

KIC 008523871

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})
008523871-01	OBS	No	0.650673	131.678256	23.9	4.452	8.2	5.4	1.16	8470	0.58	23581.95
008523871-02	OBS	No	22.115809	138.523650	847.0	3.565	11.3	6.3	1.16	8470	6.28	214.19

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
008523871-01	OBS	FP	0.00	1	0	0	0	LPP_DV—MOD_NONUNIQ_ALT
008523871-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV

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

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

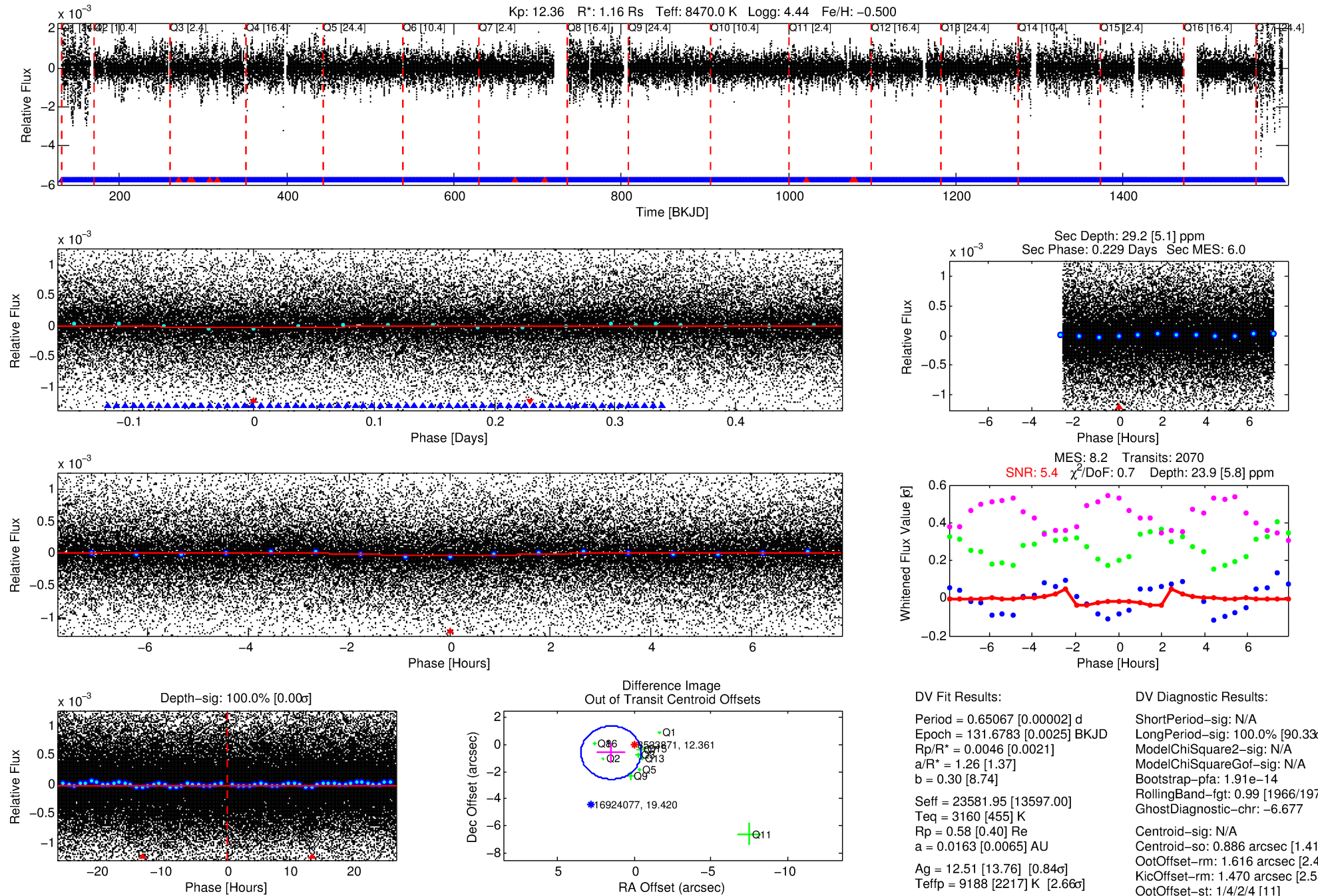
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 008523871-01

No Significant Match Found

DV One-Page Summary

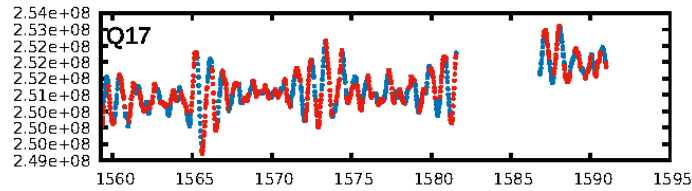
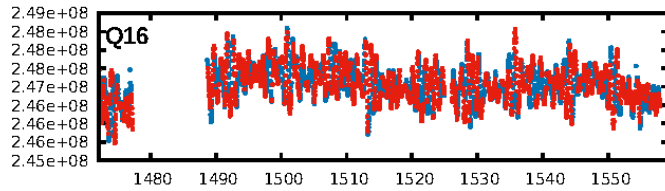
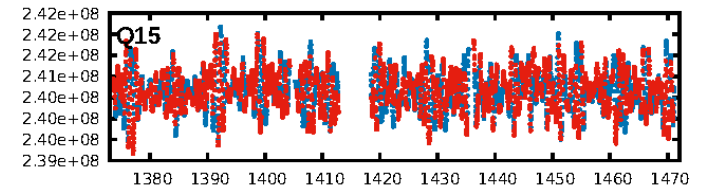
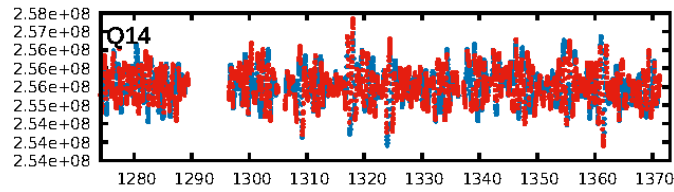
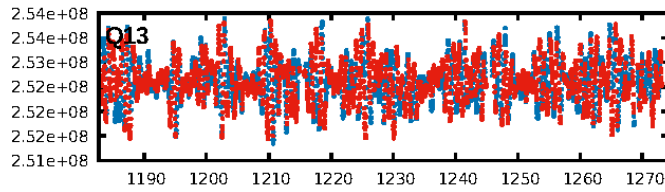
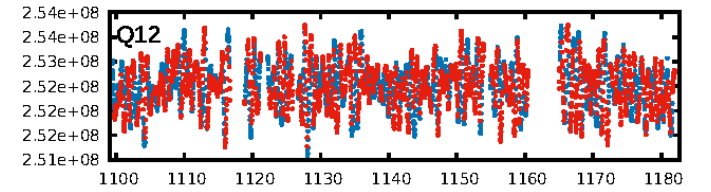
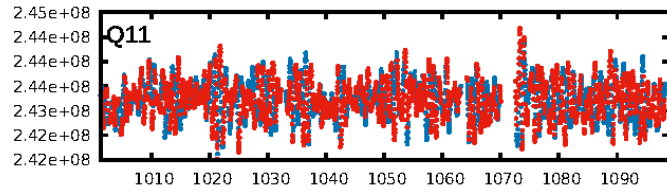
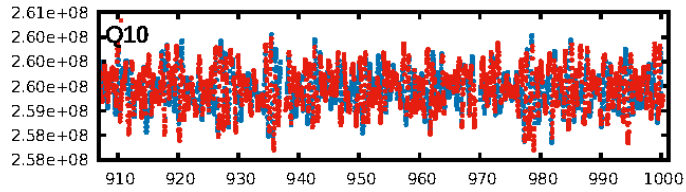
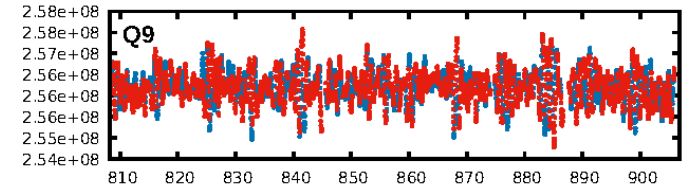
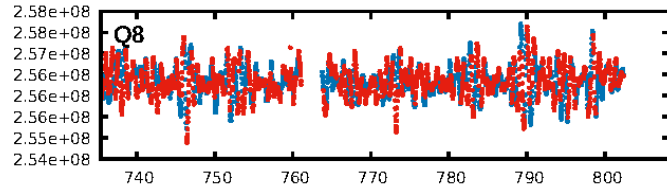
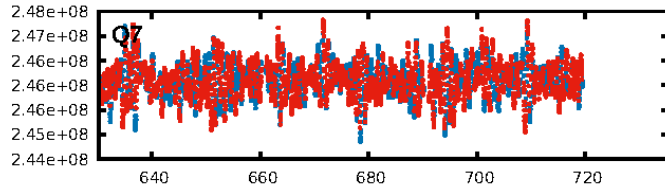
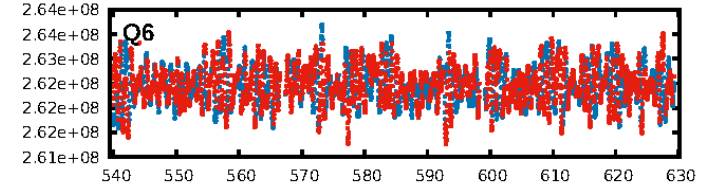
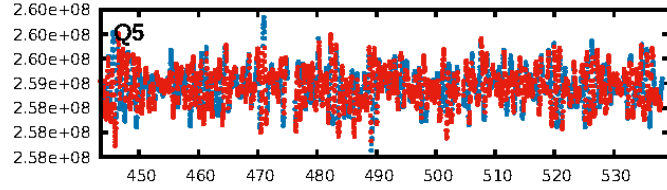
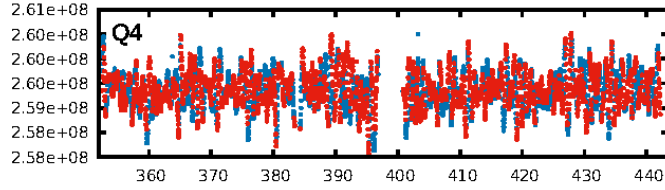
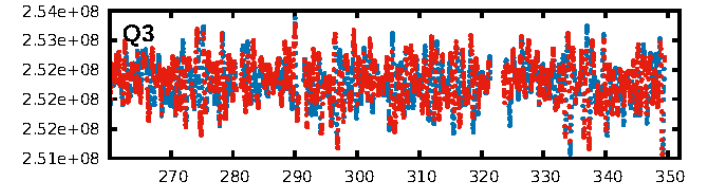
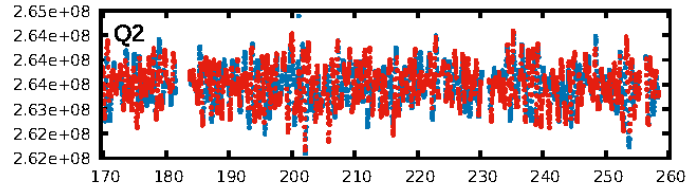
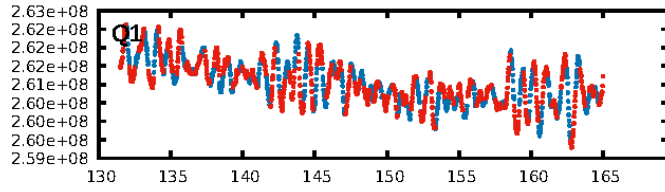
KIC: 8523871 Candidate: 1 of 2 Period: 0.651 d



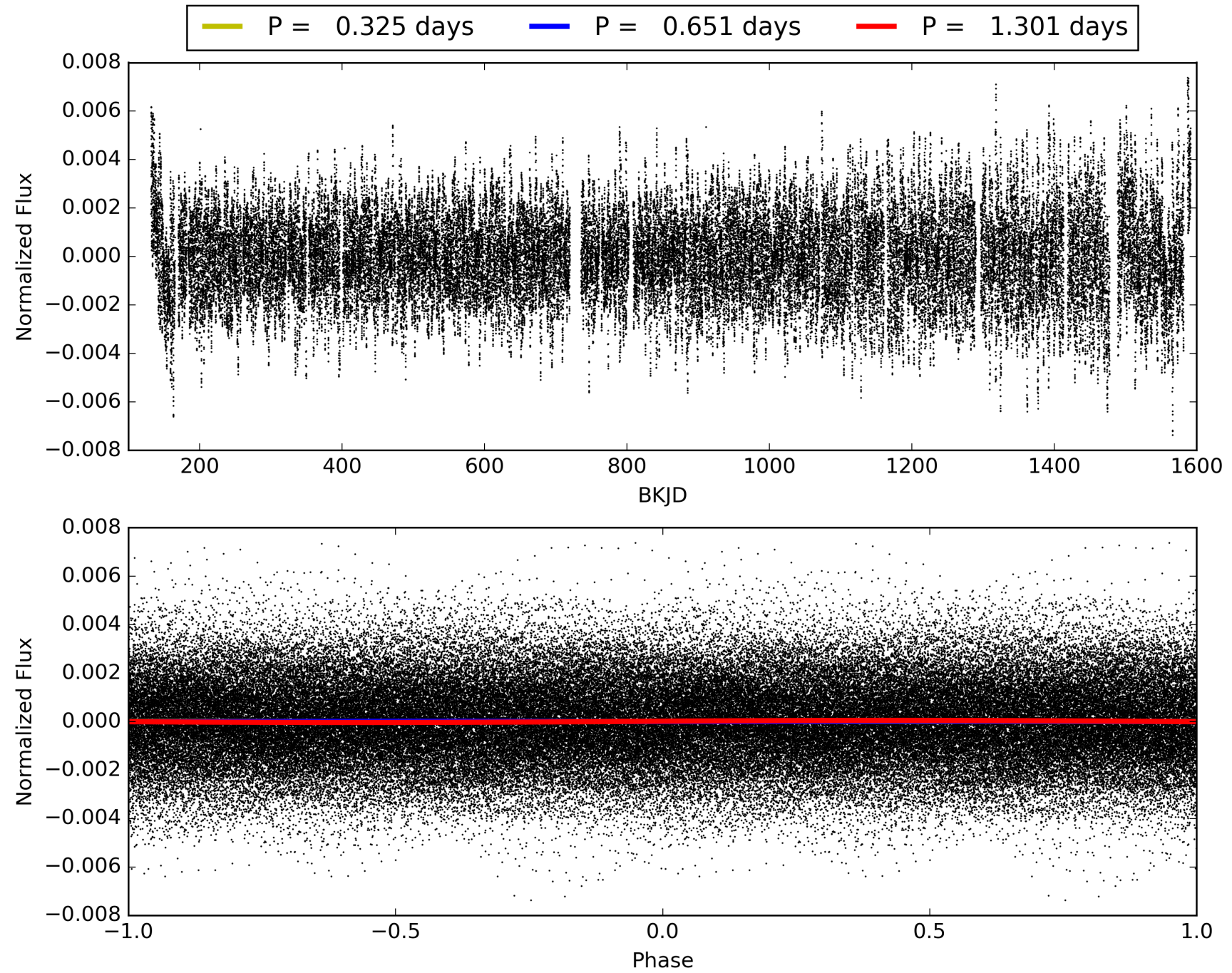
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 07:26:43 Z

