

KIC 008311304

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})
008311304-01	OBS	No	0.698092	131.578788	20.9	2.192	10.7	10.7	2.18	8529	1.16	59516.74
008311304-02	OBS	No	0.562054	131.734119	16.0	3.006	8.7	8.0	2.18	8529	1.01	79460.59
008311304-03	OBS	No	49.844518	176.029451	177.5	3.905	7.5	7.4	2.18	8529	3.23	200.92

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
008311304-01	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT
008311304-02	OBS	FP	0.00	1	0	1	0	LPP_DV—LPP_ALT—HALO_GHOST
008311304-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT

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

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

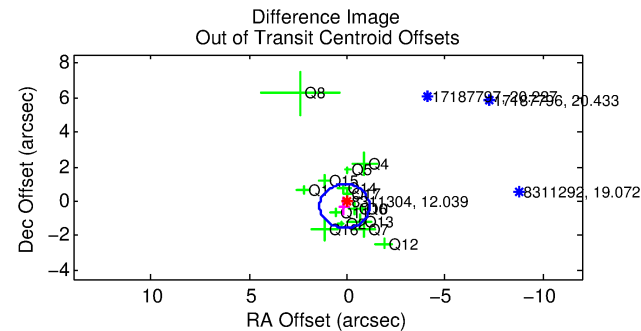
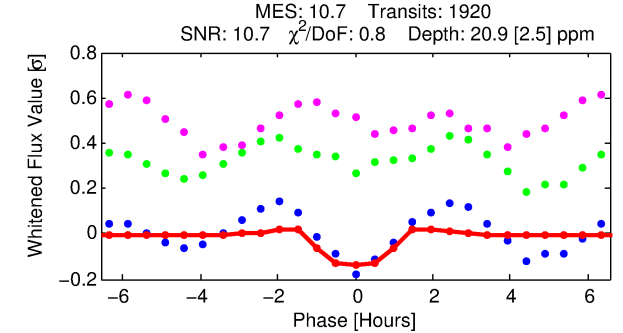
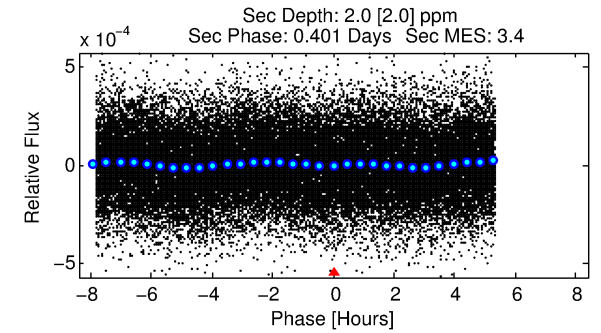
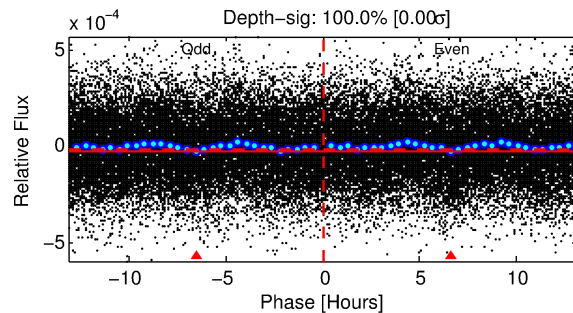
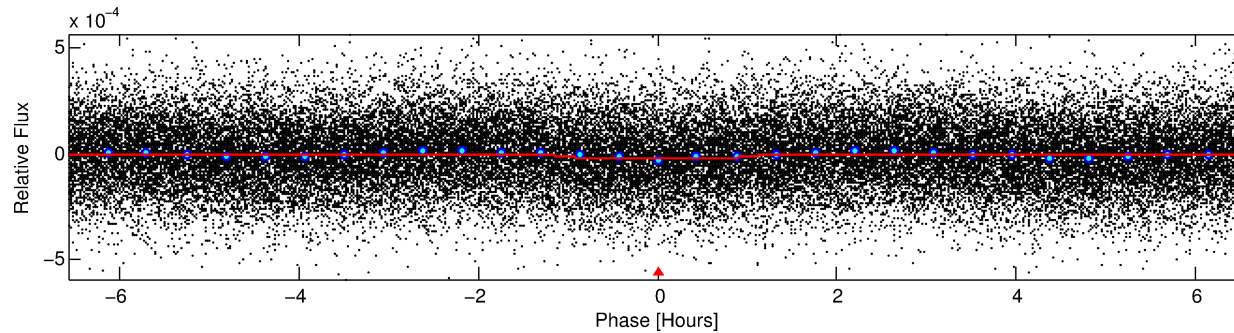
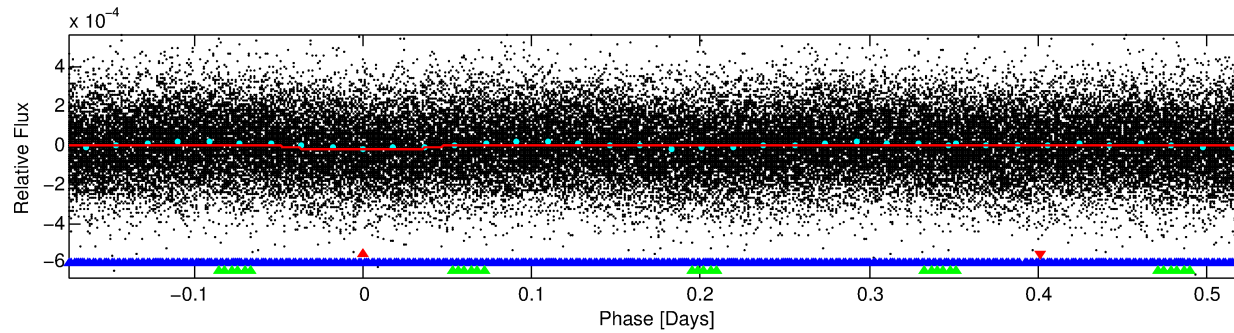
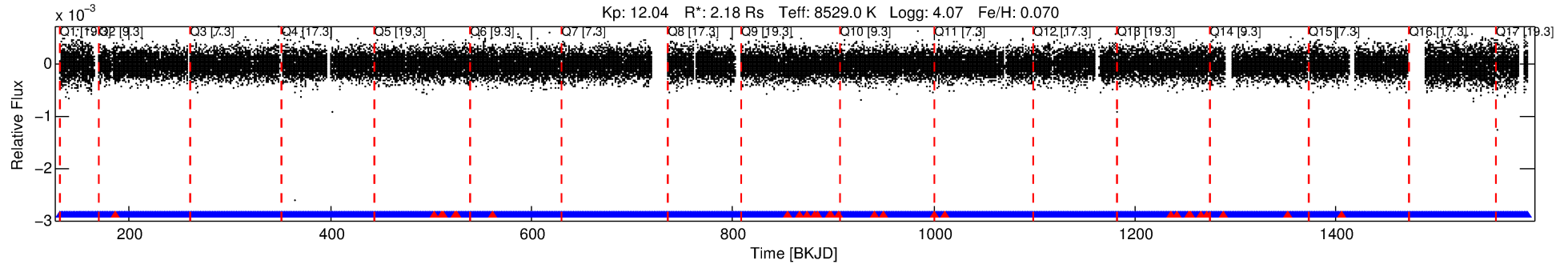
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 008311304-01

No Significant Match Found

DV One-Page Summary

KIC: 8311304 Candidate: 1 of 3 Period: 0.698 d



DV Fit Results:

Period = 0.69809 [0.00001] d
Epoch = 131.5788 [0.0025] BKJD
Rp/R* = 0.0049 [0.0015]
a/R* = 1.44 [1.48]
b = 0.90 [0.43]
Seff = 59516.74 [21824.83]
Teq = 3983 [365] K
Rp = 1.16 [0.46] Re
a = 0.0195 [0.0042] AU
Ag = 0.31 [0.38] [-1.81σ]
Teffp = 4611 [1359] K [0.45σ]

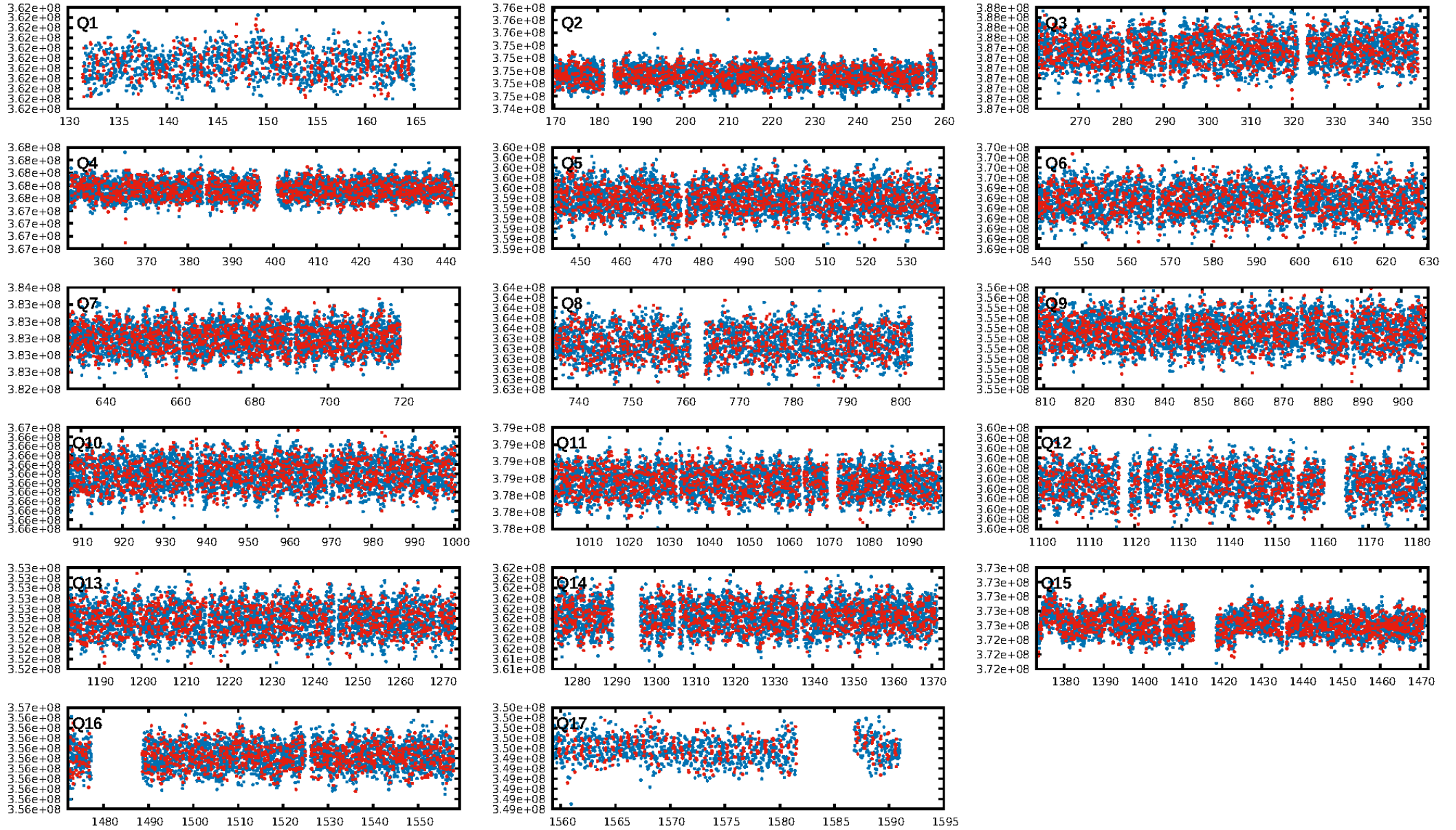
DV Diagnostic Results:

ShortPeriod-sig: 62.0% [0.88σ]
LongPeriod-sig: 100.0% [263.39σ]
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: 2.68e-14
RollingBand-fgt: 0.98 [1806/1834]
GhostDiagnostic-chr: 24.59
Centroid-sig: 0.2%
Centroid-so: 0.793 arcsec [1.82σ]
OotOffset-rm: 0.316 arcsec [0.75σ]
KicOffset-rm: 0.295 arcsec [0.60σ]
OotOffset-st: 4/3/4/4 [15]
KicOffset-st: 4/3/4/4 [15]
DiffImageQuality-fgm: 0.80 [12/15]
DiffImageOverlap-fno: 0.00 [0/17]

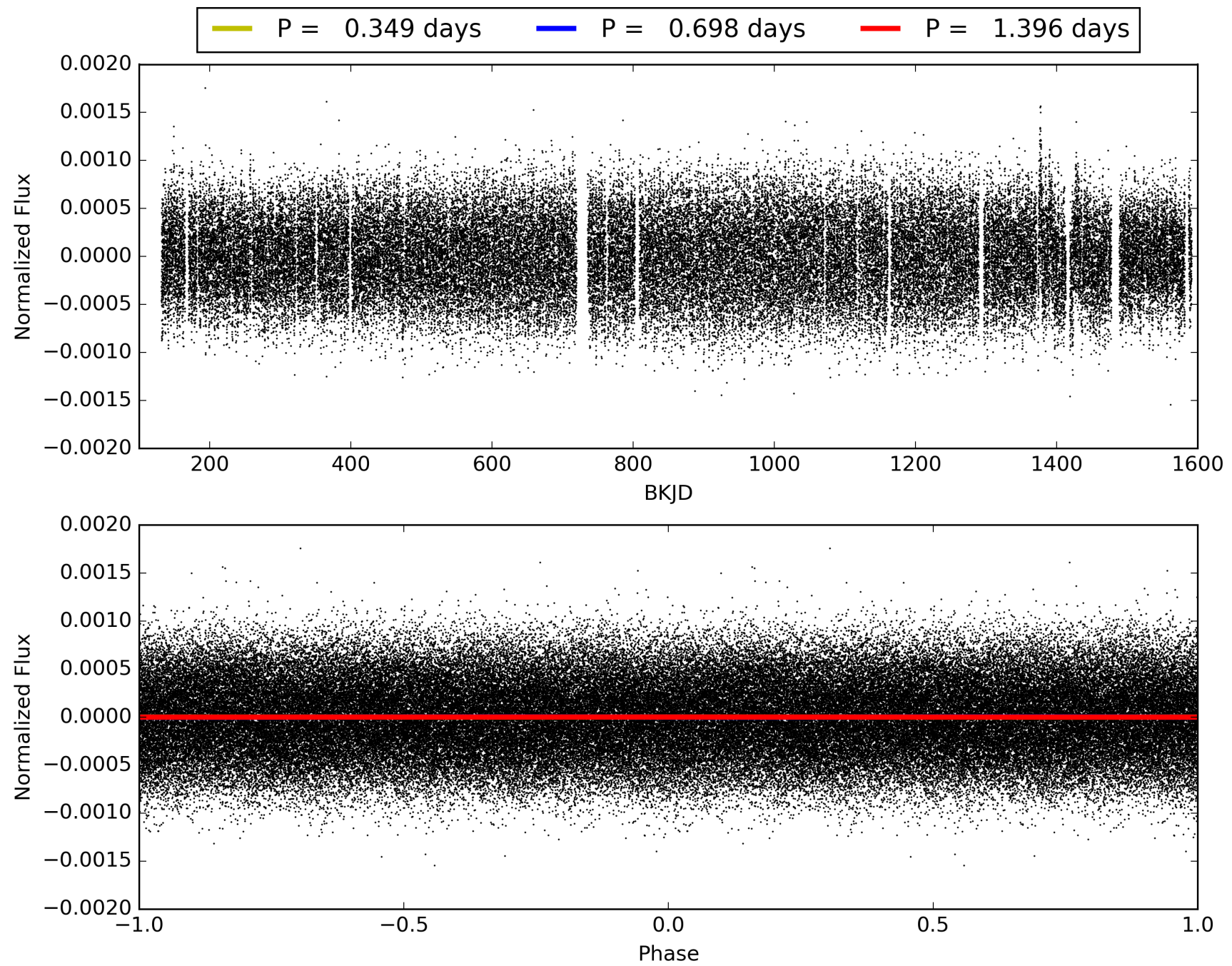
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 31-Jan-2016 06:46:41 Z

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

TCE 008311304-01, PDC Light Curves

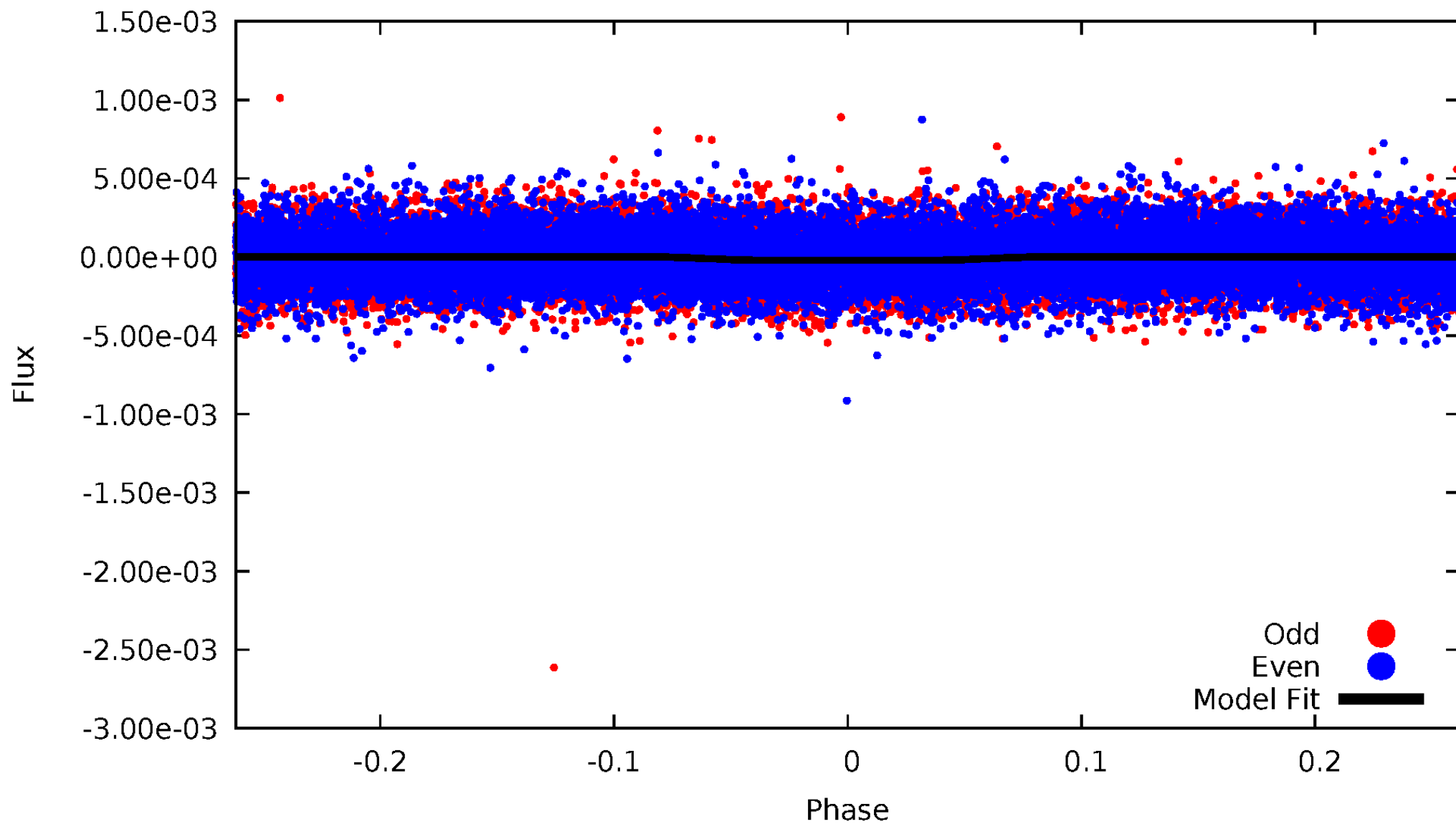


TCE 008311304-01



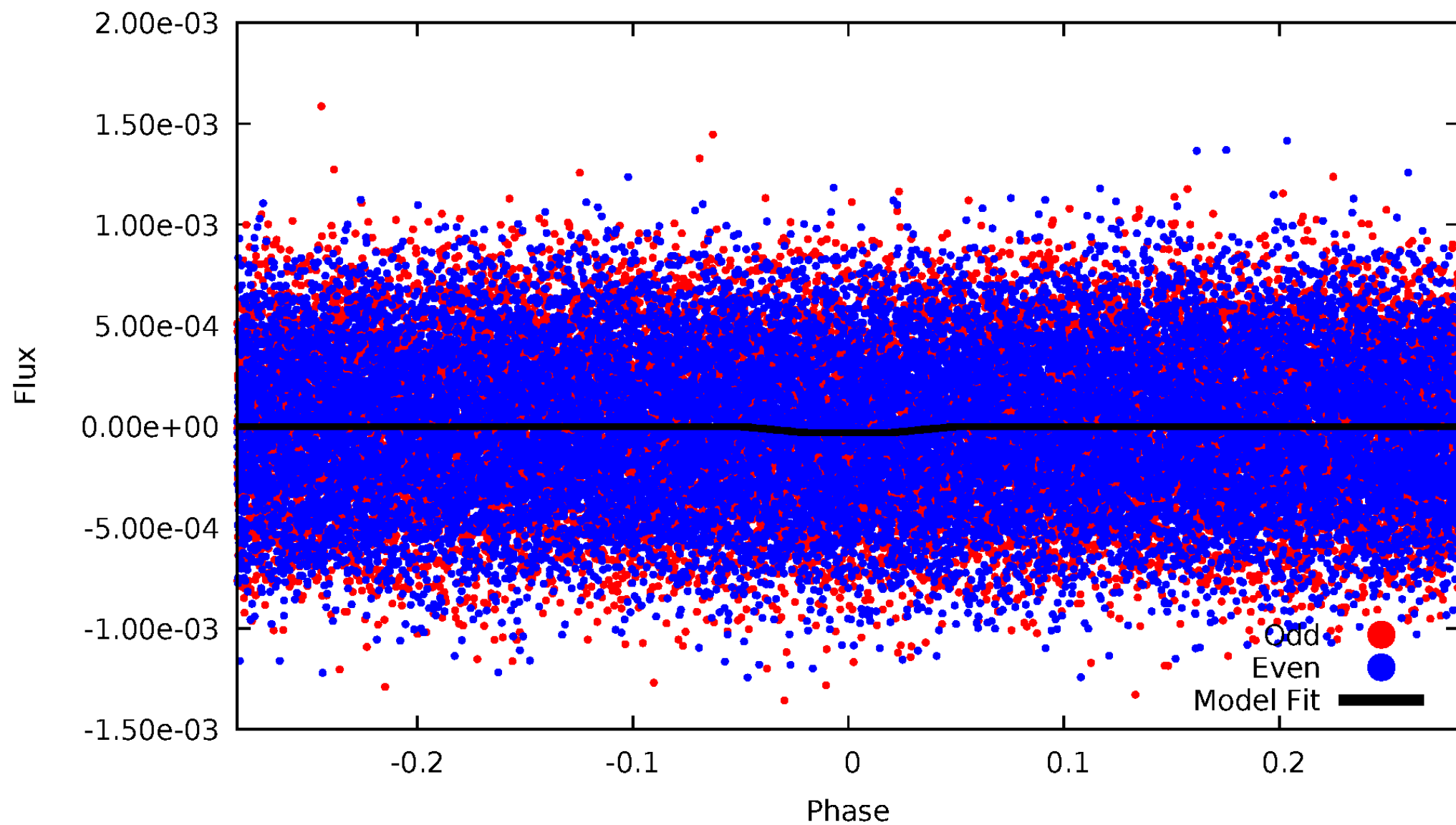
DV Odd/Even

TCE 008311304-01



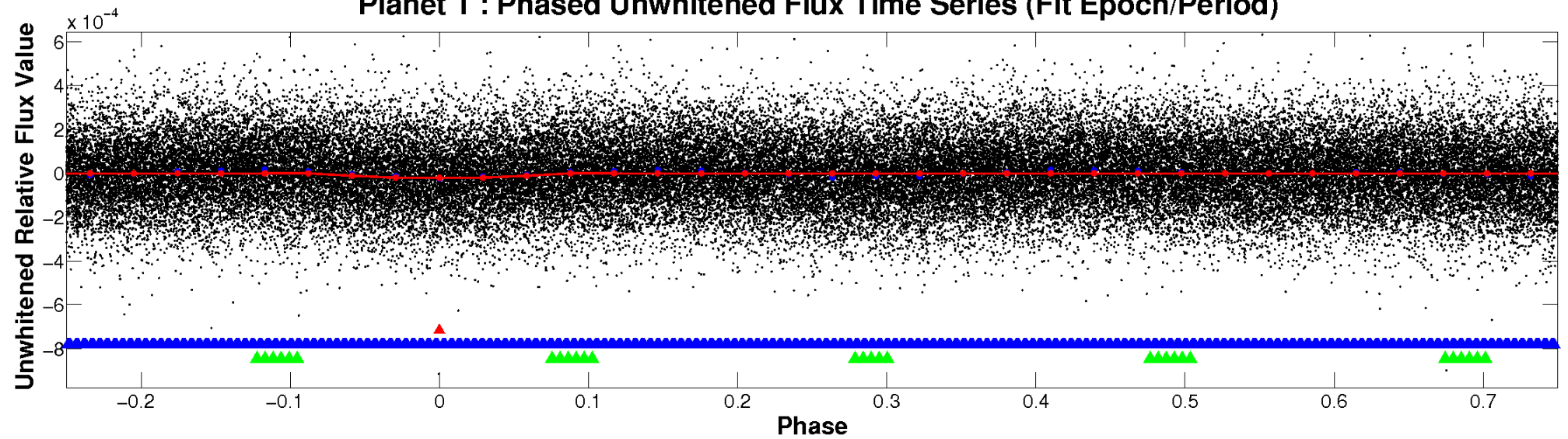
ALT Odd/Even

TCE 008311304-01

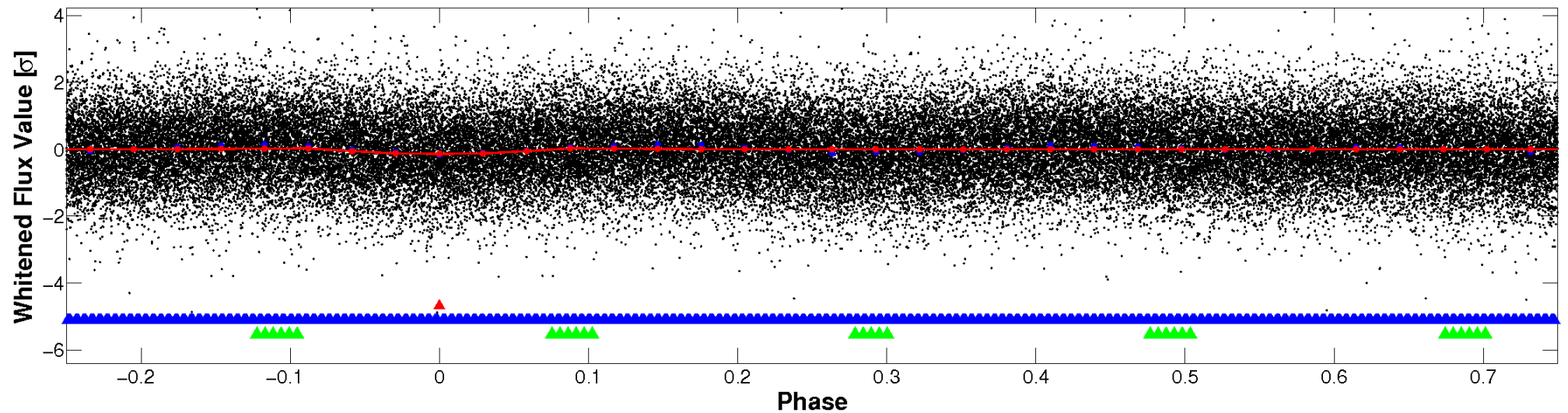


Non-Whitened Vs. Whitened Light Curve

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

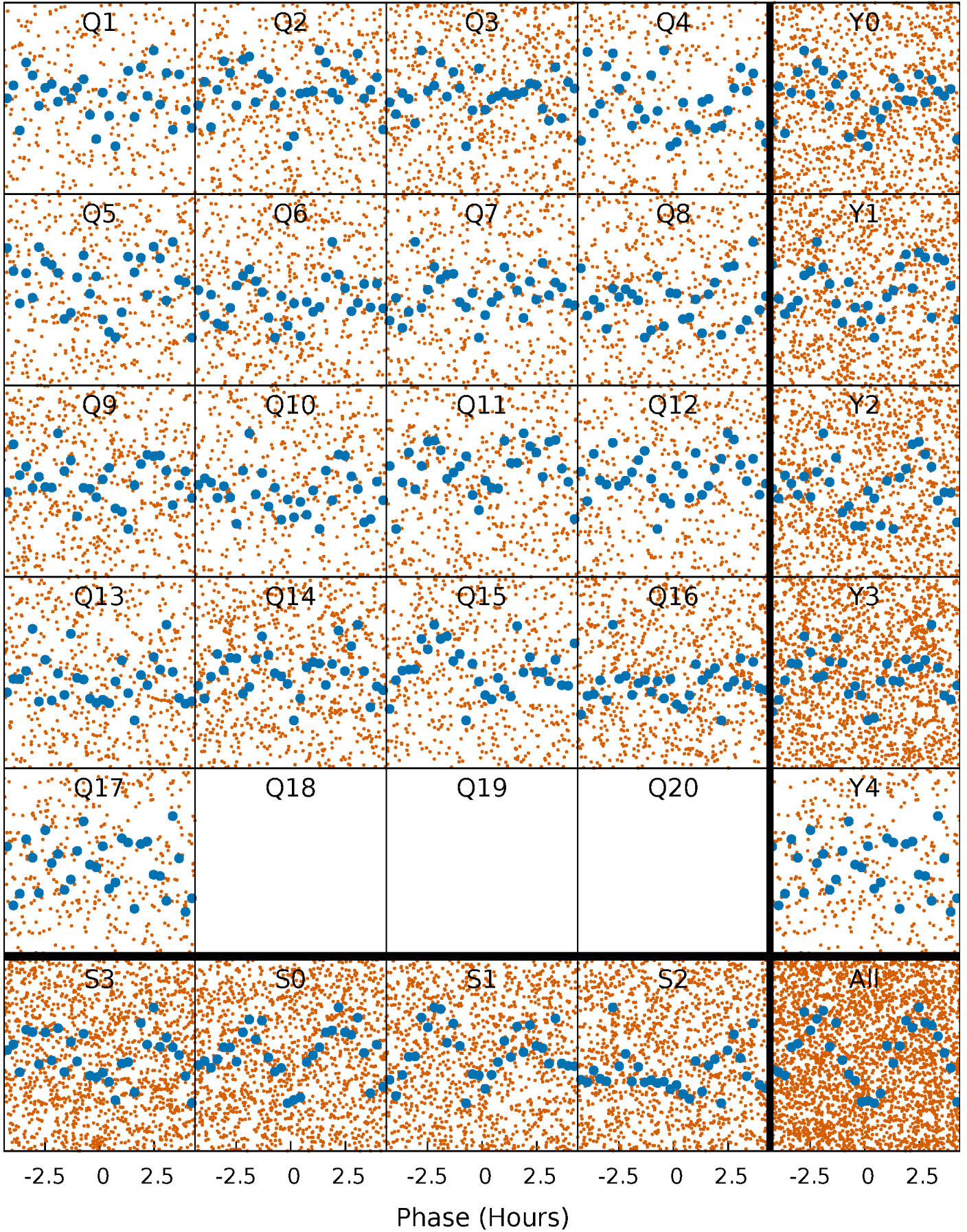


Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)



