

KIC 010154094

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})
010154094-01	OBS	No	1.174355	131.943694	204.9	5.327	15.4	13.8	1.92	7397	3.48	15404.51
010154094-02	OBS	No	1.174365	131.668684	233.8	10.675	13.6	13.1	1.92	7397	2.96	15404.34

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
010154094-01	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT
010154094-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_SKYE_ZUMA—LPP_DV—MOD_NONUNIQ_DV—SAME_NTL_PERIOD—CENT_FEW_DIFFS

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

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

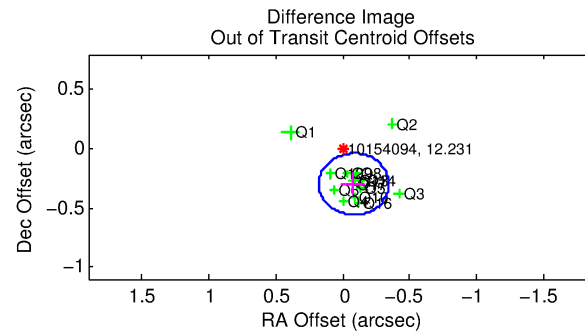
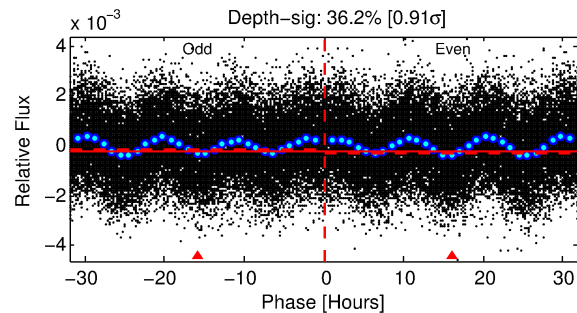
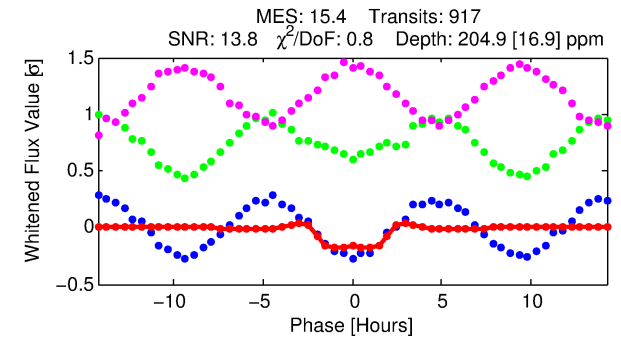
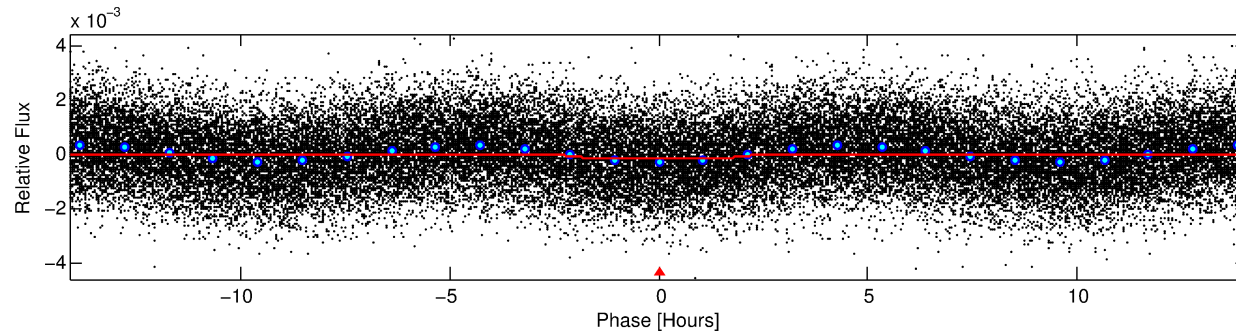
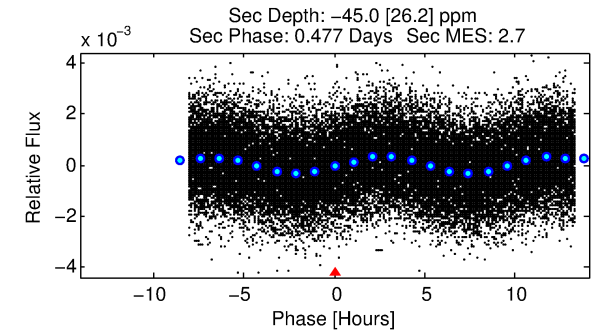
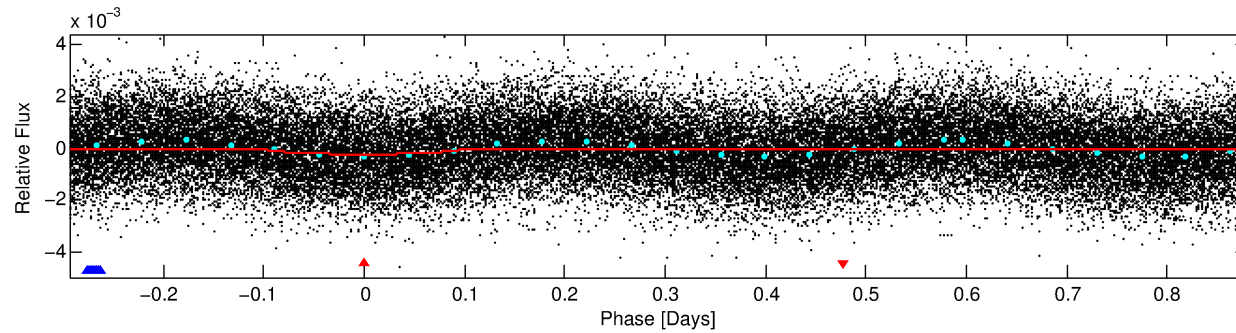
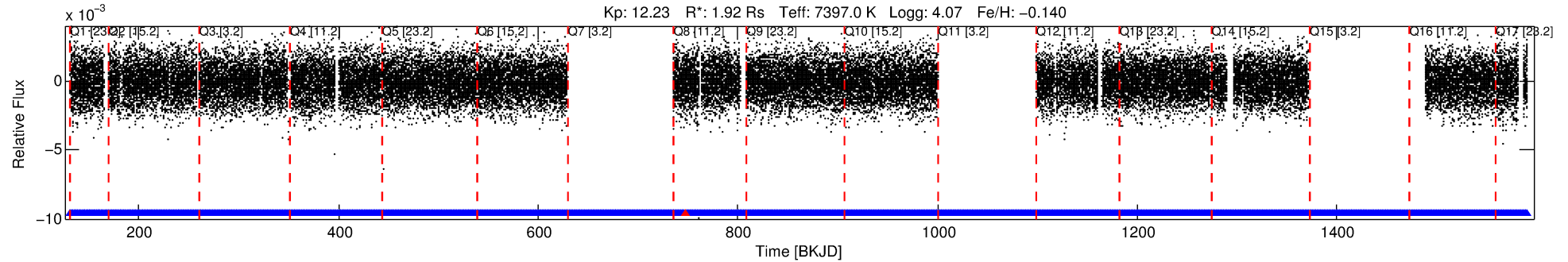
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 010154094-01

No Significant Match Found

DV One-Page Summary

KIC: 10154094 Candidate: 1 of 2 Period: 1.174 d



DV Fit Results:

Period = 1.17435 [0.00001] d
Epoch = 131.9437 [0.0037] BKJD
Rp/R* = 0.0166 [0.0009]
a/R* = 1.12 [0.05]
b = 0.97 [0.01]
Seff = 15404.51 [3287.95]
Teq = 2841 [152] K
Rp = 3.47 [0.61] Re
a = 0.0253 [0.0036] AU
Ag = N/A
Teffp = N/A

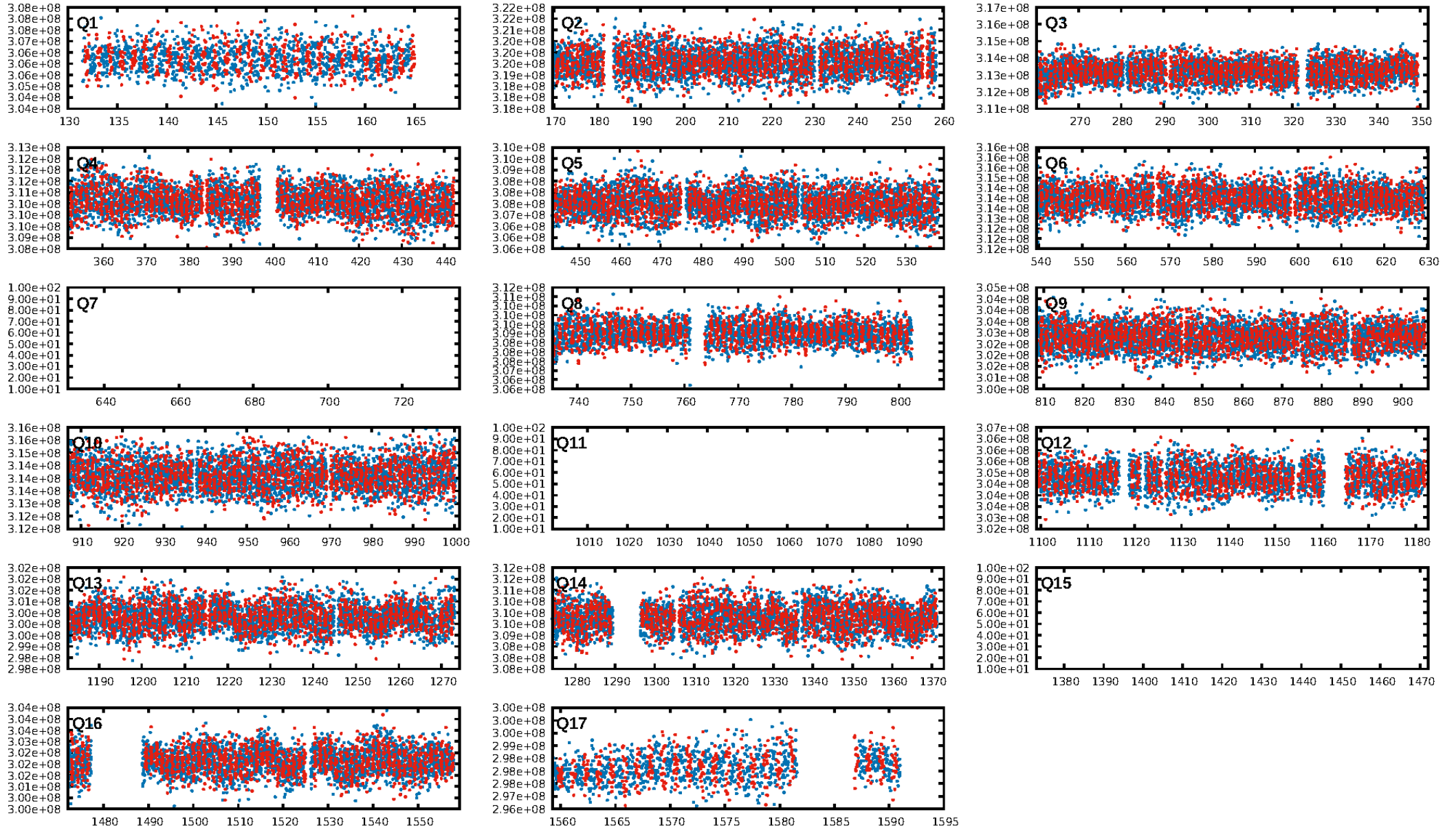
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: 0.0% [0.00σ]
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: N/A
RollingBand-fgt: 1.00 [864/865]
GhostDiagnostic-chr: 2.399
Centroid-sig: 17.2%
Centroid-so: 0.201 arcsec [2.30σ]
OotOffset-rm: 0.309 arcsec [3.55σ]
KicOffset-rm: 0.387 arcsec [4.70σ]
OotOffset-st: 4/1/4/5 [14]
KicOffset-st: 4/1/4/5 [14]
DiffImageQuality-fgm: 1.00 [14/14]
DiffImageOverlap-fno: 0.00 [0/14]

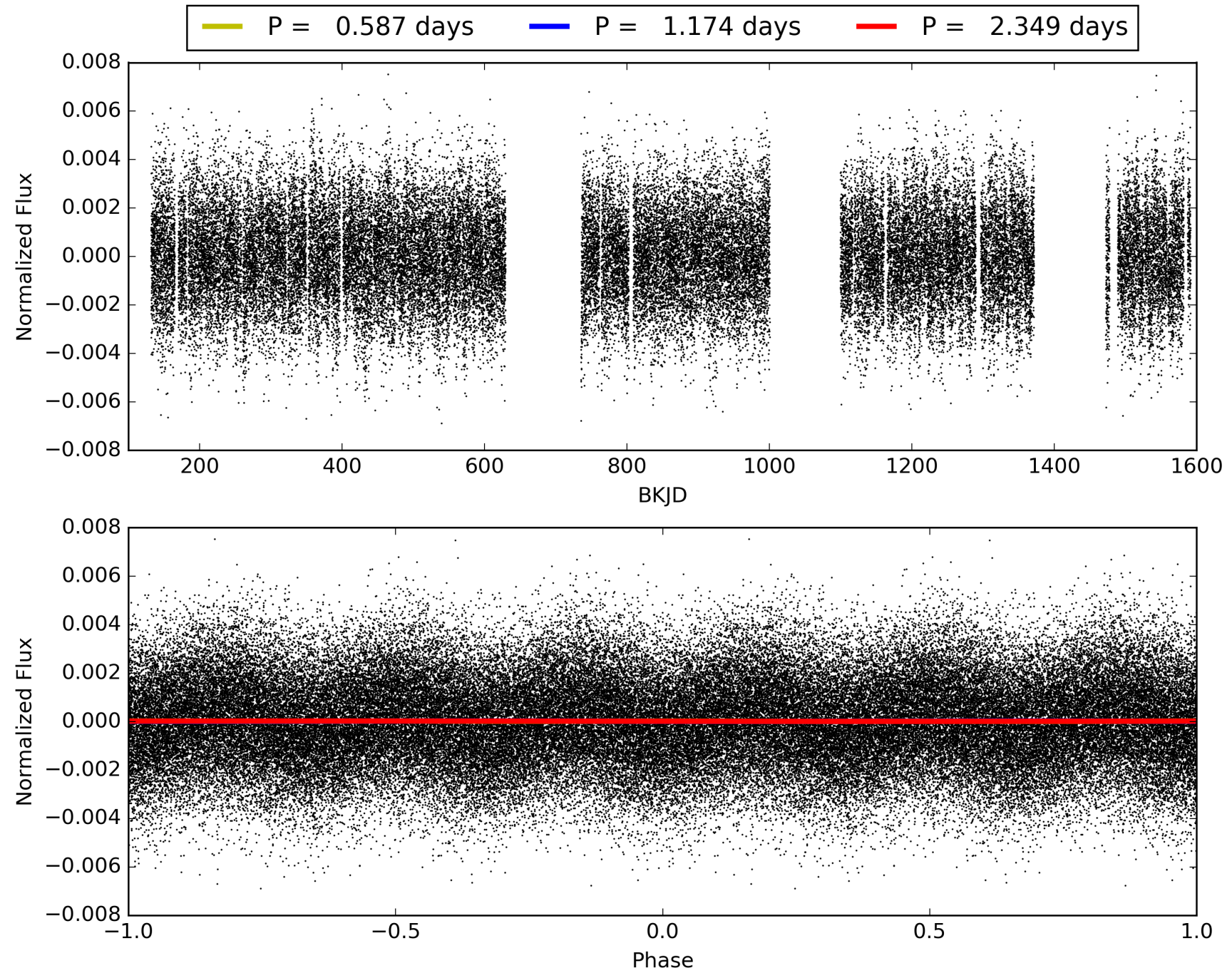
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 29-Jan-2016 20:48:50 Z

