

KIC 002851100

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})
002851100-01	OBS	1104.01	0.890106	132.376271	248.8	1.003	13.8	16.6	0.71	4768	1.40	839.90
002851100-02	OBS	No	0.890104	131.934730	137.1	1.293	9.7	10.6	0.71	4768	1.04	839.91

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
002851100-01	OBS	FP	0.00	0	1	1	0	MOD_SEC_DV—MOD_SEC_ALT—HAS_SEC_TCE—CENT_RESOLVED_OFFSET
002851100-02	OBS	FP	0.00	1	1	1	0	IS_SEC_TCE—CENT_RESOLVED_OFFSET

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.

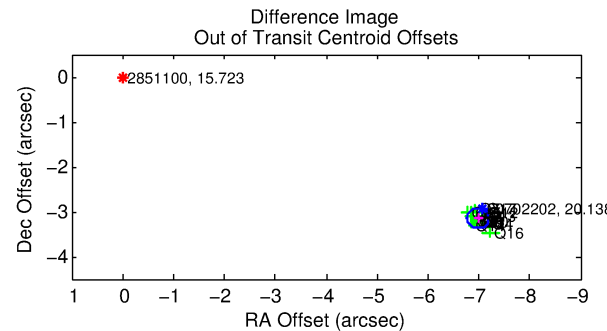
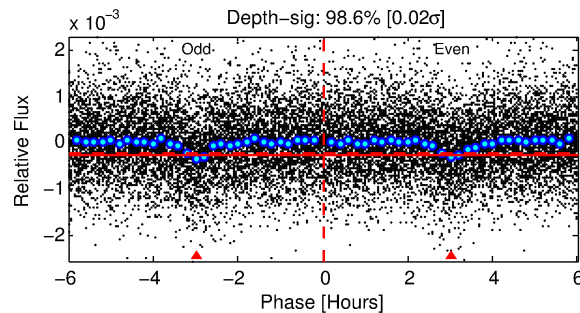
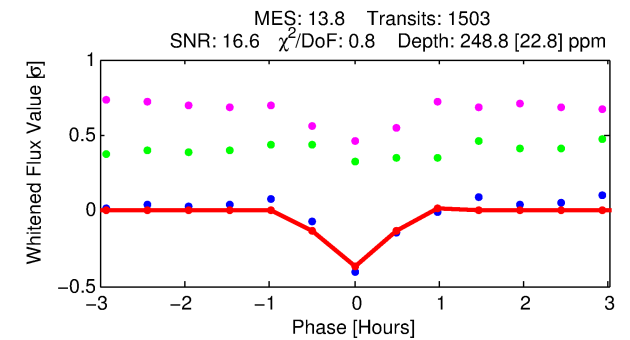
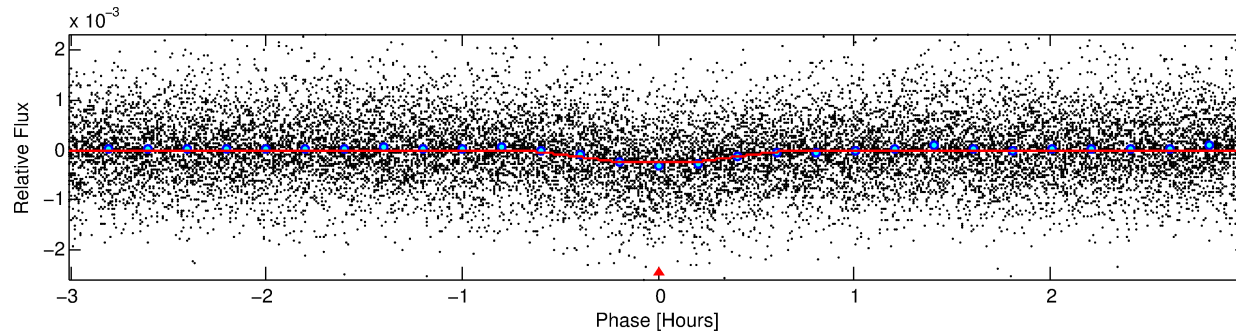
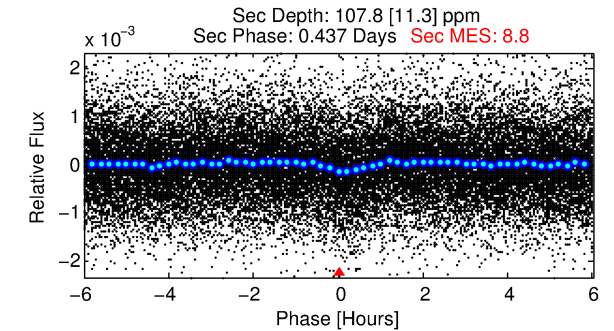
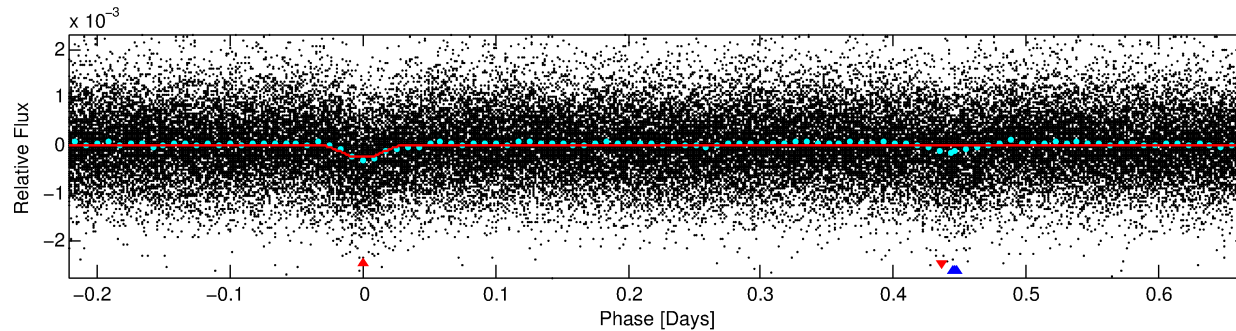
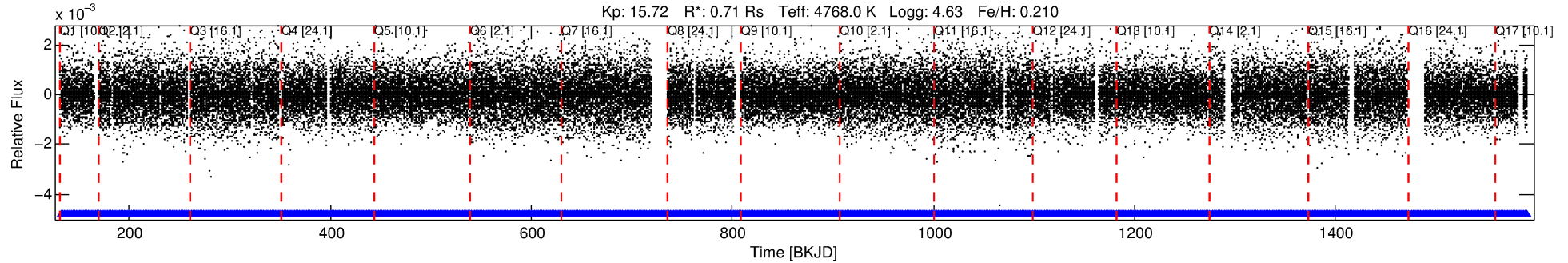
Ephemeris Match Information For 002851100-01

