

KIC 008196840

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})
008196840-01	OBS	No	1.126002	132.561098	88.6	4.980	11.1	7.1	3.24	8163	3.54	57312.20
008196840-02	OBS	No	1.126064	132.026575	77.2	5.059	9.1	7.0	3.24	8163	3.30	57307.99

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
008196840-01	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_ALT
008196840-02	OBS	FP	0.00	1	0	1	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_ALT—SAME_NTL_PERIOD—HALO_GHOST

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

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

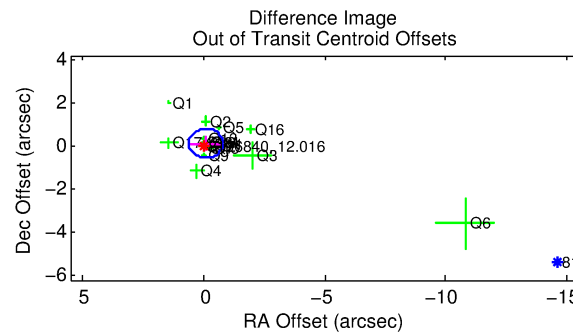
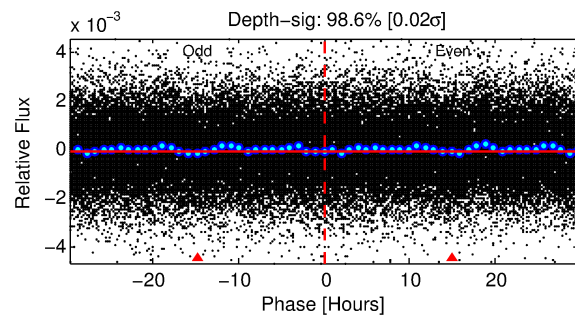
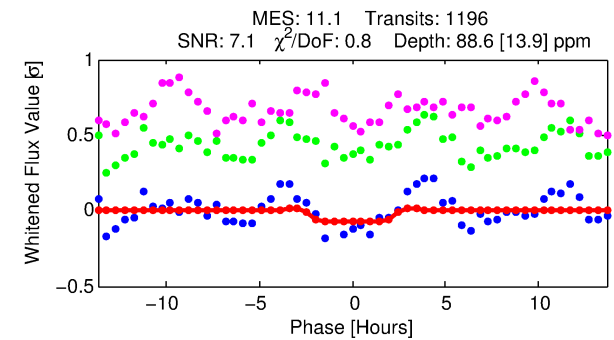
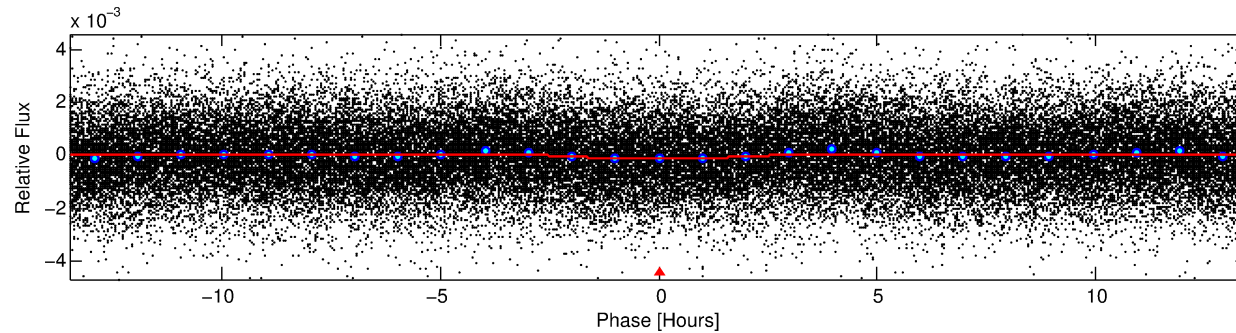
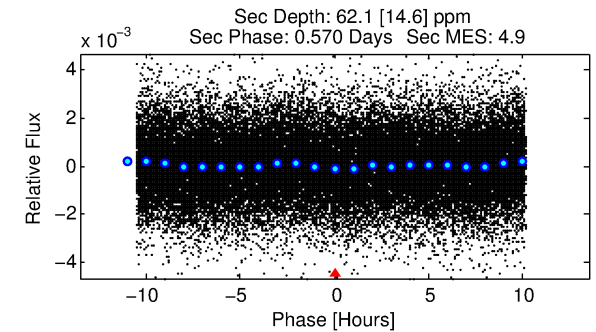
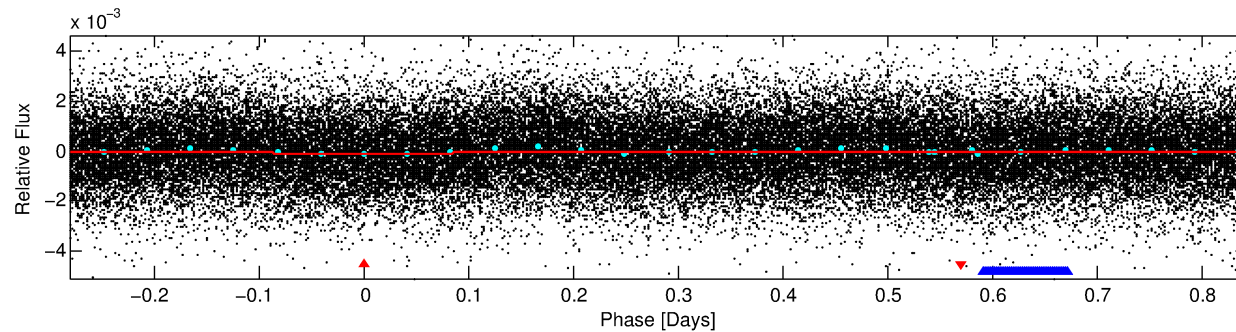
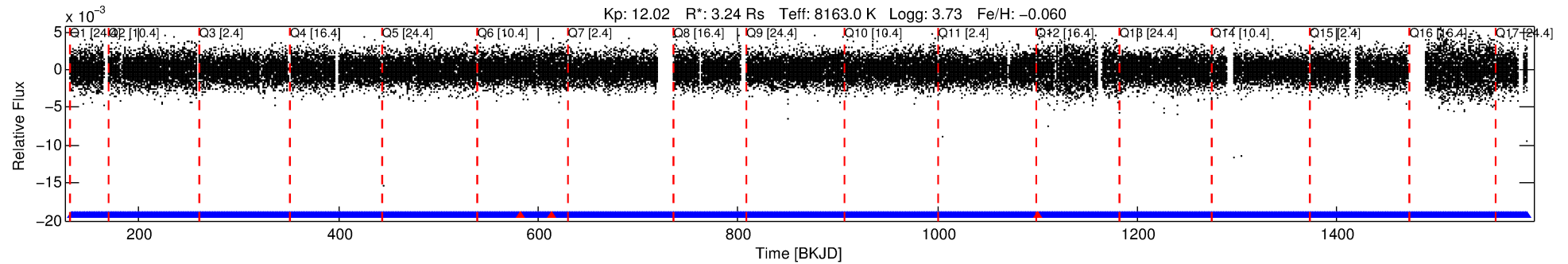
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 008196840-01

No Significant Match Found

DV One-Page Summary

KIC: 8196840 Candidate: 1 of 2 Period: 1.126 d



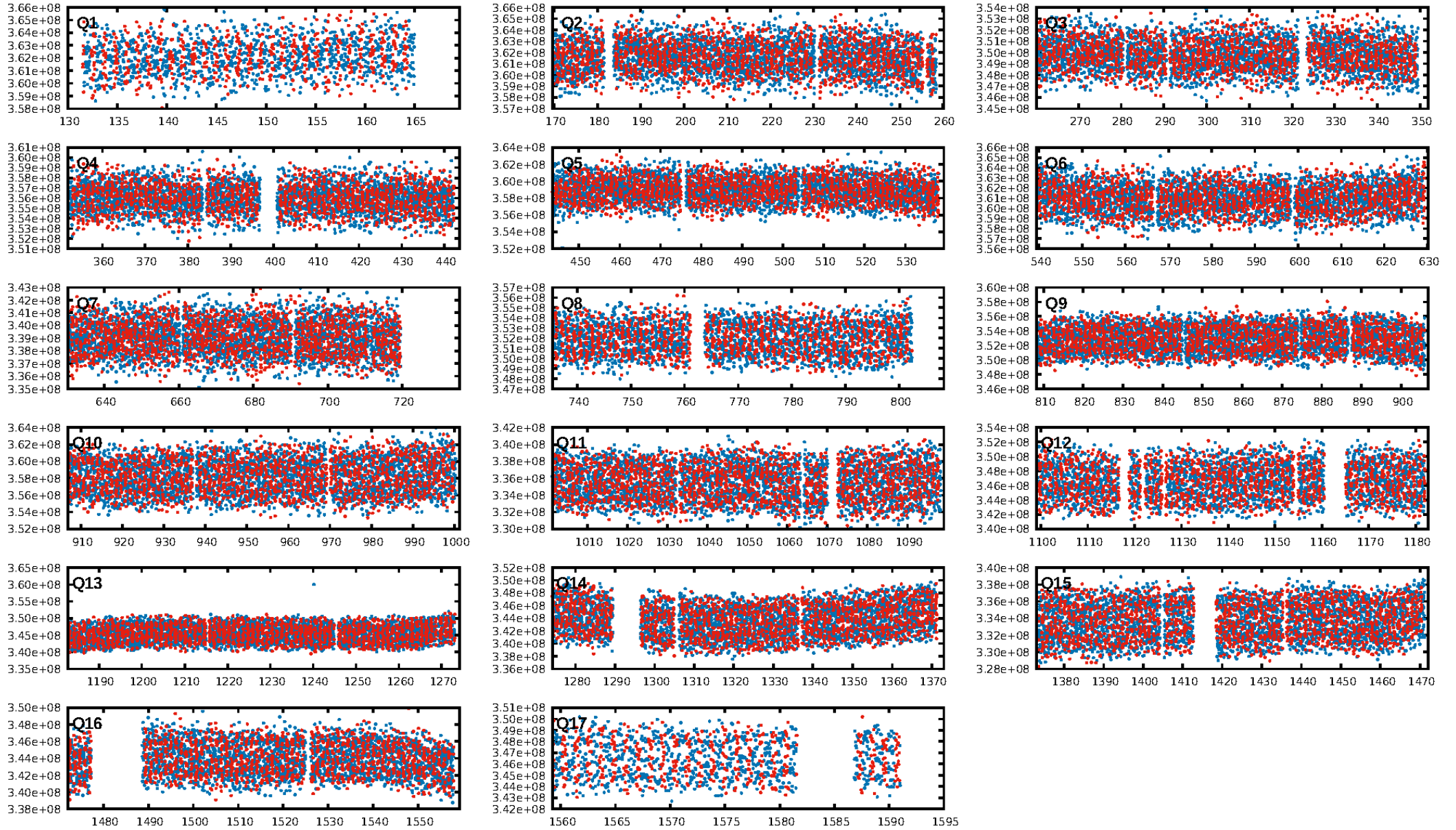
DV Fit Results:

Period = 1.12600 [0.00002] d
Epoch = 132.5611 [0.0074] BKJD
Rp/R* = 0.0100 [0.0056]
a/R* = 1.23 [1.46]
b = 0.90 [0.75]
Seff = 57312.20 [43096.64]
Teq = 3945 [742] K
Rp = 3.54 [2.58] Re
a = 0.0270 [0.0123] AU
Ag = 1.98 [2.69] [0.36σ]
Teffp = 7237 [2087] K [1.49σ]

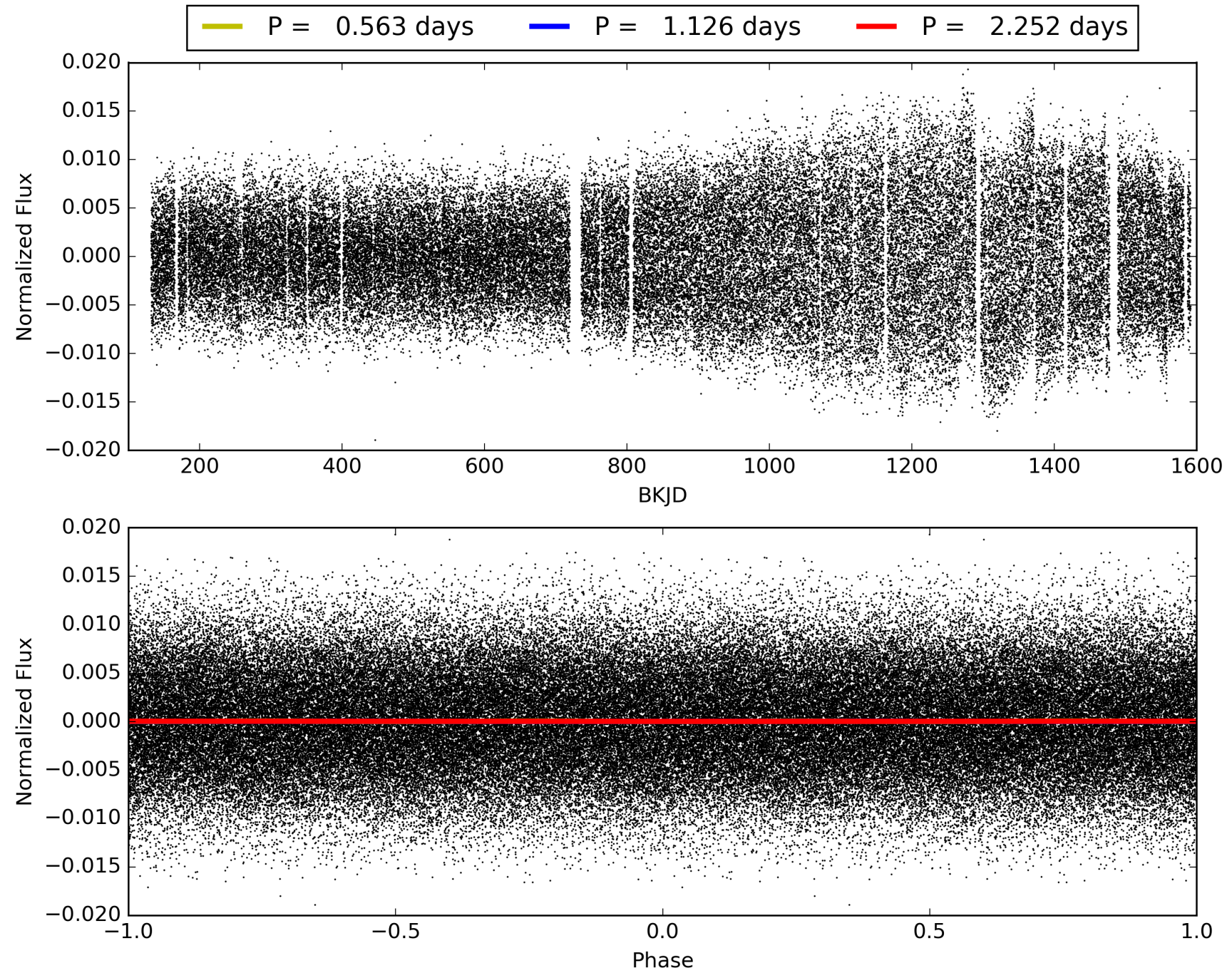
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: 0.0% [0.00σ]
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: 2.44e-63
RollingBand-fgt: 1.00 [1139/1142]
GhostDiagnostic-chr: 1.127
Centroid-sig: 0.1%
Centroid-so: 0.333 arcsec [2.17σ]
OotOffset-rm: 0.166 arcsec [0.72σ]
KicOffset-rm: 0.190 arcsec [0.72σ]
OotOffset-st: 4/4/4/5 [17]
KicOffset-st: 4/4/4/5 [17]
DiffImageQuality-fgm: 0.47 [8/17]
DiffImageOverlap-fno: 0.00 [0/17]

