

KIC 011872512

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})
011872512-01	OBS	No	2.235752	133.532632	66.7	7.361	10.6	10.6	2.46	7426	2.32	10084.61
011872512-02	OBS	No	0.817240	132.242211	58.9	4.839	8.1	8.1	2.46	7426	2.19	38585.52

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
011872512-01	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT
011872512-02	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—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.

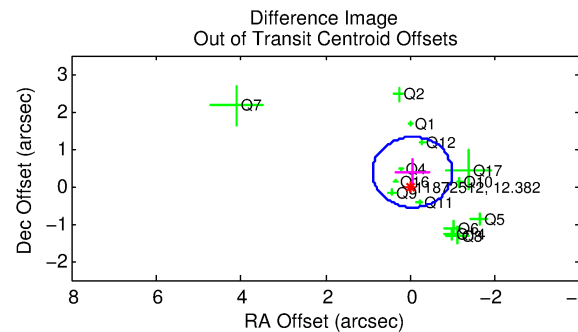
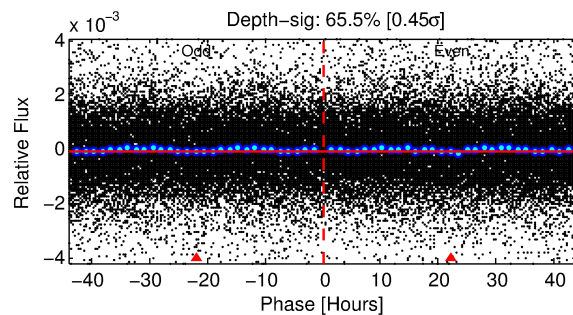
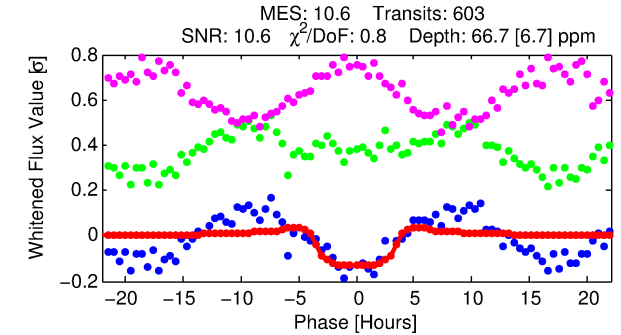
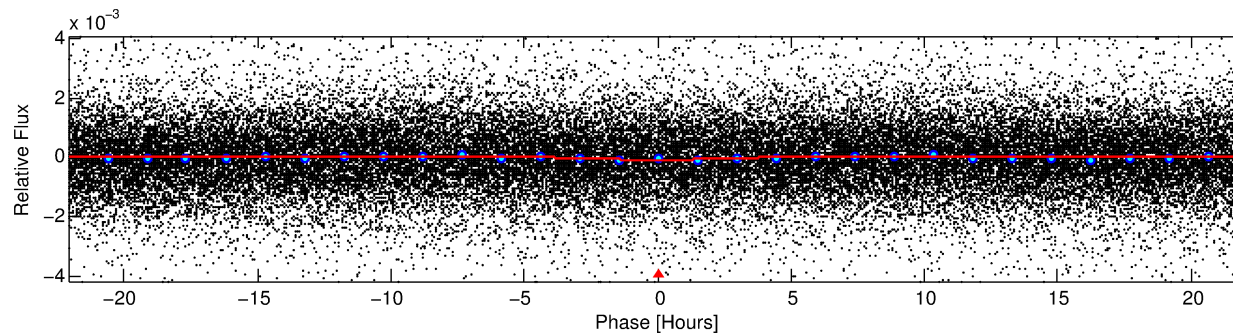
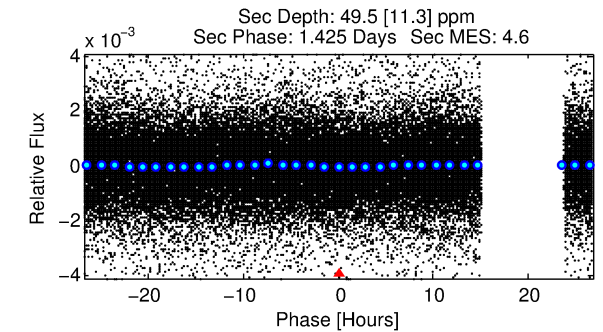
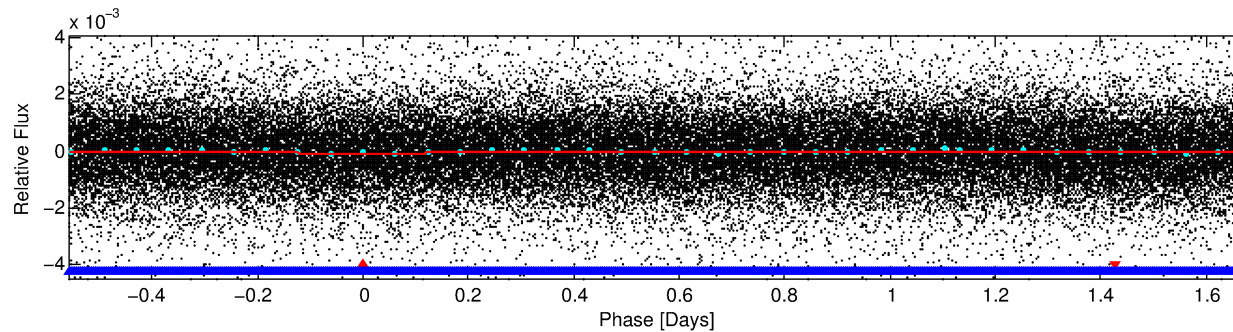
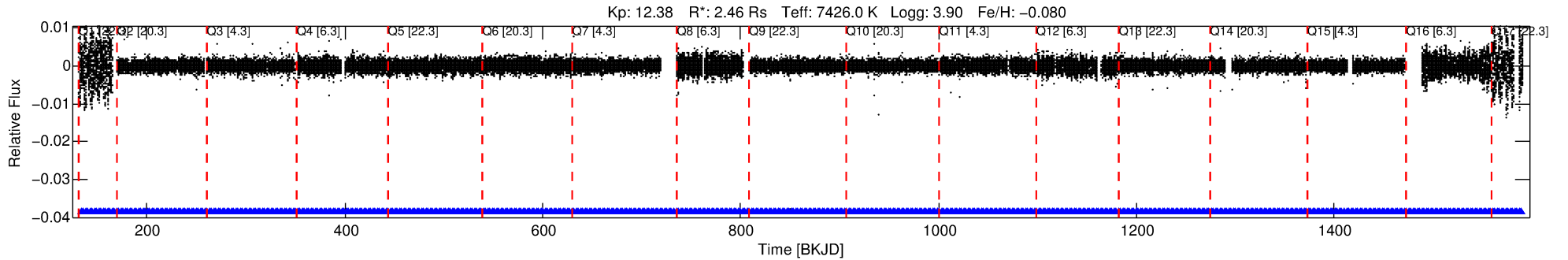
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 011872512-01

No Significant Match Found

DV One-Page Summary

KIC: 11872512 Candidate: 1 of 2 Period: 2.236 d



DV Fit Results:

Period = 2.23575 [0.00003] d
Epoch = 133.5326 [0.0113] BKJD
Rp/R* = 0.0086 [0.0044]
a/R* = 1.42 [2.37]
b = 0.90 [0.73]
Seff = 10084.61 [5359.62]
Teff = 2555 [340] K
Rp = 2.32 [1.41] Re
a = 0.0405 [0.0129] AU
Ag = 8.28 [9.56] [0.76σ]
Teffp = 6701 [1762] K [2.31σ]

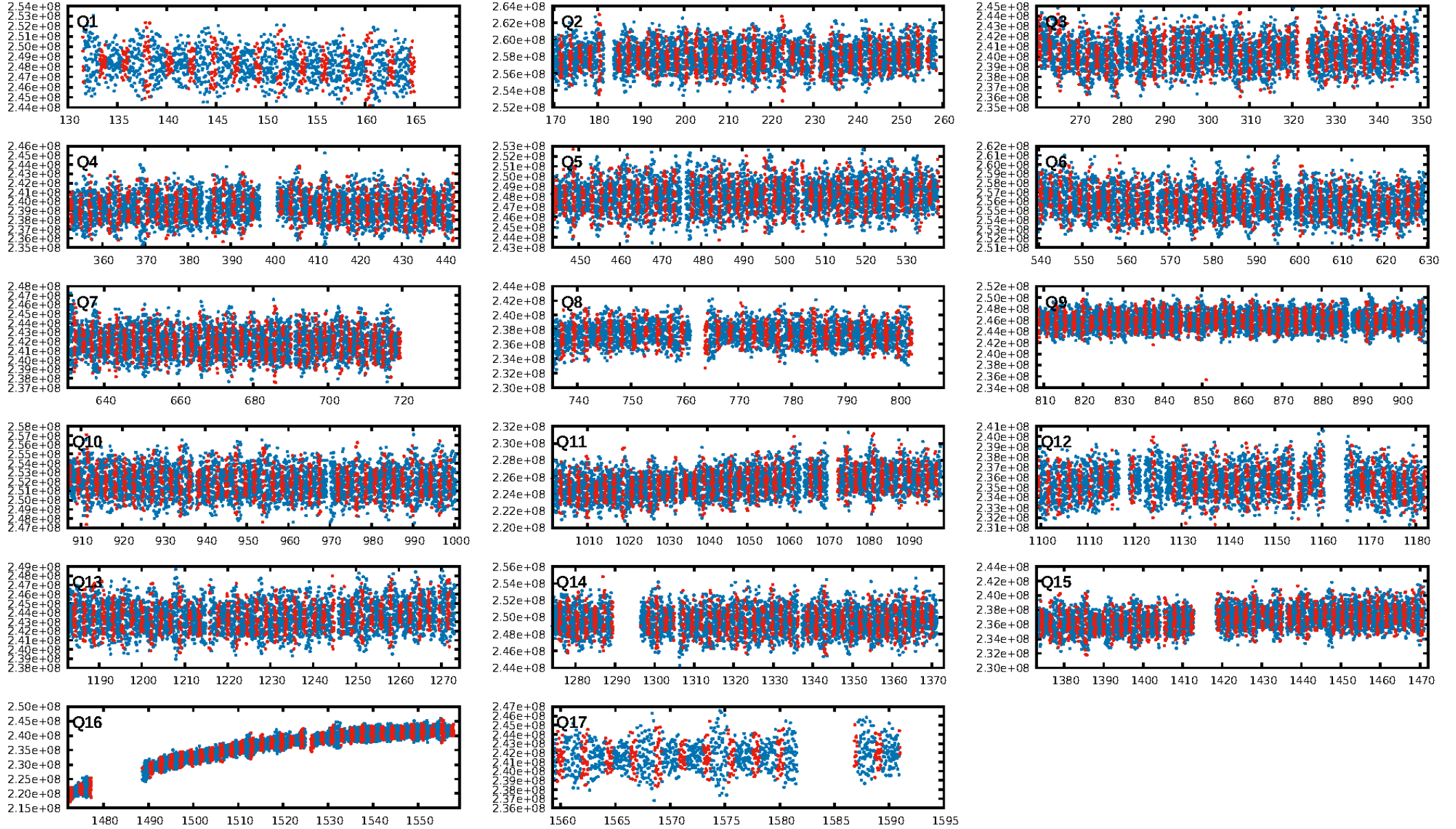
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [3.86σ]
LongPeriod-sig: N/A
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: 2.51e-19
RollingBand-fgt: 1.00 [576/576]
GhostDiagnostic-chr: 1.819
Centroid-sig: 29.0%
Centroid-so: 0.245 arcsec [0.81σ]
OotOffset-rm: 0.382 arcsec [1.22σ]
KicOffset-rm: 0.467 arcsec [1.54σ]
OotOffset-st: 4/2/4/4 [14]
KicOffset-st: 4/2/4/4 [14]
DiffImageQuality-fgm: 0.57 [8/14]
DiffImageOverlap-fno: 0.00 [0/17]

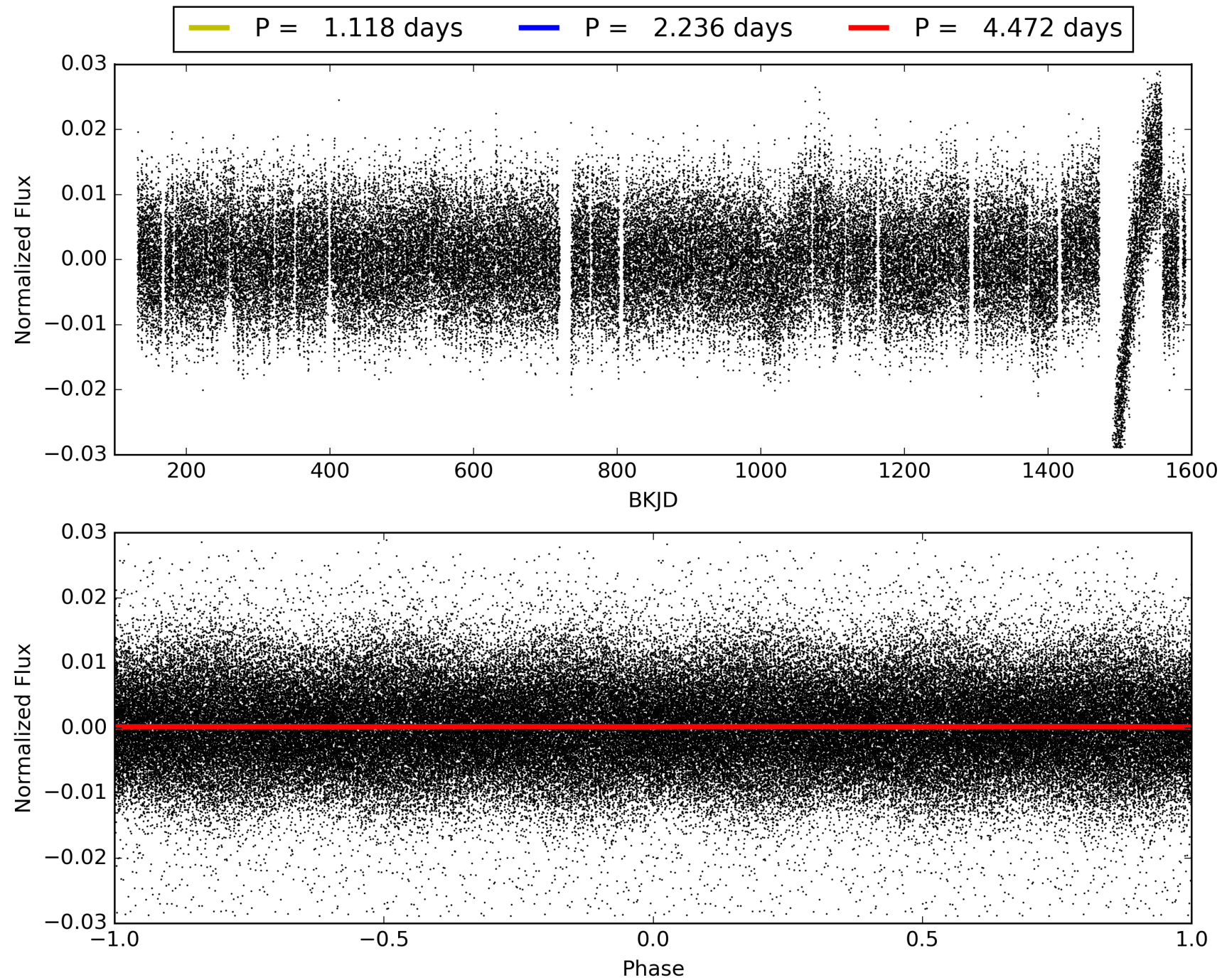
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This Data Validation Report Summary was produced in the Kepler Science Operations Center Pipeline at NASA Ames Research Center

