

KIC 008098728

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})
008098728-01	OBS	2008.01	24.485180	137.619563	252.9	4.586	19.5	22.1	3.00	6655	7.77	457.66
008098728-02	OBS	No	24.485106	148.008072	201.5	4.767	16.5	18.2	3.00	6655	8.30	457.67
008098728-03	OBS	No	1.130177	131.980955	4.1	4.736	8.1	2.3	3.00	6655	0.63	27641.15
008098728-04	OBS	No	2.261616	131.645861	0.0	0.965	10.0	0.0	3.00	6655	0.00	10961.23
008098728-05	OBS	No	155.694681	177.525138	152.7	20.994	9.0	7.5	3.00	6655	3.95	38.85
008098728-06	OBS	No	190.370384	171.392528	236.7	2.551	8.6	7.7	3.00	6655	5.34	29.71

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
008098728-01	OBS	FP	0.00	0	1	0	0	MOD_SEC_DV—MOD_SEC_ALT—HAS_SEC_TCE—CENT_SATURATED
008098728-02	OBS	FP	0.00	1	1	0	0	IS_SEC_TCE—CENT_SATURATED
008098728-03	OBS	FP	0.00	1	0	0	0	SWEET_NTL—LPP_DV—LPP_ALT—MOD_NONUNIQ_ALT—CENT_SATURATED
008098728-04	OBS	FP	0.00	1	0	0	0	TRANS_GAPPED—SWEET_NTL—LPP_DV—LPP_ALT—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_SATURATED
008098728-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_SATURATED
008098728-06	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_MARSHALL—TRANS_GAPPED—ALL_TRANS_CHASES—MOD_NONUNIQ_ALT—INCONSISTENT_TRANS—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 008098728-01

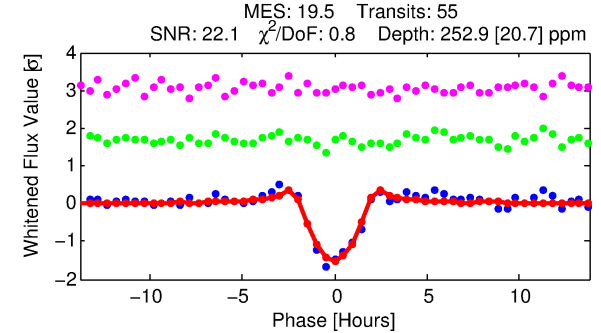
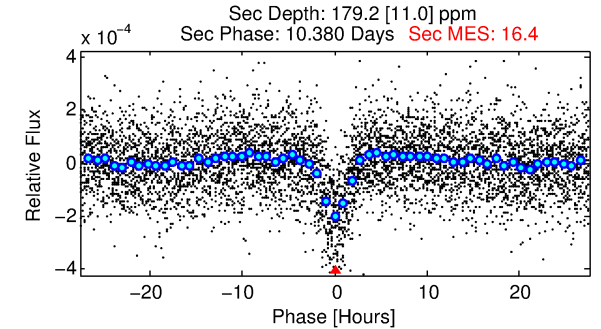
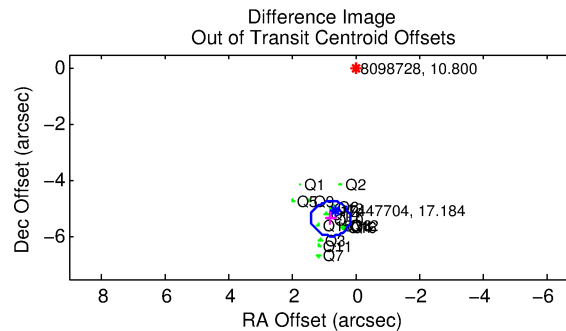
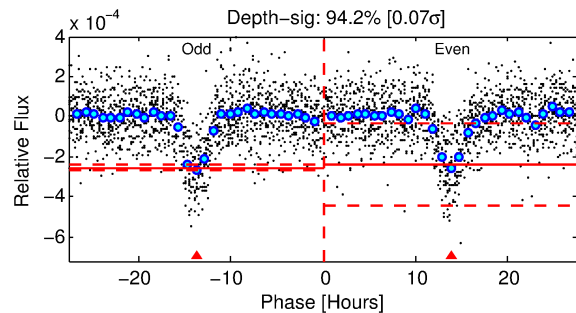
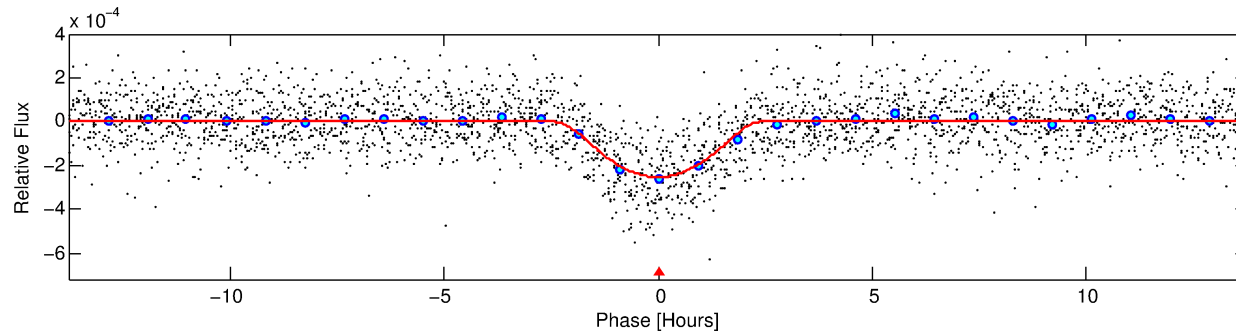
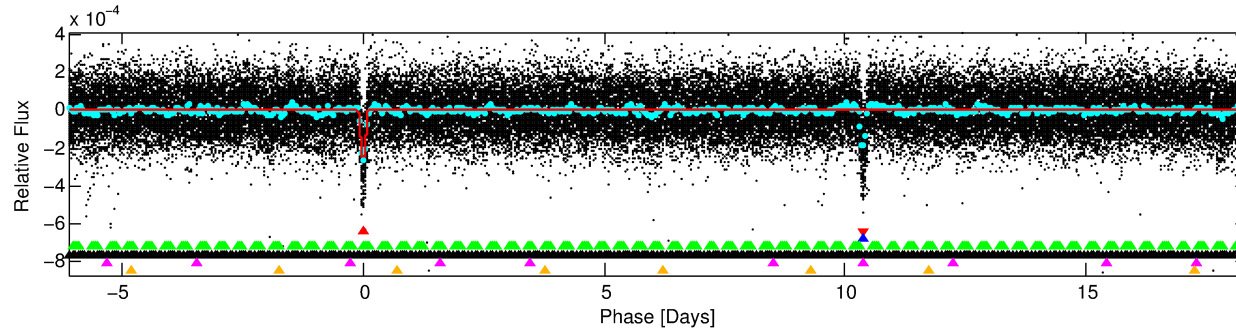
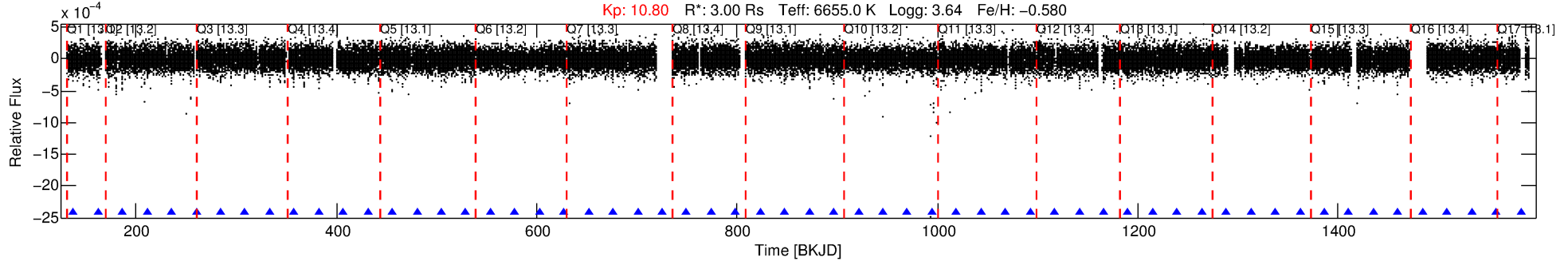
No Significant Match Found

DV One-Page Summary

KIC: 8098728 Candidate: 1 of 6 Period: 24.485 d

KOI: K02008.01 Corr: 0.971

Kp: 10.80 R*: 3.00 Rs Teff: 6655.0 K Logg: 3.64 Fe/H: -0.580



DV Fit Results:

Period = 24.48518 [0.00012] d
Epoch = 137.6196 [0.0040] BKJD
Rp/R* = 0.0238 [0.0110]
a/R* = 10.32 [1.74]
b = 0.99 [0.02]
Seff = 457.66 [270.31]
Teq = 1179 [174] K
Rp = 7.77 [4.72] Re
a = 0.1856 [0.0684] AU
Ag = 56.23 [61.45] [0.90σ]
Teffp = 4993 [1164] K [3.24σ]

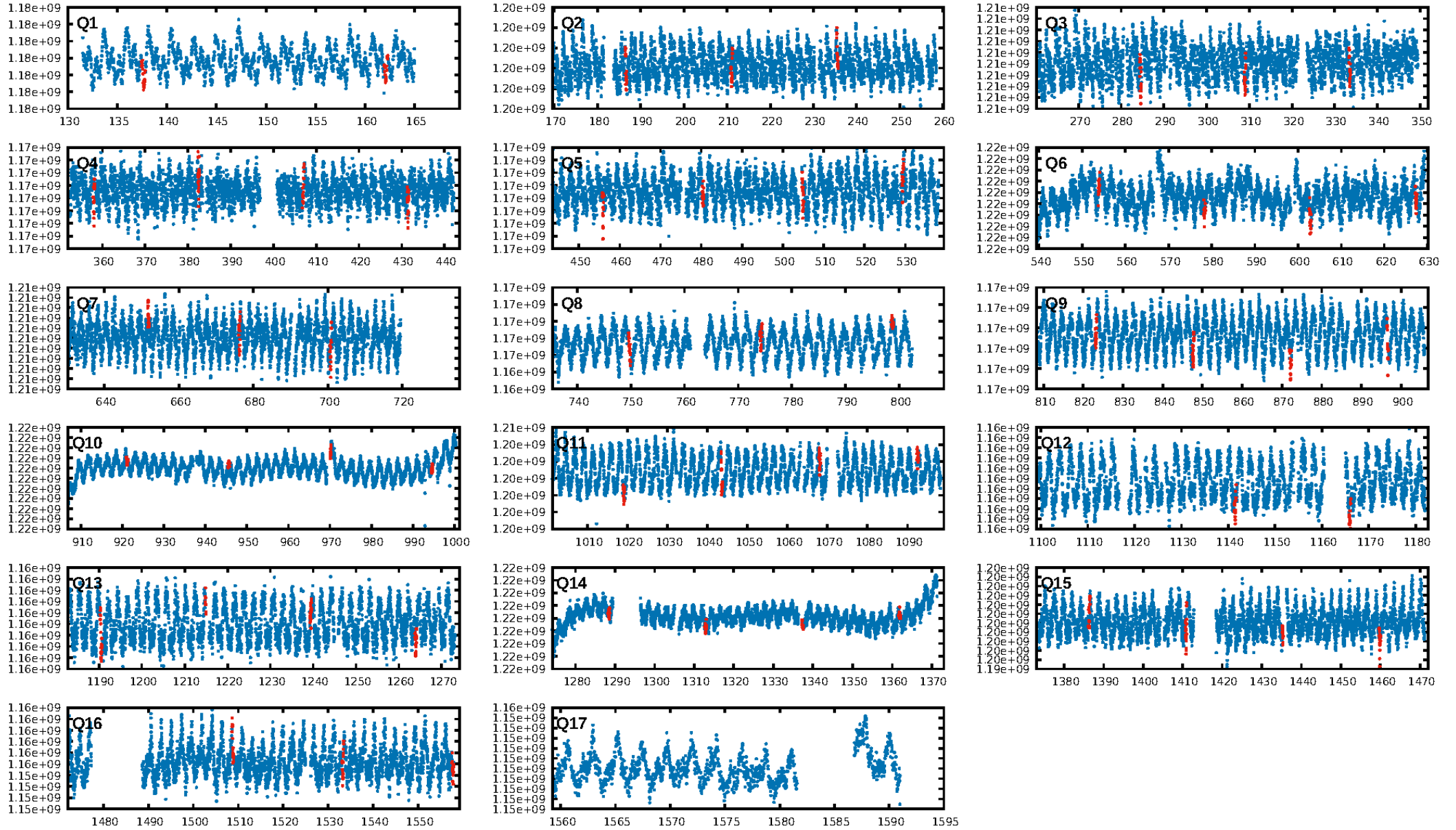
DV Diagnostic Results:

ShortPeriod-sig: 0.0% [0.00σ]
LongPeriod-sig: 100.0% [146.54σ]
ModelChiSquare2-sig: 0.7%
ModelChiSquareGof-sig: 100.0%
Bootstrap-pfa: 1.06e-48
RollingBand-fgt: 1.00 [53/53]
GhostDiagnostic-chr: 0.7181
Centroid-sig: 0.0%
Centroid-so: 6.651 arcsec [28.59σ]
OotOffset-rm: 5.409 arcsec [26.28σ]
KicOffset-rm: 5.092 arcsec [45.39σ]
OotOffset-st: 4/4/4/4 [16]
KicOffset-st: 4/4/4/4 [16]
DiffImageQuality-fgm: 0.94 [15/16]
DiffImageOverlap-fno: 0.00 [0/16]

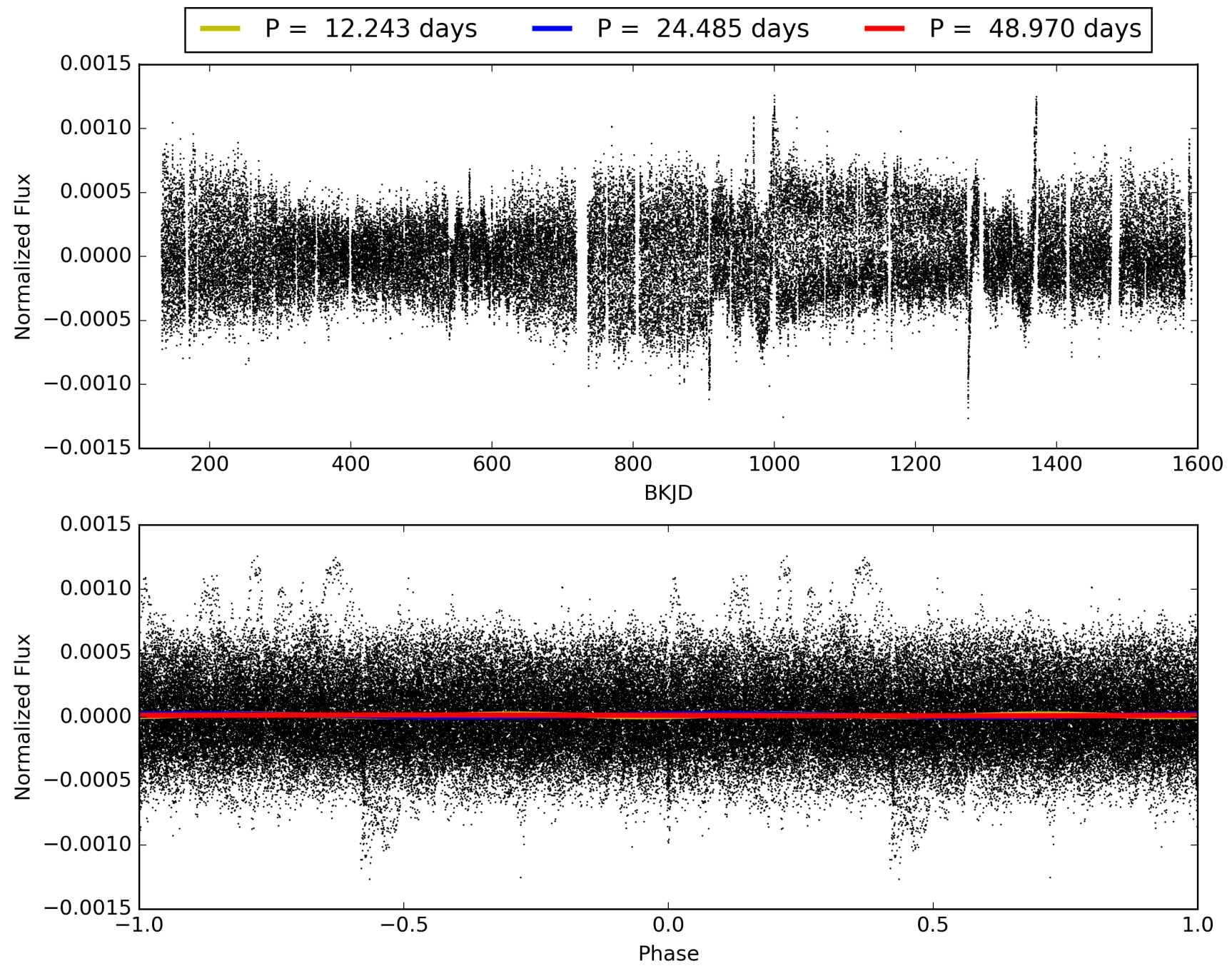
Software Revision: svn-ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 01-Feb-2016 17:38:13 Z

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

TCE 008098728-01, PDC Light Curves

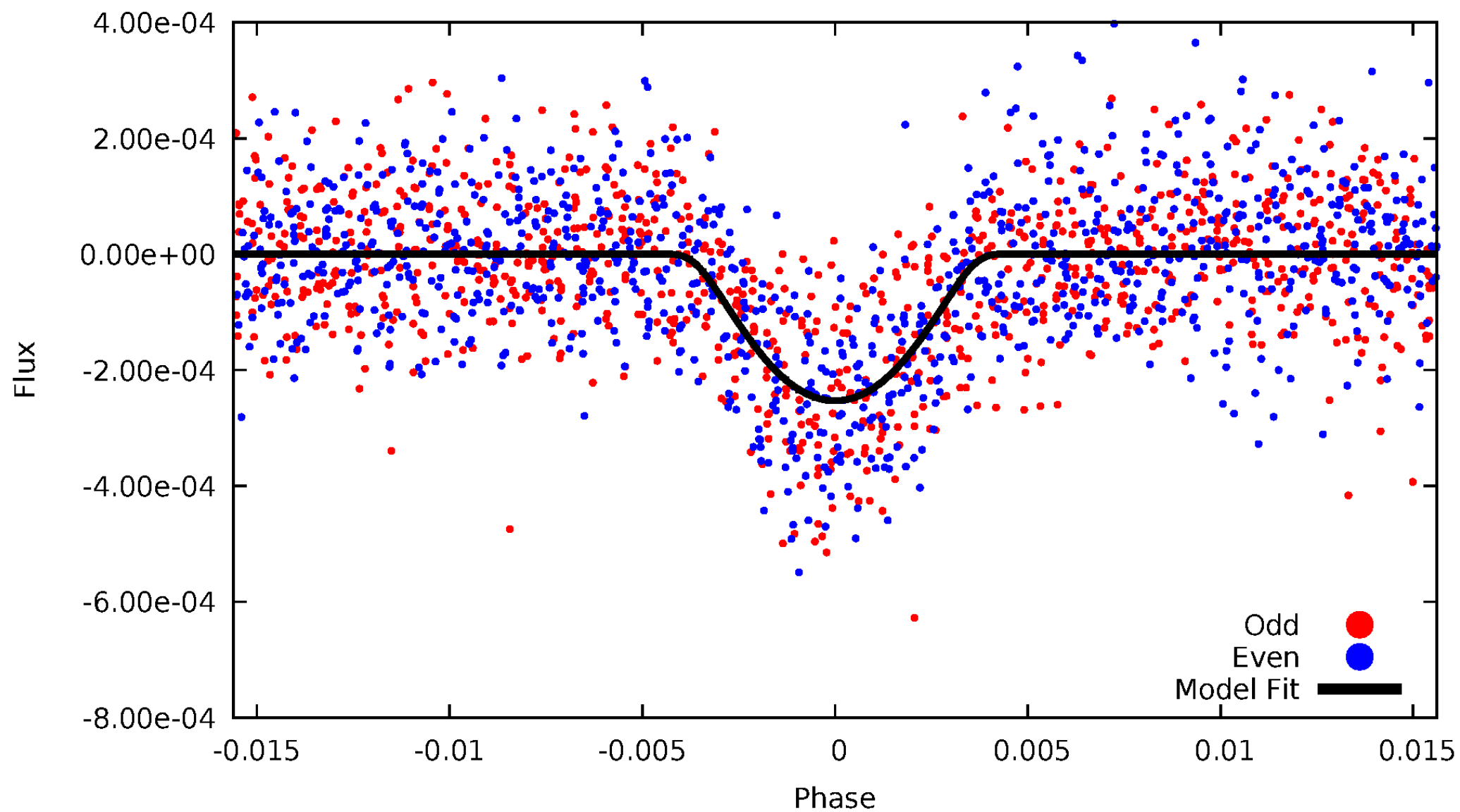


TCE 008098728-01



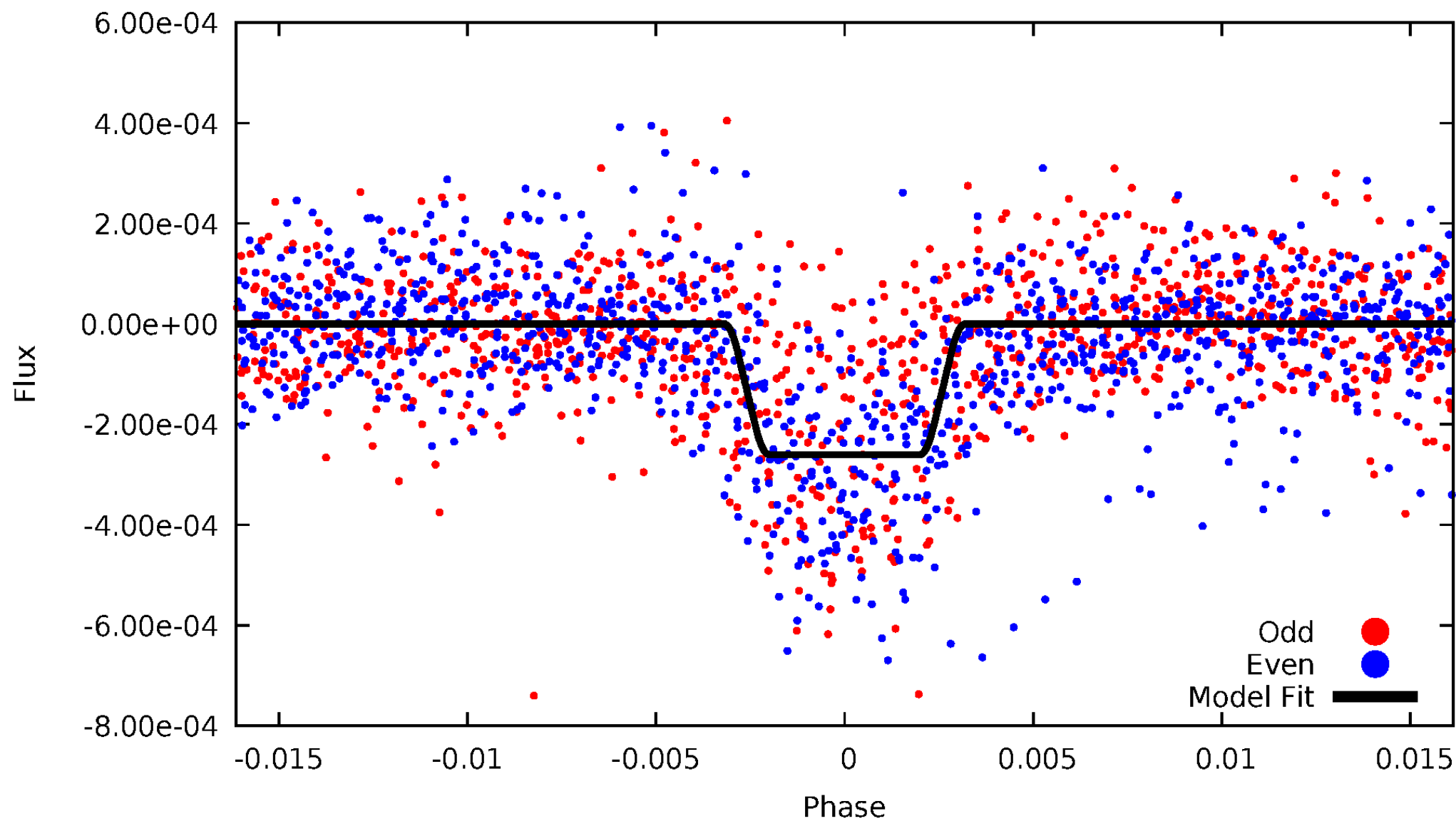
DV Odd/Even

TCE 008098728-01



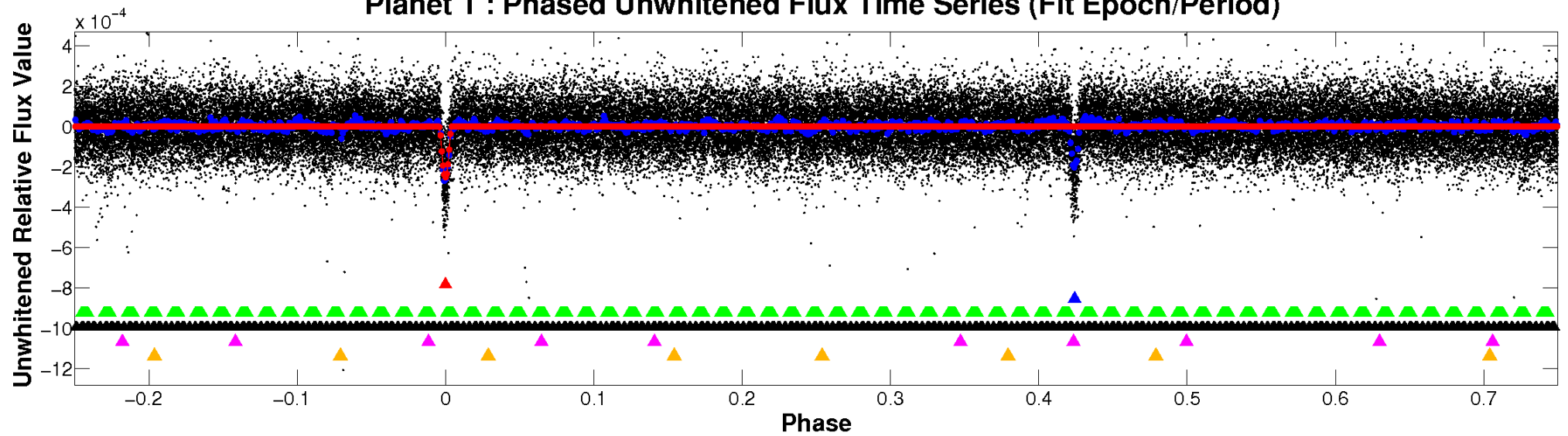
ALT Odd/Even

TCE 008098728-01

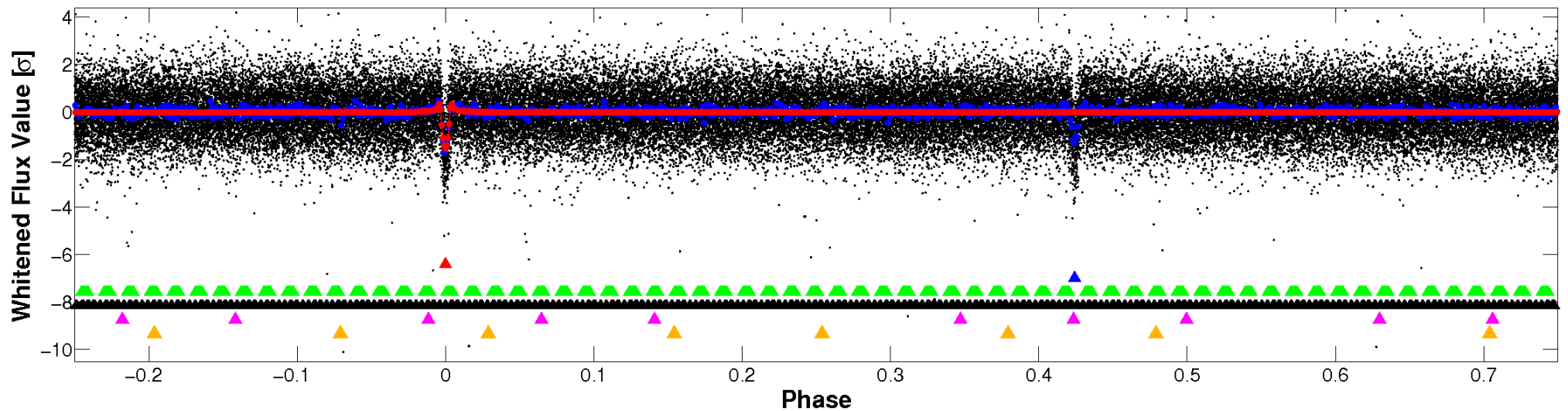


Non-Whitened Vs. Whitened Light Curve

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

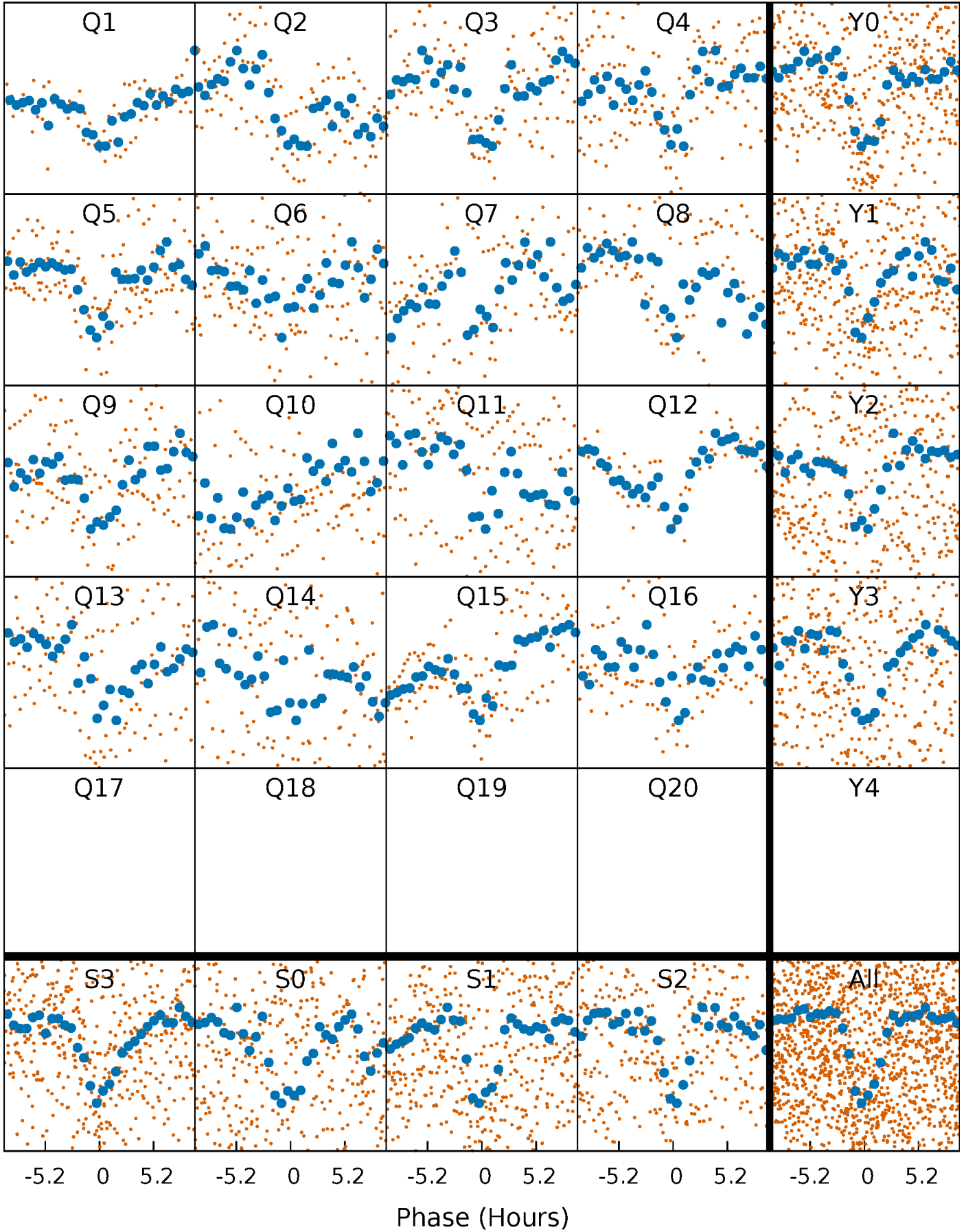


Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)



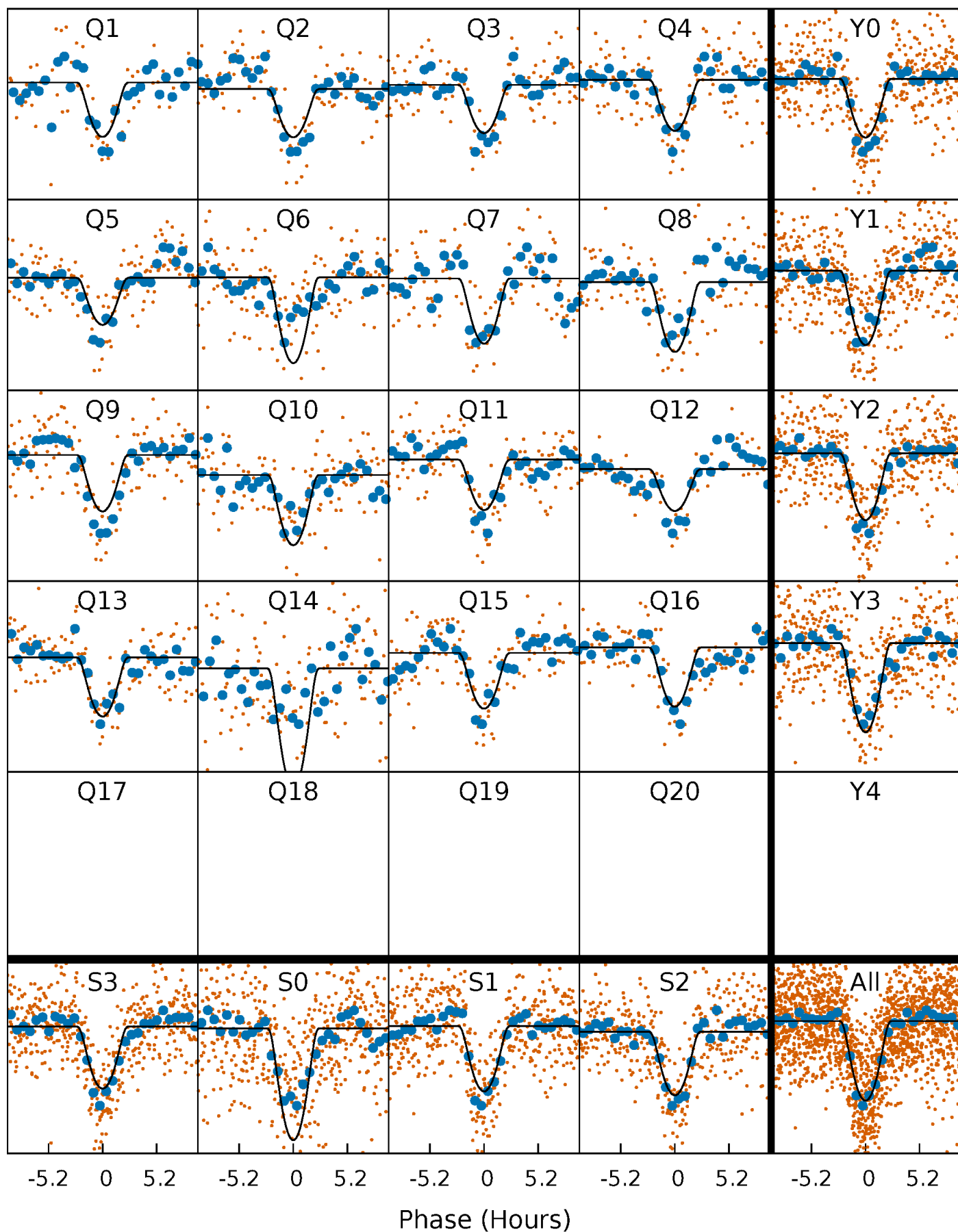
PDC Quarter-Phased Transit Curves

TCE 008098728-01 P= 24.485180 Days $T_0=137.619563$ (BKJD)



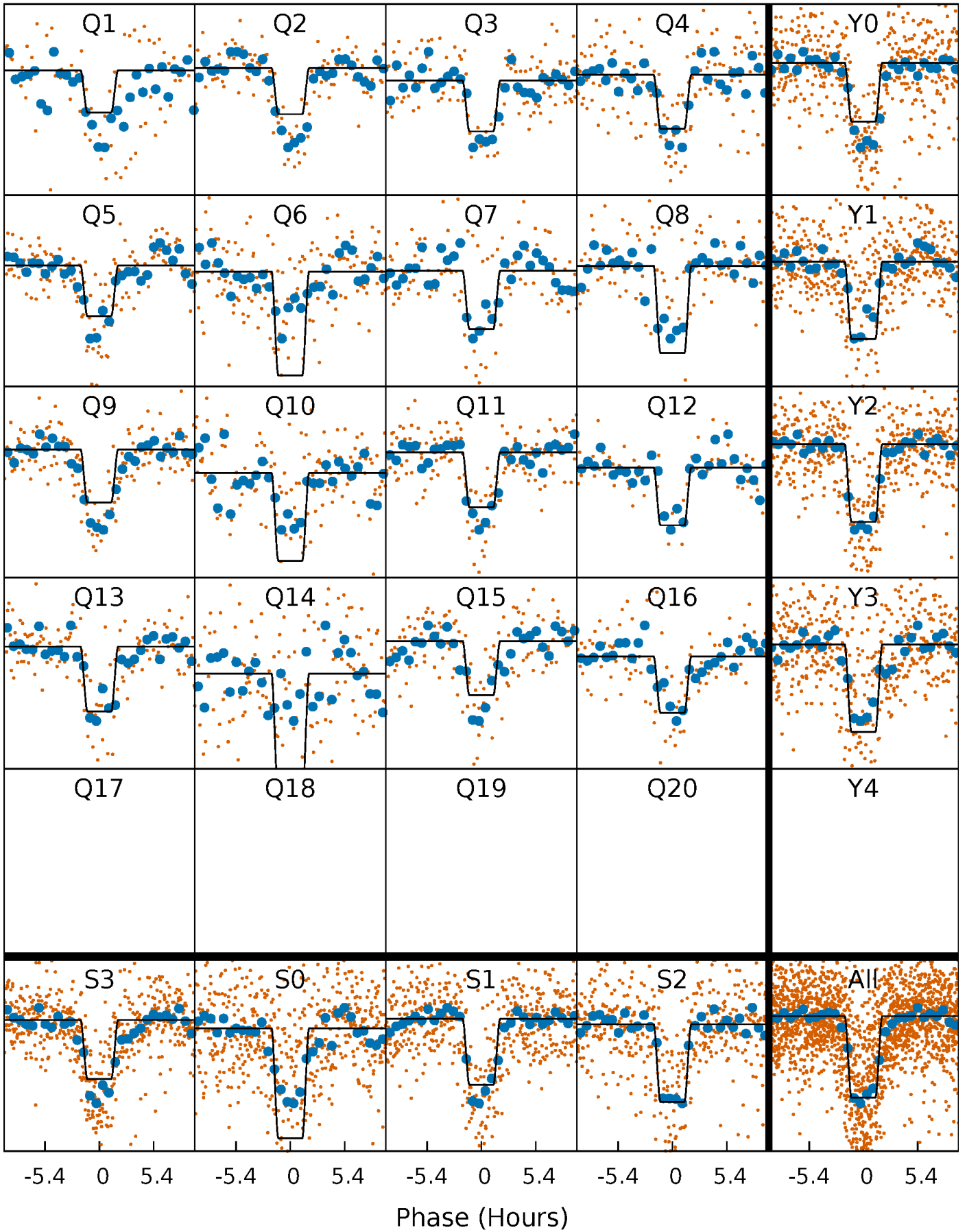
DV Quarter-Phased Transit Curves

TCE 008098728-01 P= 24.485180 Days $T_0=137.619563$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

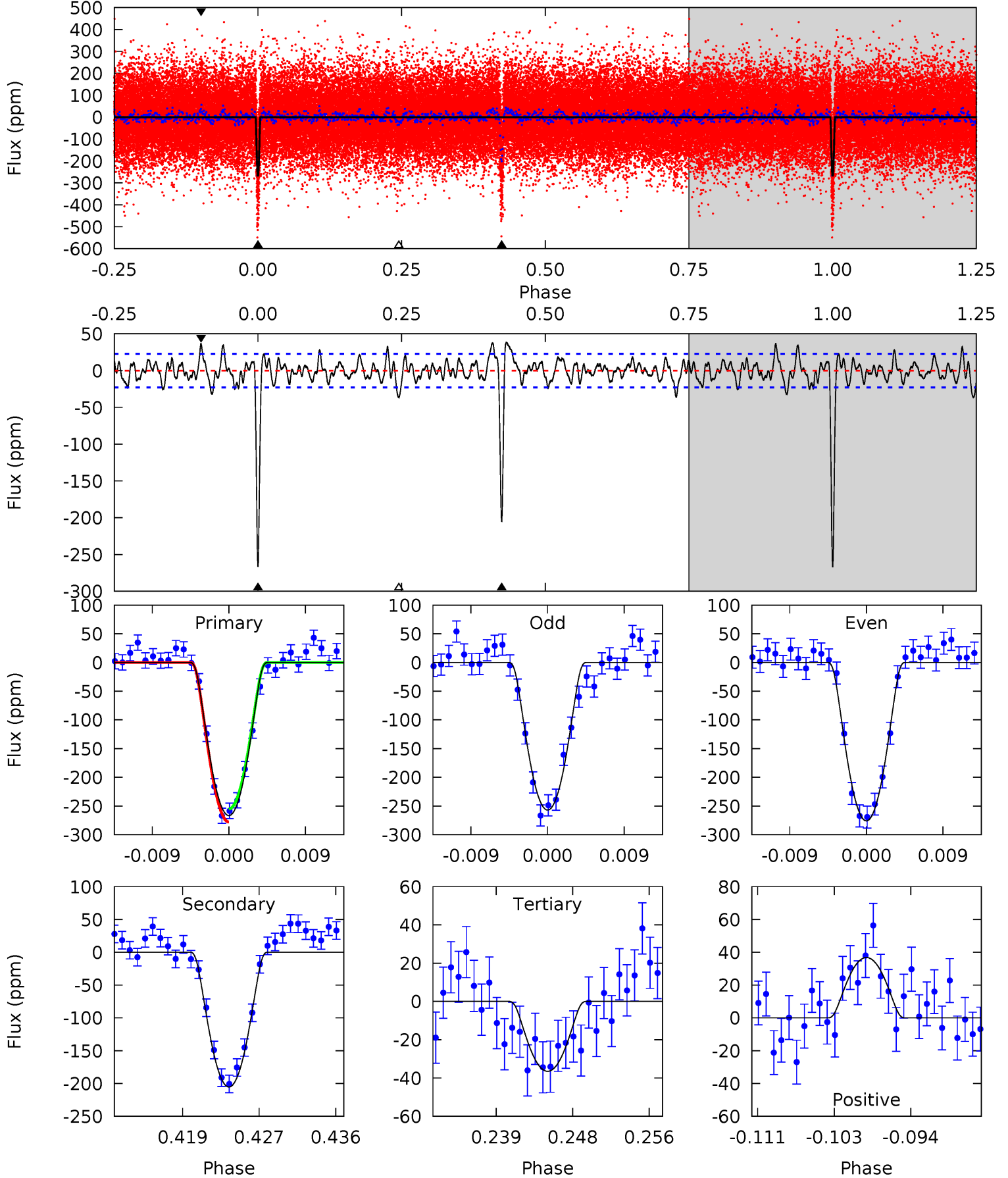
TCE 008098728-01 P= 24.485418 Days $T_0=137.614521$ (BKJD)



DV Model-Shift Uniqueness Test

008098728-01, P = 24.485180 Days, E = 113.134383 Days

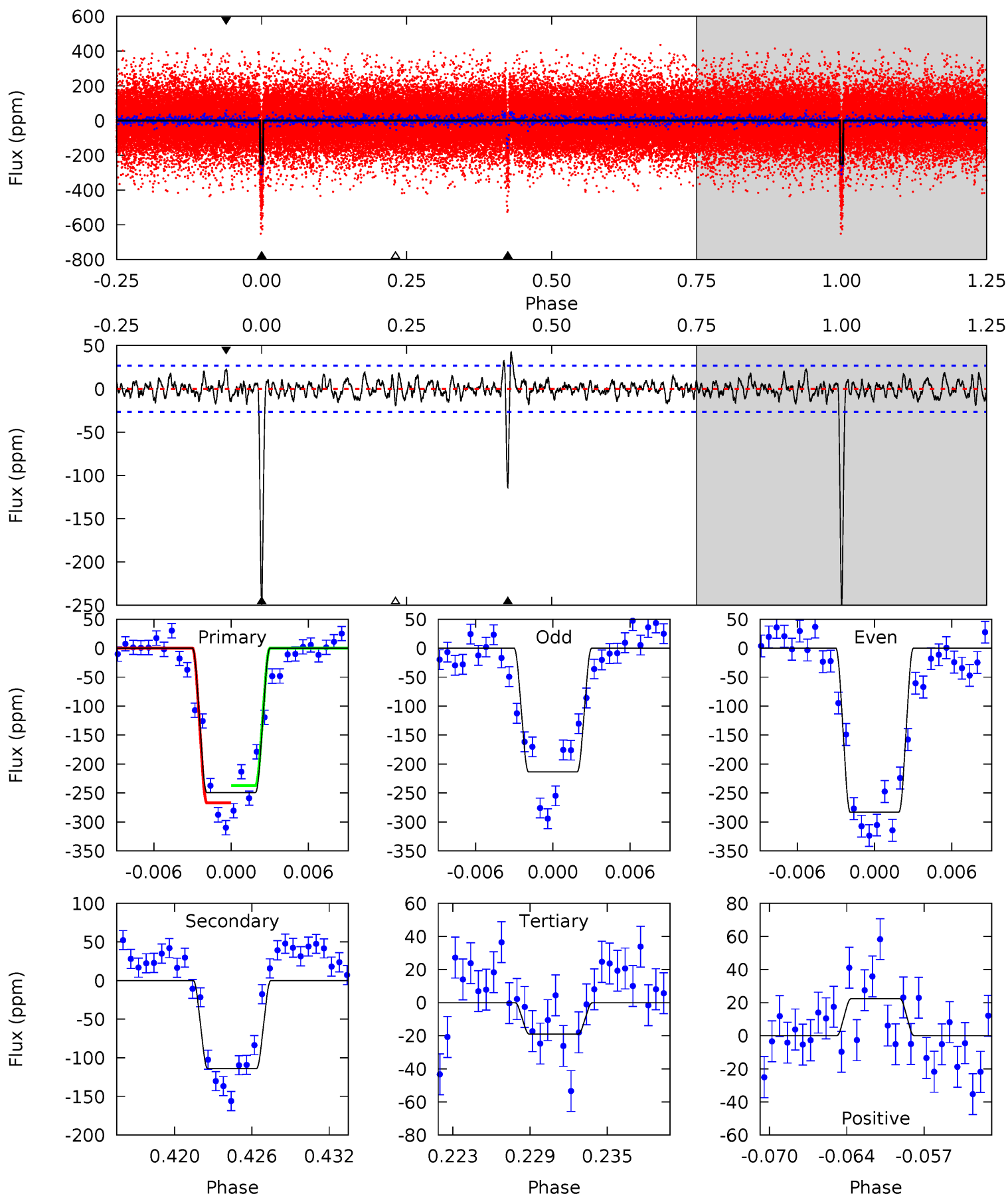
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
58.9	45.3	8.06	8.12	5.06	2.63	2.65	50.8	50.8	37.3	37.2	2.08	0.96	0.13	2.47



Alt Model-Shift Uniqueness Test

008098728-01, P = 24.485418 Days, E = 113.129103 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
47.7	21.9	3.64	4.28	5.11	2.73	1.39	44.1	43.4	18.2	17.6	6.62	0.94	0.15	2.85



Stellar Parameters For KIC 008098728

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	$M(M_{\odot})$	p_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	6655^{+168}_{-184}	$3.638^{+0.337}_{-0.112}$	$-0.580^{+0.350}_{-0.300}$	$2.995^{+0.506}_{-1.180}$	$1.420^{+0.220}_{-0.330}$	$0.074^{+0.188}_{-0.026}$
	+3%/-3%	+9%/-3%	+60%/-52%	+17%/-39%	+15%/-23%	+253%/-34%
Source	PHO1	FLK73	KIC0	DSEP		

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

Secondary Eclipse Parameters for KIC 008098728-01 / KOI 2008.01

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	-205 ± 5	$7.39^{+3.80}_{-3.41}$	1626^{+100}_{-151}	5149^{+1683}_{-704}	70^{+168}_{-38}
Alt.	-114 ± 5	$5.26^{+3.55}_{-3.11}$	1621^{+106}_{-148}	5194^{+3310}_{-891}	77^{+382}_{-49}

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

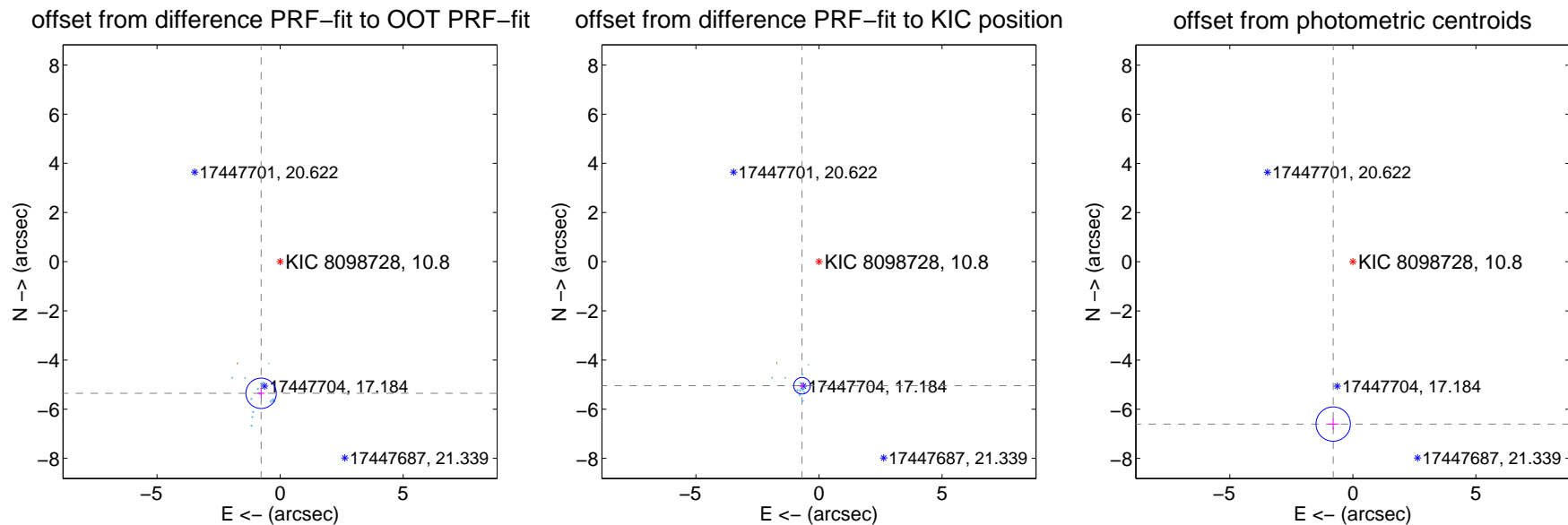
DV Centroid Data

Supplemental centroid analysis for 008098728-01. **Kepler magnitude: 10.80.** Transit SNR 22.08

There are 15 quarters with good PRF difference image offsets

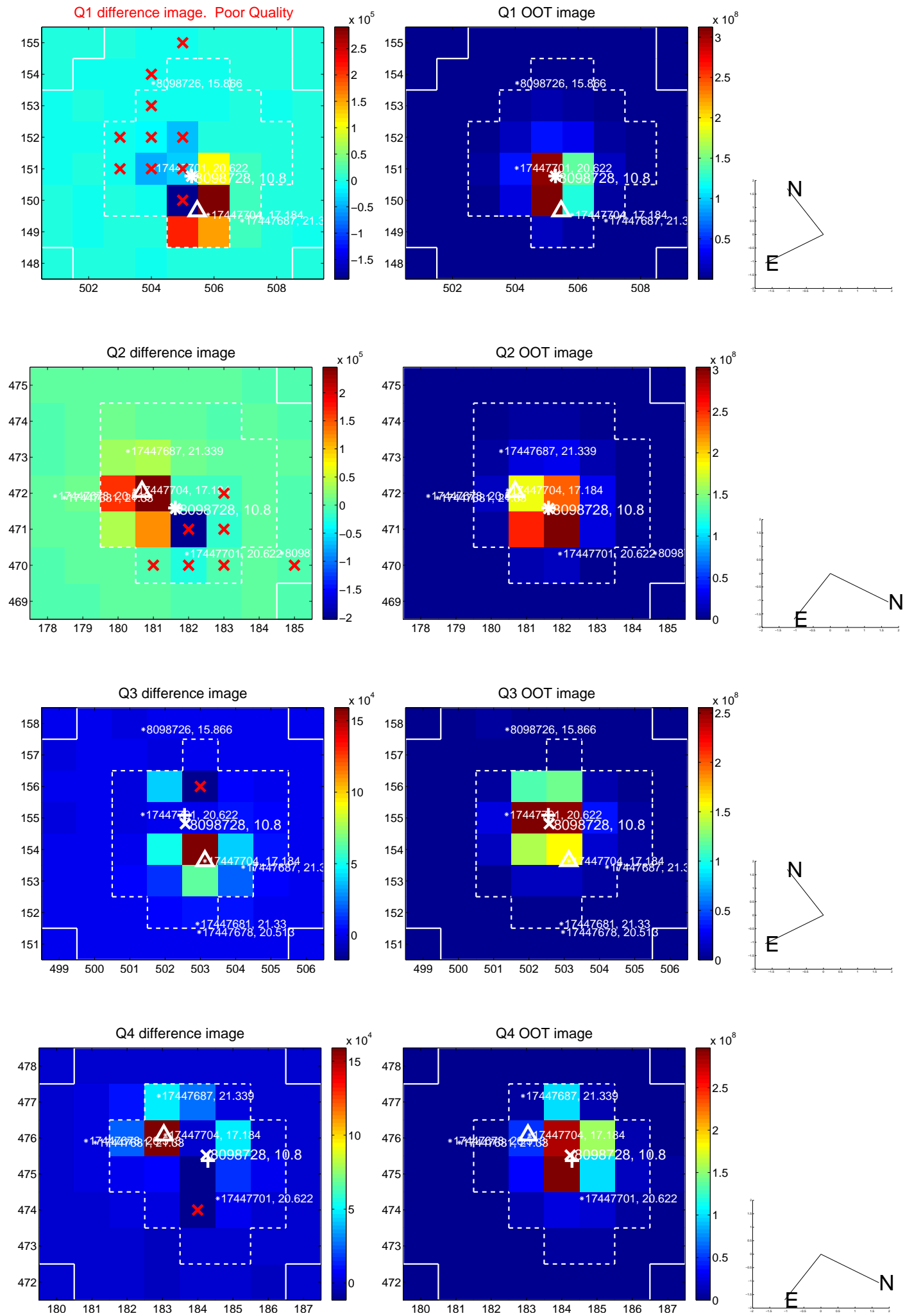
The direct PRF centroid is offset from the target star catalog position by about 0.59 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	5.409 \pm 0.206	26.28	0.772 \pm 0.145	-5.353 \pm 0.207
PRF-fit source offset from KIC position	5.092 \pm 0.112	45.39	0.690 \pm 0.117	-5.045 \pm 0.117
photometric centroid source offset	6.65 \pm 0.23	28.59	0.80 \pm 0.23	-6.60 \pm 0.23

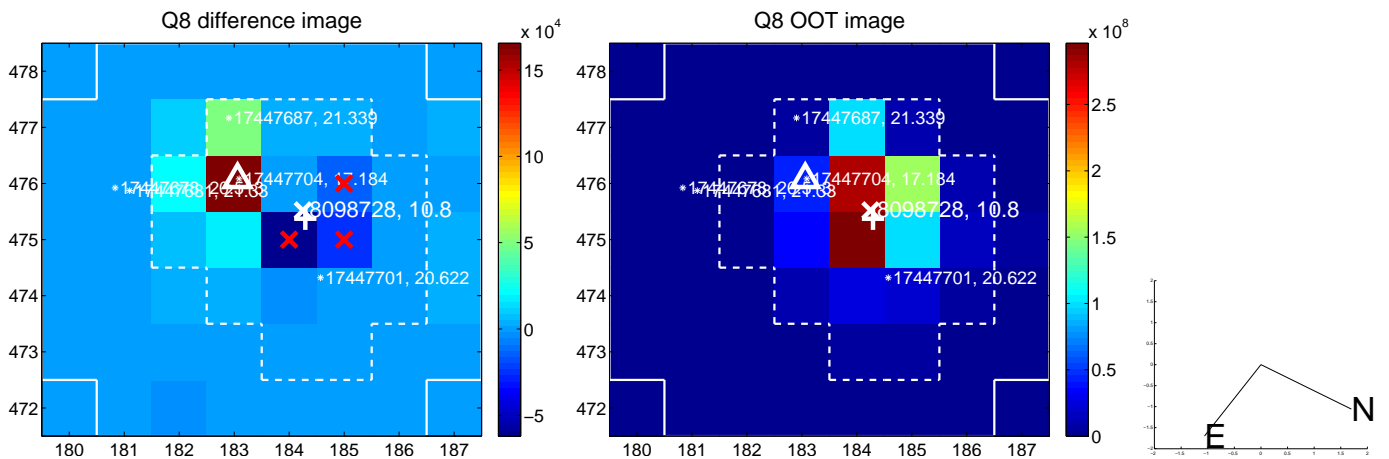
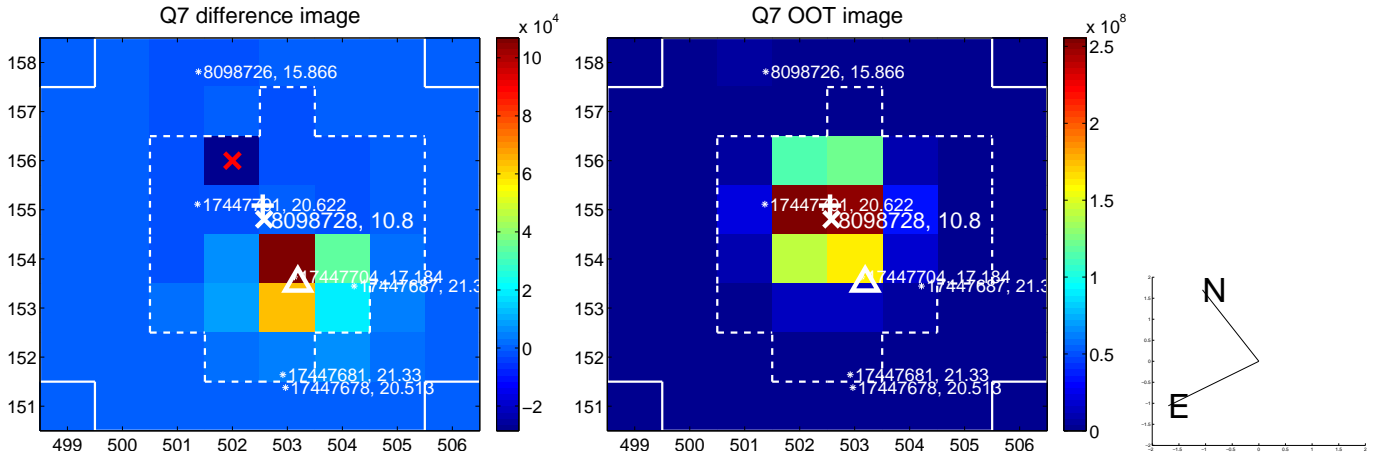
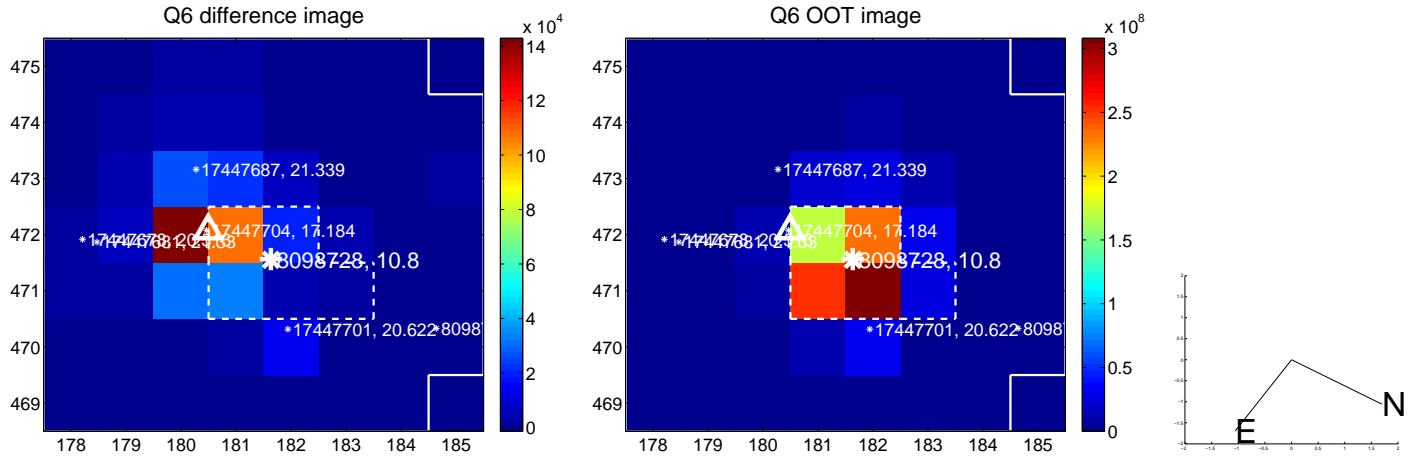
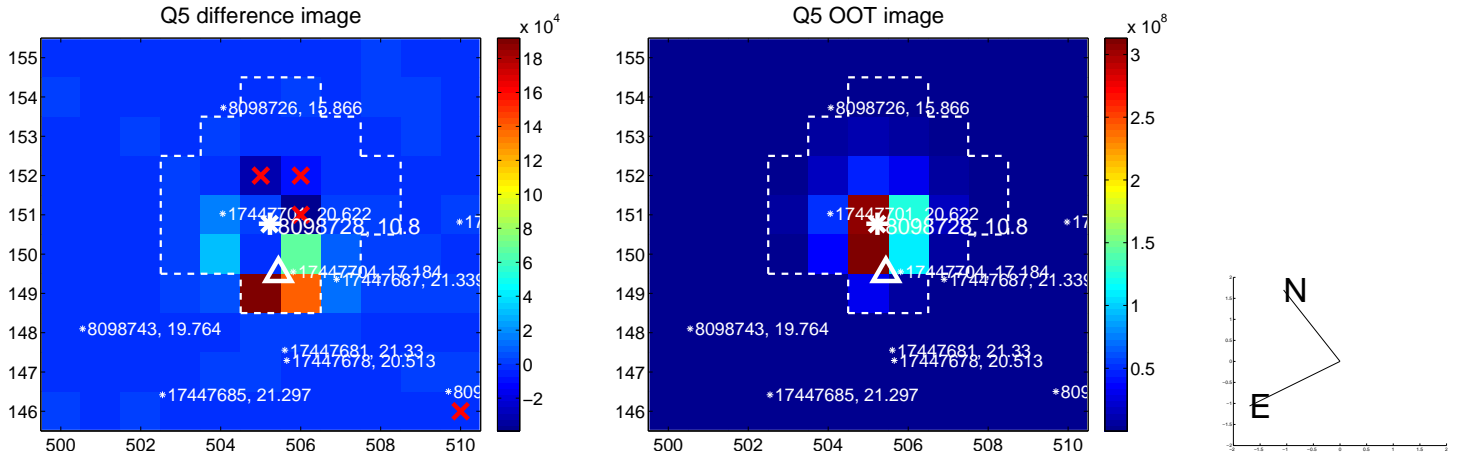


