

KIC 009613452

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})
009613452-01	OBS	No	0.886147	131.703285	38.3	4.784	9.6	5.0	1.09	6484	0.72	5807.72
009613452-02	OBS	No	3.746392	131.820242	268.9	4.250	9.7	9.1	1.09	6484	2.09	849.56
009613452-03	OBS	No	73.216568	185.846185	983.3	4.742	9.7	6.8	1.09	6484	3.53	16.14
009613452-04	OBS	No	3.746152	133.878487	185.5	4.579	9.8	5.9	1.09	6484	1.94	849.63
009613452-06	OBS	No	266.710349	255.475394	2811.1	10.607	9.3	9.9	1.09	6484	10.58	2.88
009613452-07	OBS	No	8.241587	137.087167	997.7	11.978	8.2	13.1	1.09	6484	6.49	296.94

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
009613452-01	OBS	FP	0.00	1	0	0	0	LPP_DV
009613452-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_ZUMA—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT
009613452-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_ALT—MOD_NONUNIQ_ALT
009613452-04	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_RUBBLE_SKYE_ZUMA_TRACKER—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—SAME_NTL_PERIOD—HALO_GHOST
009613452-06	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL—TRANS_GAPPED—ALL_TRANS_CHASES
009613452-07	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_SKYE_ZUMA—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_ALT

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

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

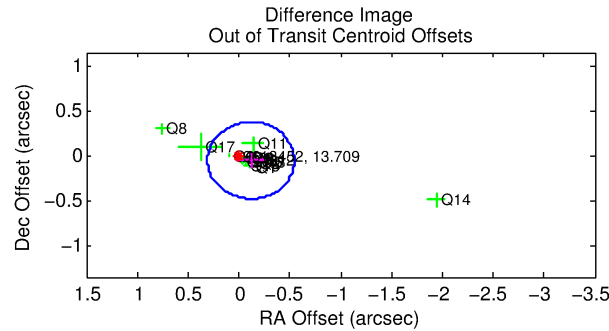
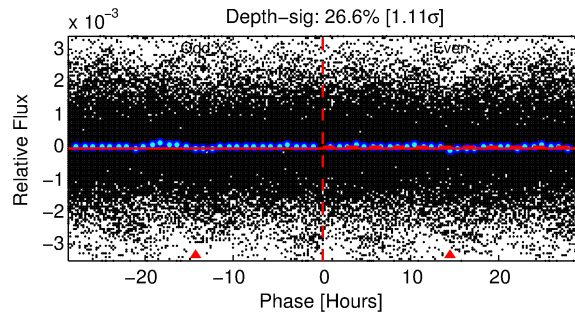
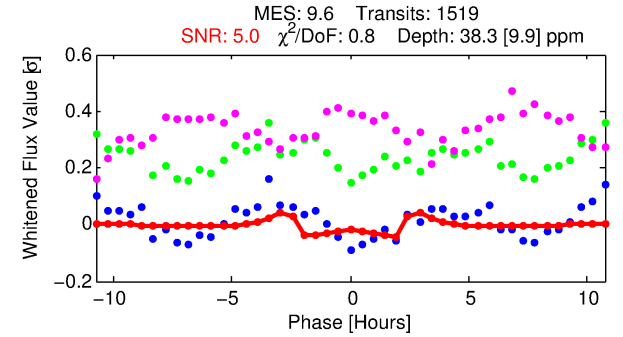
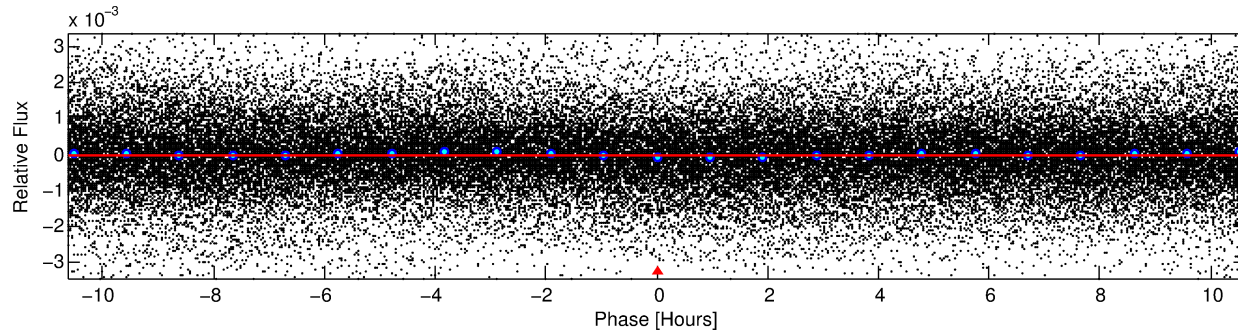
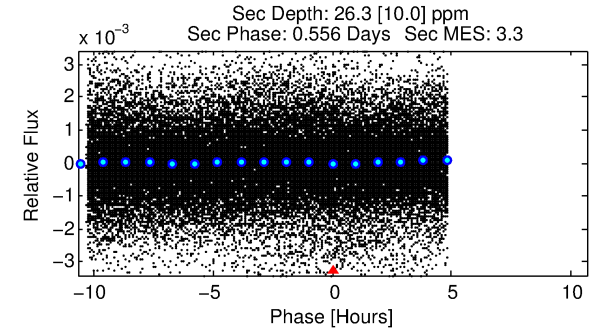
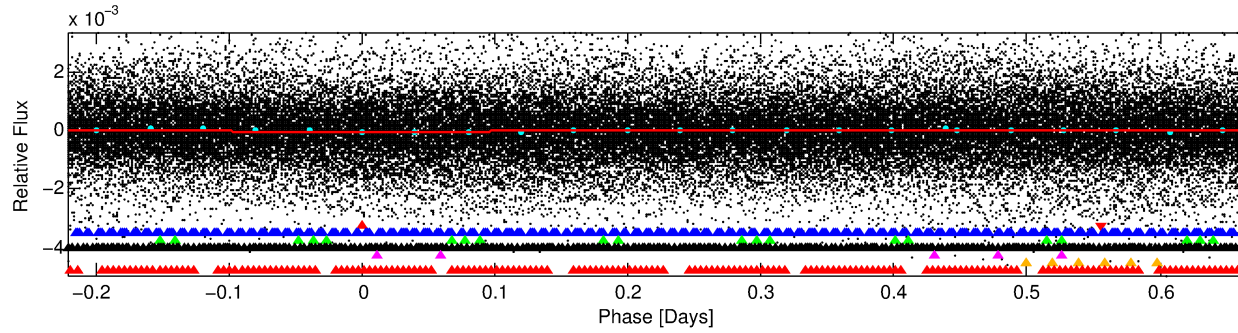
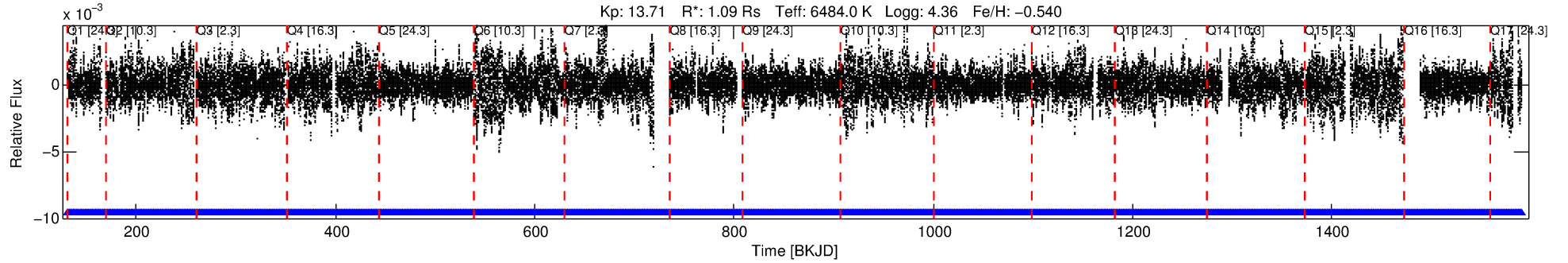
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 009613452-01

No Significant Match Found

DV One-Page Summary

KIC: 9613452 Candidate: 1 of 7 Period: 0.886 d



DV Fit Results:

Period = 0.88615 [0.00002] d
Epoch = 131.7033 [0.0035] BKJD
Rp/R* = 0.0061 [0.0029]
a/R* = 1.32 [1.48]
b = 0.70 [1.98]
Seff = 5807.72 [2113.95]
Teq = 2226 [203] K
Rp = 0.72 [0.40] Re
a = 0.0180 [0.0041] AU
Ag = 9.02 [9.79] [0.82σ]
Teffp = 5964 [1550] K [2.39σ]

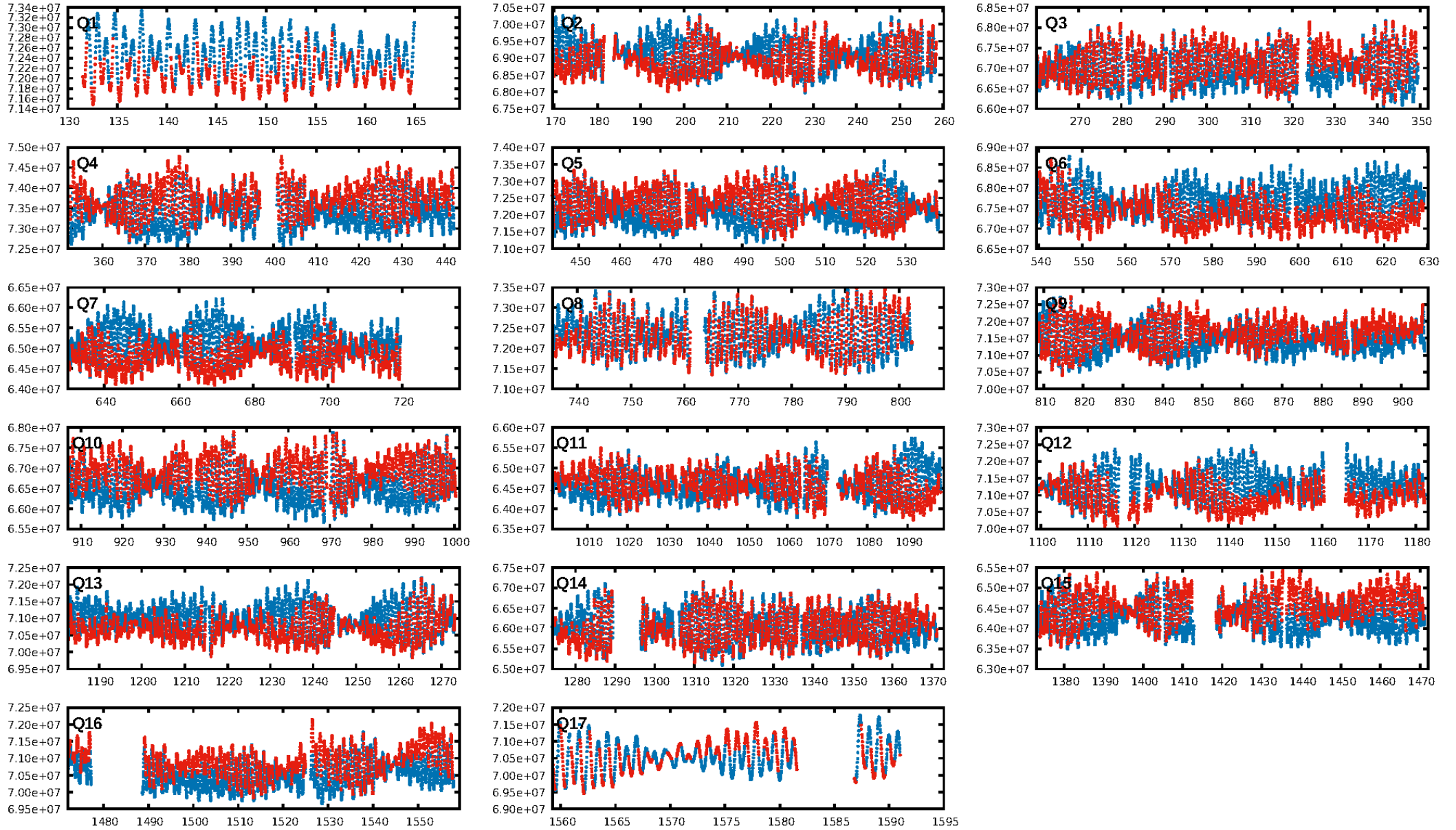
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: 100.0% [10.36σ]
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: N/A
RollingBand-fgt: 1.00 [1450/1450]
GhostDiagnostic-chr: 1.22
Centroid-sig: 0.0%
Centroid-so: 2.045 arcsec [2.26σ]
OotOffset-rm: 0.129 arcsec [0.91σ]
KicOffset-rm: 0.132 arcsec [0.91σ]
OotOffset-st: 4/4/4/5 [17]
KicOffset-st: 4/4/4/5 [17]
DiffImageQuality-fgm: 0.53 [9/17]
DiffImageOverlap-fno: 1.00 [17/17]

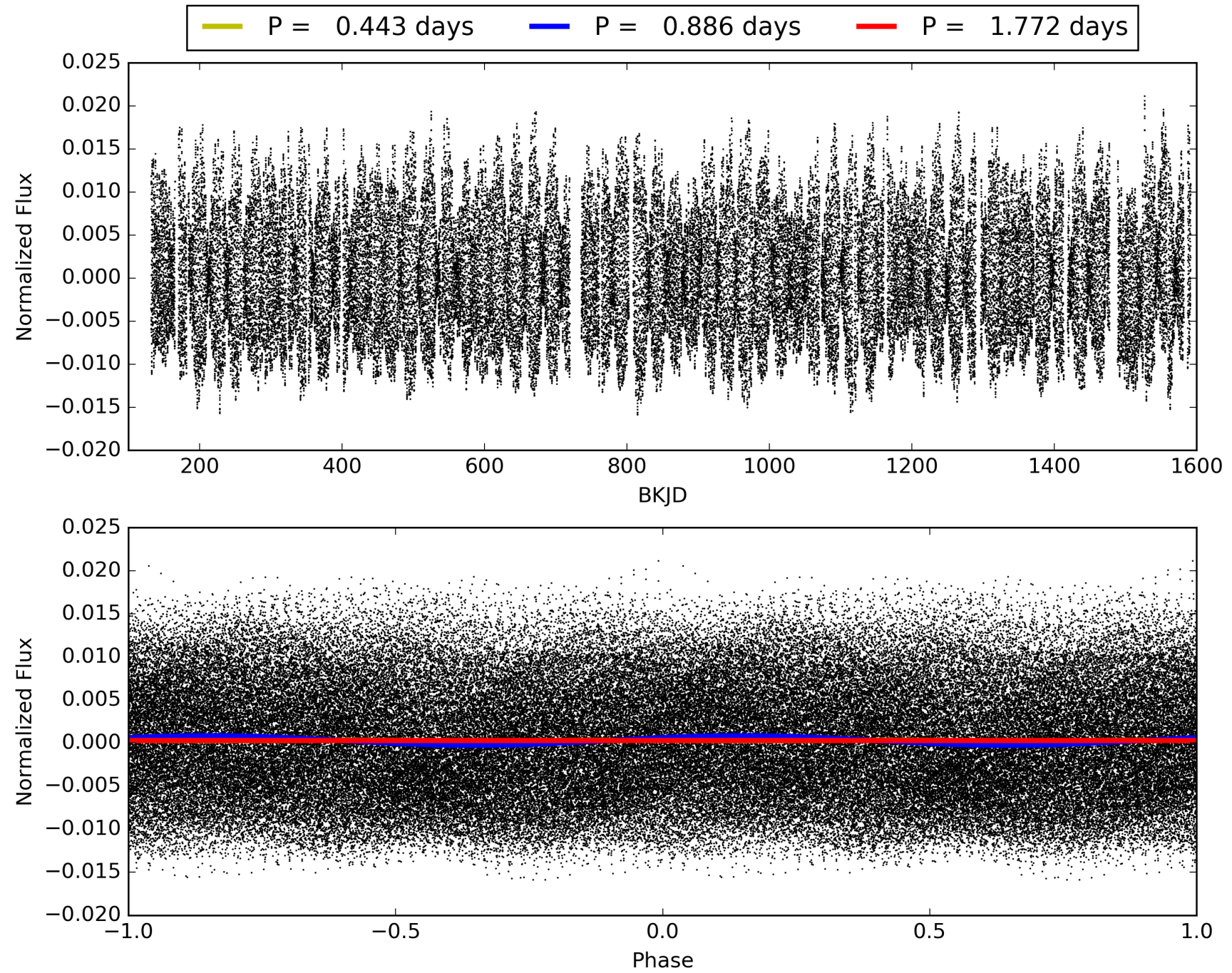
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 01-Feb-2016 13:35:40 Z

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

TCE 009613452-01, PDC Light Curves

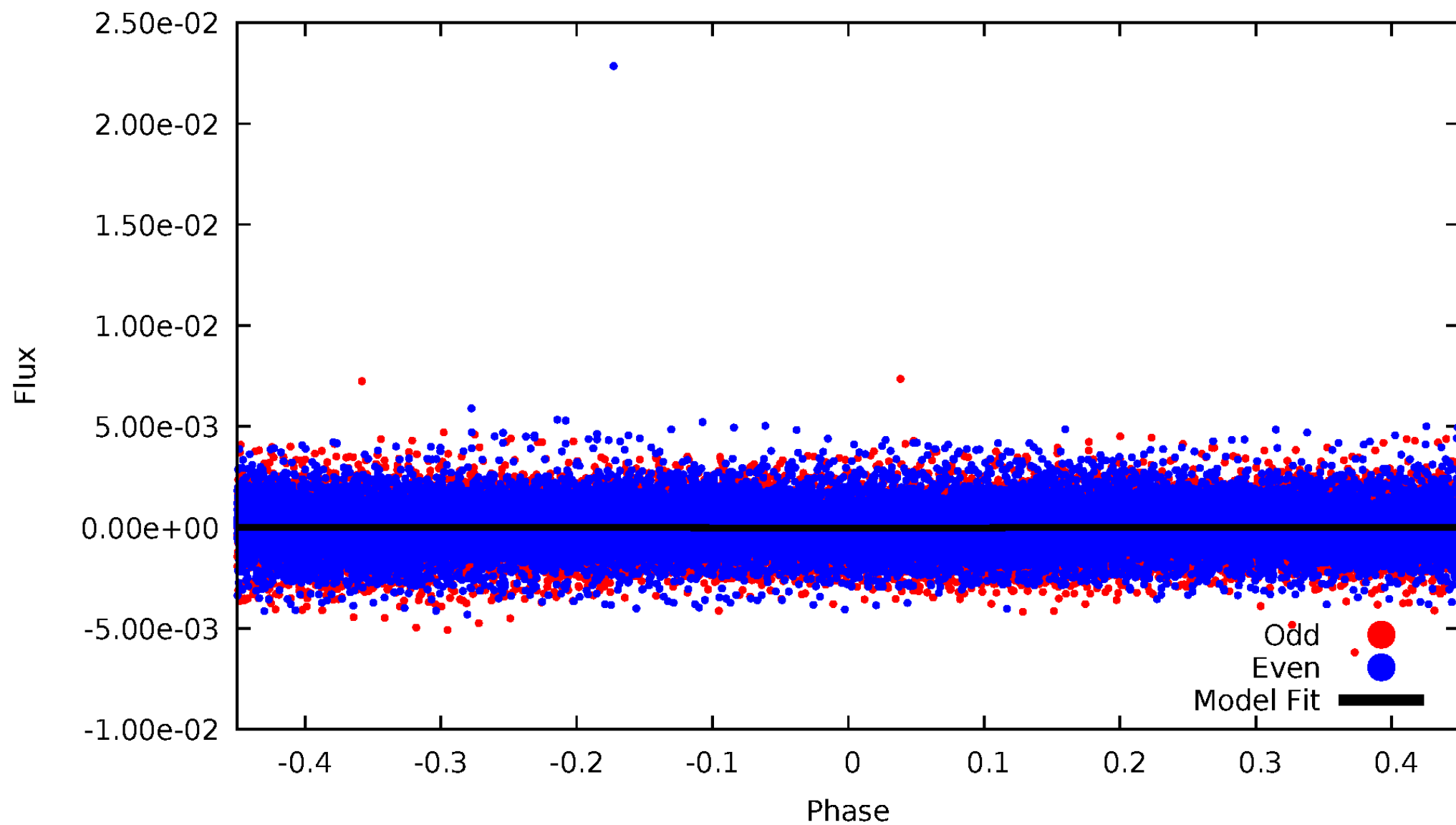


TCE 009613452-01



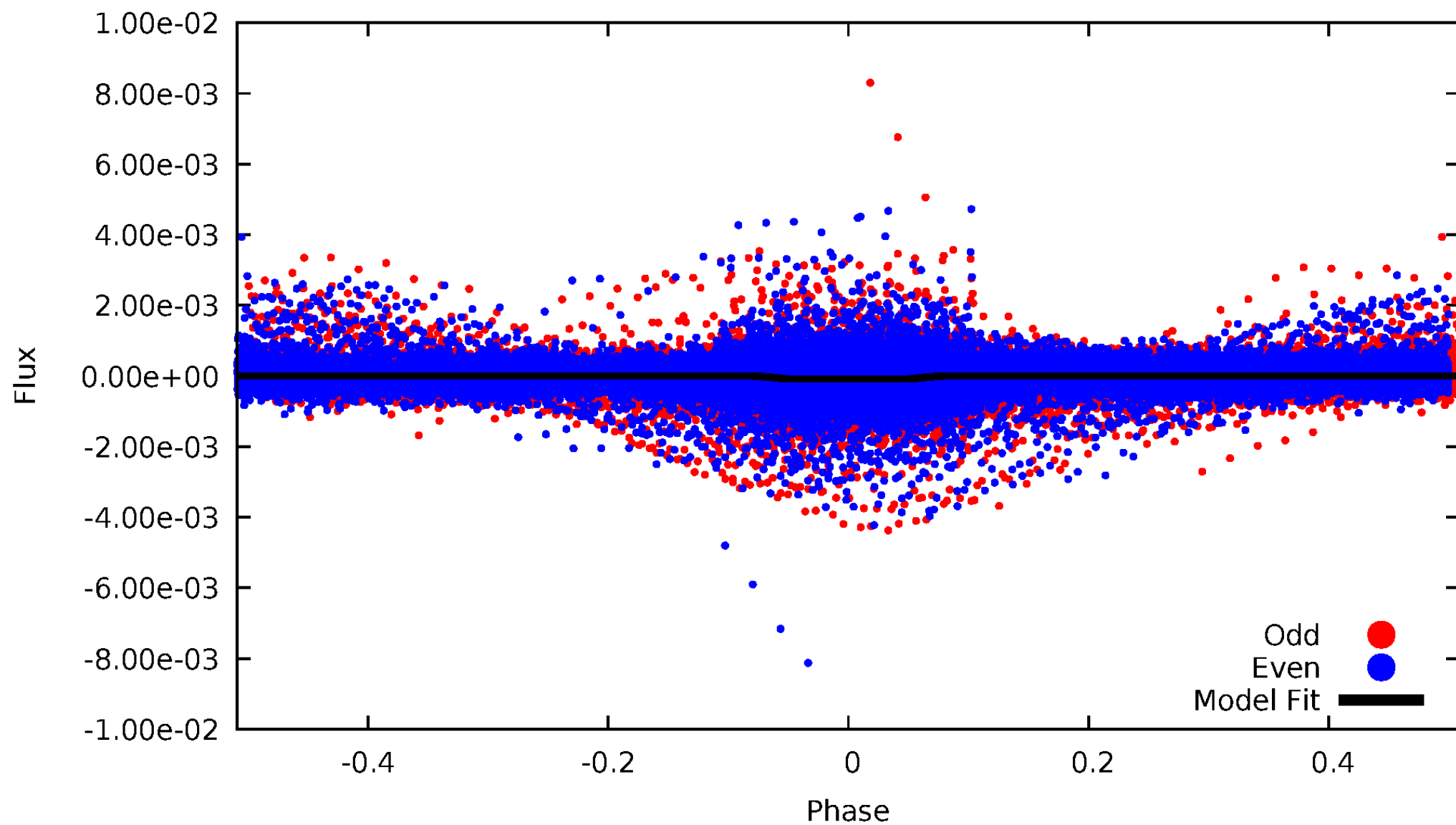
DV Odd/Even

TCE 009613452-01



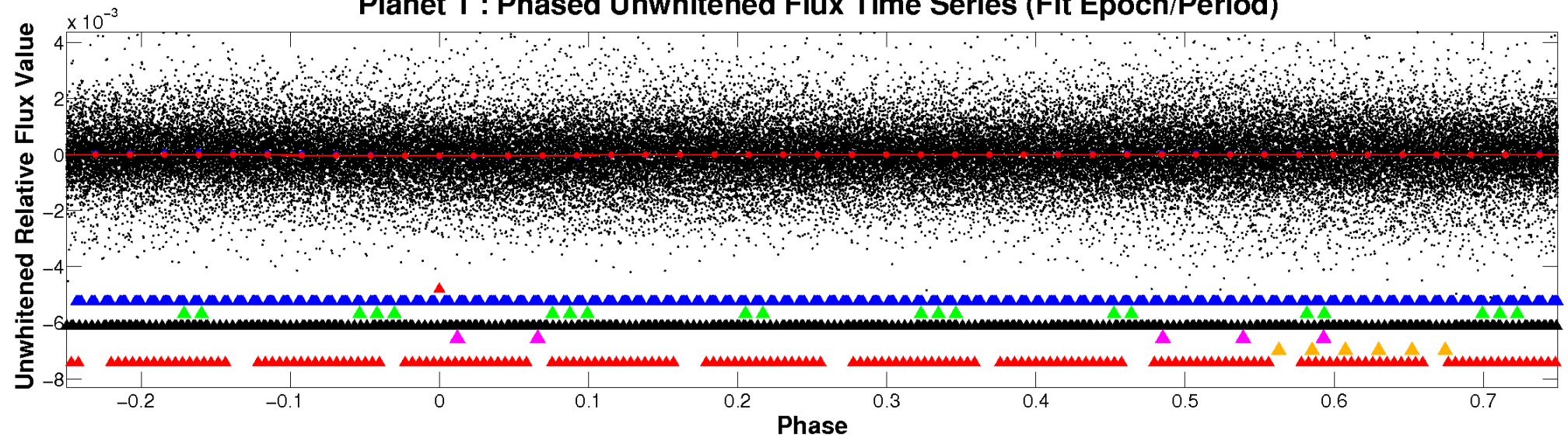
ALT Odd/Even

TCE 009613452-01

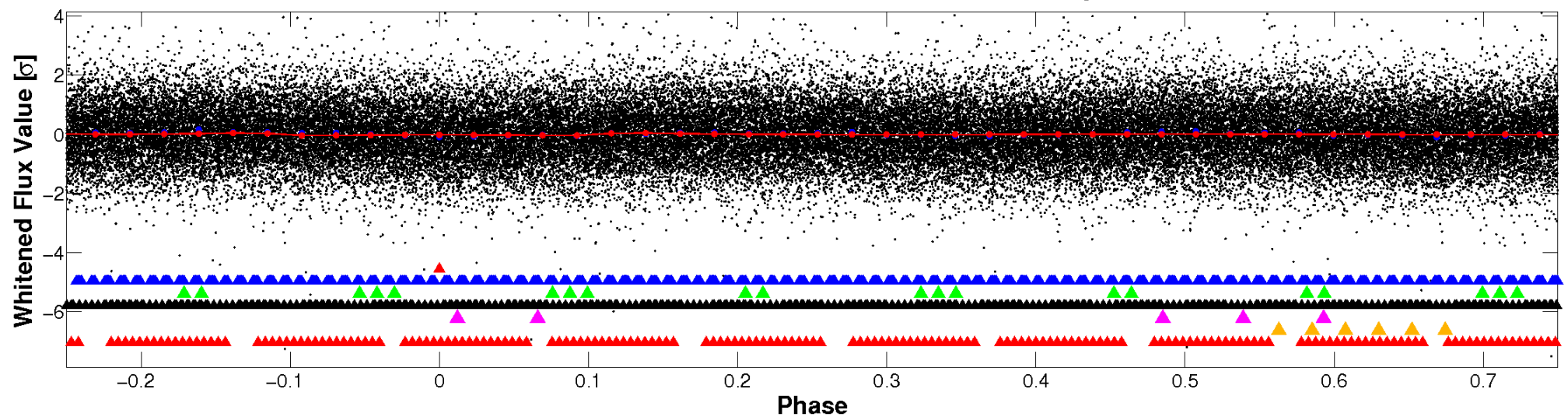


Non-Whitened Vs. Whitened Light Curve

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

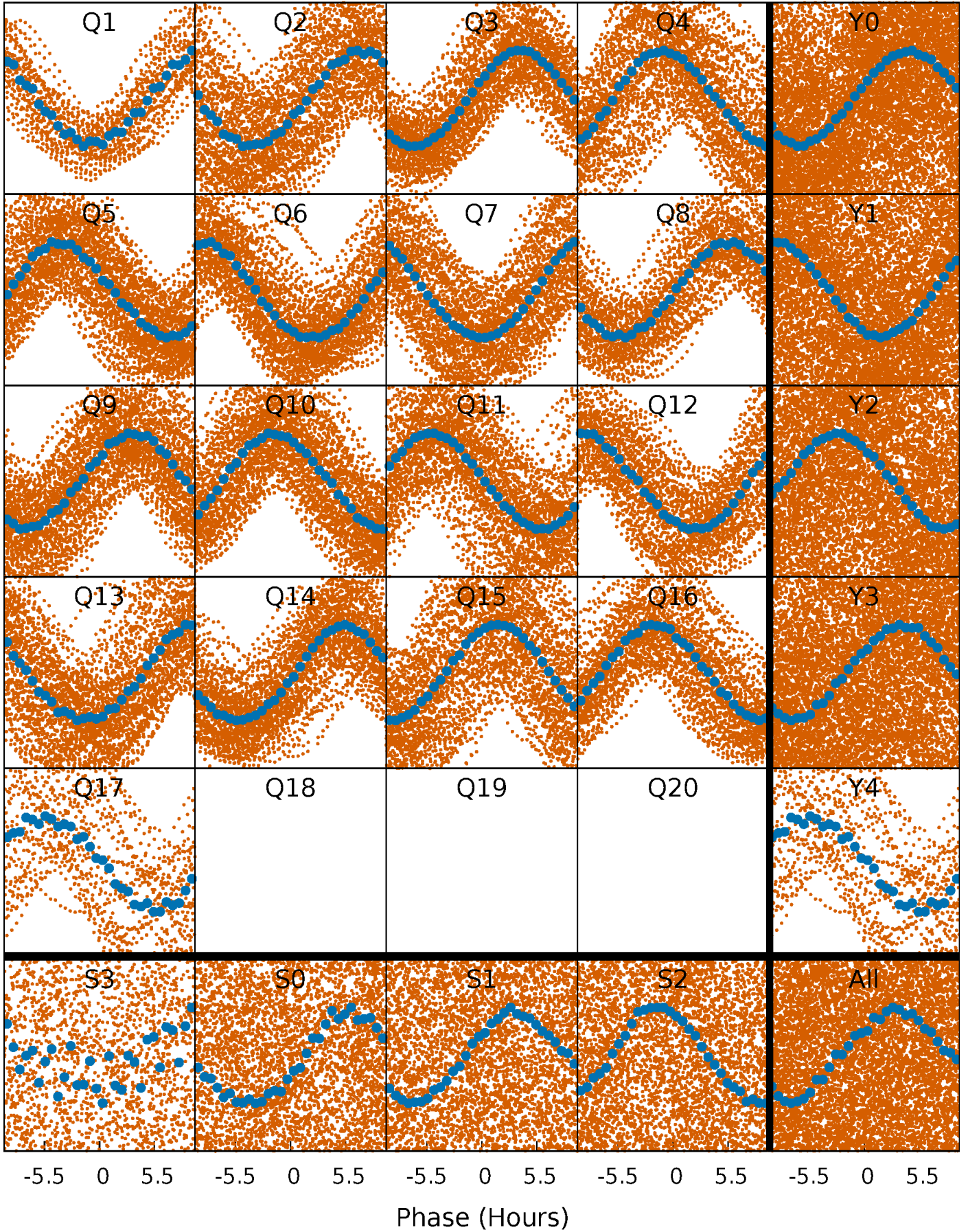


Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)



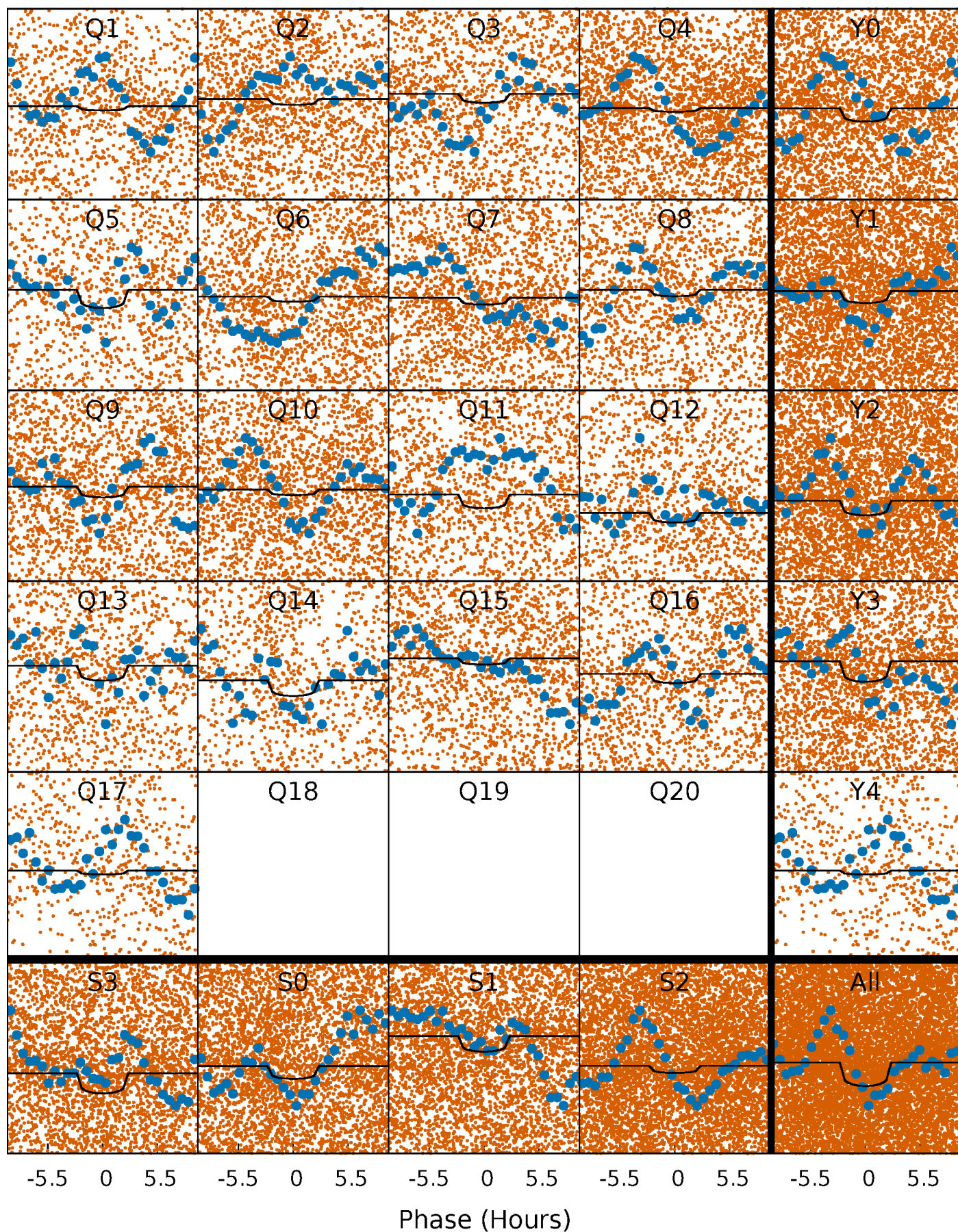
PDC Quarter-Phased Transit Curves

TCE 009613452-01 P= 0.886147 Days $T_0=131.703285$ (BKJD)



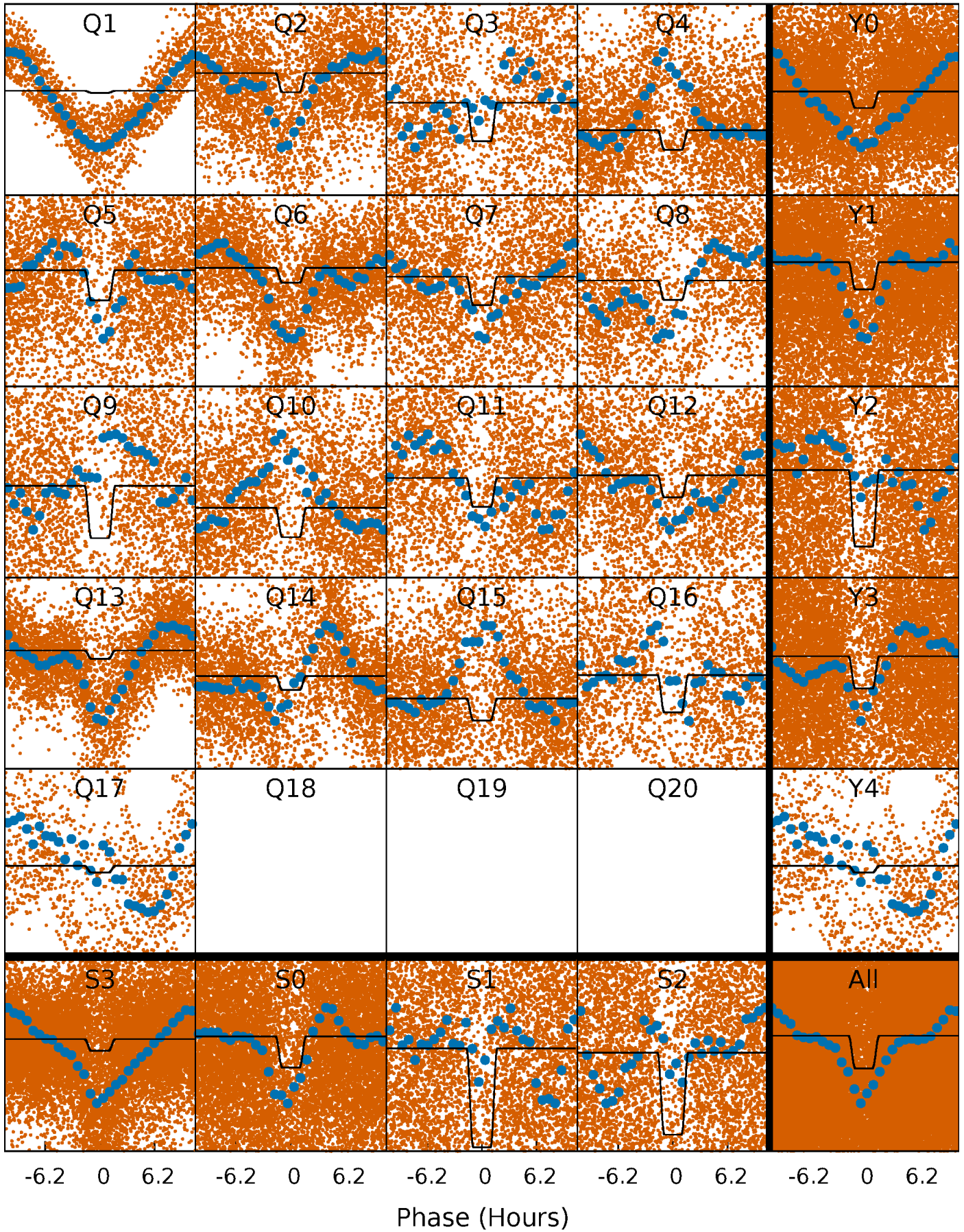
DV Quarter-Phased Transit Curves

TCE 009613452-01 P= 0.886147 Days $T_0=131.703285$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

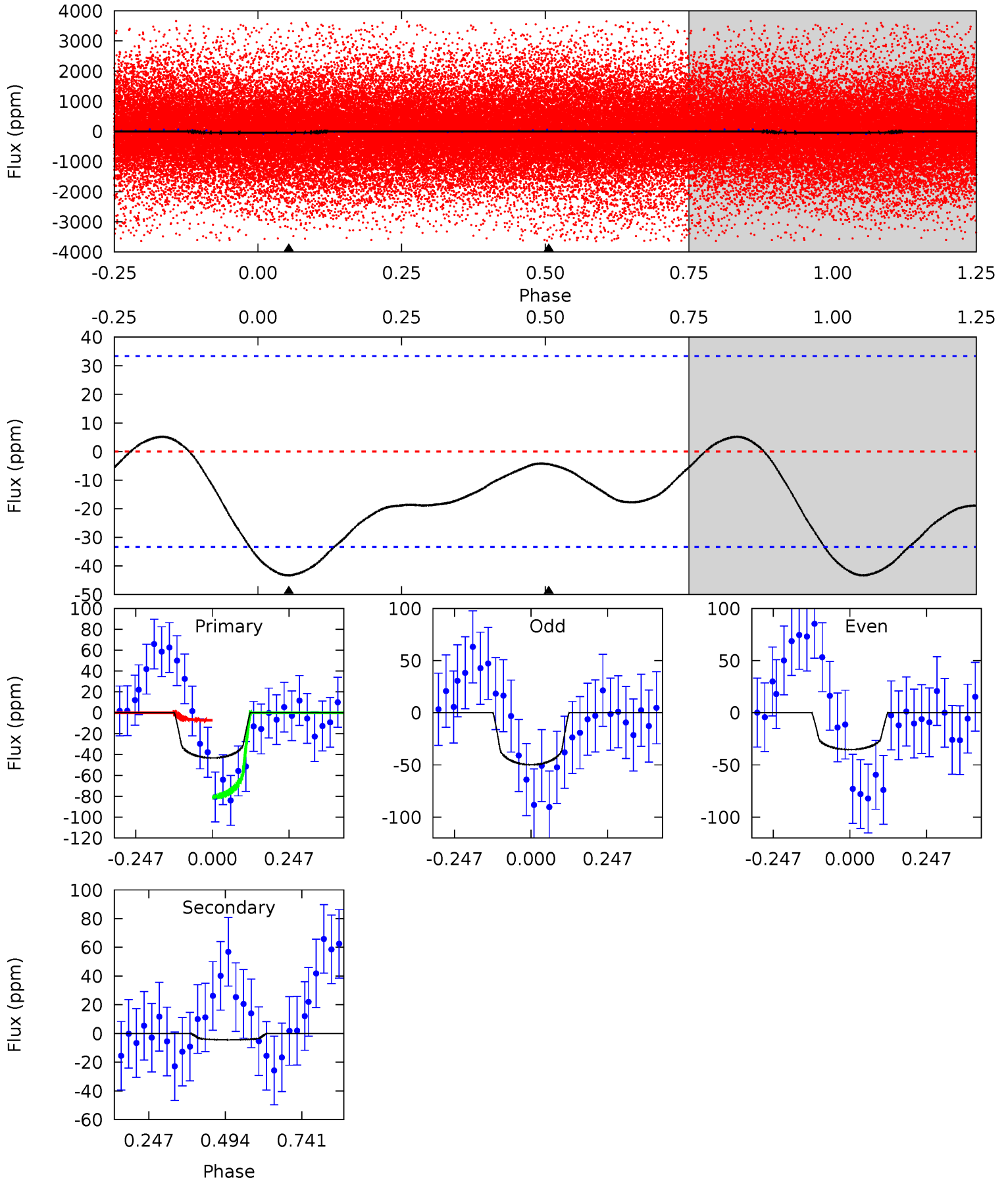
TCE 009613452-01 P= 0.886217 Days $T_0=131.656154$ (BKJD)



DV Model-Shift Uniqueness Test

009613452-01, P = 0.886147 Days, E = 130.817138 Days

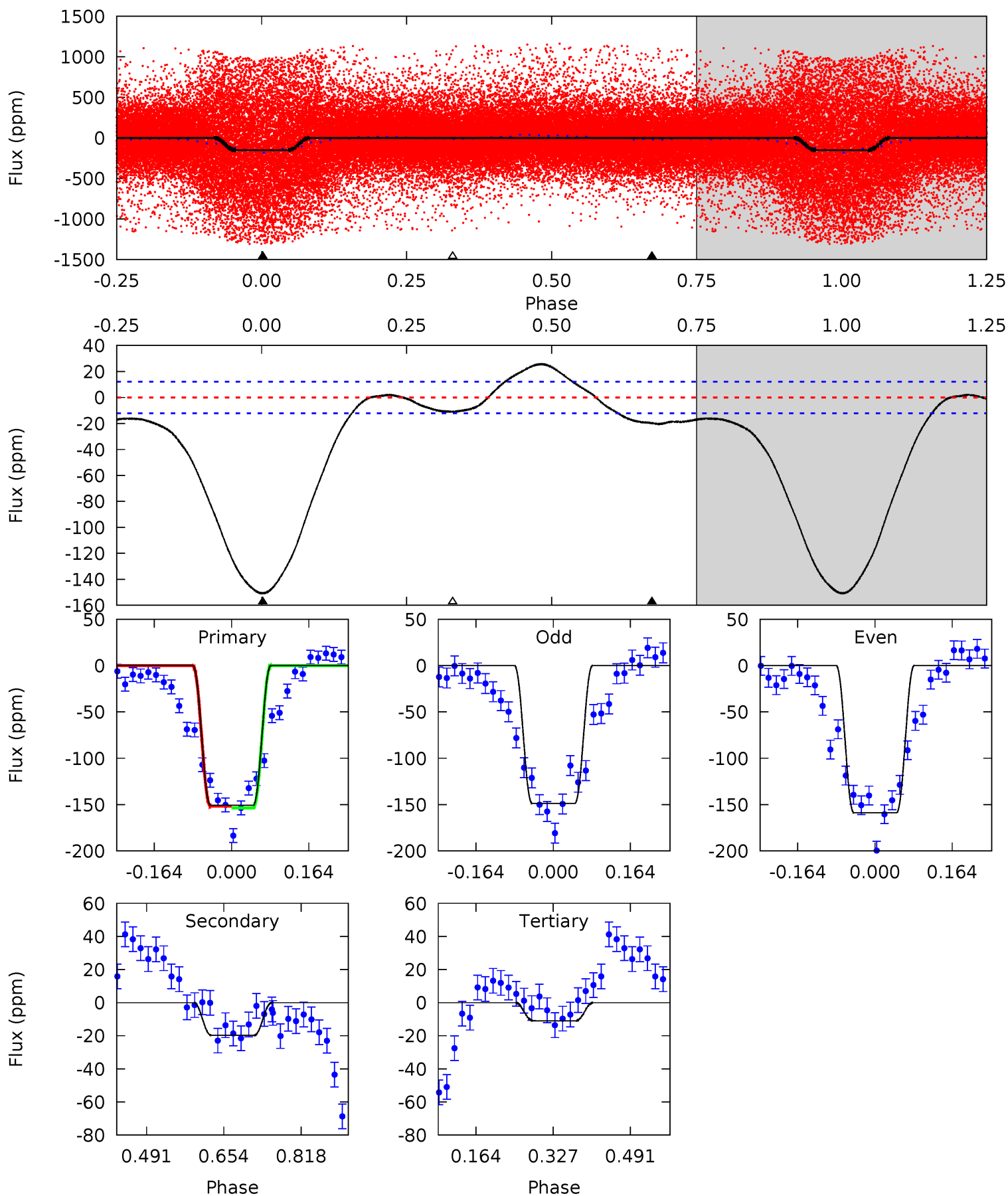
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
5.67	0.58	0	0	4.37	1.16	0.69	5.67	5.67	0.58	0.58	0.95	-7.64	0.11	4.82



Alt Model-Shift Uniqueness Test

009613452-01, P = 0.886217 Days, E = 130.769937 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
55.4	7.26	4.03	0	4.46	1.39	4.49	51.3	55.4	3.23	7.26	1.86	0.92	0.15	0.34



Stellar Parameters For KIC 009613452

	$T_{\text{eff}} (K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R (R_{\odot})$	$M (M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	6484^{+155}_{-213}	$4.360^{+0.101}_{-0.188}$	$-0.540^{+0.300}_{-0.300}$	$1.093^{+0.293}_{-0.158}$	$0.998^{+0.133}_{-0.106}$	$1.076^{+0.556}_{-0.495}$
	+2%/-3%	+2%/-4%	+56%/-56%	+27%/-14%	+13%/-11%	+52%/-46%
Source	PHO1	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 009613452-01 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-4 ± 8	$0.76^{+0.35}_{-0.35}$	3133^{+212}_{-174}	3781^{+1578}_{-7756}	$1.197^{+4.929}_{-2.092}$
Alt.	-20 ± 3	$1.10^{+0.38}_{-0.38}$	3148^{+229}_{-179}	4570^{+905}_{-528}	$2.907^{+3.713}_{-1.357}$

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

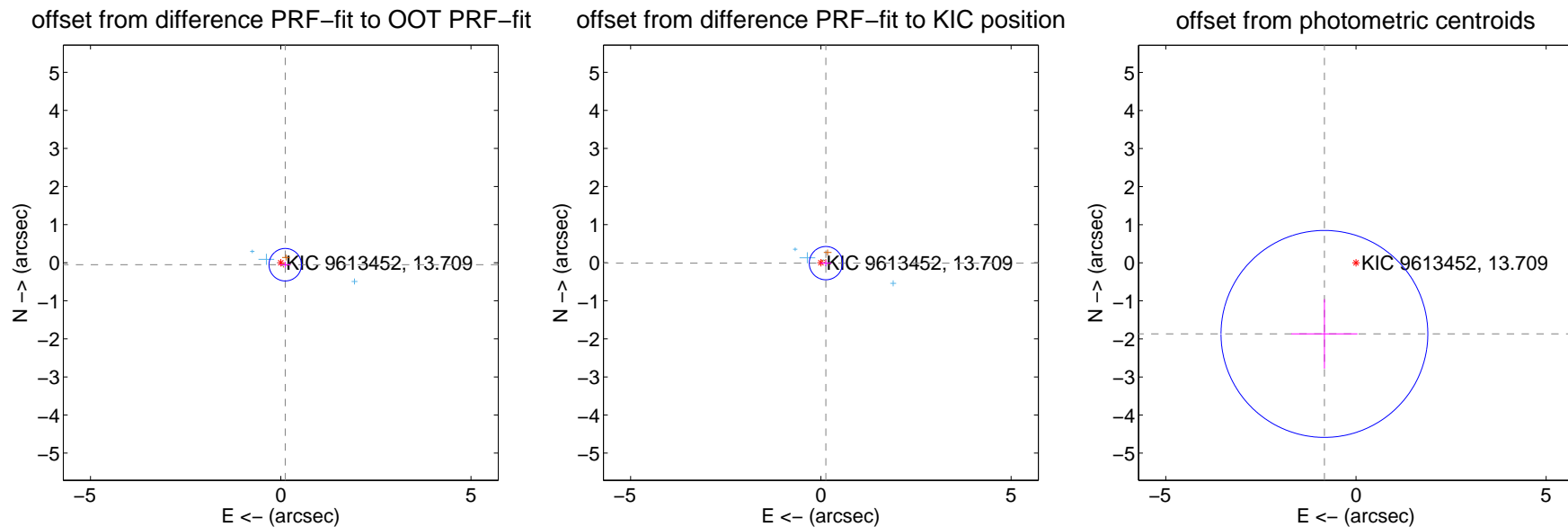
DV Centroid Data

Supplemental centroid analysis for 009613452-01. Kepler magnitude: 13.71. Transit SNR 5.00

There are 9 quarters with good PRF difference image offsets

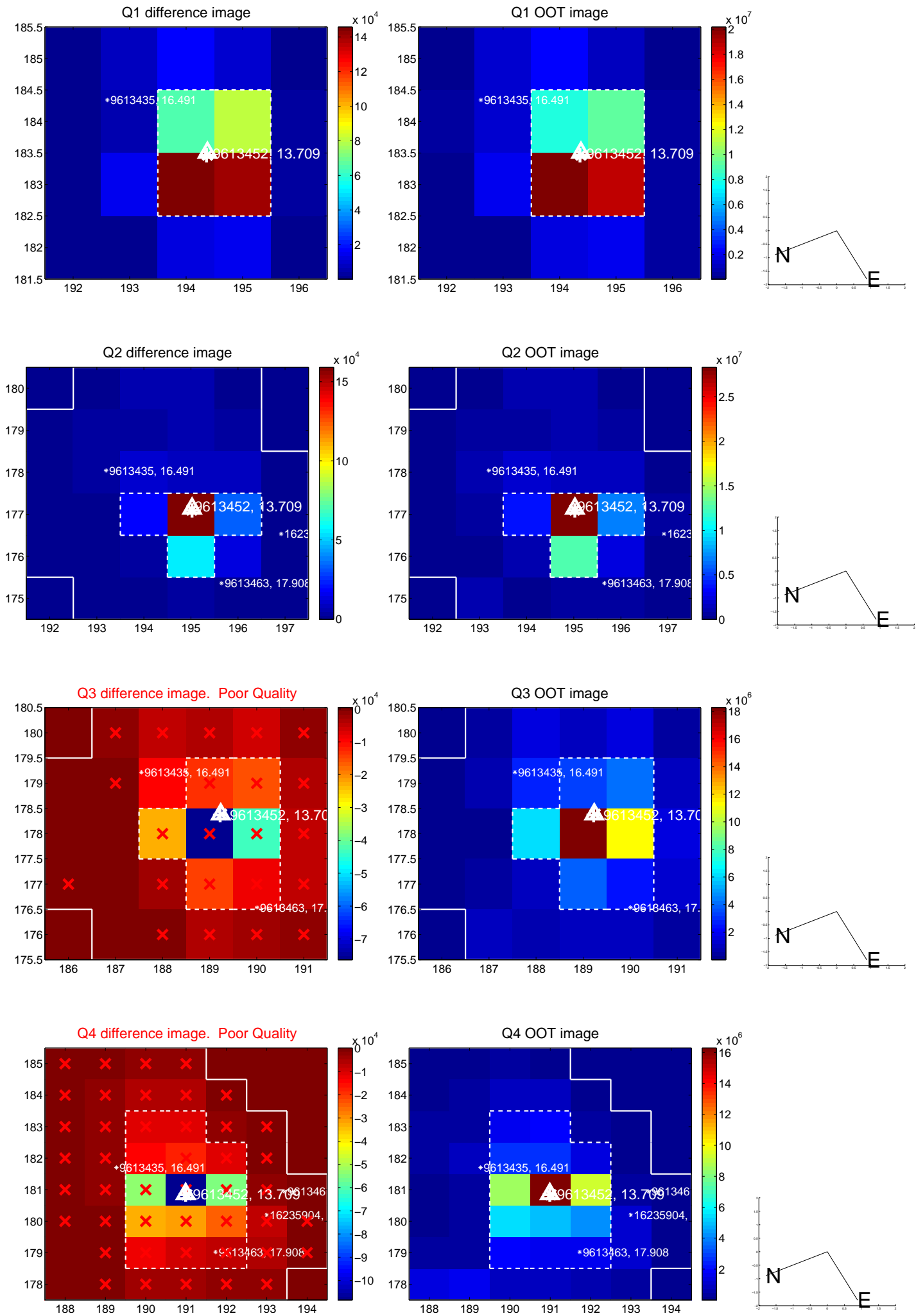
The direct PRF centroid is offset from the target star catalog position by about 0.05 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.129 ± 0.142	0.91	-0.118 ± 0.140	-0.053 ± 0.076
PRF-fit source offset from KIC position	0.132 ± 0.146	0.91	-0.131 ± 0.143	-0.012 ± 0.080
photometric centroid source offset	2.04 ± 0.91	2.26	0.83 ± 0.87	-1.87 ± 0.91

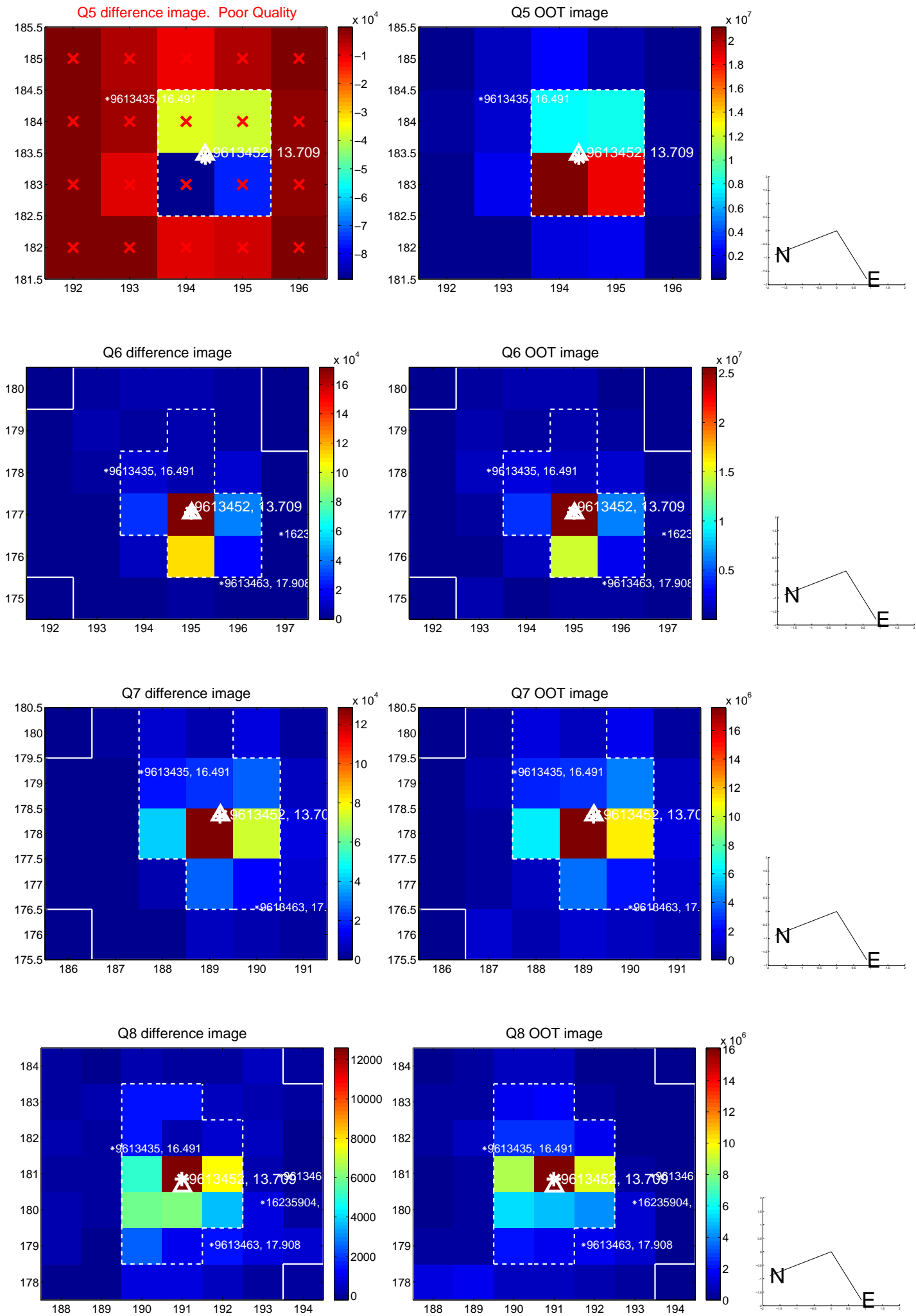


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets**; **Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