TCE 011872512-01, PDC Light Curves

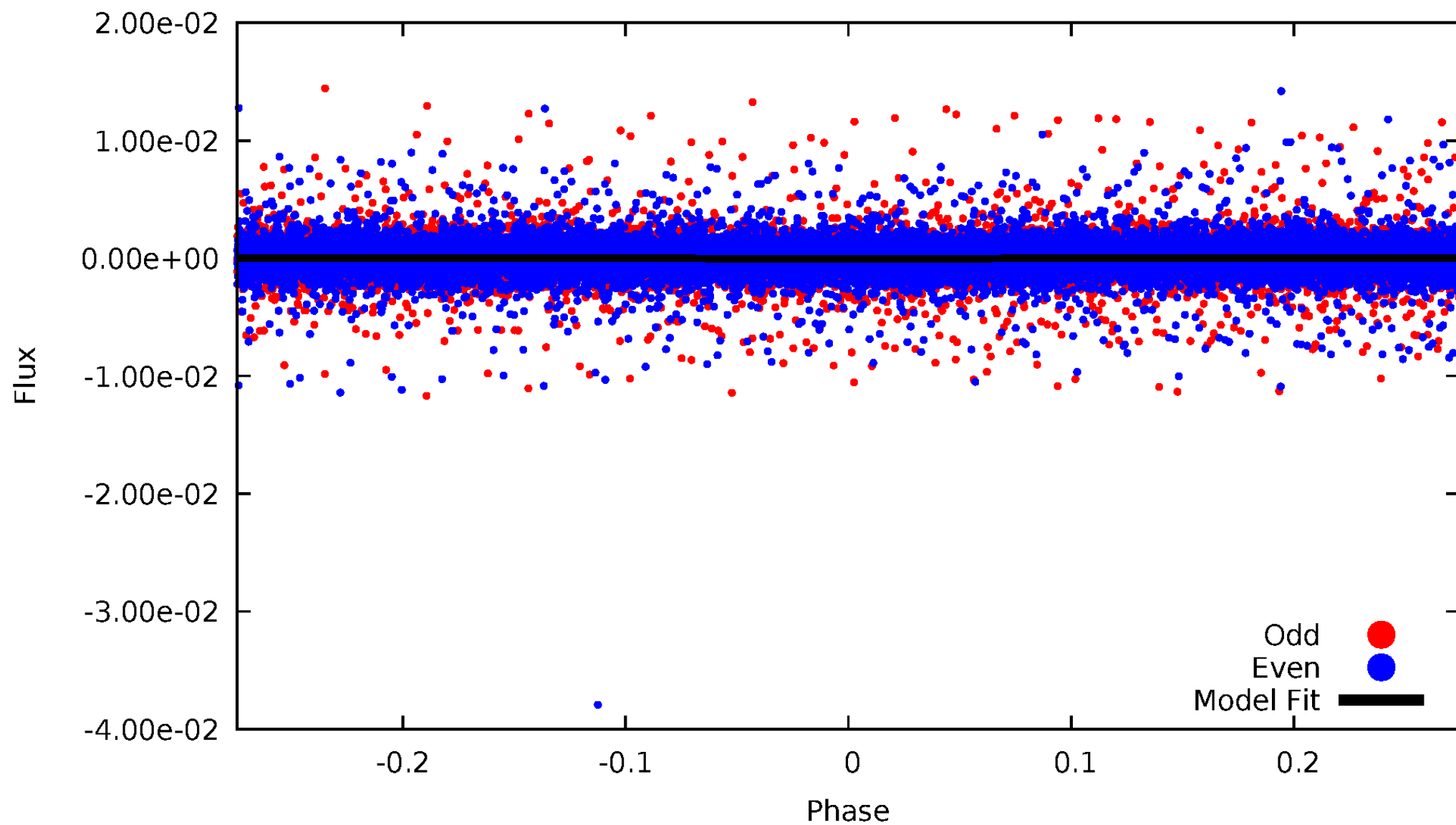


TCE 011872512-01



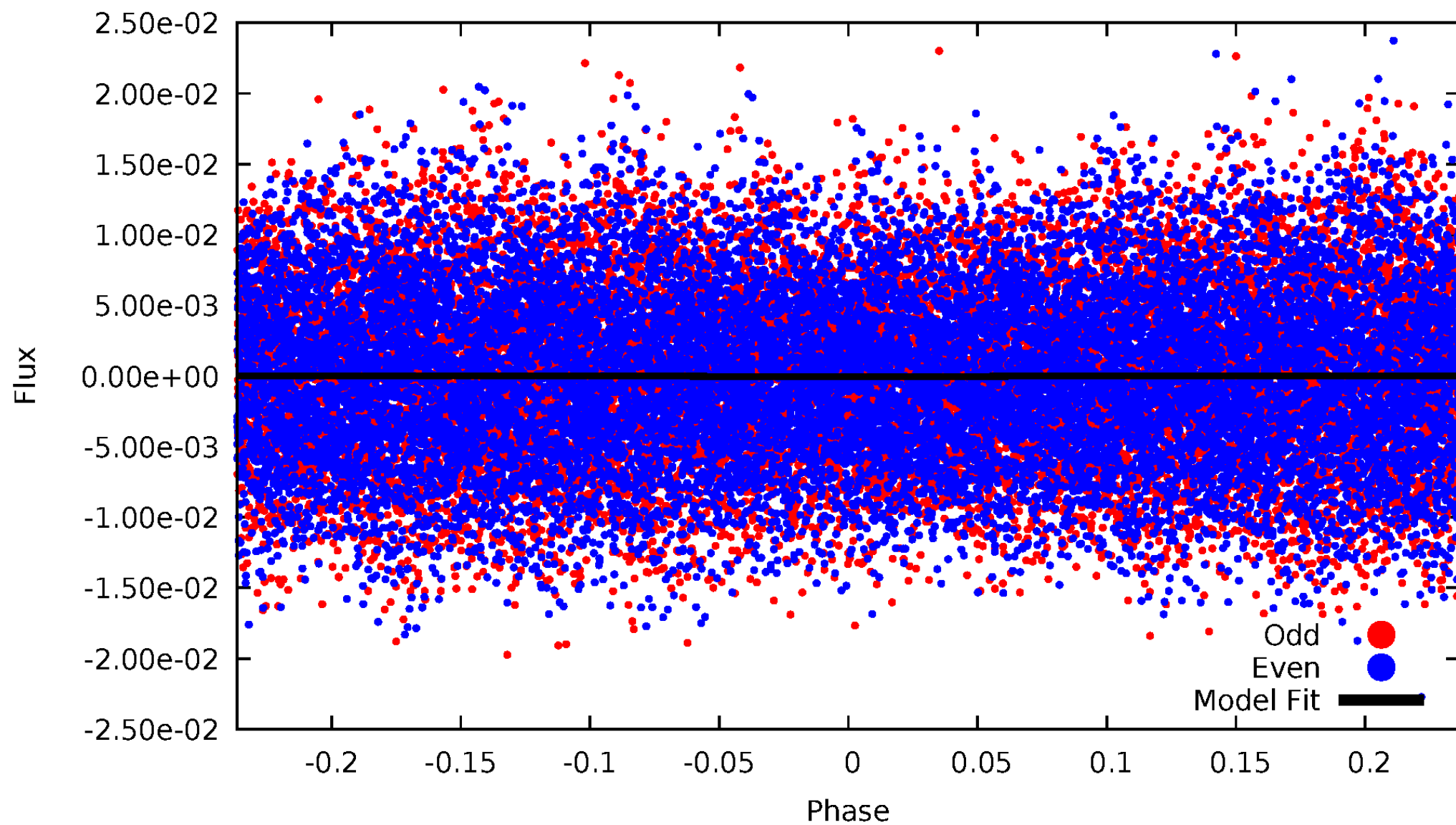
DV Odd/Even

TCE 011872512-01



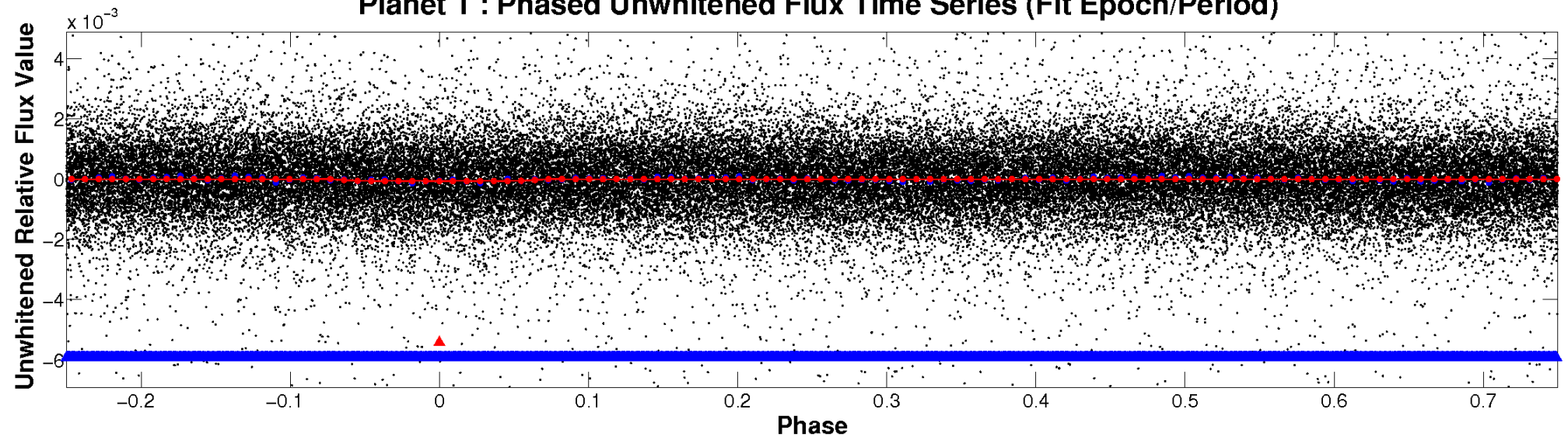
ALT Odd/Even

TCE 011872512-01

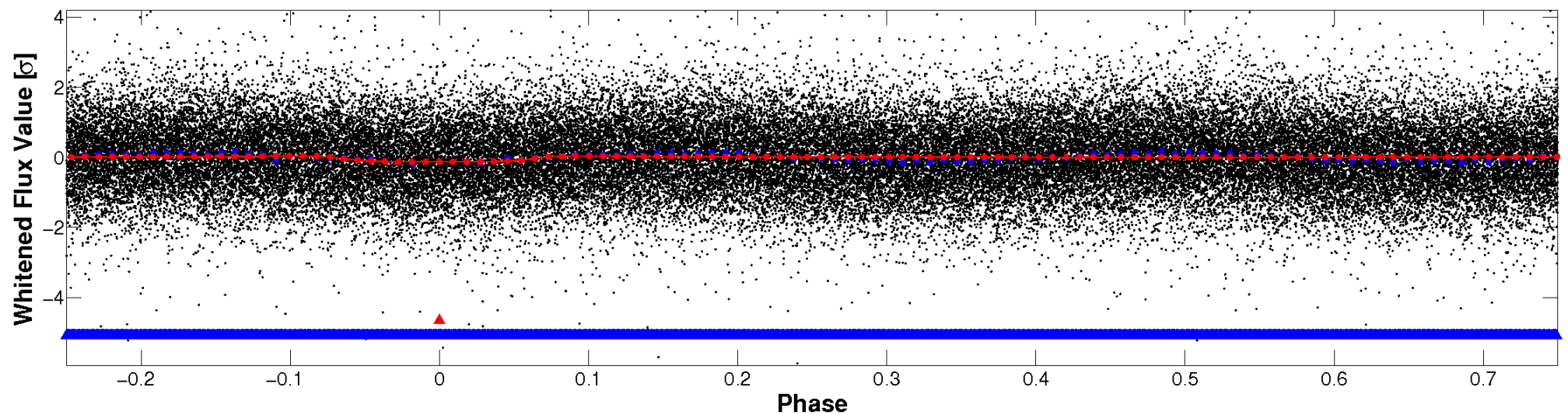


Non-Whitened Vs. Whitened Light Curve

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

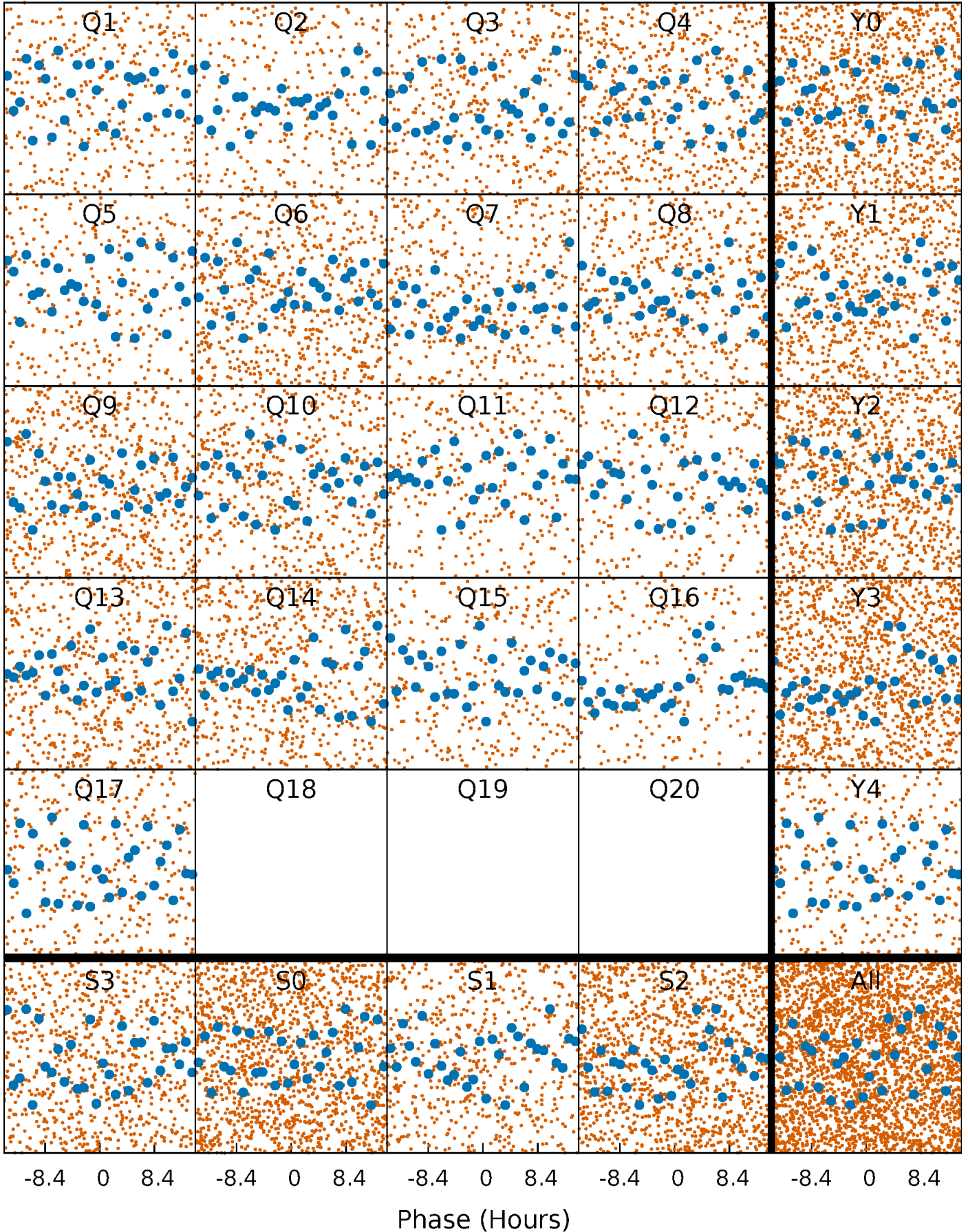


Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)



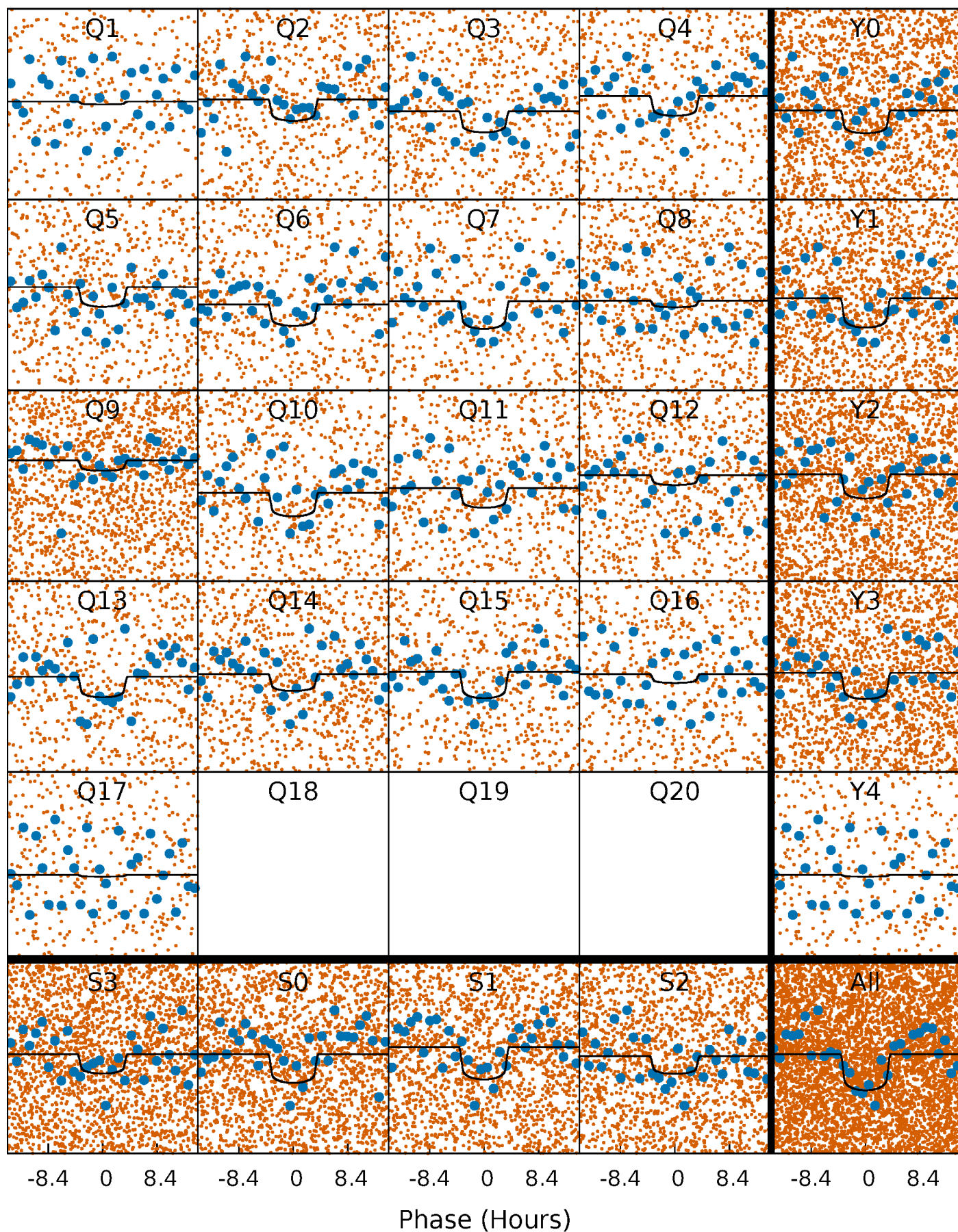
PDC Quarter-Phased Transit Curves

TCE 011872512-01 P= 2.235752 Days $T_0=133.532632$ (BKJD)



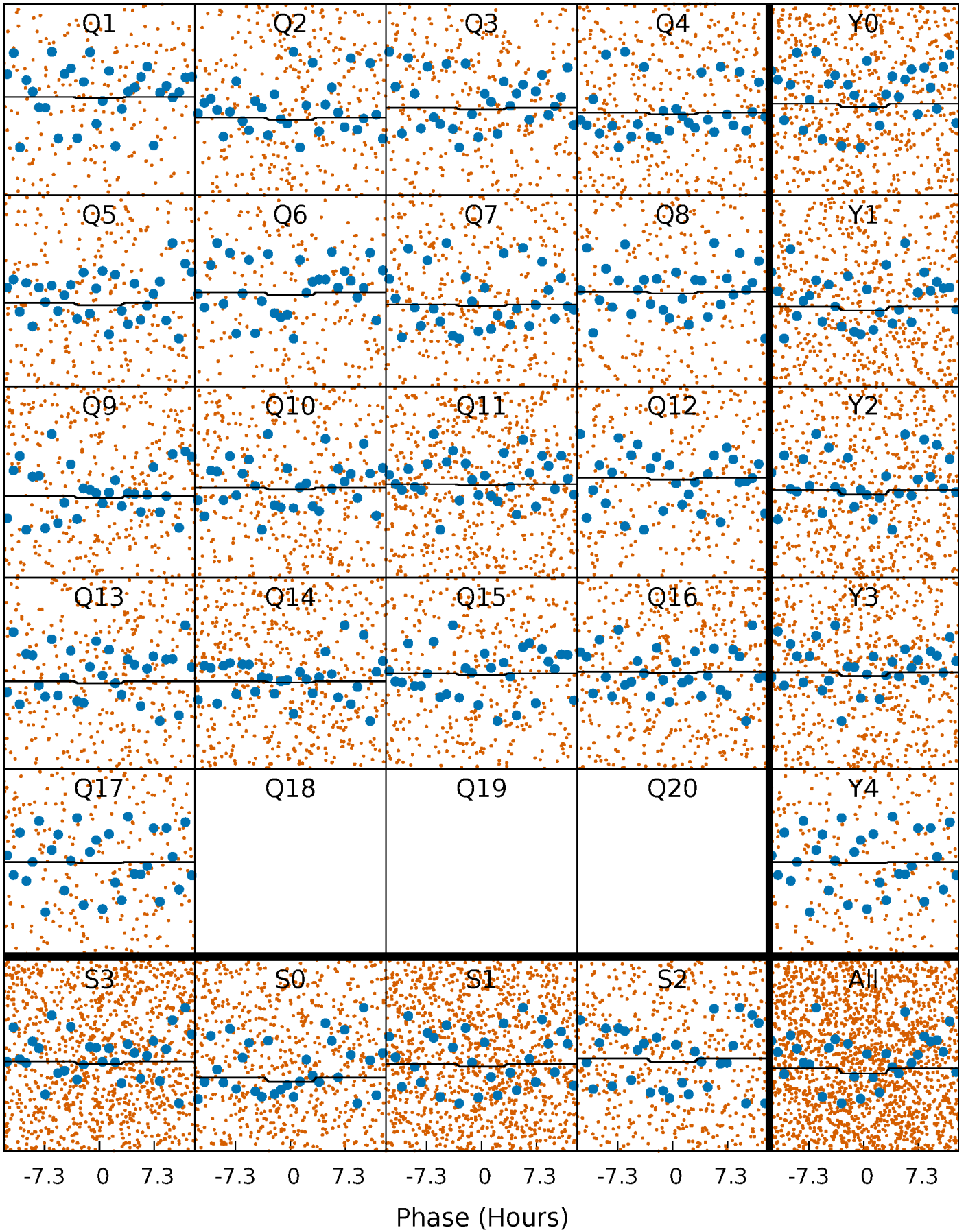
DV Quarter-Phased Transit Curves

TCE 011872512-01 P= 2.235752 Days $T_0=133.532632$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

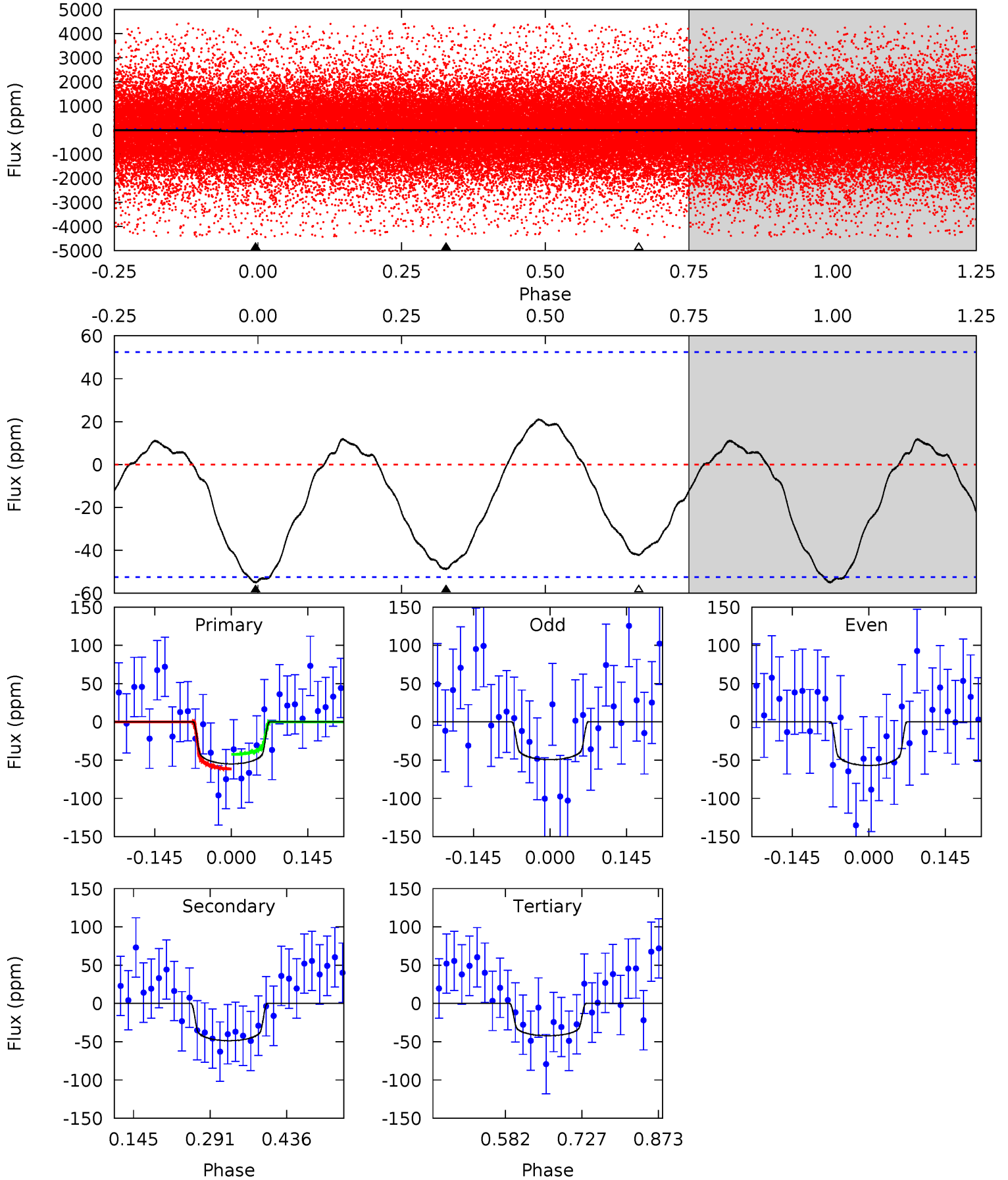
TCE 011872512-01 P= 2.235628 Days $T_0=133.545658$ (BKJD)