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

TCE 00523871-01, PDC Light Curves

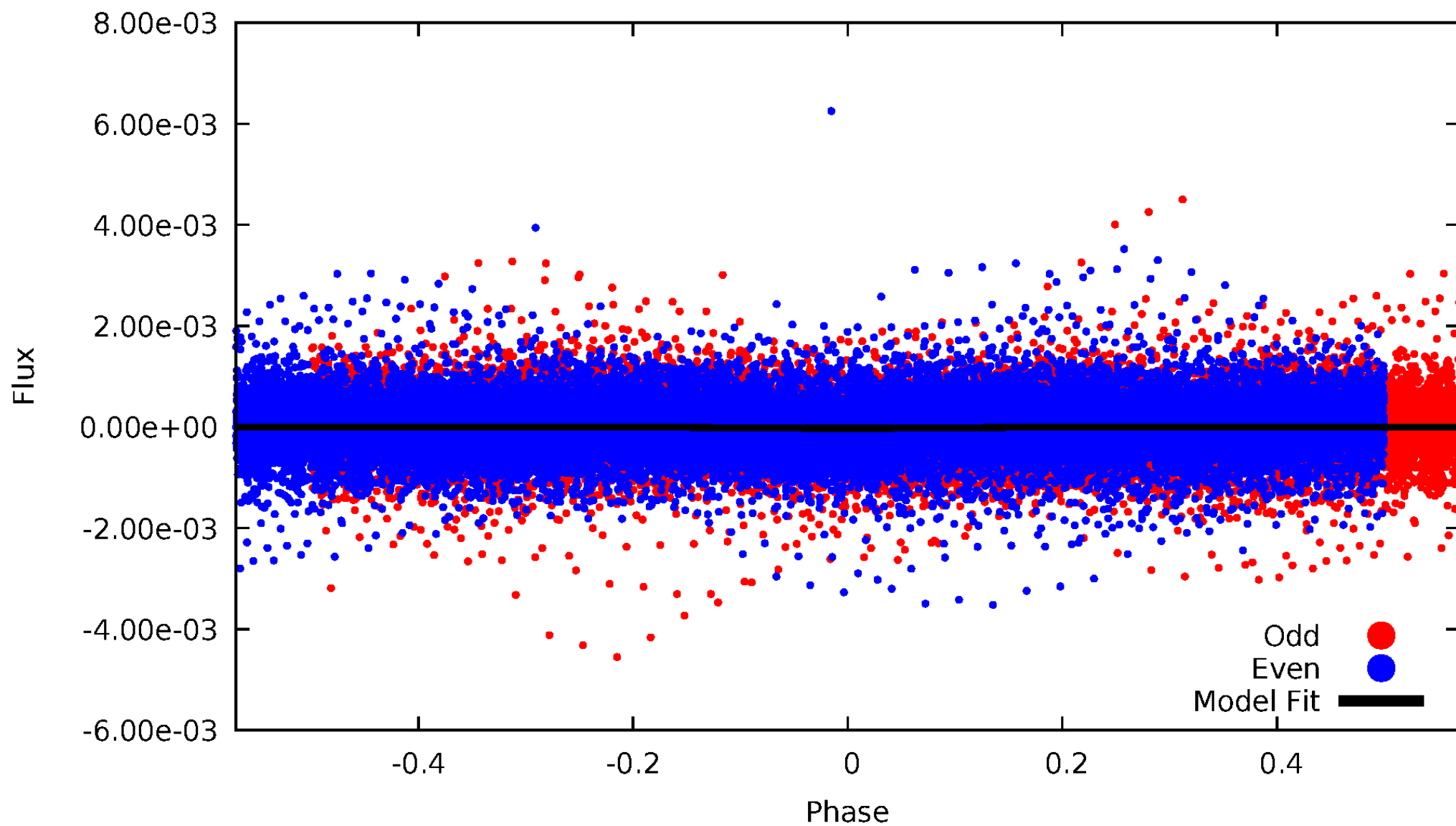


TCE 008523871-01



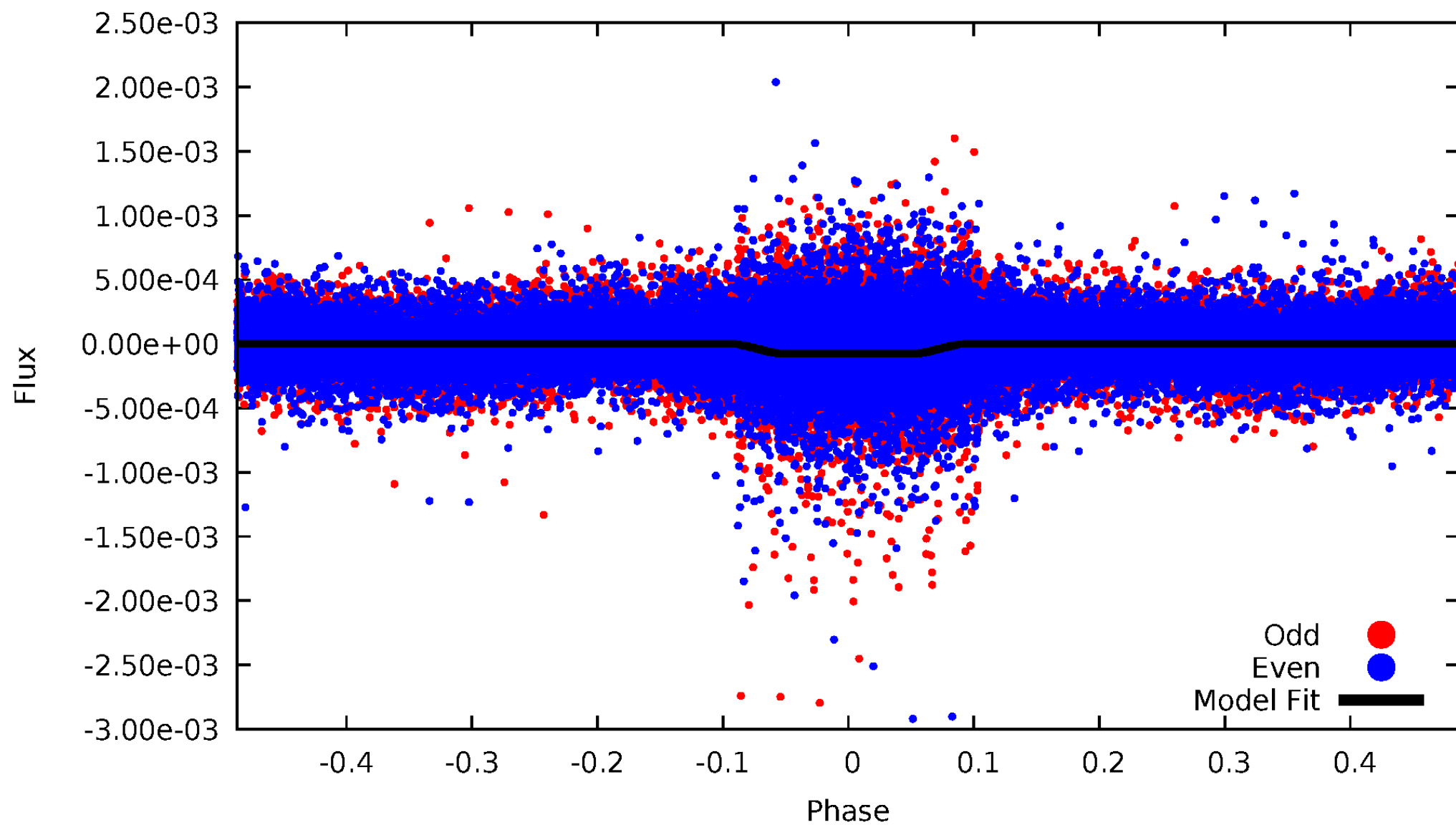
DV Odd/Even

TCE 008523871-01

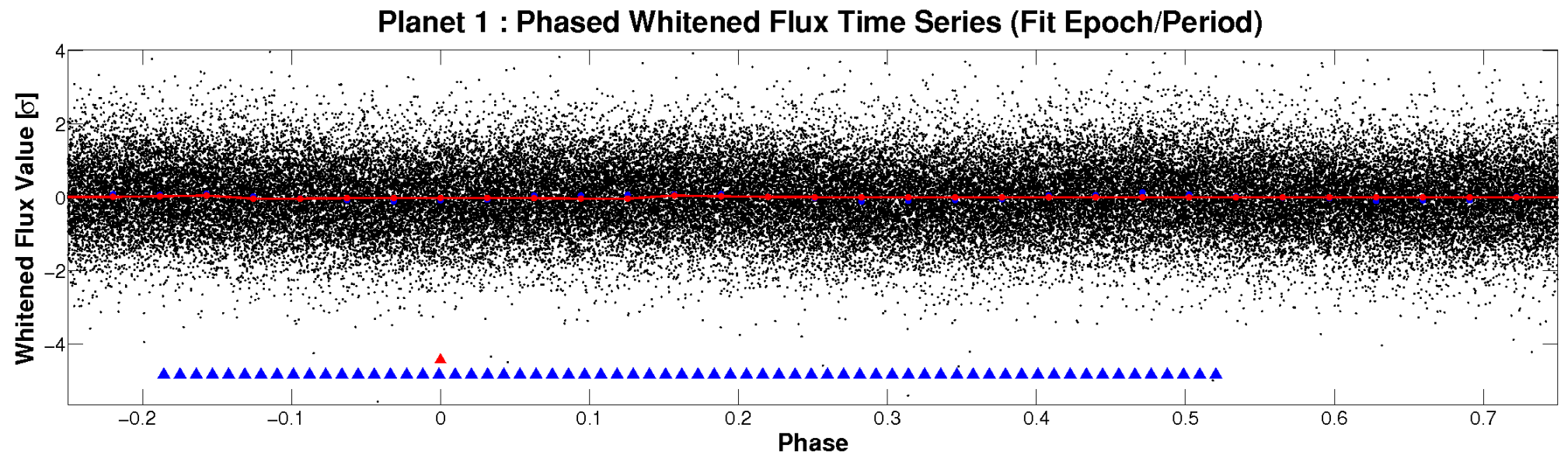
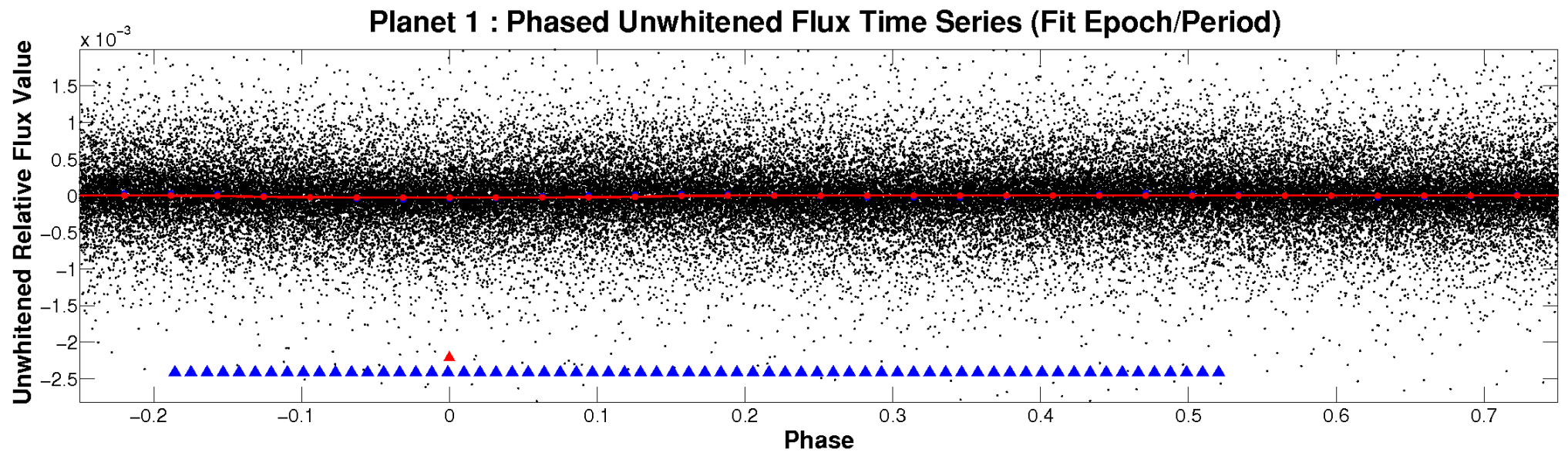


ALT Odd/Even

TCE 008523871-01

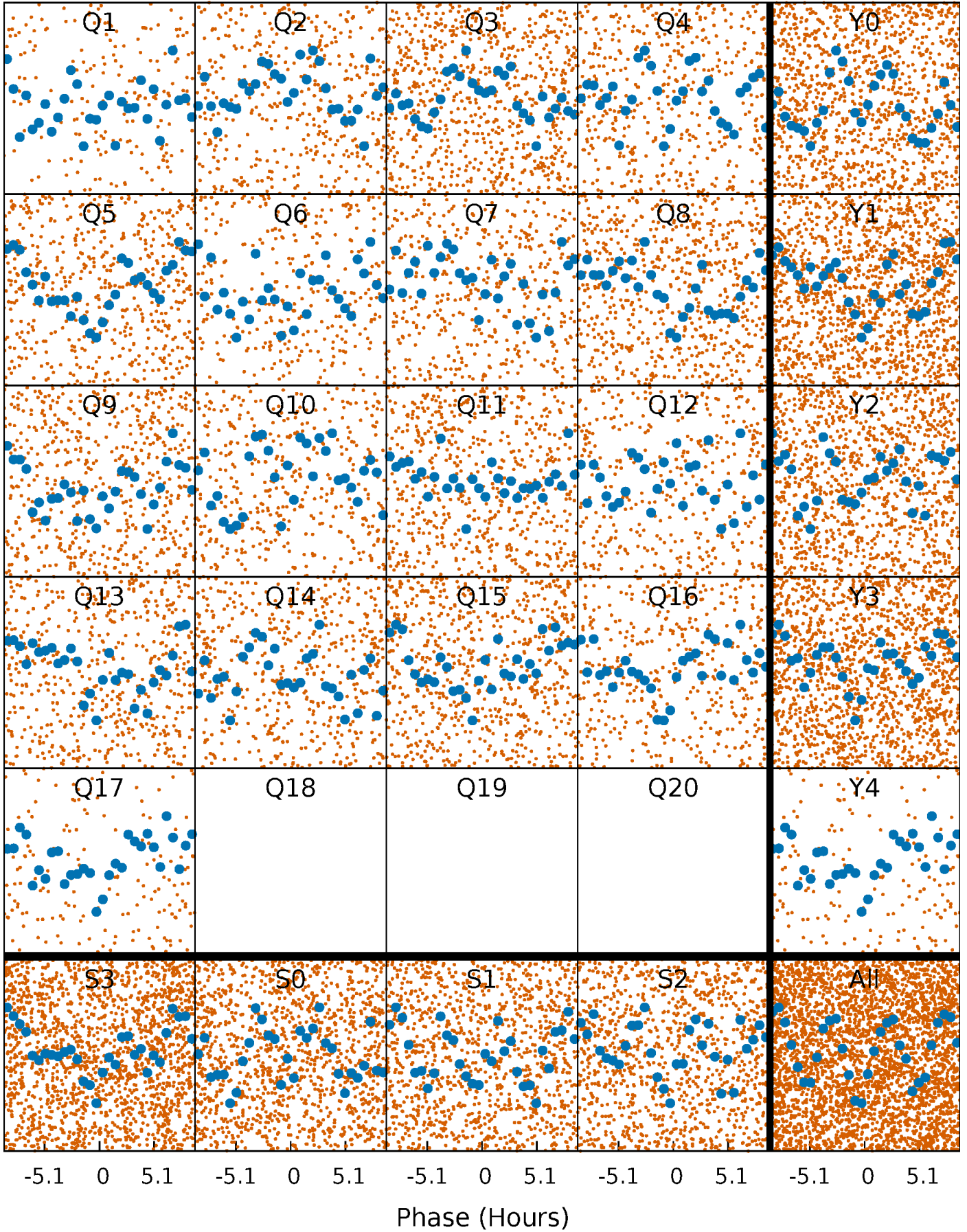


Non-Whitened Vs. Whitened Light Curve



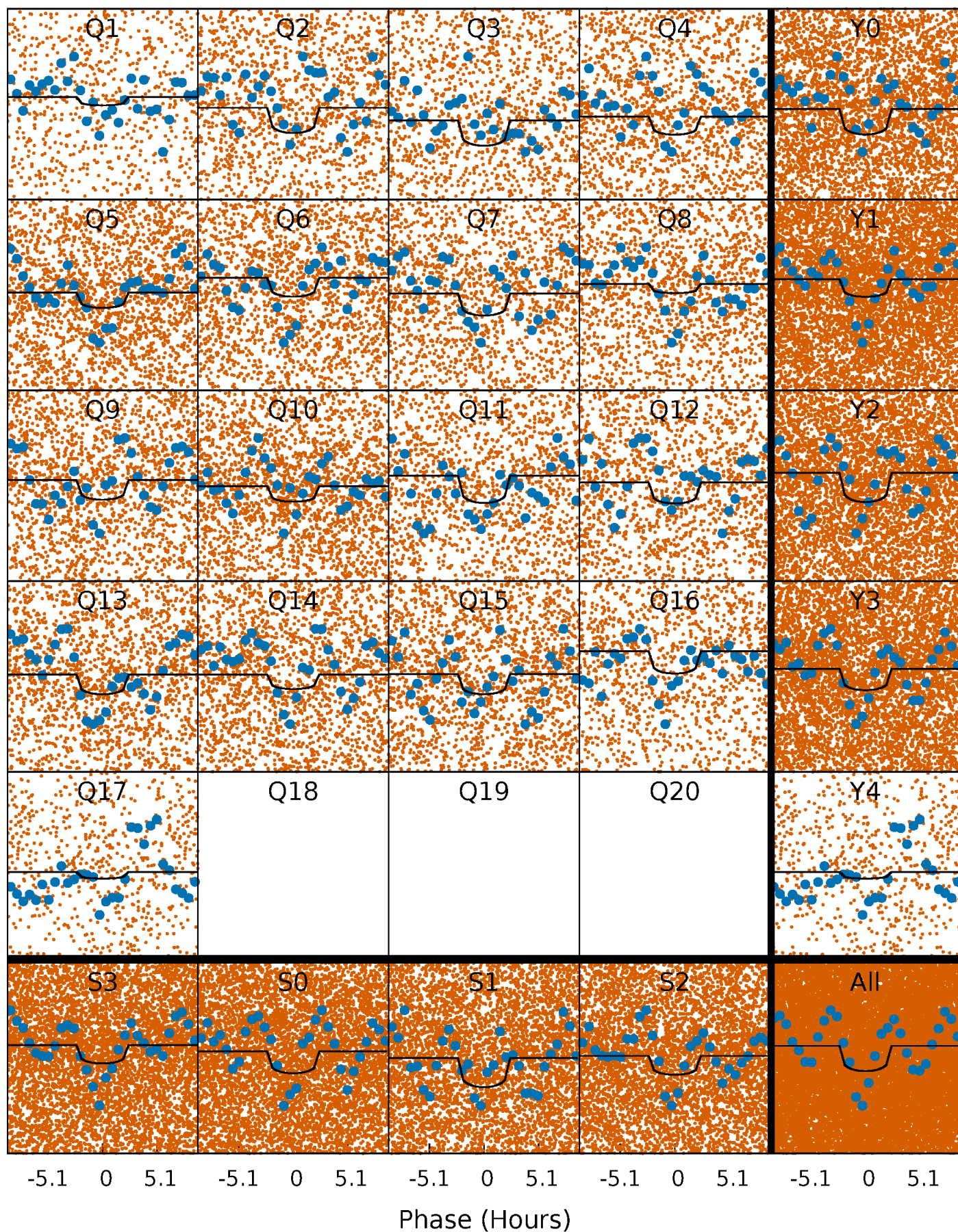
PDC Quarter-Phased Transit Curves

TCE 008523871-01 P= 0.650673 Days $T_0=131.678256$ (BKJD)



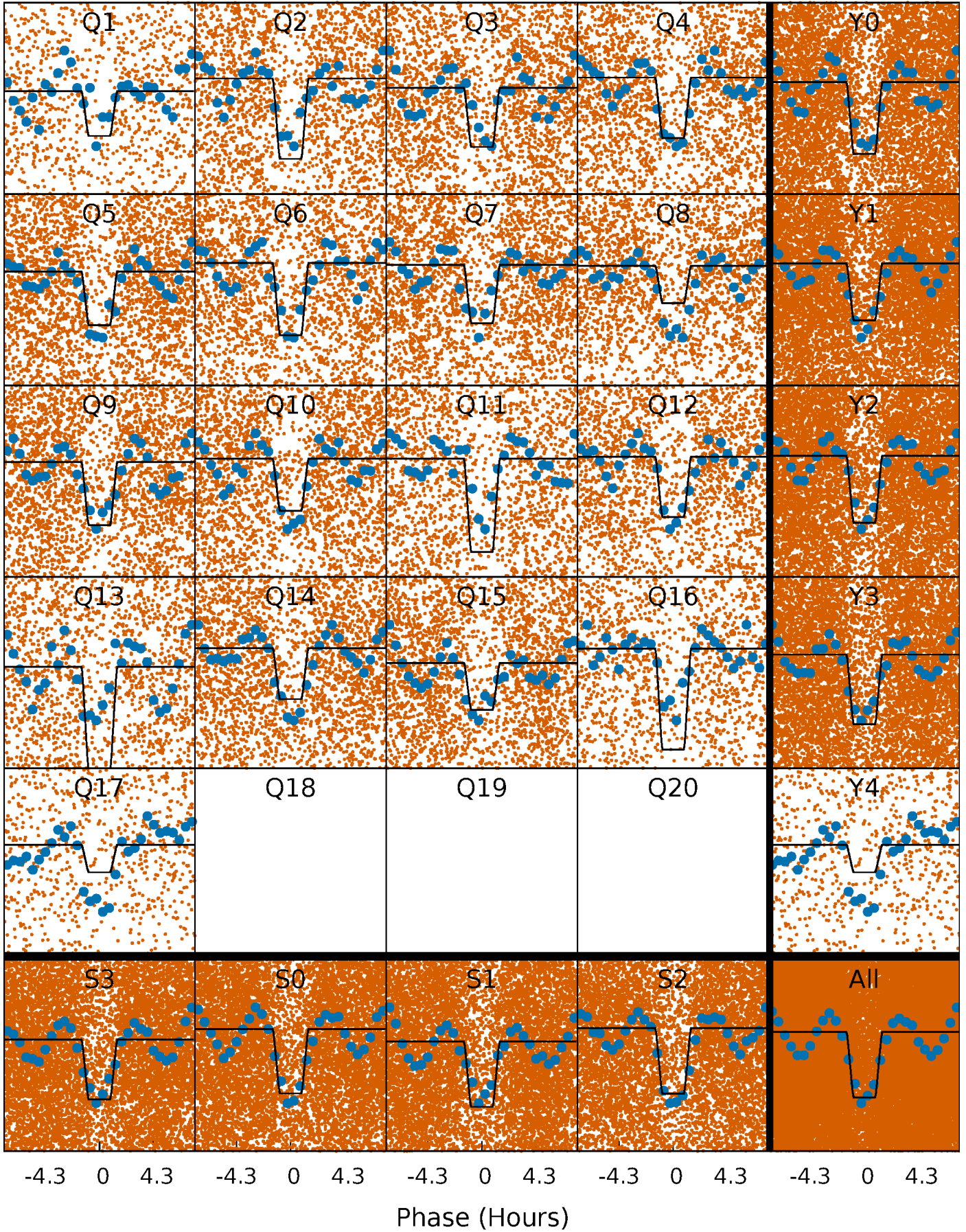
DV Quarter-Phased Transit Curves

TCE 008523871-01 P= 0.650673 Days $T_0=131.678256$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

