_NONUNIQ_ALT
008719324-02	OBS	FP	0.00	1	0	0	0	LPP_DV—SAME_NTL_PERIOD
008719324-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_ZUMA—LPP_DV—MOD_NONUNIQ_DV—SAME_NTL_PERIOD
008719324-04	OBS	FP	0.00	1	0	0	0	LPP_DV—MOD_NONUNIQ_DV—SAME_NTL_PERIOD—CENT_FEW_DIFFS
008719324-06	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_SKYE_ZUMA—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_ALT—SAME_NTL_PERIOD—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 008719324-06

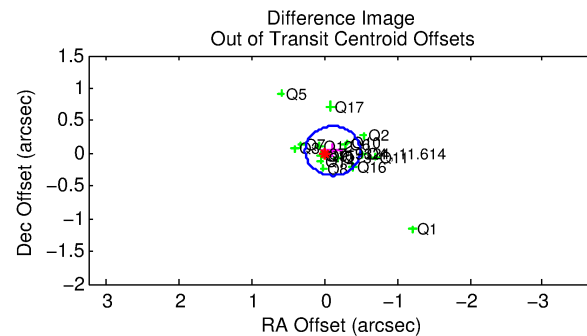
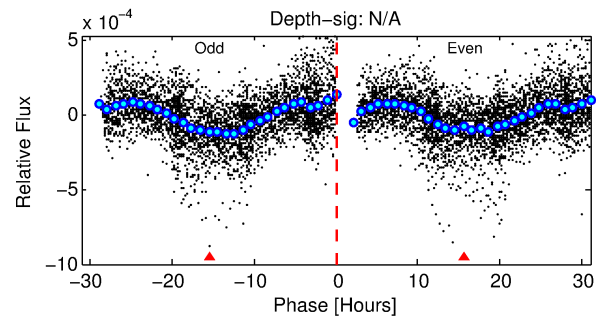
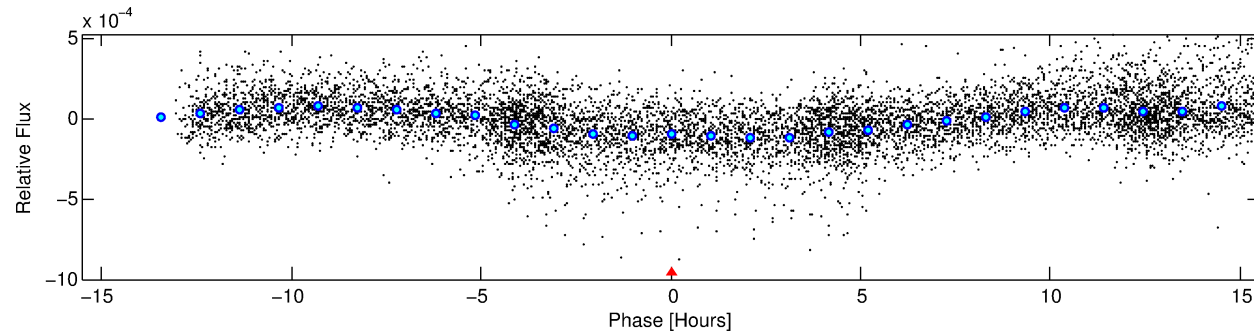
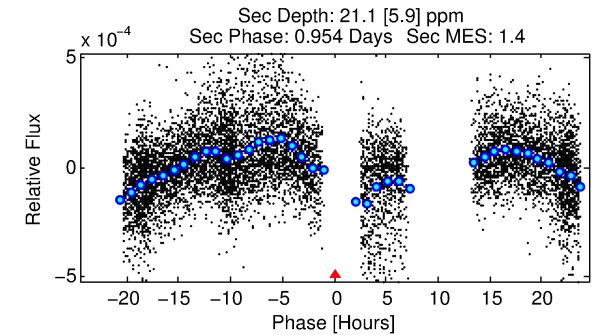
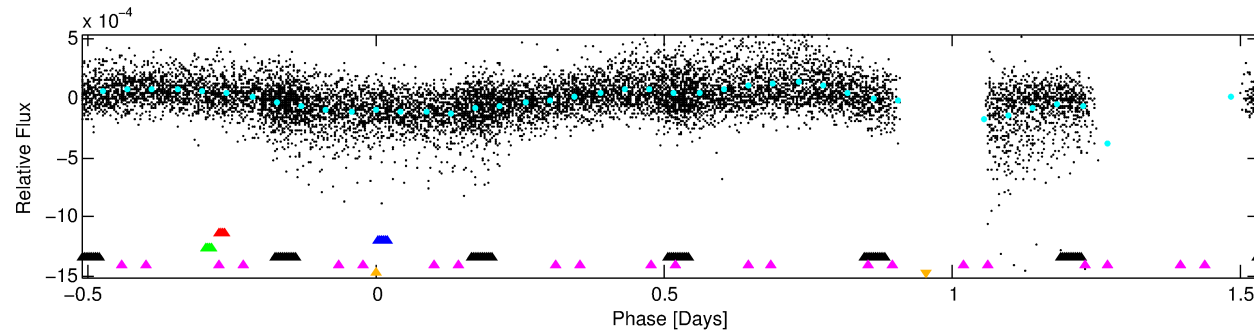
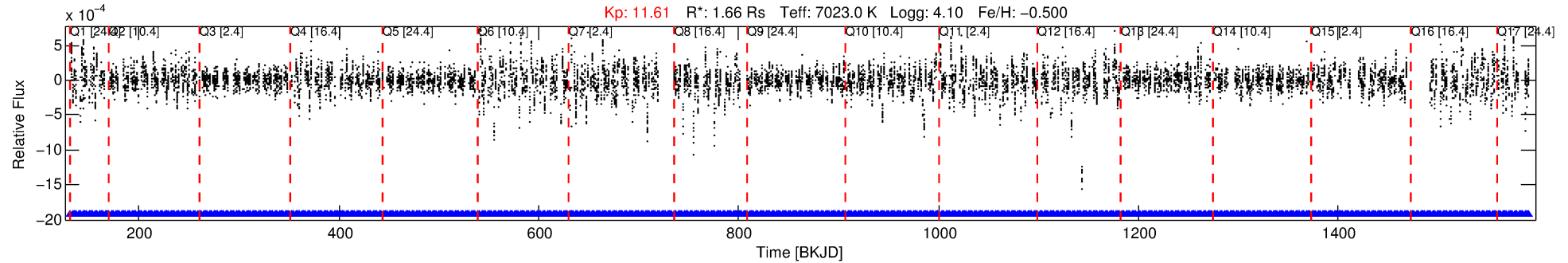
No Significant Match Found

DV One-Page Summary

KIC: 8719324 Candidate: 6 of 6 Period: 2.047 d

KOI: K03716 Corr: No Ephemeris Match

Kp: 11.61 R*: 1.66 Rs Teff: 7023.0 K Logg: 4.10 Fe/H: -0.500



TPS TCE Results:

Period = 2.04656 d
Epoch = 131.8447 BKJD

DV fit results are unavailable

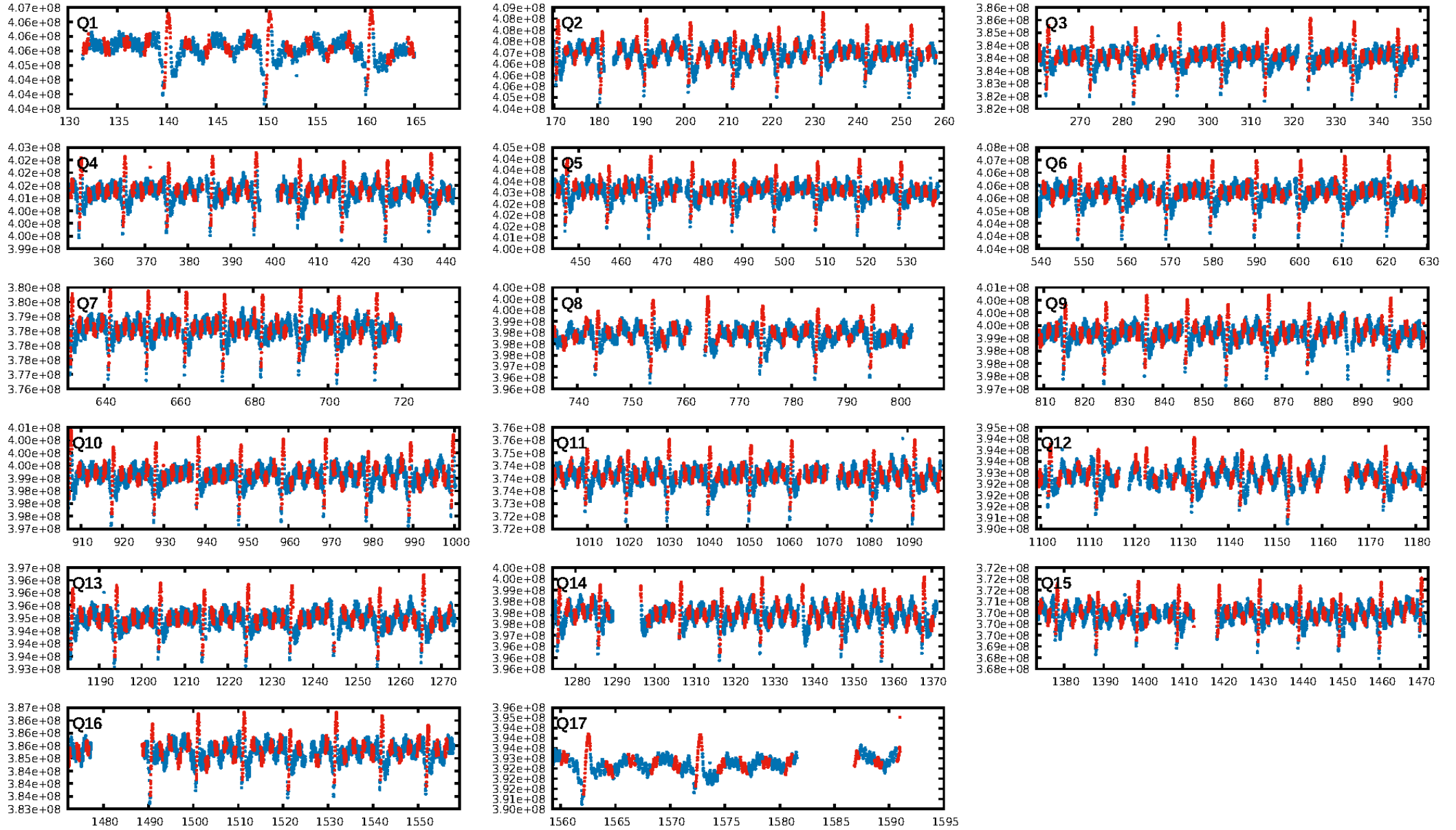
DV Diagnostic Results:

ShortPeriod-sig: 48.0% [0.64 σ]
LongPeriod-sig: 100.0% [25.17 σ]
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: N/A
RollingBand-fgt: 1.00 [128/128]
GhostDiagnostic-chr: 0.6036
Centroid-sig: 1.1%
Centroid-so: 0.104 arcsec [2.37 σ]
OotOffset-rm: 0.117 arcsec [0.93 σ]
KicOffset-rm: 0.156 arcsec [1.32 σ]
OotOffset-st: 4/4/4/5 [17]
KicOffset-st: 4/4/4/5 [17]
DiffImageQuality-fgm: 1.00 [17/17]
DiffImageOverlap-fno: 1.00 [17/17]

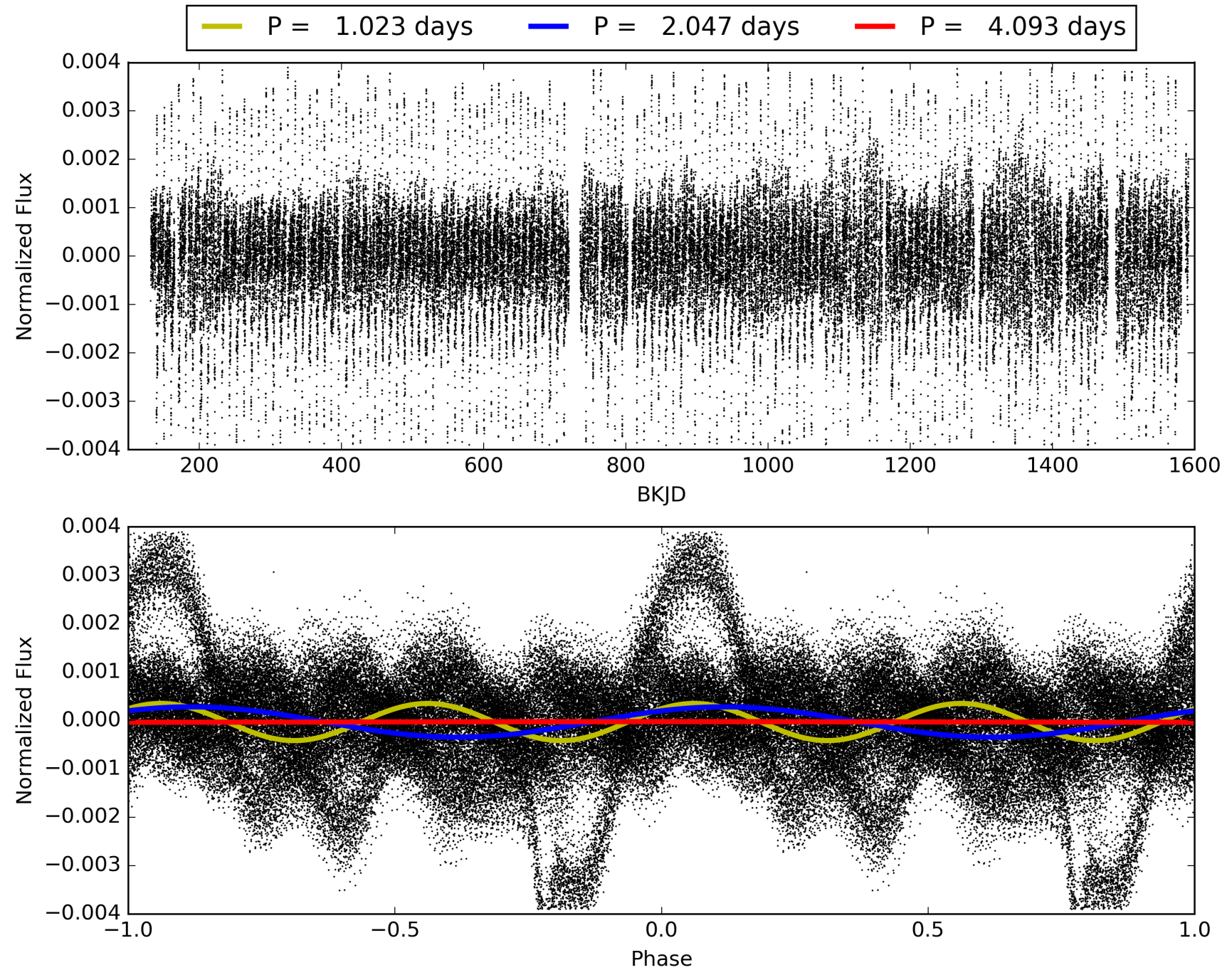
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 31-Jan-2016 06:15:28 Z