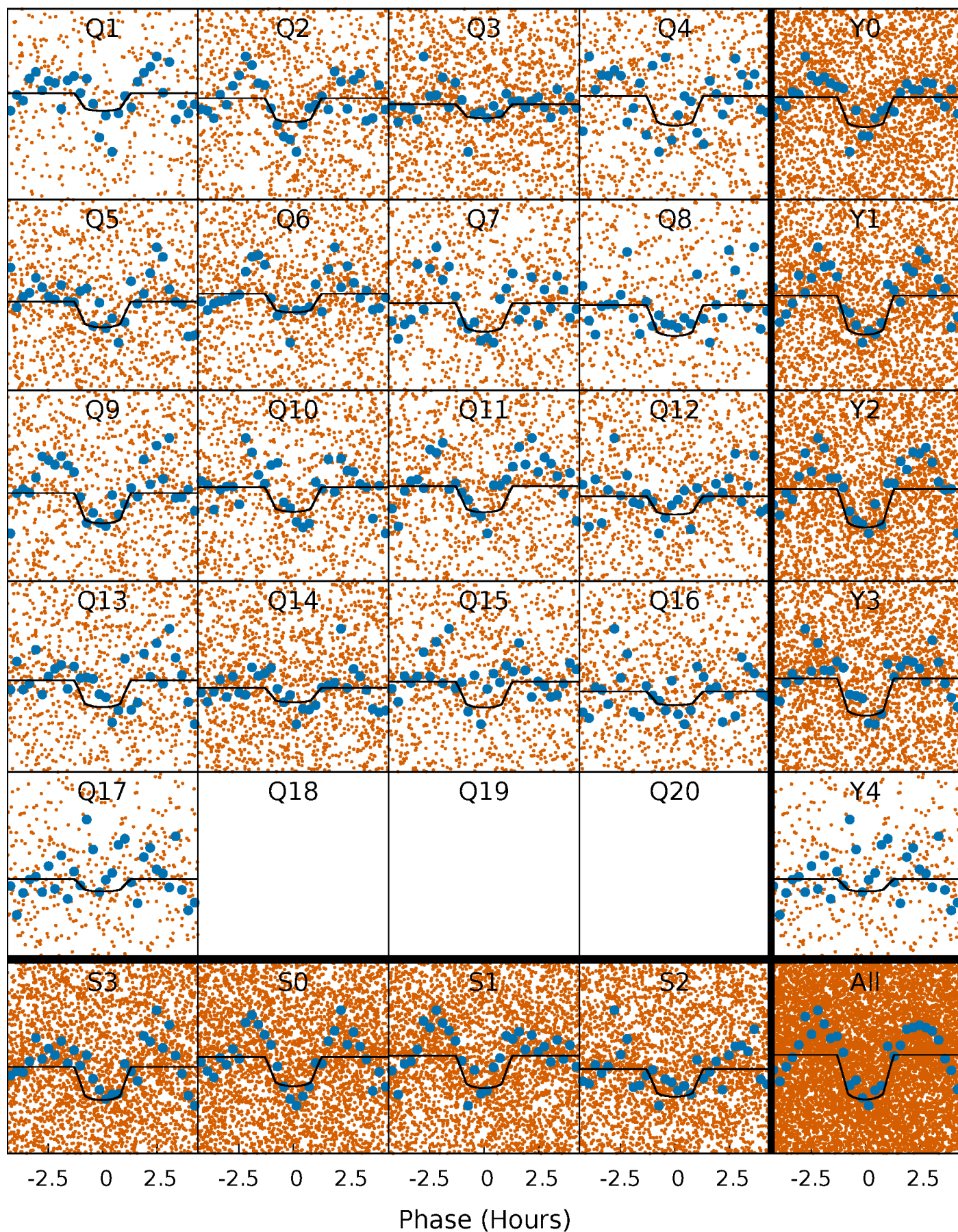
PDC Quarter-Phased Transit Curves

TCE 008311304-01 P= 0.698092 Days $T_0=131.578788$ (BKJD)



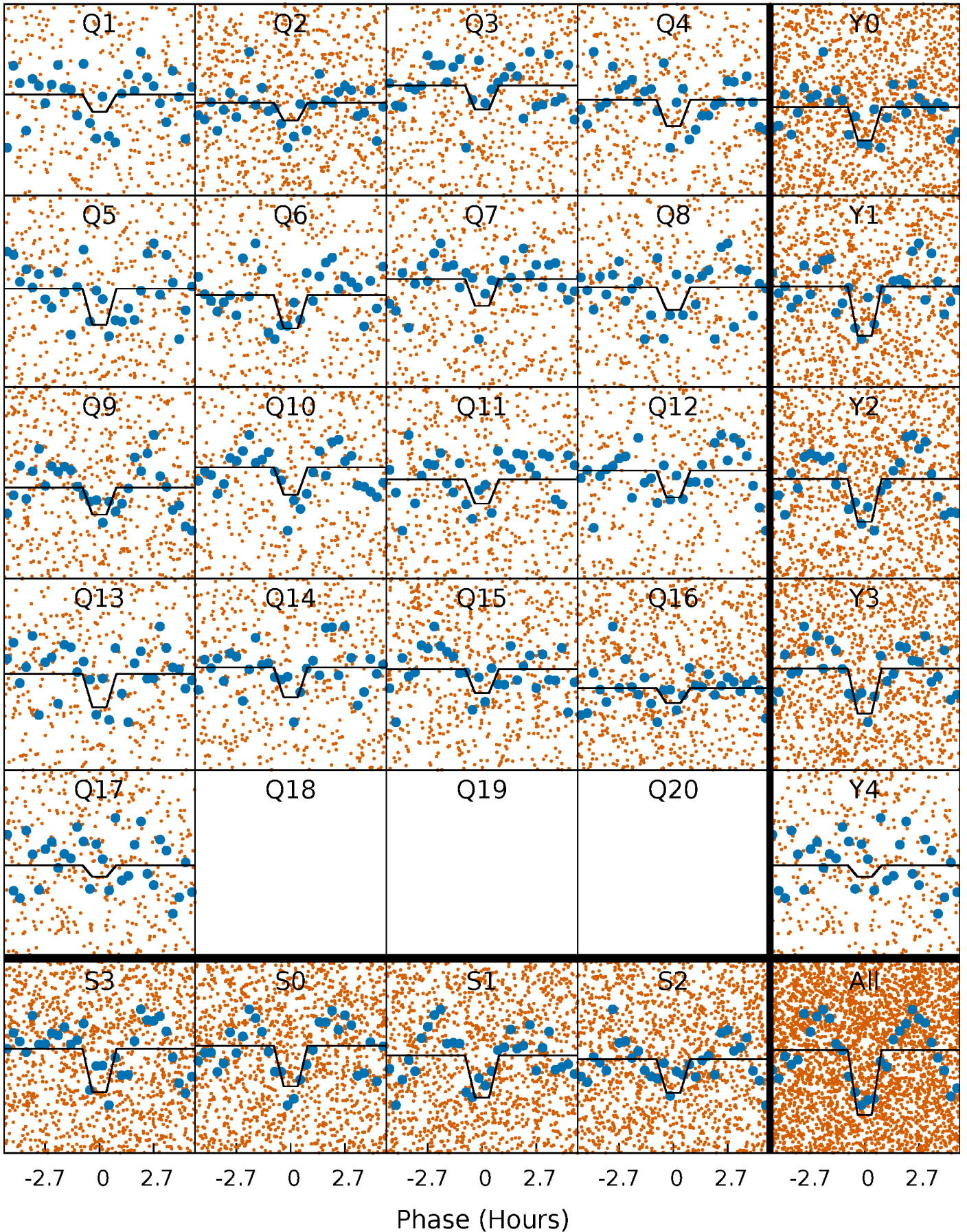
DV Quarter-Phased Transit Curves

TCE 008311304-01 P= 0.698092 Days $T_0=131.578788$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

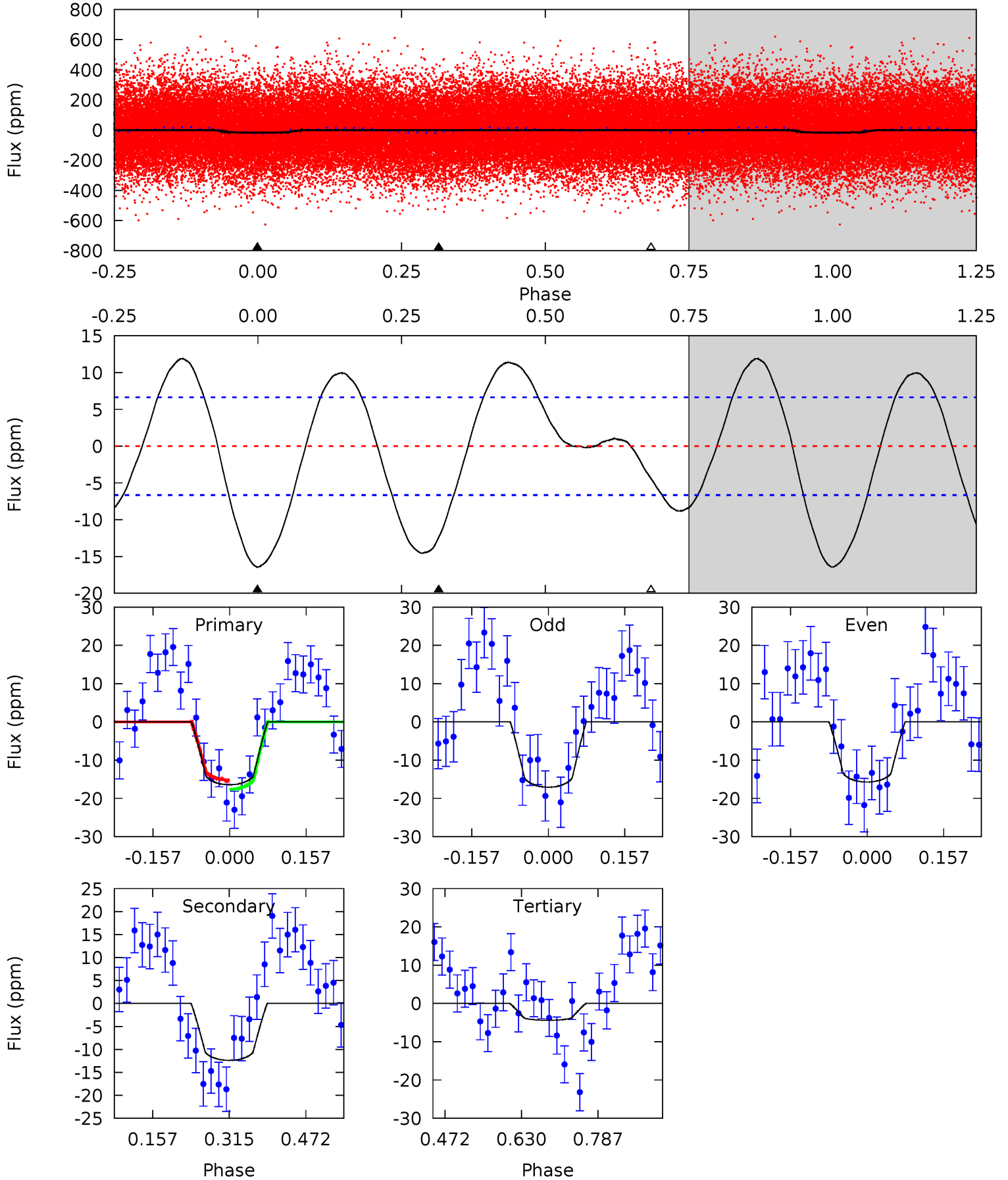
TCE 008311304-01 P= 0.698097 Days $T_0=131.578305$ (BKJD)



DV Model-Shift Uniqueness Test

008311304-01, P = 0.698092 Days, E = 130.880696 Days

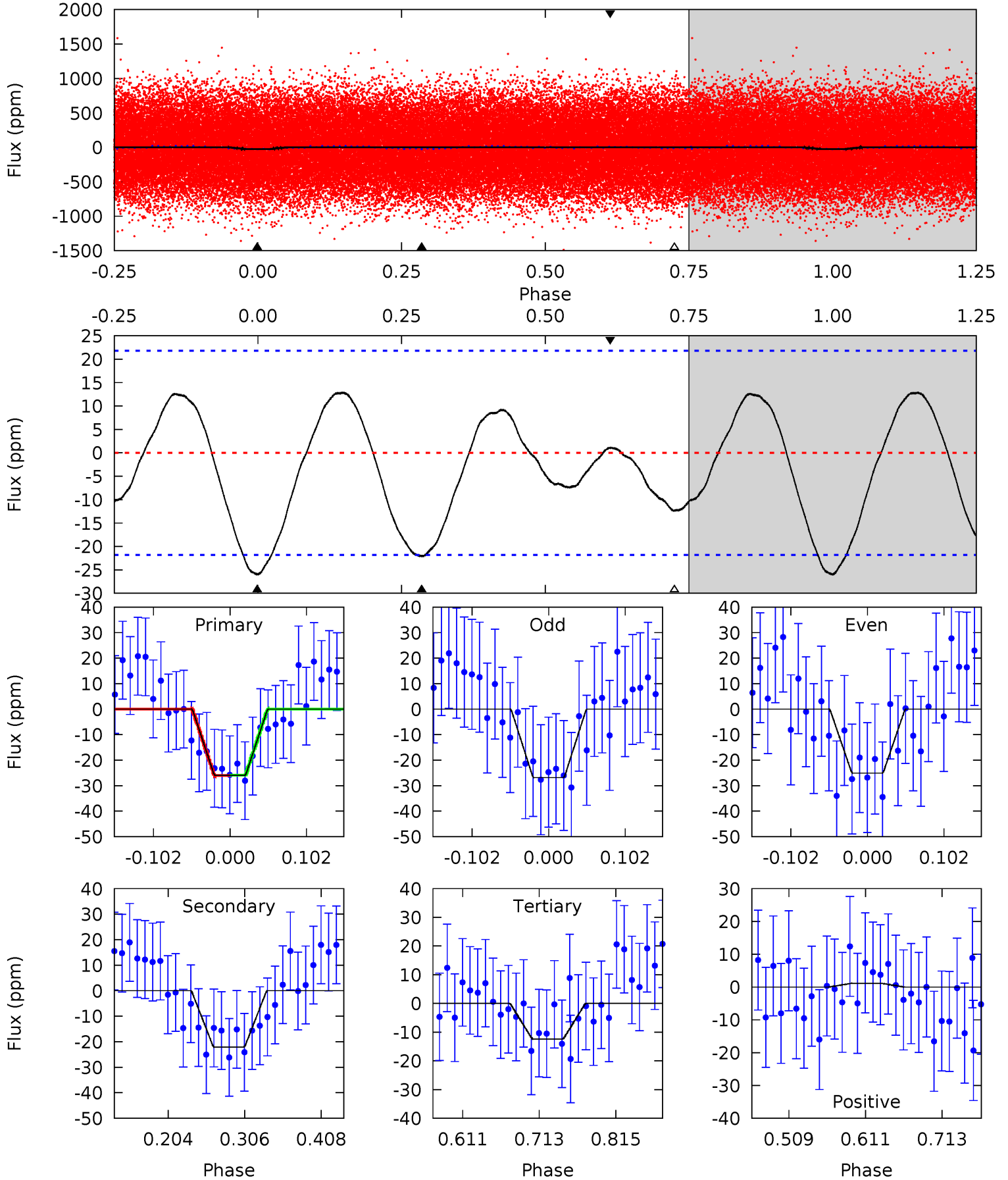
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
11.1	8.34	2.96	0	4.47	1.41	3.23	8.10	11.1	5.37	8.34	0.46	1.08	0.42	0.81



Alt Model-Shift Uniqueness Test

008311304-01, P = 0.698097 Days, E = 130.880208 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
5.43	4.62	2.59	0.23	4.56	1.64	1.65	2.84	5.20	2.03	4.39	0.18	0.98	0.33	0.01



Stellar Parameters For KIC 008311304

	$T_{\text{eff}} (K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R (R_{\odot})$	$M (M_{\odot})$	$\rho_{\star} (\text{g}\cdot\text{cm}^{-3})$
	8529^{+202}_{-404}	$4.066^{+0.171}_{-0.140}$	$0.070^{+0.200}_{-0.600}$	$2.183^{+0.410}_{-0.564}$	$2.024^{+0.331}_{-0.497}$	$0.274^{+0.276}_{-0.101}$
	+2%/-5%	+4%/-3%	+286%/-857%	+19%/-26%	+16%/-25%	+101%/-37%
Source	KIC0	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 008311304-01 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-12 ± 1	$1.12^{+0.41}_{-0.34}$	5510^{+370}_{-383}	6741^{+1745}_{-1132}	$2.050^{+2.138}_{-0.930}$
Alt.	-22 ± 5	$1.29^{+0.41}_{-0.38}$	5519^{+327}_{-378}	7340^{+1939}_{-1164}	$2.710^{+2.617}_{-1.211}$

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

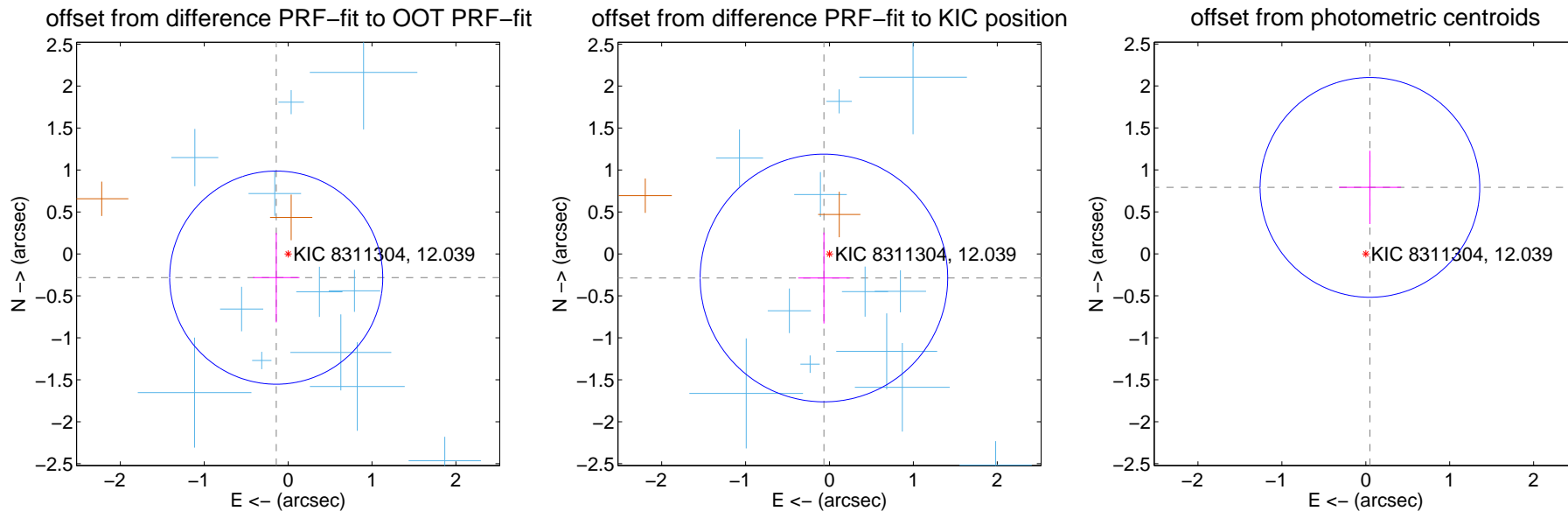
DV Centroid Data

Supplemental centroid analysis for 008311304-01. Kepler magnitude: 12.04. Transit SNR 10.65

There are 12 quarters with good PRF difference image offsets

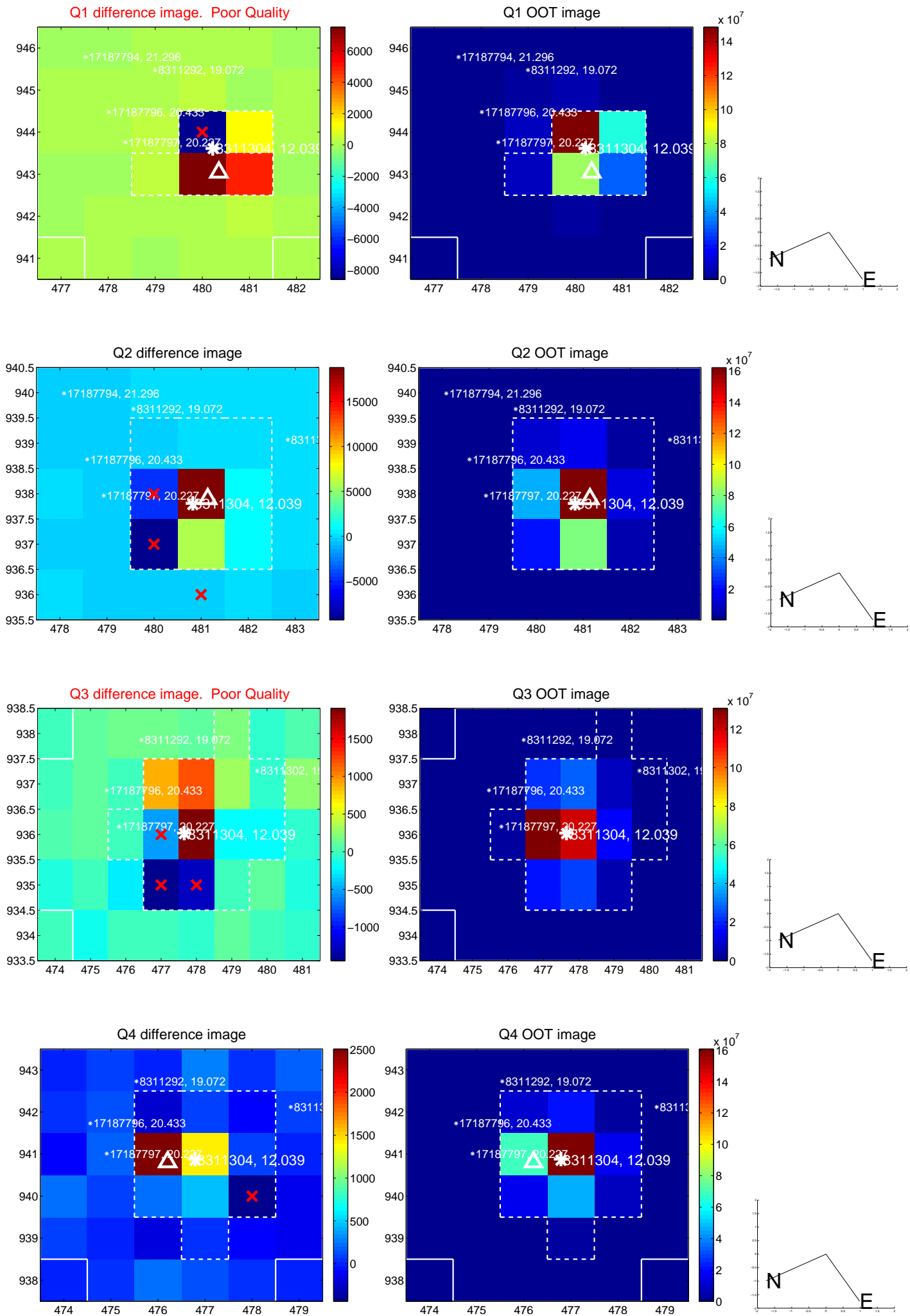
The direct PRF centroid is offset from the target star catalog position by about 0.09 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.316 ± 0.423	0.75	0.142 ± 0.278	-0.283 ± 0.533
PRF-fit source offset from KIC position	0.295 ± 0.492	0.60	0.066 ± 0.307	-0.287 ± 0.542
photometric centroid source offset	0.79 ± 0.44	1.82	-0.05 ± 0.37	0.79 ± 0.44

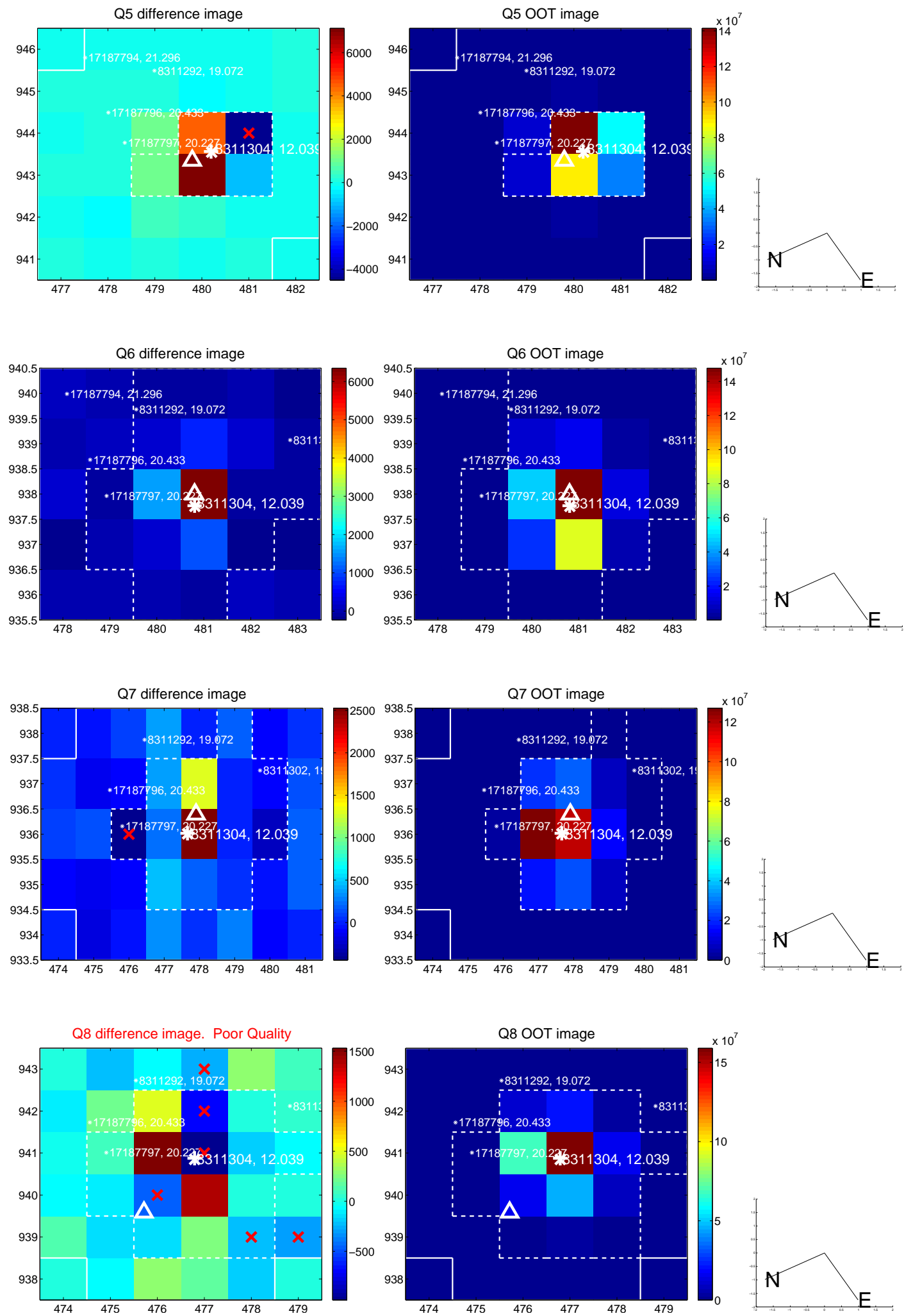


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses:** good quarterly centroid offsets; **Vermillion crosses:** bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