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

TCE 010154094-01, PDC Light Curves

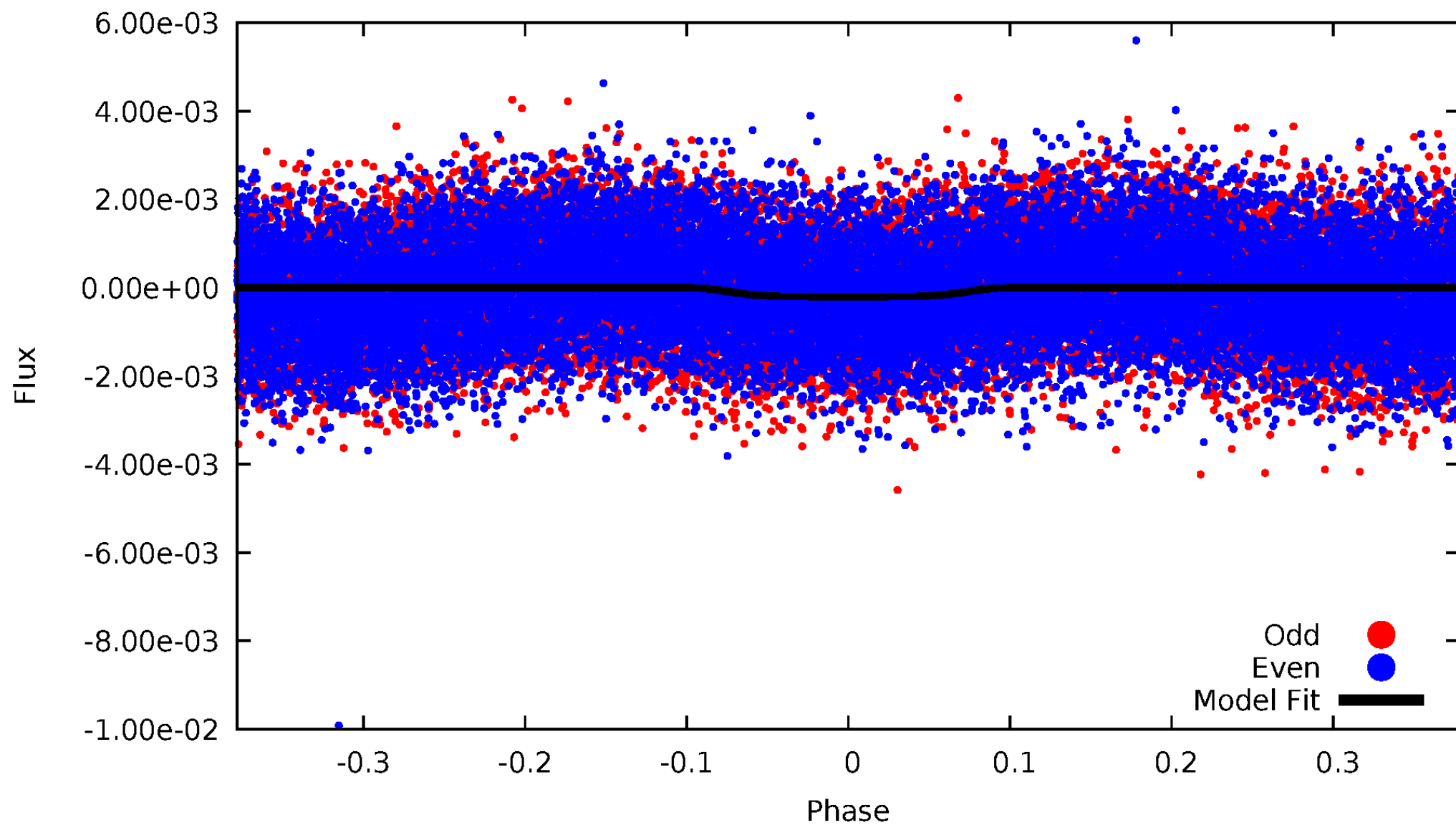


TCE 010154094-01



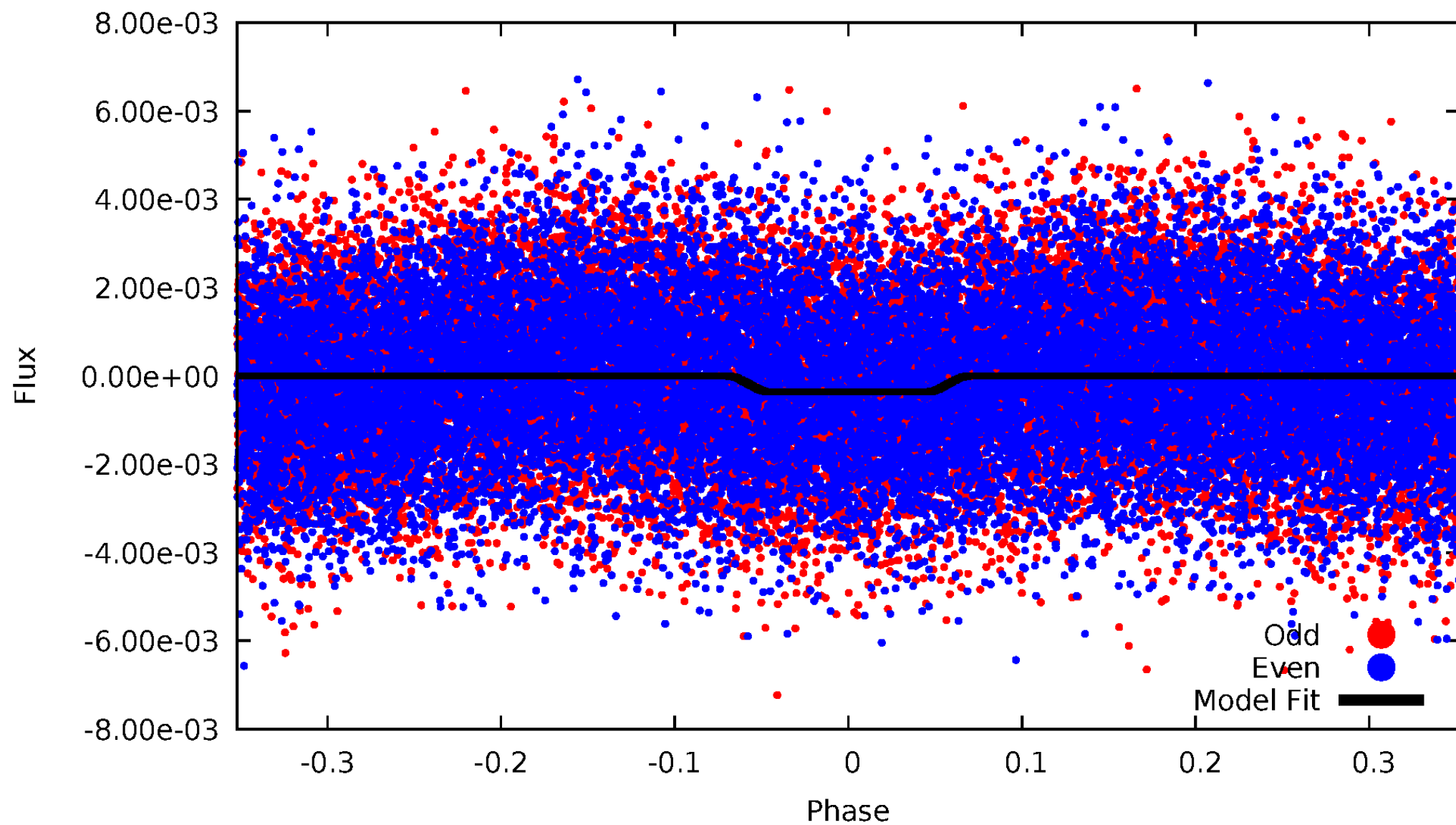
DV Odd/Even

TCE 010154094-01



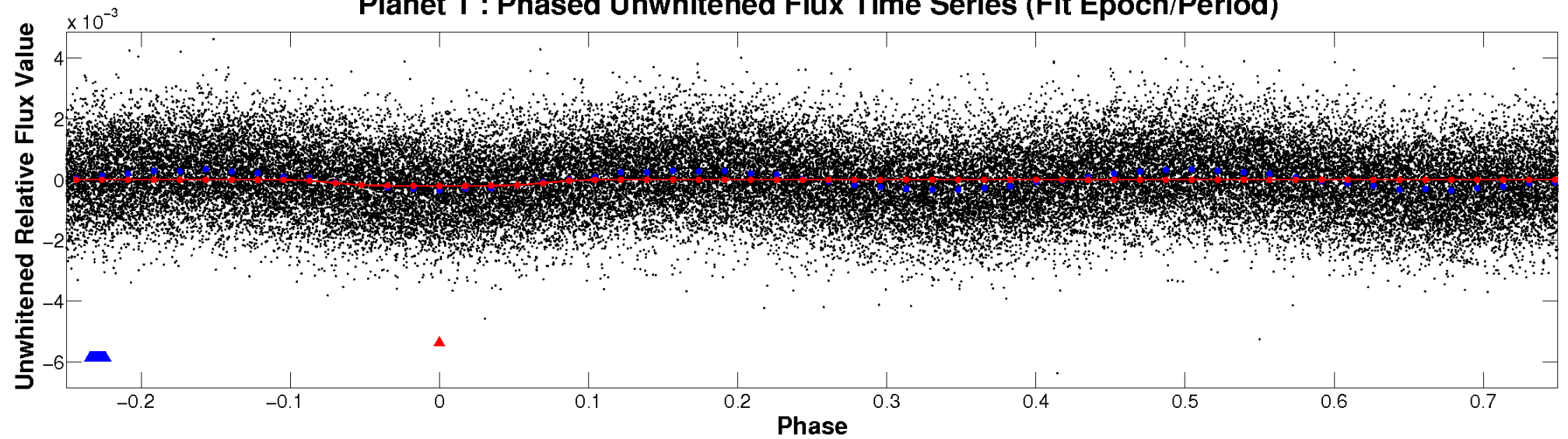
ALT Odd/Even

TCE 010154094-01

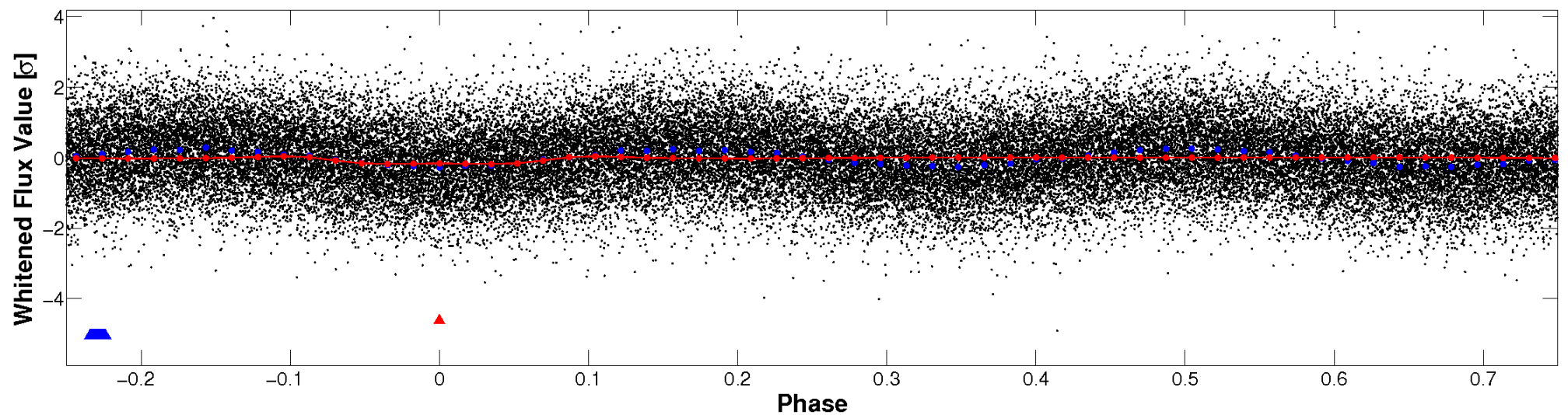


Non-Whitened Vs. Whitened Light Curve

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

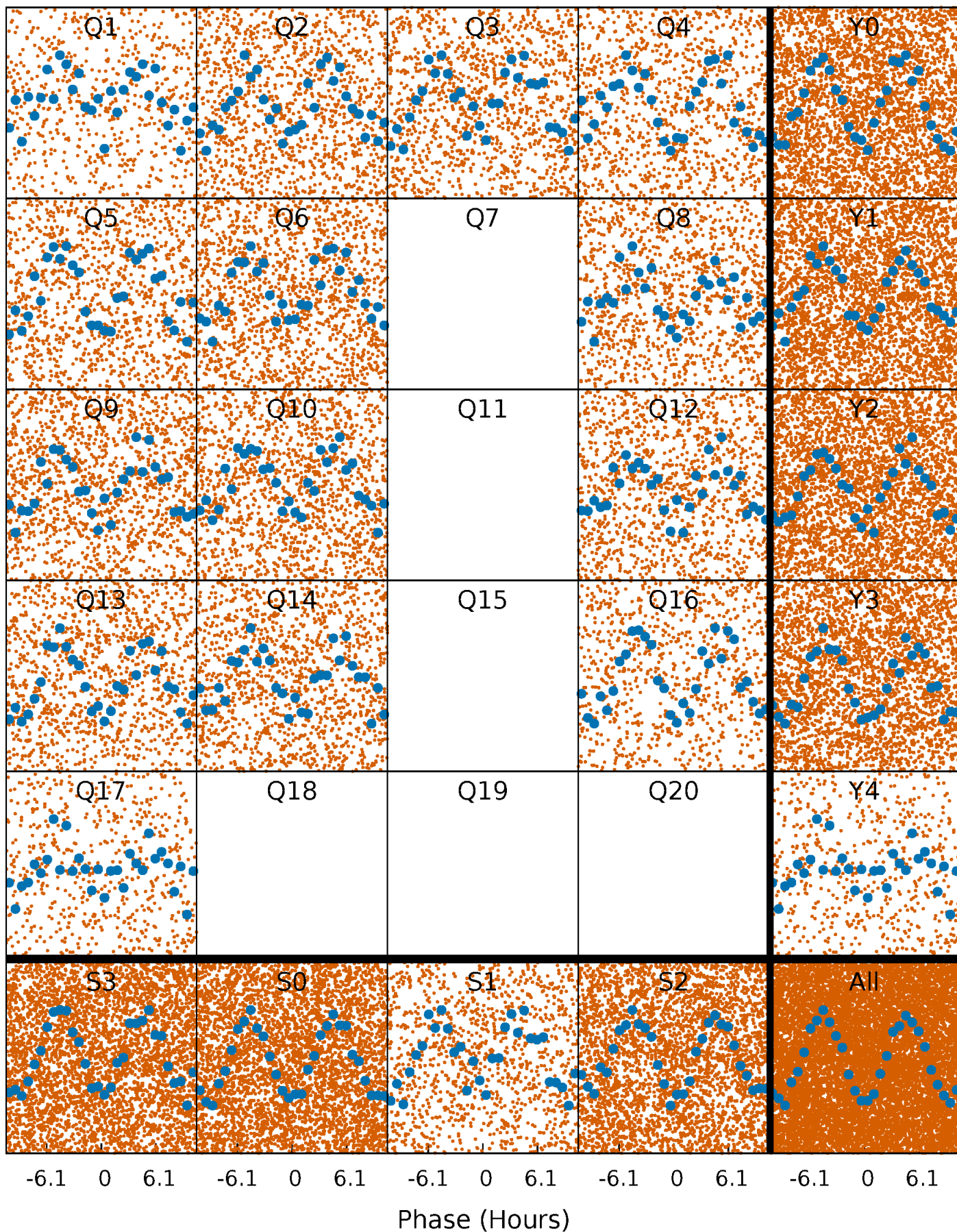


Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)



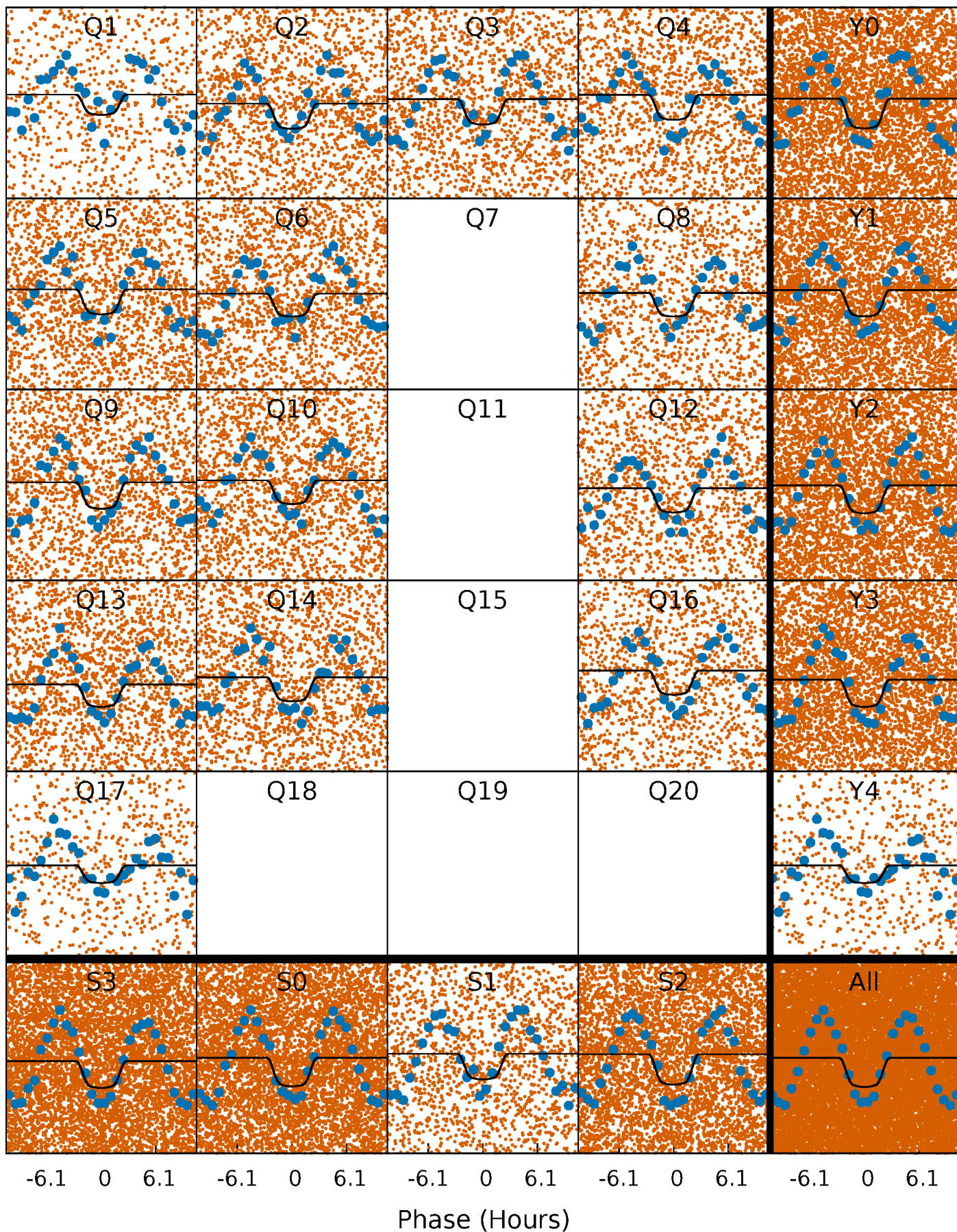
PDC Quarter-Phased Transit Curves

TCE 010154094-01 P= 1.174355 Days $T_0=131.943694$ (BKJD)



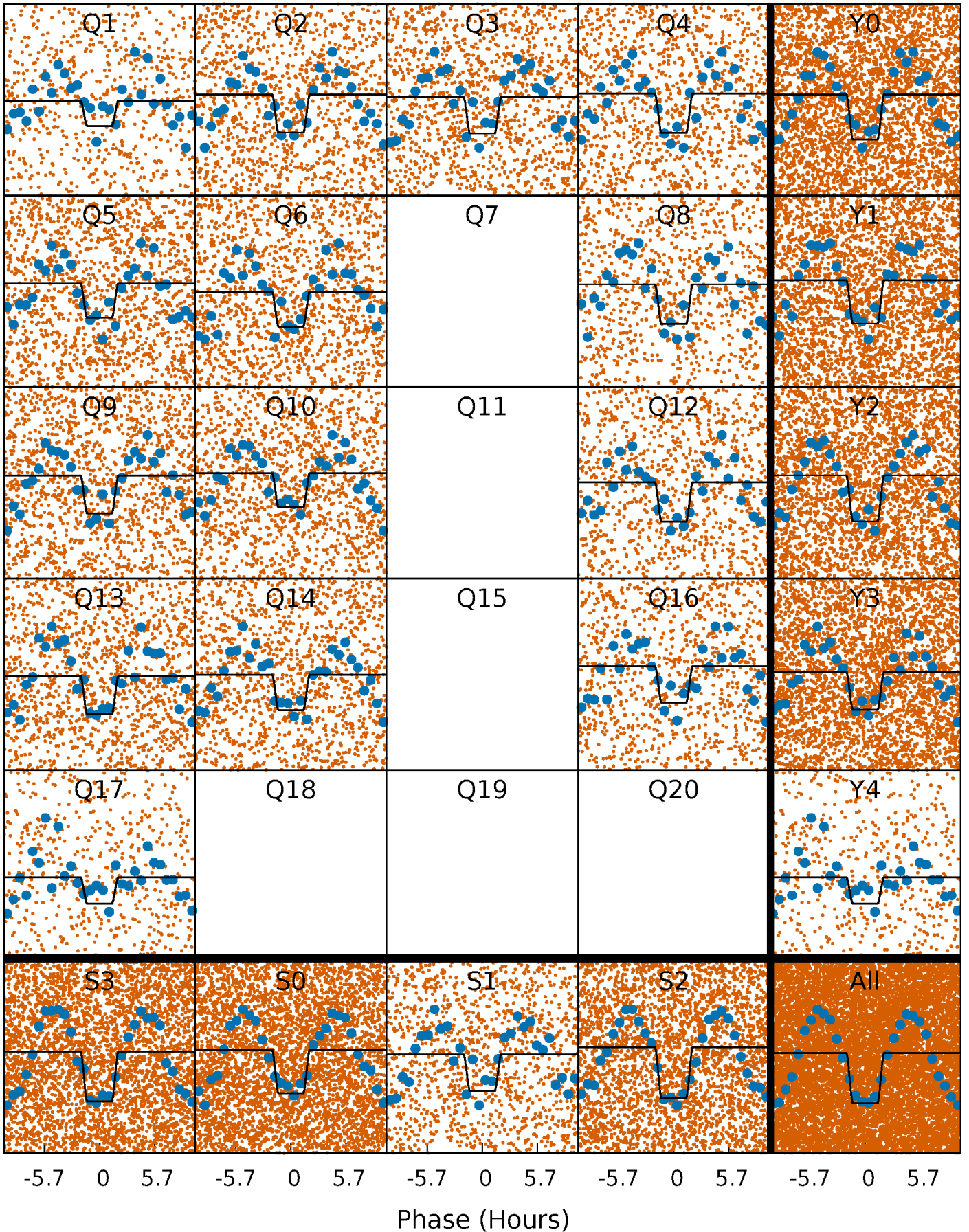
DV Quarter-Phased Transit Curves

TCE 010154094-01 P= 1.174355 Days $T_0=131.943694$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

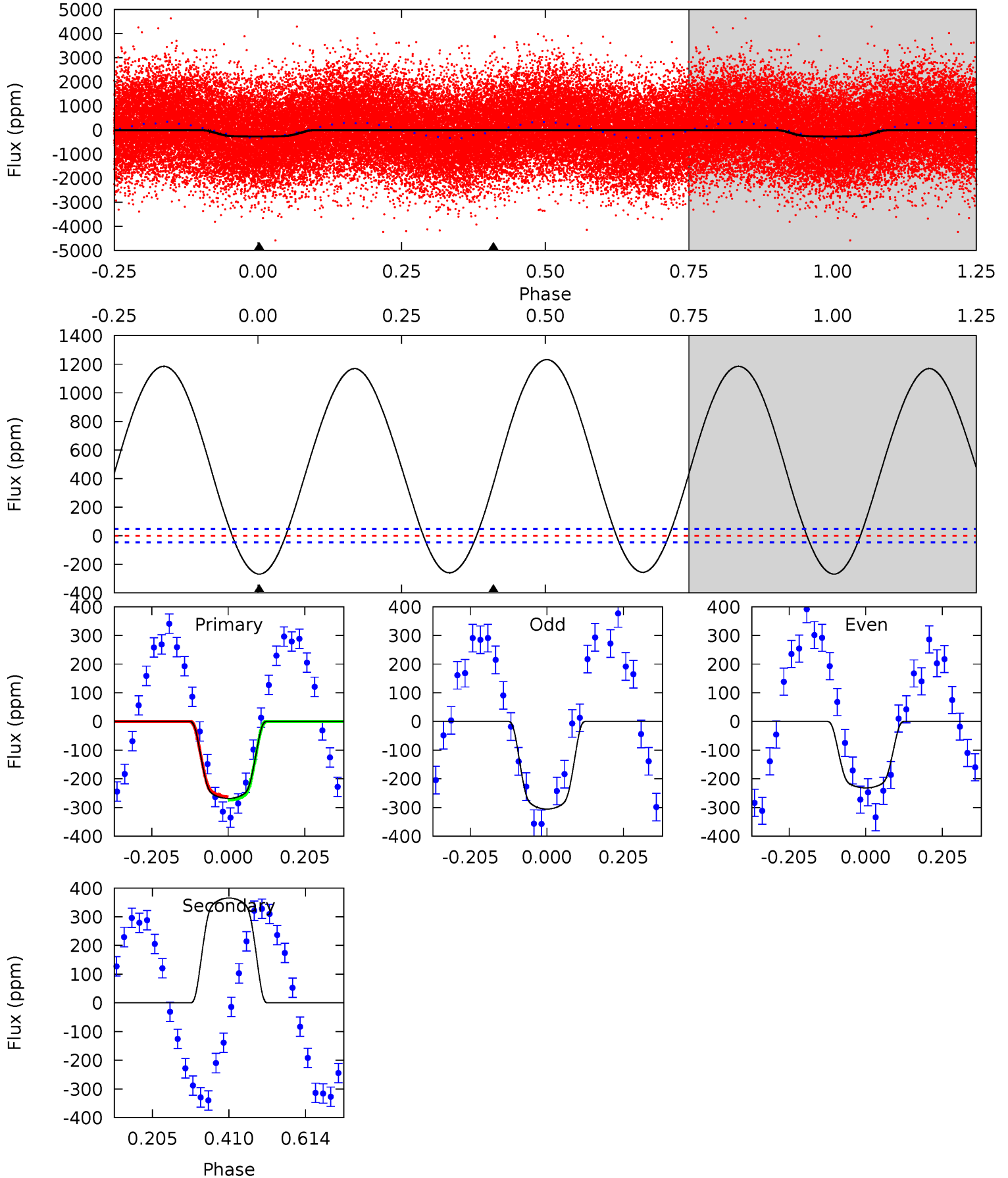
TCE 010154094-01 P= 1.174376 Days $T_0=131.932596$ (BKJD)



