

KIC 008481006

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})
008481006-01	OBS	No	2.533687	132.498551	7.9	7.558	13.4	11.0	3.56	9523	1.15	35847.27
008481006-02	OBS	No	2.533617	133.031337	11.5	1.769	9.0	11.1	3.56	9523	1.24	35848.60
008481006-03	OBS	No	2.533430	134.072836	0.0	4.274	9.4	0.0	3.56	9523	0.08	35852.13
008481006-04	OBS	No	2.533712	133.406190	8.4	0.671	9.2	5.2	3.56	9523	1.09	35846.80

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
008481006-01	OBS	FP	0.00	1	0	0	0	SWEET_NTL—LPP_DV—MOD_NONUNIQ_DV—CENT_SATURATED
008481006-02	OBS	FP	0.00	1	0	0	0	SWEET_NTL—LPP_DV—SAME_NTL_PERIOD—CENT_SATURATED
008481006-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_SKYE_ZUMA_TRACKER—SWEET_NTL—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—SAME_NTL_PERIOD—CENT_SATURATED
008481006-04	OBS	FP	0.00	1	0	0	0	SWEET_NTL—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—SAME_NTL_PERIOD—CENT_SATURATED

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

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

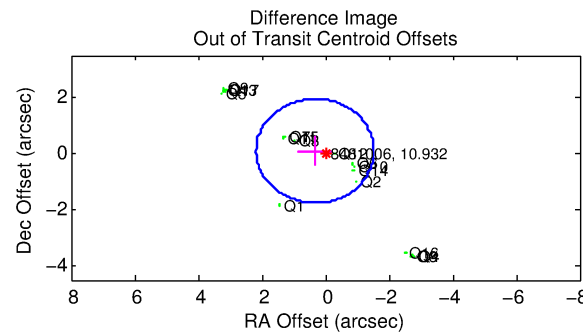
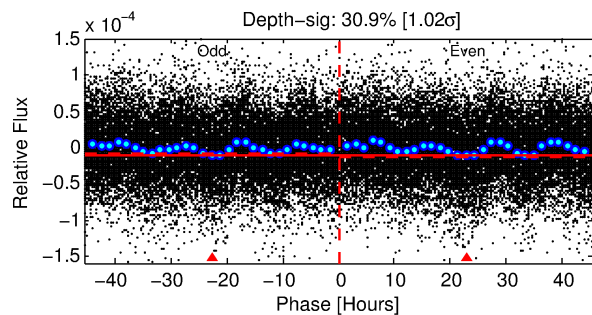
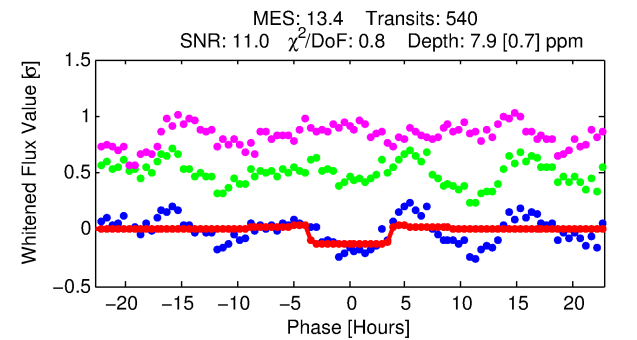
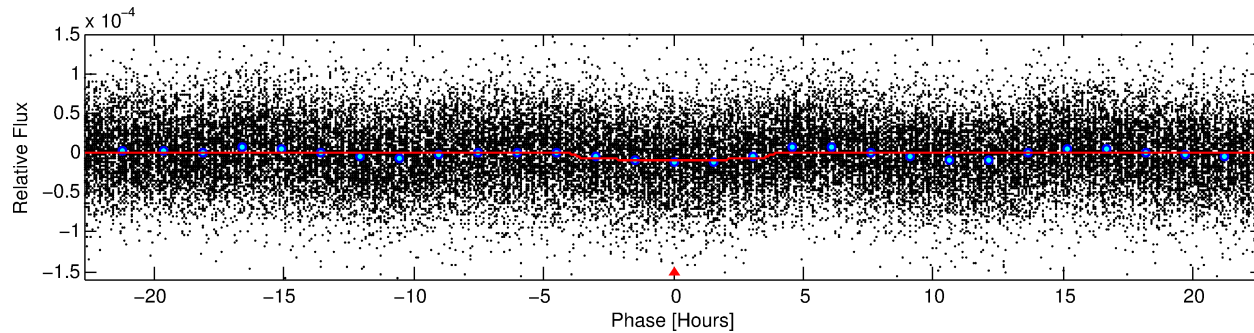
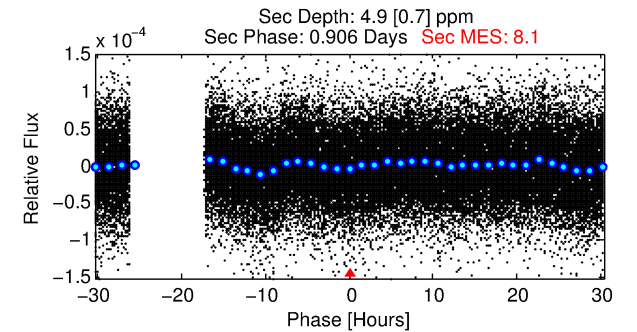
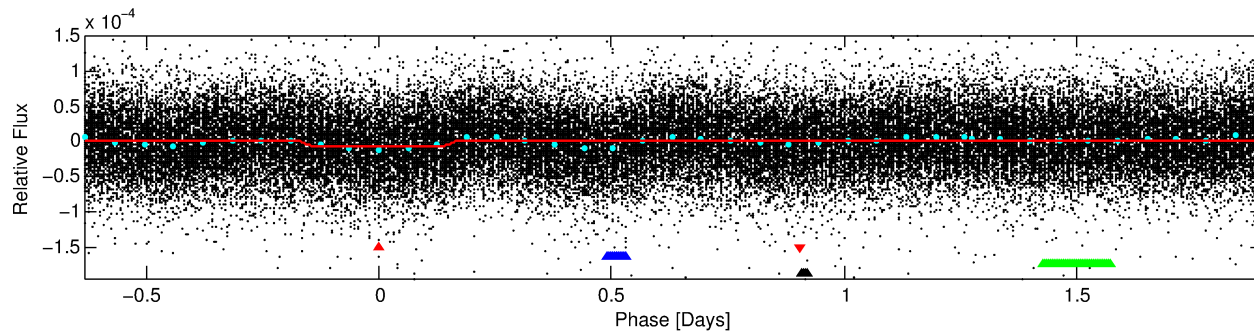
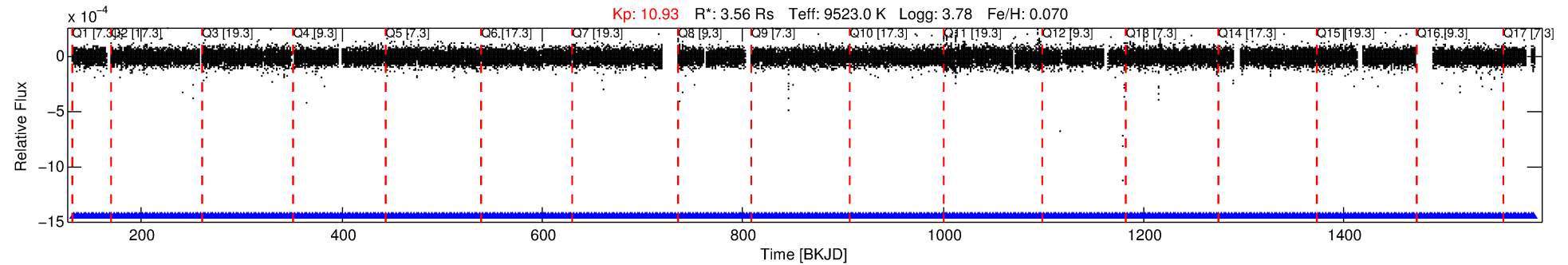
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 008481006-01

No Significant Match Found

DV One-Page Summary

KIC: 8481006 Candidate: 1 of 4 Period: 2.534 d



DV Fit Results:

Period = 2.53369 [0.00002] d
Epoch = 132.4986 [0.0048] BKJD
Rp/R* = 0.0030 [0.0003]
a/R* = 1.47 [0.48]
b = 0.90 [0.13]
Seff = 35847.27 [25443.39]
Teq = 3509 [623] K
Rp = 1.15 [0.57] Re
a = 0.0510 [0.0226] AU
Ag = 5.25 [3.80] [1.12σ]
Teffp = 8212 [630] K [5.31σ]

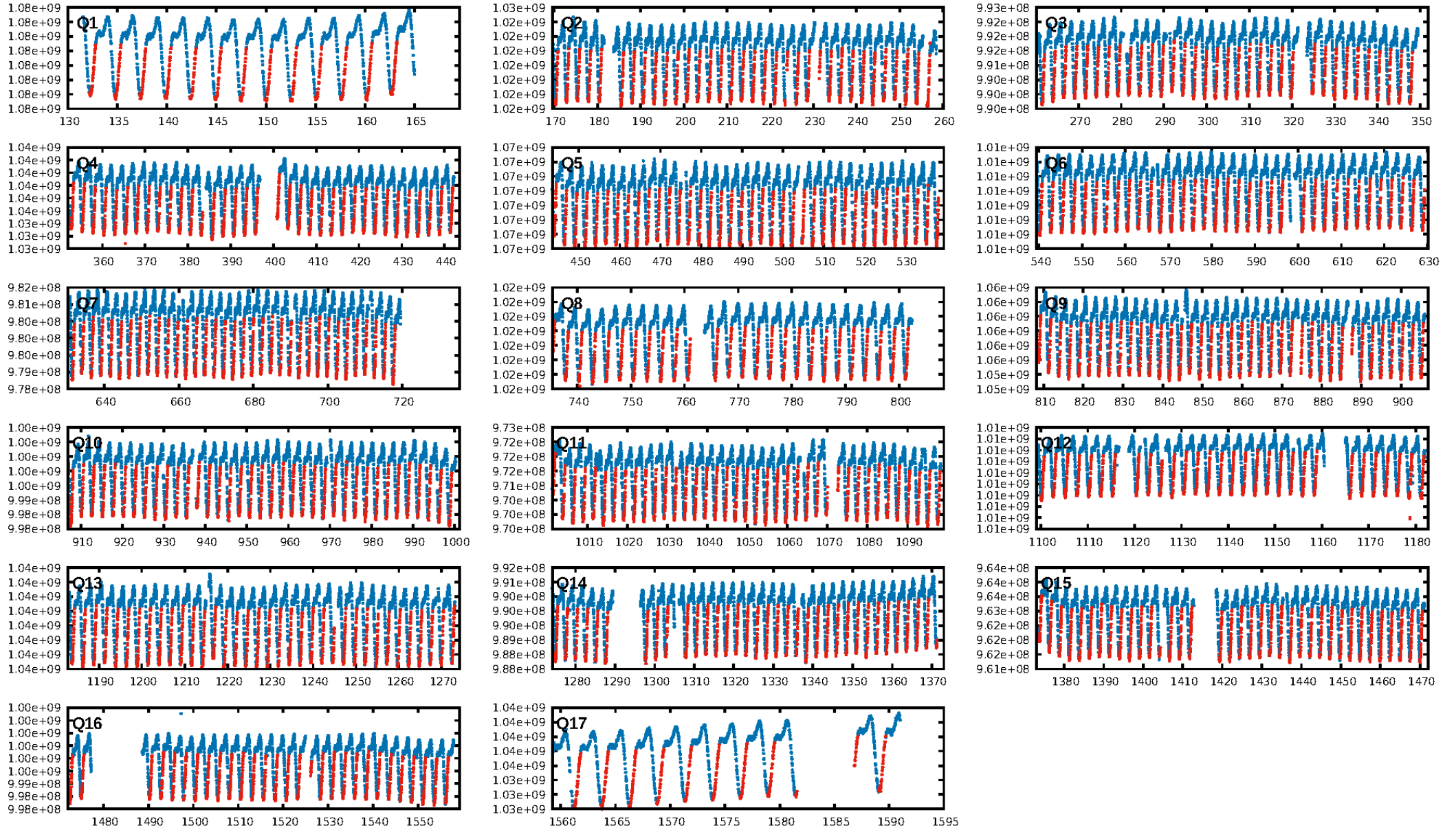
DV Diagnostic Results:

ShortPeriod-sig: 0.0% [0.00σ]
LongPeriod-sig: 0.0% [0.00σ]
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: 3.66e-33
RollingBand-fgt: 1.00 [517/517]
GhostDiagnostic-chr: 3.868
Centroid-sig: N/A
Centroid-so: 3.581 arcsec [2.61σ]
OotOffset-rm: 0.342 arcsec [0.55σ]
KicOffset-rm: 0.385 arcsec [0.75σ]
OotOffset-st: 4/4/4/5 [17]
KicOffset-st: 4/4/4/5 [17]
DiffImageQuality-fgm: 0.88 [15/17]
DiffImageOverlap-fno: 0.00 [0/17]

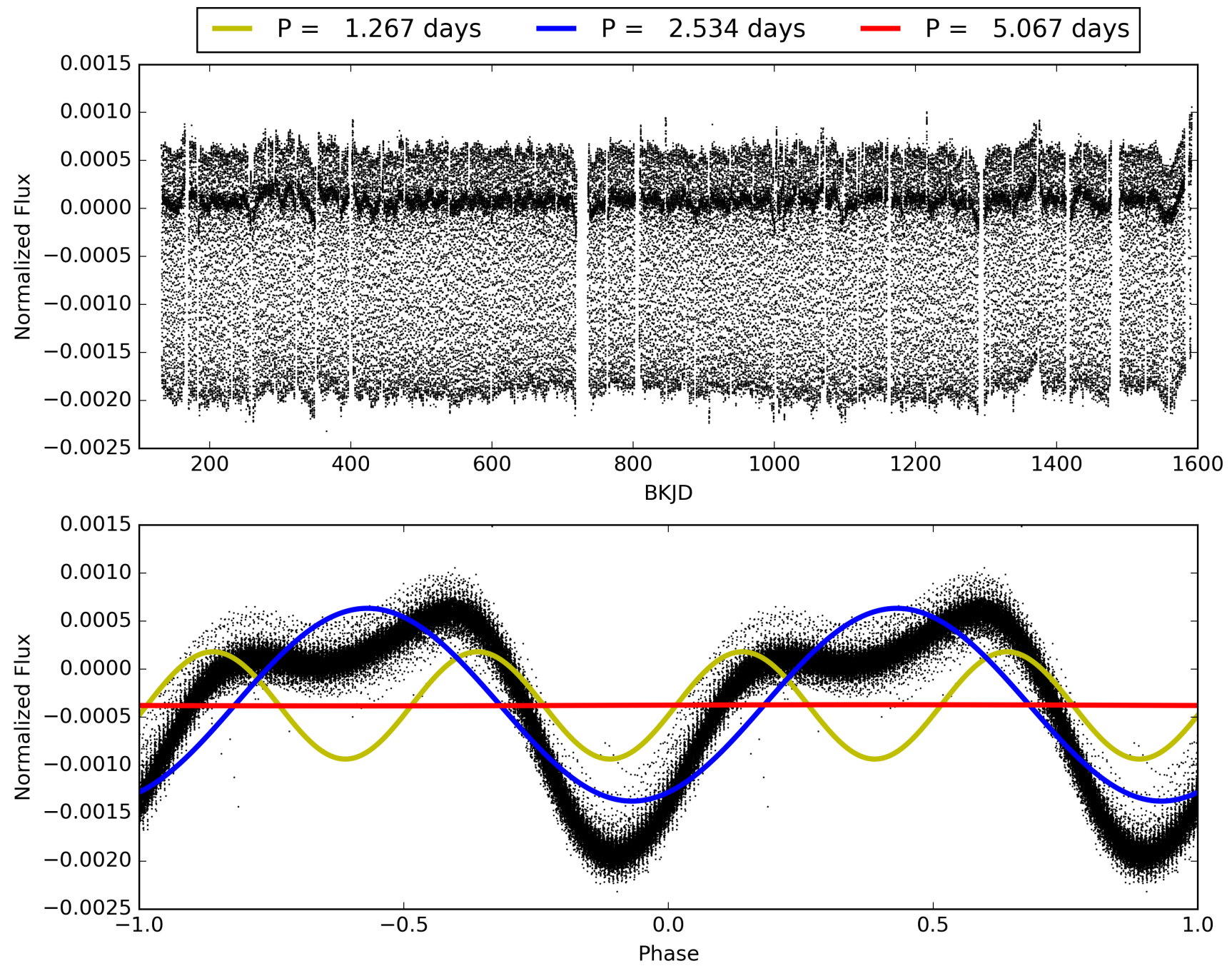
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 01-Feb-2016 20:40:33 Z

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

TCE 008481006-01, PDC Light Curves

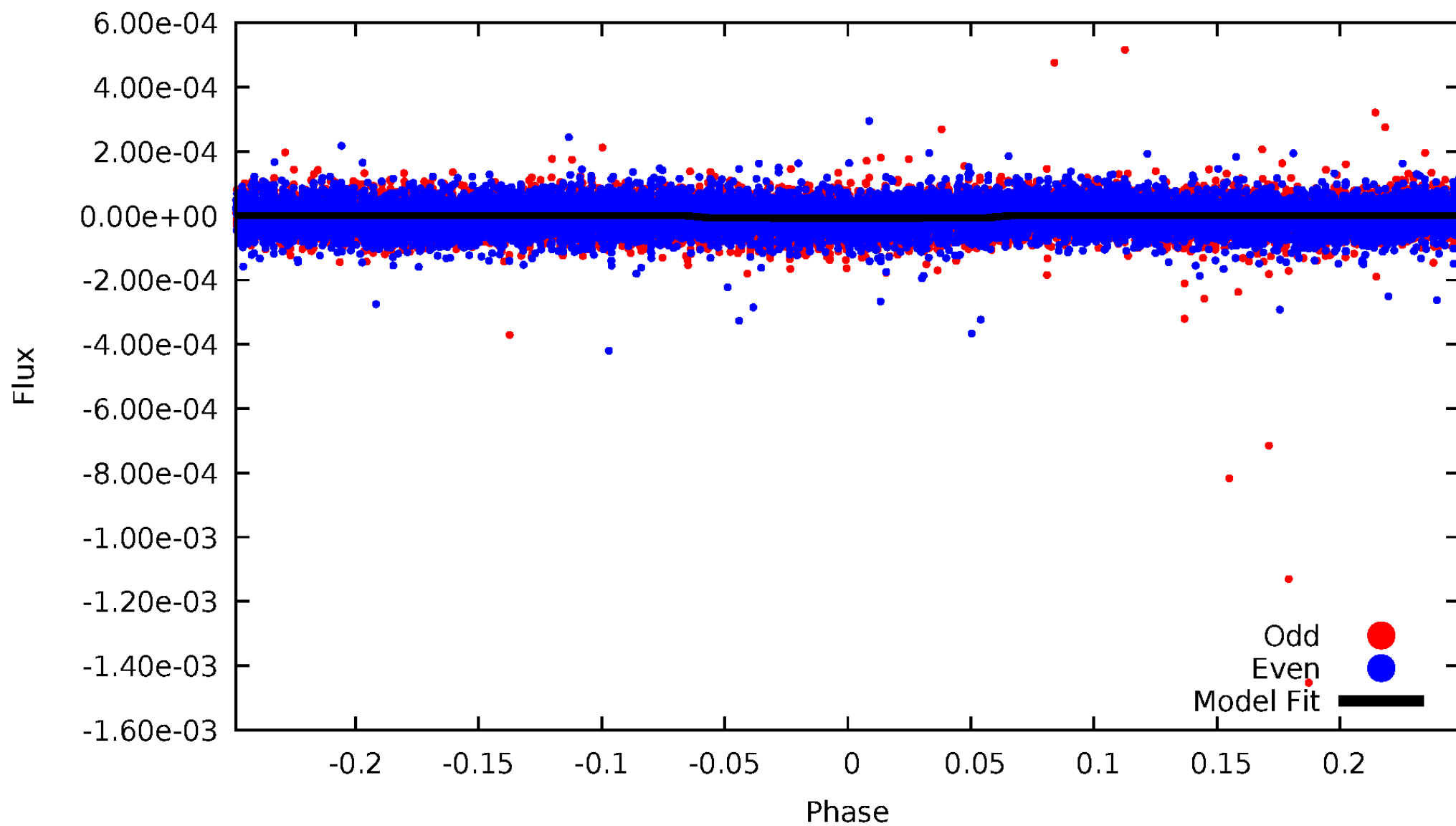


TCE 008481006-01



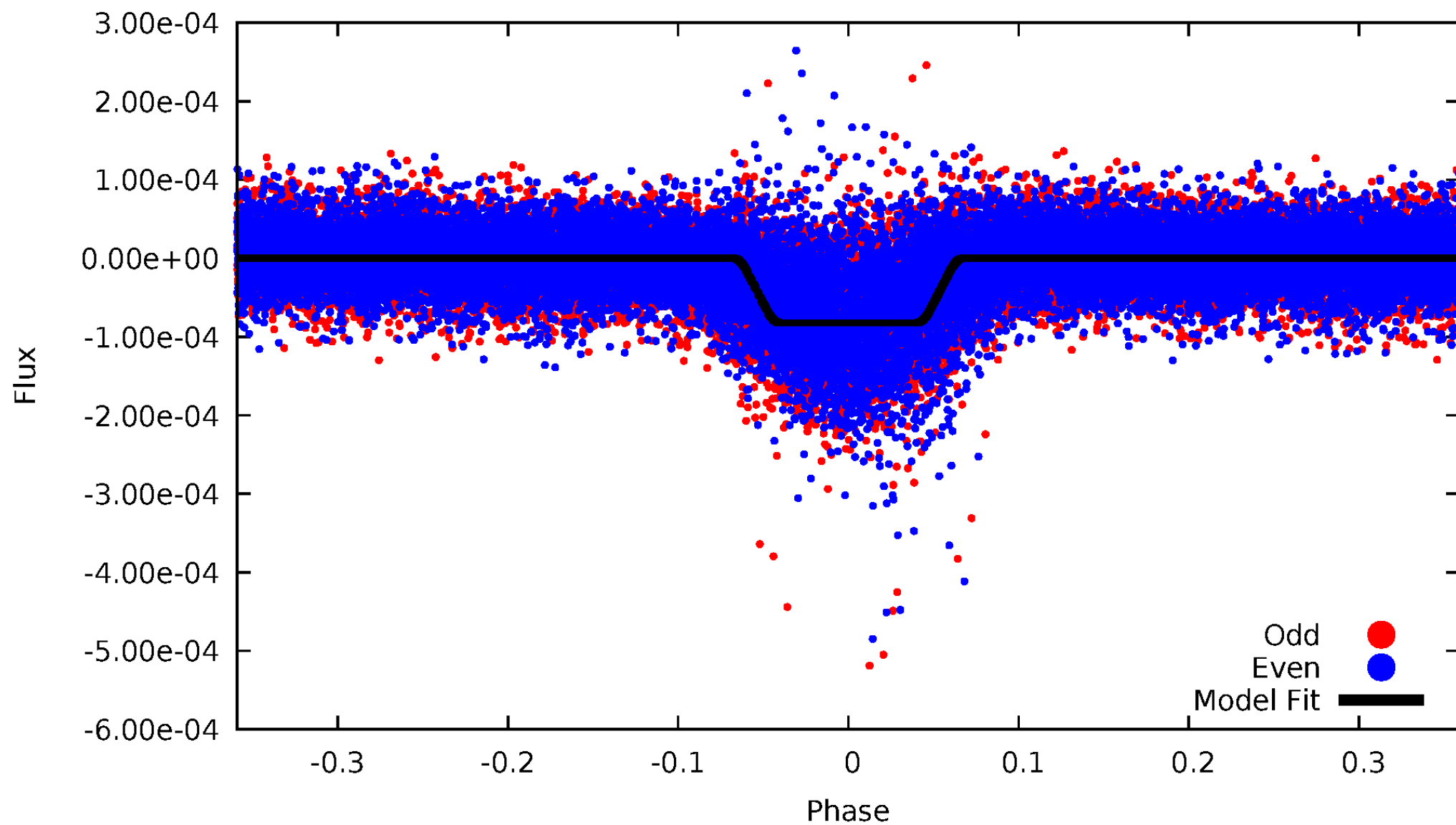
DV Odd/Even

TCE 008481006-01



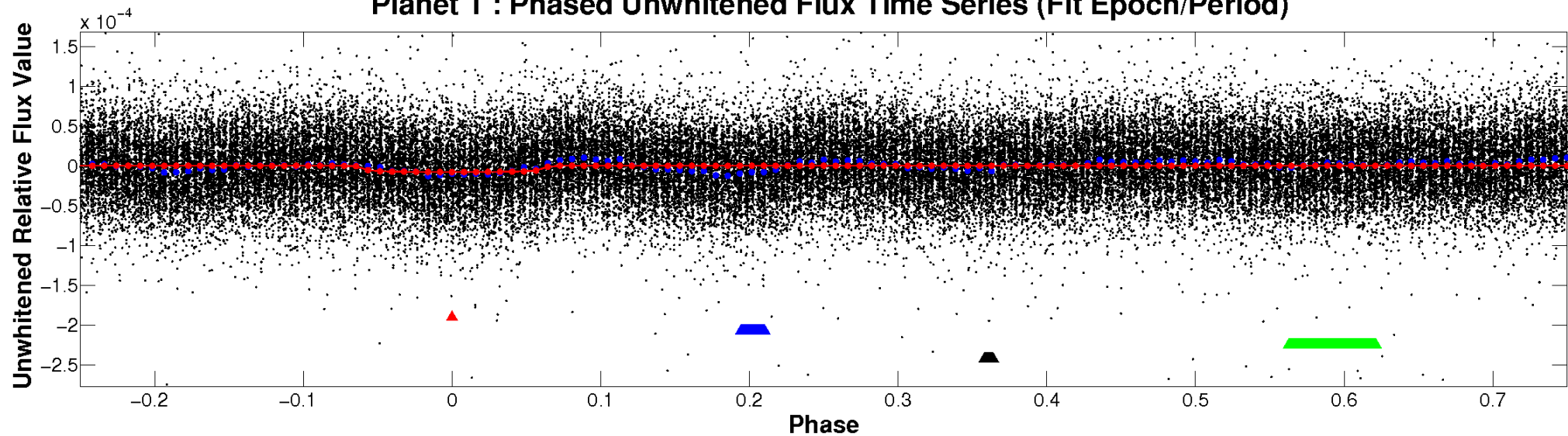
ALT Odd/Even

TCE 008481006-01

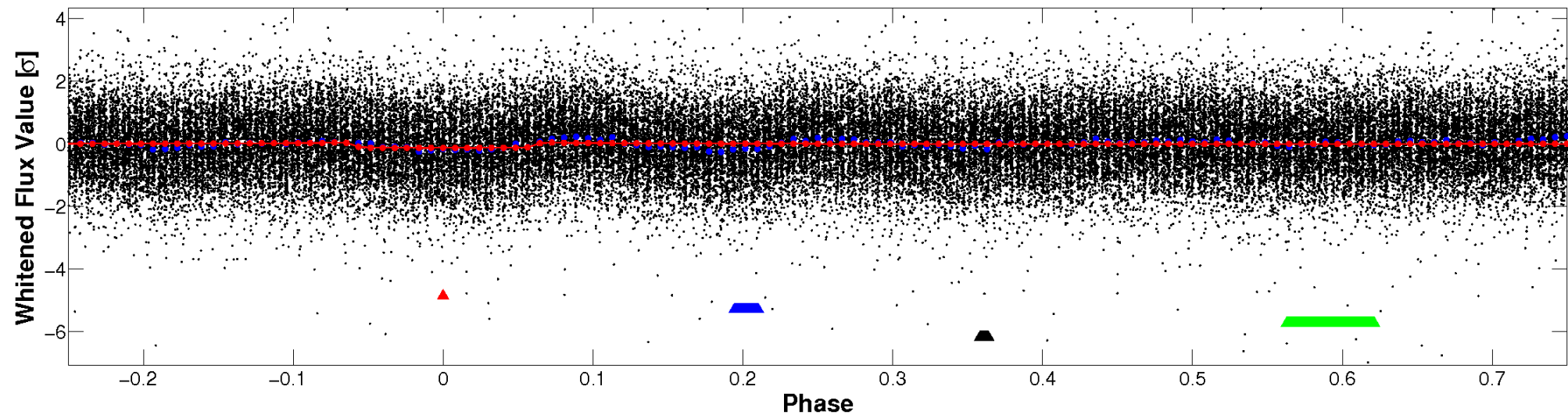


Non-Whitened Vs. Whitened Light Curve

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

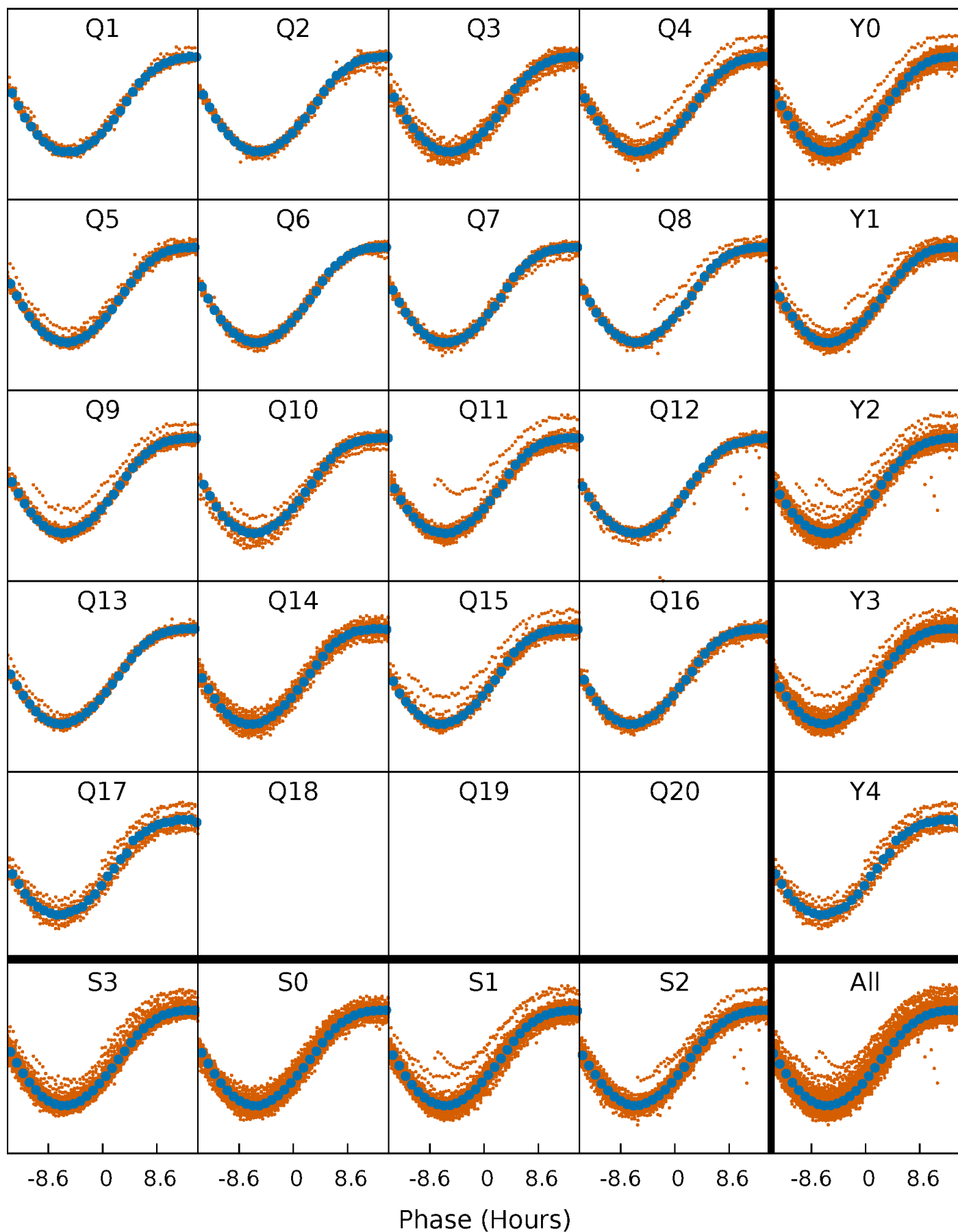


Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)



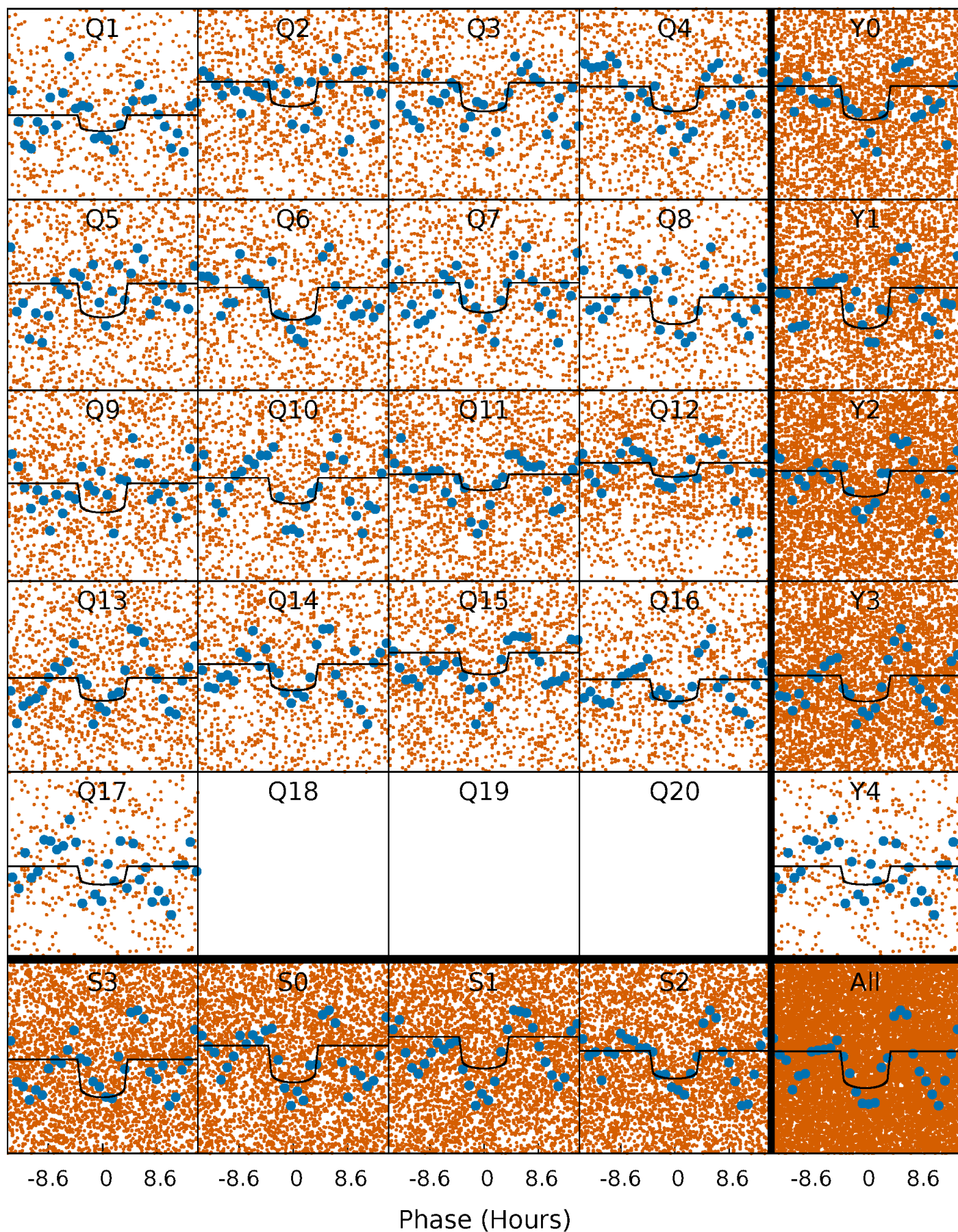
PDC Quarter-Phased Transit Curves

TCE 008481006-01 P= 2.533687 Days $T_0=132.498551$ (BKJD)



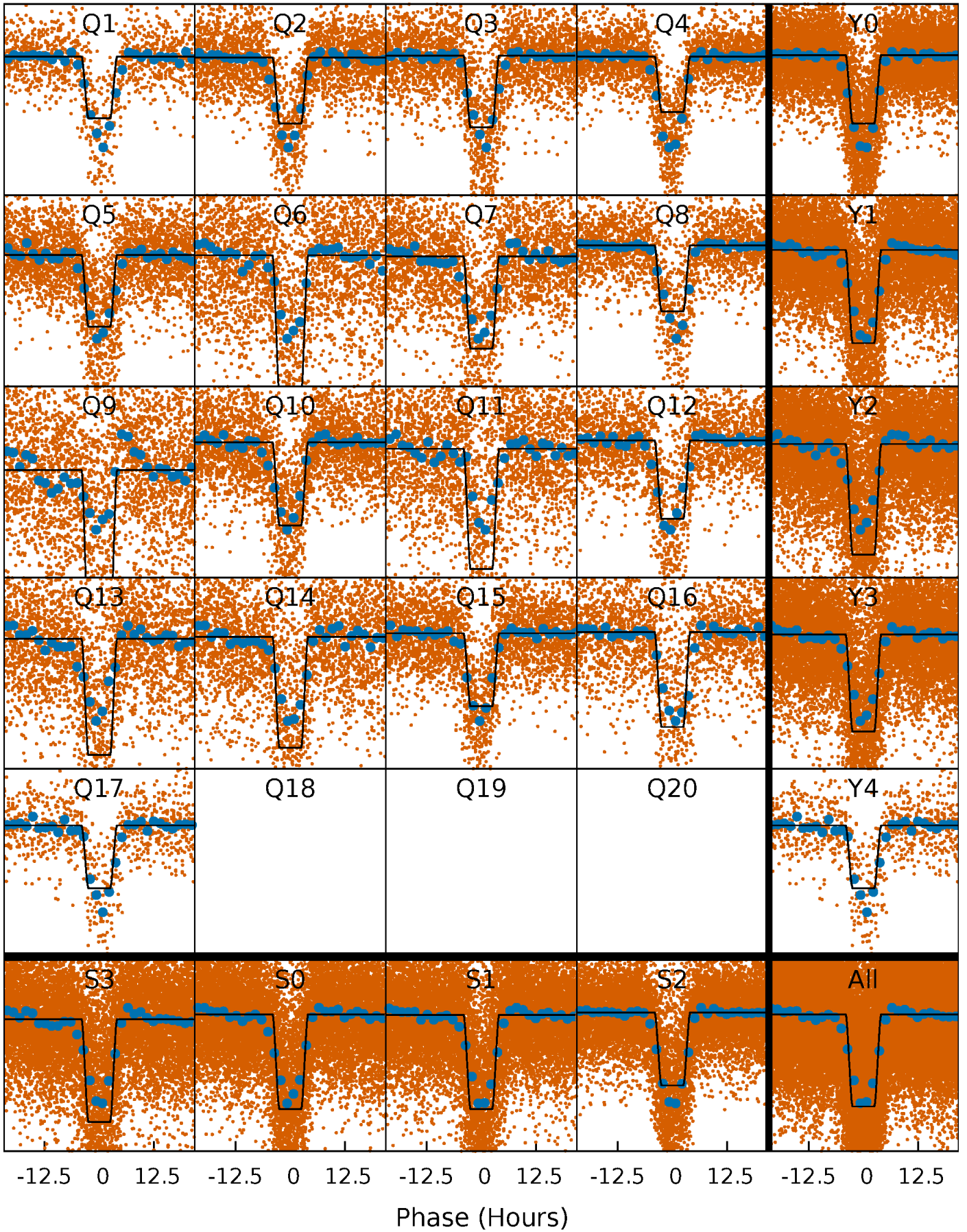
DV Quarter-Phased Transit Curves

TCE 008481006-01 P= 2.533687 Days $T_0=132.498551$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