DV Model-Shift Uniqueness Test

011872512-01, P = 2.235752 Days, E = 131.296880 Days

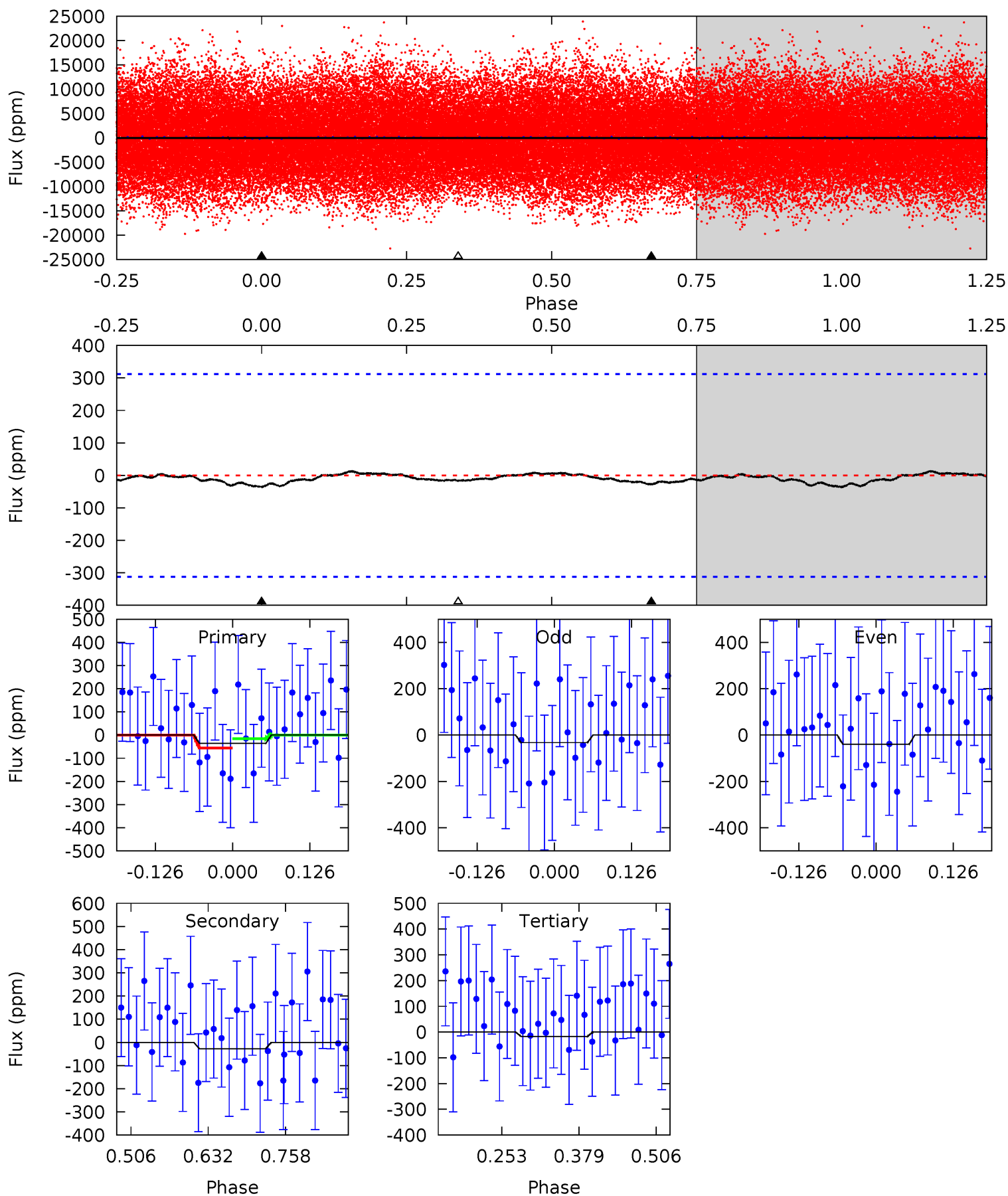
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
4.70	4.16	3.60	0	4.49	1.46	1.73	1.09	4.70	0.56	4.16	0.33	1.02	0.28	0.82



Alt Model-Shift Uniqueness Test

011872512-01, P = 2.235628 Days, E = 131.310030 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
0.52	0.40	0.25	0	4.52	1.53	0.11	0.28	0.52	0.15	0.40	0.05	1.32	0.26	0.30



Stellar Parameters For KIC 011872512

	$T_{\text{eff}}(K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	7426^{+207}_{-311}	$3.903^{+0.294}_{-0.126}$	$-0.080^{+0.200}_{-0.350}$	$2.463^{+0.486}_{-0.832}$	$1.769^{+0.197}_{-0.365}$	$0.167^{+0.352}_{-0.065}$
	+3%/-4%	+8%/-3%	+250%/-438%	+20%/-34%	+11%/-21%	+211%/-39%
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 011872512-01 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	-49 ± 12	$2.16^{+1.24}_{-1.06}$	3505^{+257}_{-309}	6488^{+3569}_{-1343}	$8.982^{+28.091}_{-5.685}$
Alt.	-28 ± 69	$1.46^{+1.15}_{-0.92}$	3495^{+239}_{-310}	6469^{+7734}_{-13804}	$9.175^{+73.955}_{-22.840}$

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 $A_{obs} \gg 1.0$

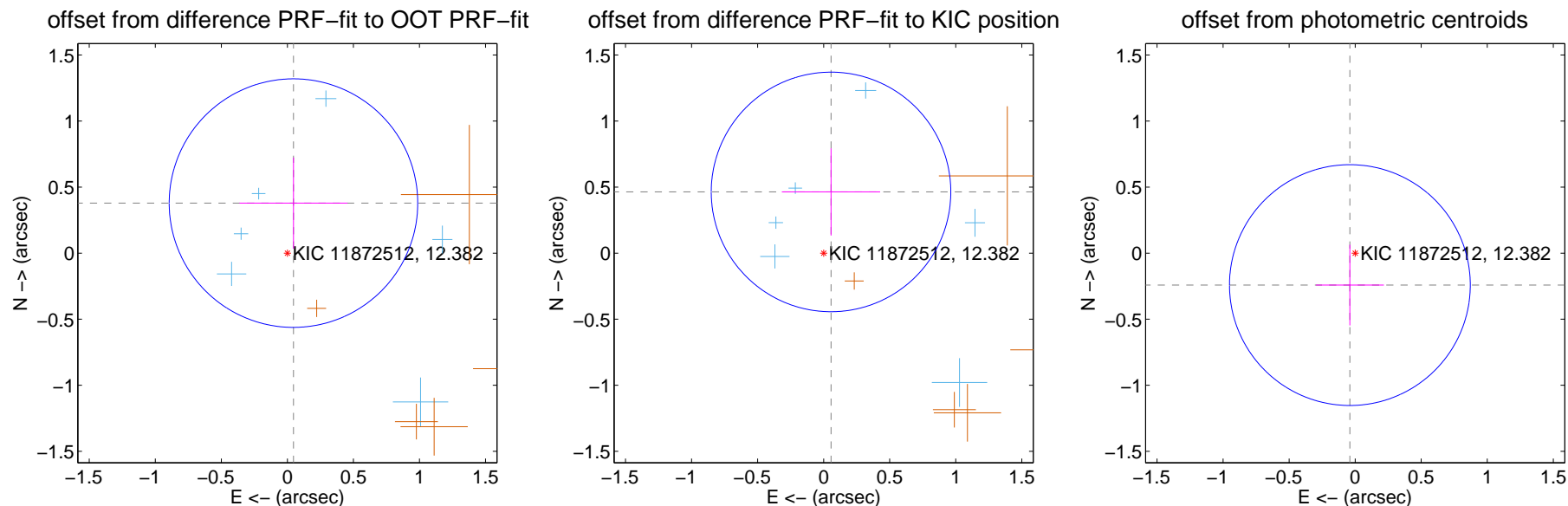
DV Centroid Data

Supplemental centroid analysis for 011872512-01. Kepler magnitude: 12.38. Transit SNR 10.63

There are 8 quarters with good PRF difference image offsets

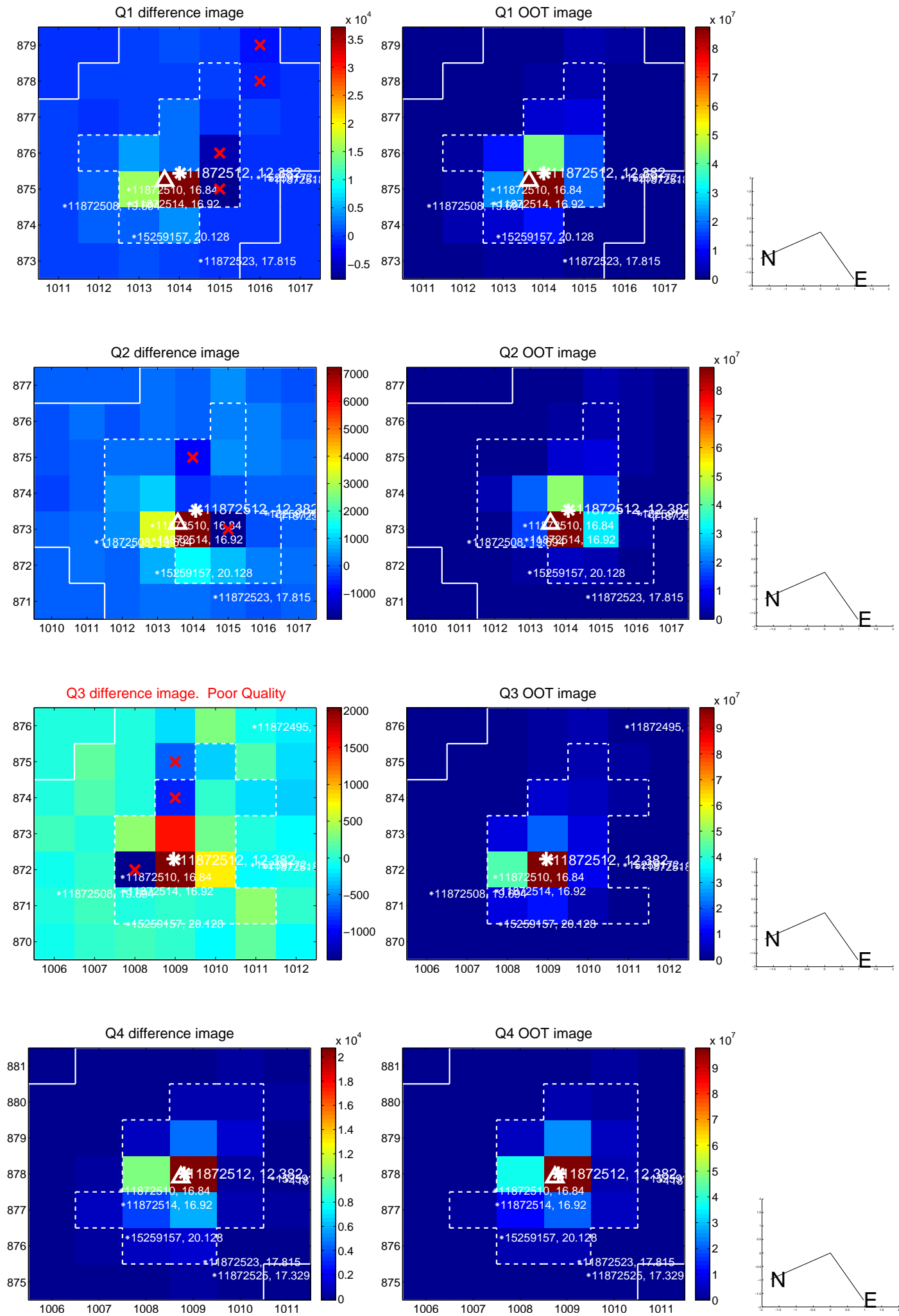
The direct PRF centroid is offset from the target star catalog position by about 0.14 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.382 ± 0.314	1.22	-0.046 ± 0.409	0.379 ± 0.345
PRF-fit source offset from KIC position	0.467 ± 0.302	1.54	-0.056 ± 0.372	0.464 ± 0.330
photometric centroid source offset	0.25 ± 0.30	0.81	0.04 ± 0.26	-0.24 ± 0.31

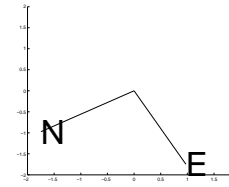
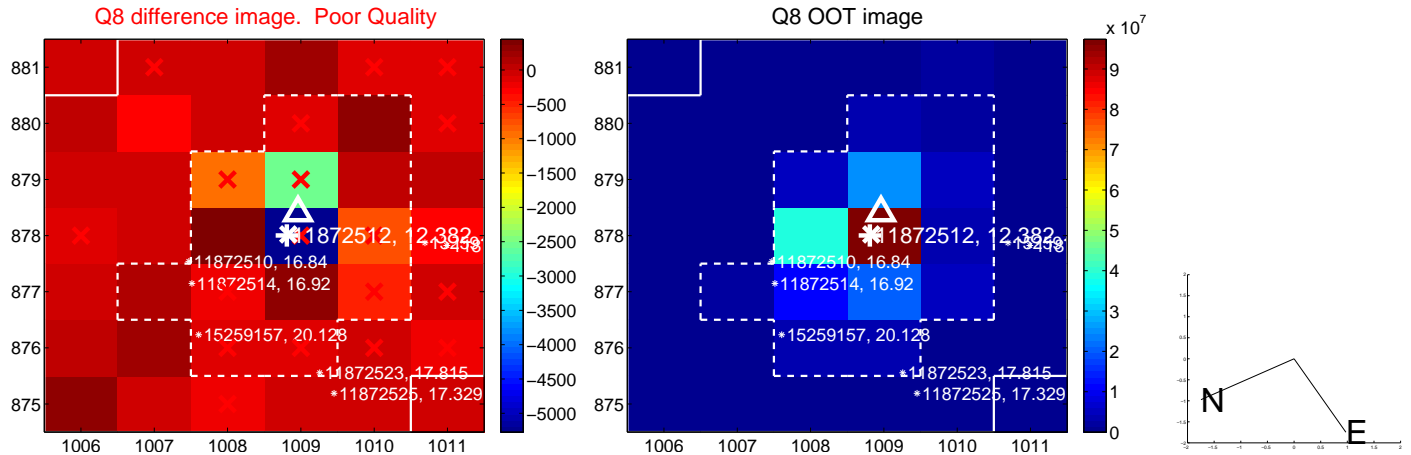
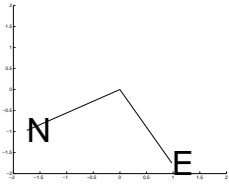
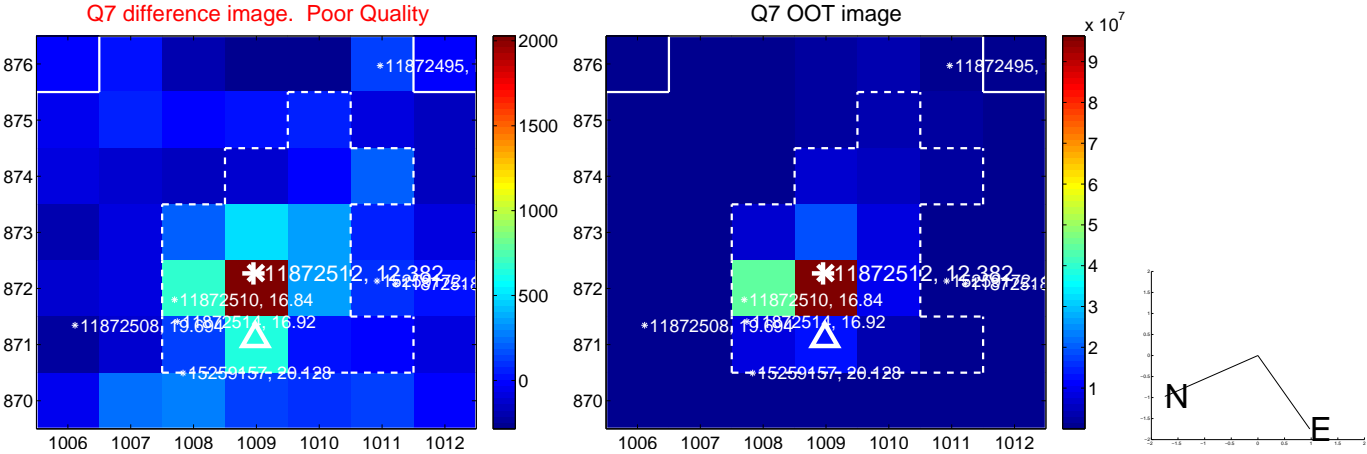
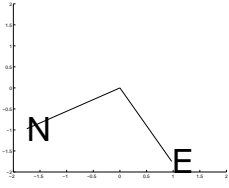
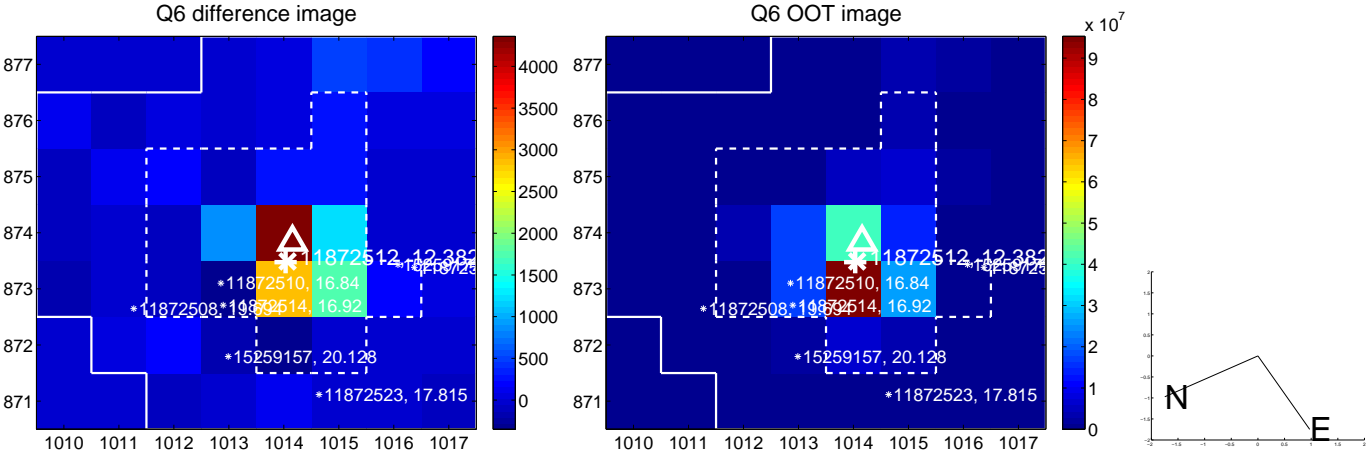
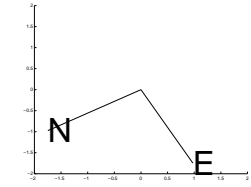
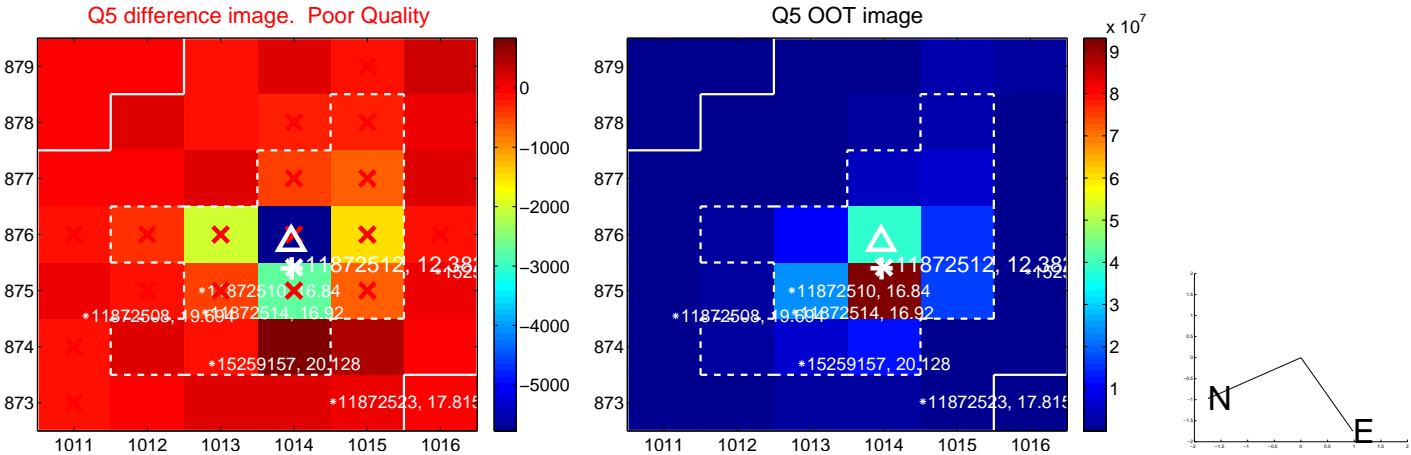