DV Model-Shift Uniqueness Test

010154094-01, P = 1.174355 Days, E = 130.769339 Days

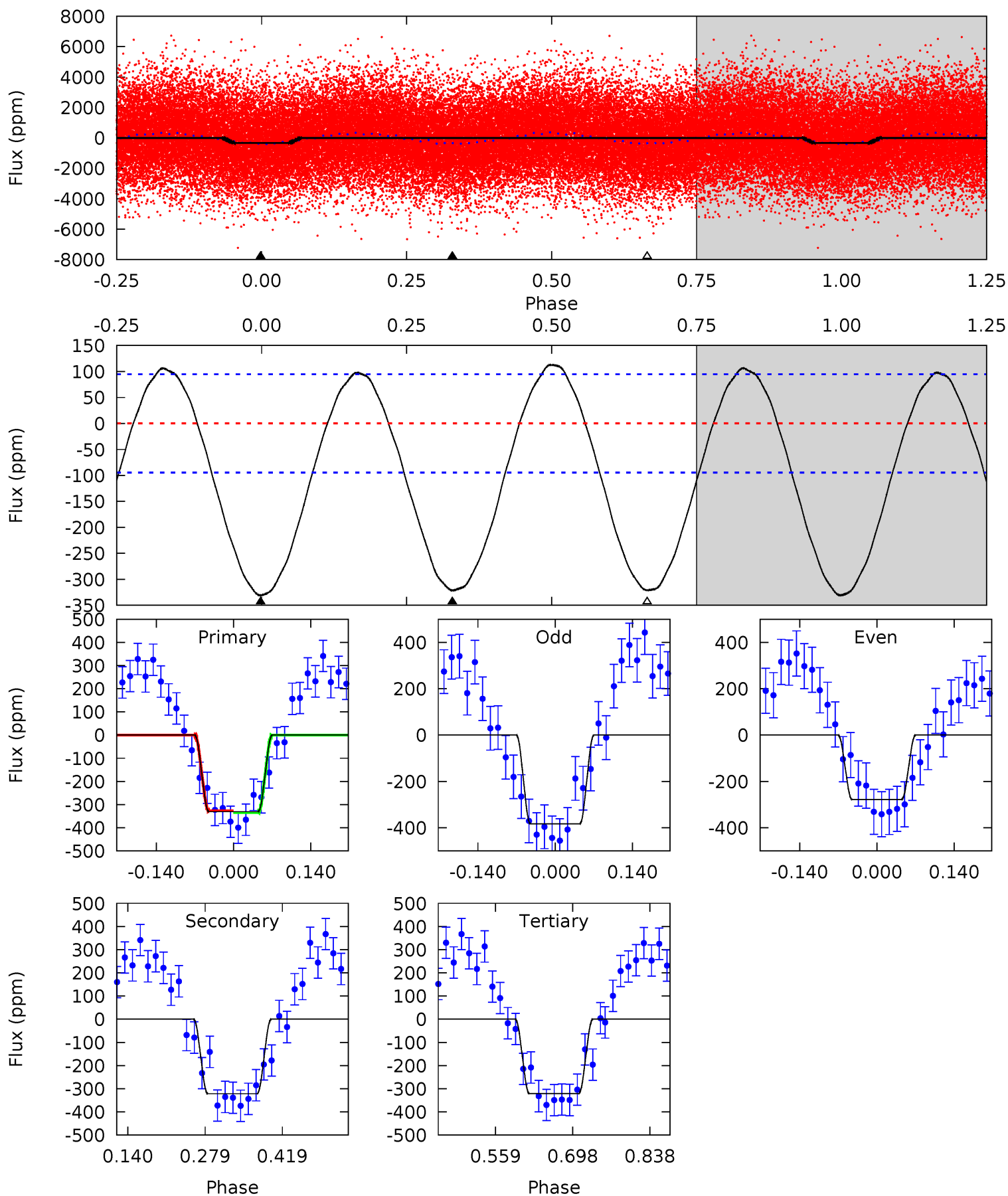
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
25.2	-34.3	0	0	4.41	1.27	37.1	25.2	25.2	-34.3	-34.3	3.50	0.99	0.82	0.56



Alt Model-Shift Uniqueness Test

010154094-01, P = 1.174376 Days, E = 130.758220 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
15.7	15.2	15.2	0	4.49	1.48	7.47	0.47	15.7	0.03	15.2	2.49	0.99	0.25	0.19



Stellar Parameters For KIC 010154094

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	7397^{+81}_{-81}	$4.067^{+0.115}_{-0.115}$	$-0.140^{+0.150}_{-0.150}$	$1.916^{+0.321}_{-0.289}$	$1.560^{+0.142}_{-0.118}$	$0.313^{+0.167}_{-0.109}$
	+1%/-1%	+3%/-3%	+107%/-107%	+17%/-15%	+9%/-8%	+53%/-35%
Source	SPE68	SPE68	SPE68	DSEP		

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

Secondary Eclipse Parameters for KIC 010154094-01 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	365 ± 11	$3.49^{+0.37}_{-0.36}$	3966^{+187}_{-155}	-8114^{+279}_{-331}	$-10.612^{+1.946}_{-2.531}$
Alt.	-322 ± 21	$4.00^{+0.43}_{-0.39}$	3978^{+173}_{-174}	7056^{+254}_{-252}	$7.056^{+1.605}_{-1.334}$

T_{max} = Theoretical Maximum Planetary Temperature

T_{obs} = Observed Planetary Temperature (Assuming A=0.3)

A_{obs} = Observed Albedo (Assuming T=0)

If a secondary eclipse is present, the system is likely an EB if $T_{obs} \gg T_{max}$ AND $A_{obs} \gg 1.0$

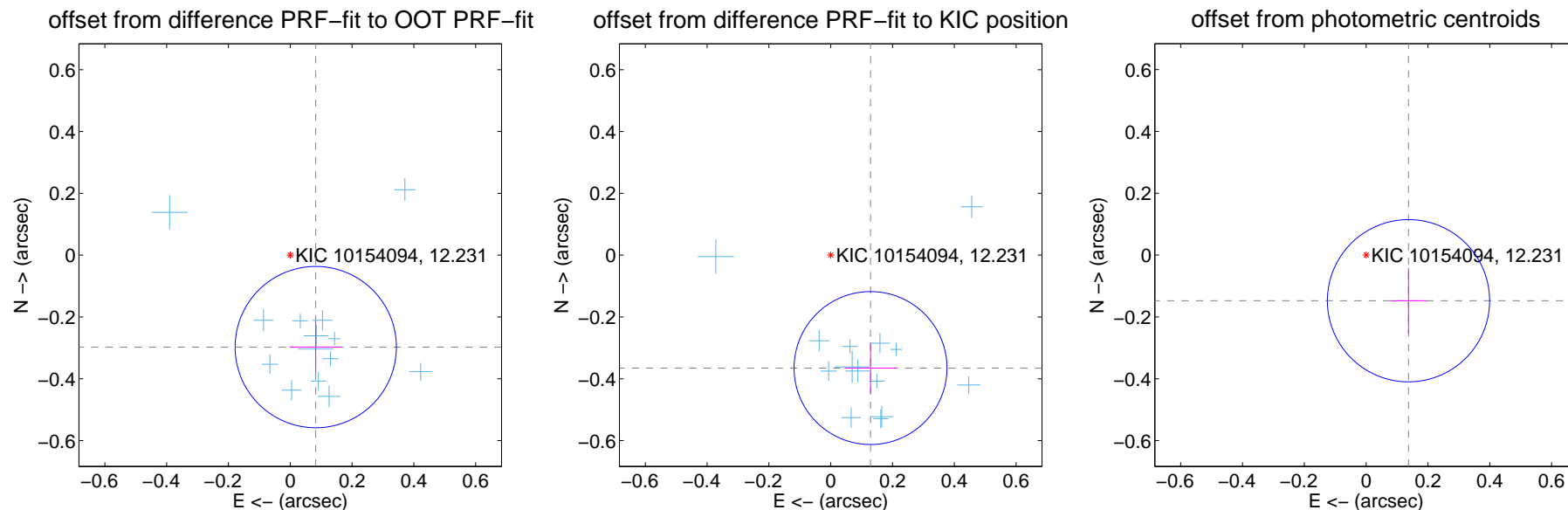
DV Centroid Data

Supplemental centroid analysis for 010154094-01. Kepler magnitude: 12.23. Transit SNR 13.82

There are 14 quarters with good PRF difference image offsets

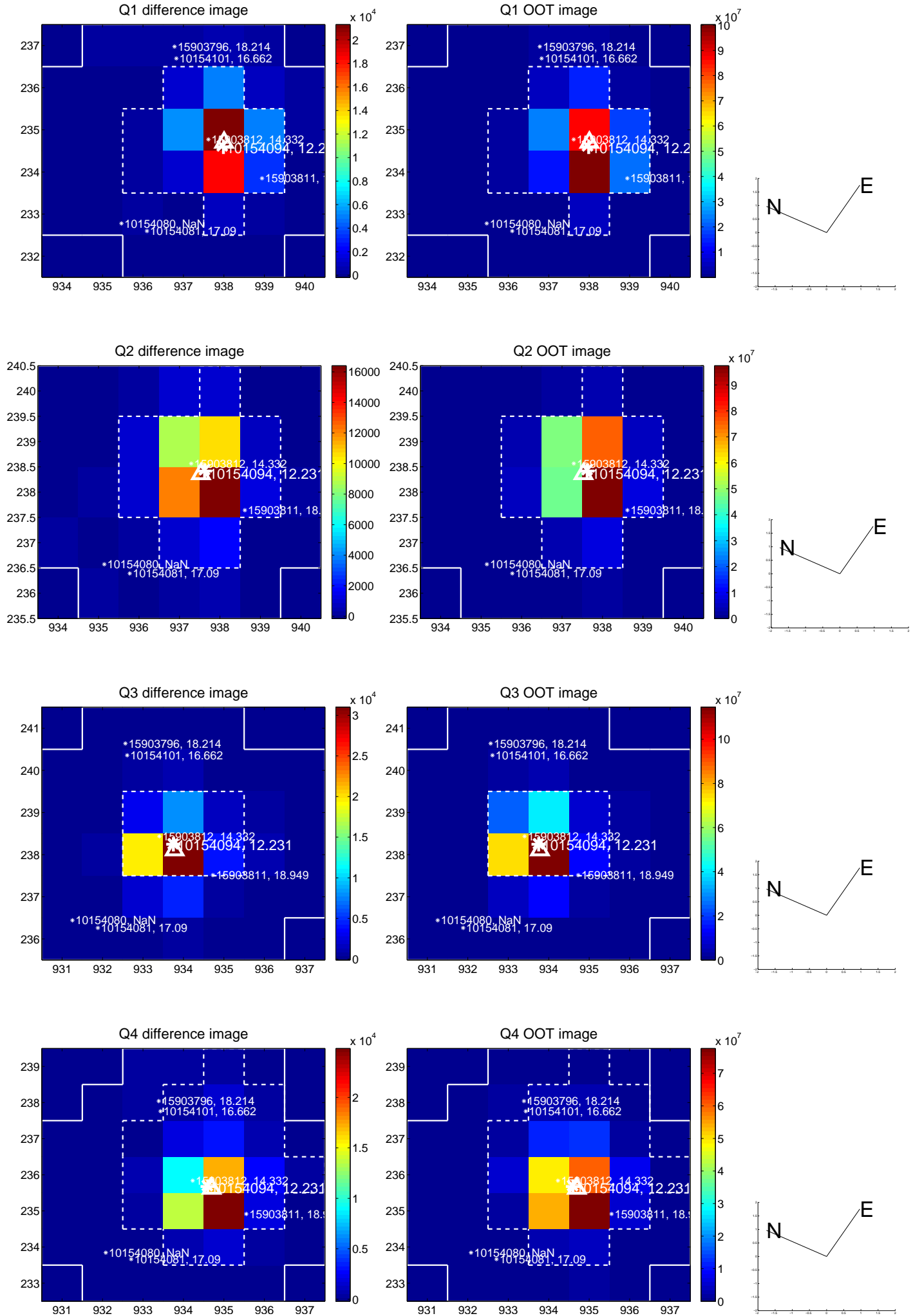
The direct PRF centroid is offset from the target star catalog position by about 0.06 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.309 ± 0.087	3.55	-0.082 ± 0.084	-0.298 ± 0.085
PRF-fit source offset from KIC position	0.387 ± 0.082	4.70	-0.129 ± 0.084	-0.365 ± 0.083
photometric centroid source offset	0.20 ± 0.09	2.30	-0.14 ± 0.06	-0.15 ± 0.11

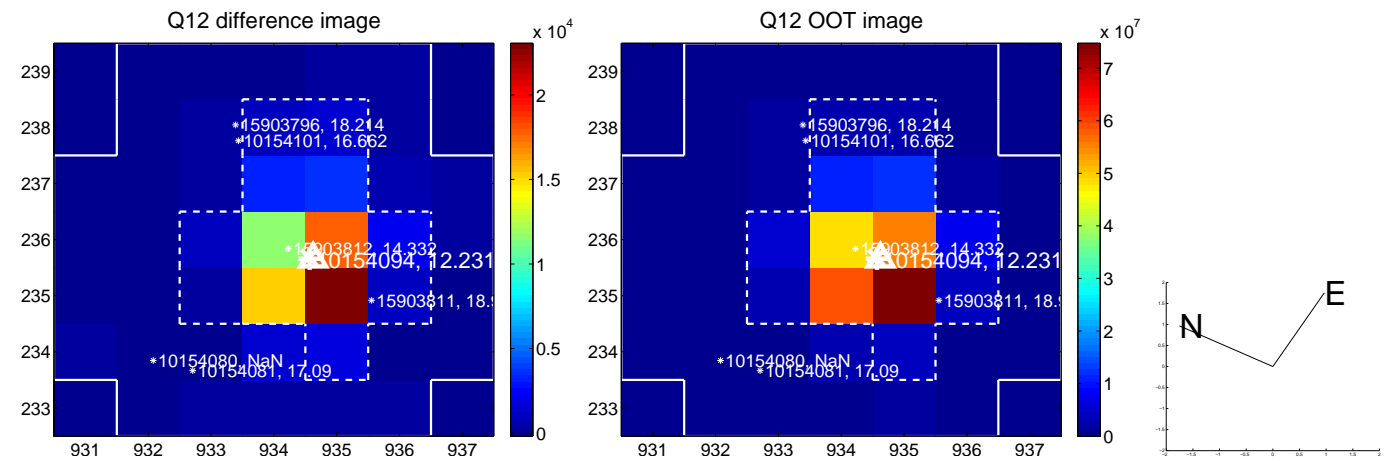
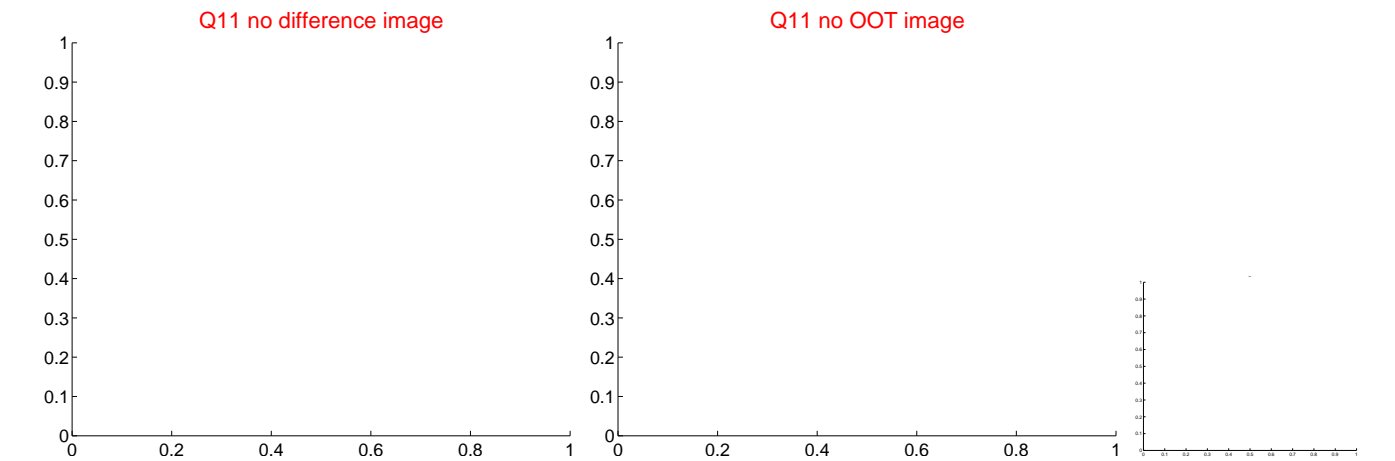
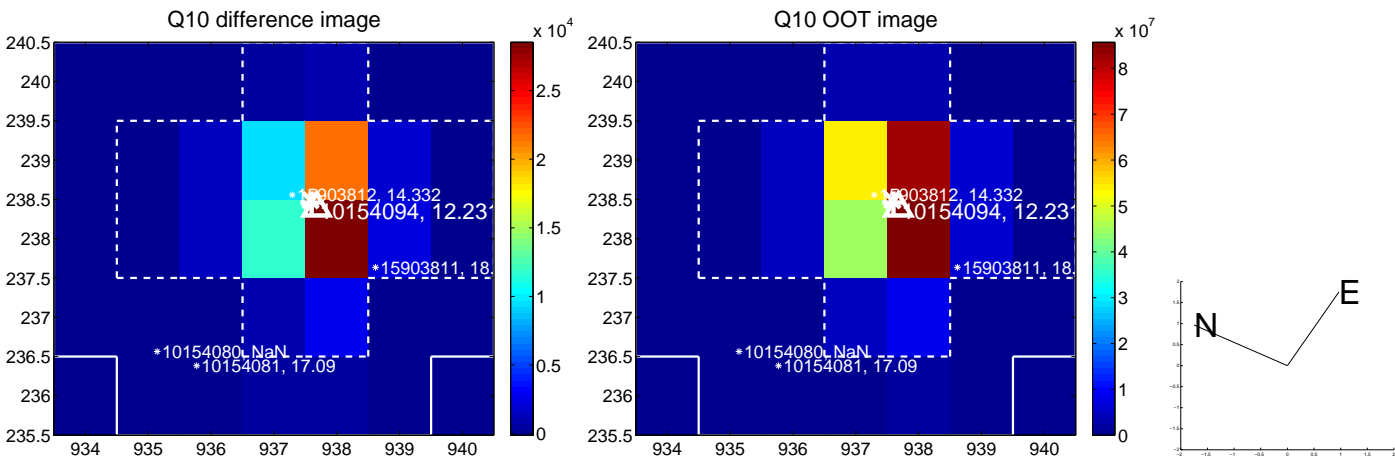
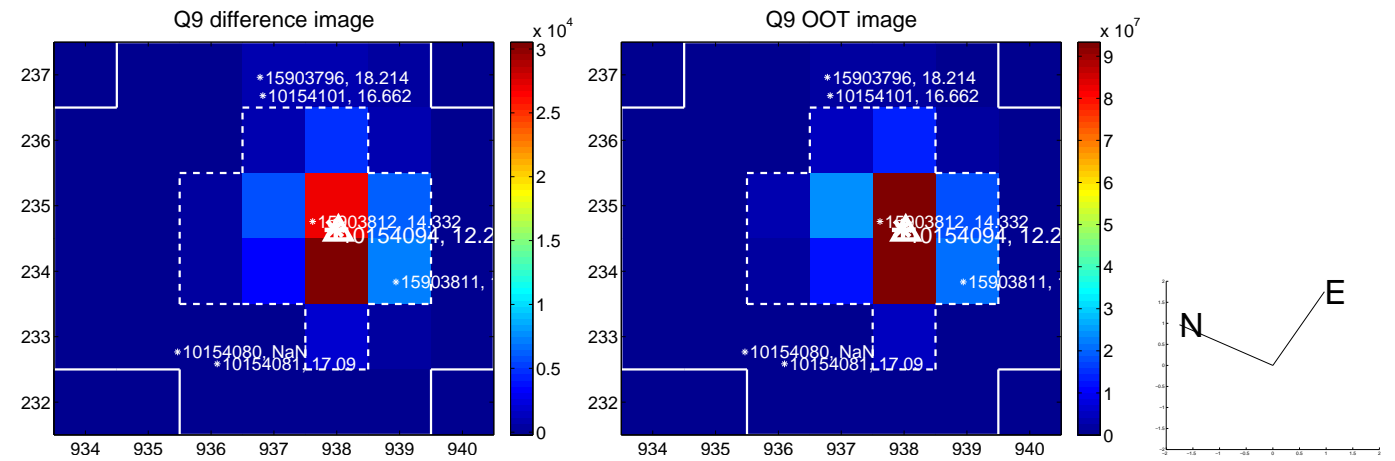


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses:** good quarterly centroid offsets; **Vermillion crosses:** bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ . Red *: target star. Blue *: Other stars. Text next to a star gives its KIC ID and kepmag. KIC IDs > 15,000,000 are from the UKIRT catalog.

