

KIC 010794509

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})
010794509-01	OBS	No	0.952349	132.348268	14.2	2.241	9.0	9.1	1.95	6754	0.86	16425.00
010794509-02	OBS	No	0.952348	131.865845	11.3	2.349	8.4	7.8	1.95	6754	0.76	16425.03

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
010794509-01	OBS	FP	0.00	1	0	1	1	LPP_DV—CENT_UNRESOLVED_OFFSET—EPHEM_MATCH
010794509-02	OBS	FP	0.00	1	0	0	1	LPP_DV—SAME_NTL_PERIOD—EPHEM_MATCH

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 010794509-01

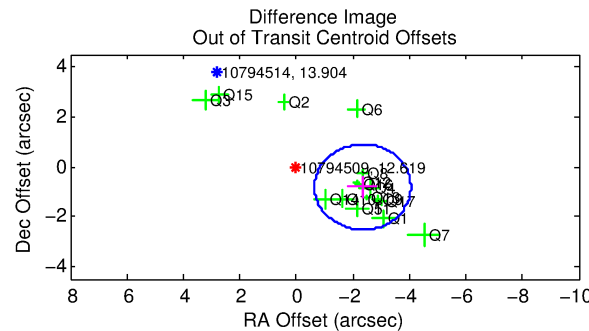
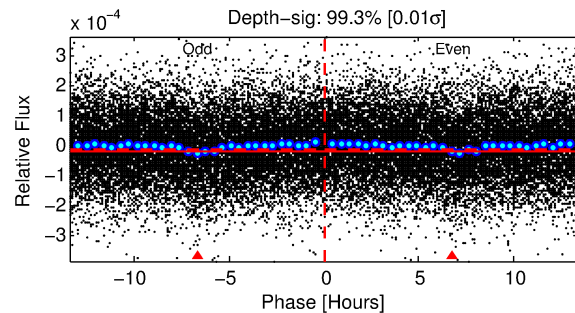
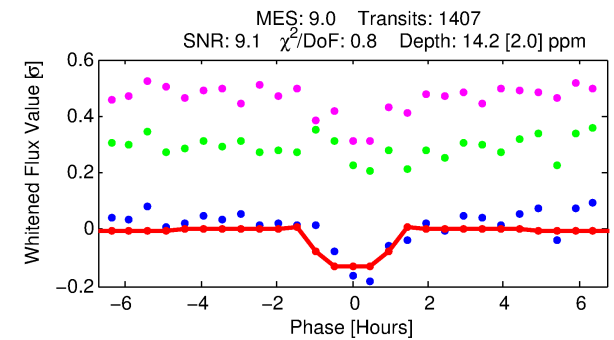
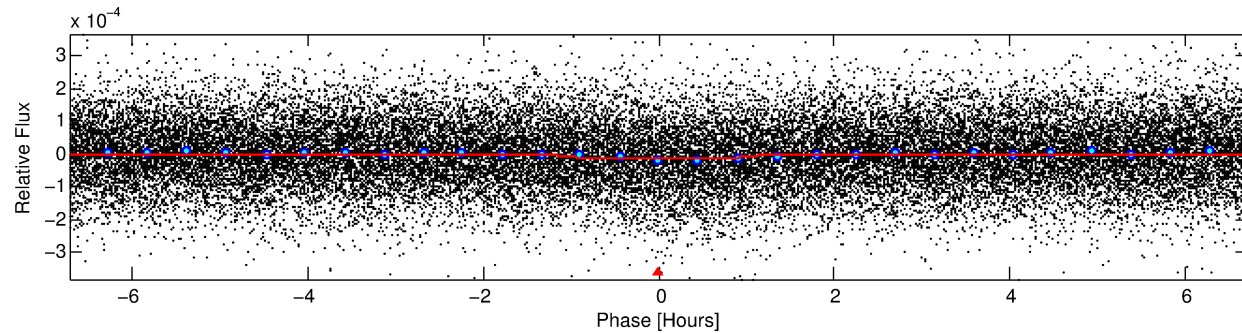
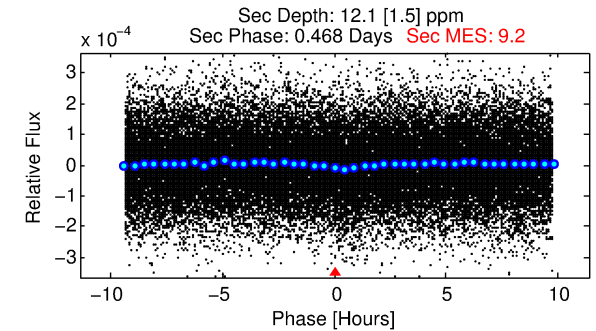
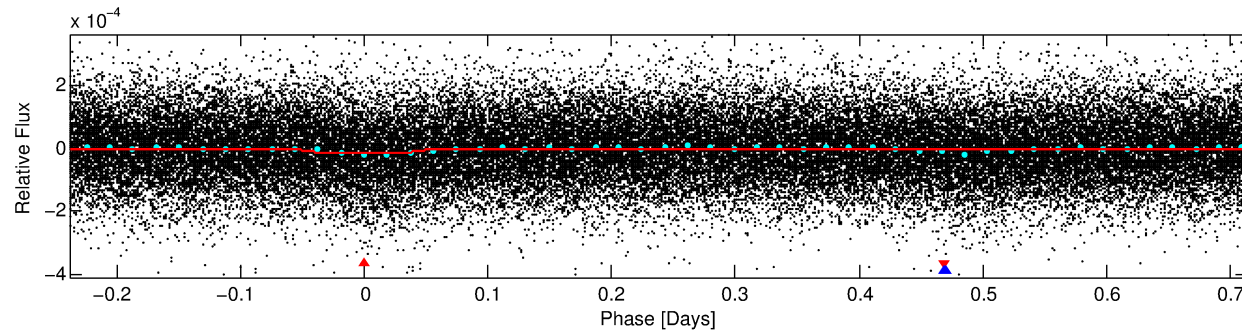
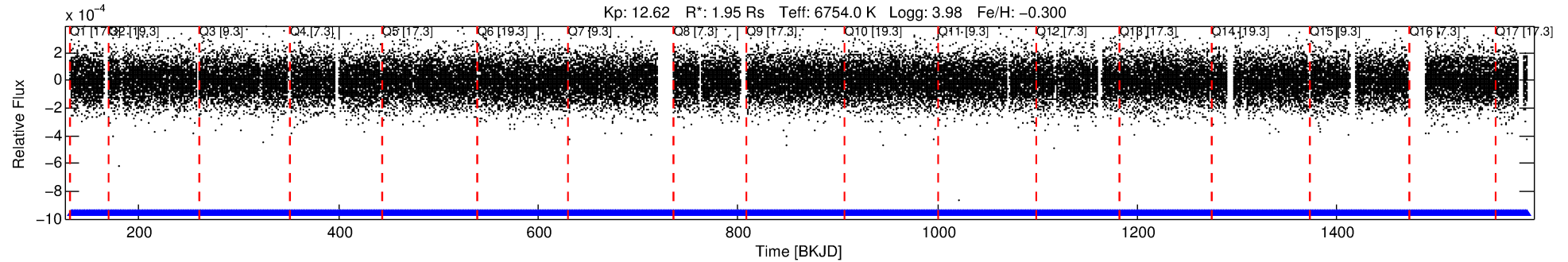
TCE (1)	KIC	Parent (2)	Parent KIC	$P_1:P_2$	Dist ($''$)	Δ Row	Δ Col	m_2	m_1	D_2/D_1	Mechanism	Flag	σ_P	σ_T
010794509-01	10794509	010858720-pri	10858720	1:1	169.4	43	0	10.97	12.62	34207.00	Direct-PRF	0	2.79	1.00

Notes: $P_1:P_2$ is the period ratio. Dist is the distance in arcseconds. Δ Row and Δ Col are the number of pixels apart in row and column. m_2 and m_1 are the magnitudes of the parent and child. D_2/D_1 is the parent's transit depth divided by the child's. σ_P and σ_T are the significance of the match in period and epoch. For a match to be considered significant $\sigma_P < 5.0$ and $\sigma_T < 5.0$. Matches which have σ_P and σ_T very close to this cutoff should receive extra scrutiny, especially if the period ratio is very large.

DV One-Page Summary

KIC: 10794509 Candidate: 1 of 2 Period: 0.952 d

KOI: K04673 Corr: No Ephemeris Match



DV Fit Results:

Period = 0.95235 [0.00001] d
Epoch = 132.3483 [0.0032] BKJD
Rp/R* = 0.0040 [0.0012]
a/R* = 1.70 [2.04]
b = 0.90 [0.37]
Seff = 16425.00 [6977.04]
Teq = 2887 [307] K
Rp = 0.86 [0.35] Re
a = 0.0207 [0.0053] AU
Ag = 3.91 [2.91] [1.00σ]
Teffp = 6277 [1002] K [3.23σ]

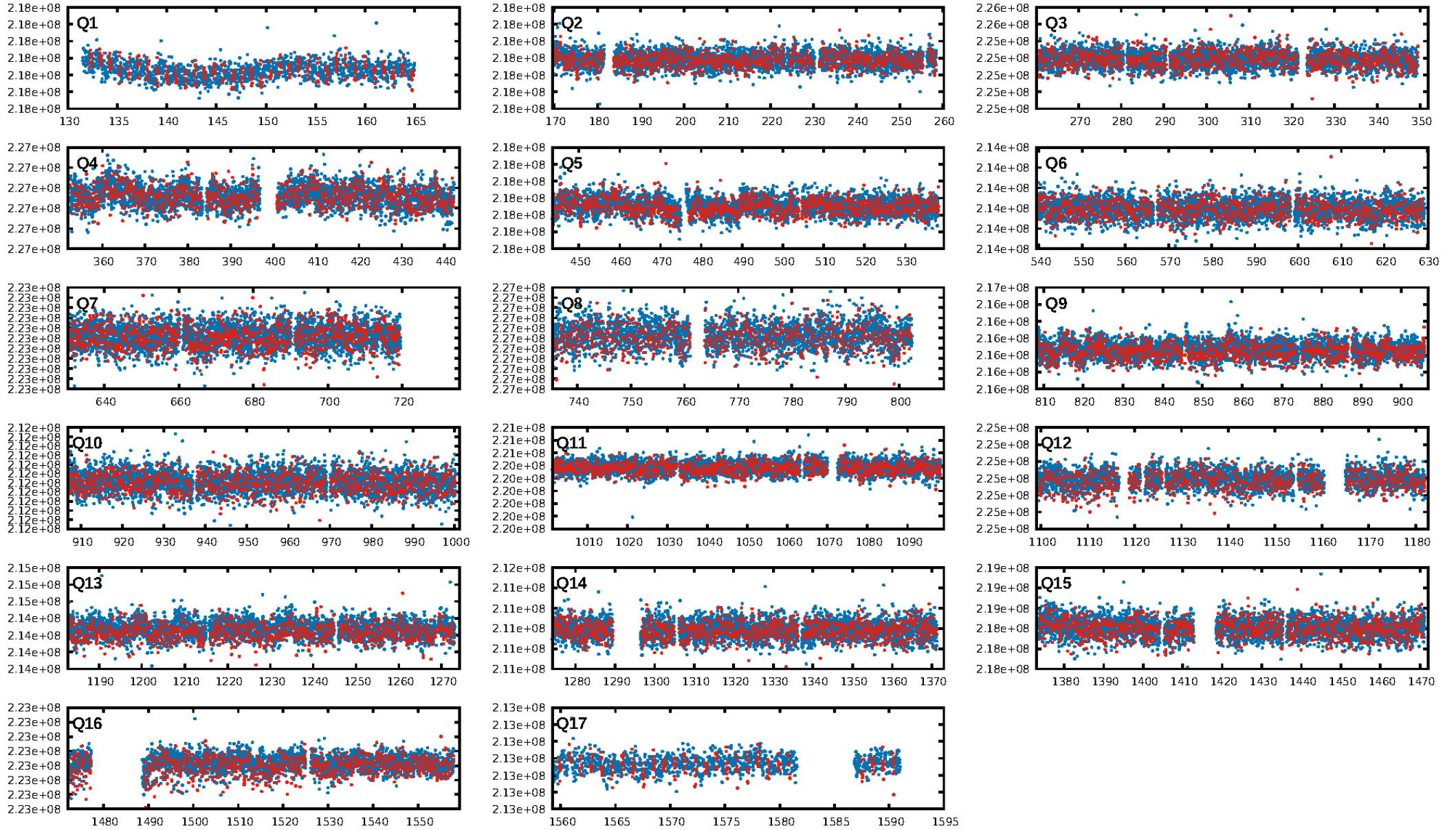
DV Diagnostic Results:

ShortPeriod-sig: 0.0% [0.00σ]
LongPeriod-sig: N/A
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: 1.46e-20
RollingBand-fgt: 1.00 [1345/1345]
GhostDiagnostic-chr: 2.12
Centroid-sig: 0.0%
Centroid-so: 2.470 arcsec [2.61σ]
OotOffset-rm: 2.480 arcsec [4.35σ]
KicOffset-rm: 2.526 arcsec [4.44σ]
OotOffset-st: 4/4/4/5 [17]
KicOffset-st: 4/4/4/5 [17]
DiffImageQuality-fgm: 0.59 [10/17]
DiffImageOverlap-fno: 1.00 [17/17]

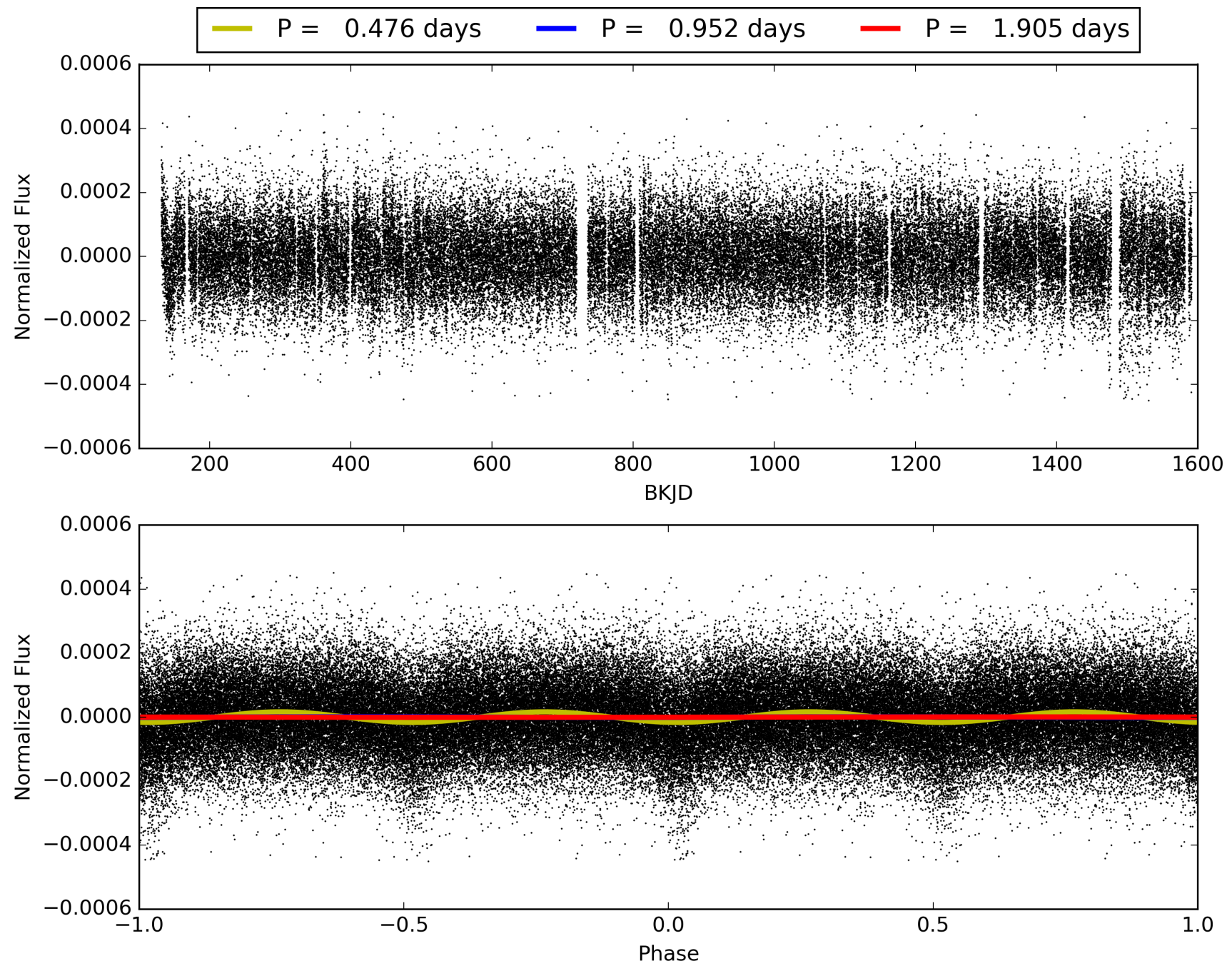
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This Data Validation Report Summary was produced in the Kepler Science Operations Center Pipeline at NASA Ames Research Center

