

KIC 008827572

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})
008827572-01	OBS	No	2.022367	132.523558	22.1	10.500	9.8	7.3	1.73	7300	0.88	5921.06
008827572-02	OBS	No	2.022211	132.081072	77.9	22.152	12.3	15.0	1.73	7300	1.91	5921.67

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
008827572-01	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT
008827572-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_SKYE_ZUMA—LPP_DV—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—SAME_NTL_PERIOD—CENT_FEW_DIFFS

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

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

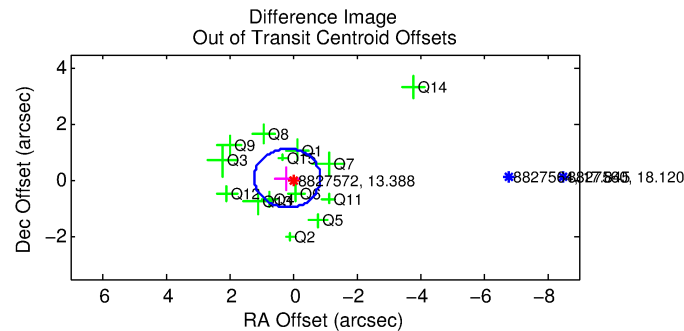
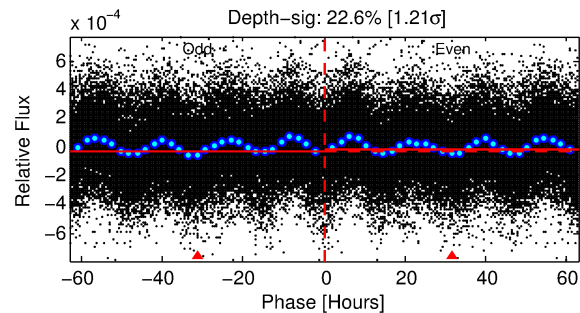
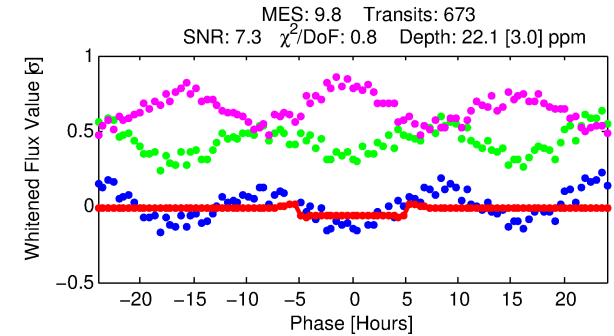
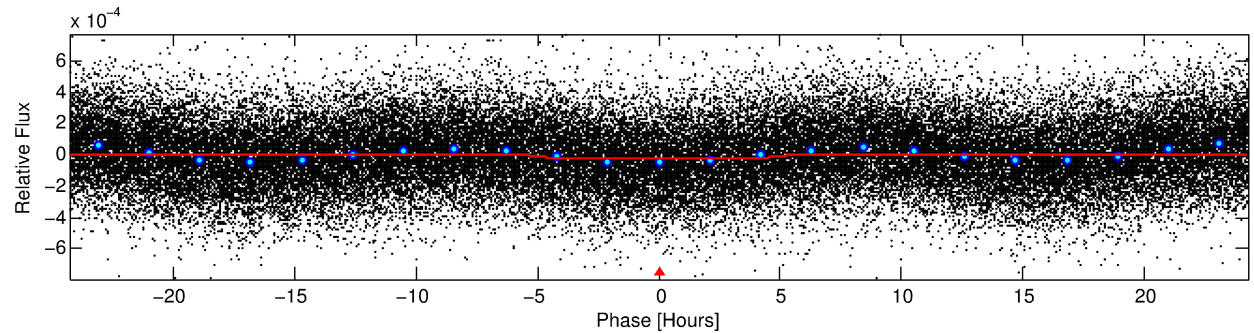
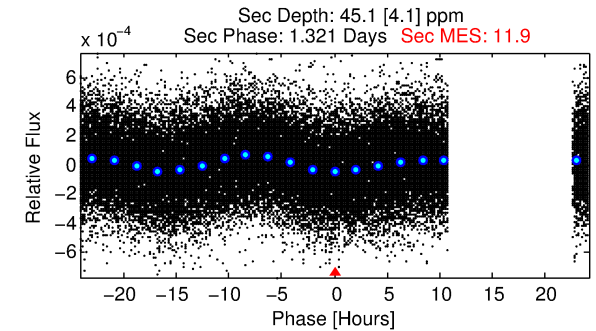
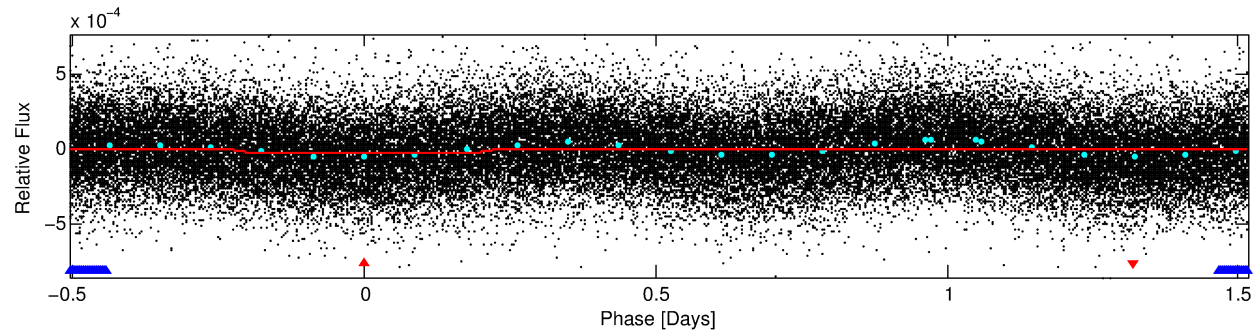
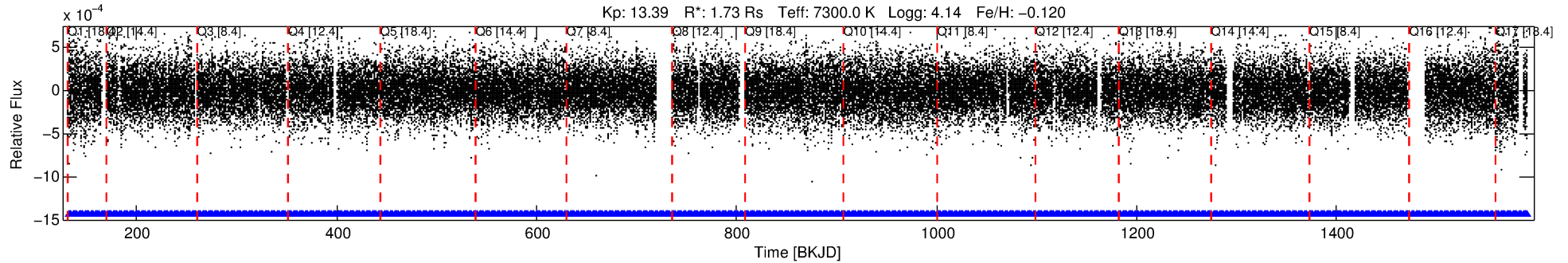
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 008827572-01

No Significant Match Found

DV One-Page Summary

KIC: 8827572 Candidate: 1 of 2 Period: 2.022 d



DV Fit Results:

Period = 2.02237 [0.00003] d
Epoch = 132.5236 [0.0071] BKJD
Rp/R* = 0.0047 [0.0014]
a/R* = 1.30 [0.94]
b = 0.76 [1.02]
Seff = 5921.06 [2278.43]
Teq = 2237 [215] K
Rp = 0.88 [0.38] Re
a = 0.0358 [0.0088] AU
Ag = 40.89 [27.94] [1.43σ]
Teffp = 8745 [1355] K [4.74σ]

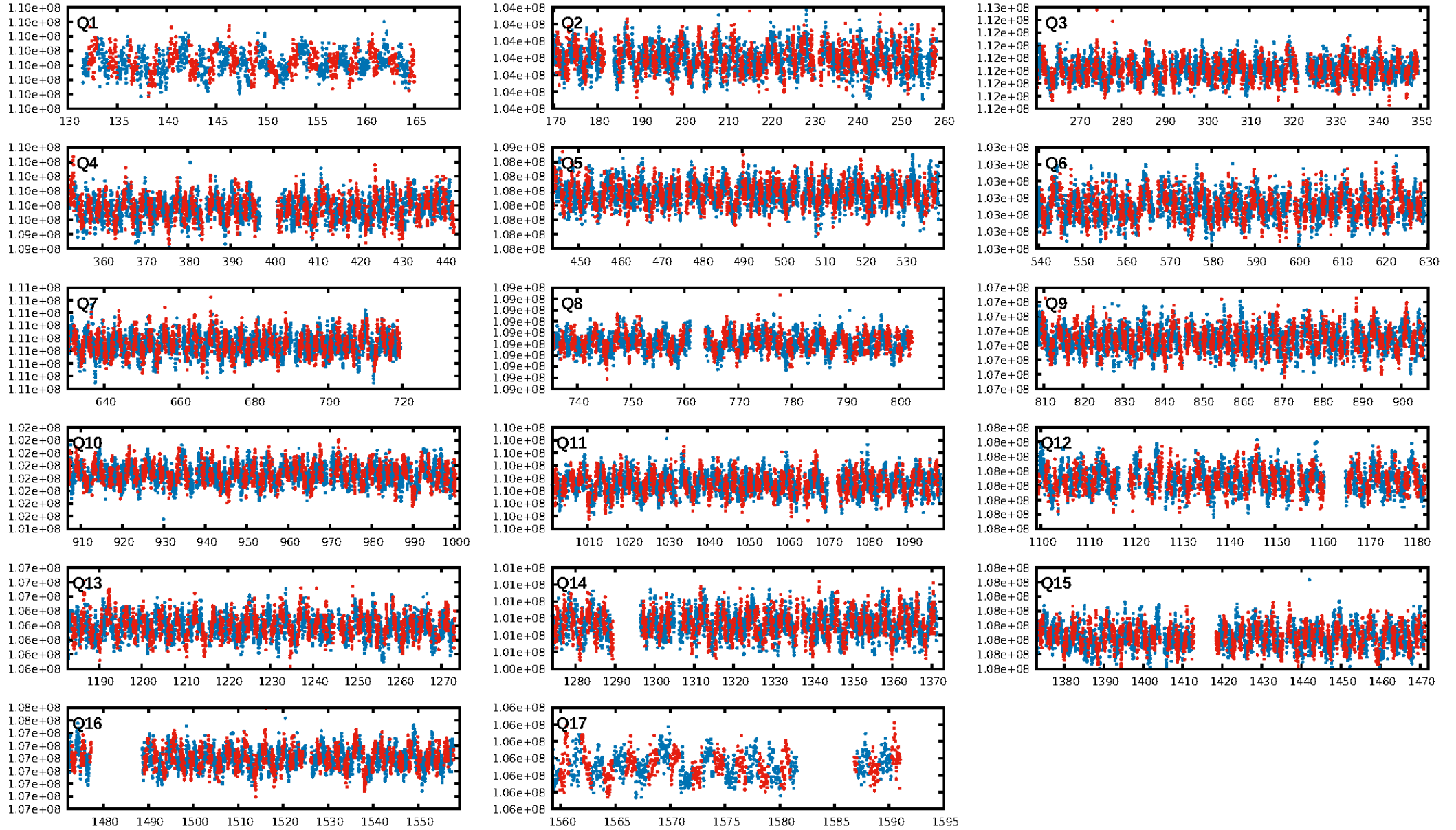
DV Diagnostic Results:

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 [642/642]
GhostDiagnostic-chr: 3.841
Centroid-sig: 0.0%
Centroid-so: 1.841 arcsec [1.61σ]
OotOffset-rm: 0.202 arcsec [0.58σ]
KicOffset-rm: 0.185 arcsec [0.48σ]
OotOffset-st: 3/4/3/4 [14]
KicOffset-st: 3/4/3/4 [14]
DiffImageQuality-fgm: 0.86 [12/14]
DiffImageOverlap-fno: 0.00 [0/17]

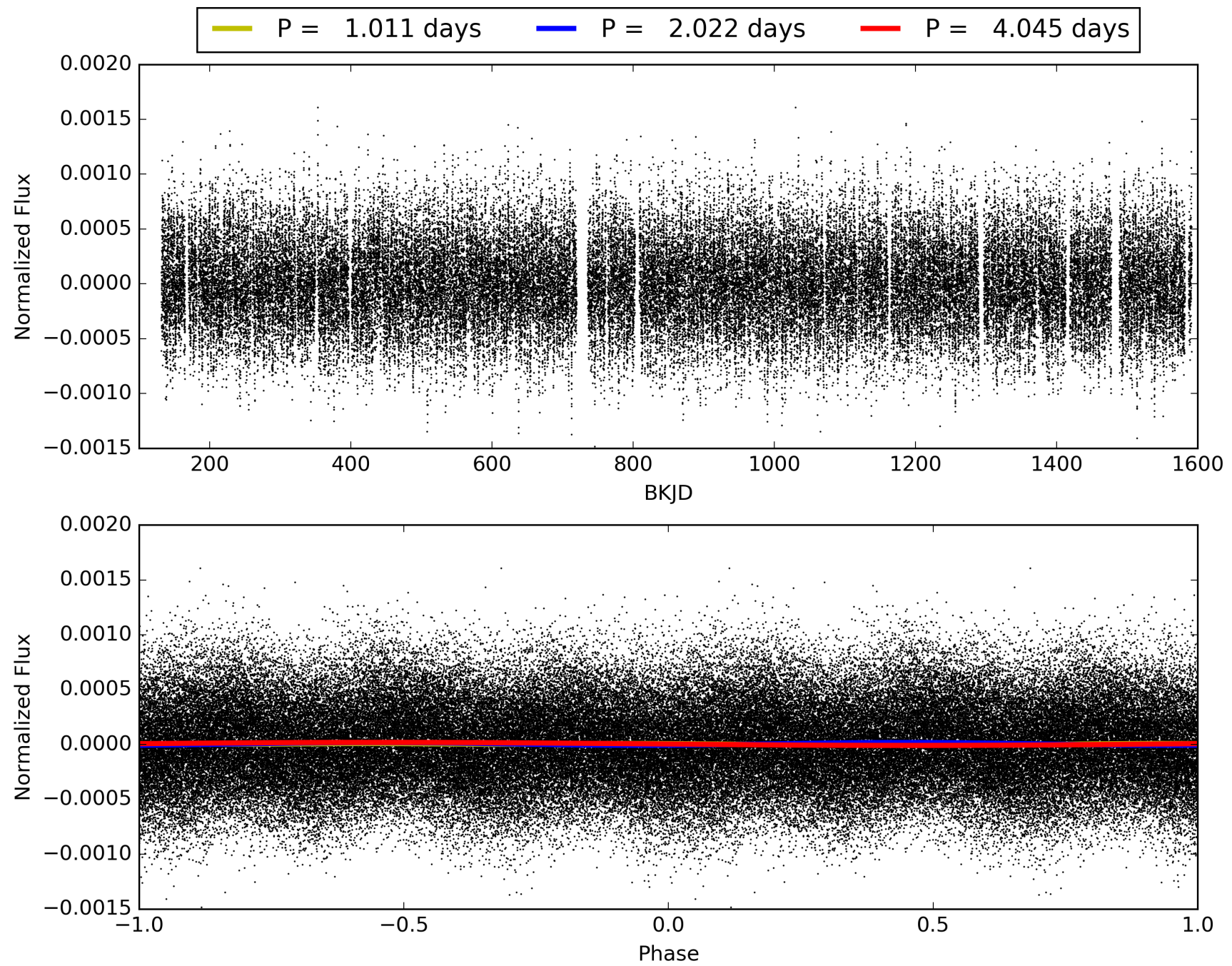
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 02-Feb-2016 18:12:52 Z