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

TCE 008719324-06, PDC Light Curves

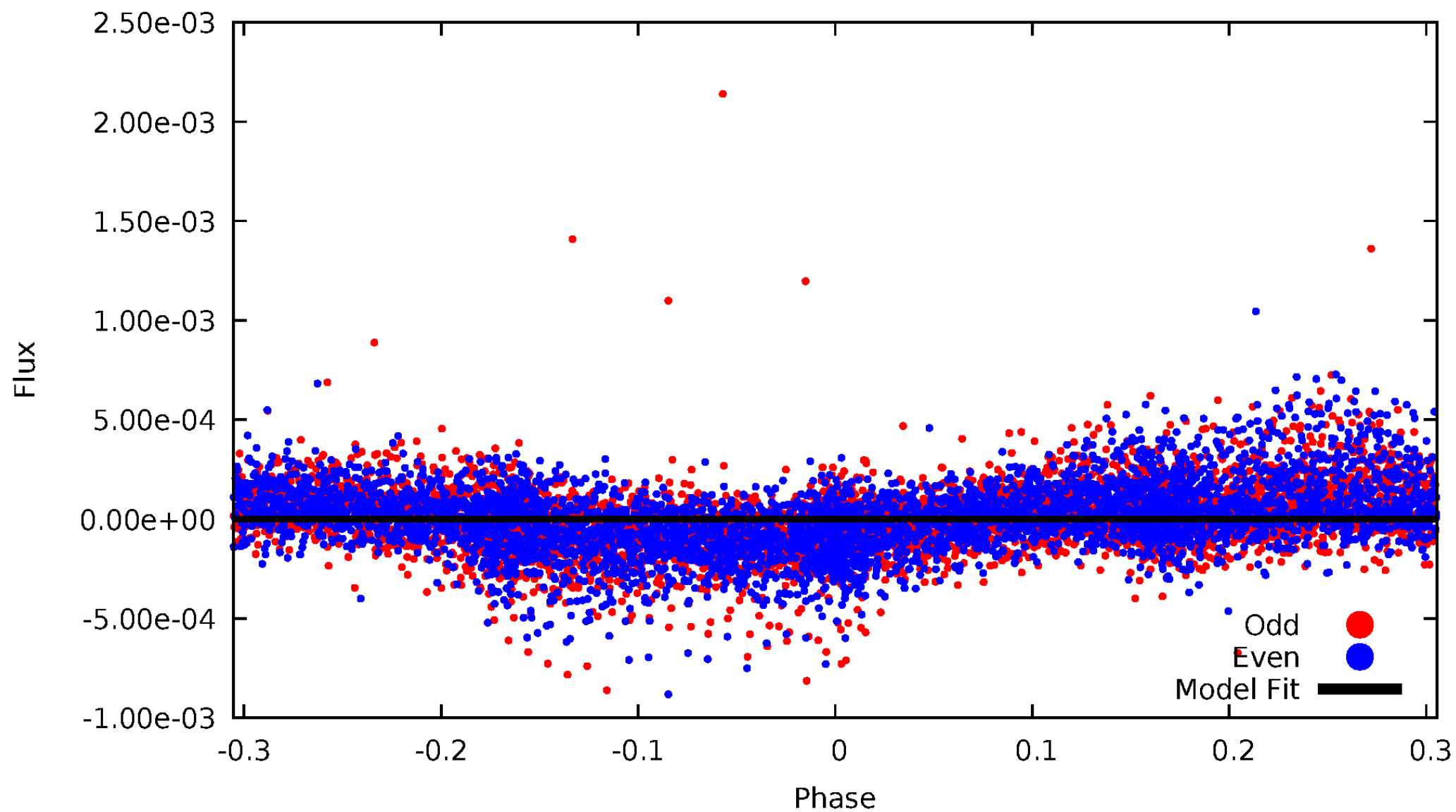


TCE 008719324-06



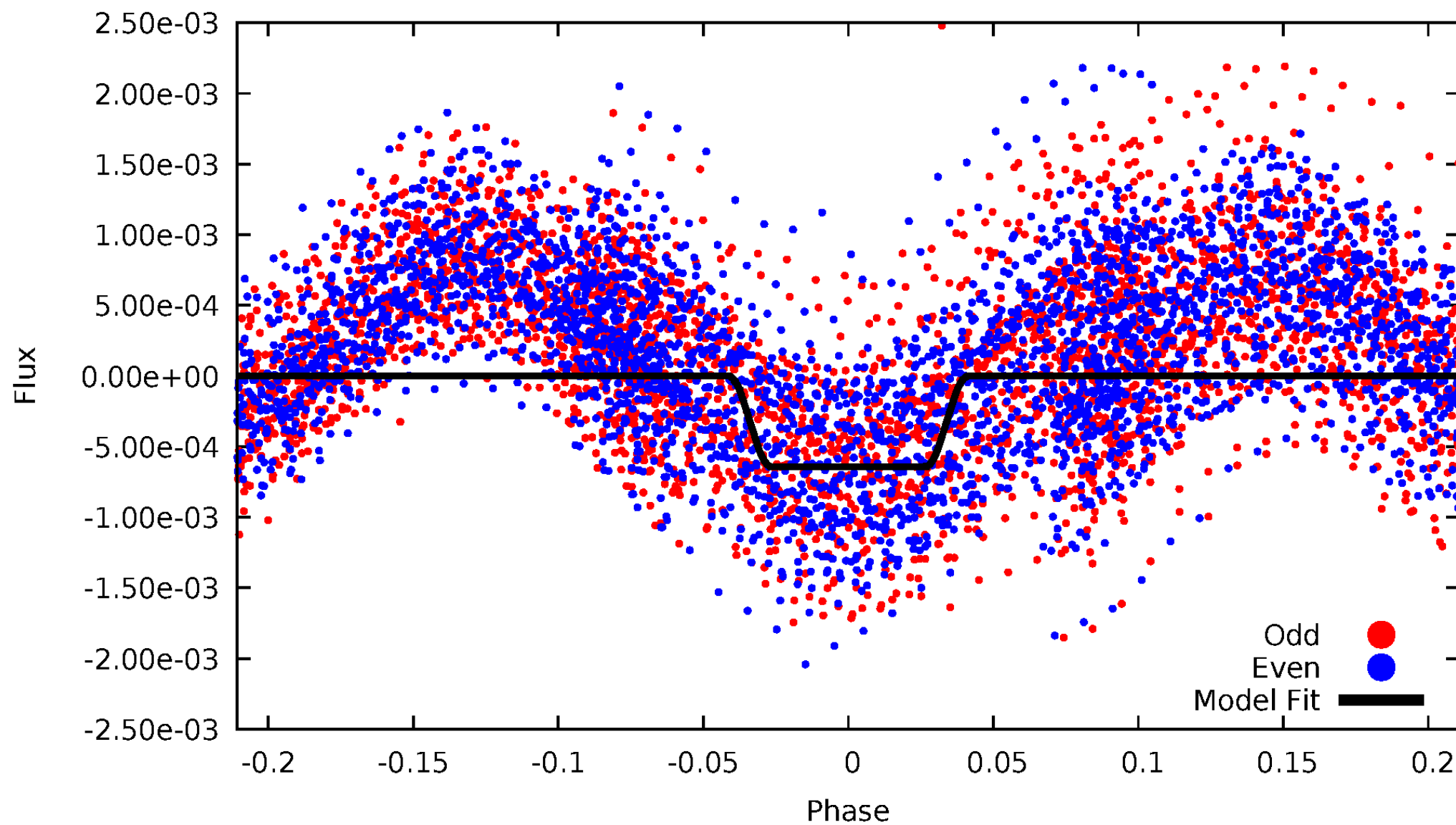
DV Odd/Even

TCE 008719324-06



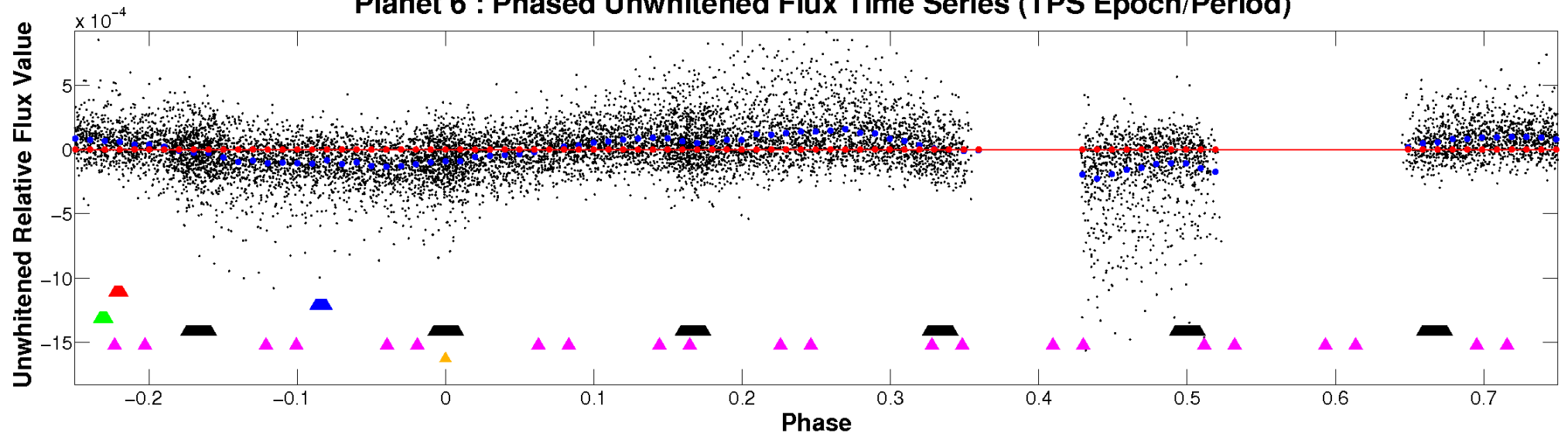
ALT Odd/Even

TCE 008719324-06



Non-Whitened Vs. Whitened Light Curve

Planet 6 : Phased Unwhitened Flux Time Series (TPS Epoch/Period)