TCE 010794509-01, PDC Light Curves

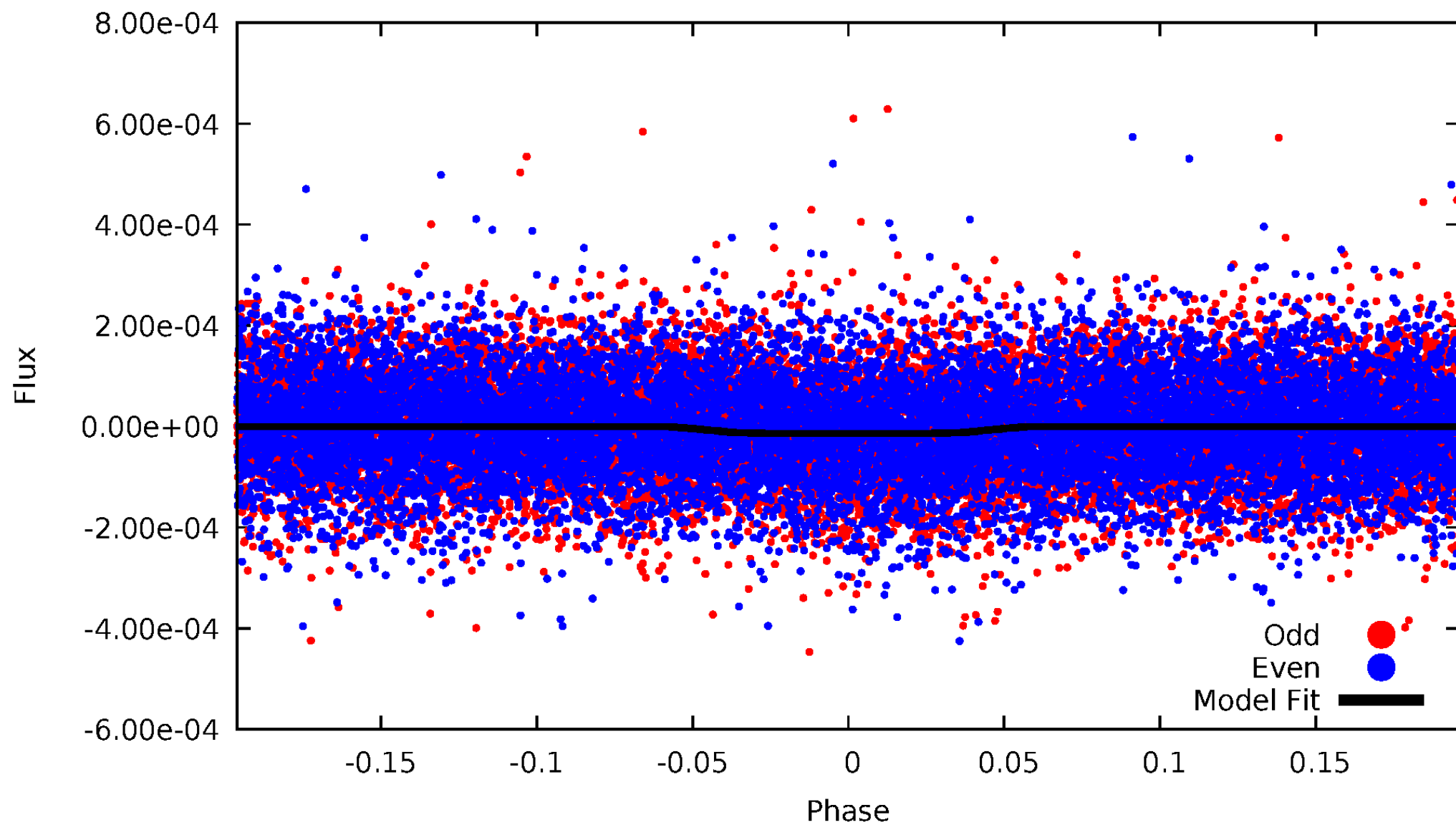


TCE 010794509-01



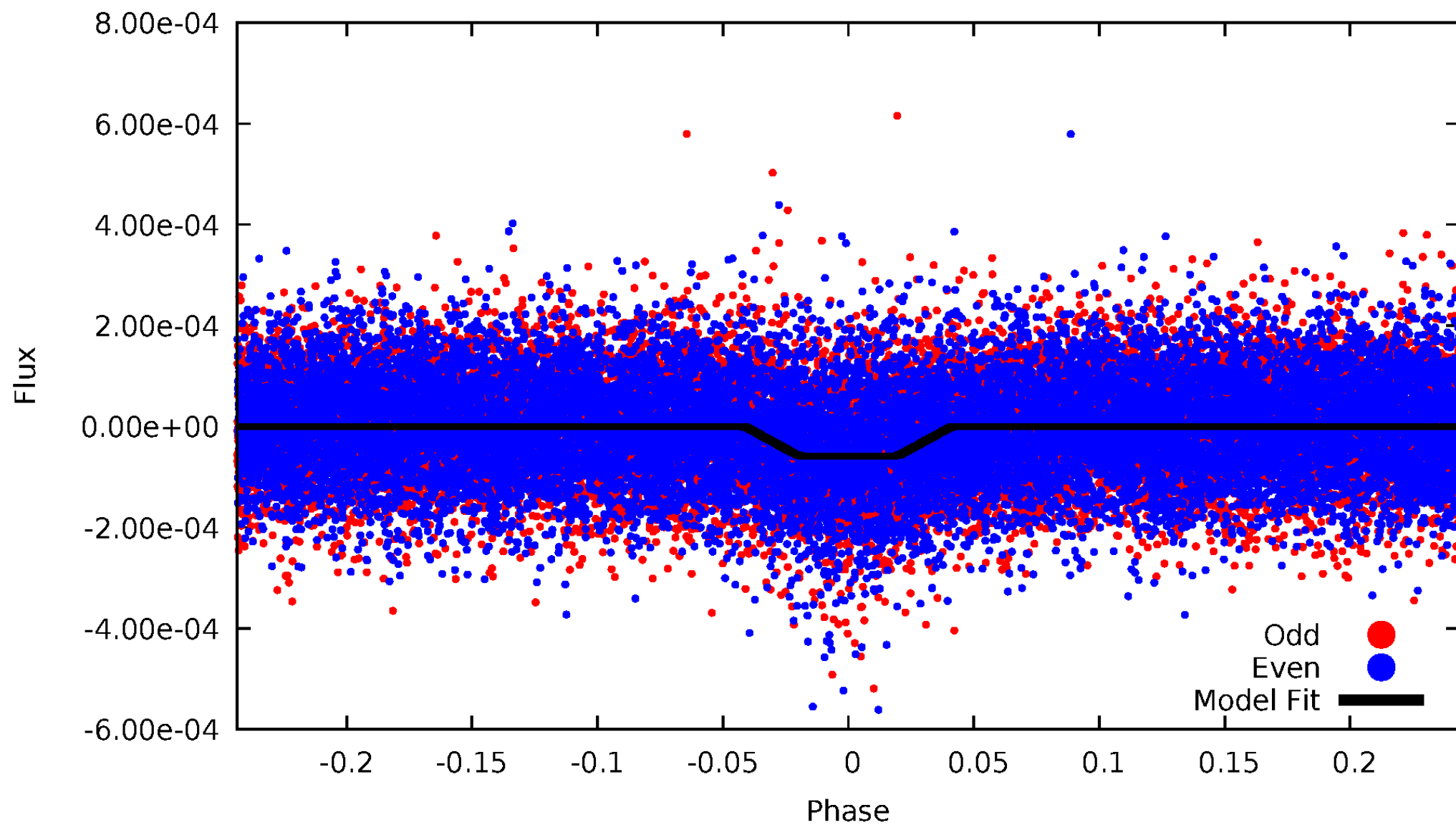
DV Odd/Even

TCE 010794509-01



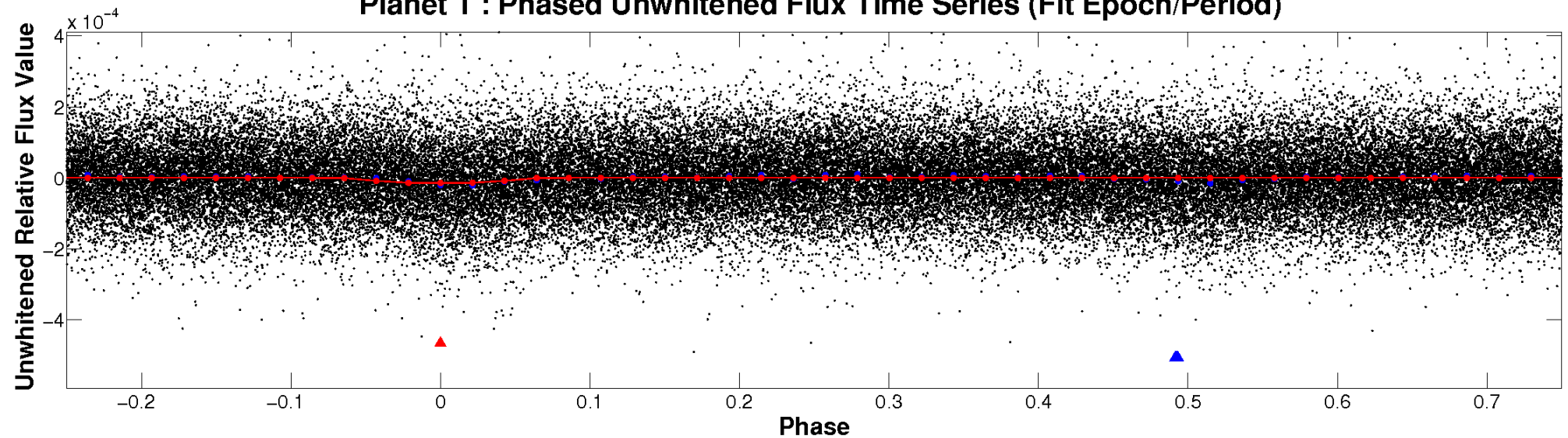
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TCE 010794509-01

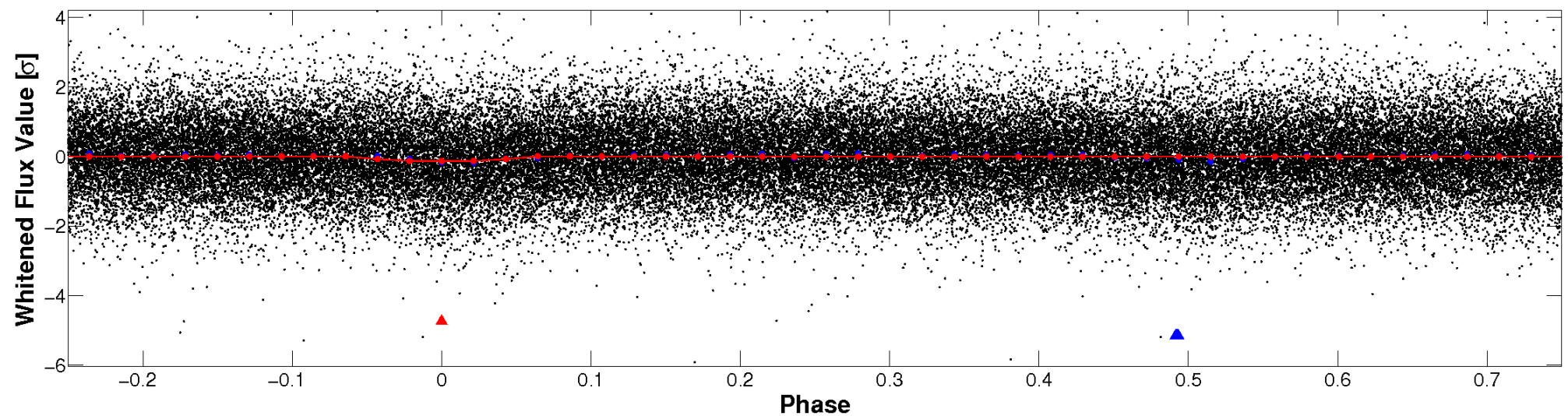


Non-Whitened Vs. Whitened Light Curve

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

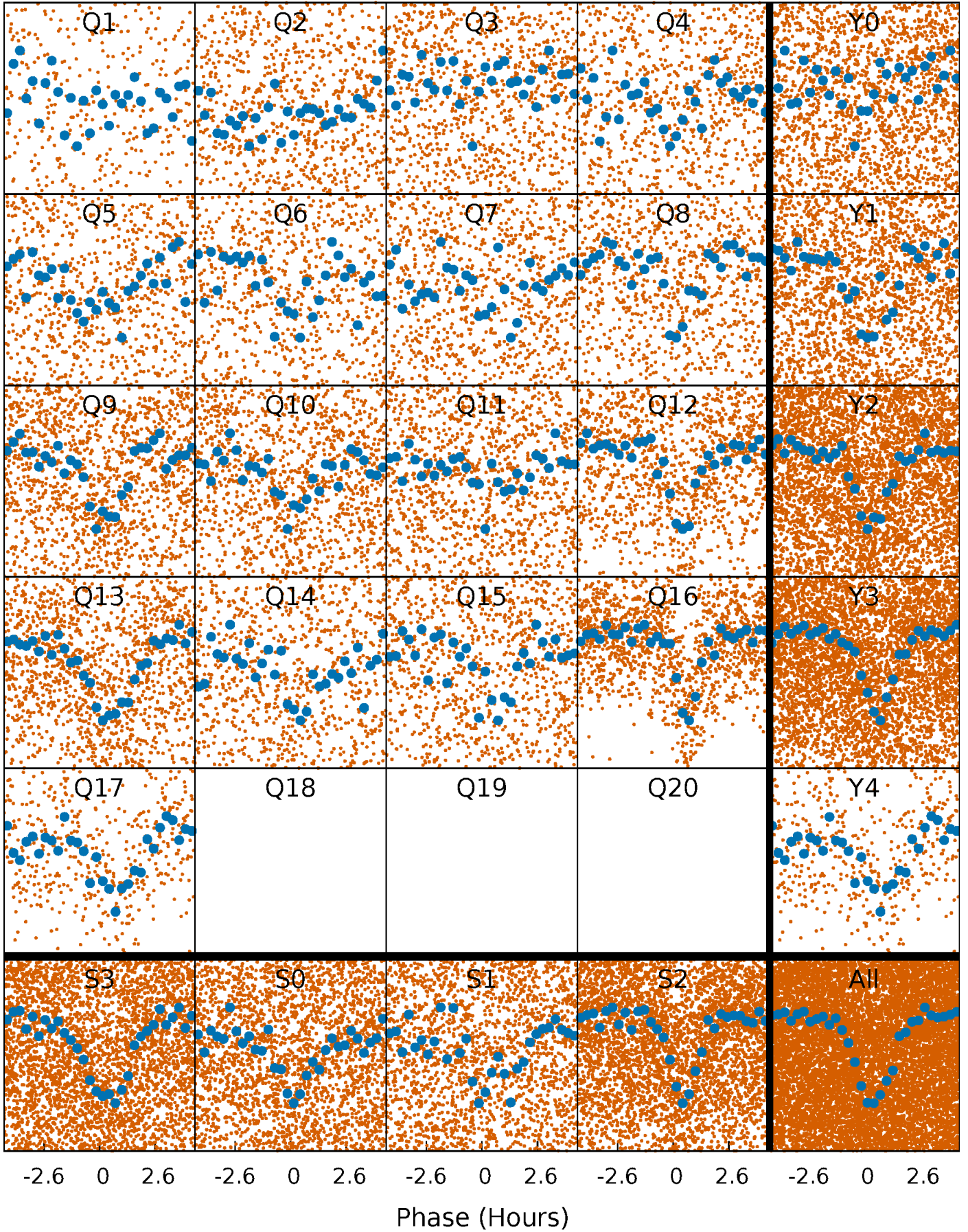


Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)



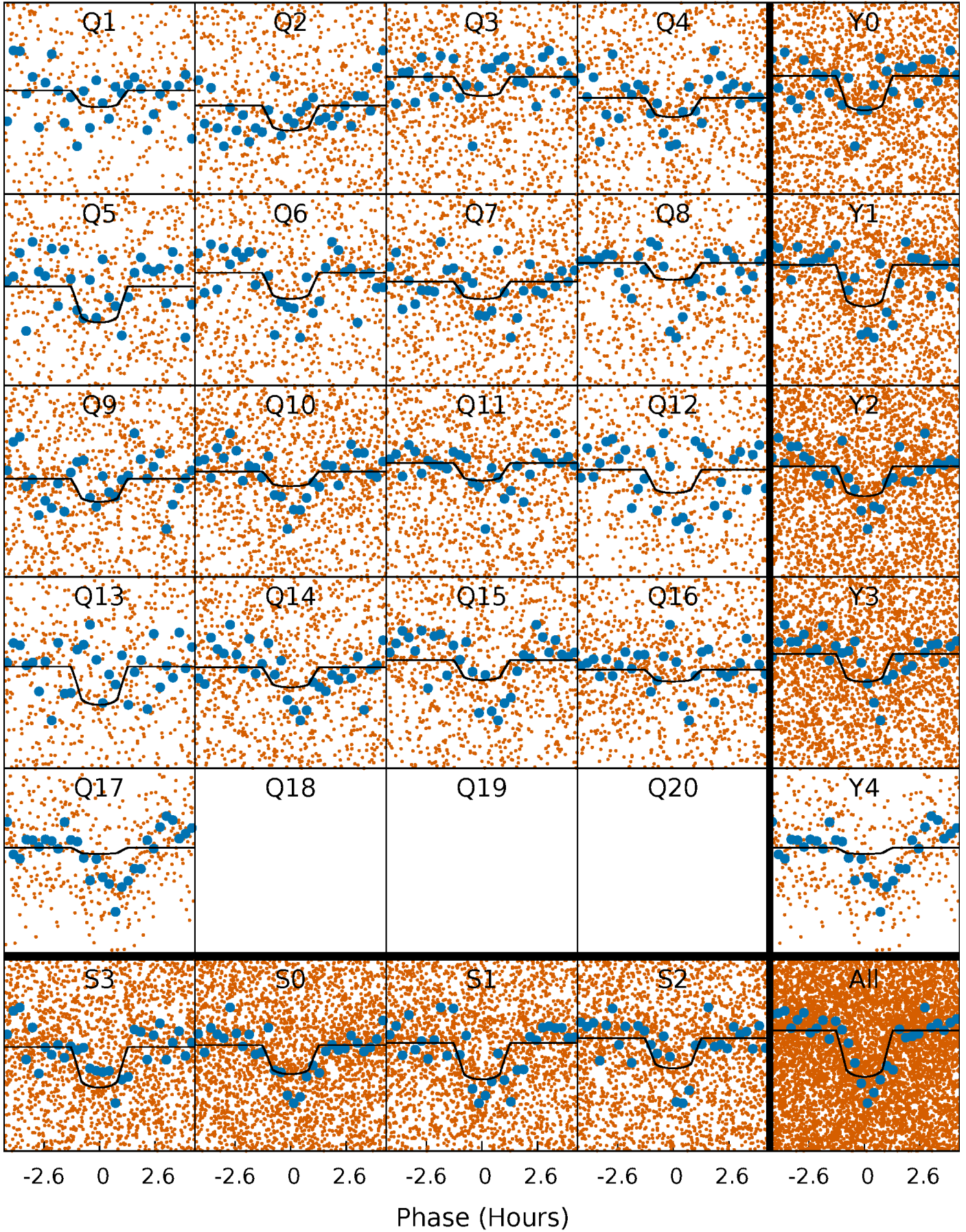
PDC Quarter-Phased Transit Curves

TCE 010794509-01 P= 0.952349 Days $T_0=132.348268$ (BKJD)



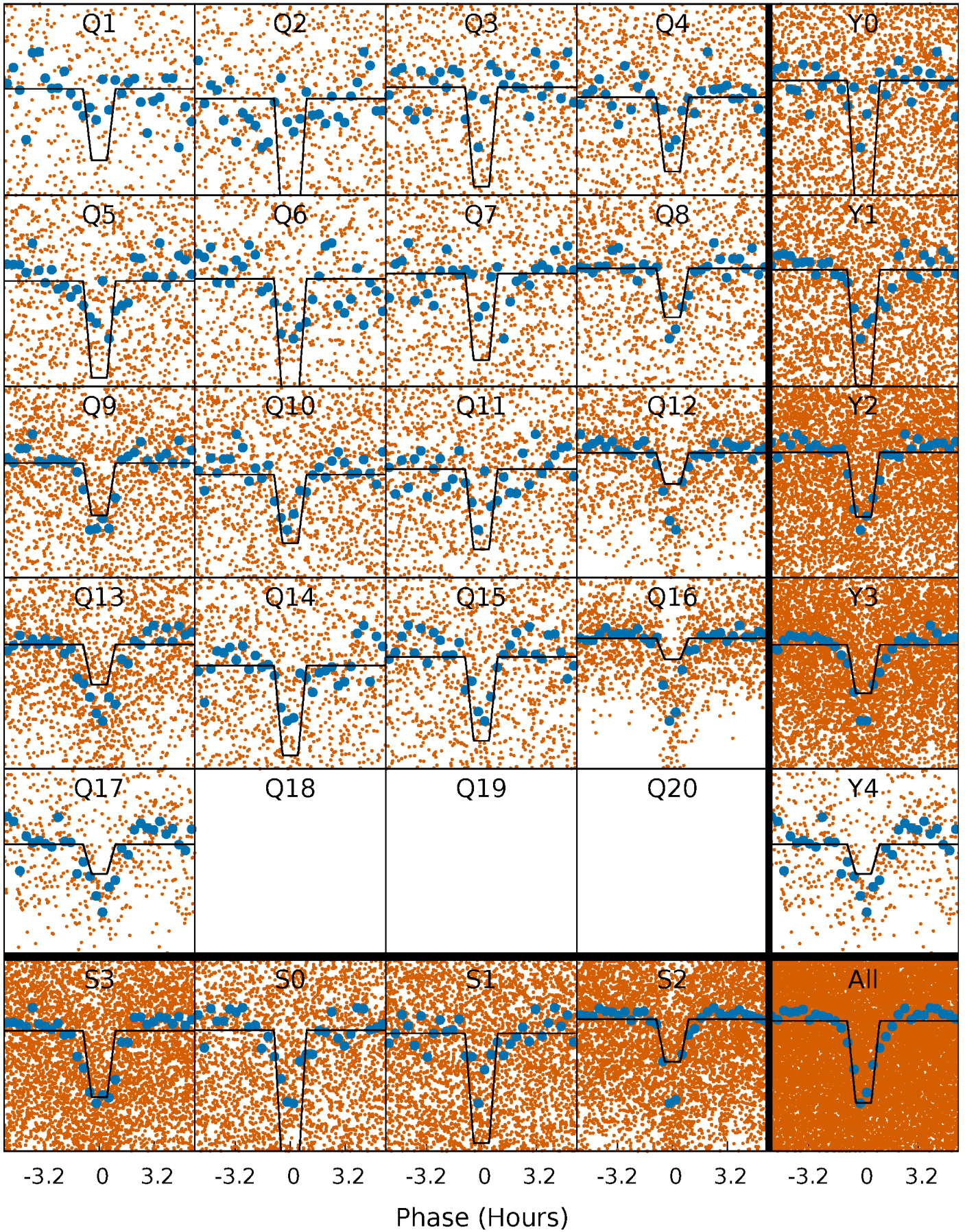
DV Quarter-Phased Transit Curves

TCE 010794509-01 P= 0.952349 Days $T_0=132.348268$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