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

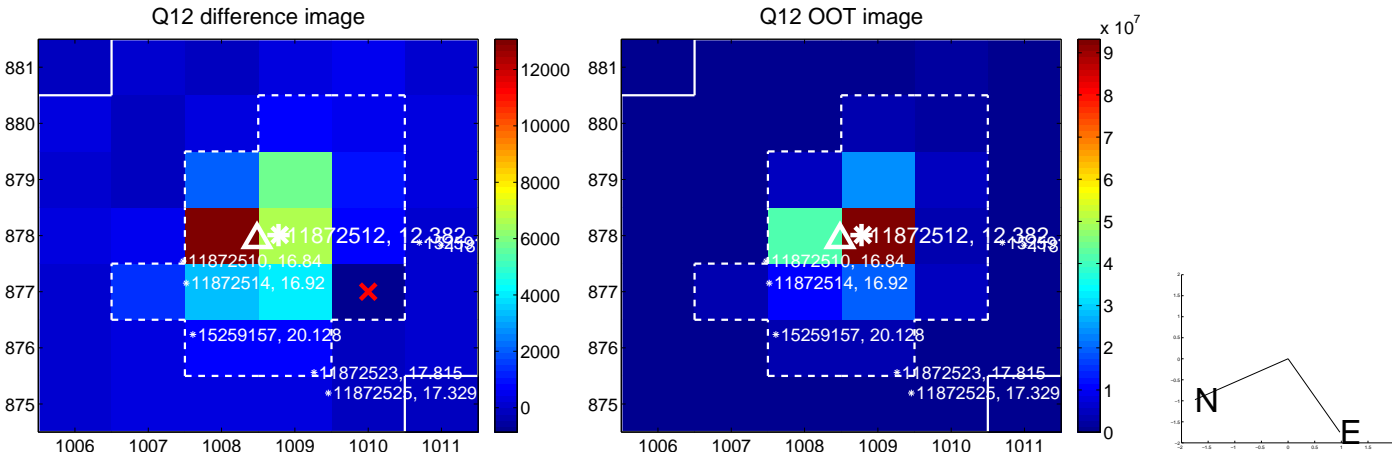
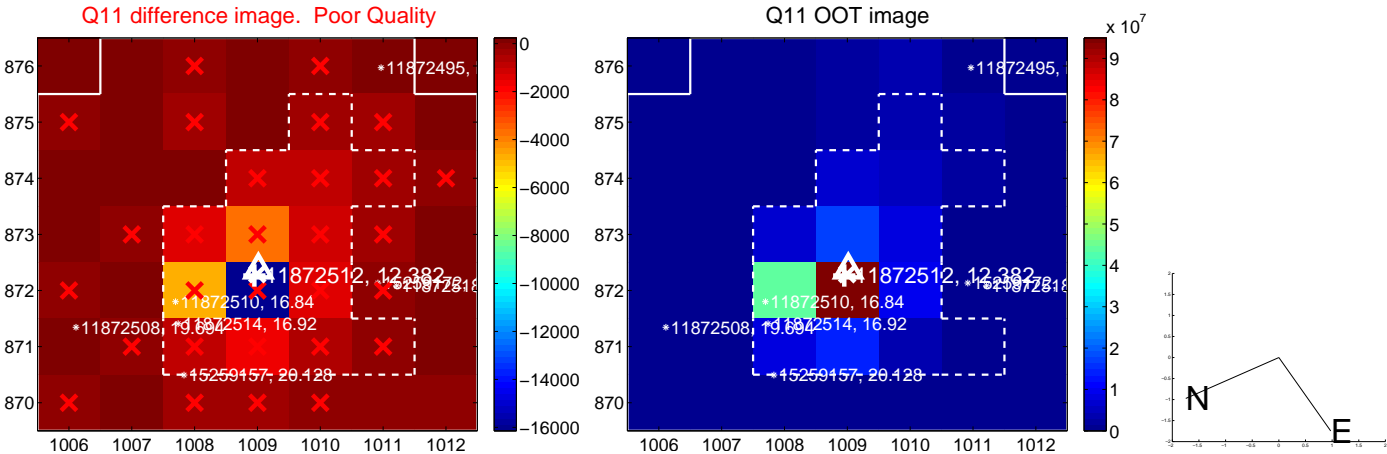
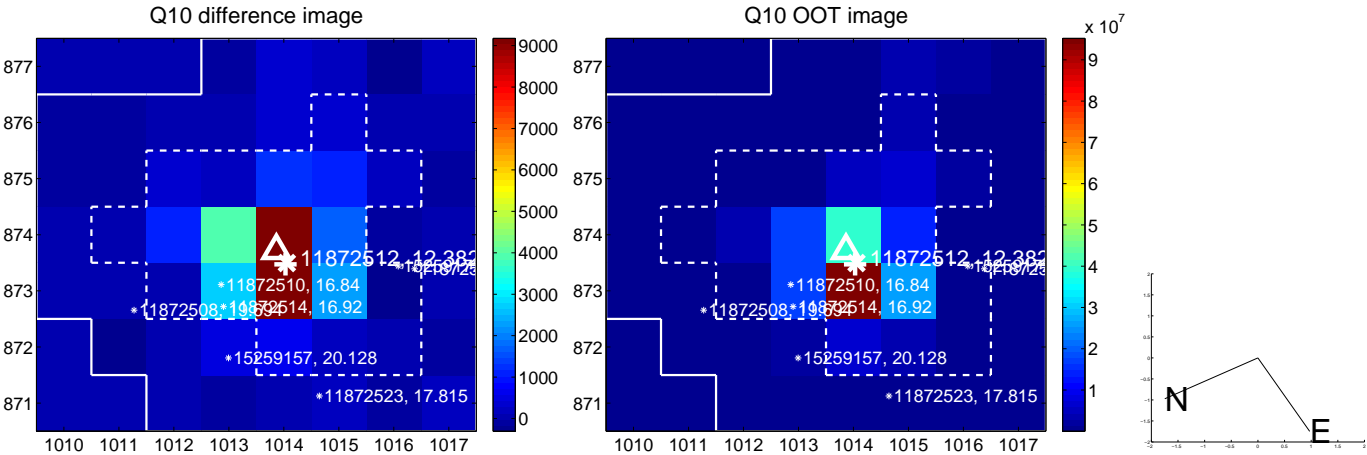
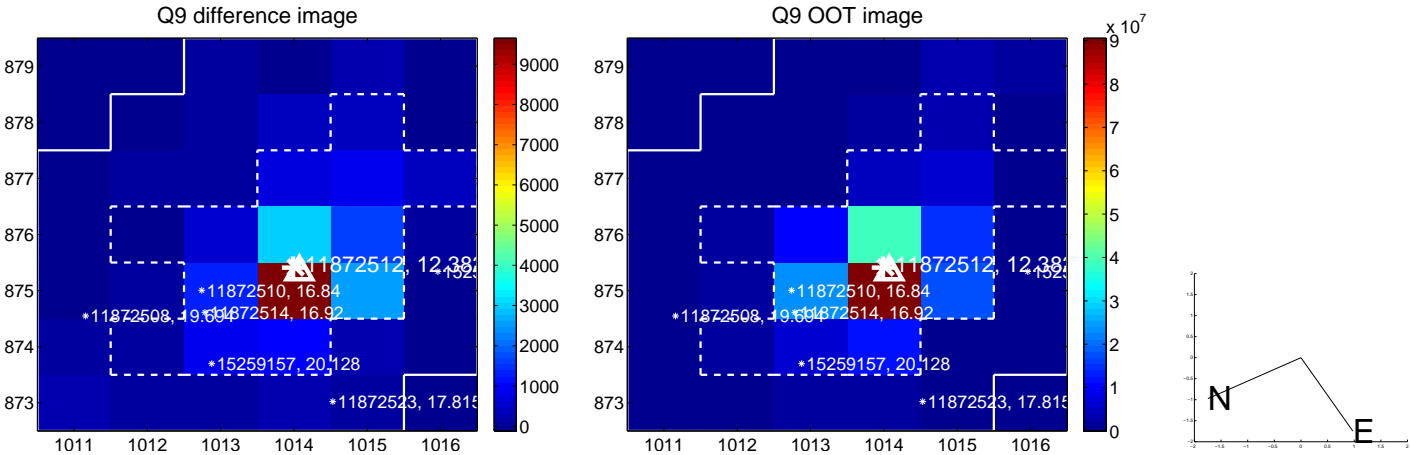
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



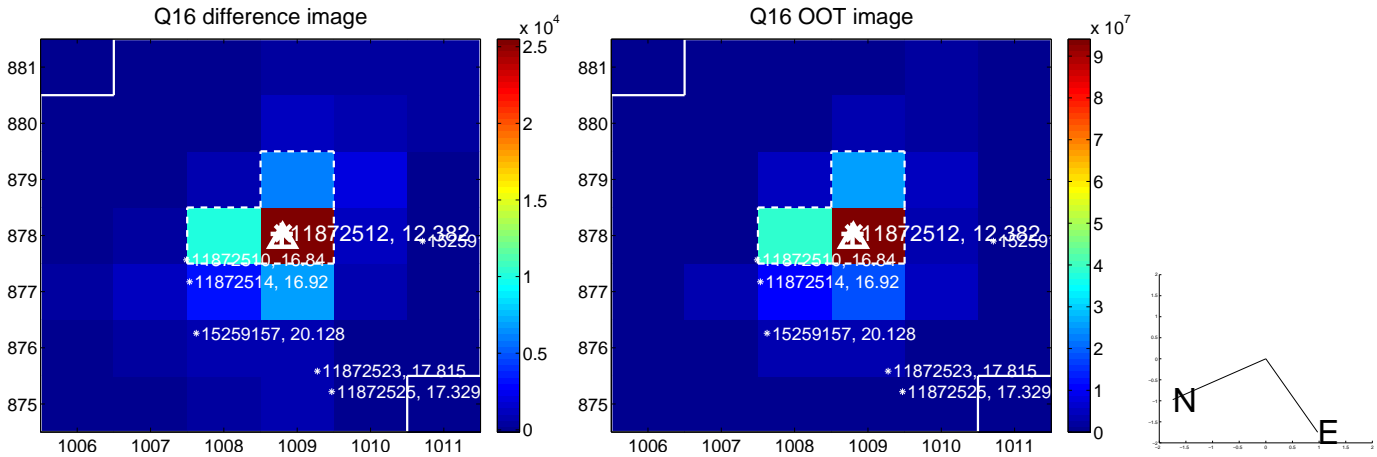
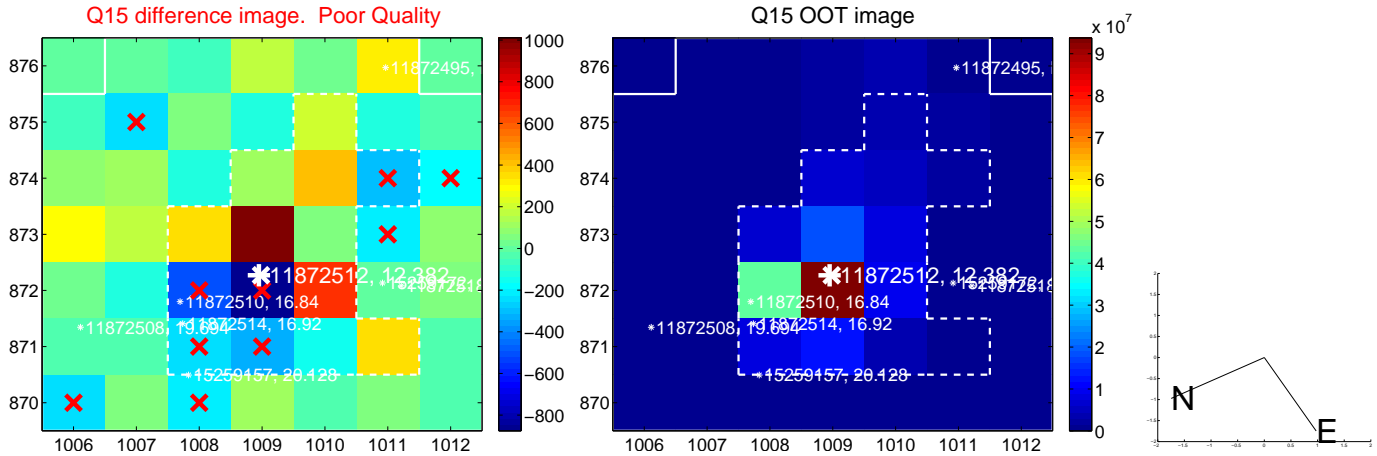
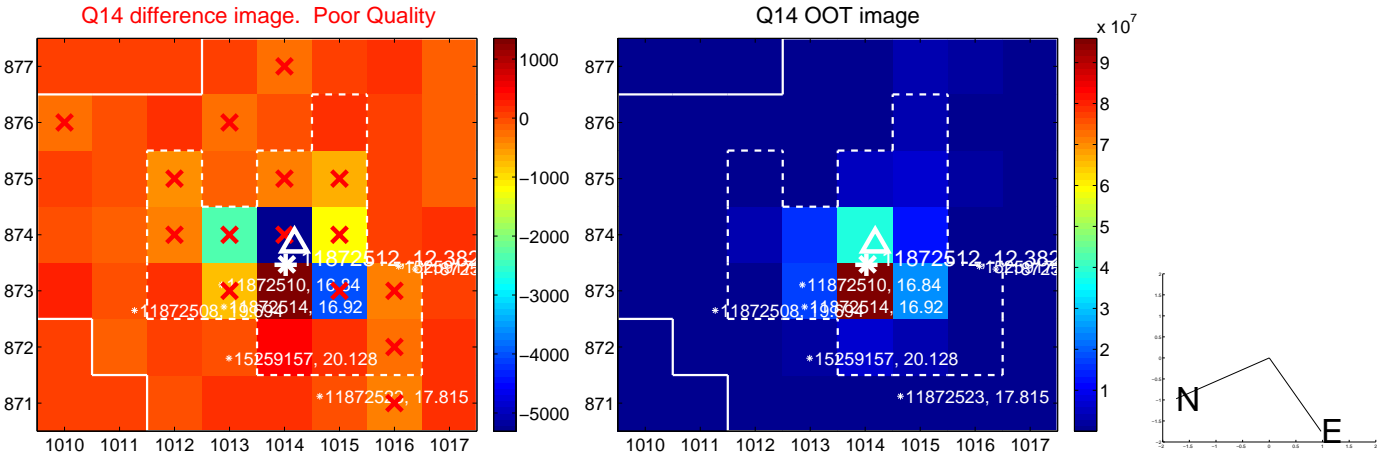
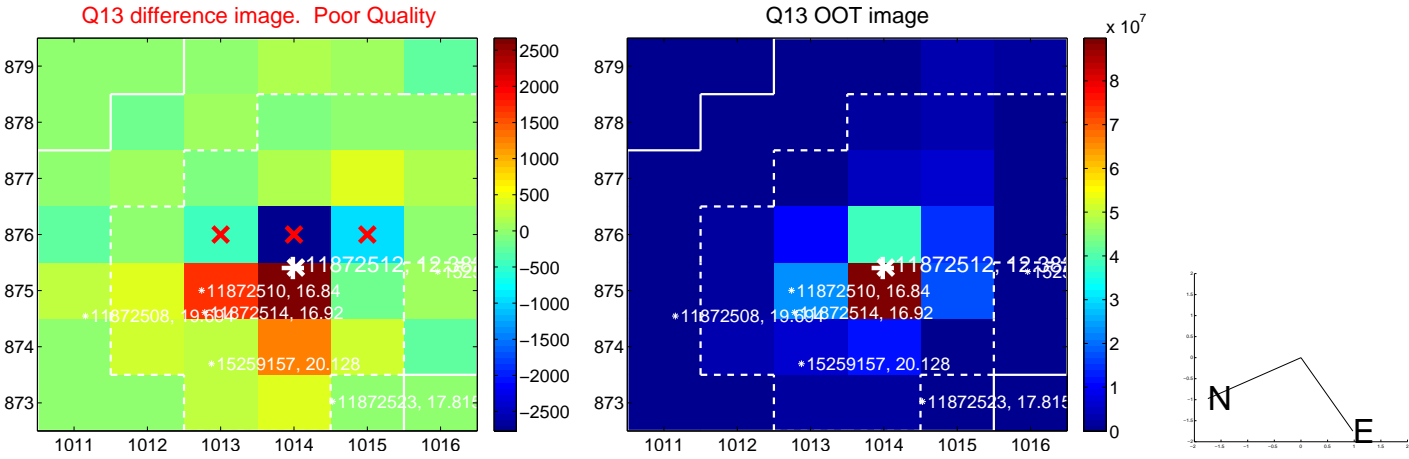
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



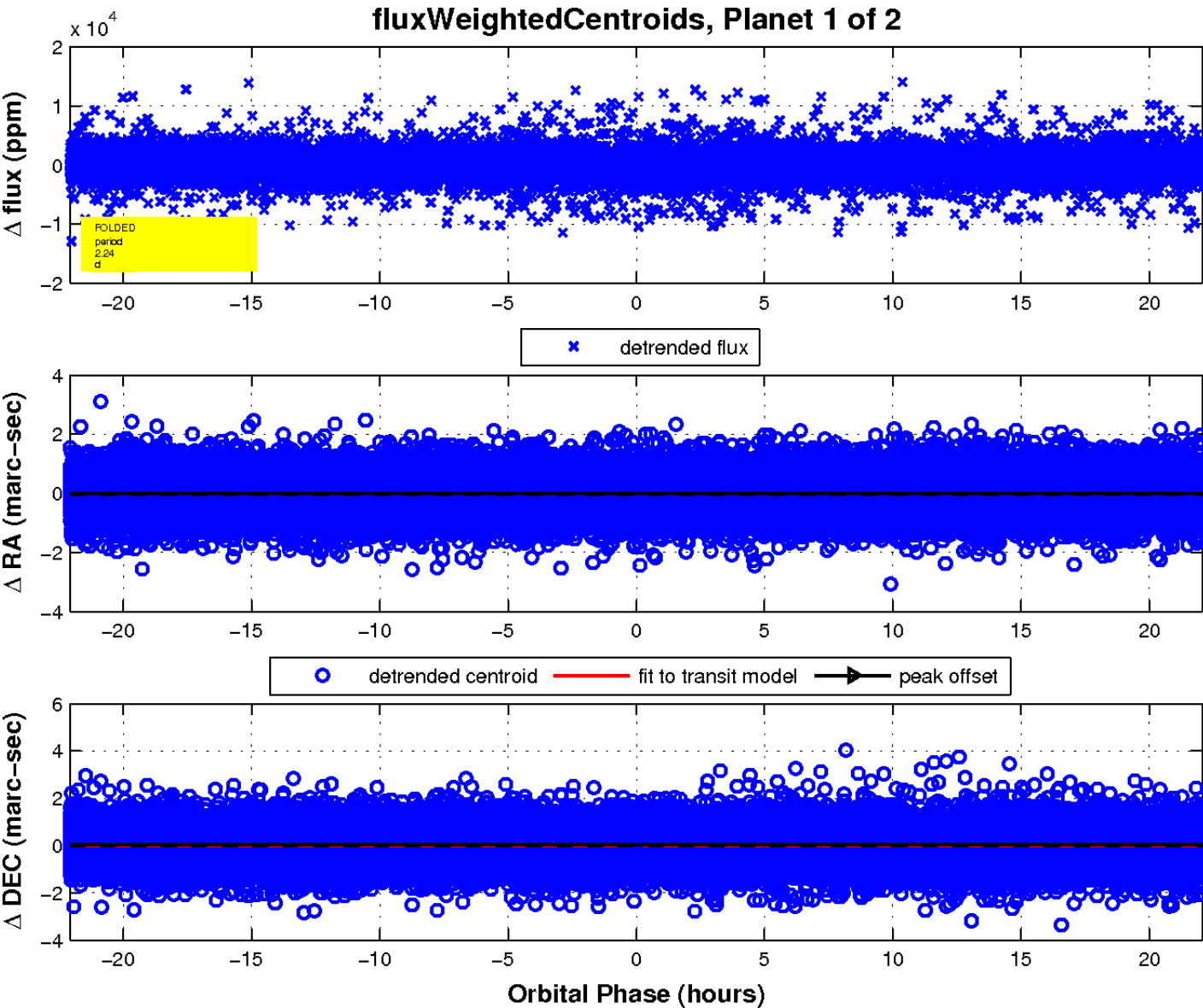
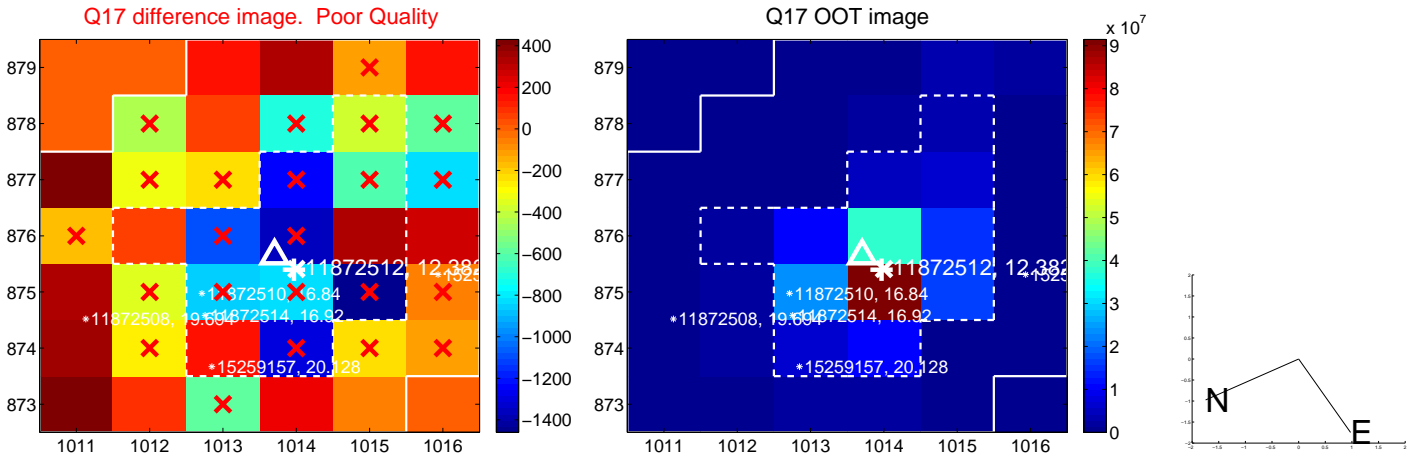
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



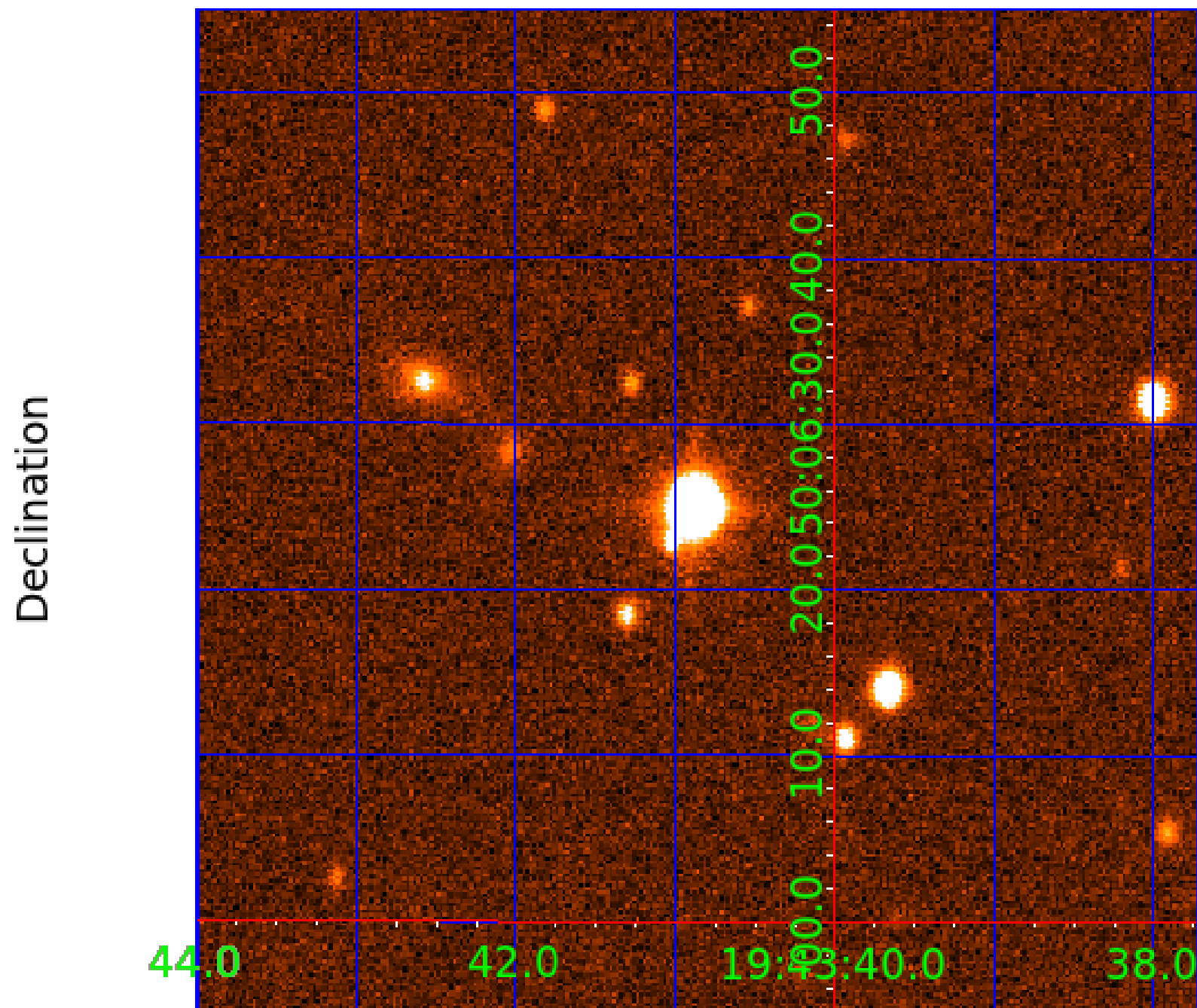
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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



UKIRT Image



KIC 011872512

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})
011872512-01	OBS	No	2.235752	133.532632	66.7	7.361	10.6	10.6	2.46	7426	2.32	10084.61
011872512-02	OBS	No	0.817240	132.242211	58.9	4.839	8.1	8.1	2.46	7426	2.19	38585.52

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
011872512-01	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT
011872512-02	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—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.