TCE 008196840-01, PDC Light Curves

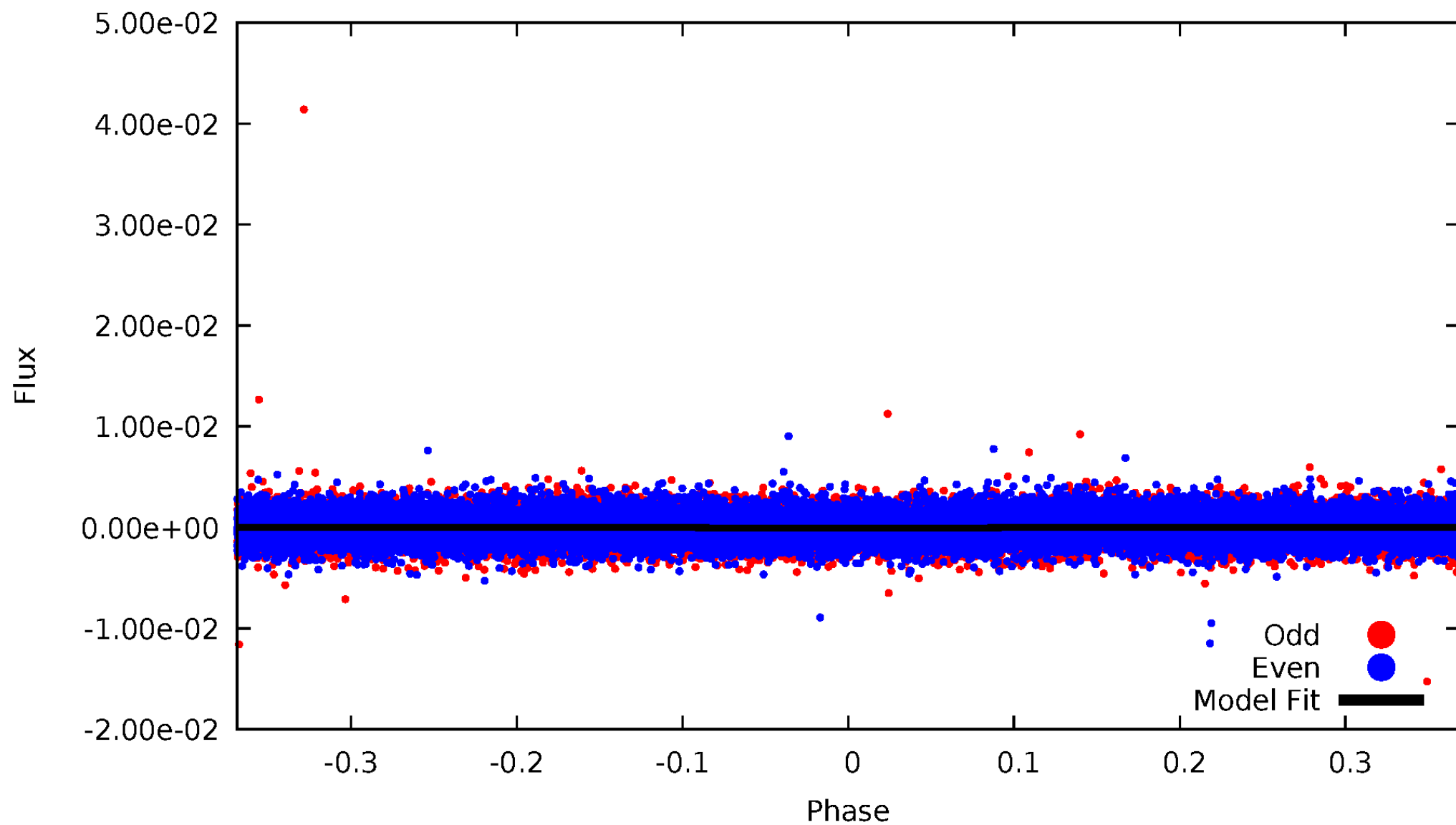


TCE 008196840-01



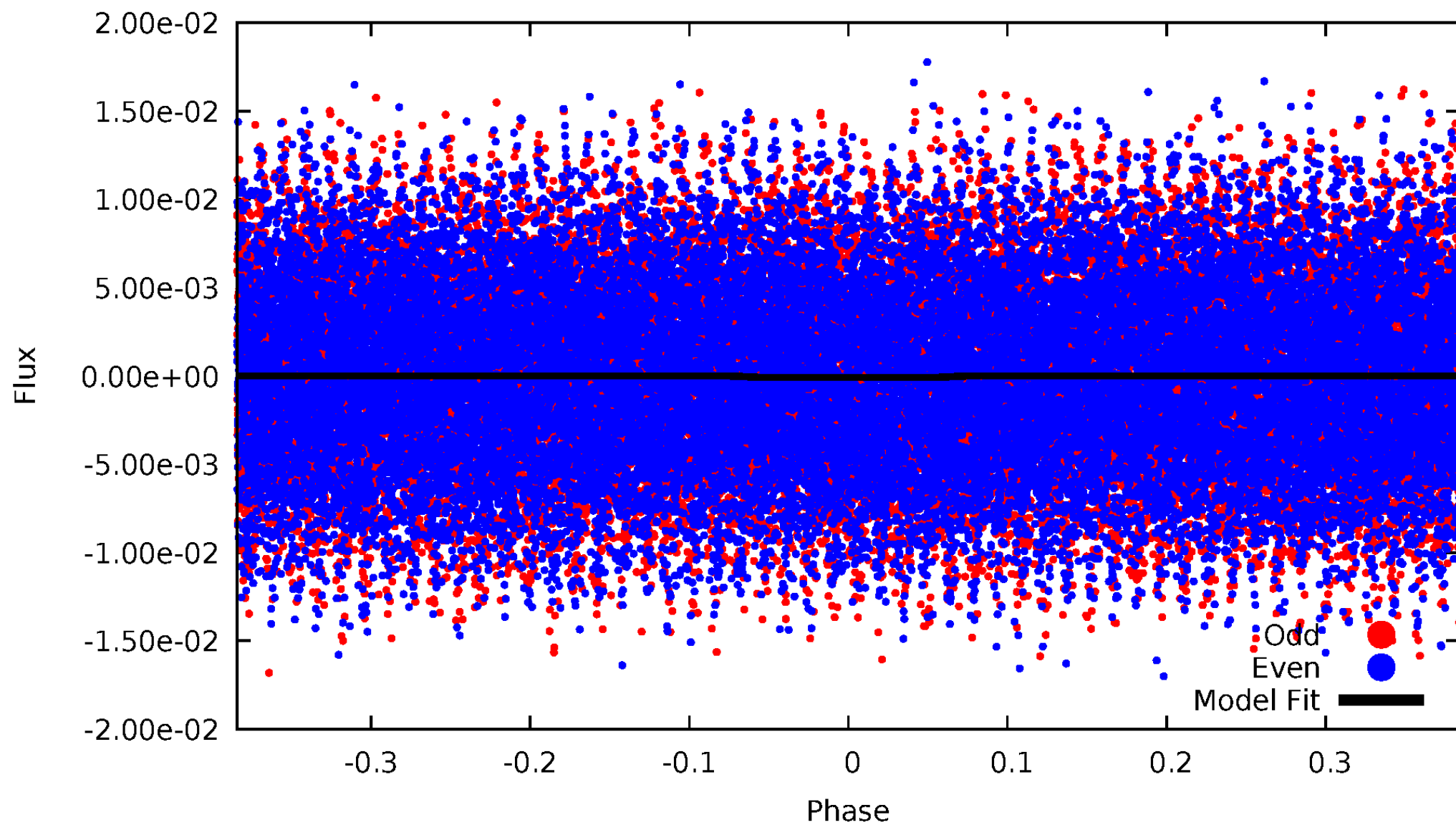
DV Odd/Even

TCE 008196840-01



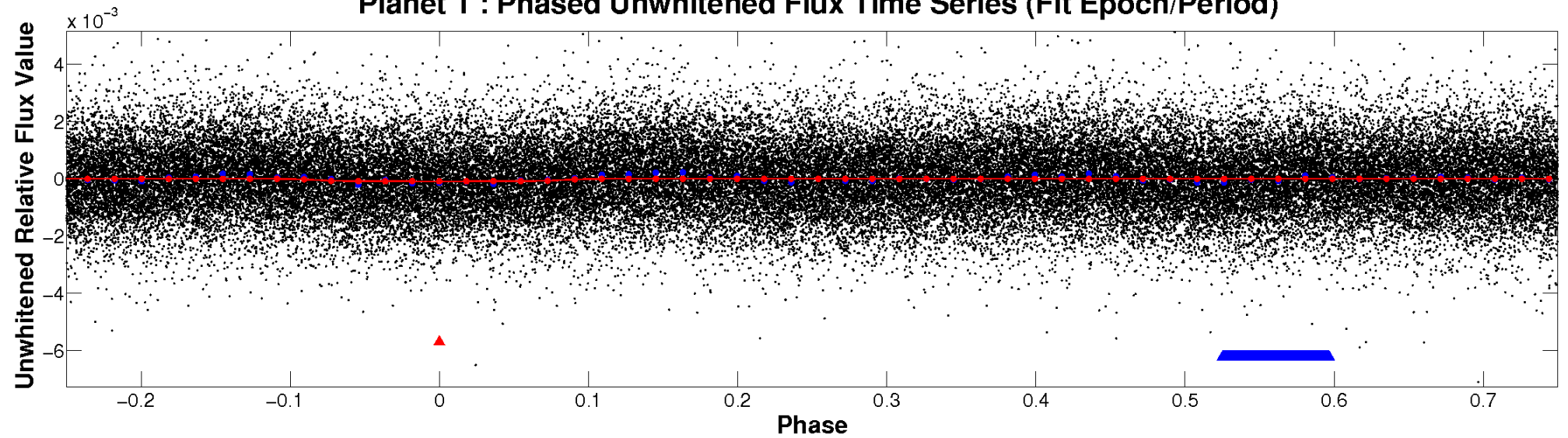
ALT Odd/Even

TCE 008196840-01

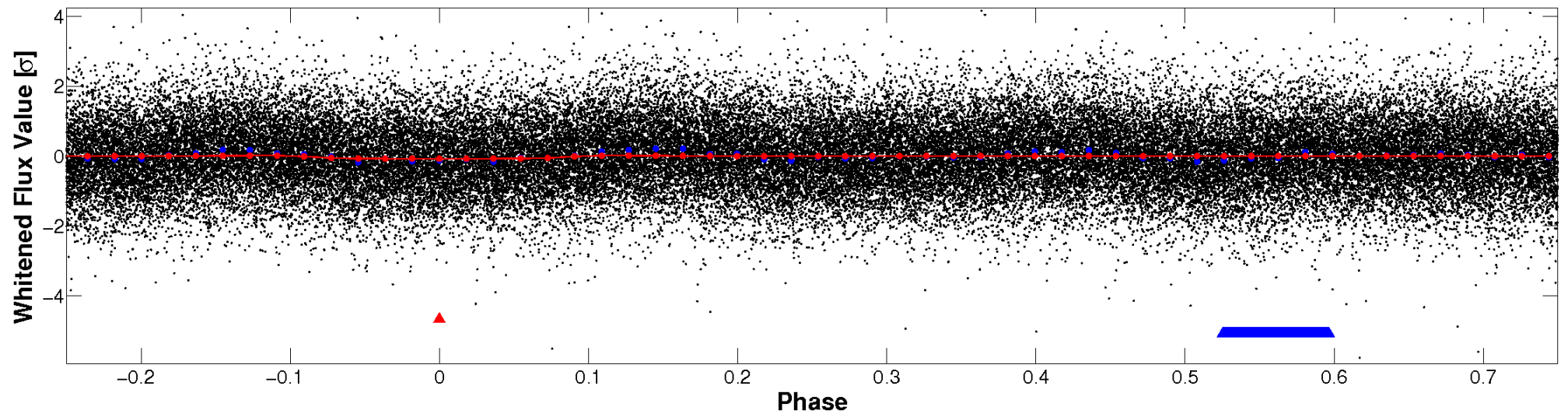


Non-Whitened Vs. Whitened Light Curve

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

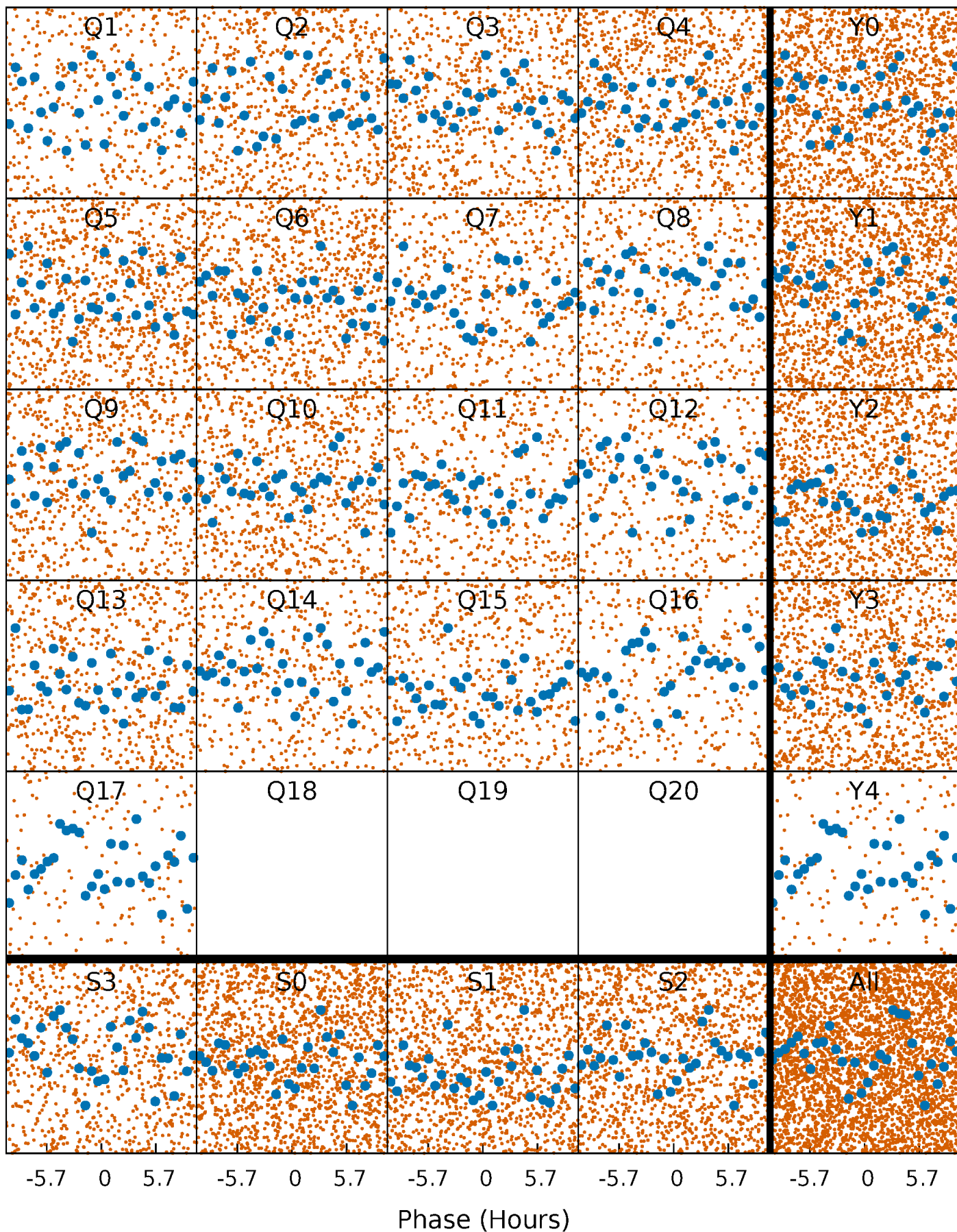


Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)



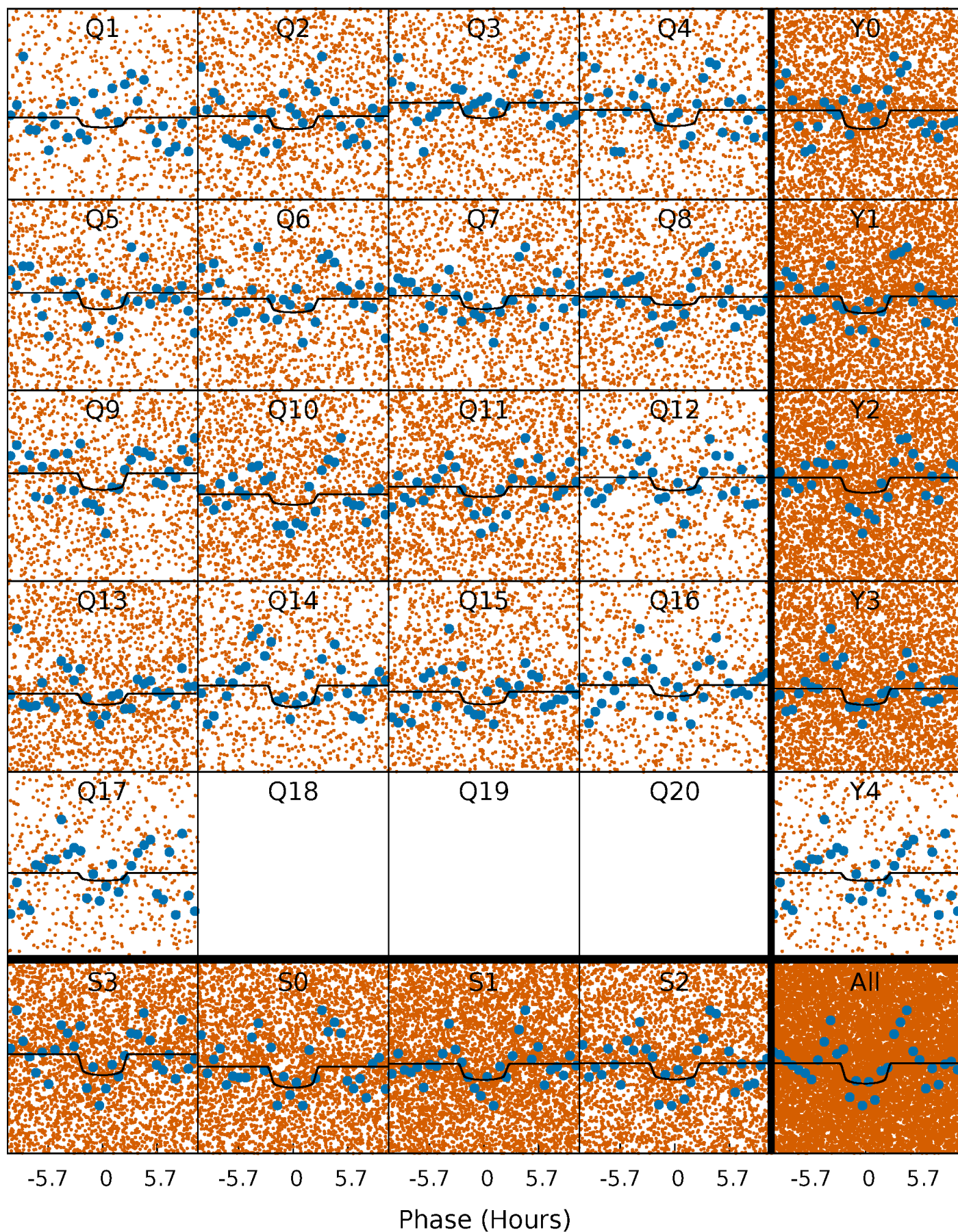
PDC Quarter-Phased Transit Curves

TCE 008196840-01 P= 1.126002 Days $T_0=132.561098$ (BKJD)



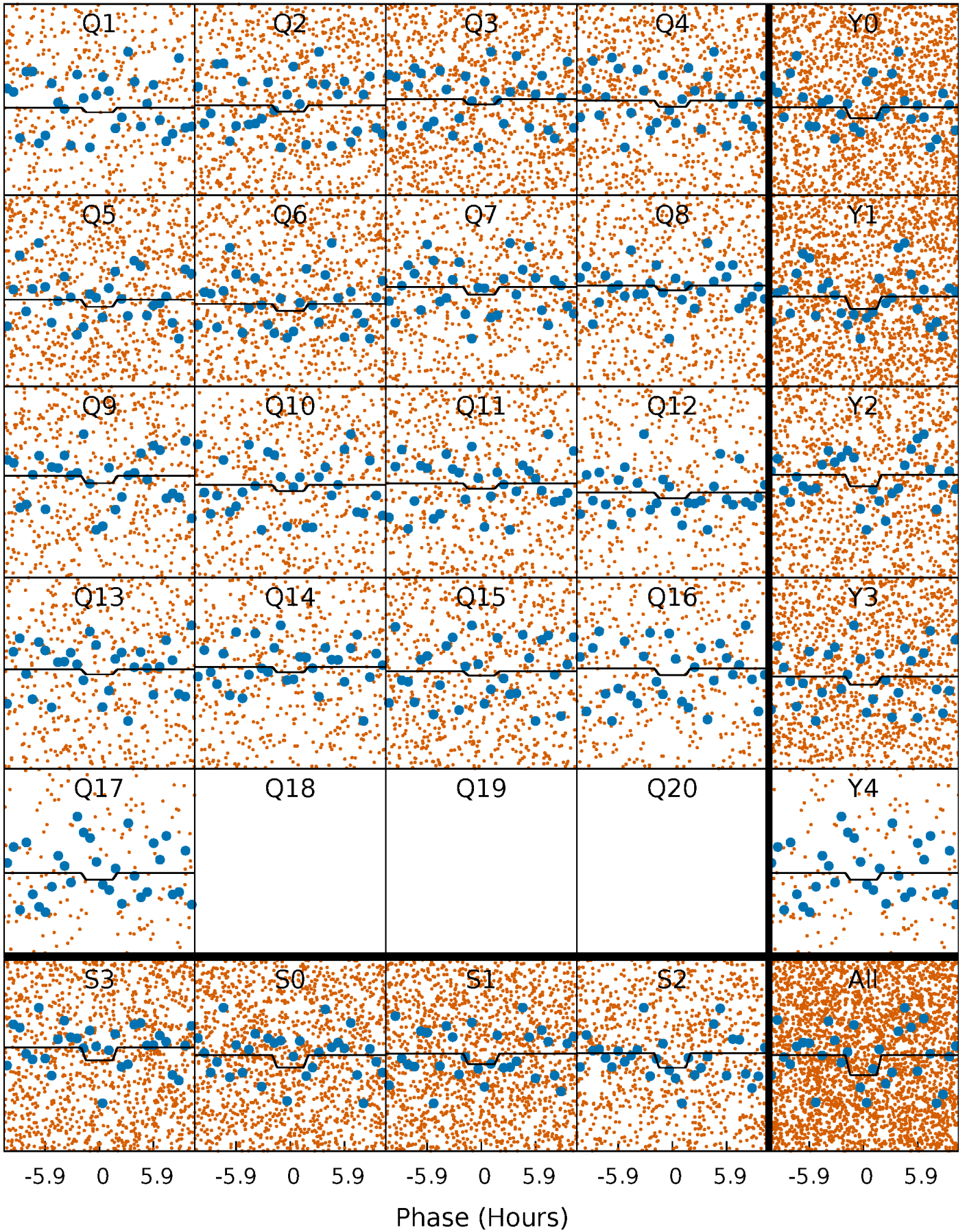
DV Quarter-Phased Transit Curves

TCE 008196840-01 P= 1.126002 Days $T_0=132.561098$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