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

TCE 008827572-01, PDC Light Curves

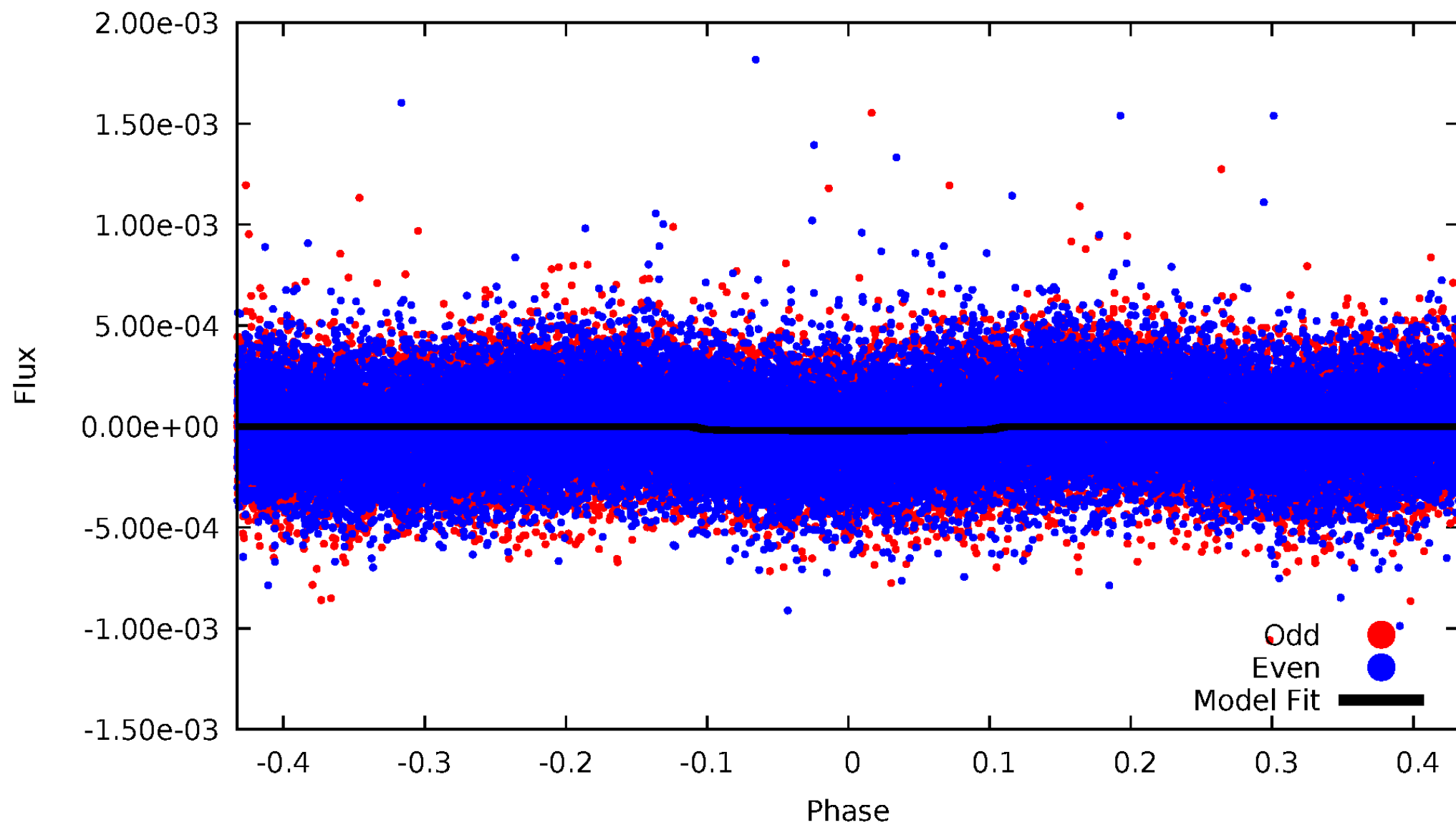


TCE 008827572-01



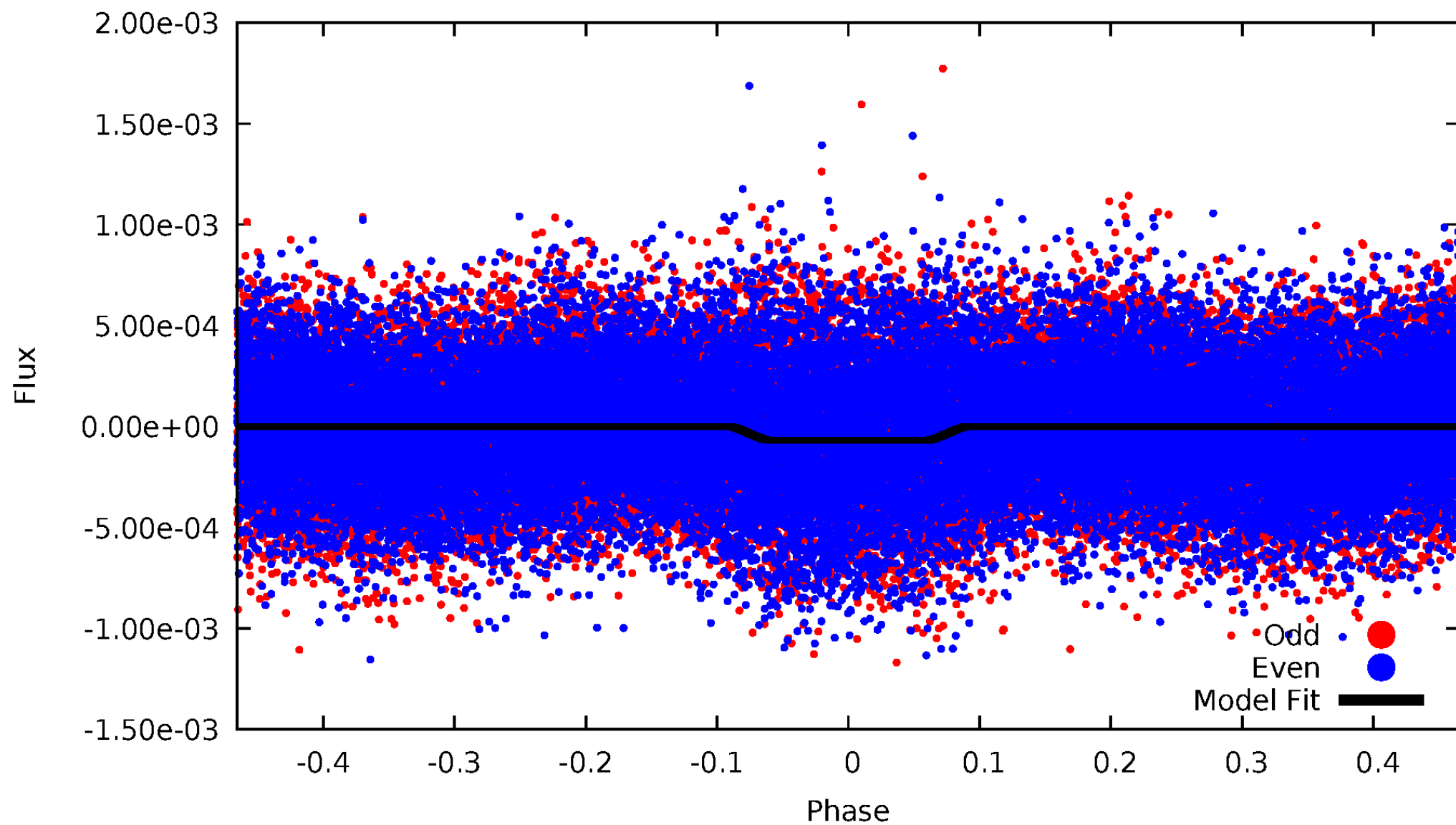
DV Odd/Even

TCE 008827572-01

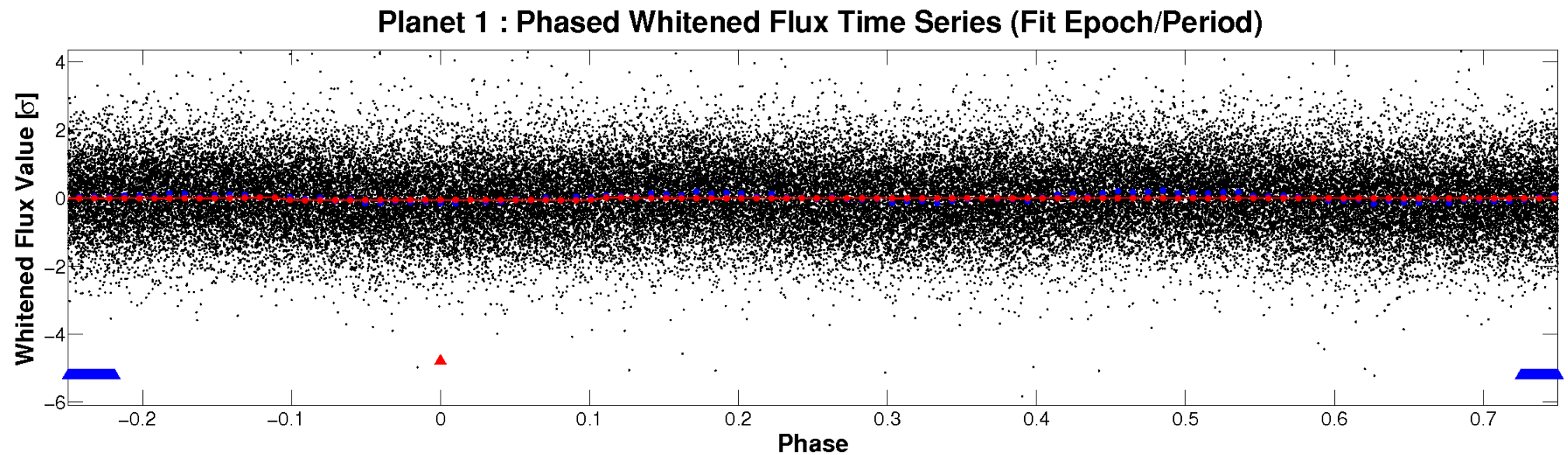
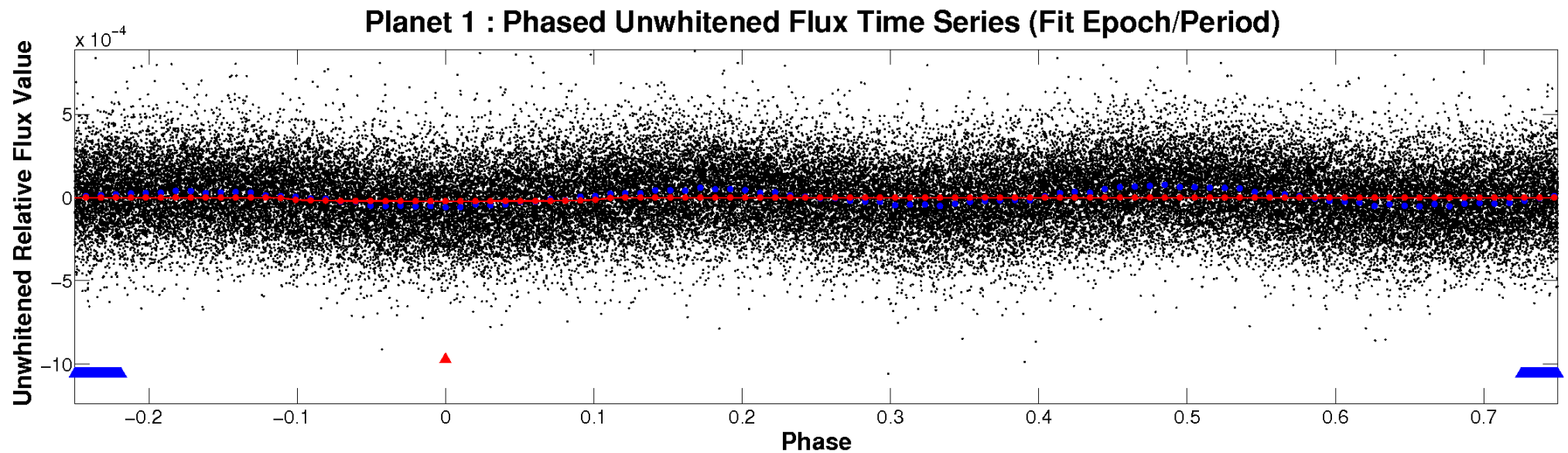


ALT Odd/Even

TCE 008827572-01

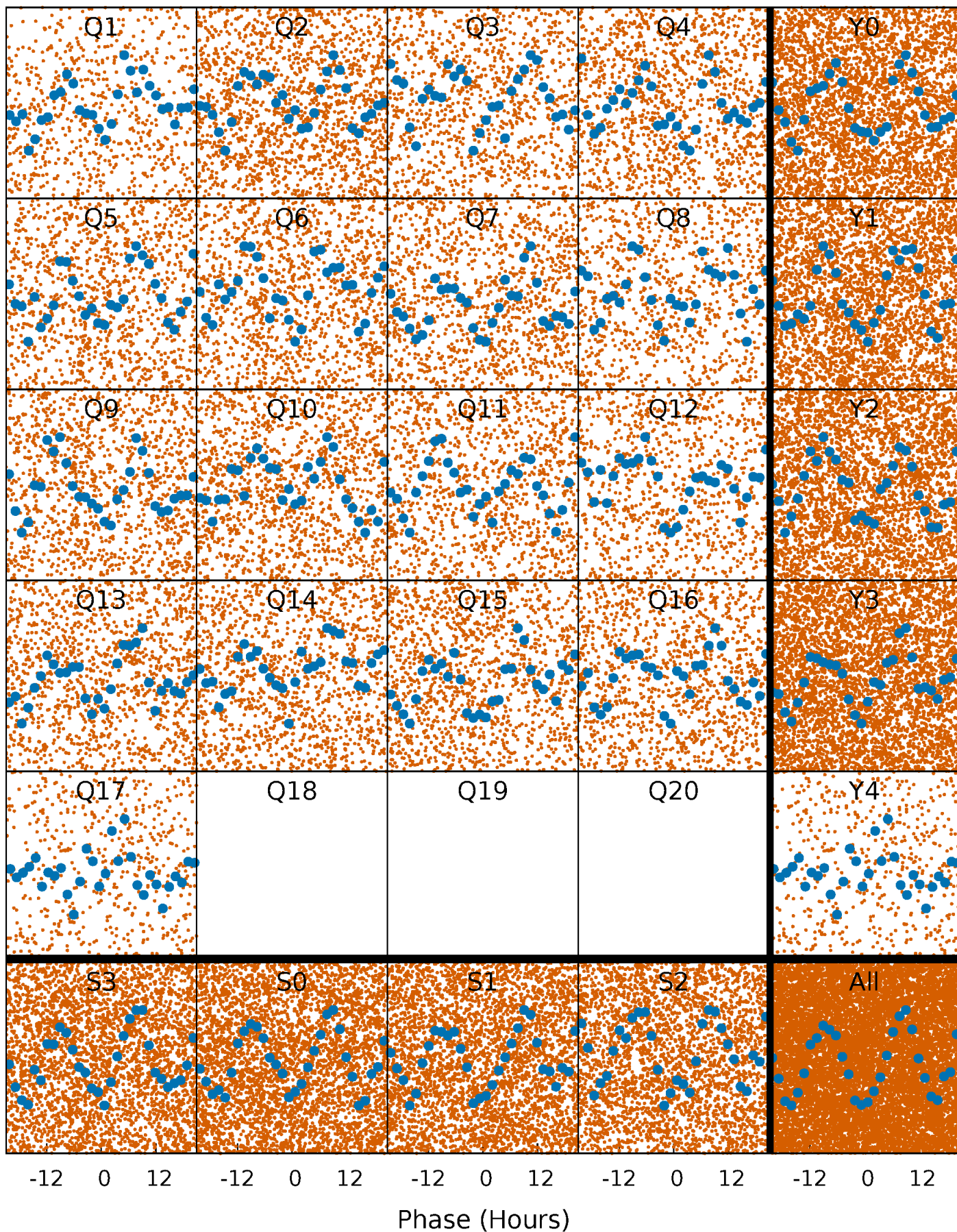


Non-Whitened Vs. Whitened Light Curve



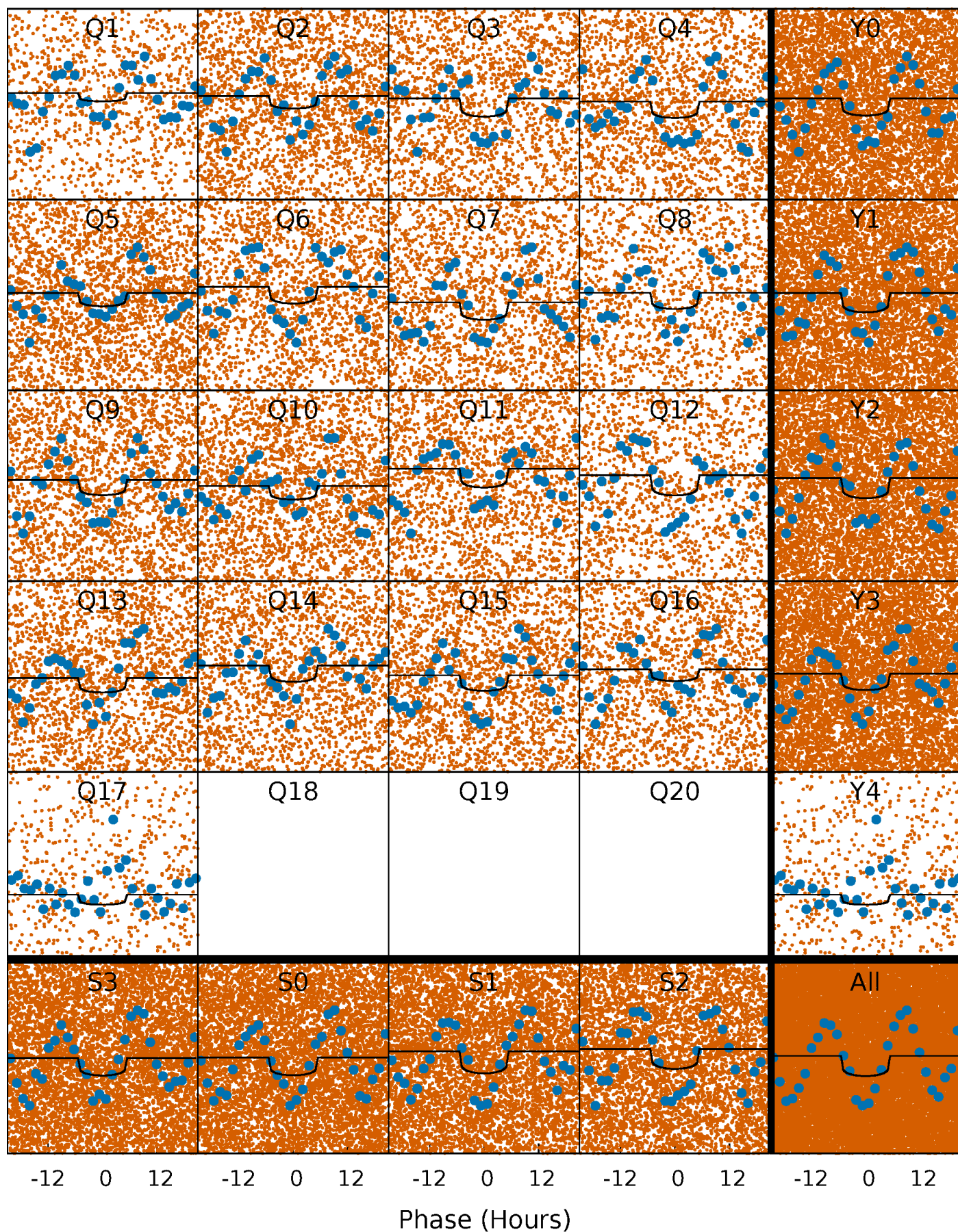
PDC Quarter-Phased Transit Curves

TCE 008827572-01 P= 2.022367 Days $T_0=132.523558$ (BKJD)