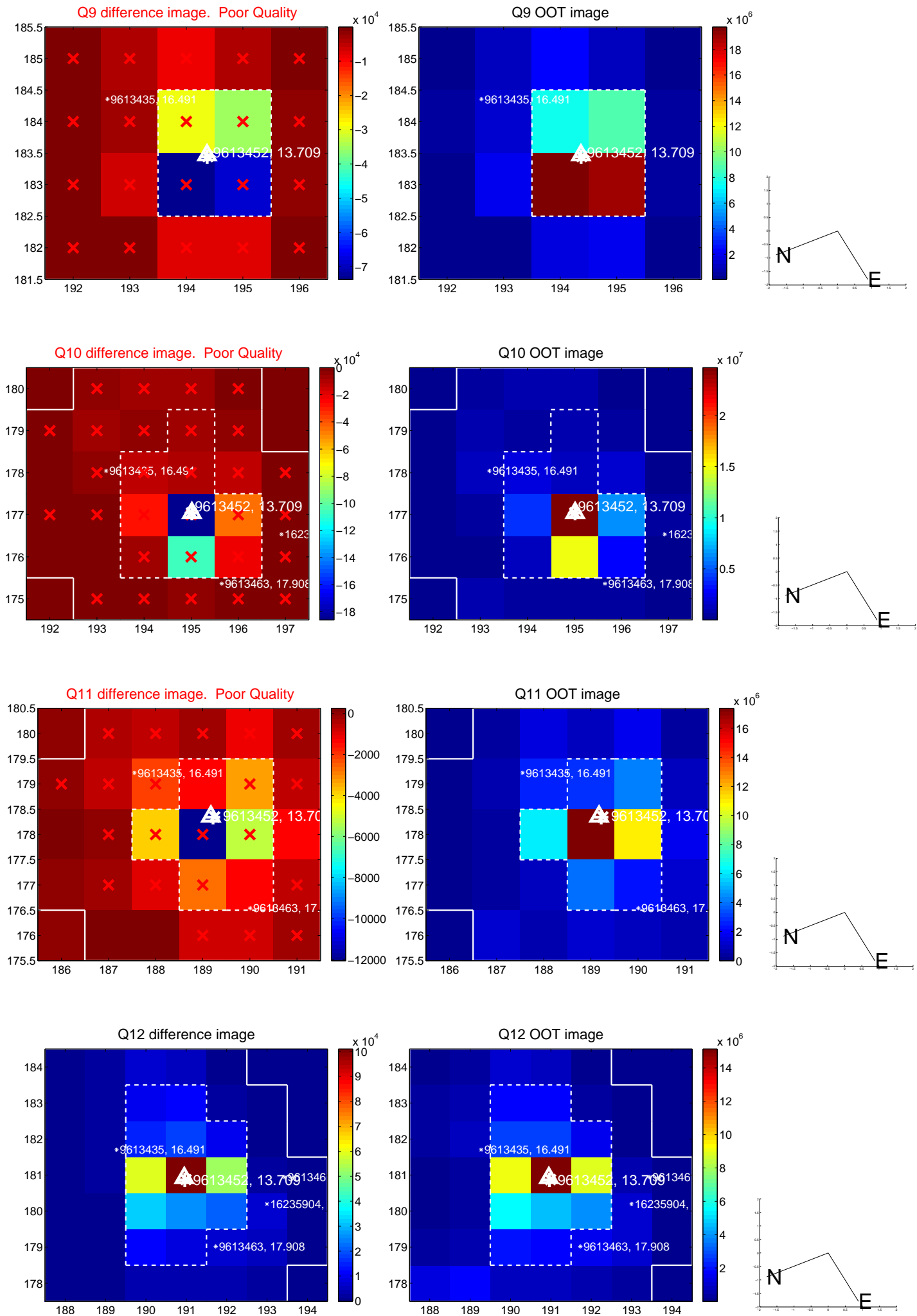
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



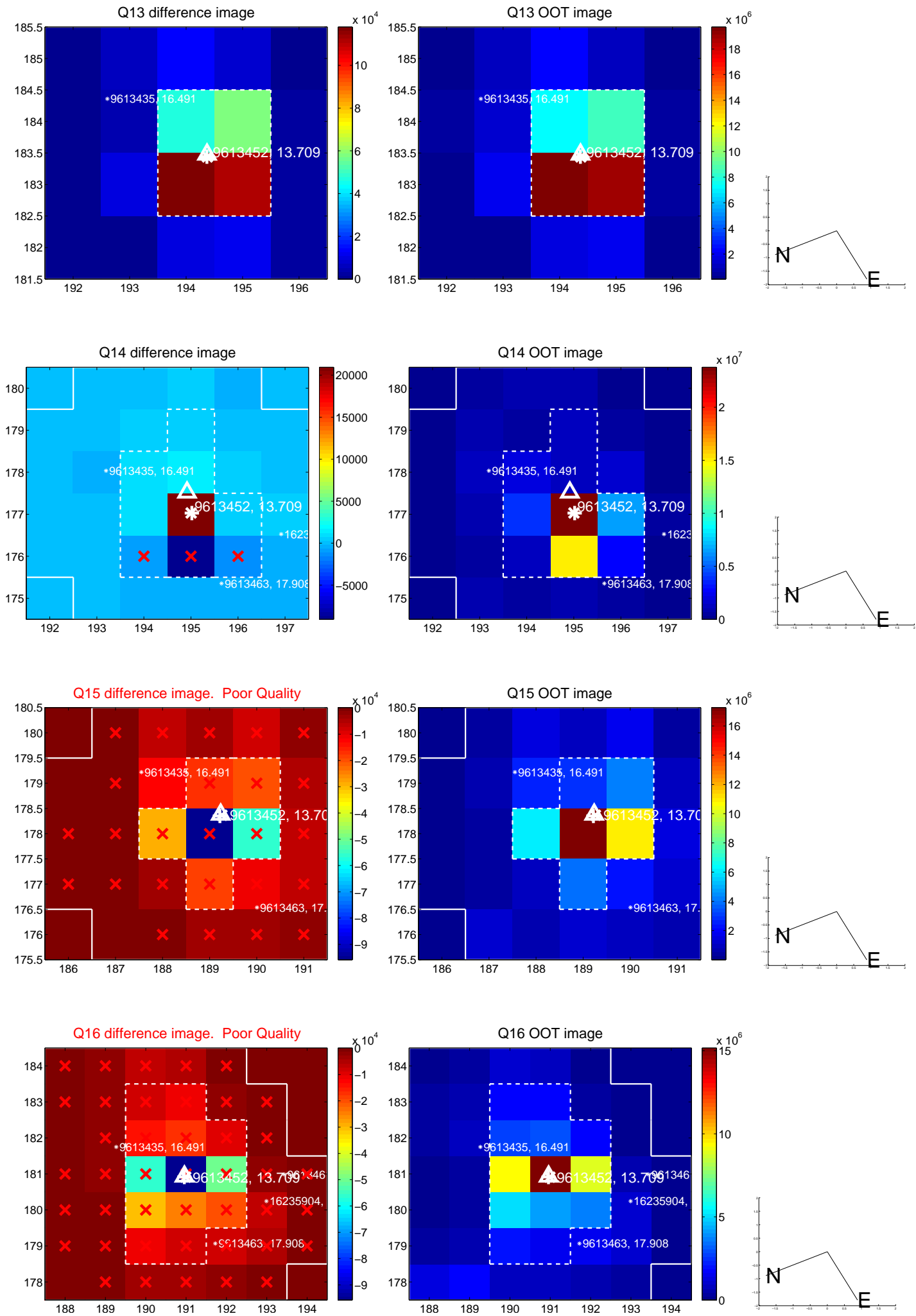
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



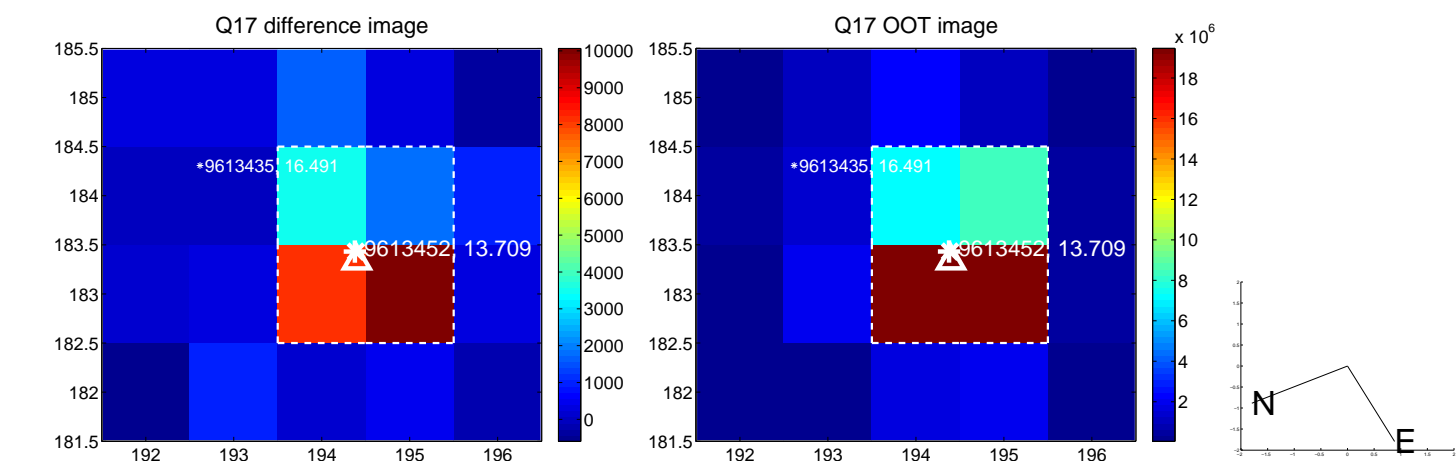
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



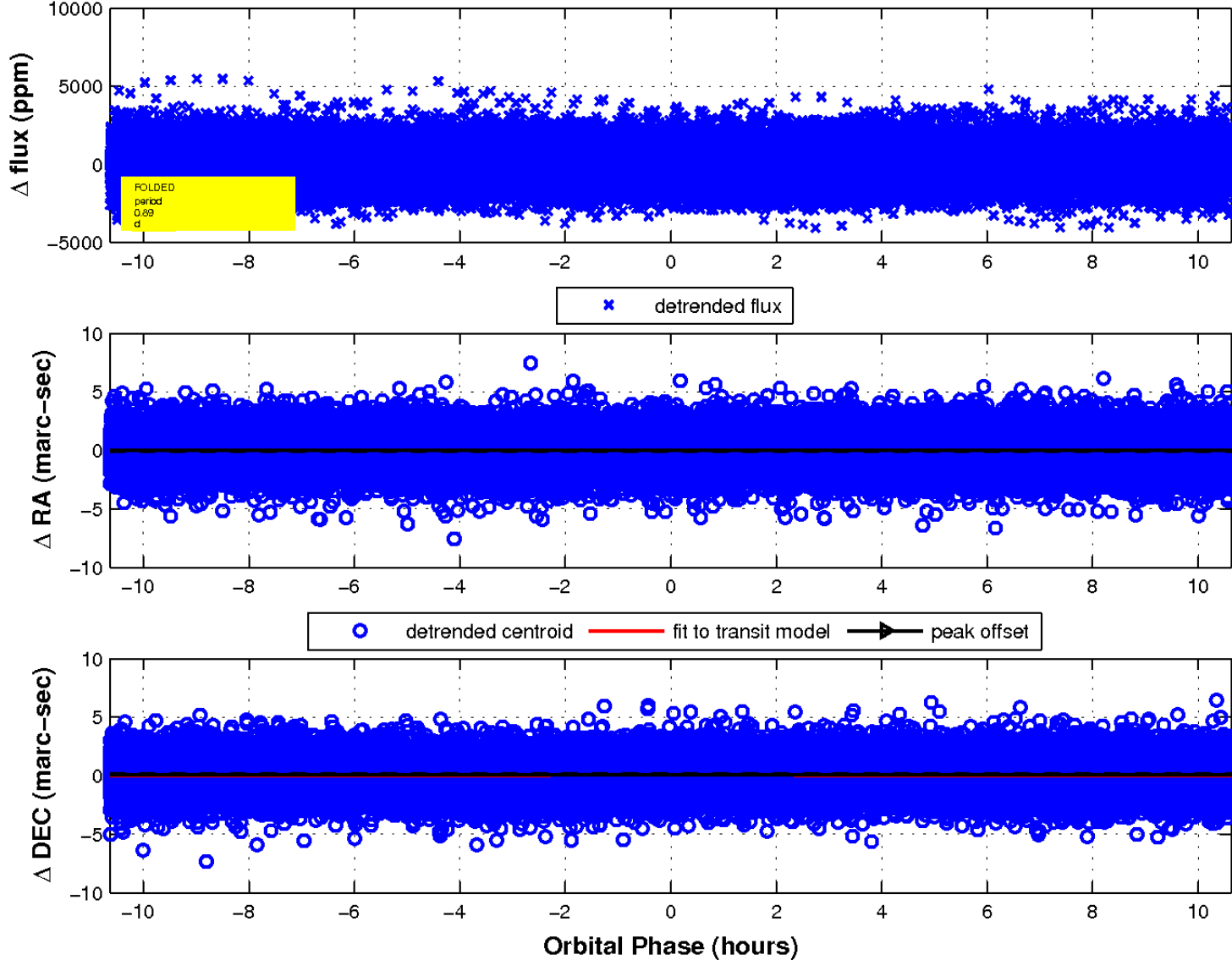
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

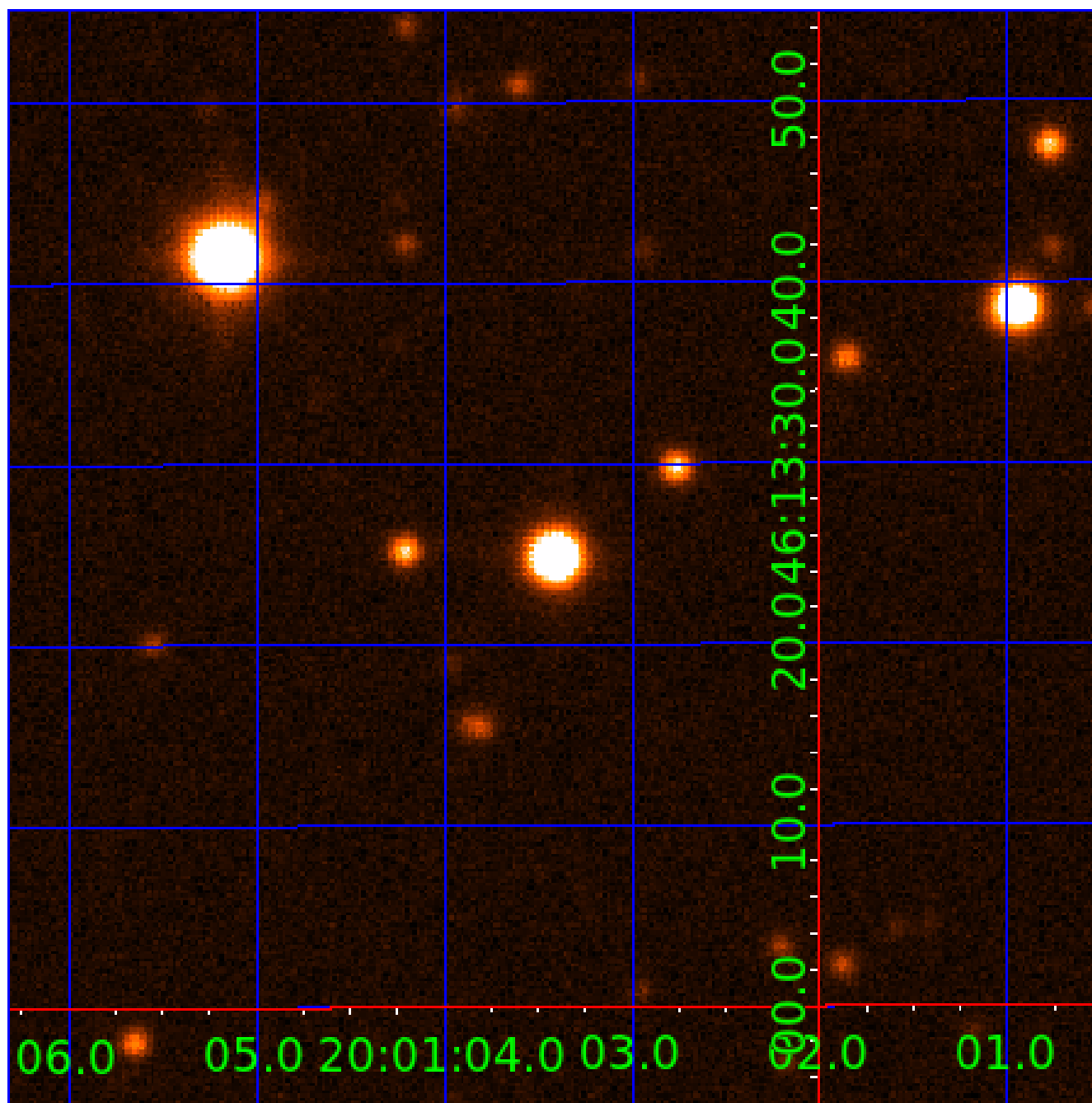


fluxWeightedCentroids, Planet 1 of 7



UKIRT Image

Declination



KIC 009613452

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})
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Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
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009613452-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_ZUMA—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT
009613452-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_ALT—MOD_NONUNIQ_ALT
009613452-04	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_RUBBLE_SKYE_ZUMA_TRACKER—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—SAME_NTL_PERIOD—HALO_GHOST
009613452-06	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL—TRANS_GAPPED—ALL_TRANS_CHASES
009613452-07	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_SKYE_ZUMA—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_ALT

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

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

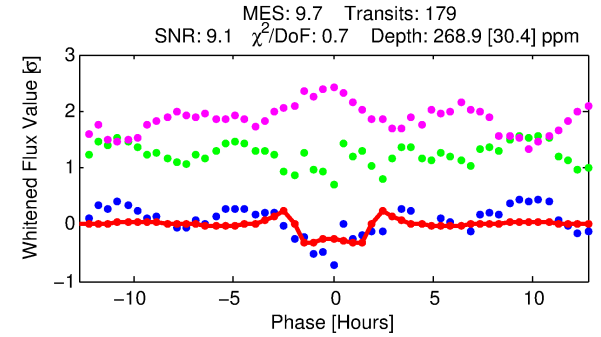
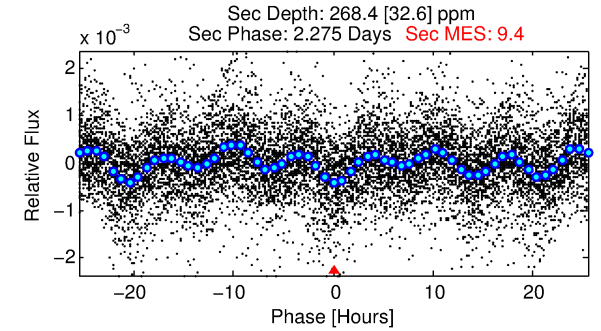
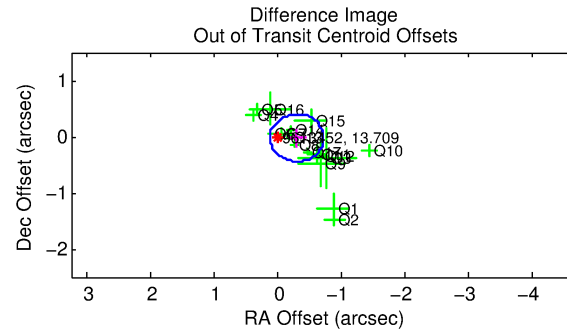
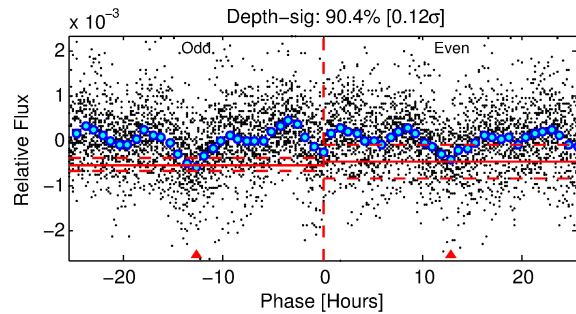
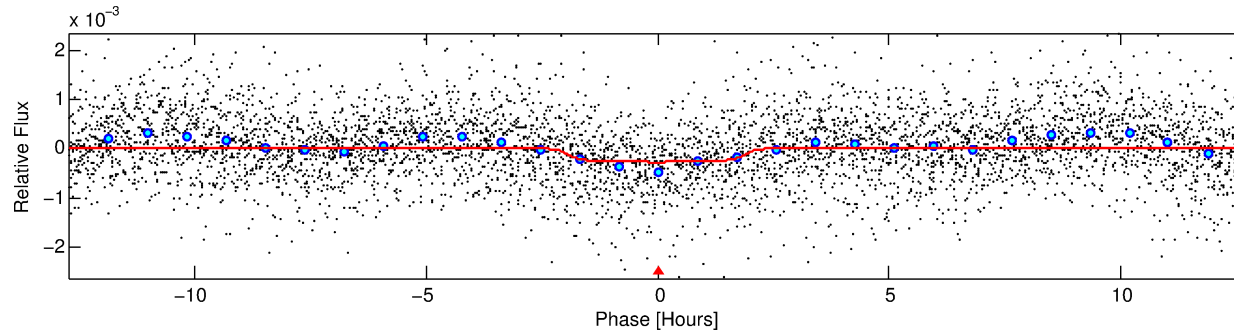
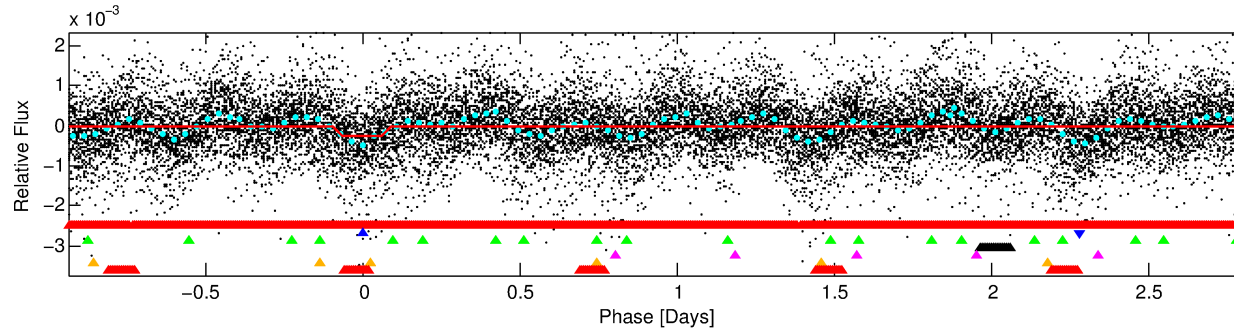
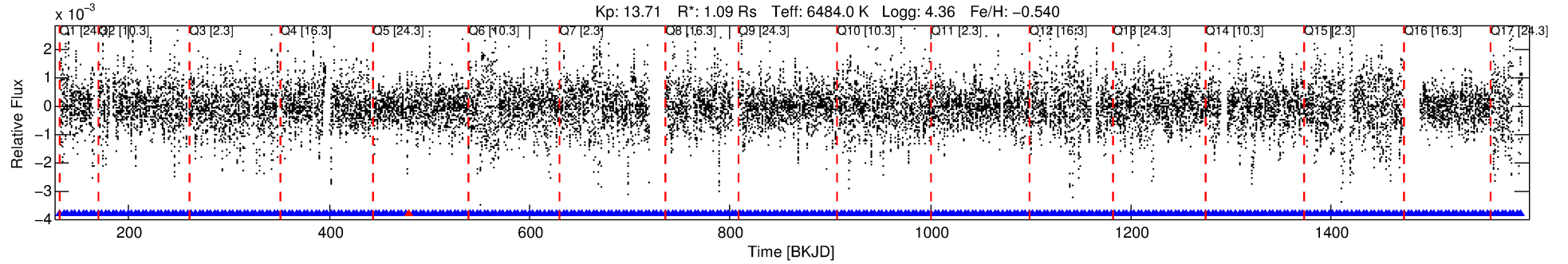
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 009613452-02

No Significant Match Found

DV One-Page Summary

KIC: 9613452 Candidate: 2 of 7 Period: 3.746 d



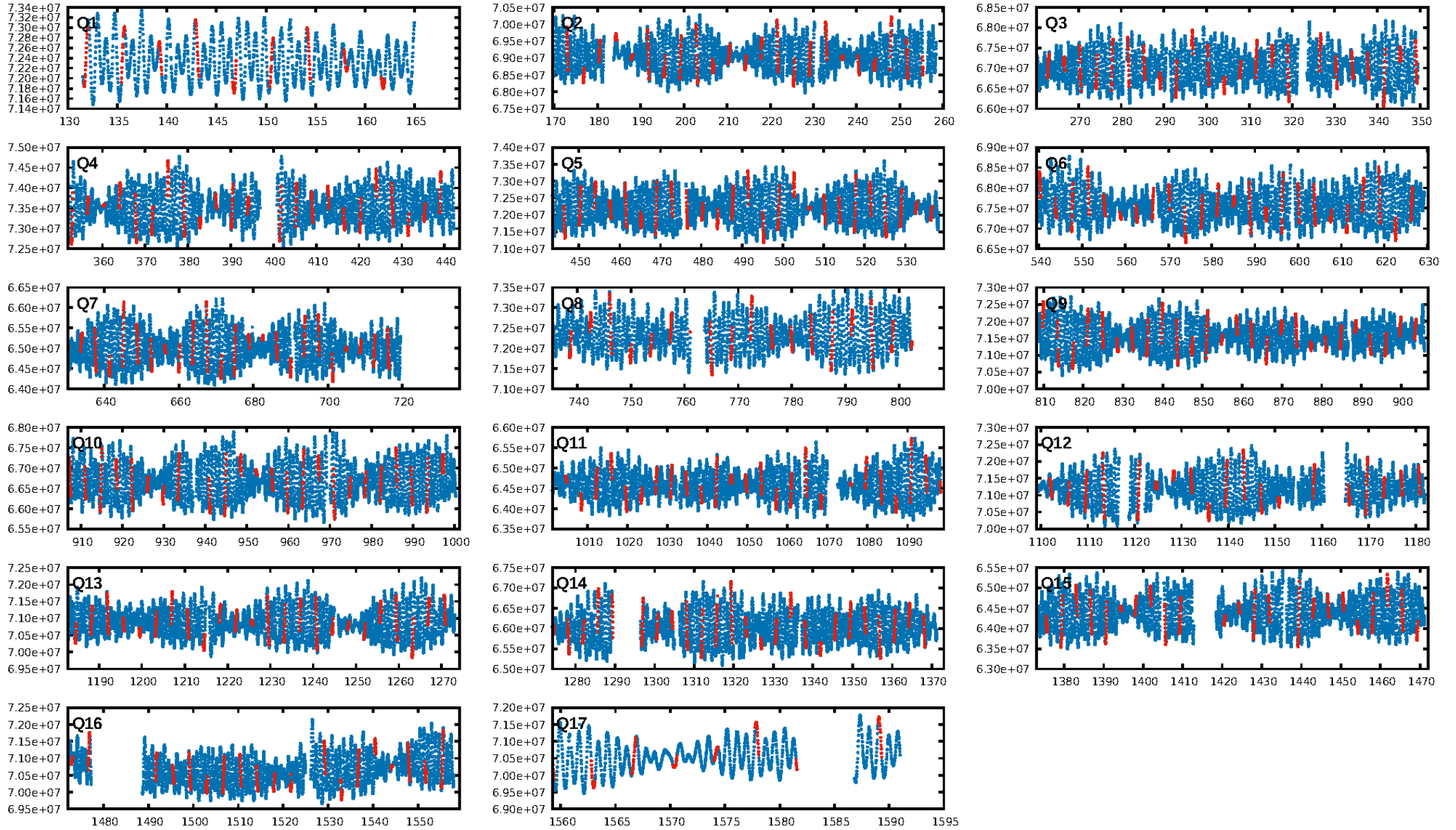
DV Fit Results:

Period = 3.74639 [0.00002] d
Epoch = 131.8202 [0.0029] BKJD
Rp/R* = 0.0175 [0.0025]
a/R* = 3.34 [2.15]
b = 0.90 [0.15]
Seff = 849.56 [309.23]
Teq = 1377 [125] K
Rp = 2.09 [0.63] Re
a = 0.0472 [0.0108] AU
Ag = 75.29 [34.61] [2.15 σ]
Teffp = 6270 [528] K [9.02 σ]

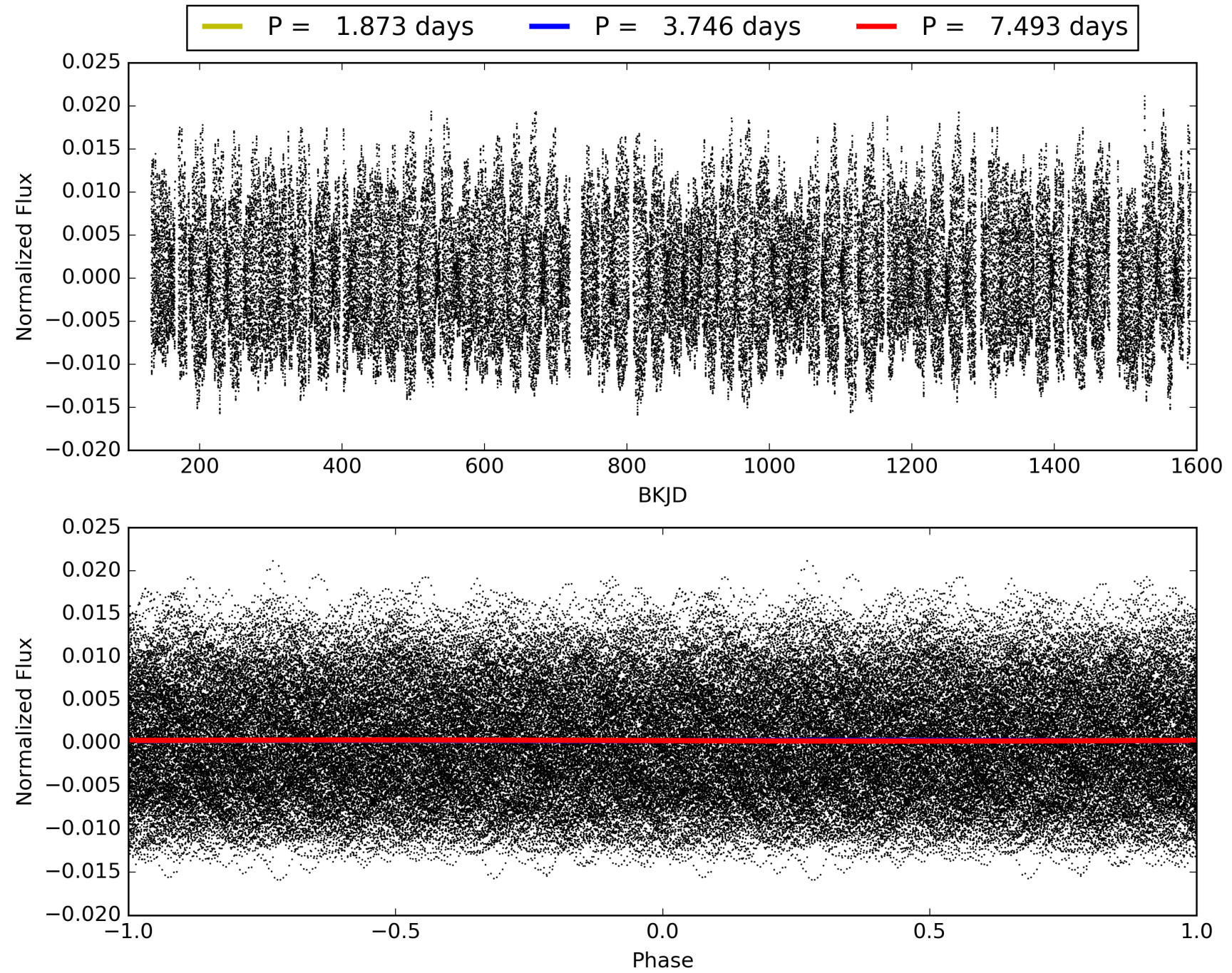
DV Diagnostic Results:

ShortPeriod-sig: 0.1% [0.00 σ]
LongPeriod-sig: 100.0% [8.49 σ]
ModelChiSquare2-sig: 92.4%
ModelChiSquareGof-sig: 100.0%
Bootstrap-pfa: N/A
RollingBand-fgt: 0.99 [170/171]
GhostDiagnostic-chr: 0.6289
Centroid-sig: 11.4%
Centroid-so: 0.571 arcsec [2.07 σ]
OotOffset-rm: 0.299 arcsec [2.13 σ]
OotOffset-st: 4/4/4/5 [17]
KicOffset-rm: 0.323 arcsec [2.65 σ]
KicOffset-st: 4/4/4/5 [17]
DiffImageQuality-fgm: 0.53 [9/17]
DiffImageOverlap-fno: 0.00 [0/17]

TCE 009613452-02, PDC Light Curves

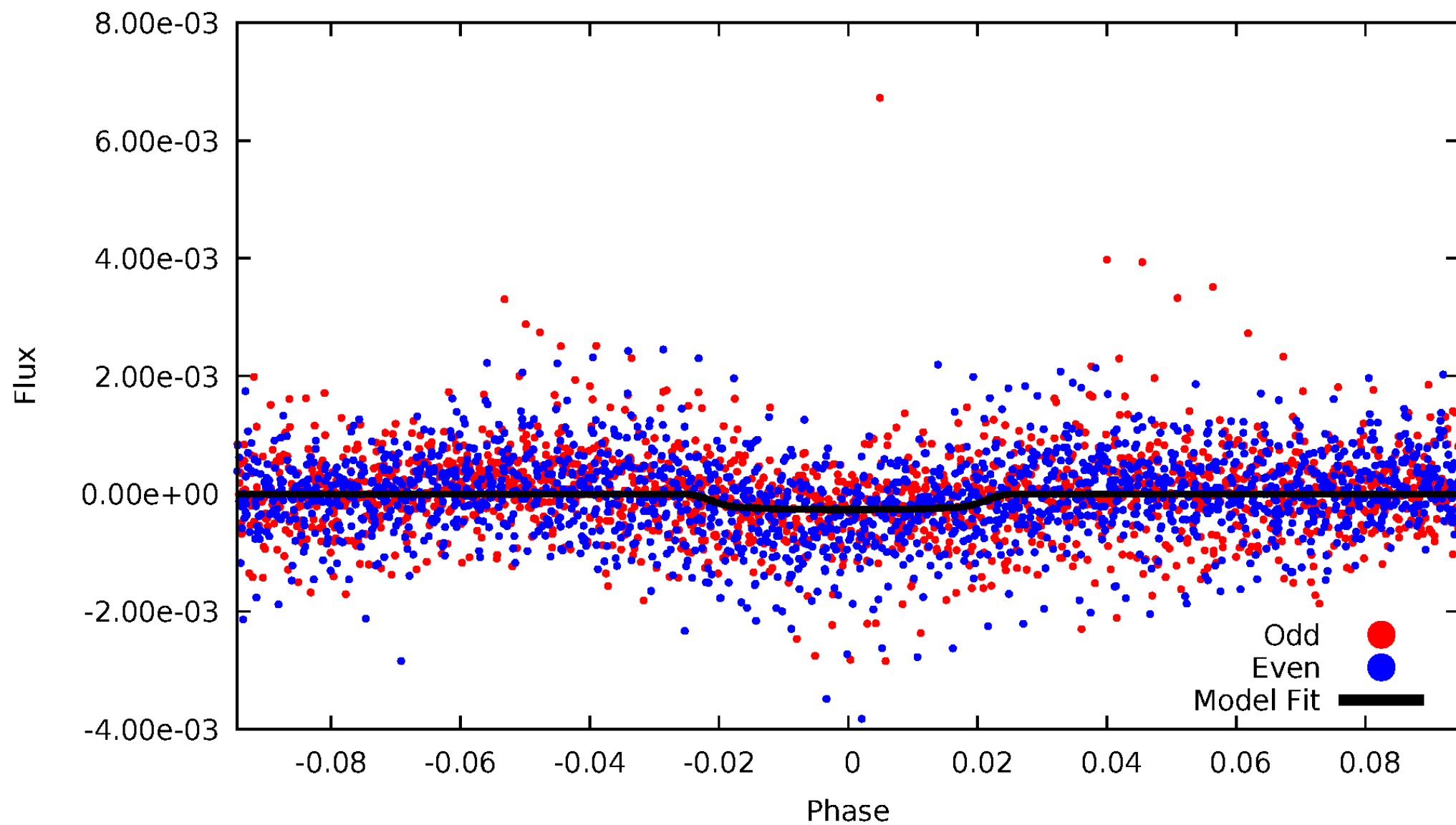


TCE 009613452-02



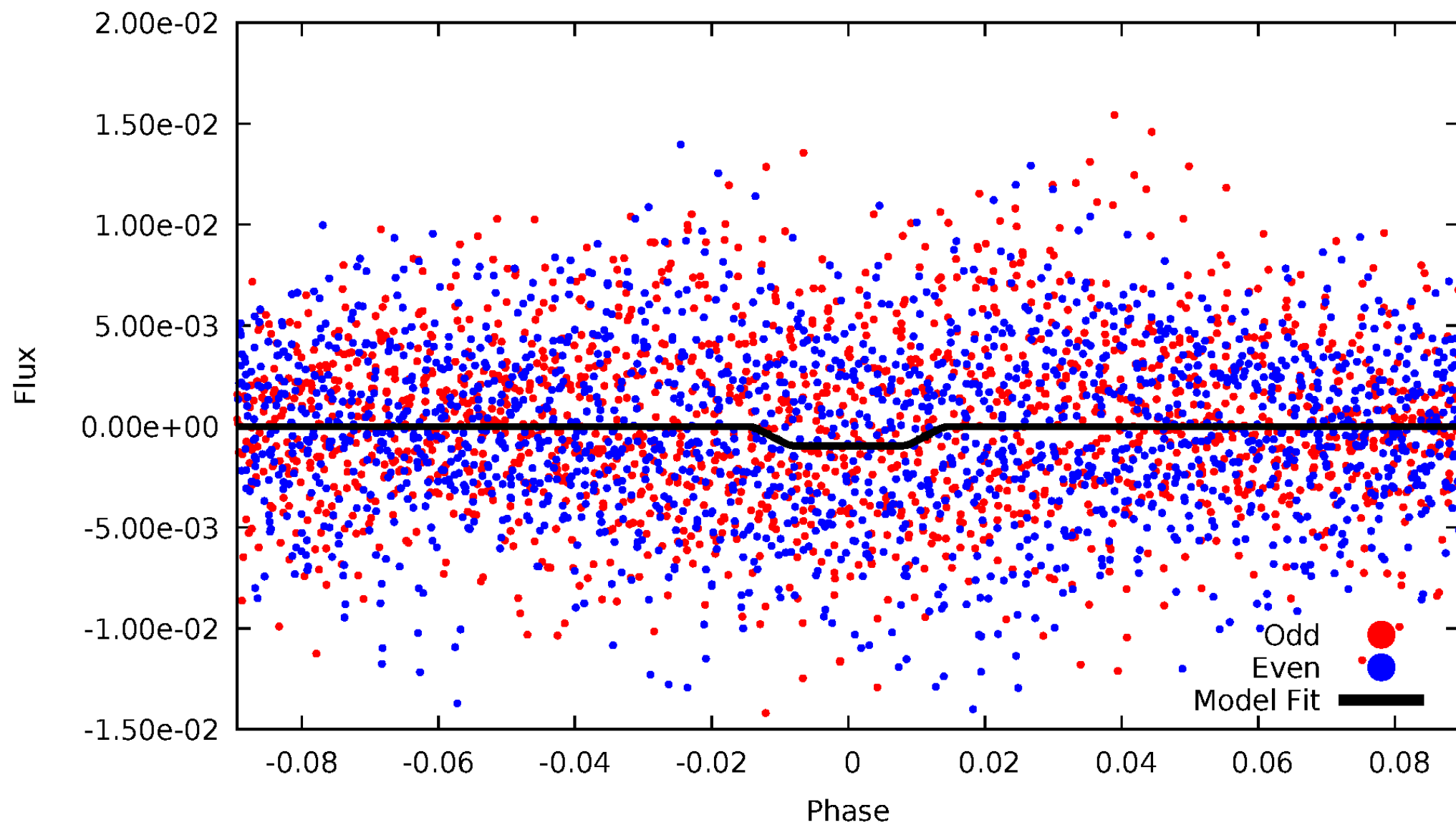
DV Odd/Even

TCE 009613452-02



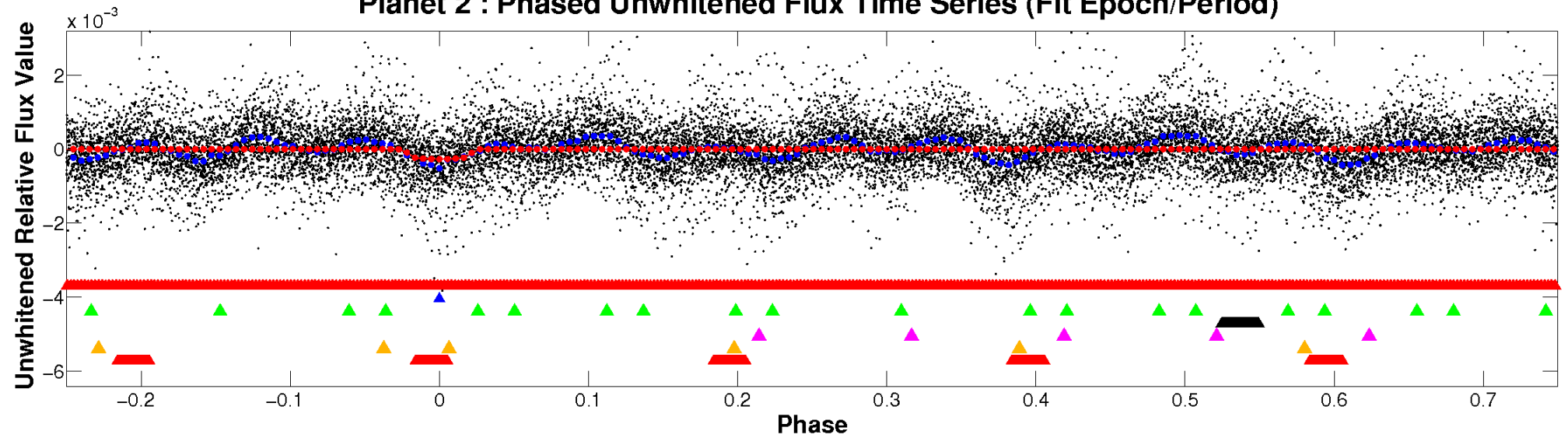
ALT Odd/Even

TCE 009613452-02

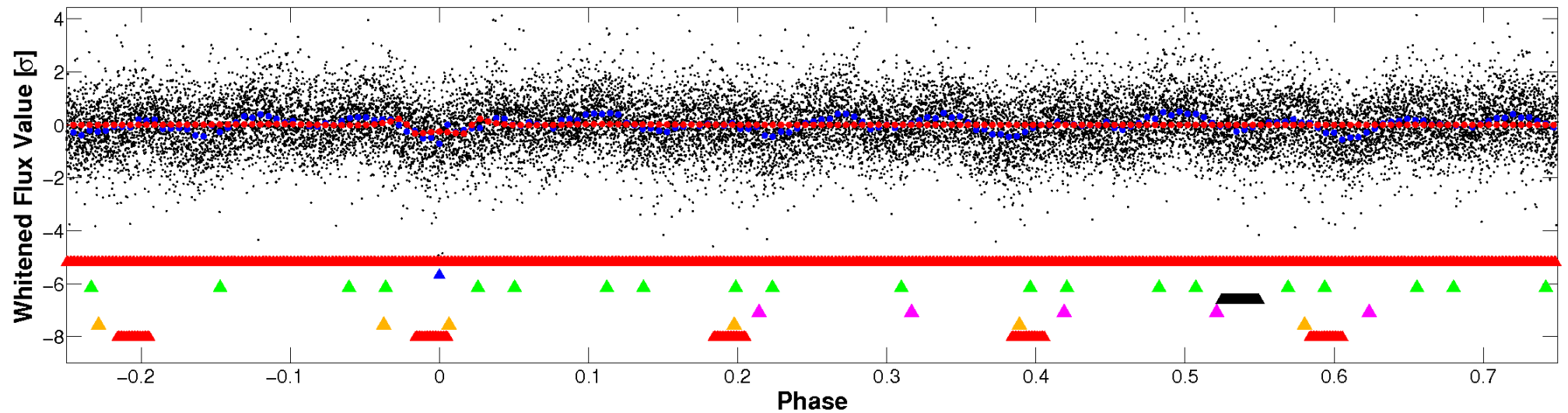


Non-Whitened Vs. Whitened Light Curve

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

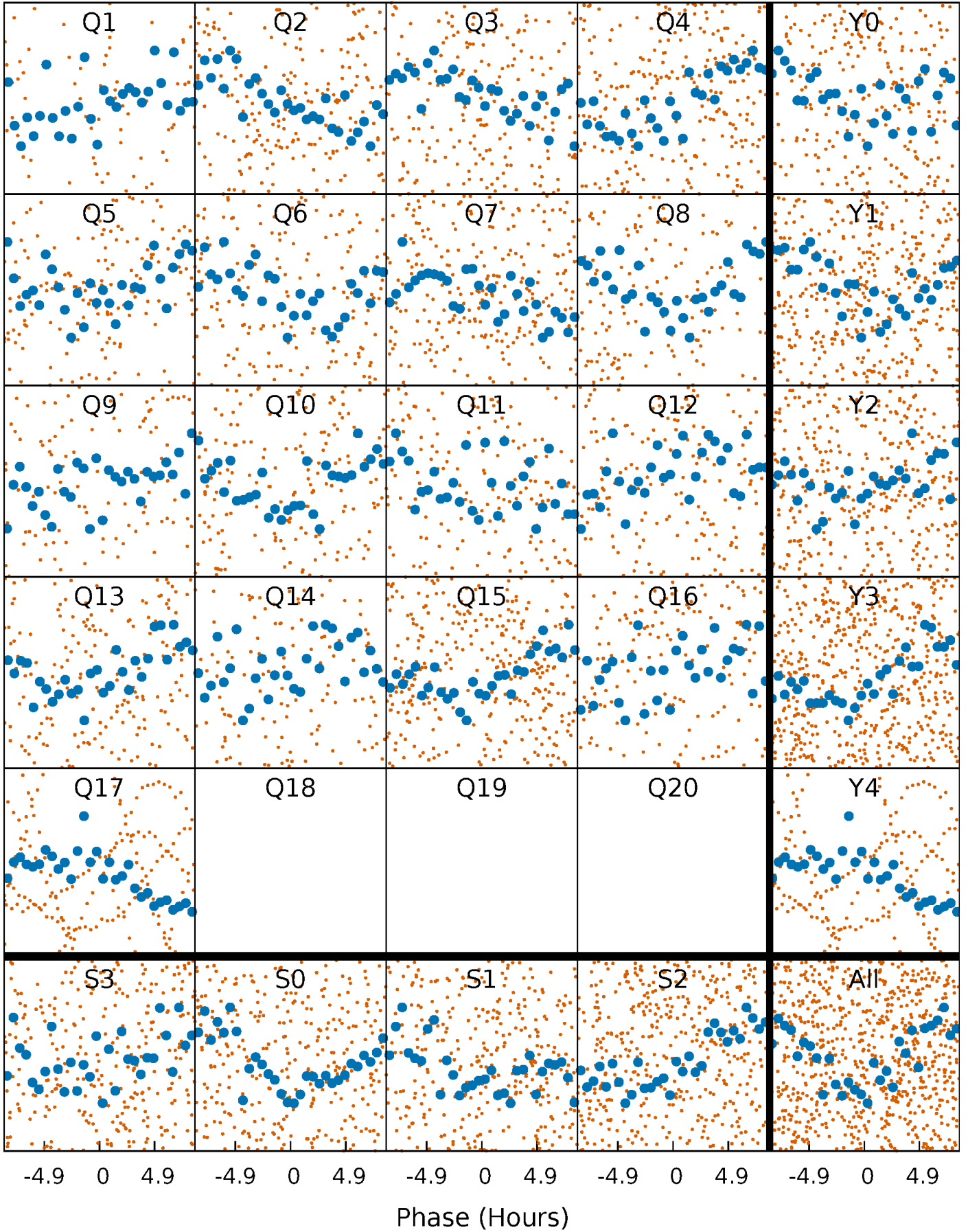


Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



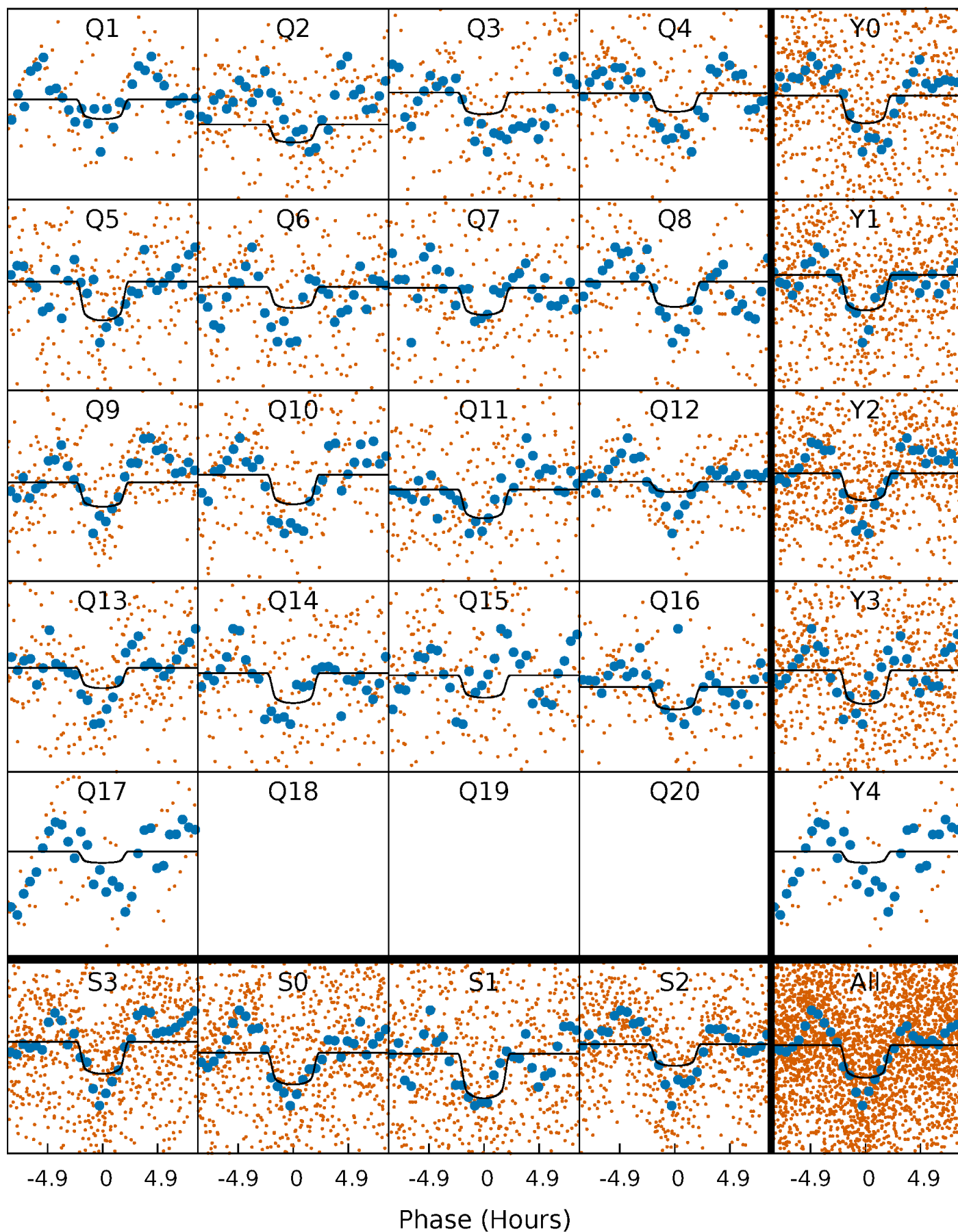
PDC Quarter-Phased Transit Curves

TCE 009613452-02 $P = 3.746392$ Days $T_0 = 131.820242$ (BKJD)



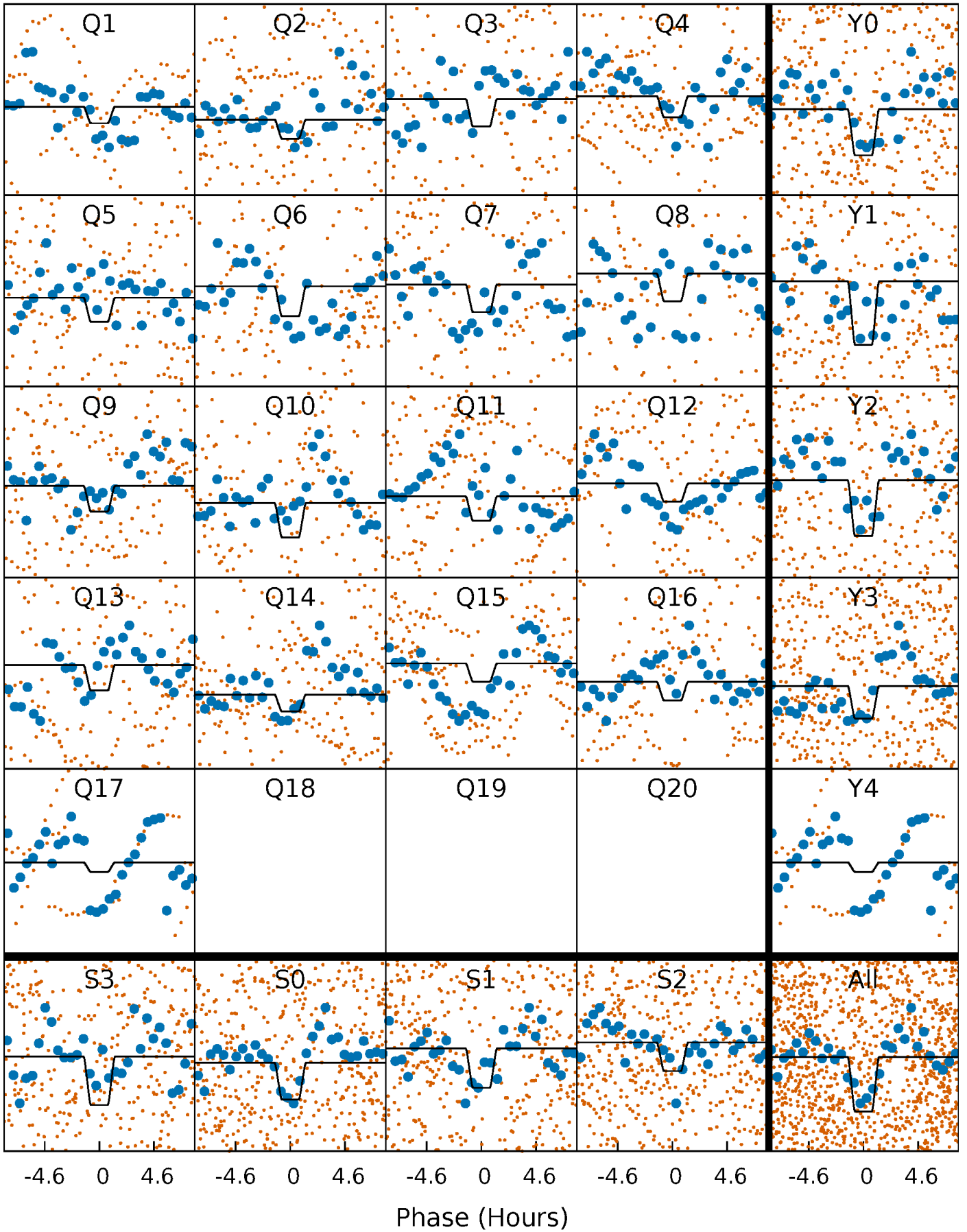
DV Quarter-Phased Transit Curves

TCE 009613452-02 P= 3.746392 Days $T_0=131.820242$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

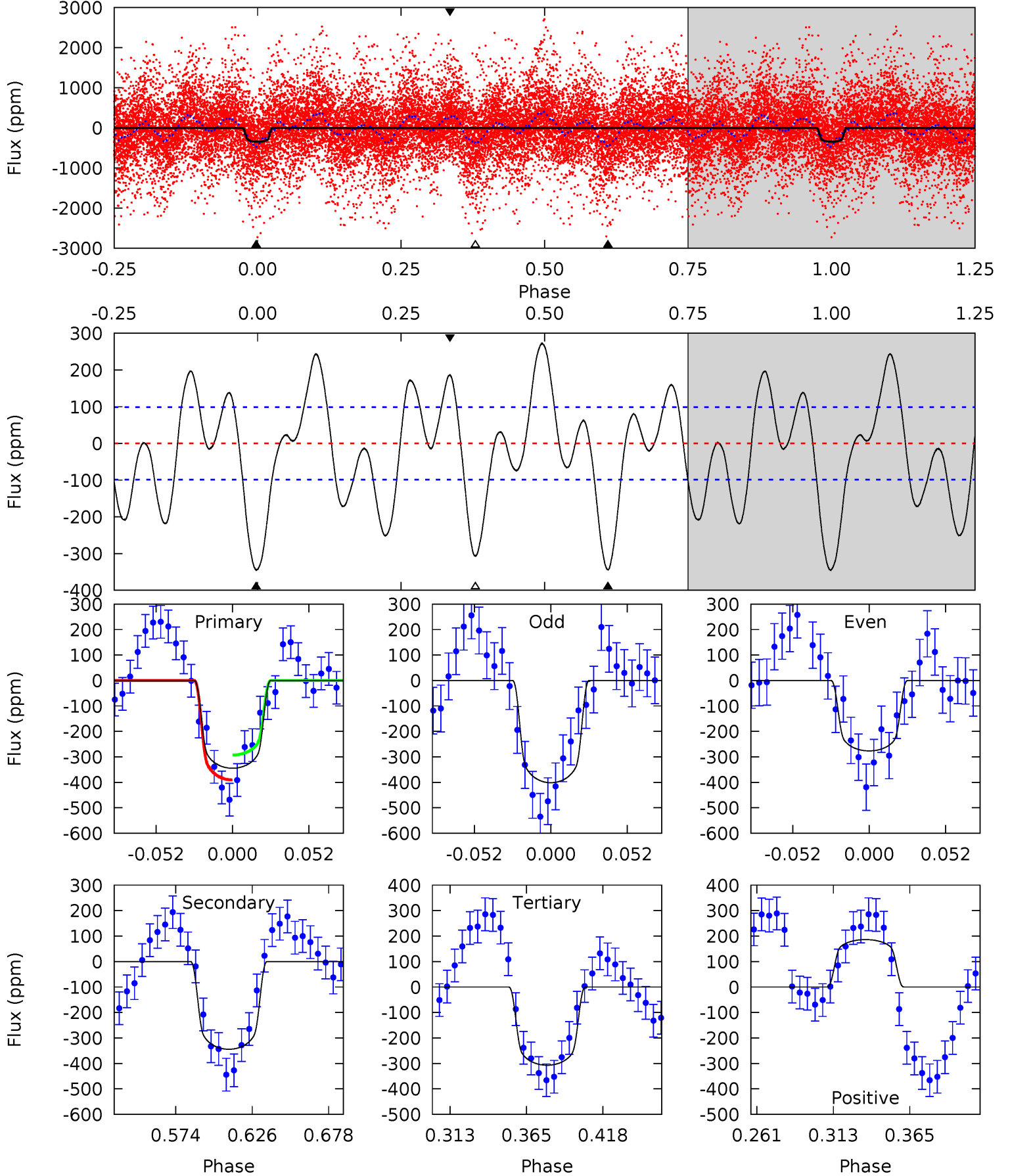
TCE 009613452-02 $P = 3.746327$ Days $T_0 = 131.826210$ (BKJD)