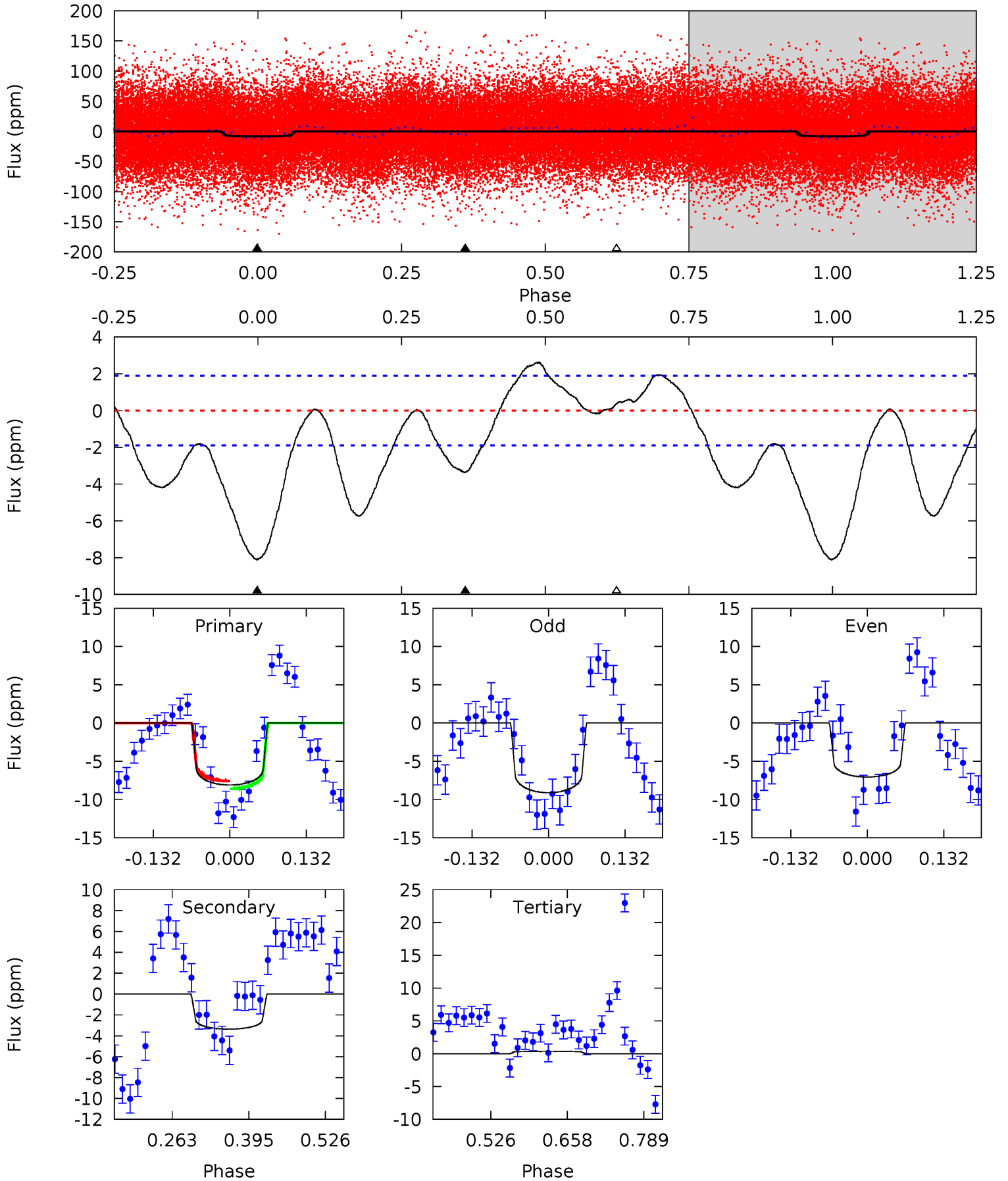
TCE 008481006-01 P= 2.533588 Days $T_0=132.517082$ (BKJD)



DV Model-Shift Uniqueness Test

008481006-01, P = 2.533687 Days, E = 129.964864 Days

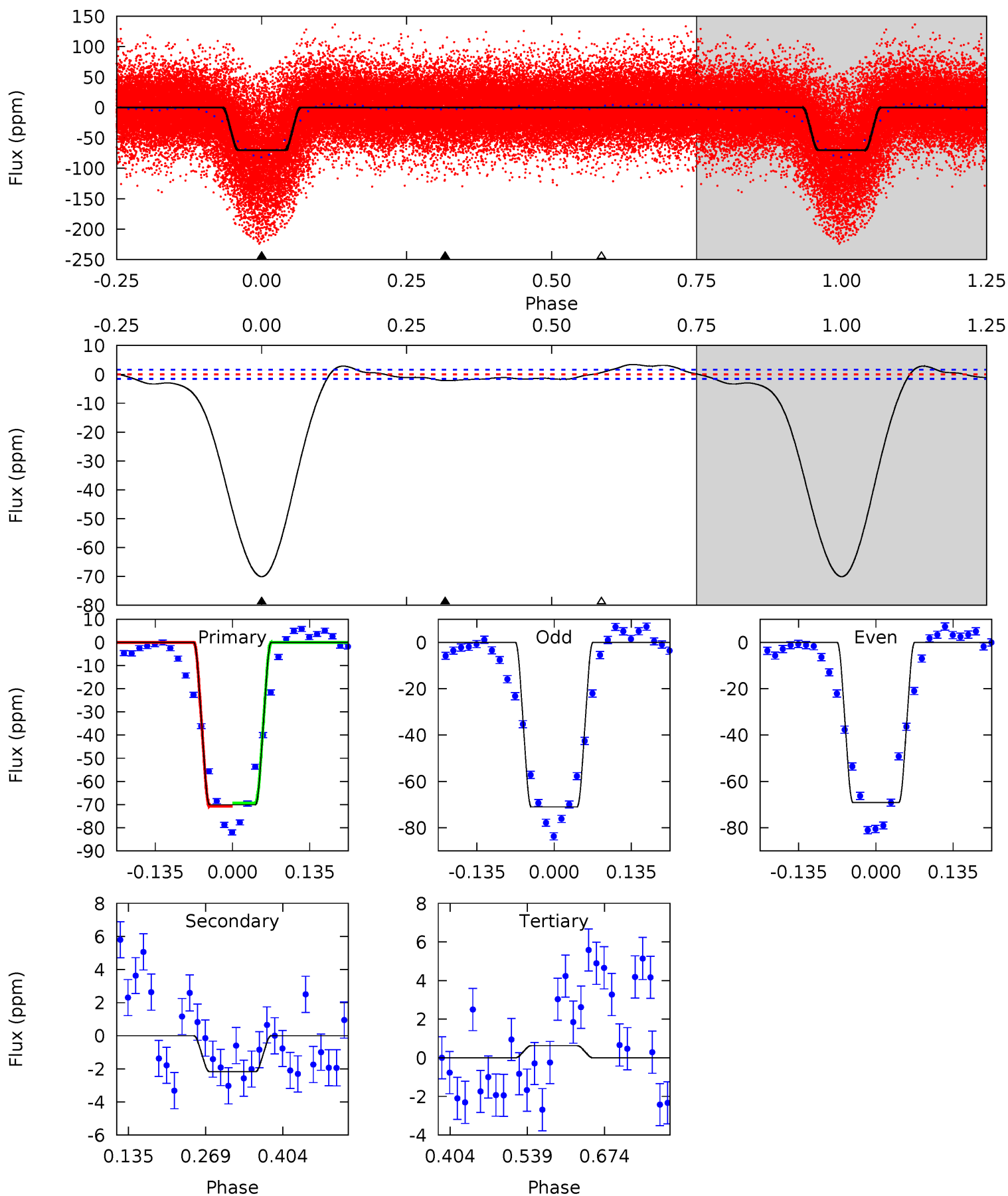
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
19.3	8.00	-0.87	0	4.51	1.51	5.84	20.2	19.3	8.87	8.00	2.45	0.94	0.24	1.20



Alt Model-Shift Uniqueness Test

008481006-01, P = 2.533588 Days, E = 129.983494 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
200.2	6.21	-1.80	0	4.50	1.50	6.36	202.0	200.2	8.00	6.21	2.70	1.03	0.05	2.00



Stellar Parameters For KIC 008481006

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	9523^{+265}_{-454}	$3.776^{+0.392}_{-0.140}$	$0.070^{+0.200}_{-0.750}$	$3.558^{+0.933}_{-1.732}$	$2.755^{+0.264}_{-1.054}$	$0.086^{+0.374}_{-0.037}$
	+3%/-5%	+10%/-4%	+286%/-1071%	+26%/-49%	+10%/-38%	+435%/-43%
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 008481006-01 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-3 ± 0	$1.08^{+0.22}_{-0.27}$	4760^{+419}_{-594}	6864^{+520}_{-508}	$4.107^{+2.512}_{-1.407}$
Alt.	-2 ± 0	$3.45^{+0.52}_{-0.88}$	4791^{+402}_{-588}	-2907^{+6117}_{-619}	$0.262^{+0.155}_{-0.074}$

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

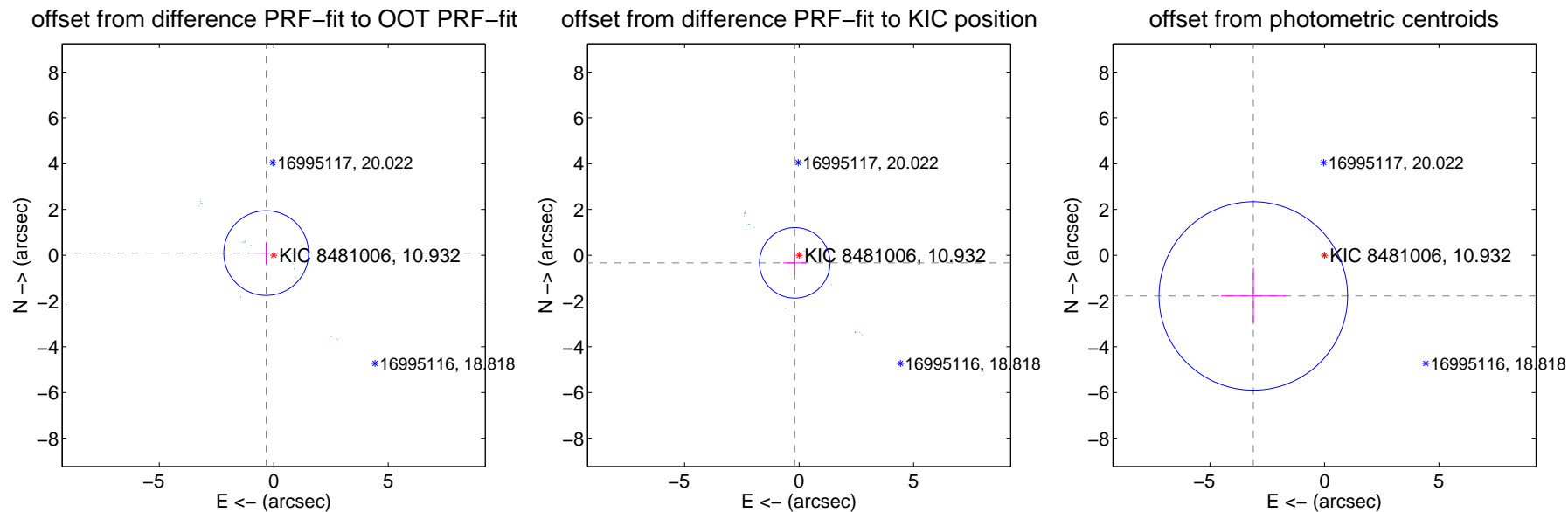
DV Centroid Data

Supplemental centroid analysis for 008481006-01. **Kepler magnitude: 10.93.** Transit SNR 10.97

There are 15 quarters with good PRF difference image offsets

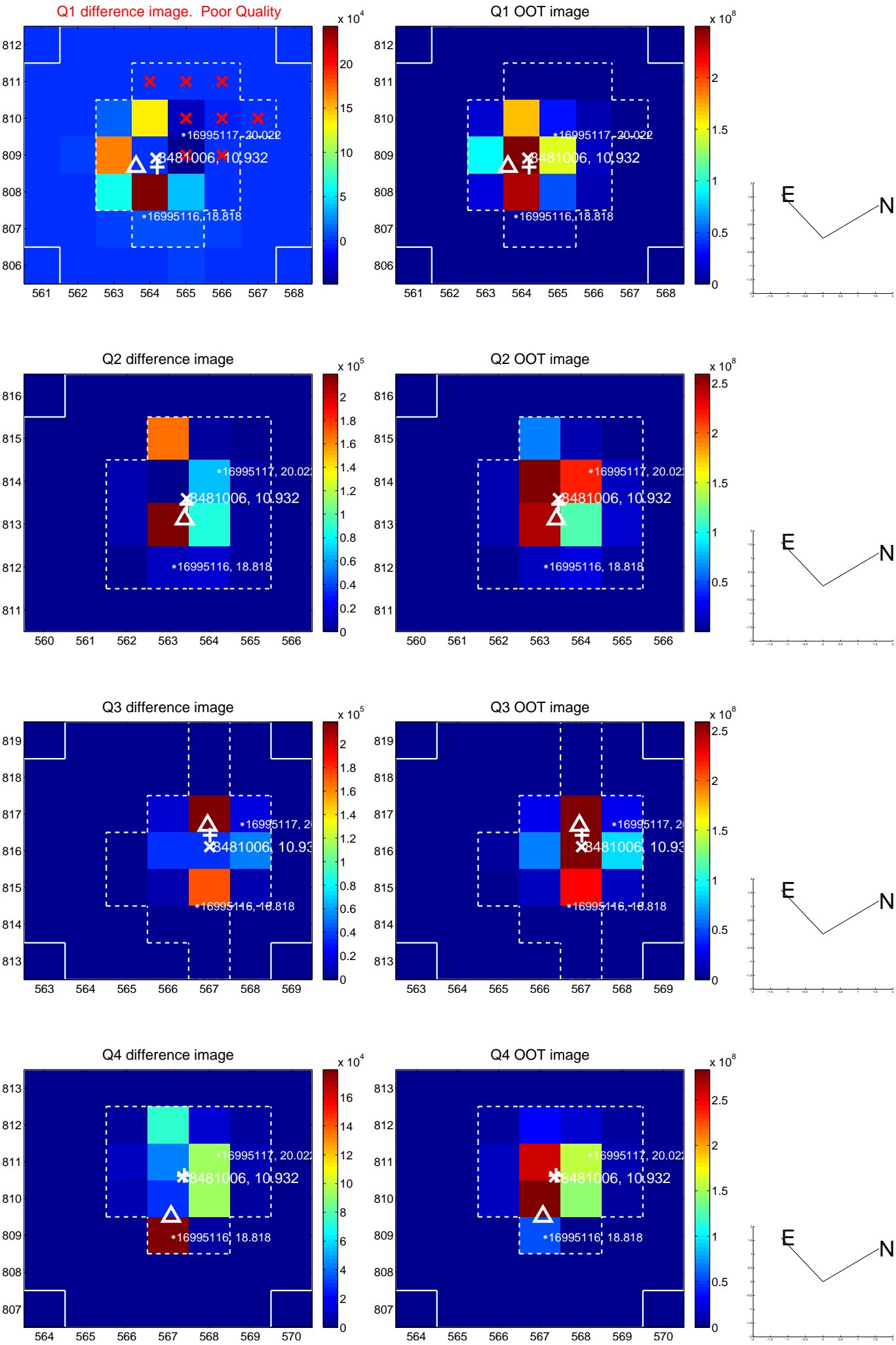
The direct PRF centroid is offset from the target star catalog position by about 0.88 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.342 ± 0.617	0.55	0.329 ± 0.517	0.093 ± 0.479
PRF-fit source offset from KIC position	0.385 ± 0.514	0.75	0.189 ± 0.510	-0.335 ± 0.515
photometric centroid source offset	3.58 ± 1.37	2.61	3.11 ± 1.42	-1.78 ± 1.23

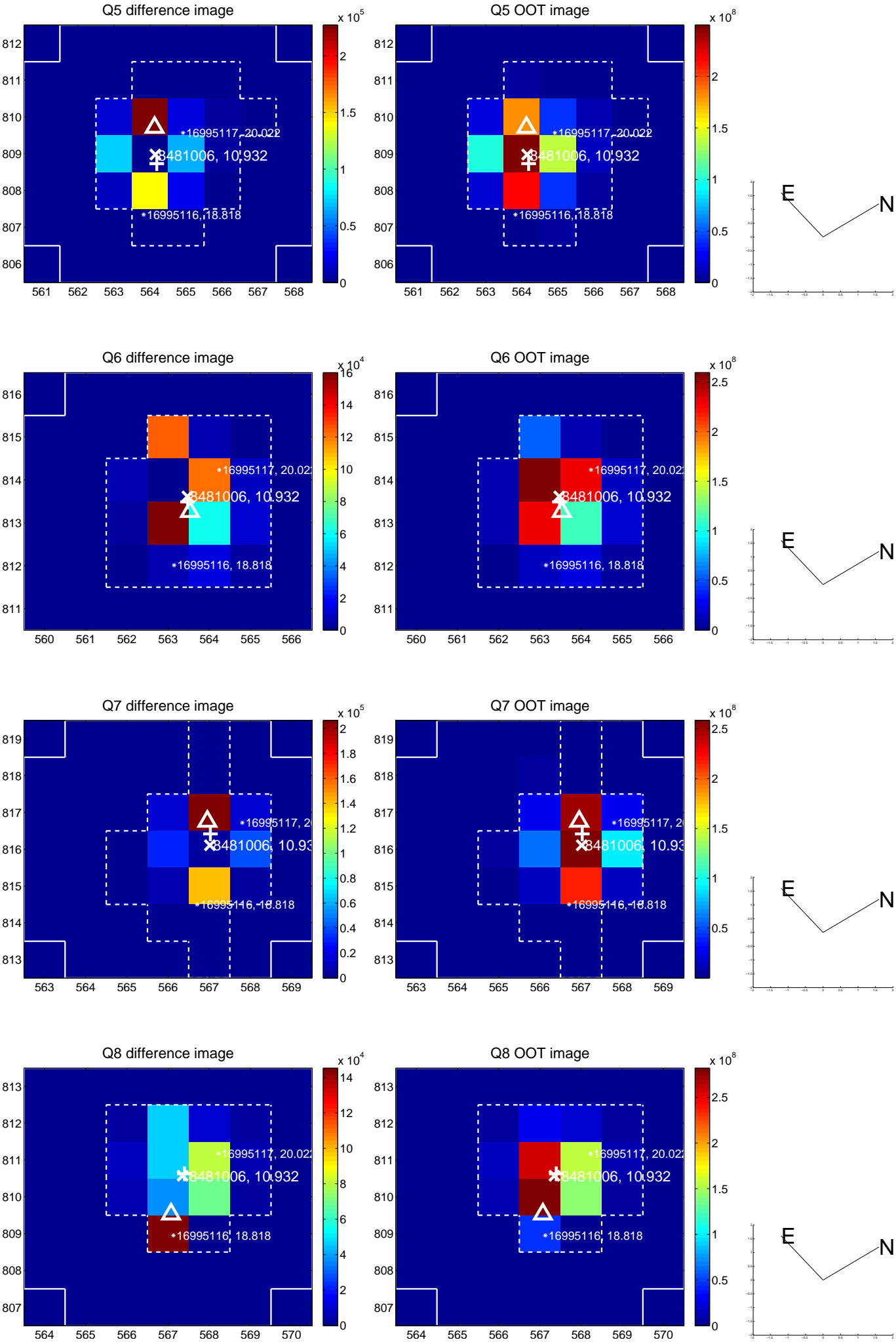


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets;** magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

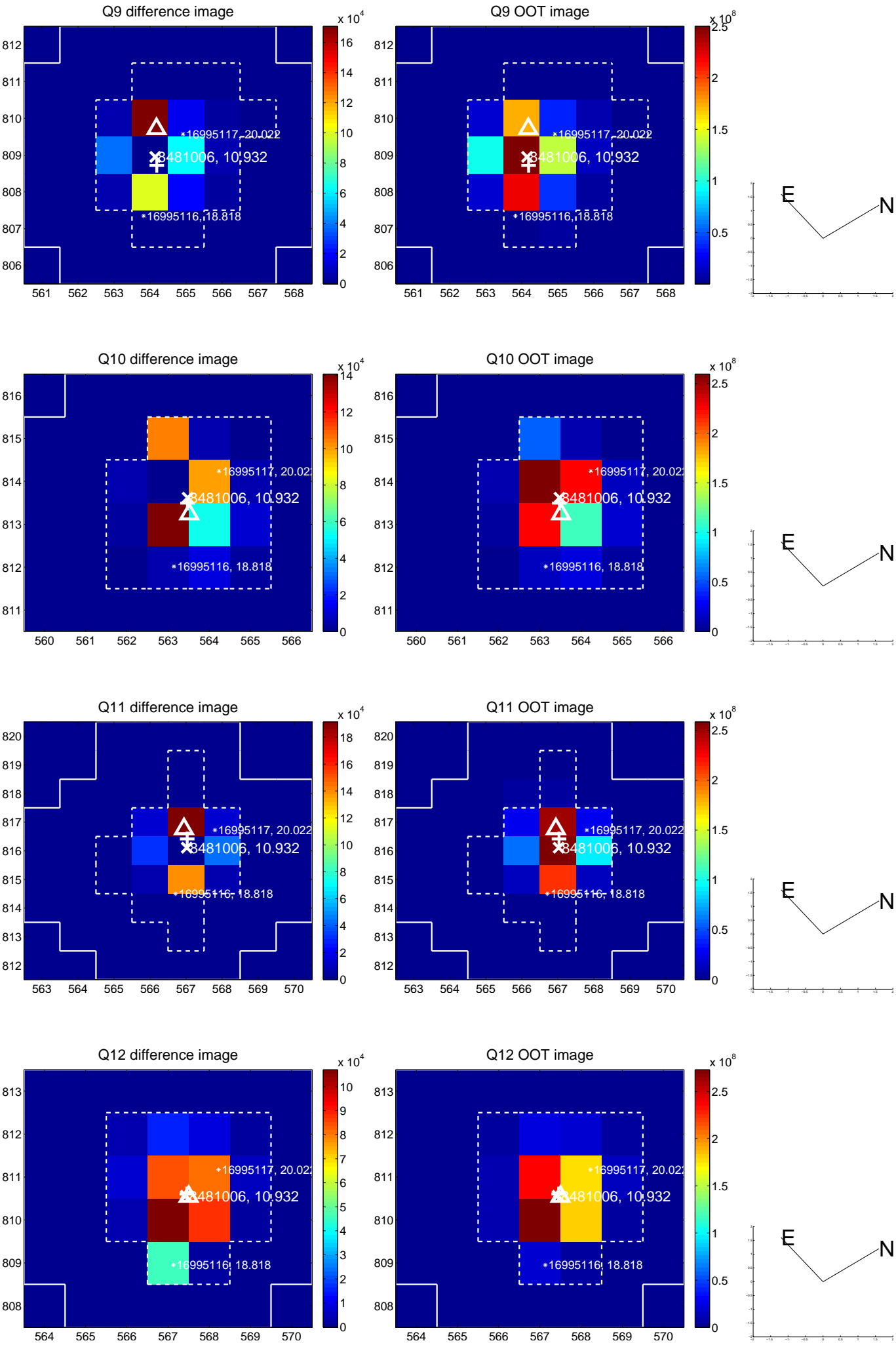
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



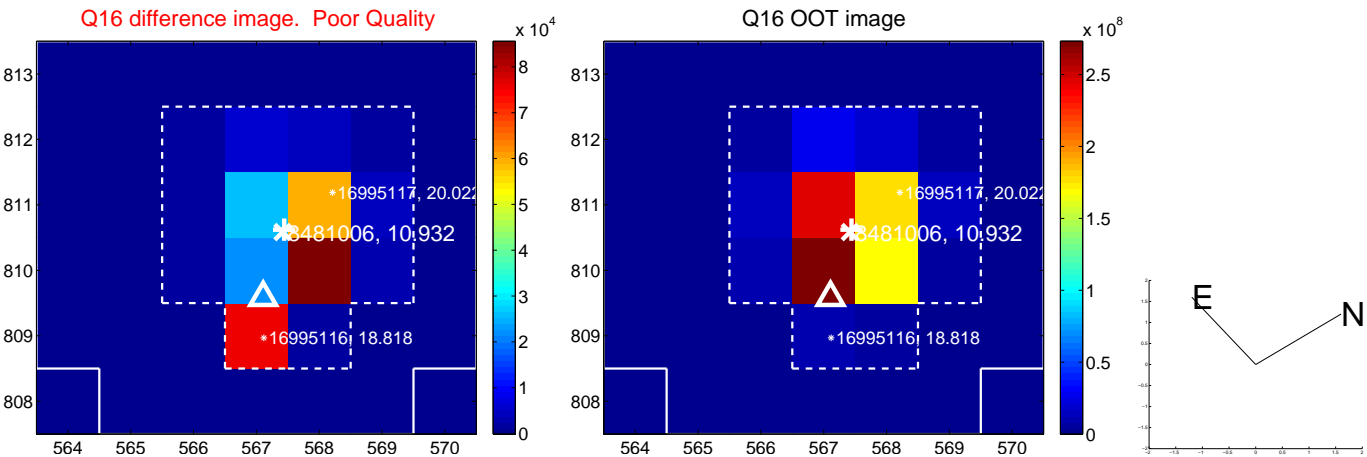
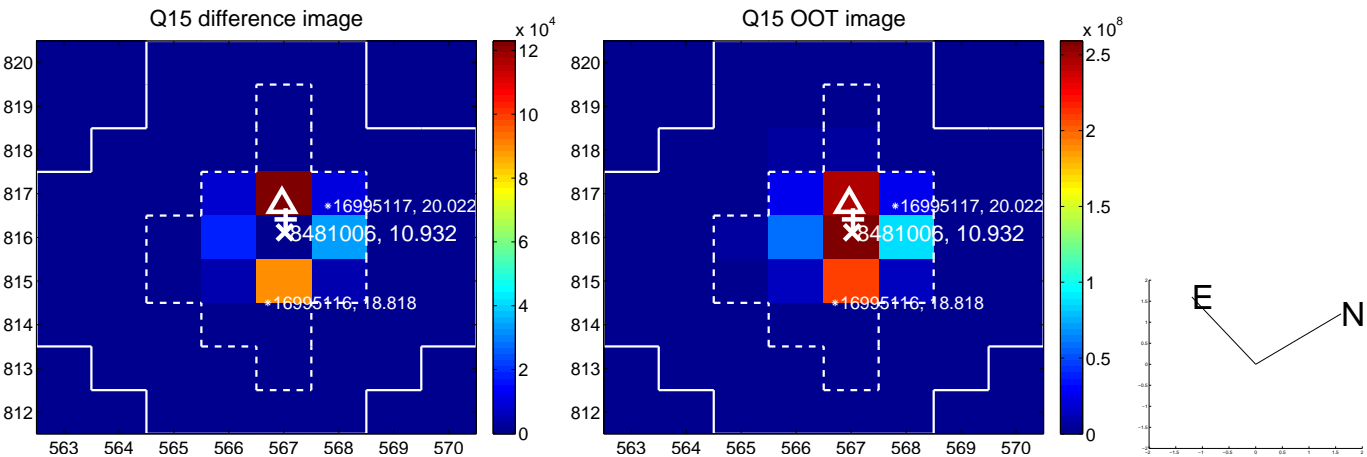
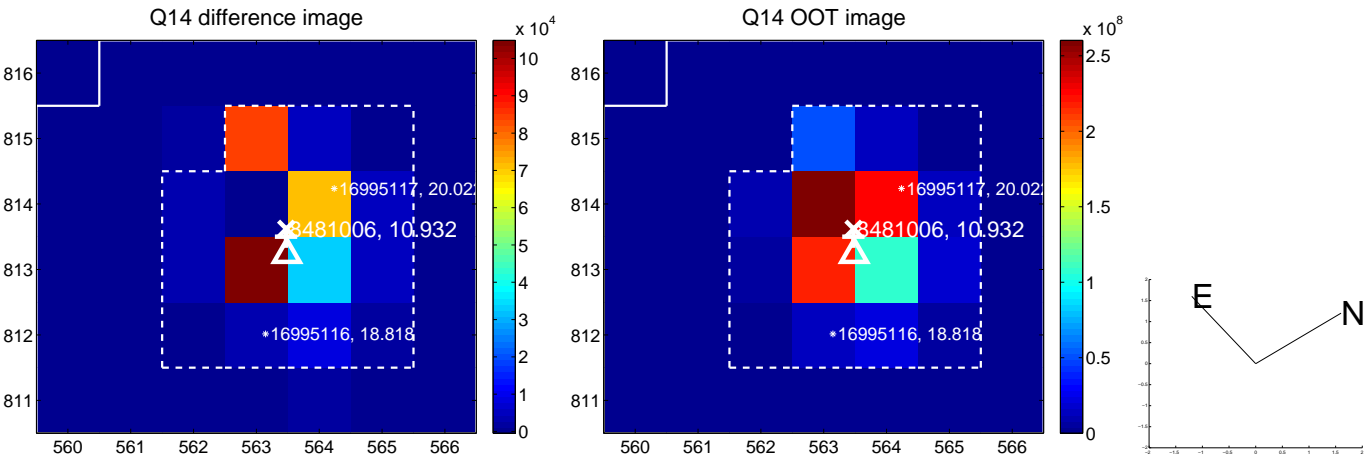
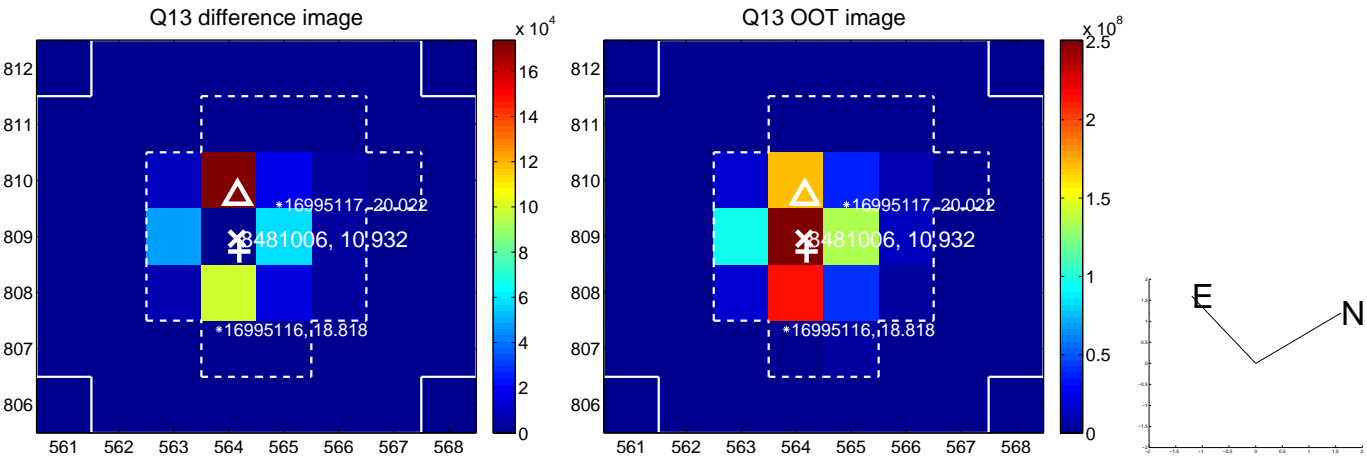
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



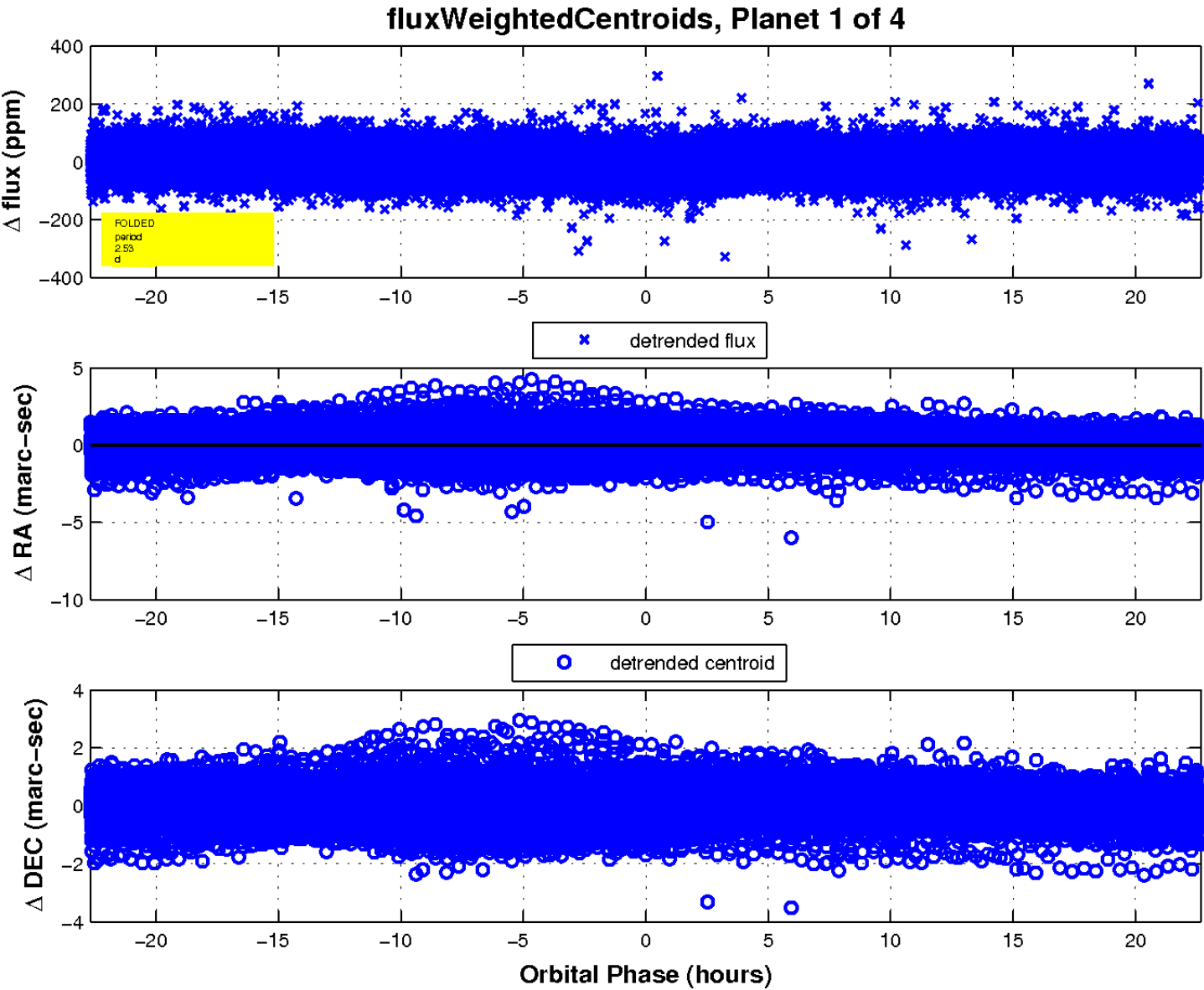
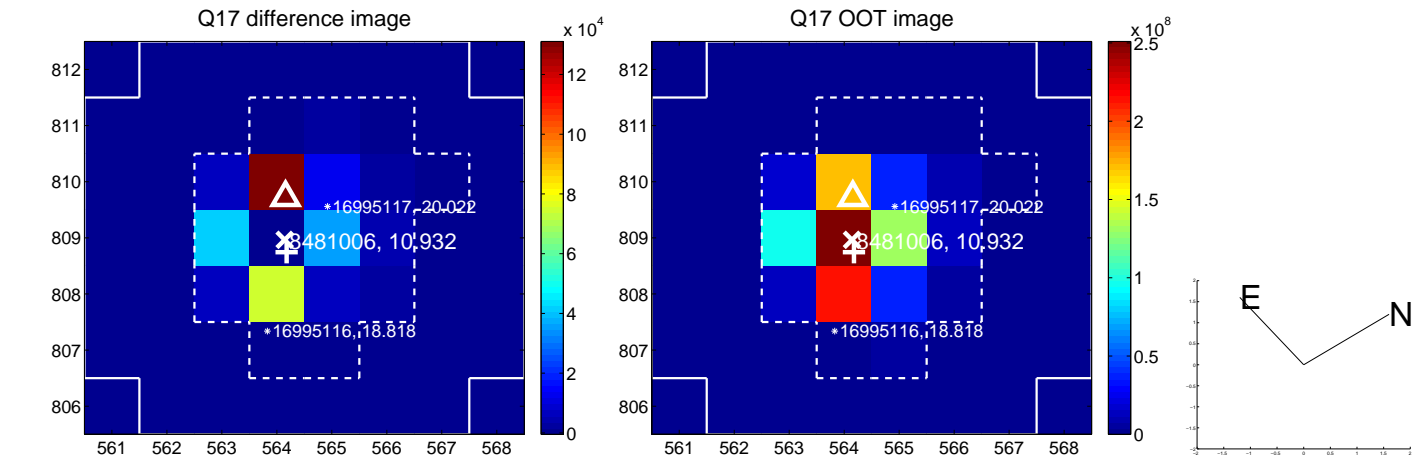
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

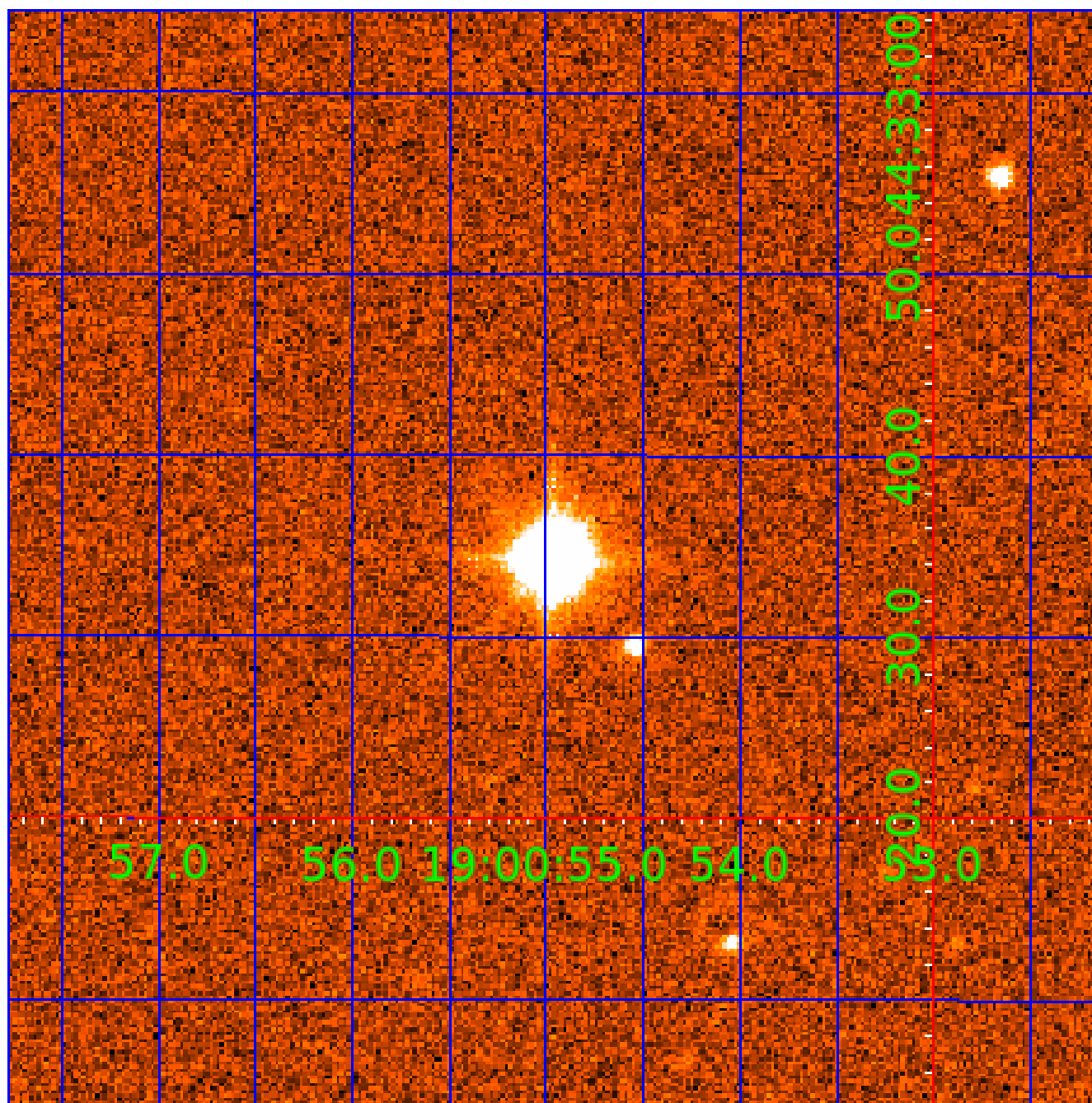


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 008481006

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})
008481006-01	OBS	No	2.533687	132.498551	7.9	7.558	13.4	11.0	3.56	9523	1.15	35847.27
008481006-02	OBS	No	2.533617	133.031337	11.5	1.769	9.0	11.1	3.56	9523	1.24	35848.60
008481006-03	OBS	No	2.533430	134.072836	0.0	4.274	9.4	0.0	3.56	9523	0.08	35852.13
008481006-04	OBS	No	2.533712	133.406190	8.4	0.671	9.2	5.2	3.56	9523	1.09	35846.80

