

KIC 008329728

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})
008329728-01	OBS	No	9.846300	137.853949	43.6	26.544	14.0	16.3	2.75	7875	3.64	2085.92
008329728-02	OBS	No	9.846209	134.302599	52.0	37.057	14.0	19.7	2.75	7875	2.84	2085.95

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
008329728-01	OBS	FP	0.00	1	0	0	0	LPP_DV
008329728-02	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—SAME_NTL_PERIOD

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

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

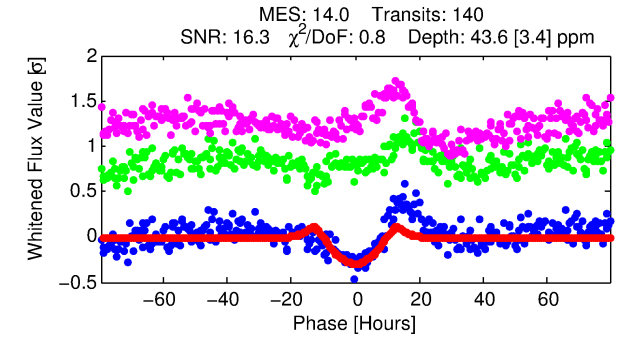
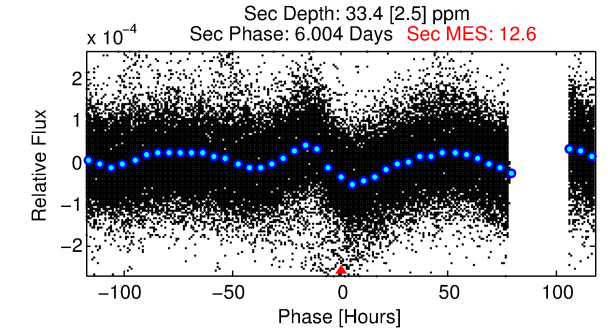
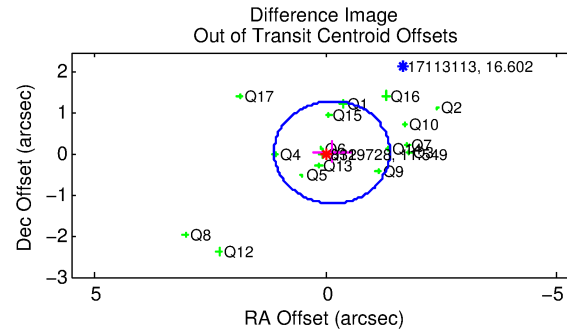
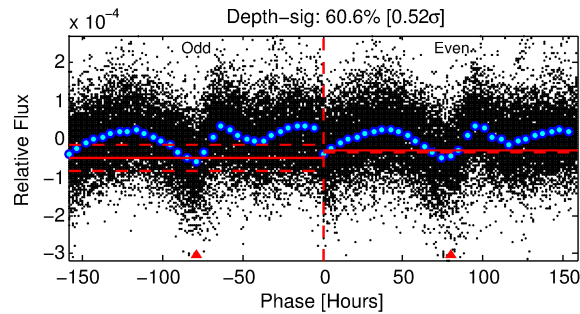
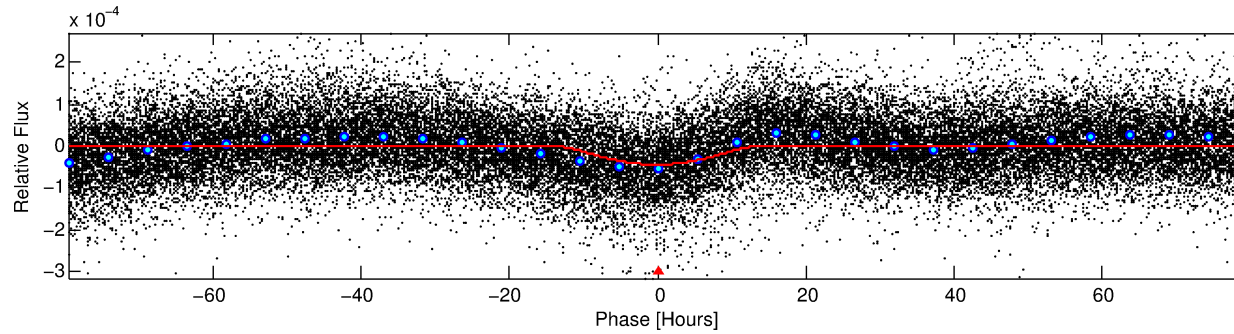
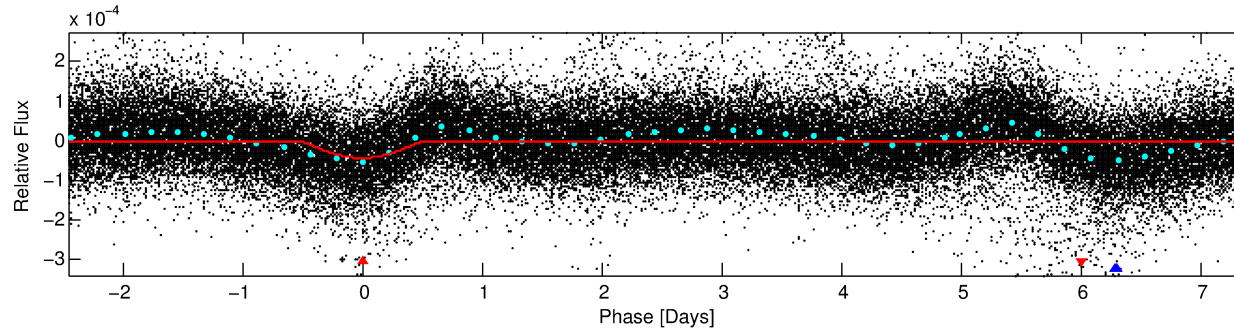
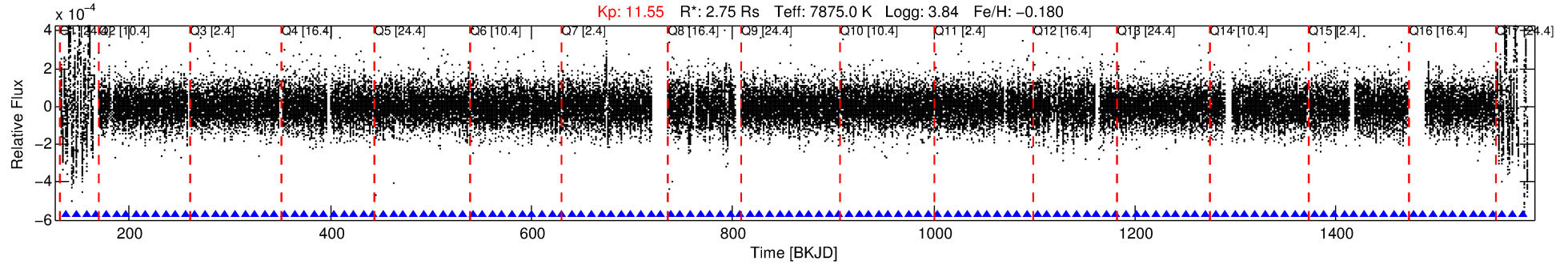
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 008329728-01

No Significant Match Found

DV One-Page Summary

KIC: 8329728 Candidate: 1 of 2 Period: 9.846 d



DV Fit Results:

Period = 9.84630 [0.00032] d
Epoch = 137.8539 [0.0258] BKJD
Rp/R* = 0.0121 [0.0107]
a/R* = 1.10 [0.03]
b = 1.00 [0.02]
Seff = 2085.92 [1248.54]
Teq = 1723 [258] K
Rp = 3.64 [3.55] Re
a = 0.1119 [0.0416] AU
Ag = 17.35 [32.35] [0.51 σ]
Teffp = 5438 [2422] K [1.52 σ]

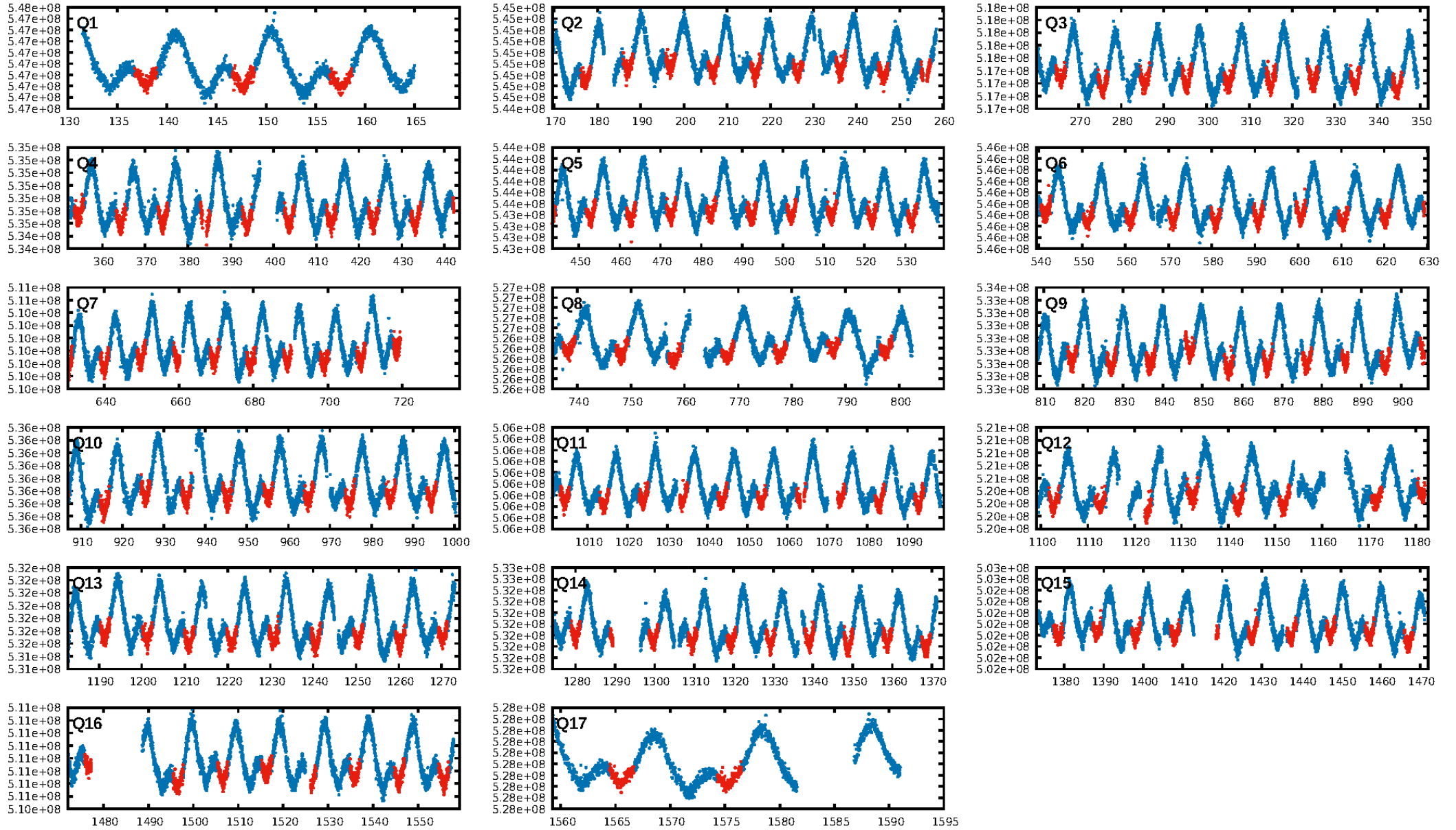
DV Diagnostic Results:

ShortPeriod-sig: 0.0% [0.00 σ]
LongPeriod-sig: N/A
ModelChiSquare2-sig: 100.0%
ModelChiSquareGof-sig: 100.0%
Bootstrap-pfa: 2.26e-49
RollingBand-fgt: 1.00 [135/135]
GhostDiagnostic-chr: 1.855
Centroid-sig: 0.0%
Centroid-so: 3.002 arcsec [2.82 σ]
OotOffset-rm: 0.150 arcsec [0.36 σ]
KicOffset-rm: 0.271 arcsec [0.89 σ]
OotOffset-st: 4/4/4/5 [17]
KicOffset-st: 4/4/4/5 [17]
DiffImageQuality-fgm: 0.88 [15/17]
DiffImageOverlap-fno: 1.00 [17/17]

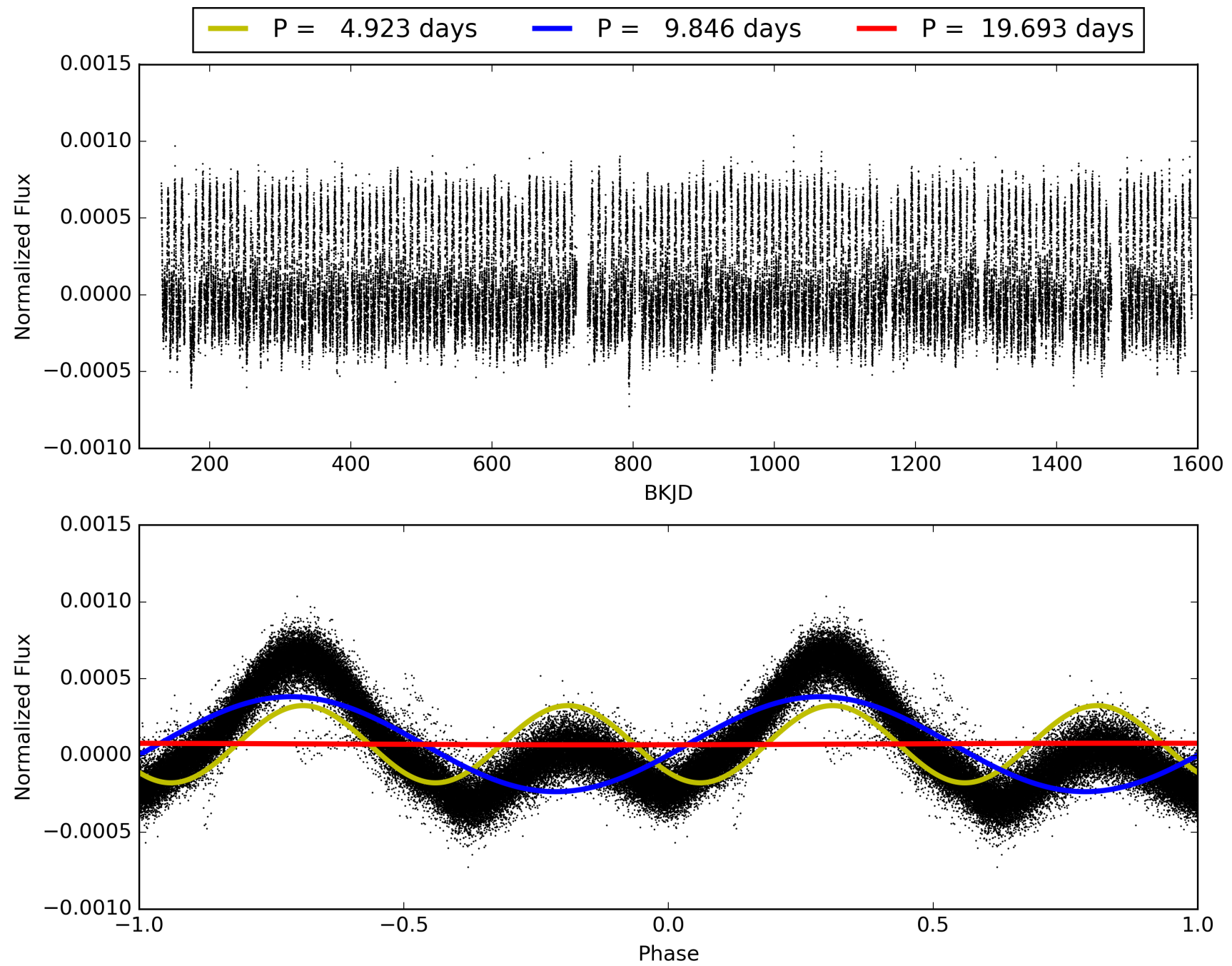
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 03:54:15 Z

