

KIC 009642894

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})
009642894-01	OBS	No	0.525839	132.009383	61.2	1.099	8.6	9.3	1.88	7266	1.71	40342.34
009642894-02	OBS	No	0.525844	131.637265	82.2	0.964	9.3	10.9	1.88	7266	1.75	40341.81

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
009642894-01	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—CENT_SATURATED
009642894-02	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_ALT—SAME_NTL_PERIOD—CENT_SATURATED

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

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

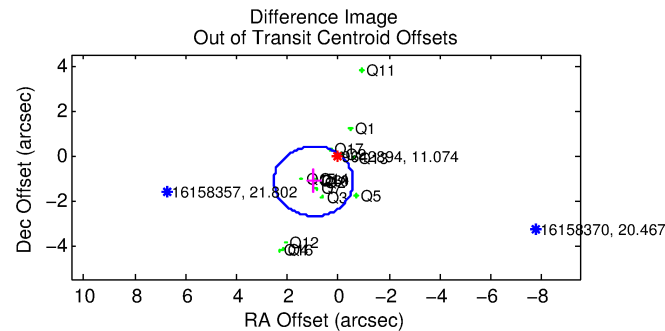
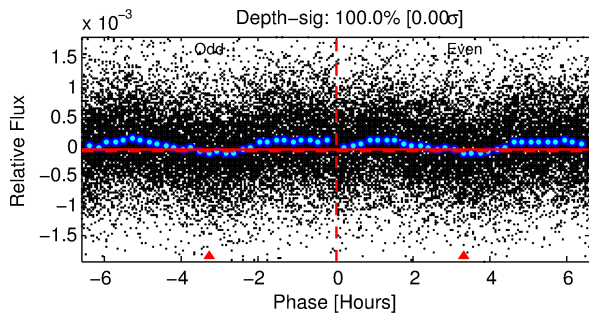
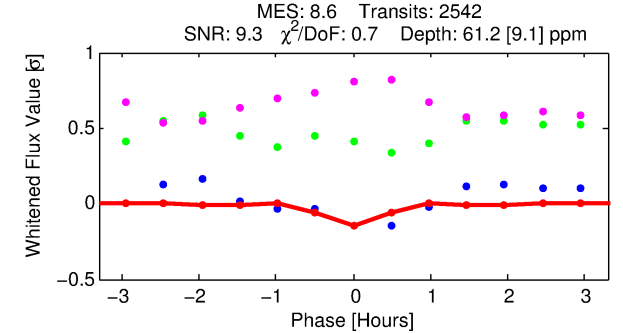
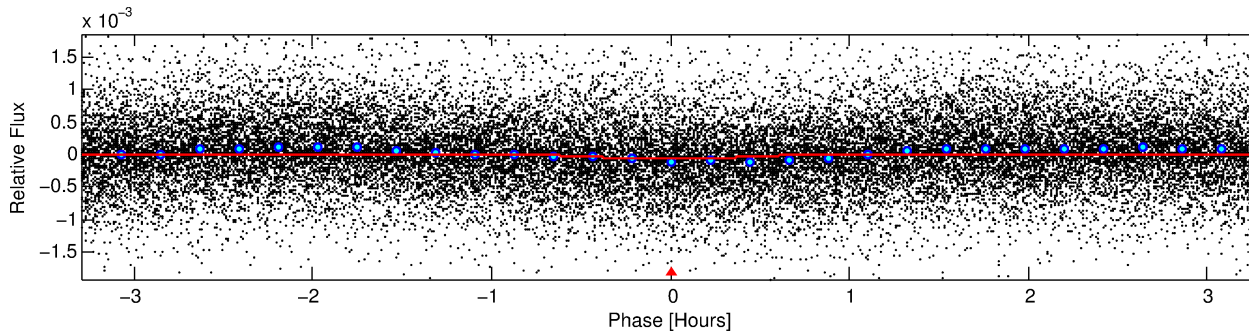
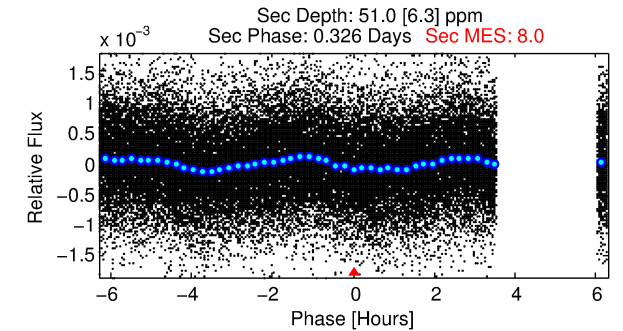
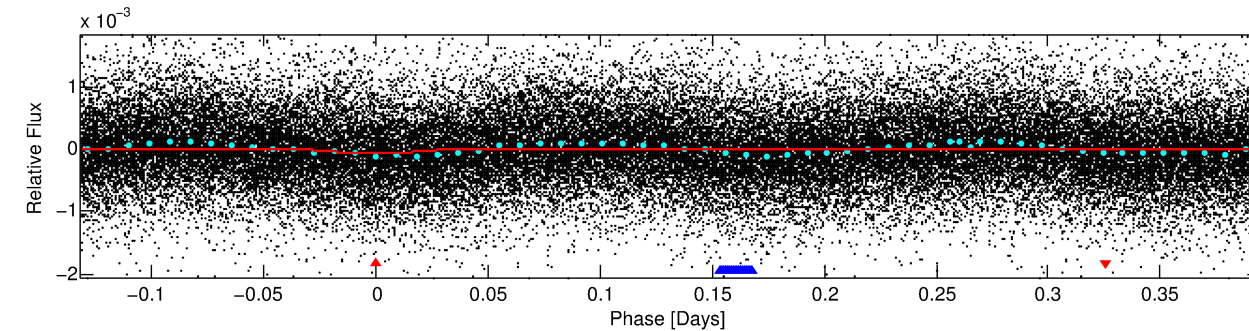
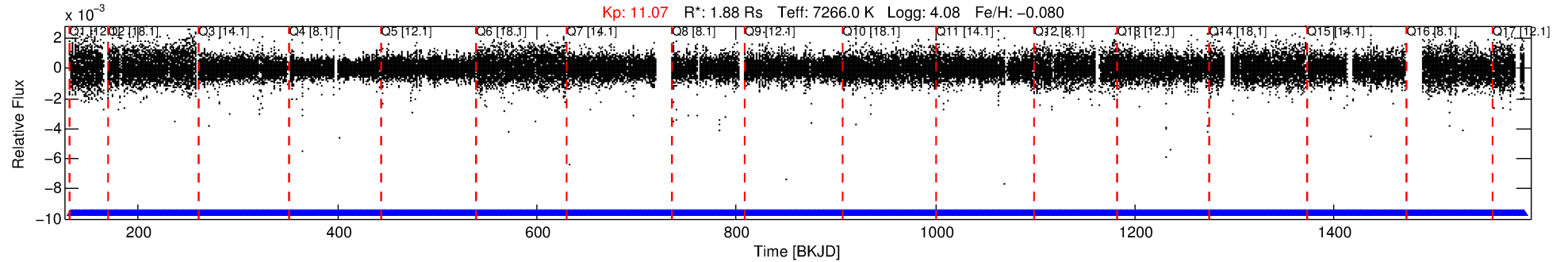
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 009642894-01

No Significant Match Found

DV One-Page Summary

KIC: 9642894 Candidate: 1 of 2 Period: 0.526 d



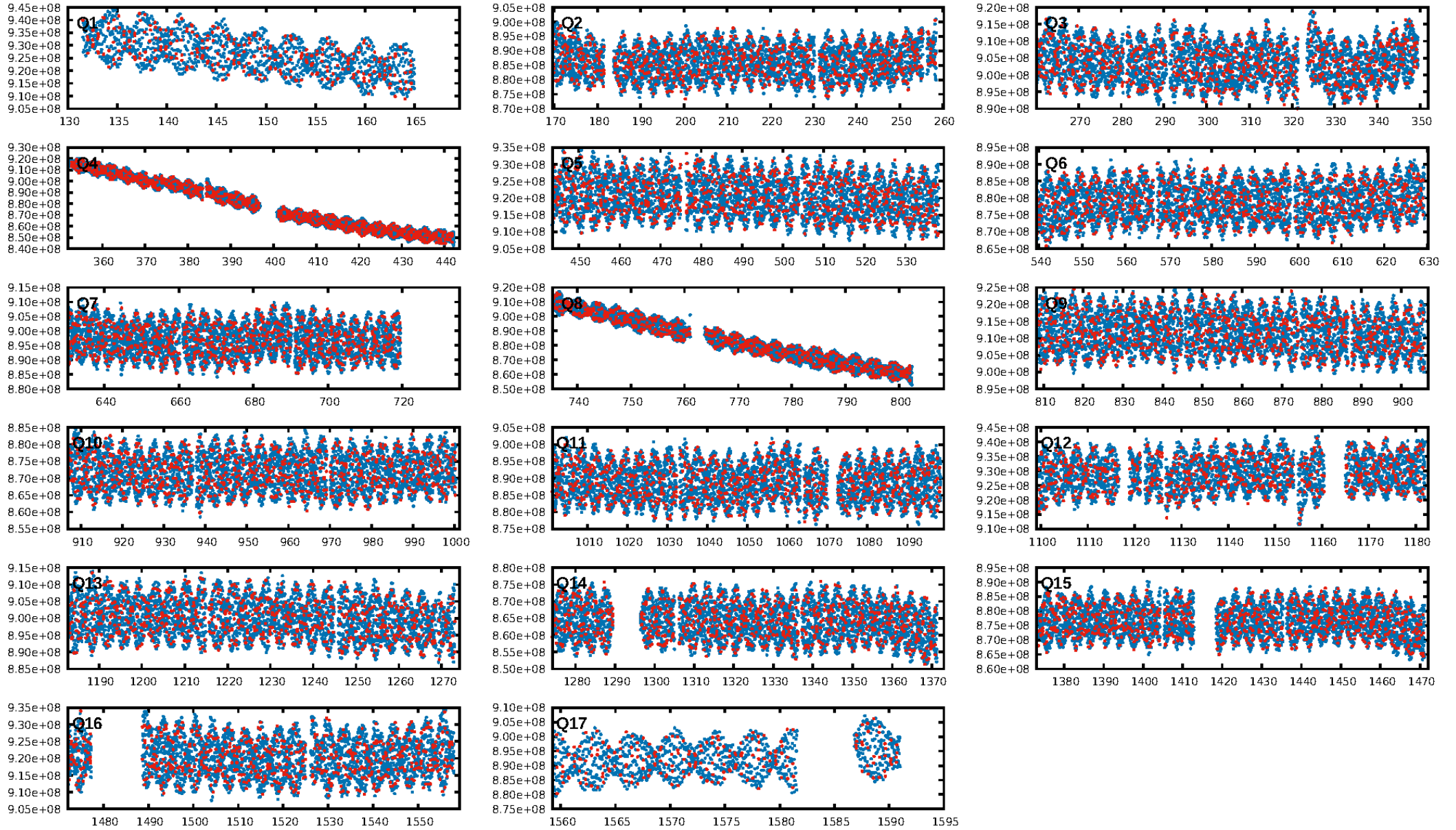
DV Fit Results:

Period = 0.52584 [0.00001] d
Epoch = 132.0094 [0.0016] BKJD
Rp/R* = 0.0084 [0.0023]
a/R* = 1.91 [2.34]
b = 0.90 [0.36]
Seff = 40342.34 [14920.51]
Teff = 3614 [334] K
Rp = 1.71 [0.68] Re
a = 0.0148 [0.0034] AU
Ag = 2.09 [1.36] [0.80σ]
Teffp = 6719 [996] K [2.96σ]

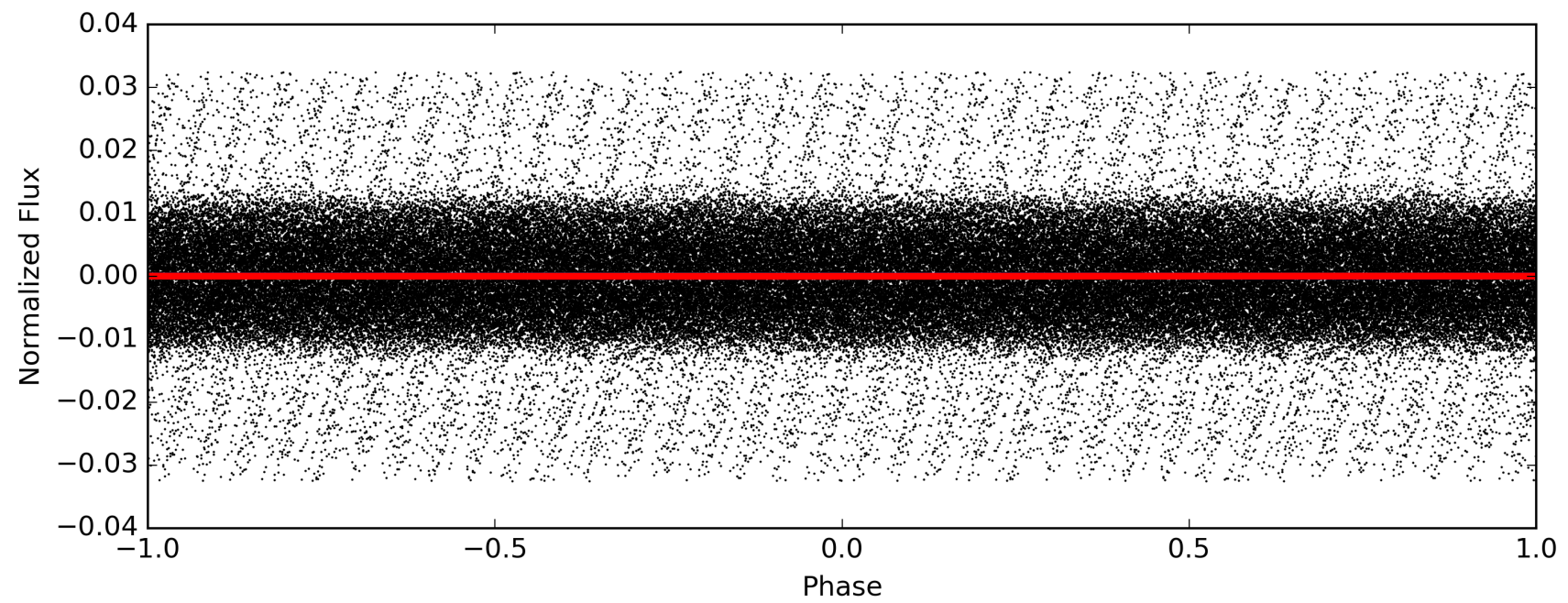
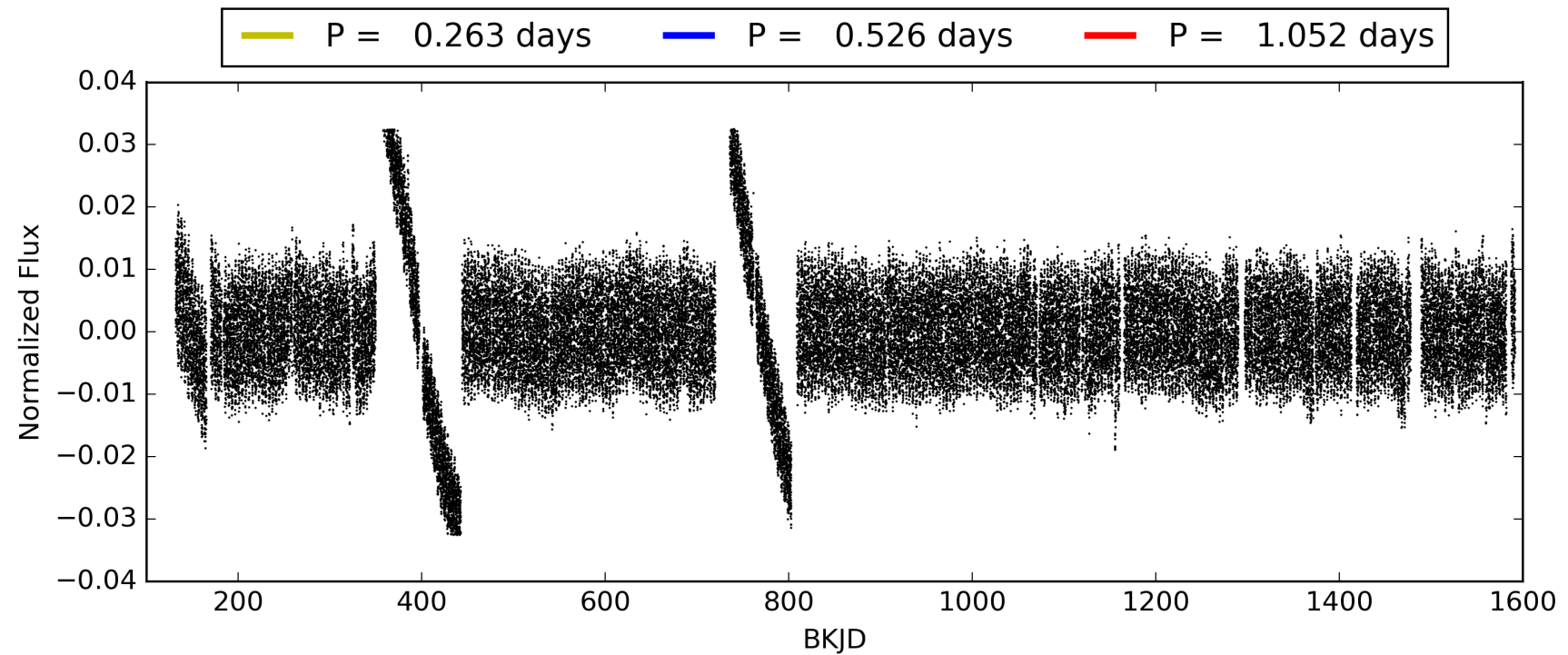
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: 0.0% [0.00σ]
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: 1.09e-16
RollingBand-fgt: 1.00 [2428/2428]
GhostDiagnostic-chr: 1.118
Centroid-sig: N/A
Centroid-so: N/A
OotOffset-rm: 1.501 arcsec [2.90σ]
KicOffset-rm: 2.801 arcsec [4.78σ]
OotOffset-st: 4/4/3/5 [16]
KicOffset-st: 4/4/3/5 [16]
DiffImageQuality-fgm: 0.69 [11/16]
DiffImageOverlap-fno: 0.00 [0/17]

