

KIC 008177748

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})
008177748-01	OBS	No	5.069014	133.773976	32.1	22.451	8.6	4.8	1.48	7207	0.96	1247.93
008177748-02	OBS	No	5.069612	136.244938	70.2	21.569	8.1	9.7	1.48	7207	1.44	1247.73

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
008177748-01	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_ALT
008177748-02	OBS	FP	0.00	1	0	0	0	LPP_DV—SAME_NTL_PERIOD

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

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

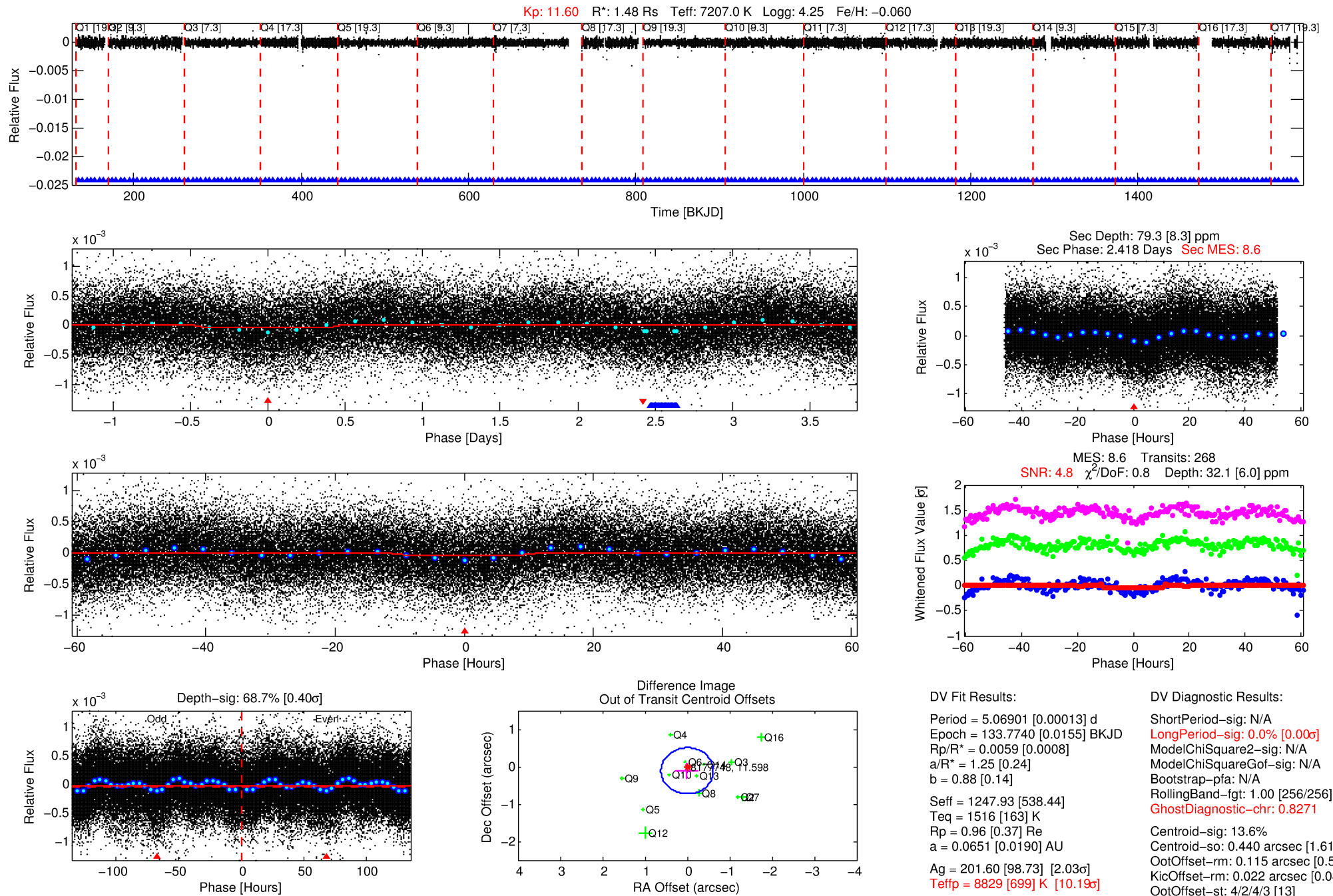
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 008177748-01

No Significant Match Found

DV One-Page Summary

KIC: 8177748 Candidate: 1 of 2 Period: 5.069 d



DV Fit Results:

Period = 5.06901 [0.00013] d
Epoch = 133.7740 [0.0155] BKJD
Rp/R* = 0.0059 [0.0008]
a/R* = 1.25 [0.24]
b = 0.88 [0.14]
Seff = 1247.93 [538.44]
Teq = 1516 [163] K
Rp = 0.96 [0.37] Re
a = 0.0651 [0.0190] AU
Ag = 201.60 [98.73] [2.03σ]
Teff = 8829 [699] K [10.19σ]

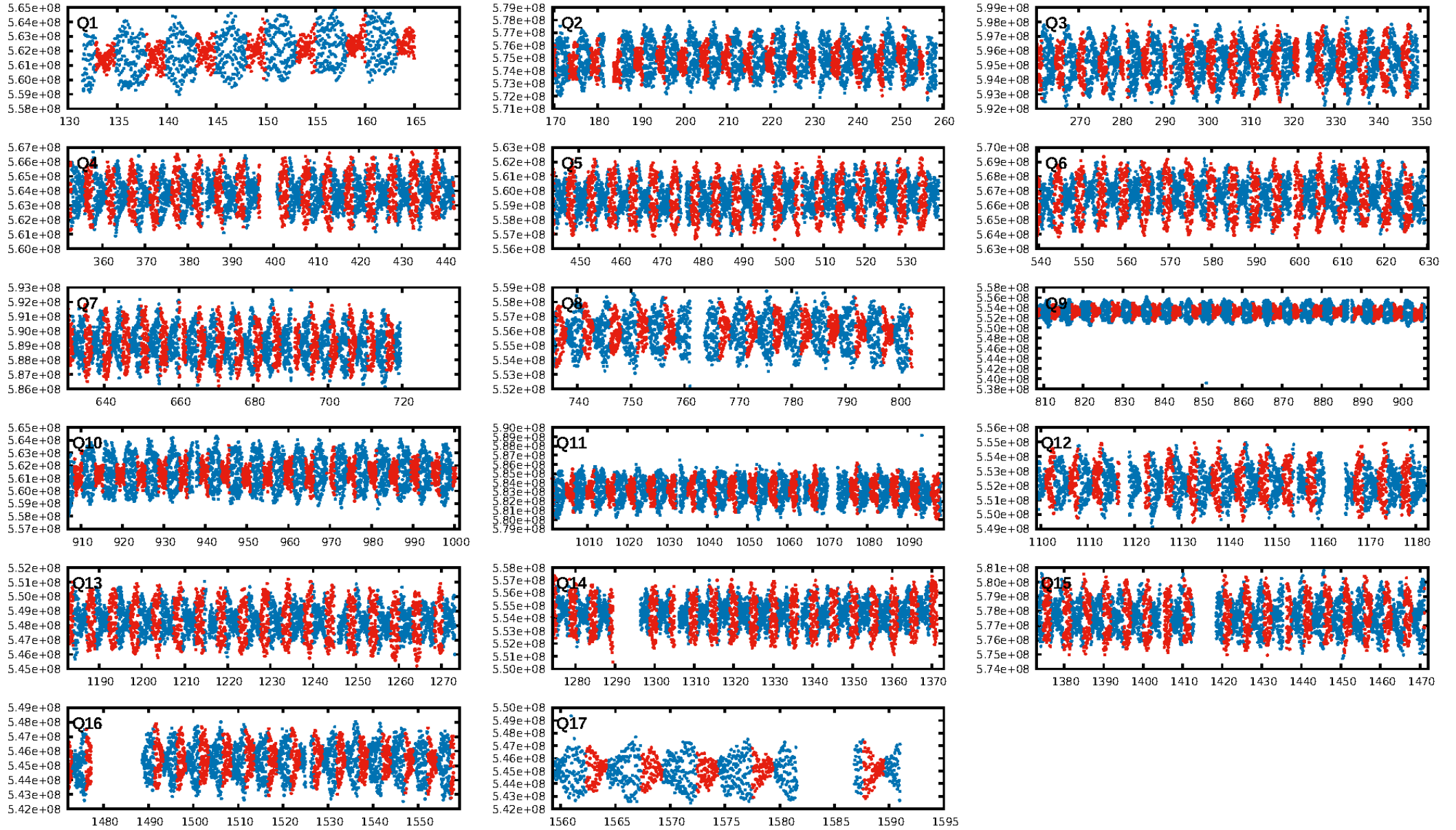
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: 0.0% [0.00σ]
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: N/A
RollingBand-fgt: 1.00 [256/256]
GhostDiagnostic-chr: 0.8271
Centroid-sig: 13.6%
Centroid-so: 0.440 arcsec [1.61σ]
OotOffset-rm: 0.115 arcsec [0.56σ]
KicOffset-rm: 0.022 arcsec [0.08σ]
OotOffset-st: 4/2/4/3 [13]
KicOffset-st: 4/2/4/3 [13]
DiffImageQuality-fgm: 0.77 [10/13]
DiffImageOverlap-fno: 1.00 [17/17]

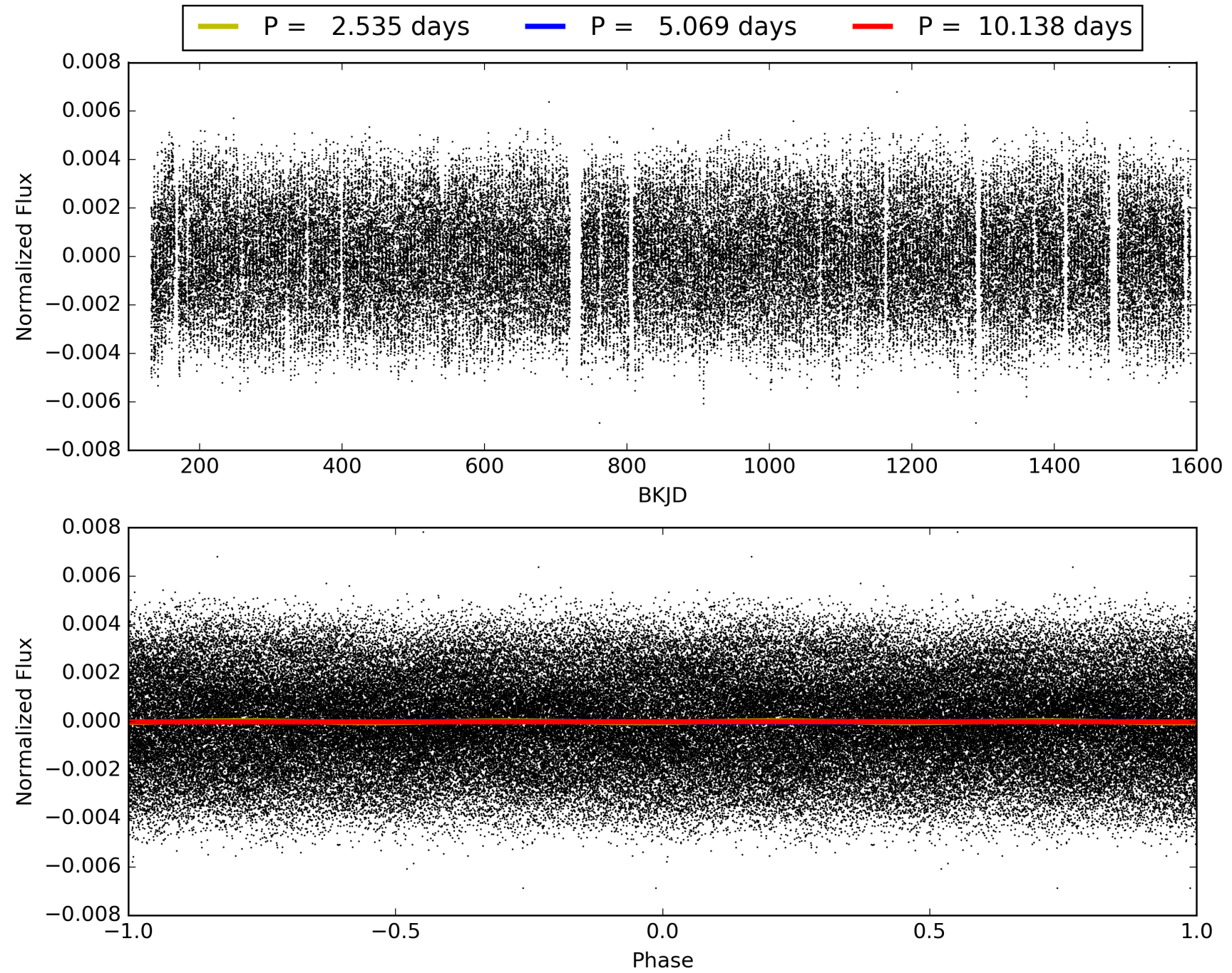
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 22:05:51 Z