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

TCE 008329728-01, PDC Light Curves

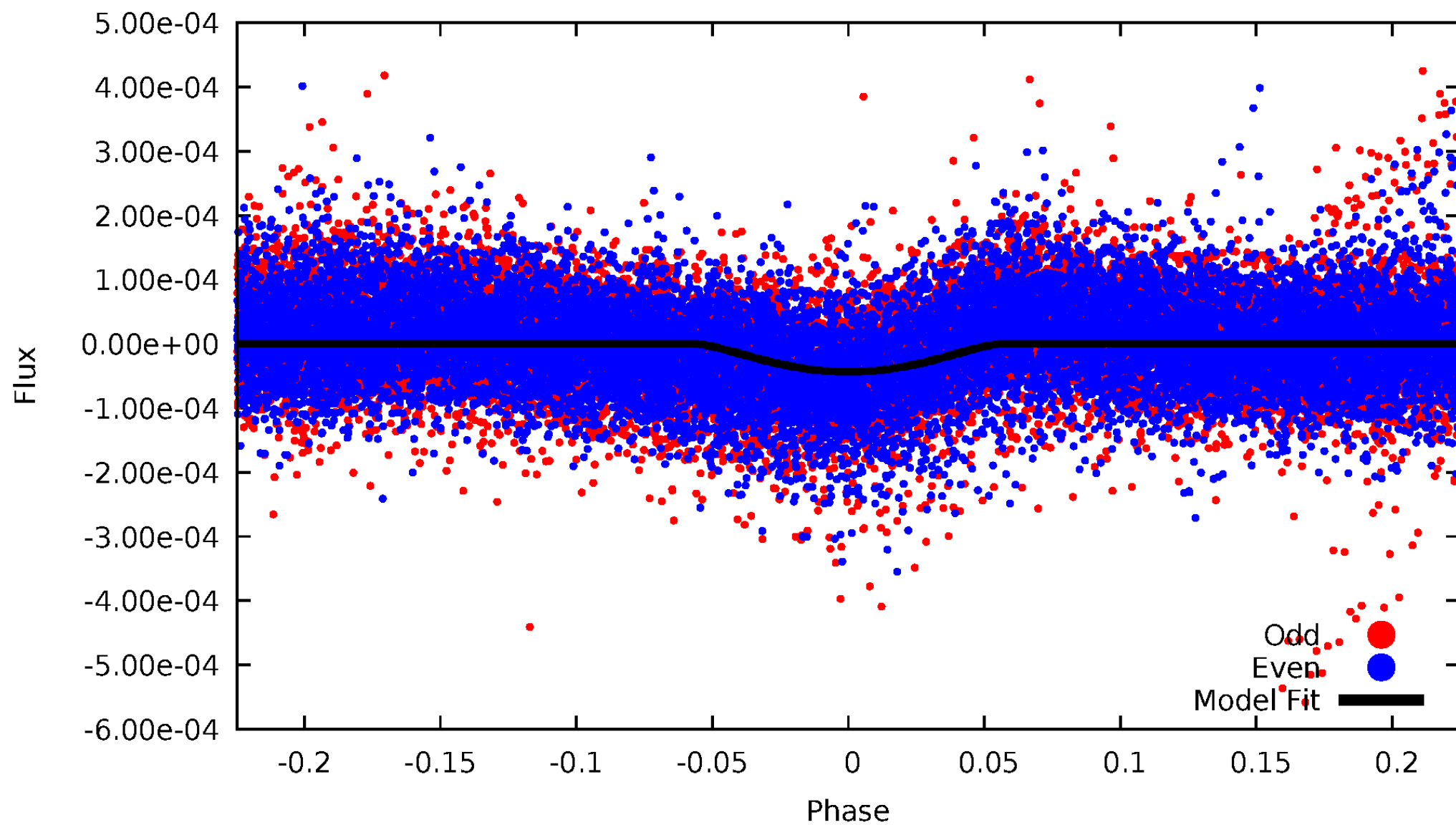


TCE 008329728-01



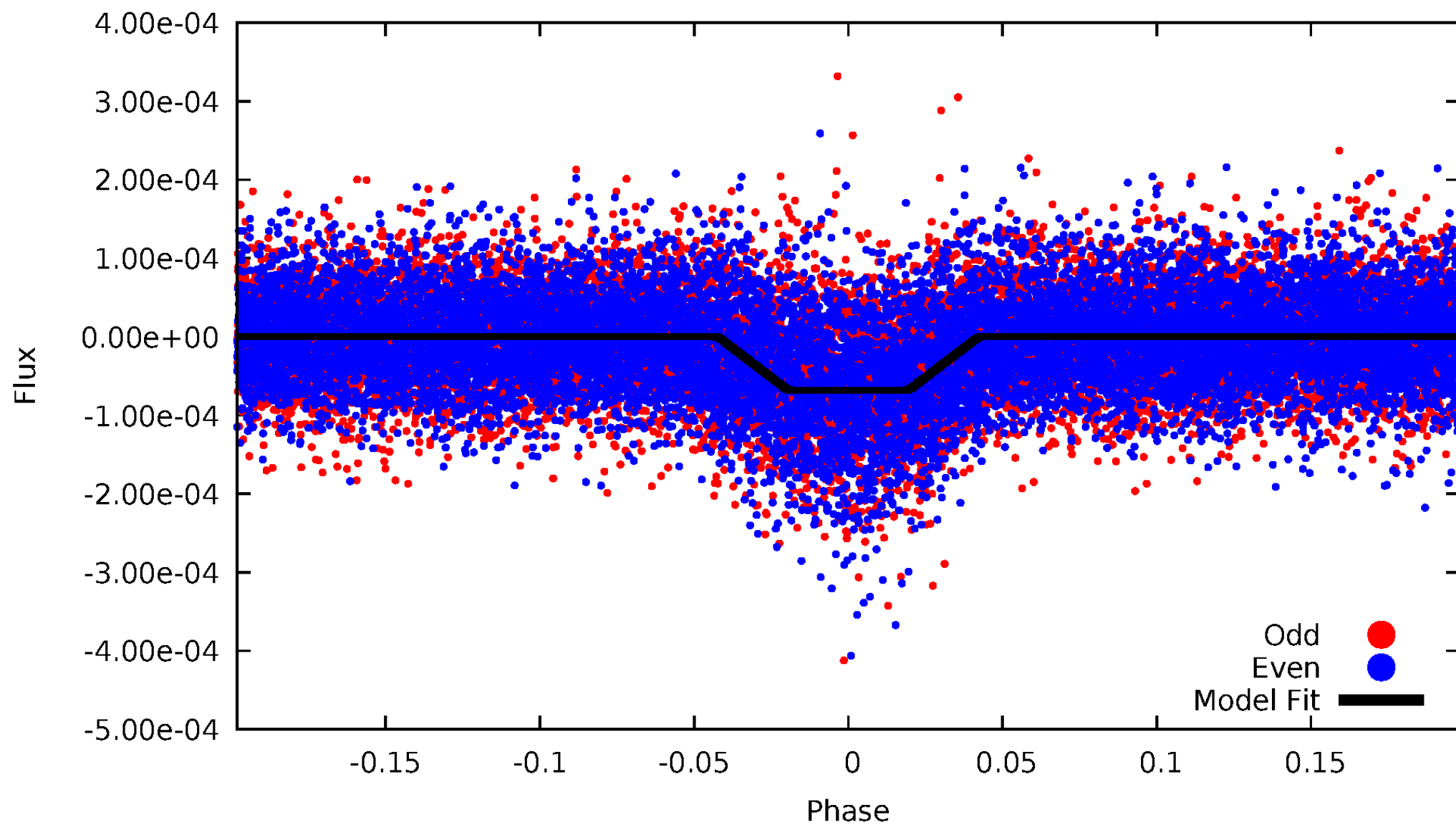
DV Odd/Even

TCE 008329728-01



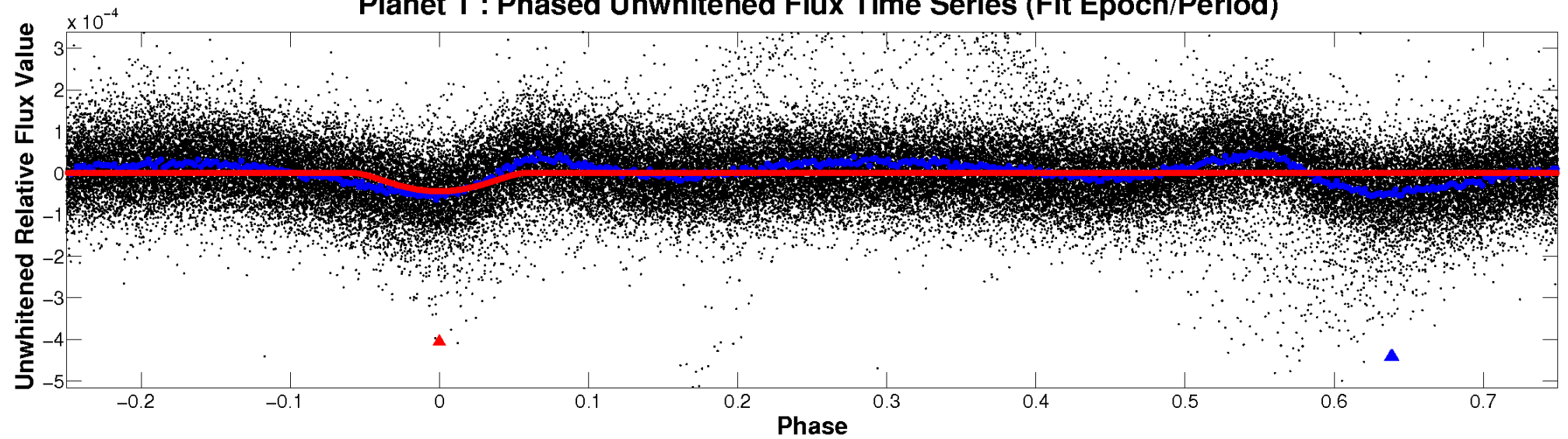
ALT Odd/Even

TCE 008329728-01

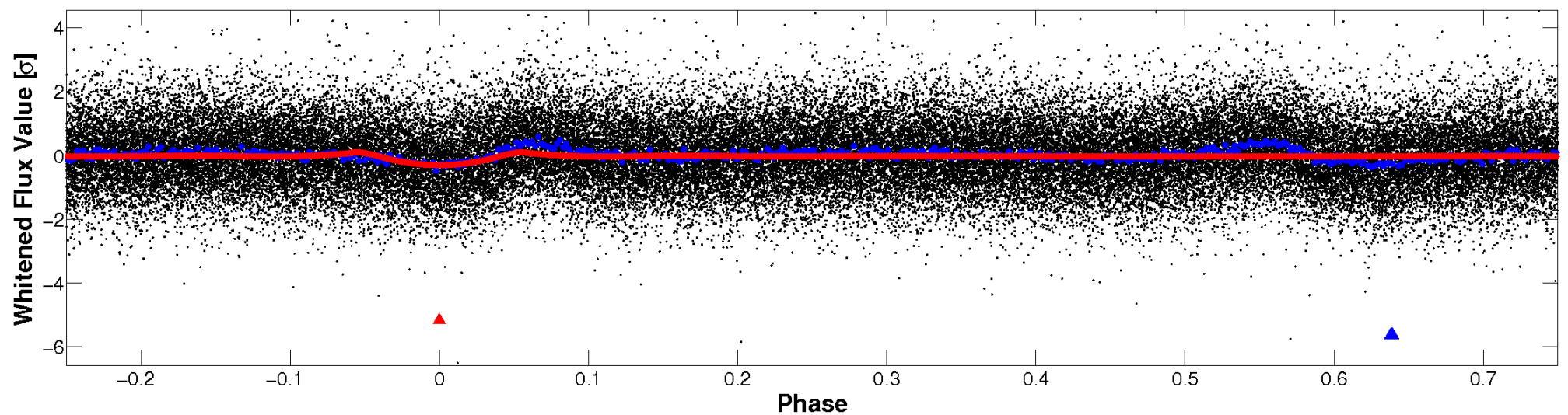


Non-Whitened Vs. Whitened Light Curve

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

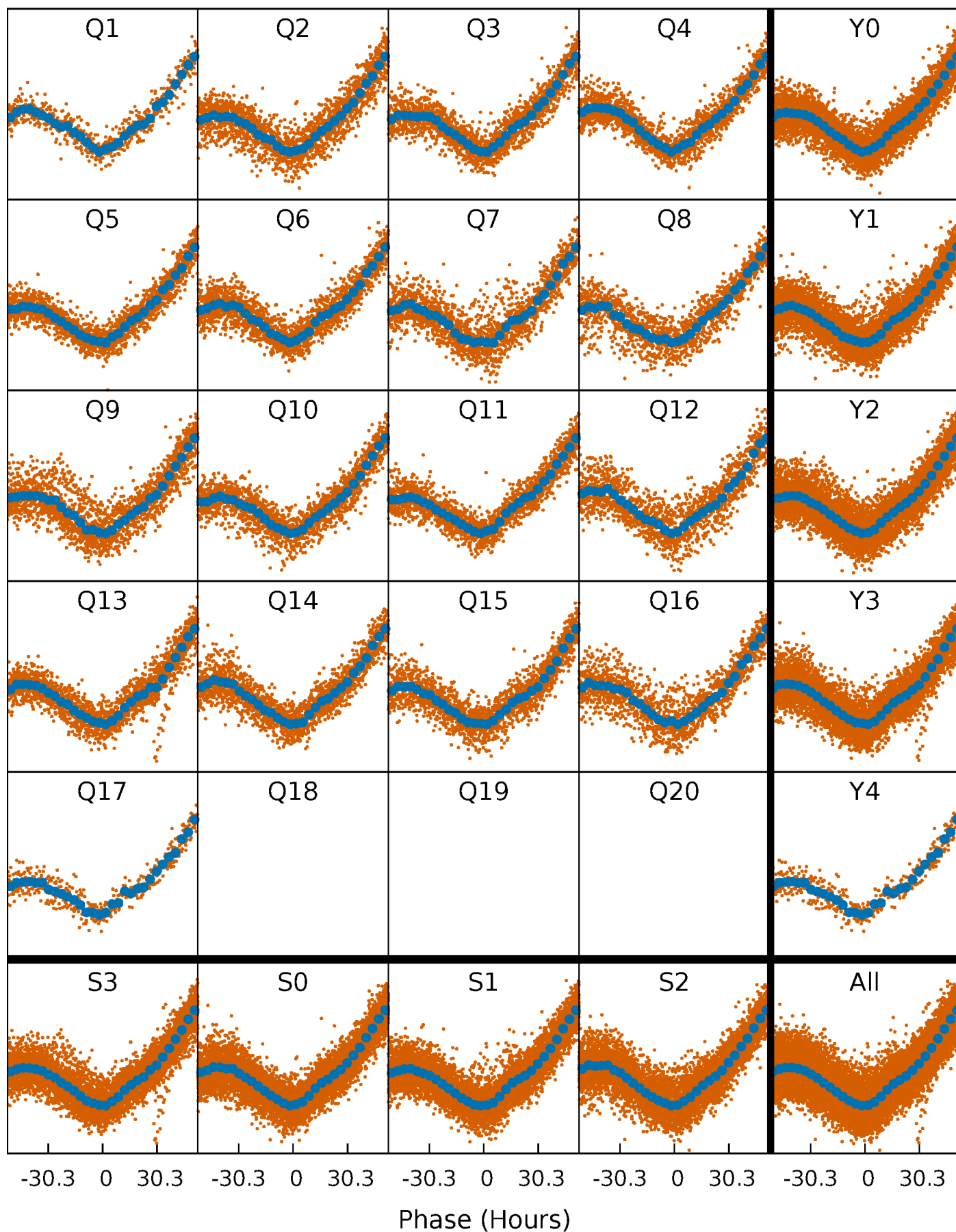


Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)



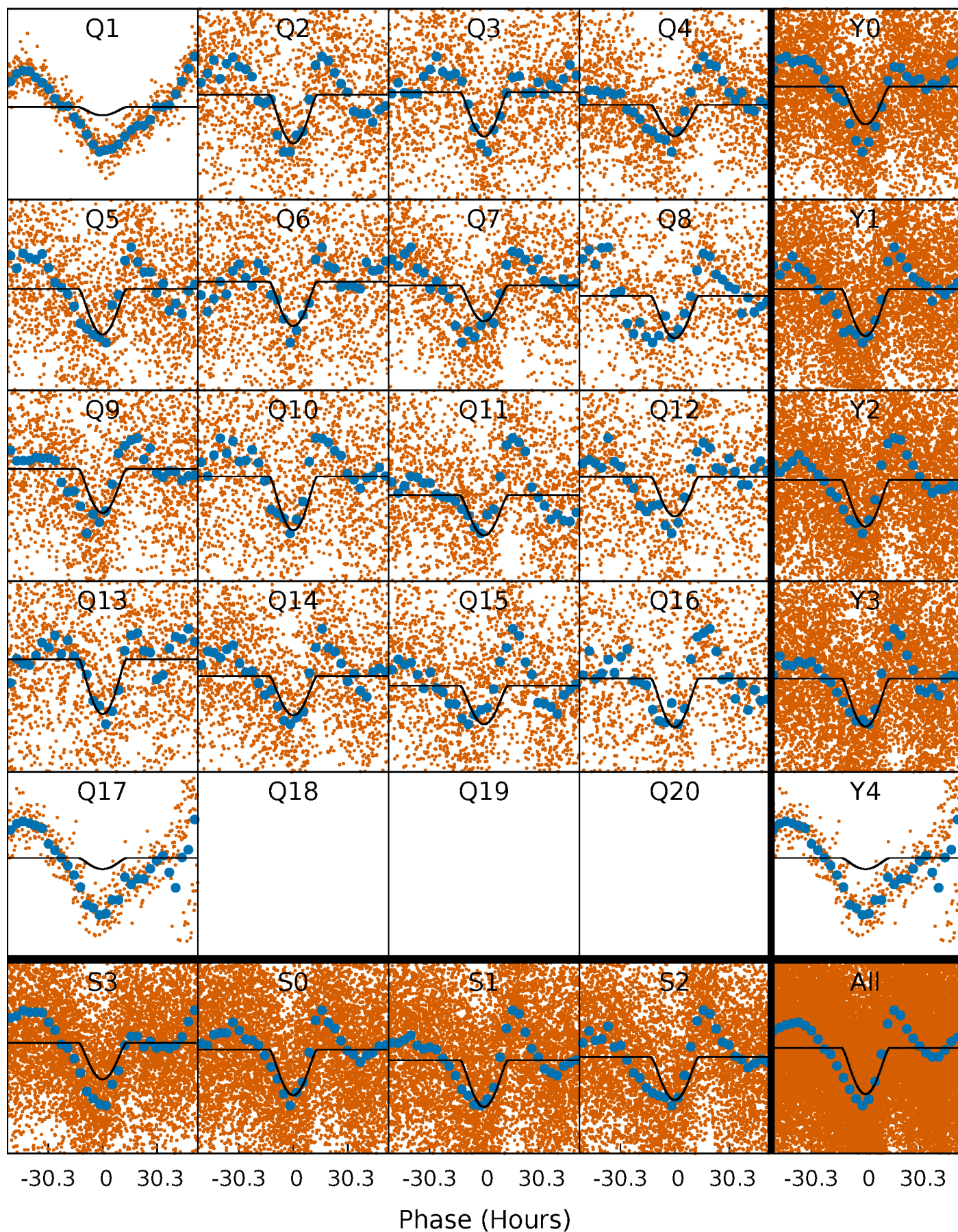
PDC Quarter-Phased Transit Curves

TCE 008329728-01 P= 9.846300 Days $T_0=137.853949$ (BKJD)