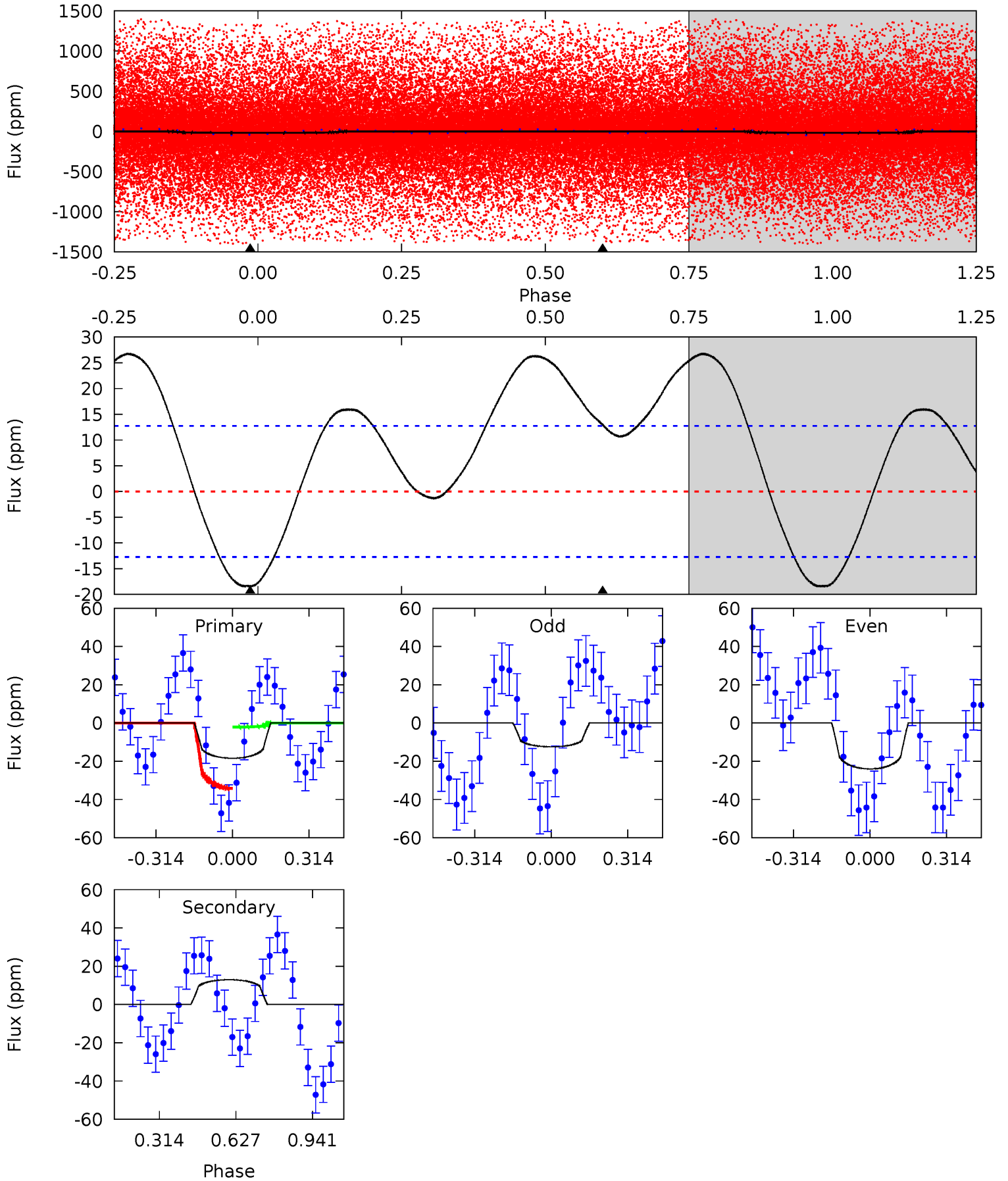
TCE 008523871-01 P= 0.650664 Days $T_0=131.670230$ (BKJD)



DV Model-Shift Uniqueness Test

008523871-01, P = 0.650673 Days, E = 131.027583 Days

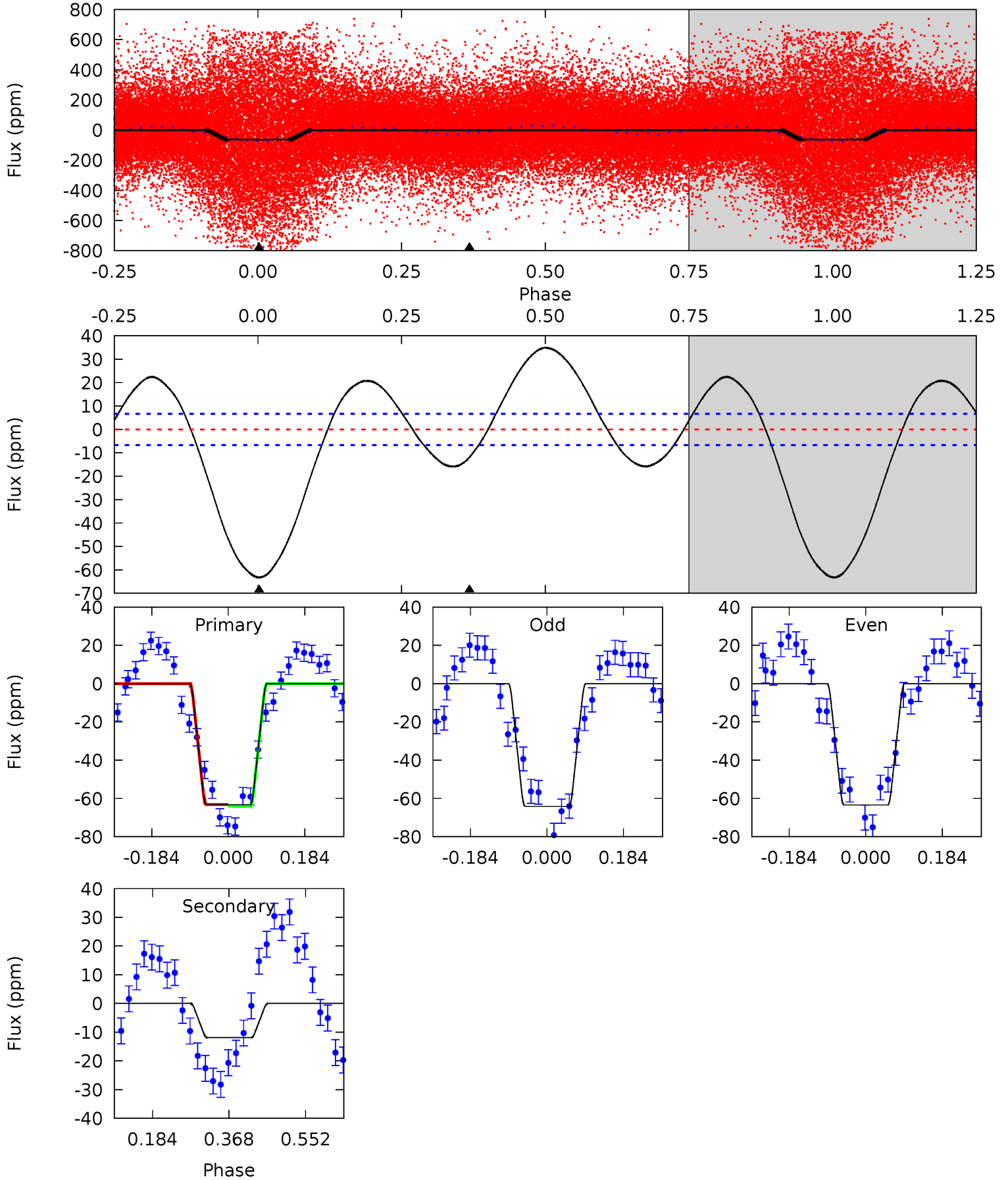
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
6.25	-4.39	0	0	4.32	1.01	0.59	6.25	6.25	-4.39	-4.39	1.99	1.67	0.59	5.45



Alt Model-Shift Uniqueness Test

008523871-01, P = 0.650664 Days, E = 131.019566 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
41.9	7.89	0	0	4.44	1.33	8.81	41.9	41.9	7.89	7.89	0.27	1.06	0.36	0.29



Stellar Parameters For KIC 008523871

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	M (M_{\odot})	p_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	8470^{+235}_{-353}	$4.439^{+0.032}_{-0.288}$	$-0.500^{+0.150}_{-0.300}$	$1.164^{+0.577}_{-0.064}$	$1.466^{+0.182}_{-0.132}$	$1.310^{+0.084}_{-0.908}$
	+3%/-4%	+1%/-6%	+30%/-60%	+50%/-5%	+12%/-9%	+6%/-69%
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 008523871-01 / KOI

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	13 ± 3	$0.66^{+0.31}_{-0.30}$	4565^{+480}_{-249}	-7375^{+1307}_{-3314}	$-4.315^{+2.476}_{-9.422}$
Alt.	-12 ± 2	$1.26^{+0.41}_{-0.32}$	4589^{+501}_{-264}	4810^{+882}_{-604}	$1.130^{+0.966}_{-0.475}$

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 $A_{obs} \gg 1.0$

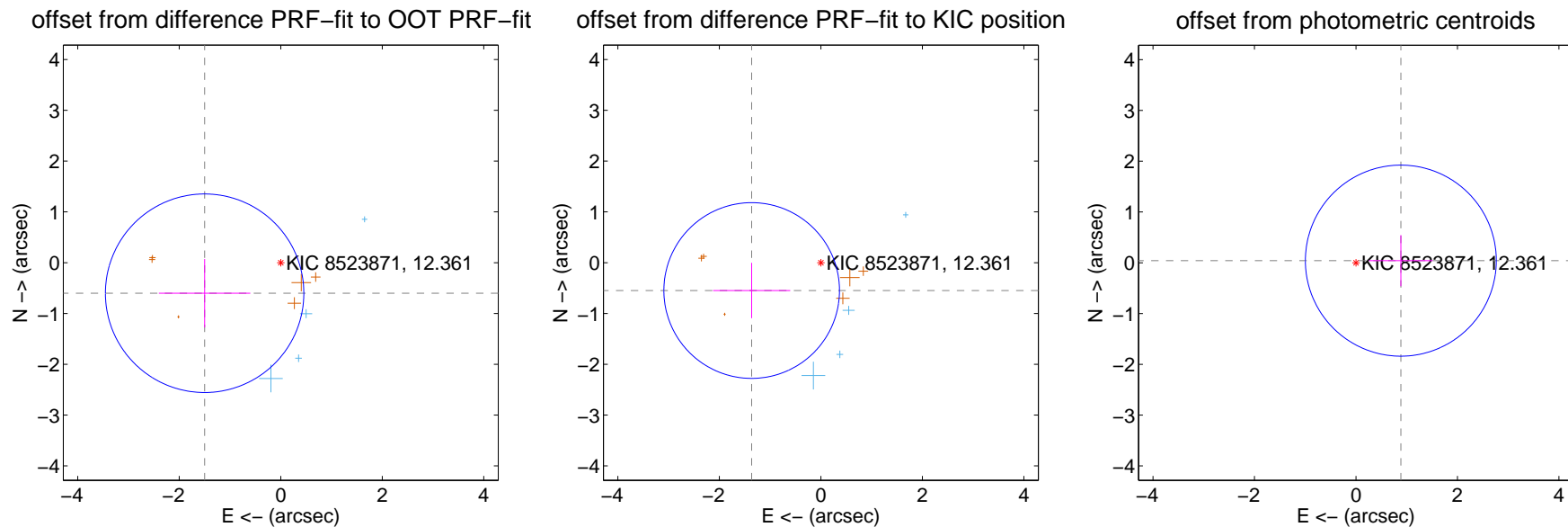
DV Centroid Data

Supplemental centroid analysis for 008523871-01. Kepler magnitude: 12.36. Transit SNR 5.42

There are 4 quarters with good PRF difference image offsets

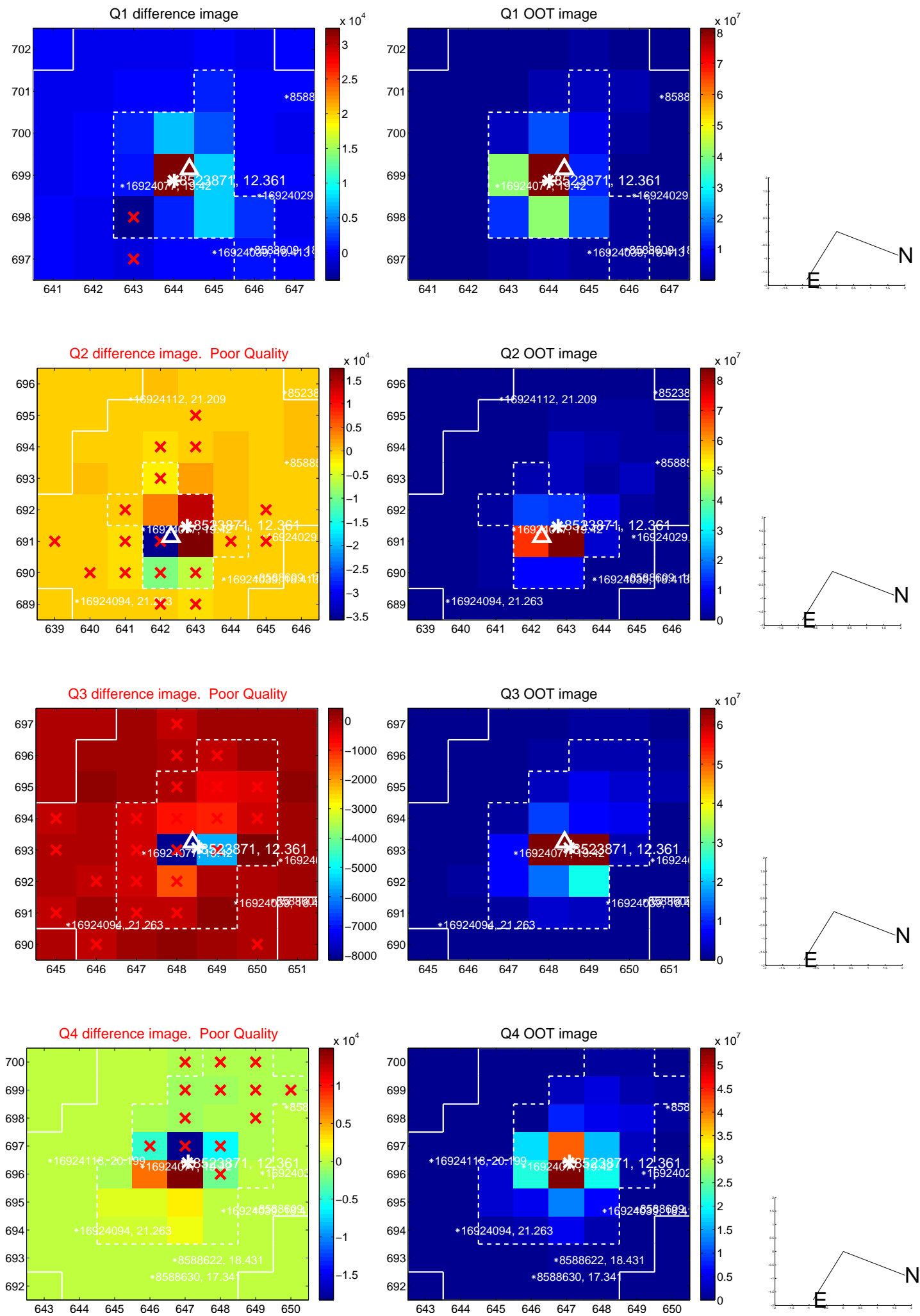
The direct PRF centroid is offset from the target star catalog position by about 0.22 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	1.616 ± 0.652	2.48	1.500 ± 0.902	-0.602 ± 0.673
PRF-fit source offset from KIC position	1.470 ± 0.577	2.55	1.364 ± 0.761	-0.548 ± 0.545
photometric centroid source offset	0.89 ± 0.63	1.41	-0.88 ± 0.63	0.04 ± 0.50