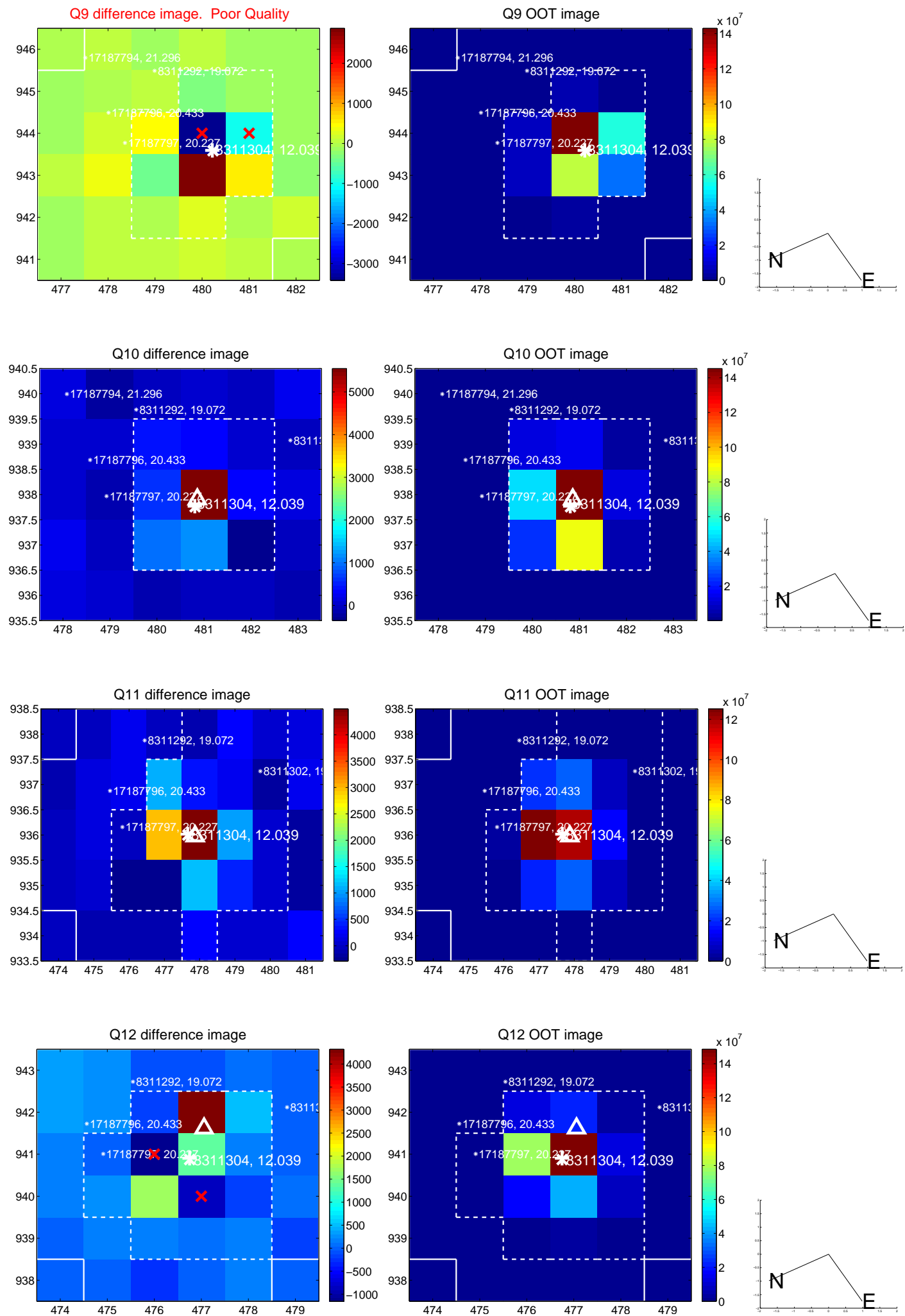
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



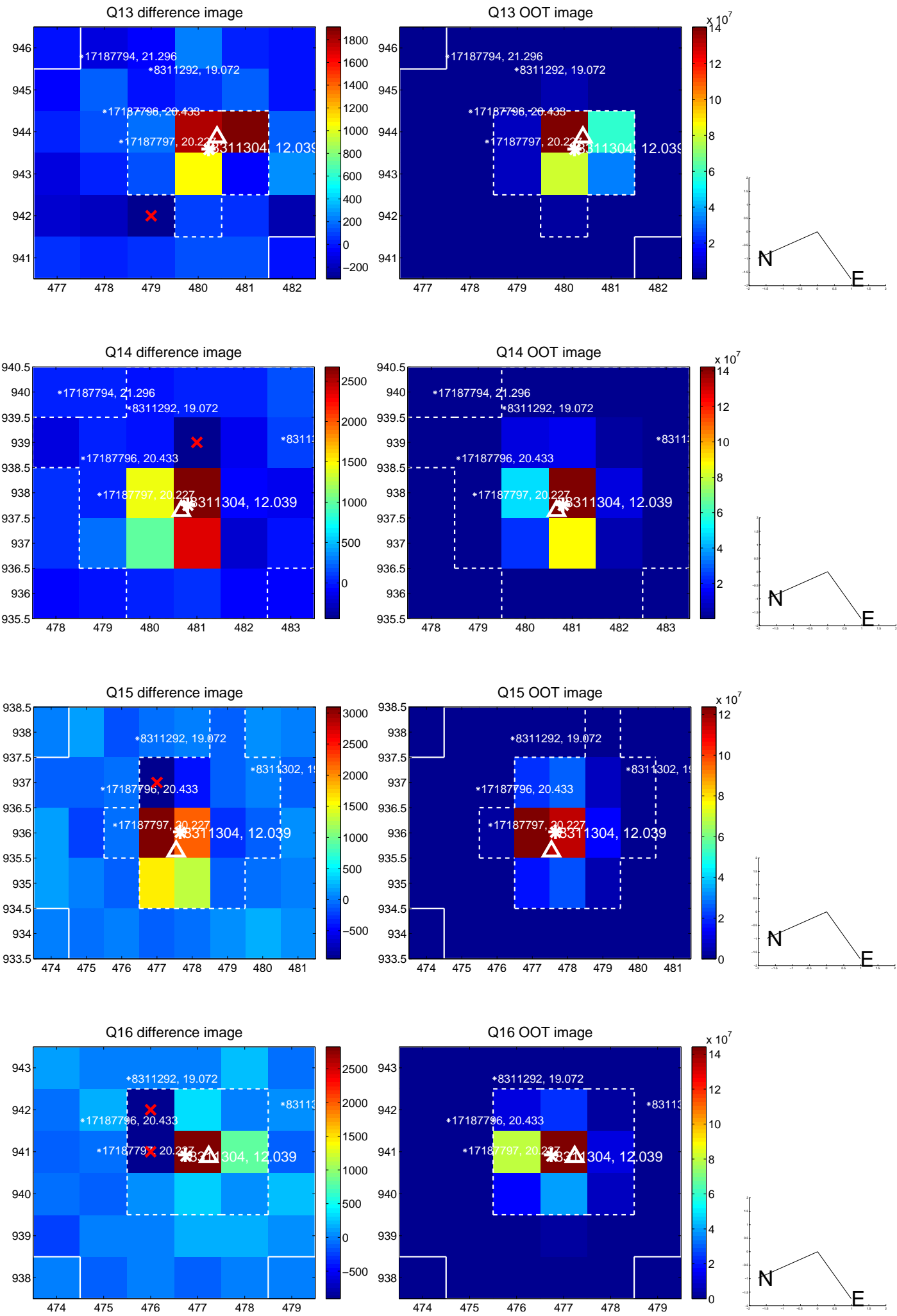
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



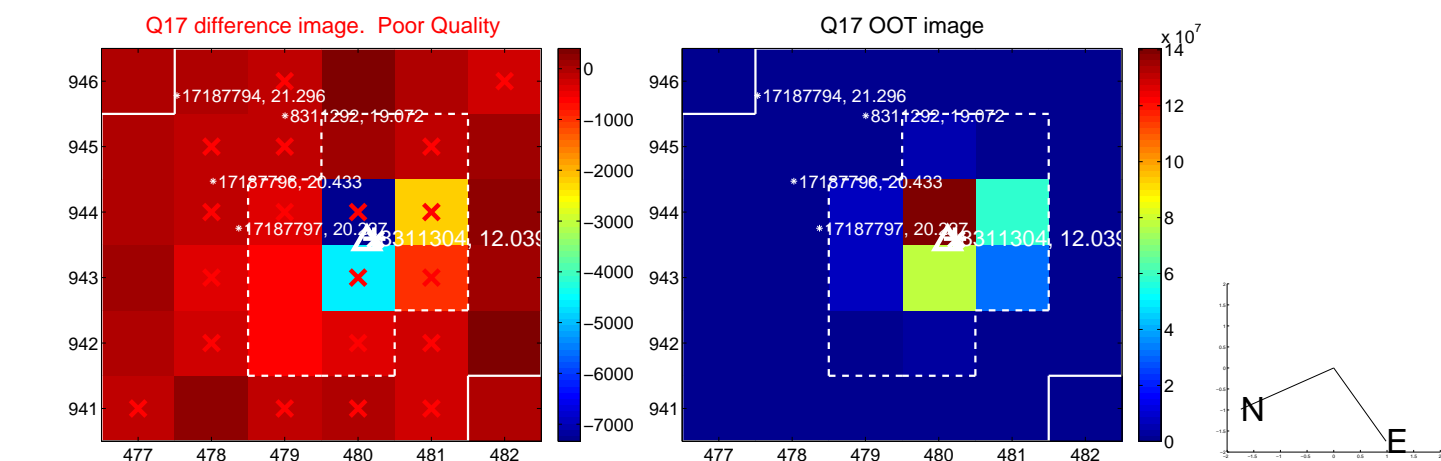
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



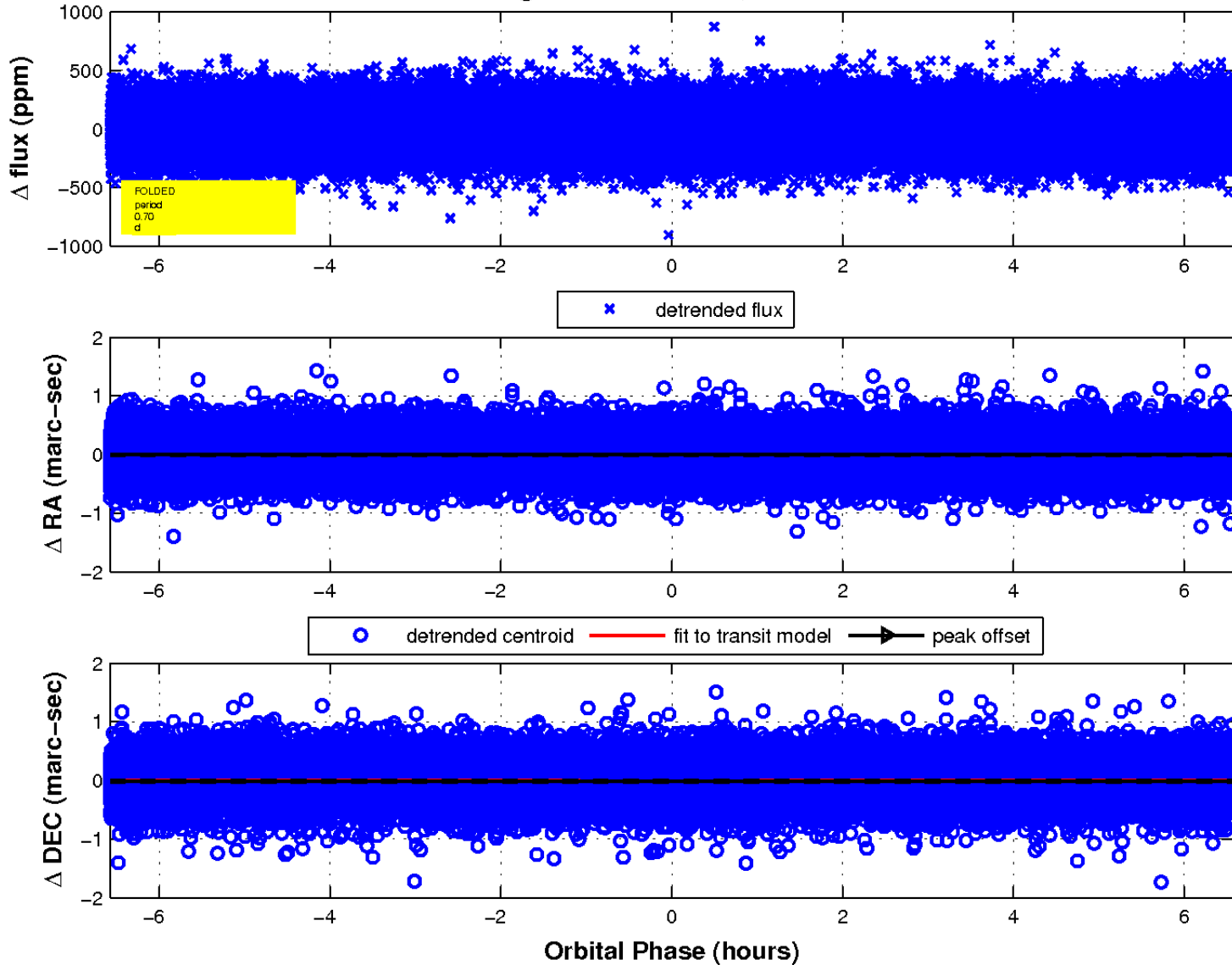
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

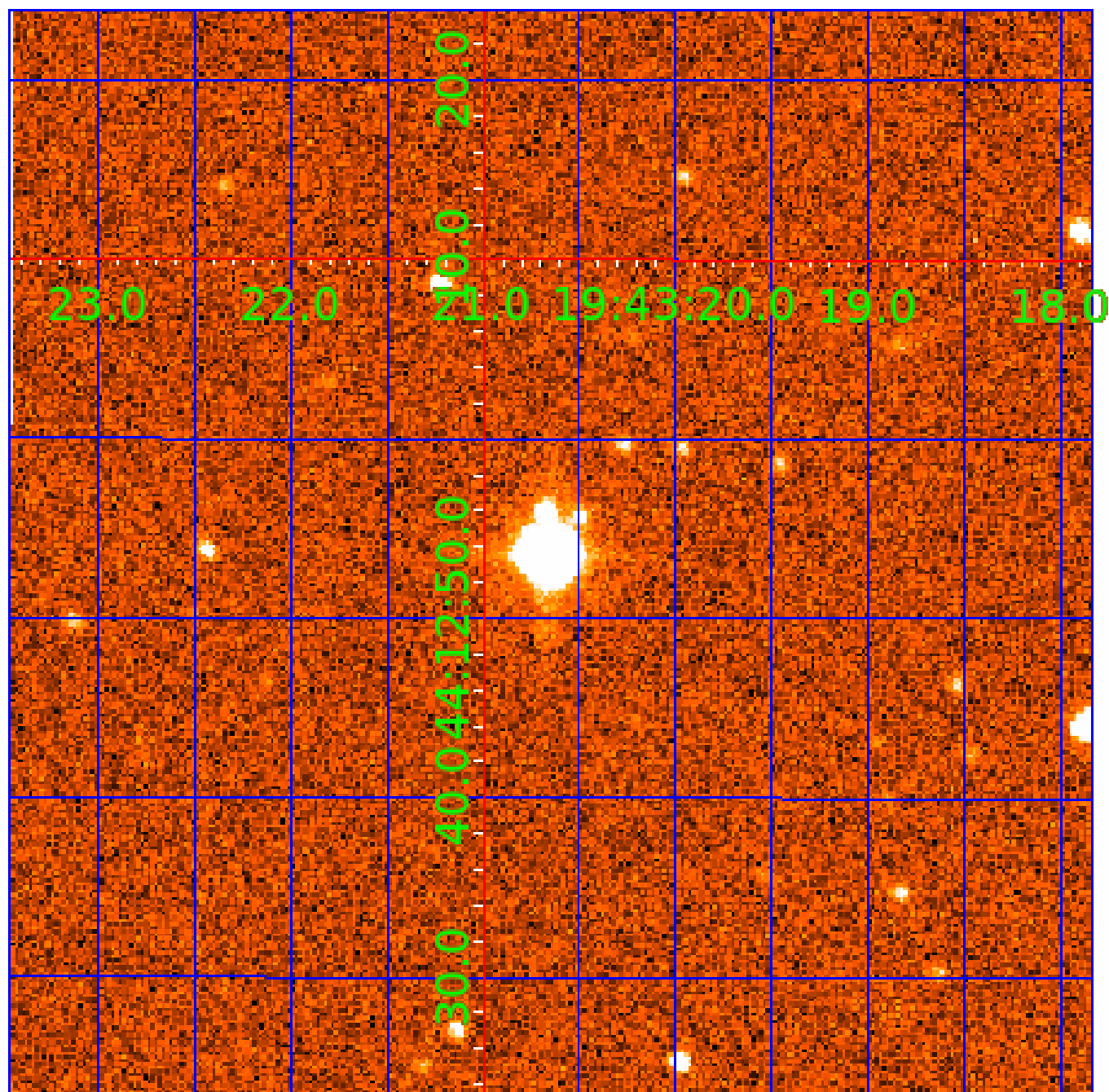


fluxWeightedCentroids, Planet 1 of 3



UKIRT Image

Declination



KIC 008311304

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})
008311304-01	OBS	No	0.698092	131.578788	20.9	2.192	10.7	10.7	2.18	8529	1.16	59516.74
008311304-02	OBS	No	0.562054	131.734119	16.0	3.006	8.7	8.0	2.18	8529	1.01	79460.59
008311304-03	OBS	No	49.844518	176.029451	177.5	3.905	7.5	7.4	2.18	8529	3.23	200.92

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
008311304-01	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT
008311304-02	OBS	FP	0.00	1	0	1	0	LPP_DV—LPP_ALT—HALO_GHOST
008311304-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT

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

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

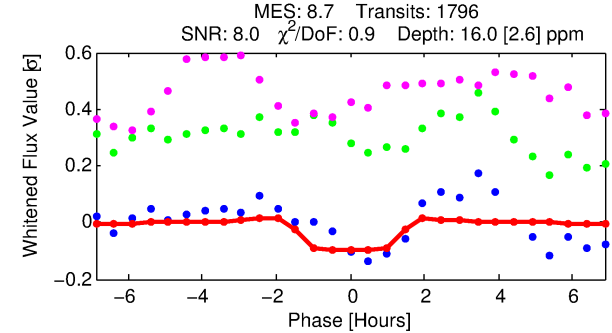
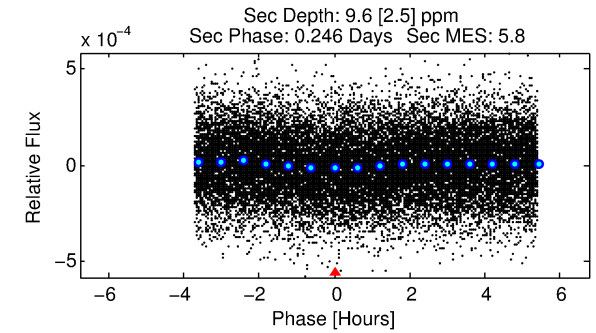
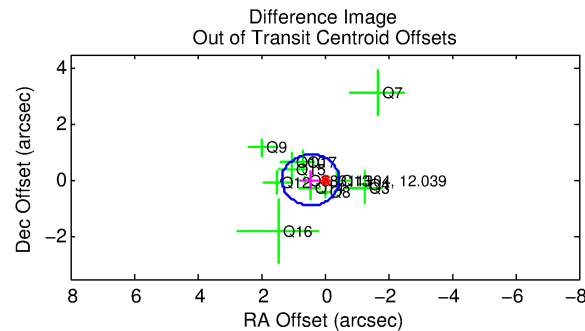
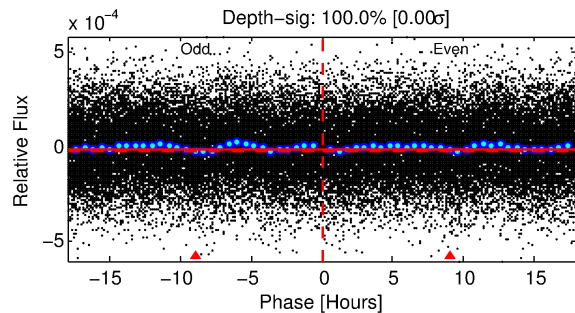
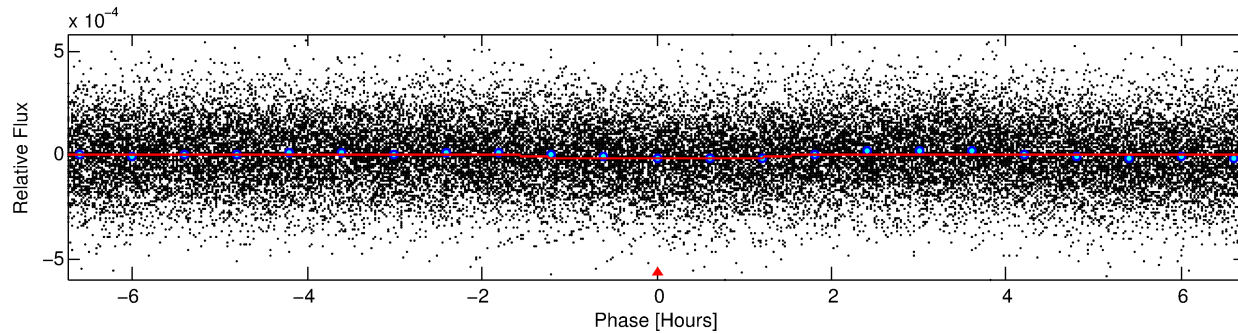
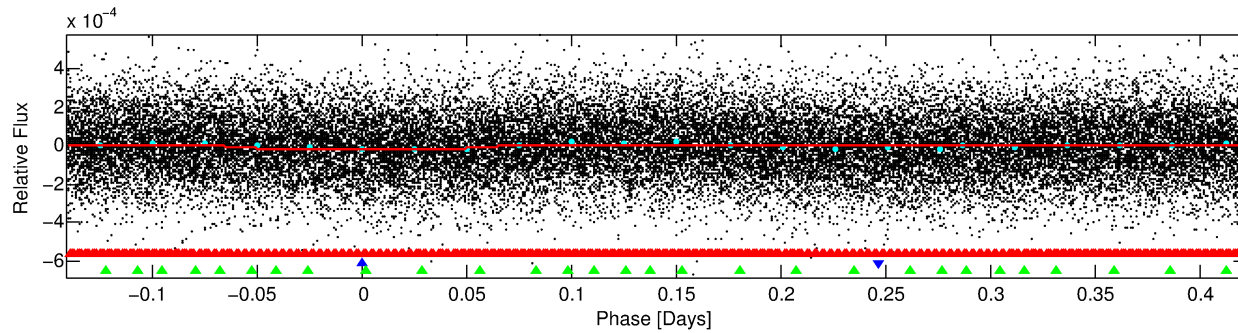
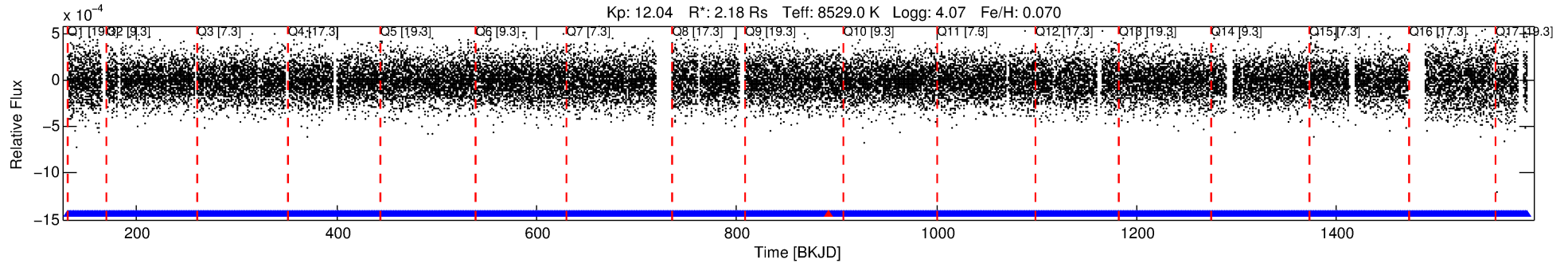
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 008311304-02

No Significant Match Found

DV One-Page Summary

KIC: 8311304 Candidate: 2 of 3 Period: 0.562 d



DV Fit Results:

Period = 0.56205 [0.00001] d
Epoch = 131.7341 [0.0042] BKJD
Rp/R* = 0.0042 [0.0019]
a/R* = 1.14 [0.77]
b = 0.90 [0.66]
Seff = 79460.59 [29138.26]
Teq = 4281 [392] K
Rp = 1.01 [0.53] Re
a = 0.0169 [0.0037] AU
Ag = 1.46 [1.47] [0.32 σ]
Teffp = 7280 [1766] K [1.66 σ]

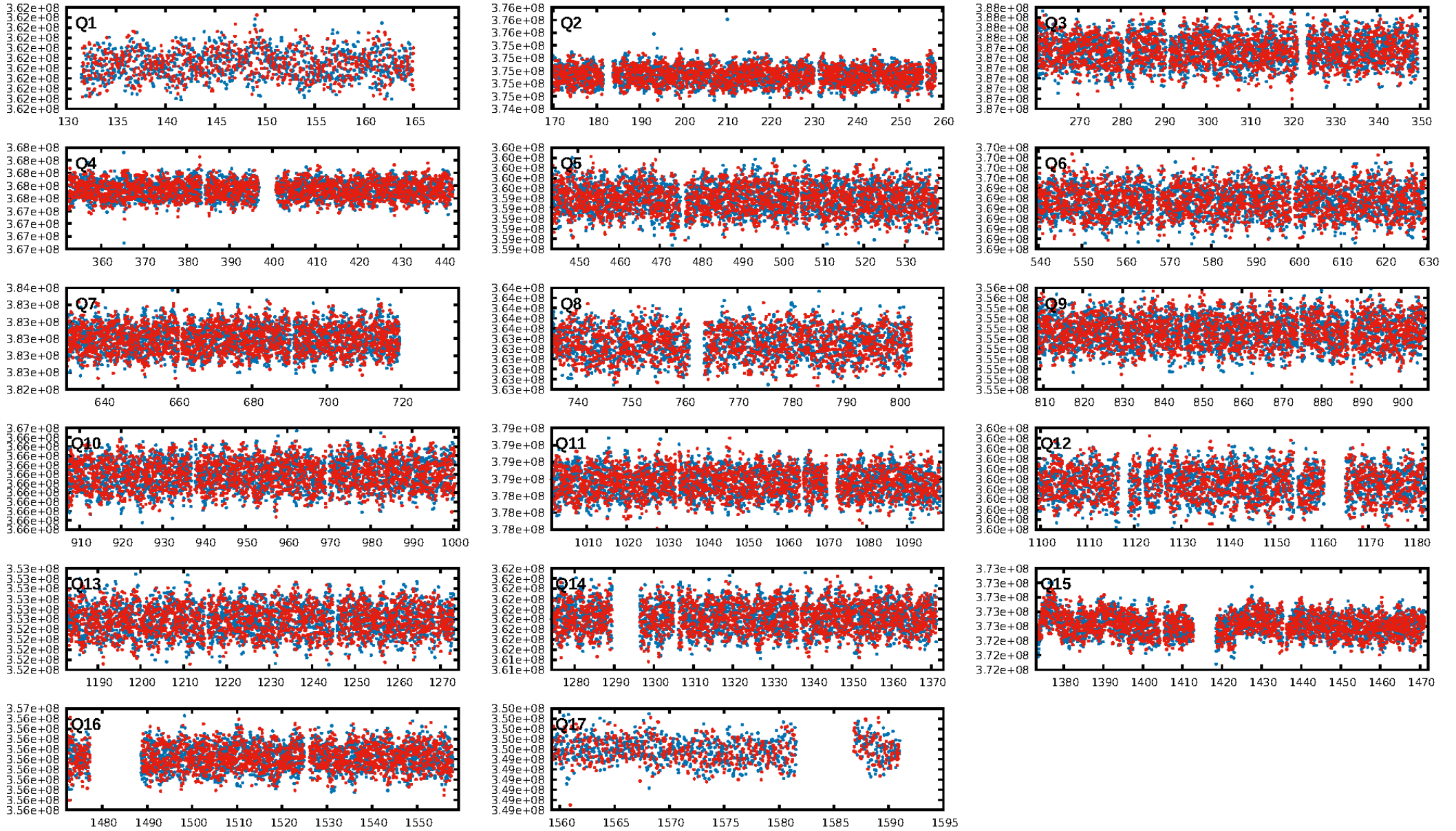
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: 62.0% [0.88 σ]
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: 2.37e-09
RollingBand-fgt: 1.00 [1713/1714]
GhostDiagnostic-chr: -0.06687
Centroid-sig: 20.4%
Centroid-so: 0.513 arcsec [1.27 σ]
OotOffset-rm: 0.448 arcsec [1.49 σ]
KicOffset-rm: 0.384 arcsec [1.31 σ]
OotOffset-st: 2/3/4/4 [13]
KicOffset-st: 2/3/4/4 [13]
DiffImageQuality-fgm: 0.92 [12/13]
DiffImageOverlap-fno: 0.00 [0/17]