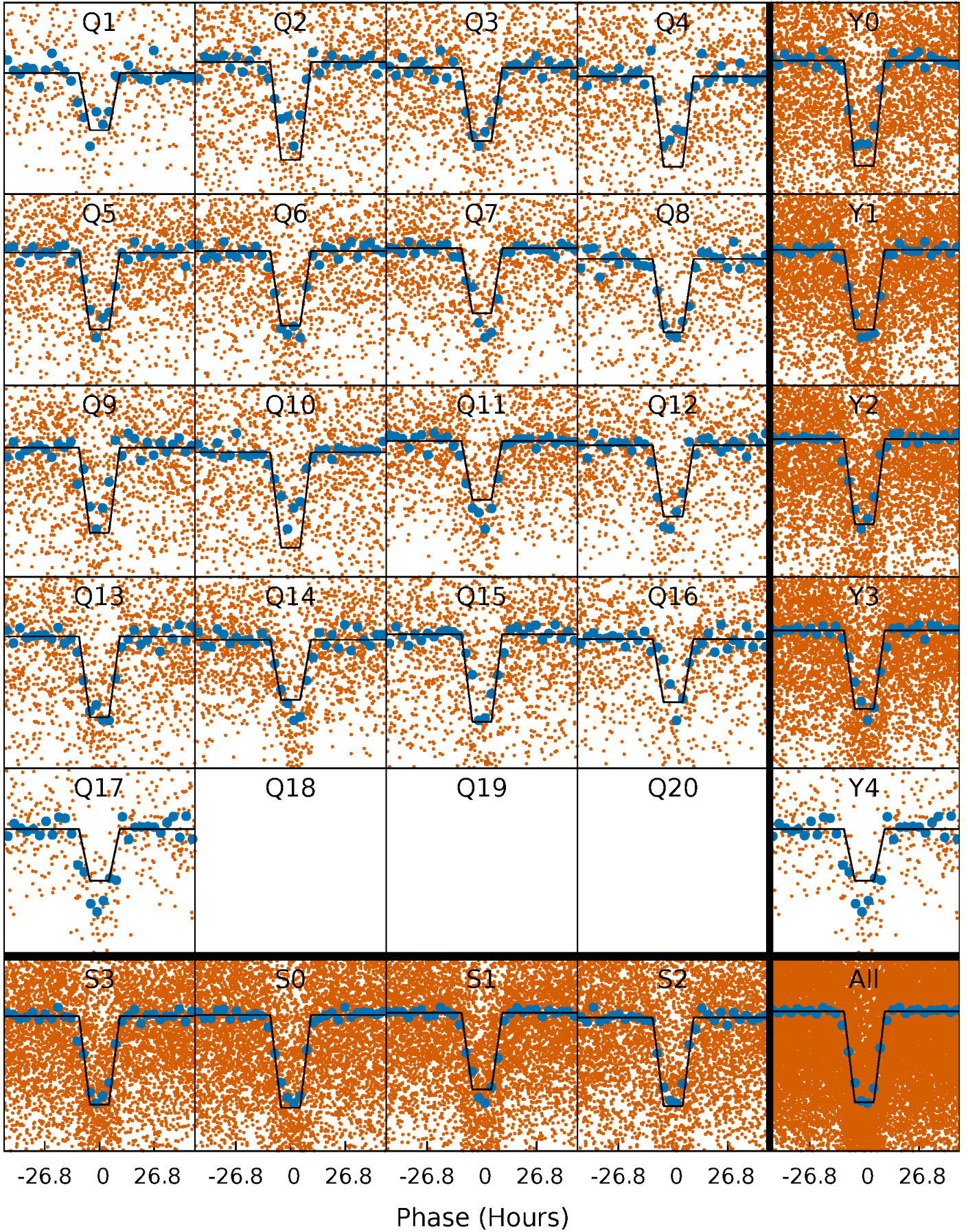
DV Quarter-Phased Transit Curves

TCE 008329728-01 P= 9.846300 Days $T_0=137.853949$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

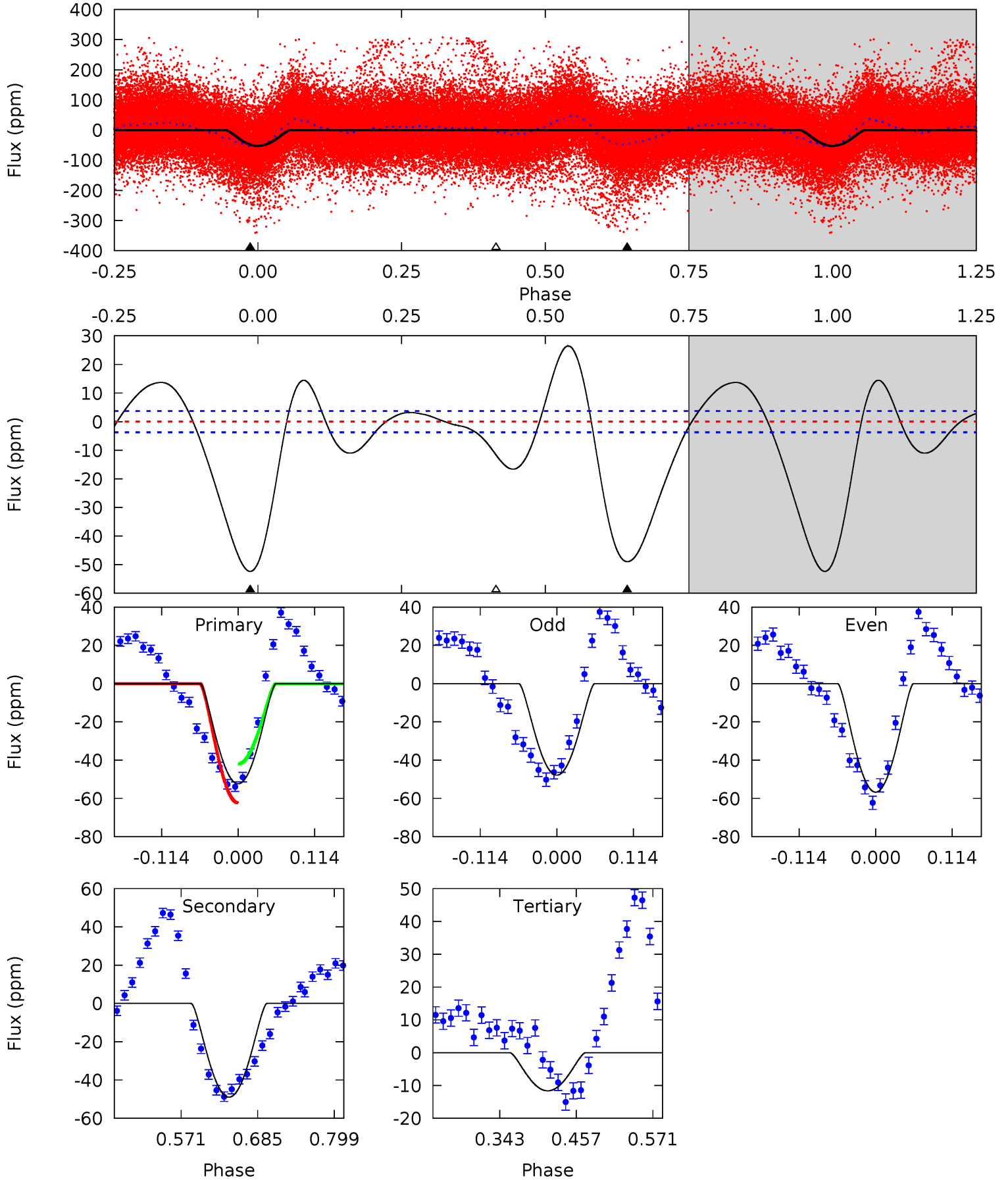
TCE 008329728-01 P= 9.845518 Days $T_0=138.014439$ (BKJD)



DV Model-Shift Uniqueness Test

008329728-01, P = 9.846300 Days, E = 128.007649 Days

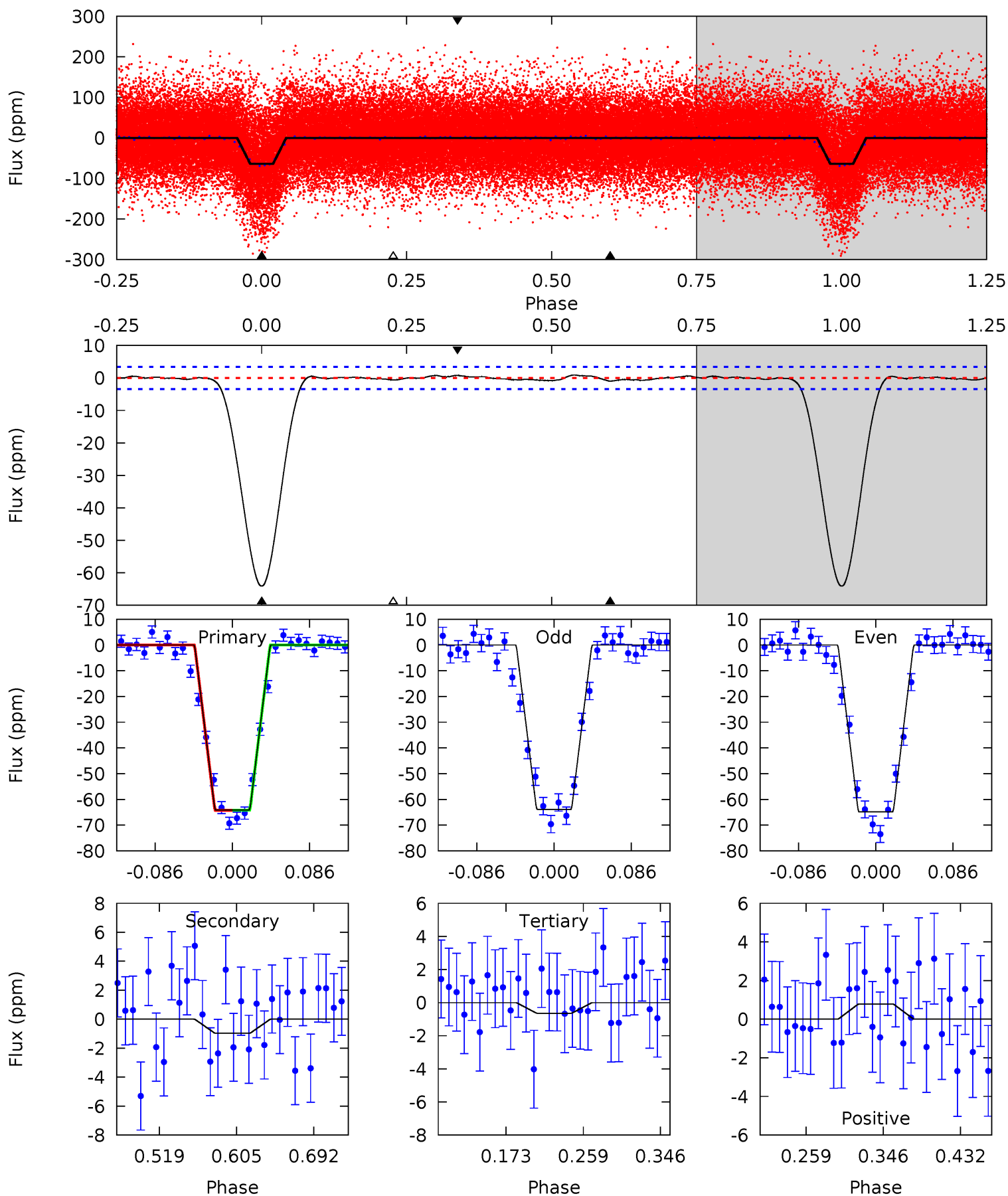
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
63.8	59.6	14.2	0	4.54	1.58	10.9	49.6	63.8	45.5	59.6	5.43	1.12	0.34	12.3



Alt Model-Shift Uniqueness Test

008329728-01, P = 9.845518 Days, E = 128.168921 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
86.4	1.32	0.87	1.06	4.60	1.71	0.52	85.5	85.3	0.45	0.26	0.60	1.09	0.01	0.00



Stellar Parameters For KIC 008329728

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	7875^{+216}_{-325}	$3.843^{+0.330}_{-0.088}$	$-0.180^{+0.200}_{-0.350}$	$2.752^{+0.375}_{-1.126}$	$1.923^{+0.087}_{-0.491}$	$0.130^{+0.352}_{-0.036}$
	+3%/-4%	+9%/-2%	+111%/-194%	+14%/-41%	+5%/-26%	+271%/-28%
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 008329728-01 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-49 ± 1	$3.77^{+2.82}_{-2.30}$	2337^{+155}_{-239}	5400^{+3743}_{-1089}	23^{+128}_{-16}
Alt.	-1 ± 1	$3.18^{+2.73}_{-2.12}$	2348^{+157}_{-226}	2540^{+1421}_{-5128}	$0.523^{+4.867}_{-0.445}$

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

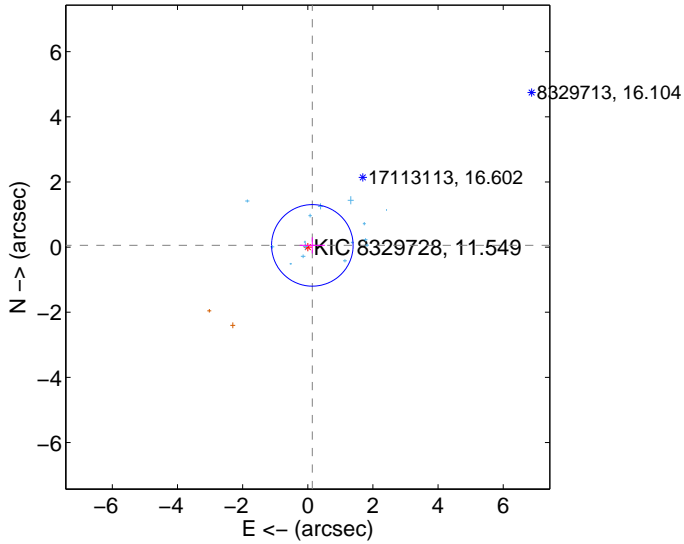
Supplemental centroid analysis for 008329728-01. **Kepler magnitude: 11.55.** Transit SNR 16.34

There are 15 quarters with good PRF difference image offsets

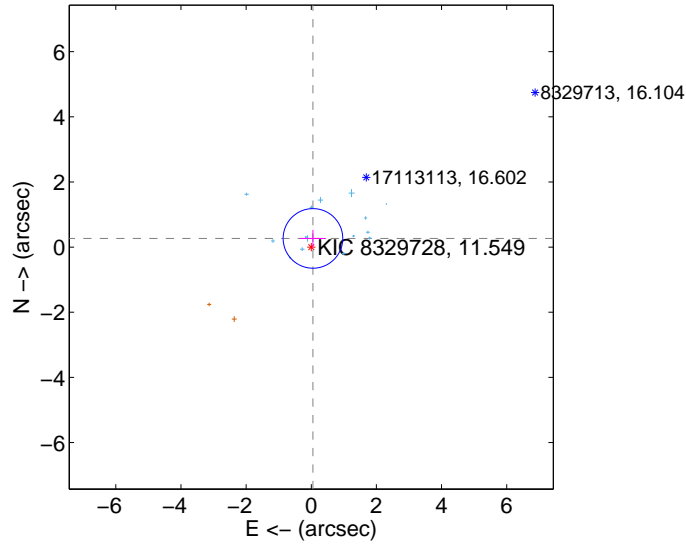
The direct PRF centroid is offset from the target star catalog position by about 0.24 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.150 ± 0.417	0.36	-0.140 ± 0.386	0.053 ± 0.249
PRF-fit source offset from KIC position	0.271 ± 0.305	0.89	-0.052 ± 0.396	0.266 ± 0.260
photometric centroid source offset	3.00 ± 1.06	2.82	-0.74 ± 1.20	-2.91 ± 1.05

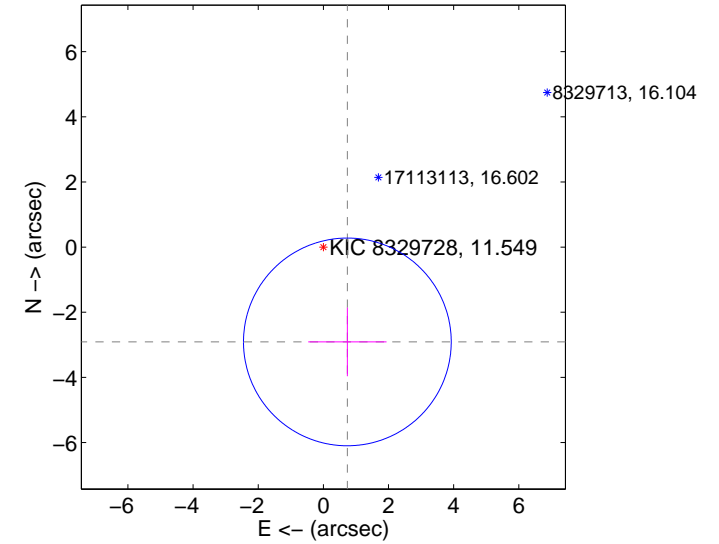
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position