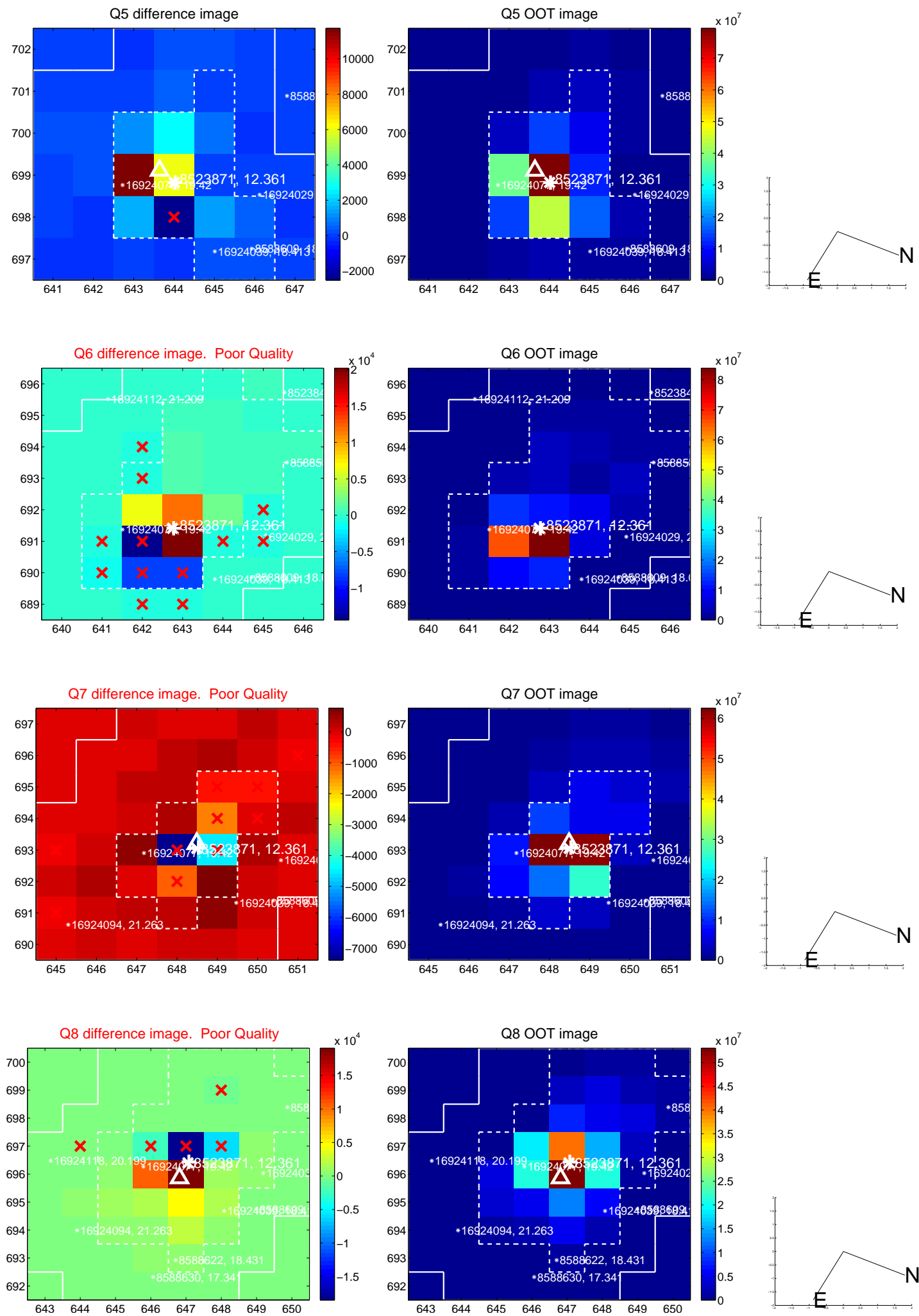


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets**; **Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

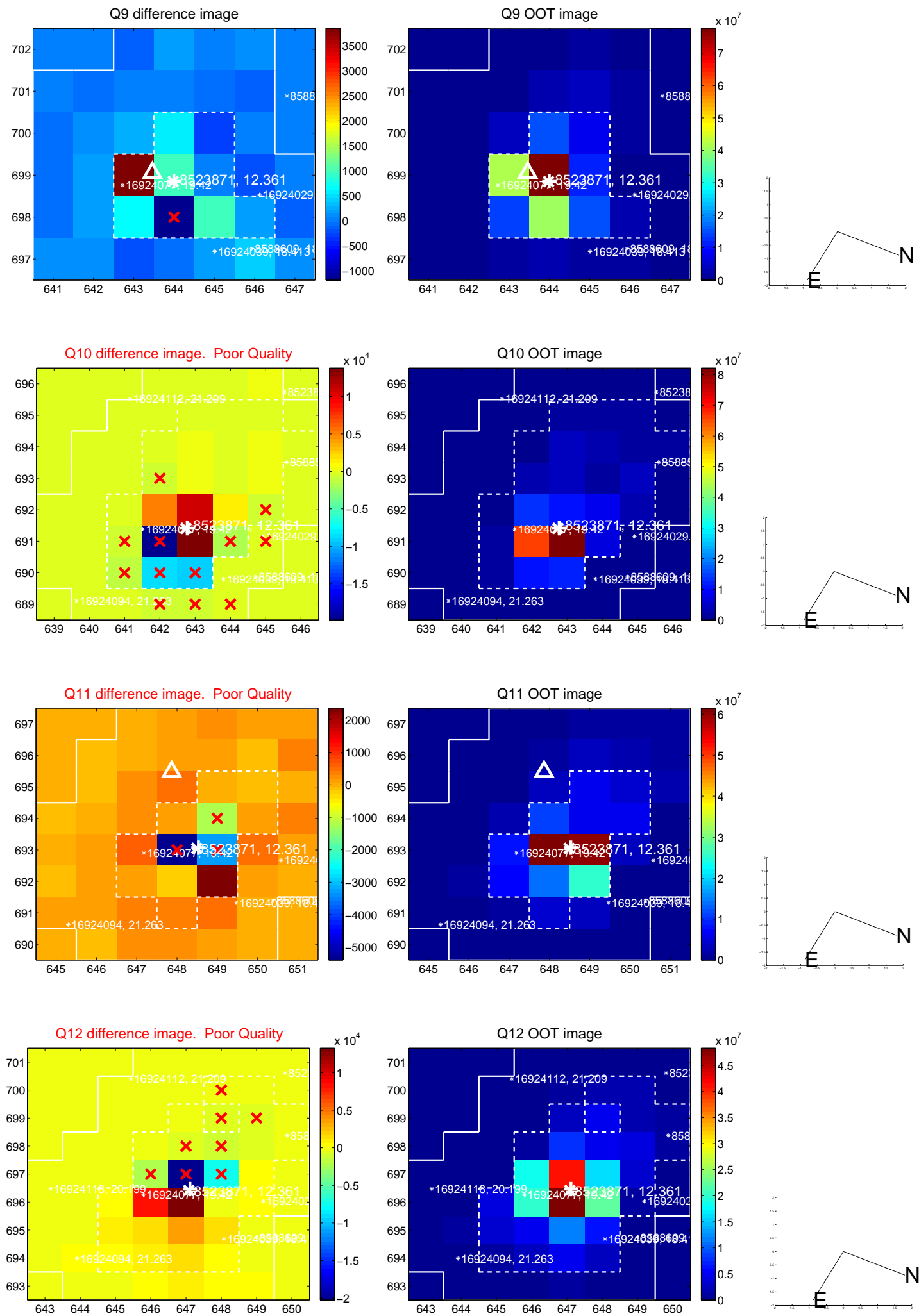
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



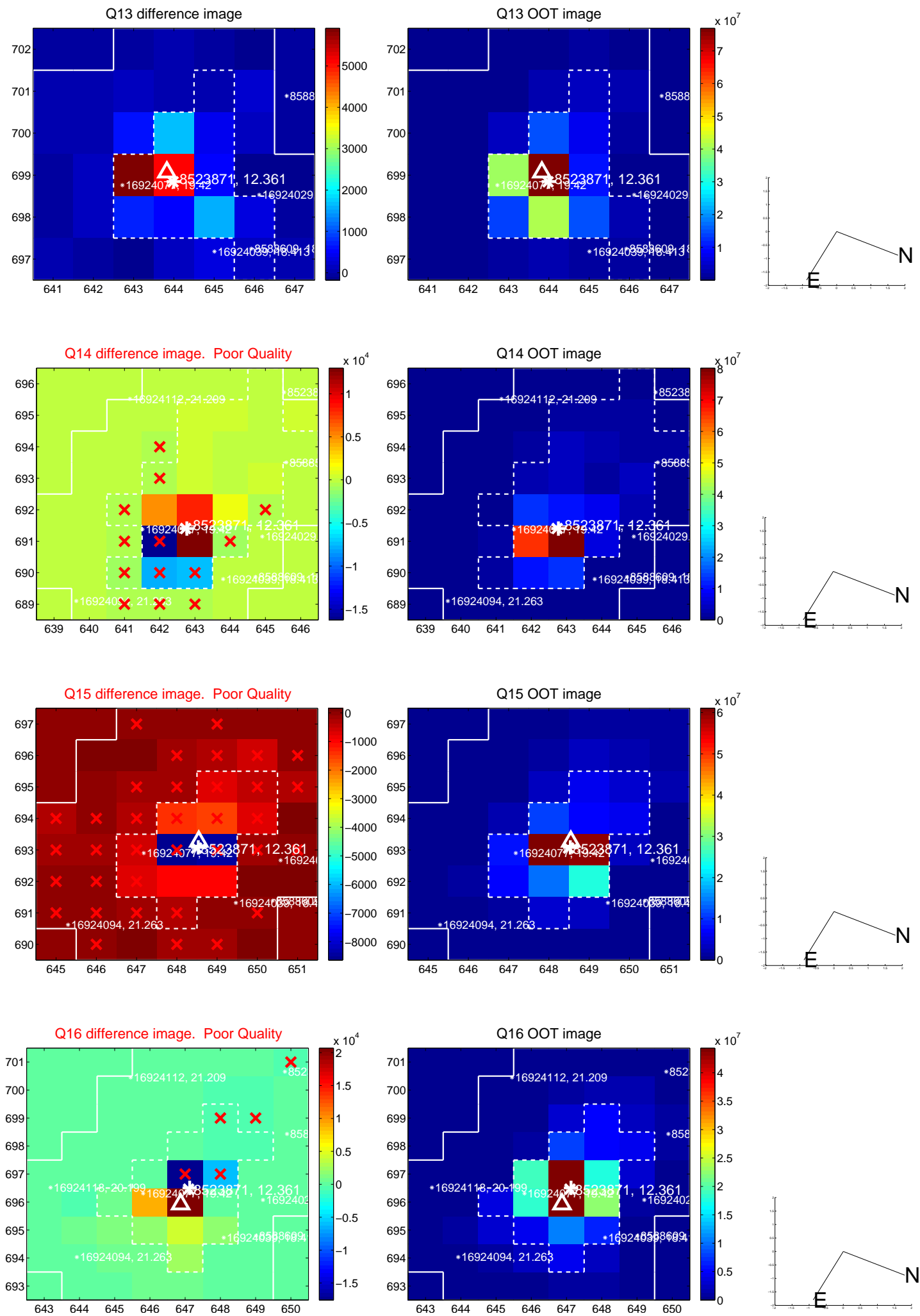
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



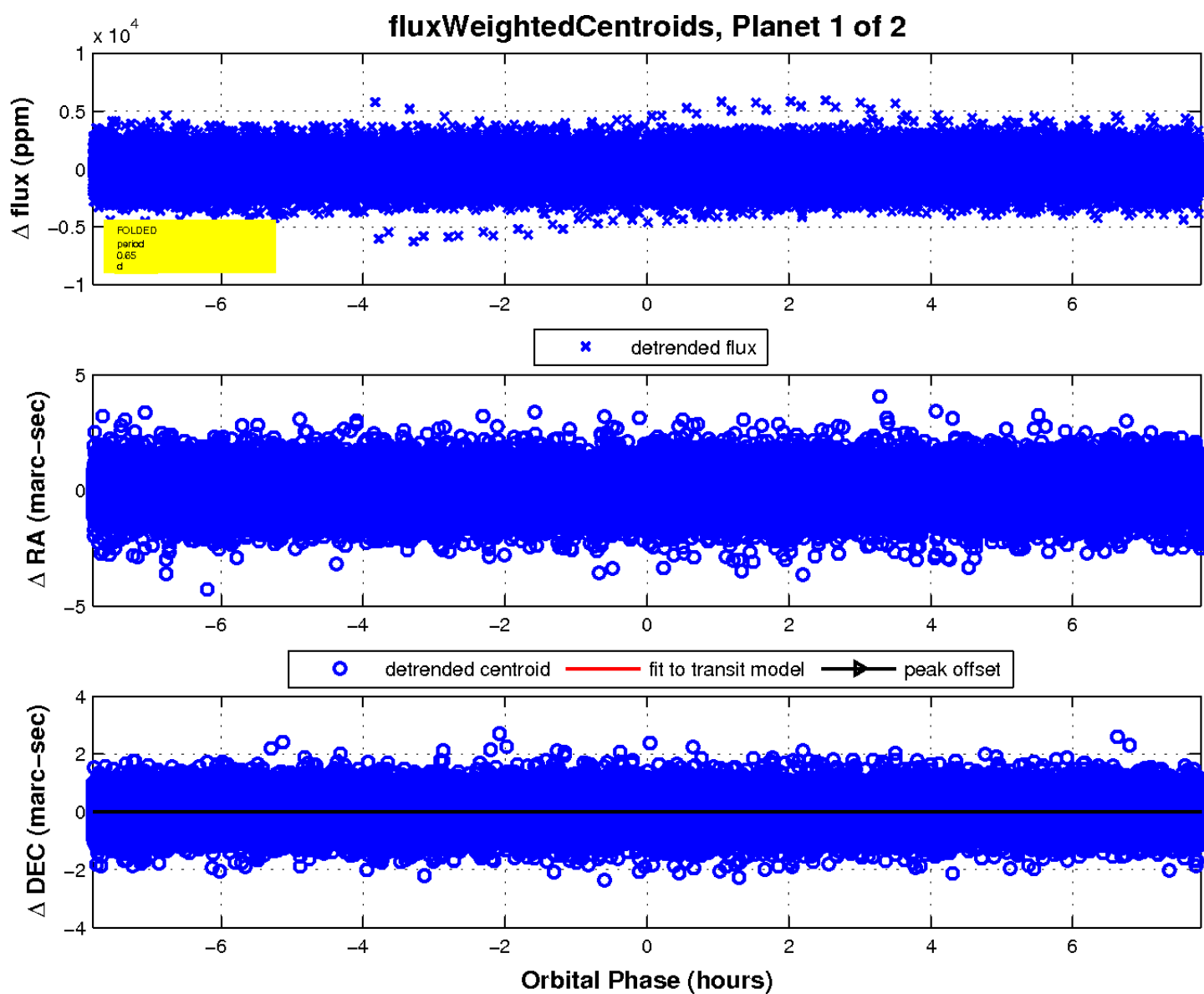
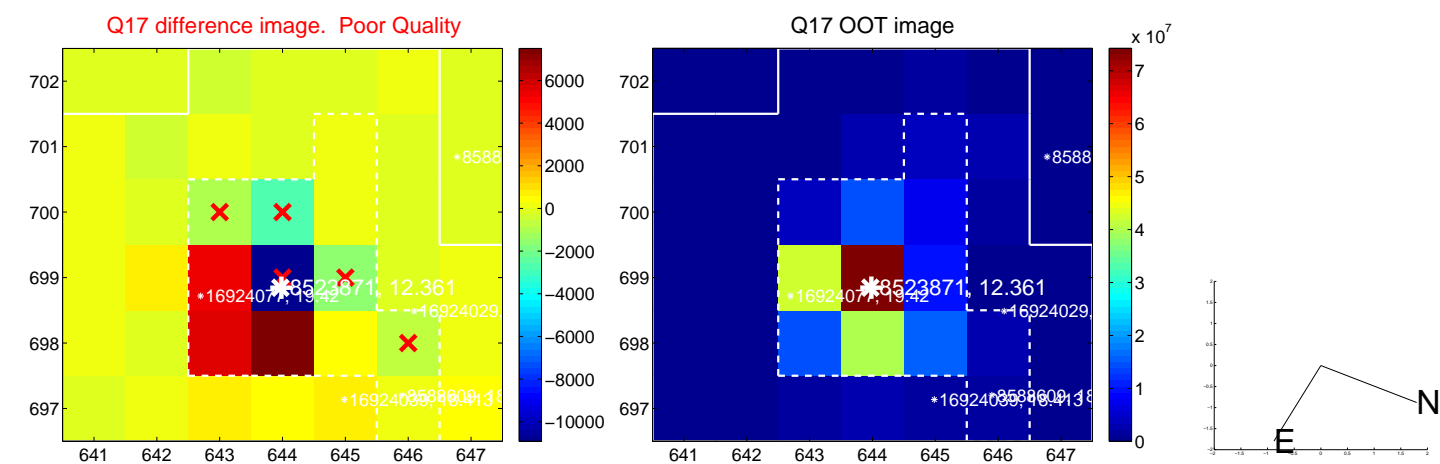
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

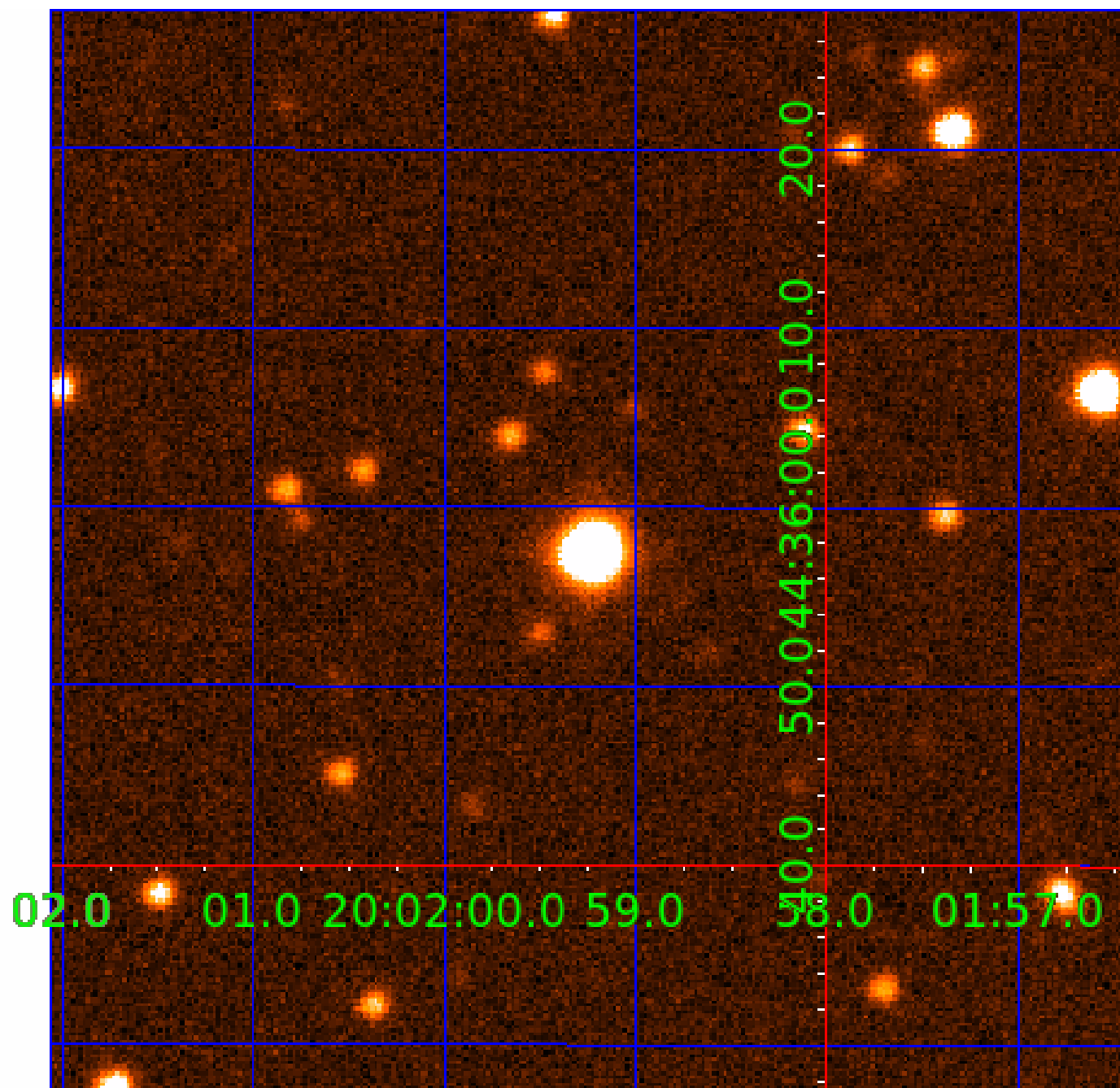


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 008523871

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})
008523871-01	OBS	No	0.650673	131.678256	23.9	4.452	8.2	5.4	1.16	8470	0.58	23581.95
008523871-02	OBS	No	22.115809	138.523650	847.0	3.565	11.3	6.3	1.16	8470	6.28	214.19