TCE 009642894-01, PDC Light Curves

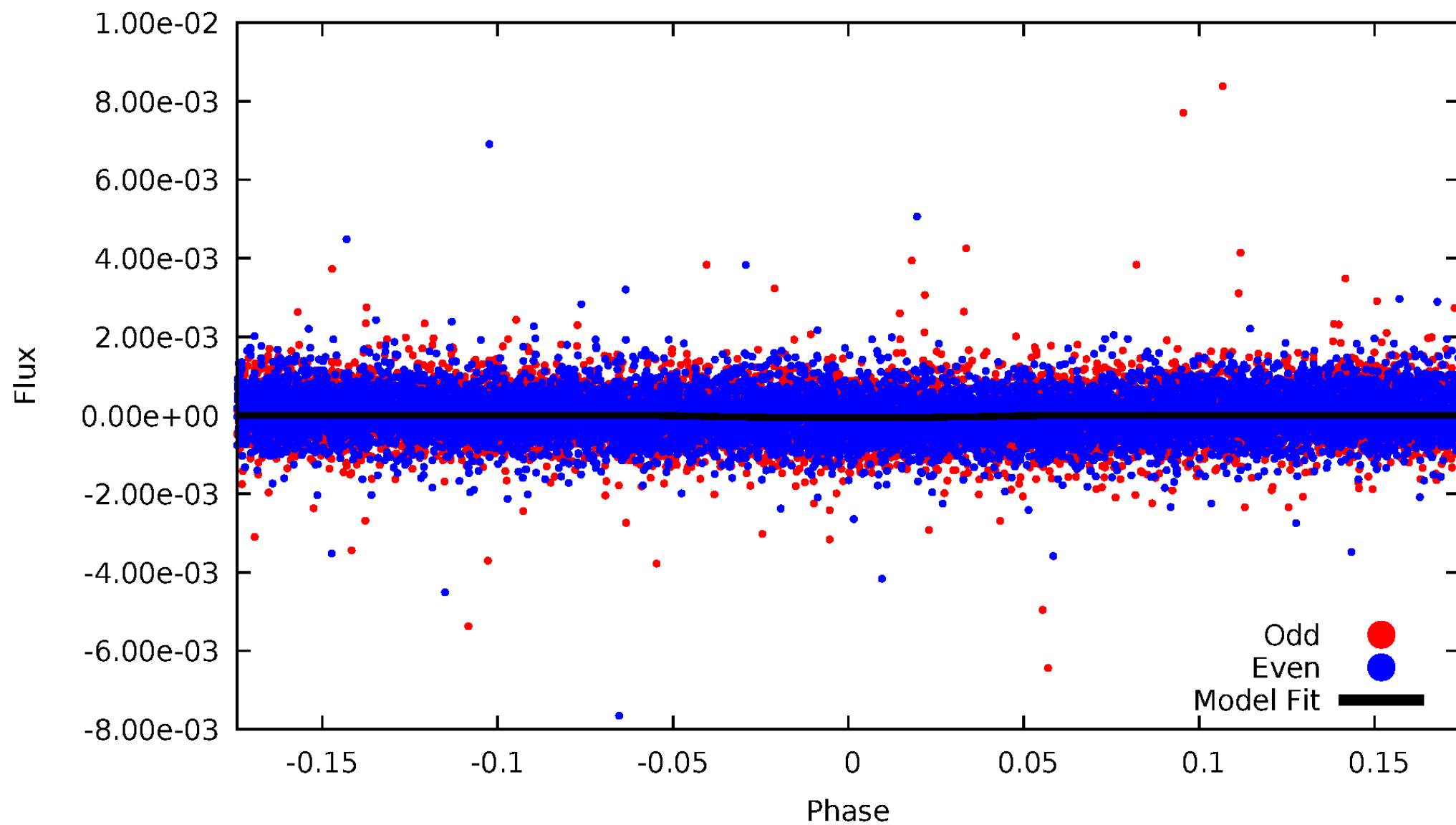


TCE 009642894-01



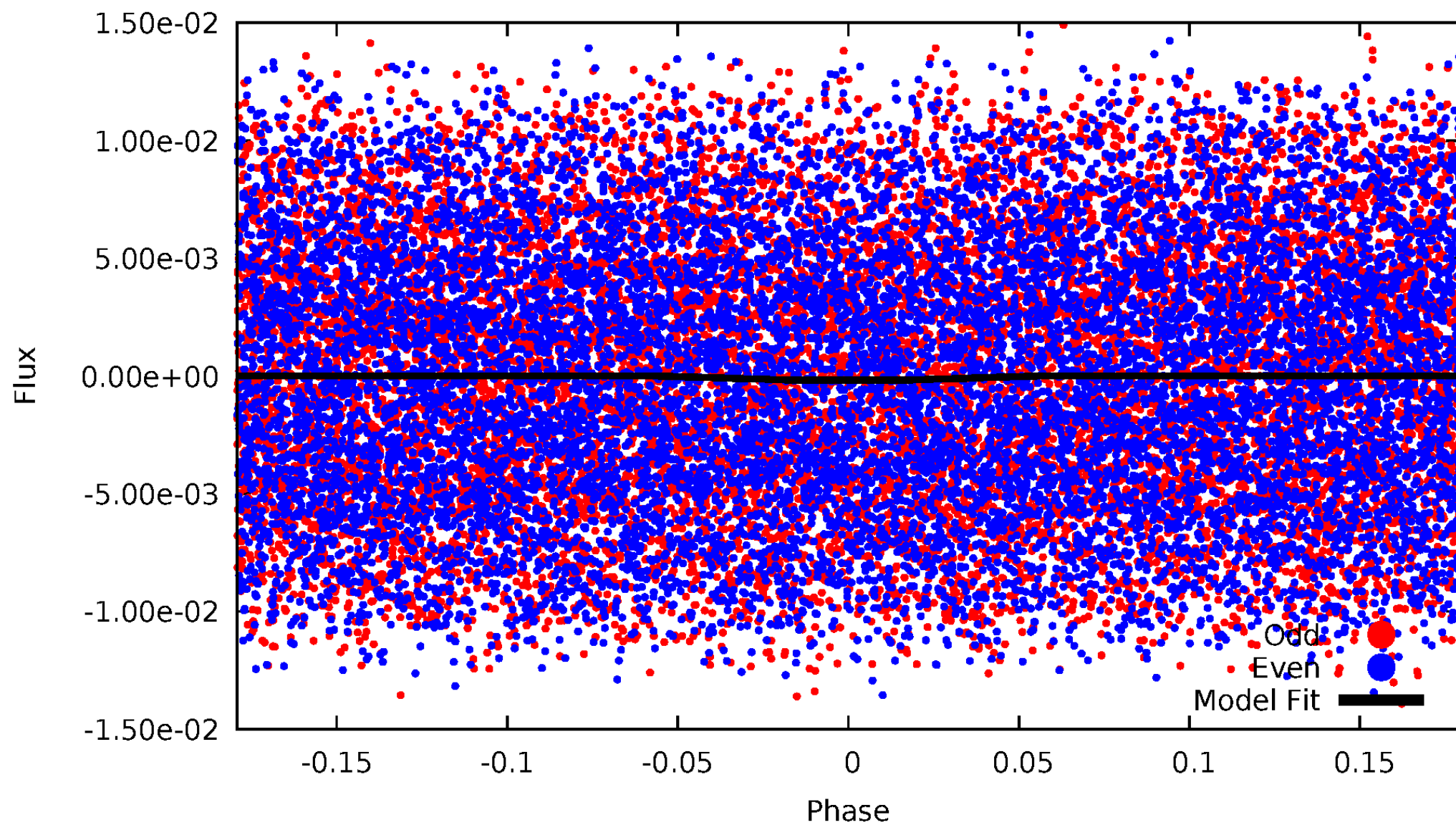
DV Odd/Even

TCE 009642894-01



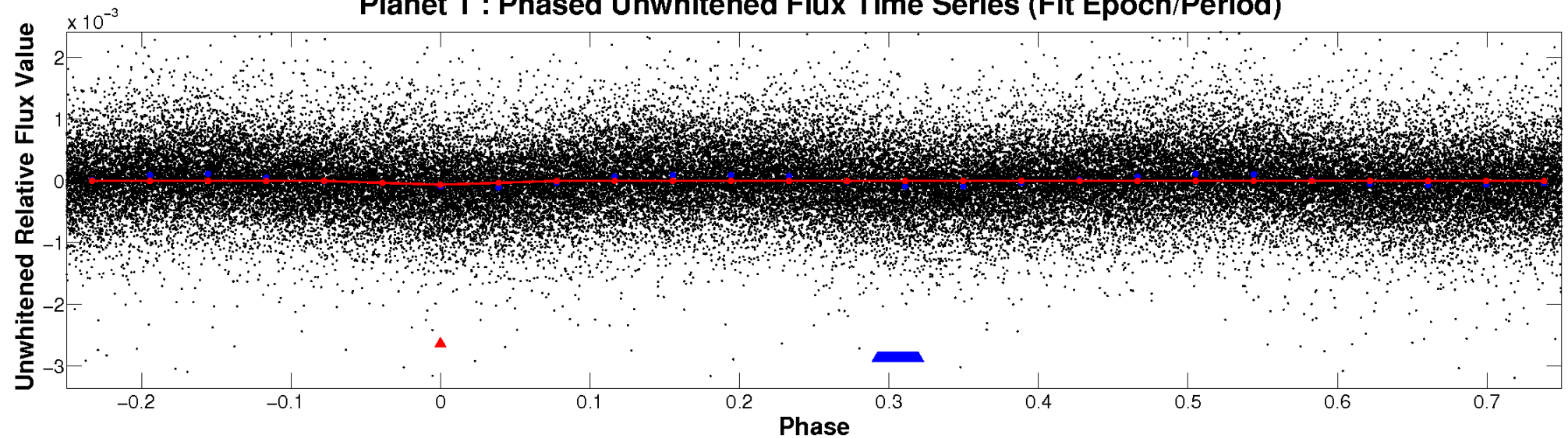
ALT Odd/Even

TCE 009642894-01

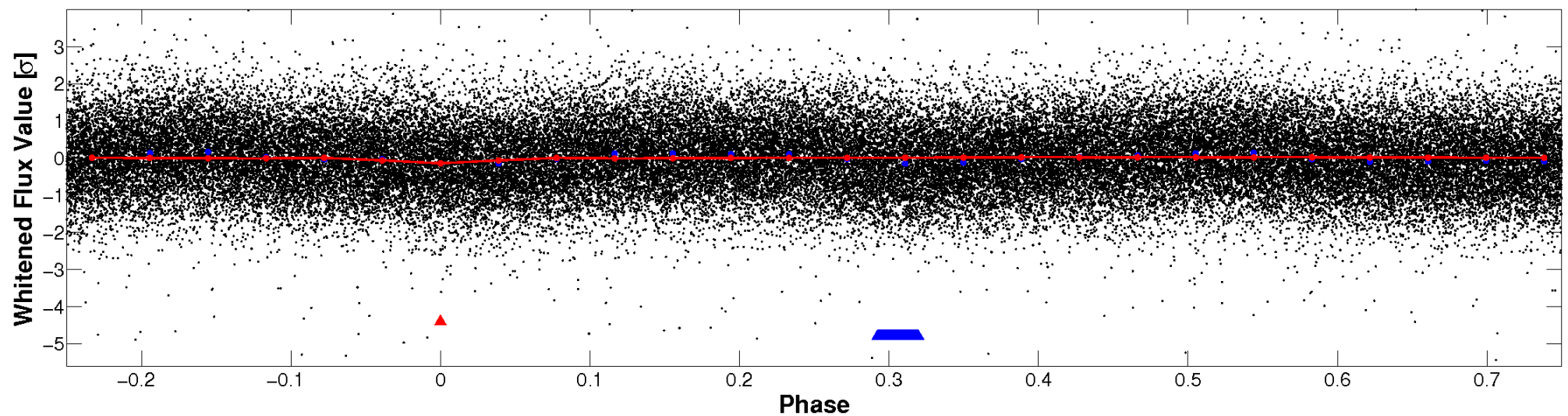


Non-Whitened Vs. Whitened Light Curve

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

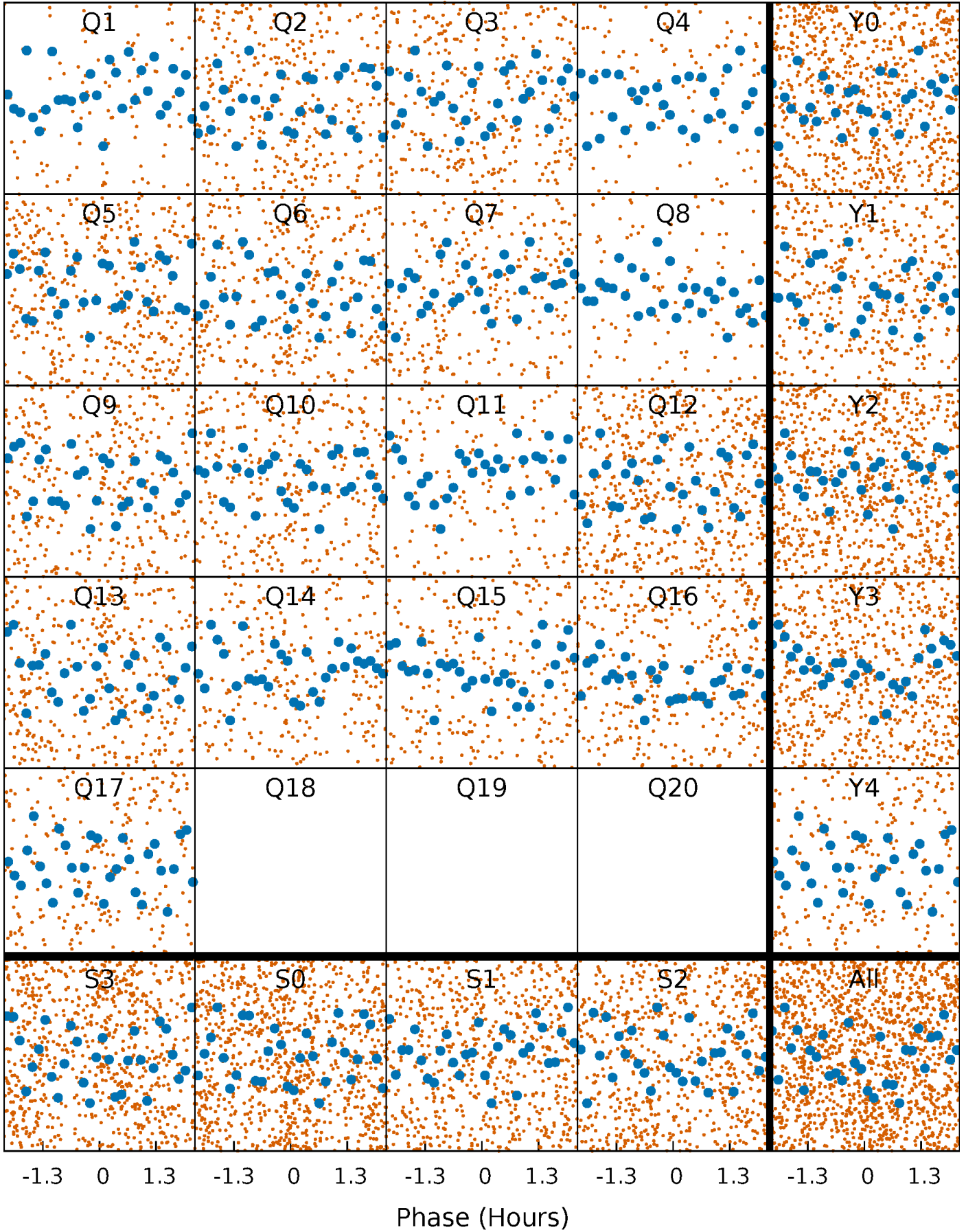


Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)



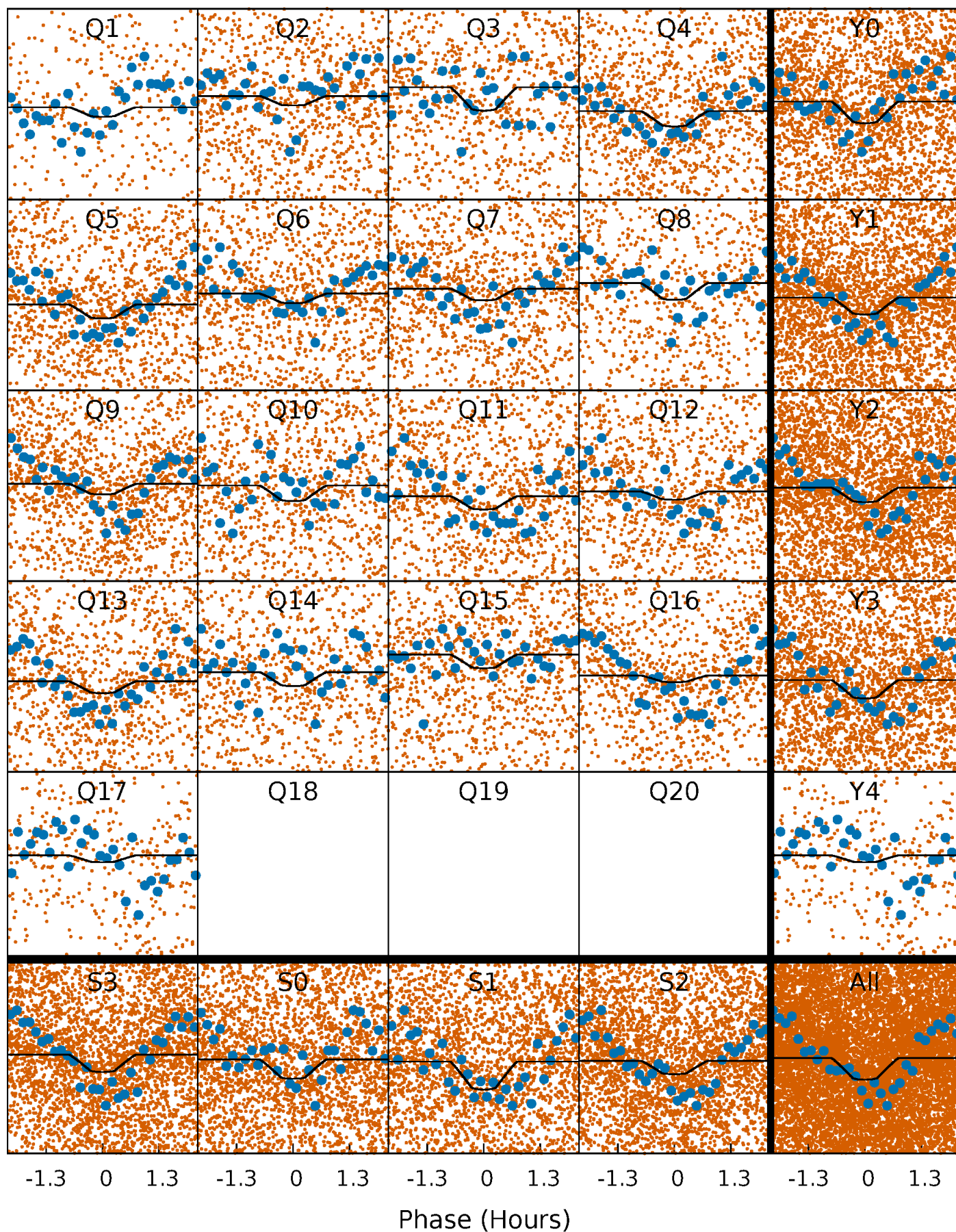
PDC Quarter-Phased Transit Curves

TCE 009642894-01 P= 0.525839 Days $T_0=132.009383$ (BKJD)