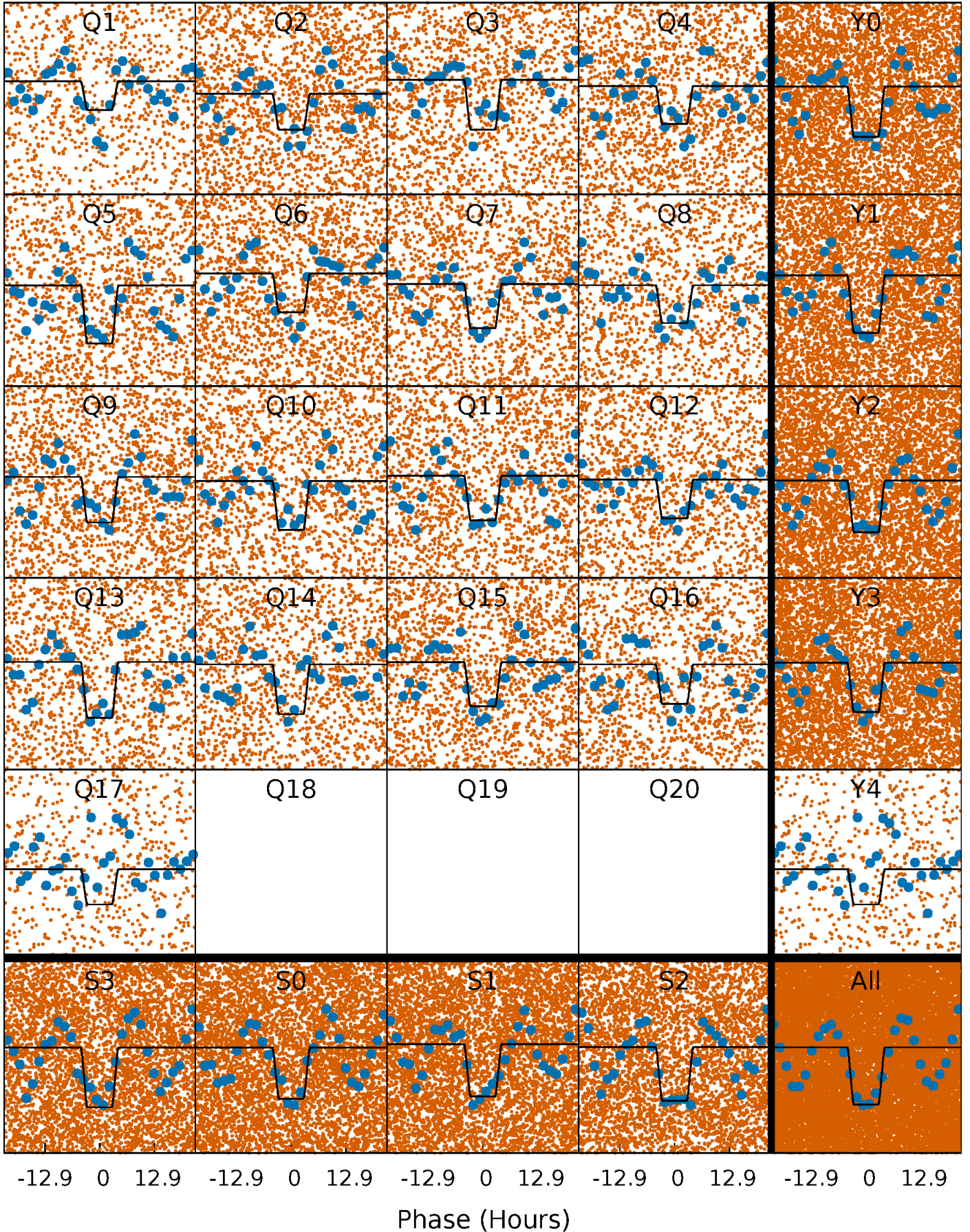
DV Quarter-Phased Transit Curves

TCE 008827572-01 P= 2.022367 Days $T_0=132.523558$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

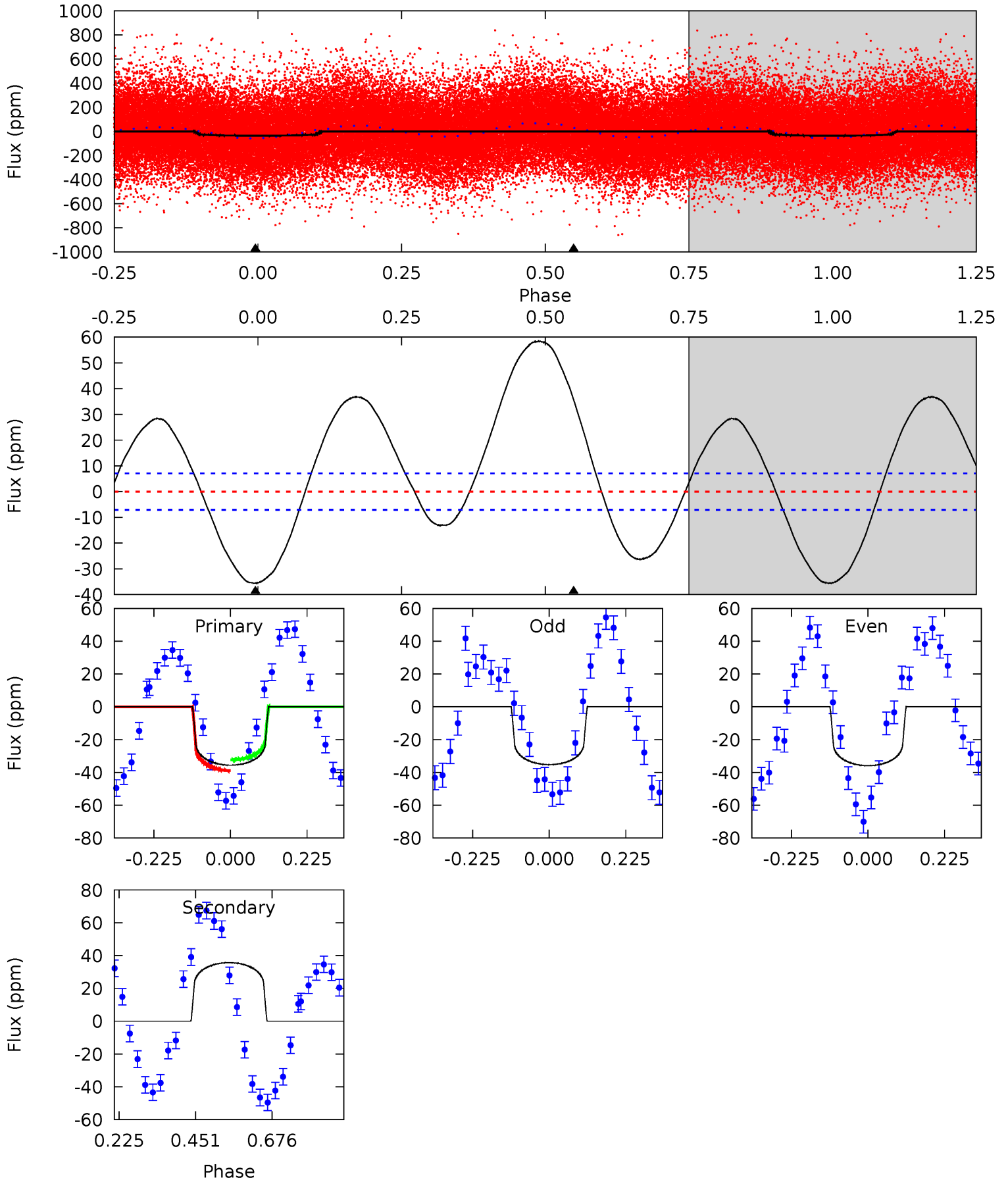
TCE 008827572-01 P= 2.022281 Days $T_0=132.550068$ (BKJD)



DV Model-Shift Uniqueness Test

008827572-01, P = 2.022367 Days, E = 130.501191 Days

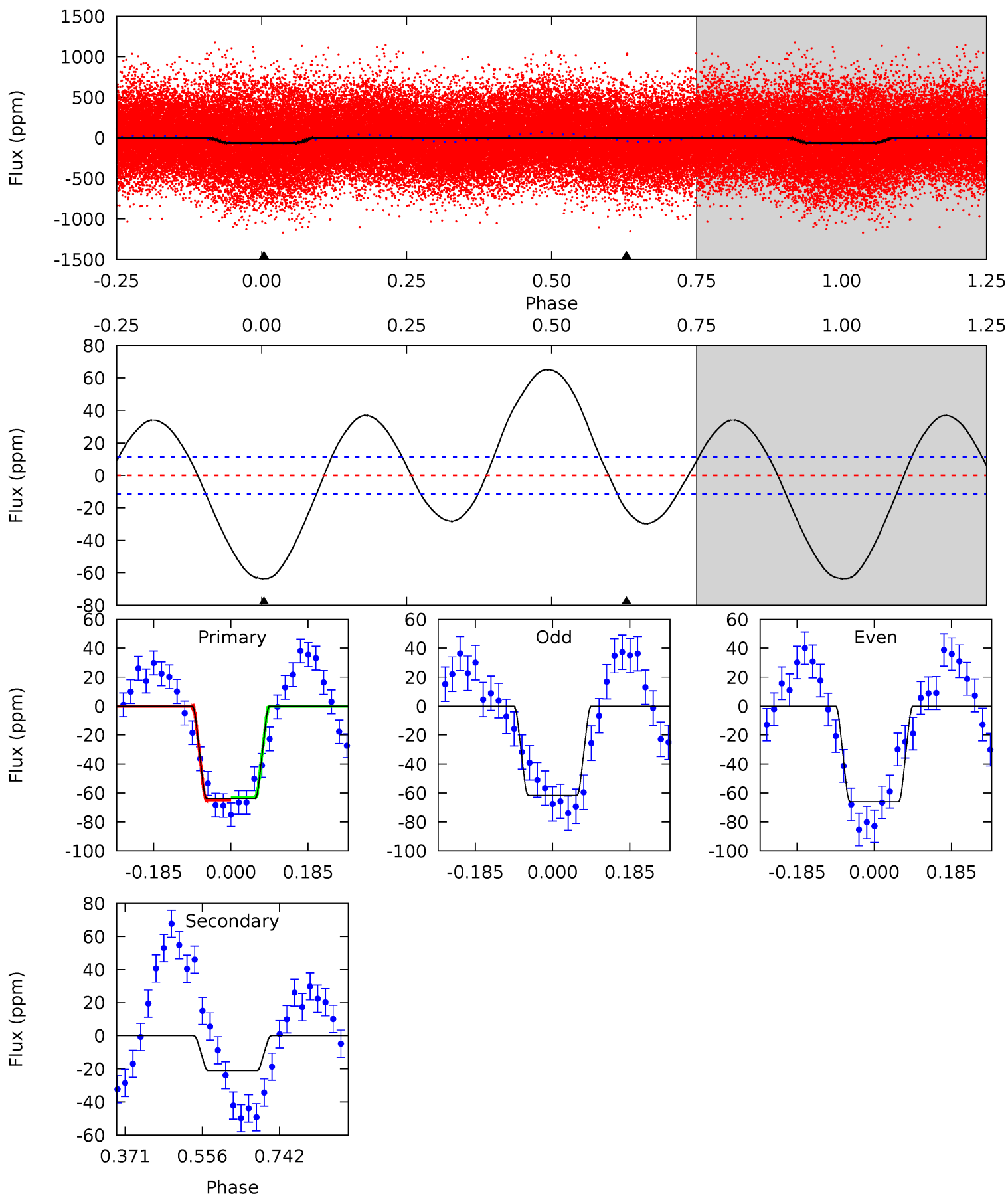
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
22.0	-22.1	0	0	4.39	1.21	7.39	22.0	22.0	-22.1	-22.1	0.19	0.95	0.62	2.00



Alt Model-Shift Uniqueness Test

008827572-01, P = 2.022281 Days, E = 130.527787 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
24.5	8.15	0	0	4.43	1.32	9.03	24.5	24.5	8.15	8.15	0.84	1.08	0.51	0.36



Stellar Parameters For KIC 008827572

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	7300^{+228}_{-330}	$4.138^{+0.144}_{-0.176}$	$-0.120^{+0.200}_{-0.350}$	$1.726^{+0.533}_{-0.355}$	$1.491^{+0.211}_{-0.234}$	$0.409^{+0.271}_{-0.208}$
	+3%/-5%	+3%/-4%	+167%/-292%	+31%/-21%	+14%/-16%	+66%/-51%
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 008827572-01 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	36 ± 2	$0.88^{+0.30}_{-0.27}$	3141^{+245}_{-225}	-8505^{+1300}_{-2438}	$-32.204^{+14.230}_{-34.007}$
Alt.	-21 ± 3	$1.58^{+0.35}_{-0.32}$	3127^{+238}_{-220}	5311^{+556}_{-426}	$5.959^{+3.245}_{-2.045}$

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 $A_{obs} \gg 1.0$

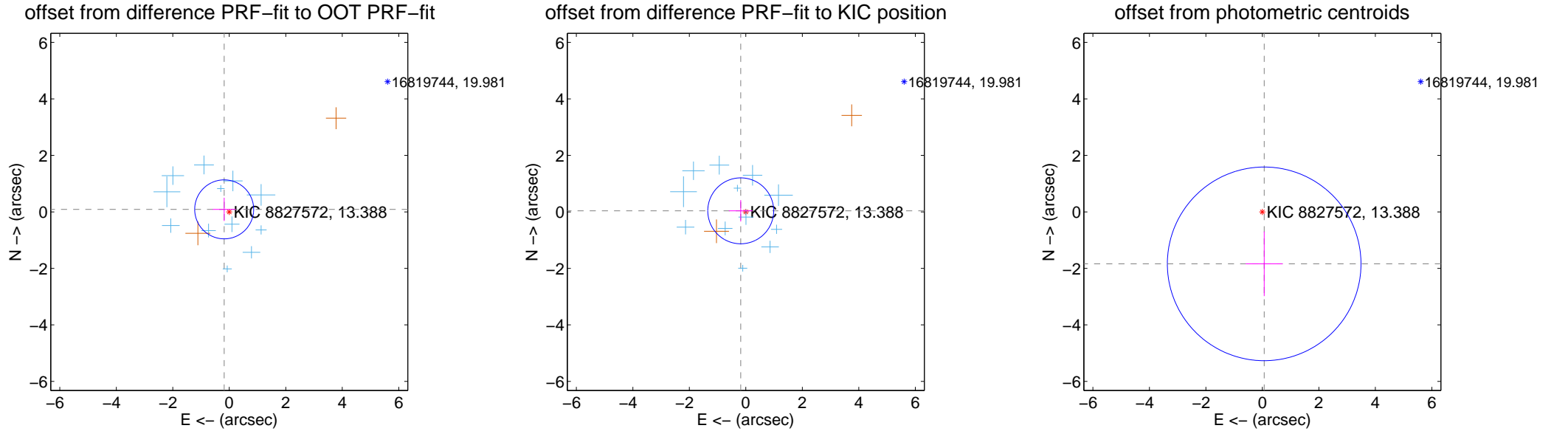
DV Centroid Data

Supplemental centroid analysis for 008827572-01. Kepler magnitude: 13.39. Transit SNR 7.33

There are 12 quarters with good PRF difference image offsets

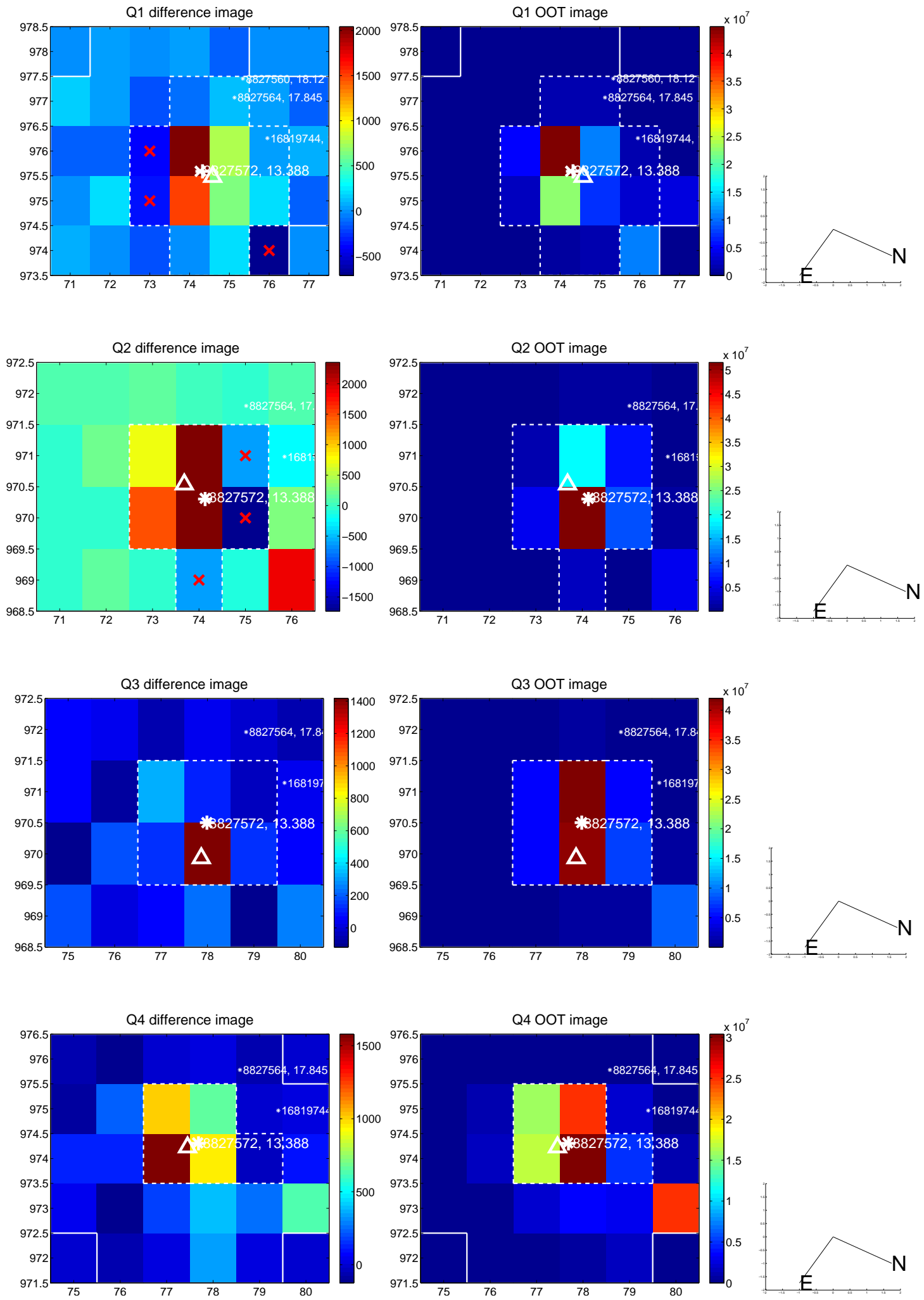
The direct PRF centroid is offset from the target star catalog position by about 0.01 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.202 ± 0.348	0.58	0.181 ± 0.405	0.089 ± 0.410
PRF-fit source offset from KIC position	0.185 ± 0.389	0.48	0.181 ± 0.419	0.037 ± 0.379
photometric centroid source offset	1.84 ± 1.14	1.61	-0.06 ± 0.65	-1.84 ± 1.14