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

TCE 008177748-01, PDC Light Curves

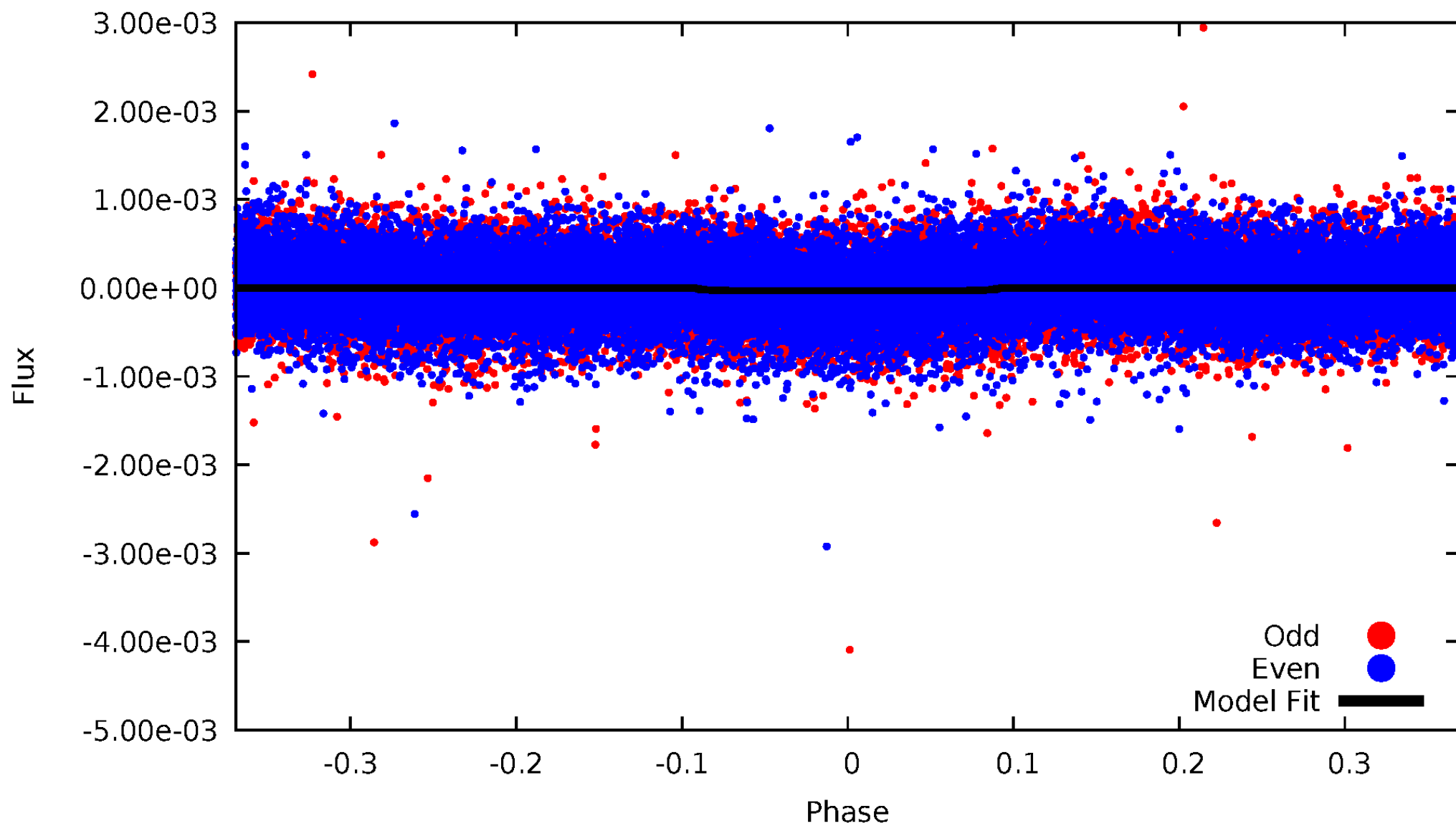


TCE 008177748-01



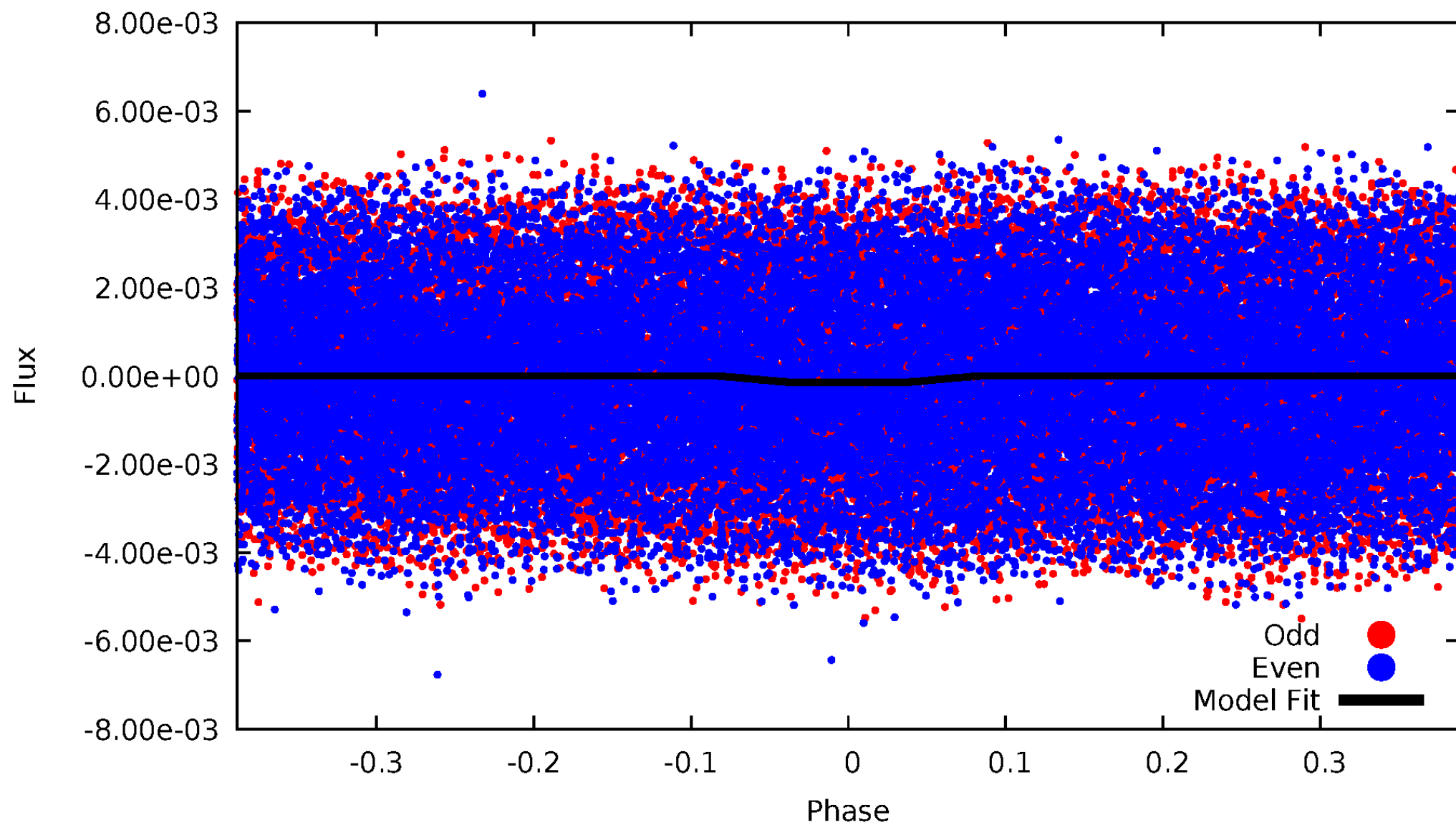
DV Odd/Even

TCE 008177748-01

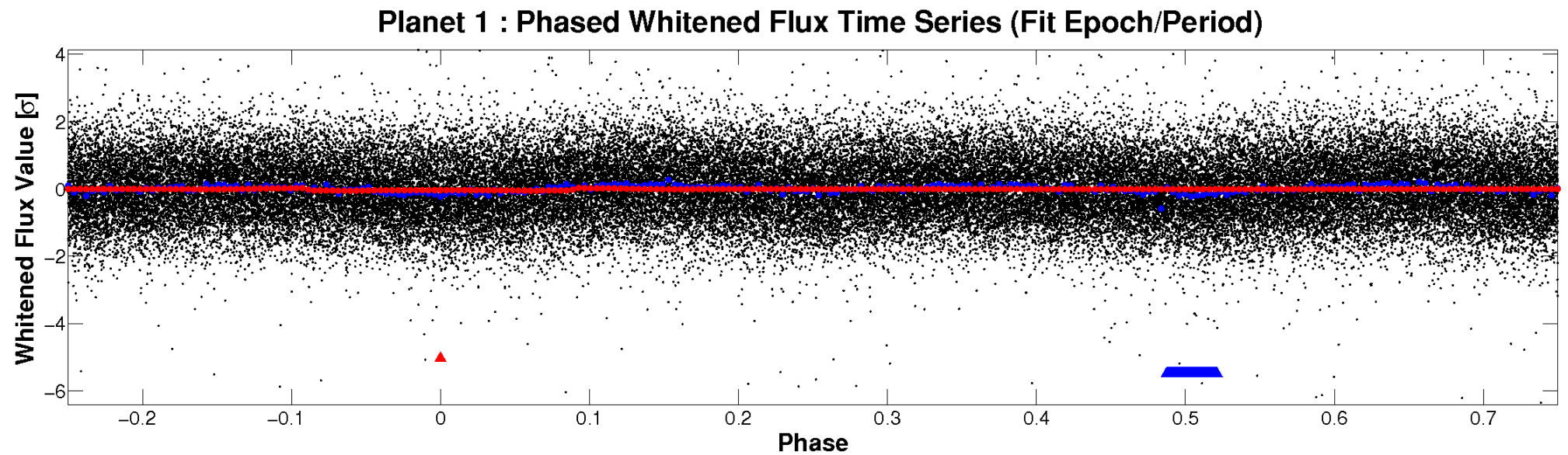
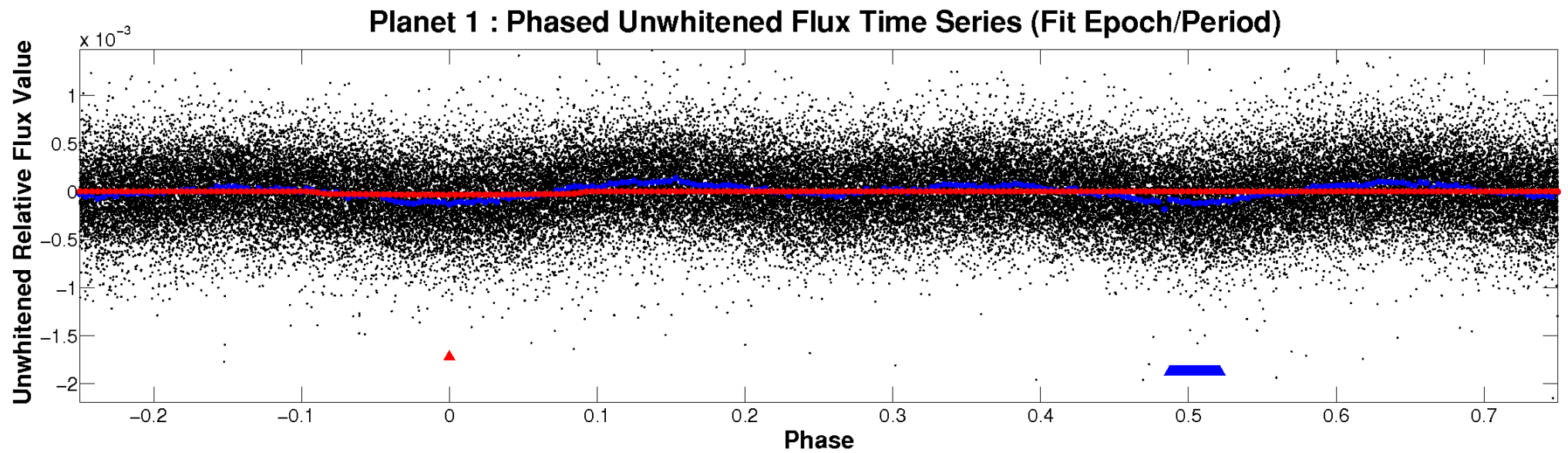


ALT Odd/Even

TCE 008177748-01

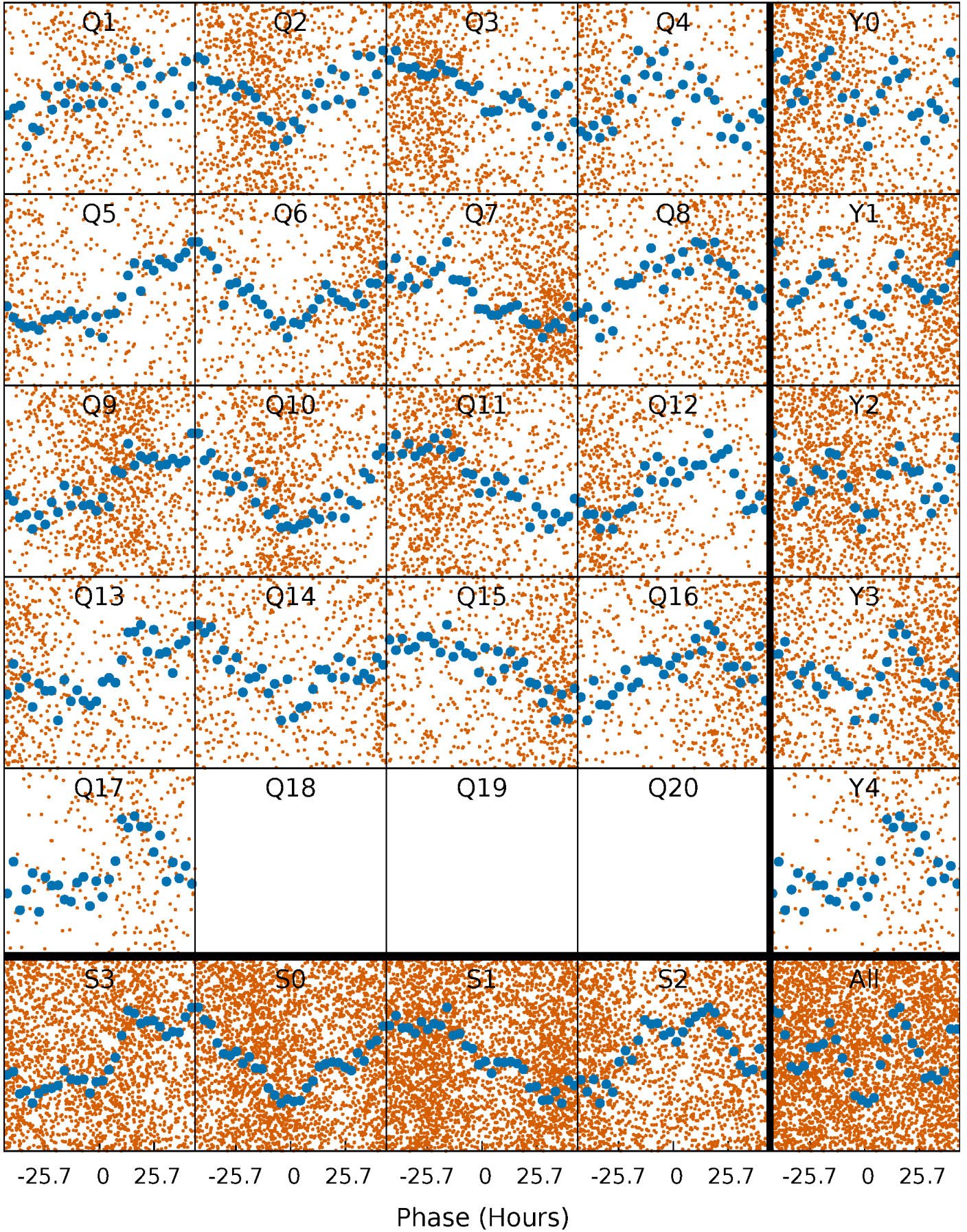


Non-Whitened Vs. Whitened Light Curve



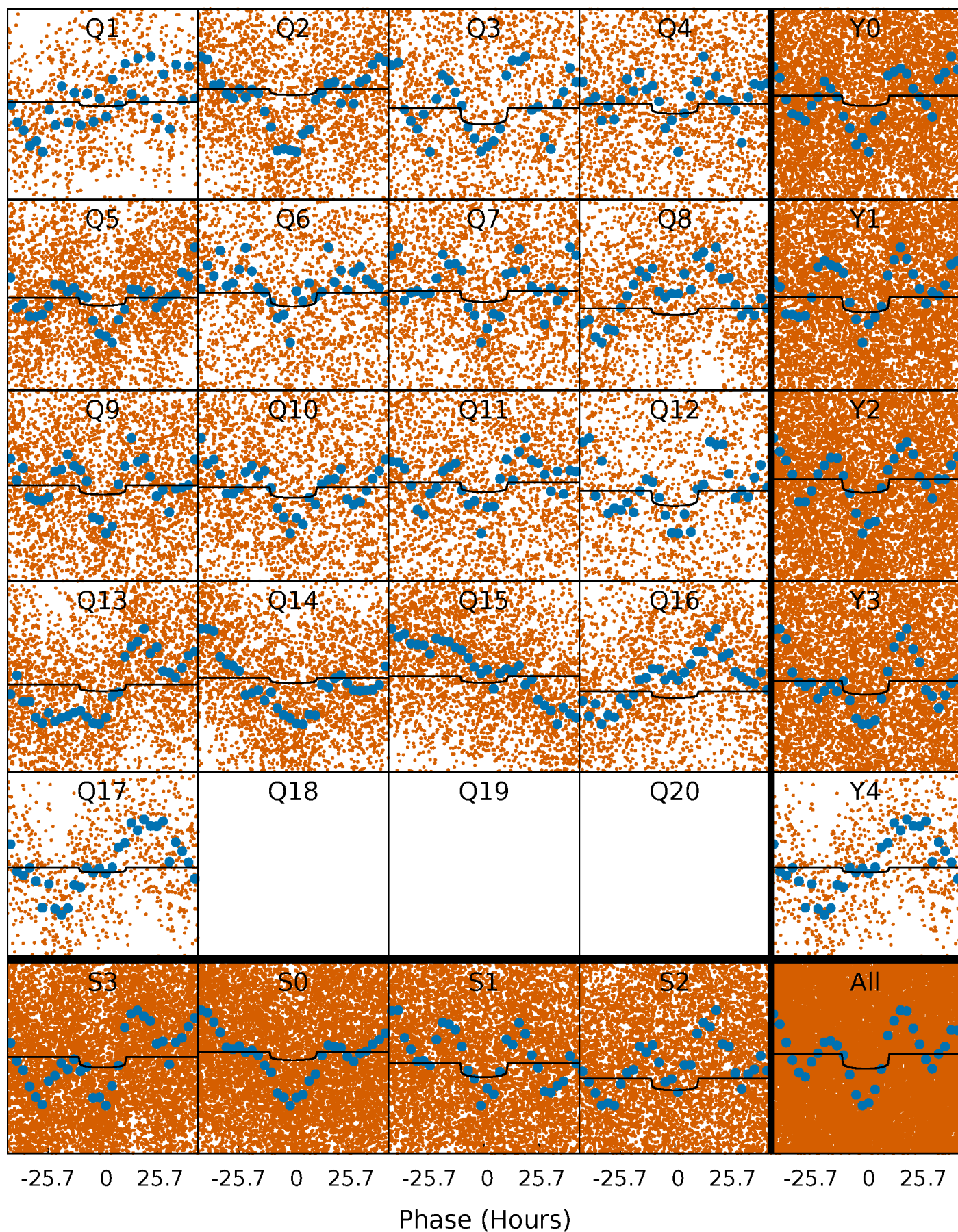
PDC Quarter-Phased Transit Curves

TCE 008177748-01 P= 5.069014 Days $T_0=133.773976$ (BKJD)



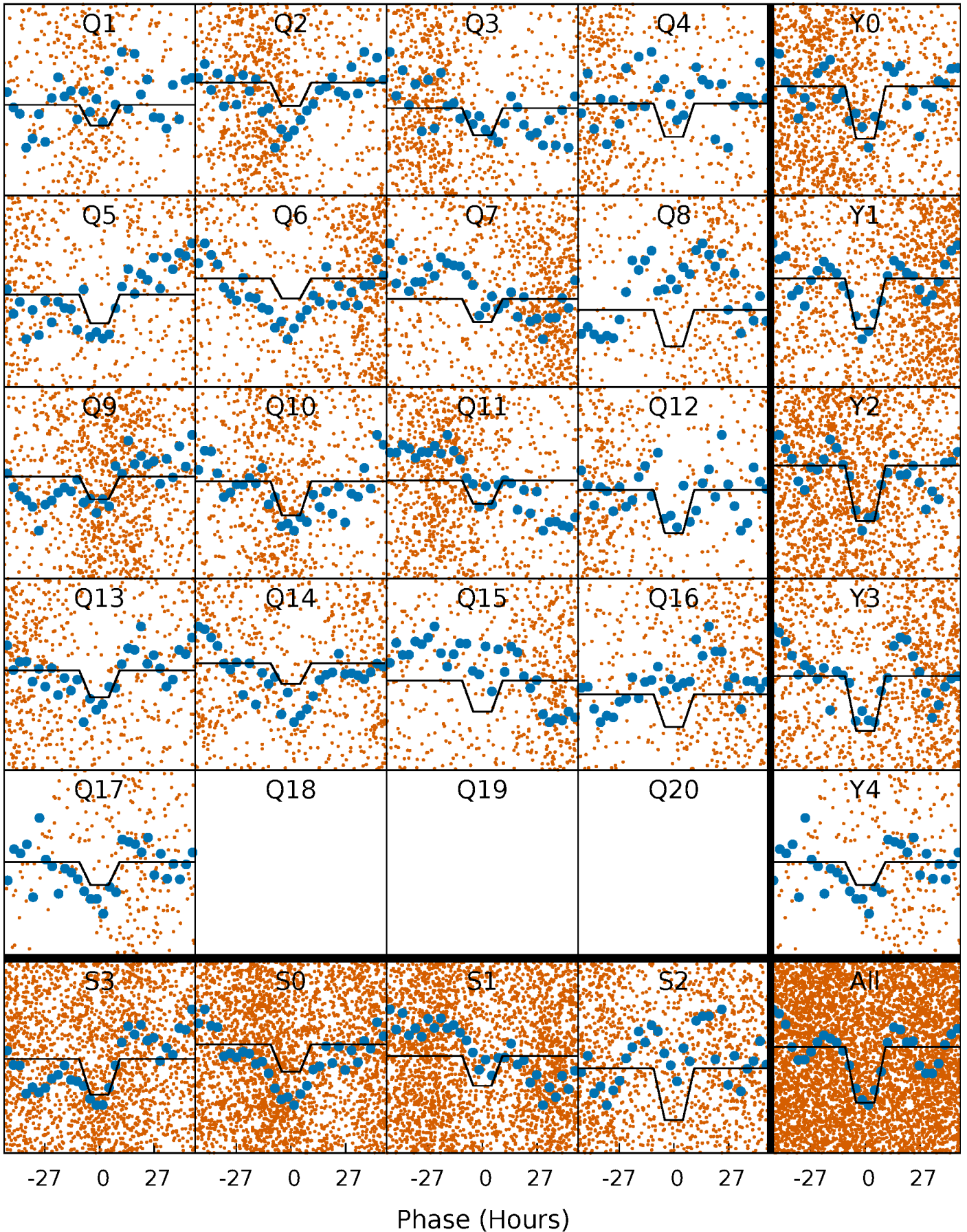
DV Quarter-Phased Transit Curves

TCE 008177748-01 P= 5.069014 Days $T_0=133.773976$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