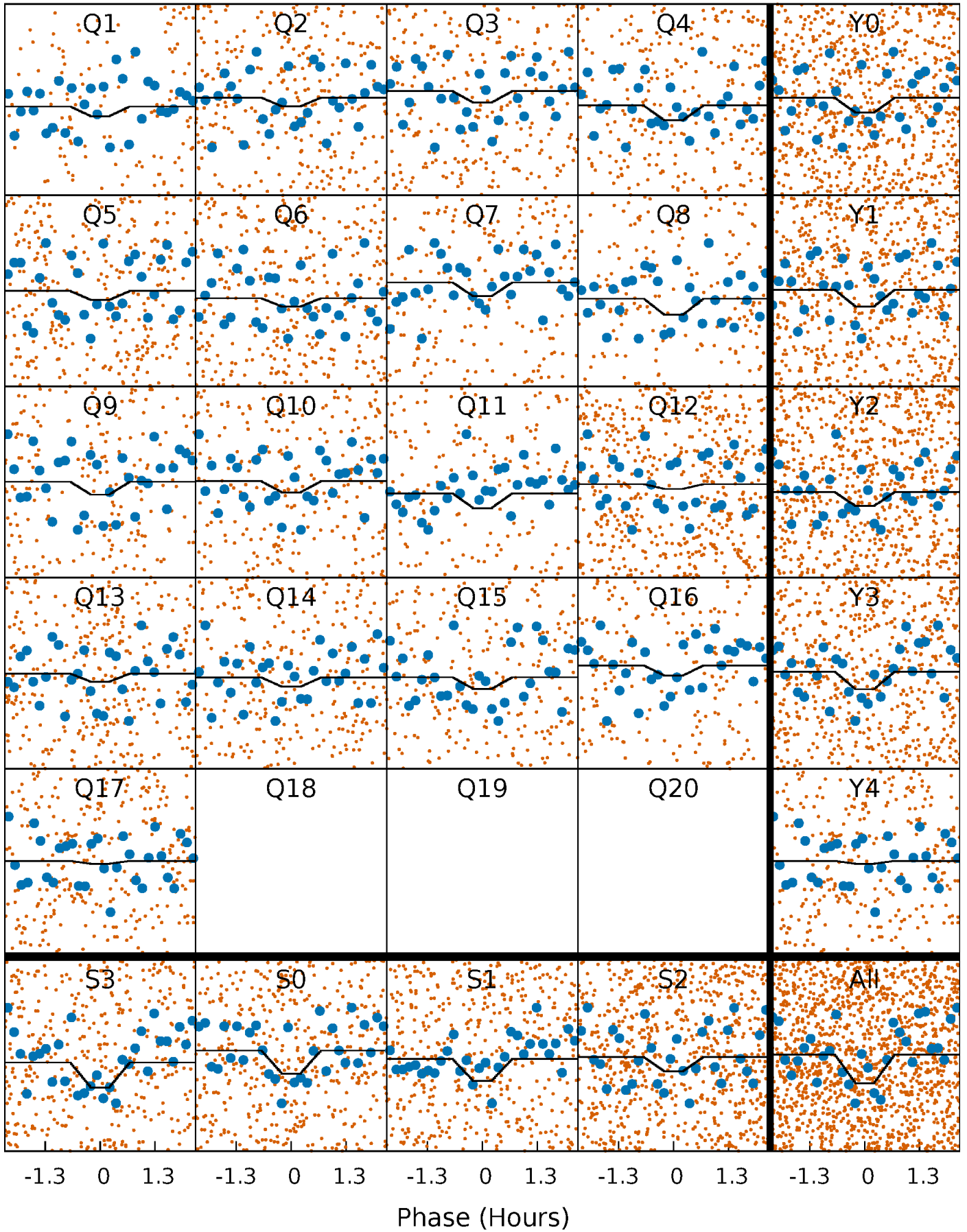
DV Quarter-Phased Transit Curves

TCE 009642894-01 P= 0.525839 Days $T_0=132.009383$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

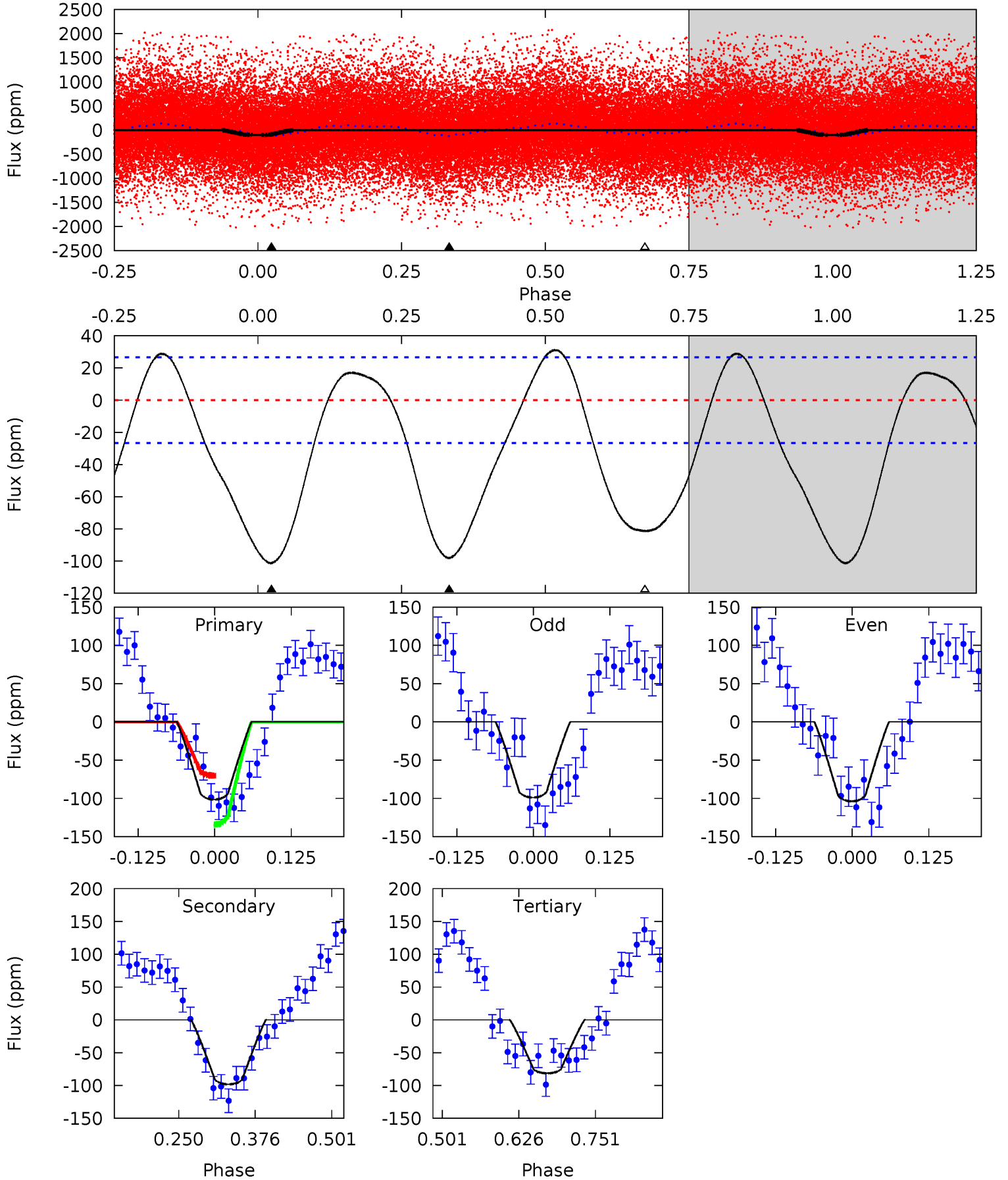
TCE 009642894-01 P= 0.525851 Days $T_0=132.002075$ (BKJD)



DV Model-Shift Uniqueness Test

009642894-01, P = 0.525839 Days, E = 131.483544 Days

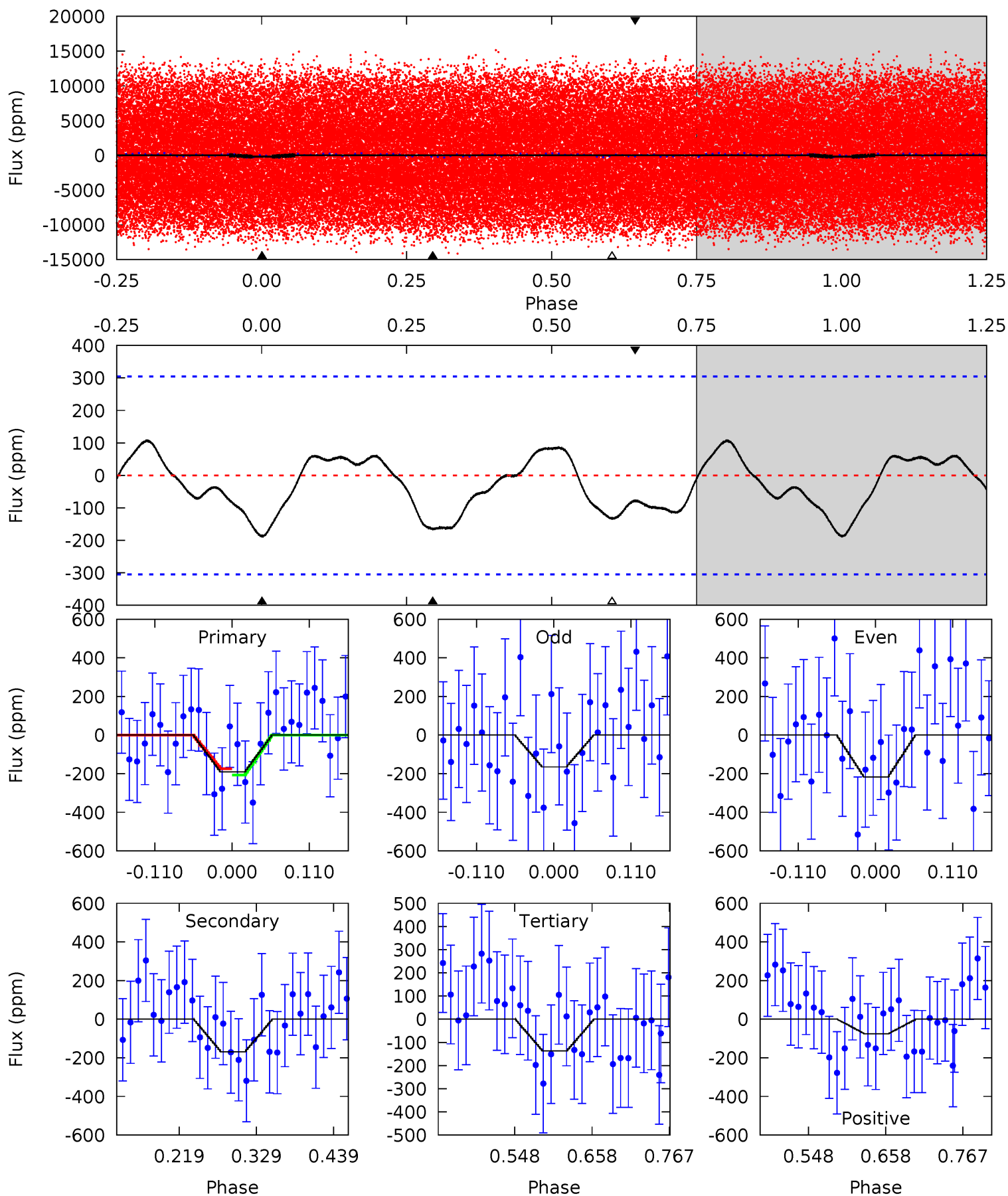
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
17.2	16.7	13.8	0	4.52	1.53	6.78	3.39	17.2	2.85	16.7	0.42	0.99	0.24	5.36



Alt Model-Shift Uniqueness Test

009642894-01, P = 0.525851 Days, E = 131.476224 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
2.85	2.51	2.04	-1.12	4.55	1.60	1.09	0.81	3.97	0.48	3.63	0.39	1.74	0.37	0.25



Stellar Parameters For KIC 009642894

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	7266^{+226}_{-327}	$4.082^{+0.170}_{-0.170}$	$-0.080^{+0.250}_{-0.350}$	$1.876^{+0.536}_{-0.439}$	$1.546^{+0.212}_{-0.259}$	$0.330^{+0.296}_{-0.153}$
	+3%/-5%	+4%/-4%	+312%/-438%	+29%/-23%	+14%/-17%	+90%/-47%
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 009642894-01 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	-98 ± 6	$1.67^{+0.55}_{-0.49}$	5027^{+379}_{-360}	7801^{+2097}_{-1093}	$4.073^{+4.242}_{-1.687}$
Alt.	-169 ± 67	$2.67^{+0.67}_{-0.59}$	5059^{+366}_{-374}	6844^{+1256}_{-1104}	$2.585^{+1.947}_{-1.206}$

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 $A_{obs} \gg 1.0$

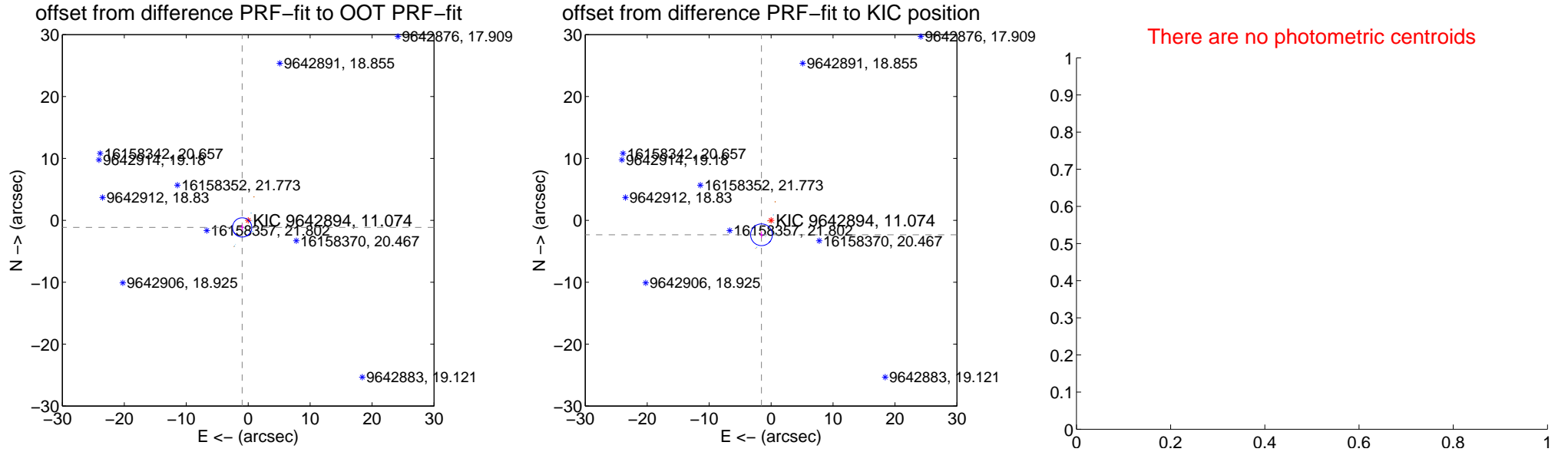
DV Centroid Data

Supplemental centroid analysis for 009642894-01. **Kepler magnitude: 11.07.** Transit SNR 9.35

There are 11 quarters with good PRF difference image offsets

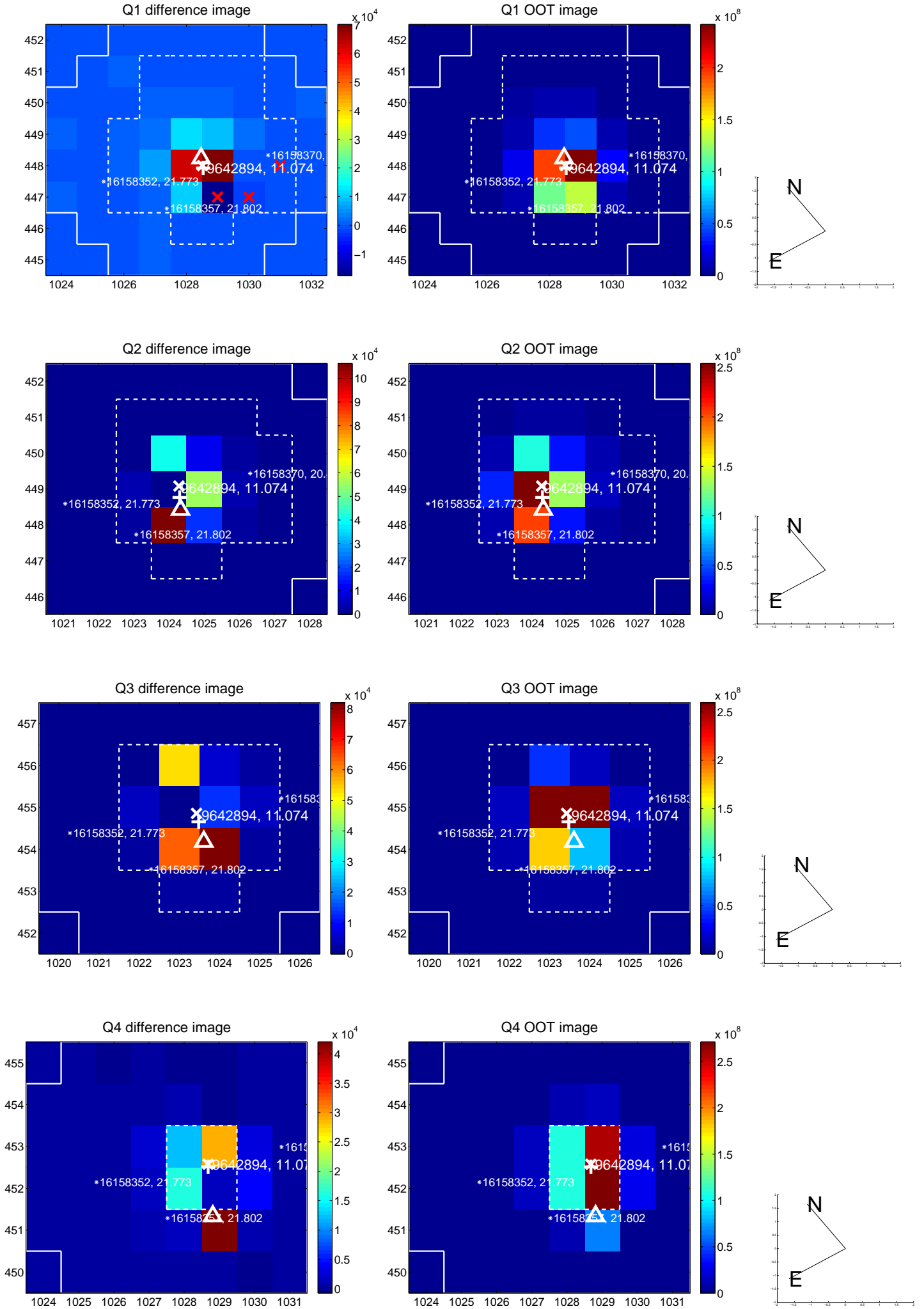
The direct PRF centroid is offset from the target star catalog position by about 0.40 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	1.501 ± 0.518	2.90	0.968 ± 0.253	-1.147 ± 0.497
PRF-fit source offset from KIC position	2.801 ± 0.586	4.78	1.549 ± 0.290	-2.333 ± 0.536
photometric centroid source offset	—	—	—	—