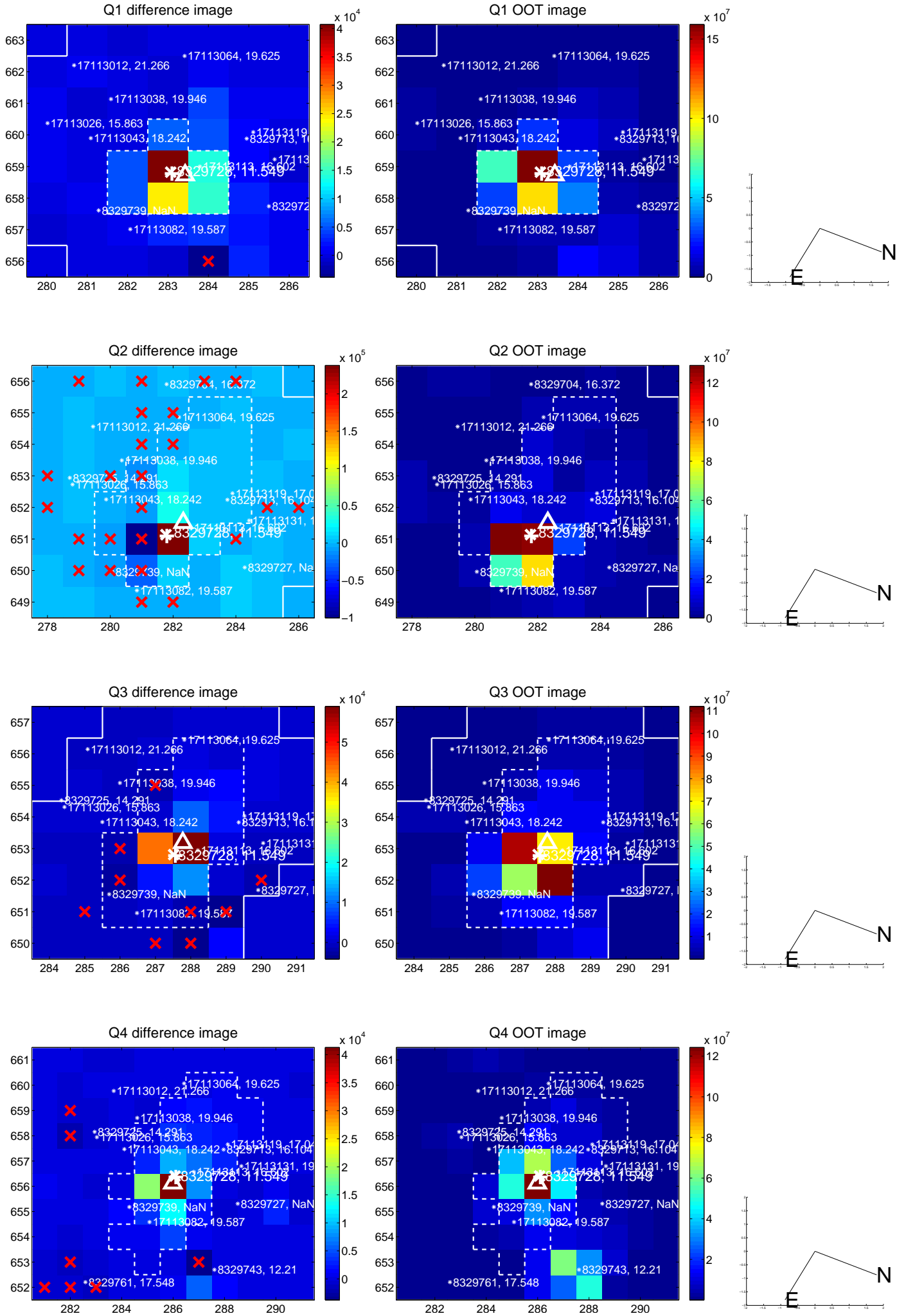


offset from photometric centroids

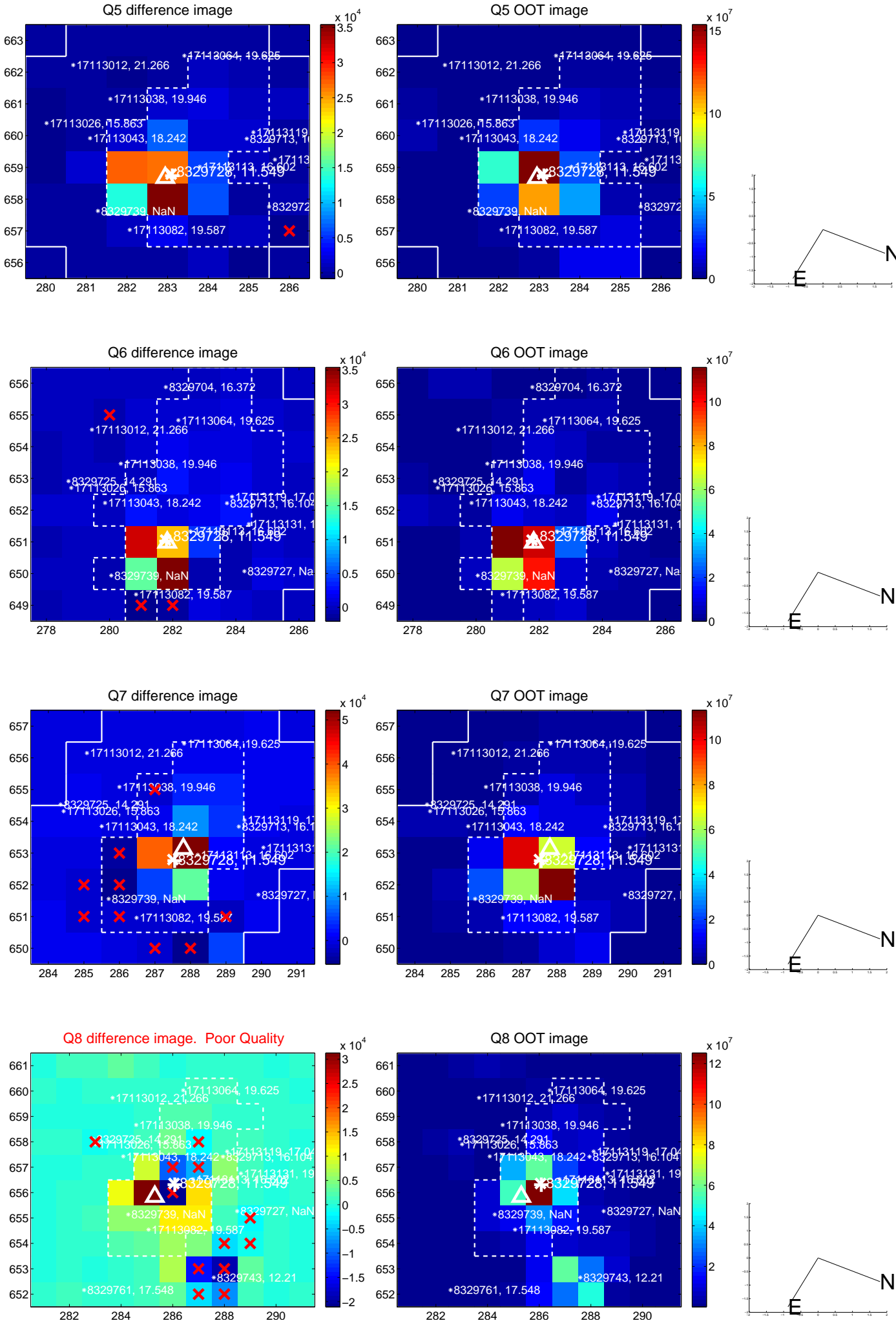


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets;** magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

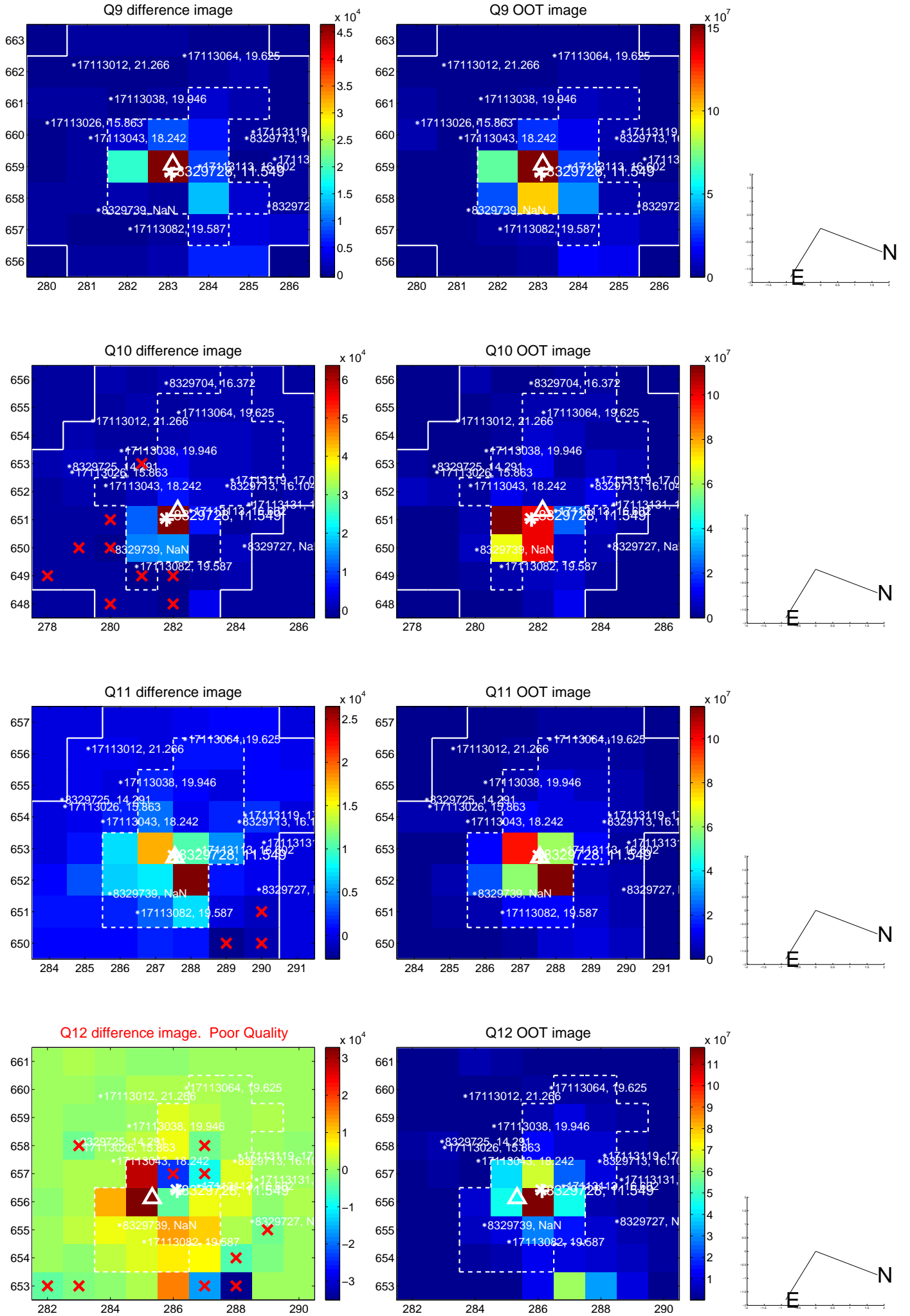
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



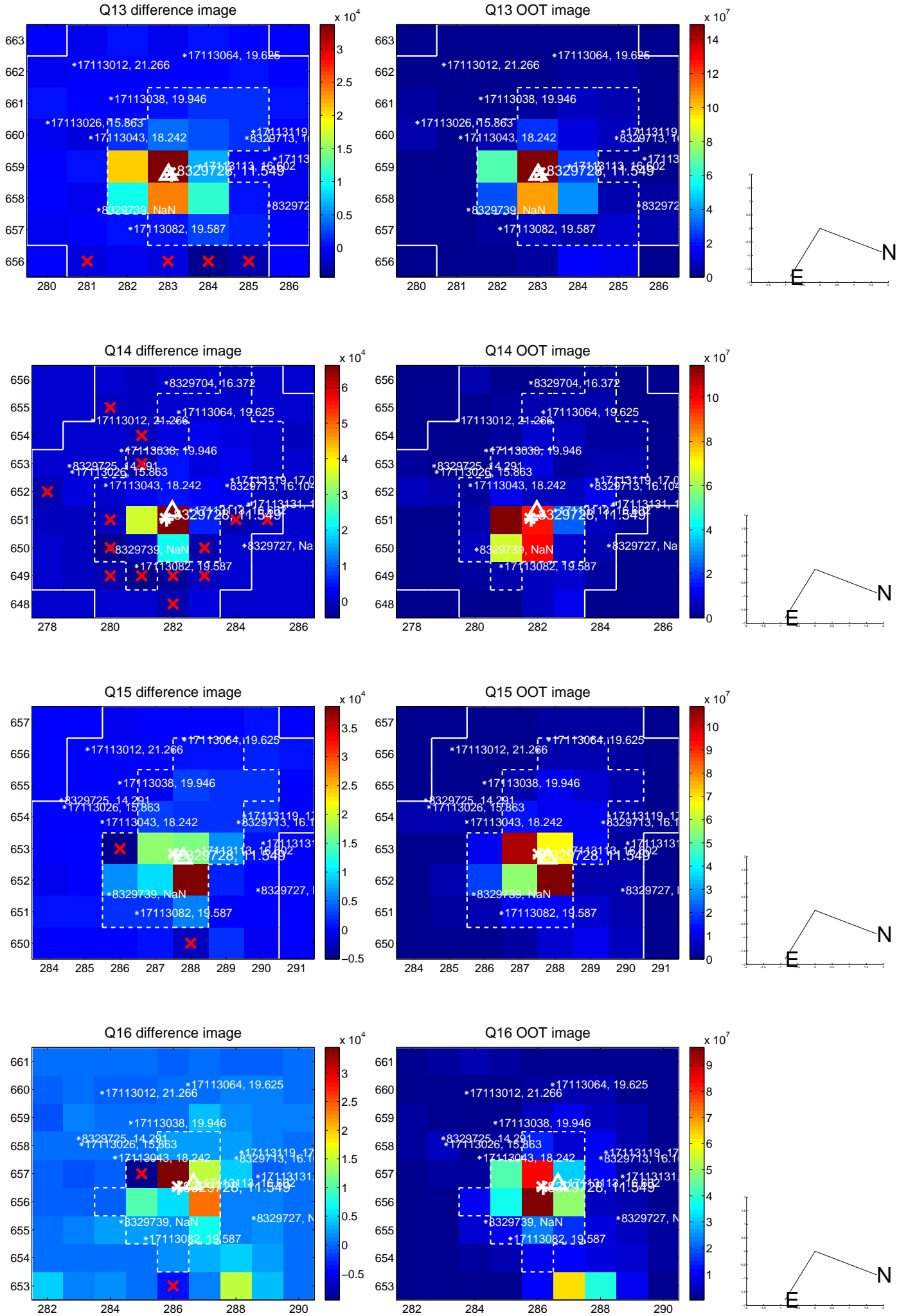
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



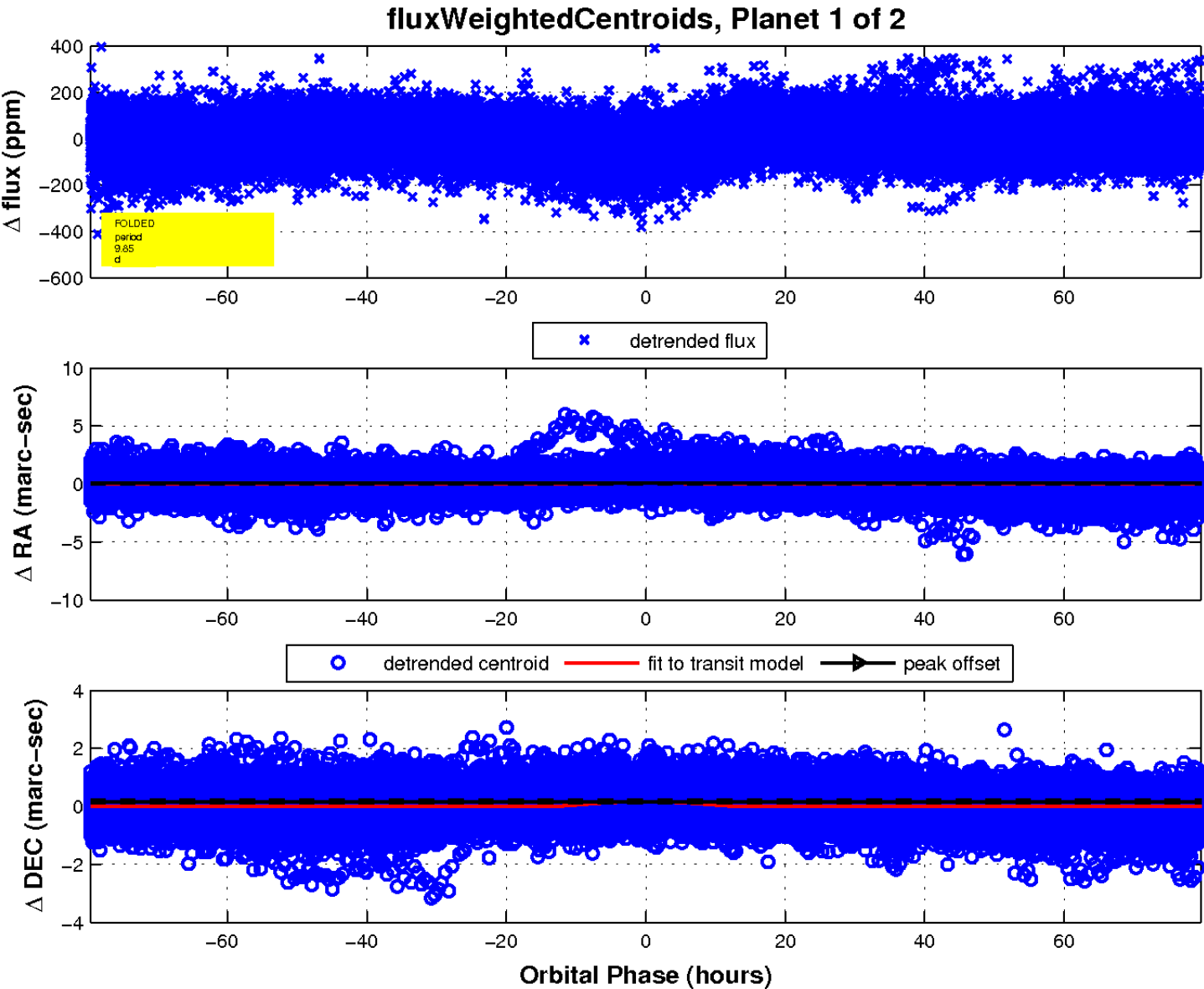
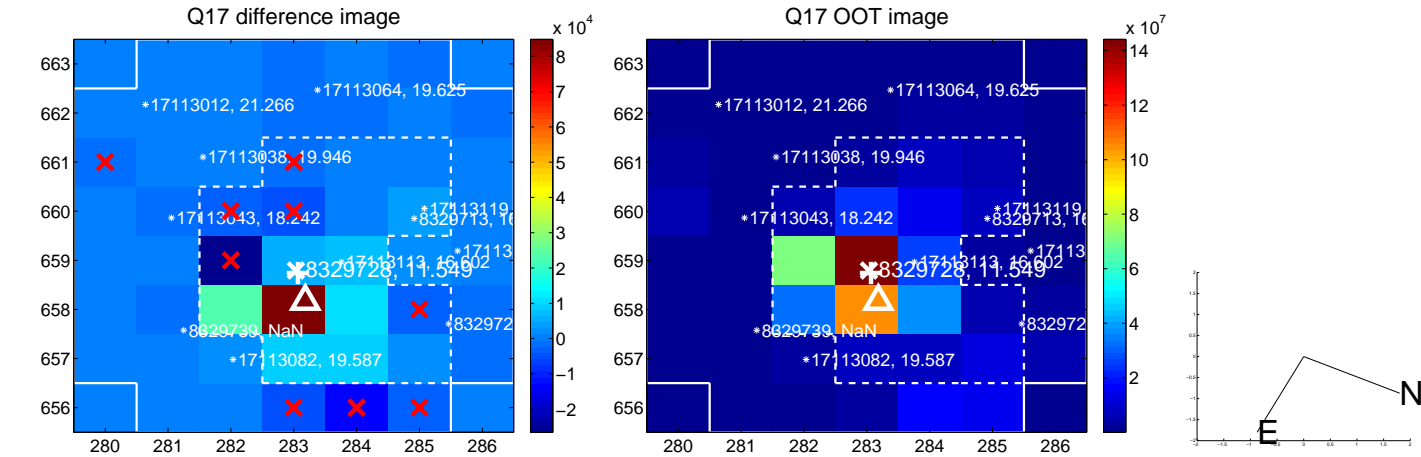
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

