

KIC 004832225

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})
004832225-01	OBS	No	0.987420	132.403985	0.4	3.803	13.4	0.3	2.18	9464	0.16	52645.24
004832225-02	OBS	4013.01	1.895503	133.326769	28.6	1.247	9.4	11.6	2.18	9464	1.35	22066.28

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
004832225-01	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_ALT—CENT_SATURATED
004832225-02	OBS	FP	0.00	1	0	0	1	TRANS_GAPPED—CENT_SATURATED—EPHEM_MATCH

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

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

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

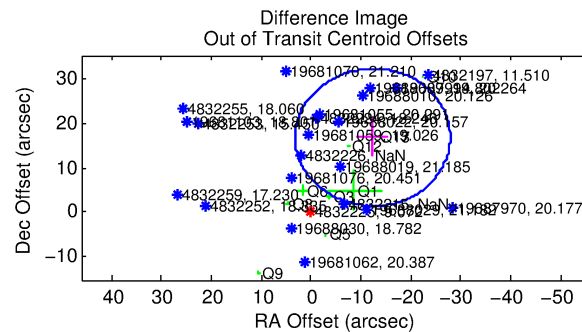
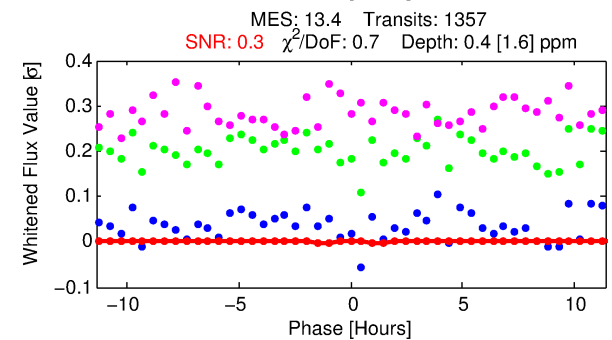
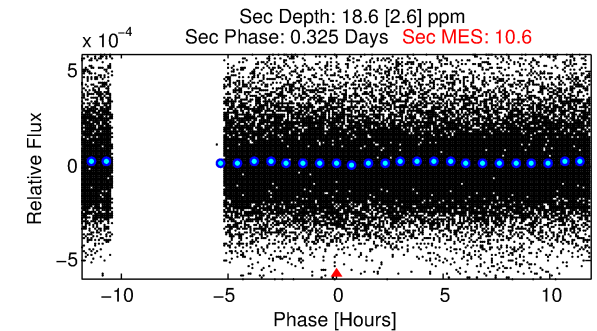
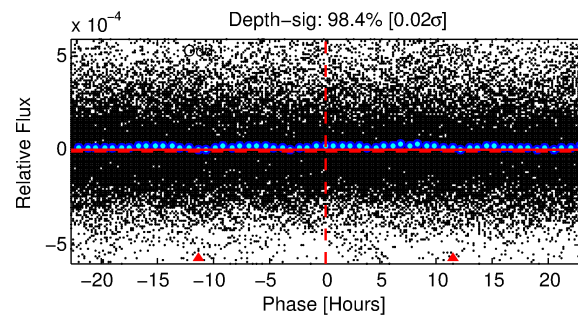
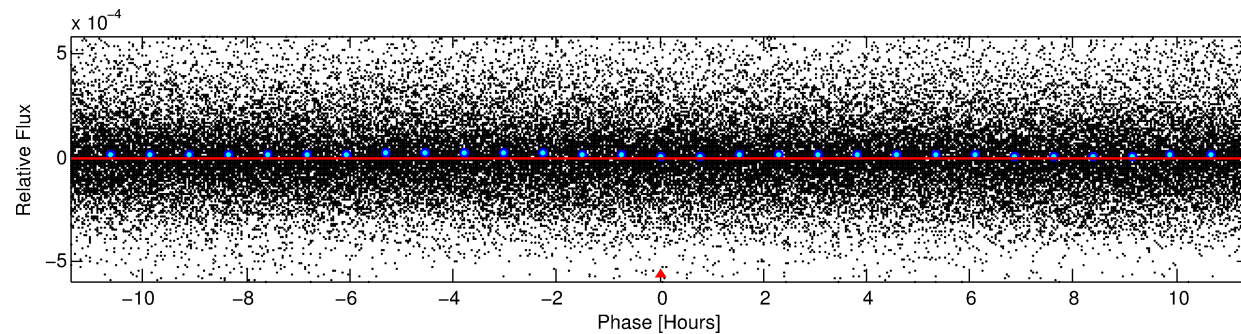
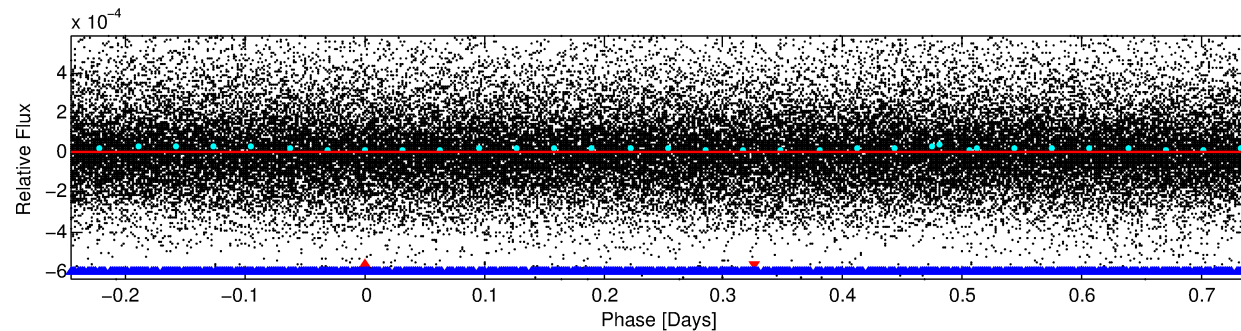
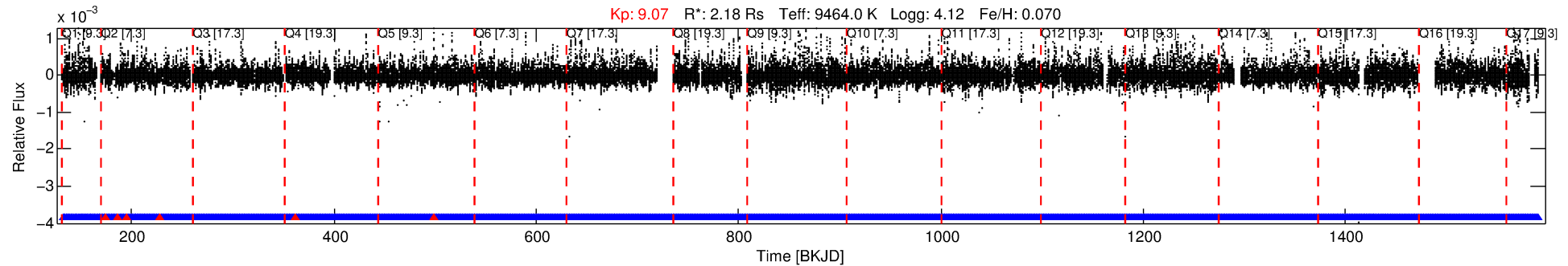
Ephemeris Match Information For 004832225-01

No Significant Match Found

DV One-Page Summary

KIC: 4832255 Candidate: 1 of 2 Period: 0.987 d
KOI: K04013 Corr: No Ephemeris Match

Kp: 9.07 R*: 2.18 Rs Teff: 9464.0 K Logg: 4.12 Fe/H: 0.070



DV Fit Results:

Period = 0.98742 [0.00028] d
Epoch = 132.4040 [0.0316] BKJD
Rp/R* = 0.0007 [0.0013]
a/R* = 1.42 [0.53]
b = 0.83 [0.28]
Seff = 52645.24 [21190.39]
Teq = 3862 [389] K
Rp = 0.16 [0.31] Re
a = 0.0255 [0.0068] AU
Ag = 274.78 [1067.54] [0.26σ]
Teff = 24314 [23547] K [0.87σ]

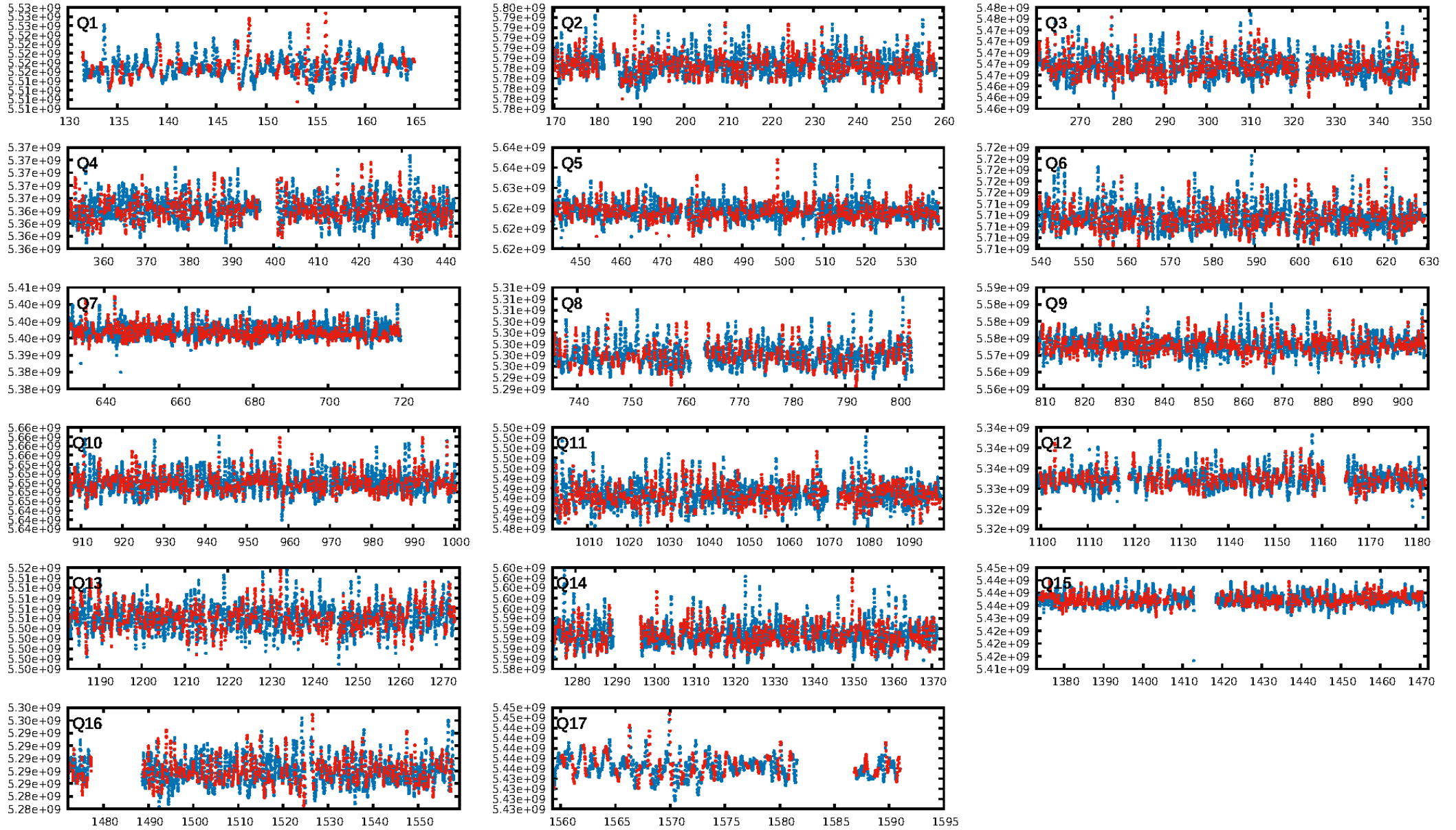
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: 100.0% [5.45σ]
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: 3.70e-35
RollingBand-fgt: 1.00 [1289/1295]
GhostDiagnostic-chr: N/A
Centroid-sig: N/A
Centroid-so: N/A
OotOffset-rm: 20.931 arcsec [4.04σ]
KicOffset-rm: 26.421 arcsec [5.60σ]
OotOffset-st: 2/1/2/5 [10]
KicOffset-st: 2/1/2/5 [10]
DiffImageQuality-fgm: 0.00 [0/10]
DiffImageOverlap-fno: 1.00 [17/17]

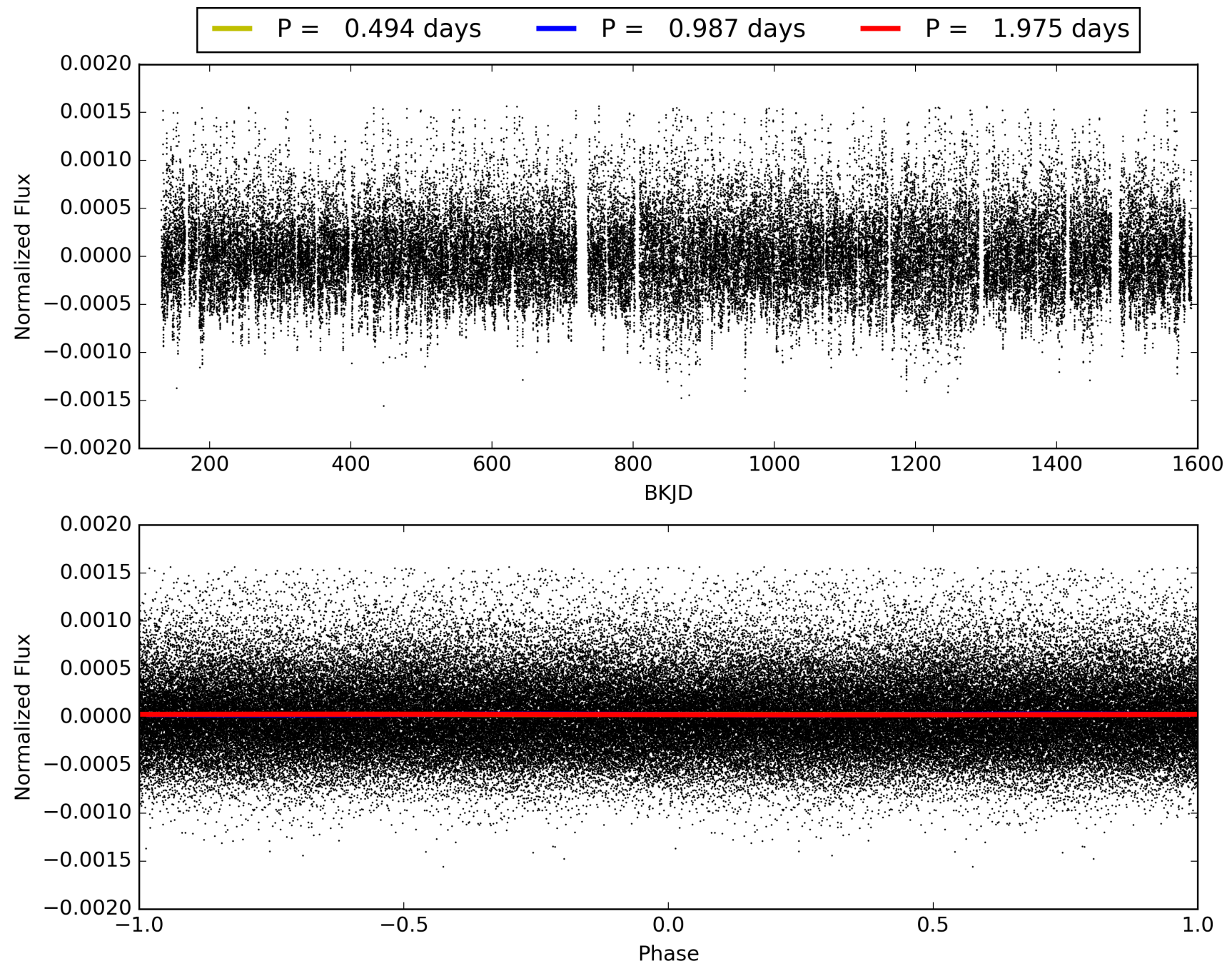
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 31-Jan-2016 18:22:51 Z