DV Model-Shift Uniqueness Test

009613452-02, P = 3.746392 Days, E = 131.820242 Days

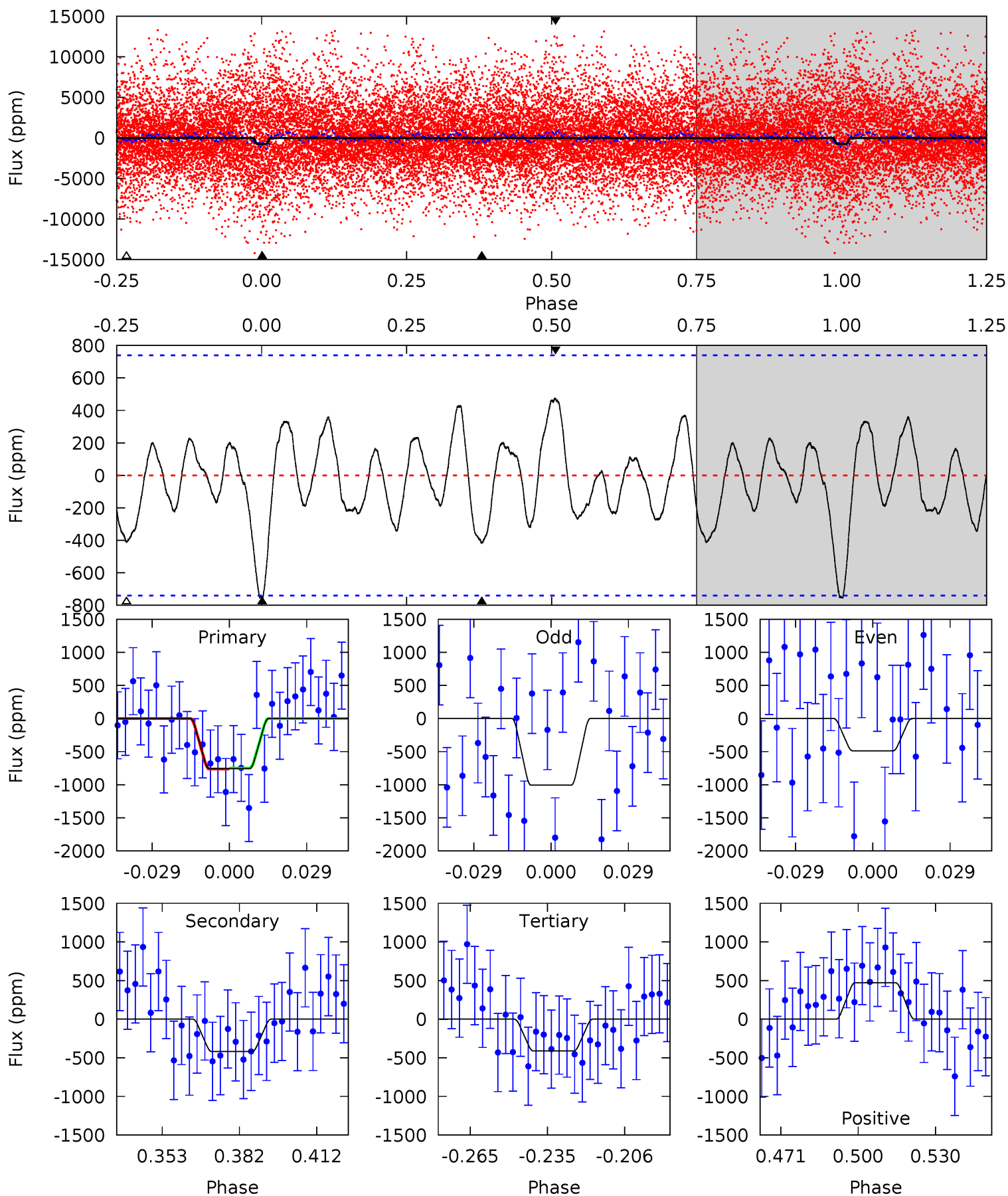
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
16.4	16.4	14.6	8.86	4.70	1.94	6.32	1.79	7.55	1.78	7.54	3.01	1.00	0.44	2.35



Alt Model-Shift Uniqueness Test

009613452-02, P = 3.746327 Days, E = 131.826210 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
4.92	2.73	2.68	3.08	4.82	2.18	1.33	2.24	1.84	0.05	-0.35	1.69	0.95	0.38	0.05



Stellar Parameters For KIC 009613452

	$T_{\text{eff}} (K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R (R_{\odot})$	$M (M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	6484^{+155}_{-213}	$4.360^{+0.101}_{-0.188}$	$-0.540^{+0.300}_{-0.300}$	$1.093^{+0.293}_{-0.158}$	$0.998^{+0.133}_{-0.106}$	$1.076^{+0.556}_{-0.495}$
	+2%/-3%	+2%/-4%	+56%/-56%	+27%/-14%	+13%/-11%	+52%/-46%
Source	PHO1	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 009613452-02 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-344 ± 21	$2.10^{+0.44}_{-0.33}$	1939^{+123}_{-108}	6697^{+618}_{-499}	96^{+37}_{-30}
Alt.	-419 ± 154	$3.80^{+0.59}_{-0.48}$	1941^{+142}_{-98}	5267^{+494}_{-513}	34^{+17}_{-14}

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

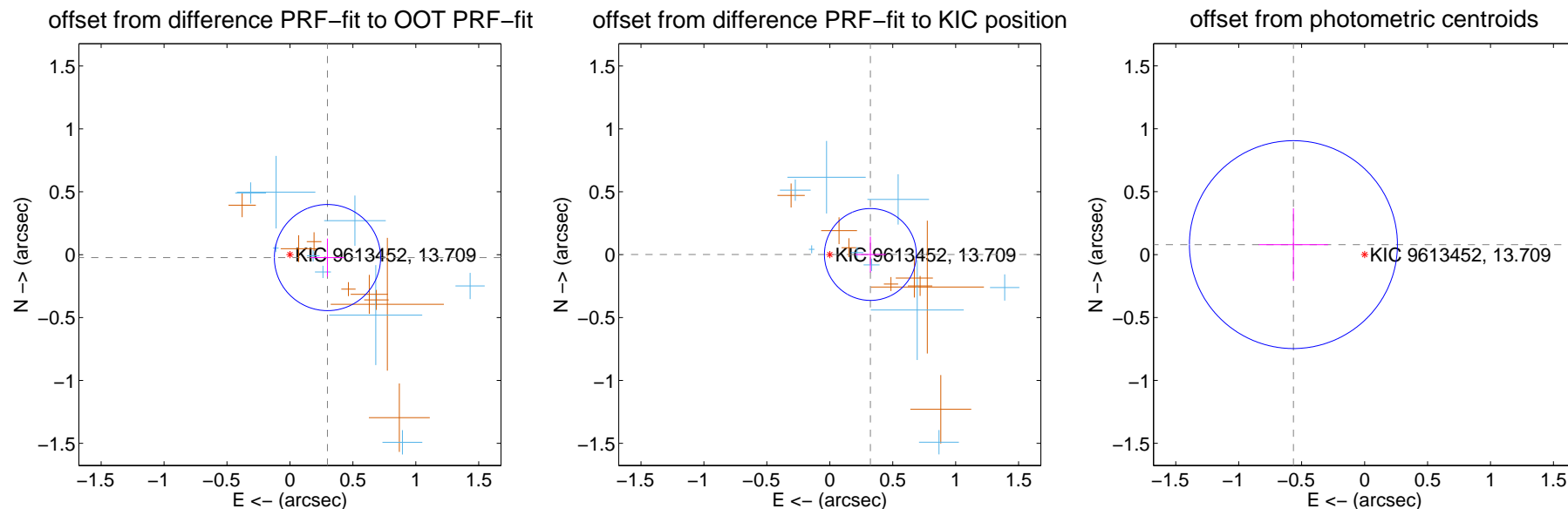
DV Centroid Data

Supplemental centroid analysis for 009613452-02. Kepler magnitude: 13.71. Transit SNR 9.10

There are 9 quarters with good PRF difference image offsets

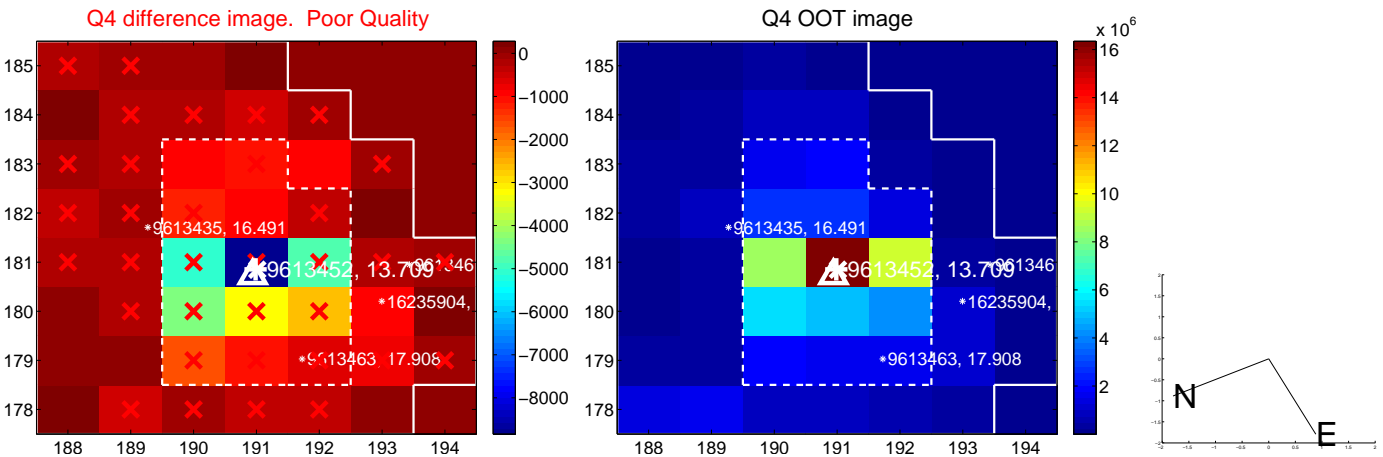
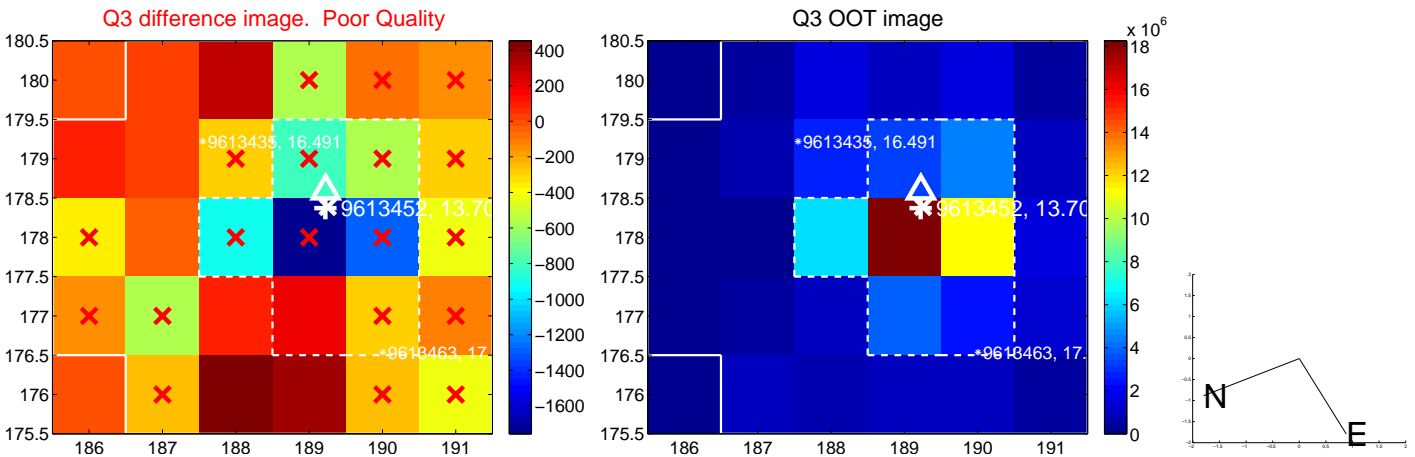
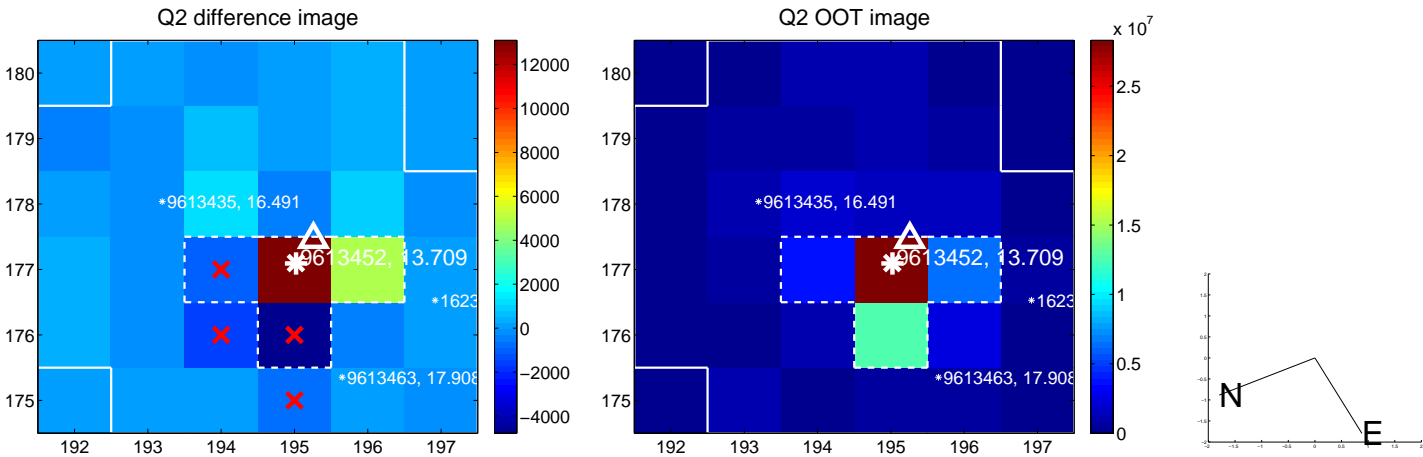
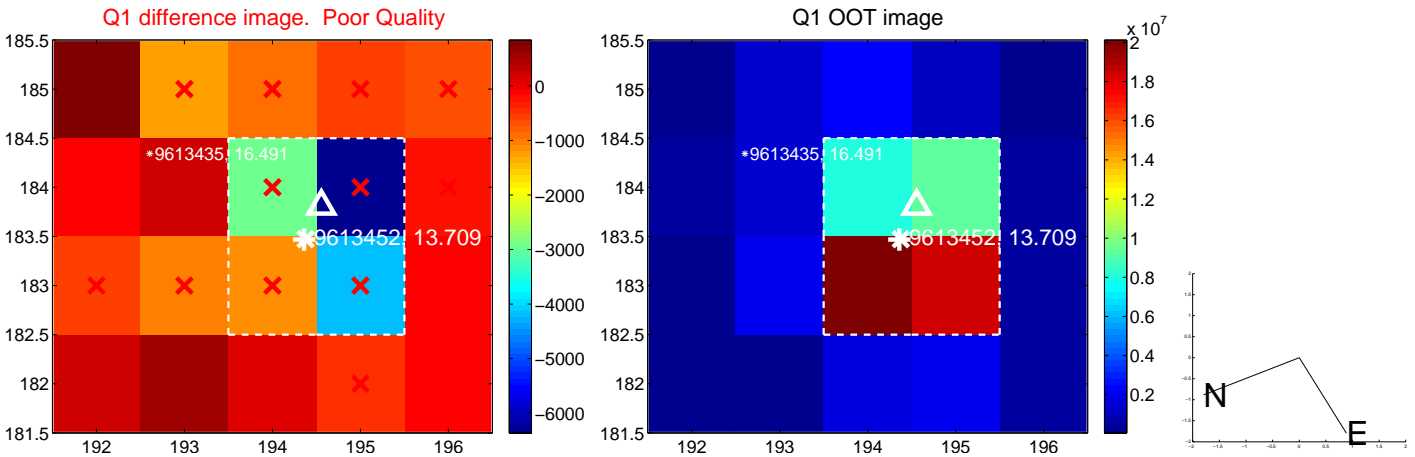
The direct PRF centroid is offset from the target star catalog position by about 0.05 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.299 ± 0.141	2.13	-0.298 ± 0.134	-0.023 ± 0.151
PRF-fit source offset from KIC position	0.323 ± 0.122	2.65	-0.323 ± 0.122	0.001 ± 0.142
photometric centroid source offset	0.57 ± 0.28	2.07	0.57 ± 0.28	0.08 ± 0.29

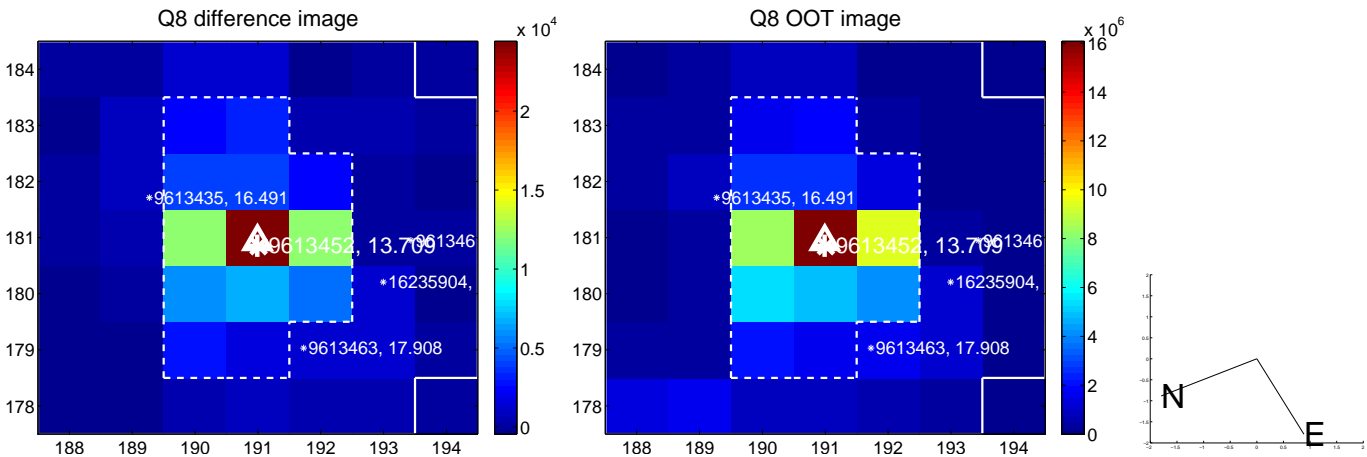
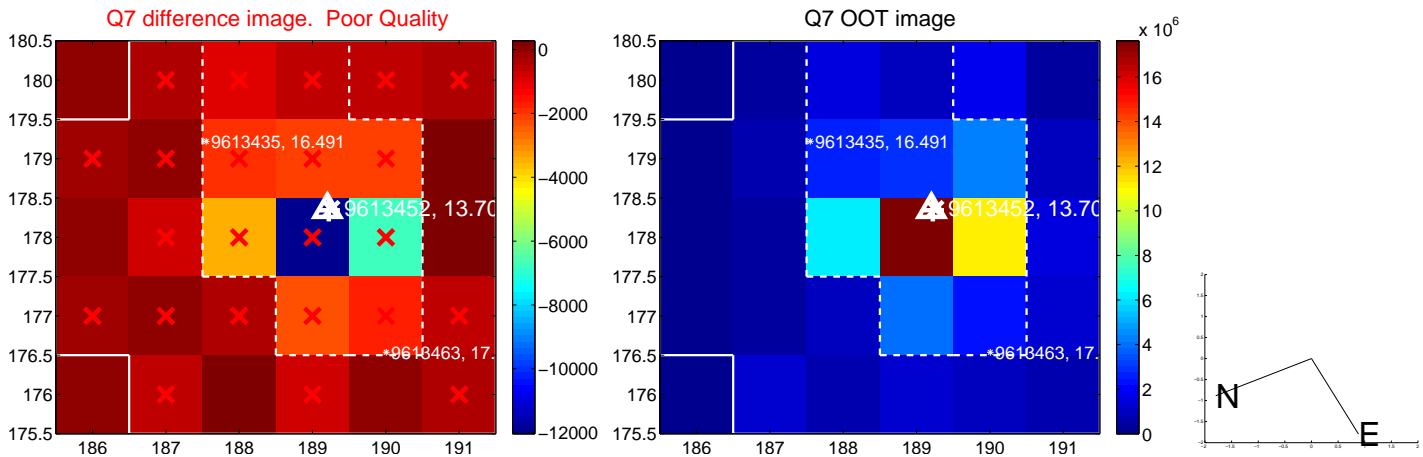
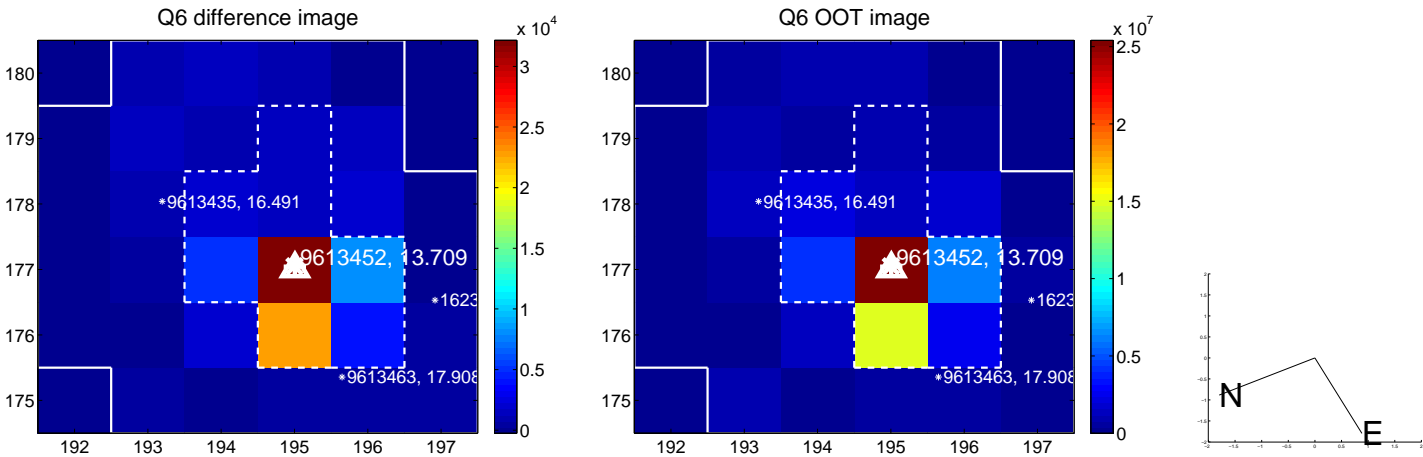
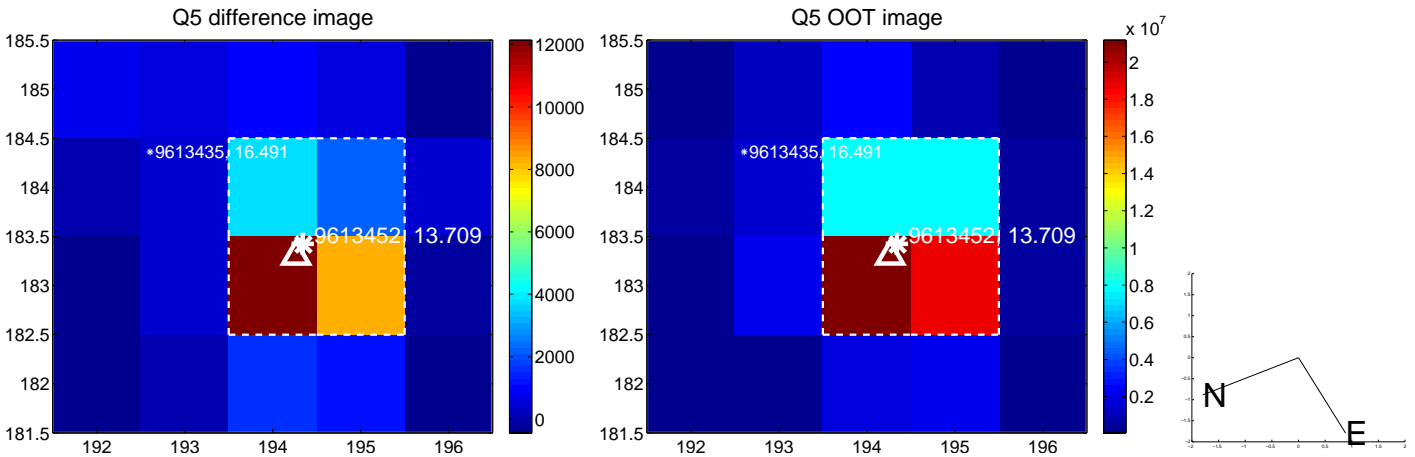


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets**; **Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

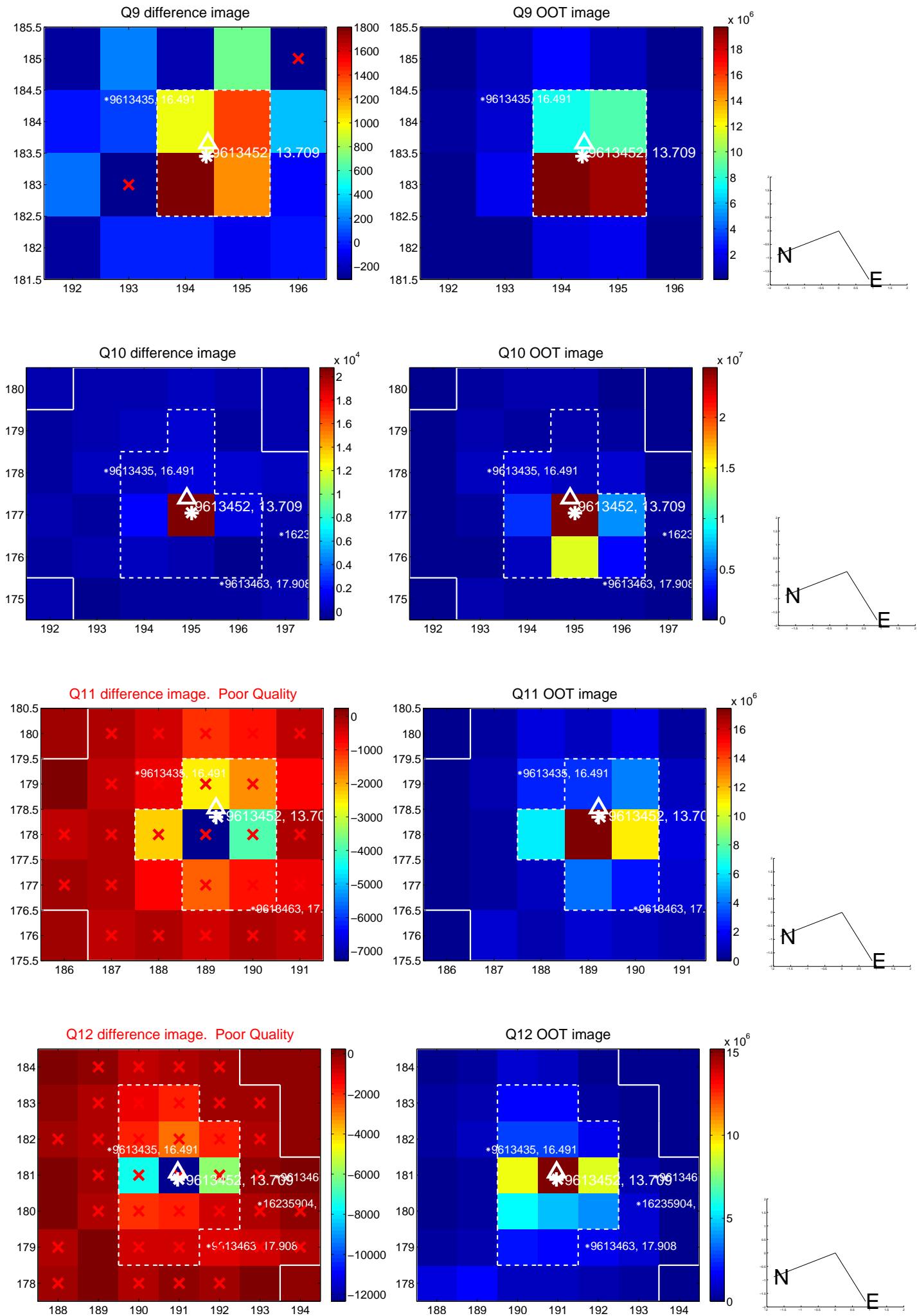
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



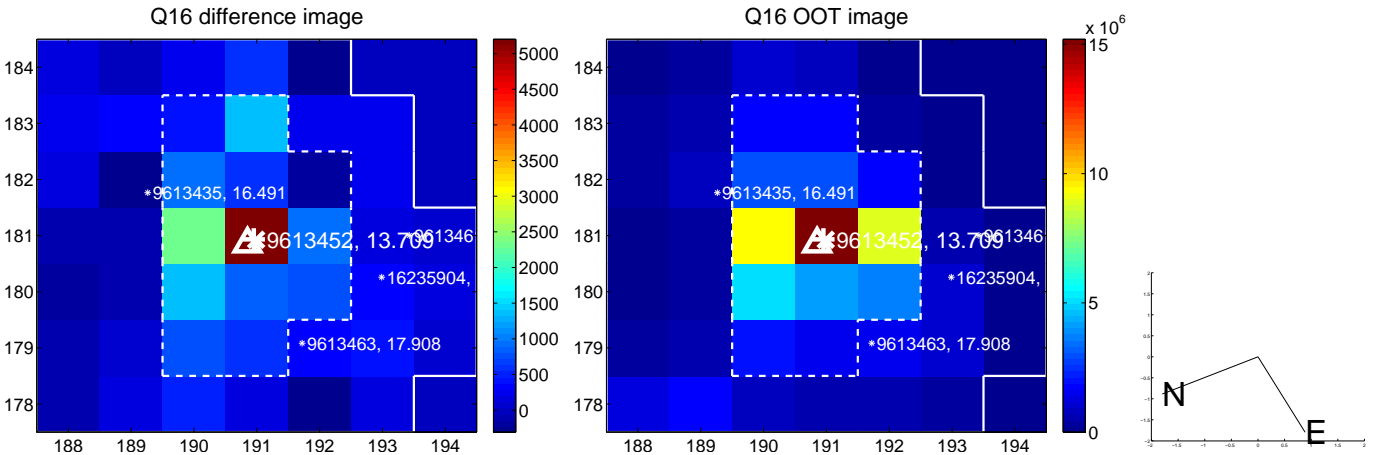
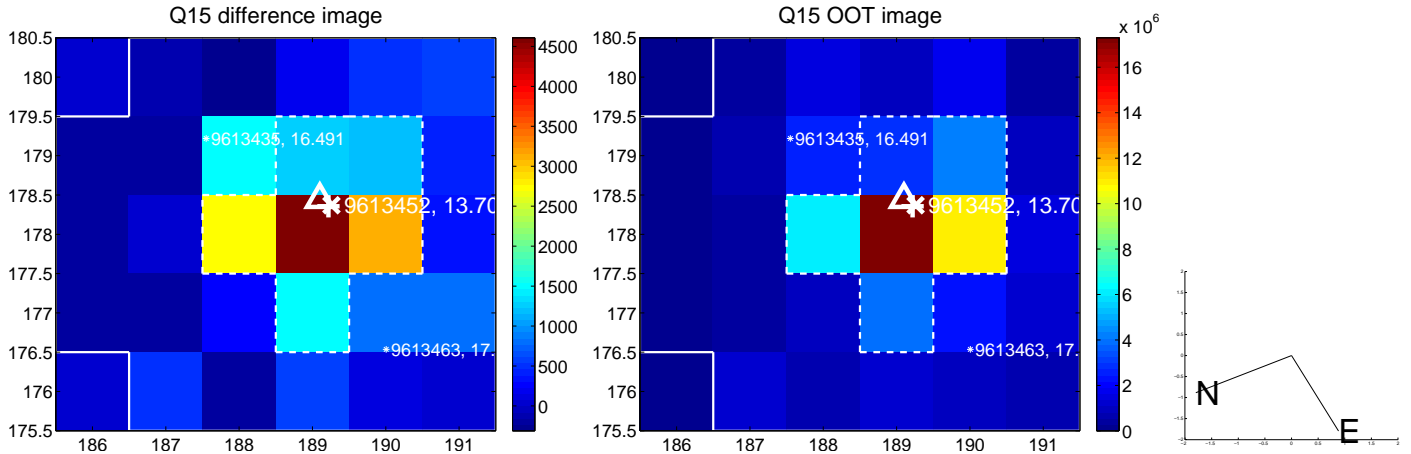
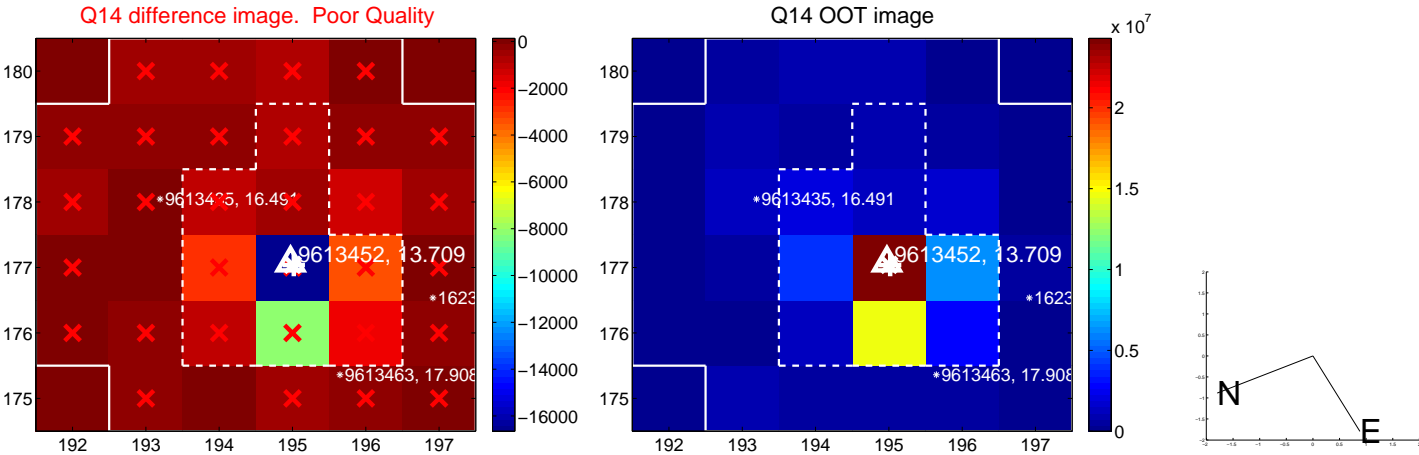
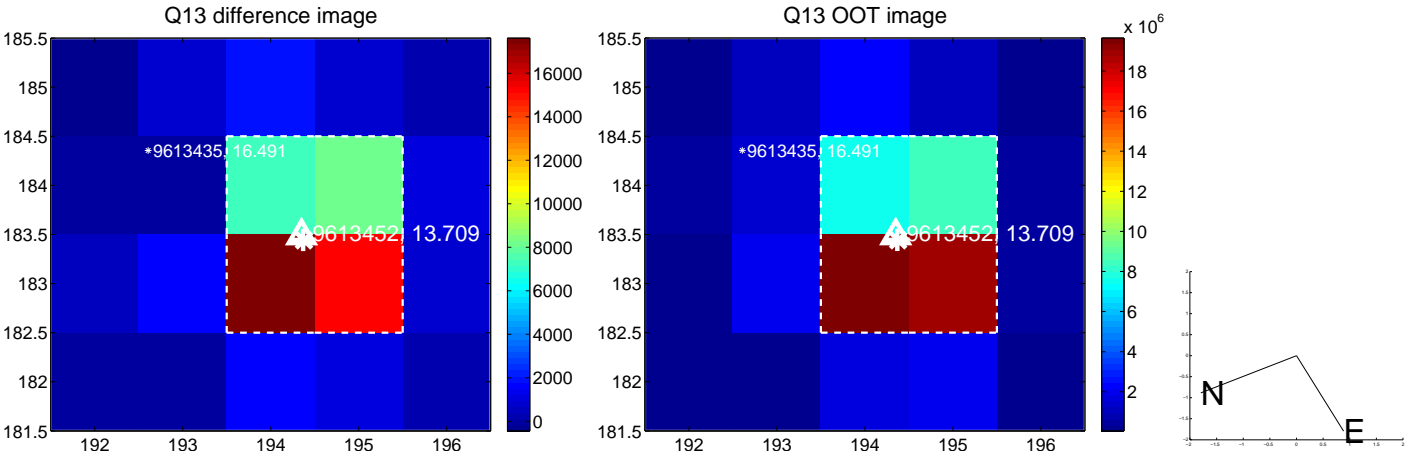
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



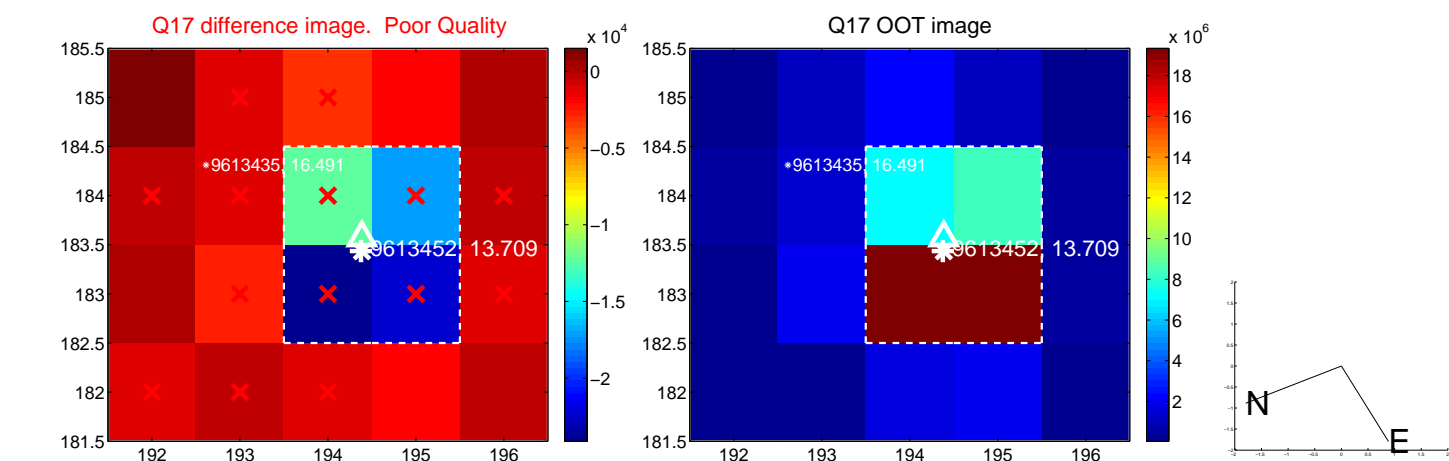
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



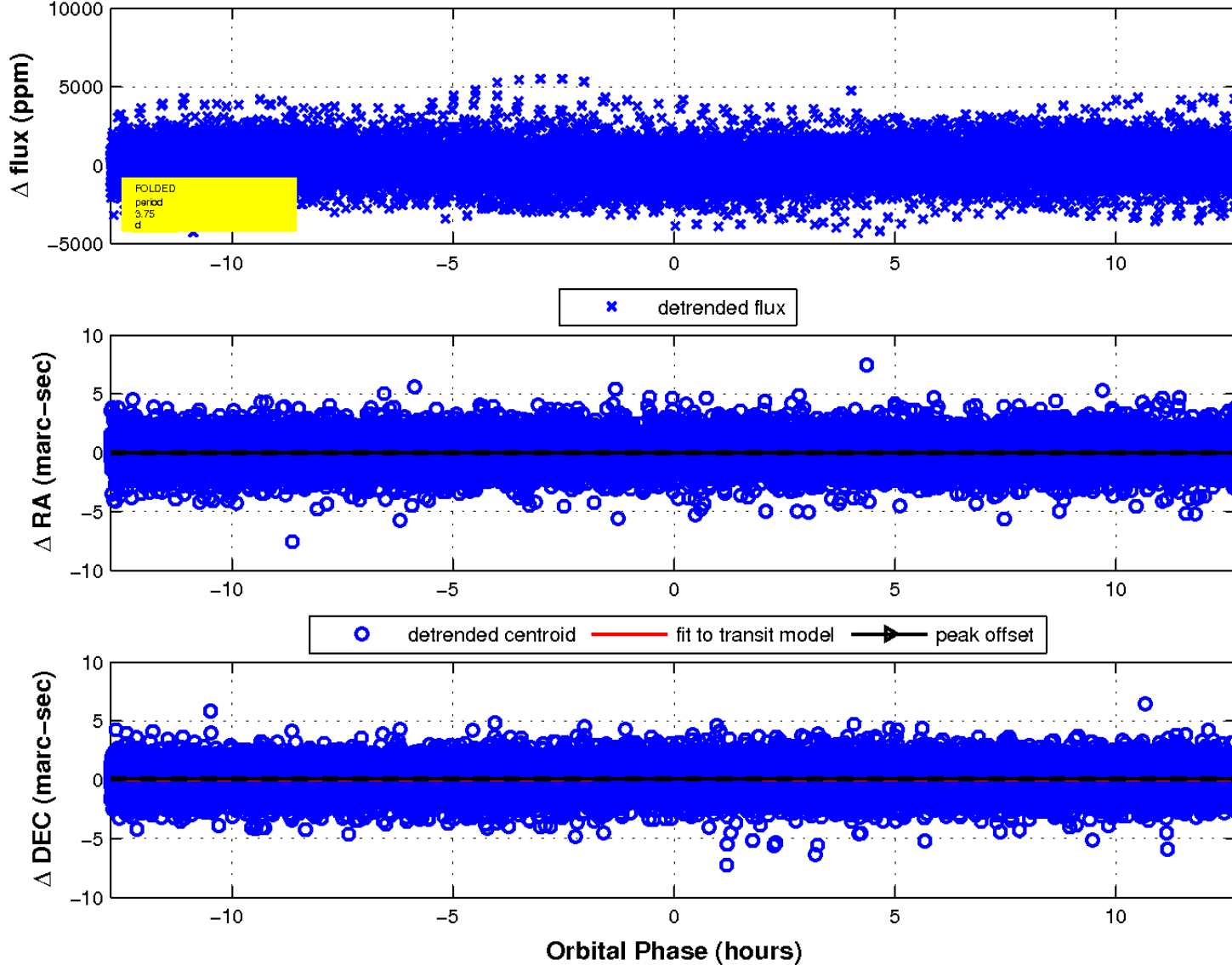
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

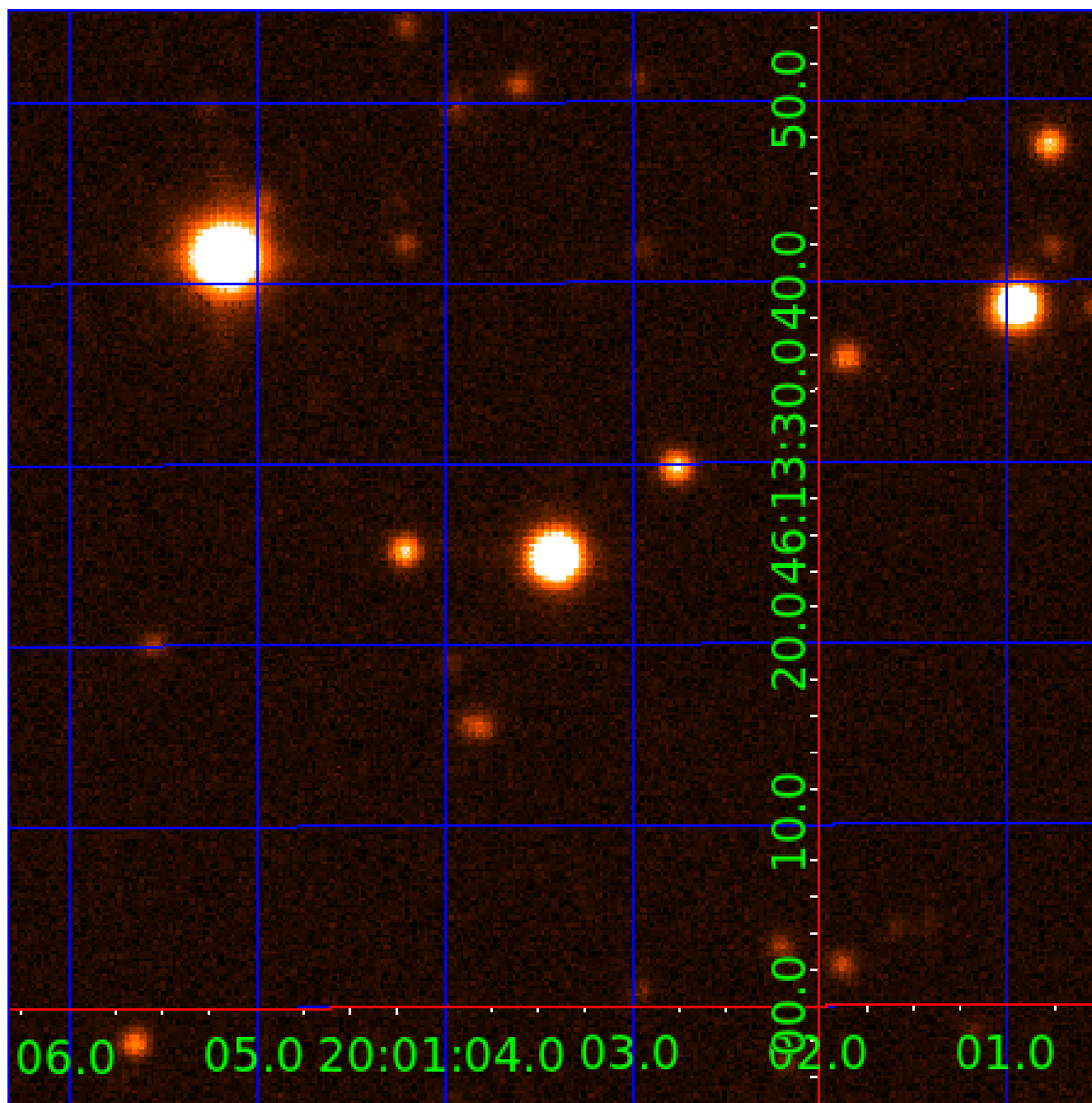


fluxWeightedCentroids, Planet 2 of 7



UKIRT Image

Declination



KIC 009613452

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})
009613452-01	OBS	No	0.886147	131.703285	38.3	4.784	9.6	5.0	1.09	6484	0.72	5807.72
009613452-02	OBS	No	3.746392	131.820242	268.9	4.250	9.7	9.1	1.09	6484	2.09	849.56
009613452-03	OBS	No	73.216568	185.846185	983.3	4.742	9.7	6.8	1.09	6484	3.53	16.14
009613452-04	OBS	No	3.746152	133.878487	185.5	4.579	9.8	5.9	1.09	6484	1.94	849.63
009613452-06	OBS	No	266.710349	255.475394	2811.1	10.607	9.3	9.9	1.09	6484	10.58	2.88
009613452-07	OBS	No	8.241587	137.087167	997.7	11.978	8.2	13.1	1.09	6484	6.49	296.94

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
009613452-01	OBS	FP	0.00	1	0	0	0	LPP_DV
009613452-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_ZUMA—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT
009613452-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_ALT—MOD_NONUNIQ_ALT
009613452-04	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_RUBBLE_SKYE_ZUMA_TRACKER—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—SAME_NTL_PERIOD—HALO_GHOST
009613452-06	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL—TRANS_GAPPED—ALL_TRANS_CHASES
009613452-07	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_SKYE_ZUMA—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_ALT

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

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

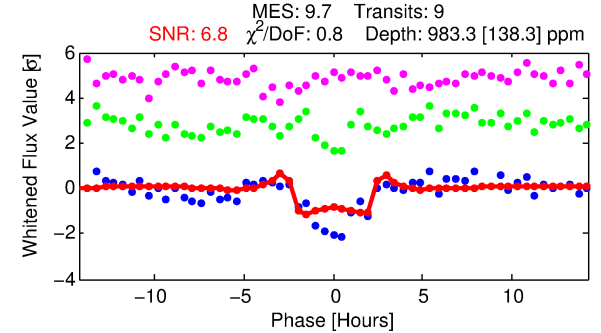
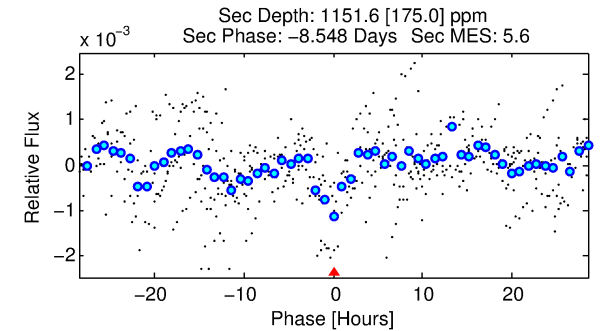
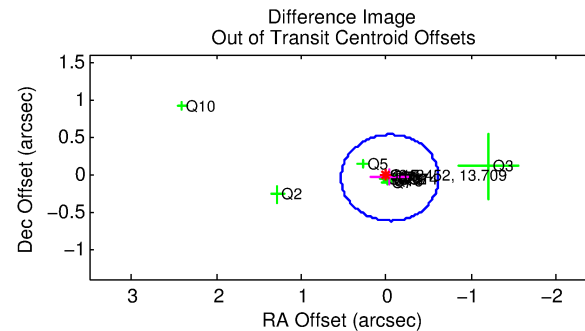
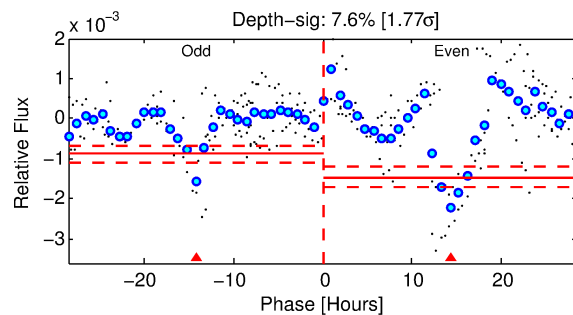
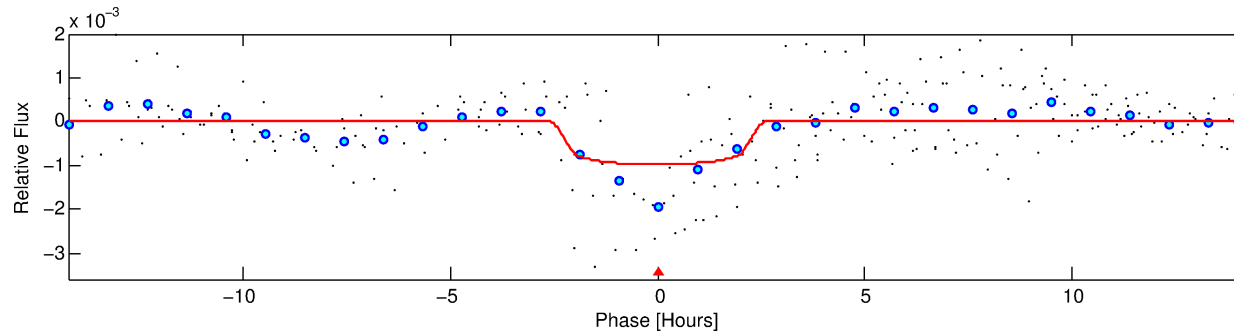
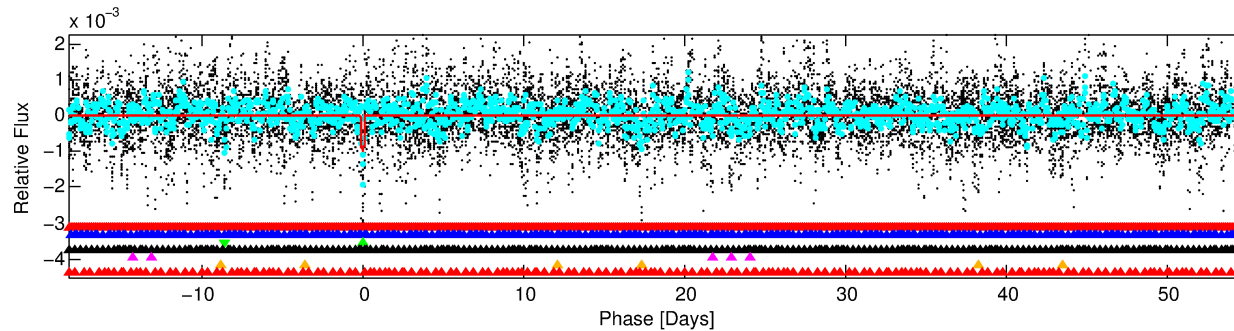
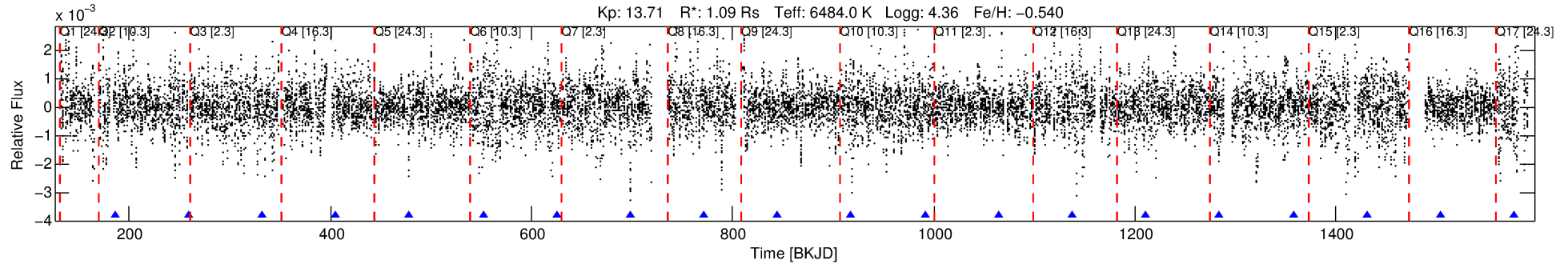
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 009613452-03

No Significant Match Found

DV One-Page Summary

KIC: 9613452 Candidate: 3 of 7 Period: 73.217 d



DV Fit Results:

Period = 73.21657 [0.00063] d
Epoch = 185.8462 [0.0071] BKJD
Rp/R* = 0.0296 [0.0201]
a/R* = 108.22 [394.51]
b = 0.47 [6.14]
Seff = 16.14 [5.87]
Teq = 511 [47] K
Rp = 3.53 [2.57] Re
a = 0.3424 [0.0786] AU
Ag = 5961.53 [8383.53] [0.71 σ]
Teffp = 6943 [2380] K [2.70 σ]

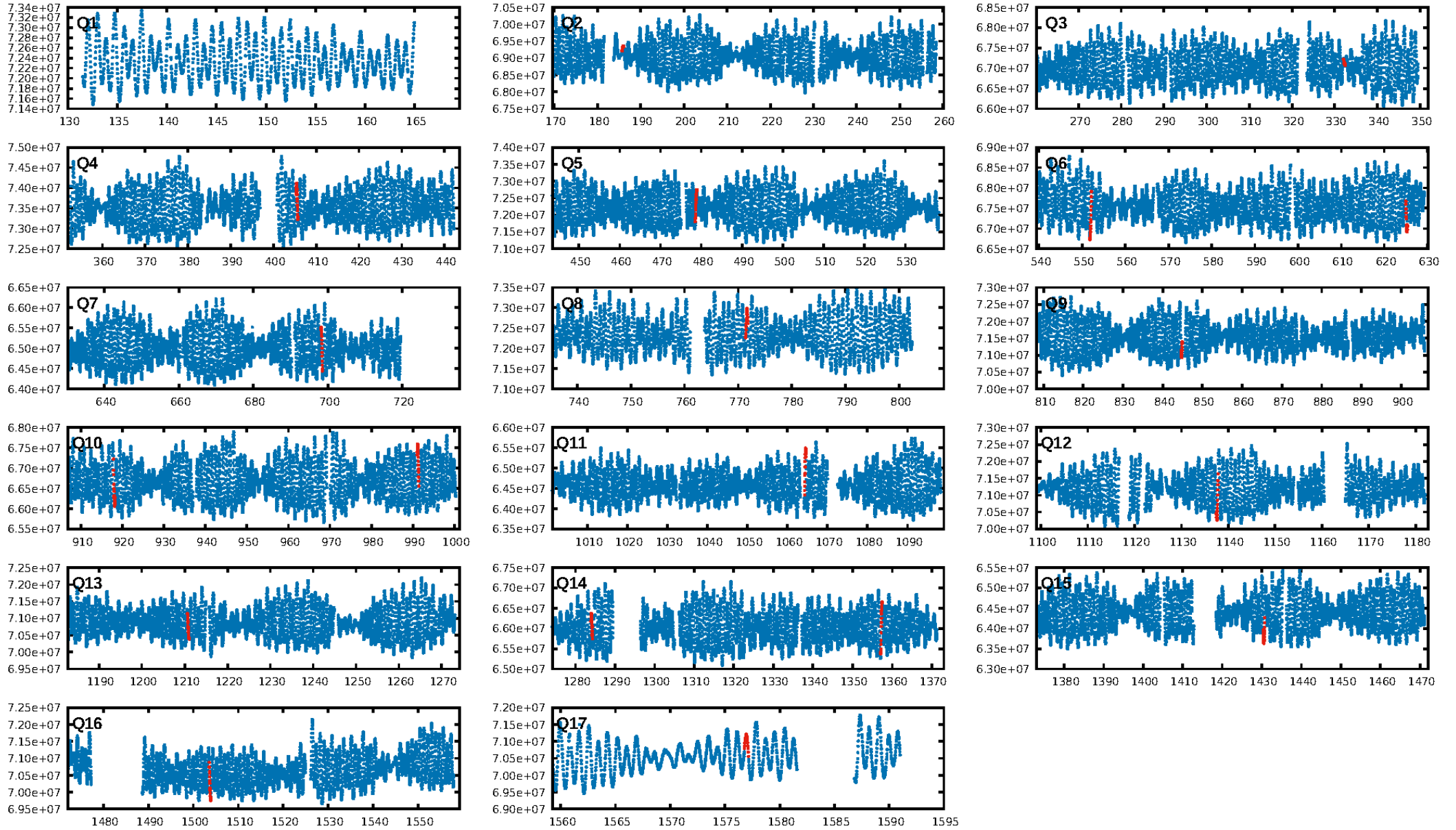
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [121.05 σ]
LongPeriod-sig: 100.0% [399.69 σ]
ModelChiSquare2-sig: 0.2%
ModelChiSquareGof-sig: 100.0%
Bootstrap-pfa: N/A
RollingBand-fgt: 1.00 [9/9]
GhostDiagnostic-chr: 0.6832
Centroid-sig: 2.1%
Centroid-so: 0.709 arcsec [2.18 σ]
OotOffset-rm: 0.068 arcsec [0.35 σ]
OotOffset-st: 4/3/4/3 [14]
KicOffset-rm: 0.110 arcsec [0.51 σ]
KicOffset-st: 4/3/4/3 [14]
DiffImageQuality-fgm: 0.43 [6/14]
DiffImageOverlap-fno: 0.00 [0/14]

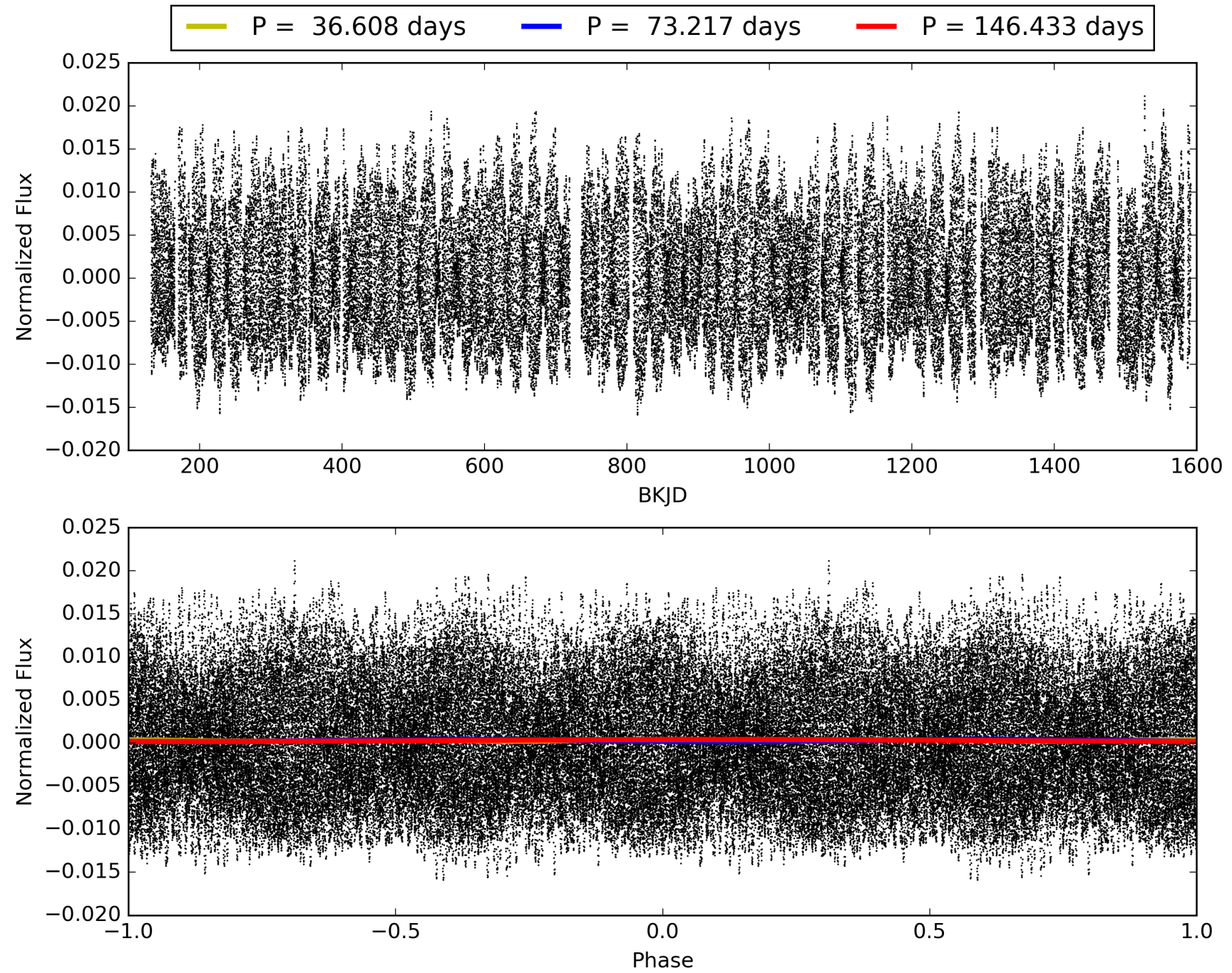
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 01-Feb-2016 13:35:57 Z