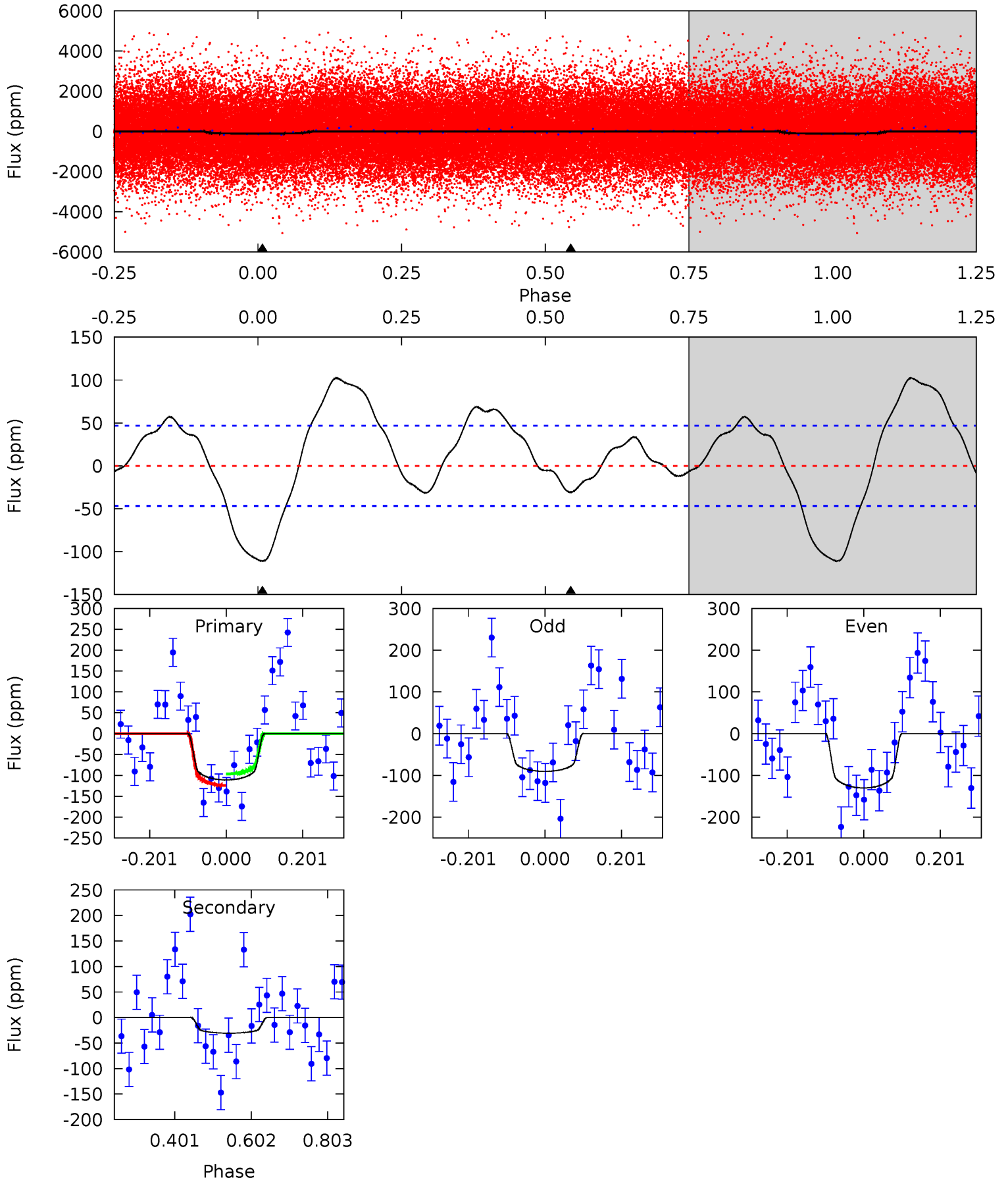
TCE 008196840-01 P= 1.125944 Days $T_0=132.538065$ (BKJD)



DV Model-Shift Uniqueness Test

008196840-01, P = 1.126002 Days, E = 131.435096 Days

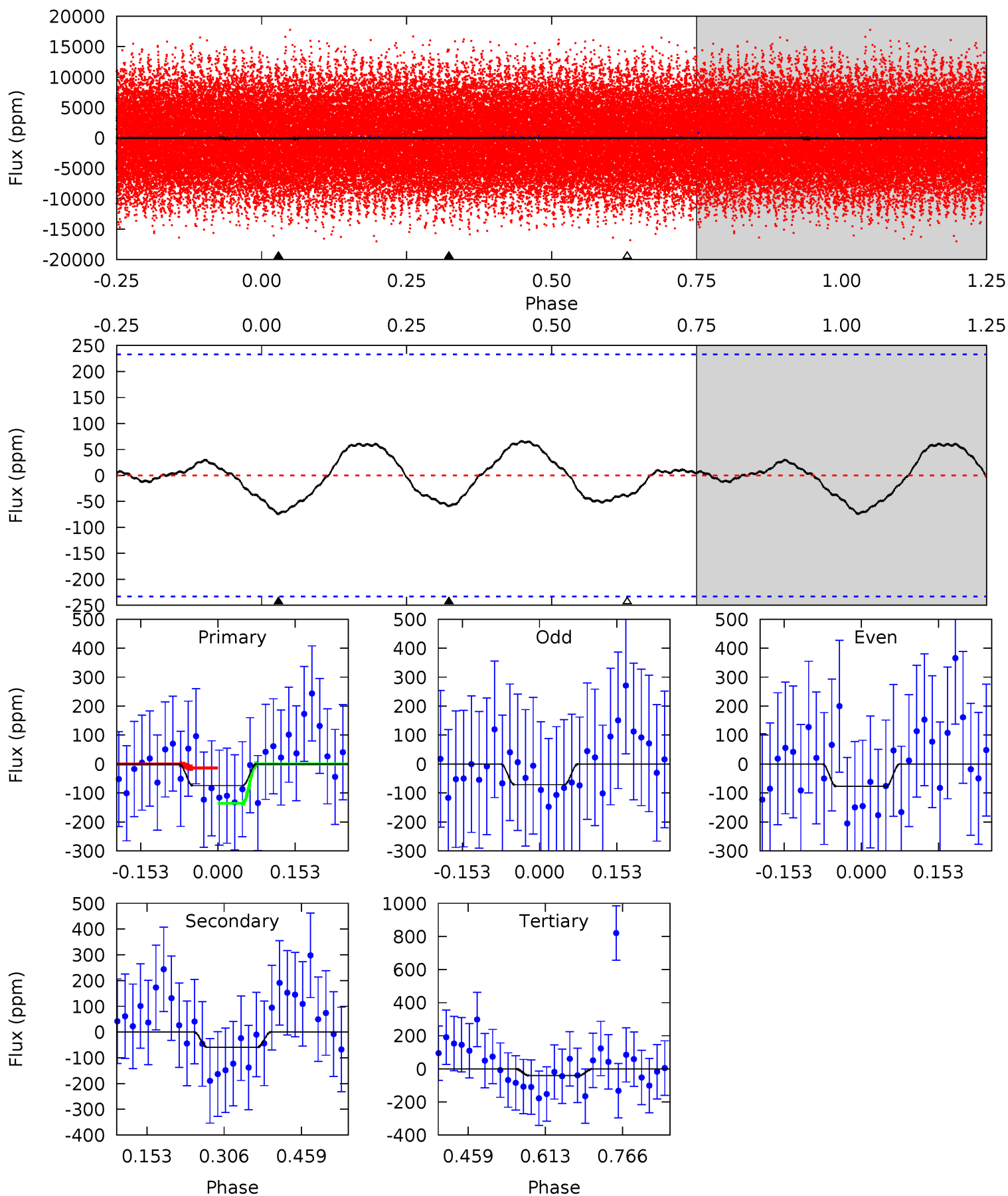
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
10.5	2.90	0	0	4.42	1.28	2.11	10.5	10.5	2.90	2.90	1.88	0.94	0.48	1.29



Alt Model-Shift Uniqueness Test

008196840-01, P = 1.125944 Days, E = 131.412121 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
1.43	1.14	0.78	0	4.47	1.43	0.47	0.65	1.43	0.36	1.14	0.06	0.81	0.47	1.16



Stellar Parameters For KIC 008196840

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	$M(M_{\odot})$	p_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	8163^{+226}_{-340}	$3.732^{+0.432}_{-0.108}$	$-0.060^{+0.250}_{-0.400}$	$3.236^{+0.818}_{-1.519}$	$2.061^{+0.347}_{-0.521}$	$0.086^{+0.325}_{-0.035}$
	+3%/-4%	+12%/-3%	+417%/-667%	+25%/-47%	+17%/-25%	+380%/-41%
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 008196840-01 / KOI

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	-31 ± 11	$3.20^{+2.12}_{-1.60}$	5350^{+377}_{-667}	5331^{+2897}_{-1762}	$1.139^{+3.392}_{-0.748}$
Alt.	-59 ± 52	$3.02^{+2.26}_{-1.52}$	5331^{+399}_{-616}	6447^{+5031}_{-9328}	$2.132^{+8.829}_{-1.858}$

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 $A_{obs} \gg 1.0$

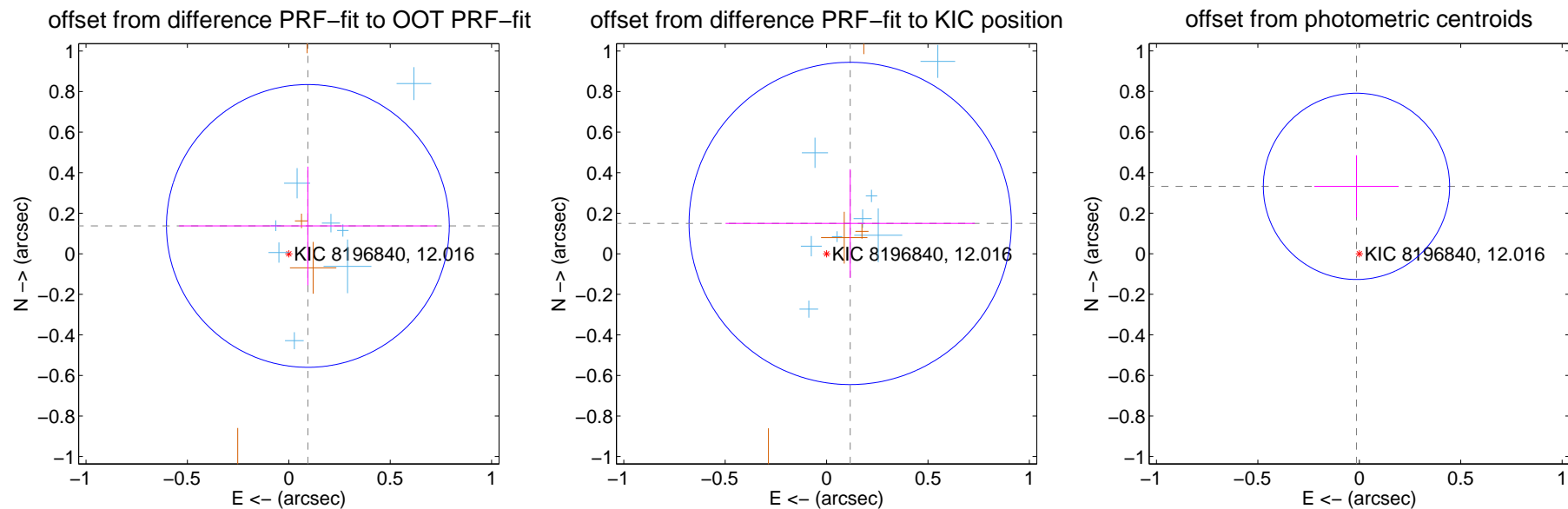
DV Centroid Data

Supplemental centroid analysis for 008196840-01. Kepler magnitude: 12.02. Transit SNR 7.10

There are 8 quarters with good PRF difference image offsets

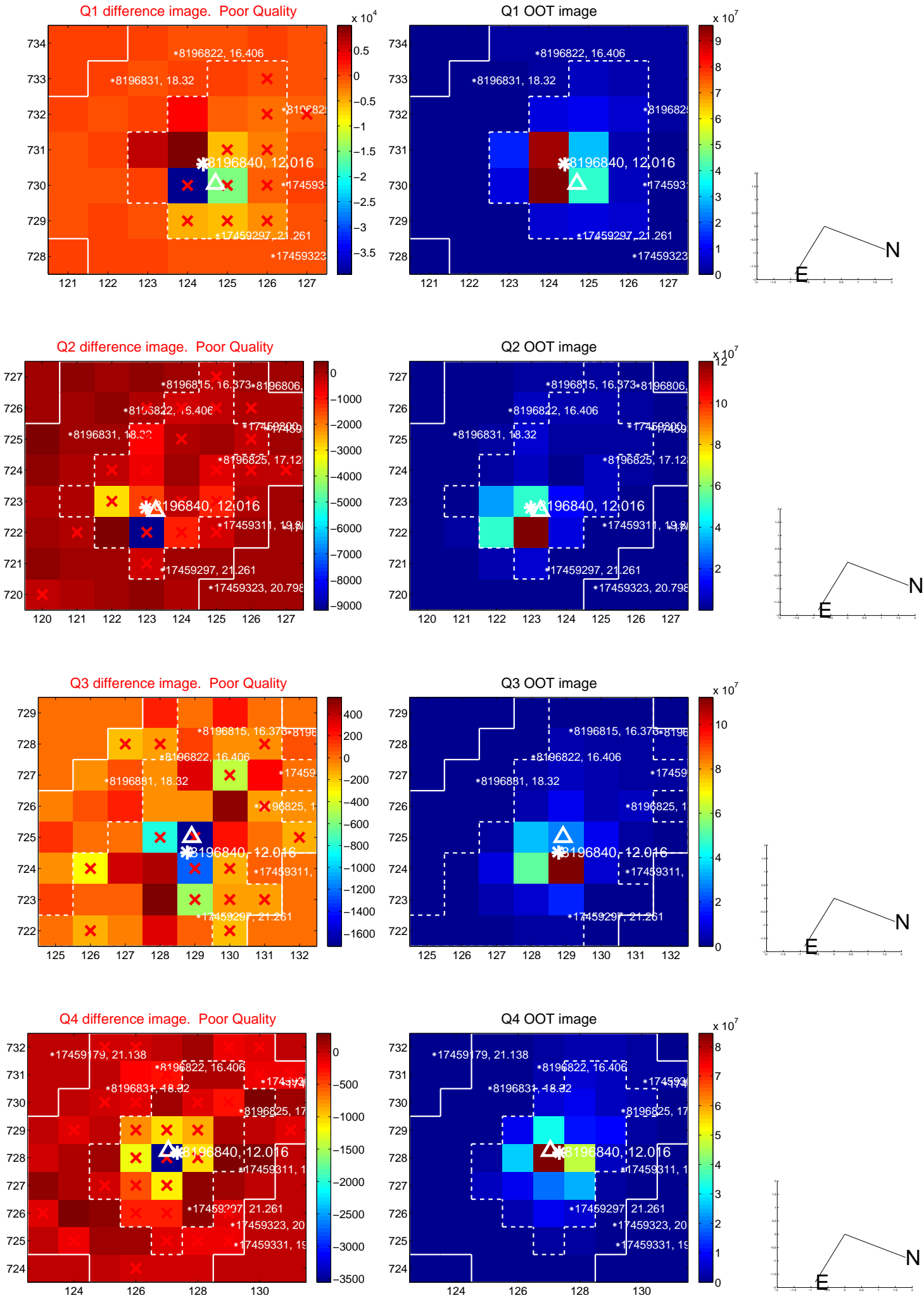
The direct PRF centroid is offset from the target star catalog position by about 0.15 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.166 ± 0.232	0.72	-0.094 ± 0.635	0.137 ± 0.293
PRF-fit source offset from KIC position	0.190 ± 0.265	0.72	-0.116 ± 0.614	0.150 ± 0.267
photometric centroid source offset	0.33 ± 0.15	2.17	0.01 ± 0.21	0.33 ± 0.15