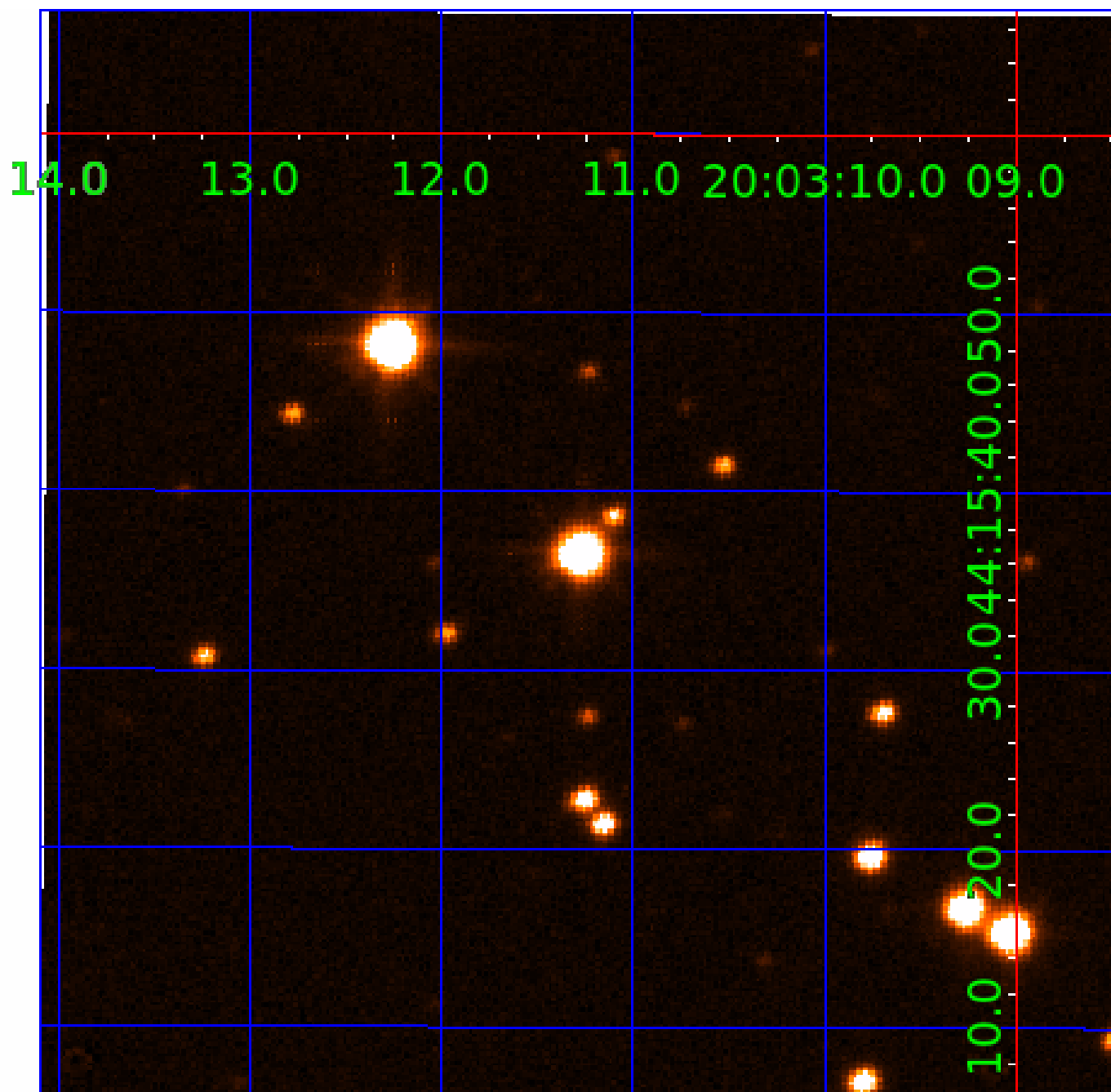


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 008329728

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})
008329728-01	OBS	No	9.846300	137.853949	43.6	26.544	14.0	16.3	2.75	7875	3.64	2085.92
008329728-02	OBS	No	9.846209	134.302599	52.0	37.057	14.0	19.7	2.75	7875	2.84	2085.95

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
008329728-01	OBS	FP	0.00	1	0	0	0	LPP_DV
008329728-02	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—SAME_NTL_PERIOD

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

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

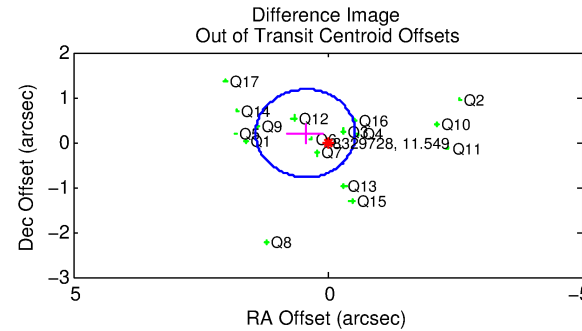
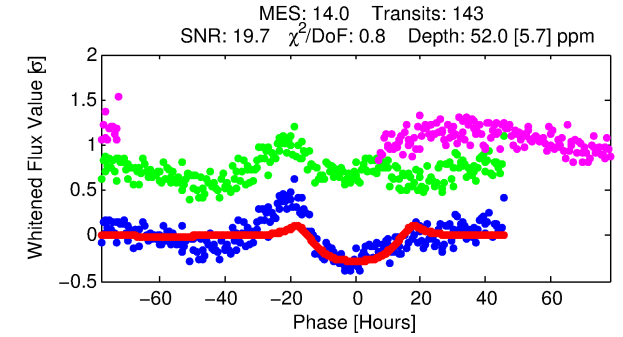
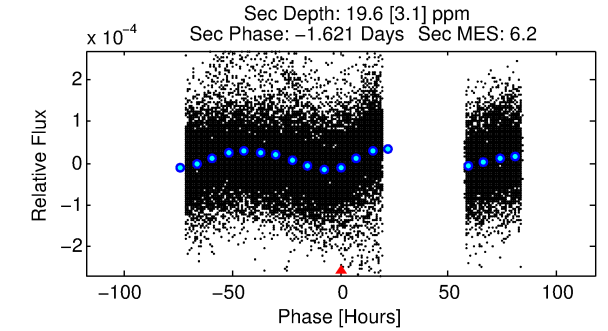
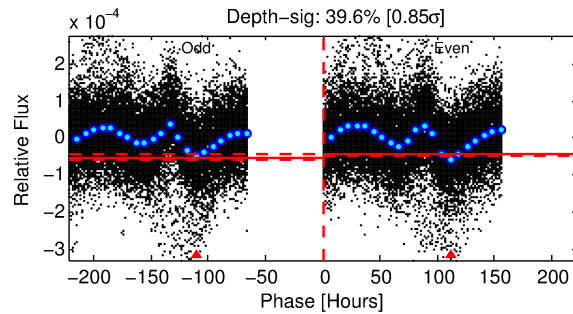
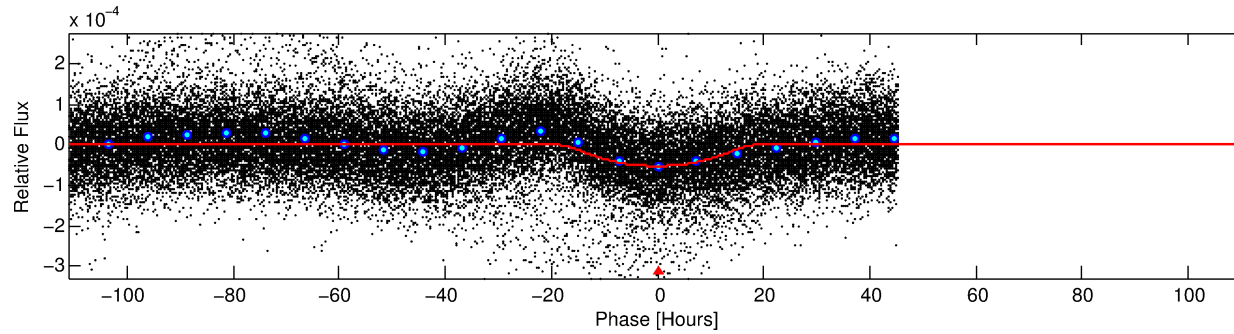
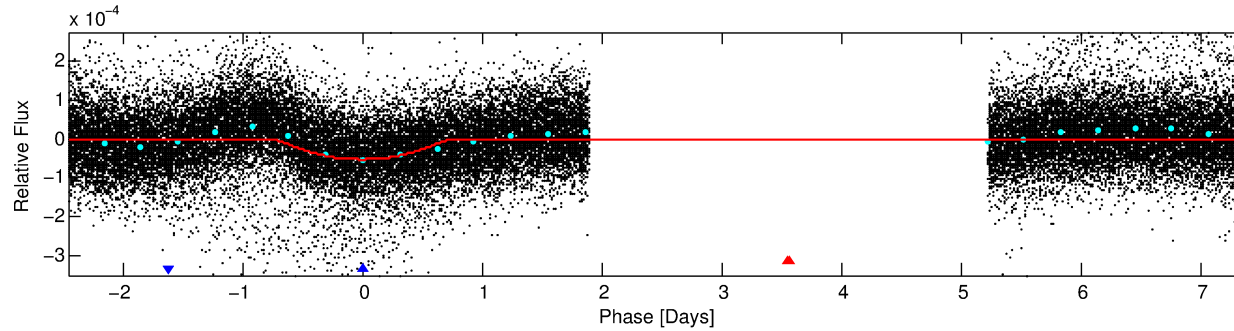
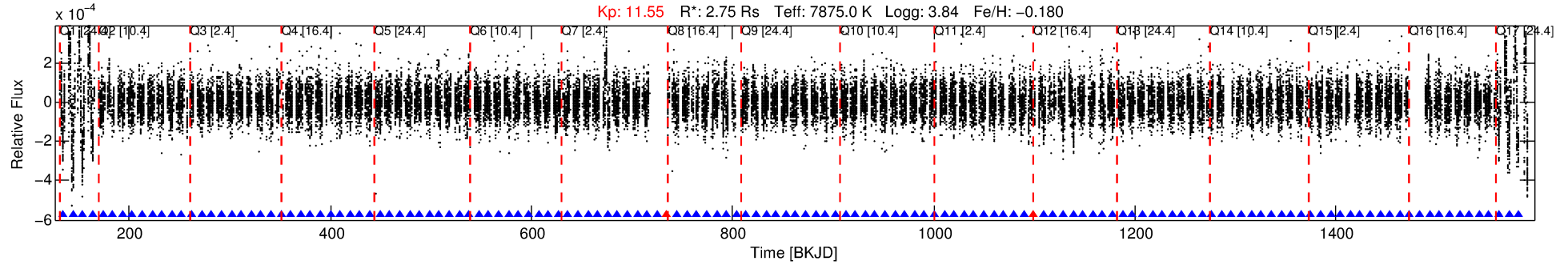
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 008329728-02

No Significant Match Found

DV One-Page Summary

KIC: 8329728 Candidate: 2 of 2 Period: 9.846 d



DV Fit Results:

Period = 9.84621 [0.00037] d
Epoch = 134.3026 [0.0301] BKJD
Rp/R* = 0.0095 [0.0008]
a/R* = 1.07 [0.01]
b = 0.99 [0.00]
Seff = 2085.95 [1248.55]
Teq = 1723 [258] K
Rp = 2.84 [1.19] Re
a = 0.1119 [0.0416] AU
Ag = 16.68 [10.34] [1.52 σ]
Teffp = 5384 [382] K [7.94 σ]

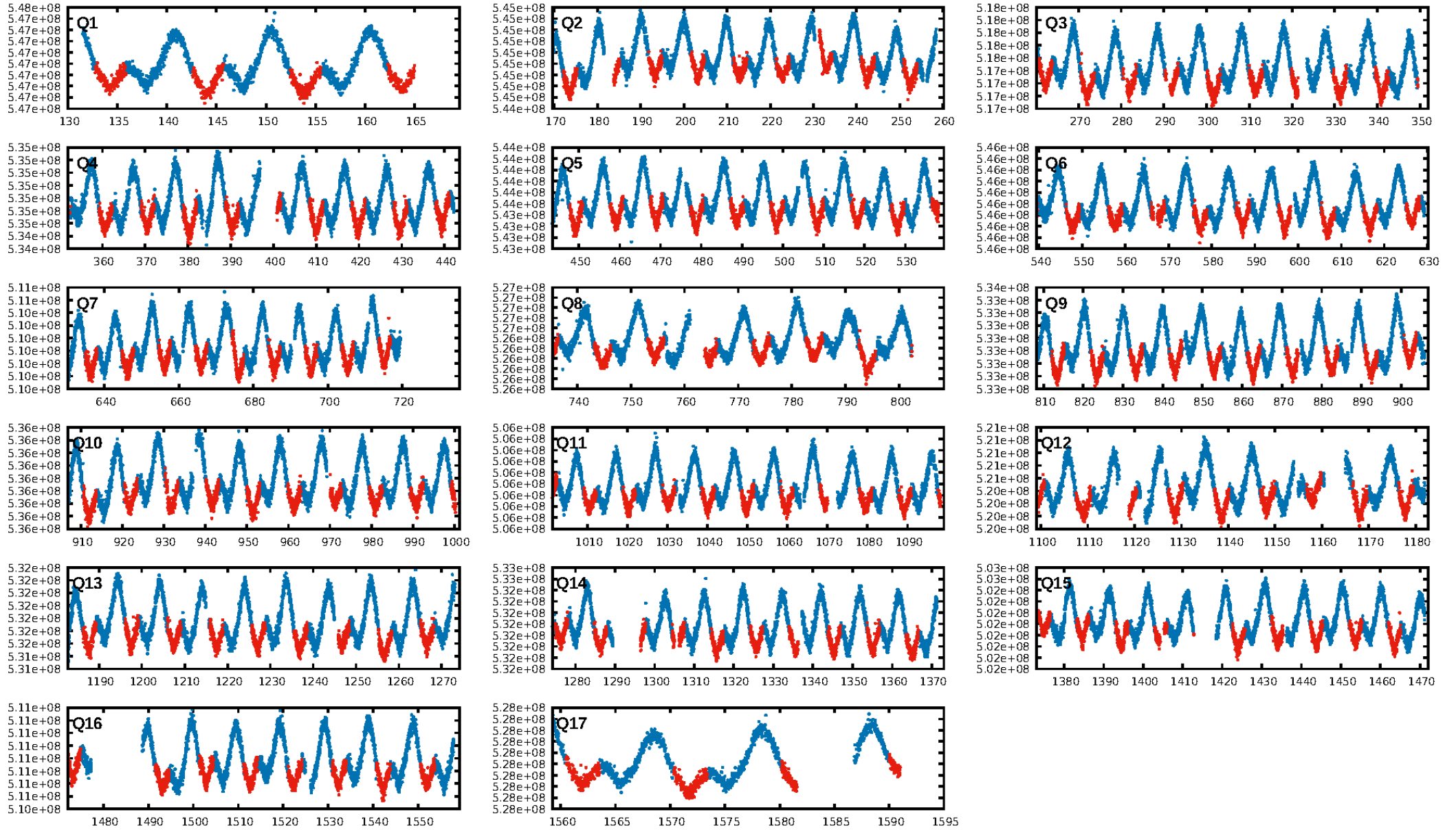
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: 0.0% [0.00 σ]
ModelChiSquare2-sig: 100.0%
ModelChiSquareGof-sig: 100.0%
Bootstrap-pfa: 1.85e-49
RollingBand-fgt: 0.99 [133/135]
GhostDiagnostic-chr: 1.577
Centroid-sig: 0.0%
Centroid-so: 2.590 arcsec [3.32 σ]
OotOffset-rm: 0.475 arcsec [1.46 σ]
KicOffset-rm: 0.650 arcsec [2.12 σ]
OotOffset-st: 4/4/4/5 [17]
KicOffset-st: 4/4/4/5 [17]
DiffImageQuality-fgm: 0.94 [16/17]
DiffImageOverlap-fno: 1.00 [17/17]