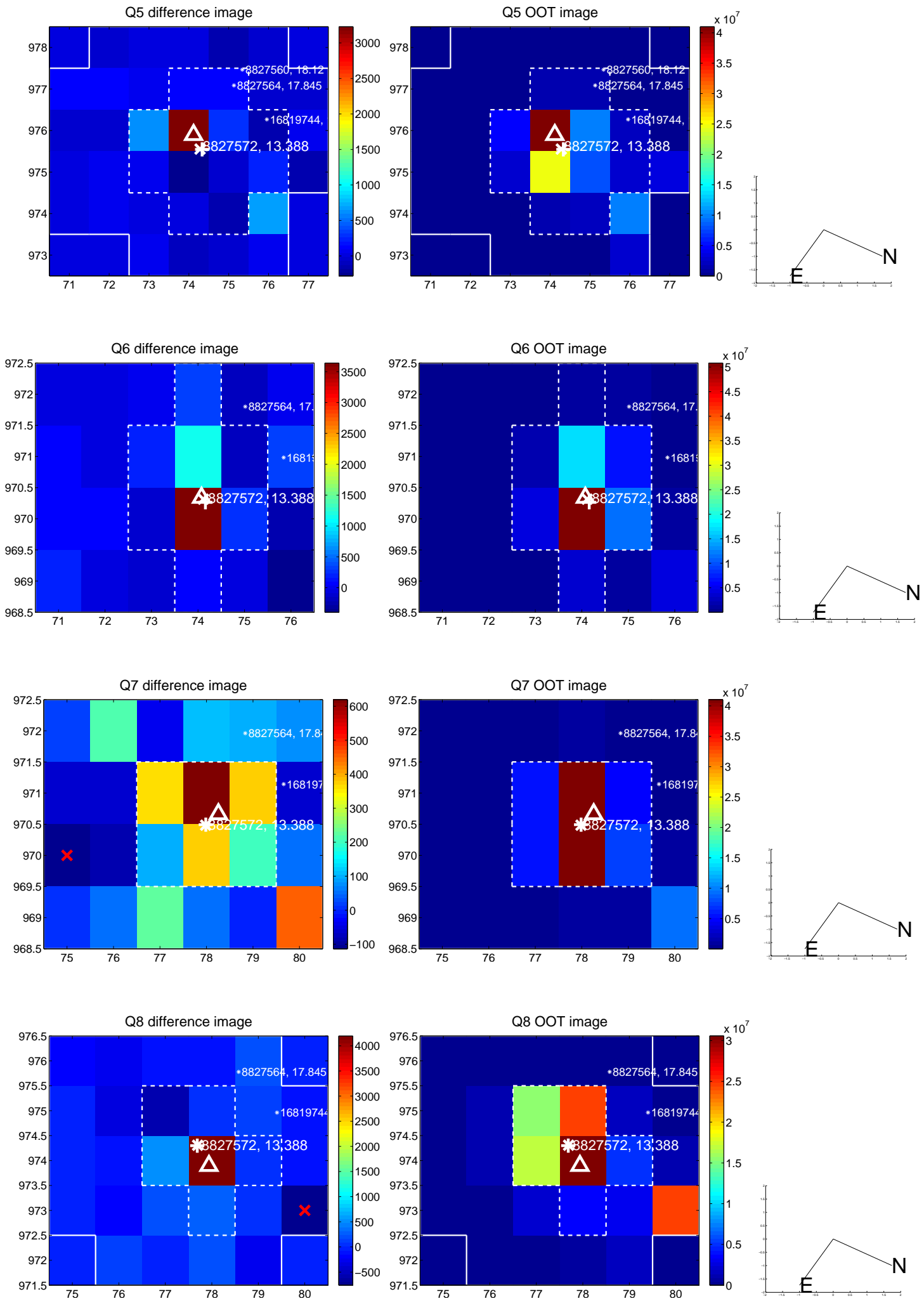


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

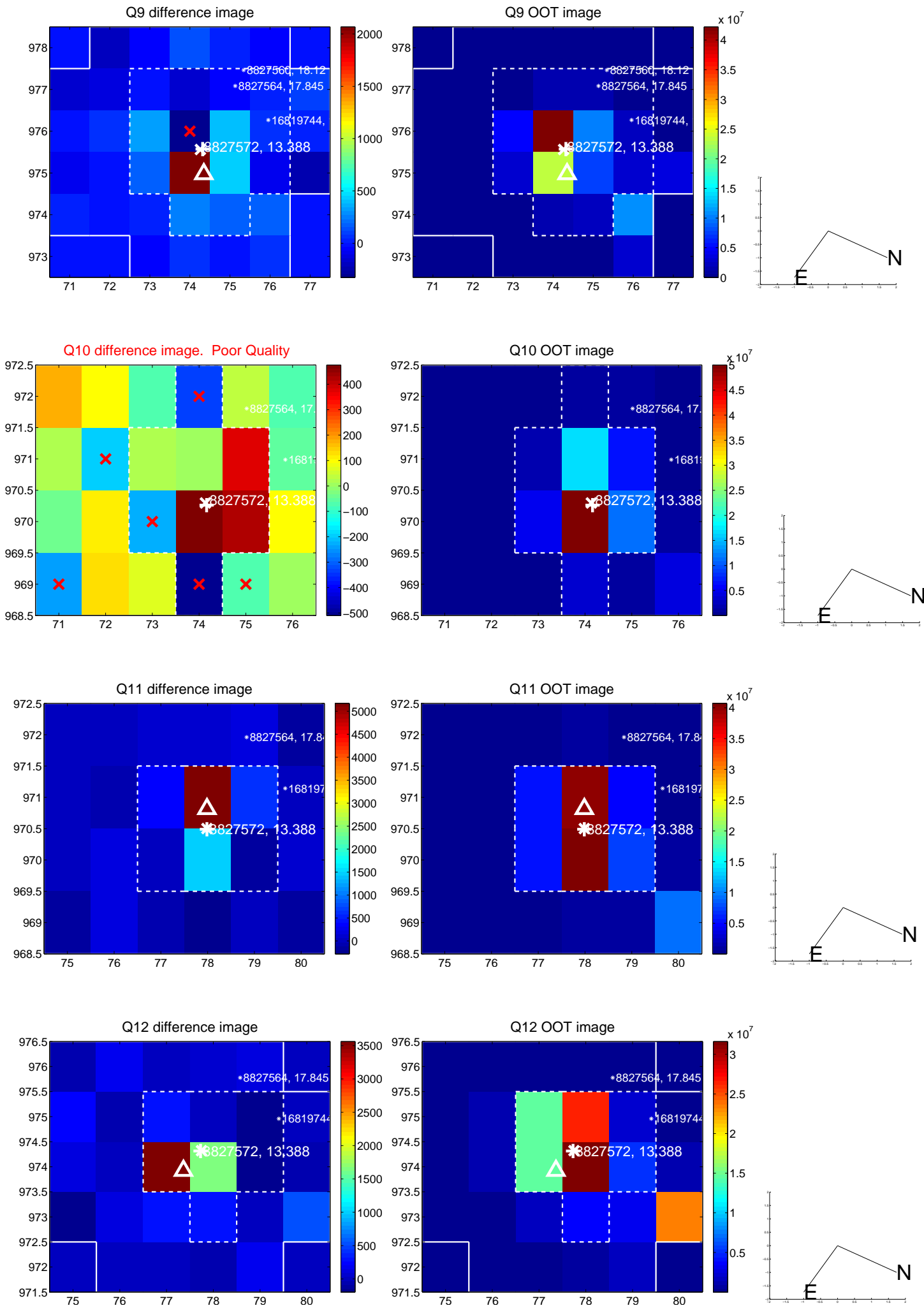
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



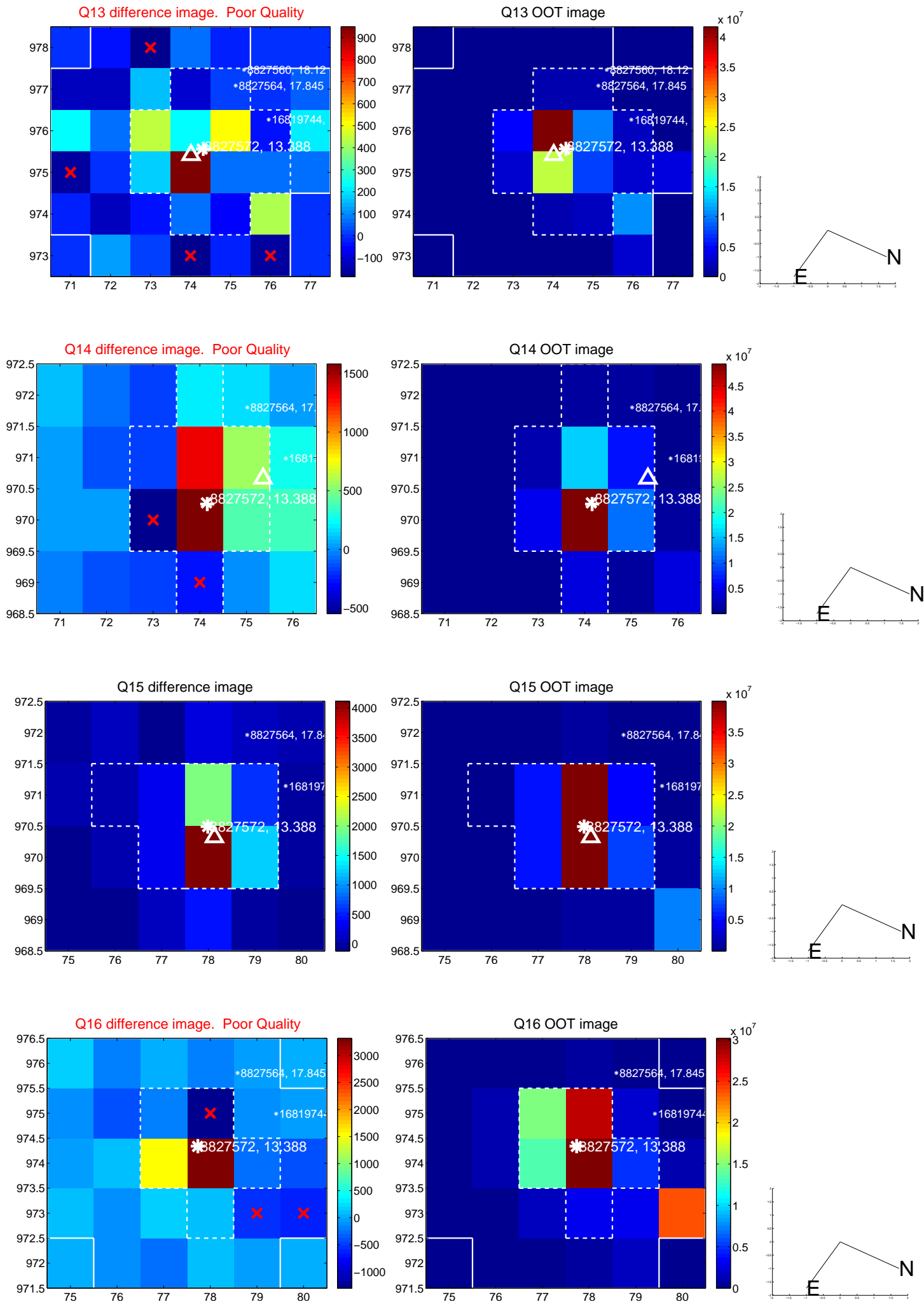
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



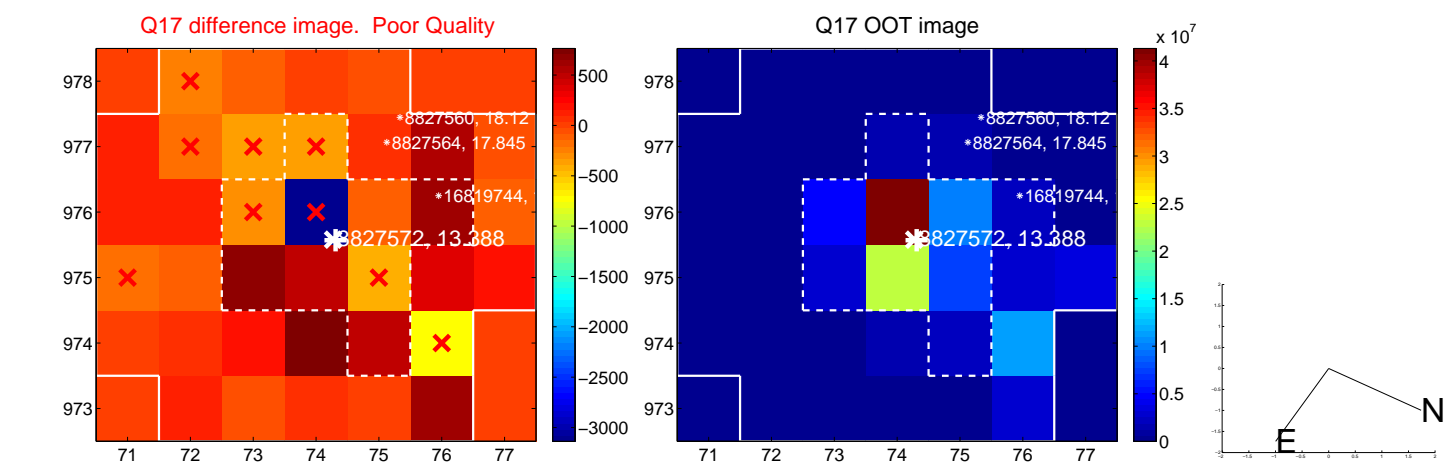
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



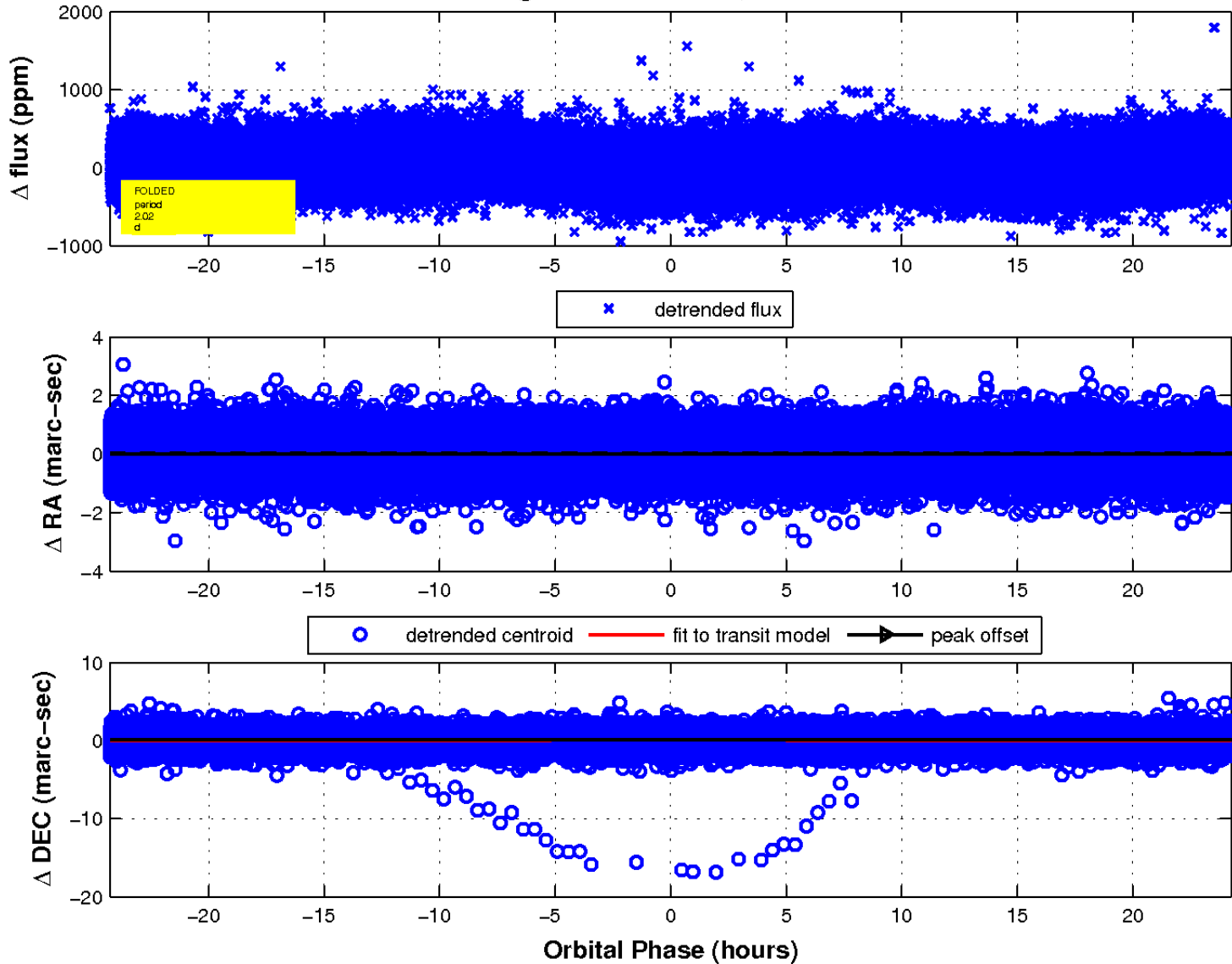
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