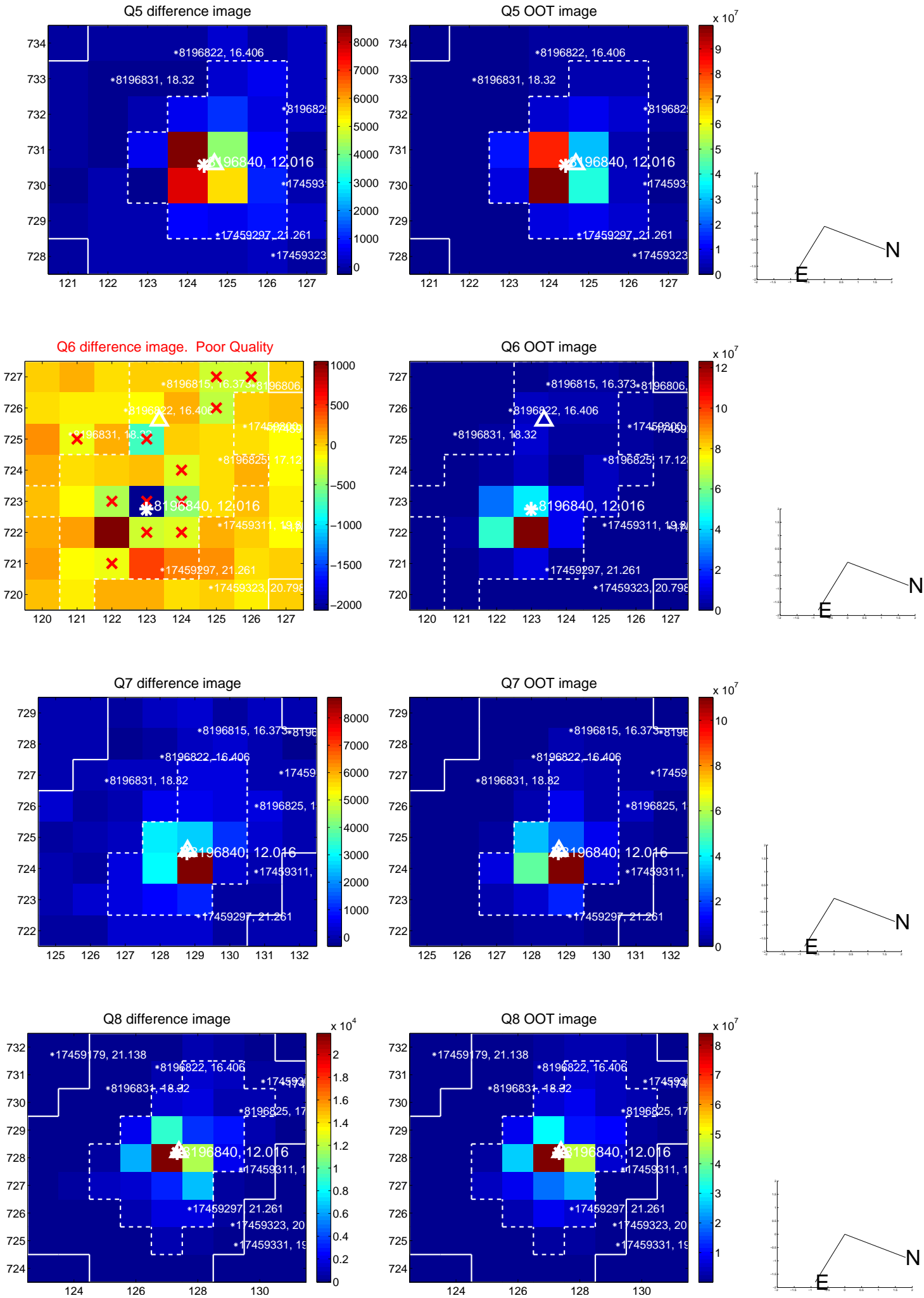


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses:** good quarterly centroid offsets; **Vermillion crosses:** bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

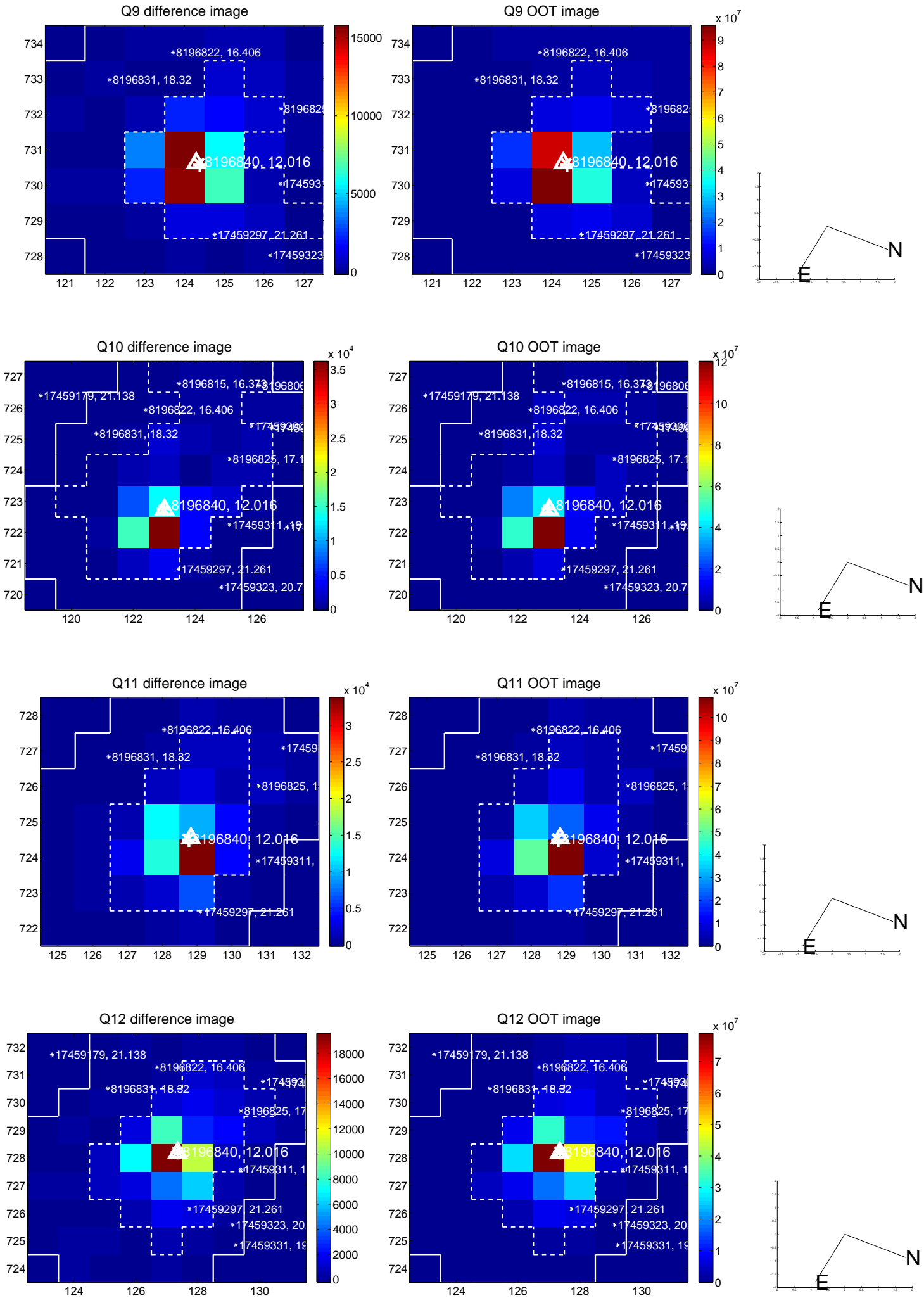
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



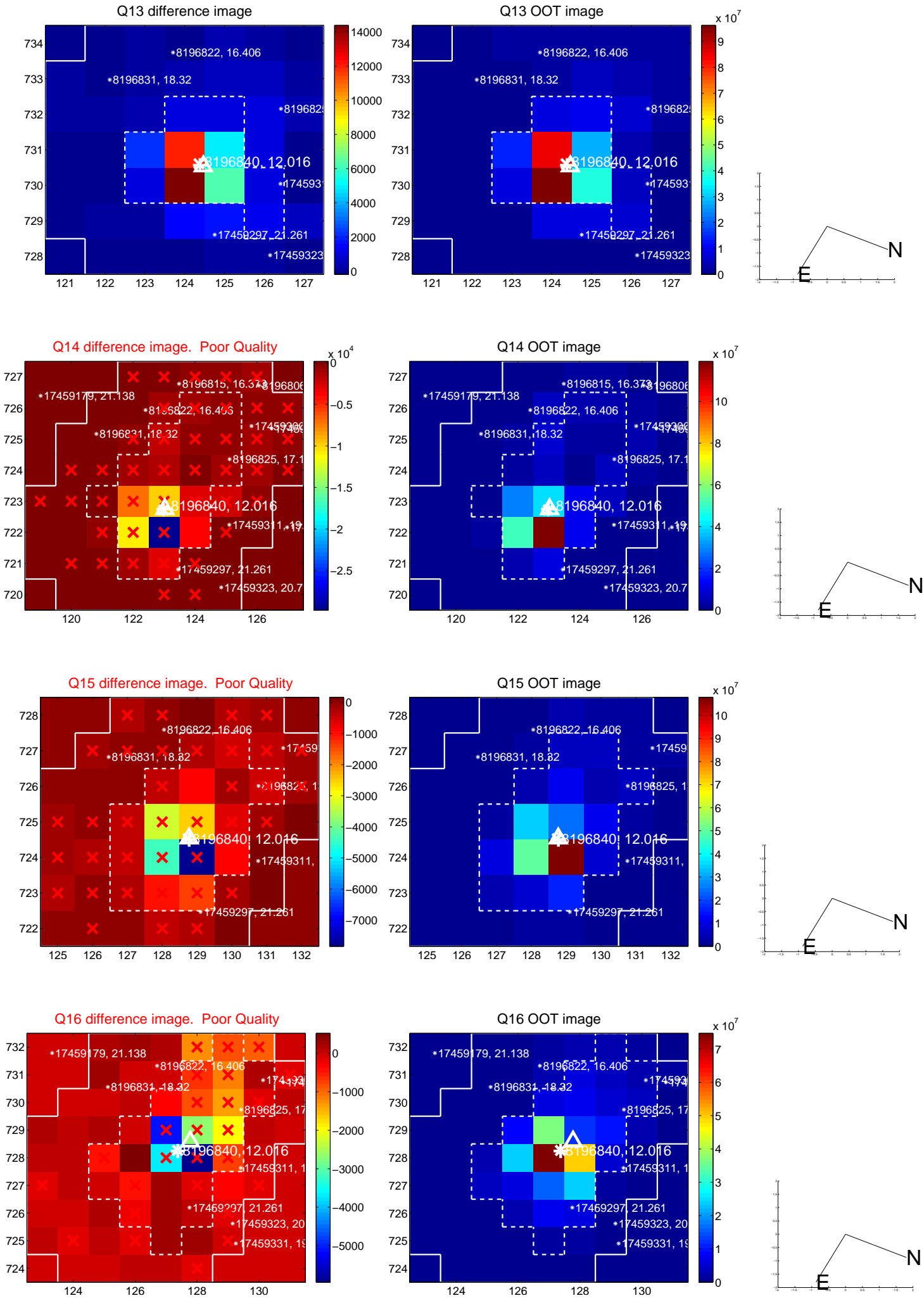
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



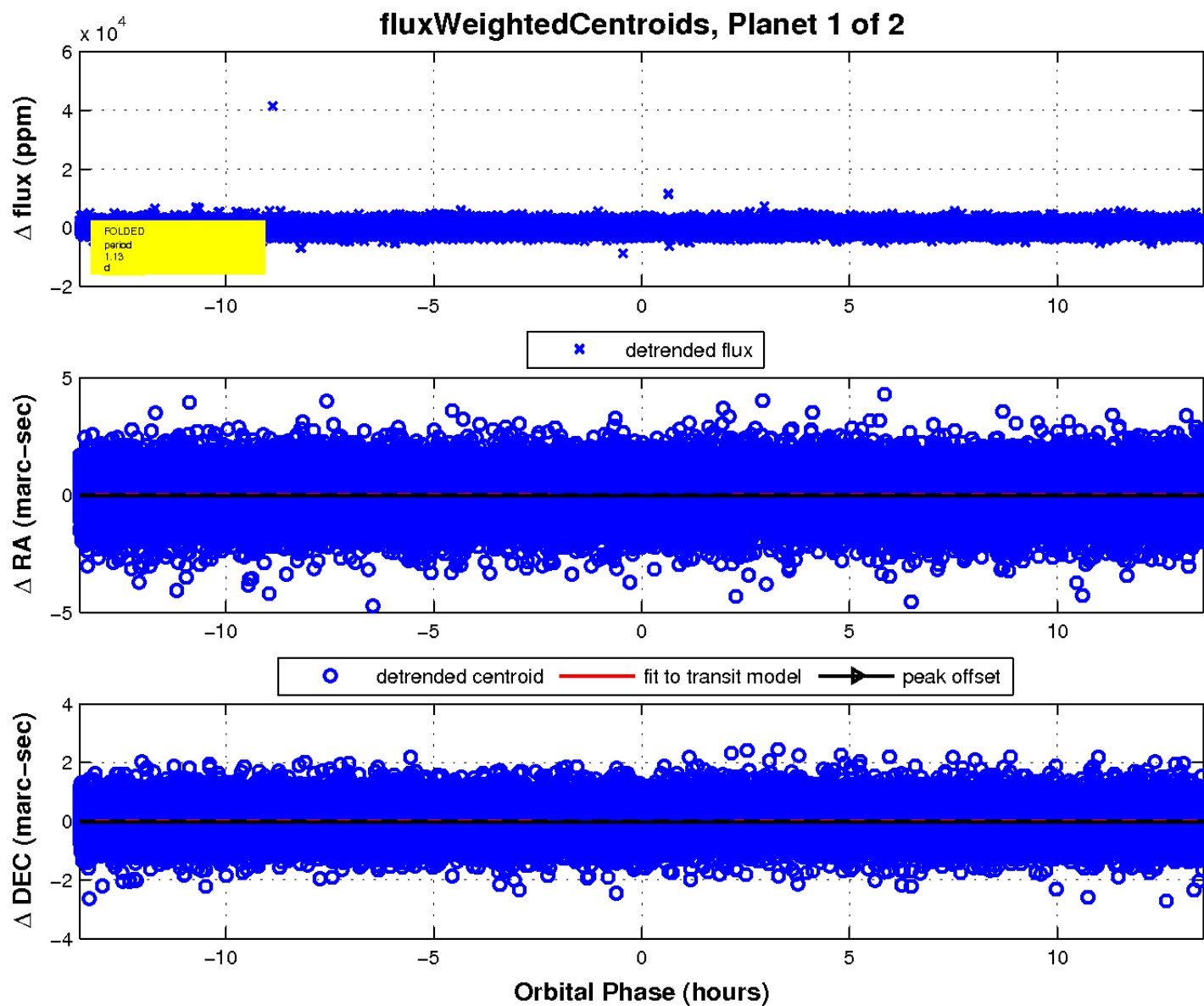
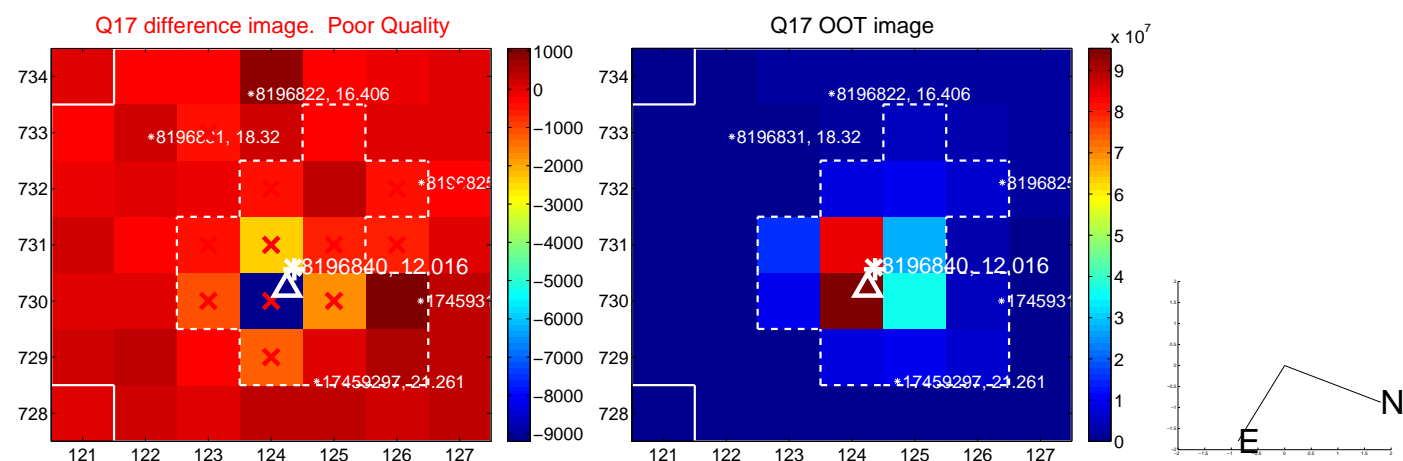
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

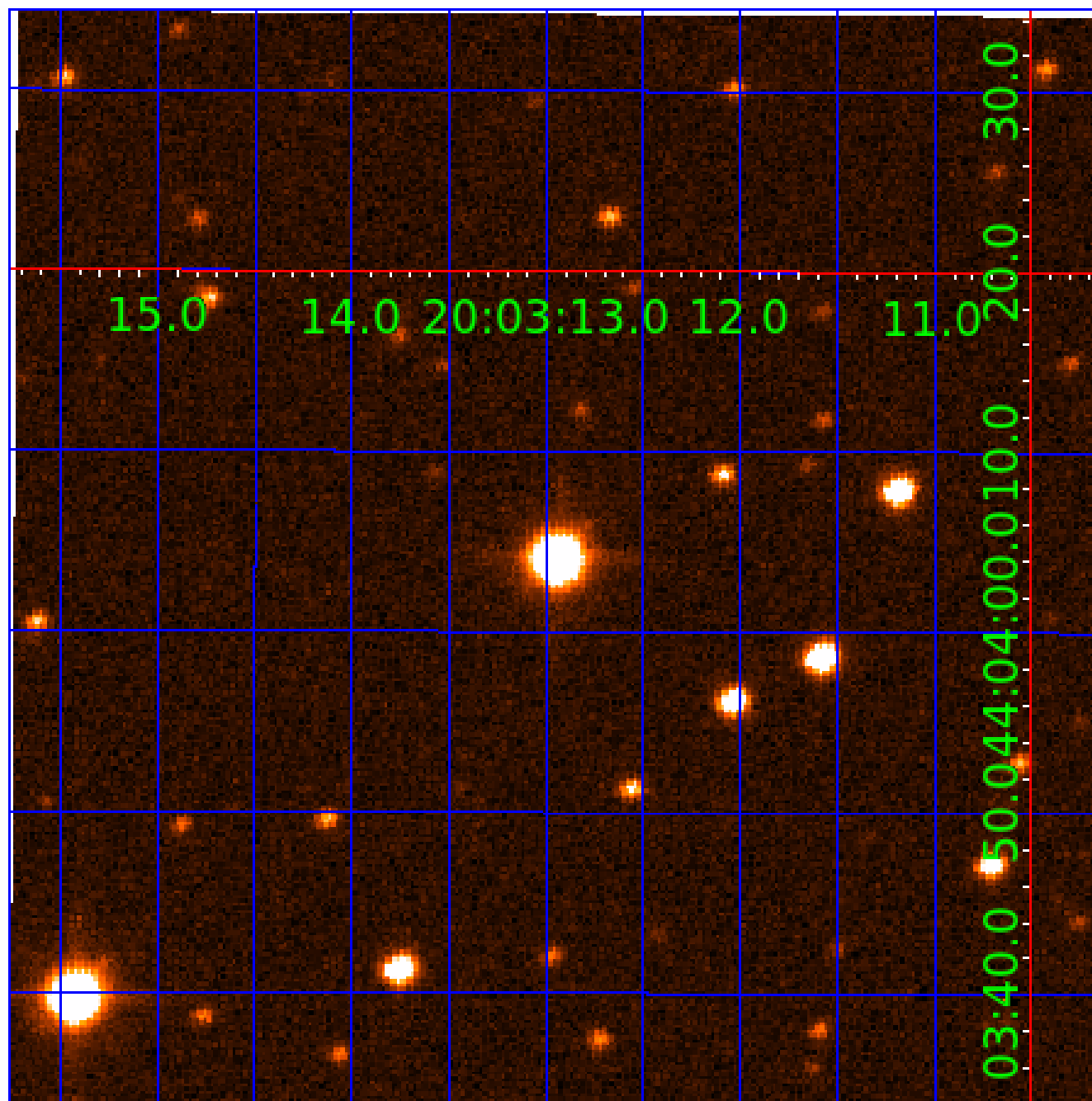


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 008196840

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})
008196840-01	OBS	No	1.126002	132.561098	88.6	4.980	11.1	7.1	3.24	8163	3.54	57312.20
008196840-02	OBS	No	1.126064	132.026575	77.2	5.059	9.1	7.0	3.24	8163	3.30	57307.99

