

KIC 004048494

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})
004048494-01	OBS	No	0.877329	131.582241	121.2	1.170	14.0	15.1	2.52	7852	2.98	43715.56
004048494-02	OBS	No	0.657978	132.041484	77.3	1.296	10.8	8.9	2.52	7852	2.58	64155.99
004048494-03	OBS	No	0.806793	131.673126	71.1	5.160	7.9	9.5	2.52	7852	2.46	48884.35

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
004048494-01	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_SATURATED
004048494-02	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_ALT—MOD_POS_ALT—CENT_SATURATED
004048494-03	OBS	FP	0.00	1	0	0	0	TRANS_GAPPED—LPP_DV—LPP_ALT—CENT_SATURATED

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

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

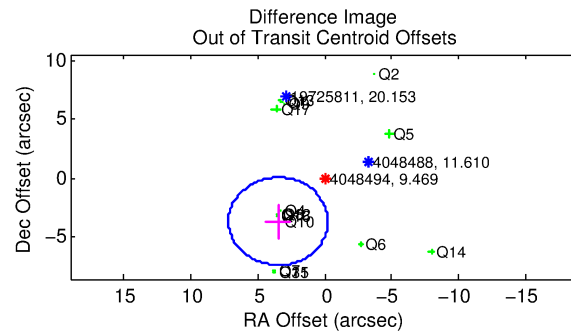
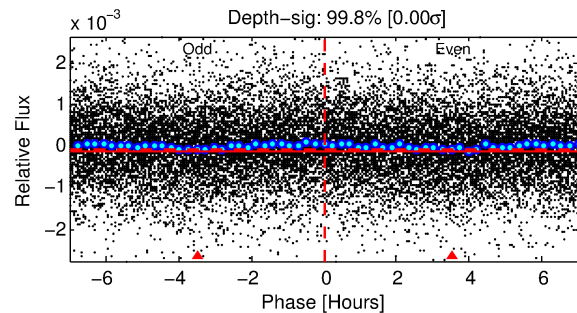
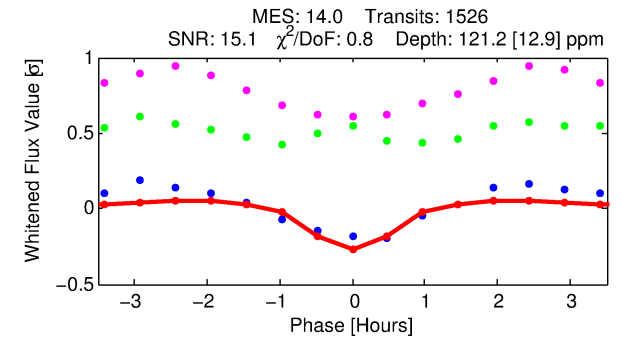
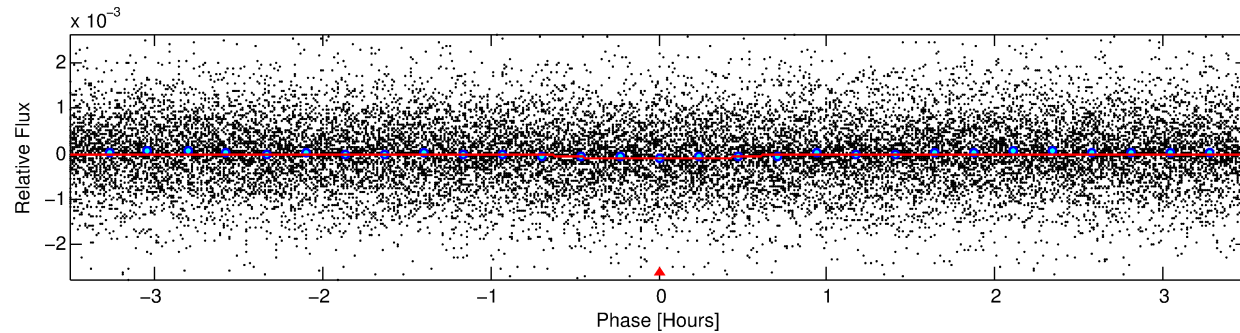
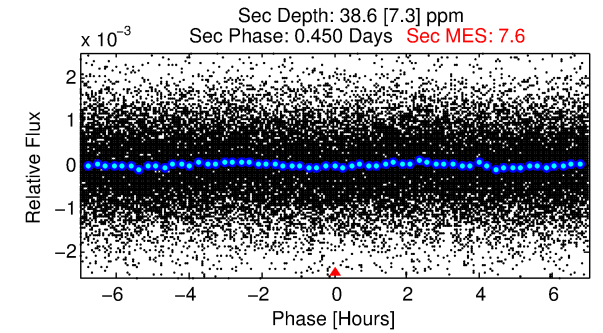
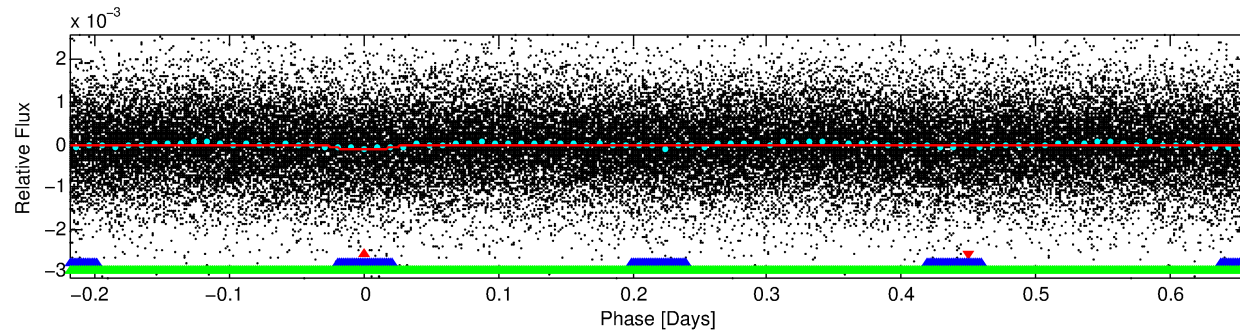
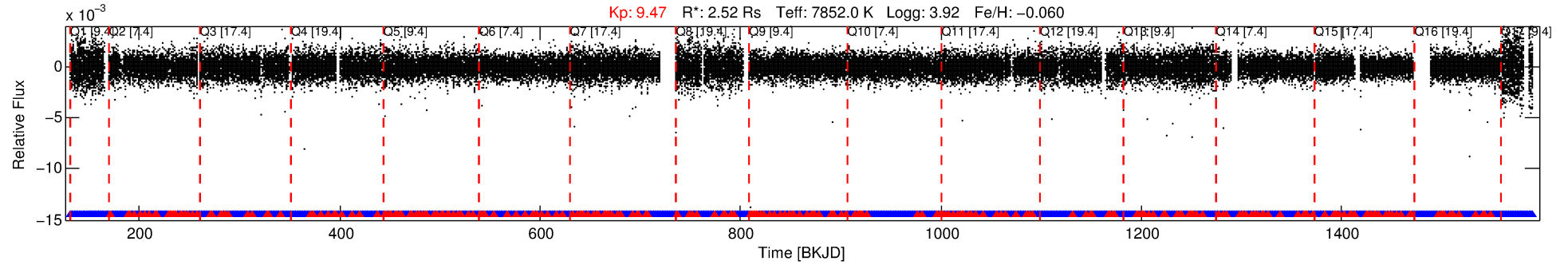
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 004048494-01

No Significant Match Found

DV One-Page Summary

KIC: 4048494 Candidate: 1 of 3 Period: 0.877 d



DV Fit Results:

Period = 0.87733 [0.00001] d
Epoch = 131.5822 [0.0017] BKJD
Rp/R* = 0.0109 [0.0033]
a/R* = 4.29 [7.25]
b = 0.69 [1.34]
Seff = 43715.56 [22689.89]
Teq = 3687 [478] K
Rp = 2.98 [1.39] Re
a = 0.0222 [0.0071] AU
Ag = 1.18 [0.94] [0.19σ]
Teffp = 5941 [967] K [2.09σ]

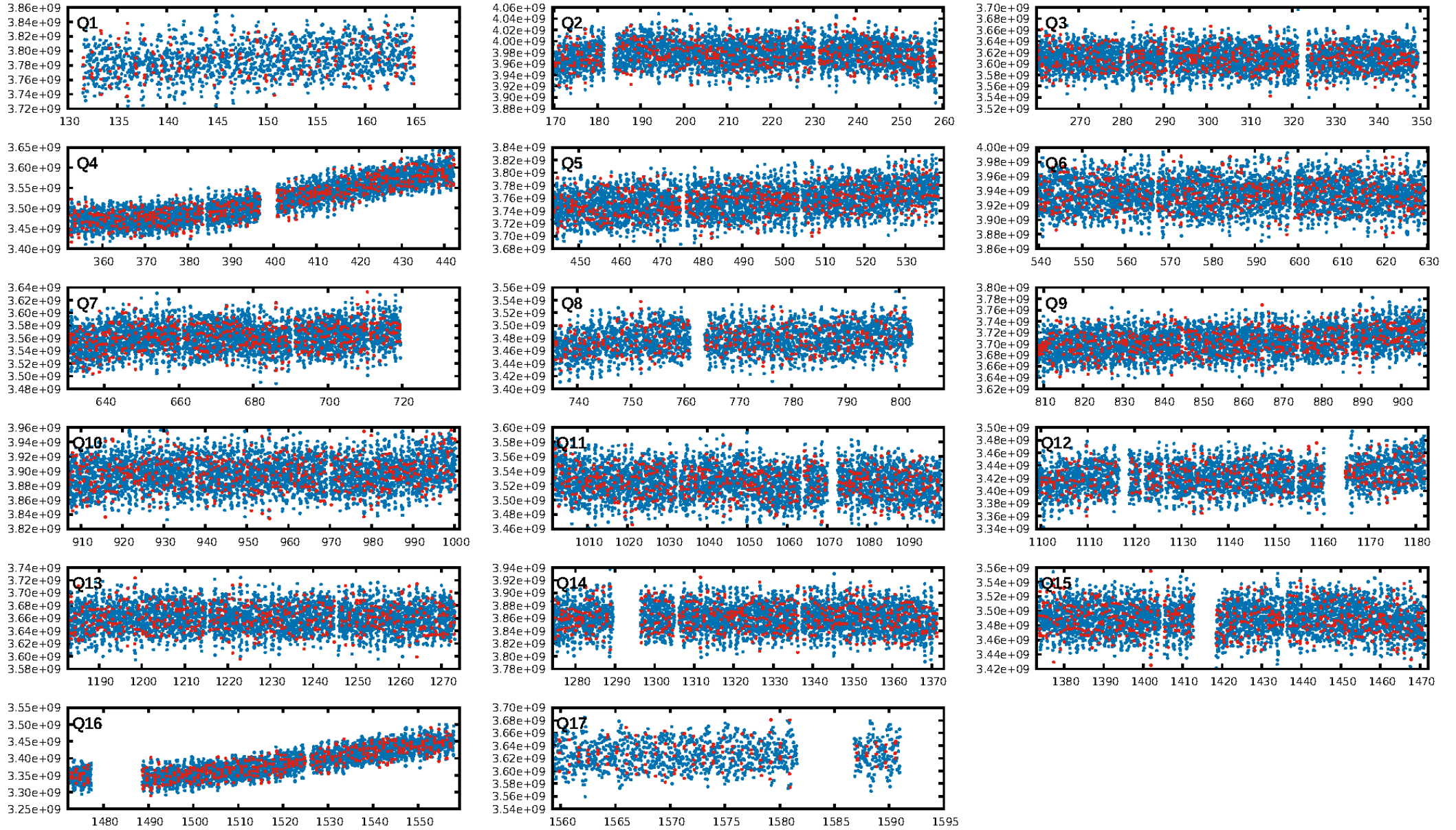
DV Diagnostic Results:

ShortPeriod-sig: 25.1% [0.32σ]
LongPeriod-sig: N/A
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: 3.72e-29
RollingBand-fgt: 0.81 [1186/1457]
GhostDiagnostic-chr: N/A
Centroid-sig: N/A
Centroid-so: 1.869 arcsec [3.97σ]
OotOffset-rm: 5.022 arcsec [4.07σ]
KicOffset-rm: 7.238 arcsec [5.61σ]
OotOffset-st: 4/4/4/5 [17]
KicOffset-st: 4/4/4/5 [17]
DiffImageQuality-fgm: 0.00 [0/17]
DiffImageOverlap-fno: 0.00 [0/17]

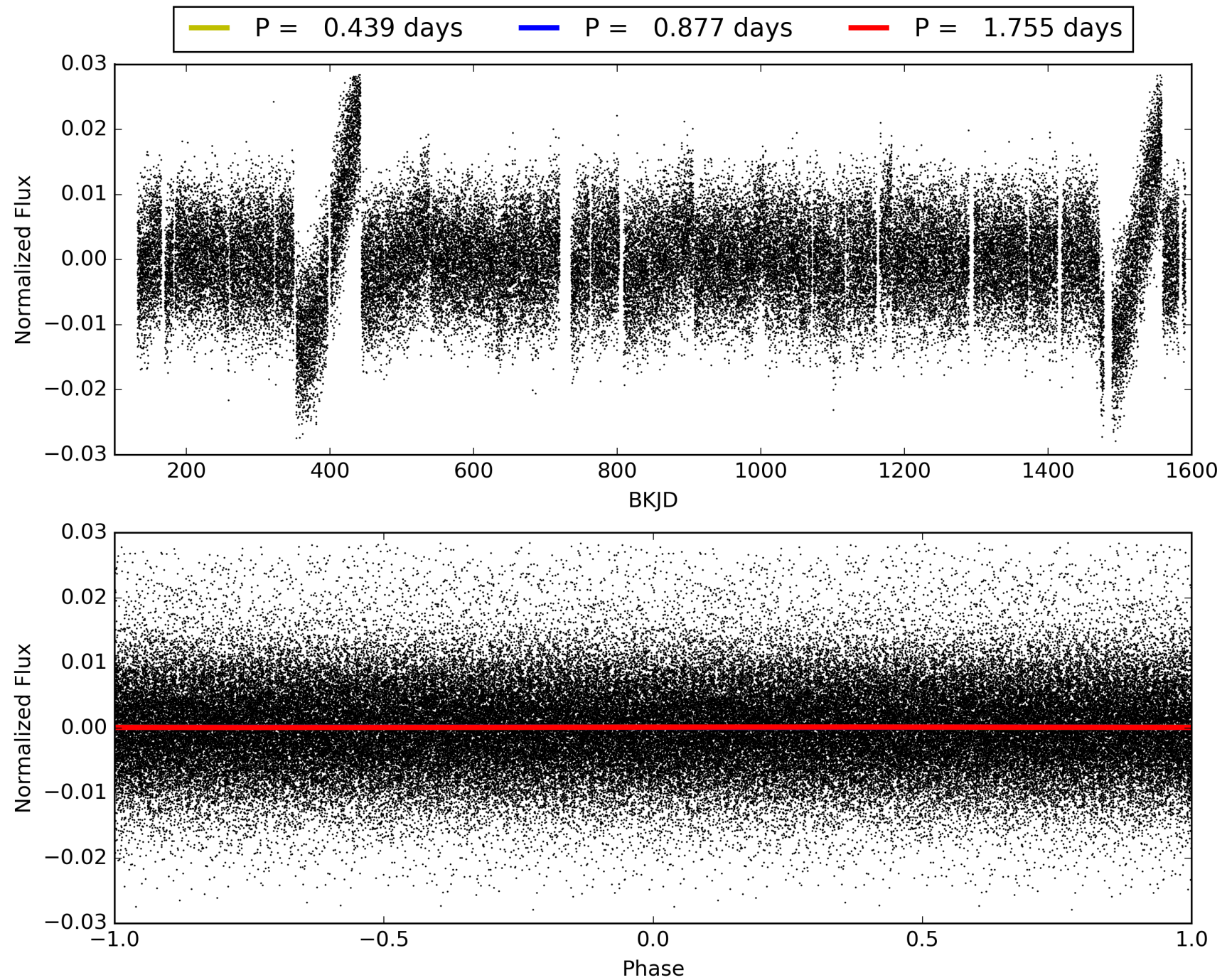
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 01-Feb-2016 11:17:42 Z

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

TCE 004048494-01, PDC Light Curves

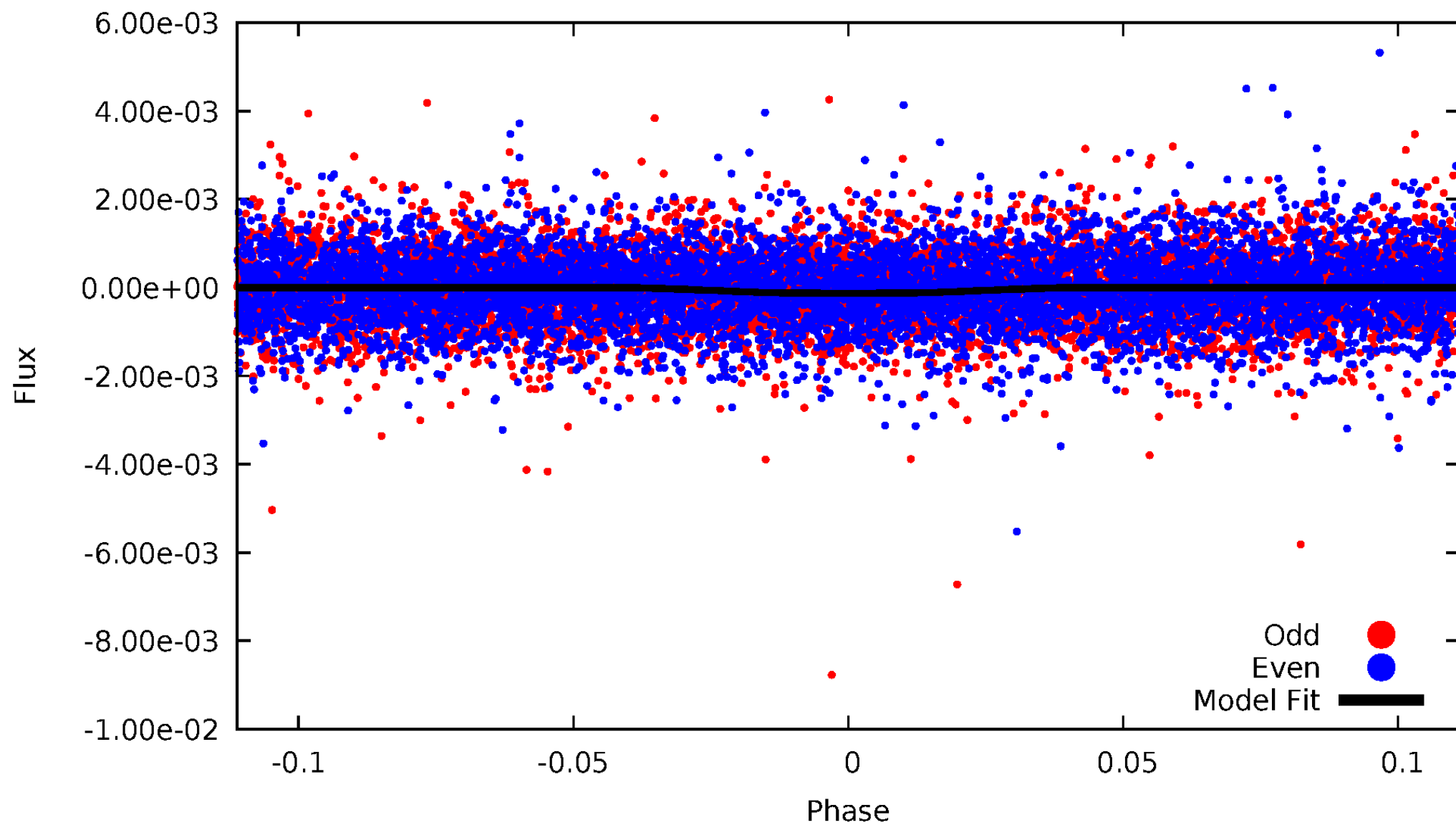


TCE 004048494-01



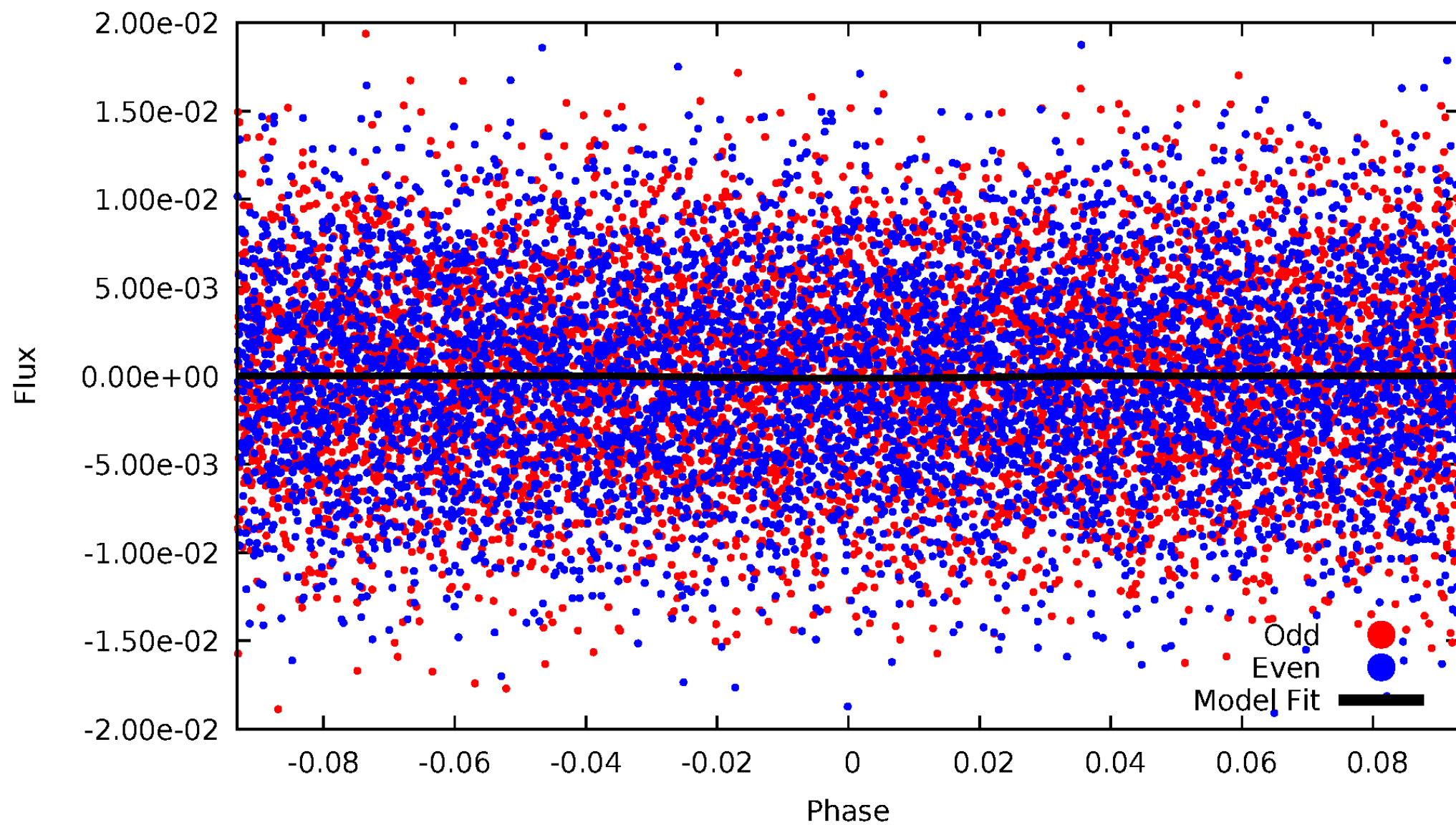
DV Odd/Even

TCE 004048494-01



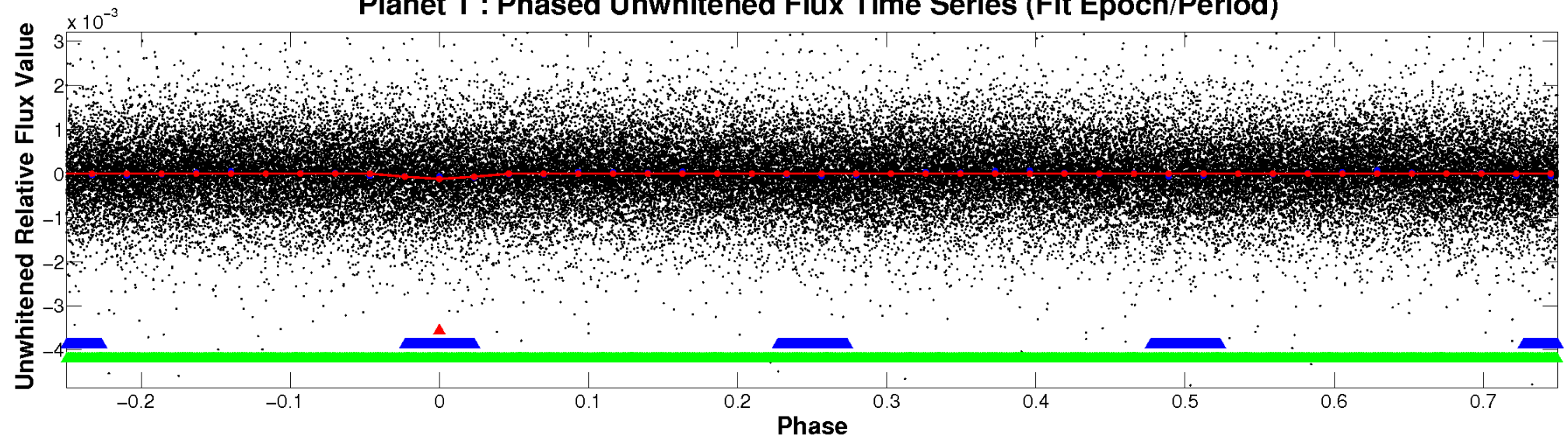
ALT Odd/Even

TCE 004048494-01

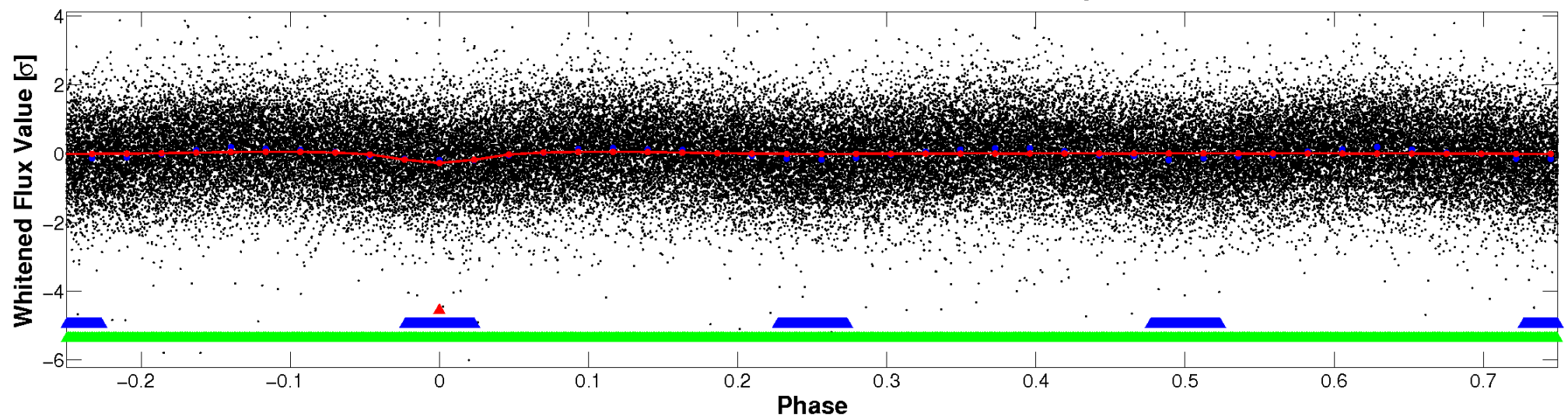


Non-Whitened Vs. Whitened Light Curve

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

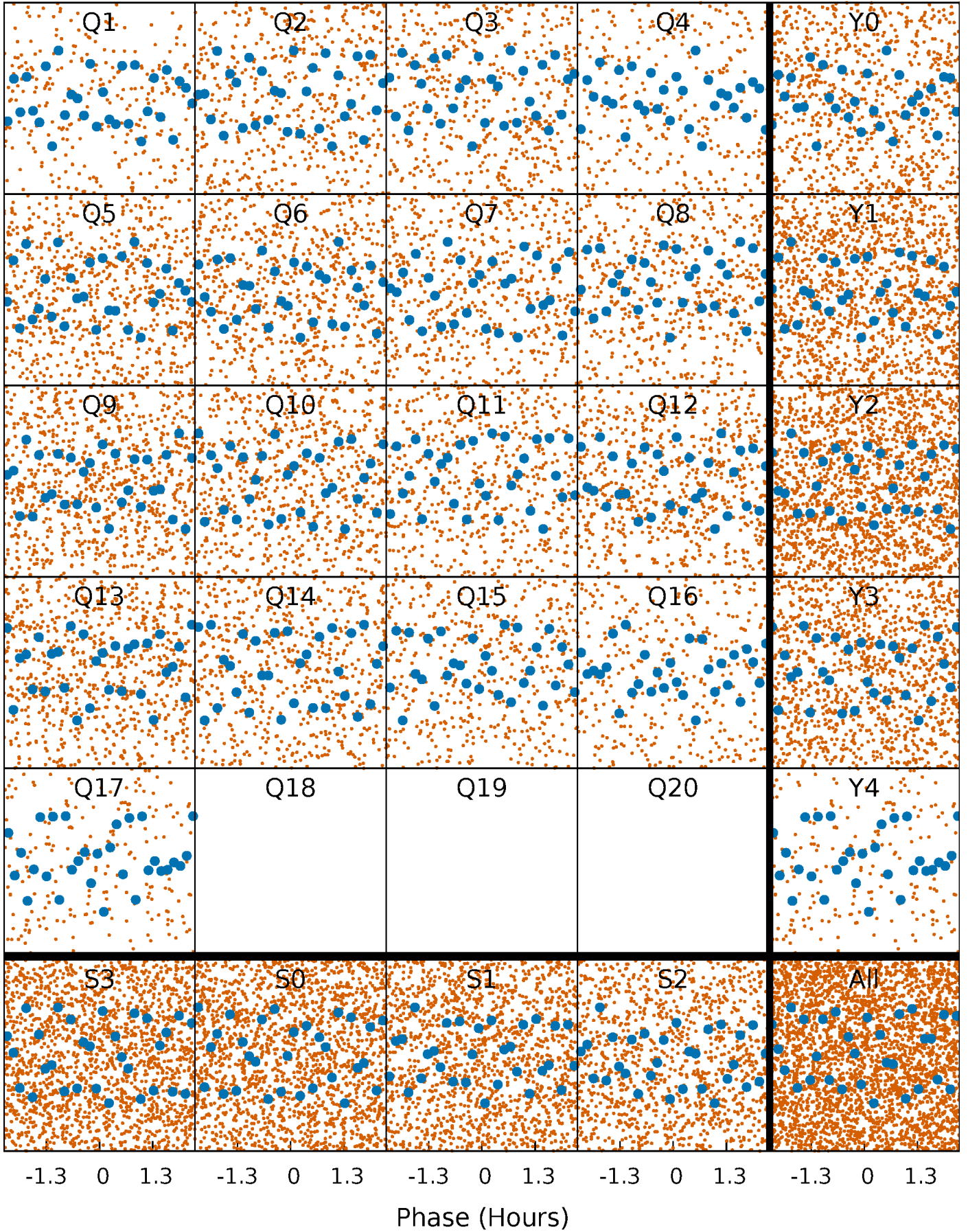


Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)