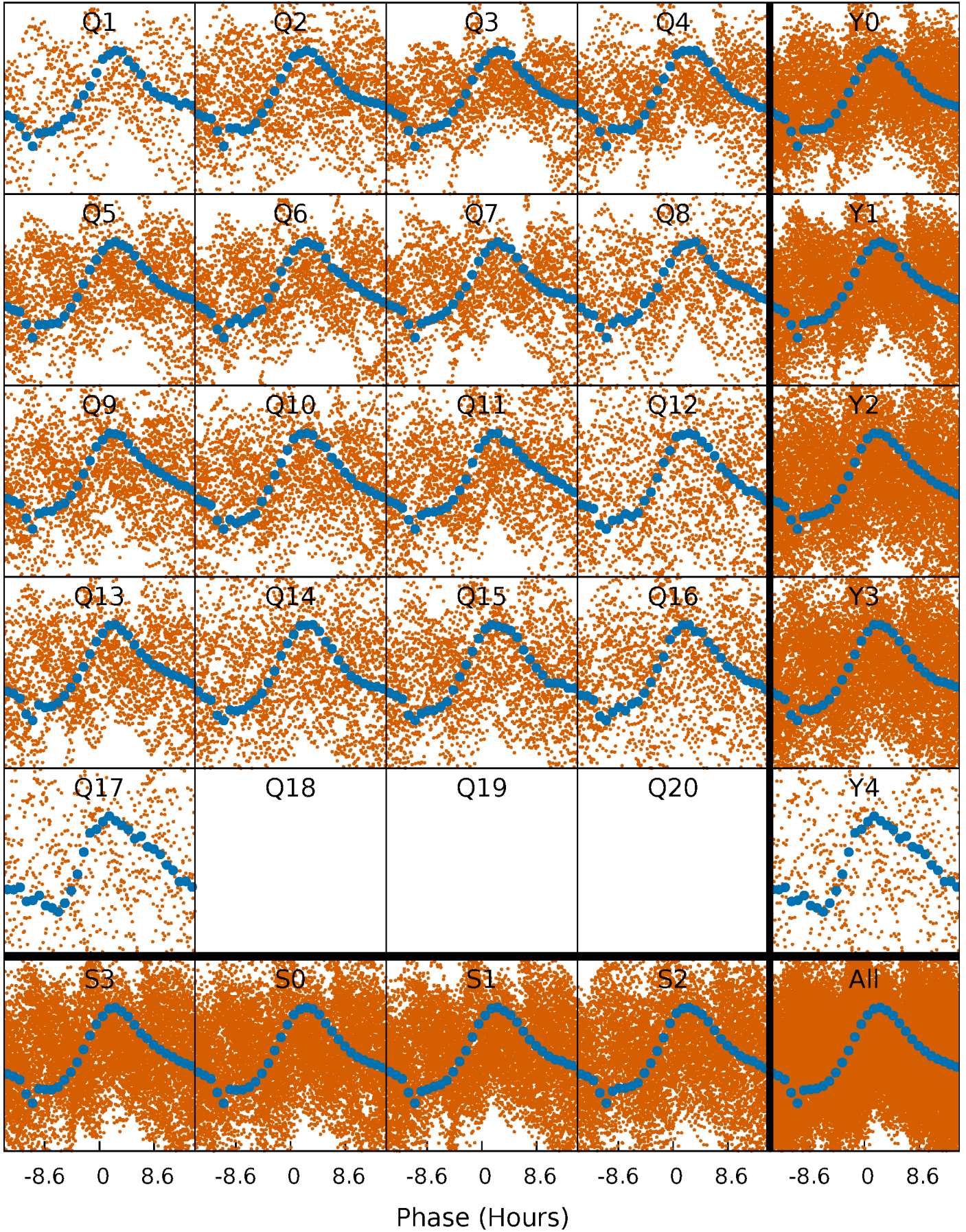


Planet 6 : Phased Whitened Flux Time Series (TPS Epoch/Period)



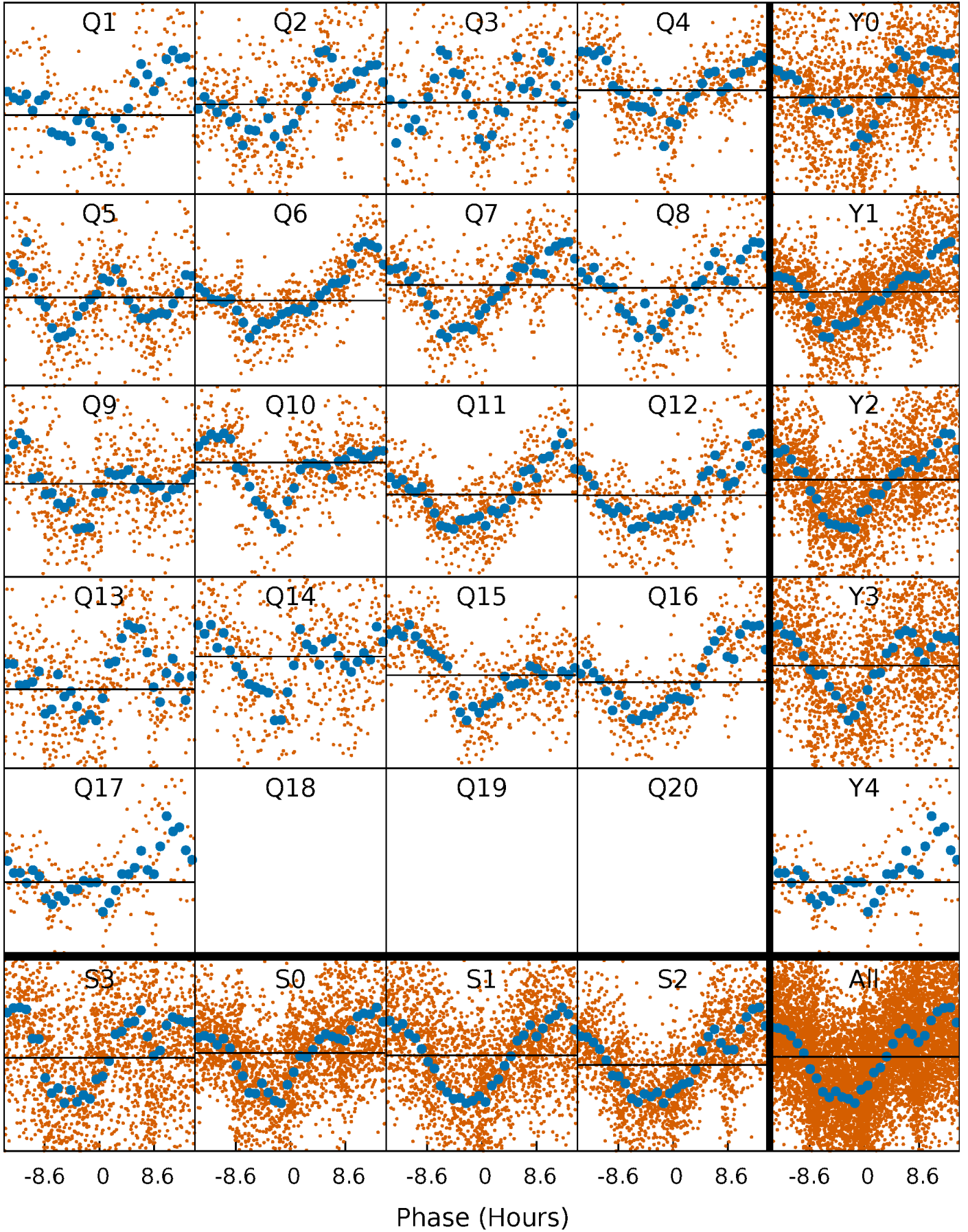
PDC Quarter-Phased Transit Curves

TCE 008719324-06 P= 2.046559 Days $T_0=131.844742$ (BKJD)



