

KIC 004488796

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})
004488796-01	OBS	No	1.079796	132.458687	42.8	3.676	10.6	8.8	2.72	7331	2.10	30550.40
004488796-02	OBS	No	0.738028	131.823227	53.1	5.827	9.8	11.7	2.72	7331	2.13	50742.97

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
004488796-01	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT
004488796-02	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT

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

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

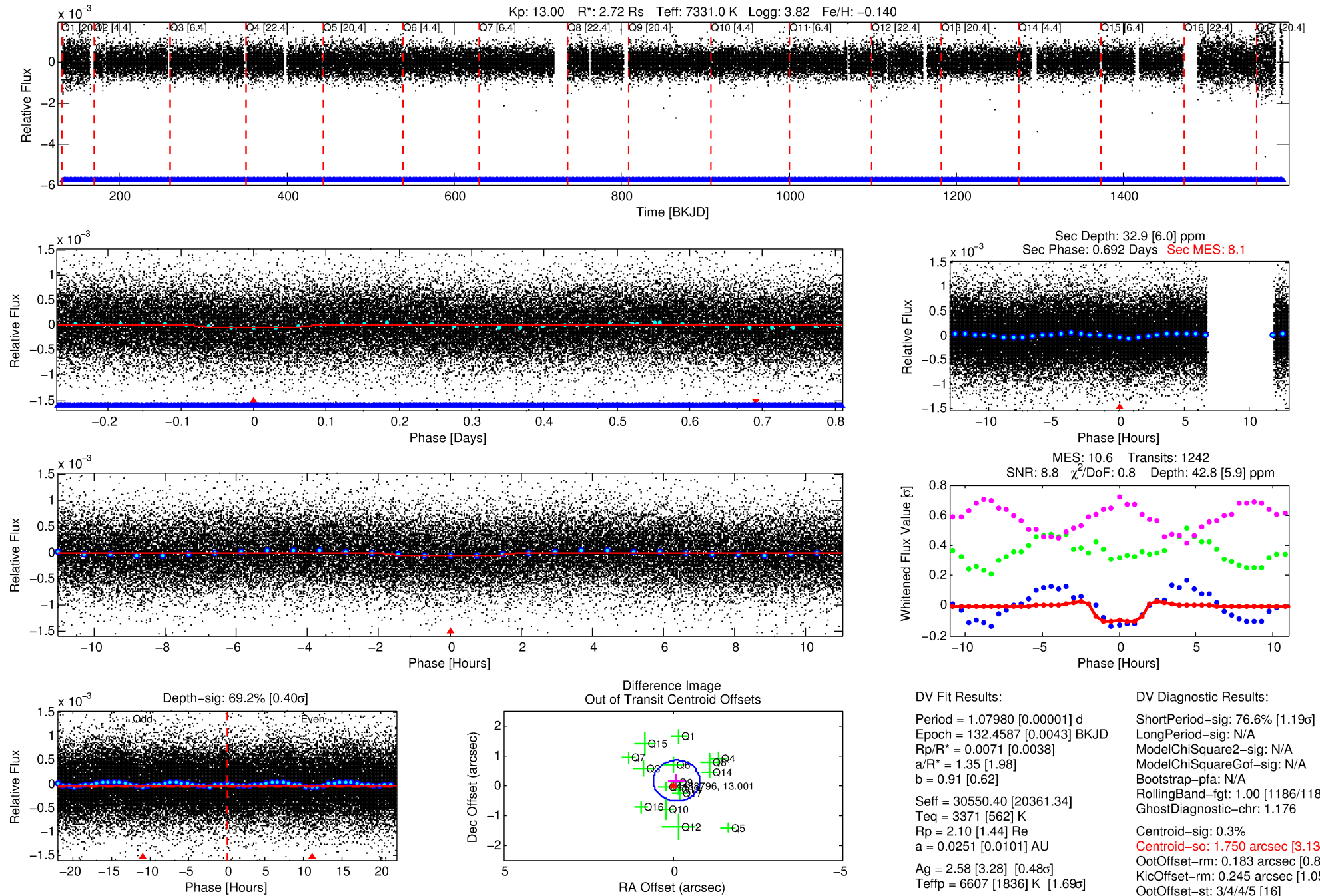
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 004488796-01

No Significant Match Found

DV One-Page Summary

KIC: 4488796 Candidate: 1 of 2 Period: 1.080 d



DV Fit Results:

Period = 1.07980 [0.00001] d
Epoch = 132.4587 [0.0043] BKJD
Rp/R* = 0.0071 [0.0038]
a/R* = 1.35 [1.98]
b = 0.91 [0.62]
Seff = 30550.40 [20361.34]
Teq = 3371 [562] K
Rp = 2.10 [1.44] Re
a = 0.0251 [0.0101] AU
Ag = 2.58 [3.28] [0.48 σ]
Teffp = 6607 [1836] K [1.69 σ]

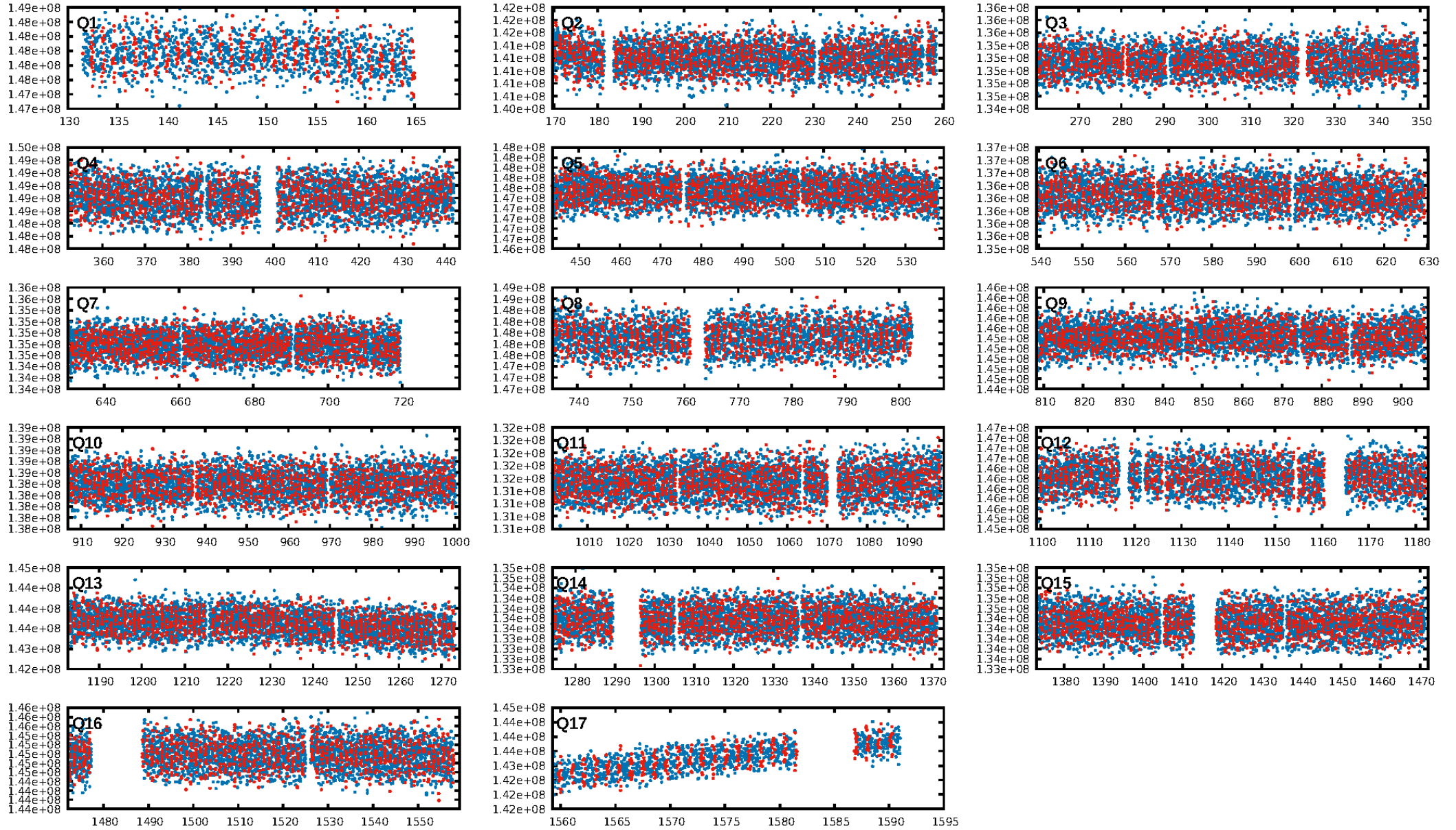
DV Diagnostic Results:

ShortPeriod-sig: 76.6% [1.19 σ]
LongPeriod-sig: N/A
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: N/A
RollingBand-fgt: 1.00 [1186/1186]
GhostDiagnostic-chr: 1.176
Centroid-sig: 0.3%
Centroid-so: 1.750 arcsec [3.13 σ]
OotOffset-rm: 0.183 arcsec [0.80 σ]
KicOffset-rm: 0.245 arcsec [1.05 σ]
OotOffset-st: 3/4/4/5 [16]
KicOffset-st: 3/4/4/5 [16]
DiffImageQuality-fgm: 1.00 [16/16]
DiffImageOverlap-fno: 0.00 [0/17]

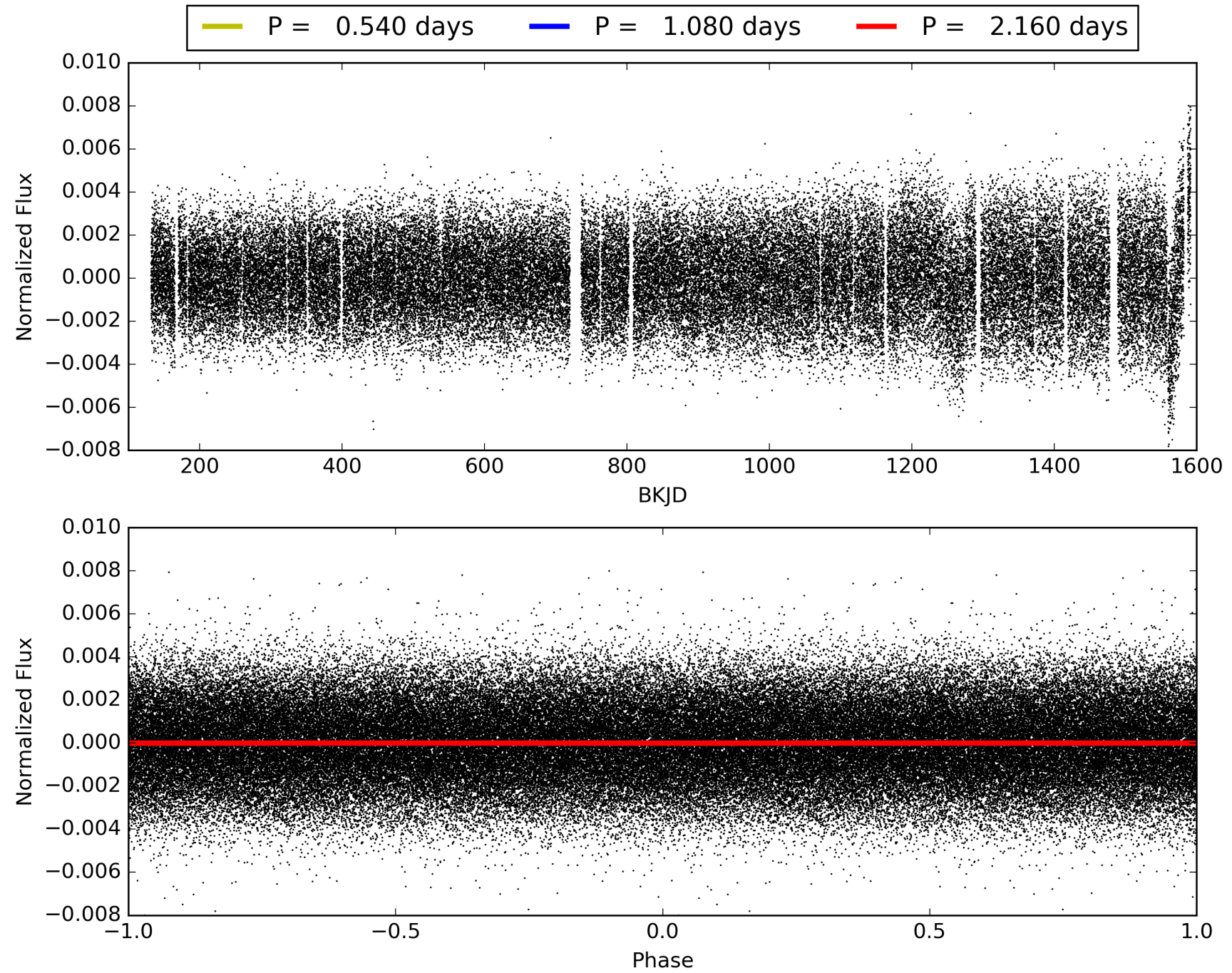
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 29-Jan-2016 18:12:47 Z