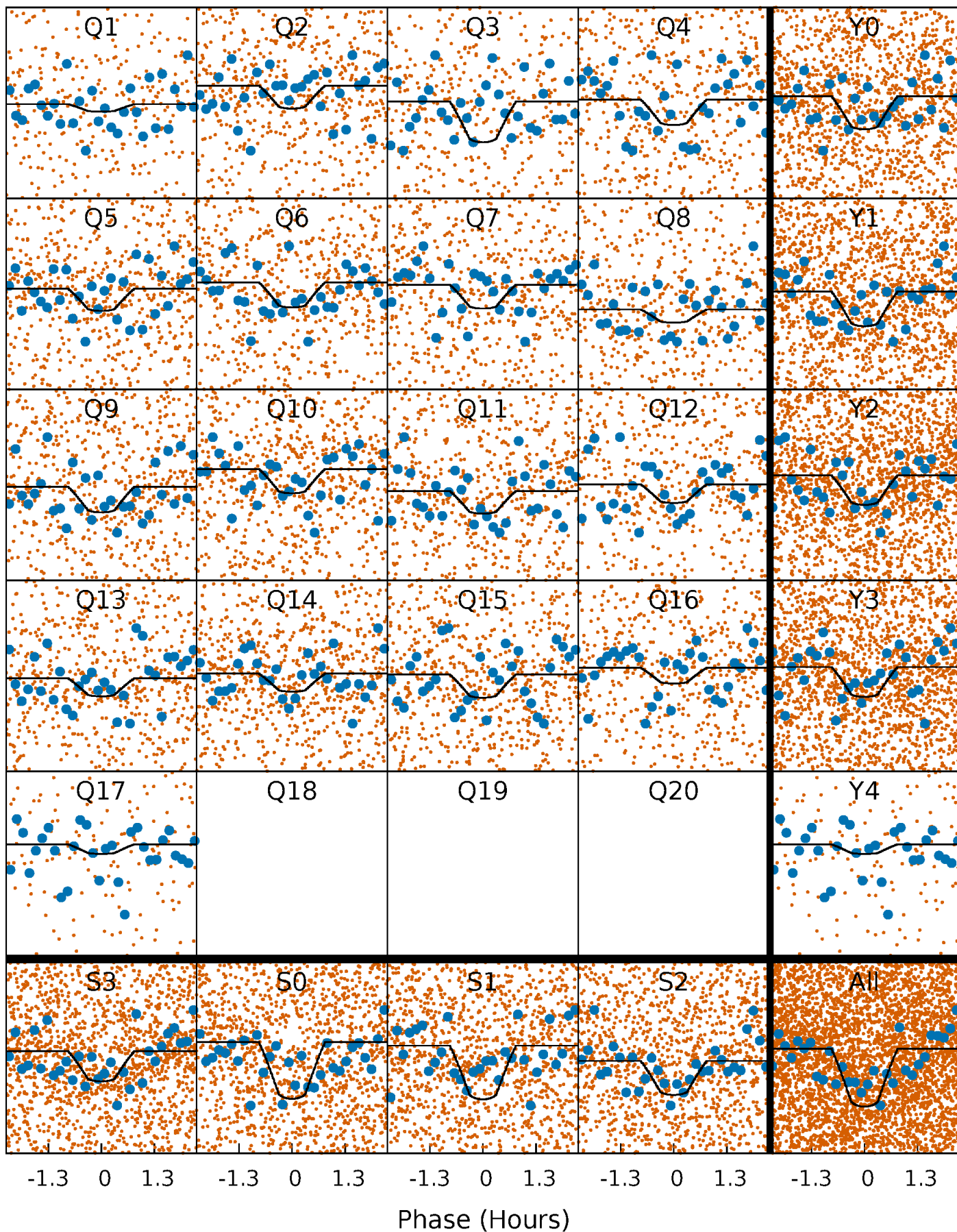
PDC Quarter-Phased Transit Curves

TCE 004048494-01 P= 0.877329 Days $T_0=131.582241$ (BKJD)



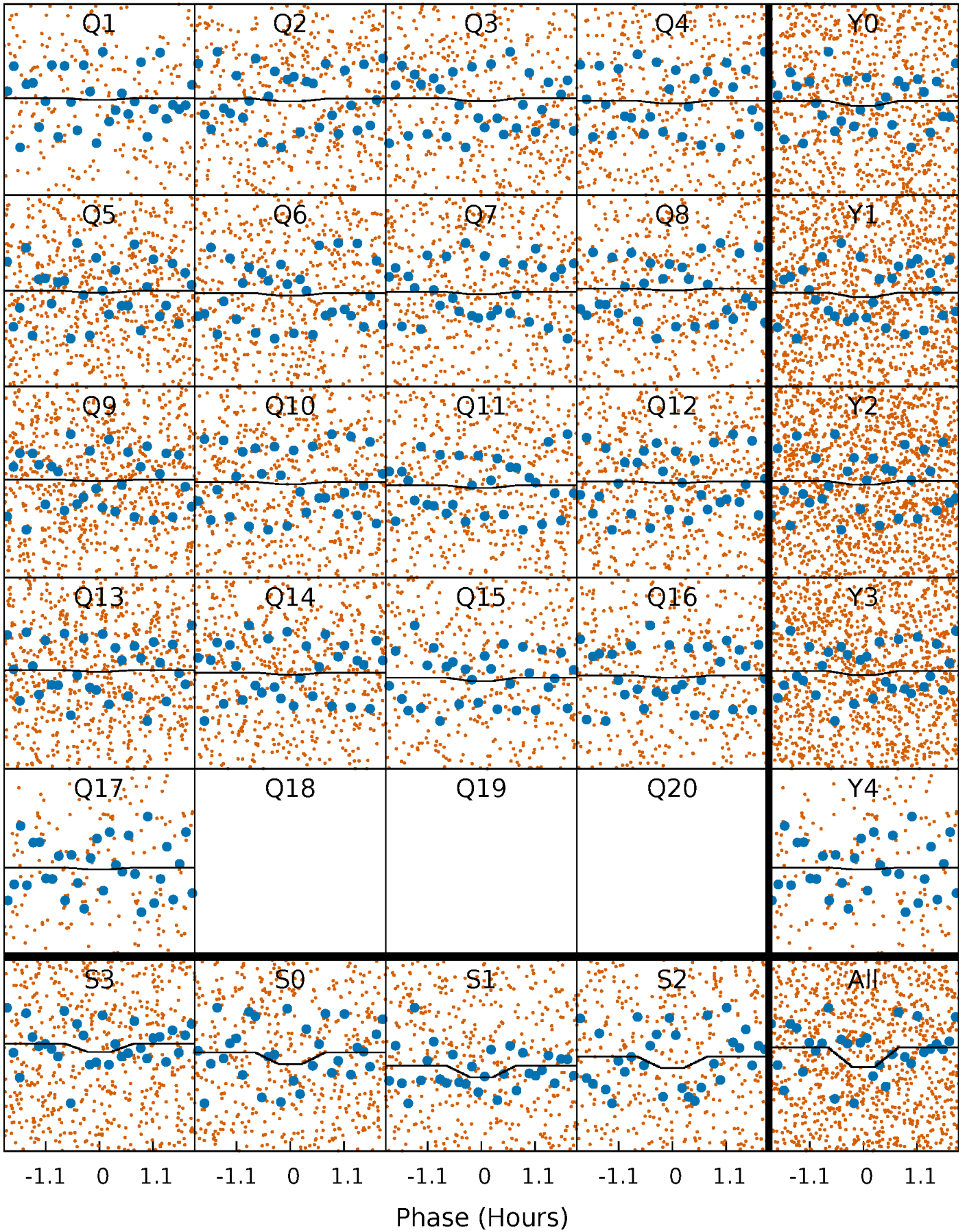
DV Quarter-Phased Transit Curves

TCE 004048494-01 P= 0.877329 Days $T_0=131.582241$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

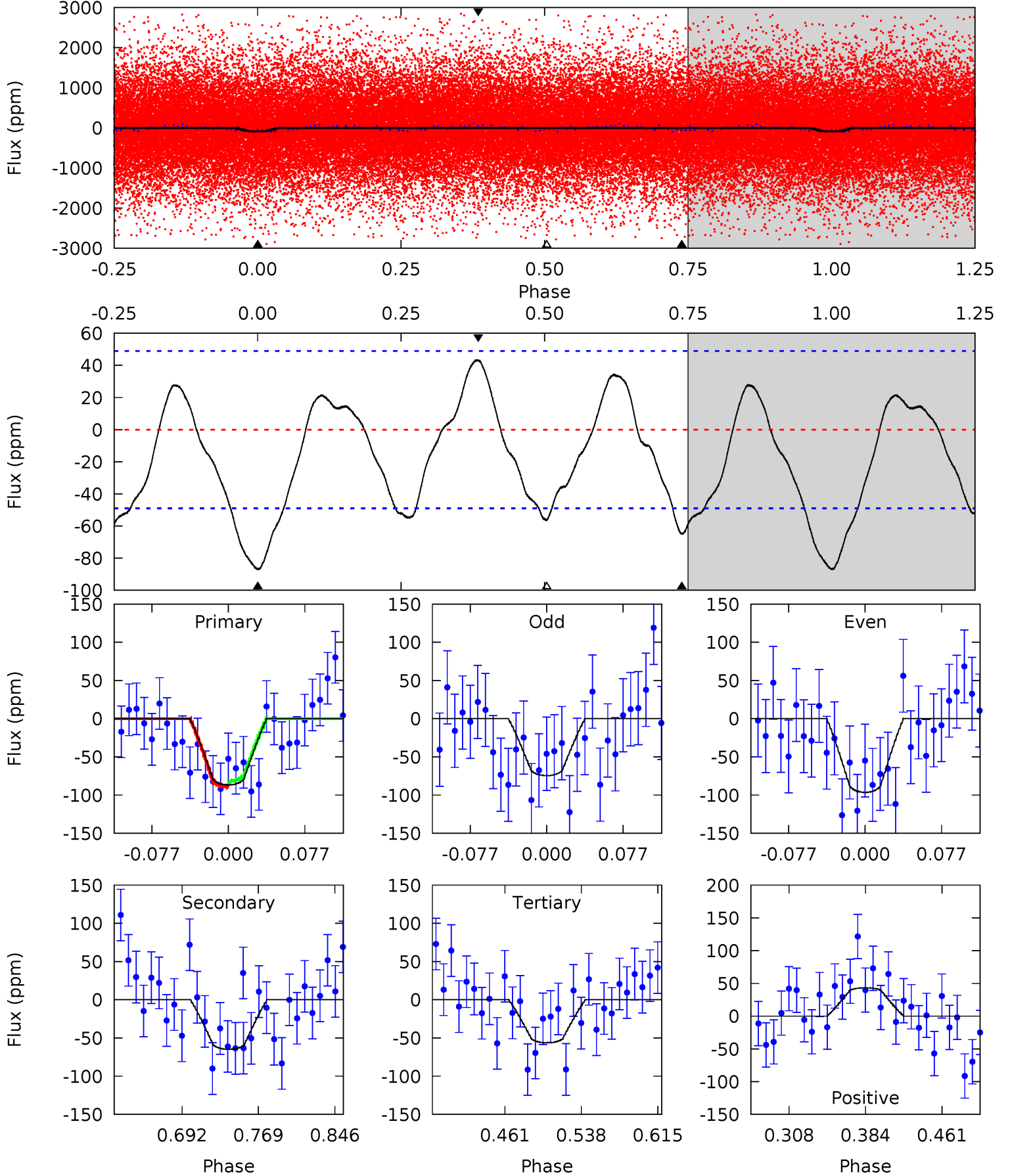
TCE 004048494-01 P= 0.877339 Days $T_0=131.584488$ (BKJD)



DV Model-Shift Uniqueness Test

004048494-01, P = 0.877329 Days, E = 130.704912 Days

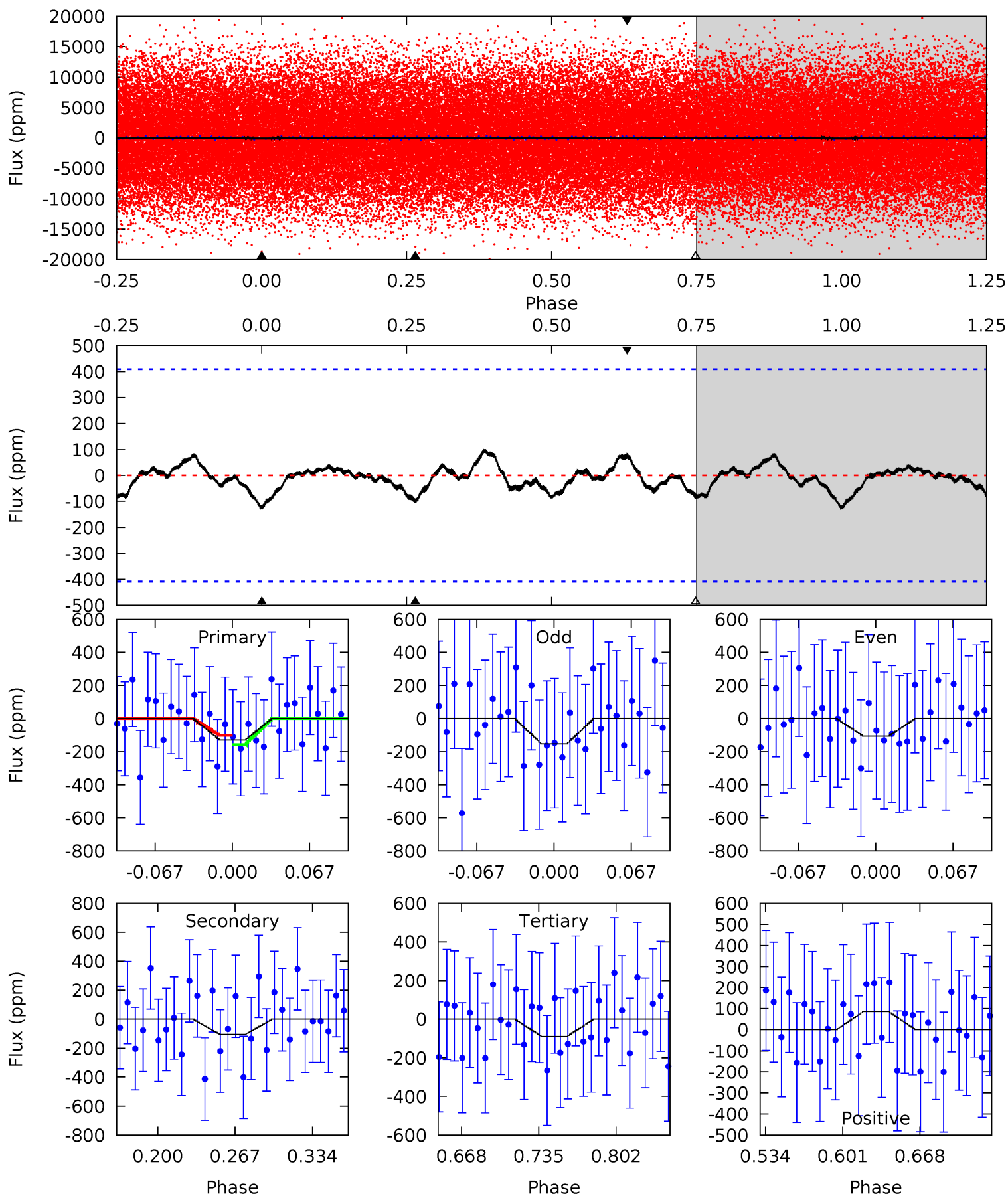
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
8.19	6.12	5.31	4.08	4.62	1.77	2.58	2.88	4.11	0.81	2.04	1.04	1.05	0.33	0.36



Alt Model-Shift Uniqueness Test

004048494-01, P = 0.877339 Days, E = 130.707149 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
1.48	1.19	1.01	0.97	4.65	1.83	0.46	0.46	0.51	0.18	0.22	0.27	2.00	0.44	0.32



Stellar Parameters For KIC 004048494

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	7852^{+218}_{-327}	$3.915^{+0.280}_{-0.120}$	$-0.060^{+0.200}_{-0.350}$	$2.518^{+0.450}_{-0.901}$	$1.900^{+0.104}_{-0.416}$	$0.168^{+0.306}_{-0.061}$
	+3%/-4%	+7%/-3%	+333%/-583%	+18%/-36%	+5%/-22%	+182%/-36%
Source	KIC0	KIC0	KIC0	DSEP		

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

Secondary Eclipse Parameters for KIC 004048494-01 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	-65 ± 11	$2.86^{+1.02}_{-0.95}$	5066^{+352}_{-422}	6245^{+1687}_{-980}	$2.080^{+2.504}_{-0.979}$
Alt.	-105 ± 88	$2.91^{+1.01}_{-0.88}$	5087^{+329}_{-448}	7080^{+2524}_{-2943}	$3.039^{+4.575}_{-2.510}$

T_{max} = Theoretical Maximum Planetary Temperature

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

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

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

DV Centroid Data

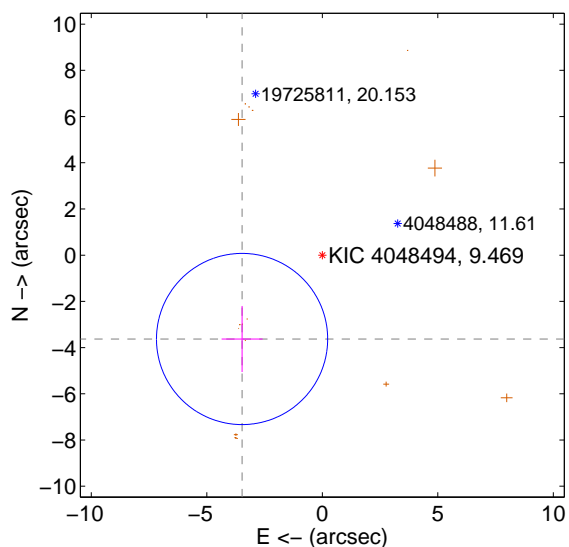
Supplemental centroid analysis for 004048494-01. **Kepler magnitude: 9.47.** Transit SNR 15.06

There are 0 quarters with good PRF difference image offsets

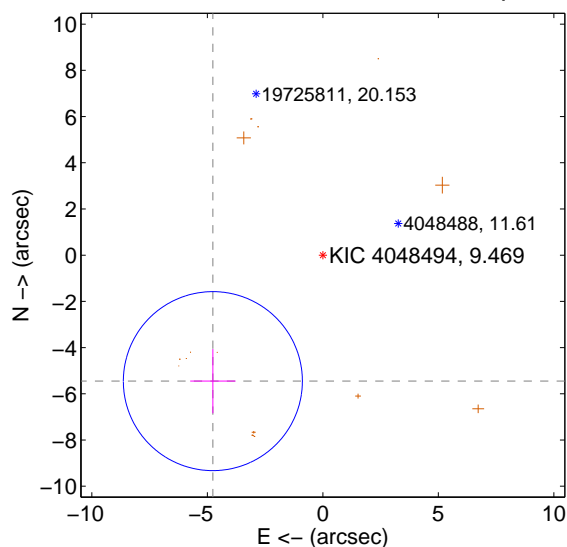
The direct PRF centroid is offset from the target star catalog position by about 0.83 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	5.022 ± 1.235	4.07	3.473 ± 0.888	-3.628 ± 1.431
PRF-fit source offset from KIC position	7.238 ± 1.291	5.61	4.761 ± 0.983	-5.452 ± 1.392
photometric centroid source offset	1.87 ± 0.47	3.97	1.54 ± 0.46	-1.05 ± 0.49

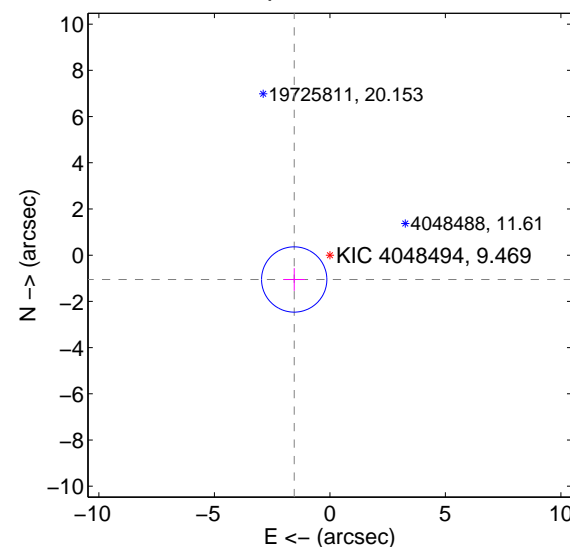
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position

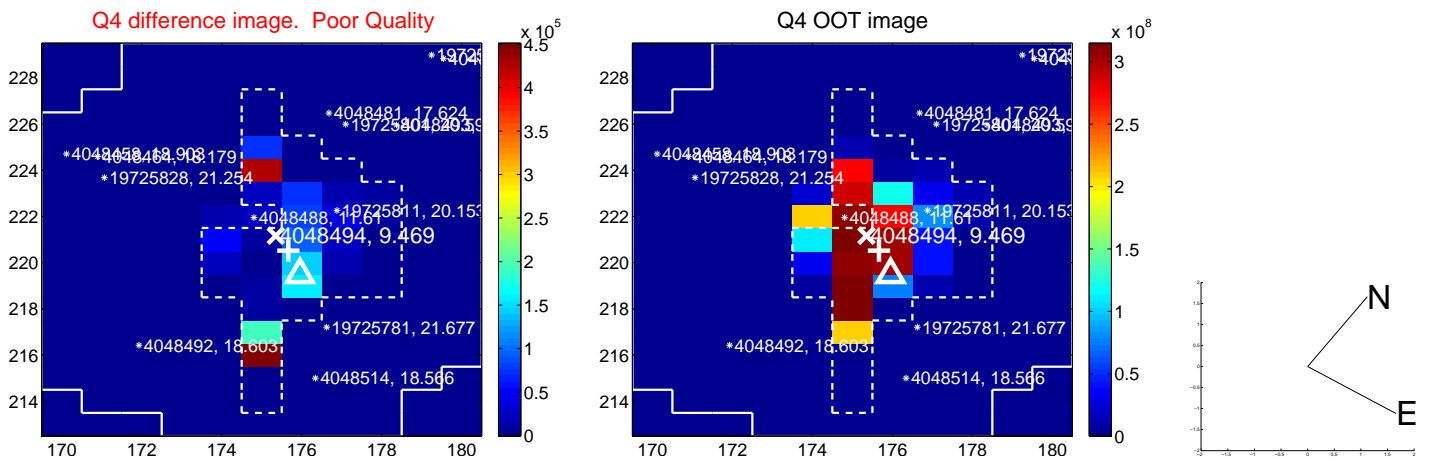
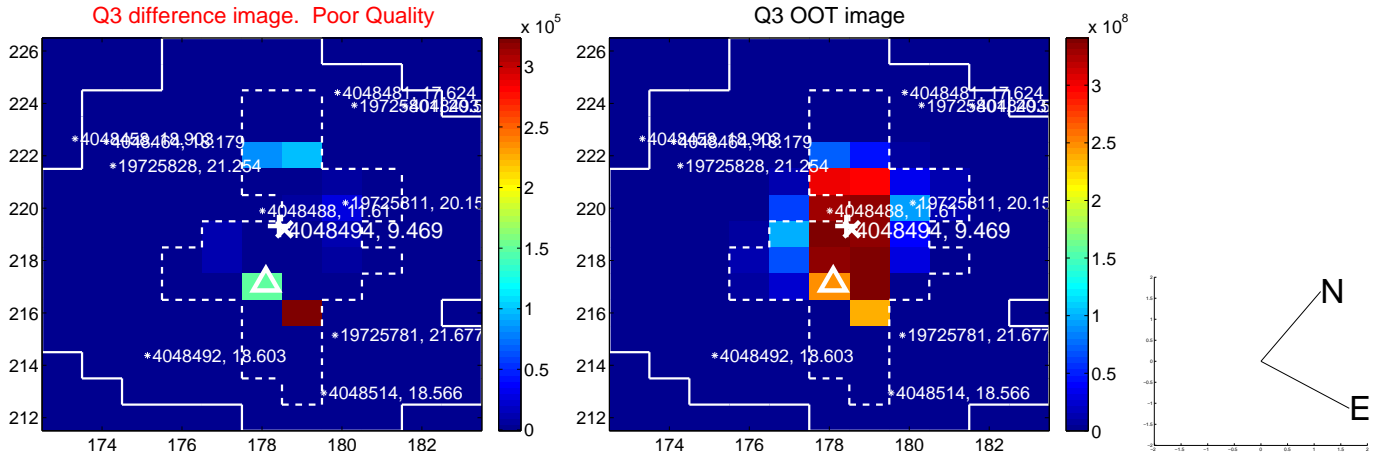
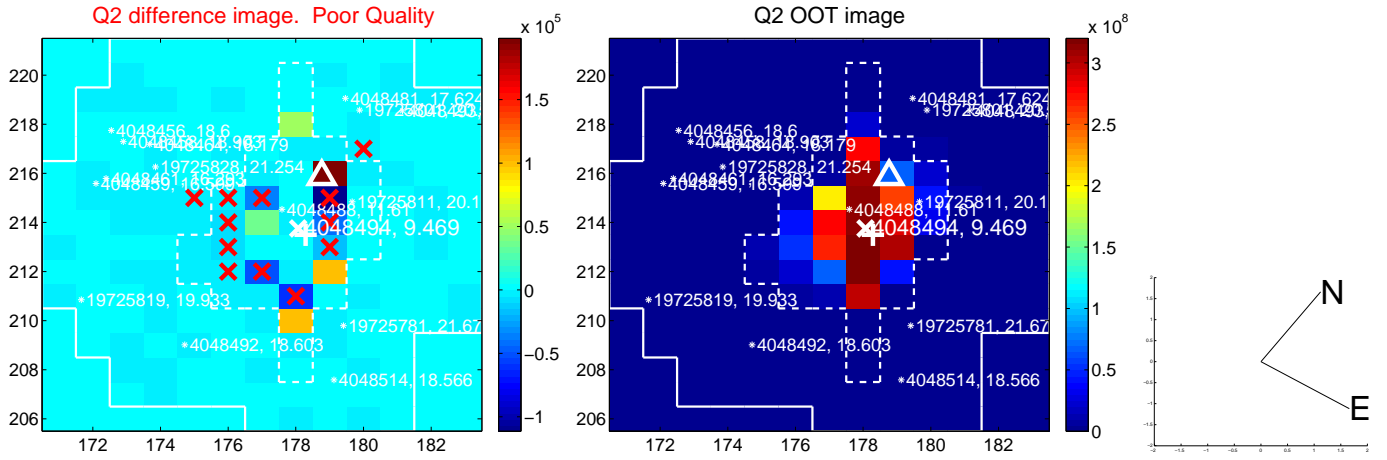
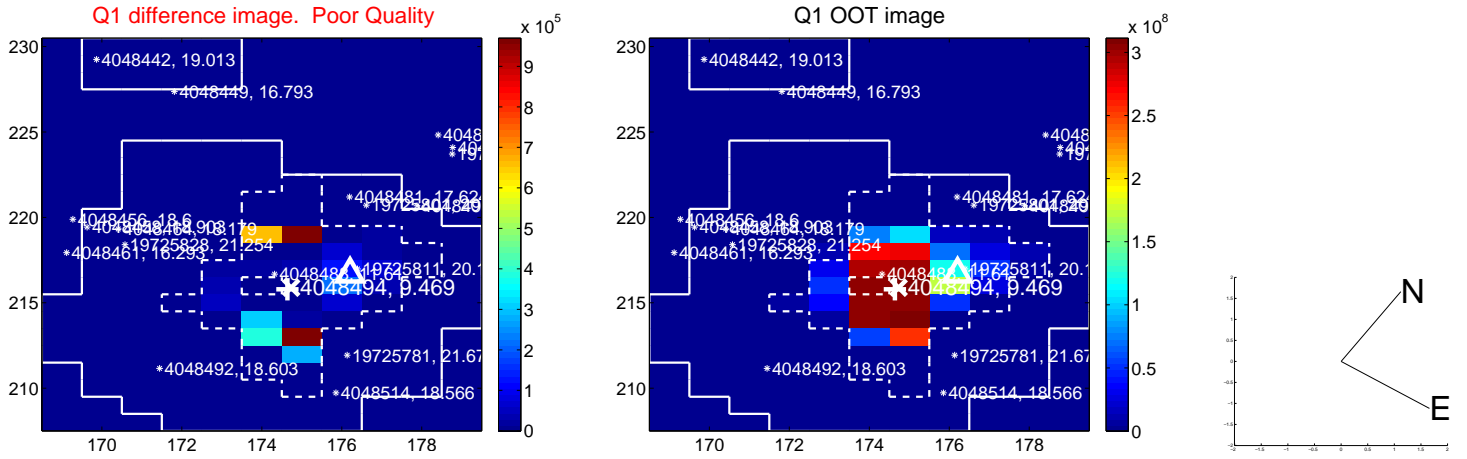