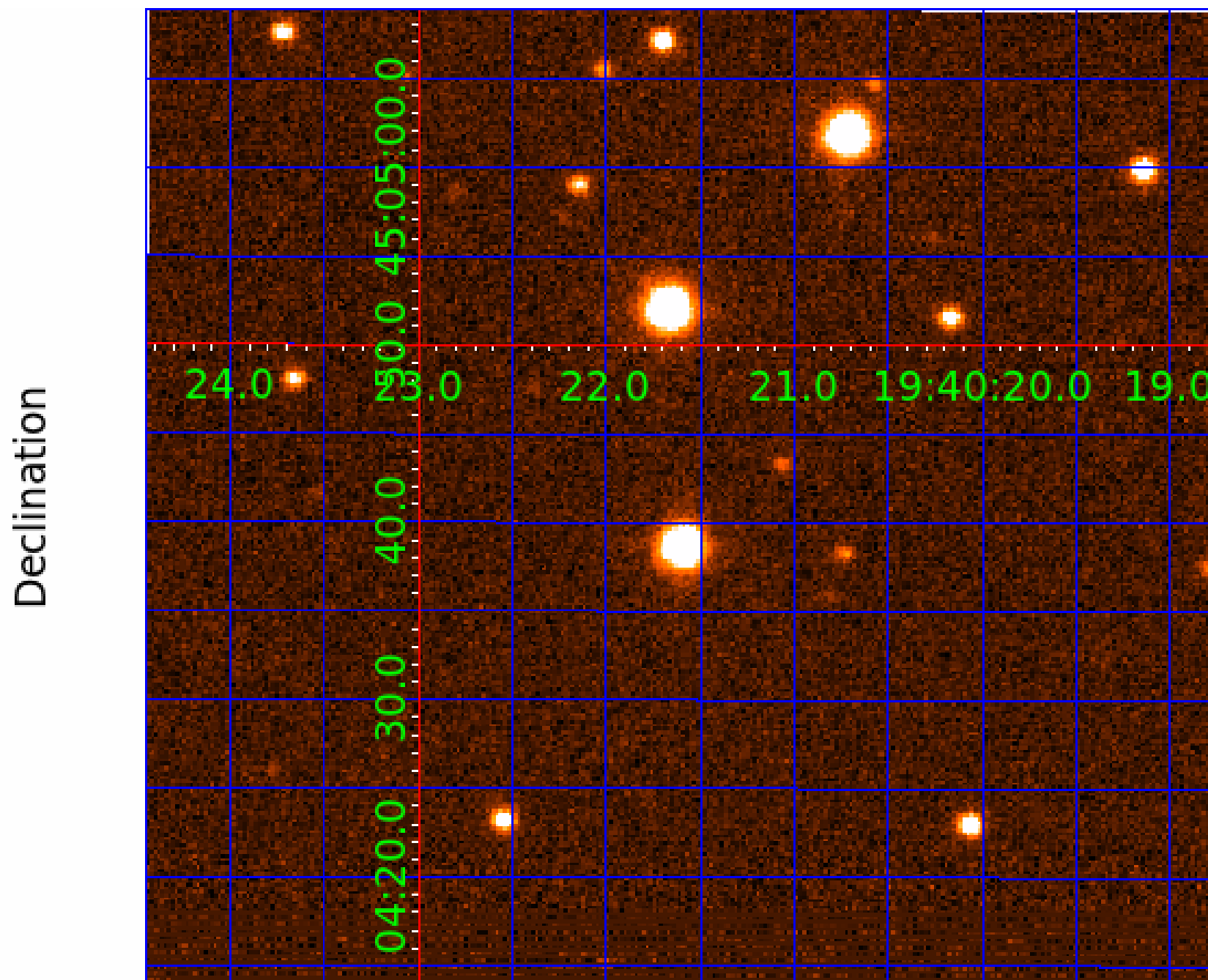
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



fluxWeightedCentroids, Planet 1 of 2



UKIRT Image



KIC 008827572

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})
008827572-01	OBS	No	2.022367	132.523558	22.1	10.500	9.8	7.3	1.73	7300	0.88	5921.06
008827572-02	OBS	No	2.022211	132.081072	77.9	22.152	12.3	15.0	1.73	7300	1.91	5921.67

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
008827572-01	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT
008827572-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_SKYE_ZUMA—LPP_DV—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—SAME_NTL_PERIOD—CENT_FEW_DIFFS

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

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

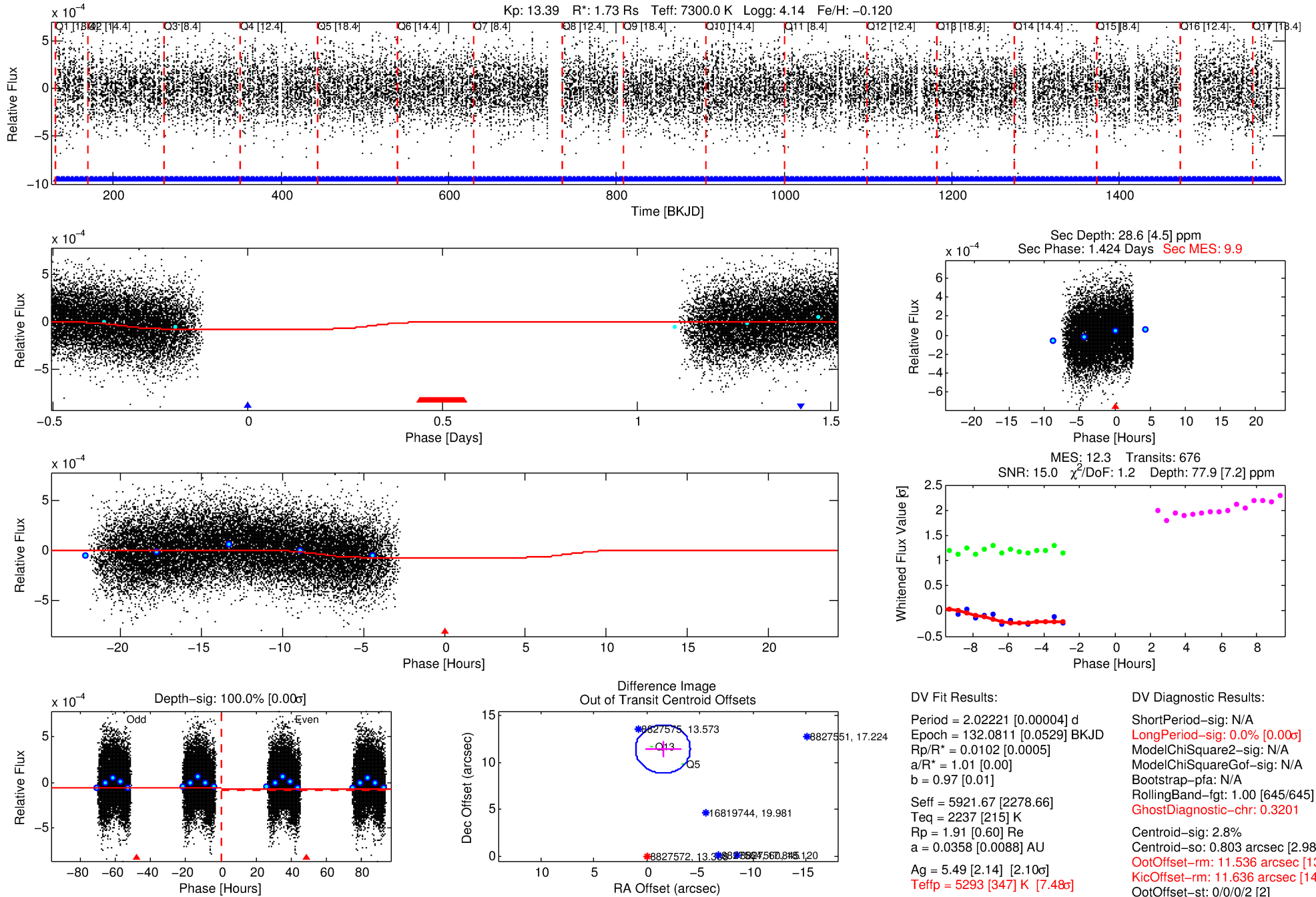
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 008827572-02

No Significant Match Found

DV One-Page Summary

KIC: 8827572 Candidate: 2 of 2 Period: 2.022 d



DV Fit Results:

Period = 2.02221 [0.00004] d
Epoch = 132.0811 [0.0529] BKJD
Rp/R* = 0.0102 [0.0005]
a/R* = 1.01 [0.00]
b = 0.97 [0.01]
Seff = 5921.67 [2278.66]
Teq = 2237 [215] K
Rp = 1.91 [0.60] Re
a = 0.0358 [0.0088] AU
Ag = 5.49 [2.14] [2.10 σ]
Teff = 5293 [347] K [7.48 σ]

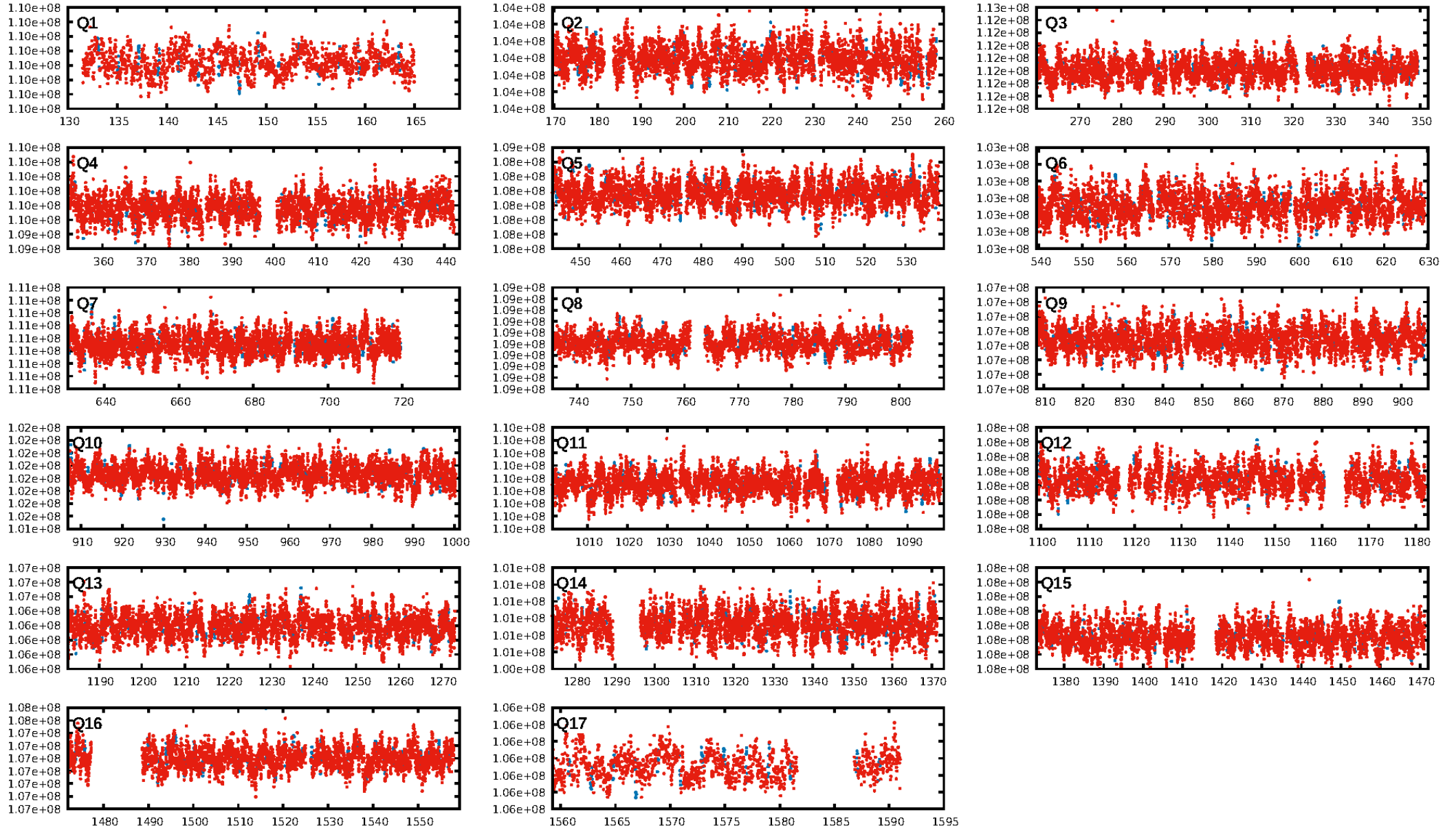
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: 0.0% [0.00 σ]
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: N/A
RollingBand-fgt: 1.00 [645/645]
GhostDiagnostic-chr: 0.3201
Centroid-sig: 2.8%
Centroid-so: 0.803 arcsec [2.98 σ]
OotOffset-rm: 11.536 arcsec [13.36 σ]
KicOffset-rm: 11.636 arcsec [14.26 σ]
OotOffset-st: 0/0/0/2 [2]
KicOffset-st: 0/0/0/2 [2]
DiffImageQuality-fgm: 0.00 [0/2]
DiffImageOverlap-fno: 0.00 [0/17]

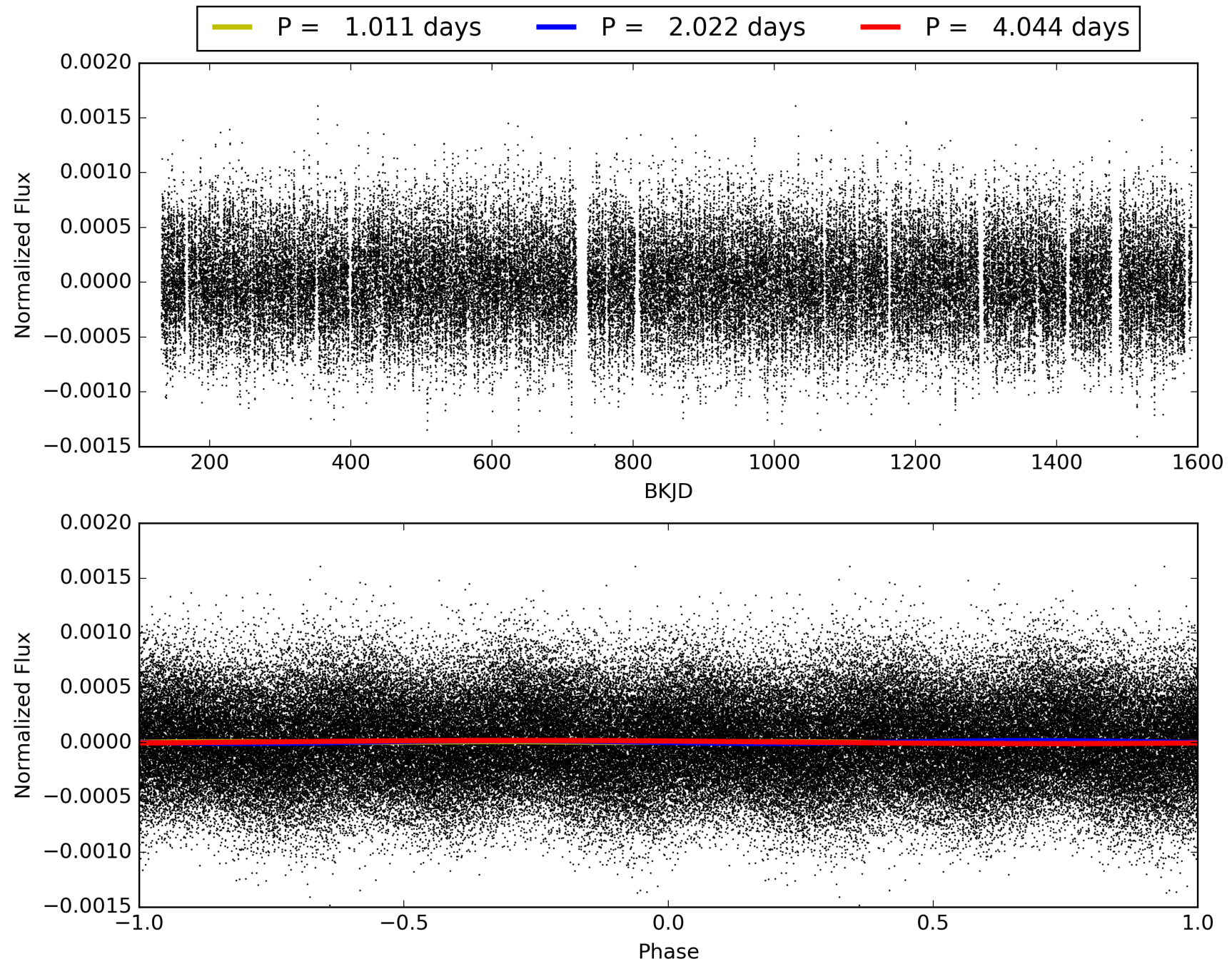
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 02-Feb-2016 18:13:09 Z