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
008481006-01	OBS	FP	0.00	1	0	0	0	SWEET_NTL—LPP_DV—MOD_NONUNIQ_DV—CENT_SATURATED
008481006-02	OBS	FP	0.00	1	0	0	0	SWEET_NTL—LPP_DV—SAME_NTL_PERIOD—CENT_SATURATED
008481006-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_SKYE_ZUMA_TRACKER—SWEET_NTL—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—SAME_NTL_PERIOD—CENT_SATURATED
008481006-04	OBS	FP	0.00	1	0	0	0	SWEET_NTL—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—SAME_NTL_PERIOD—CENT_SATURATED

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

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

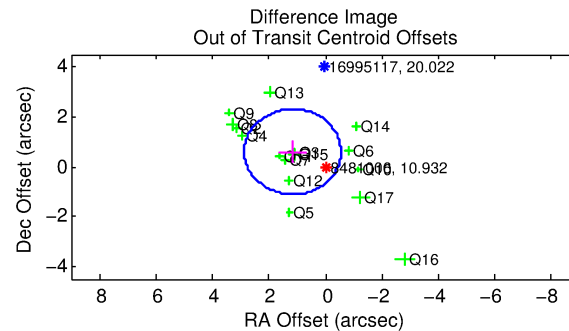
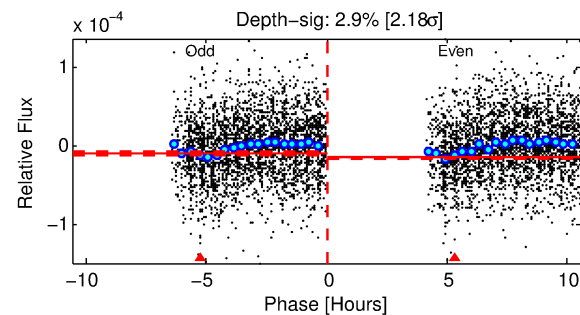
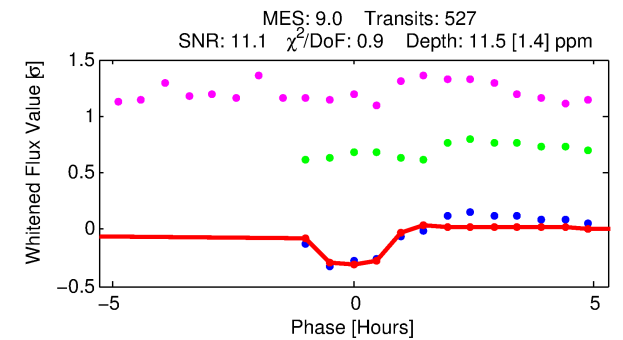
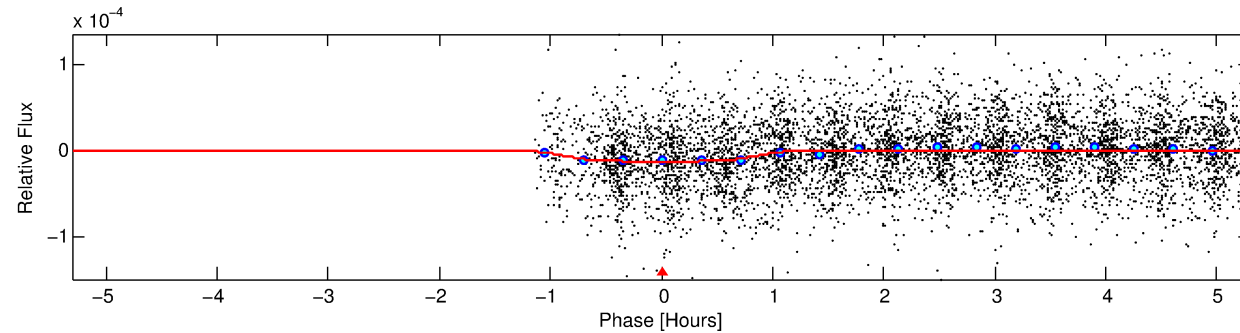
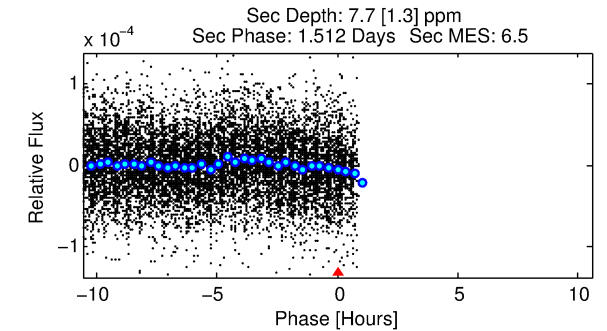
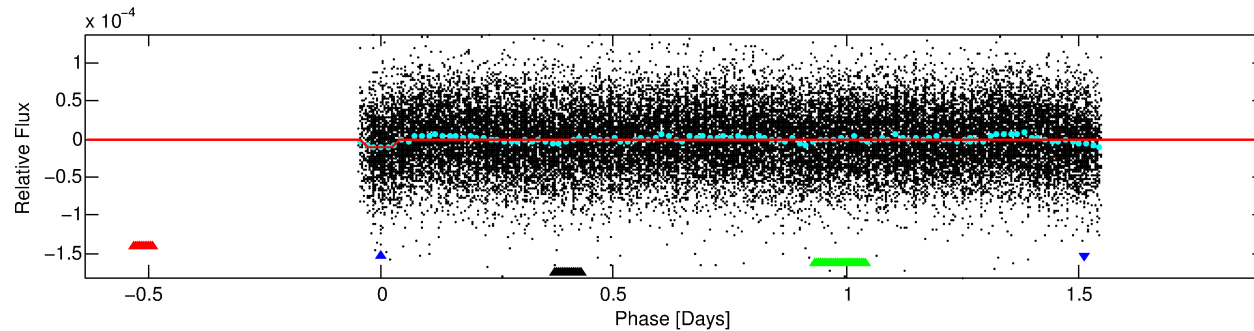
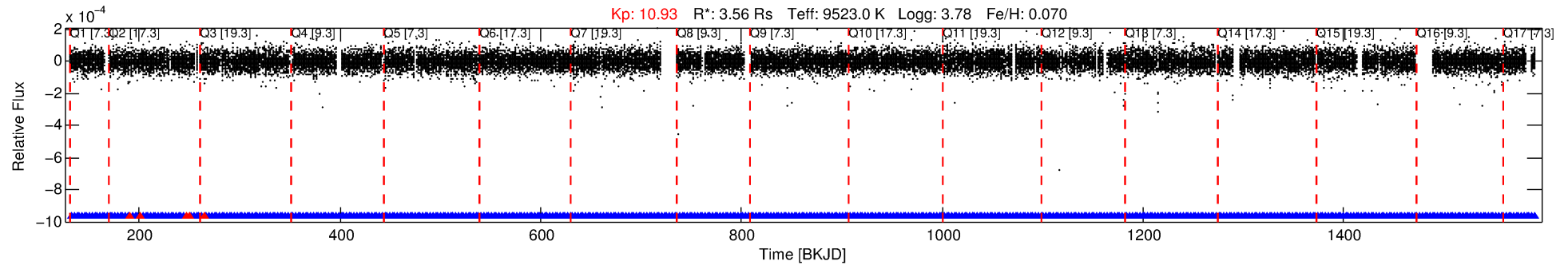
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 008481006-02

No Significant Match Found

DV One-Page Summary

KIC: 8481006 Candidate: 2 of 4 Period: 2.534 d



DV Fit Results:

Period = 2.53362 [0.00001] d
Epoch = 133.0313 [0.0032] BKJD
Rp/R* = 0.0032 [0.0039]
a/R* = 10.95 [91.50]
b = 0.09 [97.13]
Seff = 35848.60 [25444.33]
Teq = 3509 [623] K
Rp = 1.24 [1.64] Re
a = 0.0510 [0.0226] AU
Ag = 7.19 [18.49] [0.33σ]
Teffp = 8883 [5523] K [0.97σ]

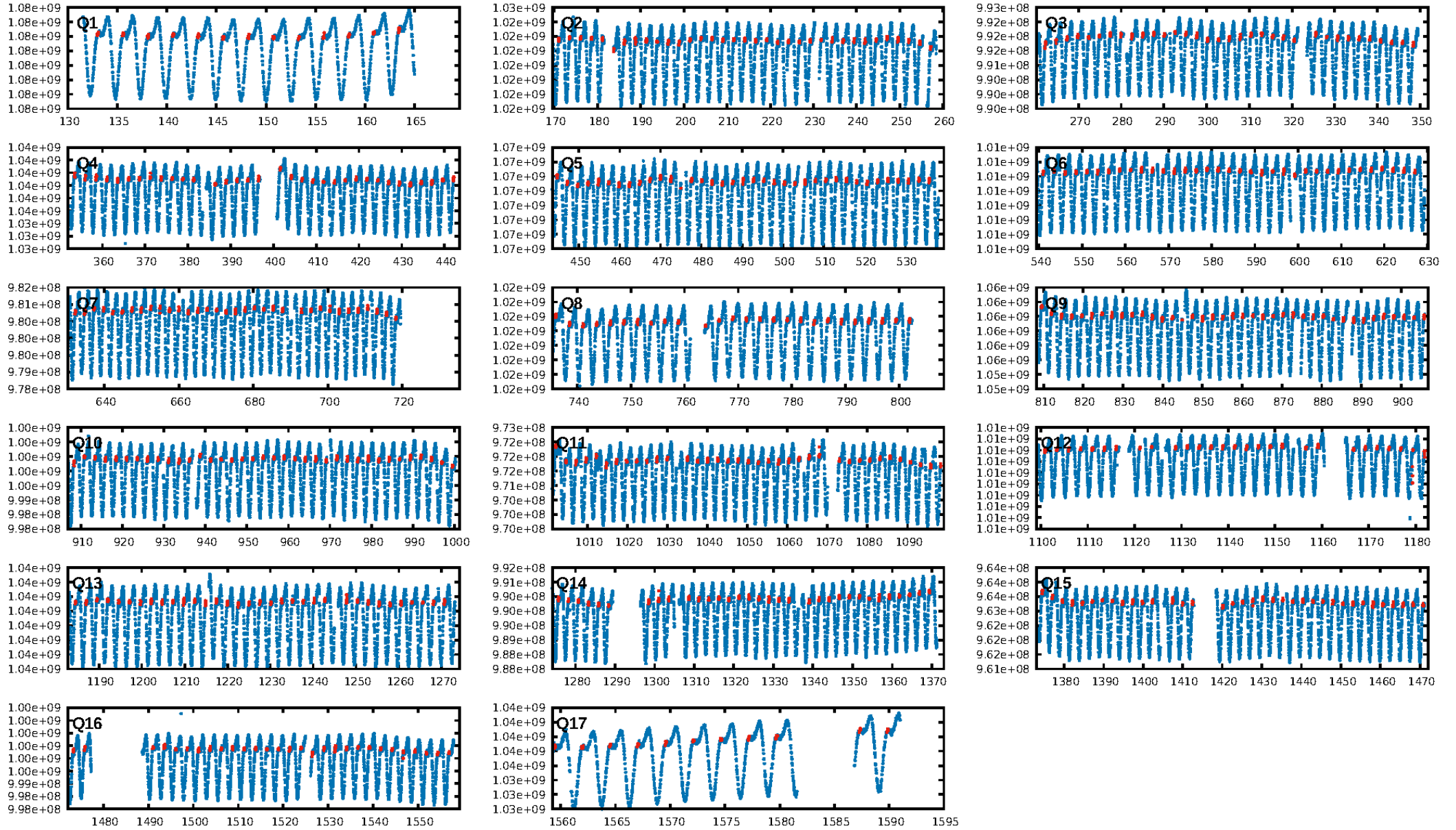
DV Diagnostic Results:

ShortPeriod-sig: 0.1% [0.00σ]
LongPeriod-sig: 0.0% [0.00σ]
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: 2.92e-16
RollingBand-fgt: 0.99 [498/503]
GhostDiagnostic-chr: 1.409
Centroid-sig: N/A
Centroid-so: 1.592 arcsec [1.18σ]
OotOffset-rm: 1.308 arcsec [2.29σ]
KicOffset-rm: 1.419 arcsec [2.45σ]
OotOffset-st: 4/4/4/4 [16]
KicOffset-st: 4/4/4/4 [16]
DiffImageQuality-fgm: 0.00 [0/16]
DiffImageOverlap-fno: 1.00 [17/17]

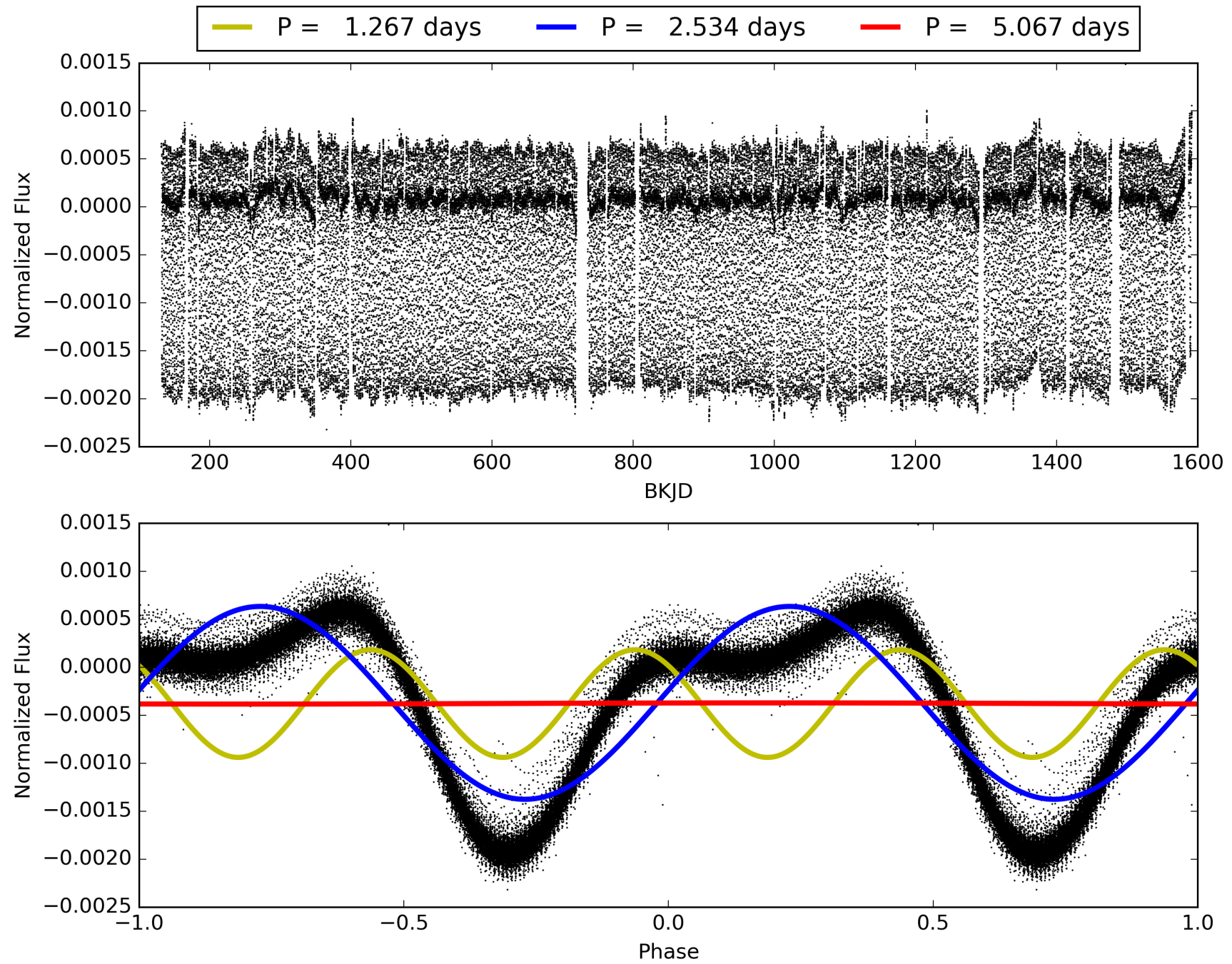
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 01-Feb-2016 20:40:43 Z

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

TCE 008481006-02, PDC Light Curves

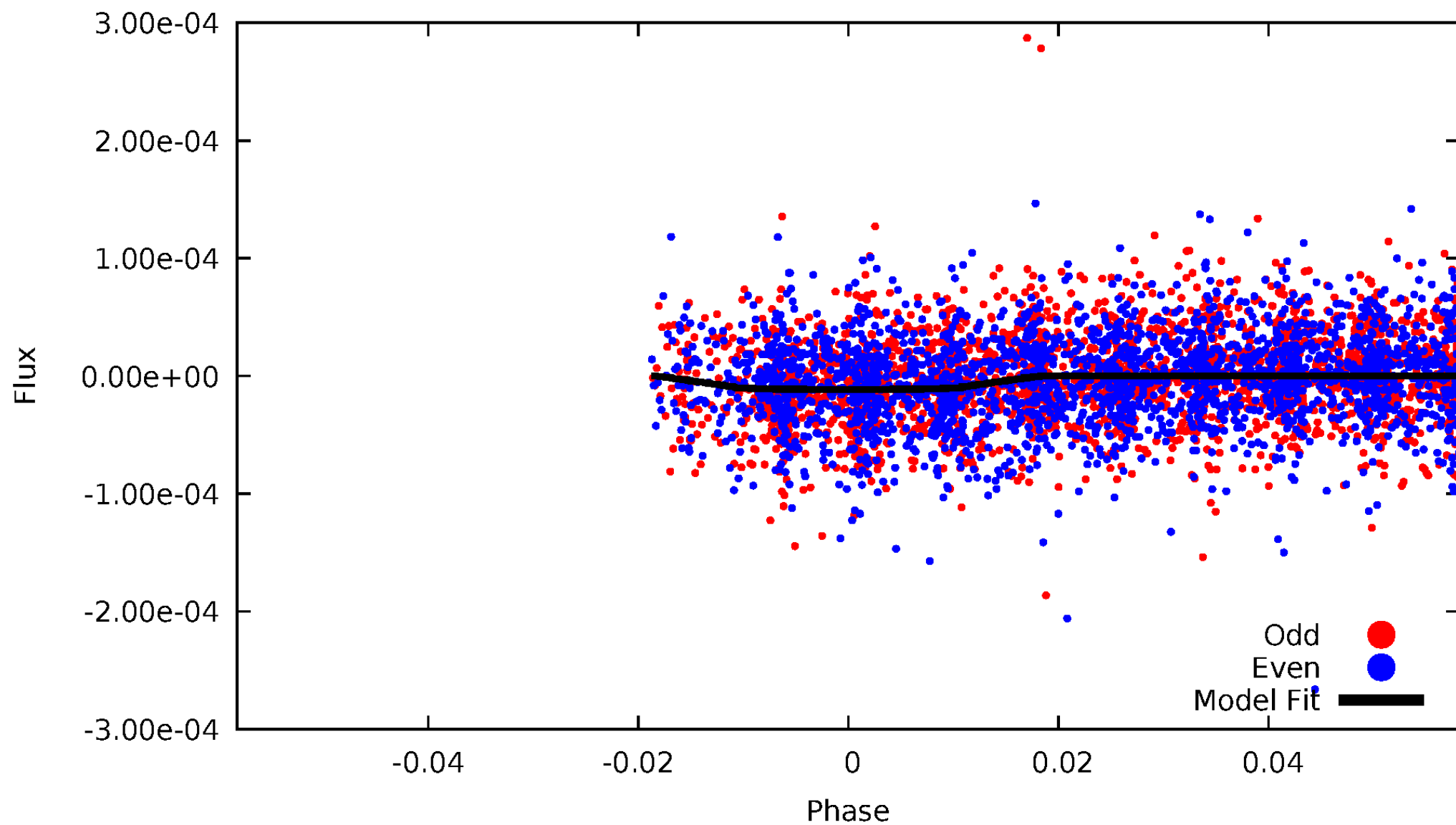


TCE 008481006-02



DV Odd/Even

TCE 008481006-02

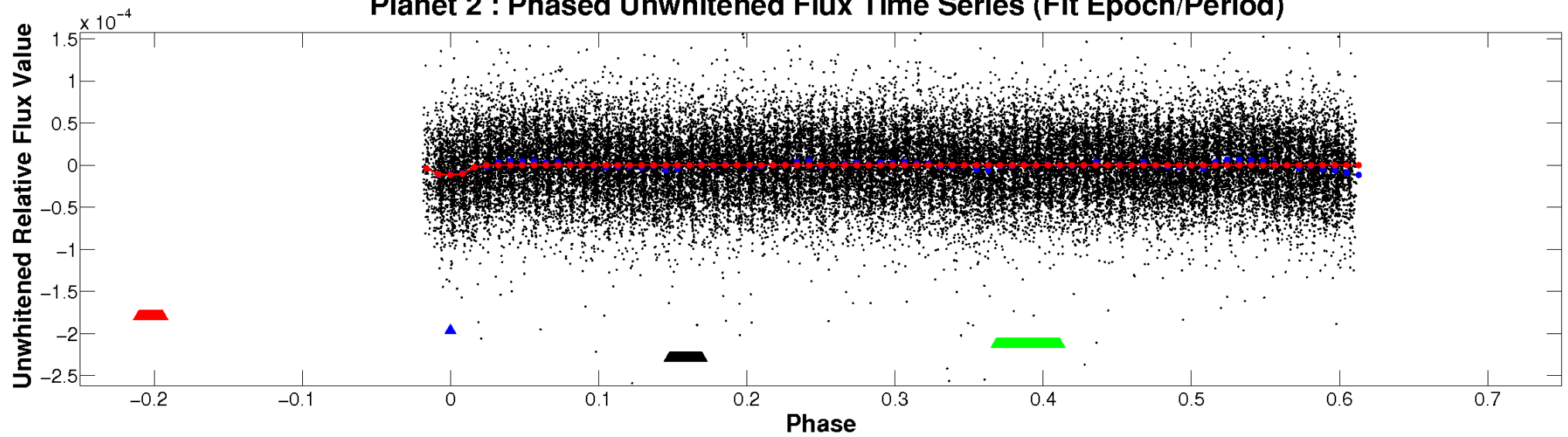


ALT Odd/Even

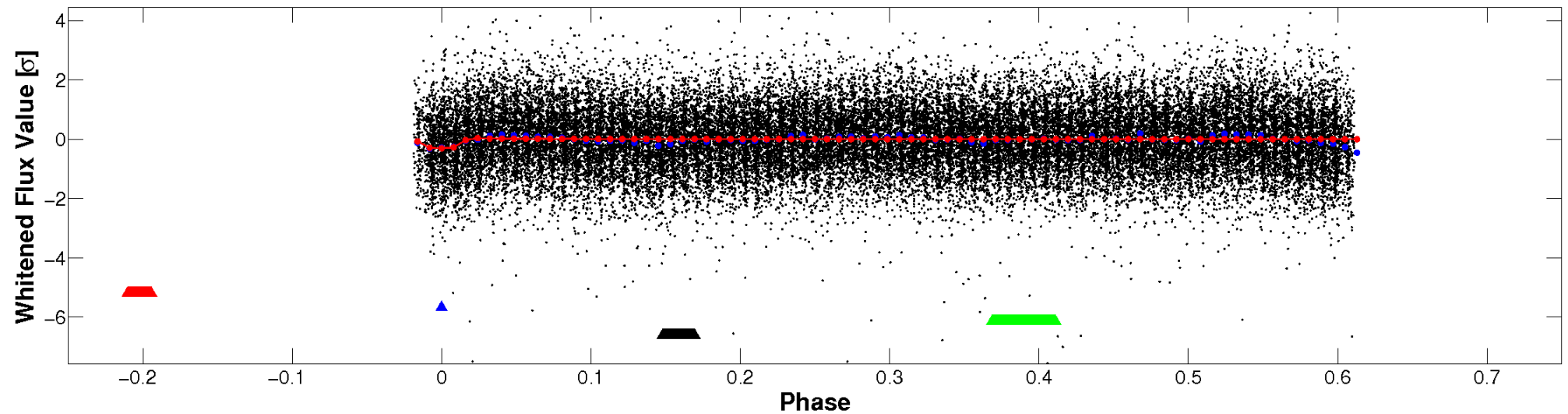
This plot does not exist for this TCE.

Non-Whitened Vs. Whitened Light Curve

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

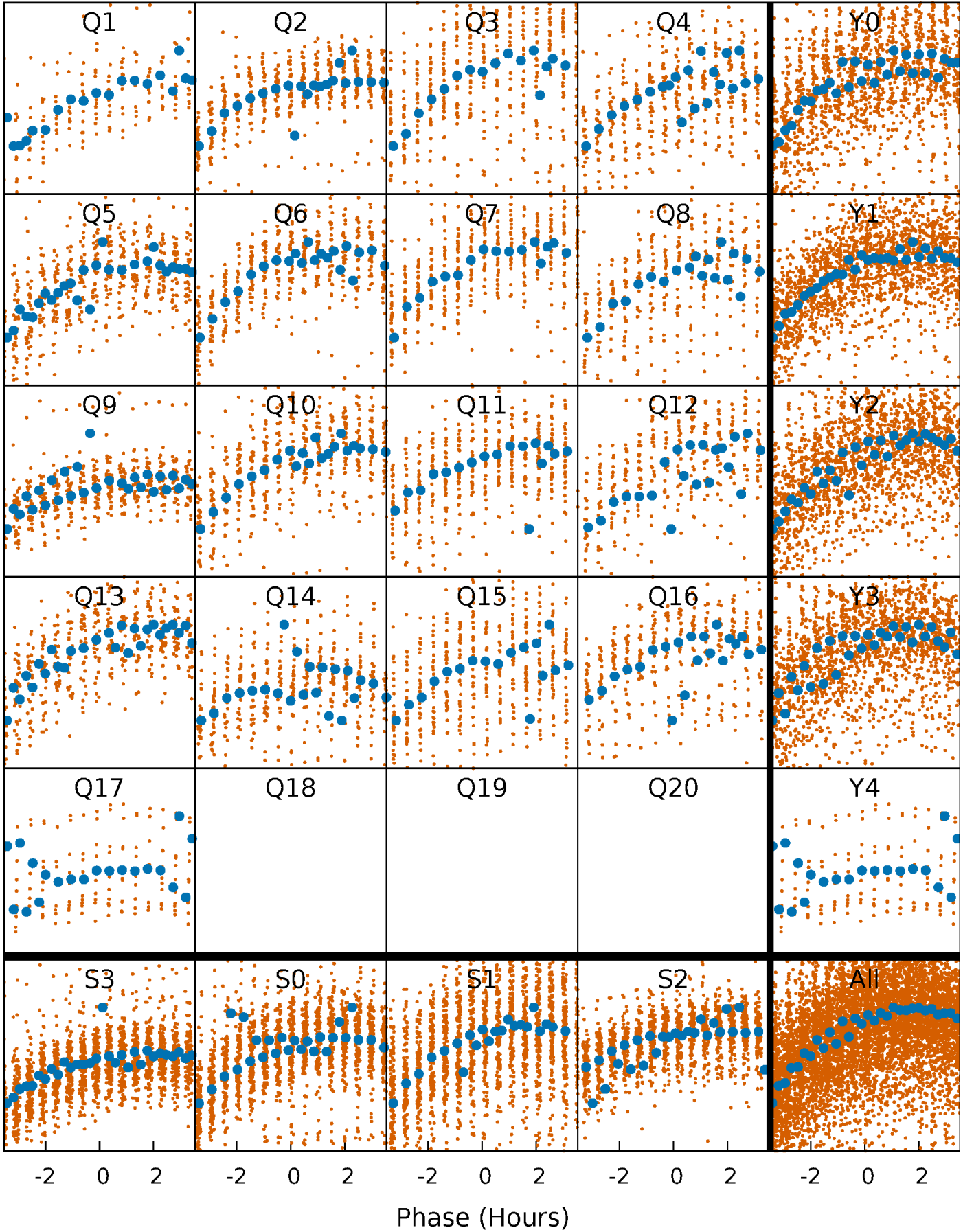


Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



PDC Quarter-Phased Transit Curves

TCE 008481006-02 P= 2.533617 Days $T_0=133.031337$ (BKJD)



DV Quarter-Phased Transit Curves

TCE 008481006-02 P= 2.533617 Days $T_0=133.031337$ (BKJD)

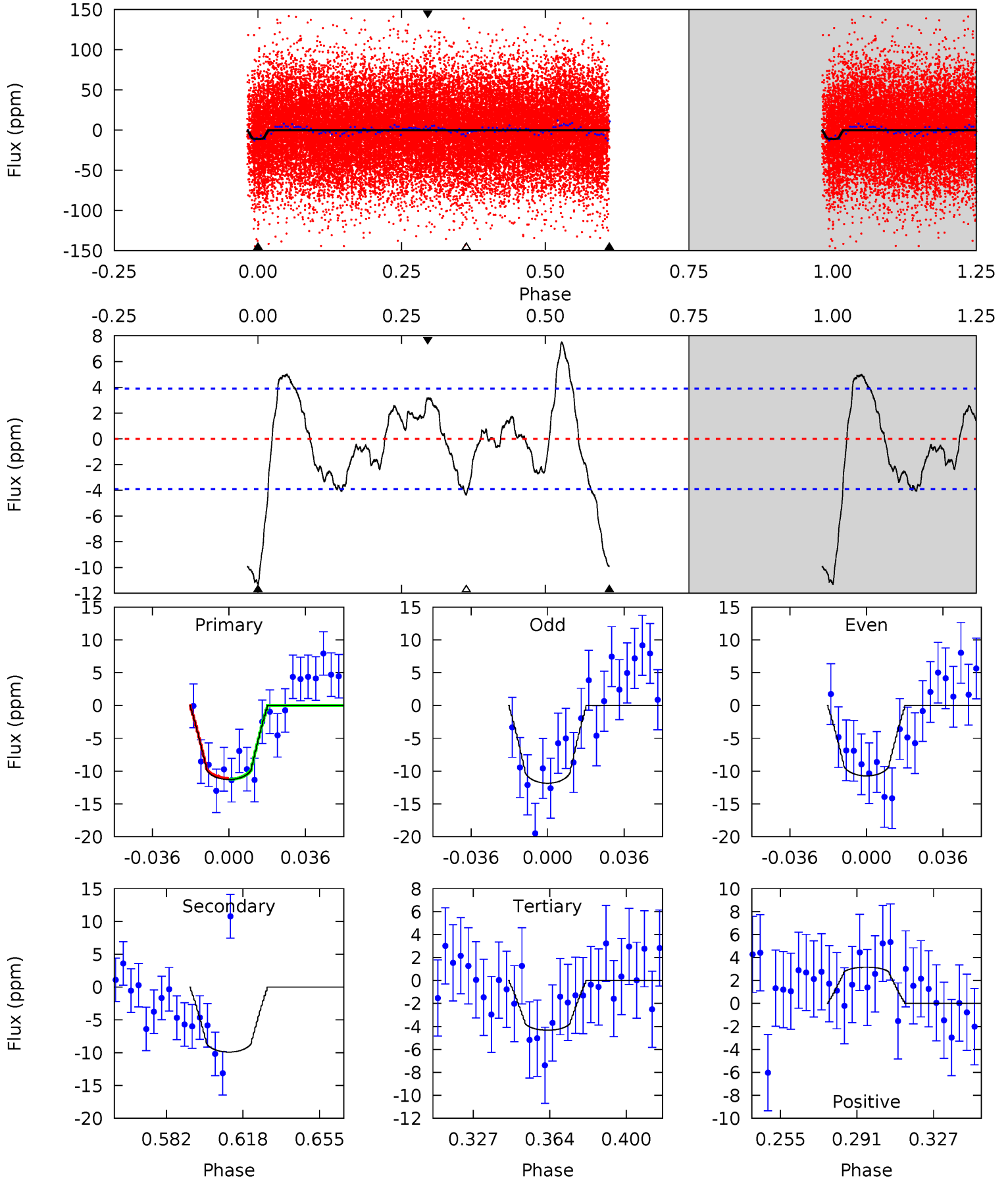


This plot does not exist for this TCE.

DV Model-Shift Uniqueness Test

008481006-02, P = 2.533617 Days, E = 130.497720 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
13.8	12.1	5.29	3.86	4.77	2.09	3.20	8.49	9.92	6.81	8.24	0.68	1.00	0.40	0.08



Alt Model-Shift Uniqueness Test

This plot does not exist for this TCE.

Stellar Parameters For KIC 008481006

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	M (M_{\odot})	p_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	9523^{+265}_{-454}	$3.776^{+0.392}_{-0.140}$	$0.070^{+0.200}_{-0.750}$	$3.558^{+0.933}_{-1.732}$	$2.755^{+0.264}_{-1.054}$	$0.086^{+0.374}_{-0.037}$
	+3%/-5%	+10%/-4%	+286%/-1071%	+26%/-49%	+10%/-38%	+435%/-43%
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 008481006-02 / KOI

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	-10 ± 1	$1.36^{+1.33}_{-0.93}$	4783^{+384}_{-547}	8038^{+13735}_{-2419}	$6.984^{+63.090}_{-5.087}$
Alt.	N/A	N/A	N/A	N/A	N/A

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

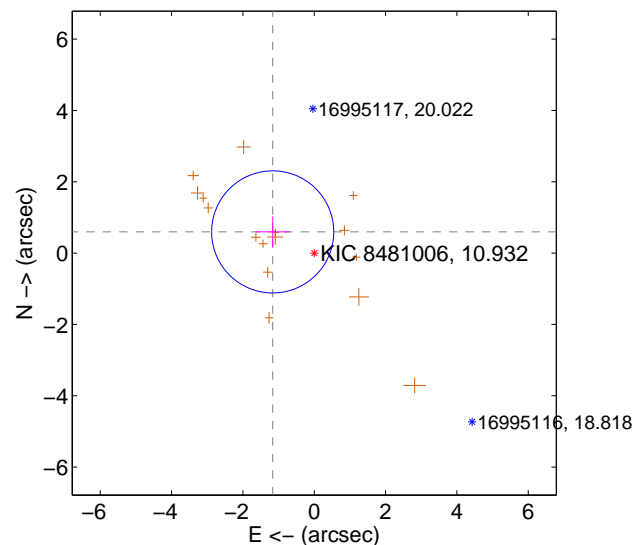
Supplemental centroid analysis for 008481006-02. **Kepler magnitude: 10.93.** Transit SNR 11.10

There are 0 quarters with good PRF difference image offsets

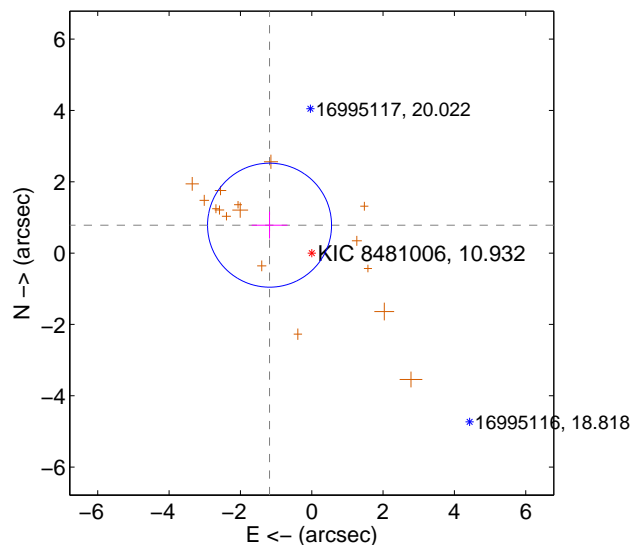
The direct PRF centroid is offset from the target star catalog position by about 0.88 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	1.308 ± 0.571	2.29	1.165 ± 0.472	0.594 ± 0.433
PRF-fit source offset from KIC position	1.419 ± 0.579	2.45	1.183 ± 0.501	0.783 ± 0.377
photometric centroid source offset	1.59 ± 1.35	1.18	1.57 ± 1.36	-0.25 ± 1.18

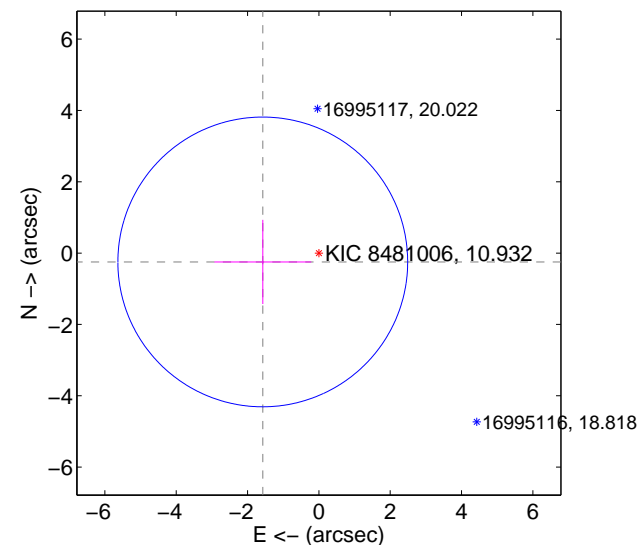
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position