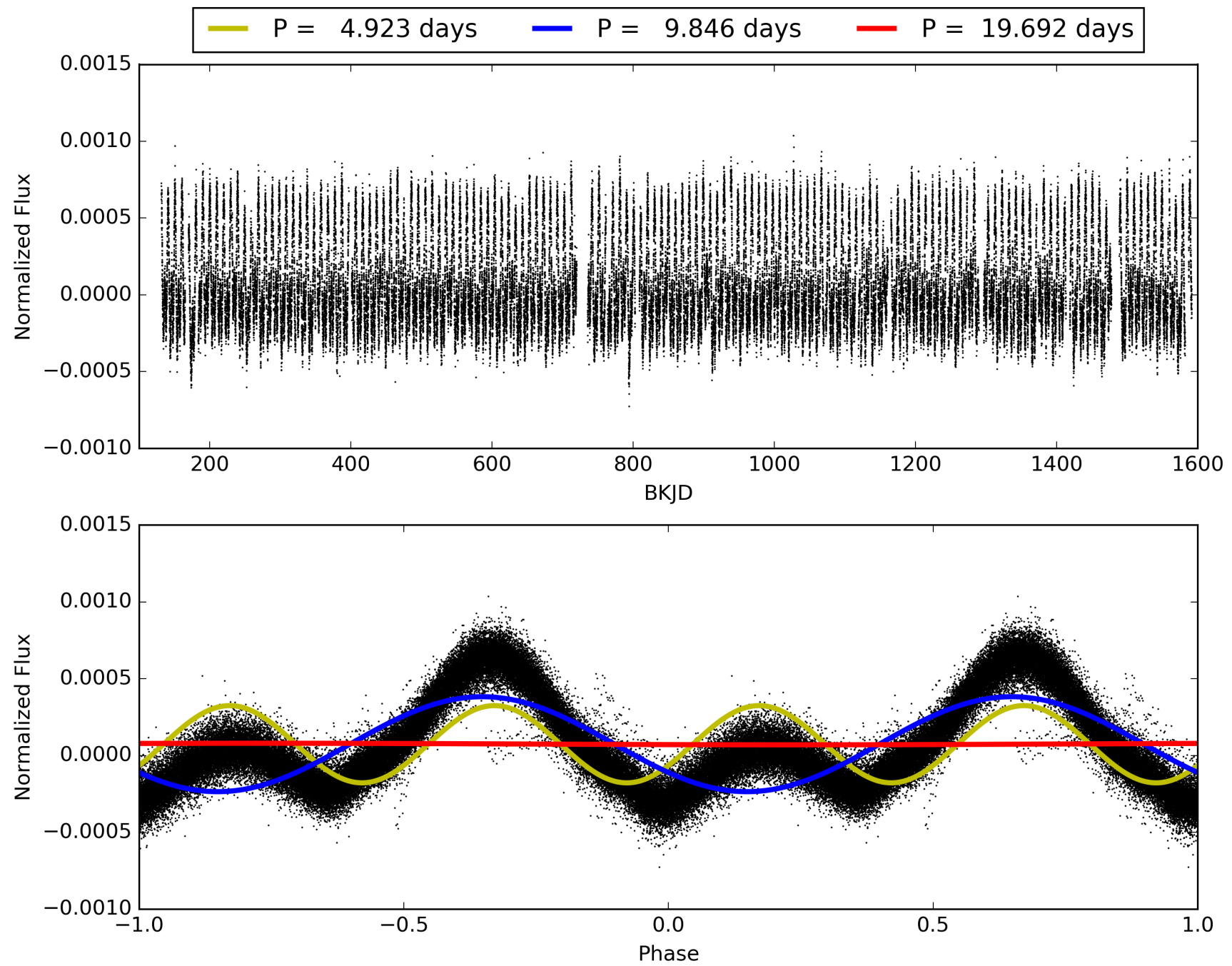
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 03:54:28 Z