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

TCE 008827572-02, PDC Light Curves

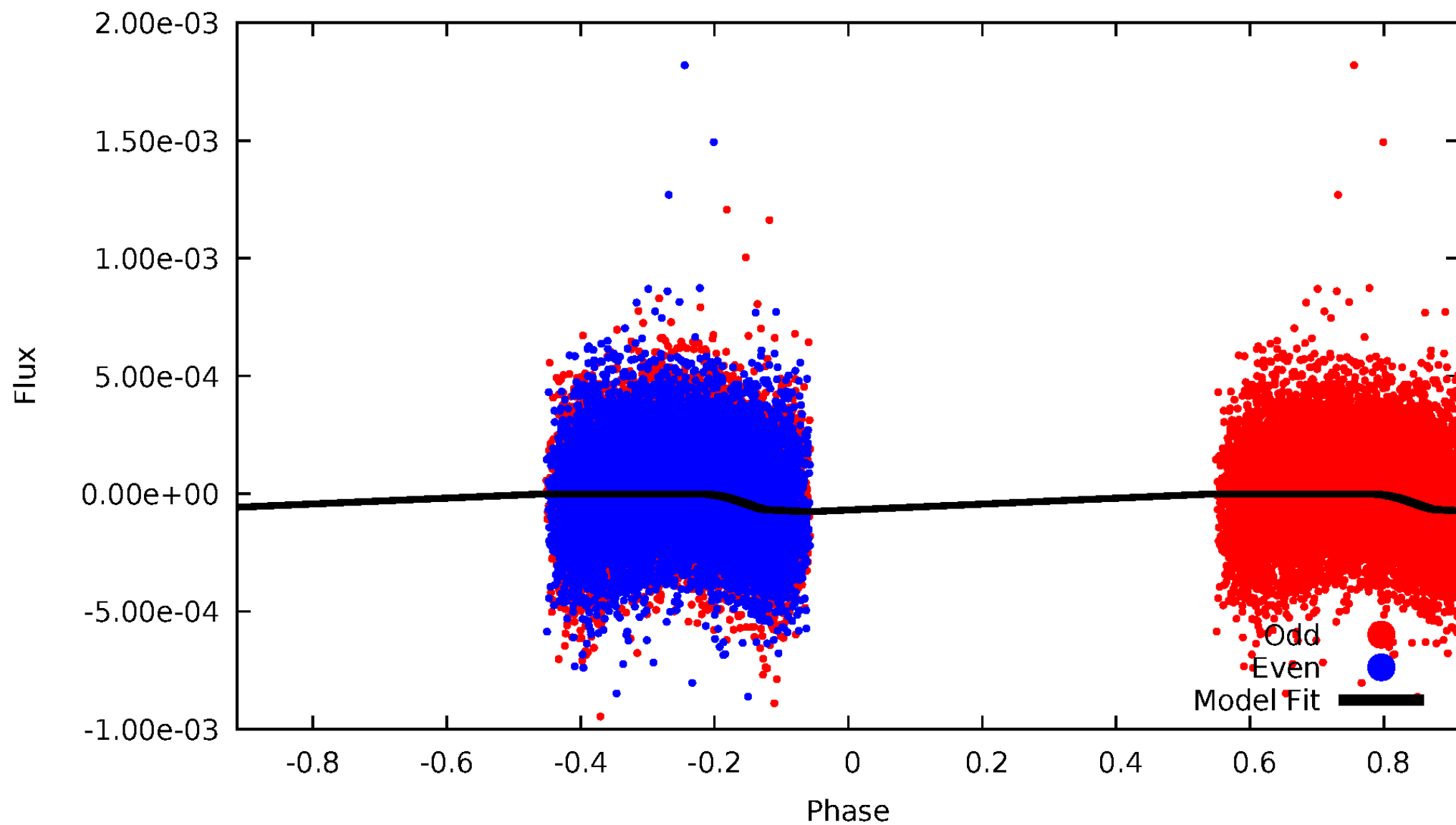


TCE 008827572-02



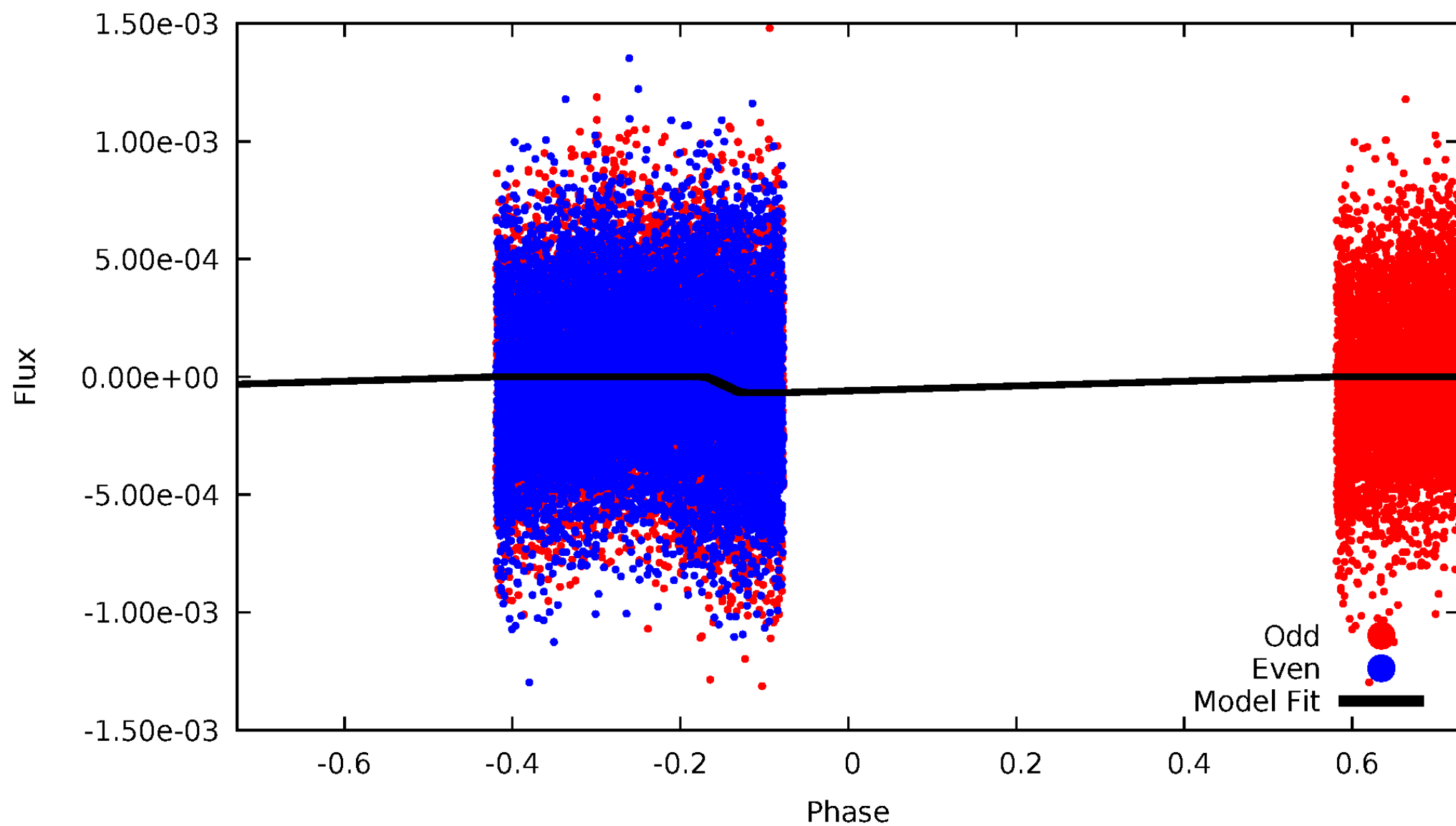
DV Odd/Even

TCE 008827572-02



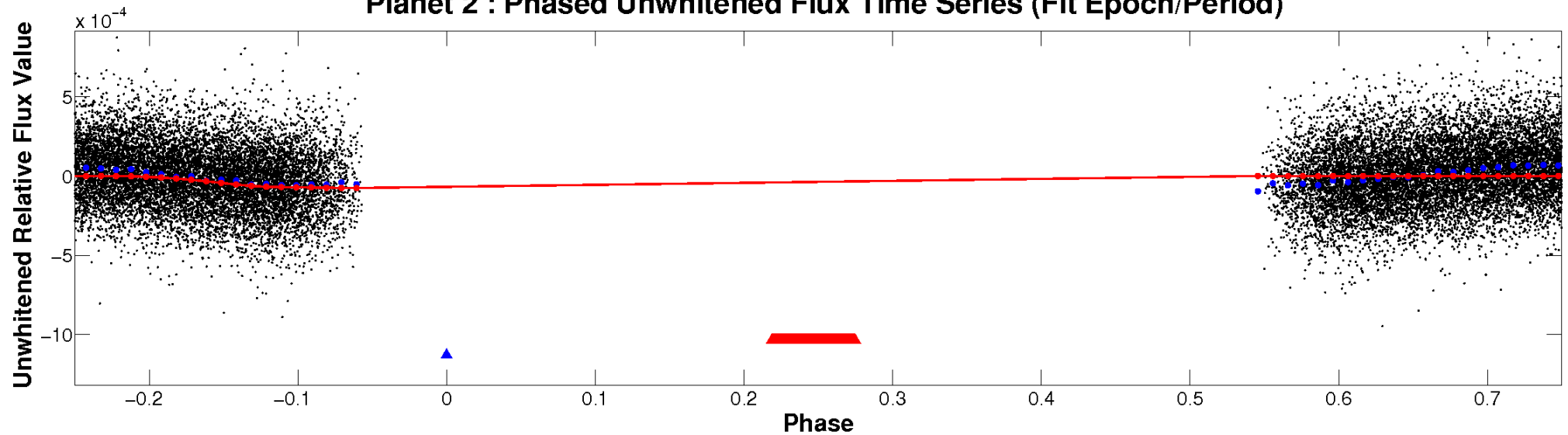
ALT Odd/Even

TCE 008827572-02

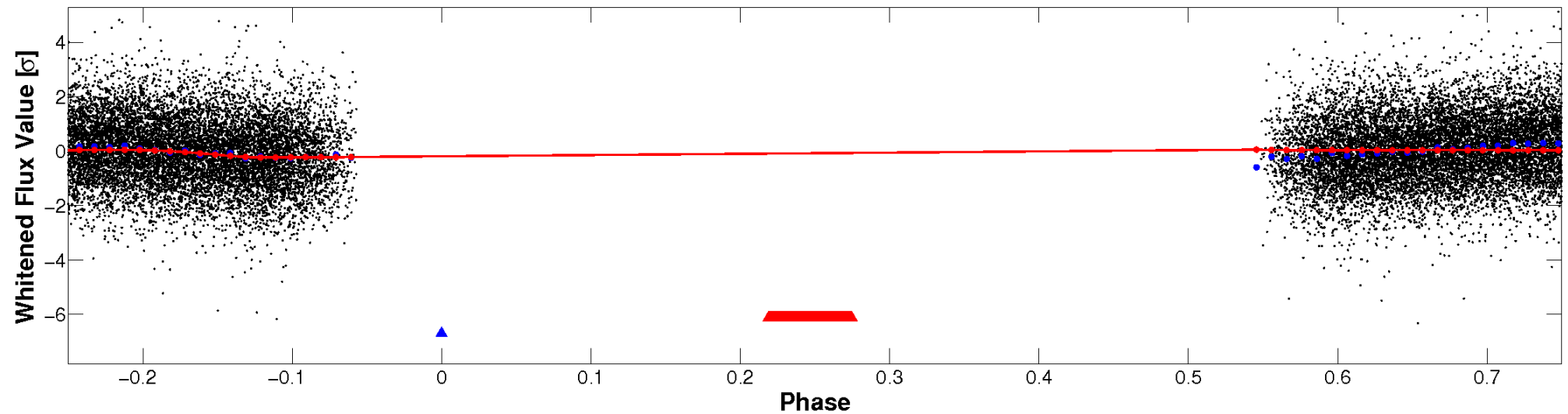


Non-Whitened Vs. Whitened Light Curve

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

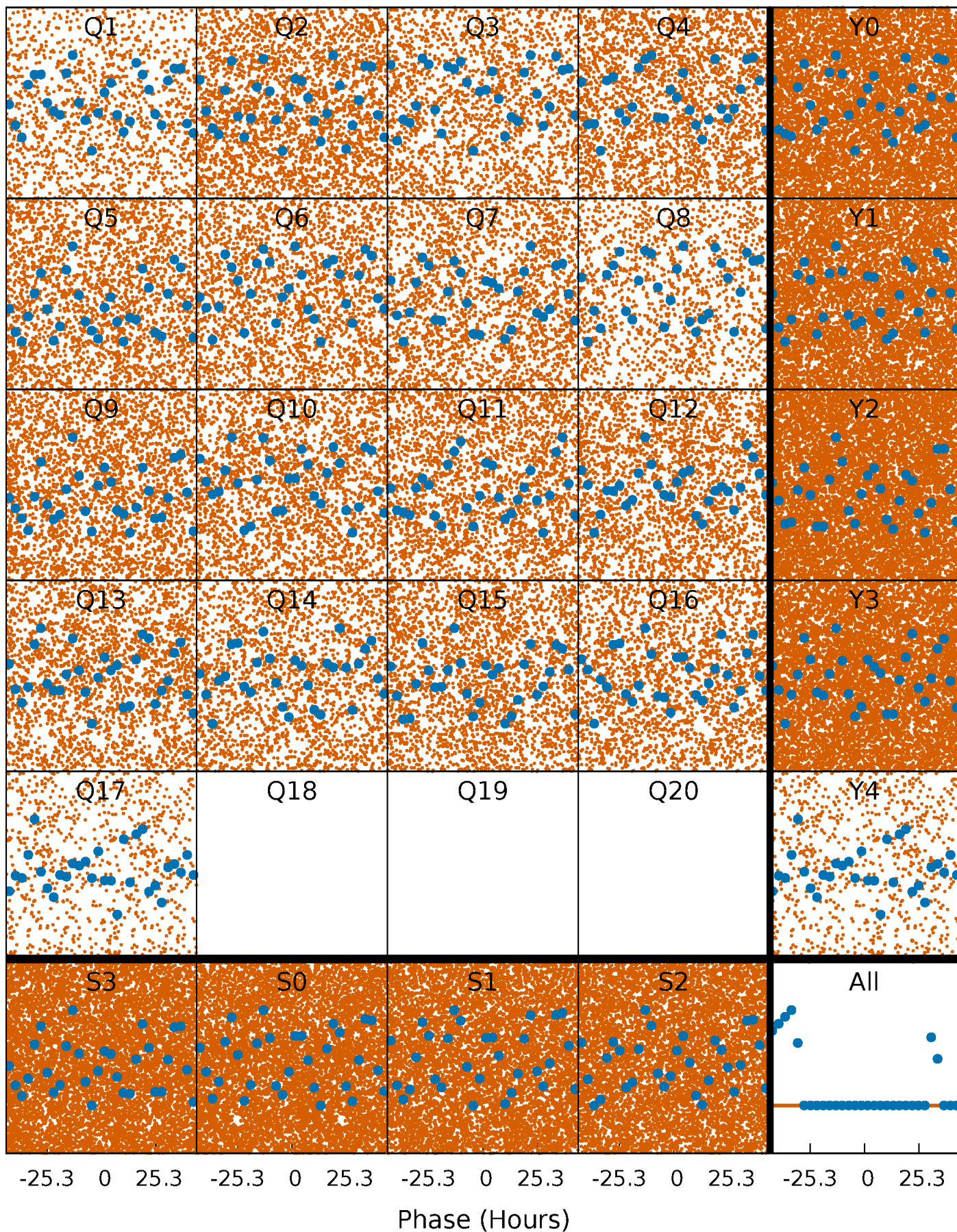


Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



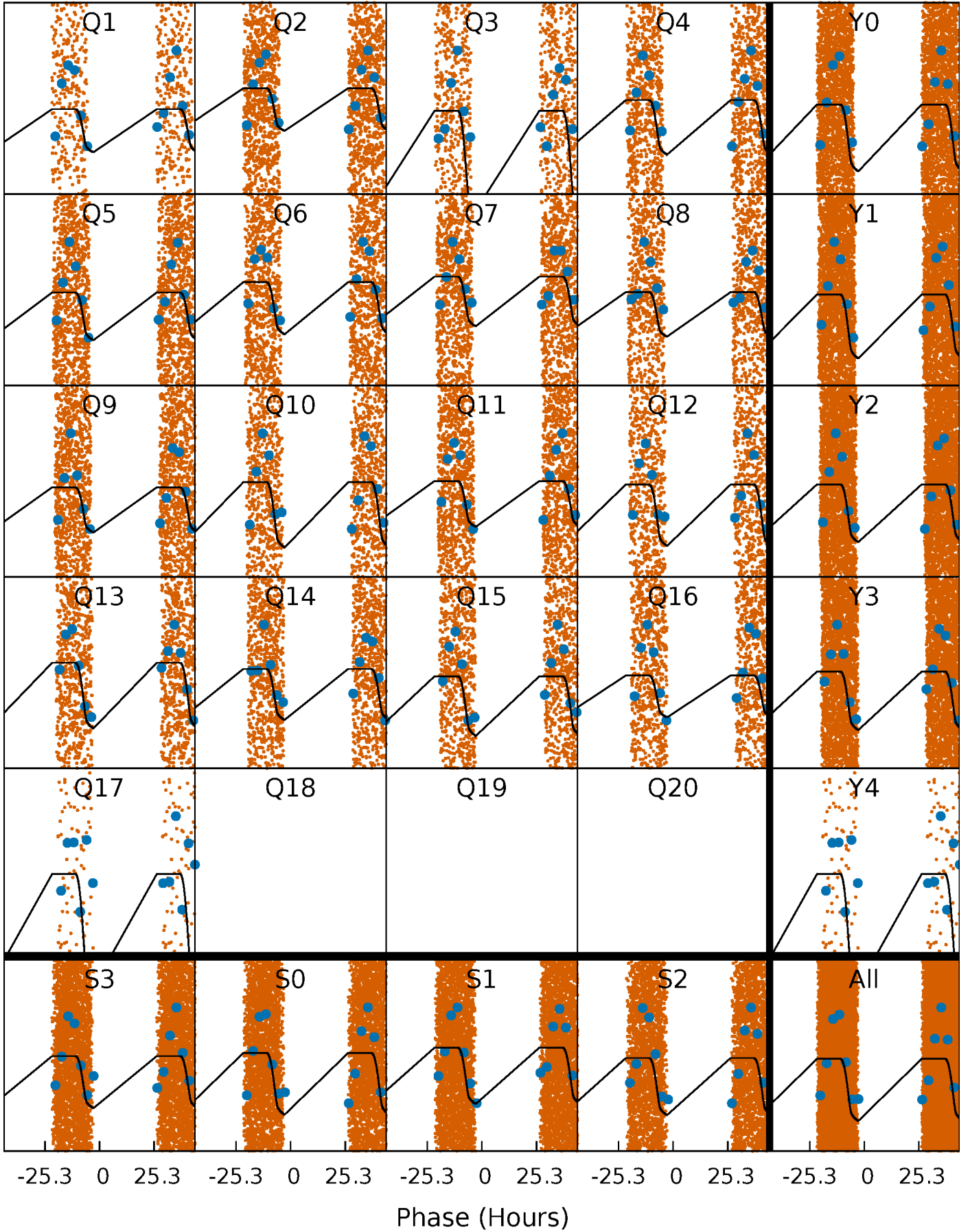
PDC Quarter-Phased Transit Curves

TCE 008827572-02 P= 2.022211 Days $T_0=132.081072$ (BKJD)