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

TCE 004832225-01, PDC Light Curves

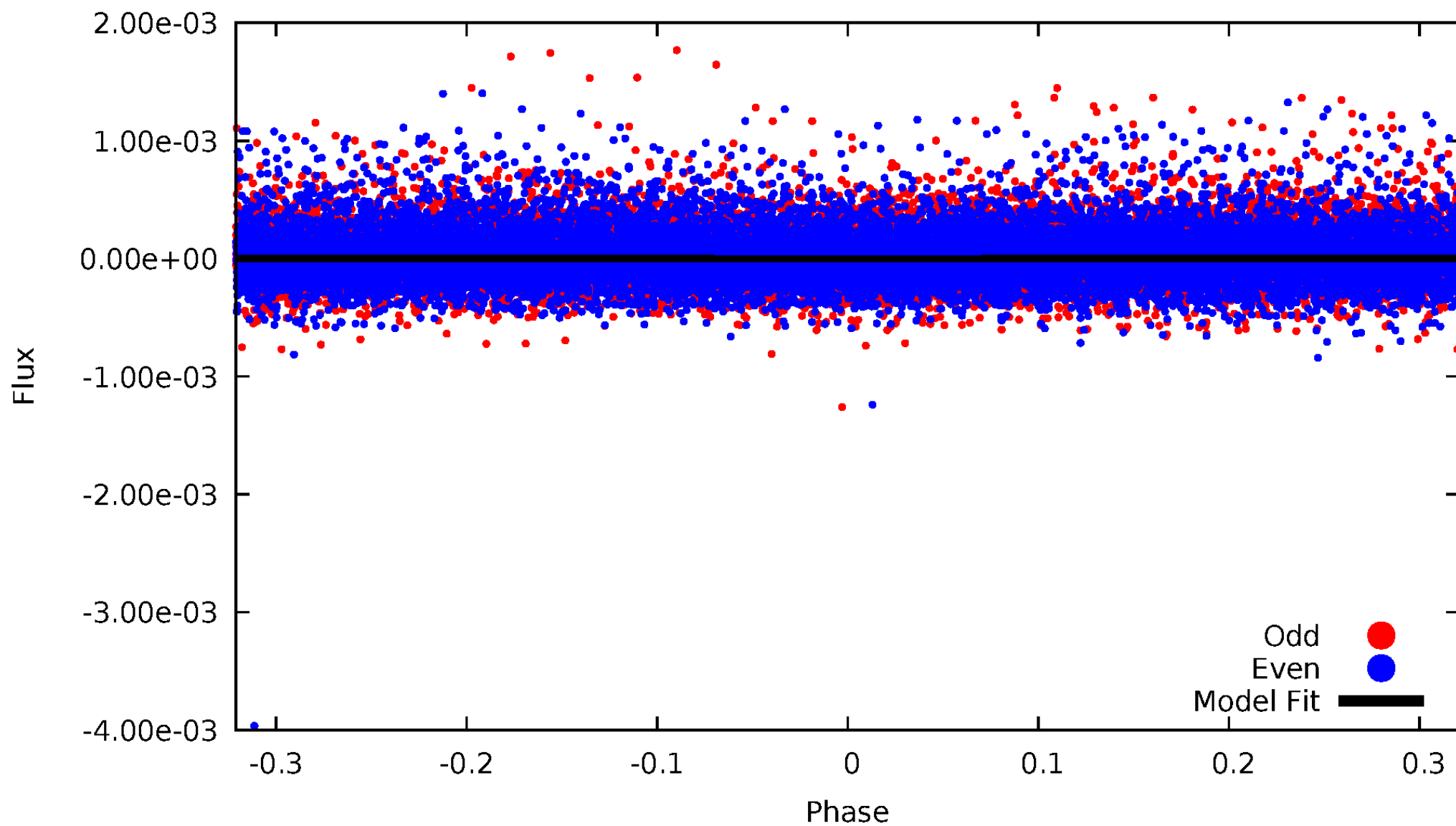


TCE 004832225-01



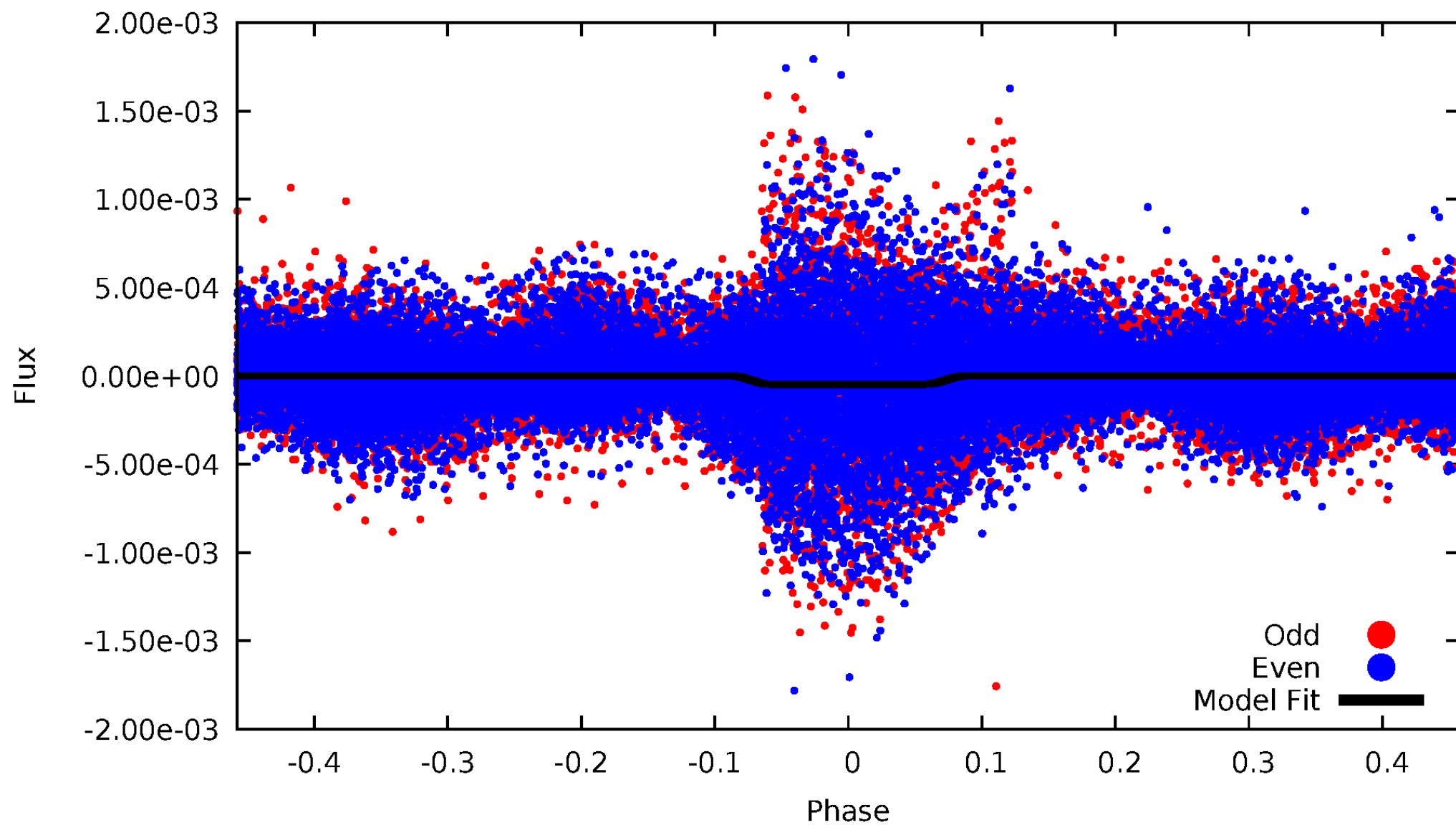
DV Odd/Even

TCE 004832225-01

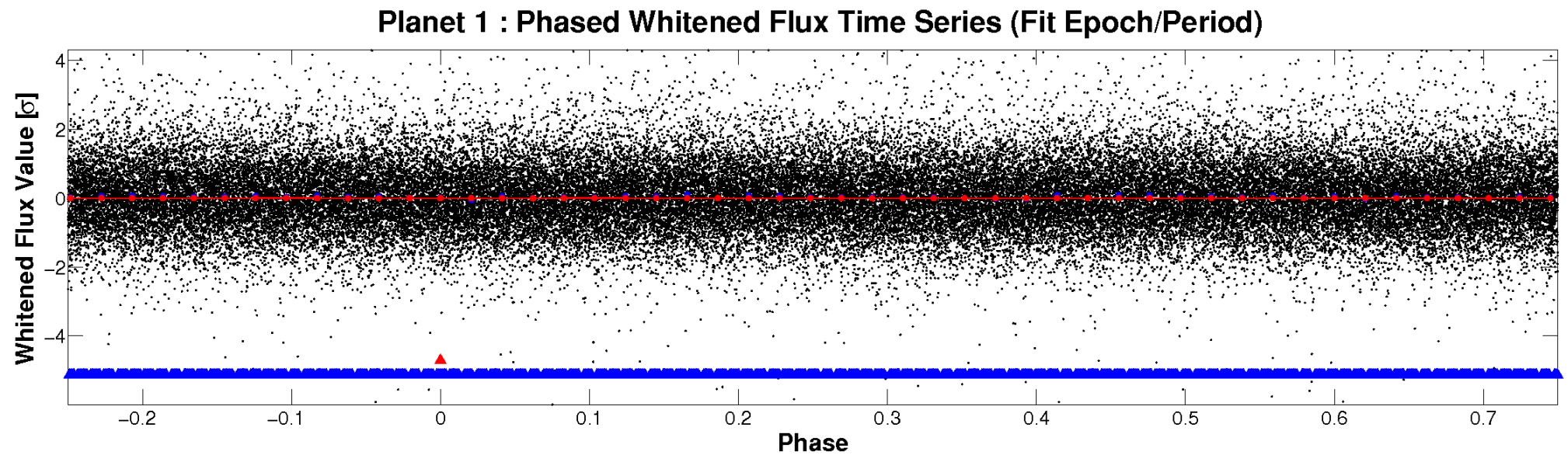
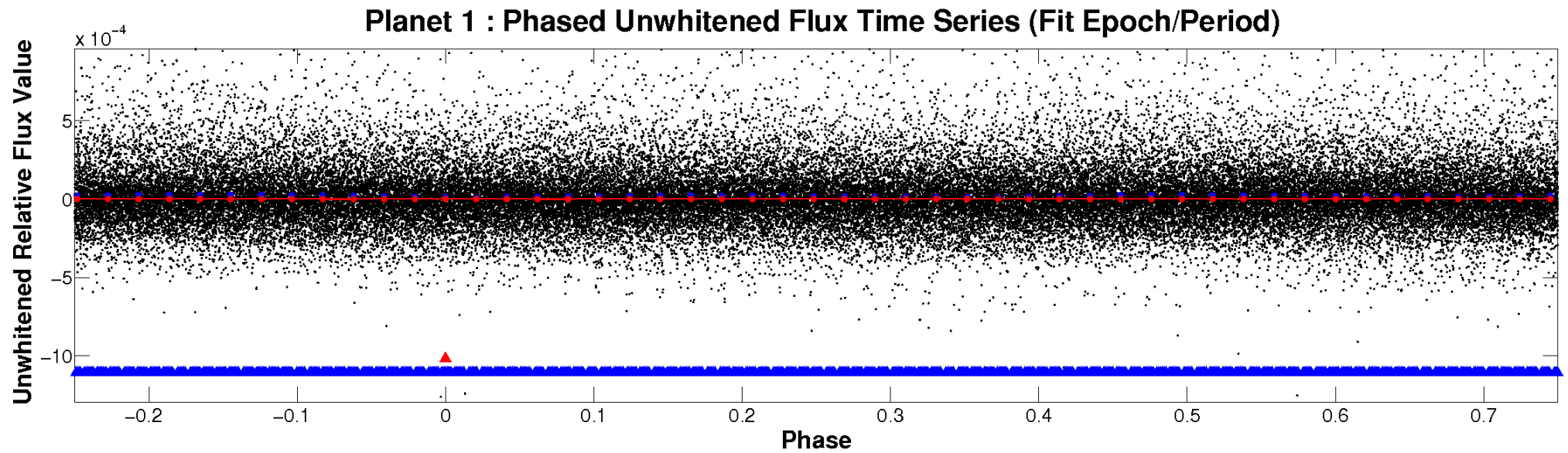


ALT Odd/Even

TCE 004832225-01

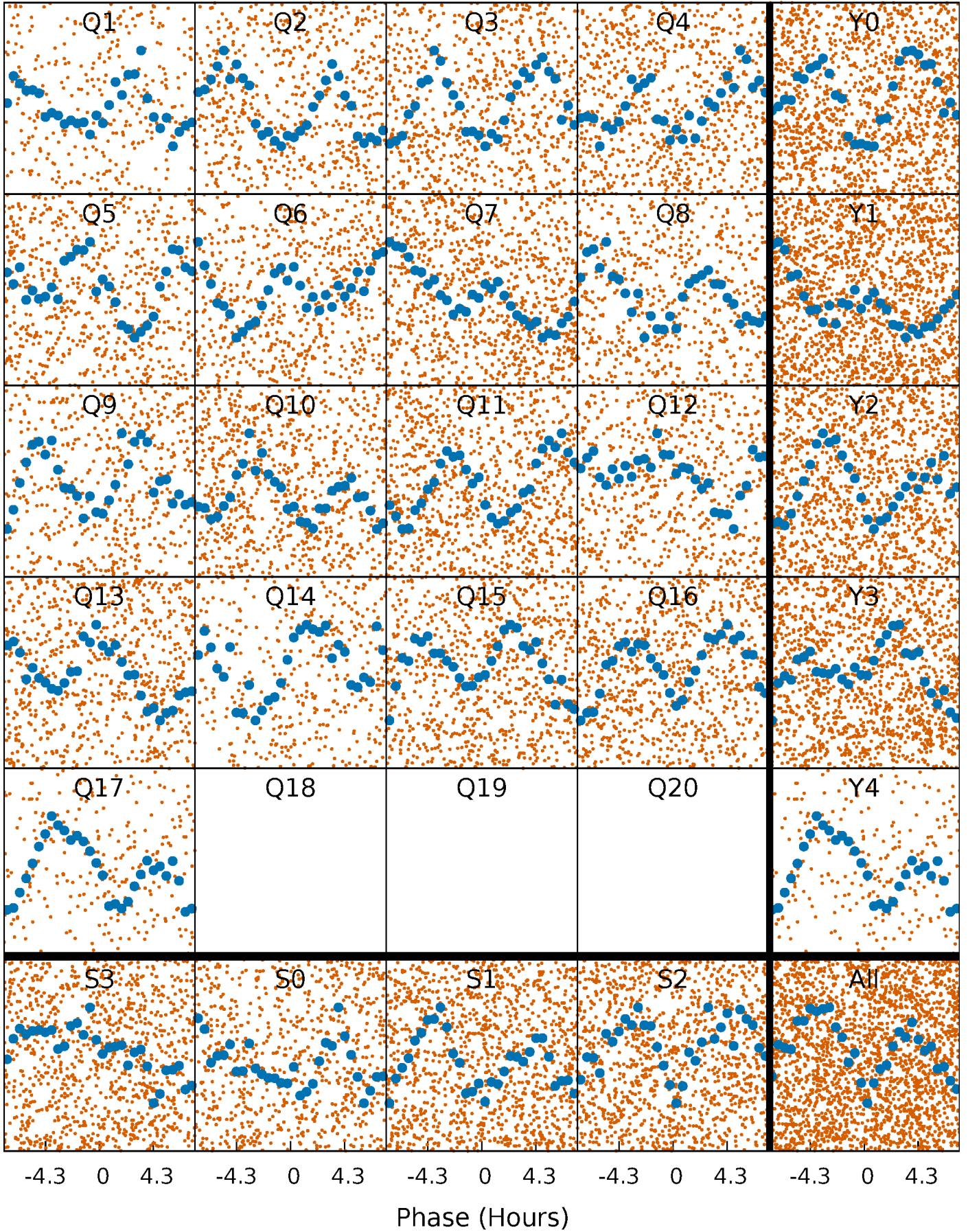


Non-Whitened Vs. Whitened Light Curve



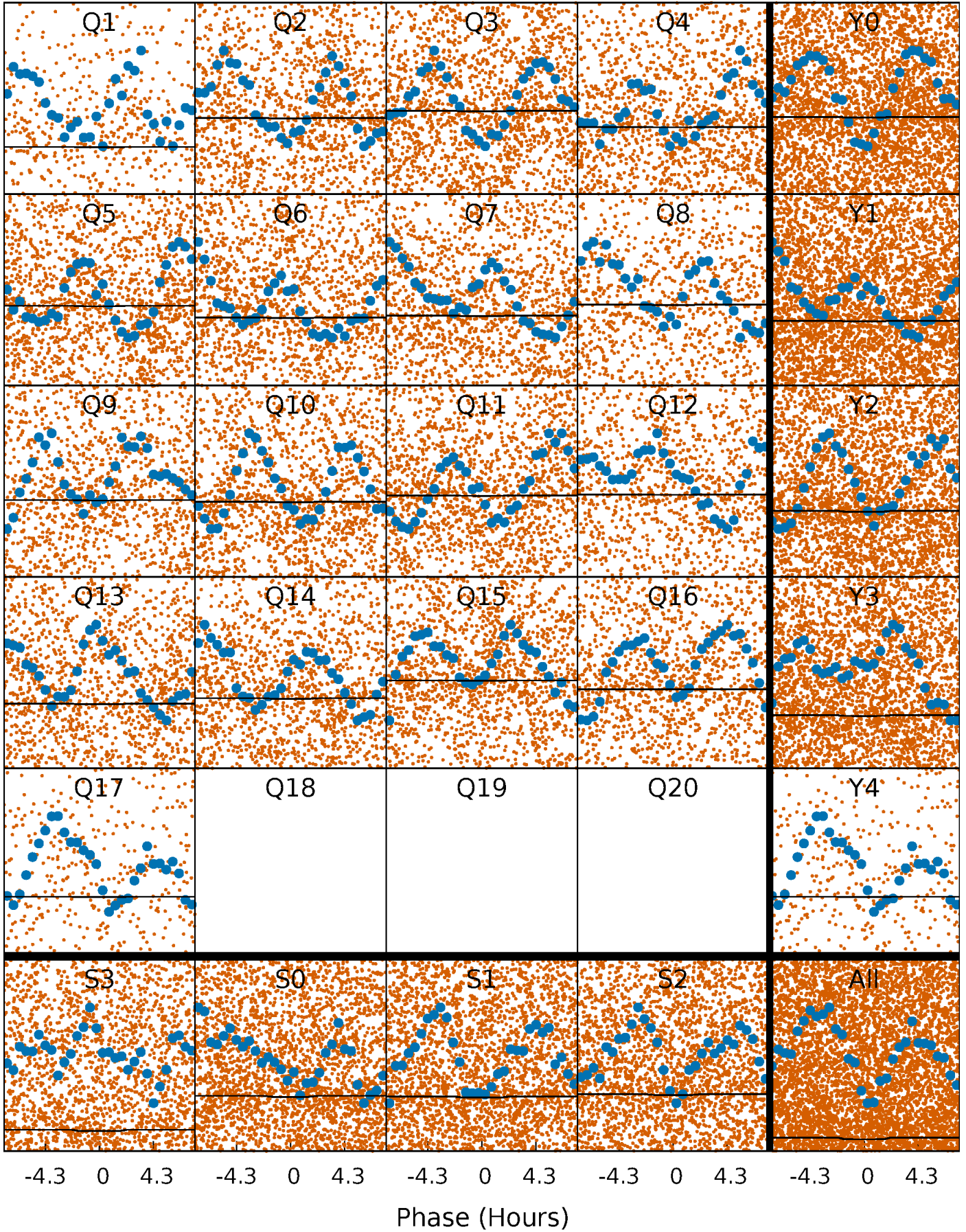
PDC Quarter-Phased Transit Curves

TCE 004832225-01 P= 0.987420 Days $T_0=132.403985$ (BKJD)