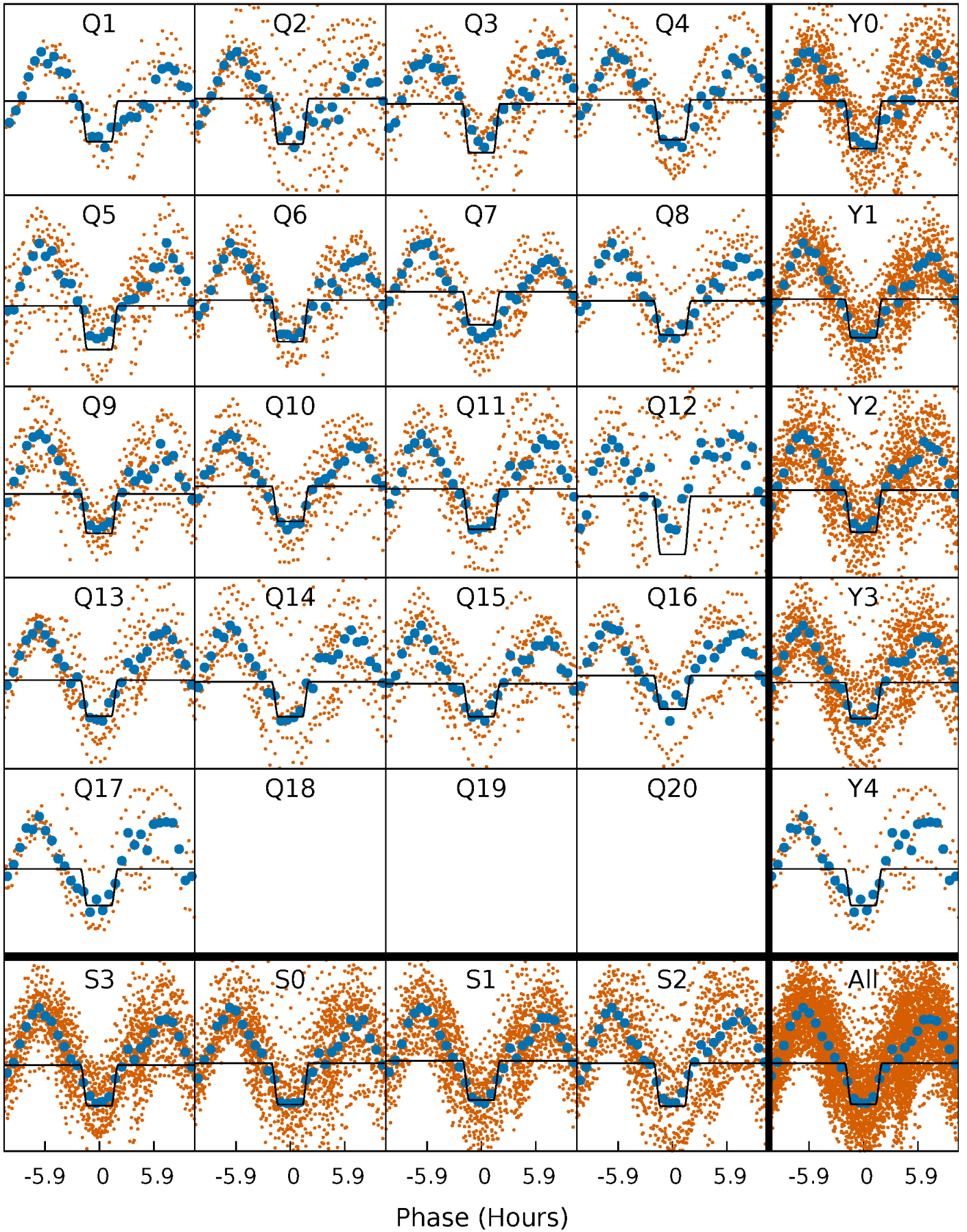
DV Quarter-Phased Transit Curves

TCE 008719324-06 $P = 2.046559$ Days $T_0 = 131.844742$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

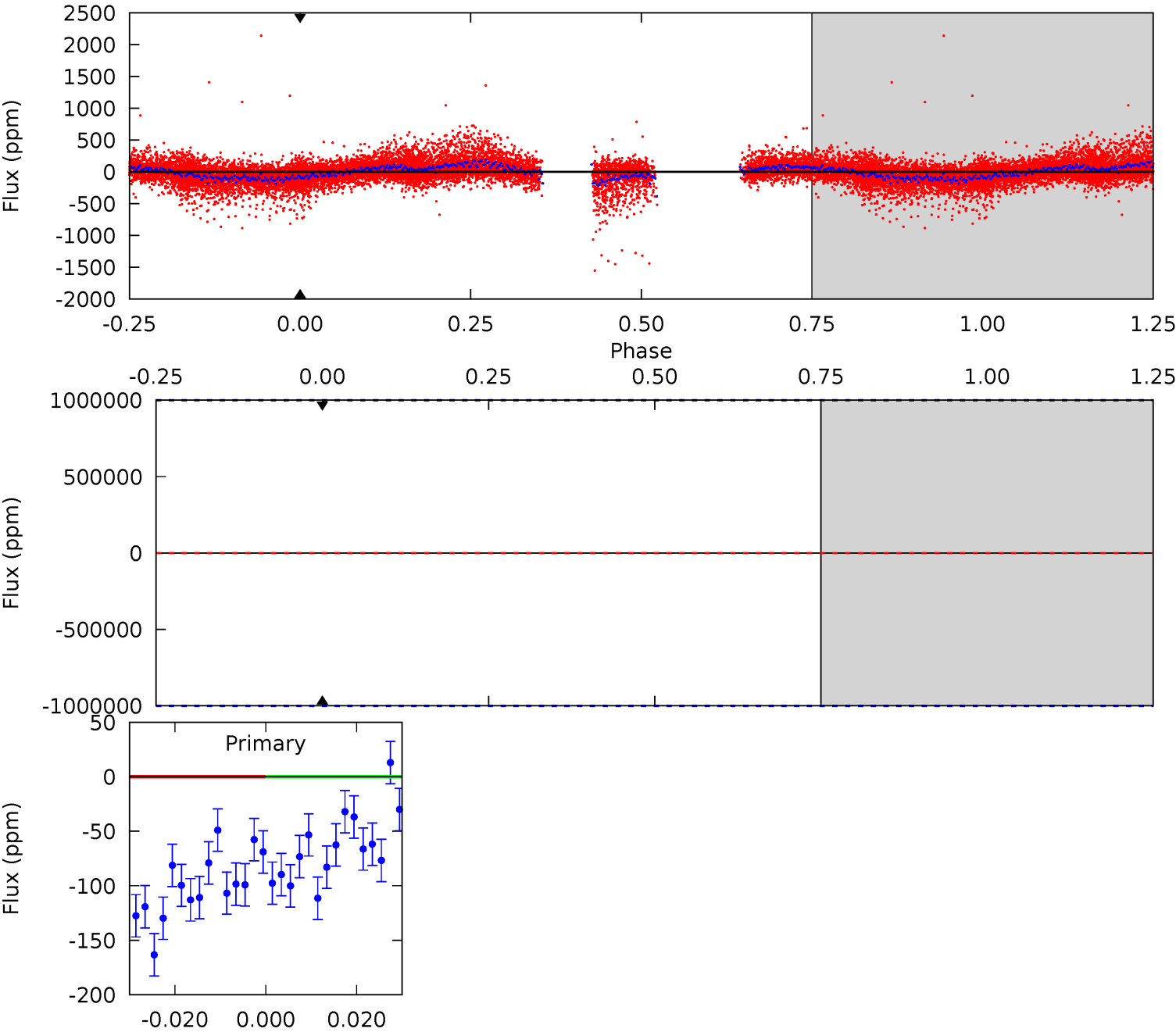
TCE 008719324-06 P= 2.046559 Days $T_0=131.661960$ (BKJD)