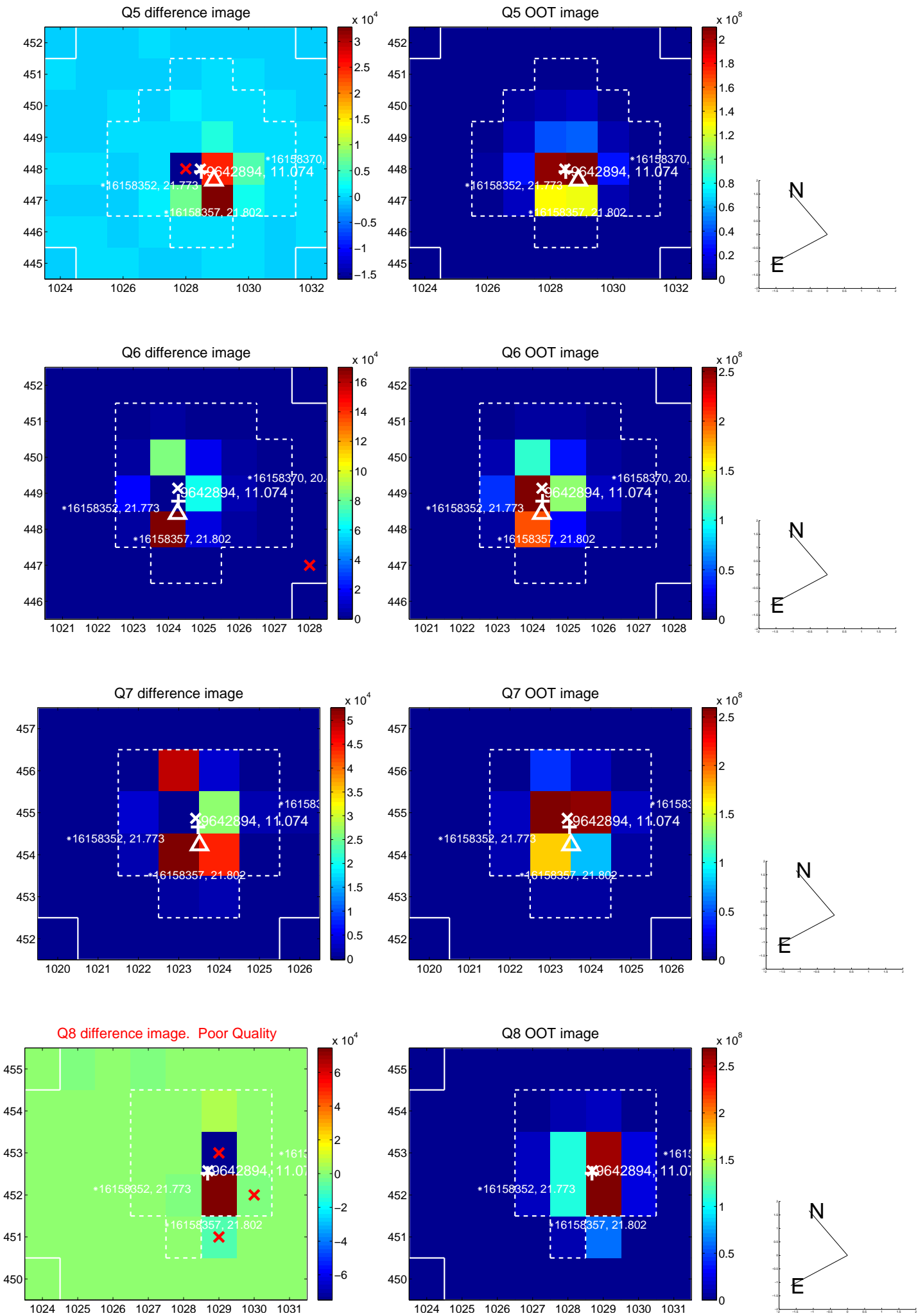


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets;** magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

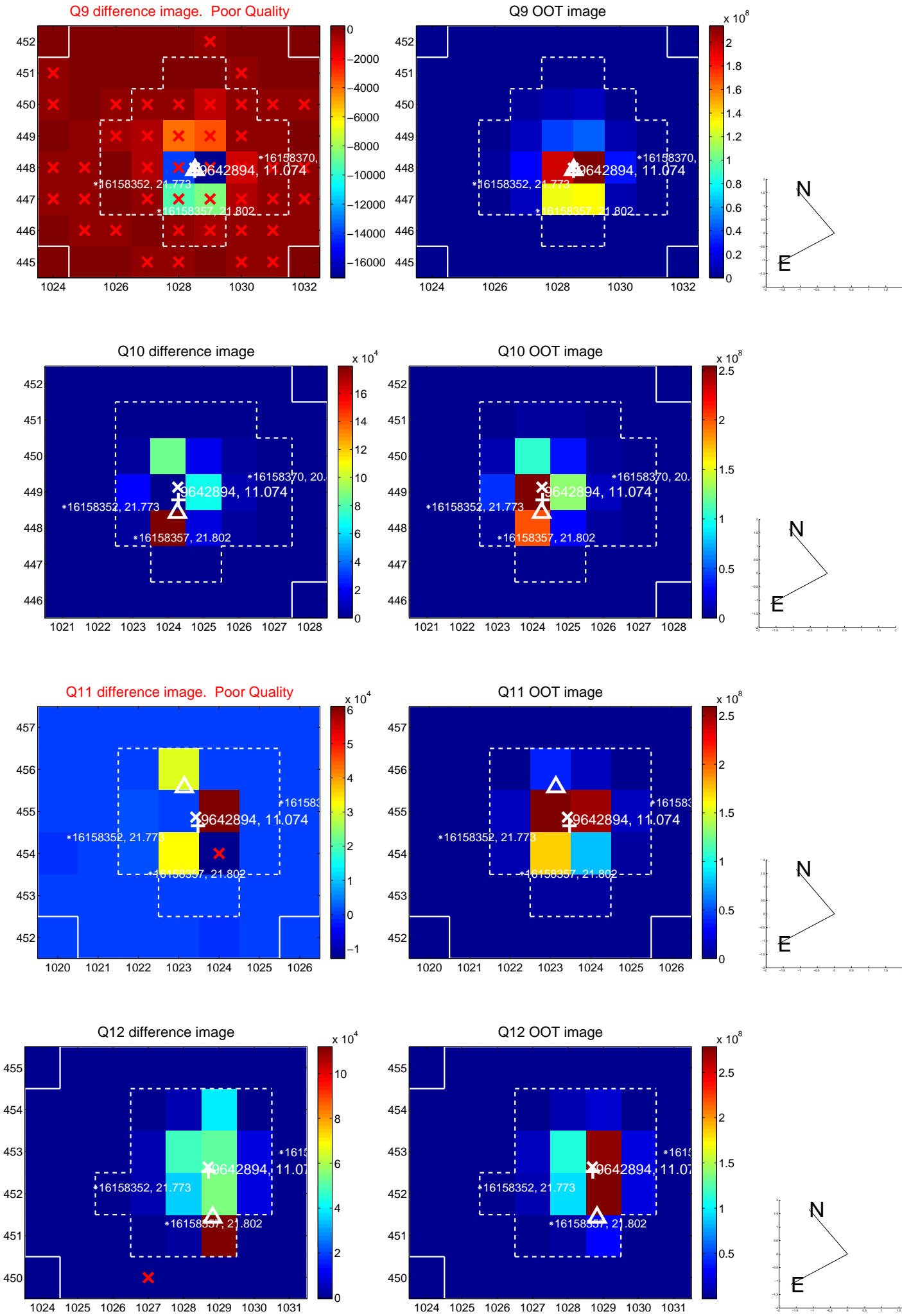
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



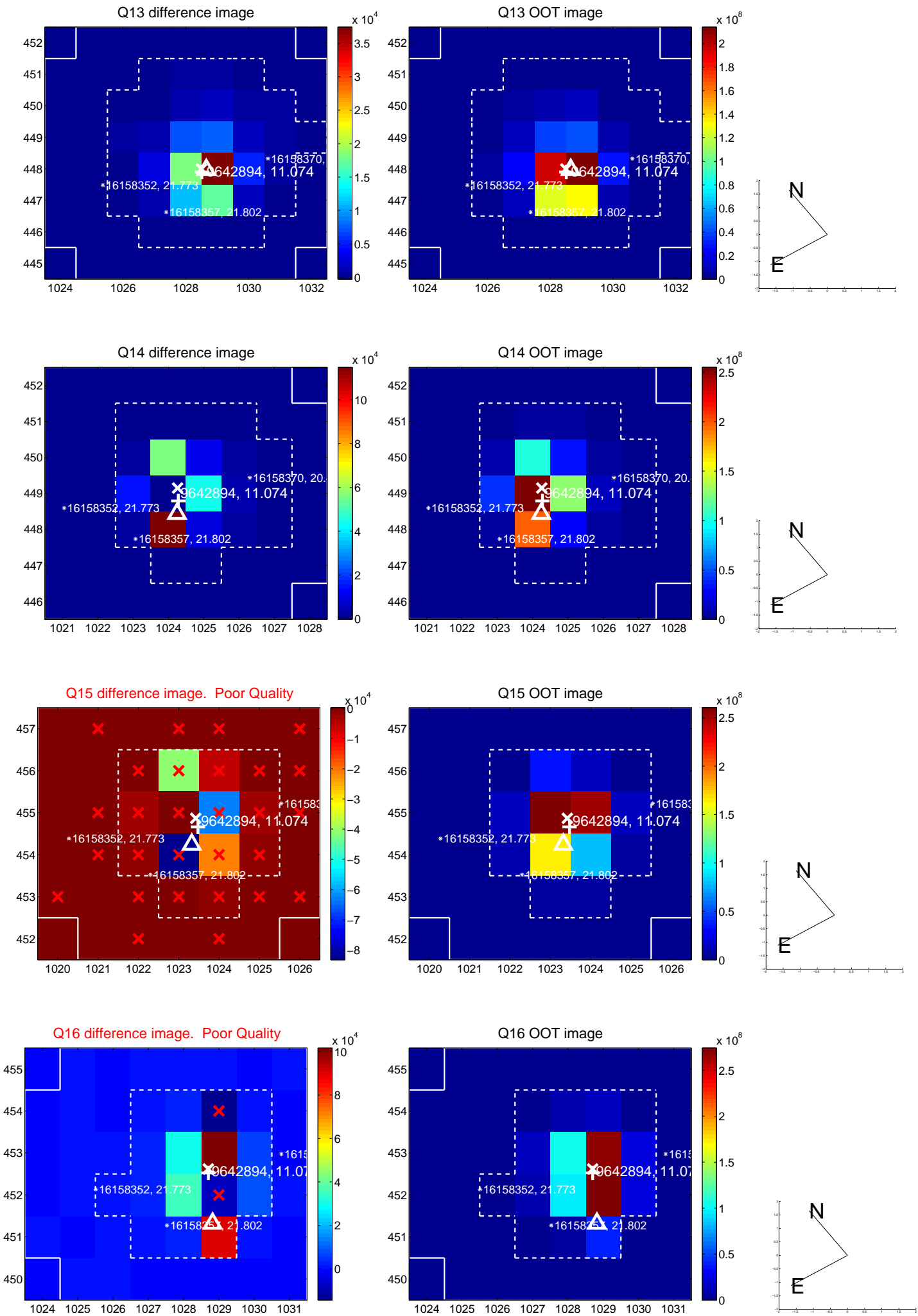
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



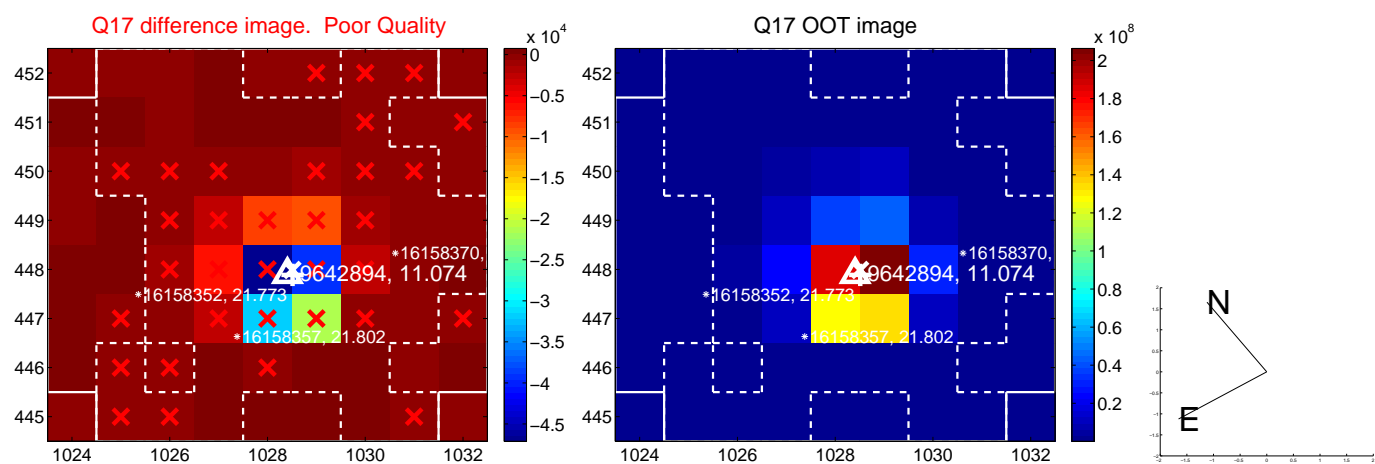
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

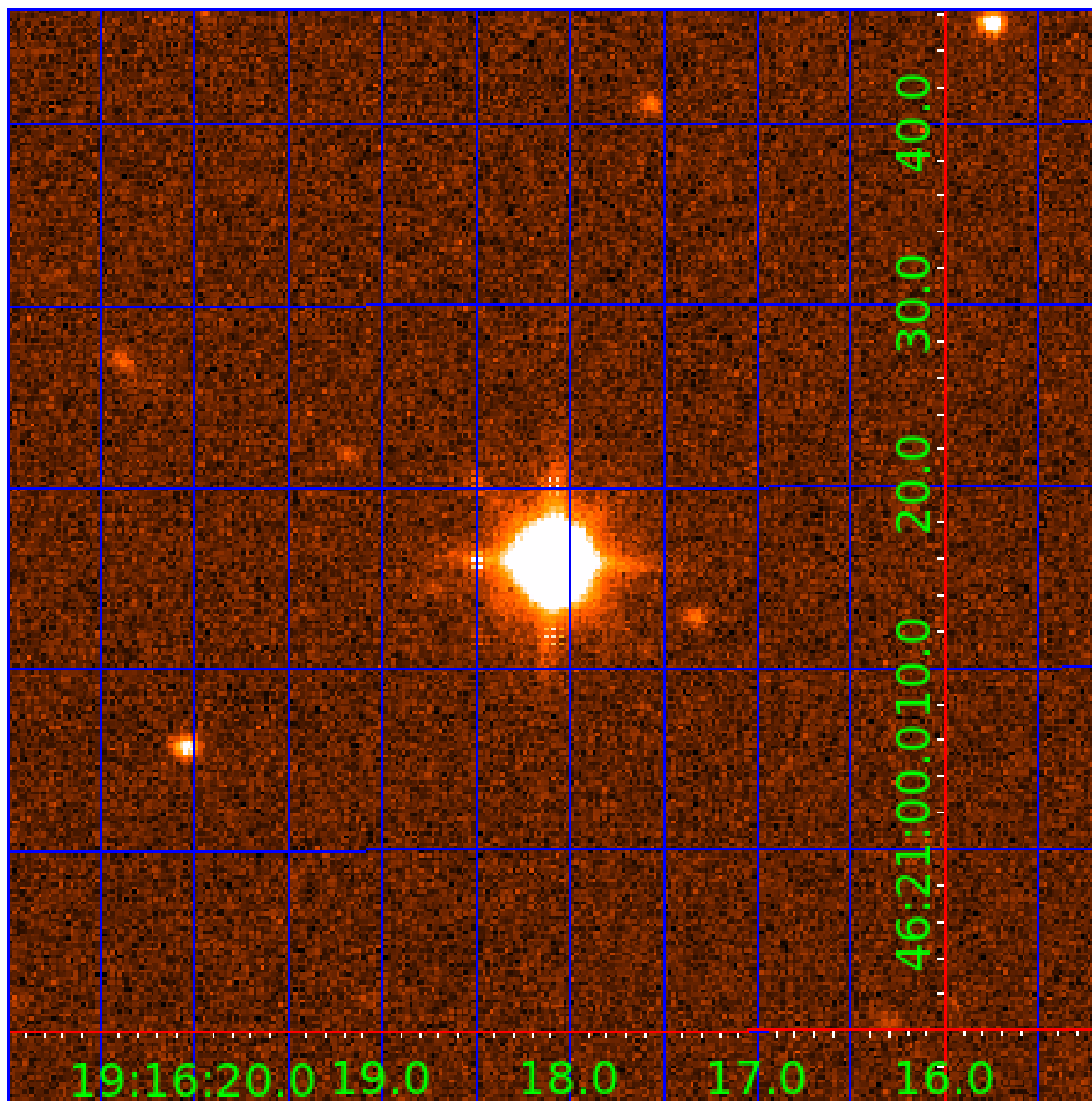


folded centroid time series figure for this object.