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

TCE 008329728-02, PDC Light Curves

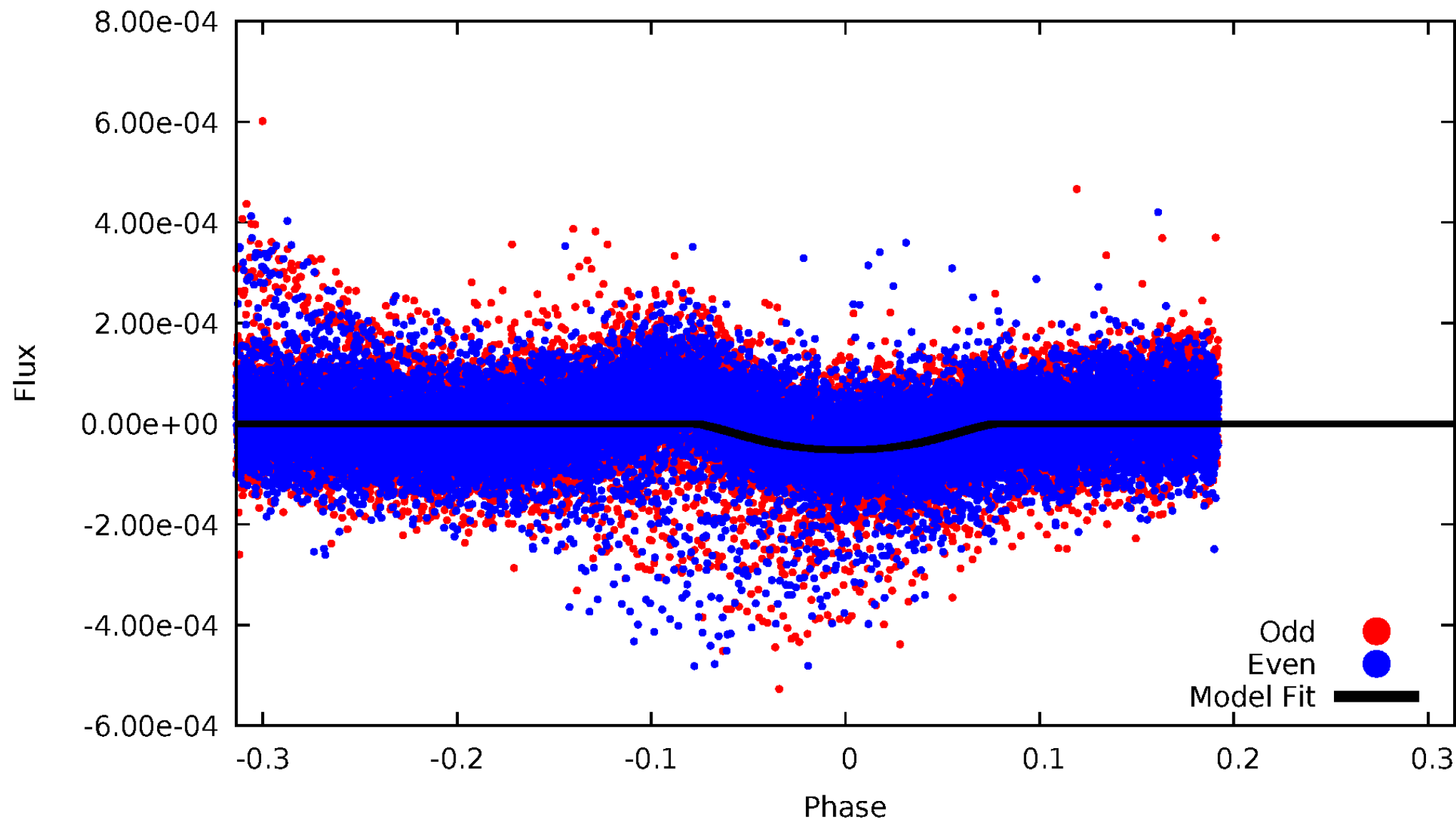


TCE 008329728-02



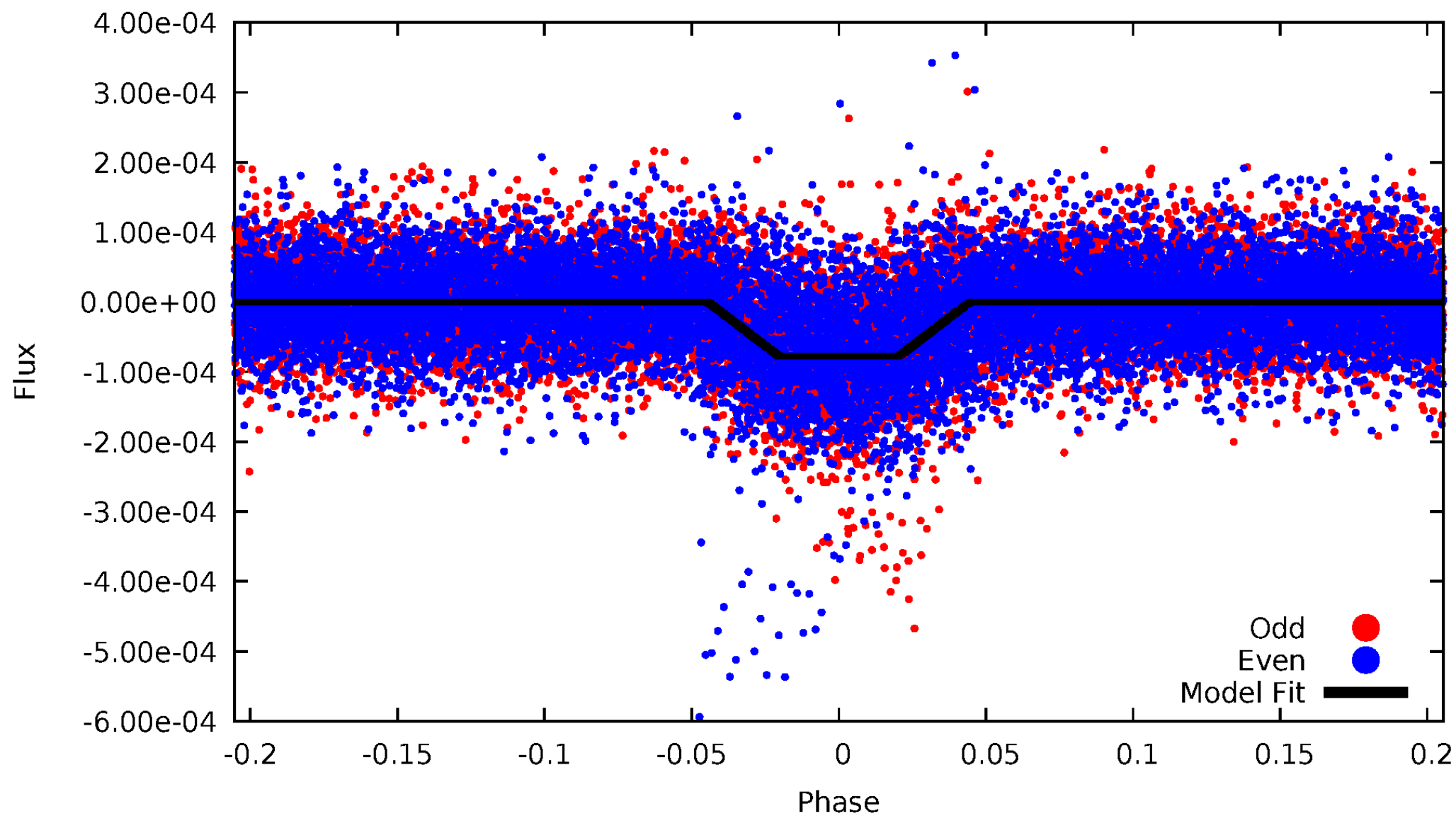
DV Odd/Even

TCE 008329728-02



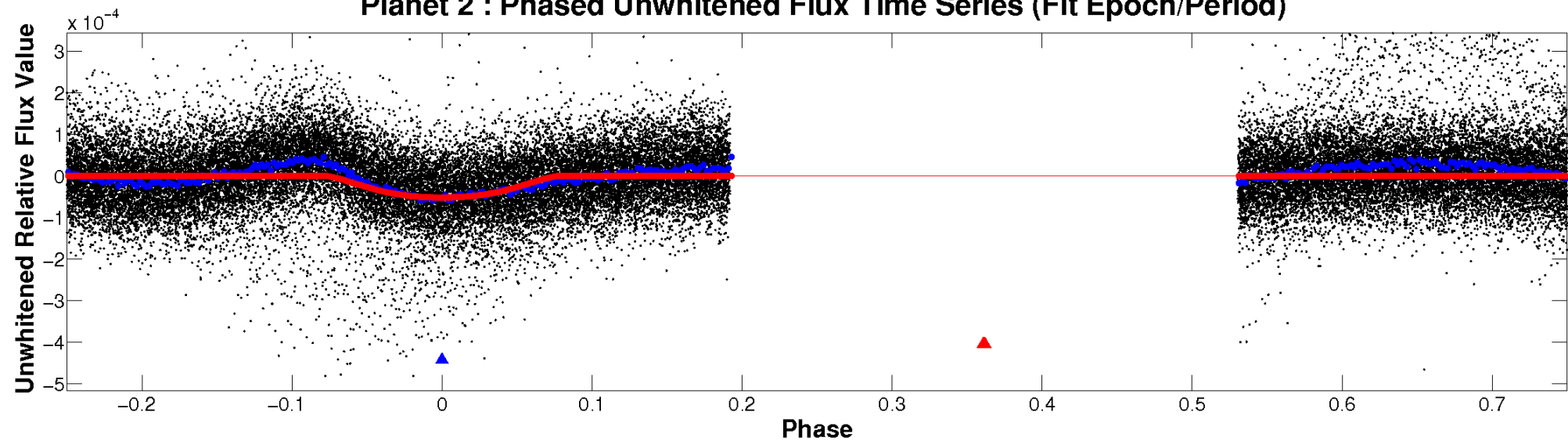
ALT Odd/Even

TCE 008329728-02

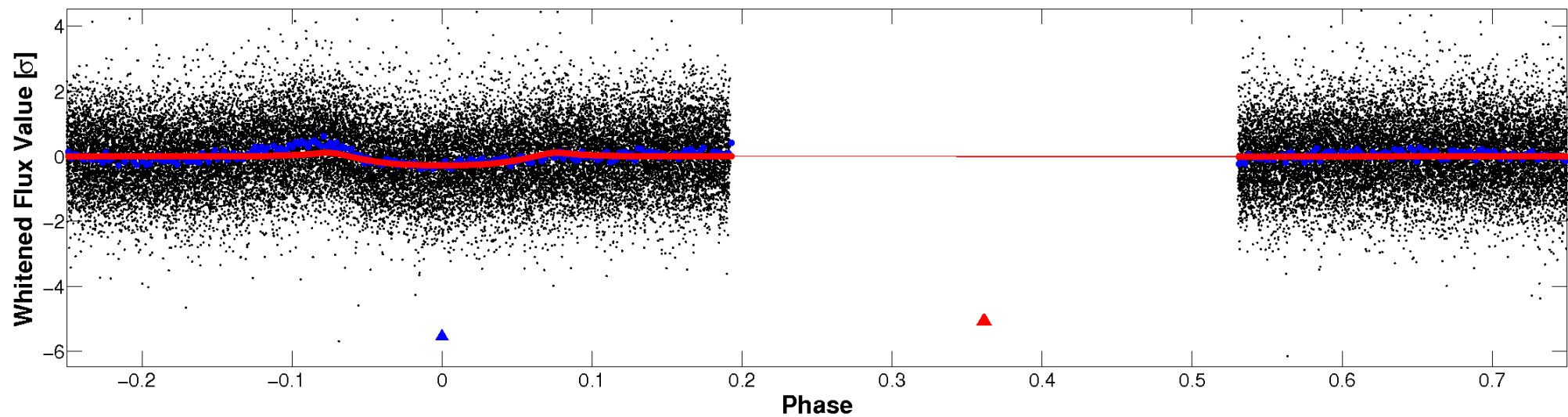


Non-Whitened Vs. Whitened Light Curve

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

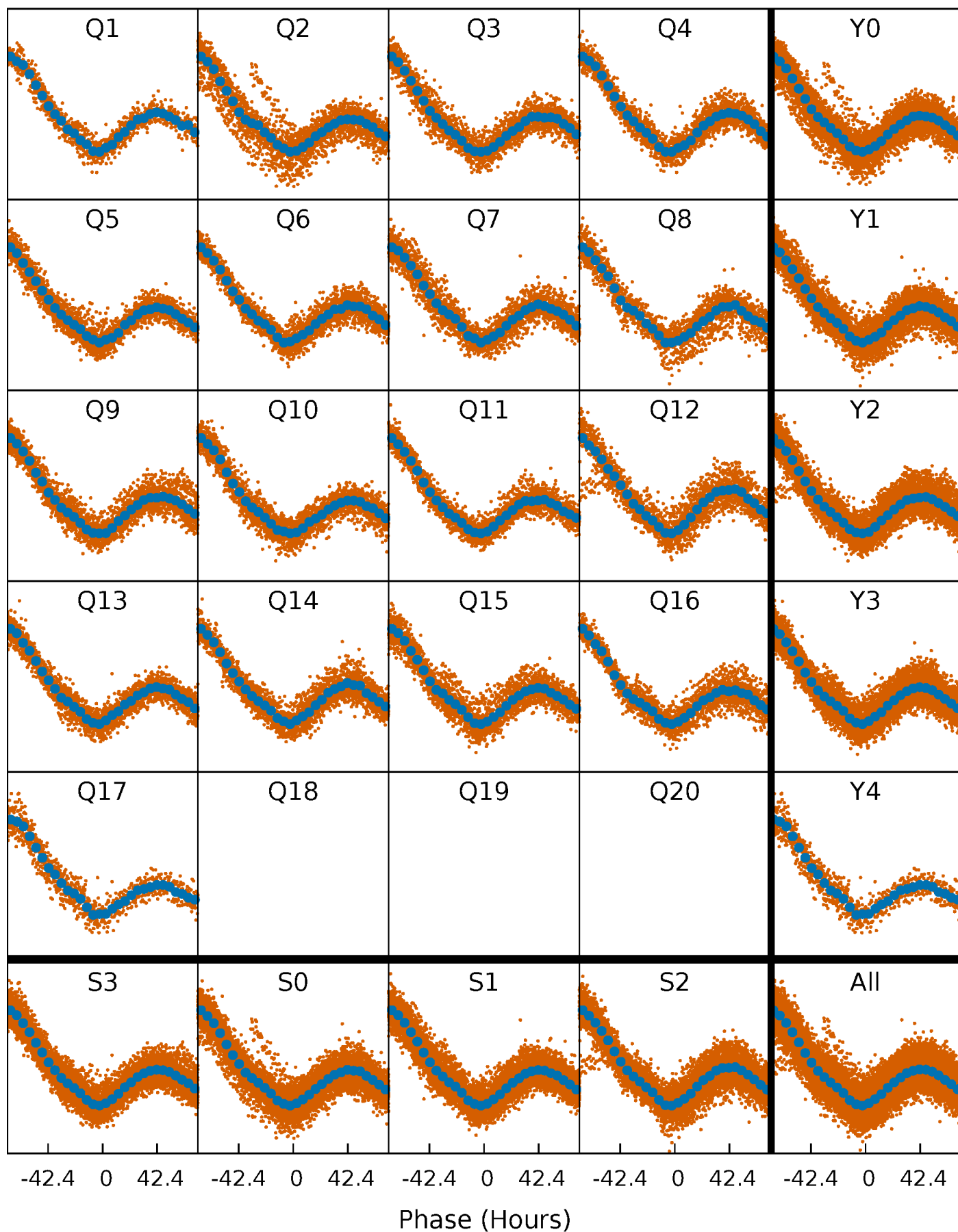


Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



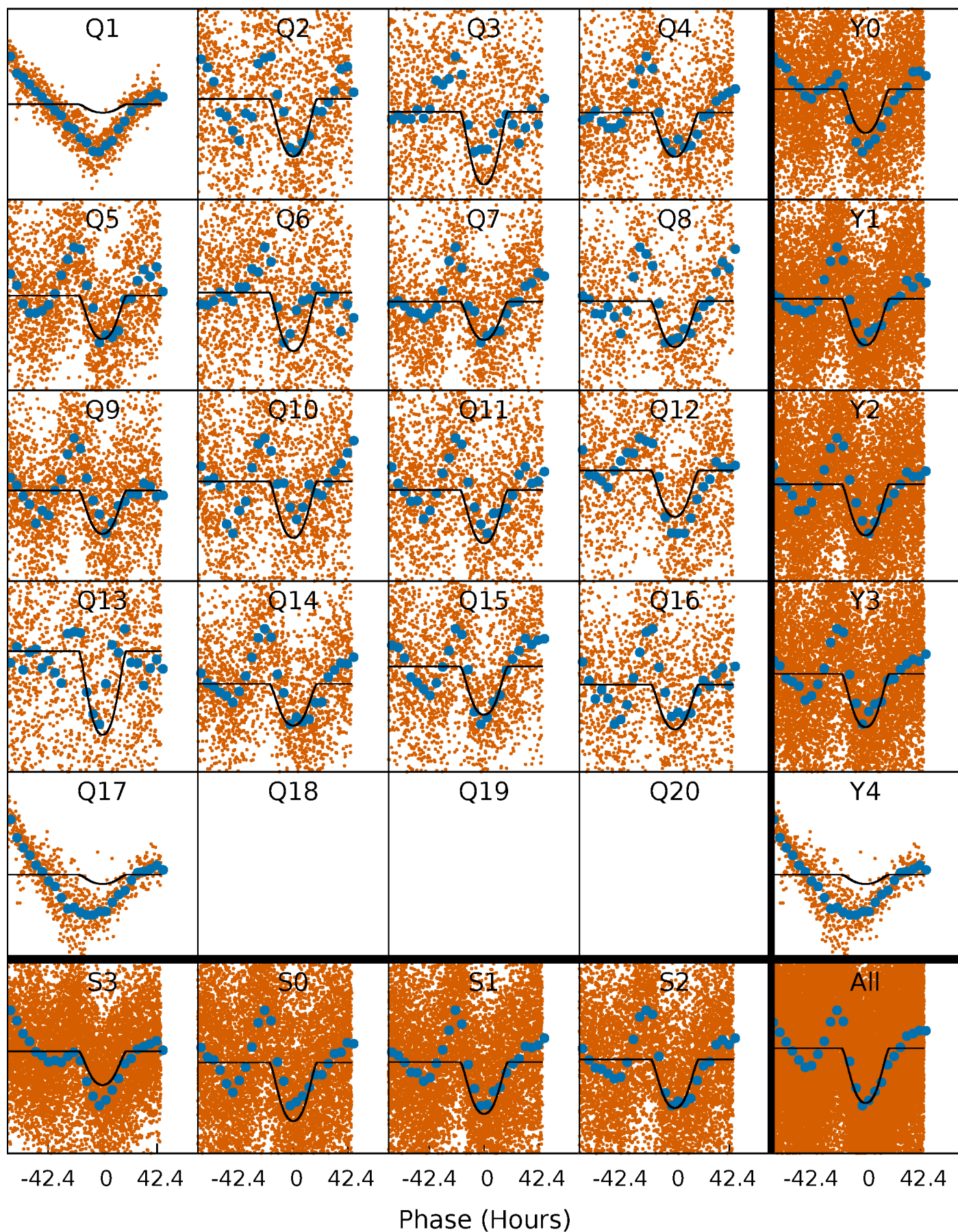
PDC Quarter-Phased Transit Curves

TCE 008329728-02 P= 9.846209 Days $T_0=134.302599$ (BKJD)



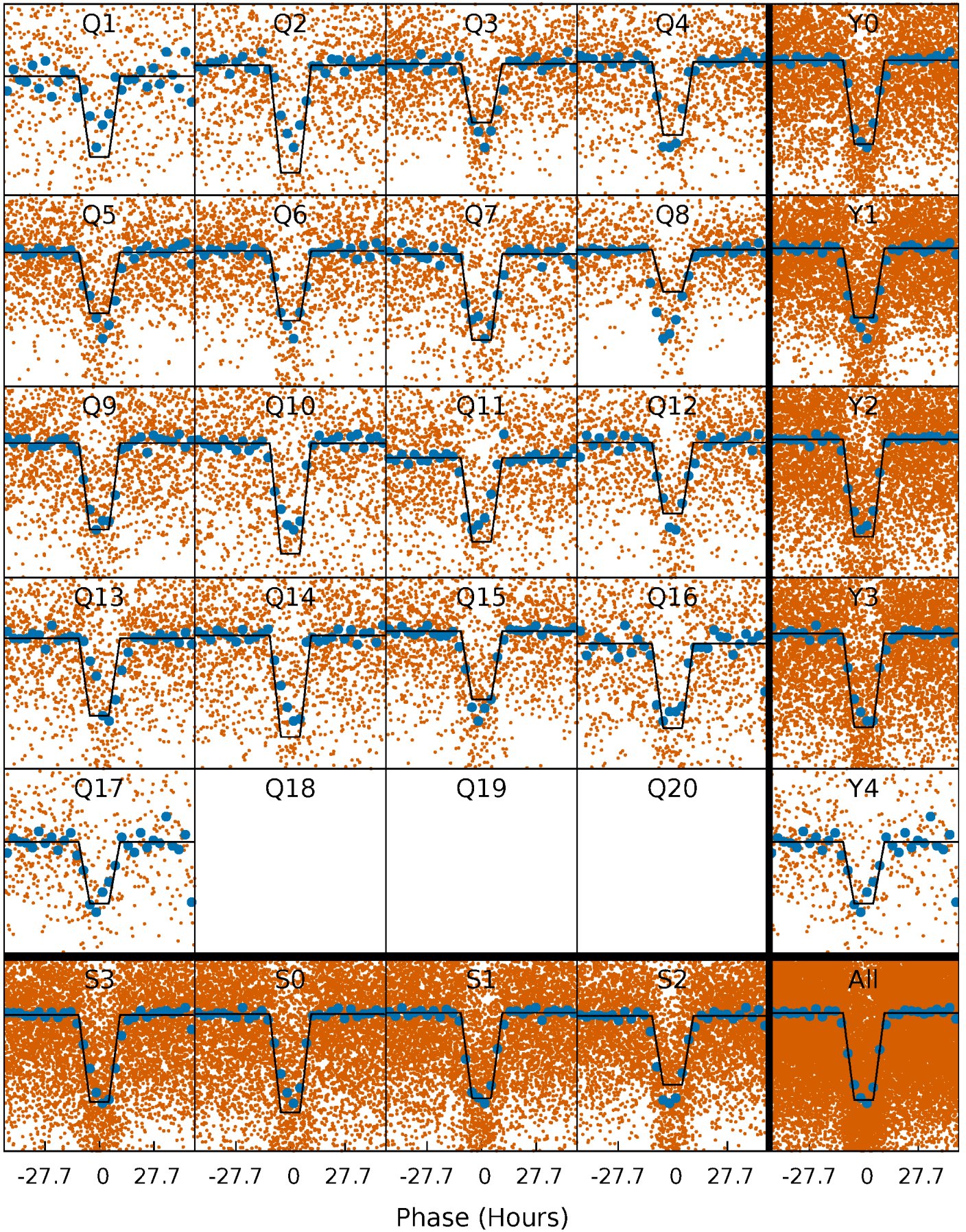
DV Quarter-Phased Transit Curves

TCE 008329728-02 P= 9.846209 Days $T_0=134.302599$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

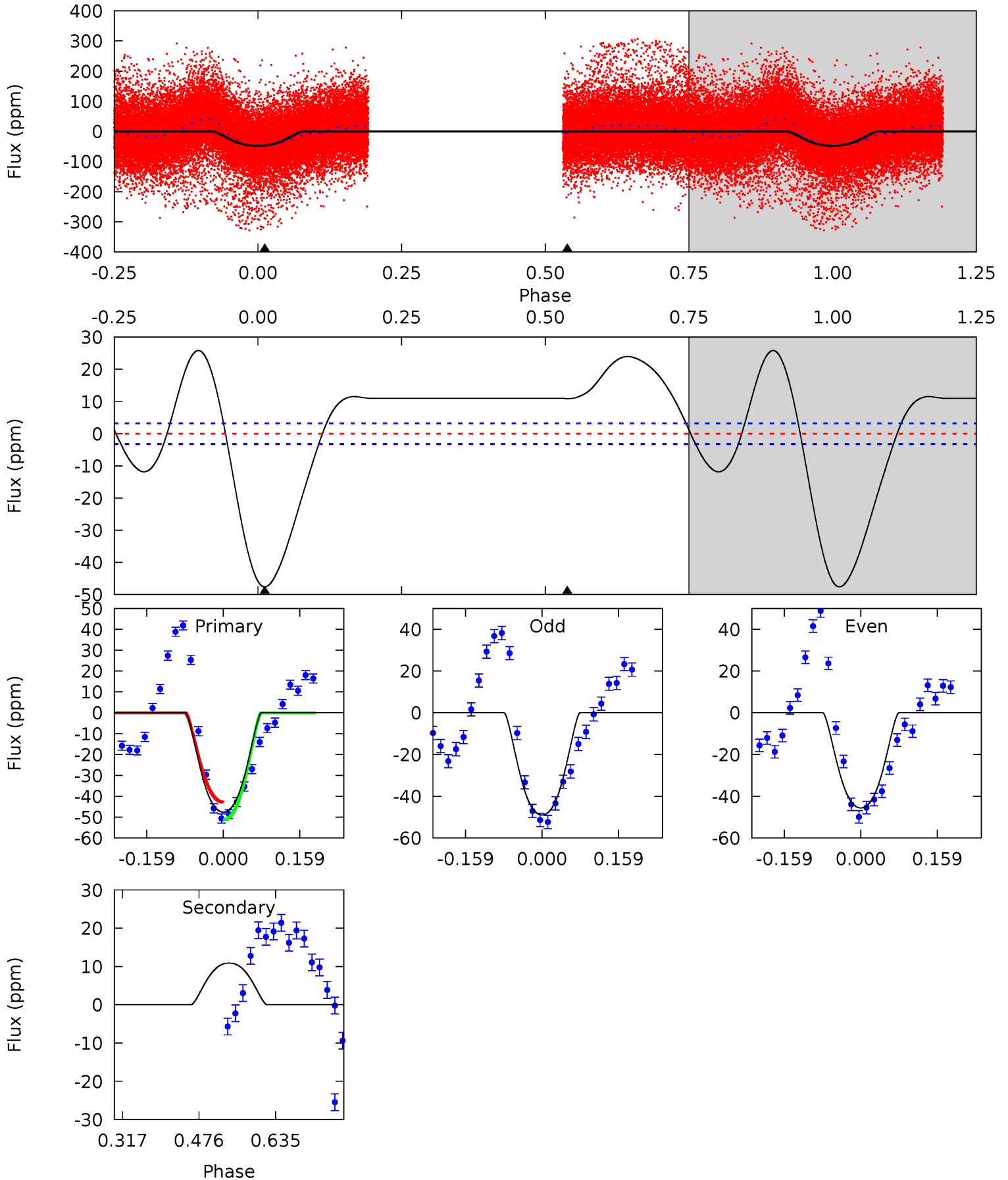
TCE 008329728-02 P= 9.846357 Days $T_0=134.085671$ (BKJD)



DV Model-Shift Uniqueness Test

008329728-02, P = 9.846209 Days, E = 124.456390 Days

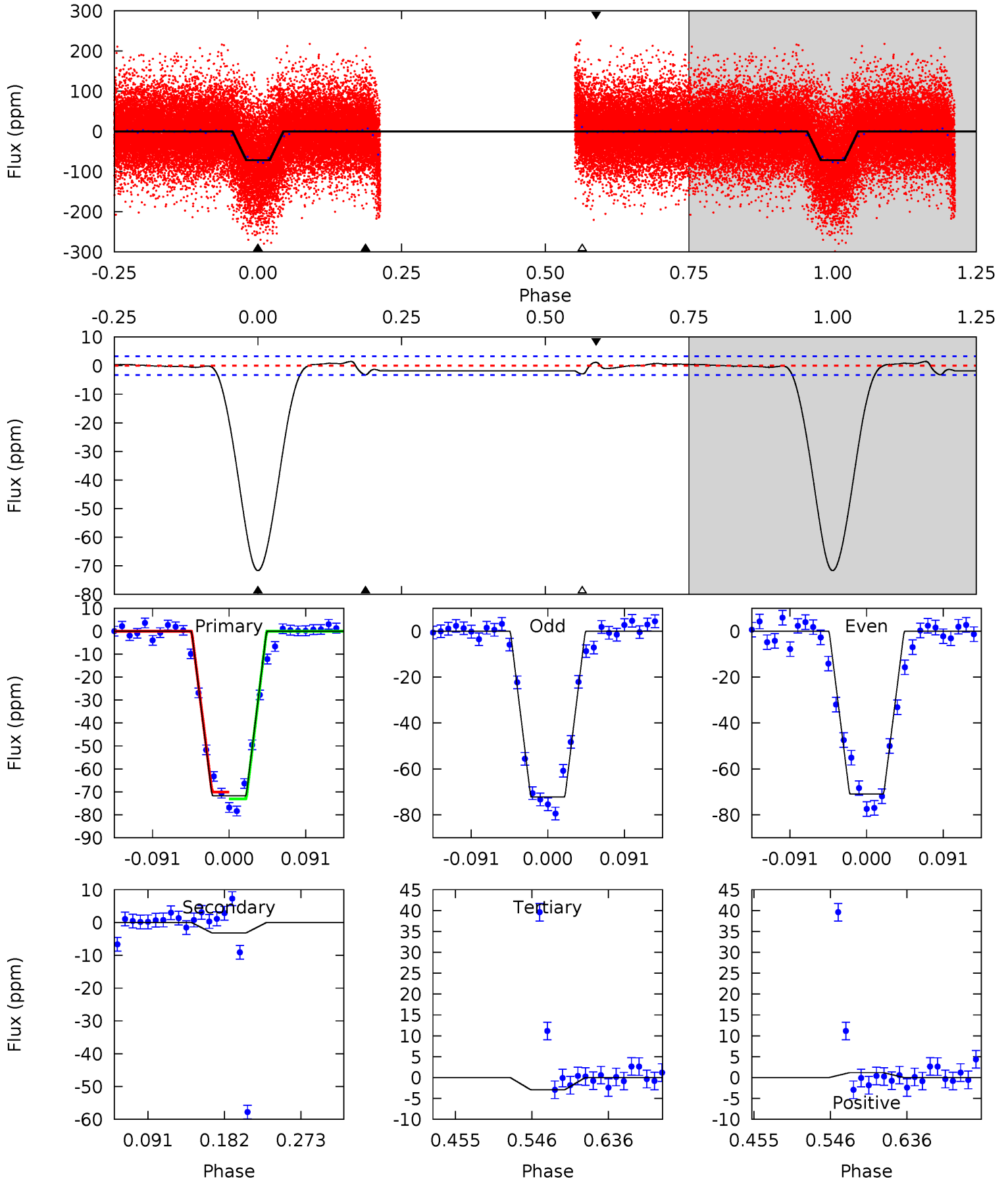
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
66.3	-15.2	0	0	4.47	1.41	13.3	66.3	66.3	-15.2	-15.2	2.35	1.42	0.35	6.04



Alt Model-Shift Uniqueness Test

008329728-02, P = 9.846357 Days, E = 124.239314 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
99.5	4.42	4.04	1.62	4.58	1.69	1.05	95.4	97.8	0.38	2.80	0.89	0.98	0.02	2.09



Stellar Parameters For KIC 008329728

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	7875^{+216}_{-325}	$3.843^{+0.330}_{-0.088}$	$-0.180^{+0.200}_{-0.350}$	$2.752^{+0.375}_{-1.126}$	$1.923^{+0.087}_{-0.491}$	$0.130^{+0.352}_{-0.036}$
	+3%/-4%	+9%/-2%	+111%/-194%	+14%/-41%	+5%/-26%	+271%/-28%
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 008329728-02 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	11 ± 1	$2.68^{+0.42}_{-0.57}$	2348^{+146}_{-240}	-4704^{+199}_{-211}	$-10.213^{+2.476}_{-5.472}$
Alt.	-3 ± 1	$2.52^{+0.38}_{-0.49}$	2353^{+148}_{-212}	3763^{+222}_{-229}	$3.477^{+1.859}_{-1.190}$