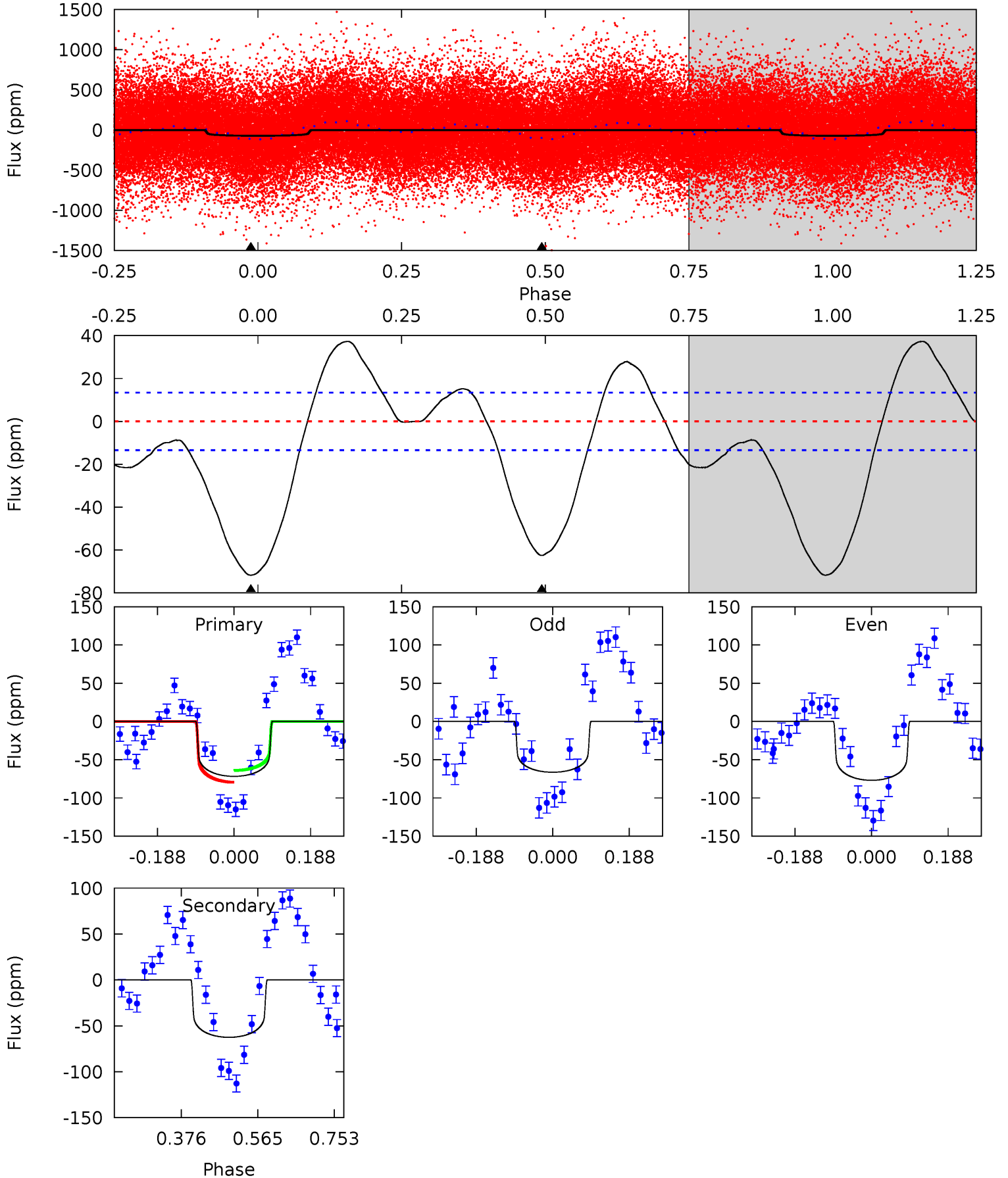
TCE 008177748-01 P= 5.068920 Days $T_0=133.785221$ (BKJD)



DV Model-Shift Uniqueness Test

008177748-01, P = 5.069014 Days, E = 128.704962 Days

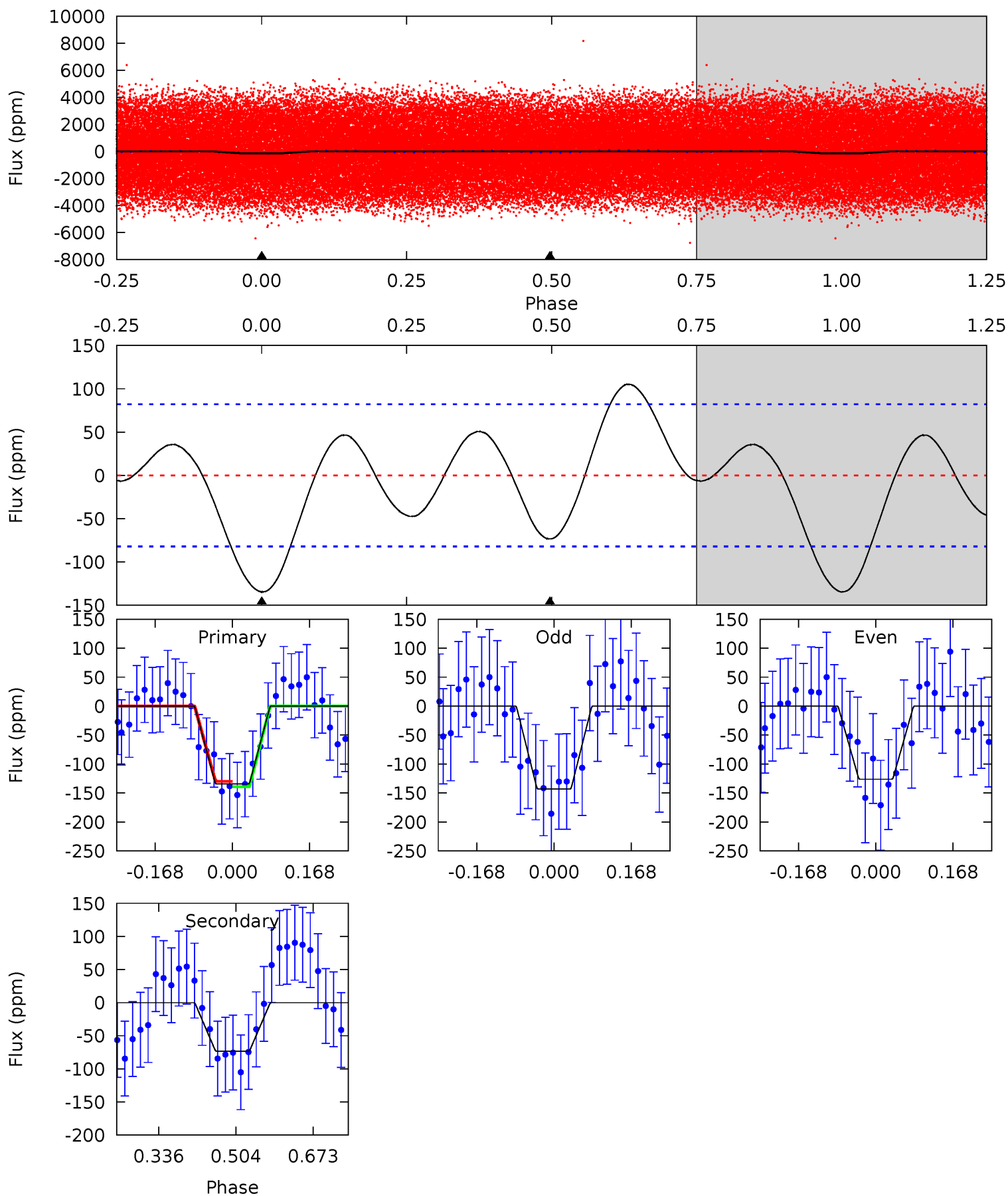
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
23.7	20.6	0	0	4.43	1.32	4.84	23.7	23.7	20.6	20.6	1.73	1.04	0.34	2.51



Alt Model-Shift Uniqueness Test

008177748-01, P = 5.068920 Days, E = 128.716301 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
7.29	3.98	0	0	4.45	1.38	1.70	7.29	7.29	3.98	3.98	0.46	1.03	0.44	0.24



Stellar Parameters For KIC 008177748

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	7207^{+200}_{-275}	$4.254^{+0.075}_{-0.210}$	$-0.060^{+0.200}_{-0.350}$	$1.480^{+0.539}_{-0.231}$	$1.434^{+0.218}_{-0.196}$	$0.623^{+0.269}_{-0.357}$
	+3%/-4%	+2%/-5%	+333%/-583%	+36%/-16%	+15%/-14%	+43%/-57%
Source	PHO1	KIC0	KIC0	DSEP		

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

Secondary Eclipse Parameters for KIC 008177748-01 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-63 ± 3	$1.00^{+0.22}_{-0.17}$	2154^{+172}_{-120}	8539^{+919}_{-757}	144^{+62}_{-45}
Alt.	-73 ± 18	$2.01^{+0.39}_{-0.23}$	2166^{+155}_{-119}	5982^{+419}_{-442}	40^{+16}_{-13}

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

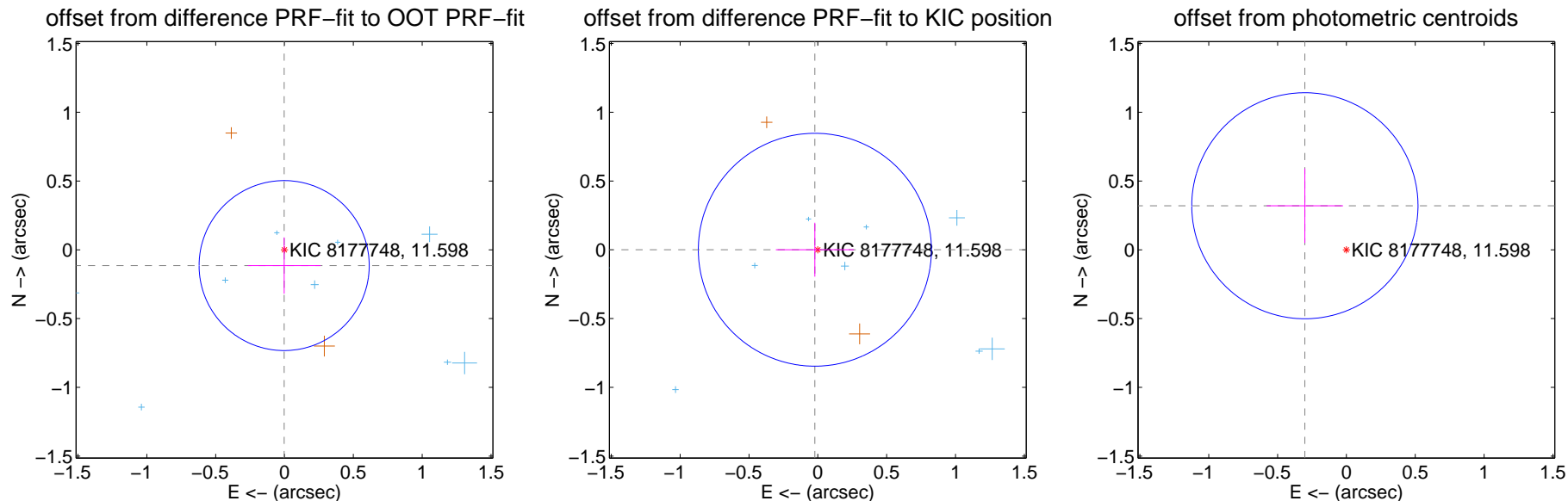
DV Centroid Data

Supplemental centroid analysis for 008177748-01. **Kepler magnitude: 11.60.** Transit SNR 4.82

There are 10 quarters with good PRF difference image offsets

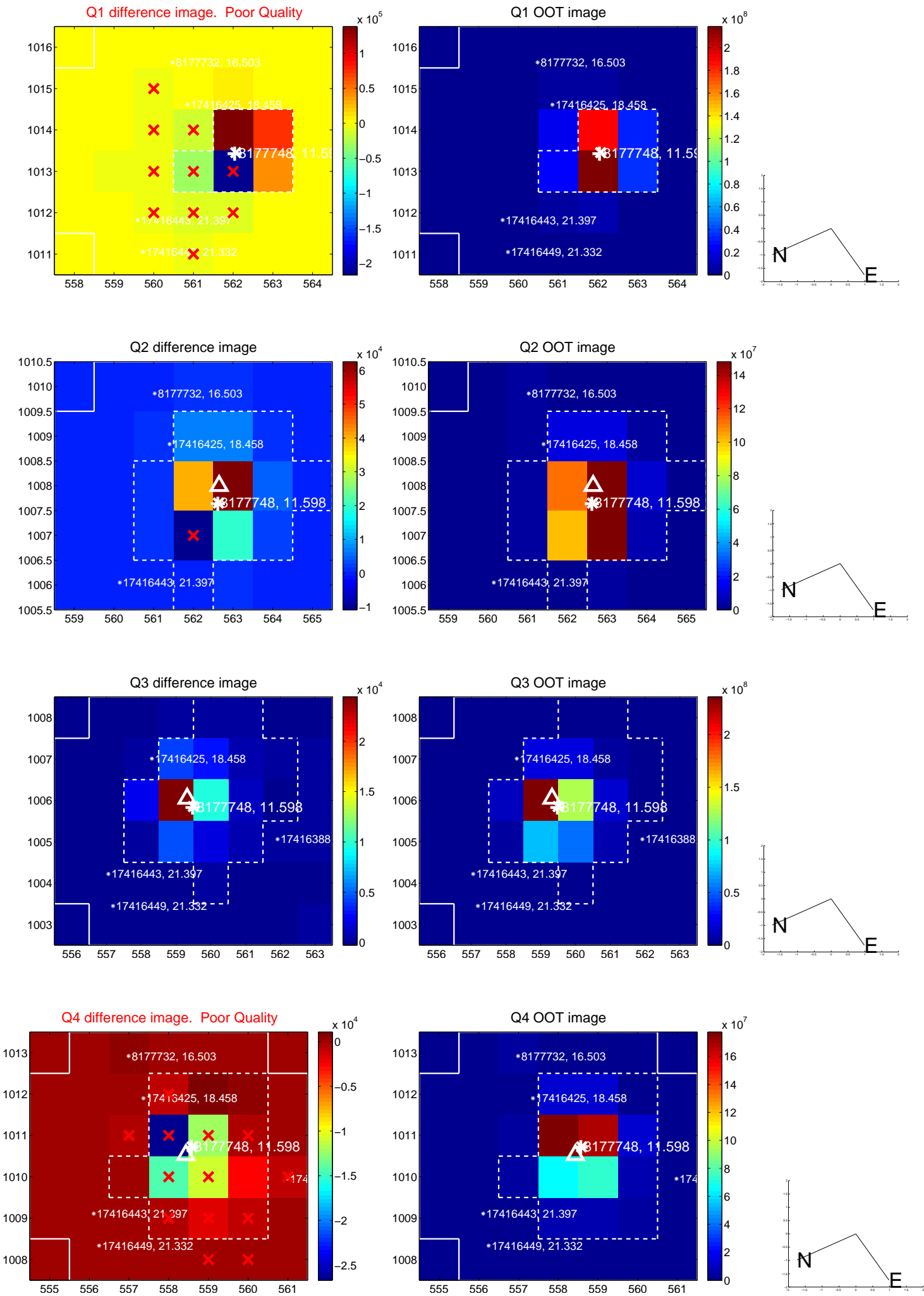
The direct PRF centroid is offset from the target star catalog position by about 0.17 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.115 ± 0.206	0.56	0.003 ± 0.264	-0.115 ± 0.205
PRF-fit source offset from KIC position	0.022 ± 0.282	0.08	0.022 ± 0.283	0.000 ± 0.196
photometric centroid source offset	0.44 ± 0.27	1.61	0.30 ± 0.28	0.32 ± 0.27

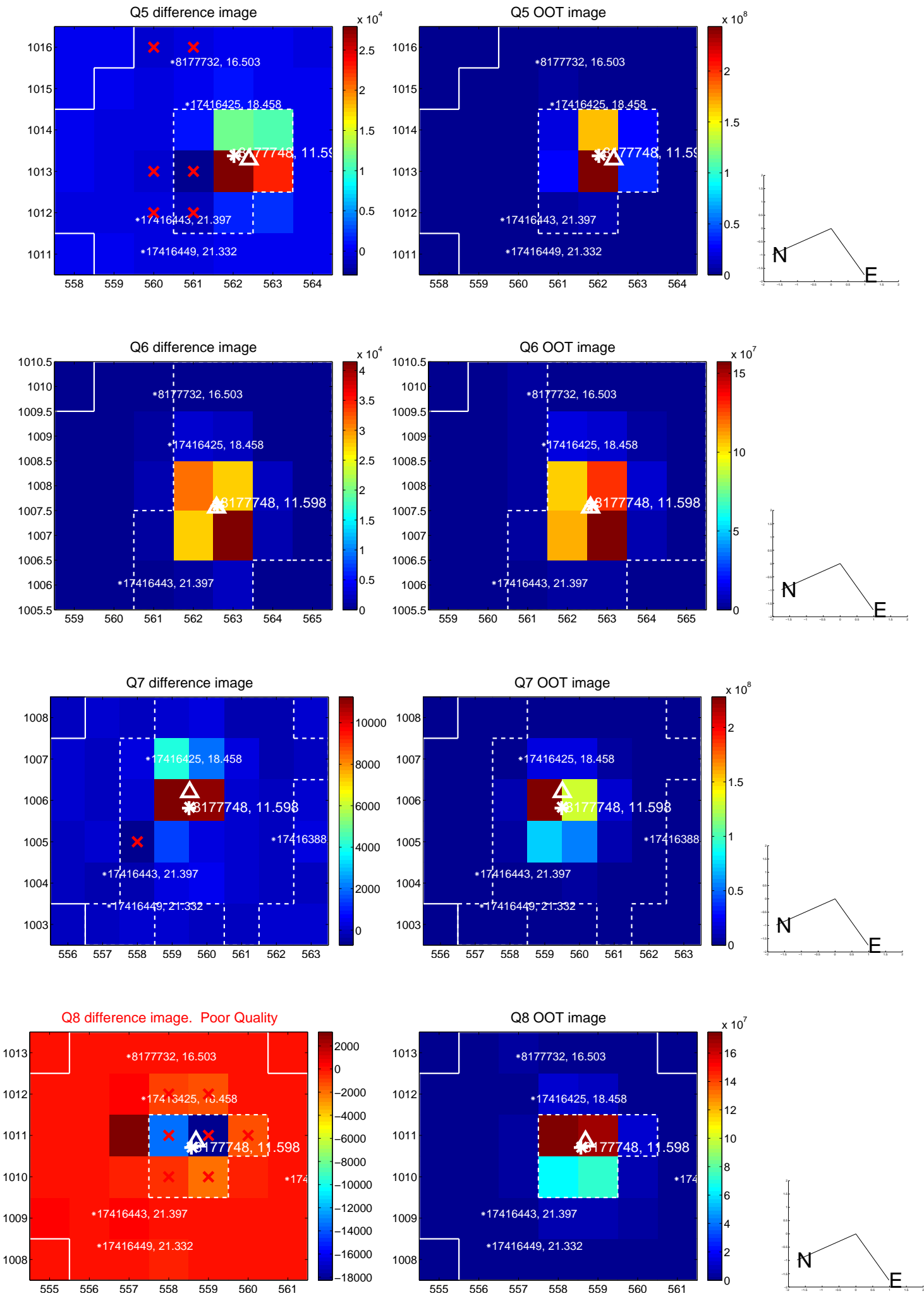


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets;** magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