No Significant Match Found

DV One-Page Summary

KIC: 2851100 Candidate: 1 of 2 Period: 0.890 d
KOI: K01104.01 Corr: 0.898

Kp: 15.72 R*: 0.71 Rs Teff: 4768.0 K Logg: 4.63 Fe/H: 0.210



DV Fit Results:

Period = 0.89011 [0.00001] d
Epoch = 132.3763 [0.0010] BKJD
Rp/R* = 0.0180 [0.0101]
a/R* = 3.36 [6.43]
b = 0.90 [0.46]
Seff = 839.90 [136.66]
Teq = 1373 [56] K
Rp = 1.40 [0.80] Re
a = 0.0167 [0.0013] AU
Ag = 8.49 [9.64] [0.78σ]
Teffp = 3623 [1030] K [2.18σ]

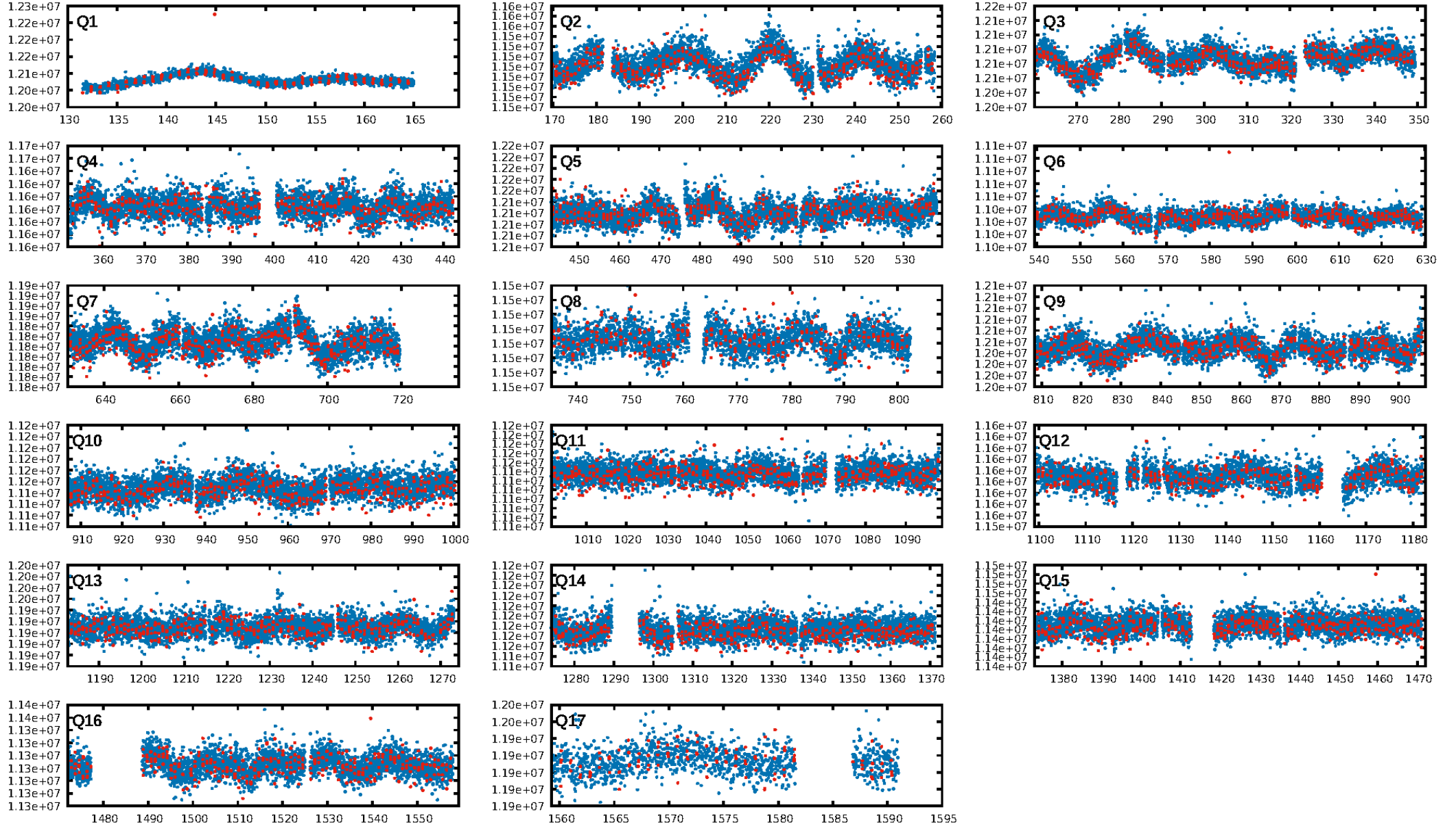
DV Diagnostic Results:

ShortPeriod-sig: 0.0% [0.00σ]
LongPeriod-sig: N/A
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: 1.30e-43
RollingBand-fgt: 1.00 [1434/1434]
GhostDiagnostic-chr: -0.7481
Centroid-sig: 0.0%
Centroid-so: 12.548 arcsec [14.40σ]
OotOffset-rm: 7.655 arcsec [103.37σ]
KicOffset-rm: 7.798 arcsec [99.35σ]
OotOffset-st: 4/4/4/5 [17]
KicOffset-st: 4/4/4/5 [17]
DiffImageQuality-fgm: 1.00 [17/17]
DiffImageOverlap-fno: 1.00 [17/17]