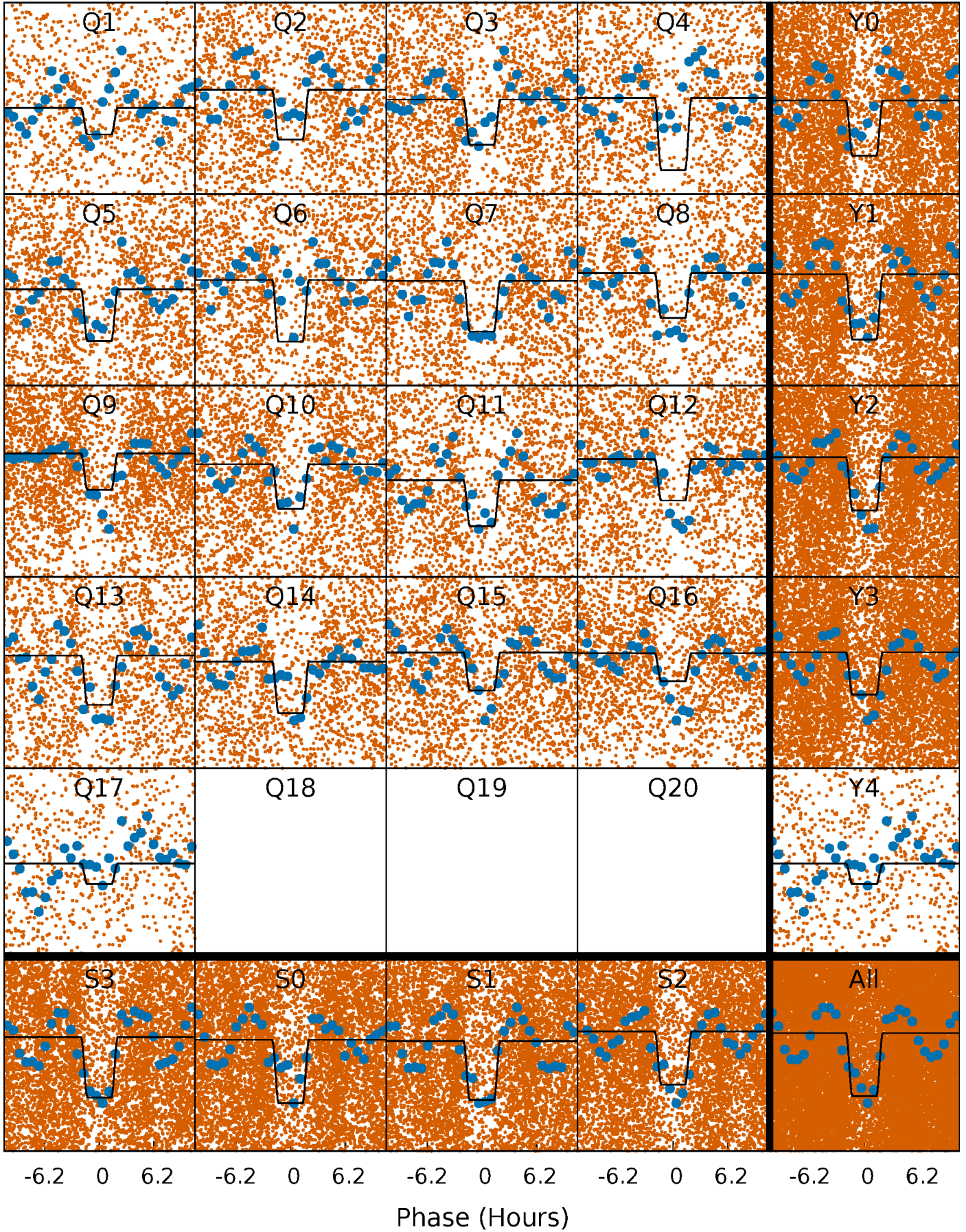
DV Quarter-Phased Transit Curves

TCE 004832225-01 P= 0.987420 Days $T_0=132.403985$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

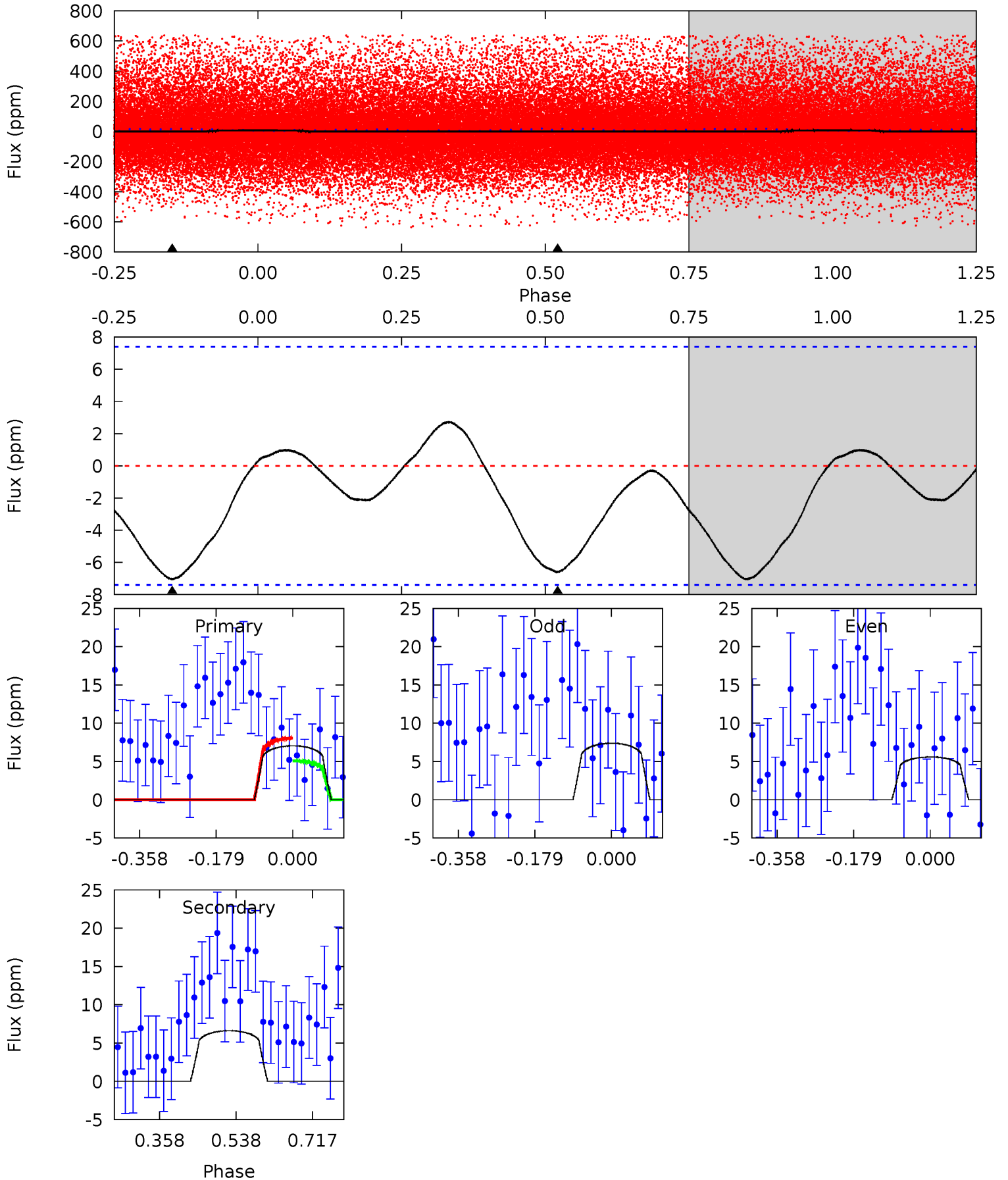
TCE 004832225-01 P= 0.987912 Days $T_0=132.361654$ (BKJD)



DV Model-Shift Uniqueness Test

004832225-01, P = 0.987420 Days, E = 131.416565 Days

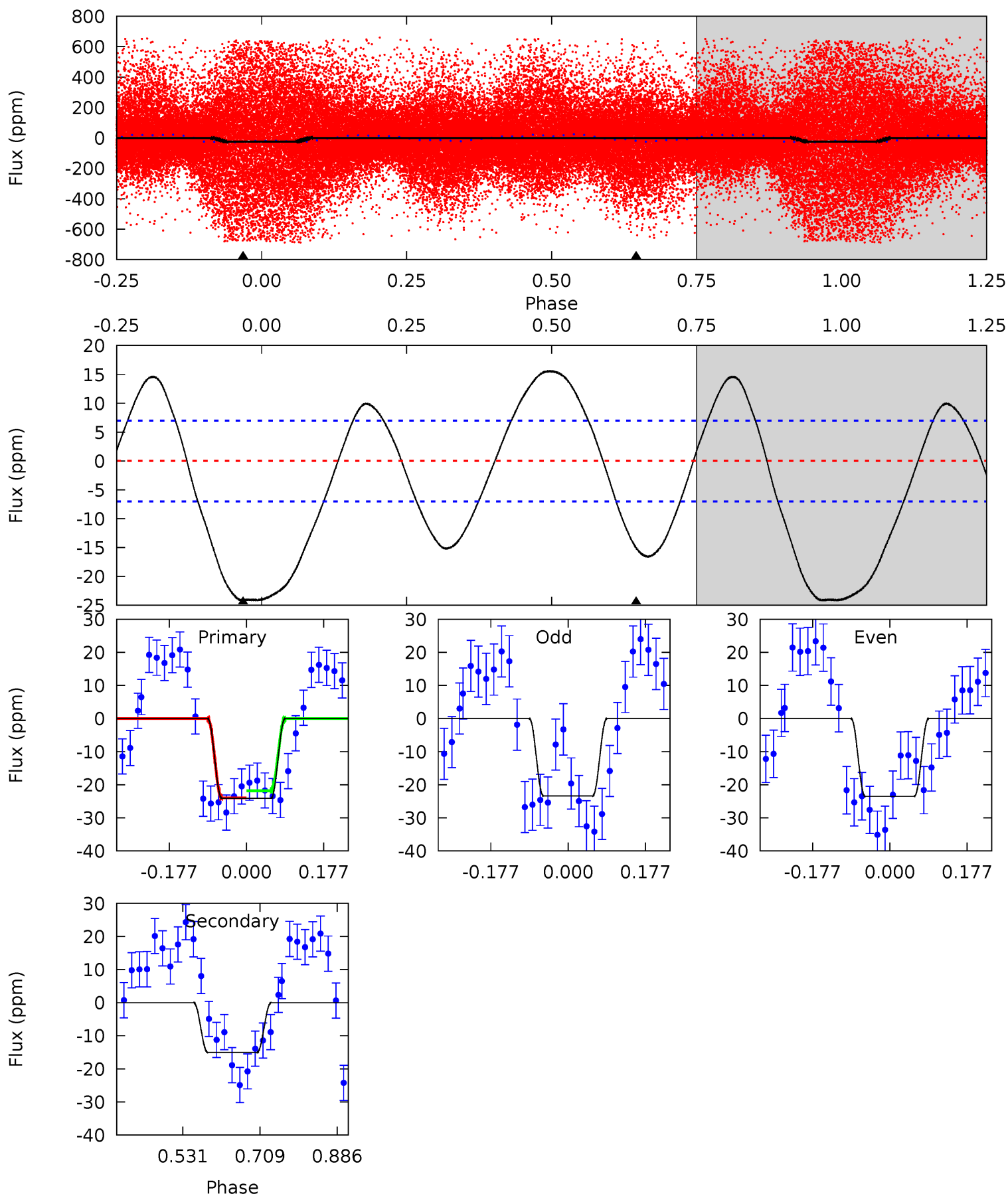
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
4.23	3.97	0	0	4.44	1.34	0.89	4.23	4.23	3.97	3.97	0.54	-6.60	0.28	0.91



Alt Model-Shift Uniqueness Test

004832225-01, P = 0.987912 Days, E = 131.373742 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
15.3	9.56	0	0	4.44	1.35	5.80	15.3	15.3	9.56	9.56	0.03	2.10	0.39	0.71



Stellar Parameters For KIC 004832225

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	9464^{+262}_{-450}	$4.116^{+0.157}_{-0.175}$	$0.070^{+0.150}_{-0.700}$	$2.184^{+0.759}_{-0.621}$	$2.272^{+0.353}_{-0.655}$	$0.307^{+0.322}_{-0.160}$
	+3%/-5%	+4%/-4%	+214%/-1000%	+35%/-28%	+16%/-29%	+105%/-52%
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 004832225-01 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-7 ± 2	$0.27^{+0.26}_{-0.19}$	5365^{+442}_{-410}	18088^{+76617}_{-8038}	30^{+268}_{-22}
Alt.	-15 ± 2	$1.64^{+0.42}_{-0.36}$	5367^{+432}_{-401}	6298^{+730}_{-653}	$1.961^{+1.094}_{-0.693}$

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

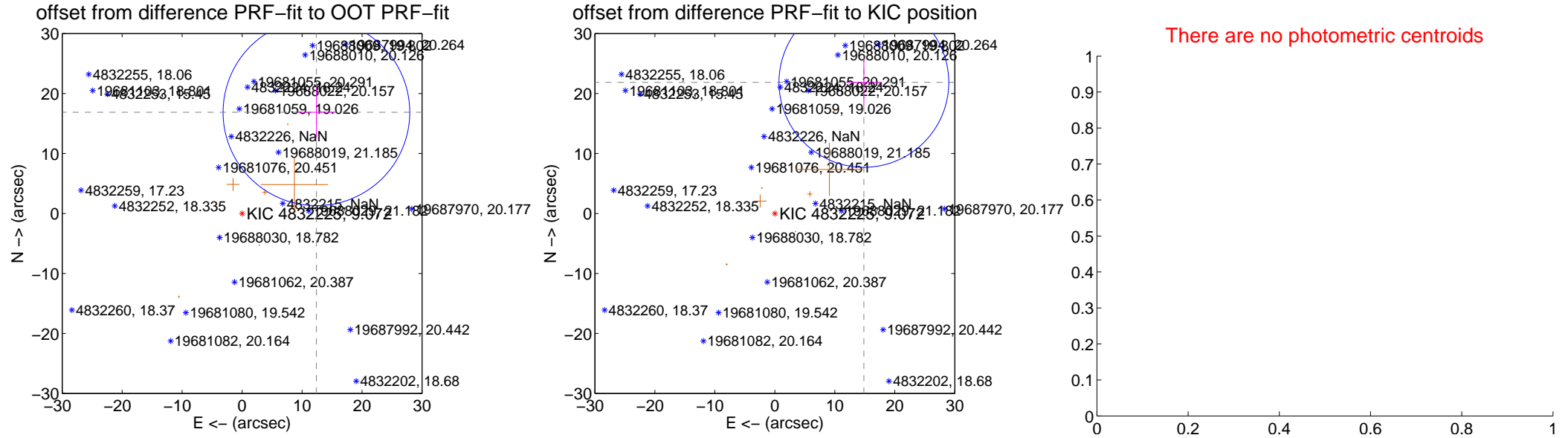
DV Centroid Data

Supplemental centroid analysis for 004832225-01. **Kepler magnitude: 9.07.** Transit SNR 0.33

There are 0 quarters with good PRF difference image offsets

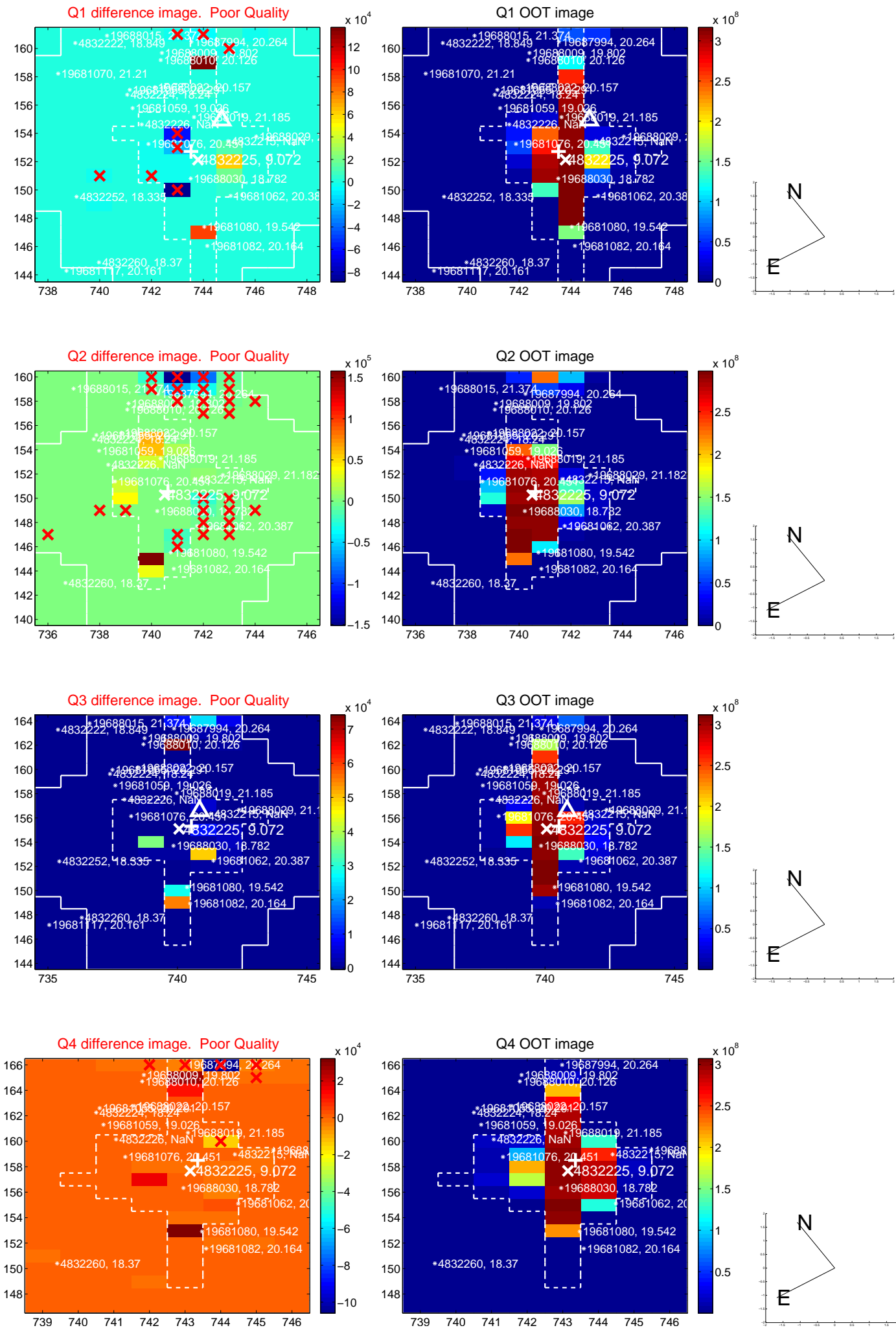
The OOT PRF centroid is offset from the target star catalog position by about 5.87 arcsec so the offset from difference PRF-fit to OOT-fit may be invalid.