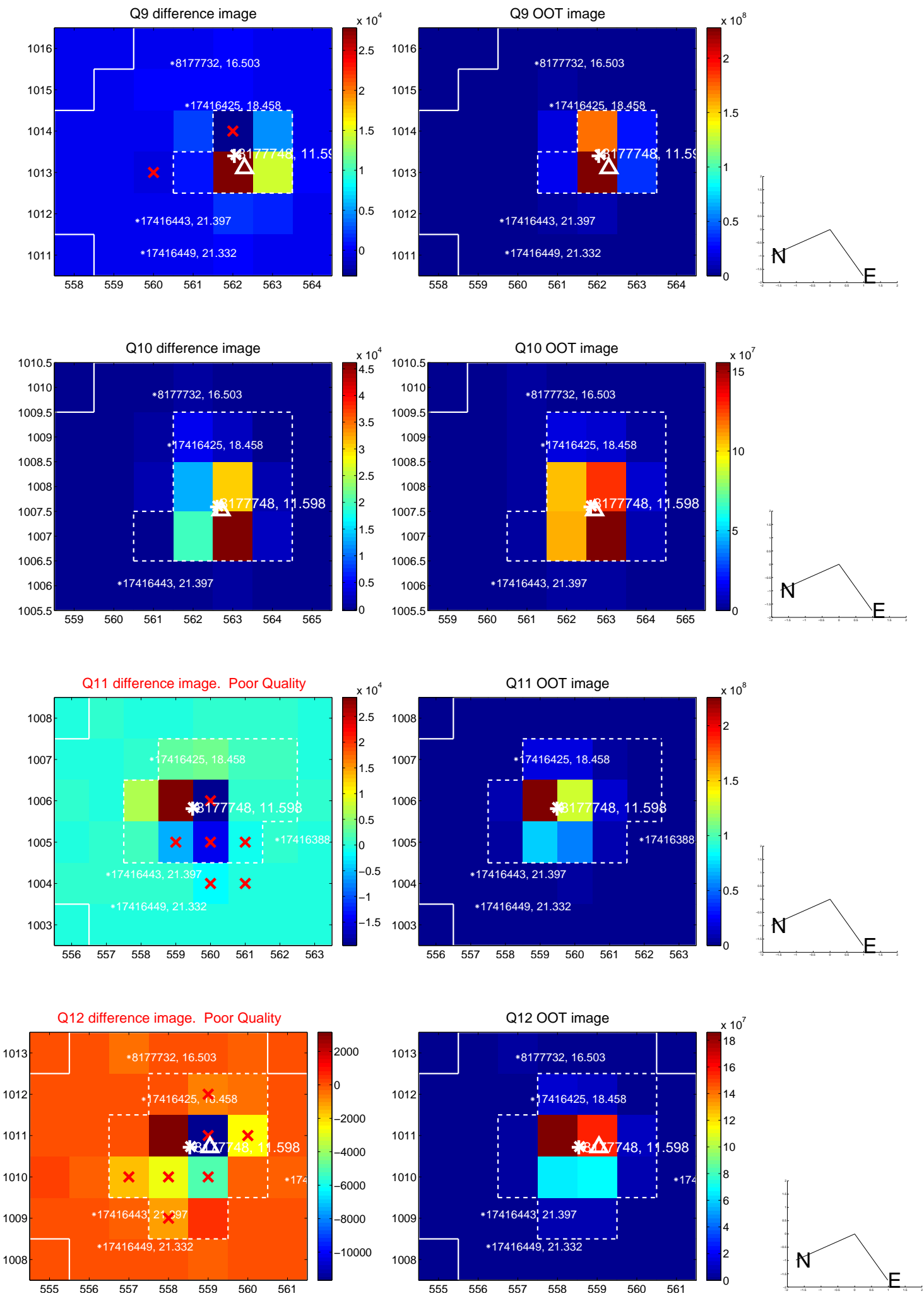
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



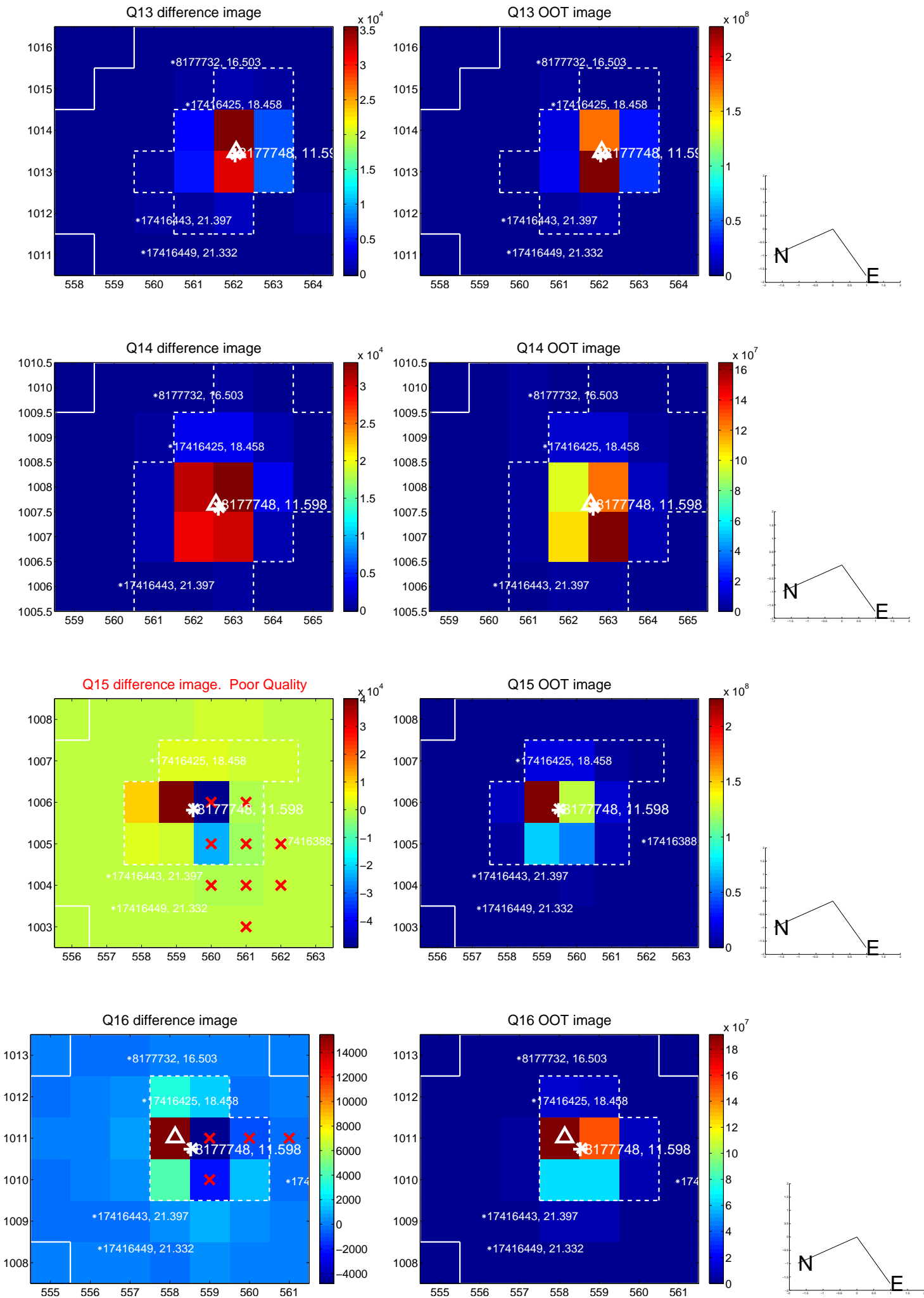
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



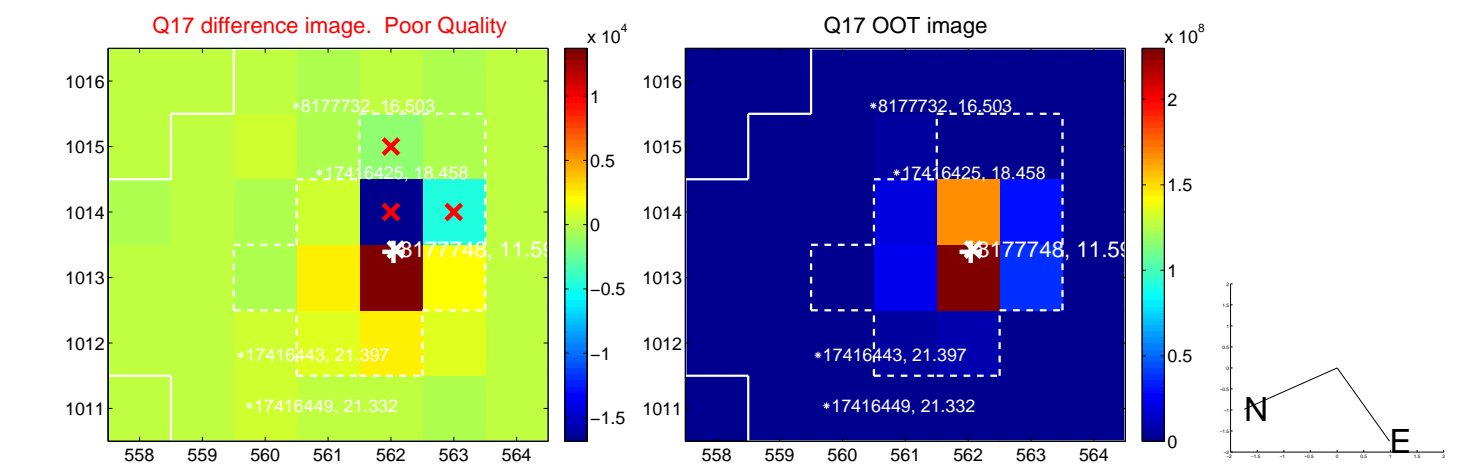
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



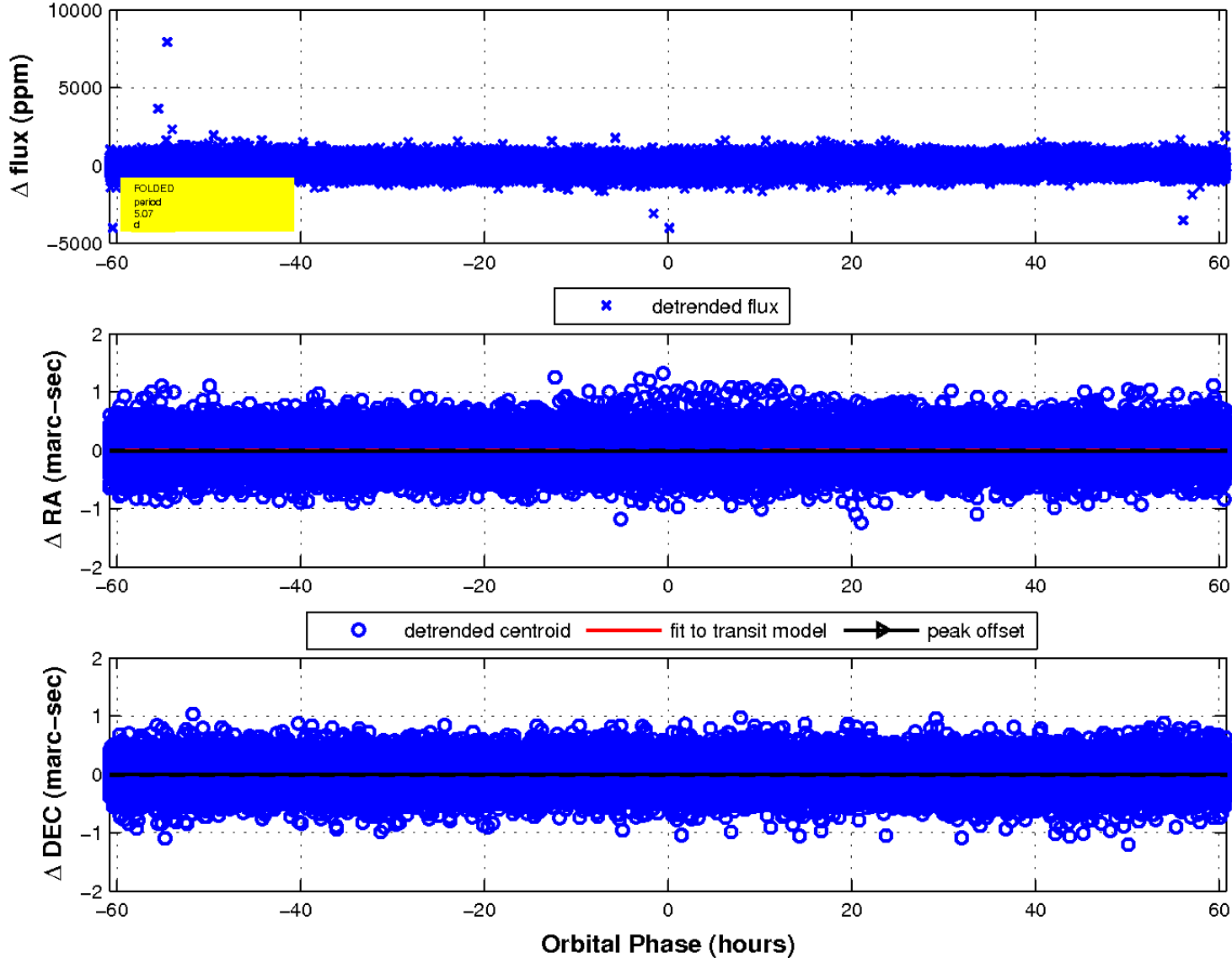
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

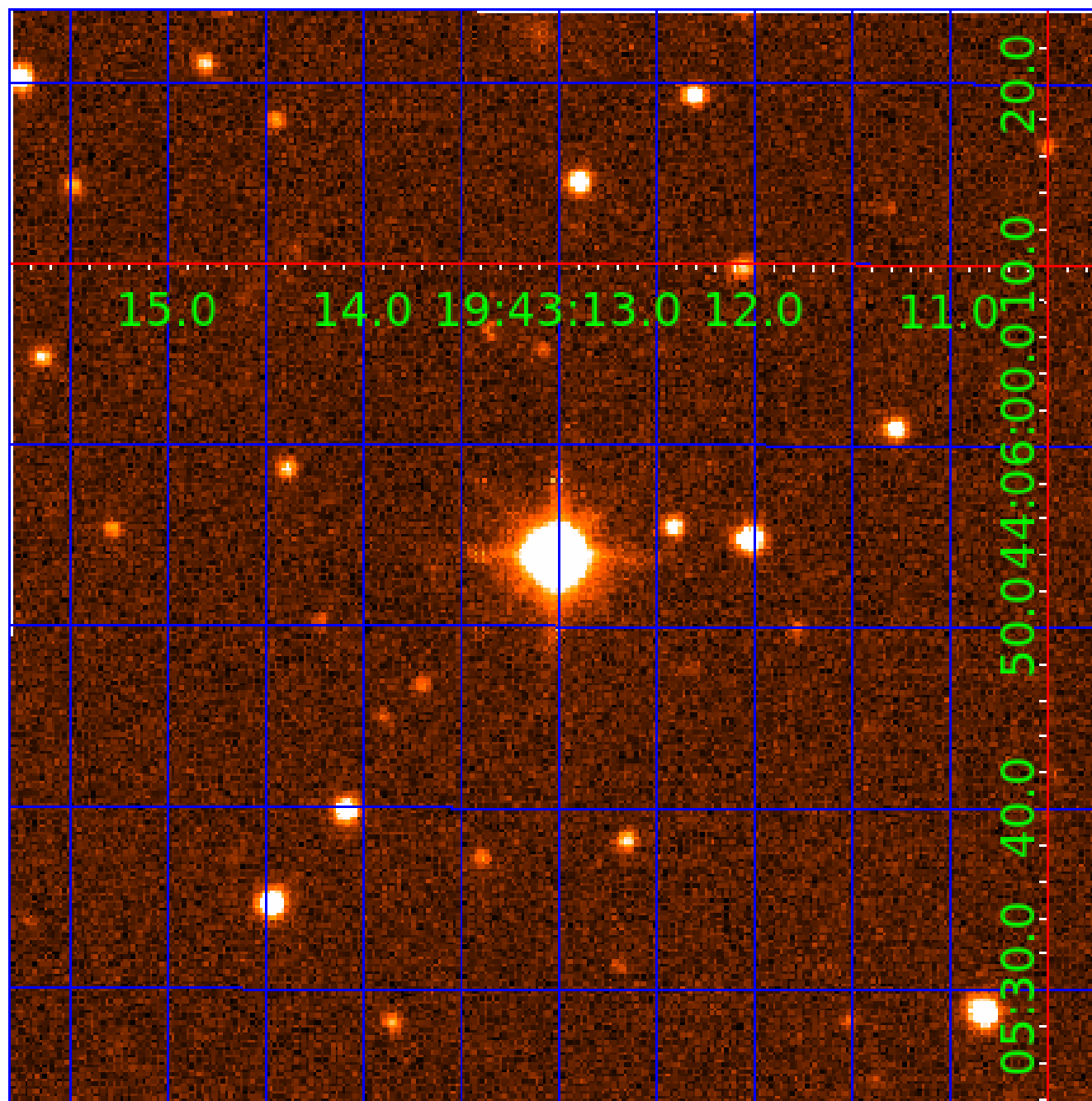


fluxWeightedCentroids, Planet 1 of 2



UKIRT Image

Declination



KIC 008177748

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})
008177748-01	OBS	No	5.069014	133.773976	32.1	22.451	8.6	4.8	1.48	7207	0.96	1247.93
008177748-02	OBS	No	5.069612	136.244938	70.2	21.569	8.1	9.7	1.48	7207	1.44	1247.73