offset from photometric centroids

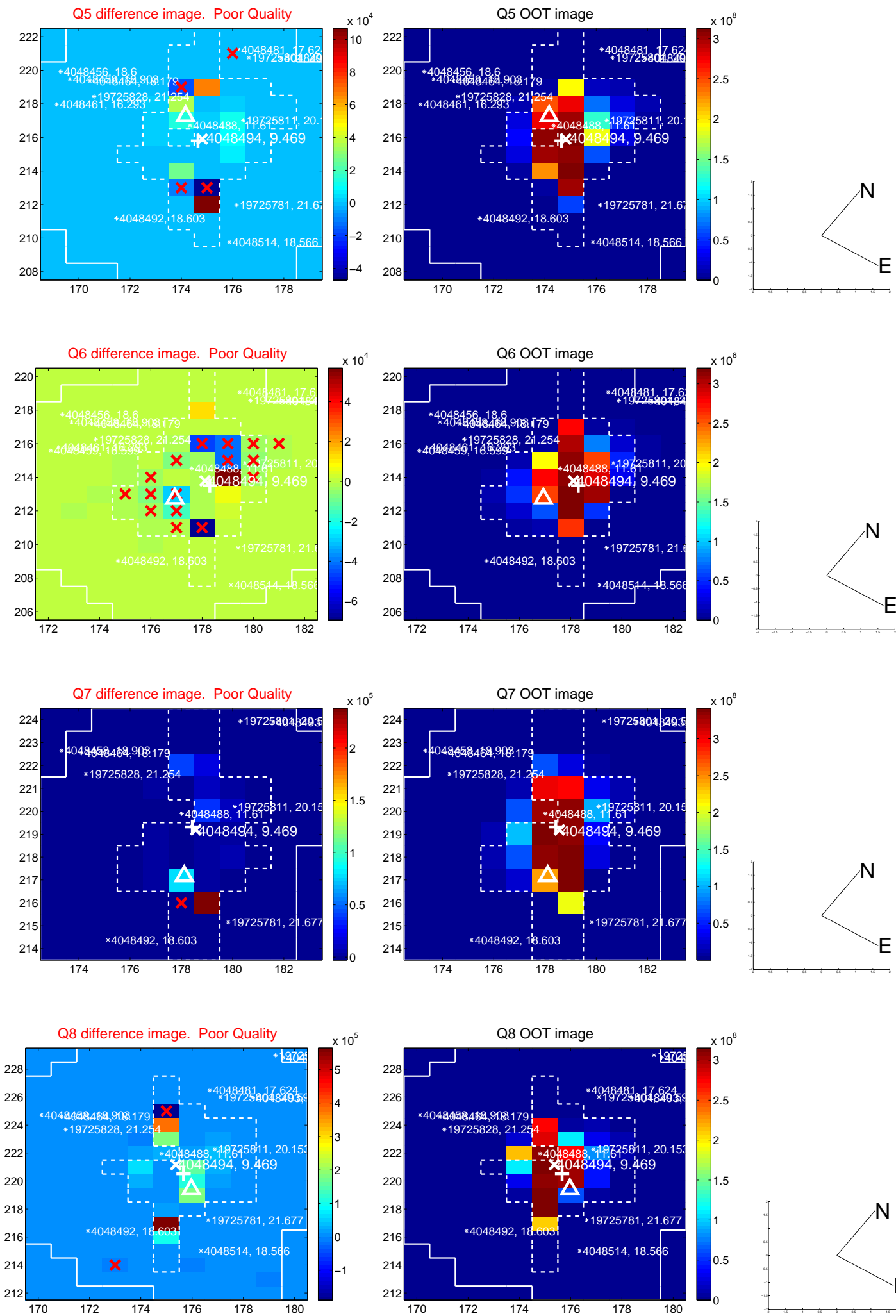


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets;** magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

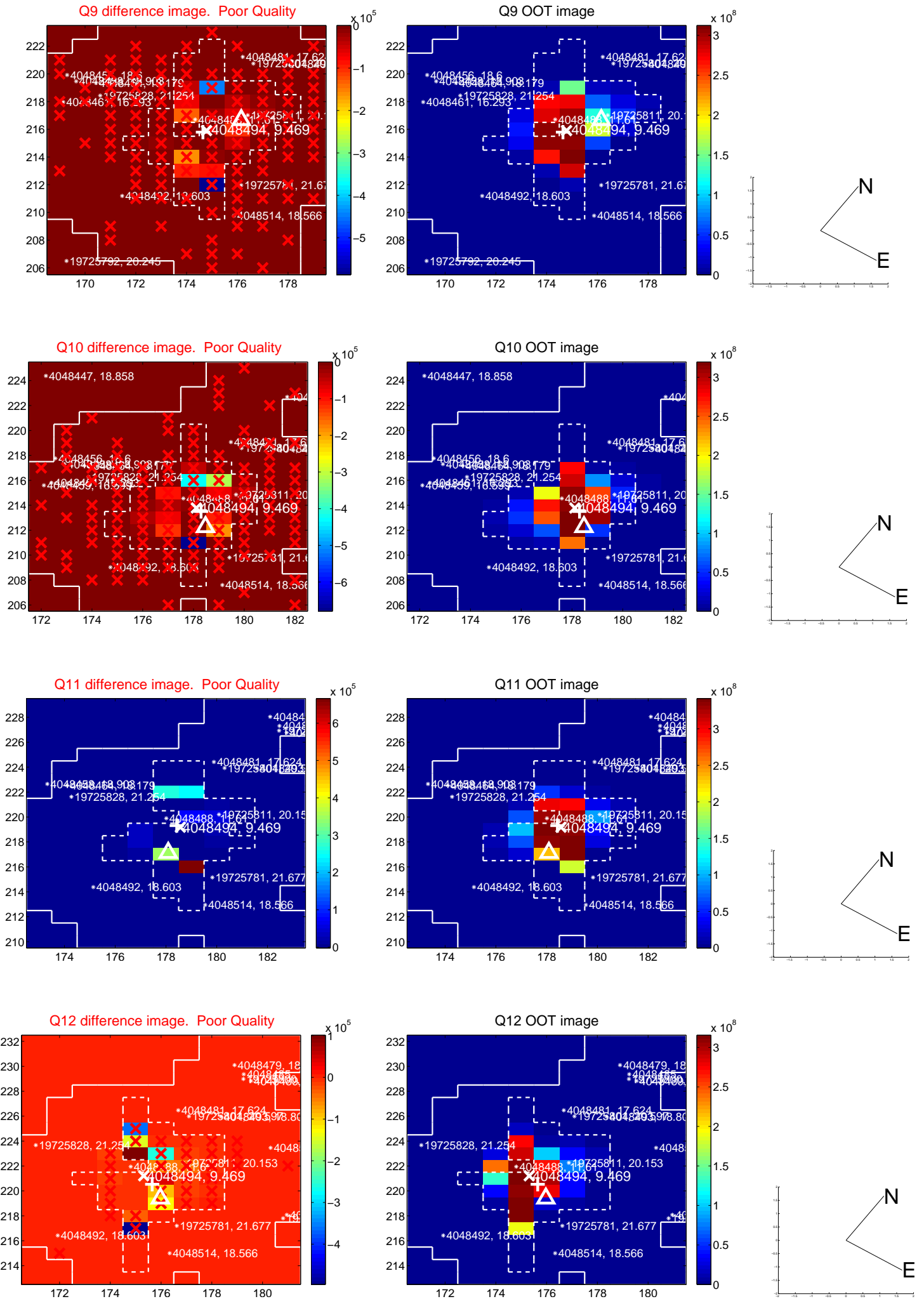
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



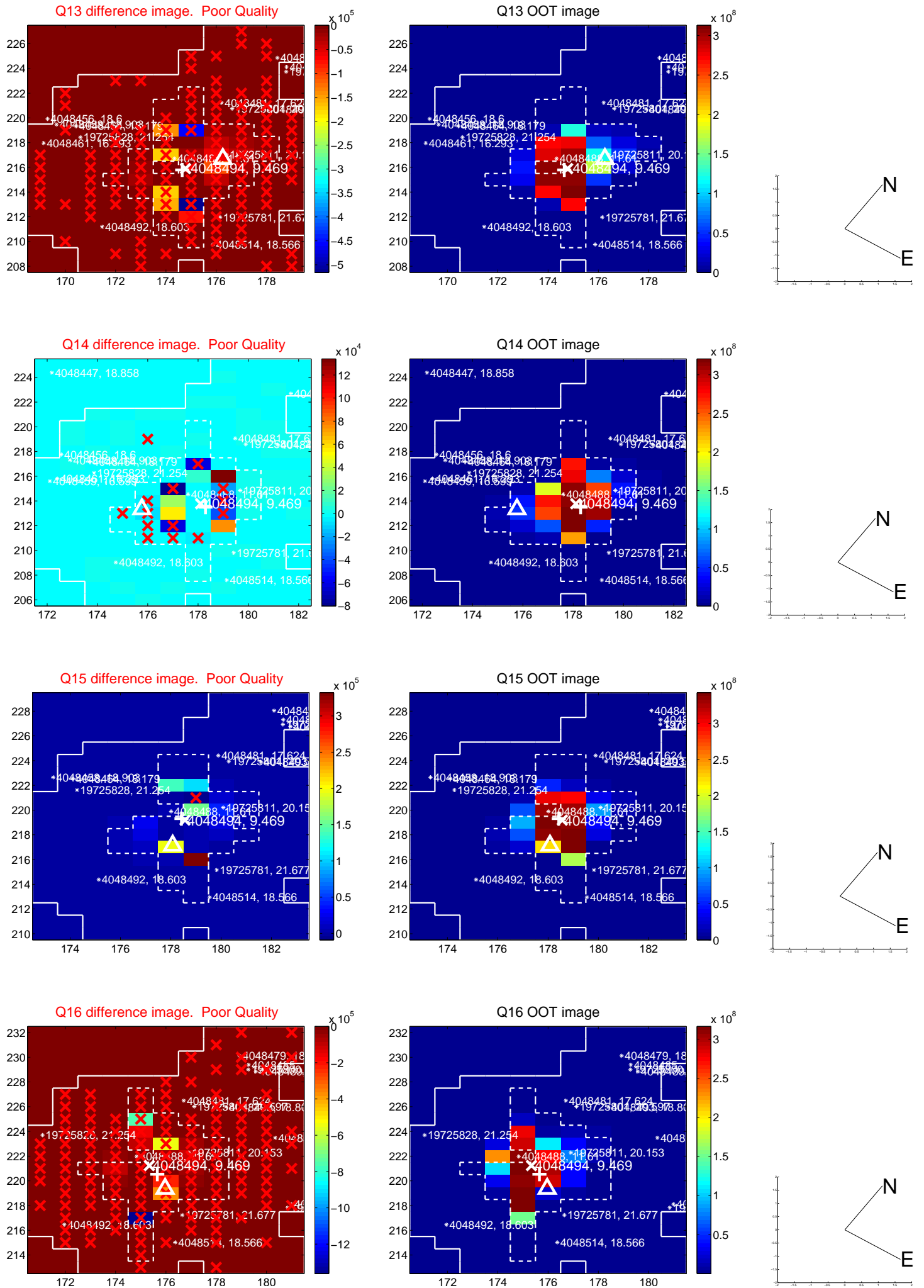
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



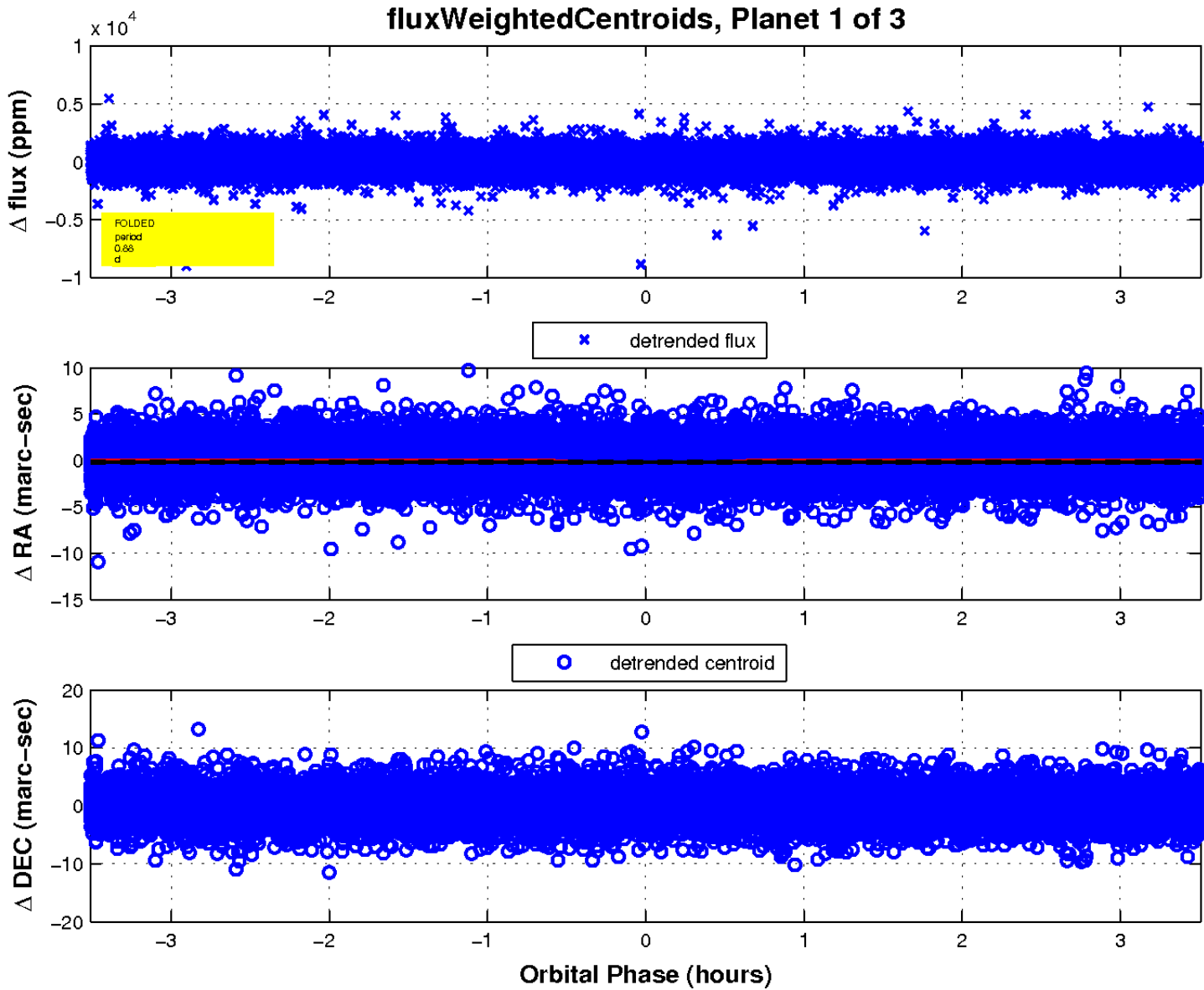
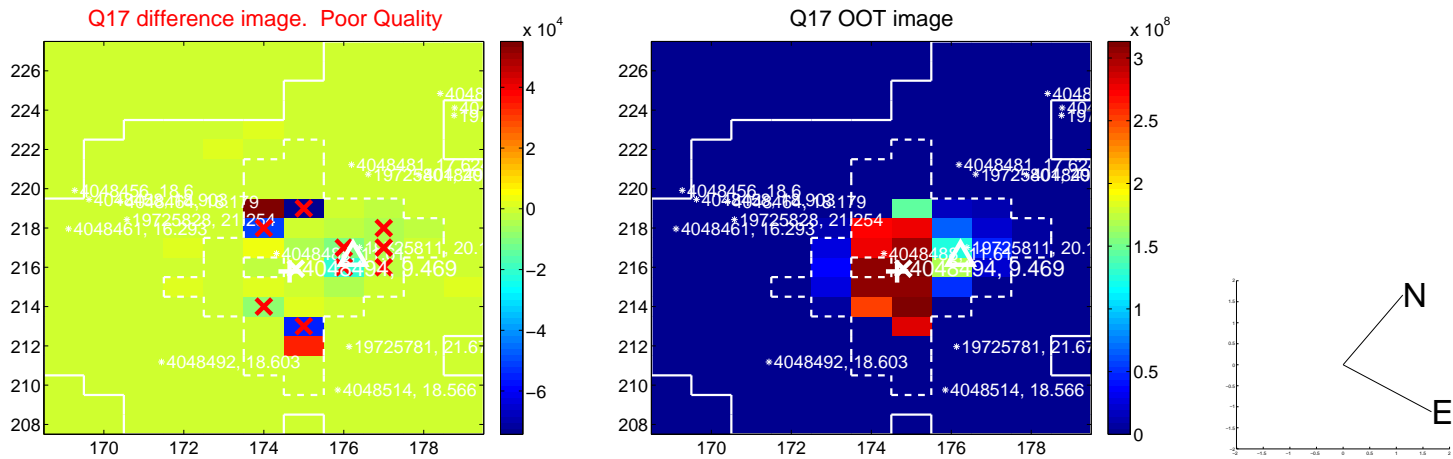
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

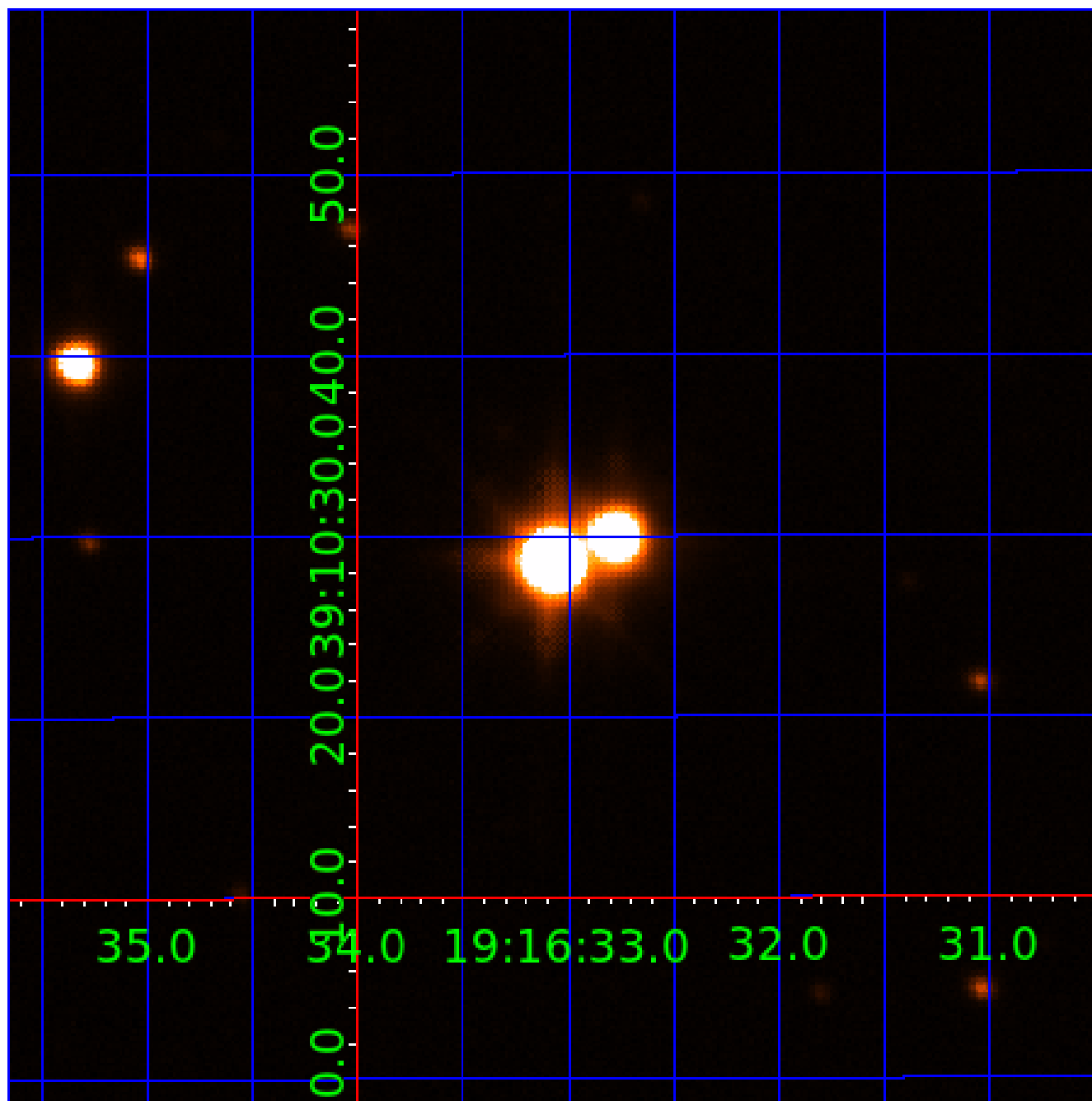


white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 004048494

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})
004048494-01	OBS	No	0.877329	131.582241	121.2	1.170	14.0	15.1	2.52	7852	2.98	43715.56
004048494-02	OBS	No	0.657978	132.041484	77.3	1.296	10.8	8.9	2.52	7852	2.58	64155.99
004048494-03	OBS	No	0.806793	131.673126	71.1	5.160	7.9	9.5	2.52	7852	2.46	48884.35

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
004048494-01	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_SATURATED
004048494-02	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_ALT—MOD_POS_ALT—CENT_SATURATED
004048494-03	OBS	FP	0.00	1	0	0	0	TRANS_GAPPED—LPP_DV—LPP_ALT—CENT_SATURATED

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

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

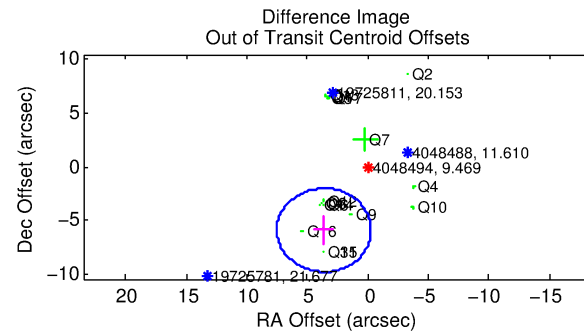
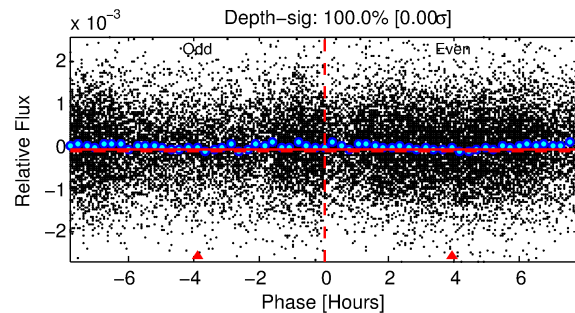
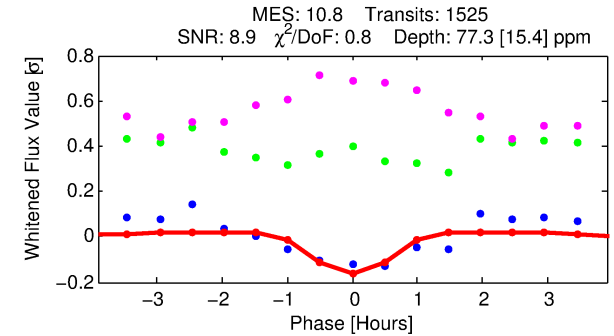
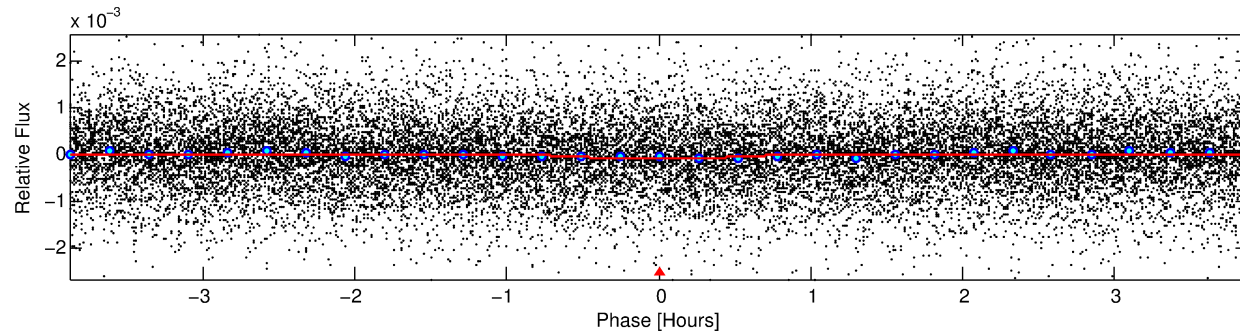
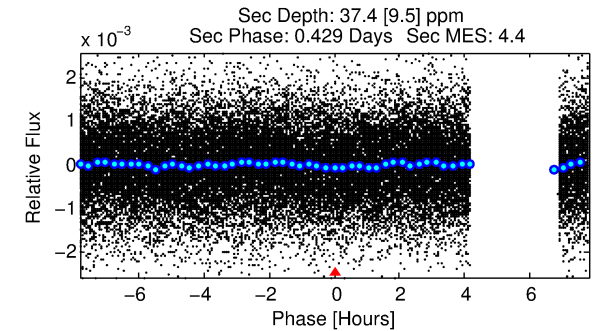
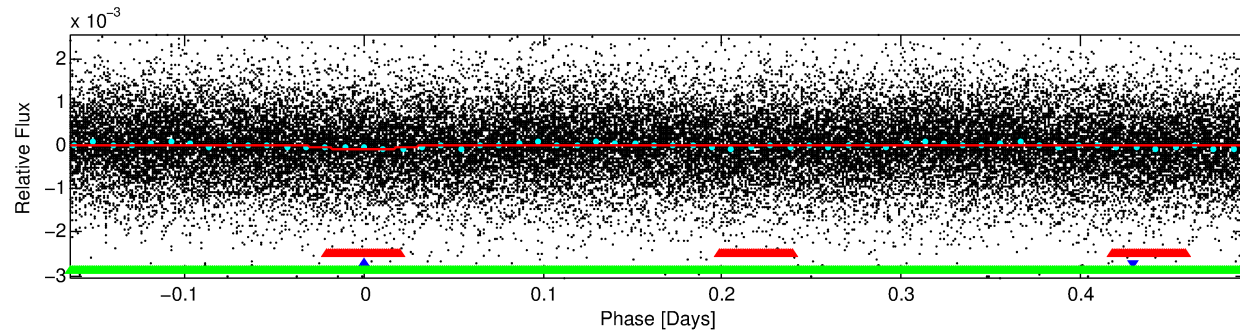
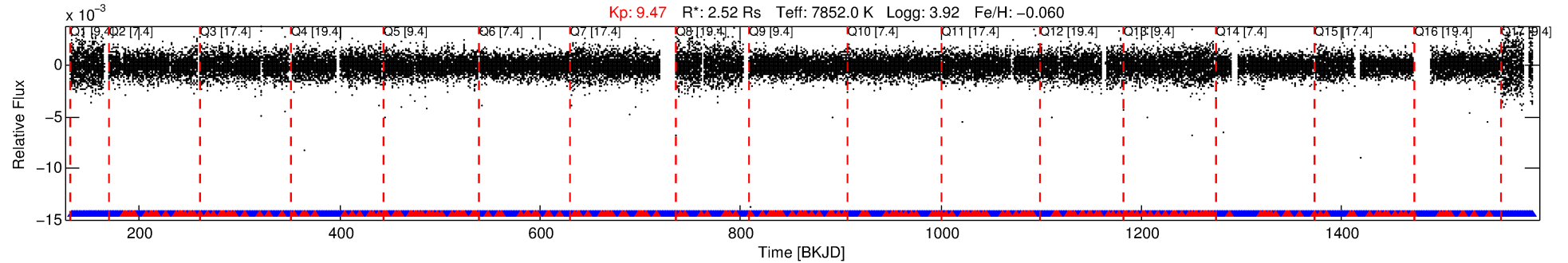
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 004048494-02