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
008523871-01	OBS	FP	0.00	1	0	0	0	LPP_DV—MOD_NONUNIQ_ALT
008523871-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV

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

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

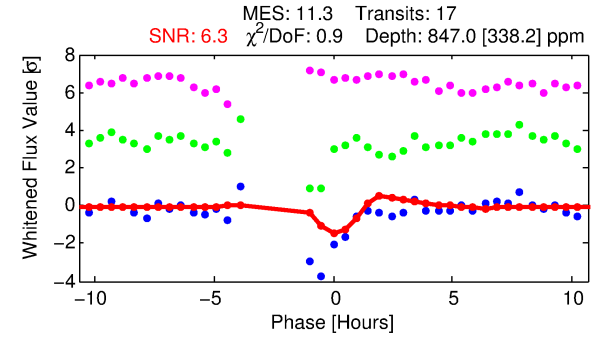
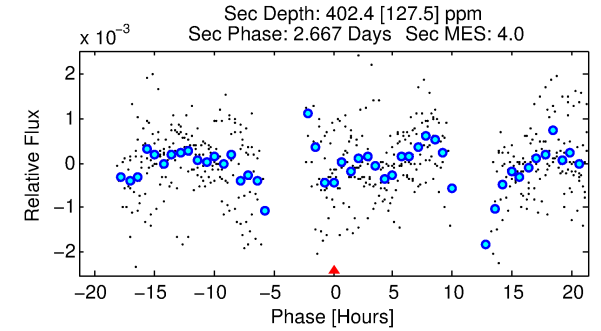
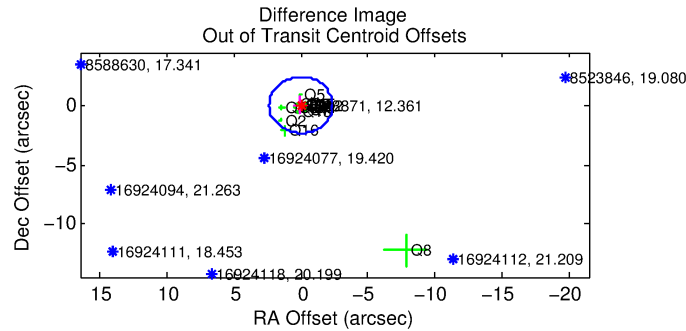
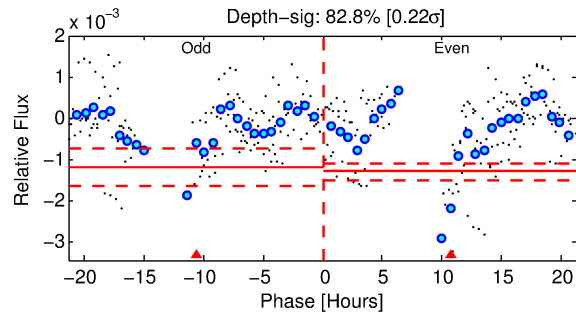
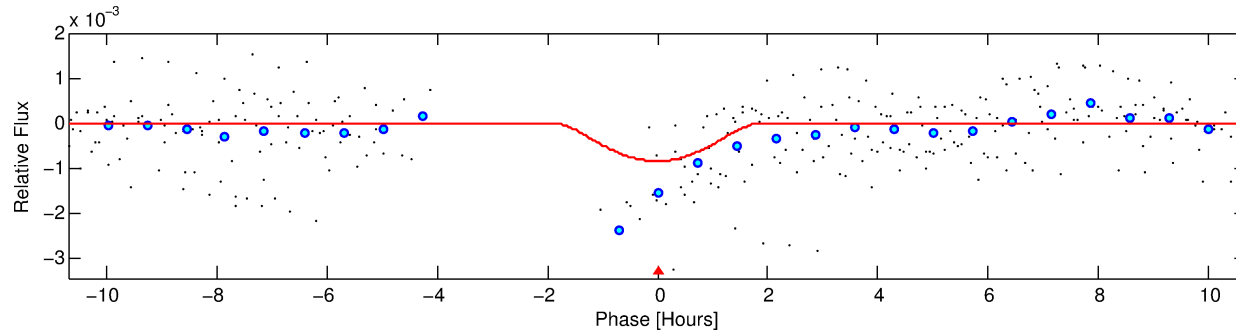
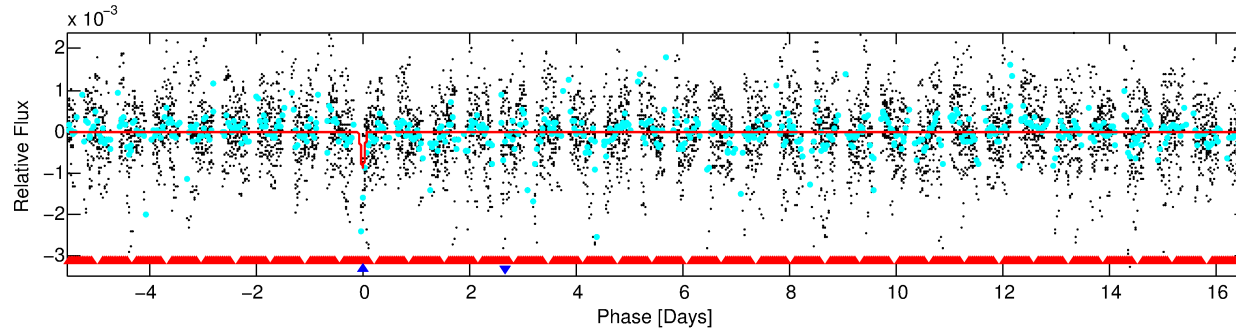
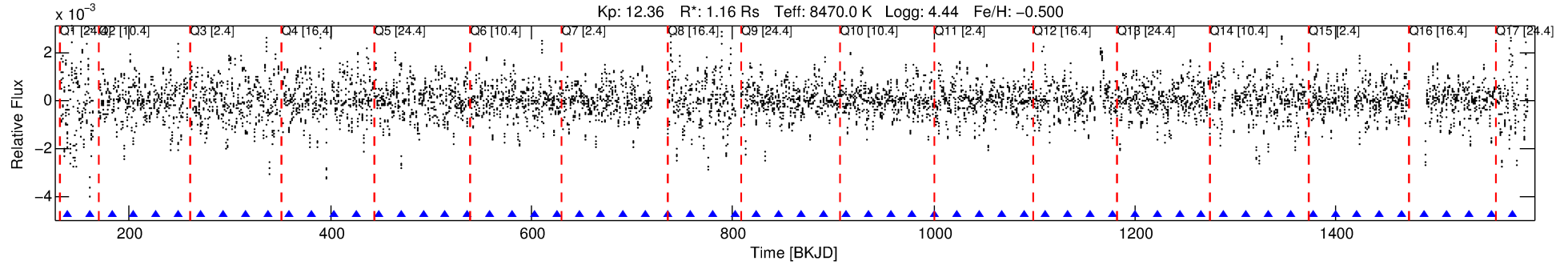
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 008523871-02

No Significant Match Found

DV One-Page Summary

KIC: 8523871 Candidate: 2 of 2 Period: 22.116 d



DV Fit Results:

Period = 22.11581 [0.00128] d
Epoch = 138.5237 [0.0115] BKJD
Rp/R* = 0.0494 [0.012]
a/R* = 15.13 [16.22]
b = 1.00 [0.28]
Seff = 214.19 [123.50]
Teq = 975 [141] K
Rp = 6.28 [25.75] Re
a = 0.1708 [0.0679] AU
Ag = 163.82 [1337.79] [0.12 σ]
Teffp = 5396 [10993] K [0.40 σ]

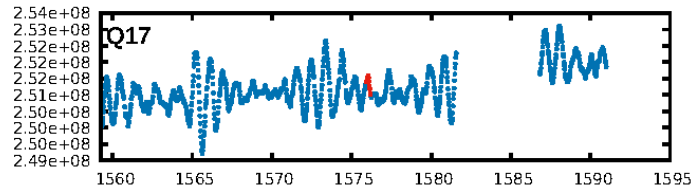
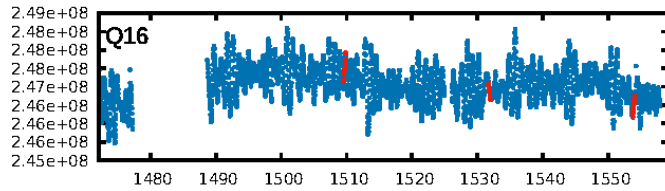
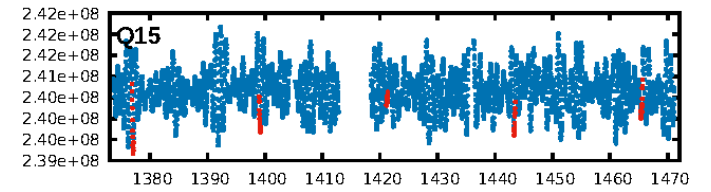
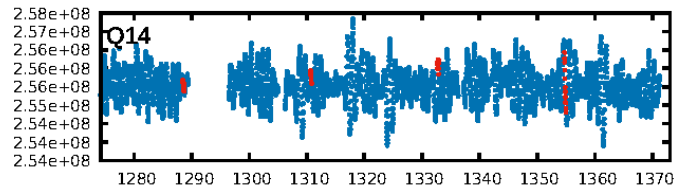
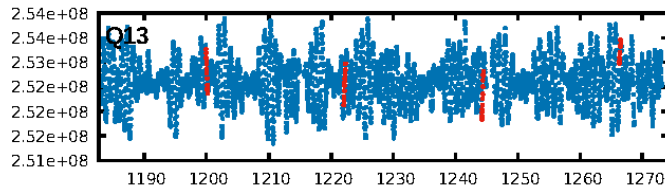
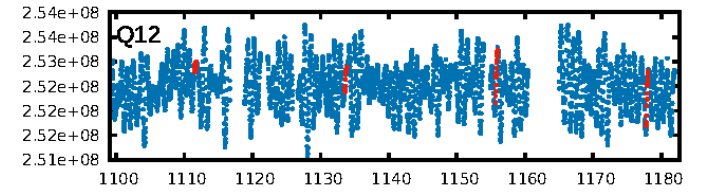
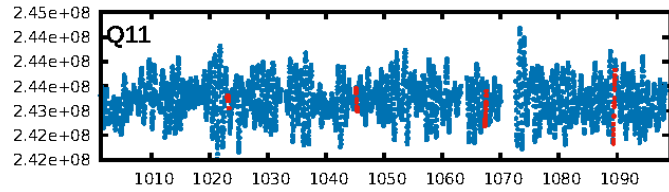
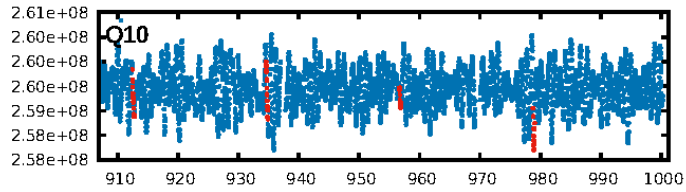
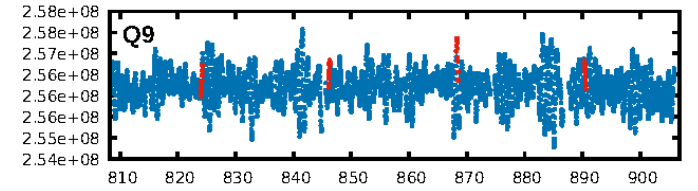
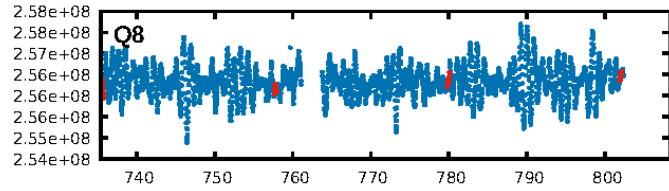
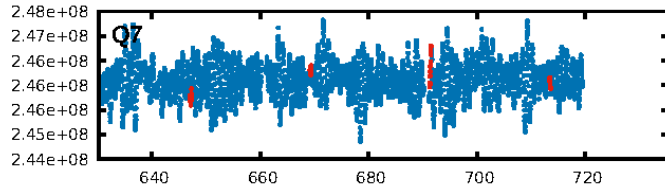
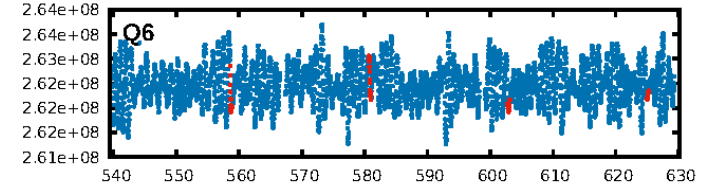
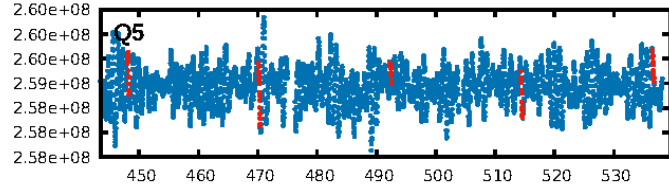
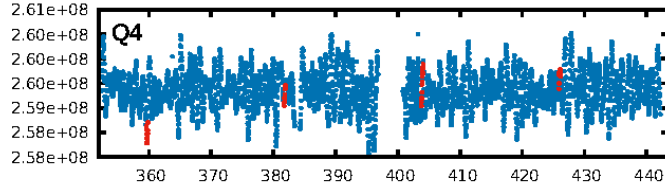
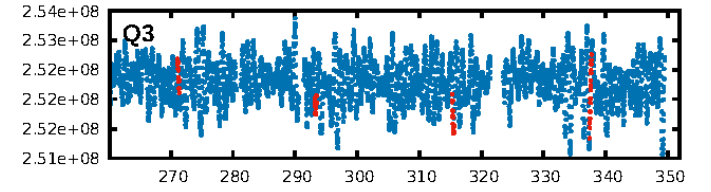
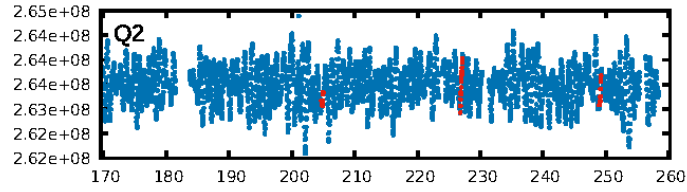
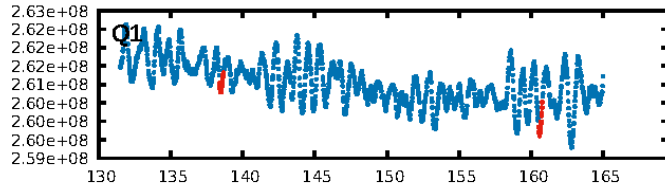
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [90.33 σ]
LongPeriod-sig: N/A
ModelChiSquare2-sig: 2.6%
ModelChiSquareGof-sig: 100.0%
Bootstrap-pfa: 1.93e-20
RollingBand-fgt: 1.00 [15/15]
GhostDiagnostic-chr: 1.099
Centroid-sig: N/A
Centroid-so: 0.231 arcsec [1.58 σ]
OotOffset-rm: 0.048 arcsec [0.06 σ]
KicOffset-rm: 0.144 arcsec [0.28 σ]
OotOffset-st: 4/4/4/5 [17]
KicOffset-st: 4/4/4/5 [17]
DiffImageQuality-fgm: 0.53 [9/17]
DiffImageOverlap-fno: 0.00 [0/17]

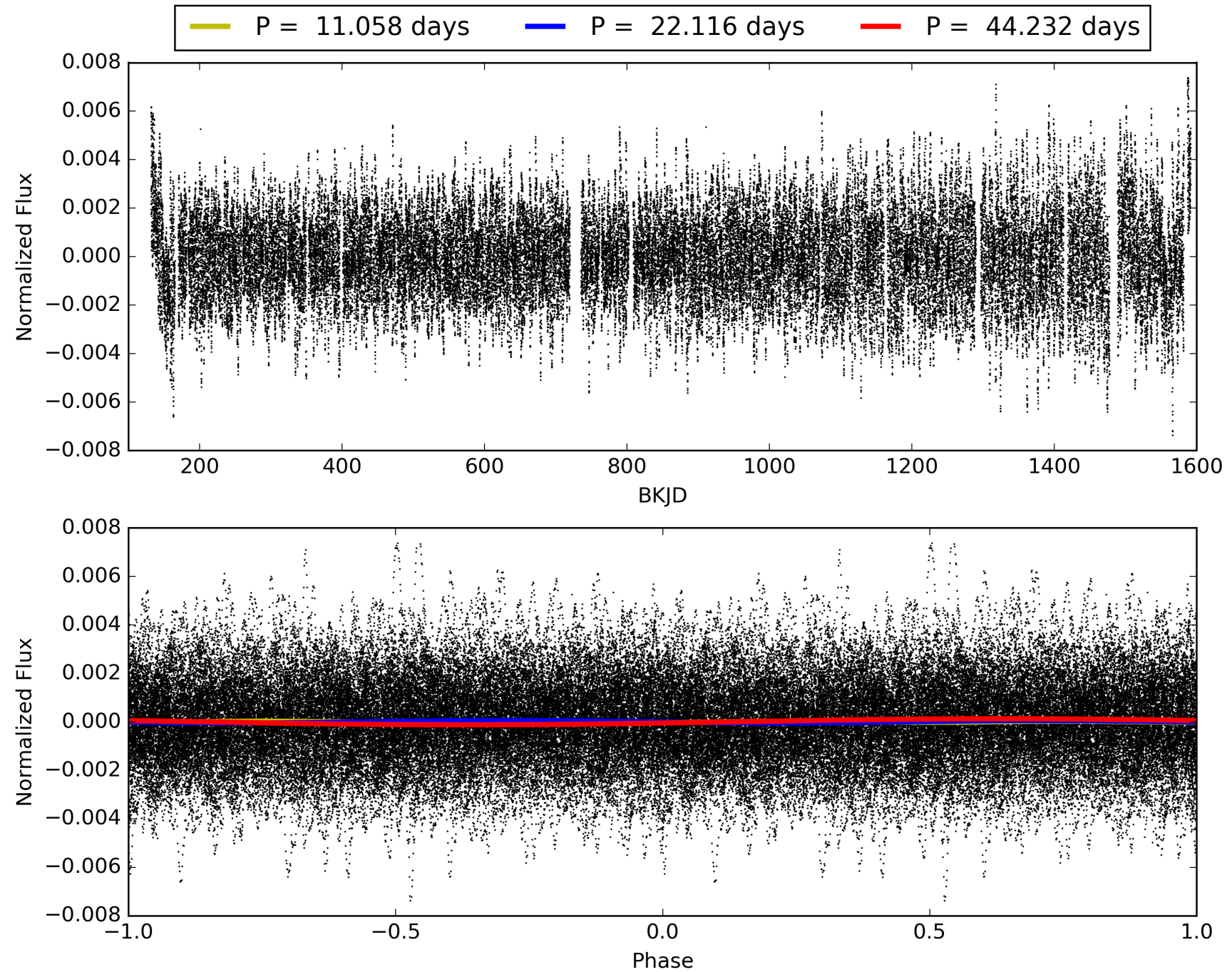
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 07:26:54 Z