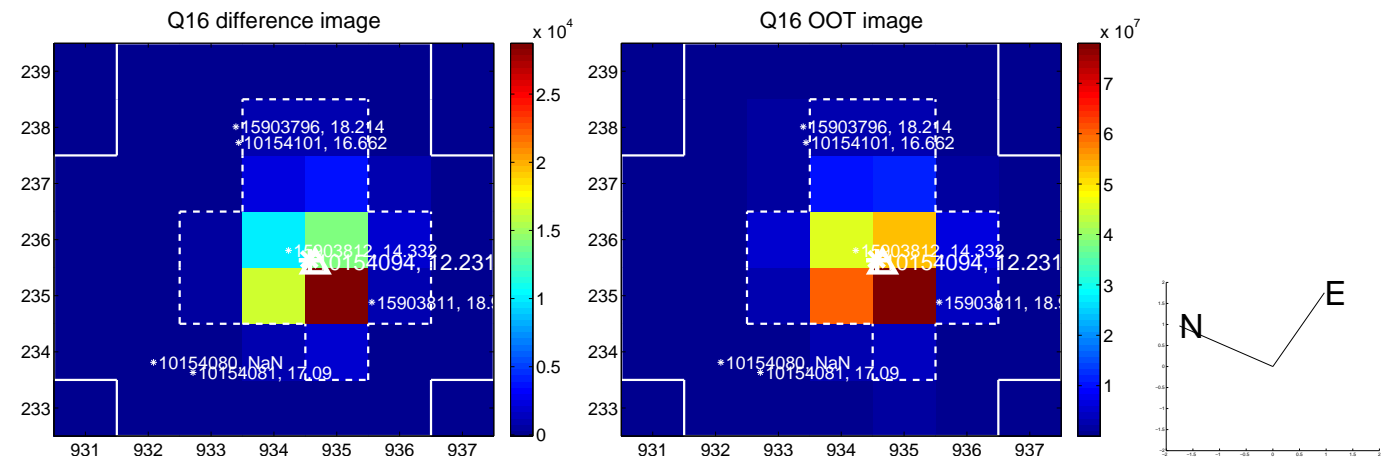
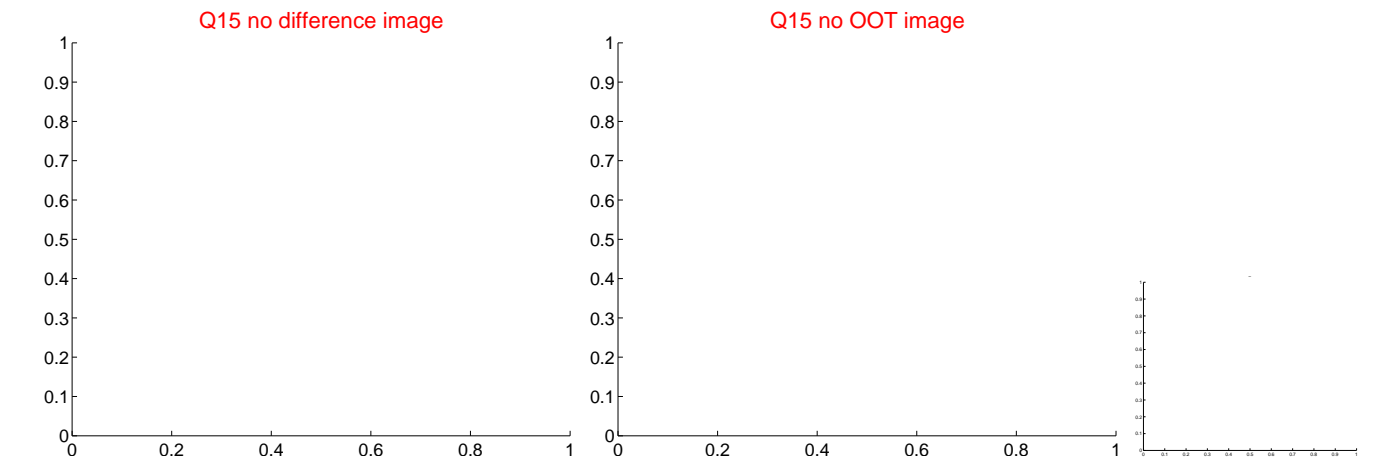
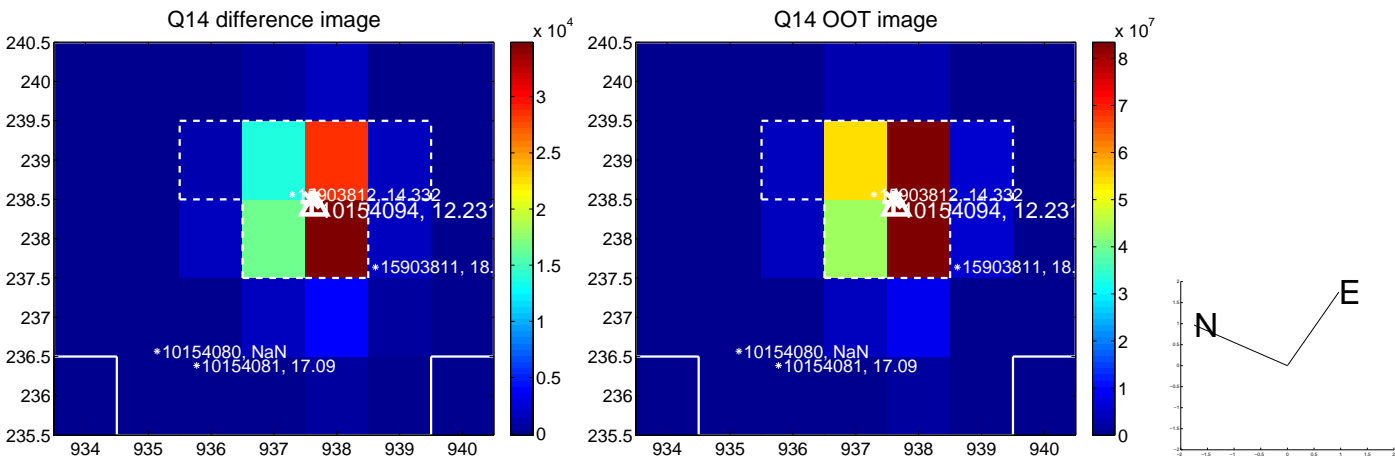
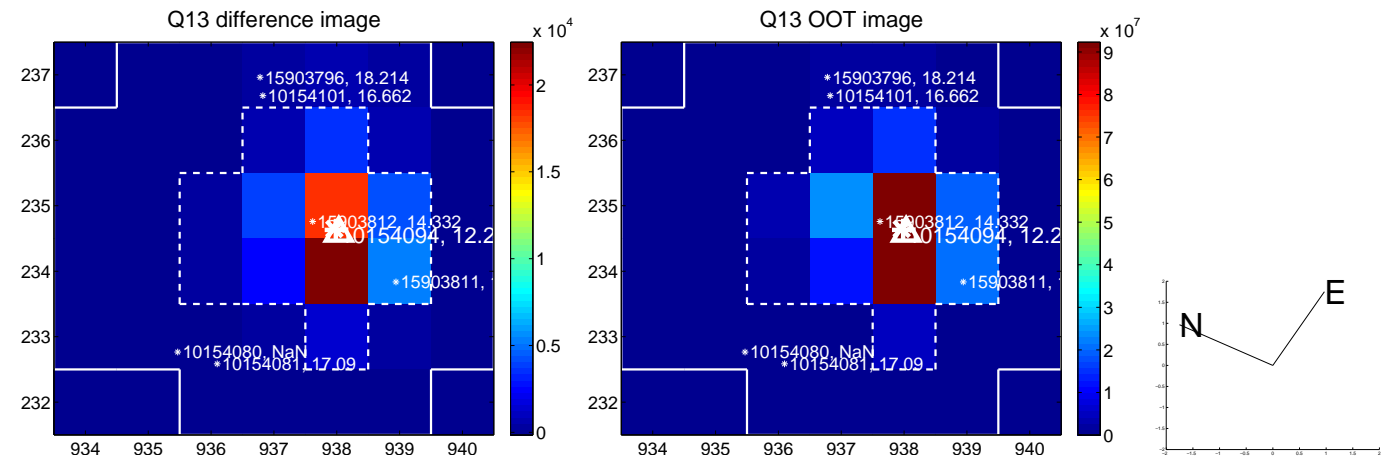
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



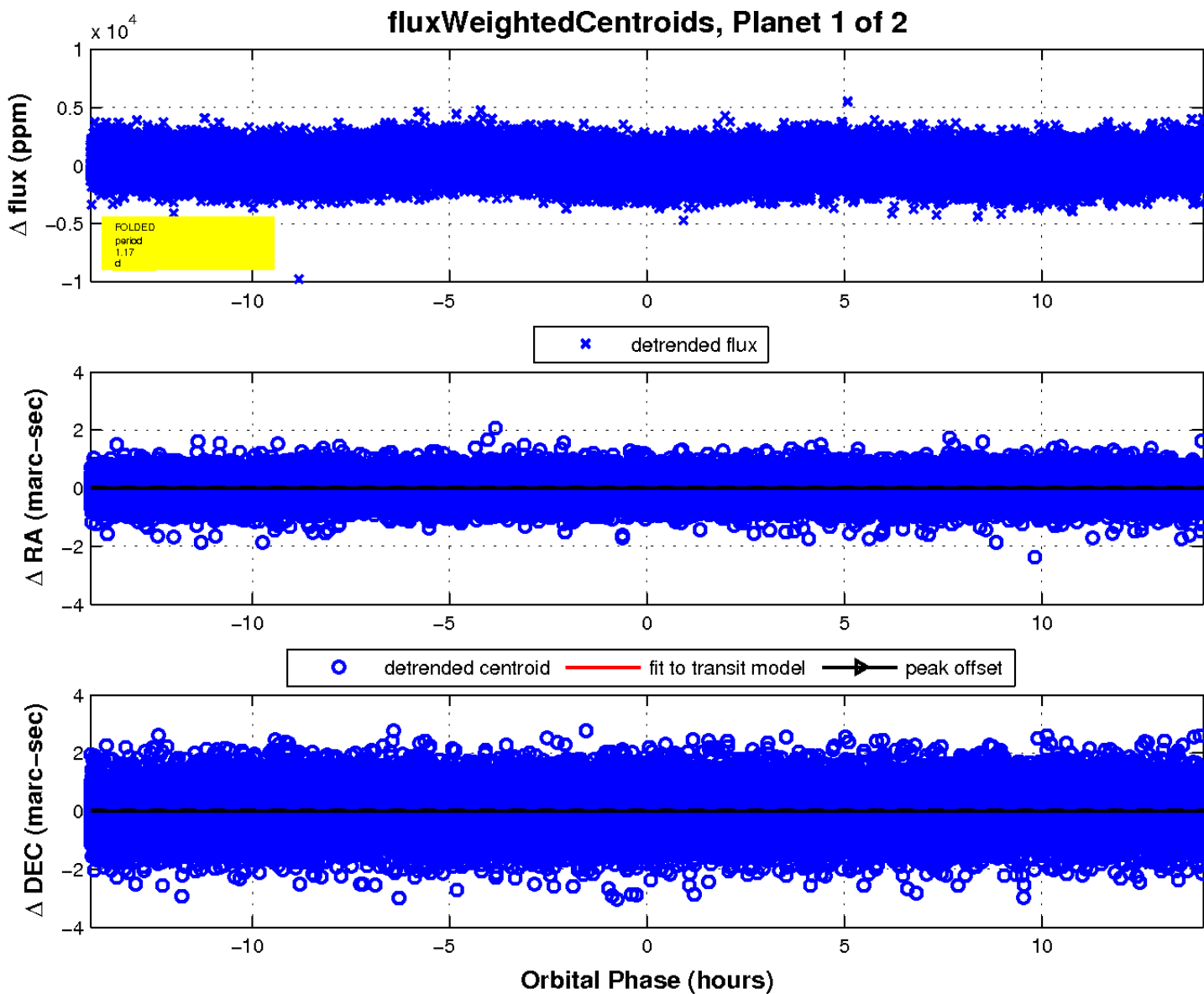
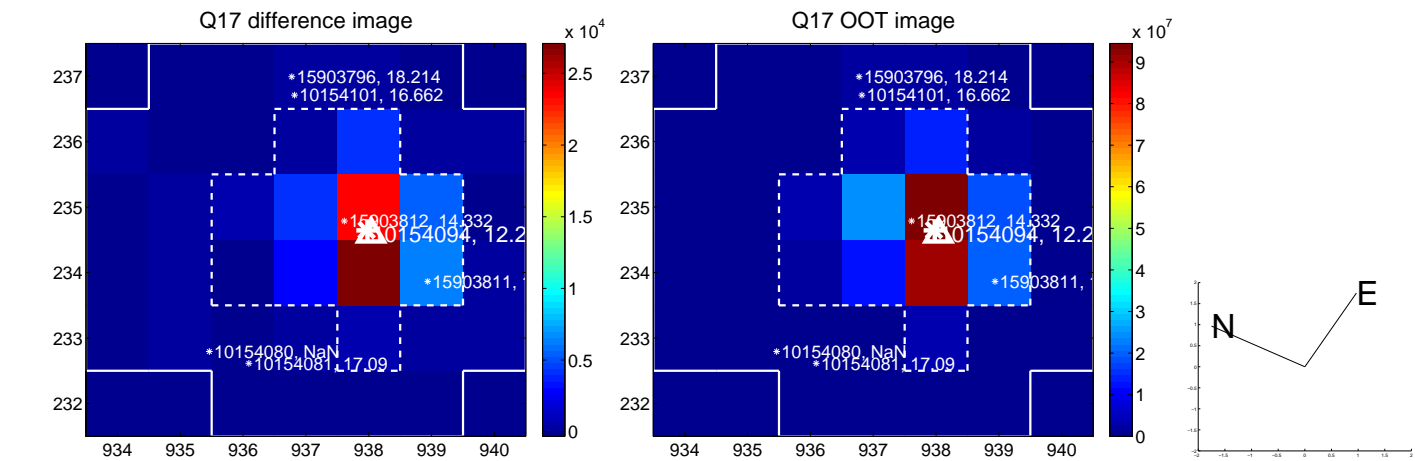
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



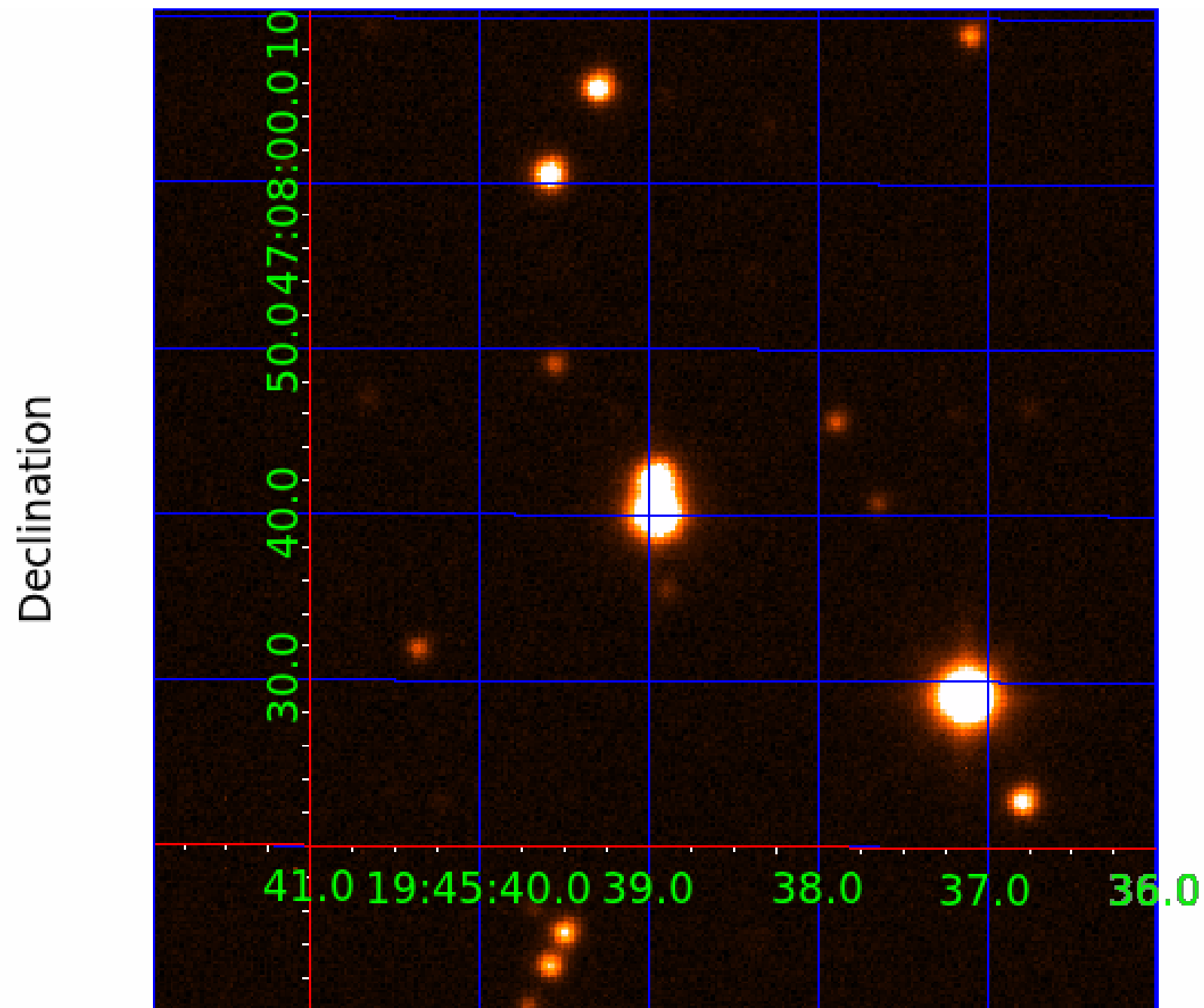
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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



UKIRT Image



KIC 010154094

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})
010154094-01	OBS	No	1.174355	131.943694	204.9	5.327	15.4	13.8	1.92	7397	3.48	15404.51
010154094-02	OBS	No	1.174365	131.668684	233.8	10.675	13.6	13.1	1.92	7397	2.96	15404.34

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
010154094-01	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT
010154094-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_SKYE_ZUMA—LPP_DV—MOD_NONUNIQ_DV—SAME_NTL_PERIOD—CENT_FEW_DIFFS