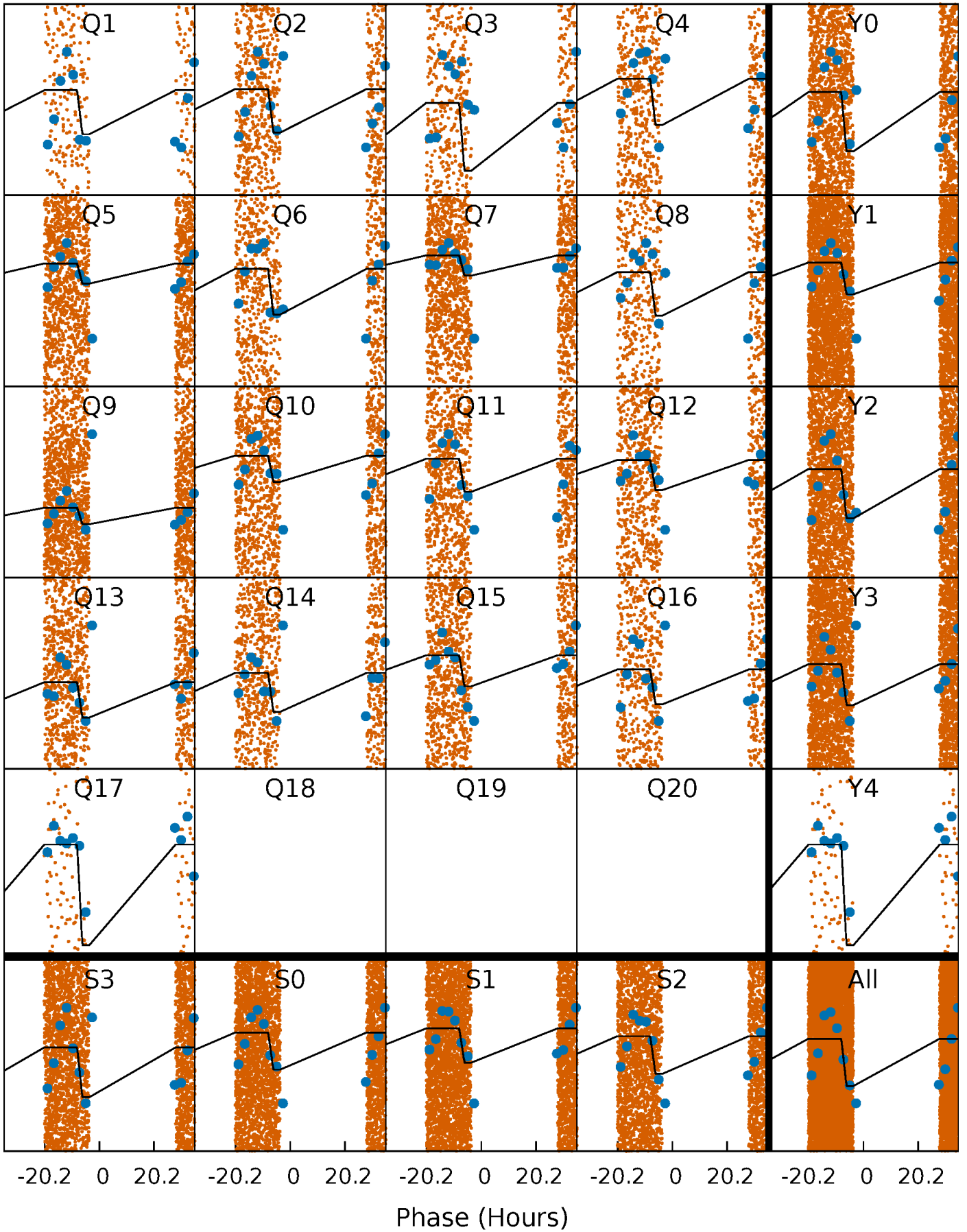
DV Quarter-Phased Transit Curves

TCE 008827572-02 P= 2.022211 Days $T_0=132.081072$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

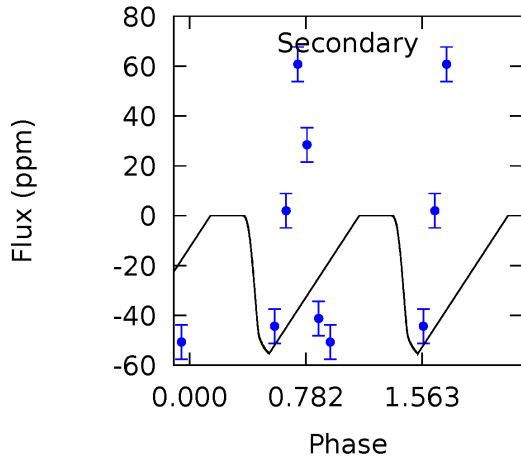
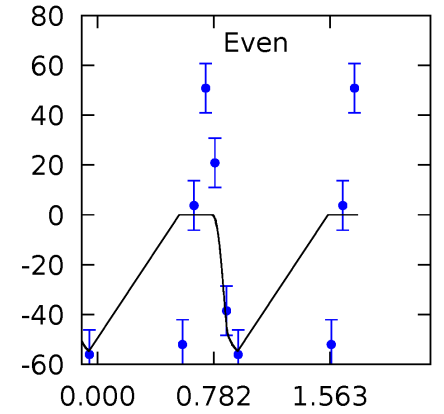
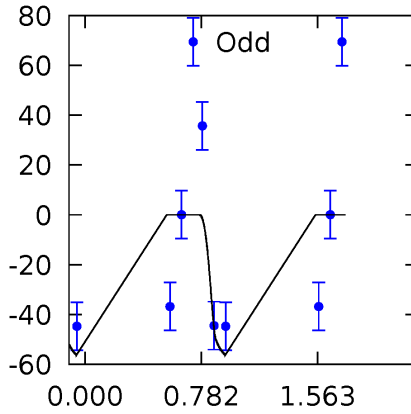
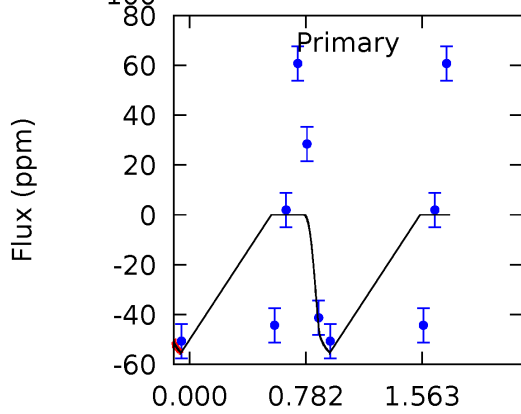
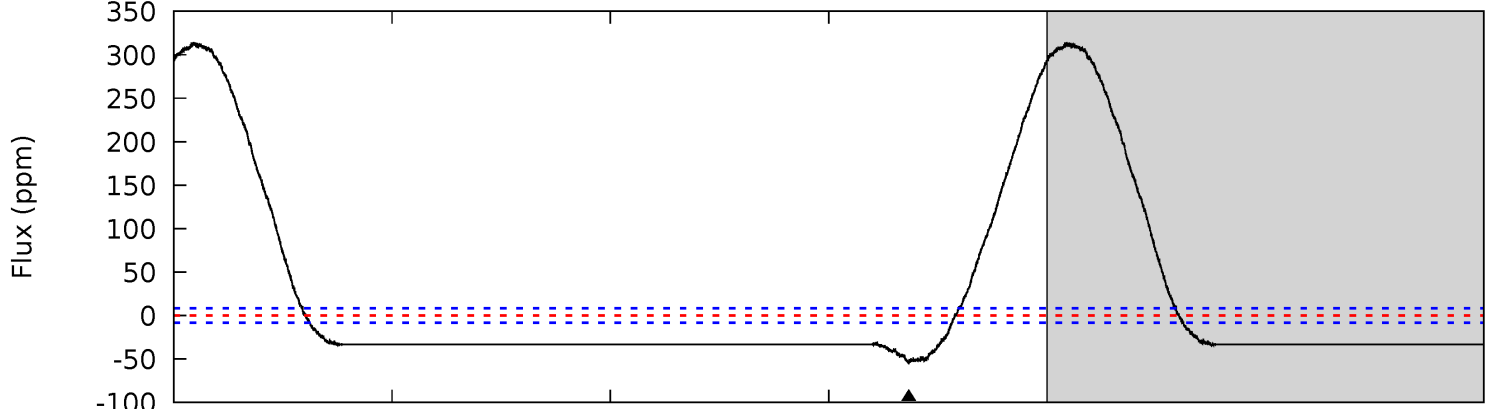
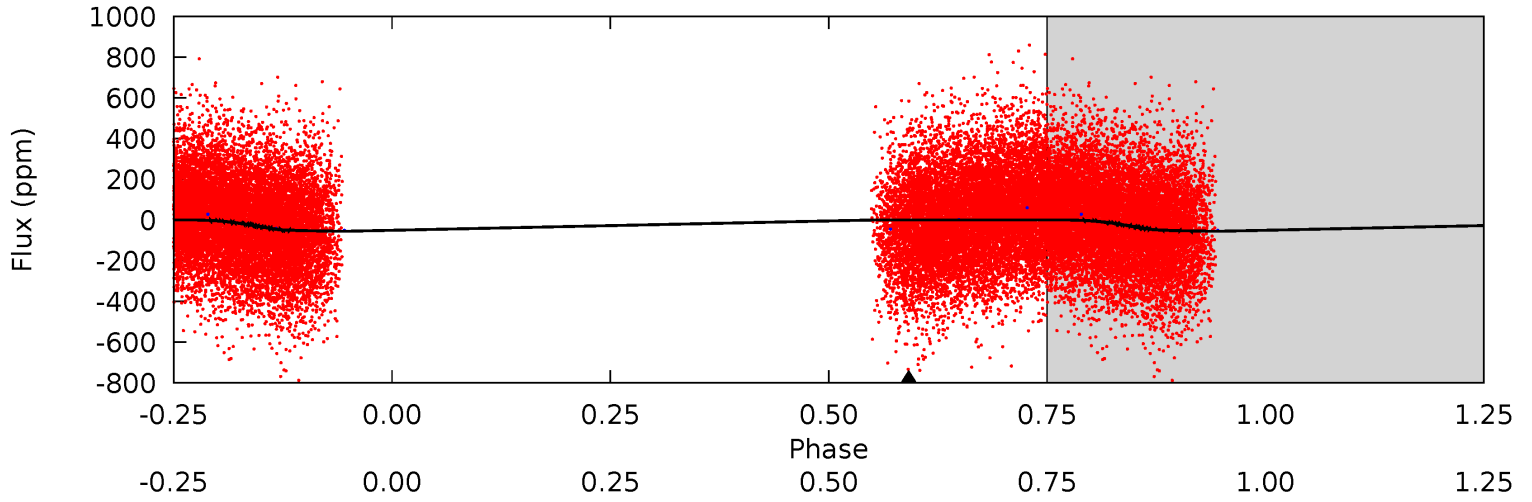
TCE 008827572-02 P= 2.022374 Days $T_0=132.011838$ (BKJD)



DV Model-Shift Uniqueness Test

008827572-02, P = 2.022211 Days, E = 130.058861 Days

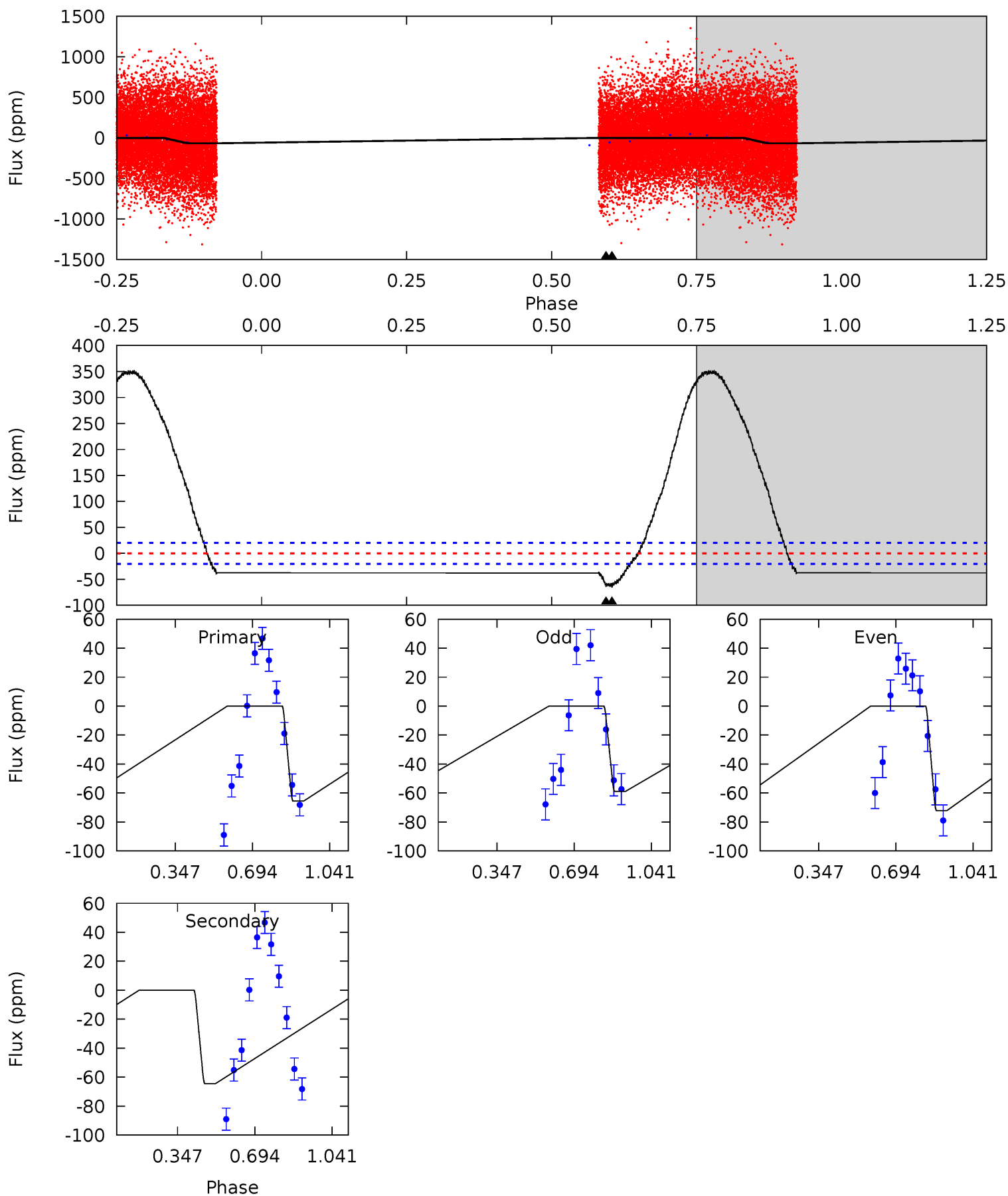
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
27.2	27.2	0	0	4.11	0.28	11.6	27.2	27.2	27.2	27.2	0.39	0	0.85	0



Alt Model-Shift Uniqueness Test

008827572-02, P = 2.022374 Days, E = 129.989464 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
14.0	13.7	0	0	4.30	0.94	6.21	14.0	14.0	13.7	13.7	1.40	0	0.84	0



Stellar Parameters For KIC 008827572

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	7300^{+228}_{-330}	$4.138^{+0.144}_{-0.176}$	$-0.120^{+0.200}_{-0.350}$	$1.726^{+0.533}_{-0.355}$	$1.491^{+0.211}_{-0.234}$	$0.409^{+0.271}_{-0.208}$
	+3%/-5%	+3%/-4%	+167%/-292%	+31%/-21%	+14%/-16%	+66%/-51%
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 008827572-02 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-55 ± 2	$1.92^{+0.32}_{-0.24}$	3124^{+249}_{-217}	6109^{+273}_{-287}	11^{+3}_{-3}
Alt.	-65 ± 5	$1.54^{+0.26}_{-0.20}$	3120^{+241}_{-217}	7165^{+394}_{-419}	19^{+6}_{-5}

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

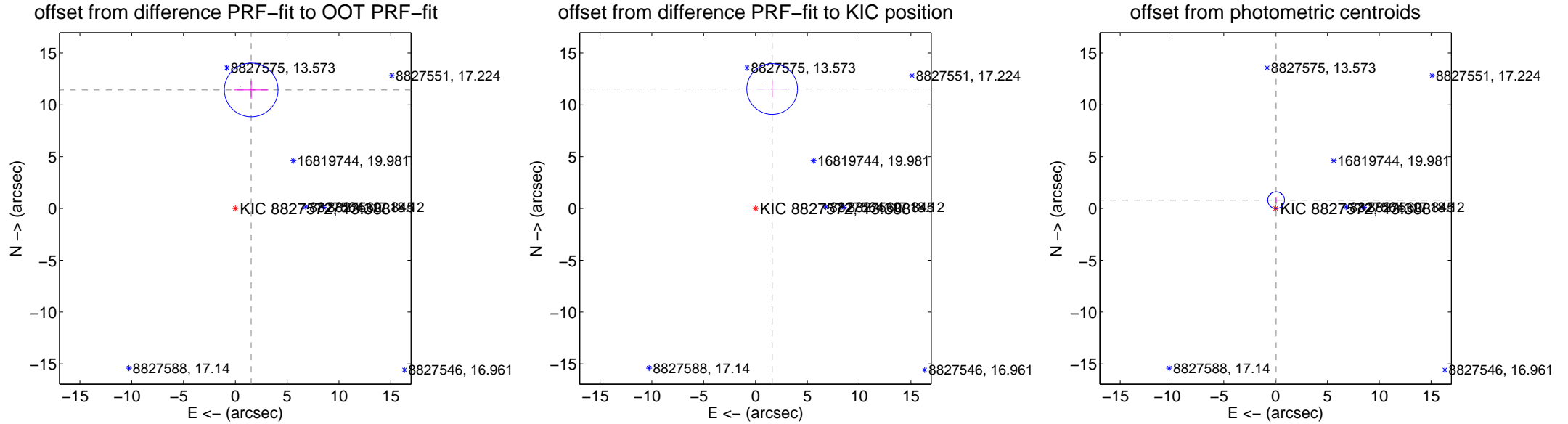
DV Centroid Data

Supplemental centroid analysis for 008827572-02. Kepler magnitude: 13.39. Transit SNR 15.01