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

TCE 008523871-02, PDC Light Curves

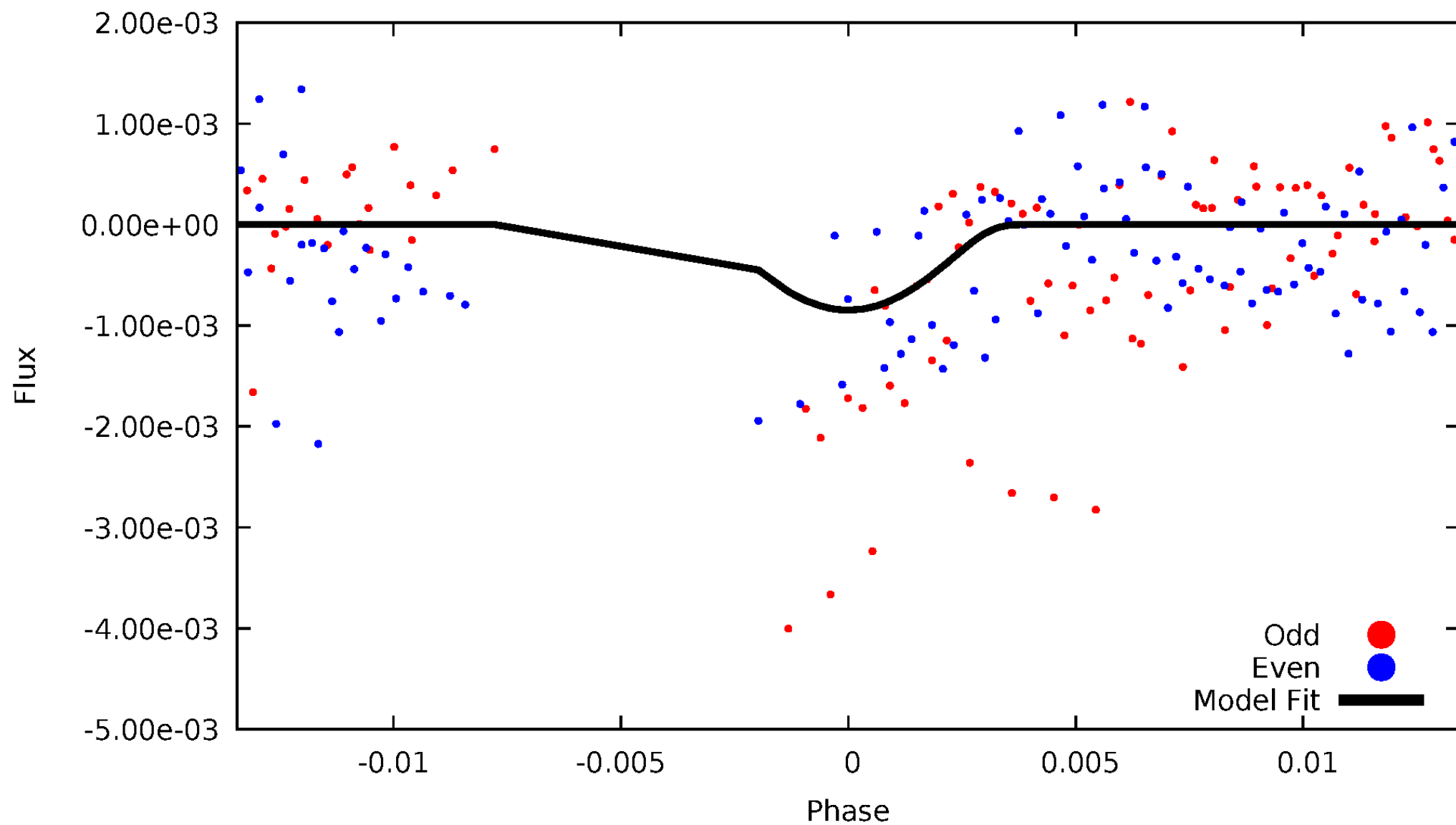


TCE 008523871-02



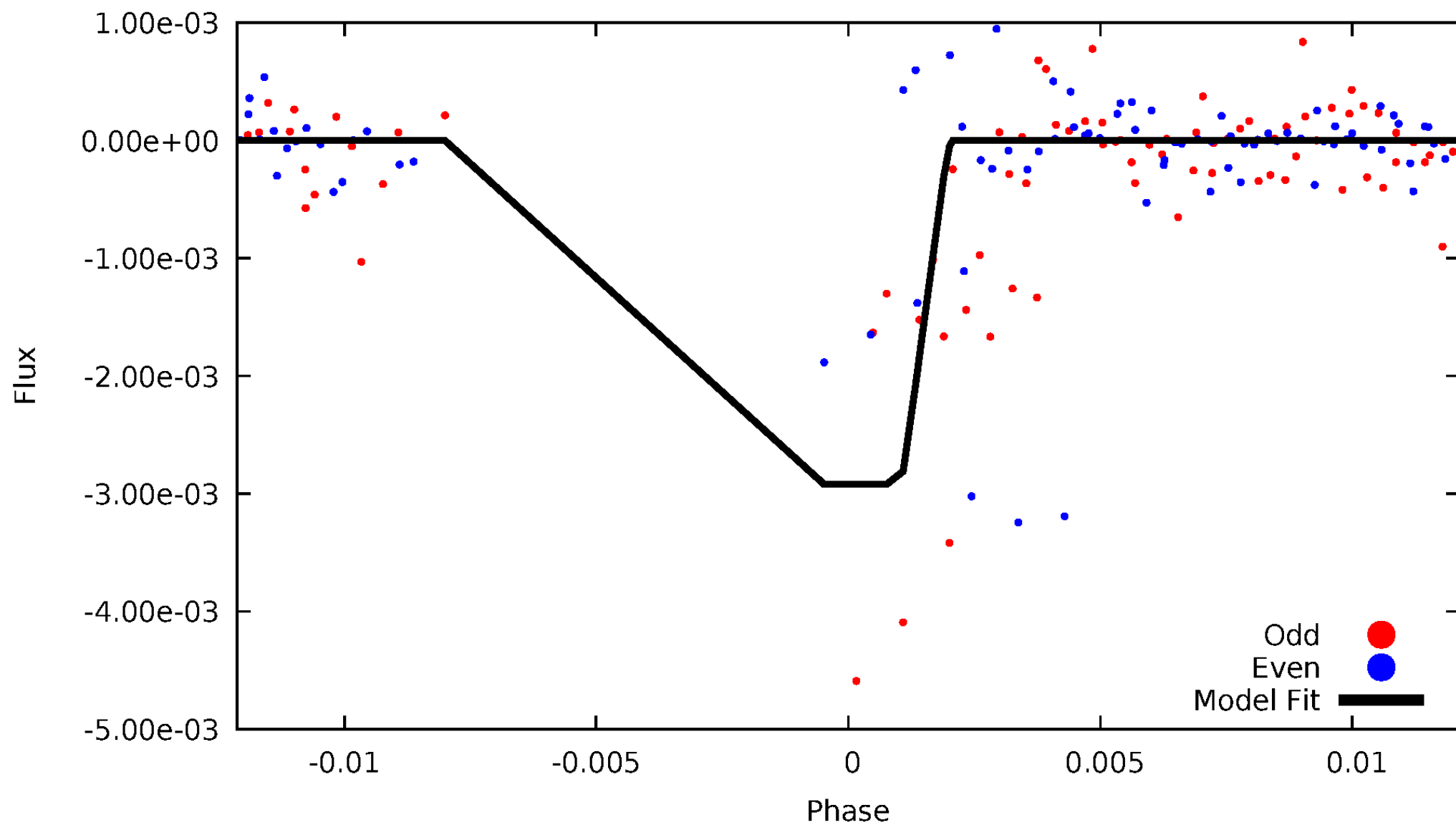
DV Odd/Even

TCE 008523871-02



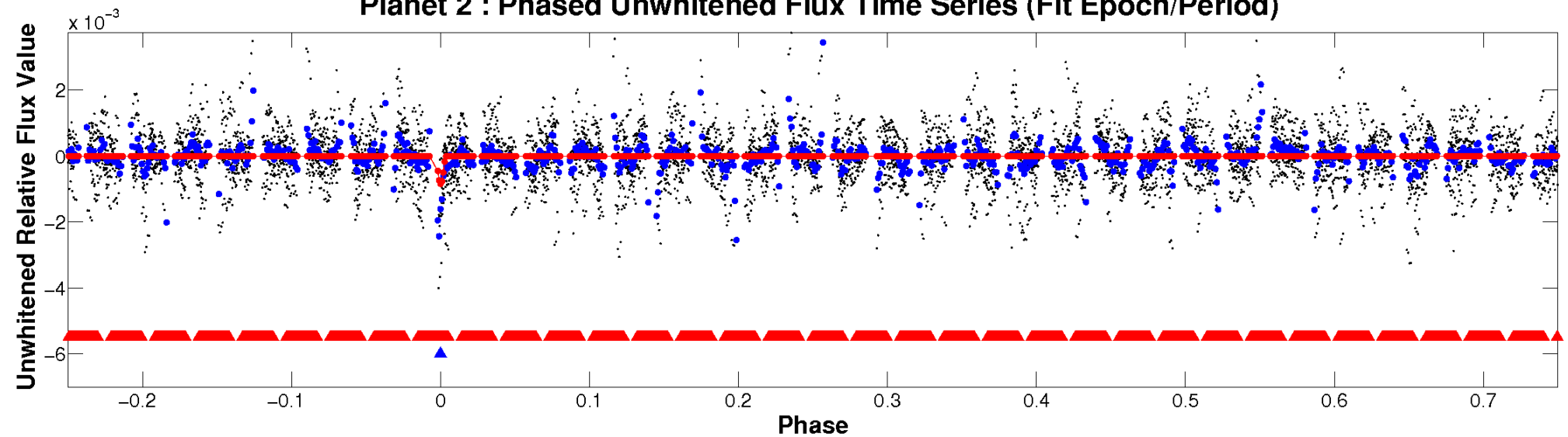
ALT Odd/Even

TCE 008523871-02

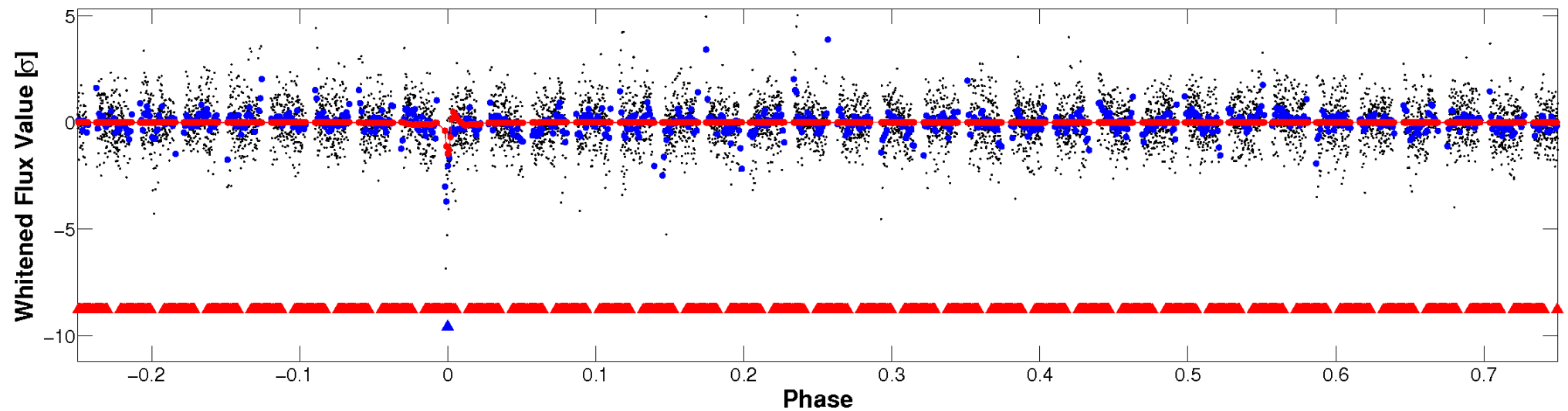


Non-Whitened Vs. Whitened Light Curve

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

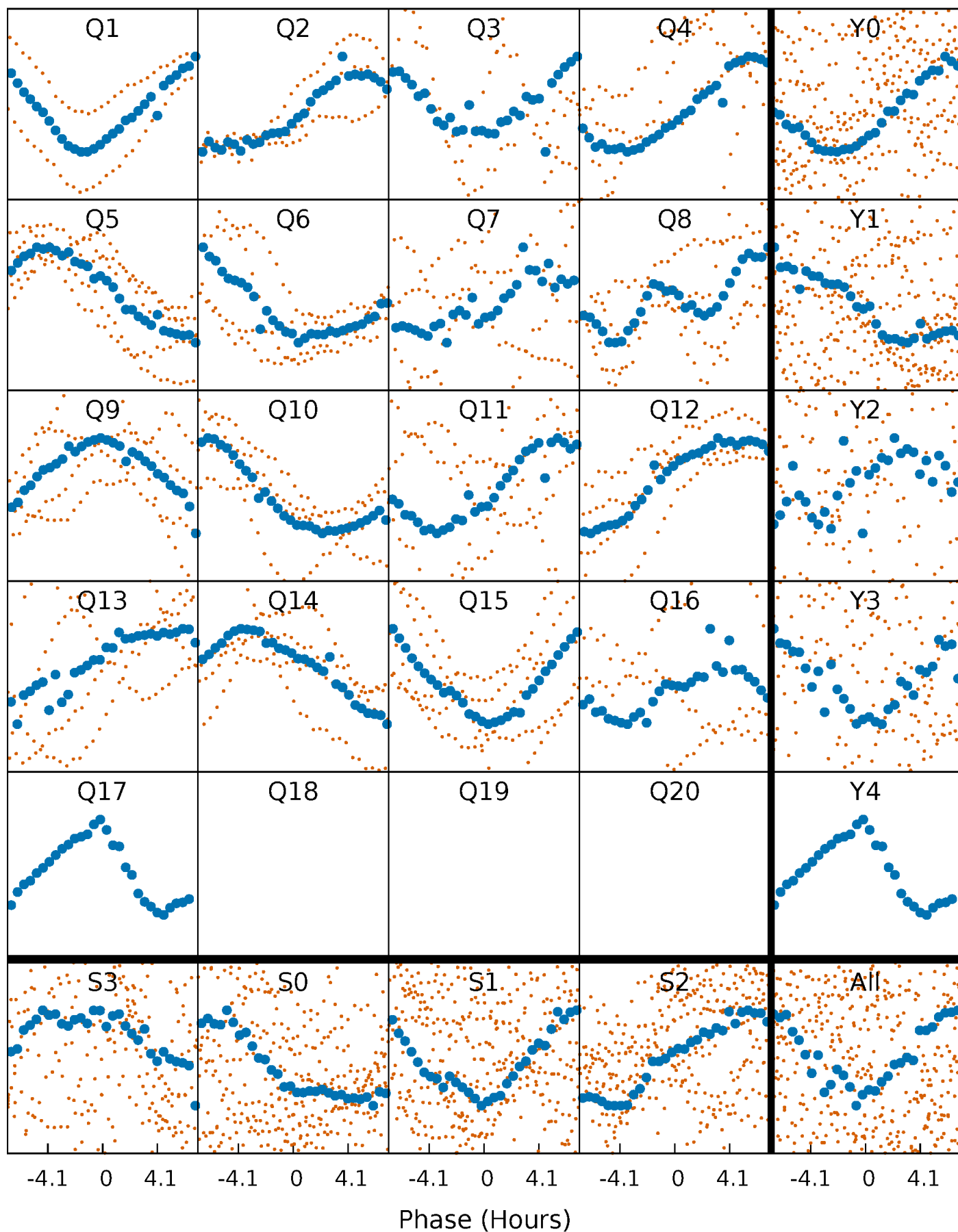


Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



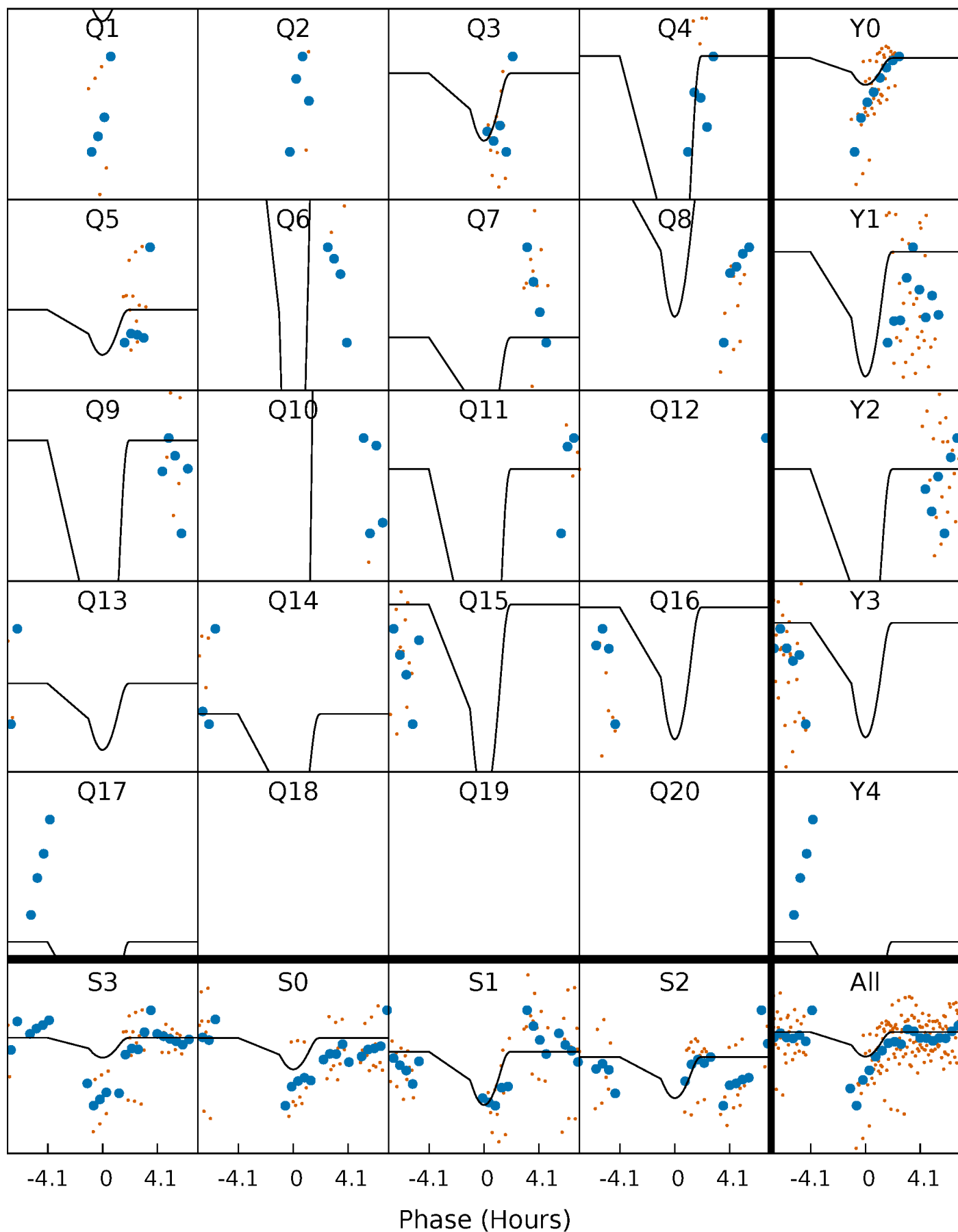
PDC Quarter-Phased Transit Curves

TCE 008523871-02 P= 22.115809 Days $T_0=138.523650$ (BKJD)