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

TCE 004488796-01, PDC Light Curves

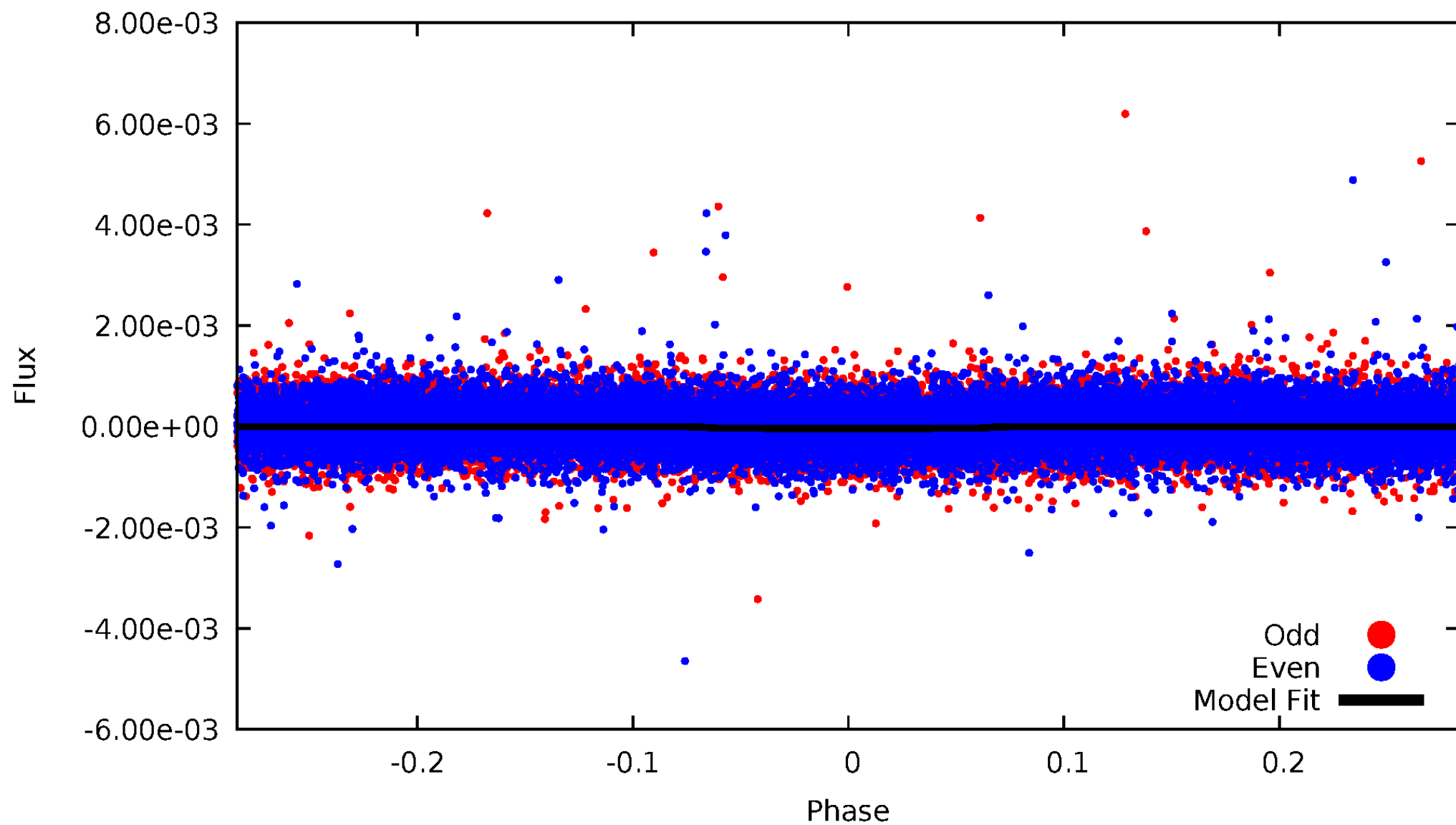


TCE 004488796-01



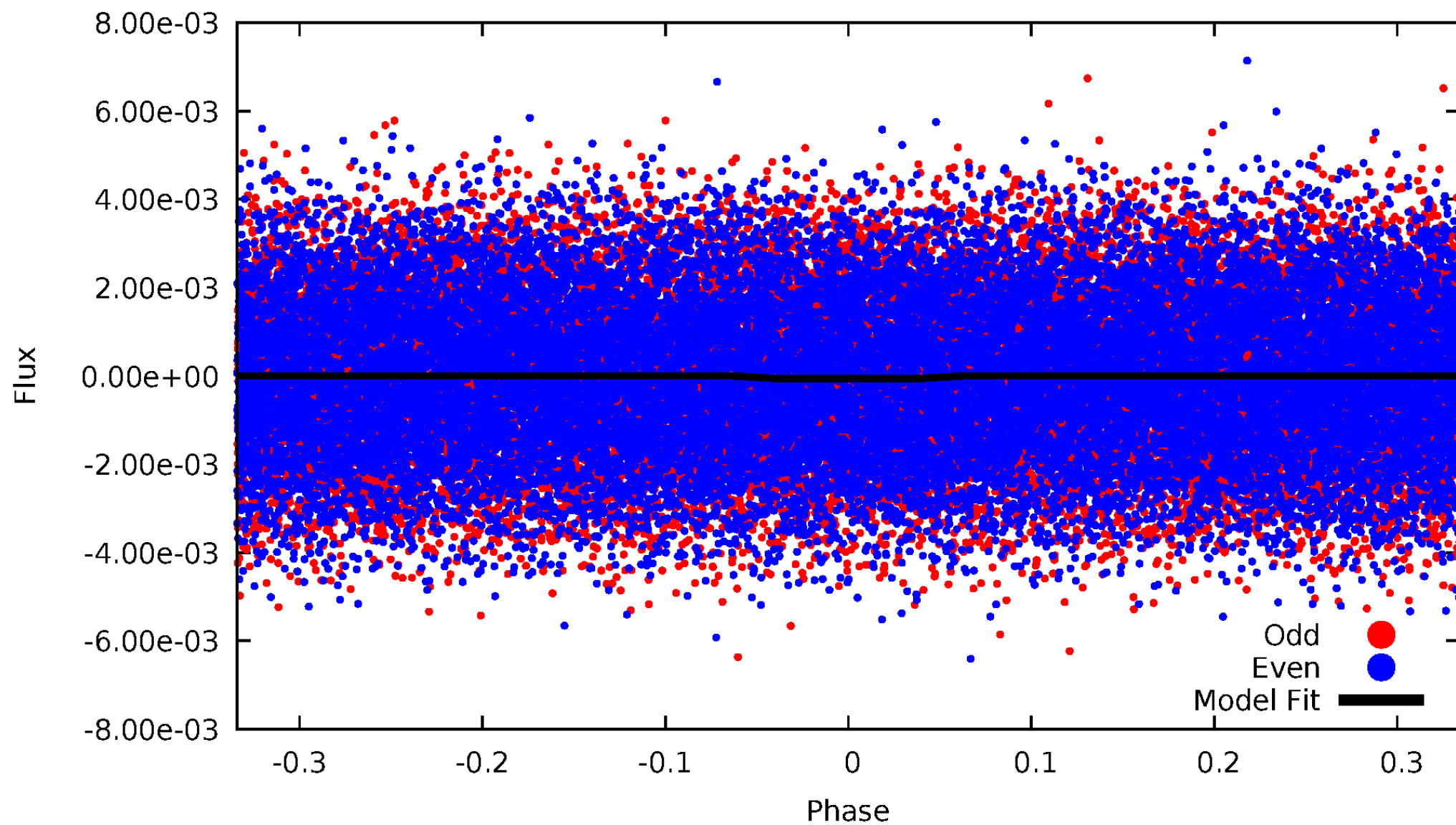
DV Odd/Even

TCE 004488796-01



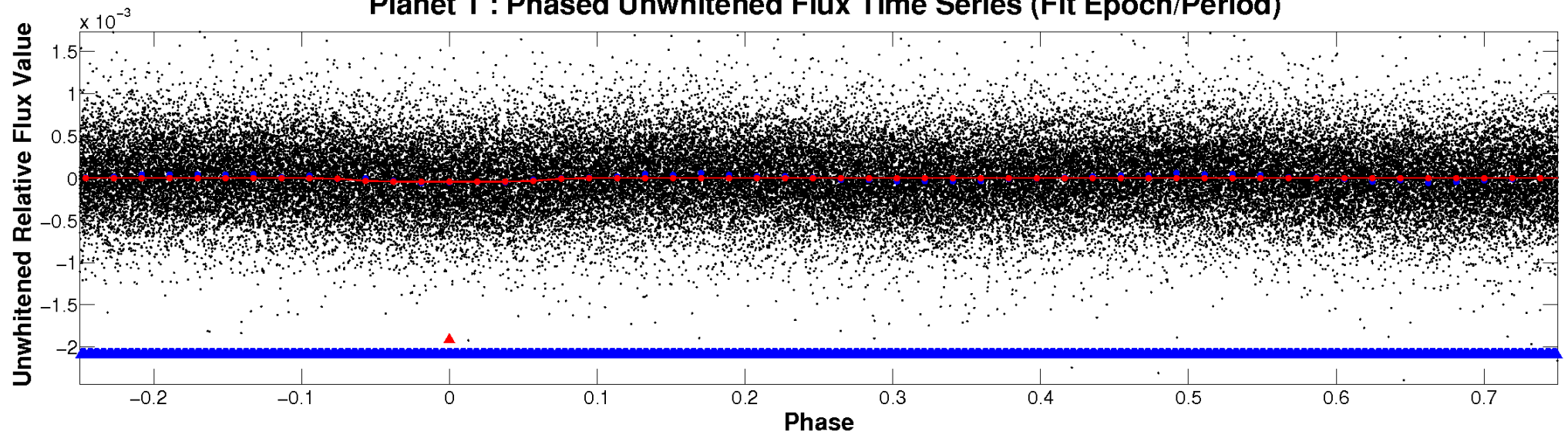
ALT Odd/Even

TCE 004488796-01

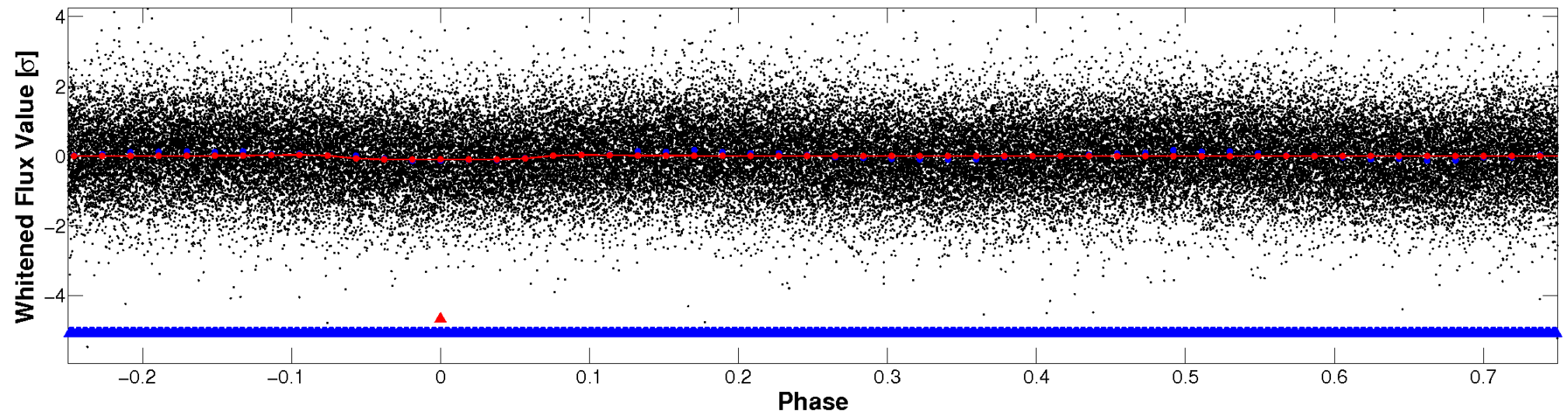


Non-Whitened Vs. Whitened Light Curve

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

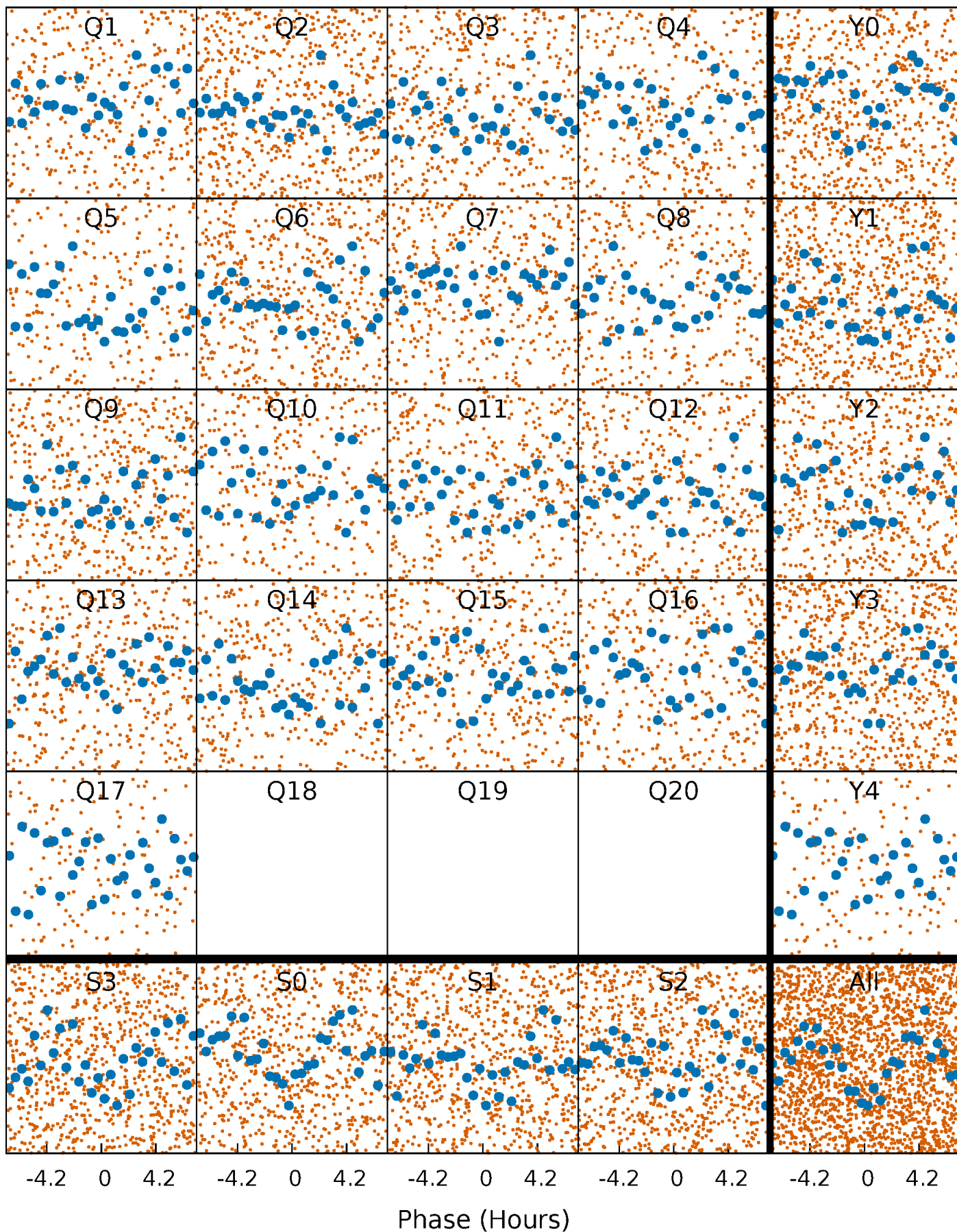


Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)



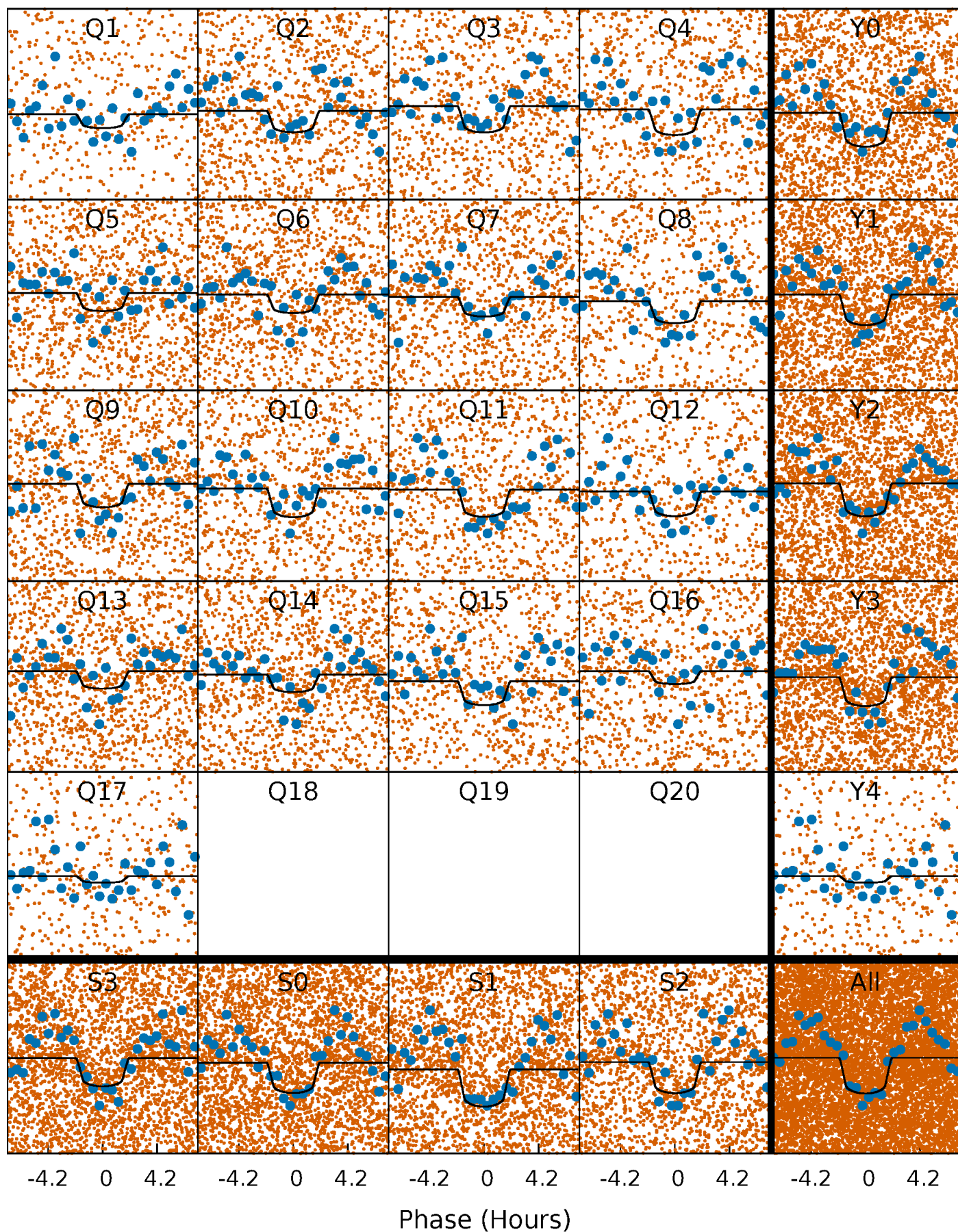
PDC Quarter-Phased Transit Curves

TCE 004488796-01 P= 1.079796 Days $T_0=132.458687$ (BKJD)



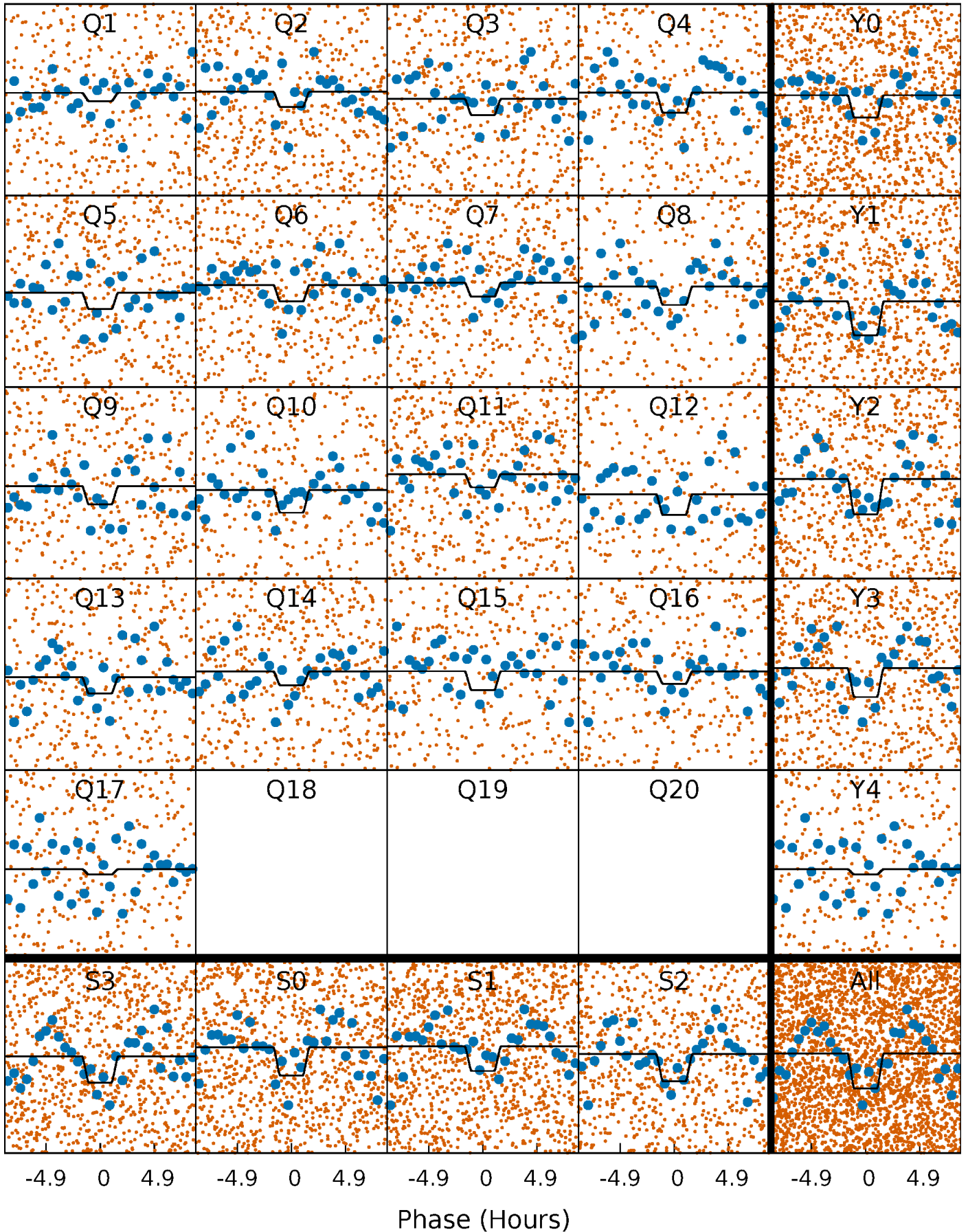
DV Quarter-Phased Transit Curves

TCE 004488796-01 P= 1.079796 Days $T_0=132.458687$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