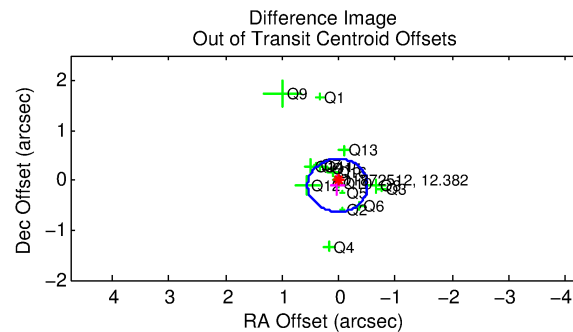
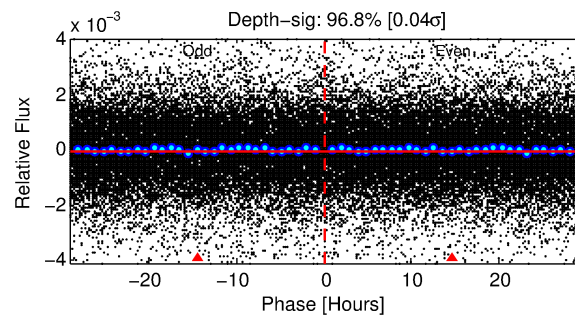
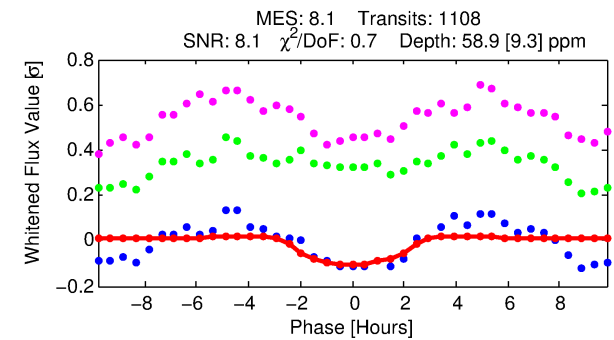
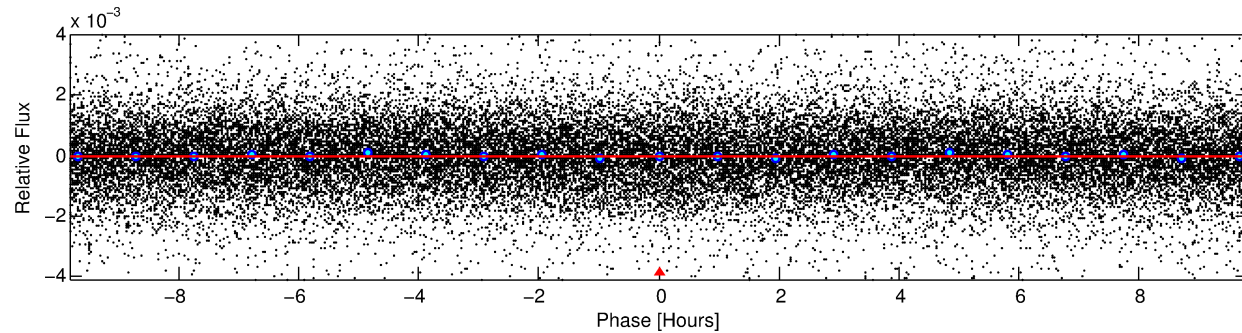
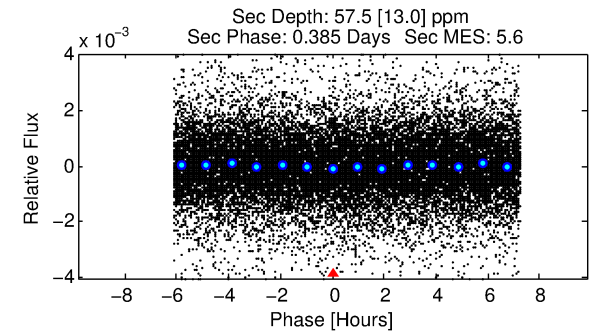
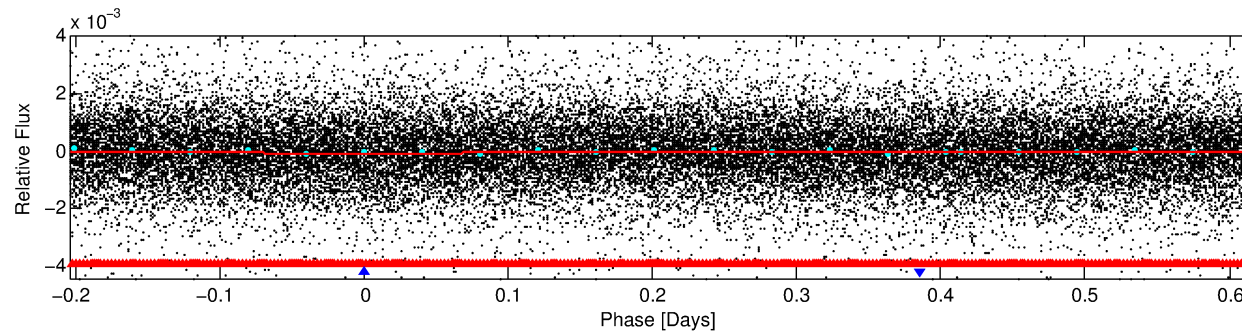
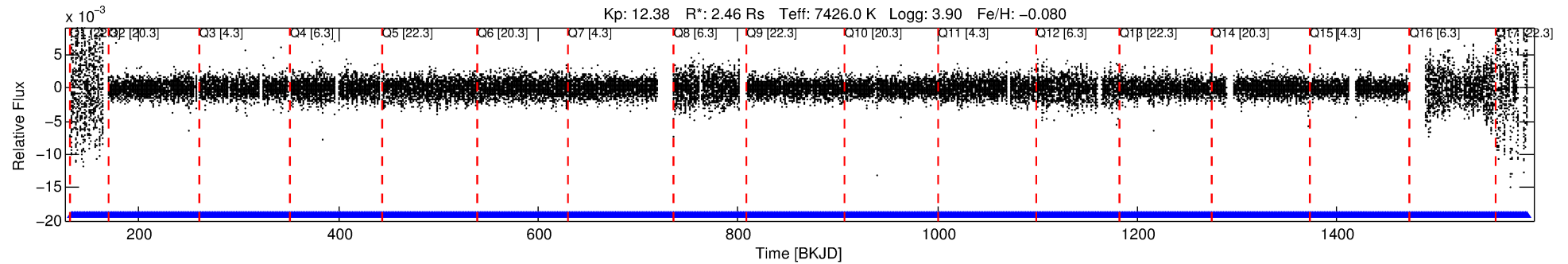
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 011872512-02

No Significant Match Found

DV One-Page Summary

KIC: 11872512 Candidate: 2 of 2 Period: 0.817 d



DV Fit Results:

Period = 0.81724 [0.00001] d
Epoch = 132.2422 [0.0083] BKJD
Rp/R* = 0.0081 [0.0073]
a/R* = 1.11 [1.22]
b = 0.90 [1.25]
Seff = 38585.52 [20506.86]
Teq = 3574 [475] K
Rp = 2.19 [2.10] Re
a = 0.0207 [0.0066] AU
Ag = 2.83 [5.32] [0.34σ]
Teffp = 7167 [3259] K [1.09σ]

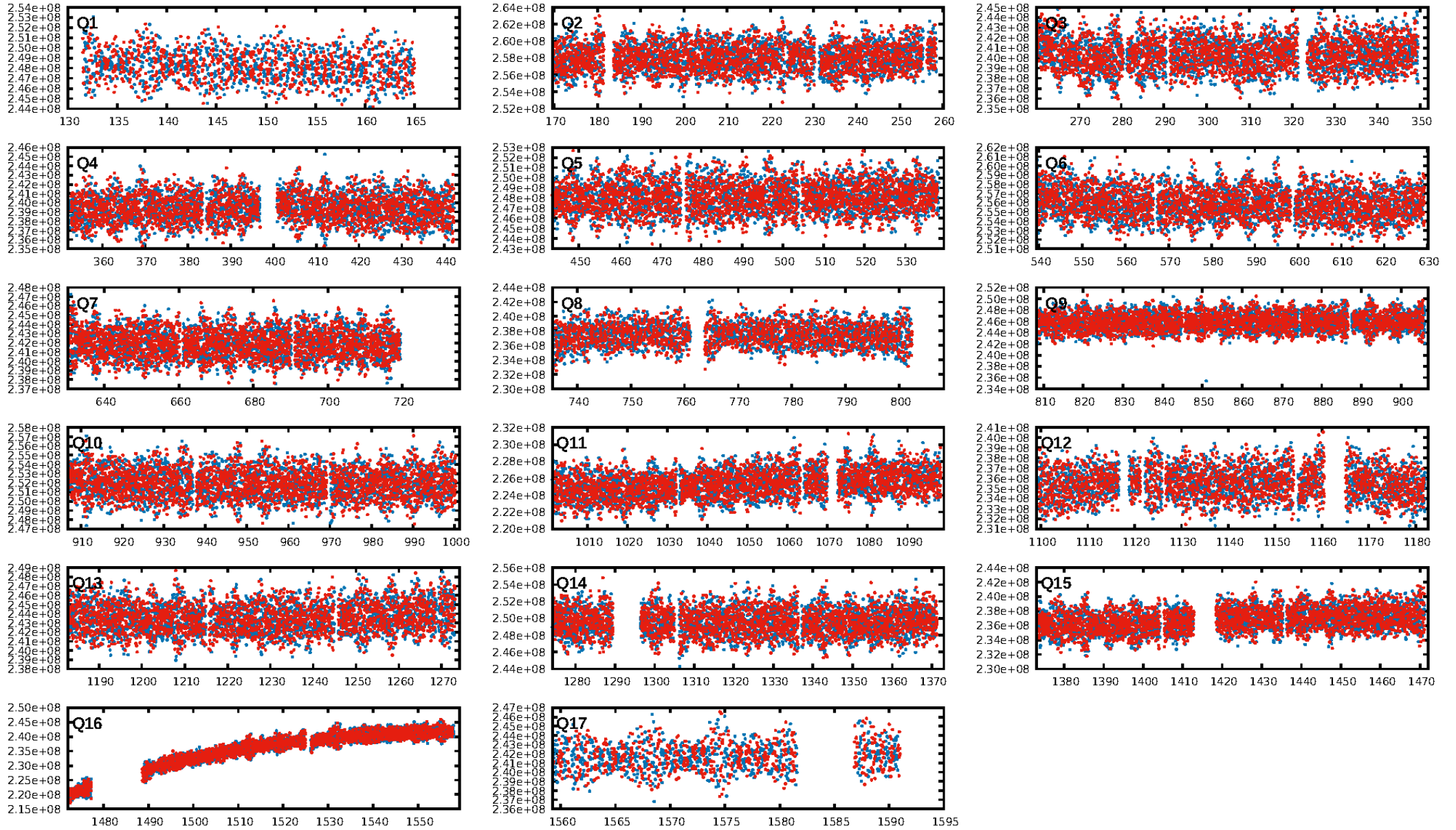
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: 100.0% [3.86σ]
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: 1.27e-11
RollingBand-fgt: 1.00 [1058/1058]
GhostDiagnostic-chr: 2.237
Centroid-sig: 88.7%
Centroid-so: 0.187 arcsec [0.91σ]
OotOffset-rm: 0.106 arcsec [0.60σ]
KicOffset-rm: 0.039 arcsec [0.20σ]
OotOffset-st: 4/4/4/5 [17]
KicOffset-st: 4/4/4/5 [17]
DiffImageQuality-fgm: 0.71 [12/17]
DiffImageOverlap-fno: 1.00 [17/17]

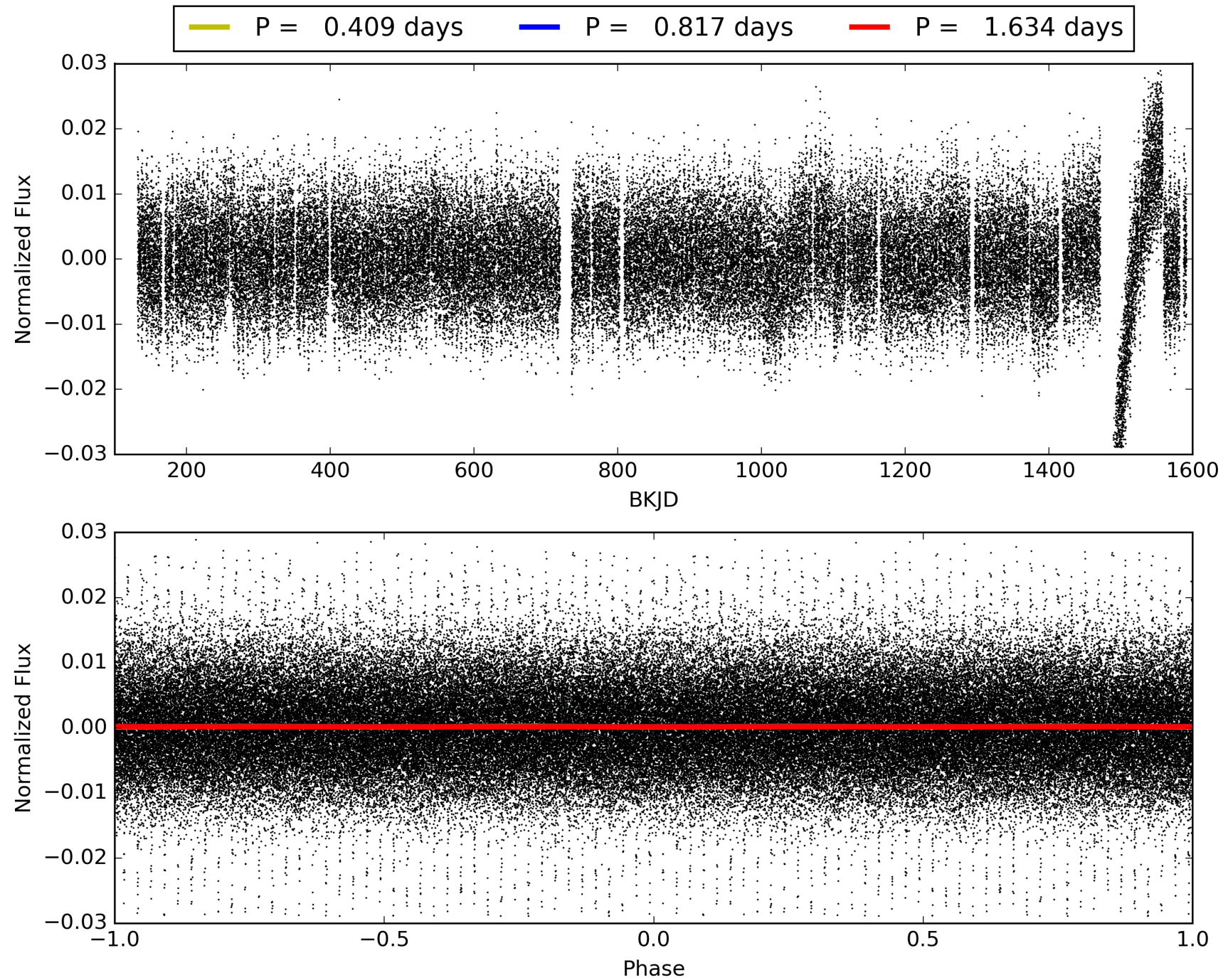
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 29-Jan-2016 10:41:36 Z