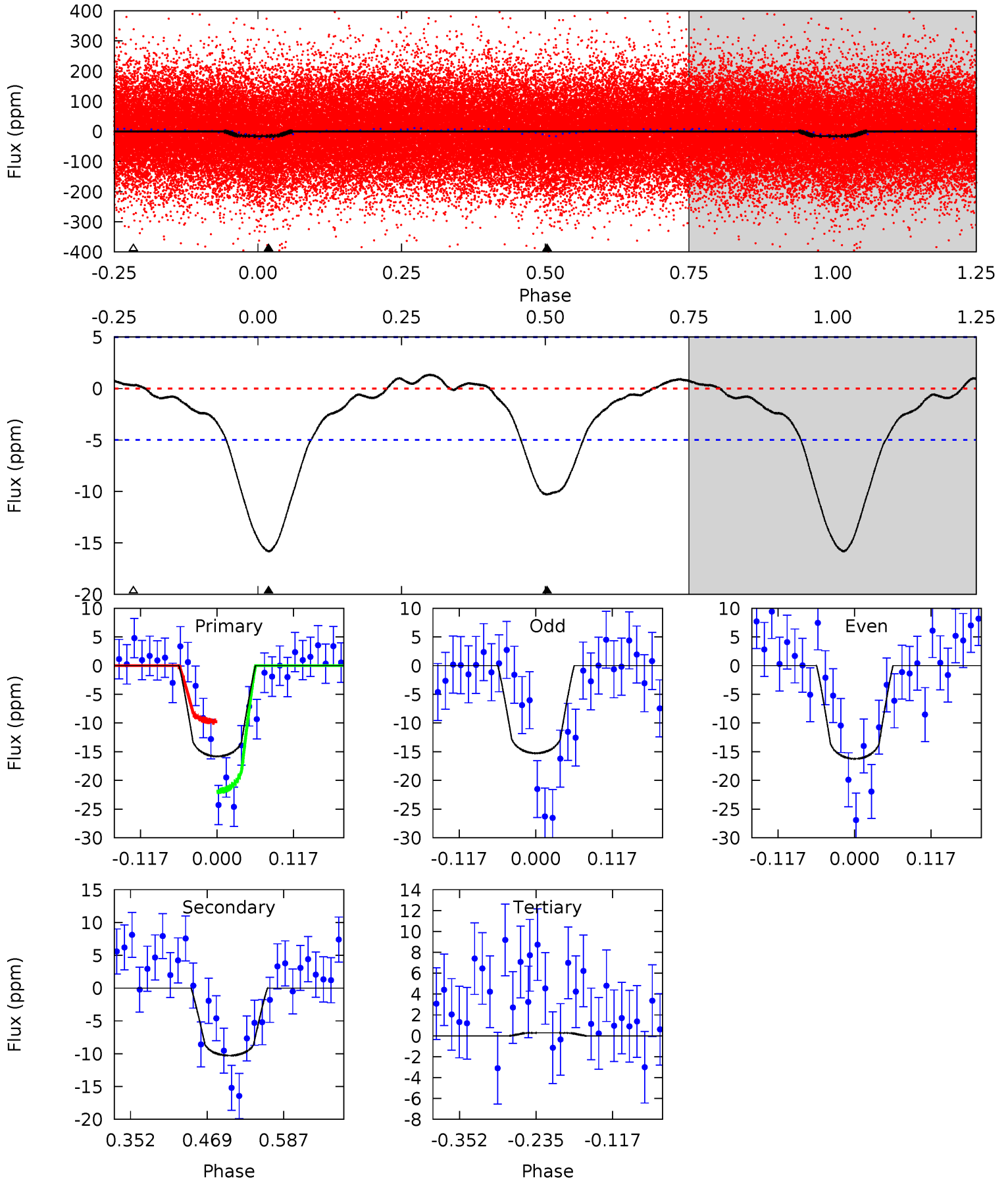
TCE 010794509-01 P= 0.952377 Days $T_0=132.336714$ (BKJD)



DV Model-Shift Uniqueness Test

010794509-01, P = 0.952349 Days, E = 131.395919 Days

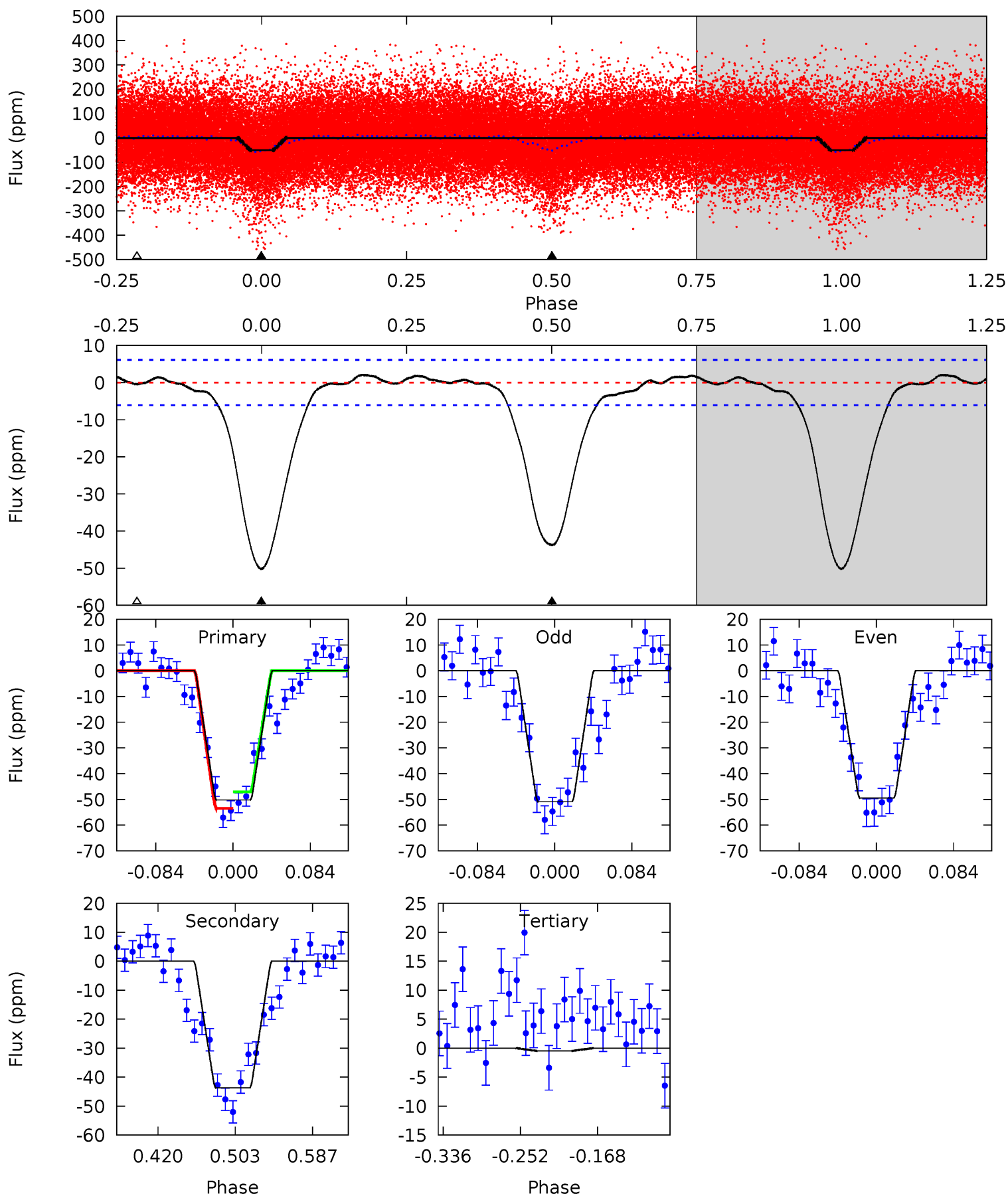
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
14.3	9.33	-0.27	0	4.53	1.57	0.82	14.6	14.3	9.60	9.33	0.44	0.96	0.08	5.47



Alt Model-Shift Uniqueness Test

010794509-01, P = 0.952377 Days, E = 131.384337 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
37.9	33.0	0.35	0	4.60	1.73	1.13	37.5	37.9	32.6	33.0	0.54	1.08	0.04	2.40



Stellar Parameters For KIC 010794509

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	6754^{+183}_{-223}	$3.977^{+0.234}_{-0.126}$	$-0.300^{+0.300}_{-0.250}$	$1.946^{+0.440}_{-0.538}$	$1.311^{+0.204}_{-0.224}$	$0.251^{+0.353}_{-0.093}$
	+3%/-3%	+6%/-3%	+100%/-83%	+23%/-28%	+16%/-17%	+141%/-37%
Source	PHO1	FLK73	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 010794509-01 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-10 ± 1	$0.83^{+0.29}_{-0.26}$	3985^{+265}_{-297}	5872^{+1171}_{-843}	$3.578^{+3.729}_{-1.704}$
Alt.	-44 ± 1	$1.56^{+0.37}_{-0.35}$	3996^{+259}_{-285}	6168^{+682}_{-538}	$4.210^{+2.562}_{-1.401}$

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

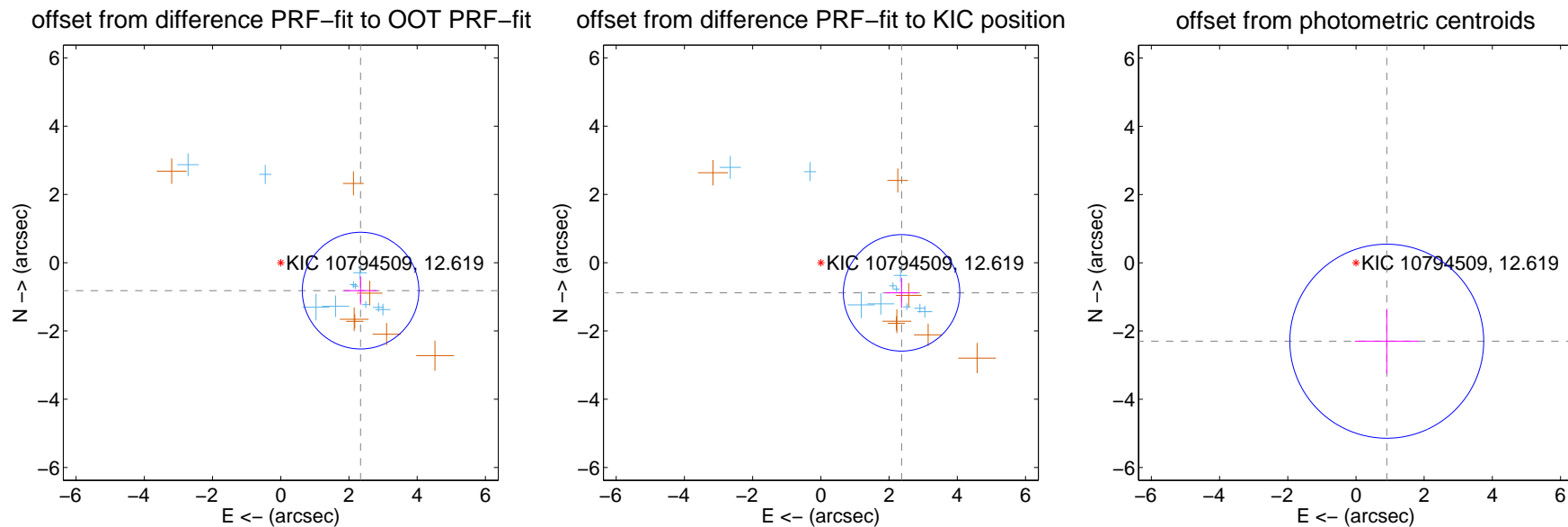
DV Centroid Data

Supplemental centroid analysis for 010794509-01. Kepler magnitude: 12.62. Transit SNR 9.14

There are 10 quarters with good PRF difference image offsets

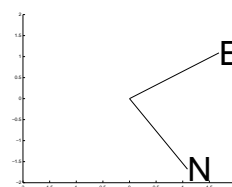
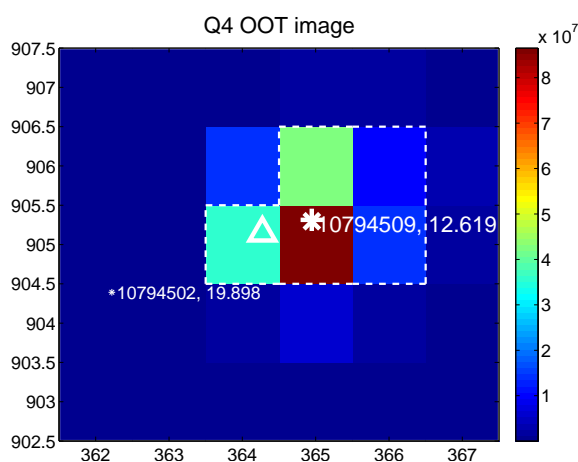
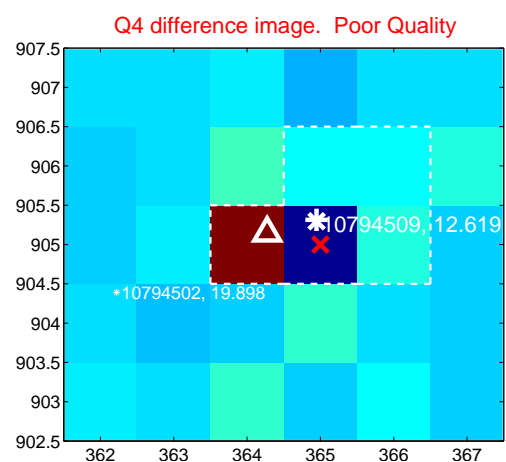
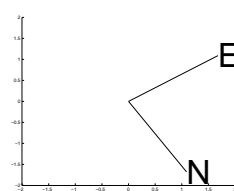
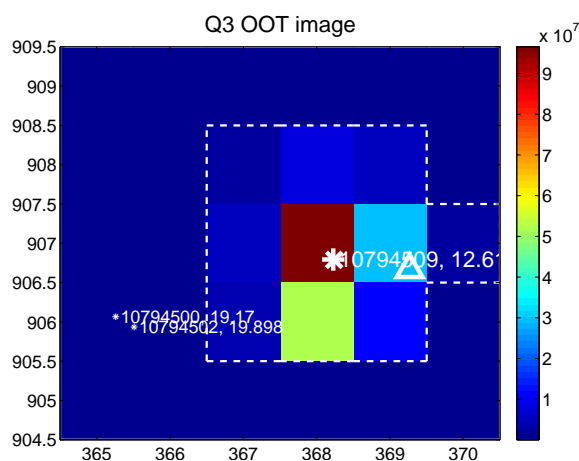
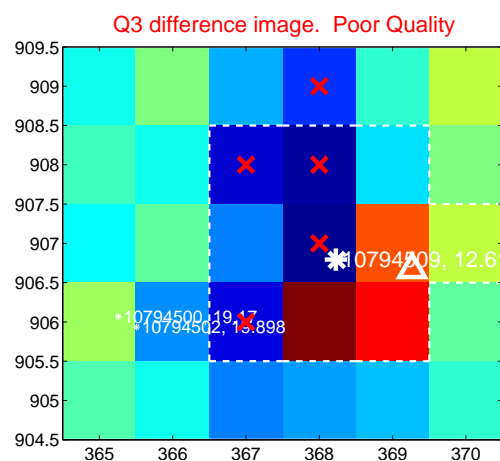
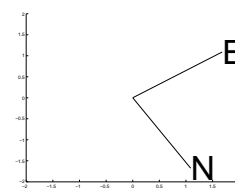
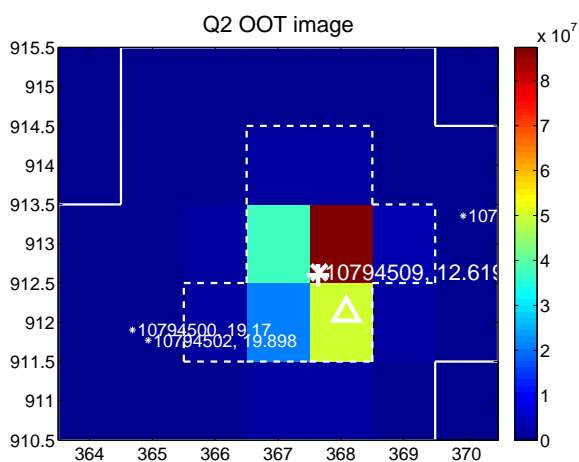
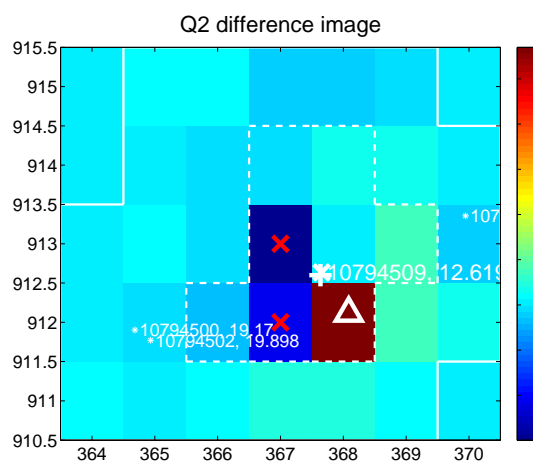
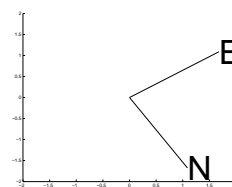
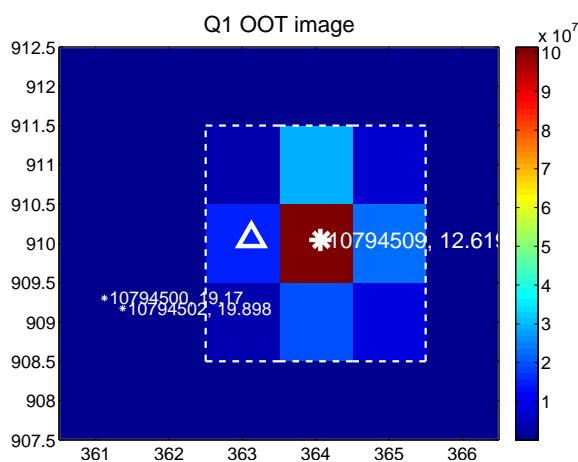
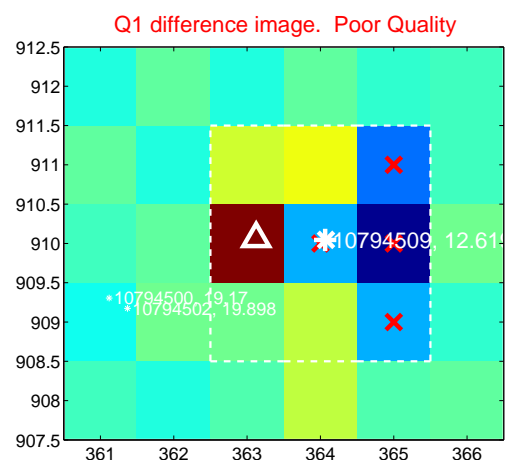
The direct PRF centroid is offset from the target star catalog position by about 0.08 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	2.480 ± 0.570	4.35	-2.341 ± 0.482	-0.818 ± 0.412
PRF-fit source offset from KIC position	2.526 ± 0.569	4.44	-2.366 ± 0.468	-0.884 ± 0.440
photometric centroid source offset	2.47 ± 0.95	2.61	-0.90 ± 0.93	-2.30 ± 0.95