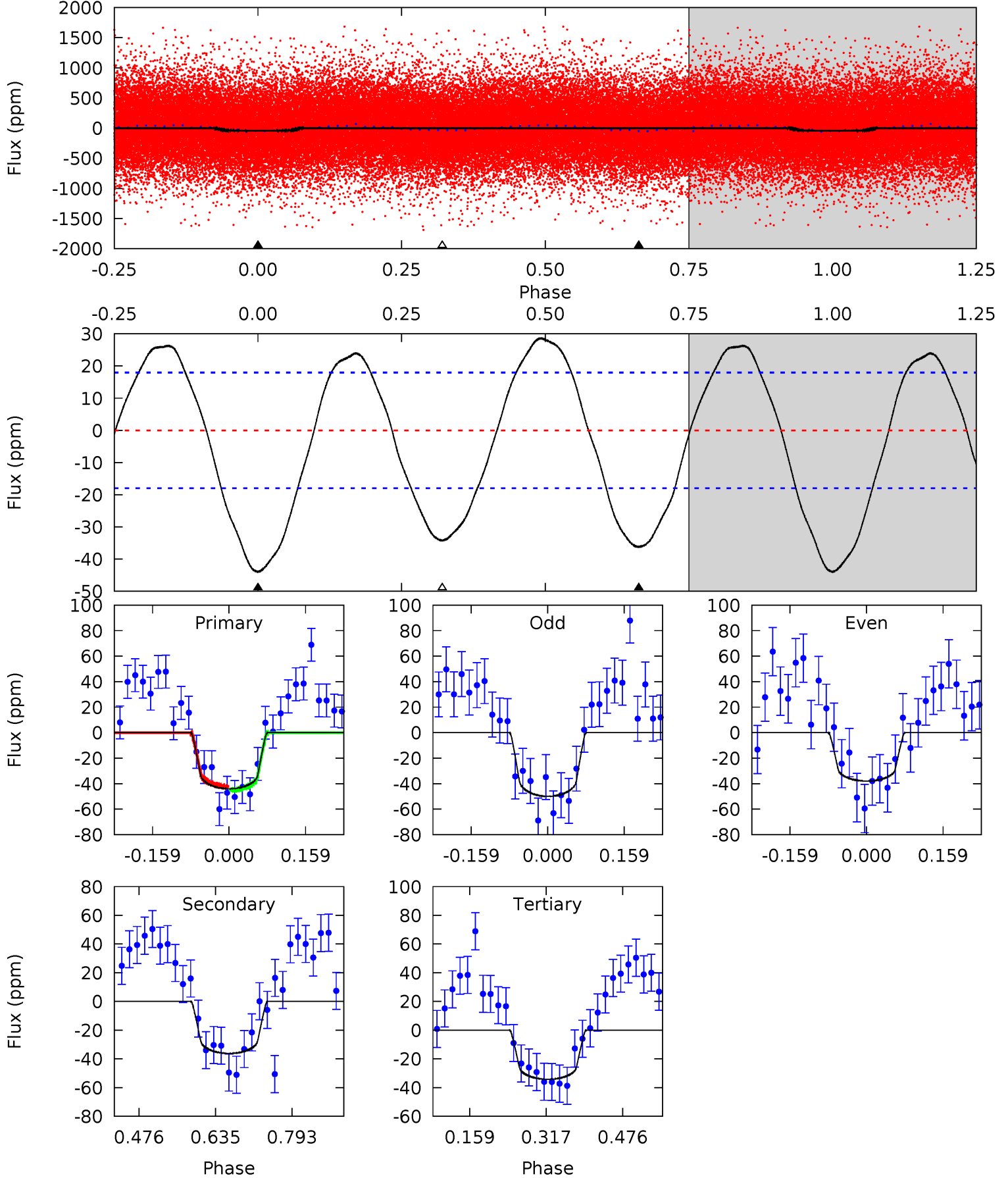
TCE 004488796-01 P= 1.079820 Days $T_0=132.452506$ (BKJD)



DV Model-Shift Uniqueness Test

004488796-01, P = 1.079796 Days, E = 131.378891 Days

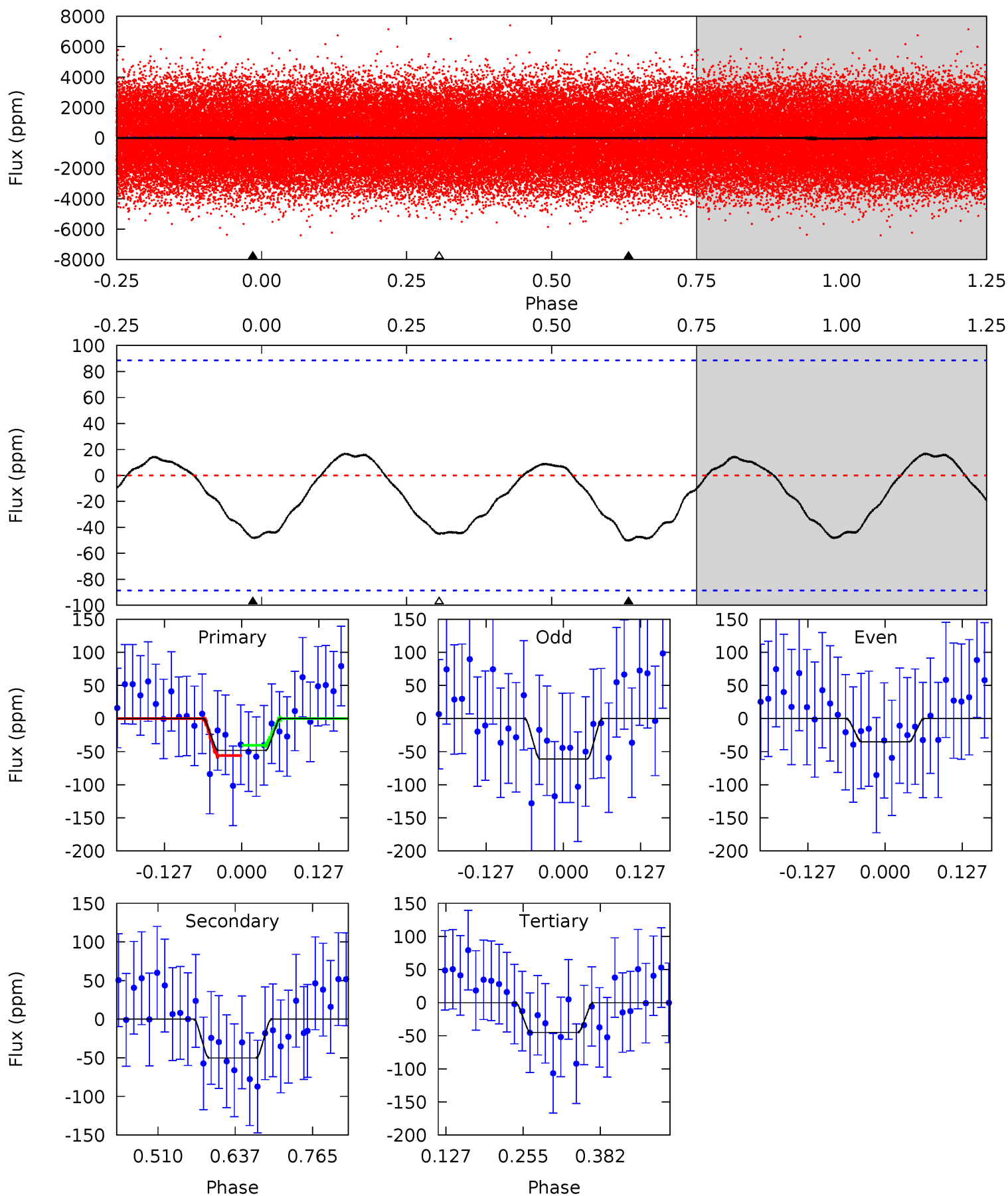
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
10.9	9.01	8.51	0	4.47	1.41	5.50	2.42	10.9	0.50	9.01	1.49	0.94	0.39	0.35



Alt Model-Shift Uniqueness Test

004488796-01, P = 1.079820 Days, E = 131.372686 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
2.46	2.56	2.29	0	4.51	1.52	1.07	0.16	2.46	0.27	2.56	0.66	0.94	0.25	0.40



Stellar Parameters For KIC 004488796

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	$M(M_{\odot})$	ρ_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	7331^{+203}_{-330}	$3.823^{+0.376}_{-0.094}$	$-0.140^{+0.250}_{-0.350}$	$2.722^{+0.491}_{-1.145}$	$1.797^{+0.184}_{-0.430}$	$0.126^{+0.372}_{-0.047}$
	+3%/-5%	+10%/-2%	+179%/-250%	+18%/-42%	+10%/-24%	+297%/-38%
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 004488796-01 / KOI

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	-36 ± 4	$1.74^{+1.20}_{-0.91}$	4529^{+349}_{-461}	6661^{+4342}_{-1422}	$4.038^{+13.490}_{-2.564}$
Alt.	-50 ± 20	$1.97^{+1.13}_{-0.98}$	4547^{+334}_{-463}	6991^{+3708}_{-1648}	$4.141^{+12.242}_{-2.498}$

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

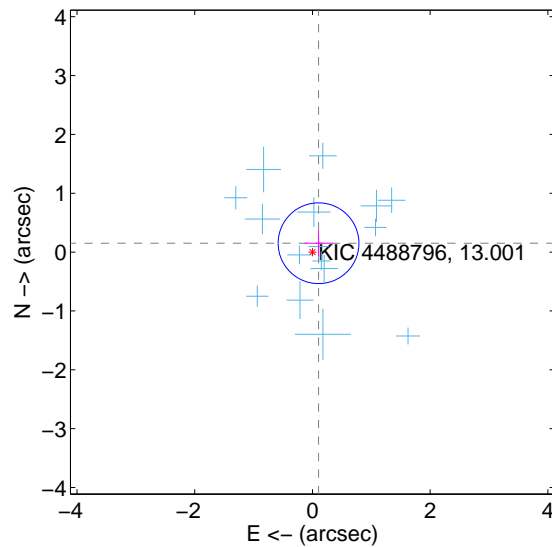
Supplemental centroid analysis for 004488796-01. Kepler magnitude: 13.00. Transit SNR 8.78

There are 16 quarters with good PRF difference image offsets

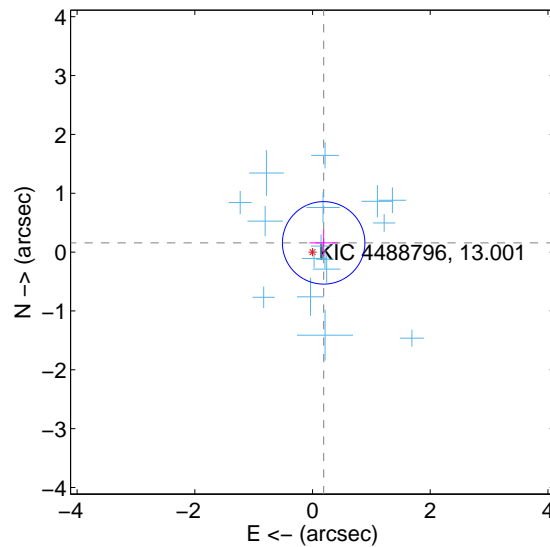
The direct PRF centroid is offset from the target star catalog position by about 0.04 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.183 ± 0.229	0.80	-0.104 ± 0.241	0.151 ± 0.222
PRF-fit source offset from KIC position	0.245 ± 0.234	1.05	-0.189 ± 0.240	0.157 ± 0.223
photometric centroid source offset	1.75 ± 0.56	3.13	-1.75 ± 0.56	0.11 ± 0.59

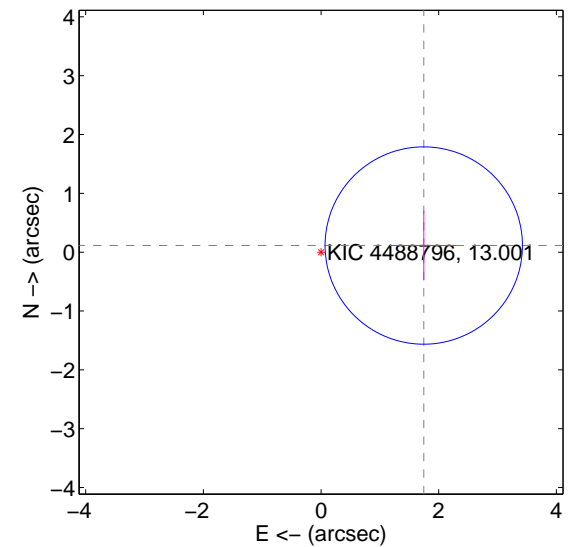
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position