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	20.931 \pm 5.187	4.04	-12.388 \pm 3.094	16.871 \pm 4.283
PRF-fit source offset from KIC position	26.421 \pm 4.718	5.60	-14.843 \pm 2.895	21.858 \pm 3.852
photometric centroid source offset	—	—	—	—

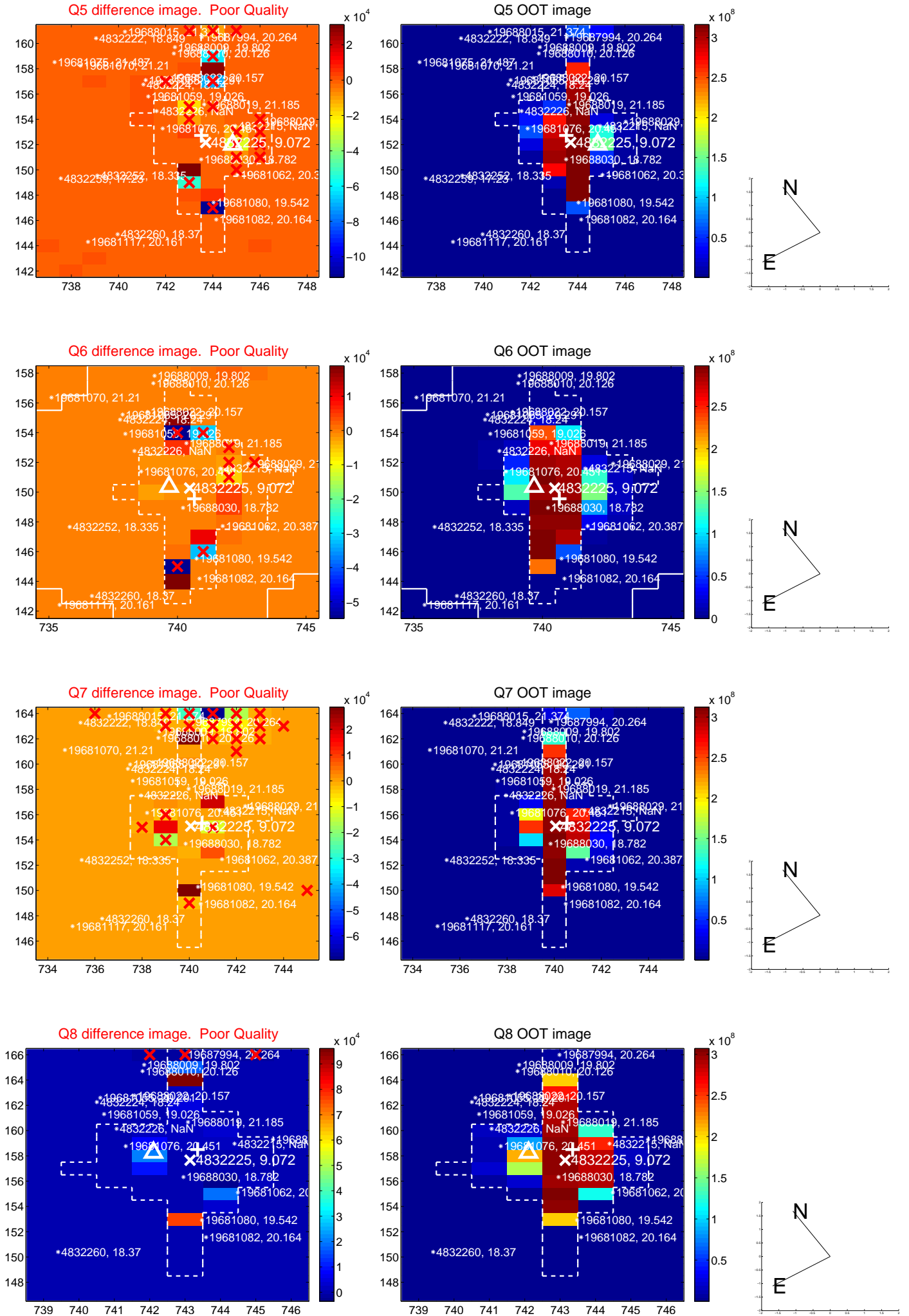


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets;** magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

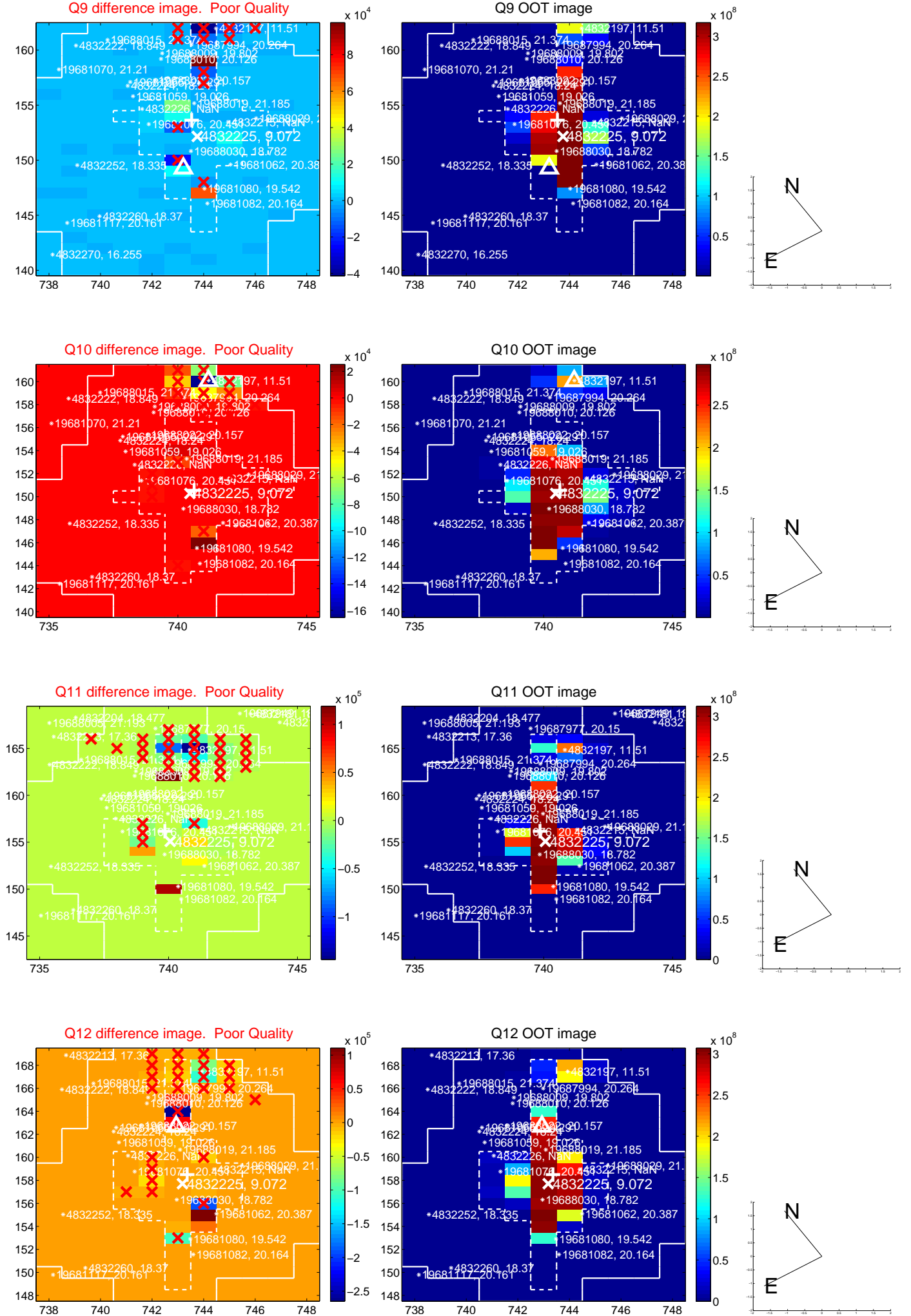
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



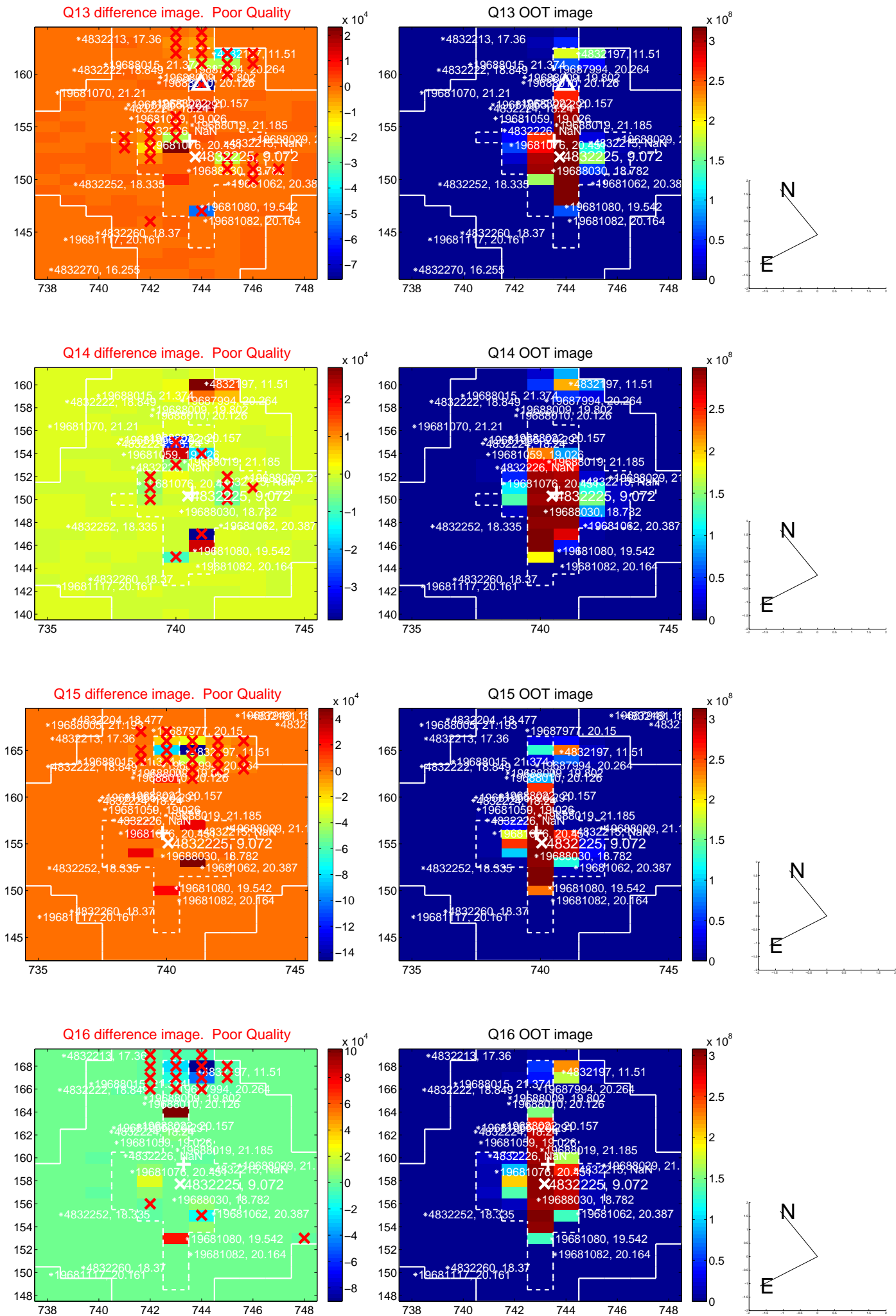
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



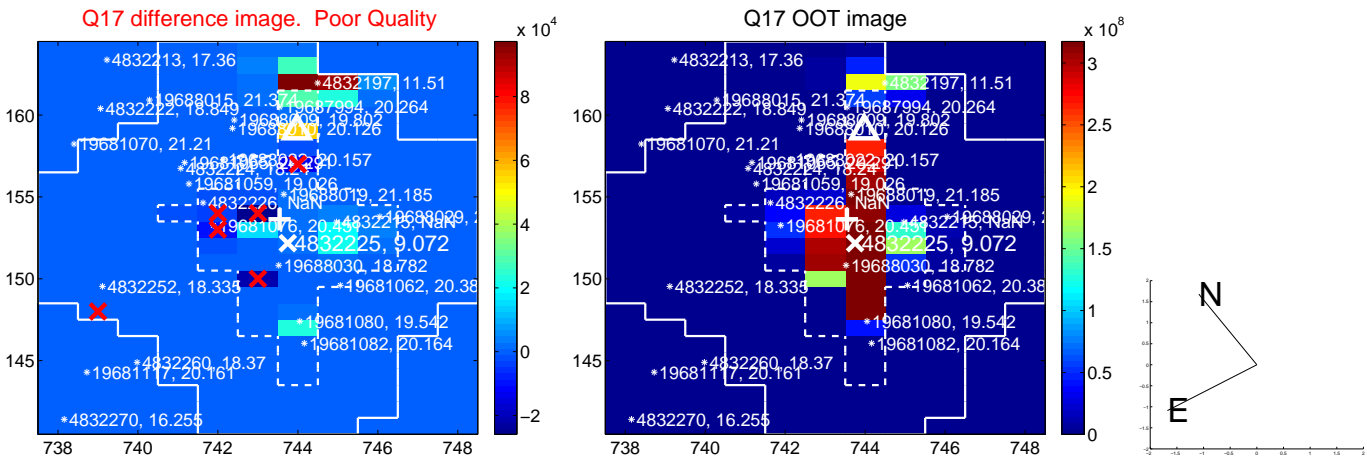
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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



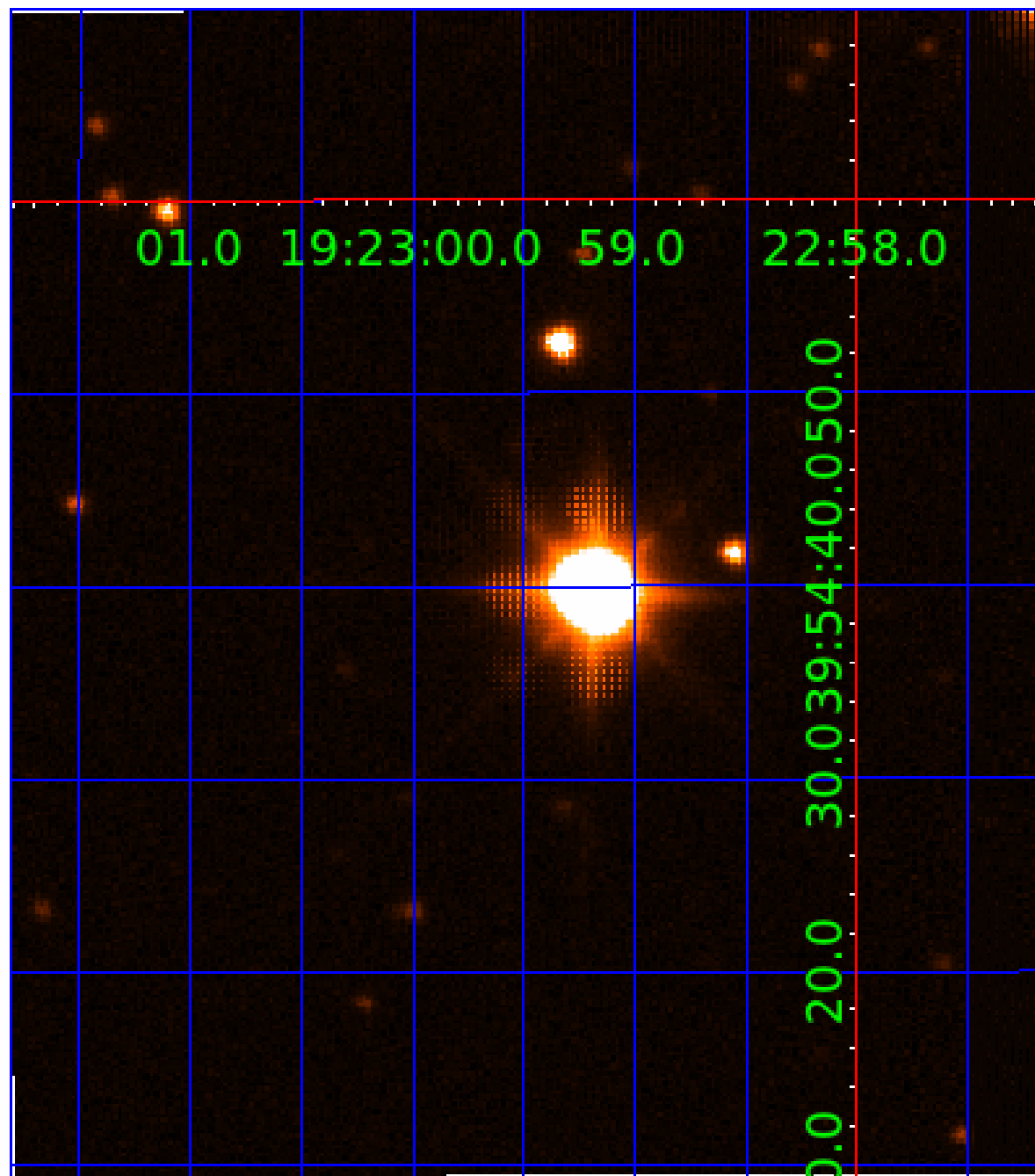
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



folded centroid time series figure for this object.