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

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

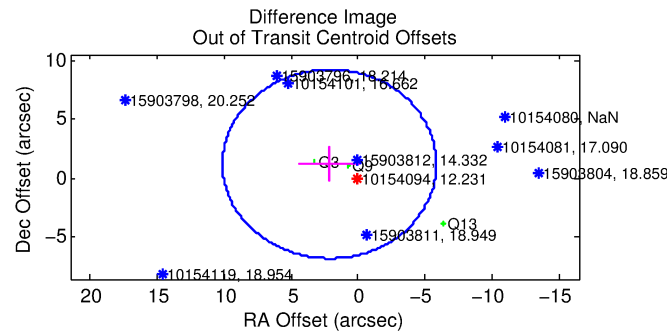
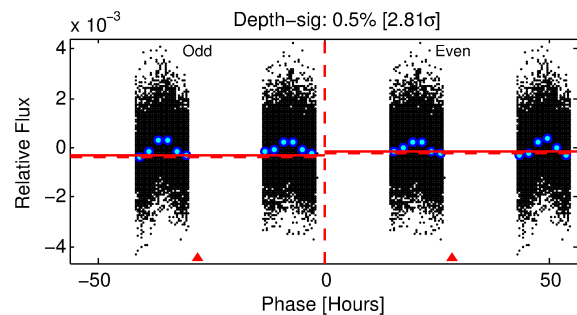
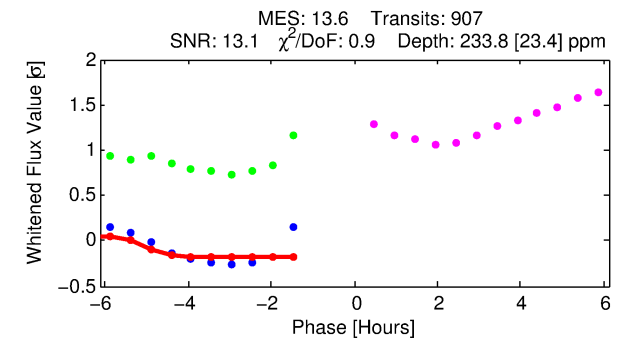
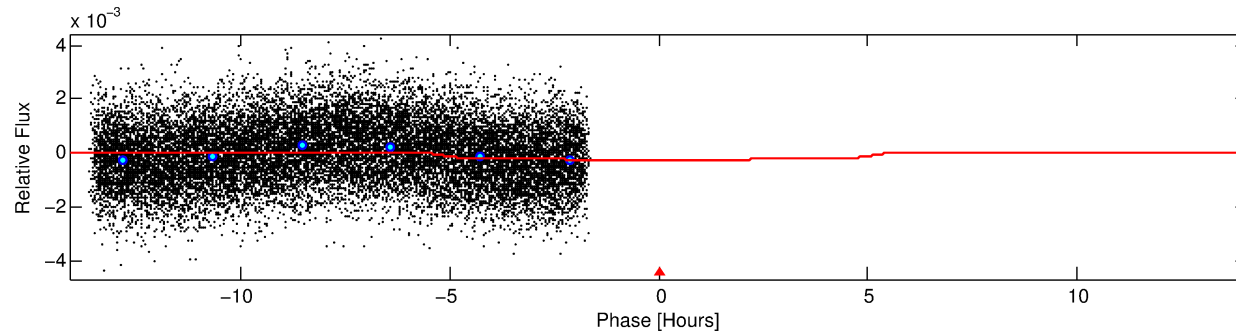
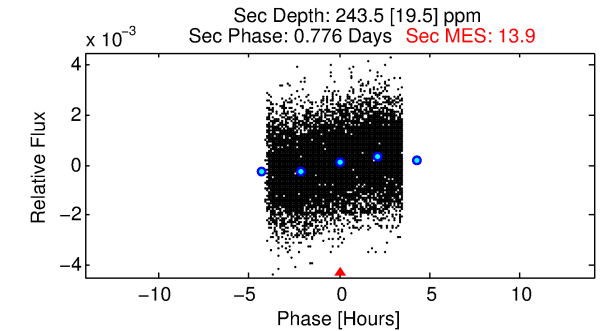
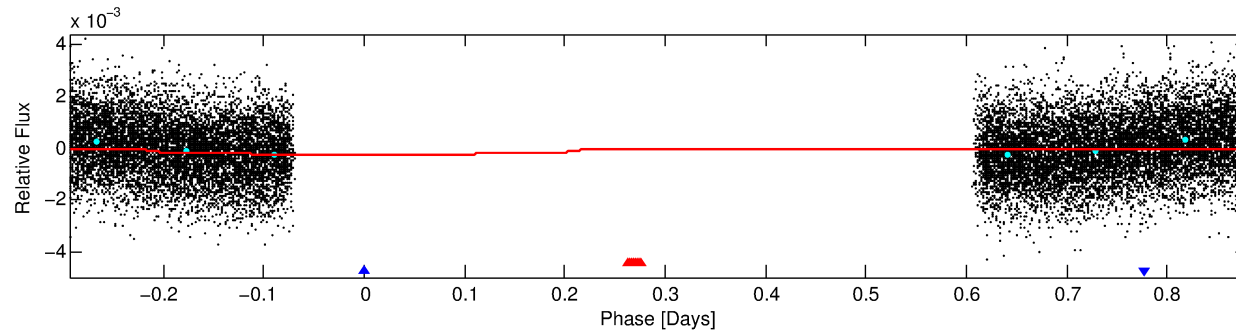
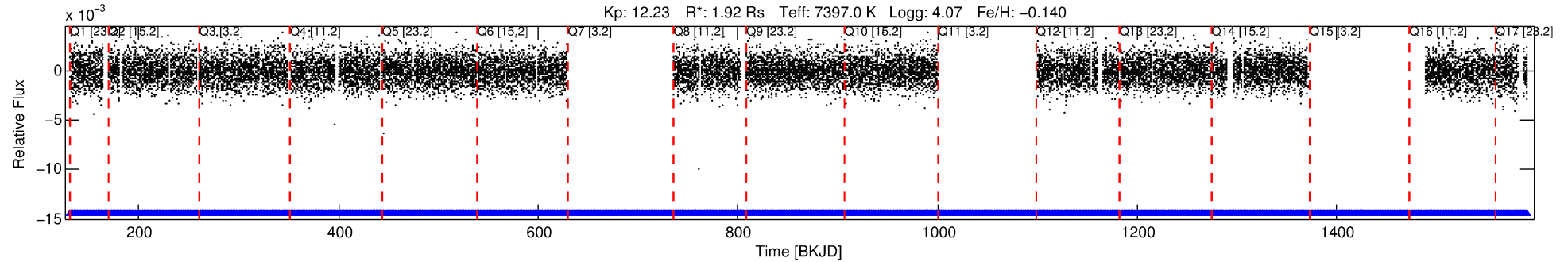
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 010154094-02

No Significant Match Found

DV One-Page Summary

KIC: 10154094 Candidate: 2 of 2 Period: 1.174 d



DV Fit Results:

Period = 1.17436 [0.00002] d
Epoch = 131.6687 [0.0260] BKJD
Rp/R* = 0.0141 [0.0092]
a/R* = 1.09 [0.60]
b = 0.10 [34.73]
Seff = 15404.34 [3287.91]
Teq = 2841 [152] K
Rp = 2.96 [1.98] Re
a = 0.0253 [0.0036] AU
Ag = 9.79 [12.88] [0.68σ]
Teffp = 7769 [2524] K [1.95σ]

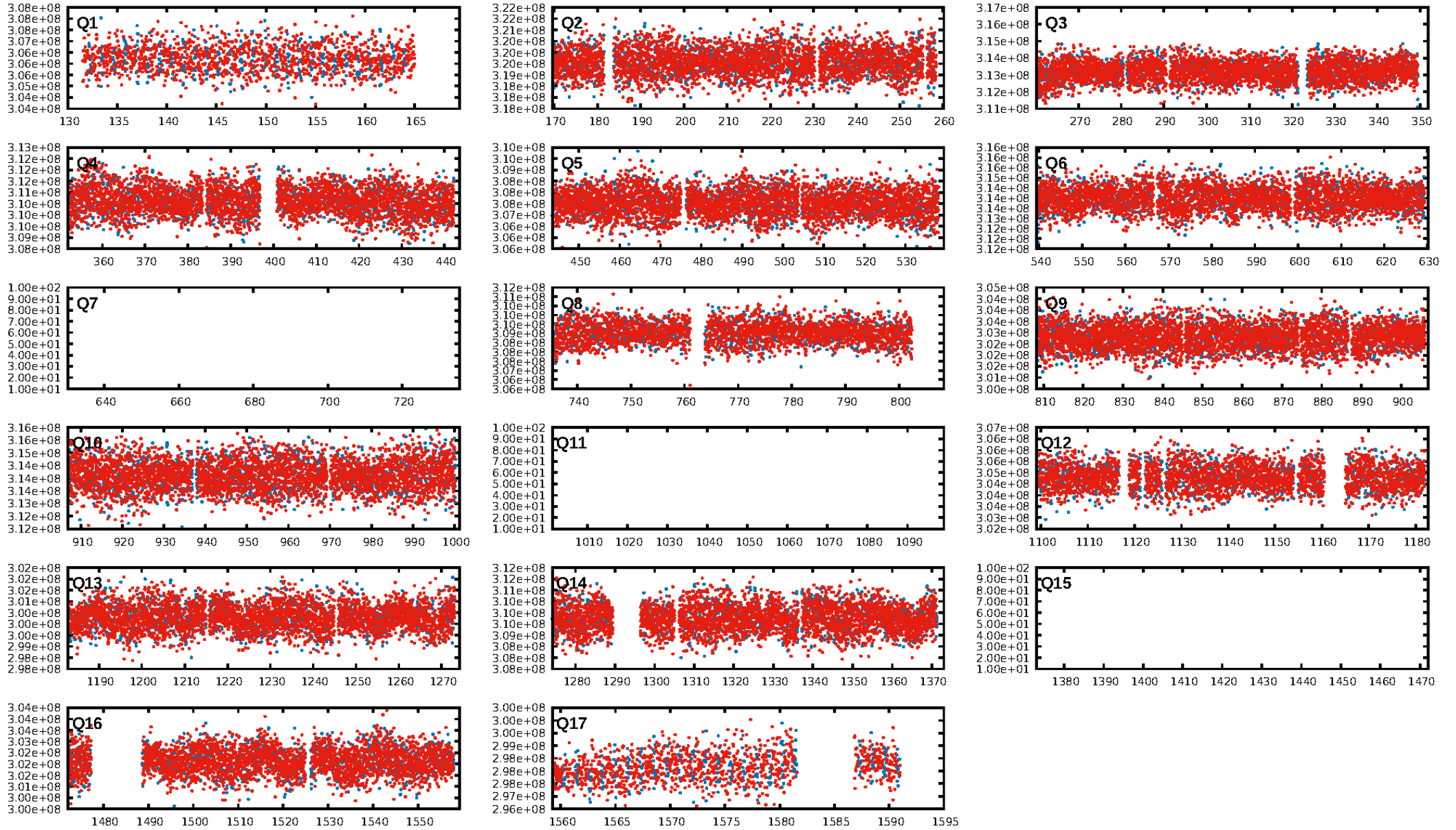
DV Diagnostic Results:

ShortPeriod-sig: 0.0% [0.00σ]
LongPeriod-sig: N/A
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: N/A
RollingBand-fgt: 1.00 [856/856]
GhostDiagnostic-chr: 0.8423
Centroid-sig: 11.7%
Centroid-so: 0.065 arcsec [1.76σ]
OotOffset-rm: 2.456 arcsec [0.92σ]
OotOffset-st: 0/1/0/2 [3]
KicOffset-rm: 2.406 arcsec [0.98σ]
KicOffset-st: 0/1/0/2 [3]
DiffImageQuality-fgm: 0.33 [1/3]
DiffImageOverlap-fno: 0.00 [0/14]

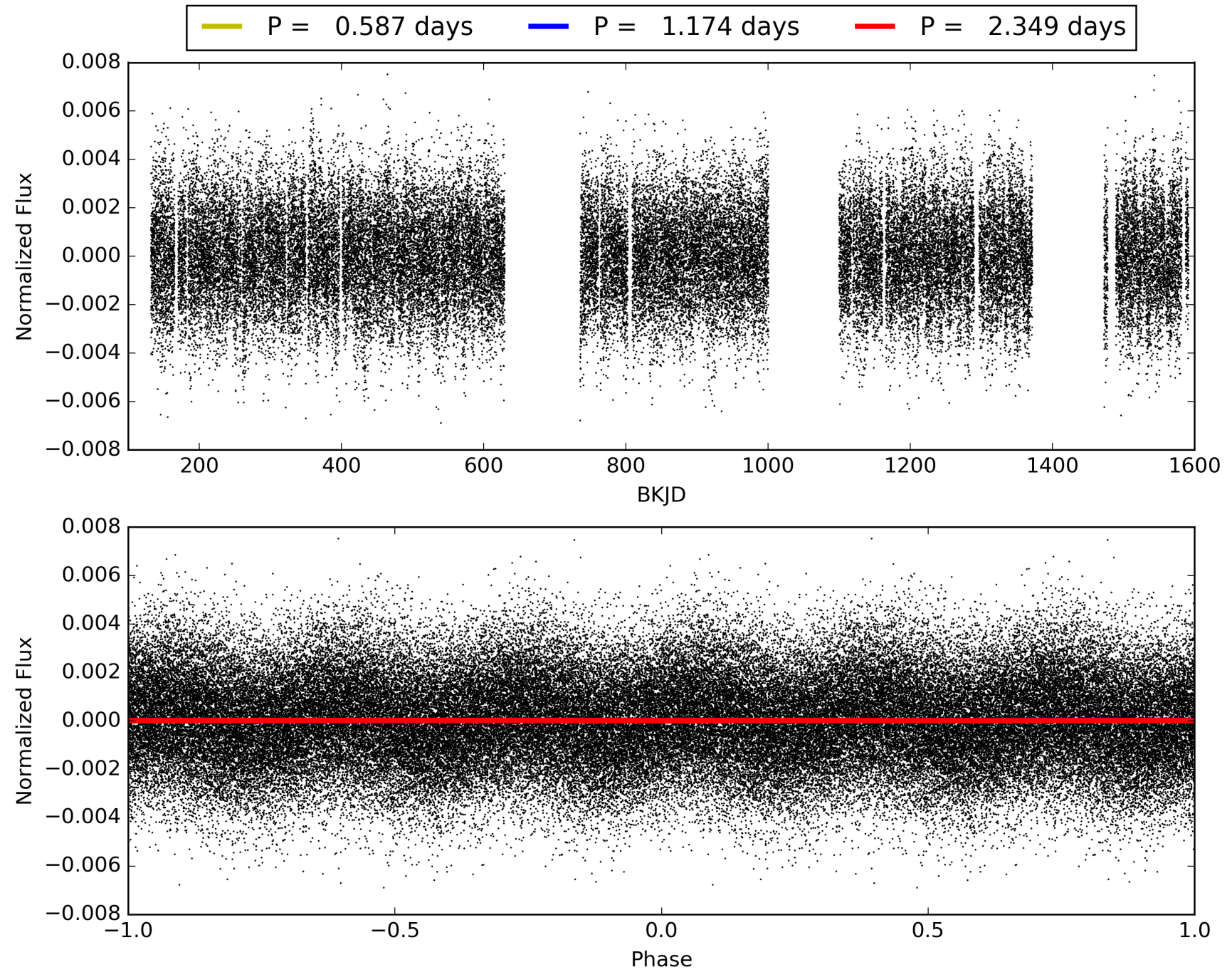
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 29-Jan-2016 20:49:04 Z