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets;** magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

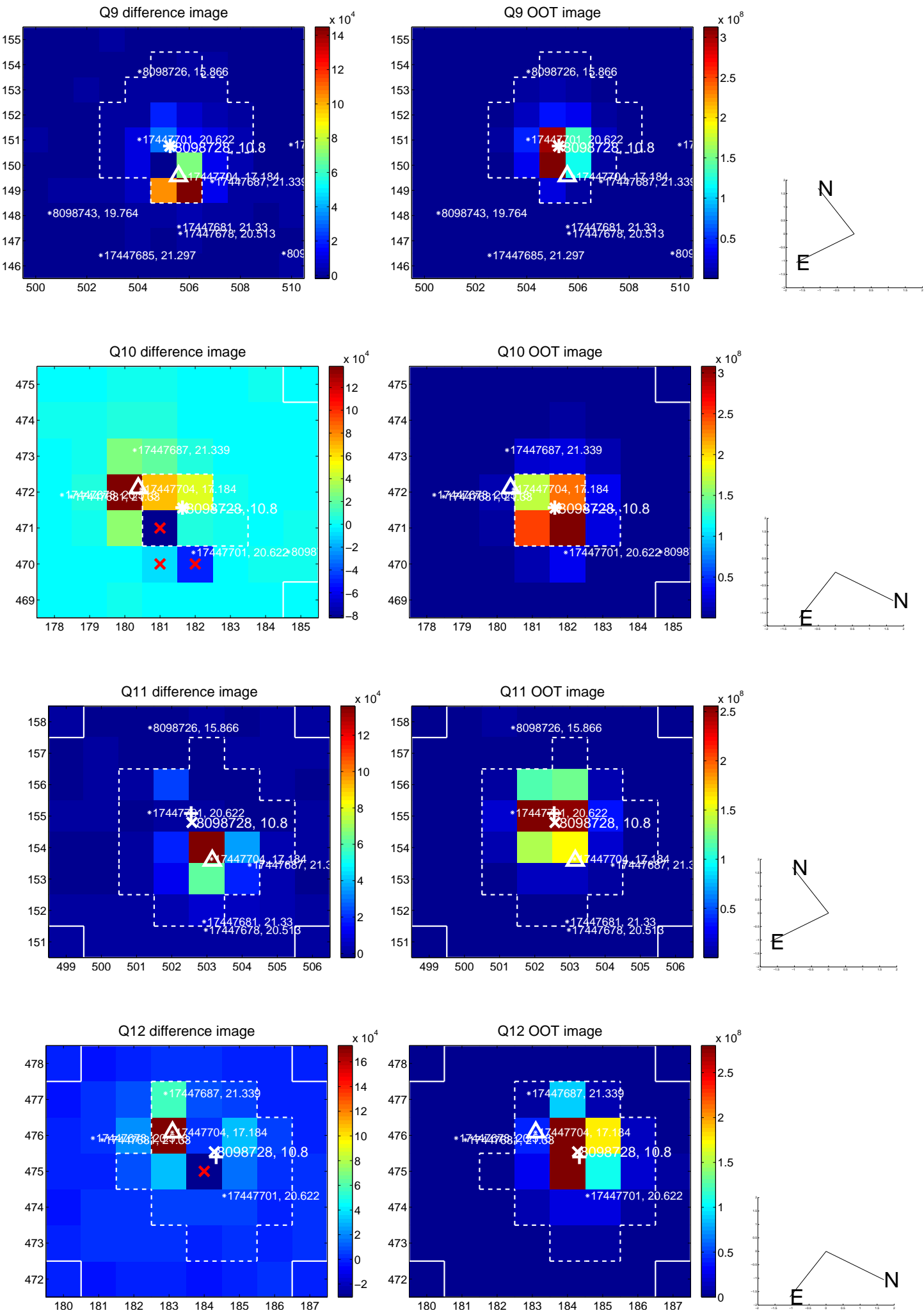
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



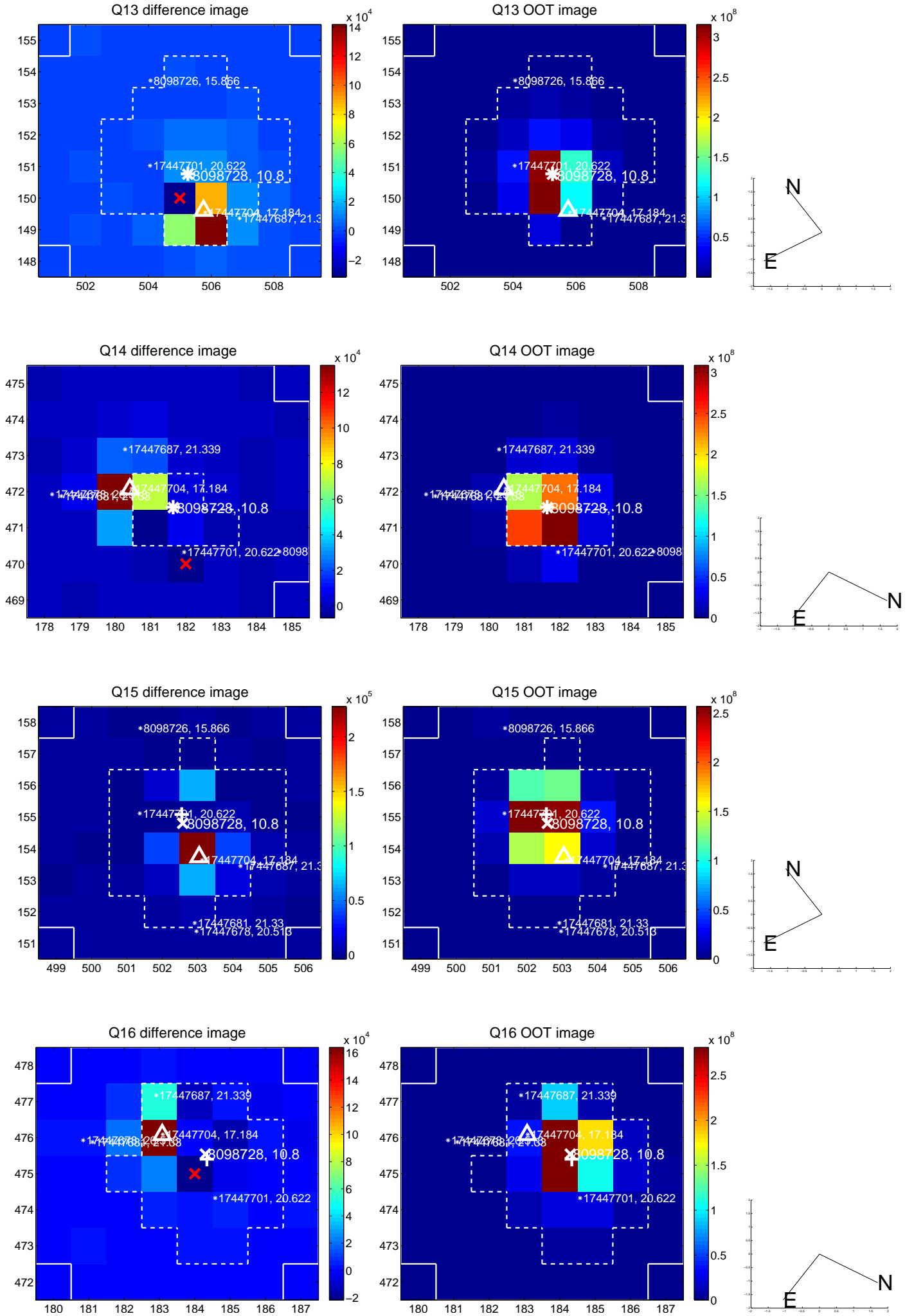
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



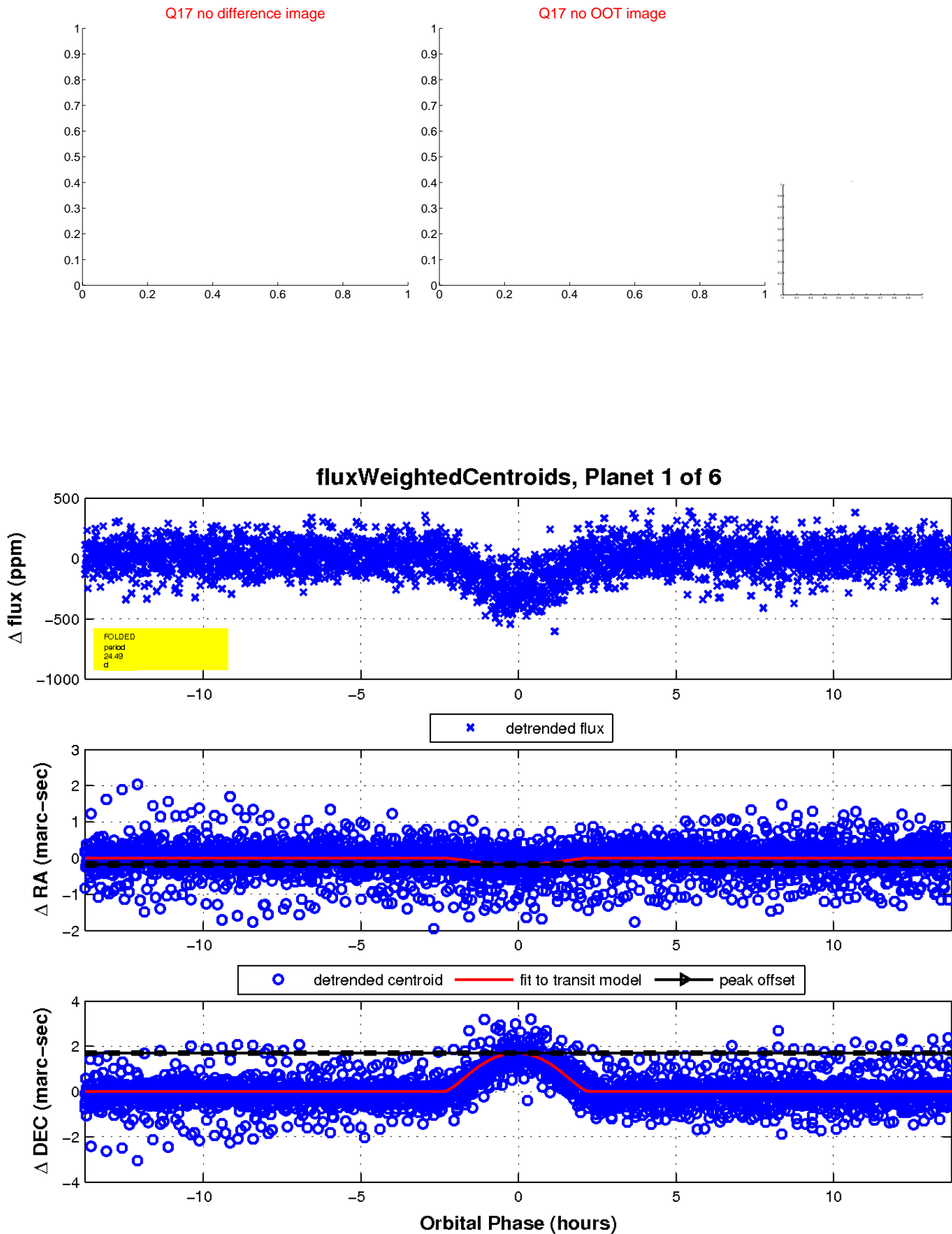
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

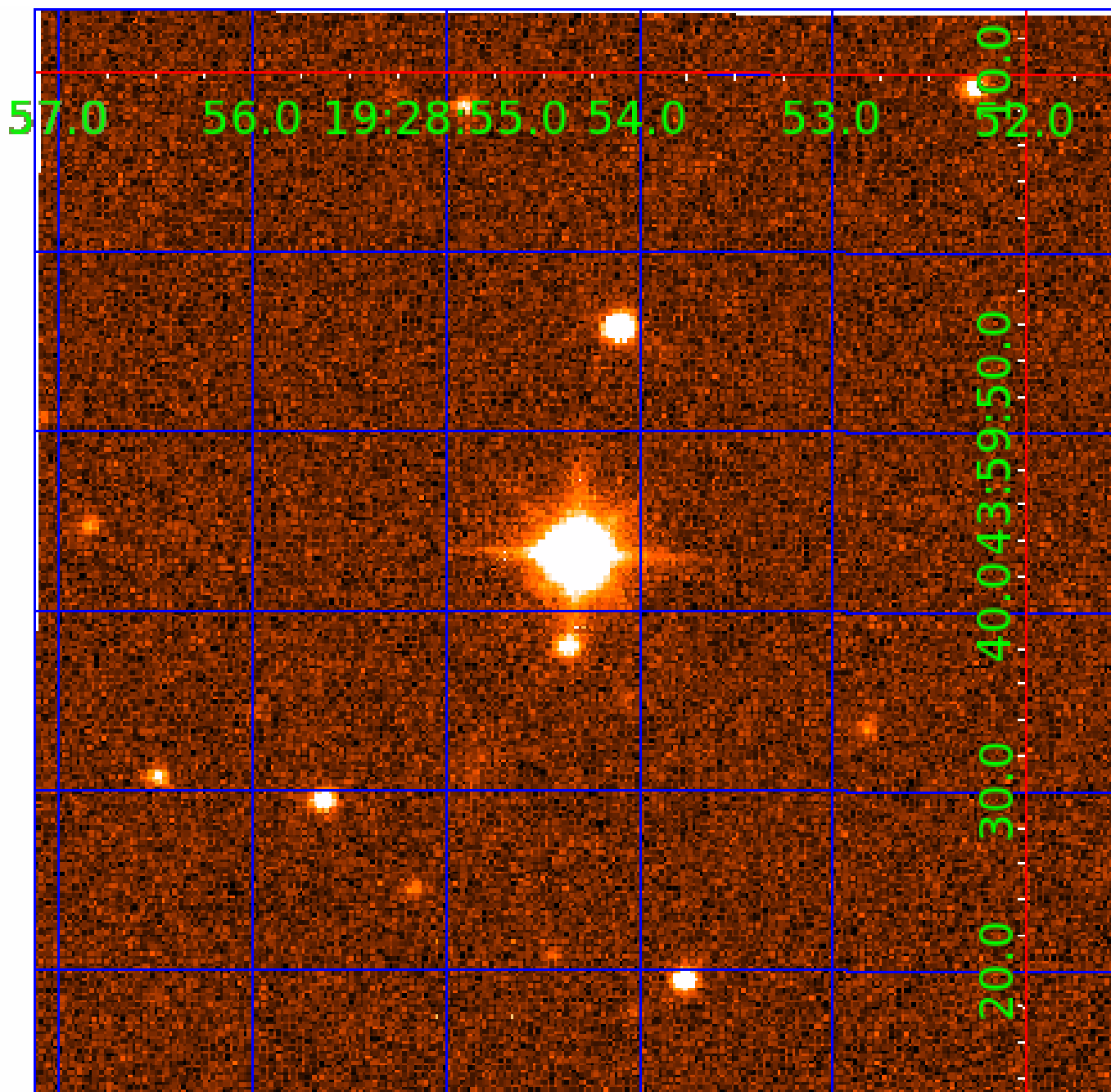


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 008098728

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})
008098728-01	OBS	2008.01	24.485180	137.619563	252.9	4.586	19.5	22.1	3.00	6655	7.77	457.66
008098728-02	OBS	No	24.485106	148.008072	201.5	4.767	16.5	18.2	3.00	6655	8.30	457.67
008098728-03	OBS	No	1.130177	131.980955	4.1	4.736	8.1	2.3	3.00	6655	0.63	27641.15
008098728-04	OBS	No	2.261616	131.645861	0.0	0.965	10.0	0.0	3.00	6655	0.00	10961.23
008098728-05	OBS	No	155.694681	177.525138	152.7	20.994	9.0	7.5	3.00	6655	3.95	38.85
008098728-06	OBS	No	190.370384	171.392528	236.7	2.551	8.6	7.7	3.00	6655	5.34	29.71

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
008098728-01	OBS	FP	0.00	0	1	0	0	MOD_SEC_DV—MOD_SEC_ALT—HAS_SEC_TCE—CENT_SATURATED
008098728-02	OBS	FP	0.00	1	1	0	0	IS_SEC_TCE—CENT_SATURATED
008098728-03	OBS	FP	0.00	1	0	0	0	SWEET_NTL—LPP_DV—LPP_ALT—MOD_NONUNIQ_ALT—CENT_SATURATED
008098728-04	OBS	FP	0.00	1	0	0	0	TRANS_GAPPED—SWEET_NTL—LPP_DV—LPP_ALT—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_SATURATED
008098728-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_SATURATED
008098728-06	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_MARSHALL—TRANS_GAPPED—ALL_TRANS_CHASES—MOD_NONUNIQ_ALT—INCONSISTENT_TRANS—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.

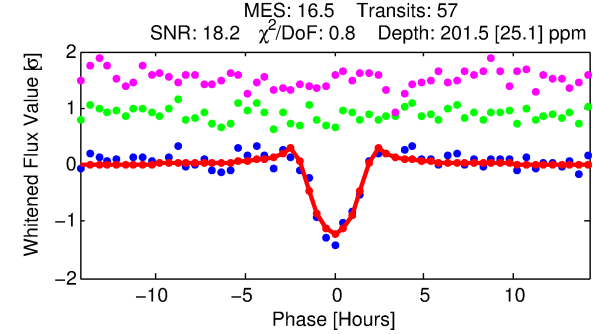
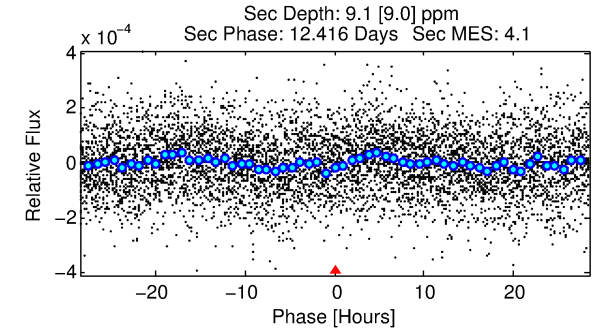
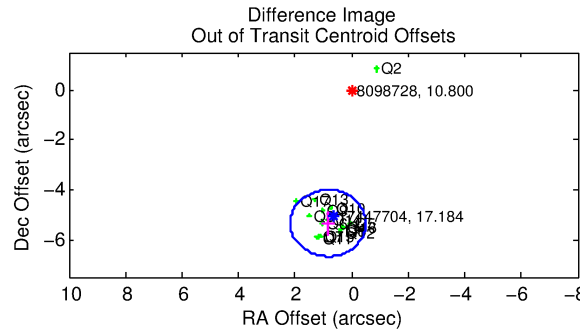
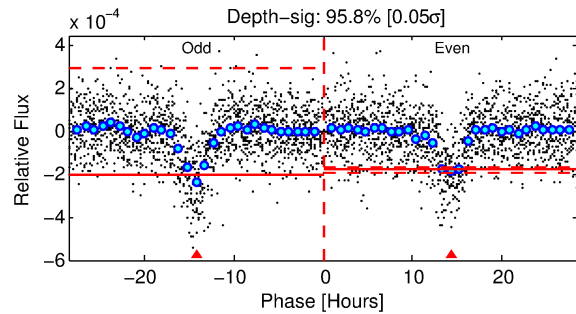
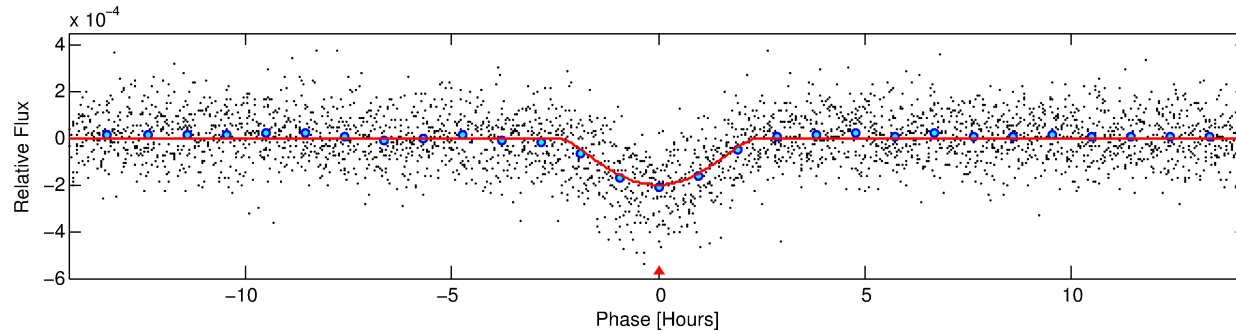
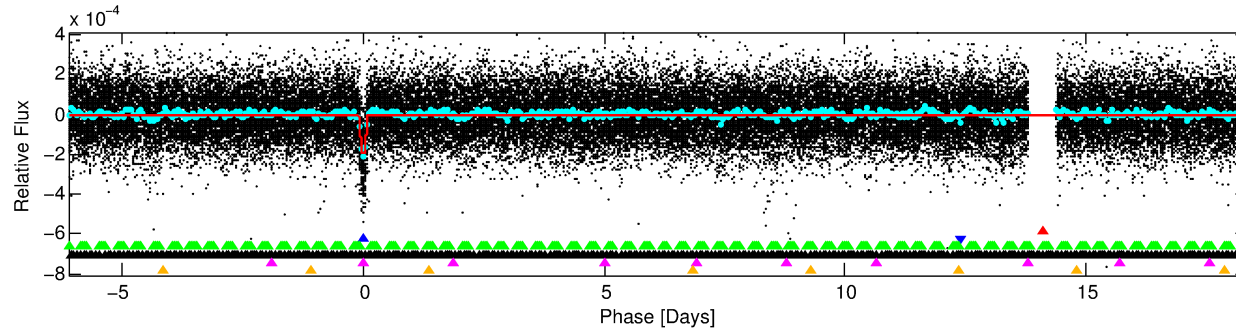
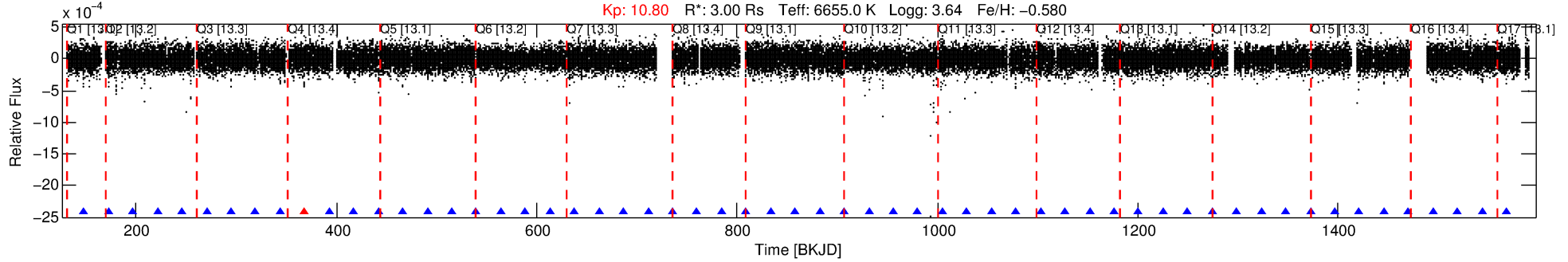
Ephemeris Match Information For 008098728-02

No Significant Match Found

DV One-Page Summary

KIC: 8098728 Candidate: 2 of 6 Period: 24.485 d
KOI: K02008 Corr: No Ephemeris Match

Kp: 10.80 R*: 3.00 Rs Teff: 6655.0 K Logg: 3.64 Fe/H: -0.580



DV Fit Results:

Period = 24.48511 [0.00014] d
Epoch = 148.0081 [0.0047] BKJD
Rp/R* = 0.0254 [0.0289]
a/R* = 8.99 [2.73]
b = 1.00 [0.04]
Seff = 457.67 [270.31]
Teq = 1179 [174] K
Rp = 8.31 [9.99] Re
a = 0.1856 [0.0684] AU
Ag = 2.50 [6.36] [0.24σ]
Teffp = 2292 [1423] K [0.78σ]

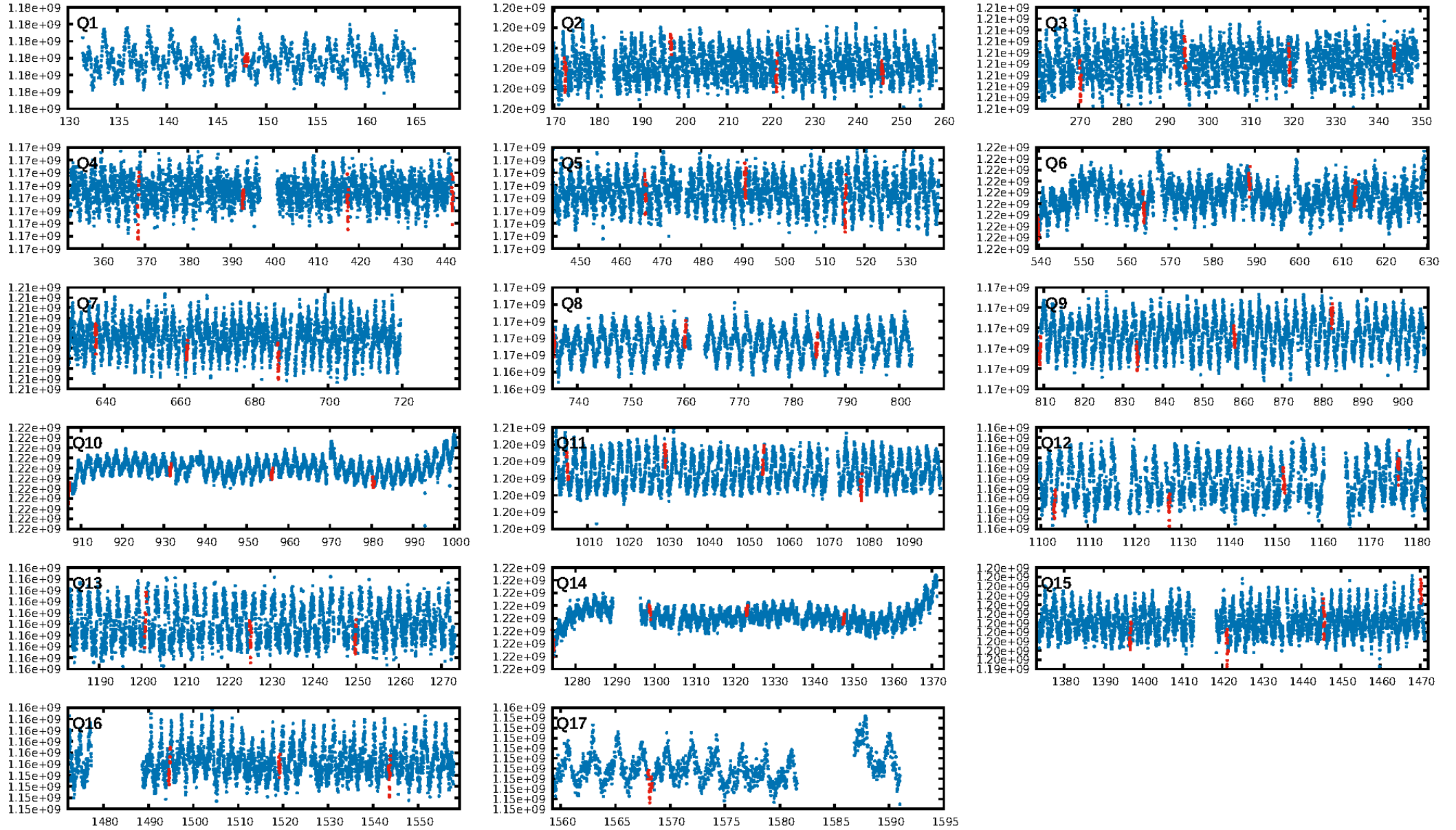
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [109.66σ]
LongPeriod-sig: 0.0% [0.00σ]
ModelChiSquare2-sig: 27.9%
ModelChiSquareGof-sig: 100.0%
Bootstrap-pfa: 8.19e-36
RollingBand-fgt: 0.98 [54/55]
GhostDiagnostic-chr: 0.7339
Centroid-sig: 0.0%
Centroid-so: 7.016 arcsec [24.40σ]
OotOffset-rm: 5.412 arcsec [12.16σ]
KicOffset-rm: 4.967 arcsec [13.67σ]
OotOffset-st: 4/4/4/4 [16]
KicOffset-st: 4/4/4/4 [16]
DiffImageQuality-fgm: 0.94 [15/16]
DiffImageOverlap-fno: 0.24 [4/17]

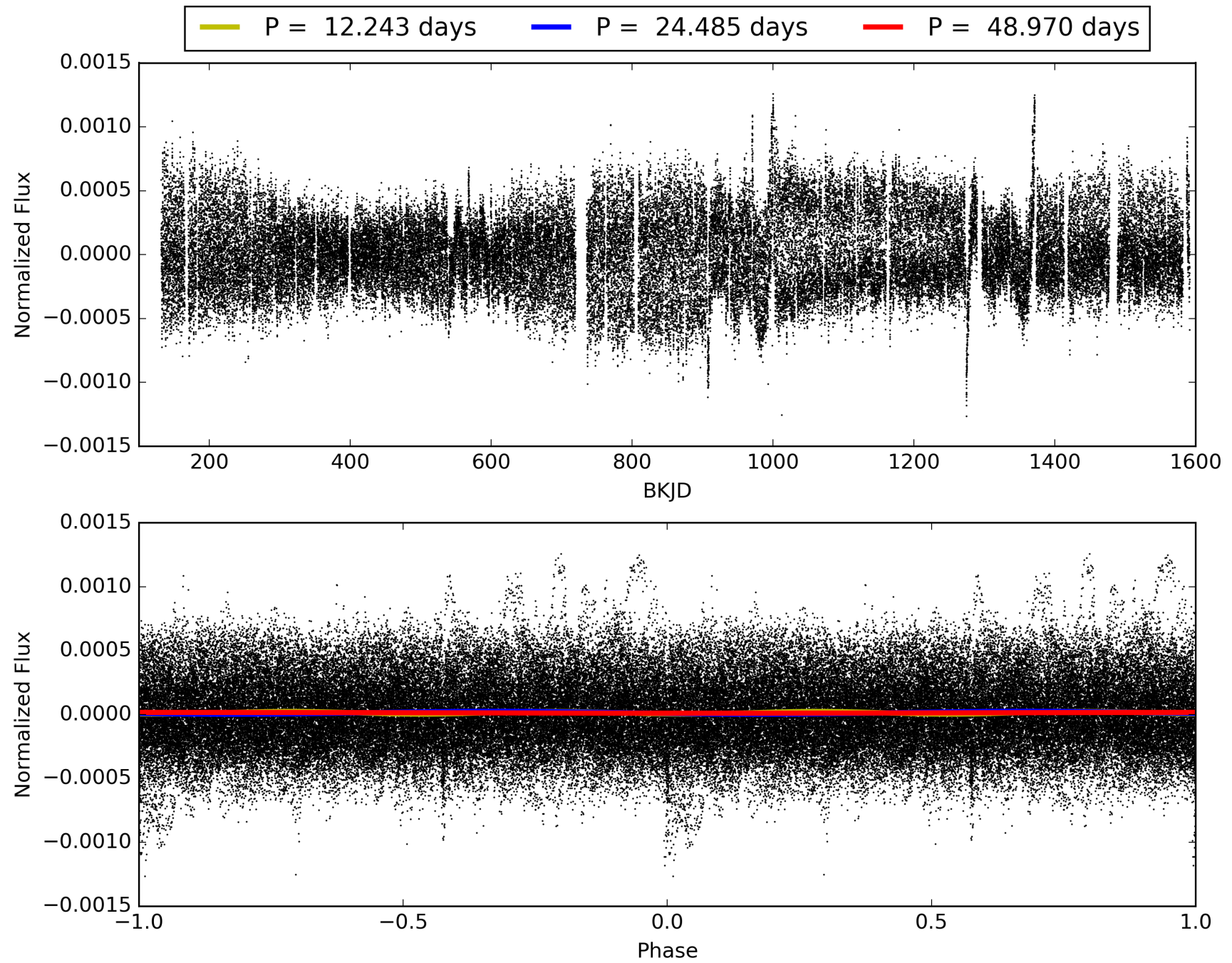
Software Revision: svn-ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 01-Feb-2016 17:38:20 Z

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

TCE 008098728-02, PDC Light Curves

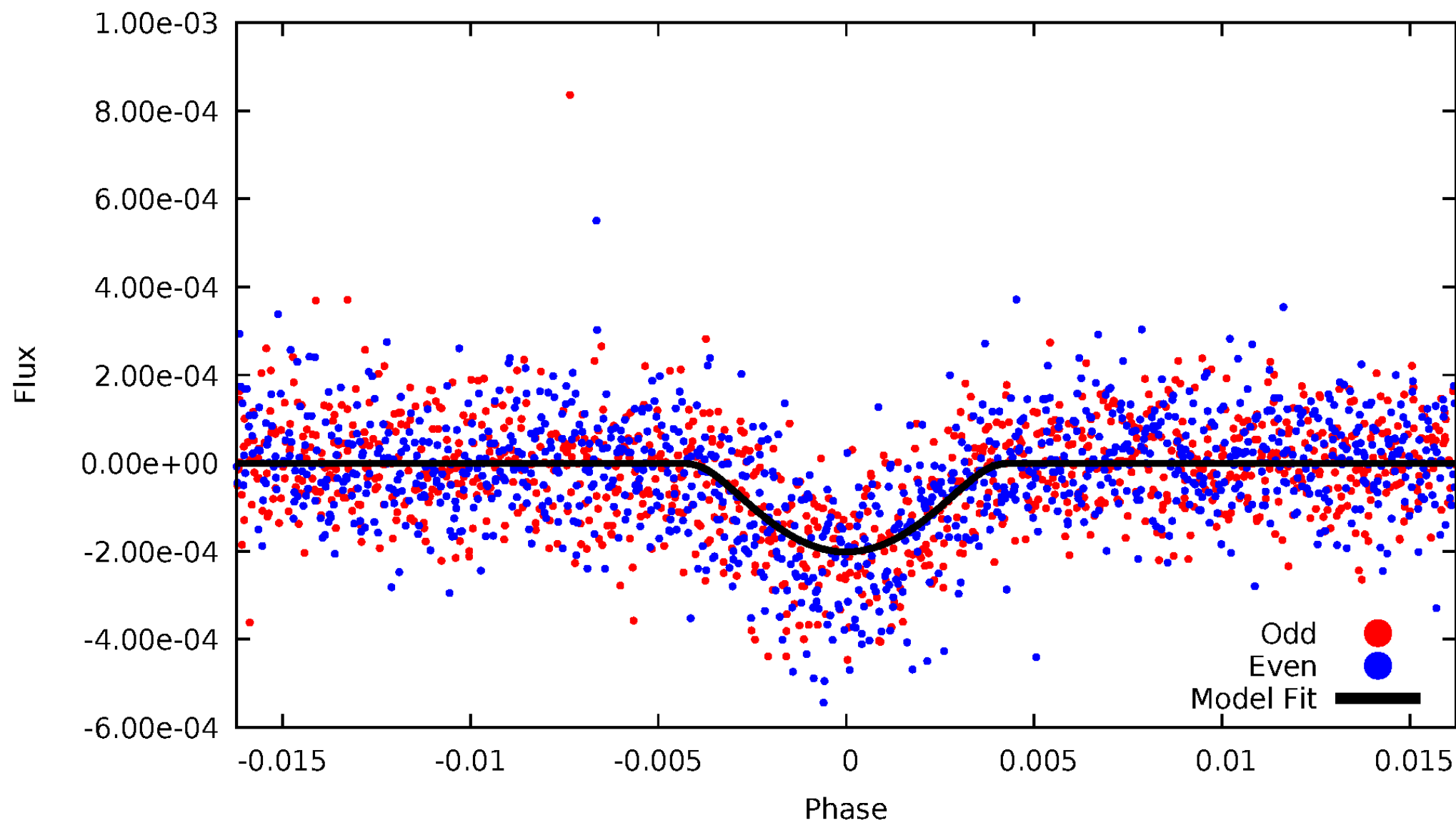


TCE 008098728-02



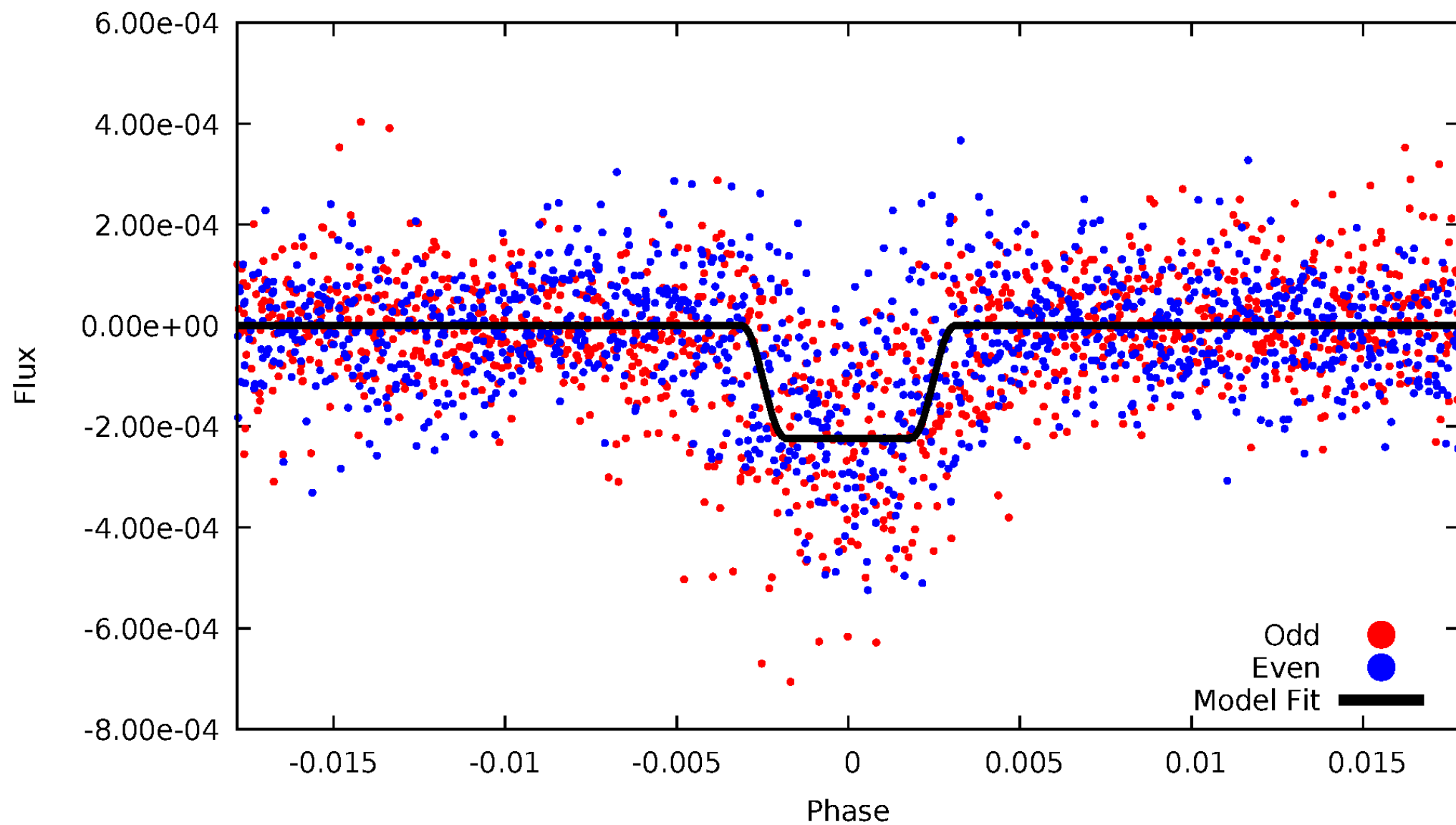
DV Odd/Even

TCE 008098728-02



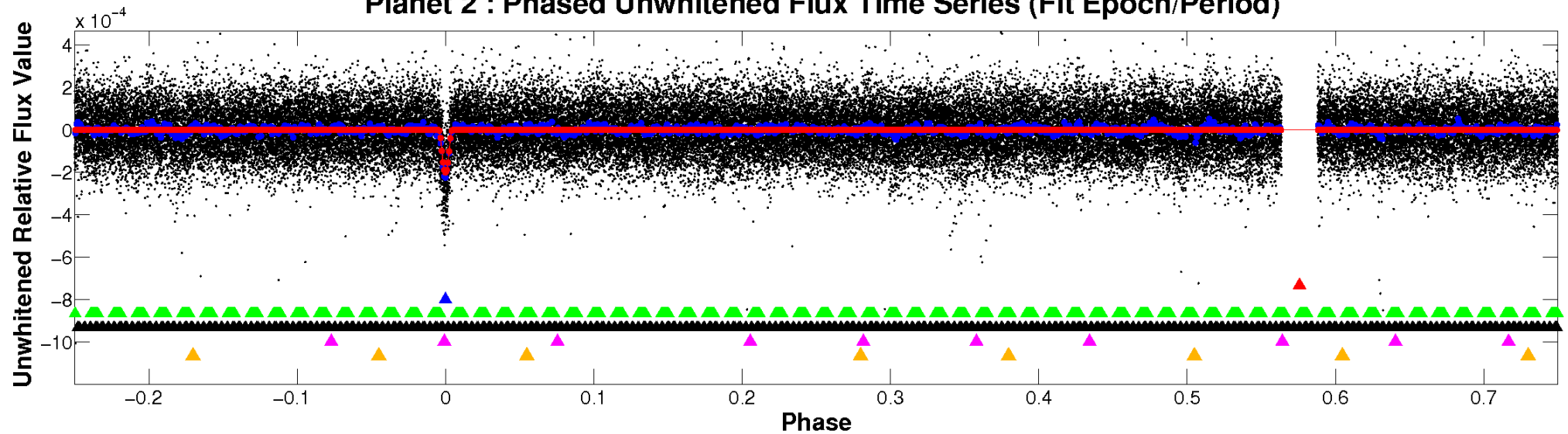
ALT Odd/Even

TCE 008098728-02

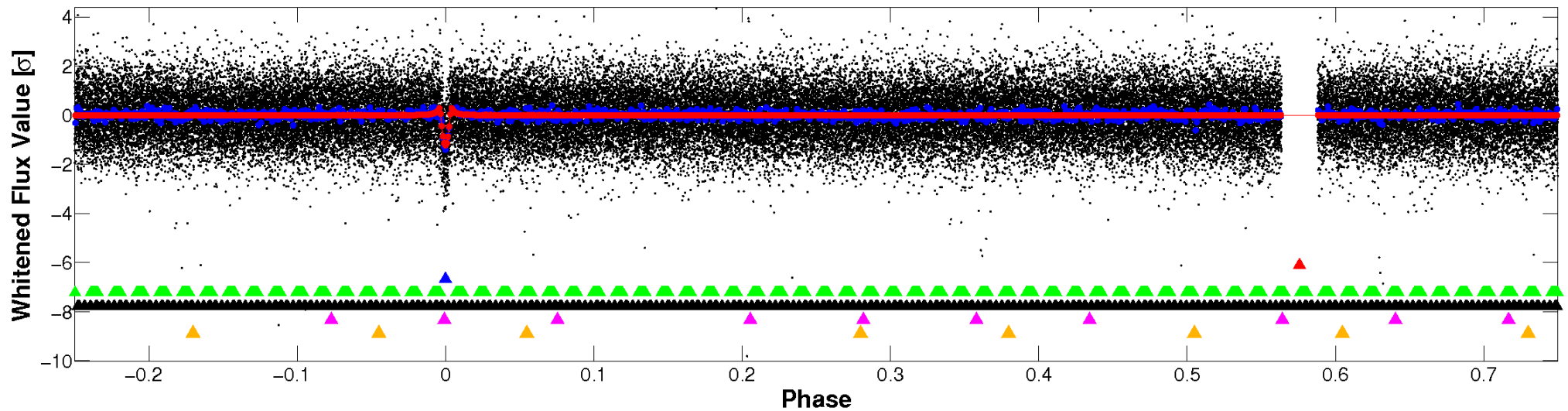


Non-Whitened Vs. Whitened Light Curve

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

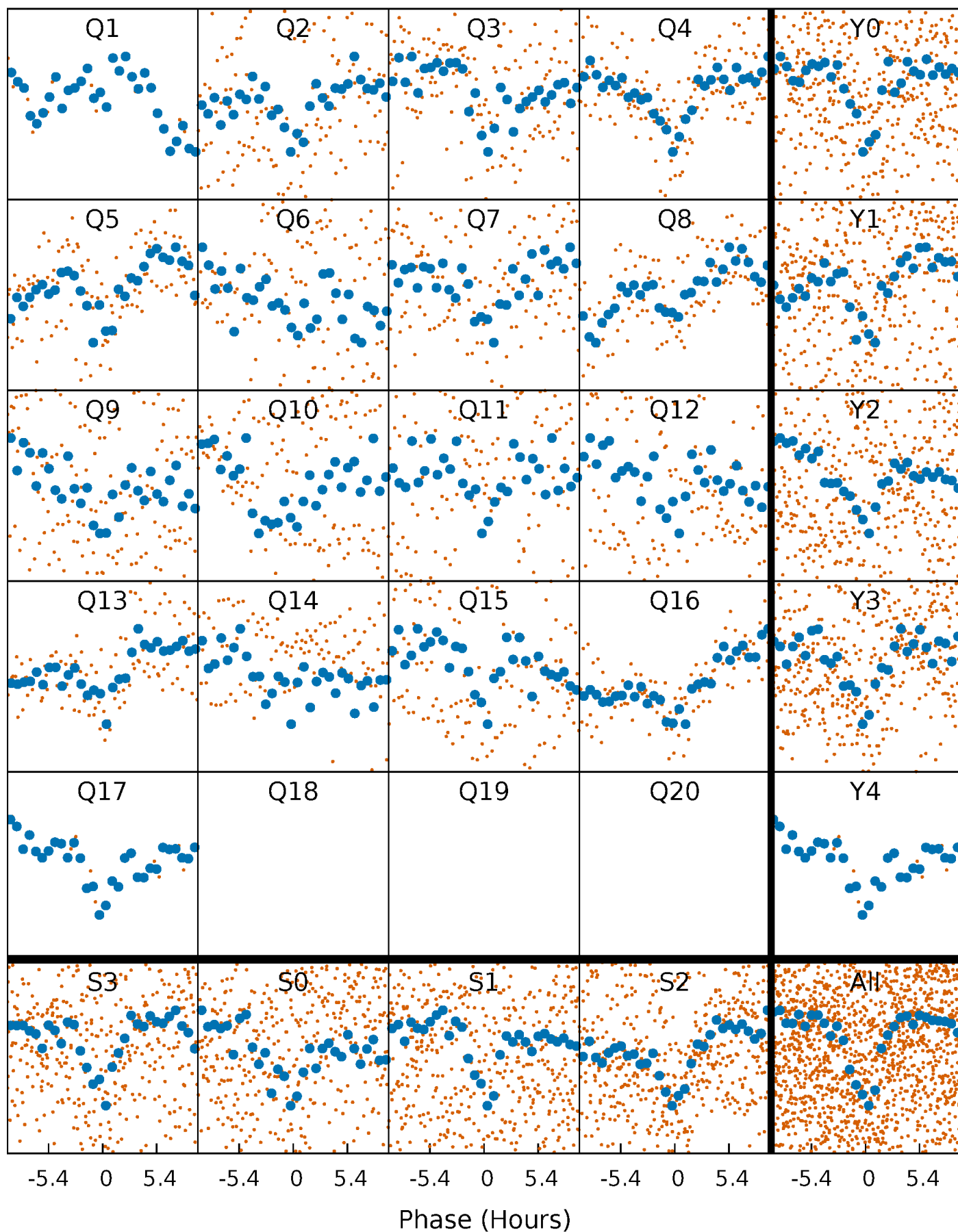


Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



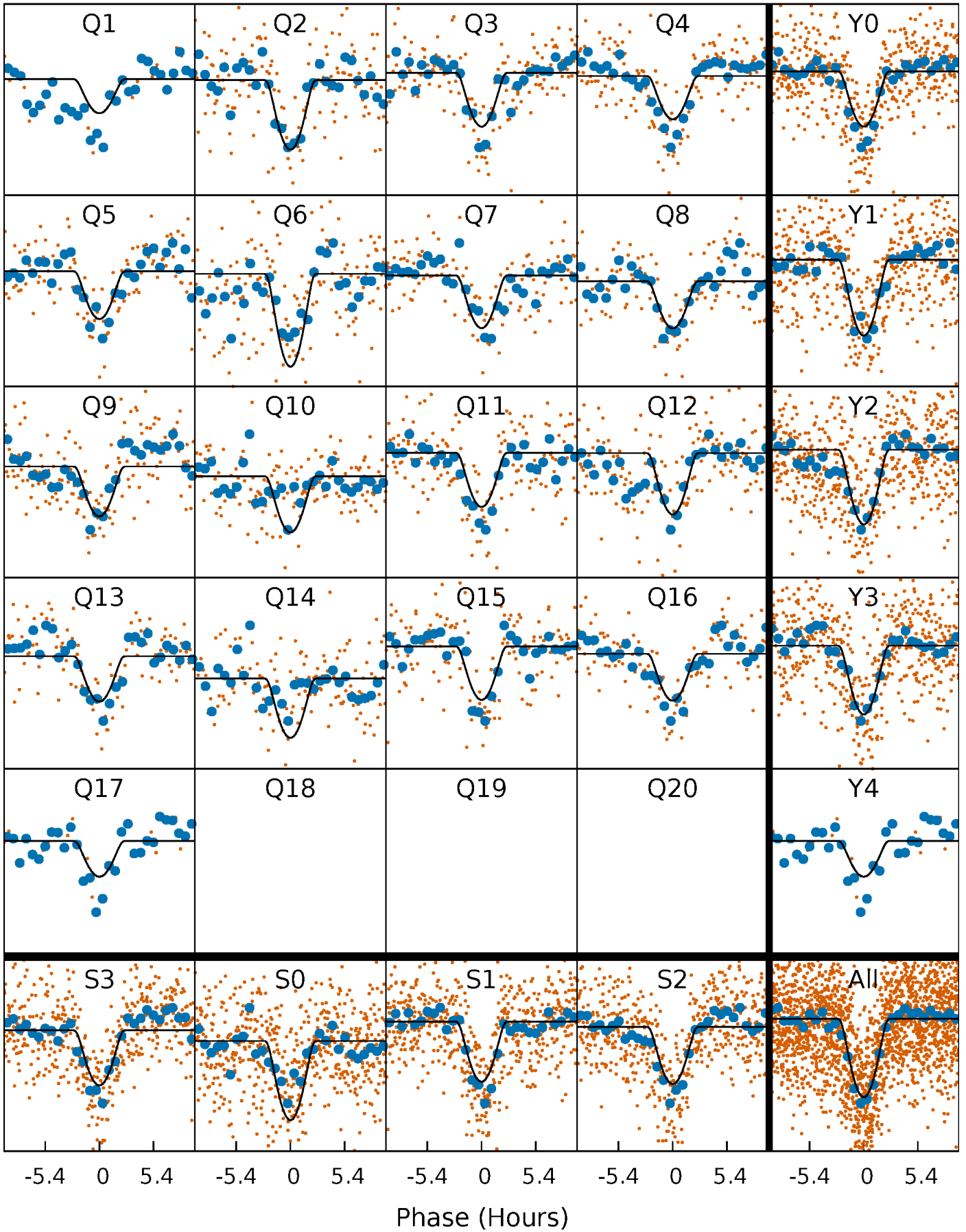
PDC Quarter-Phased Transit Curves

TCE 008098728-02 P= 24.485106 Days $T_0=148.008072$ (BKJD)



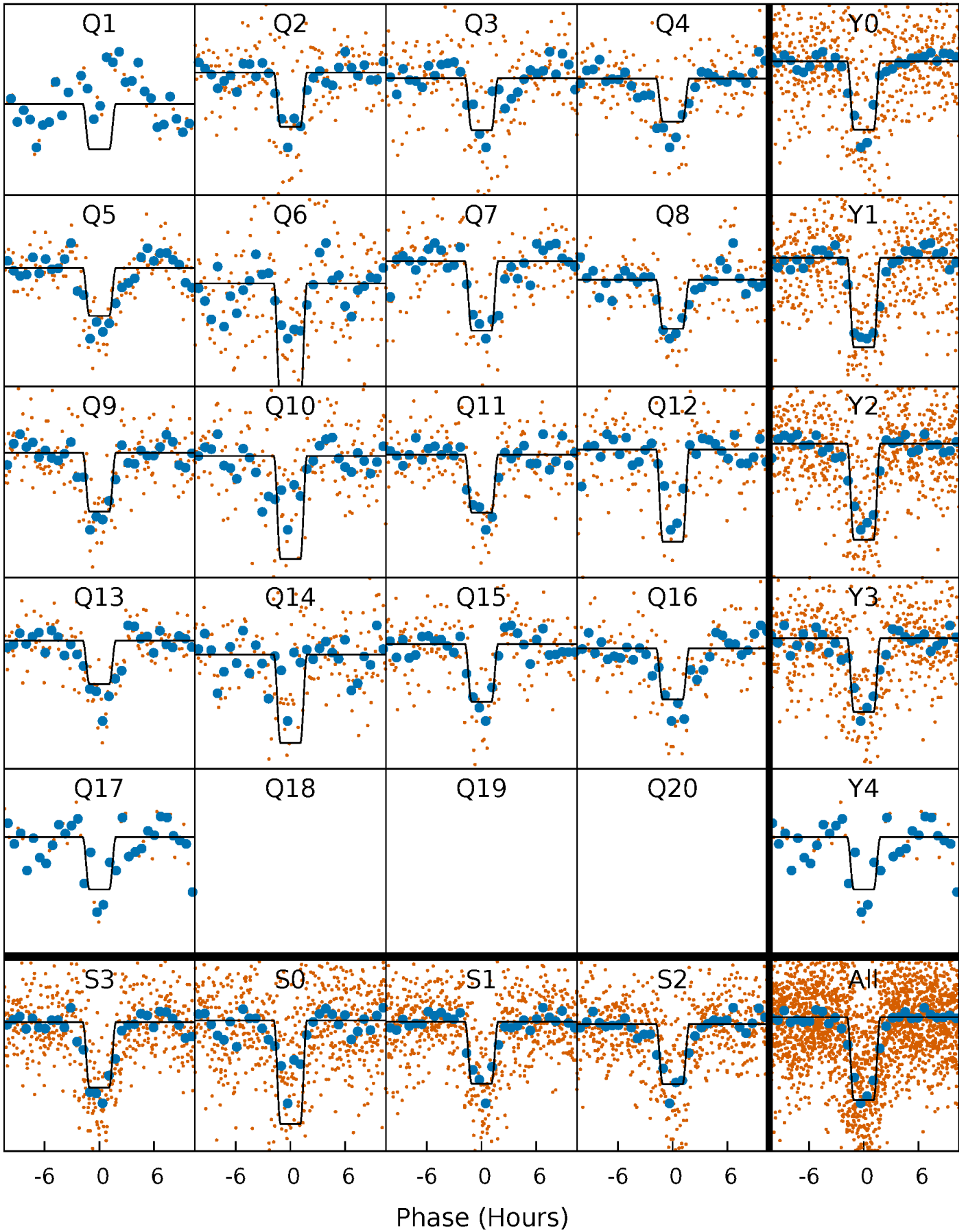
DV Quarter-Phased Transit Curves

TCE 008098728-02 P= 24.485106 Days $T_0=148.008072$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