UKIRT Image

Declination



KIC 004832225

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})
004832225-01	OBS	No	0.987420	132.403985	0.4	3.803	13.4	0.3	2.18	9464	0.16	52645.24
004832225-02	OBS	4013.01	1.895503	133.326769	28.6	1.247	9.4	11.6	2.18	9464	1.35	22066.28

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
004832225-01	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_ALT—CENT_SATURATED
004832225-02	OBS	FP	0.00	1	0	0	1	TRANS_GAPPED—CENT_SATURATED—EPHEM_MATCH

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

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

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

Ephemeris Match Information For 004832225-02

TCE (1)	KIC	Parent (2)	Parent KIC	$P_1:P_2$	Dist ($''$)	Δ Row	Δ Col	m_2	m_1	D_2/D_1	Mechanism	Flag	σ_P	σ_T
004832225-02	4832225	004832197-pri	4832197	1:1	39.0	-10	-1	11.51	9.07	406.90	Direct-PRF	0	1.44	0.68

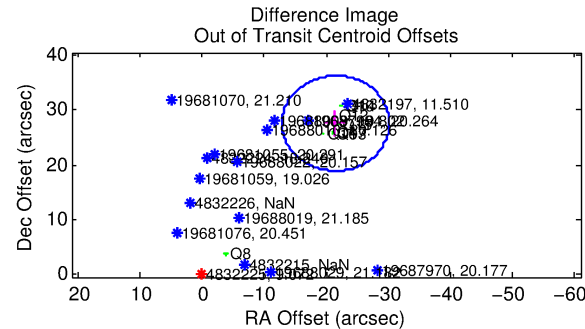
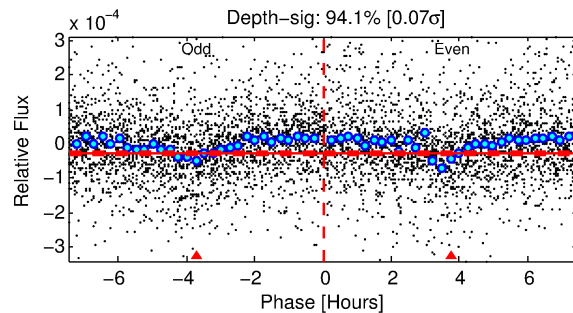
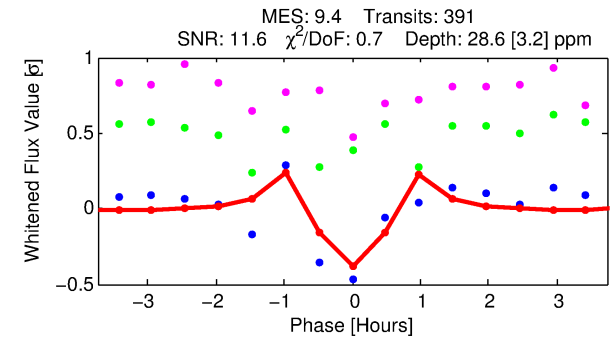
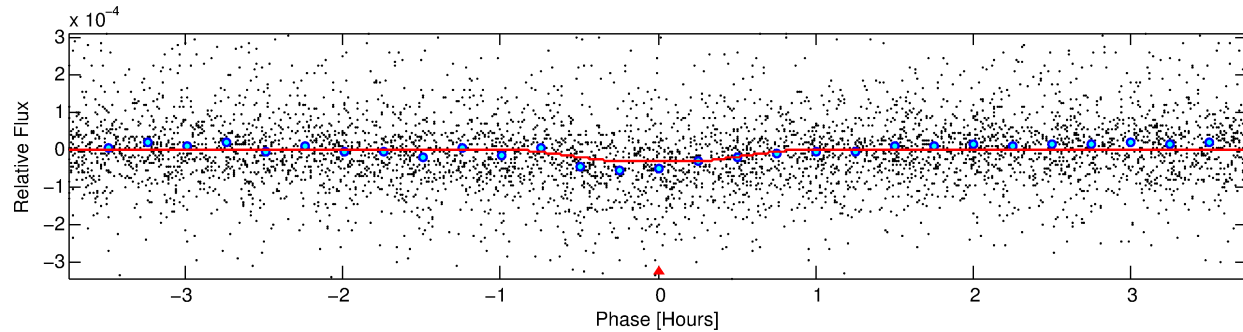
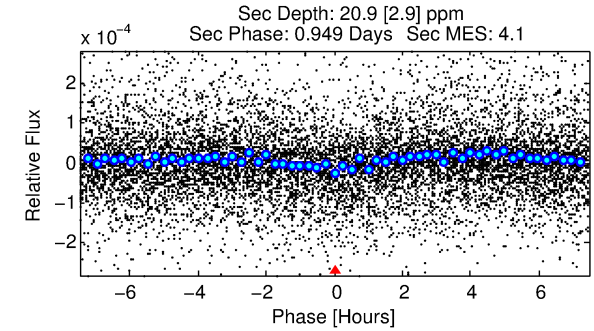
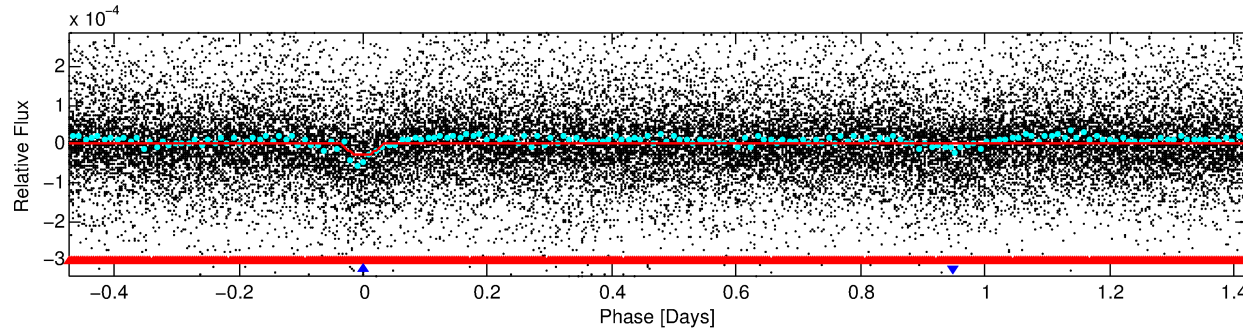
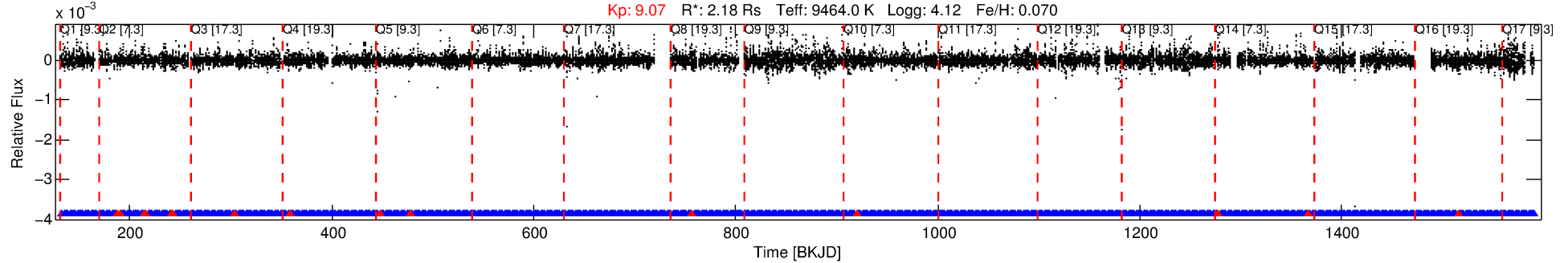
Notes: $P_1:P_2$ is the period ratio. Dist is the distance in arcseconds. Δ Row and Δ Col are the number of pixels apart in row and column. m_2 and m_1 are the magnitudes of the parent and child. D_2/D_1 is the parent's transit depth divided by the child's. σ_P and σ_T are the significance of the match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

DV One-Page Summary

KIC: 4832225 Candidate: 2 of 2 Period: 1.896 d

KOI: K04013 Corr: No Ephemeris Match

Kp: 9.07 R*: 2.18 Rs Teff: 9464.0 K Logg: 4.12 Fe/H: 0.070



DV Fit Results:

Period = 1.89550 [0.00001] d
Epoch = 133.3268 [0.0010] BKJD
Rp/R* = 0.0056 [0.0005]
a/R* = 5.30 [2.80]
b = 0.90 [0.12]
Seff = 22066.28 [8881.96]
Teq = 3108 [313] K
Rp = 1.35 [0.48] Re
a = 0.0394 [0.0106] AU
Ag = 9.85 [4.15] [2.13σ]
Teff = 8512 [630] K [7.68σ]

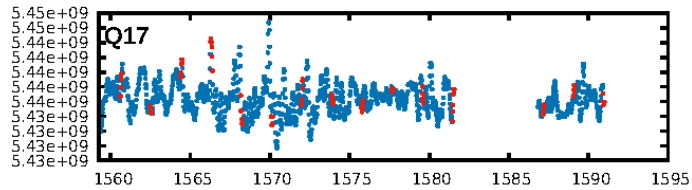
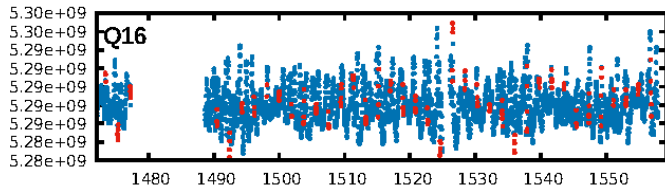
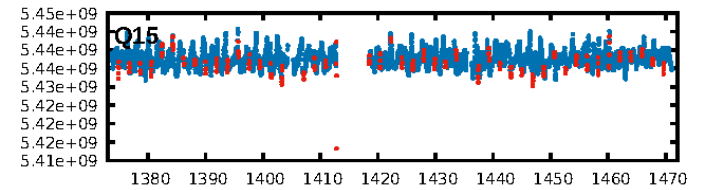
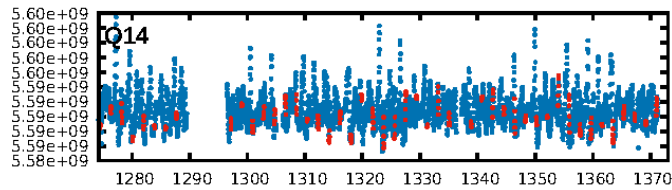
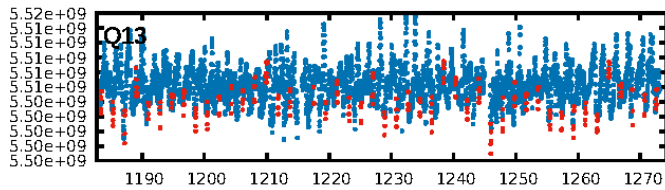
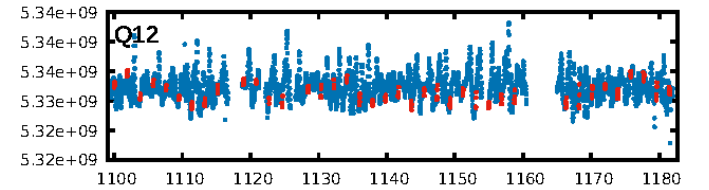
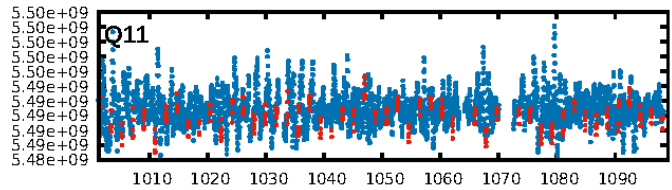
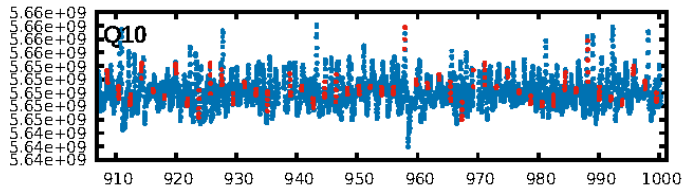
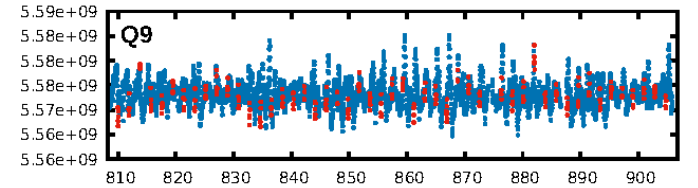
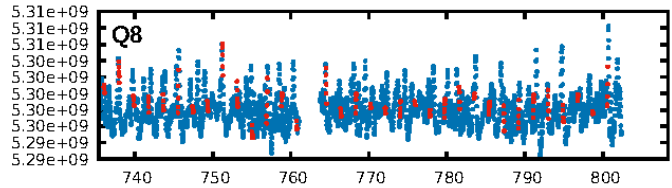
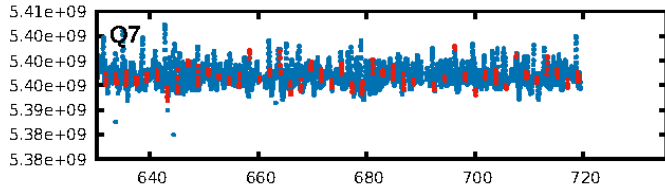
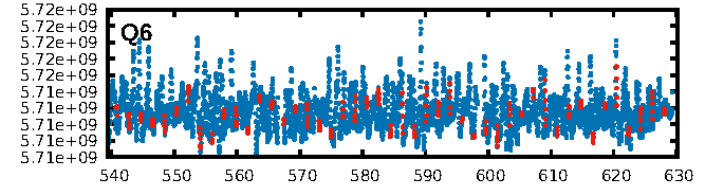
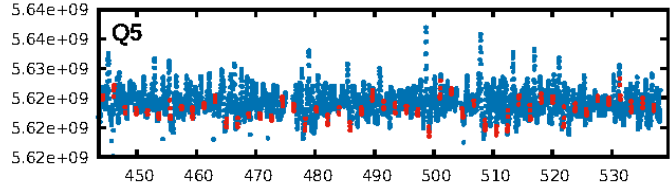
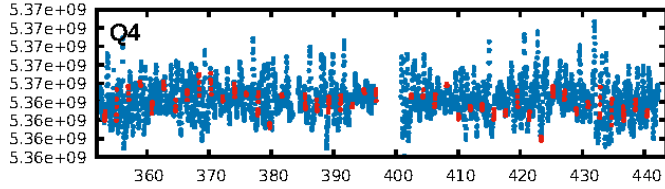
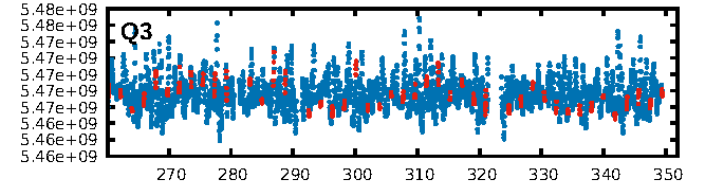
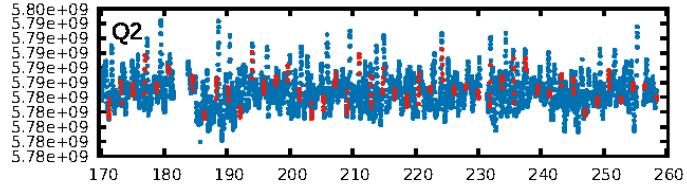
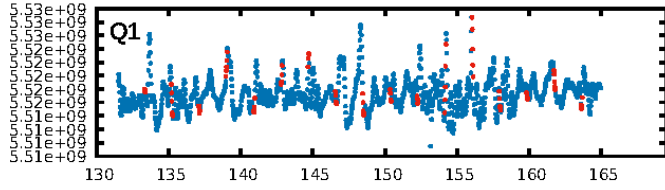
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [5.45σ]
LongPeriod-sig: N/A
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: 1.63e-25
RollingBand-fgt: 0.96 [359/374]
GhostDiagnostic-chr: N/A
Centroid-sig: 0.0%
Centroid-so: 16.516 arcsec [11.76σ]
OotOffset-rm: 34.938 arcsec [12.09σ]
KicOffset-rm: 39.136 arcsec [12.06σ]
OotOffset-st: 2/2/3/3 [10]
KicOffset-st: 2/2/3/3 [10]
DiffImageQuality-fgm: 0.90 [9/10]
DiffImageOverlap-fno: 1.00 [17/17]

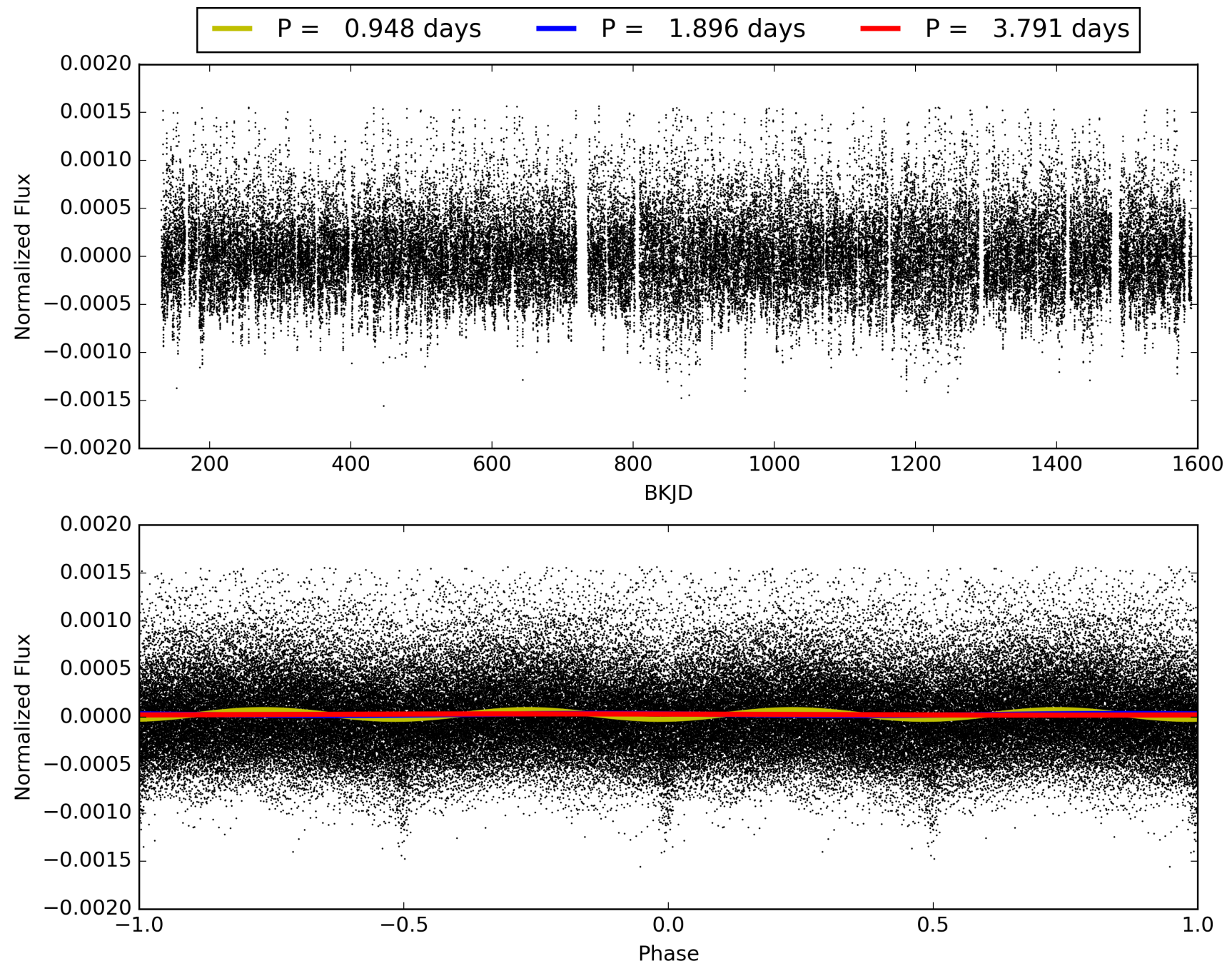
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This Data Validation Report Summary was produced in the Kepler Science Operations Center Pipeline at NASA Ames Research Center