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

TCE 011872512-02, PDC Light Curves

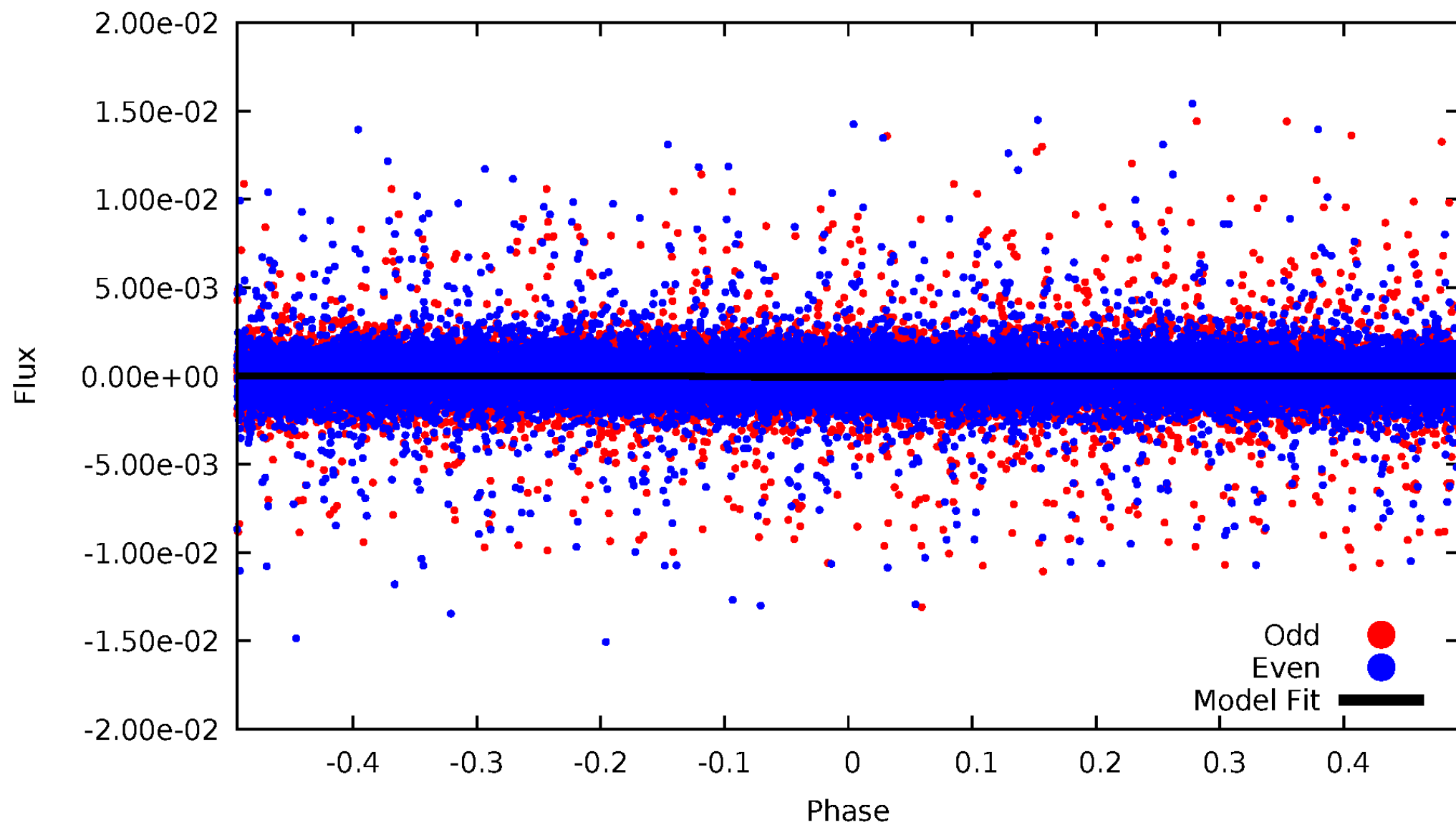


TCE 011872512-02



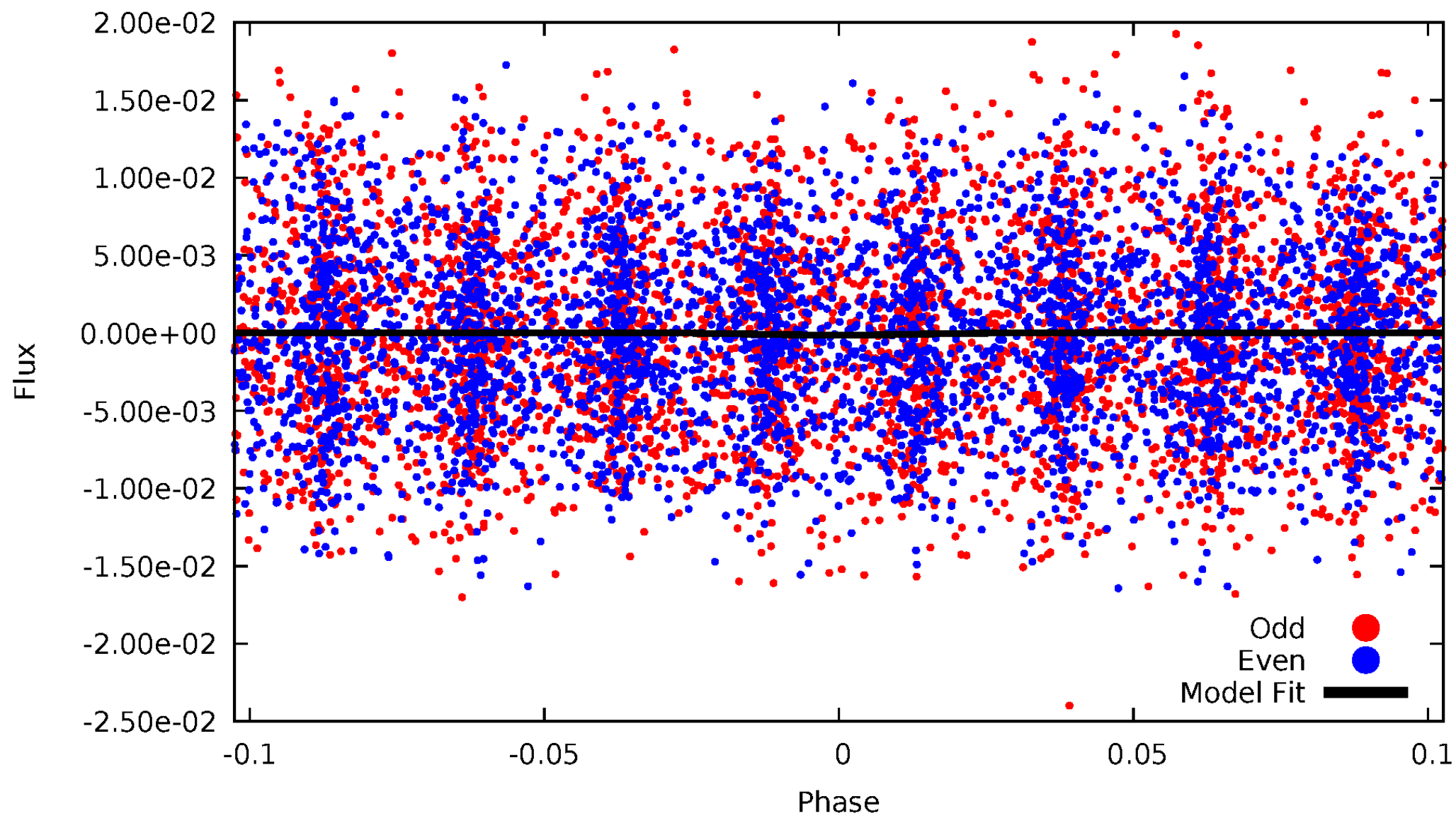
DV Odd/Even

TCE 011872512-02



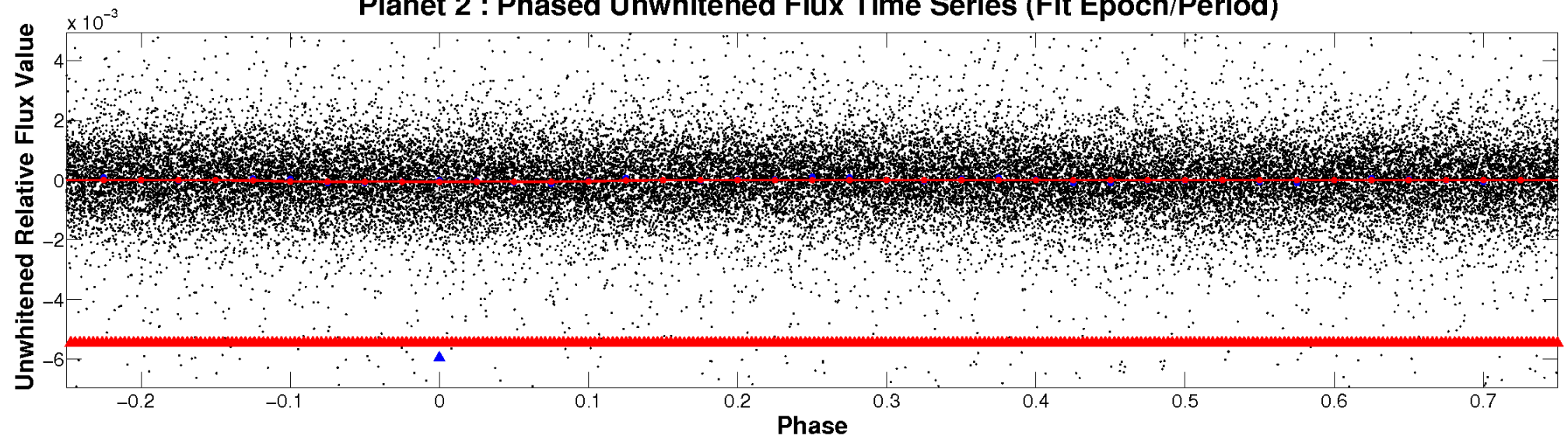
ALT Odd/Even

TCE 011872512-02

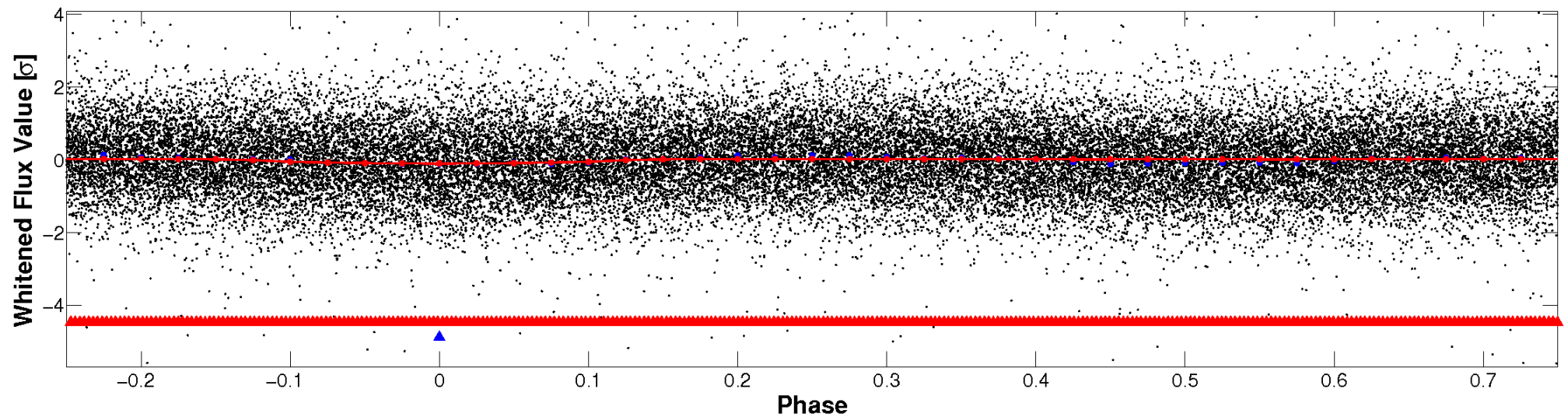


Non-Whitened Vs. Whitened Light Curve

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

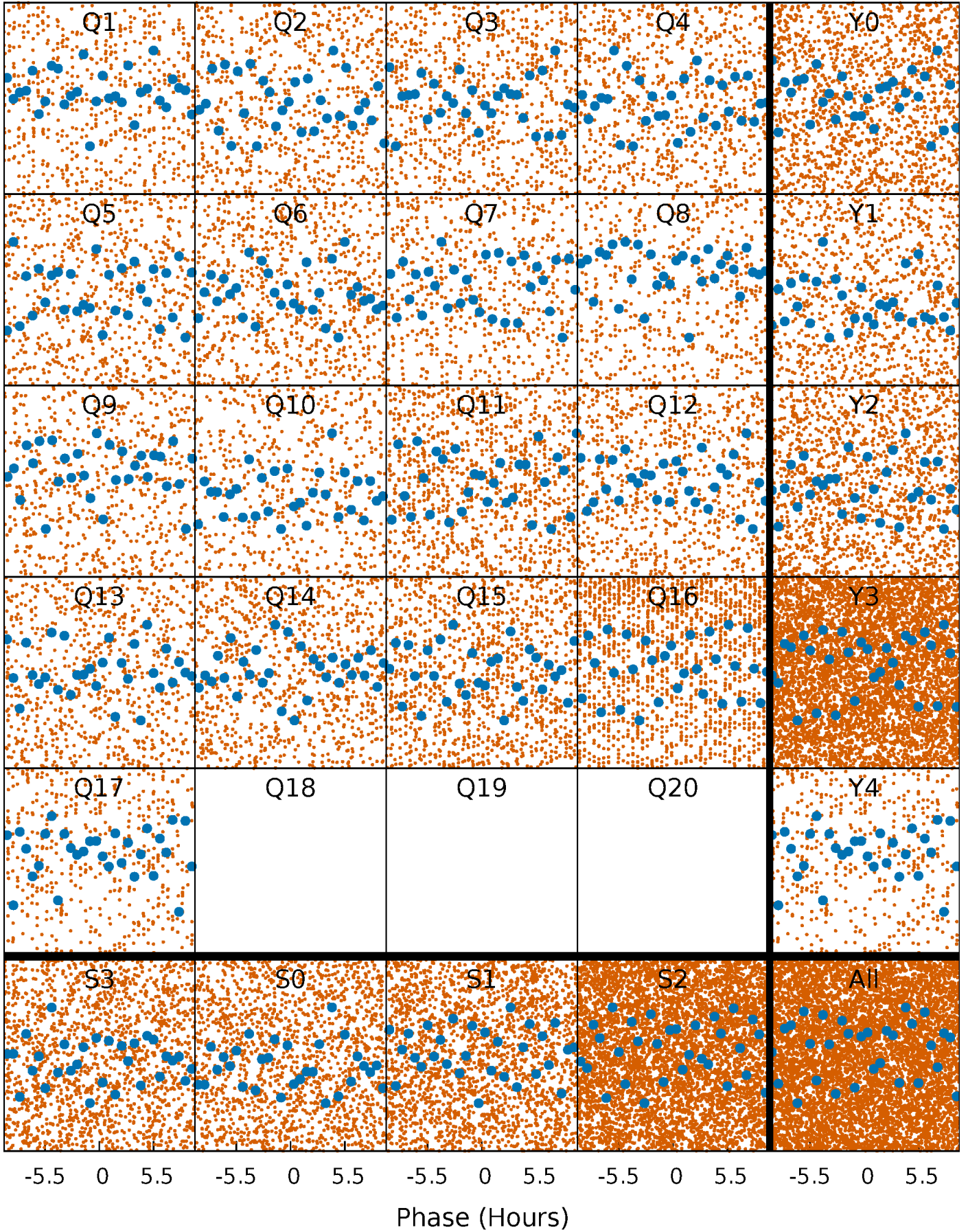


Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



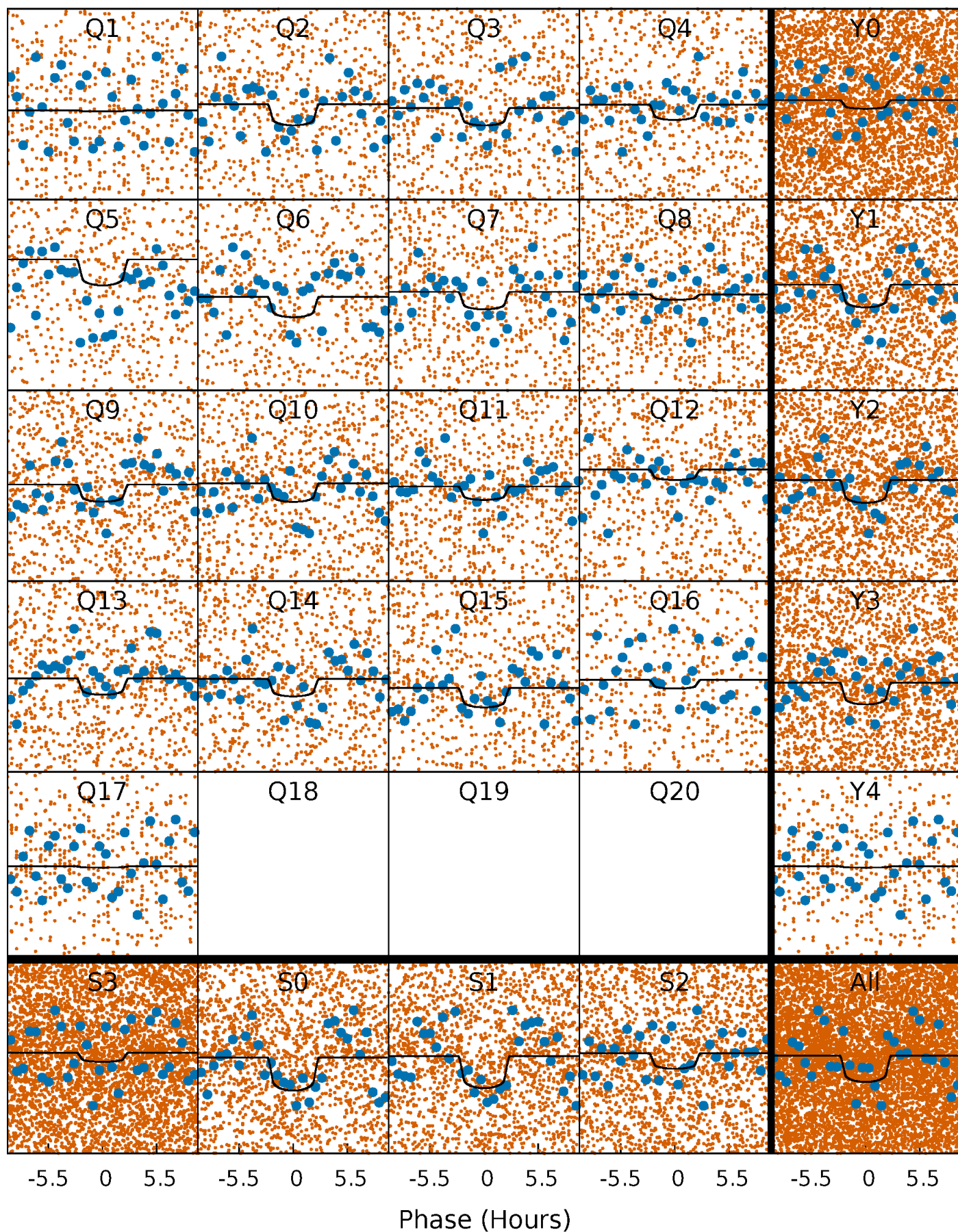
PDC Quarter-Phased Transit Curves

TCE 011872512-02 P= 0.817240 Days $T_0=132.242211$ (BKJD)



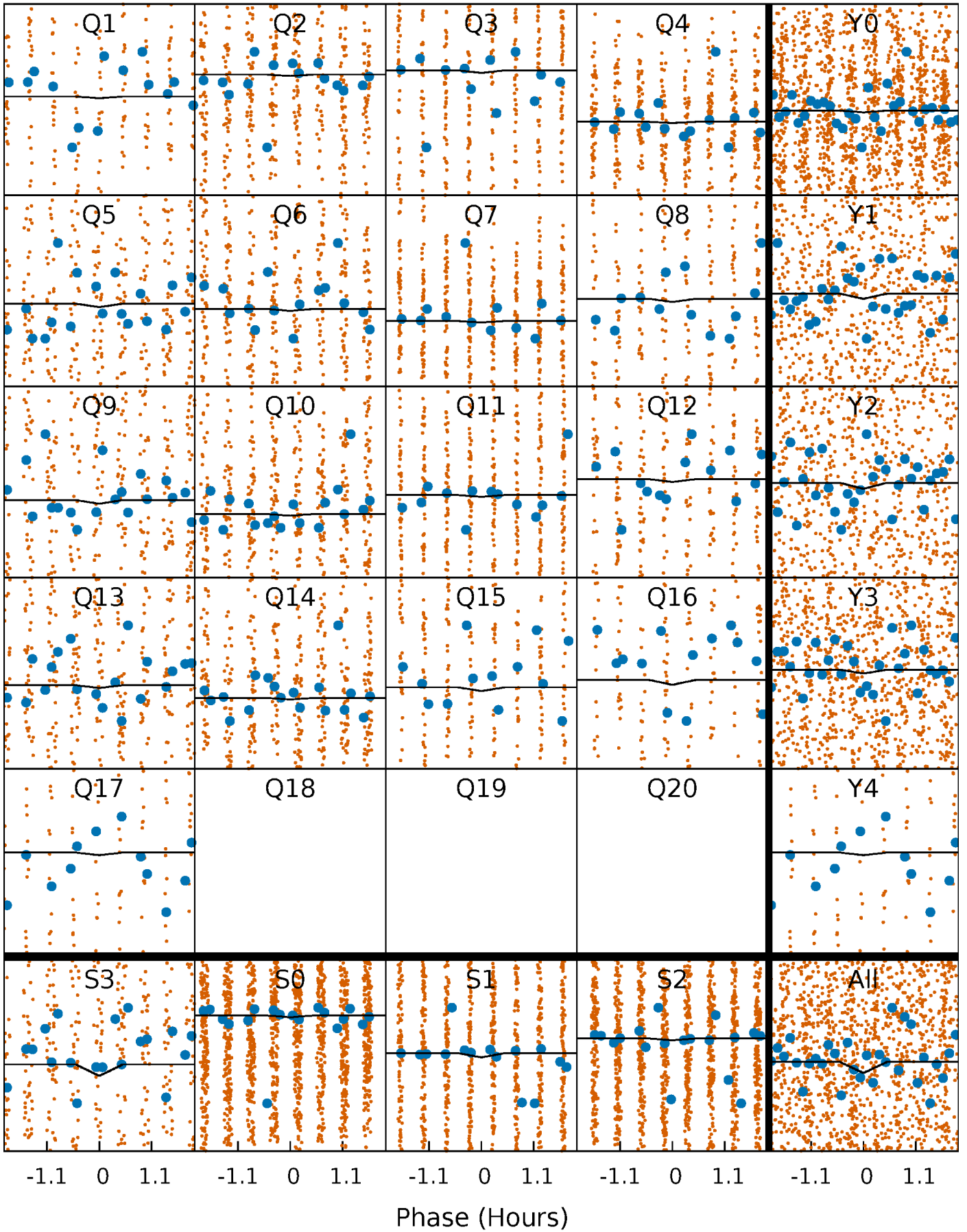
DV Quarter-Phased Transit Curves

TCE 011872512-02 P= 0.817240 Days $T_0=132.242211$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

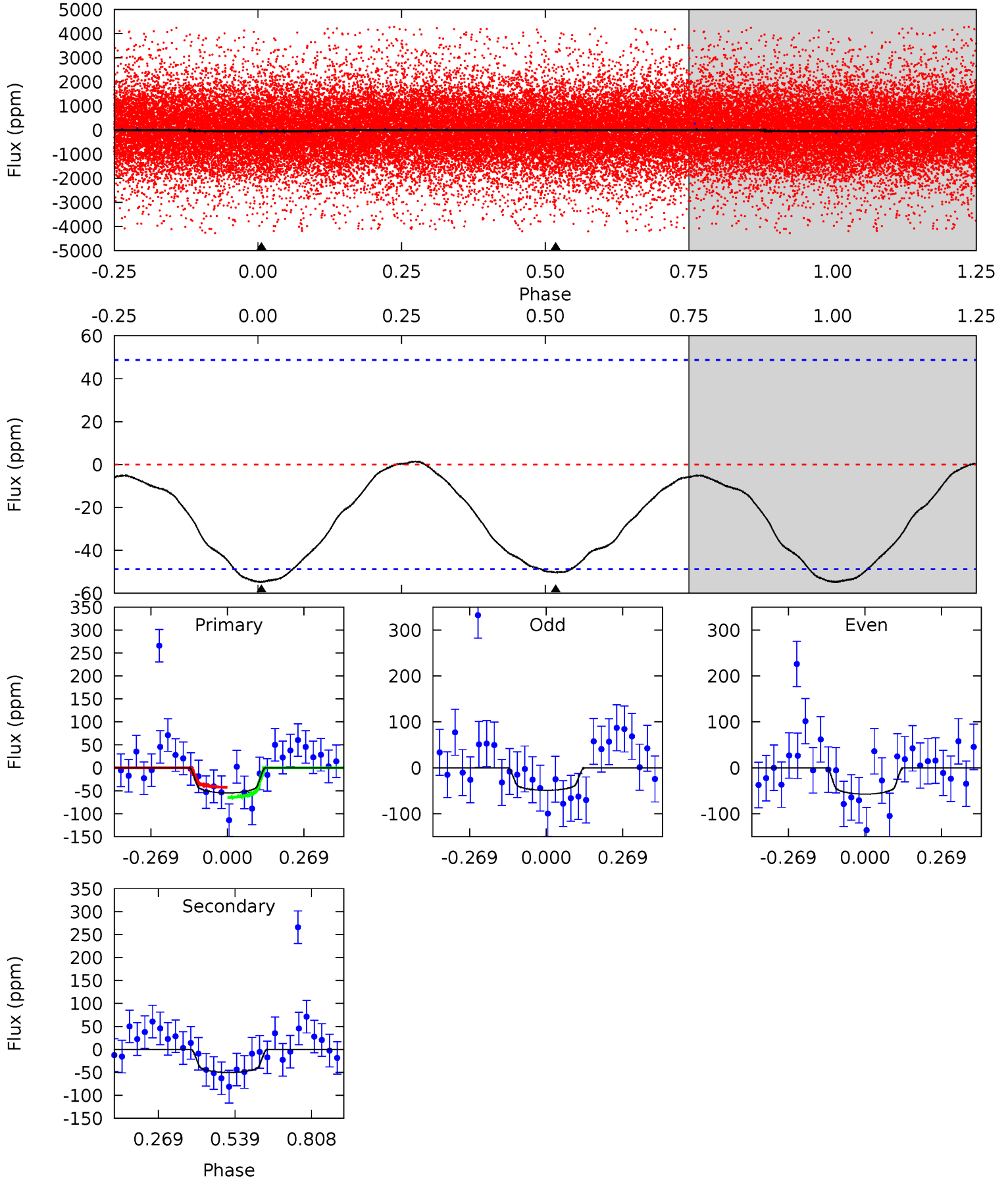
TCE 011872512-02 P= 0.817298 Days $T_0=132.227562$ (BKJD)