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

TCE 009613452-03, PDC Light Curves

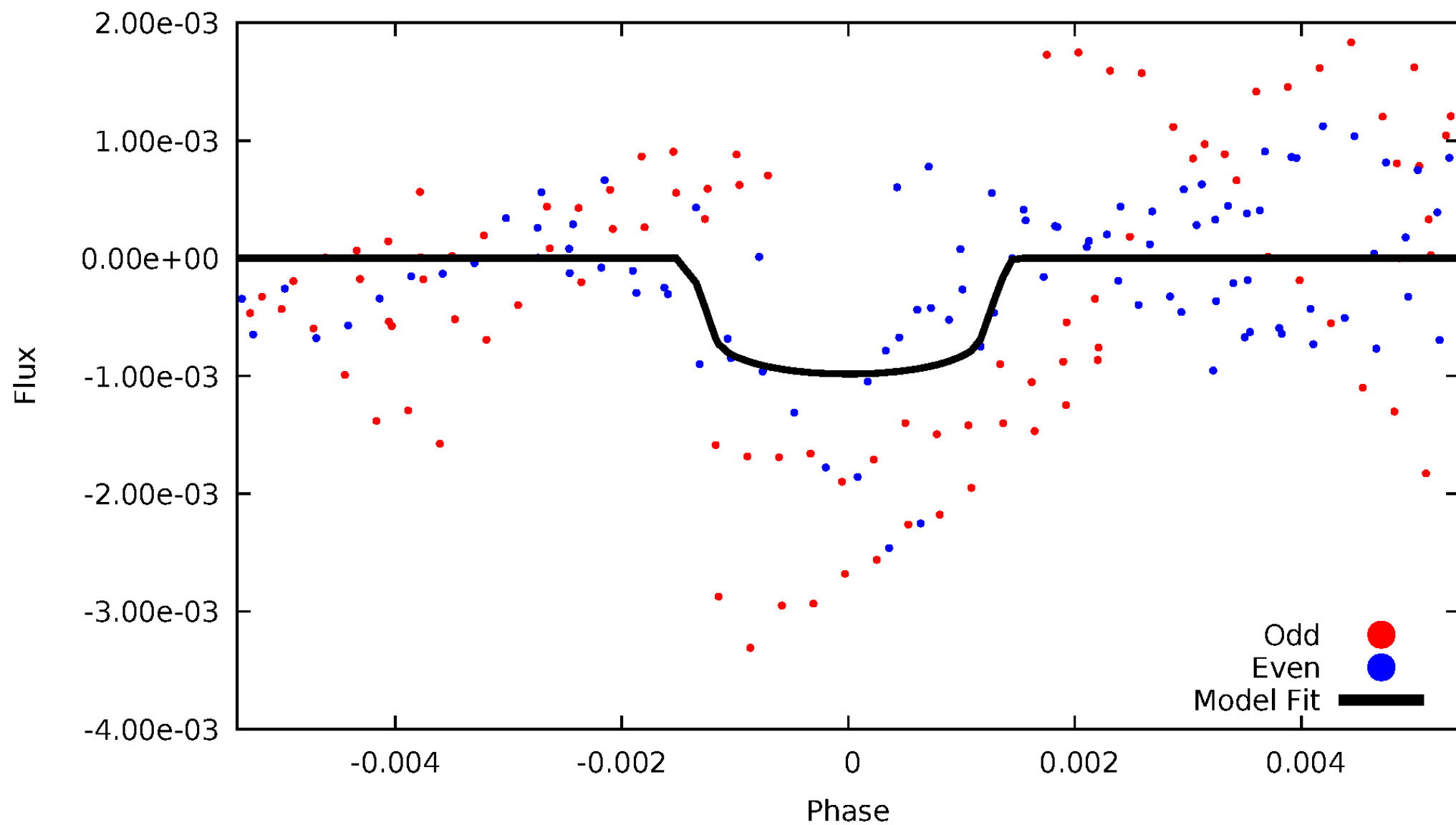


TCE 009613452-03



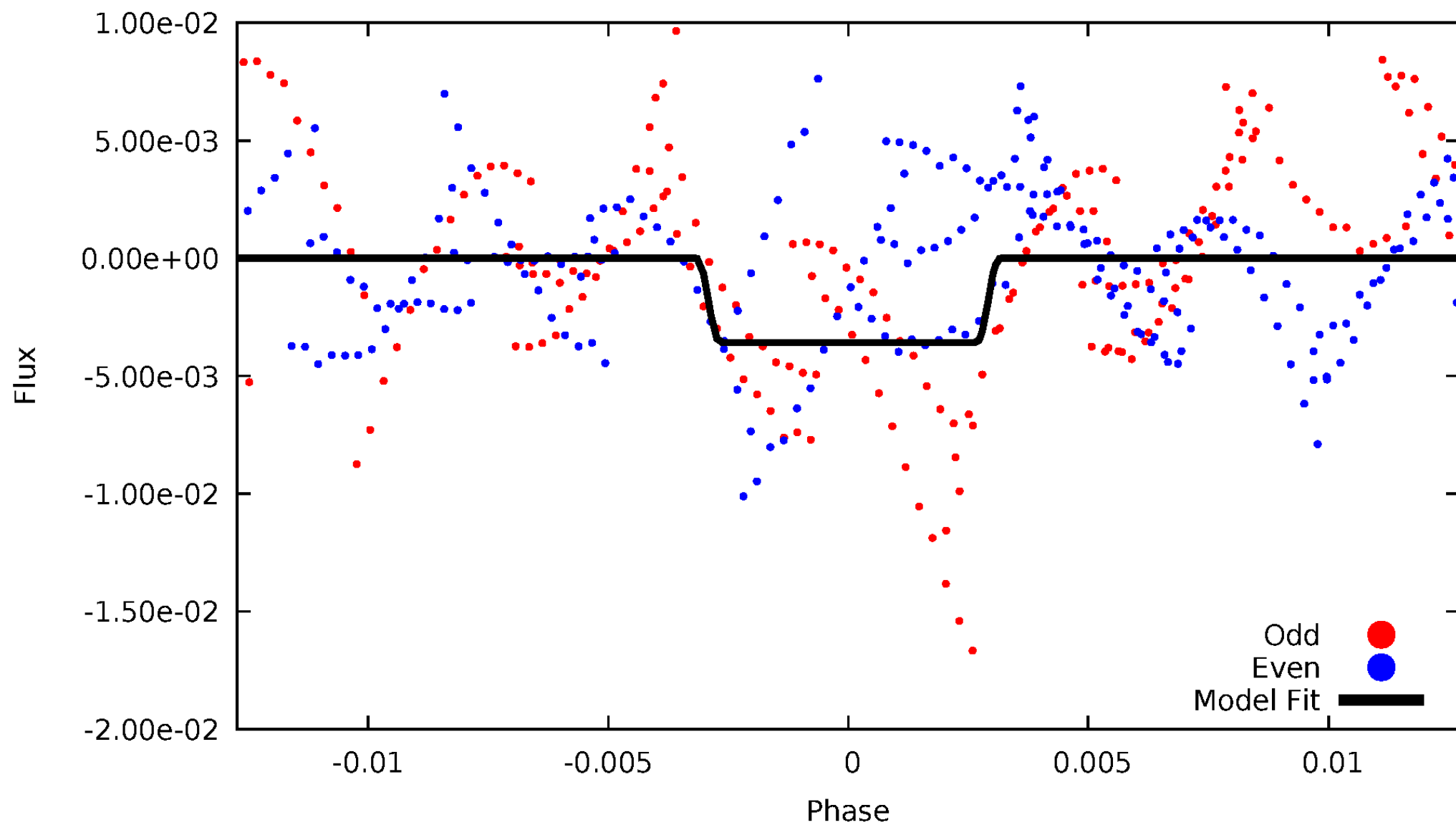
DV Odd/Even

TCE 009613452-03



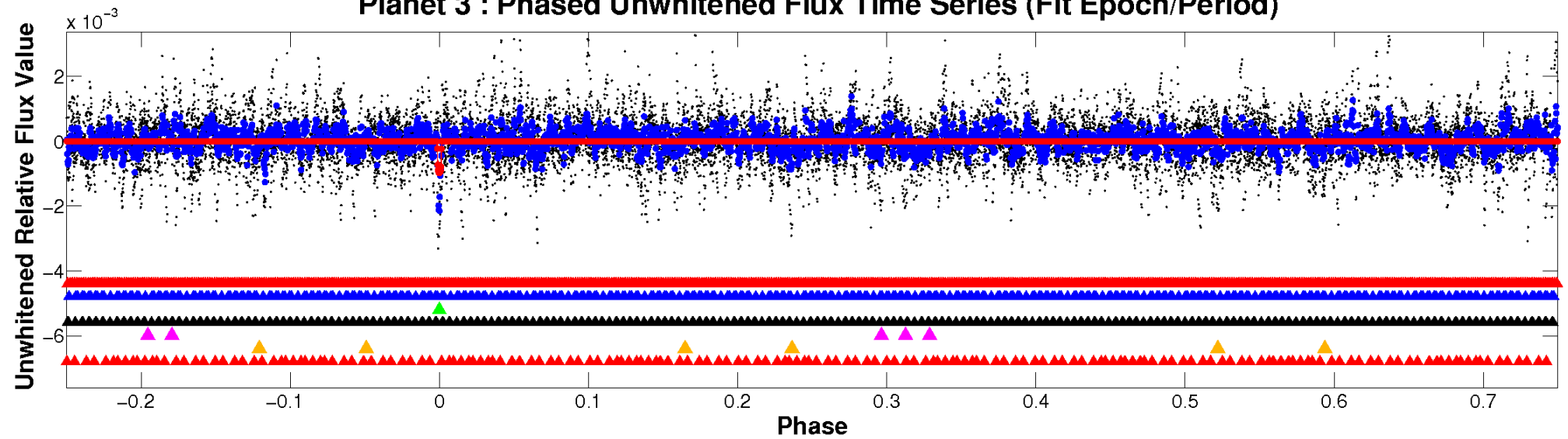
ALT Odd/Even

TCE 009613452-03

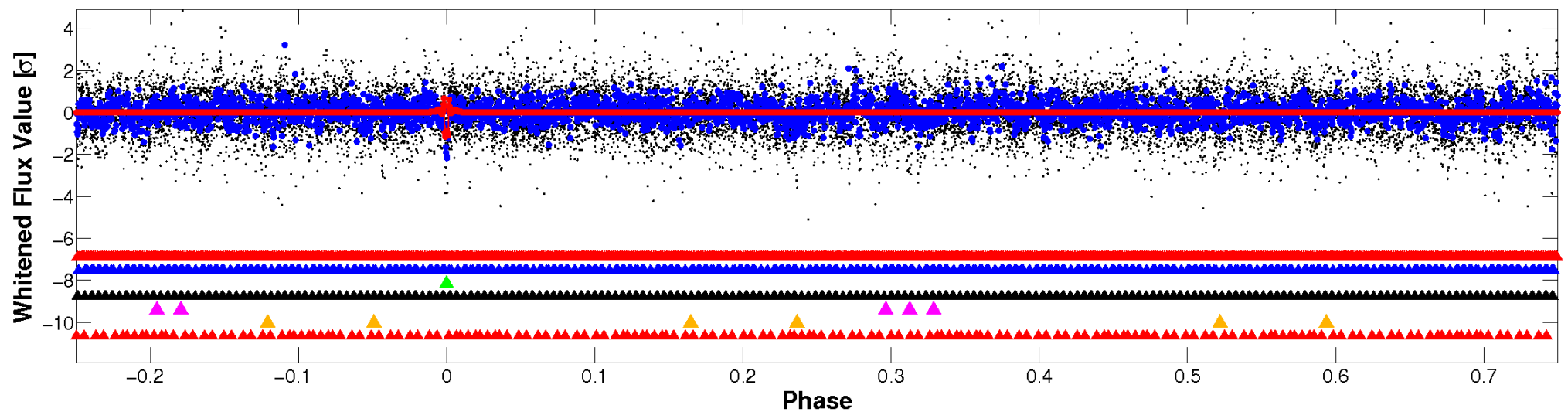


Non-Whitened Vs. Whitened Light Curve

Planet 3 : Phased Unwhitened Flux Time Series (Fit Epoch/Period)

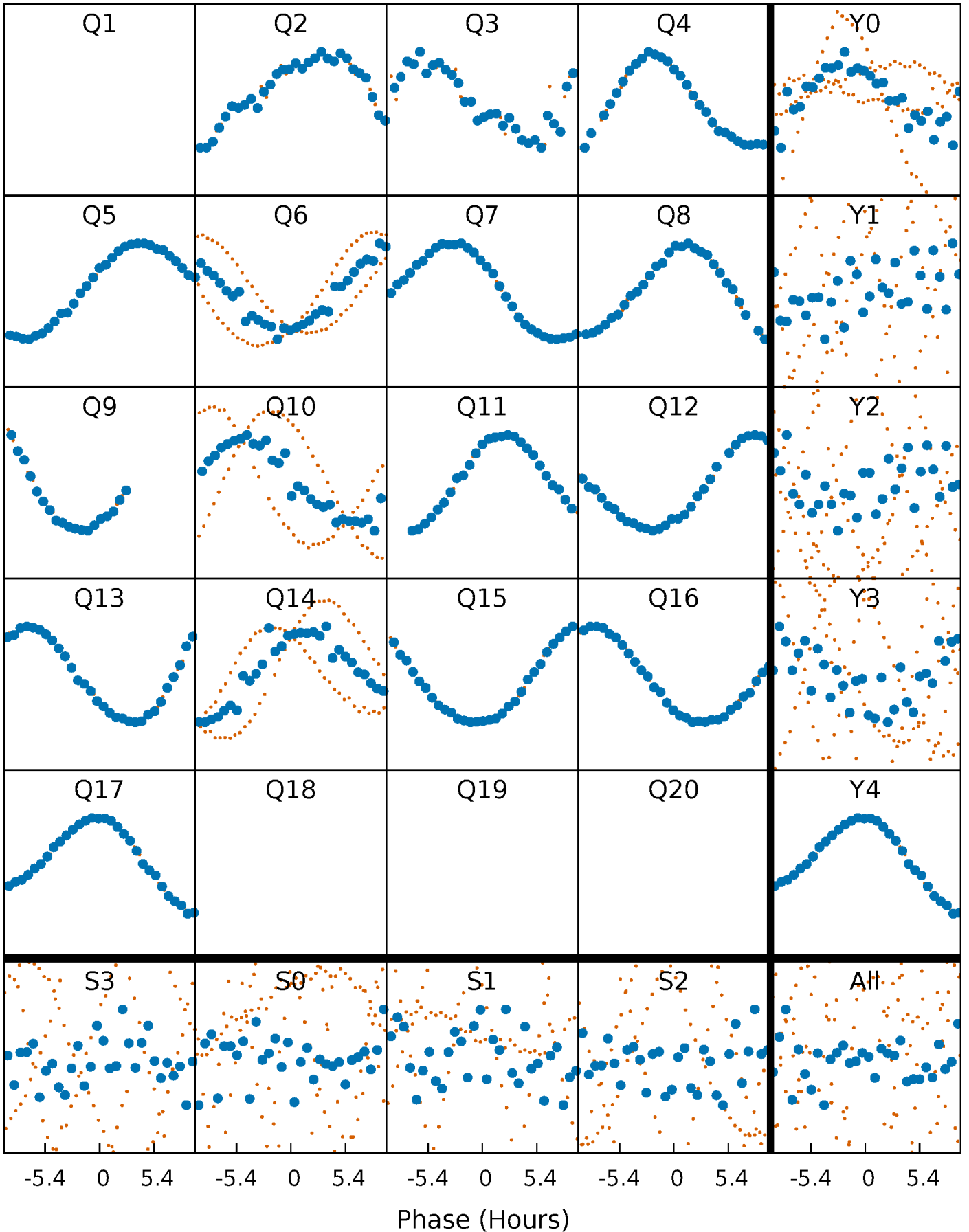


Planet 3 : Phased Whitened Flux Time Series (Fit Epoch/Period)



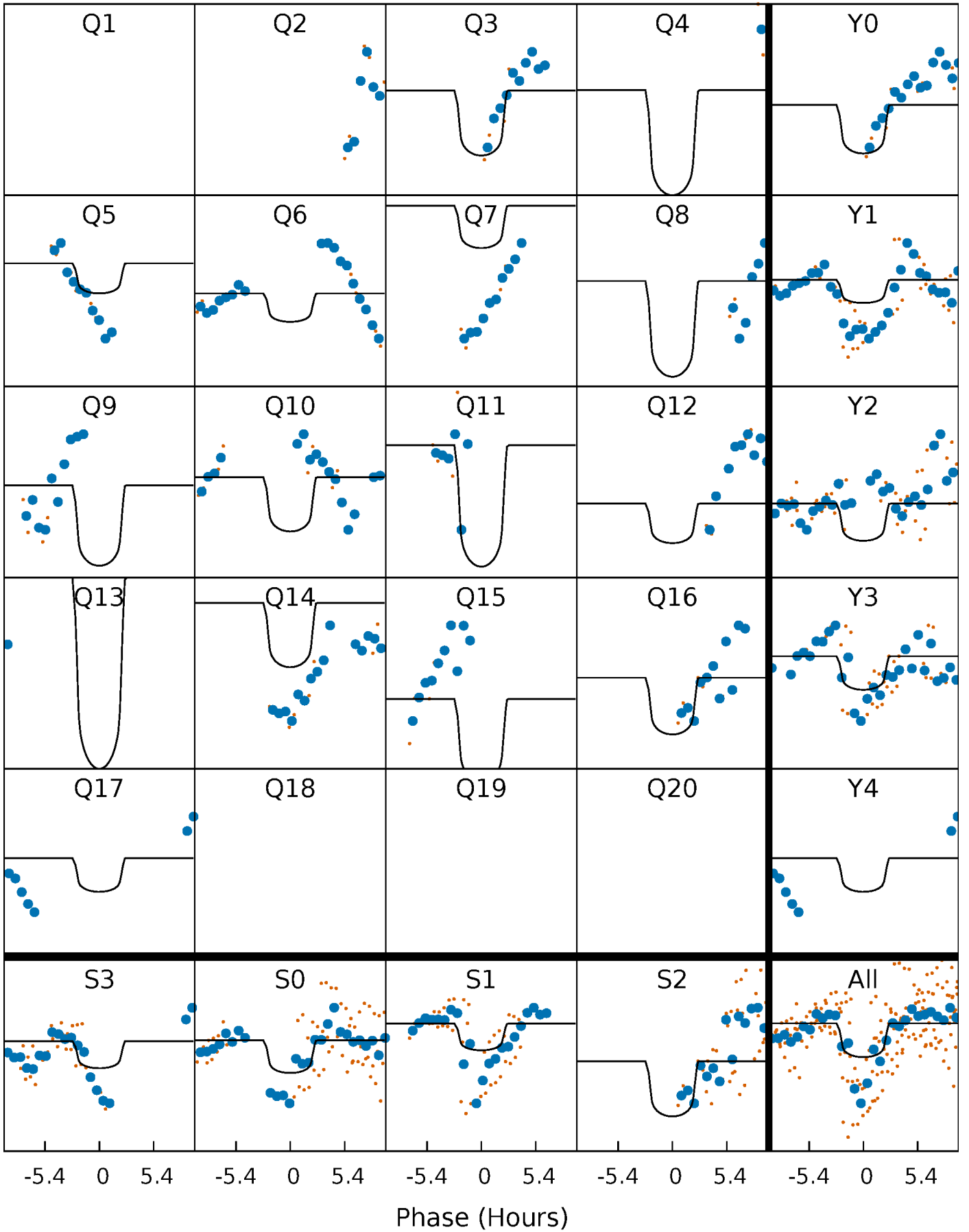
PDC Quarter-Phased Transit Curves

TCE 009613452-03 P= 73.216568 Days $T_0=185.846185$ (BKJD)



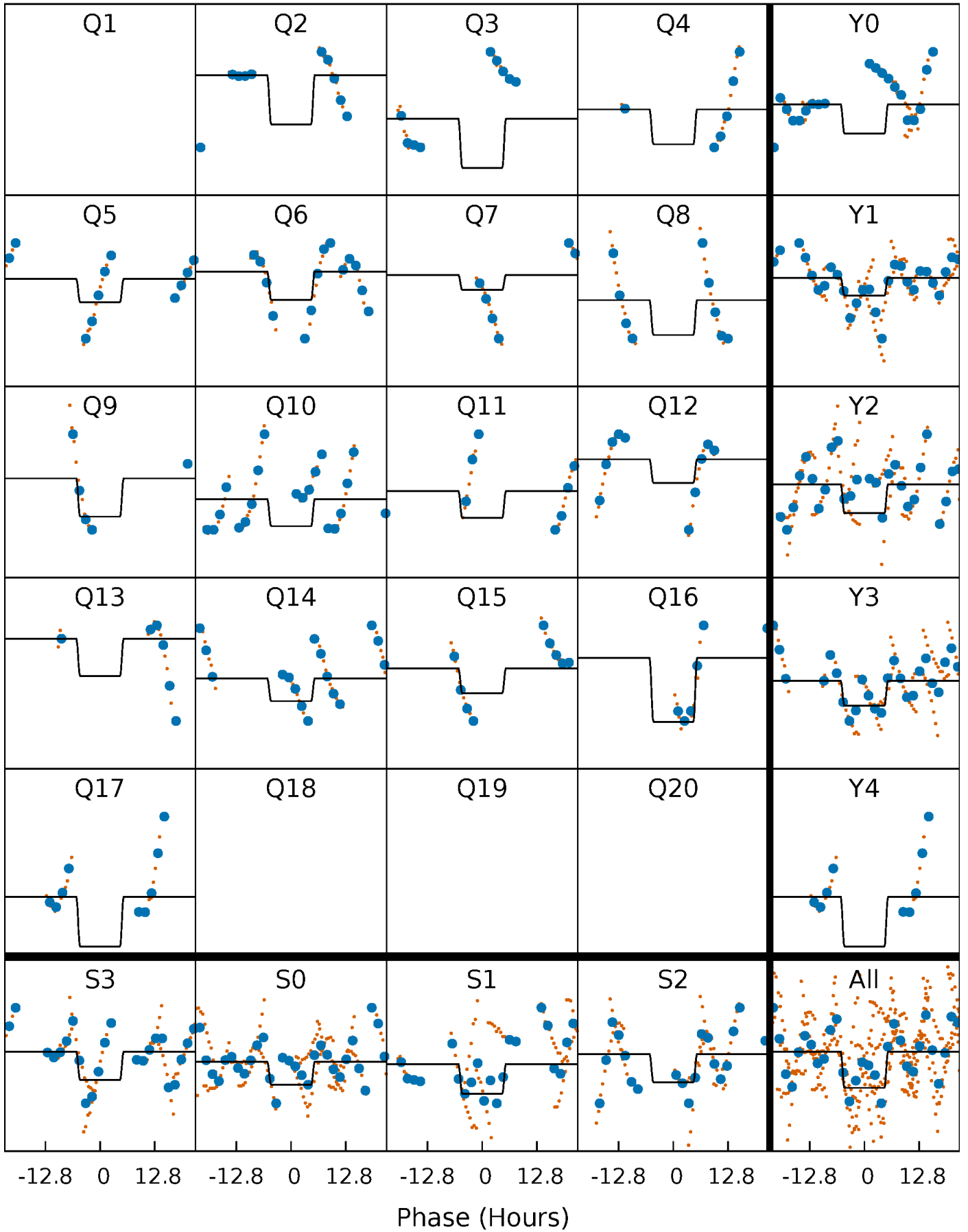
DV Quarter-Phased Transit Curves

TCE 009613452-03 $P = 73.216568$ Days $T_0 = 185.846185$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

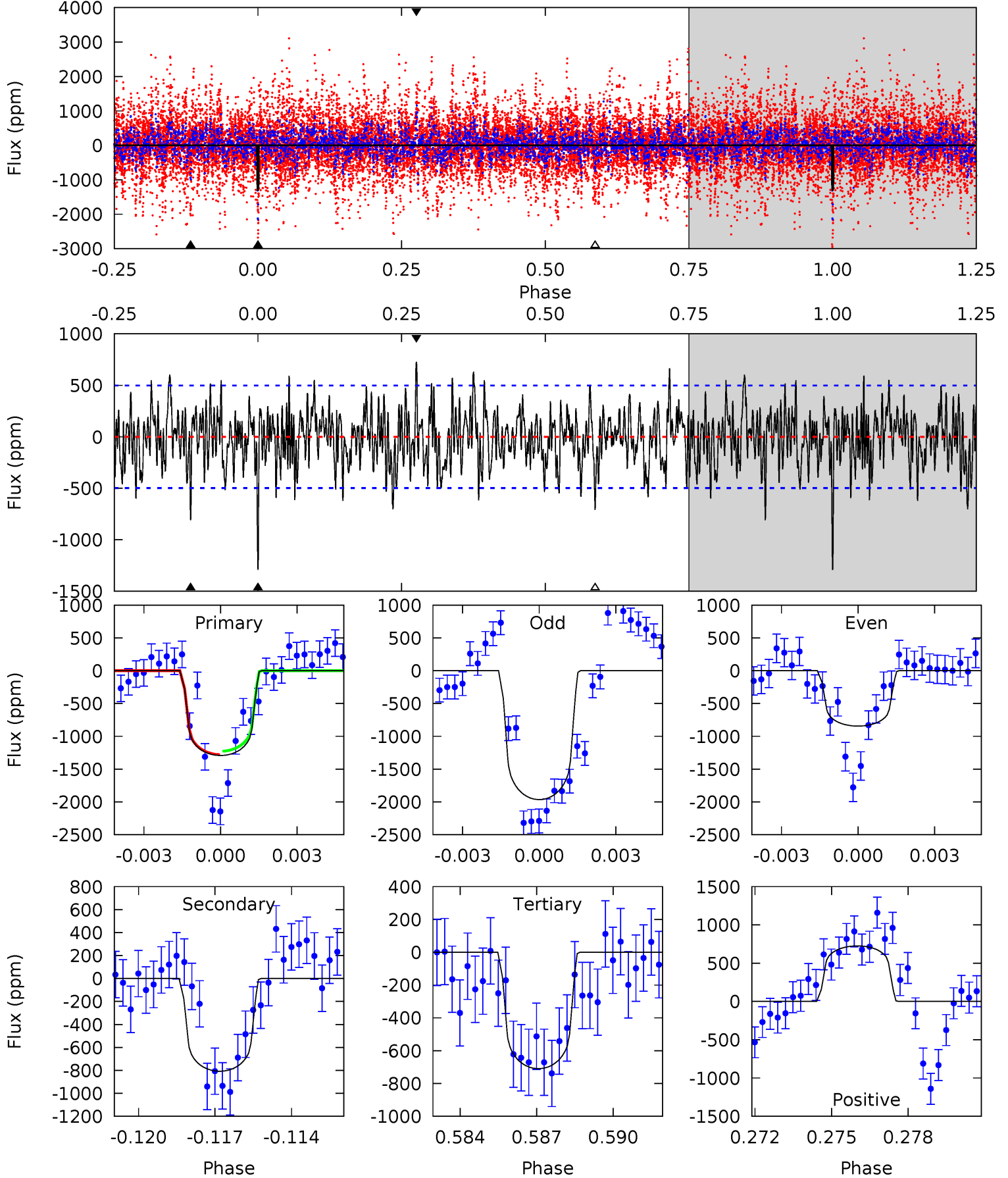
TCE 009613452-03 P= 73.219958 Days $T_0=185.794128$ (BKJD)



DV Model-Shift Uniqueness Test

009613452-03, P = 73.216568 Days, E = 112.629617 Days

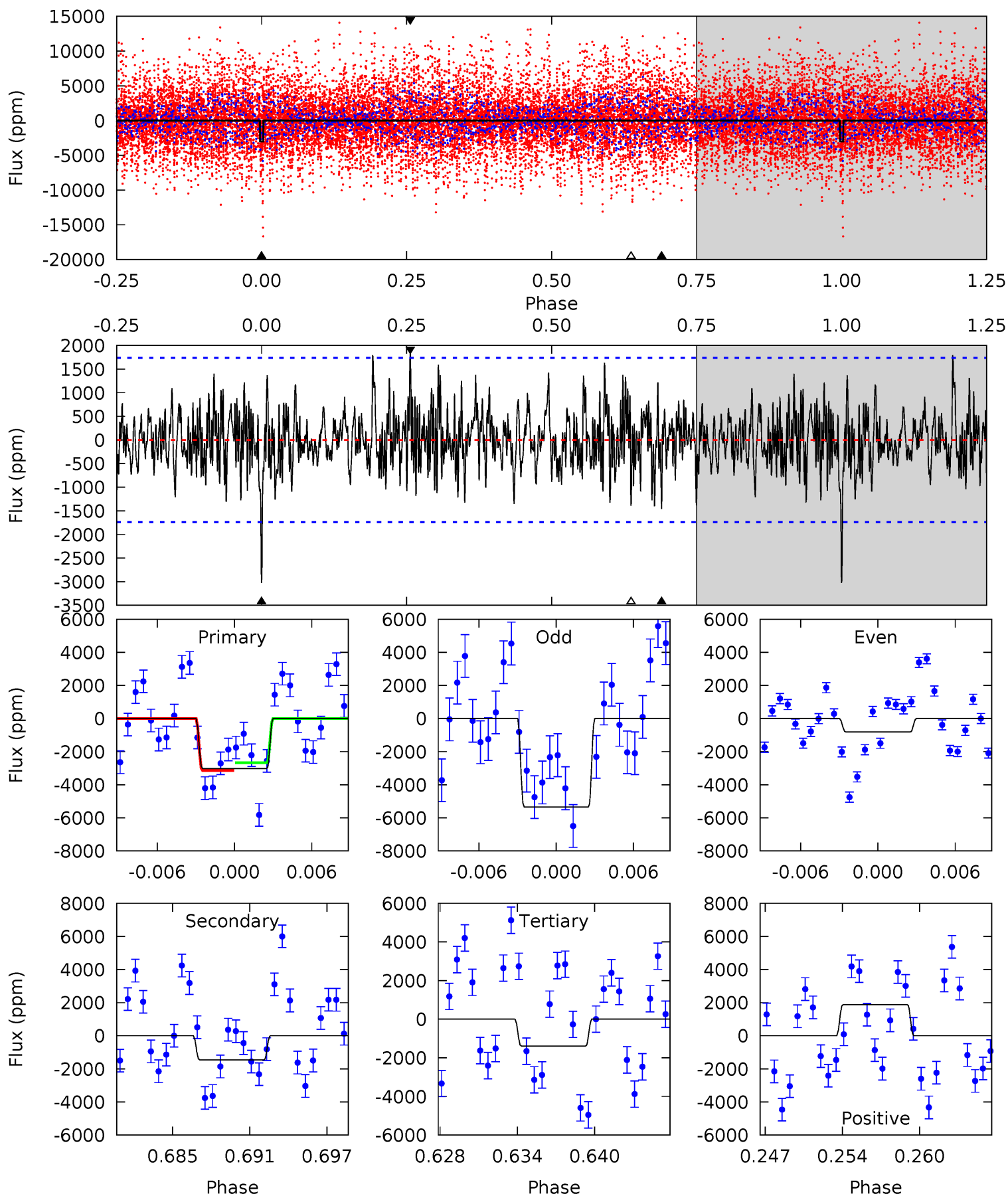
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
13.6	8.53	7.49	7.66	5.26	2.98	2.46	6.15	5.98	1.04	0.86	5.86	0.94	0.36	0.27



Alt Model-Shift Uniqueness Test

009613452-03, P = 73.219958 Days, E = 112.574170 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
8.88	4.29	4.09	5.52	5.11	2.73	1.52	4.79	3.36	0.19	-1.23	6.69	0.96	0.38	0.67



Stellar Parameters For KIC 009613452

	$T_{\text{eff}} (K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R (R_{\odot})$	$M (M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	6484^{+155}_{-213}	$4.360^{+0.101}_{-0.188}$	$-0.540^{+0.300}_{-0.300}$	$1.093^{+0.293}_{-0.158}$	$0.998^{+0.133}_{-0.106}$	$1.076^{+0.556}_{-0.495}$
	+2%/-3%	+2%/-4%	+56%/-56%	+27%/-14%	+13%/-11%	+52%/-46%
Source	PHO1	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 009613452-03 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-808 ± 95	$4.00^{+2.50}_{-2.24}$	720^{+49}_{-38}	6032^{+3926}_{-1161}	3304^{+13779}_{-2064}
Alt.	-1457 ± 340	$7.30^{+2.66}_{-2.47}$	718^{+49}_{-40}	5189^{+1112}_{-643}	1745^{+2440}_{-886}

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

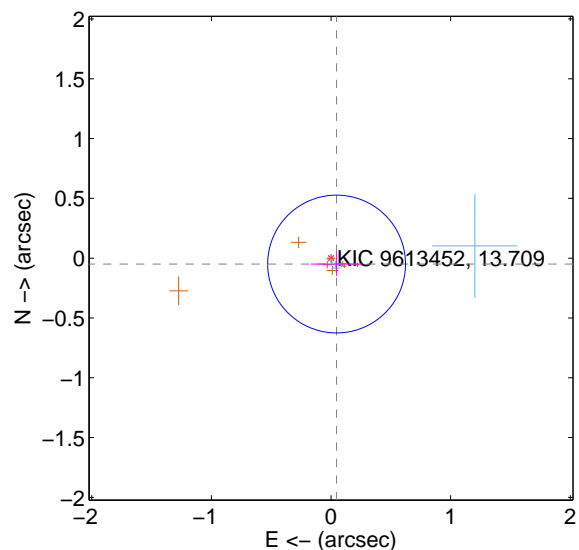
Supplemental centroid analysis for 009613452-03. Kepler magnitude: 13.71. Transit SNR 6.81

There are 6 quarters with good PRF difference image offsets

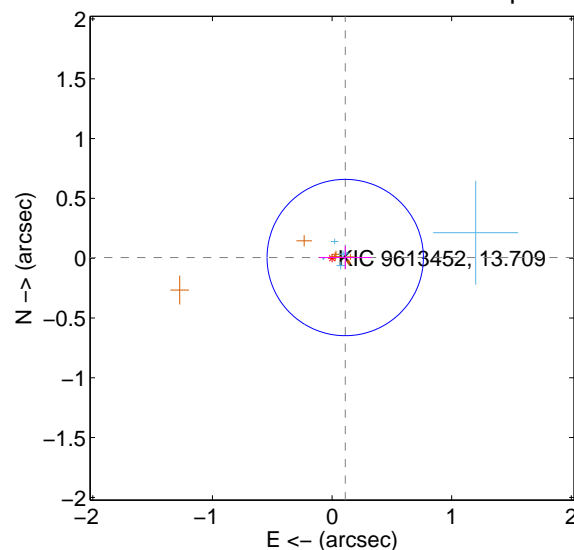
The direct PRF centroid is offset from the target star catalog position by about 0.05 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.068 ± 0.192	0.35	-0.047 ± 0.218	-0.049 ± 0.099
PRF-fit source offset from KIC position	0.110 ± 0.218	0.51	-0.110 ± 0.220	0.005 ± 0.096
photometric centroid source offset	0.71 ± 0.33	2.18	-0.02 ± 0.31	0.71 ± 0.33

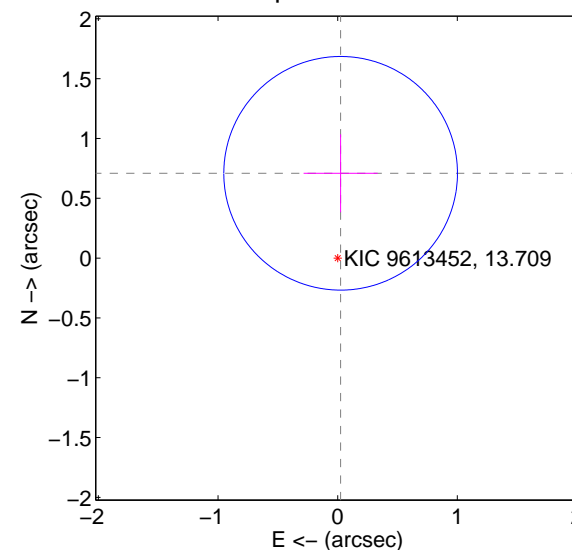
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position

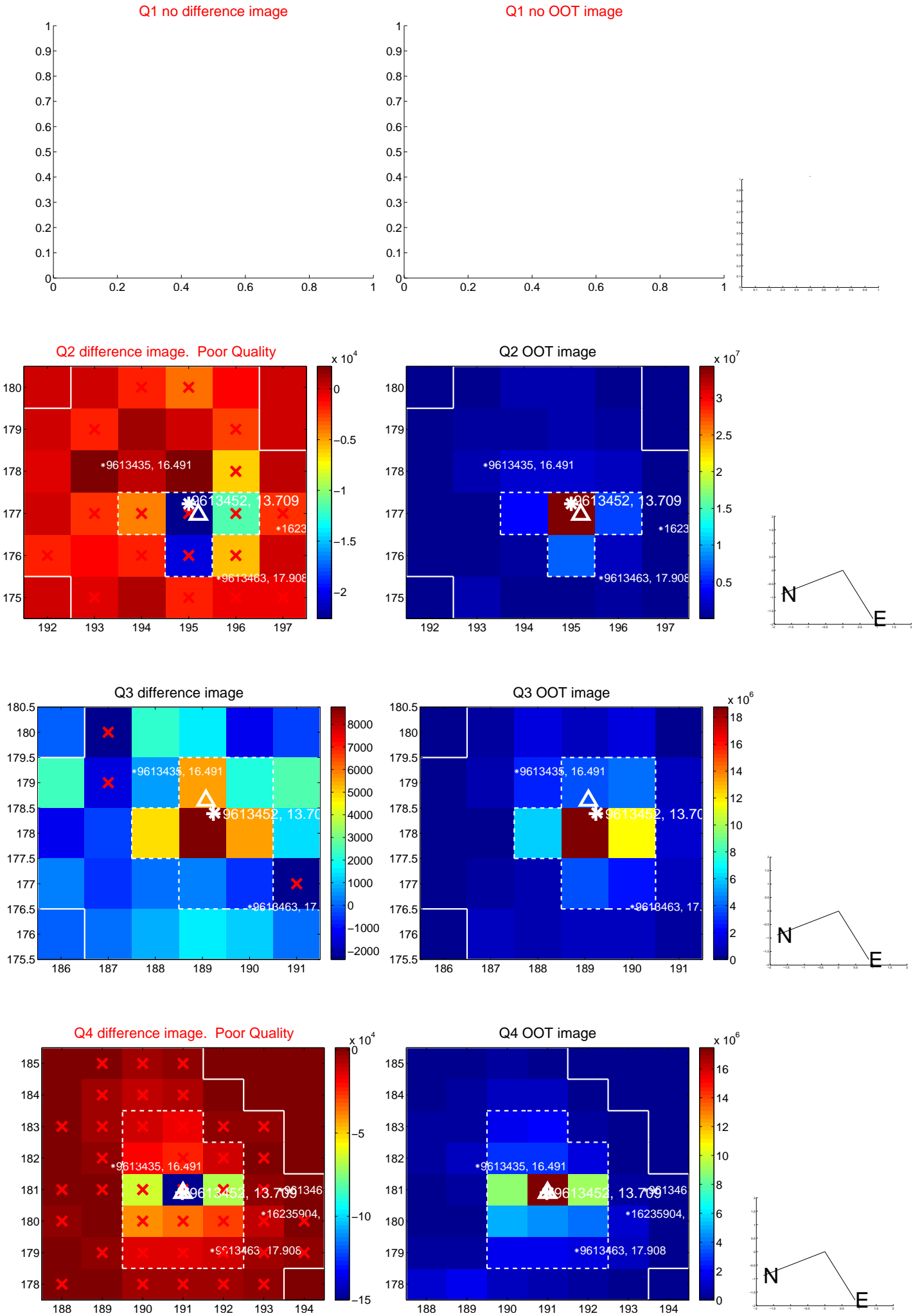


offset from photometric centroids

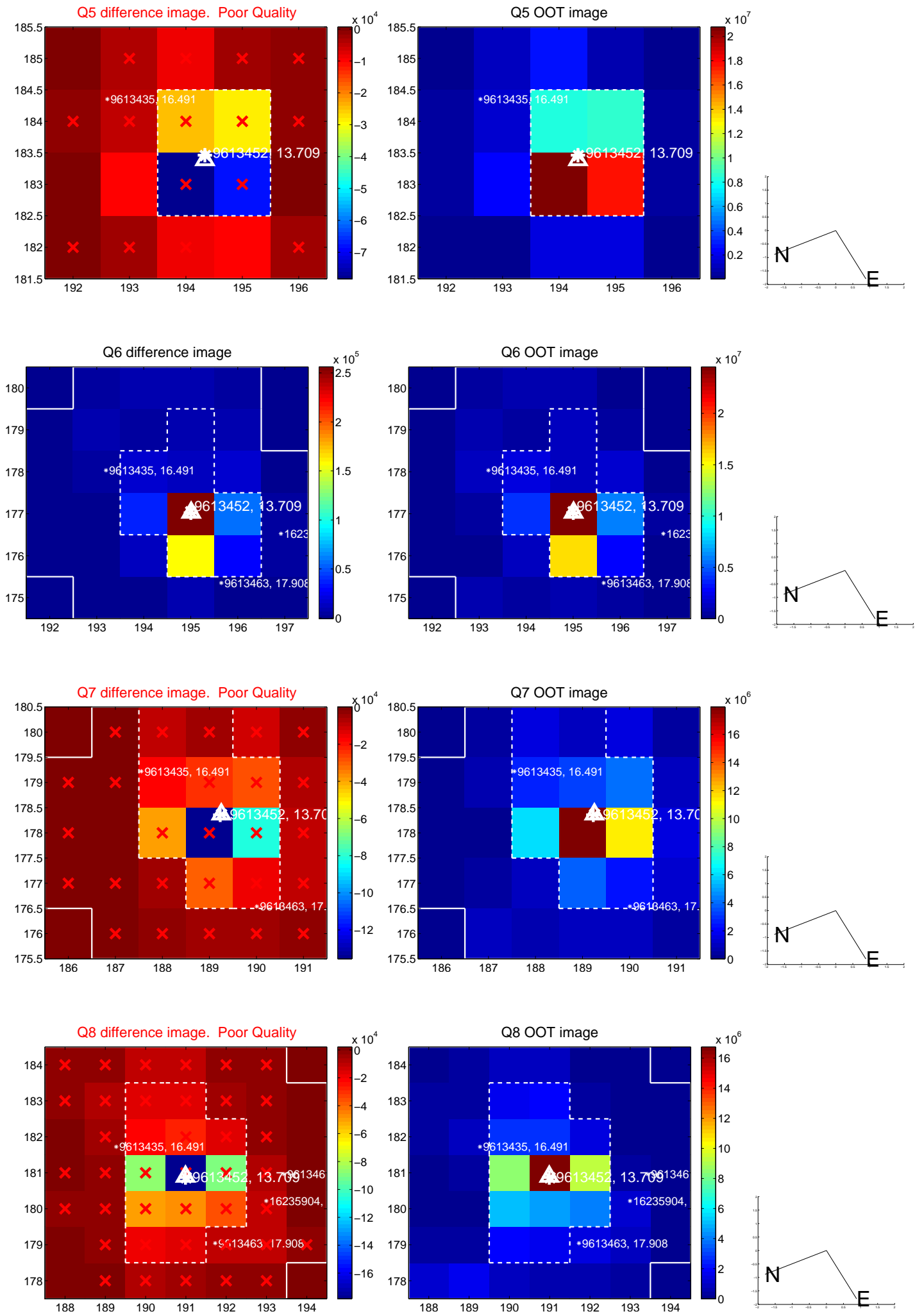


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets**; **Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

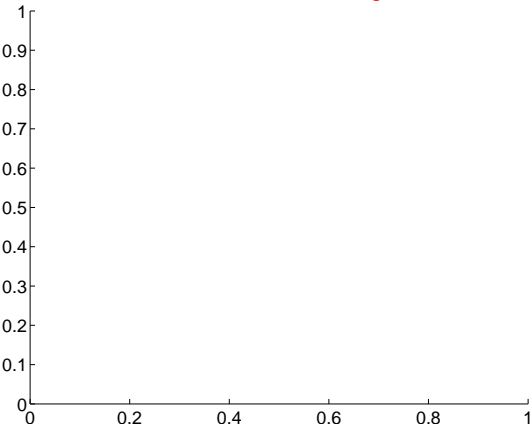


white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.

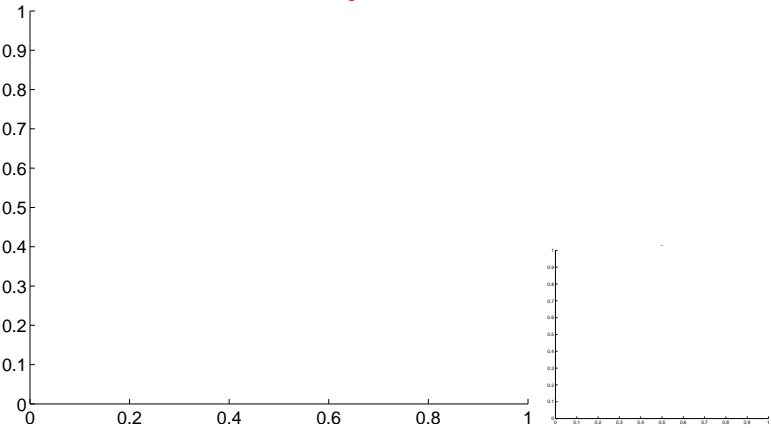


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.

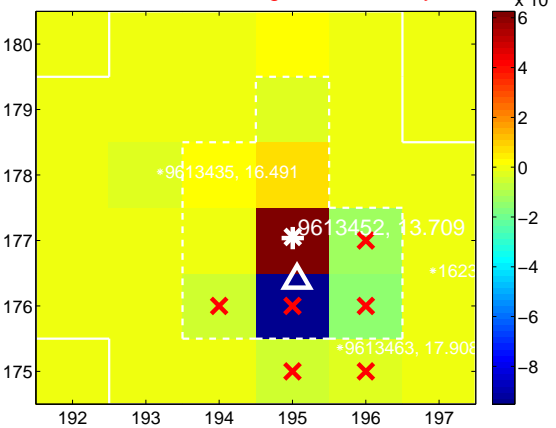
Q9 no difference image



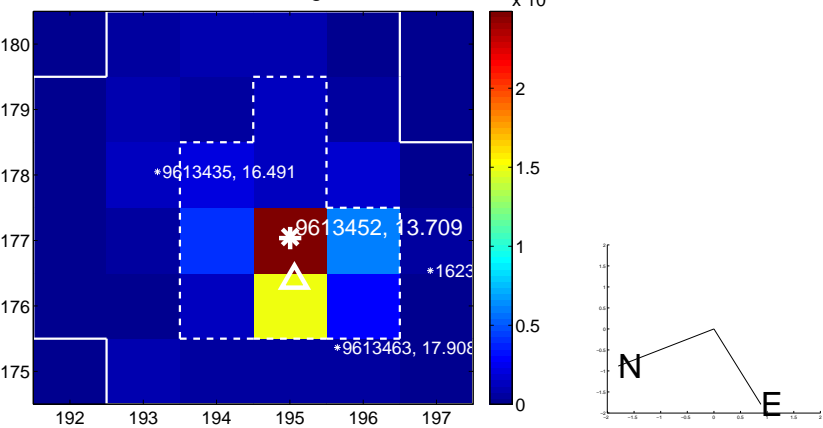
Q9 no OOT image



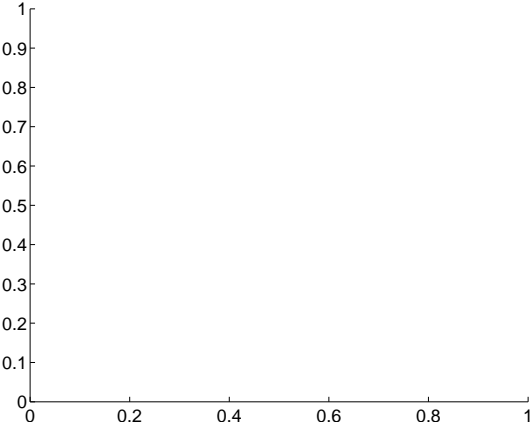
Q10 difference image. Poor Quality



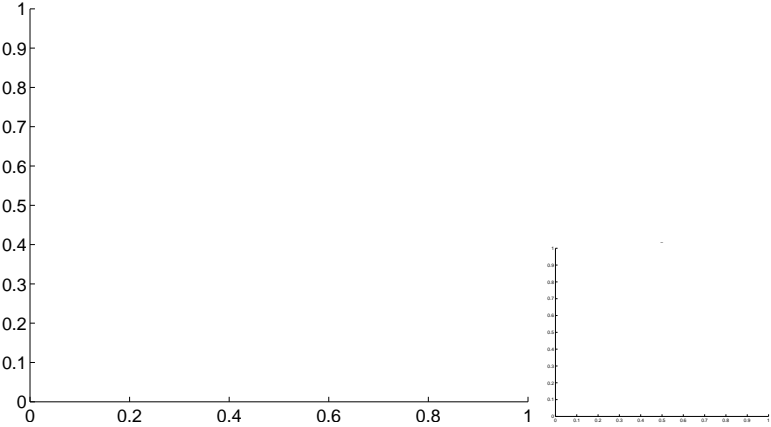
Q10 OOT image



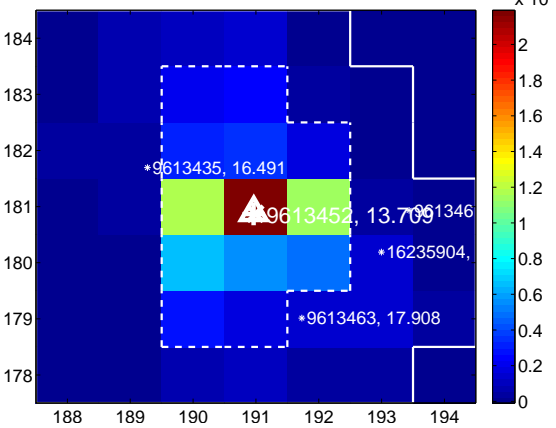
Q11 no difference image



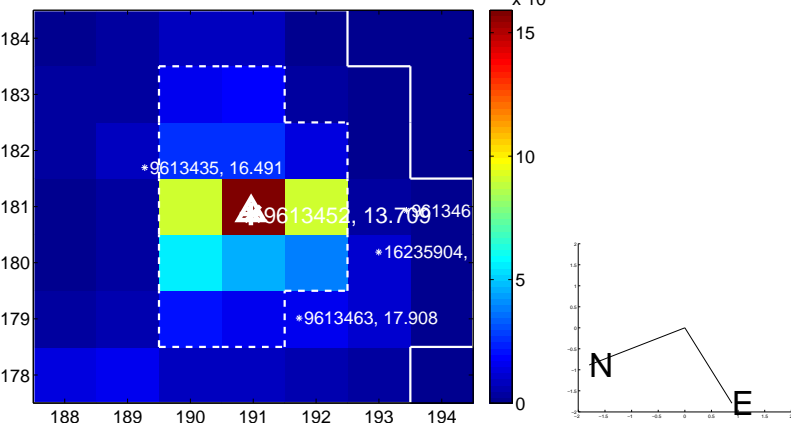
Q11 no OOT image



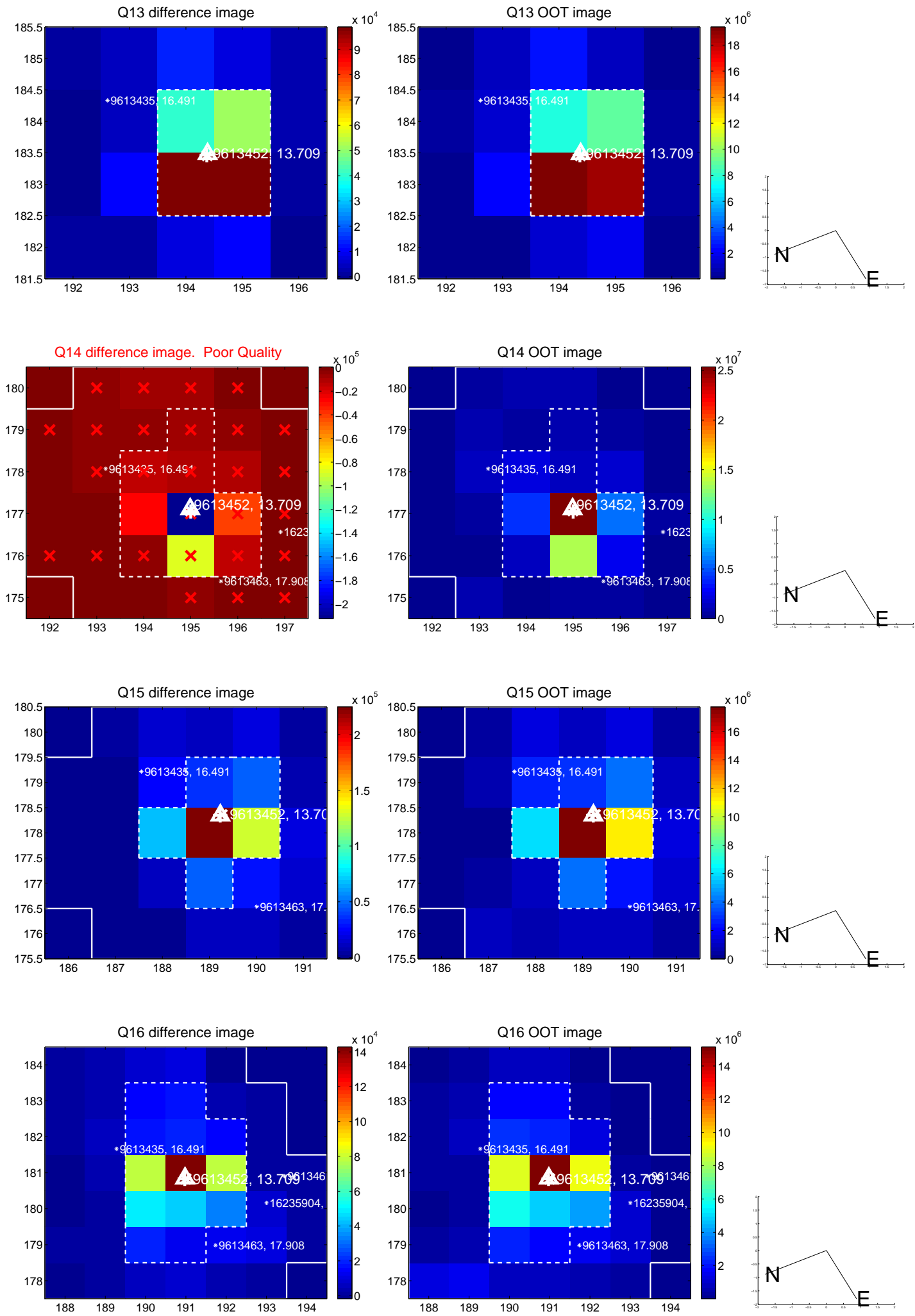
Q12 difference image



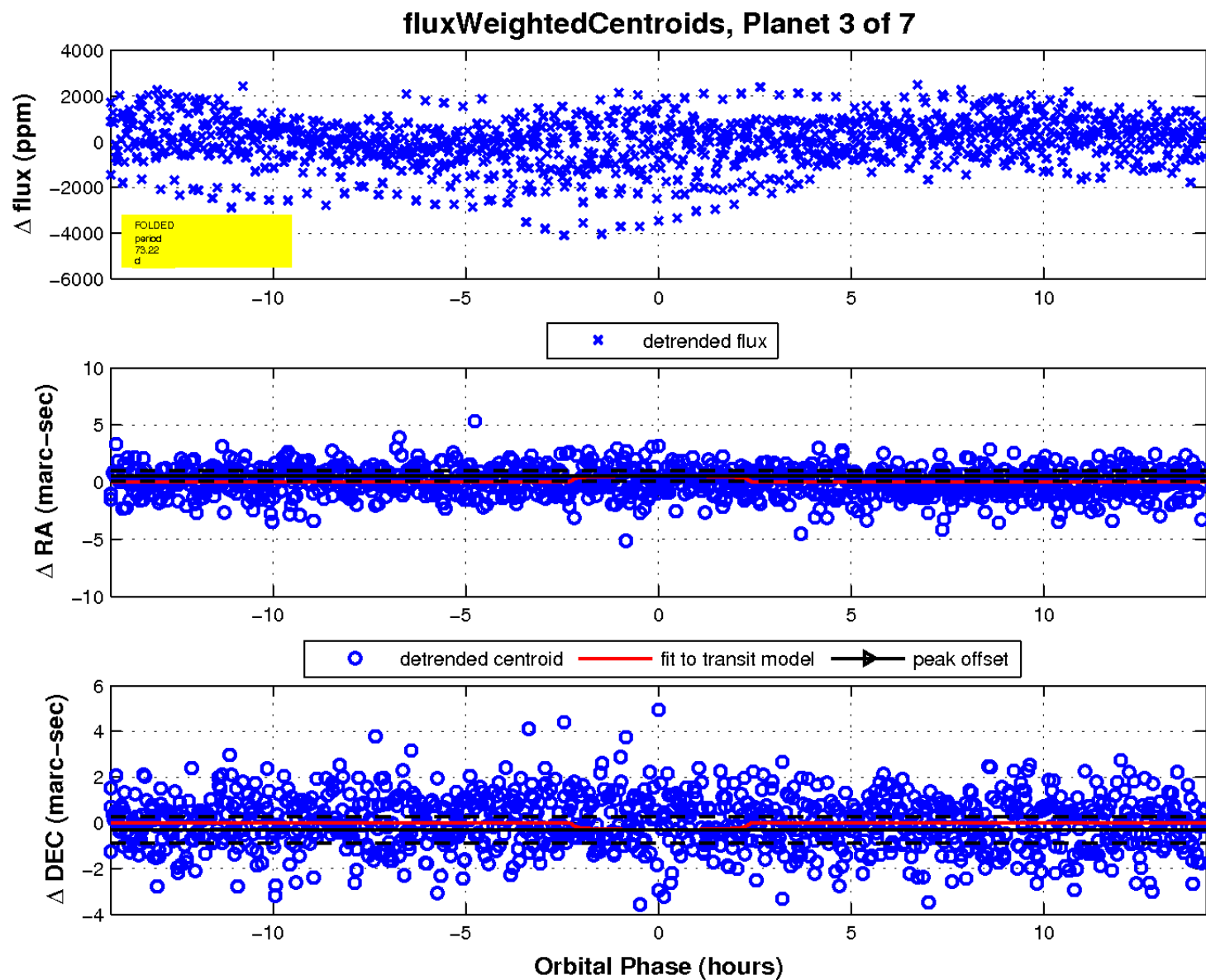
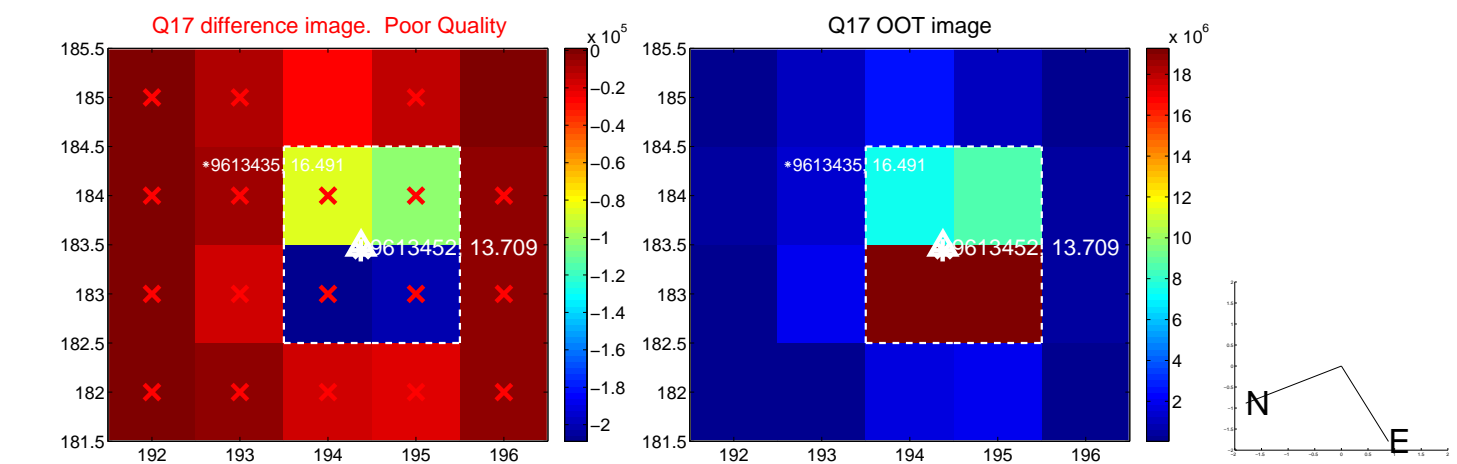
Q12 OOT image