TCE 004832225-02, PDC Light Curves

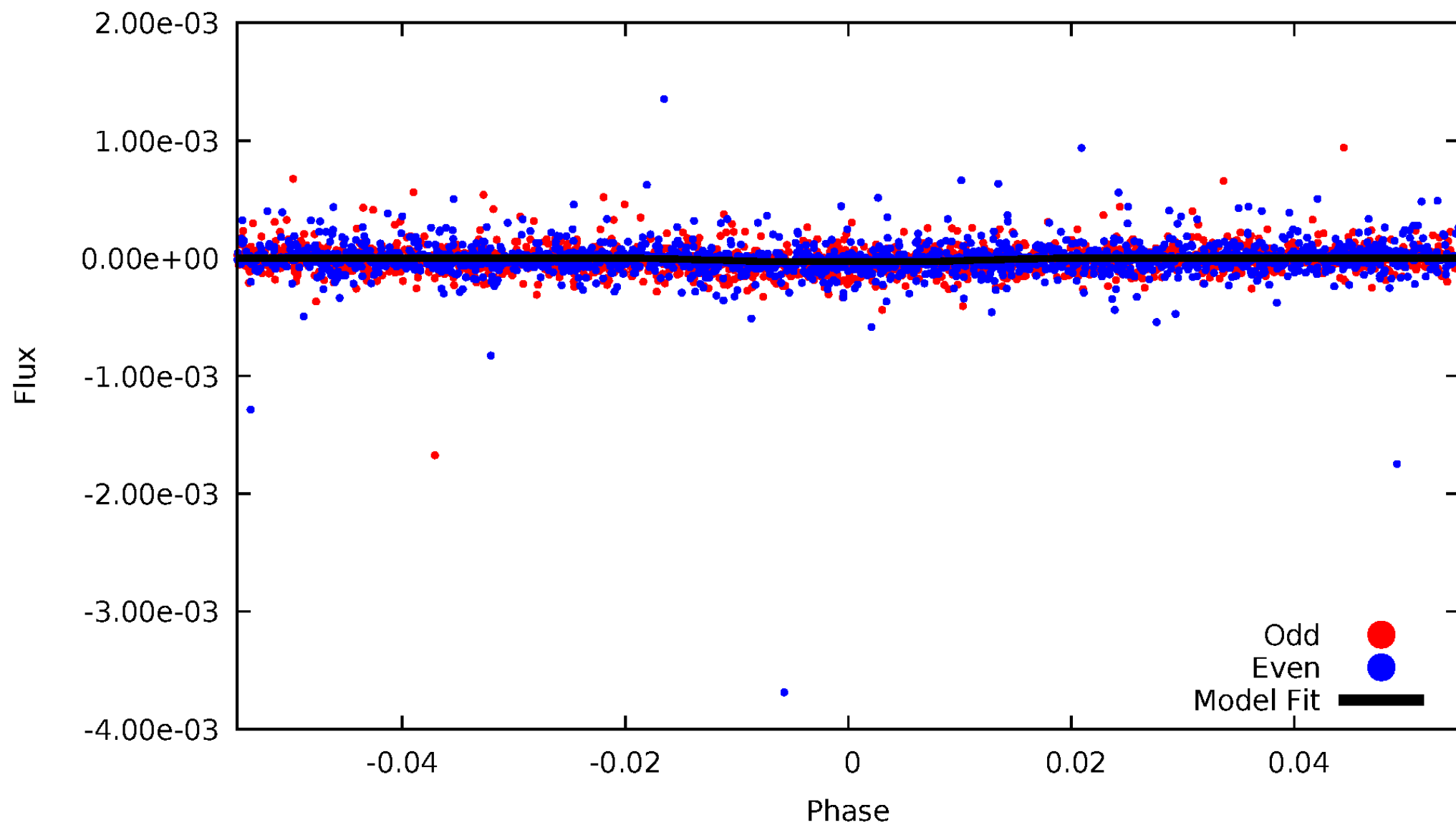


TCE 004832225-02



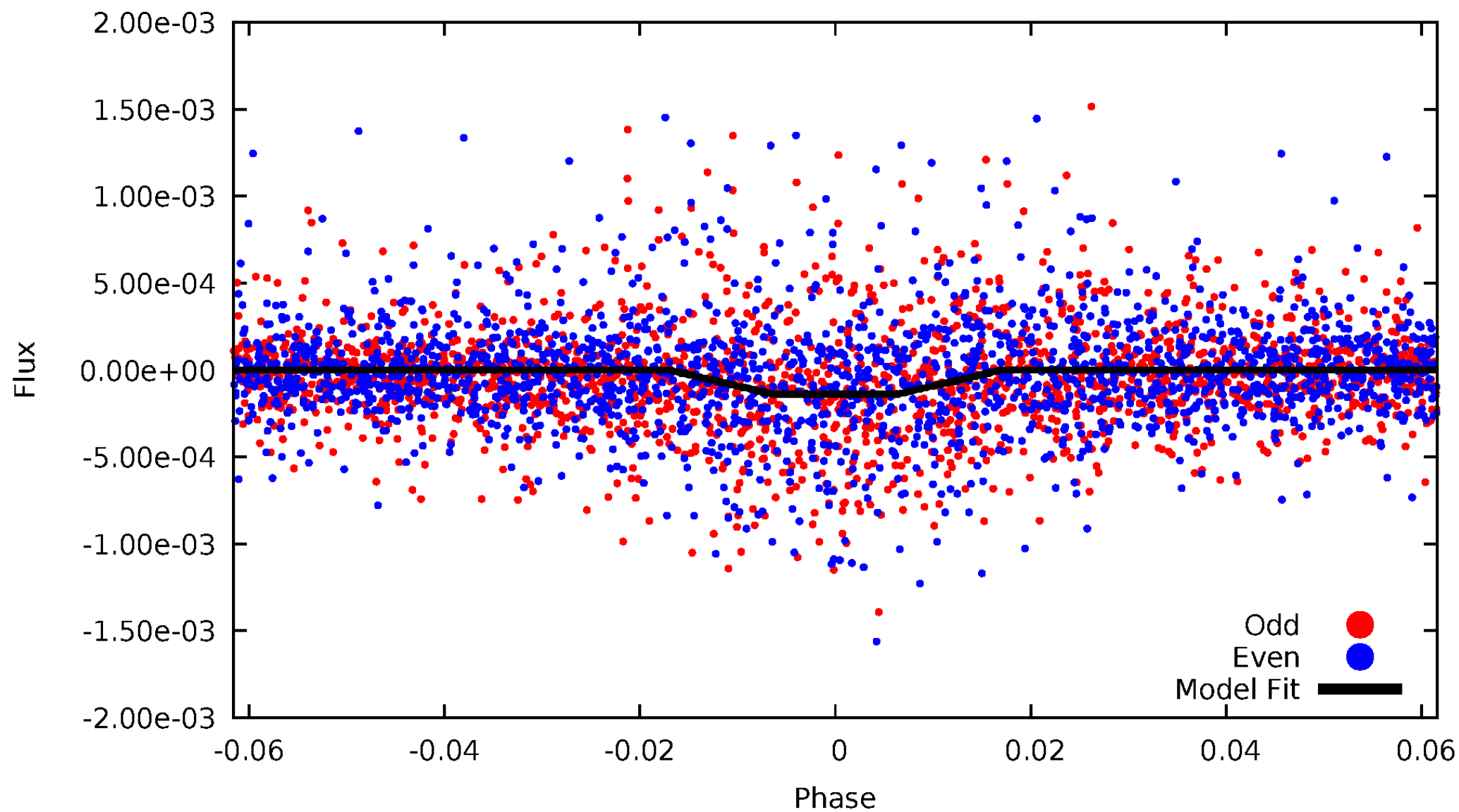
DV Odd/Even

TCE 004832225-02



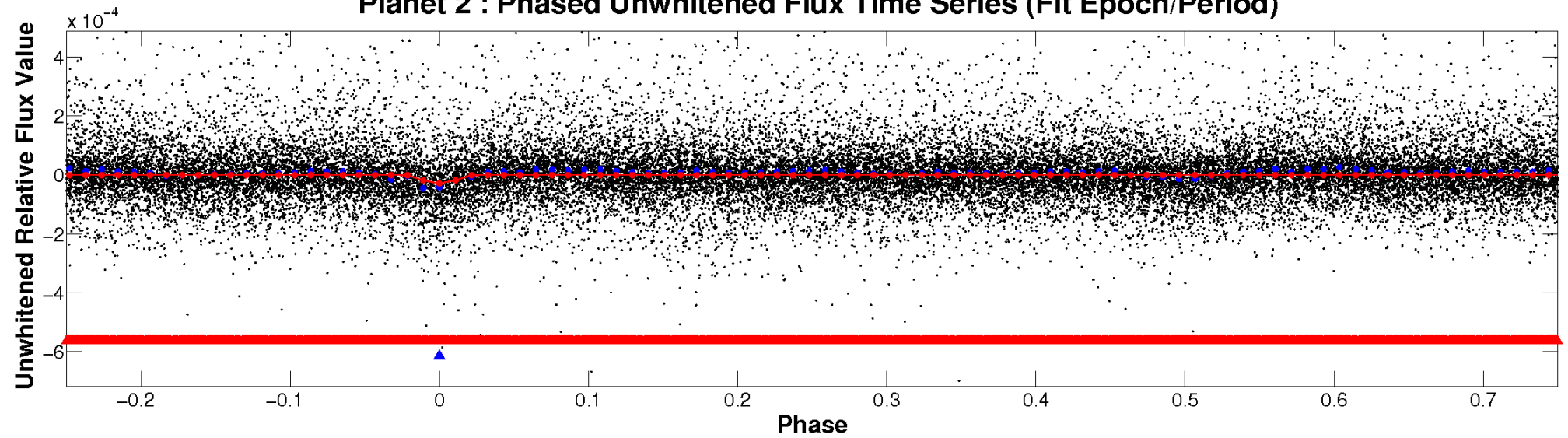
ALT Odd/Even

TCE 004832225-02

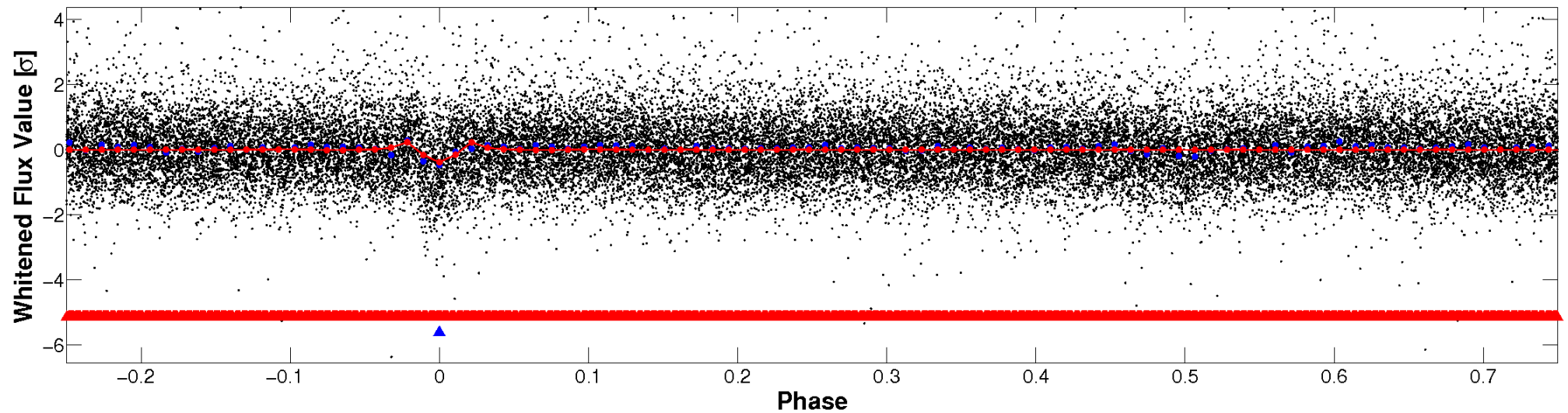


Non-Whitened Vs. Whitened Light Curve

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

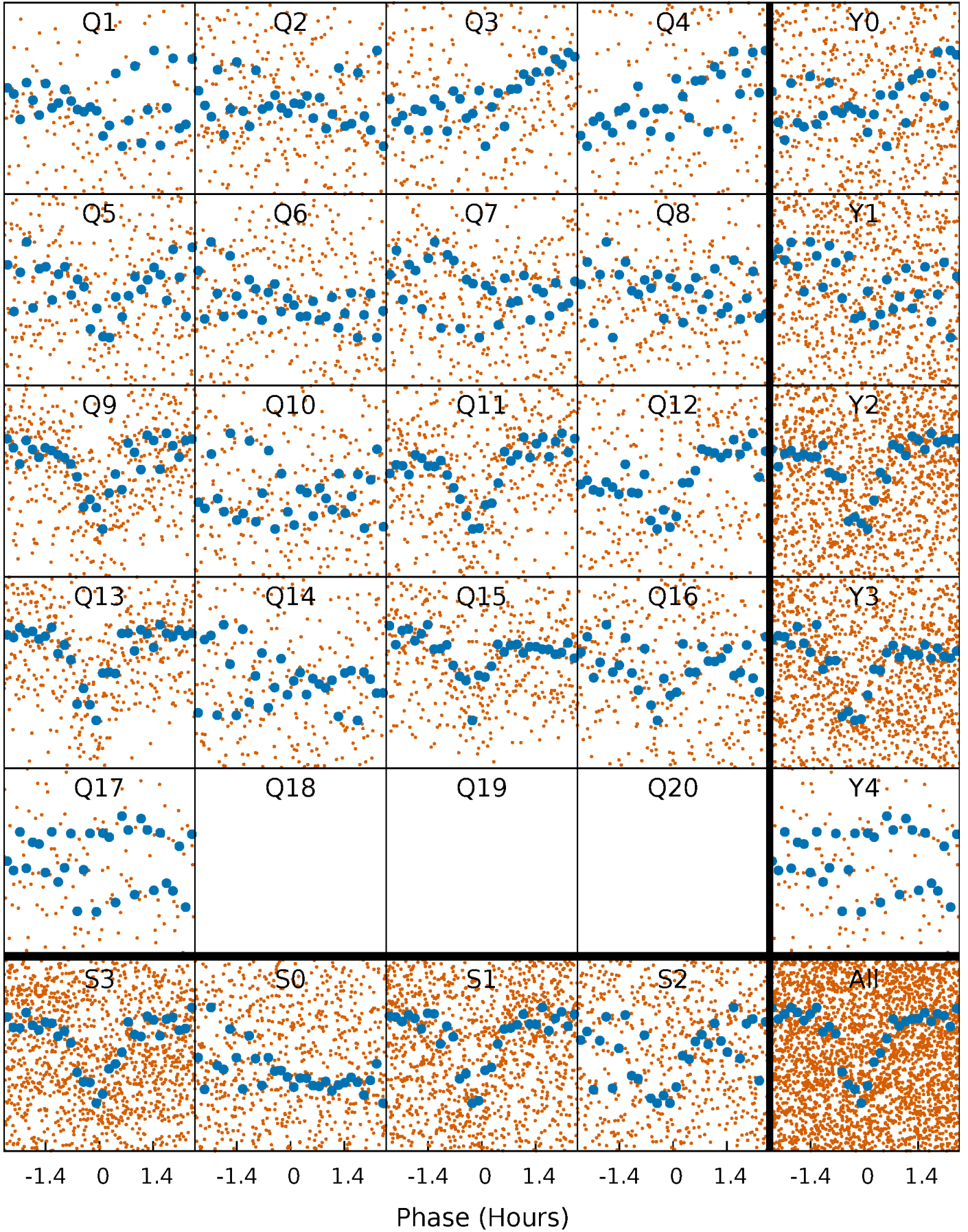


Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



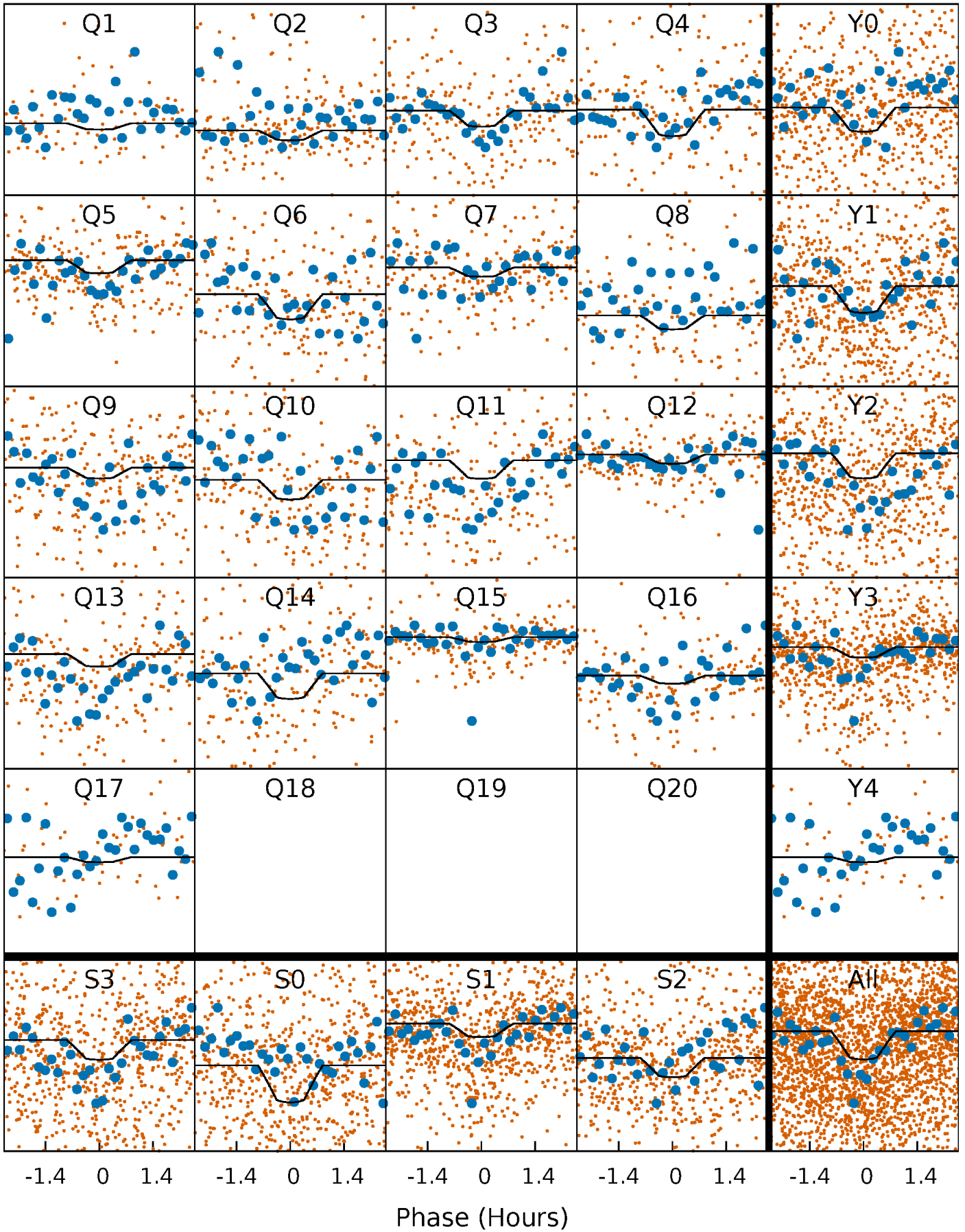
PDC Quarter-Phased Transit Curves

TCE 004832225-02 P= 1.895503 Days $T_0=133.326769$ (BKJD)