No Significant Match Found

DV One-Page Summary

KIC: 4048494 Candidate: 2 of 3 Period: 0.658 d



DV Fit Results:

Period = 0.65798 [0.00001] d
Epoch = 132.0415 [0.0027] BKJD
 $R_p/R^* = 0.0094$ [0.0079]
 $a/R^* = 2.01$ [7.94]
 $b = 0.90$ [1.13]
 $S_{\text{eff}} = 64155.99$ [33299.17]
 $T_{\text{eq}} = 4058$ [527] K
 $R_p = 2.58$ [2.35] R_e
 $a = 0.0183$ [0.0059] AU
 $A_g = 1.04$ [1.84] [0.02σ]
 $T_{\text{eff}} = 6339$ [2695] K [0.83σ]

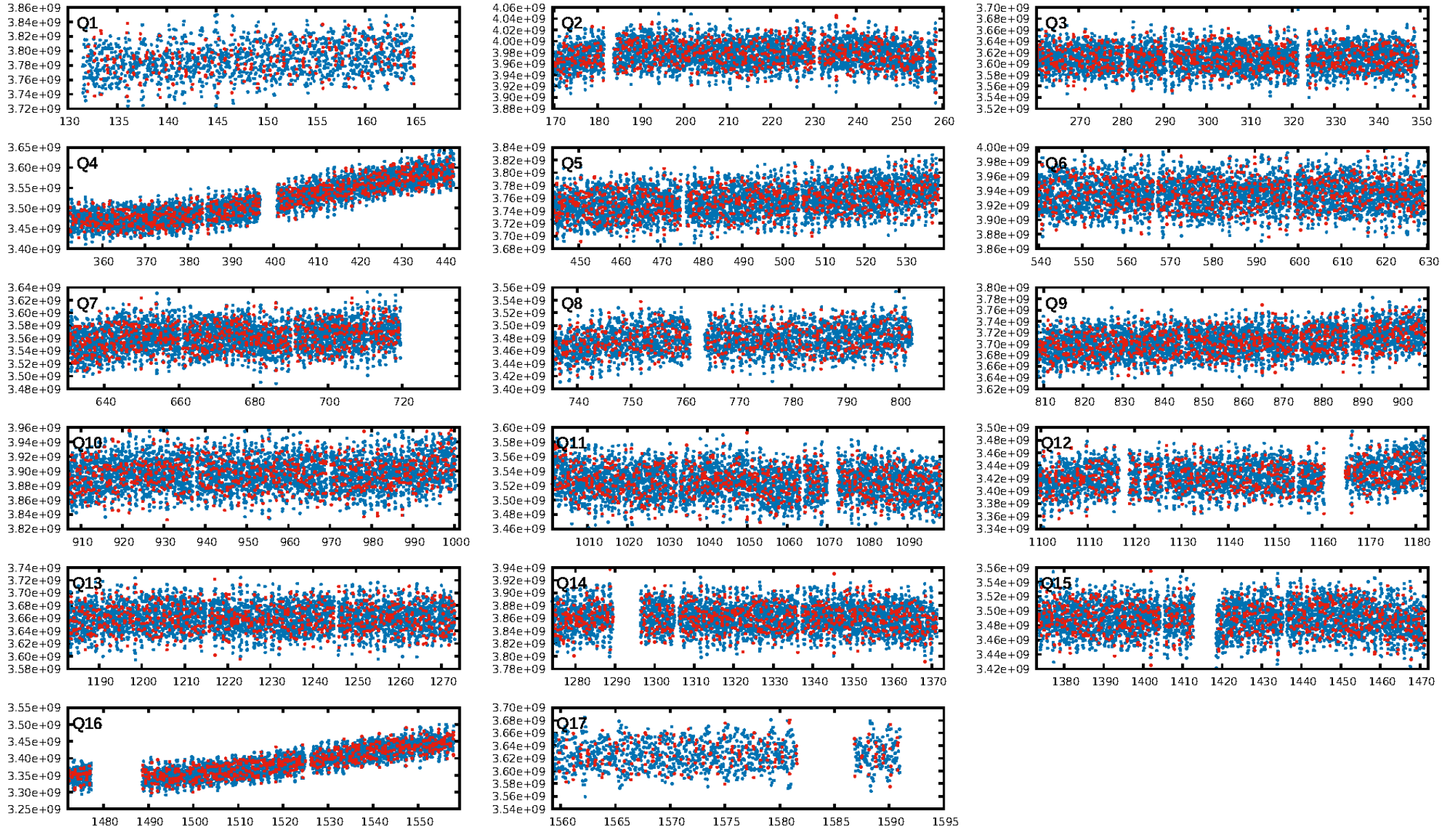
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: 49.8% [0.67σ]
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: 1.38e-12
RollingBand-fgt: 0.83 [1202/1456]
GhostDiagnostic-chr: N/A
Centroid-sig: N/A
Centroid-so: 2.160 arcsec [3.45σ]
OotOffset-rm: 6.964 arcsec [5.36σ]
KicOffset-rm: 6.002 arcsec [5.04σ]
OotOffset-st: 4/4/4/5 [17]
KicOffset-st: 4/4/4/5 [17]
DiffImageQuality-fgm: 0.00 [0/17]
DiffImageOverlap-fno: 0.94 [16/17]

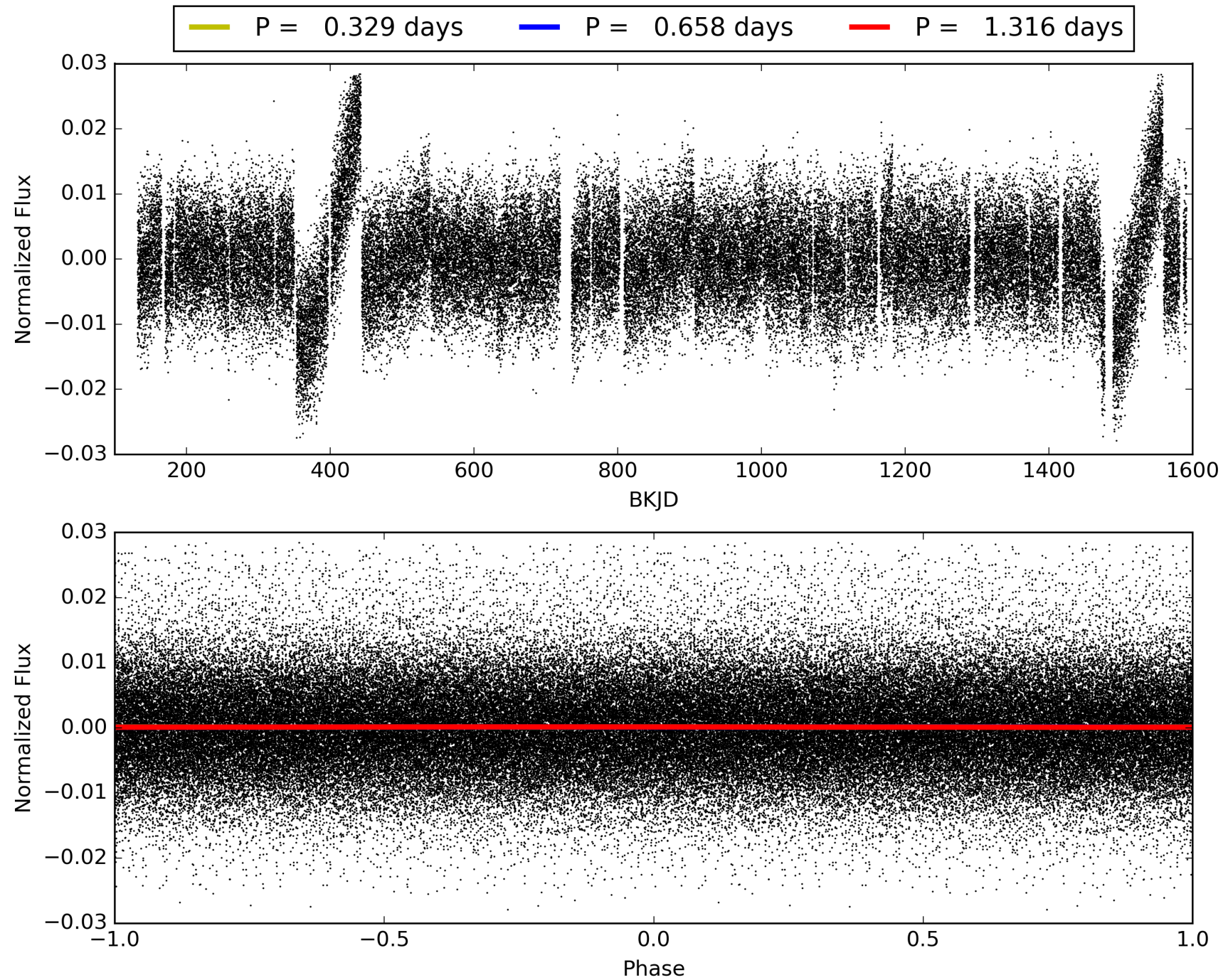
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 01-Feb-2016 11:17:51 Z

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

TCE 004048494-02, PDC Light Curves

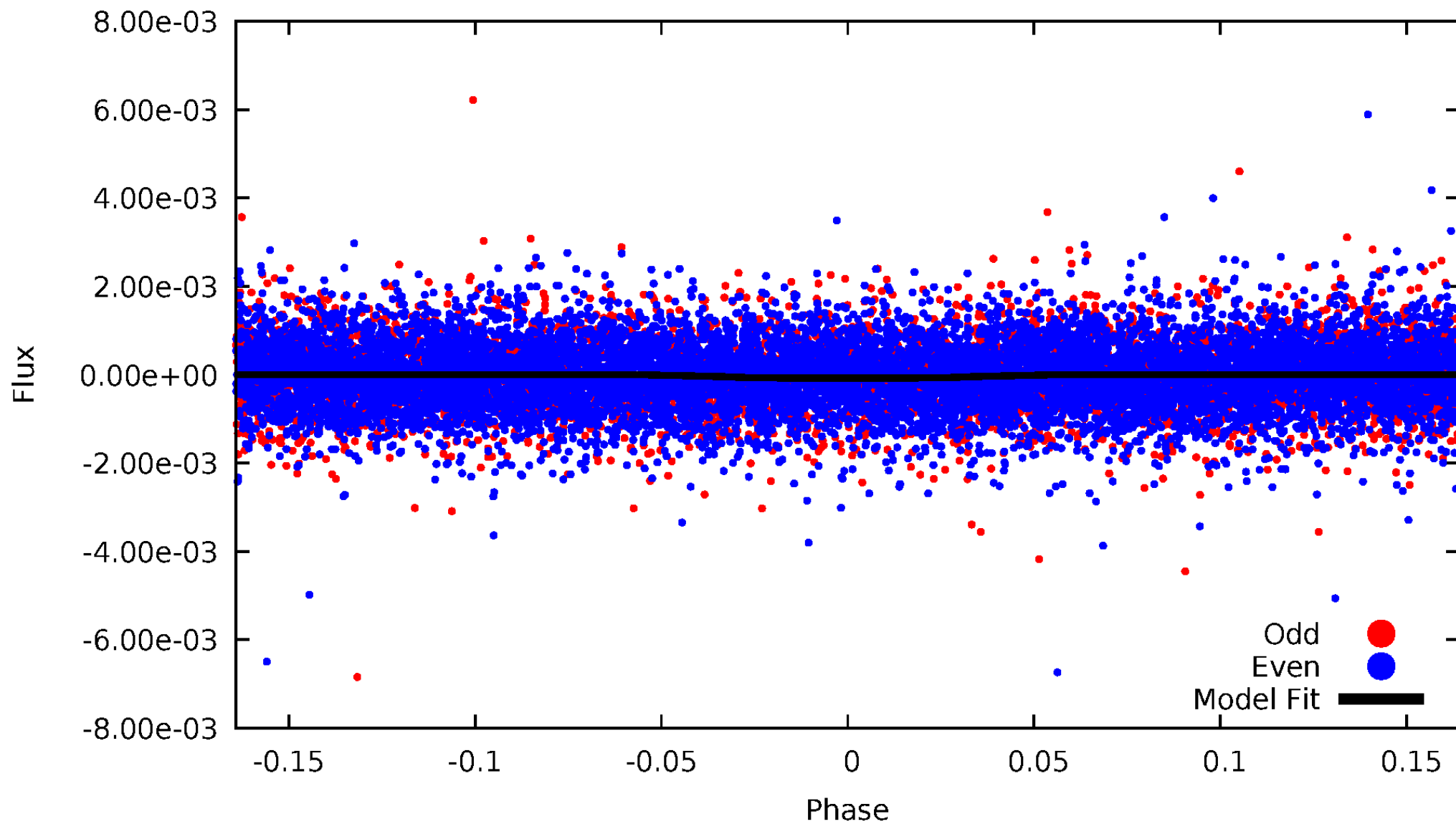


TCE 004048494-02



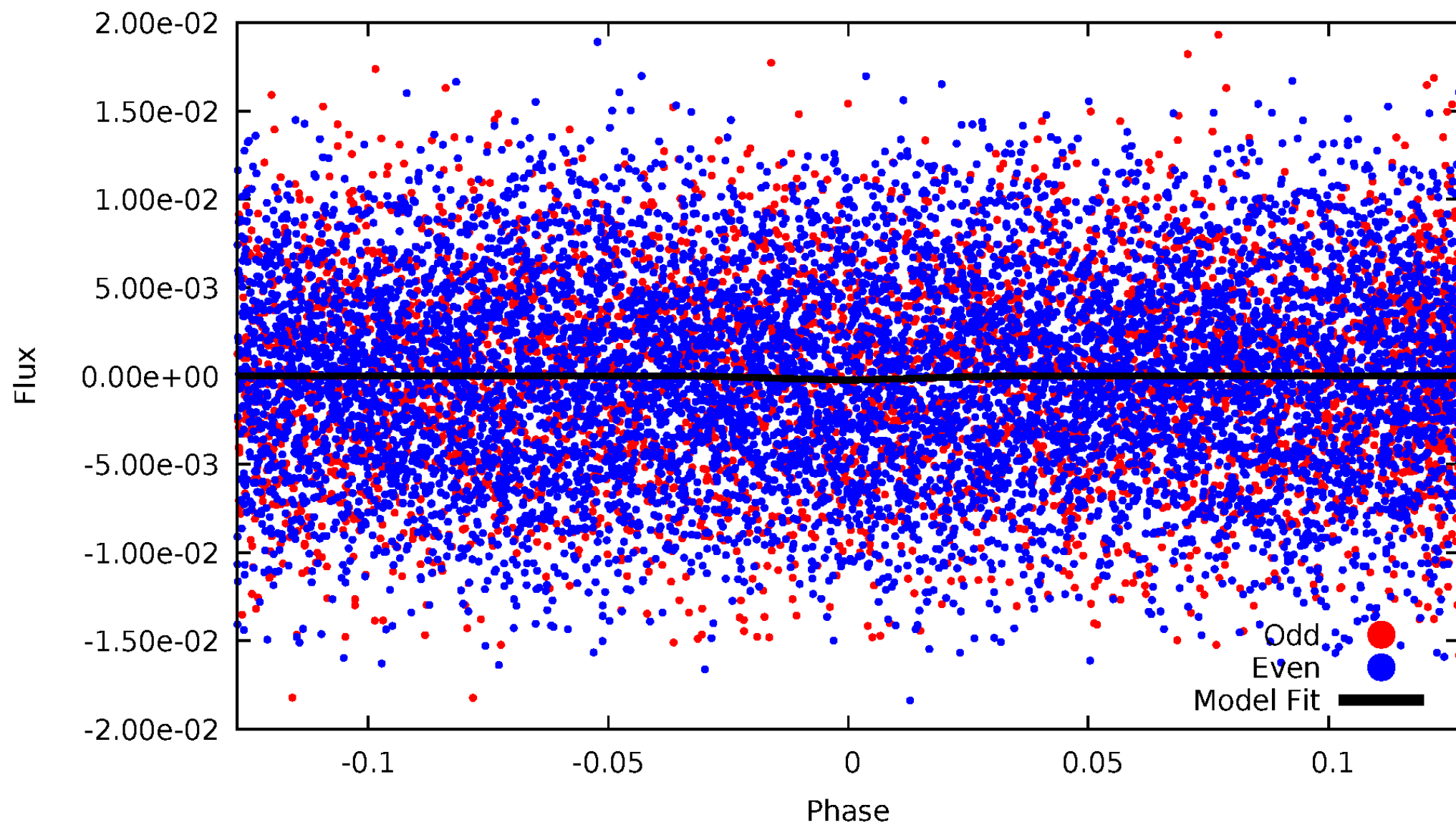
DV Odd/Even

TCE 004048494-02



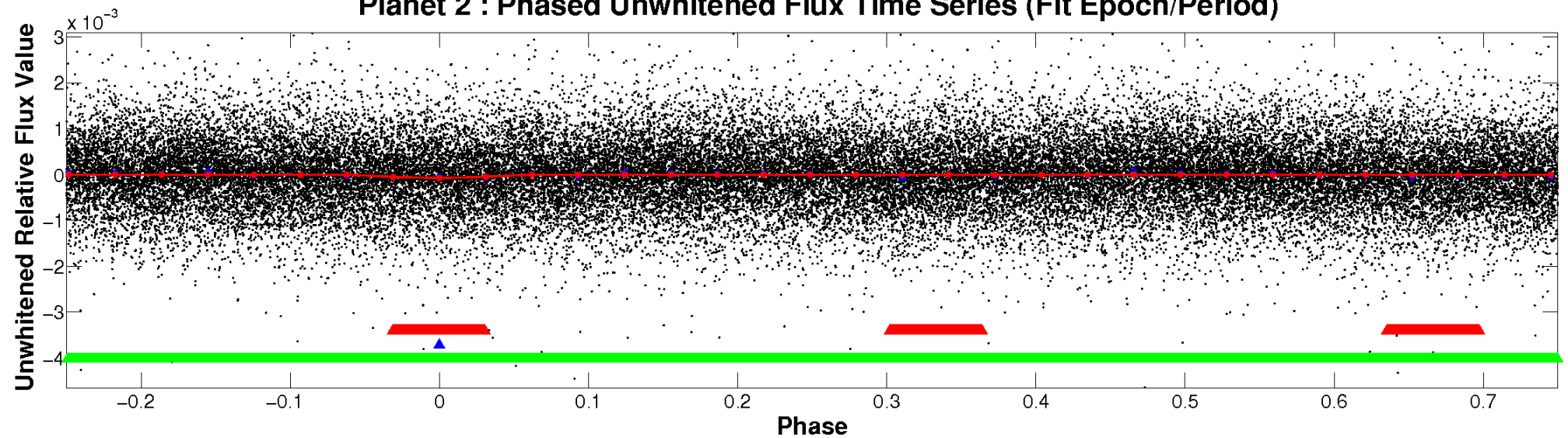
ALT Odd/Even

TCE 004048494-02

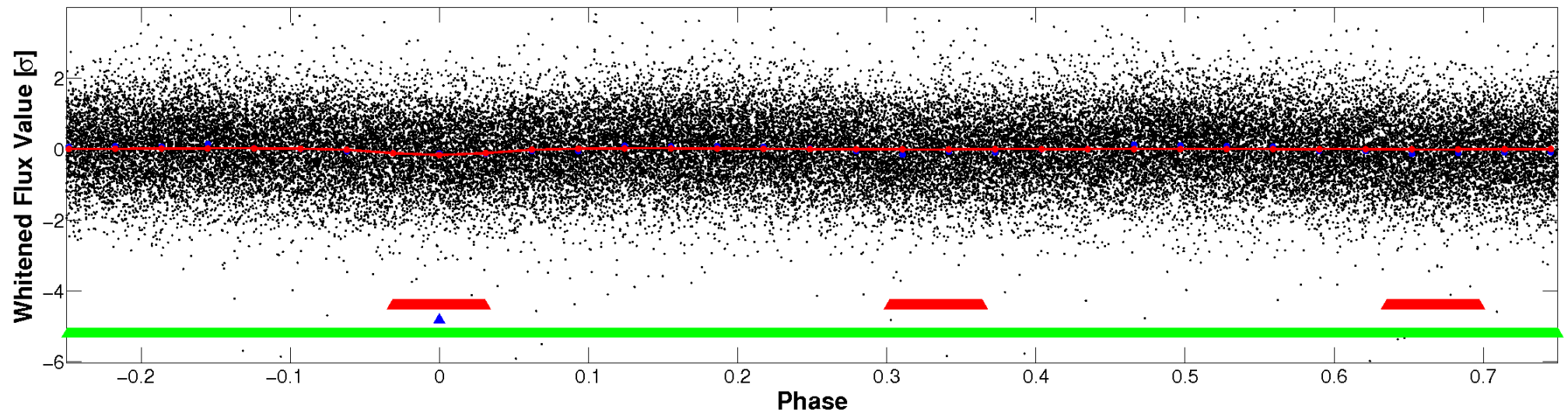


Non-Whitened Vs. Whitened Light Curve

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

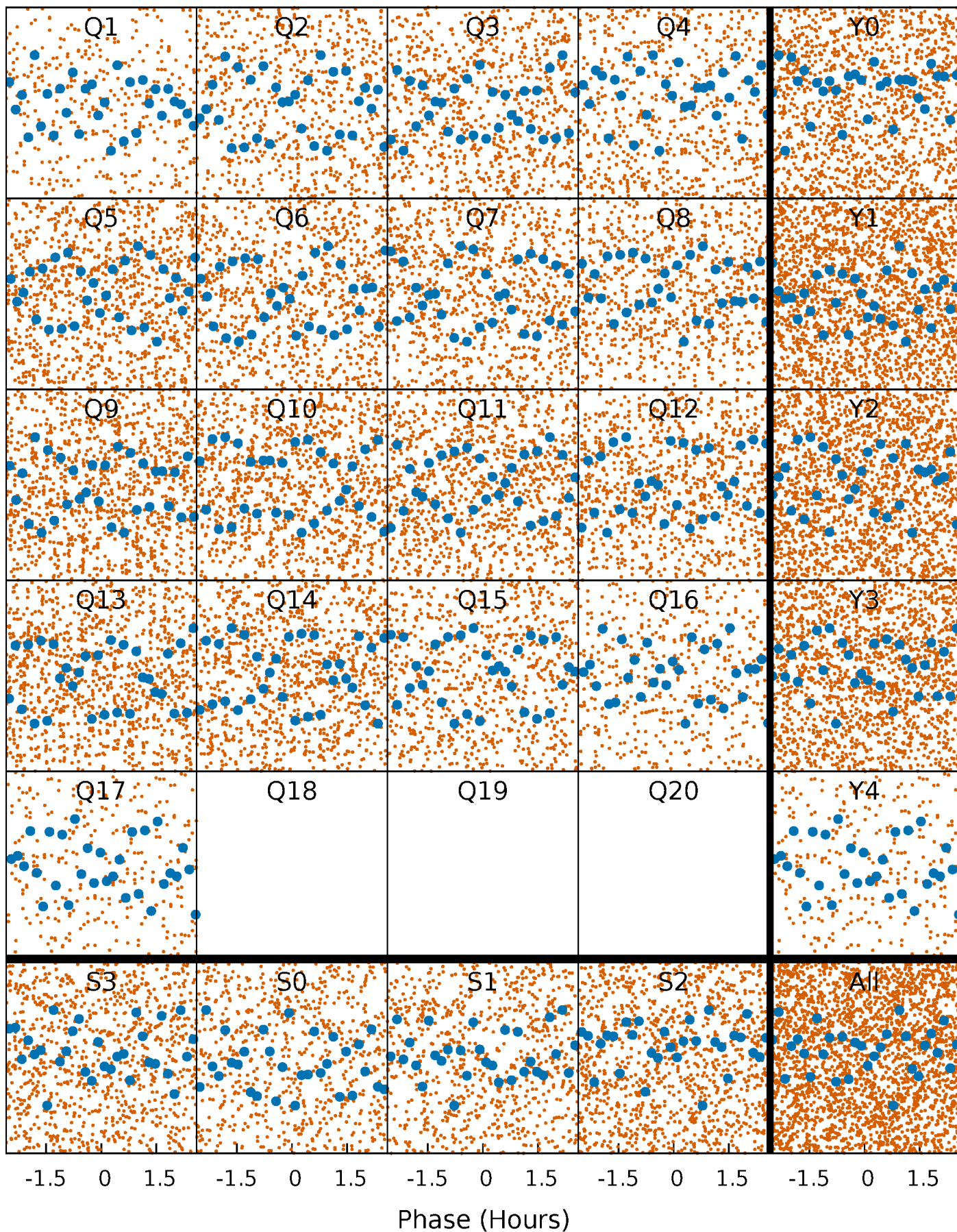


Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



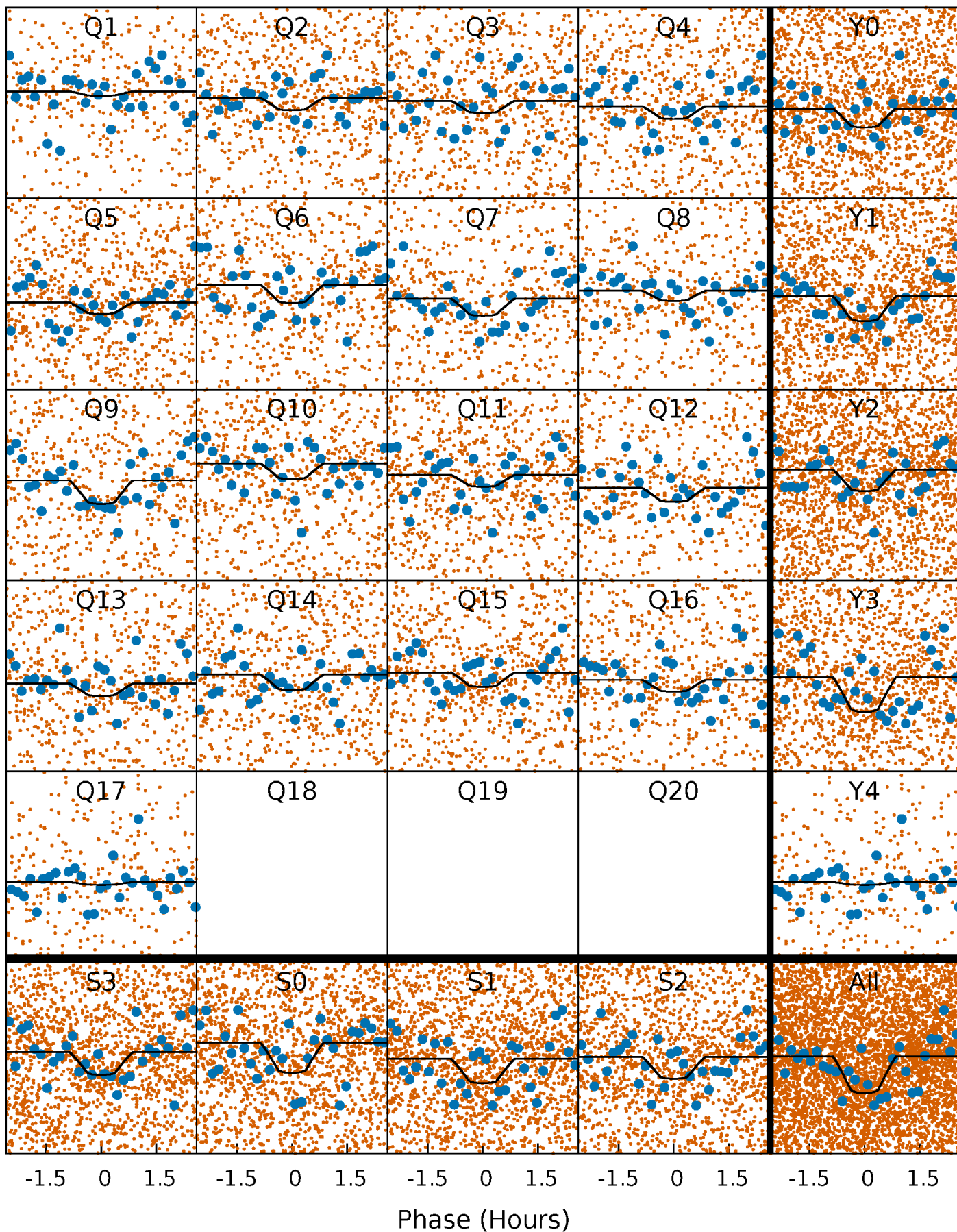
PDC Quarter-Phased Transit Curves

TCE 004048494-02 P= 0.657978 Days $T_0=132.041484$ (BKJD)