DV Model-Shift Uniqueness Test

011872512-02, P = 0.817240 Days, E = 131.424971 Days

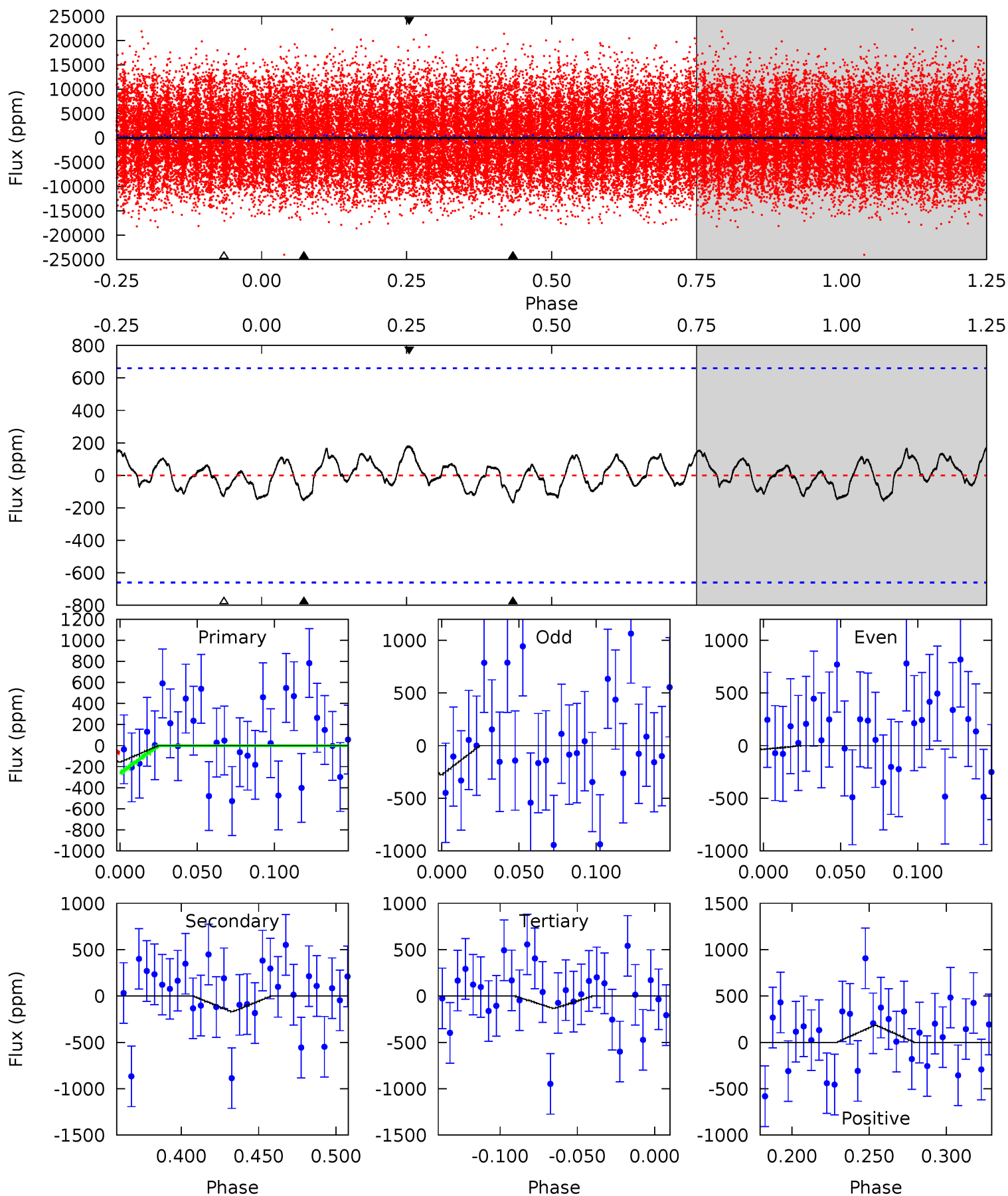
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
4.89	4.49	0	0	4.35	1.10	0.27	4.89	4.89	4.49	4.49	0.37	1.24	0.02	1.00



Alt Model-Shift Uniqueness Test

011872512-02, P = 0.817298 Days, E = 131.410264 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
1.12	1.20	0.95	1.31	4.71	1.96	0.54	0.16	-0.20	0.25	-0.11	0.86	1.31	0.52	0.71



Stellar Parameters For KIC 011872512

	$T_{\text{eff}} (K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R (R_{\odot})$	$M (M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	7426^{+207}_{-311}	$3.903^{+0.294}_{-0.126}$	$-0.080^{+0.200}_{-0.350}$	$2.463^{+0.486}_{-0.832}$	$1.769^{+0.197}_{-0.365}$	$0.167^{+0.352}_{-0.065}$
	+3%/-4%	+8%/-3%	+250%/-438%	+20%/-34%	+11%/-21%	+211%/-39%
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 011872512-02 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	-50 ± 11	$2.29^{+1.97}_{-1.34}$	4912^{+324}_{-463}	6122^{+5138}_{-1815}	$2.219^{+10.080}_{-1.585}$
Alt.	-169 ± 140	$3.12^{+2.02}_{-1.72}$	4914^{+335}_{-442}	7047^{+6210}_{-3005}	$3.308^{+15.377}_{-2.797}$

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 $A_{obs} \gg 1.0$

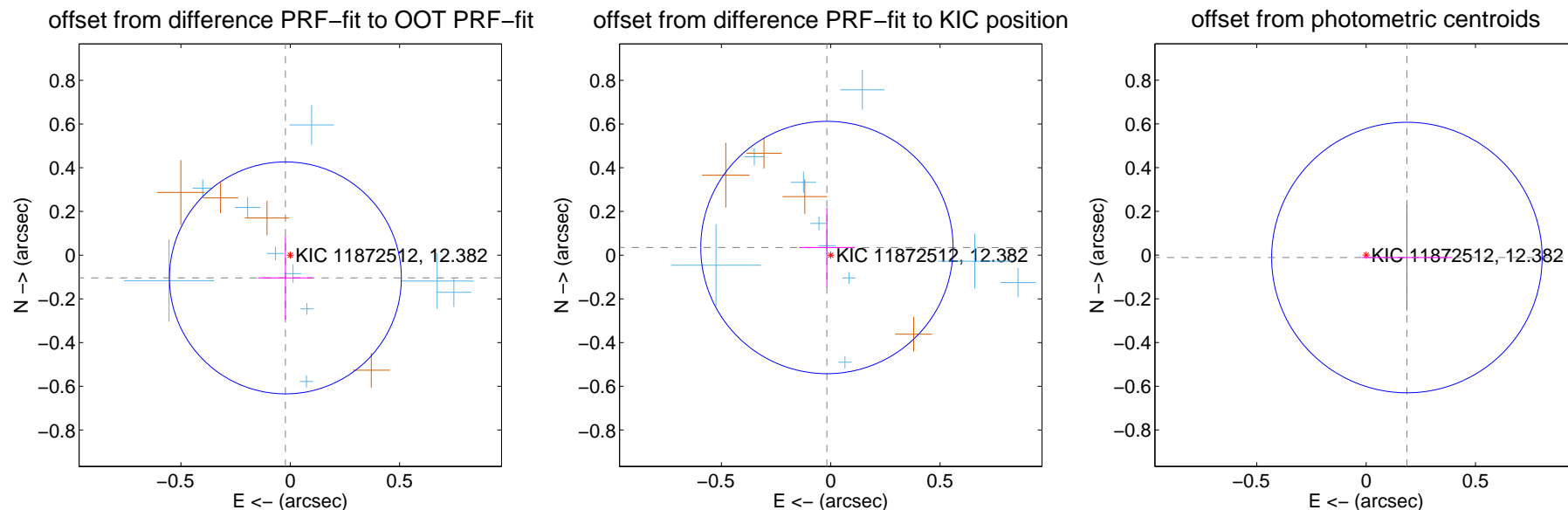
DV Centroid Data

Supplemental centroid analysis for 011872512-02. Kepler magnitude: 12.38. Transit SNR 8.12

There are 12 quarters with good PRF difference image offsets

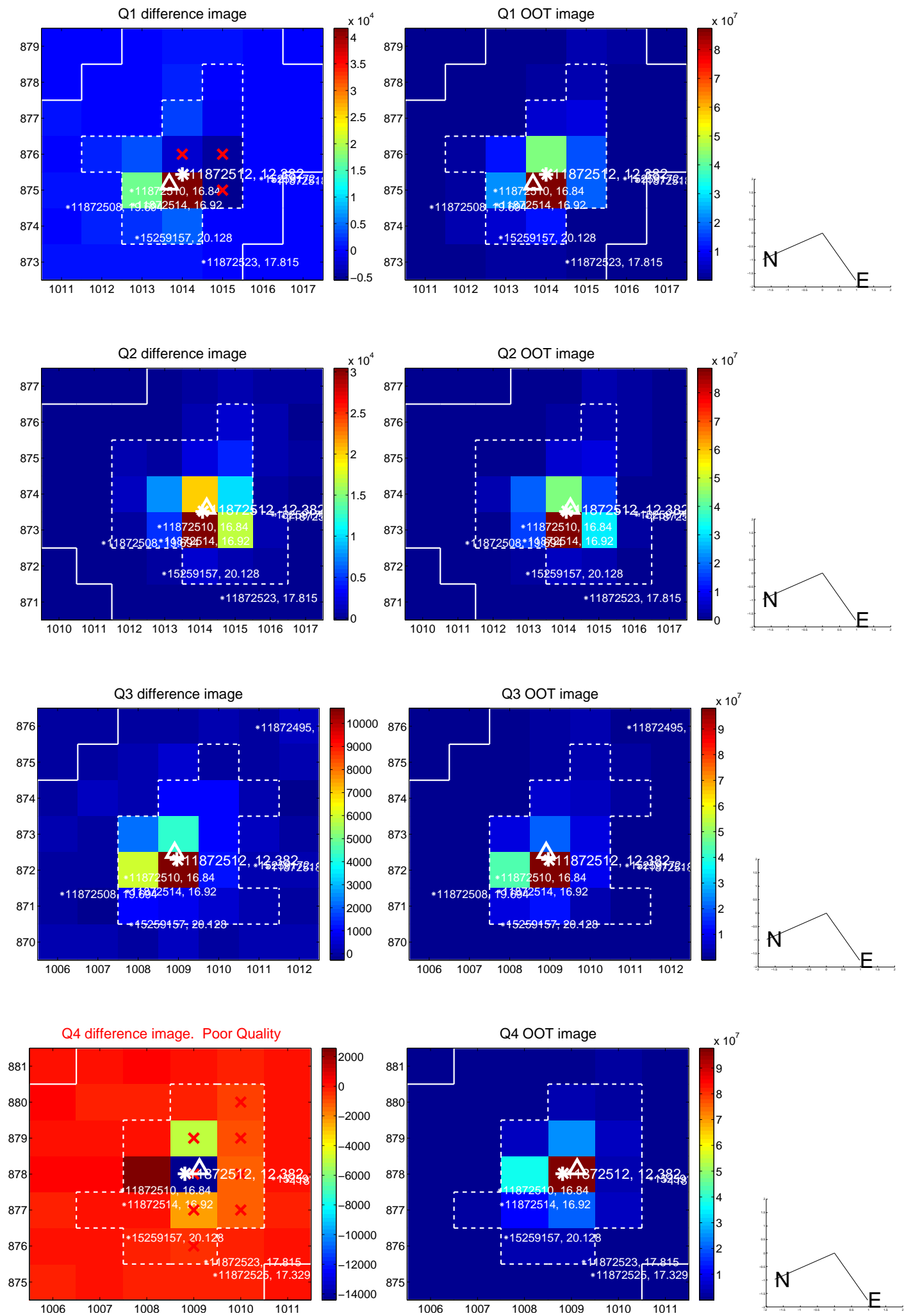
The direct PRF centroid is offset from the target star catalog position by about 0.14 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.106 ± 0.177	0.60	0.022 ± 0.125	-0.104 ± 0.191
PRF-fit source offset from KIC position	0.039 ± 0.192	0.20	0.017 ± 0.127	0.035 ± 0.181
photometric centroid source offset	0.19 ± 0.21	0.91	-0.19 ± 0.21	-0.01 ± 0.24

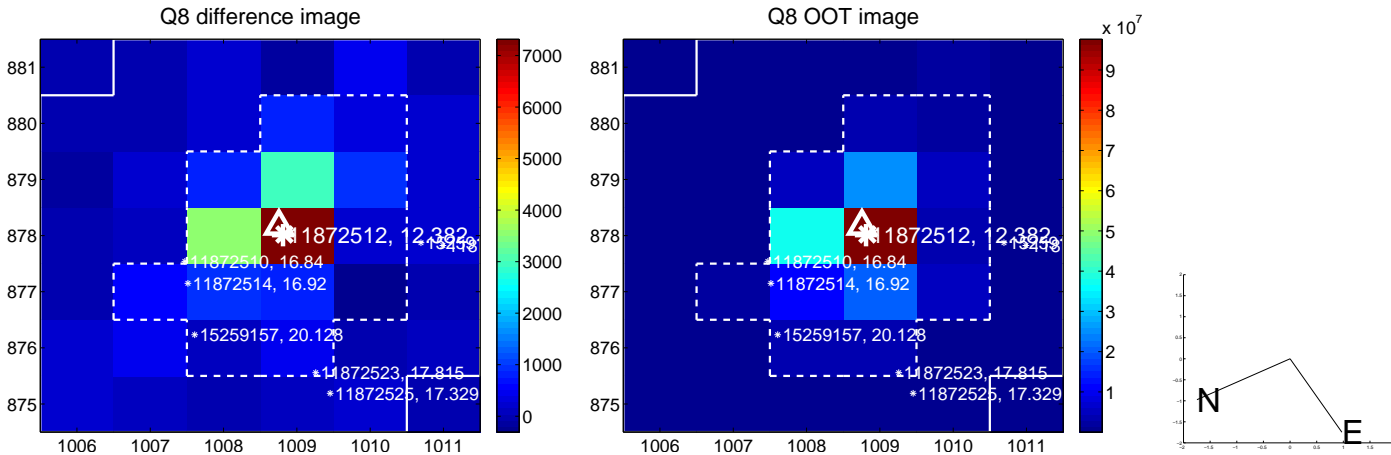
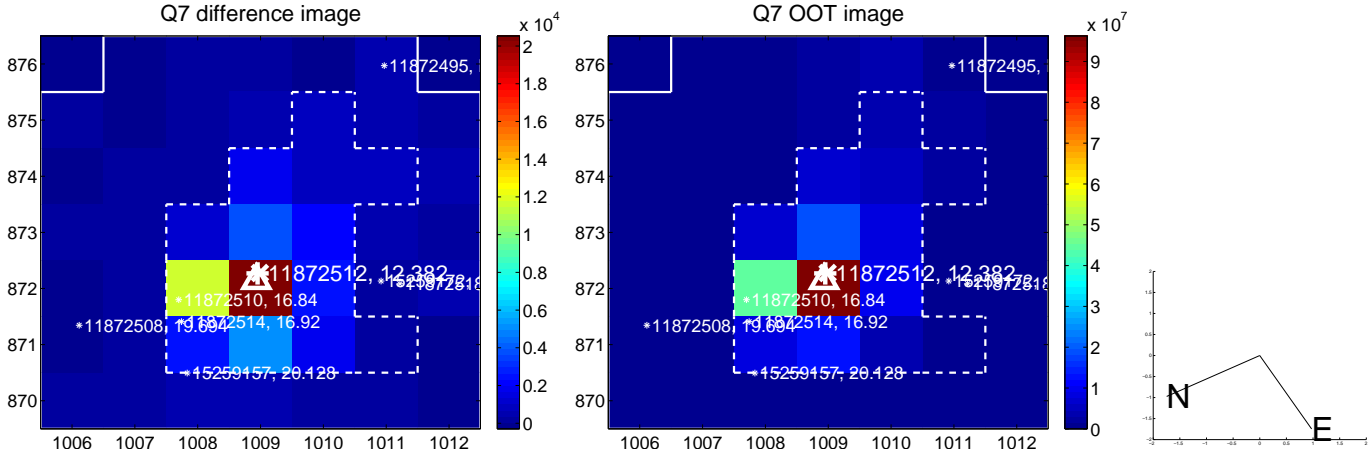
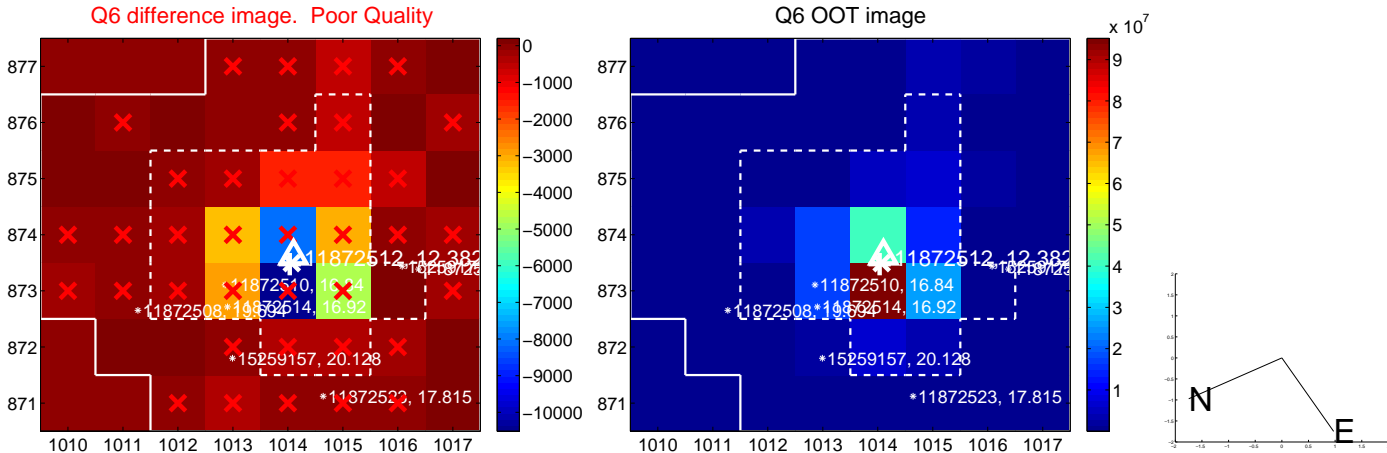
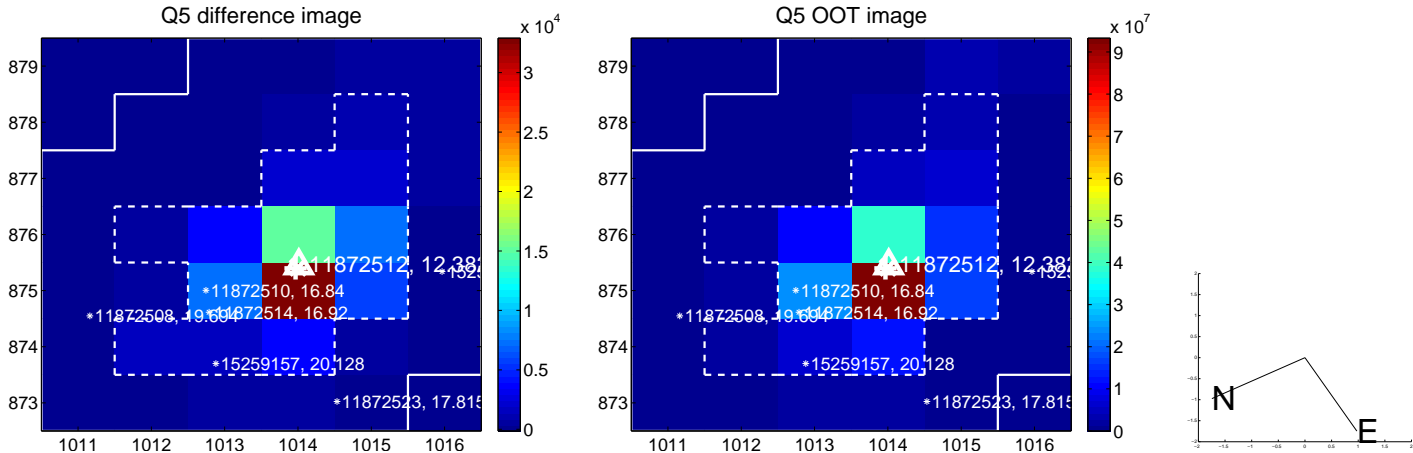


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses:** good quarterly centroid offsets; **Vermillion crosses:** bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