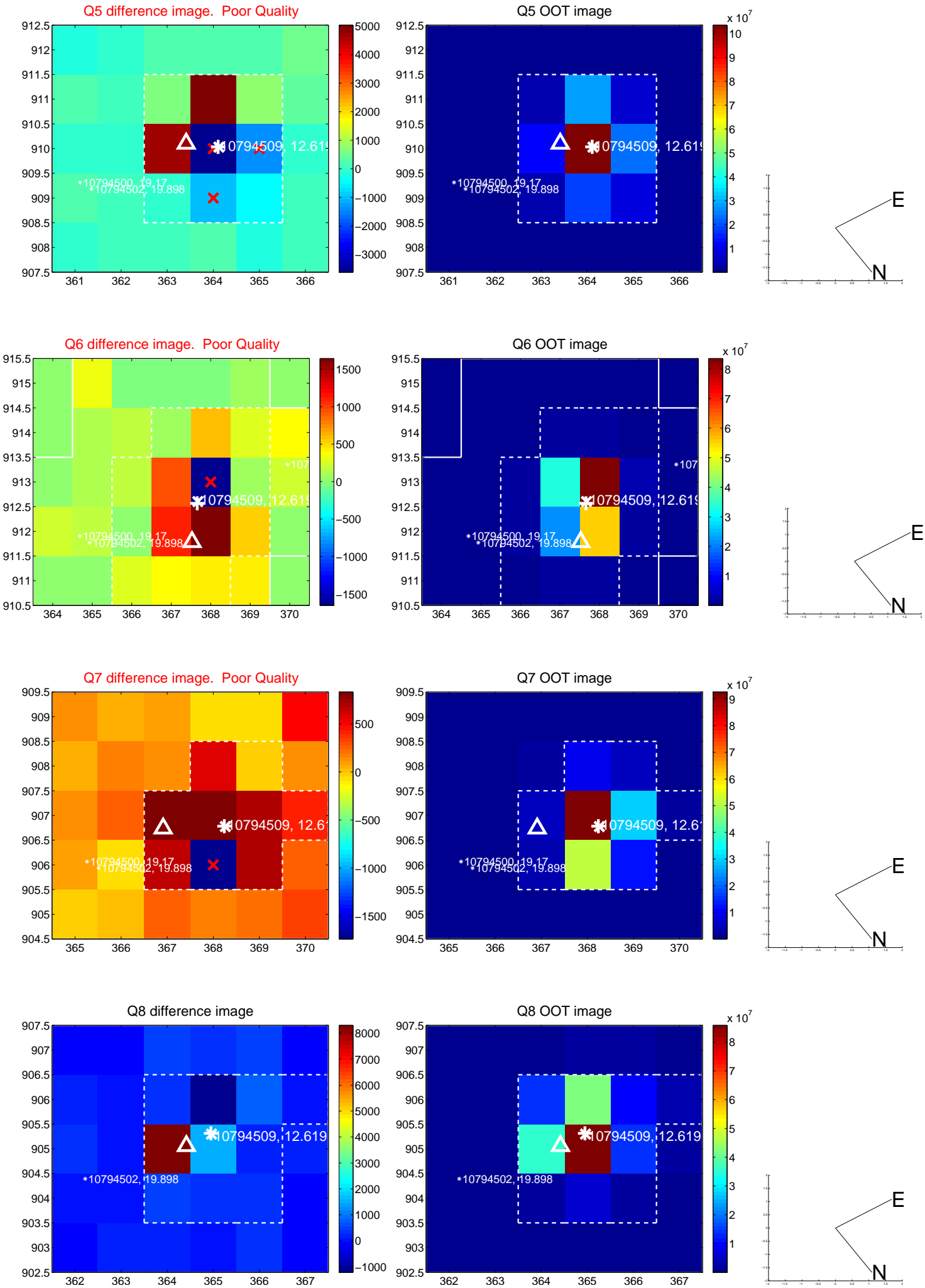


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses:** good quarterly centroid offsets; **Vermillion crosses:** bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

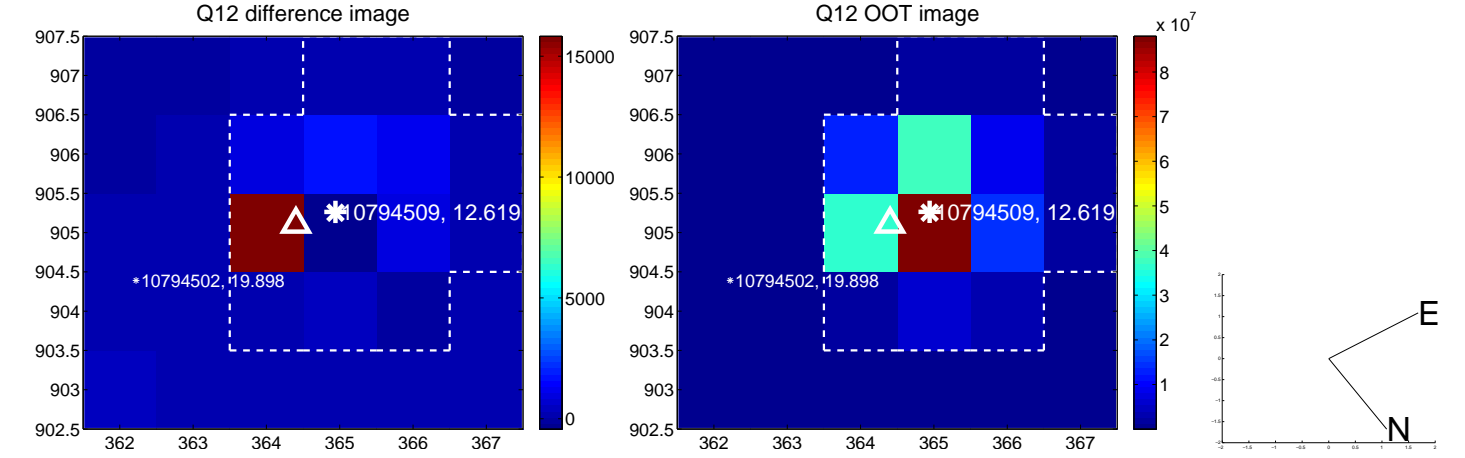
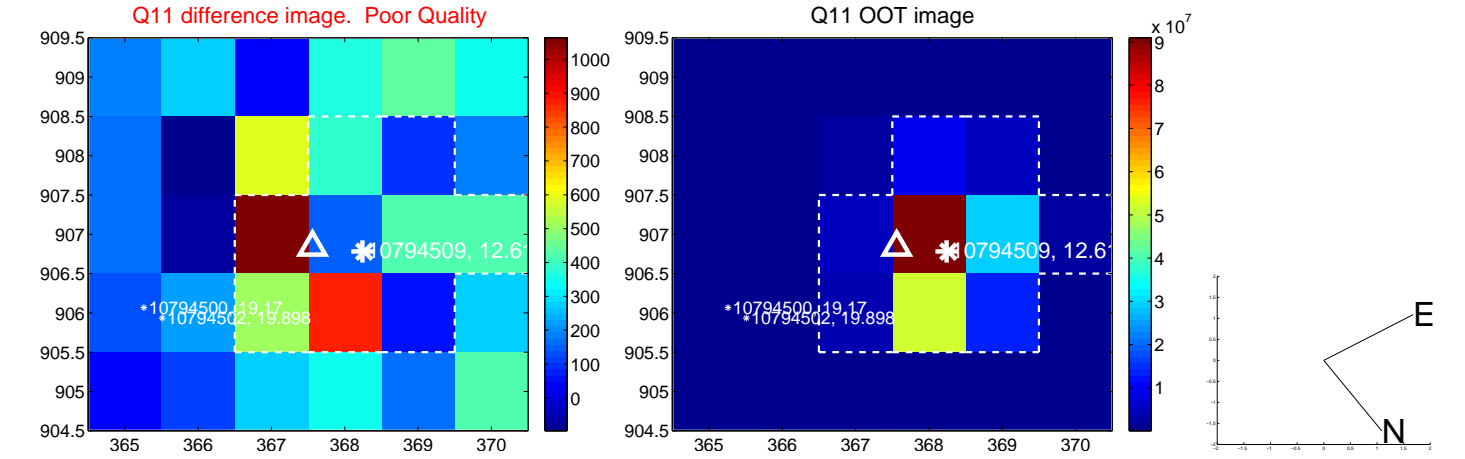
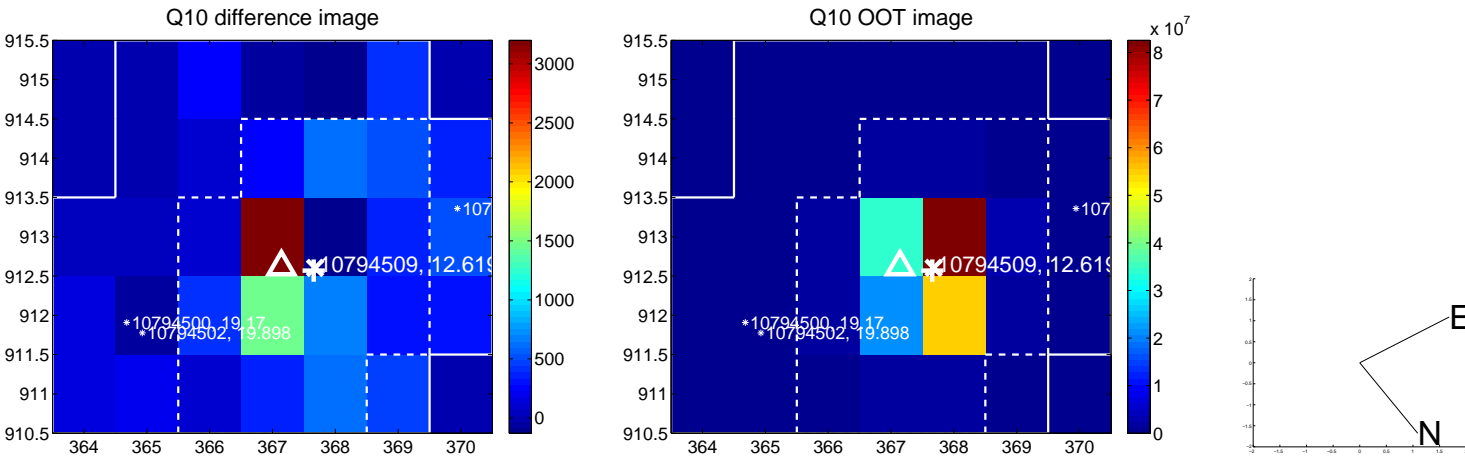
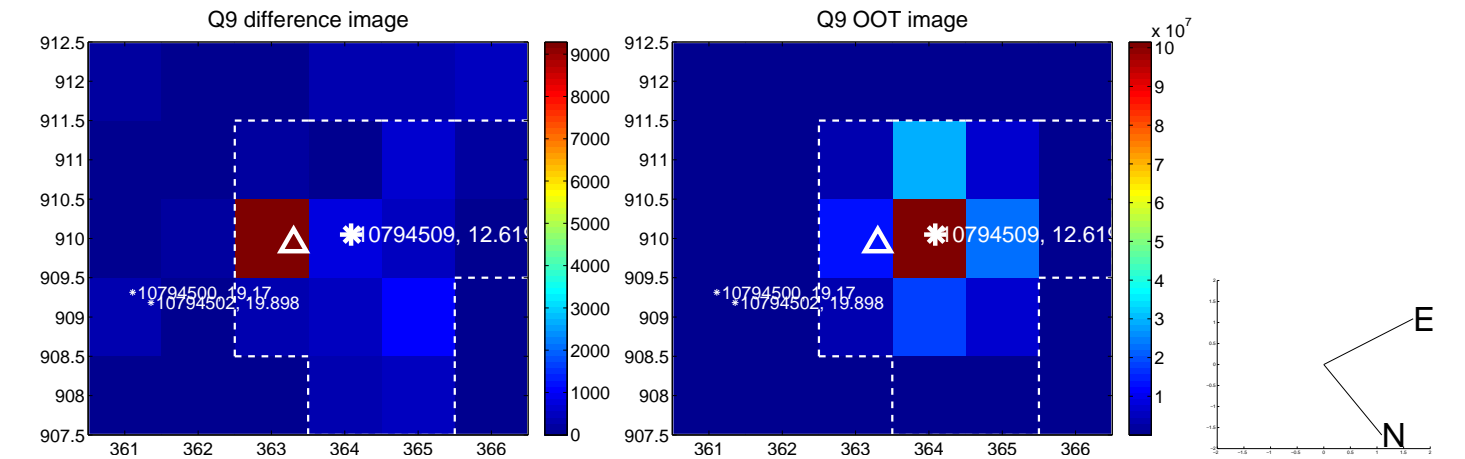
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



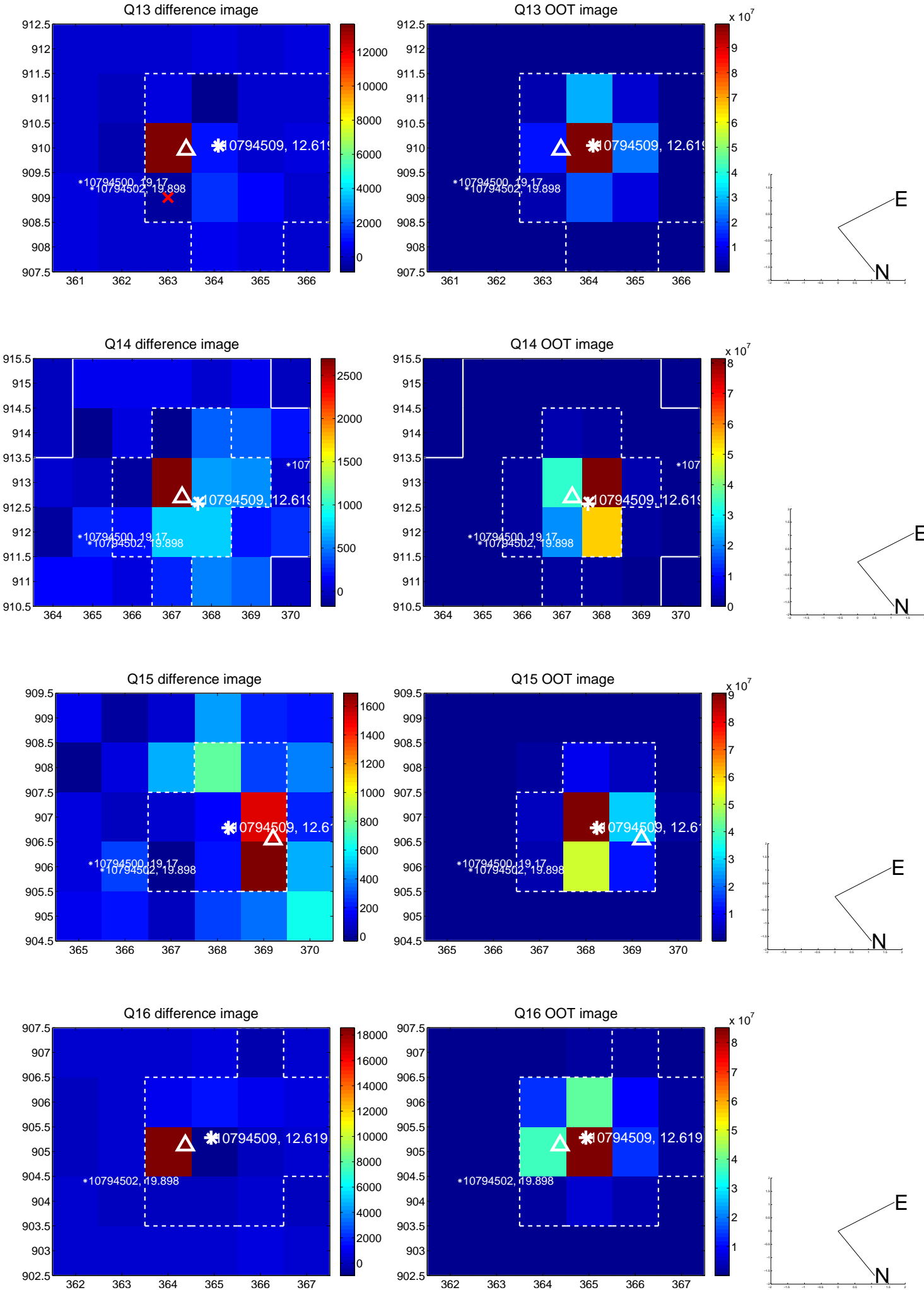
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



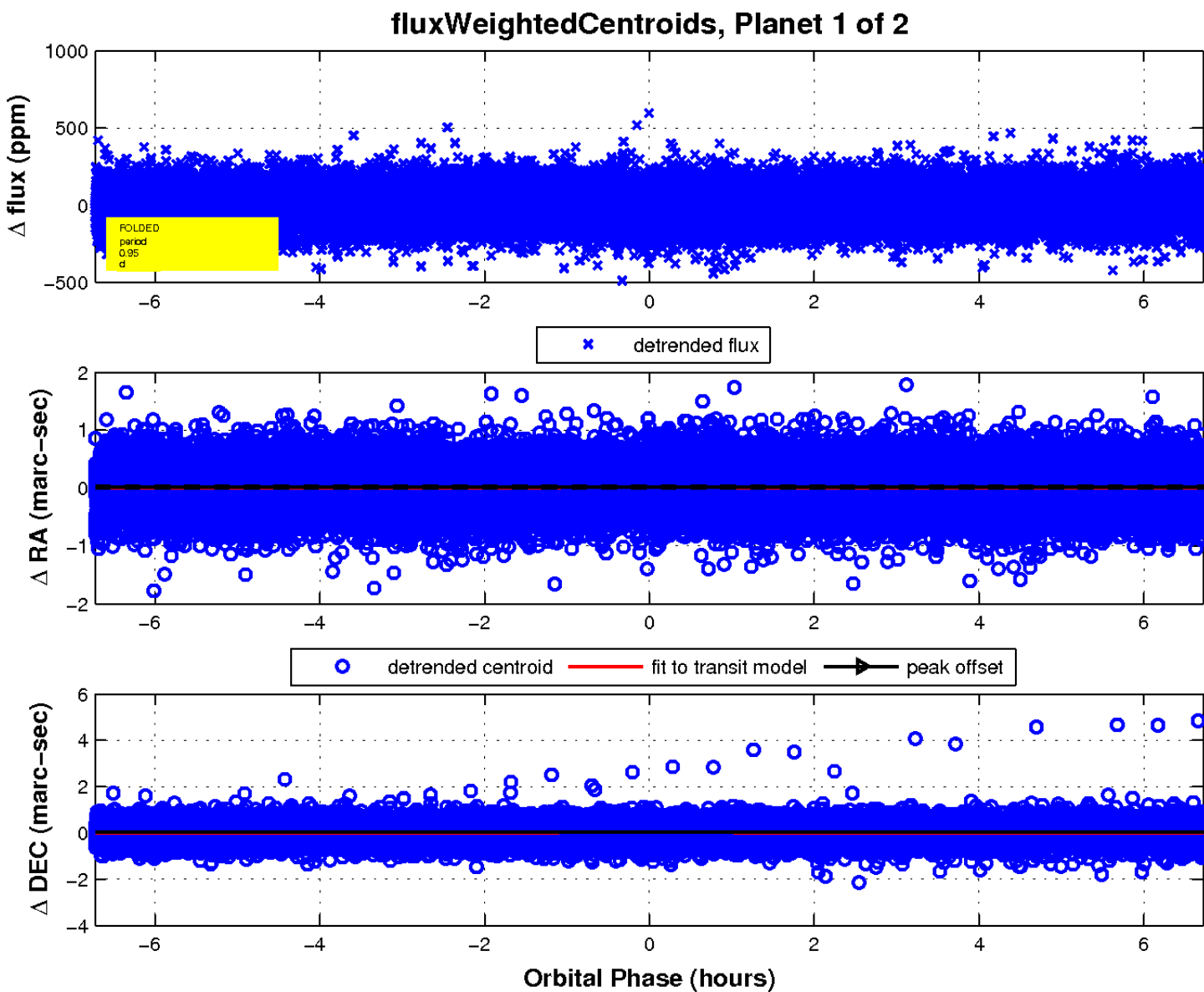
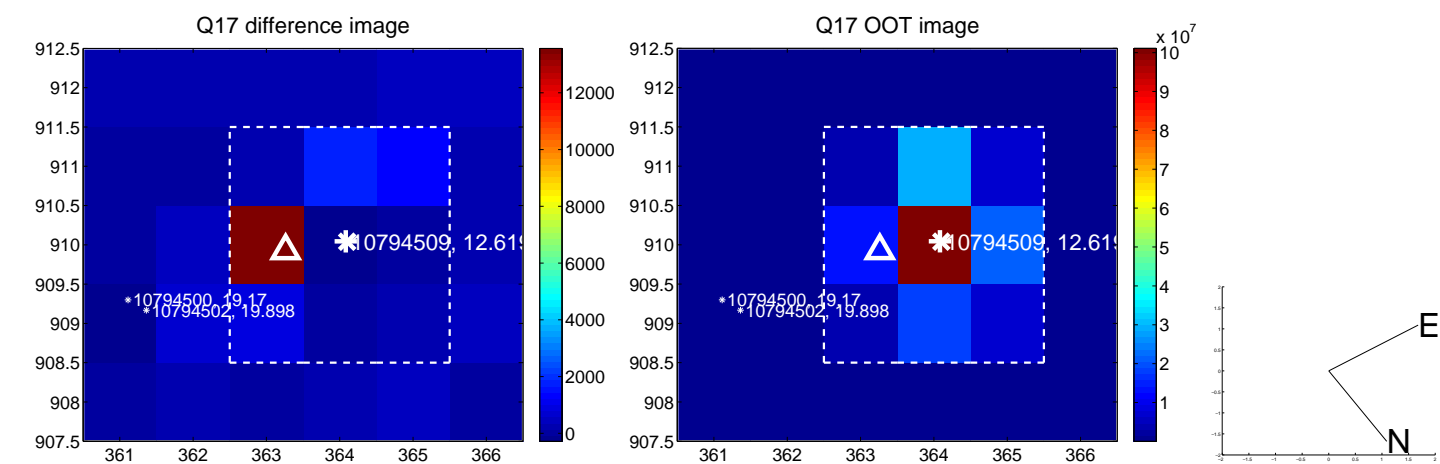
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