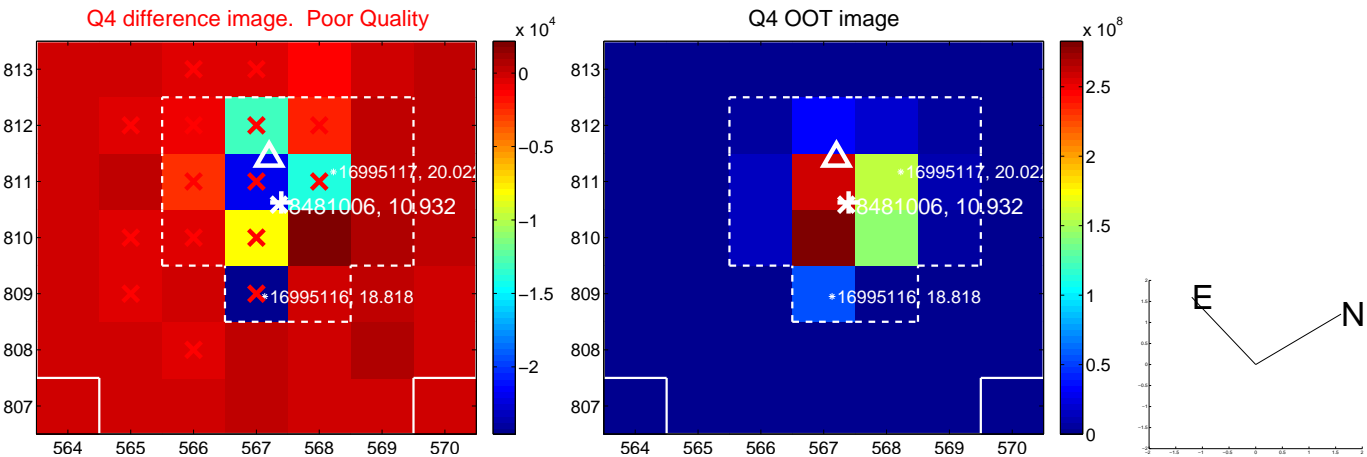
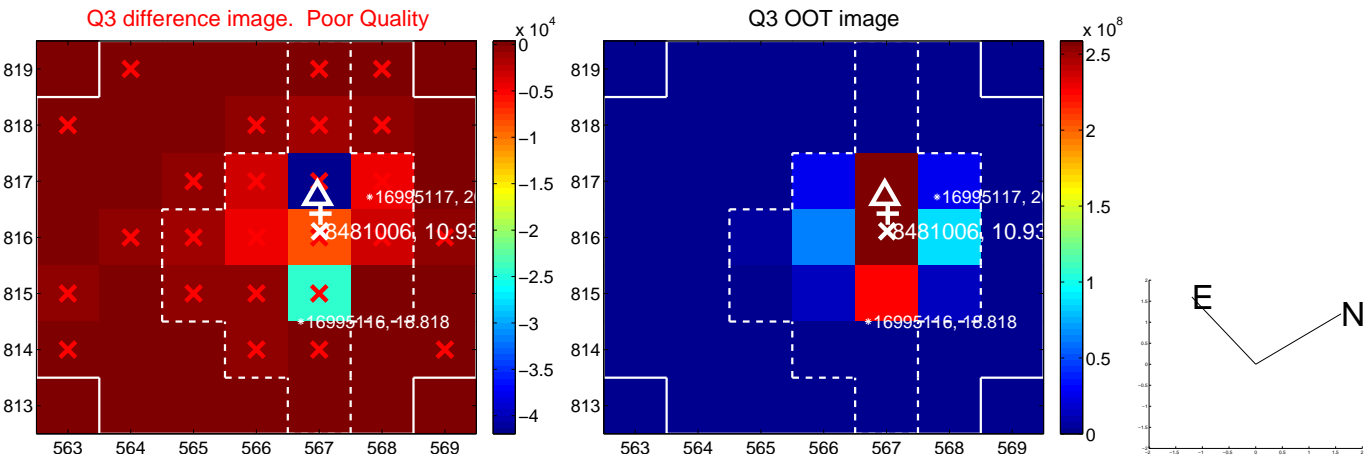
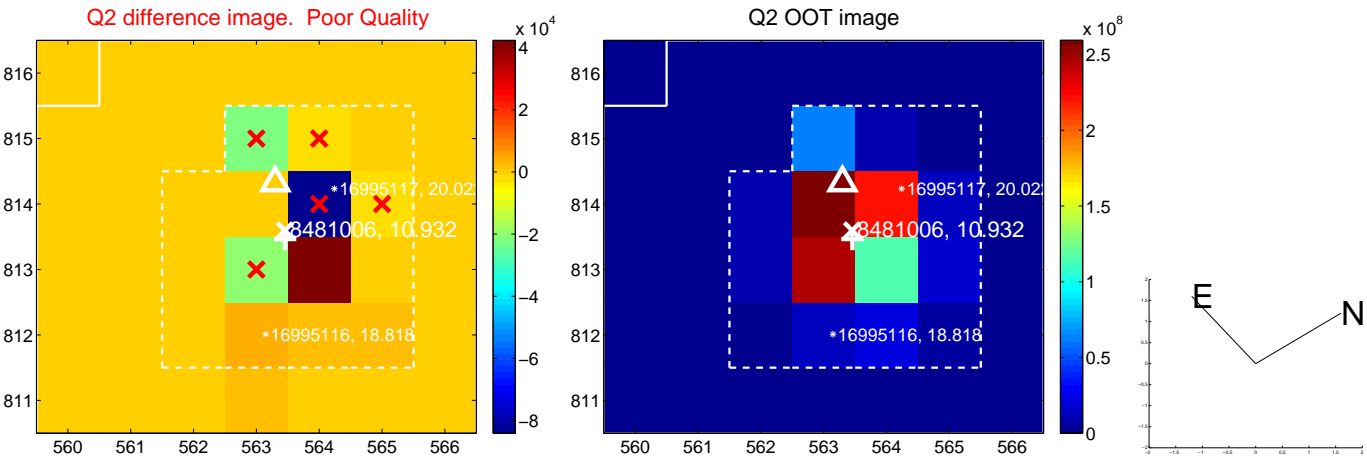
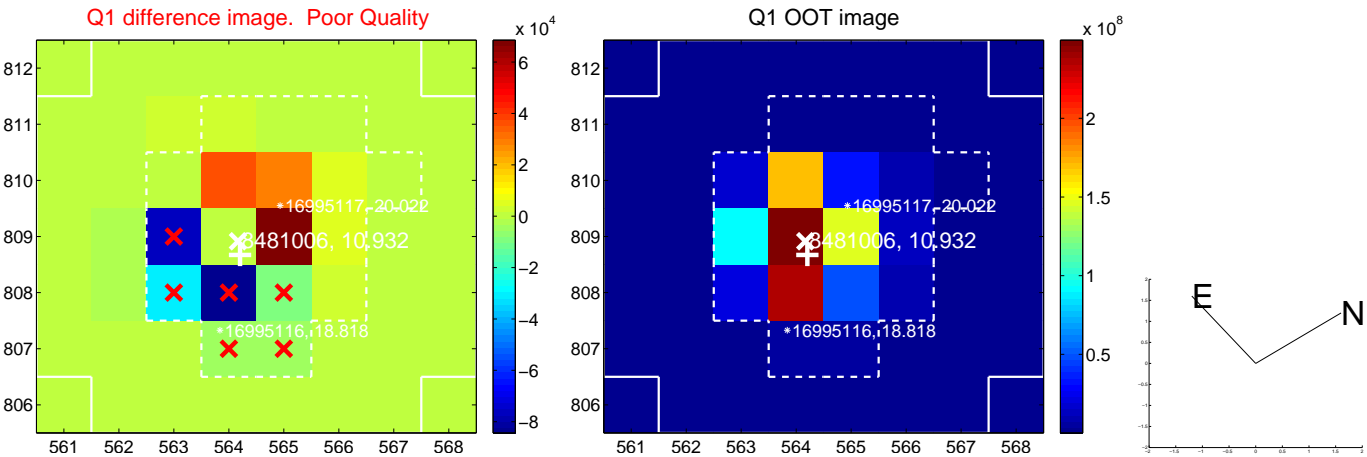


offset from photometric centroids

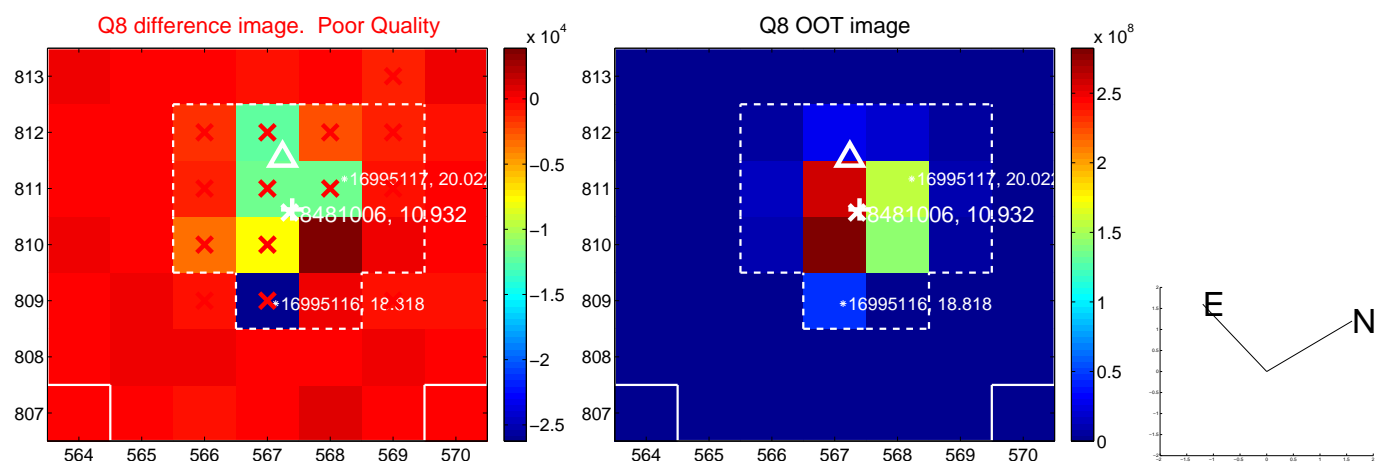
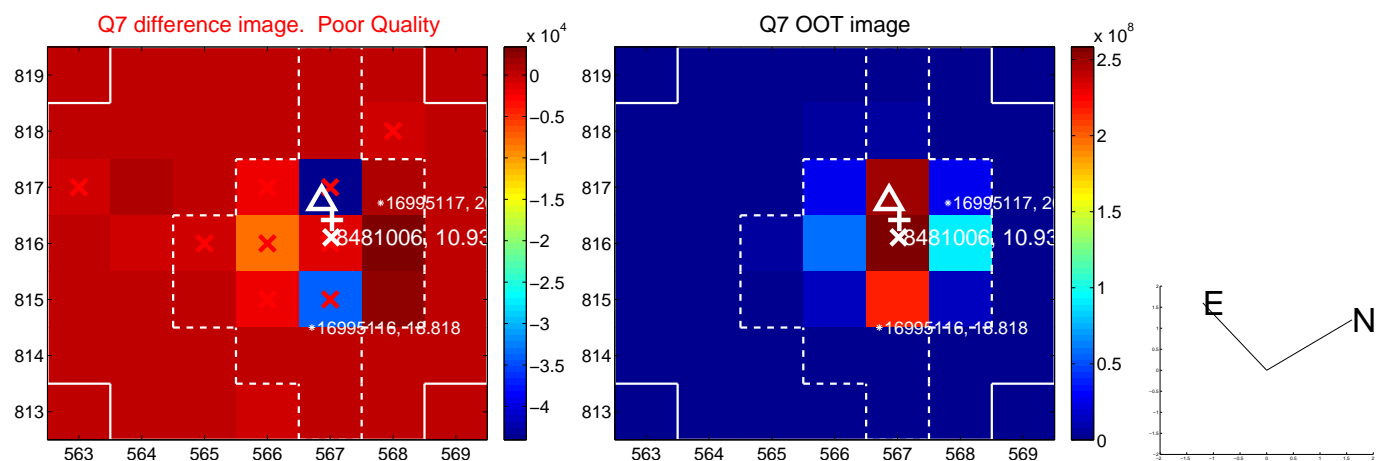
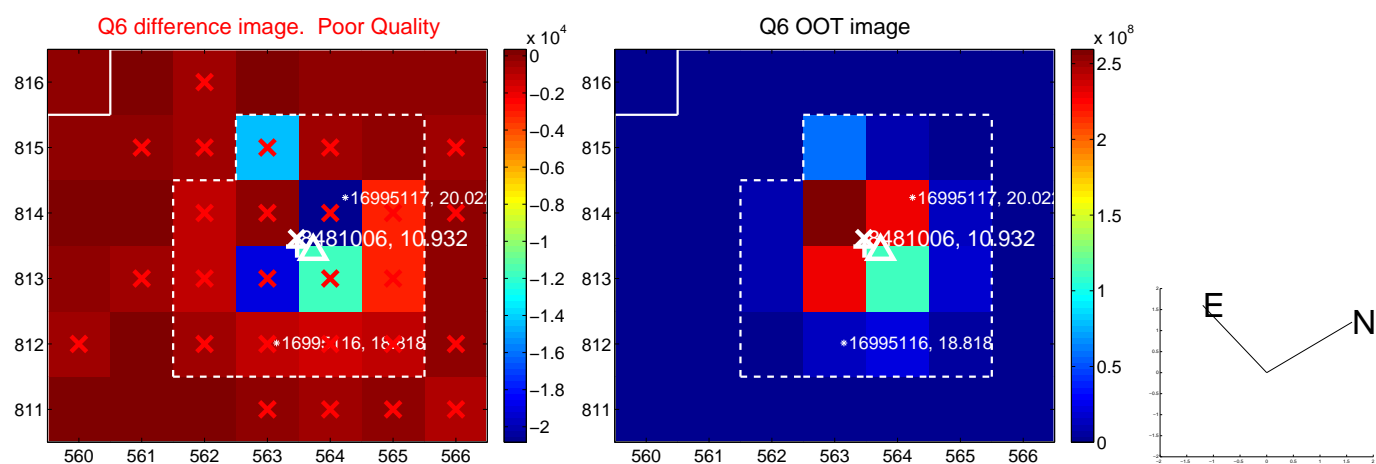
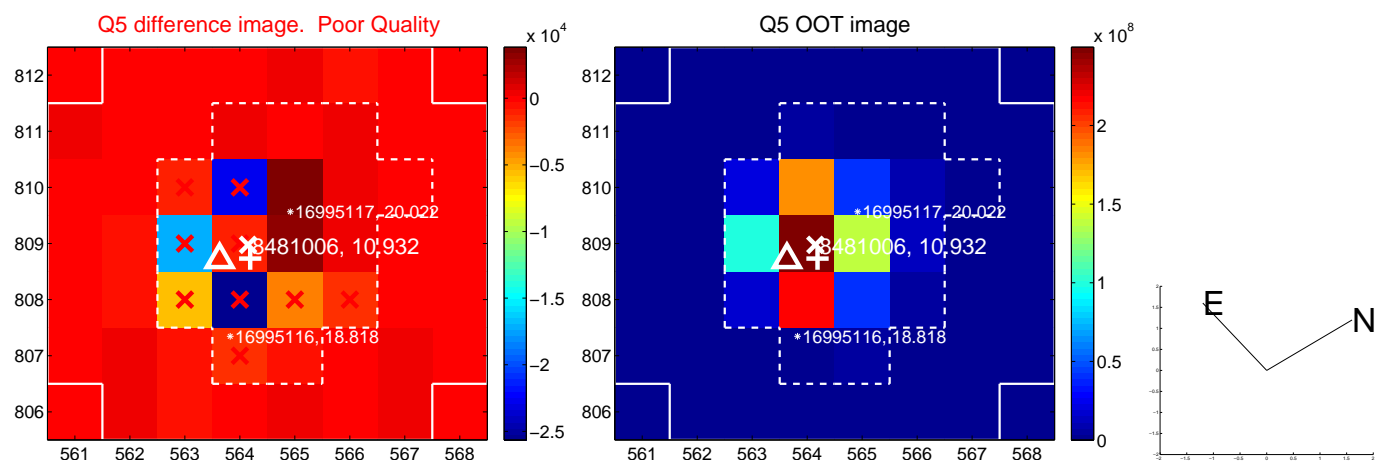


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets;** magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

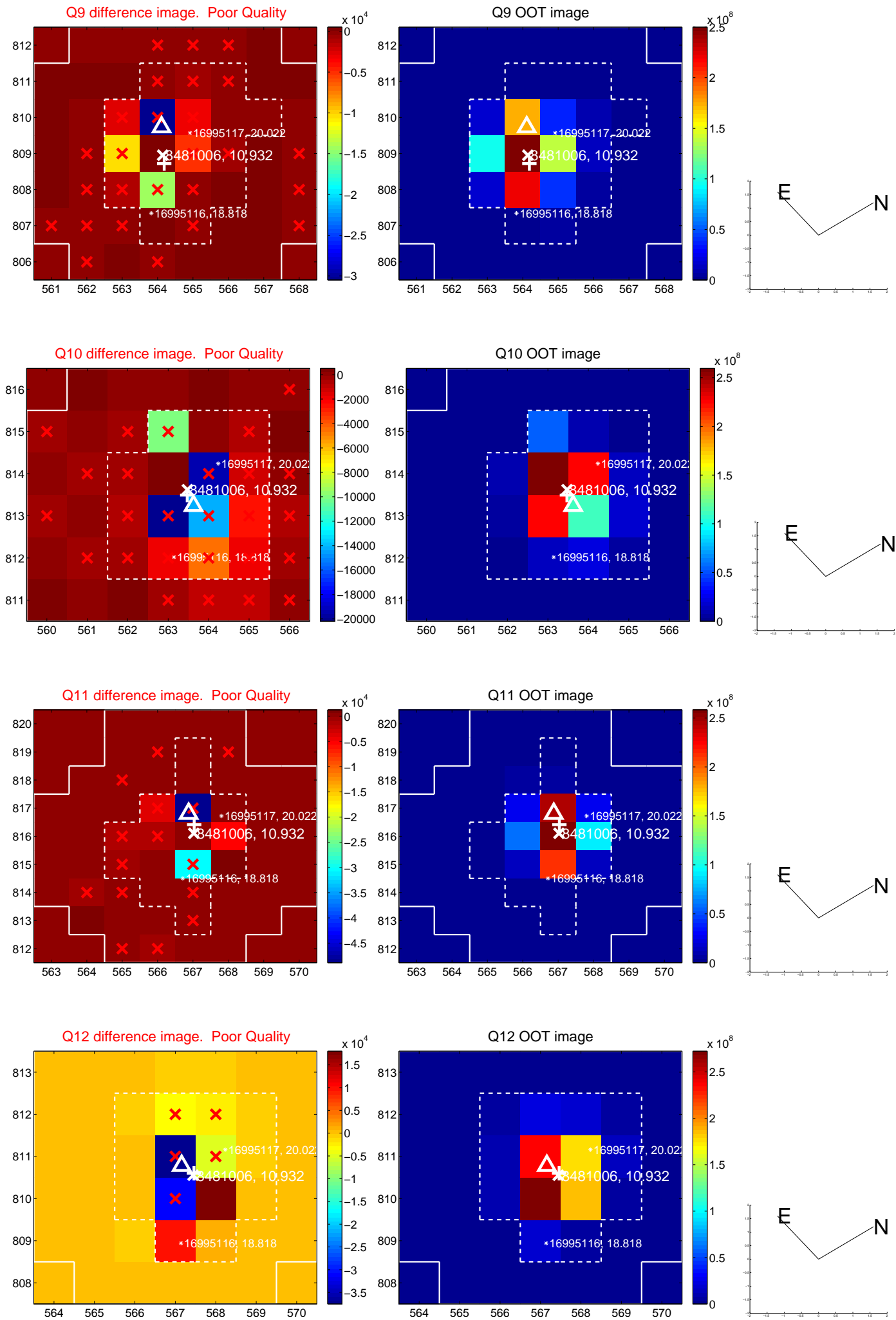
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



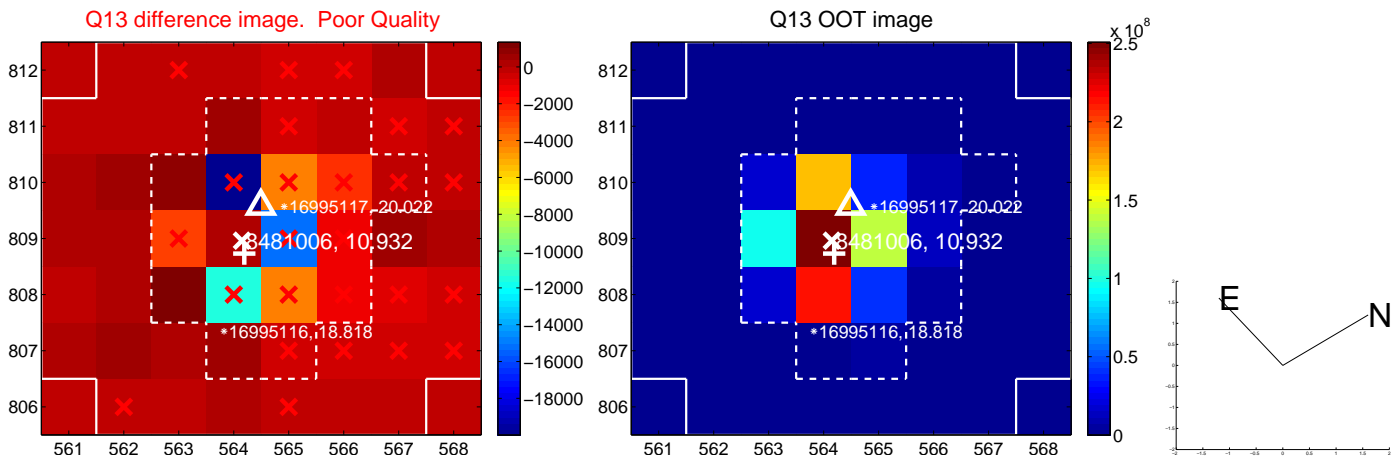
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



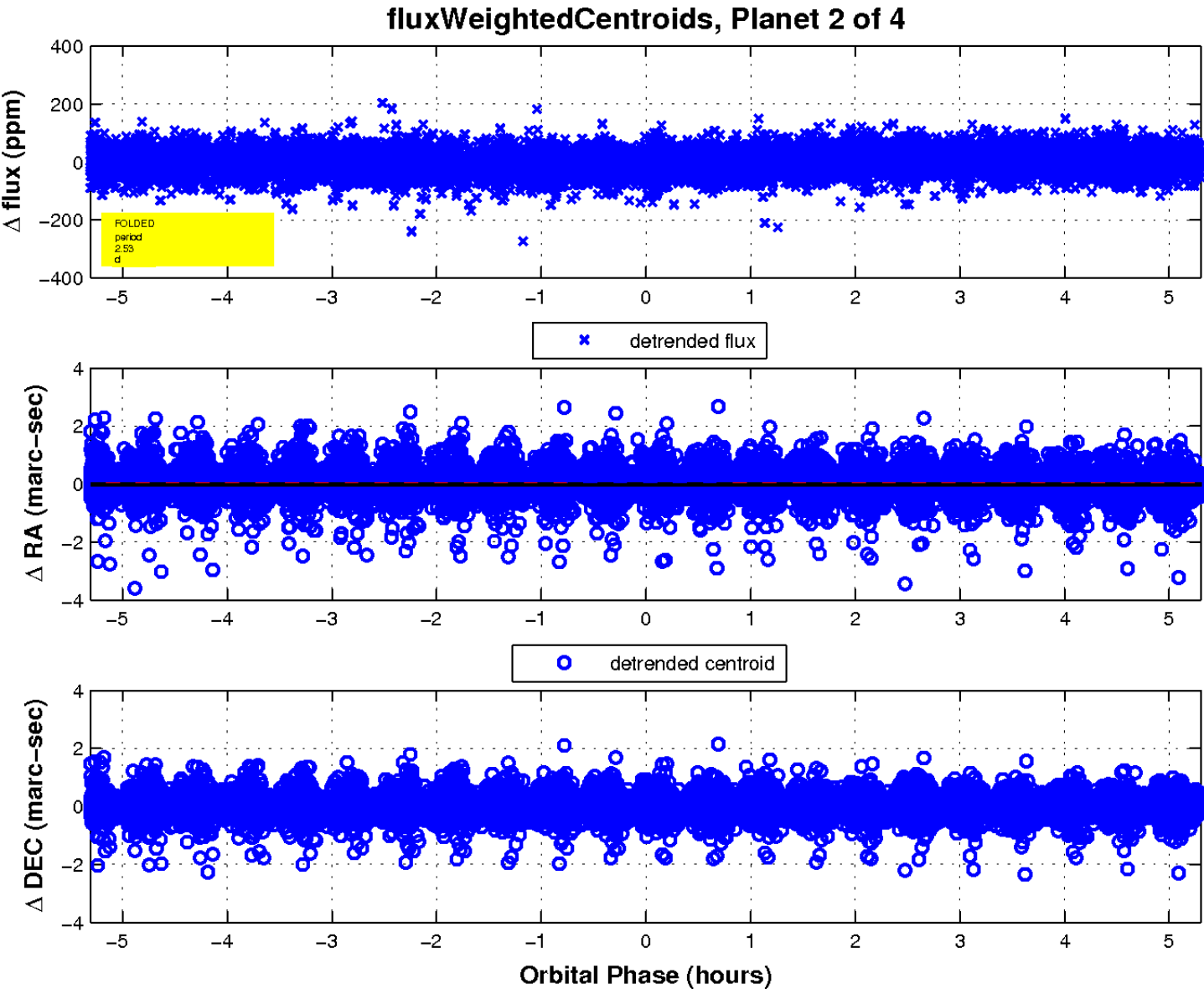
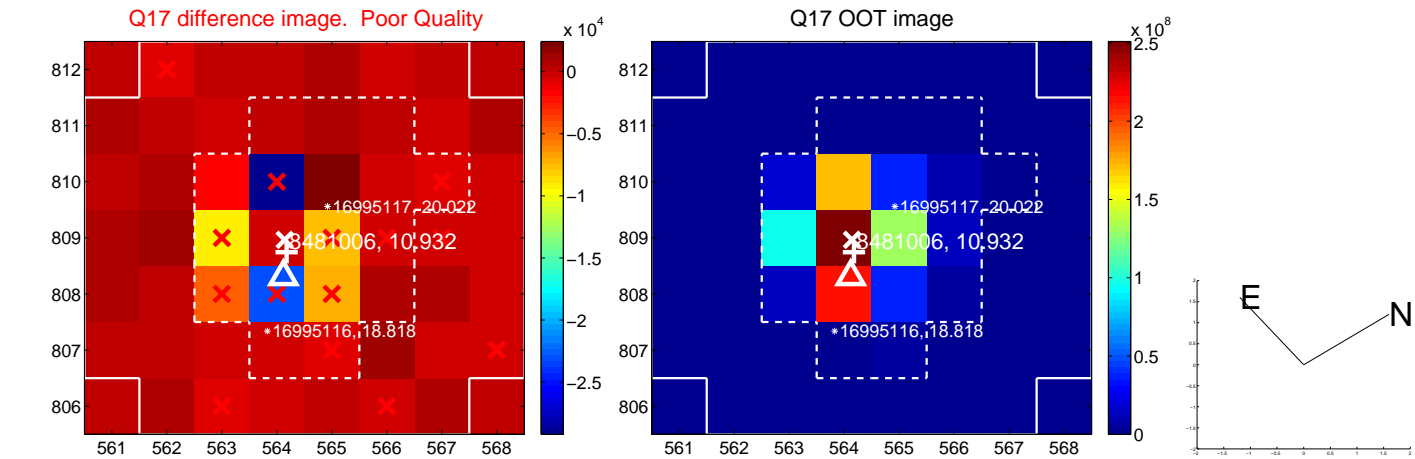
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

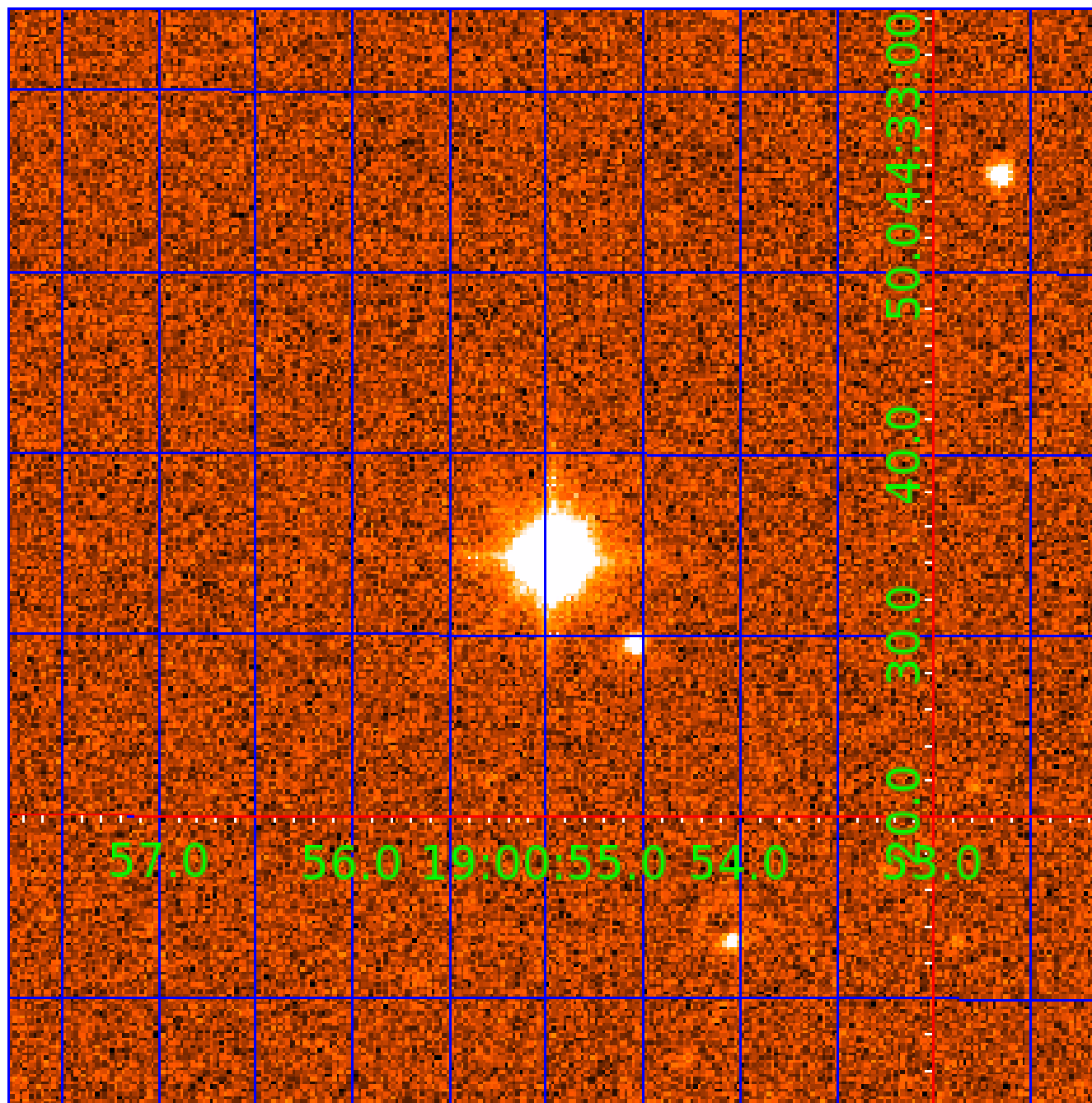


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 008481006

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})
008481006-01	OBS	No	2.533687	132.498551	7.9	7.558	13.4	11.0	3.56	9523	1.15	35847.27
008481006-02	OBS	No	2.533617	133.031337	11.5	1.769	9.0	11.1	3.56	9523	1.24	35848.60
008481006-03	OBS	No	2.533430	134.072836	0.0	4.274	9.4	0.0	3.56	9523	0.08	35852.13
008481006-04	OBS	No	2.533712	133.406190	8.4	0.671	9.2	5.2	3.56	9523	1.09	35846.80

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
008481006-01	OBS	FP	0.00	1	0	0	0	SWEET_NTL—LPP_DV—MOD_NONUNIQ_DV—CENT_SATURATED
008481006-02	OBS	FP	0.00	1	0	0	0	SWEET_NTL—LPP_DV—SAME_NTL_PERIOD—CENT_SATURATED
008481006-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_SKYE_ZUMA_TRACKER—SWEET_NTL—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—SAME_NTL_PERIOD—CENT_SATURATED
008481006-04	OBS	FP	0.00	1	0	0	0	SWEET_NTL—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—SAME_NTL_PERIOD—CENT_SATURATED

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

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

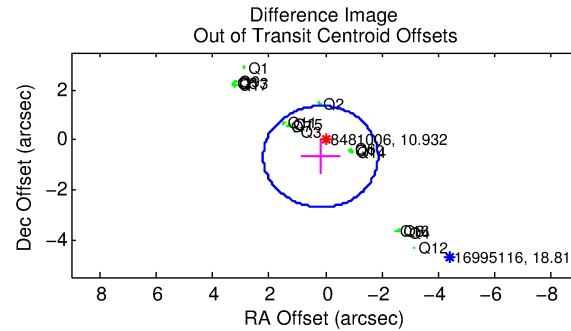
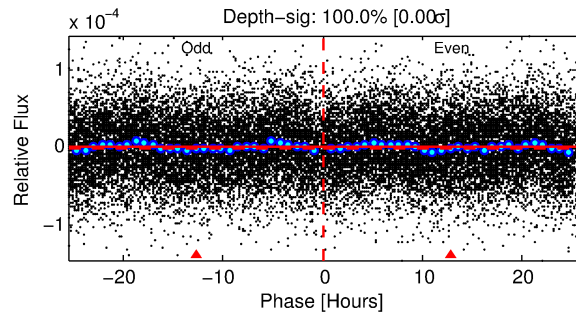
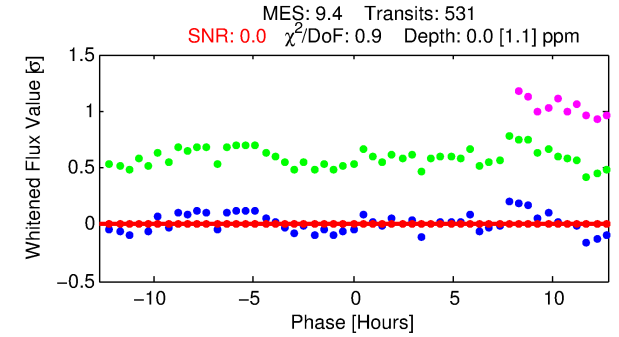
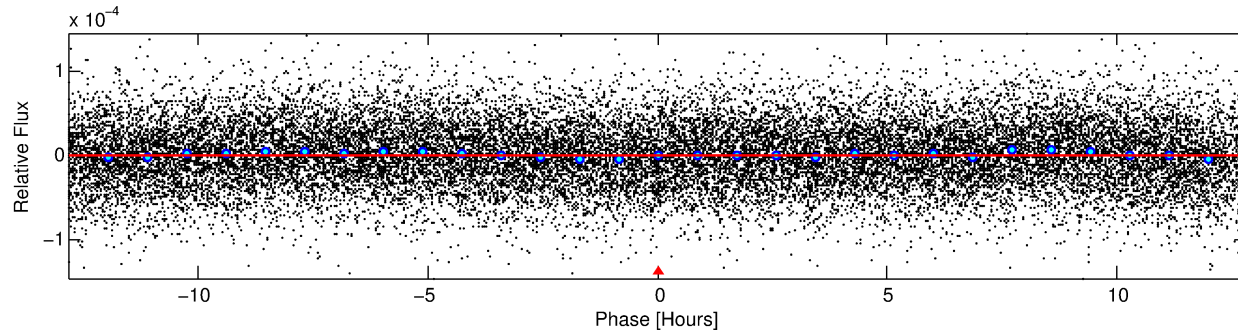
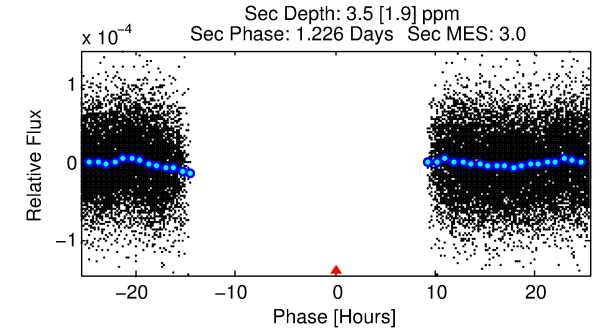
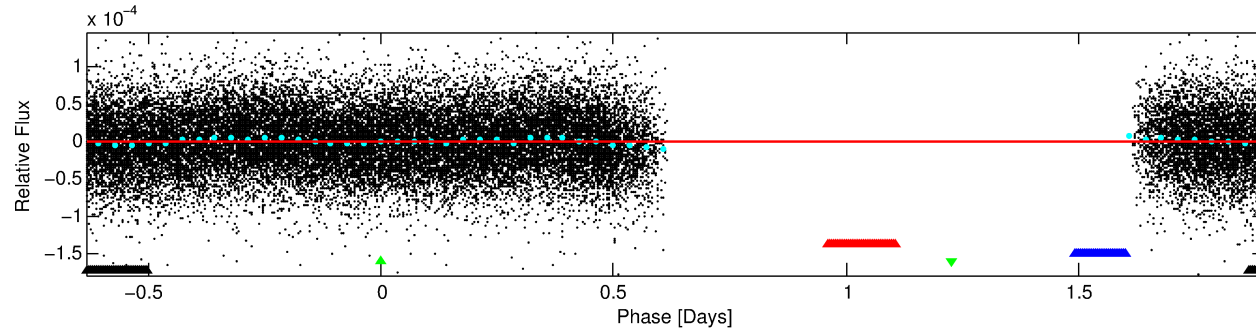
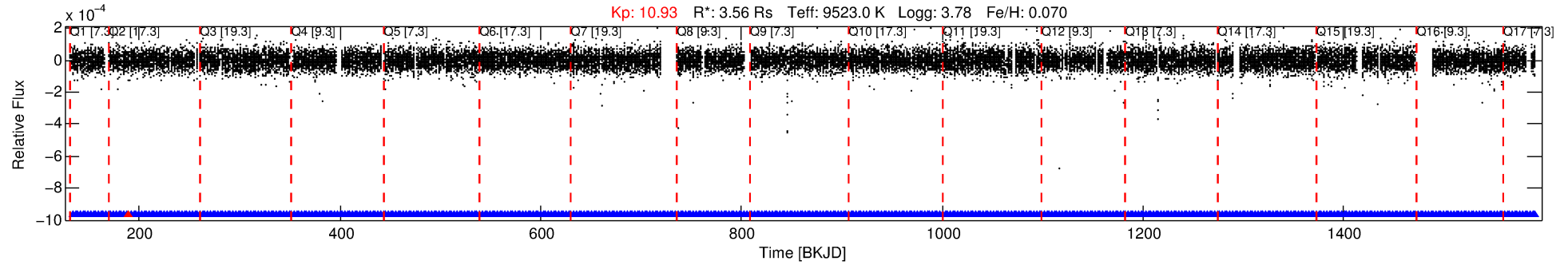
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 008481006-03

No Significant Match Found

DV One-Page Summary

KIC: 8481006 Candidate: 3 of 4 Period: 2.533 d



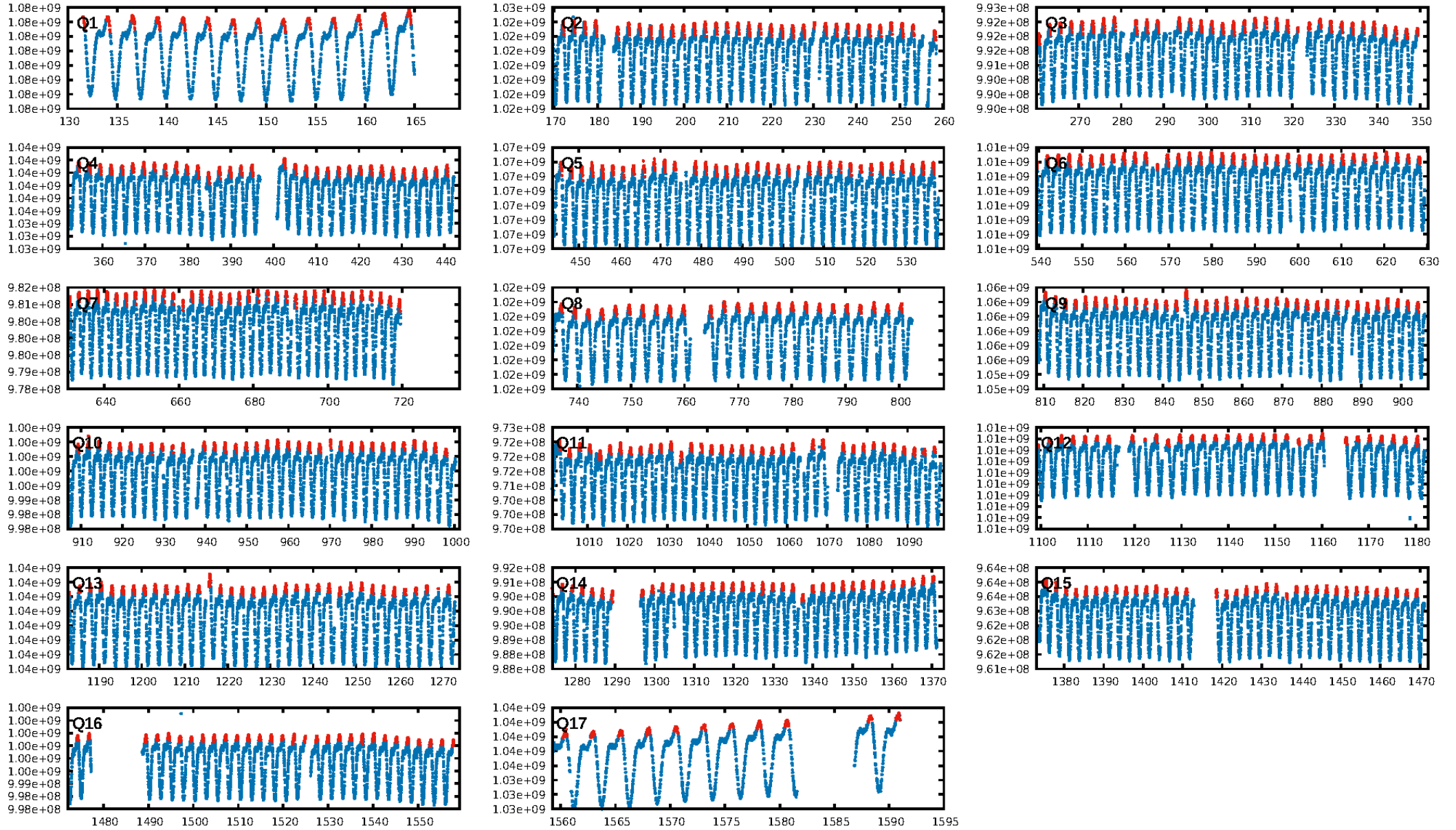
DV Fit Results:

Period = 2.53343 [0.00490] d
Epoch = 134.0728 [1.2470] BKJD
Rp/R* = 0.0002 [0.0031]
a/R* = 2.22 [1.34]
b = 0.90 [1.62]
Seff = 35852.13 [25447.01]
Teq = 3509 [623] K
Rp = 0.08 [1.22] Re
a = 0.0510 [0.0226] AU
Ag = 800.26 [24643.13] [0.03σ]
Teffp = 28854 [222087] K [0.11σ]

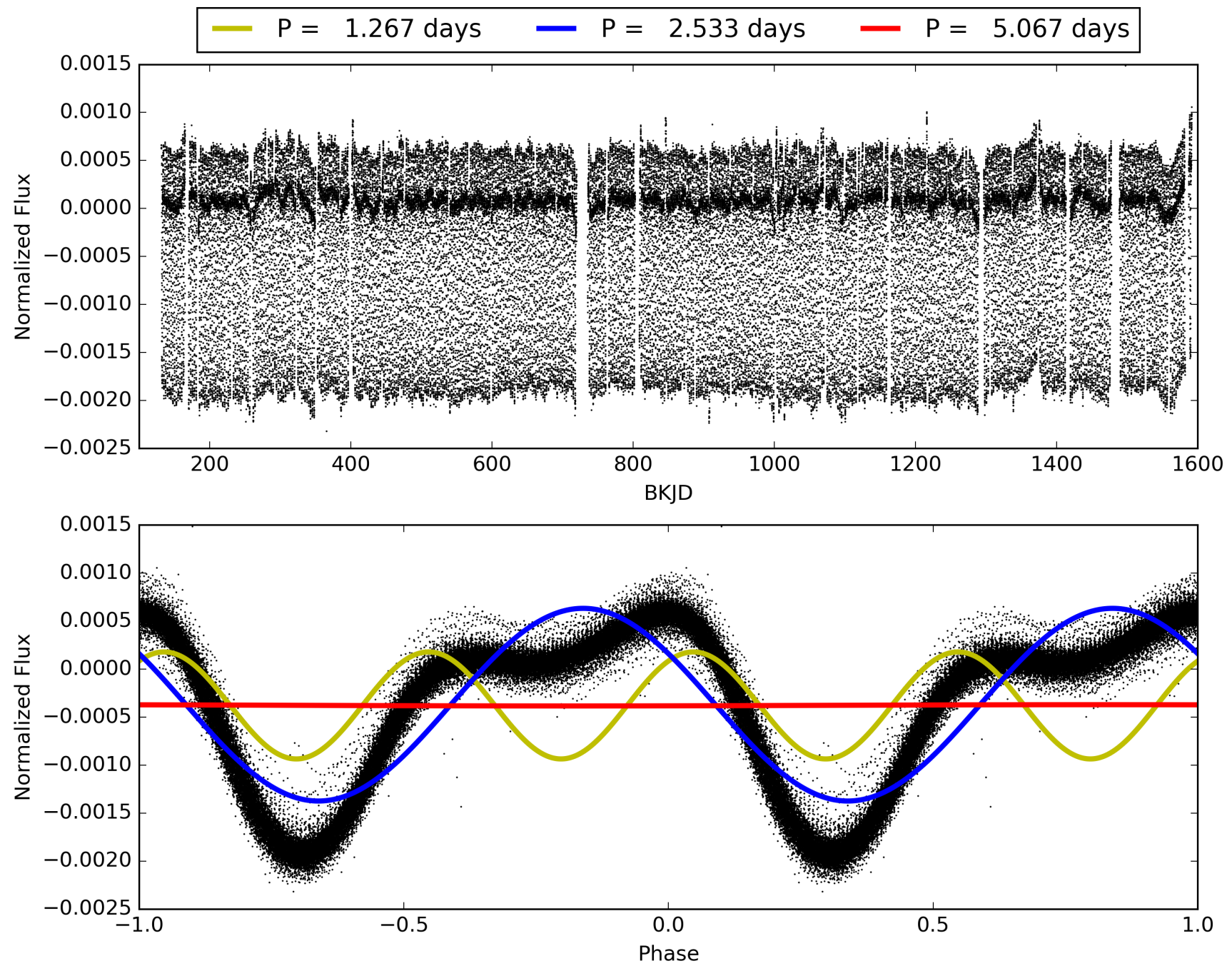
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: 0.1% [0.00σ]
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: 1.02e-17
RollingBand-fgt: 1.00 [505/506]
GhostDiagnostic-chr: N/A
Centroid-sig: N/A
Centroid-so: N/A
OotOffset-rm: 0.699 arcsec [1.03σ]
KicOffset-rm: 0.496 arcsec [0.78σ]
OotOffset-st: 4/4/4/5 [17]
KicOffset-st: 4/4/4/5 [17]
DiffImageQuality-fgm: 0.00 [0/17]
DiffImageOverlap-fno: 1.00 [17/17]

TCE 008481006-03, PDC Light Curves

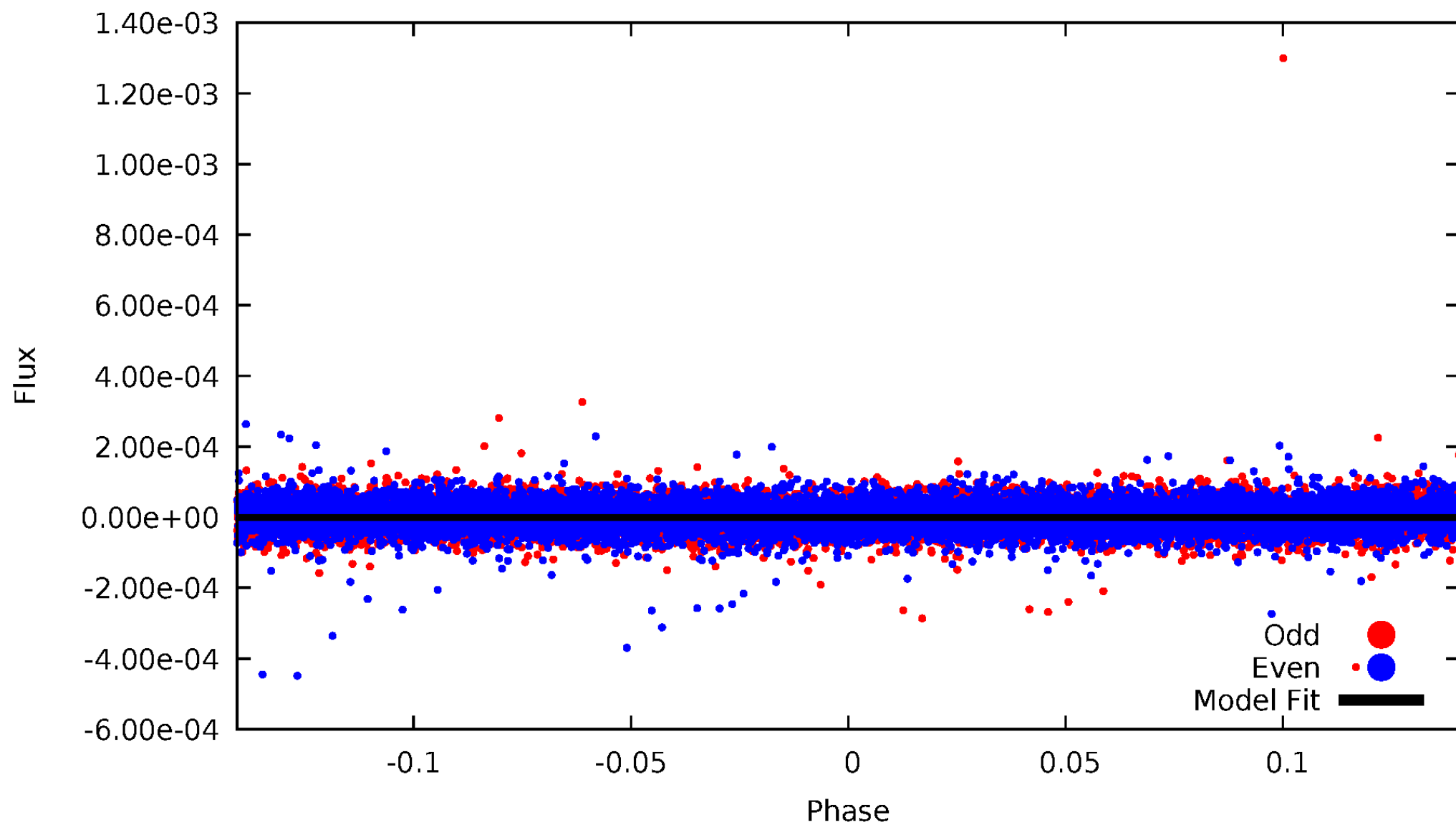


TCE 008481006-03



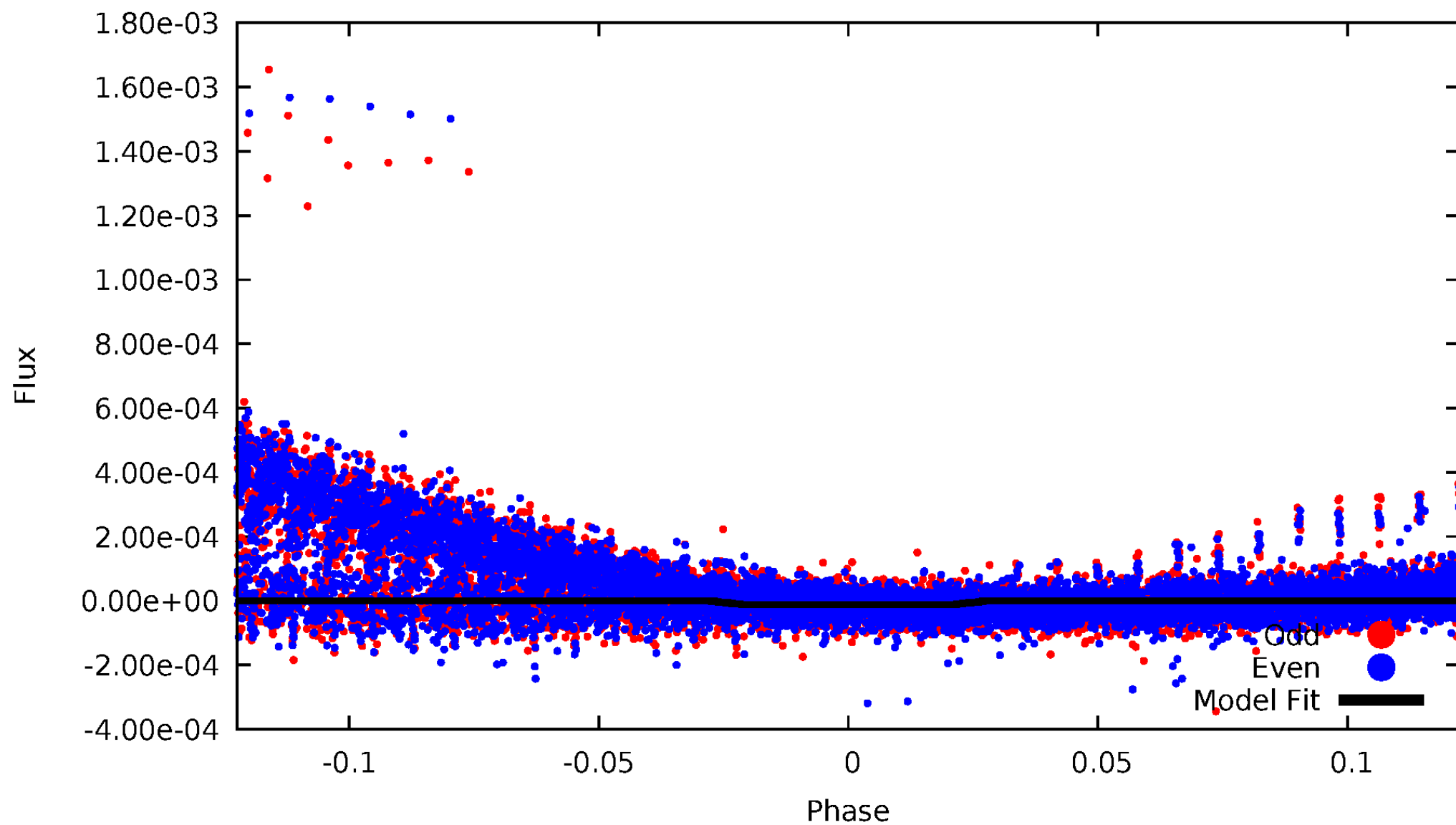
DV Odd/Even

TCE 008481006-03

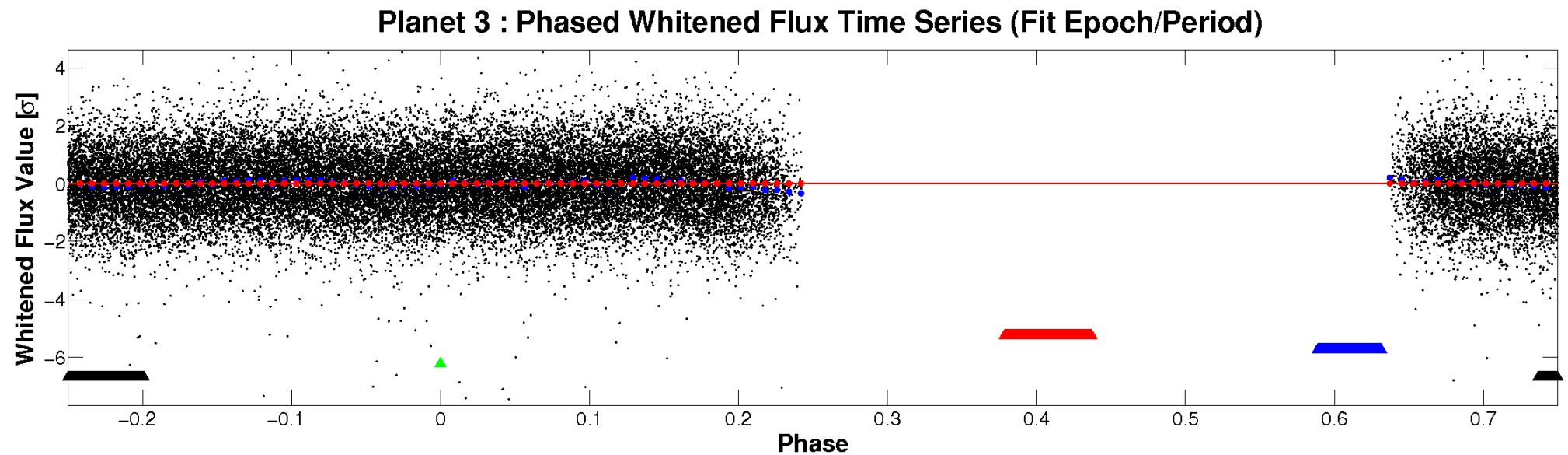
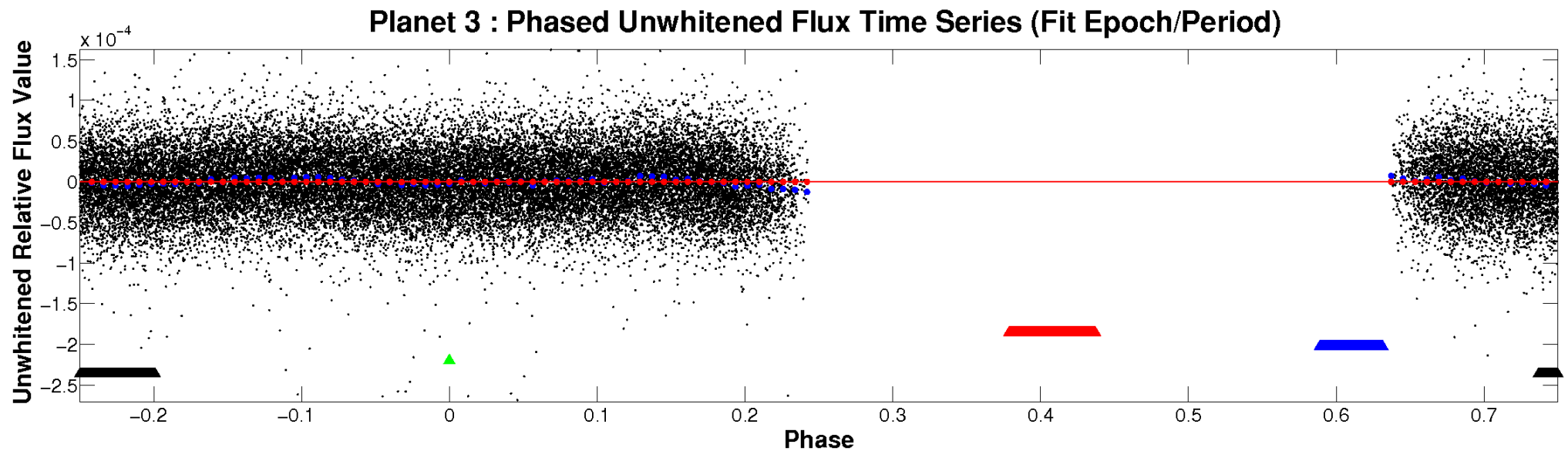


ALT Odd/Even

TCE 008481006-03

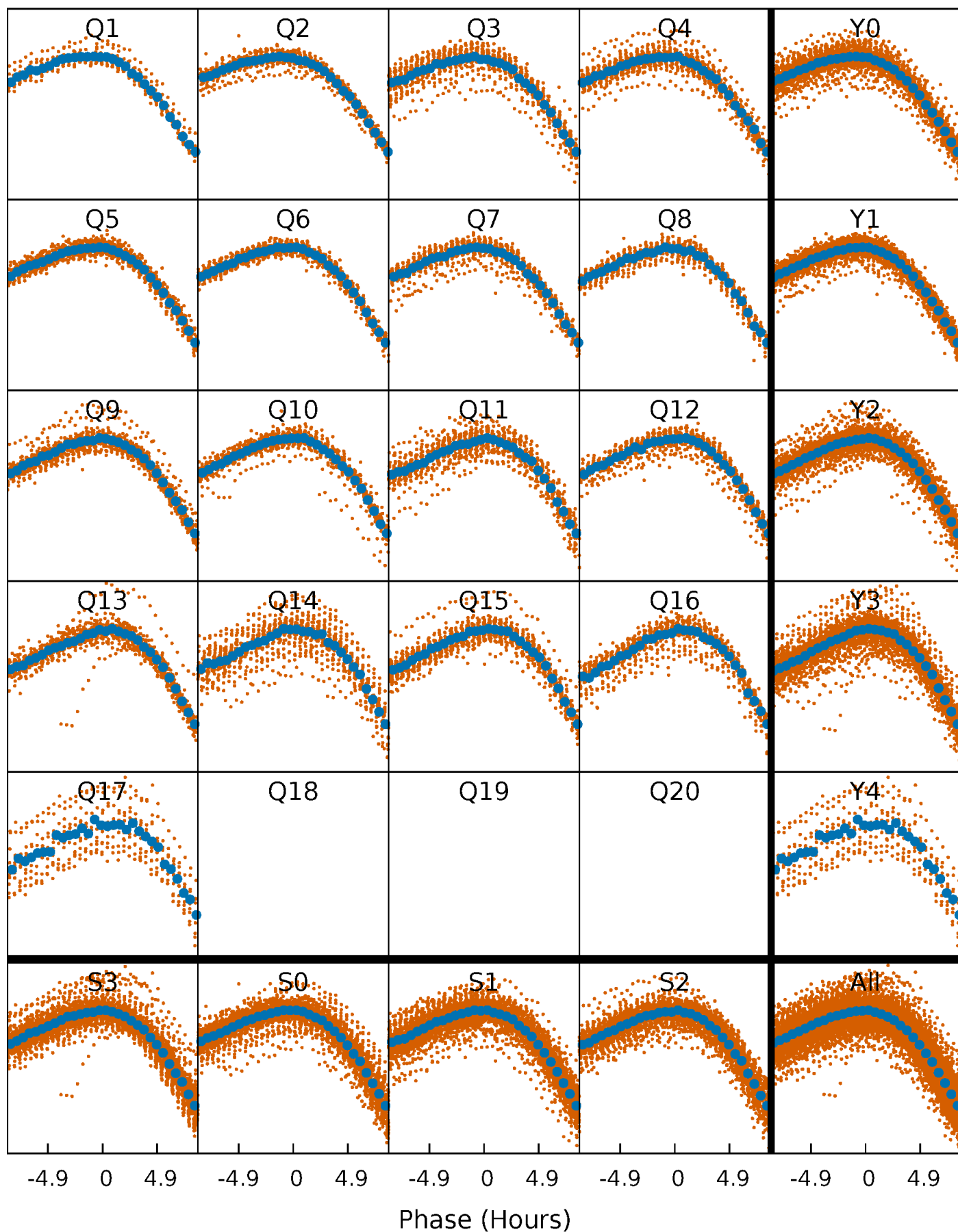


Non-Whitened Vs. Whitened Light Curve



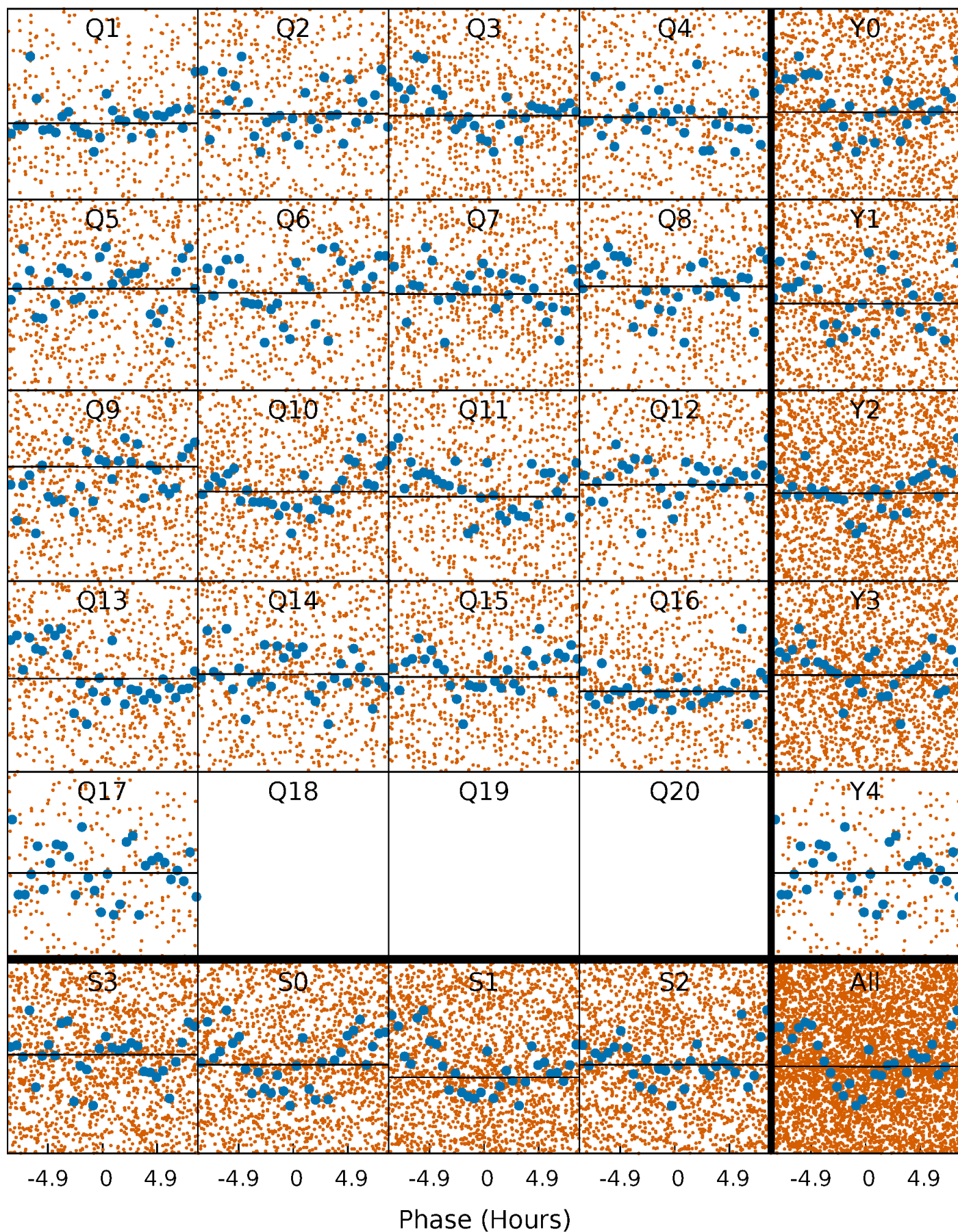
PDC Quarter-Phased Transit Curves

TCE 008481006-03 P= 2.533430 Days $T_0=134.072836$ (BKJD)



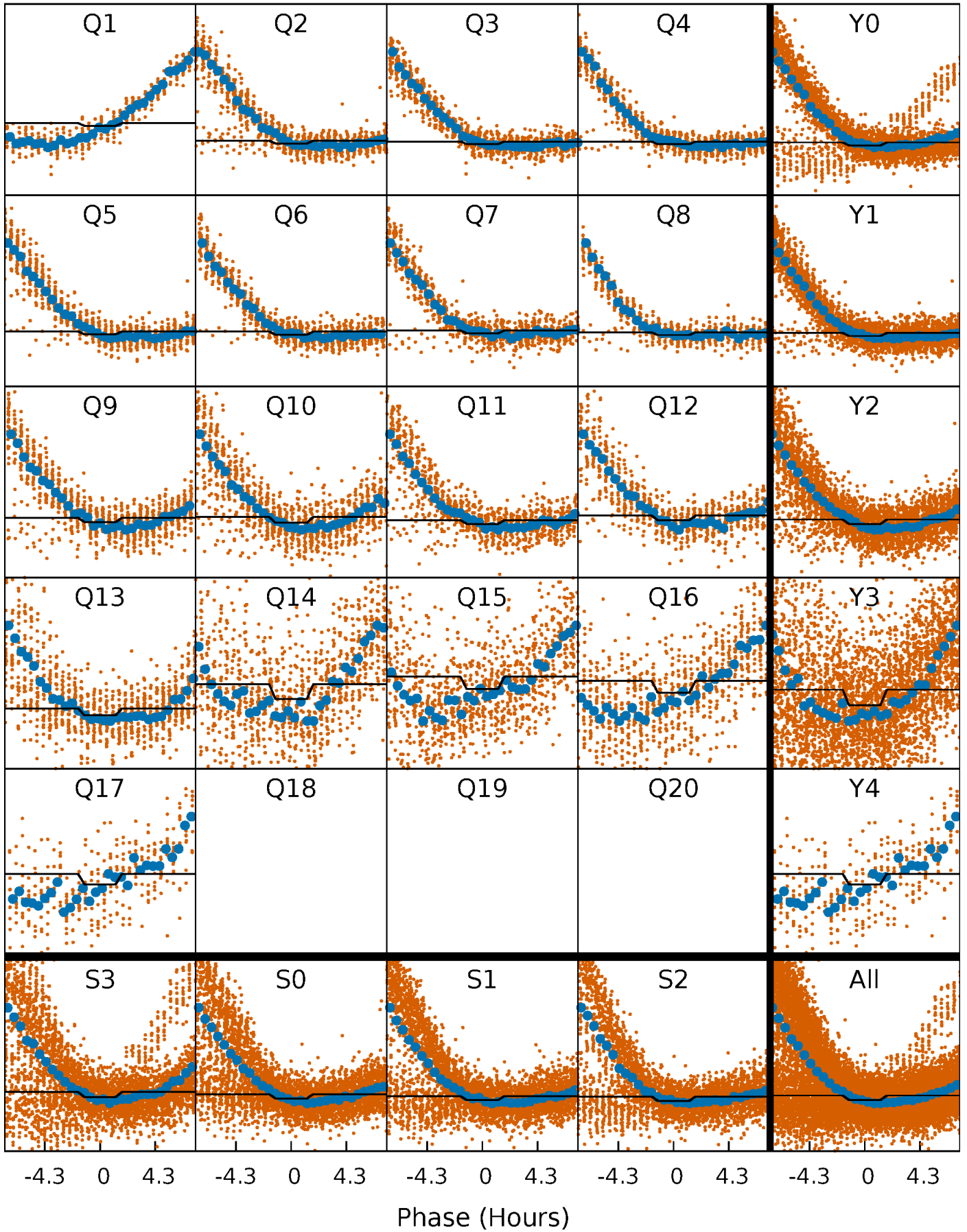
DV Quarter-Phased Transit Curves

TCE 008481006-03 P= 2.533430 Days $T_0=134.072836$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

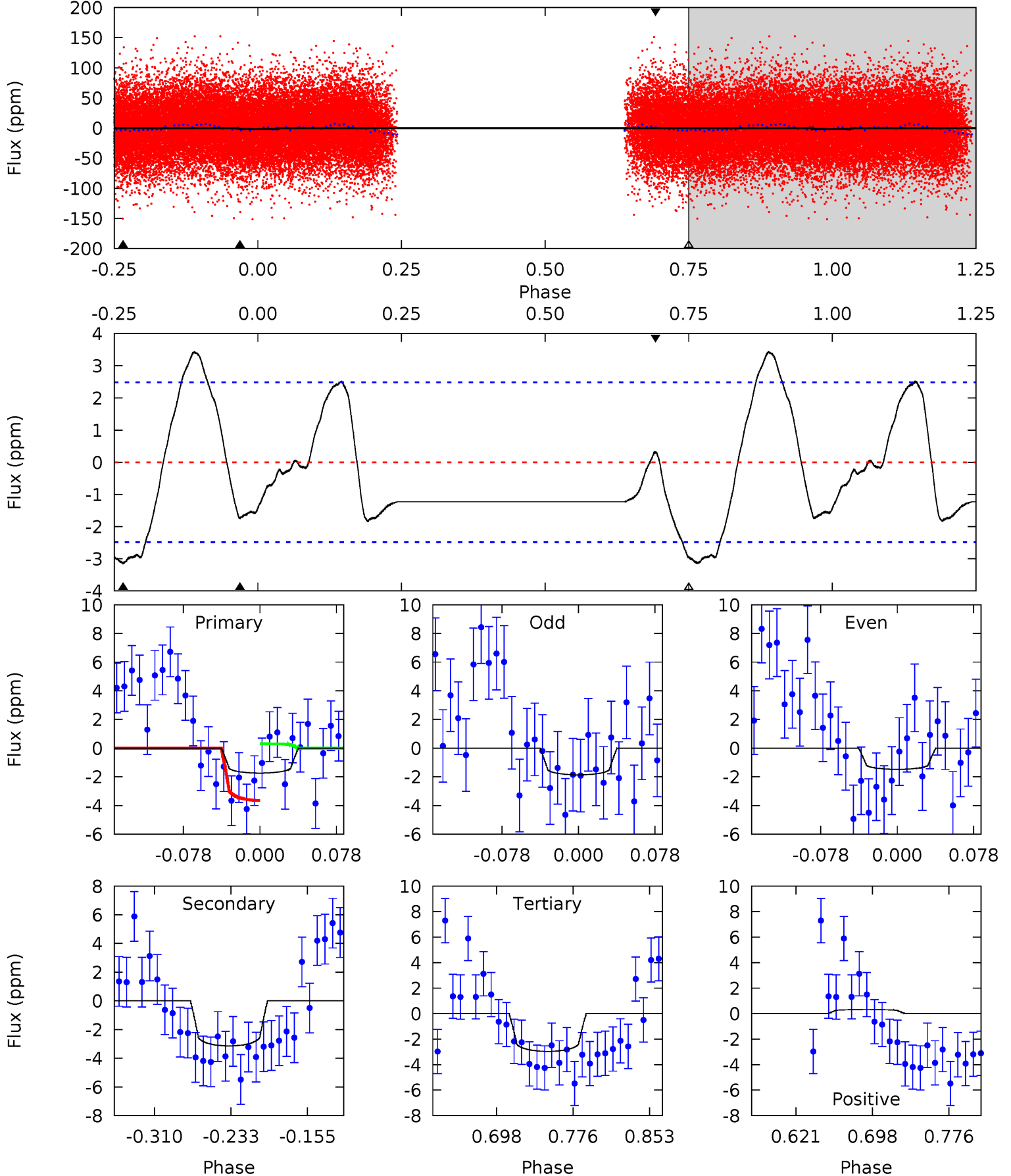
TCE 008481006-03 P= 2.533963 Days $T_0=133.571727$ (BKJD)



DV Model-Shift Uniqueness Test

008481006-03, P = 2.533430 Days, E = 129.005976 Days

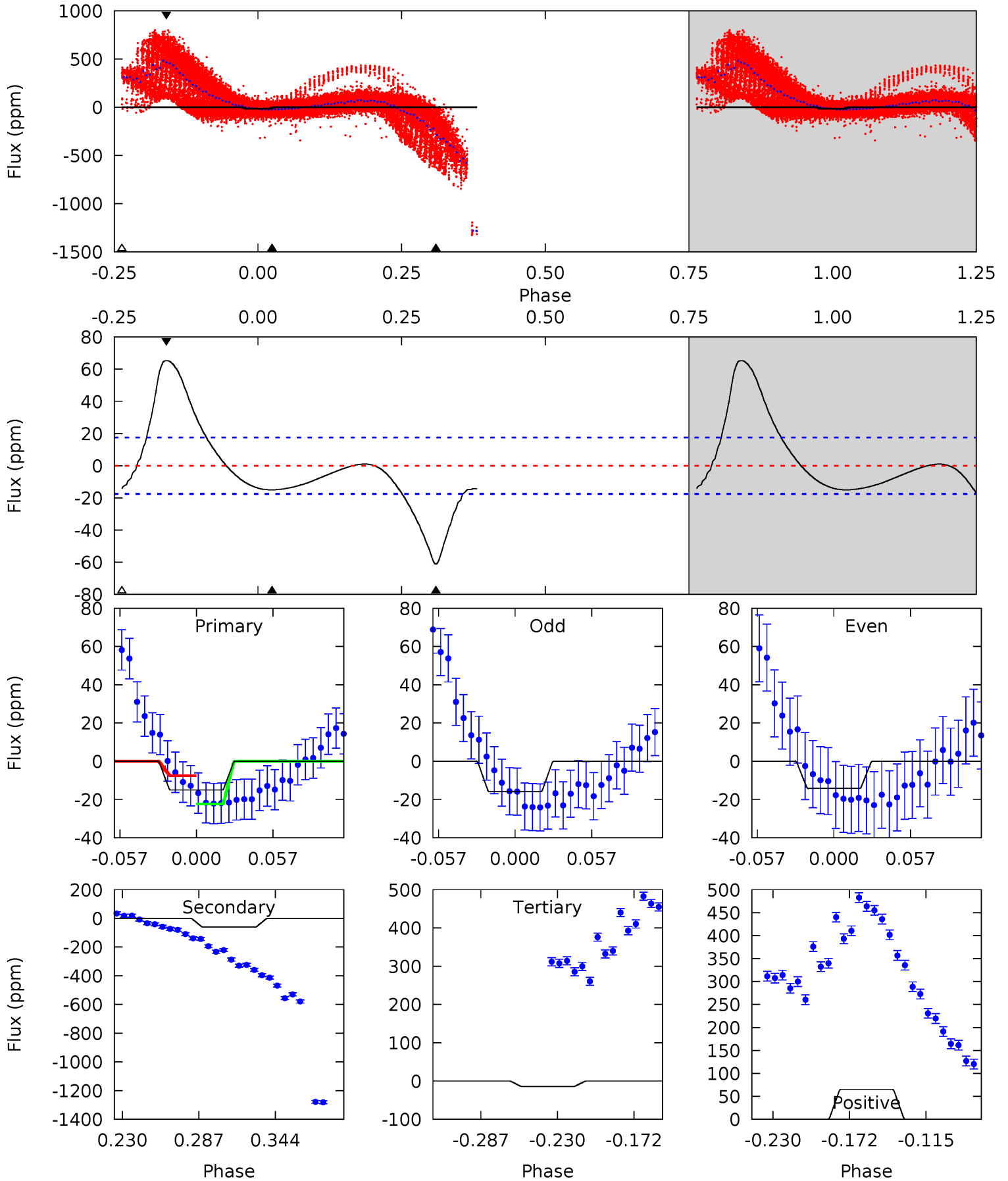
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
3.23	5.84	5.50	0.59	4.62	1.76	3.07	-2.27	2.64	0.34	5.25	0.36	2.84	0.52	3.11



Alt Model-Shift Uniqueness Test

008481006-03, P = 2.533963 Days, E = 131.037764 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
4.01	16.3	3.77	17.4	4.68	1.90	6.15	0.24	-13.4	12.5	-1.13	0.23	1.06	0.52	4.38



Stellar Parameters For KIC 008481006

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	M (M_{\odot})	p_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	9523^{+265}_{-454}	$3.776^{+0.392}_{-0.140}$	$0.070^{+0.200}_{-0.750}$	$3.558^{+0.933}_{-1.732}$	$2.755^{+0.264}_{-1.054}$	$0.086^{+0.374}_{-0.037}$
	+3%/-5%	+10%/-4%	+286%/-1071%	+26%/-49%	+10%/-38%	+435%/-43%
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 008481006-03 / KOI

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	-3 ± 1	$0.79^{+0.90}_{-0.56}$	4771^{+414}_{-527}	8050^{+16366}_{-2854}	$6.989^{+77.438}_{-5.454}$
Alt.	-61 ± 4	$1.41^{+1.18}_{-0.86}$	4730^{+414}_{-580}	15822^{+33659}_{-5986}	42^{+232}_{-29}

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

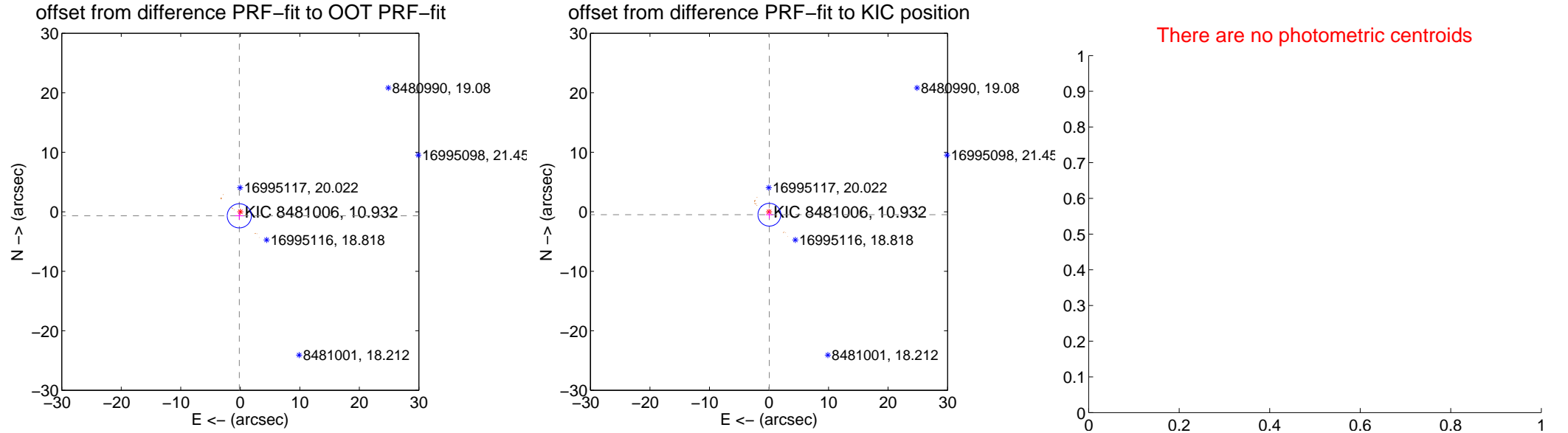
DV Centroid Data

Supplemental centroid analysis for 008481006-03. **Kepler magnitude: 10.93.** Transit SNR 0.04