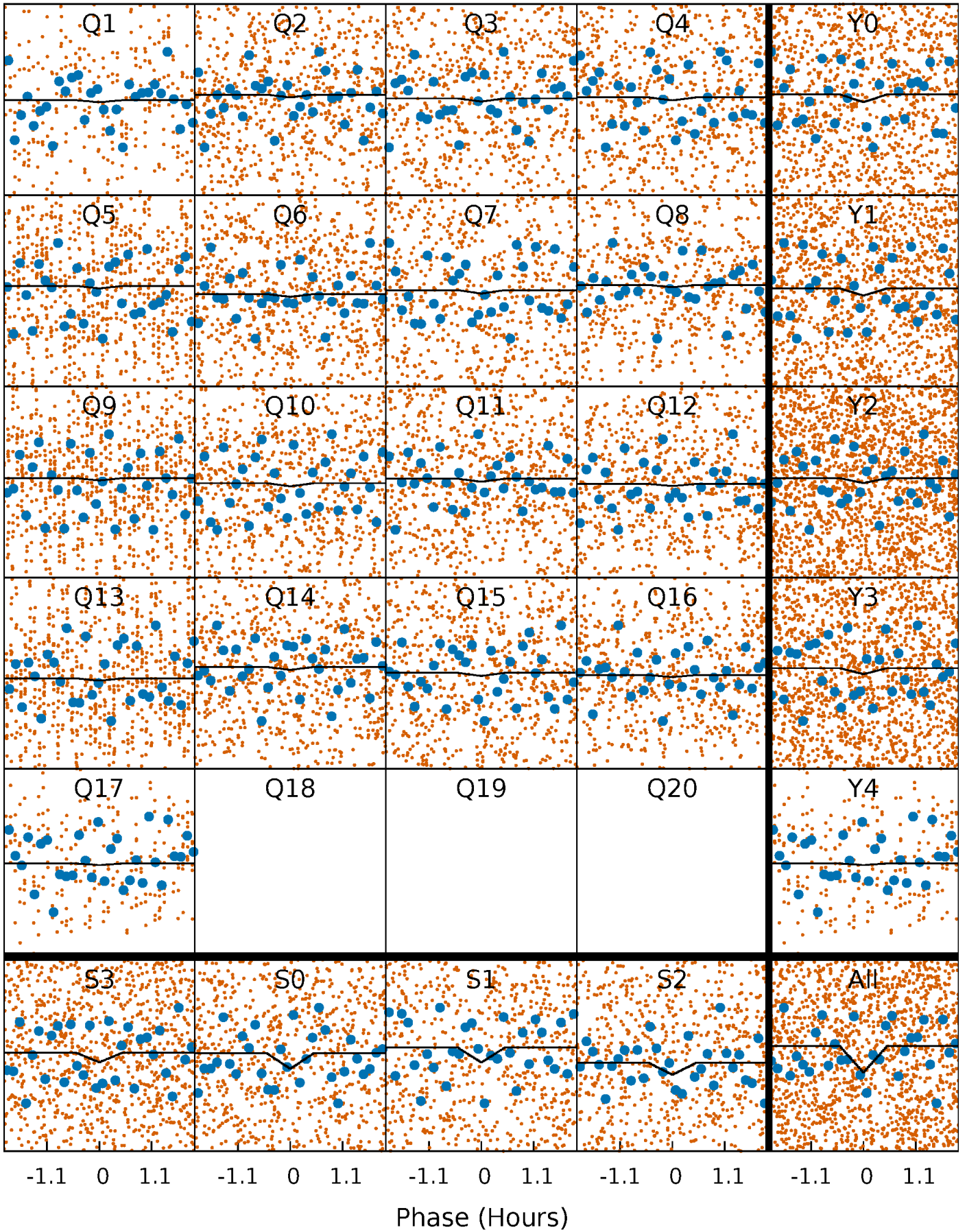
DV Quarter-Phased Transit Curves

TCE 004048494-02 $P = 0.657978$ Days $T_0 = 132.041484$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

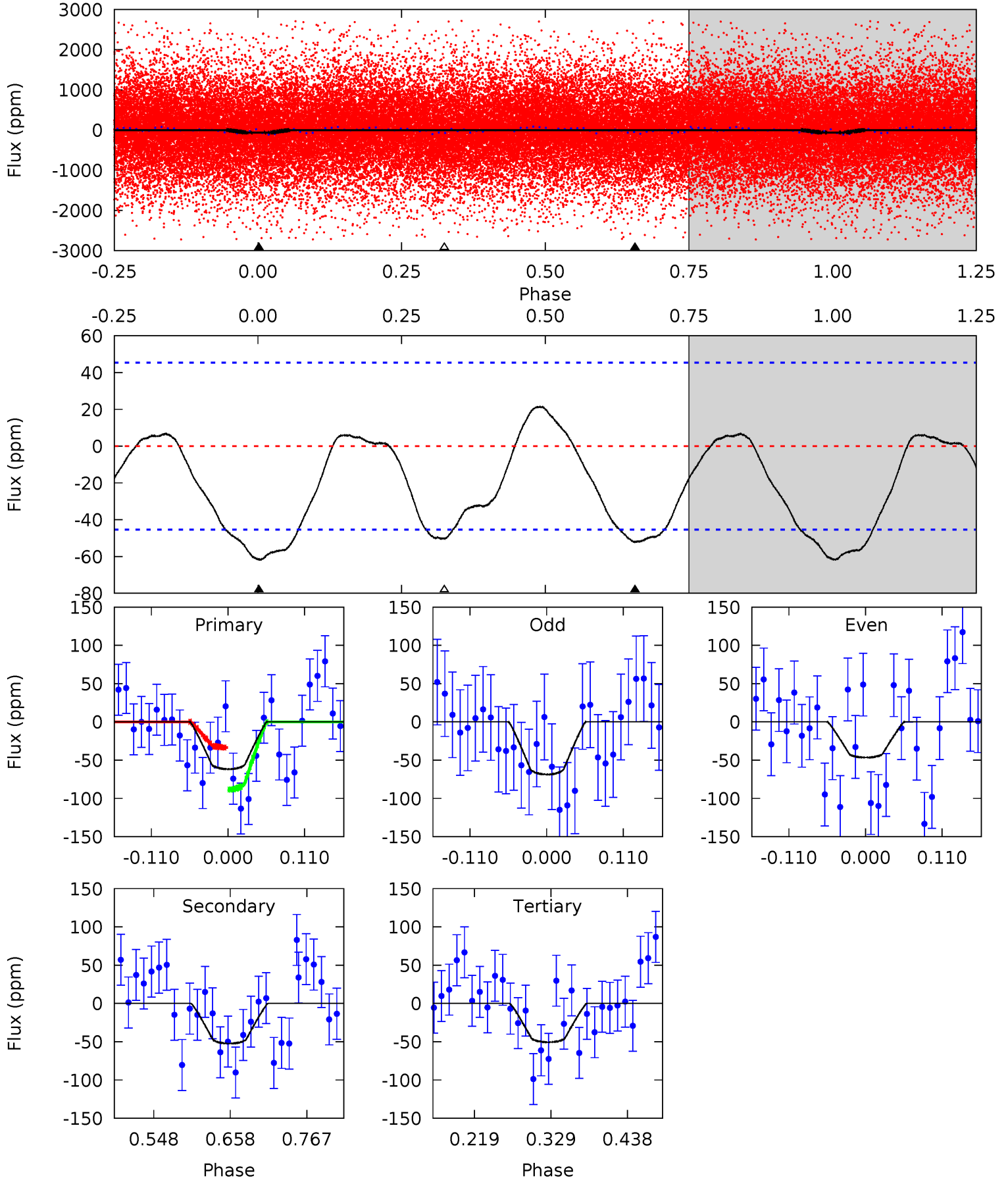
TCE 004048494-02 P= 0.658000 Days $T_0=132.044395$ (BKJD)



DV Model-Shift Uniqueness Test

004048494-02, P = 0.657978 Days, E = 131.383506 Days

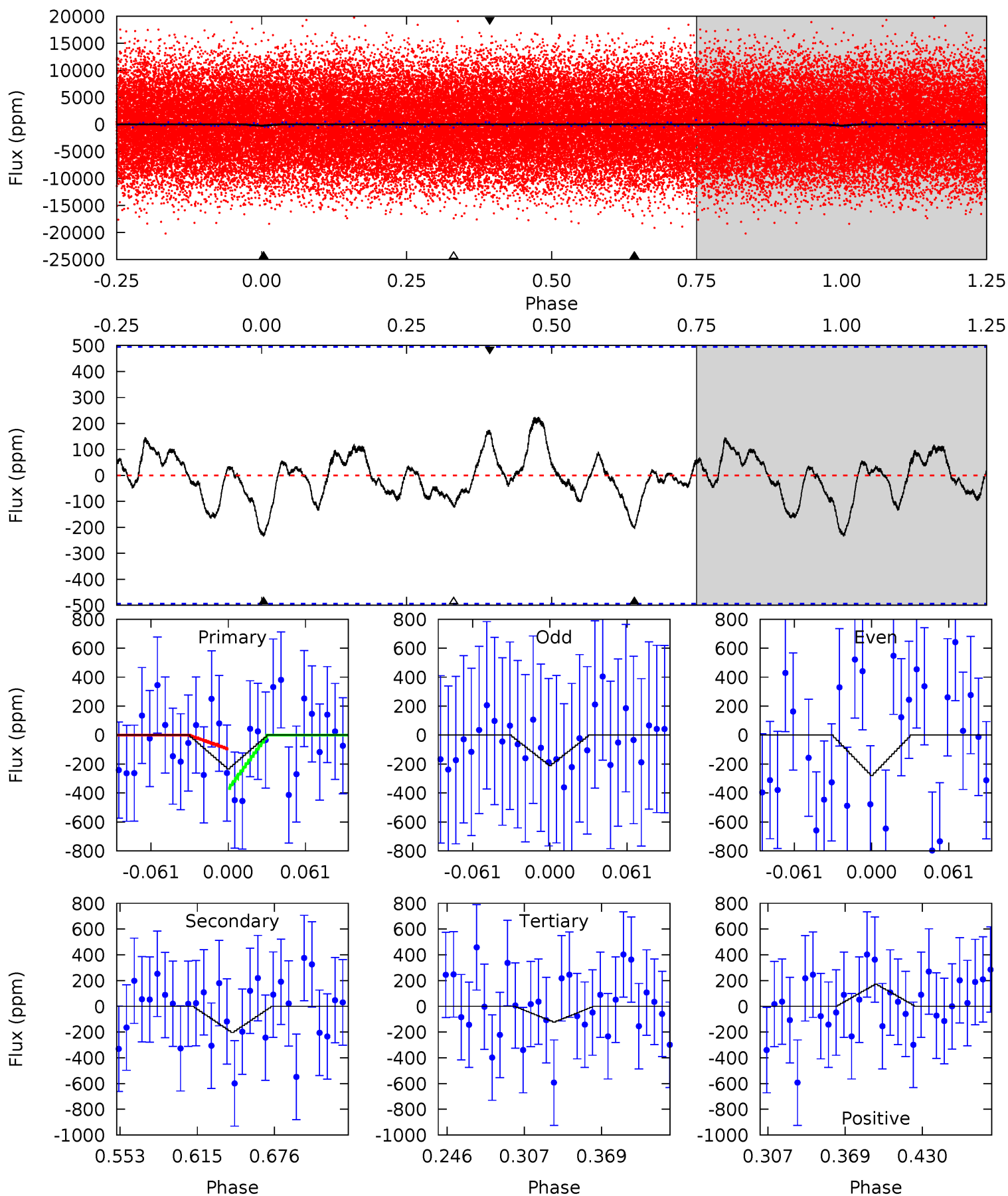
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
6.18	5.23	5.06	0	4.55	1.60	2.05	1.12	6.18	0.17	5.23	1.05	1.06	0.26	2.76



Alt Model-Shift Uniqueness Test

004048494-02, P = 0.658000 Days, E = 131.386395 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
2.20	1.92	1.15	1.62	4.67	1.87	0.75	1.05	0.58	0.77	0.30	0.30	1.05	0.49	1.29



Stellar Parameters For KIC 004048494

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	7852^{+218}_{-327}	$3.915^{+0.280}_{-0.120}$	$-0.060^{+0.200}_{-0.350}$	$2.518^{+0.450}_{-0.901}$	$1.900^{+0.104}_{-0.416}$	$0.168^{+0.306}_{-0.061}$
	+3%/-4%	+7%/-3%	+333%/-583%	+18%/-36%	+5%/-22%	+182%/-36%
Source	KIC0	KIC0	KIC0	DSEP		

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

Secondary Eclipse Parameters for KIC 004048494-02 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	-52 ± 10	$2.65^{+2.03}_{-1.72}$	5566^{+375}_{-491}	5951^{+6318}_{-2055}	$1.324^{+8.586}_{-0.904}$
Alt.	-203 ± 106	$3.99^{+2.31}_{-1.85}$	5587^{+378}_{-462}	6978^{+3846}_{-2104}	$2.110^{+5.346}_{-1.430}$

T_{max} = Theoretical Maximum Planetary Temperature
 T_{obs} = Observed Planetary Temperature (Assuming A=0.3)
 A_{obs} = Observed Albedo (Assuming T=0)

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

DV Centroid Data

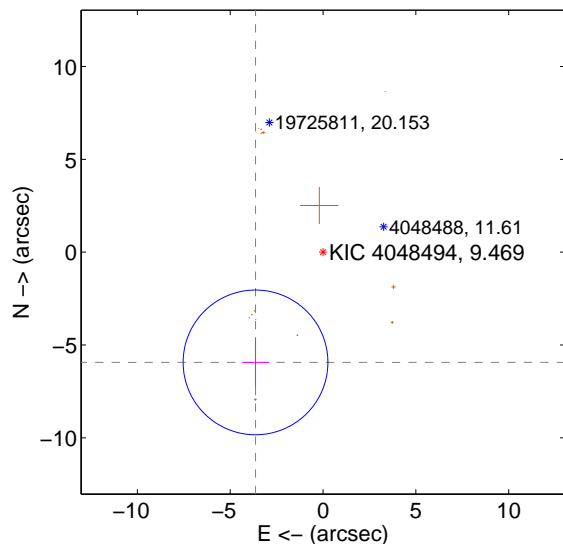
Supplemental centroid analysis for 004048494-02. **Kepler magnitude: 9.47.** Transit SNR 8.92

There are 0 quarters with good PRF difference image offsets

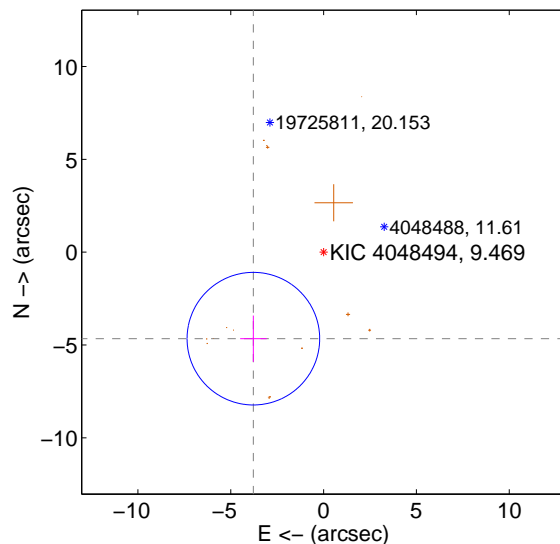
The direct PRF centroid is offset from the target star catalog position by about 0.82 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	6.964 ± 1.300	5.36	3.638 ± 0.729	-5.938 ± 1.339
PRF-fit source offset from KIC position	6.002 ± 1.191	5.04	3.782 ± 0.715	-4.660 ± 1.244
photometric centroid source offset	2.16 ± 0.63	3.45	0.98 ± 0.60	-1.93 ± 0.63

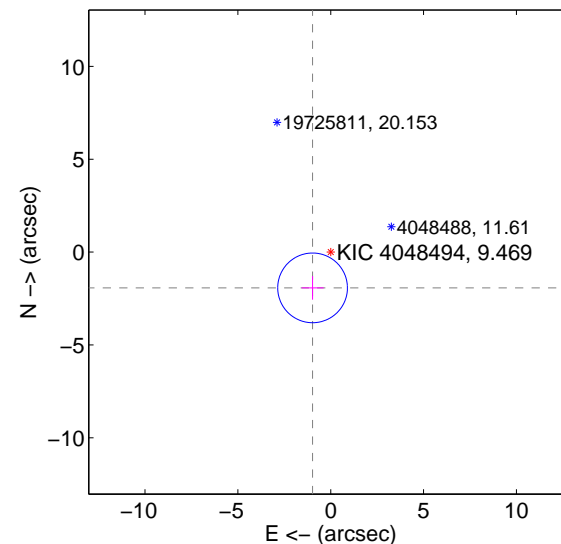
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position

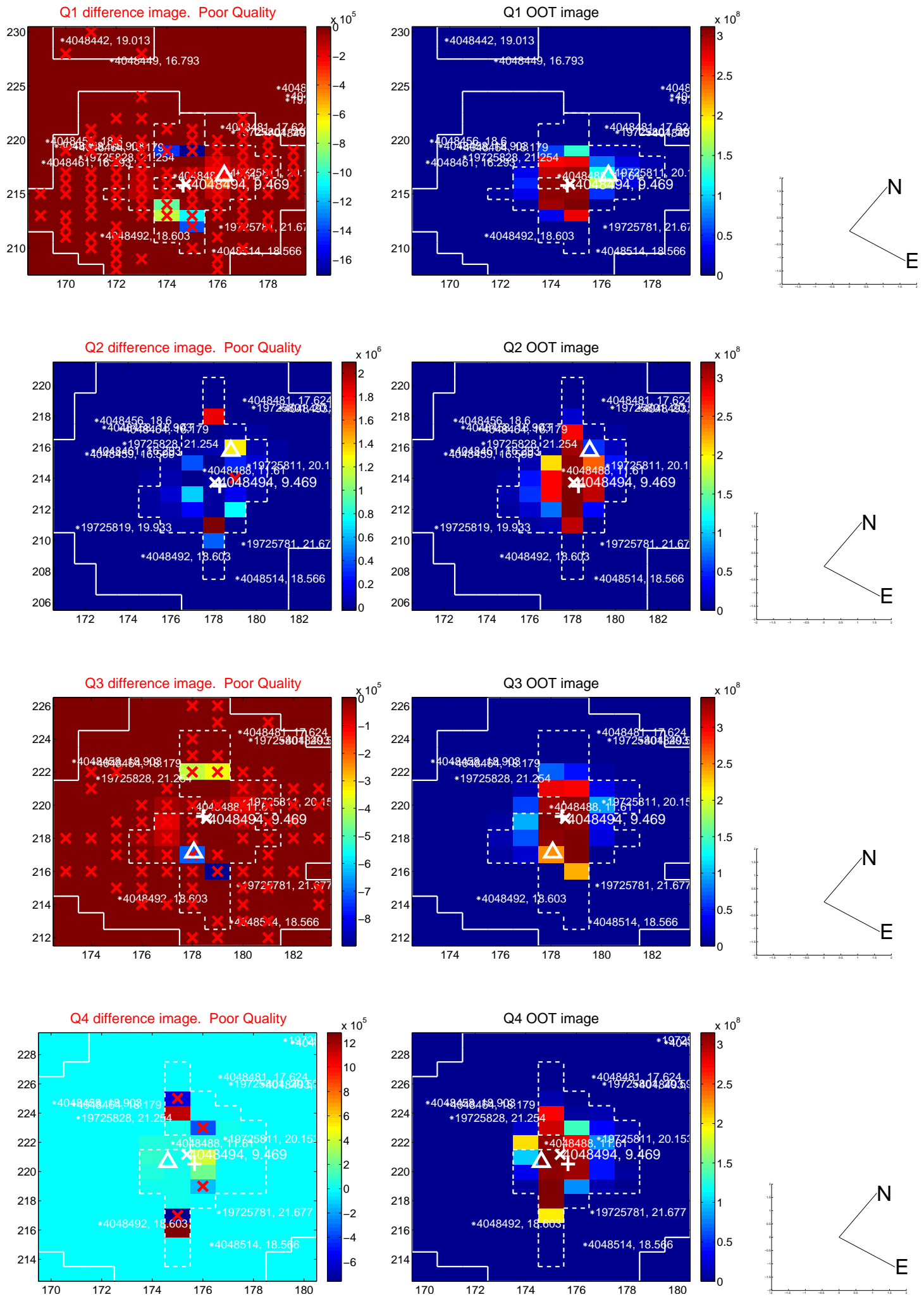


offset from photometric centroids

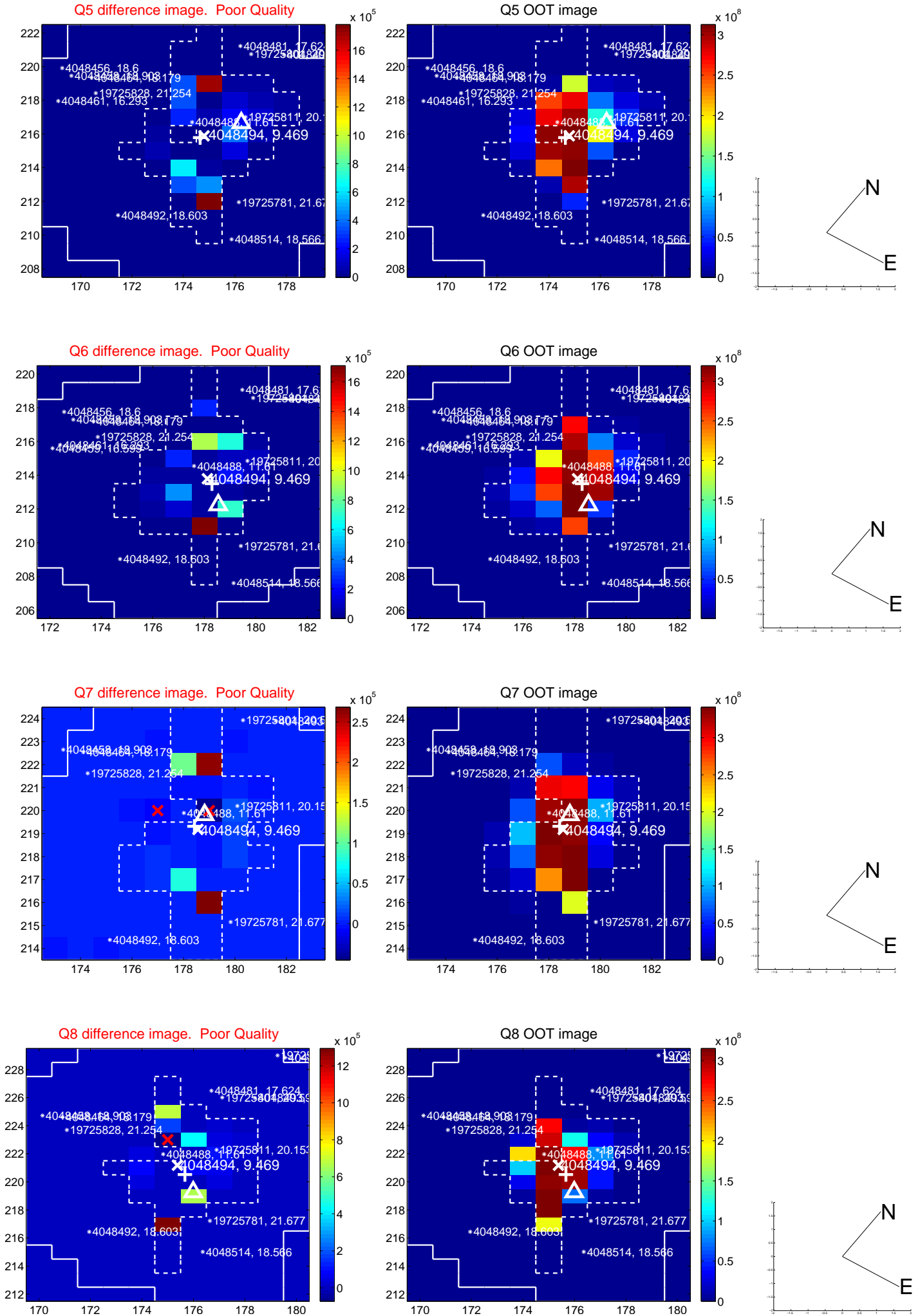


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

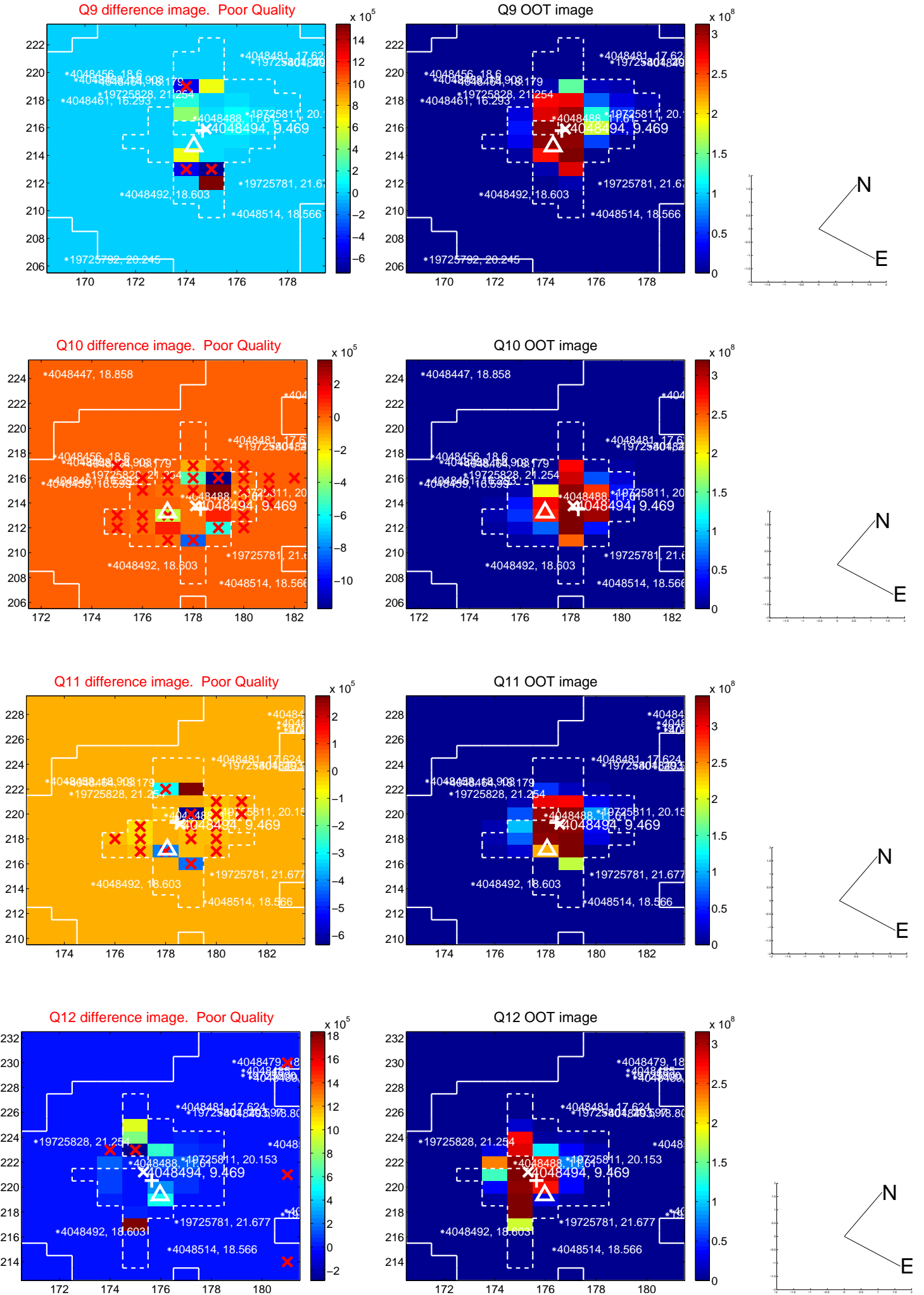
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