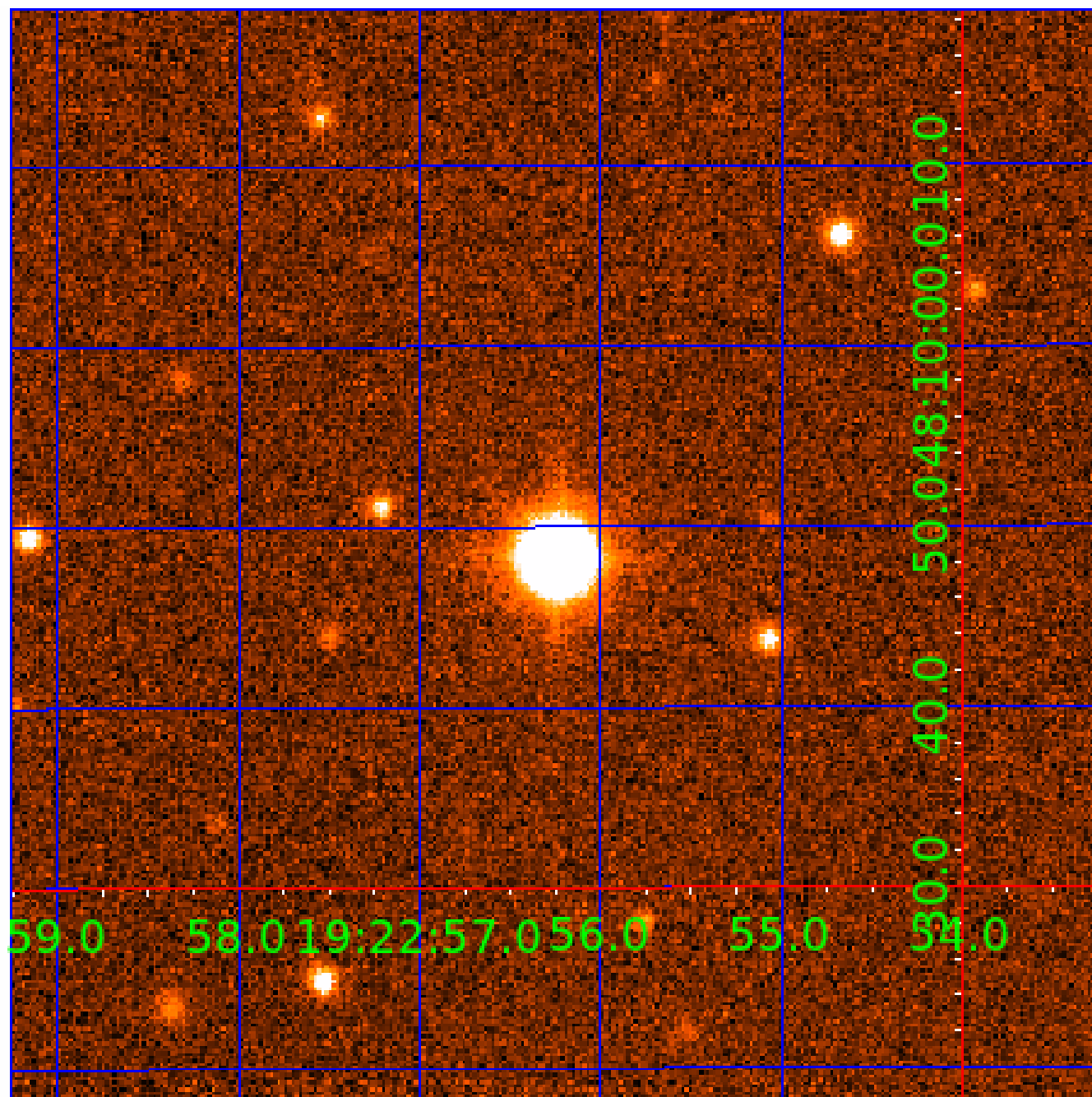


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 010794509

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})
010794509-01	OBS	No	0.952349	132.348268	14.2	2.241	9.0	9.1	1.95	6754	0.86	16425.00
010794509-02	OBS	No	0.952348	131.865845	11.3	2.349	8.4	7.8	1.95	6754	0.76	16425.03

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
010794509-01	OBS	FP	0.00	1	0	1	1	LPP_DV—CENT_UNRESOLVED_OFFSET—EPHEM_MATCH
010794509-02	OBS	FP	0.00	1	0	0	1	LPP_DV—SAME_NTL_PERIOD—EPHEM_MATCH

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 010794509-02

TCE (1)	KIC	Parent (2)	Parent KIC	$P_1:P_2$	Dist ($''$)	Δ Row	Δ Col	m_2	m_1	D_2/D_1	Mechanism	Flag	σ_P	σ_T
010794509-02	10794509	010858720-sec	10858720	1:1	169.4	43	0	10.97	12.62	41809.00	Direct-PRF	0	2.91	0.54

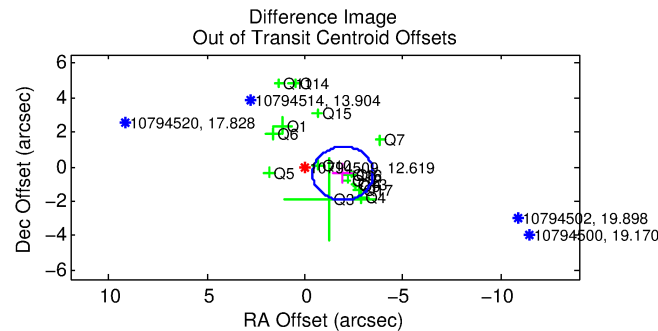
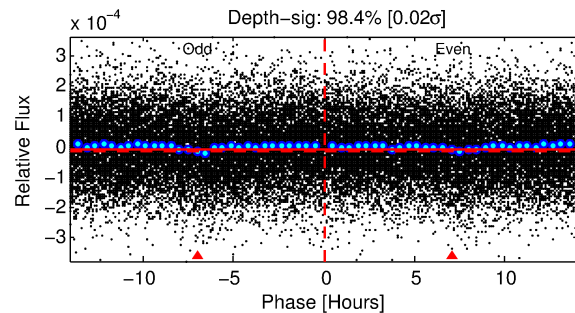
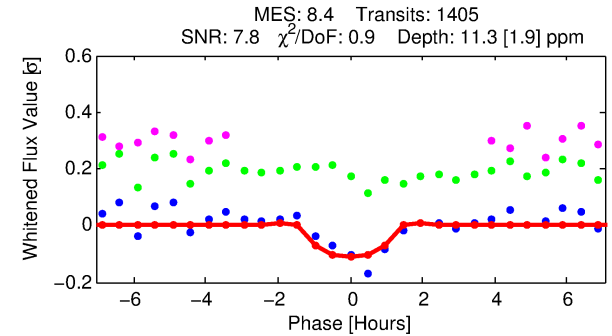
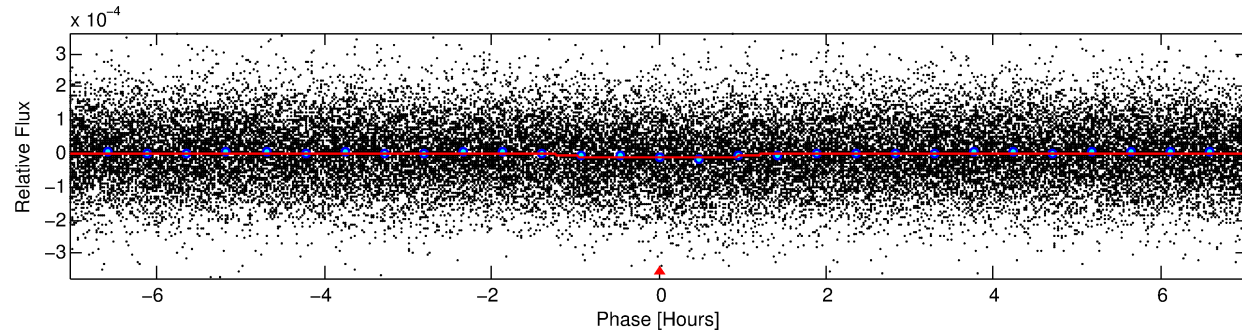
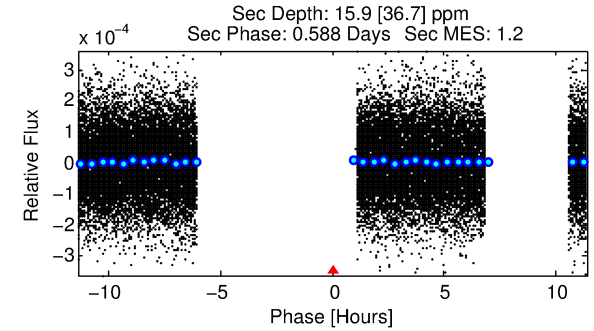
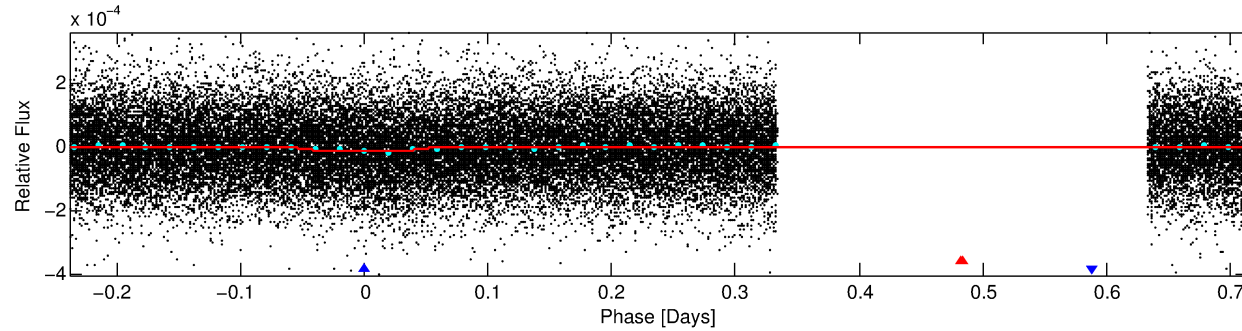
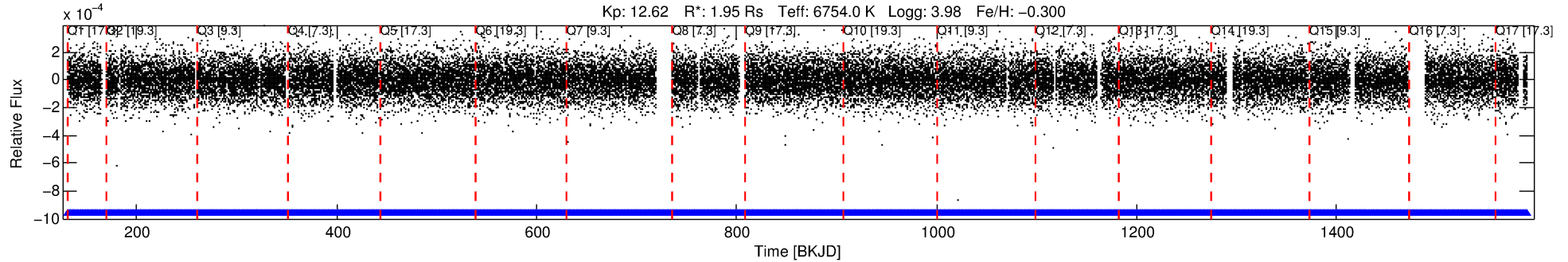
Notes: $P_1:P_2$ is the period ratio. Dist is the distance in arcseconds. Δ Row and Δ Col are the number of pixels apart in row and column. m_2 and m_1 are the magnitudes of the parent and child. D_2/D_1 is the parent's transit depth divided by the child's. σ_P and σ_T are the significance of the match in period and epoch. For a match to be considered significant $\sigma_P < 5.0$ and $\sigma_T < 5.0$. Matches which have σ_P and σ_T very close to this cutoff should receive extra scrutiny, especially if the period ratio is very large.

DV One-Page Summary

KIC: 10794509 Candidate: 2 of 2 Period: 0.952 d

KOI: K04673 Corr: No Ephemeris Match

Kp: 12.62 R*: 1.95 Rs Teff: 6754.0 K Logg: 3.98 Fe/H: -0.300



DV Fit Results:

Period = 0.95235 [0.00001] d
Epoch = 131.8658 [0.0040] BKJD
Rp/R* = 0.0036 [0.0011]
a/R* = 1.65 [1.84]
b = 0.90 [0.36]
Seff = 16425.03 [6977.05]
Teff = 2887 [307] K
Rp = 0.76 [0.31] Re
a = 0.0207 [0.0053] AU
Ag = 6.43 [15.57] [0.35σ]
Teffp = 7108 [4248] K [0.99σ]

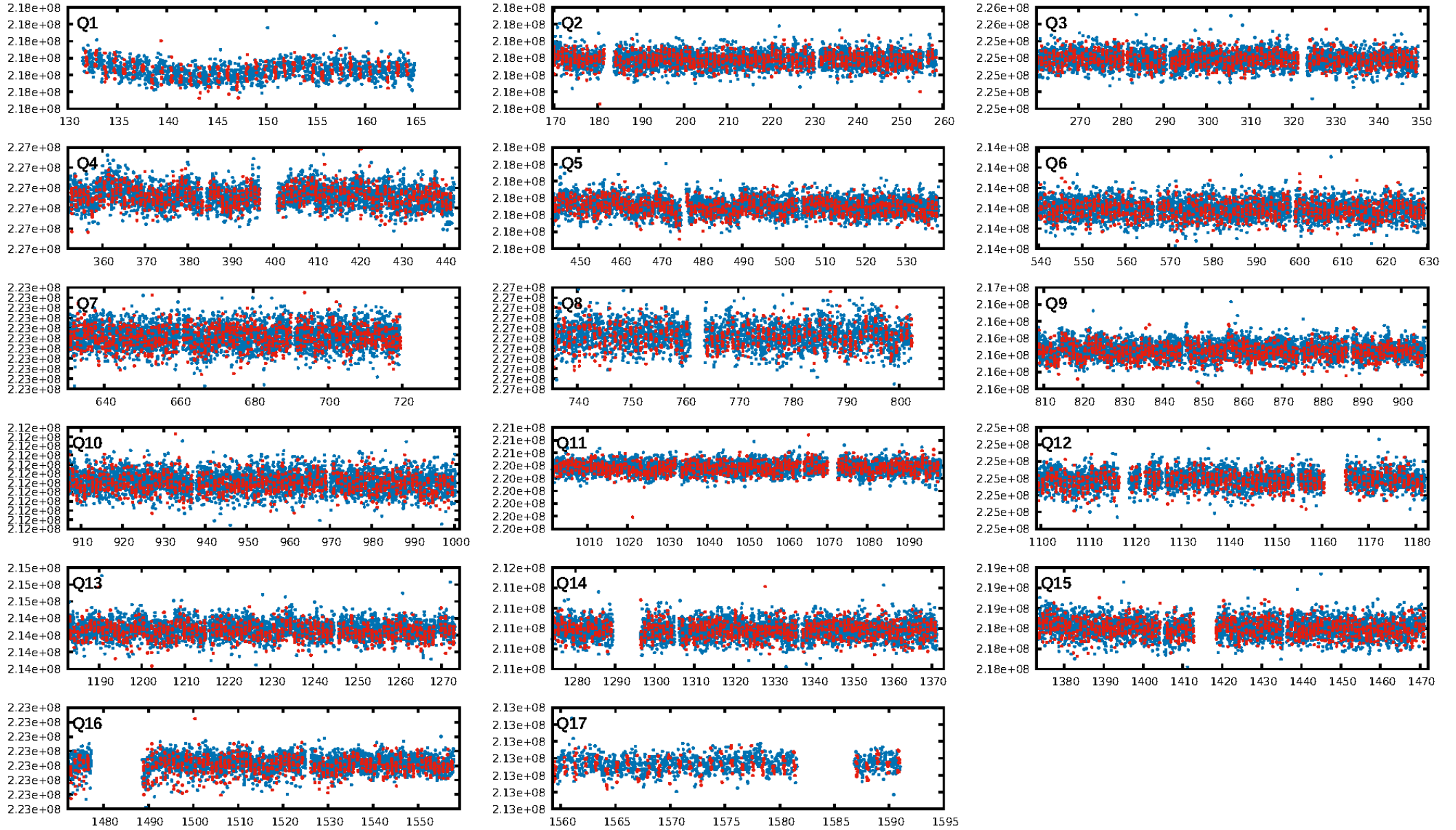
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: 0.0% [0.00σ]
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: 1.49e-18
RollingBand-fgt: 1.00 [1341/1341]
GhostDiagnostic-chr: 1.108
Centroid-sig: 41.1%
Centroid-so: 0.976 arcsec [0.85σ]
OotOffset-rm: 1.969 arcsec [3.81σ]
KicOffset-rm: 2.089 arcsec [4.05σ]
OotOffset-st: 3/4/4/5 [16]
KicOffset-st: 3/4/4/5 [16]
DiffImageQuality-fgm: 0.56 [9/16]
DiffImageOverlap-fno: 1.00 [17/17]