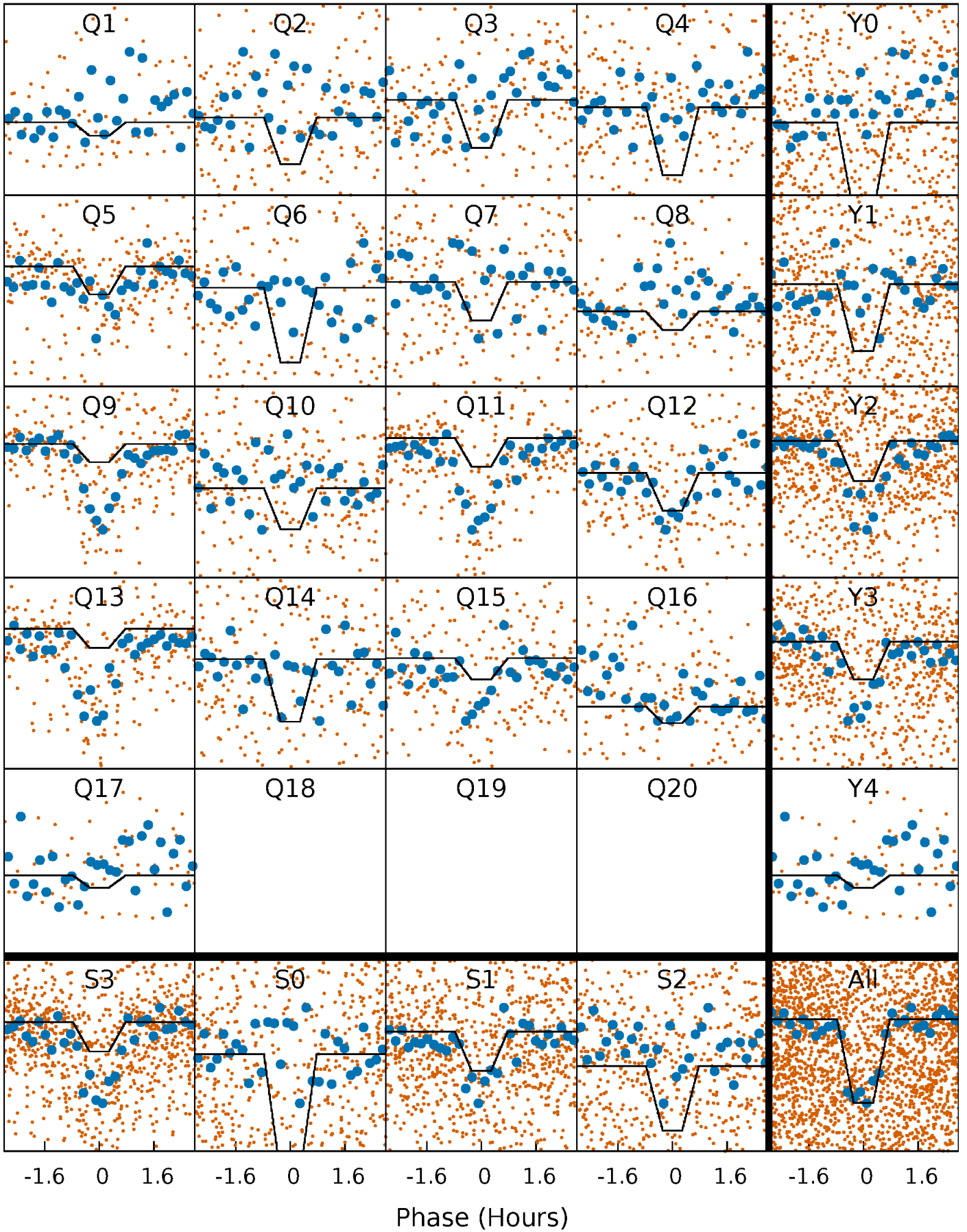
DV Quarter-Phased Transit Curves

TCE 004832225-02 P= 1.895503 Days $T_0=133.326769$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

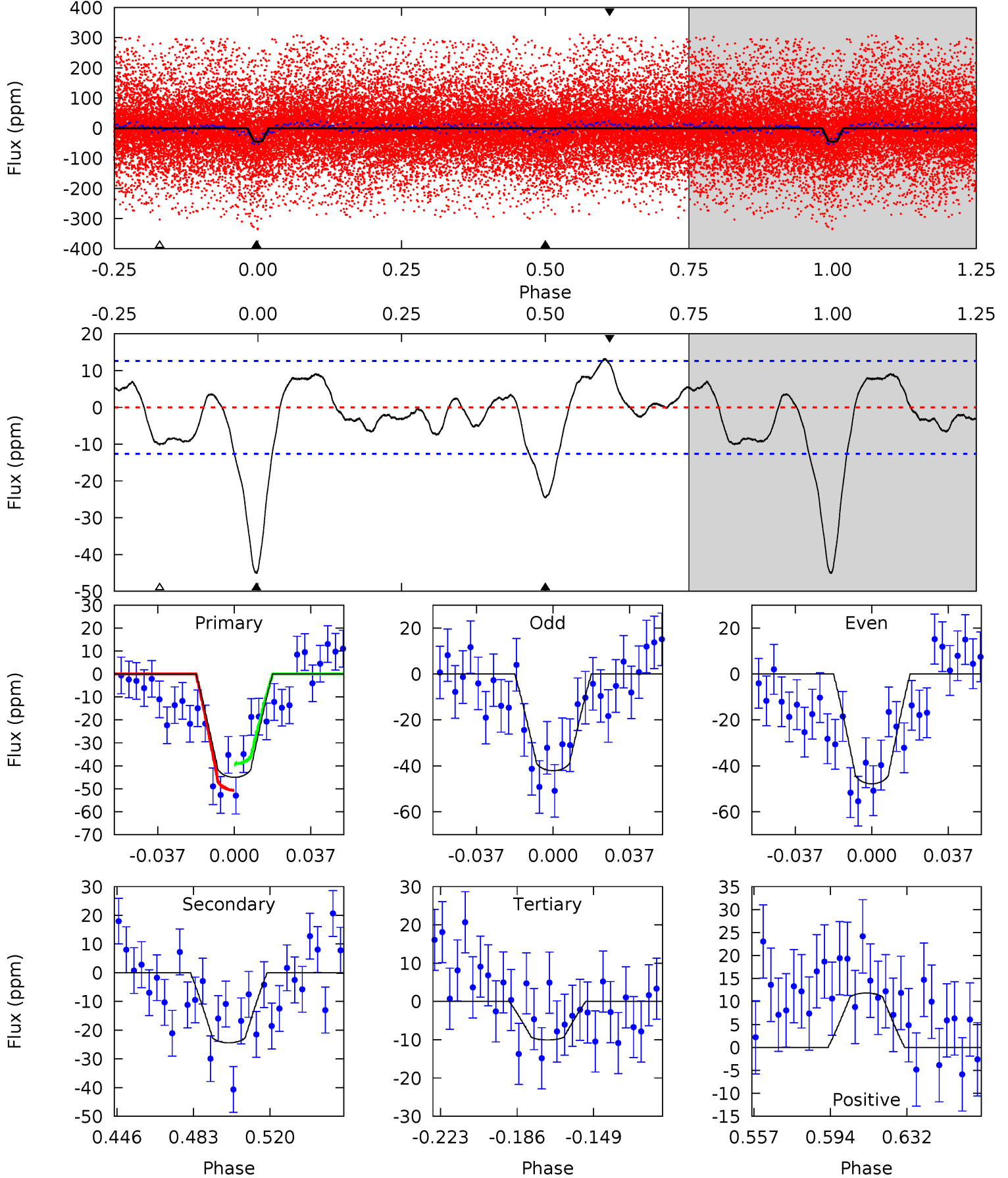
TCE 004832225-02 P= 1.895497 Days $T_0=133.327342$ (BKJD)



DV Model-Shift Uniqueness Test

004832225-02, P = 1.895503 Days, E = 131.431266 Days

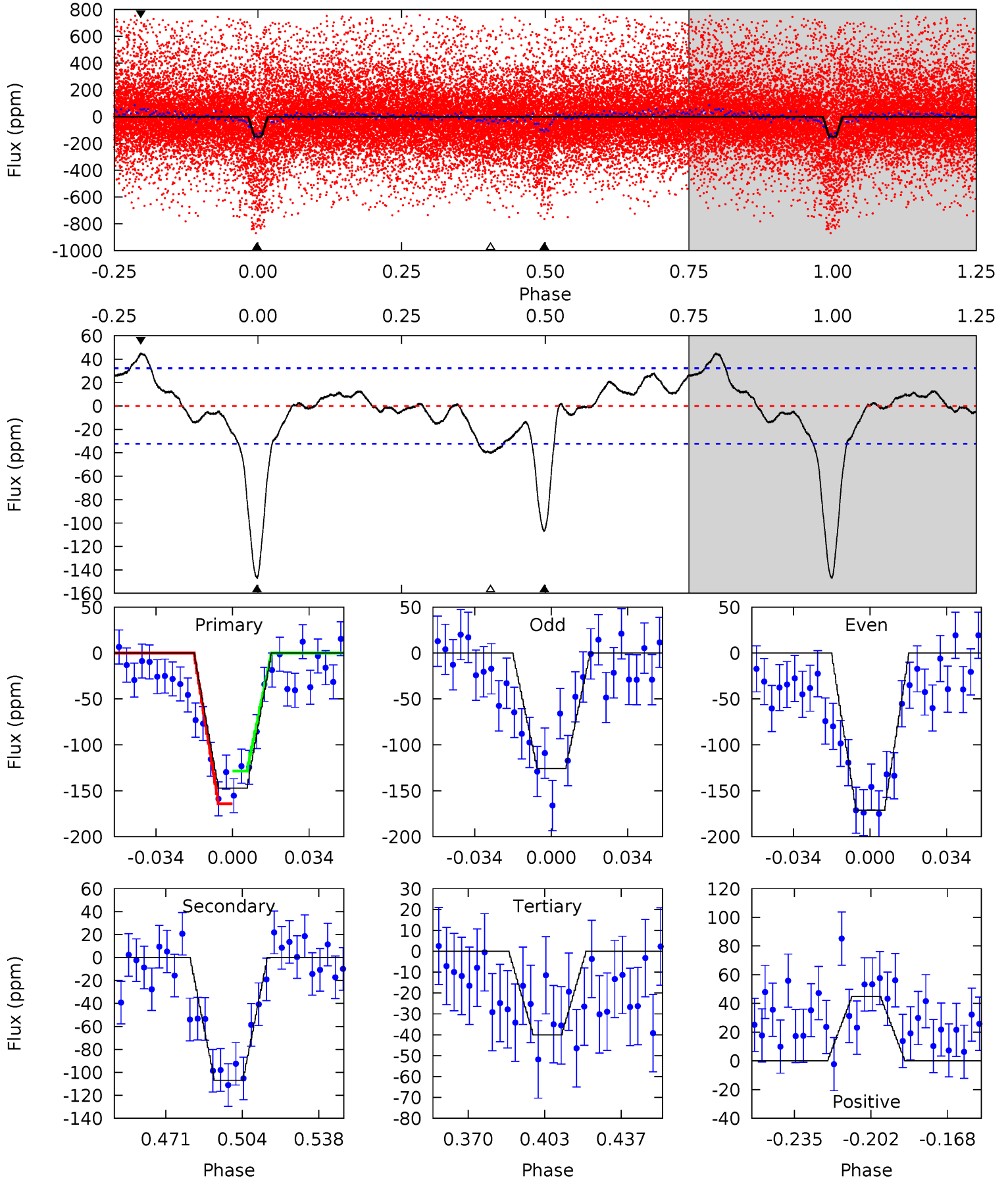
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
17.0	9.24	3.80	4.47	4.77	2.08	2.08	13.2	12.5	5.44	4.76	1.09	1.15	0.23	2.21



Alt Model-Shift Uniqueness Test

004832225-02, P = 1.895497 Days, E = 131.431845 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
21.8	15.9	5.94	6.65	4.79	2.12	2.61	15.9	15.2	9.93	9.21	3.39	1.02	0.23	0



Stellar Parameters For KIC 004832225

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	9464^{+262}_{-450}	$4.116^{+0.157}_{-0.175}$	$0.070^{+0.150}_{-0.700}$	$2.184^{+0.759}_{-0.621}$	$2.272^{+0.353}_{-0.655}$	$0.307^{+0.322}_{-0.160}$
	+3%/-5%	+4%/-4%	+214%/-1000%	+35%/-28%	+16%/-29%	+105%/-52%
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 004832225-02 / KOI 4013.01

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	-24 ± 3	$1.35^{+0.26}_{-0.24}$	4344^{+344}_{-345}	8492^{+712}_{-626}	11^{+4}_{-3}
Alt.	-107 ± 7	$2.81^{+0.50}_{-0.43}$	4317^{+344}_{-322}	8501^{+423}_{-462}	11^{+4}_{-3}

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 $A_{obs} \gg 1.0$

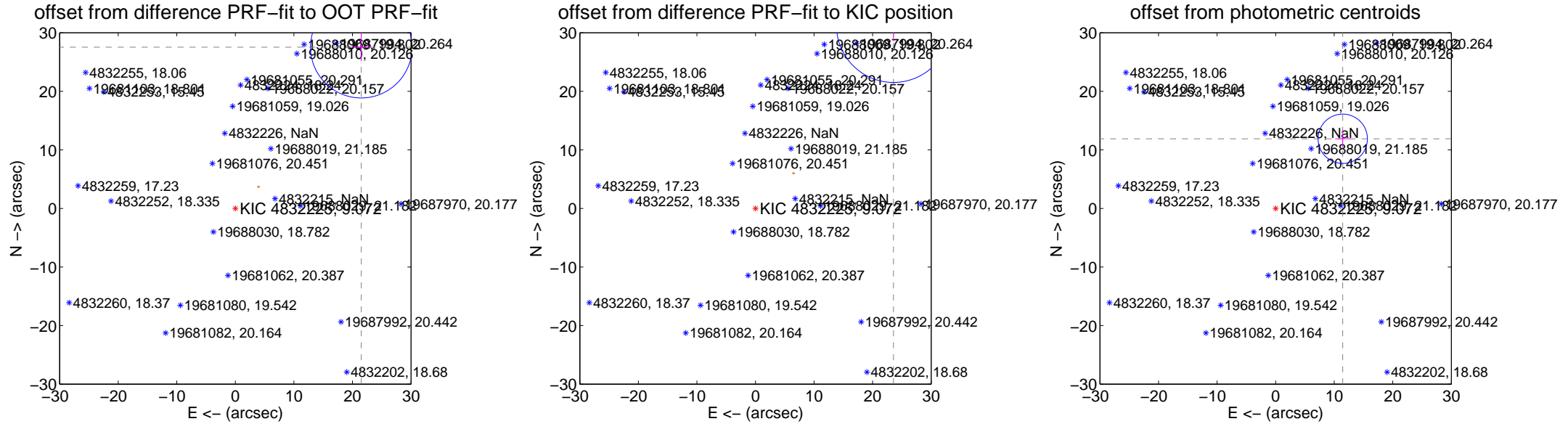
DV Centroid Data

Supplemental centroid analysis for 004832225-02. **Kepler magnitude: 9.07.** Transit SNR 11.62