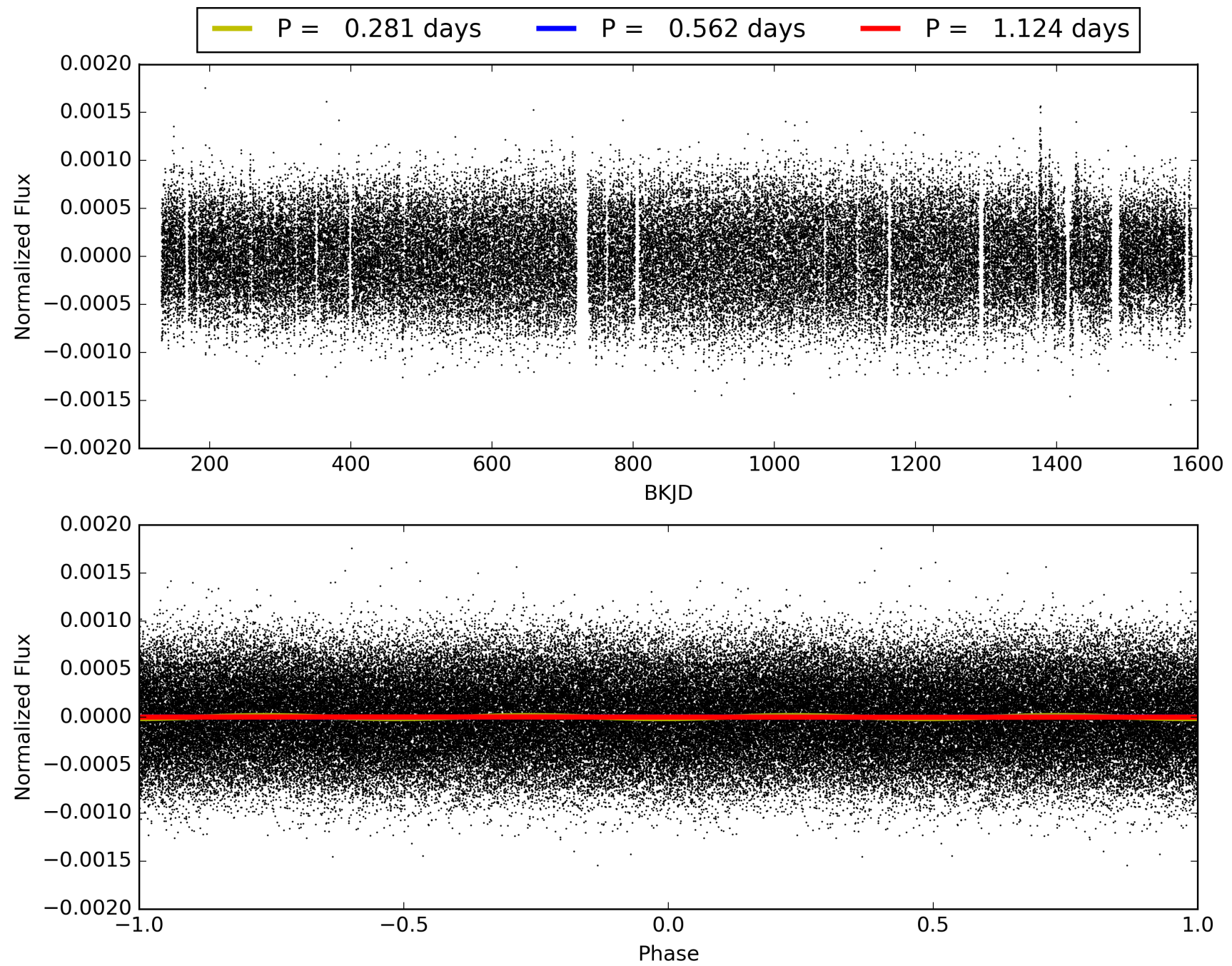
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 31-Jan-2016 06:46:54 Z

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

TCE 008311304-02, PDC Light Curves

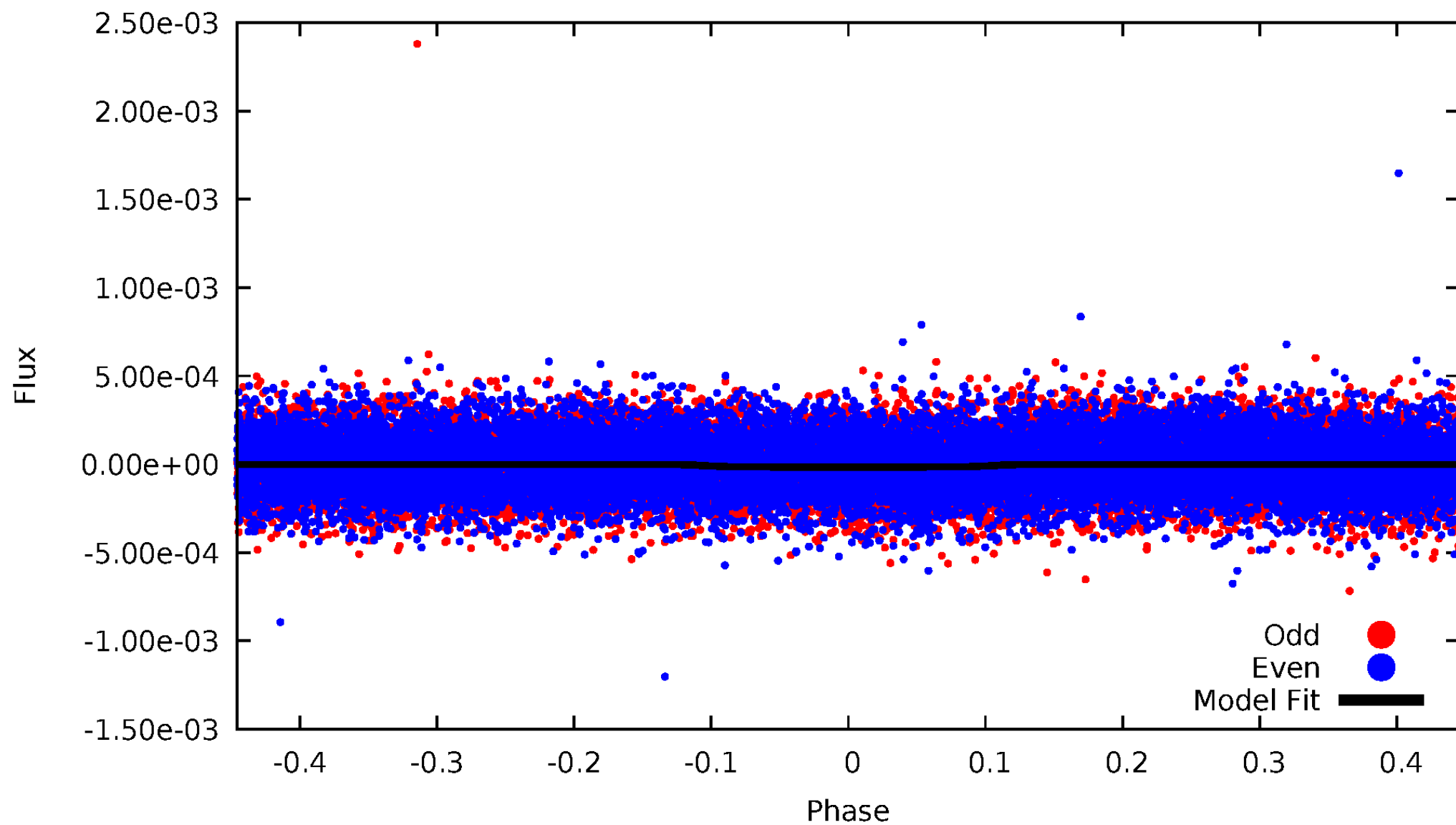


TCE 008311304-02



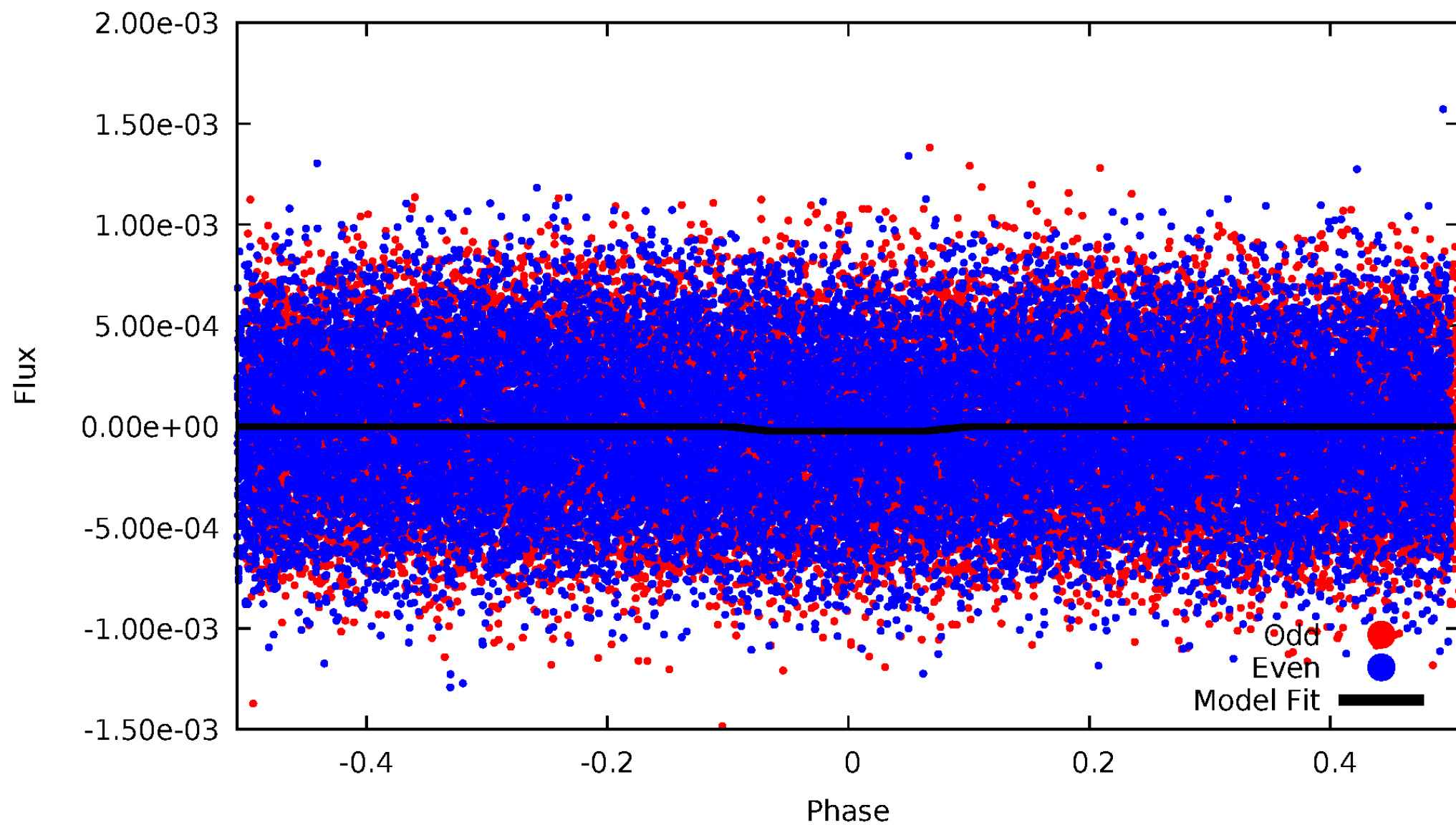
DV Odd/Even

TCE 008311304-02



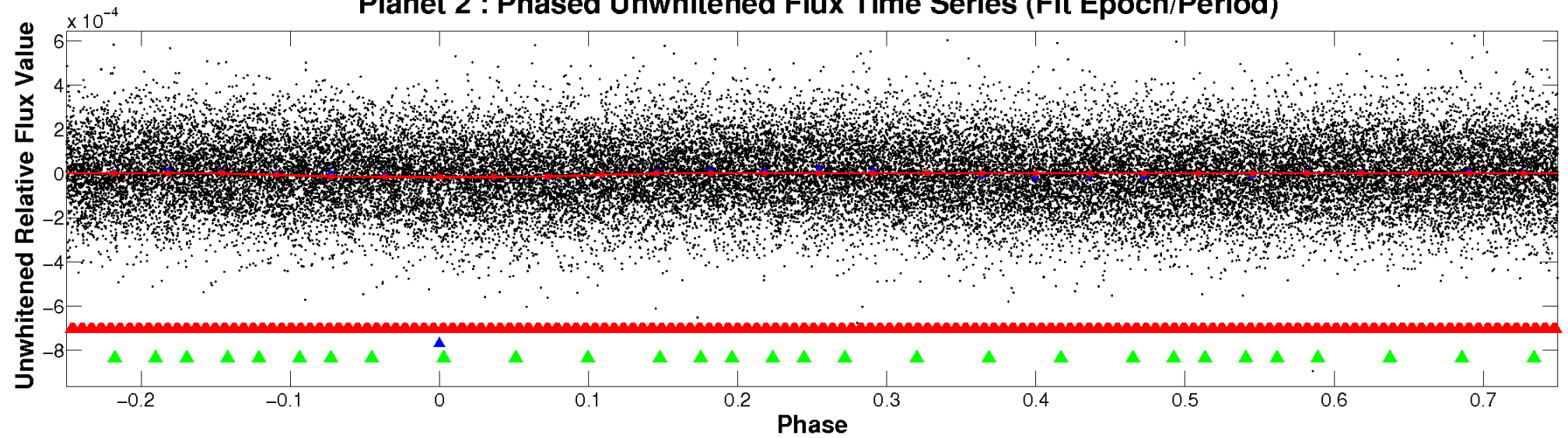
ALT Odd/Even

TCE 008311304-02

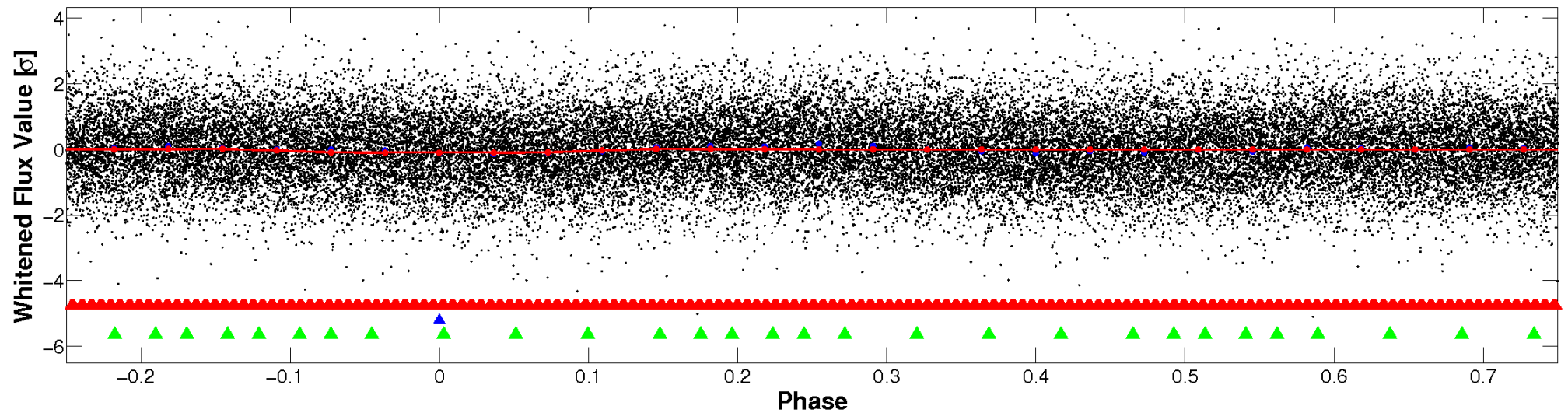


Non-Whitened Vs. Whitened Light Curve

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

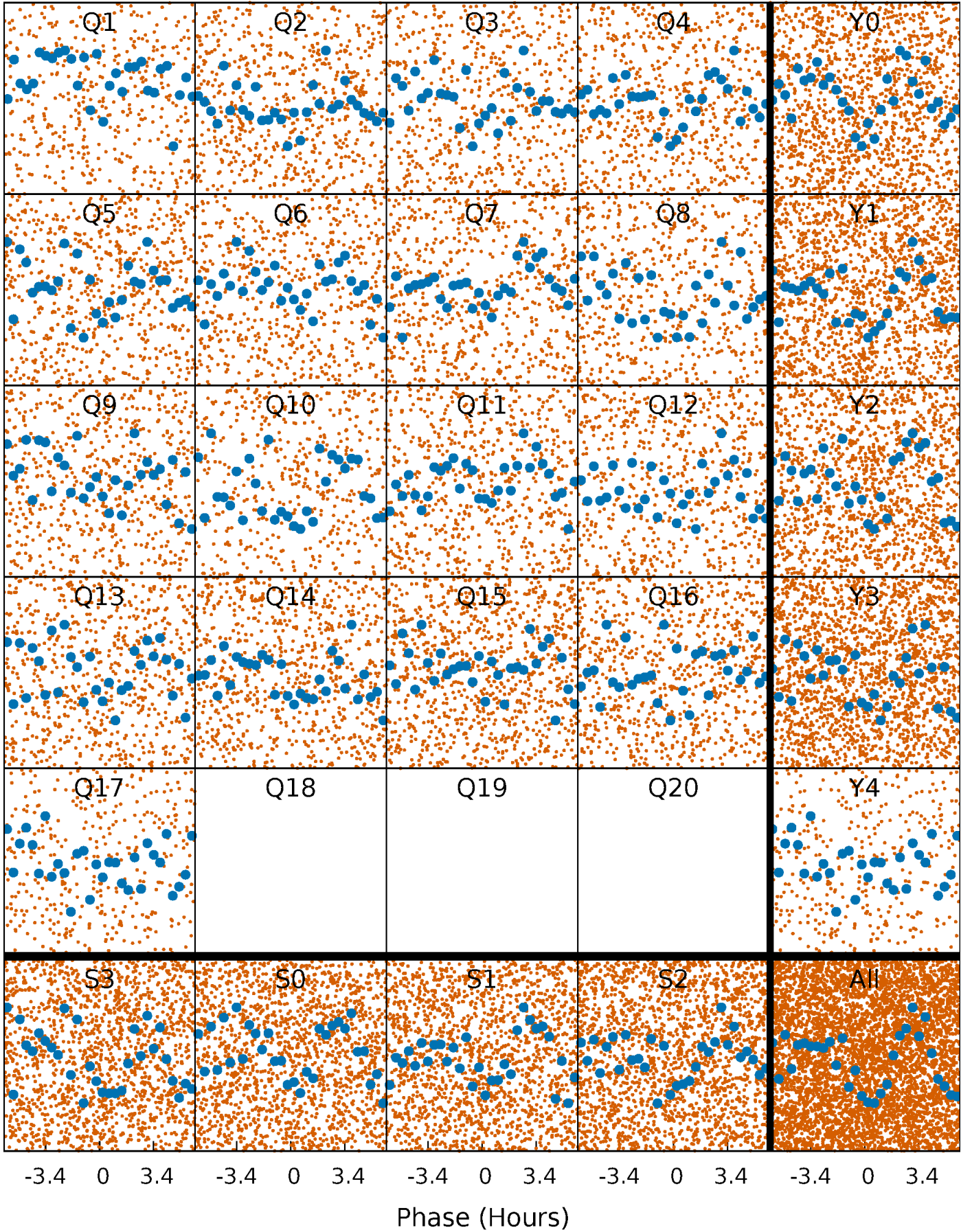


Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



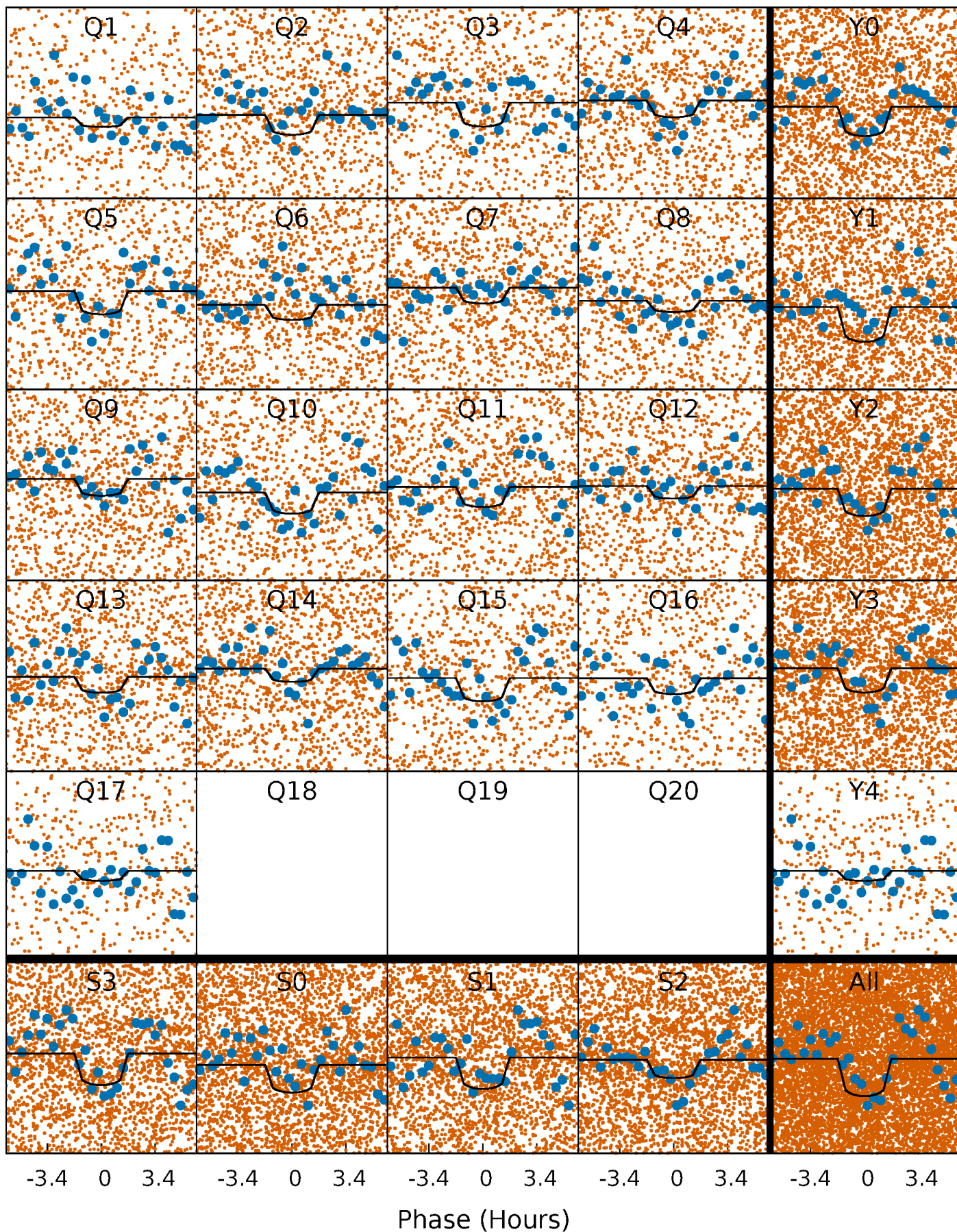
PDC Quarter-Phased Transit Curves

TCE 008311304-02 P= 0.562054 Days $T_0=131.734119$ (BKJD)



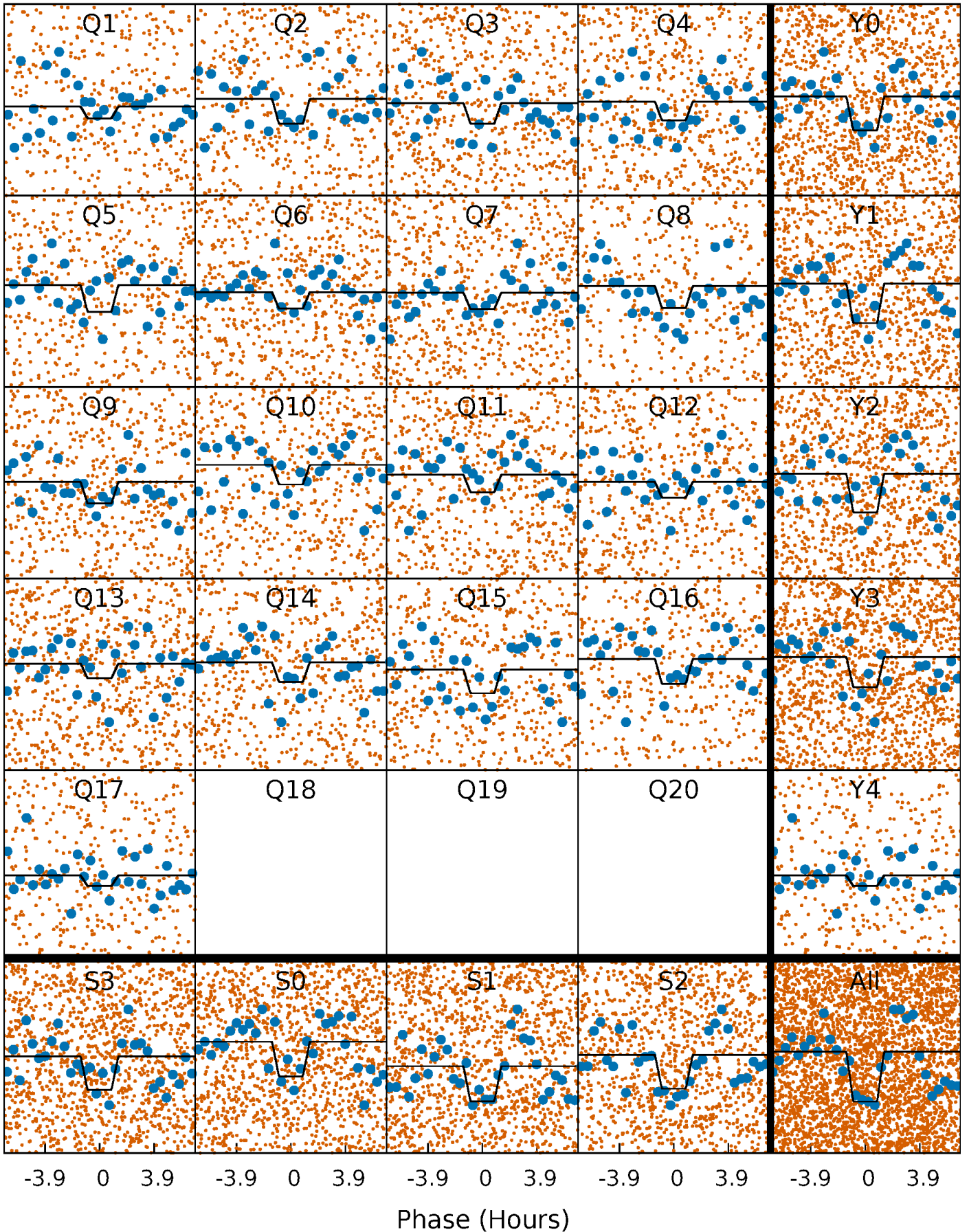
DV Quarter-Phased Transit Curves

TCE 008311304-02 P= 0.562054 Days $T_0=131.734119$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