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

TCE 010154094-02, PDC Light Curves

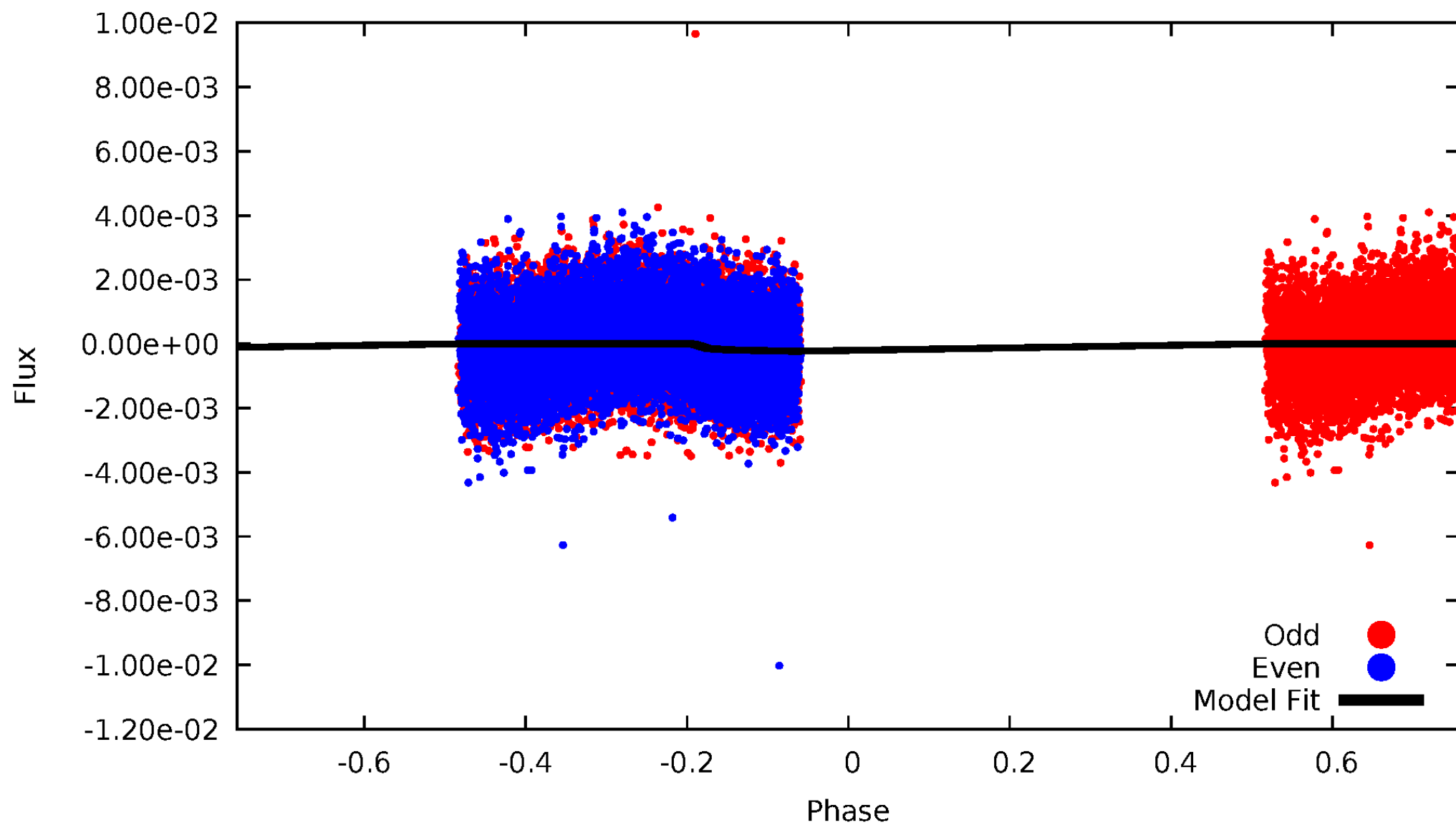


TCE 010154094-02



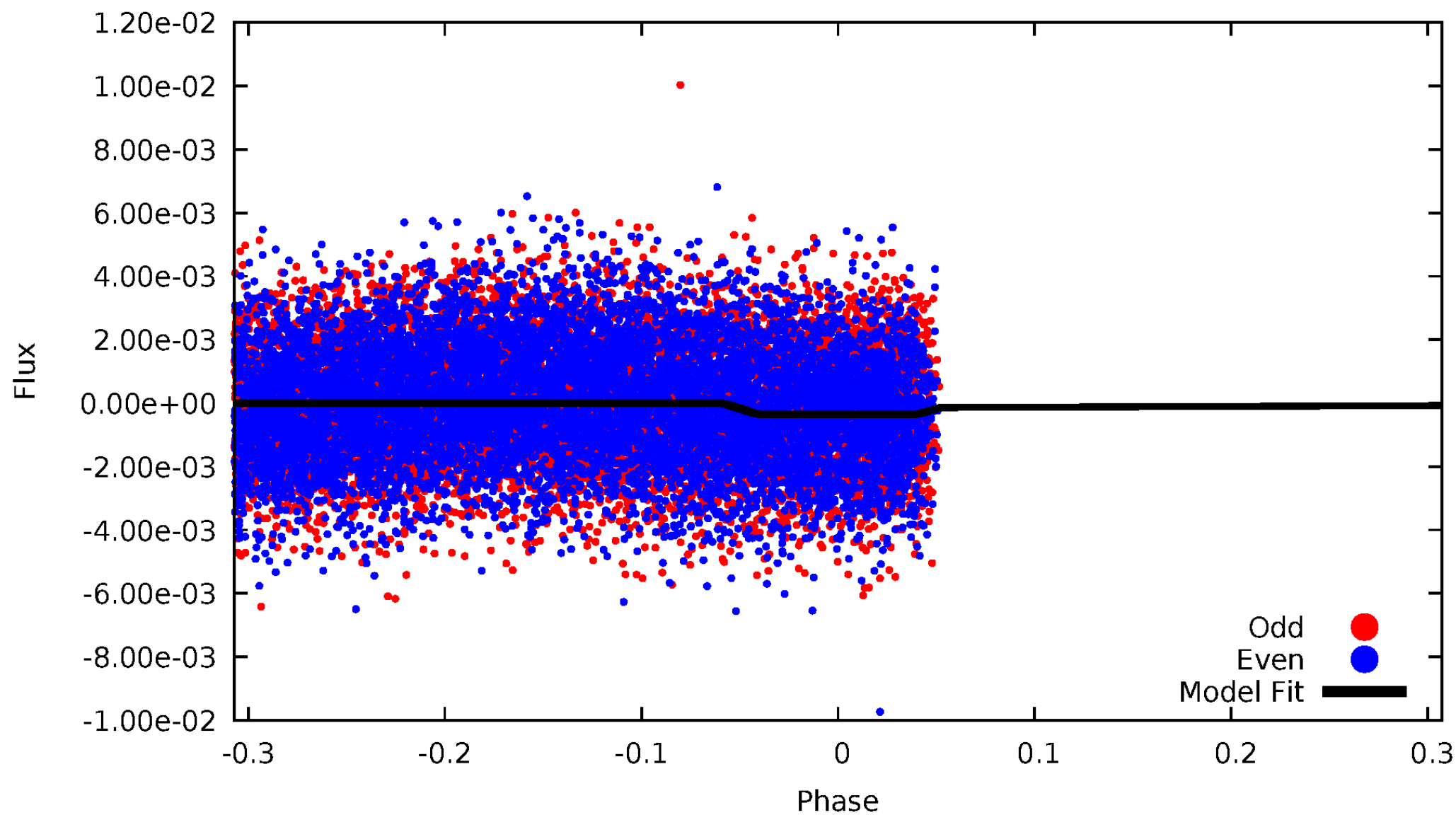
DV Odd/Even

TCE 010154094-02



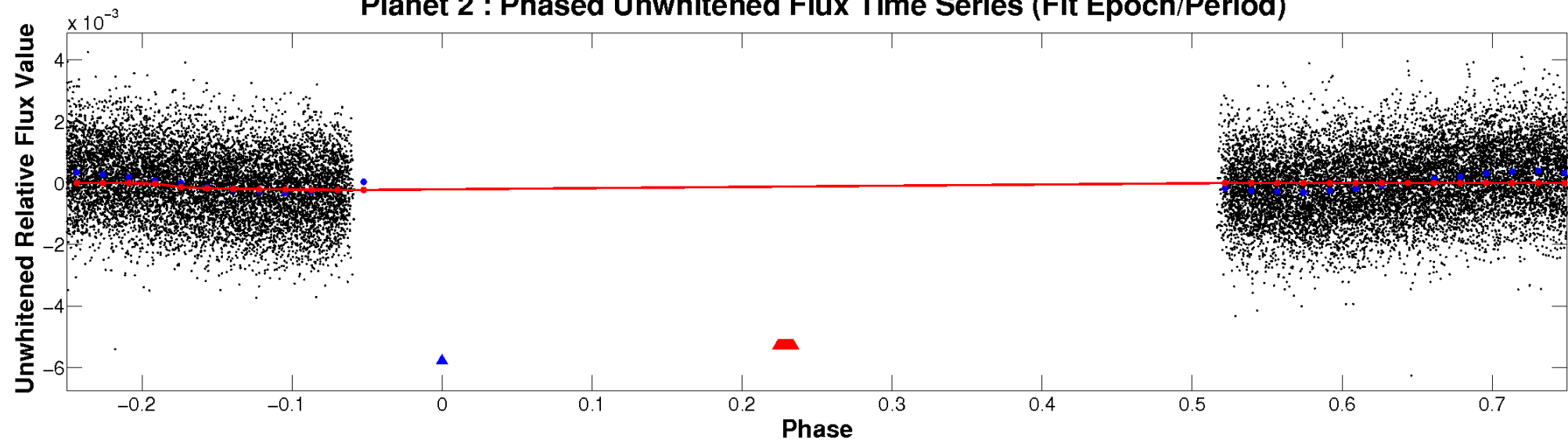
ALT Odd/Even

TCE 010154094-02

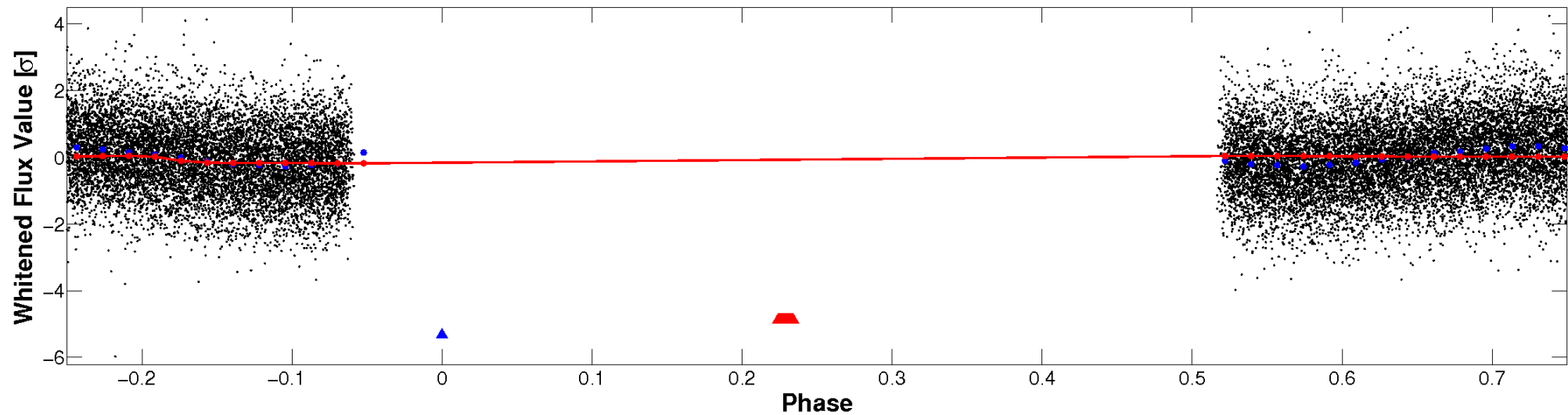


Non-Whitened Vs. Whitened Light Curve

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

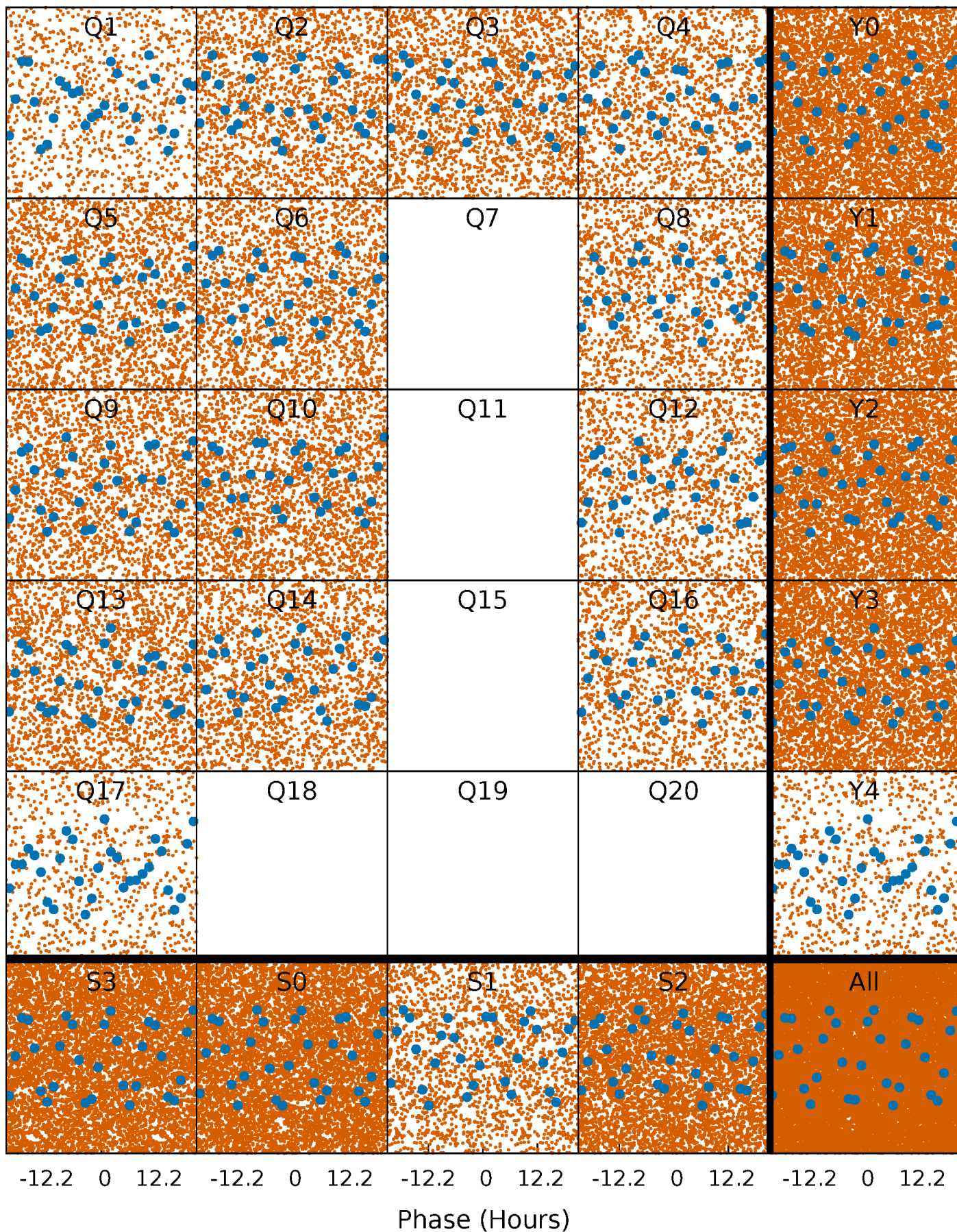


Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



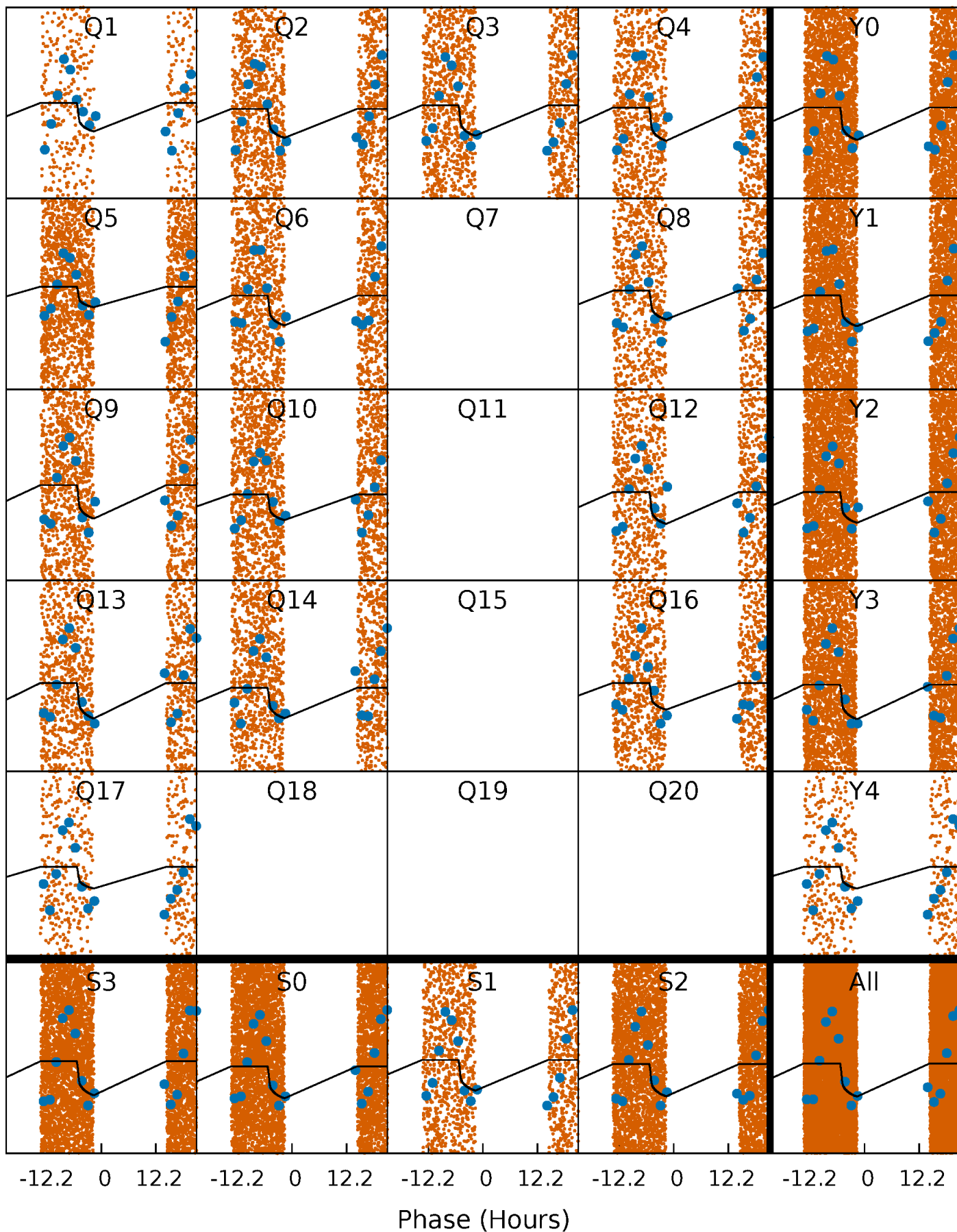
PDC Quarter-Phased Transit Curves

TCE 010154094-02 P= 1.174365 Days $T_0=131.668684$ (BKJD)



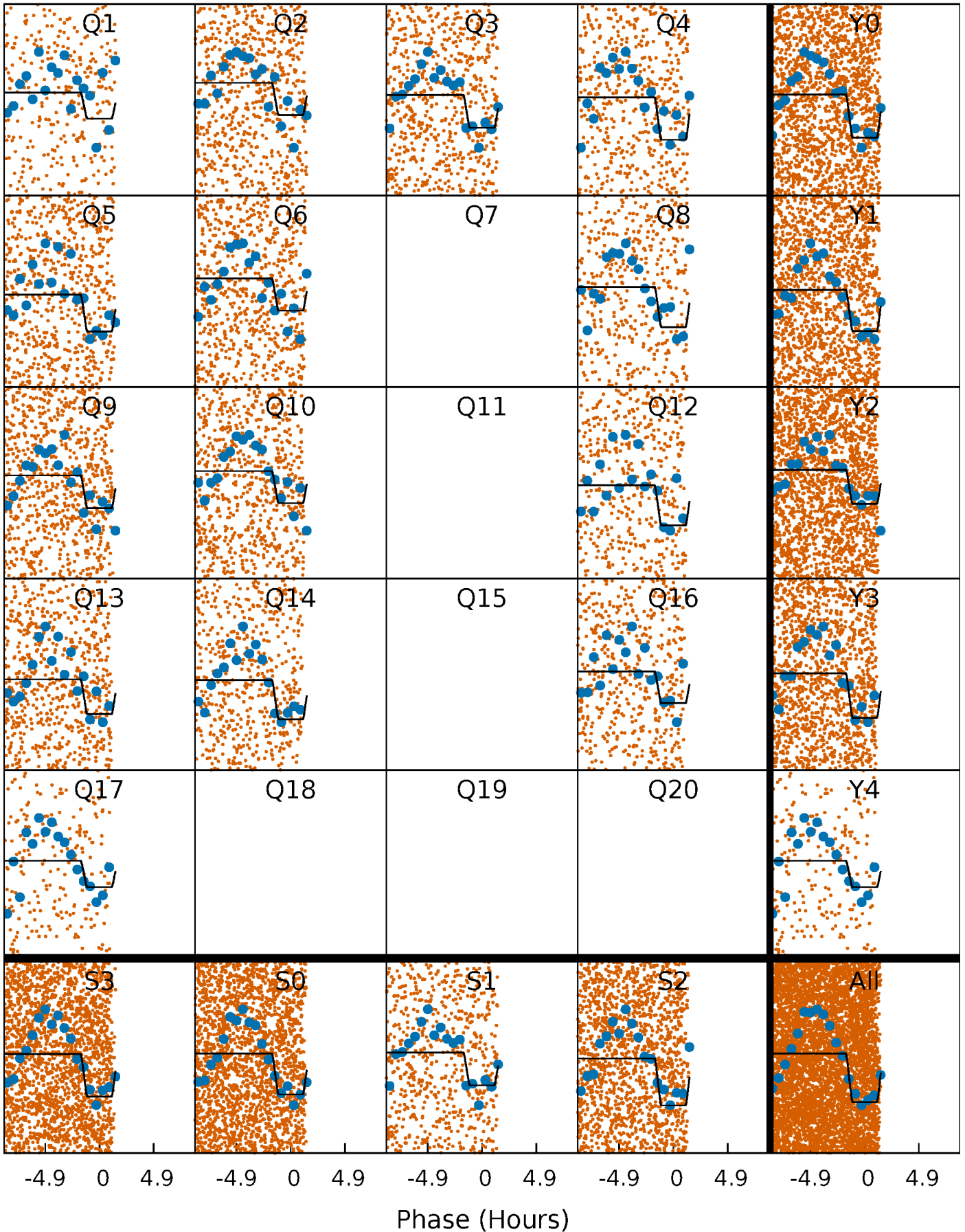
DV Quarter-Phased Transit Curves

TCE 010154094-02 P= 1.174365 Days $T_0=131.668684$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

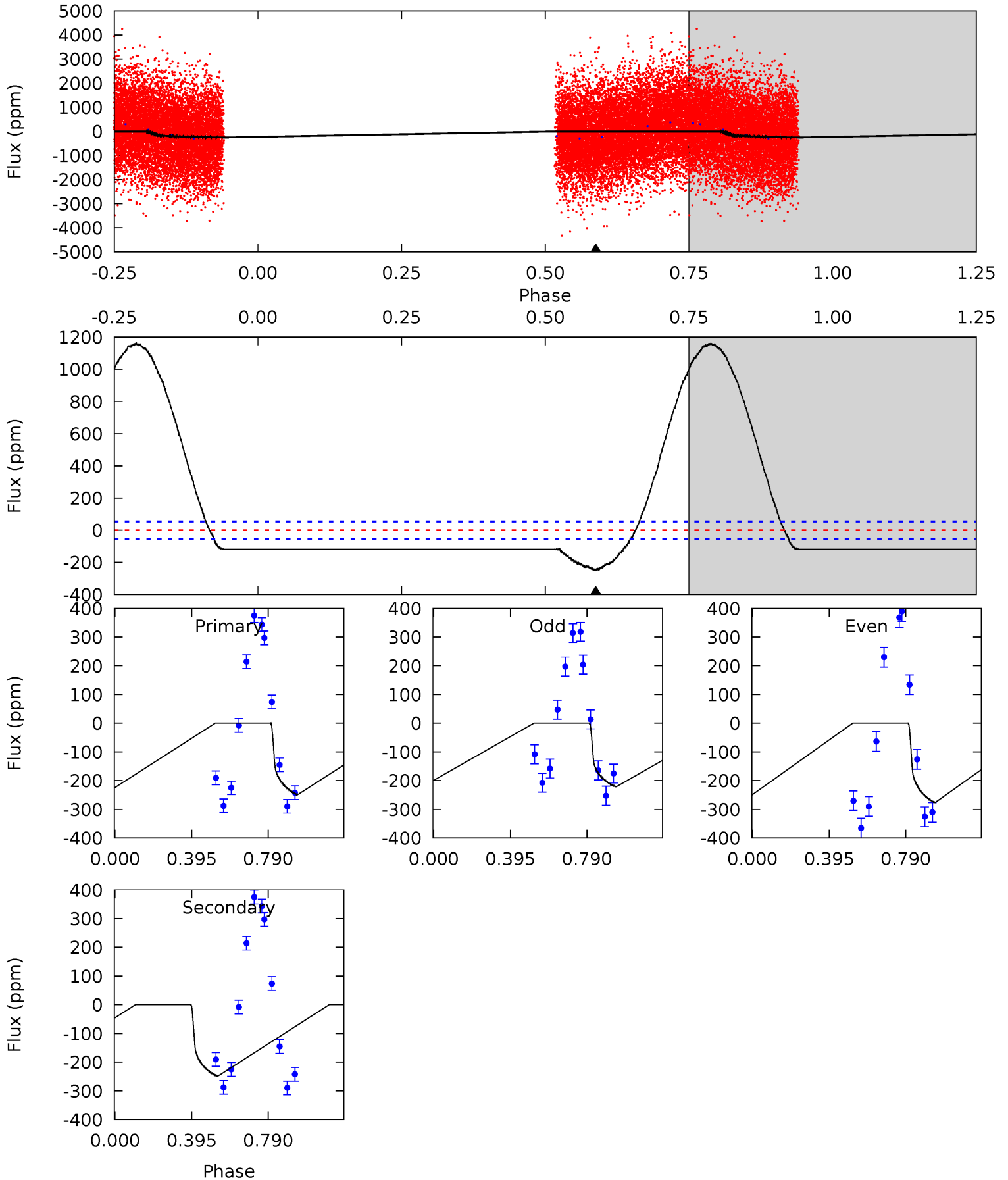
TCE 010154094-02 P= 1.174372 Days $T_0=131.539236$ (BKJD)