There are 0 quarters with good PRF difference image offsets

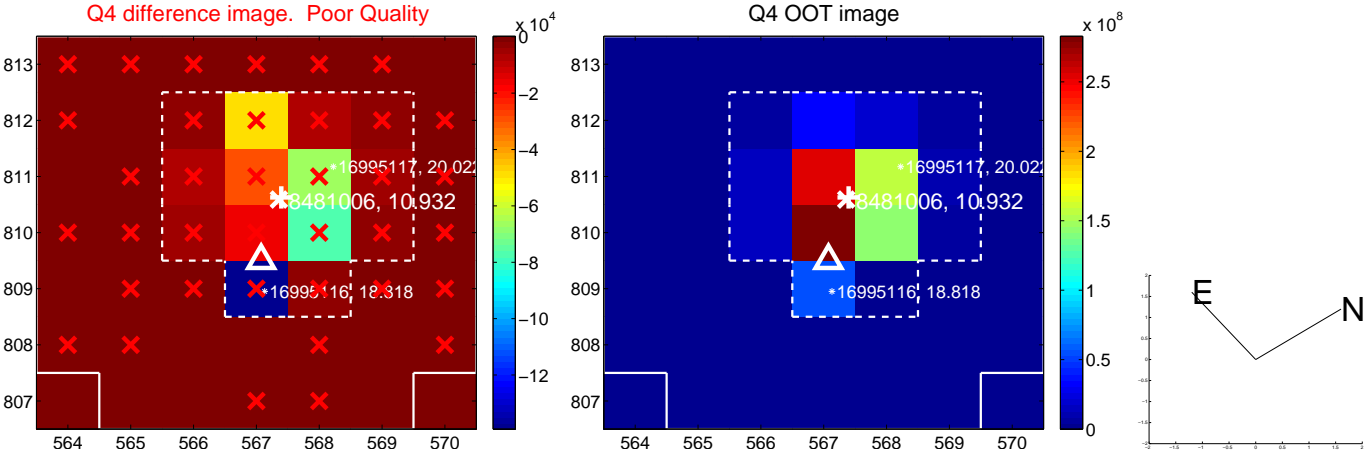
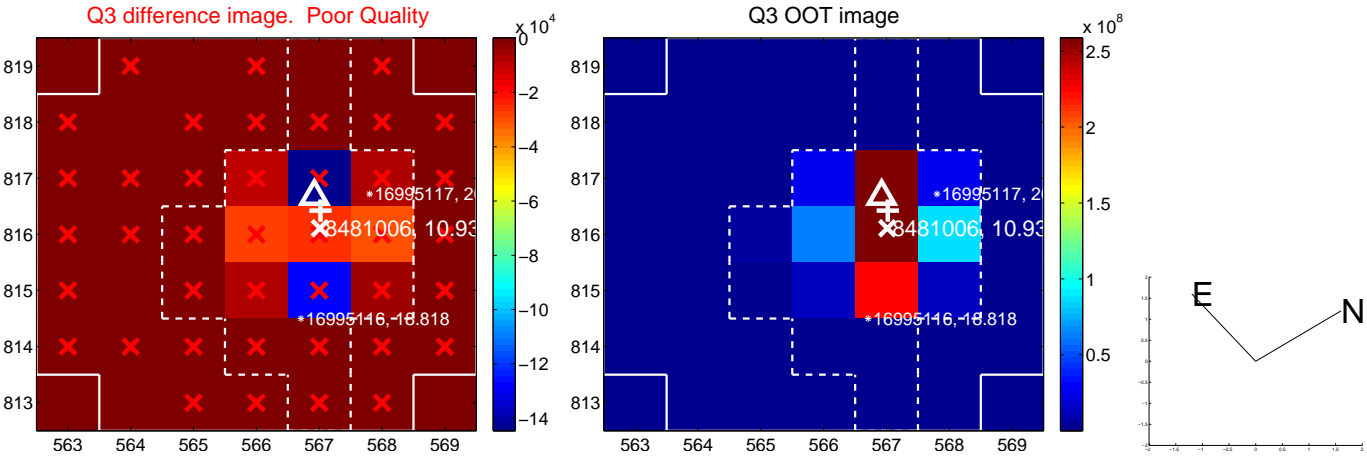
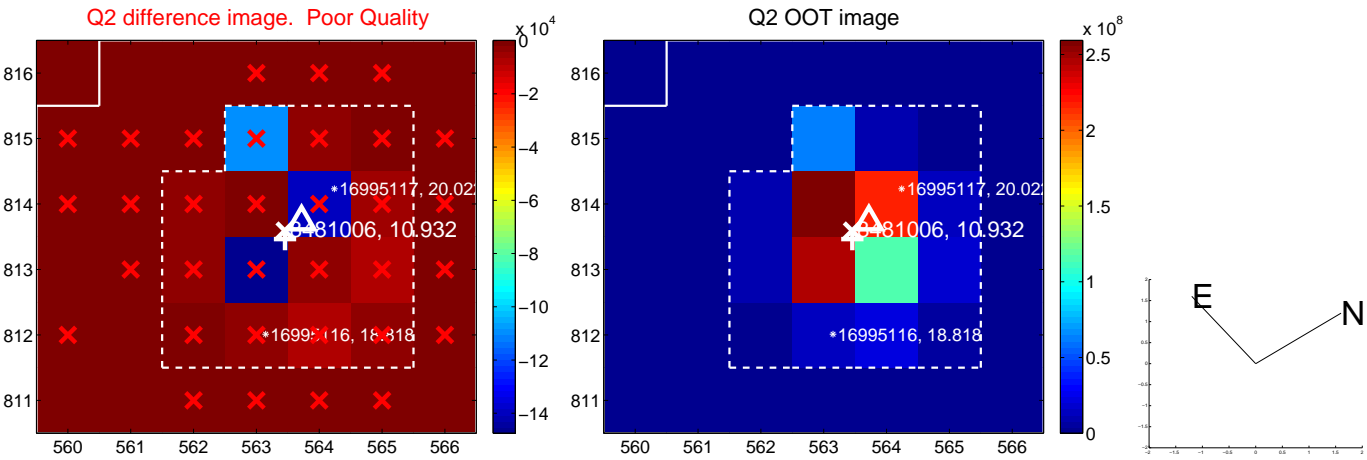
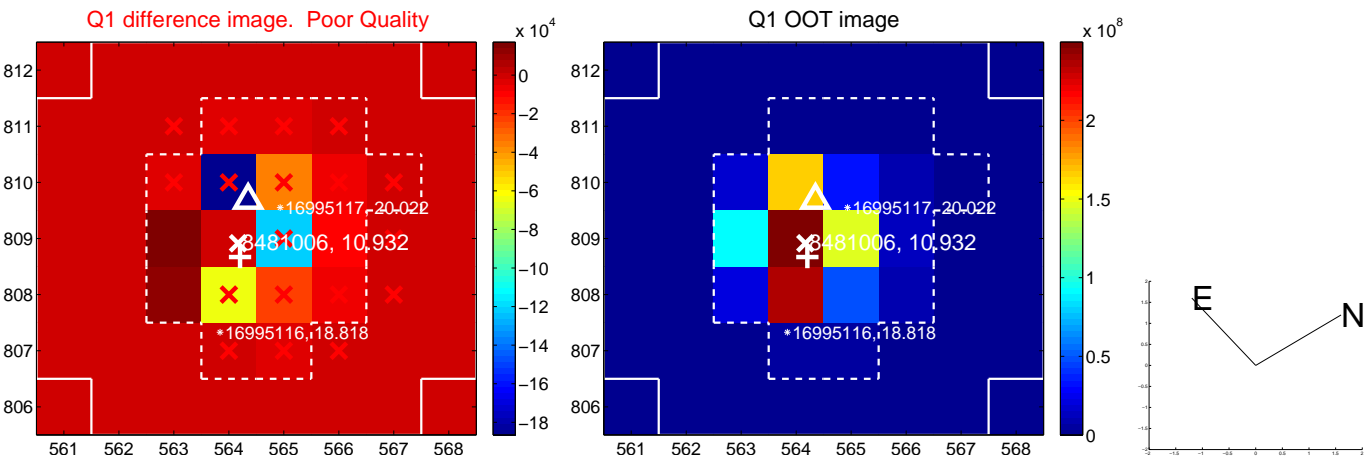
The direct PRF centroid is offset from the target star catalog position by about 0.88 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.699 ± 0.677	1.03	0.167 ± 0.689	-0.679 ± 0.676
PRF-fit source offset from KIC position	0.496 ± 0.638	0.78	-0.057 ± 0.607	-0.492 ± 0.639
photometric centroid source offset	—	—	—	—

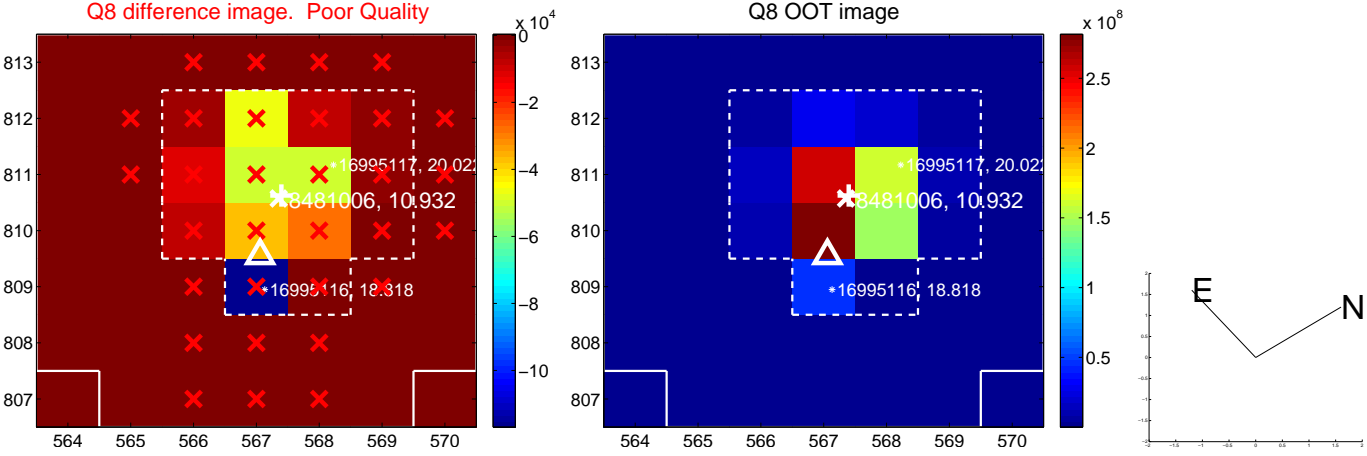
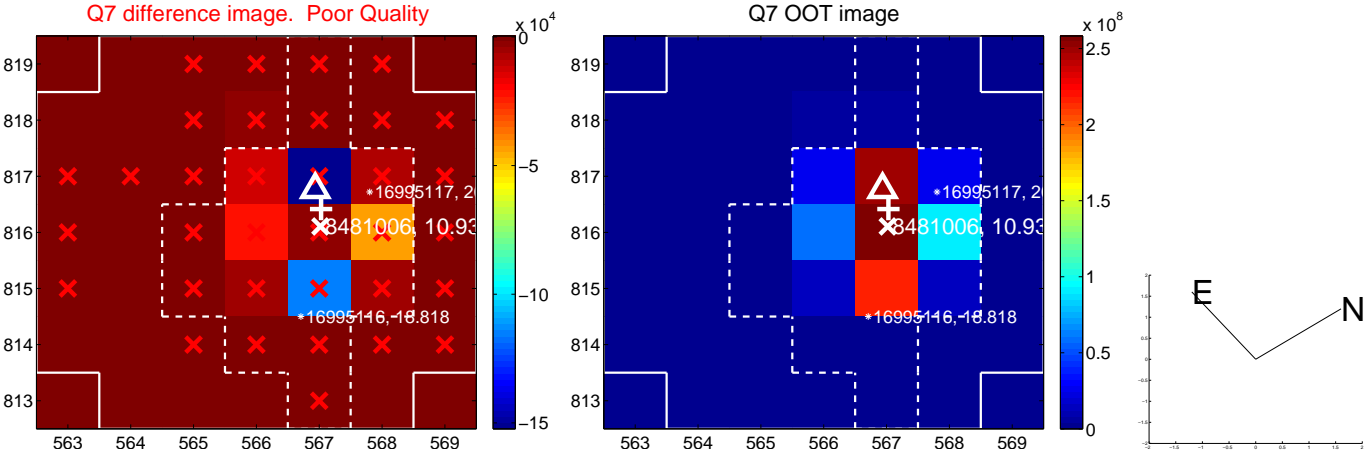
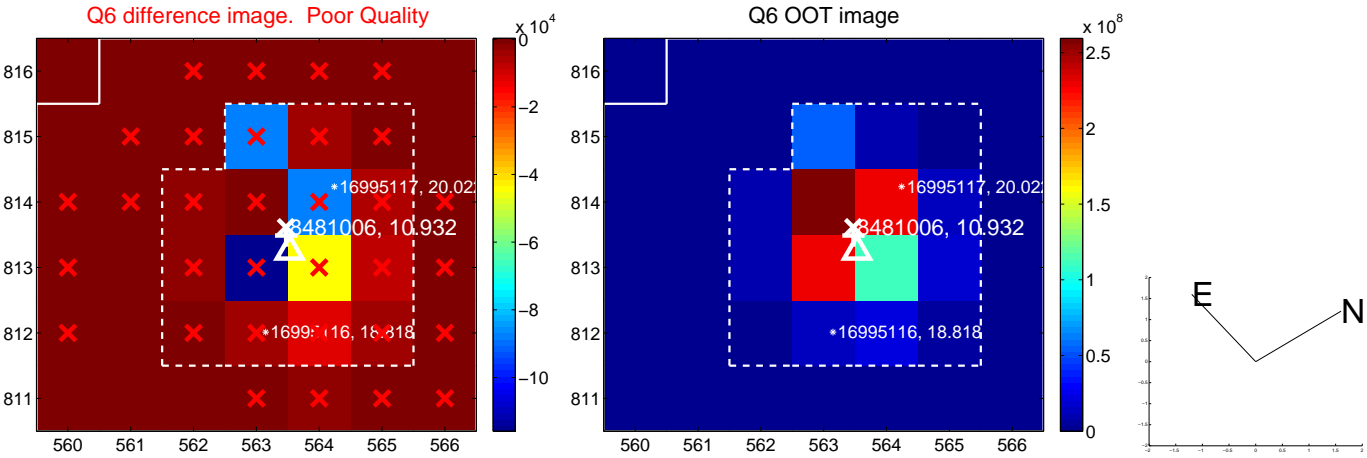
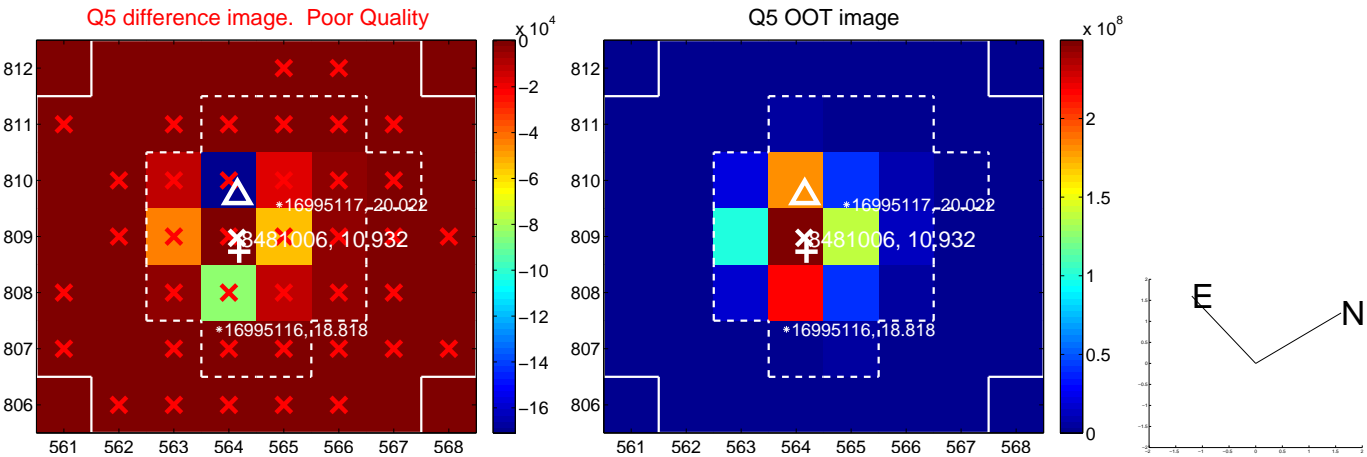


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets;** magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

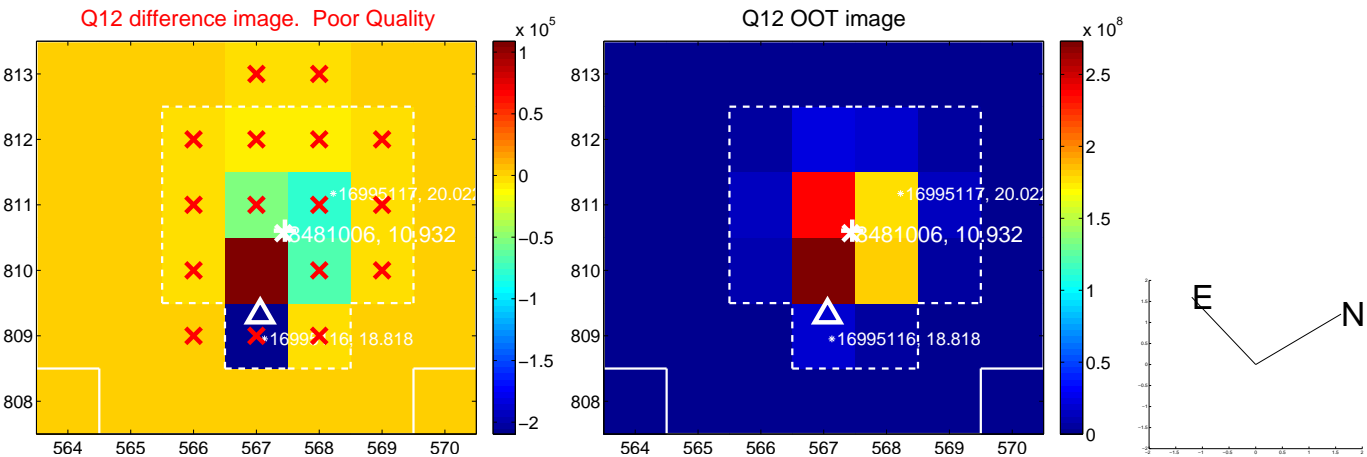
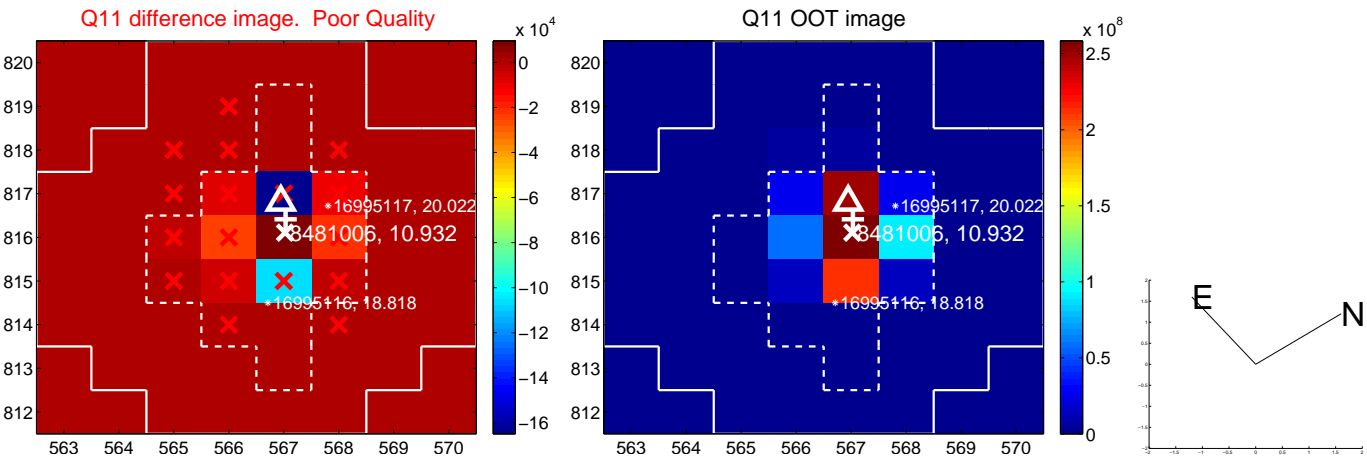
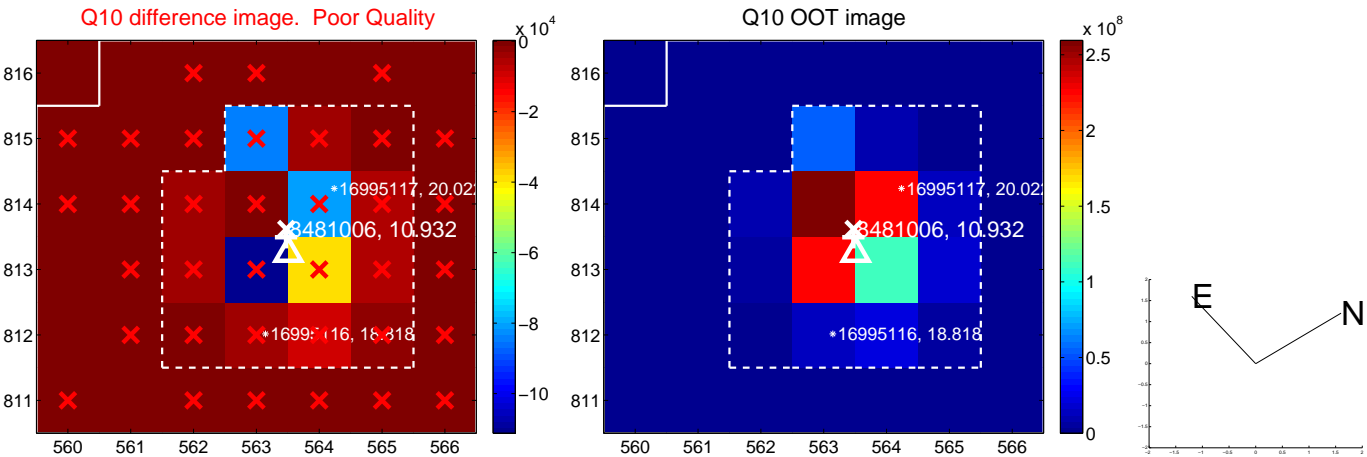
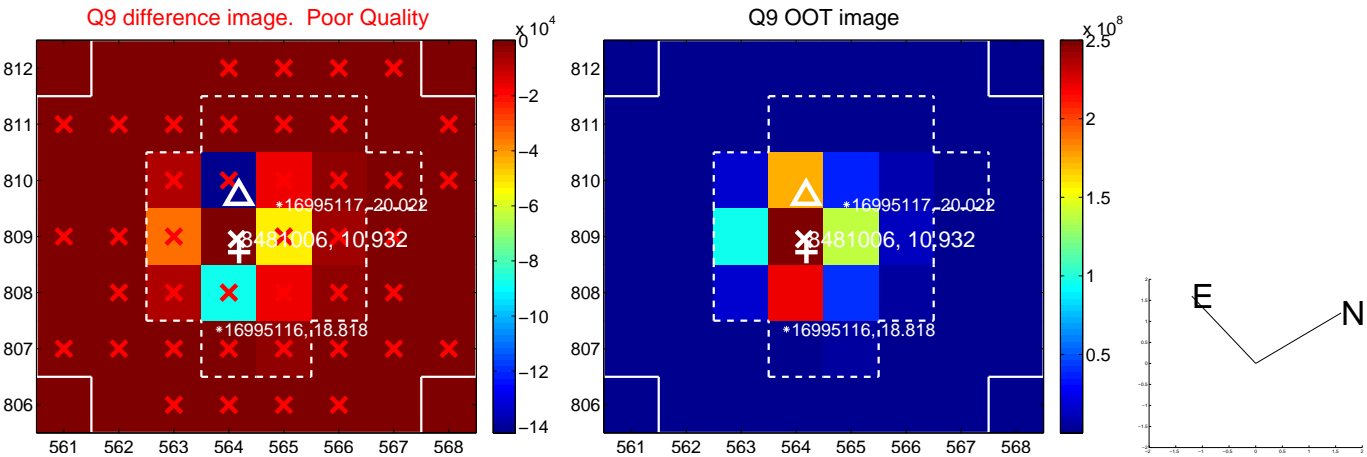
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



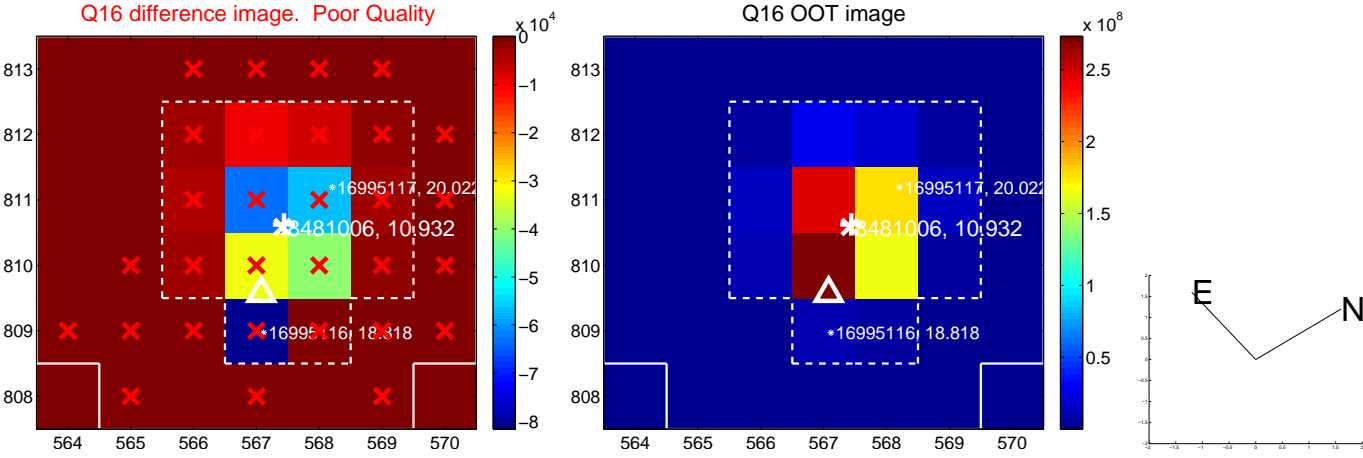
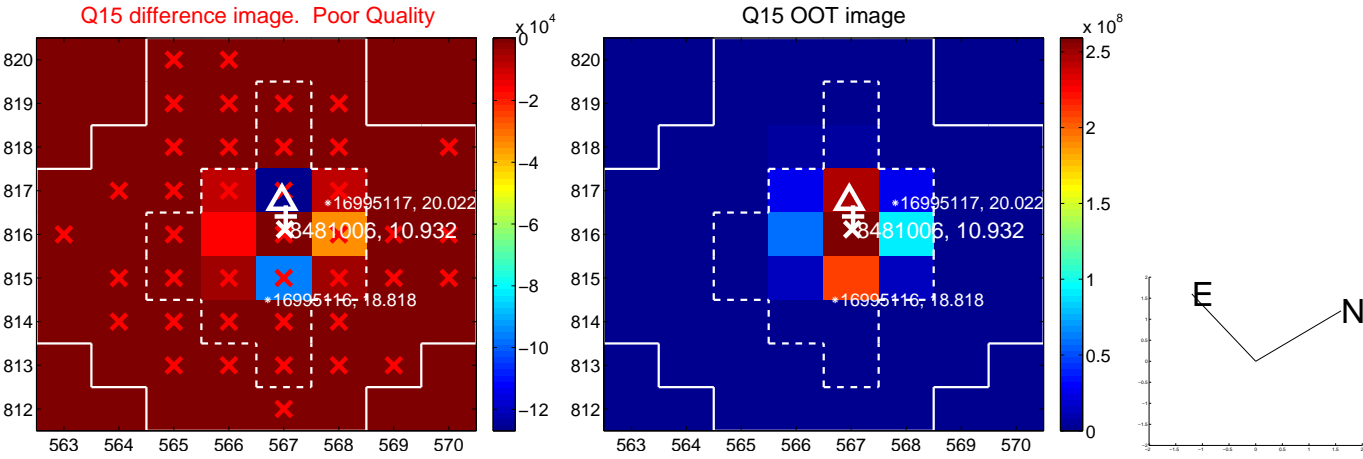
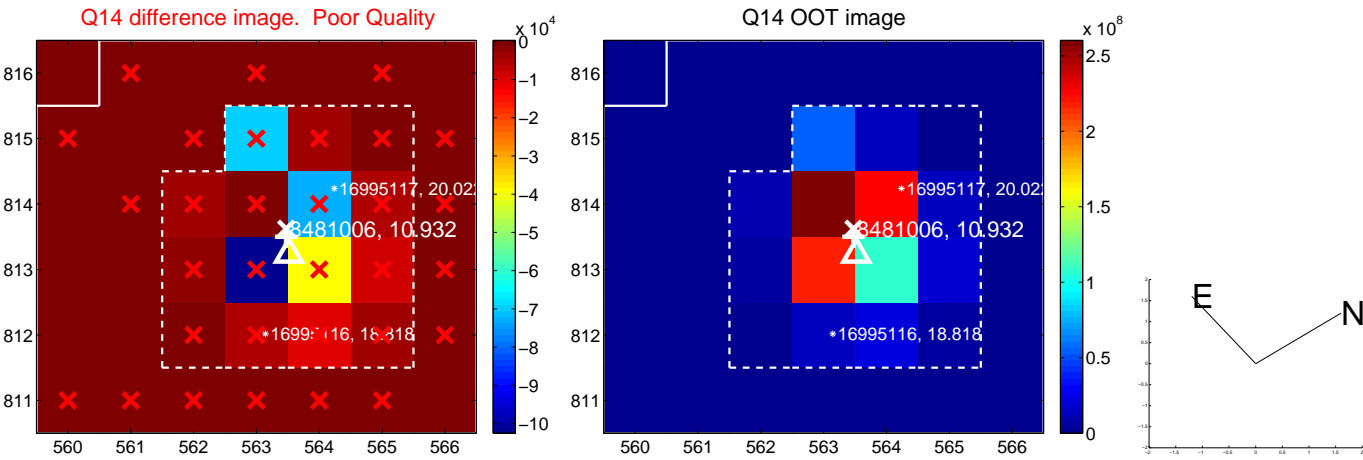
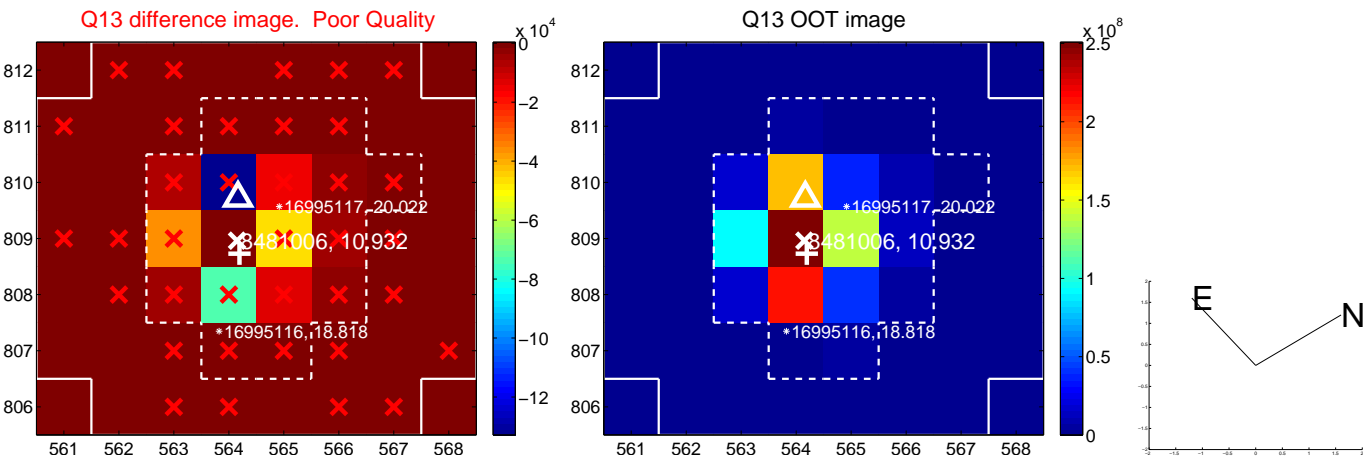
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



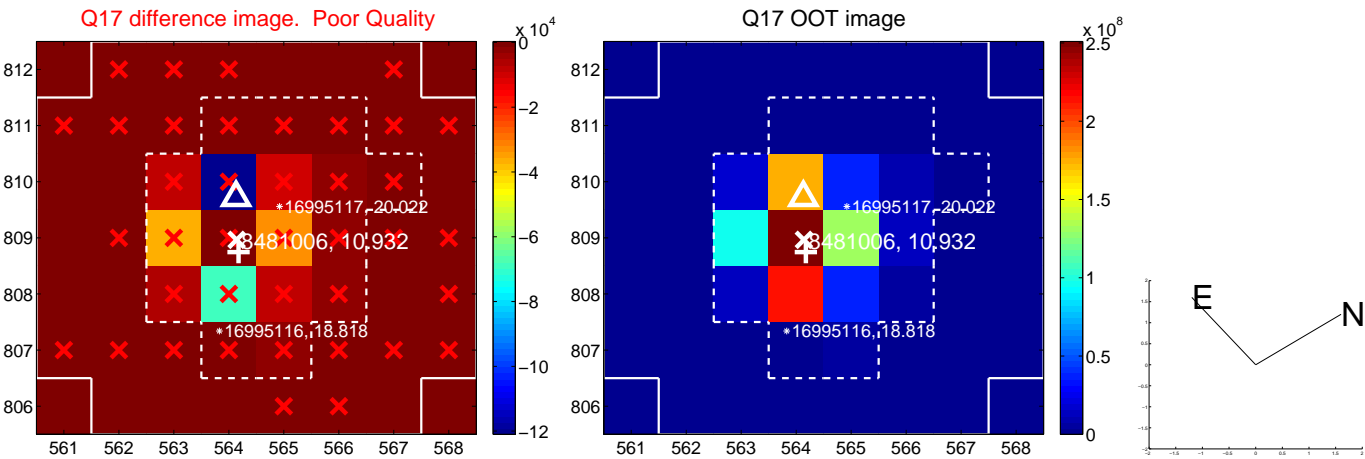
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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



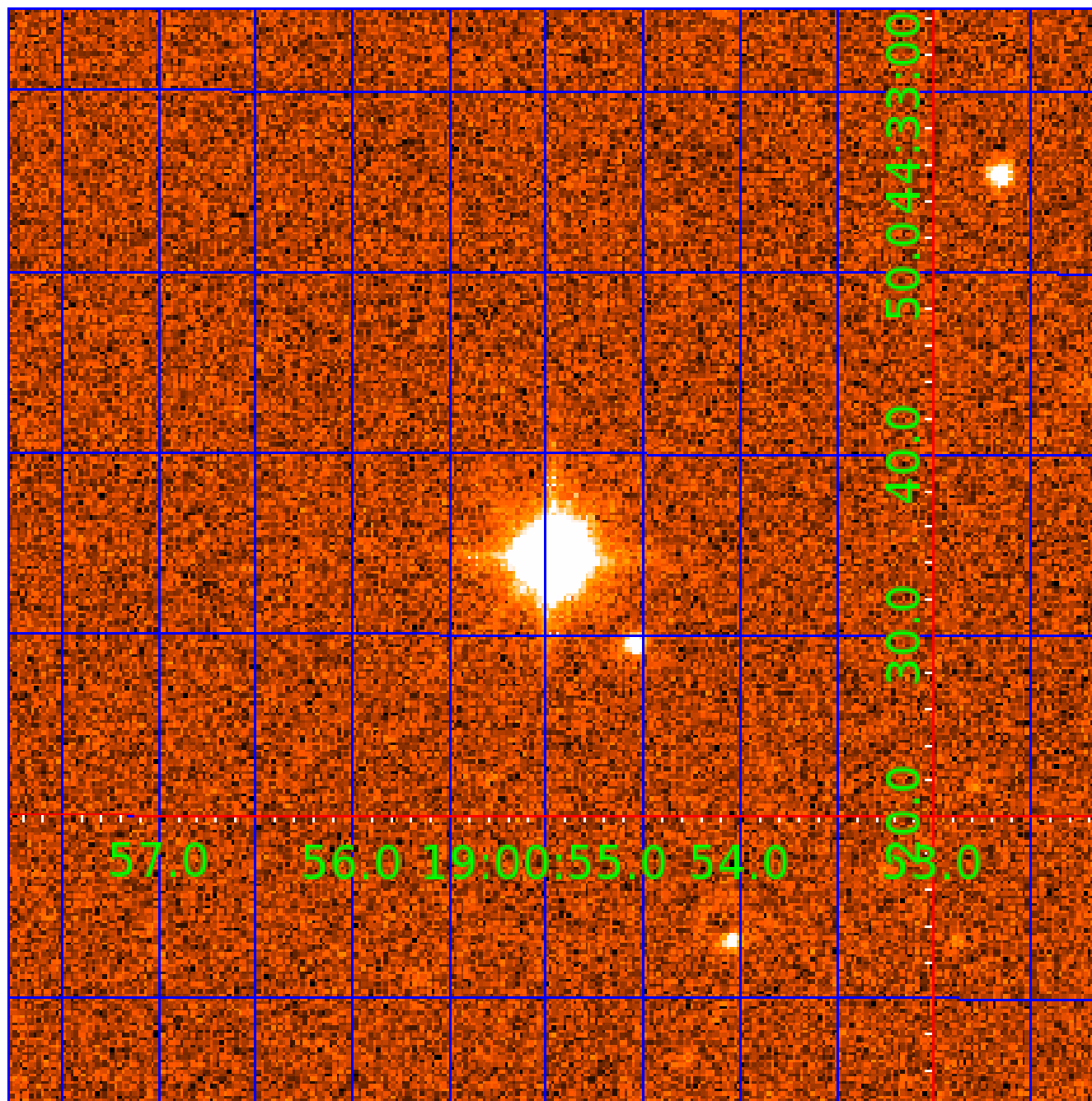
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



folded centroid time series figure for this object.

UKIRT Image

Declination



KIC 008481006

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})
008481006-01	OBS	No	2.533687	132.498551	7.9	7.558	13.4	11.0	3.56	9523	1.15	35847.27
008481006-02	OBS	No	2.533617	133.031337	11.5	1.769	9.0	11.1	3.56	9523	1.24	35848.60
008481006-03	OBS	No	2.533430	134.072836	0.0	4.274	9.4	0.0	3.56	9523	0.08	35852.13
008481006-04	OBS	No	2.533712	133.406190	8.4	0.671	9.2	5.2	3.56	9523	1.09	35846.80

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
008481006-01	OBS	FP	0.00	1	0	0	0	SWEET_NTL—LPP_DV—MOD_NONUNIQ_DV—CENT_SATURATED
008481006-02	OBS	FP	0.00	1	0	0	0	SWEET_NTL—LPP_DV—SAME_NTL_PERIOD—CENT_SATURATED
008481006-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_SKYE_ZUMA_TRACKER—SWEET_NTL—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—SAME_NTL_PERIOD—CENT_SATURATED
008481006-04	OBS	FP	0.00	1	0	0	0	SWEET_NTL—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—SAME_NTL_PERIOD—CENT_SATURATED

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

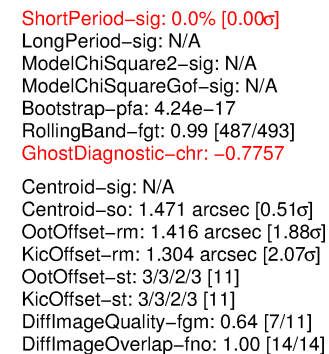
N = Not Transit-Like. S = Stellar Eclipse. C = Centroid Offset. E = Ephemeris Match.