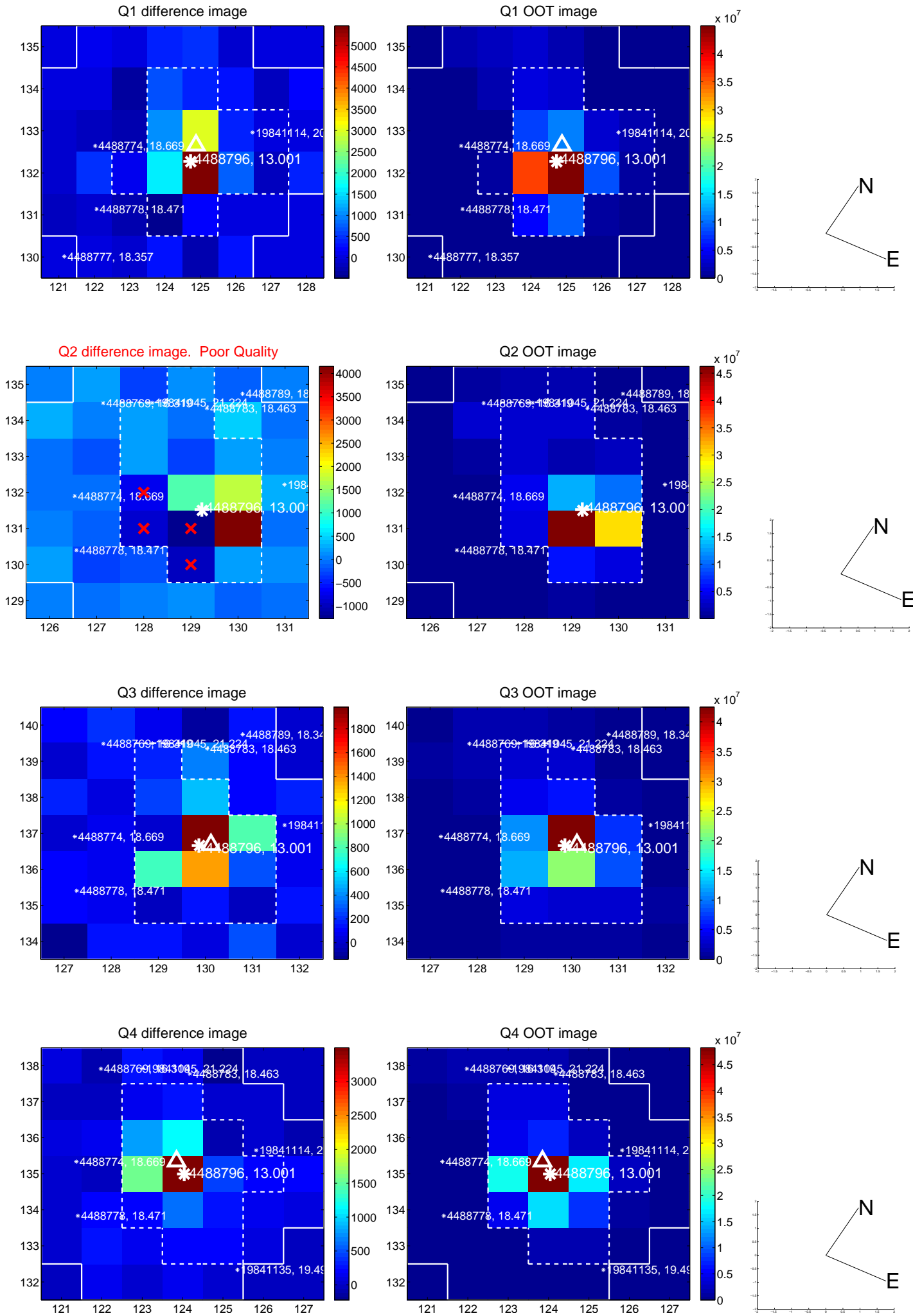


offset from photometric centroids

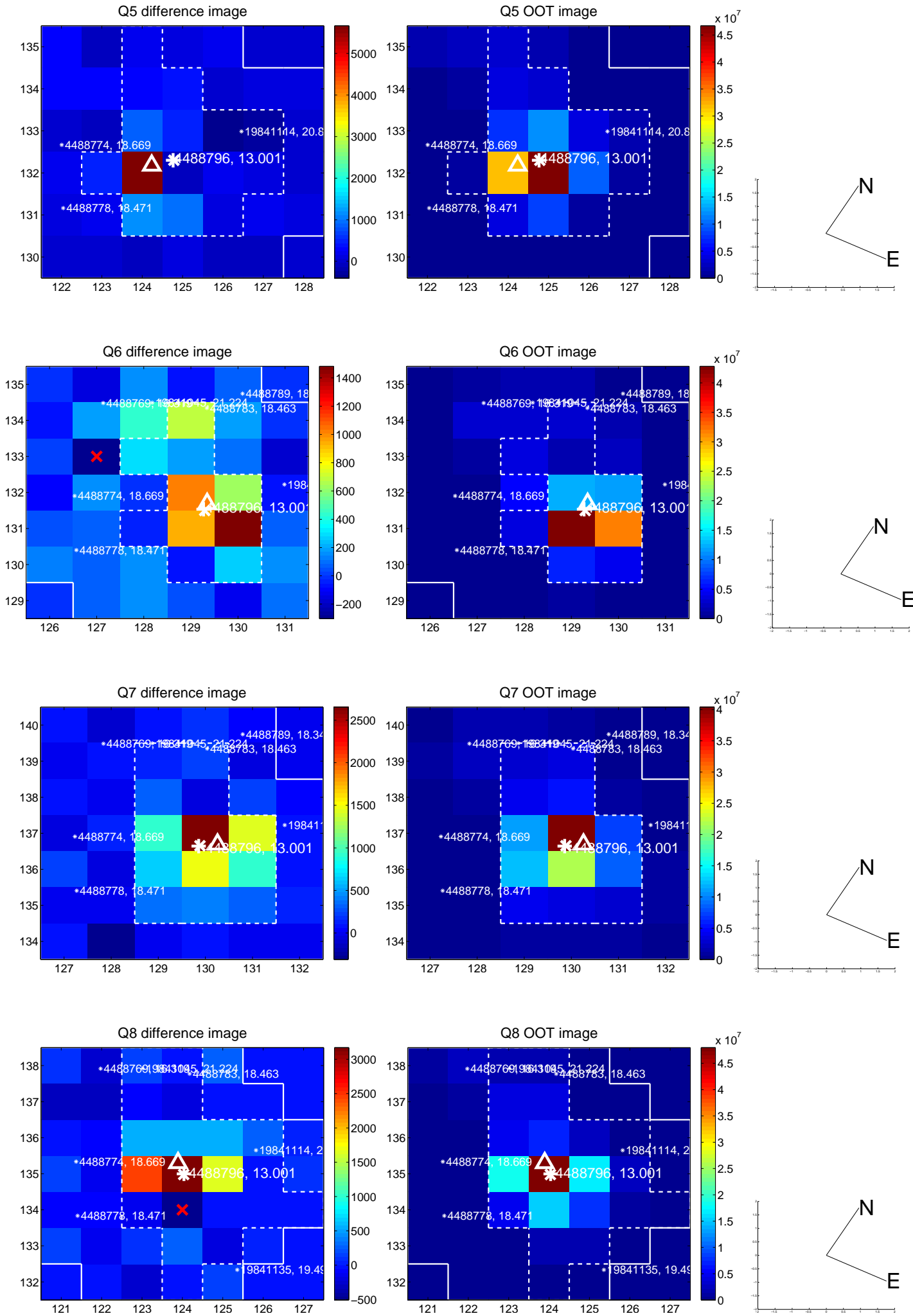


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

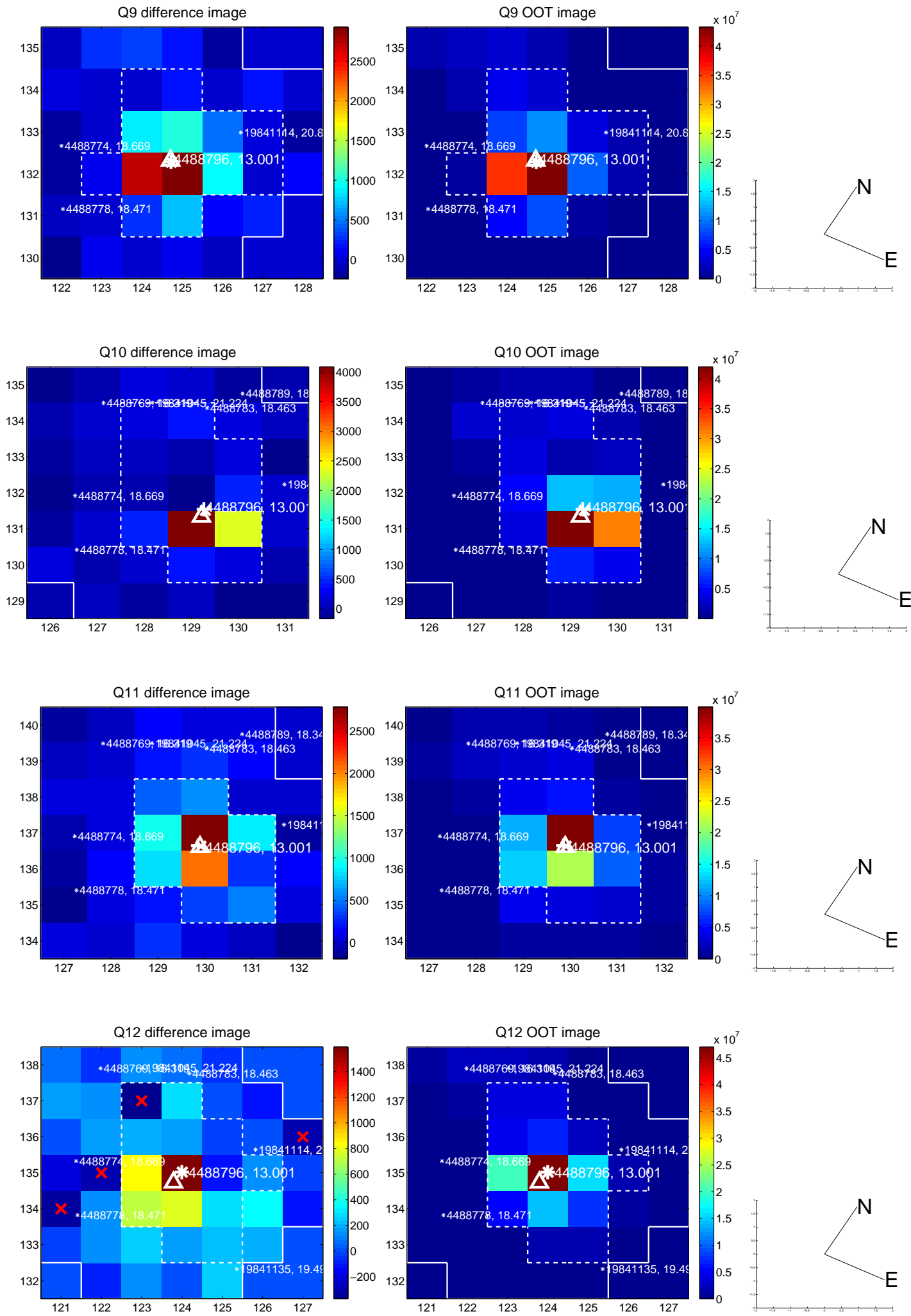
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



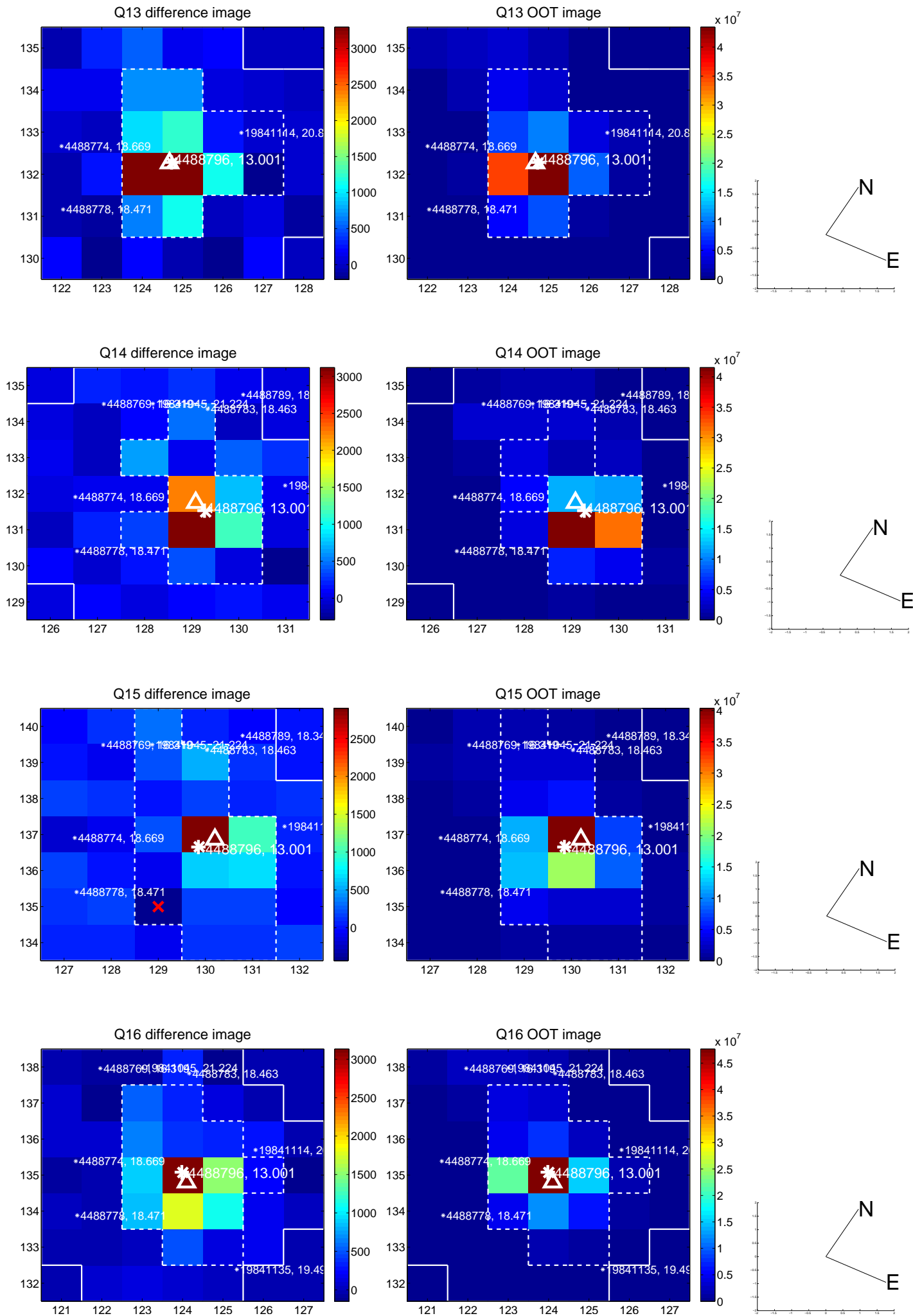
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



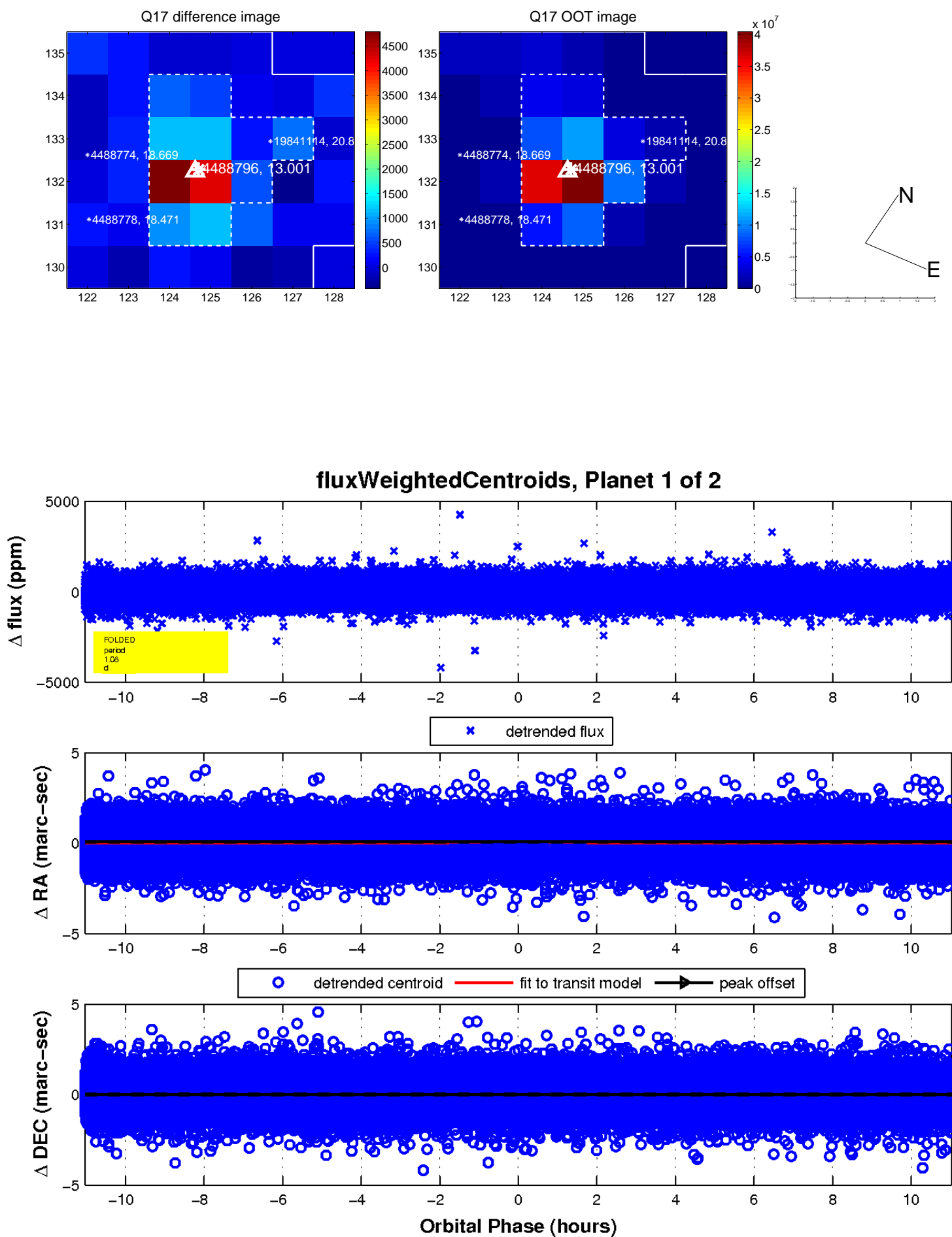
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

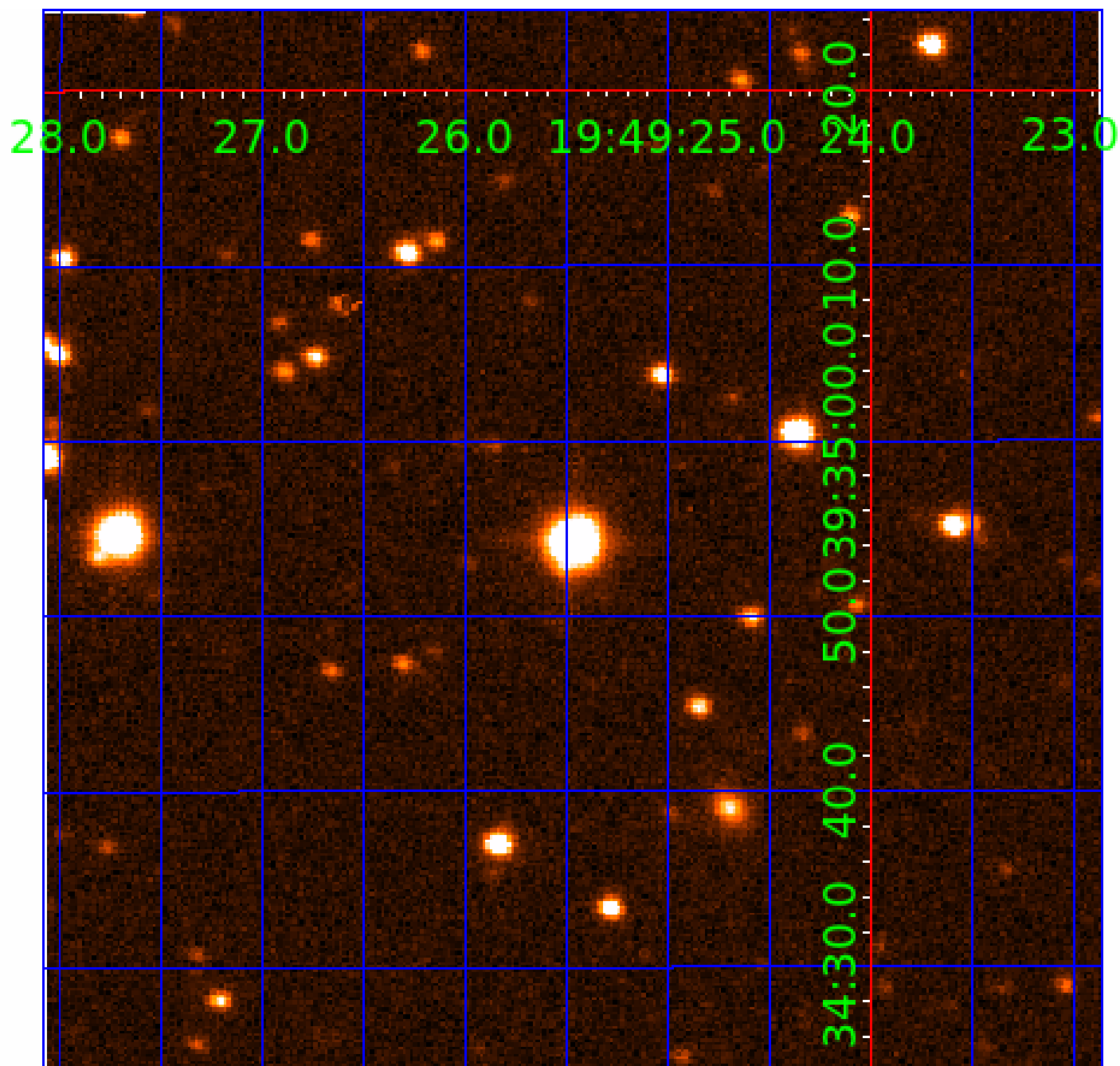


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 004488796

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})
004488796-01	OBS	No	1.079796	132.458687	42.8	3.676	10.6	8.8	2.72	7331	2.10	30550.40
004488796-02	OBS	No	0.738028	131.823227	53.1	5.827	9.8	11.7	2.72	7331	2.13	50742.97

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
004488796-01	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT
004488796-02	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT

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

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

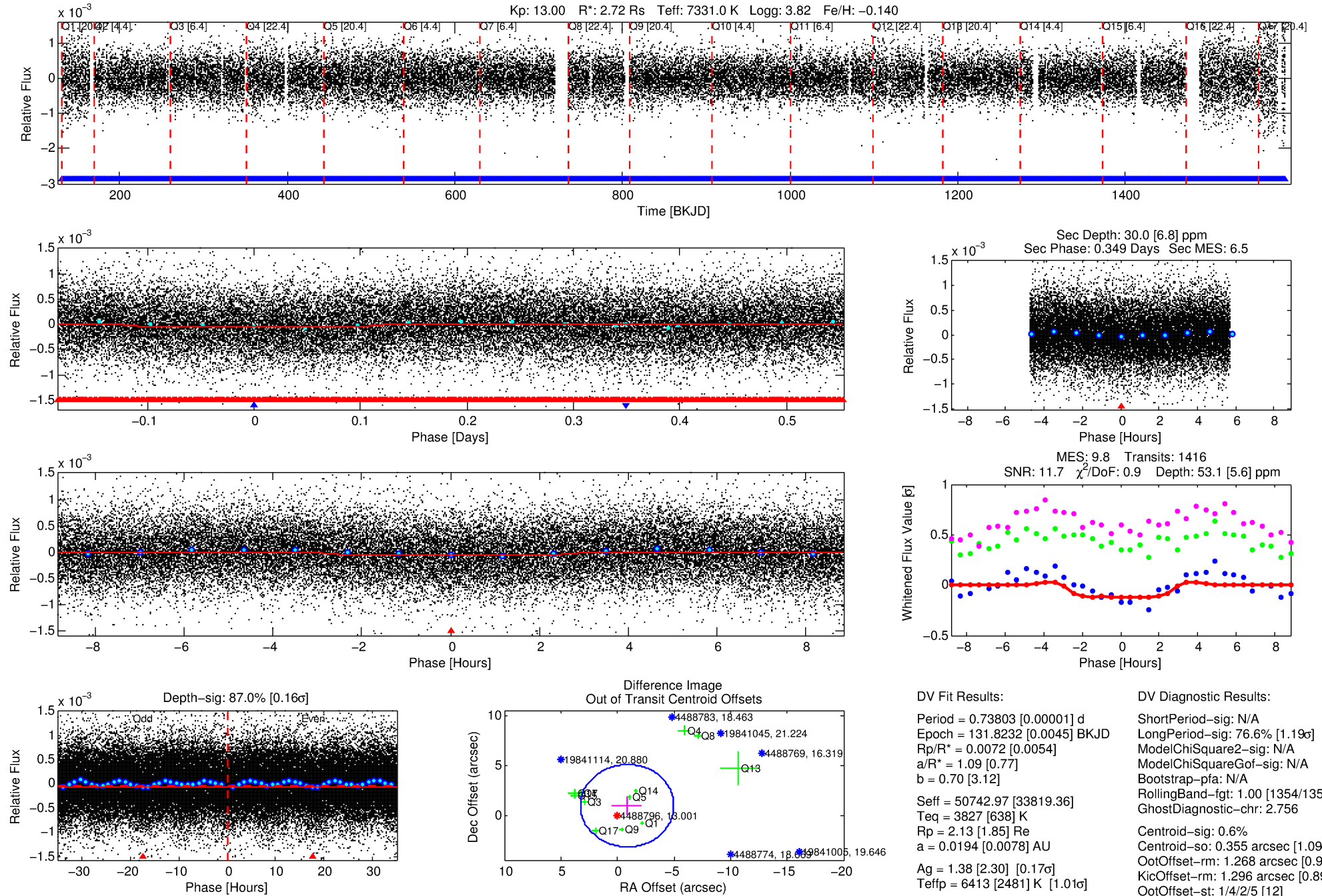
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 004488796-02

No Significant Match Found

DV One-Page Summary

KIC: 4488796 Candidate: 2 of 2 Period: 0.738 d



DV Fit Results:

Period = 0.73803 [0.00001] d
Epoch = 131.8232 [0.0045] BKJD
Rp/R* = 0.0072 [0.0054]
a/R* = 1.09 [0.77]
b = 0.70 [3.12]
Seff = 50742.97 [33819.36]
Teff = 3827 [638] K
Rp = 2.13 [1.85] Re
a = 0.0194 [0.0078] AU
Ag = 1.38 [2.30] [0.17σ]
Teffp = 6413 [2481] K [1.01σ]

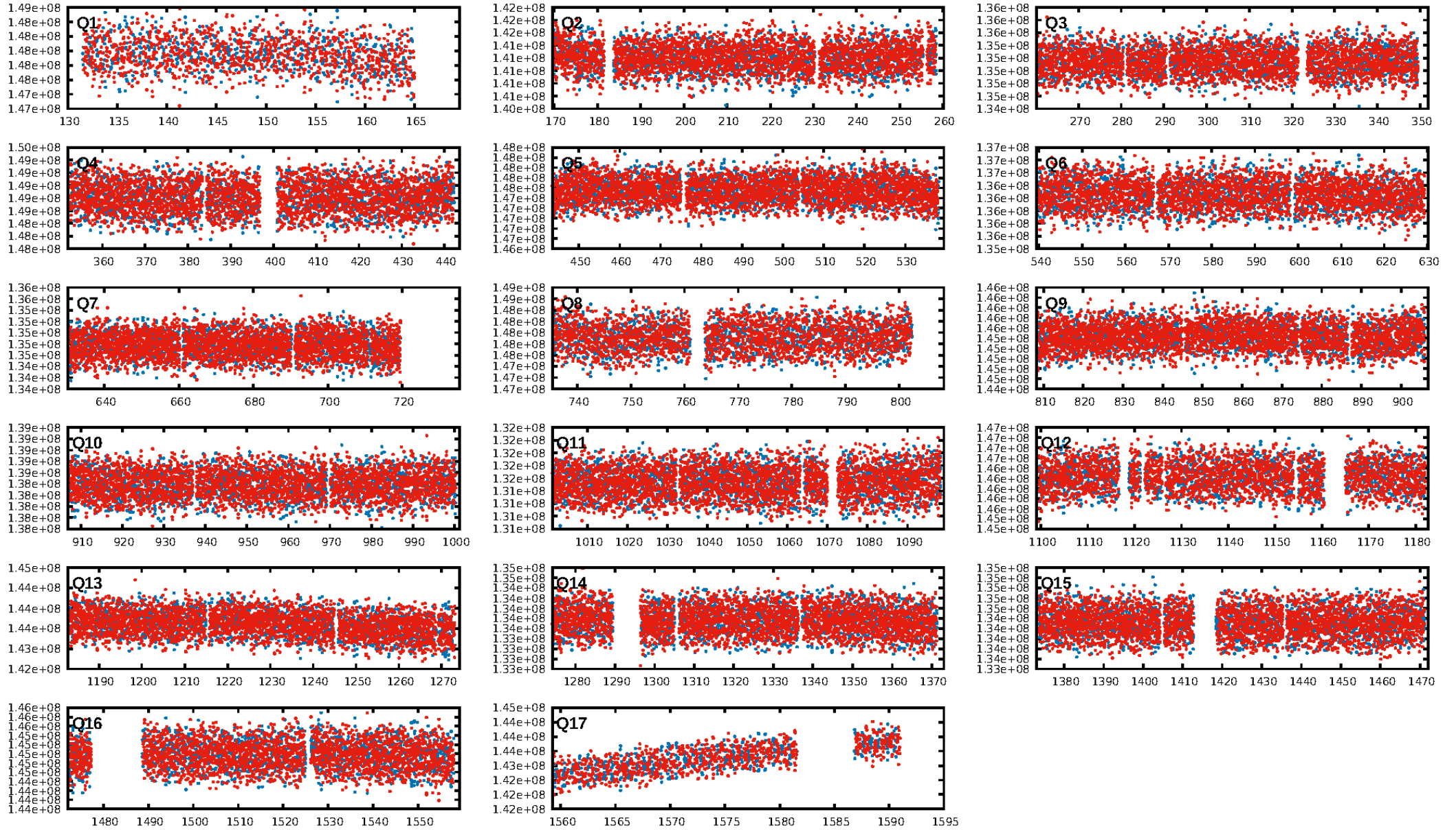
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: 76.6% [1.19σ]
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: N/A
RollingBand-fgt: 1.00 [1354/1354]
GhostDiagnostic-chr: 2.756
Centroid-sig: 0.6%
Centroid-so: 0.355 arcsec [1.09σ]
OotOffset-rm: 1.268 arcsec [0.92σ]
KicOffset-rm: 1.296 arcsec [0.89σ]
OotOffset-st: 1/4/2/5 [12]
KicOffset-st: 1/4/2/5 [12]
DiffImageQuality-fgm: 0.33 [4/12]
DiffImageOverlap-fno: 1.00 [17/17]

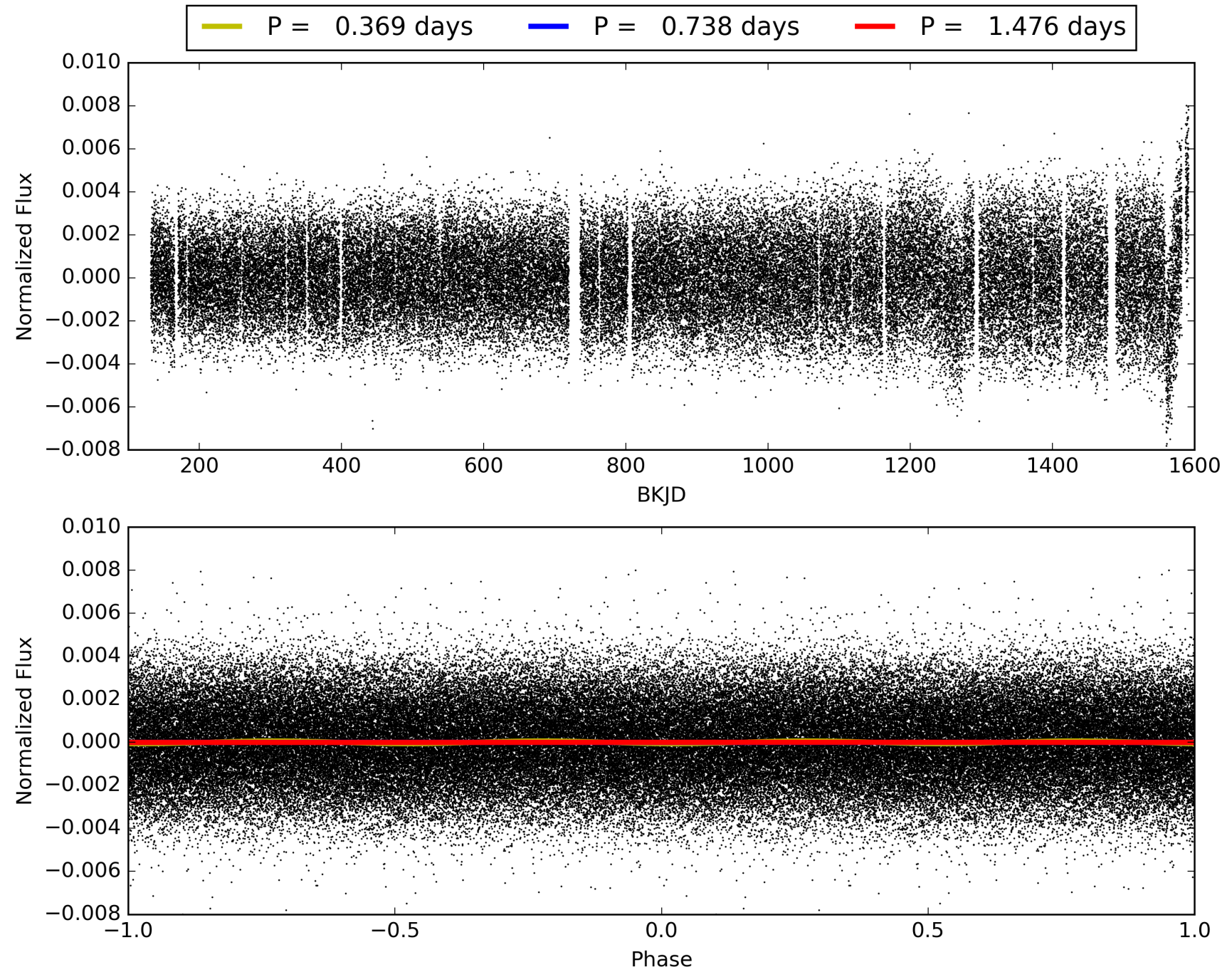
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 29-Jan-2016 18:13:01 Z