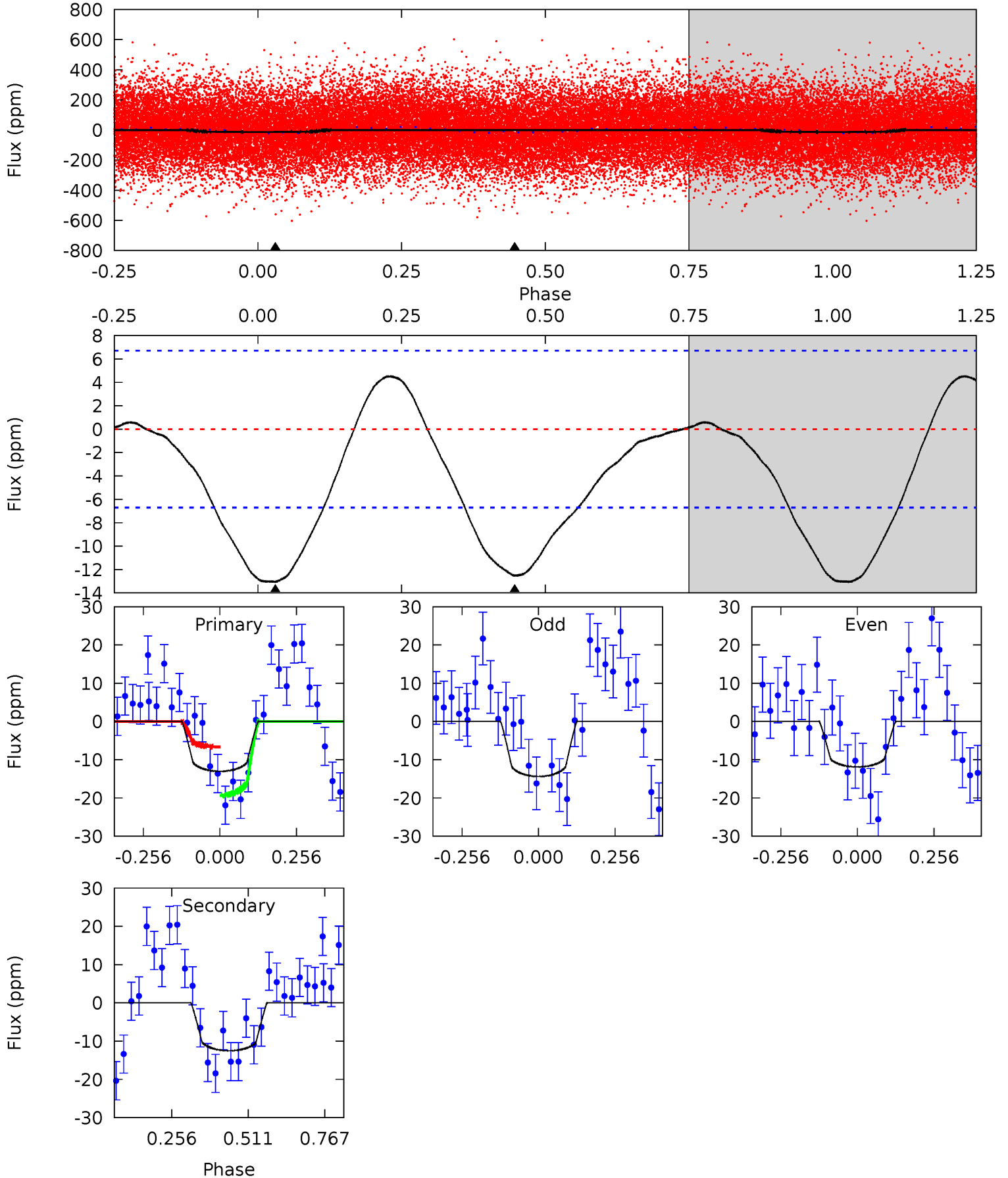
TCE 008311304-02 P= 0.562065 Days $T_0=131.735714$ (BKJD)



DV Model-Shift Uniqueness Test

008311304-02, P = 0.562054 Days, E = 131.734119 Days

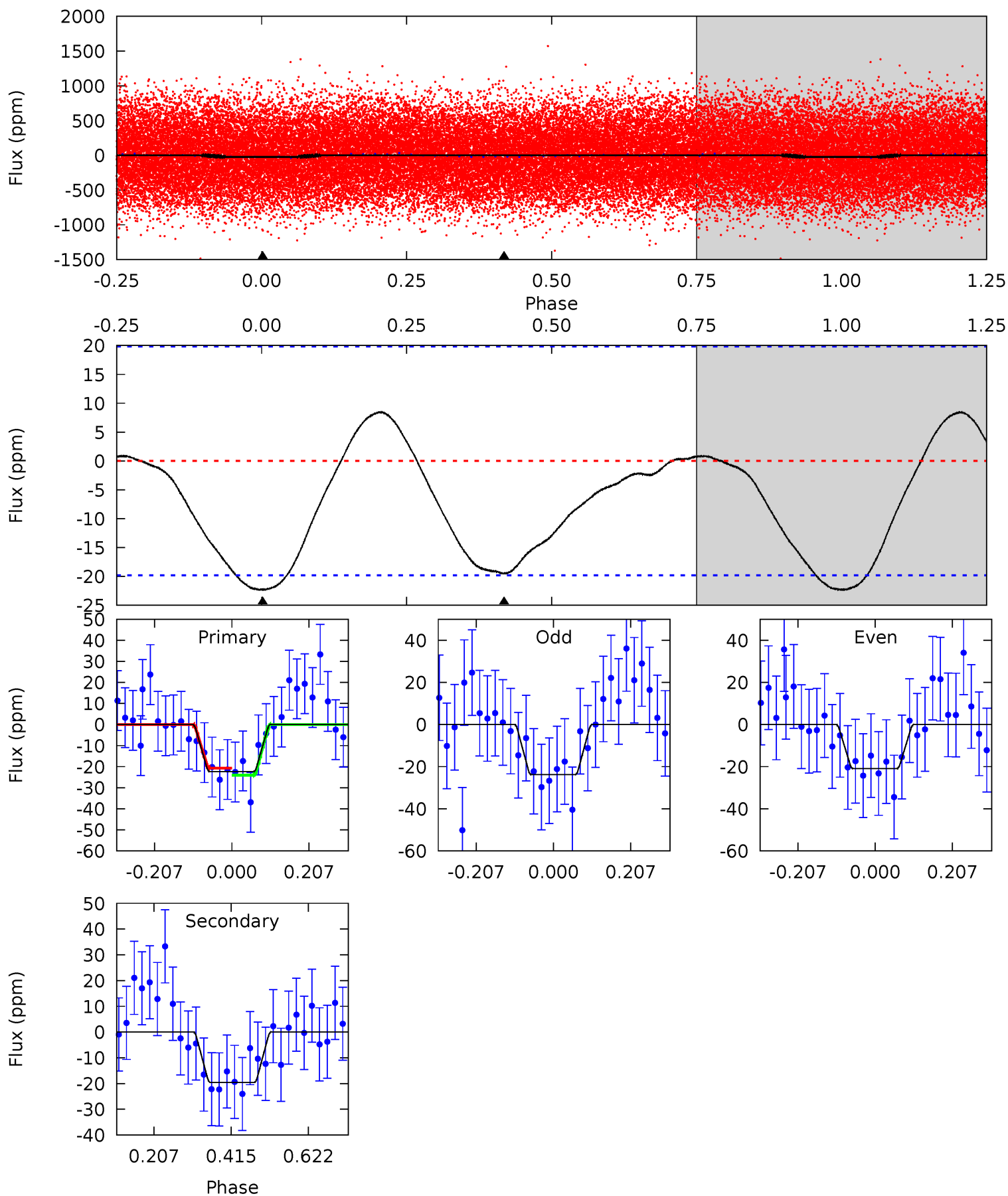
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
8.48	8.14	0	0	4.36	1.14	0.26	8.48	8.48	8.14	8.14	0.82	0.93	0.26	4.14



Alt Model-Shift Uniqueness Test

008311304-02, P = 0.562065 Days, E = 131.735714 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
4.98	4.35	0	0	4.41	1.26	0.35	4.98	4.98	4.35	4.35	0.32	0.92	0.28	0.38



Stellar Parameters For KIC 008311304

	$T_{\text{eff}} (K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R (R_{\odot})$	$M (M_{\odot})$	$\rho_{\star} (\text{g}\cdot\text{cm}^{-3})$
	8529^{+202}_{-404}	$4.066^{+0.171}_{-0.140}$	$0.070^{+0.200}_{-0.600}$	$2.183^{+0.410}_{-0.564}$	$2.024^{+0.331}_{-0.497}$	$0.274^{+0.276}_{-0.101}$
	+2%/-5%	+4%/-3%	+286%/-857%	+19%/-26%	+16%/-25%	+101%/-37%
Source	KIC0	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 008311304-02 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-13 ± 2	$1.03^{+0.52}_{-0.46}$	5925^{+405}_{-416}	7080^{+3478}_{-1703}	$1.859^{+3.926}_{-1.053}$
Alt.	-20 ± 4	$1.18^{+0.50}_{-0.46}$	5928^{+376}_{-416}	7395^{+3309}_{-1527}	$2.159^{+3.984}_{-1.169}$

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

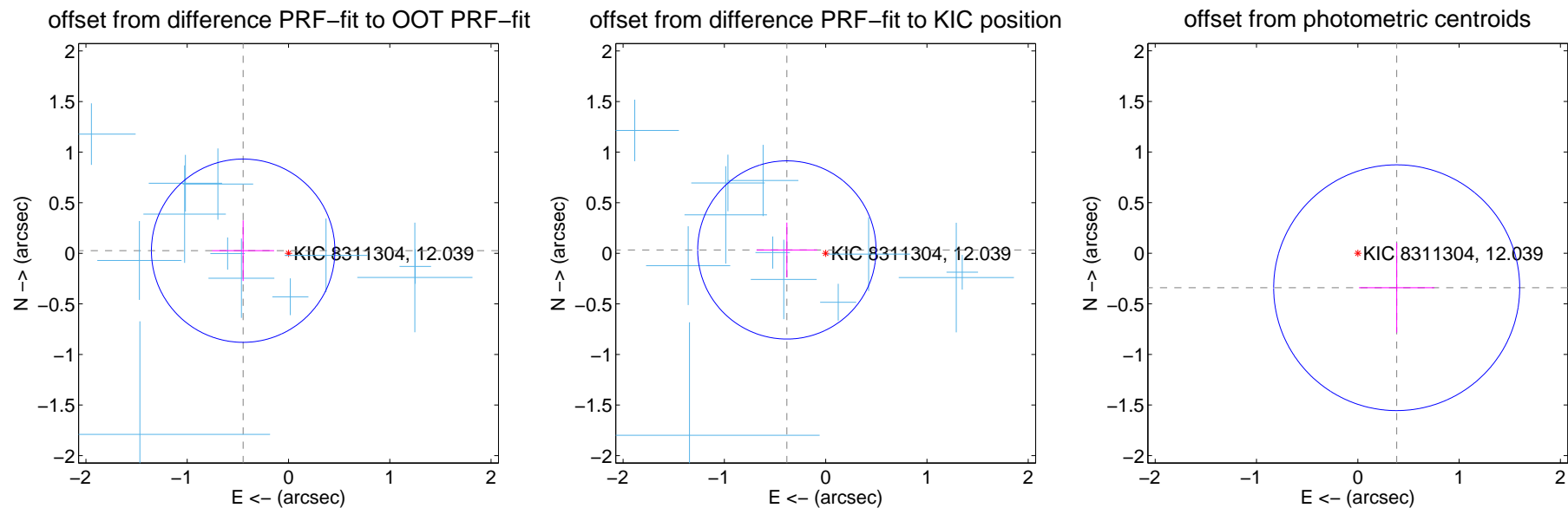
DV Centroid Data

Supplemental centroid analysis for 008311304-02. Kepler magnitude: 12.04. Transit SNR 7.99

There are 12 quarters with good PRF difference image offsets

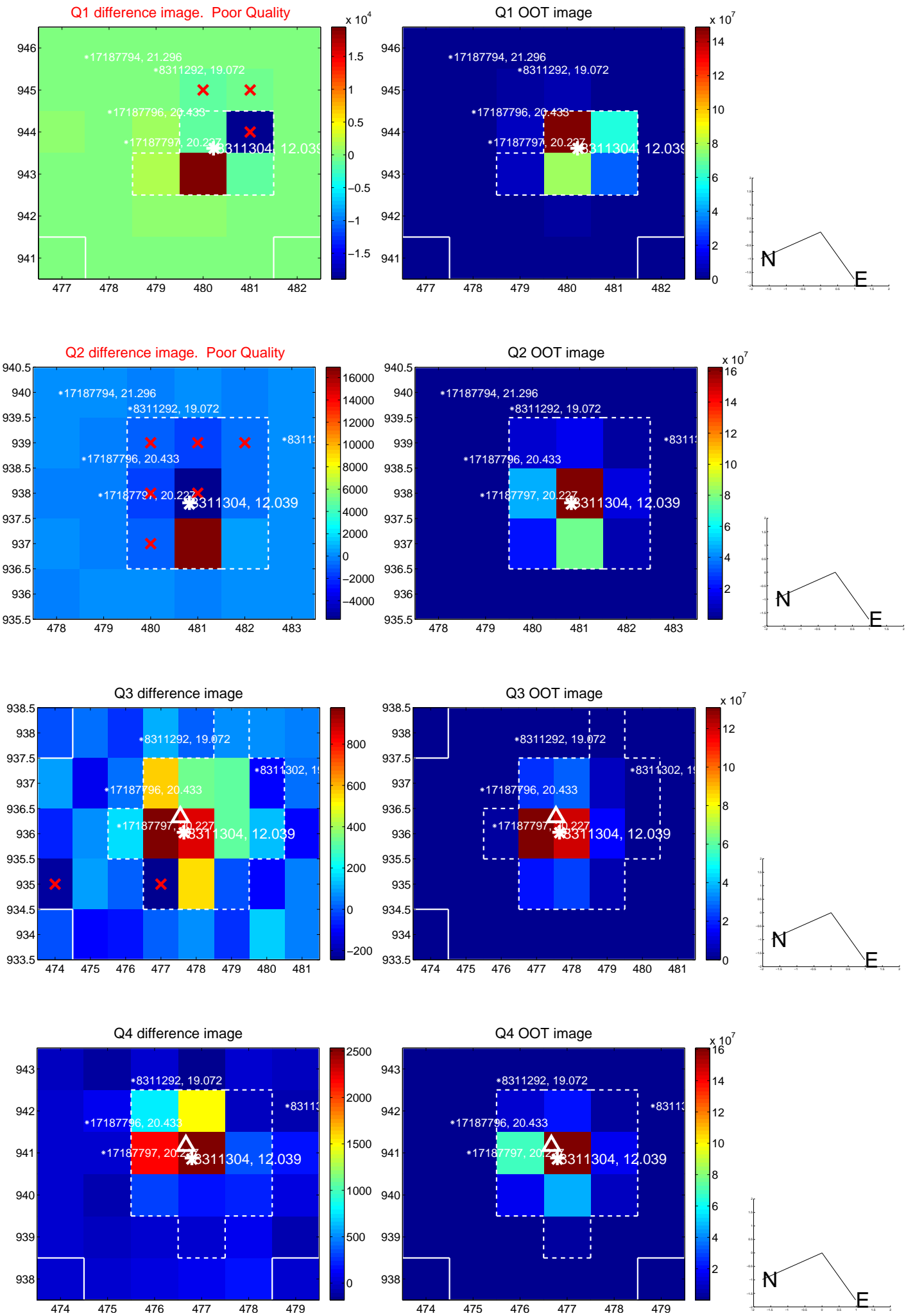
The direct PRF centroid is offset from the target star catalog position by about 0.09 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.448 ± 0.302	1.49	0.448 ± 0.306	0.026 ± 0.300
PRF-fit source offset from KIC position	0.384 ± 0.294	1.31	0.383 ± 0.299	0.033 ± 0.271
photometric centroid source offset	0.51 ± 0.40	1.27	-0.38 ± 0.37	-0.34 ± 0.44

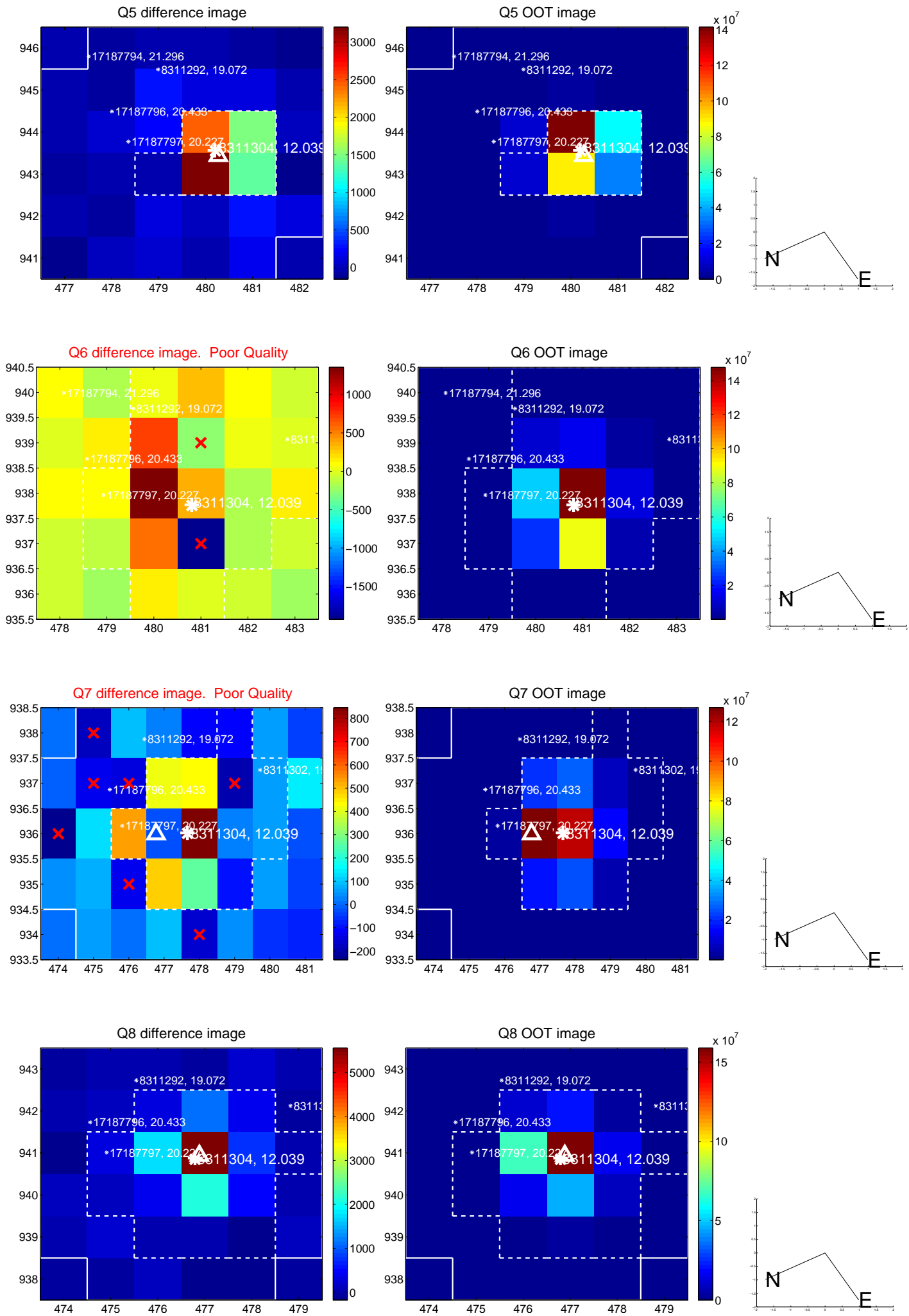


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses:** good quarterly centroid offsets; **Vermillion crosses:** bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

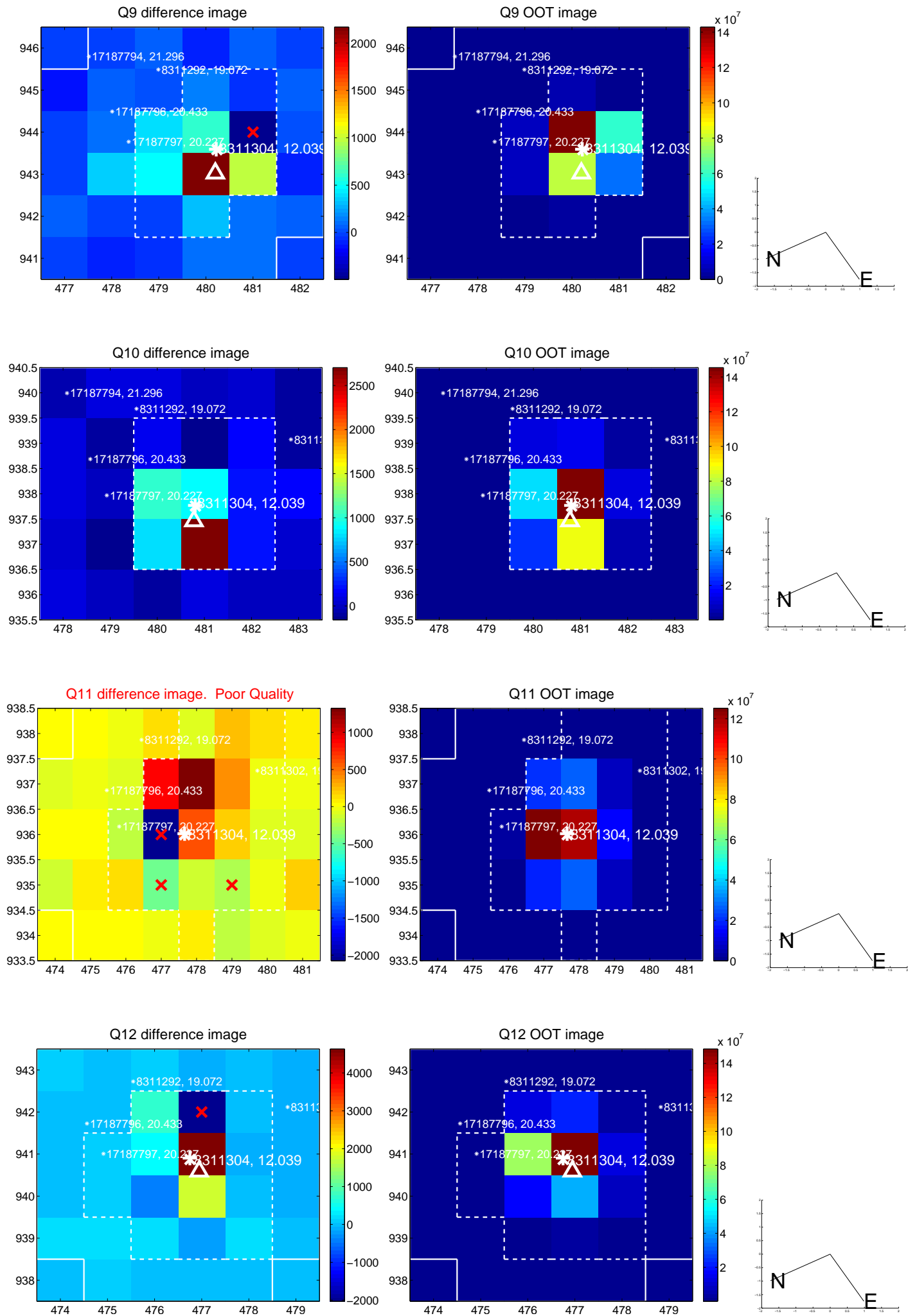
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



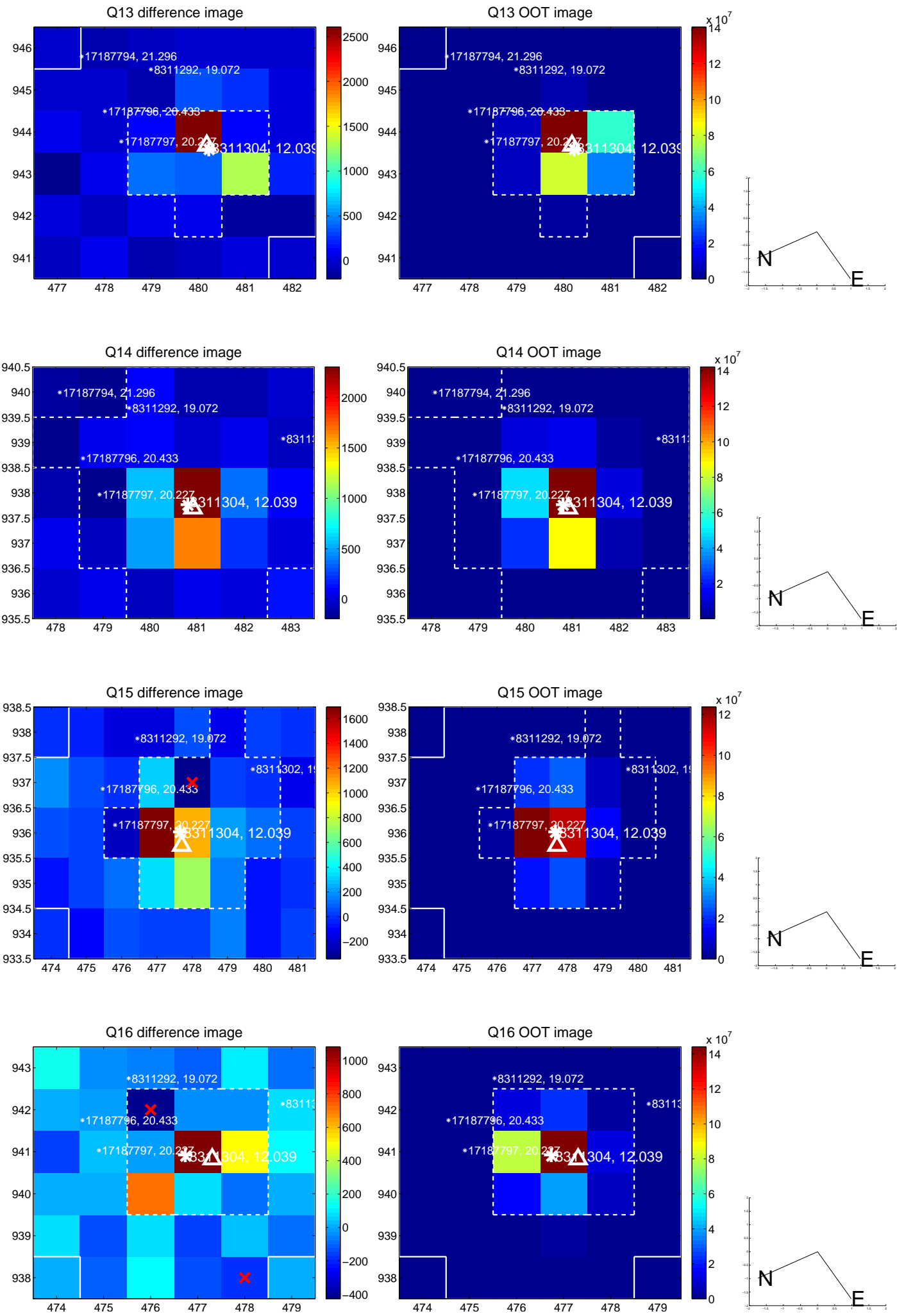
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



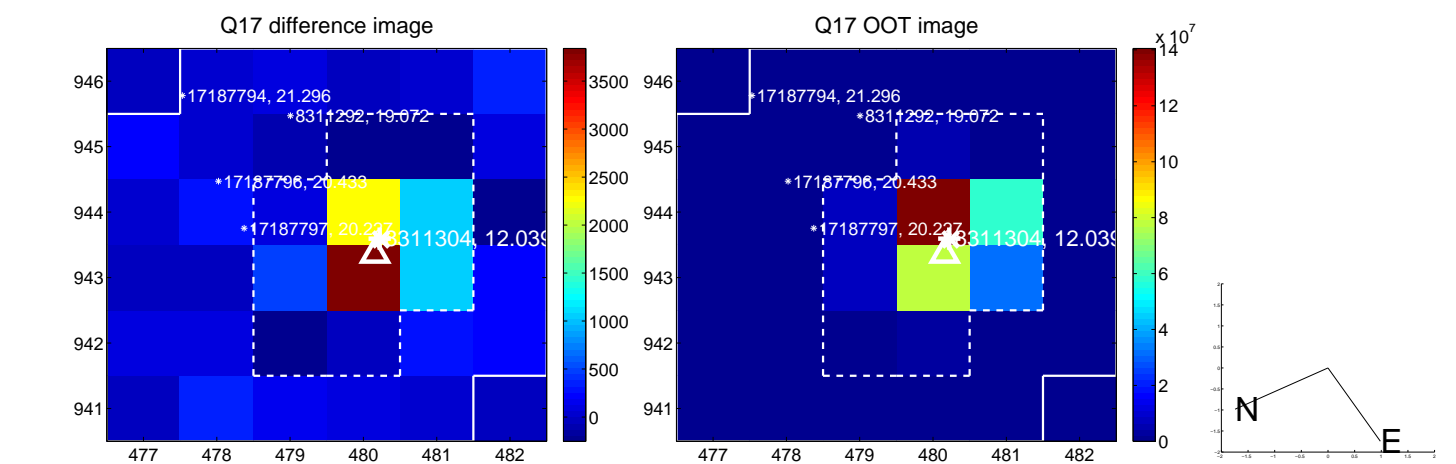
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