UKIRT Image

Declination



KIC 009642894

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})
009642894-01	OBS	No	0.525839	132.009383	61.2	1.099	8.6	9.3	1.88	7266	1.71	40342.34
009642894-02	OBS	No	0.525844	131.637265	82.2	0.964	9.3	10.9	1.88	7266	1.75	40341.81

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
009642894-01	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—CENT_SATURATED
009642894-02	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_ALT—SAME_NTL_PERIOD—CENT_SATURATED

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

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

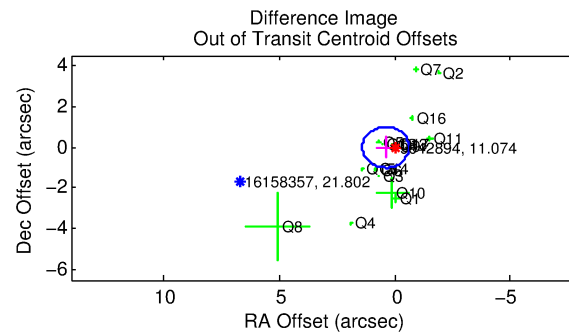
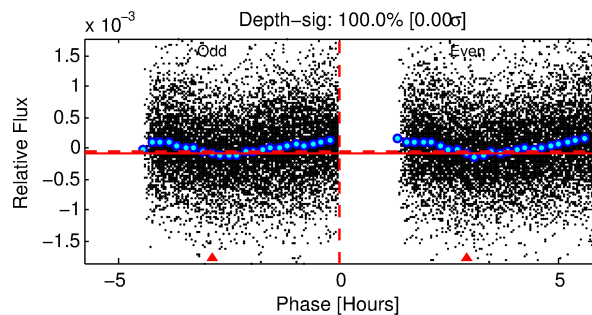
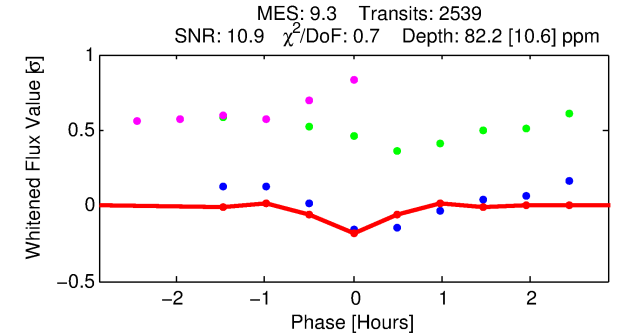
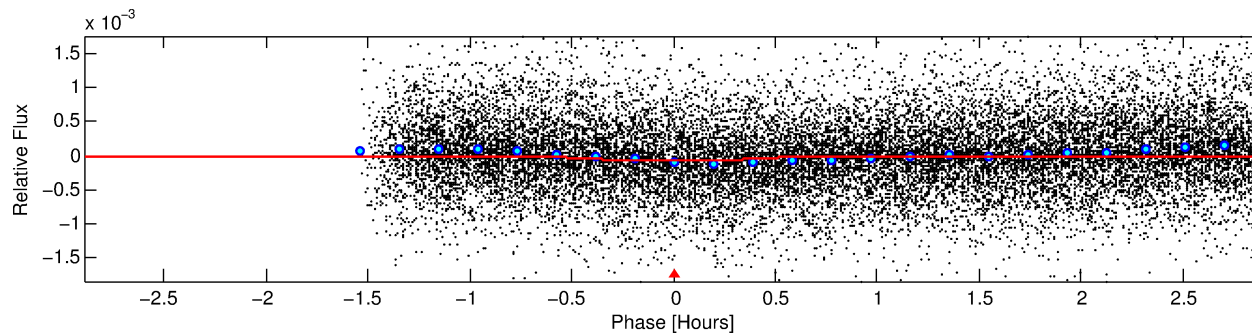
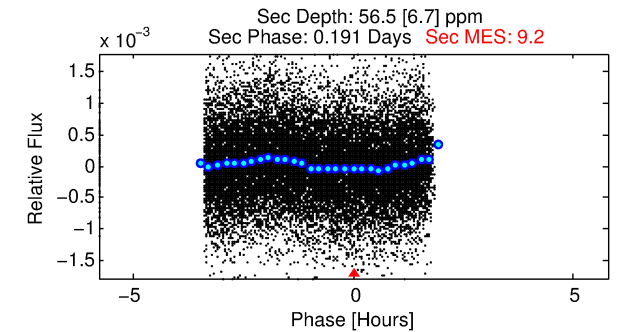
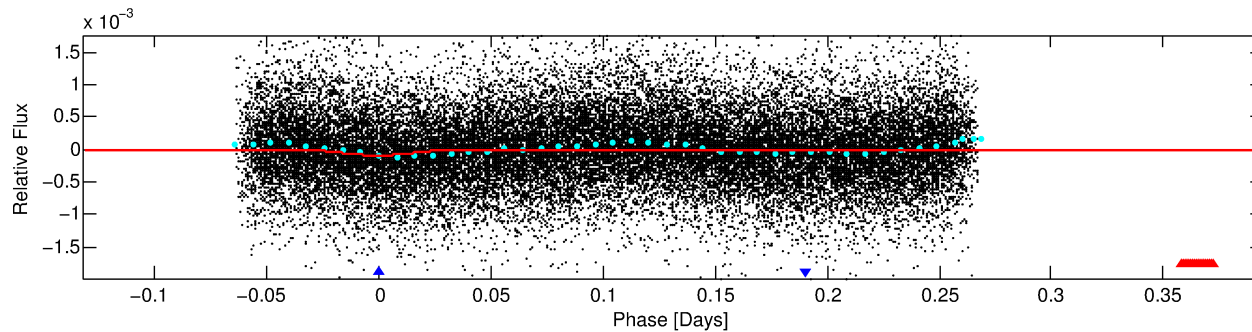
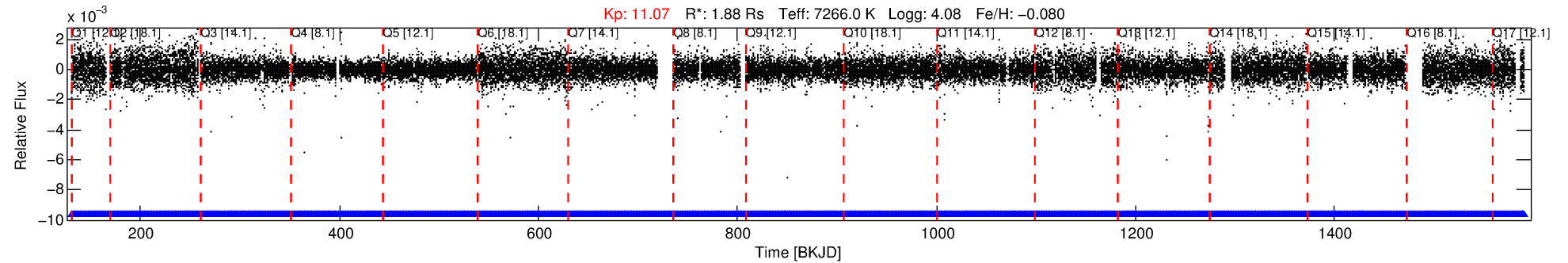
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 009642894-02

No Significant Match Found

DV One-Page Summary

KIC: 9642894 Candidate: 2 of 2 Period: 0.526 d



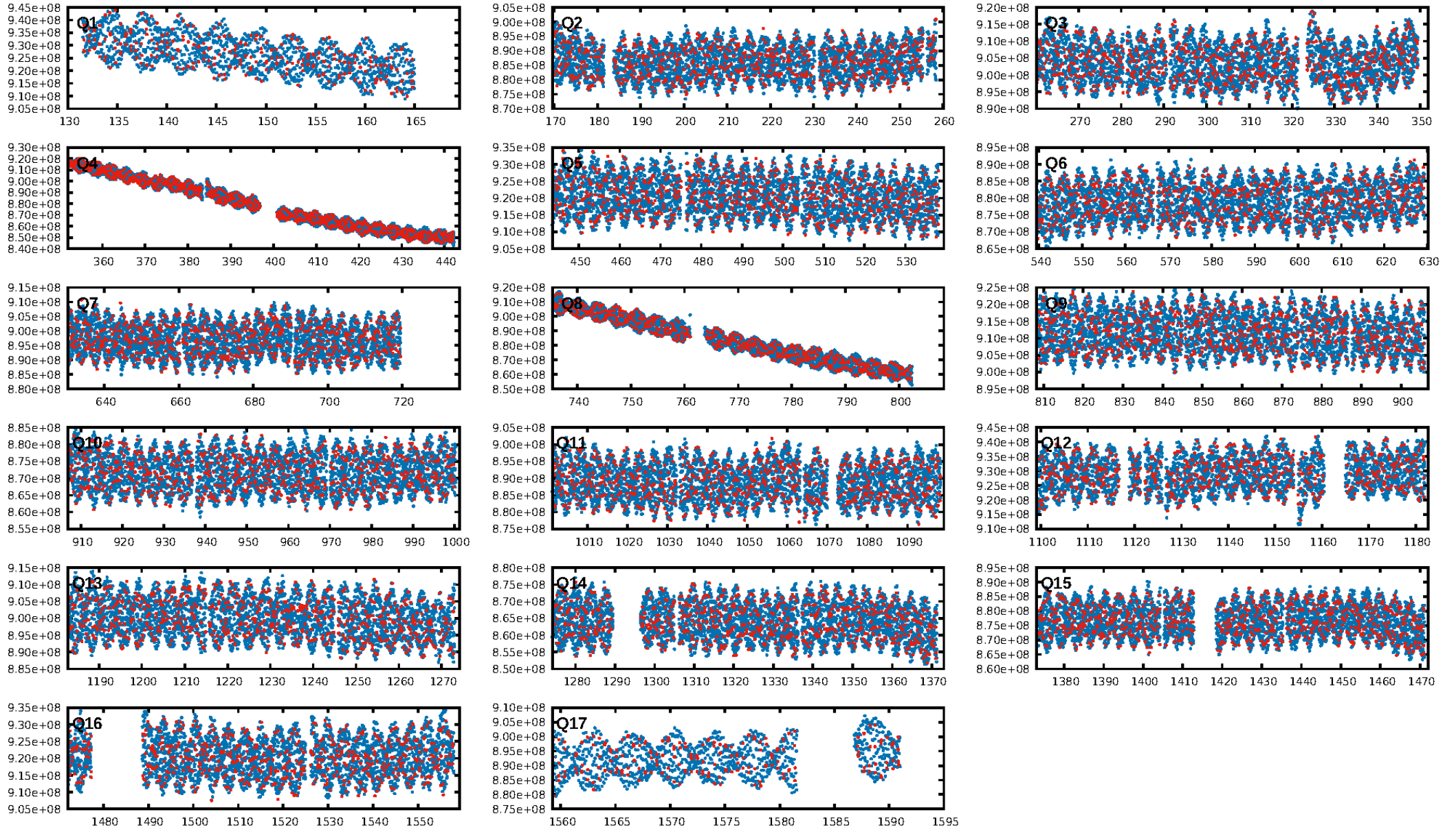
DV Fit Results:

Period = 0.52584 [0.00001] d
Epoch = 131.6373 [0.0013] BKJD
Rp/R* = 0.0086 [0.0046]
a/R* = 4.06 [12.10]
b = 0.30 [9.65]
Seff = 40341.81 [14920.31]
Teff = 3614 [334] K
Rp = 1.75 [1.07] Re
a = 0.0148 [0.0034] AU
Ag = 2.21 [2.50] [0.48σ]
Teffp = 6811 [1870] K [1.68σ]

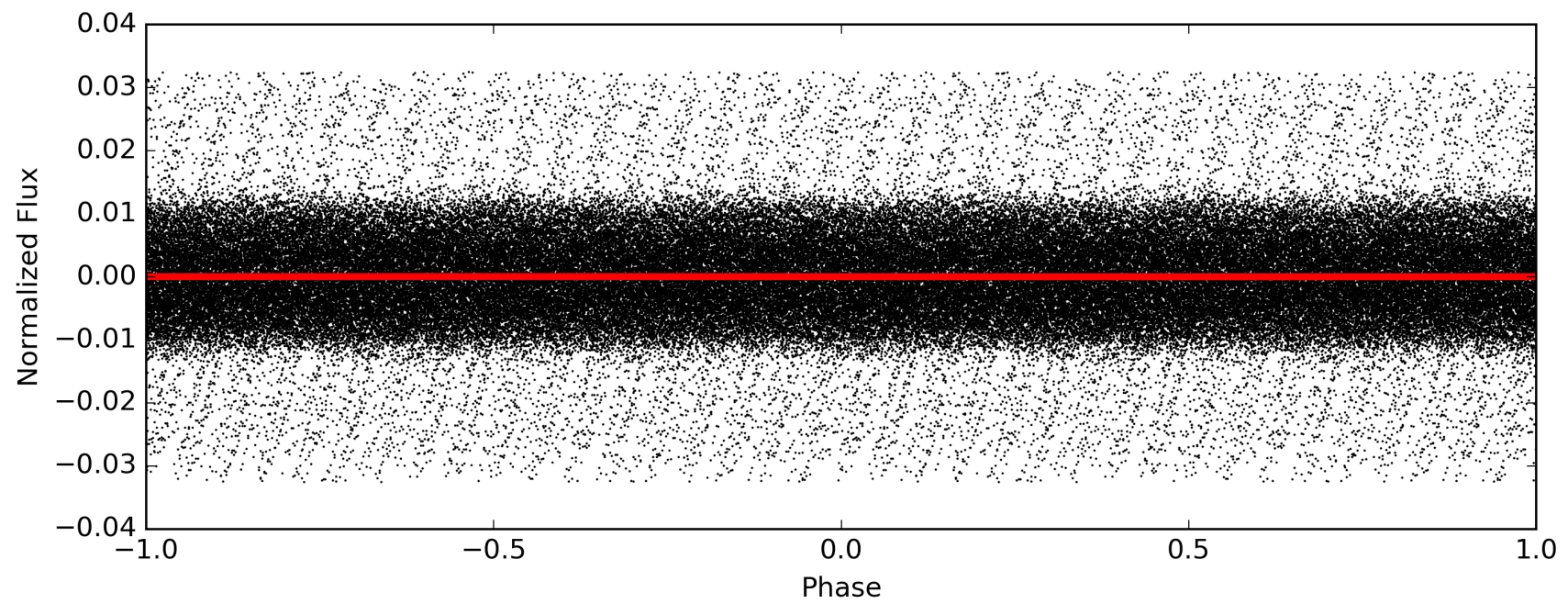
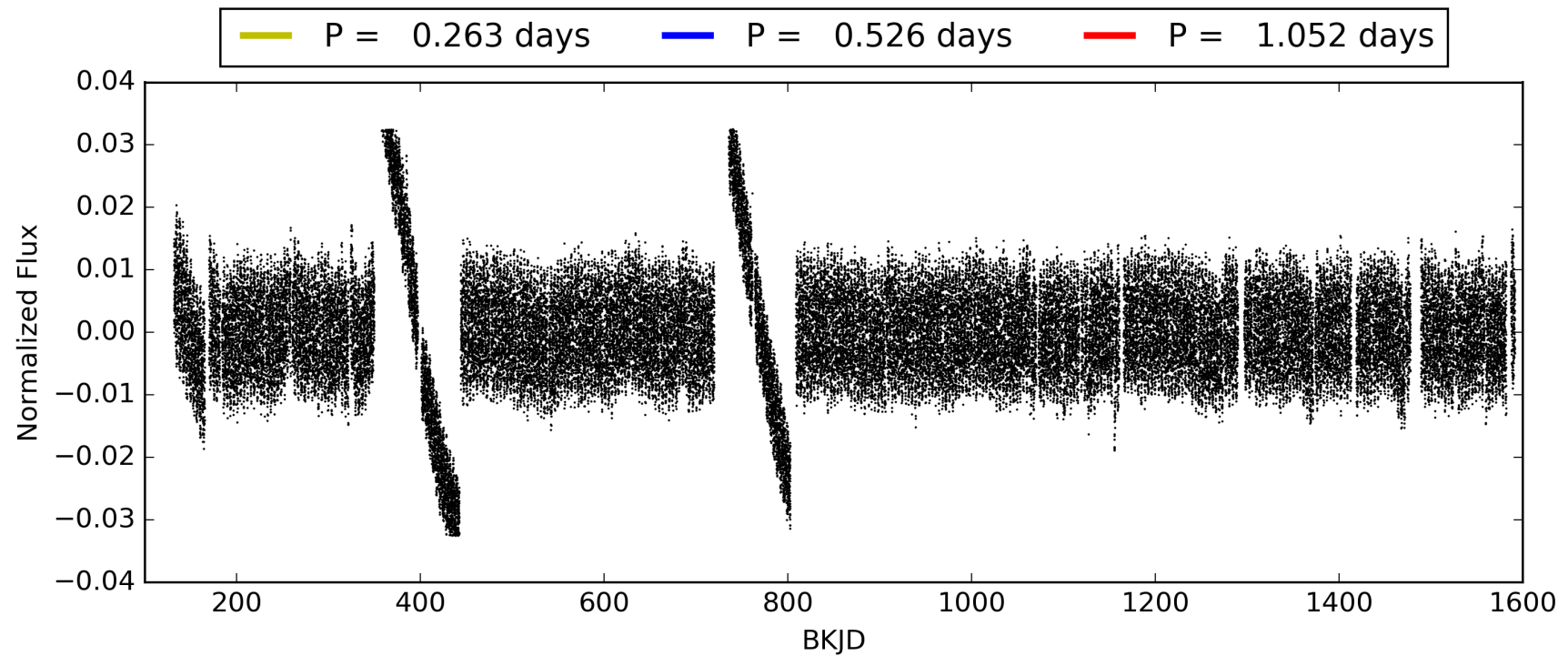
DV Diagnostic Results:

ShortPeriod-sig: 0.0% [0.00σ]
LongPeriod-sig: N/A
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: 7.01e-19
RollingBand-fgt: 1.00 [2424/2424]
GhostDiagnostic-chr: 0.9584
Centroid-sig: N/A
Centroid-so: N/A
OotOffset-rm: 0.405 arcsec [1.21σ]
KicOffset-rm: 1.244 arcsec [2.15σ]
OotOffset-st: 4/4/4/5 [17]
KicOffset-st: 4/4/4/5 [17]
DiffImageQuality-fgm: 0.41 [7/17]
DiffImageOverlap-fno: 0.00 [0/17]