DV Model-Shift Uniqueness Test

010154094-02, P = 1.174365 Days, E = 130.494319 Days

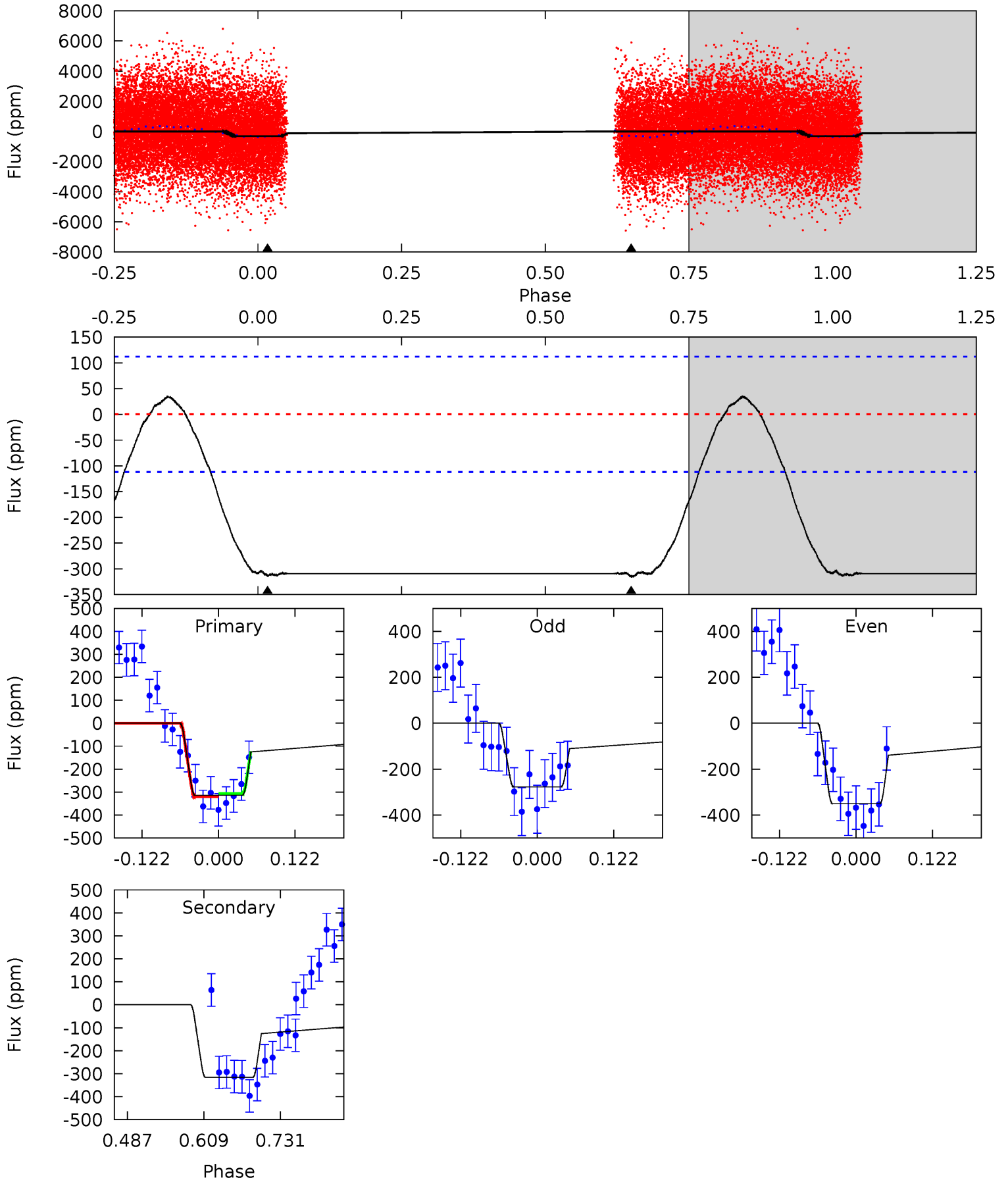
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
19.5	19.5	0	0	4.27	0.85	7.97	19.5	19.5	19.5	19.5	2.17	0	0.82	0



Alt Model-Shift Uniqueness Test

010154094-02, P = 1.174372 Days, E = 130.364864 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
12.7	12.7	0	0	4.52	1.55	1.44	12.7	12.7	12.7	12.7	1.47	1.05	0.10	0.28



Stellar Parameters For KIC 010154094

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	7397^{+81}_{-81}	$4.067^{+0.115}_{-0.115}$	$-0.140^{+0.150}_{-0.150}$	$1.916^{+0.321}_{-0.289}$	$1.560^{+0.142}_{-0.118}$	$0.313^{+0.167}_{-0.109}$
	+1%/-1%	+3%/-3%	+107%/-107%	+17%/-15%	+9%/-8%	+53%/-35%
Source	SPE68	SPE68	SPE68	DSEP		

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

Secondary Eclipse Parameters for KIC 010154094-02 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	-249 ± 13	$3.17^{+1.87}_{-1.72}$	3977^{+190}_{-170}	7516^{+5903}_{-1687}	$8.779^{+31.809}_{-5.303}$
Alt.	-315 ± 25	$4.00^{+2.16}_{-1.72}$	3977^{+176}_{-162}	7026^{+3193}_{-1441}	$6.847^{+13.798}_{-3.956}$

T_{max} = Theoretical Maximum Planetary Temperature

T_{obs} = Observed Planetary Temperature (Assuming $A=0.3$)

A_{obs} = Observed Albedo (Assuming $T=0$)

If a secondary eclipse is present, the system is likely an EB if $T_{obs} \gg T_{max}$ AND $A_{obs} \gg 1.0$

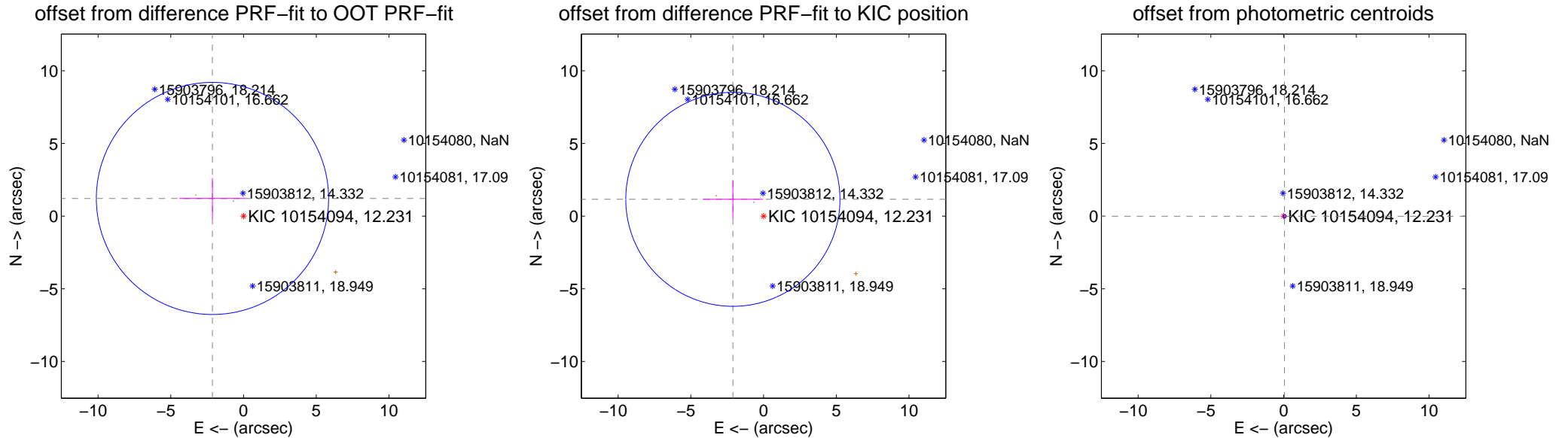
DV Centroid Data

Supplemental centroid analysis for 010154094-02. Kepler magnitude: 12.23. Transit SNR 13.13

There are 1 quarters with good PRF difference image offsets

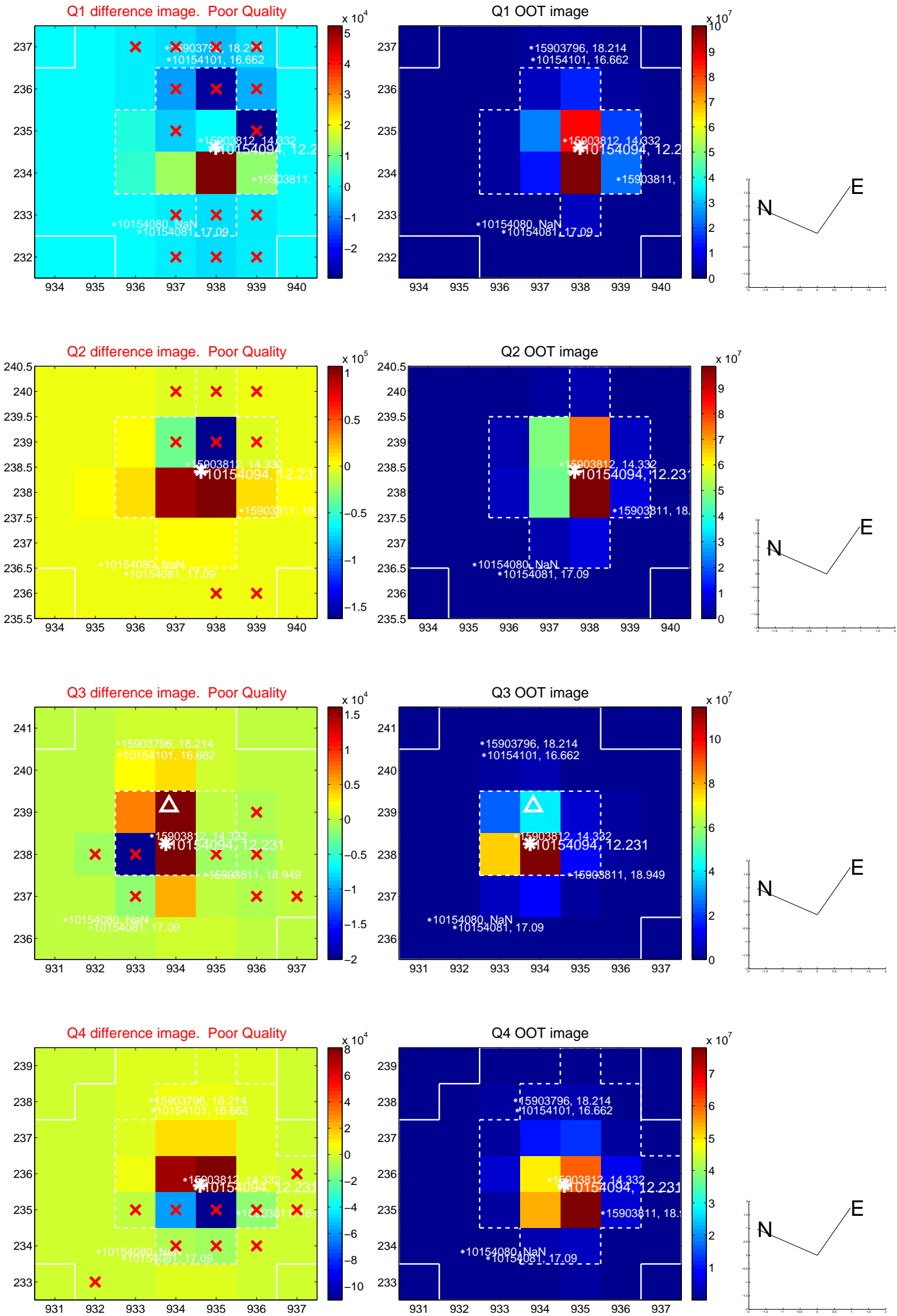
The direct PRF centroid is offset from the target star catalog position by about 0.11 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	2.456 ± 2.661	0.92	2.135 ± 2.284	1.215 ± 1.398
PRF-fit source offset from KIC position	2.406 ± 2.454	0.98	2.110 ± 2.080	1.157 ± 1.323
photometric centroid source offset	0.07 ± 0.04	1.76	-0.06 ± 0.04	-0.01 ± 0.07

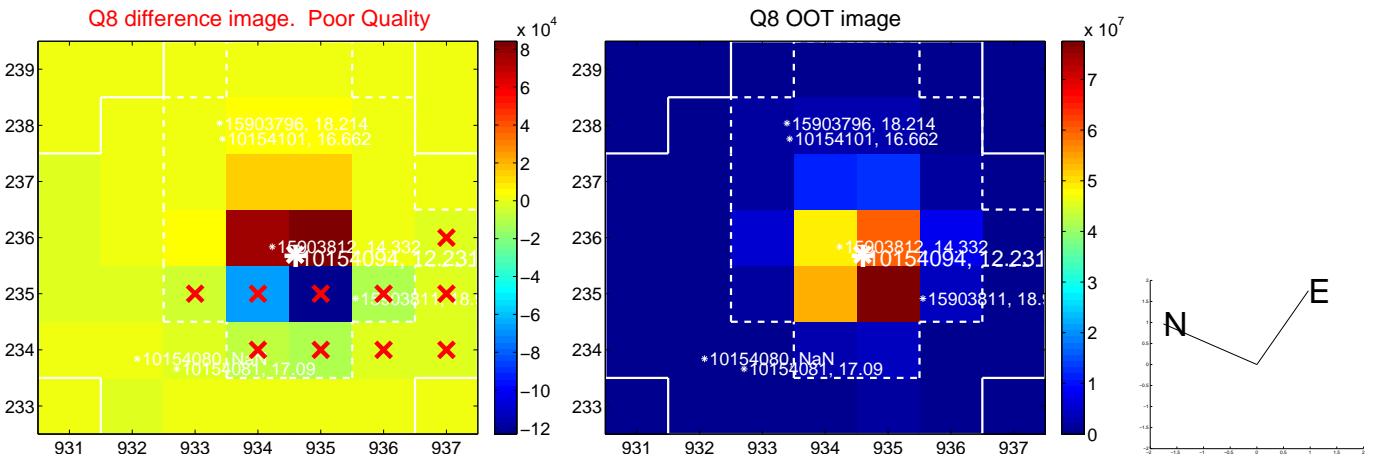
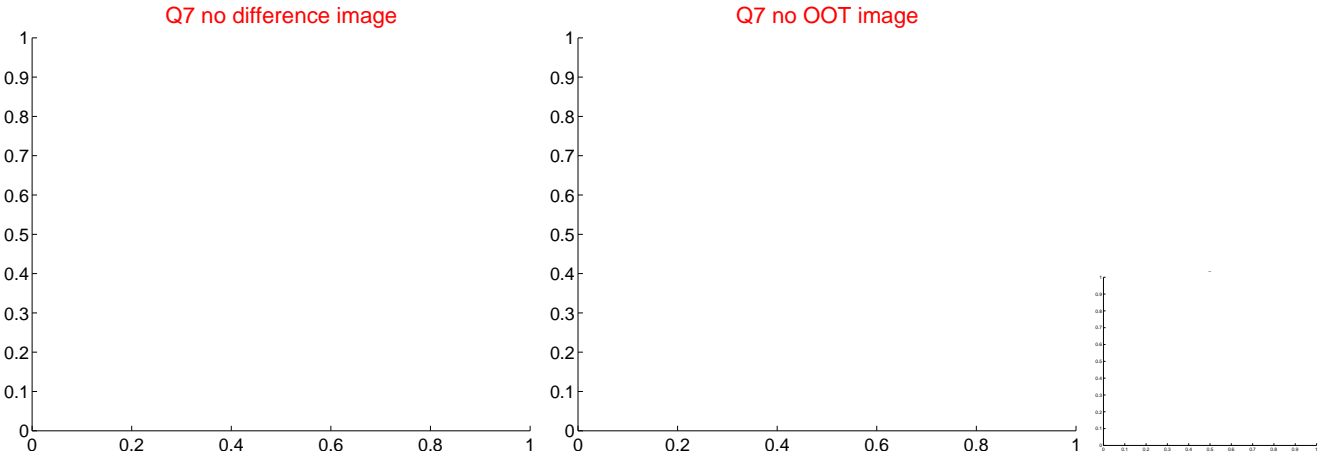
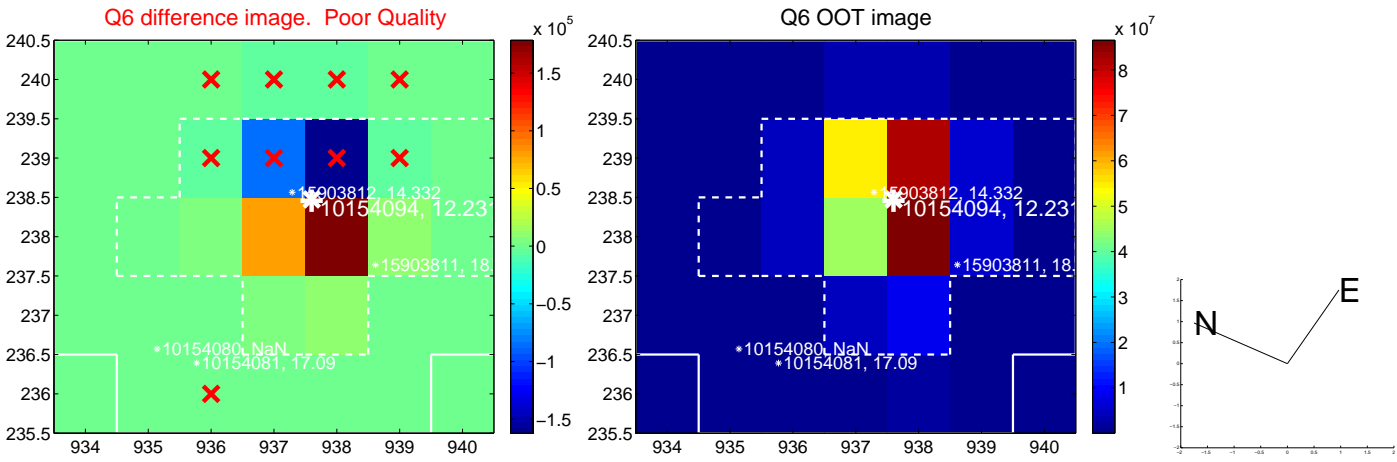
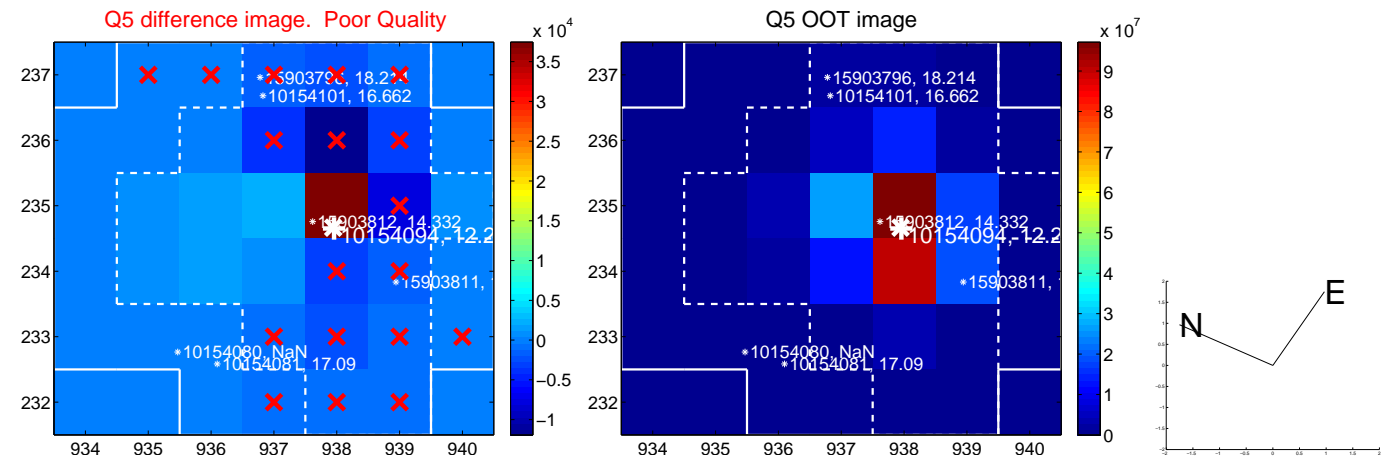


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ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