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

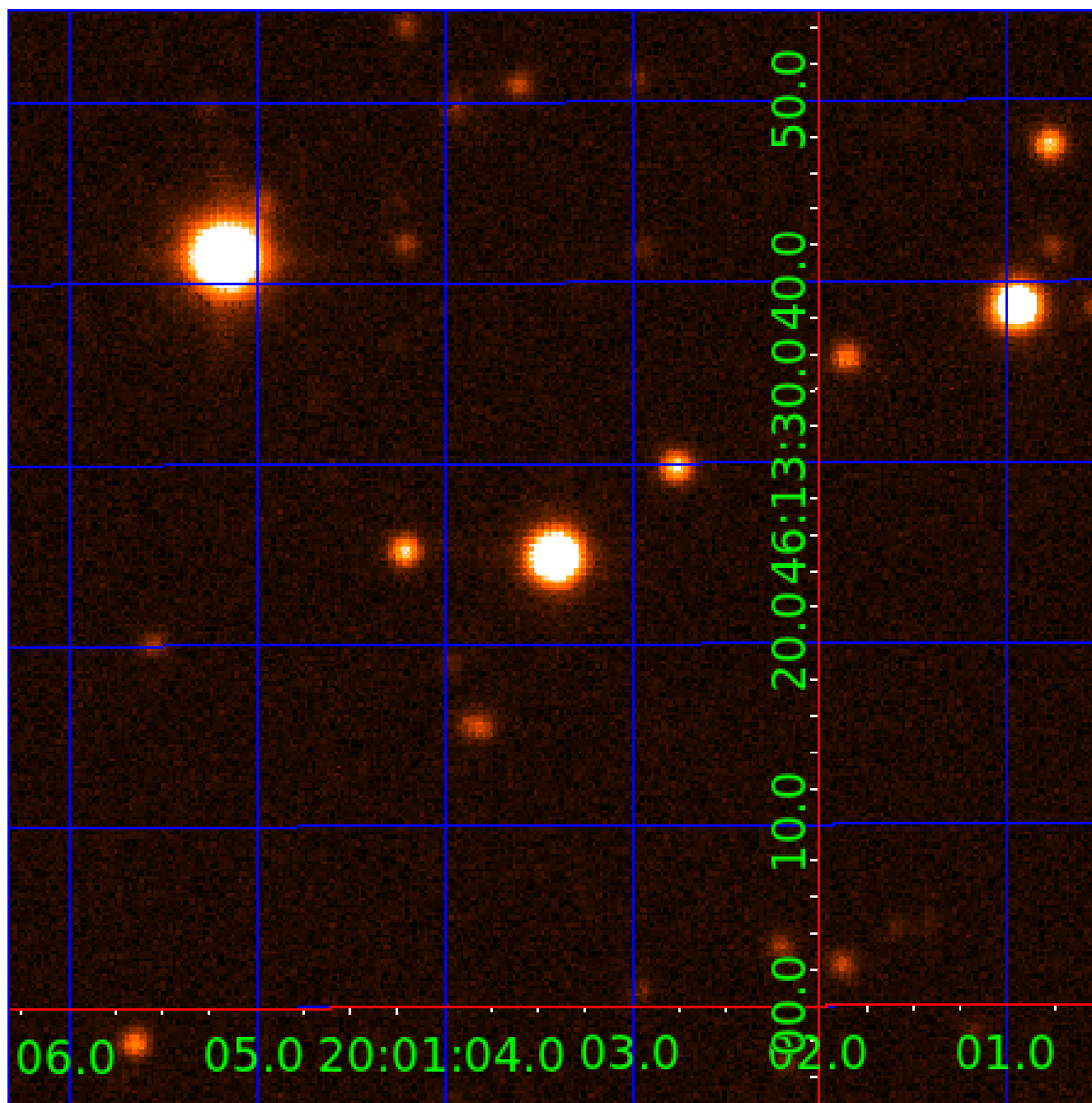


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 009613452

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})
009613452-01	OBS	No	0.886147	131.703285	38.3	4.784	9.6	5.0	1.09	6484	0.72	5807.72
009613452-02	OBS	No	3.746392	131.820242	268.9	4.250	9.7	9.1	1.09	6484	2.09	849.56
009613452-03	OBS	No	73.216568	185.846185	983.3	4.742	9.7	6.8	1.09	6484	3.53	16.14
009613452-04	OBS	No	3.746152	133.878487	185.5	4.579	9.8	5.9	1.09	6484	1.94	849.63
009613452-06	OBS	No	266.710349	255.475394	2811.1	10.607	9.3	9.9	1.09	6484	10.58	2.88
009613452-07	OBS	No	8.241587	137.087167	997.7	11.978	8.2	13.1	1.09	6484	6.49	296.94

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
009613452-01	OBS	FP	0.00	1	0	0	0	LPP_DV
009613452-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_ZUMA—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT
009613452-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_ALT—MOD_NONUNIQ_ALT
009613452-04	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_RUBBLE_SKYE_ZUMA_TRACKER—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—SAME_NTL_PERIOD—HALO_GHOST
009613452-06	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL—TRANS_GAPPED—ALL_TRANS_CHASES
009613452-07	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_SKYE_ZUMA—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_ALT

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

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

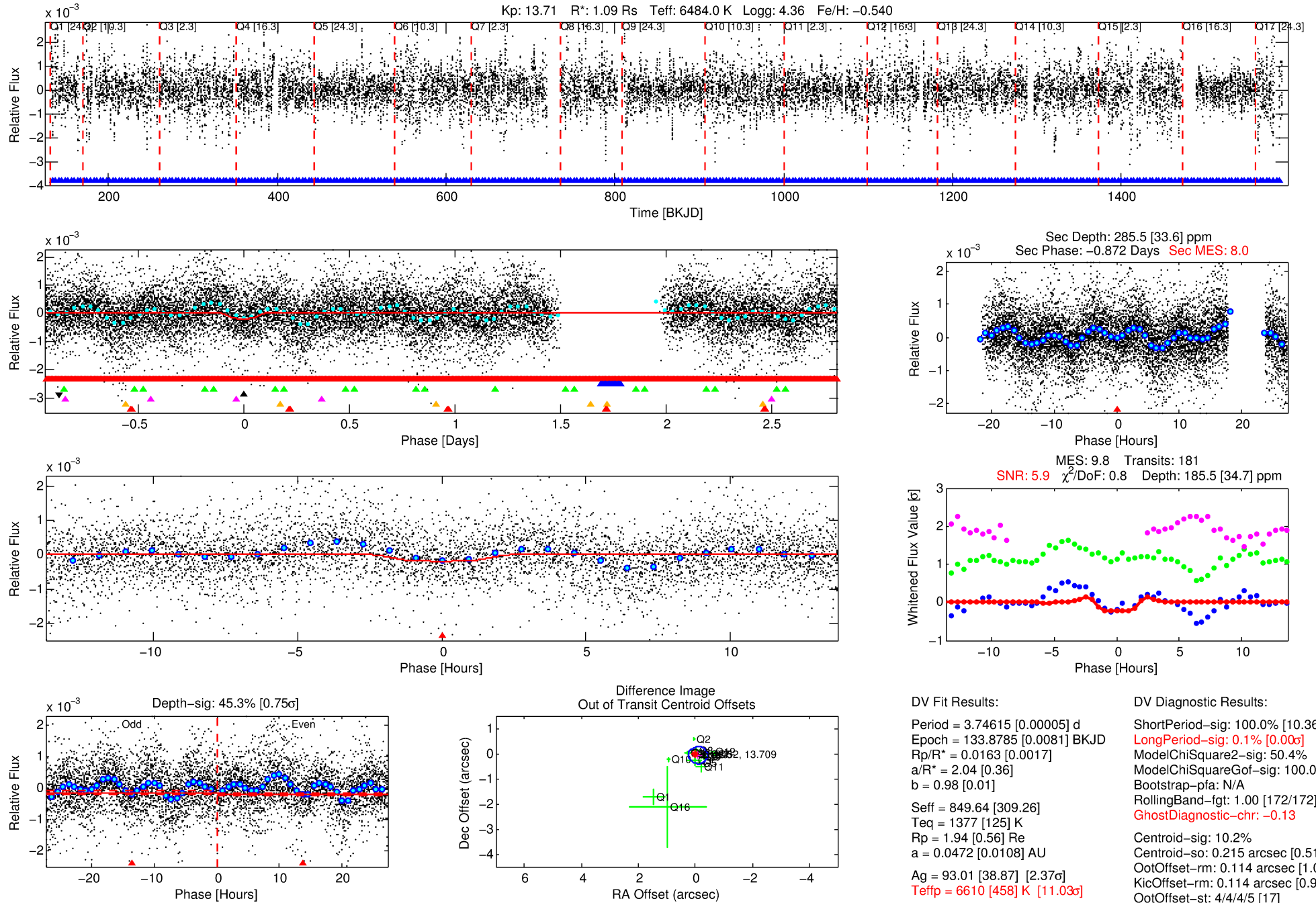
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 009613452-04

No Significant Match Found

DV One-Page Summary

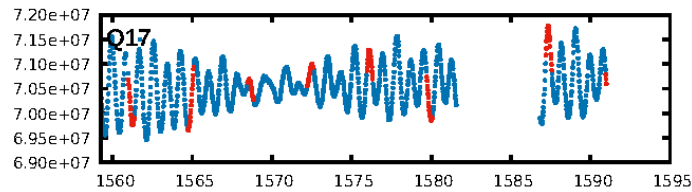
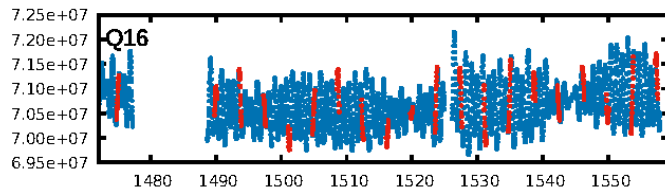
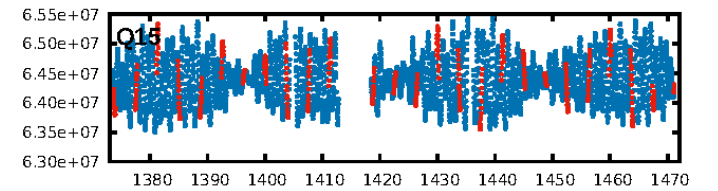
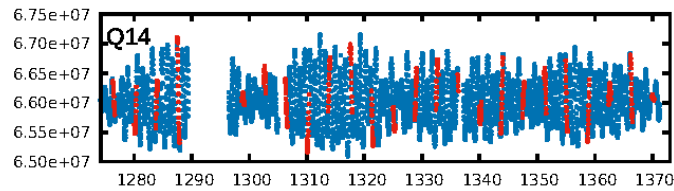
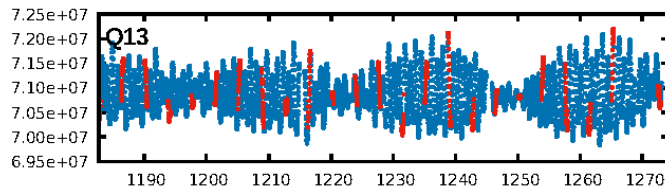
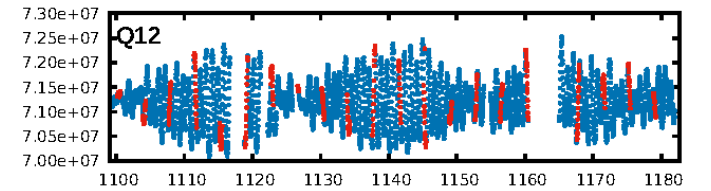
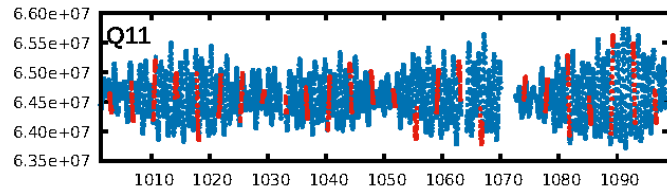
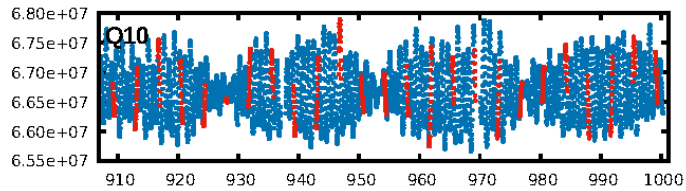
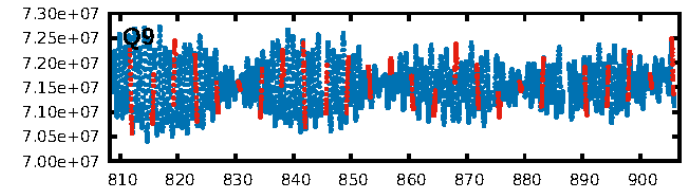
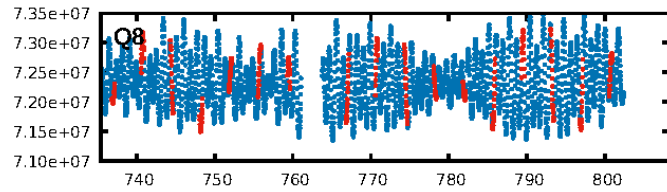
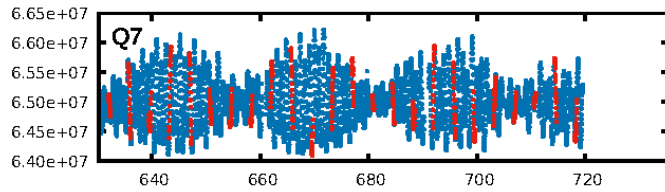
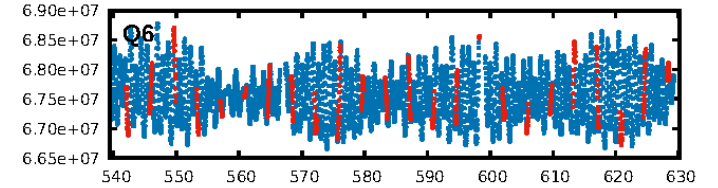
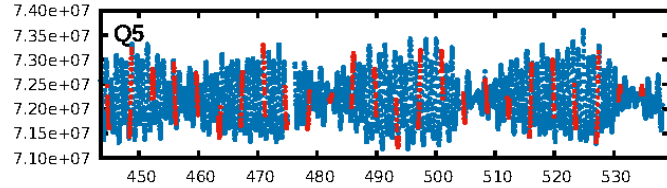
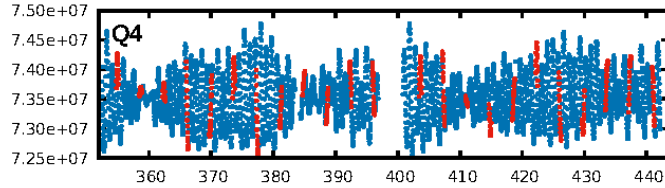
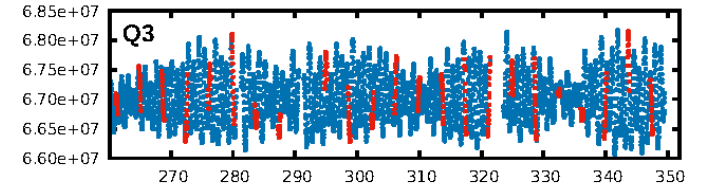
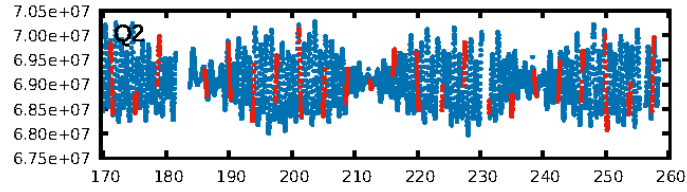
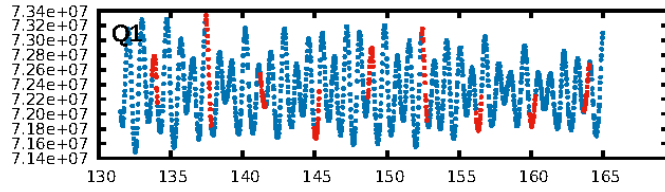
KIC: 9613452 Candidate: 4 of 7 Period: 3.746 d



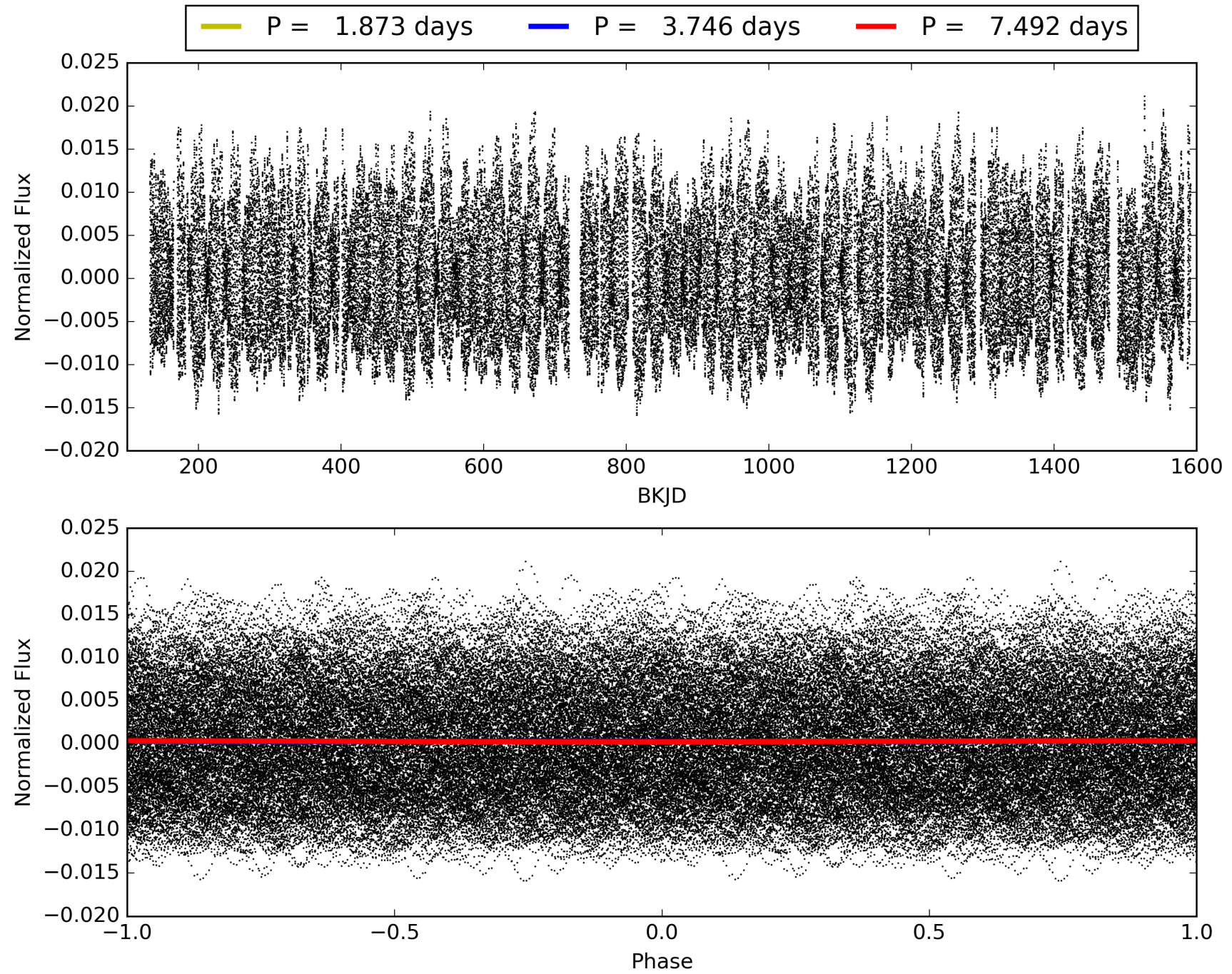
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 01-Feb-2016 13:36:01 Z

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

TCE 009613452-04, PDC Light Curves

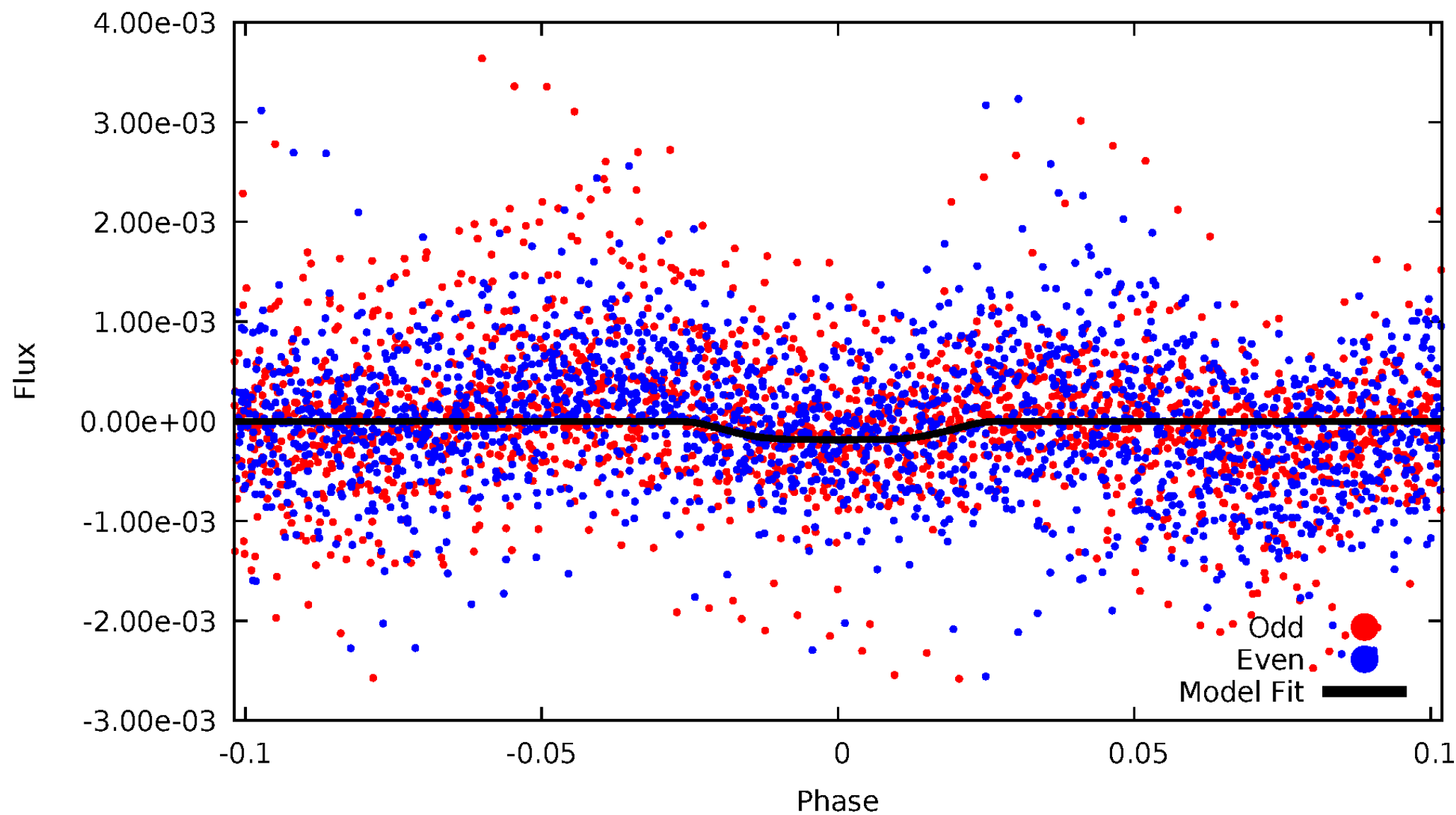


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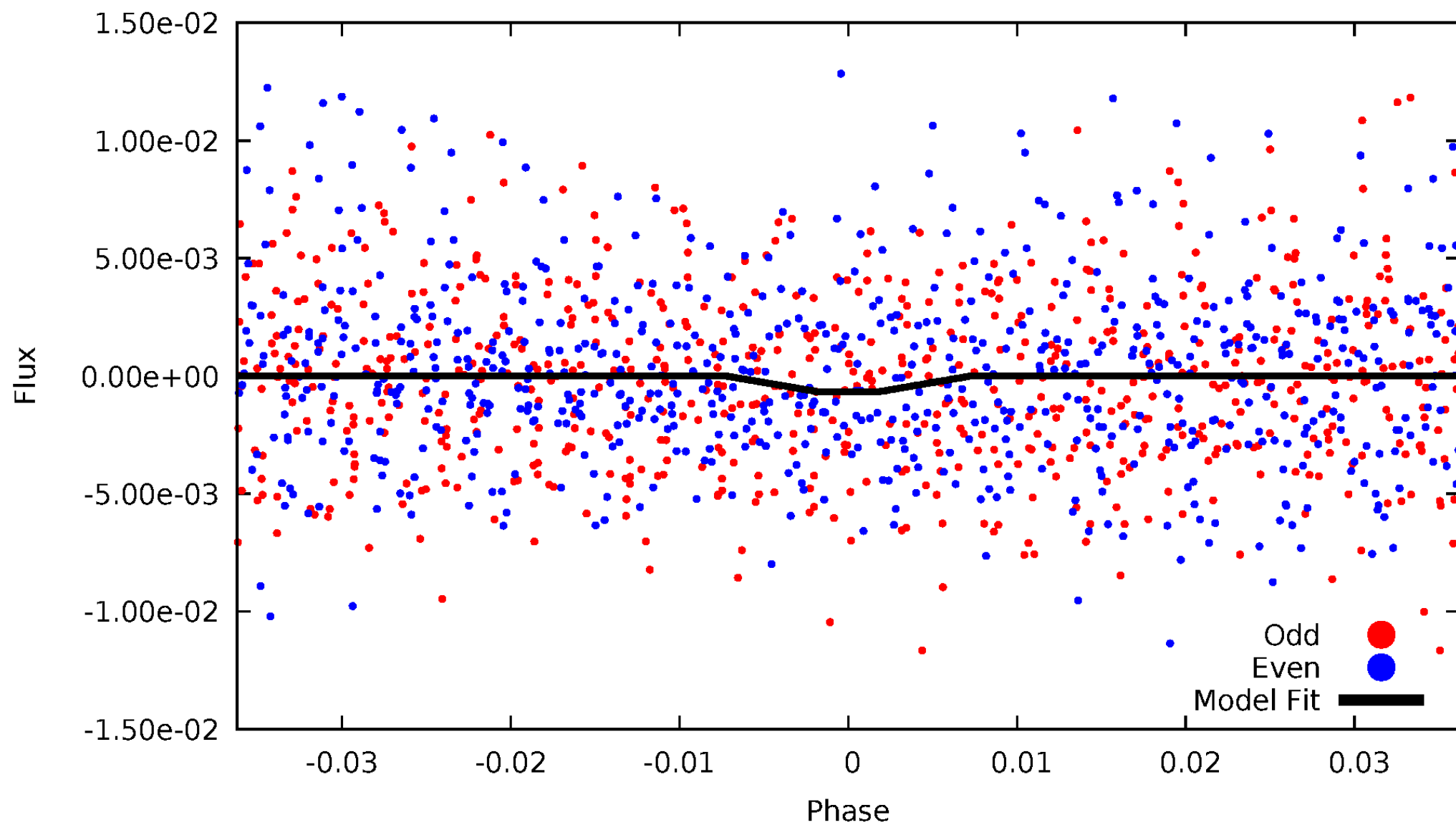
DV Odd/Even

TCE 009613452-04



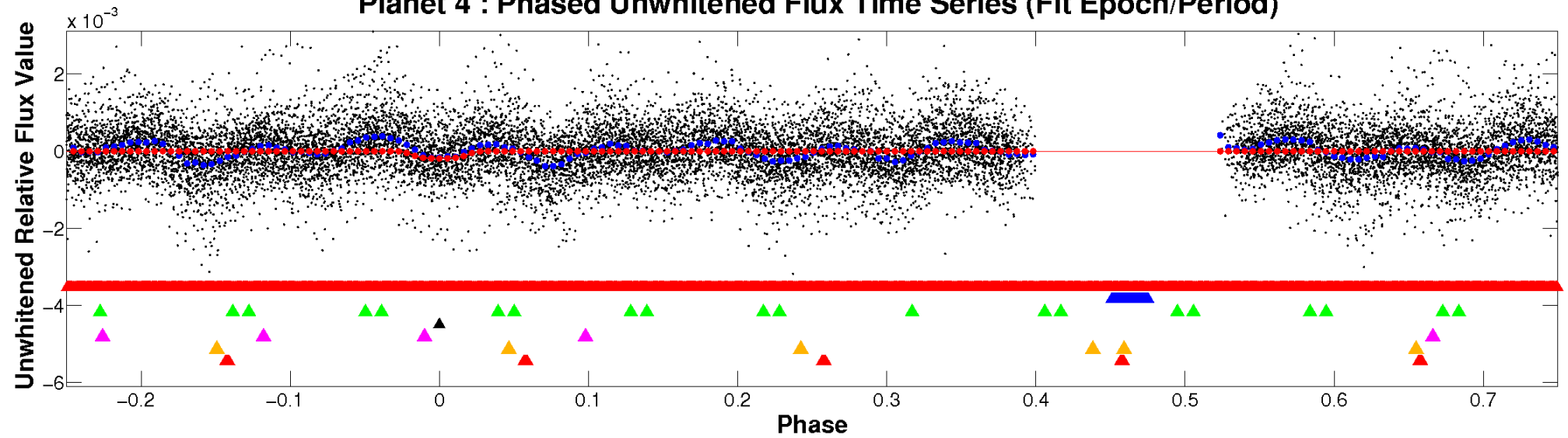
ALT Odd/Even

TCE 009613452-04

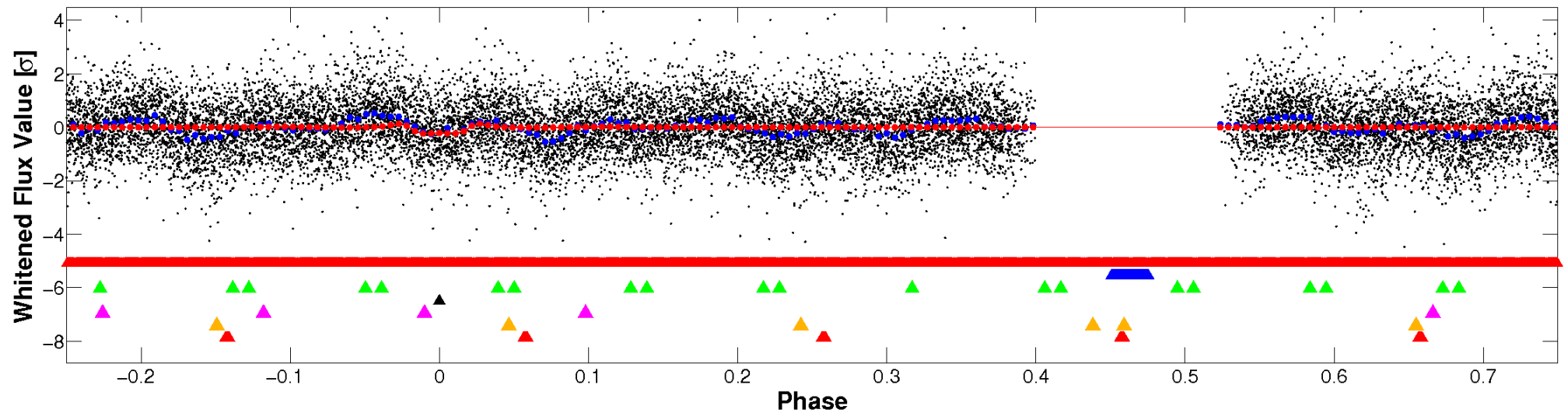


Non-Whitened Vs. Whitened Light Curve

Planet 4 : Phased Unwhitened Flux Time Series (Fit Epoch/Period)

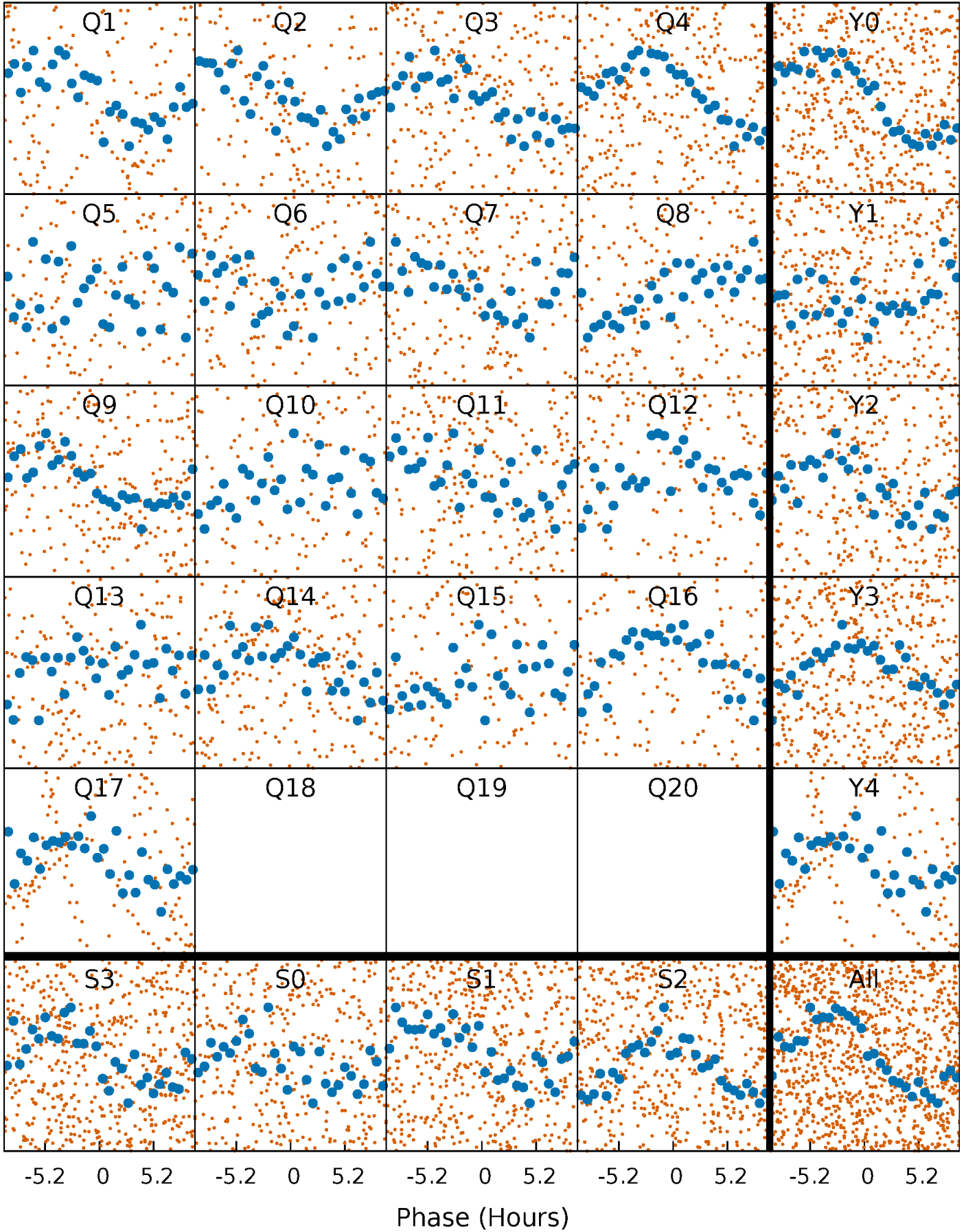


Planet 4 : Phased Whitened Flux Time Series (Fit Epoch/Period)



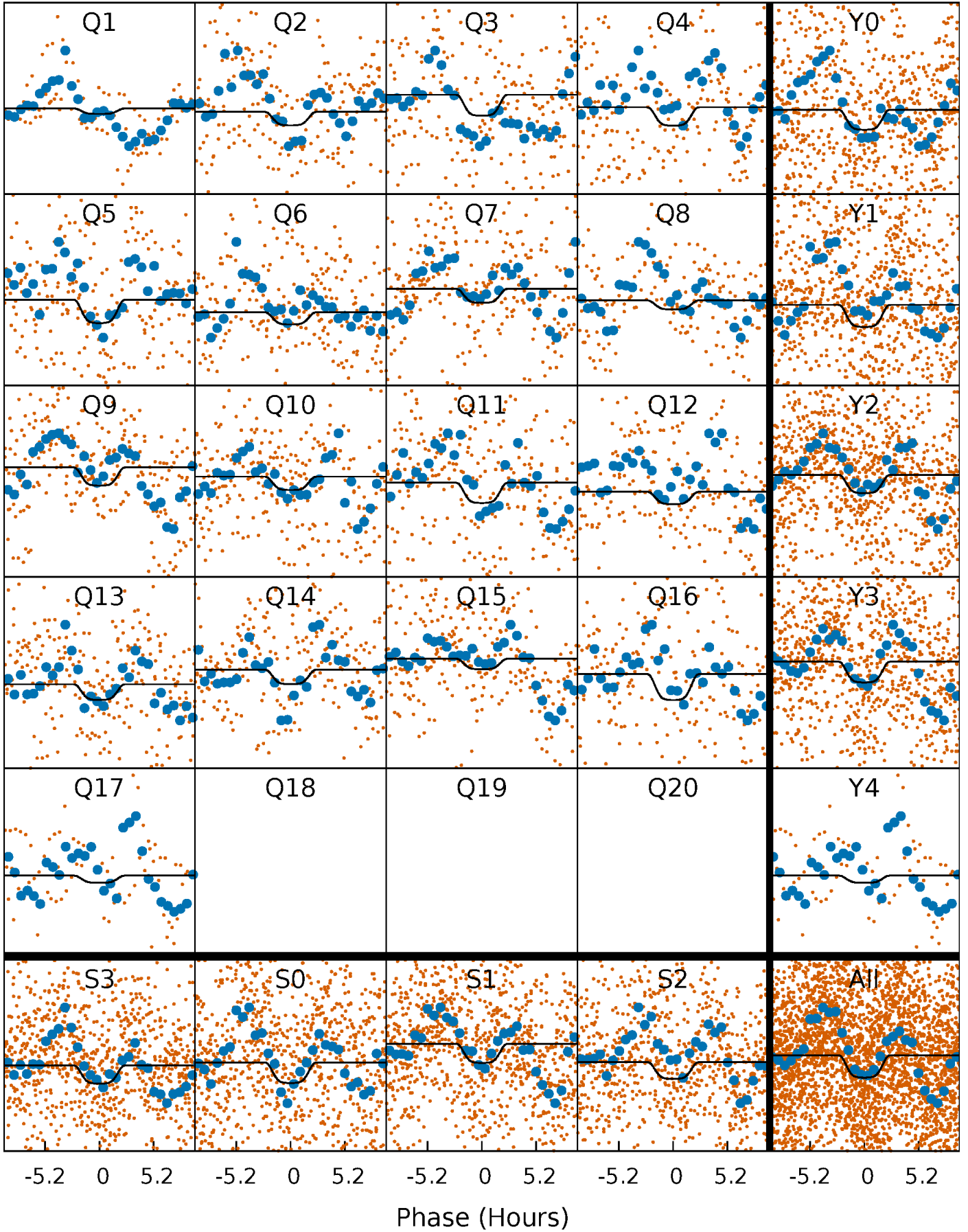
PDC Quarter-Phased Transit Curves

TCE 009613452-04 P= 3.746152 Days $T_0=133.878487$ (BKJD)



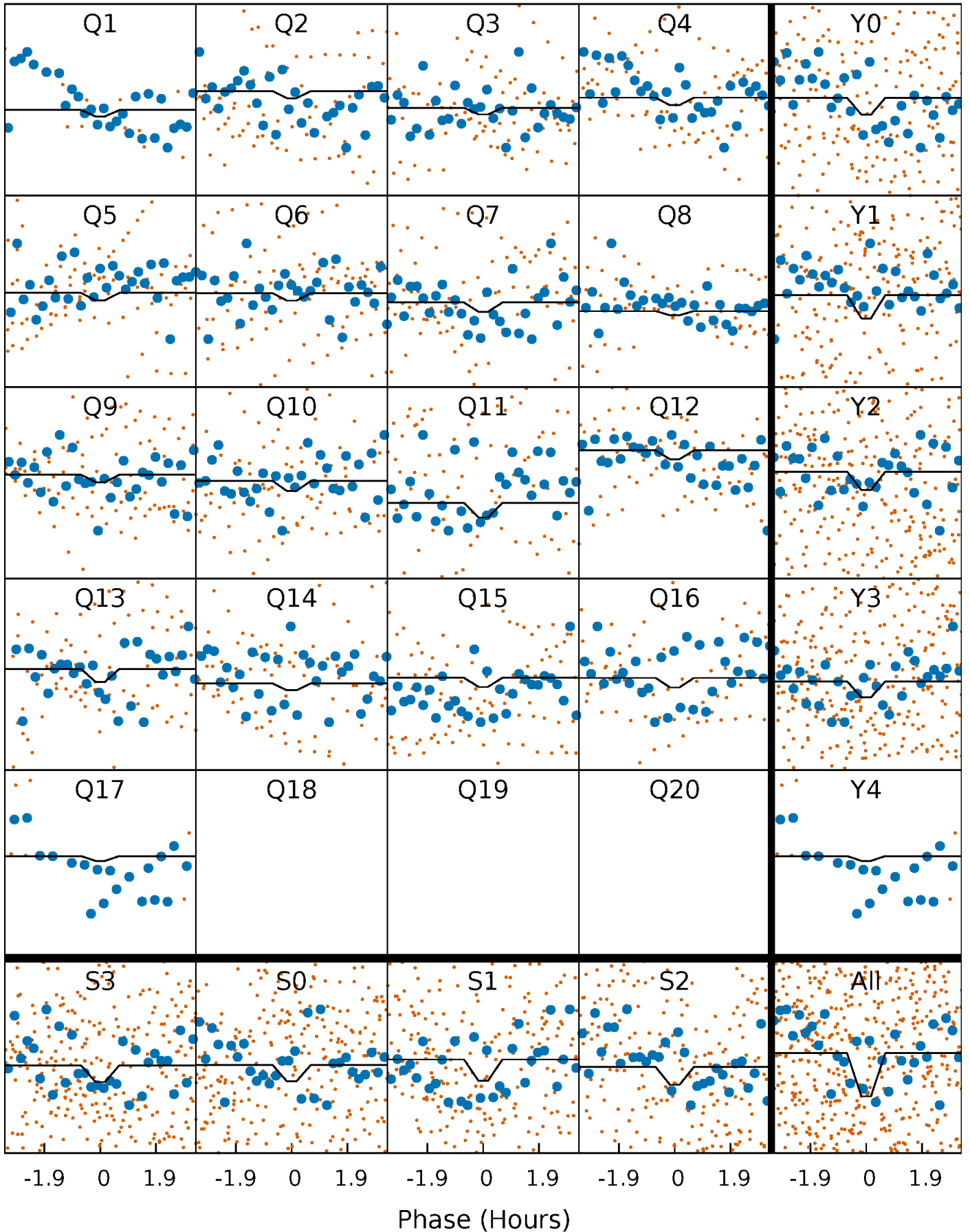
DV Quarter-Phased Transit Curves

TCE 009613452-04 P= 3.746152 Days $T_0=133.878487$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

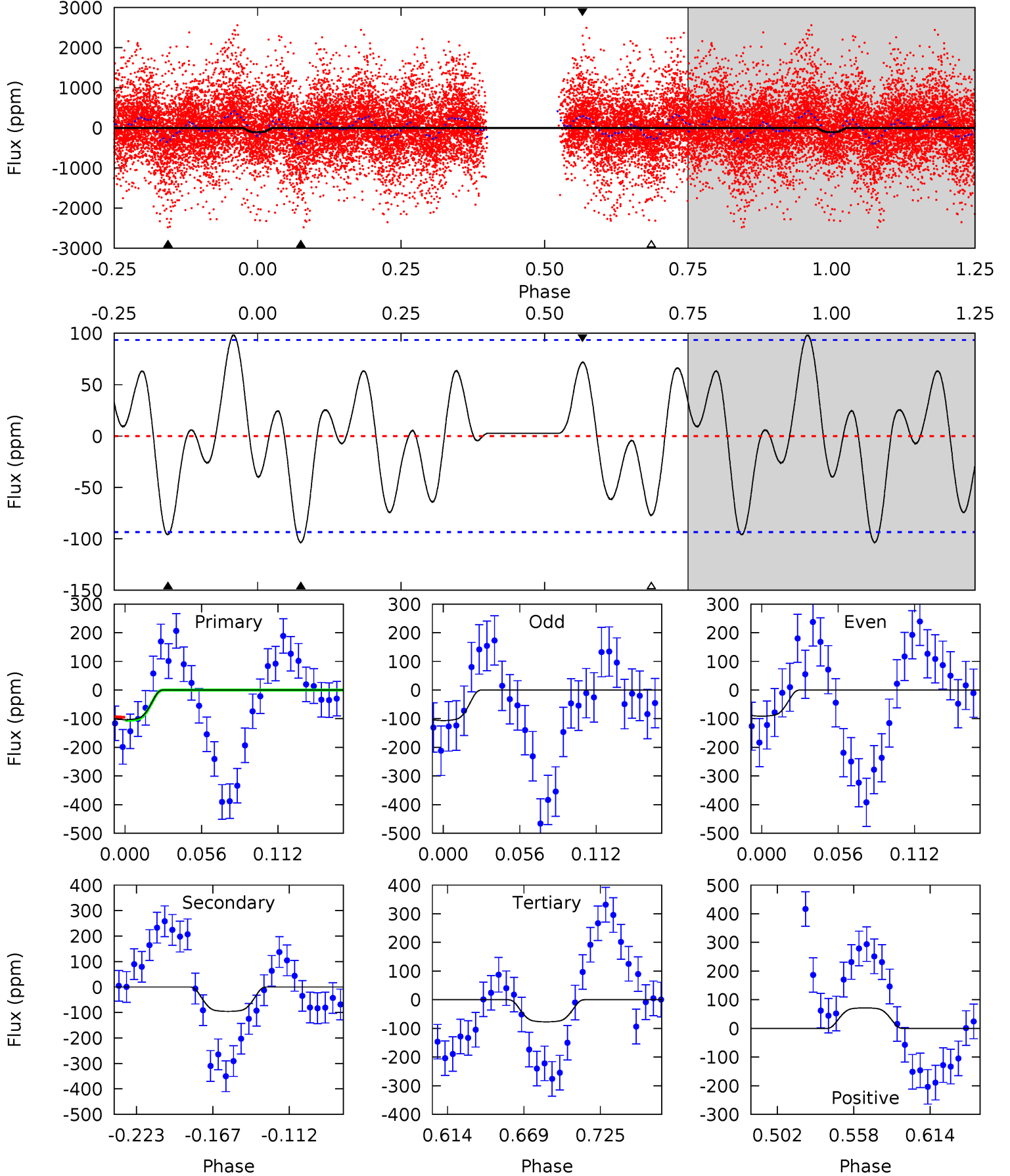
TCE 009613452-04 P= 3.746327 Days $T_0=133.846788$ (BKJD)



DV Model-Shift Uniqueness Test

009613452-04, P = 3.746152 Days, E = 130.132335 Days

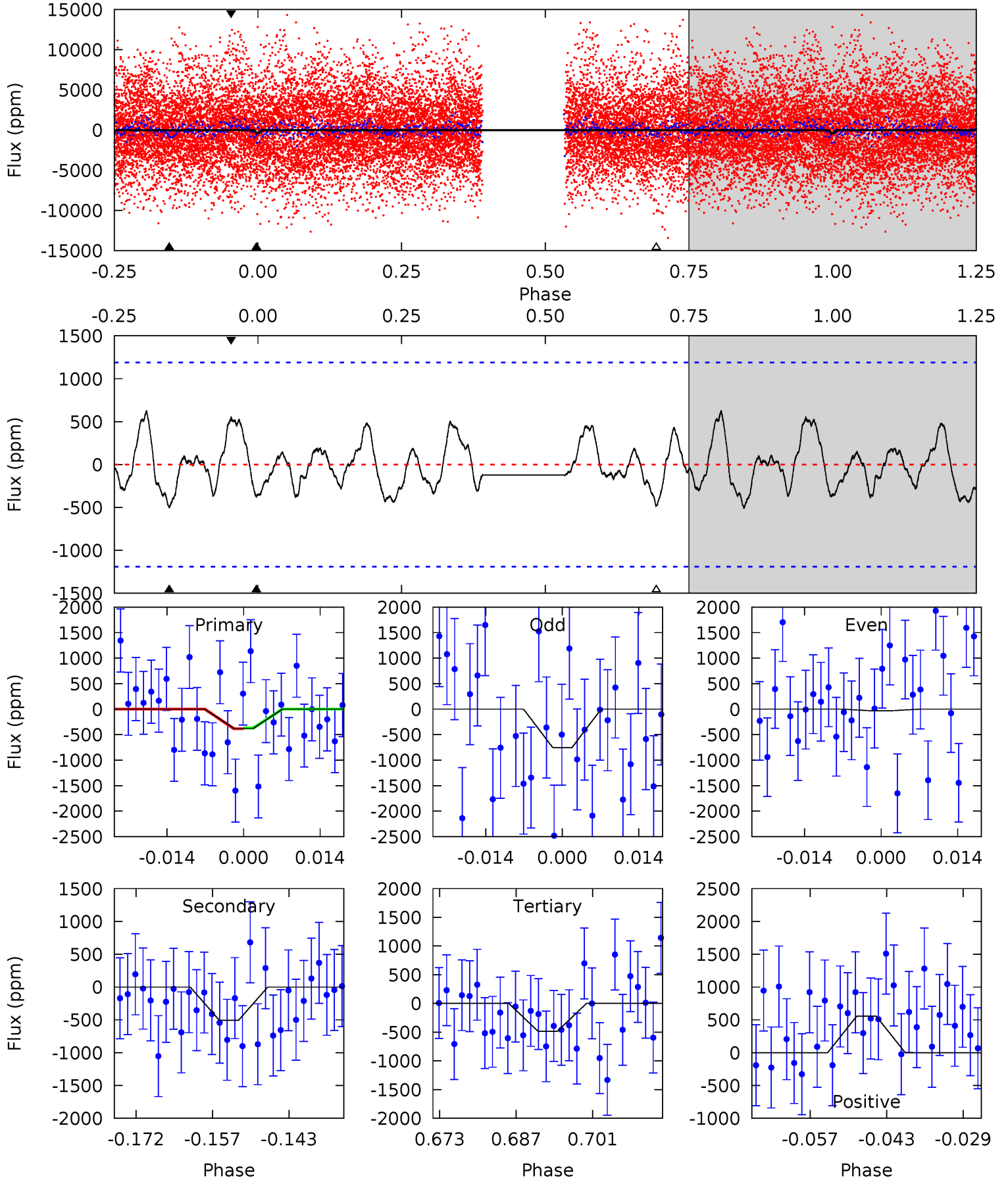
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
5.19	4.81	3.87	3.60	4.69	1.91	2.21	1.32	1.59	0.94	1.21	0.39	-0.93	0.49	0.29



Alt Model-Shift Uniqueness Test

009613452-04, P = 3.746327 Days, E = 130.100461 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
1.58	2.11	2.02	2.33	4.96	2.45	1.04	-0.44	-0.75	0.09	-0.22	1.51	0.64	0.56	0.03



Stellar Parameters For KIC 009613452

	$T_{\text{eff}} (K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R (R_{\odot})$	$M (M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	6484^{+155}_{-213}	$4.360^{+0.101}_{-0.188}$	$-0.540^{+0.300}_{-0.300}$	$1.093^{+0.293}_{-0.158}$	$0.998^{+0.133}_{-0.106}$	$1.076^{+0.556}_{-0.495}$
	+2%/-3%	+2%/-4%	+56%/-56%	+27%/-14%	+13%/-11%	+52%/-46%
Source	PHO1	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 009613452-04 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-96 ± 20	$1.99^{+0.37}_{-0.28}$	1946^{+125}_{-113}	5071^{+372}_{-363}	29^{+12}_{-9}
Alt.	-506 ± 240	$3.16^{+0.50}_{-0.38}$	1944^{+132}_{-103}	5995^{+720}_{-894}	58^{+39}_{-29}

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

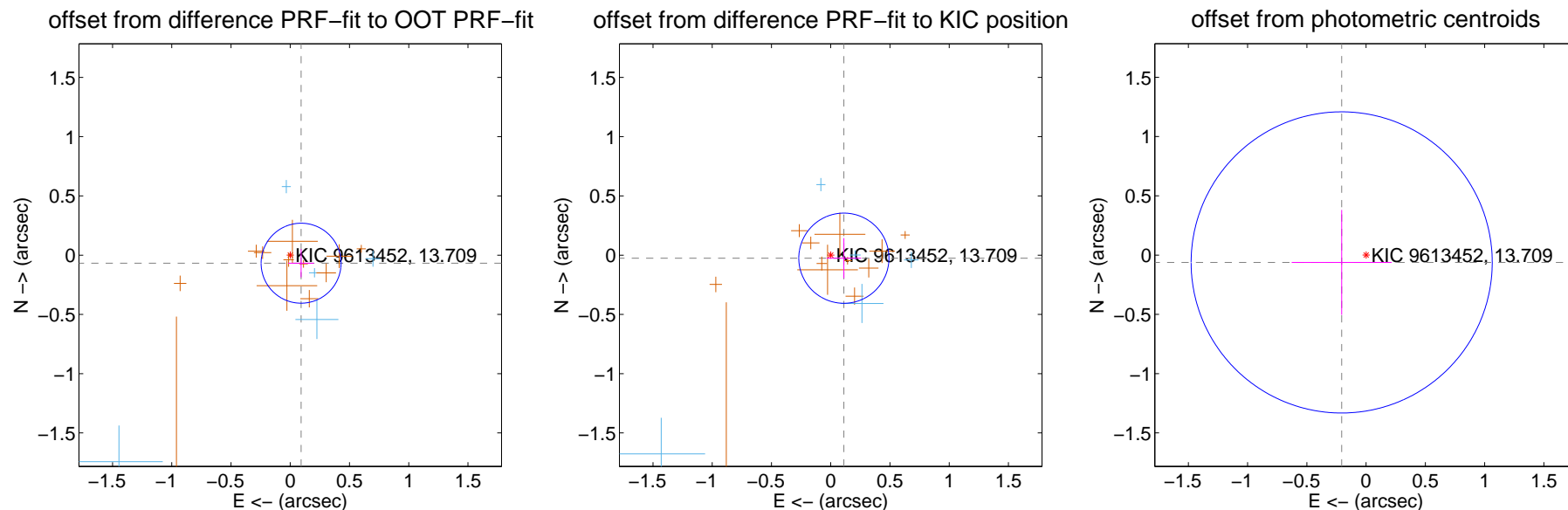
DV Centroid Data

Supplemental centroid analysis for 009613452-04. Kepler magnitude: 13.71. Transit SNR 5.93

There are 5 quarters with good PRF difference image offsets

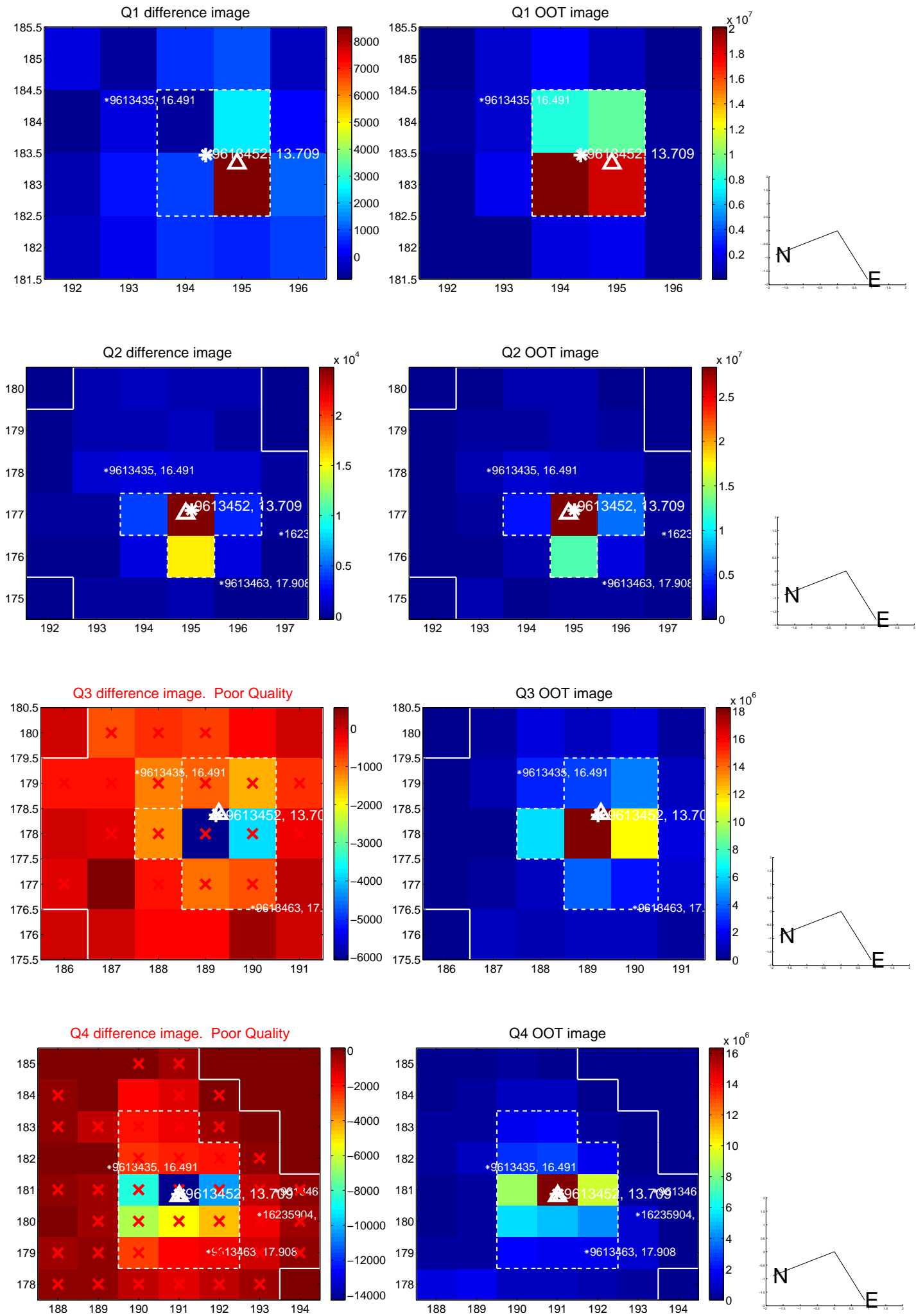
The direct PRF centroid is offset from the target star catalog position by about 0.05 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.114 ± 0.112	1.01	-0.091 ± 0.108	-0.068 ± 0.119
PRF-fit source offset from KIC position	0.114 ± 0.127	0.90	-0.111 ± 0.146	-0.026 ± 0.169
photometric centroid source offset	0.22 ± 0.42	0.51	0.21 ± 0.42	-0.06 ± 0.44