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
008196840-01	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_ALT
008196840-02	OBS	FP	0.00	1	0	1	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_ALT—SAME_NTL_PERIOD—HALO_GHOST

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

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

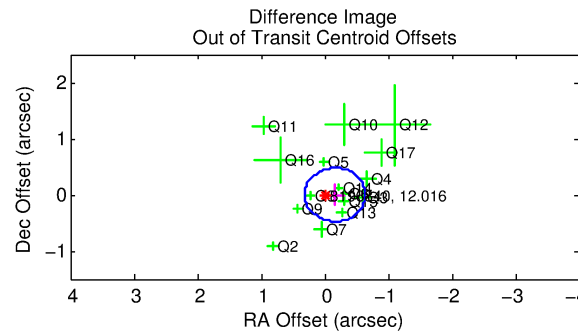
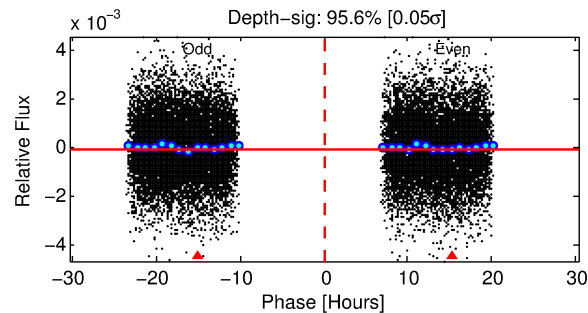
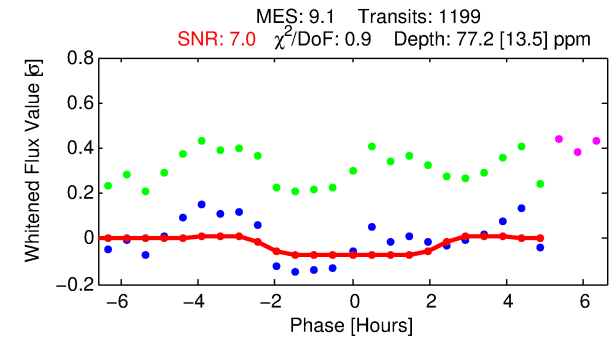
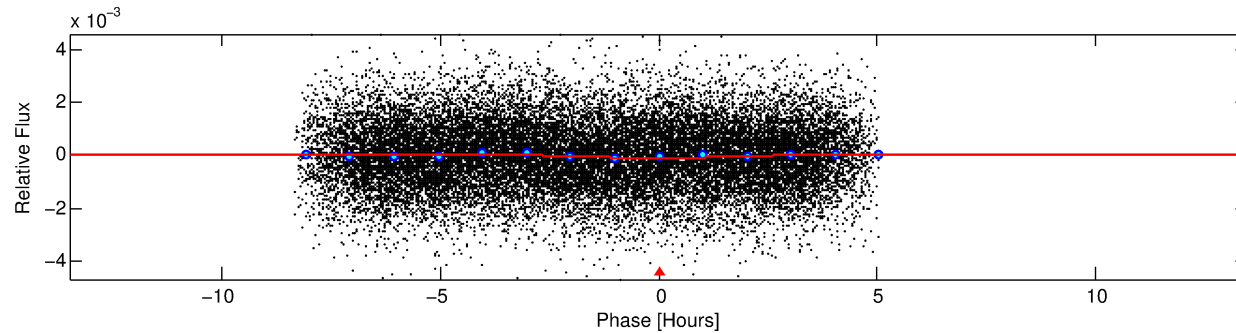
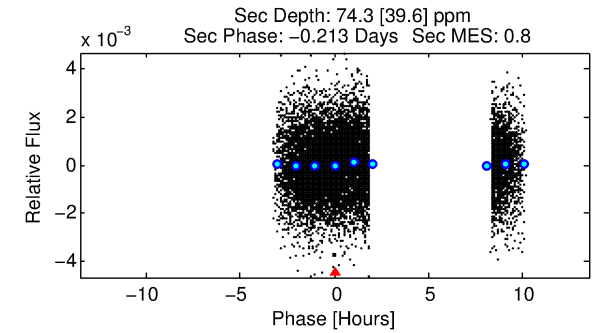
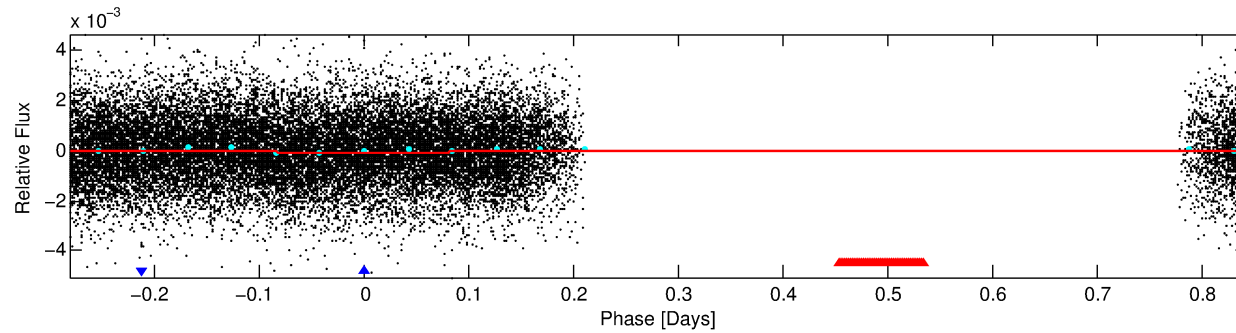
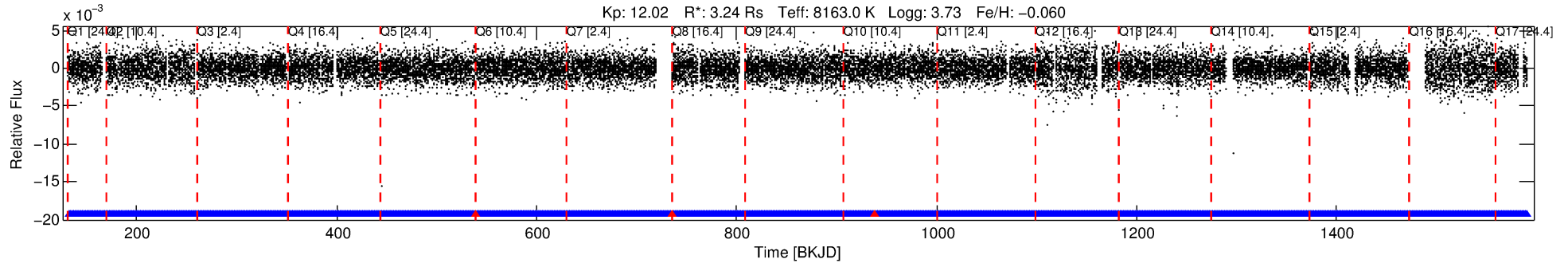
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 008196840-02

No Significant Match Found

DV One-Page Summary

KIC: 8196840 Candidate: 2 of 2 Period: 1.126 d



DV Fit Results:

Period = 1.12606 [0.00003] d
Epoch = 132.0266 [0.0088] BKJD
Rp/R* = 0.0093 [0.0062]
a/R* = 1.22 [1.69]
b = 0.90 [0.91]
Seff = 57307.99 [43093.48]
Teq = 3945 [742] K
Rp = 3.30 [2.68] Re
a = 0.0270 [0.0123] AU
Ag = 2.73 [4.38] [0.39σ]
Teffp = 7840 [2815] K [1.34σ]

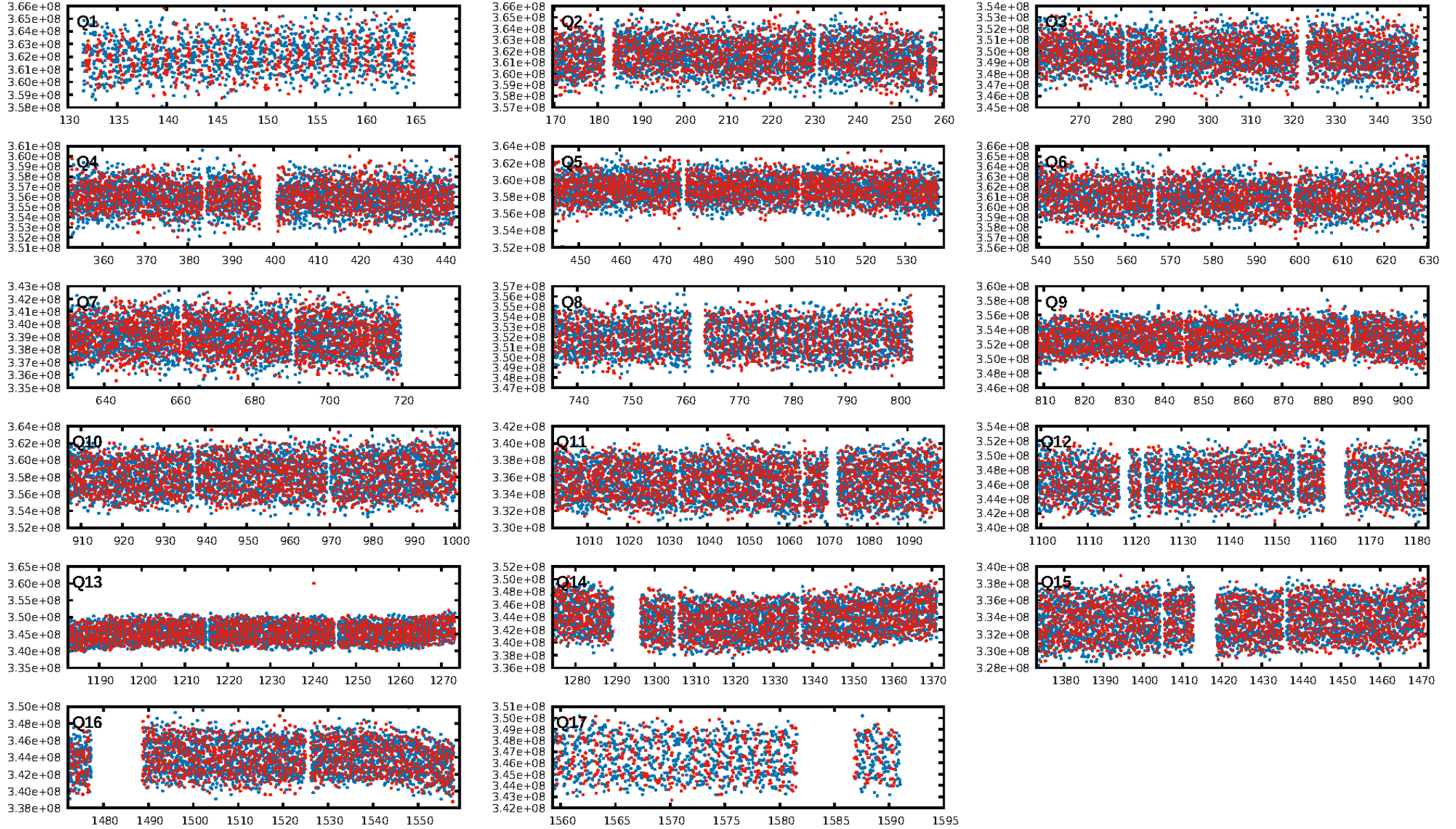
DV Diagnostic Results:

ShortPeriod-sig: 0.0% [0.00σ]
LongPeriod-sig: N/A
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: 0.00e+00
RollingBand-fgt: 1.00 [1142/1145]
GhostDiagnostic-chr: 0.1384
Centroid-sig: 61.9%
Centroid-so: 0.416 arcsec [1.76σ]
OotOffset-rm: 0.158 arcsec [1.00σ]
OotOffset-st: 4/4/4/4 [16]
KicOffset-rm: 0.161 arcsec [0.96σ]
KicOffset-st: 4/4/4/4 [16]
DiffImageQuality-fgm: 0.88 [14/16]
DiffImageOverlap-fno: 0.00 [0/17]

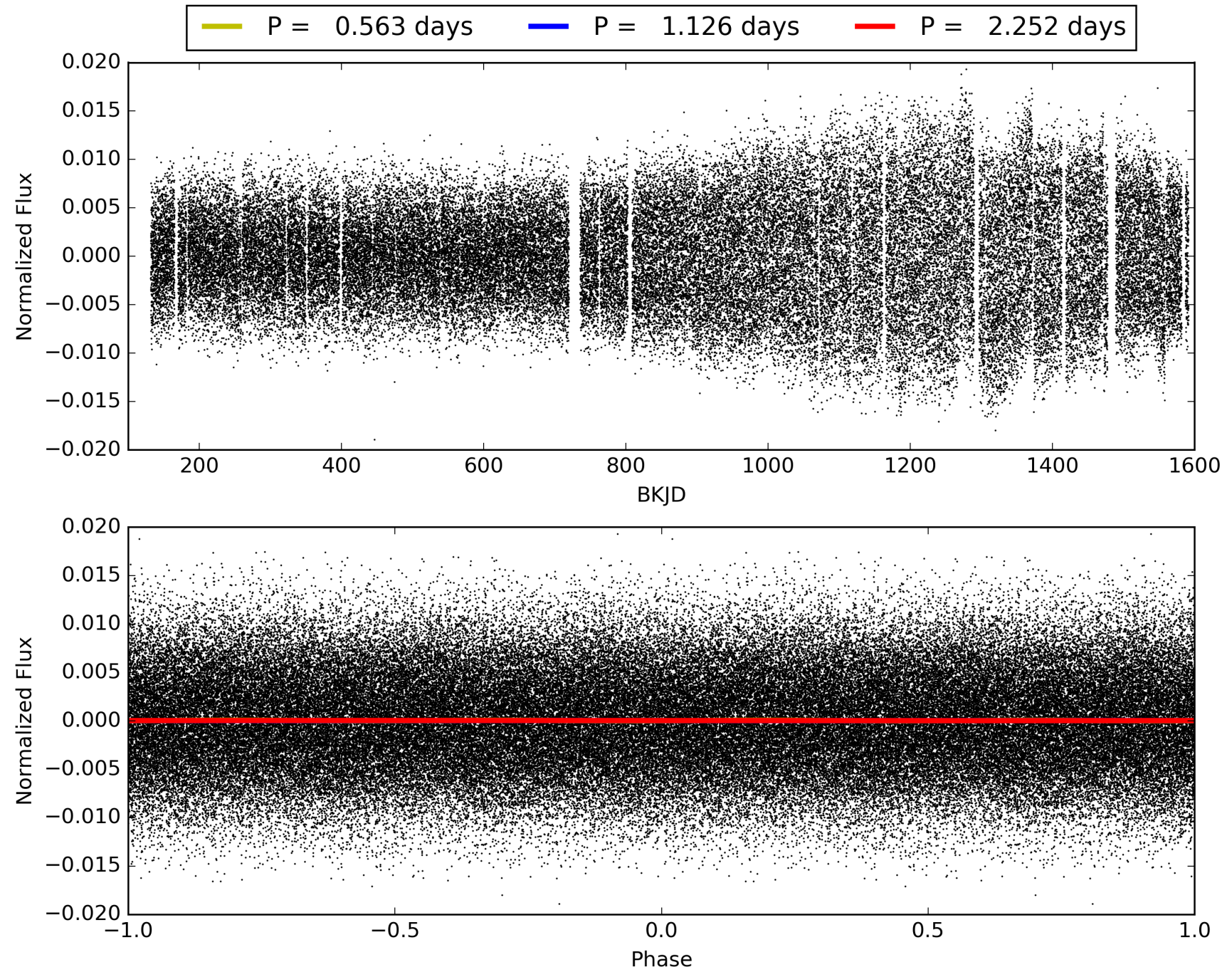
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 07:07:31 Z