DV Model-Shift Uniqueness Test

008719324-06, P = 2.046559 Days, E = 131.844742 Days

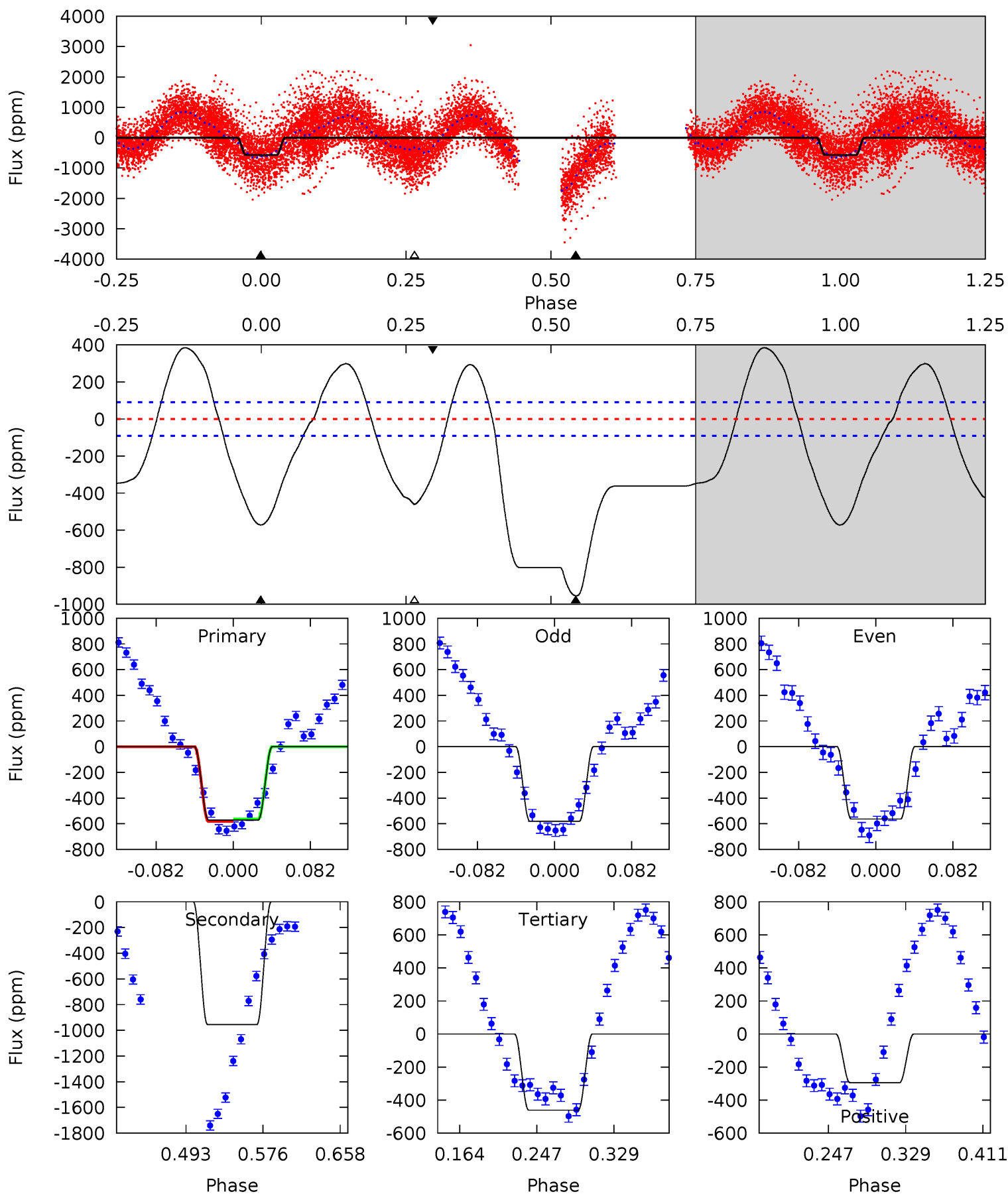
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
0	0	0	0	1.00	1.00	1.00	0	0	0	0	0	0	0	0



Alt Model-Shift Uniqueness Test

008719324-06, P = 2.046559 Days, E = 131.661960 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
29.0	48.3	23.3	-14.9	4.61	1.74	14.8	5.63	43.9	25.0	63.3	0.45	1.06	0.29	0.48



Stellar Parameters For KIC 008719324

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	$M(M_{\odot})$	p_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	7023^{+216}_{-312}	$4.102^{+0.234}_{-0.156}$	$-0.500^{+0.250}_{-0.300}$	$1.664^{+0.460}_{-0.506}$	$1.276^{+0.178}_{-0.218}$	$0.390^{+0.516}_{-0.182}$
	+3%/-4%	+6%/-4%	+50%/-60%	+28%/-30%	+14%/-17%	+132%/-47%
Source	PHO54	PHO54	PHO54	DSEP		

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

Secondary Eclipse Parameters for KIC 008719324-06 / KOI

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	0 ± 1000000	$12.82^{+12.90}_{-8.64}$	2985^{+225}_{-246}	5676^{+29400}_{-34974}	$9.026^{+709.186}_{-526.293}$
Alt.	-954 ± 20	$13.02^{+14.48}_{-8.48}$	2980^{+248}_{-266}	4502^{+3182}_{-1196}	$3.508^{+26.336}_{-2.682}$

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

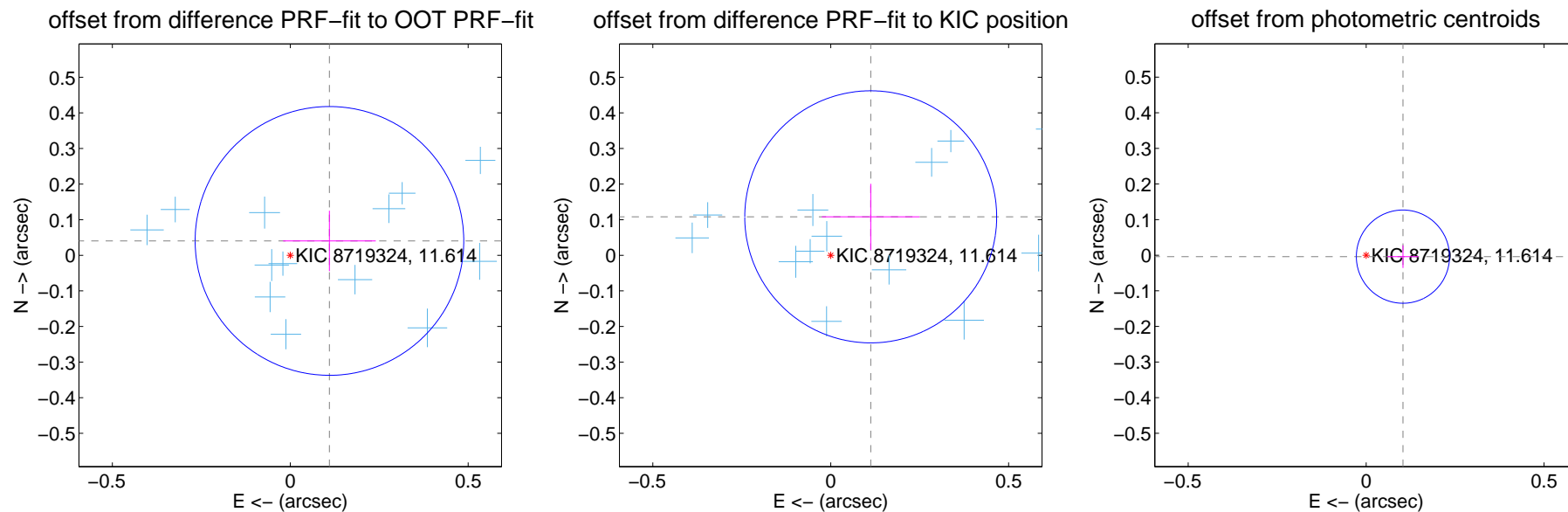
DV Centroid Data

Supplemental centroid analysis for 008719324-06. **Kepler magnitude: 11.61.** Transit SNR -1.00

There are 17 quarters with good PRF difference image offsets

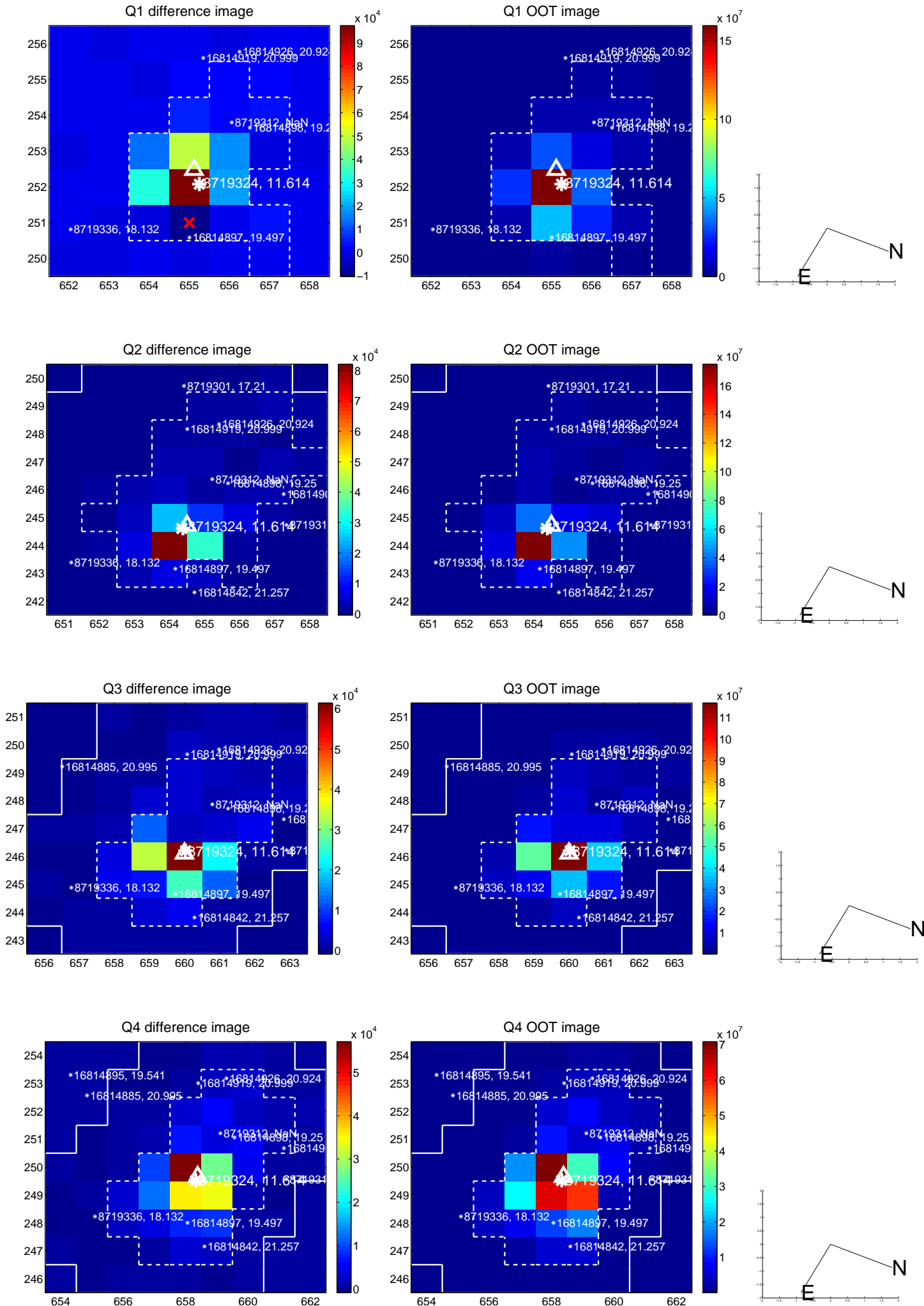
The direct PRF centroid is offset from the target star catalog position by about 0.04 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.117 ± 0.126	0.93	-0.110 ± 0.130	0.040 ± 0.085
PRF-fit source offset from KIC position	0.156 ± 0.118	1.32	-0.112 ± 0.137	0.108 ± 0.093
photometric centroid source offset	0.10 ± 0.04	2.37	-0.10 ± 0.04	-0.00 ± 0.03