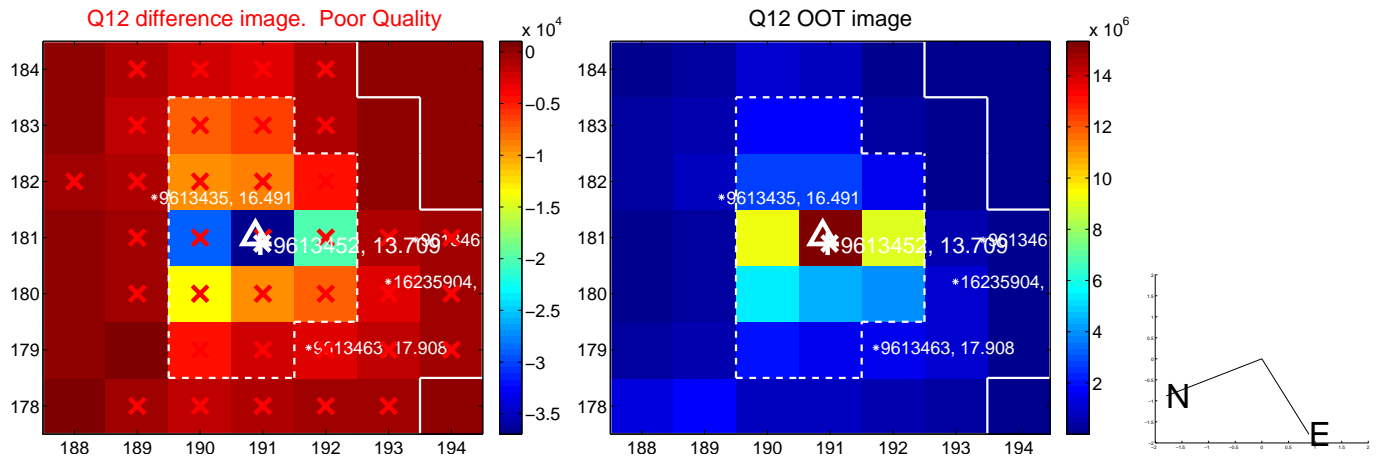
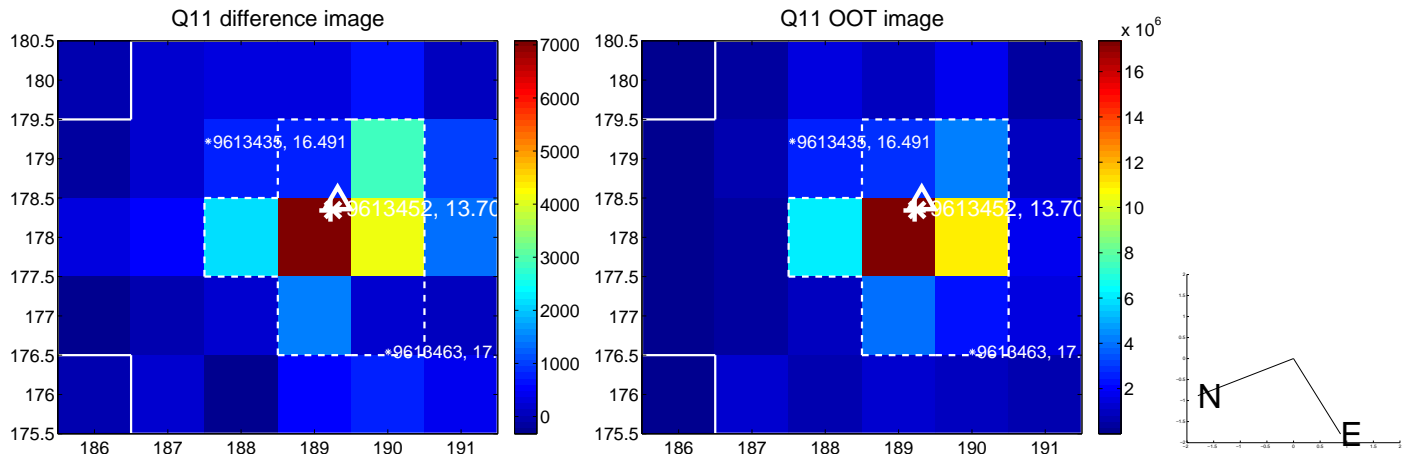
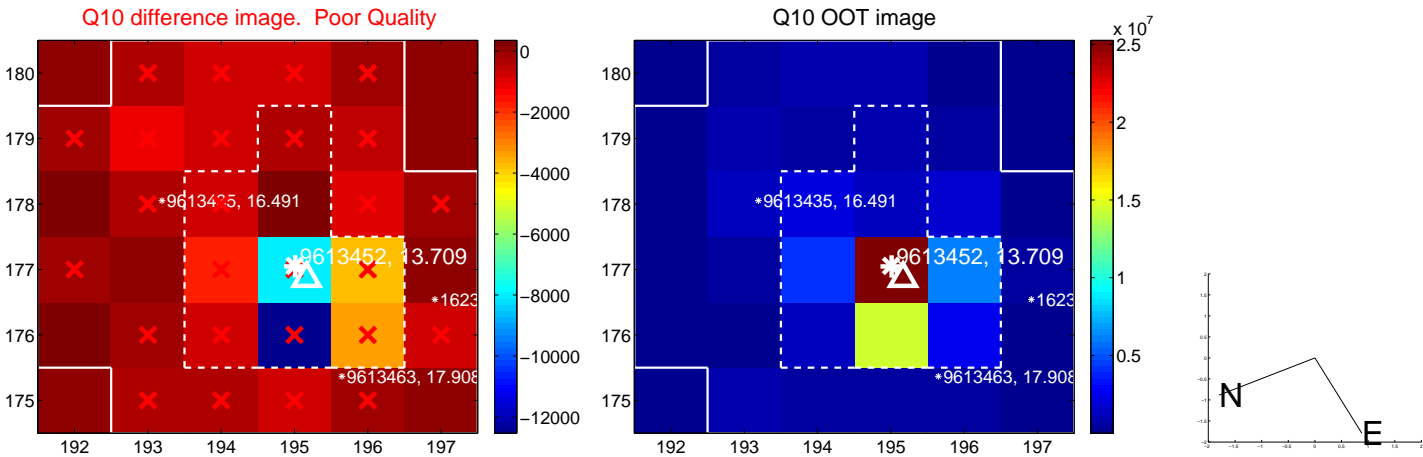
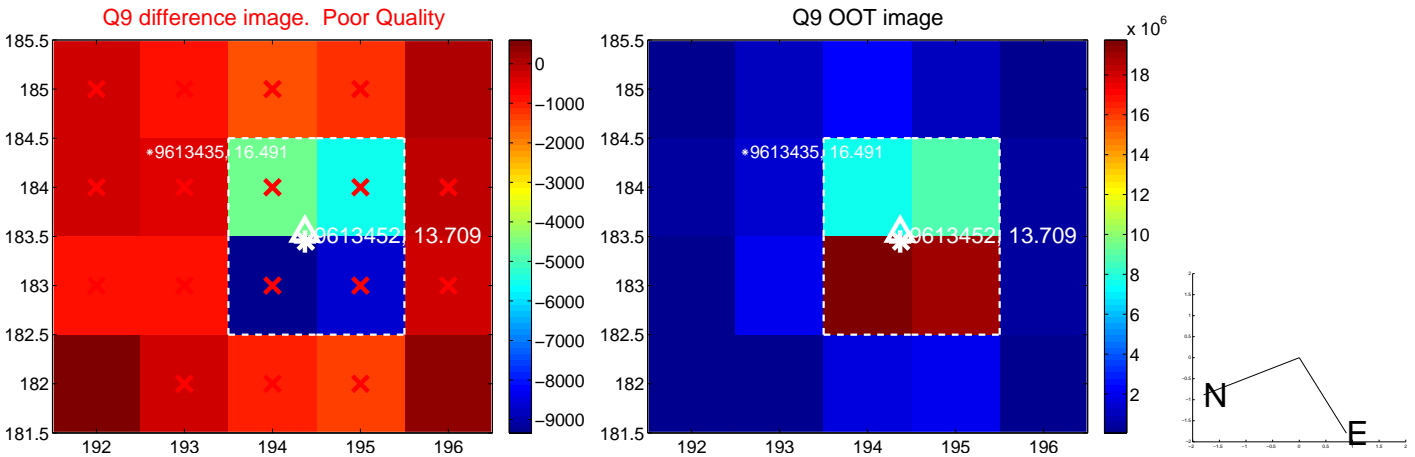


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

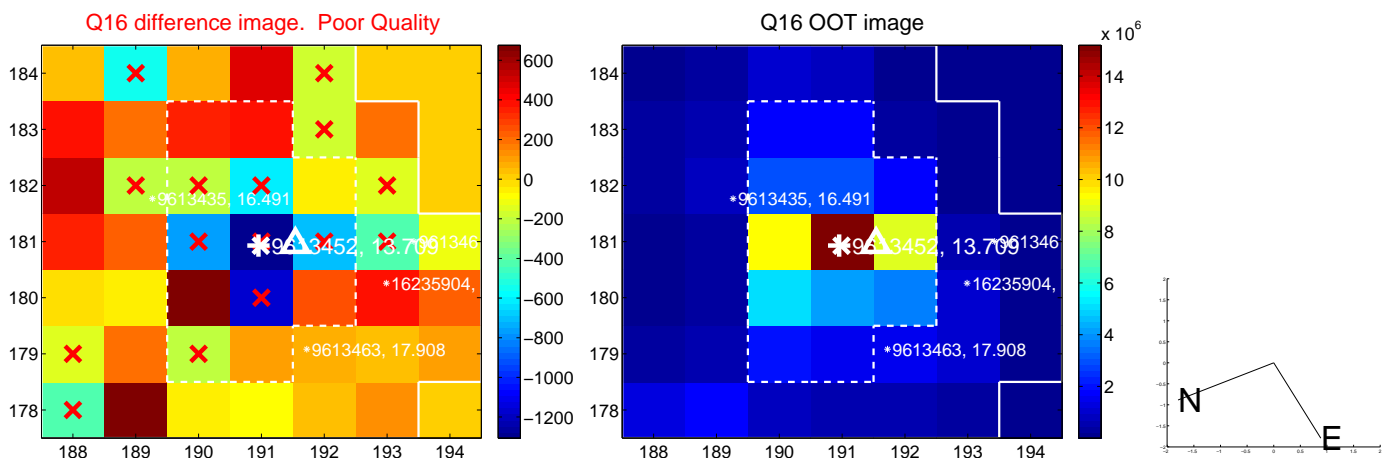
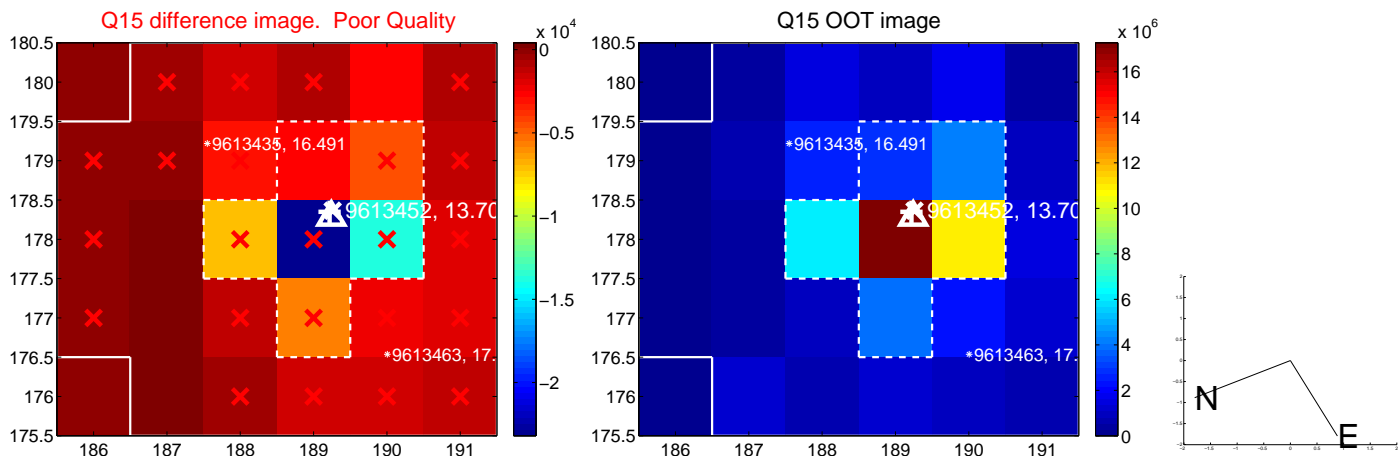
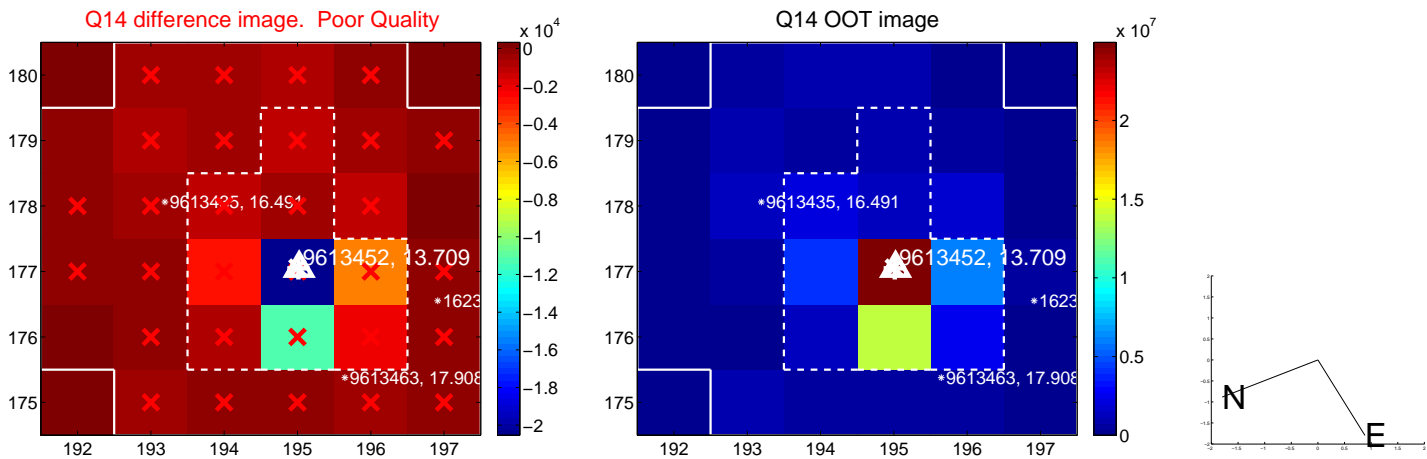
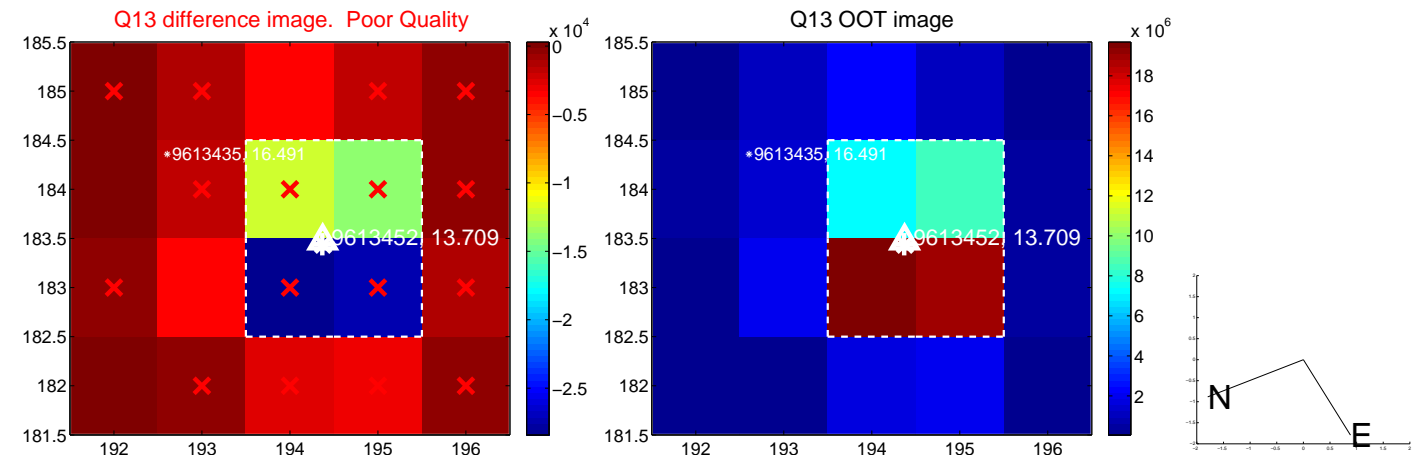
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



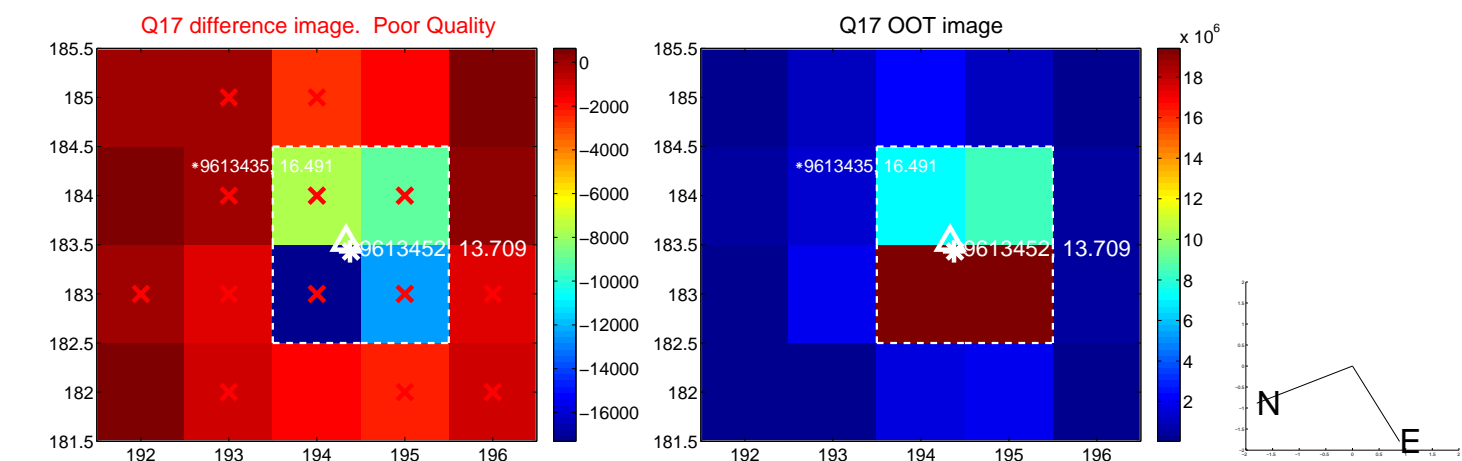
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



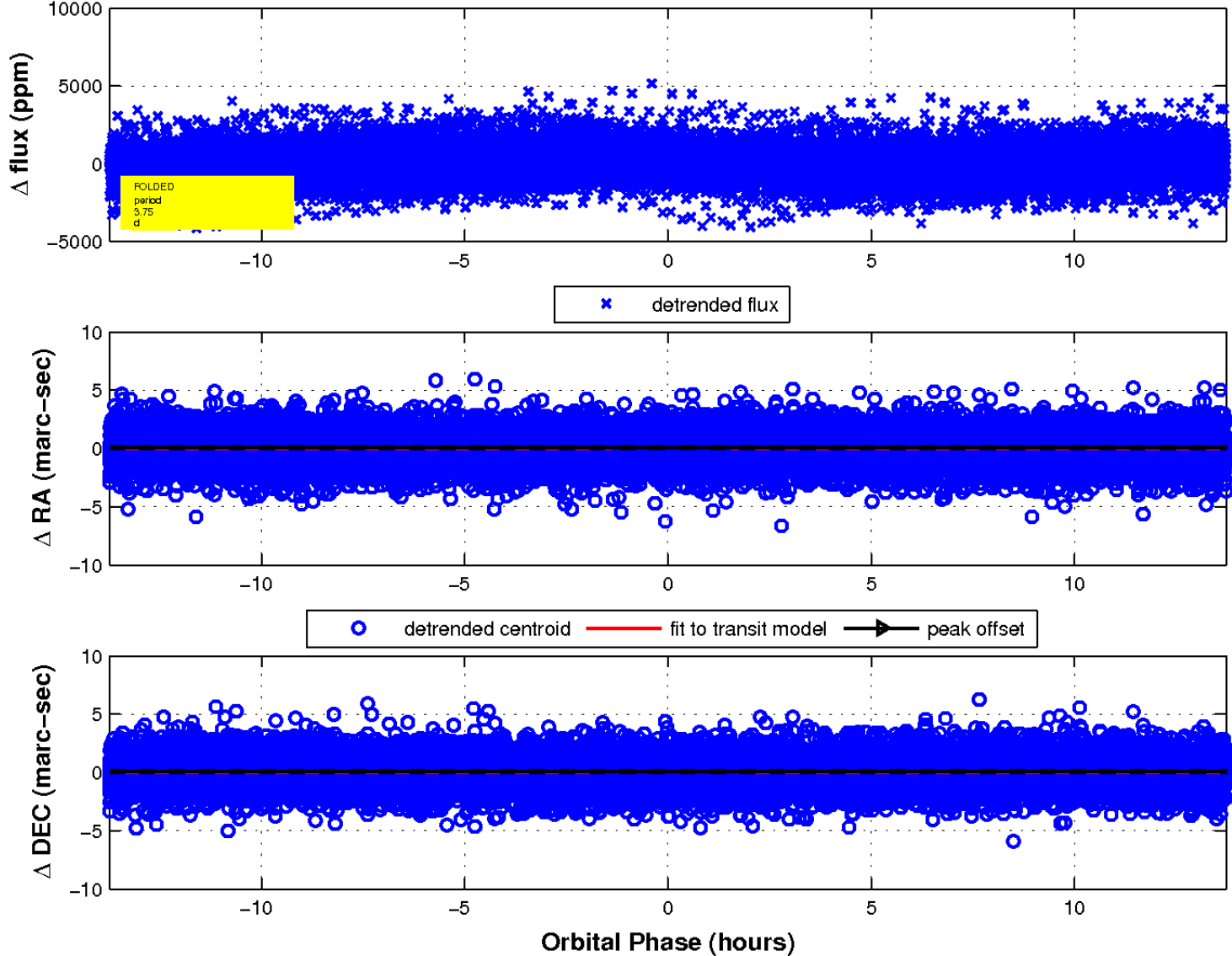
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

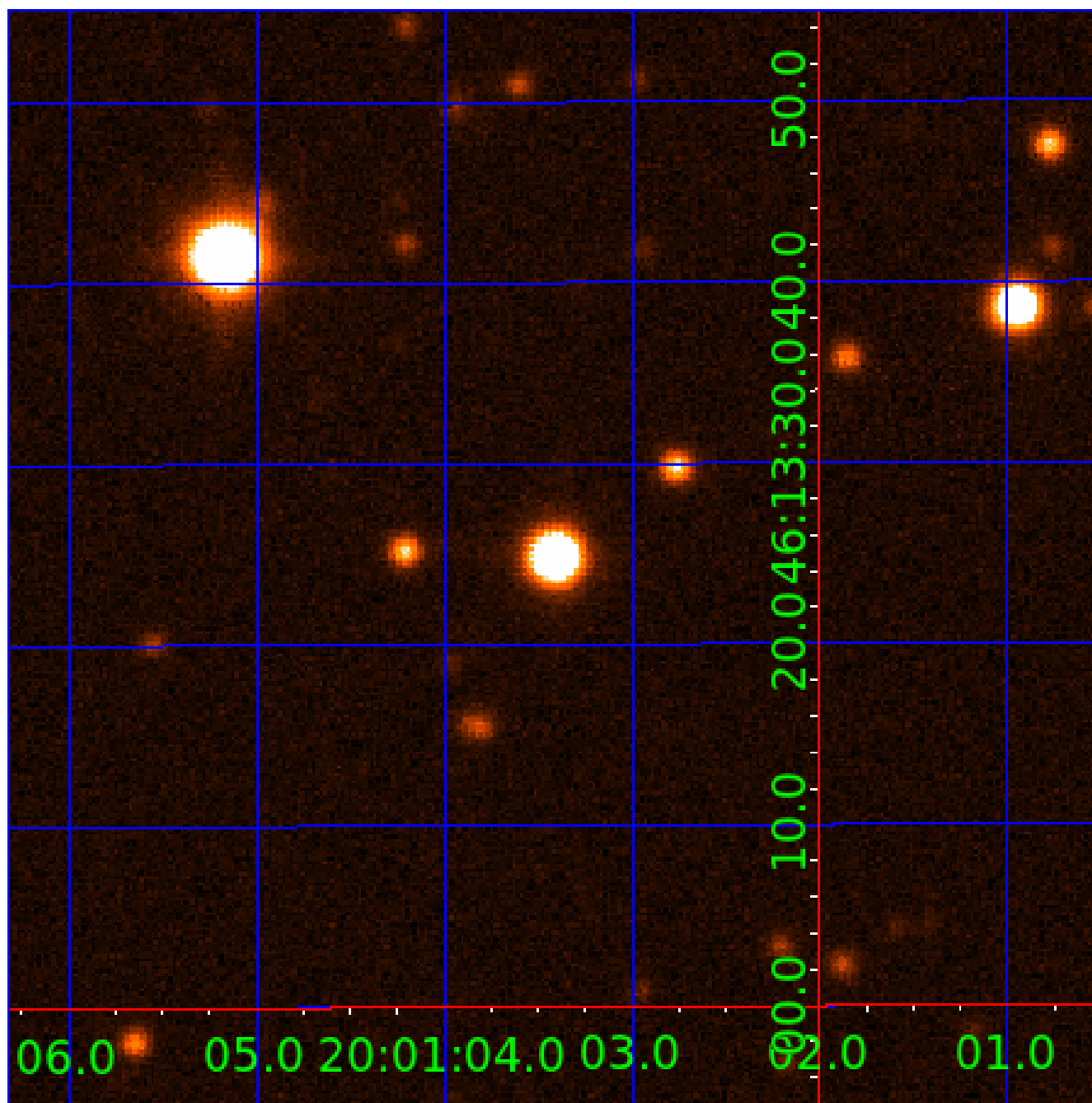


fluxWeightedCentroids, Planet 4 of 7



UKIRT Image

Declination



KIC 009613452

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})
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Robovetter Results

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009613452-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_ZUMA—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT
009613452-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_ALT—MOD_NONUNIQ_ALT
009613452-04	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_RUBBLE_SKYE_ZUMA_TRACKER—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—SAME_NTL_PERIOD—HALO_GHOST
009613452-06	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL—TRANS_GAPPED—ALL_TRANS_CHASES
009613452-07	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_SKYE_ZUMA—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_ALT

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

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

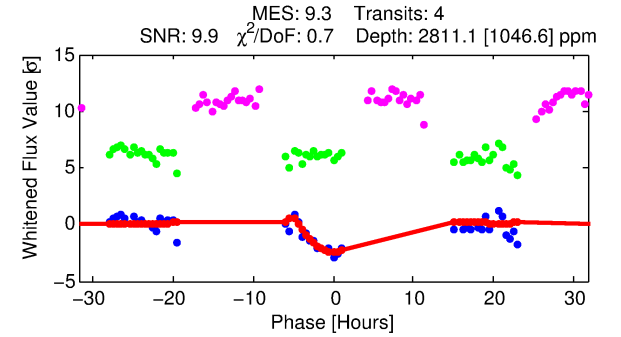
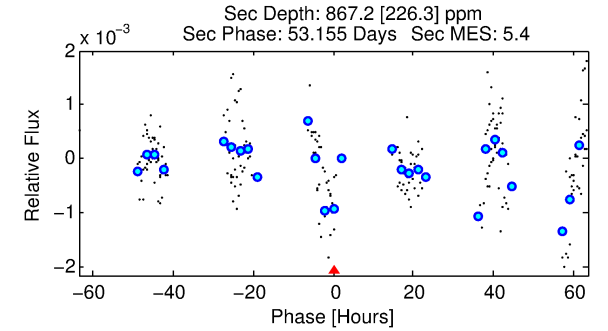
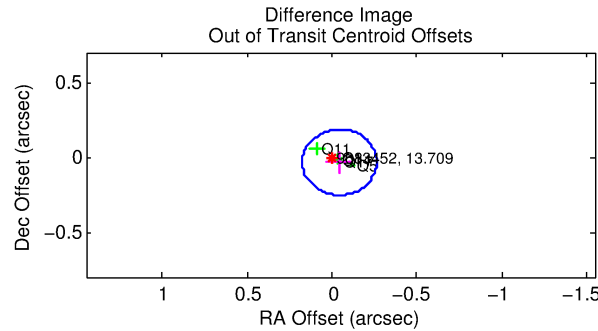
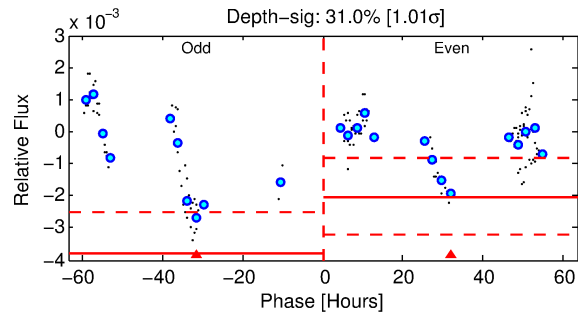
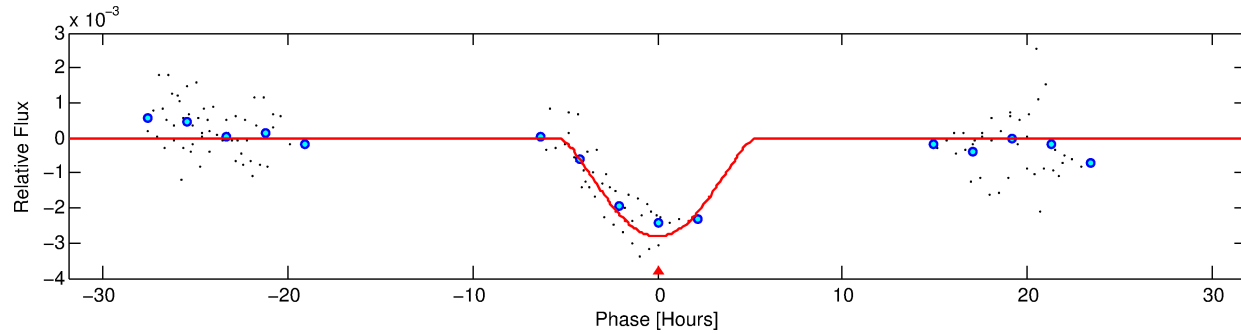
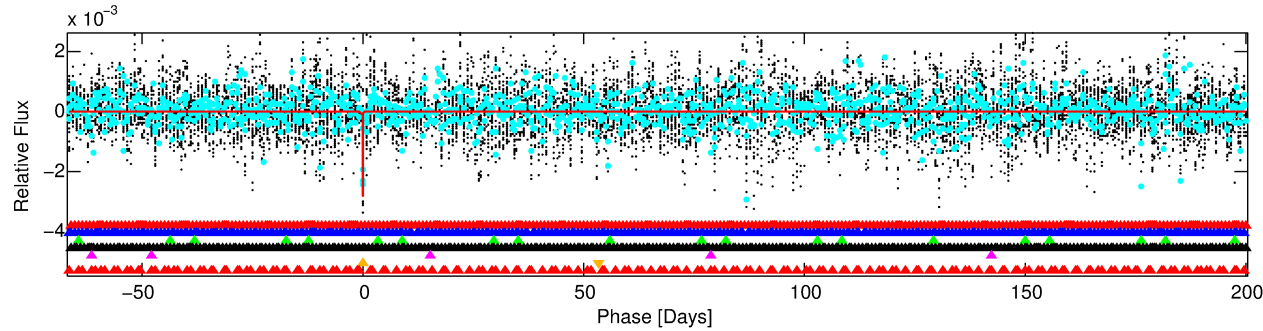
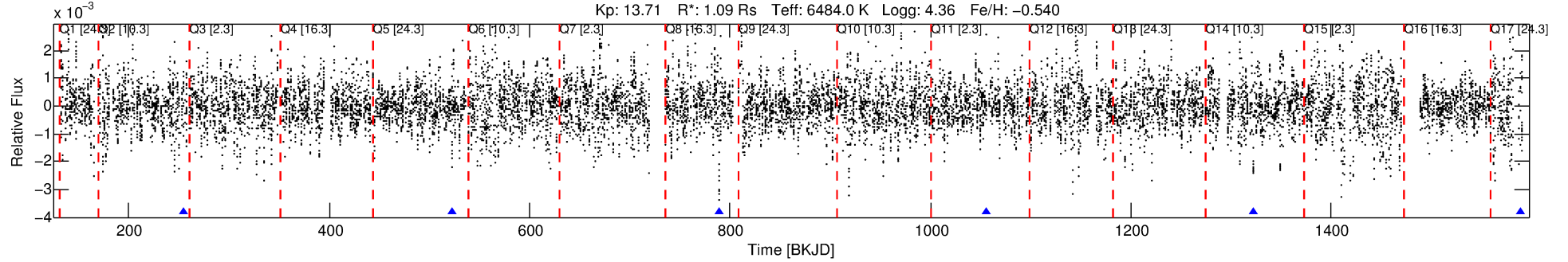
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 009613452-06

No Significant Match Found

DV One-Page Summary

KIC: 9613452 Candidate: 6 of 7 Period: 266.710 d



DV Fit Results:

Period = 266.71035 [0.00710] d
Epoch = 255.4754 [0.0464] BKJD
Rp/R* = 0.0887 [0.1824]
a/R* = 82.69 [30.34]
b = 1.00 [0.24]
Seff = 2.88 [1.05]
Teff = 332 [30] K
Rp = 10.58 [21.94] Re
a = 0.8106 [0.1862] AU
Ag = 2801.72 [11589.40] [0.24 σ]
Teffp = 3736 [3853] K [0.88 σ]

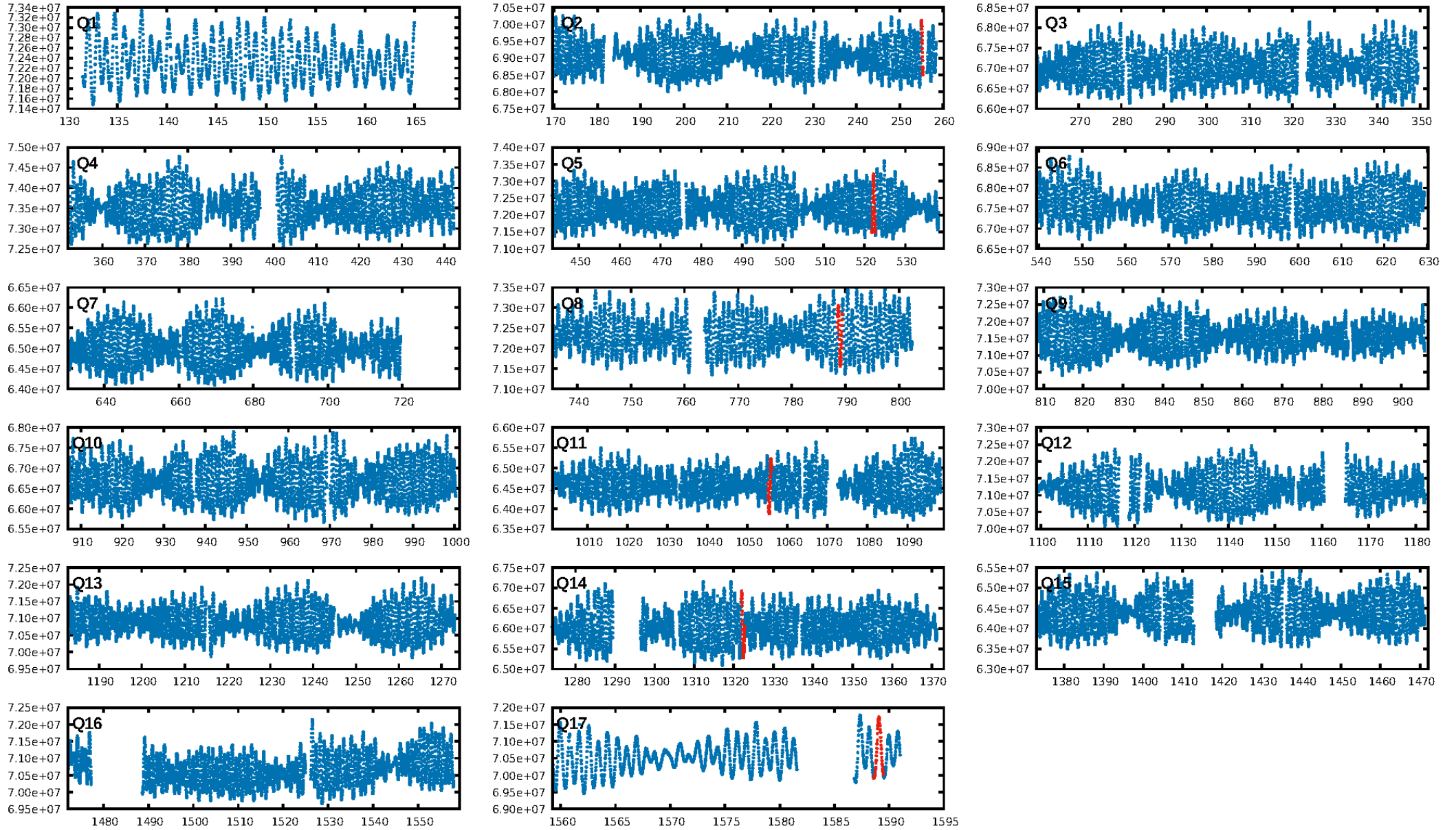
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [399.69 σ]
LongPeriod-sig: 100.0% [102.54 σ]
ModelChiSquare2-sig: 15.2%
ModelChiSquareGof-sig: 100.0%
Bootstrap-pfa: N/A
RollingBand-fgt: 1.00 [3/3]
GhostDiagnostic-chr: 1.153
Centroid-sig: 0.0%
Centroid-so: 0.672 arcsec [3.66 σ]
OotOffset-rm: 0.055 arcsec [0.75 σ]
KicOffset-rm: 0.076 arcsec [1.01 σ]
OotOffset-st: 1/1/1/2 [5]
KicOffset-st: 1/1/1/2 [5]
DiffImageQuality-fgm: 0.60 [3/5]
DiffImageOverlap-fno: 0.00 [0/5]

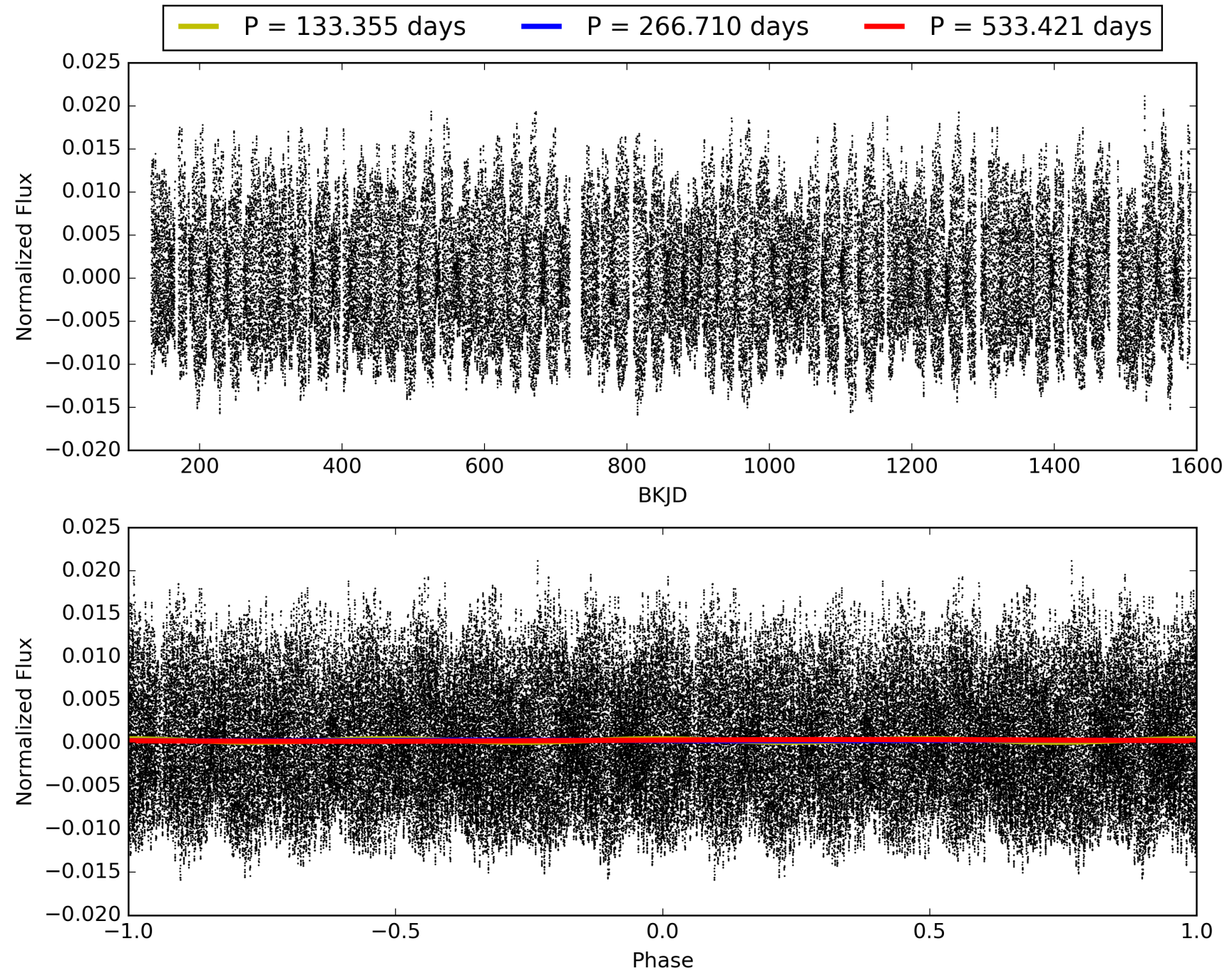
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 01-Feb-2016 13:36:10 Z

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

TCE 009613452-06, PDC Light Curves

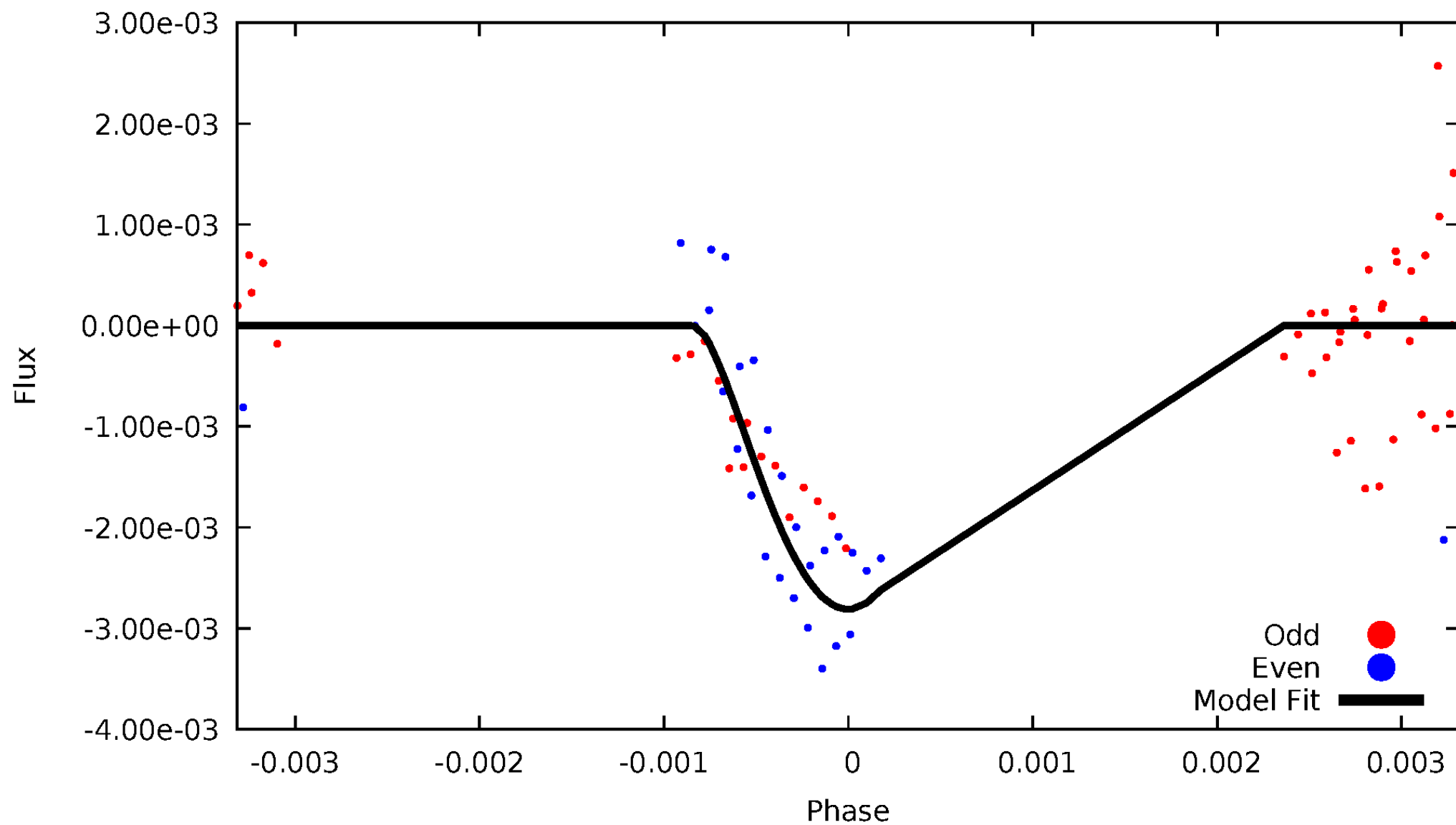


TCE 009613452-06



DV Odd/Even

TCE 009613452-06

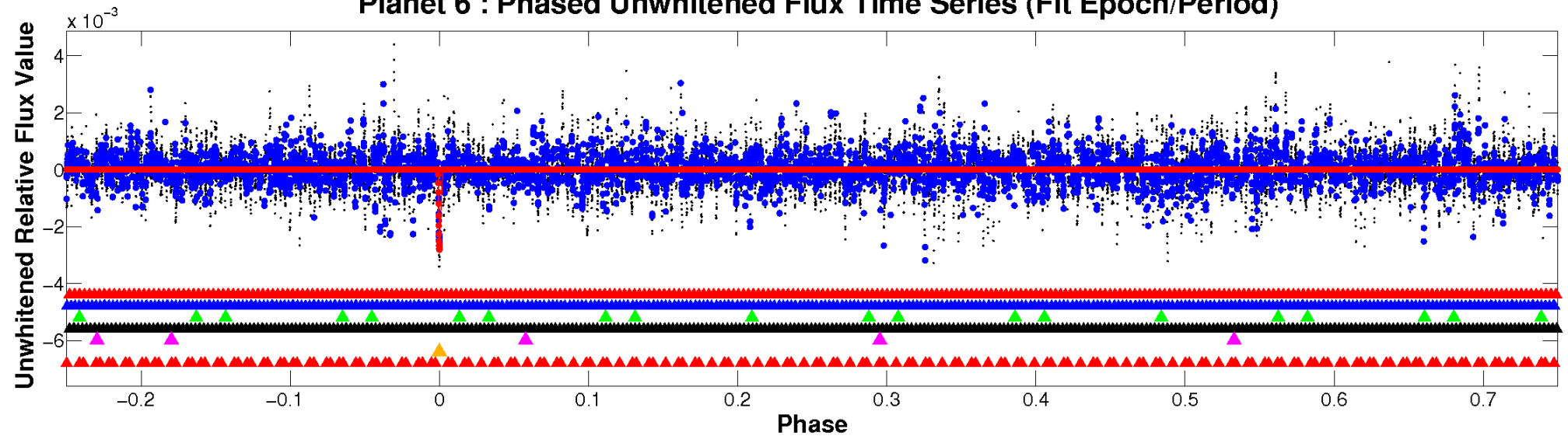


ALT Odd/Even

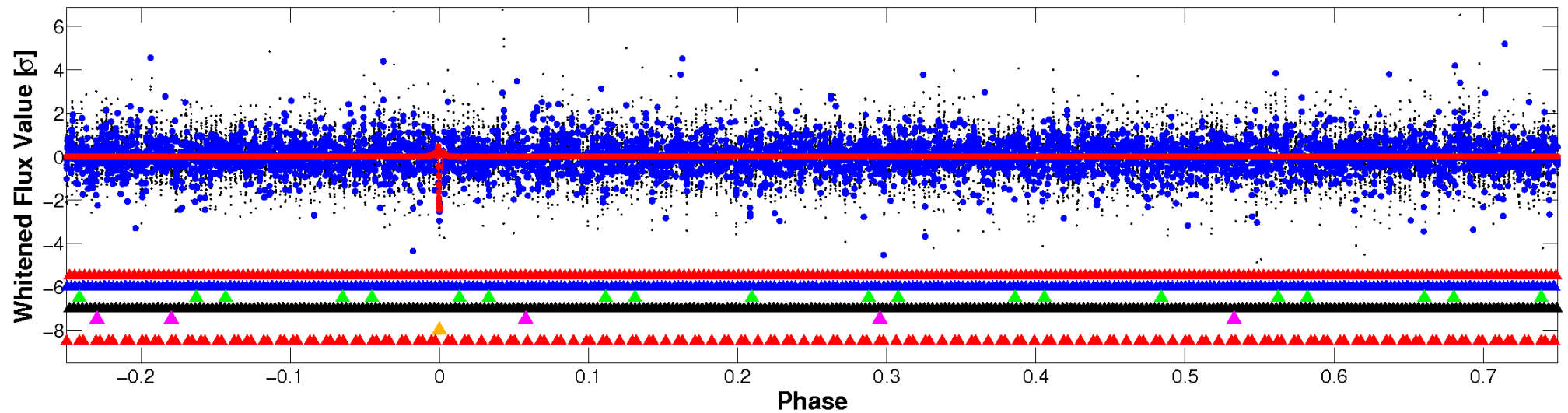
This plot does not exist for this TCE.

Non-Whitened Vs. Whitened Light Curve

Planet 6 : Phased Unwhitened Flux Time Series (Fit Epoch/Period)

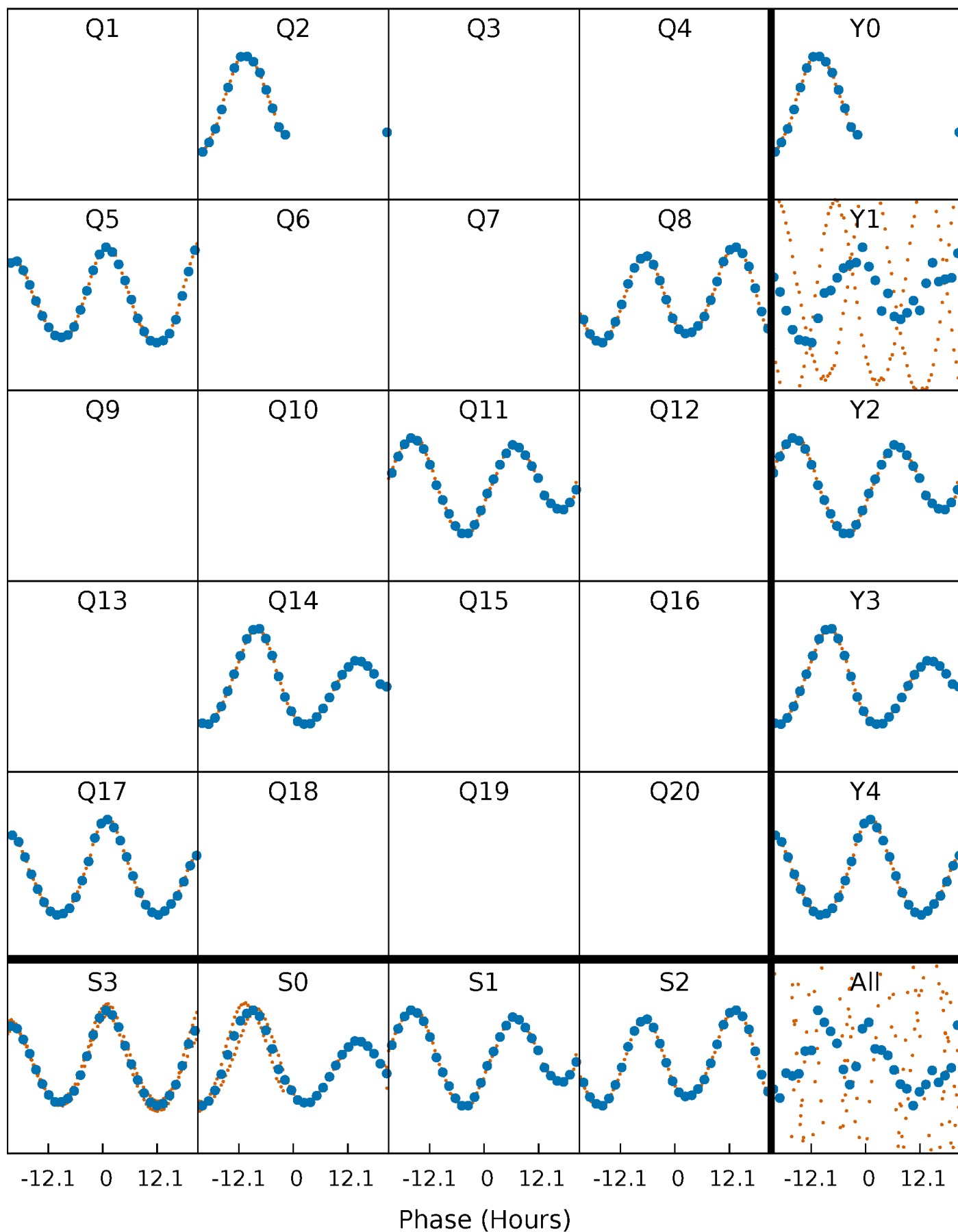


Planet 6 : Phased Whitened Flux Time Series (Fit Epoch/Period)



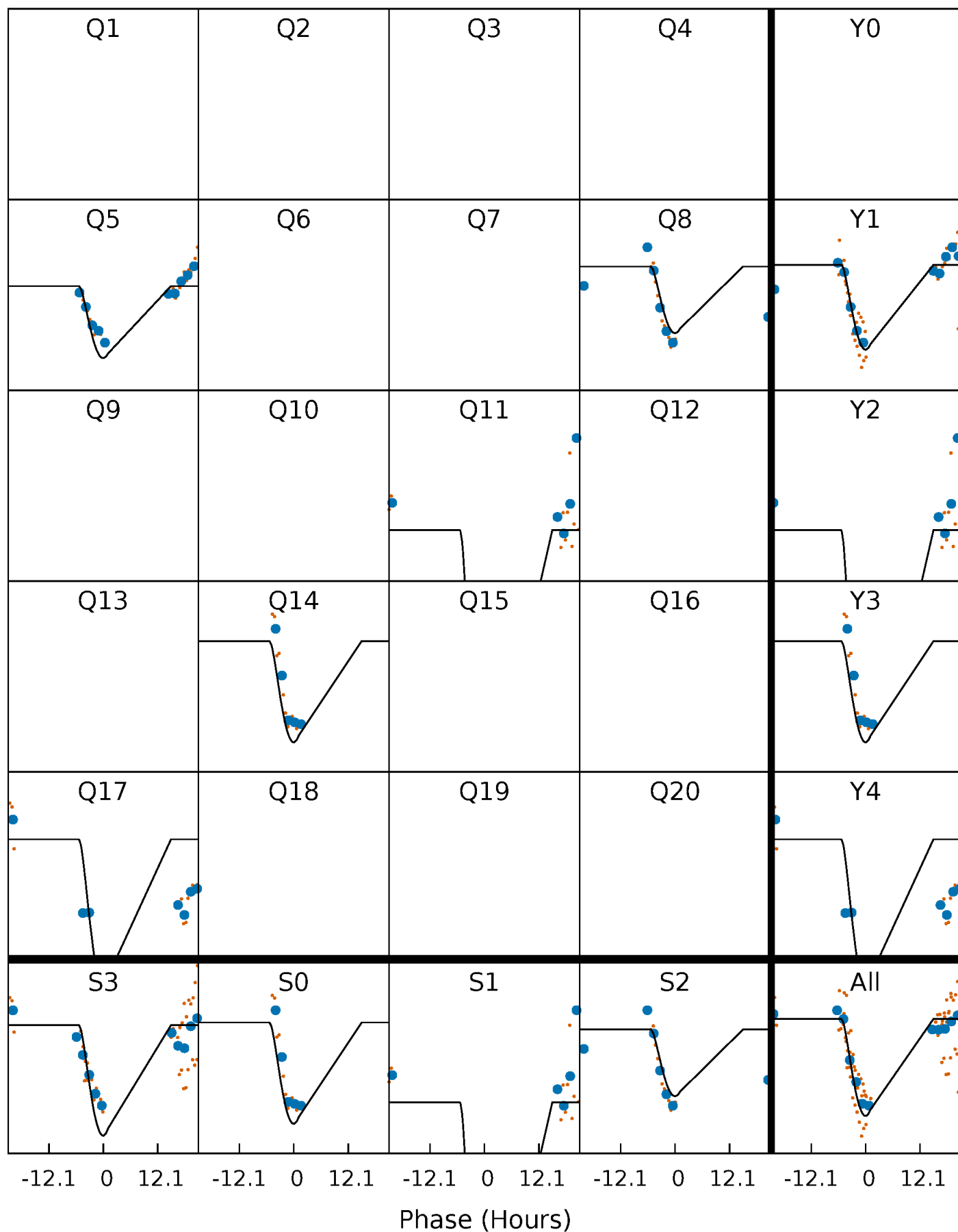
PDC Quarter-Phased Transit Curves

TCE 009613452-06 $P=266.710350$ Days $T_0=255.475394$ (BKJD)



DV Quarter-Phased Transit Curves

TCE 009613452-06 $P=266.710350$ Days $T_0=255.475394$ (BKJD)

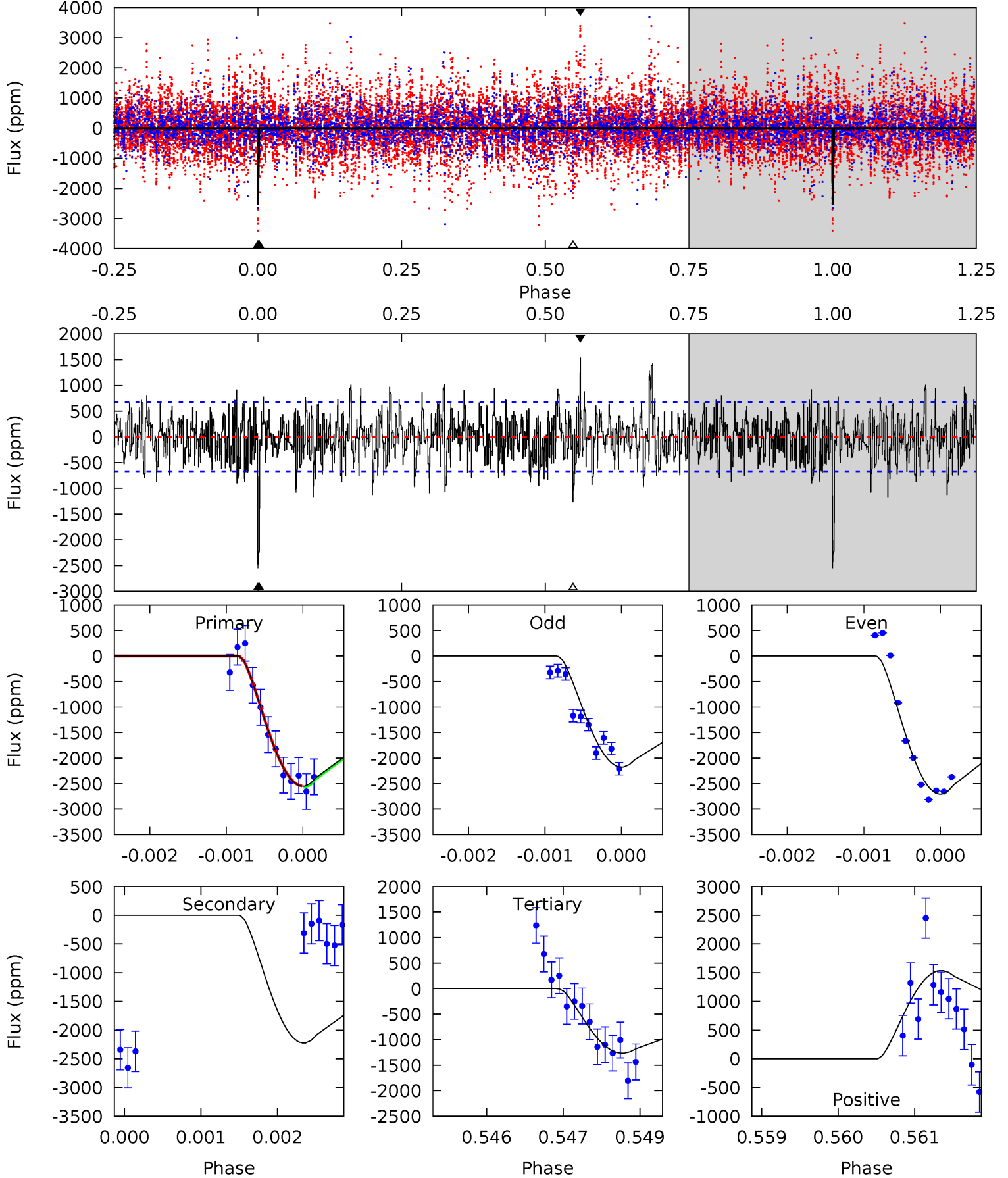


This plot does not exist for this TCE.