There are 9 quarters with good PRF difference image offsets

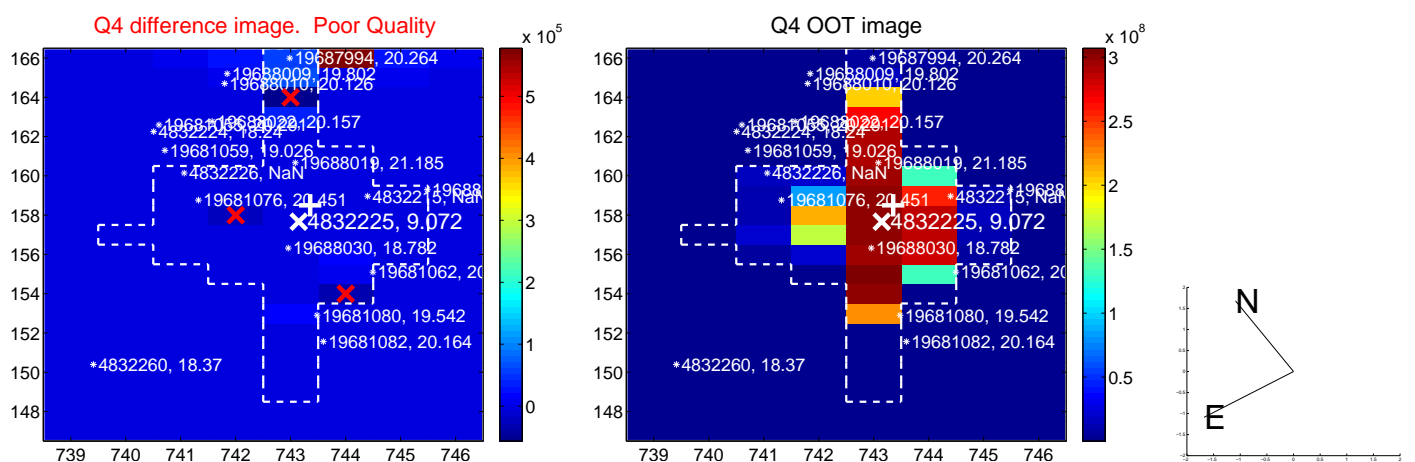
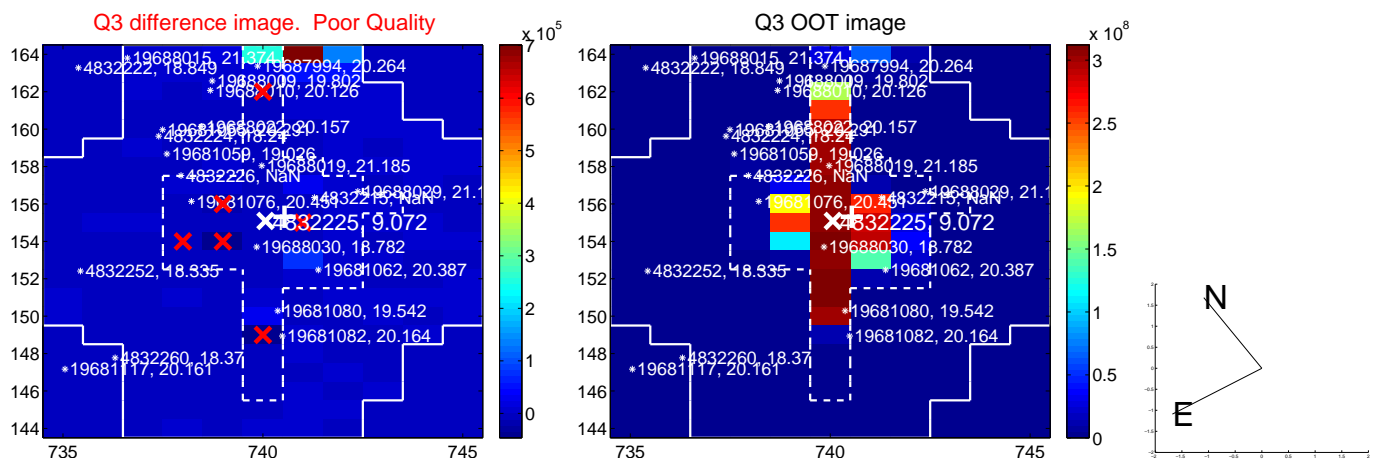
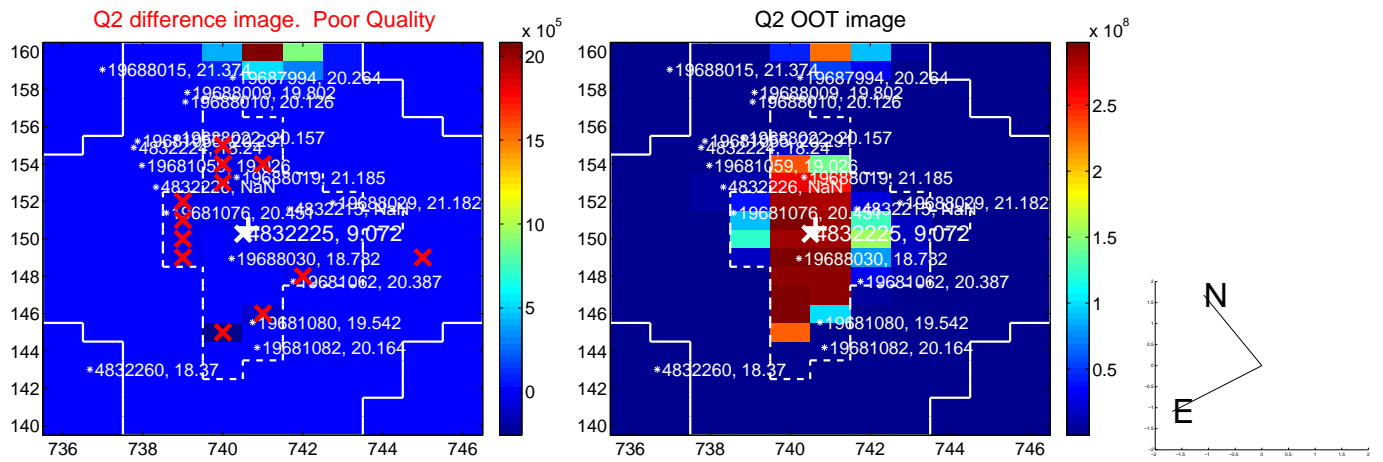
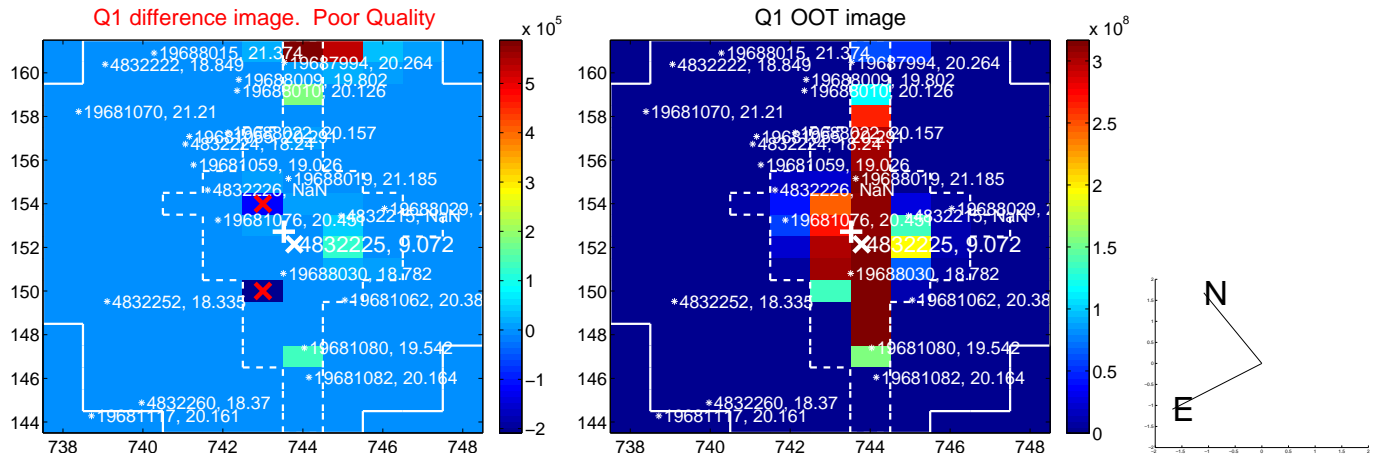
The OOT PRF centroid is offset from the target star catalog position by about 5.88 arcsec so the offset from difference PRF-fit to OOT-fit may be invalid.

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	34.938 ± 2.890	12.09	-21.505 ± 1.707	27.535 ± 2.348
PRF-fit source offset from KIC position	39.136 ± 3.245	12.06	-23.564 ± 1.820	31.246 ± 2.693
photometric centroid source offset	16.52 ± 1.40	11.76	-11.46 ± 1.31	11.90 ± 1.48

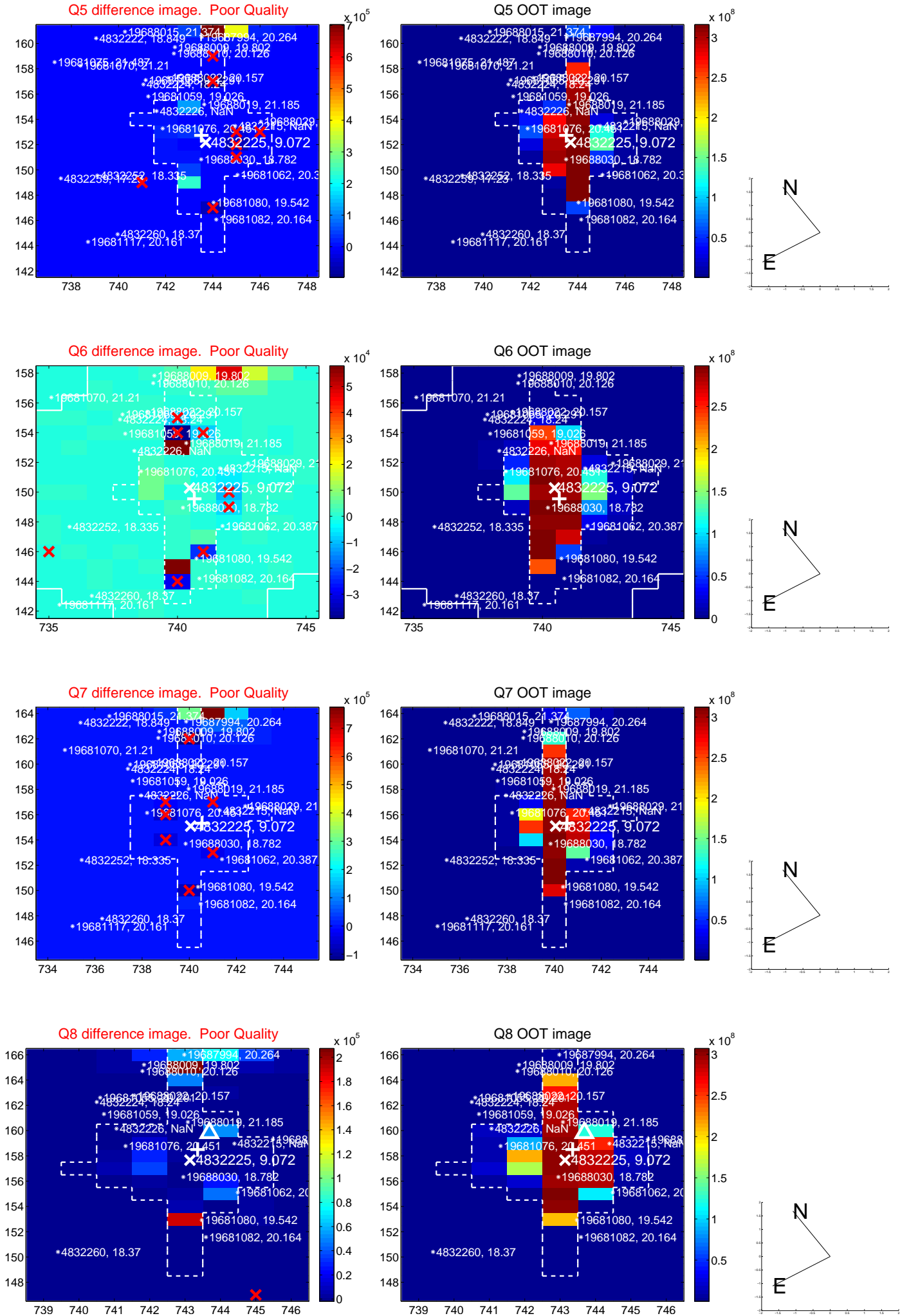


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets;** magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

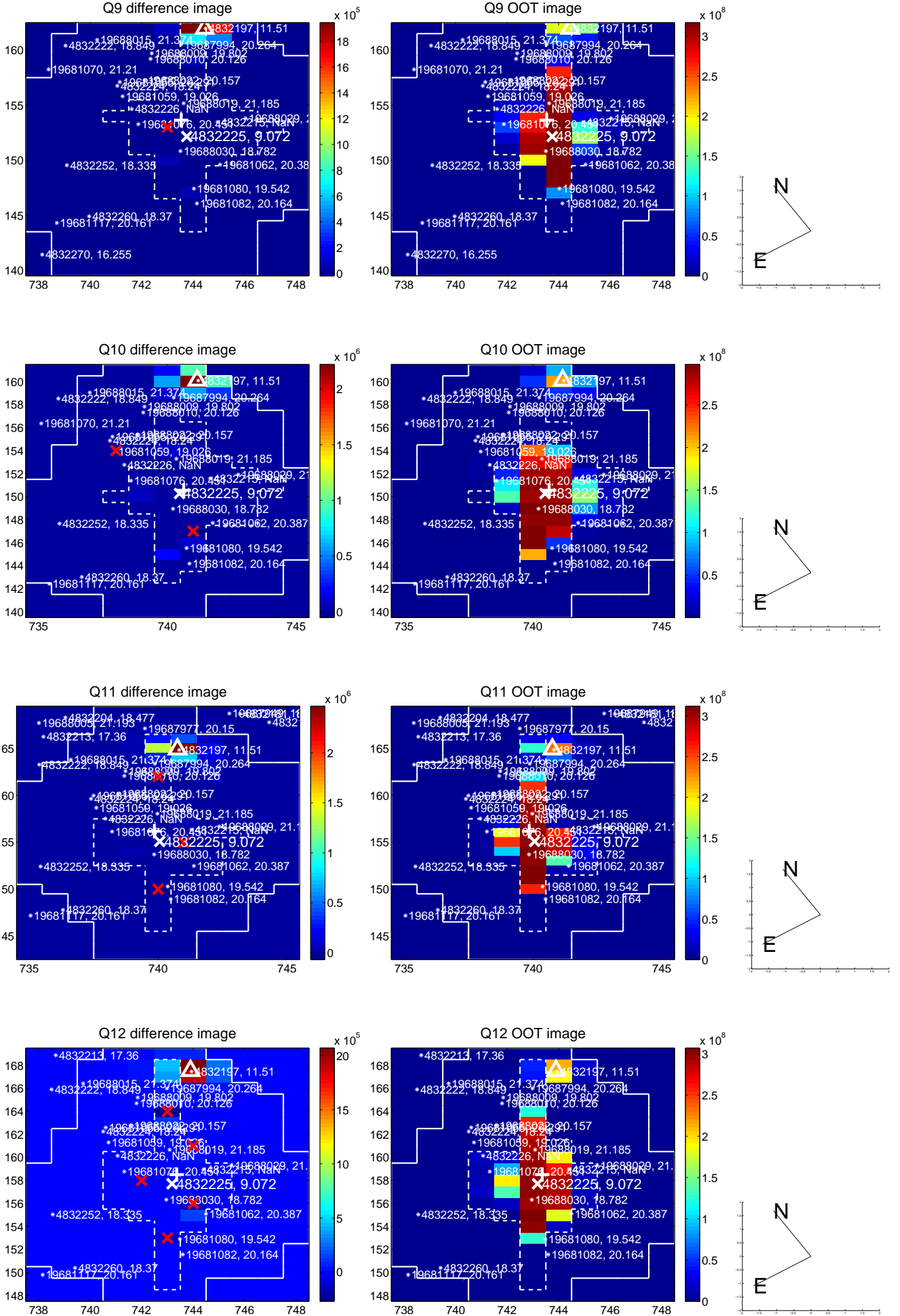
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



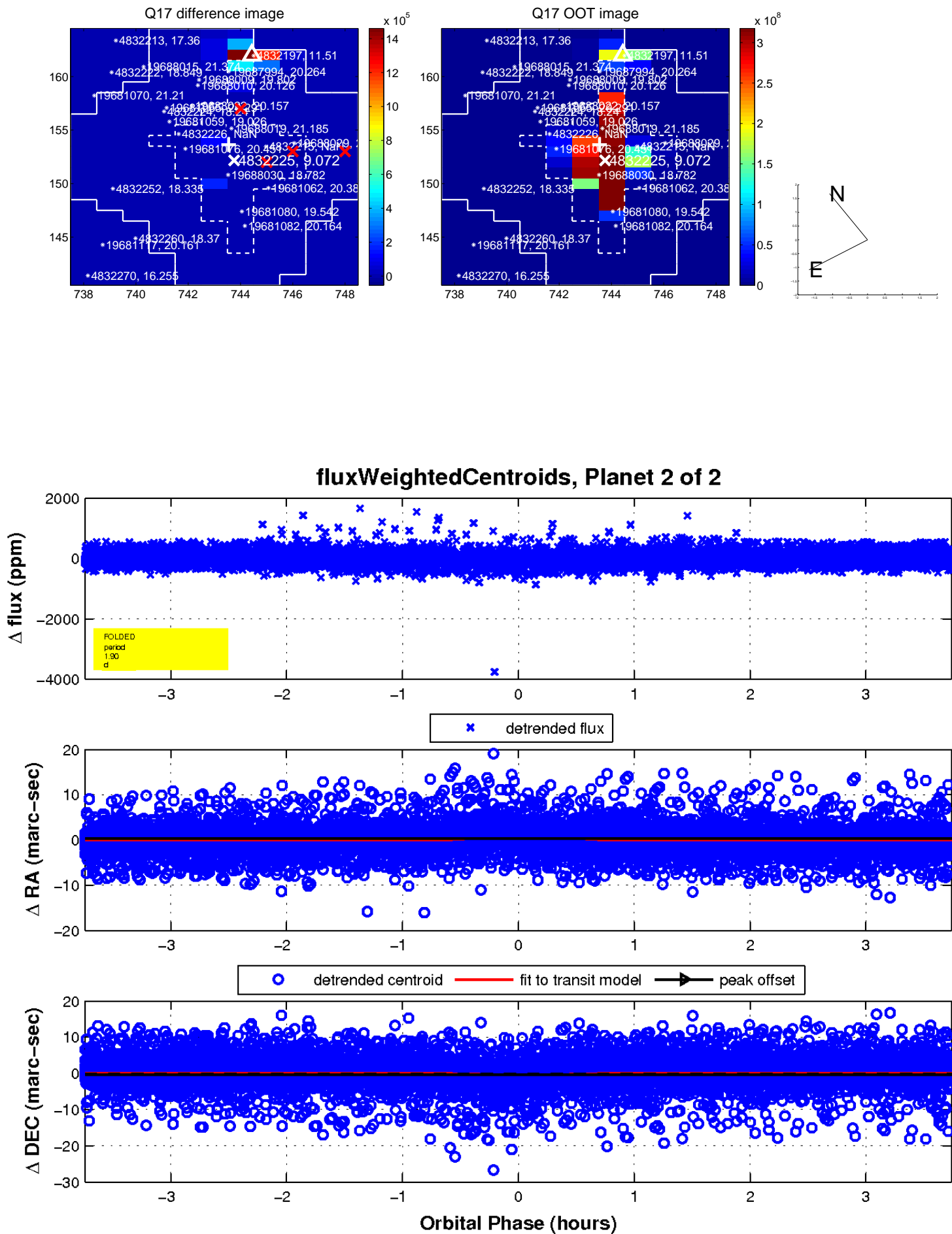
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