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

TCE 008196840-02, PDC Light Curves

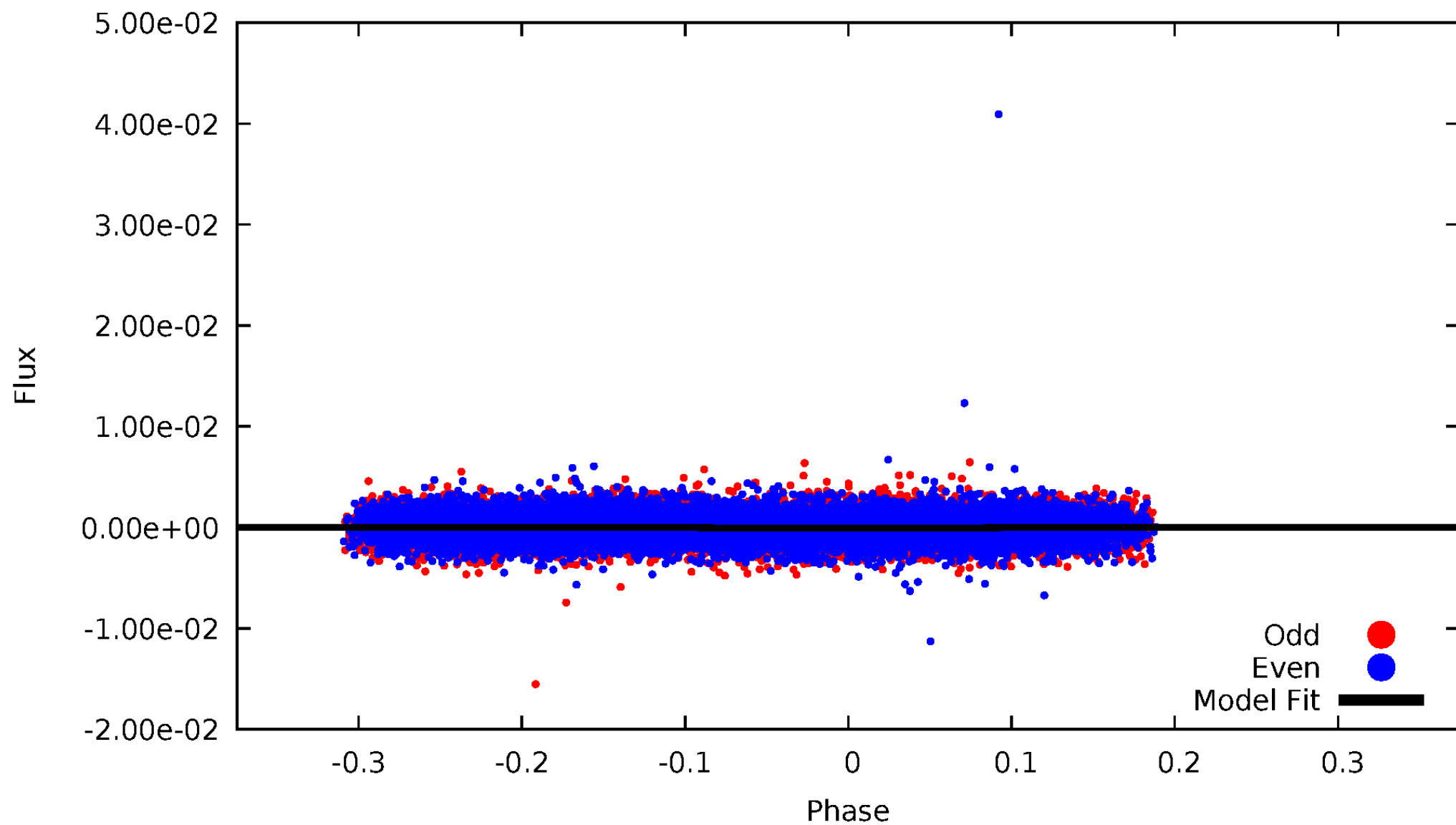


TCE 008196840-02



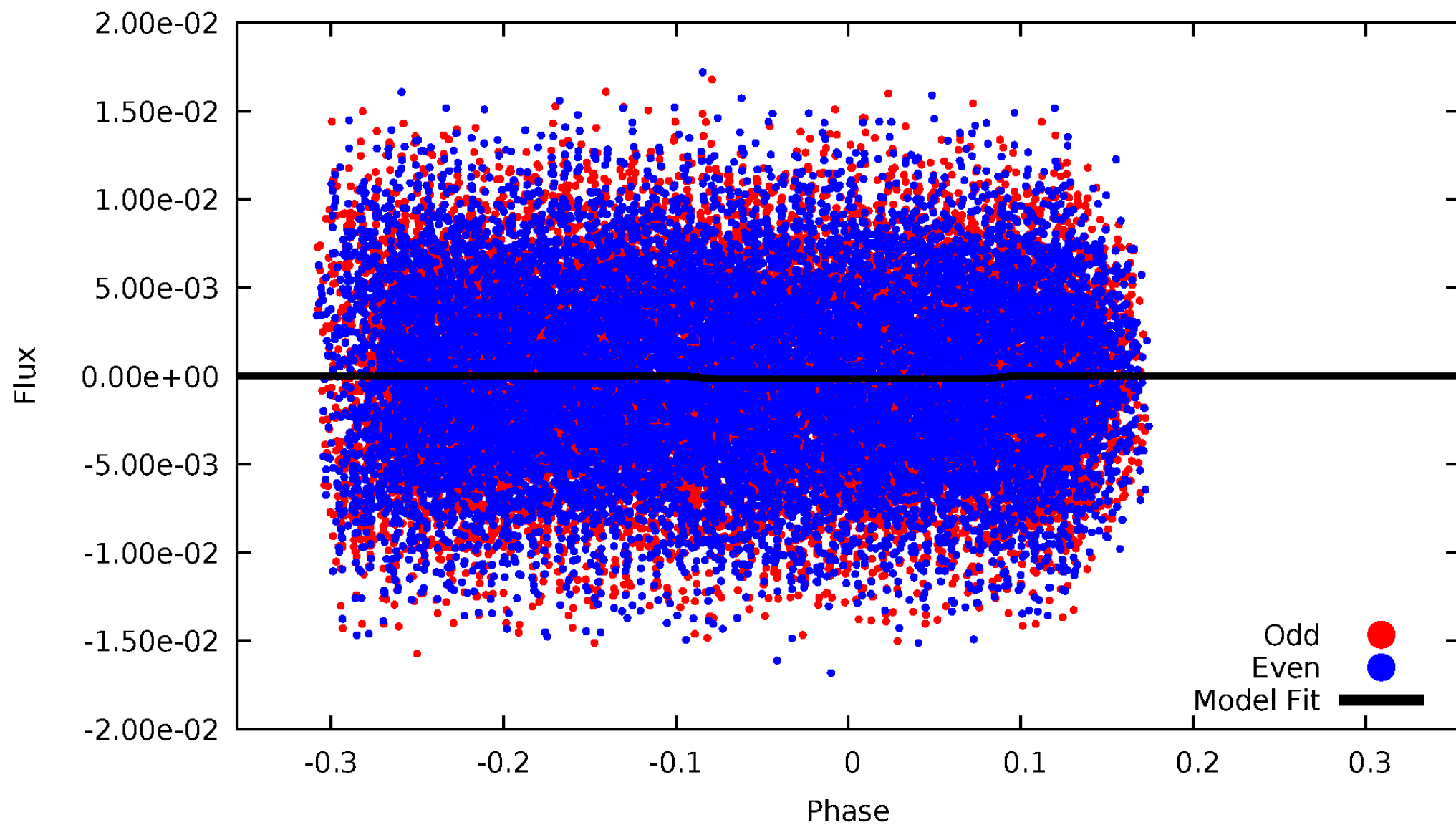
DV Odd/Even

TCE 008196840-02



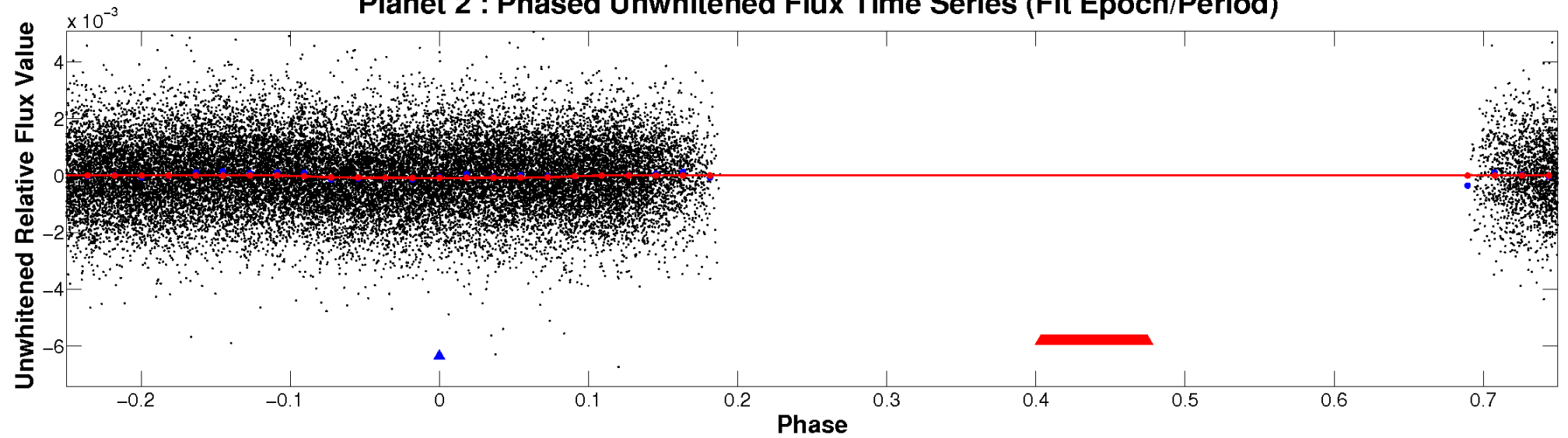
ALT Odd/Even

TCE 008196840-02

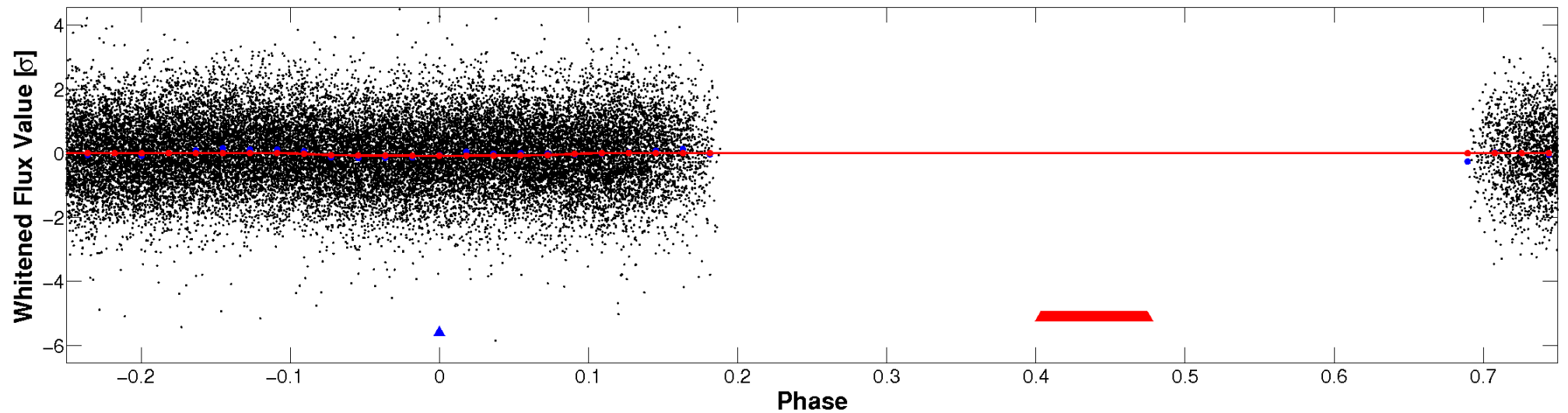


Non-Whitened Vs. Whitened Light Curve

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

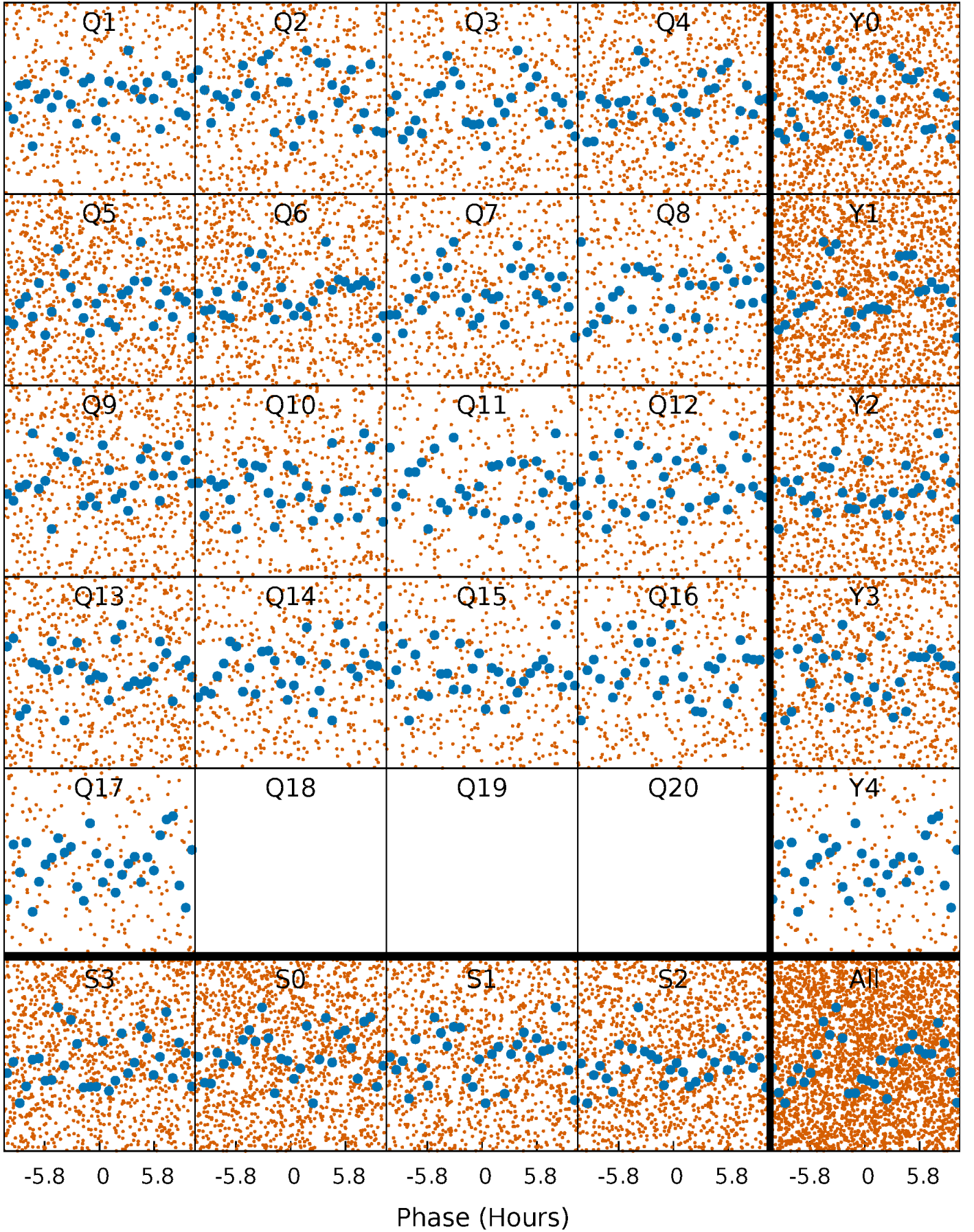


Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



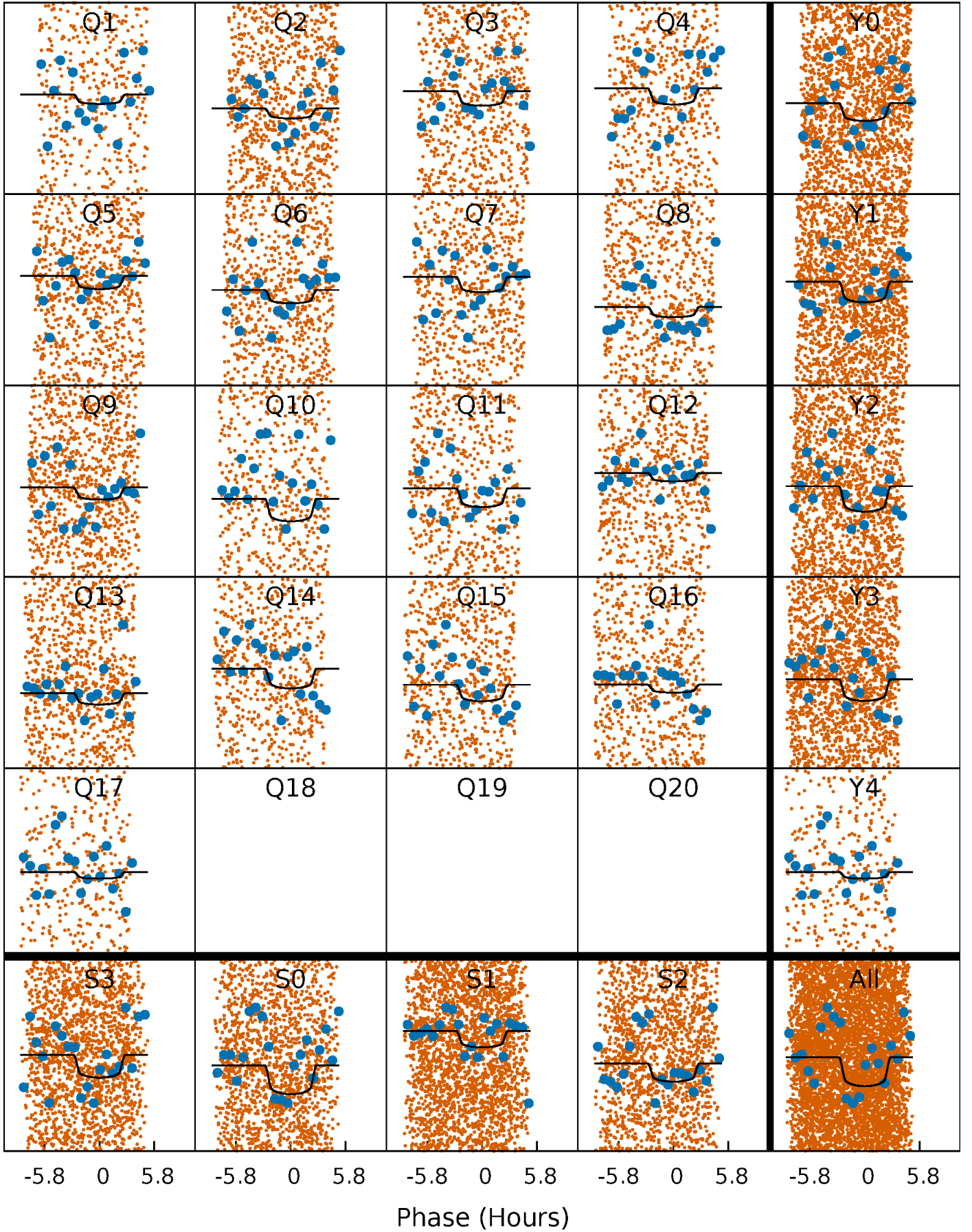
PDC Quarter-Phased Transit Curves

TCE 008196840-02 P= 1.126064 Days $T_0=132.026575$ (BKJD)