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

TCE 004488796-02, PDC Light Curves

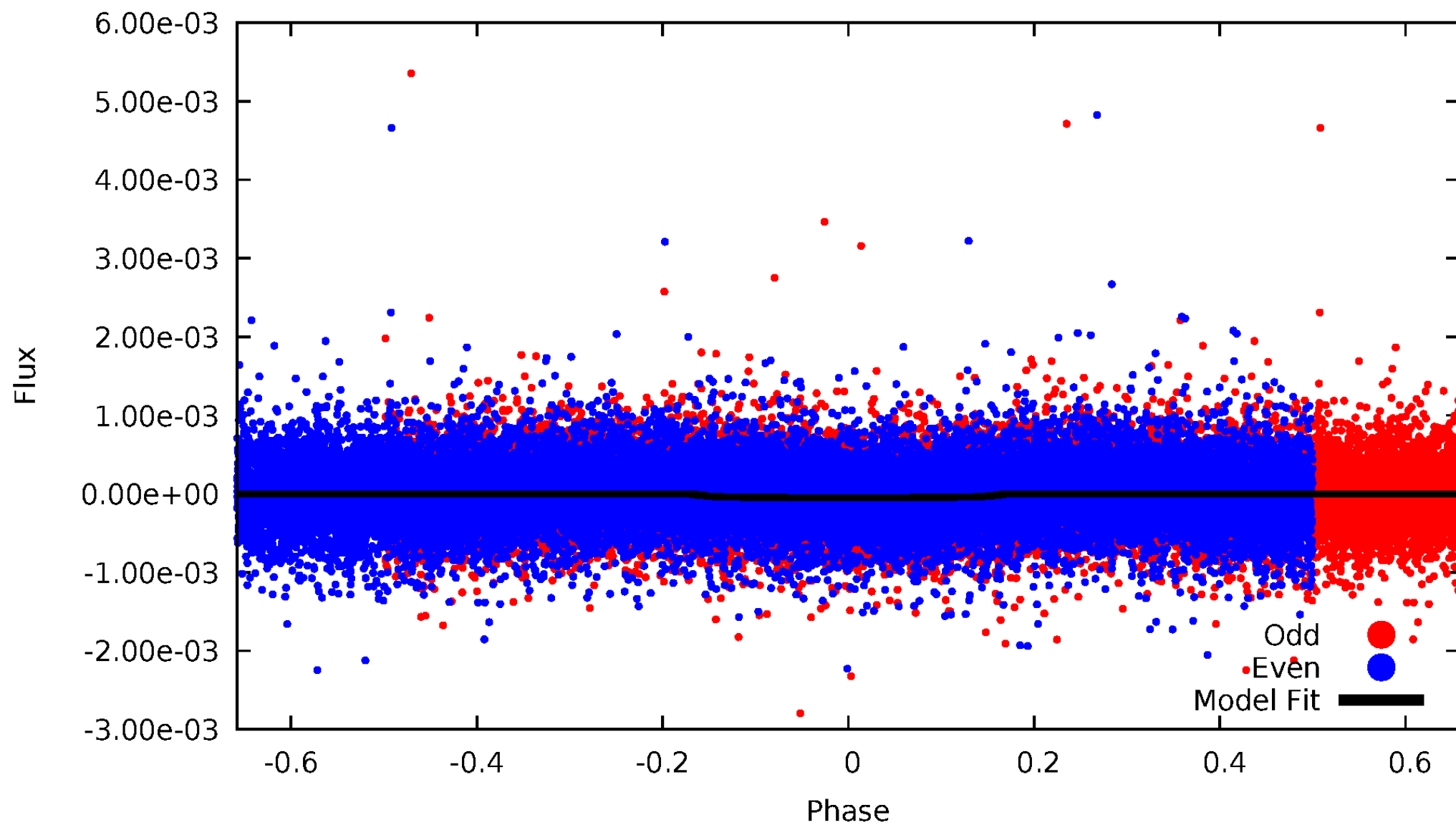


TCE 004488796-02



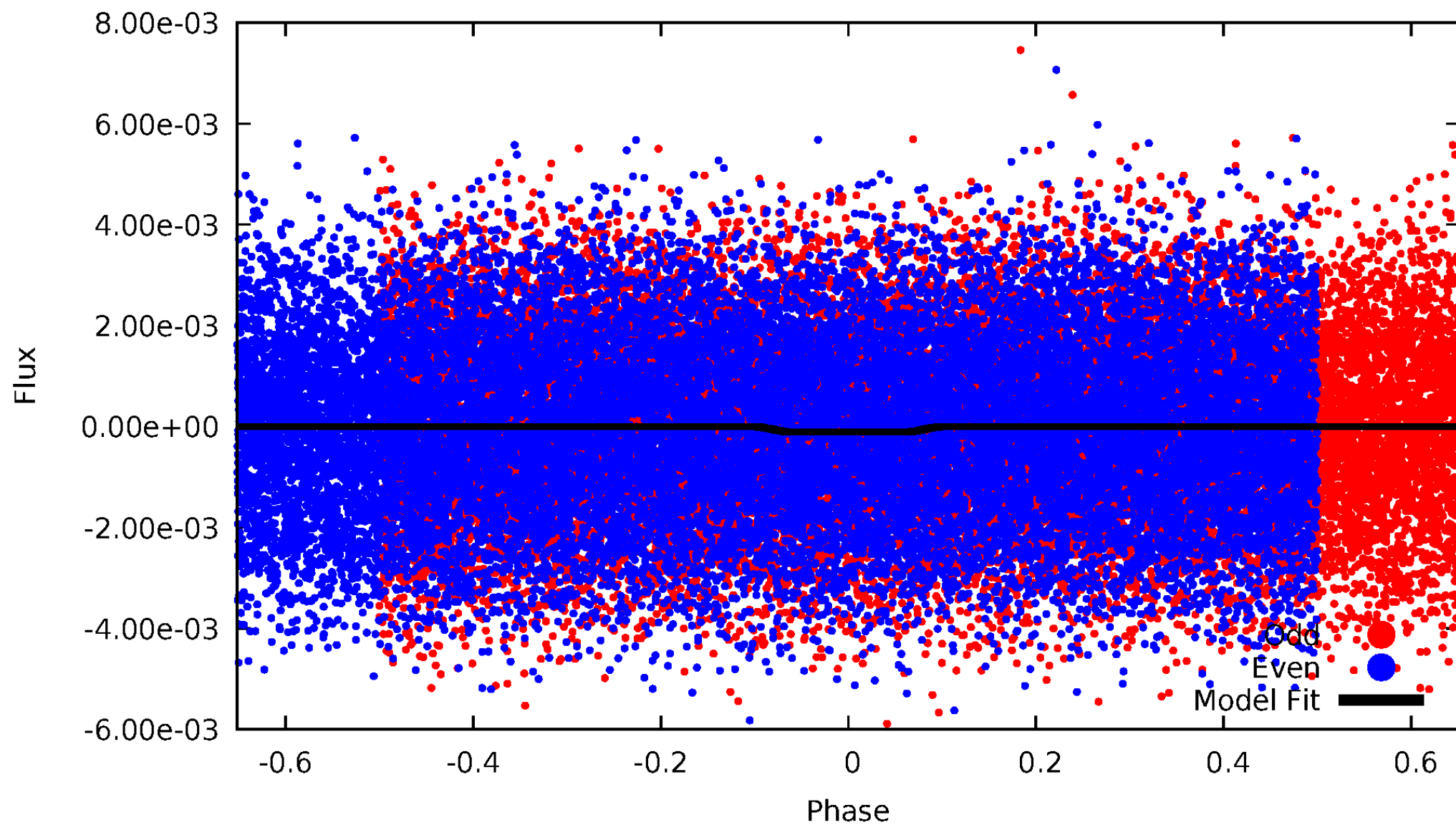
DV Odd/Even

TCE 004488796-02



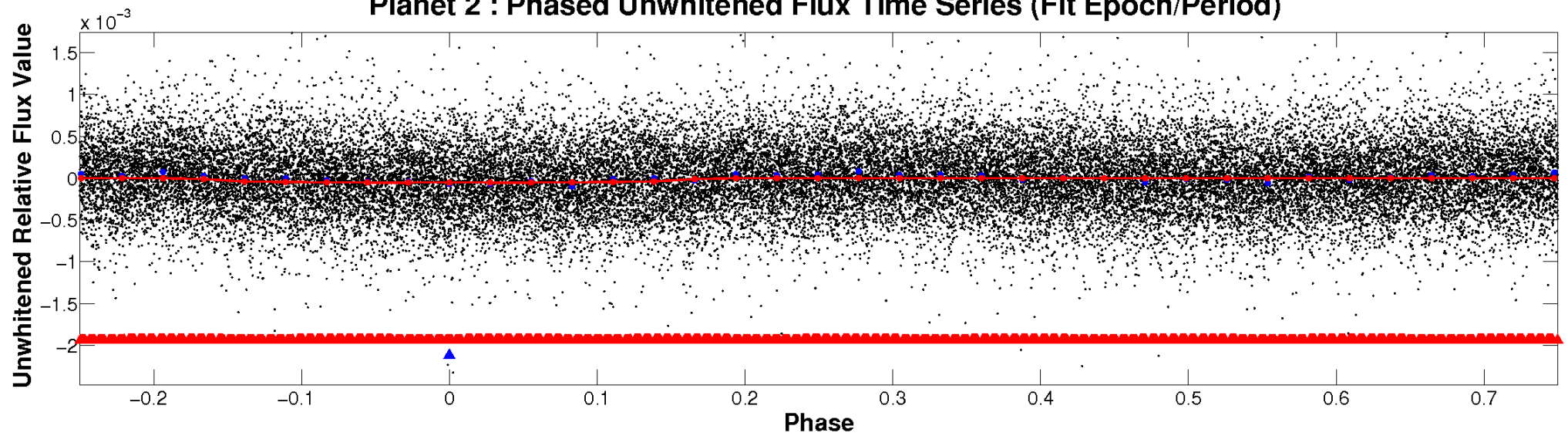
ALT Odd/Even

TCE 004488796-02

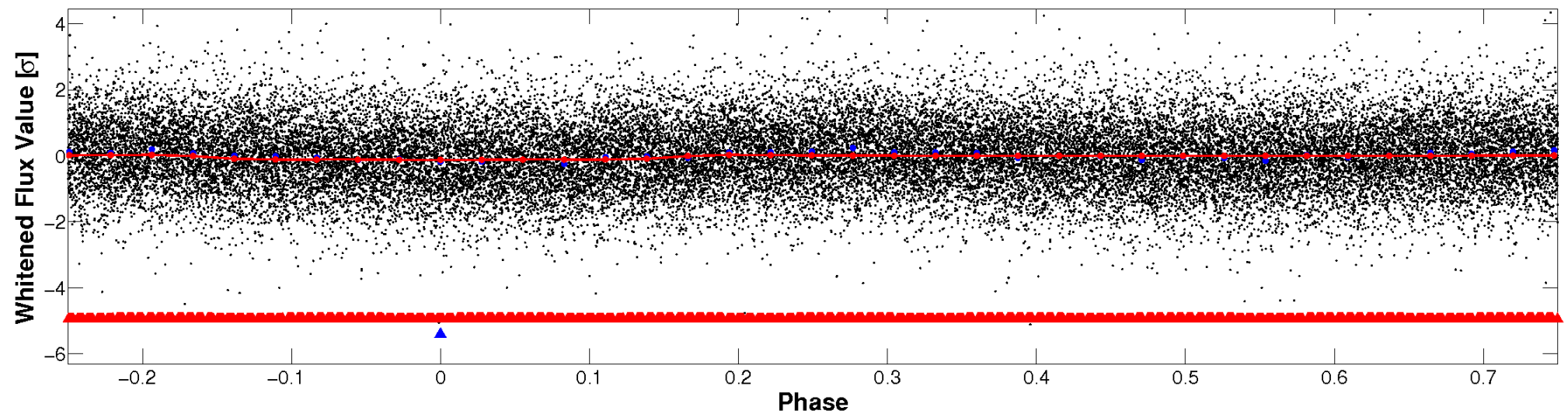


Non-Whitened Vs. Whitened Light Curve

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

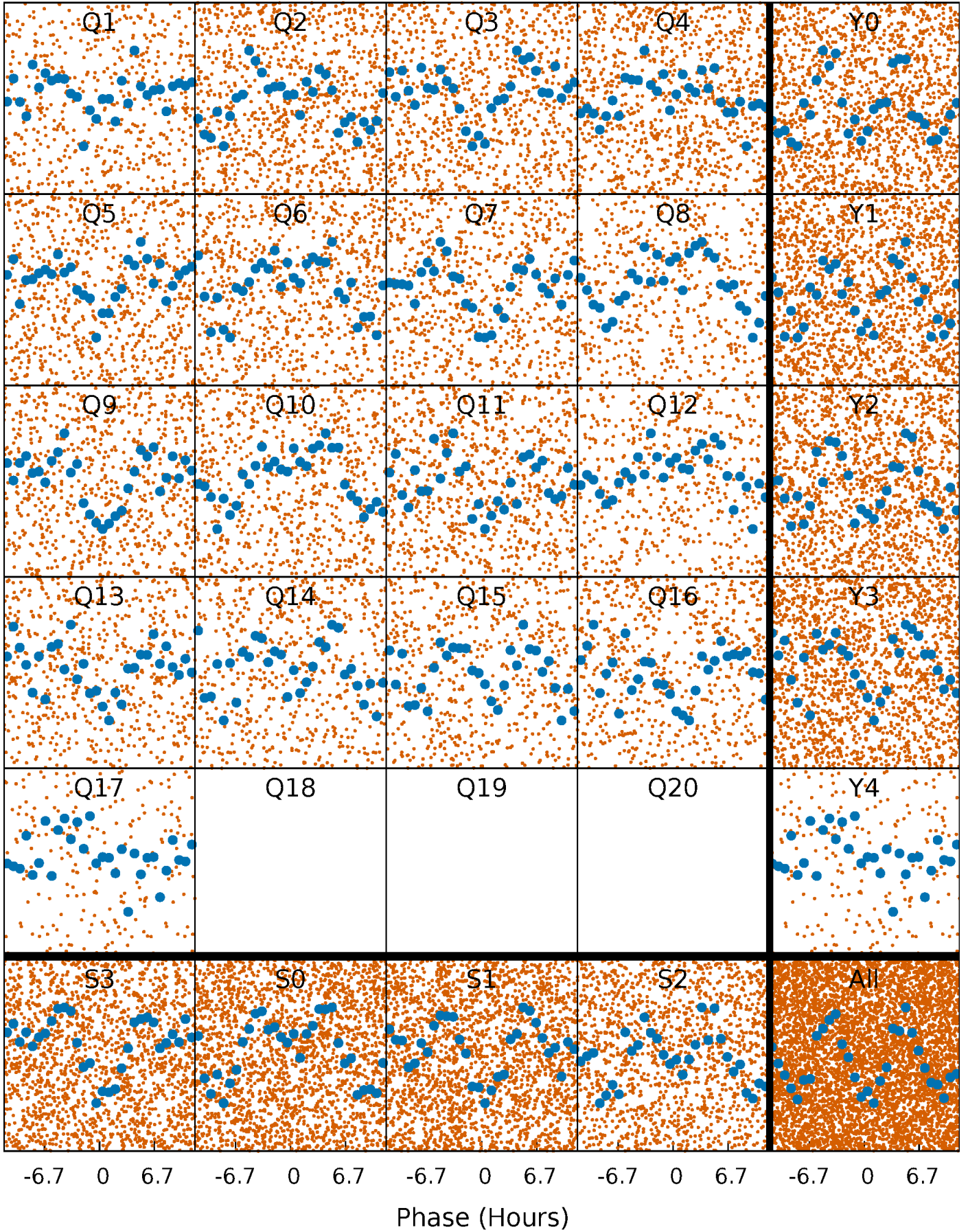


Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



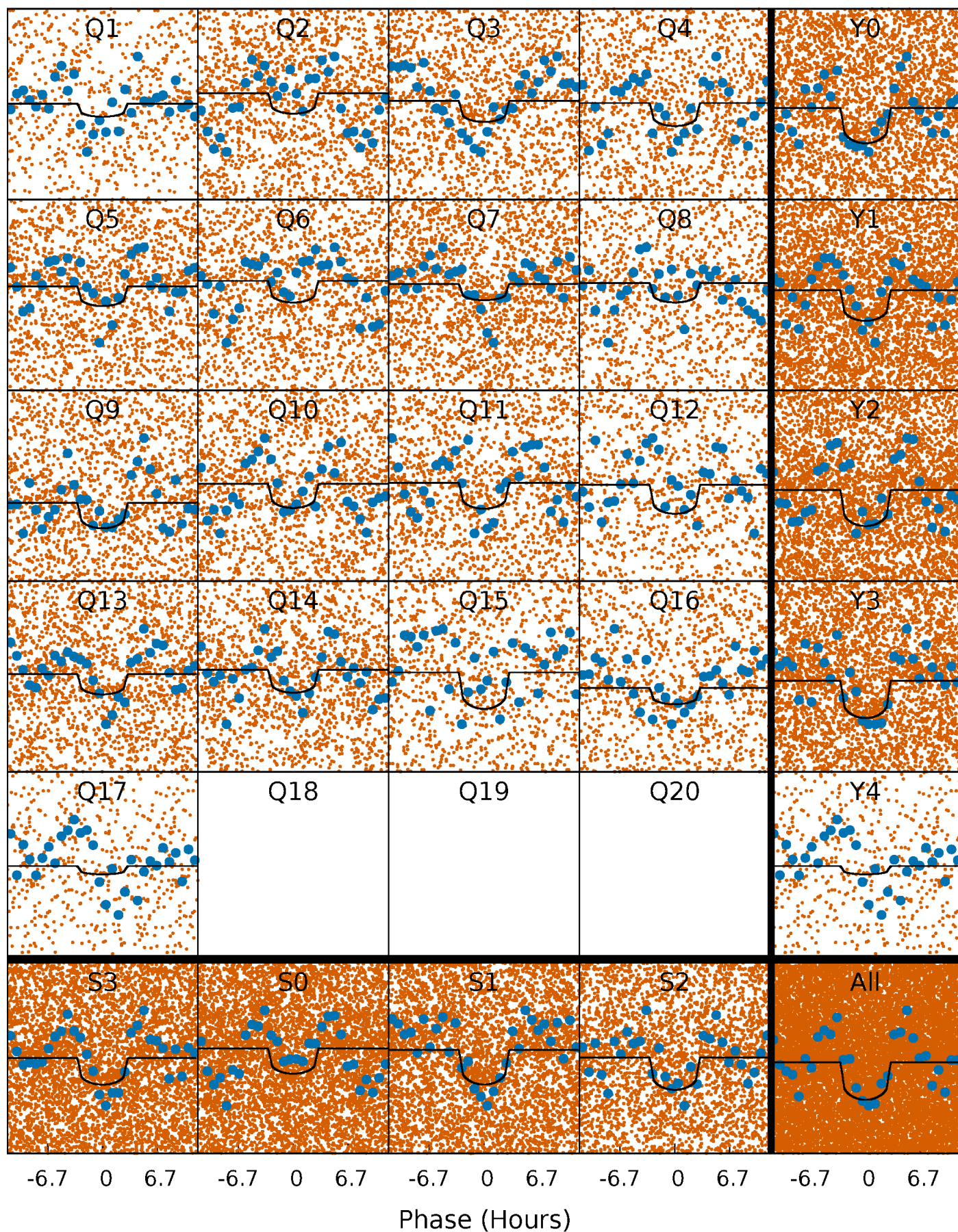
PDC Quarter-Phased Transit Curves

TCE 004488796-02 P= 0.738028 Days $T_0=131.823227$ (BKJD)



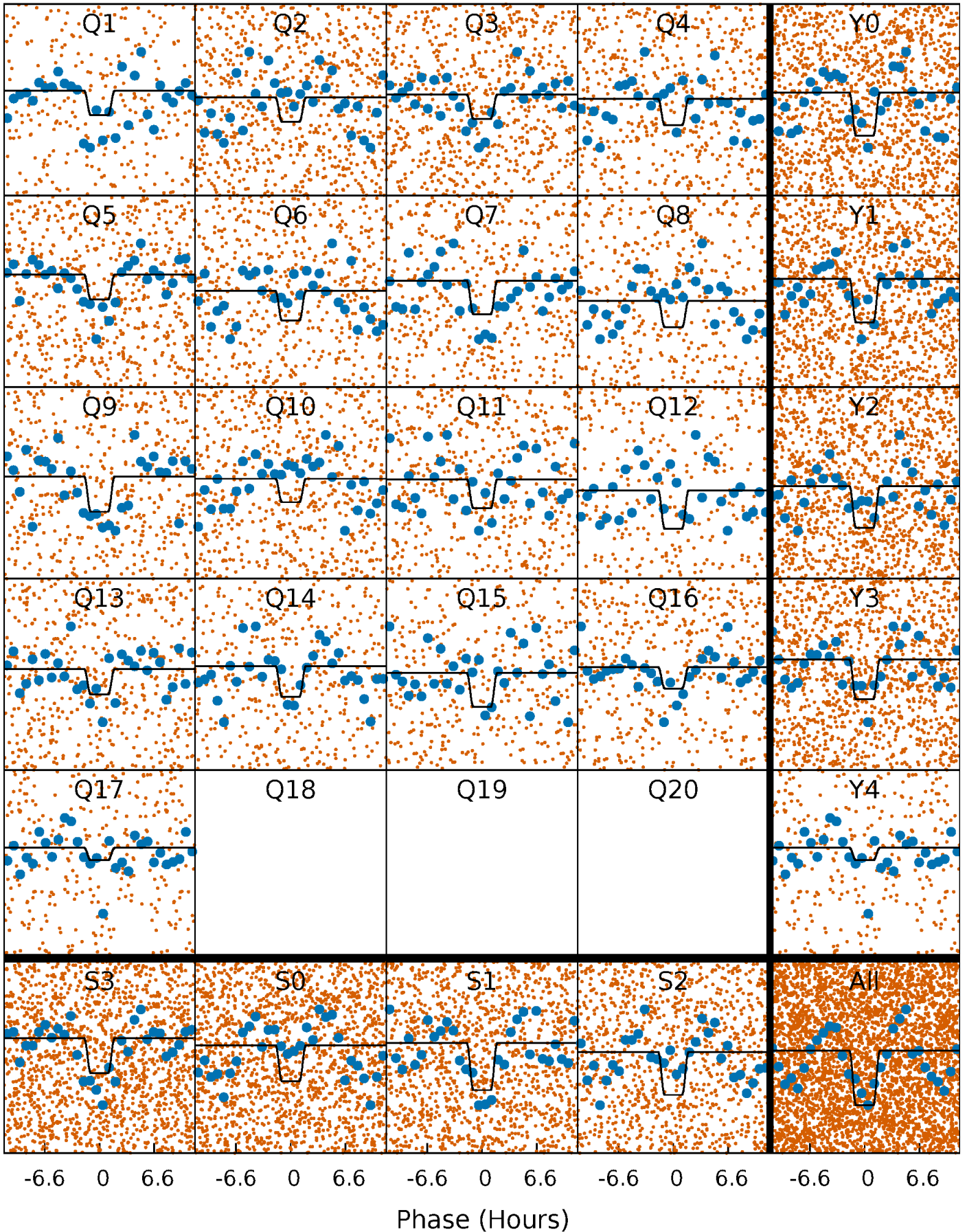
DV Quarter-Phased Transit Curves

TCE 004488796-02 P= 0.738028 Days $T_0=131.823227$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