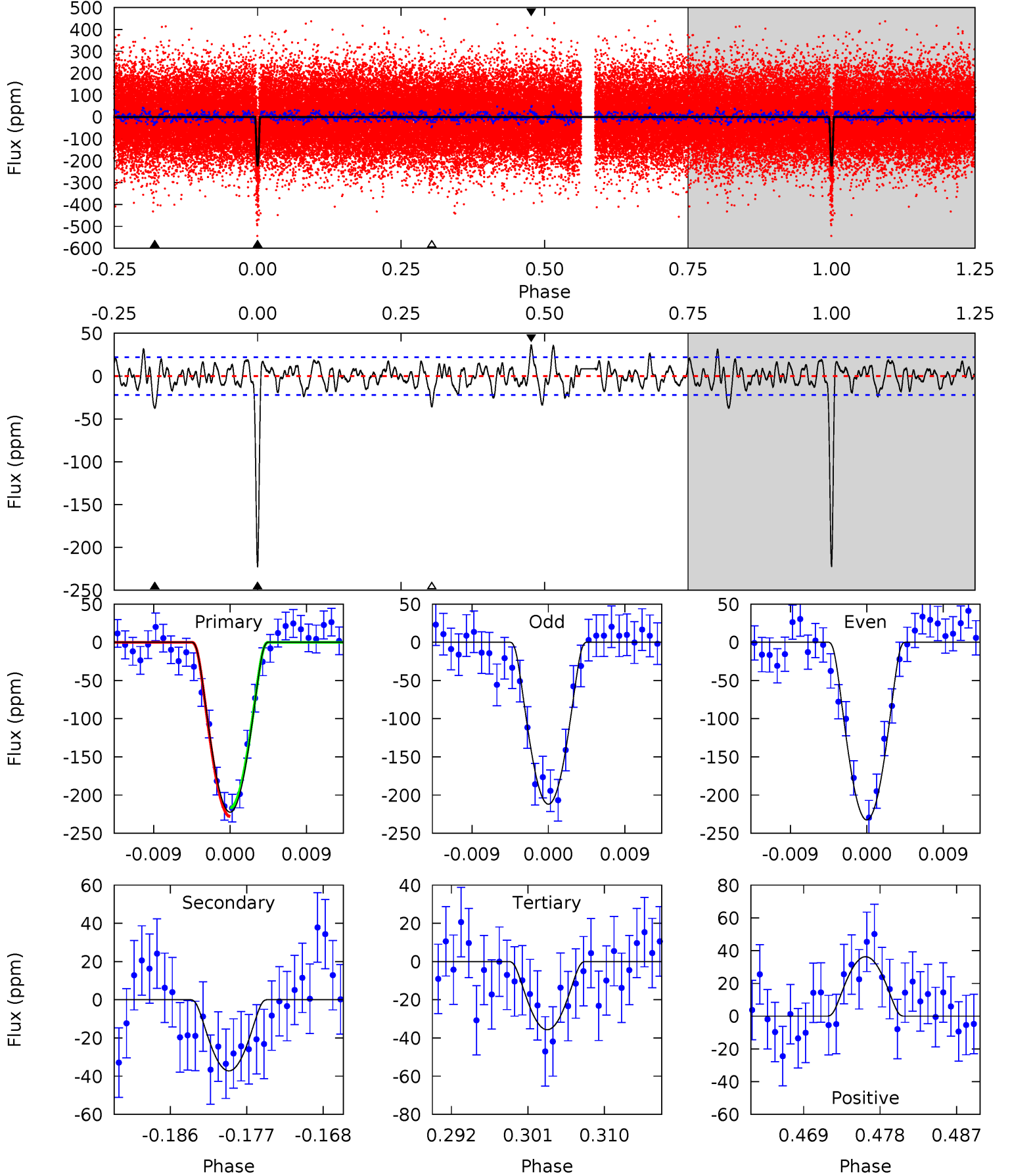
TCE 008098728-02 $P = 24.484932$ Days $T_0 = 148.011899$ (BKJD)



DV Model-Shift Uniqueness Test

008098728-02, P = 24.485106 Days, E = 123.522966 Days

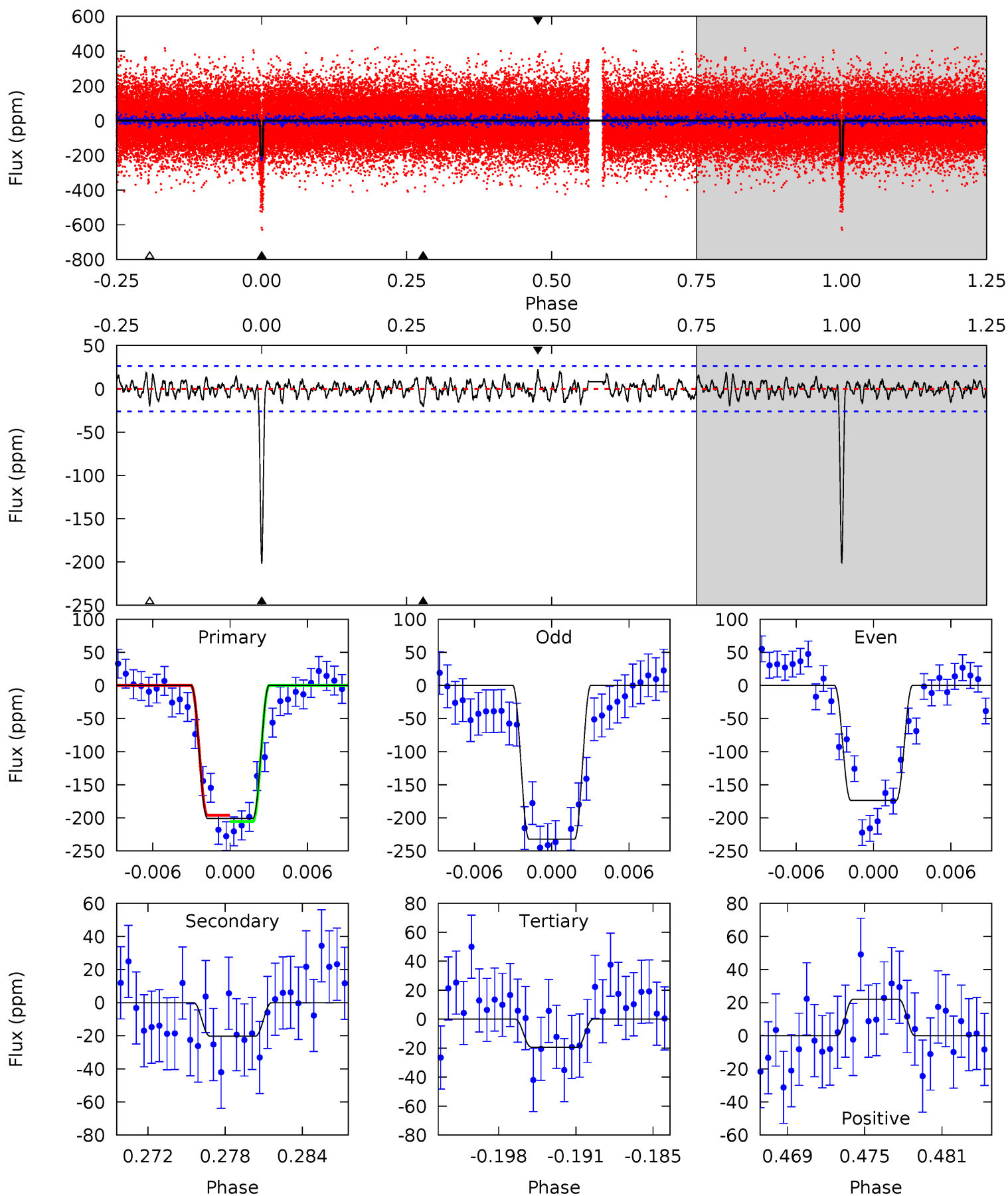
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
51.2	8.57	8.22	8.35	5.05	2.62	2.48	43.0	42.9	0.35	0.22	2.37	1.02	0.14	1.30



Alt Model-Shift Uniqueness Test

008098728-02, P = 24.484932 Days, E = 123.526967 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
39.3	3.96	3.79	4.31	5.12	2.74	1.33	35.5	35.0	0.17	-0.35	5.75	1.00	0.10	0.90



Stellar Parameters For KIC 008098728

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	$M(M_{\odot})$	p_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	6655^{+168}_{-184}	$3.638^{+0.337}_{-0.112}$	$-0.580^{+0.350}_{-0.300}$	$2.995^{+0.506}_{-1.180}$	$1.420^{+0.220}_{-0.330}$	$0.074^{+0.188}_{-0.026}$
	+3%/-3%	+9%/-3%	+60%/-52%	+17%/-39%	+15%/-23%	+253%/-34%
Source	PHO1	FLK73	KIC0	DSEP		

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

Secondary Eclipse Parameters for KIC 008098728-02 / KOI

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	-37 ± 4	$9.59^{+8.08}_{-6.25}$	1615^{+109}_{-165}	3388^{+1491}_{-552}	$7.434^{+53.562}_{-5.101}$
Alt.	-20 ± 5	$8.51^{+7.58}_{-5.67}$	1624^{+101}_{-152}	3237^{+1471}_{-607}	$5.381^{+40.108}_{-3.983}$

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 $A_{obs} \gg 1.0$

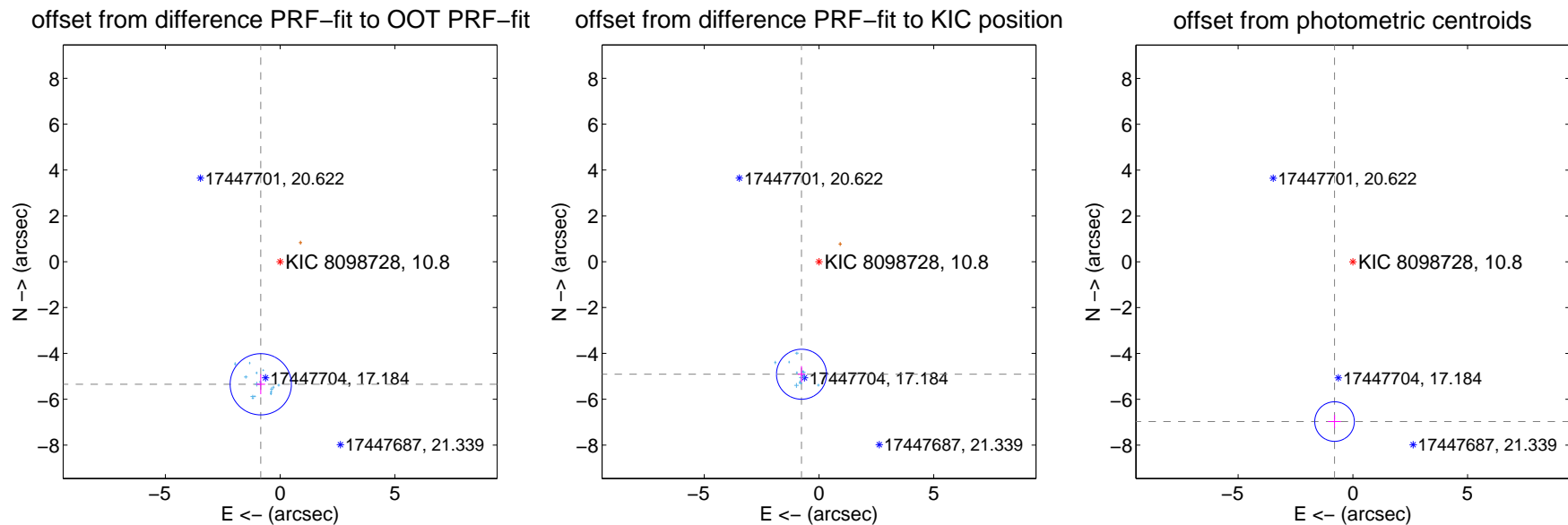
DV Centroid Data

Supplemental centroid analysis for 008098728-02. **Kepler magnitude: 10.80**. Transit SNR 18.25

There are 15 quarters with good PRF difference image offsets

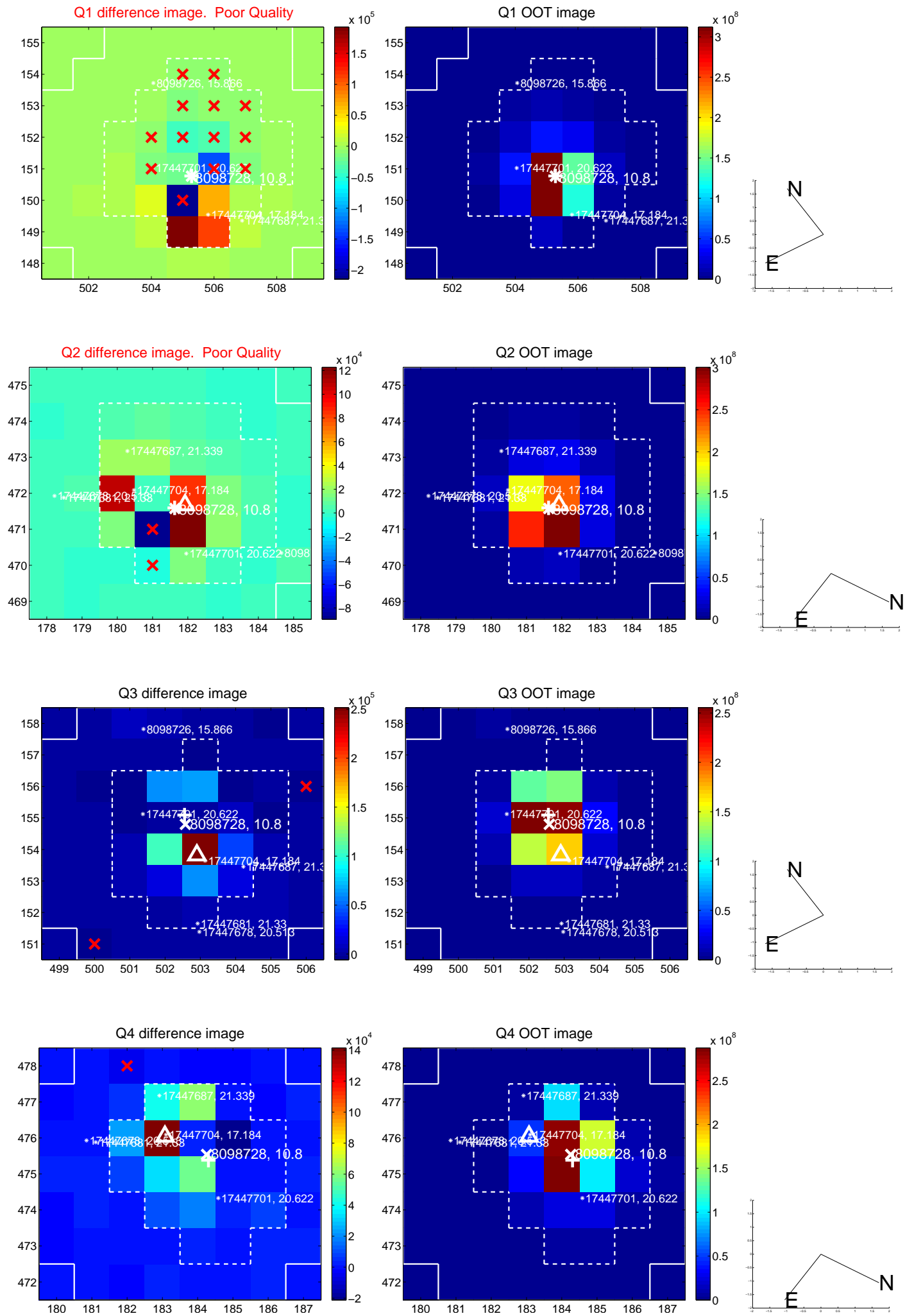
The direct PRF centroid is offset from the target star catalog position by about 0.08 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	5.412 \pm 0.445	12.16	0.843 \pm 0.192	-5.346 \pm 0.433
PRF-fit source offset from KIC position	4.967 \pm 0.363	13.67	0.762 \pm 0.160	-4.908 \pm 0.354
photometric centroid source offset	7.02 \pm 0.29	24.40	0.80 \pm 0.28	-6.97 \pm 0.29

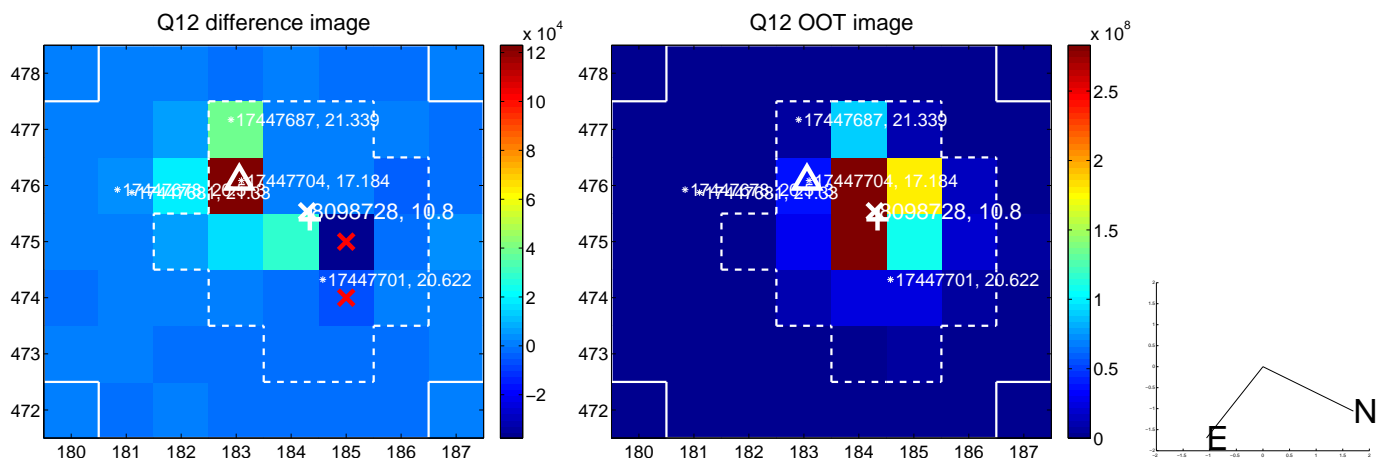
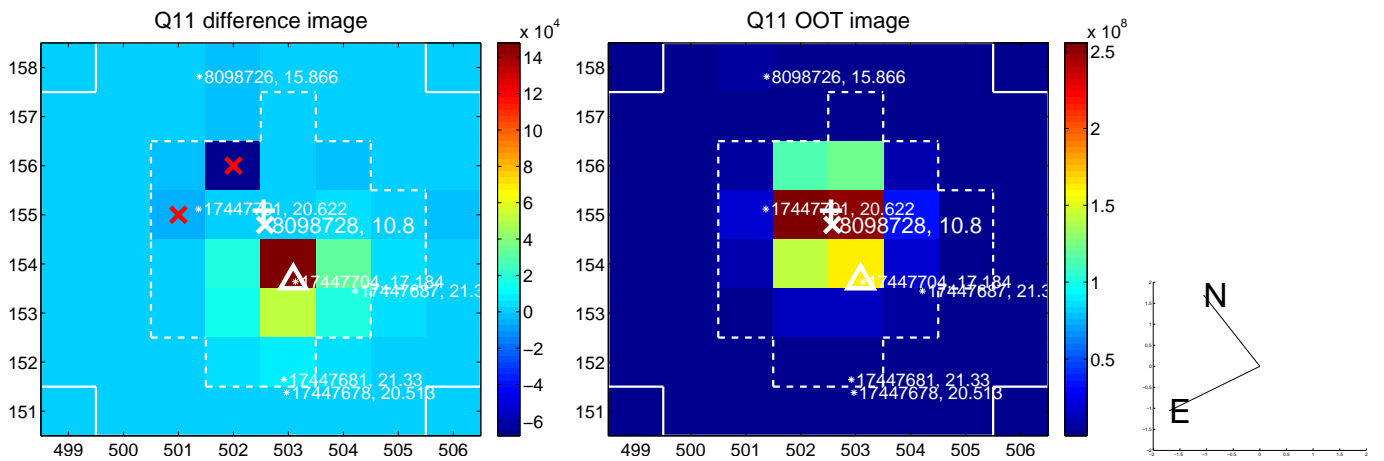
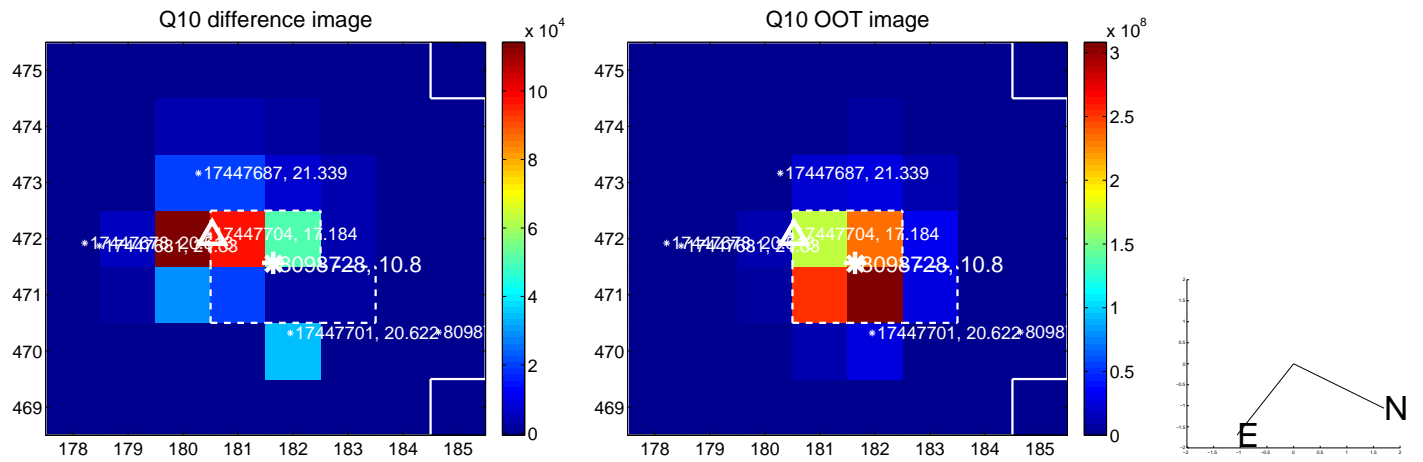
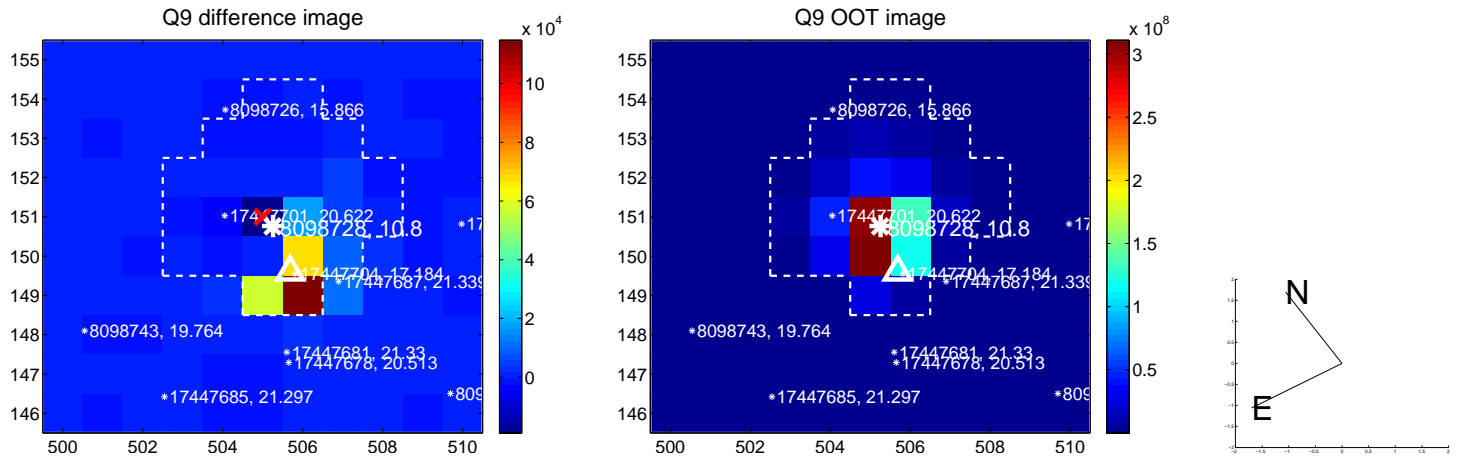


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

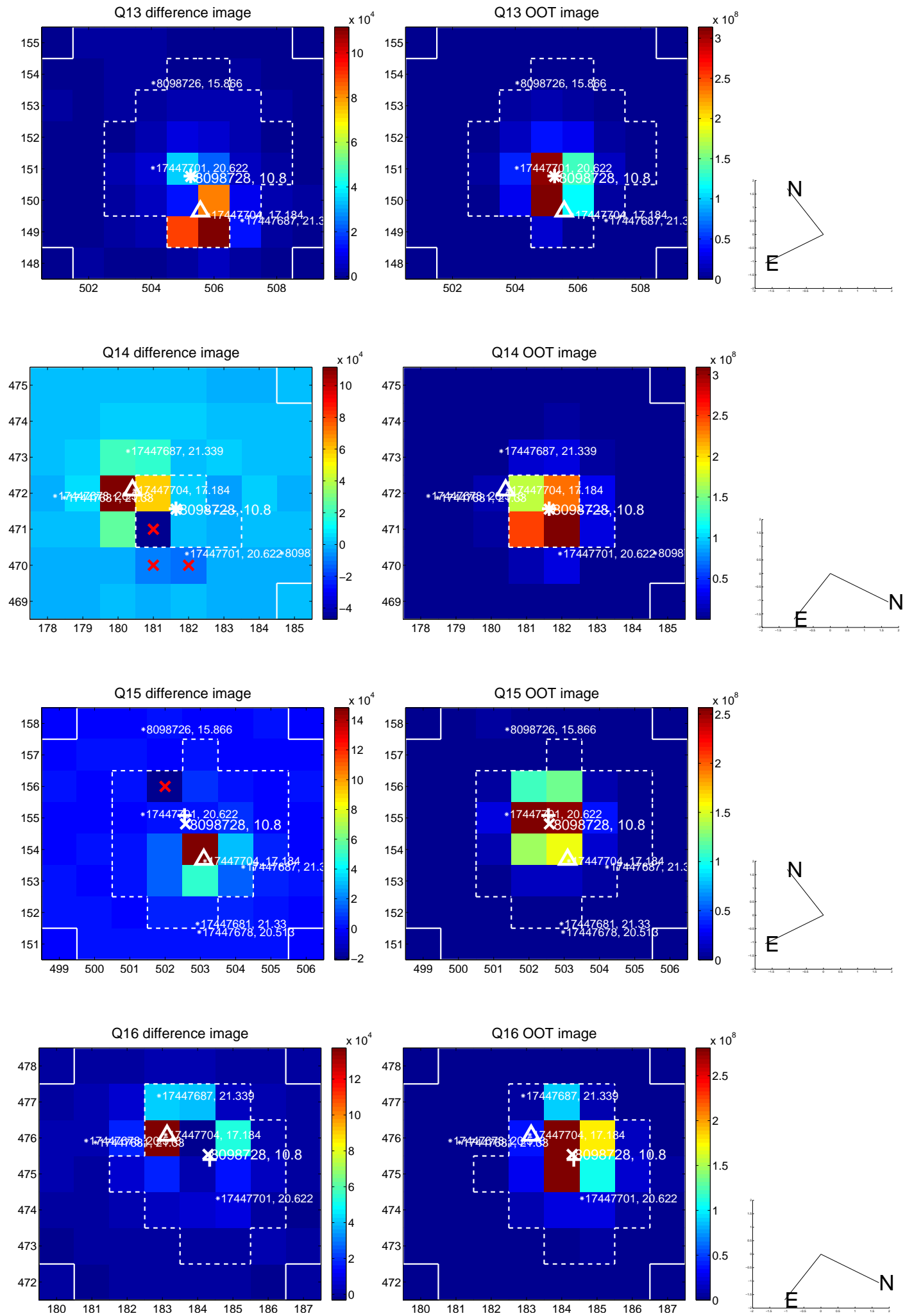
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



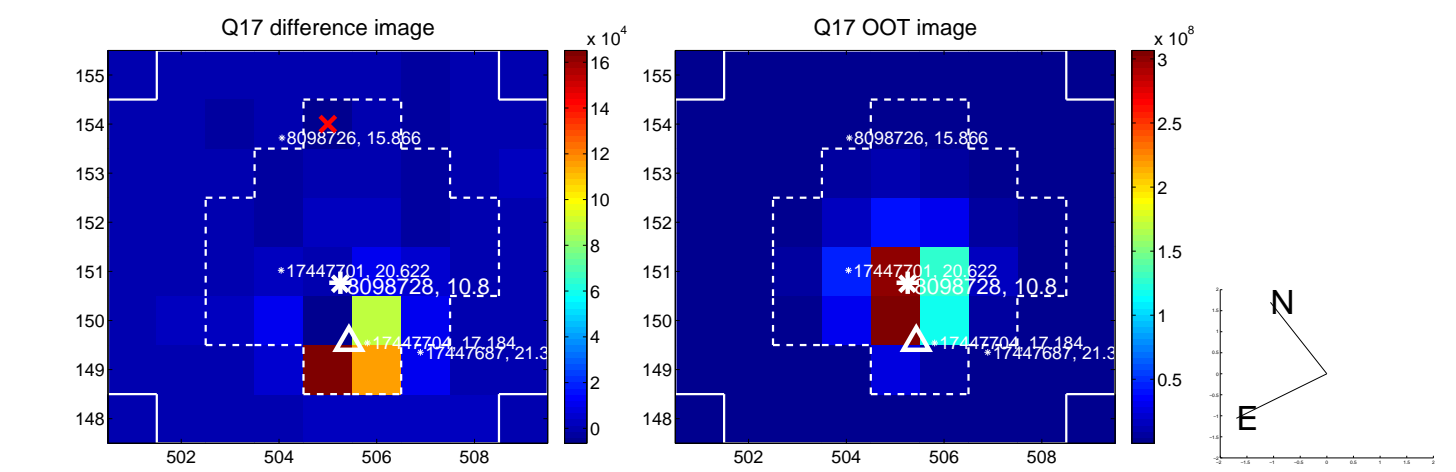
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



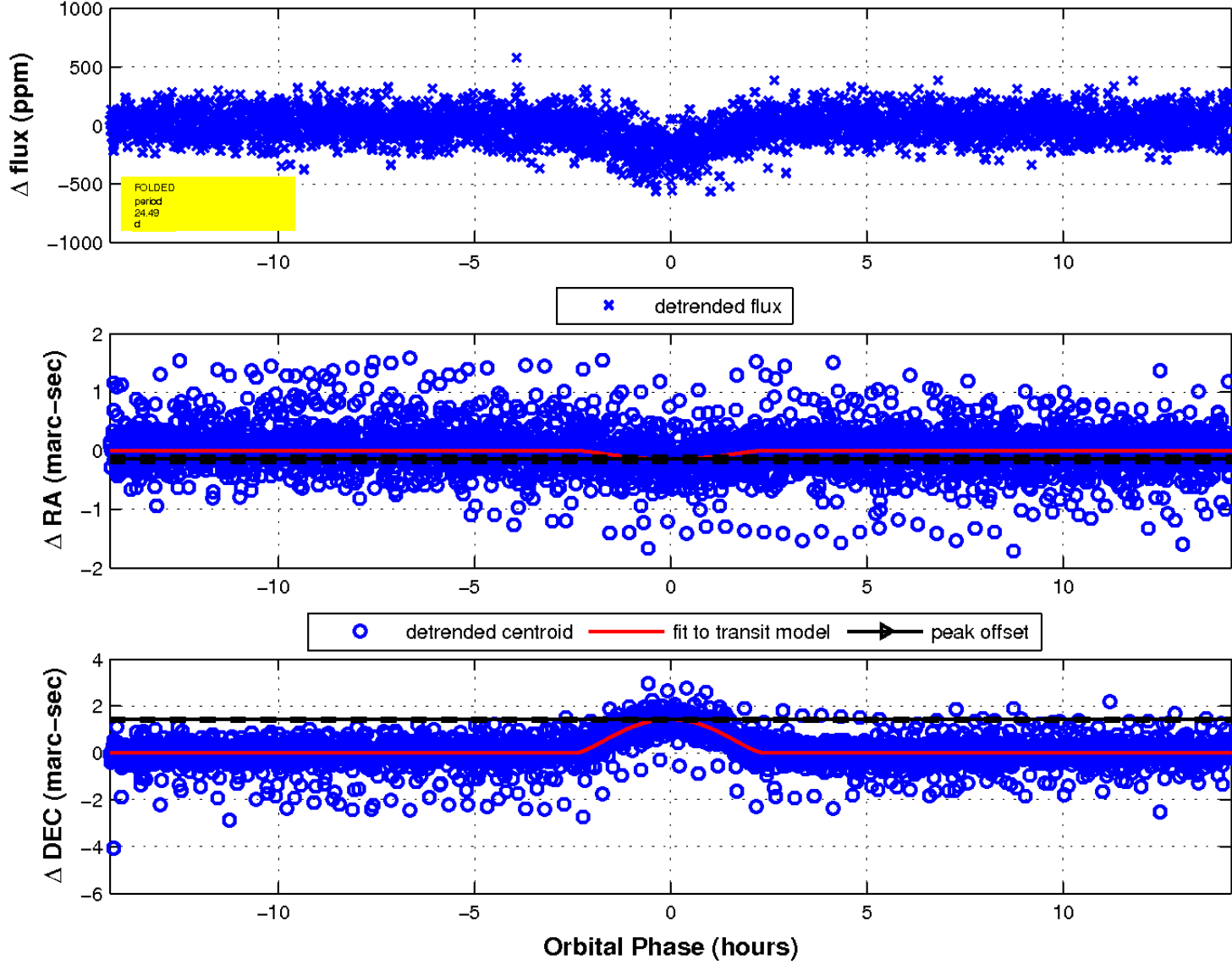
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

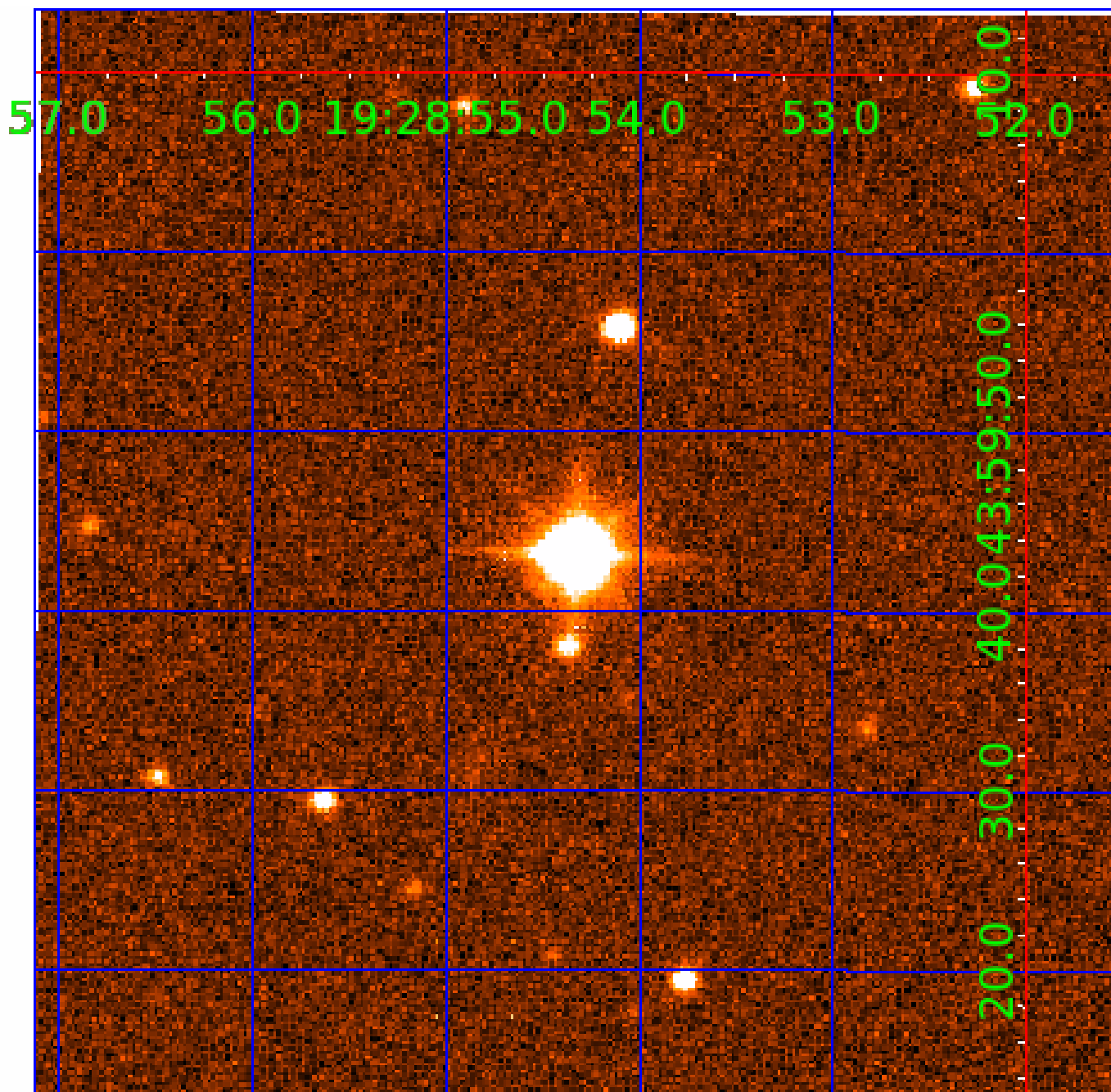


fluxWeightedCentroids, Planet 2 of 6



UKIRT Image

Declination



KIC 008098728

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})
008098728-01	OBS	2008.01	24.485180	137.619563	252.9	4.586	19.5	22.1	3.00	6655	7.77	457.66
008098728-02	OBS	No	24.485106	148.008072	201.5	4.767	16.5	18.2	3.00	6655	8.30	457.67
008098728-03	OBS	No	1.130177	131.980955	4.1	4.736	8.1	2.3	3.00	6655	0.63	27641.15
008098728-04	OBS	No	2.261616	131.645861	0.0	0.965	10.0	0.0	3.00	6655	0.00	10961.23
008098728-05	OBS	No	155.694681	177.525138	152.7	20.994	9.0	7.5	3.00	6655	3.95	38.85
008098728-06	OBS	No	190.370384	171.392528	236.7	2.551	8.6	7.7	3.00	6655	5.34	29.71

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
008098728-01	OBS	FP	0.00	0	1	0	0	MOD_SEC_DV—MOD_SEC_ALT—HAS_SEC_TCE—CENT_SATURATED
008098728-02	OBS	FP	0.00	1	1	0	0	IS_SEC_TCE—CENT_SATURATED
008098728-03	OBS	FP	0.00	1	0	0	0	SWEET_NTL—LPP_DV—LPP_ALT—MOD_NONUNIQ_ALT—CENT_SATURATED
008098728-04	OBS	FP	0.00	1	0	0	0	TRANS_GAPPED—SWEET_NTL—LPP_DV—LPP_ALT—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_SATURATED
008098728-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_SATURATED
008098728-06	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_MARSHALL—TRANS_GAPPED—ALL_TRANS_CHASES—MOD_NONUNIQ_ALT—INCONSISTENT_TRANS—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 008098728-03

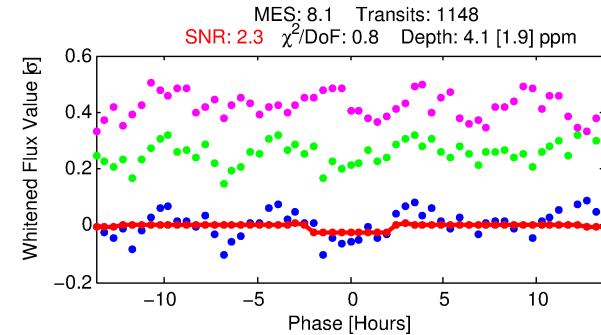
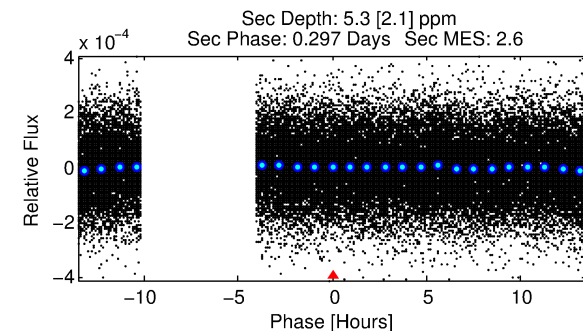
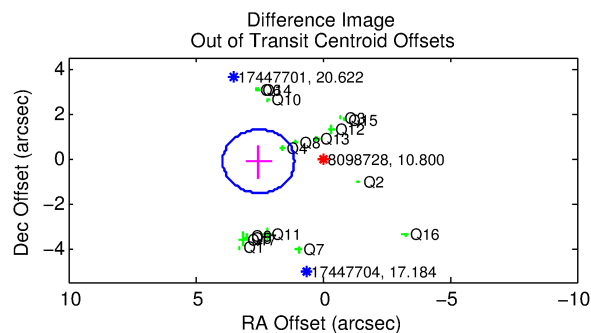
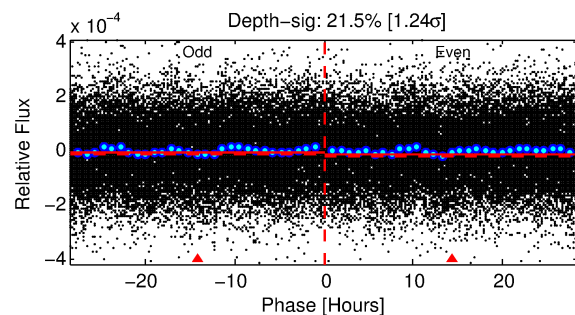
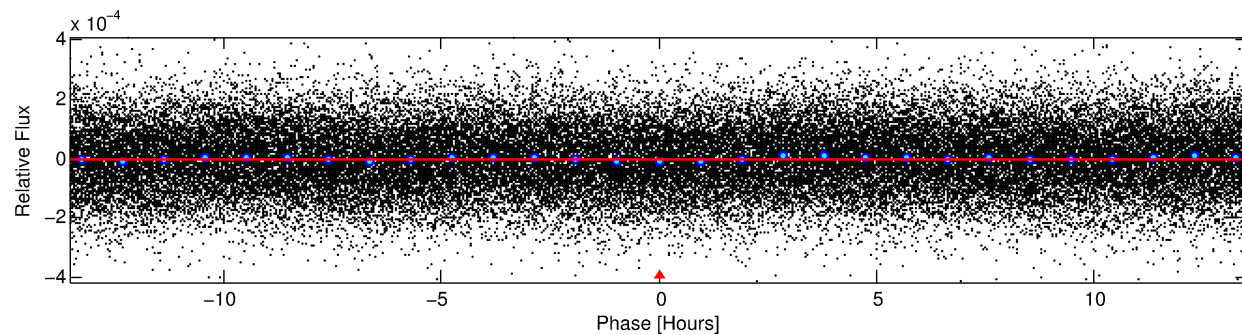
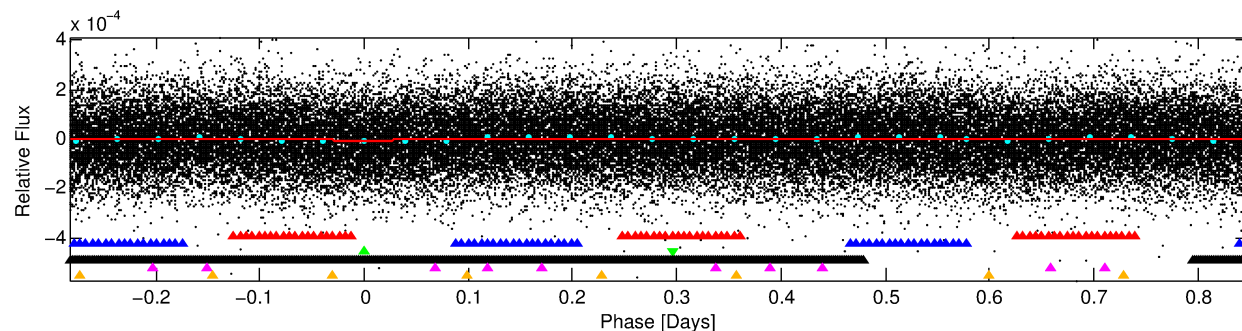
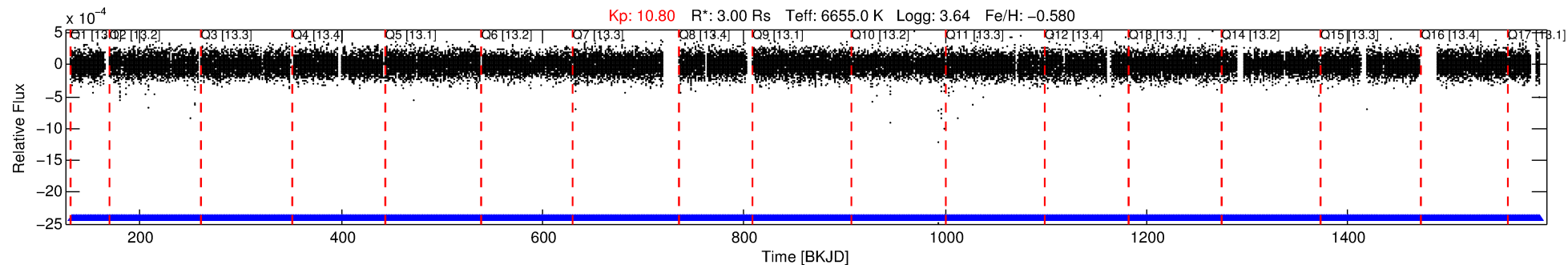
No Significant Match Found

DV One-Page Summary

KIC: 8098728 Candidate: 3 of 6 Period: 1.130 d

KOI: K02008 Corr: No Ephemeris Match

Kp: 10.80 R*: 3.00 Rs Teff: 6655.0 K Logg: 3.64 Fe/H: -0.580



DV Fit Results:

Period = 1.13018 [0.00005] d
Epoch = 131.9810 [0.0137] BKJD
Rp/R* = 0.0019 [0.0008]
a/R* = 1.73 [2.11]
b = 0.52 [2.63]
Seff = 27641.15 [16325.49]
Teq = 3288 [485] K
Rp = 0.63 [0.35] Re
a = 0.0239 [0.0088] AU
Ag = 4.18 [4.46] [0.71σ]
Teffp = 7271 [1635] K [2.33σ]

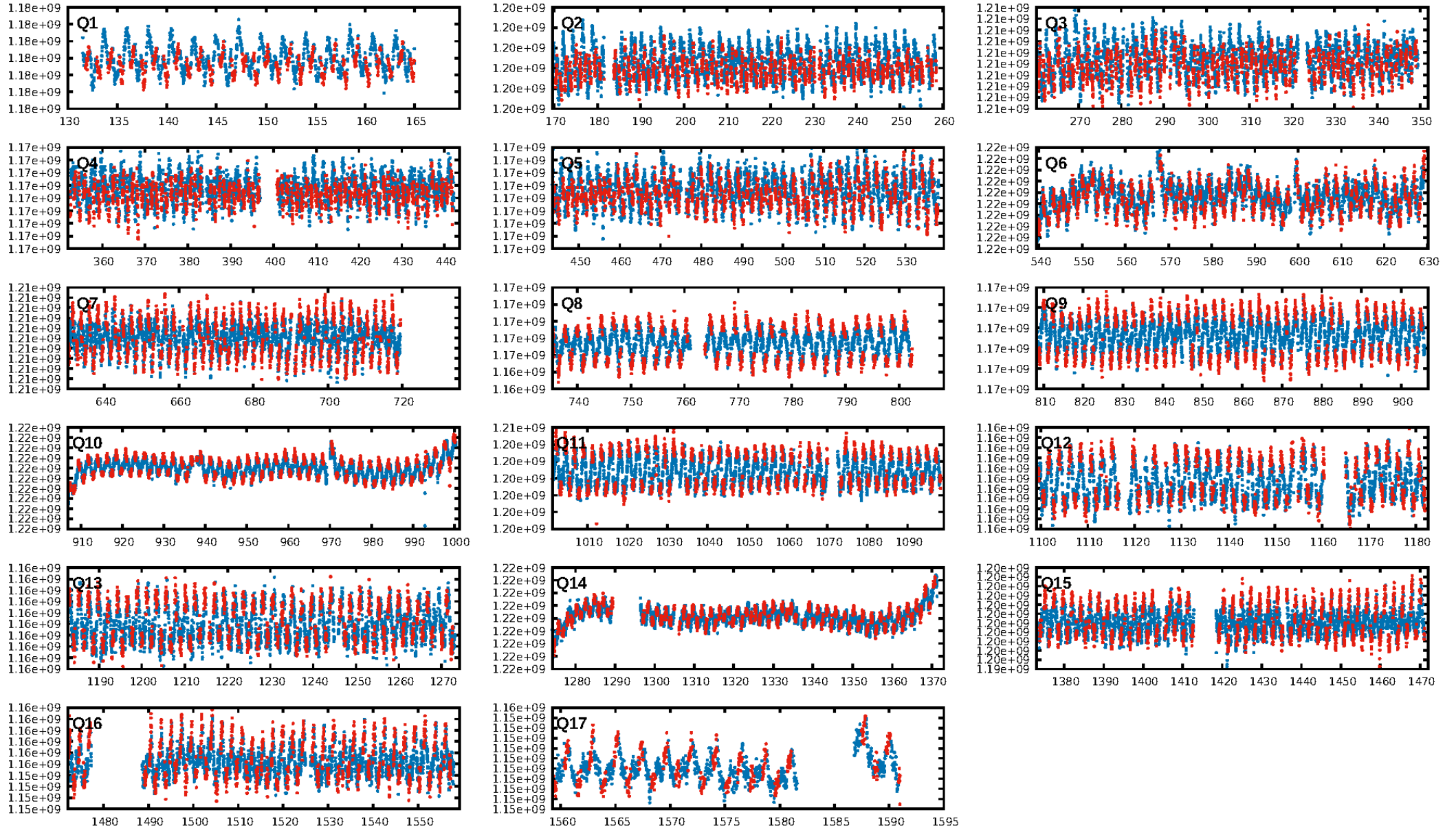
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: 100.0% [5.62σ]
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: 1.01e-11
RollingBand-fgt: 1.00 [1095/1095]
GhostDiagnostic-chr: N/A
Centroid-sig: N/A
Centroid-so: N/A
OotOffset-rm: 2.516 arcsec [5.34σ]
KicOffset-rm: 2.664 arcsec [5.84σ]
OotOffset-st: 4/4/4/5 [17]
KicOffset-st: 4/4/4/5 [17]
DiffImageQuality-fgm: 0.35 [6/17]
DiffImageOverlap-fno: 1.00 [17/17]

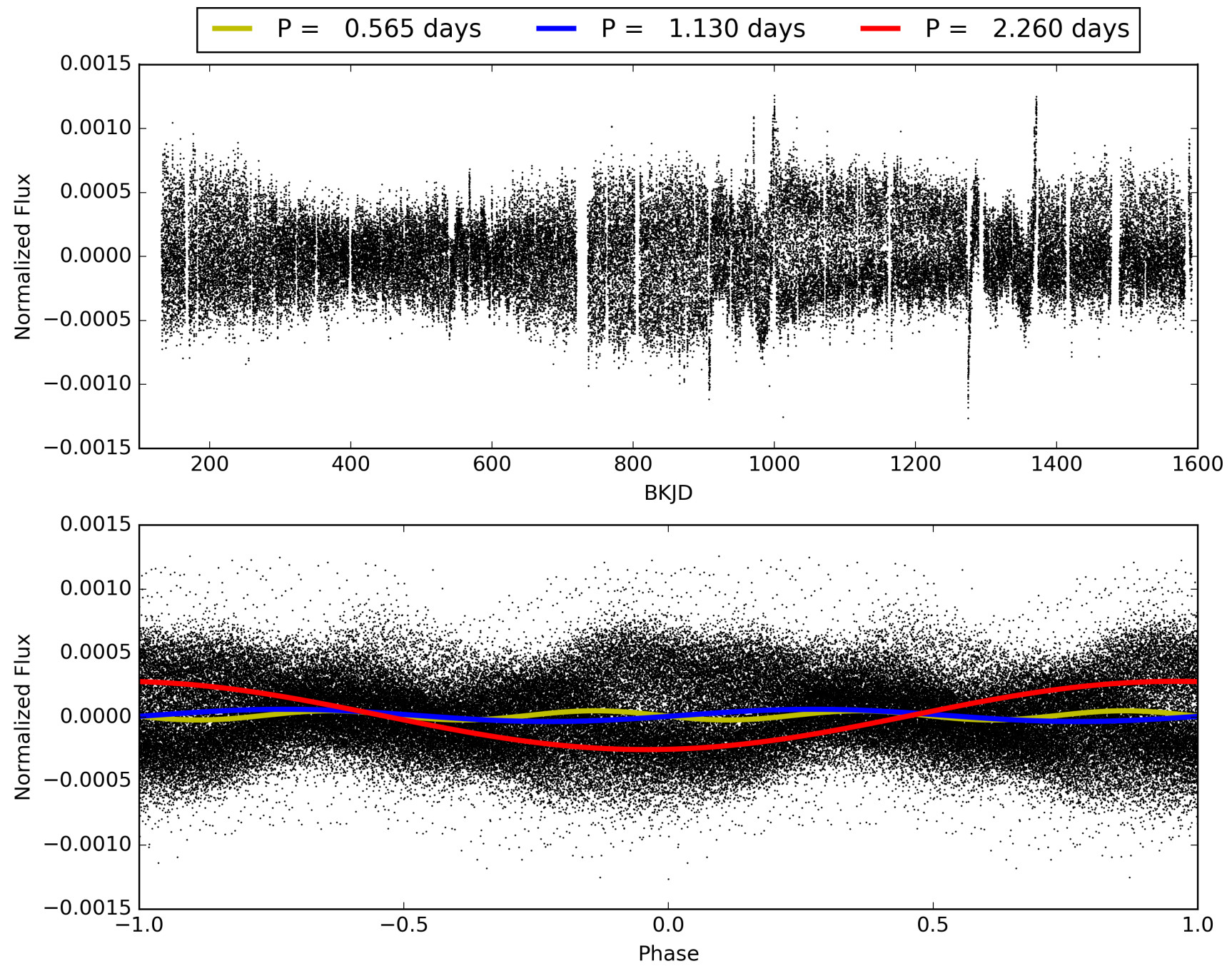
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 01-Feb-2016 17:38:29 Z

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

TCE 008098728-03, PDC Light Curves

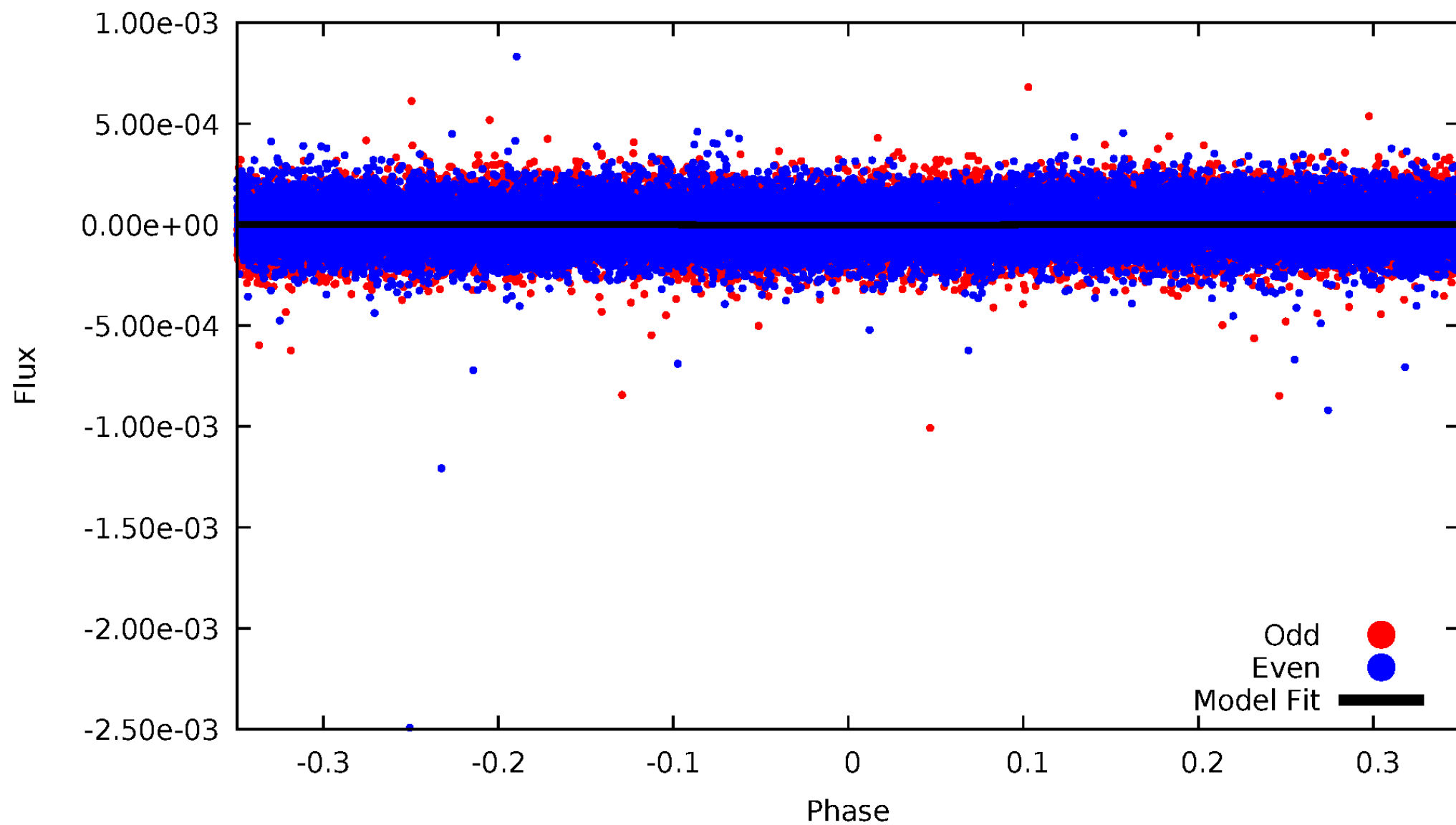


TCE 008098728-03



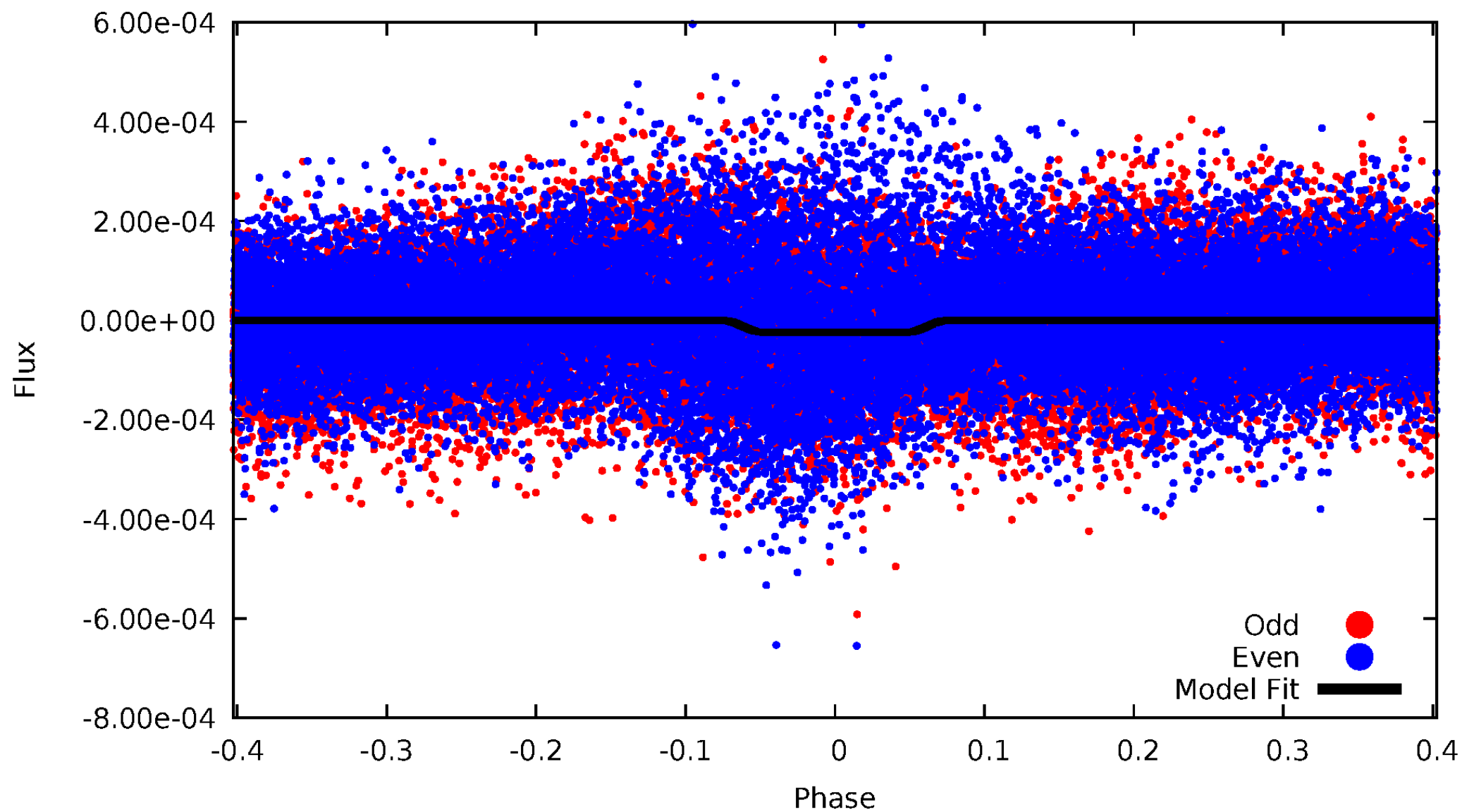
DV Odd/Even

TCE 008098728-03



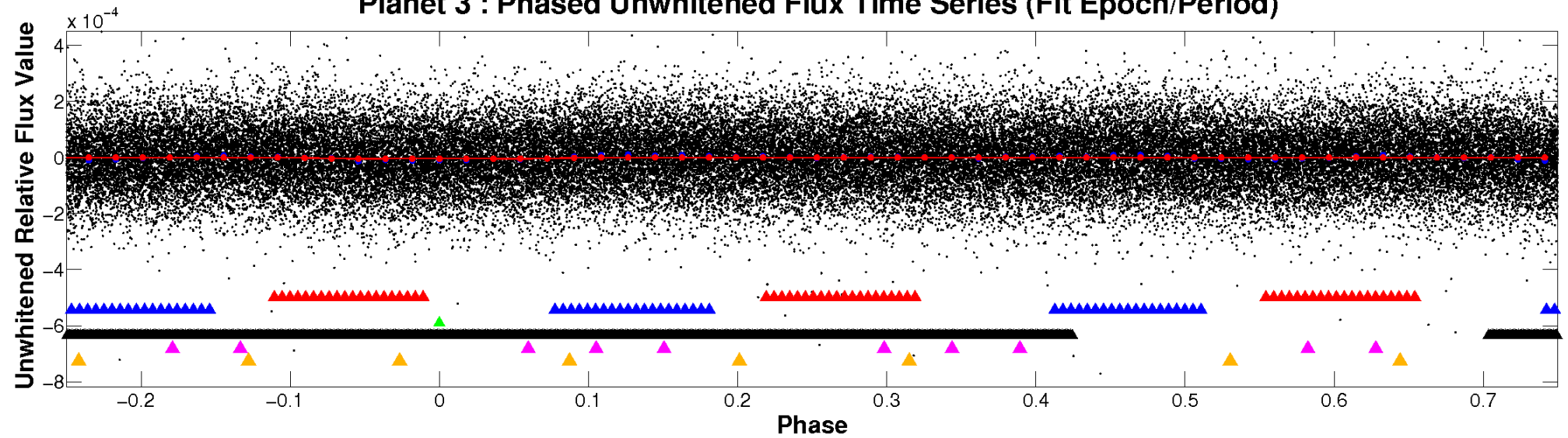
ALT Odd/Even

TCE 008098728-03

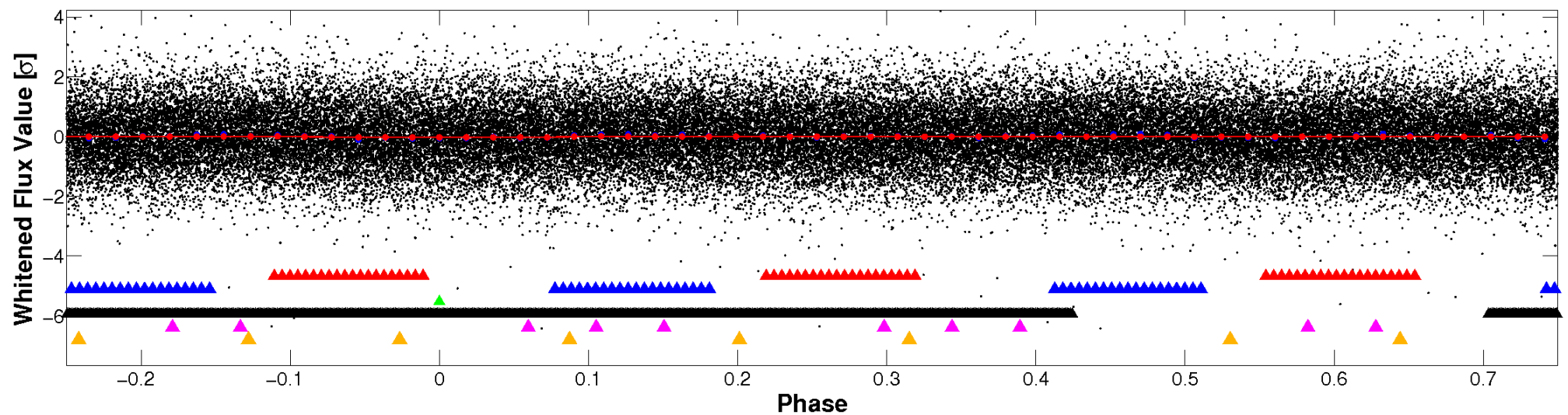


Non-Whitened Vs. Whitened Light Curve

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

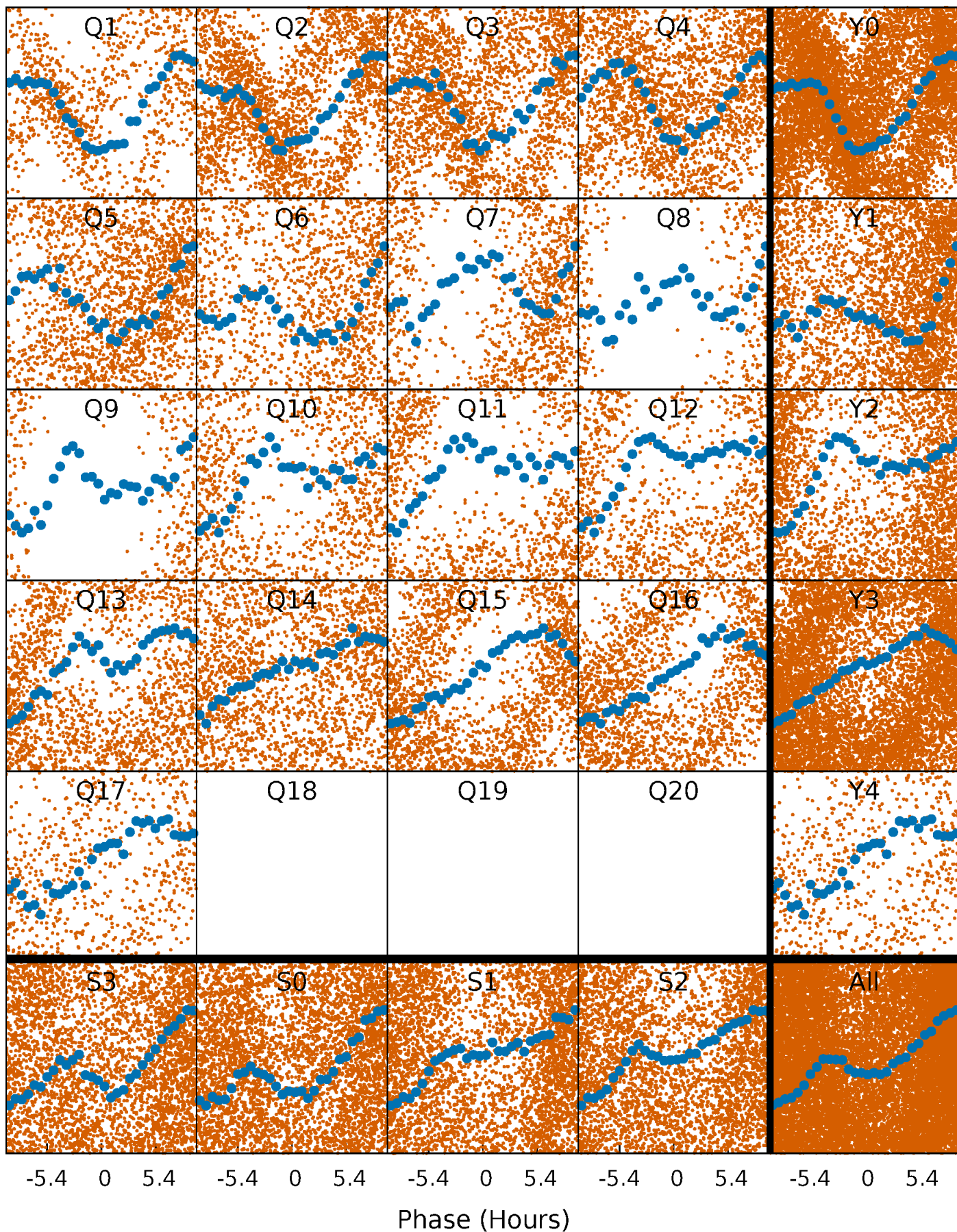


Planet 3 : Phased Whitened Flux Time Series (Fit Epoch/Period)