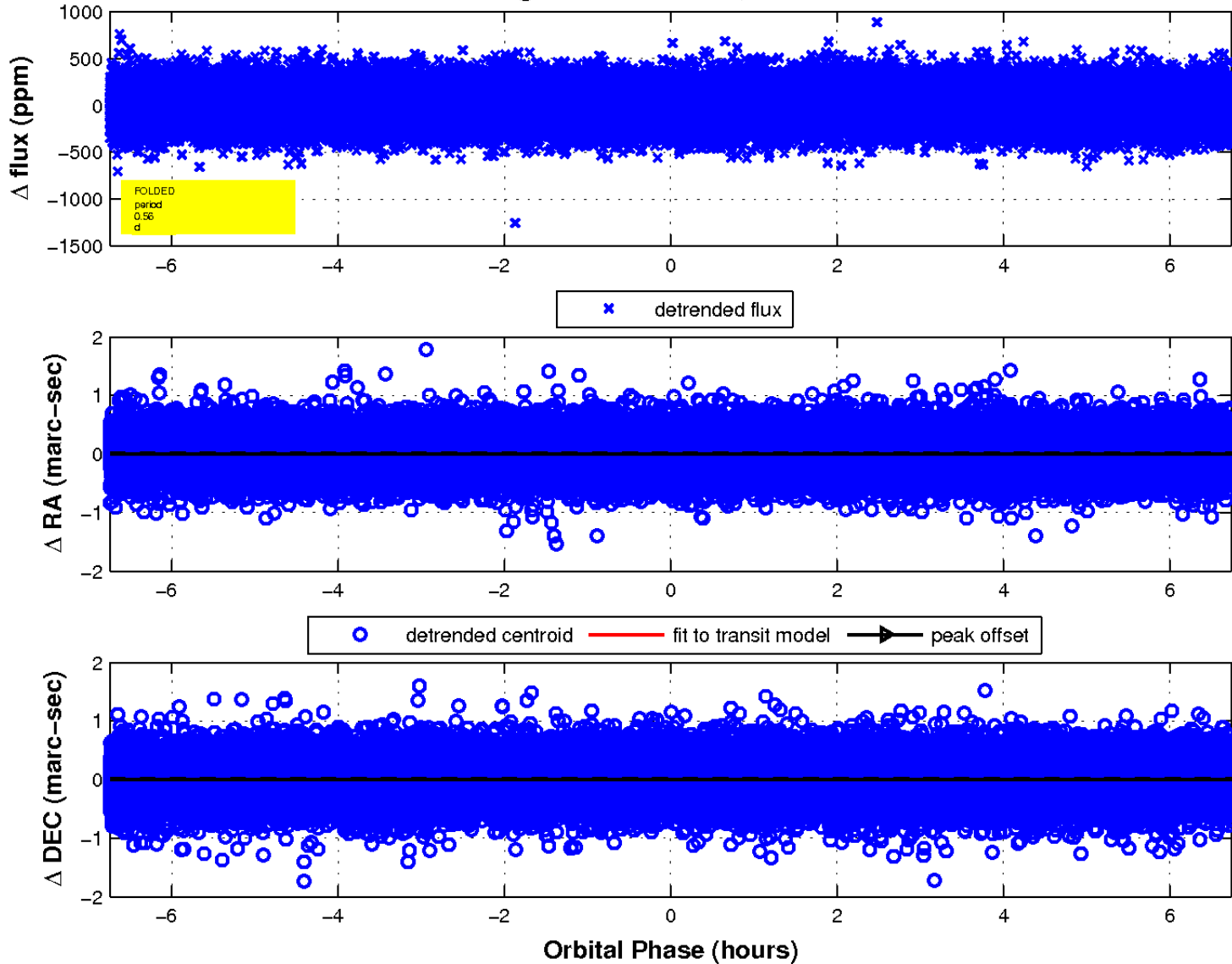
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

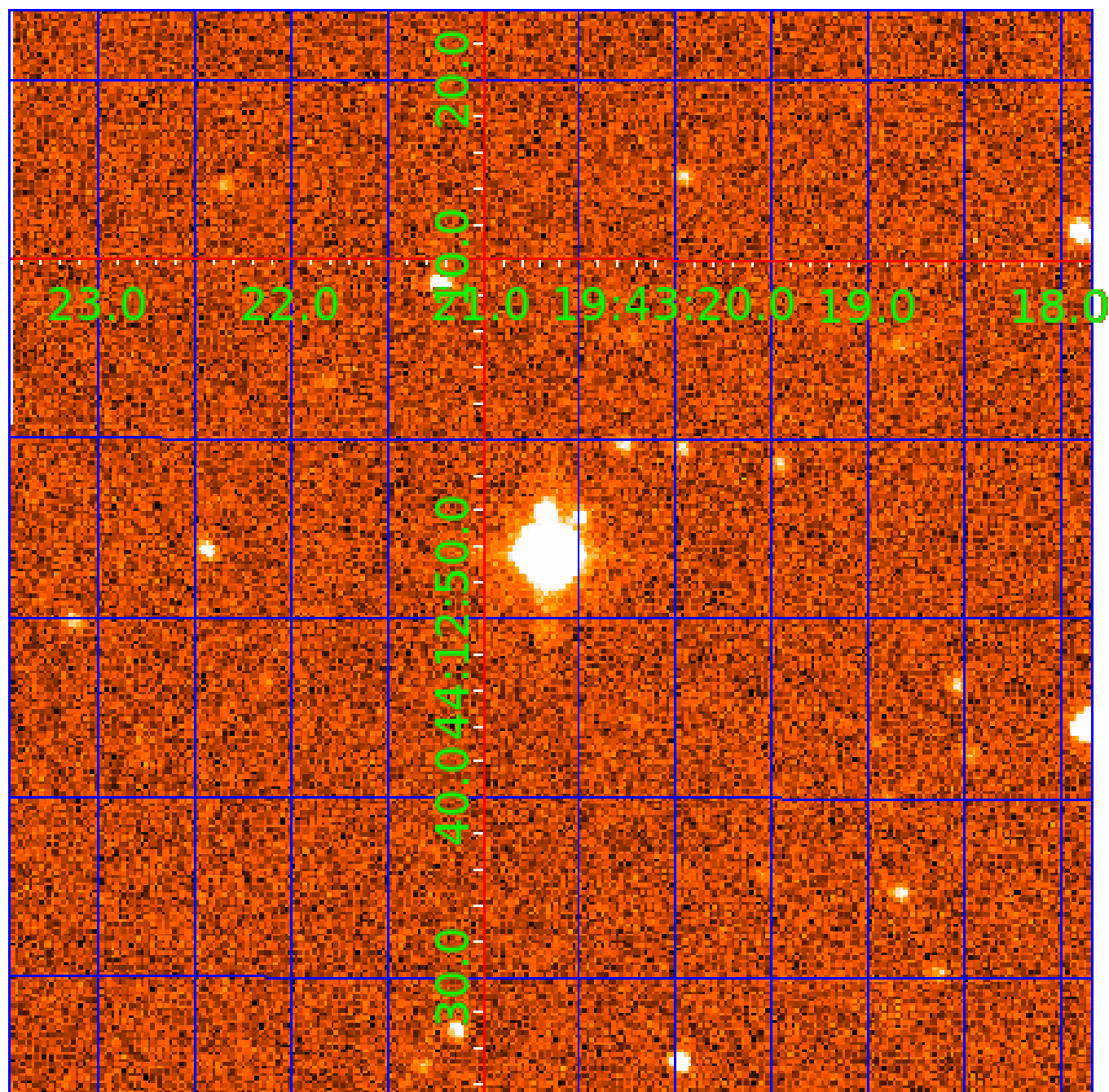


fluxWeightedCentroids, Planet 2 of 3



UKIRT Image

Declination



KIC 008311304

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})
008311304-01	OBS	No	0.698092	131.578788	20.9	2.192	10.7	10.7	2.18	8529	1.16	59516.74
008311304-02	OBS	No	0.562054	131.734119	16.0	3.006	8.7	8.0	2.18	8529	1.01	79460.59
008311304-03	OBS	No	49.844518	176.029451	177.5	3.905	7.5	7.4	2.18	8529	3.23	200.92

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
008311304-01	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT
008311304-02	OBS	FP	0.00	1	0	1	0	LPP_DV—LPP_ALT—HALO_GHOST
008311304-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT

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

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

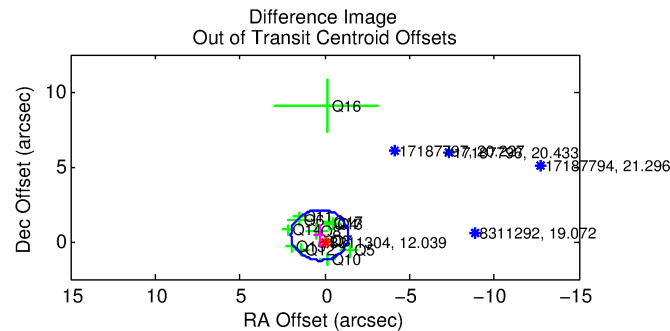
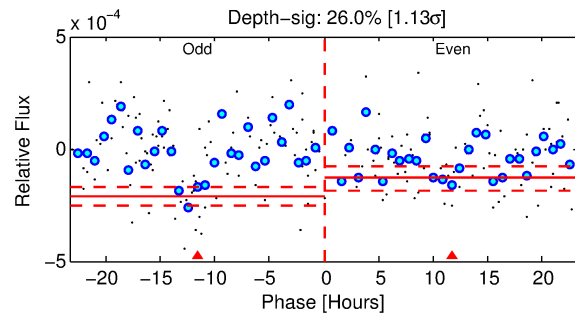
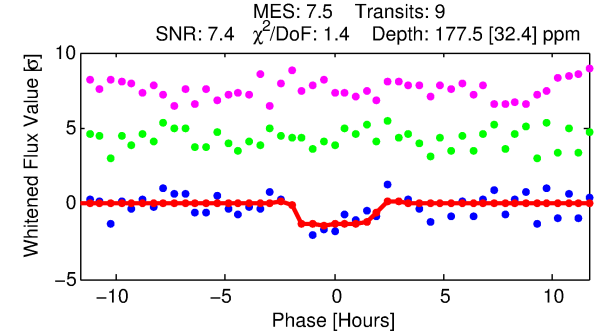
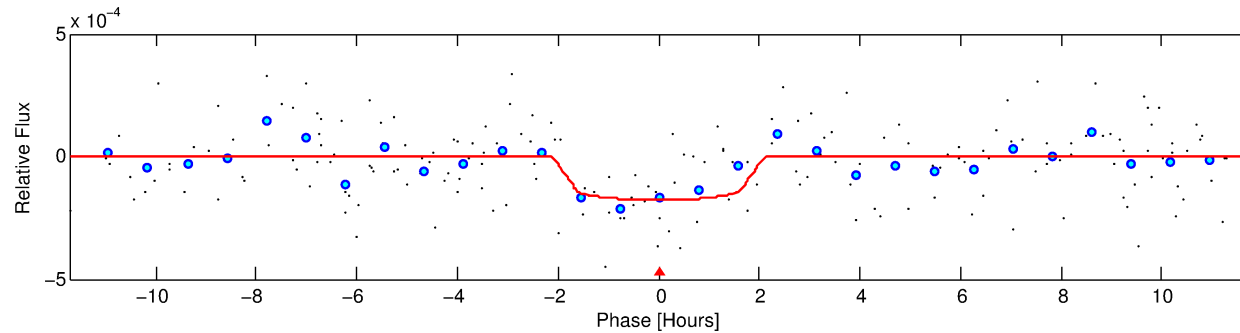
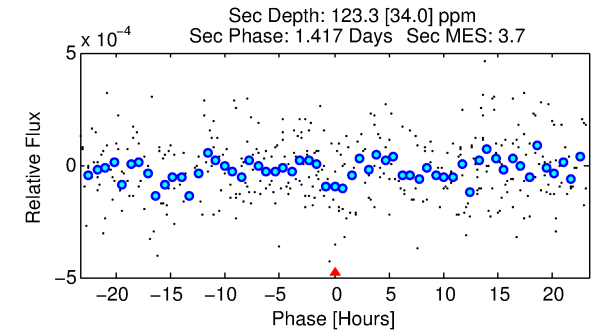
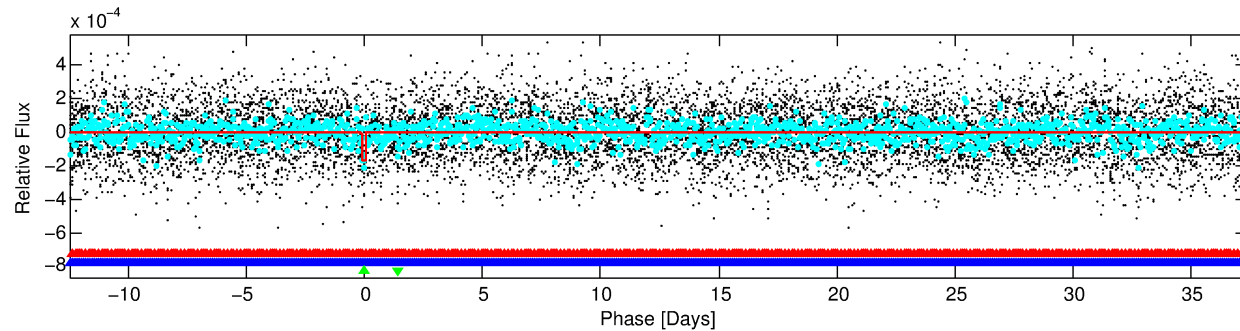
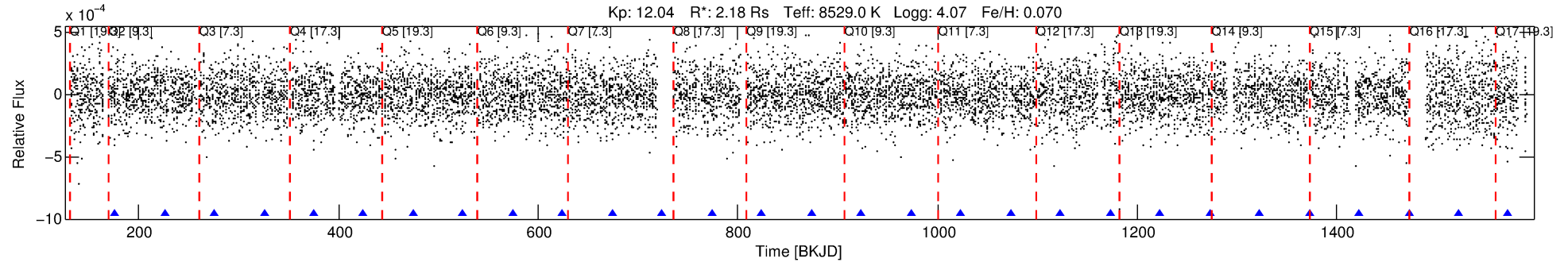
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 008311304-03

No Significant Match Found

DV One-Page Summary

KIC: 8311304 Candidate: 3 of 3 Period: 49.845 d



DV Fit Results:

Period = 49.84452 [0.00185] d
Epoch = 176.0295 [0.0287] BKJD
Rp/R* = 0.0135 [0.0216]
a/R* = 58.69 [597.87]
b = 0.82 [4.20]
Seff = 200.92 [73.68]
Teq = 960 [88] K
Rp = 3.23 [5.20] Re
a = 0.3353 [0.0726] AU
Ag = 732.16 [2349.72] [0.31σ]
Teffp = 7721 [6176] K [1.09σ]

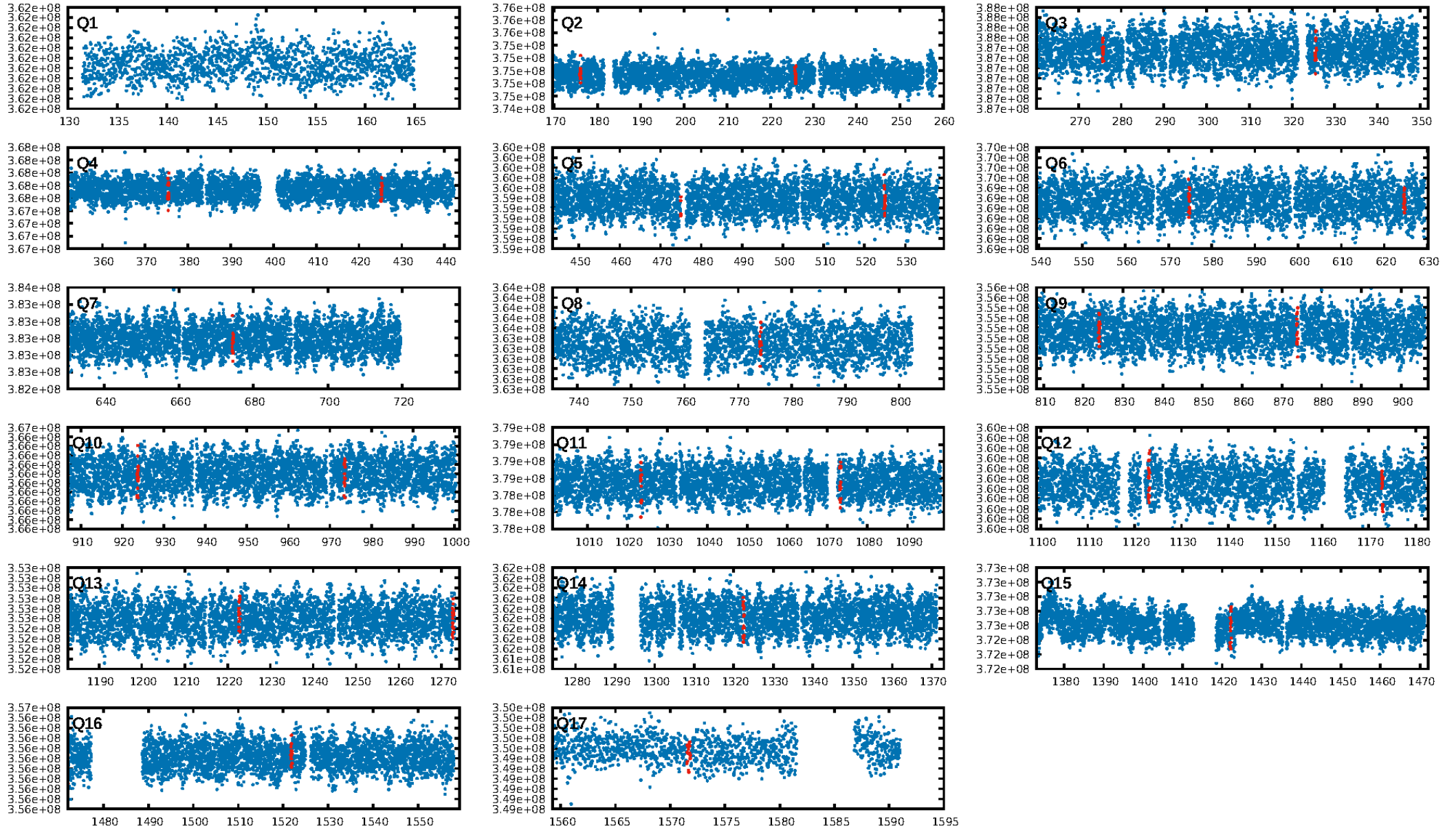
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [263.39σ]
LongPeriod-sig: N/A
ModelChiSquare2-sig: 42.9%
ModelChiSquareGof-sig: 100.0%
Bootstrap-pfa: 1.20e-08
RollingBand-fgt: 1.00 [9/9]
GhostDiagnostic-chr: 9.296
Centroid-sig: 8.8%
Centroid-so: 0.623 arcsec [1.99σ]
OotOffset-rm: 0.529 arcsec [0.94σ]
OotOffset-st: 3/4/4/3 [14]
KicOffset-rm: 0.492 arcsec [0.97σ]
KicOffset-st: 3/4/4/3 [14]
DiffImageQuality-fgm: 0.43 [6/14]
DiffImageOverlap-fno: 0.00 [0/16]

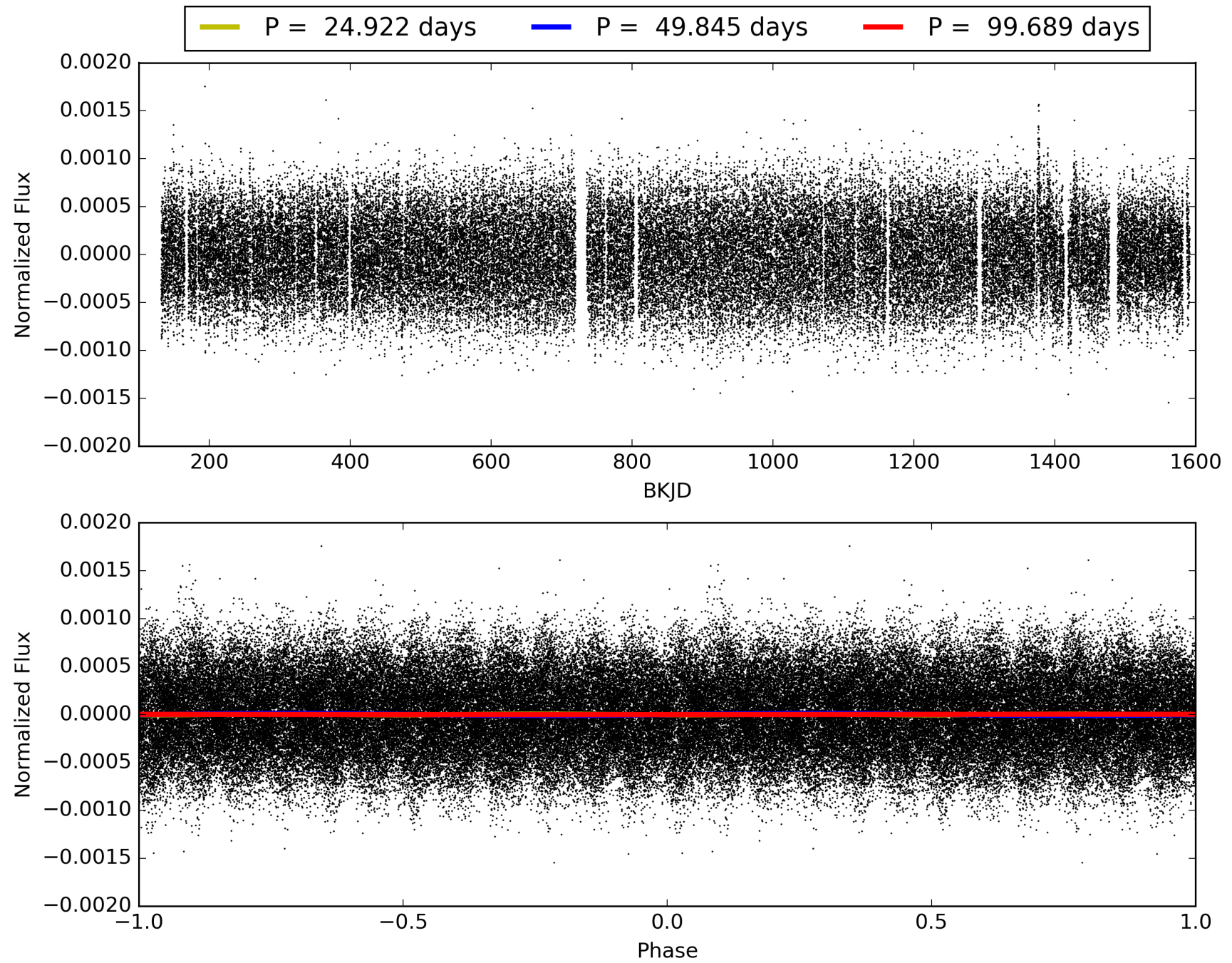
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 31-Jan-2016 06:47:02 Z