TCE 009642894-02, PDC Light Curves

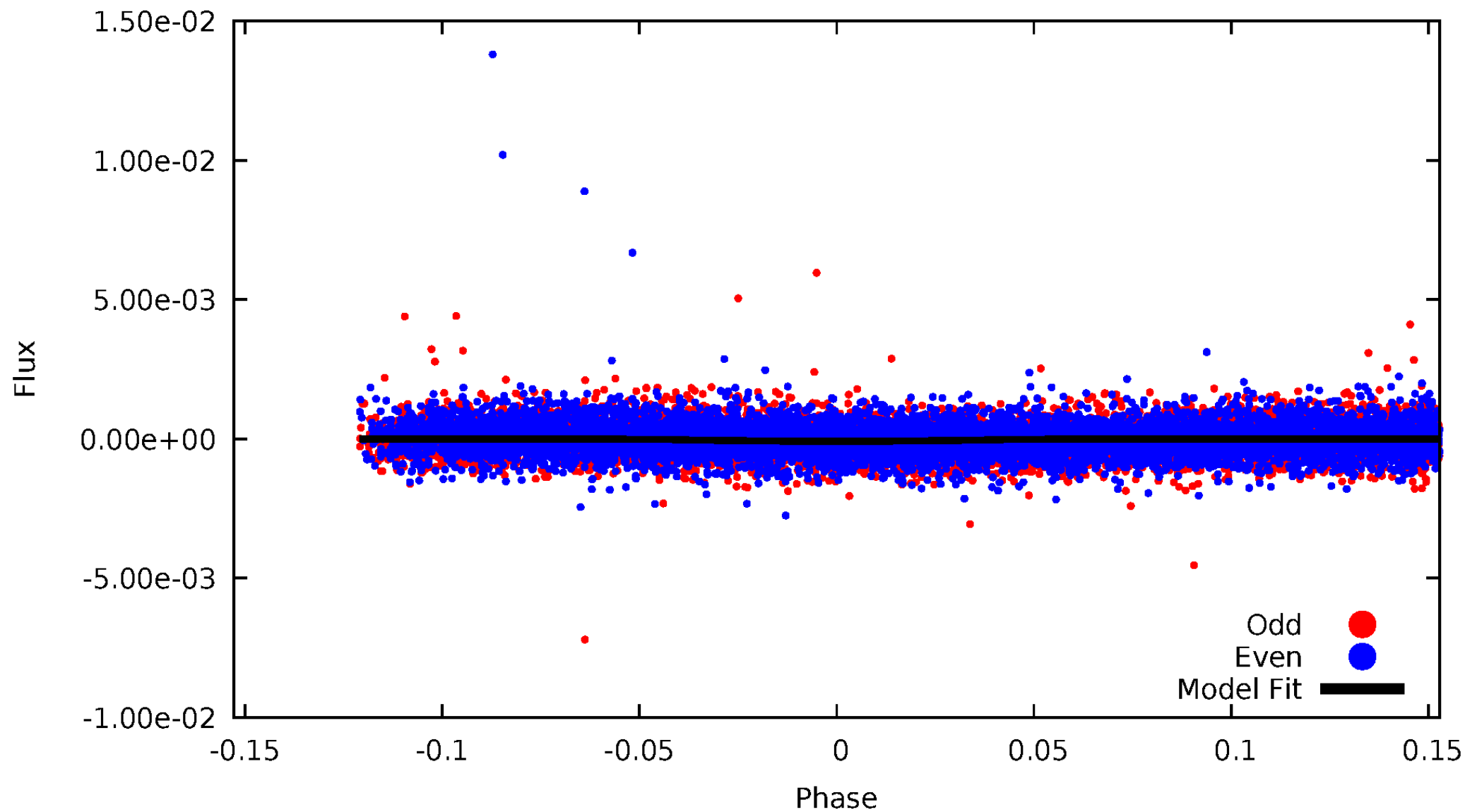


TCE 009642894-02



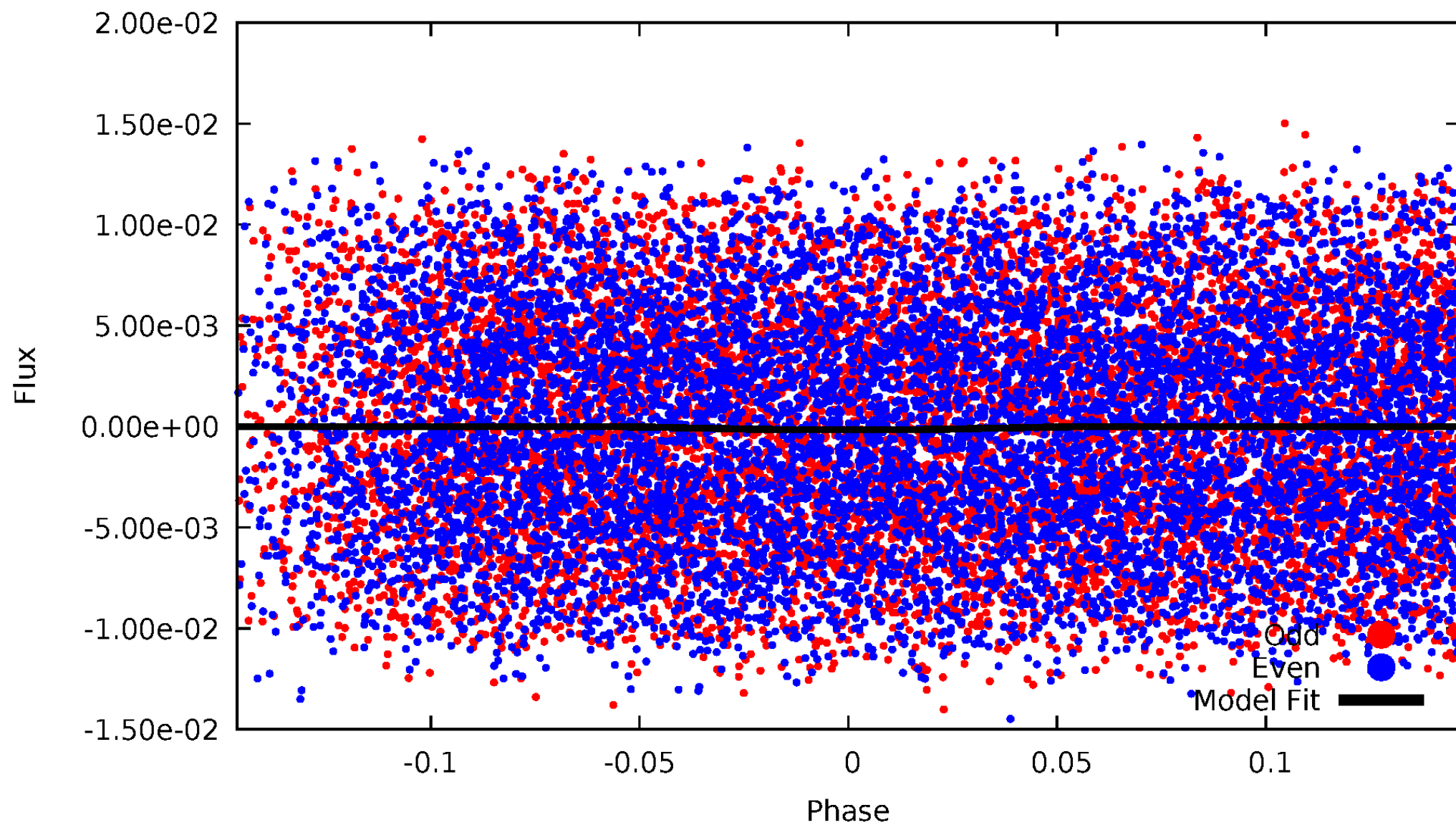
DV Odd/Even

TCE 009642894-02



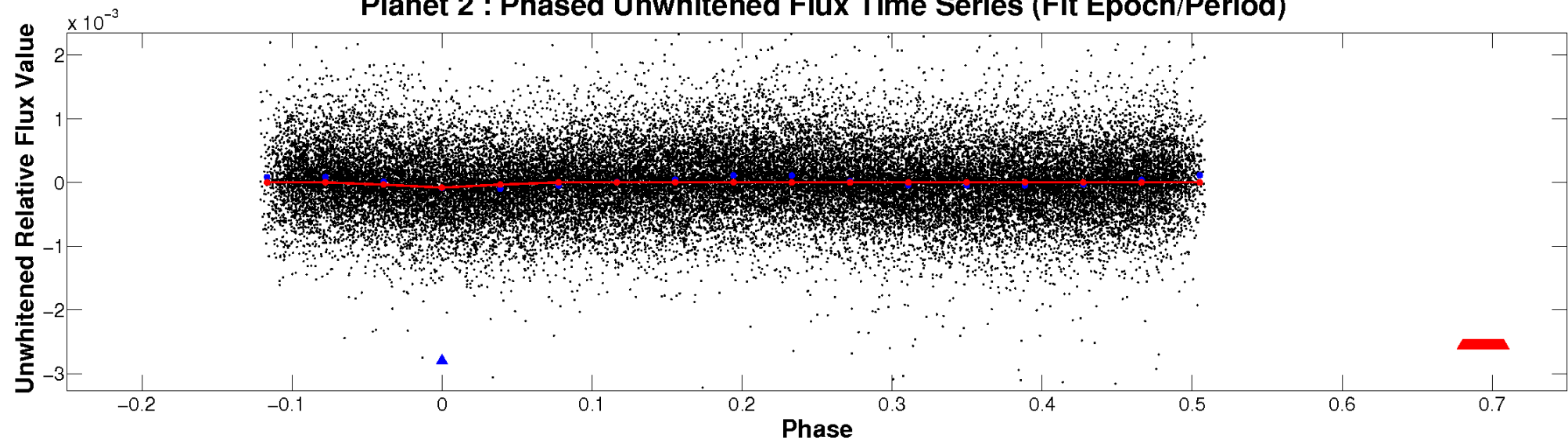
ALT Odd/Even

TCE 009642894-02

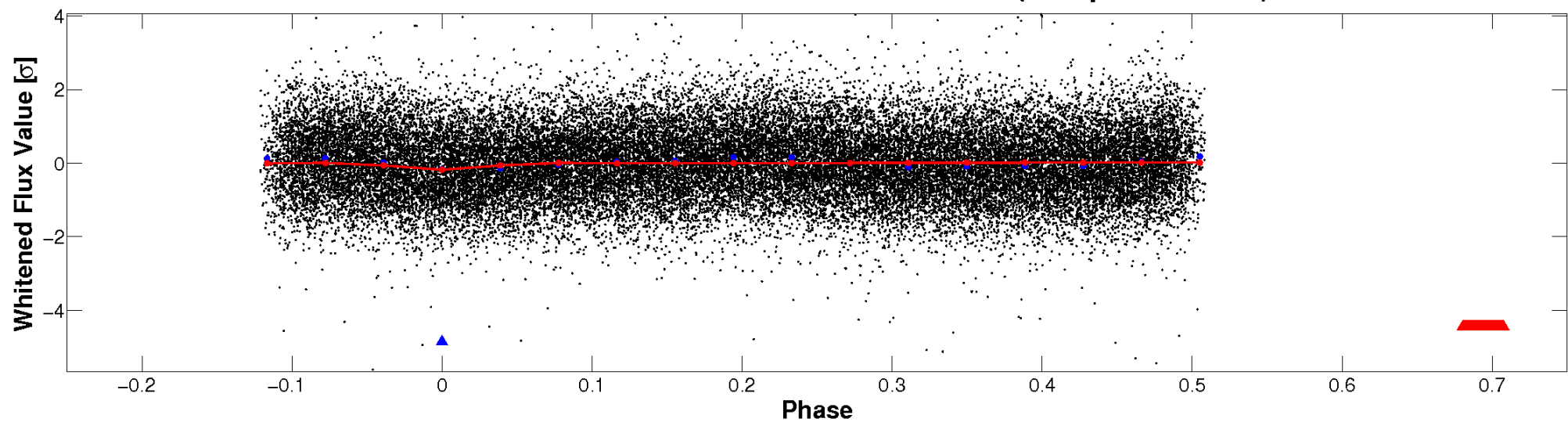


Non-Whitened Vs. Whitened Light Curve

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

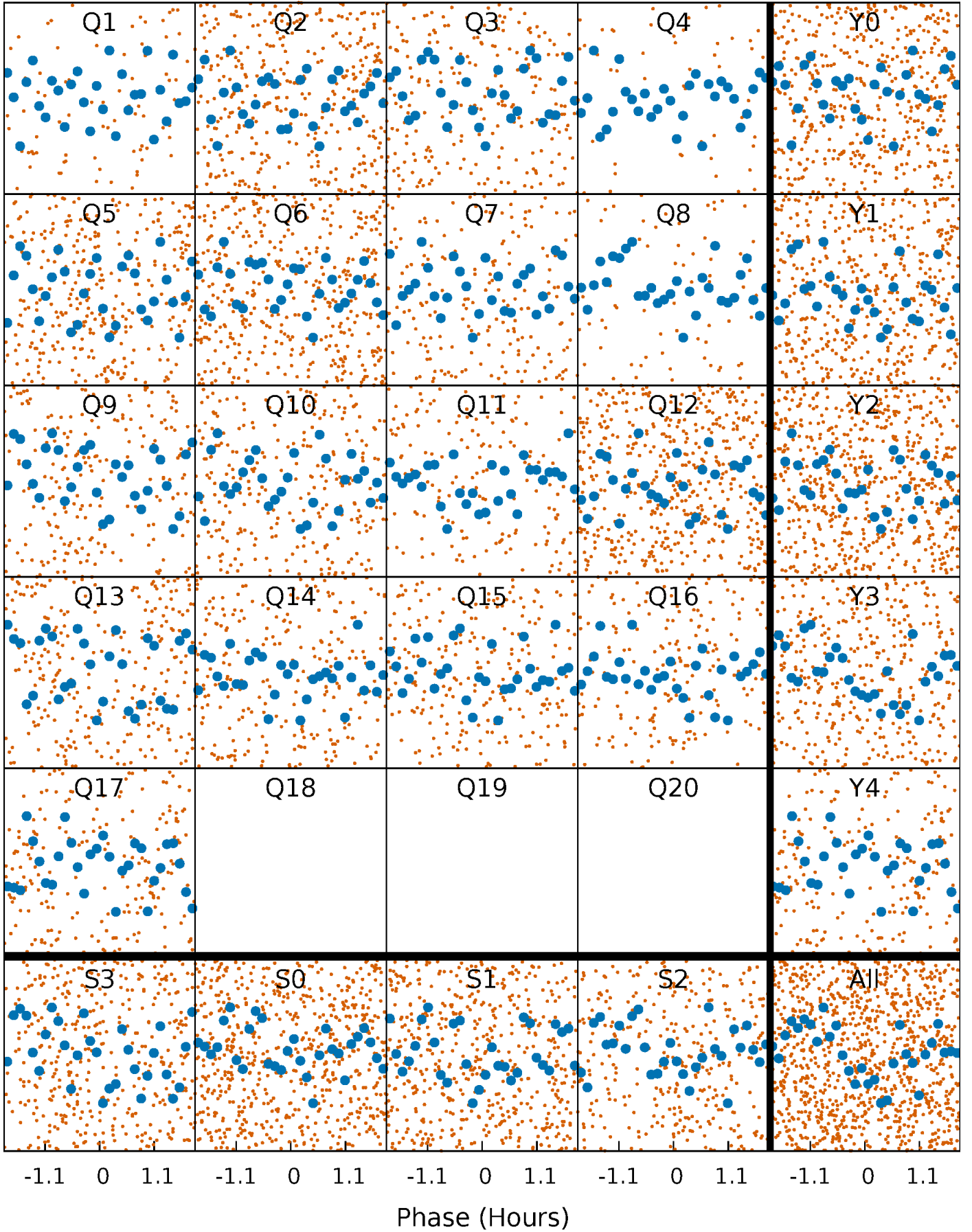


Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



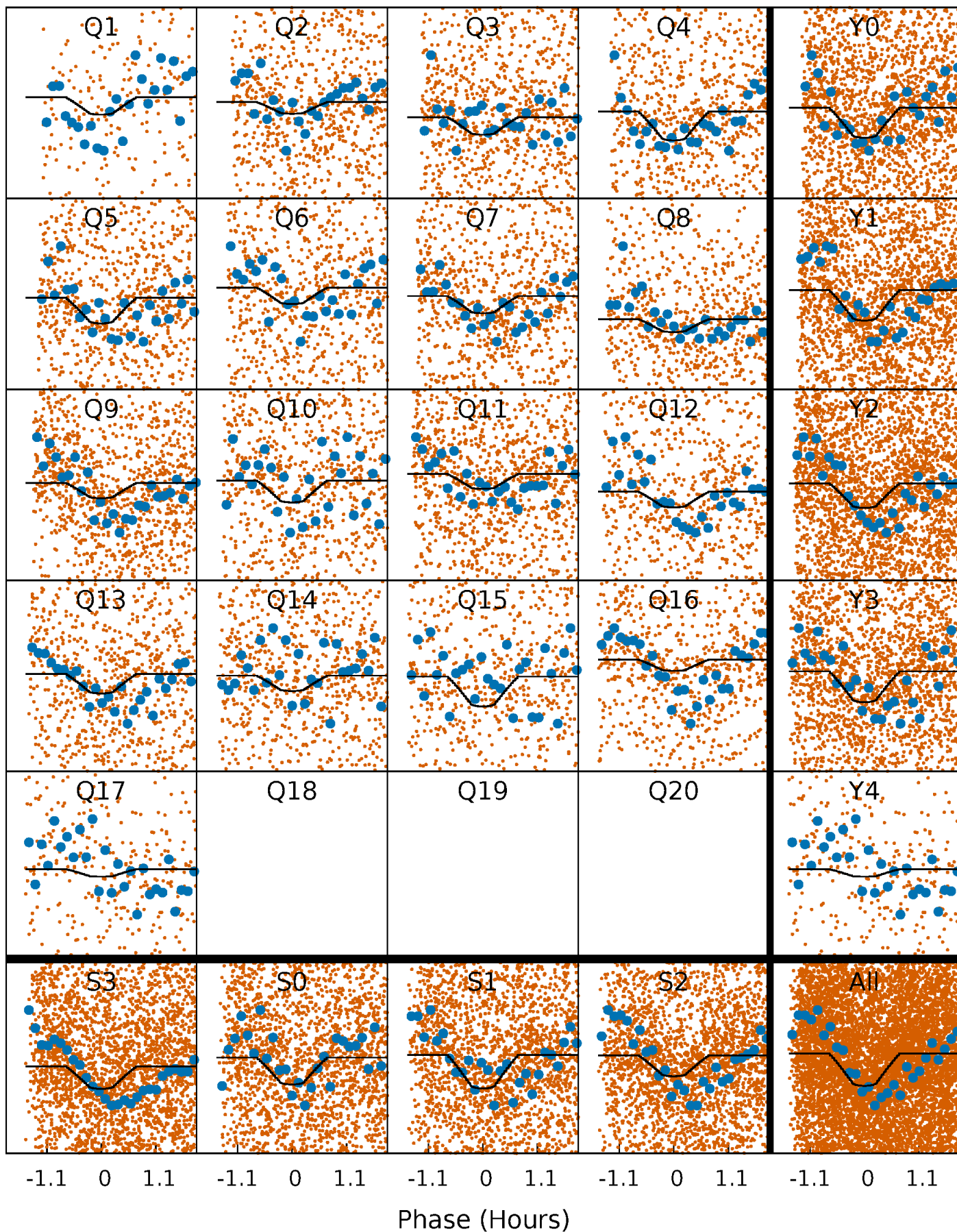
PDC Quarter-Phased Transit Curves

TCE 009642894-02 P= 0.525844 Days $T_0=131.637265$ (BKJD)