DV Model-Shift Uniqueness Test

009613452-06, P = 266.710350 Days, E = 255.475394 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
20.8	18.1	10.3	12.5	5.45	3.29	2.92	10.5	8.24	7.82	5.58	2.07	1.08	0.38	0.06



Alt Model-Shift Uniqueness Test

This plot does not exist for this TCE.

Stellar Parameters For KIC 009613452

	$T_{\text{eff}} (K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R (R_{\odot})$	$M (M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	6484^{+155}_{-213}	$4.360^{+0.101}_{-0.188}$	$-0.540^{+0.300}_{-0.300}$	$1.093^{+0.293}_{-0.158}$	$0.998^{+0.133}_{-0.106}$	$1.076^{+0.556}_{-0.495}$
	+2%/-3%	+2%/-4%	+56%/-56%	+27%/-14%	+13%/-11%	+52%/-46%
Source	PHO1	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 009613452-06 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-2225 ± 123	$20.33^{+18.20}_{-14.18}$	467^{+33}_{-23}	3854^{+2421}_{-736}	2021^{+19216}_{-1489}
Alt.	N/A	N/A	N/A	N/A	N/A

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

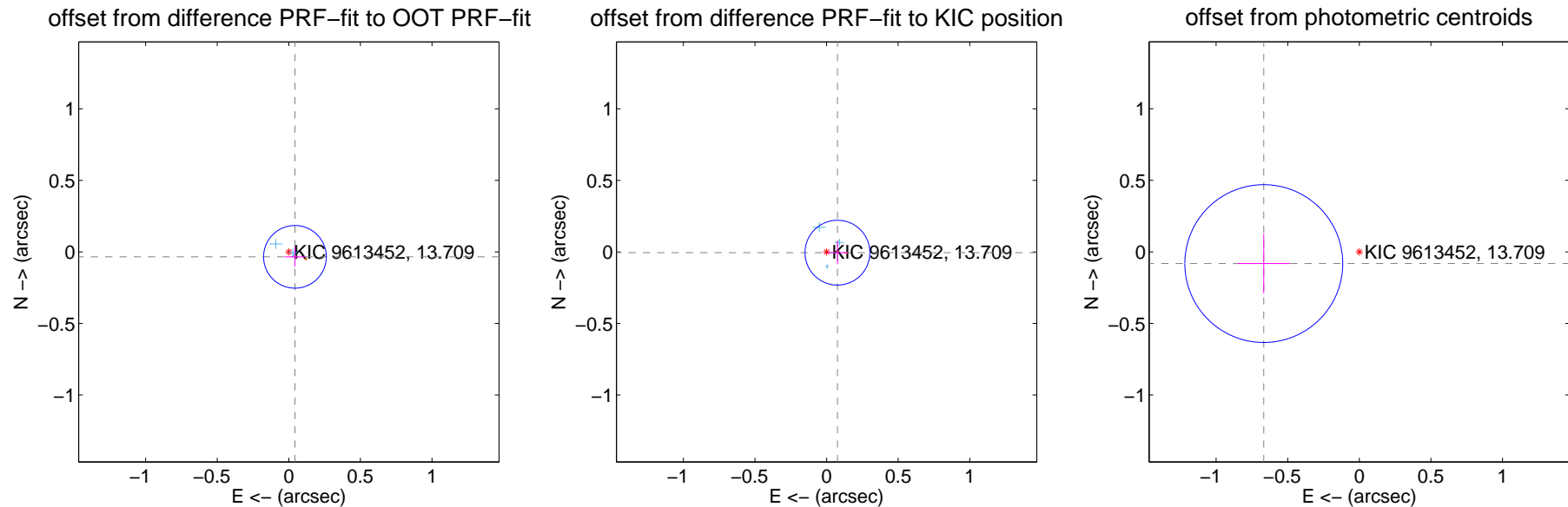
DV Centroid Data

Supplemental centroid analysis for 009613452-06. Kepler magnitude: 13.71. Transit SNR 9.93

There are 3 quarters with good PRF difference image offsets

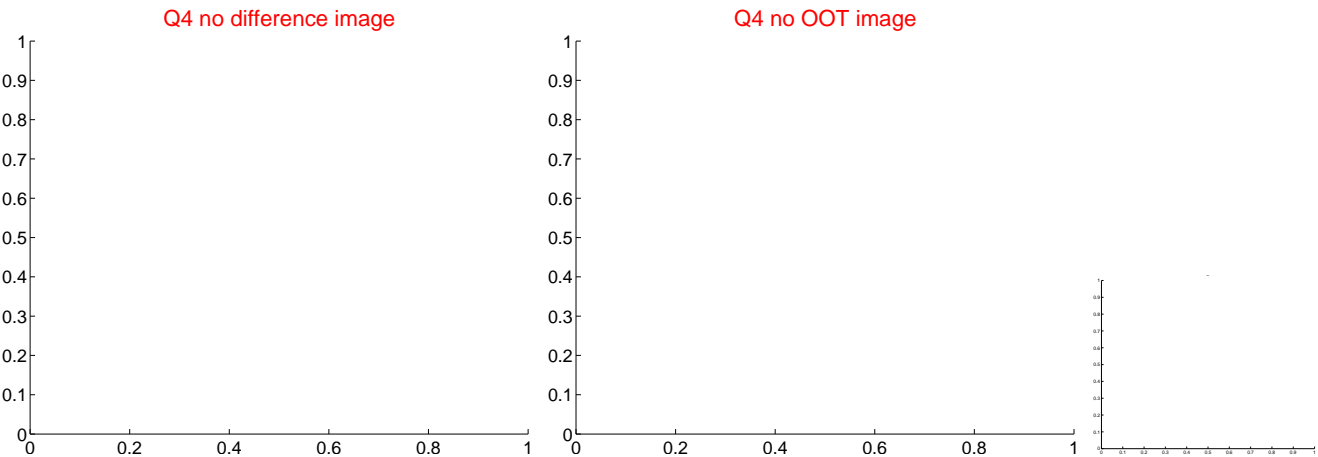
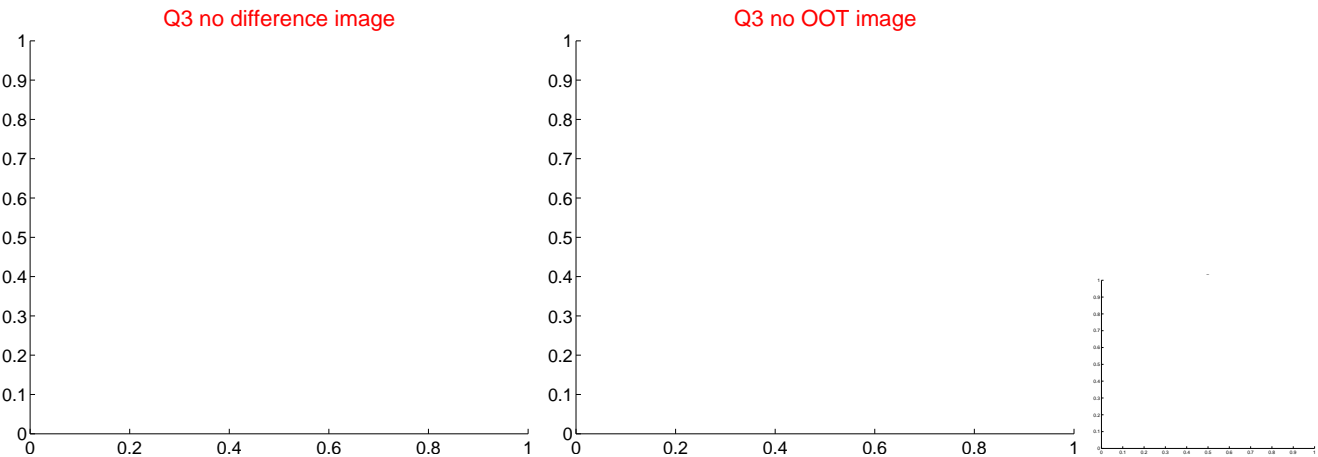
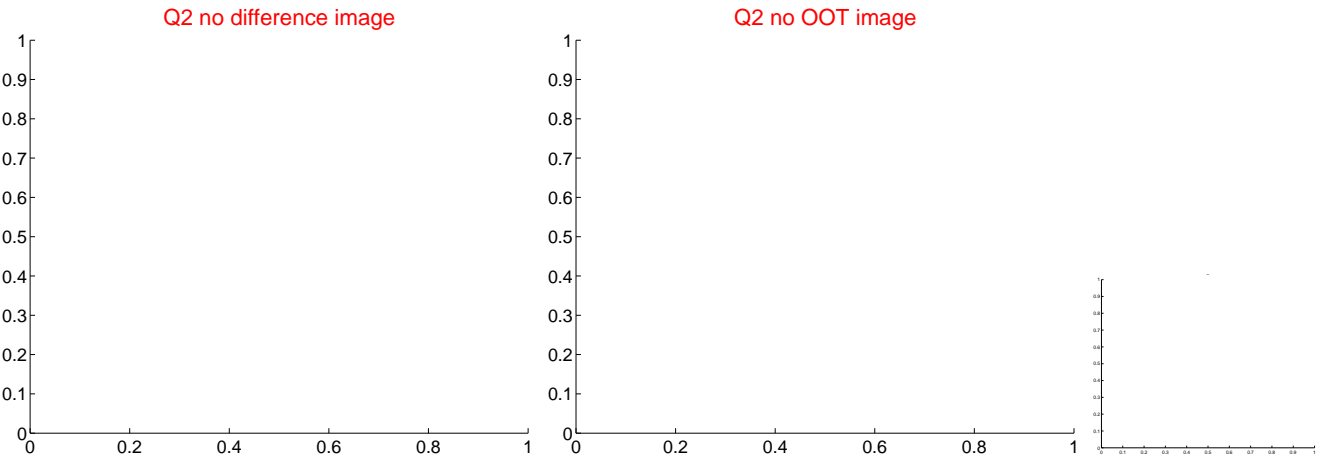
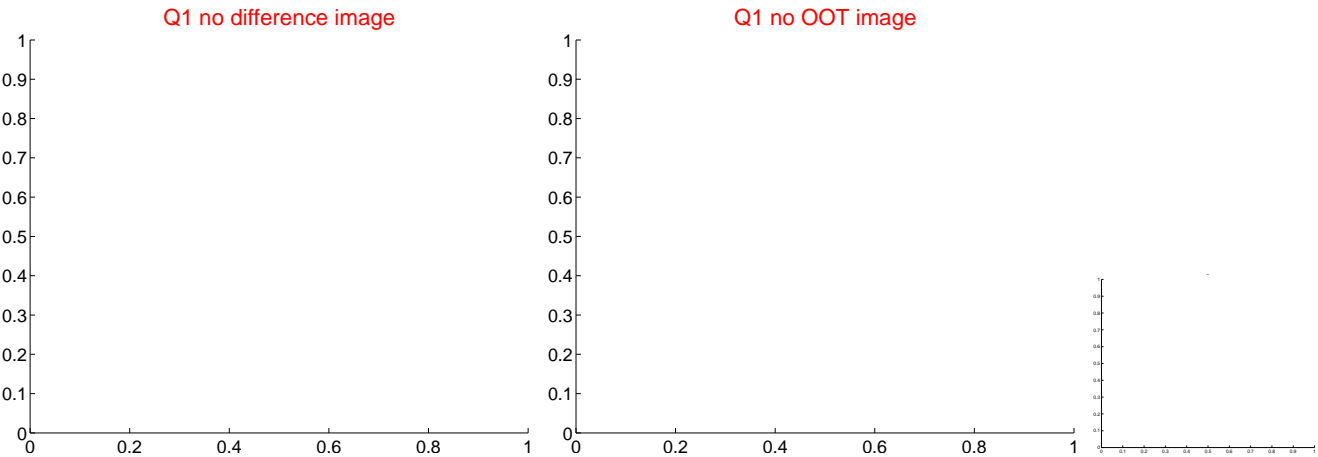
The direct PRF centroid is offset from the target star catalog position by about 0.04 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.055 ± 0.073	0.75	-0.043 ± 0.072	-0.034 ± 0.068
PRF-fit source offset from KIC position	0.076 ± 0.075	1.01	-0.076 ± 0.075	-0.005 ± 0.080
photometric centroid source offset	0.67 ± 0.18	3.66	0.67 ± 0.18	-0.08 ± 0.21

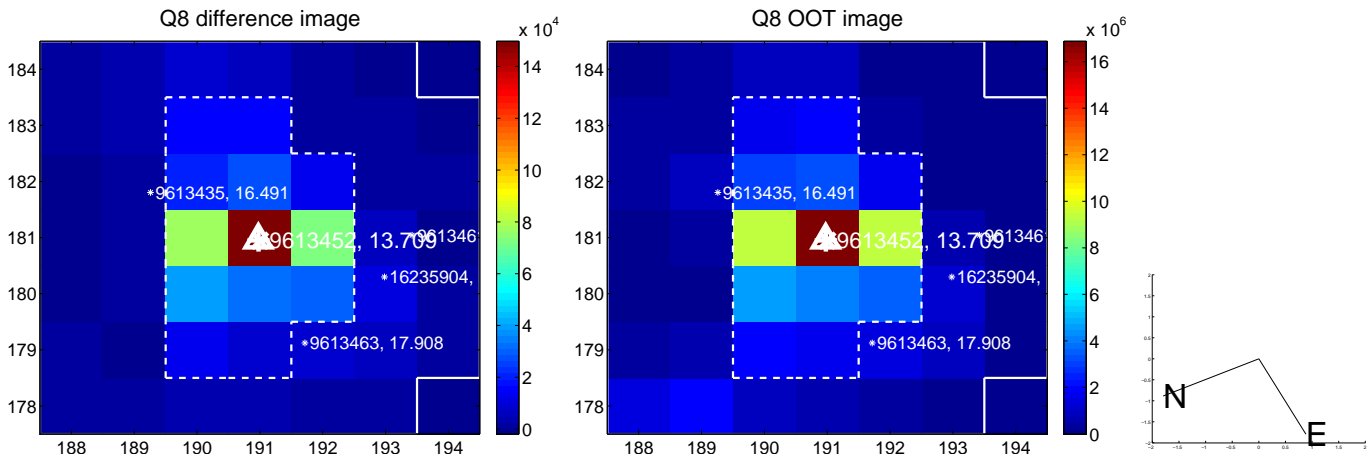
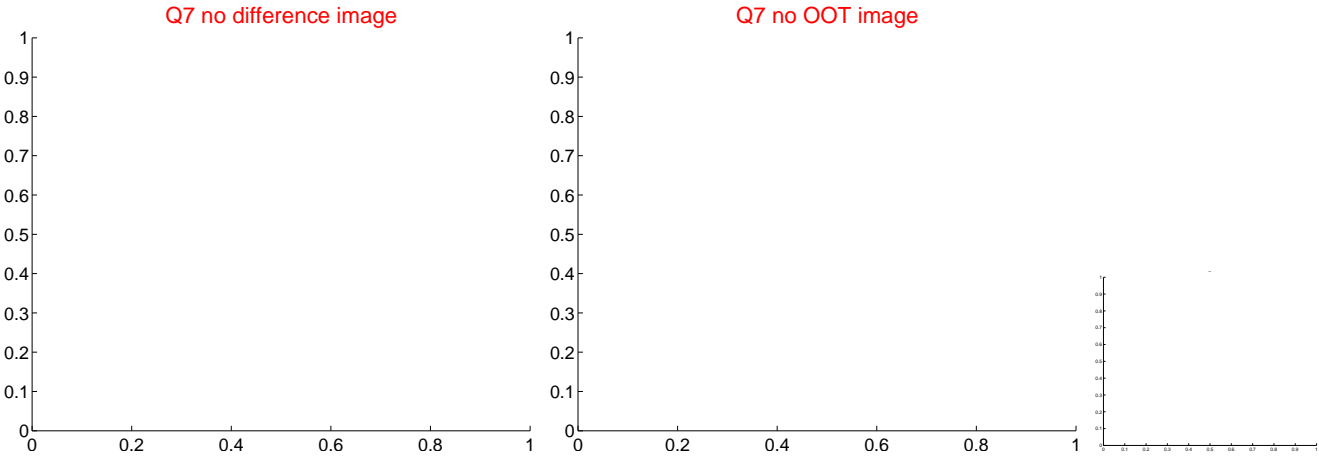
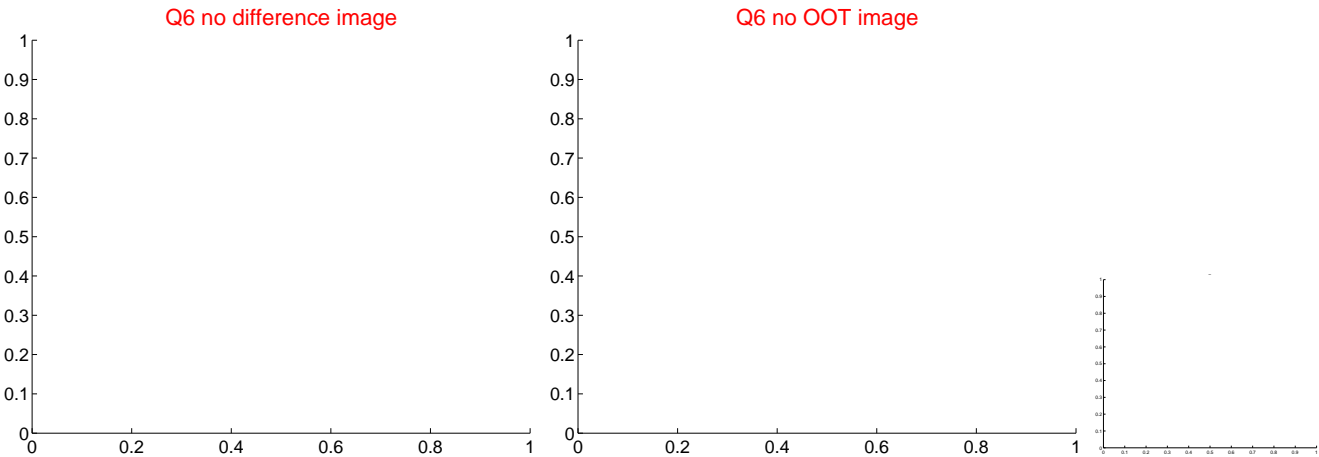
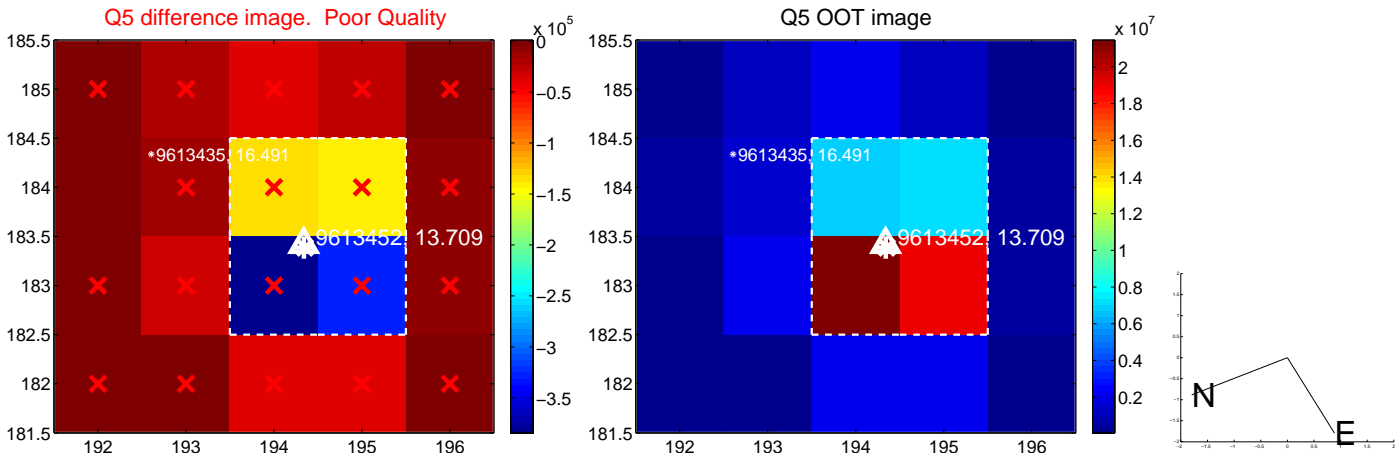


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ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

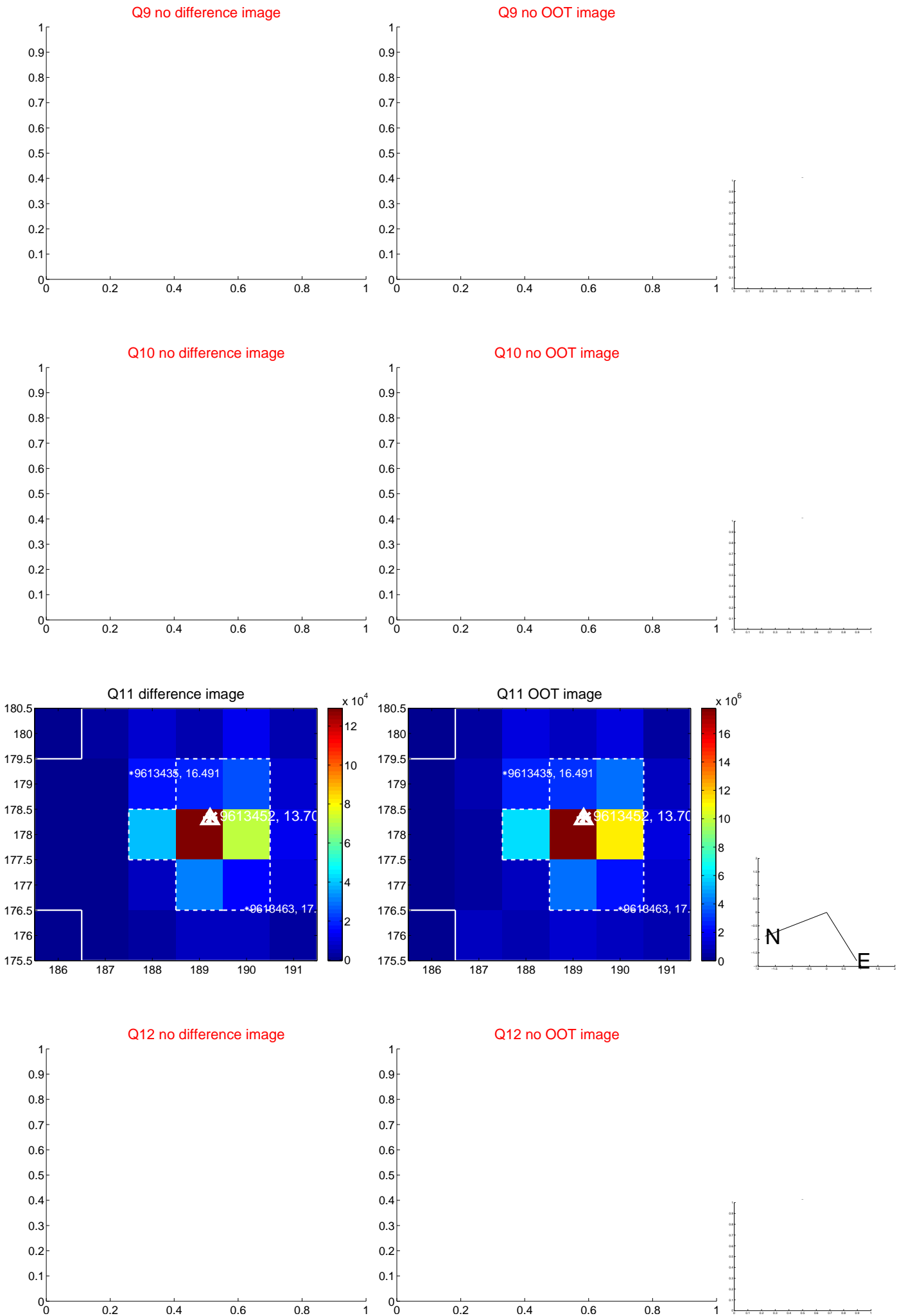
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

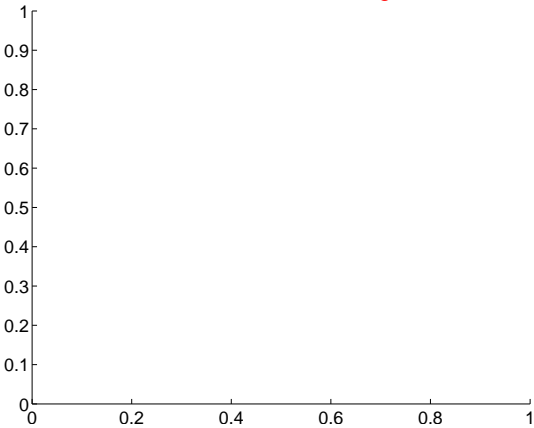


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.

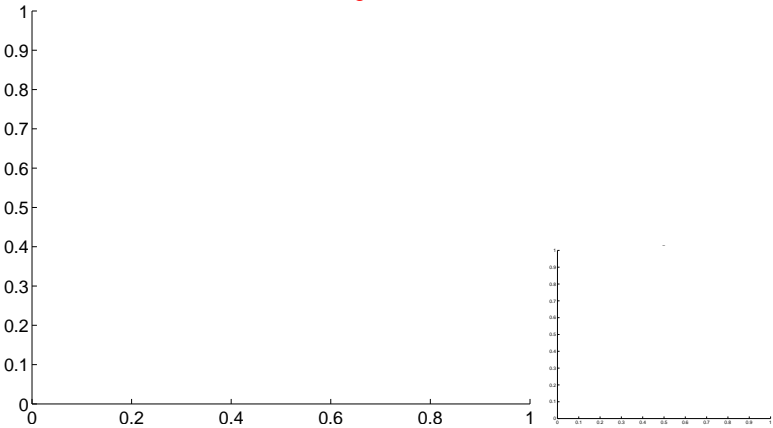


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.

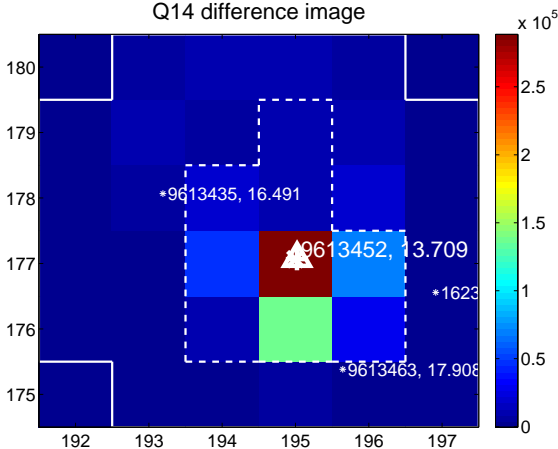
Q13 no difference image



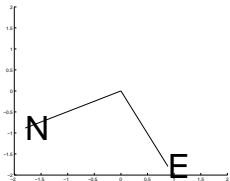
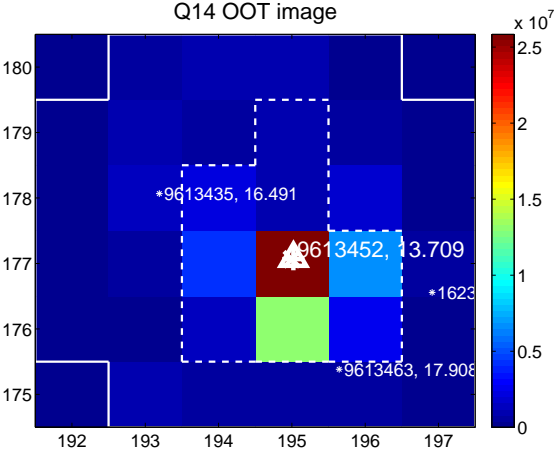
Q13 no OOT image



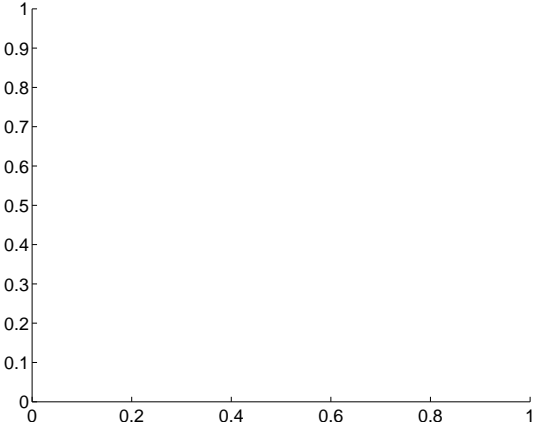
Q14 difference image



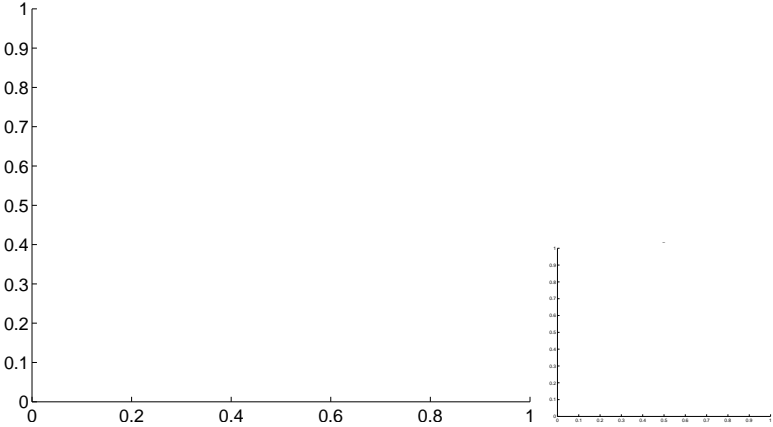
Q14 OOT image



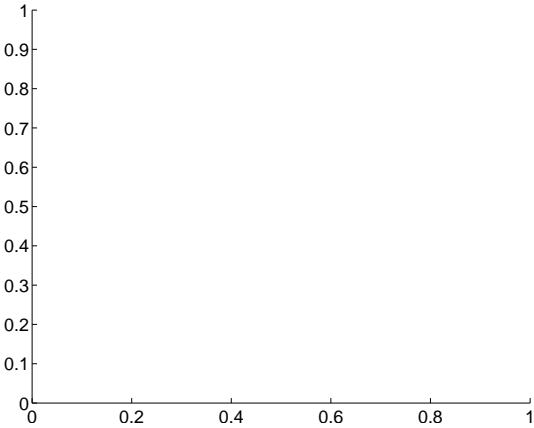
Q15 no difference image



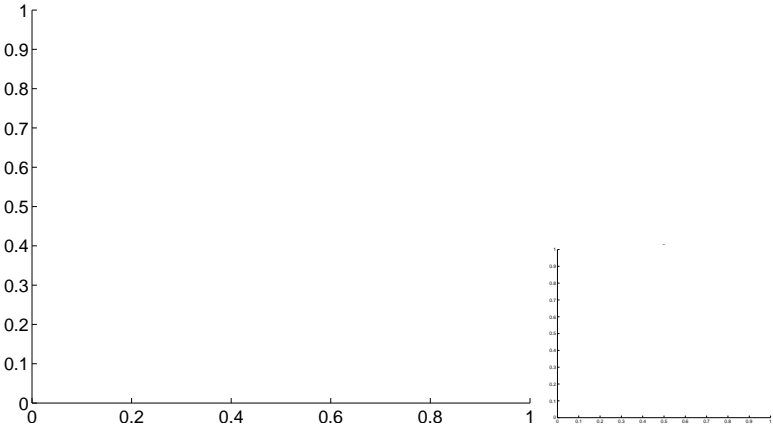
Q15 no OOT image



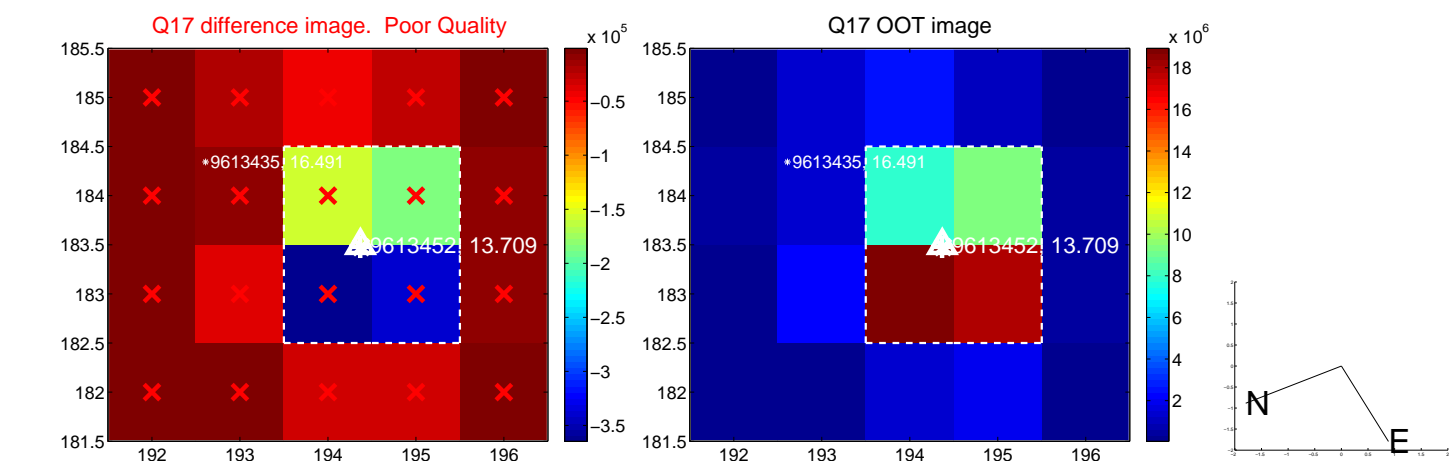
Q16 no difference image



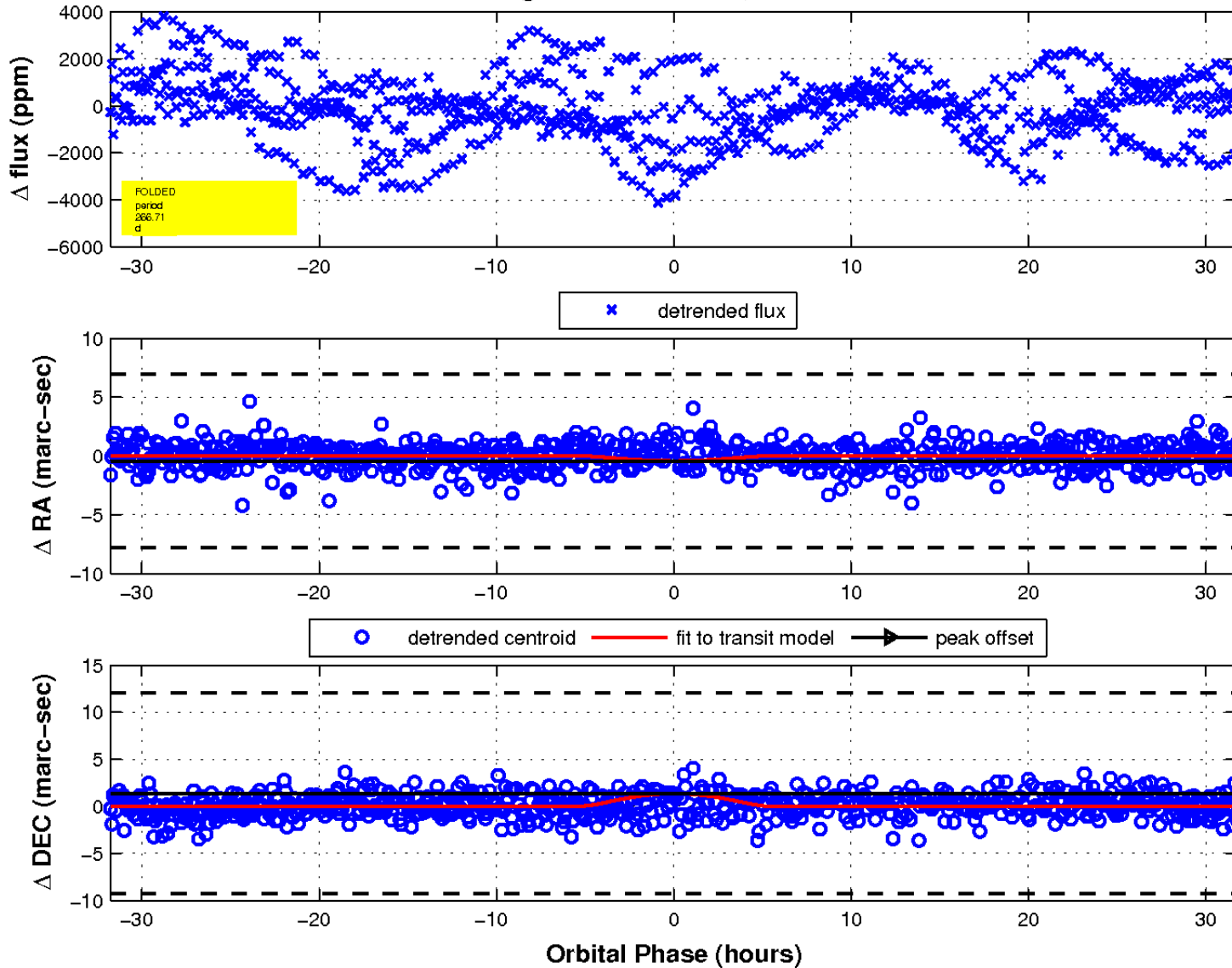
Q16 no OOT image



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

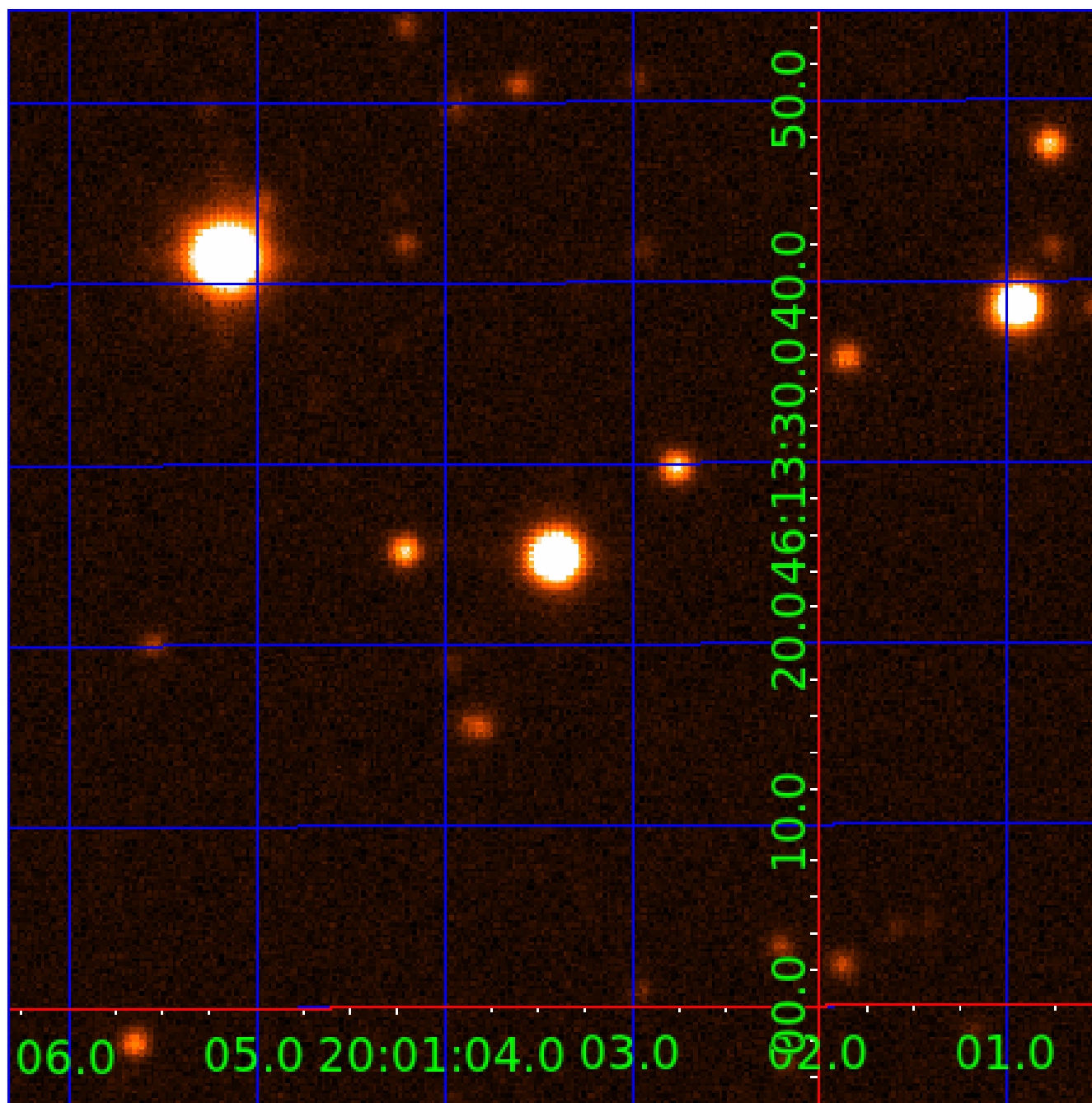


fluxWeightedCentroids, Planet 6 of 7



UKIRT Image

Declination



KIC 009613452

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})
009613452-01	OBS	No	0.886147	131.703285	38.3	4.784	9.6	5.0	1.09	6484	0.72	5807.72
009613452-02	OBS	No	3.746392	131.820242	268.9	4.250	9.7	9.1	1.09	6484	2.09	849.56
009613452-03	OBS	No	73.216568	185.846185	983.3	4.742	9.7	6.8	1.09	6484	3.53	16.14
009613452-04	OBS	No	3.746152	133.878487	185.5	4.579	9.8	5.9	1.09	6484	1.94	849.63
009613452-06	OBS	No	266.710349	255.475394	2811.1	10.607	9.3	9.9	1.09	6484	10.58	2.88
009613452-07	OBS	No	8.241587	137.087167	997.7	11.978	8.2	13.1	1.09	6484	6.49	296.94

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
009613452-01	OBS	FP	0.00	1	0	0	0	LPP_DV
009613452-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_ZUMA—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT
009613452-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_ALT—MOD_NONUNIQ_ALT
009613452-04	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_RUBBLE_SKYE_ZUMA_TRACKER—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—SAME_NTL_PERIOD—HALO_GHOST
009613452-06	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL—TRANS_GAPPED—ALL_TRANS_CHASES
009613452-07	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_SKYE_ZUMA—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_ALT

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

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

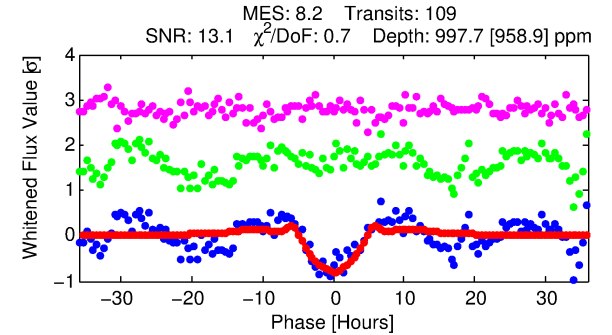
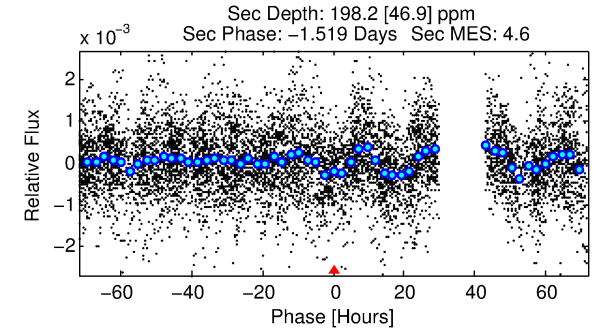
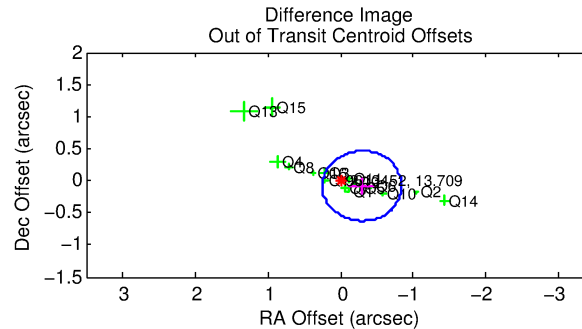
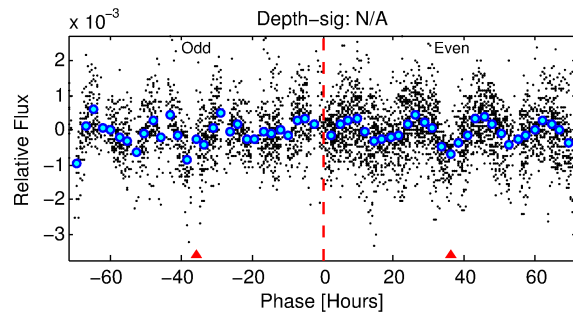
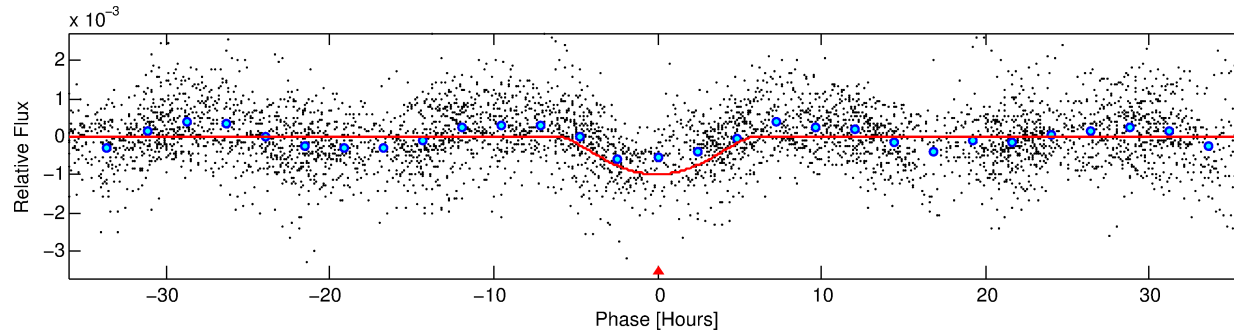
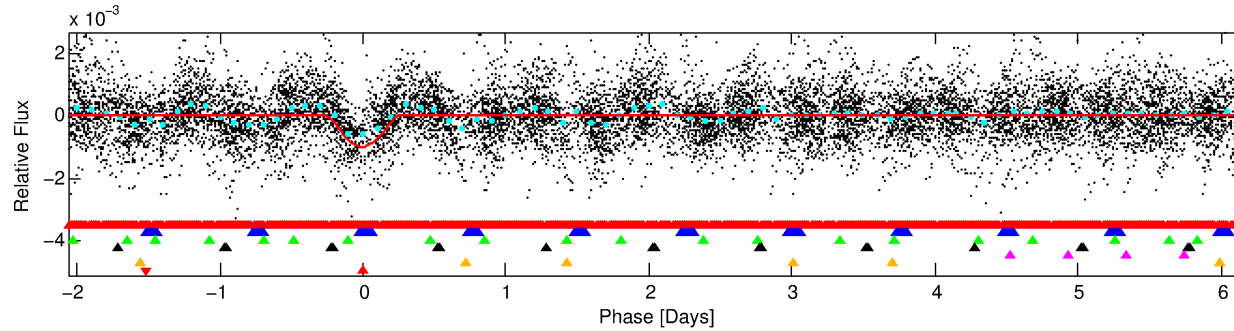
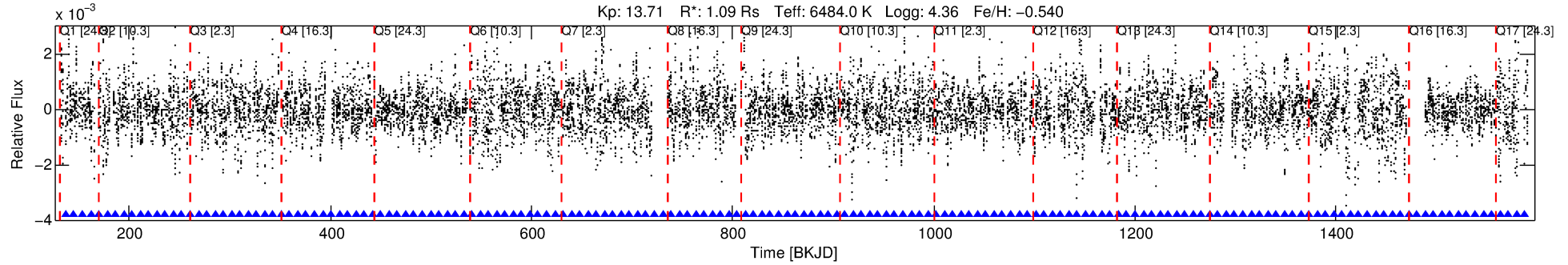
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 009613452-07

No Significant Match Found

DV One-Page Summary

KIC: 9613452 Candidate: 7 of 7 Period: 8.242 d



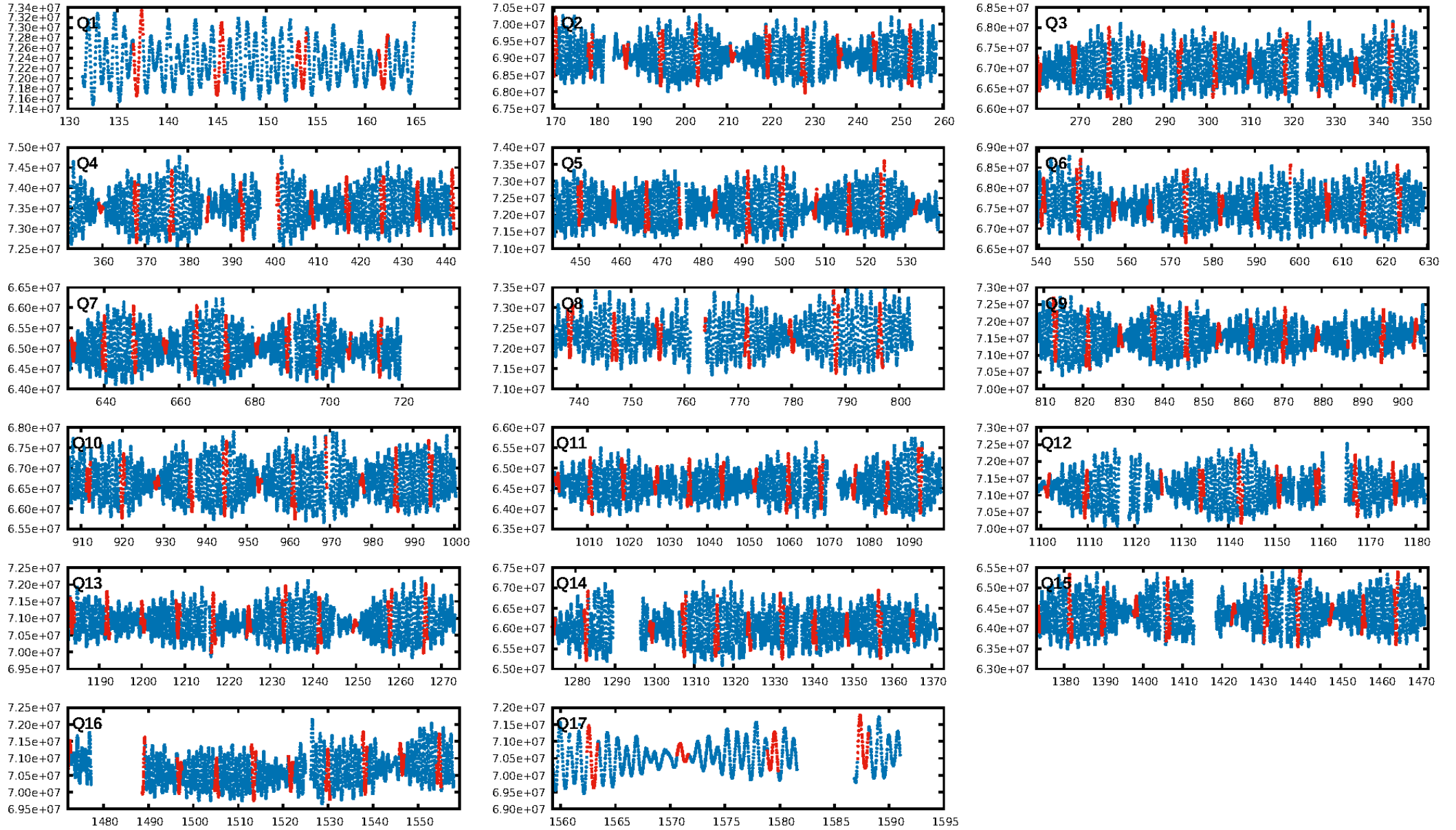
DV Fit Results:

Period = 8.24159 [0.00012] d
Epoch = 137.0872 [0.0114] BKJD
Rp/R* = 0.0544 [0.0516]
a/R* = 2.03 [0.29]
b = 1.00 [0.04]
Seff = 296.94 [108.08]
Teq = 1059 [96] K
Rp = 6.49 [6.40] Re
a = 0.0798 [0.0183] AU
Ag = 16.48 [31.98] [0.48σ]
Teffp = 3297 [1579] K [1.42σ]

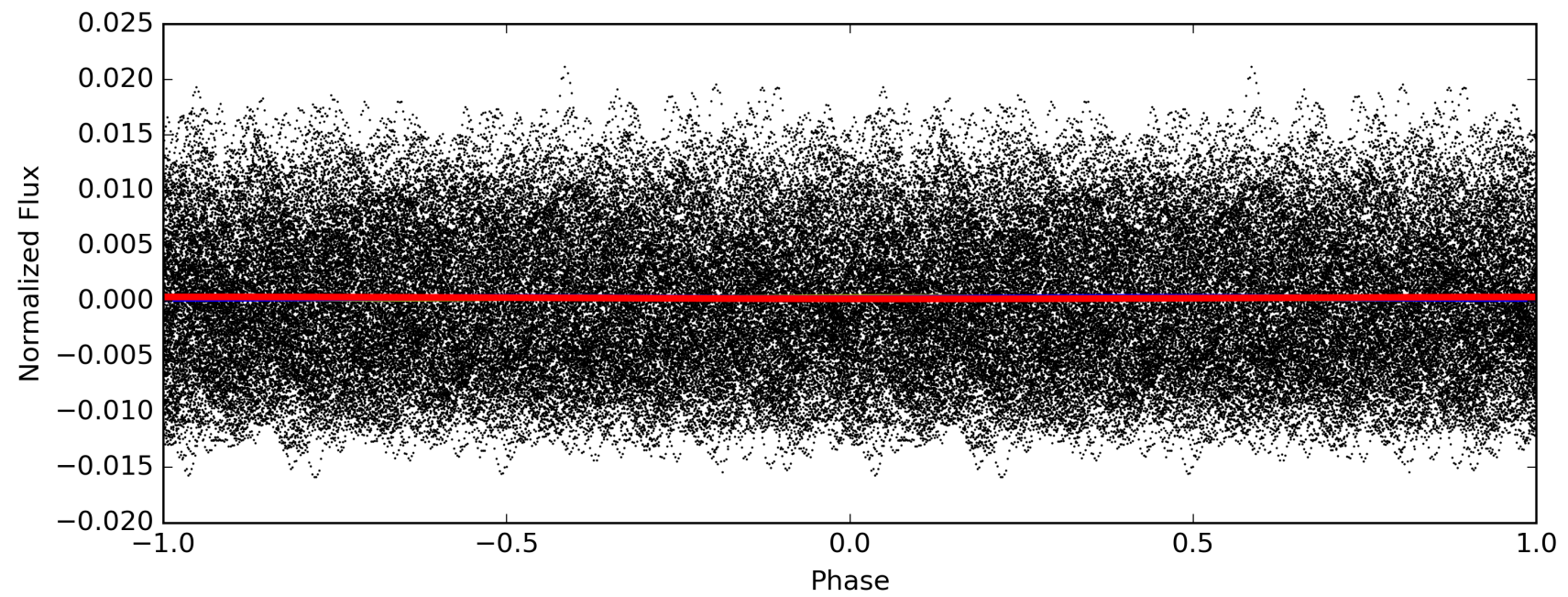
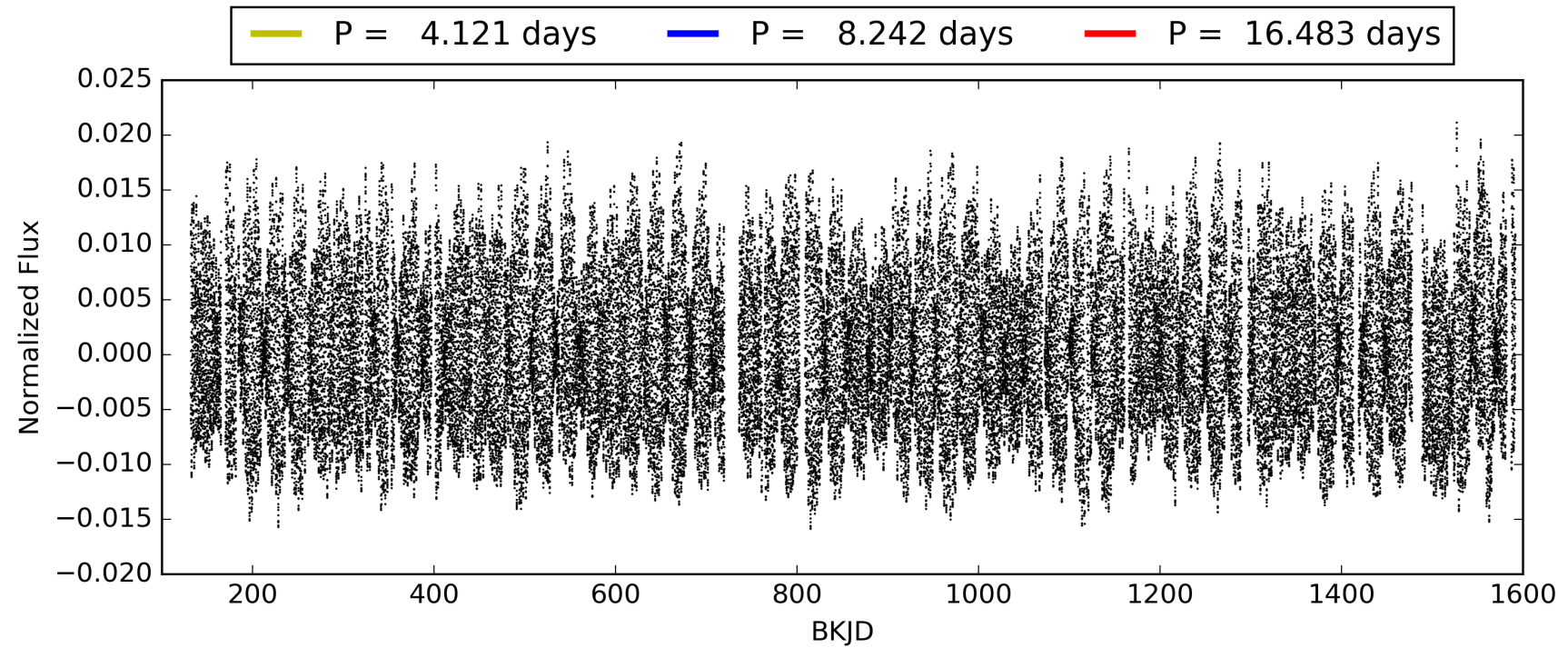
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [8.49σ]
LongPeriod-sig: 100.0% [121.05σ]
ModelChiSquare2-sig: 46.9%
ModelChiSquareGof-sig: 100.0%
Bootstrap-pfa: N/A
RollingBand-fgt: 1.00 [105/105]
GhostDiagnostic-chr: 0.6024
Centroid-sig: 4.8%
Centroid-so: 0.788 arcsec [8.28σ]
OotOffset-rm: 0.305 arcsec [1.67σ]
KicOffset-rm: 0.297 arcsec [1.49σ]
OotOffset-st: 4/4/4/4 [16]
KicOffset-st: 4/4/4/4 [16]
DiffImageQuality-fgm: 0.56 [9/16]
DiffImageOverlap-fno: 0.00 [0/17]