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

TCE 008311304-03, PDC Light Curves

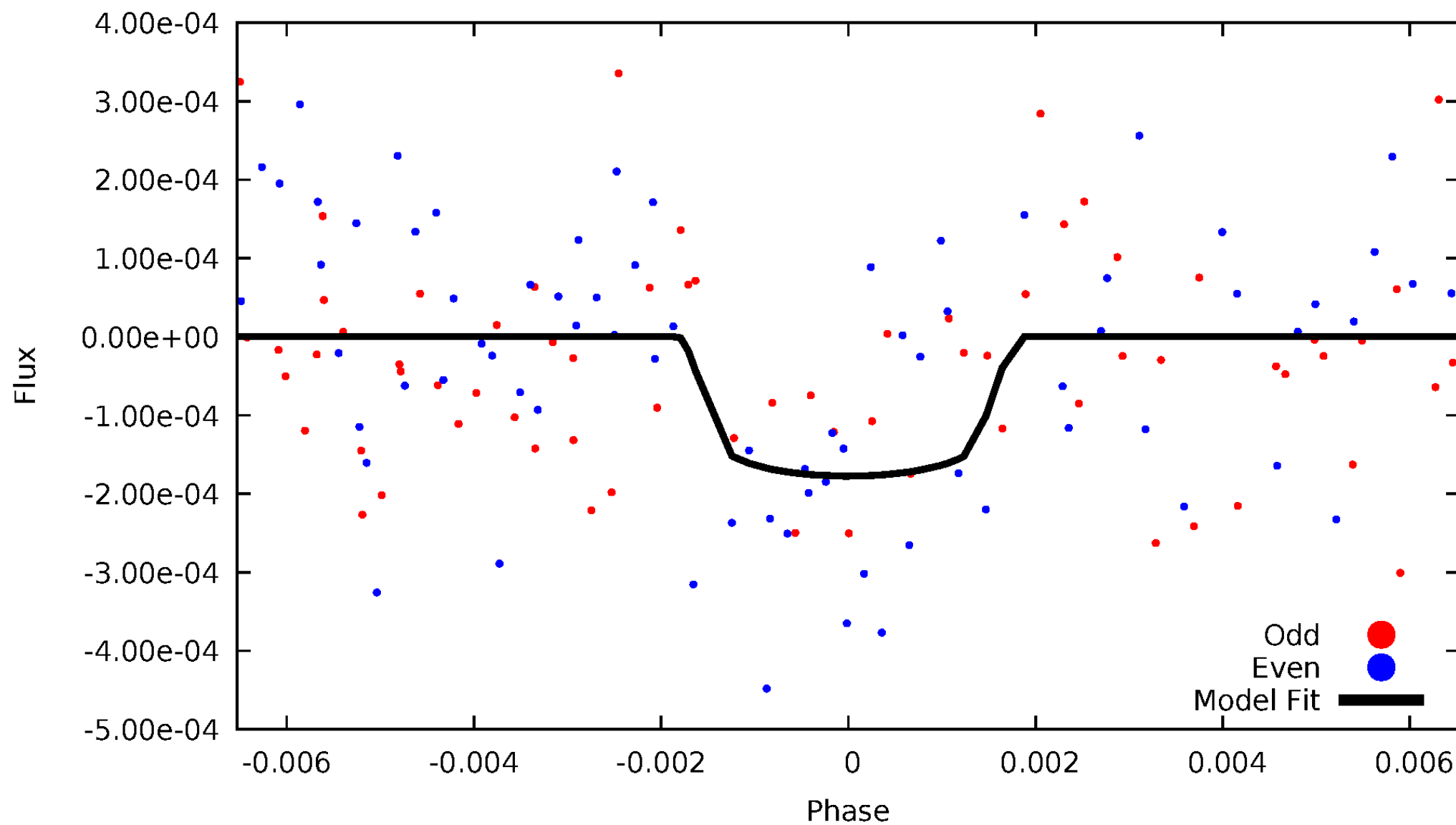


TCE 008311304-03



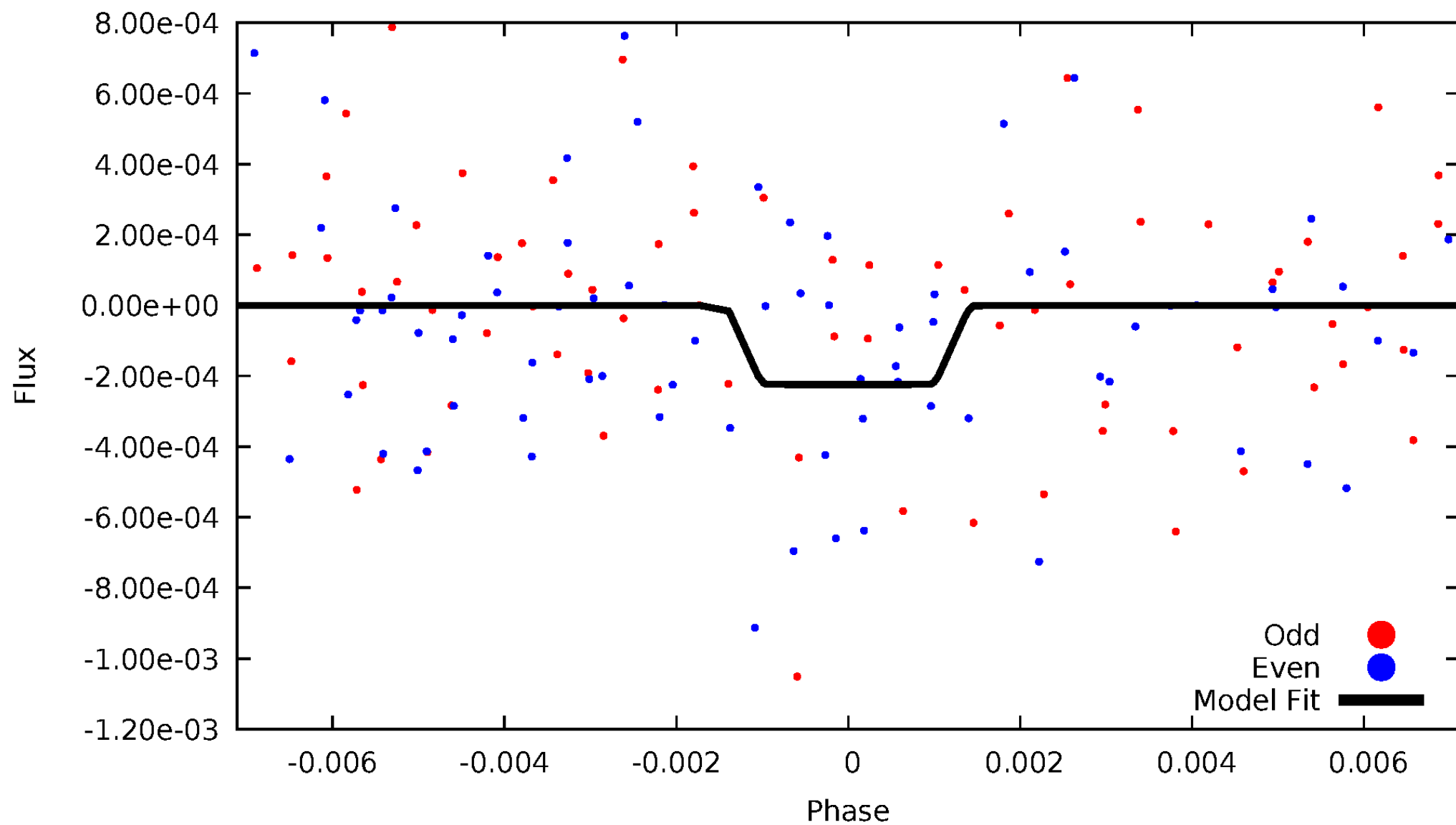
DV Odd/Even

TCE 008311304-03

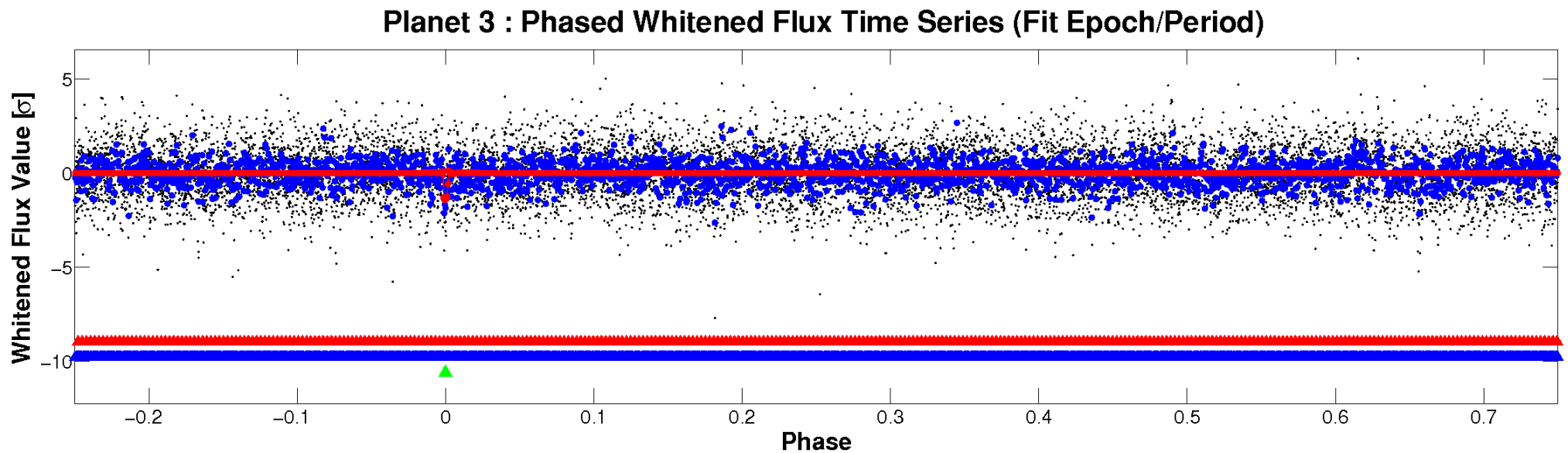
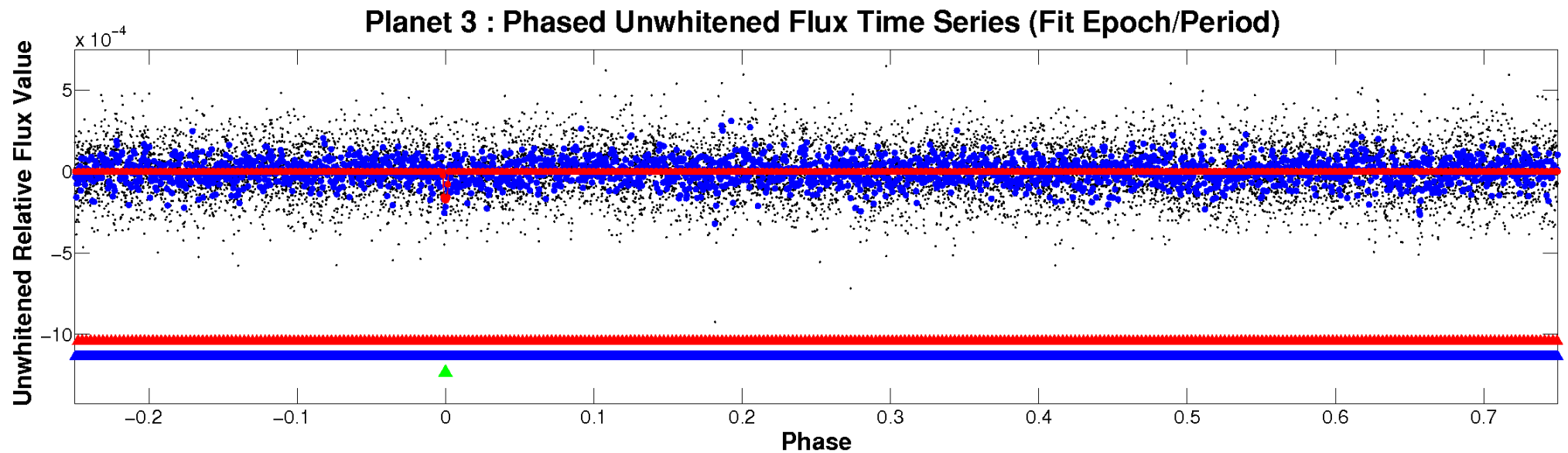


ALT Odd/Even

TCE 008311304-03

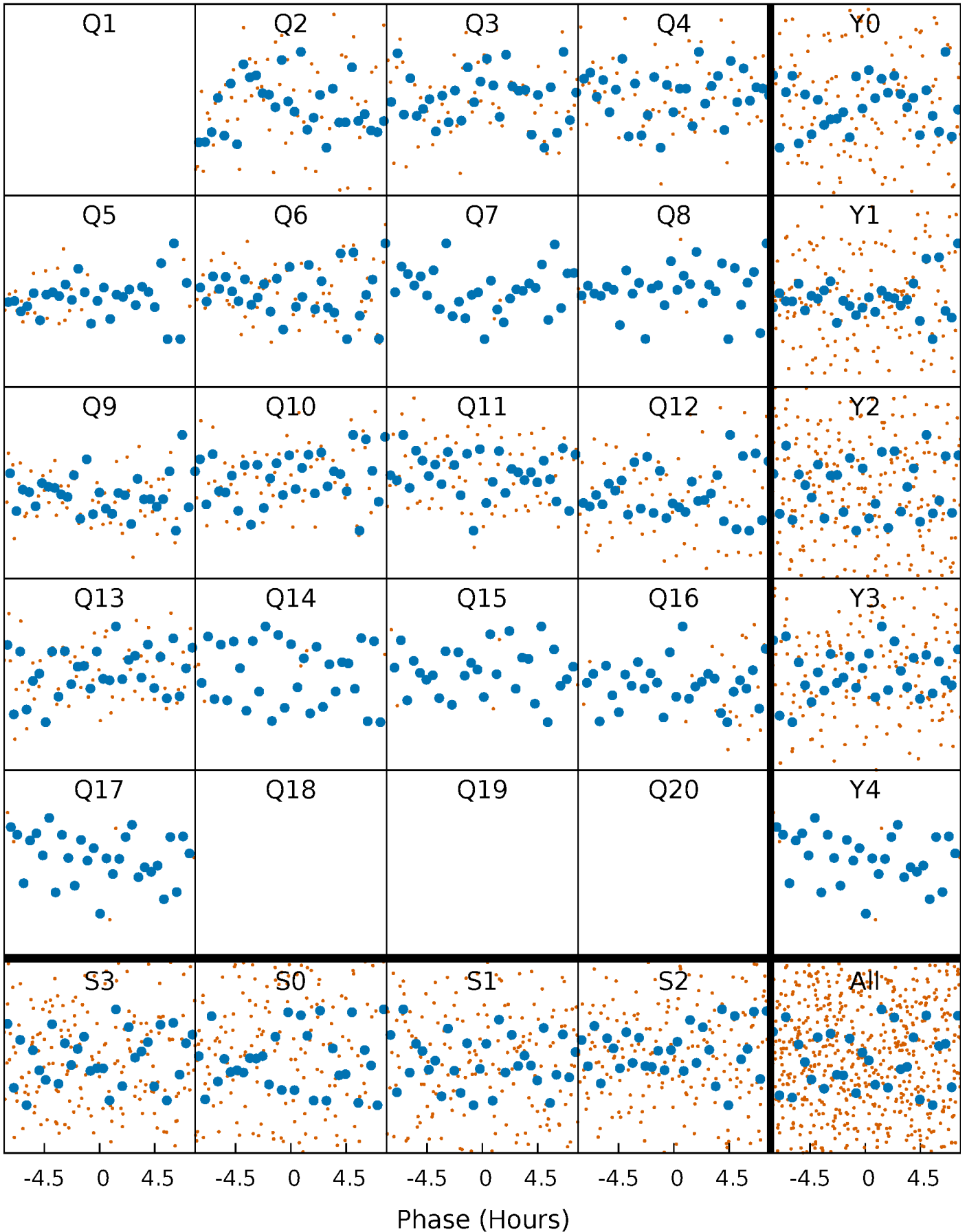


Non-Whitened Vs. Whitened Light Curve



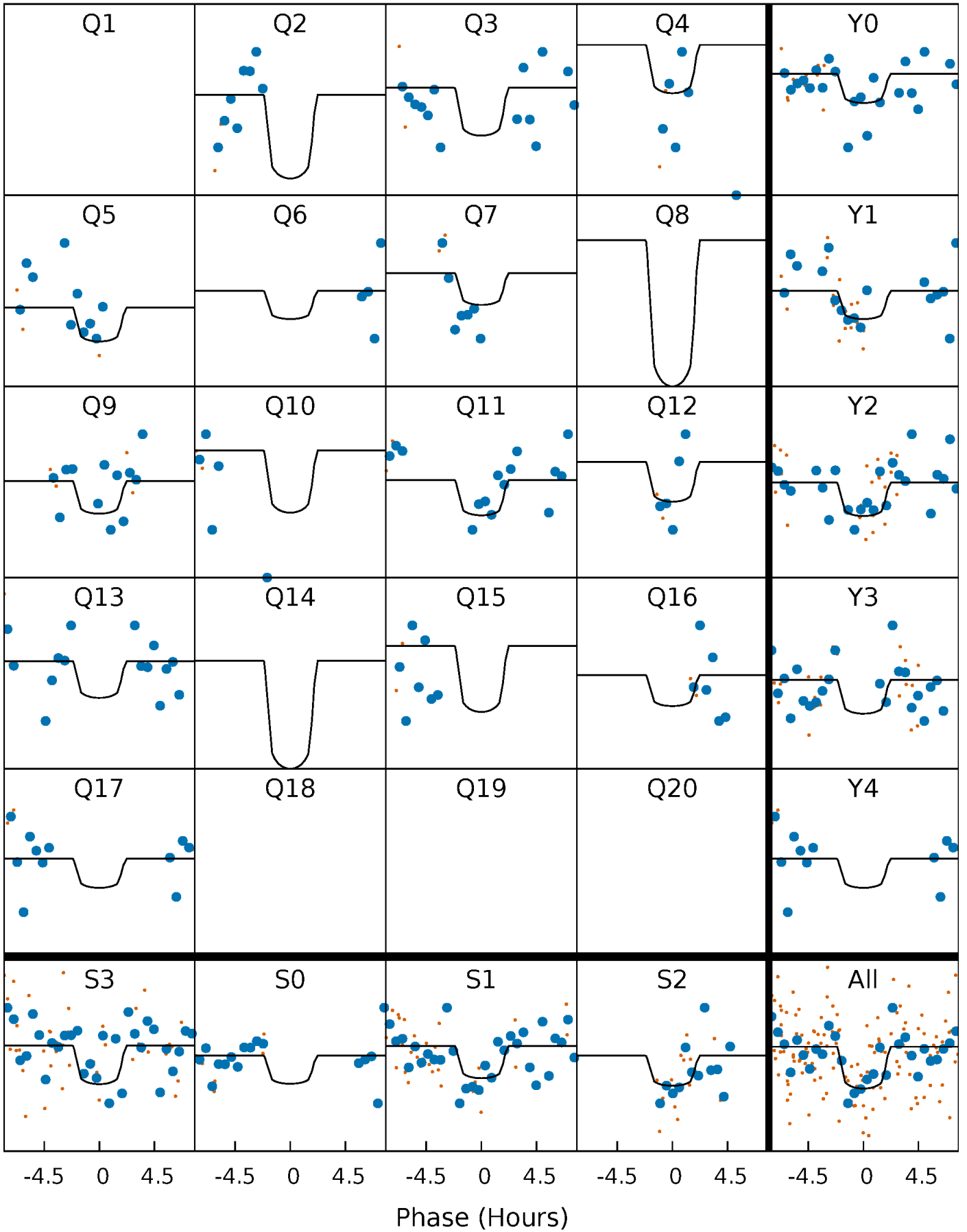
PDC Quarter-Phased Transit Curves

TCE 008311304-03 P= 49.844518 Days $T_0=176.029451$ (BKJD)



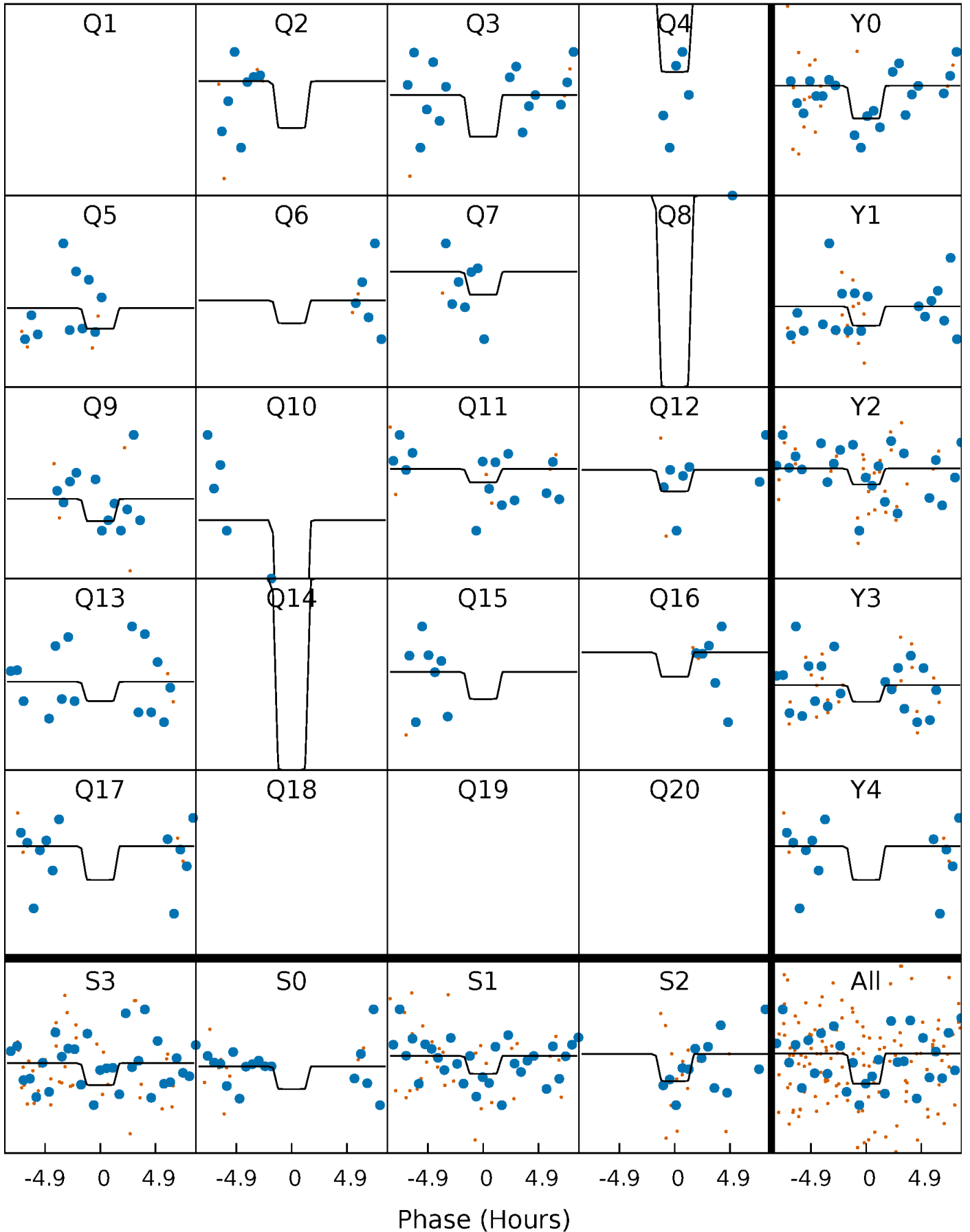
DV Quarter-Phased Transit Curves

TCE 008311304-03 P= 49.844518 Days $T_0=176.029451$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

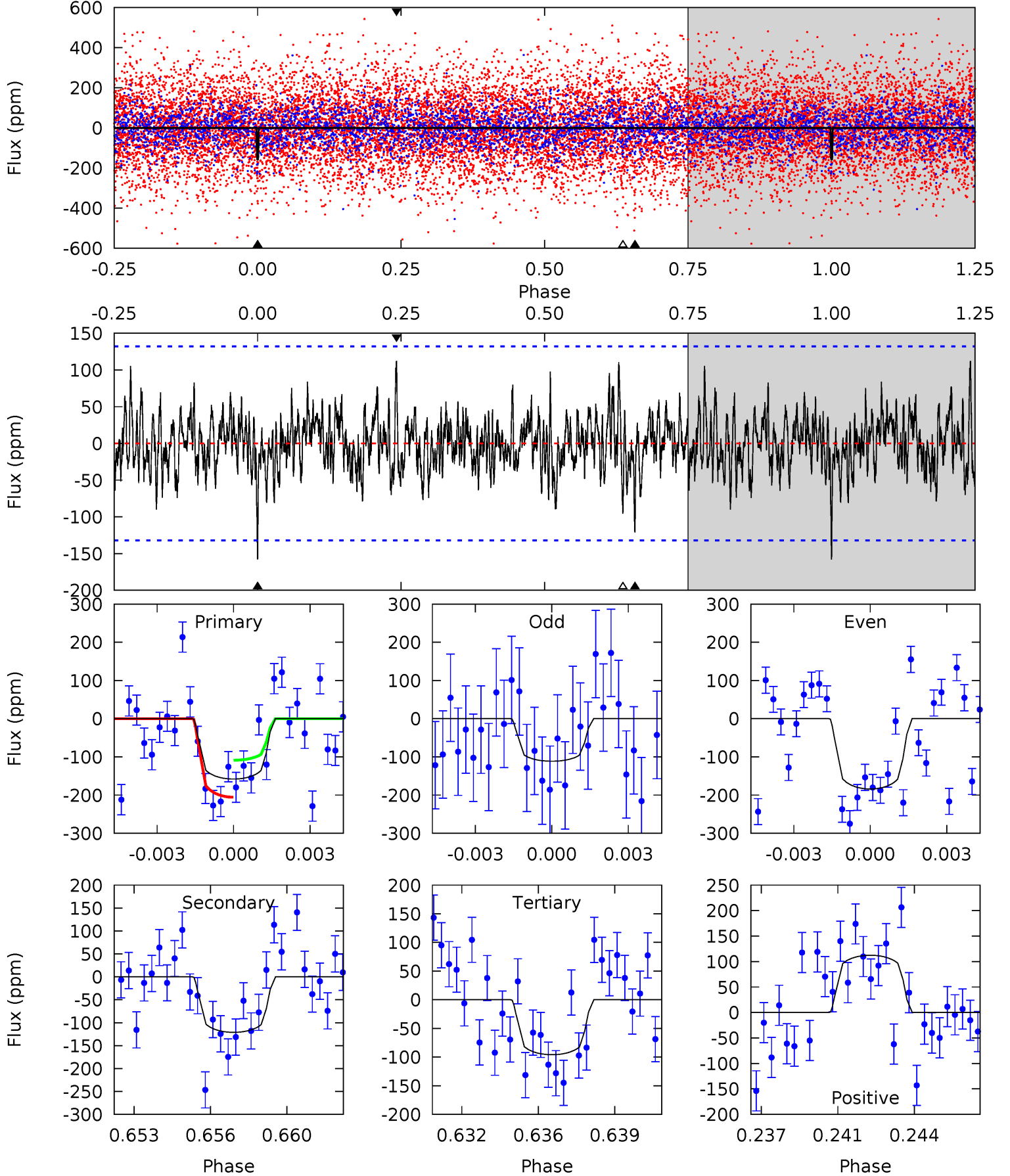
TCE 008311304-03 $P = 49.843799$ Days $T_0 = 176.043075$ (BKJD)



DV Model-Shift Uniqueness Test

008311304-03, P = 49.844518 Days, E = 126.184933 Days

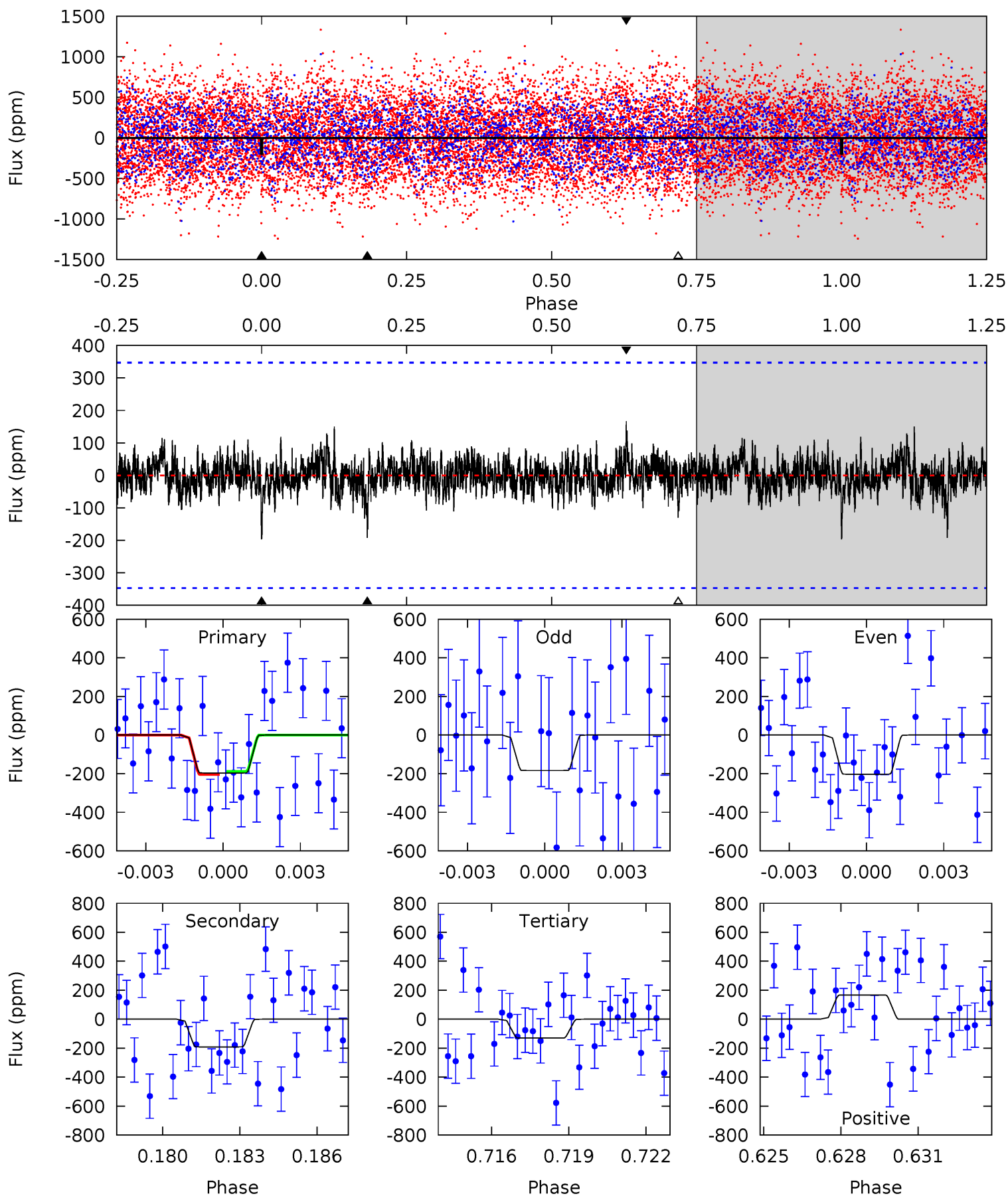
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
6.25	4.79	3.79	4.44	5.23	2.93	1.25	2.46	1.81	1.00	0.35	1.41	1.17	0.42	1.91



Alt Model-Shift Uniqueness Test

008311304-03, P = 49.843799 Days, E = 126.199276 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
2.98	2.90	1.96	2.52	5.24	2.95	0.57	1.01	0.46	0.93	0.38	0.14	0.93	0.46	0.12



Stellar Parameters For KIC 008311304

	$T_{\text{eff}} (K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R (R_{\odot})$	$M (M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	8529^{+202}_{-404}	$4.066^{+0.171}_{-0.140}$	$0.070^{+0.200}_{-0.600}$	$2.183^{+0.410}_{-0.564}$	$2.024^{+0.331}_{-0.497}$	$0.274^{+0.276}_{-0.101}$
	+2%/-5%	+4%/-3%	+286%/-857%	+19%/-26%	+16%/-25%	+101%/-37%
Source	KIC0	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 008311304-03 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-121 ± 25	$4.82^{+4.67}_{-3.13}$	1328^{+90}_{-87}	5948^{+5475}_{-1514}	309^{+2277}_{-229}
Alt.	-192 ± 66	$5.24^{+4.45}_{-3.51}$	1332^{+84}_{-91}	6308^{+6536}_{-1585}	398^{+3159}_{-288}

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

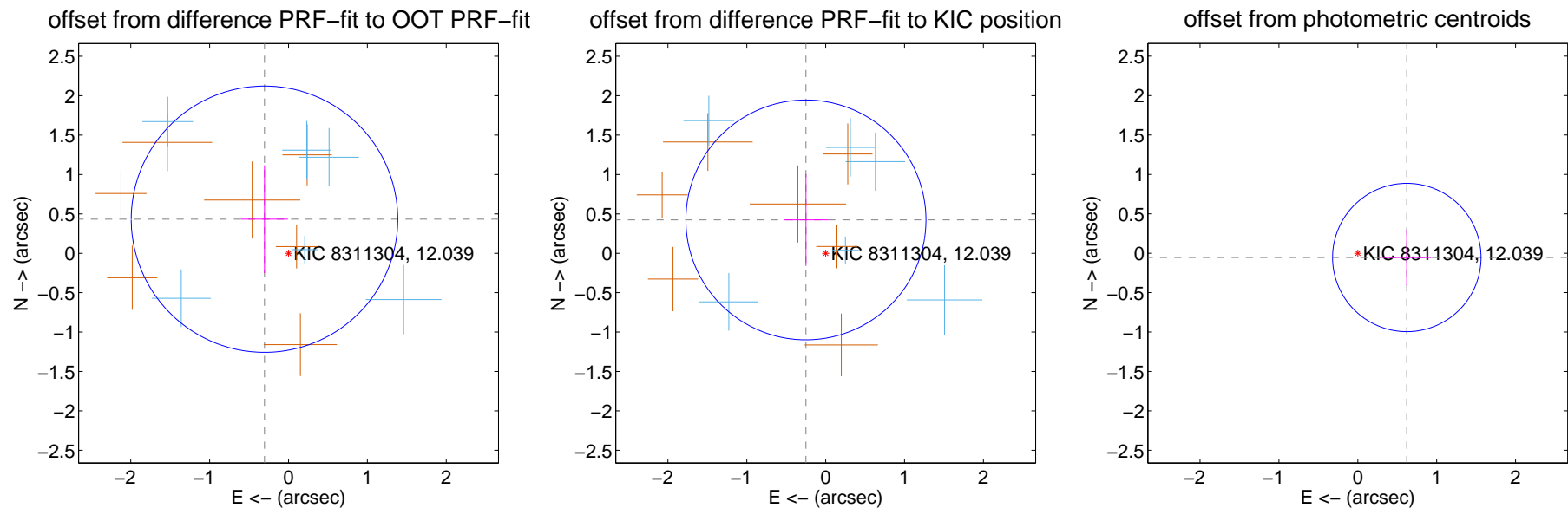
DV Centroid Data

Supplemental centroid analysis for 008311304-03. Kepler magnitude: 12.04. Transit SNR 7.39