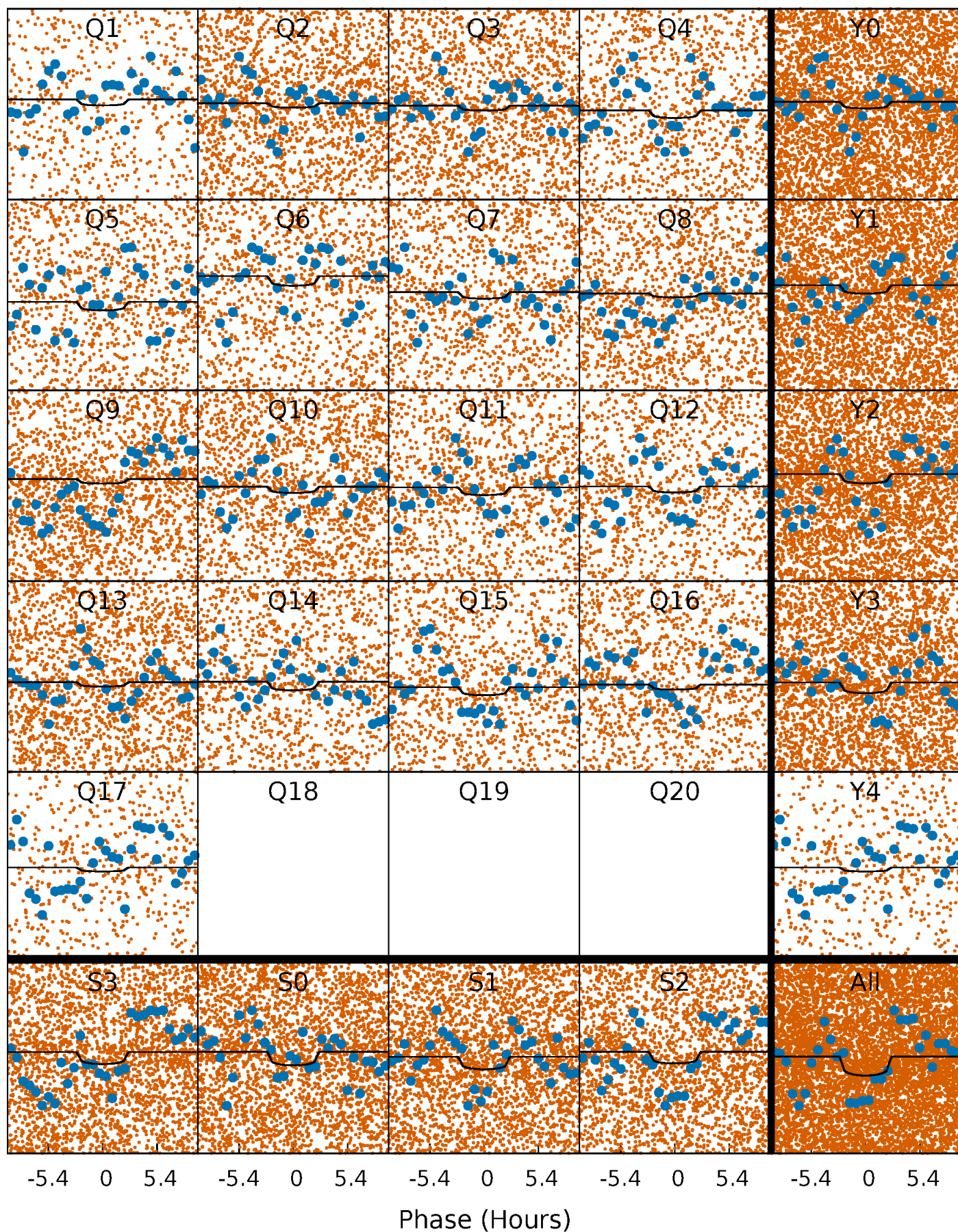
PDC Quarter-Phased Transit Curves

TCE 008098728-03 P= 1.130177 Days $T_0=131.980955$ (BKJD)



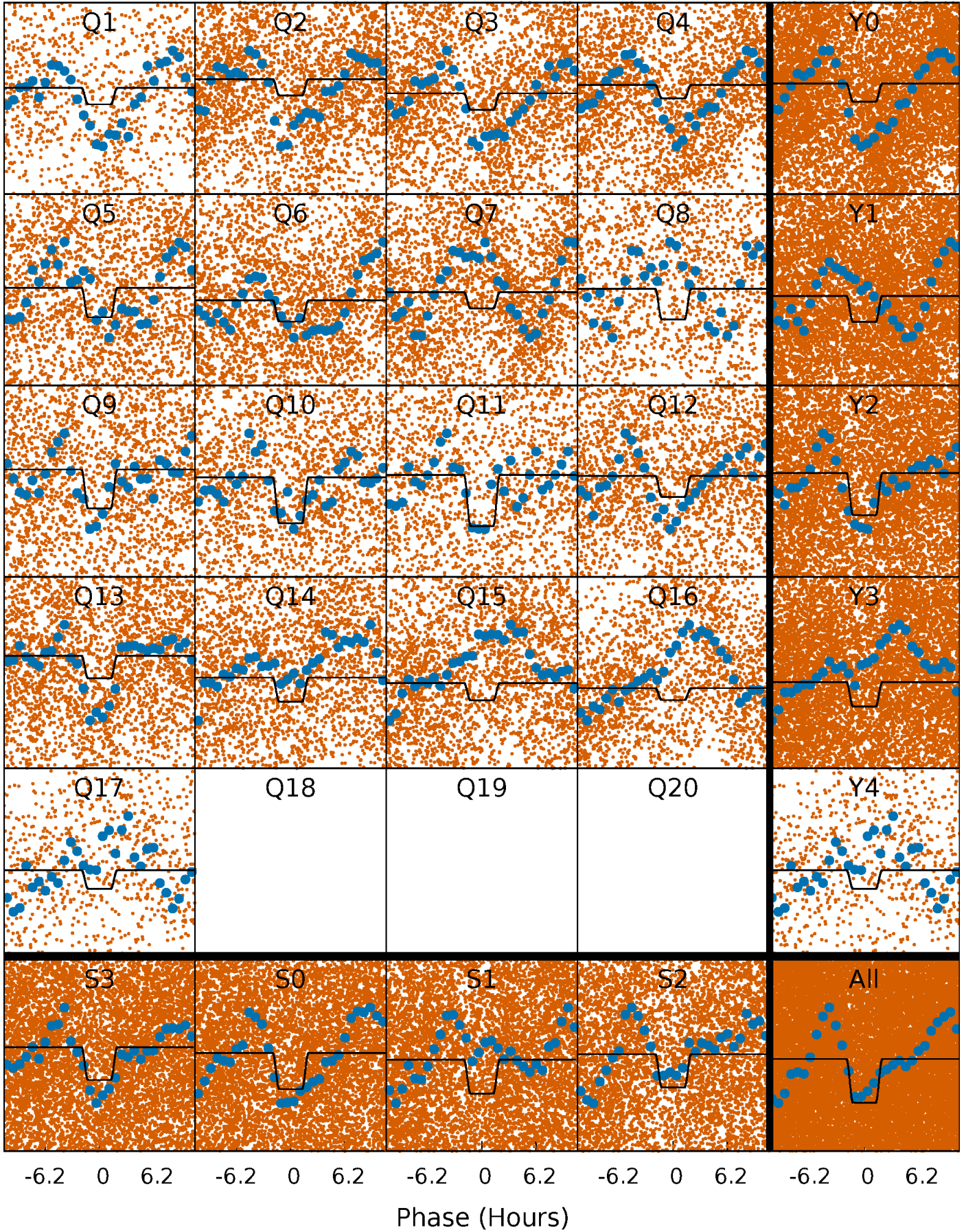
DV Quarter-Phased Transit Curves

TCE 008098728-03 P= 1.130177 Days $T_0=131.980955$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

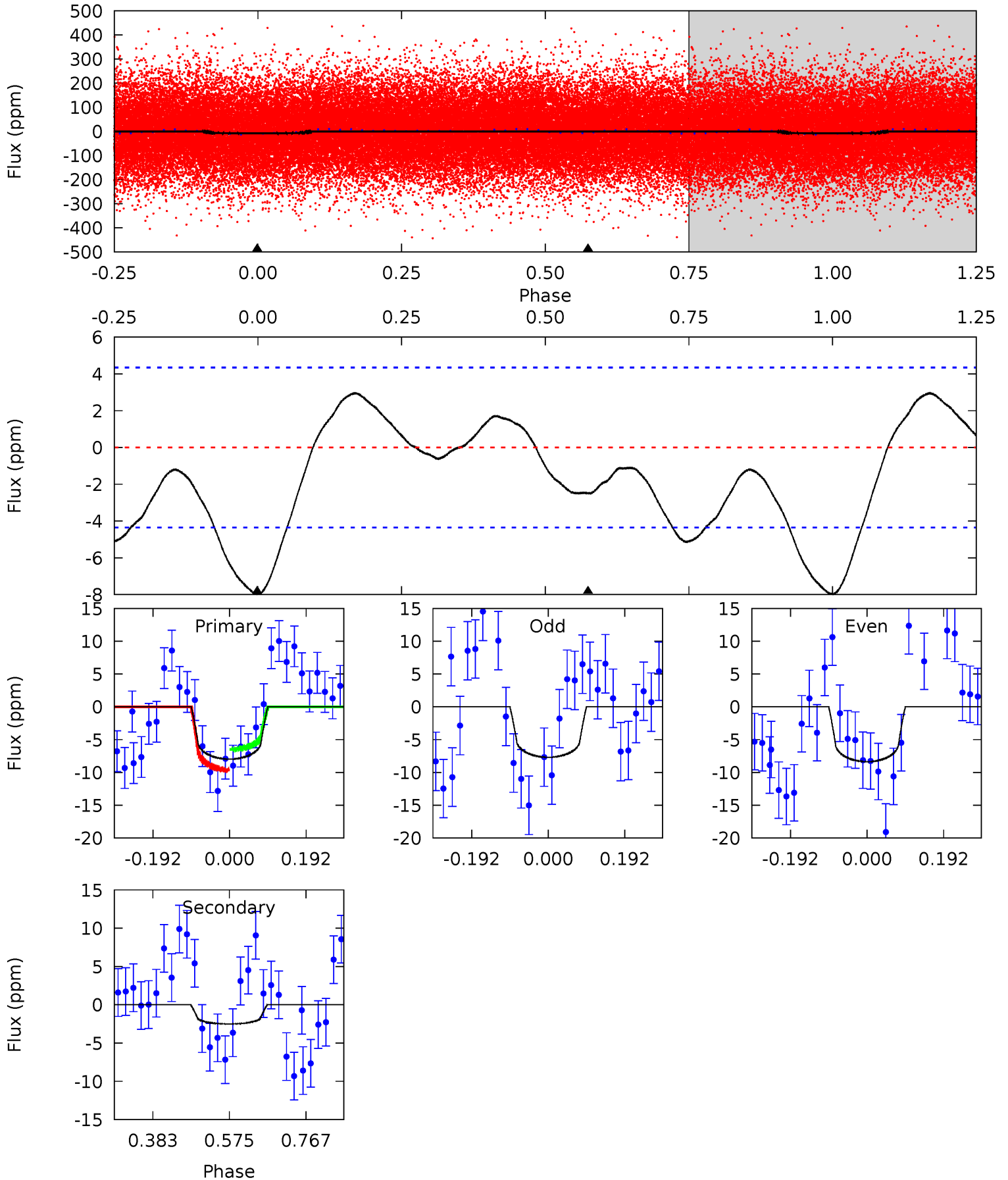
TCE 008098728-03 P= 1.130310 Days $T_0=131.936619$ (BKJD)



DV Model-Shift Uniqueness Test

008098728-03, P = 1.130177 Days, E = 130.850778 Days

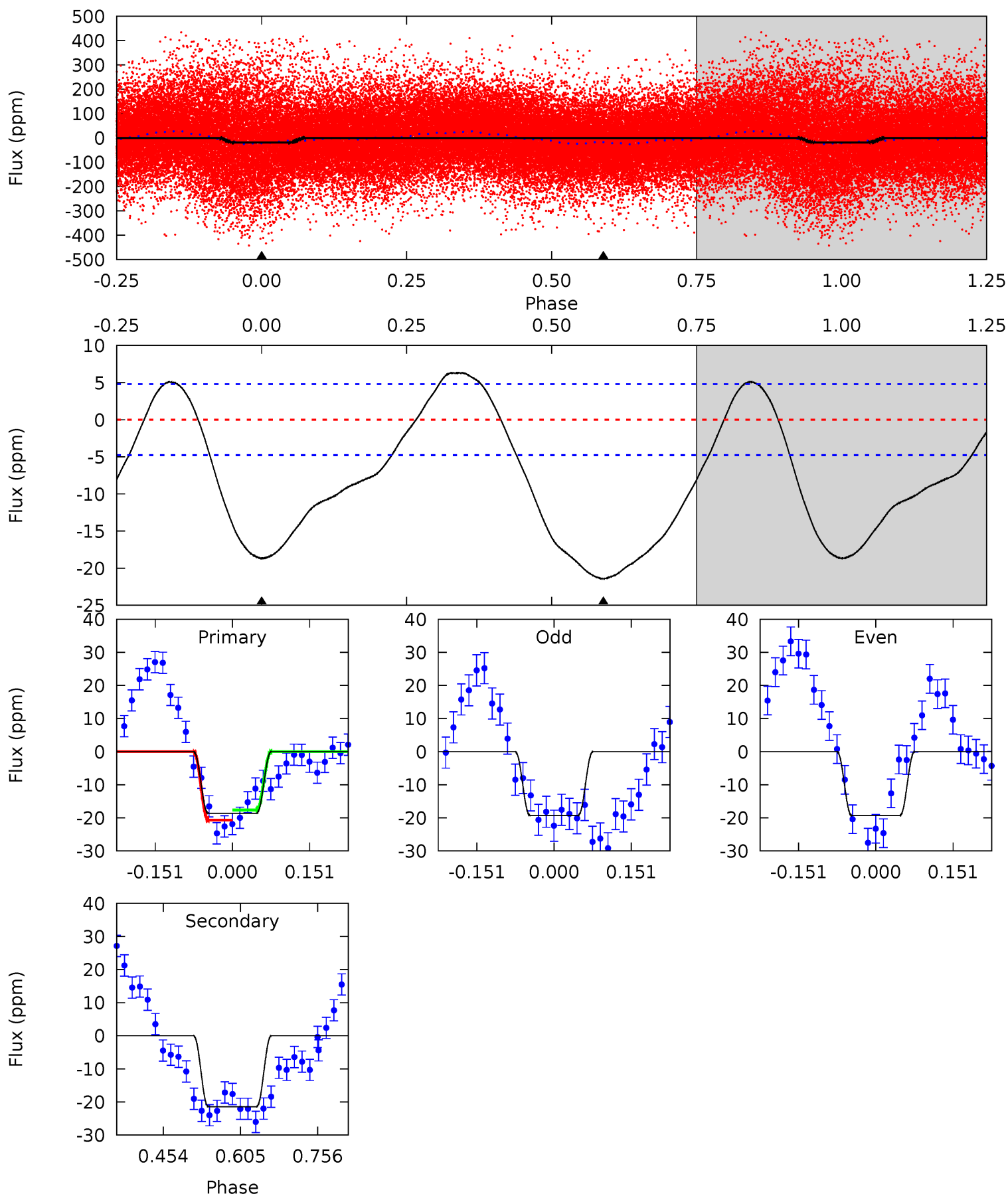
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
8.12	2.55	0	0	4.43	1.31	1.97	8.12	8.12	2.55	2.55	0.34	1.14	0.27	1.60



Alt Model-Shift Uniqueness Test

008098728-03, P = 1.130310 Days, E = 130.806309 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
17.5	20.0	0	0	4.48	1.44	4.77	17.5	17.5	20.0	20.0	0.02	0.84	0.23	1.39



Stellar Parameters For KIC 008098728

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	$M(M_{\odot})$	p_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	6655^{+168}_{-184}	$3.638^{+0.337}_{-0.112}$	$-0.580^{+0.350}_{-0.300}$	$2.995^{+0.506}_{-1.180}$	$1.420^{+0.220}_{-0.330}$	$0.074^{+0.188}_{-0.026}$
	+3%/-3%	+9%/-3%	+60%/-52%	+17%/-39%	+15%/-23%	+253%/-34%
Source	PHO1	FLK73	KIC0	DSEP		

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

Secondary Eclipse Parameters for KIC 008098728-03 / KOI

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	-3 ± 1	$0.60^{+0.28}_{-0.26}$	4529^{+276}_{-443}	5737^{+2074}_{-1146}	$2.114^{+4.911}_{-1.185}$
Alt.	-21 ± 1	$1.51^{+0.33}_{-0.38}$	4526^{+287}_{-464}	6284^{+713}_{-489}	$3.021^{+1.980}_{-1.051}$

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

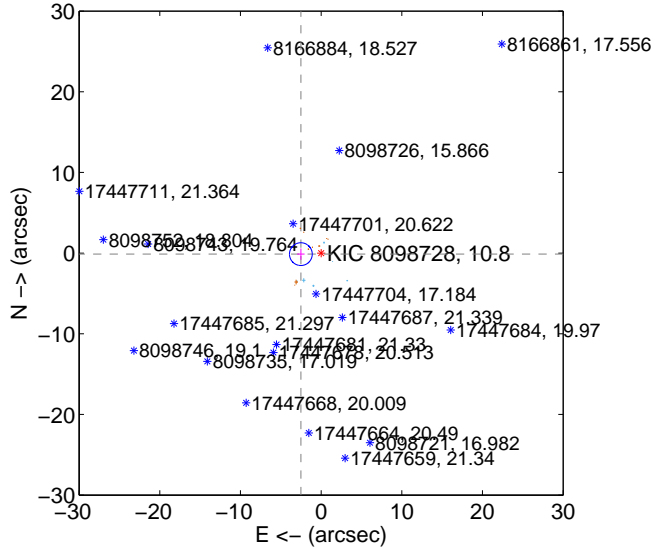
Supplemental centroid analysis for 008098728-03. **Kepler magnitude: 10.80.** Transit SNR 2.34

There are 6 quarters with good PRF difference image offsets

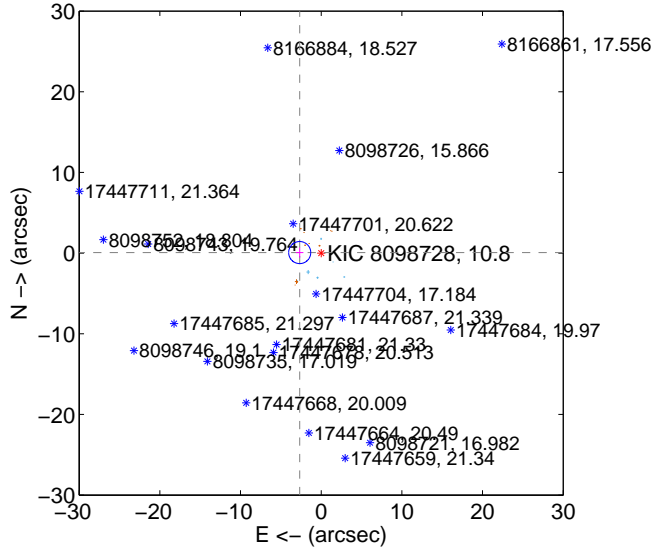
The direct PRF centroid is offset from the target star catalog position by about 0.08 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	2.516 \pm 0.471	5.34	2.512 \pm 0.464	-0.128 \pm 0.707
PRF-fit source offset from KIC position	2.664 \pm 0.456	5.84	2.663 \pm 0.460	0.067 \pm 0.621
photometric centroid source offset	—	—	—	—

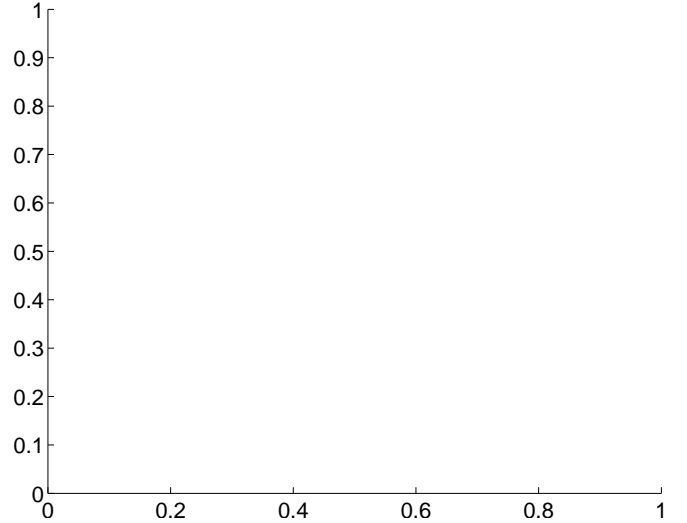
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position

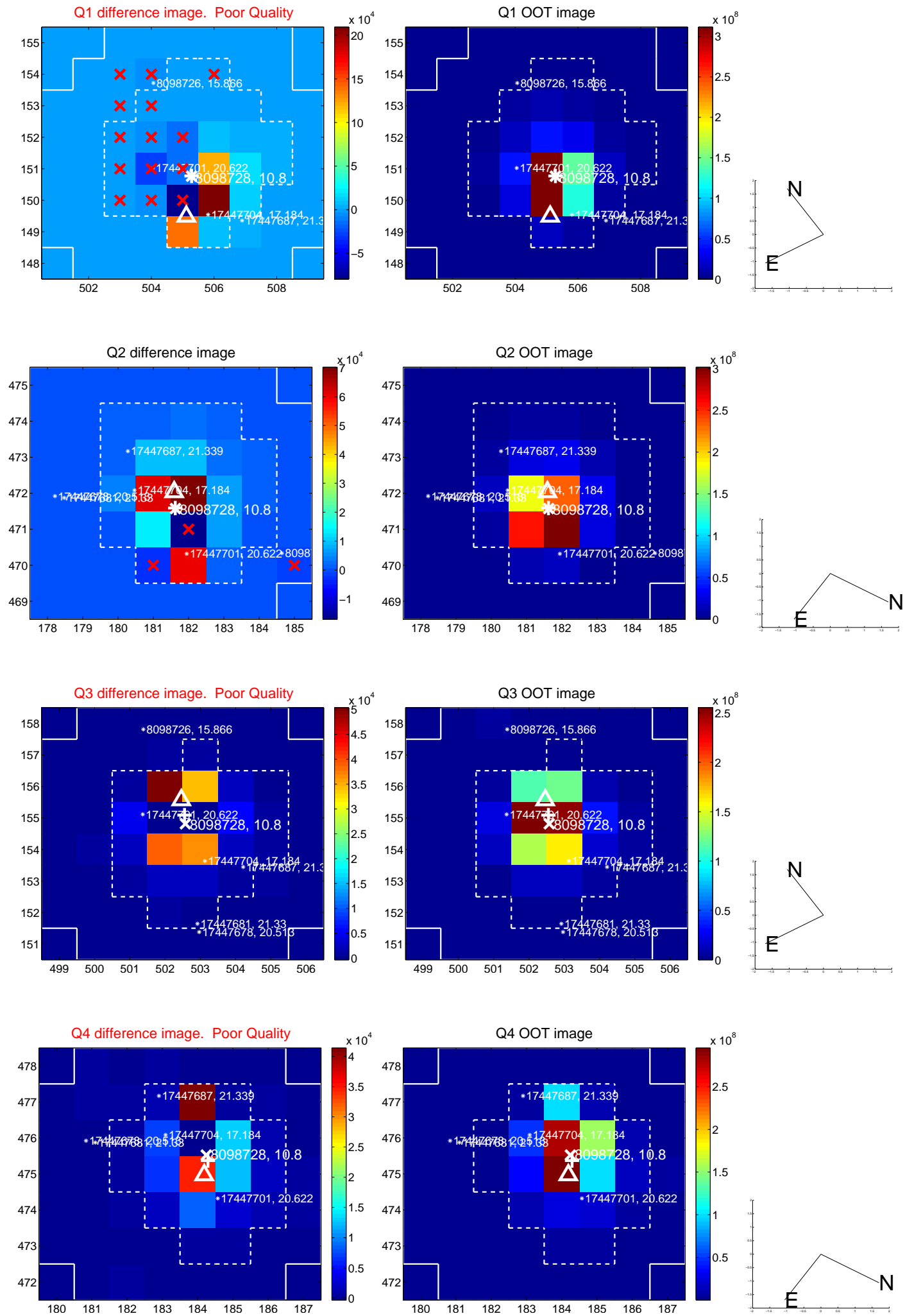


There are no photometric centroids

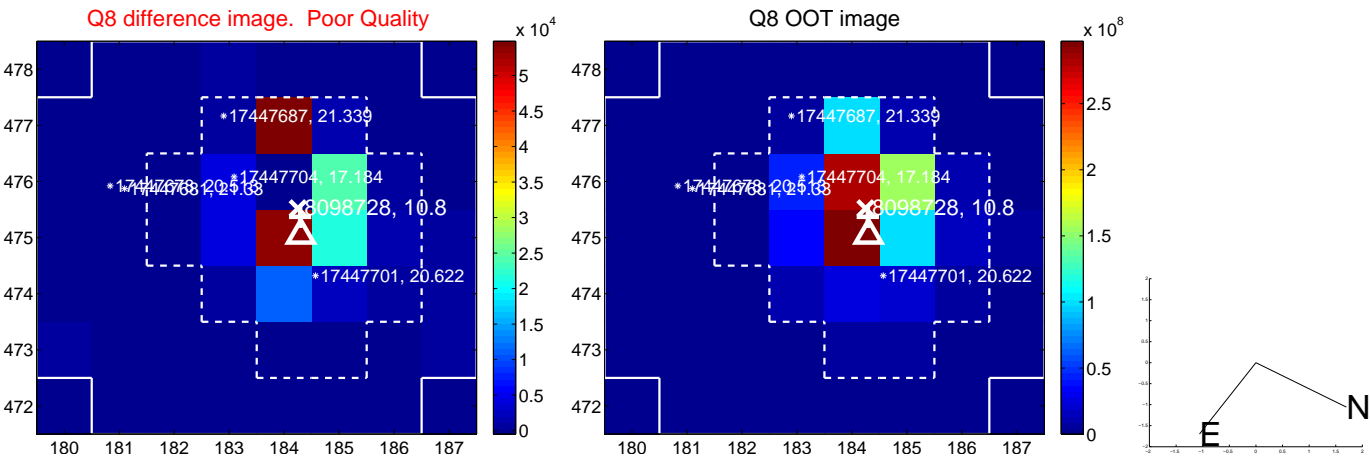
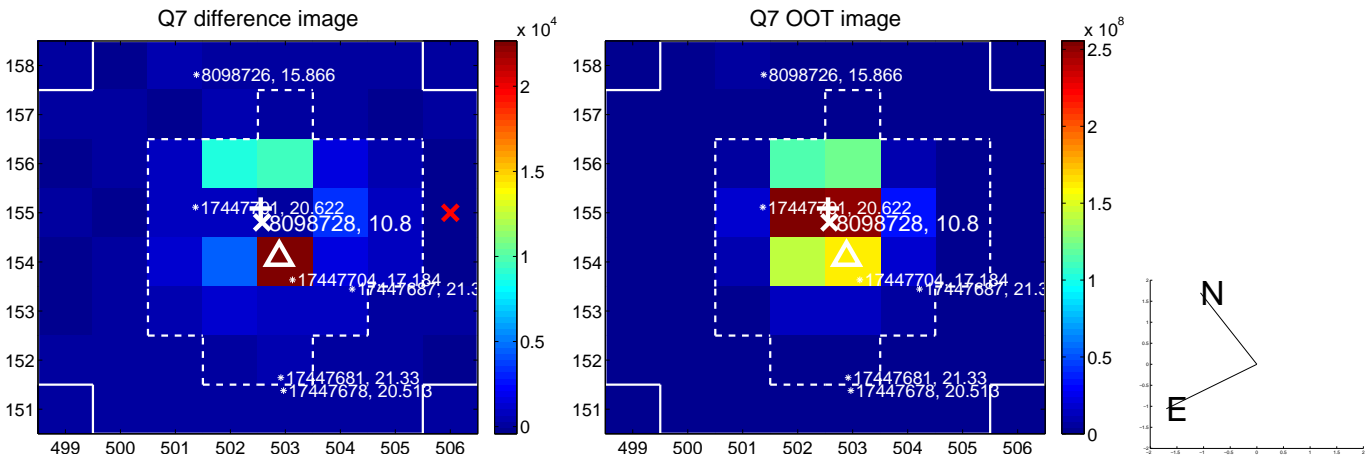
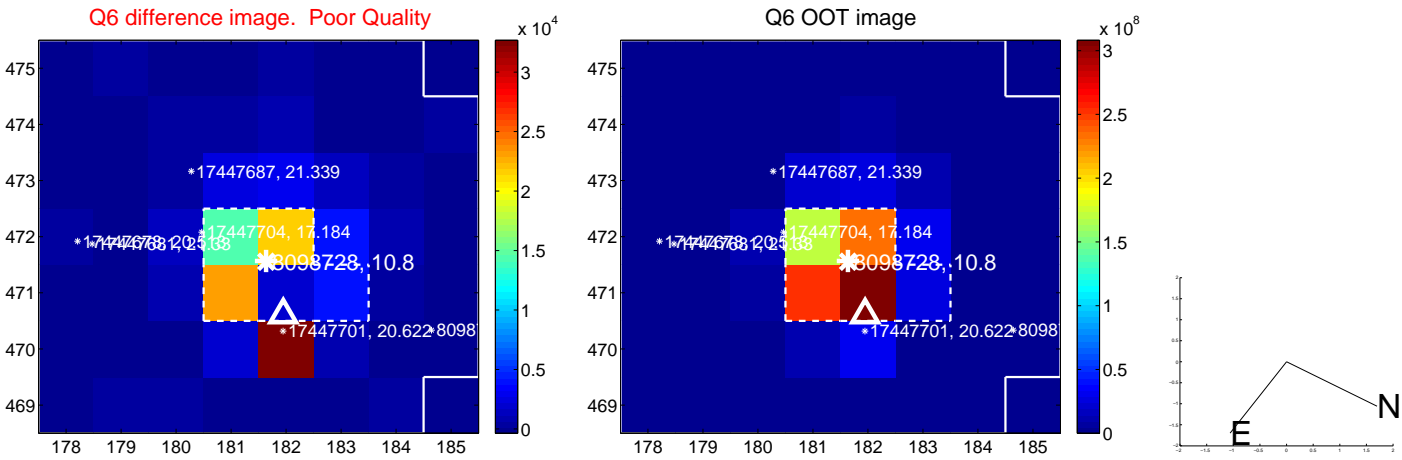
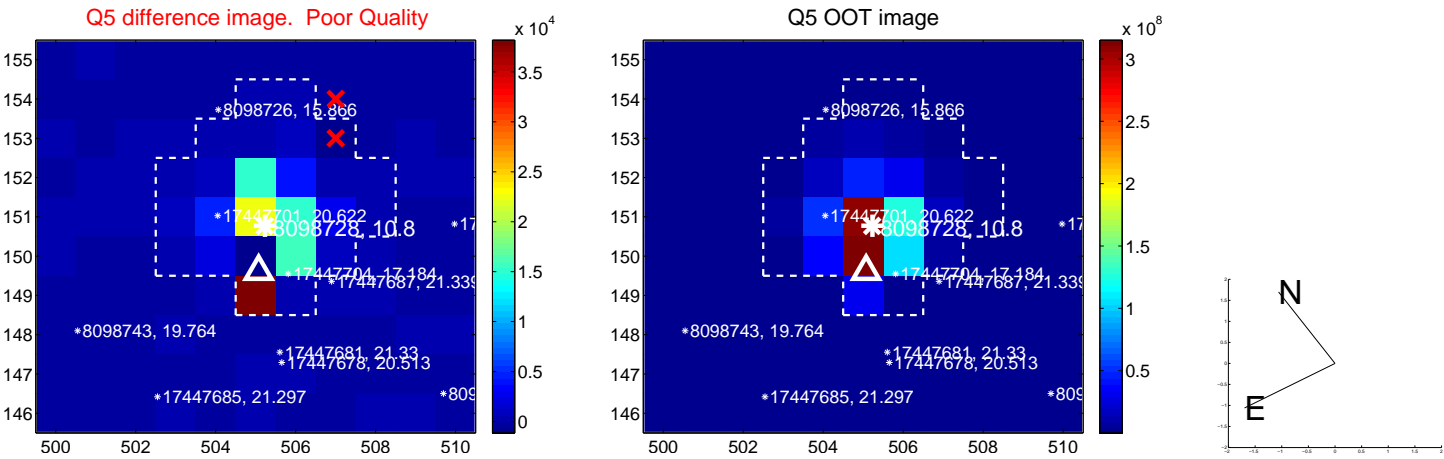


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets;** magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

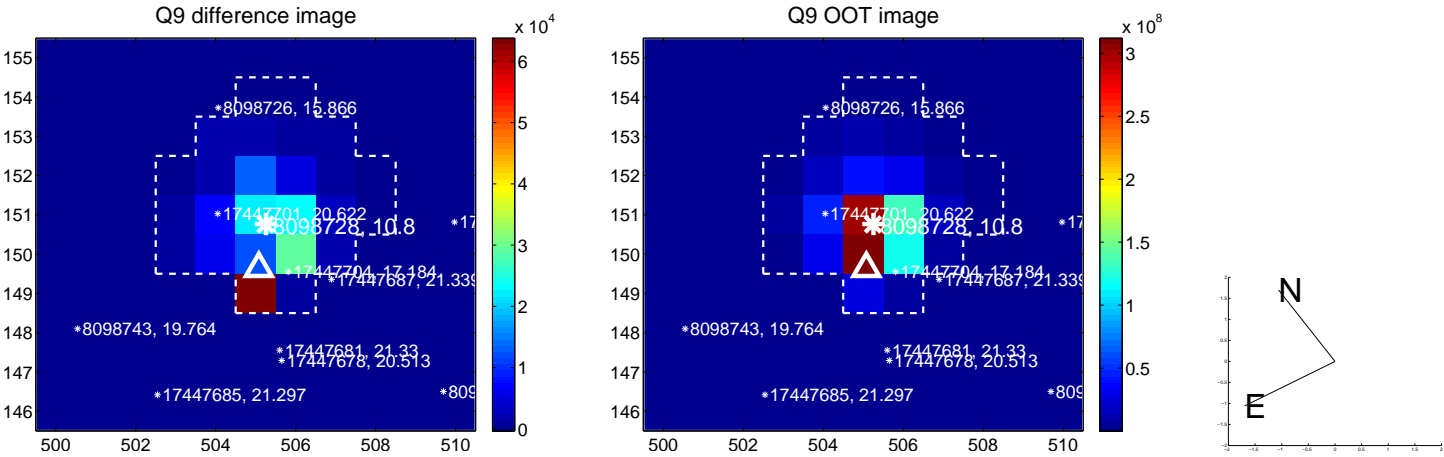
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



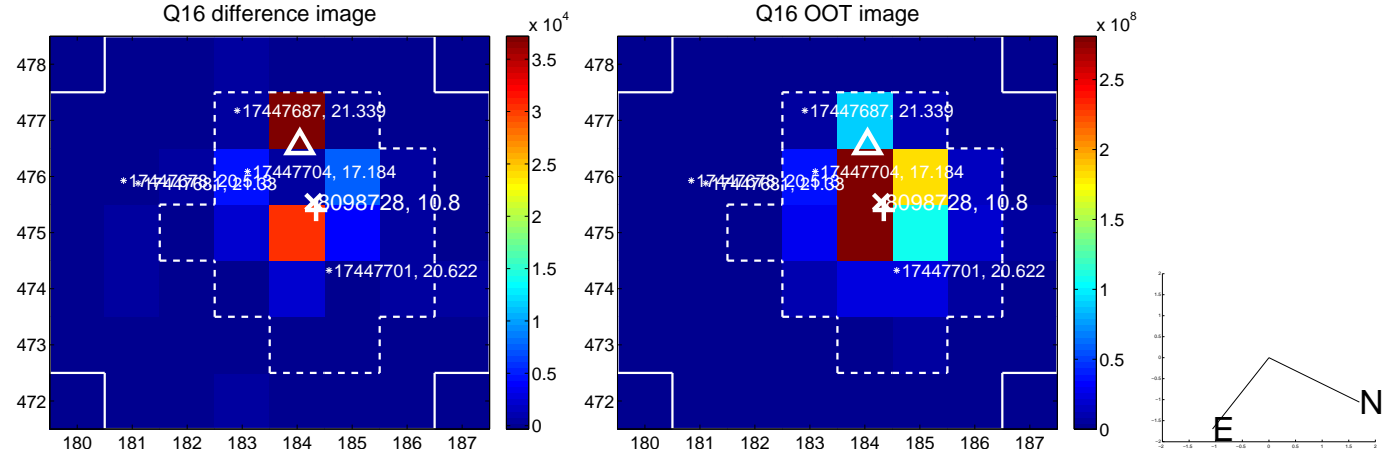
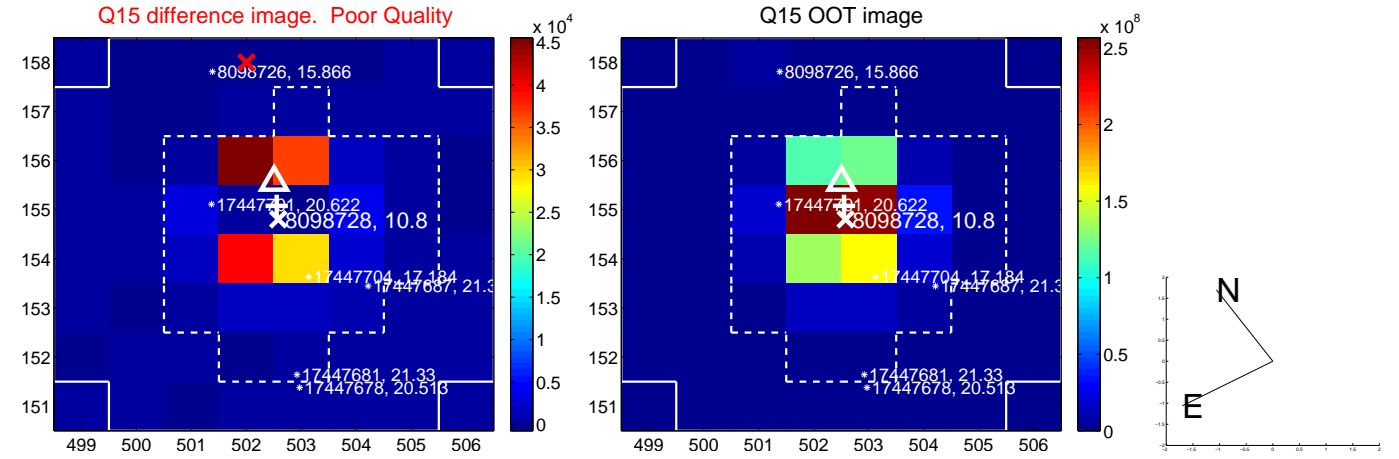
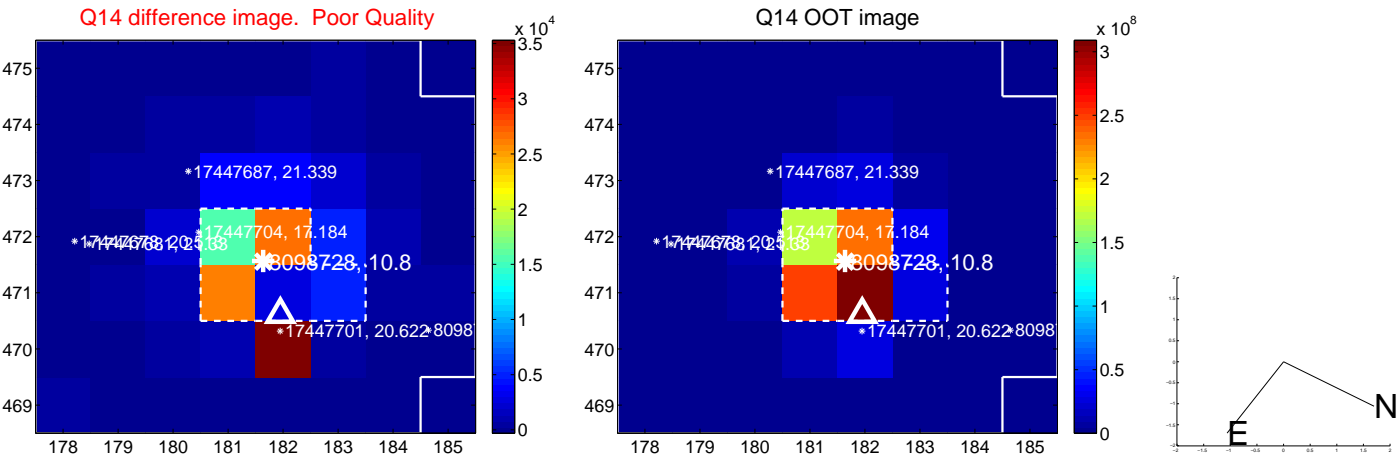
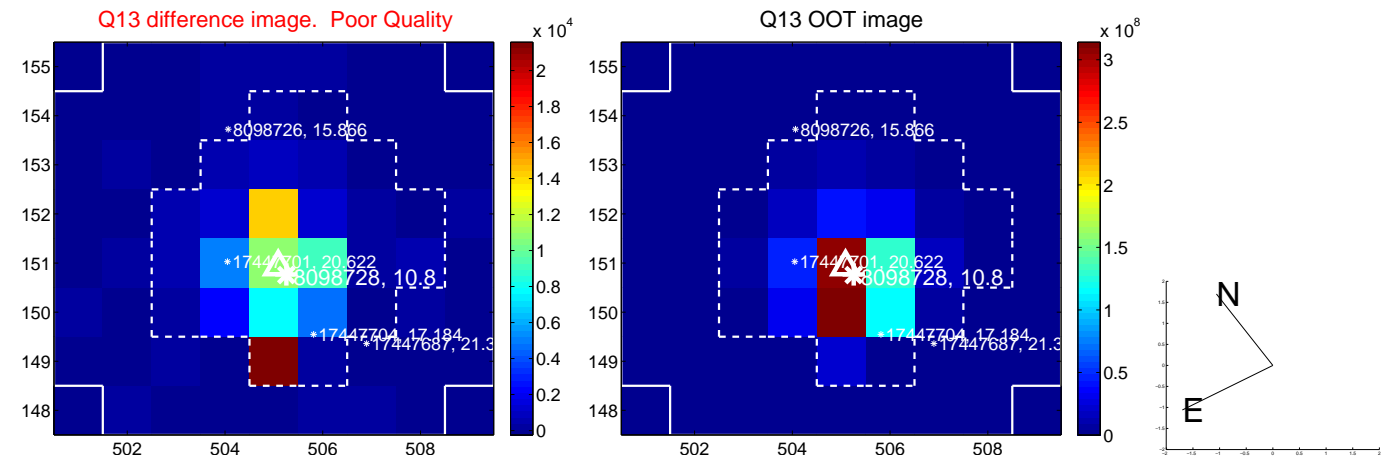
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



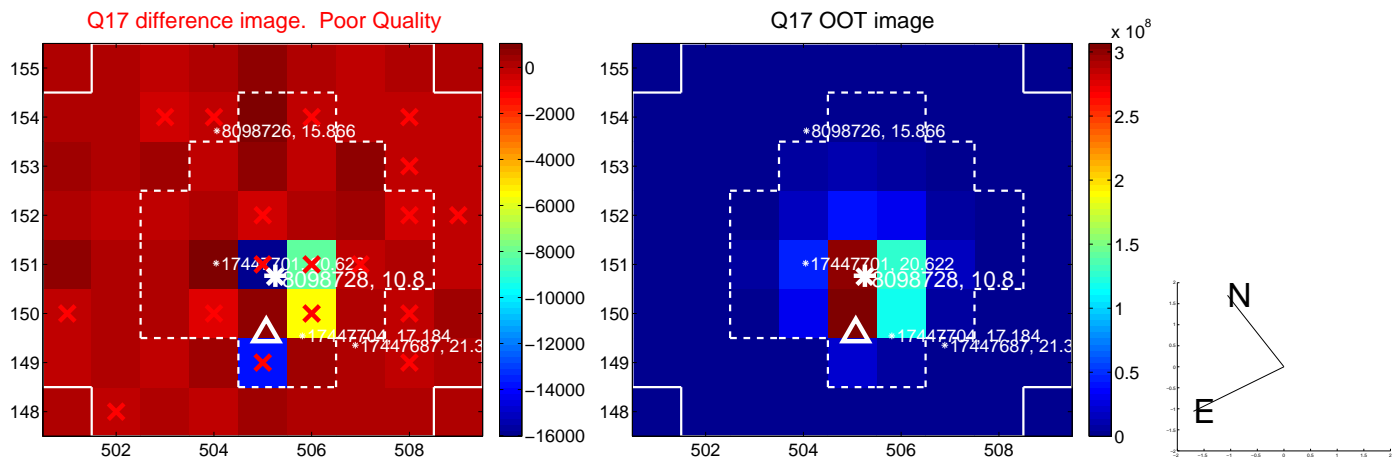
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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



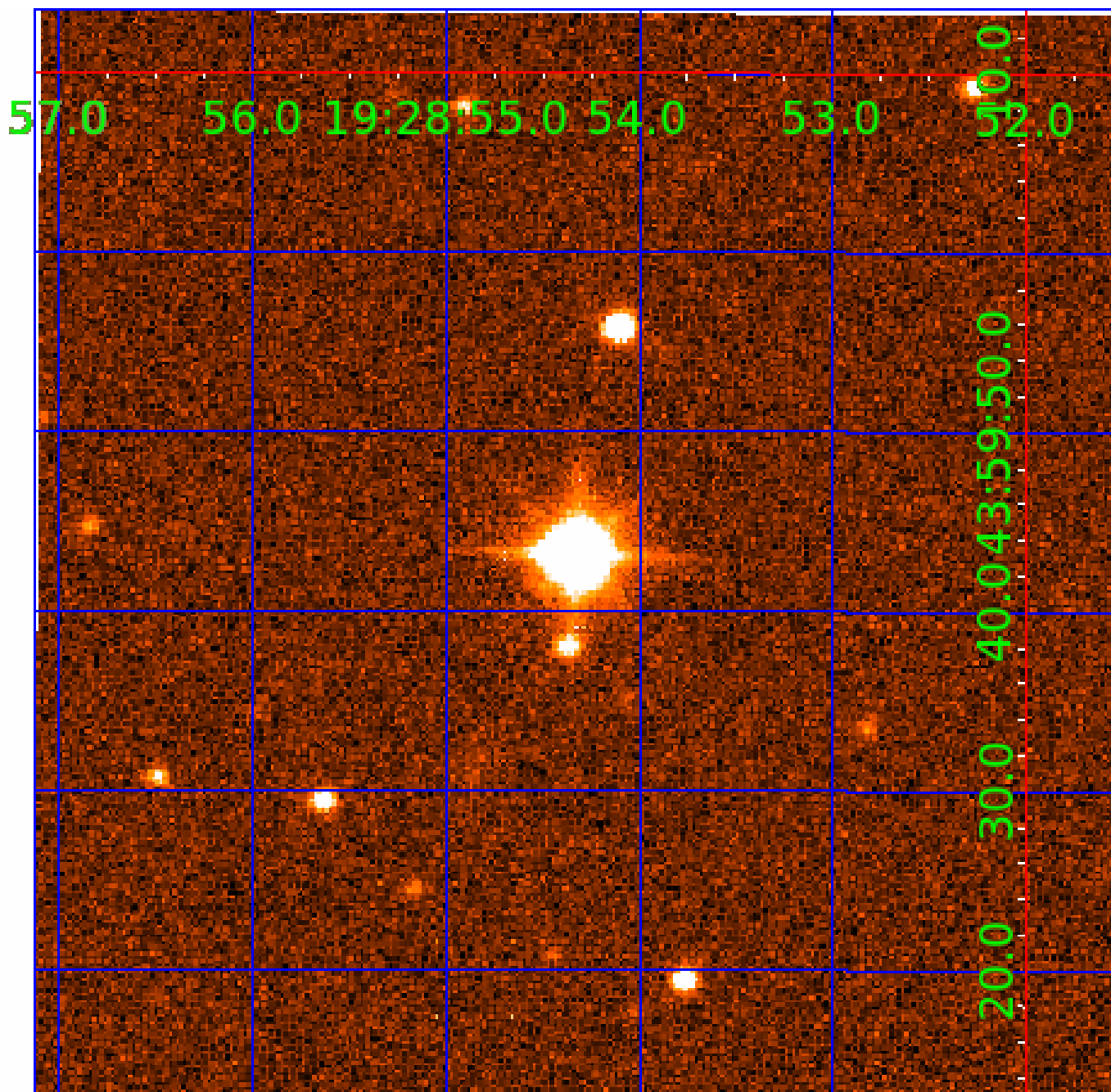
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



folded centroid time series figure for this object.