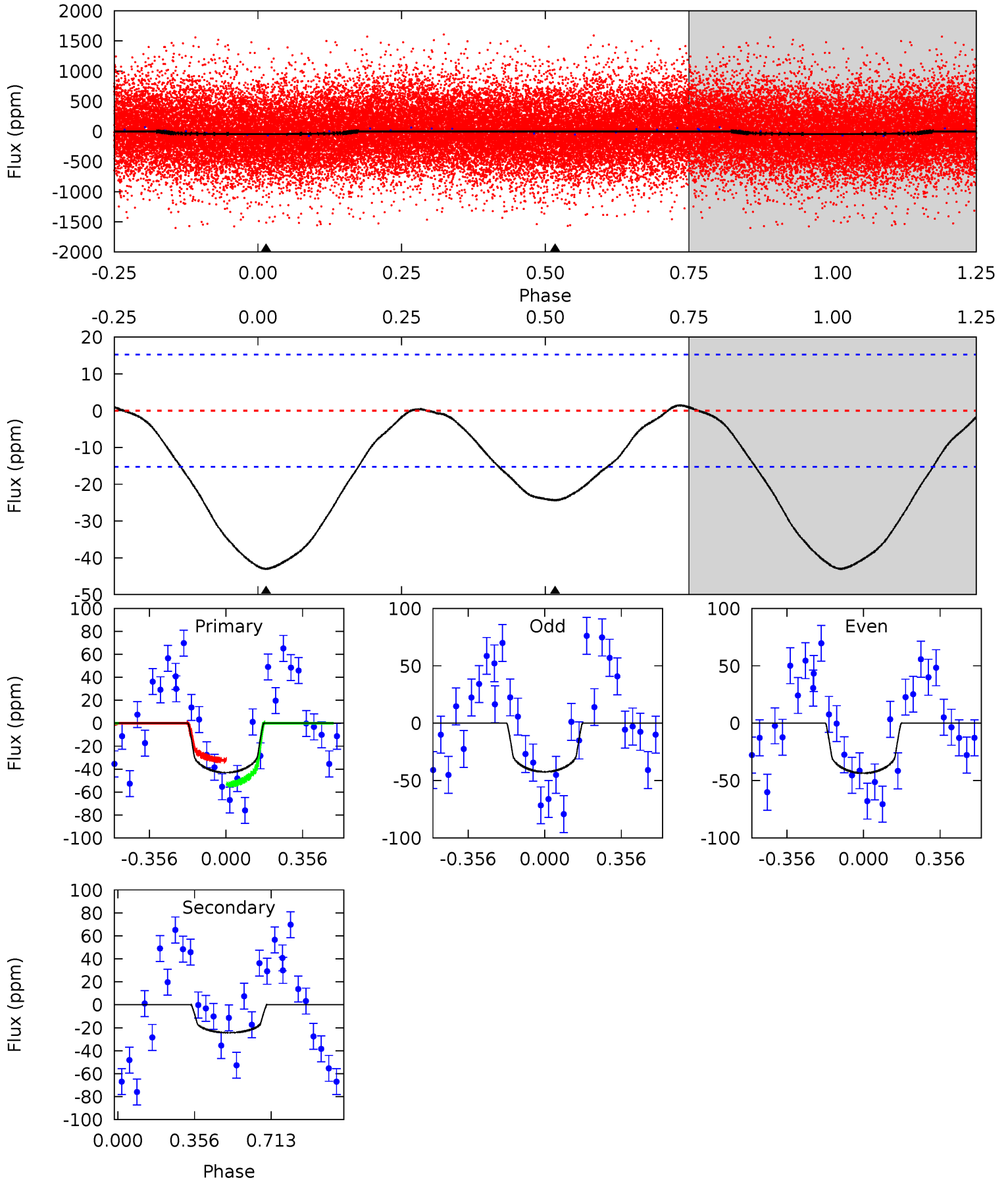
TCE 004488796-02 $P = 0.738062$ Days $T_0 = 131.807612$ (BKJD)



DV Model-Shift Uniqueness Test

004488796-02, P = 0.738028 Days, E = 131.085199 Days

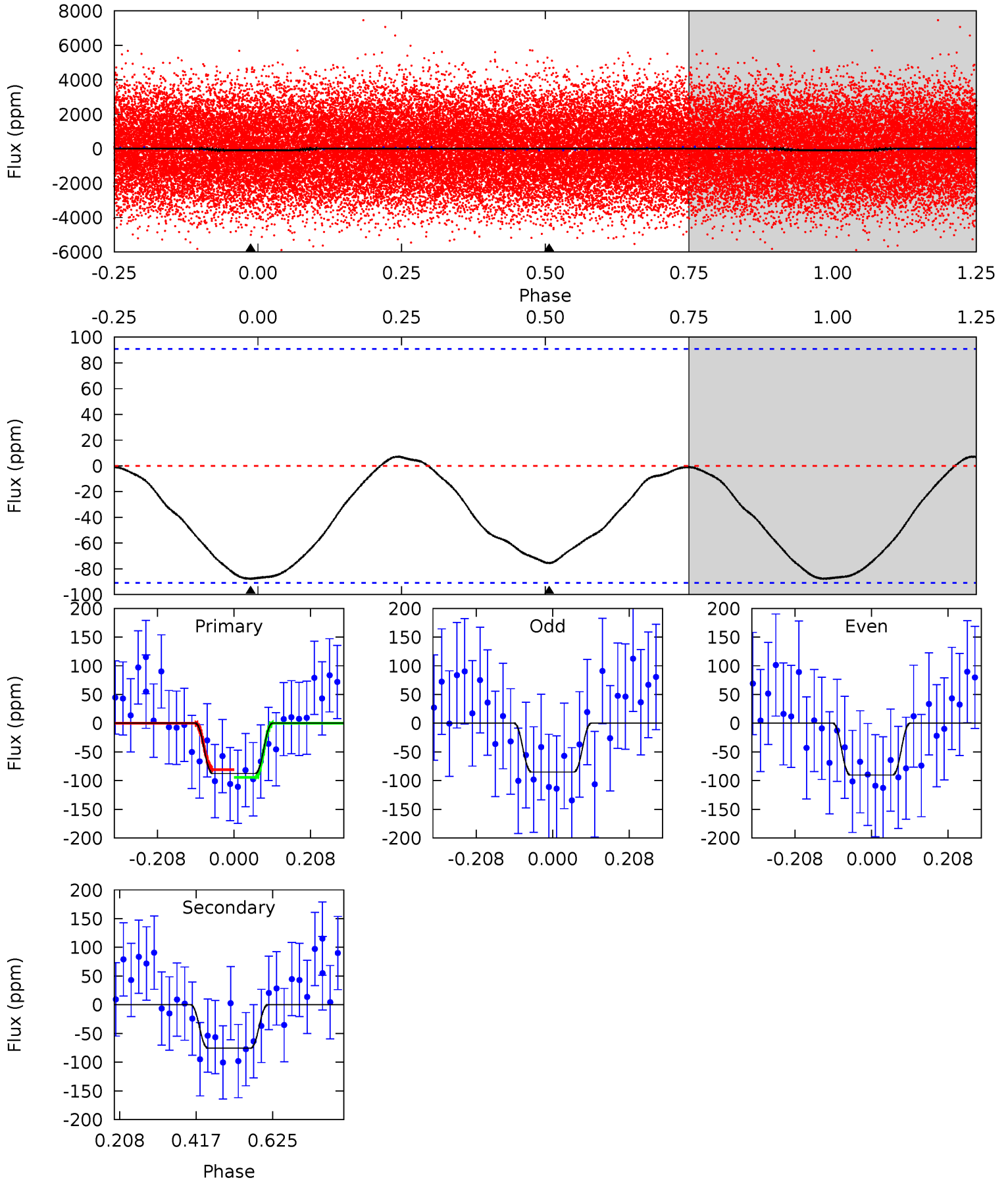
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
12.1	6.86	0	0	4.29	0.92	0.30	12.1	12.1	6.86	6.86	0.17	0.94	0.03	2.96



Alt Model-Shift Uniqueness Test

004488796-02, P = 0.738062 Days, E = 131.069550 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
4.25	3.67	0	0	4.41	1.26	0.19	4.25	4.25	3.67	3.67	0.13	1.10	0.08	0.33



Stellar Parameters For KIC 004488796

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	$M(M_{\odot})$	p_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	7331^{+203}_{-330}	$3.823^{+0.376}_{-0.094}$	$-0.140^{+0.250}_{-0.350}$	$2.722^{+0.491}_{-1.145}$	$1.797^{+0.184}_{-0.430}$	$0.126^{+0.372}_{-0.047}$
	+3%/-5%	+10%/-2%	+179%/-250%	+18%/-42%	+10%/-24%	+297%/-38%
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 004488796-02 / KOI

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	-24 ± 4	$2.14^{+1.48}_{-1.26}$	5148^{+387}_{-512}	5188^{+3972}_{-1772}	$1.076^{+5.281}_{-0.709}$
Alt.	-76 ± 21	$2.75^{+1.85}_{-1.31}$	5179^{+361}_{-592}	6199^{+3232}_{-1477}	$1.868^{+5.720}_{-1.162}$

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 $A_{obs} \gg 1.0$

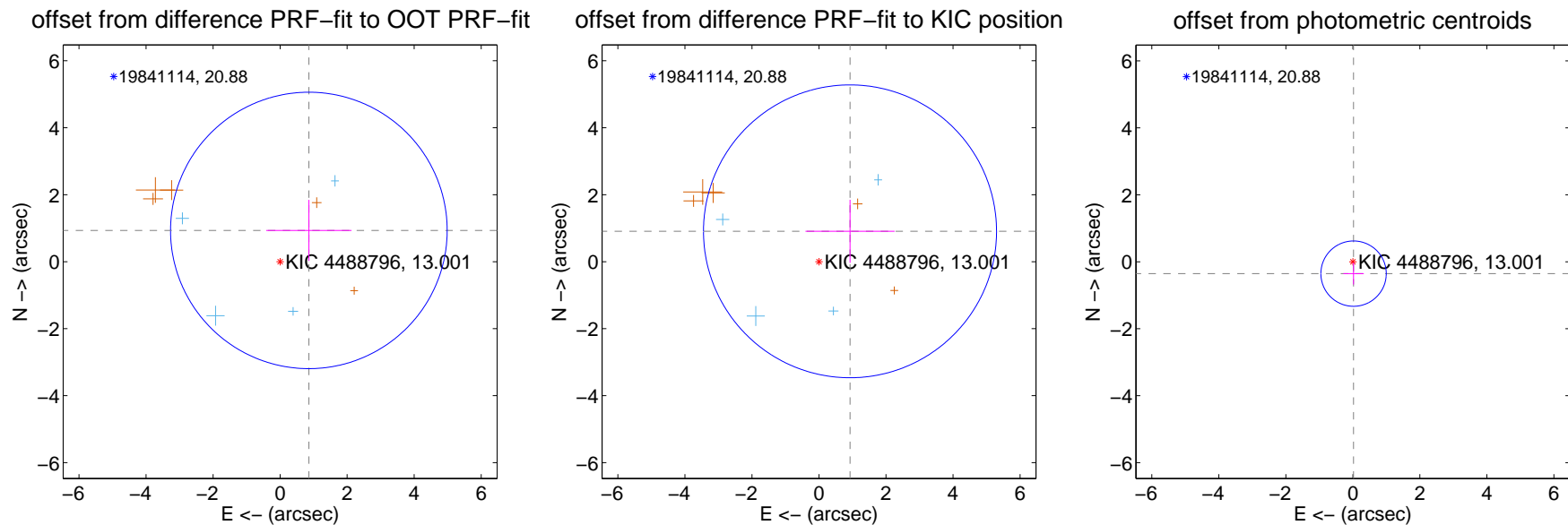
DV Centroid Data

Supplemental centroid analysis for 004488796-02. Kepler magnitude: 13.00. Transit SNR 11.67

There are 4 quarters with good PRF difference image offsets

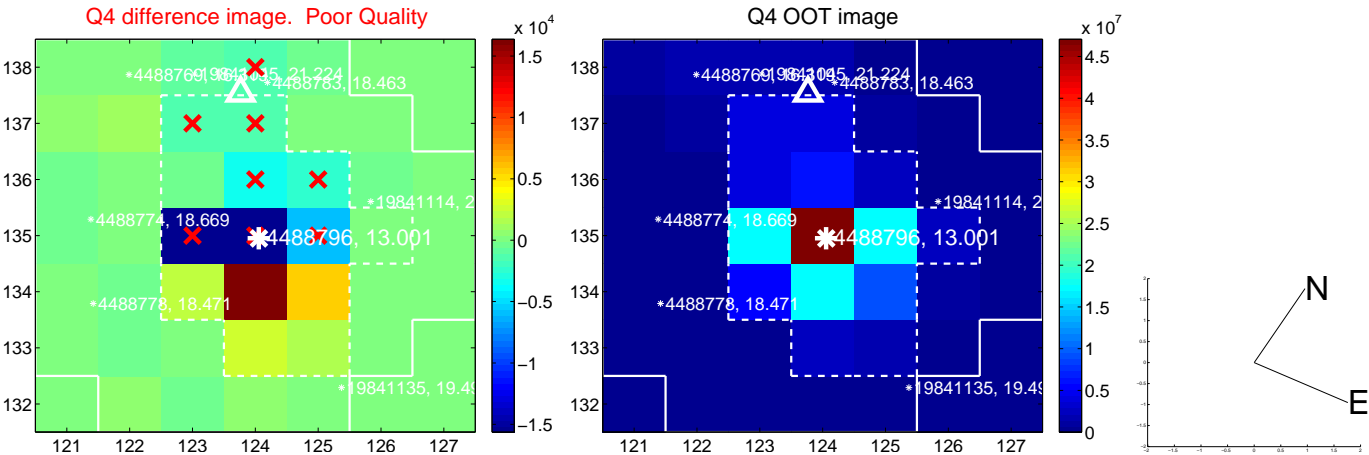
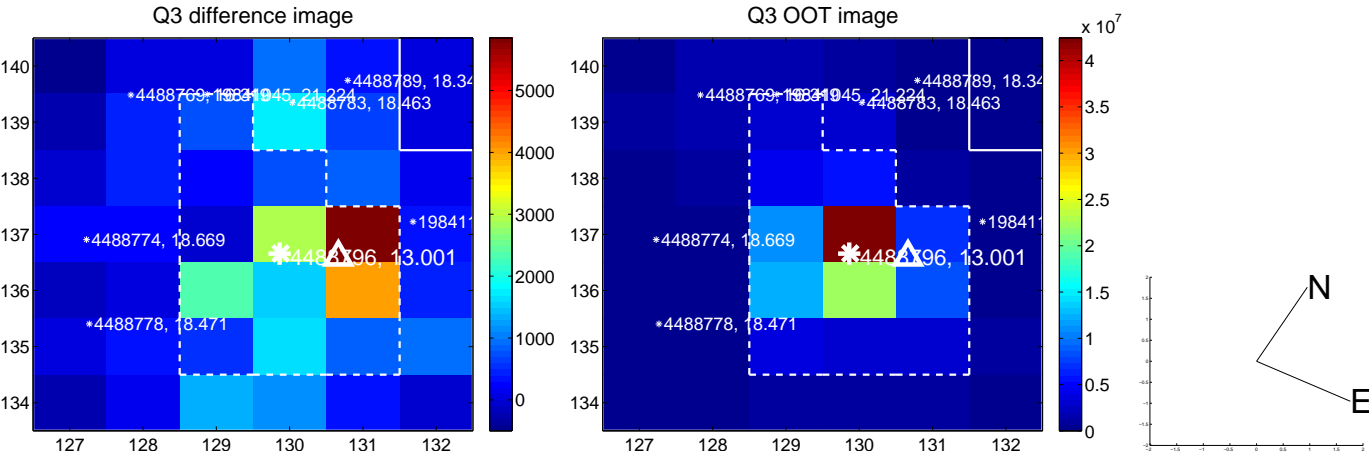
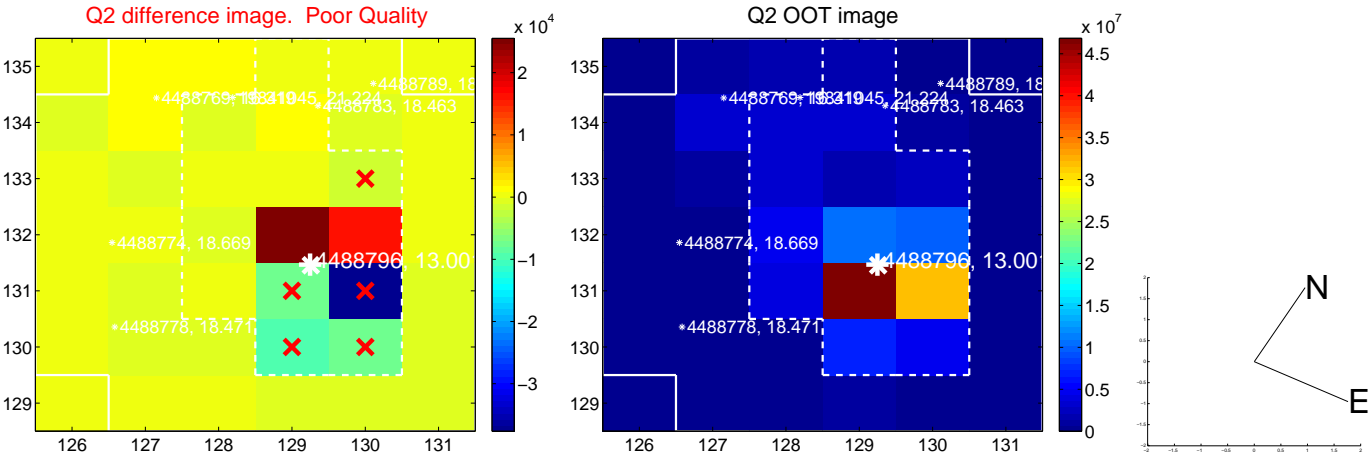
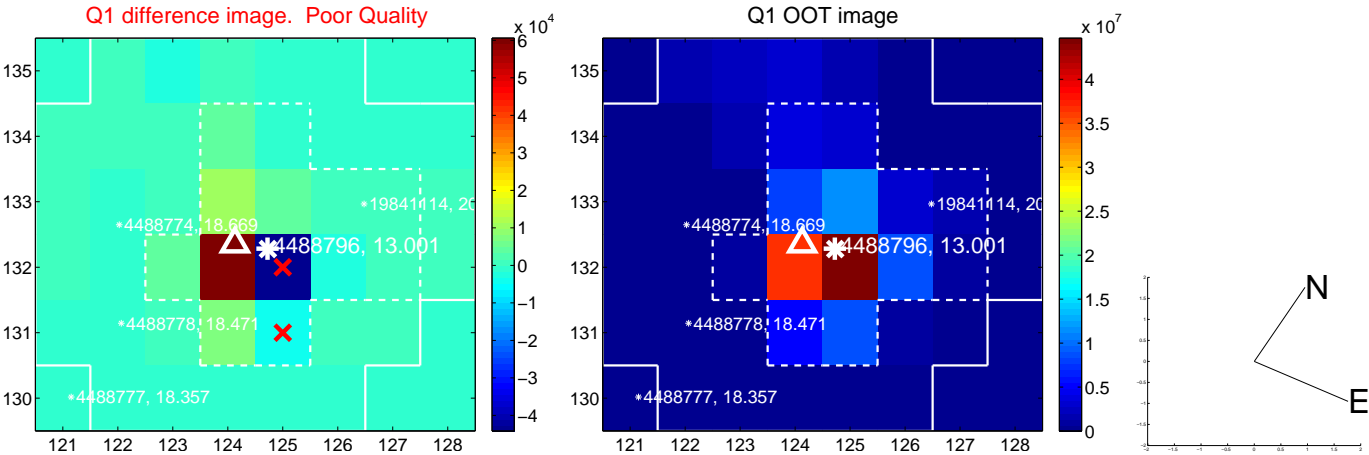
The direct PRF centroid is offset from the target star catalog position by about 0.04 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	1.268 ± 1.376	0.92	-0.858 ± 1.272	0.934 ± 0.912
PRF-fit source offset from KIC position	1.296 ± 1.457	0.89	-0.926 ± 1.329	0.907 ± 0.943
photometric centroid source offset	0.35 ± 0.33	1.09	-0.02 ± 0.30	-0.35 ± 0.33