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
008177748-01	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_ALT
008177748-02	OBS	FP	0.00	1	0	0	0	LPP_DV—SAME_NTL_PERIOD

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

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

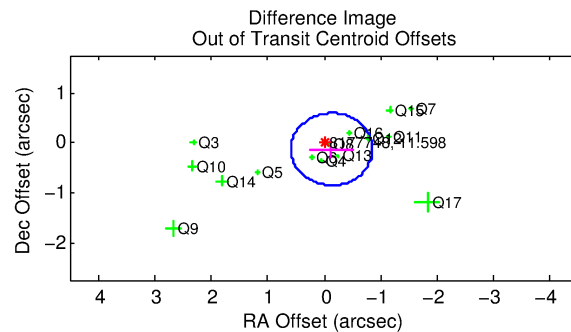
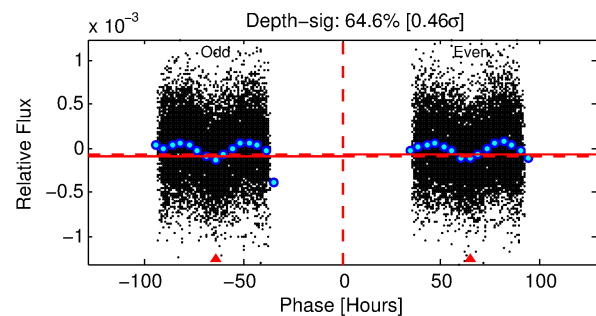
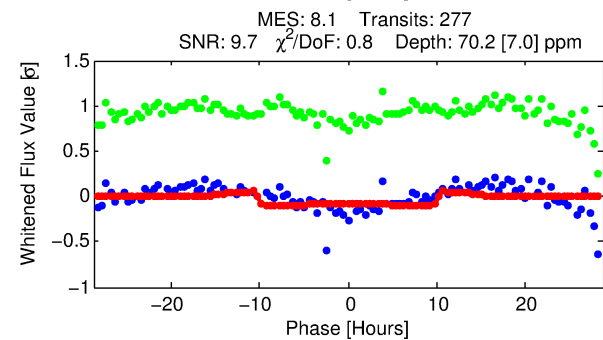
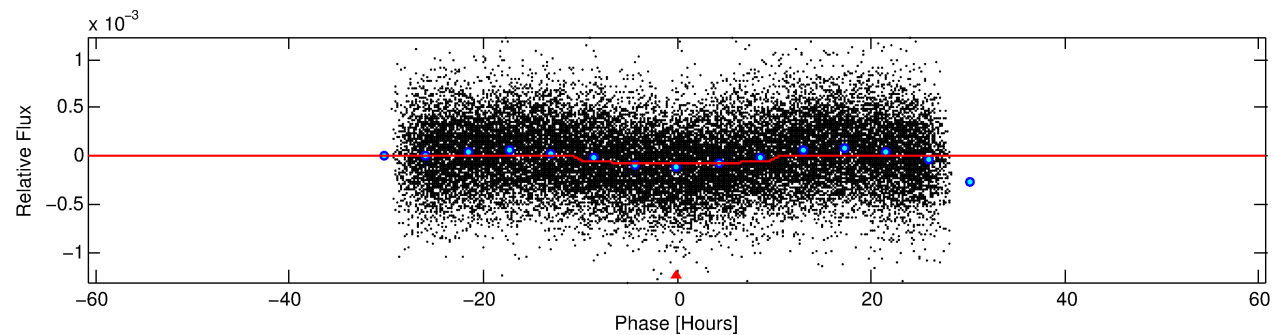
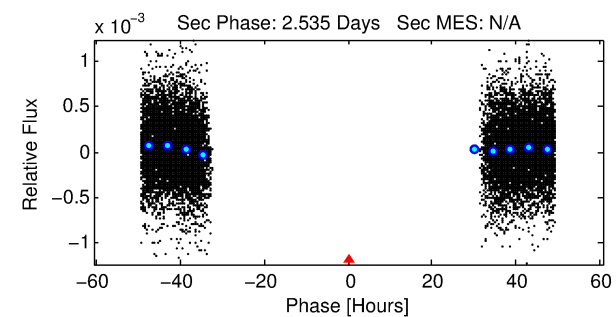
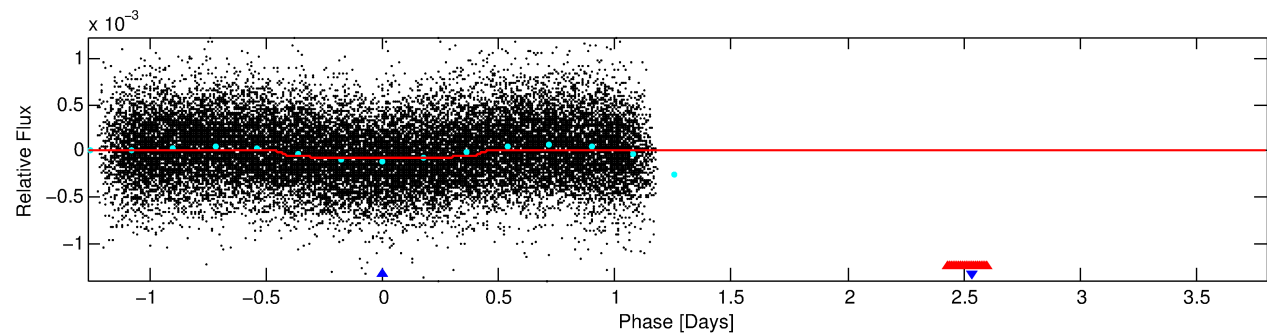
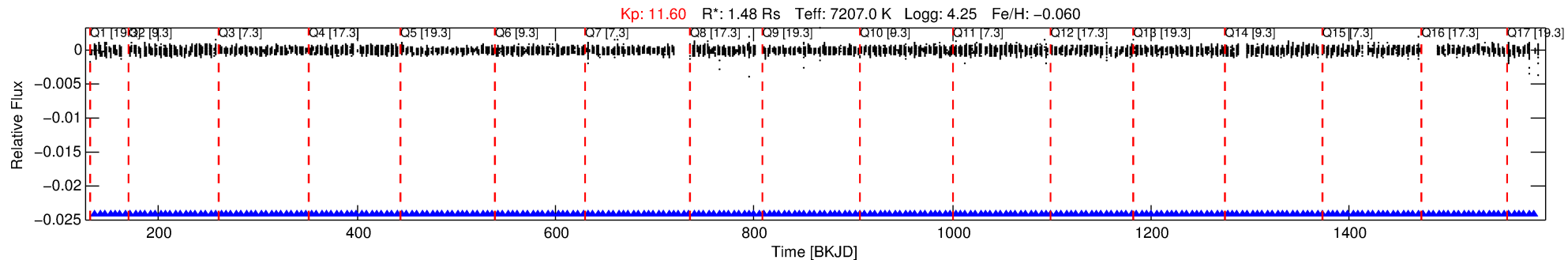
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 008177748-02

No Significant Match Found

DV One-Page Summary

KIC: 8177748 Candidate: 2 of 2 Period: 5.070 d



DV Fit Results:

Period = 5.06961 [0.00008] d
Epoch = 136.2449 [0.0107] BKJD
Rp/R* = 0.0089 [0.0005]
a/R* = 1.24 [0.09]
b = 0.90 [0.04]
Seff = 1247.73 [538.35]
Teq = 1516 [163] K
Rp = 1.44 [0.53] Re
a = 0.0651 [0.0190] AU

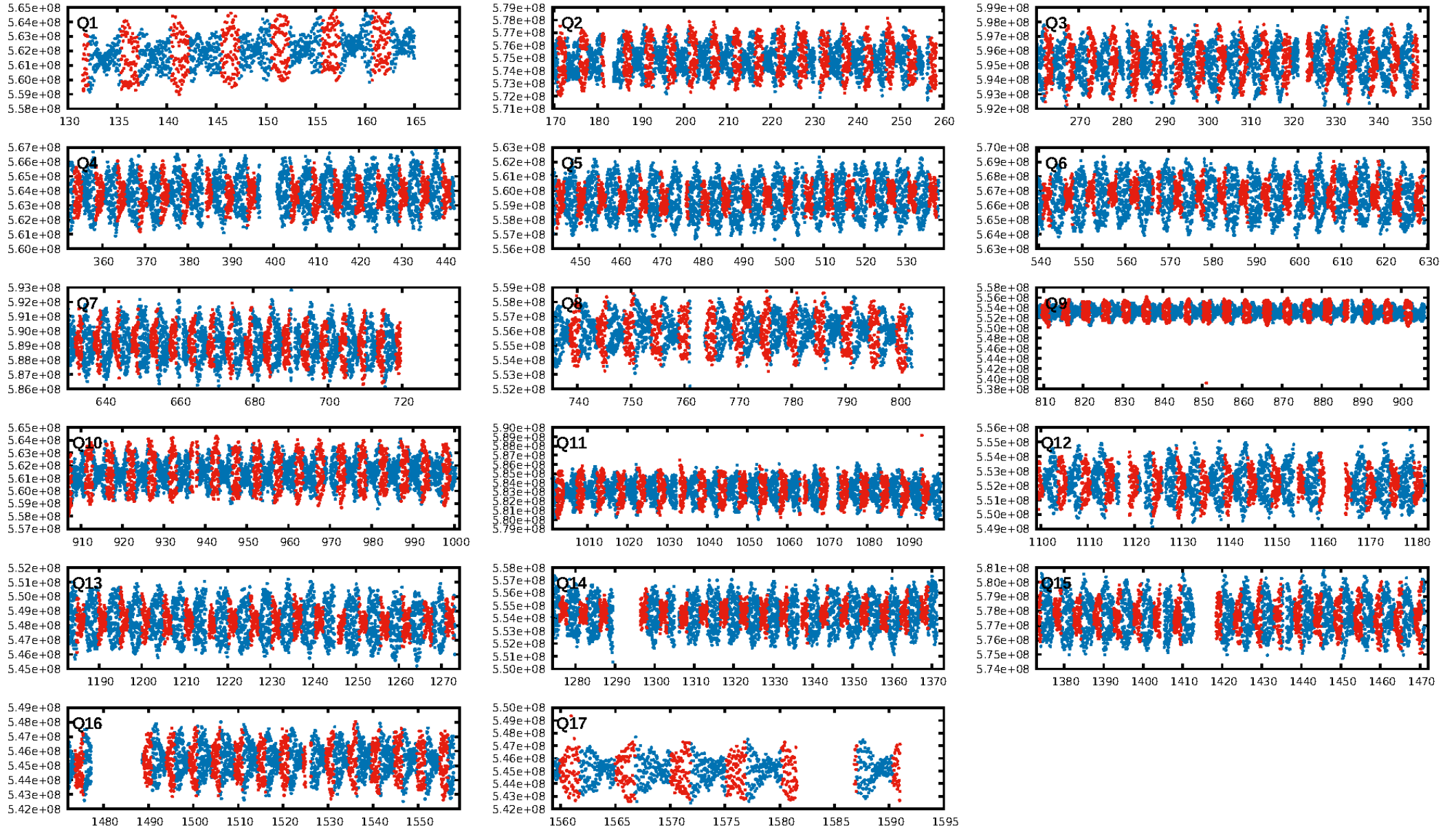
DV Diagnostic Results:

ShortPeriod-sig: 0.0% [0.00σ]
LongPeriod-sig: N/A
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: N/A
RollingBand-fgt: 1.00 [264/264]
GhostDiagnostic-chr: 1.086
Centroid-sig: 41.8%
Centroid-so: 0.156 arcsec [1.23σ]
OotOffset-rm: 0.184 arcsec [0.76σ]
KicOffset-rm: 0.120 arcsec [0.32σ]
OotOffset-st: 3/4/4/4 [15]
KicOffset-st: 3/4/4/4 [15]
DiffImageQuality-fgm: 0.80 [12/15]
DiffImageOverlap-fno: 1.00 [17/17]

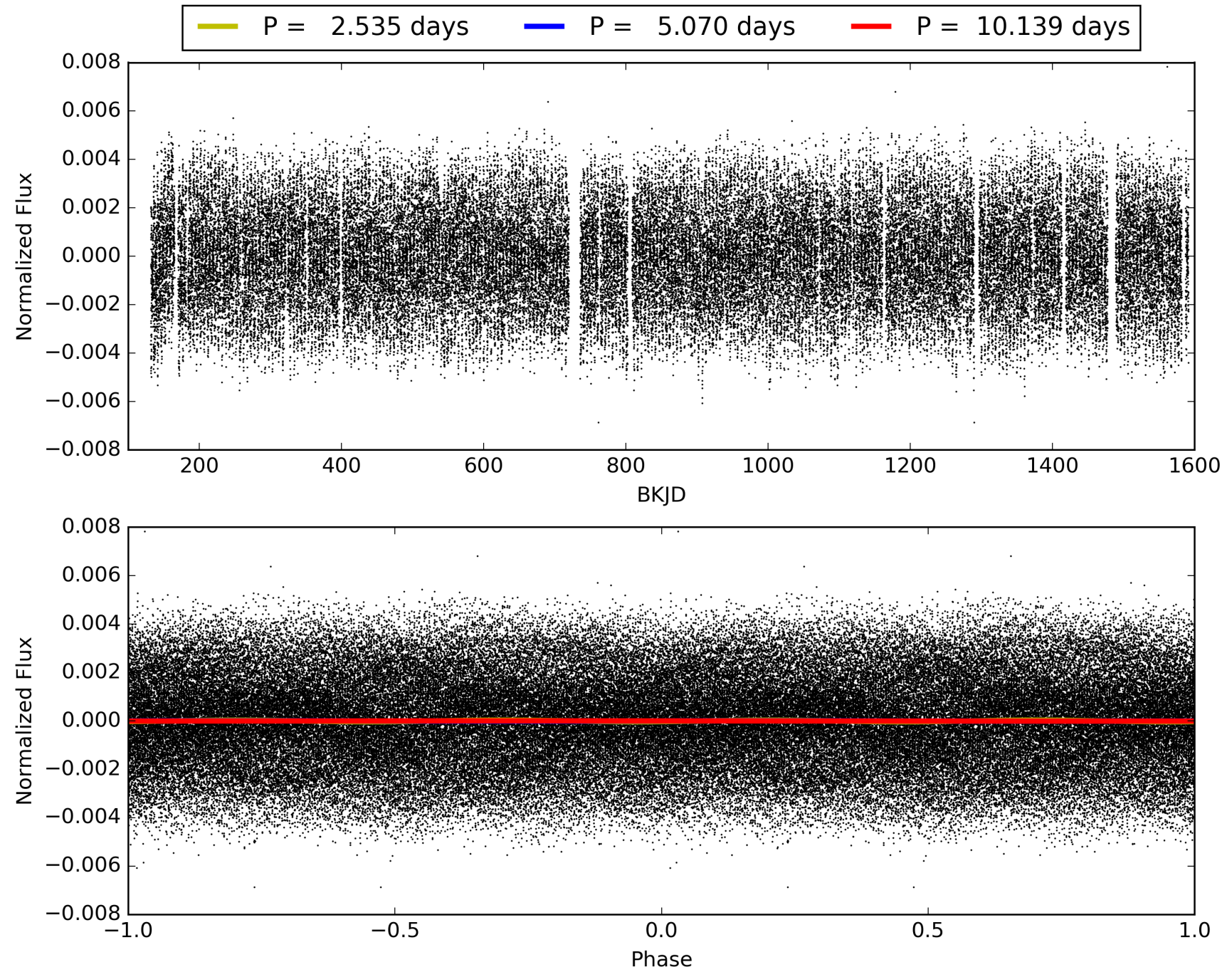
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 22:06:03 Z