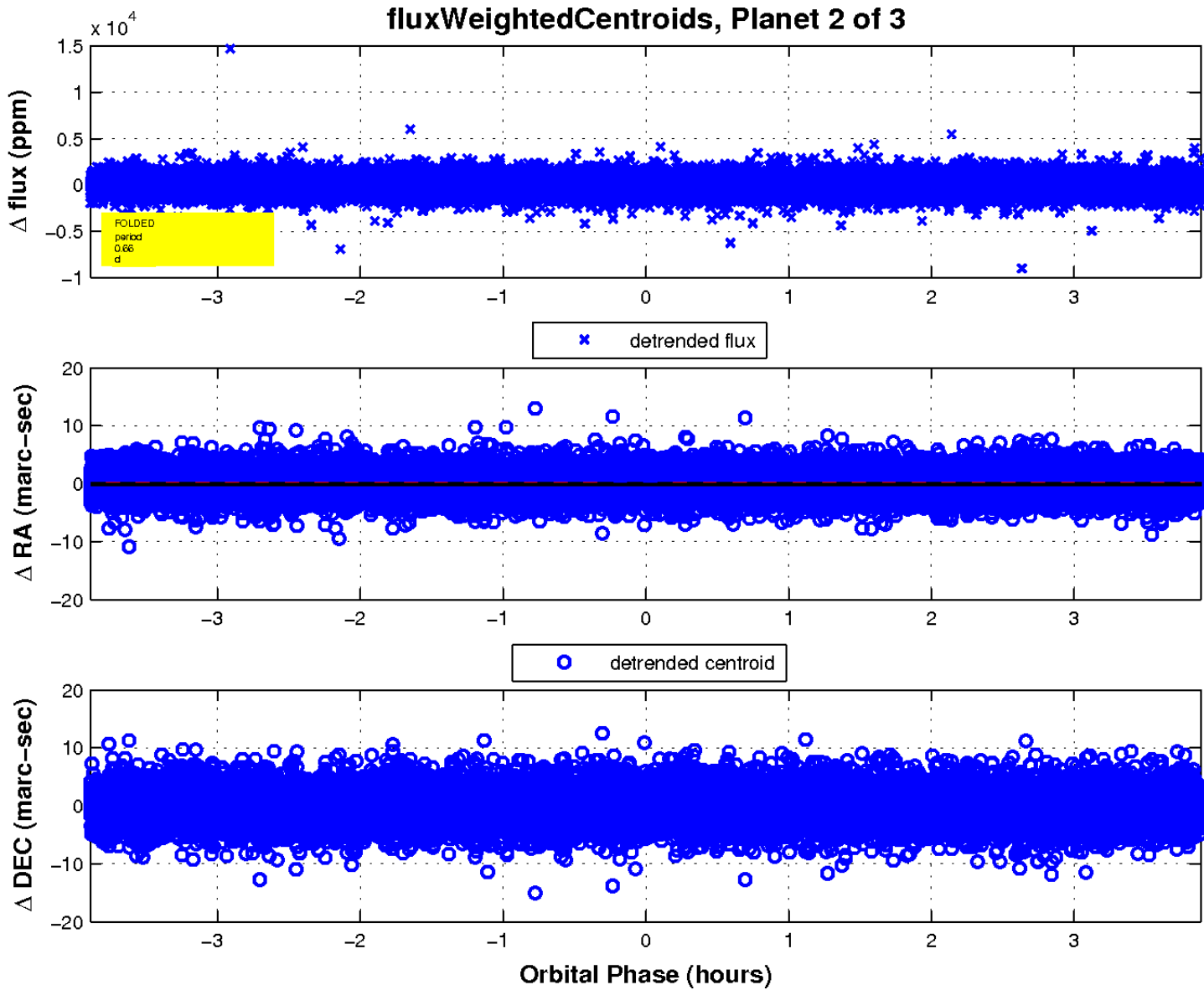
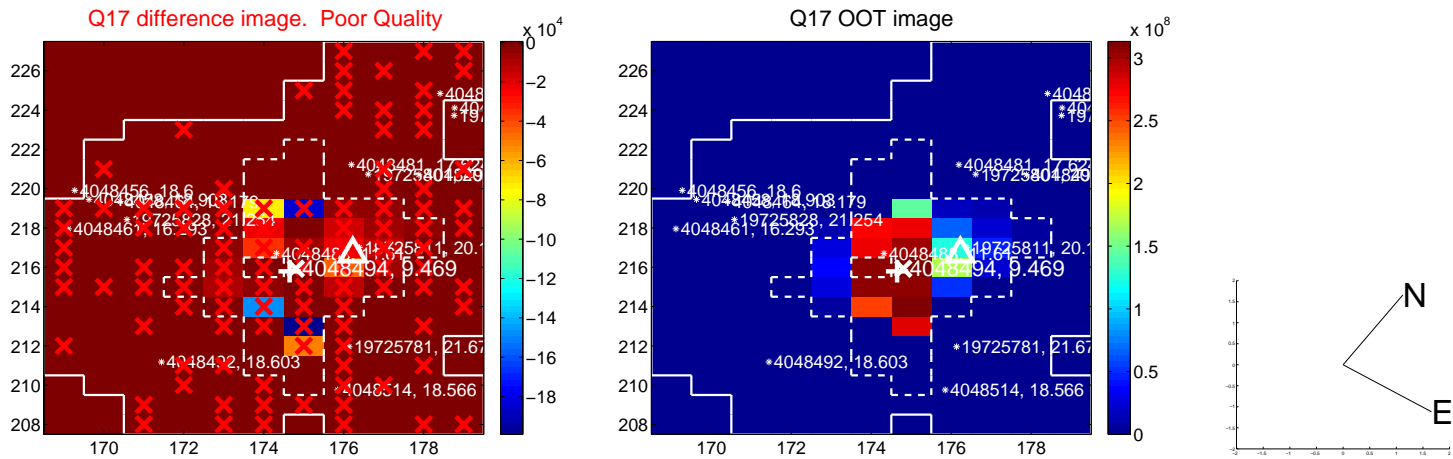
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

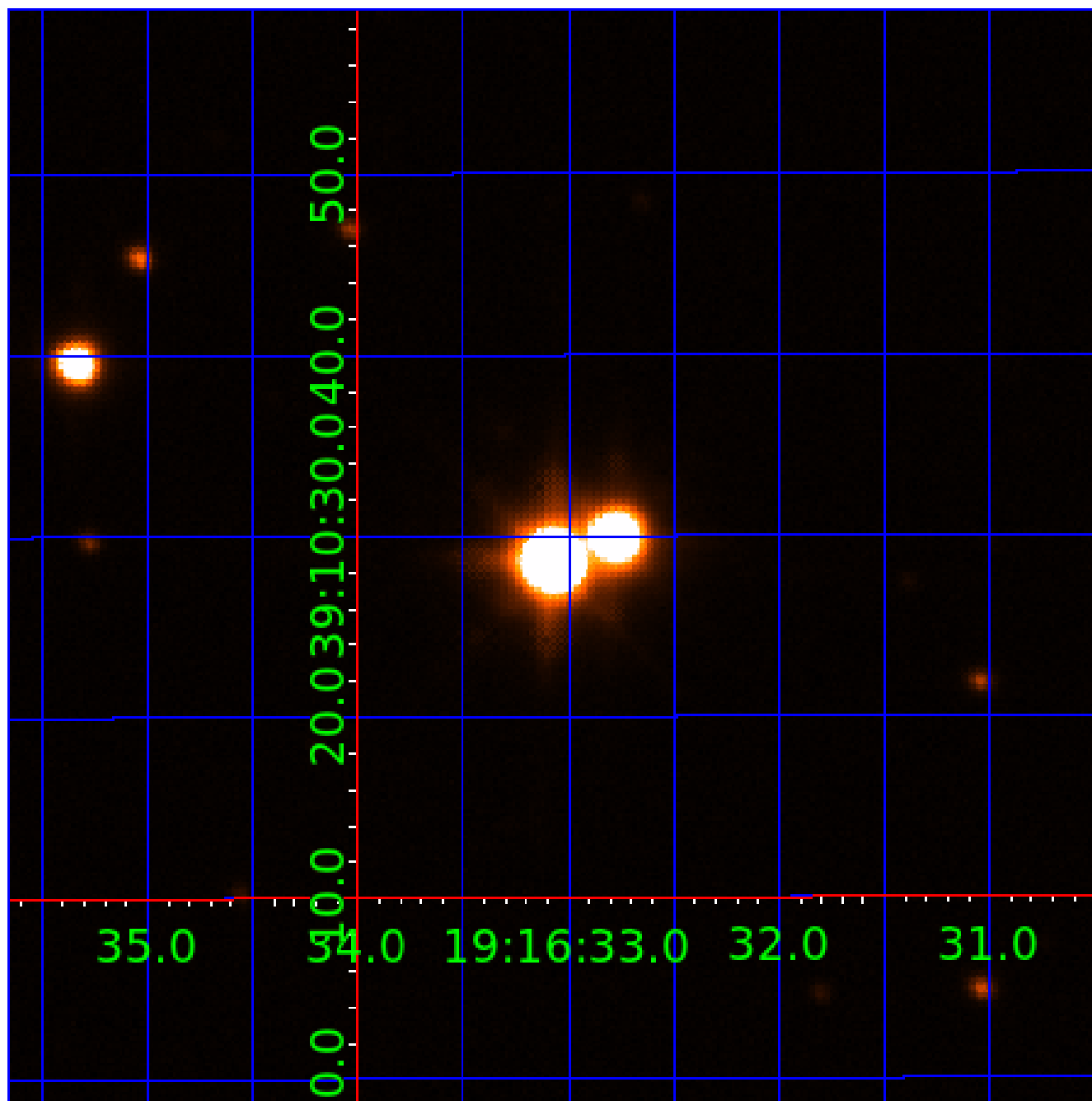


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 004048494

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})
004048494-01	OBS	No	0.877329	131.582241	121.2	1.170	14.0	15.1	2.52	7852	2.98	43715.56
004048494-02	OBS	No	0.657978	132.041484	77.3	1.296	10.8	8.9	2.52	7852	2.58	64155.99
004048494-03	OBS	No	0.806793	131.673126	71.1	5.160	7.9	9.5	2.52	7852	2.46	48884.35

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
004048494-01	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_SATURATED
004048494-02	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_ALT—MOD_POS_ALT—CENT_SATURATED
004048494-03	OBS	FP	0.00	1	0	0	0	TRANS_GAPPED—LPP_DV—LPP_ALT—CENT_SATURATED

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

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

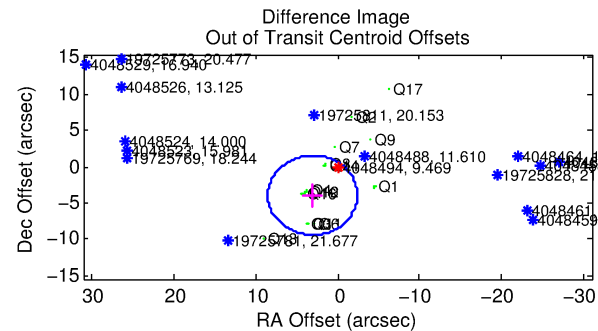
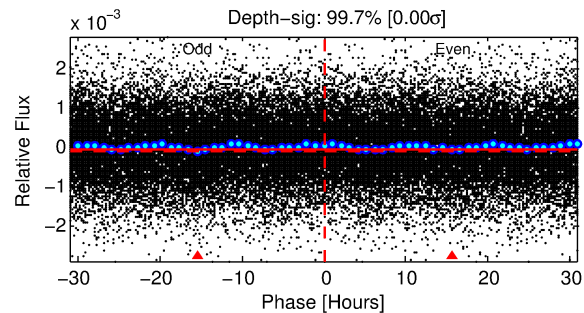
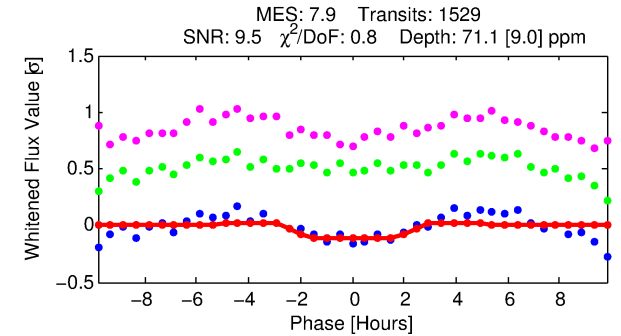
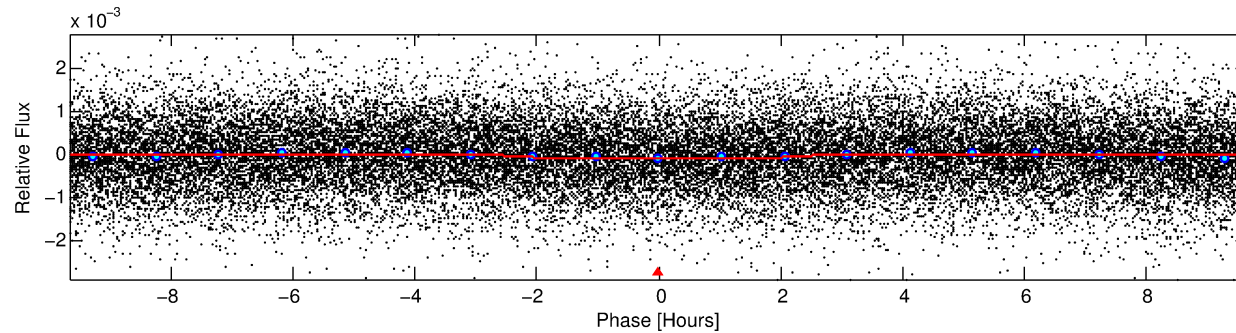
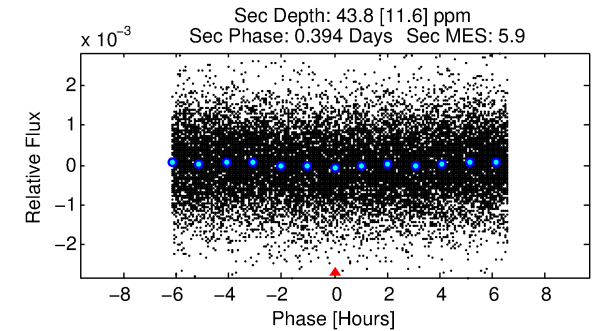
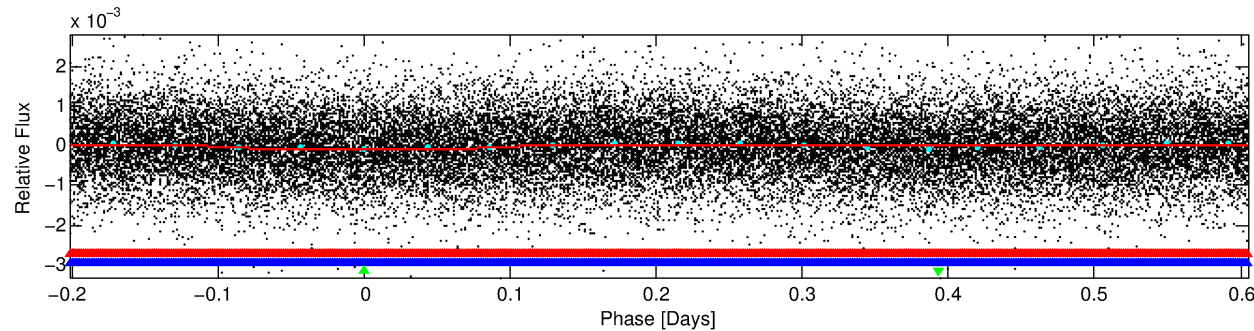
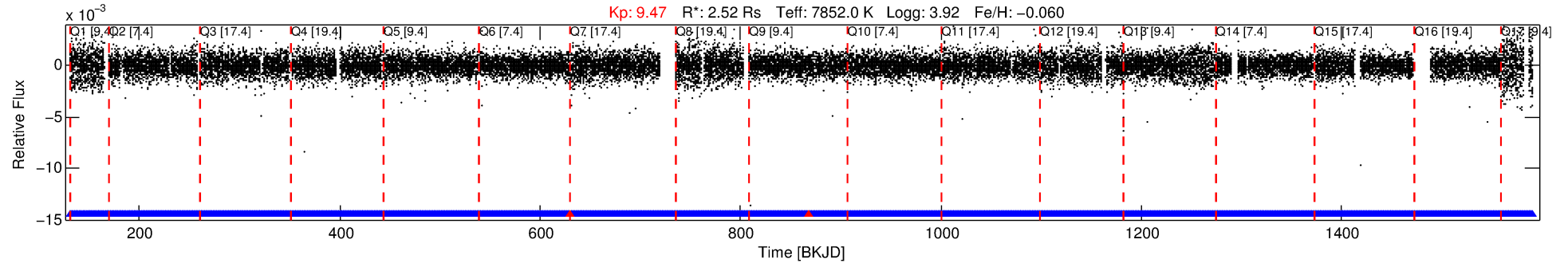
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 004048494-03

No Significant Match Found

DV One-Page Summary

KIC: 4048494 Candidate: 3 of 3 Period: 0.807 d



DV Fit Results:

Period = 0.80679 [0.00001] d
Epoch = 131.6731 [0.0059] BKJD
Rp/R* = 0.0090 [0.0046]
a/R* = 1.09 [0.56]
b = 0.90 [0.70]
Seff = 48884.35 [25372.67]
Teff = 3792 [492] K
Rp = 2.46 [1.55] Re
a = 0.0210 [0.0067] AU
Ag = 1.75 [2.05] [0.37σ]
Teffp = 6745 [1817] K [1.57σ]

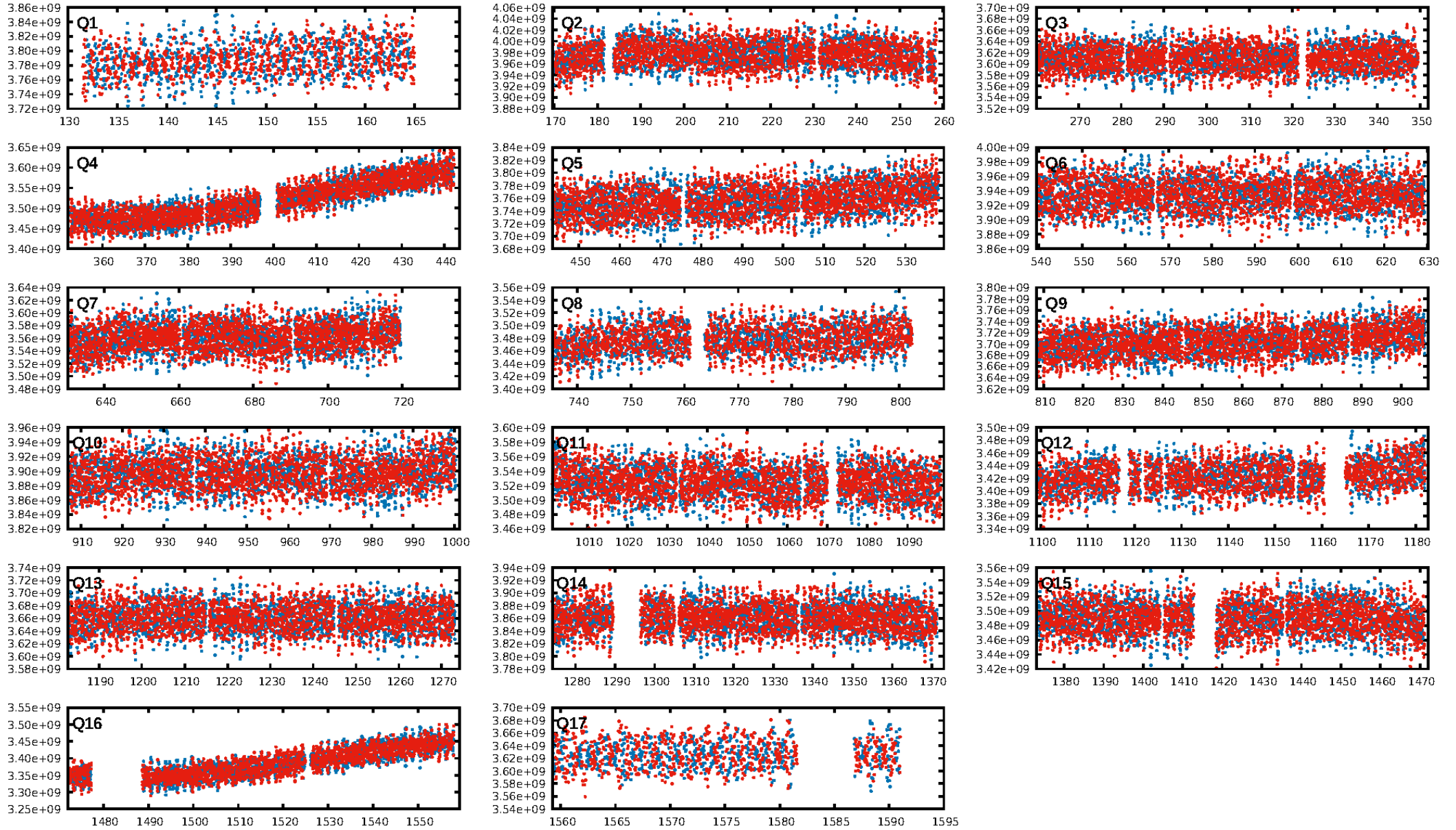
DV Diagnostic Results:

ShortPeriod-sig: 49.8% [0.67σ]
LongPeriod-sig: 25.1% [0.32σ]
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: 6.68e-09
RollingBand-fgt: 1.00 [1459/1461]
GhostDiagnostic-chr: N/A
Centroid-sig: N/A
Centroid-so: 1.628 arcsec [3.79σ]
OotOffset-rm: 5.006 arcsec [2.75σ]
KicOffset-rm: 6.103 arcsec [3.40σ]
OotOffset-st: 4/3/4/4 [15]
KicOffset-st: 4/3/4/4 [15]
DiffImageQuality-fgm: 0.00 [0/15]
DiffImageOverlap-fno: 0.00 [0/17]

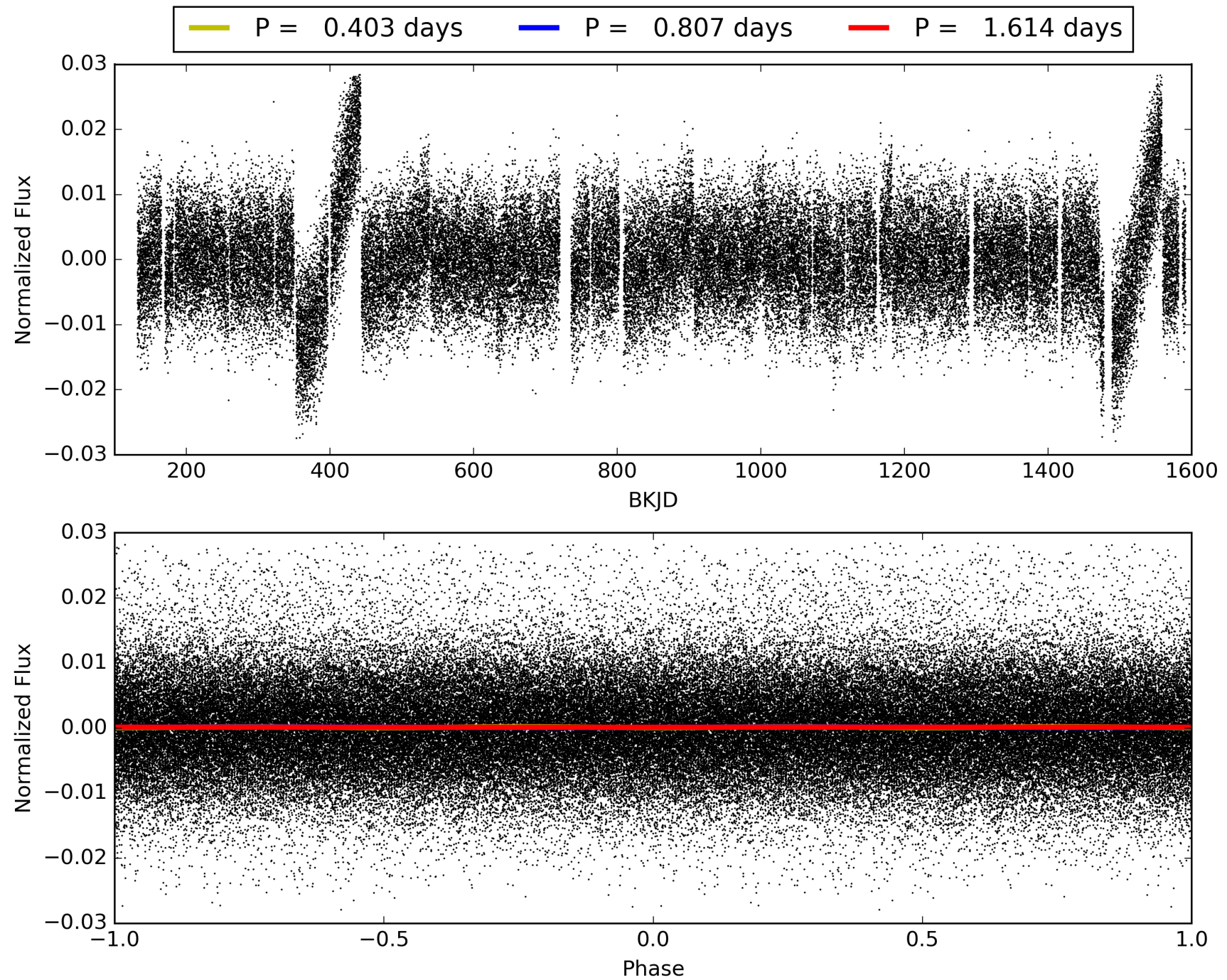
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 01-Feb-2016 11:18:03 Z