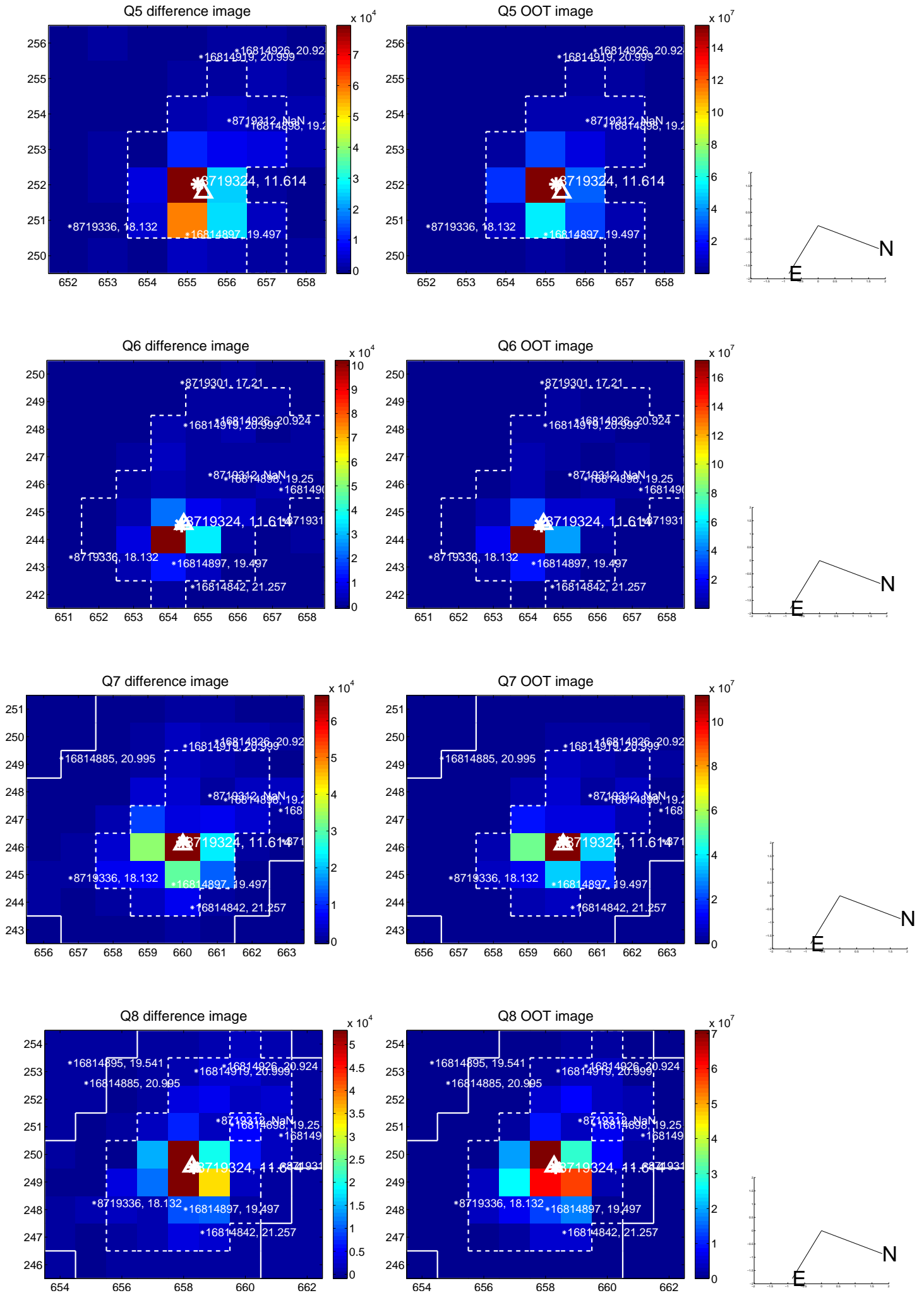


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets;** magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

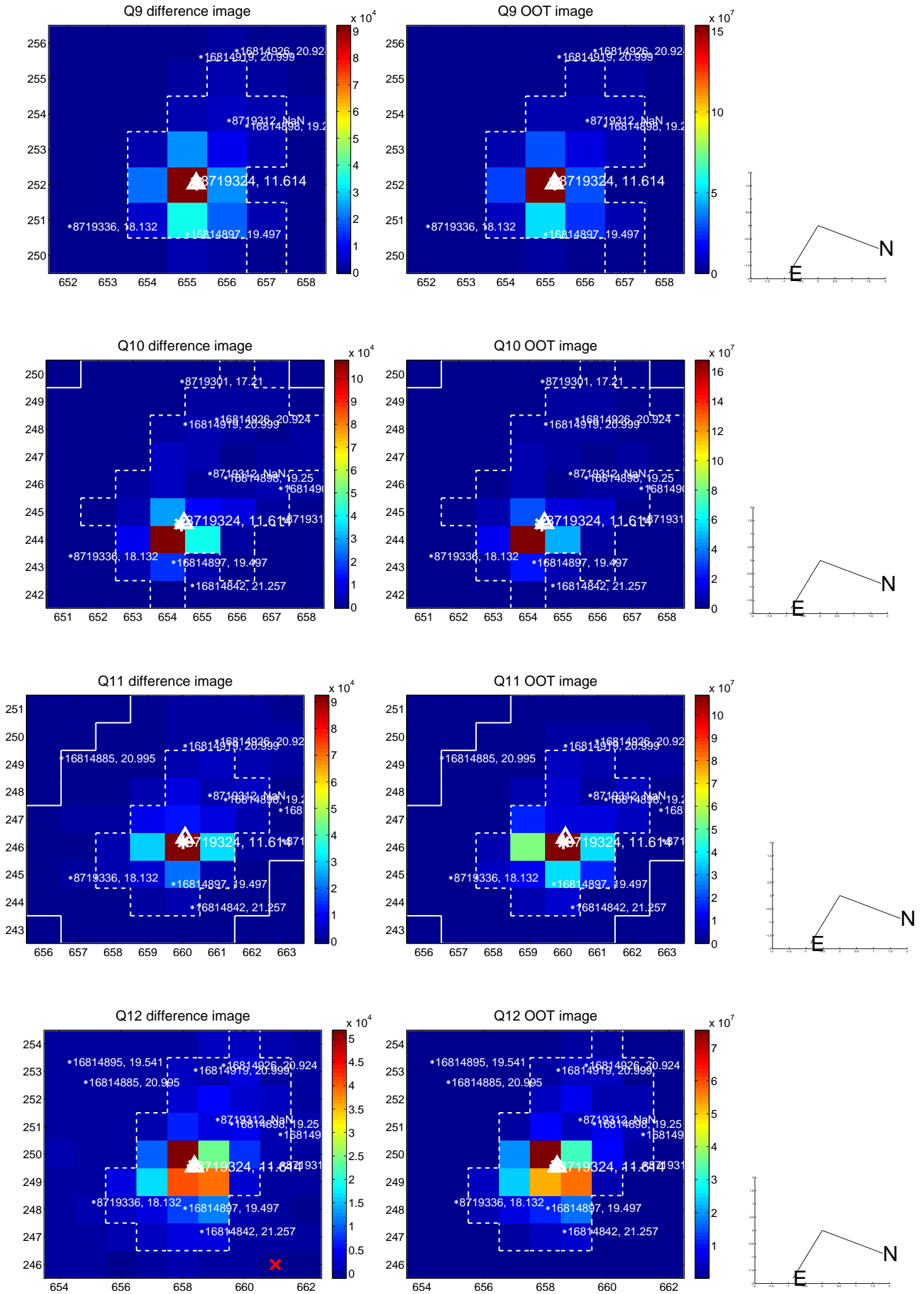
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