UKIRT Image

Declination



KIC 008098728

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})
008098728-01	OBS	2008.01	24.485180	137.619563	252.9	4.586	19.5	22.1	3.00	6655	7.77	457.66
008098728-02	OBS	No	24.485106	148.008072	201.5	4.767	16.5	18.2	3.00	6655	8.30	457.67
008098728-03	OBS	No	1.130177	131.980955	4.1	4.736	8.1	2.3	3.00	6655	0.63	27641.15
008098728-04	OBS	No	2.261616	131.645861	0.0	0.965	10.0	0.0	3.00	6655	0.00	10961.23
008098728-05	OBS	No	155.694681	177.525138	152.7	20.994	9.0	7.5	3.00	6655	3.95	38.85
008098728-06	OBS	No	190.370384	171.392528	236.7	2.551	8.6	7.7	3.00	6655	5.34	29.71

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
008098728-01	OBS	FP	0.00	0	1	0	0	MOD_SEC_DV—MOD_SEC_ALT—HAS_SEC_TCE—CENT_SATURATED
008098728-02	OBS	FP	0.00	1	1	0	0	IS_SEC_TCE—CENT_SATURATED
008098728-03	OBS	FP	0.00	1	0	0	0	SWEET_NTL—LPP_DV—LPP_ALT—MOD_NONUNIQ_ALT—CENT_SATURATED
008098728-04	OBS	FP	0.00	1	0	0	0	TRANS_GAPPED—SWEET_NTL—LPP_DV—LPP_ALT—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_SATURATED
008098728-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_SATURATED
008098728-06	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_MARSHALL—TRANS_GAPPED—ALL_TRANS_CHASES—MOD_NONUNIQ_ALT—INCONSISTENT_TRANS—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 008098728-04

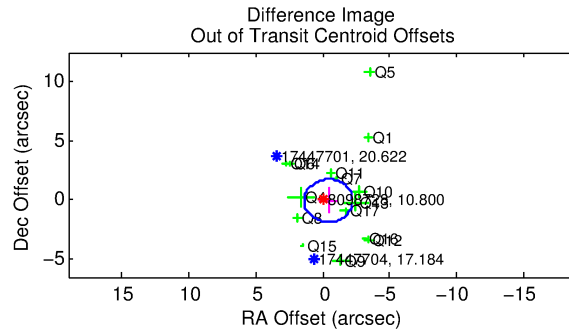
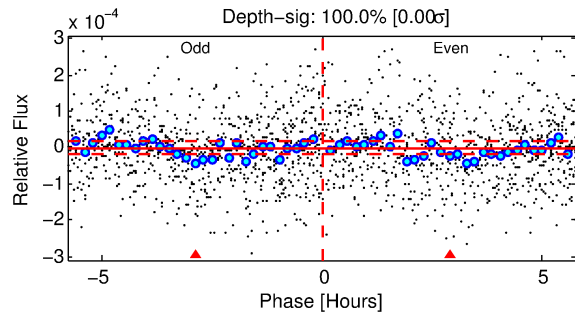
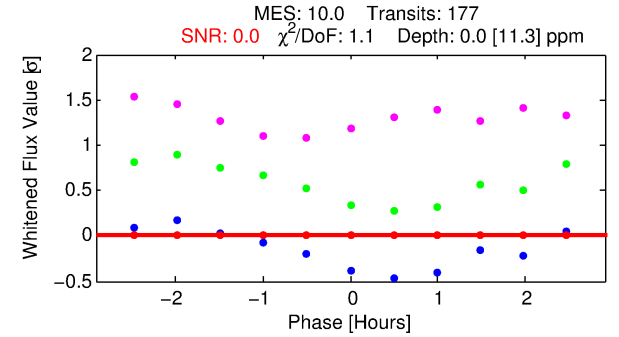
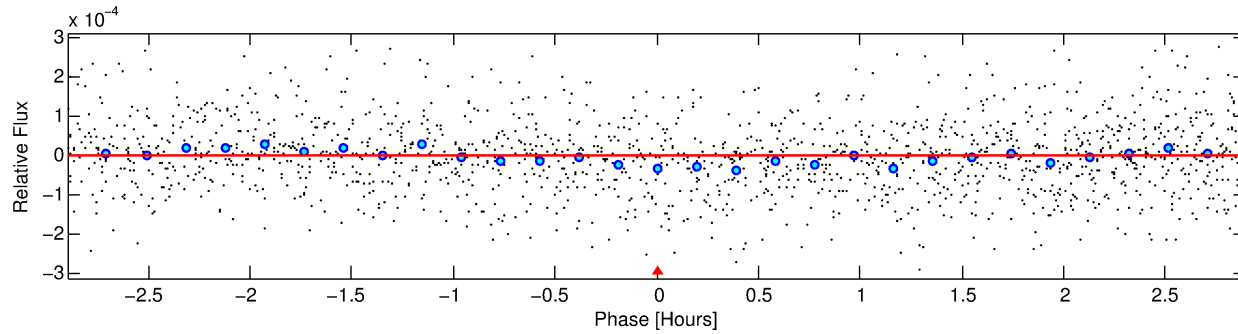
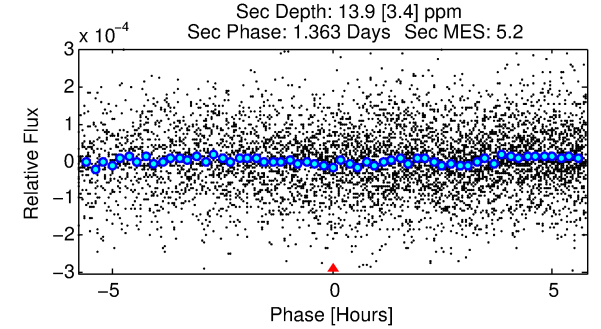
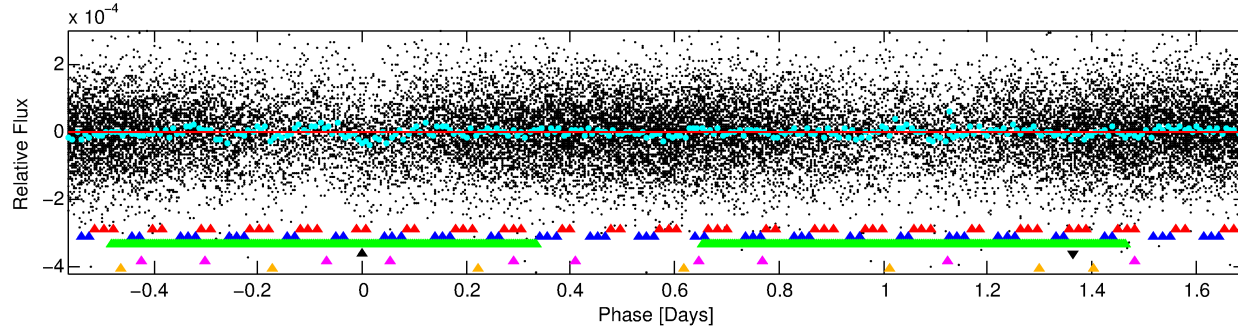
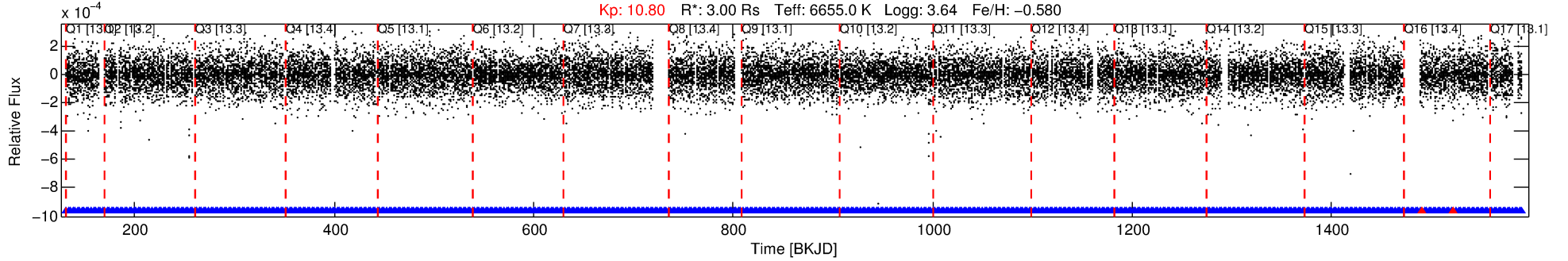
No Significant Match Found

DV One-Page Summary

KIC: 8098728 Candidate: 4 of 6 Period: 2.262 d

KOI: K02008 Corr: No Ephemeris Match

Kp: 10.80 R*: 3.00 Rs Teff: 6655.0 K Logg: 3.64 Fe/H: -0.580



DV Fit Results:

Period = 2.26162 [1321.78545] d
Epoch = 131.6459 [228213.1725] BKJ
Rp/R* = 0.0000 [7.0642]
a/R* = 17.88 [368686696.05]
b = 0.06 [352745507.77]
Seff = 10961.23 [8541617.86]
Teq = 2609 [508290] K
Rp = 0.00 [2308.74] Re
a = 0.0379 [14.7761] AU
Ag = 218224835.62 [448893522318337.00] [10.000]
Teff = 490295 [2521431526310] K

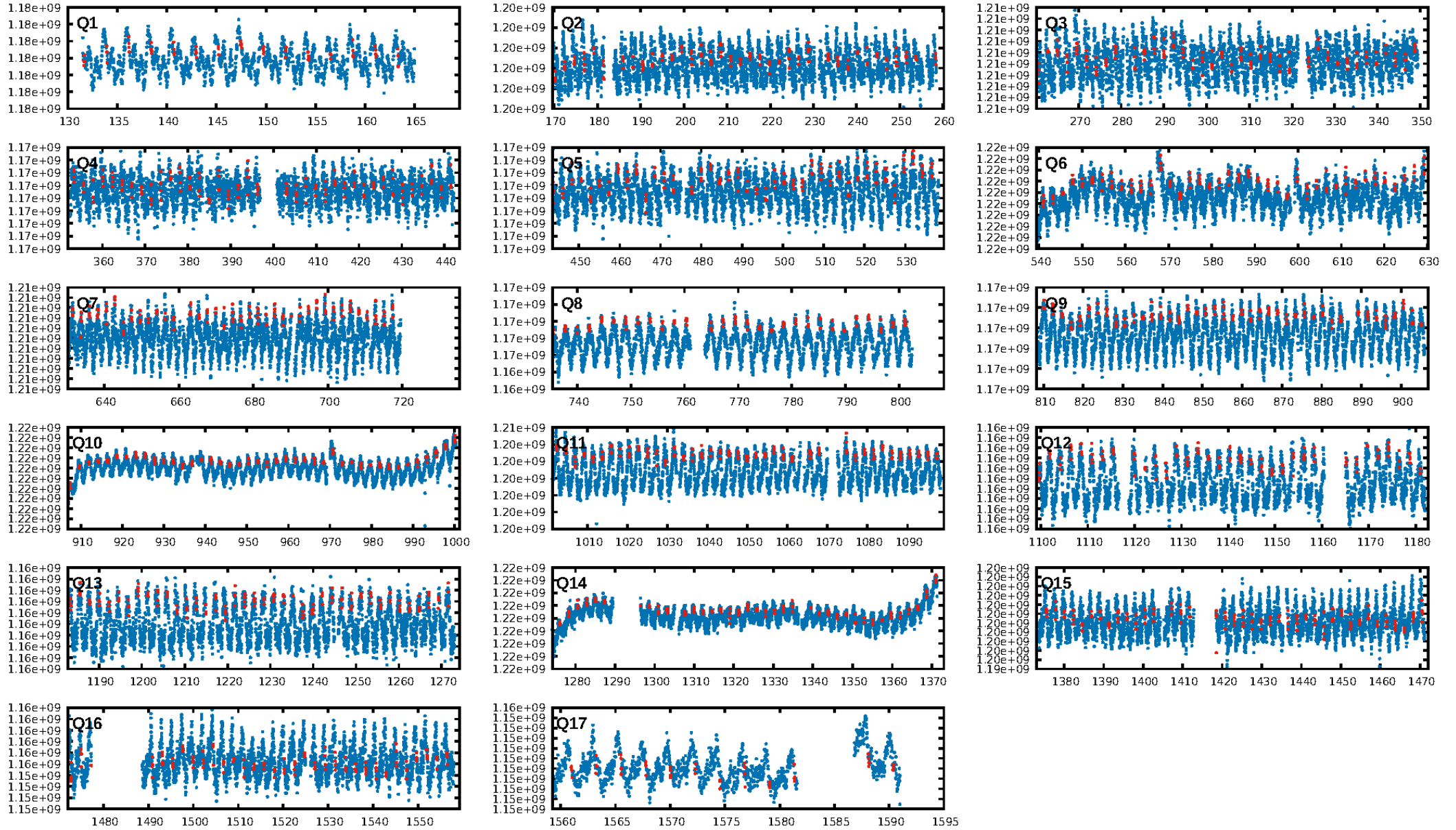
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [5.62σ]
LongPeriod-sig: 100.0% [109.66σ]
ModelChiSquare2-sig: 16.3%
ModelChiSquareGof-sig: 100.0%
Bootstrap-pfa: 1.40e-15
RollingBand-fgt: 0.99 [148/150]
GhostDiagnostic-chr: N/A
Centroid-sig: N/A
Centroid-so: N/A
OutOffset-rm: 0.428 arcsec [0.71σ]
InOffset-rm: 0.780 arcsec [1.15σ]
OutOffset-st: 3/3/4/5 [15]
KicOffset-st: 3/3/4/5 [15]
DiffImageQuality-fgm: 0.27 [4/15]
DiffImageOverlap-fno: 0.29 [5/17]

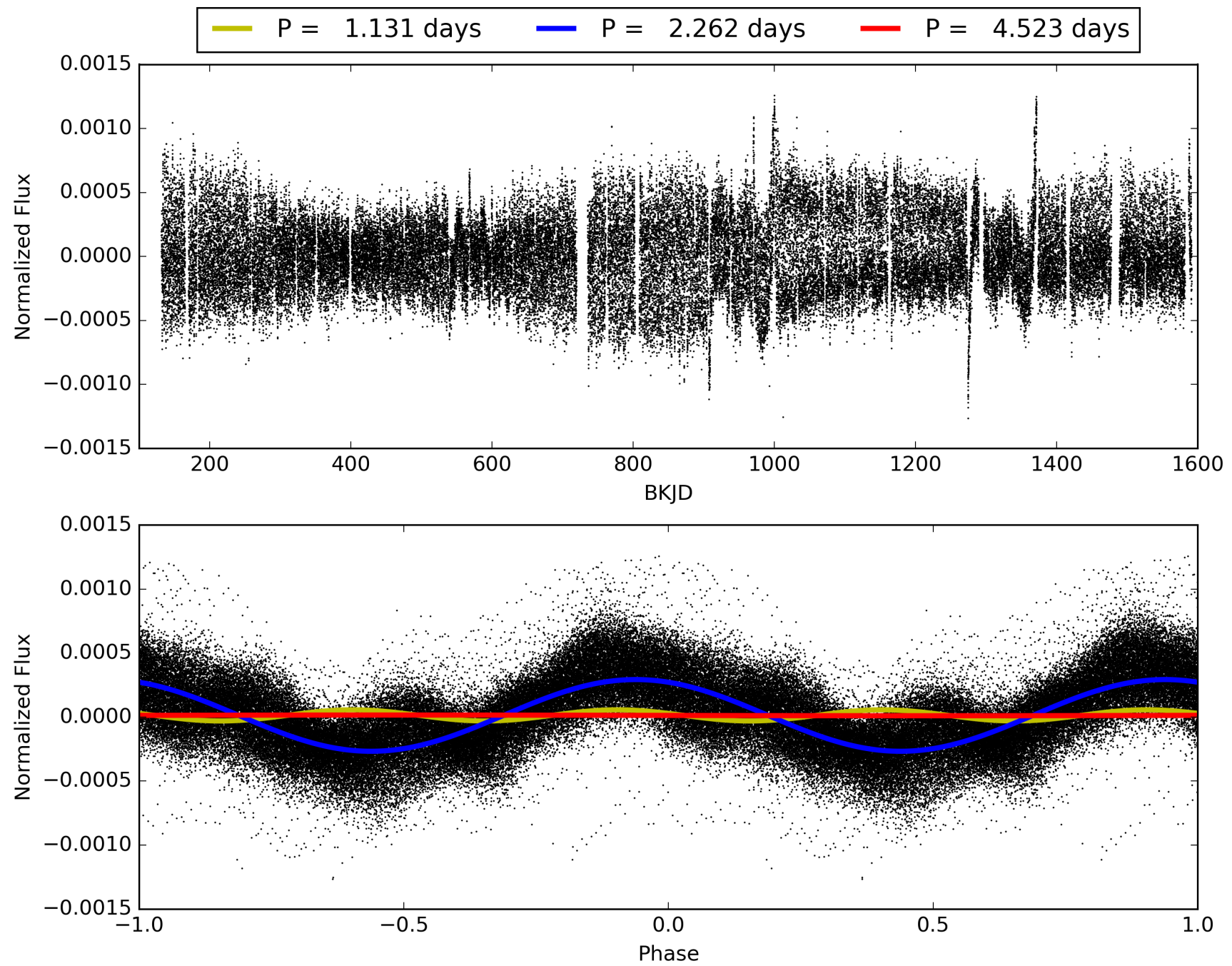
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 01-Feb-2016 17:38:39 Z

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

TCE 008098728-04, PDC Light Curves

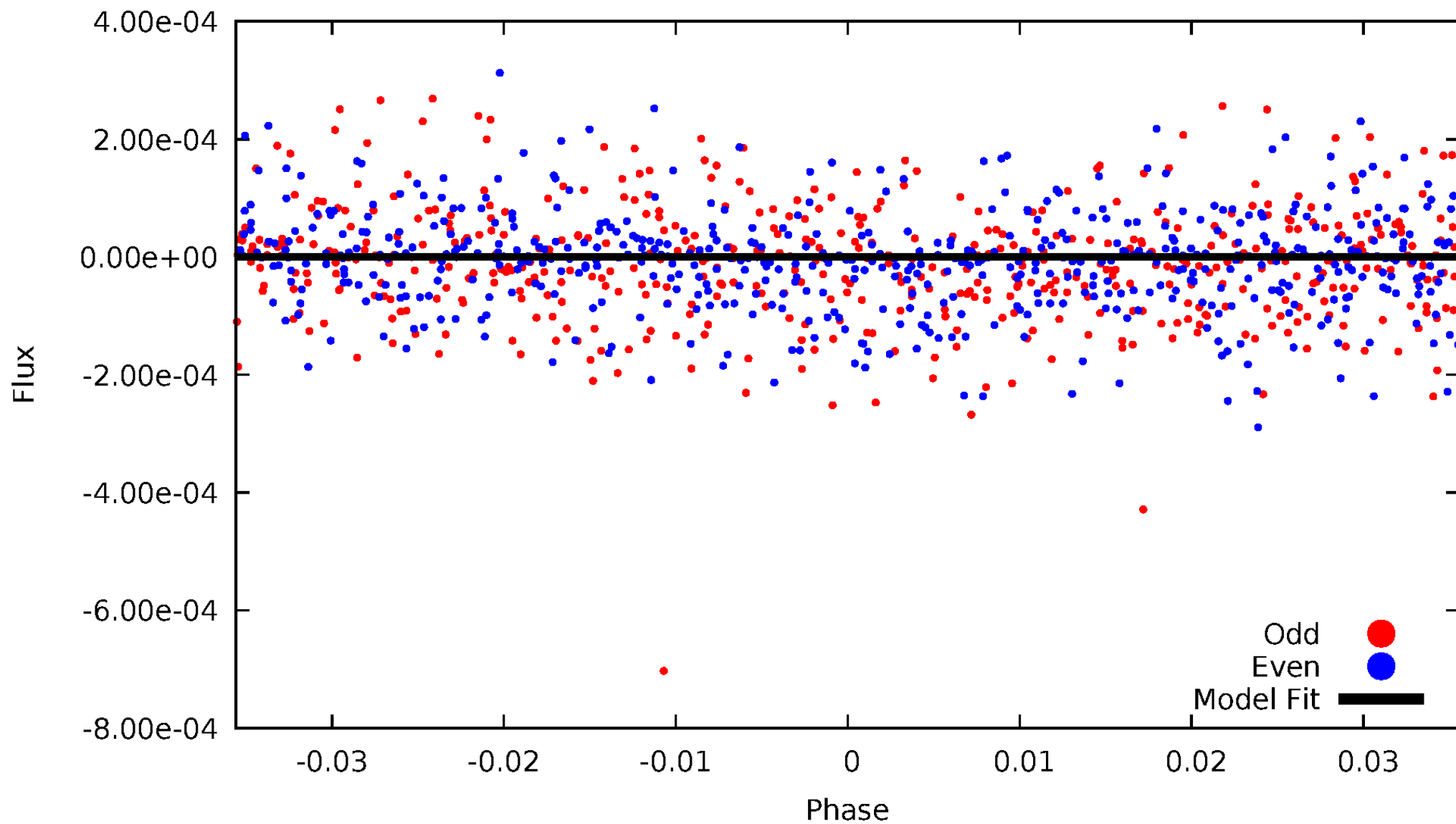


TCE 008098728-04



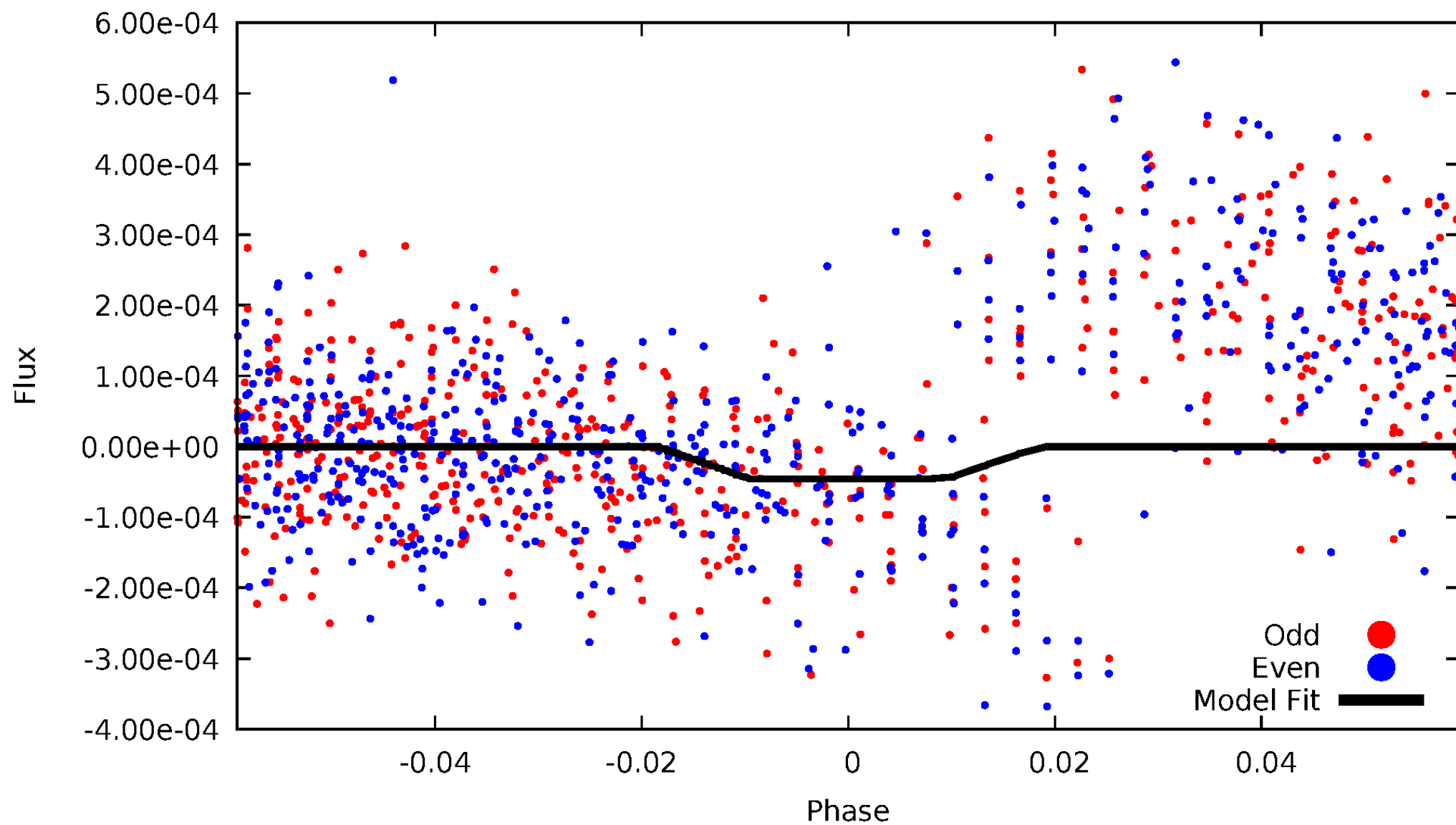
DV Odd/Even

TCE 008098728-04



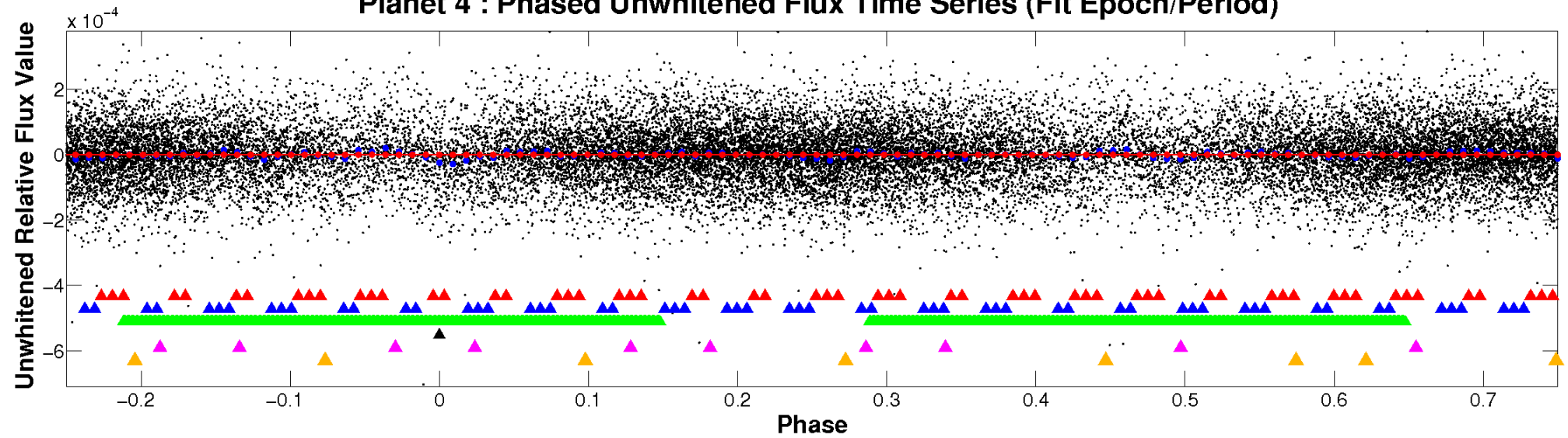
ALT Odd/Even

TCE 008098728-04

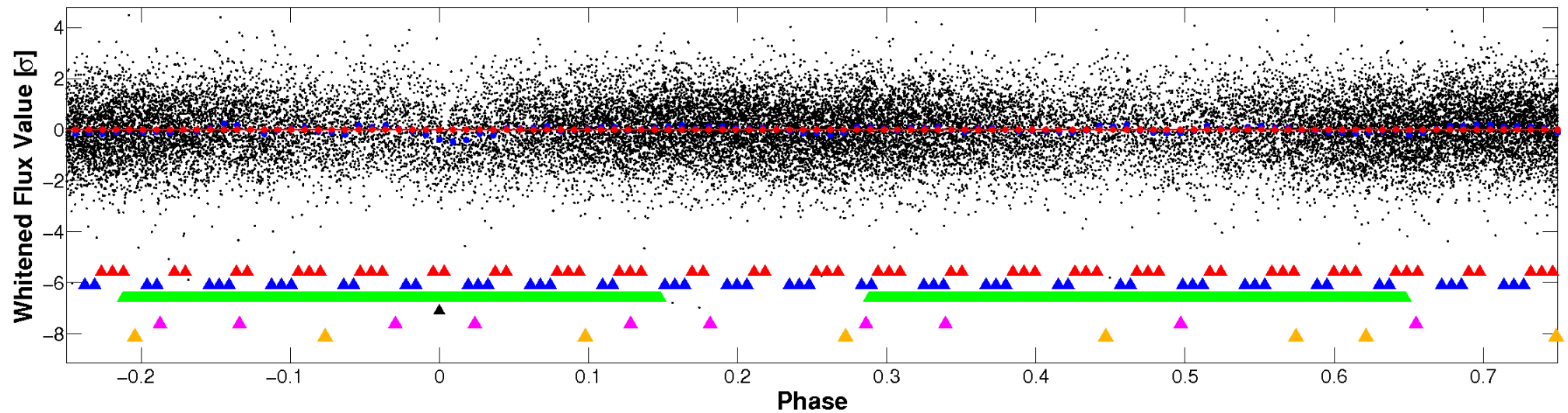


Non-Whitened Vs. Whitened Light Curve

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

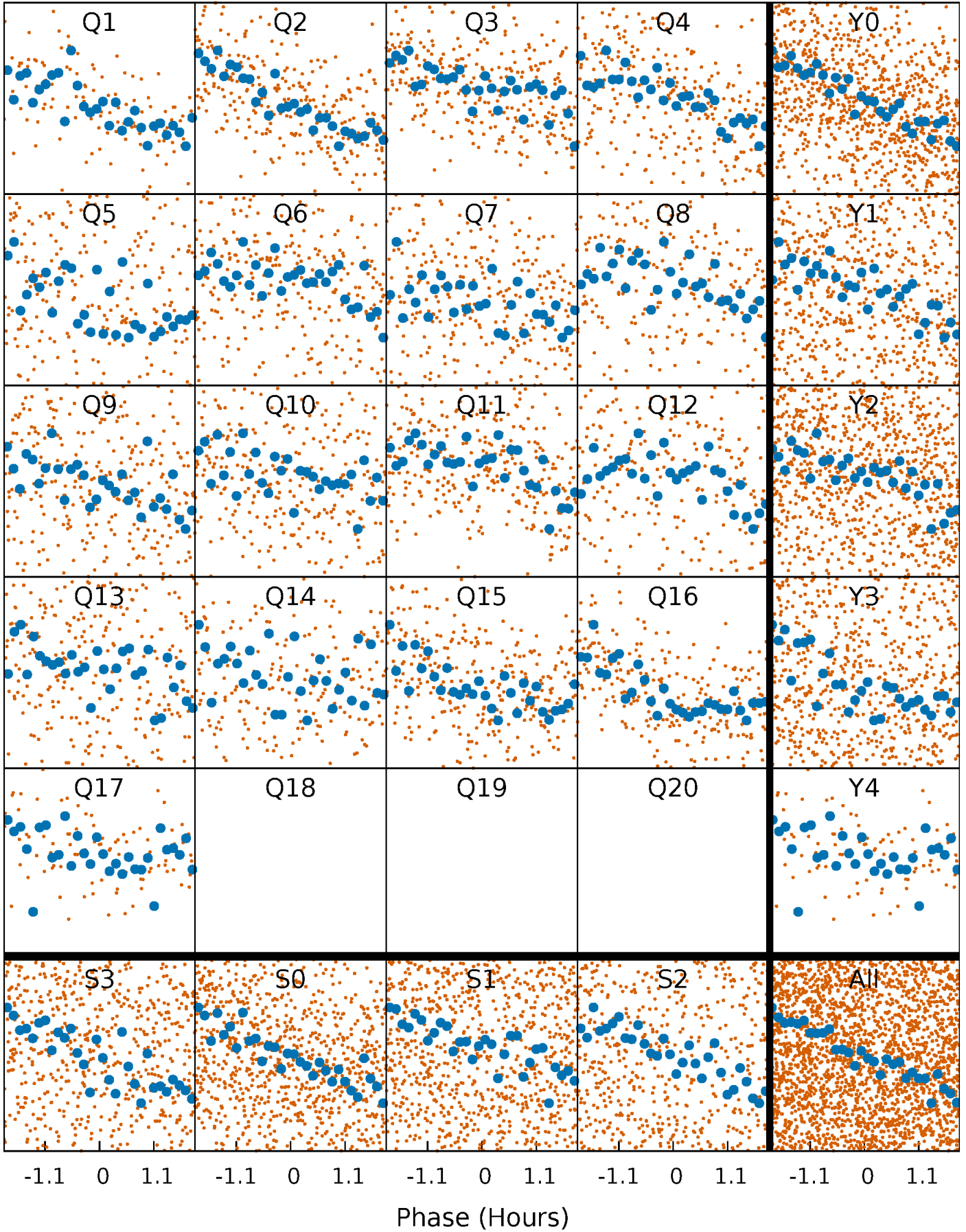


Planet 4 : Phased Whitened Flux Time Series (Fit Epoch/Period)



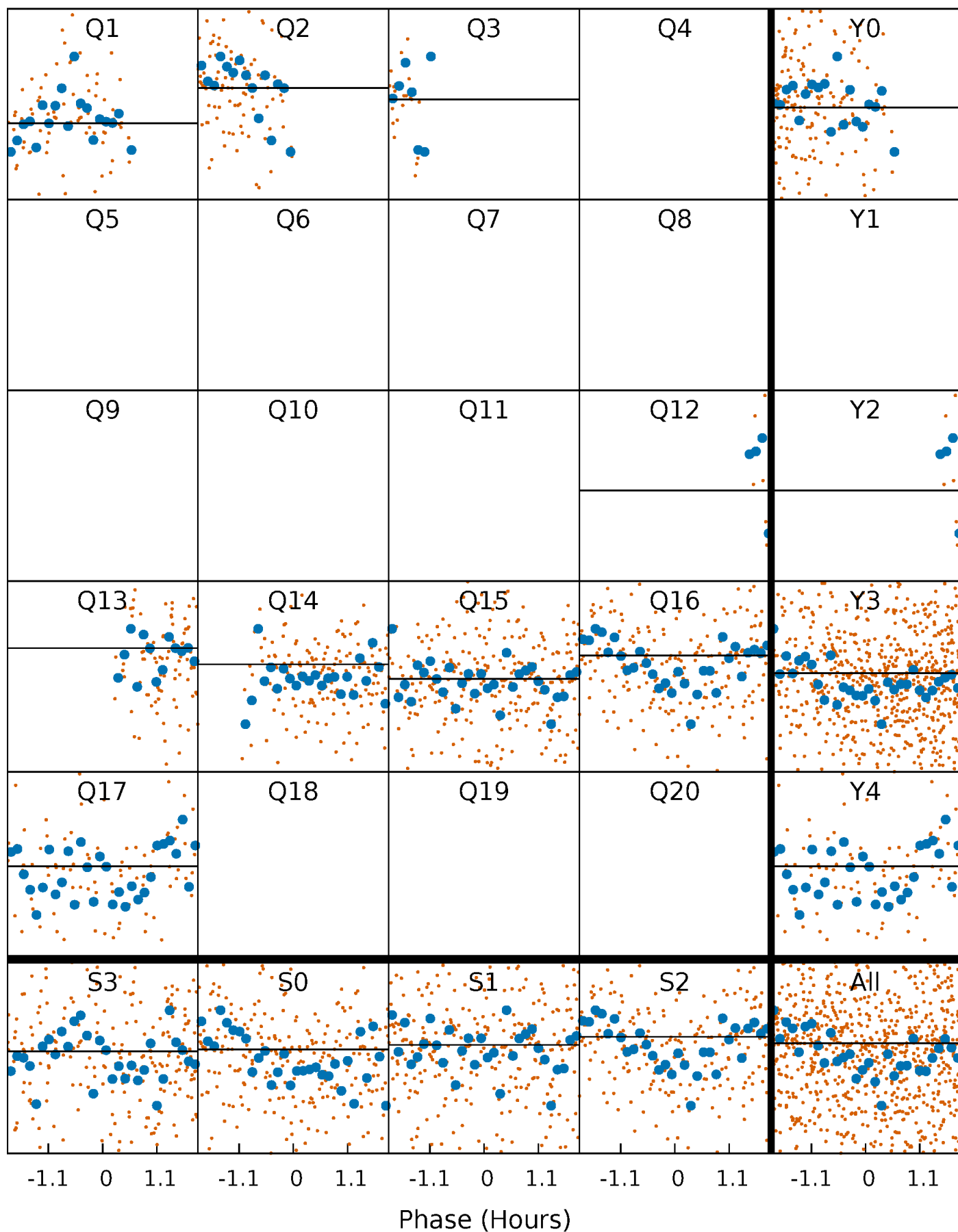
PDC Quarter-Phased Transit Curves

TCE 008098728-04 P= 2.261616 Days $T_0=131.645861$ (BKJD)



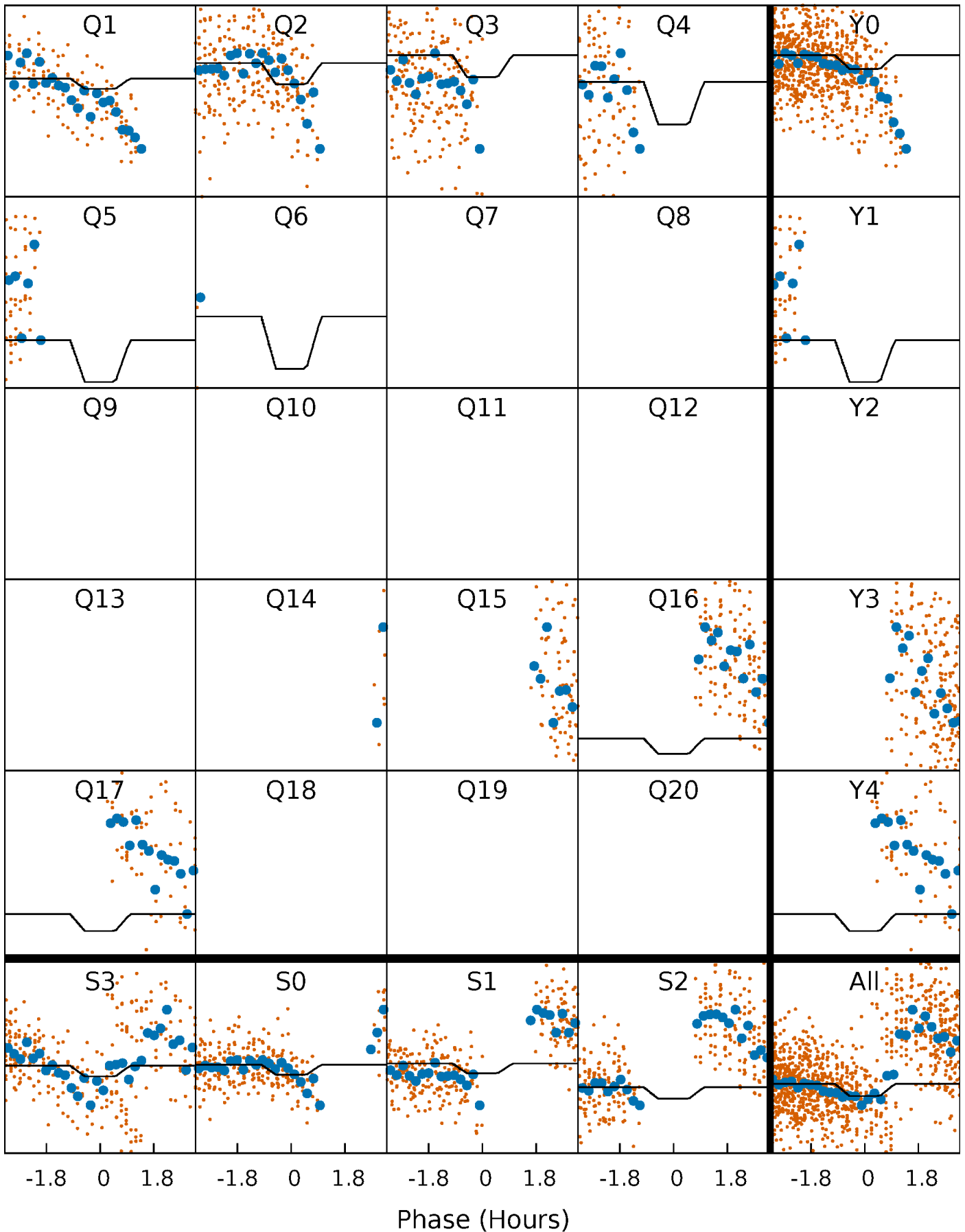
DV Quarter-Phased Transit Curves

TCE 008098728-04 P= 2.261616 Days $T_0=131.645861$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

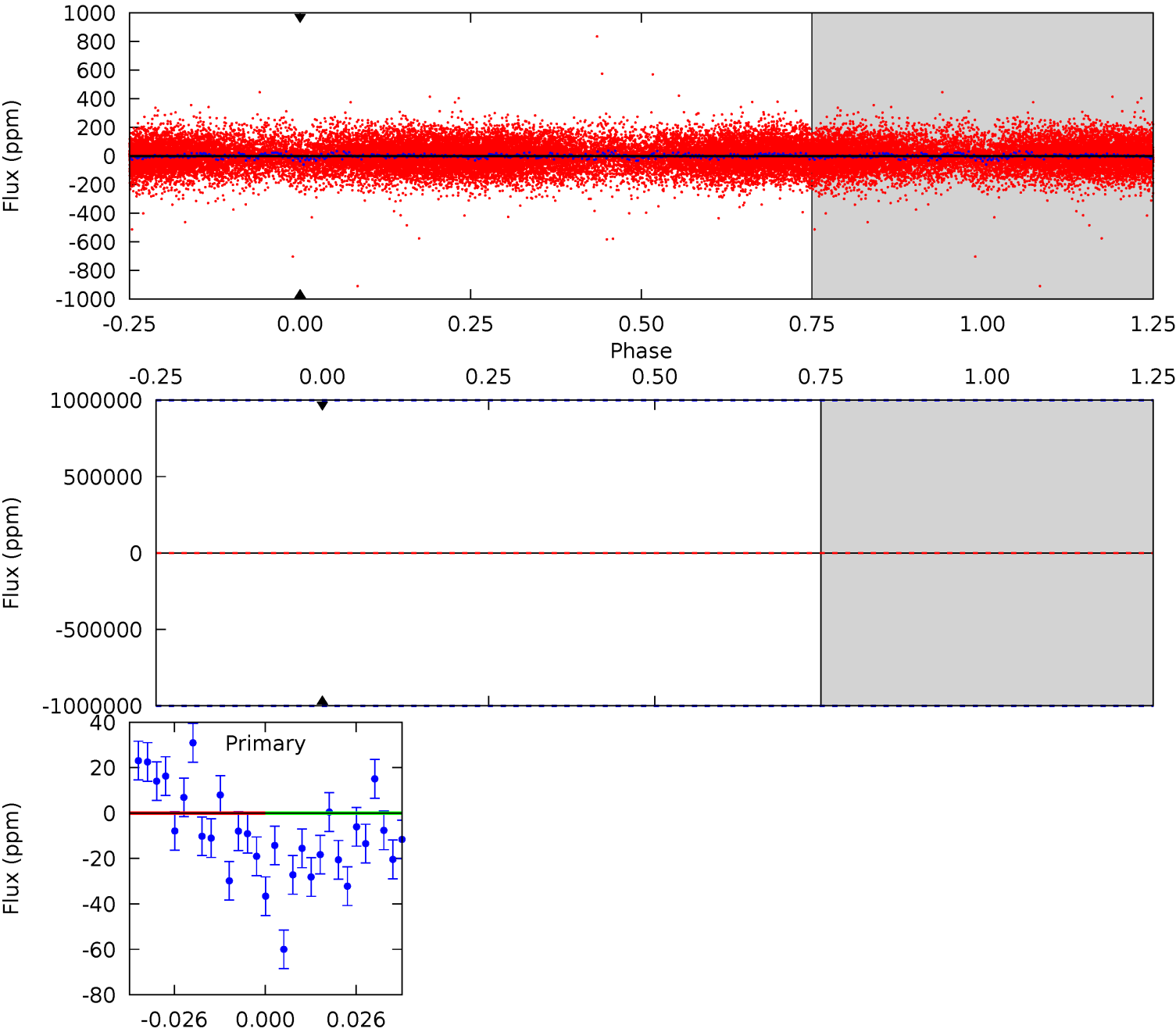
TCE 008098728-04 P= 2.261389 Days $T_0=131.611960$ (BKJD)



DV Model-Shift Uniqueness Test

008098728-04, P = 2.261616 Days, E = 129.384245 Days

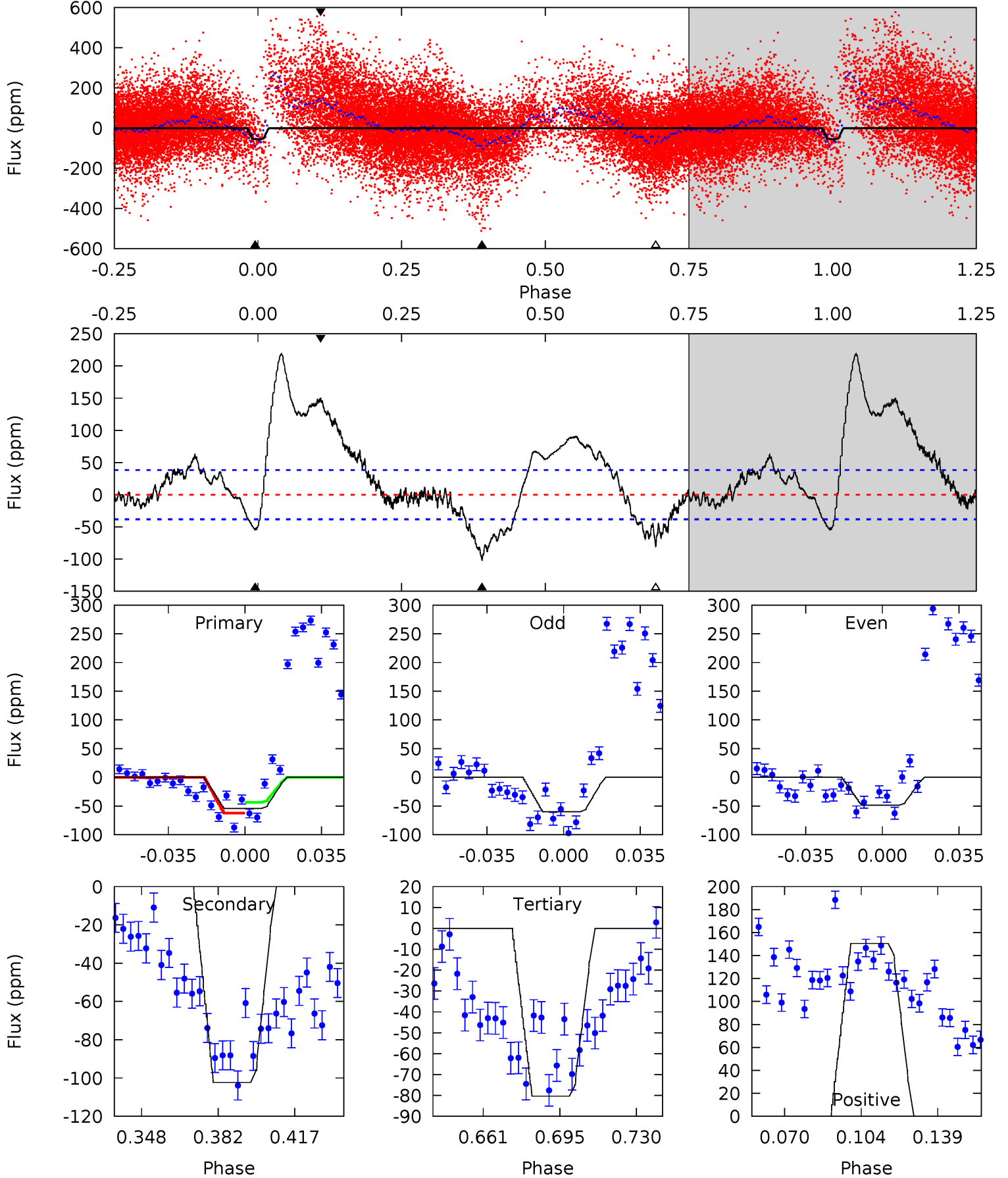
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
0	0	0	0	1.00	1.00	1.00	0	0	0	0	0	0	0	0



Alt Model-Shift Uniqueness Test

008098728-04, P = 2.261389 Days, E = 129.350571 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
6.78	12.8	10.0	18.8	4.78	2.11	6.00	-3.25	-12.0	2.75	-6.02	0.72	0.91	0.68	1.11



Stellar Parameters For KIC 008098728

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	$M(M_{\odot})$	p_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	6655^{+168}_{-184}	$3.638^{+0.337}_{-0.112}$	$-0.580^{+0.350}_{-0.300}$	$2.995^{+0.506}_{-1.180}$	$1.420^{+0.220}_{-0.330}$	$0.074^{+0.188}_{-0.026}$
	+3%/-3%	+9%/-3%	+60%/-52%	+17%/-39%	+15%/-23%	+253%/-34%
Source	PHO1	FLK73	KIC0	DSEP		

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

Secondary Eclipse Parameters for KIC 008098728-04 / KOI

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	0 ± 1000000	$1424.20^{+1714.51}_{-1021.45}$	490^{+272}_{-119}	-1663^{+4451}_{-1059}	$0.003^{+254.136}_{-159.987}$
Alt.	-102 ± 8	$1400.87^{+1531.95}_{-1028.42}$	482^{+264}_{-107}	-1339^{+2909}_{-291}	$0.111^{+1.389}_{-0.099}$

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

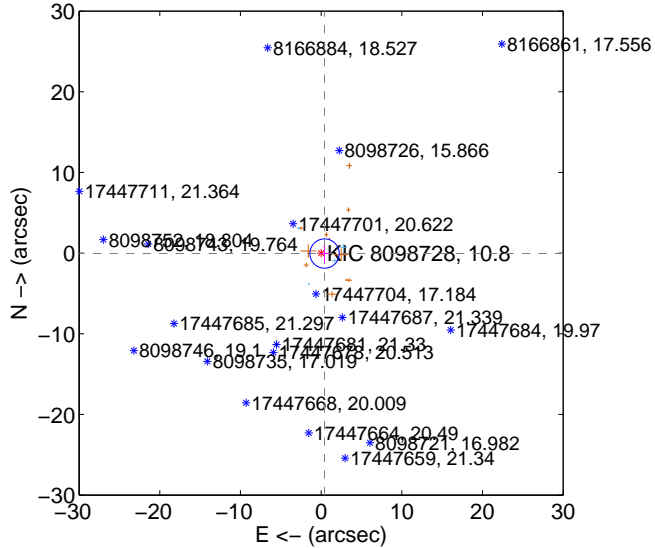
Supplemental centroid analysis for 008098728-04. **Kepler magnitude: 10.80.** Transit SNR 0.00

There are 4 quarters with good PRF difference image offsets

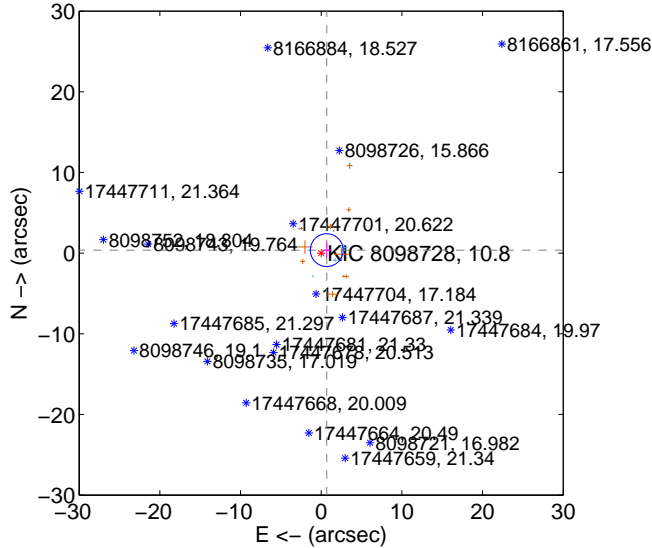
The direct PRF centroid is offset from the target star catalog position by about 0.08 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.428 ± 0.606	0.71	-0.425 ± 0.606	-0.056 ± 1.019
PRF-fit source offset from KIC position	0.780 ± 0.678	1.15	-0.687 ± 0.562	0.369 ± 0.931
photometric centroid source offset	—	—	—	—

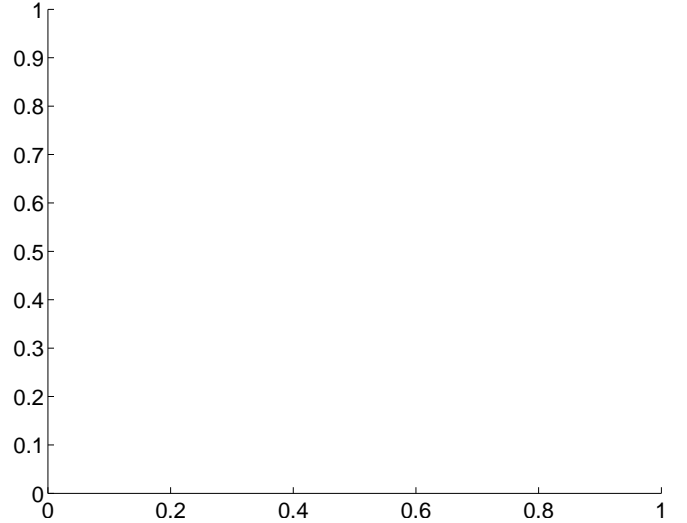
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position

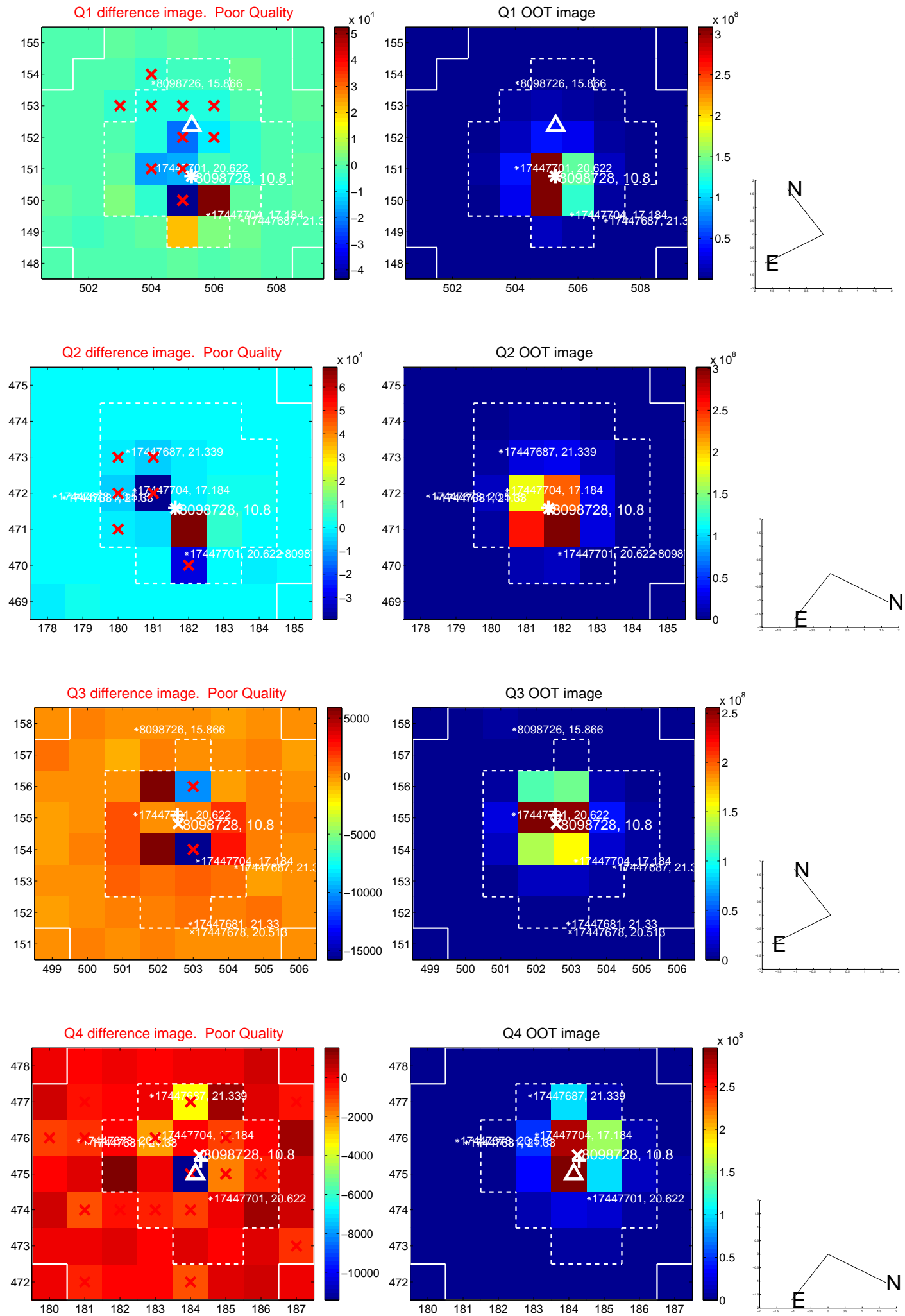


There are no photometric centroids

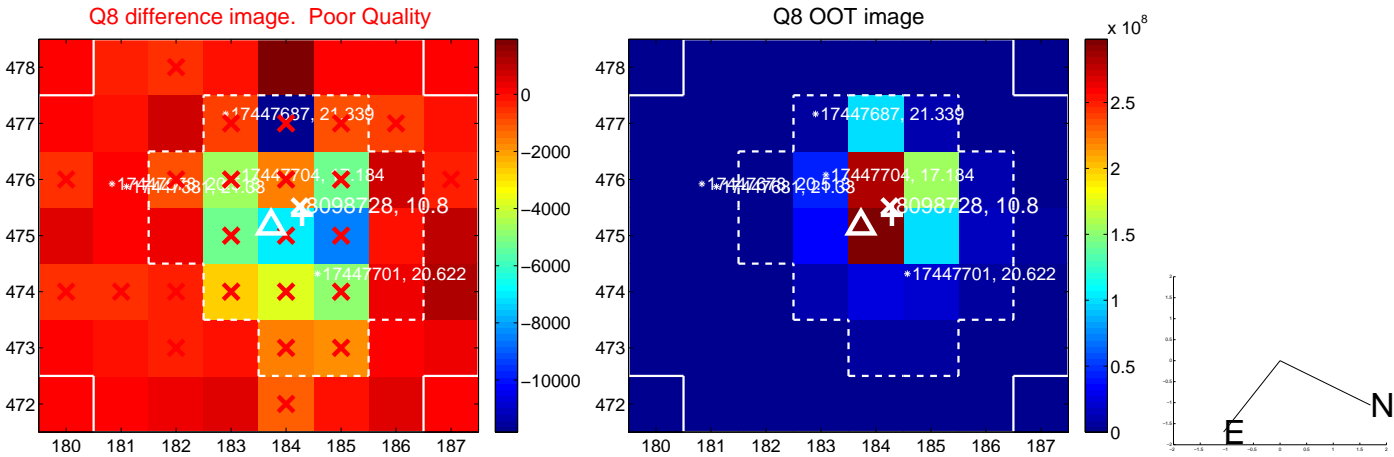
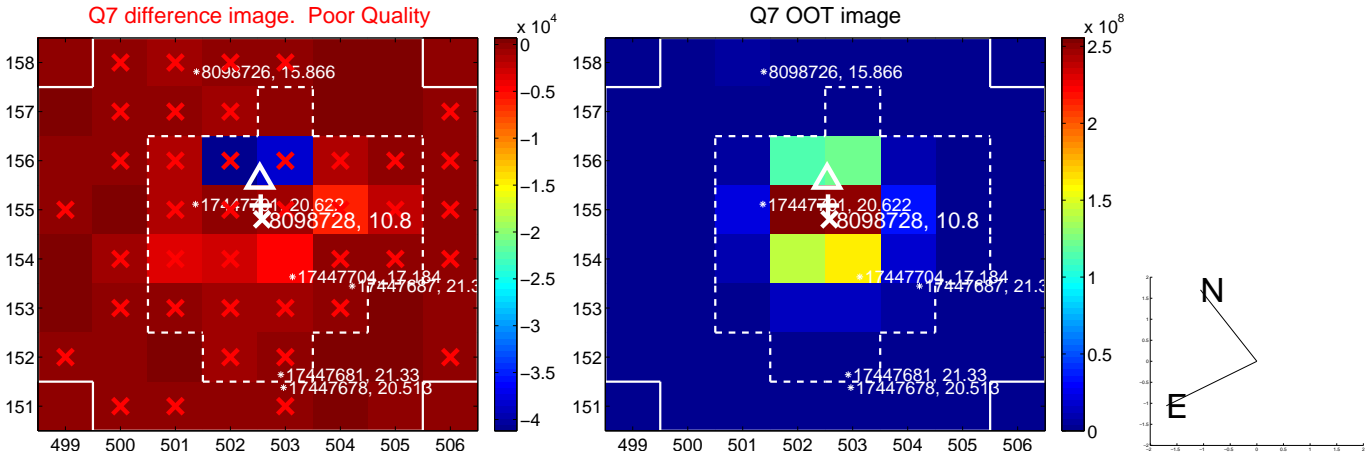
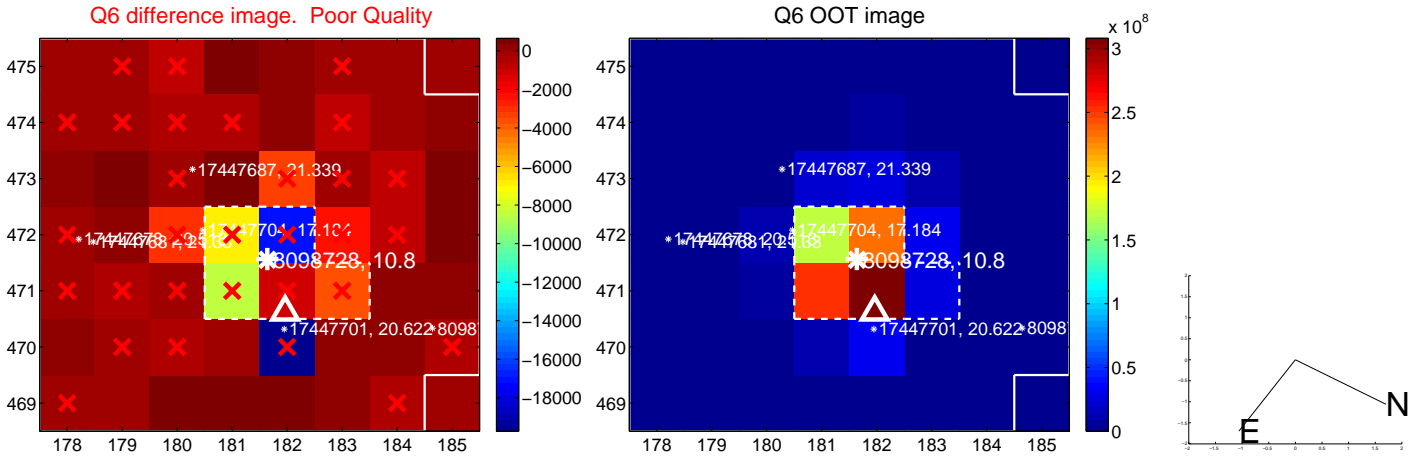
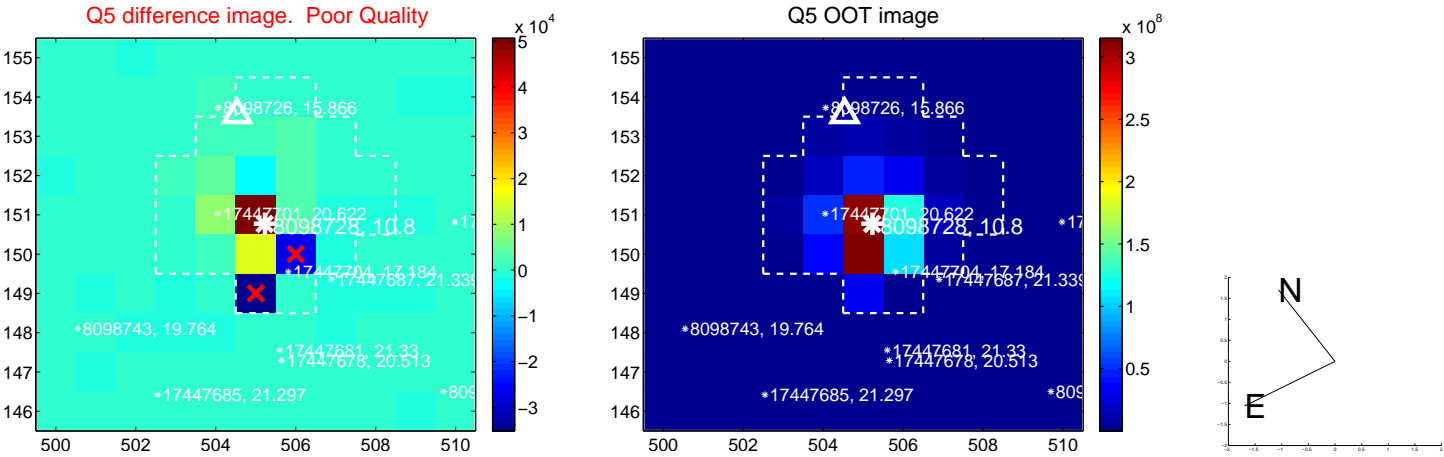