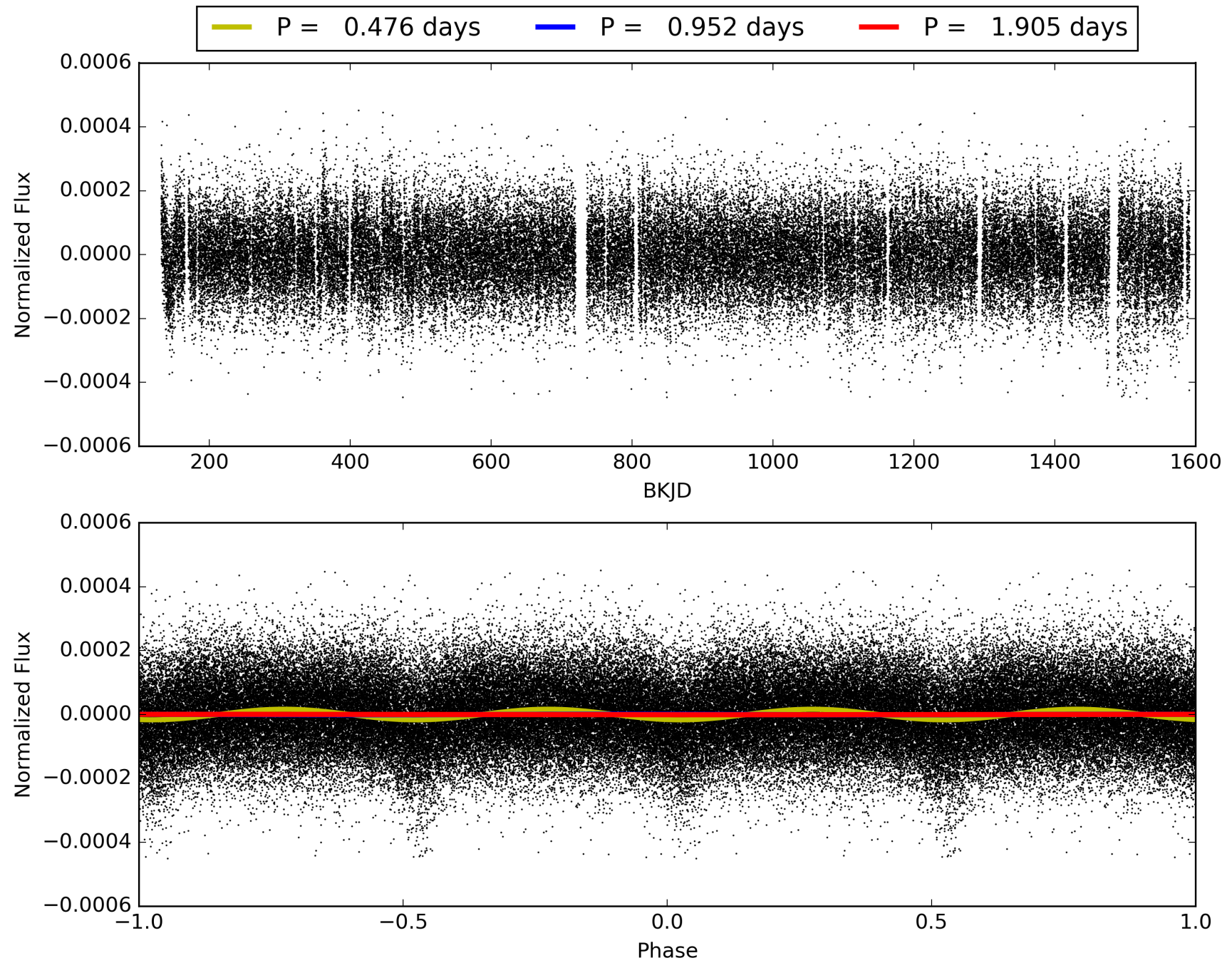
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This Data Validation Report Summary was produced in the Kepler Science Operations Center Pipeline at NASA Ames Research Center