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

TCE 004048494-03, PDC Light Curves

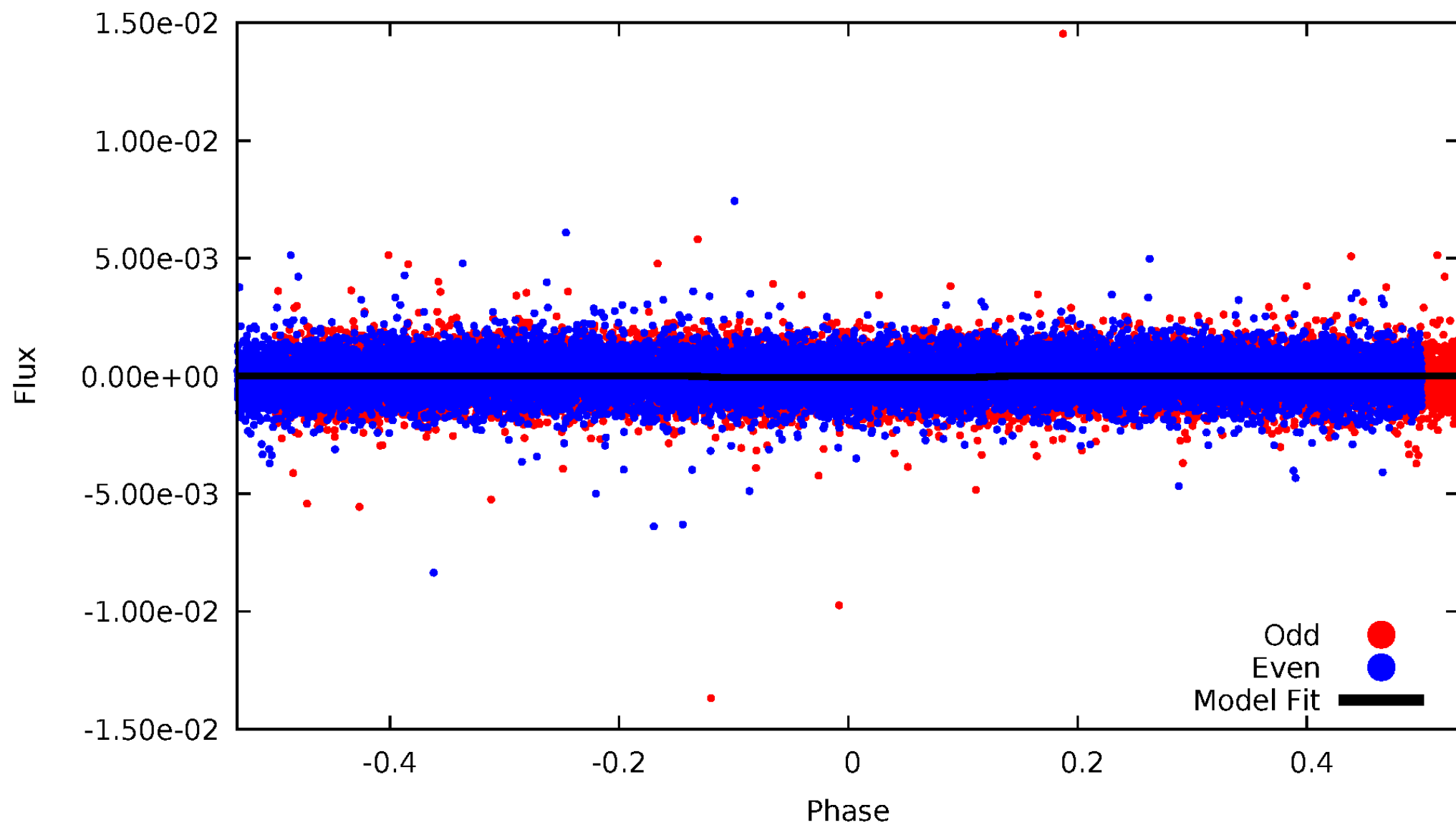


TCE 004048494-03



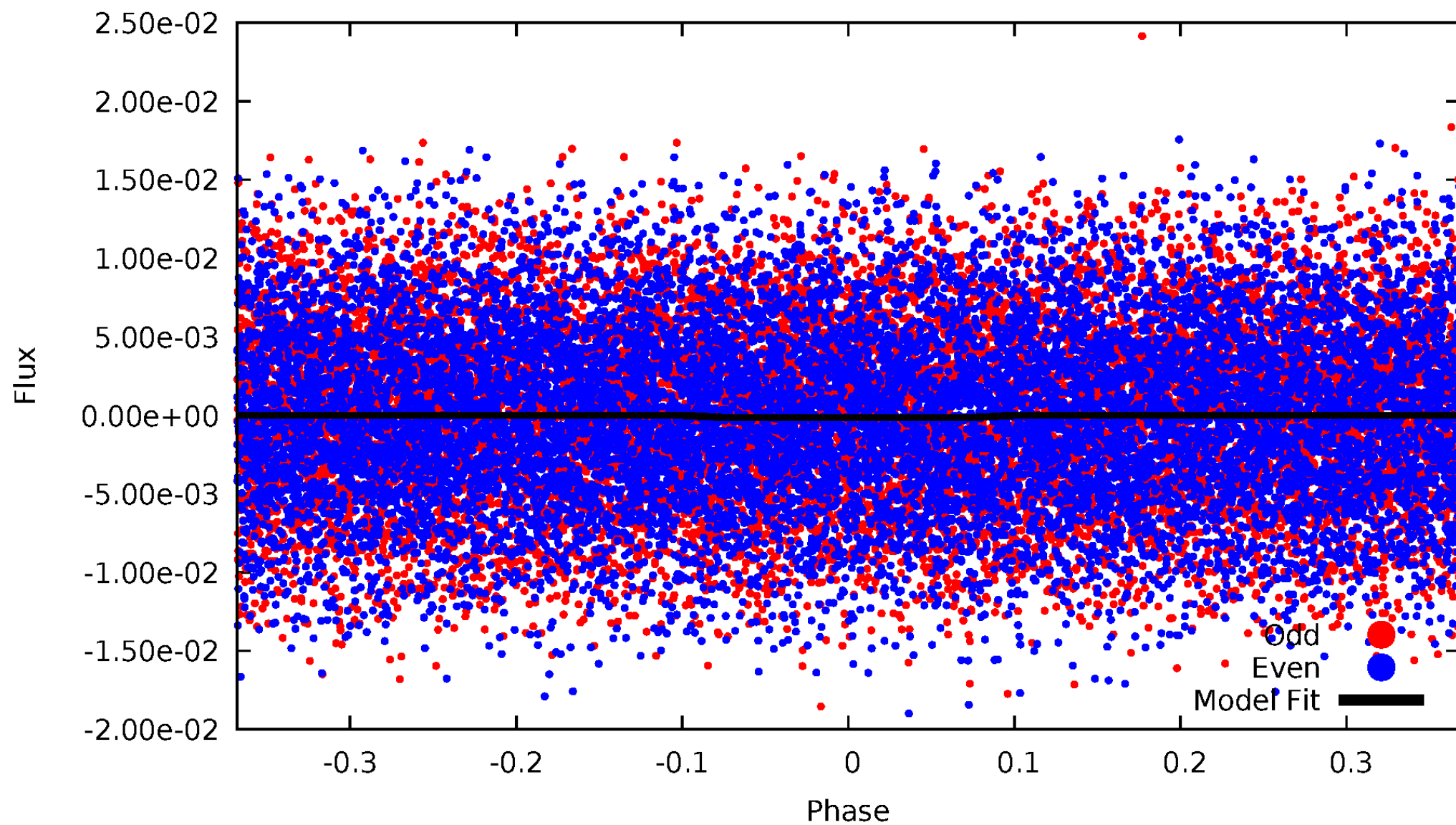
DV Odd/Even

TCE 004048494-03



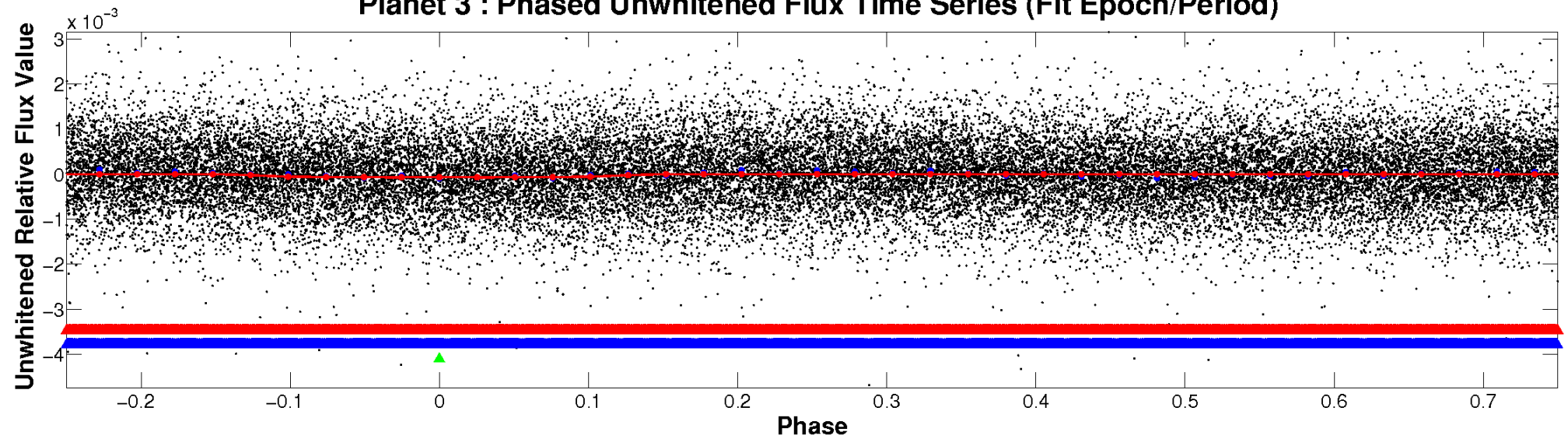
ALT Odd/Even

TCE 004048494-03

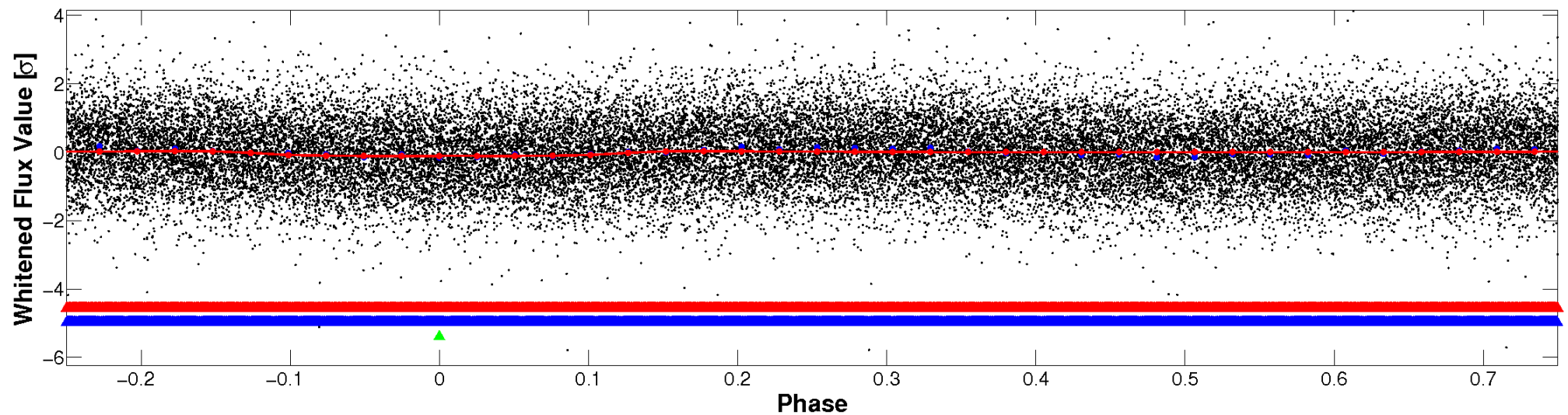


Non-Whitened Vs. Whitened Light Curve

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

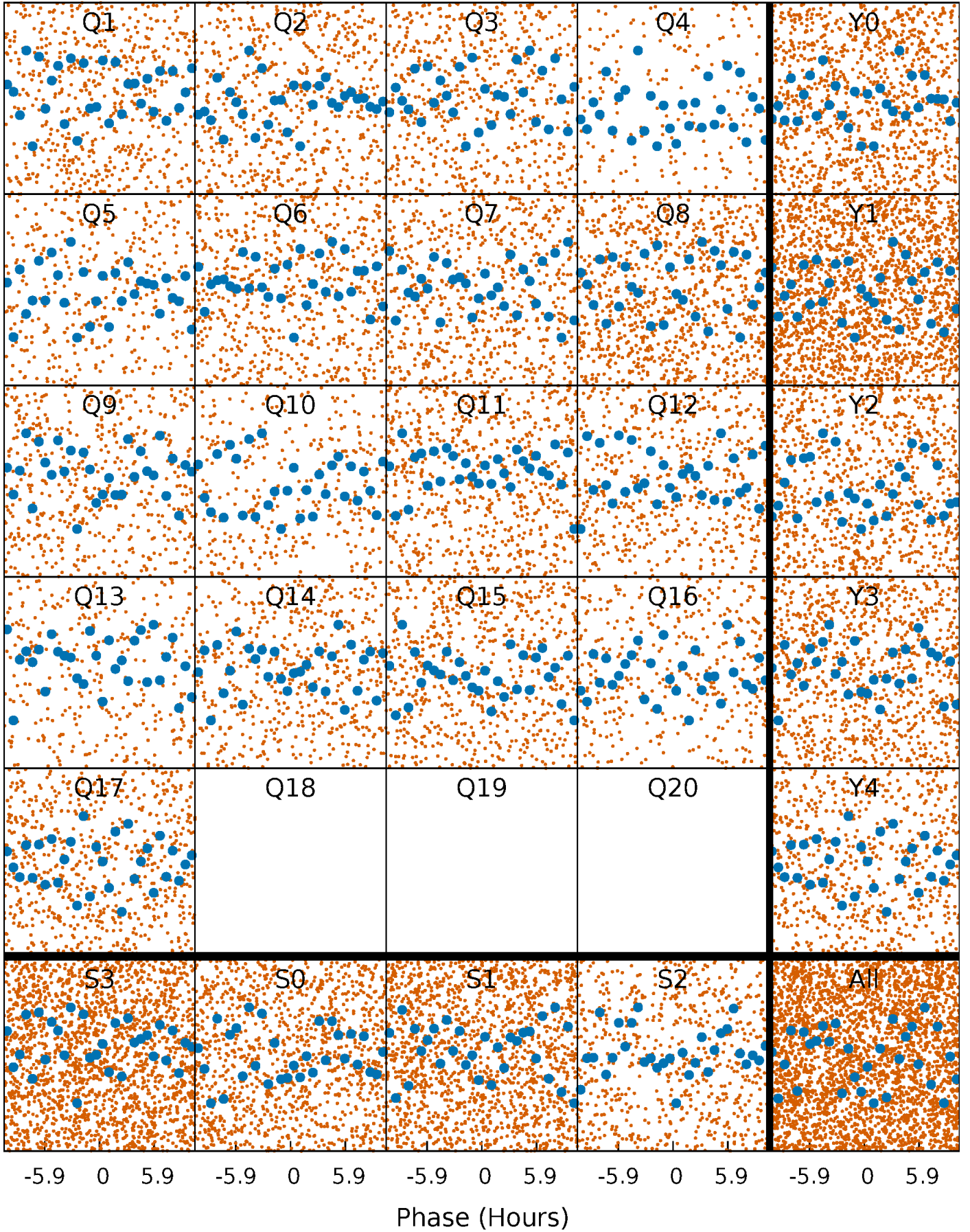


Planet 3 : Phased Whitened Flux Time Series (Fit Epoch/Period)



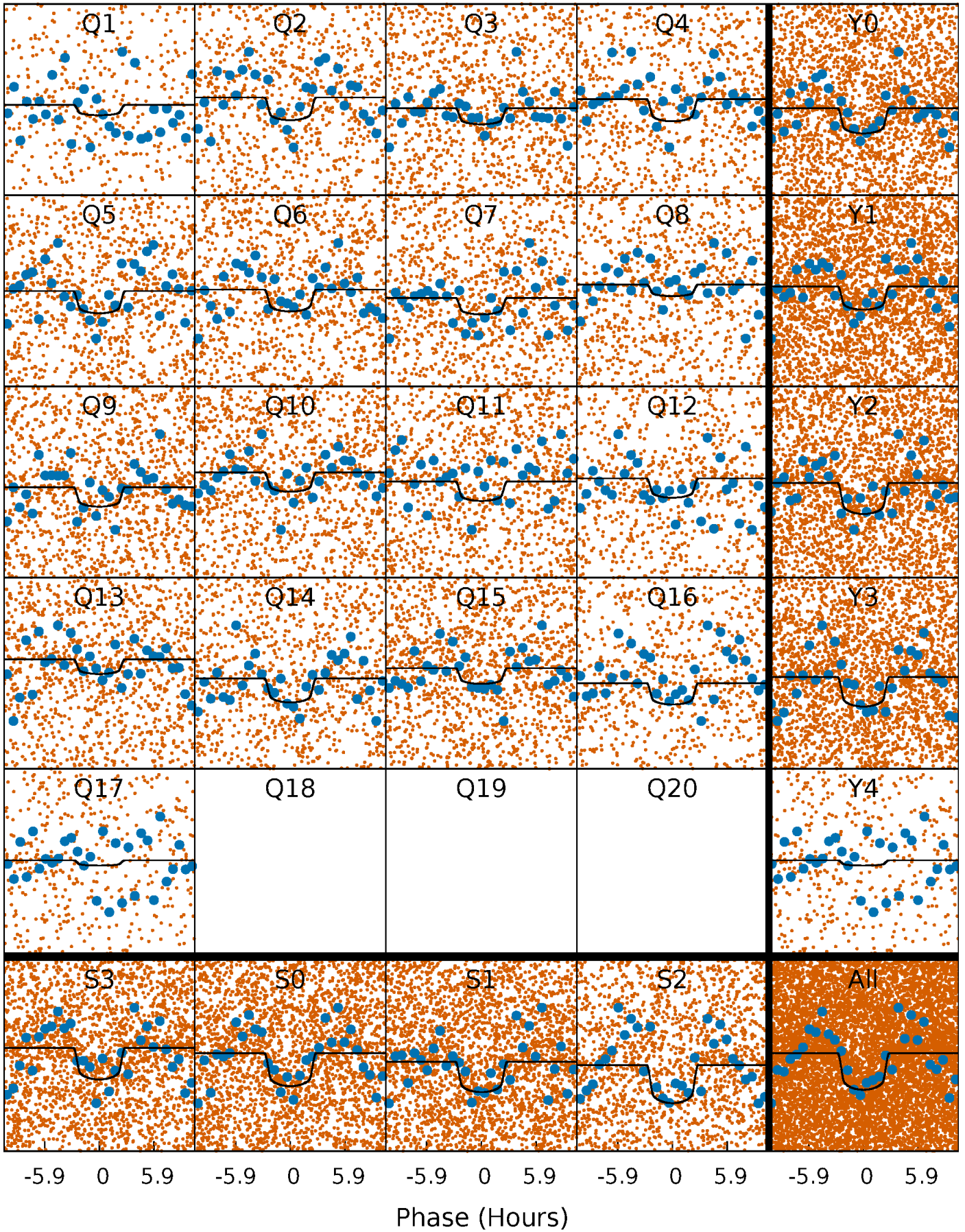
PDC Quarter-Phased Transit Curves

TCE 004048494-03 P= 0.806793 Days $T_0=131.673126$ (BKJD)



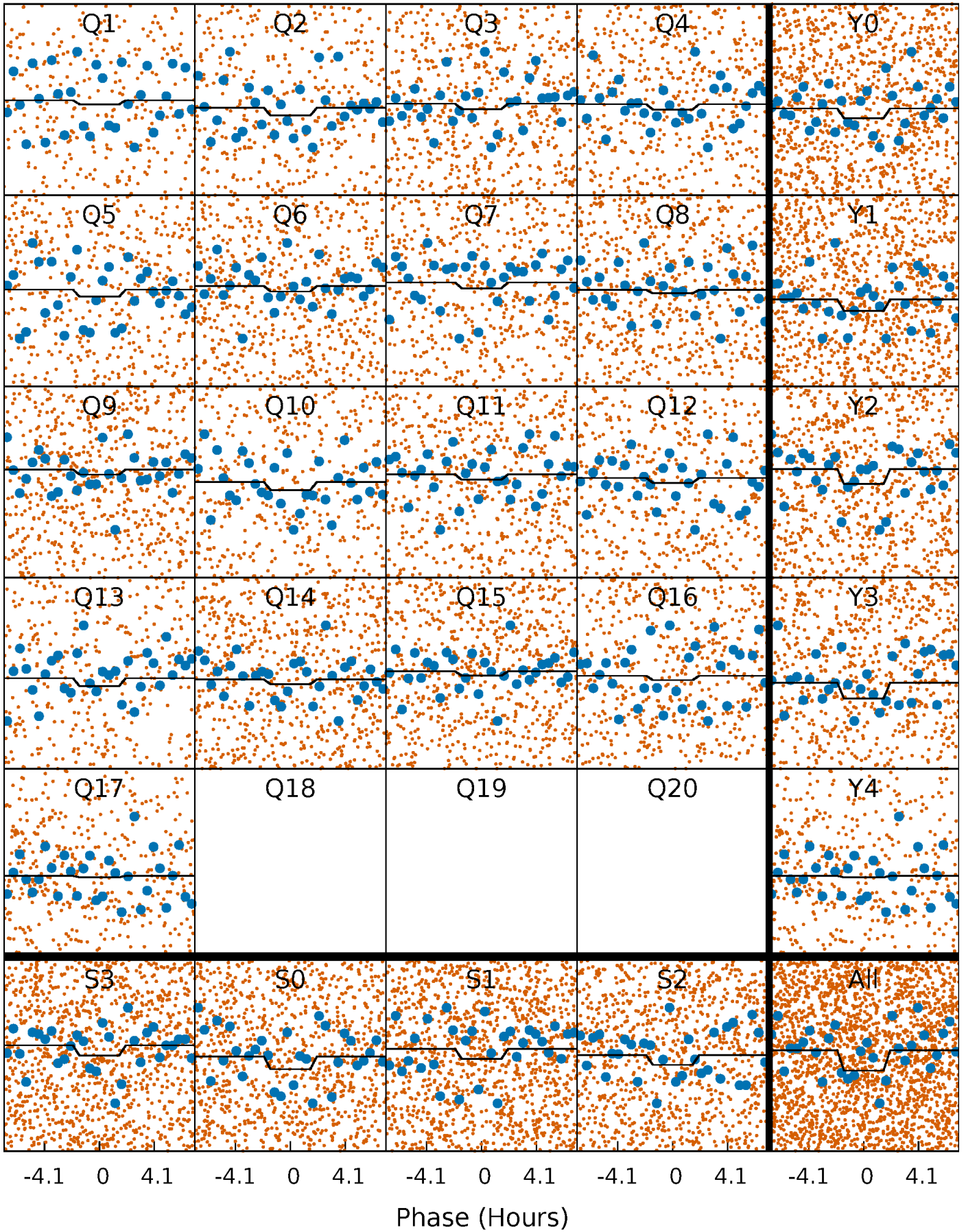
DV Quarter-Phased Transit Curves

TCE 004048494-03 P= 0.806793 Days $T_0=131.673126$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

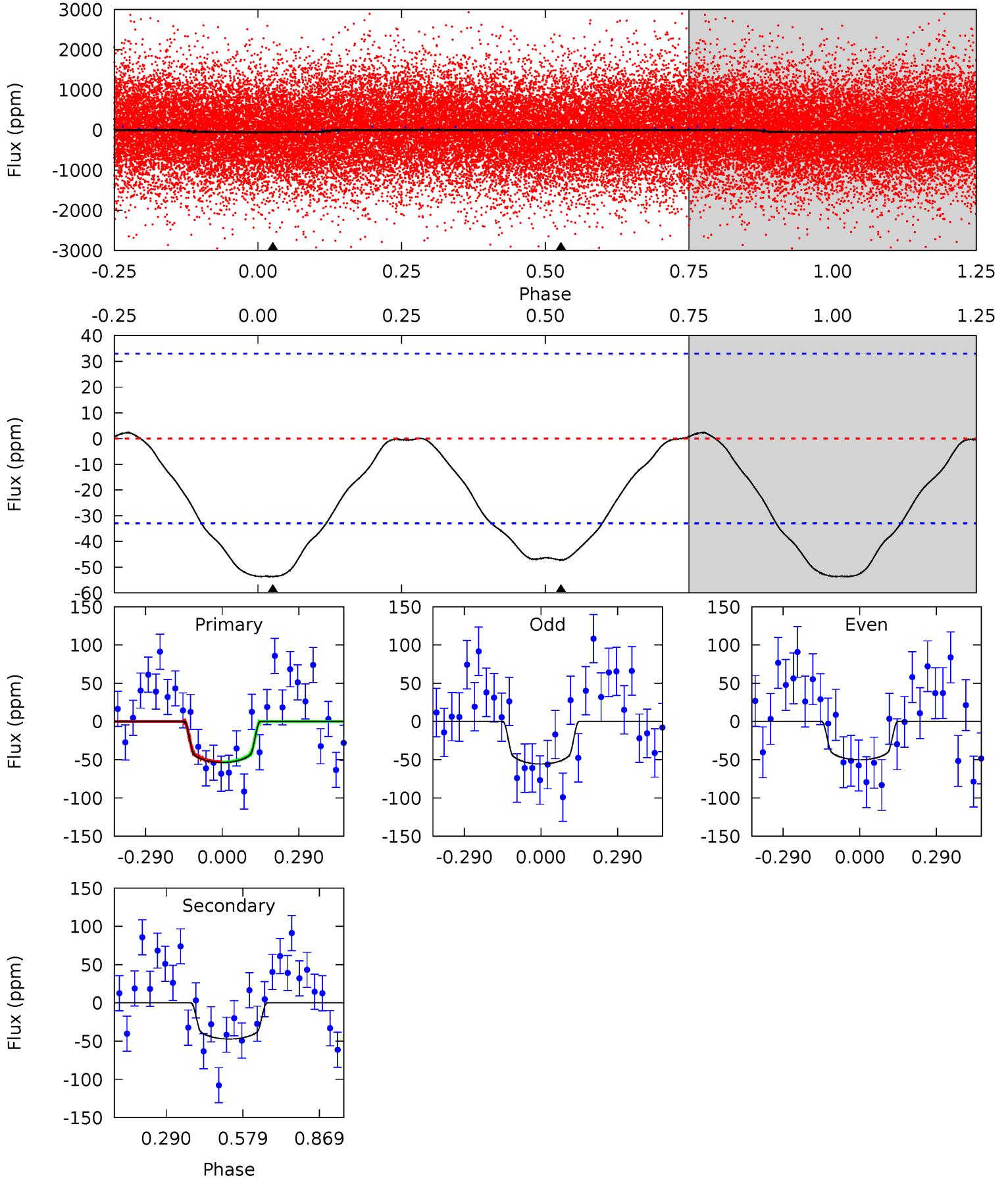
TCE 004048494-03 P= 0.806810 Days $T_0=131.677404$ (BKJD)



DV Model-Shift Uniqueness Test

004048494-03, P = 0.806793 Days, E = 131.673126 Days

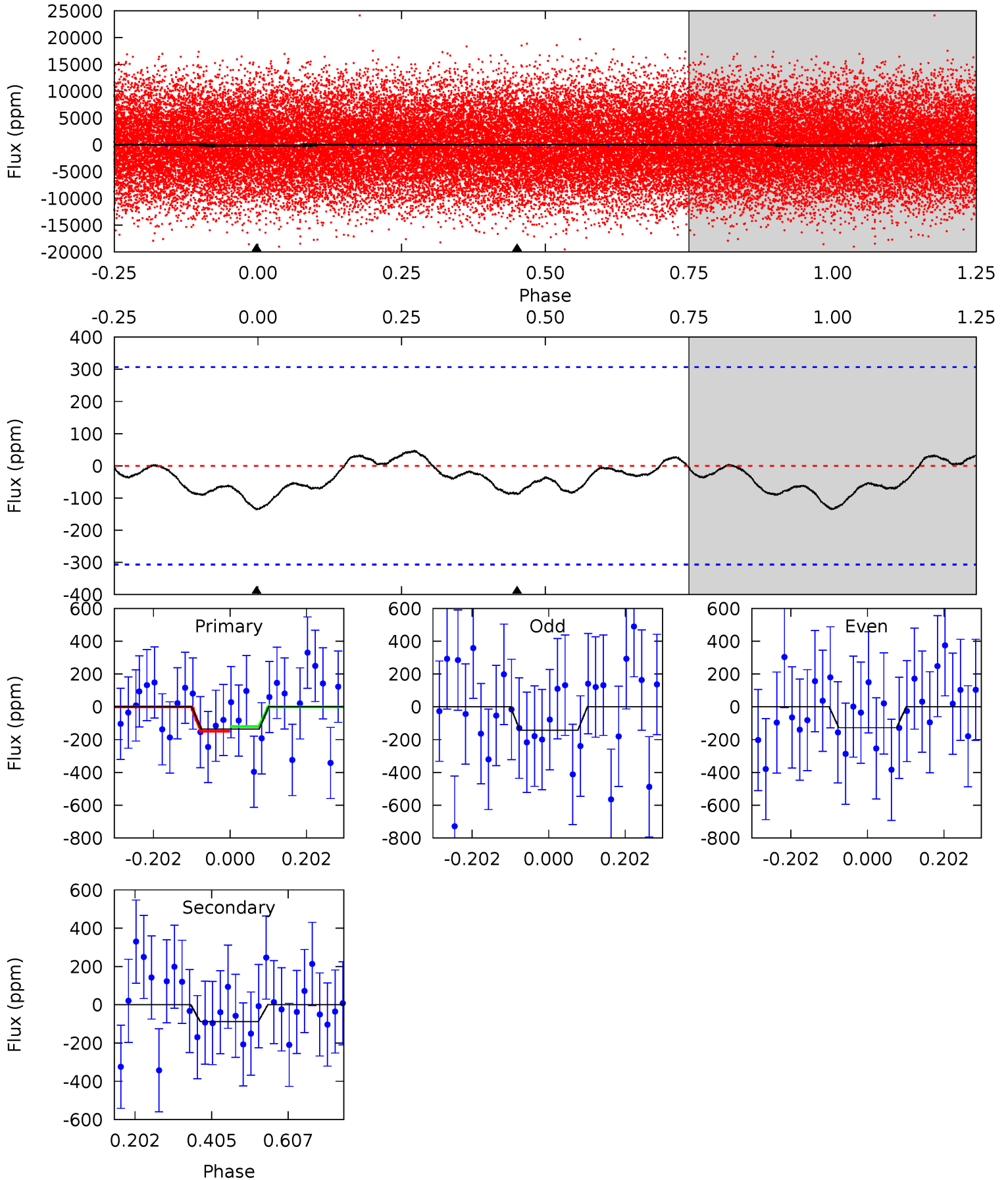
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
7.05	6.21	0	0	4.34	1.06	0.15	7.05	7.05	6.21	6.21	0.37	2.08	0.04	0.03