TCE 009613452-07, PDC Light Curves

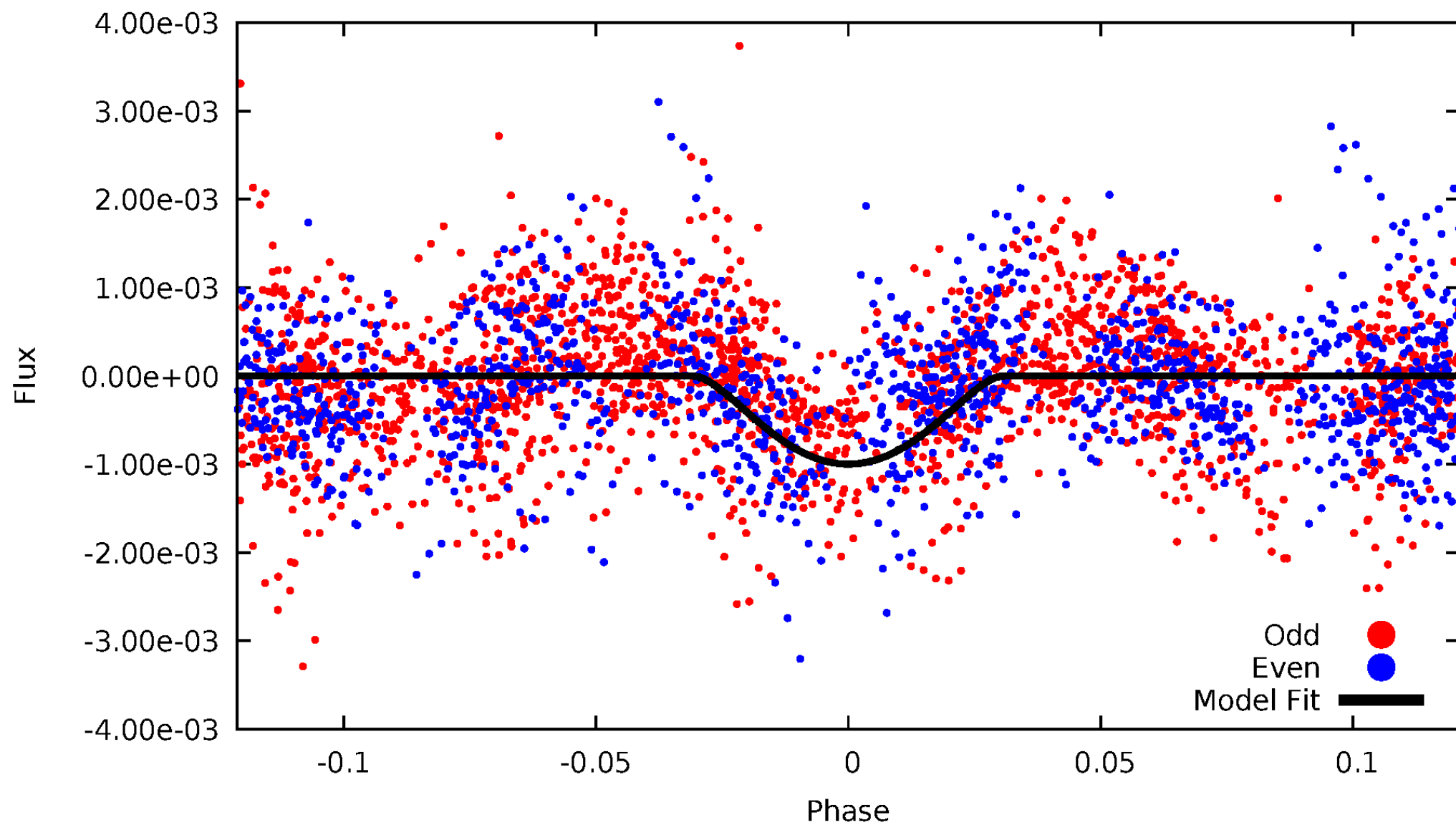


TCE 009613452-07



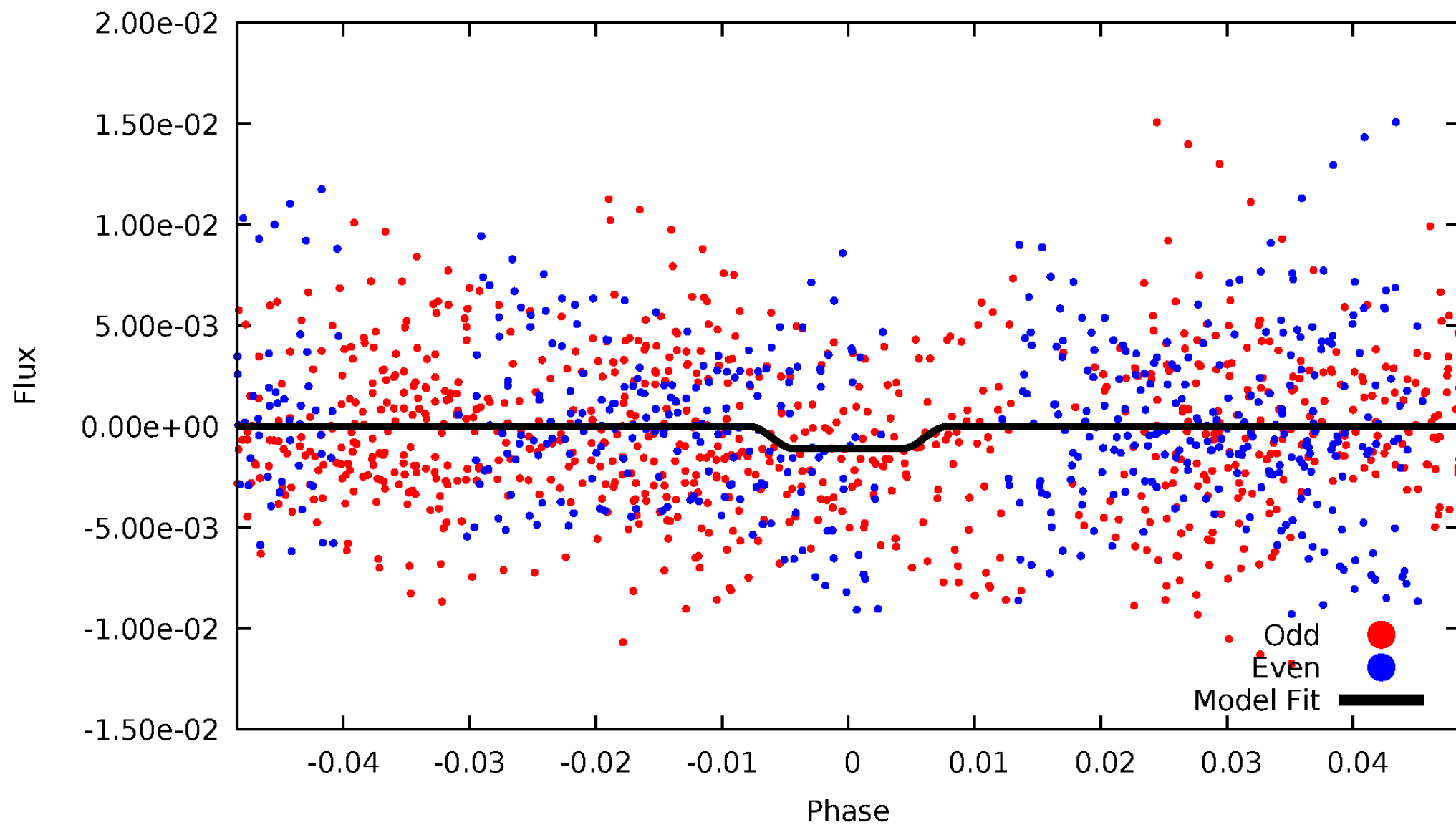
DV Odd/Even

TCE 009613452-07



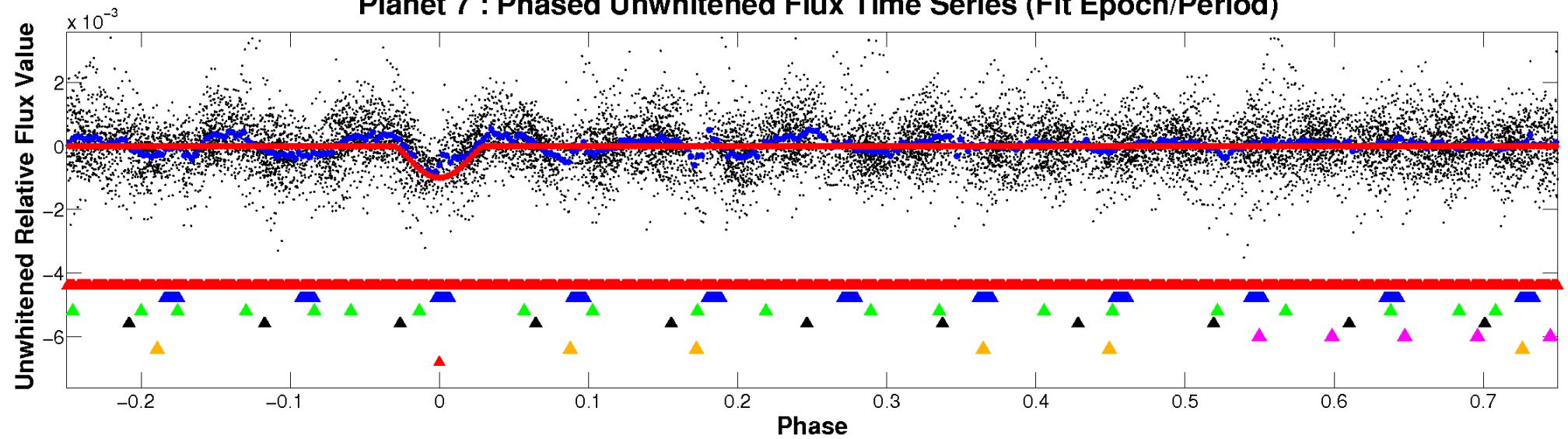
ALT Odd/Even

TCE 009613452-07

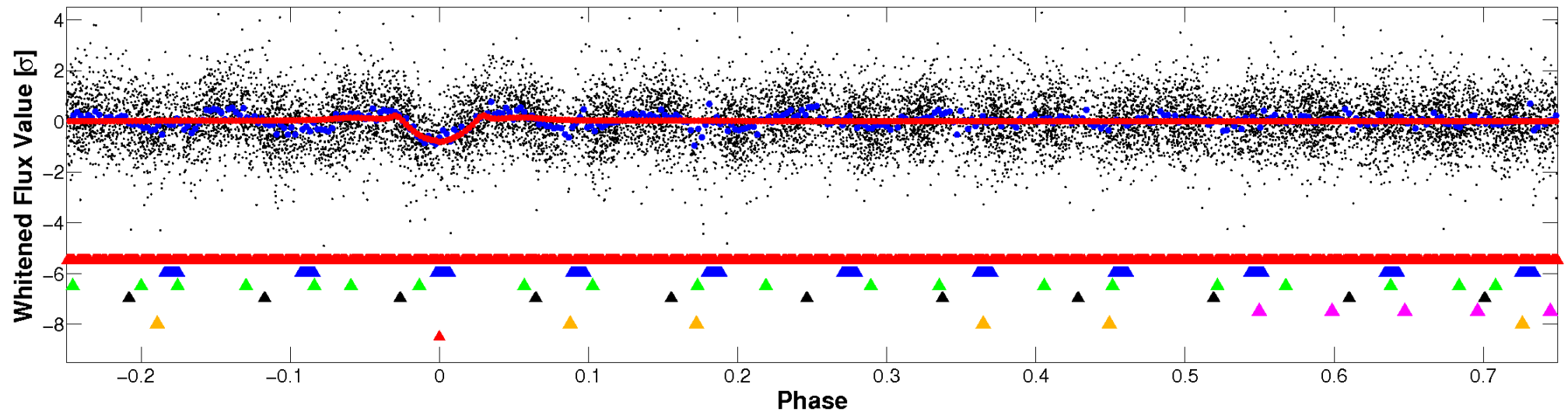


Non-Whitened Vs. Whitened Light Curve

Planet 7 : Phased Unwhitened Flux Time Series (Fit Epoch/Period)

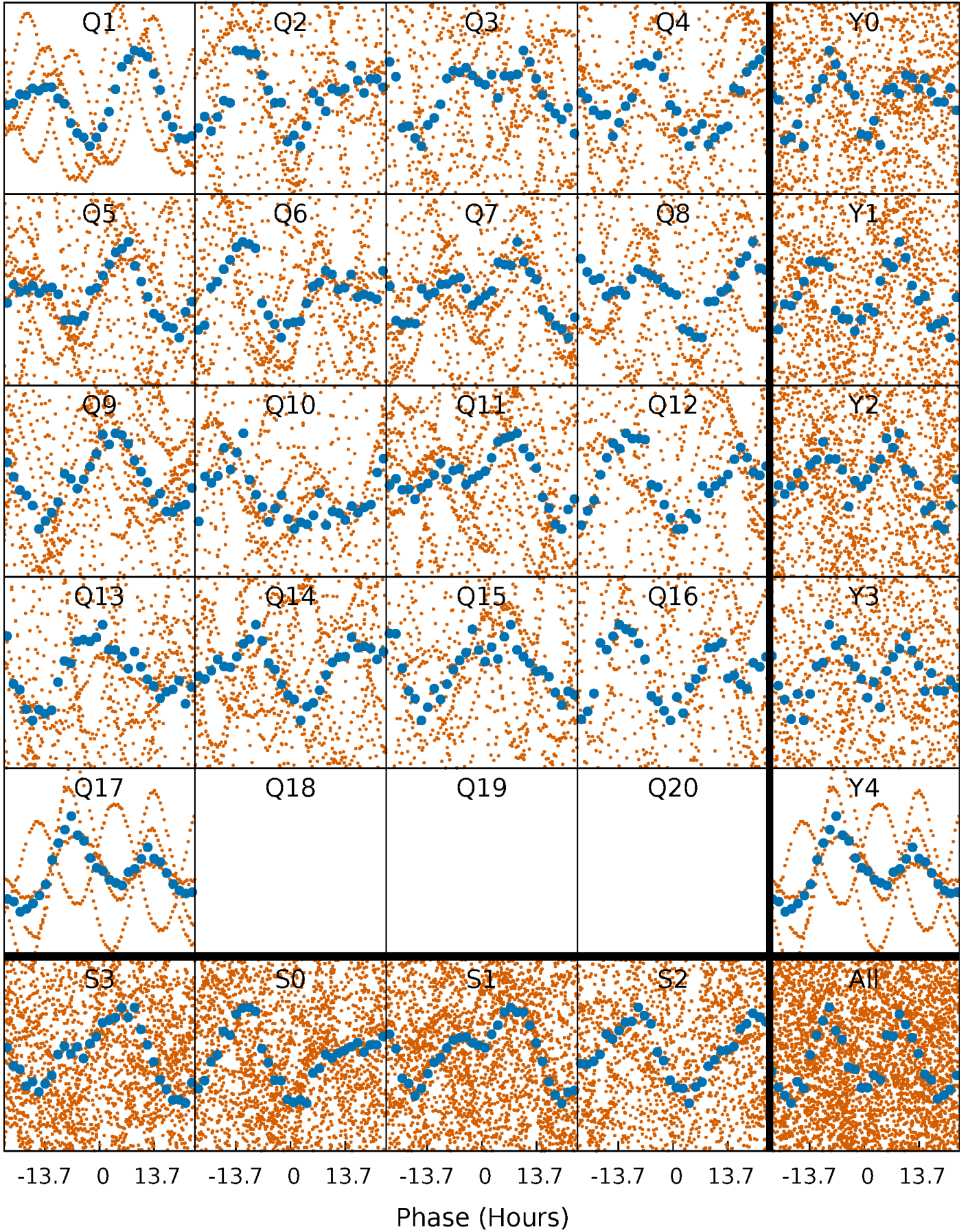


Planet 7 : Phased Whitened Flux Time Series (Fit Epoch/Period)



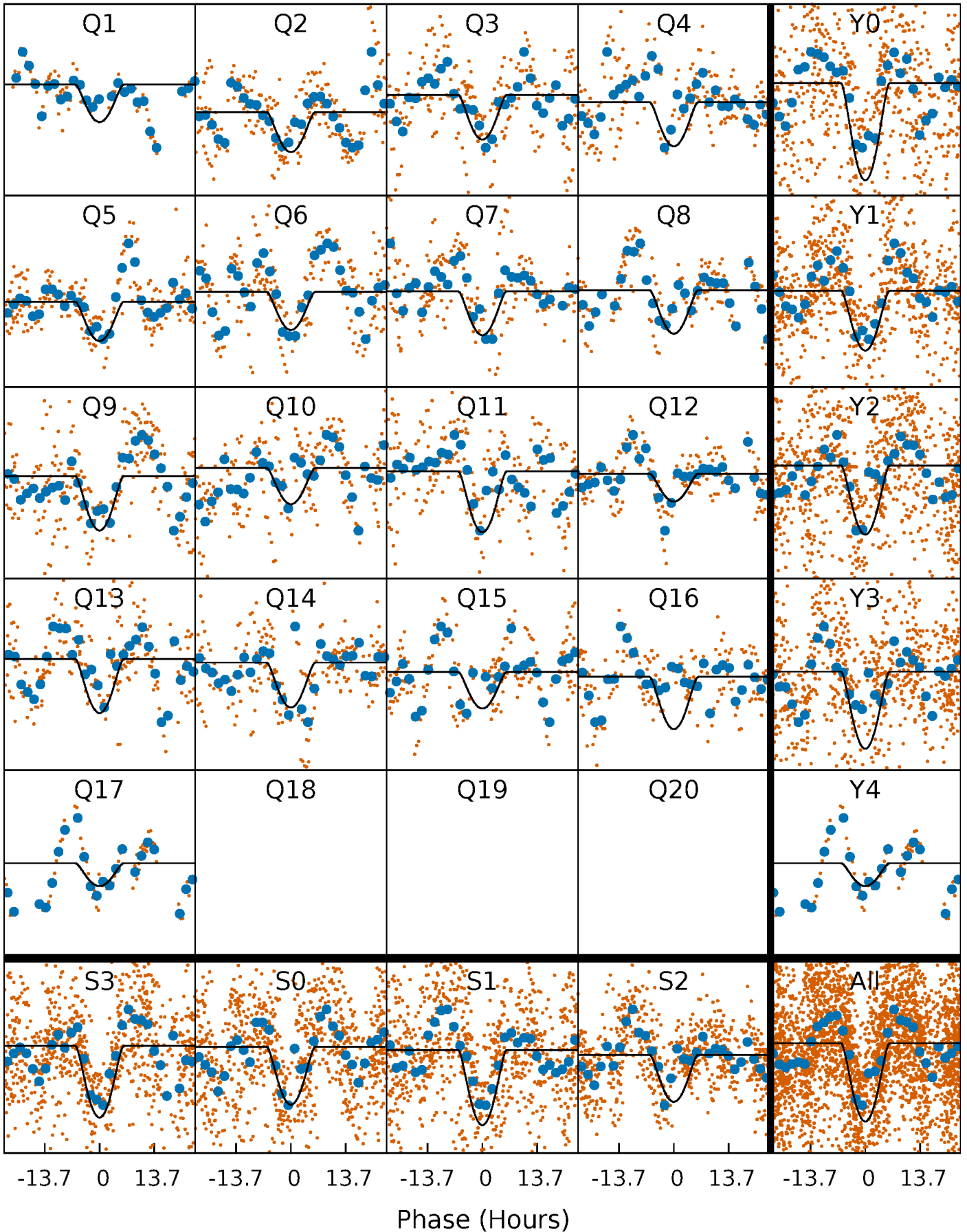
PDC Quarter-Phased Transit Curves

TCE 009613452-07 $P = 8.241587$ Days $T_0 = 137.087167$ (BKJD)



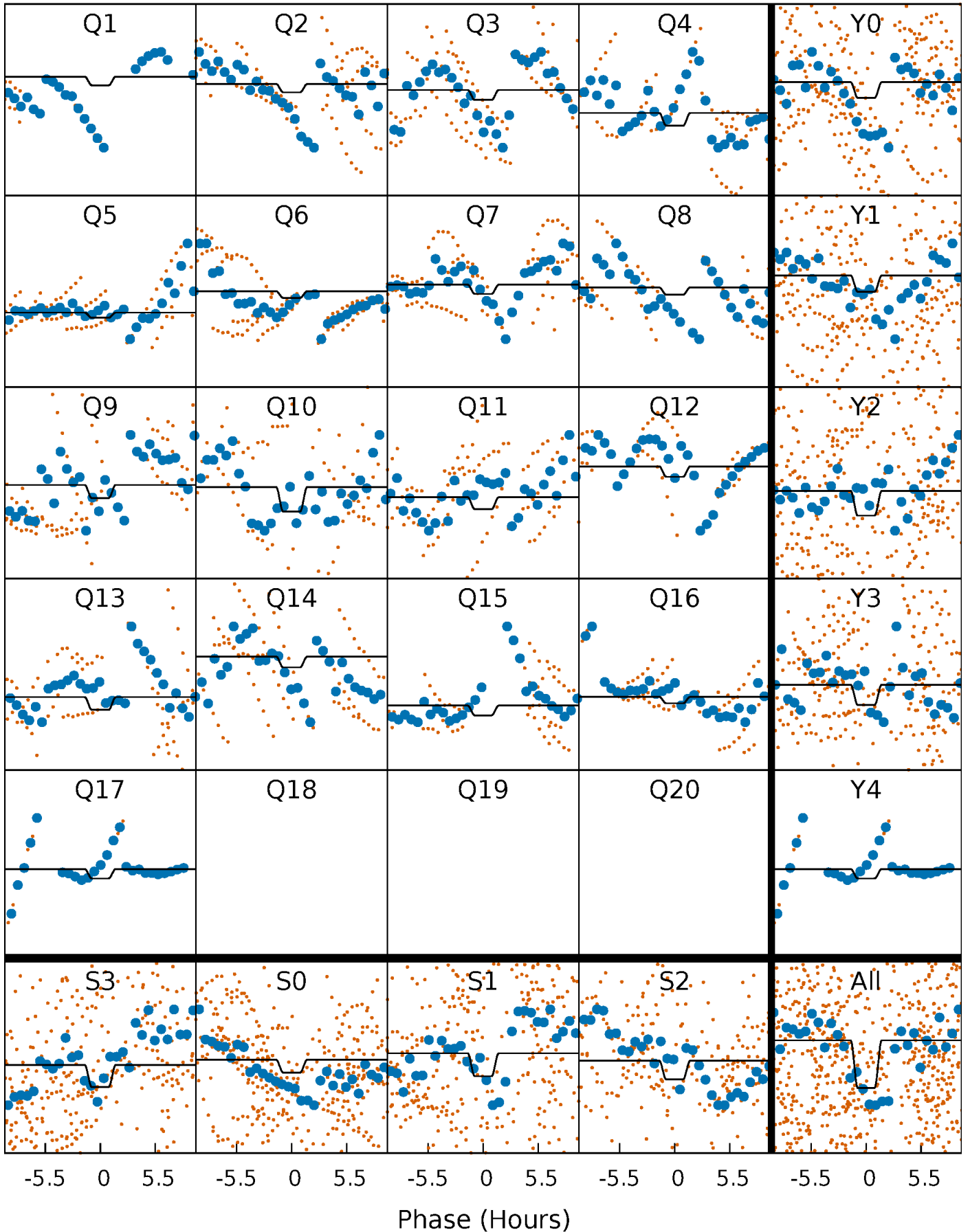
DV Quarter-Phased Transit Curves

TCE 009613452-07 P= 8.241587 Days $T_0=137.087167$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

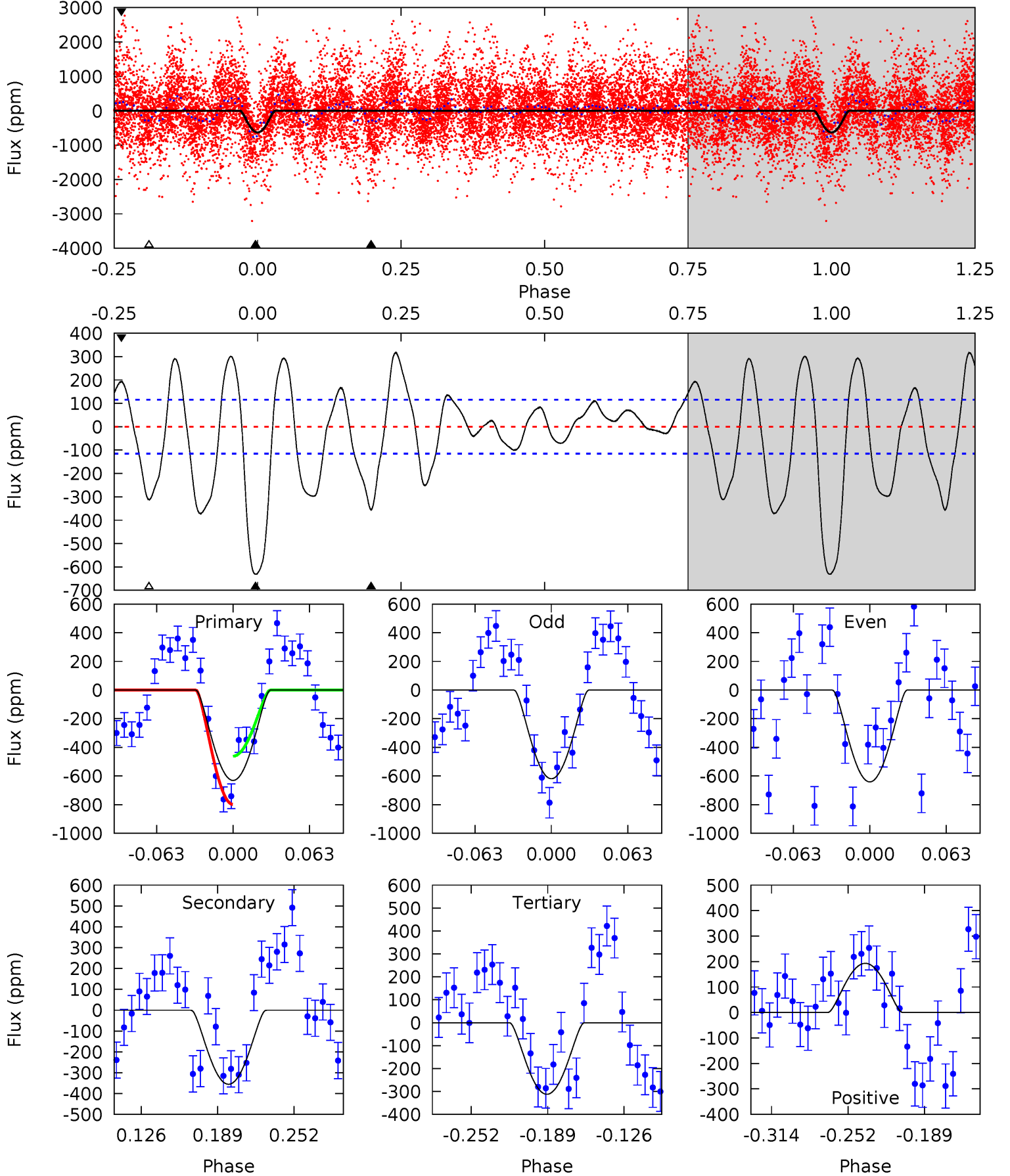
TCE 009613452-07 $P = 8.241262$ Days $T_0 = 137.038038$ (BKJD)



DV Model-Shift Uniqueness Test

009613452-07, P = 8.241587 Days, E = 128.845580 Days

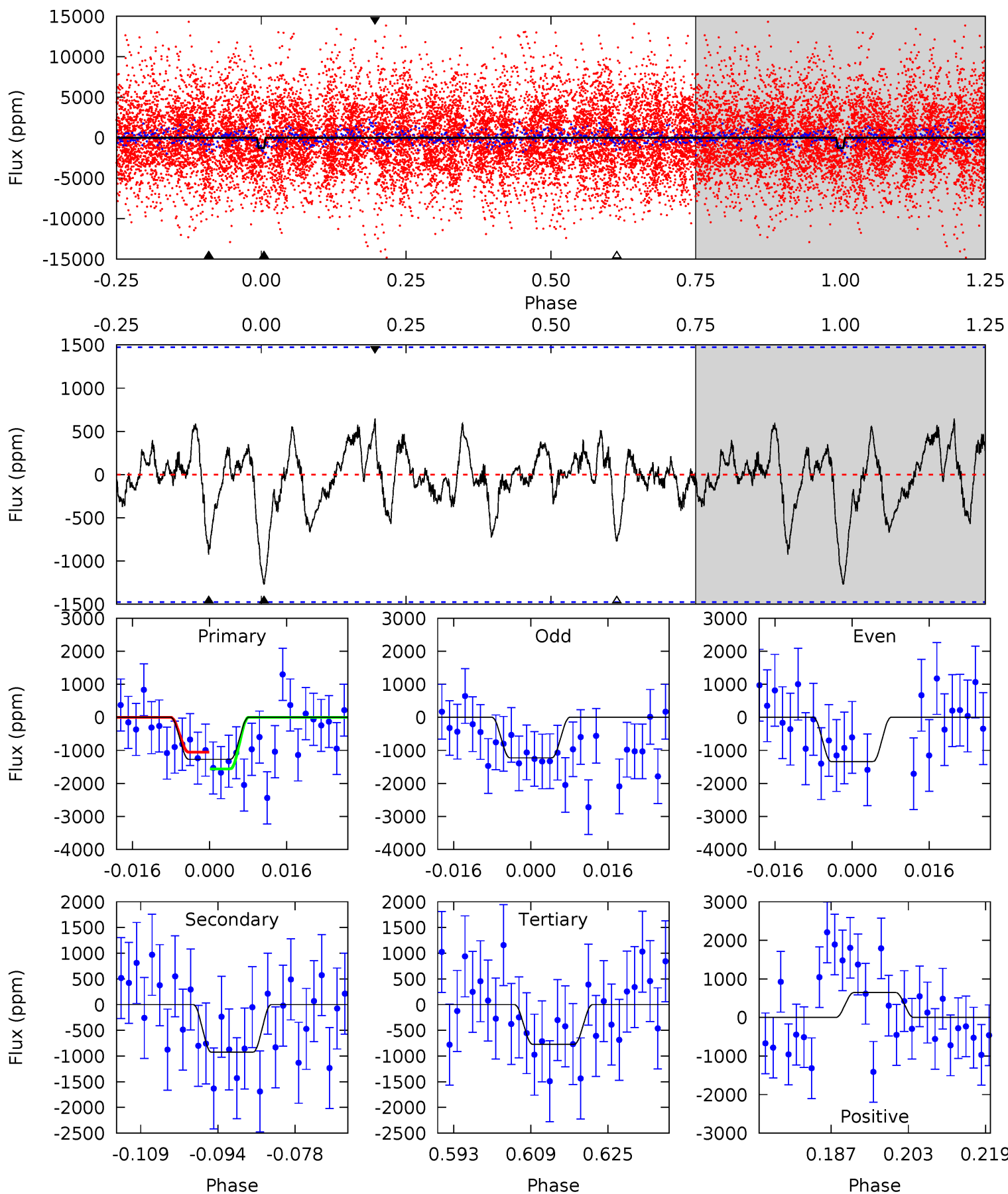
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
25.5	14.4	12.6	7.80	4.66	1.86	5.56	12.9	17.7	1.75	6.56	0.45	1.19	0.33	6.72



Alt Model-Shift Uniqueness Test

009613452-07, P = 8.241262 Days, E = 128.796776 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
4.26	3.10	2.59	2.17	4.94	2.42	0.83	1.68	2.09	0.51	0.93	0.18	0.88	0.34	0.83



Stellar Parameters For KIC 009613452

	$T_{\text{eff}} (K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M (M_{\odot})$	$p_{\star} (g \cdot \text{cm}^{-3})$
	6484^{+155}_{-213}	$4.360^{+0.101}_{-0.188}$	$-0.540^{+0.300}_{-0.300}$	$1.093^{+0.293}_{-0.158}$	$0.998^{+0.133}_{-0.106}$	$1.076^{+0.556}_{-0.495}$
	+2%/-3%	+2%/-4%	+56%/-56%	+27%/-14%	+13%/-11%	+52%/-46%
Source	PHO1	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 009613452-07 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-355 ± 25	$8.07^{+6.01}_{-5.17}$	1492^{+96}_{-75}	3809^{+1975}_{-602}	19^{+132}_{-13}
Alt.	-925 ± 298	$5.92^{+6.14}_{-3.90}$	1489^{+106}_{-75}	5157^{+4381}_{-1274}	93^{+707}_{-73}

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

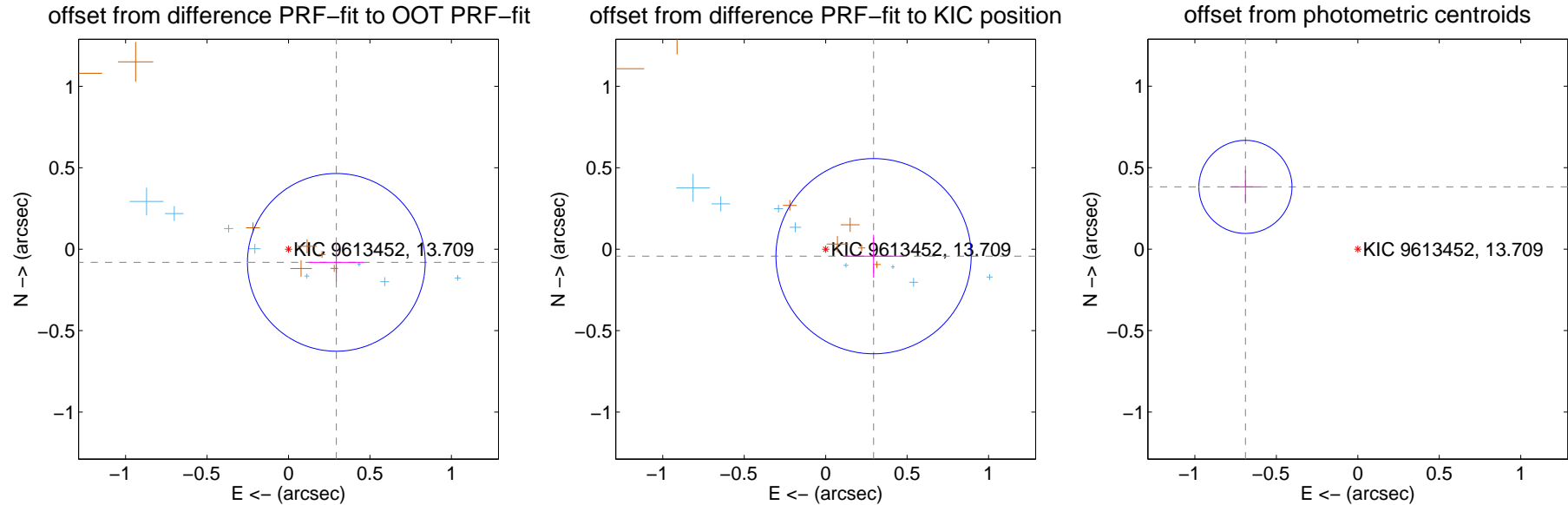
DV Centroid Data

Supplemental centroid analysis for 009613452-07. Kepler magnitude: 13.71. Transit SNR 13.12

There are 9 quarters with good PRF difference image offsets

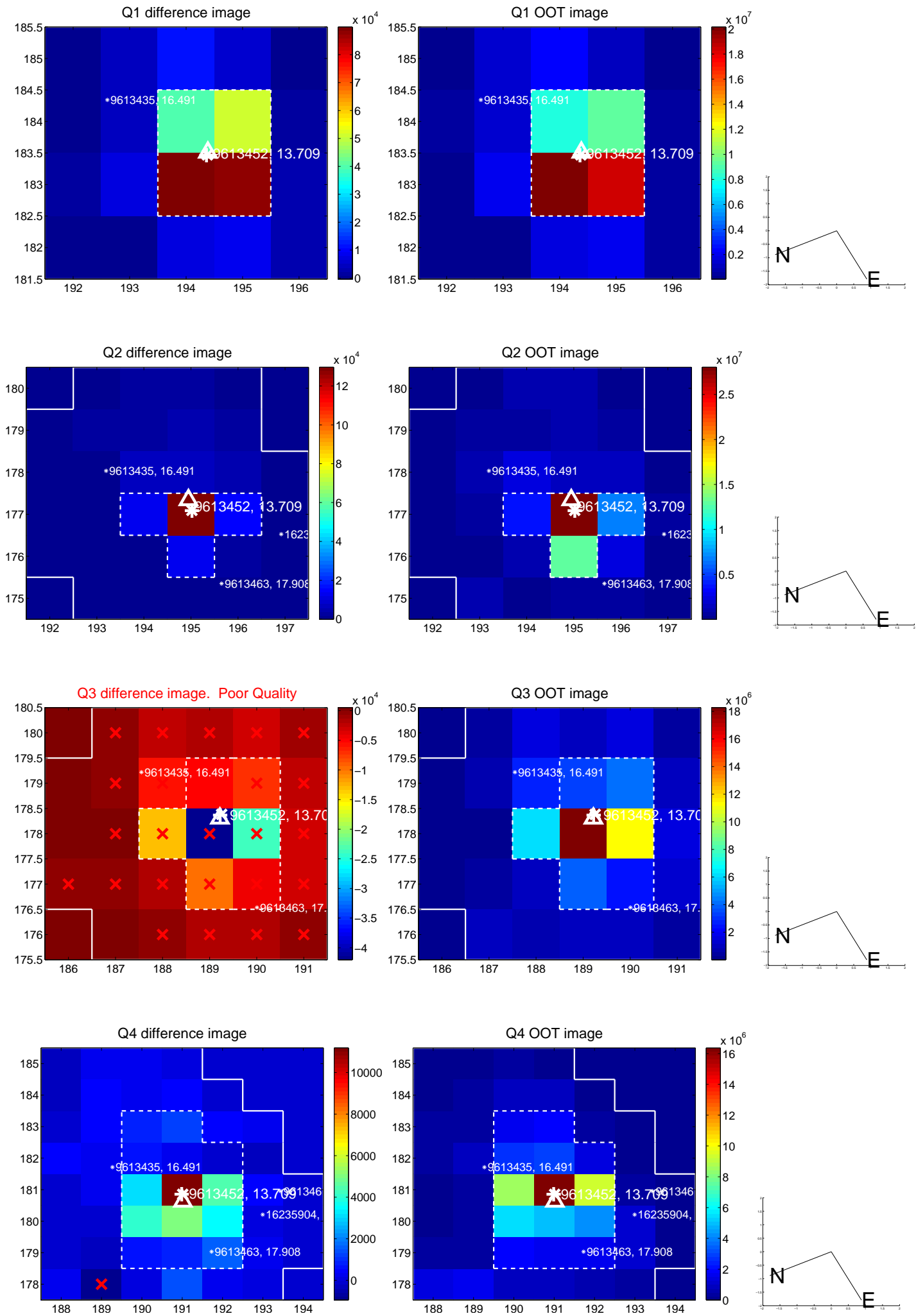
The direct PRF centroid is offset from the target star catalog position by about 0.14 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.305 ± 0.182	1.67	-0.294 ± 0.167	-0.081 ± 0.117
PRF-fit source offset from KIC position	0.297 ± 0.200	1.49	-0.294 ± 0.188	-0.043 ± 0.132
photometric centroid source offset	0.79 ± 0.10	8.28	0.69 ± 0.09	0.38 ± 0.10

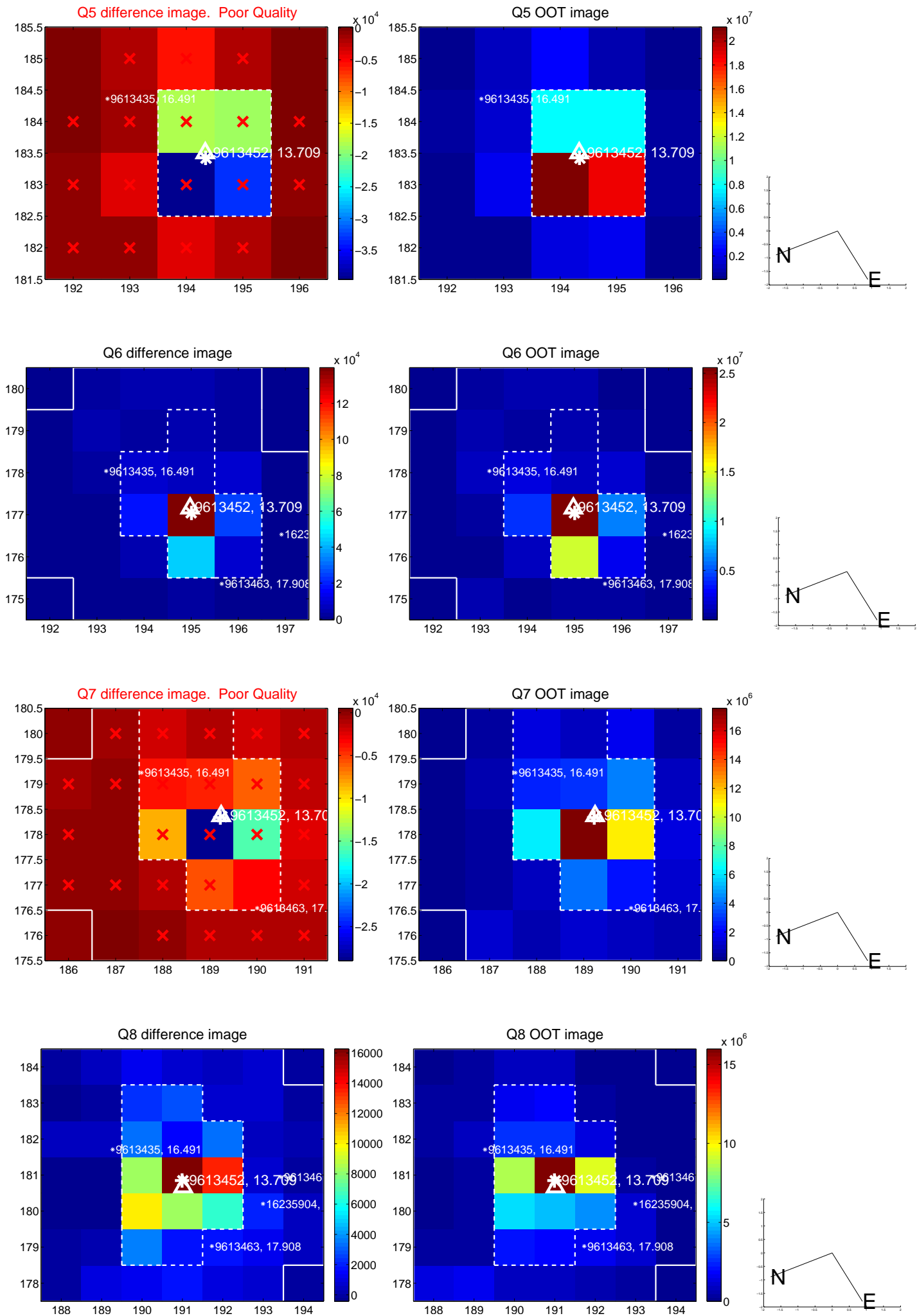


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets**; **Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

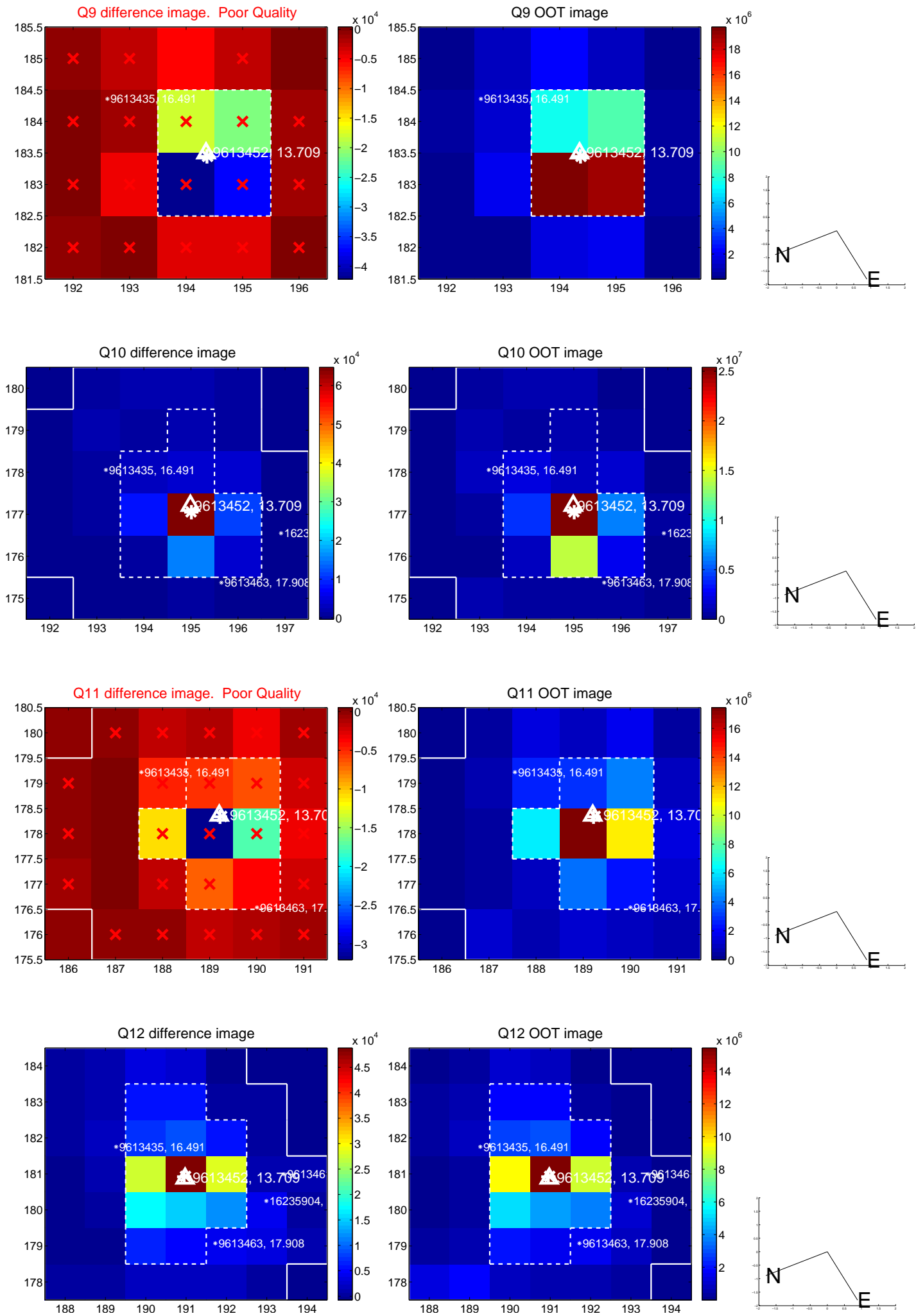
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



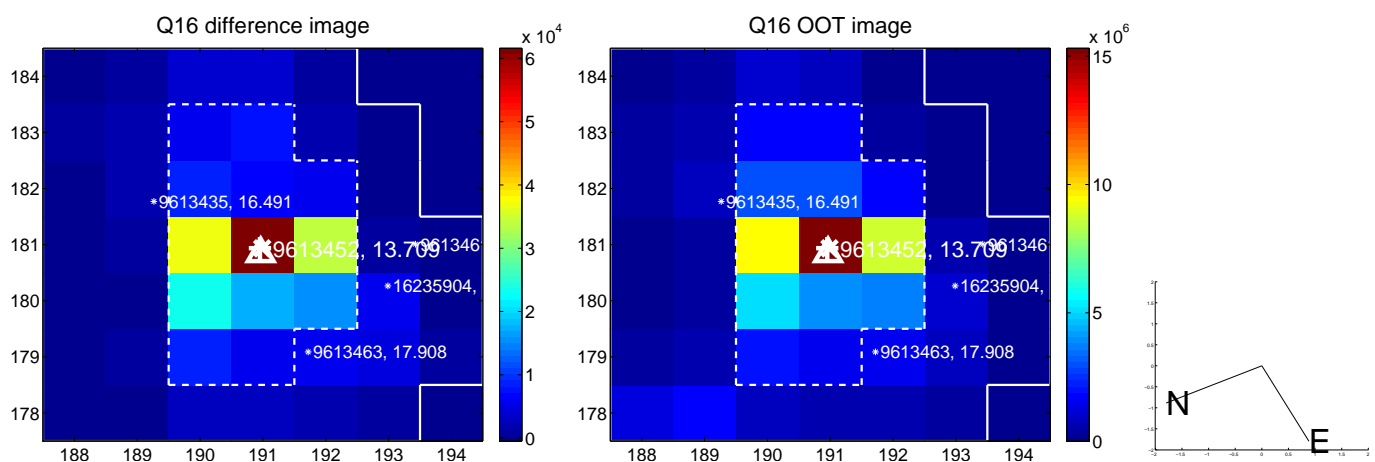
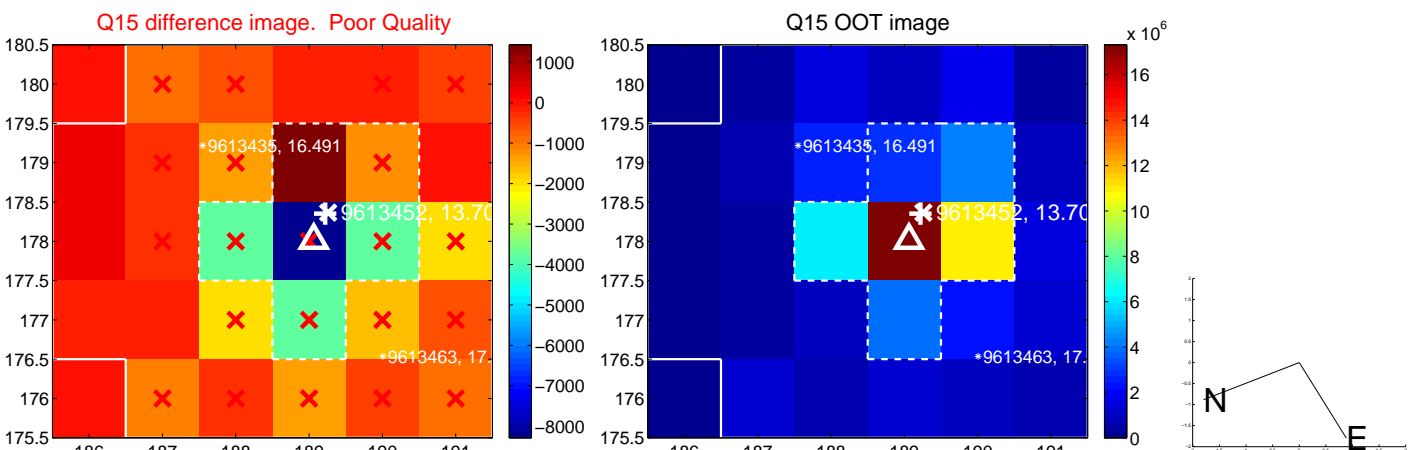
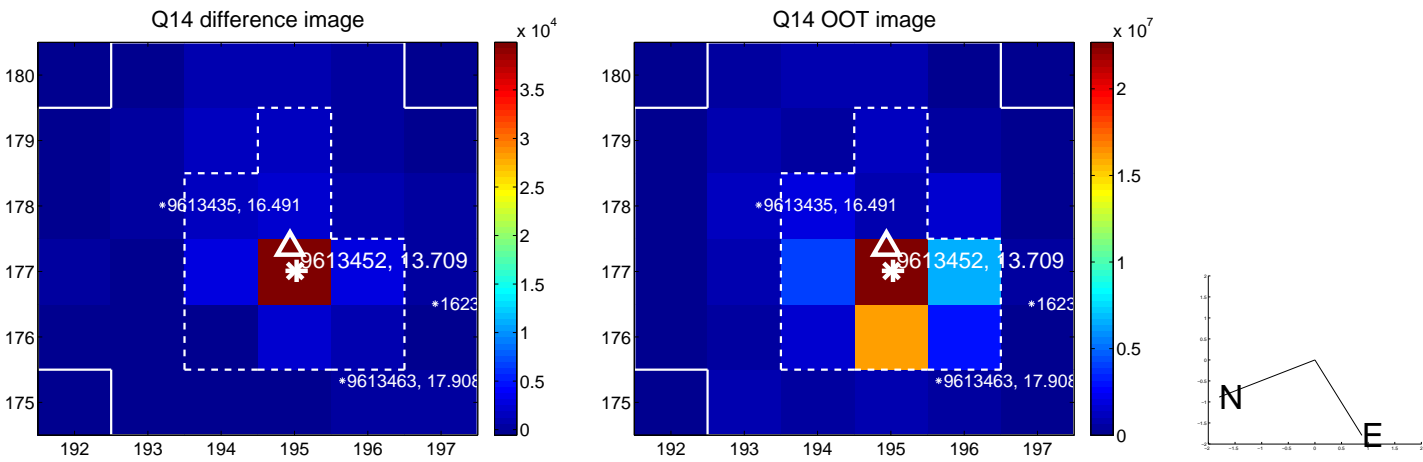
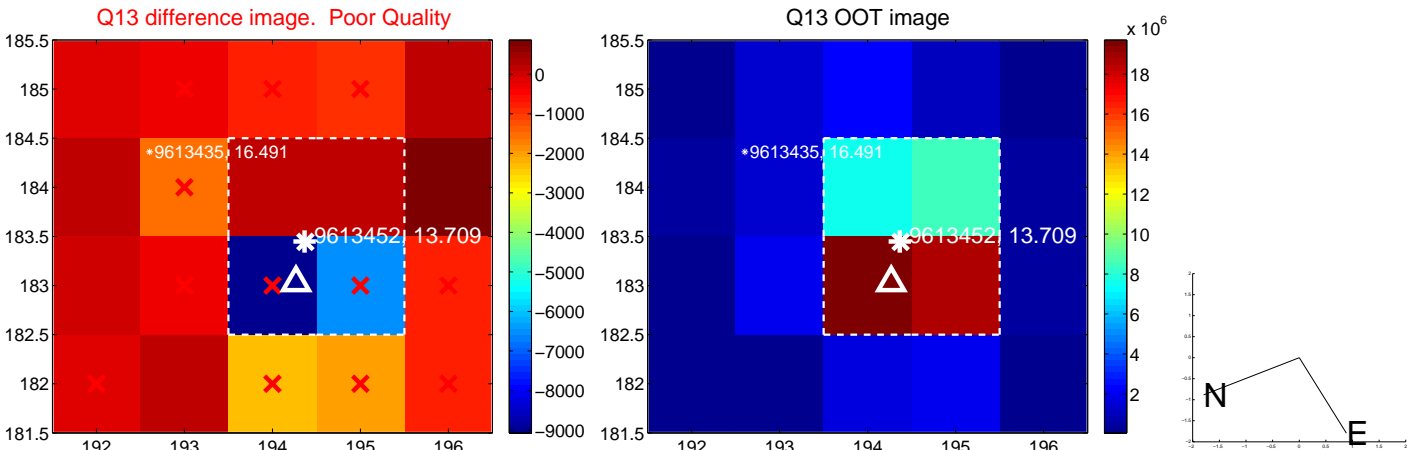
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



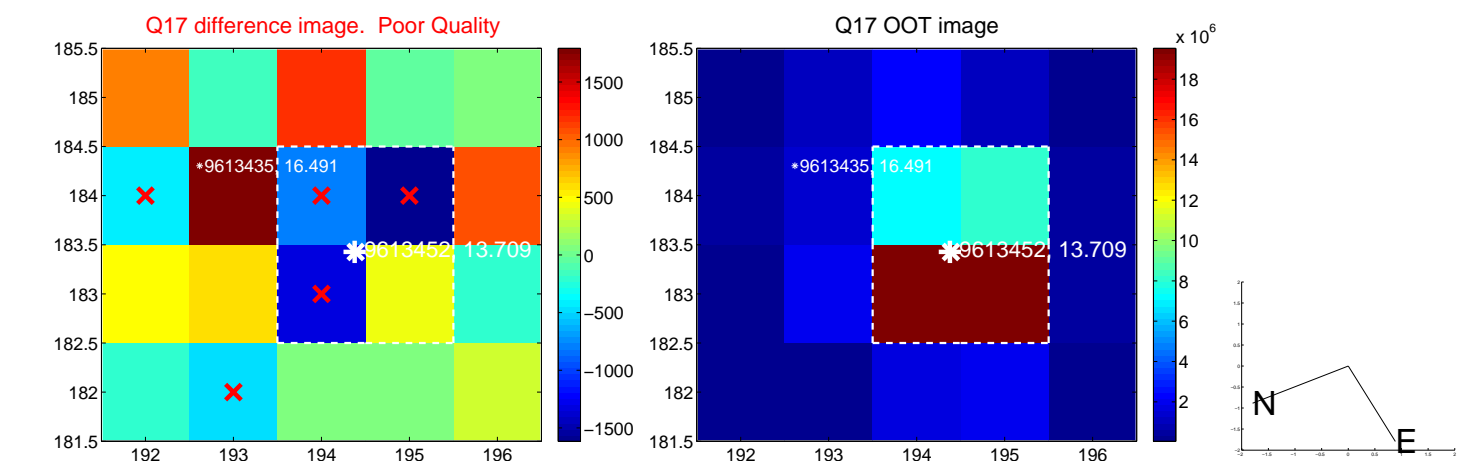
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



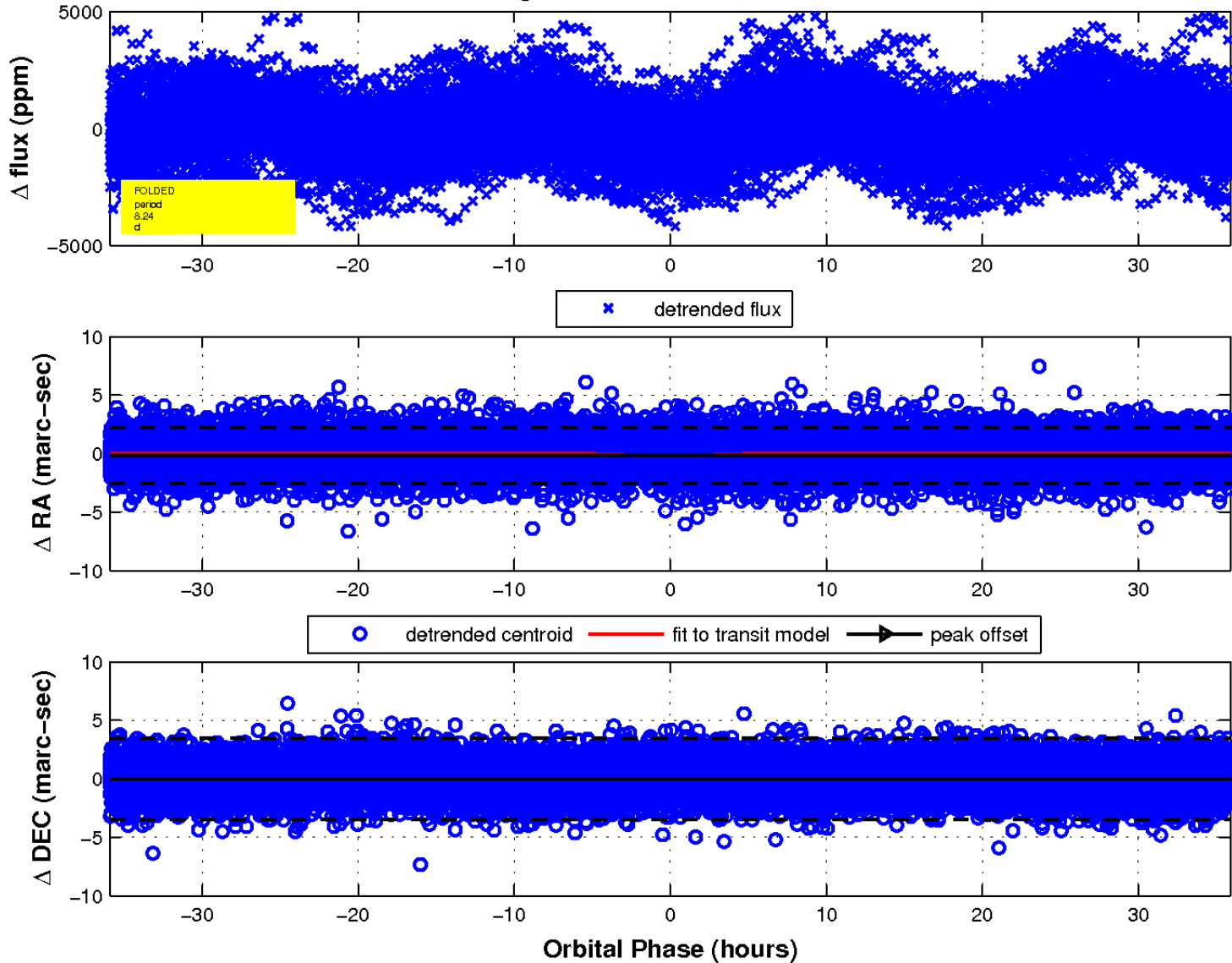
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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



fluxWeightedCentroids, Planet 7 of 7



UKIRT Image

Declination