TCE 010794509-02, PDC Light Curves

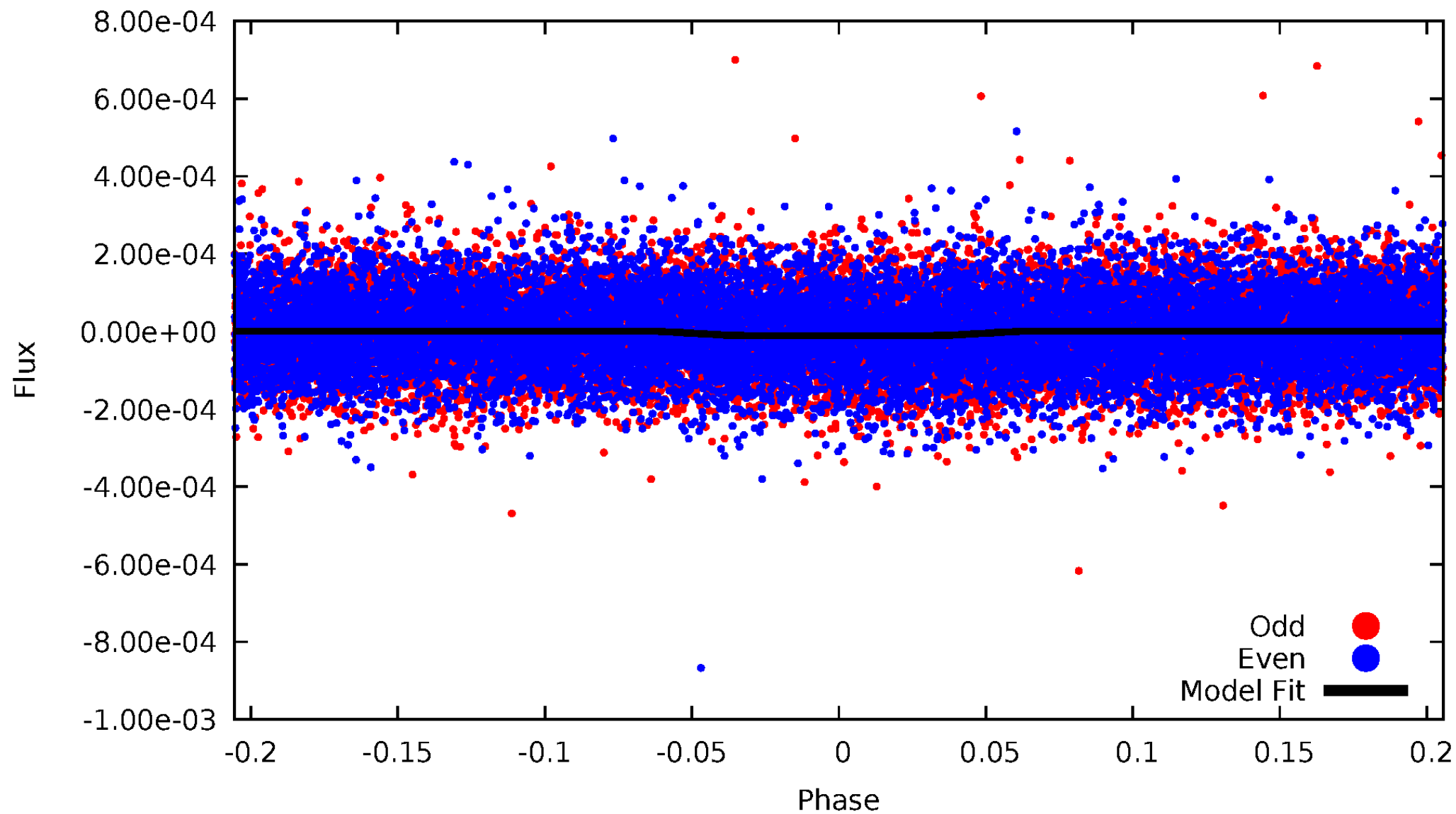


TCE 010794509-02



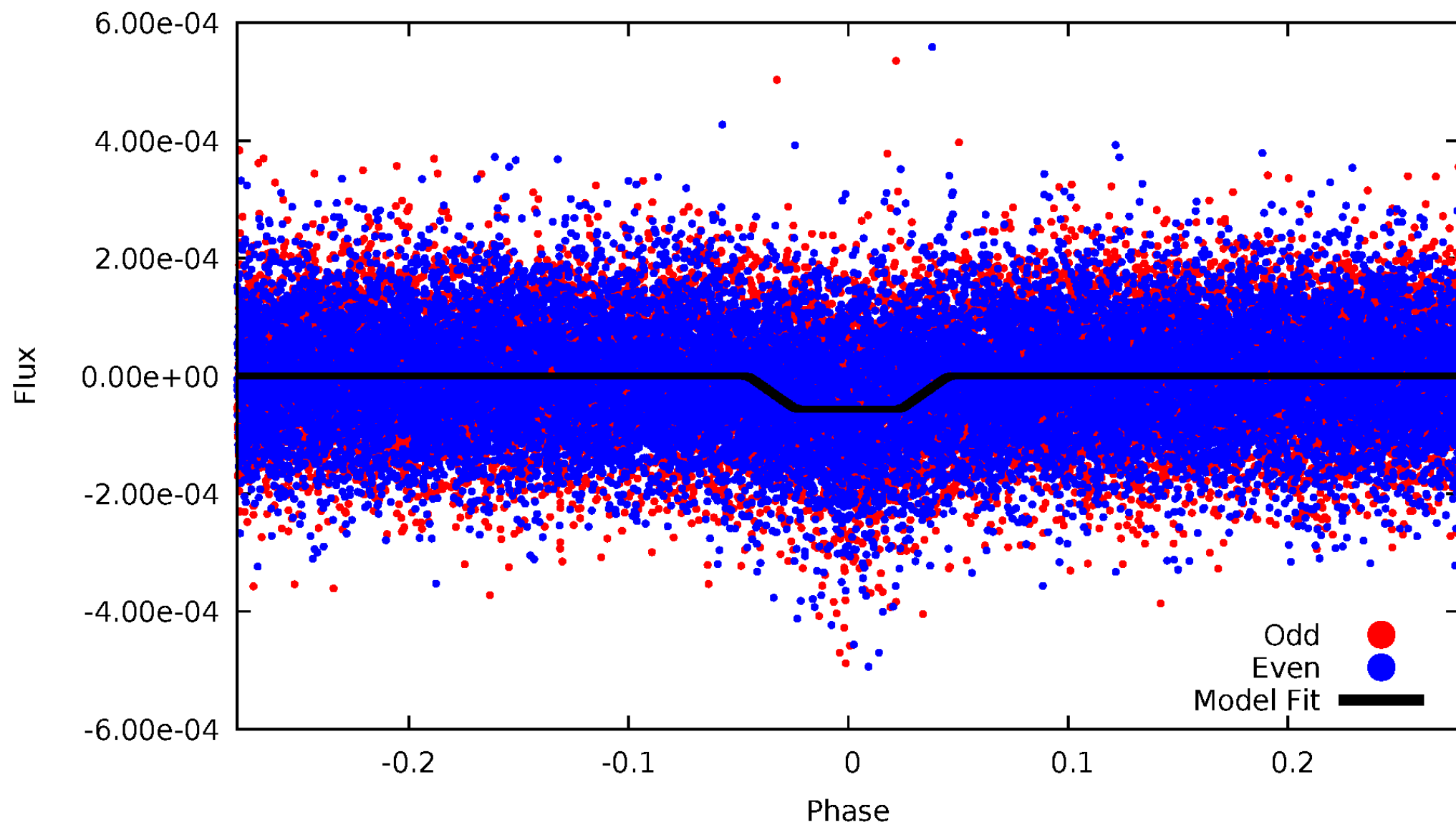
DV Odd/Even

TCE 010794509-02



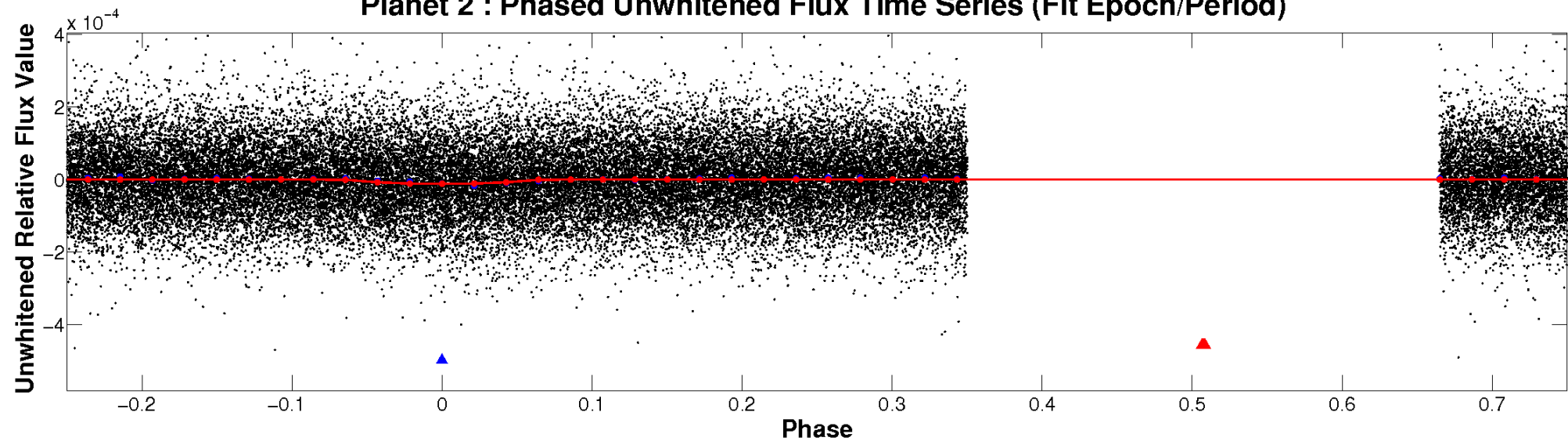
ALT Odd/Even

TCE 010794509-02

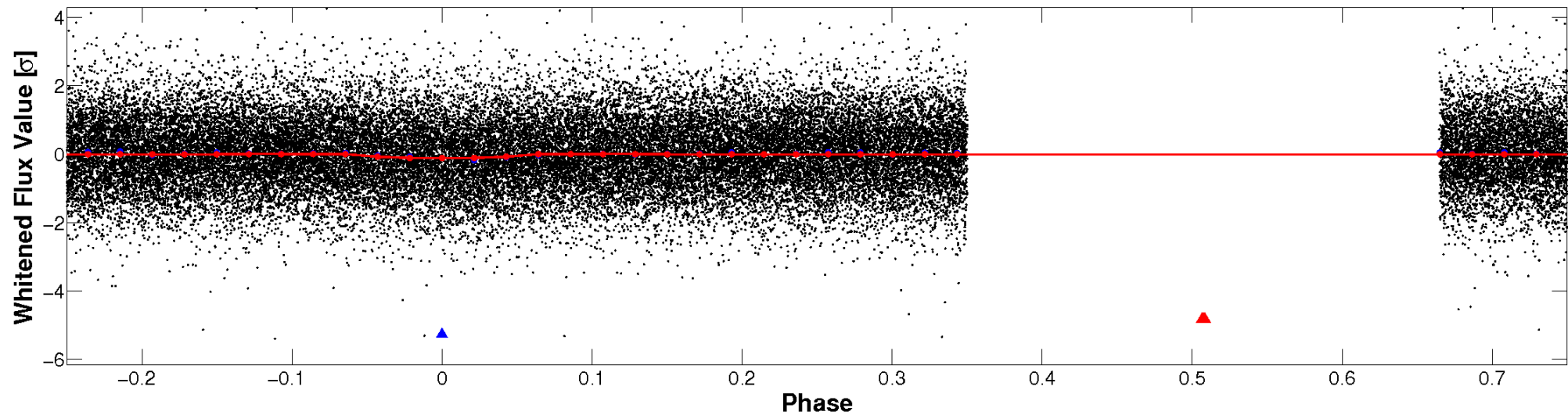


Non-Whitened Vs. Whitened Light Curve

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

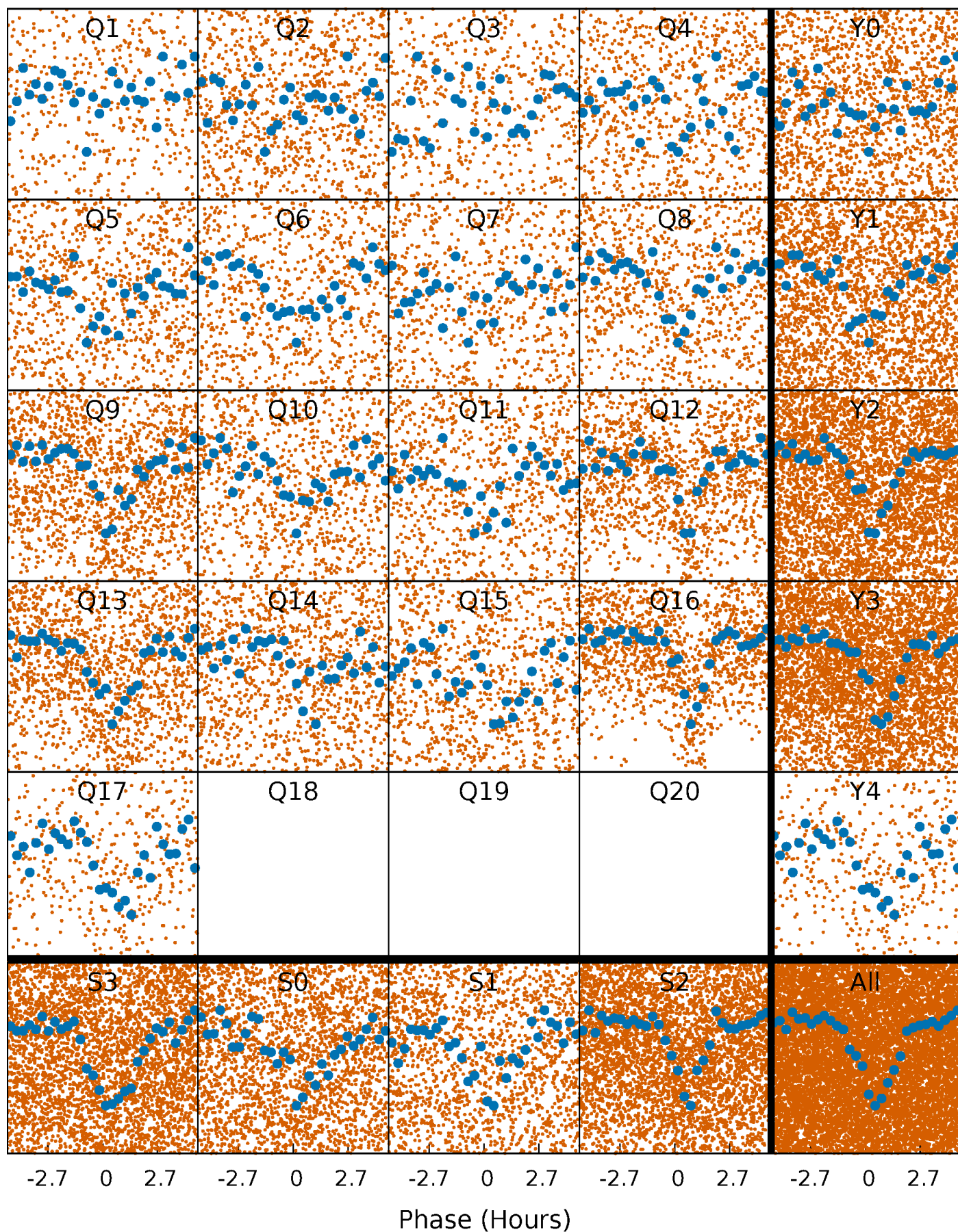


Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



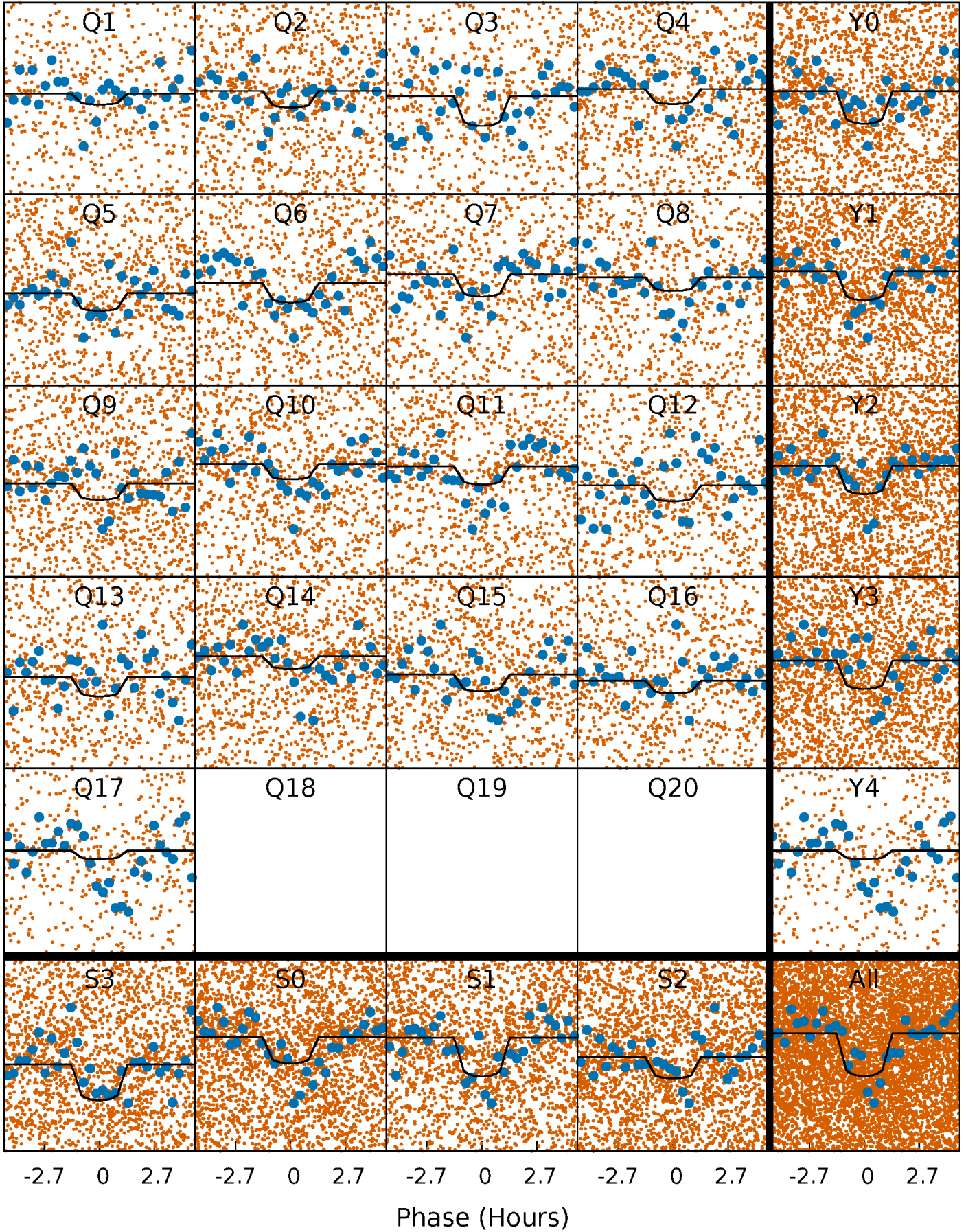
PDC Quarter-Phased Transit Curves

TCE 010794509-02 P= 0.952348 Days $T_0=131.865845$ (BKJD)



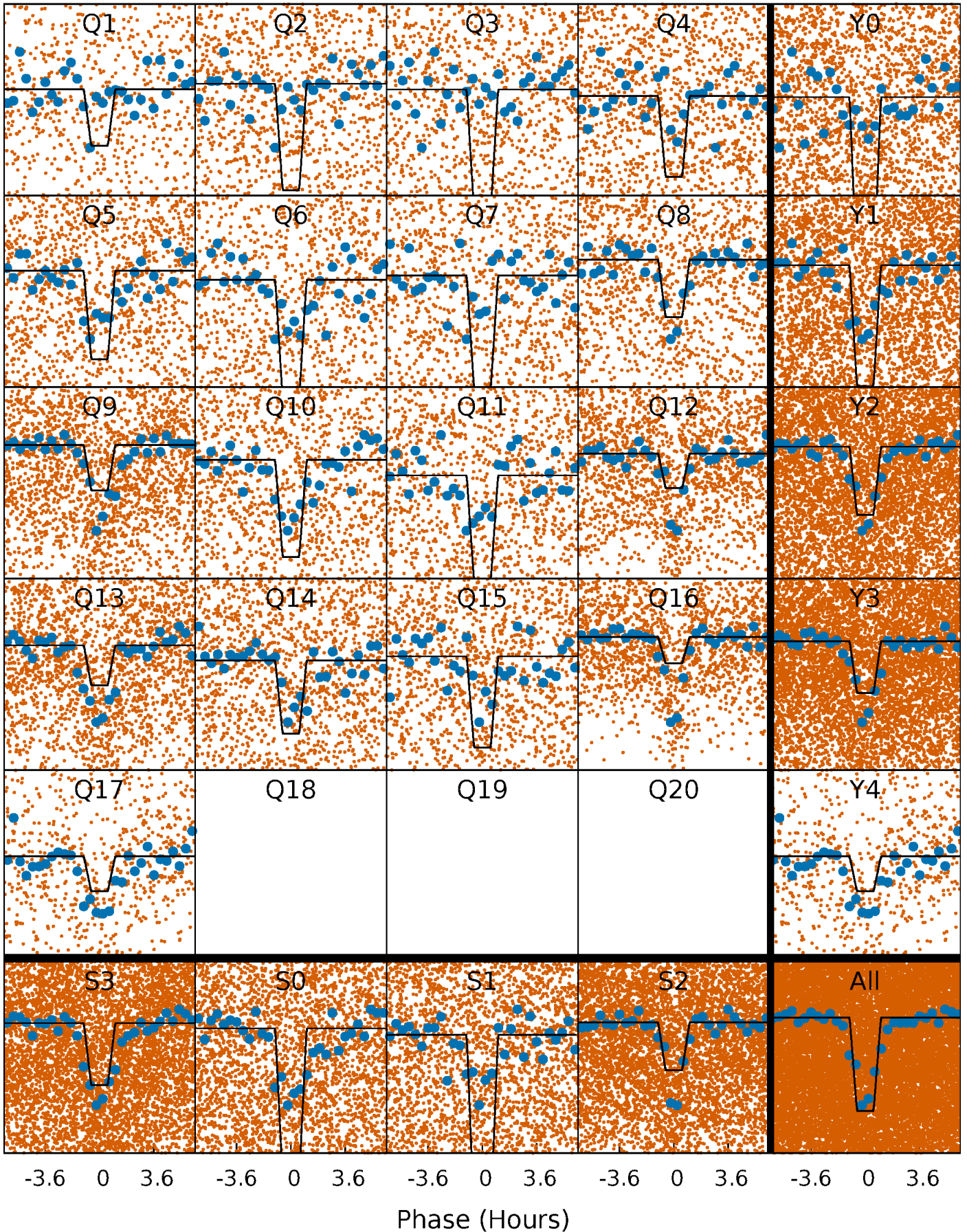
DV Quarter-Phased Transit Curves

TCE 010794509-02 $P = 0.952348$ Days $T_0 = 131.865845$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

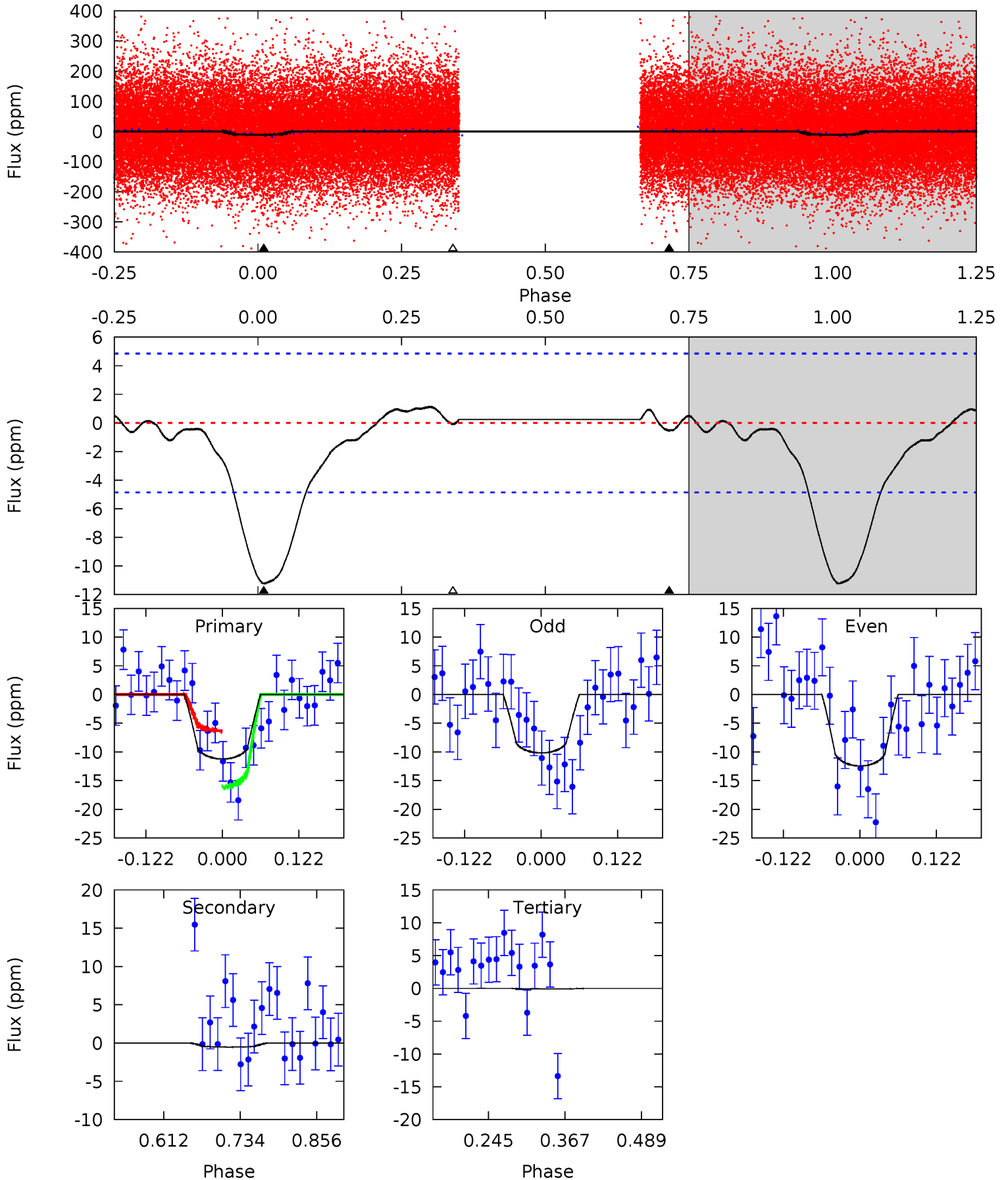
TCE 010794509-02 $P = 0.952380$ Days $T_0 = 131.855717$ (BKJD)



DV Model-Shift Uniqueness Test

010794509-02, P = 0.952348 Days, E = 130.913497 Days

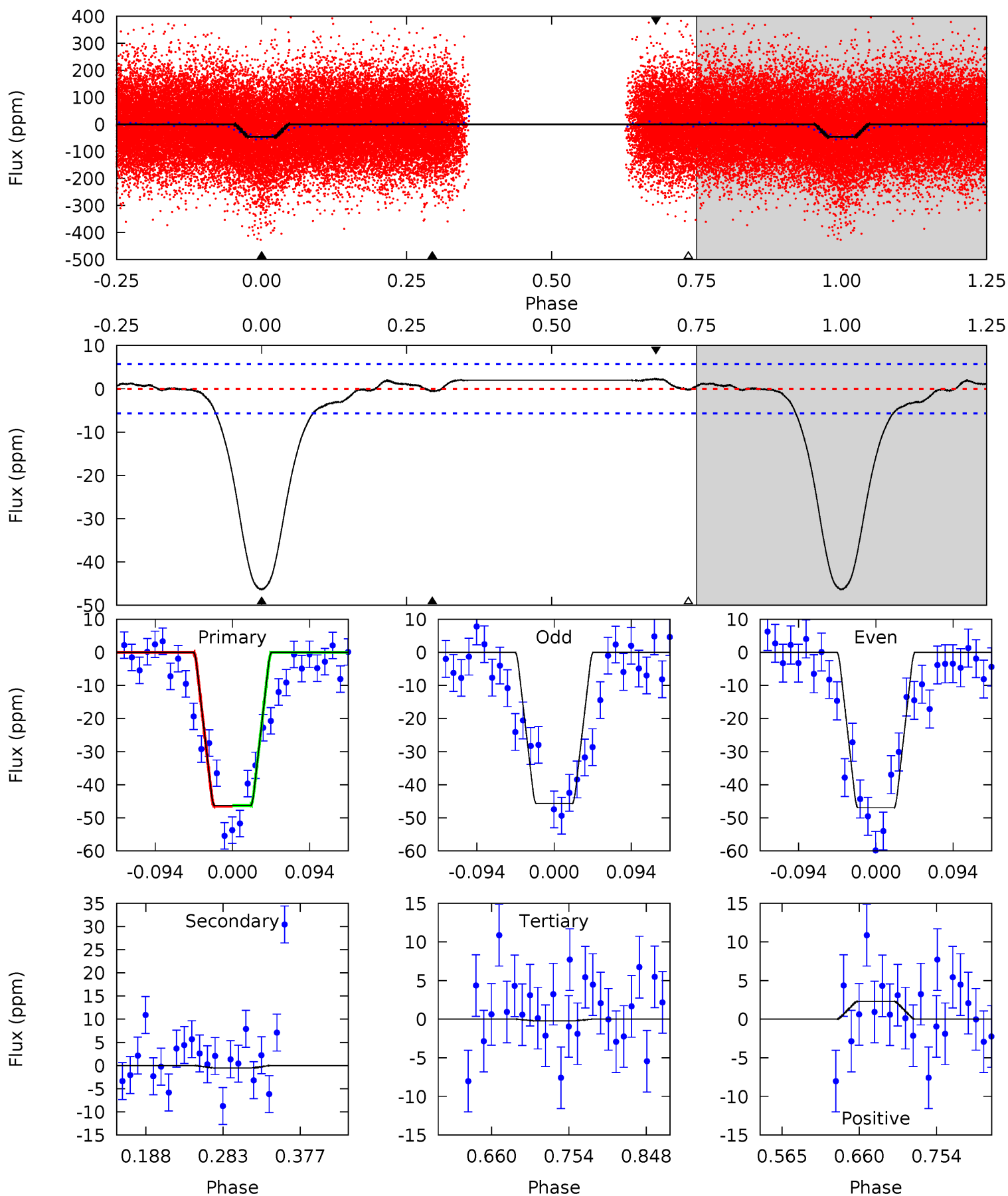
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
10.5	0.49	0.08	0	4.52	1.55	0.82	10.4	10.5	0.41	0.49	1.06	0.98	0.09	4.58



Alt Model-Shift Uniqueness Test

010794509-02, P = 0.952380 Days, E = 130.903337 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
37.2	0.42	0.17	1.85	4.58	1.67	1.33	37.0	35.3	0.25	-1.43	0.54	1.09	0.05	0.10



Stellar Parameters For KIC 010794509

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	$M(M_{\odot})$	p_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	6754^{+183}_{-223}	$3.977^{+0.234}_{-0.126}$	$-0.300^{+0.300}_{-0.250}$	$1.946^{+0.440}_{-0.538}$	$1.311^{+0.204}_{-0.224}$	$0.251^{+0.353}_{-0.093}$
	+3%/-3%	+6%/-3%	+100%/-83%	+23%/-28%	+16%/-17%	+141%/-37%
Source	PHO1	FLK73	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 010794509-02 / KOI

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	-1 ± 1	$0.74^{+0.26}_{-0.22}$	3990^{+260}_{-310}	-3128^{+7075}_{-1006}	$0.180^{+0.591}_{-0.445}$
Alt.	-1 ± 1	$1.55^{+0.30}_{-0.30}$	3978^{+280}_{-306}	-3562^{+466}_{-295}	$0.051^{+0.138}_{-0.122}$

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

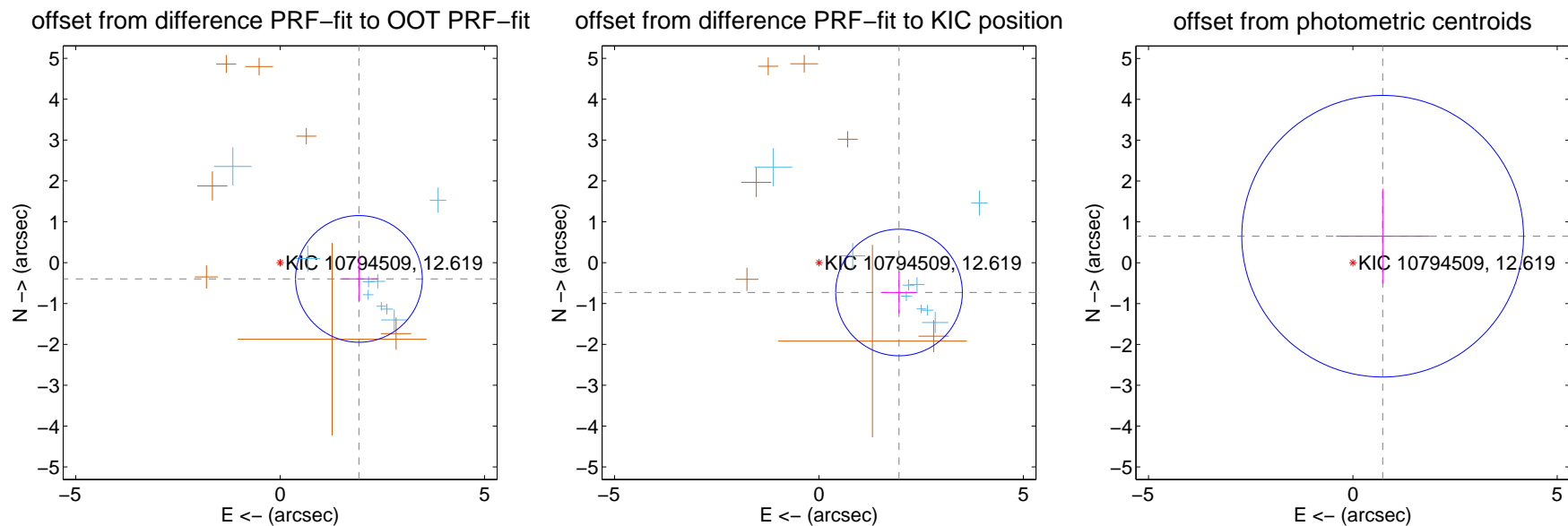
DV Centroid Data

Supplemental centroid analysis for 010794509-02. Kepler magnitude: 12.62. Transit SNR 7.75