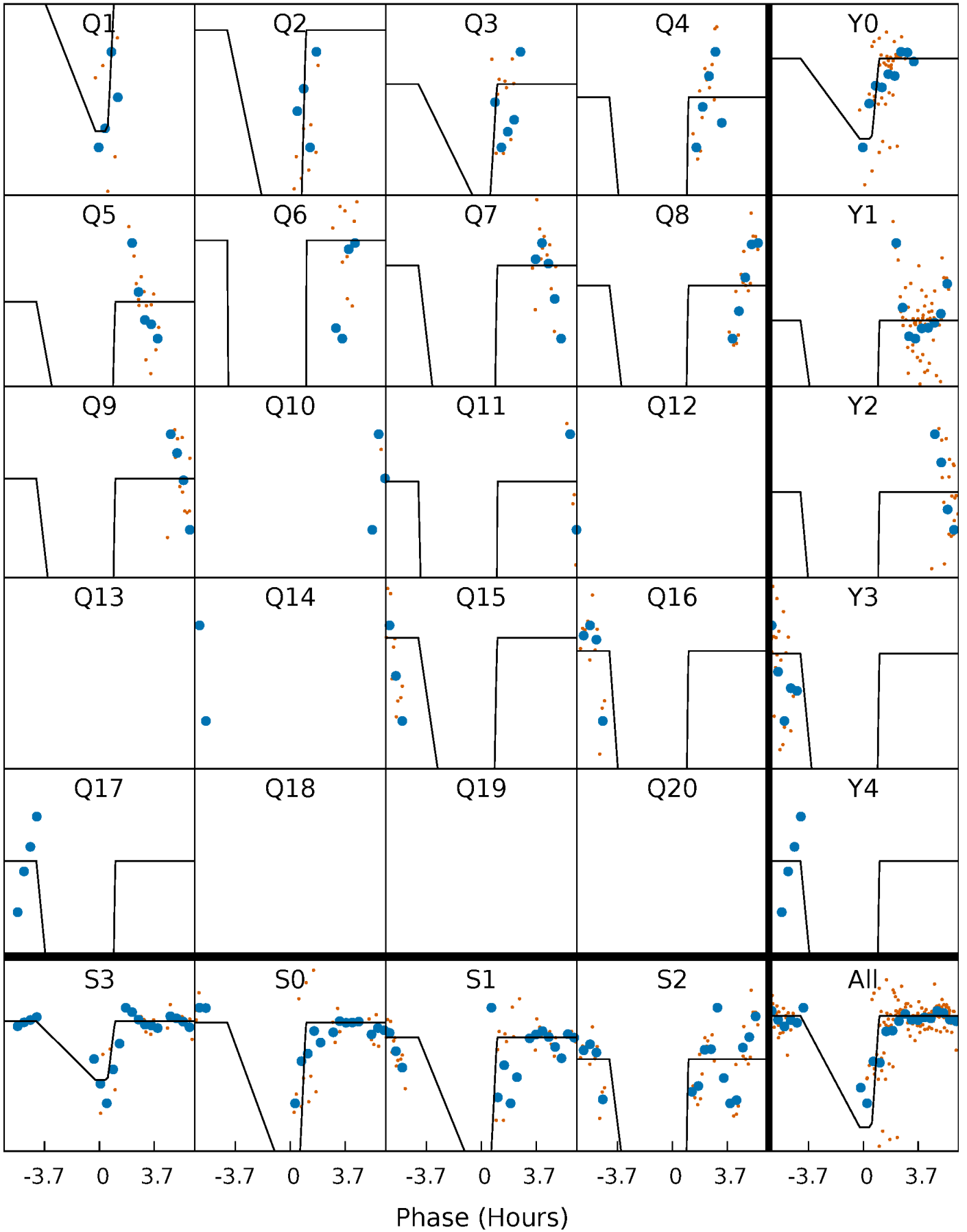
DV Quarter-Phased Transit Curves

TCE 008523871-02 P= 22.115809 Days $T_0=138.523650$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

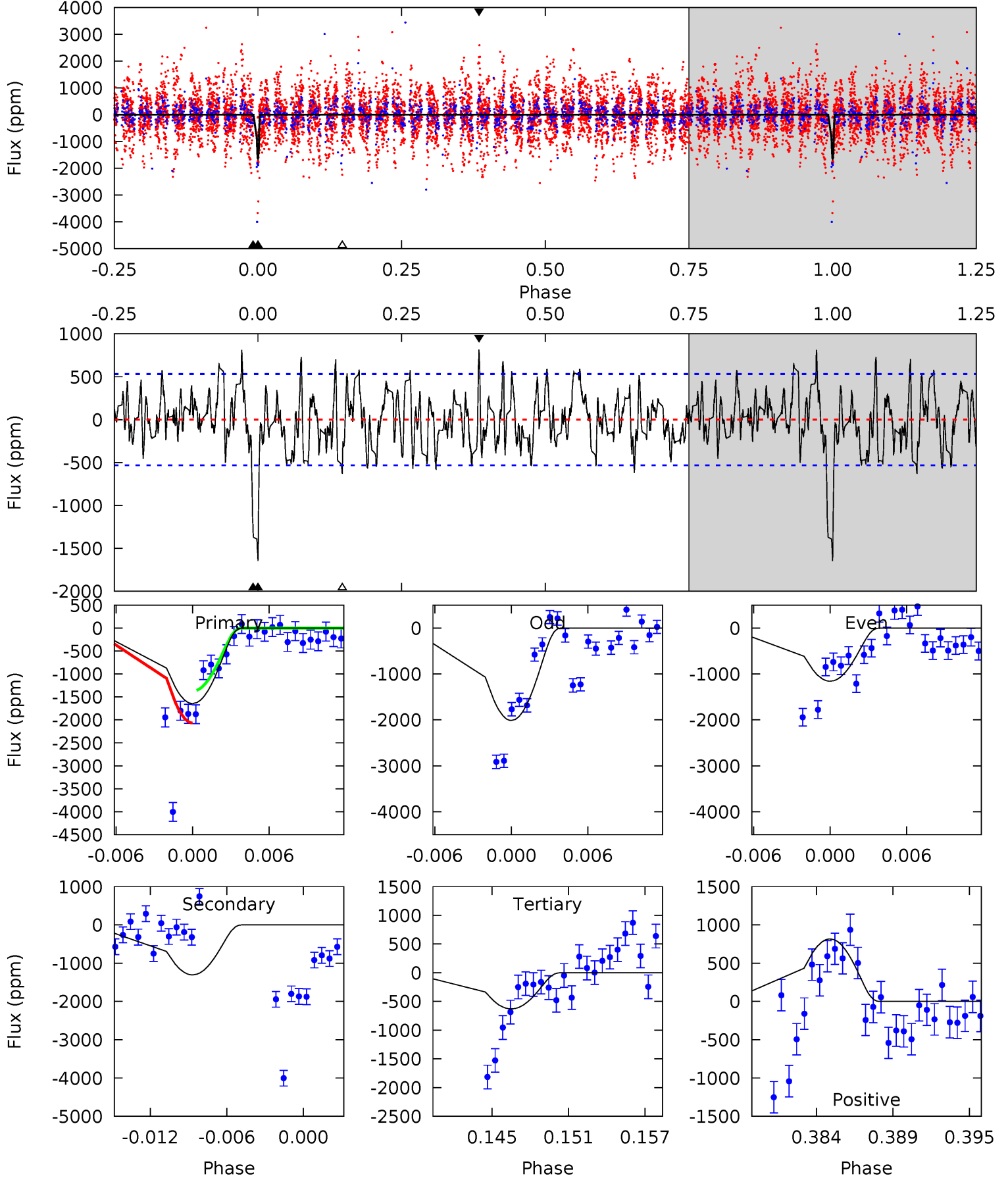
TCE 008523871-02 P= 22.116397 Days $T_0=138.490459$ (BKJD)



DV Model-Shift Uniqueness Test

008523871-02, P = 22.115809 Days, E = 116.407841 Days

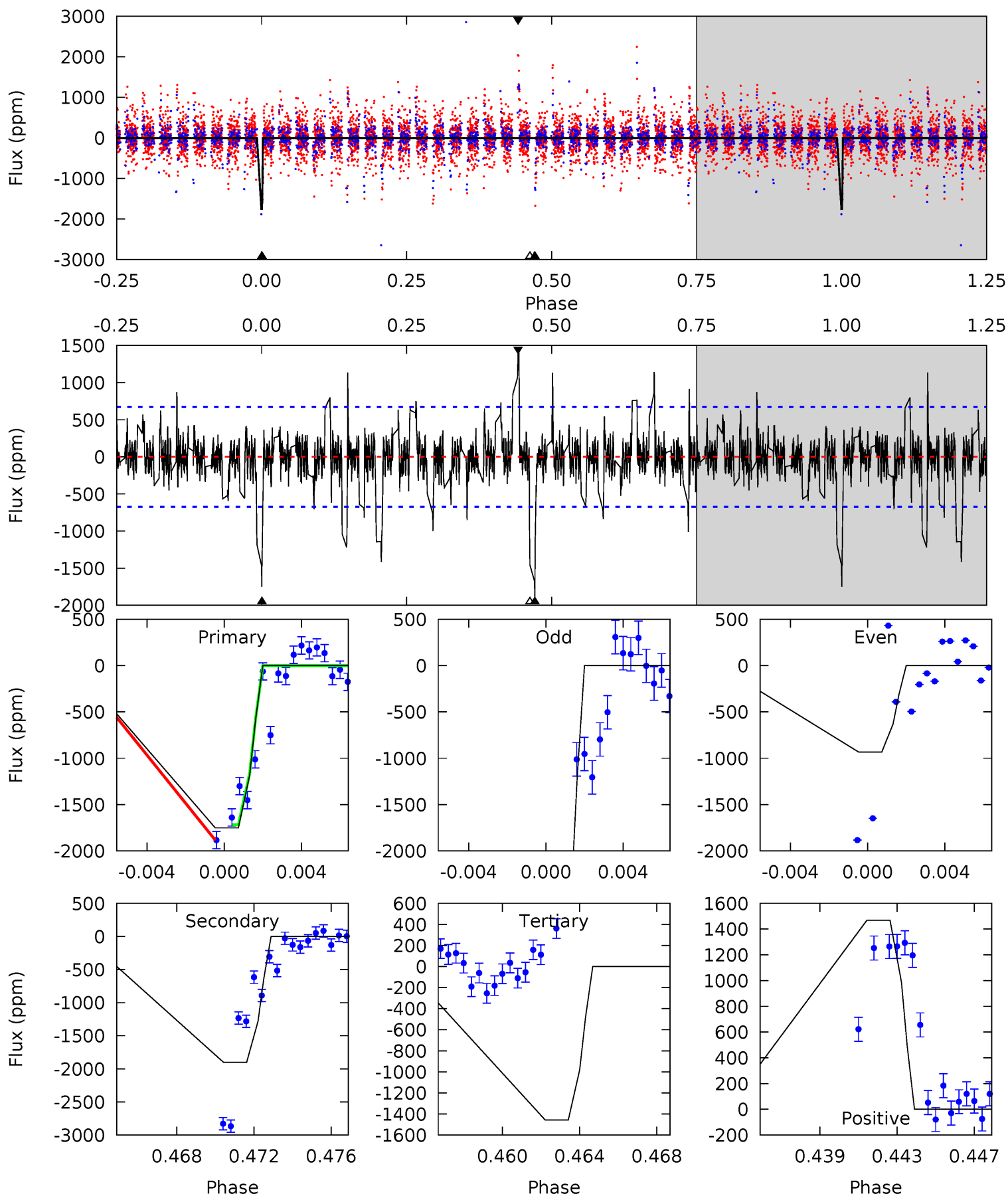
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
15.9	12.6	6.07	7.87	5.13	2.76	2.43	9.79	7.99	6.52	4.72	4.02	1.24	0.33	2.79



Alt Model-Shift Uniqueness Test

008523871-02, P = 22.116397 Days, E = 116.374062 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
13.5	14.7	11.2	11.3	5.19	2.87	1.55	2.28	2.18	3.43	3.34	11.1	1.01	0.44	0.47



Stellar Parameters For KIC 008523871

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	M (M_{\odot})	p_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	8470^{+235}_{-353}	$4.439^{+0.032}_{-0.288}$	$-0.500^{+0.150}_{-0.300}$	$1.164^{+0.577}_{-0.064}$	$1.466^{+0.182}_{-0.132}$	$1.310^{+0.084}_{-0.908}$
	+3%/-4%	+1%/-6%	+30%/-60%	+50%/-5%	+12%/-9%	+6%/-69%
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 008523871-02 / KOI

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	-1306 ± 104	$23.33^{+23.96}_{-16.00}$	1417^{+141}_{-87}	4108^{+2582}_{-846}	39^{+353}_{-29}
Alt.	-1901 ± 130	$22.10^{+22.92}_{-14.85}$	1415^{+153}_{-82}	4509^{+3365}_{-1001}	63^{+570}_{-47}

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

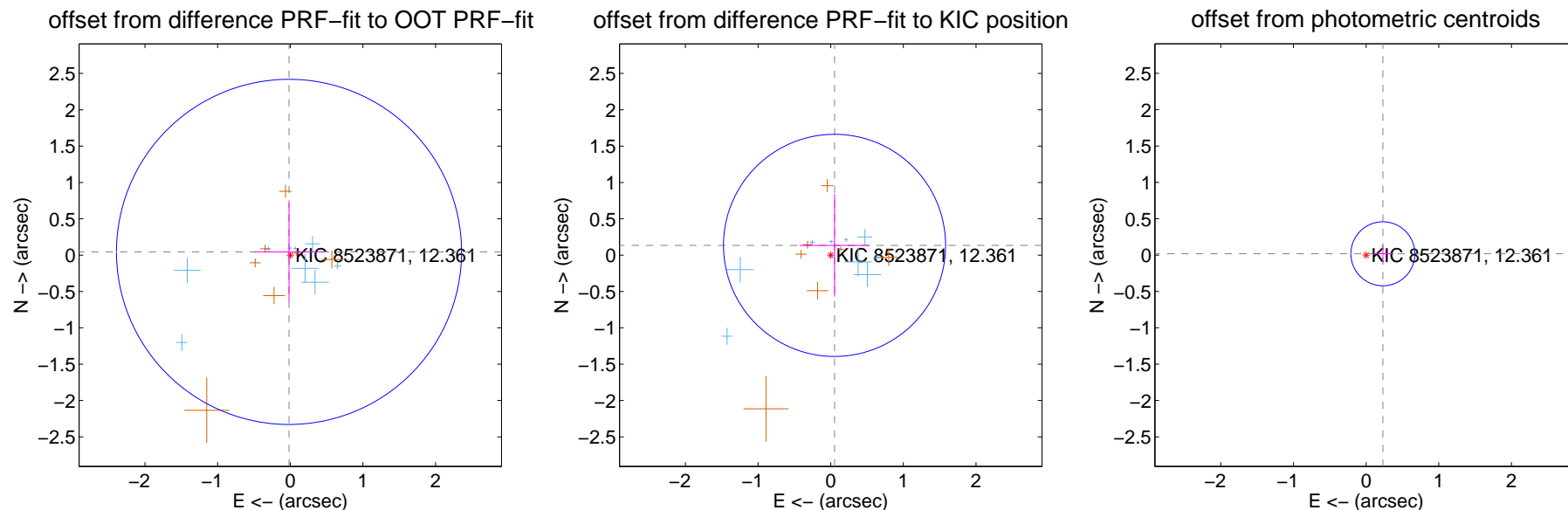
DV Centroid Data

Supplemental centroid analysis for 008523871-02. Kepler magnitude: 12.36. Transit SNR 6.27