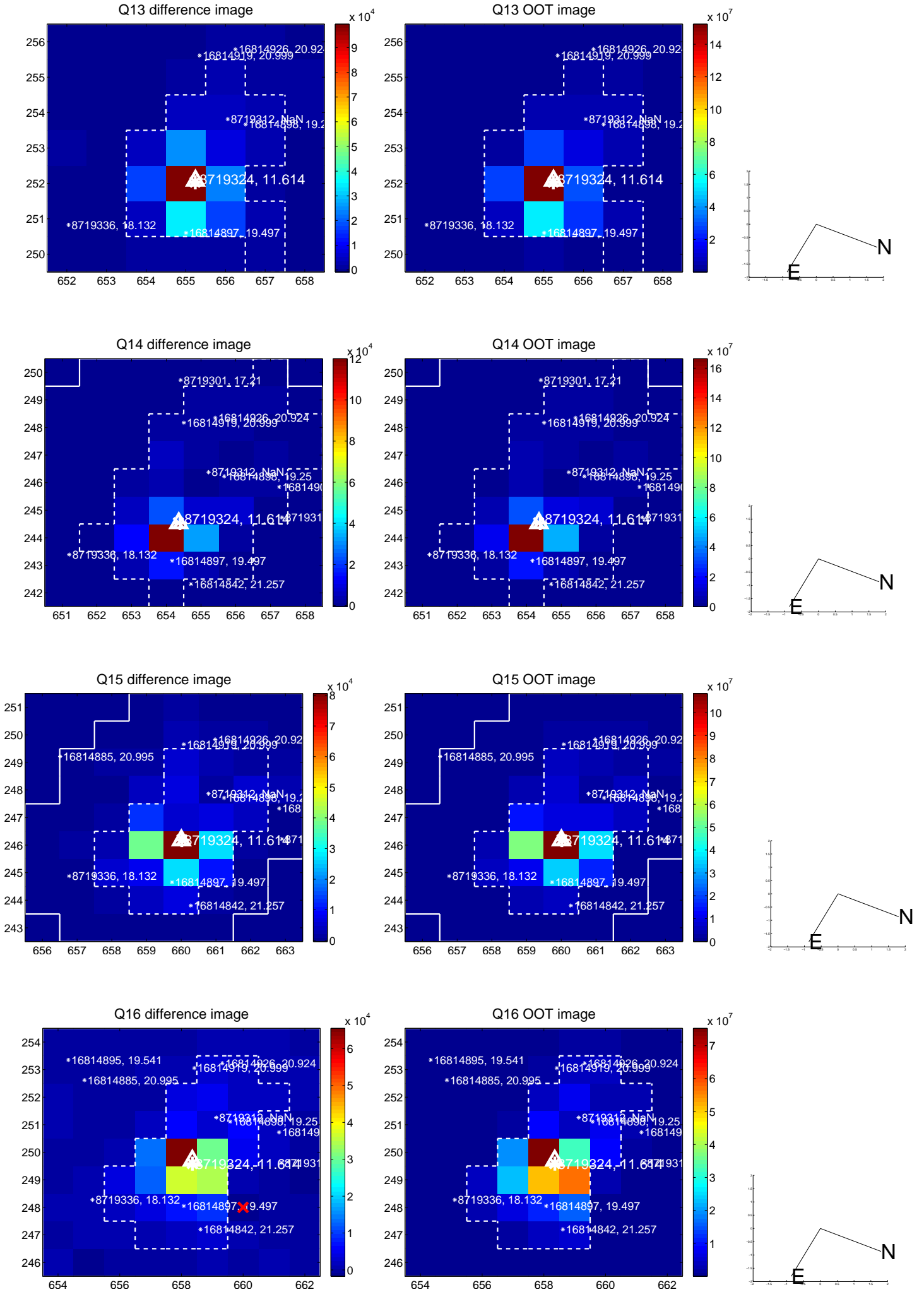
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



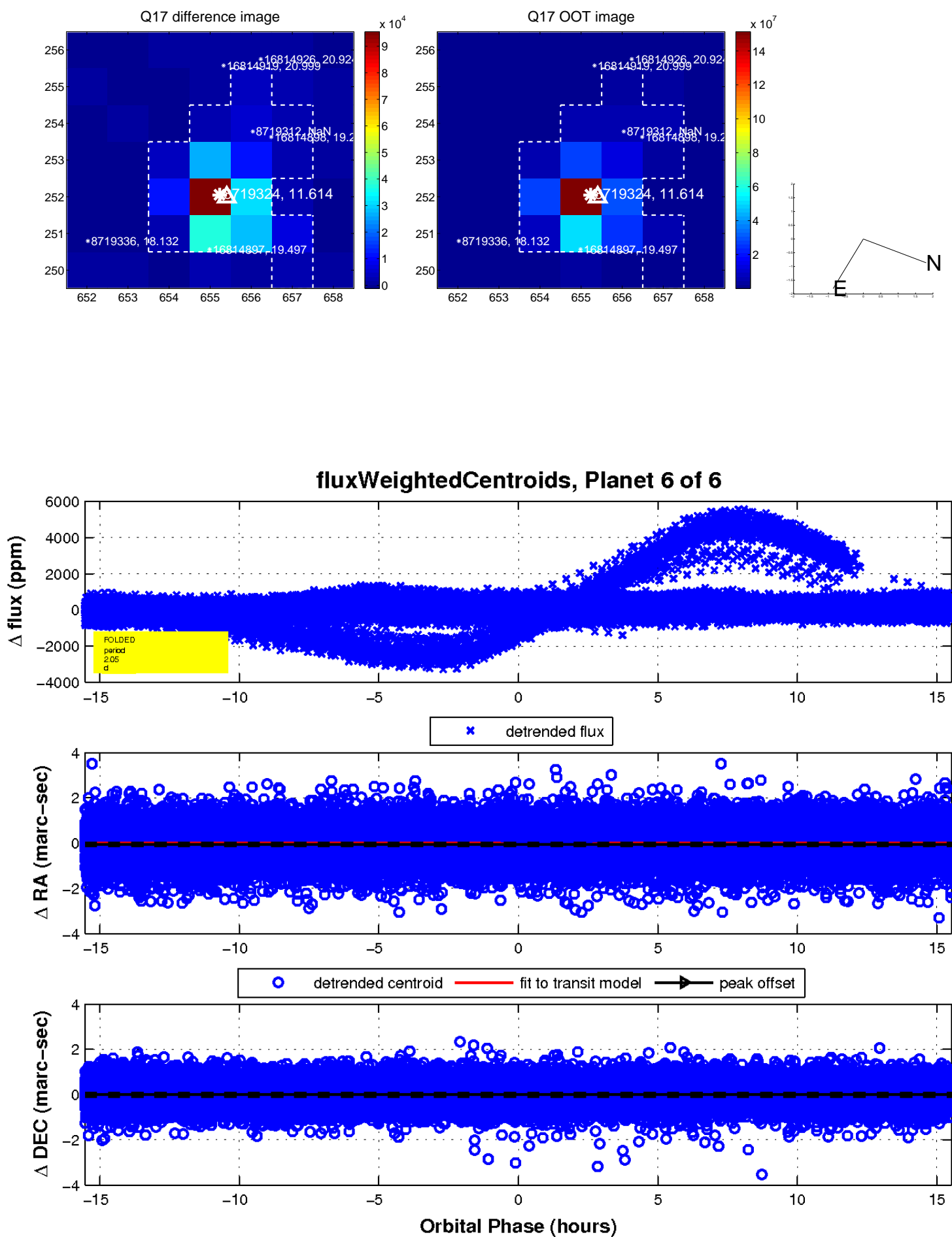
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