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets;** magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

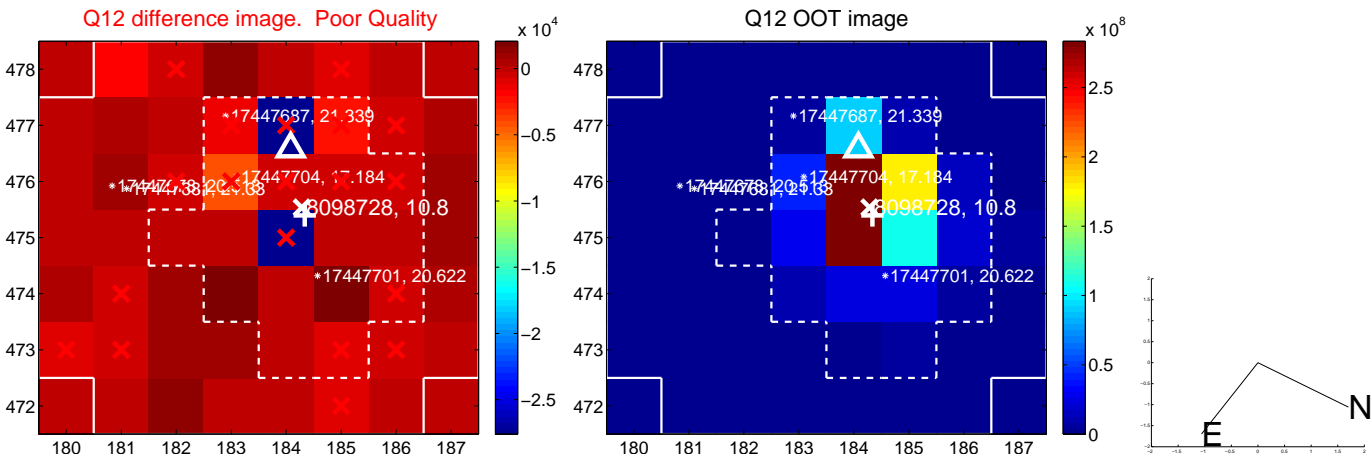
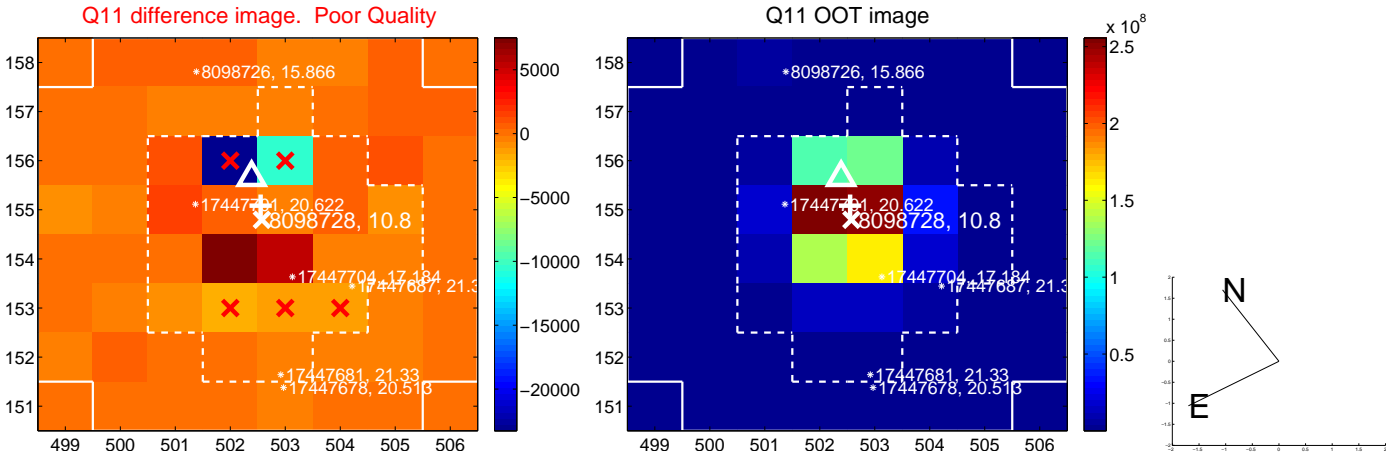
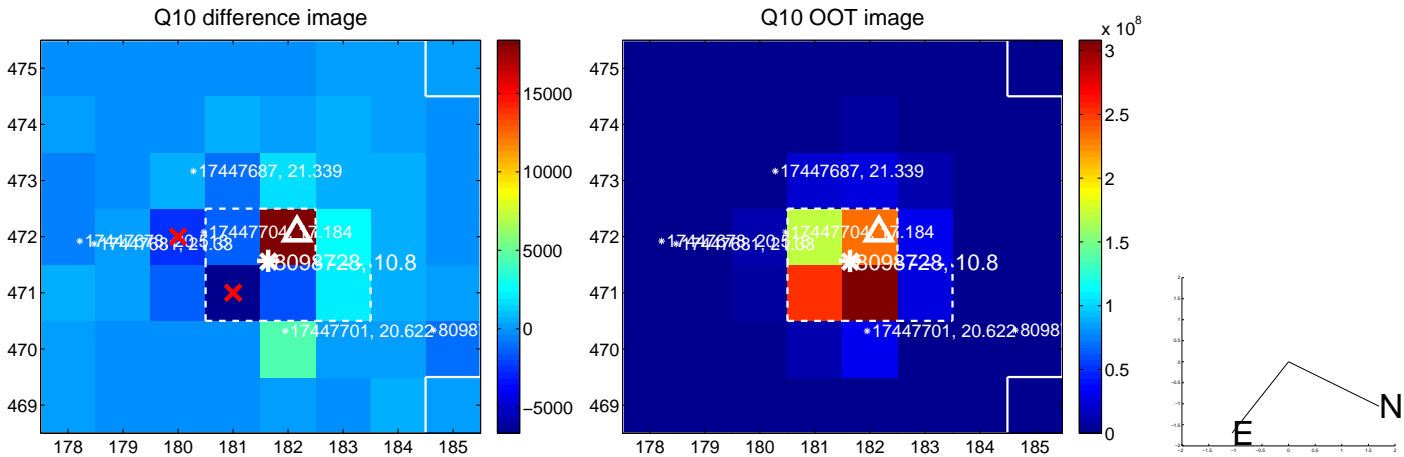
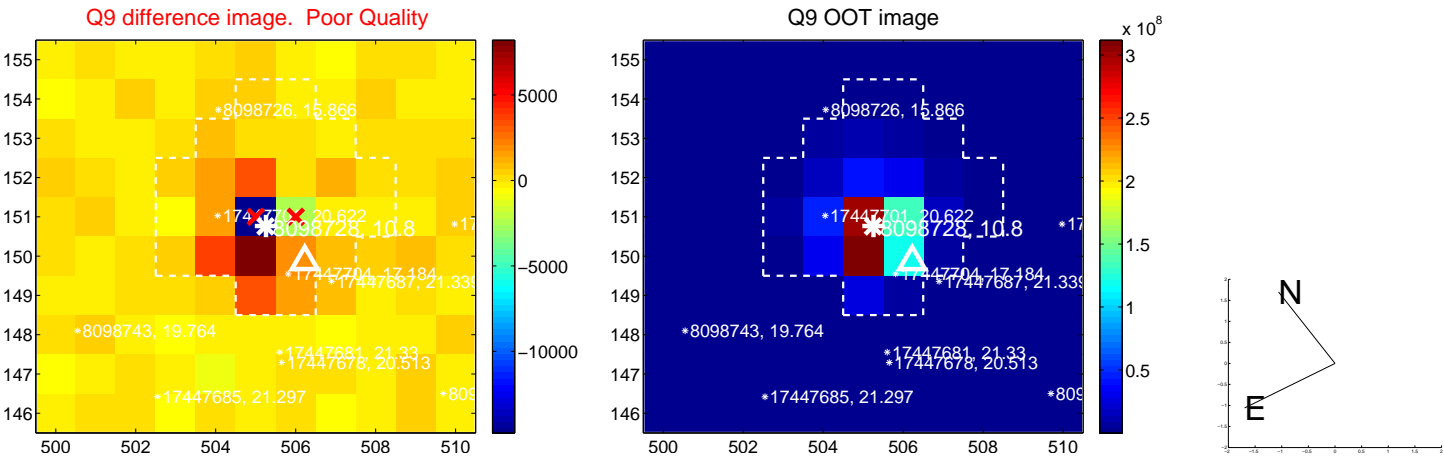
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



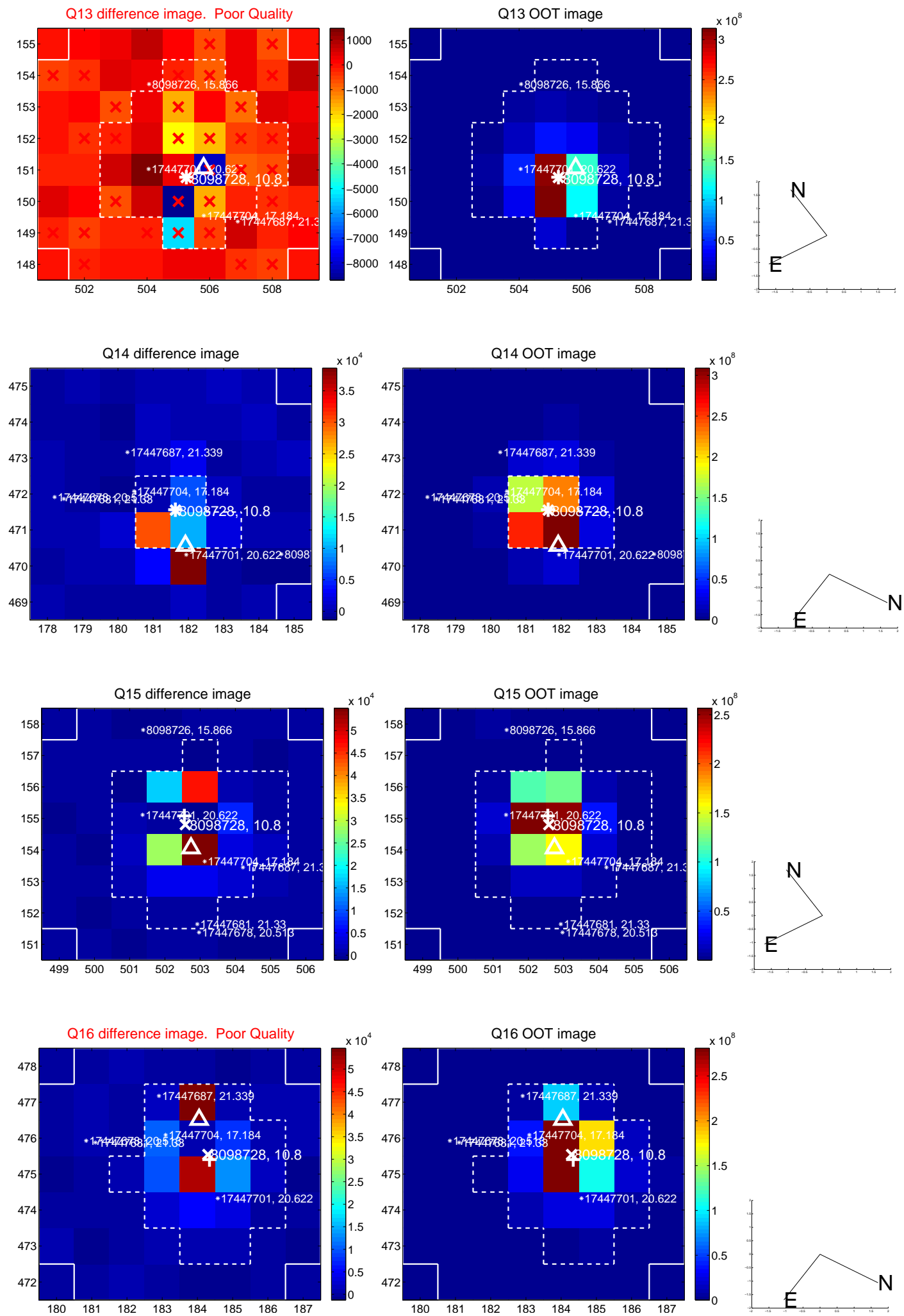
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



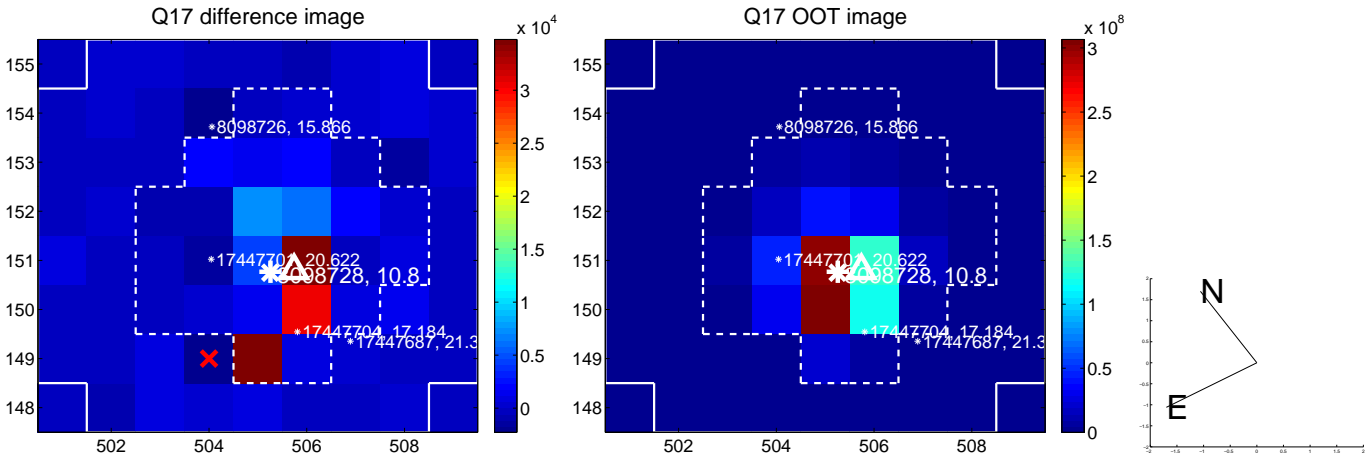
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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



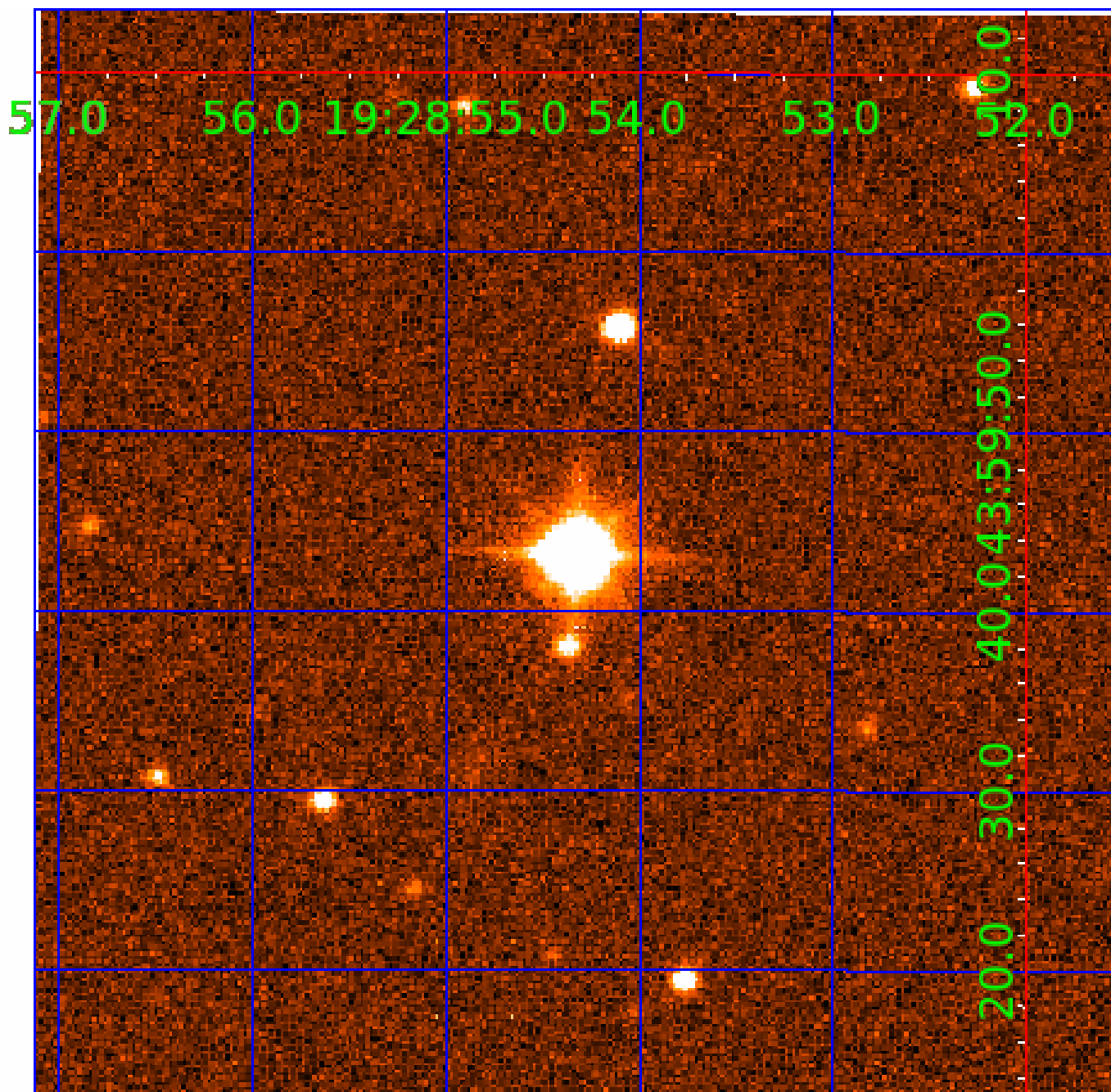
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



folded centroid time series figure for this object.

UKIRT Image

Declination



KIC 008098728

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})
008098728-01	OBS	2008.01	24.485180	137.619563	252.9	4.586	19.5	22.1	3.00	6655	7.77	457.66
008098728-02	OBS	No	24.485106	148.008072	201.5	4.767	16.5	18.2	3.00	6655	8.30	457.67
008098728-03	OBS	No	1.130177	131.980955	4.1	4.736	8.1	2.3	3.00	6655	0.63	27641.15
008098728-04	OBS	No	2.261616	131.645861	0.0	0.965	10.0	0.0	3.00	6655	0.00	10961.23
008098728-05	OBS	No	155.694681	177.525138	152.7	20.994	9.0	7.5	3.00	6655	3.95	38.85
008098728-06	OBS	No	190.370384	171.392528	236.7	2.551	8.6	7.7	3.00	6655	5.34	29.71

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
008098728-01	OBS	FP	0.00	0	1	0	0	MOD_SEC_DV—MOD_SEC_ALT—HAS_SEC_TCE—CENT_SATURATED
008098728-02	OBS	FP	0.00	1	1	0	0	IS_SEC_TCE—CENT_SATURATED
008098728-03	OBS	FP	0.00	1	0	0	0	SWEET_NTL—LPP_DV—LPP_ALT—MOD_NONUNIQ_ALT—CENT_SATURATED
008098728-04	OBS	FP	0.00	1	0	0	0	TRANS_GAPPED—SWEET_NTL—LPP_DV—LPP_ALT—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_SATURATED
008098728-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_SATURATED
008098728-06	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_MARSHALL—TRANS_GAPPED—ALL_TRANS_CHASES—MOD_NONUNIQ_ALT—INCONSISTENT_TRANS—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.

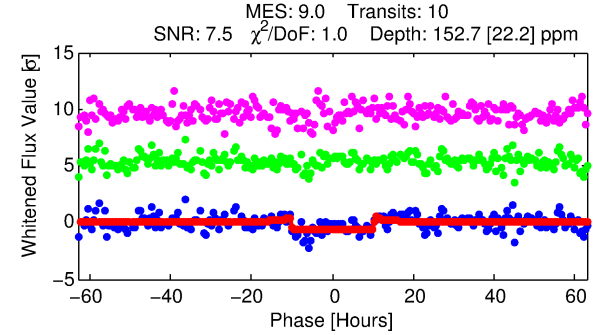
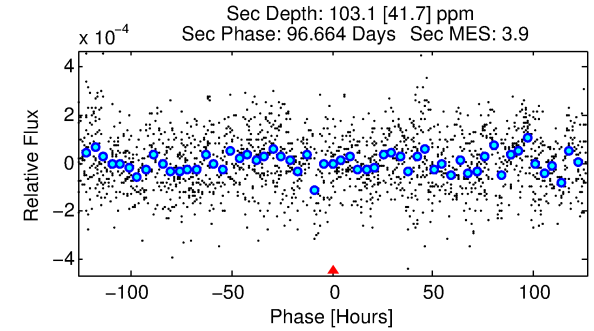
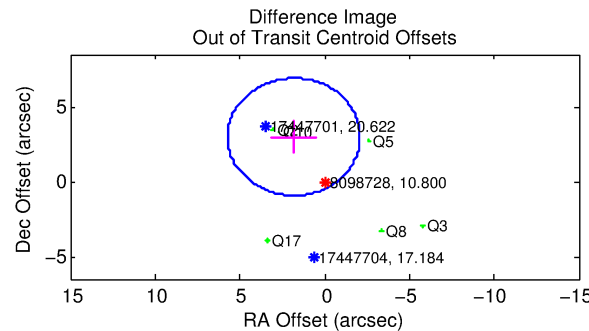
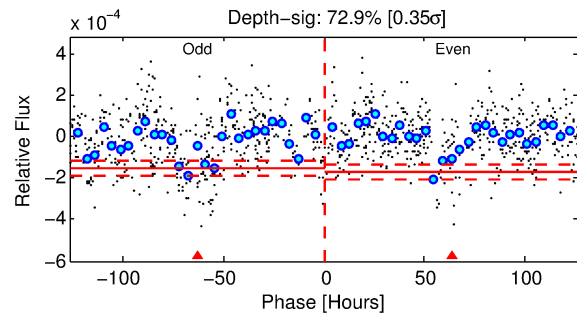
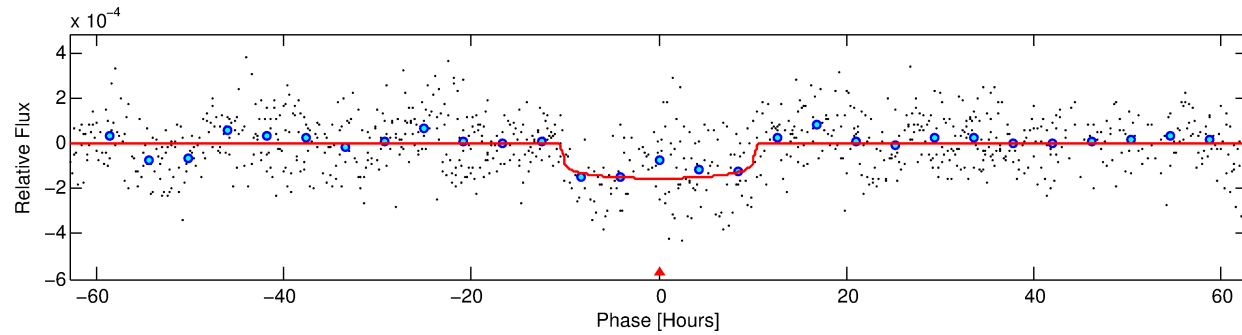
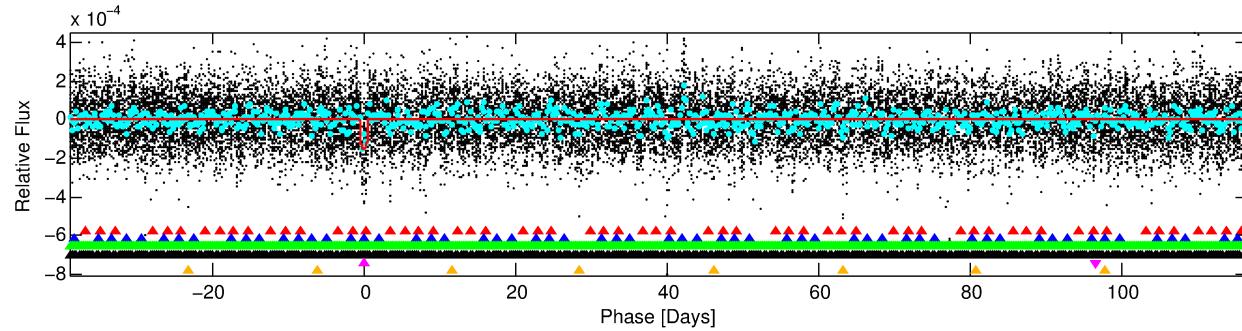
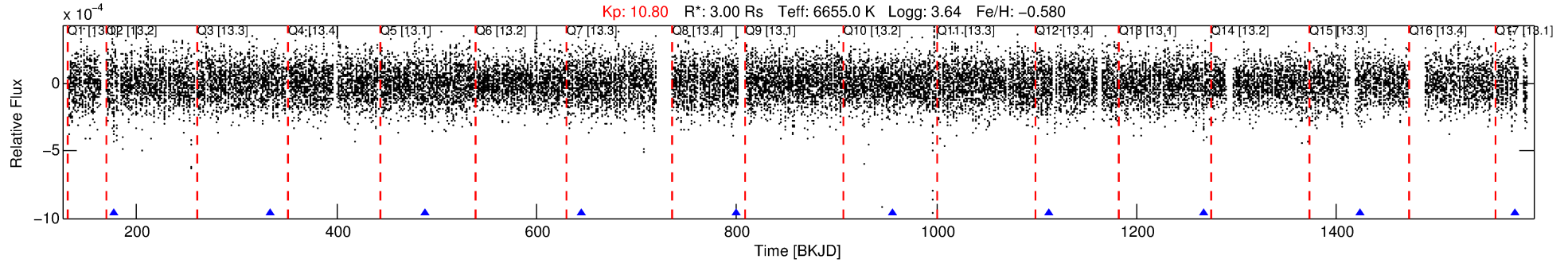
Ephemeris Match Information For 008098728-05

No Significant Match Found

DV One-Page Summary

KIC: 8098728 Candidate: 5 of 6 Period: 155.695 d

KOI: K02008 Corr: No Ephemeris Match



DV Fit Results:

Period = 155.69468 [0.00386] d
Epoch = 177.5251 [0.0181] BKJD
 R_p/R^* = 0.0121 [0.0018]
 a/R^* = 42.13 [29.93]
 b = 0.69 [0.55]
 S_{eff} = 38.85 [22.95]
 T_{eq} = 637 [94] K
 R_p = 3.95 [1.67] R_e
 a = 0.6370 [0.2348] AU
 A_g = 1474.92 [1134.30] [1.30 σ]
 T_{eff} = 6100 [788] K [6.88 σ]

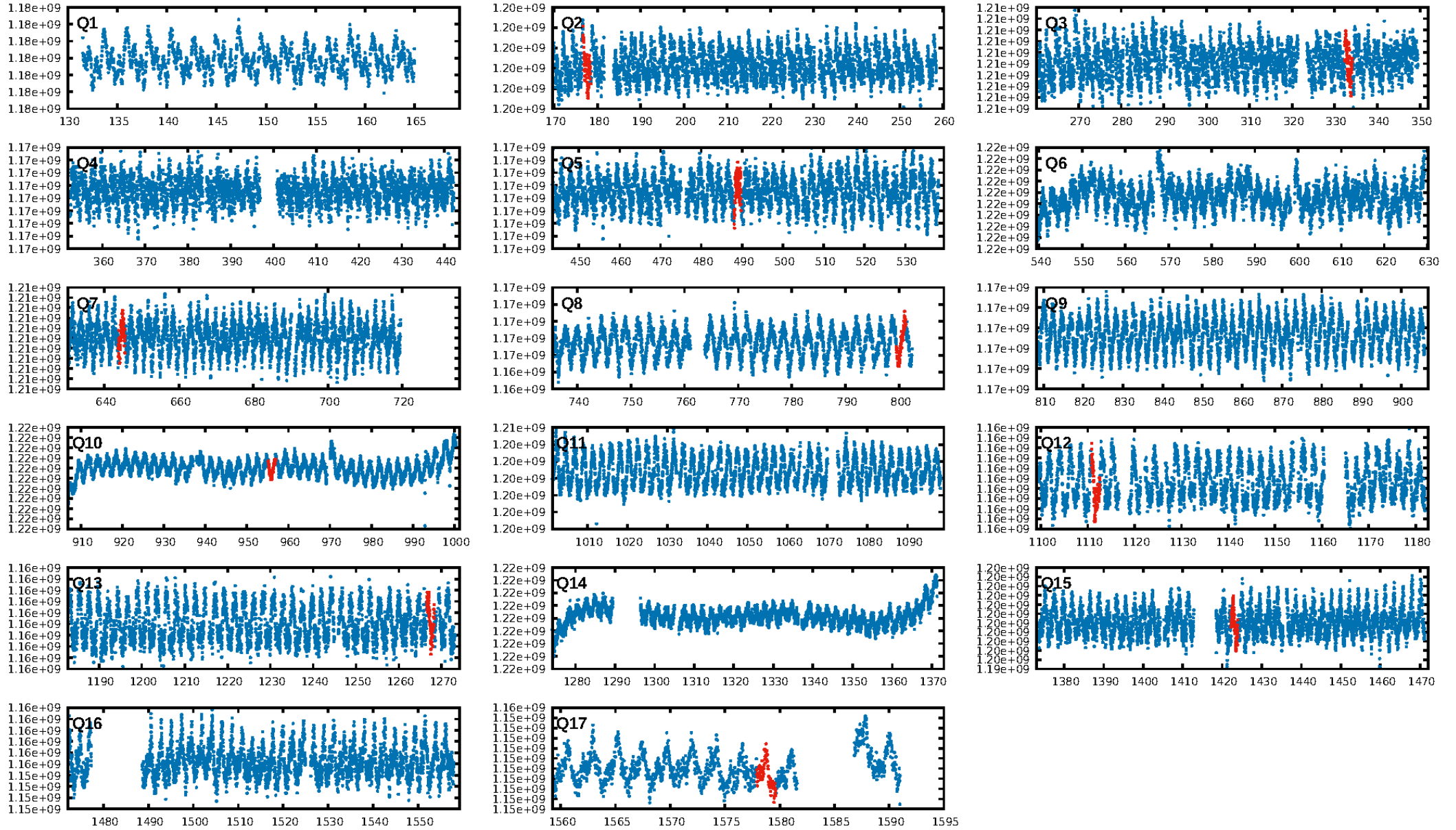
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [146.54 σ]
LongPeriod-sig: 100.0% [39.35 σ]
ModelChiSquare2-sig: 0.1%
ModelChiSquareGof-sig: 100.0%
Bootstrap-pfa: 2.85e-11
RollingBand-fgt: 1.00 [9/9]
GhostDiagnostic-chr: -101.7
Centroid-sig: 12.4%
Centroid-so: 0.672 arcsec [1.09 σ]
OotOffset-rm: 3.499 arcsec [2.68 σ]
KicOffset-rm: 3.468 arcsec [2.17 σ]
OotOffset-st: 2/1/1/2 [6]
KicOffset-st: 2/1/1/2 [6]
DiffImageQuality-fgm: 0.50 [3/6]
DiffImageOverlap-fno: 0.00 [0/7]

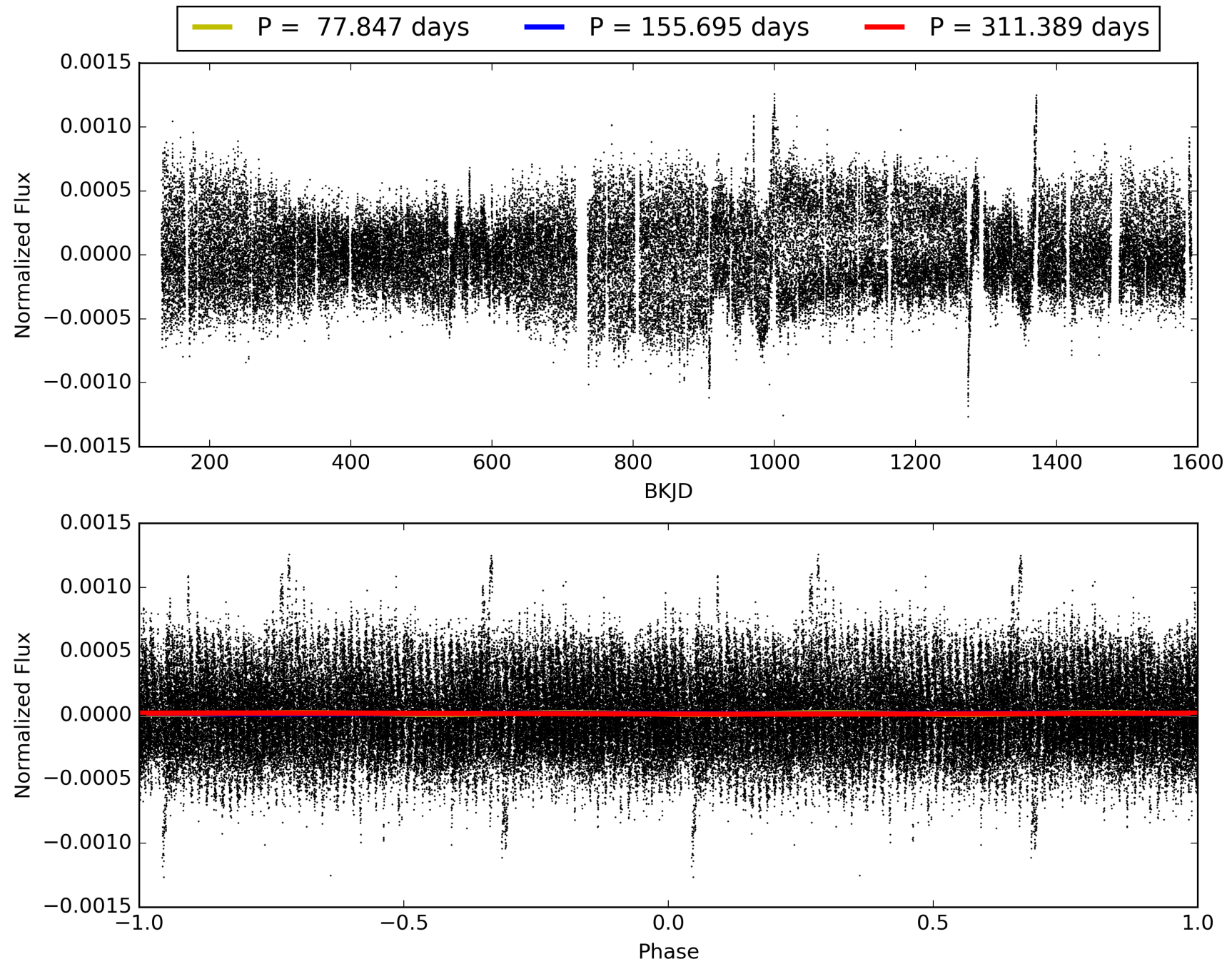
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 01-Feb-2016 17:38:44 Z

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

TCE 008098728-05, PDC Light Curves

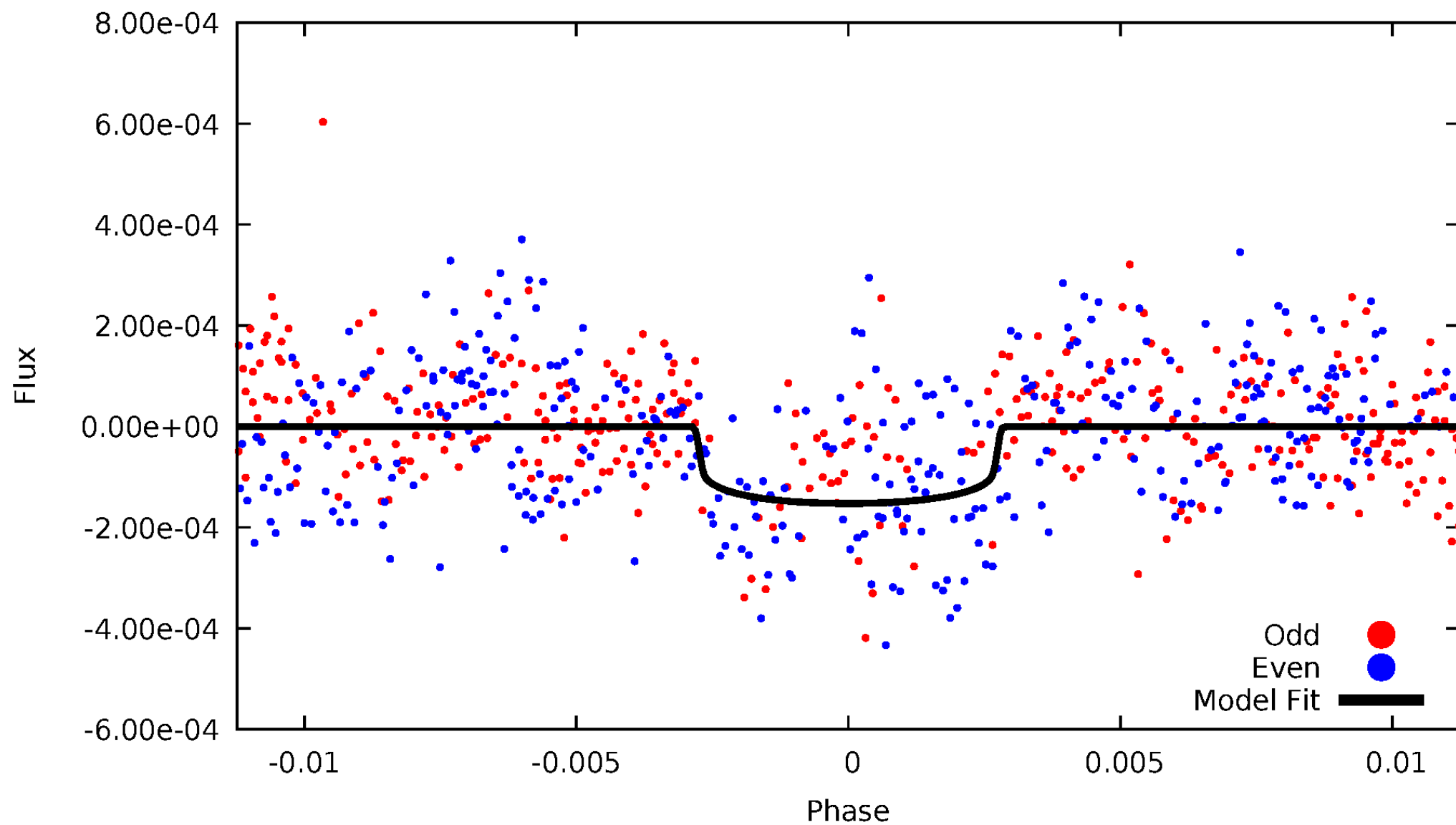


TCE 008098728-05



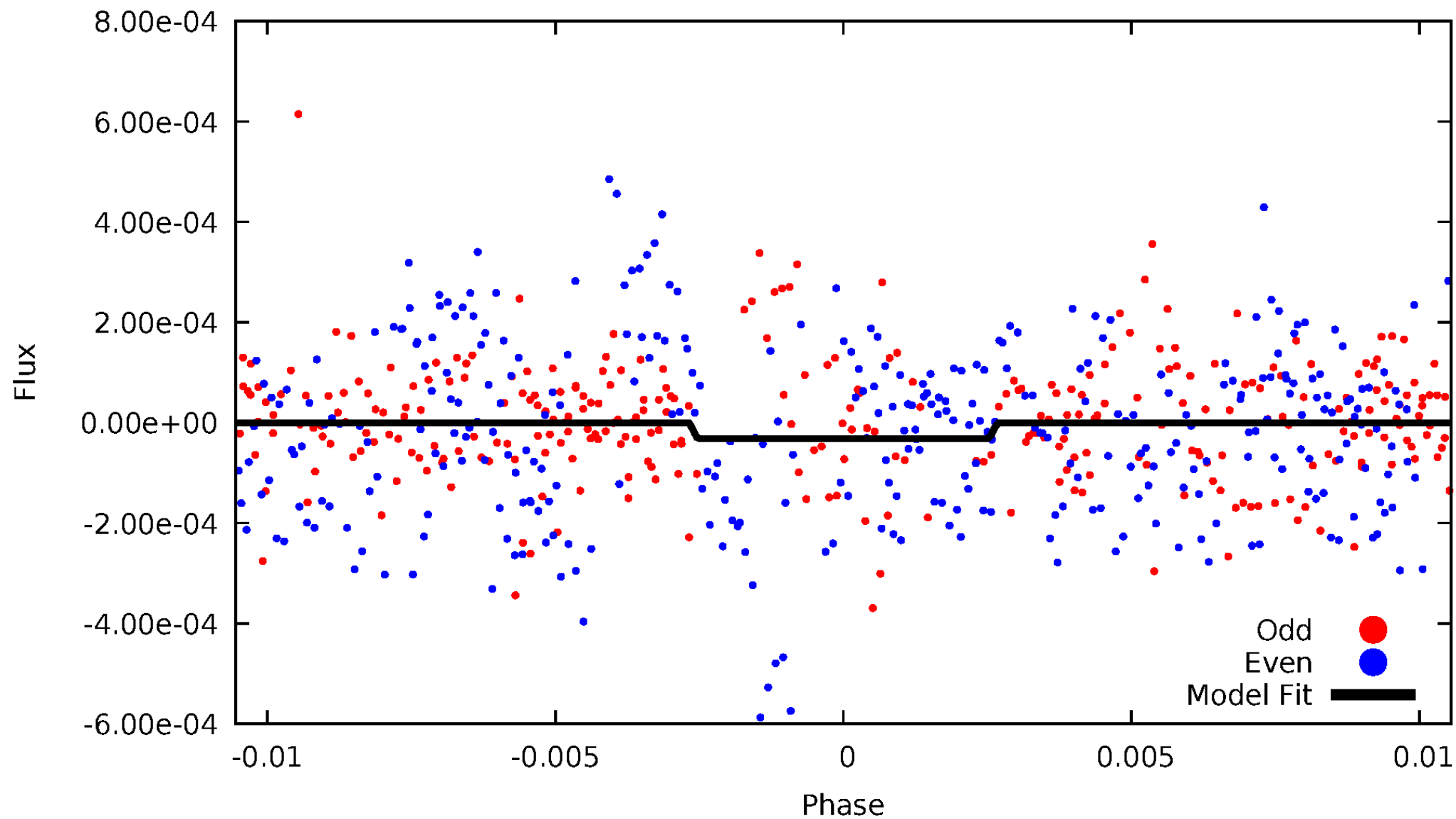
DV Odd/Even

TCE 008098728-05



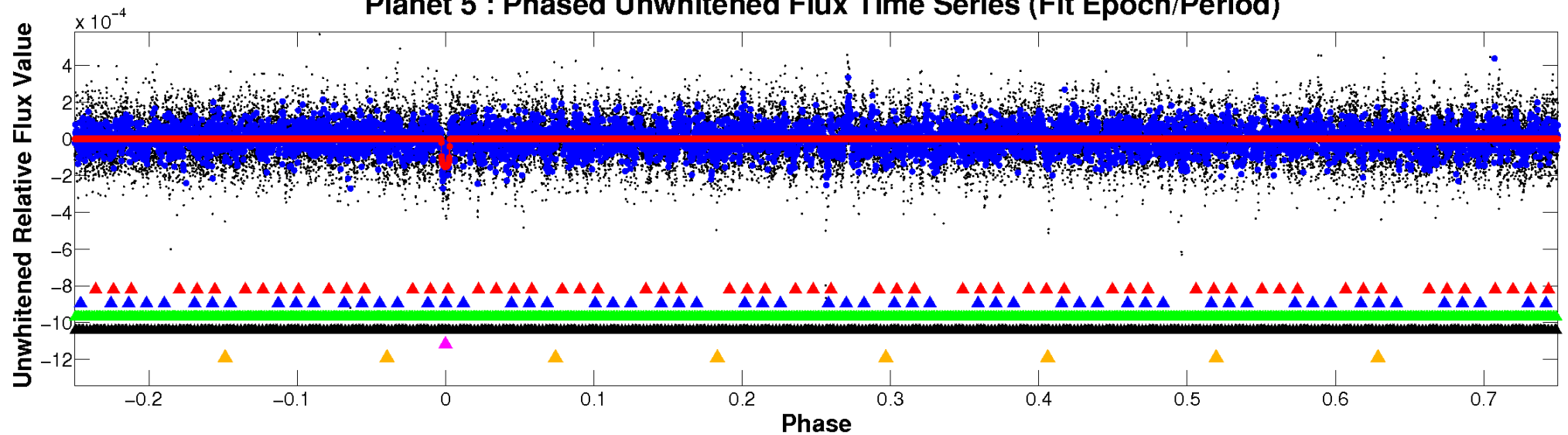
ALT Odd/Even

TCE 008098728-05

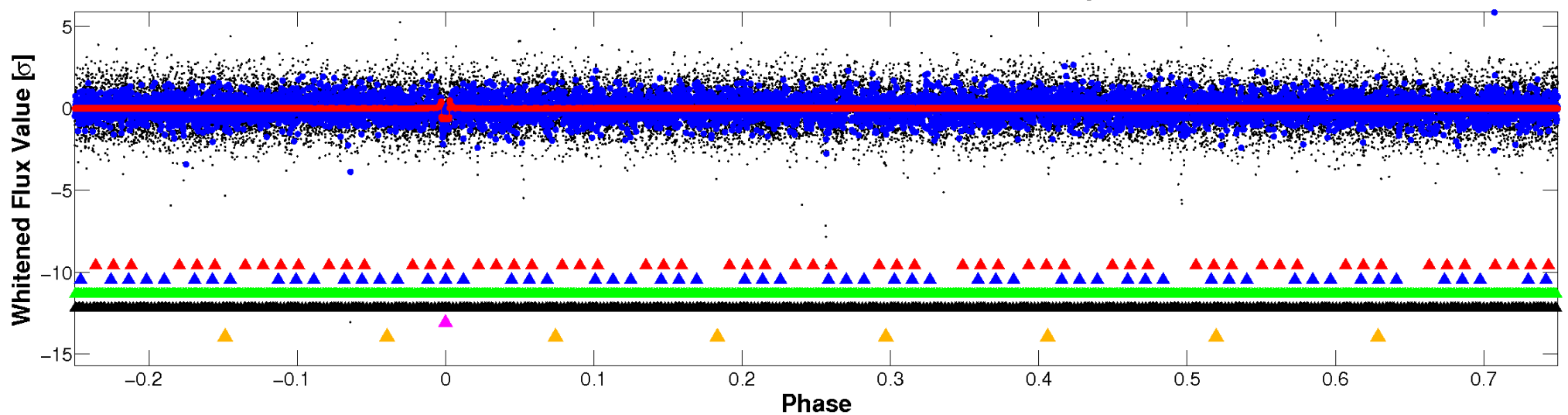


Non-Whitened Vs. Whitened Light Curve

Planet 5 : Phased Unwhitened Flux Time Series (Fit Epoch/Period)

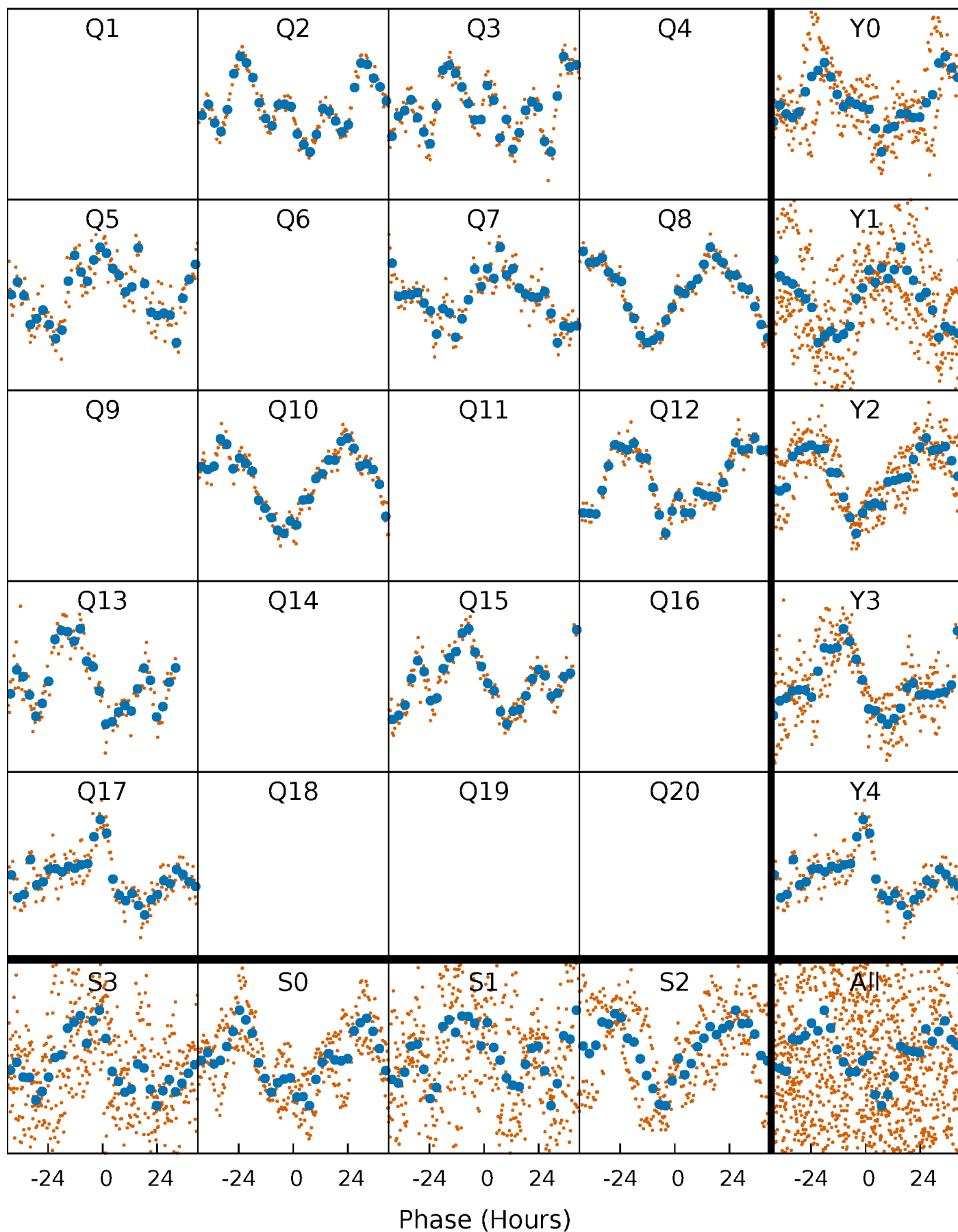


Planet 5 : Phased Whitened Flux Time Series (Fit Epoch/Period)



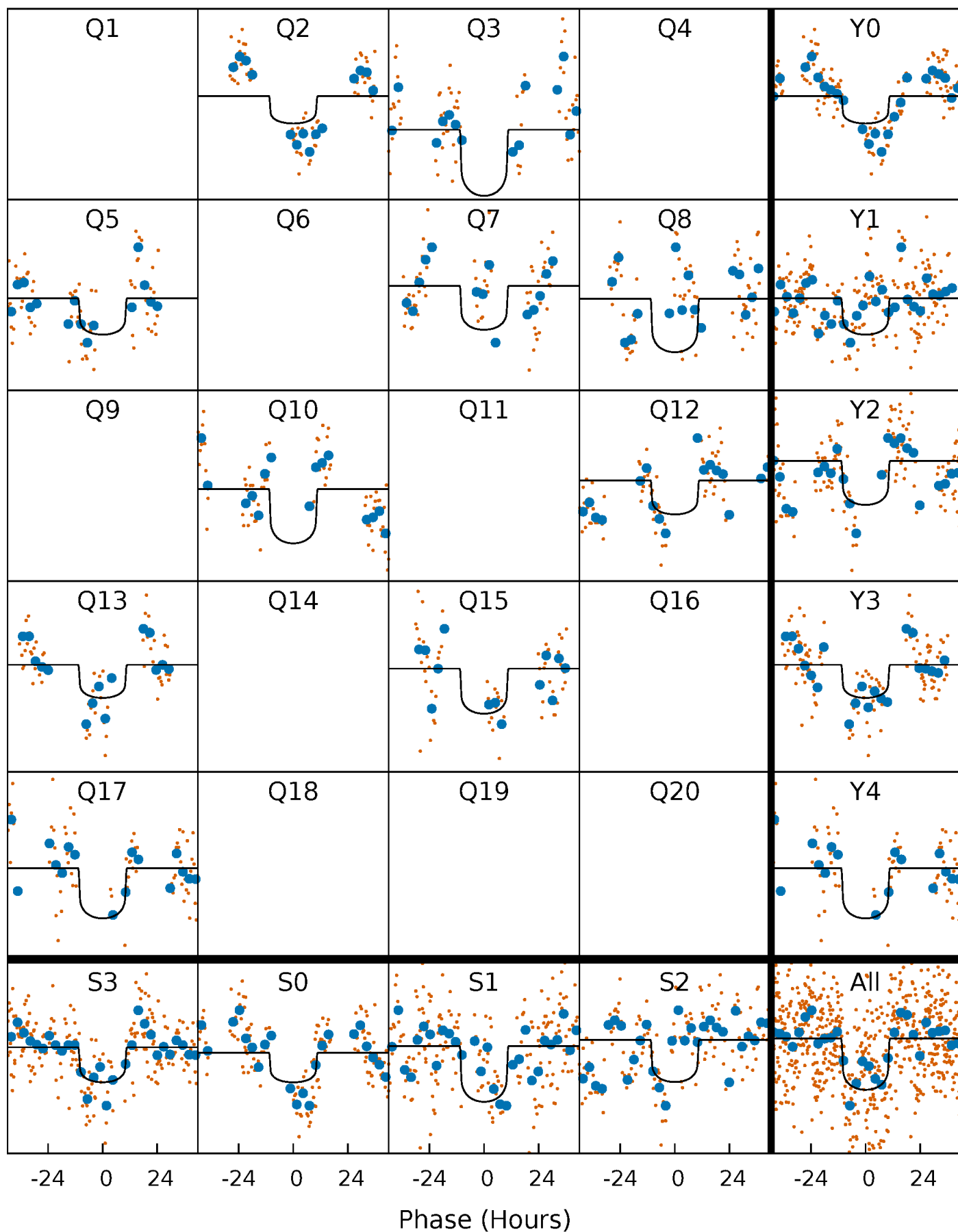
PDC Quarter-Phased Transit Curves

TCE 008098728-05 $P=155.694681$ Days $T_0=177.525138$ (BKJD)



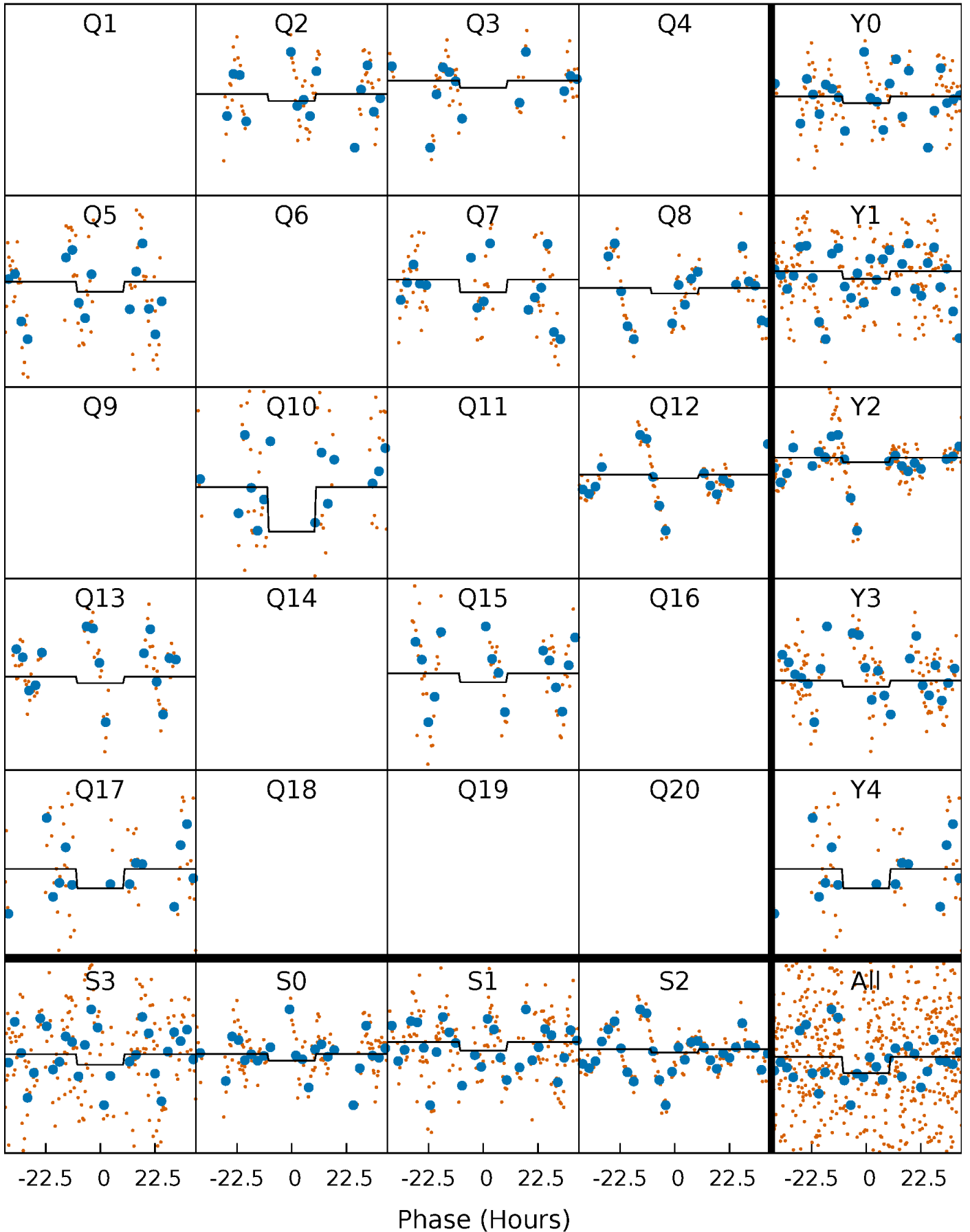
DV Quarter-Phased Transit Curves

TCE 008098728-05 $P=155.694681$ Days $T_0=177.525138$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

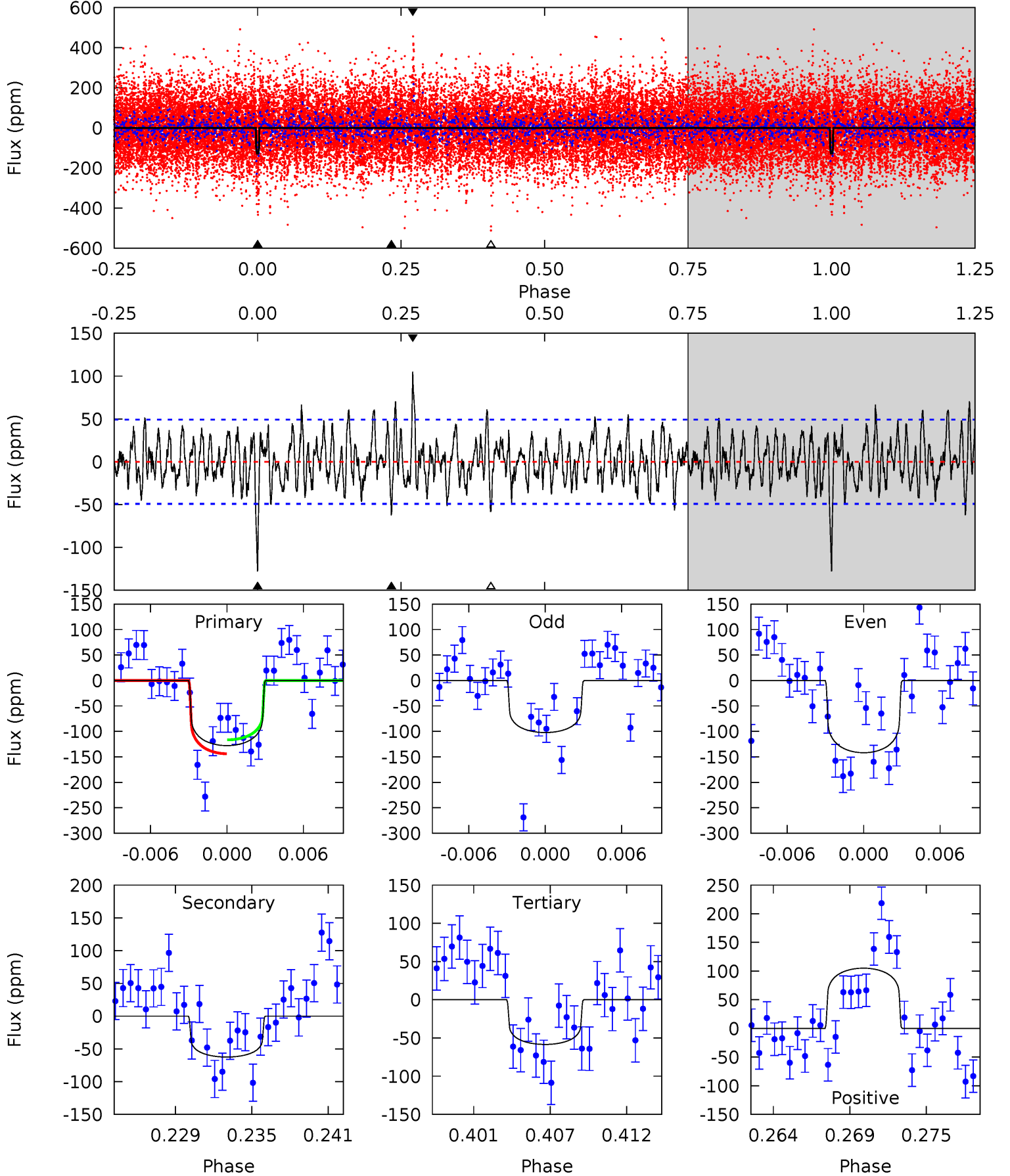
TCE 008098728-05 $P=155.689782$ Days $T_0=177.529112$ (BKJD)