There are 6 quarters with good PRF difference image offsets

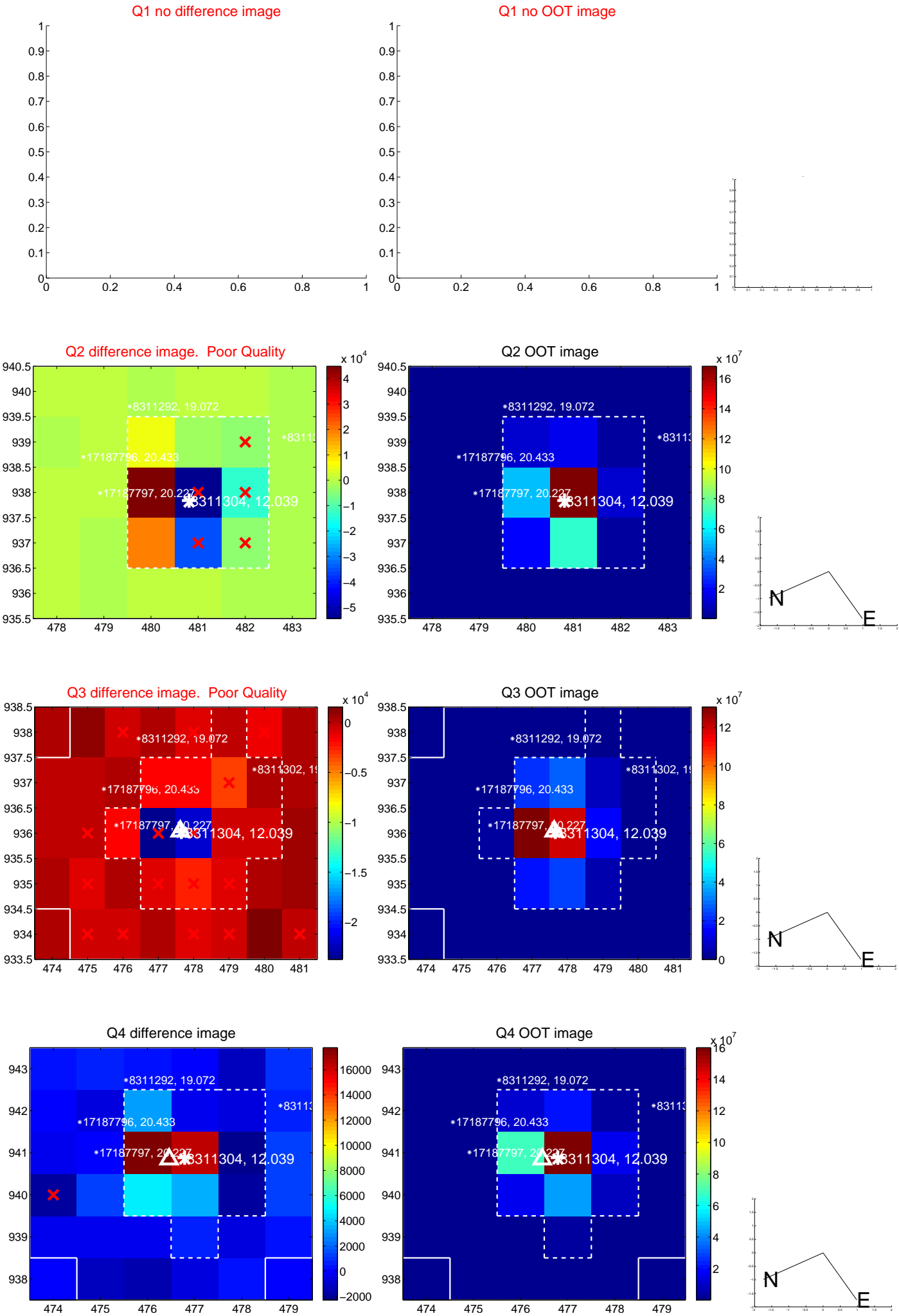
The direct PRF centroid is offset from the target star catalog position by about 0.09 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.529 ± 0.563	0.94	0.304 ± 0.297	0.432 ± 0.685
PRF-fit source offset from KIC position	0.492 ± 0.507	0.97	0.250 ± 0.285	0.423 ± 0.583
photometric centroid source offset	0.62 ± 0.31	1.99	-0.62 ± 0.31	-0.05 ± 0.35

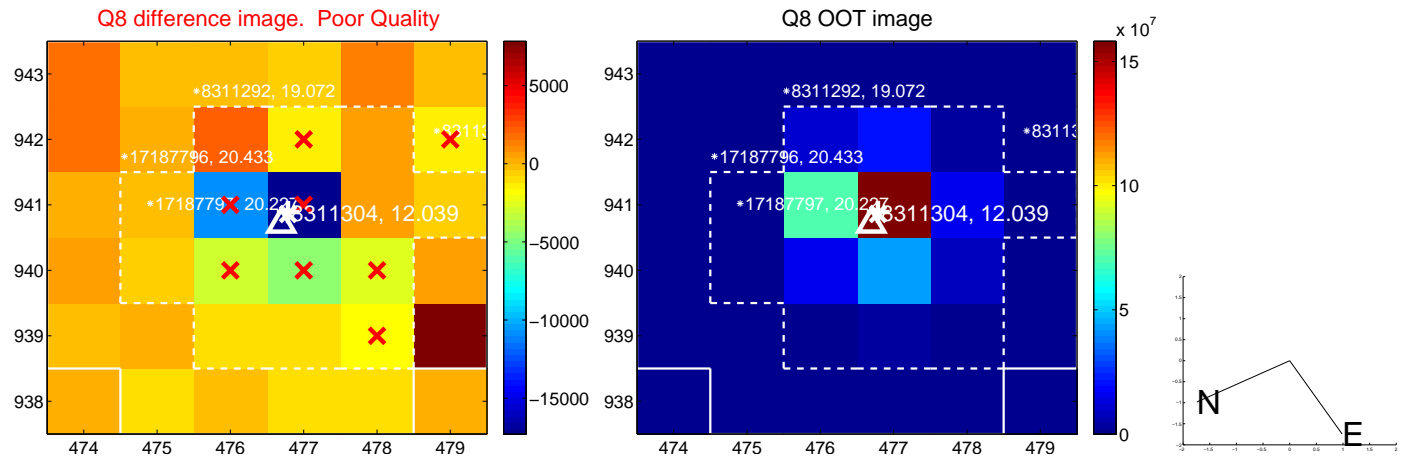
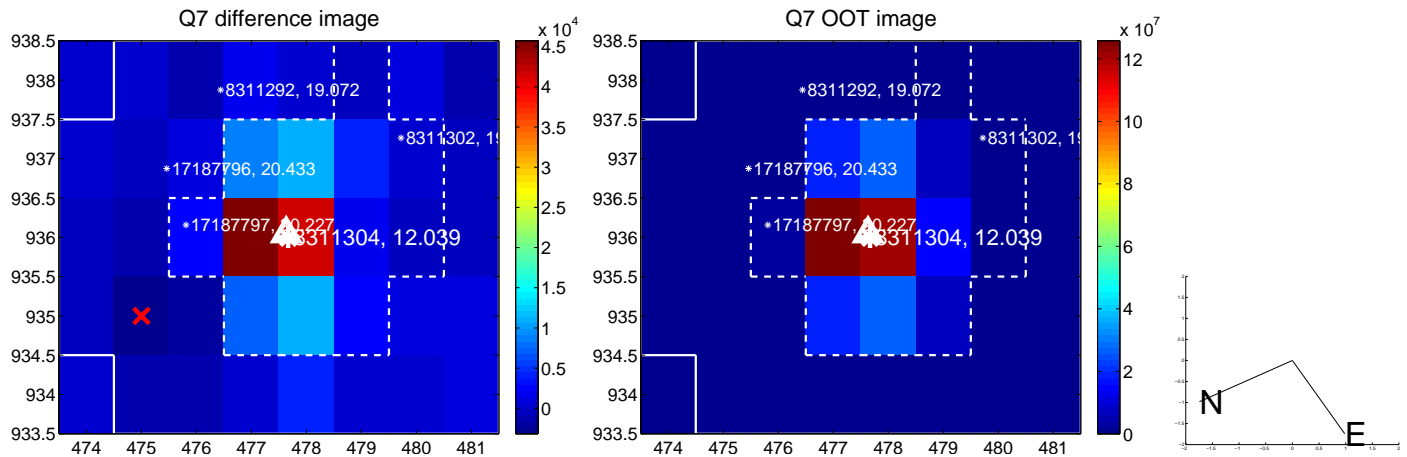
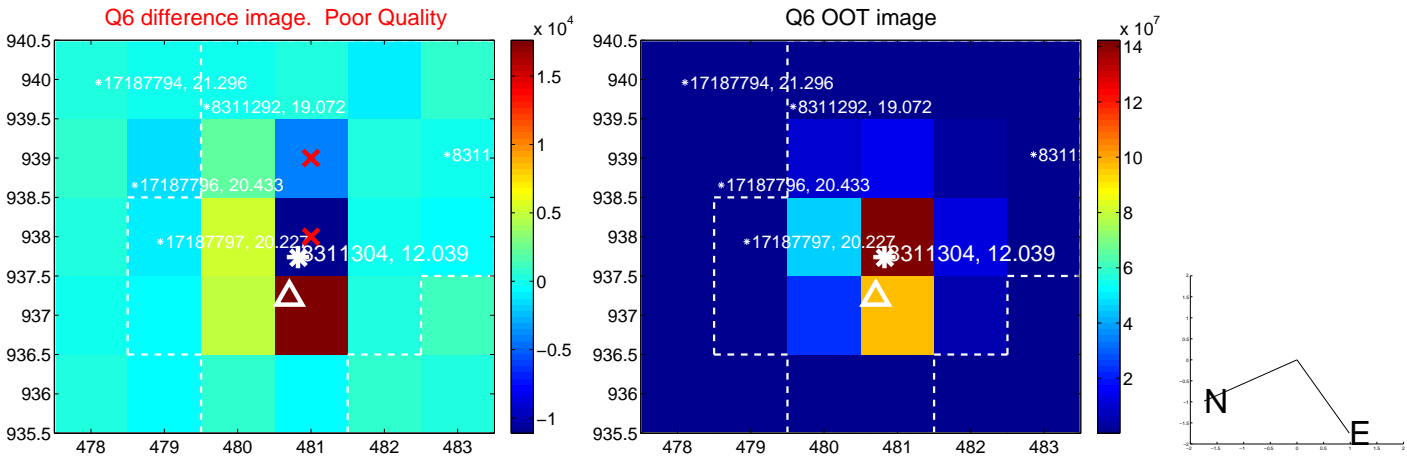
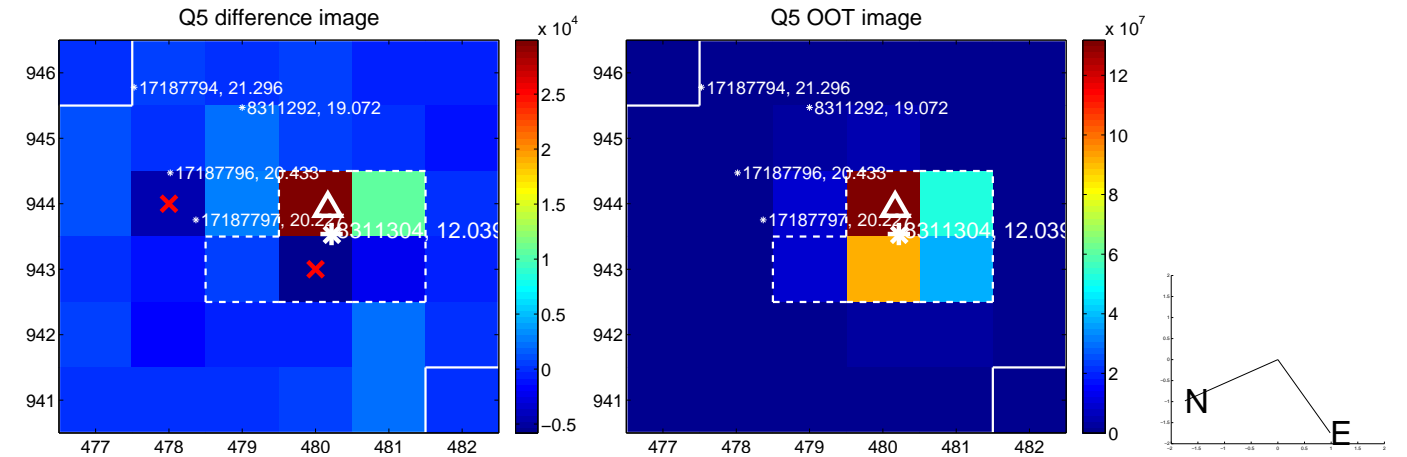


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses:** good quarterly centroid offsets; **Vermillion crosses:** bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

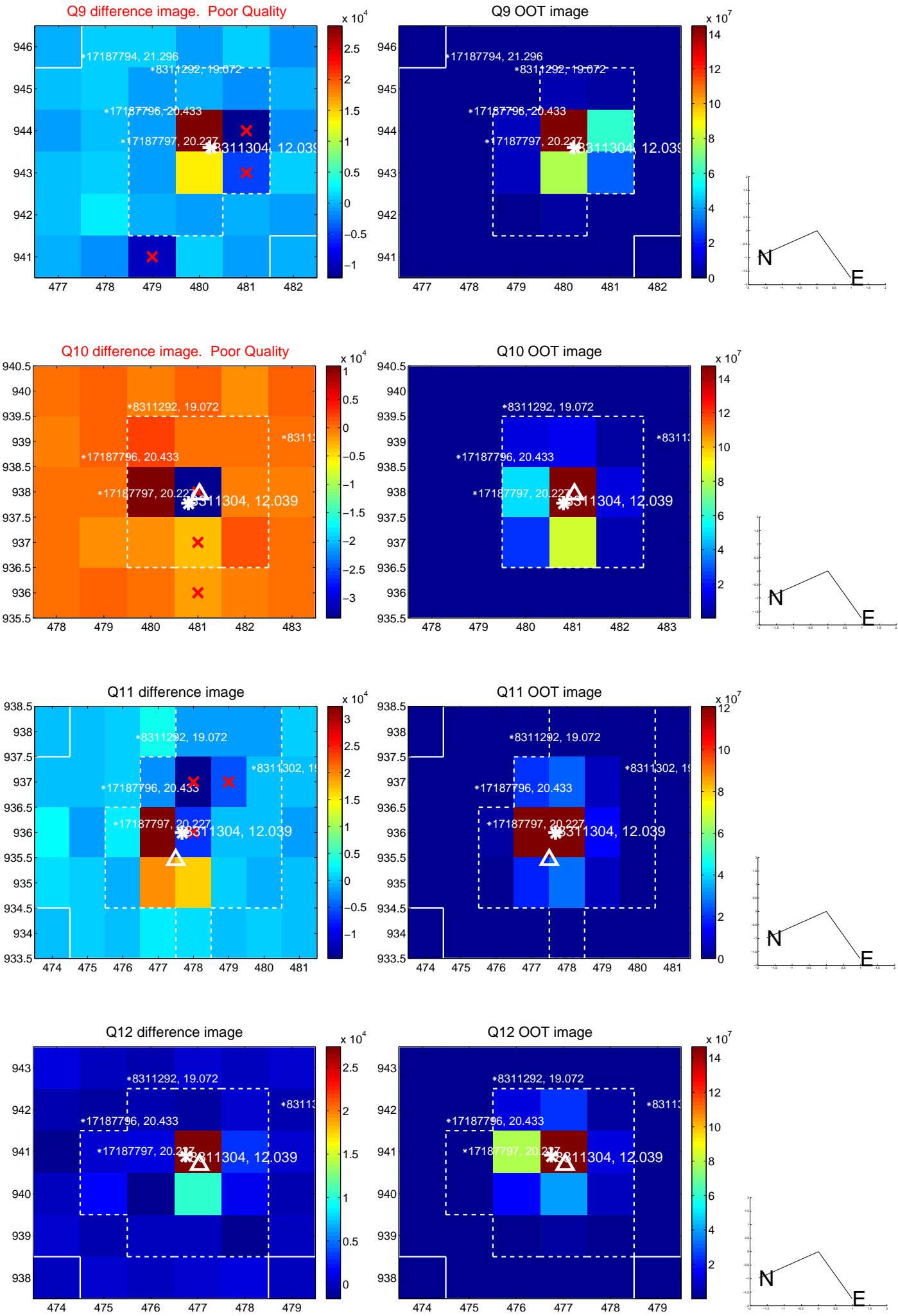
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



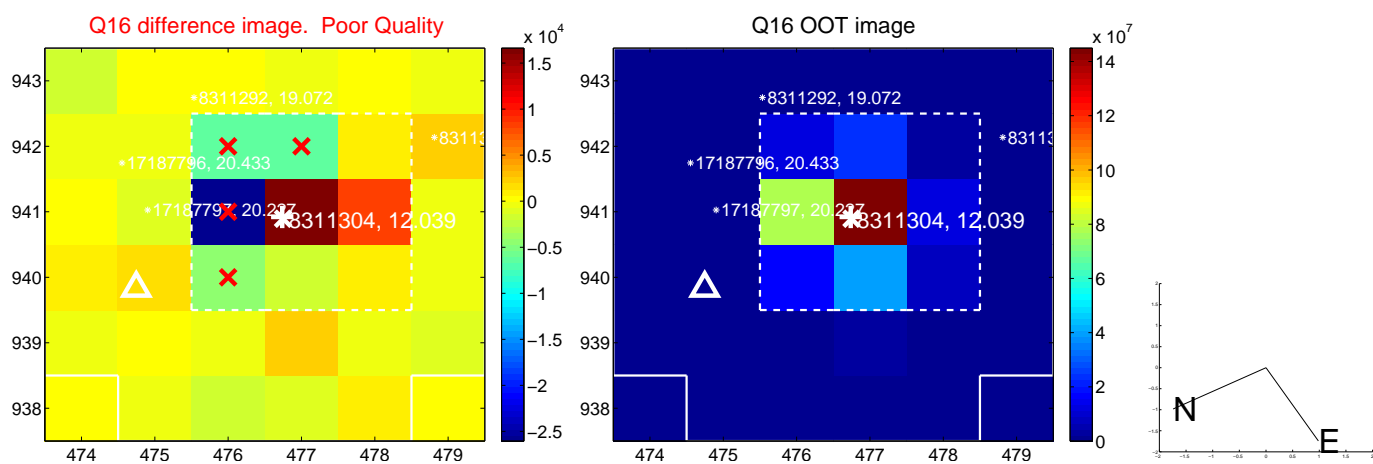
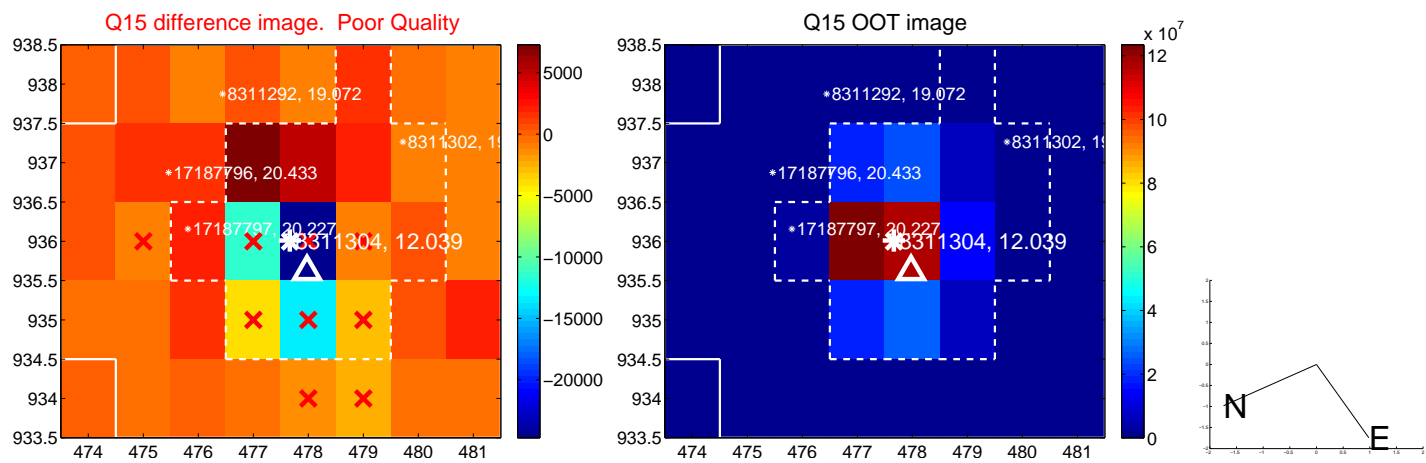
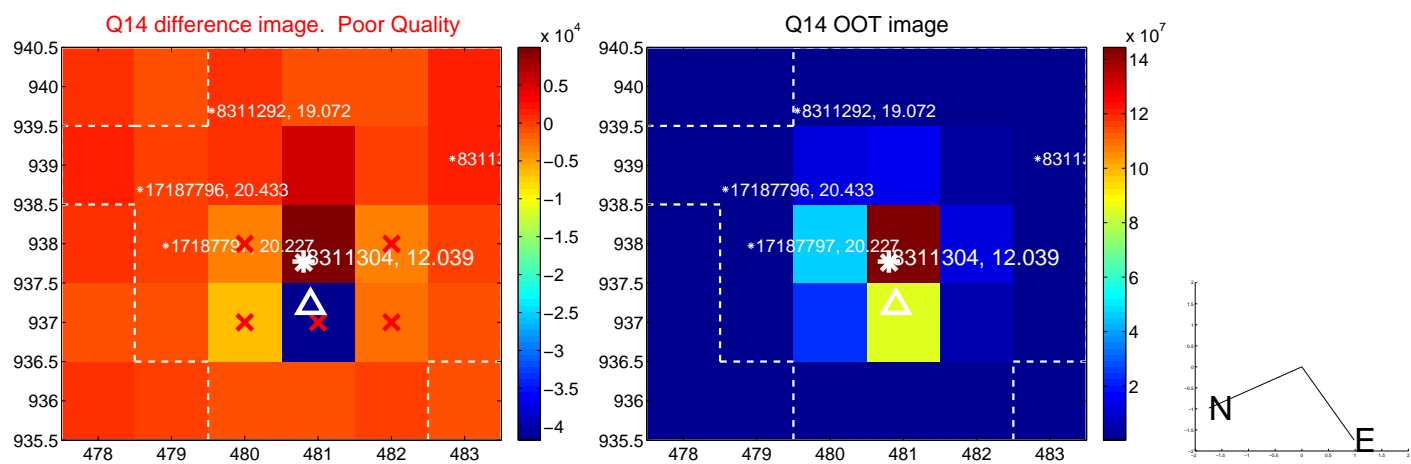
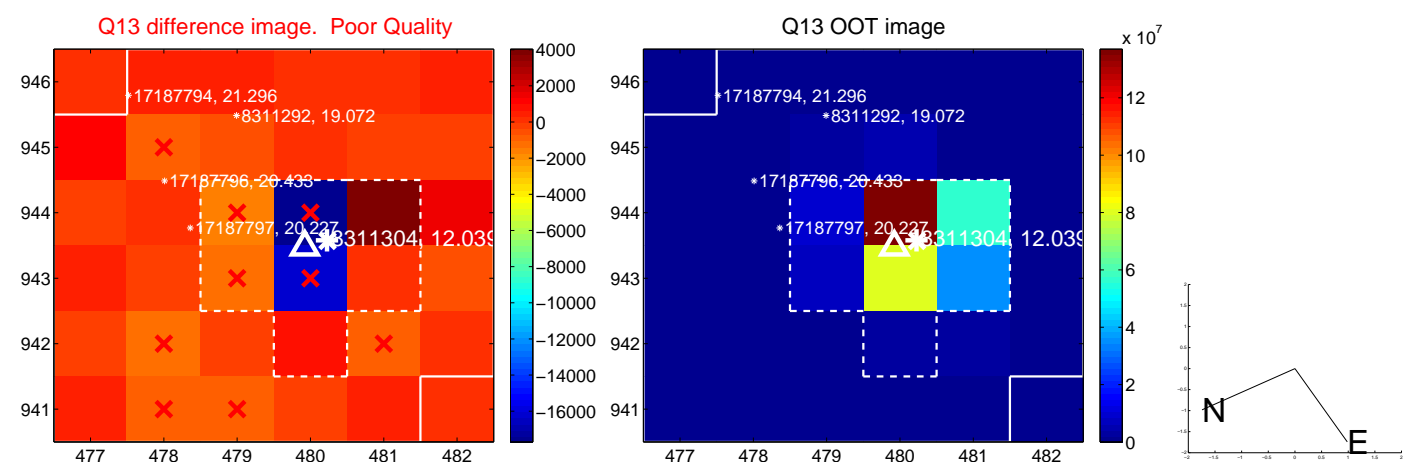
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



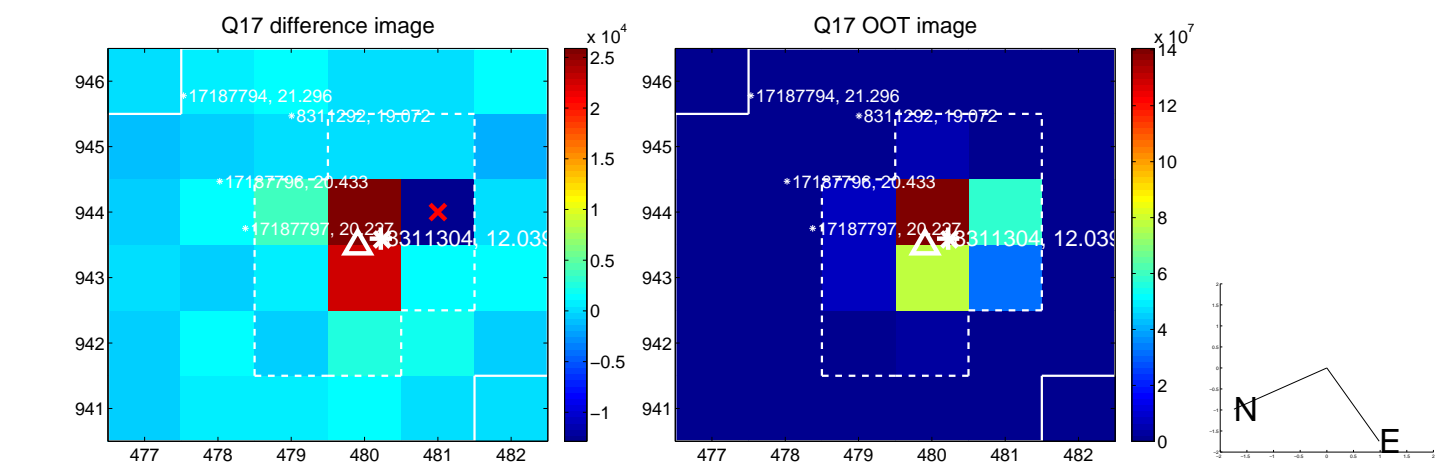
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



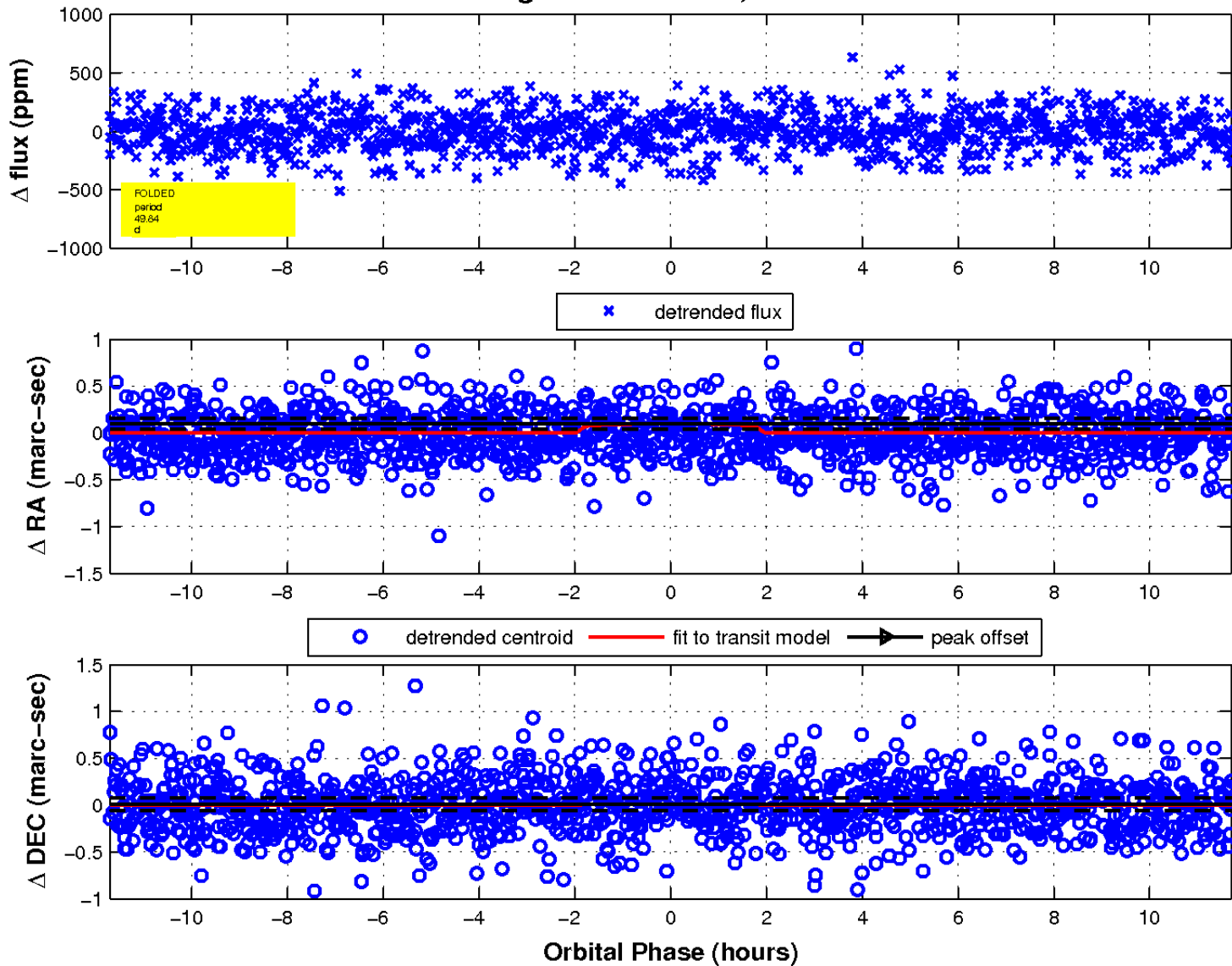
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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



fluxWeightedCentroids, Planet 3 of 3



UKIRT Image

Declination