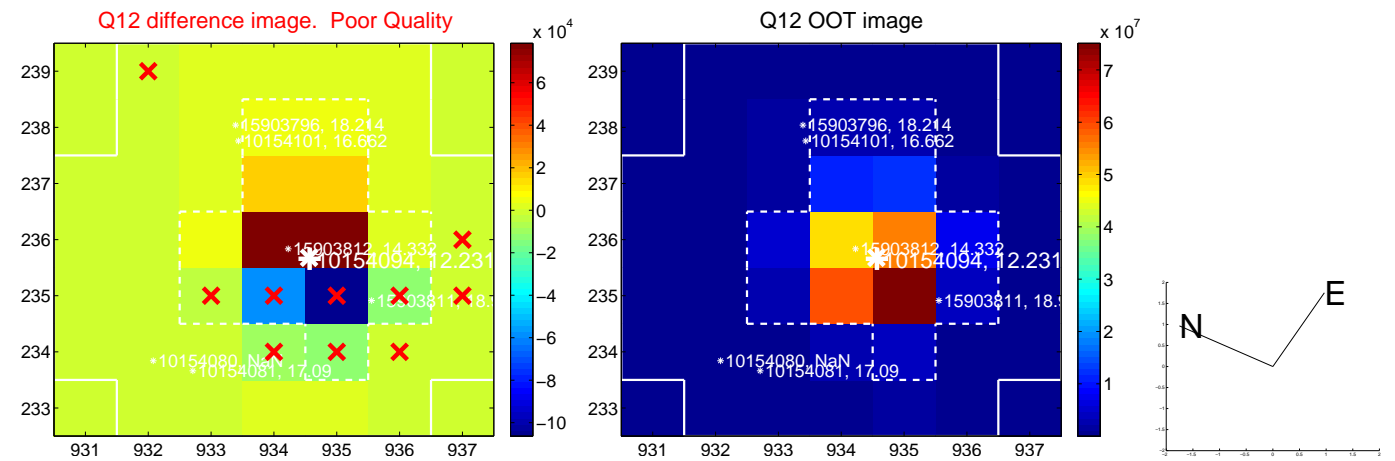
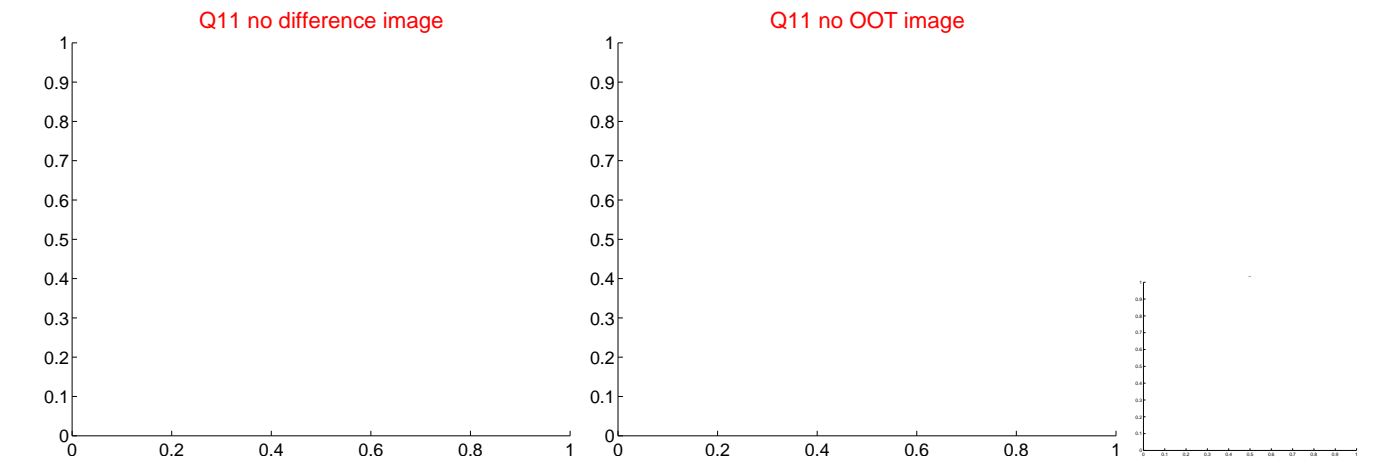
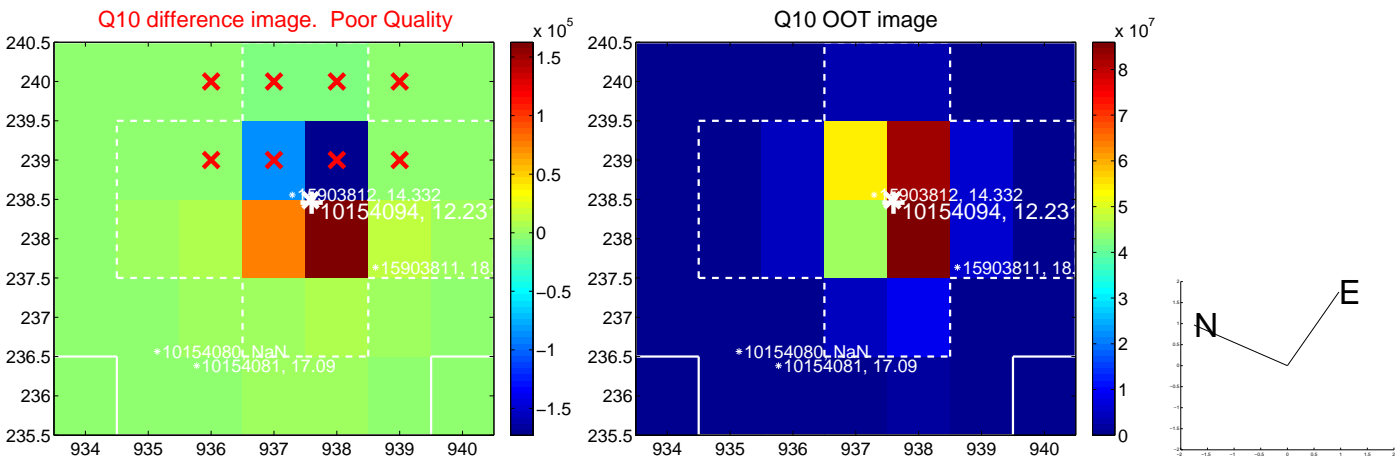
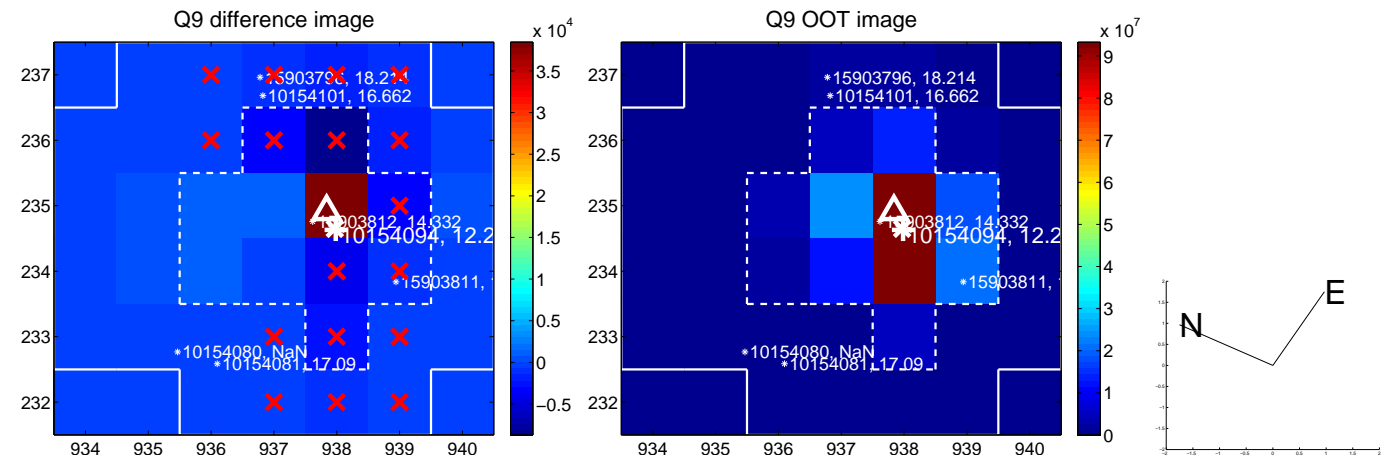
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



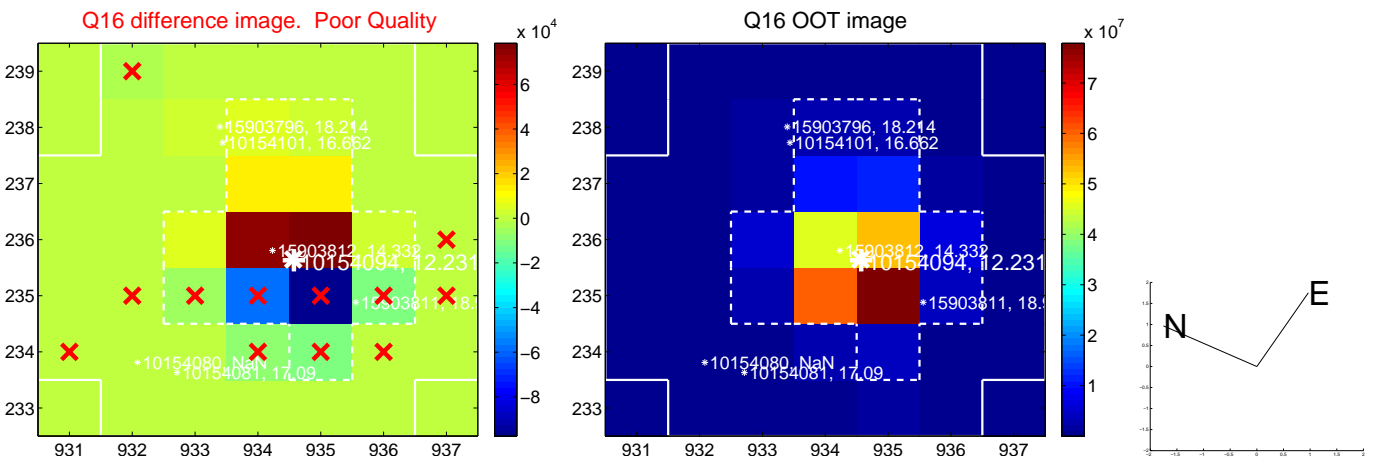
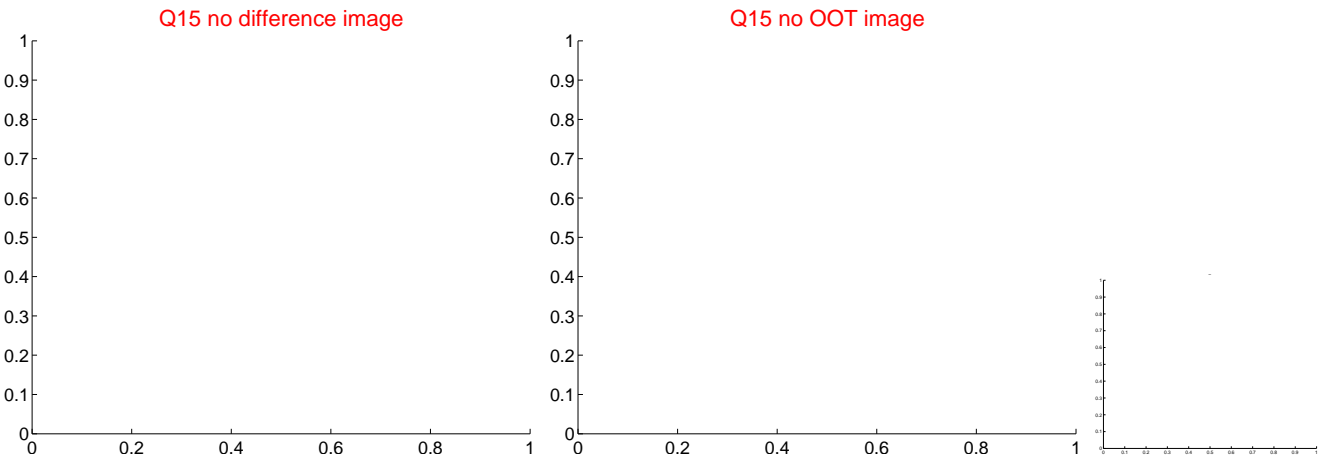
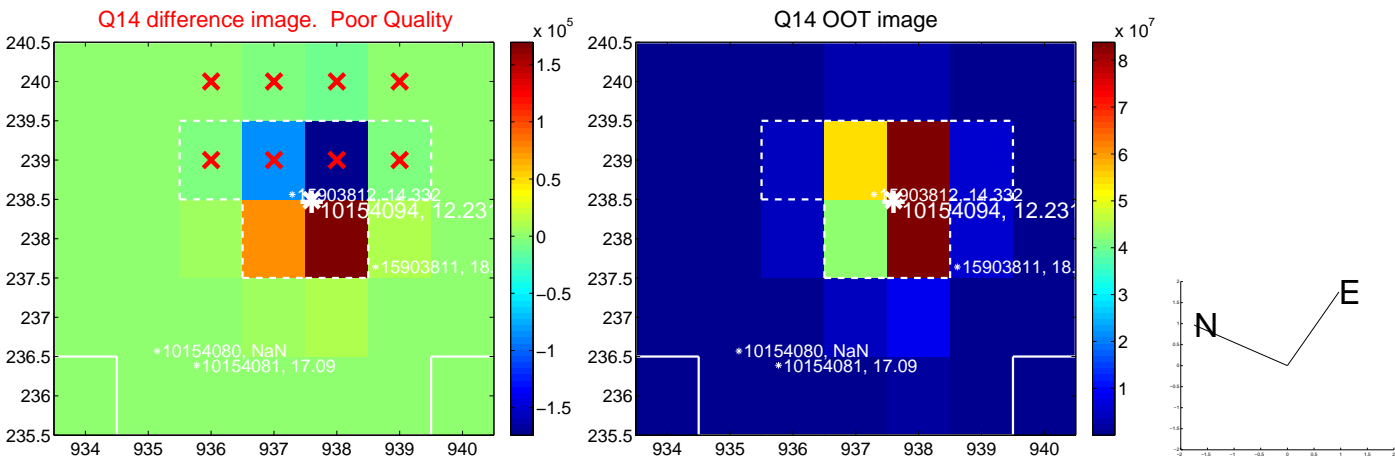
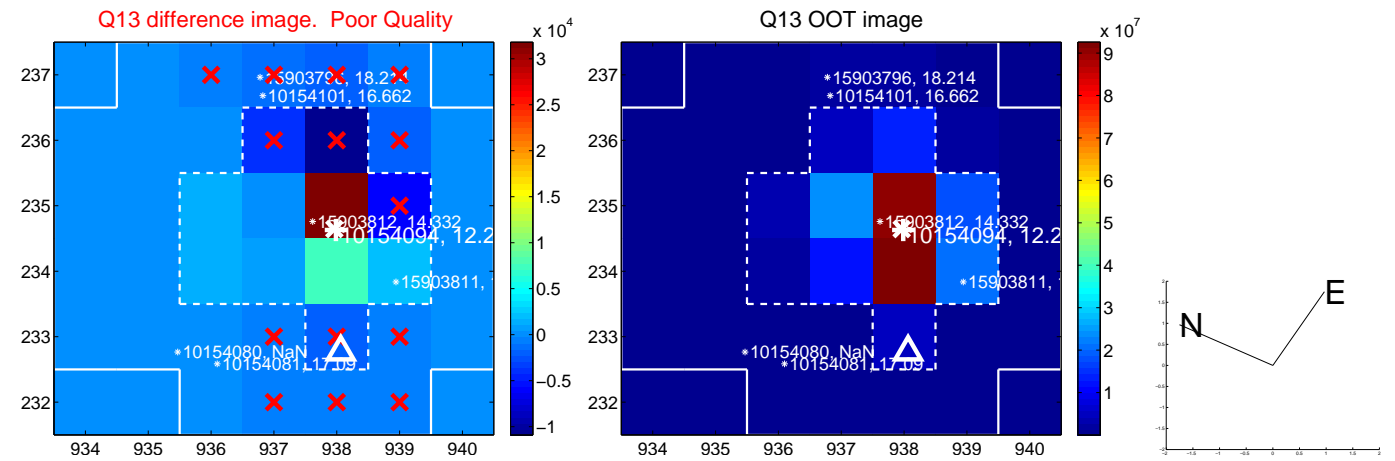
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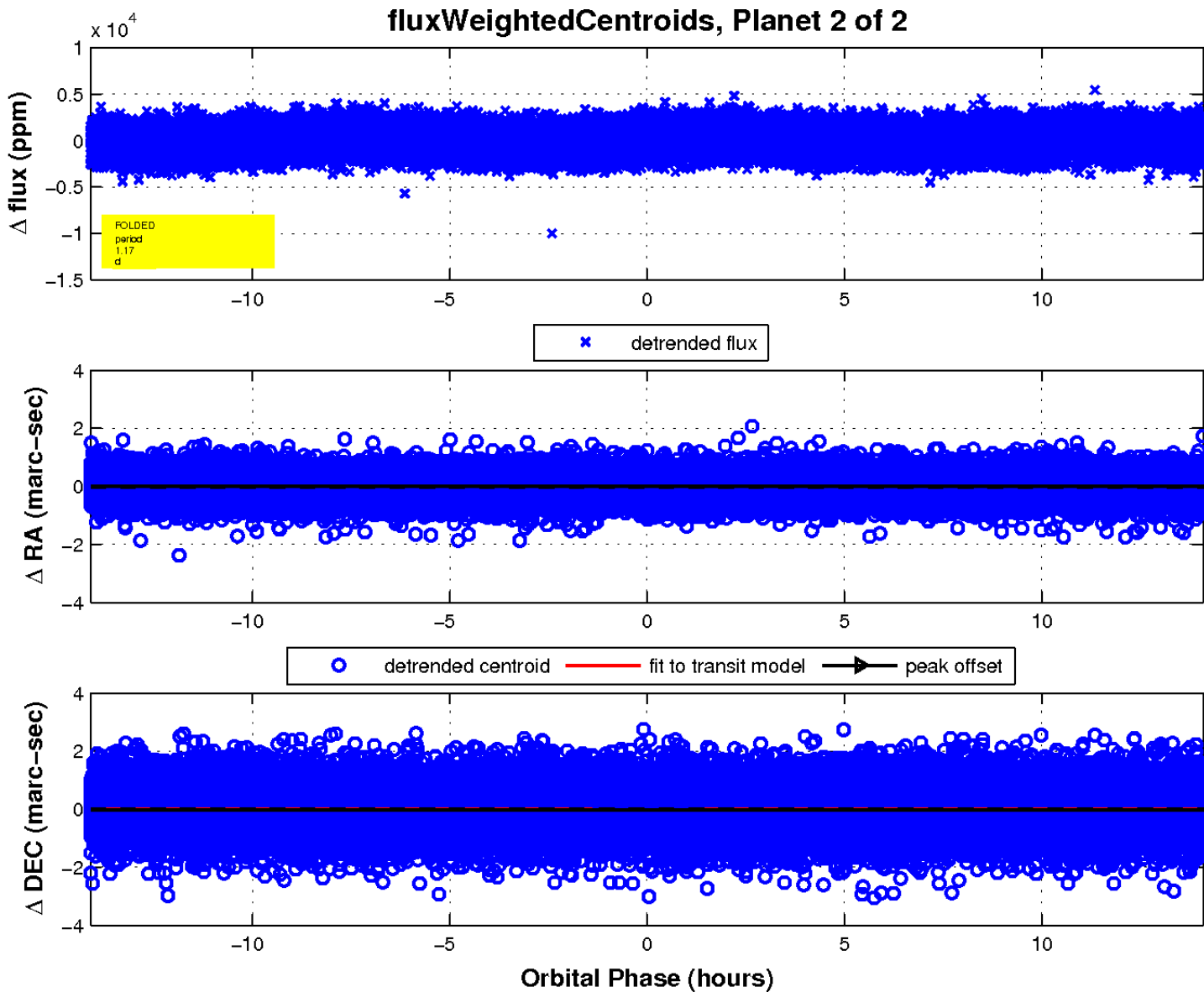
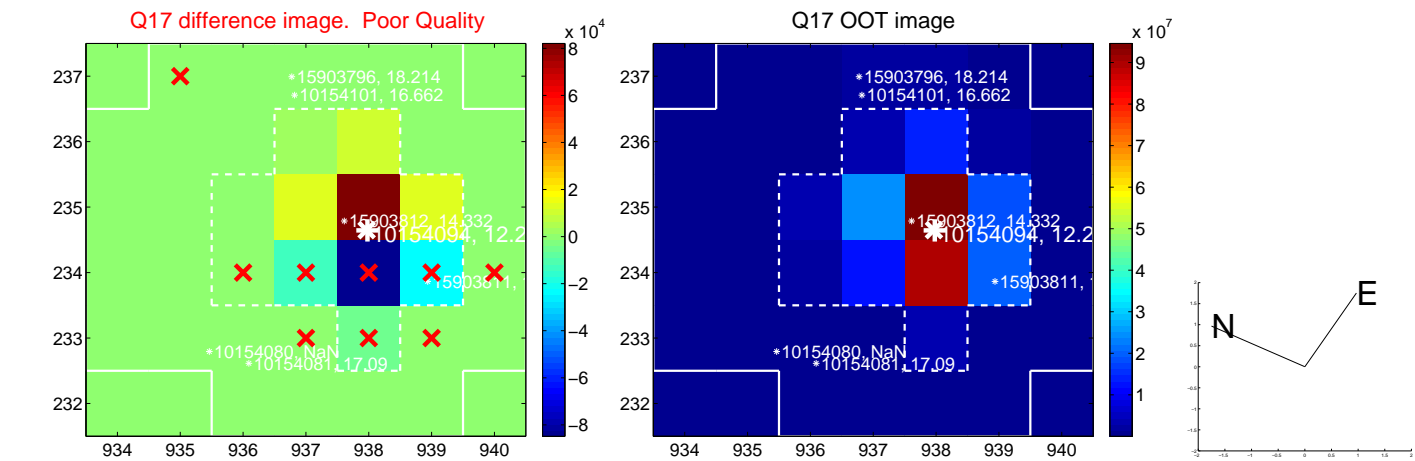
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UKIRT Image