DV Model-Shift Uniqueness Test

008098728-05, P = 155.694681 Days, E = 21.830457 Days

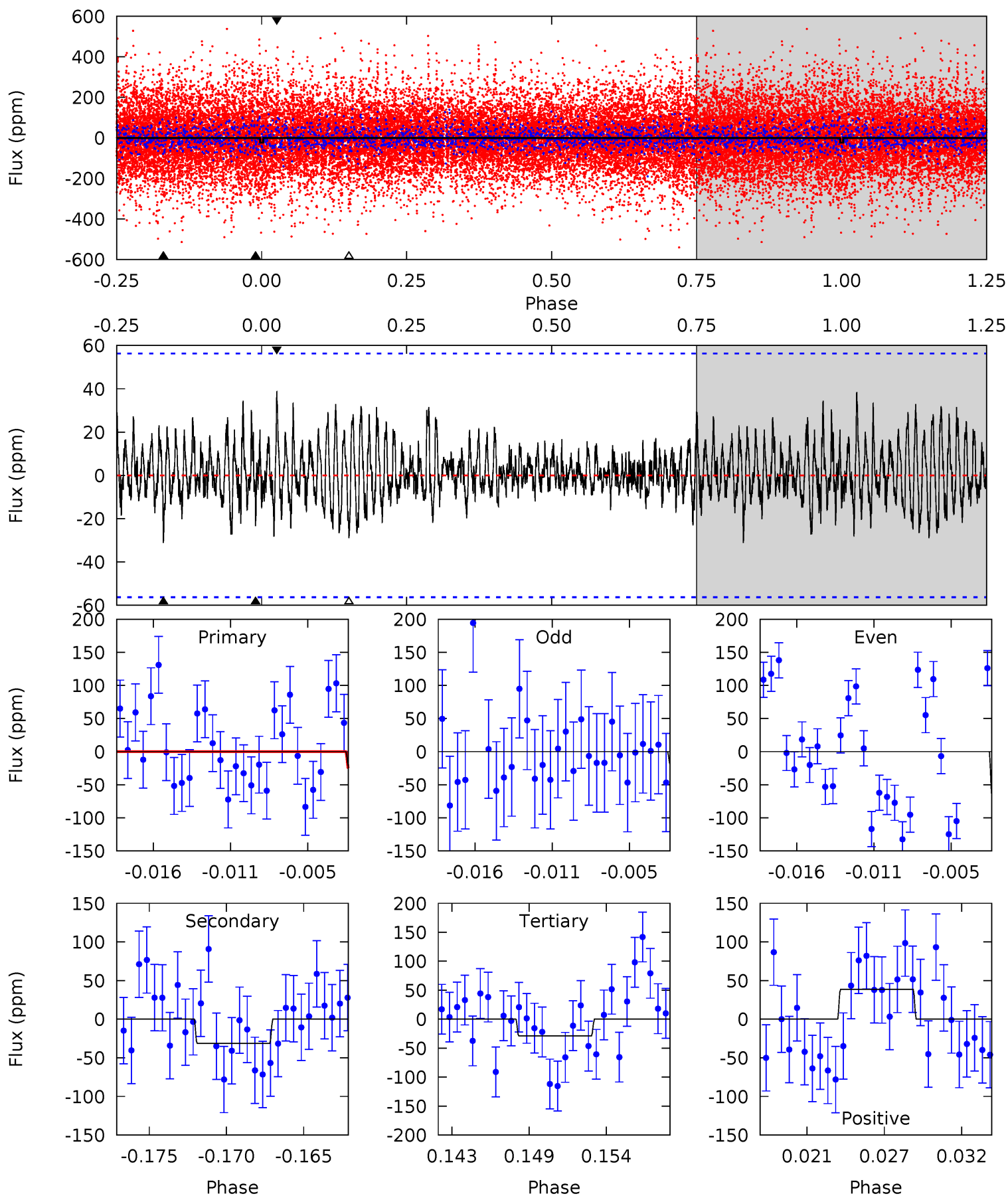
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
13.4	6.53	6.11	11.0	5.13	2.76	2.37	7.26	2.38	0.42	-4.46	1.98	0.81	0.45	1.40



Alt Model-Shift Uniqueness Test

008098728-05, $P = 155.689782$ Days, $E = 21.839330$ Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
2.12	2.85	2.65	3.52	5.15	2.79	0.94	-0.53	-1.40	0.20	-0.67	2.15	2.29	0.55	0.23



Stellar Parameters For KIC 008098728

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	$M(M_{\odot})$	p_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	6655^{+168}_{-184}	$3.638^{+0.337}_{-0.112}$	$-0.580^{+0.350}_{-0.300}$	$2.995^{+0.506}_{-1.180}$	$1.420^{+0.220}_{-0.330}$	$0.074^{+0.188}_{-0.026}$
	+3%/-3%	+9%/-3%	+60%/-52%	+17%/-39%	+15%/-23%	+253%/-34%
Source	PHO1	FLK73	KIC0	DSEP		

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

Secondary Eclipse Parameters for KIC 008098728-05 / KOI

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	-62 ± 10	$3.72^{+0.86}_{-0.82}$	871^{+56}_{-85}	5378^{+470}_{-410}	1019^{+589}_{-368}
Alt.	-31 ± 11	$1.74^{+0.63}_{-0.61}$	875^{+55}_{-83}	6581^{+1711}_{-1040}	2295^{+3345}_{-1198}

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

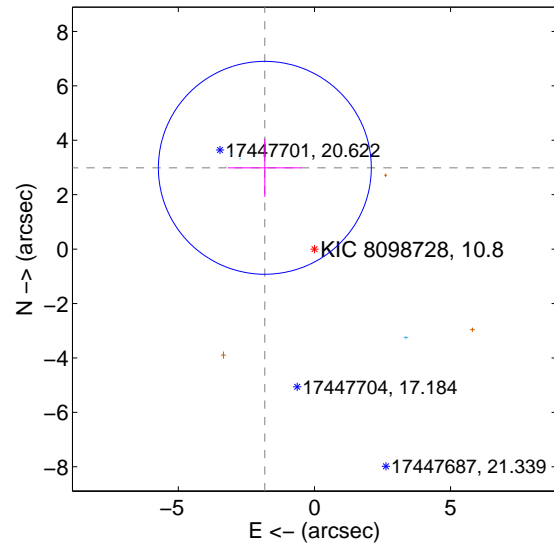
Supplemental centroid analysis for 008098728-05. **Kepler magnitude: 10.80.** Transit SNR 7.48

There are 3 quarters with good PRF difference image offsets

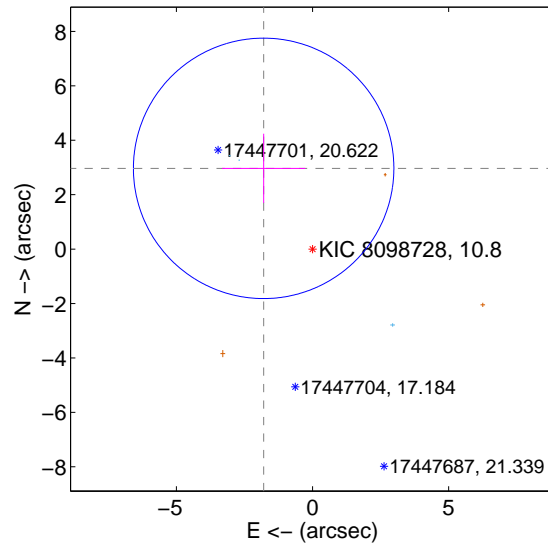
The direct PRF centroid is offset from the target star catalog position by about 0.07 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	3.499 ± 1.304	2.68	1.823 ± 1.354	2.987 ± 1.069
PRF-fit source offset from KIC position	3.468 ± 1.595	2.17	1.796 ± 1.531	2.967 ± 1.271
photometric centroid source offset	0.67 ± 0.62	1.09	-0.59 ± 0.58	-0.31 ± 0.74

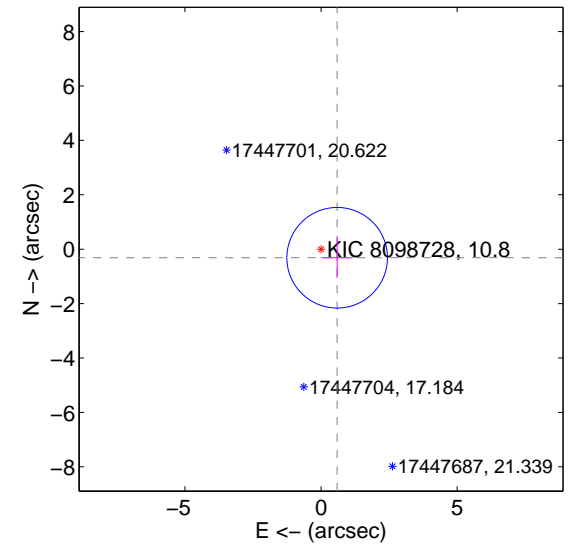
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position

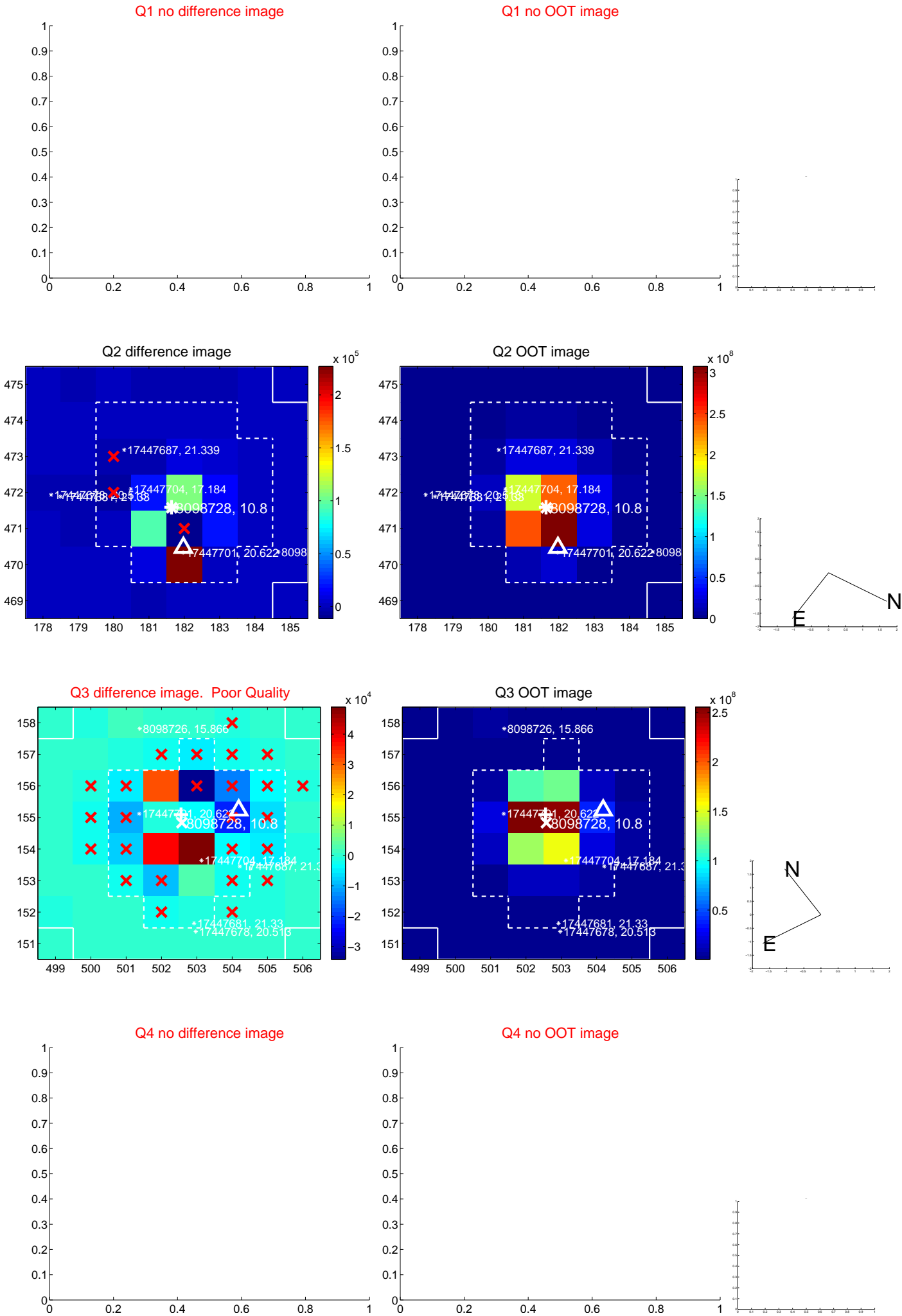


offset from photometric centroids

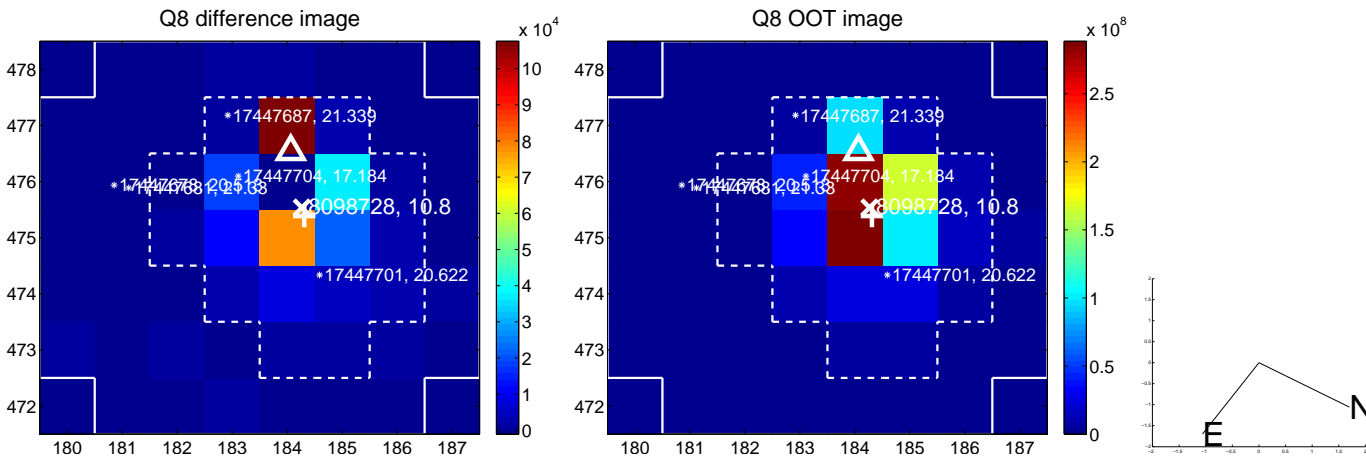
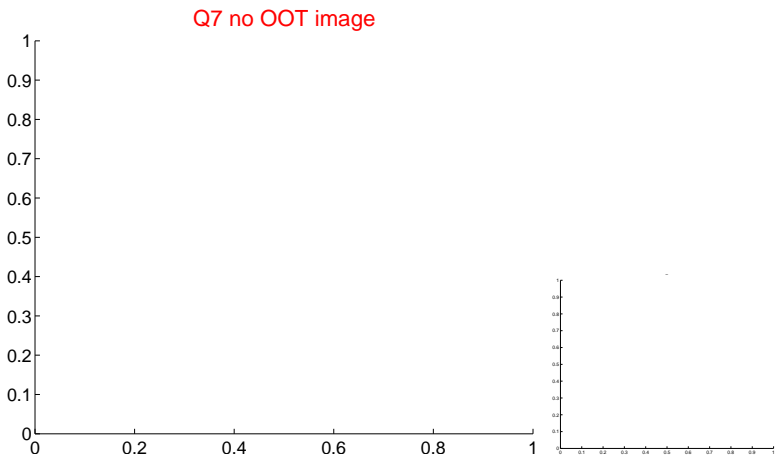
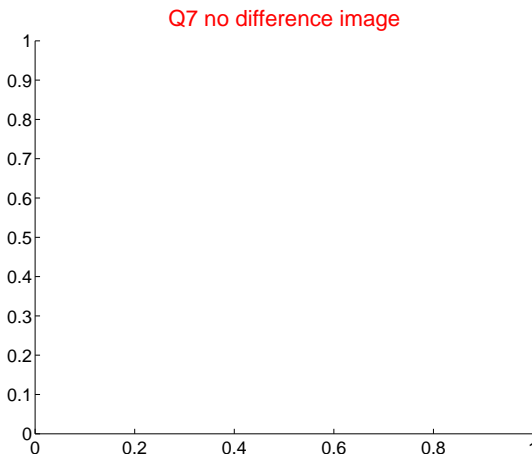
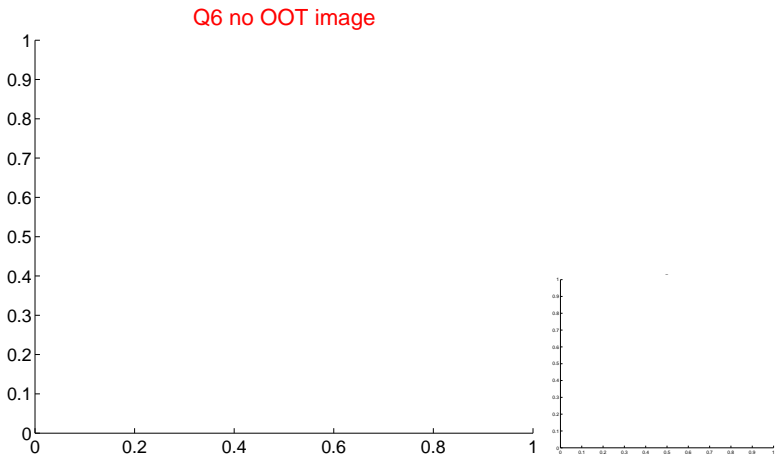
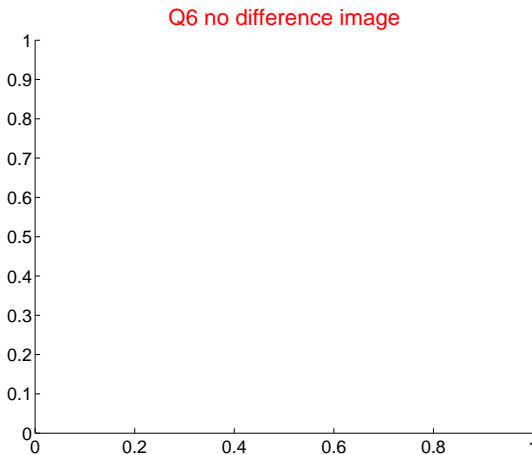
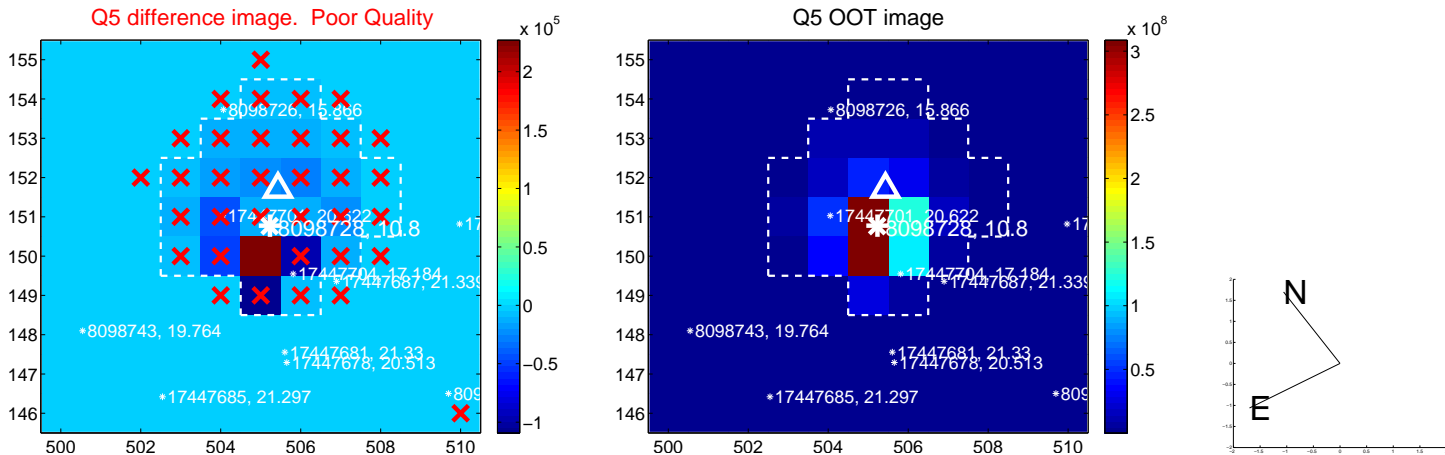


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets;** magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

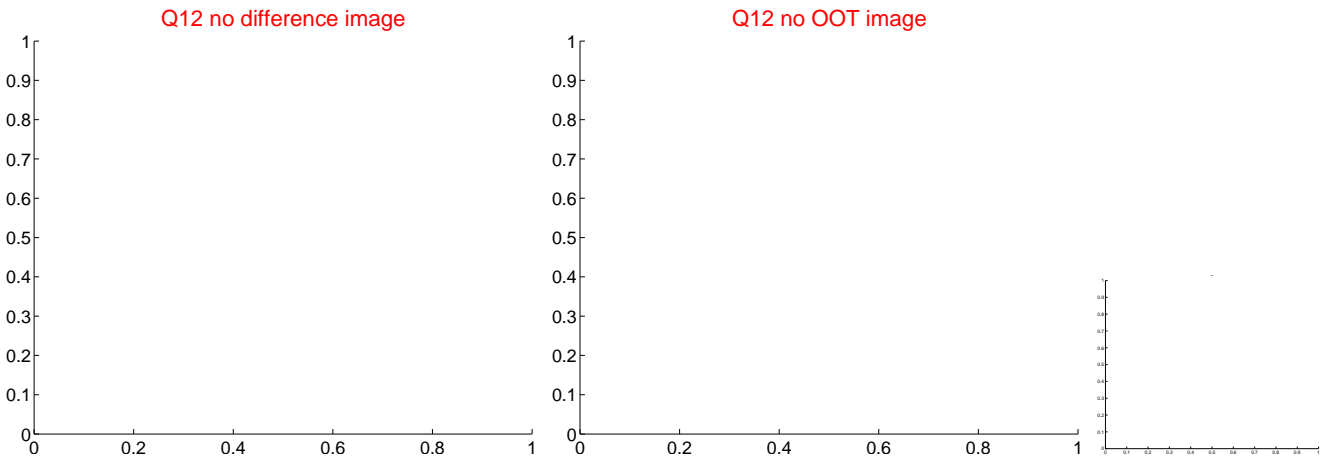
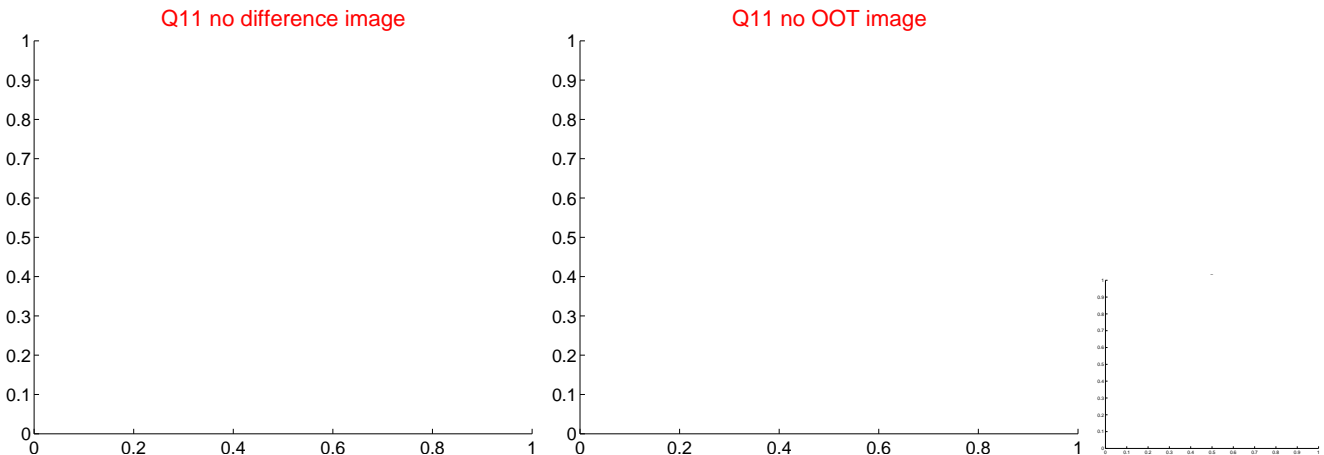
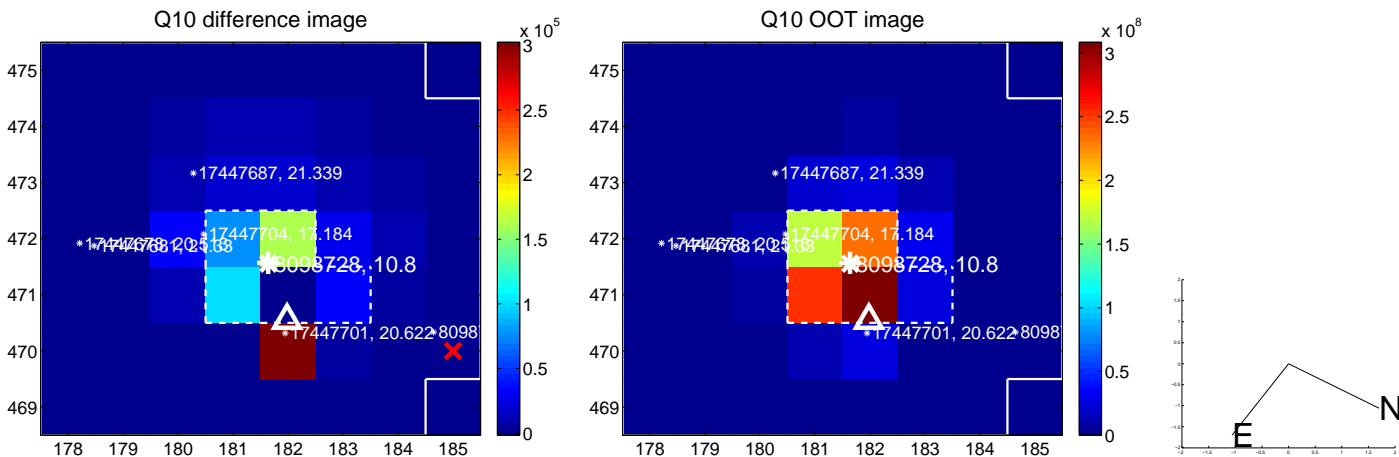
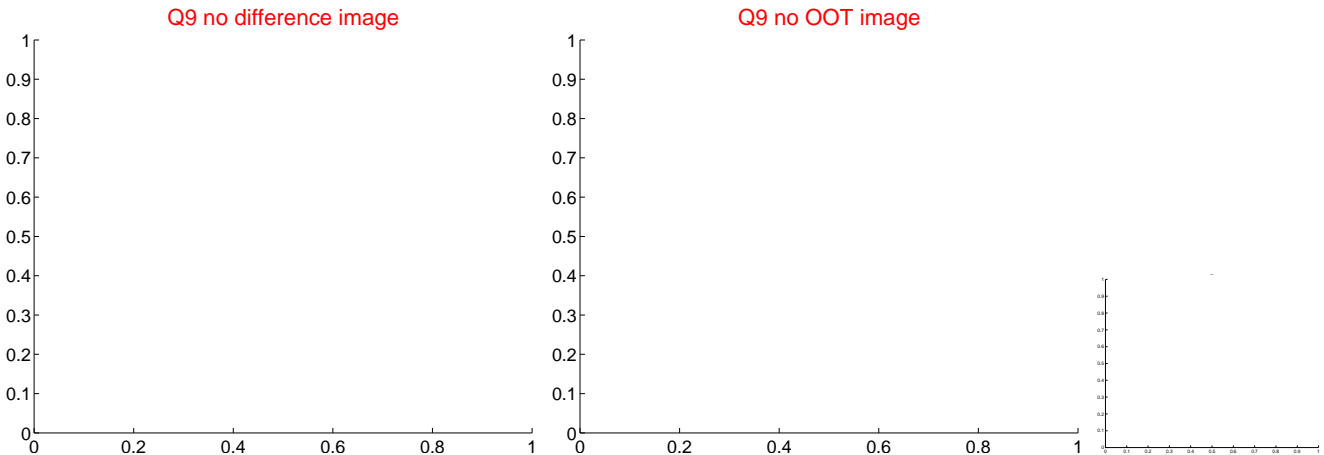
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



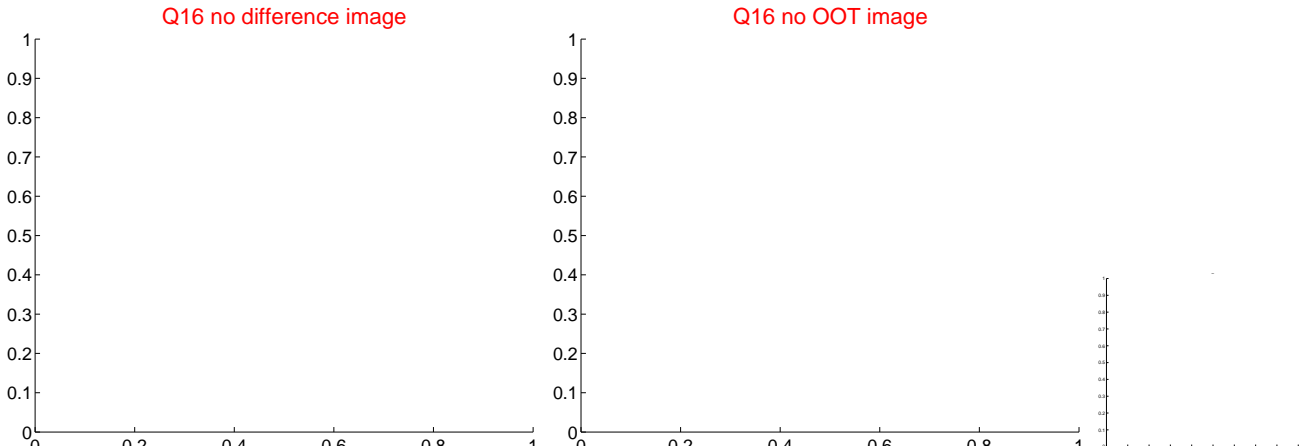
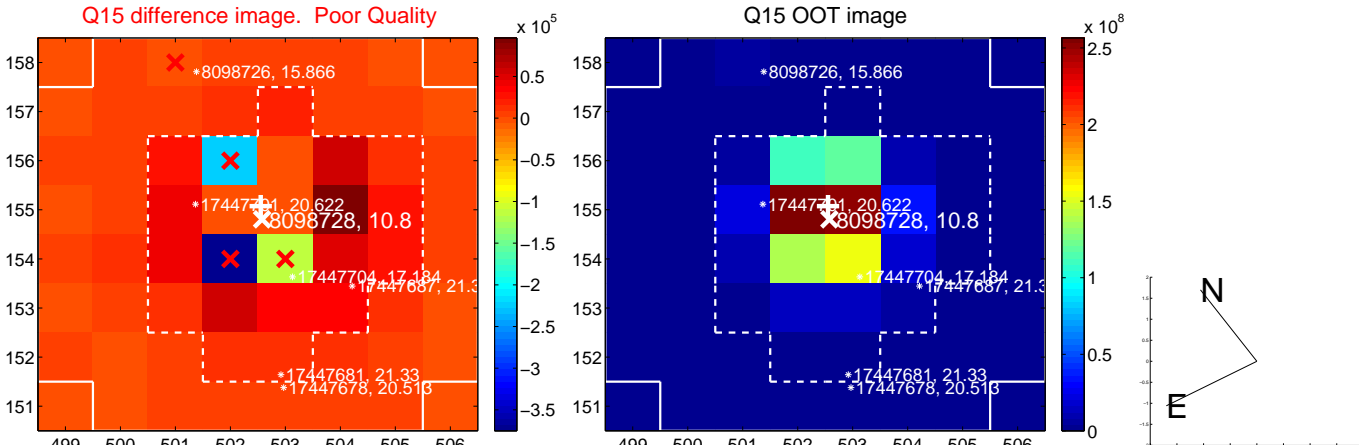
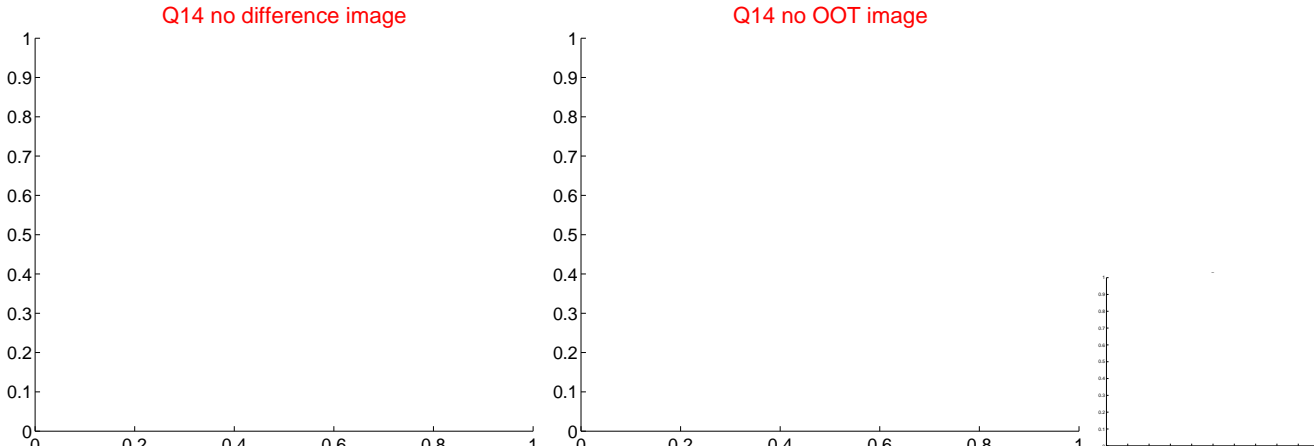
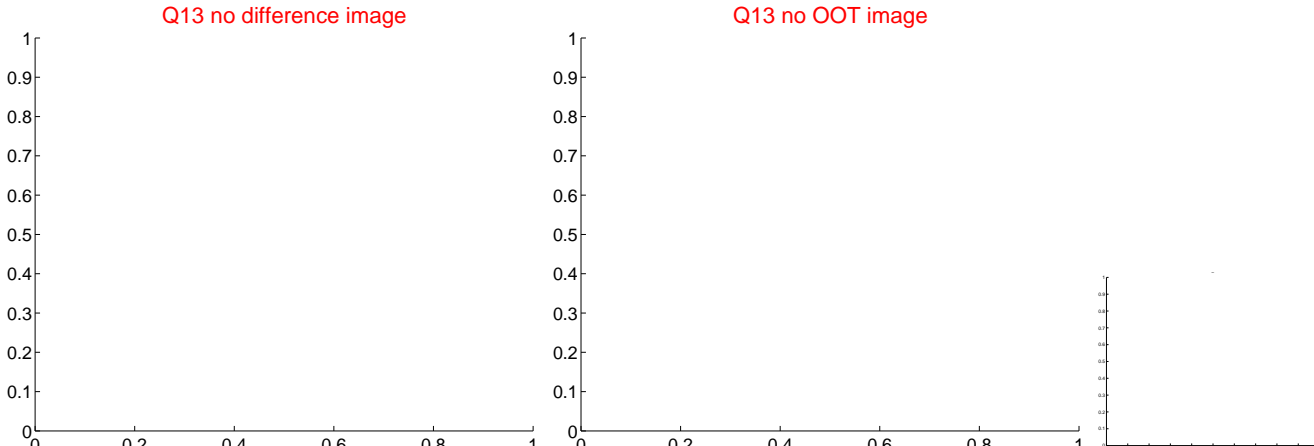
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



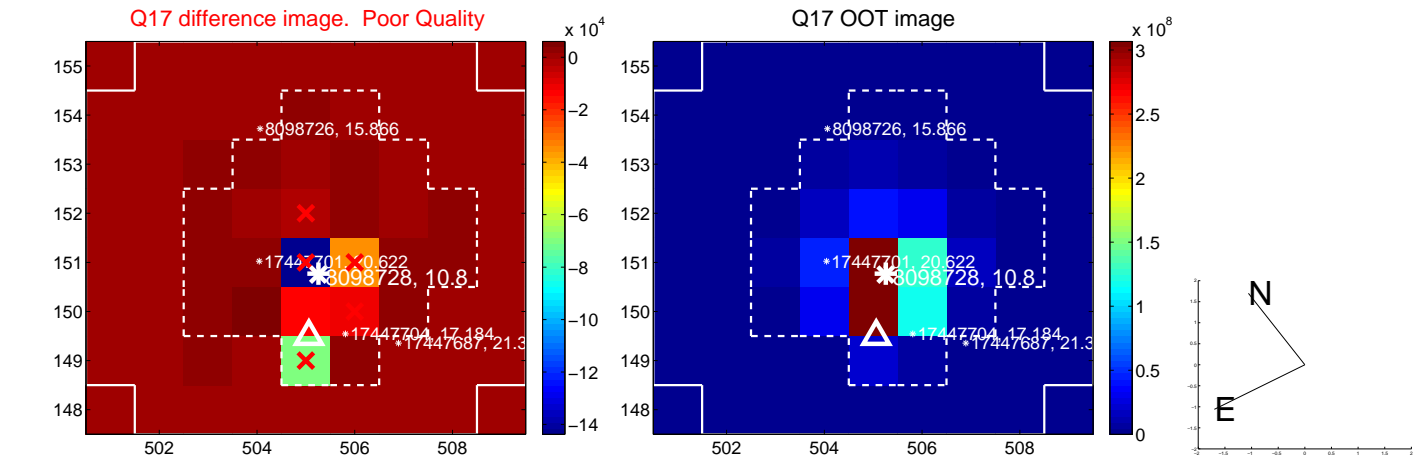
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value



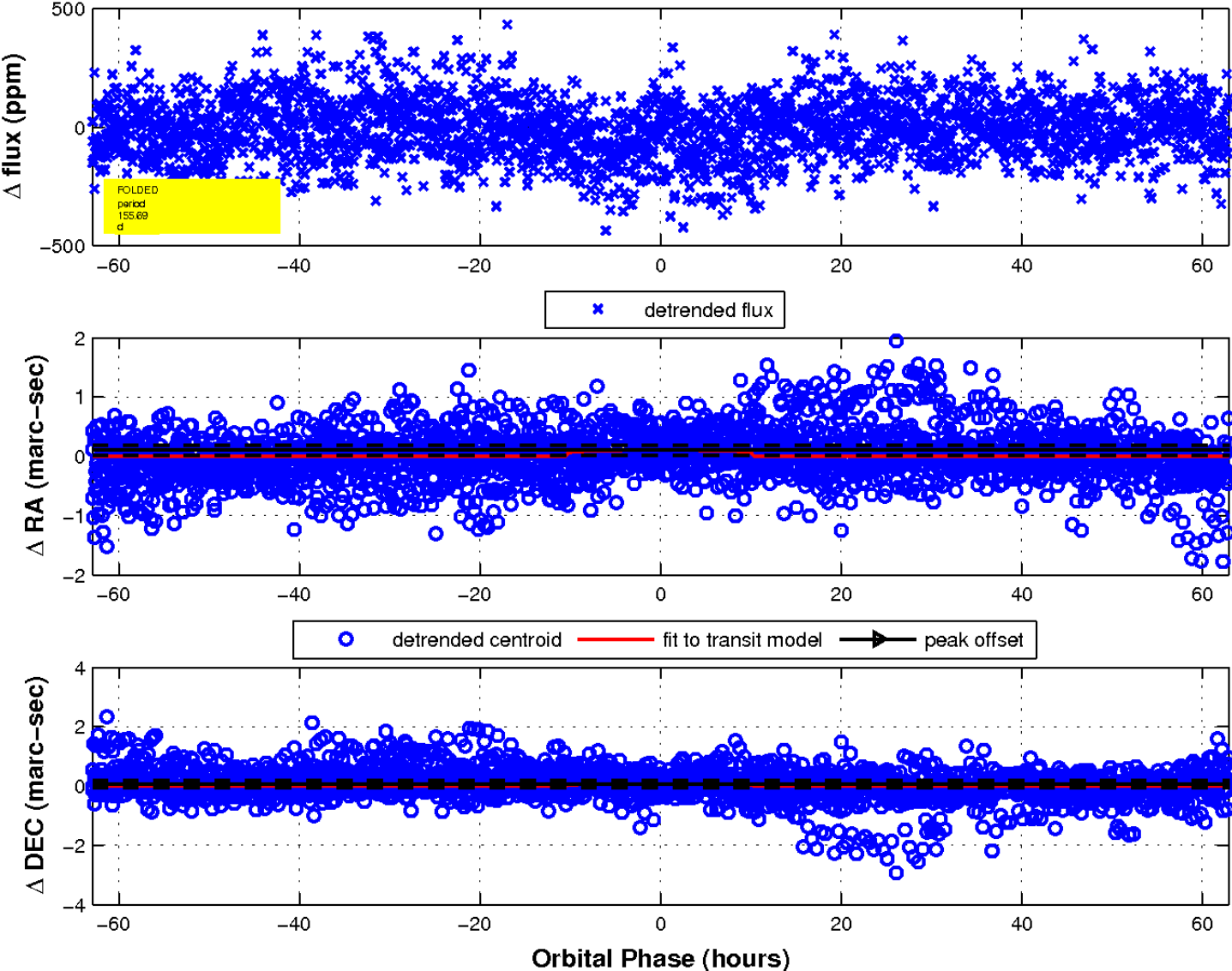
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

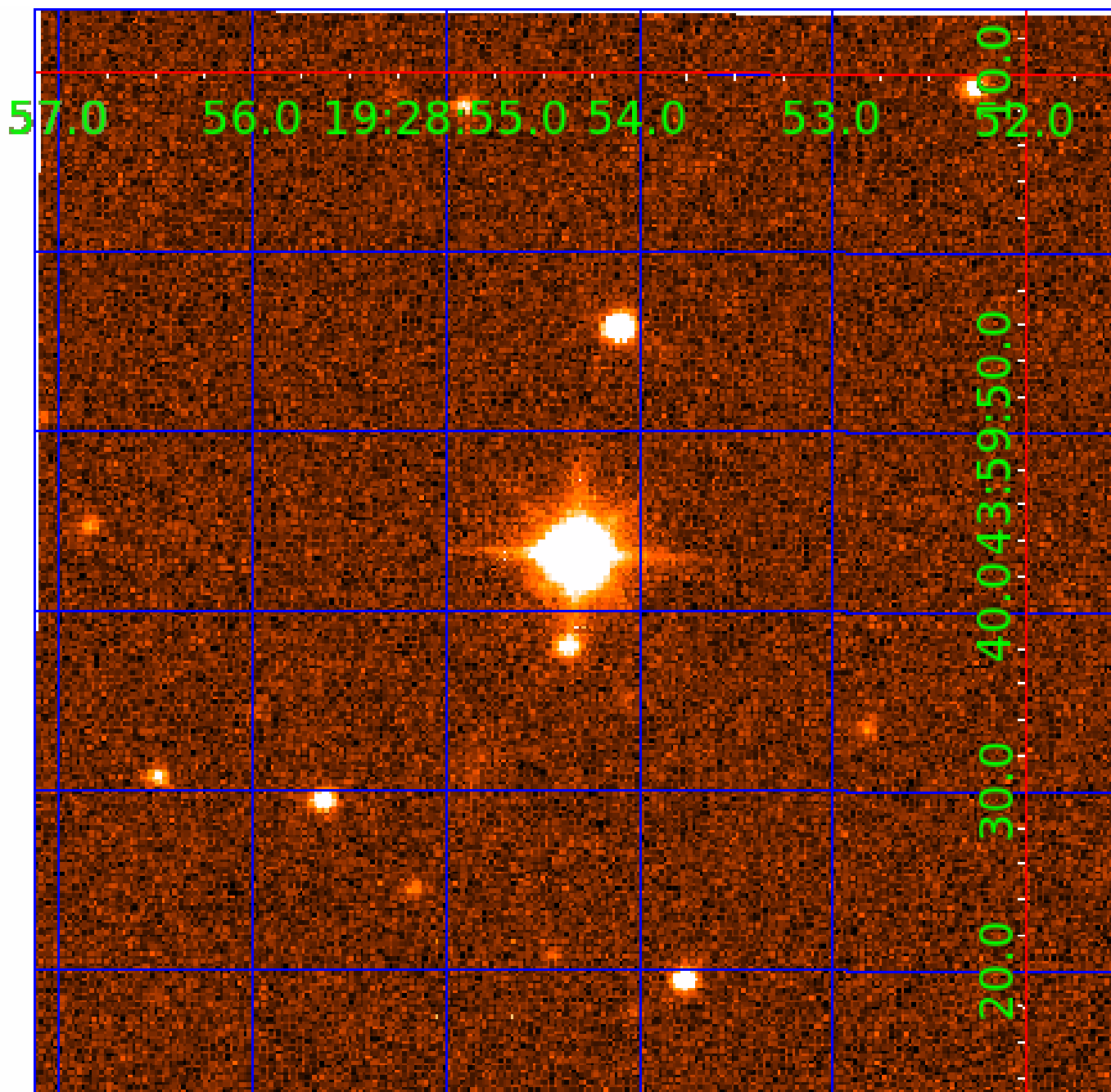


fluxWeightedCentroids, Planet 5 of 6



UKIRT Image

Declination



KIC 008098728

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})
008098728-01	OBS	2008.01	24.485180	137.619563	252.9	4.586	19.5	22.1	3.00	6655	7.77	457.66
008098728-02	OBS	No	24.485106	148.008072	201.5	4.767	16.5	18.2	3.00	6655	8.30	457.67
008098728-03	OBS	No	1.130177	131.980955	4.1	4.736	8.1	2.3	3.00	6655	0.63	27641.15
008098728-04	OBS	No	2.261616	131.645861	0.0	0.965	10.0	0.0	3.00	6655	0.00	10961.23
008098728-05	OBS	No	155.694681	177.525138	152.7	20.994	9.0	7.5	3.00	6655	3.95	38.85
008098728-06	OBS	No	190.370384	171.392528	236.7	2.551	8.6	7.7	3.00	6655	5.34	29.71

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
008098728-01	OBS	FP	0.00	0	1	0	0	MOD_SEC_DV—MOD_SEC_ALT—HAS_SEC_TCE—CENT_SATURATED
008098728-02	OBS	FP	0.00	1	1	0	0	IS_SEC_TCE—CENT_SATURATED
008098728-03	OBS	FP	0.00	1	0	0	0	SWEET_NTL—LPP_DV—LPP_ALT—MOD_NONUNIQ_ALT—CENT_SATURATED
008098728-04	OBS	FP	0.00	1	0	0	0	TRANS_GAPPED—SWEET_NTL—LPP_DV—LPP_ALT—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_SATURATED
008098728-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_SATURATED
008098728-06	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_MARSHALL—TRANS_GAPPED—ALL_TRANS_CHASES—MOD_NONUNIQ_ALT—INCONSISTENT_TRANS—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.

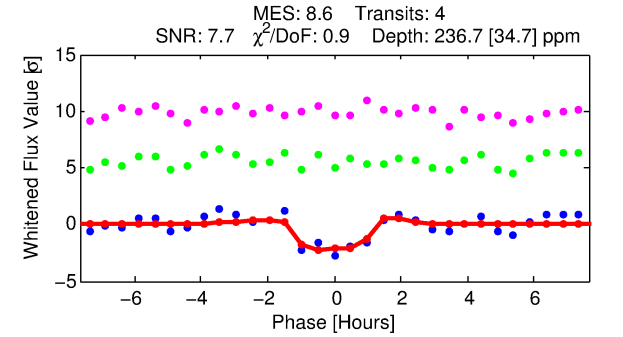
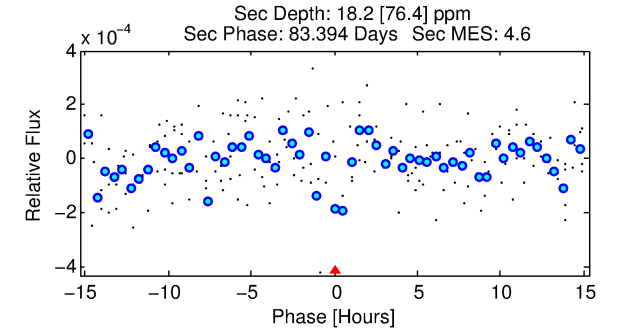
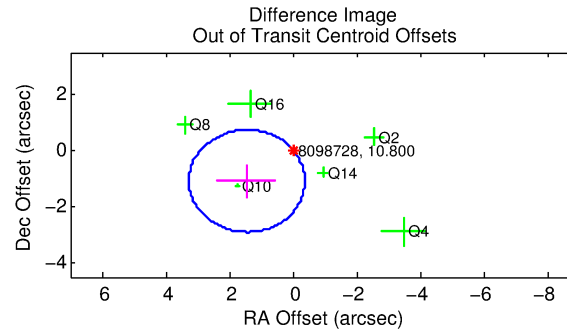
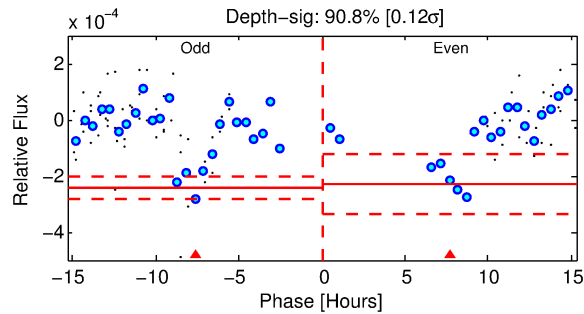
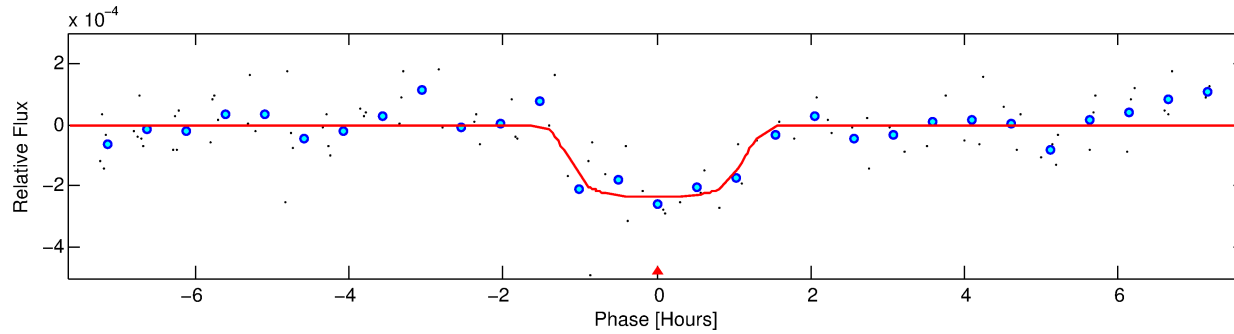
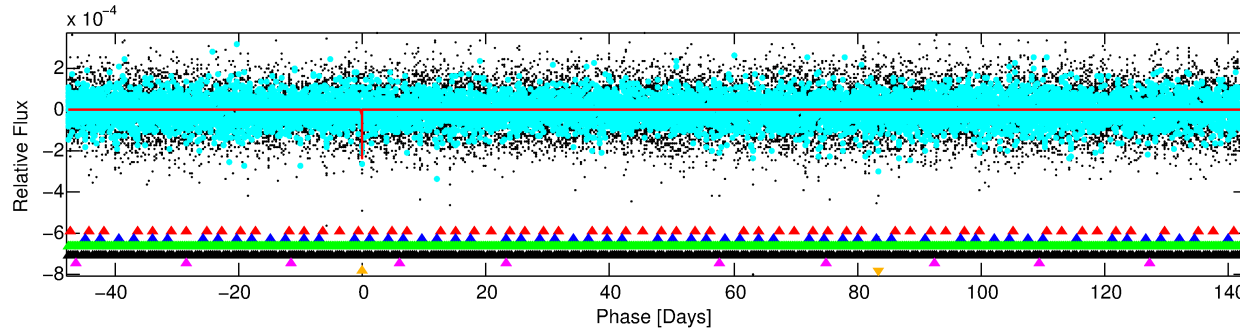
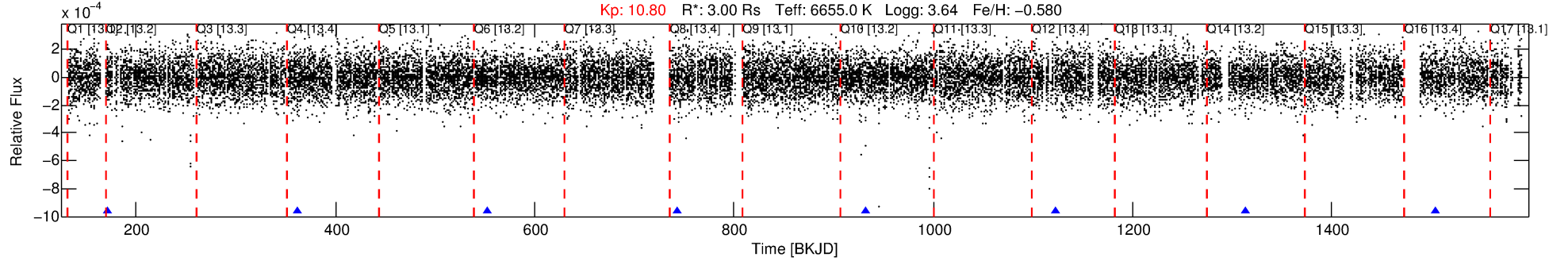
Ephemeris Match Information For 008098728-06

No Significant Match Found

DV One-Page Summary

KIC: 8098728 Candidate: 6 of 6 Period: 190.370 d
KOI: K02008 Corr: No Ephemeris Match

Kp: 10.80 R*: 3.00 Rs Teff: 6655.0 K Logg: 3.64 Fe/H: -0.580



DV Fit Results:

Period = 190.37038 [0.00171] d
Epoch = 171.3925 [0.0070] BKJD
Rp/R* = 0.0163 [0.0095]
a/R* = 277.93 [941.90]
b = 0.89 [0.79]
Seff = 29.71 [17.55]
Teff = 595 [88] K
Rp = 5.34 [3.76] Re
a = 0.7284 [0.2685] AU
Ag = 186.53 [818.54] [0.23σ]
Teffp = 3402 [3700] K [0.76σ]

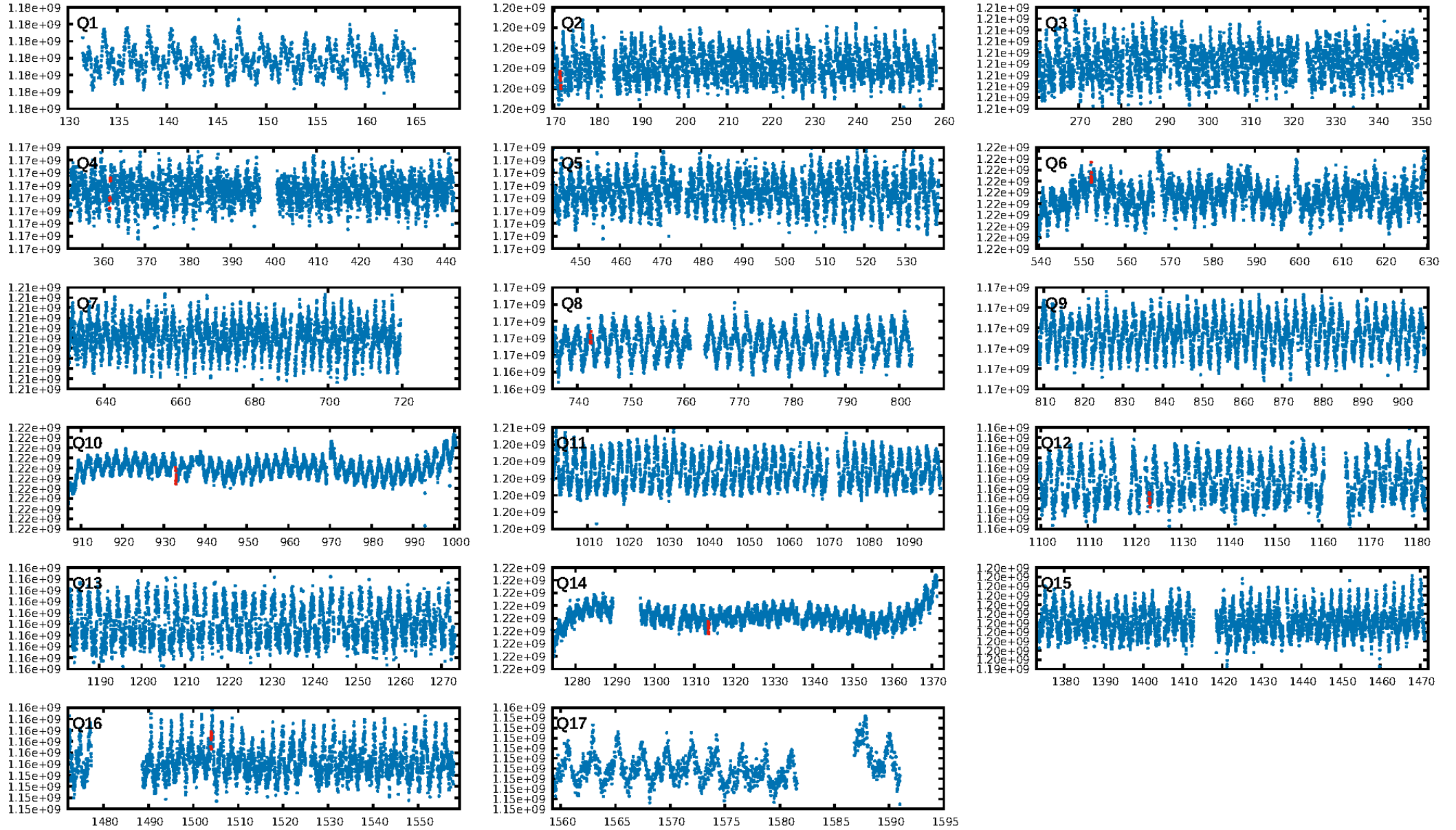
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [39.35σ]
LongPeriod-sig: N/A
ModelChiSquare2-sig: 56.3%
ModelChiSquareGof-sig: 95.9%
Bootstrap-pfa: 1.04e-10
RollingBand-fgt: 1.00 [4/4]
GhostDiagnostic-chr: 2.934
Centroid-sig: 30.0%
Centroid-so: 0.707 arcsec [1.08σ]
OotOffset-rm: 1.806 arcsec [2.97σ]
OotOffset-st: 3/0/3/0 [6]
KicOffset-rm: 1.827 arcsec [2.99σ]
KicOffset-st: 3/0/3/0 [6]
DiffImageQuality-fgm: 0.67 [4/6]
DiffImageOverlap-fno: 0.25 [2/8]