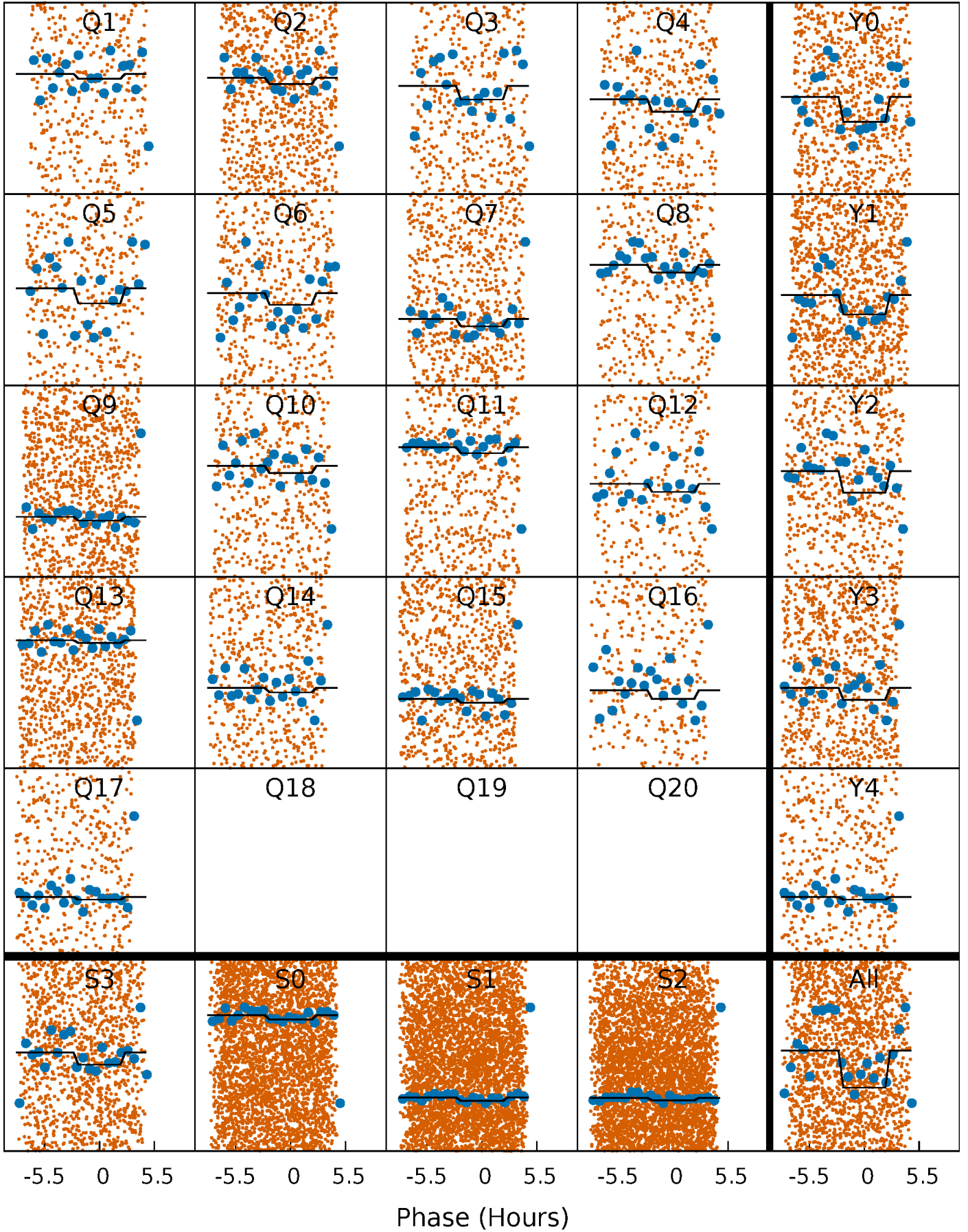
DV Quarter-Phased Transit Curves

TCE 008196840-02 P= 1.126064 Days $T_0=132.026575$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

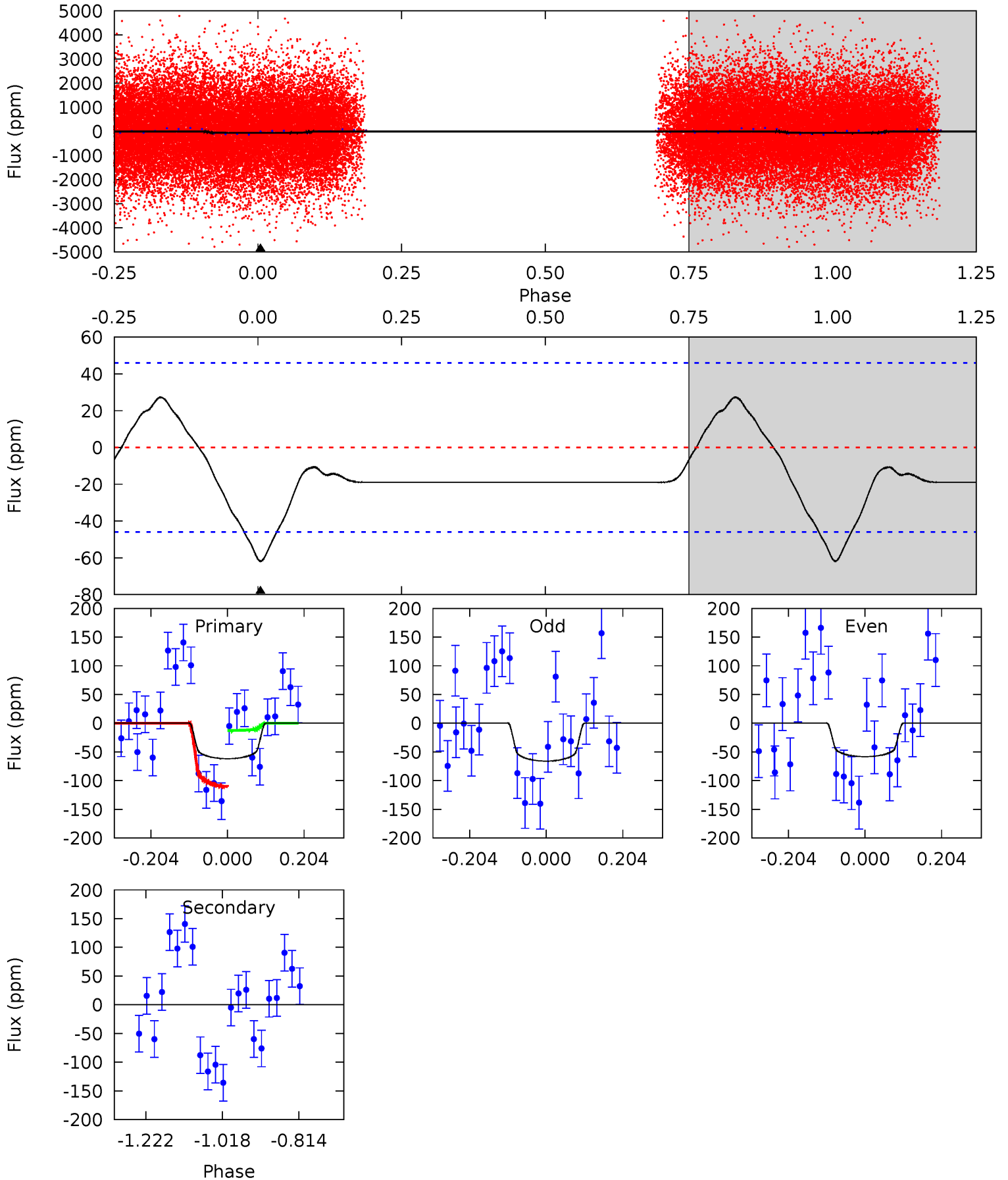
TCE 008196840-02 P= 1.126051 Days $T_0=132.042541$ (BKJD)



DV Model-Shift Uniqueness Test

008196840-02, P = 1.126064 Days, E = 130.900511 Days

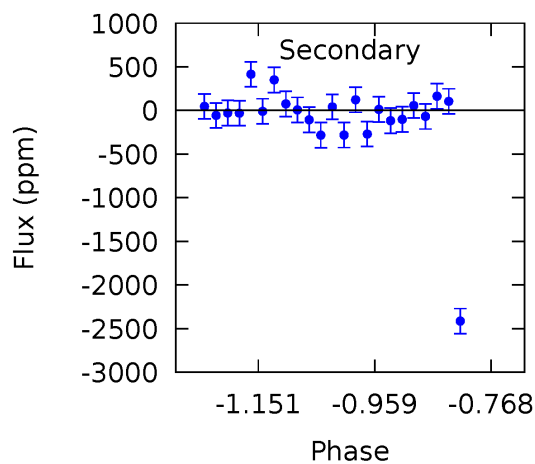
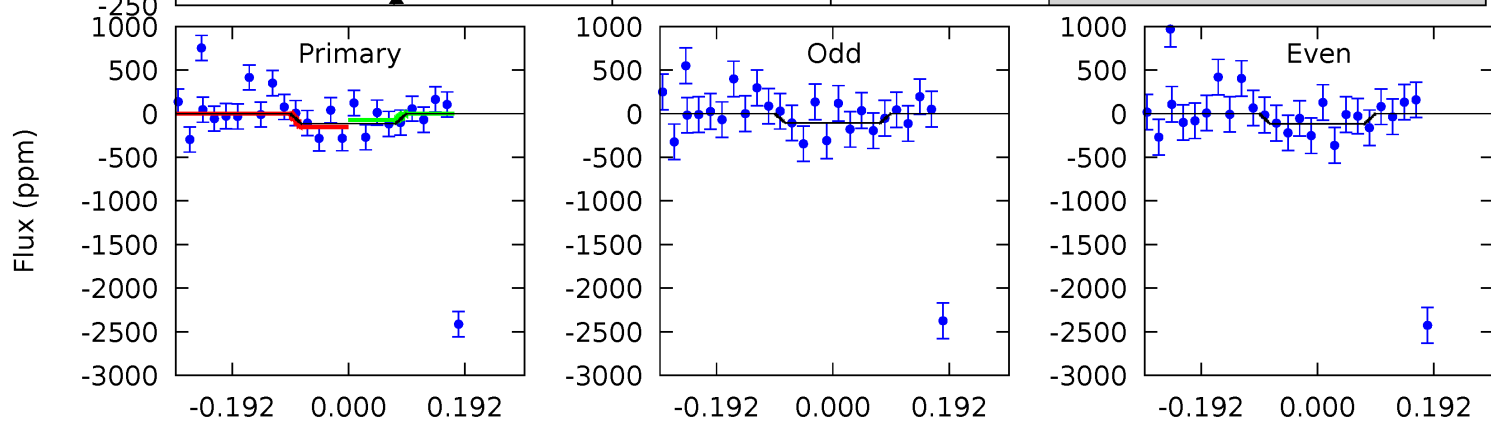
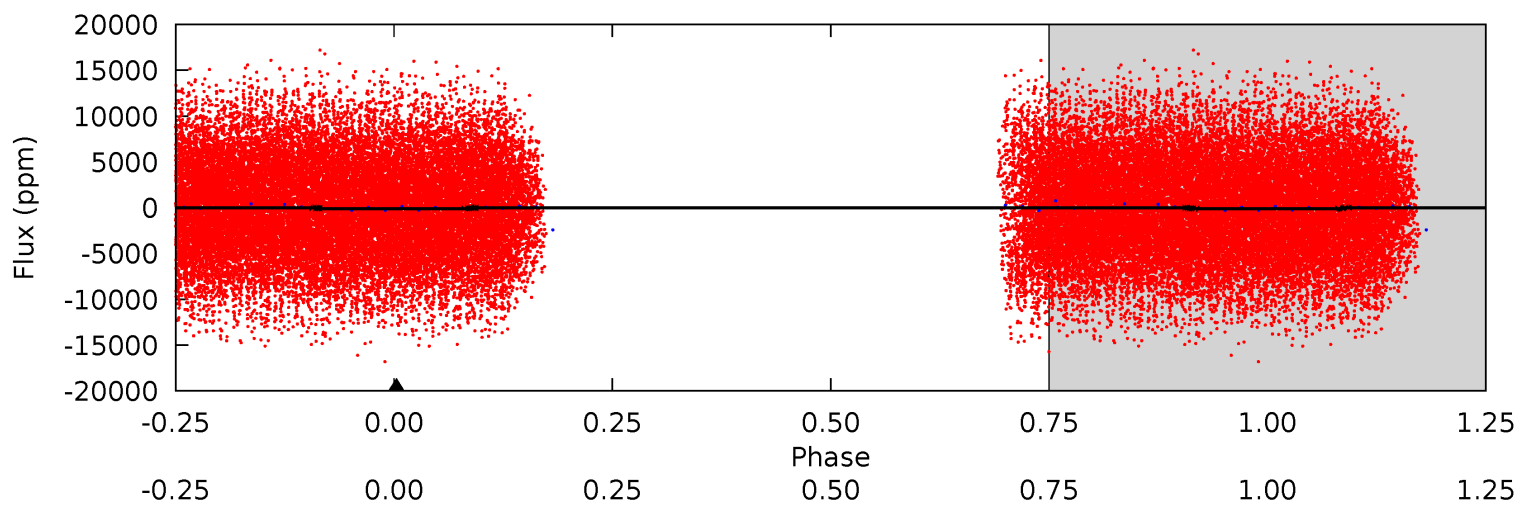
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
5.94	0	0	0	4.41	1.27	1.17	5.94	5.94	0	0	0.37	1.28	0.31	4.65



Alt Model-Shift Uniqueness Test

008196840-02, P = 1.126051 Days, E = 130.916490 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
2.38	0	0	0	4.43	1.30	0.49	2.38	2.38	0	0	0.10	0.92	0.25	0.95



Stellar Parameters For KIC 008196840

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	$M(M_{\odot})$	p_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	8163^{+226}_{-340}	$3.732^{+0.432}_{-0.108}$	$-0.060^{+0.250}_{-0.400}$	$3.236^{+0.818}_{-1.519}$	$2.061^{+0.347}_{-0.521}$	$0.086^{+0.325}_{-0.035}$
	+3%/-4%	+12%/-3%	+417%/-667%	+25%/-47%	+17%/-25%	+380%/-41%
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 008196840-02 / KOI

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	0 ± 10	$3.14^{+2.21}_{-1.84}$	5317^{+422}_{-606}	-4435^{+8748}_{-1143}	$-0.010^{+0.627}_{-0.634}$
Alt.	0 ± 47	$4.16^{+2.33}_{-2.05}$	5300^{+457}_{-609}	-4332^{+10043}_{-2059}	$0.011^{+1.457}_{-1.376}$

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

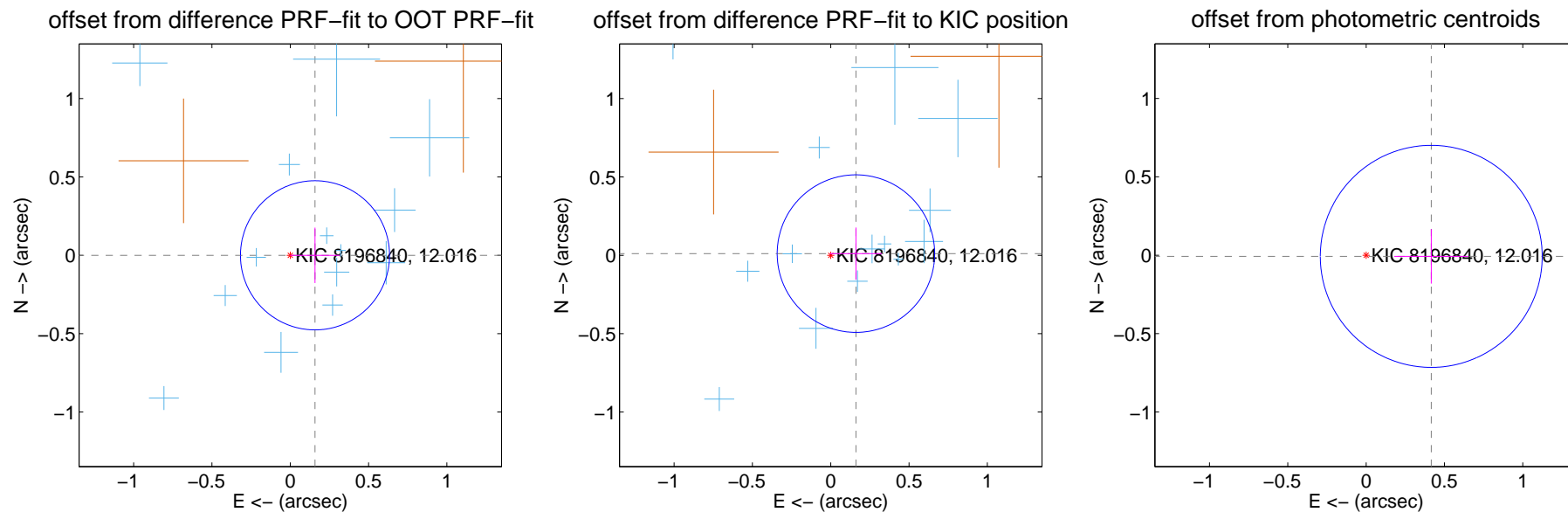
DV Centroid Data

Supplemental centroid analysis for 008196840-02. Kepler magnitude: 12.02. Transit SNR 7.03

There are 14 quarters with good PRF difference image offsets

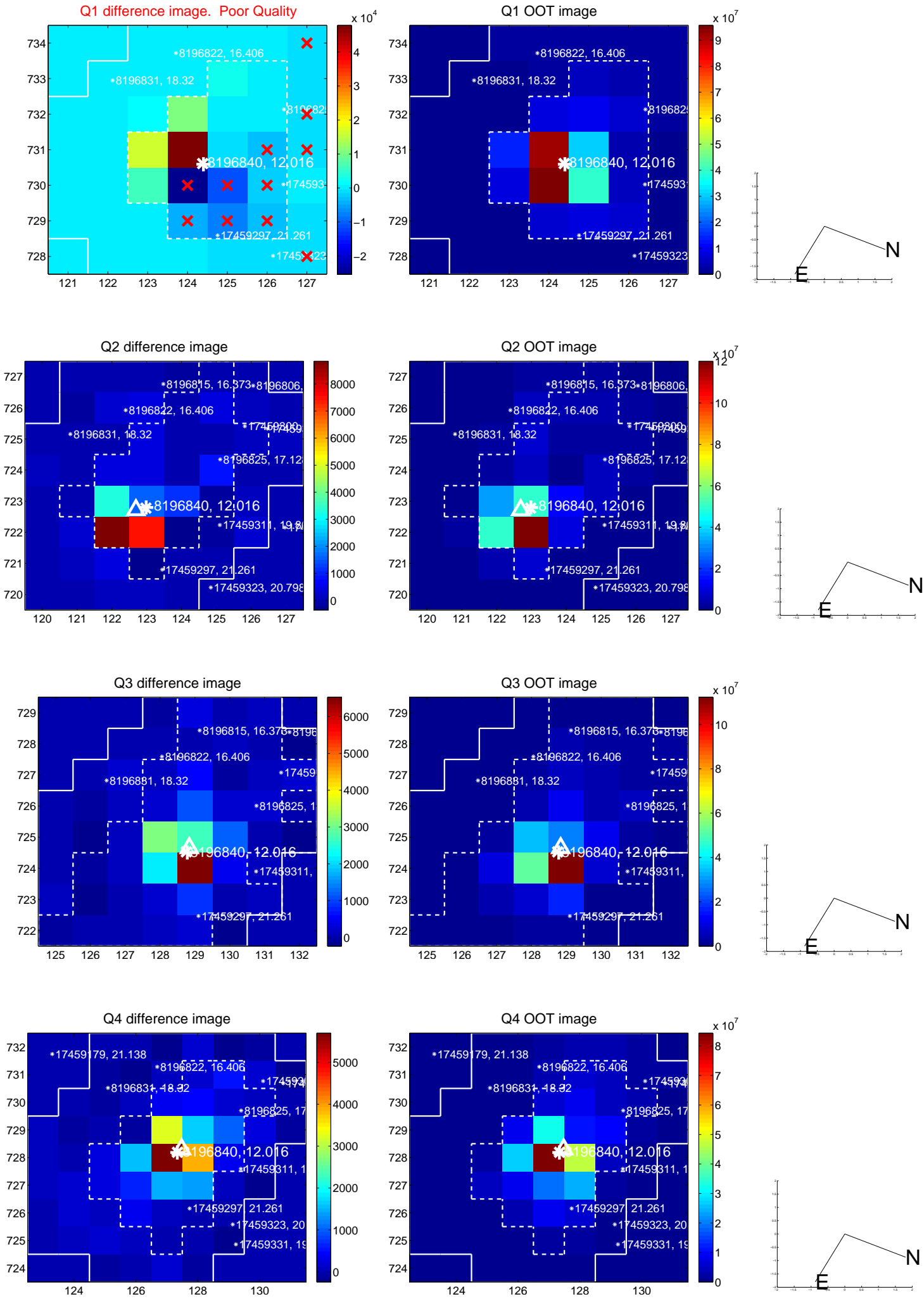
The direct PRF centroid is offset from the target star catalog position by about 0.15 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.158 ± 0.159	1.00	-0.158 ± 0.159	-0.000 ± 0.177
PRF-fit source offset from KIC position	0.161 ± 0.168	0.96	-0.161 ± 0.166	0.011 ± 0.167
photometric centroid source offset	0.42 ± 0.24	1.76	-0.42 ± 0.24	-0.01 ± 0.17