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

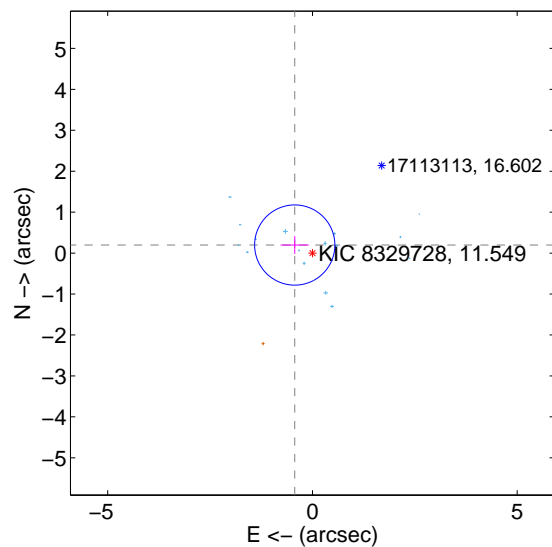
Supplemental centroid analysis for 008329728-02. **Kepler magnitude: 11.55**. Transit SNR 19.74

There are 16 quarters with good PRF difference image offsets

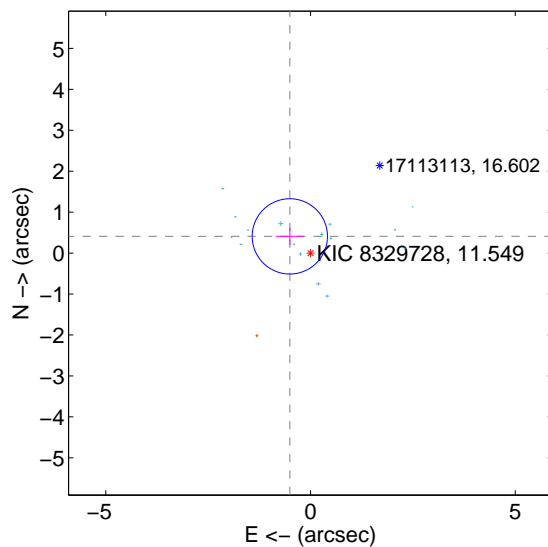
The direct PRF centroid is offset from the target star catalog position by about 0.25 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.475 ± 0.327	1.46	0.432 ± 0.344	0.197 ± 0.219
PRF-fit source offset from KIC position	0.650 ± 0.307	2.12	0.506 ± 0.350	0.409 ± 0.215
photometric centroid source offset	2.59 ± 0.78	3.32	-1.52 ± 0.89	-2.10 ± 0.72

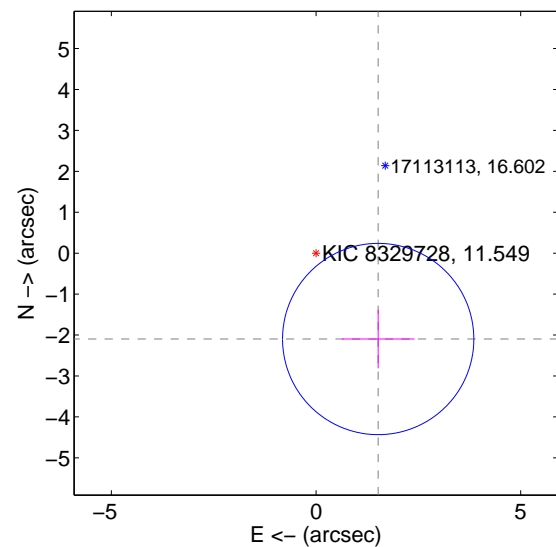
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position

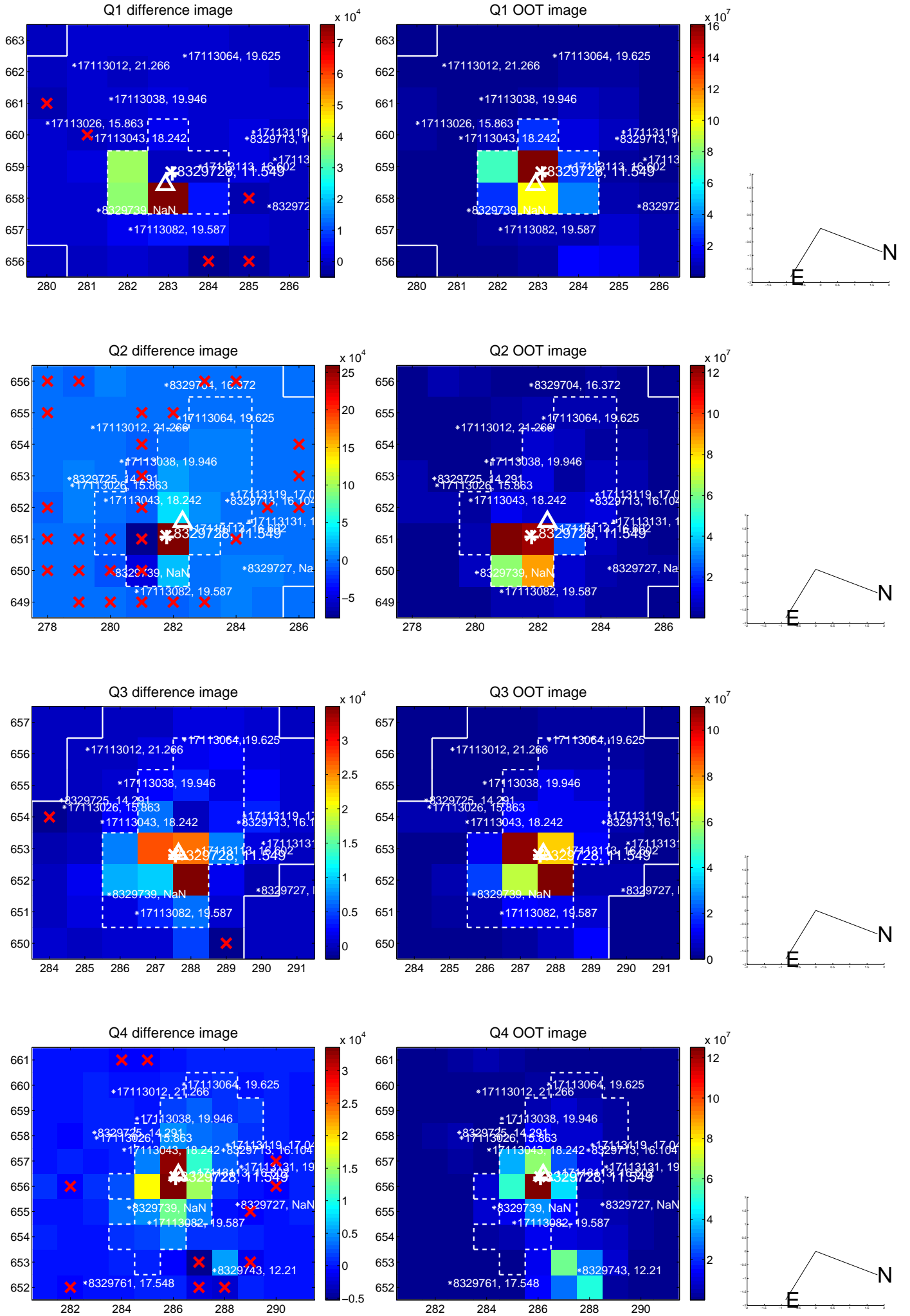


offset from photometric centroids

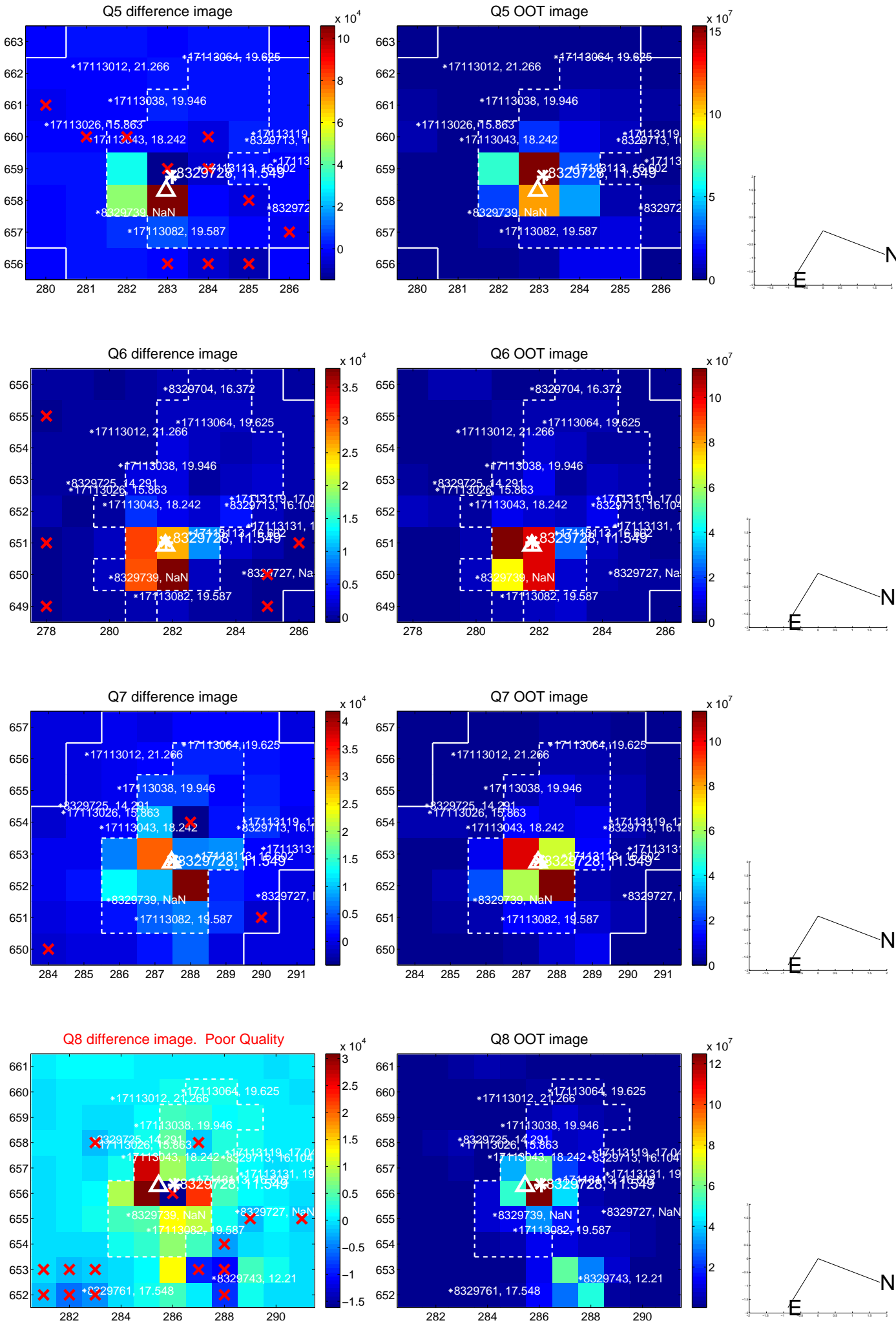


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

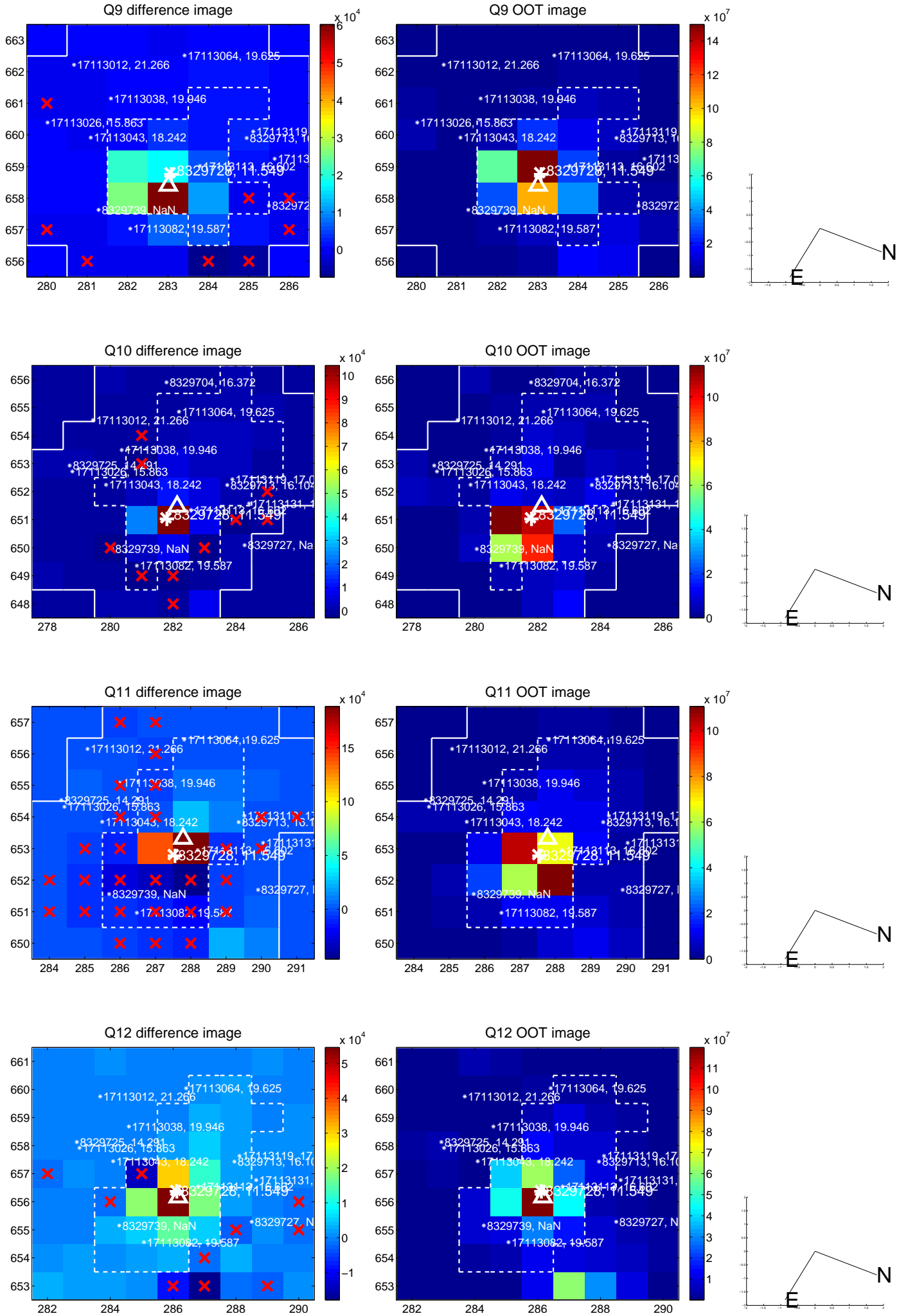
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



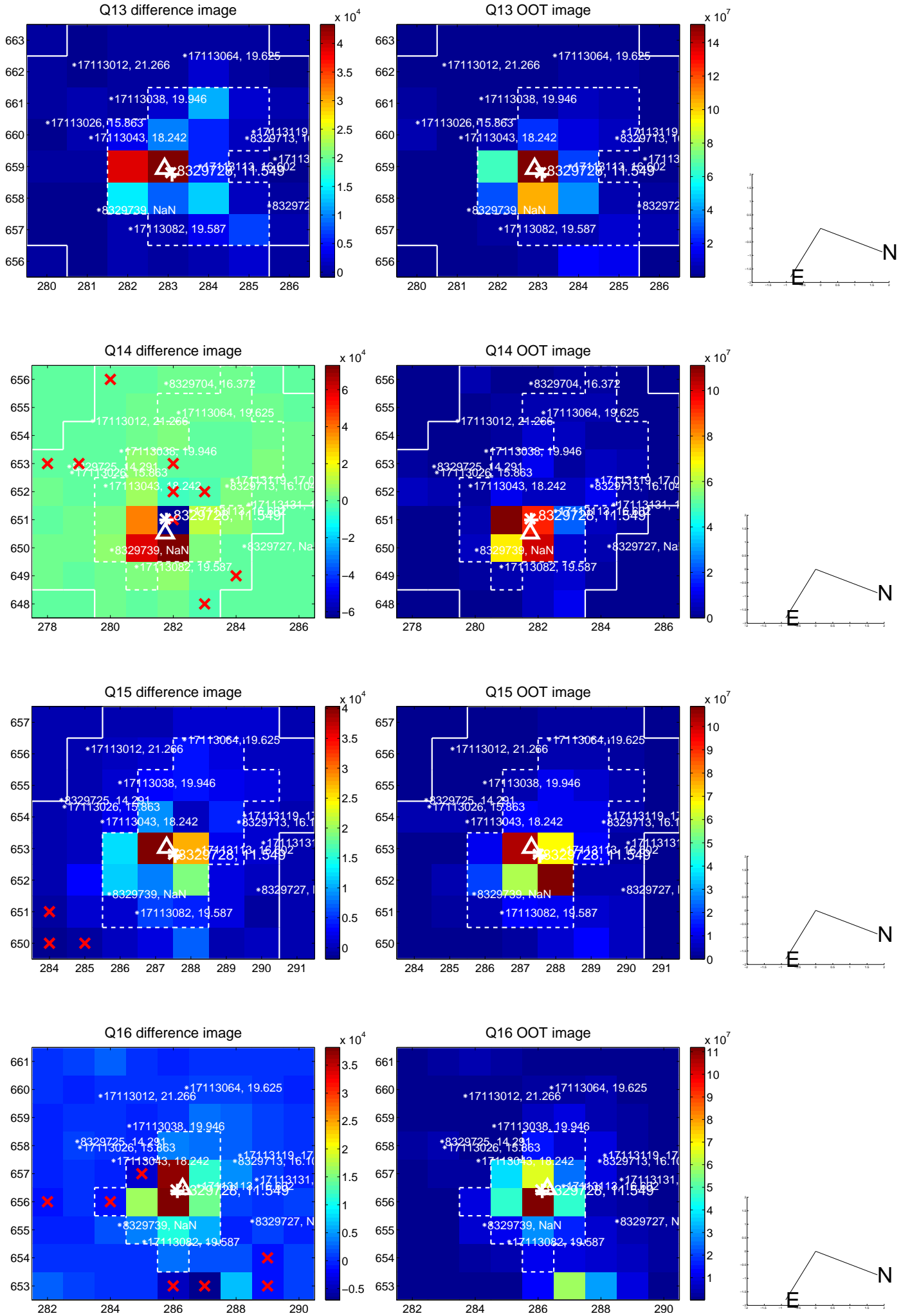
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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.



UKIRT Image

Declination