There are 0 quarters with good PRF difference image offsets

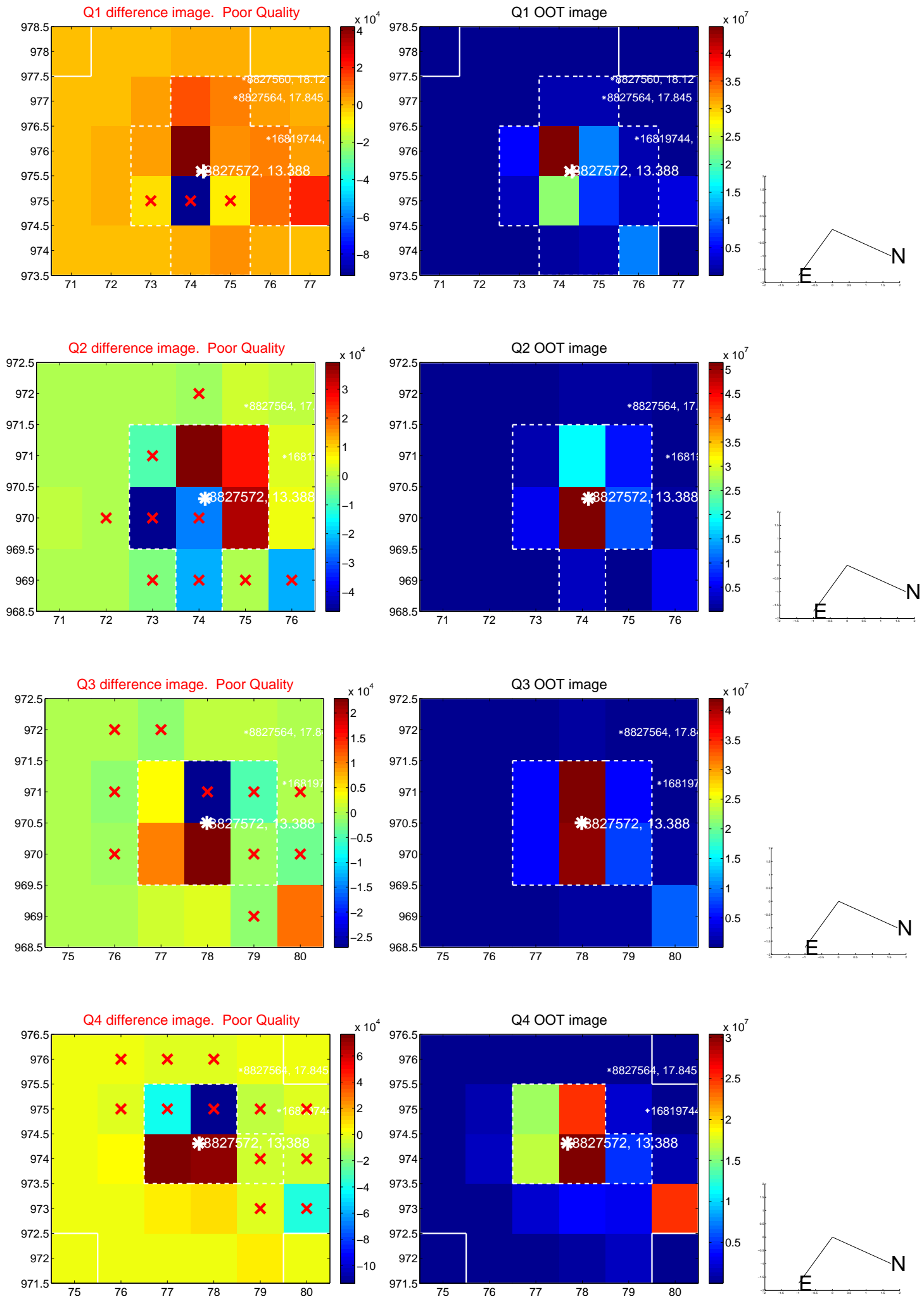
The direct PRF centroid is offset from the target star catalog position by about 0.10 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	11.536 ± 0.864	13.36	-1.532 ± 1.647	11.434 ± 0.843
PRF-fit source offset from KIC position	11.636 ± 0.816	14.26	-1.608 ± 1.647	11.524 ± 0.791
photometric centroid source offset	0.80 ± 0.27	2.98	-0.05 ± 0.15	0.80 ± 0.27

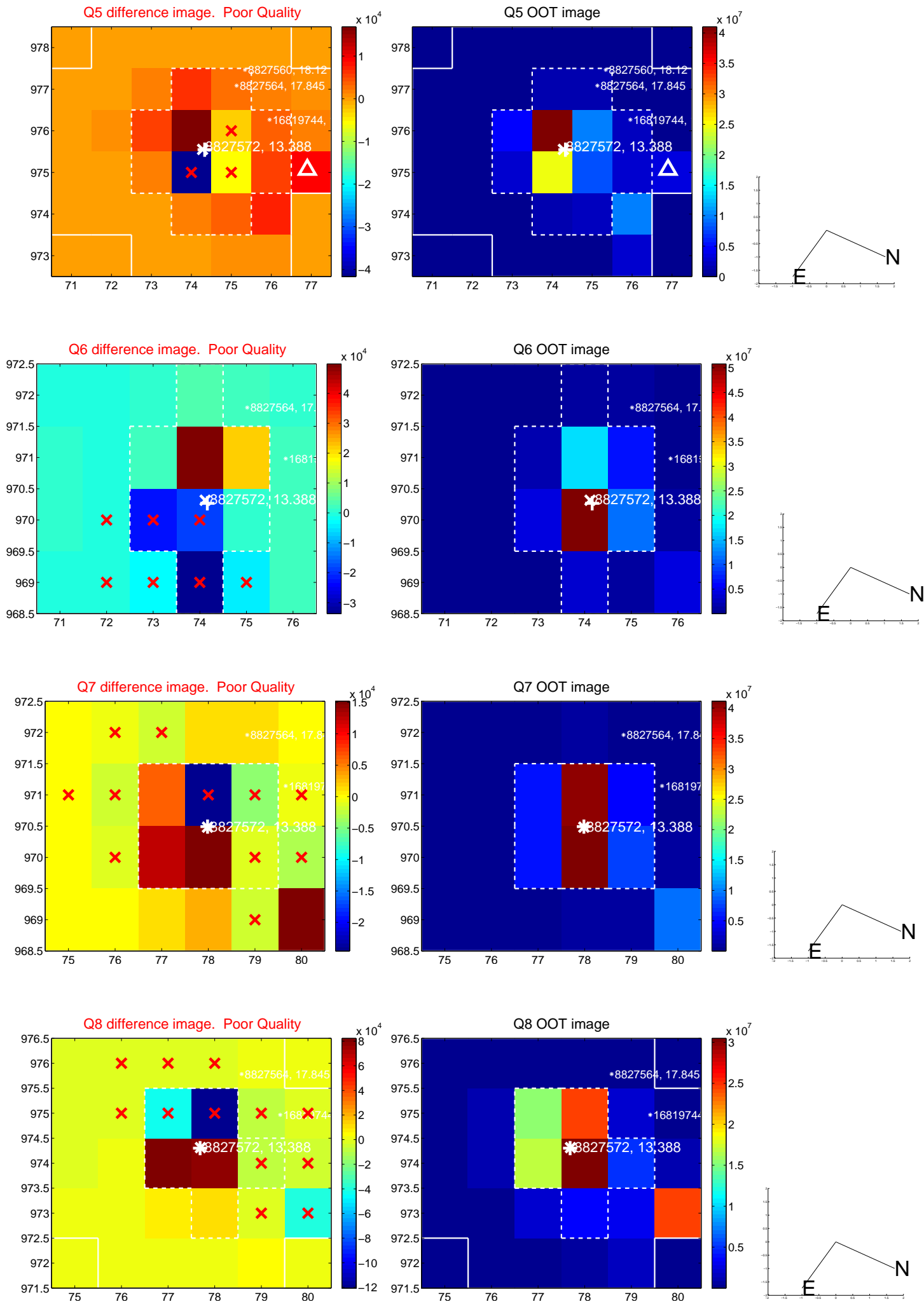


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ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

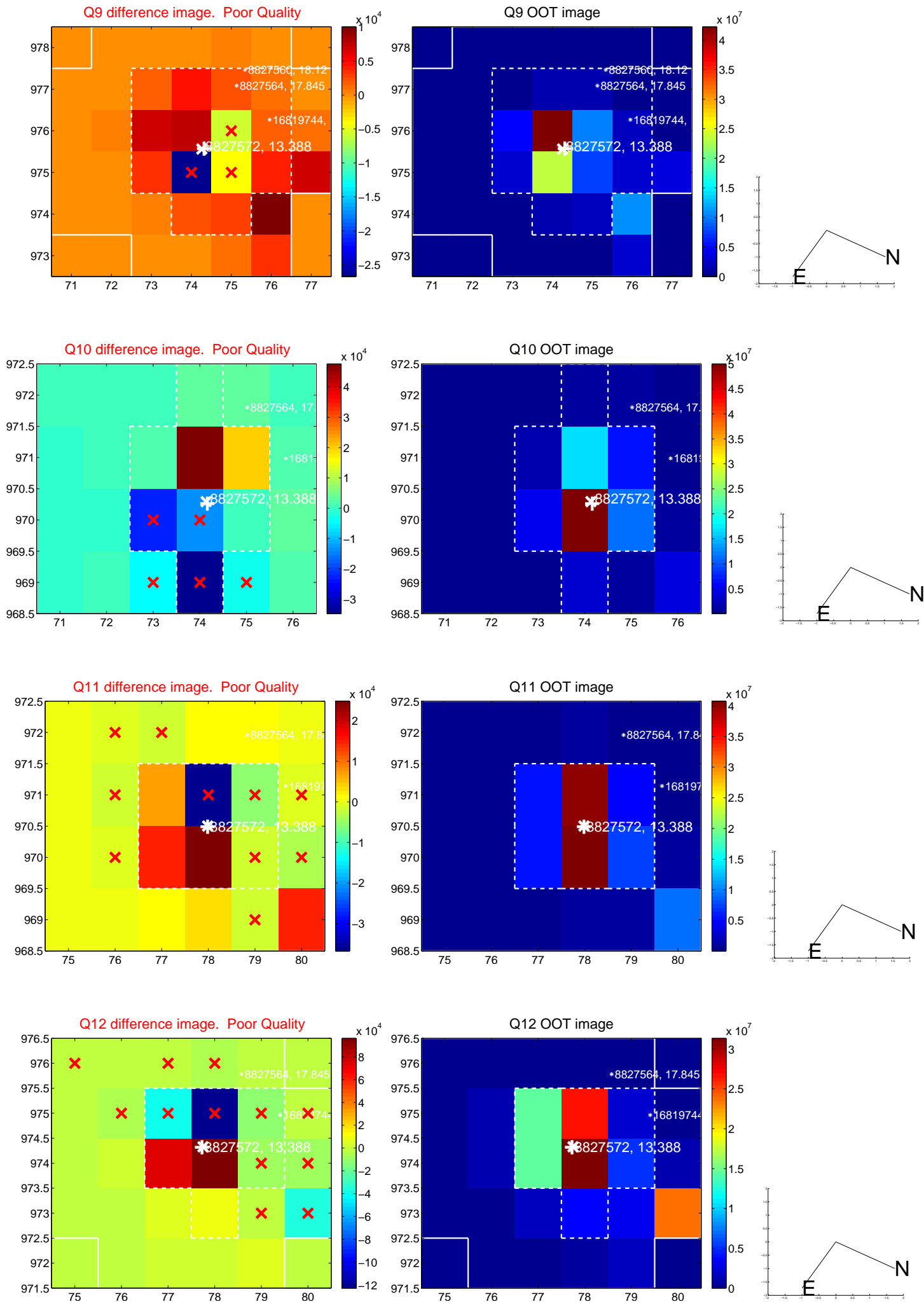
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



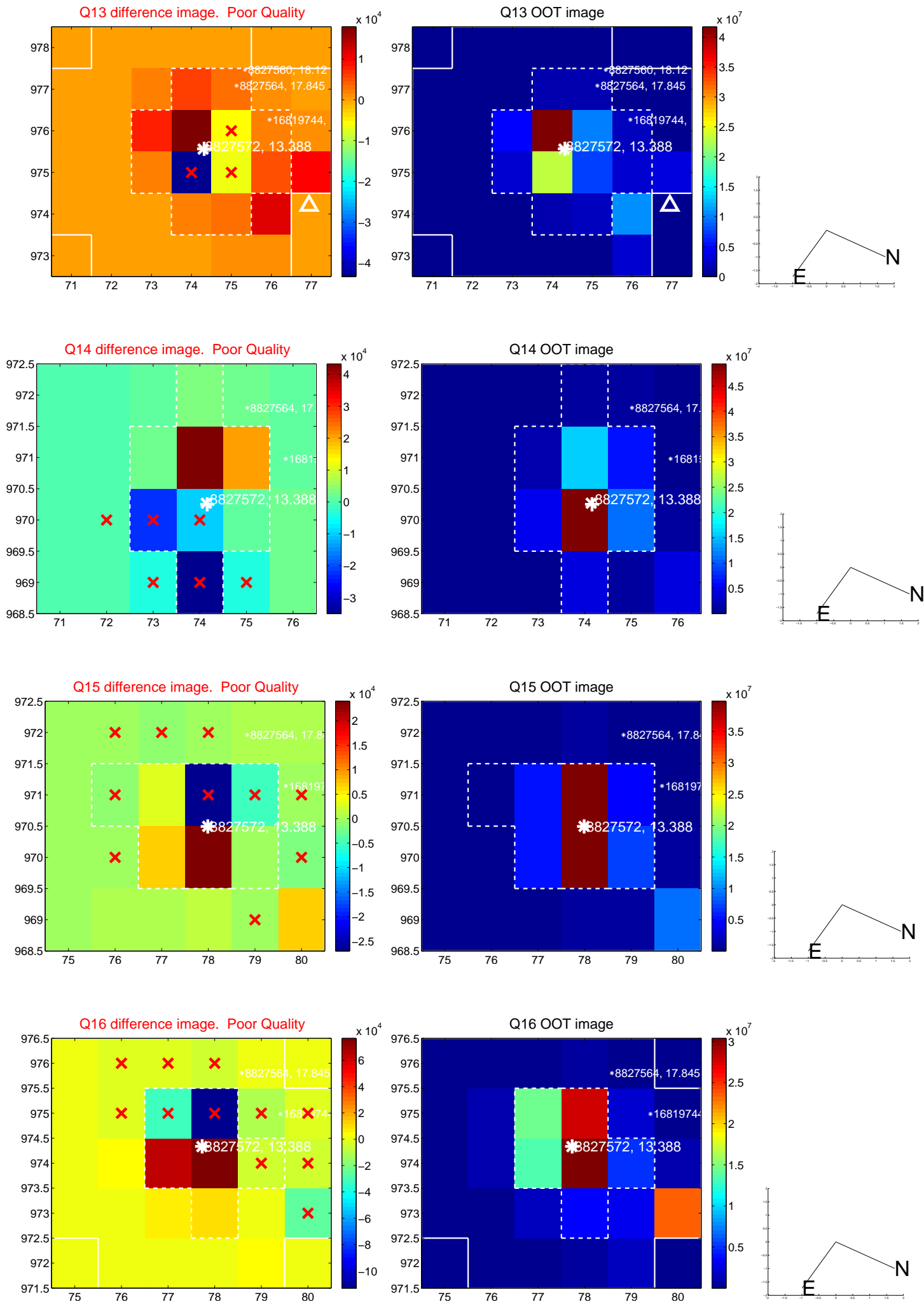
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



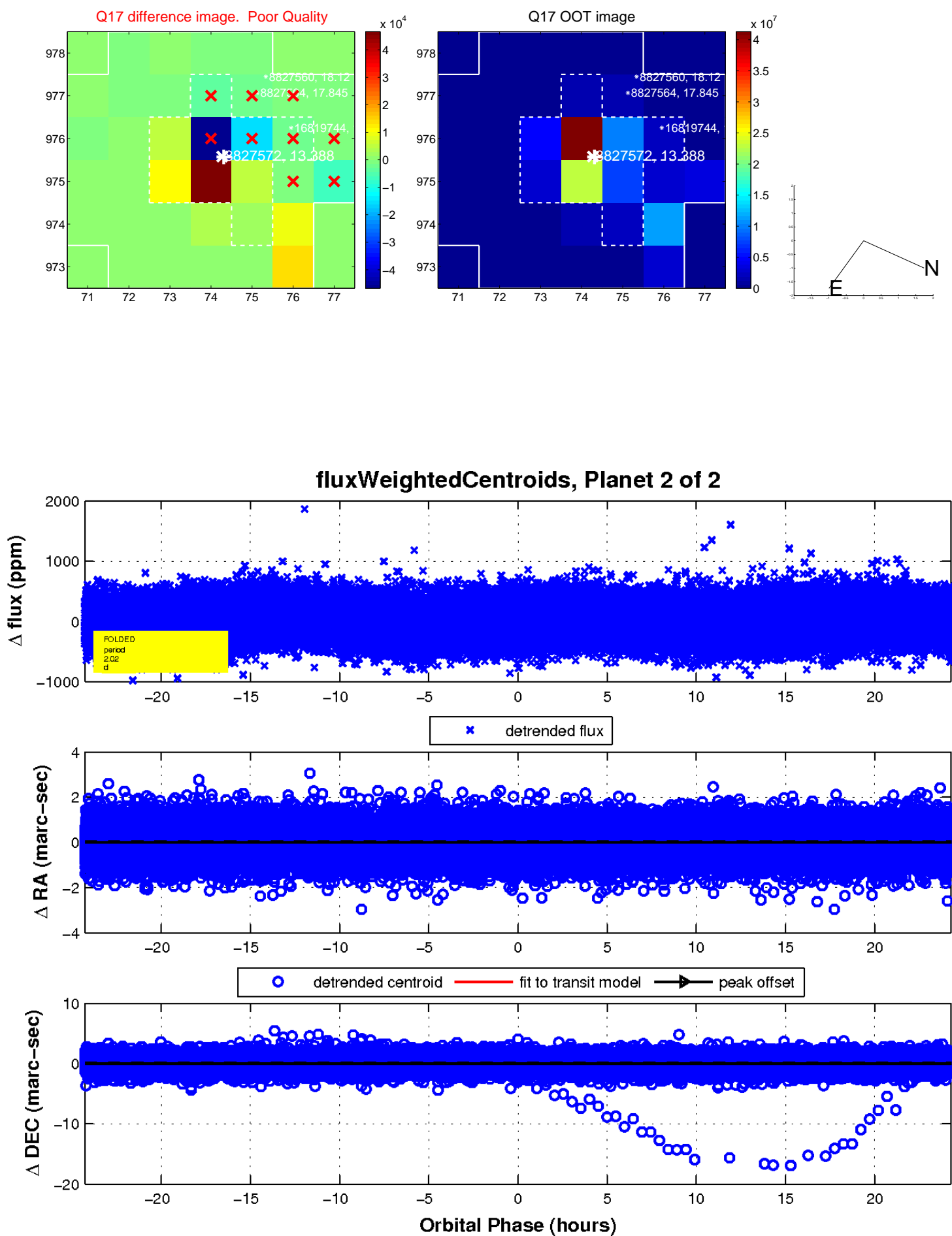
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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.



UKIRT Image