Alt Model-Shift Uniqueness Test

004048494-03, P = 0.806810 Days, E = 131.677404 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
1.94	1.27	0	0	4.41	1.28	0.31	1.94	1.94	1.27	1.27	0.11	1.81	0.26	0.21



Stellar Parameters For KIC 004048494

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	7852^{+218}_{-327}	$3.915^{+0.280}_{-0.120}$	$-0.060^{+0.200}_{-0.350}$	$2.518^{+0.450}_{-0.901}$	$1.900^{+0.104}_{-0.416}$	$0.168^{+0.306}_{-0.061}$
	+3%/-4%	+7%/-3%	+333%/-583%	+18%/-36%	+5%/-22%	+182%/-36%
Source	KIC0	KIC0	KIC0	DSEP		

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

Secondary Eclipse Parameters for KIC 004048494-03 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	-47 ± 8	$2.40^{+1.23}_{-1.07}$	5205^{+376}_{-508}	6308^{+2805}_{-1435}	$1.942^{+4.416}_{-1.112}$
Alt.	-88 ± 69	$3.04^{+1.49}_{-1.15}$	5197^{+369}_{-446}	6389^{+2956}_{-3074}	$2.066^{+4.809}_{-1.711}$

T_{max} = Theoretical Maximum Planetary Temperature

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

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

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

DV Centroid Data

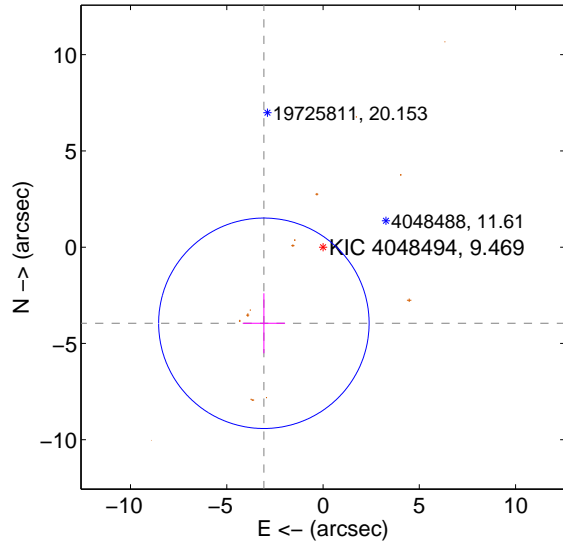
Supplemental centroid analysis for 004048494-03. **Kepler magnitude: 9.47.** Transit SNR 9.52

There are 0 quarters with good PRF difference image offsets

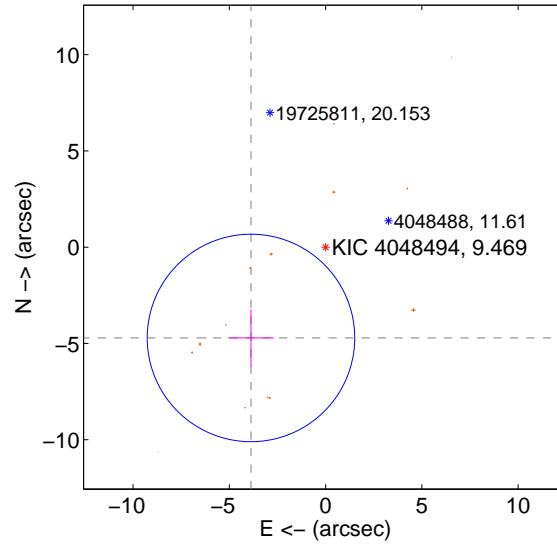
The direct PRF centroid is offset from the target star catalog position by about 0.83 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	5.006 ± 1.822	2.75	3.073 ± 1.101	-3.952 ± 1.557
PRF-fit source offset from KIC position	6.103 ± 1.796	3.40	3.875 ± 1.184	-4.715 ± 1.479
photometric centroid source offset	1.63 ± 0.43	3.79	1.31 ± 0.41	-0.97 ± 0.46

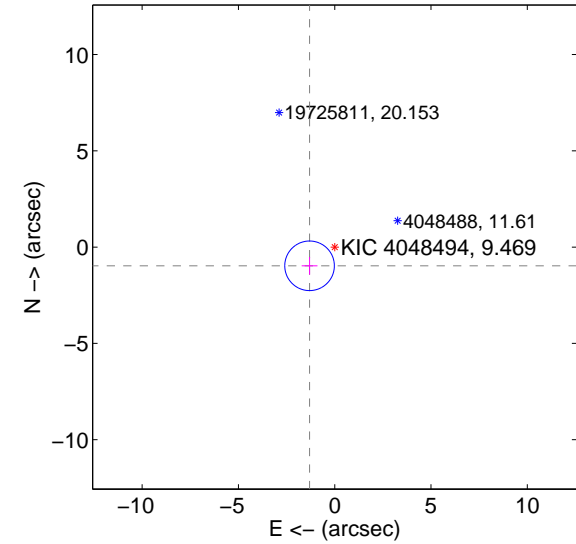
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position

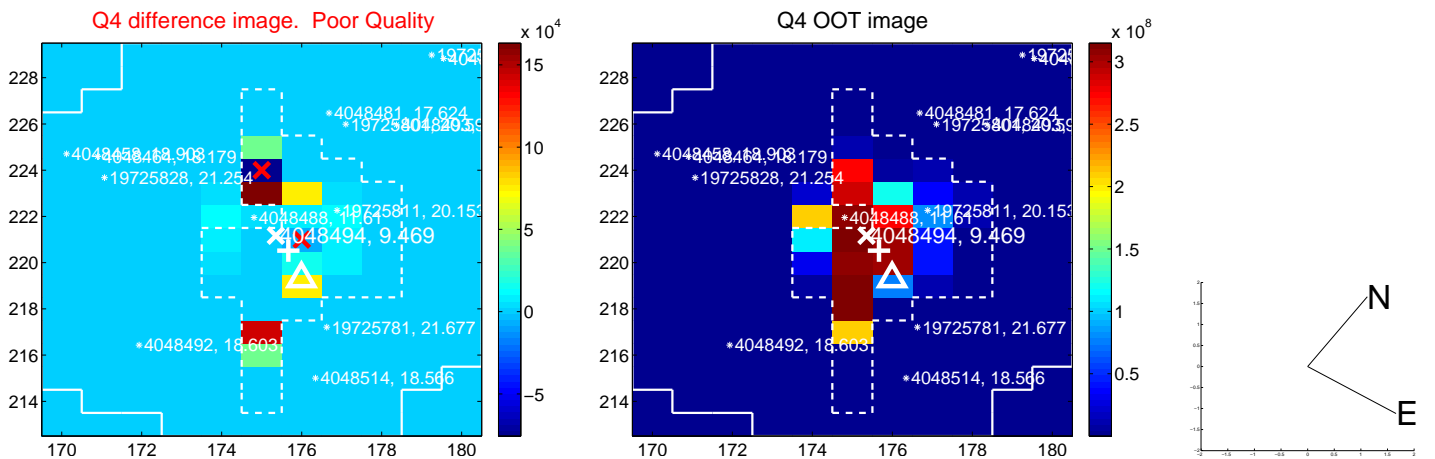
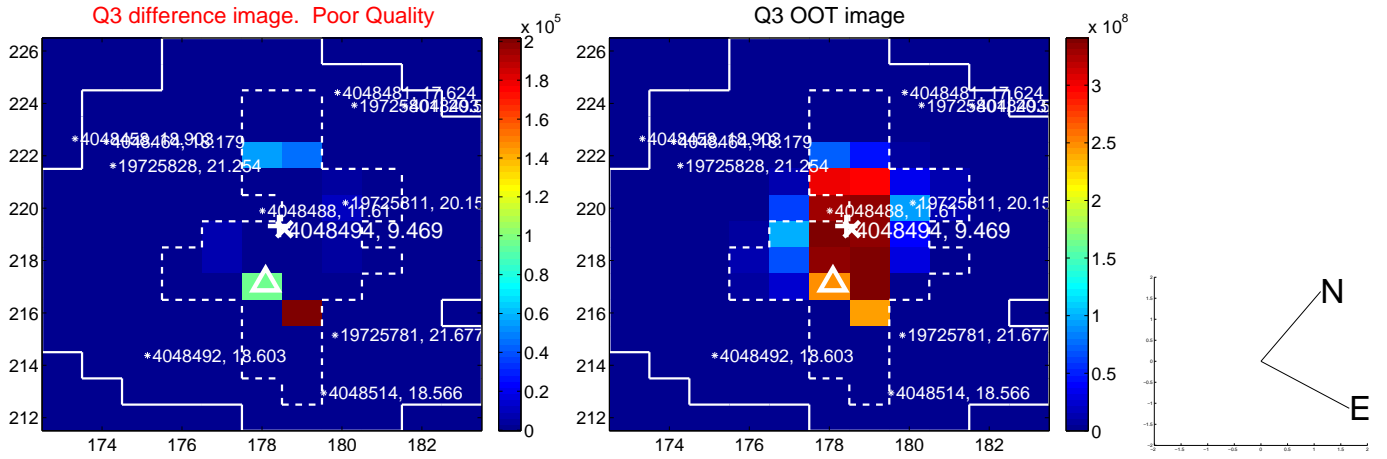
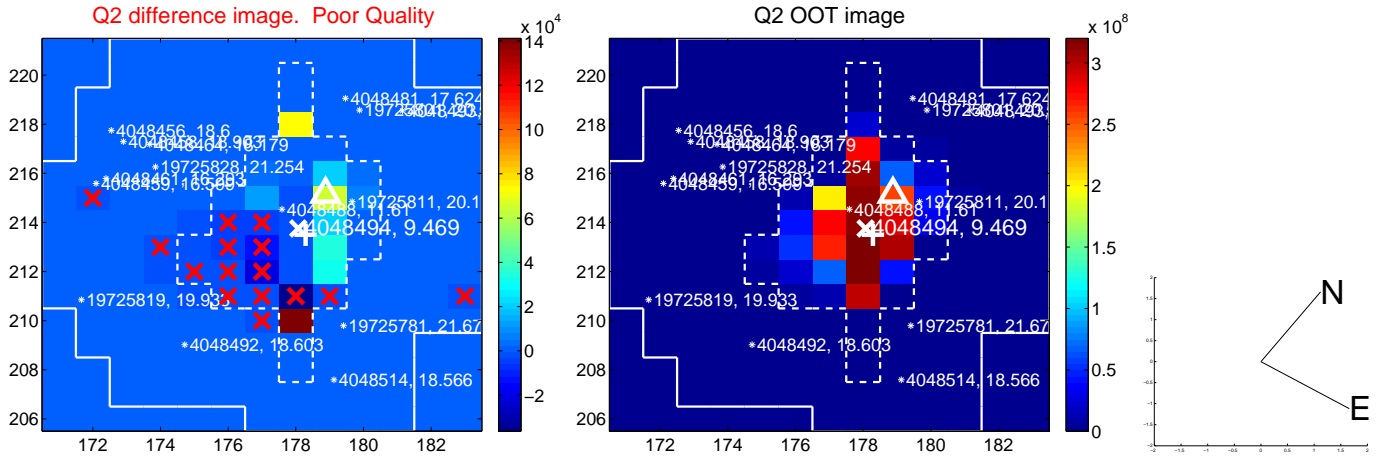
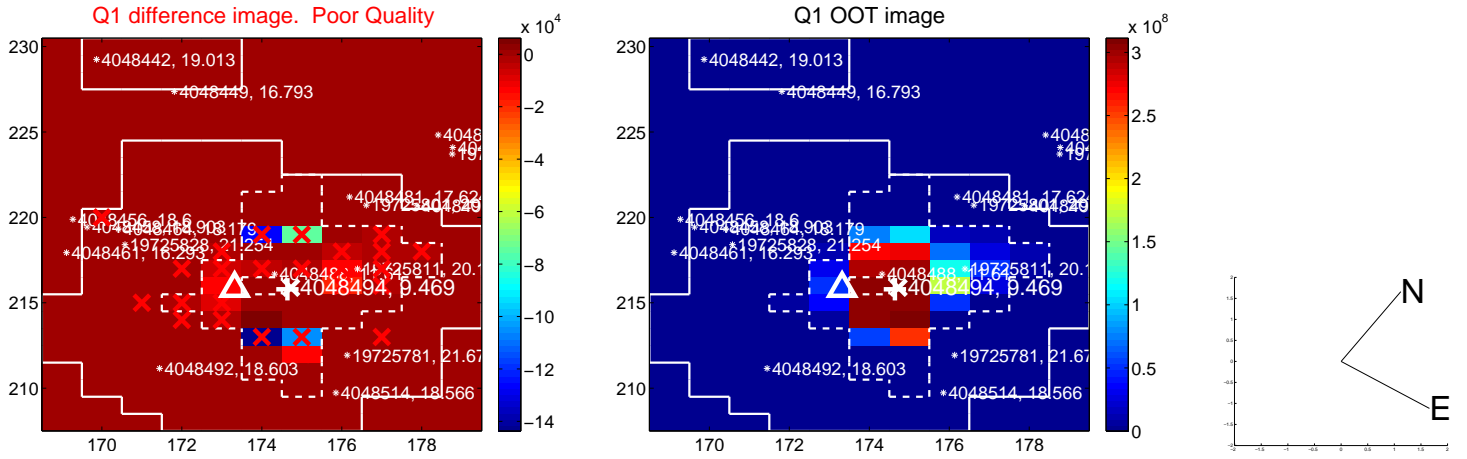


offset from photometric centroids

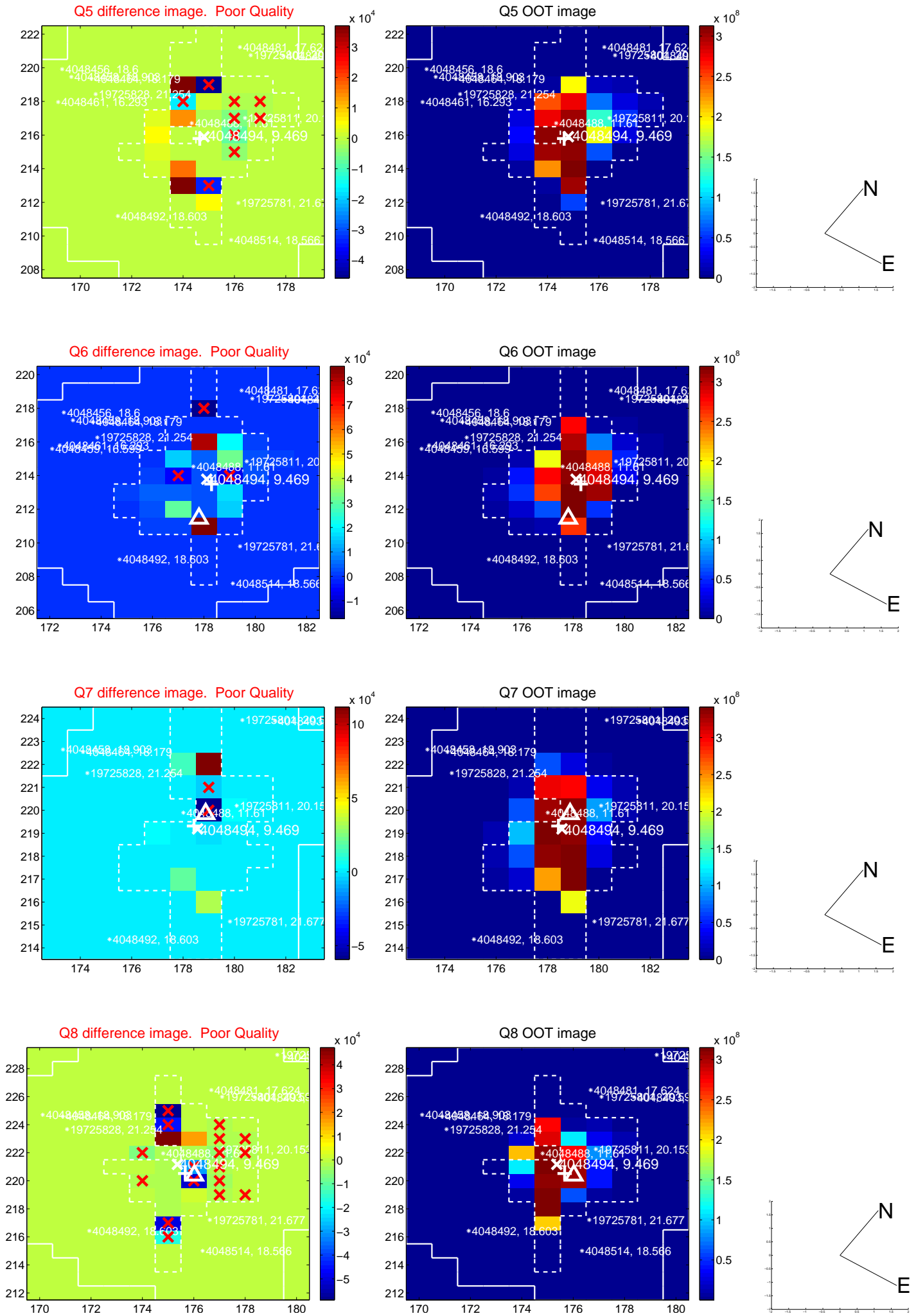


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

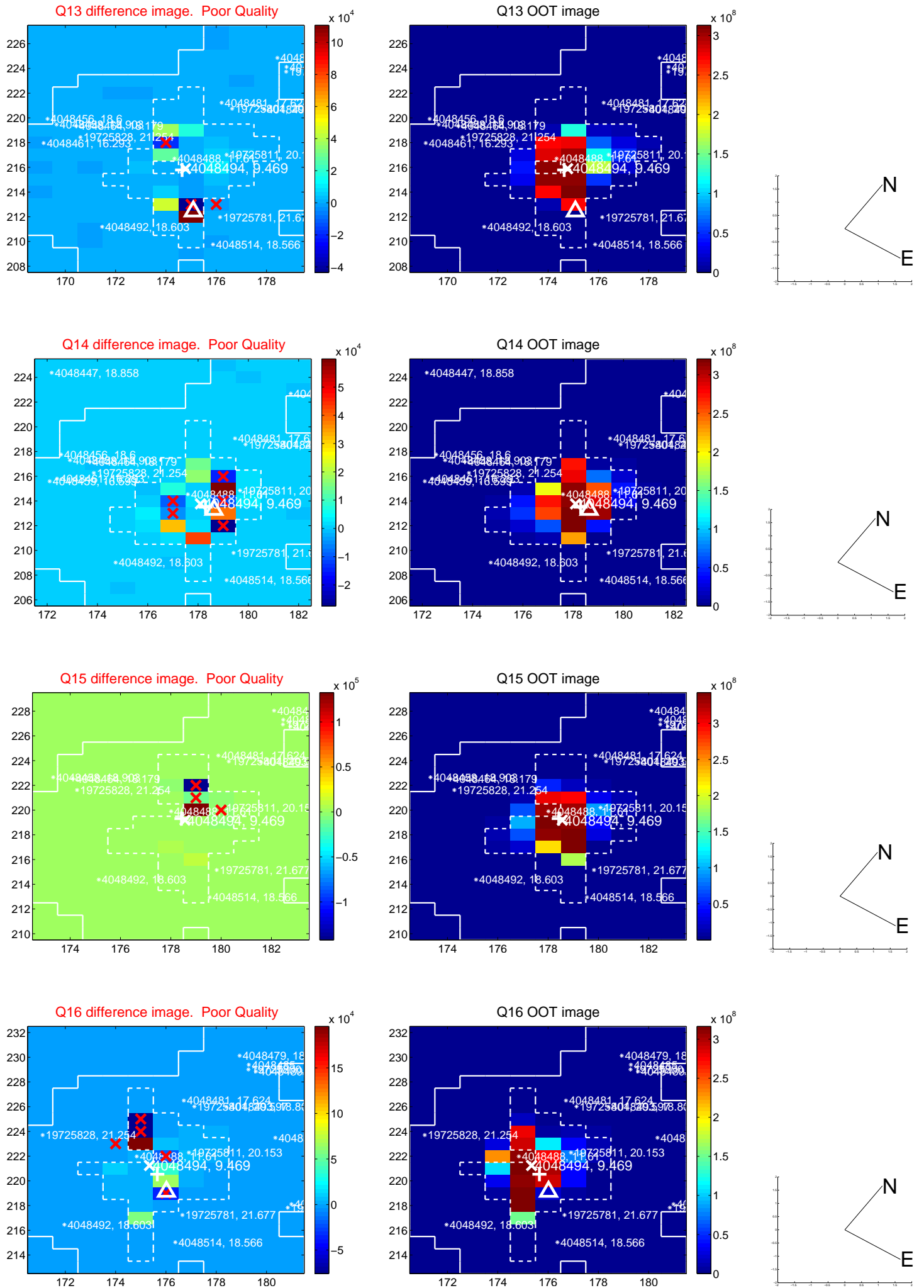
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



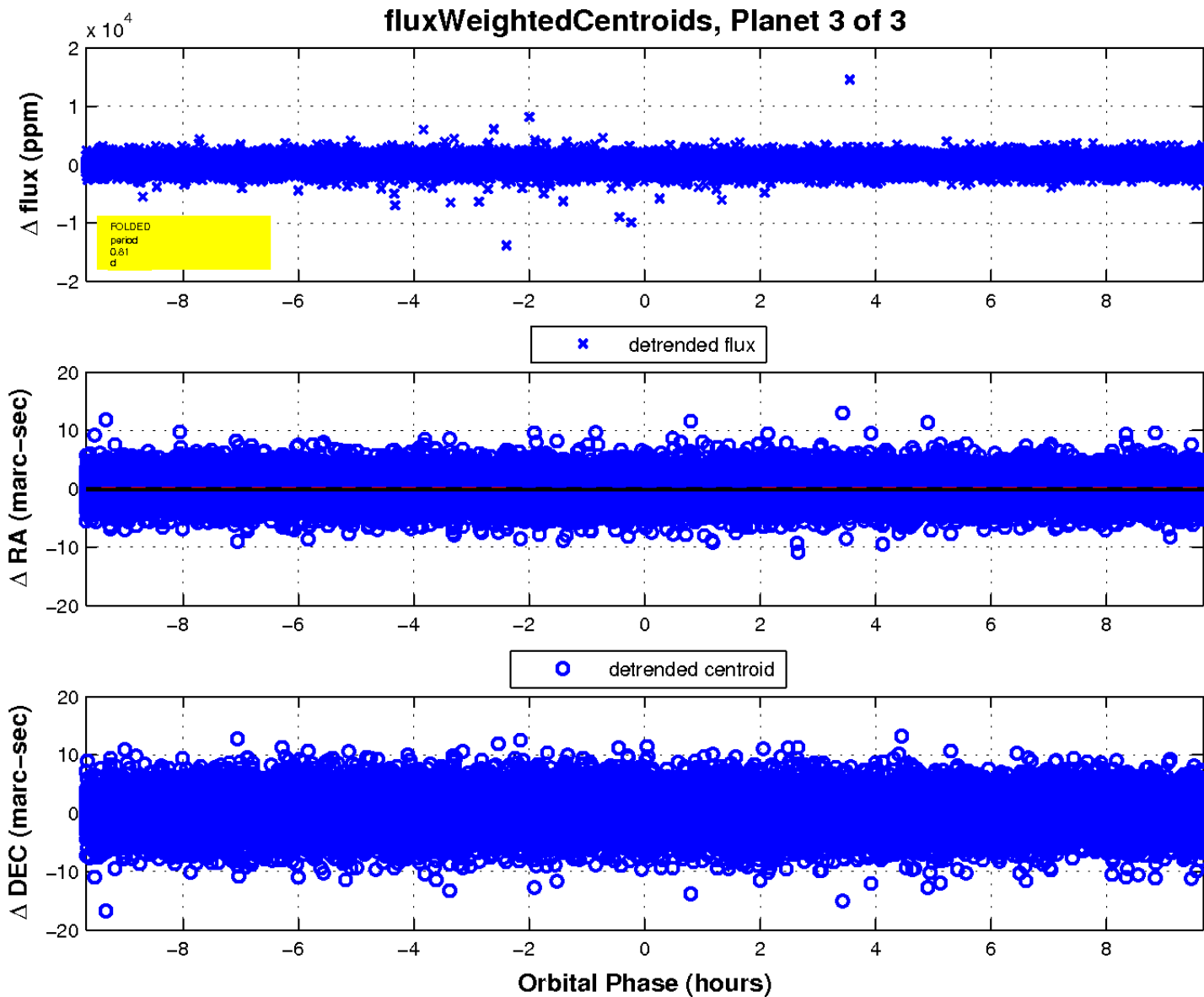
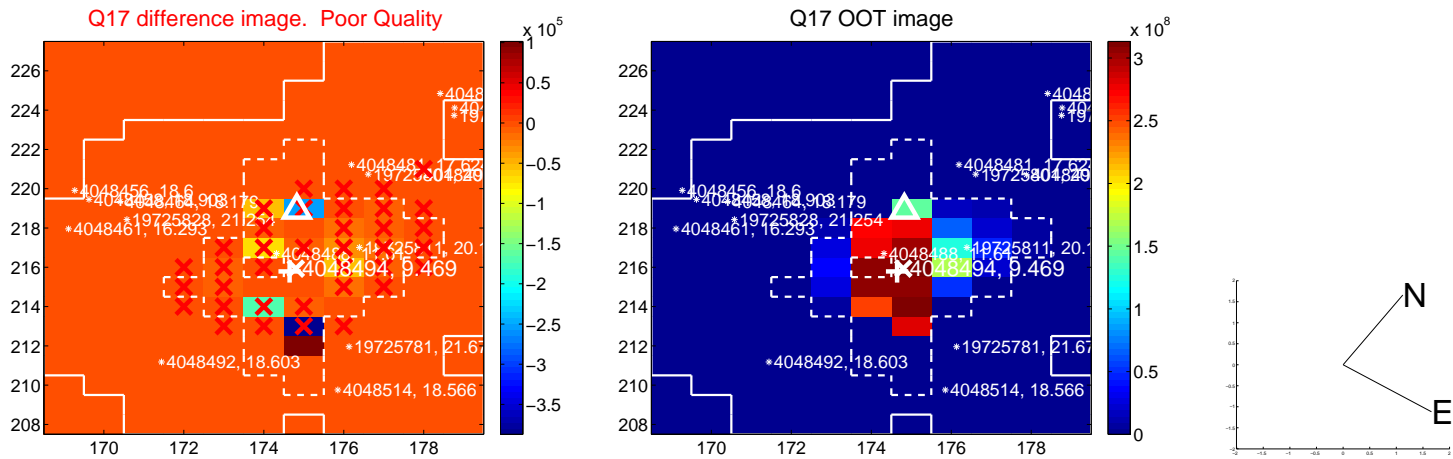
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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



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



UKIRT Image

Declination