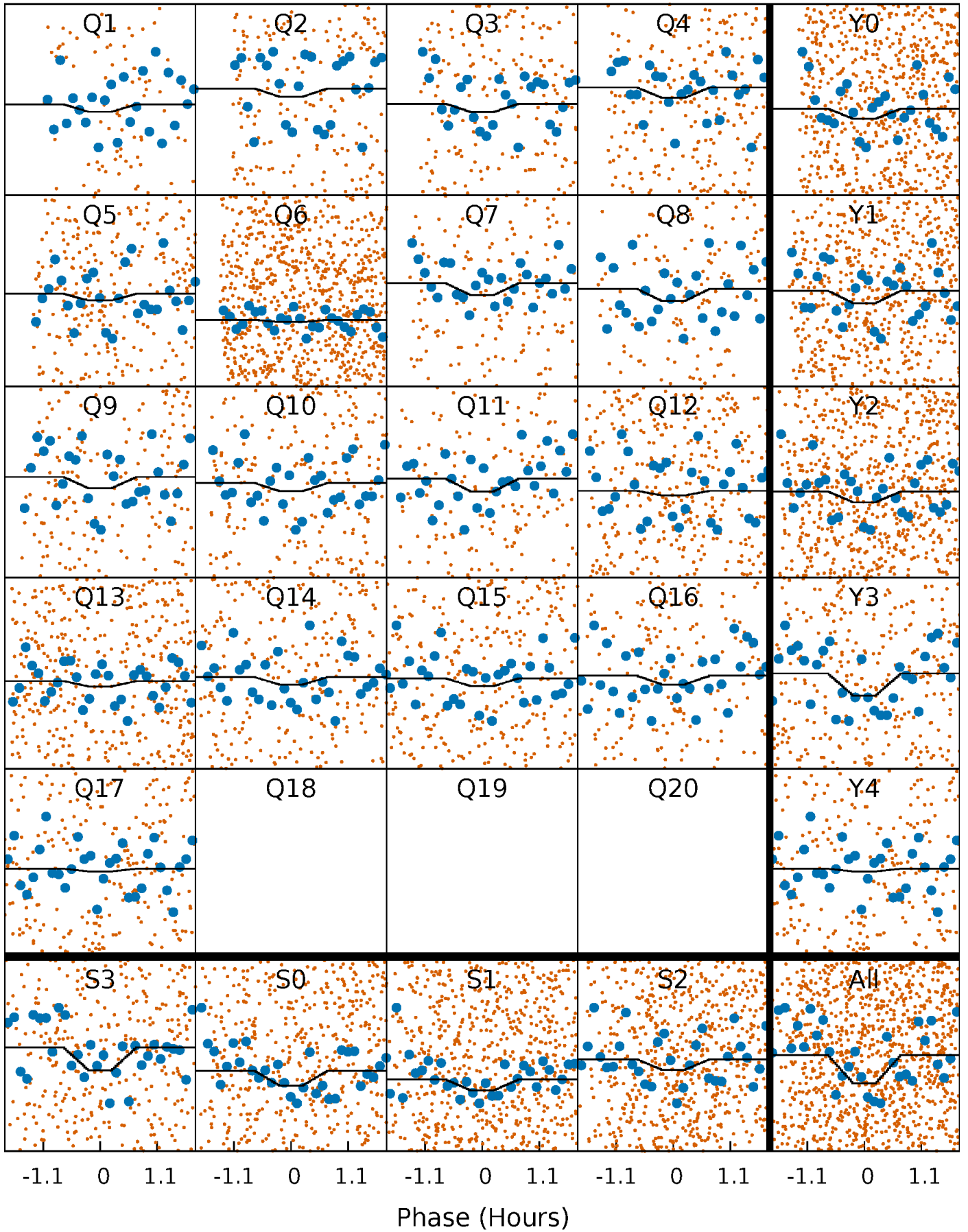
DV Quarter-Phased Transit Curves

TCE 009642894-02 P= 0.525844 Days $T_0=131.637265$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

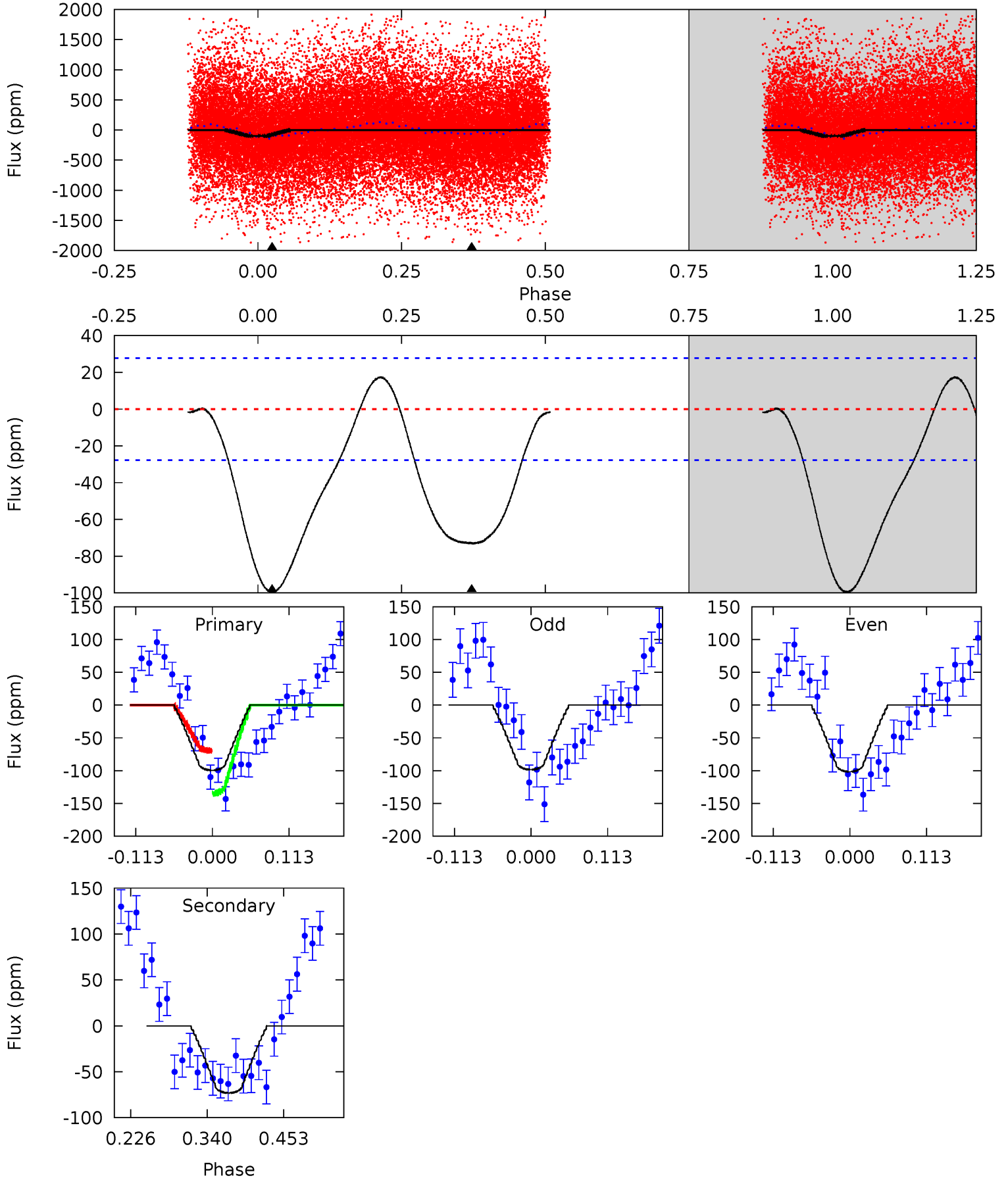
TCE 009642894-02 P= 0.525851 Days $T_0=131.632916$ (BKJD)



DV Model-Shift Uniqueness Test

009642894-02, P = 0.525844 Days, E = 131.111421 Days

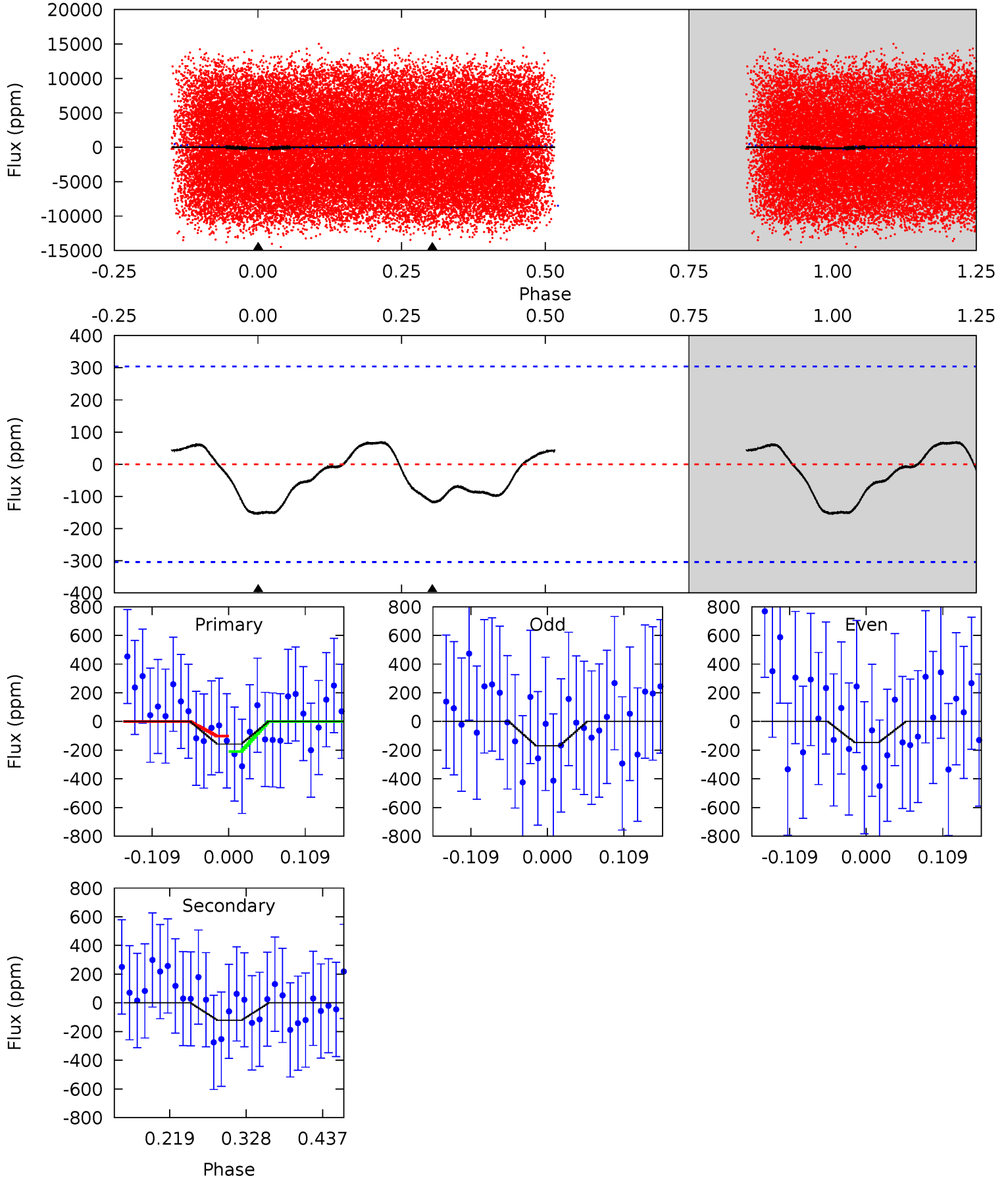
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
16.3	12.0	0	0	4.54	1.58	2.07	16.3	16.3	12.0	12.0	0.26	0.95	0.15	5.31



Alt Model-Shift Uniqueness Test

009642894-02, P = 0.525851 Days, E = 131.107065 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
2.35	1.81	0	0	4.55	1.60	0.70	2.35	2.35	1.81	1.81	0.17	1.06	0.31	0.79



Stellar Parameters For KIC 009642894

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	7266^{+226}_{-327}	$4.082^{+0.170}_{-0.170}$	$-0.080^{+0.250}_{-0.350}$	$1.876^{+0.536}_{-0.439}$	$1.546^{+0.212}_{-0.259}$	$0.330^{+0.296}_{-0.153}$
	+3%/-5%	+4%/-4%	+312%/-438%	+29%/-23%	+14%/-17%	+90%/-47%
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 009642894-02 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	-73 ± 6	$1.82^{+1.03}_{-0.89}$	5045^{+401}_{-364}	6849^{+3934}_{-1528}	$2.622^{+7.152}_{-1.536}$
Alt.	-121 ± 67	$2.55^{+1.11}_{-0.97}$	5006^{+393}_{-361}	6306^{+2583}_{-1658}	$2.038^{+3.988}_{-1.296}$

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 $A_{obs} \gg 1.0$

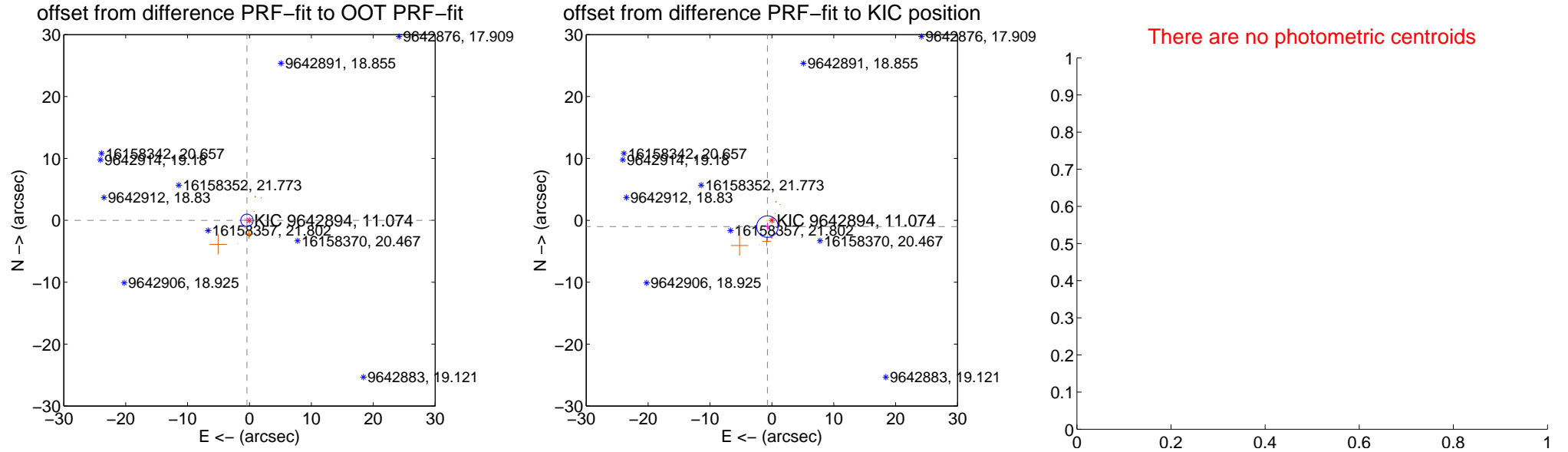
DV Centroid Data

Supplemental centroid analysis for 009642894-02. **Kepler magnitude: 11.07.** Transit SNR 10.93

There are 7 quarters with good PRF difference image offsets

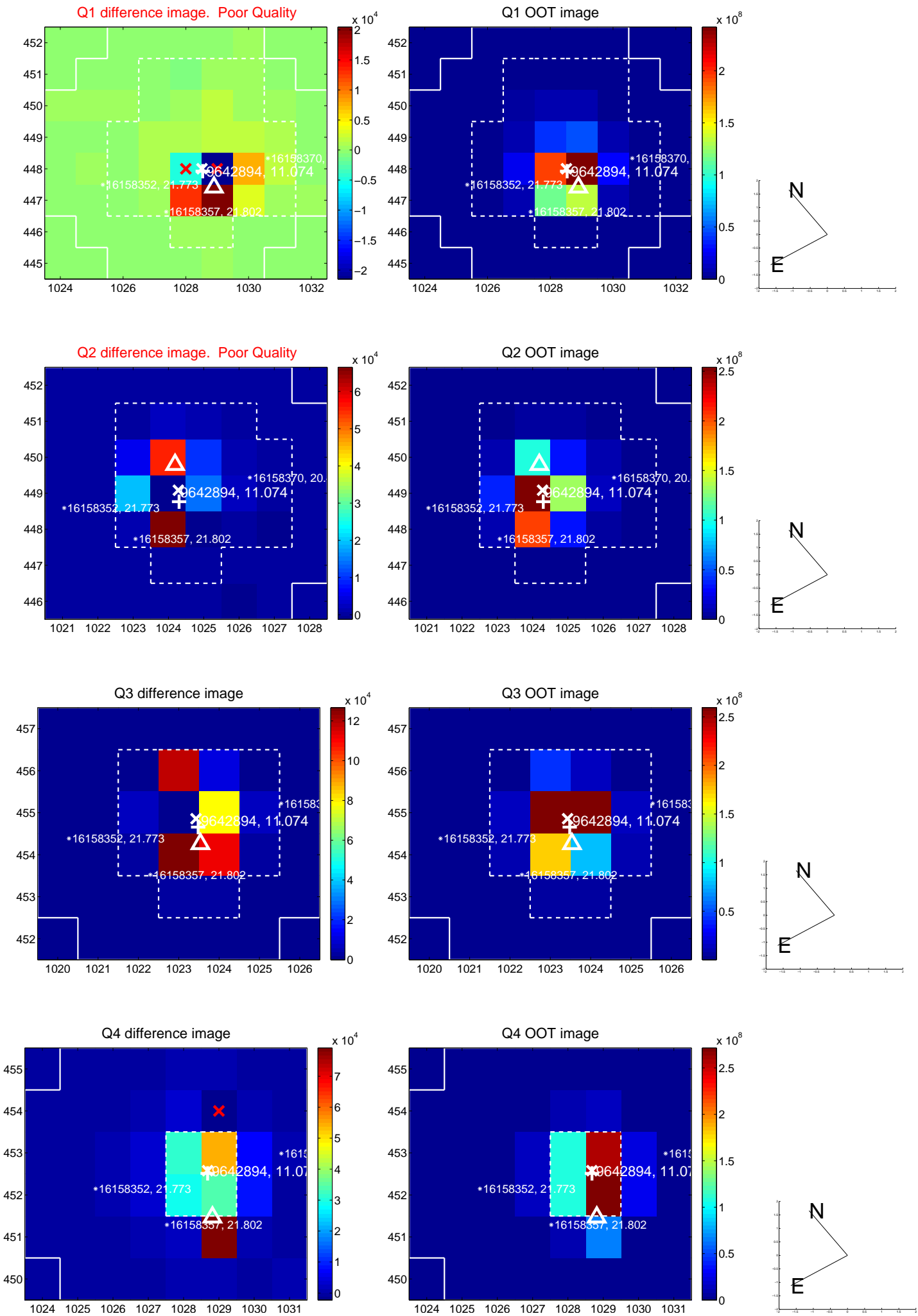
The direct PRF centroid is offset from the target star catalog position by about 0.40 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.405 ± 0.334	1.21	0.405 ± 0.334	-0.000 ± 0.479
PRF-fit source offset from KIC position	1.244 ± 0.578	2.15	0.721 ± 0.352	-1.014 ± 0.511
photometric centroid source offset	—	—	—	—