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

TCE 008177748-02, PDC Light Curves

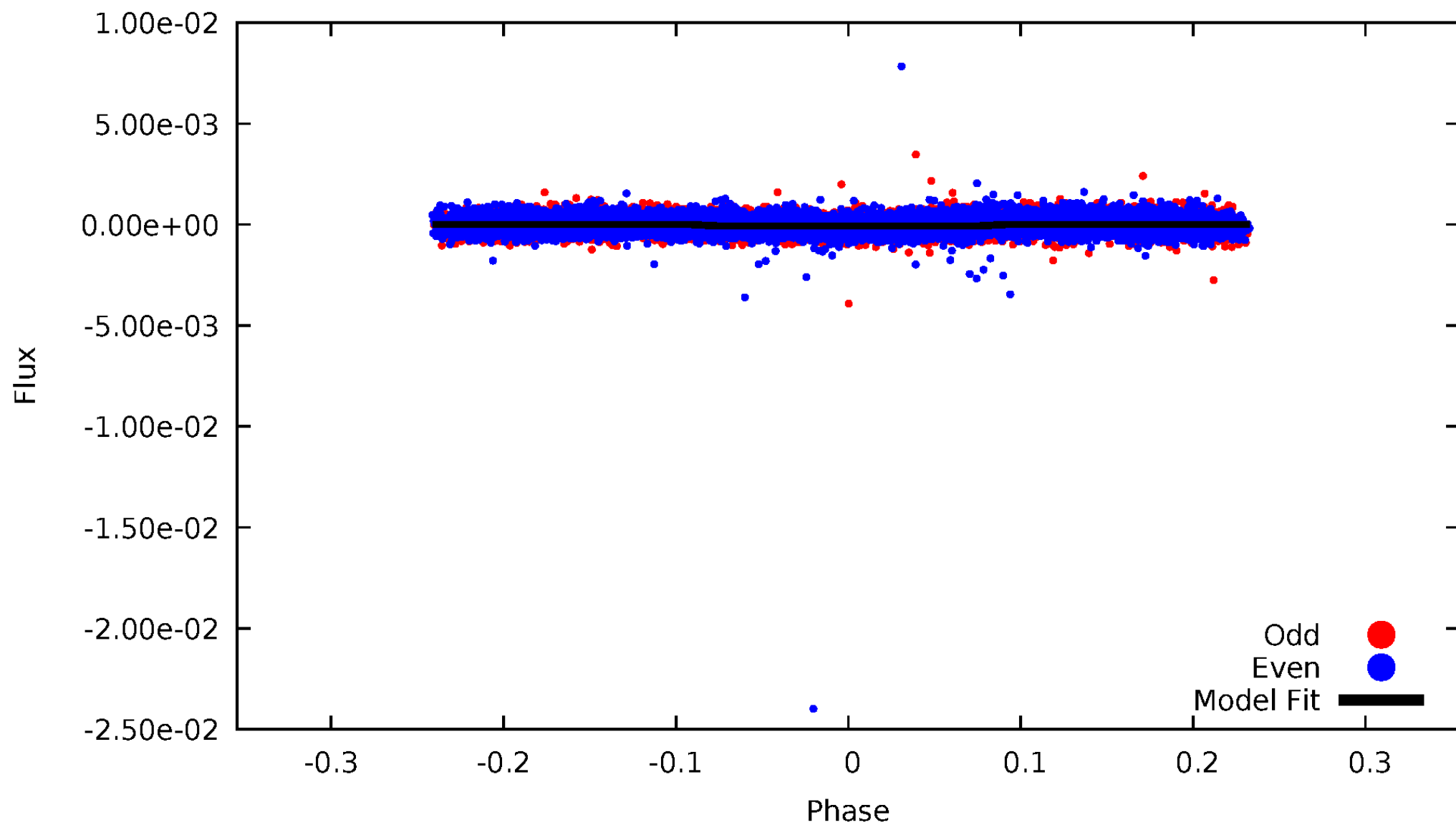


TCE 008177748-02



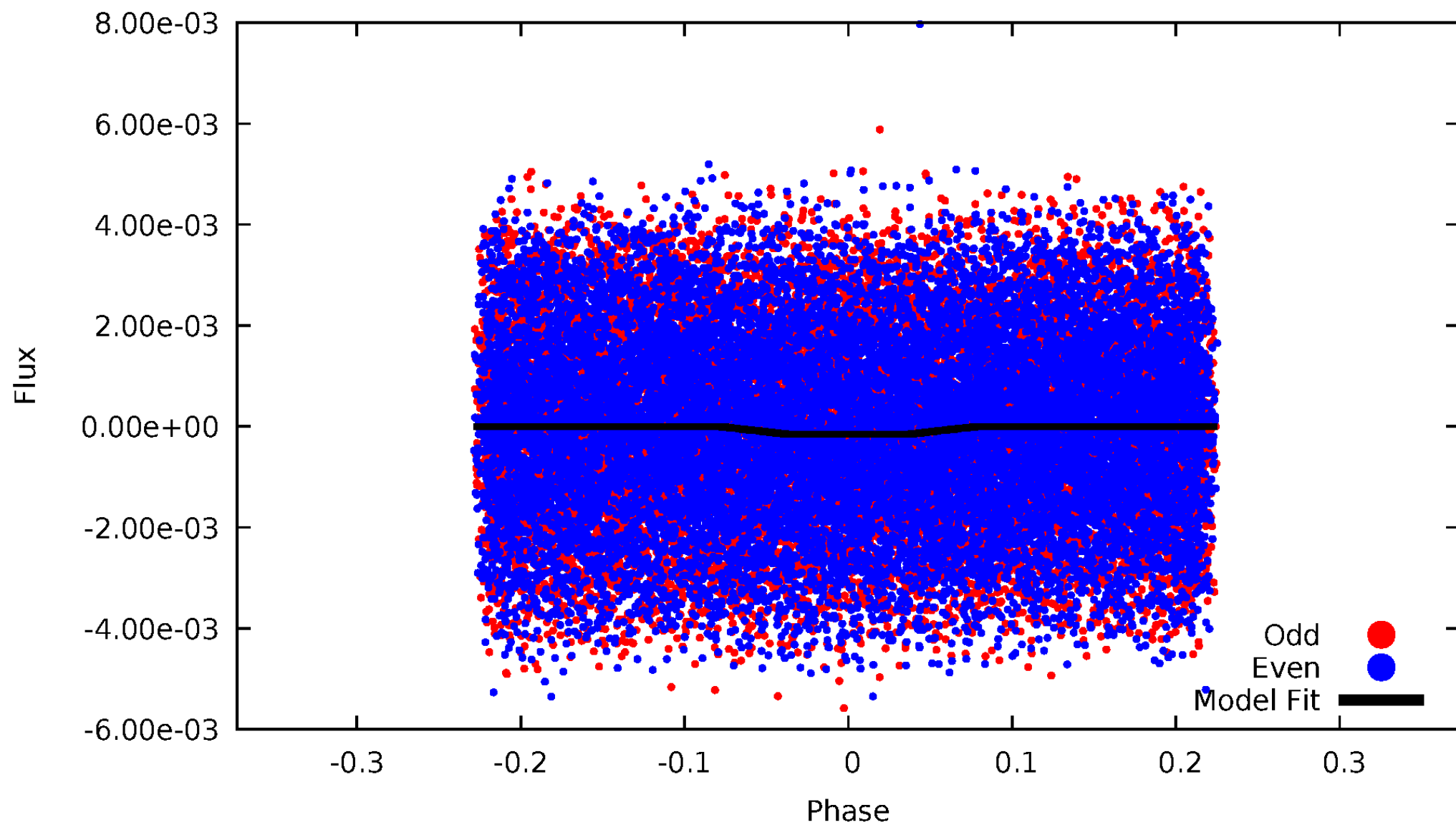
DV Odd/Even

TCE 008177748-02



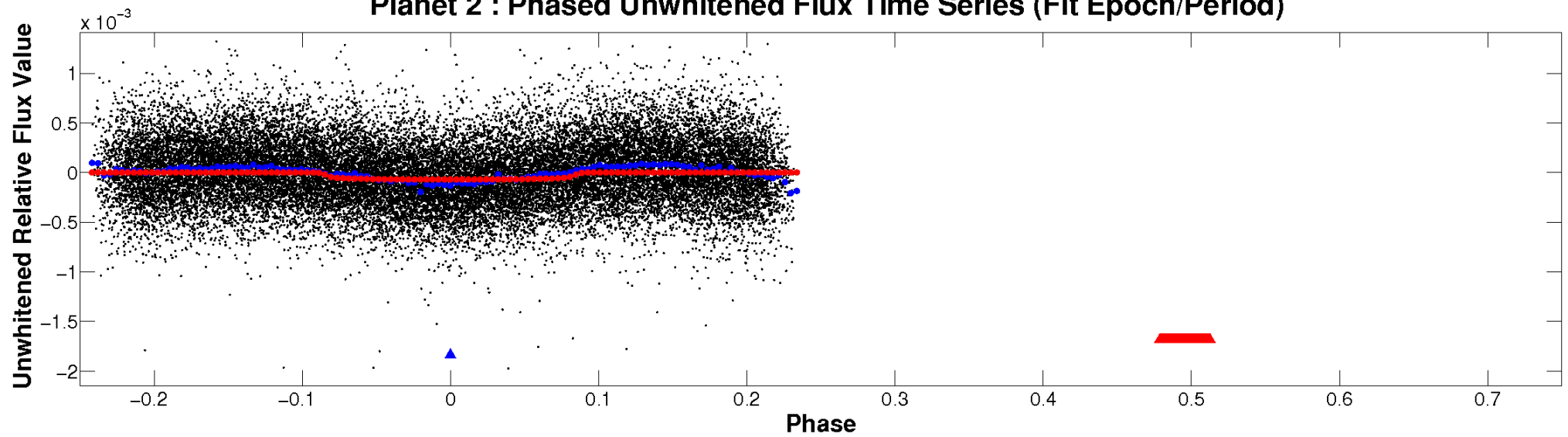
ALT Odd/Even

TCE 008177748-02

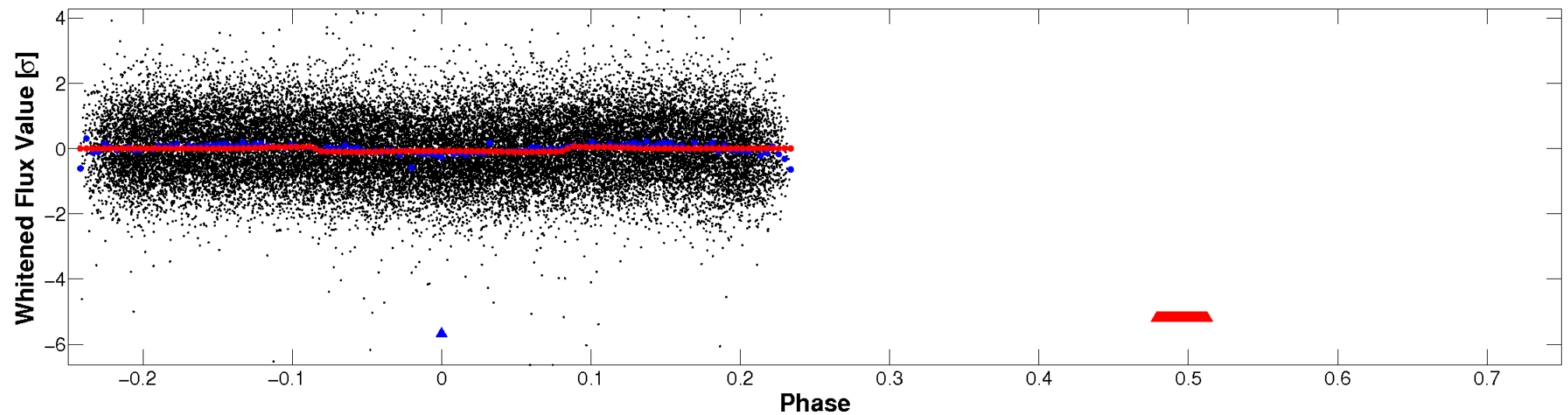


Non-Whitened Vs. Whitened Light Curve

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

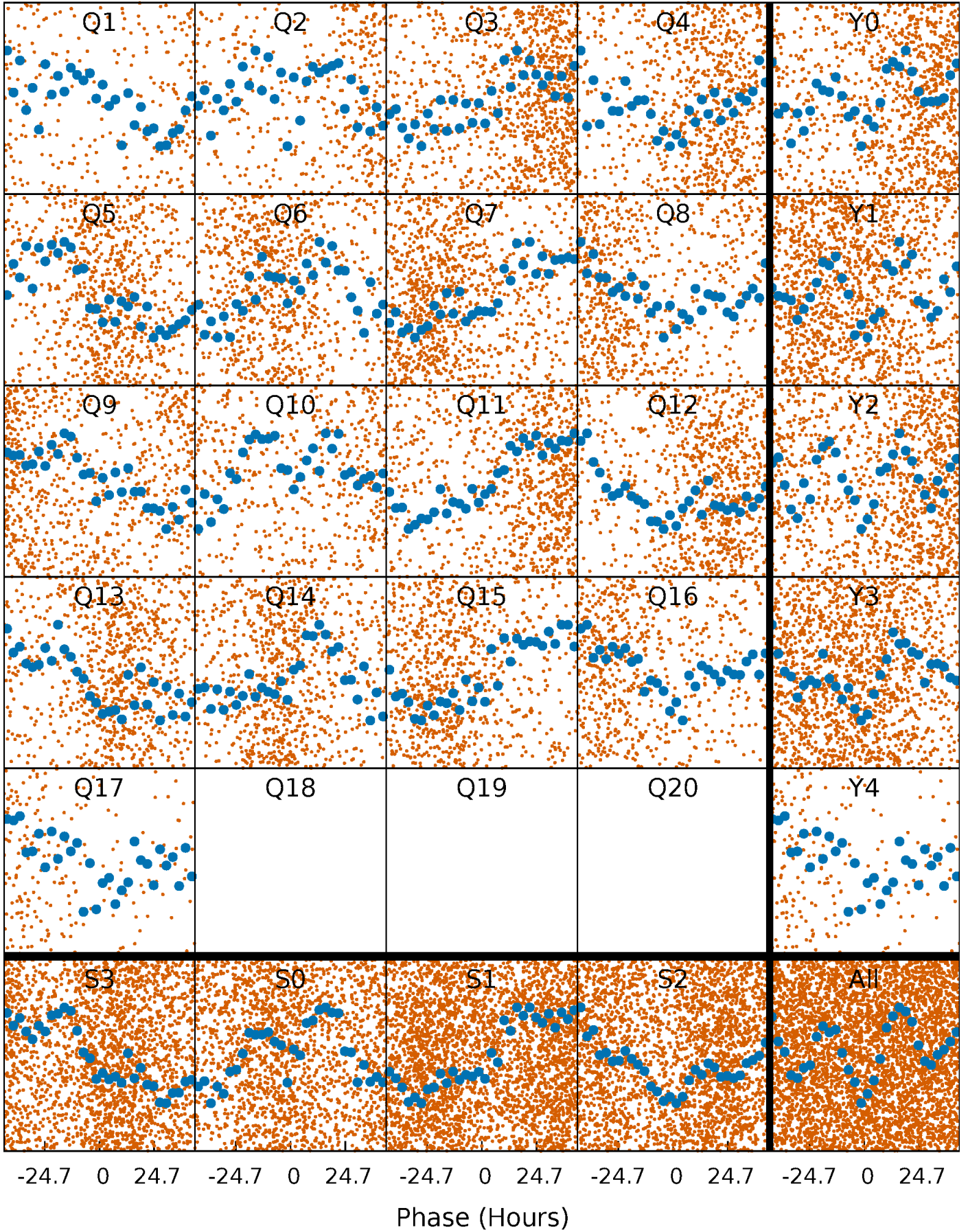


Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



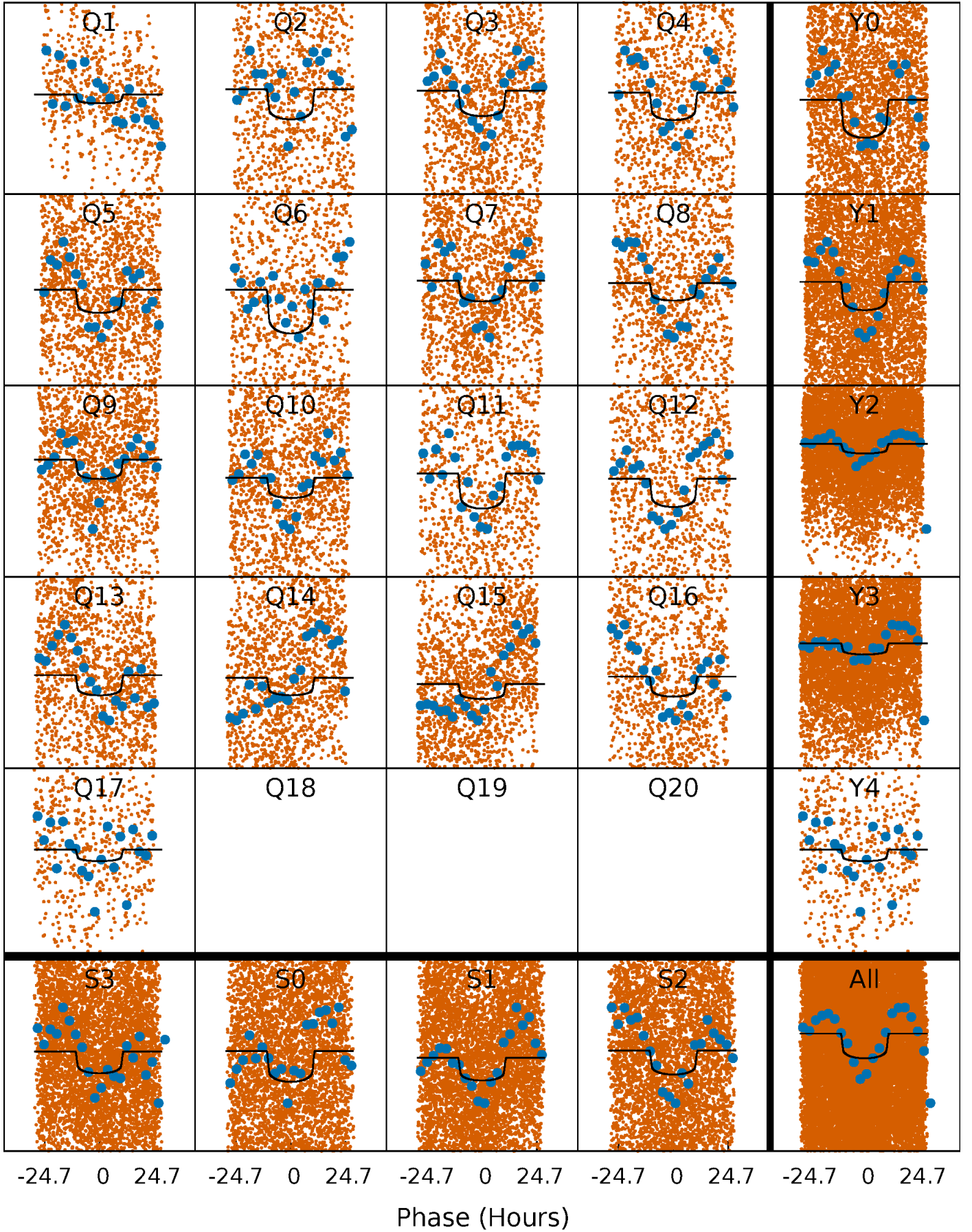
PDC Quarter-Phased Transit Curves

TCE 008177748-02 P= 5.069612 Days $T_0=136.244938$ (BKJD)