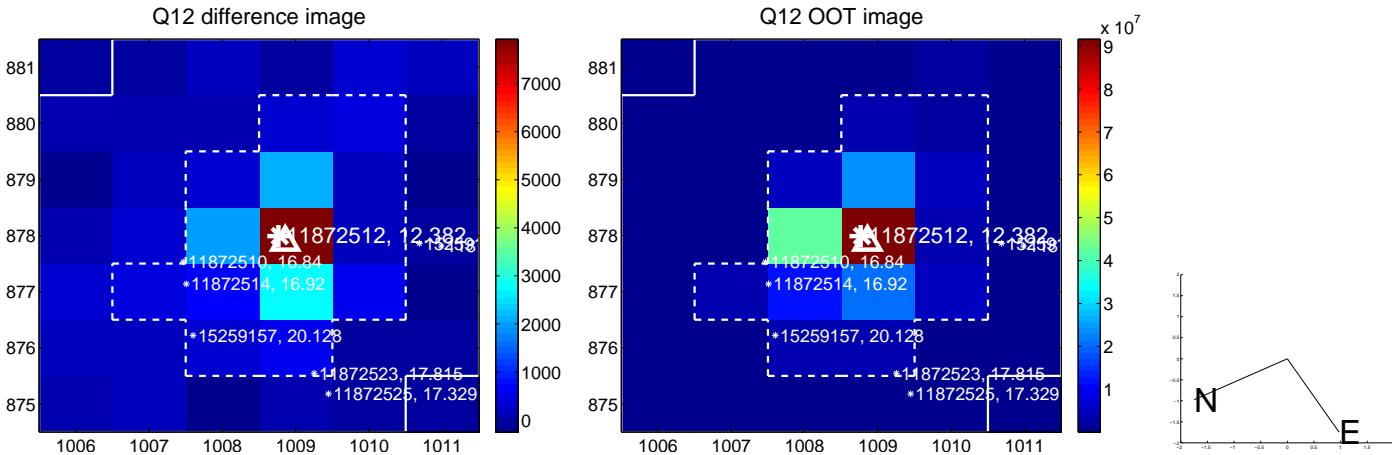
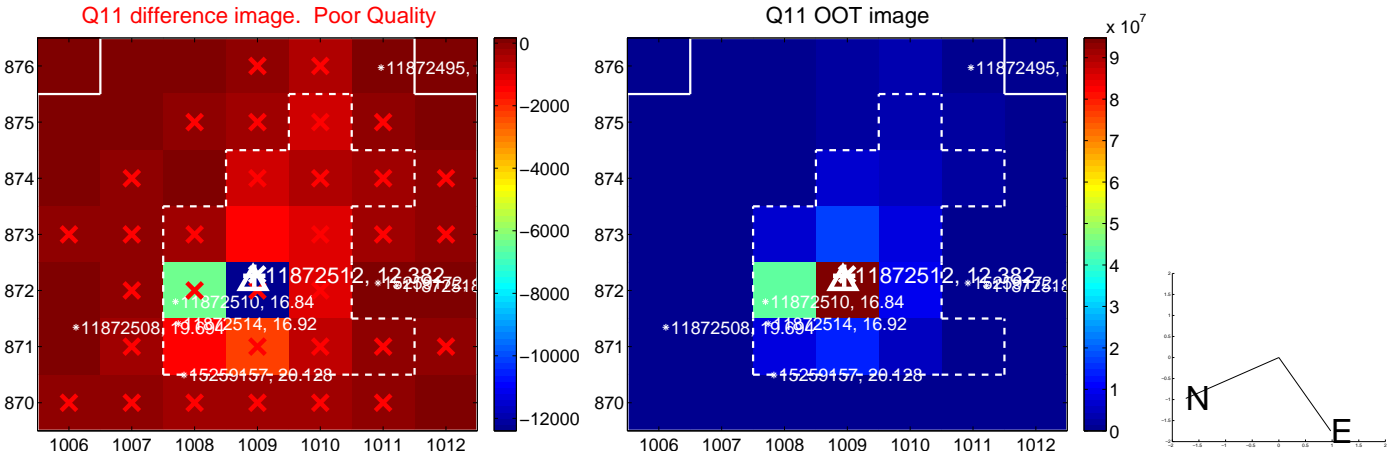
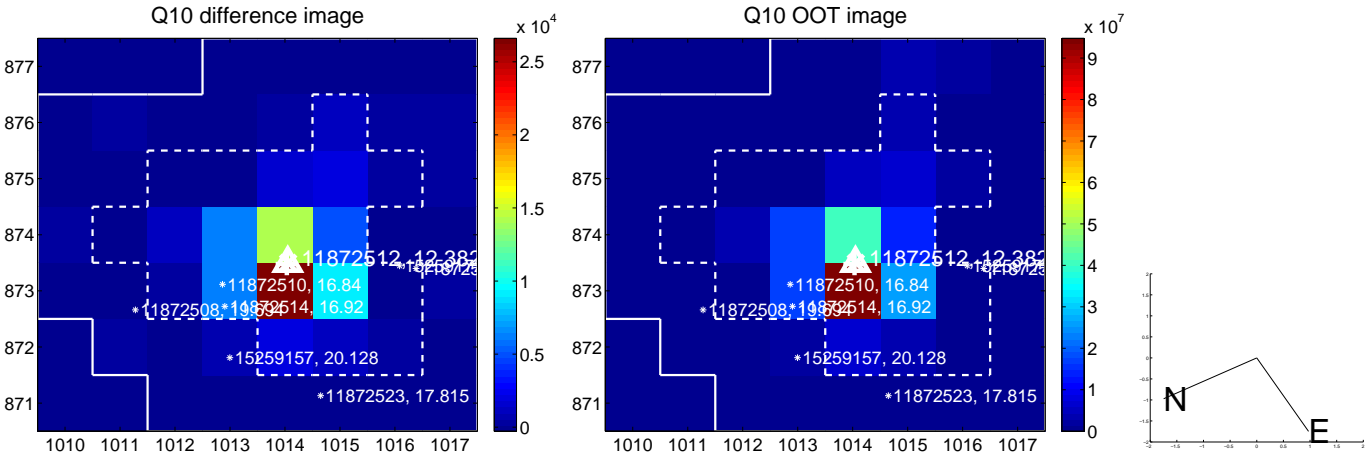
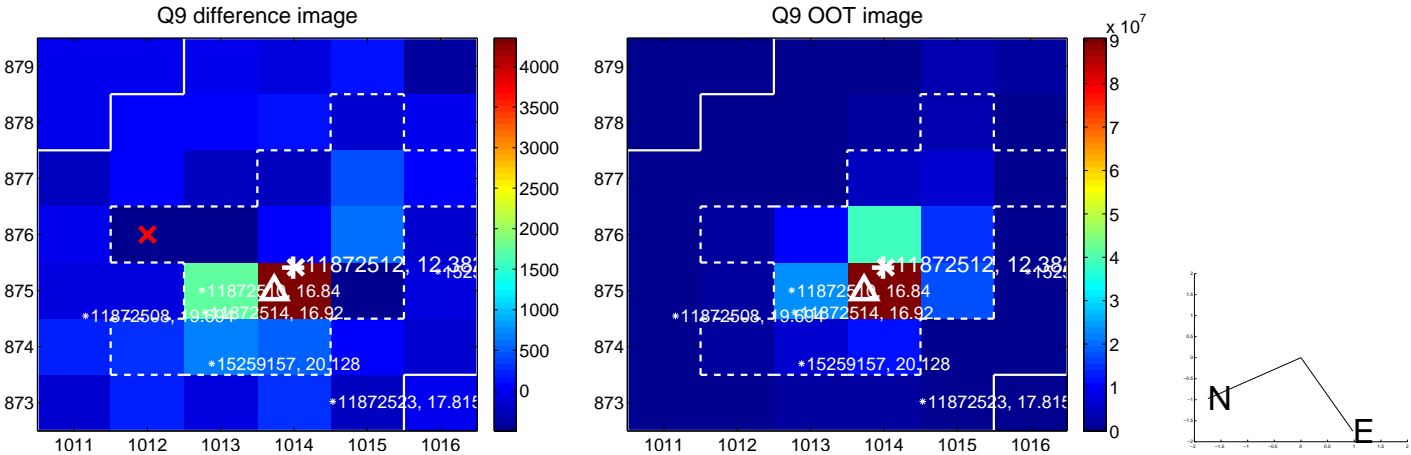
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



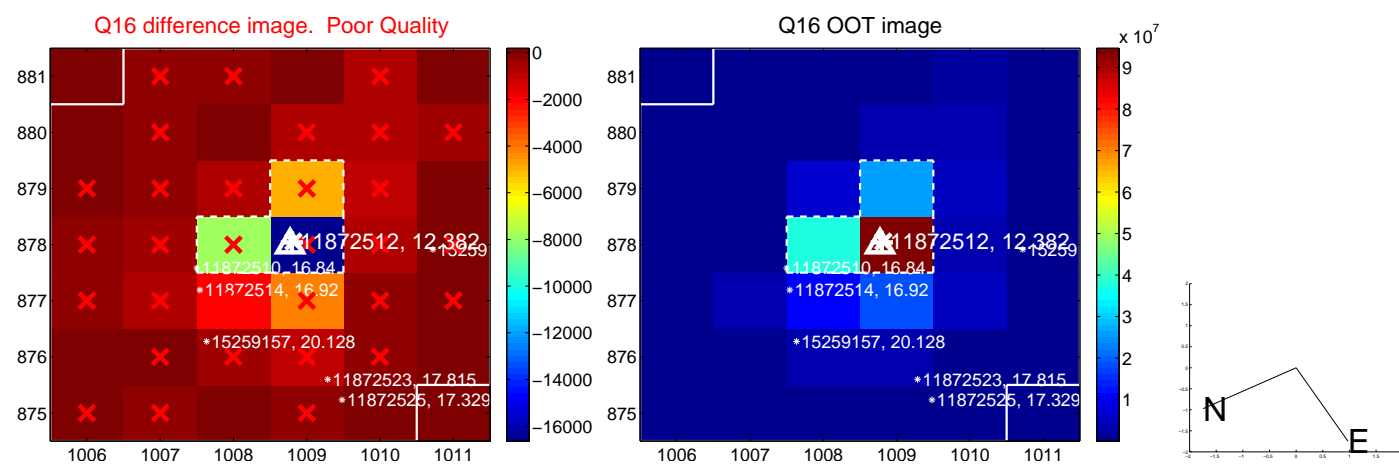
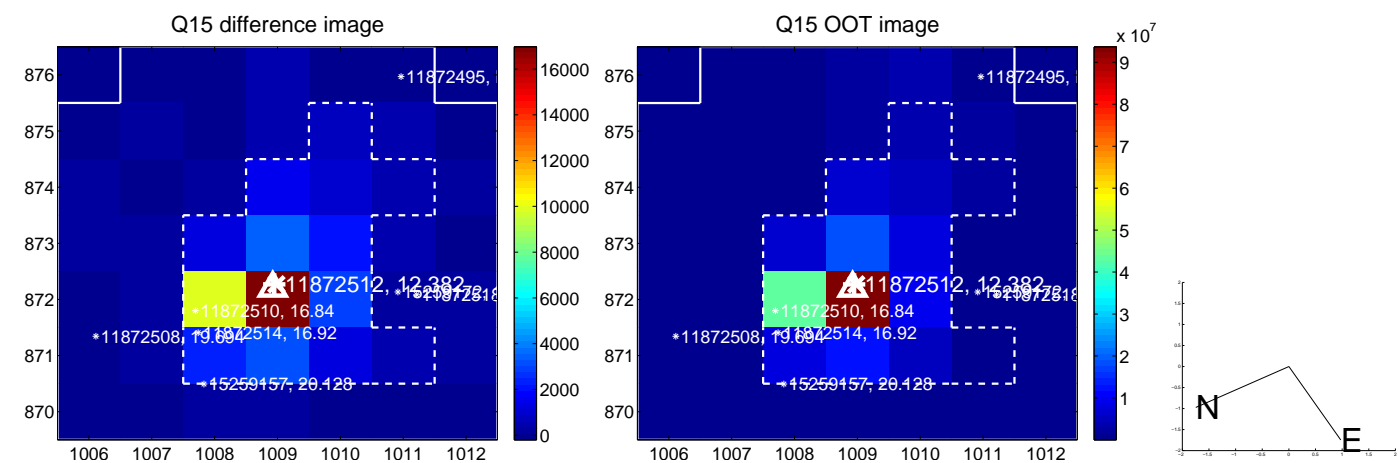
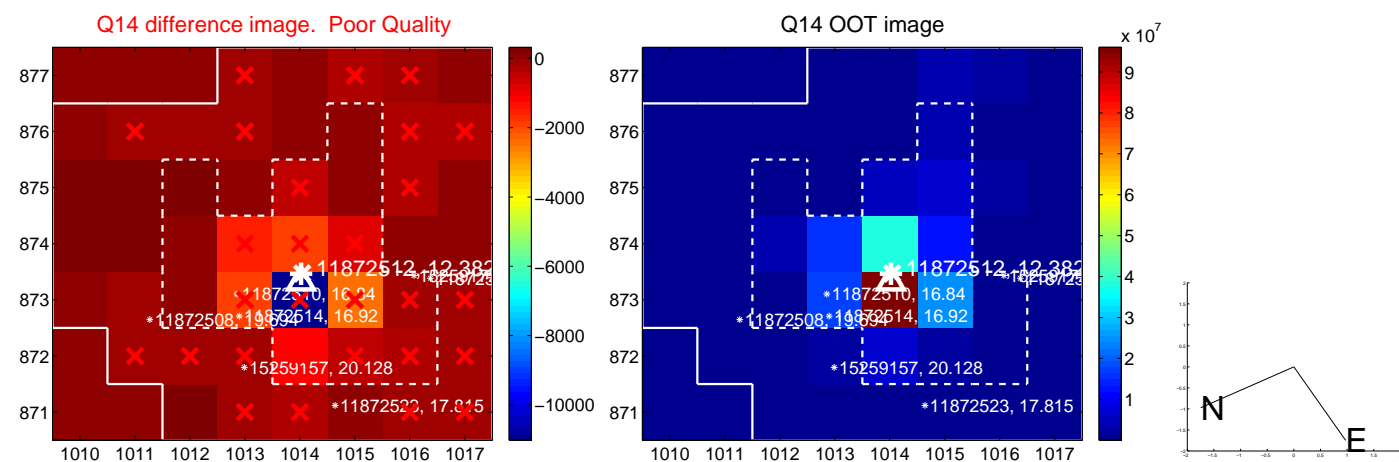
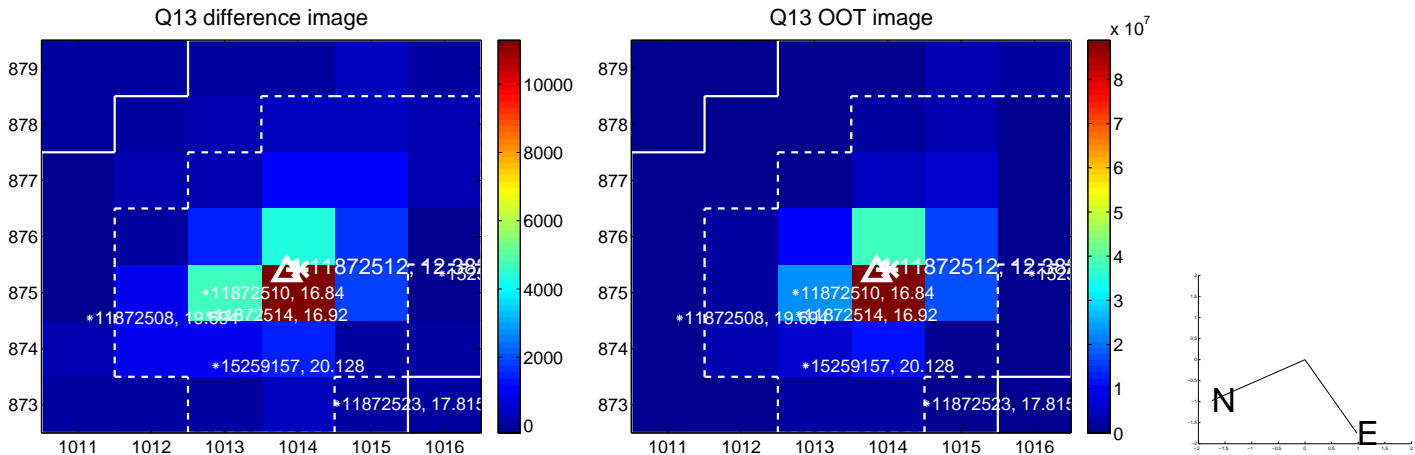
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



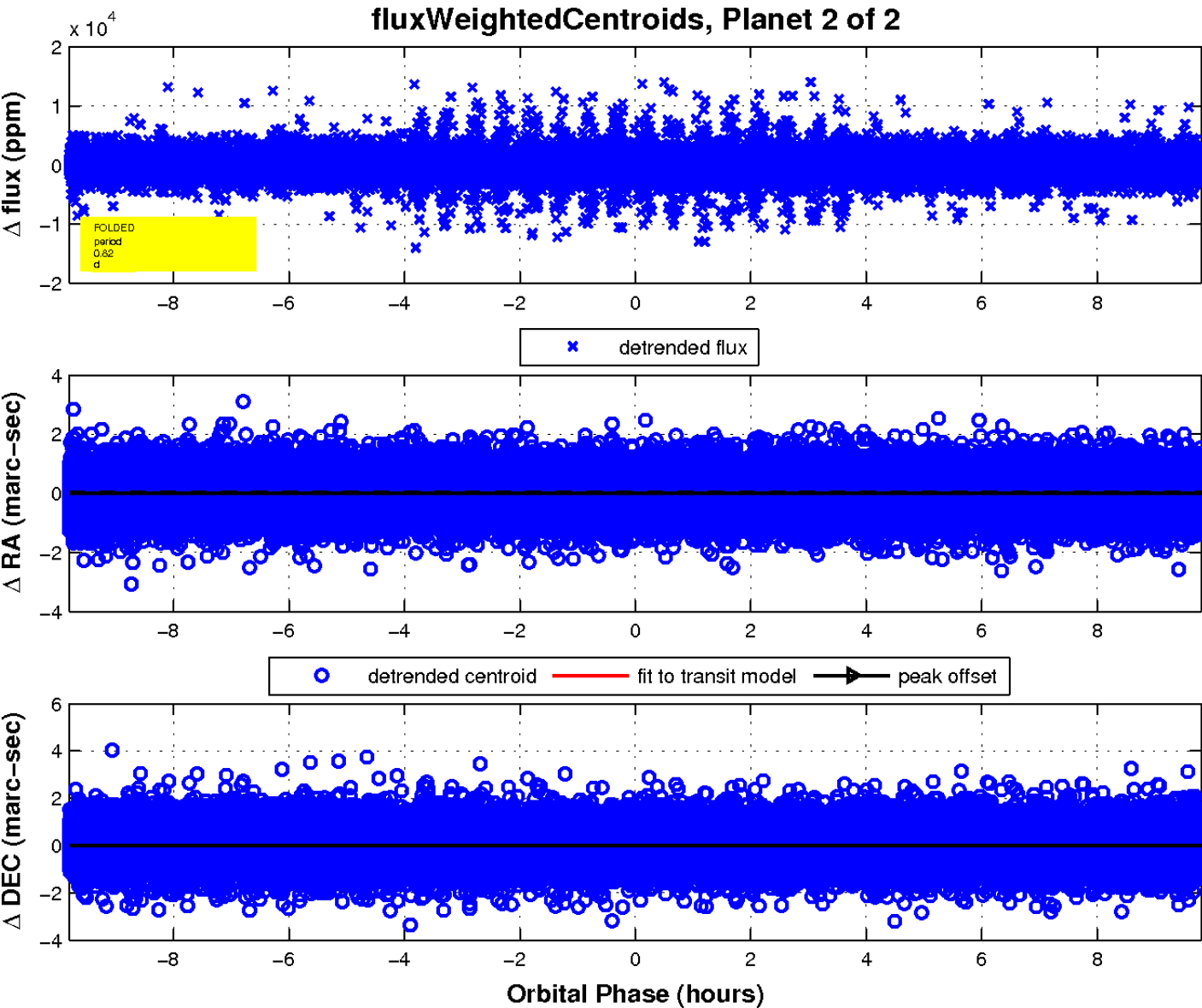
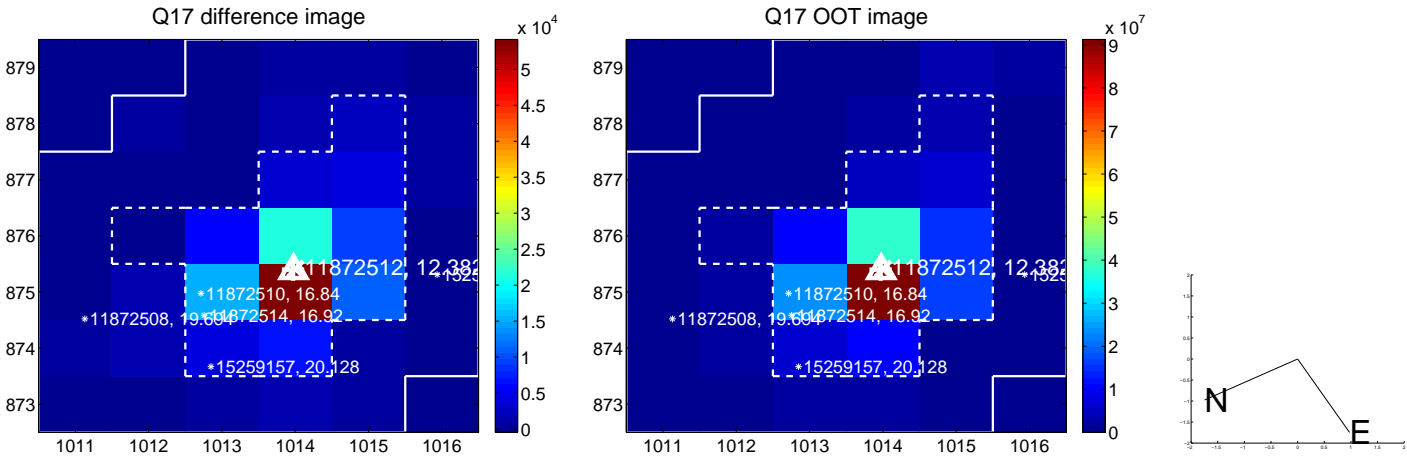
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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



UKIRT Image