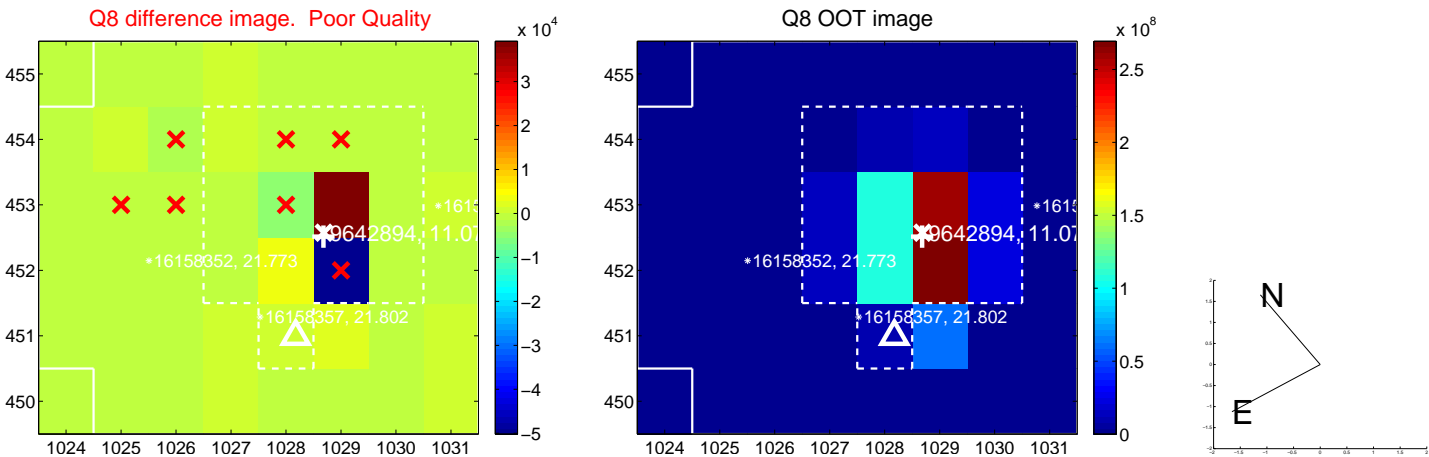
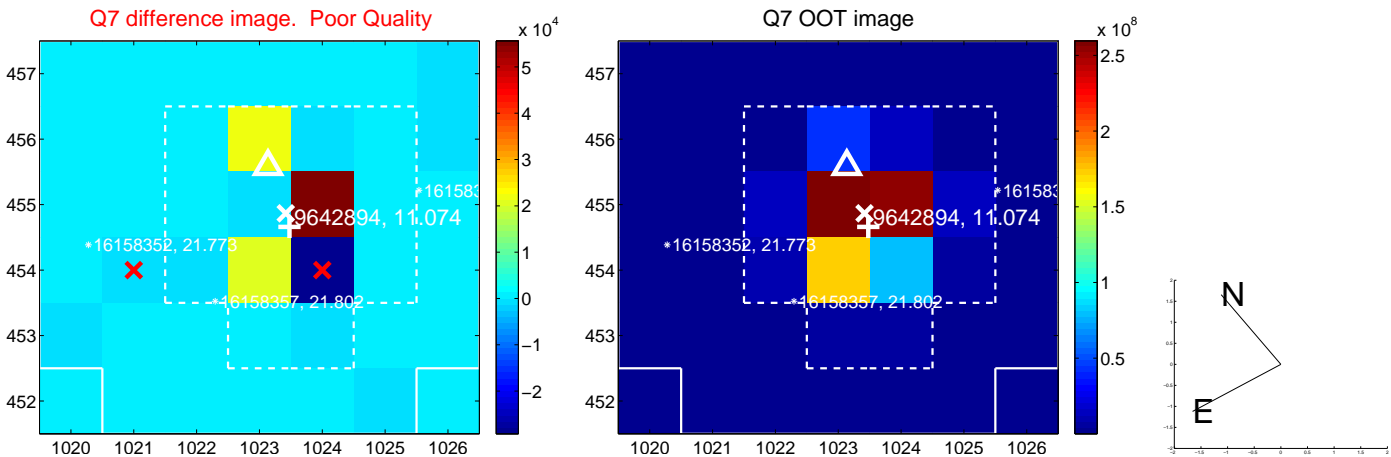
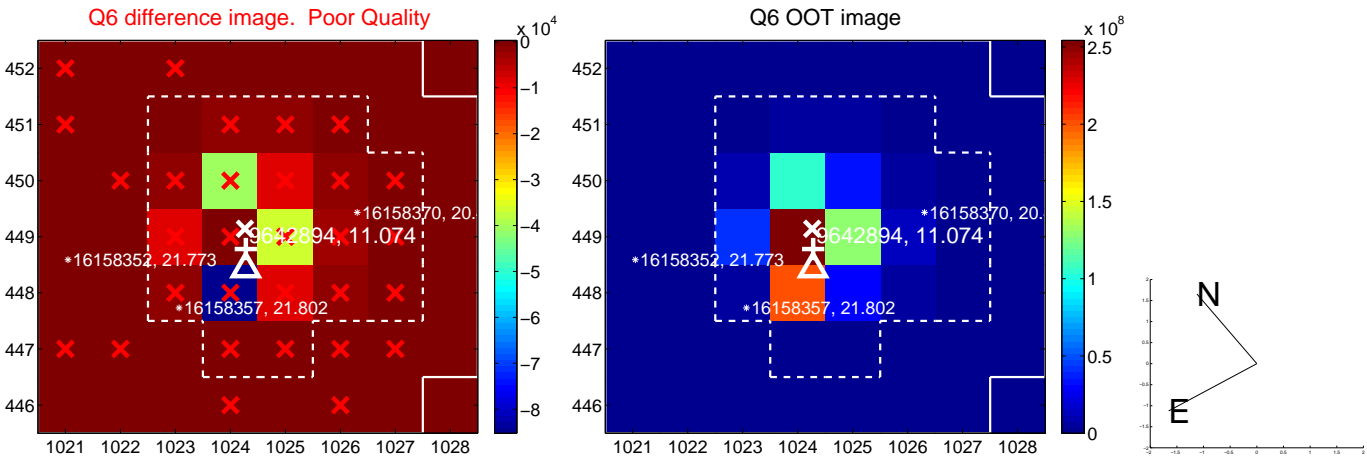
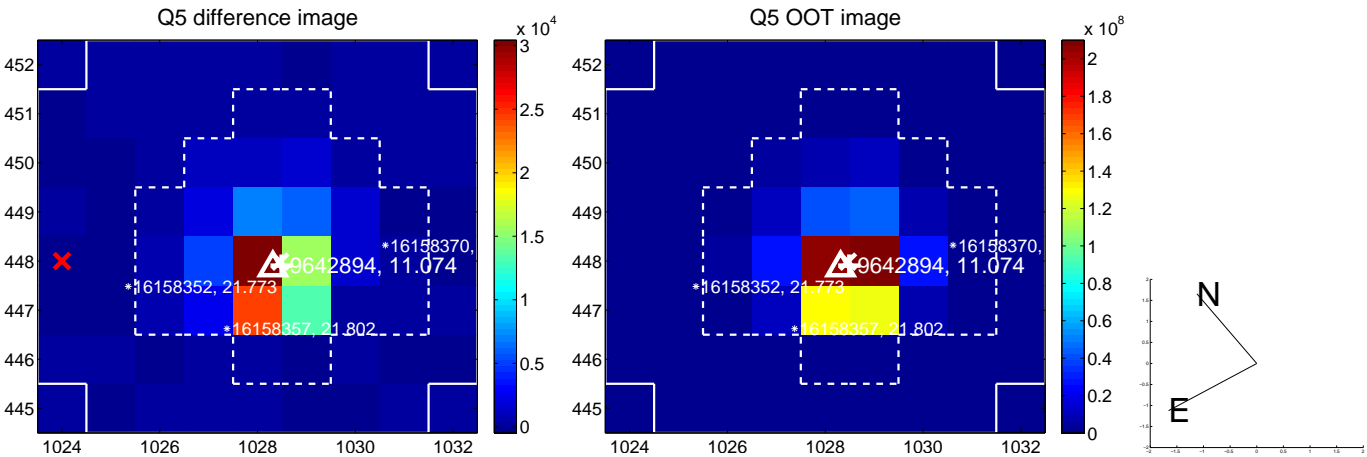


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets;** magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

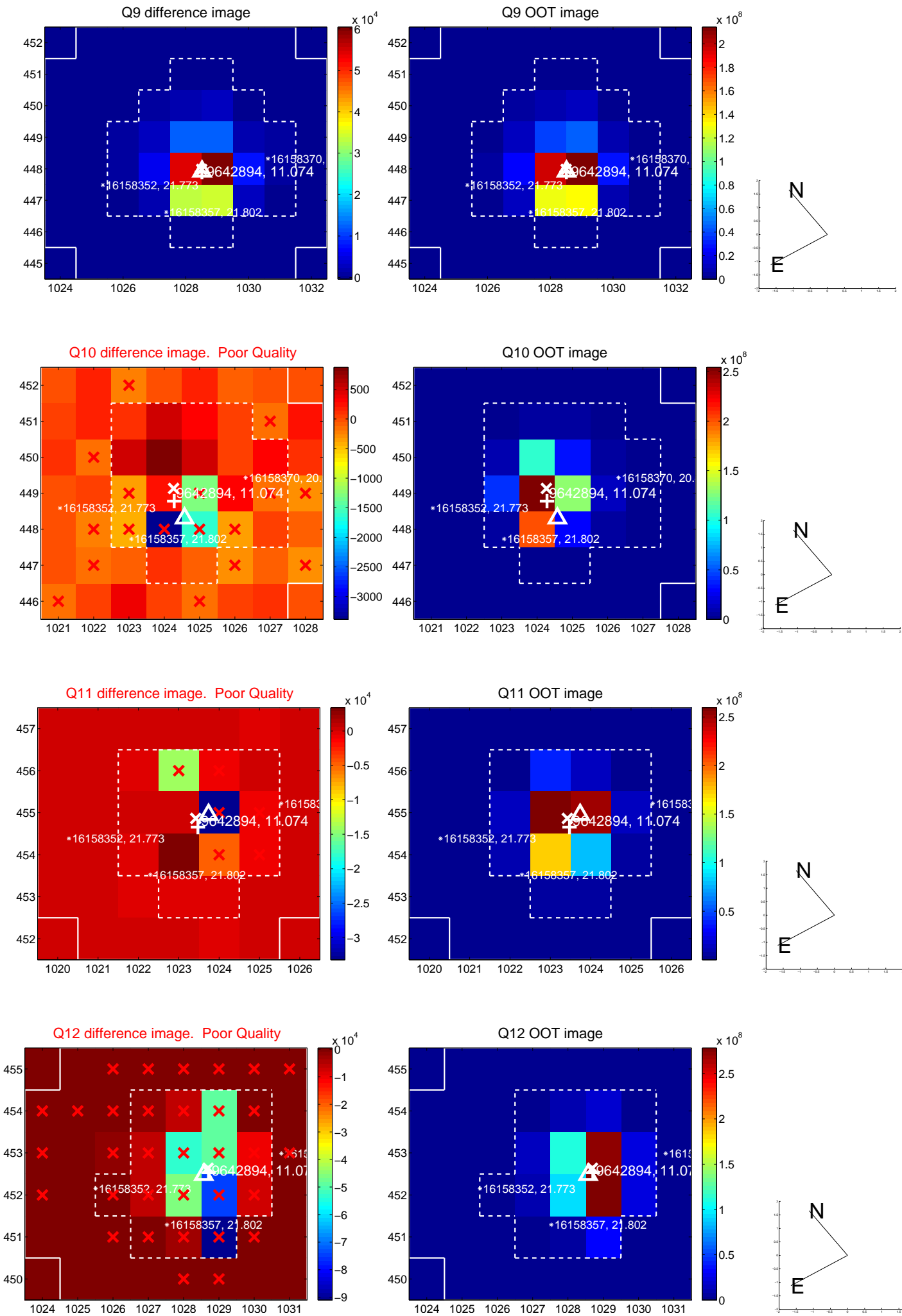
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



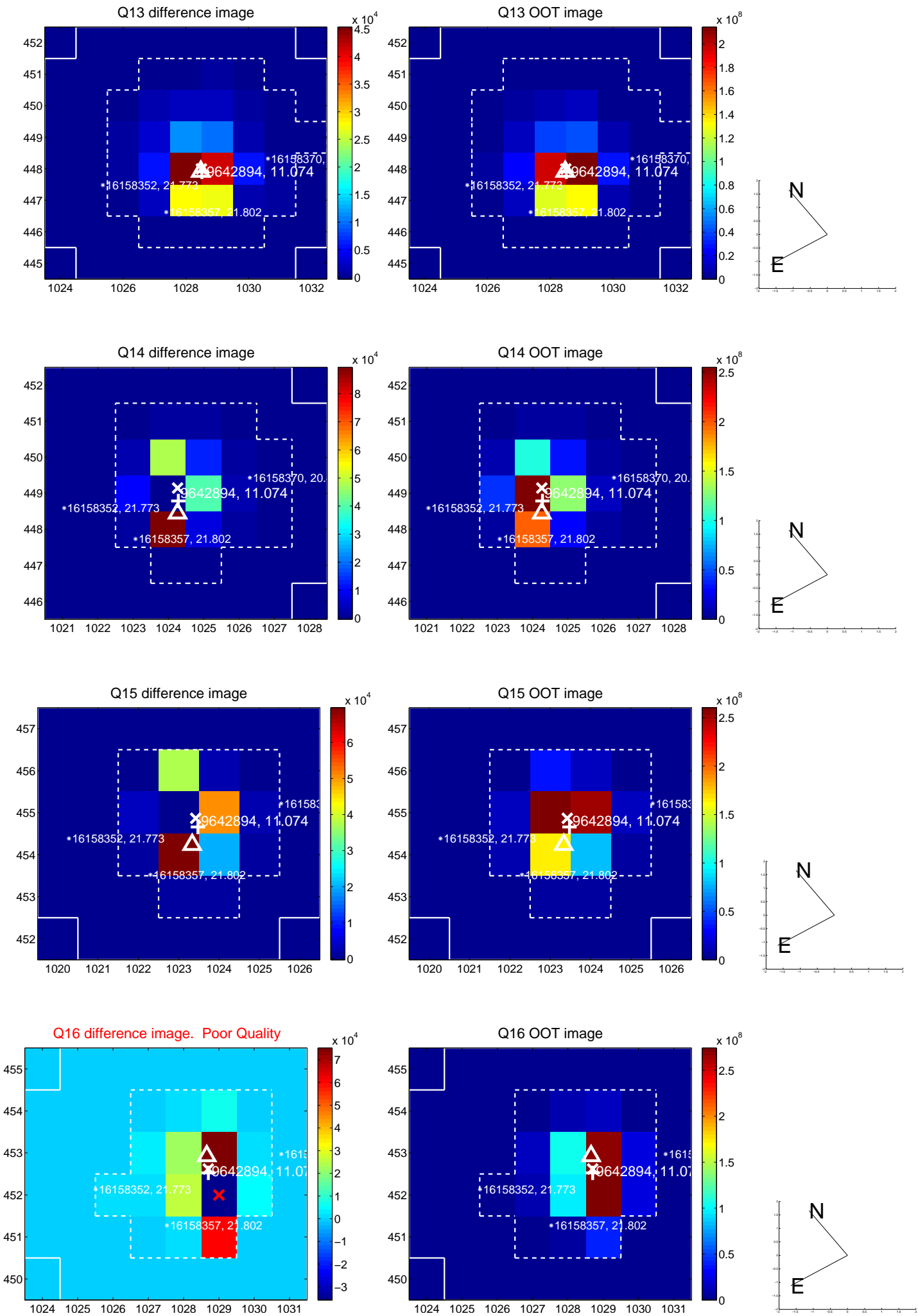
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



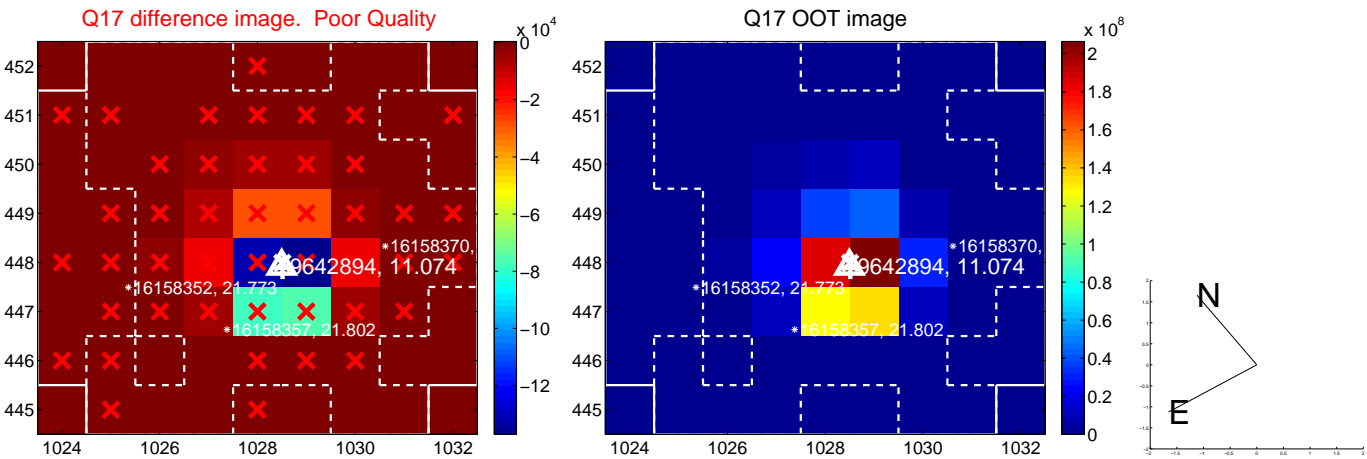
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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.



folded centroid time series figure for this object.

UKIRT Image

Declination