There are 9 quarters with good PRF difference image offsets

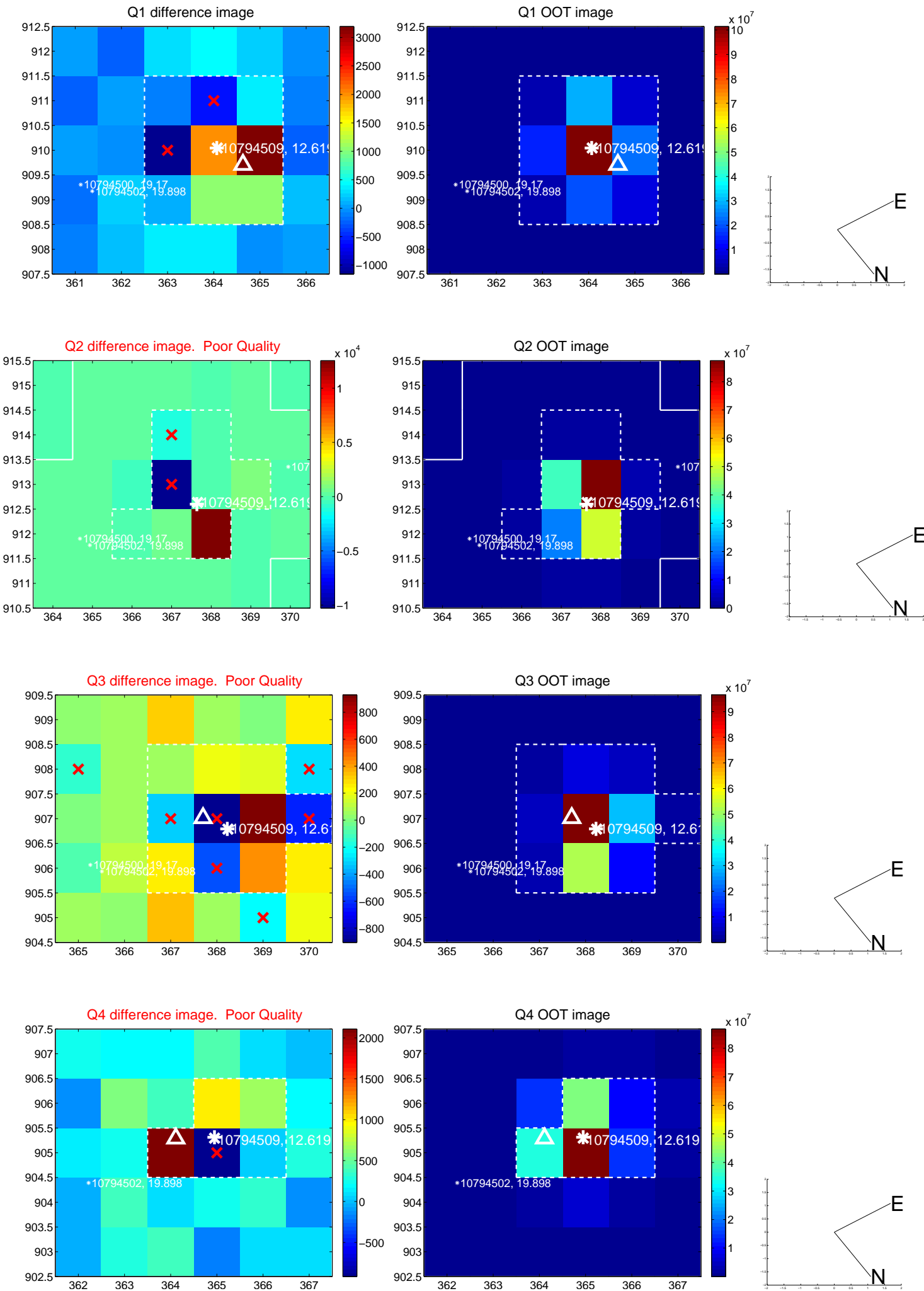
The direct PRF centroid is offset from the target star catalog position by about 0.08 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	1.969 ± 0.517	3.81	-1.928 ± 0.459	-0.398 ± 0.540
PRF-fit source offset from KIC position	2.089 ± 0.516	4.05	-1.958 ± 0.425	-0.731 ± 0.513
photometric centroid source offset	0.98 ± 1.15	0.85	-0.73 ± 1.14	0.65 ± 1.16

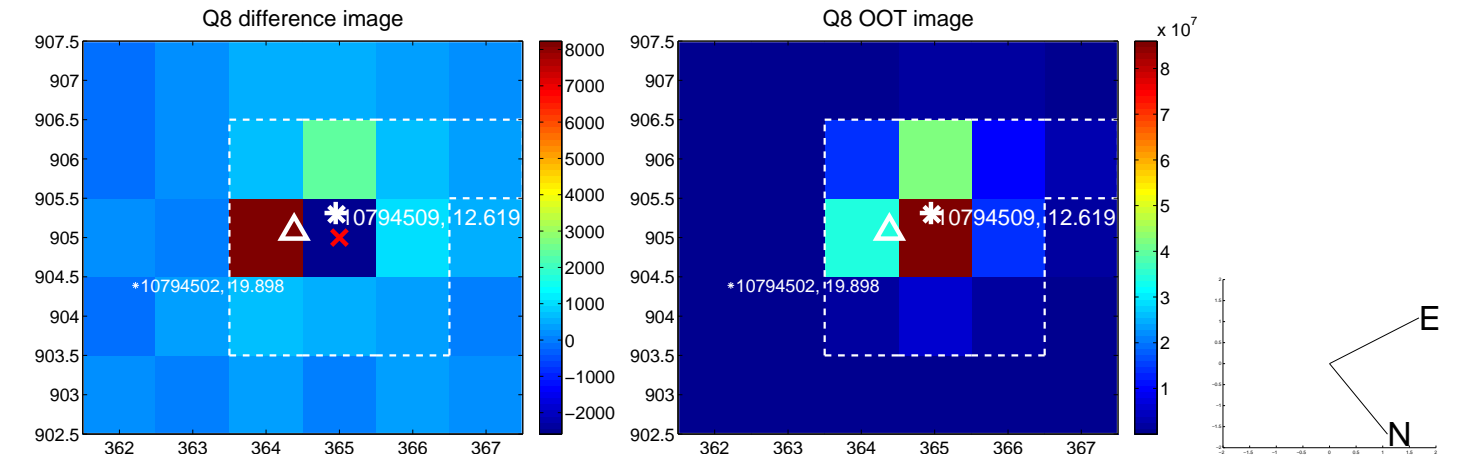
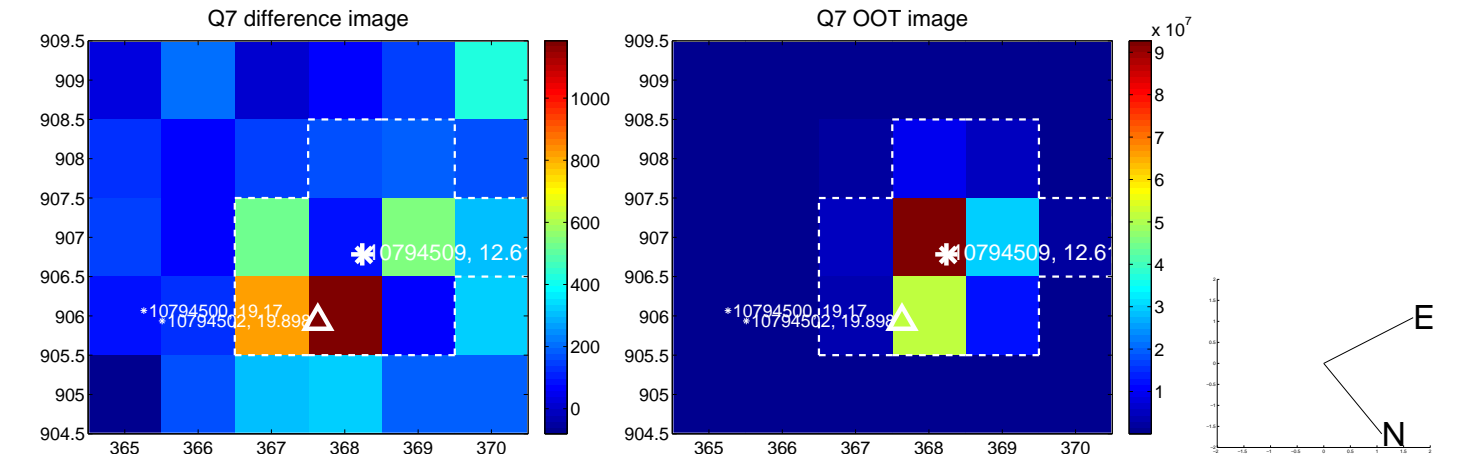
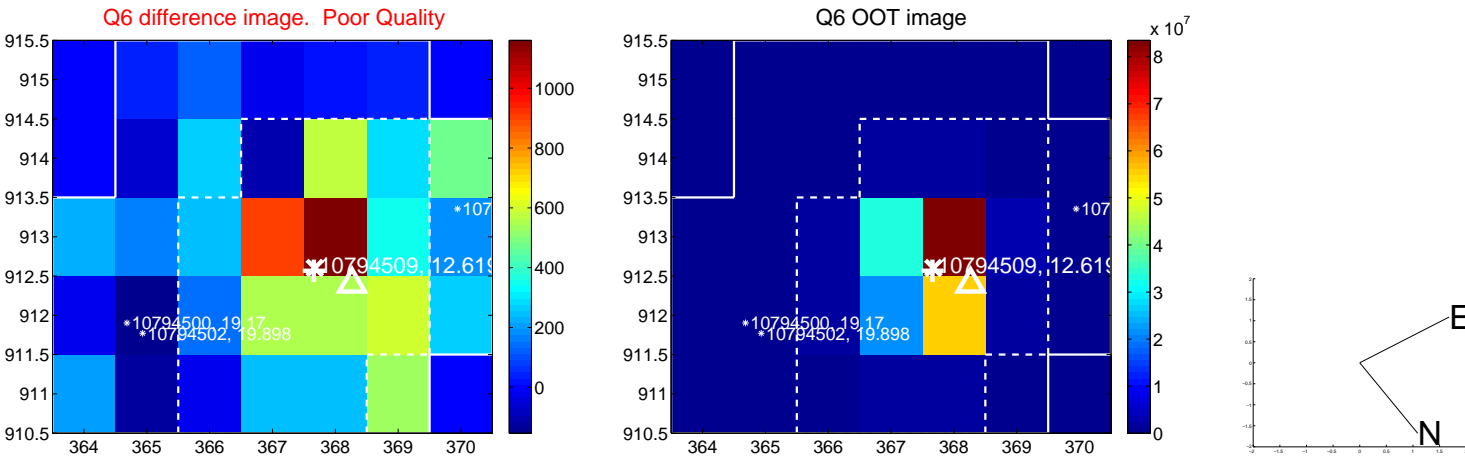
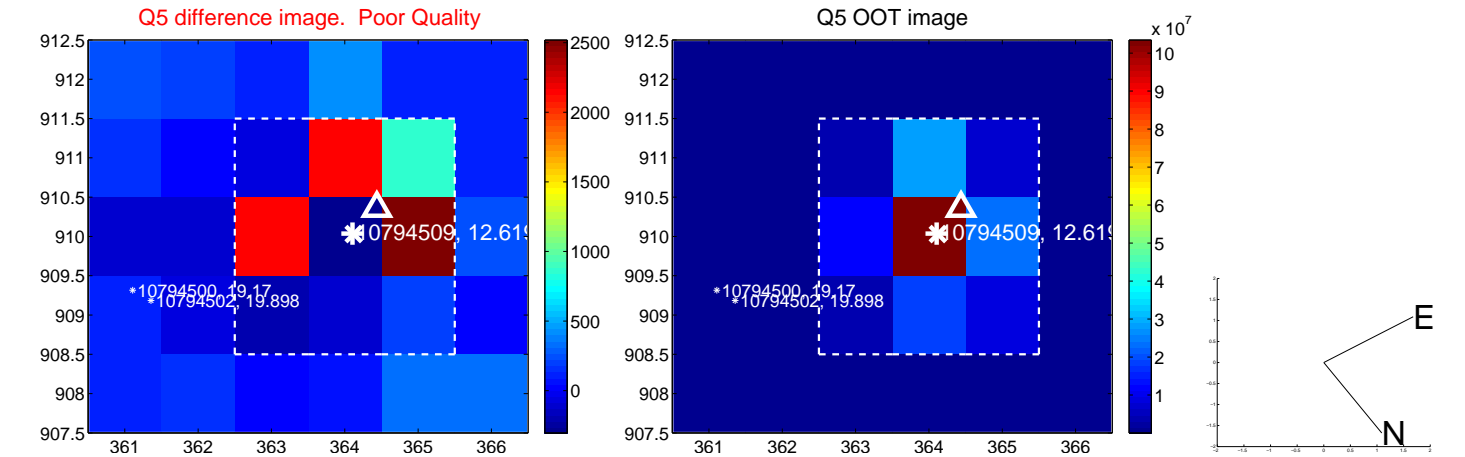


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

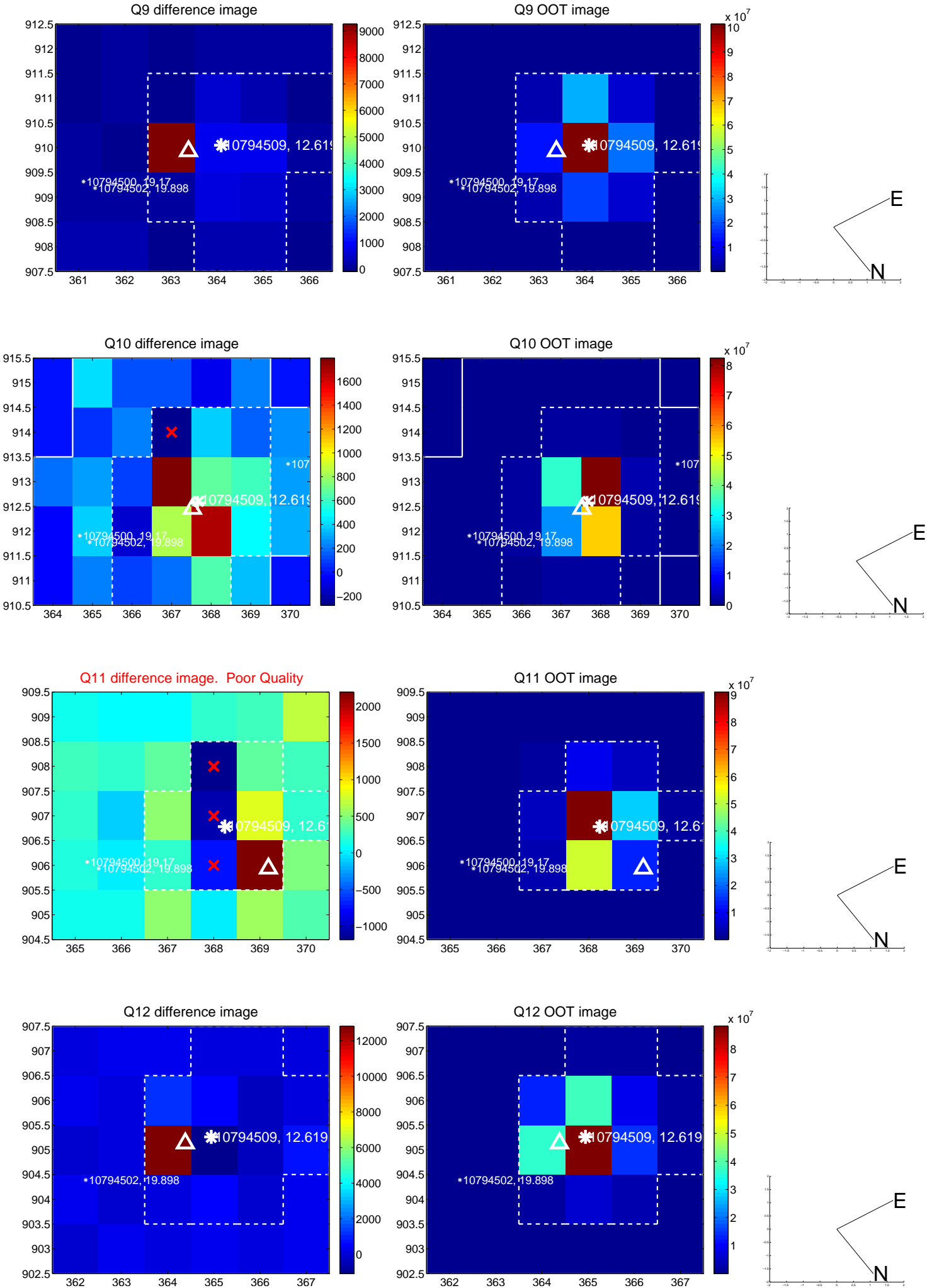
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



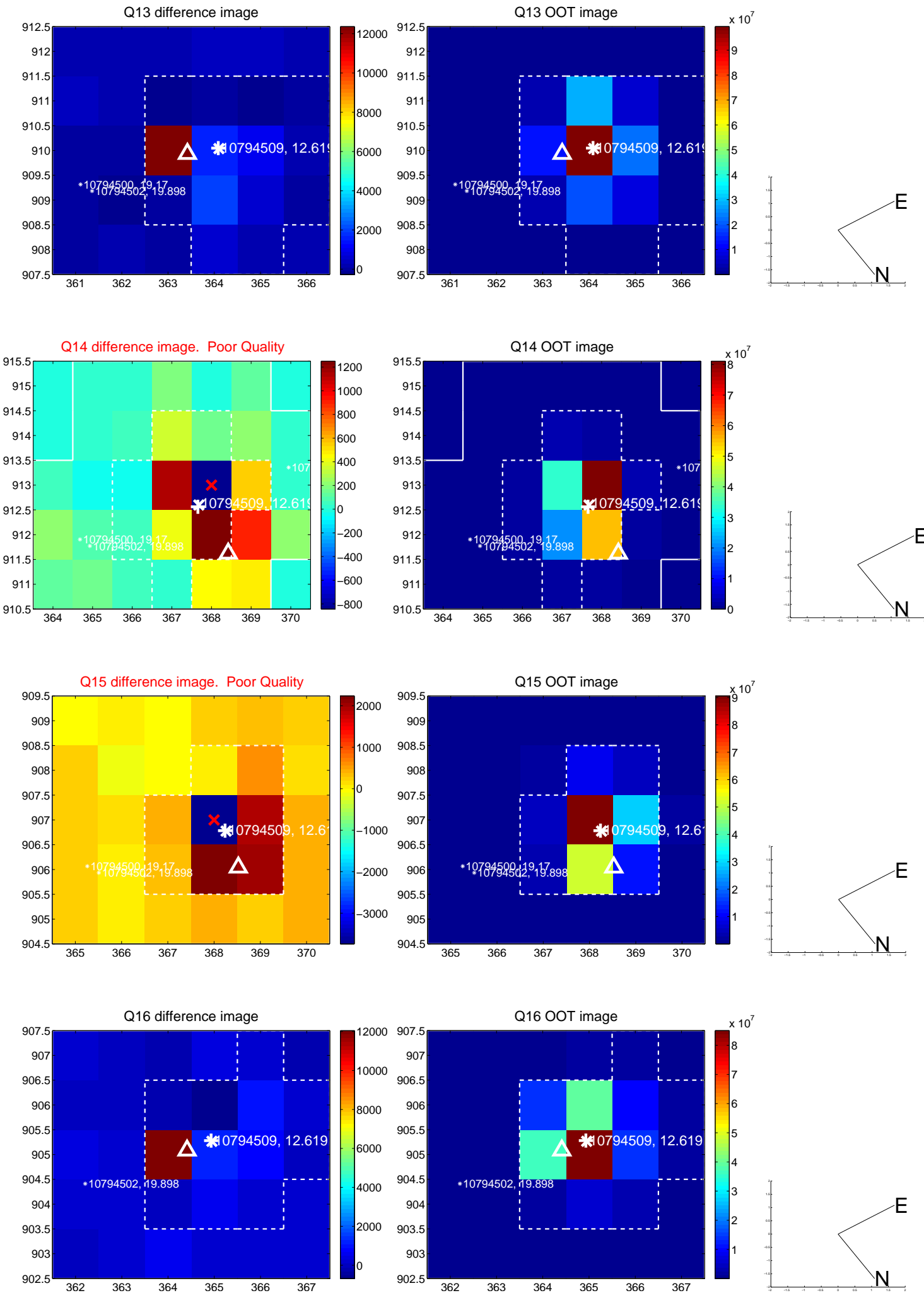
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

Declination