There are 9 quarters with good PRF difference image offsets

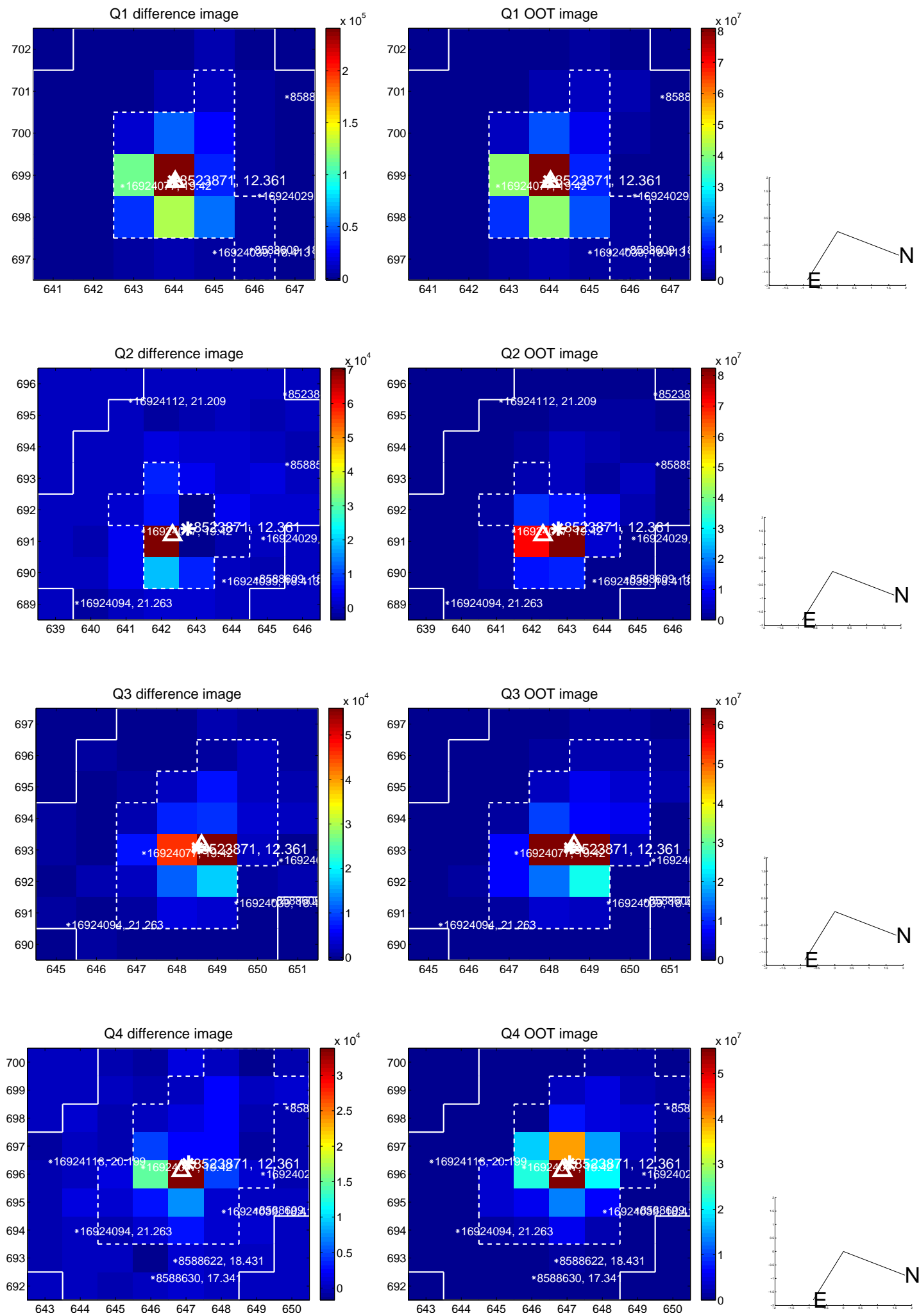
The direct PRF centroid is offset from the target star catalog position by about 0.06 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.048 ± 0.791	0.06	0.017 ± 0.483	0.045 ± 0.679
PRF-fit source offset from KIC position	0.144 ± 0.509	0.28	-0.053 ± 0.483	0.134 ± 0.706
photometric centroid source offset	0.23 ± 0.15	1.58	-0.23 ± 0.15	0.02 ± 0.12

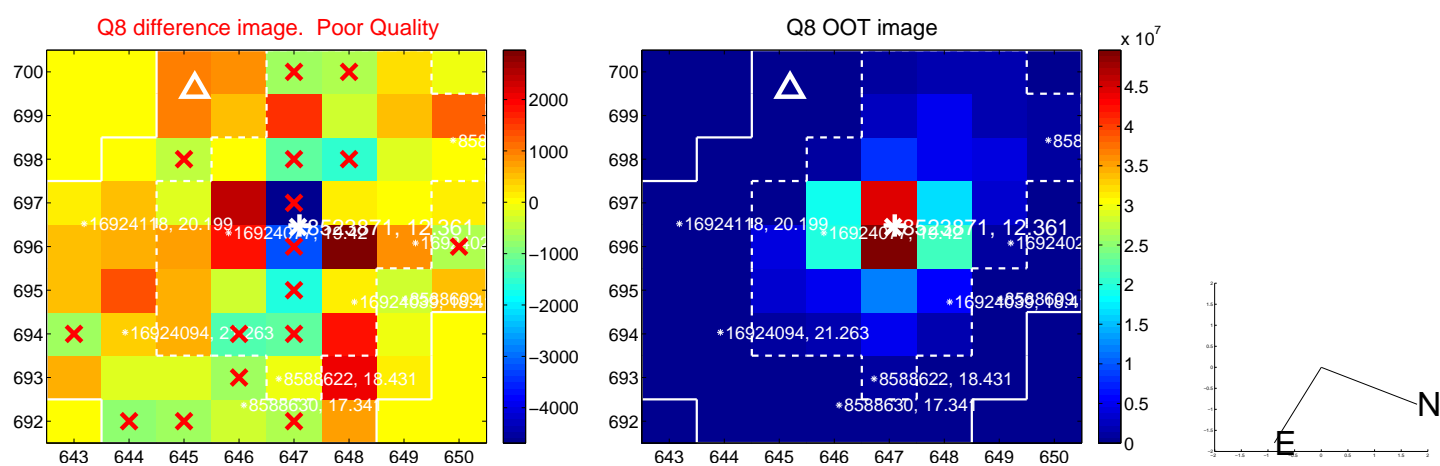
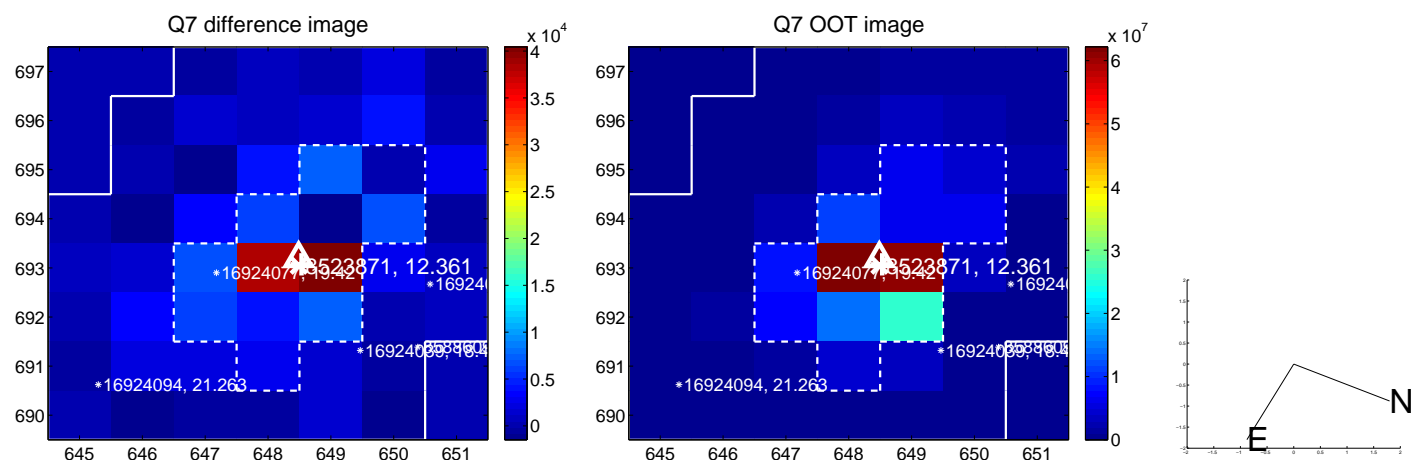
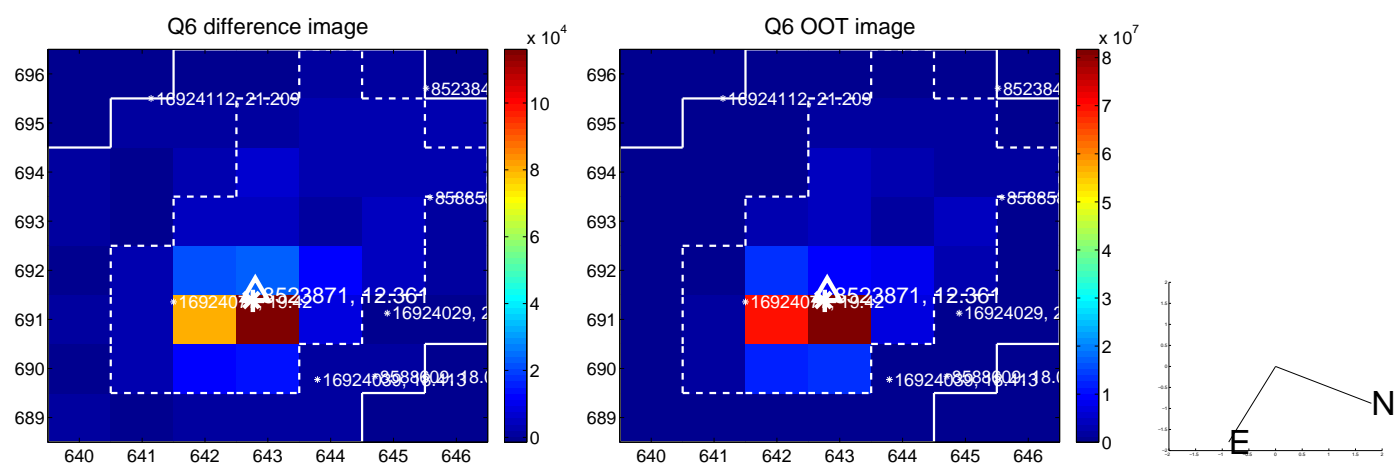
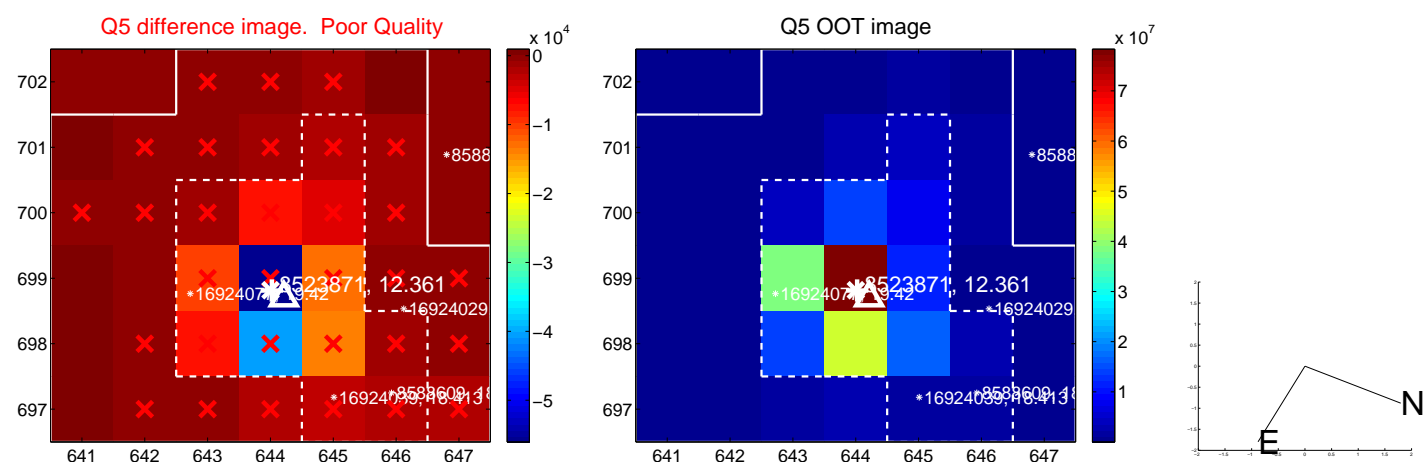


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

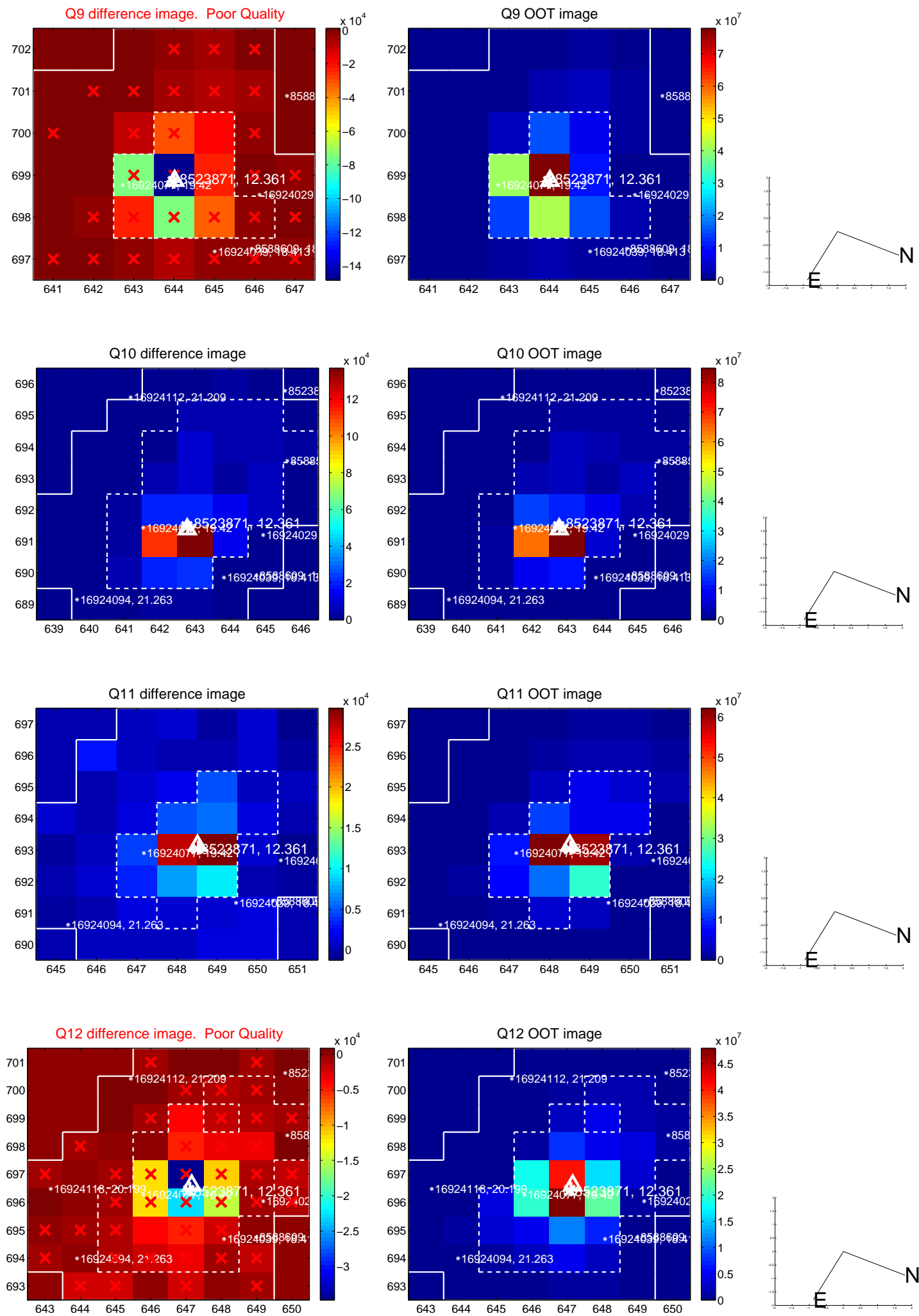
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



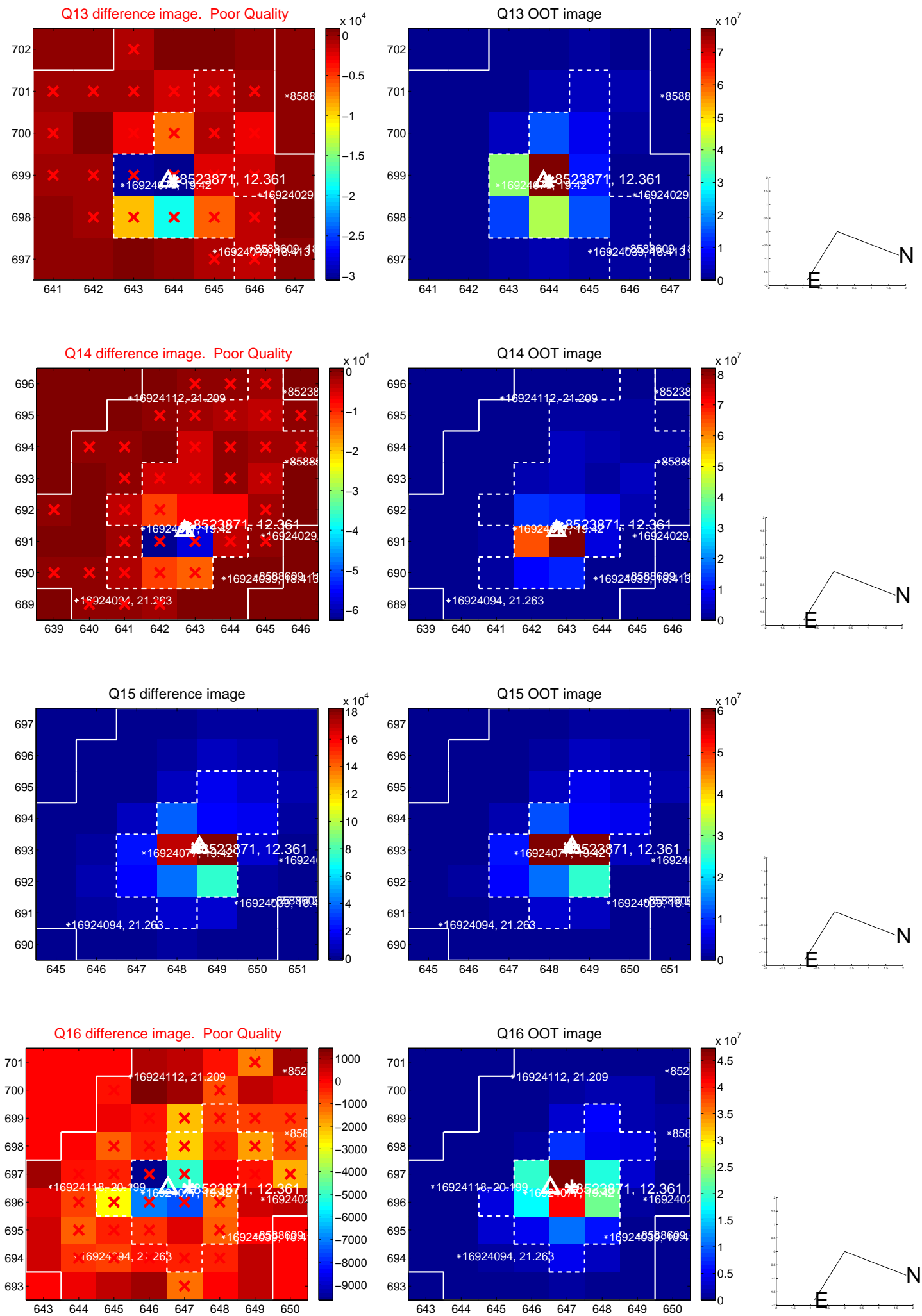
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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



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



UKIRT Image