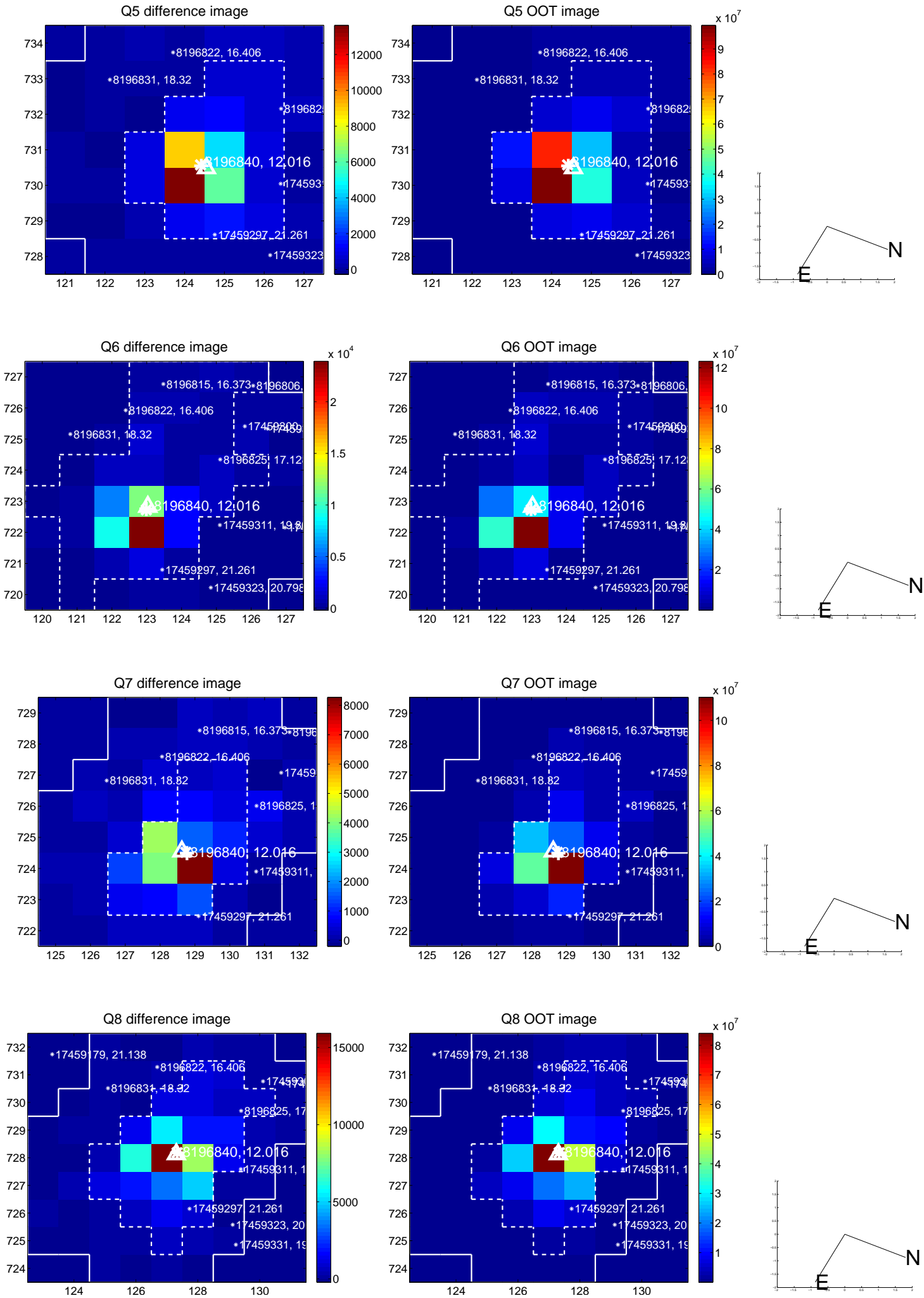


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

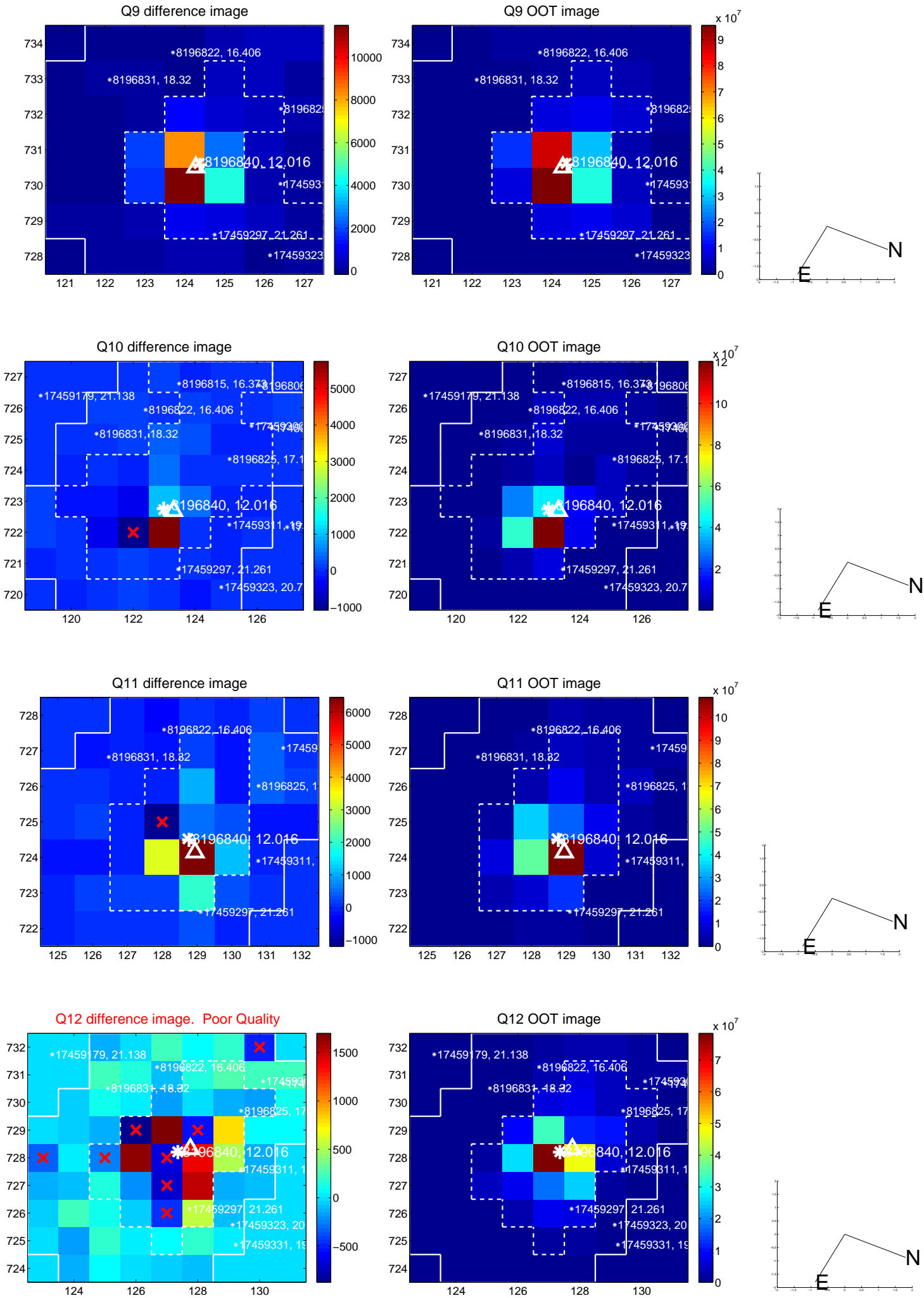
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



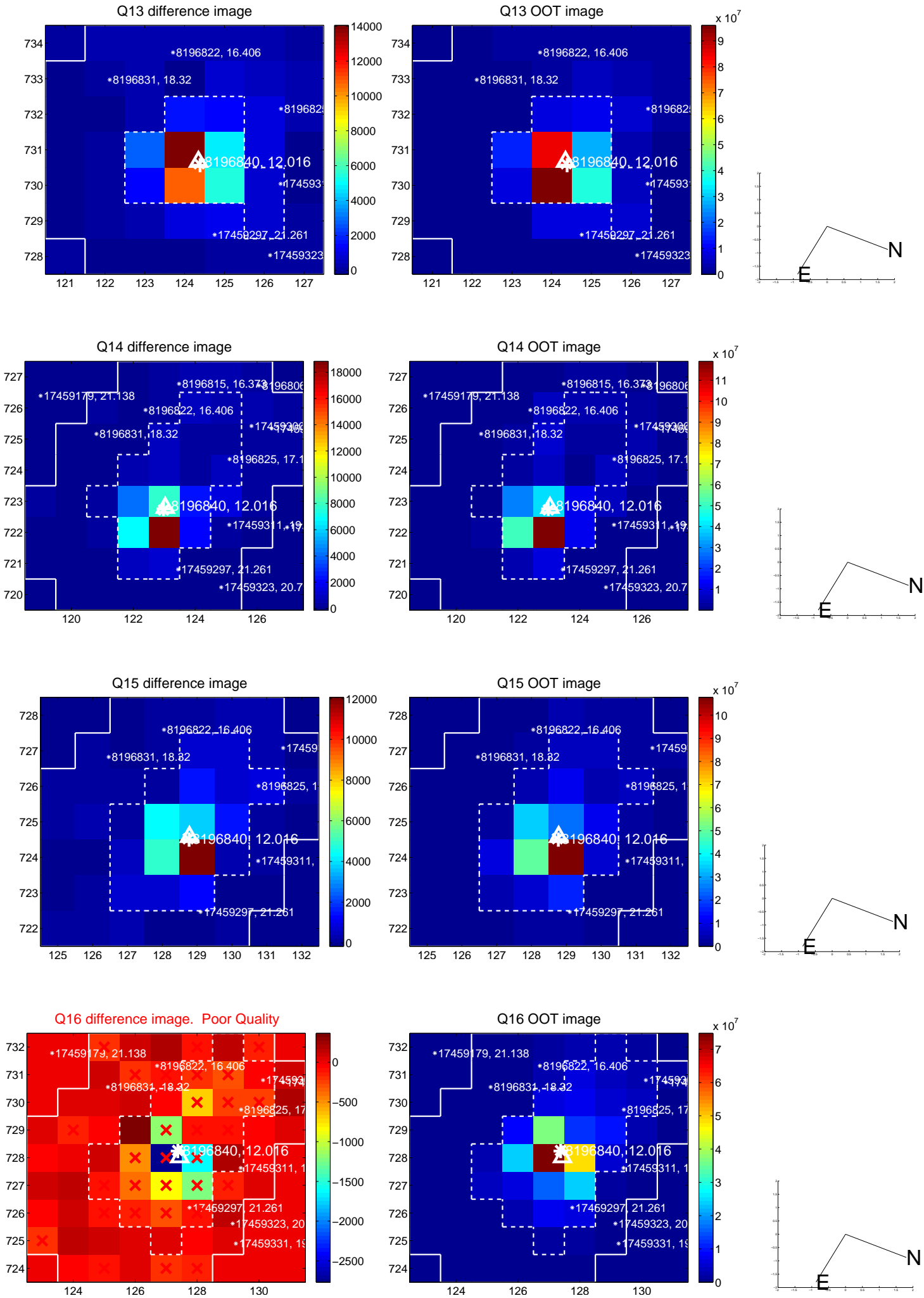
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



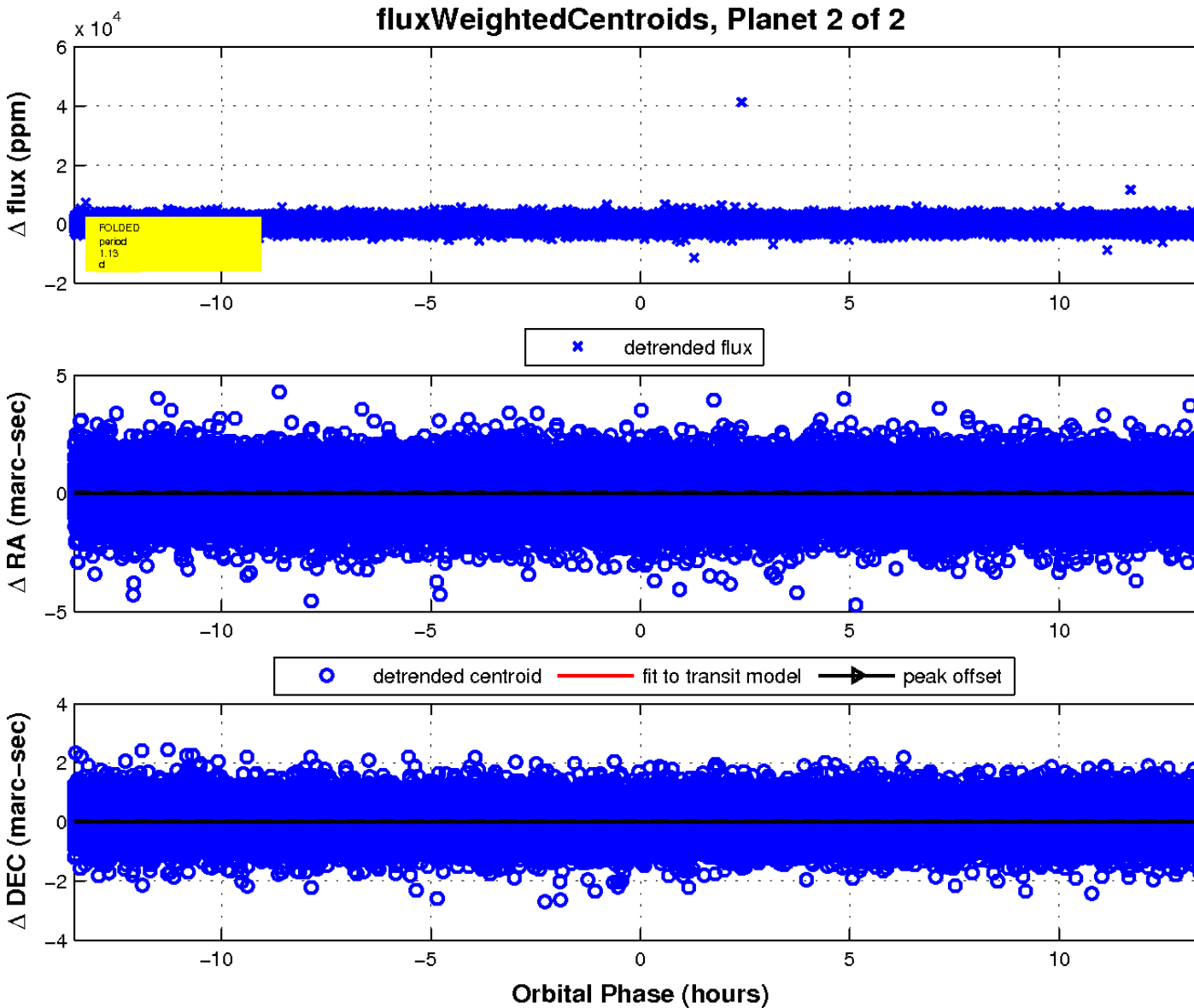
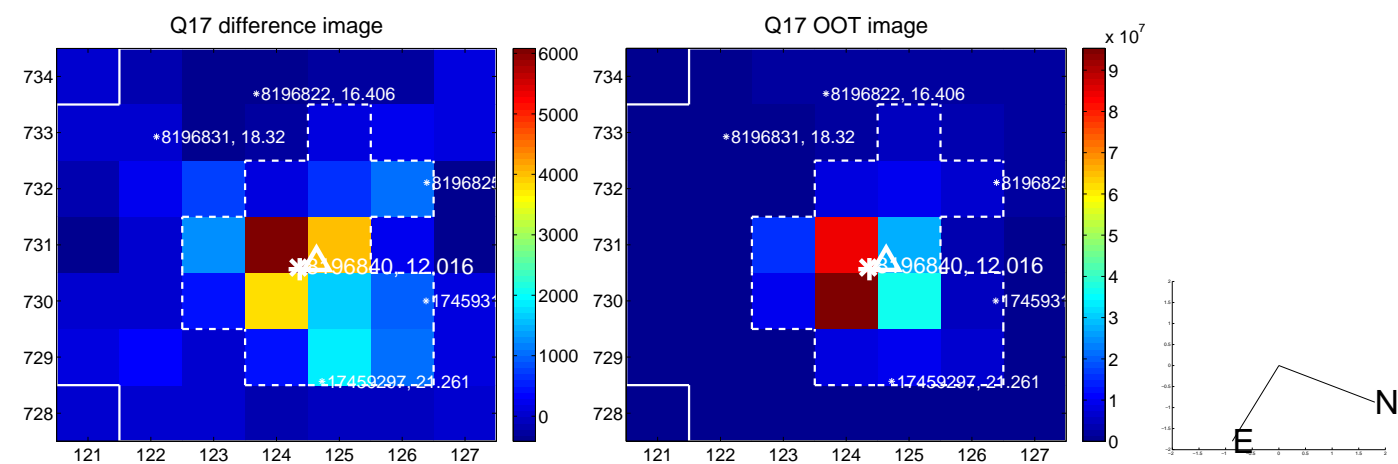
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