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

Ephemeris Match Information For 008481006-04

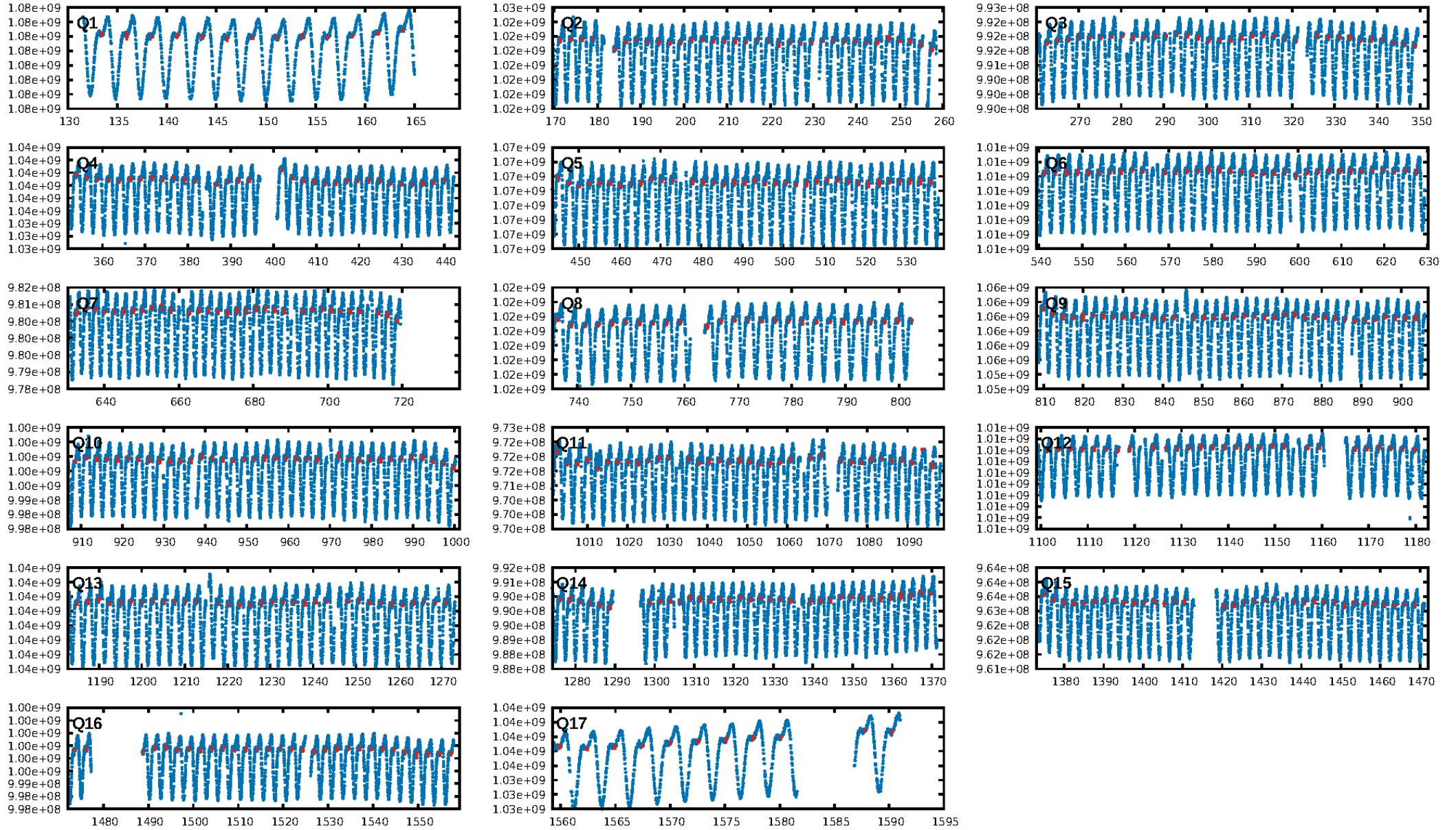
No Significant Match Found

KIC: 8481006 Candidate: 4 of 4 Period: 2.534 d

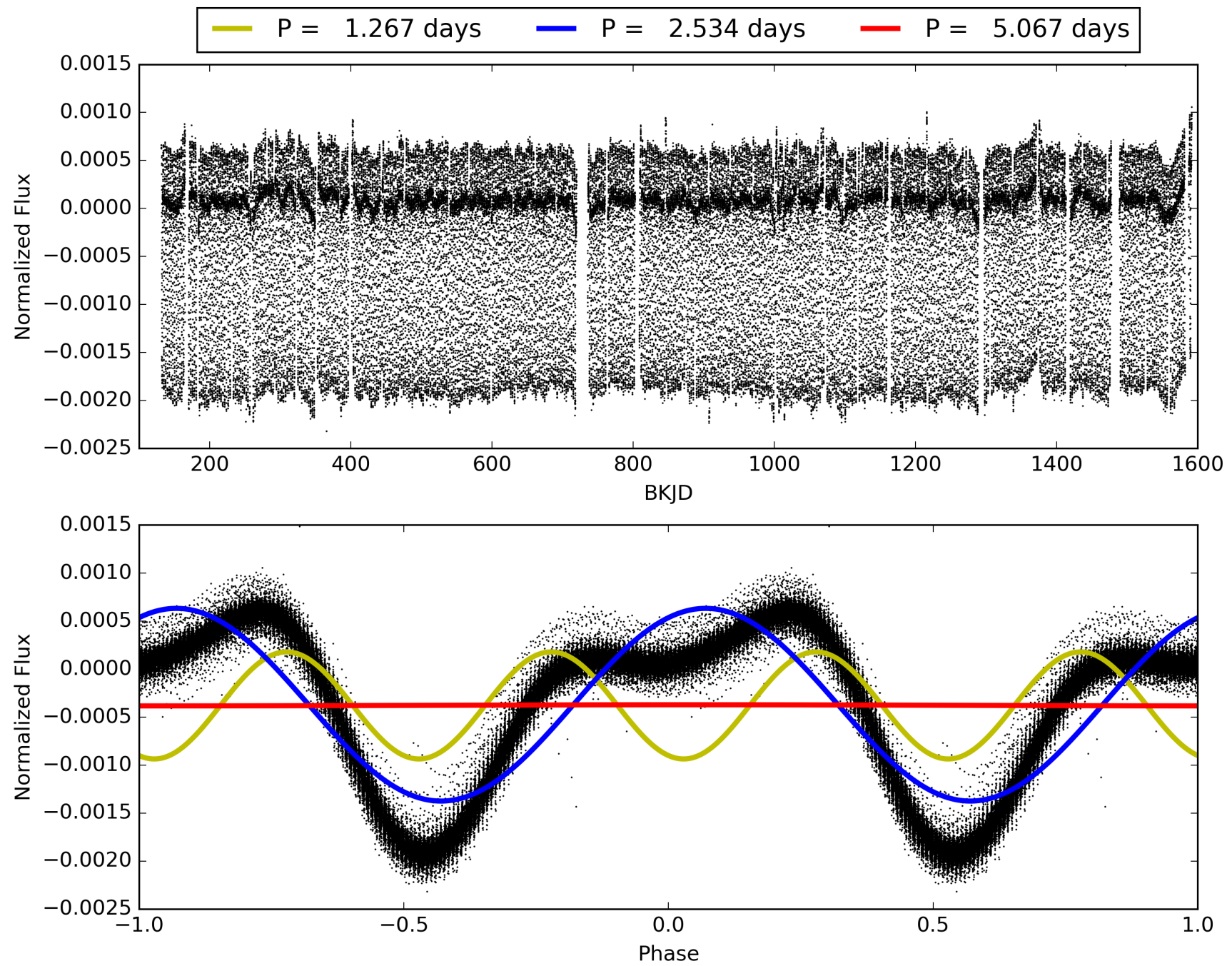


This Data Validation Report Summary was produced in the Kepler Science Operations Center Pipeline at NASA Ames Research Center

TCE 008481006-04, PDC Light Curves

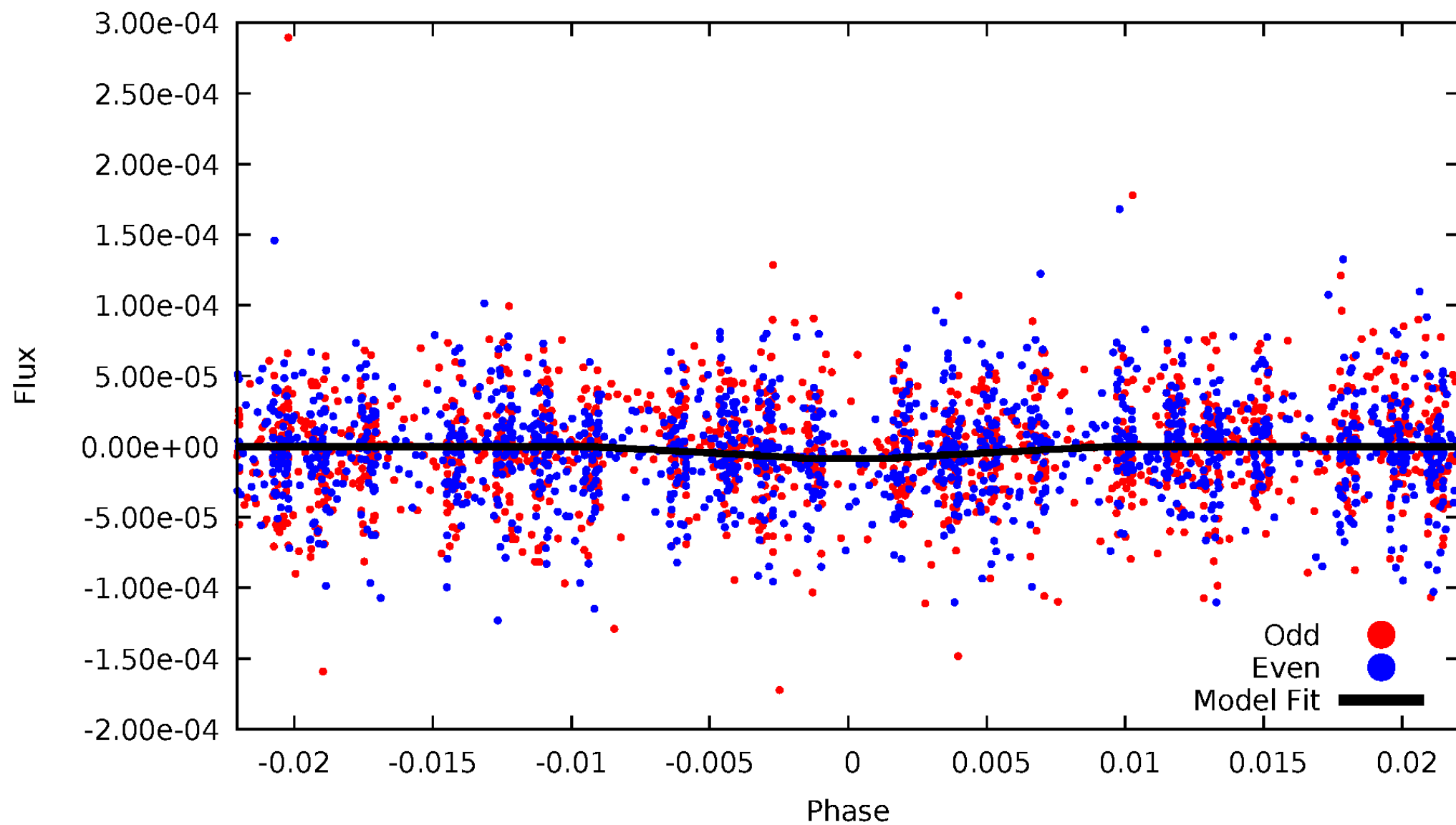


TCE 008481006-04



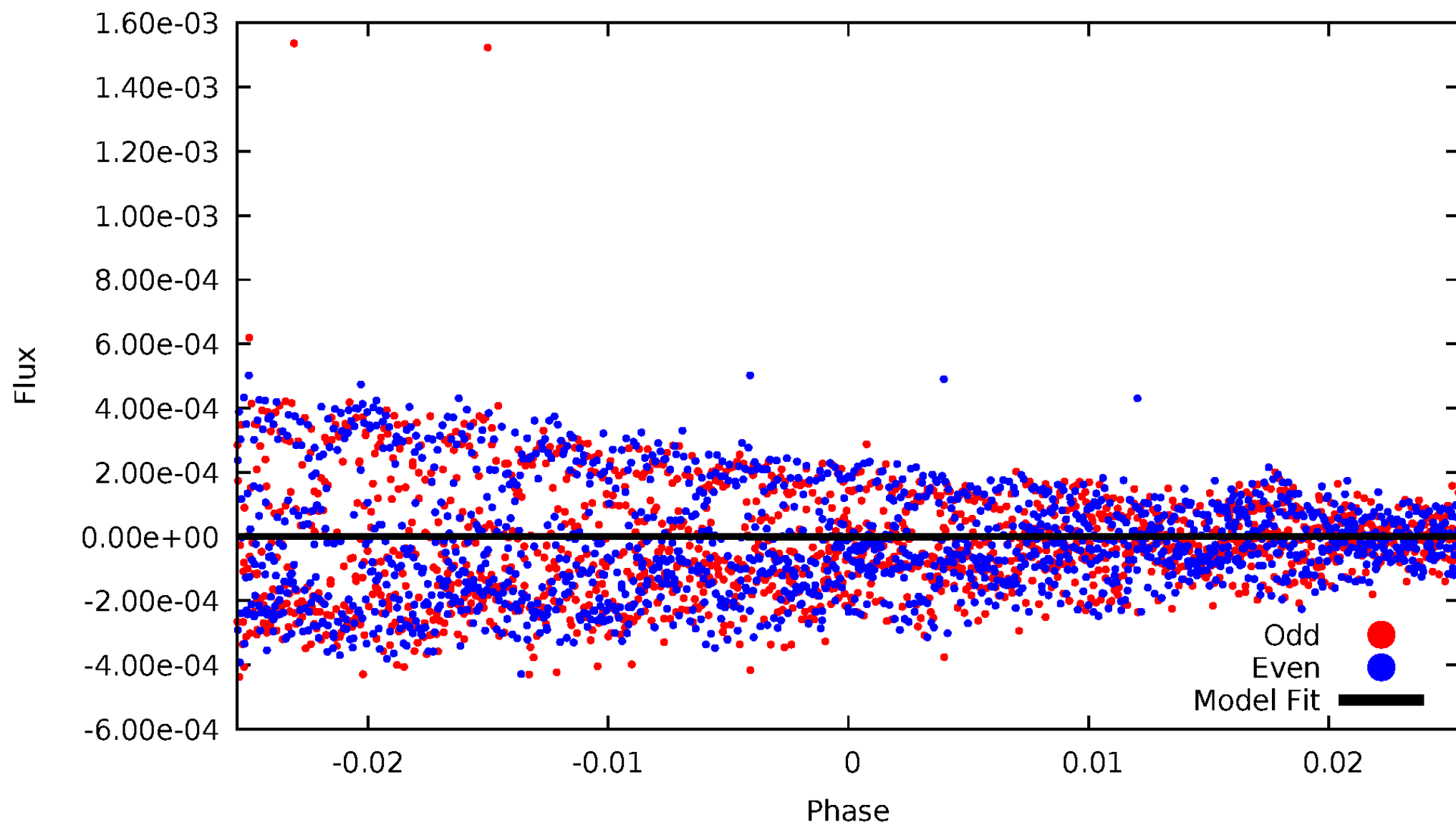
DV Odd/Even

TCE 008481006-04



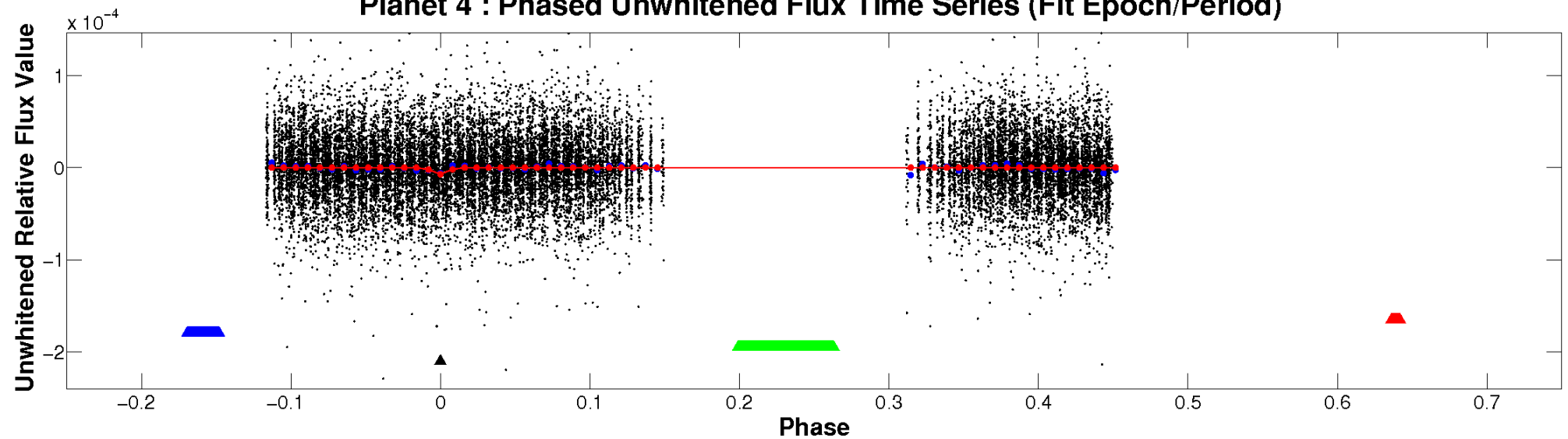
ALT Odd/Even

TCE 008481006-04

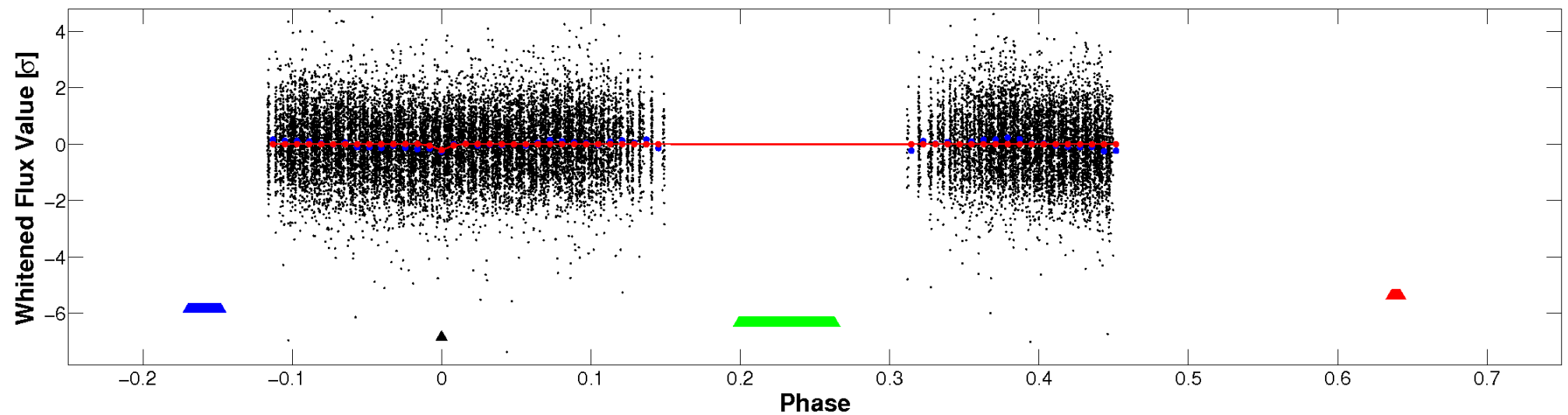


Non-Whitened Vs. Whitened Light Curve

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

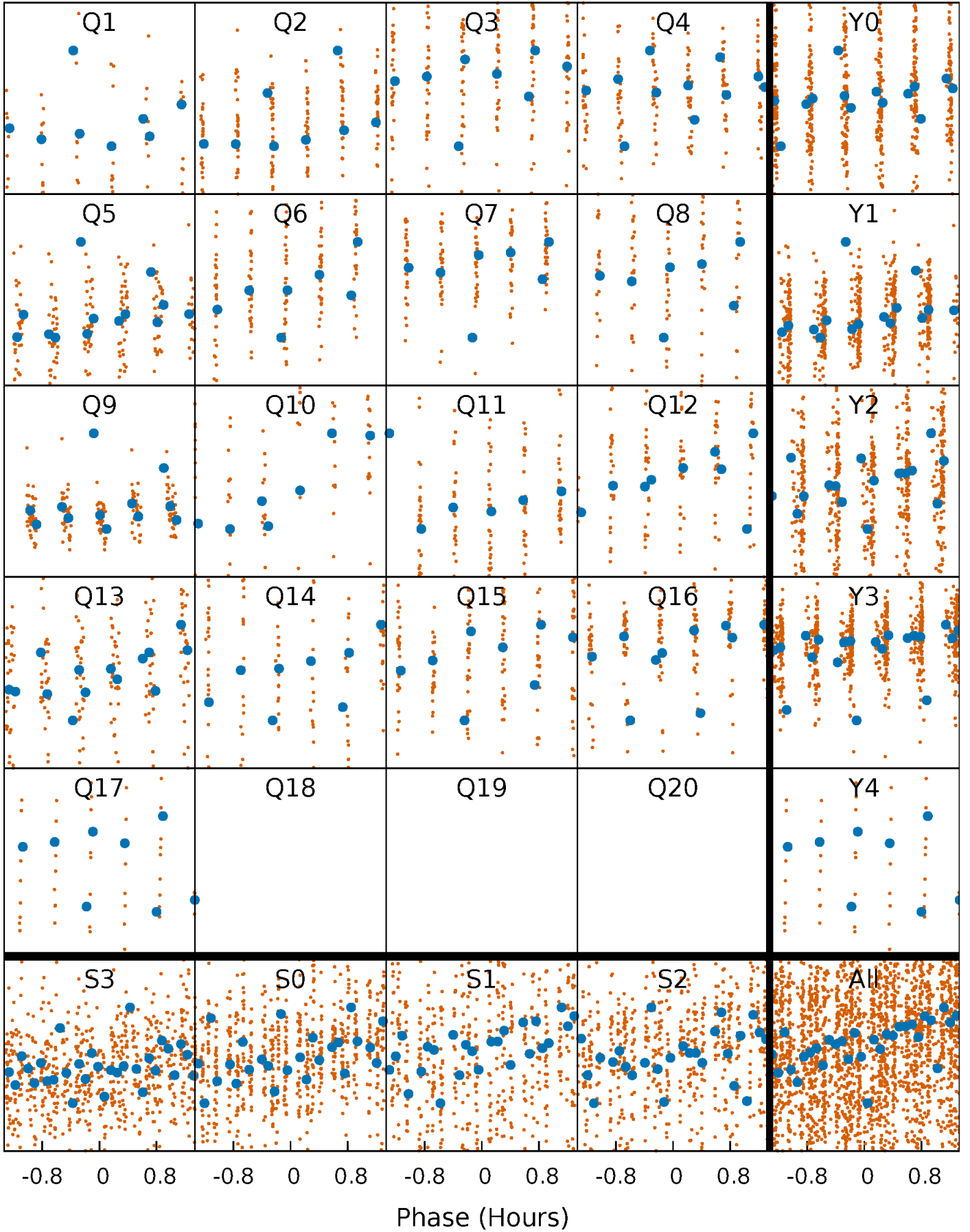


Planet 4 : Phased Whitened Flux Time Series (Fit Epoch/Period)



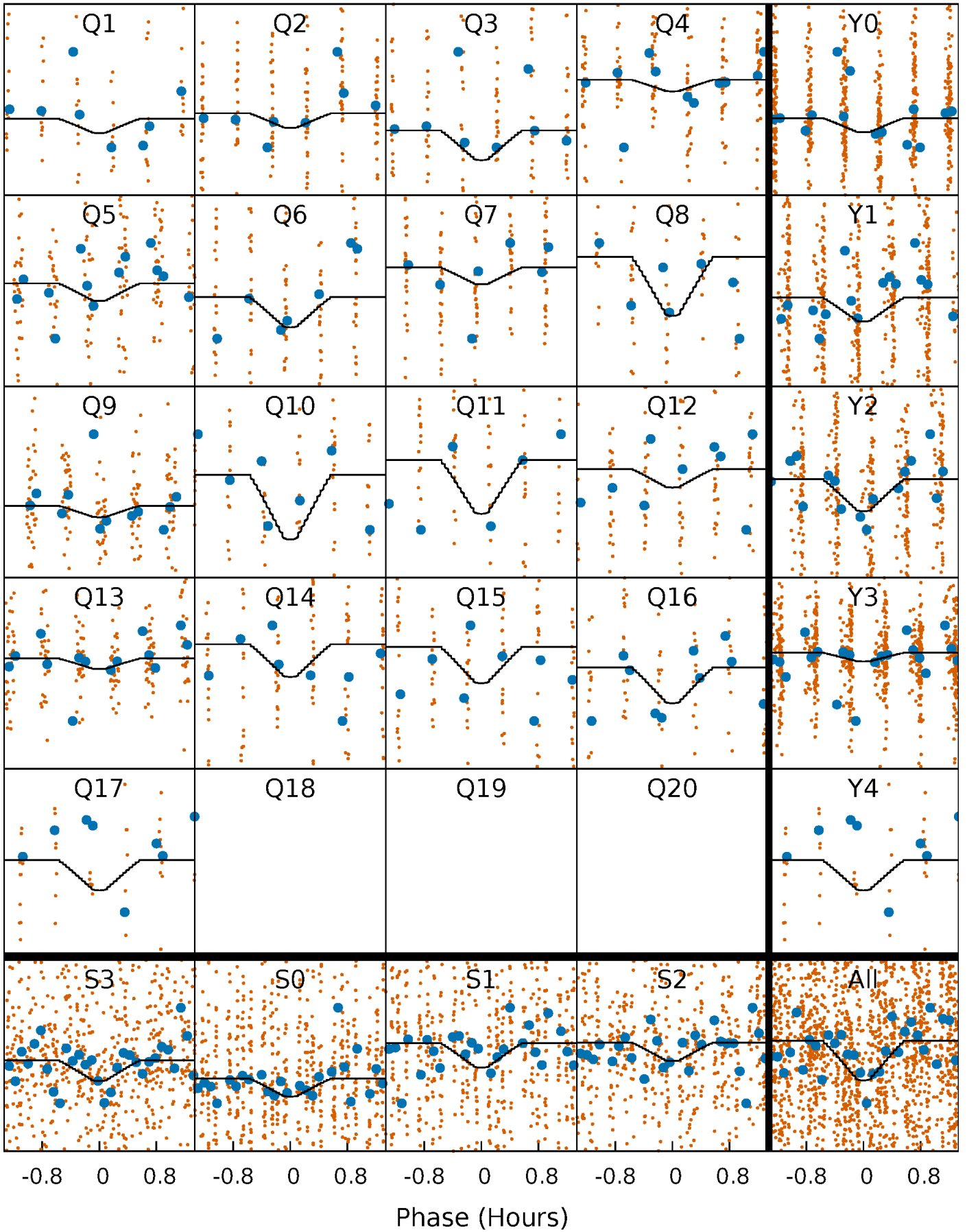
PDC Quarter-Phased Transit Curves

TCE 008481006-04 P= 2.533712 Days $T_0=133.406190$ (BKJD)



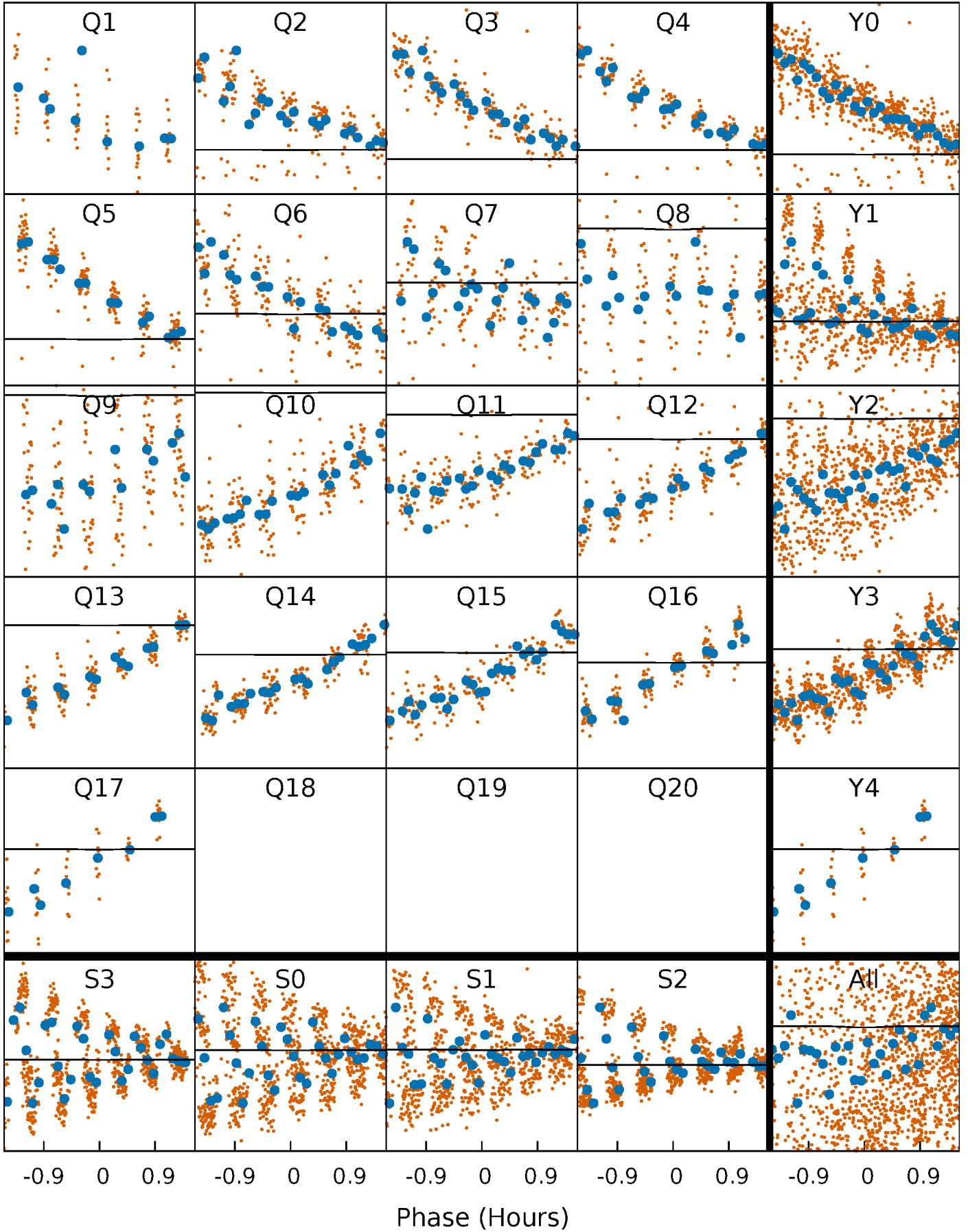
DV Quarter-Phased Transit Curves

TCE 008481006-04 P= 2.533712 Days $T_0=133.406190$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

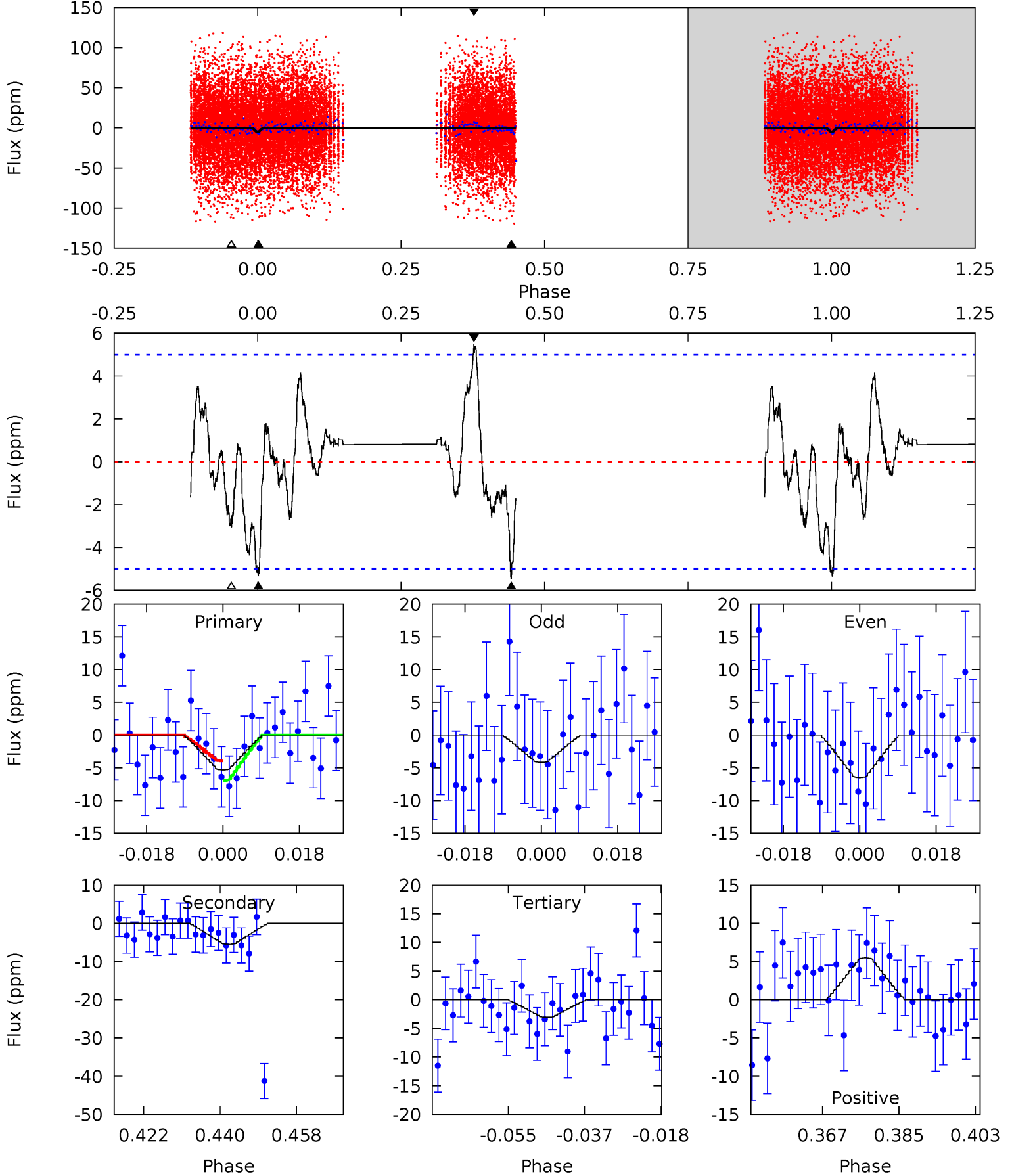
TCE 008481006-04 $P = 2.534028$ Days $T_0 = 133.406491$ (BKJD)



DV Model-Shift Uniqueness Test

008481006-04, P = 2.533712 Days, E = 130.872478 Days

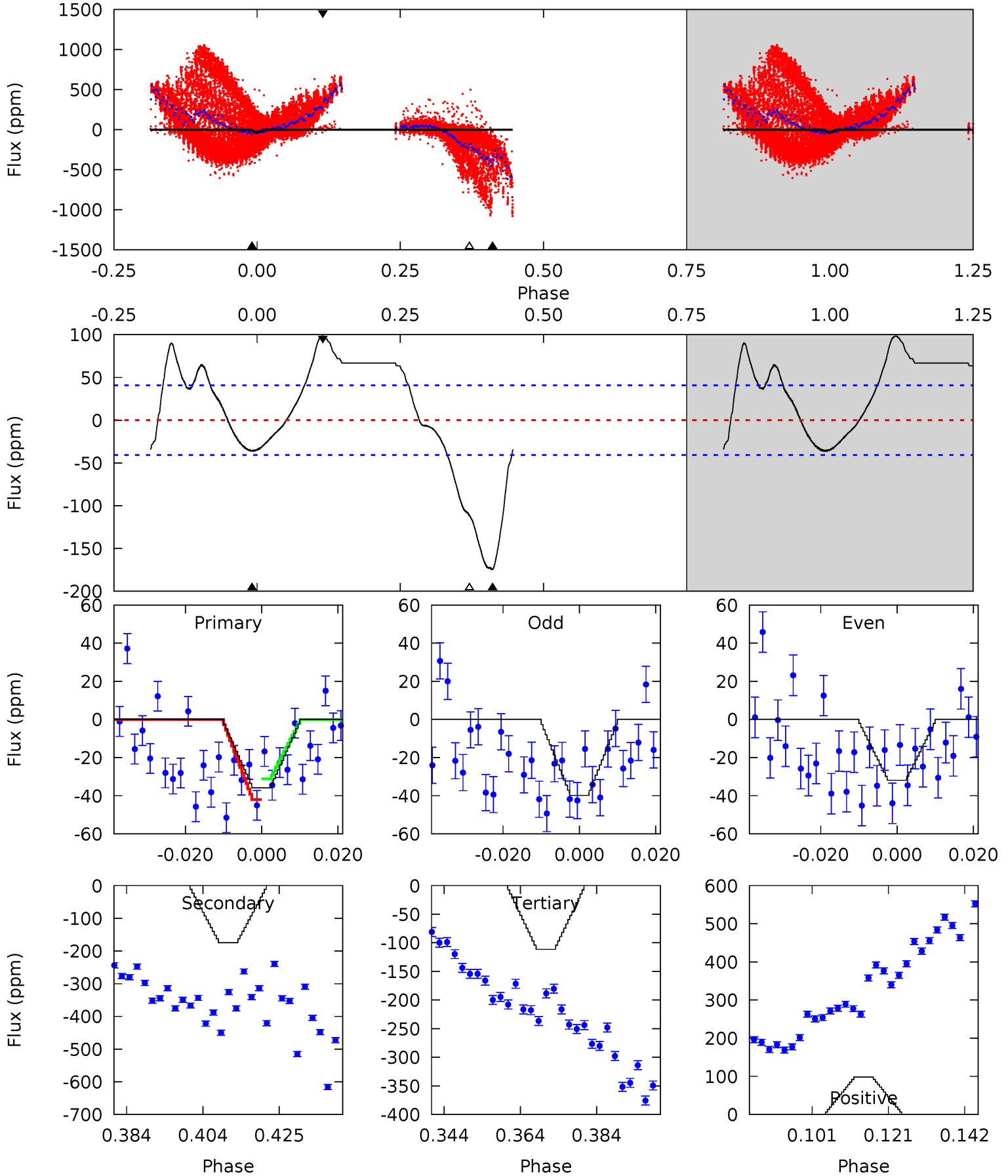
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
5.24	5.38	3.01	5.40	4.91	2.36	2.00	2.24	-0.16	2.37	-0.02	1.15	0.67	0.50	1.48



Alt Model-Shift Uniqueness Test

008481006-04, P = 2.534028 Days, E = 130.872463 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
4.30	20.9	13.4	11.8	4.89	2.32	6.80	-9.06	-7.48	7.59	9.16	0.48	0.49	0.36	0.69