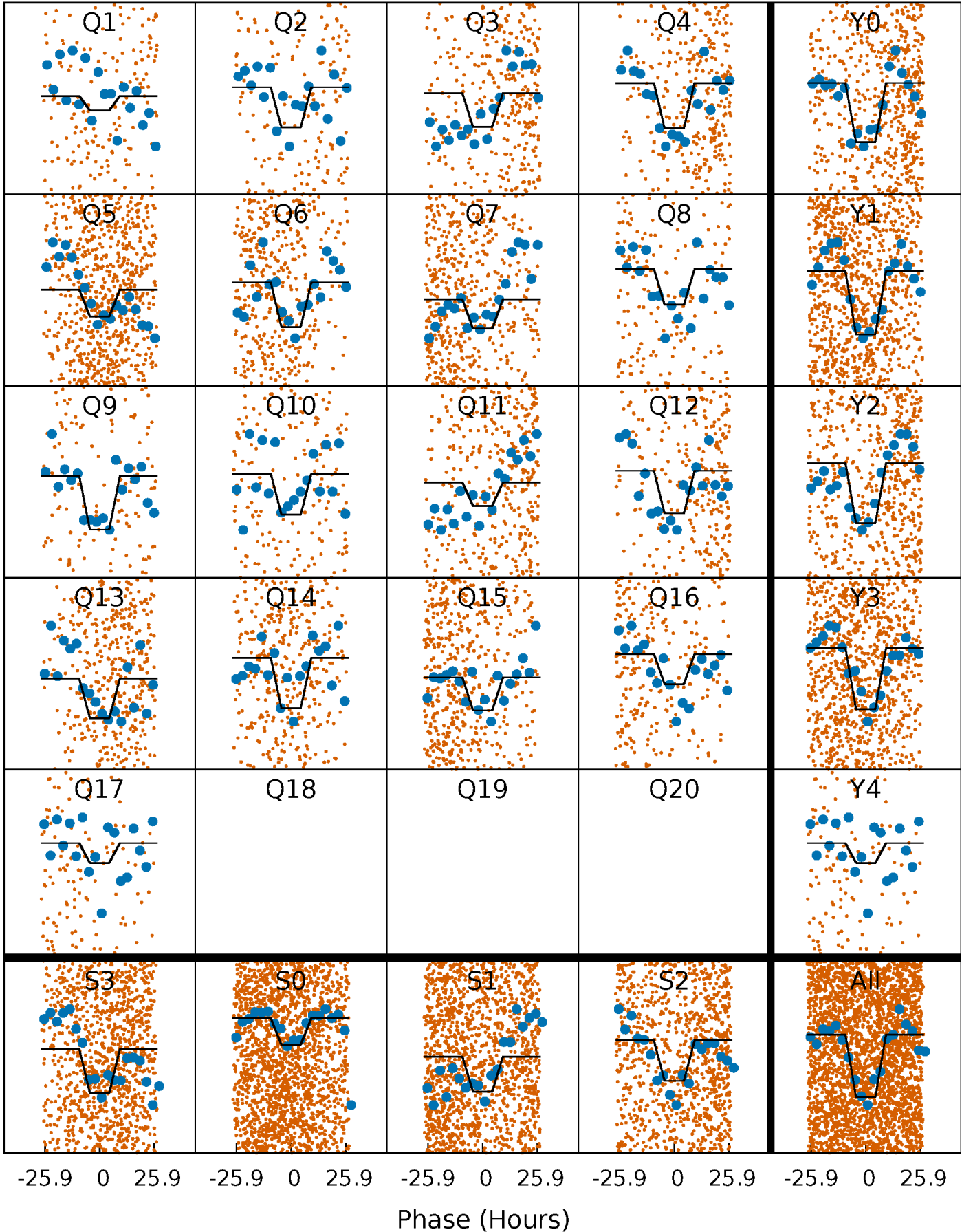
DV Quarter-Phased Transit Curves

TCE 008177748-02 P= 5.069612 Days $T_0=136.244938$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

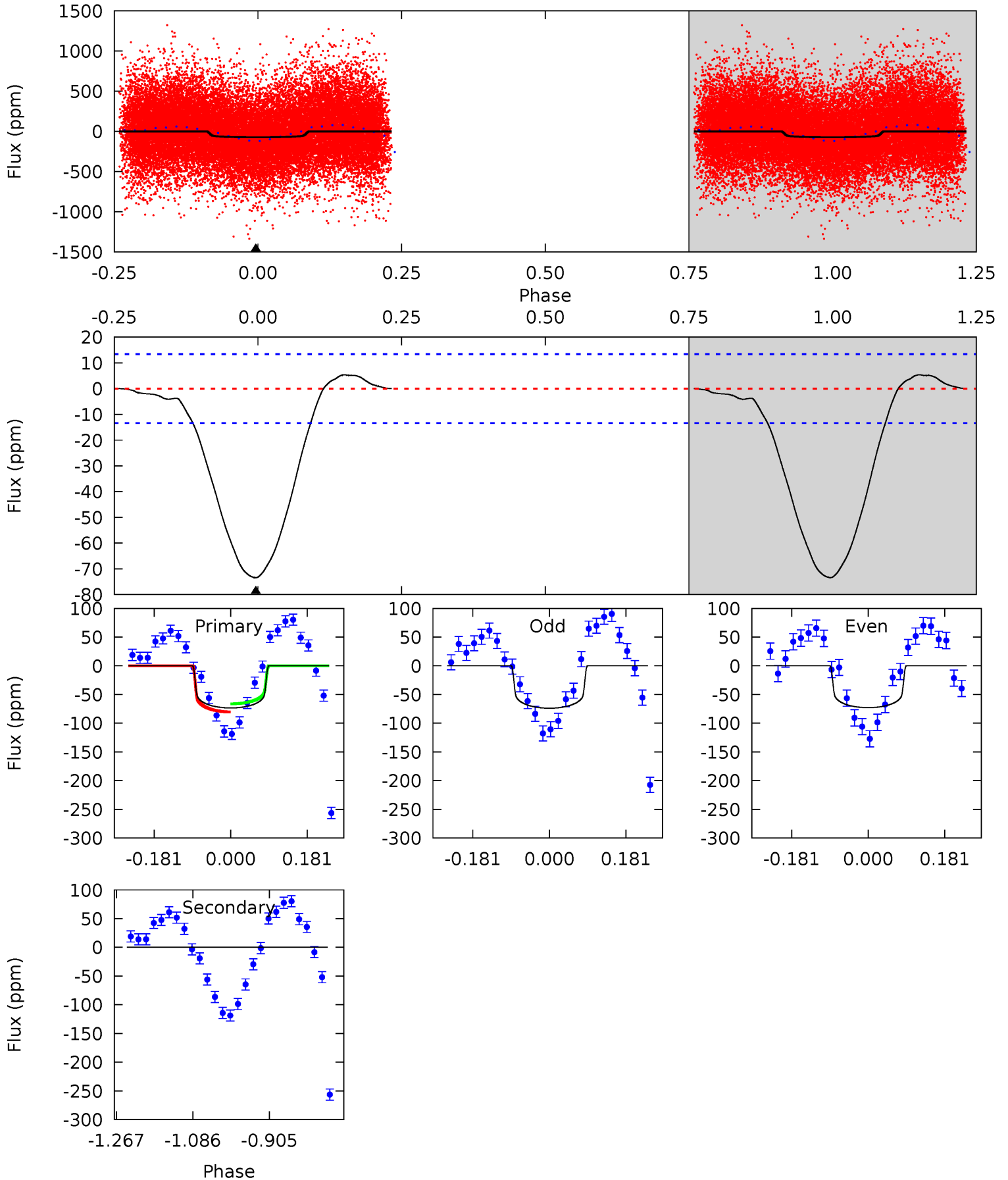
TCE 008177748-02 P= 5.069234 Days $T_0=136.286223$ (BKJD)



DV Model-Shift Uniqueness Test

008177748-02, P = 5.069612 Days, E = 131.175326 Days

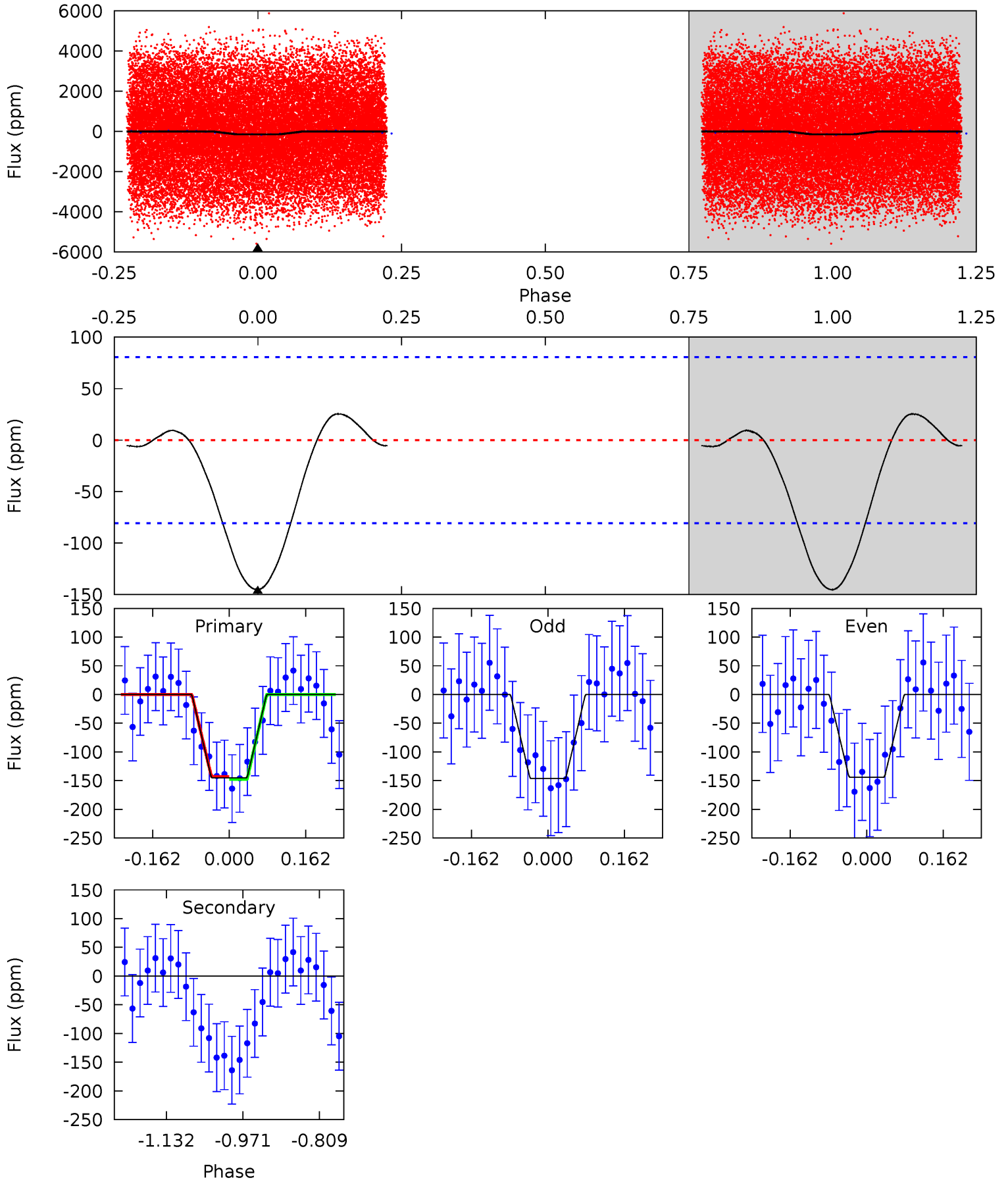
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
24.4	0	0	0	4.44	1.34	0.67	24.4	24.4	0	0	0.16	1.33	0.07	2.49



Alt Model-Shift Uniqueness Test

008177748-02, P = 5.069234 Days, E = 131.216989 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
8.04	0	0	0	4.46	1.40	0.43	8.04	8.04	0	0	0.07	1.27	0.15	0.14



Stellar Parameters For KIC 008177748

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	$M(M_{\odot})$	p_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	7207^{+200}_{-275}	$4.254^{+0.075}_{-0.210}$	$-0.060^{+0.200}_{-0.350}$	$1.480^{+0.539}_{-0.231}$	$1.434^{+0.218}_{-0.196}$	$0.623^{+0.269}_{-0.357}$
	+3%/-4%	+2%/-5%	+333%/-583%	+36%/-16%	+15%/-14%	+43%/-57%
Source	PHO1	KIC0	KIC0	DSEP		

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

Secondary Eclipse Parameters for KIC 008177748-02 / KOI

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	0 ± 3	$1.51^{+0.26}_{-0.18}$	2159^{+160}_{-124}	-2292^{+5811}_{-1313}	$0.180^{+2.893}_{-2.965}$
Alt.	0 ± 18	$2.06^{+0.40}_{-0.22}$	2155^{+176}_{-121}	-2257^{+6609}_{-2167}	$0.222^{+9.254}_{-9.176}$

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

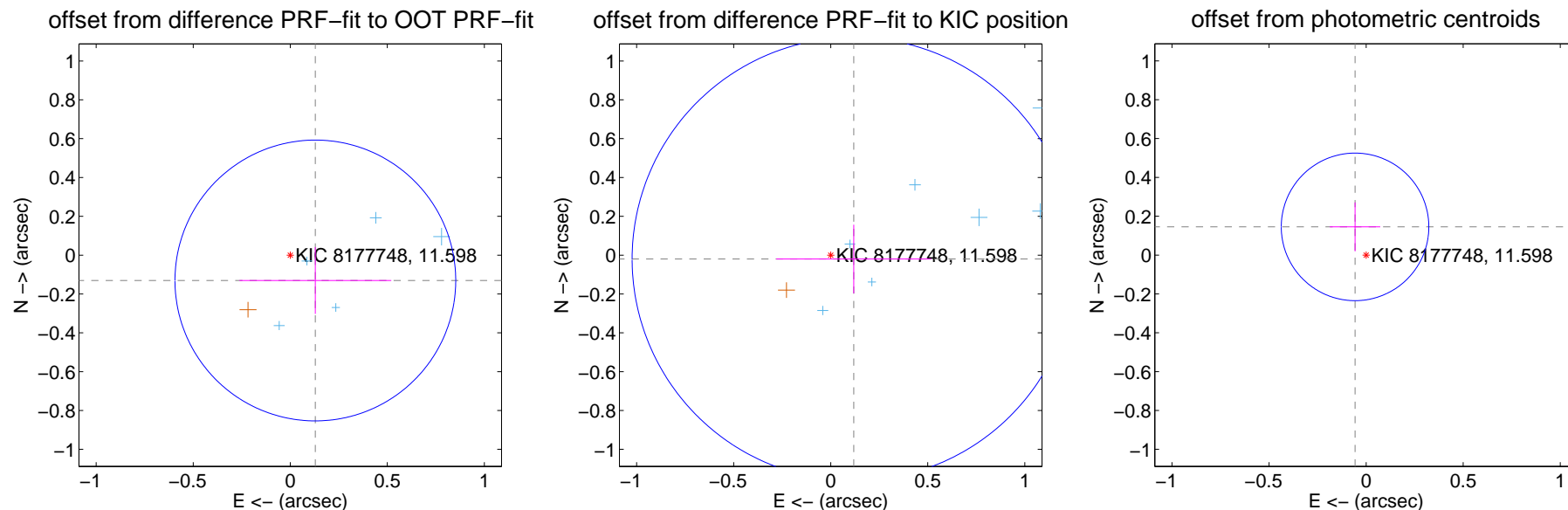
DV Centroid Data

Supplemental centroid analysis for 008177748-02. **Kepler magnitude: 11.60.** Transit SNR 9.67

There are 12 quarters with good PRF difference image offsets

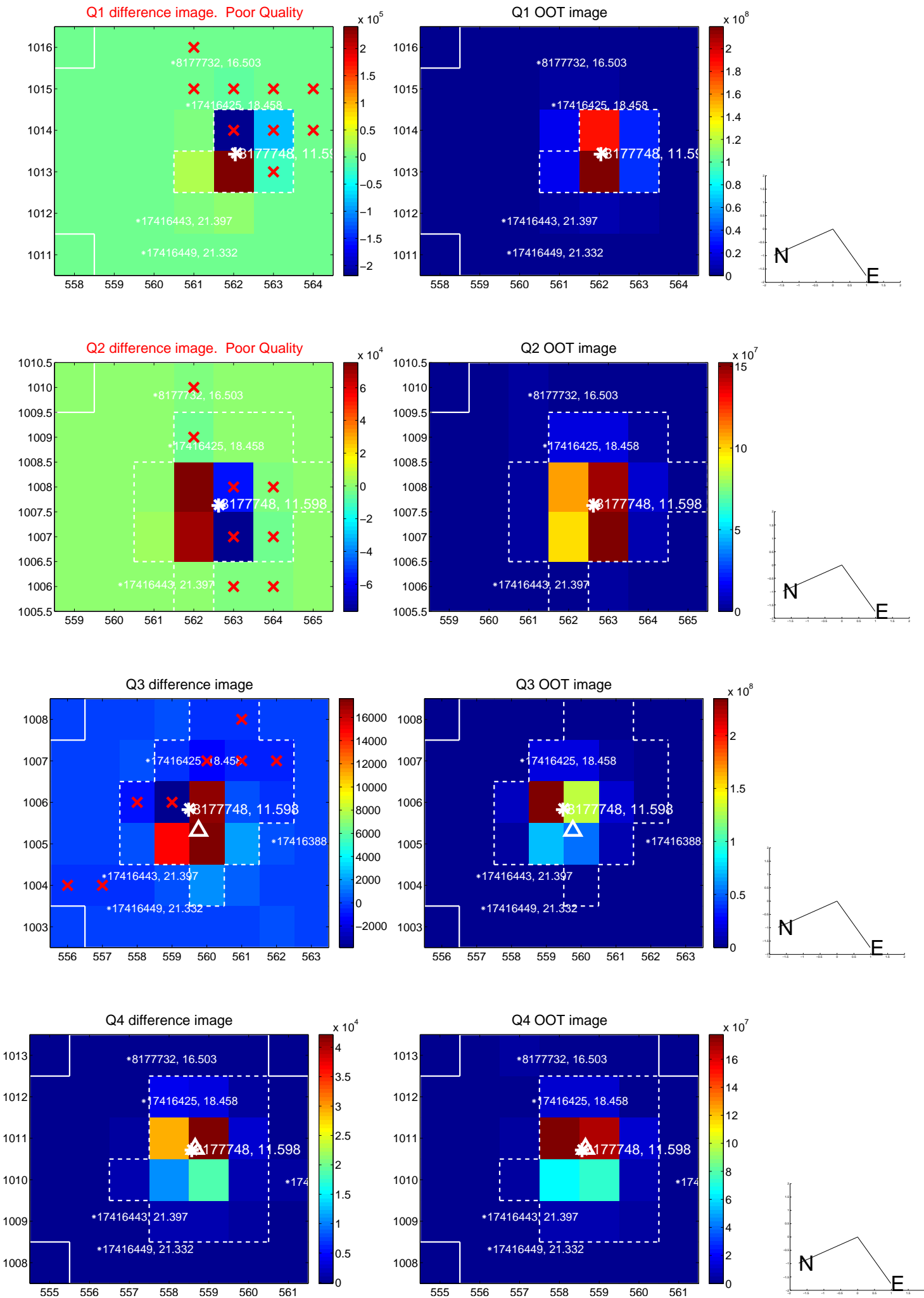
The direct PRF centroid is offset from the target star catalog position by about 0.21 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.184 ± 0.241	0.76	-0.129 ± 0.391	-0.130 ± 0.172
PRF-fit source offset from KIC position	0.120 ± 0.381	0.32	-0.119 ± 0.399	-0.020 ± 0.177
photometric centroid source offset	0.16 ± 0.13	1.23	0.06 ± 0.13	0.15 ± 0.13