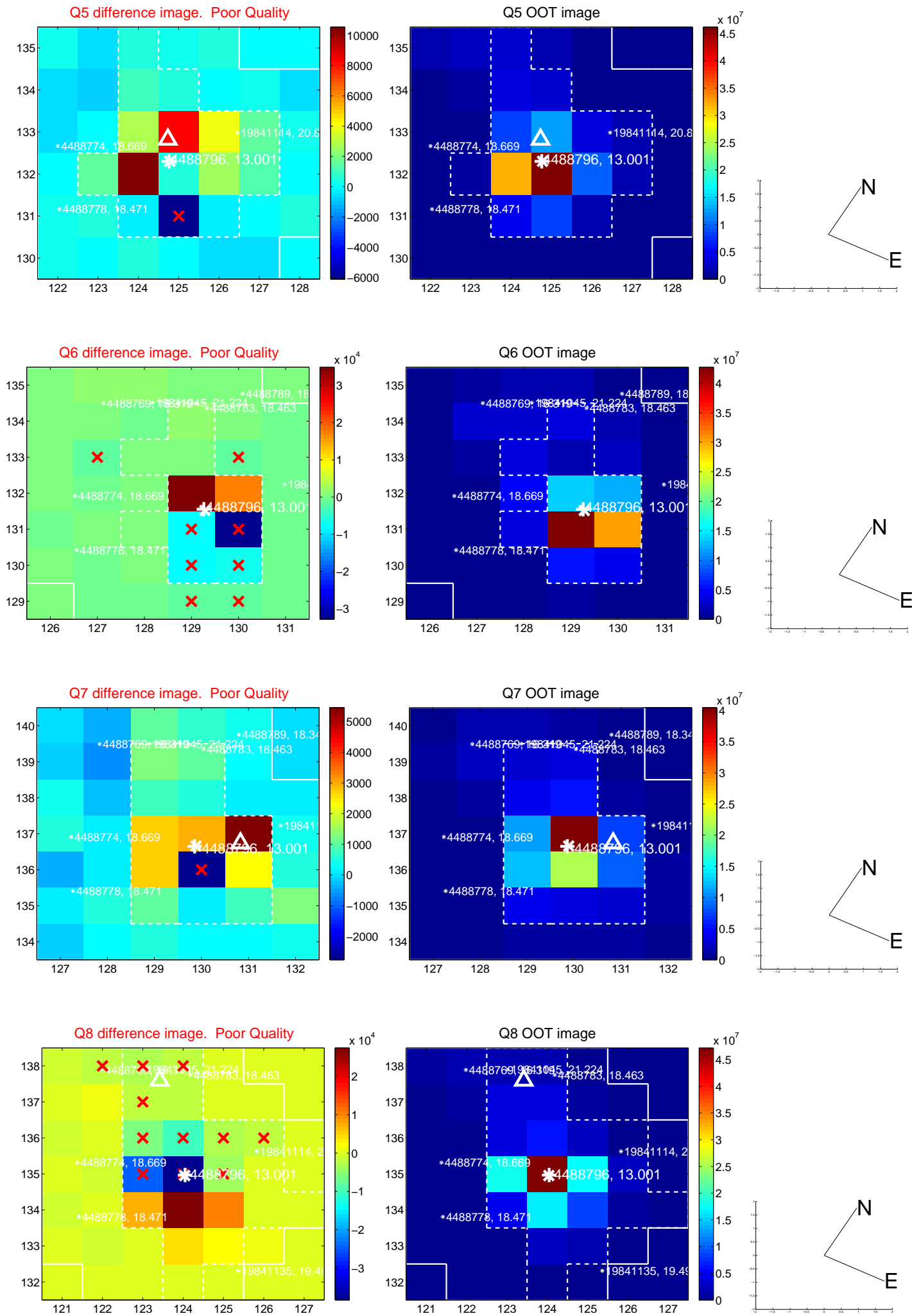


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

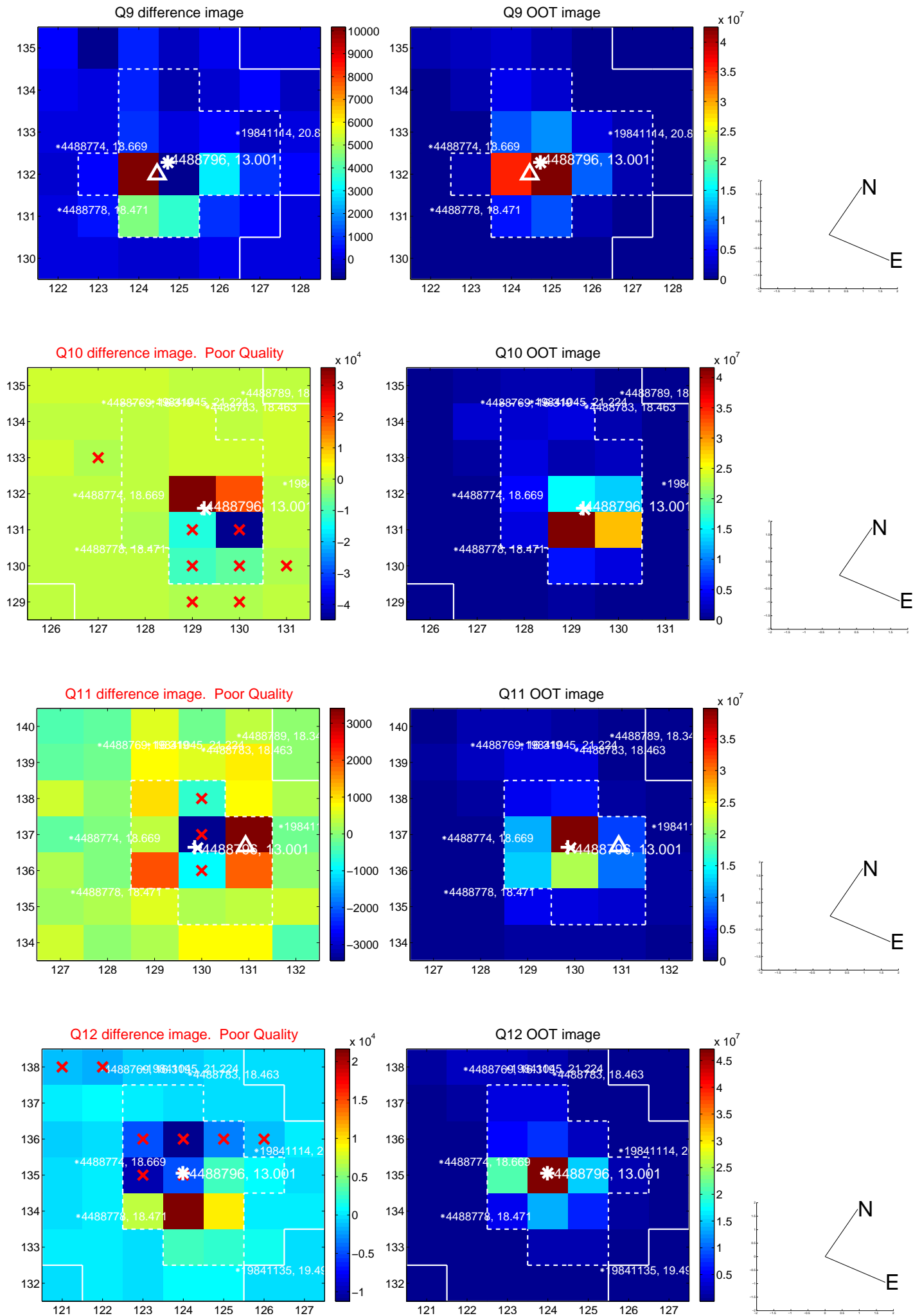
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



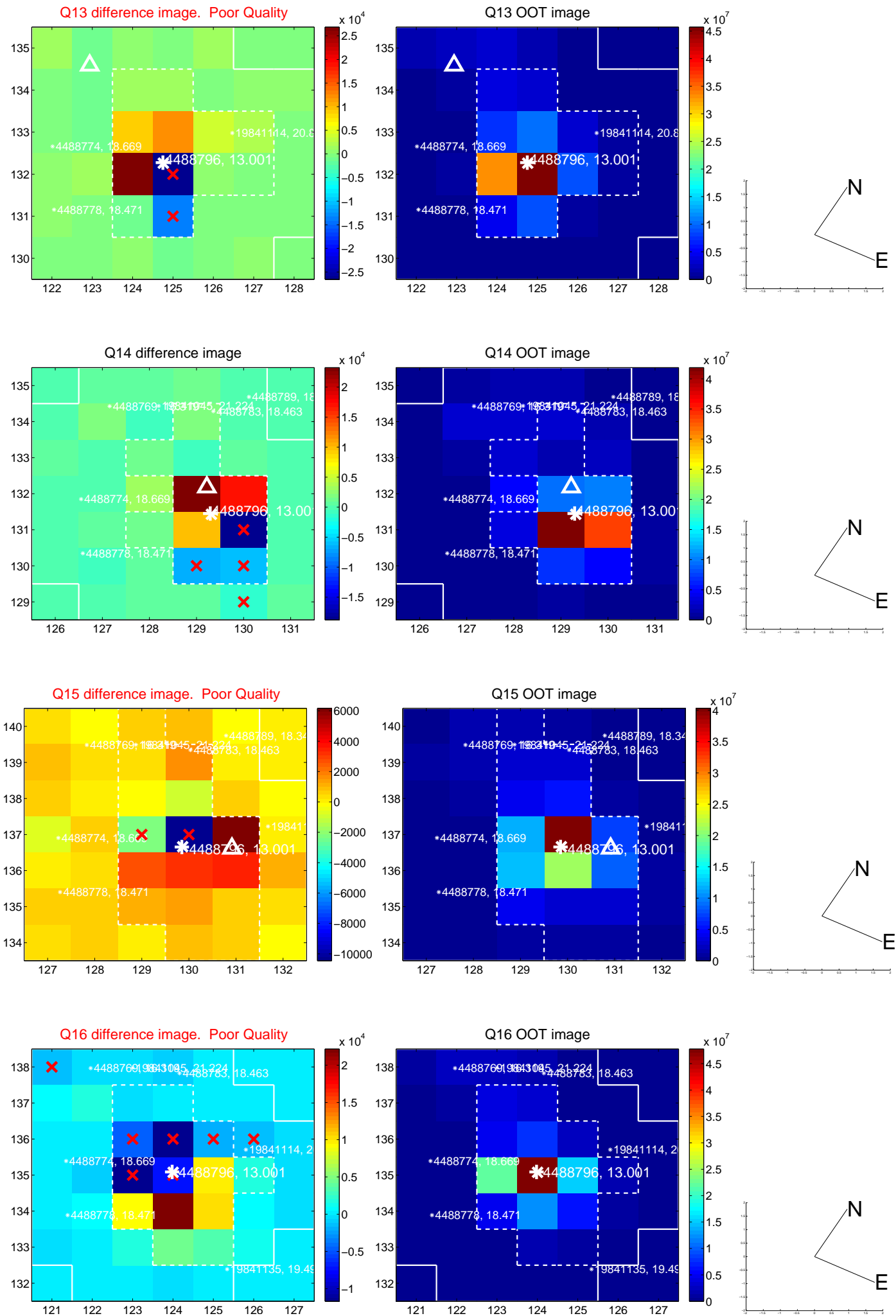
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



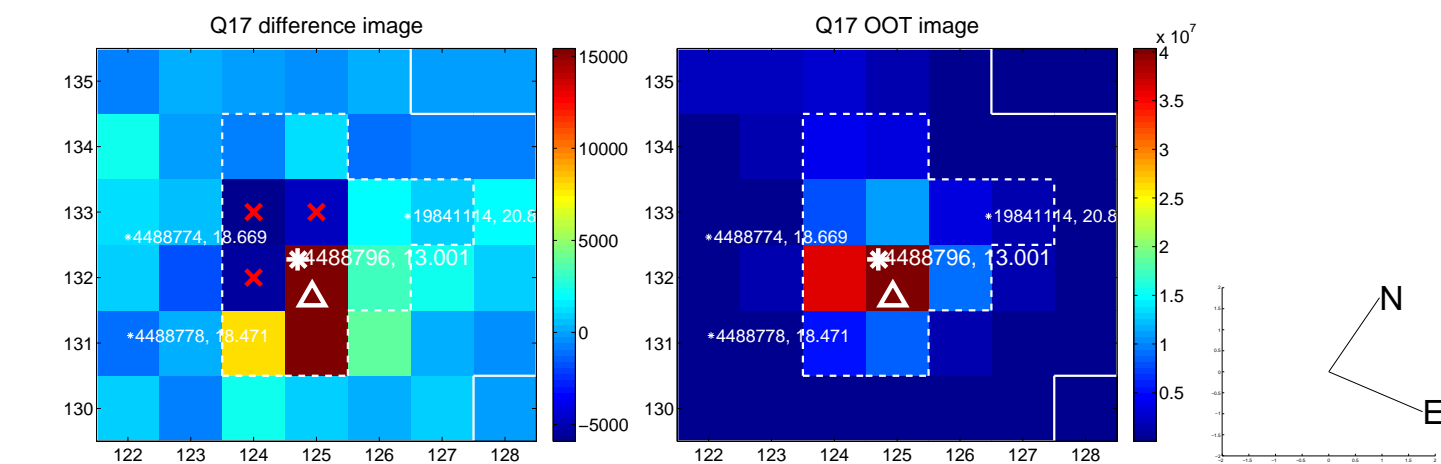
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



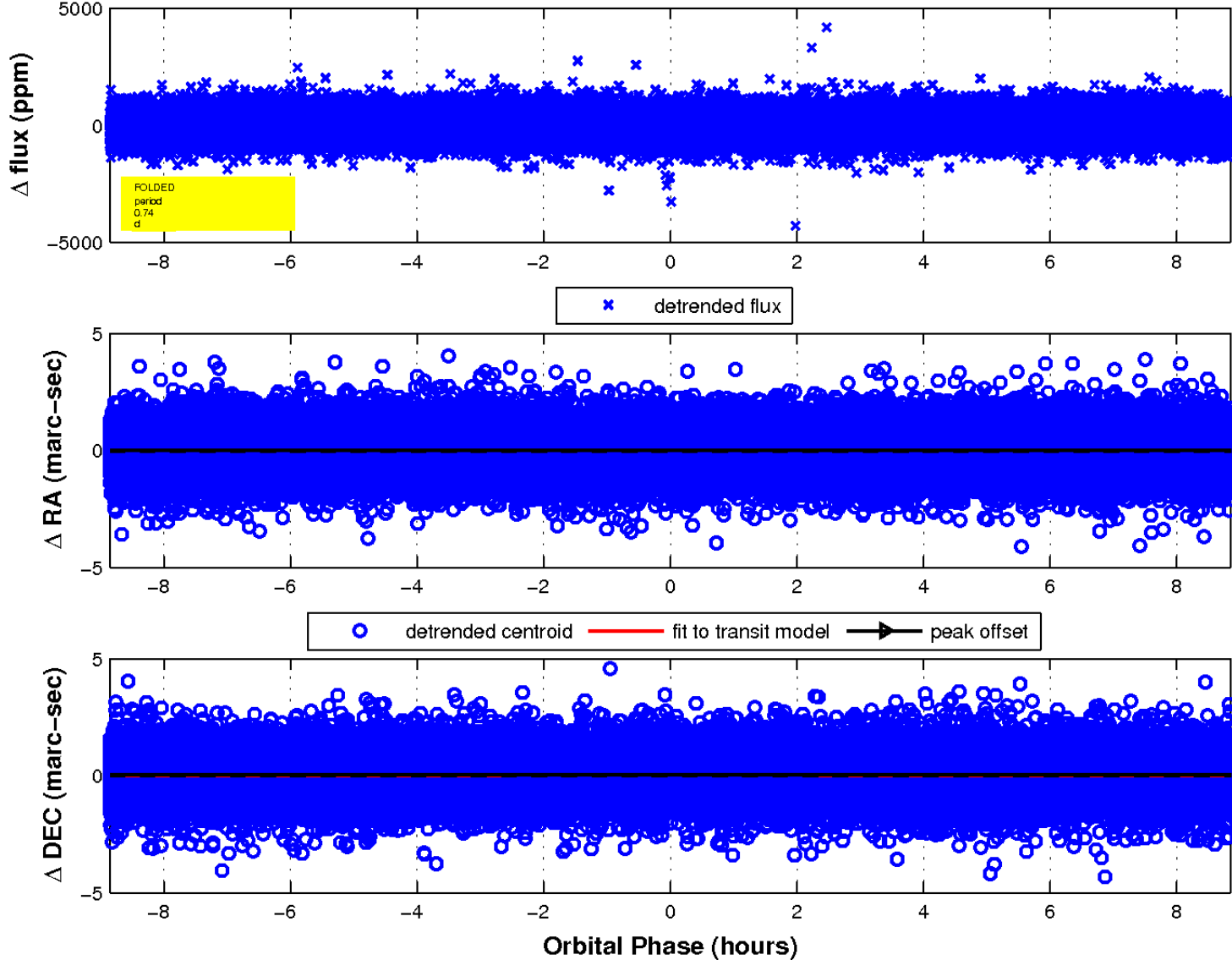
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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



fluxWeightedCentroids, Planet 2 of 2



UKIRT Image

Declination