Stellar Parameters For KIC 008481006

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	M (M_{\odot})	p_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	9523^{+265}_{-454}	$3.776^{+0.392}_{-0.140}$	$0.070^{+0.200}_{-0.750}$	$3.558^{+0.933}_{-1.732}$	$2.755^{+0.264}_{-1.054}$	$0.086^{+0.374}_{-0.037}$
	+3%/-5%	+10%/-4%	+286%/-1071%	+26%/-49%	+10%/-38%	+435%/-43%
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 008481006-04 / KOI

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	-5 ± 1	$1.00^{+0.39}_{-0.37}$	4799^{+385}_{-533}	8288^{+2527}_{-1502}	$7.532^{+11.072}_{-3.673}$
Alt.	-175 ± 8	$0.42^{+0.33}_{-0.25}$	4743^{+440}_{-541}	$234356^{+1115278}_{-148575}$	1369^{+7236}_{-928}

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

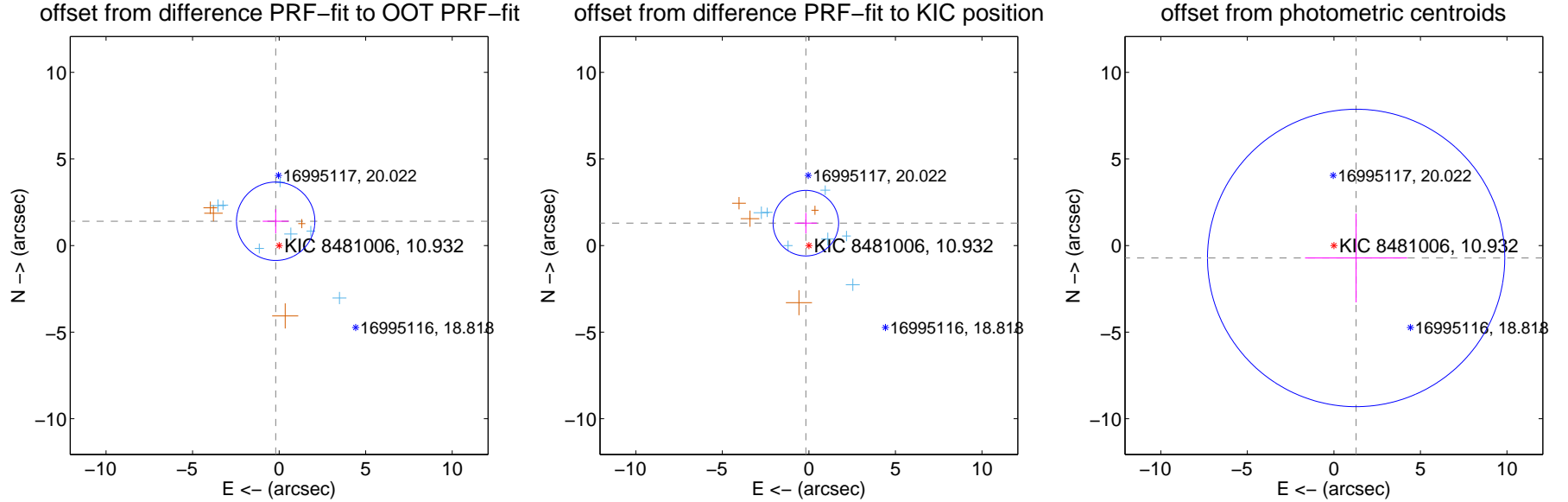
DV Centroid Data

Supplemental centroid analysis for 008481006-04. **Kepler magnitude: 10.93.** Transit SNR 5.23

There are 7 quarters with good PRF difference image offsets

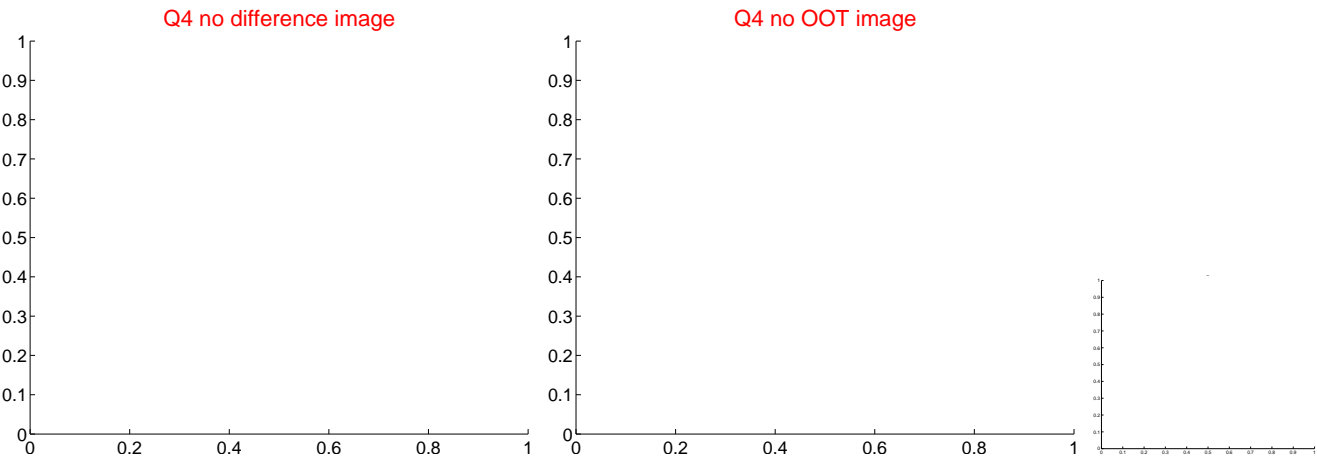
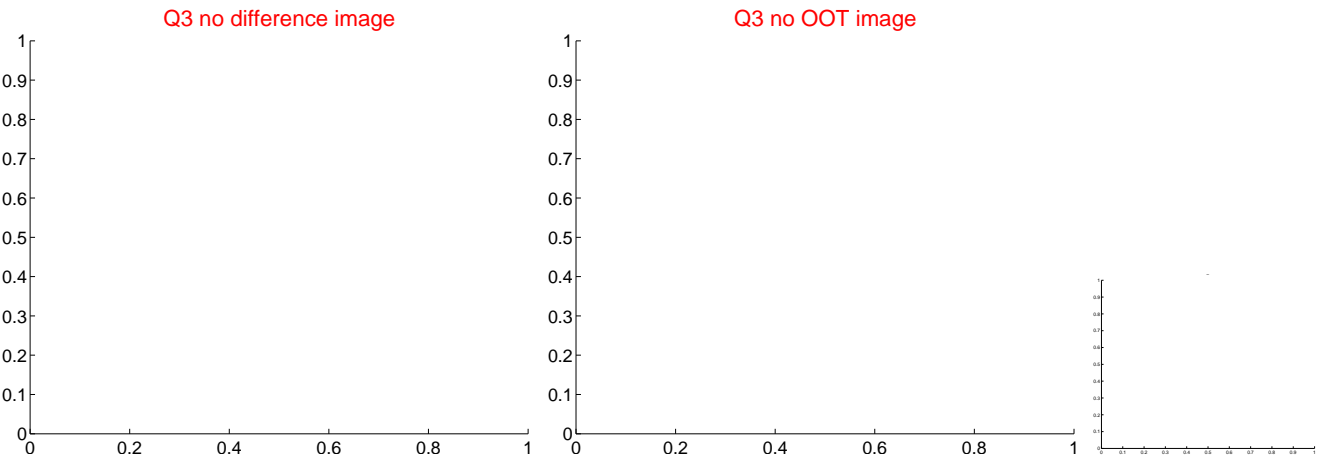
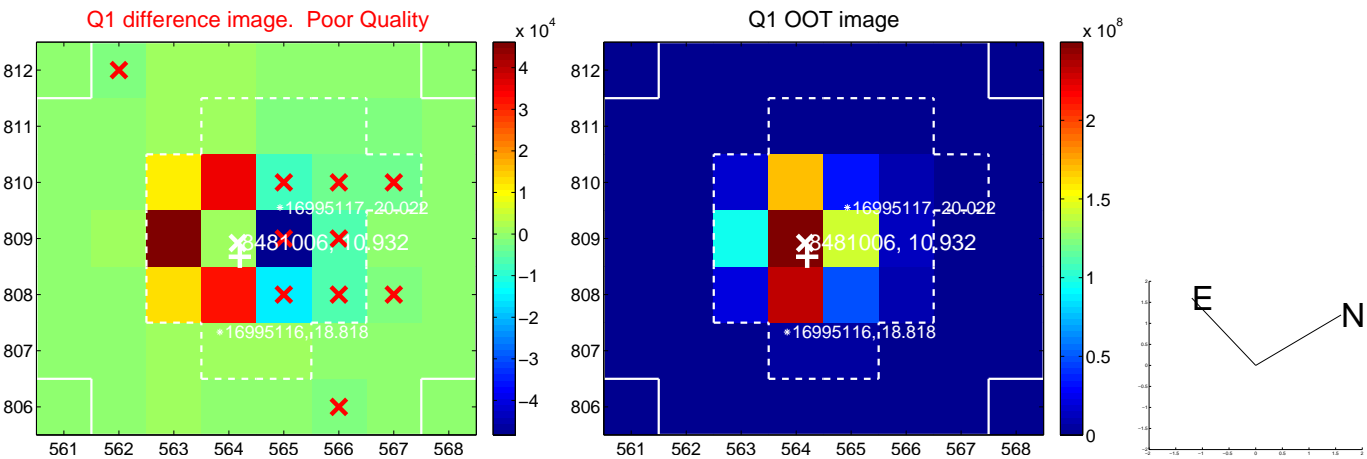
The direct PRF centroid is offset from the target star catalog position by about 0.89 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	1.416 ± 0.755	1.88	0.199 ± 0.754	1.402 ± 0.697
PRF-fit source offset from KIC position	1.304 ± 0.631	2.07	0.176 ± 0.644	1.292 ± 0.595
photometric centroid source offset	1.47 ± 2.86	0.51	-1.28 ± 2.95	-0.72 ± 2.57

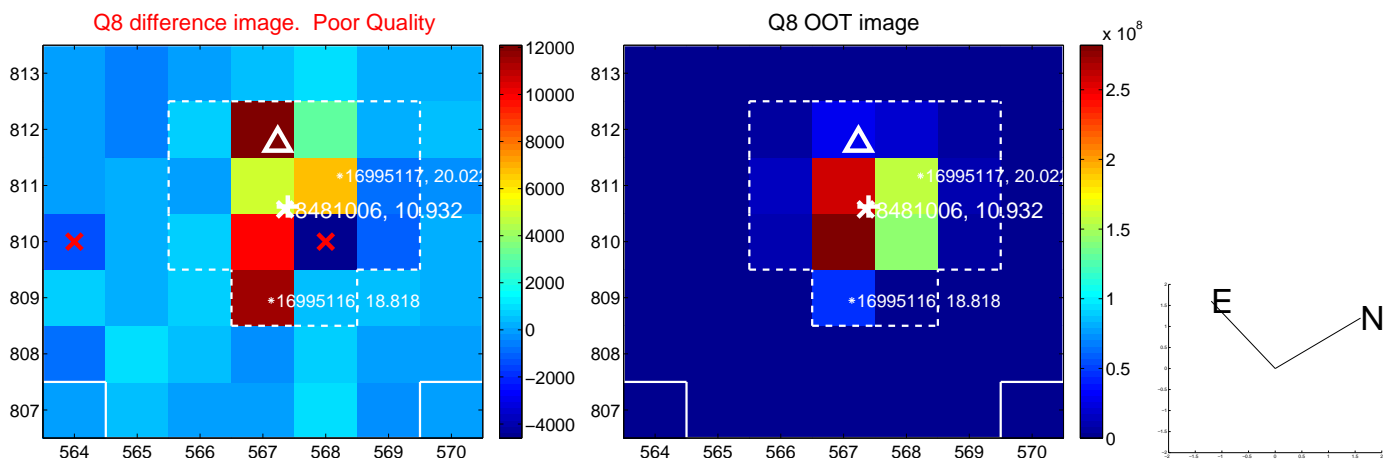
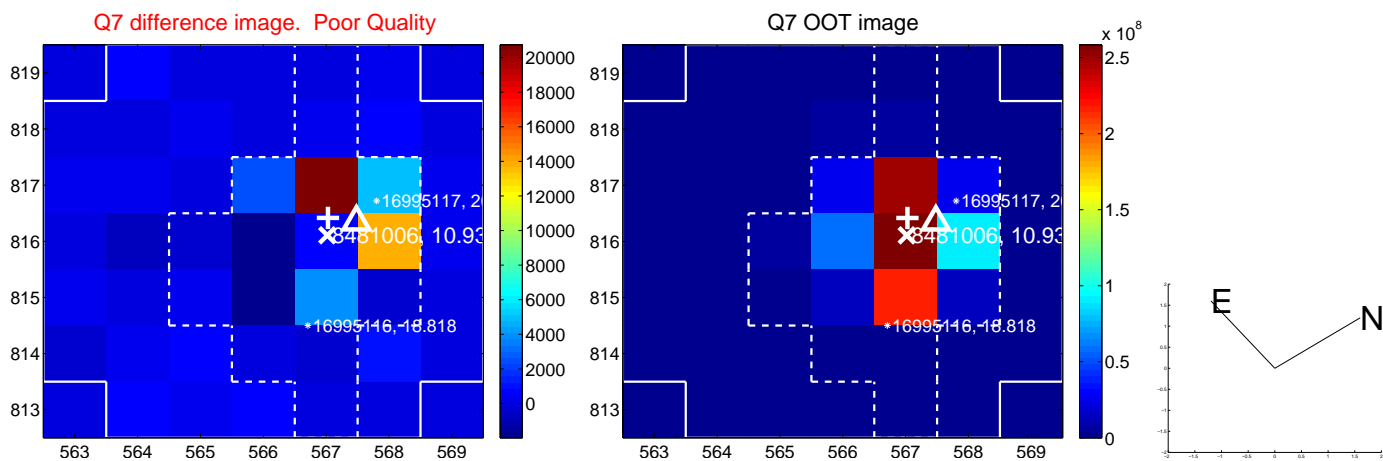
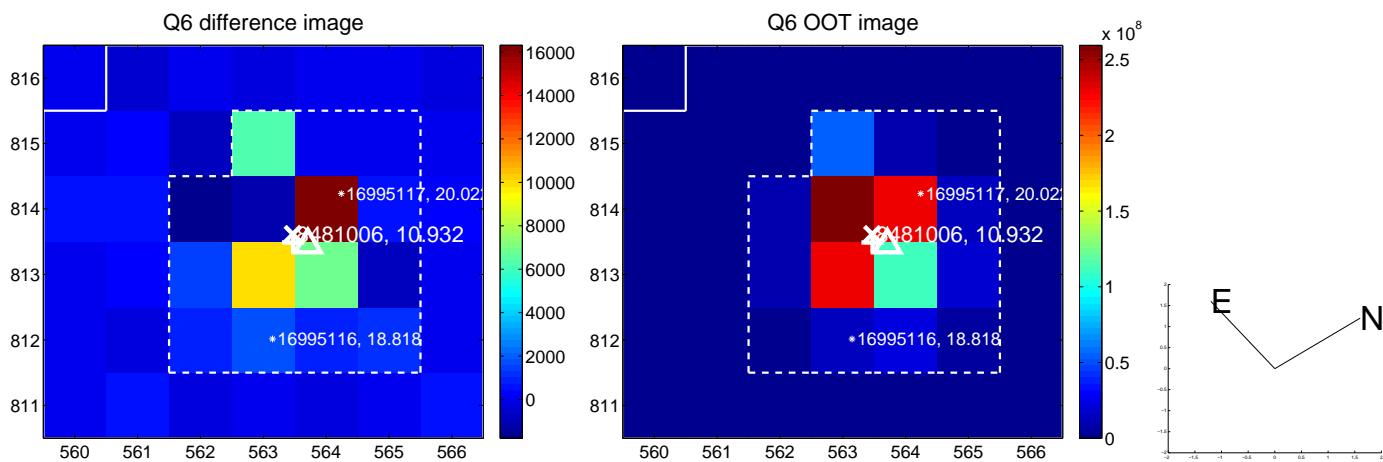
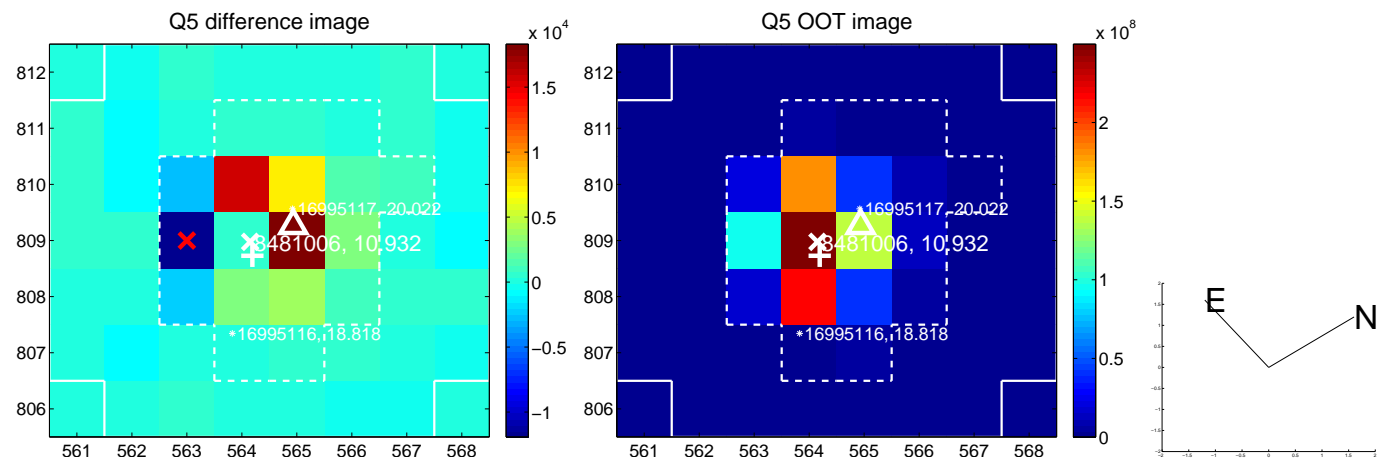


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets;** magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

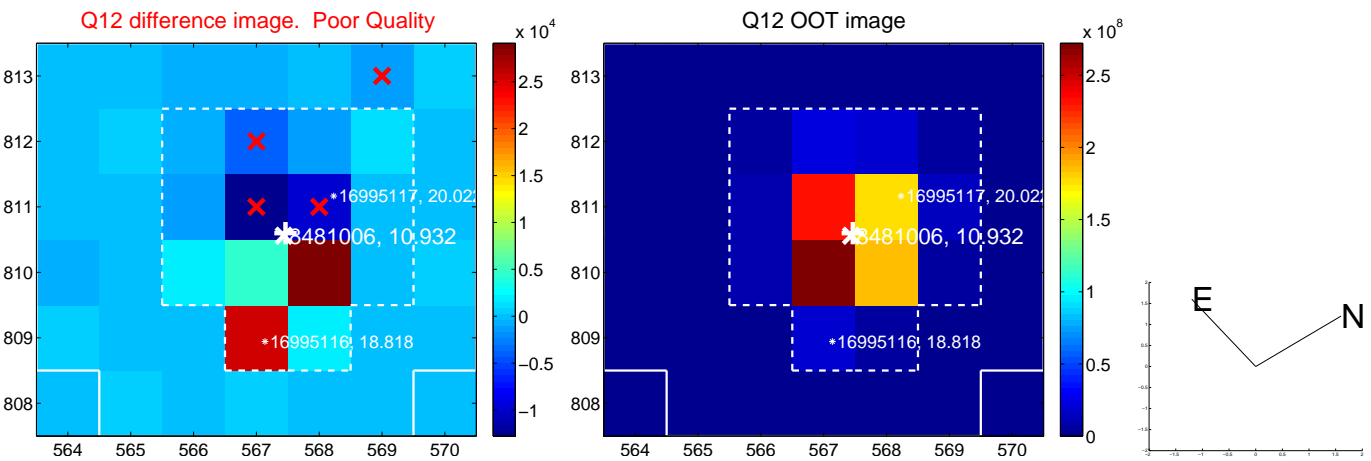
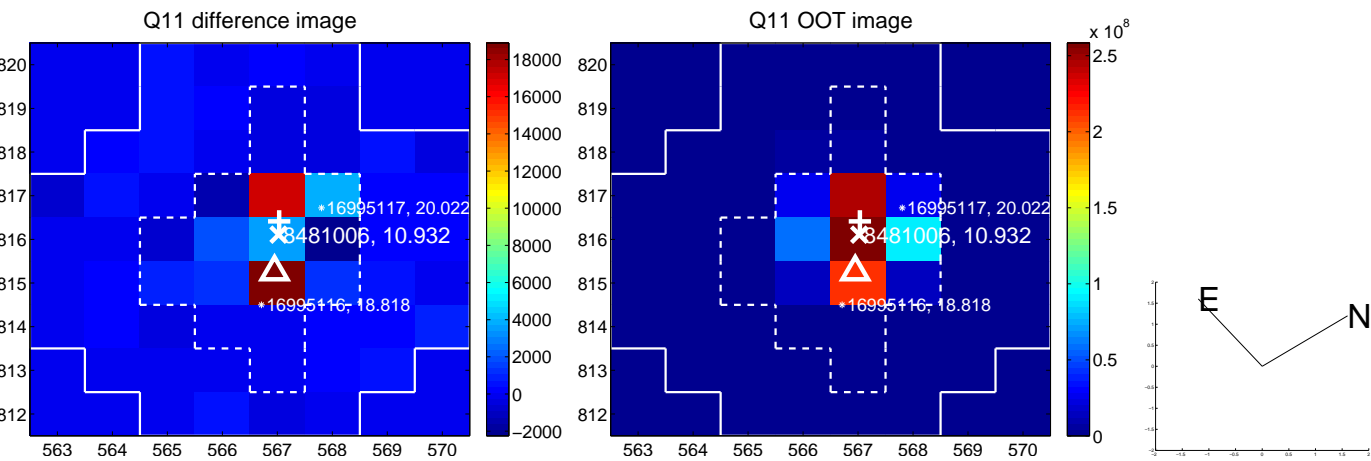
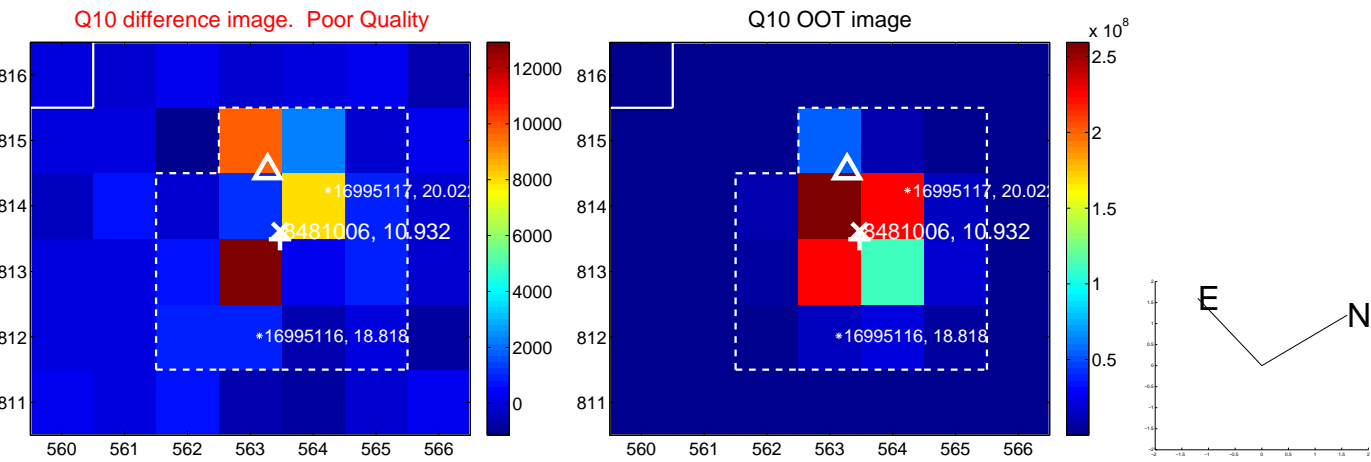
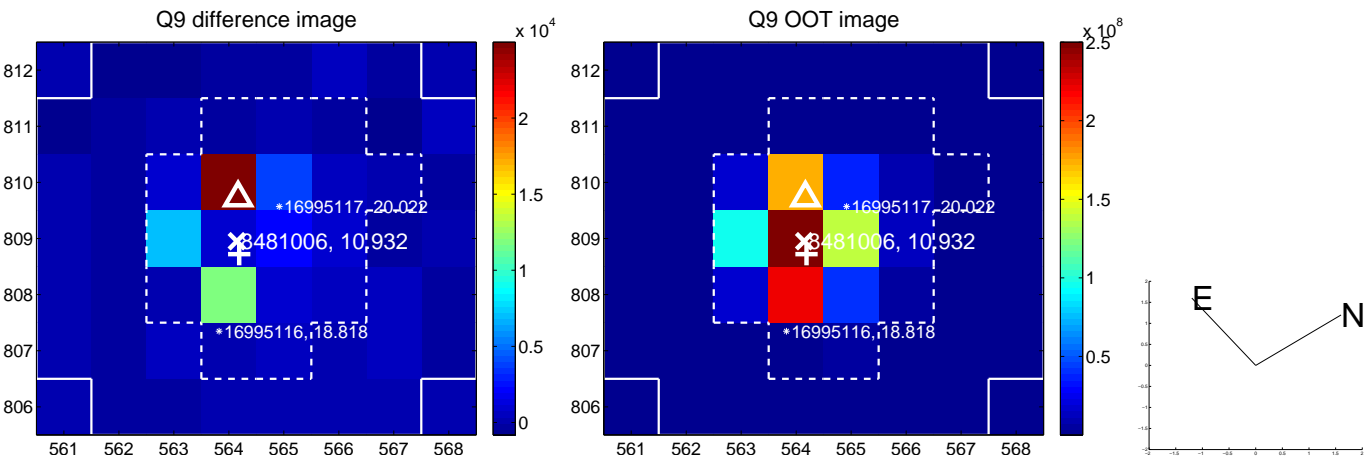
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



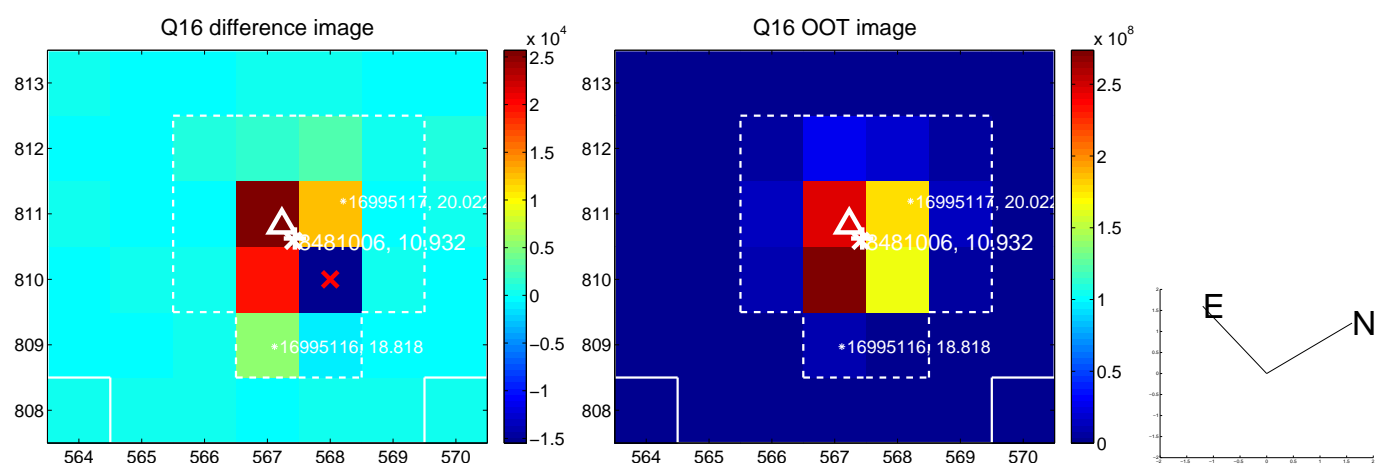
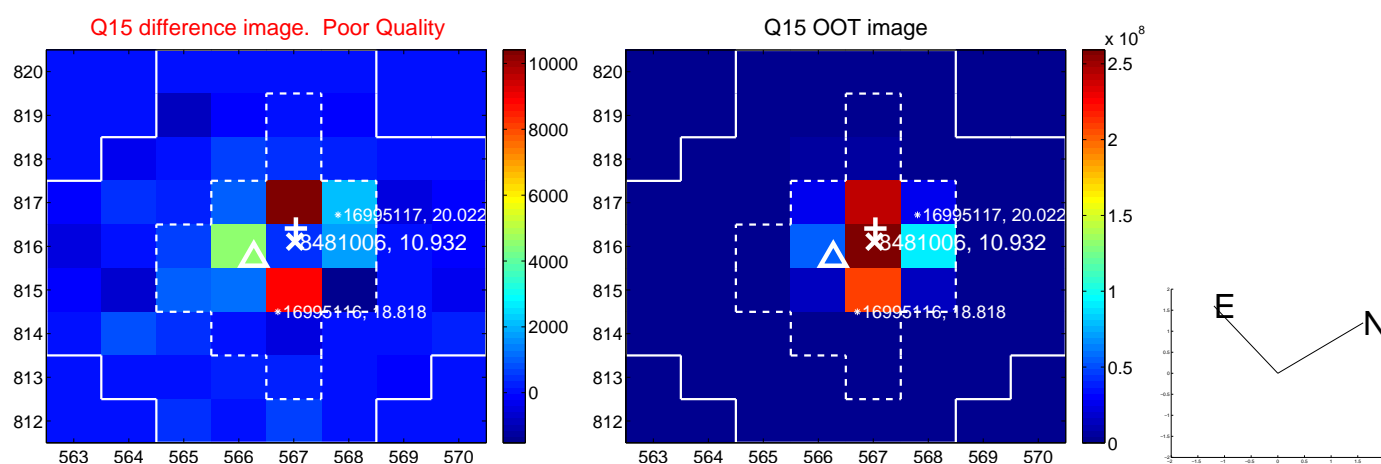
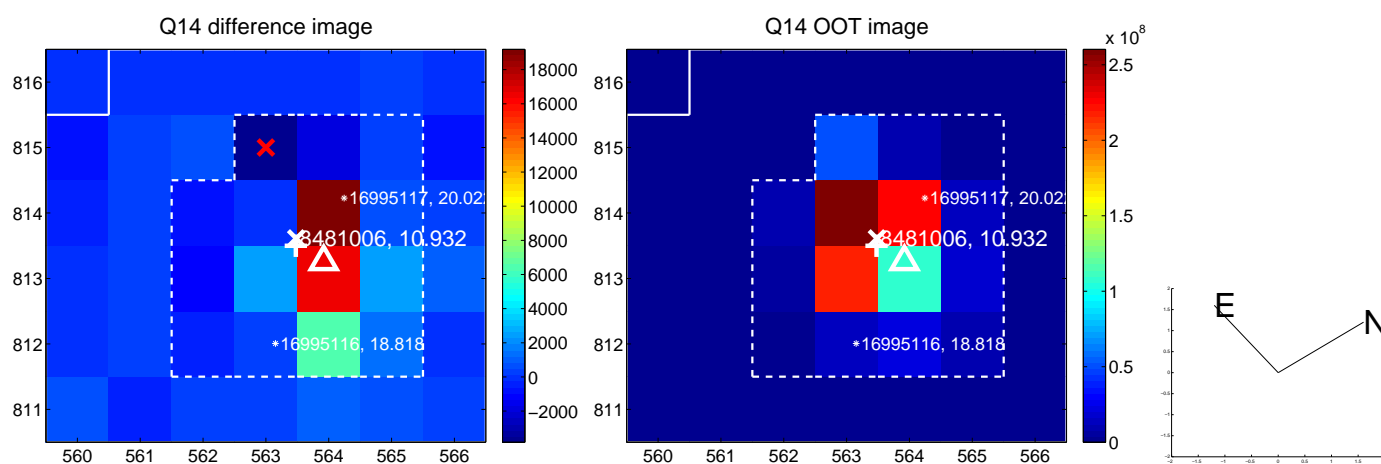
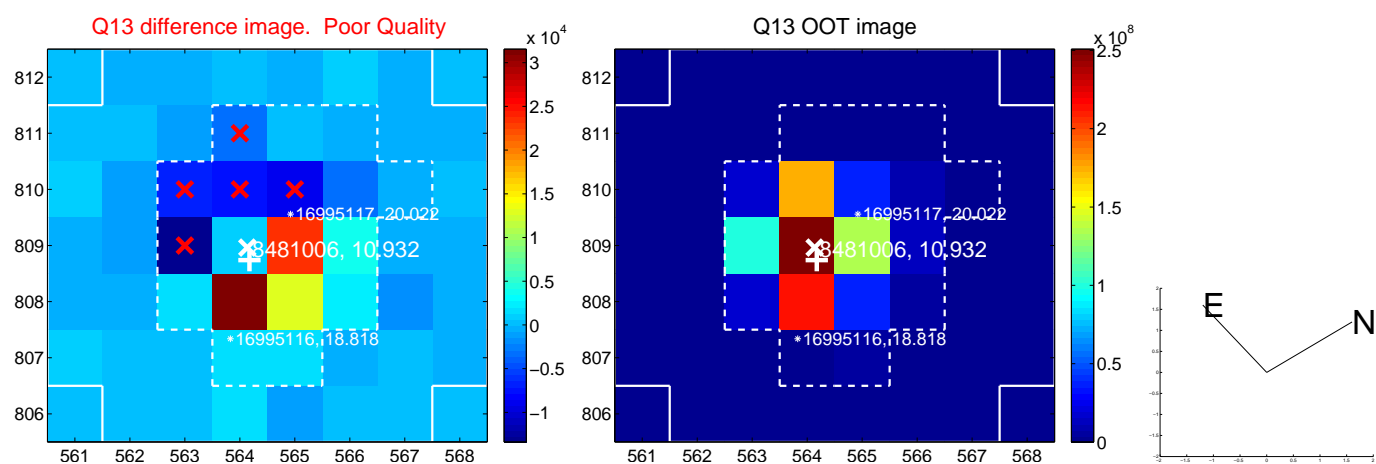
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



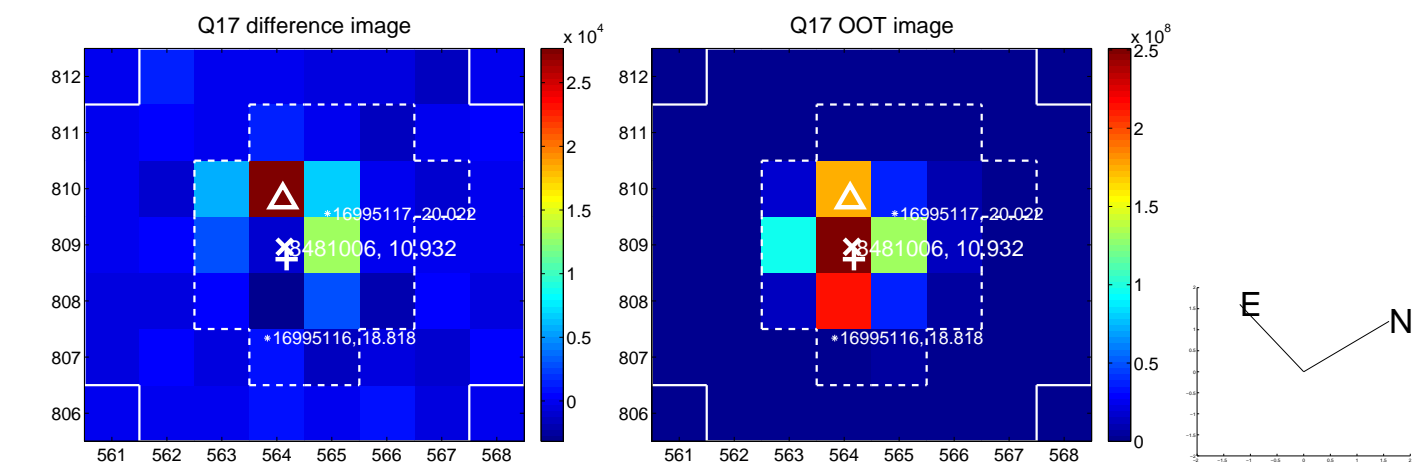
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



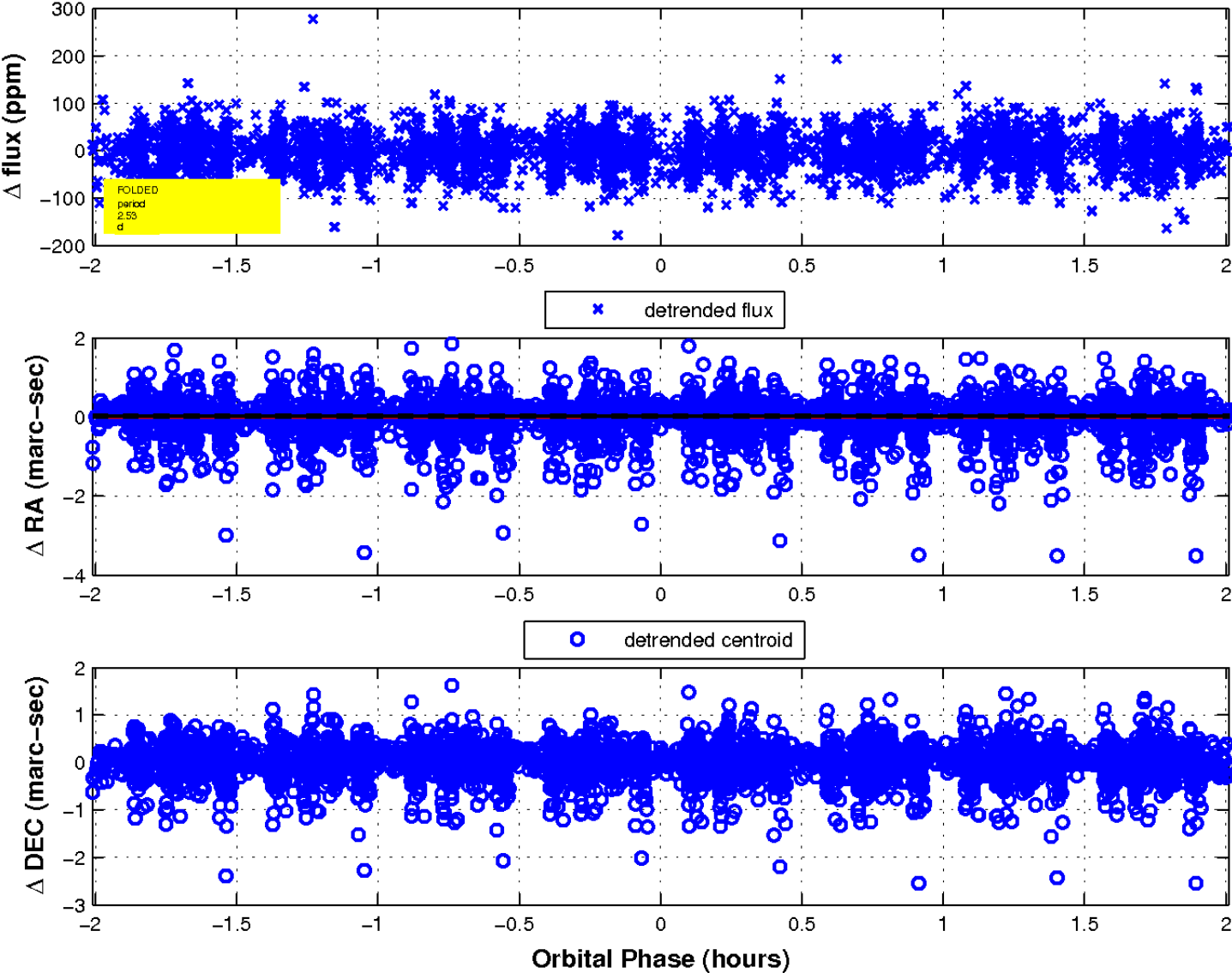
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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



fluxWeightedCentroids, Planet 4 of 4



UKIRT Image

Declination