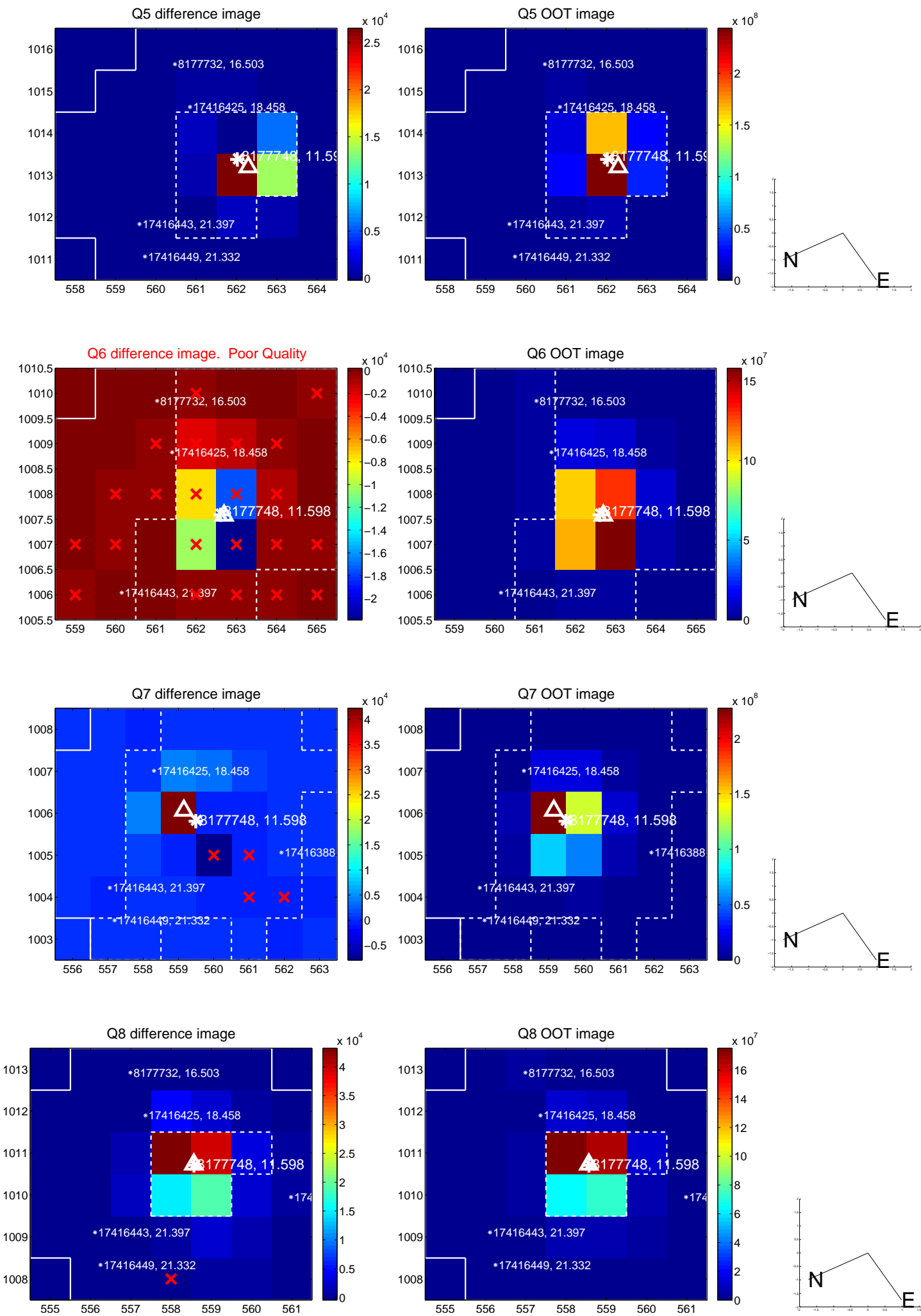


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets;** magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

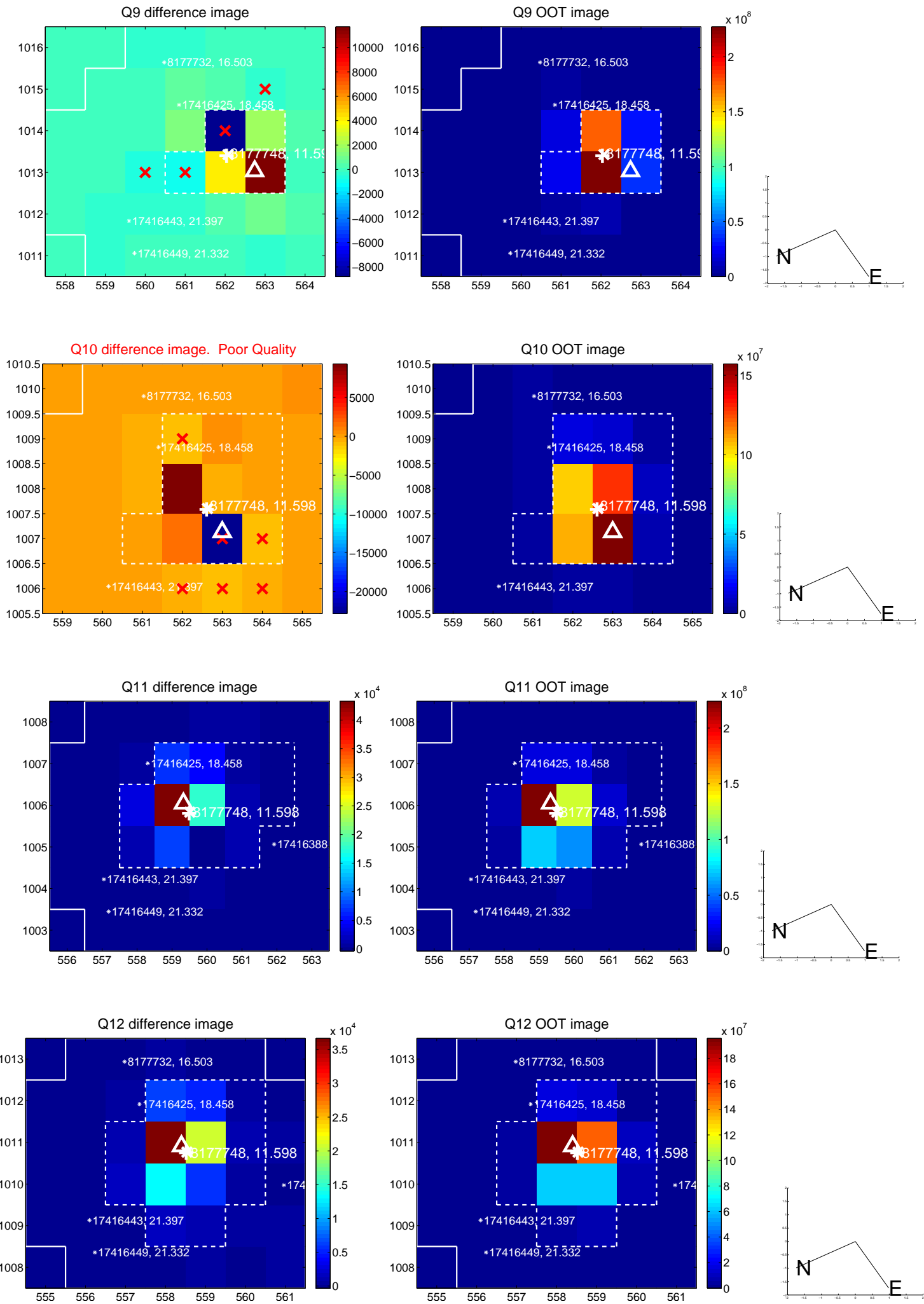
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



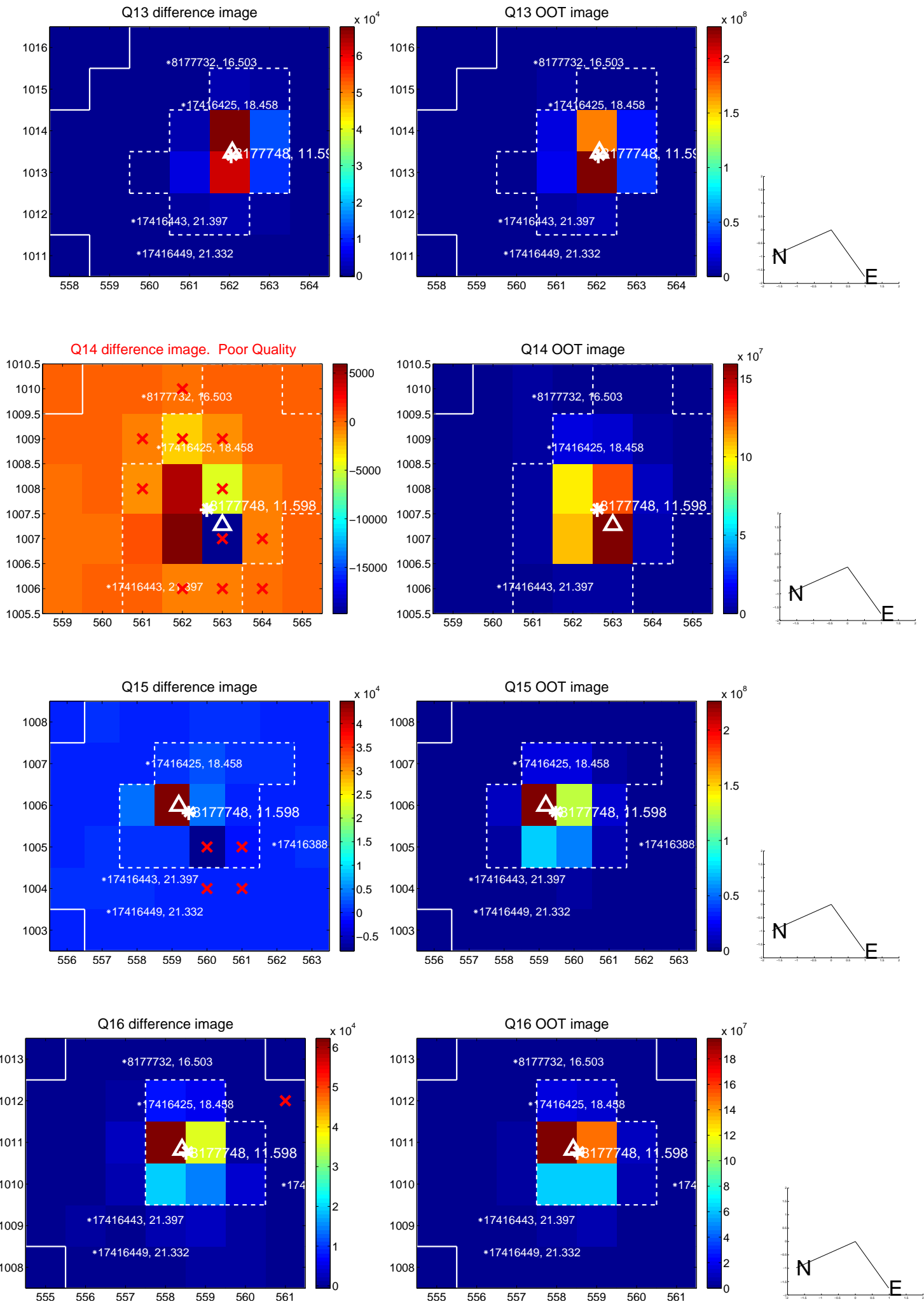
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



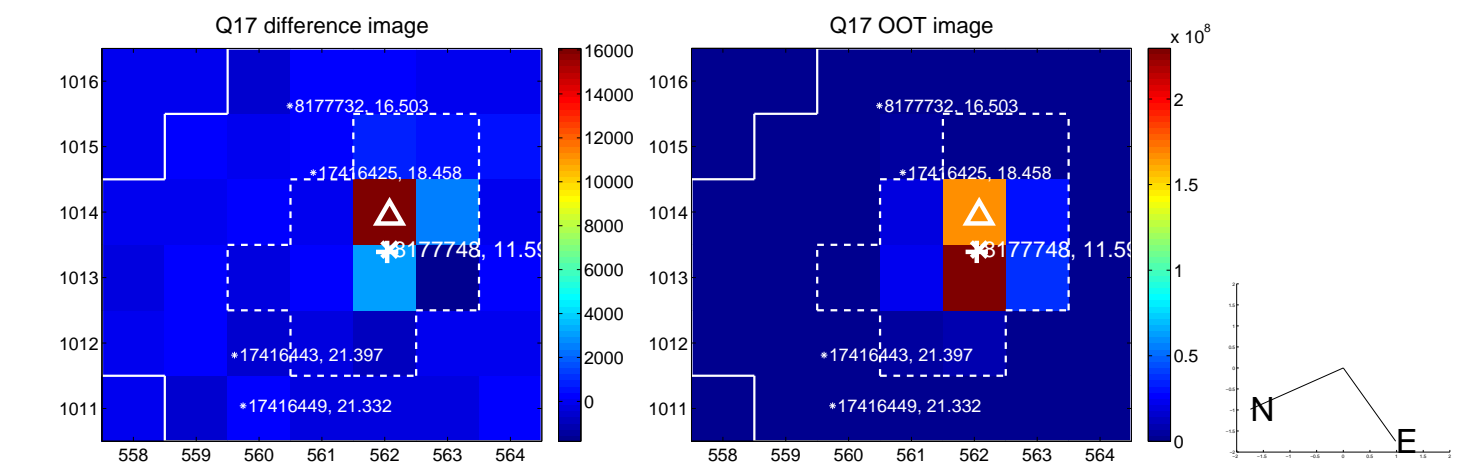
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



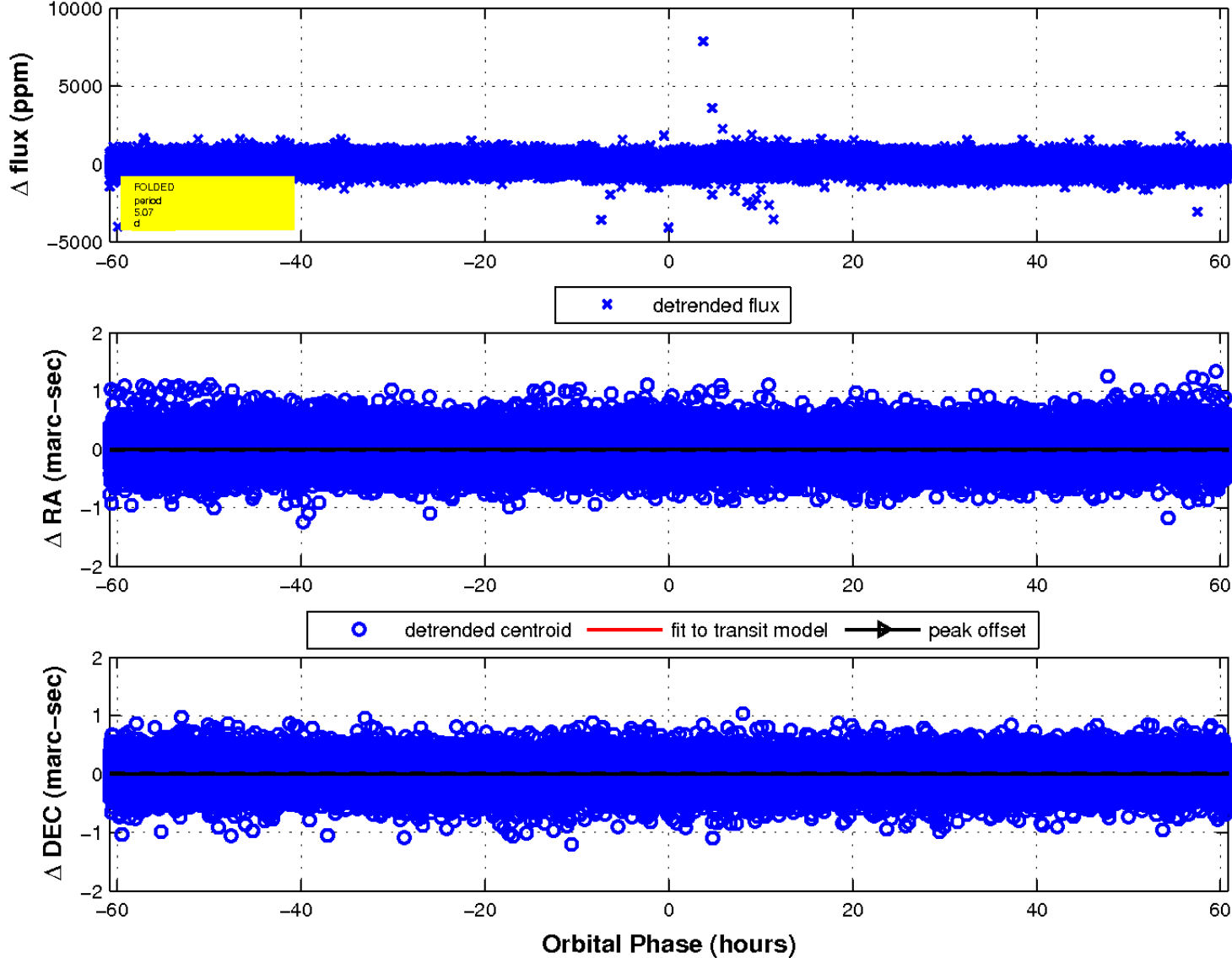
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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



fluxWeightedCentroids, Planet 2 of 2



UKIRT Image

Declination