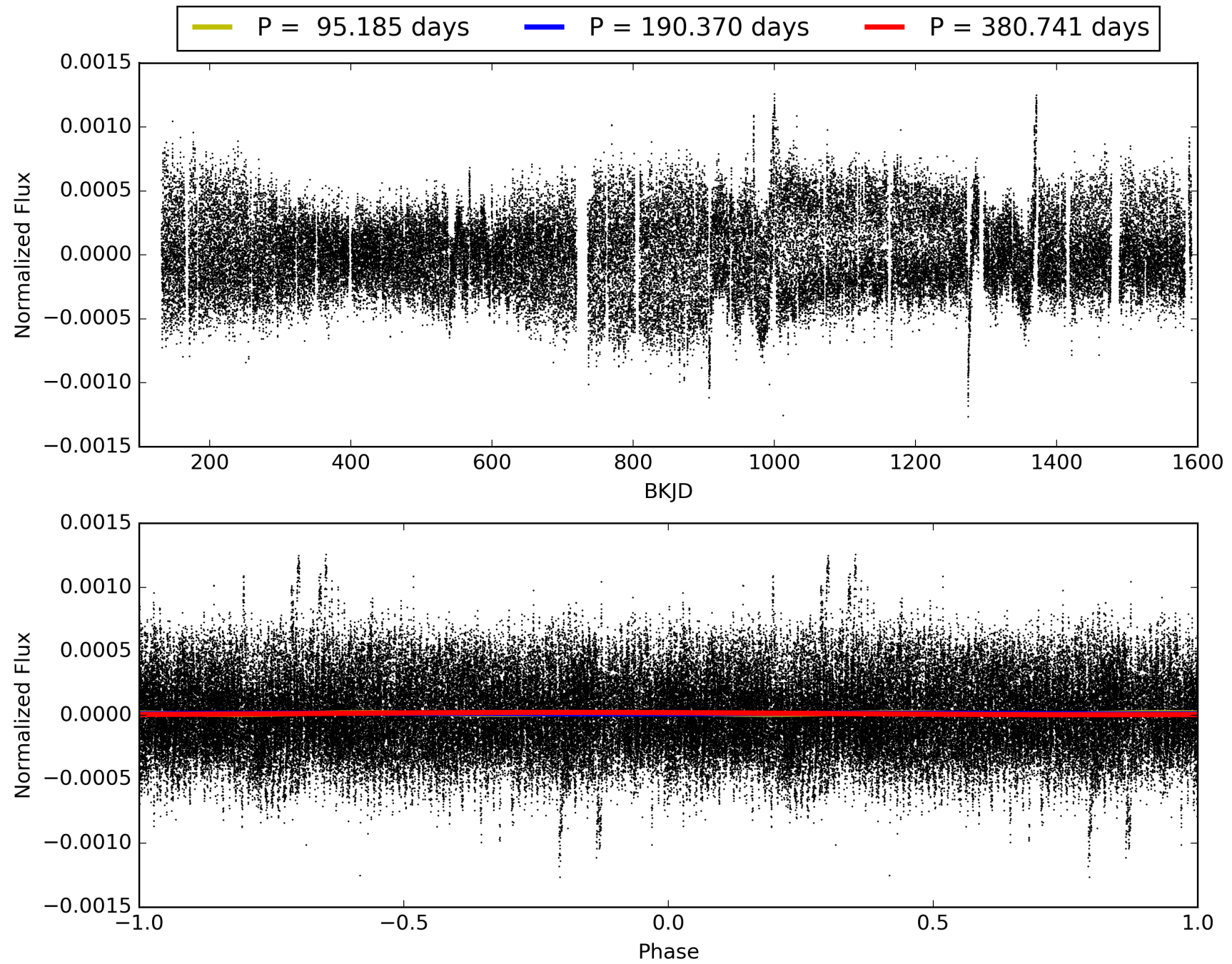
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 01-Feb-2016 17:38:52 Z

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

TCE 008098728-06, PDC Light Curves

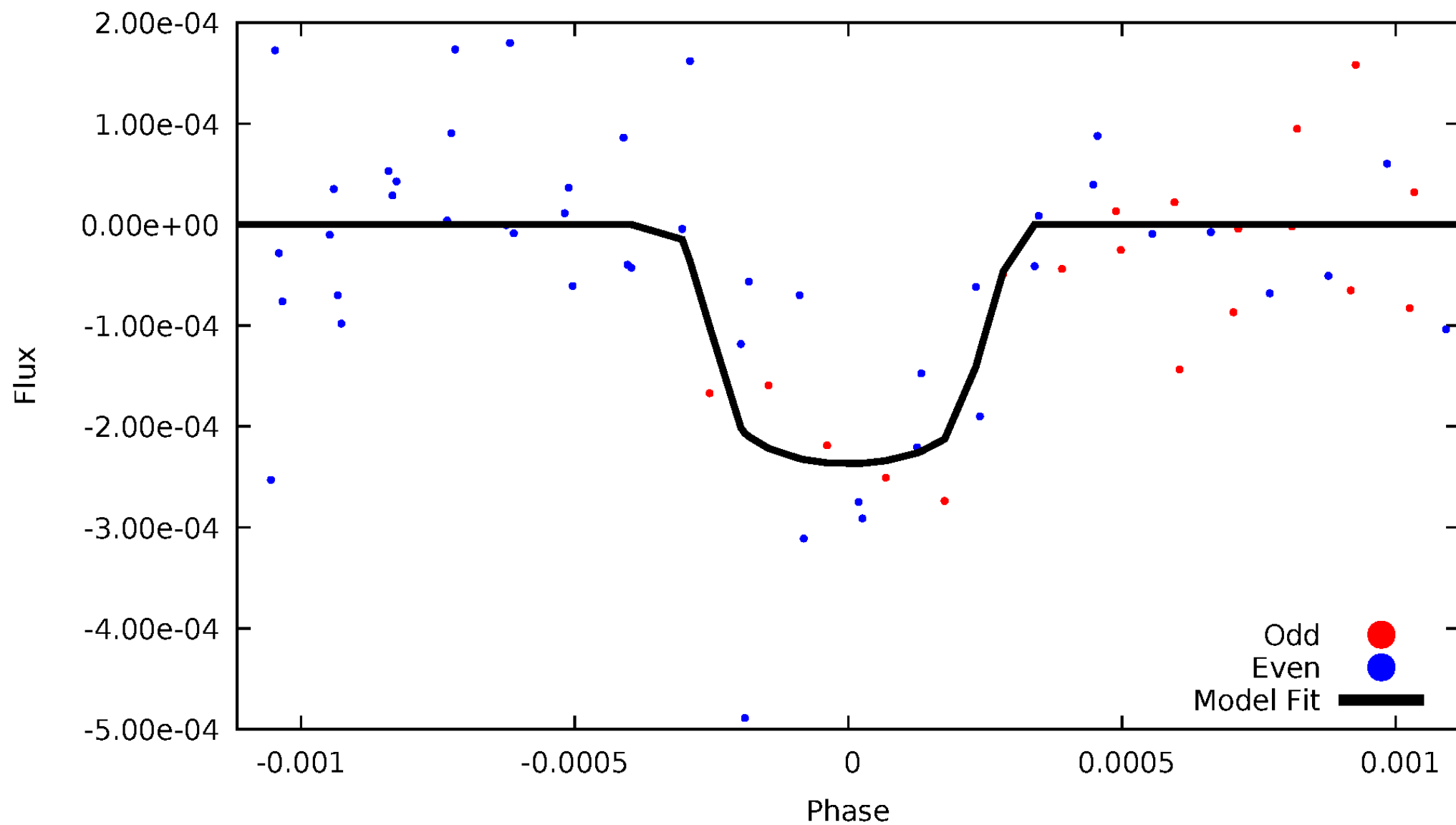


TCE 008098728-06



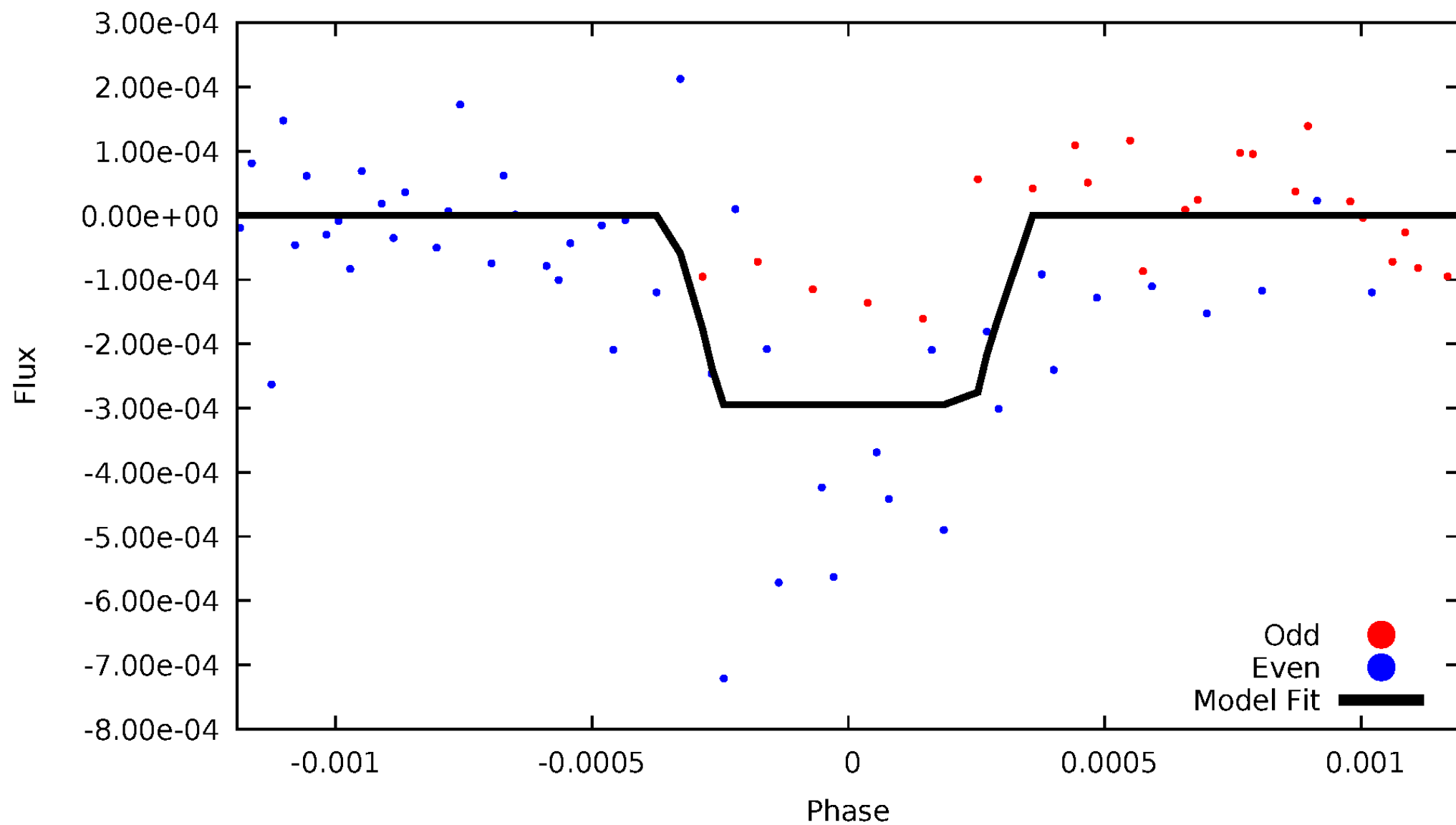
DV Odd/Even

TCE 008098728-06



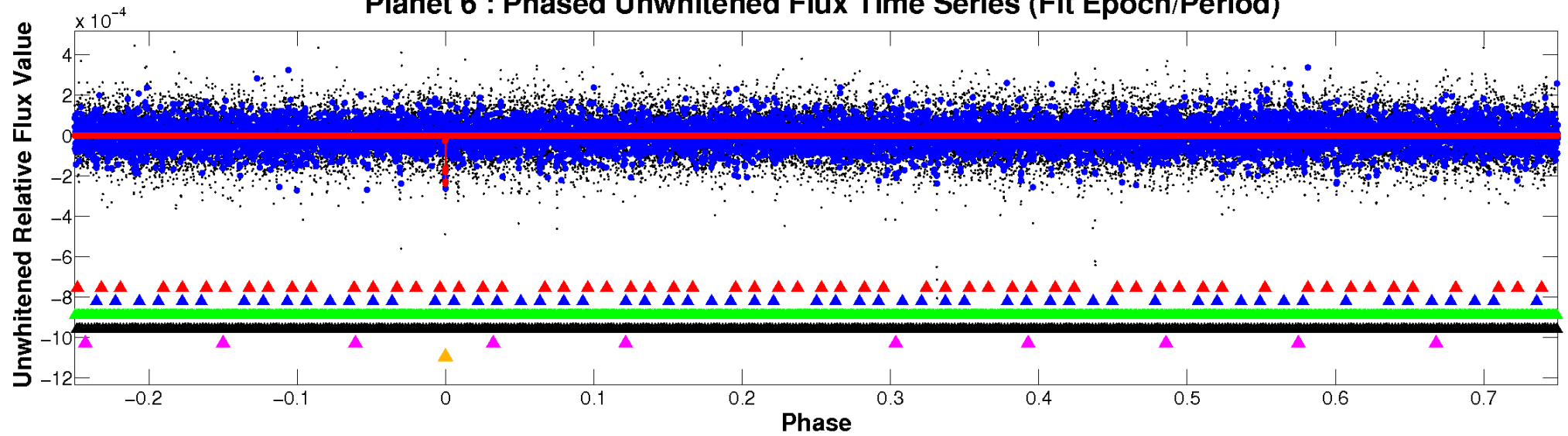
ALT Odd/Even

TCE 008098728-06

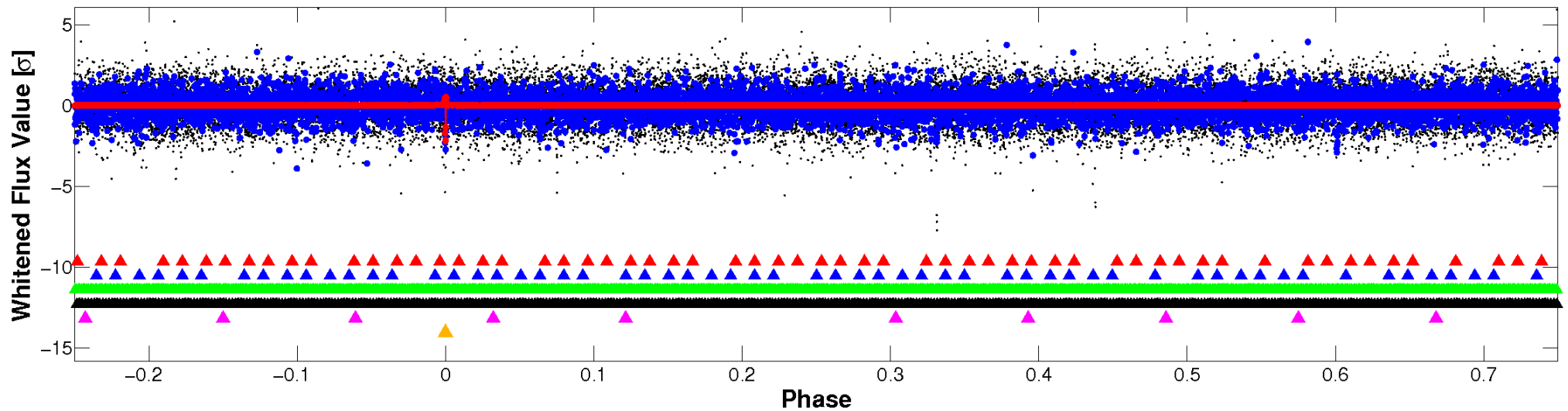


Non-Whitened Vs. Whitened Light Curve

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

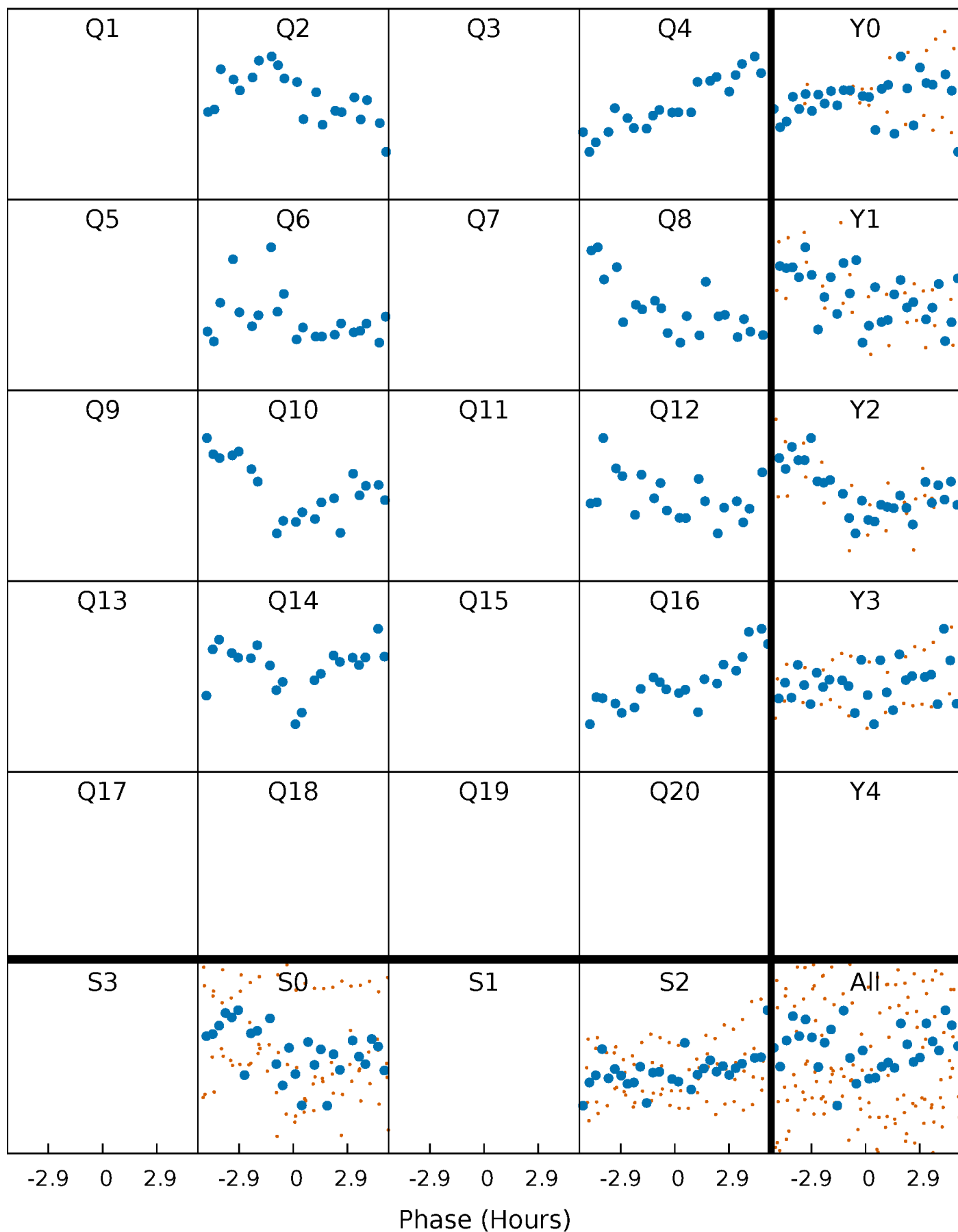


Planet 6 : Phased Whitened Flux Time Series (Fit Epoch/Period)



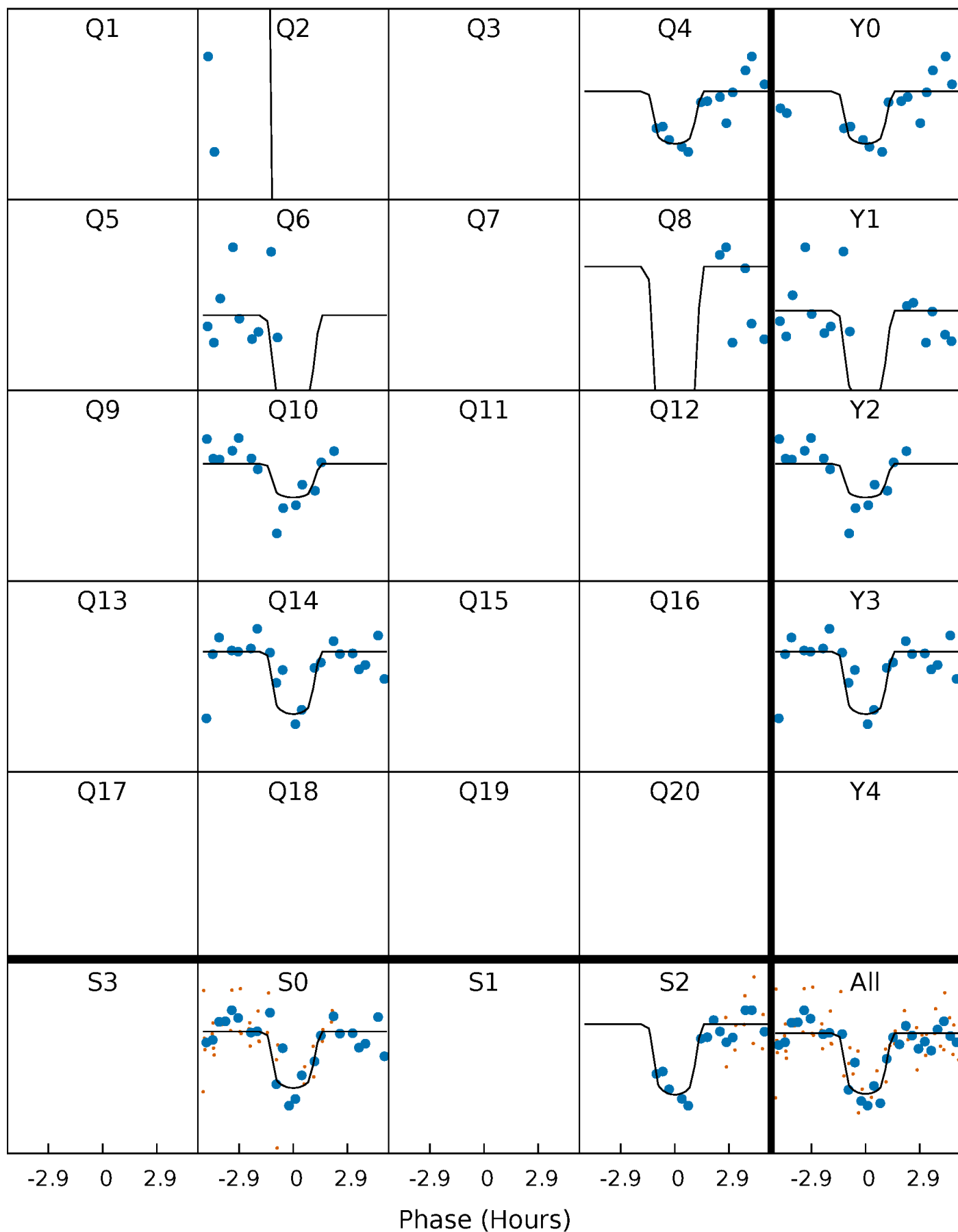
PDC Quarter-Phased Transit Curves

TCE 008098728-06 P=190.370384 Days $T_0=171.392528$ (BKJD)



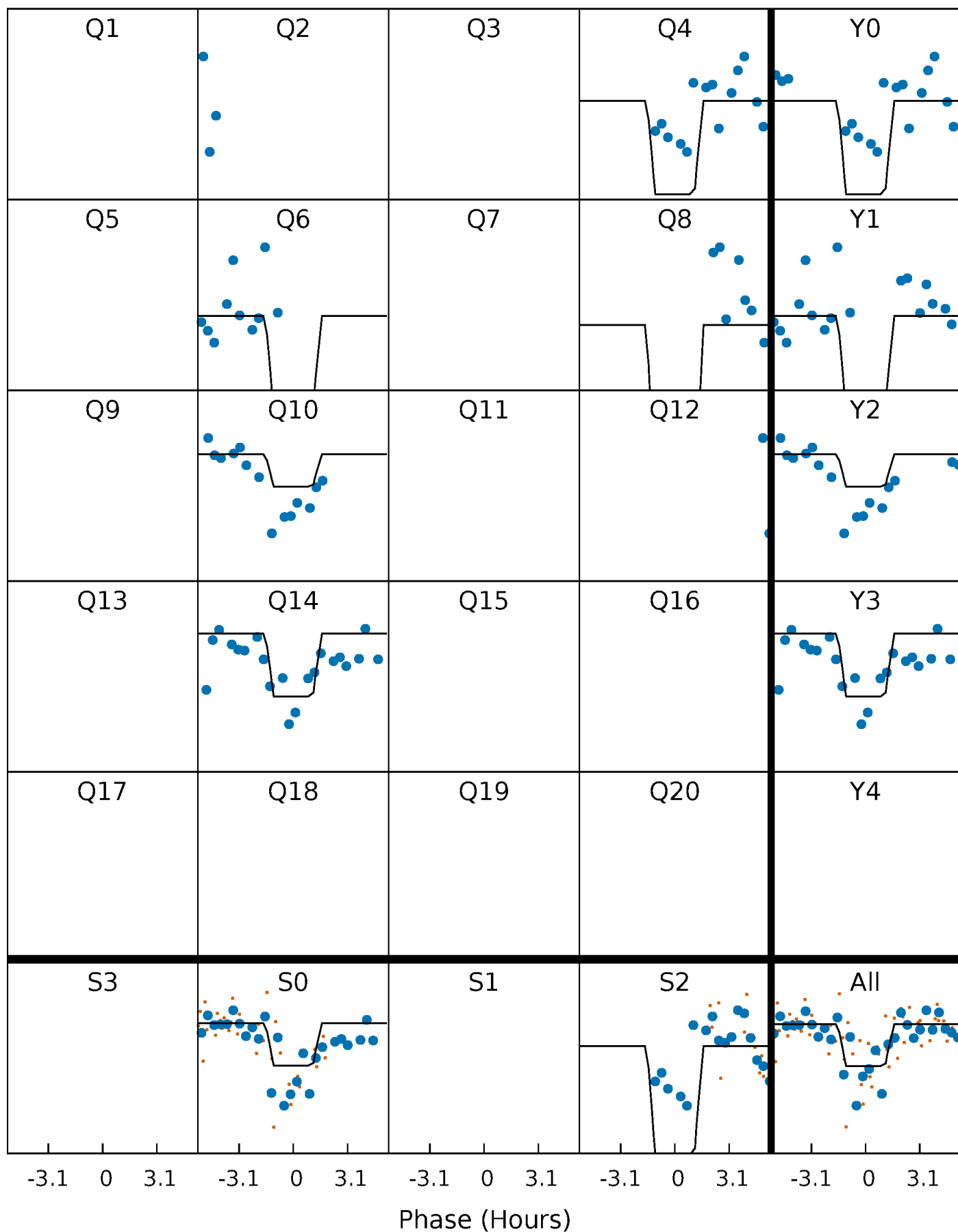
DV Quarter-Phased Transit Curves

TCE 008098728-06 P=190.370384 Days $T_0=171.392528$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

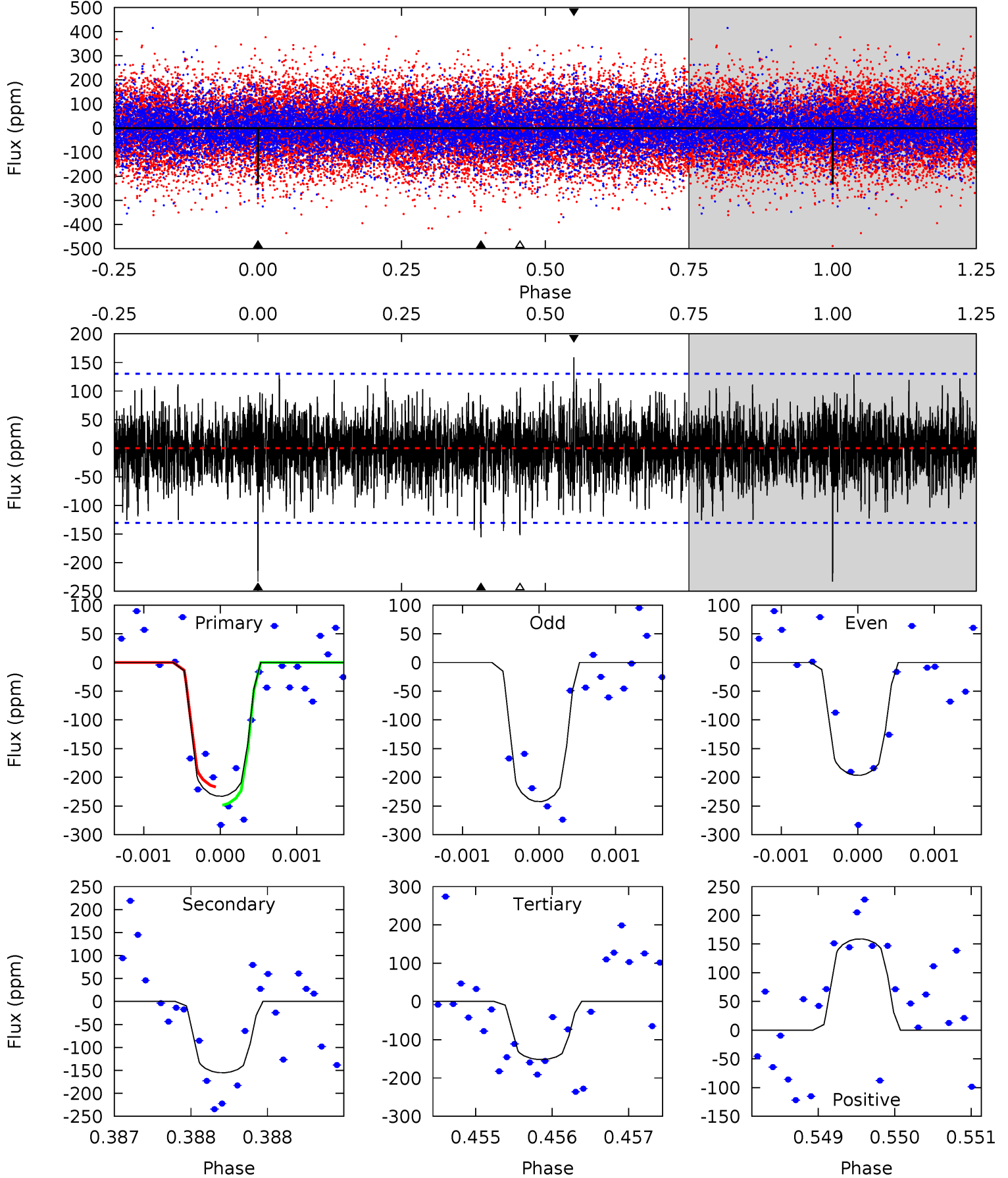
TCE 008098728-06 P=190.371895 Days $T_0=171.396850$ (BKJD)



DV Model-Shift Uniqueness Test

008098728-06, P = 190.370384 Days, E = 171.392528 Days

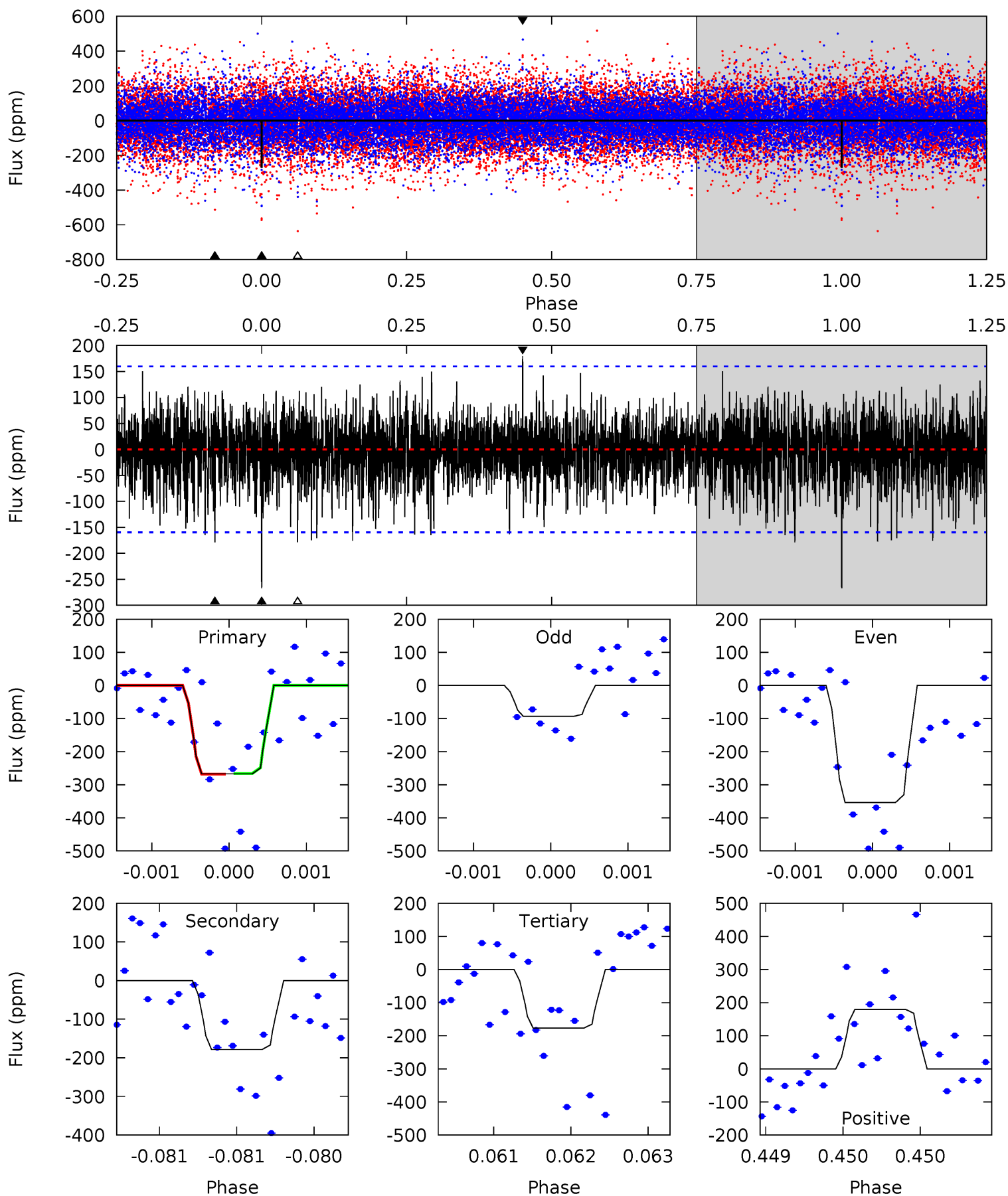
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
9.89	6.59	6.43	6.74	5.53	3.41	1.61	3.46	3.15	0.15	-0.15	0.90	0.92	0.41	0.67



Alt Model-Shift Uniqueness Test

008098728-06, P = 190.371895 Days, E = 171.396850 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
9.26	6.19	6.14	6.24	5.54	3.42	1.63	3.13	3.03	0.05	-0.04	4.28	1.15	0.40	0.03



Stellar Parameters For KIC 008098728

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	$M(M_{\odot})$	p_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	6655^{+168}_{-184}	$3.638^{+0.337}_{-0.112}$	$-0.580^{+0.350}_{-0.300}$	$2.995^{+0.506}_{-1.180}$	$1.420^{+0.220}_{-0.330}$	$0.074^{+0.188}_{-0.026}$
	+3%/-3%	+9%/-3%	+60%/-52%	+17%/-39%	+15%/-23%	+253%/-34%
Source	PHO1	FLK73	KIC0	DSEP		

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

Secondary Eclipse Parameters for KIC 008098728-06 / KOI

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	-155 ± 24	$5.11^{+3.28}_{-2.62}$	816^{+54}_{-76}	5634^{+2669}_{-932}	1697^{+5337}_{-1044}
Alt.	-179 ± 29	$5.36^{+2.83}_{-2.68}$	820^{+50}_{-77}	5850^{+2680}_{-1010}	1871^{+5551}_{-1142}

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

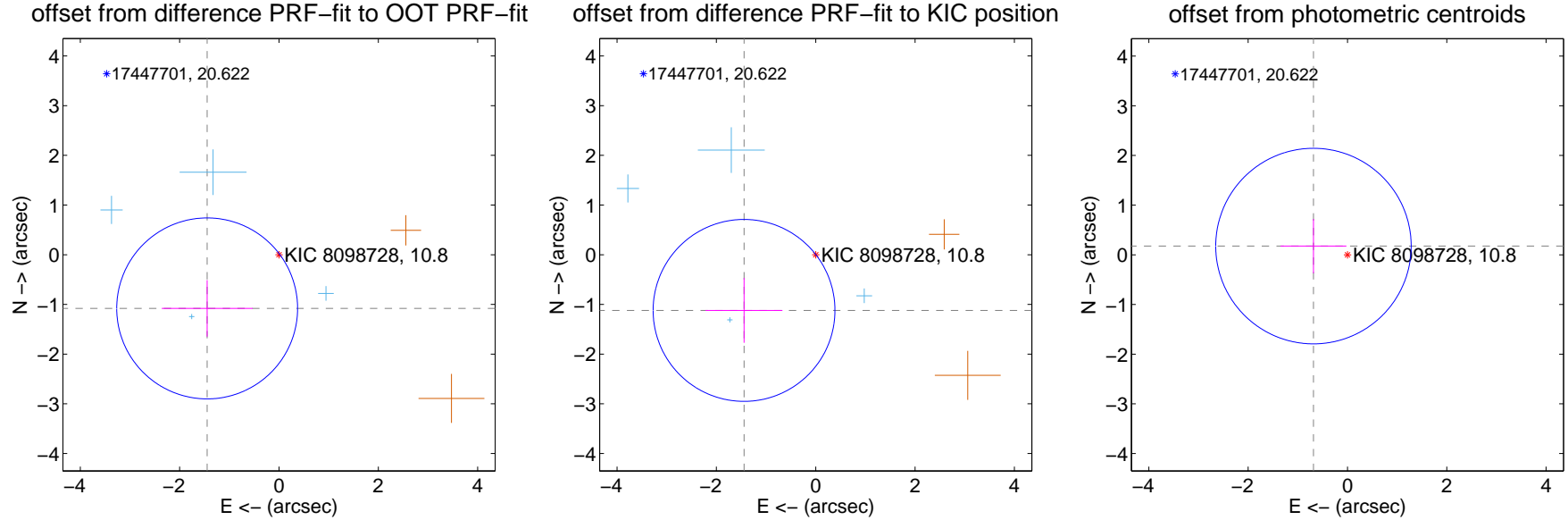
DV Centroid Data

Supplemental centroid analysis for 008098728-06. **Kepler magnitude: 10.80.** Transit SNR 7.68

There are 4 quarters with good PRF difference image offsets

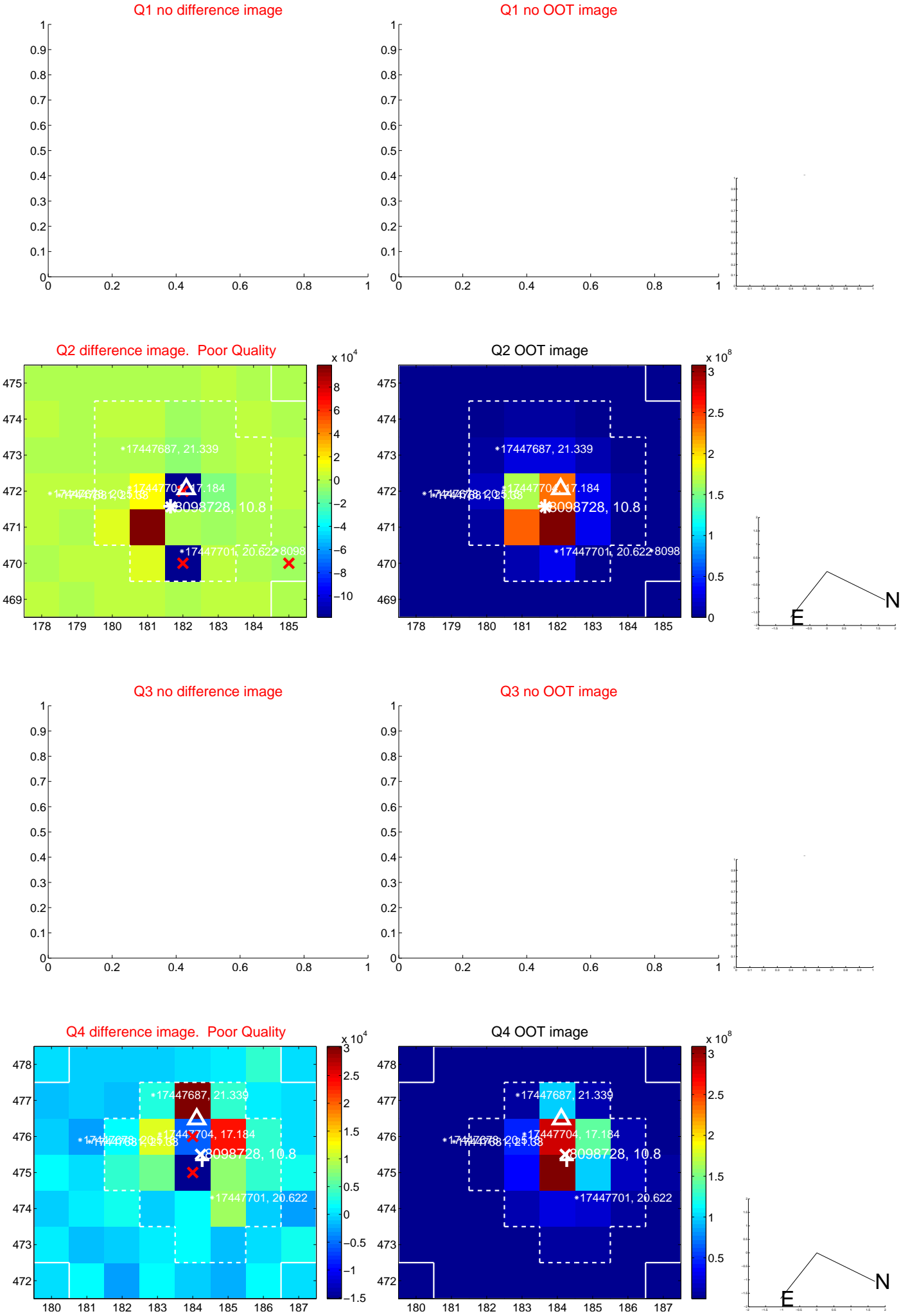
The direct PRF centroid is offset from the target star catalog position by about 0.58 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	1.806 ± 0.607	2.97	1.447 ± 0.915	-1.080 ± 0.568
PRF-fit source offset from KIC position	1.827 ± 0.610	2.99	1.443 ± 0.774	-1.121 ± 0.651
photometric centroid source offset	0.71 ± 0.66	1.08	0.69 ± 0.66	0.18 ± 0.55

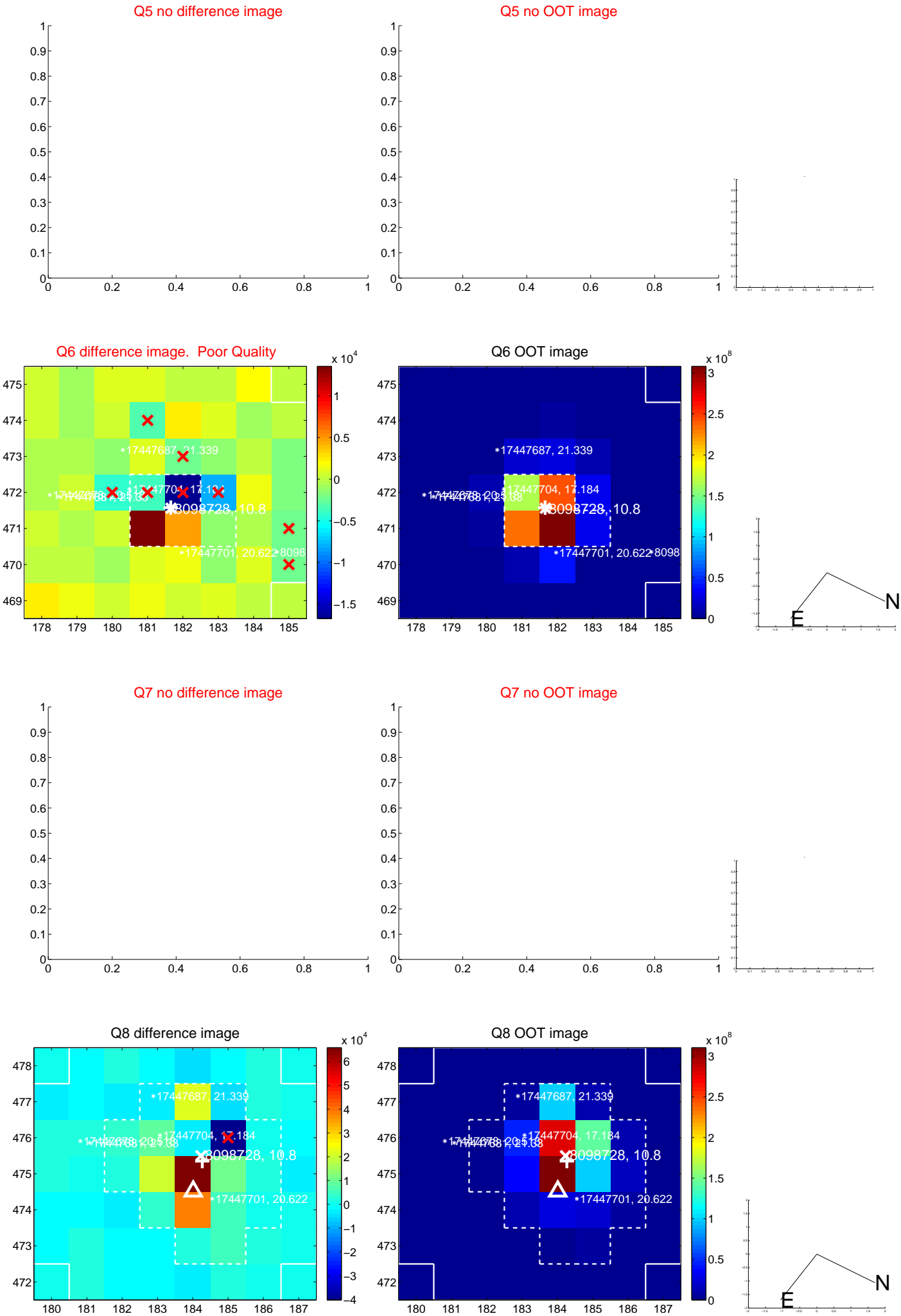


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets;** magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

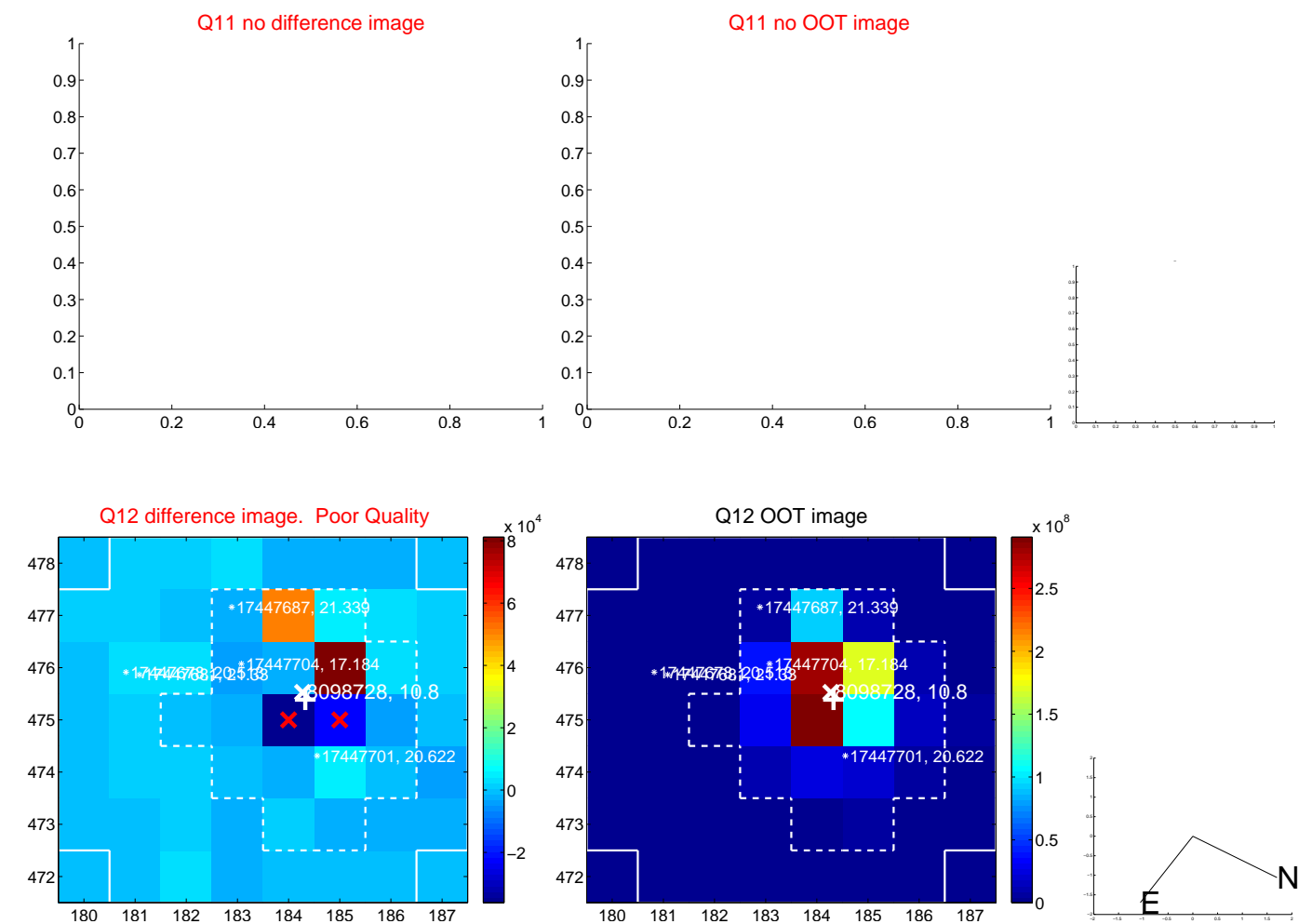
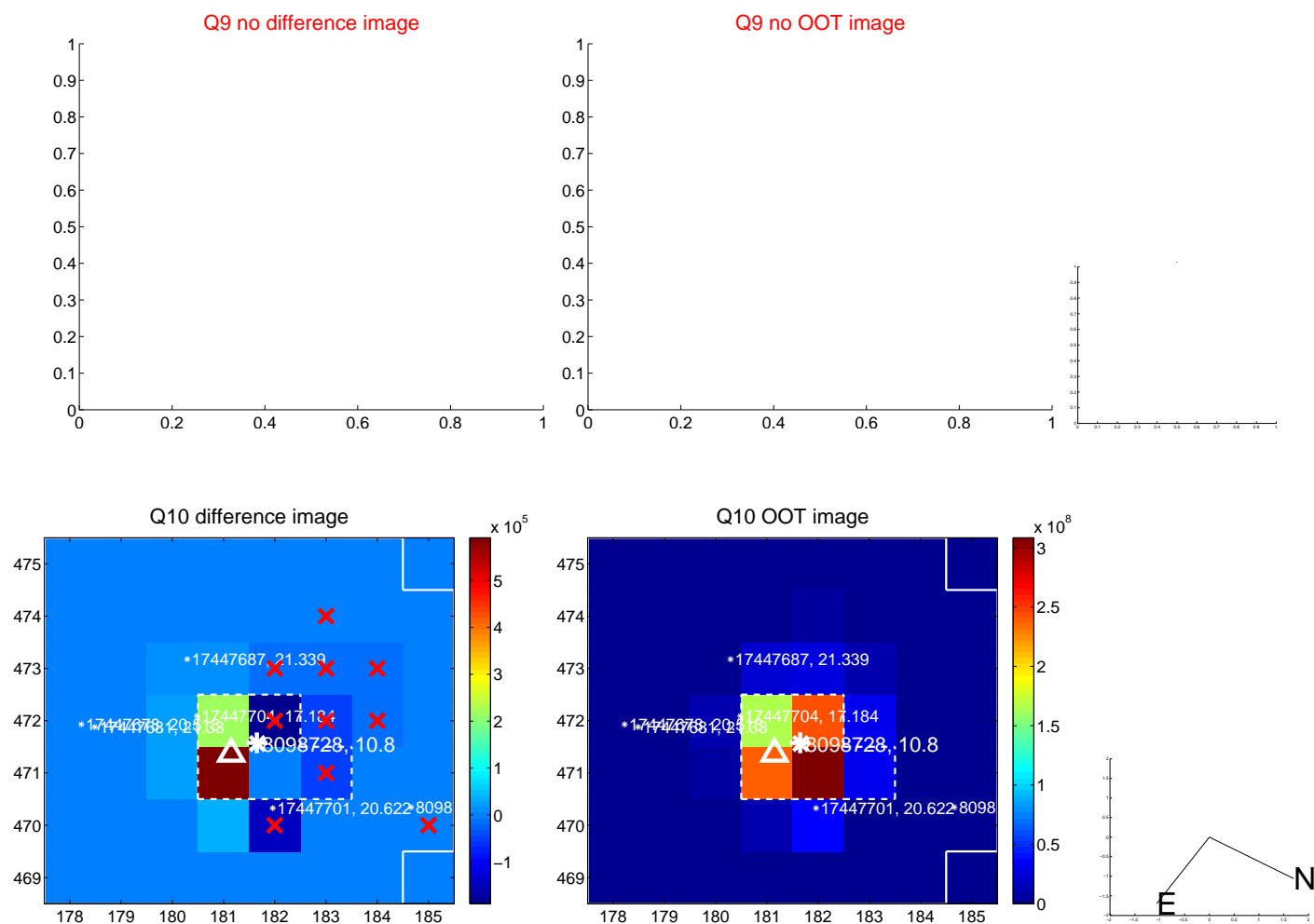
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



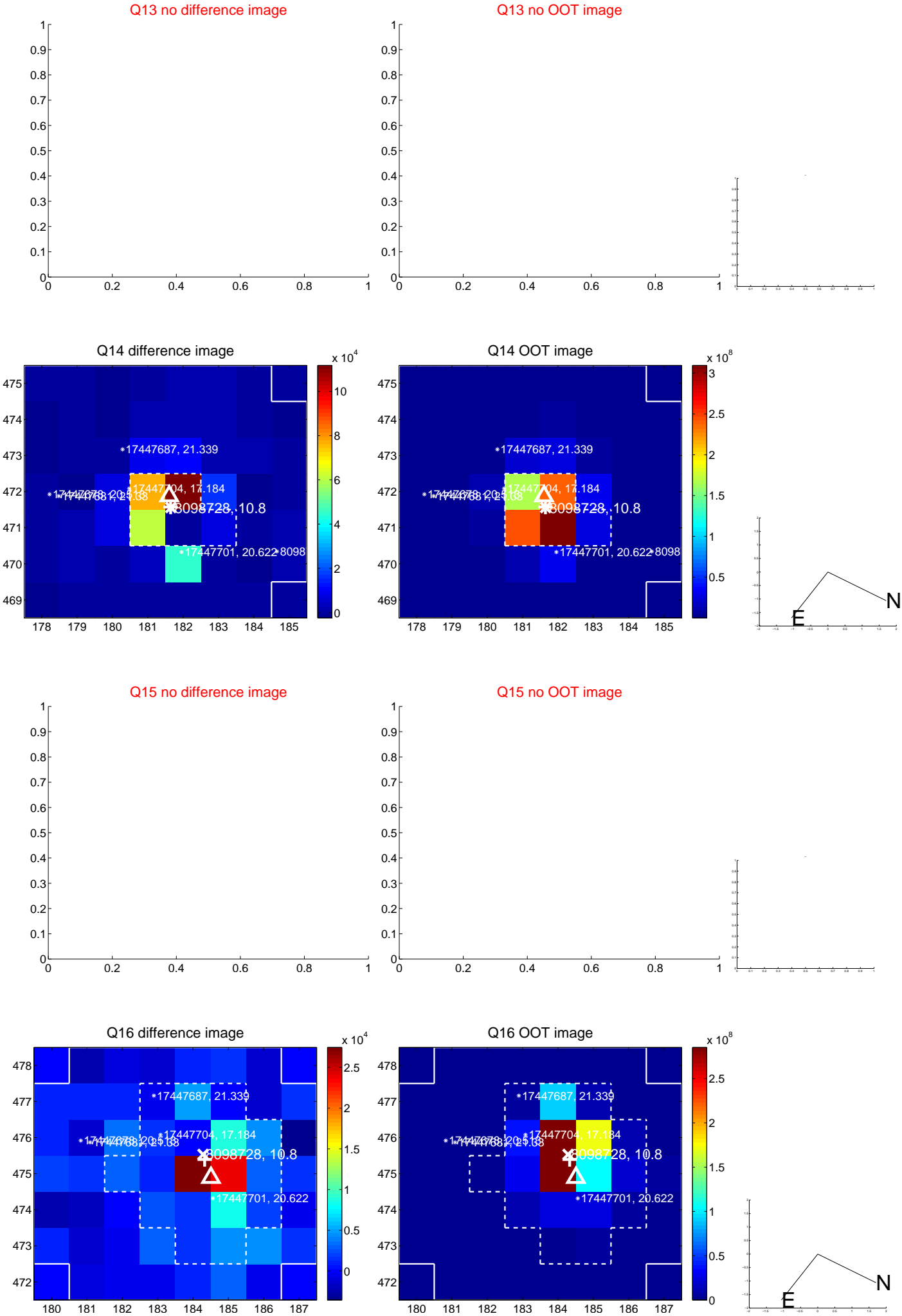
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



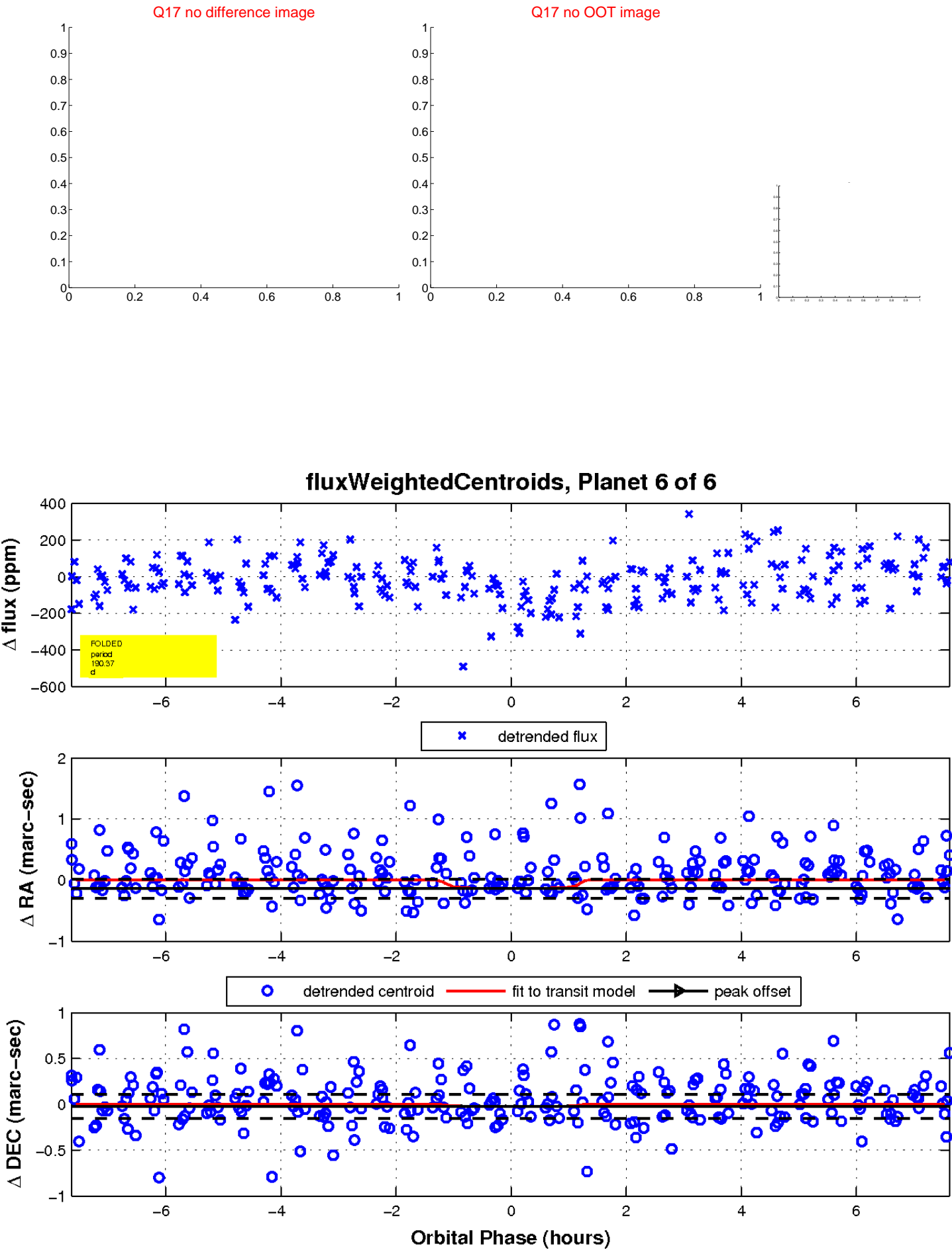
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