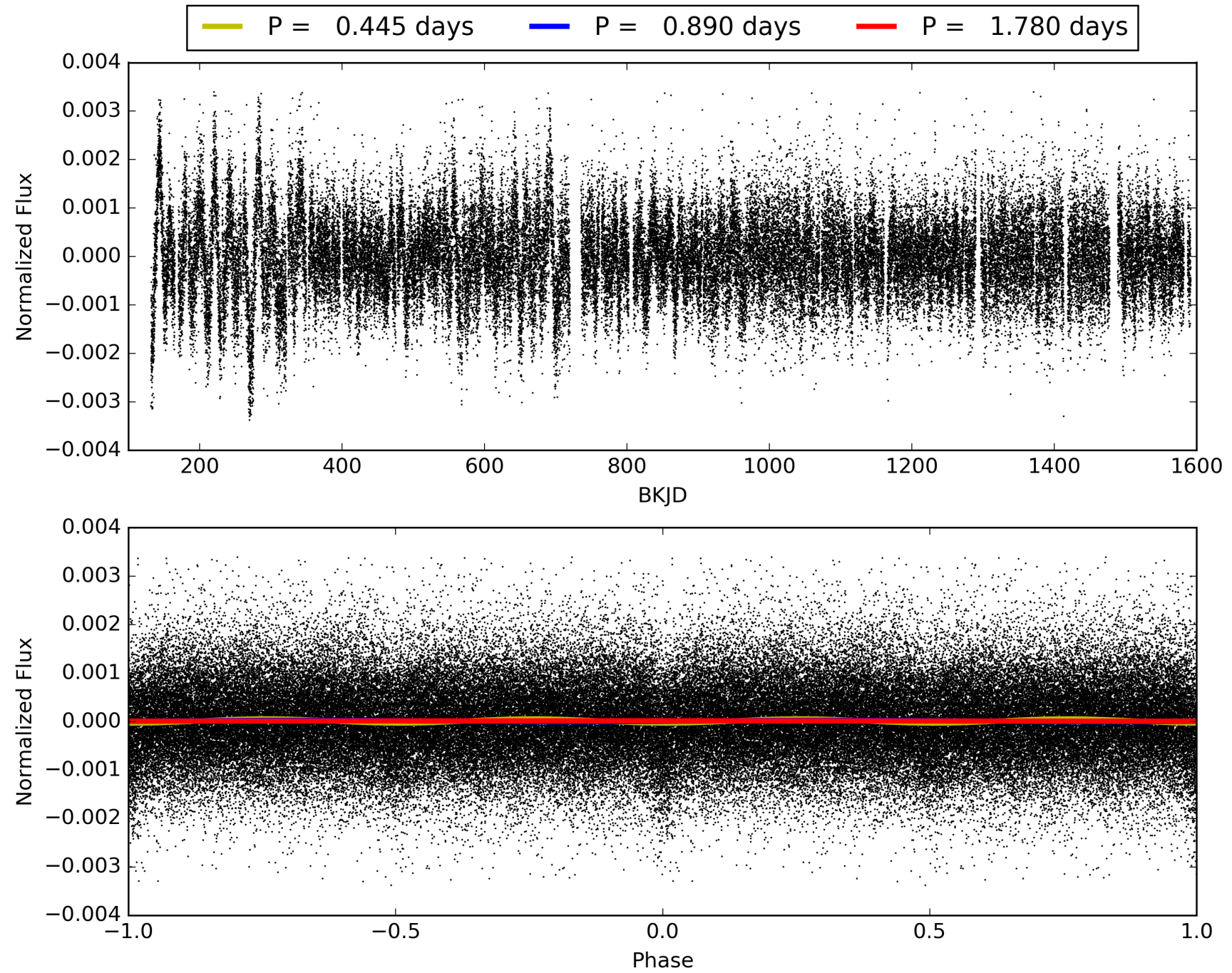
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 31-Jan-2016 03:37:22 Z

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

TCE 002851100-01, PDC Light Curves

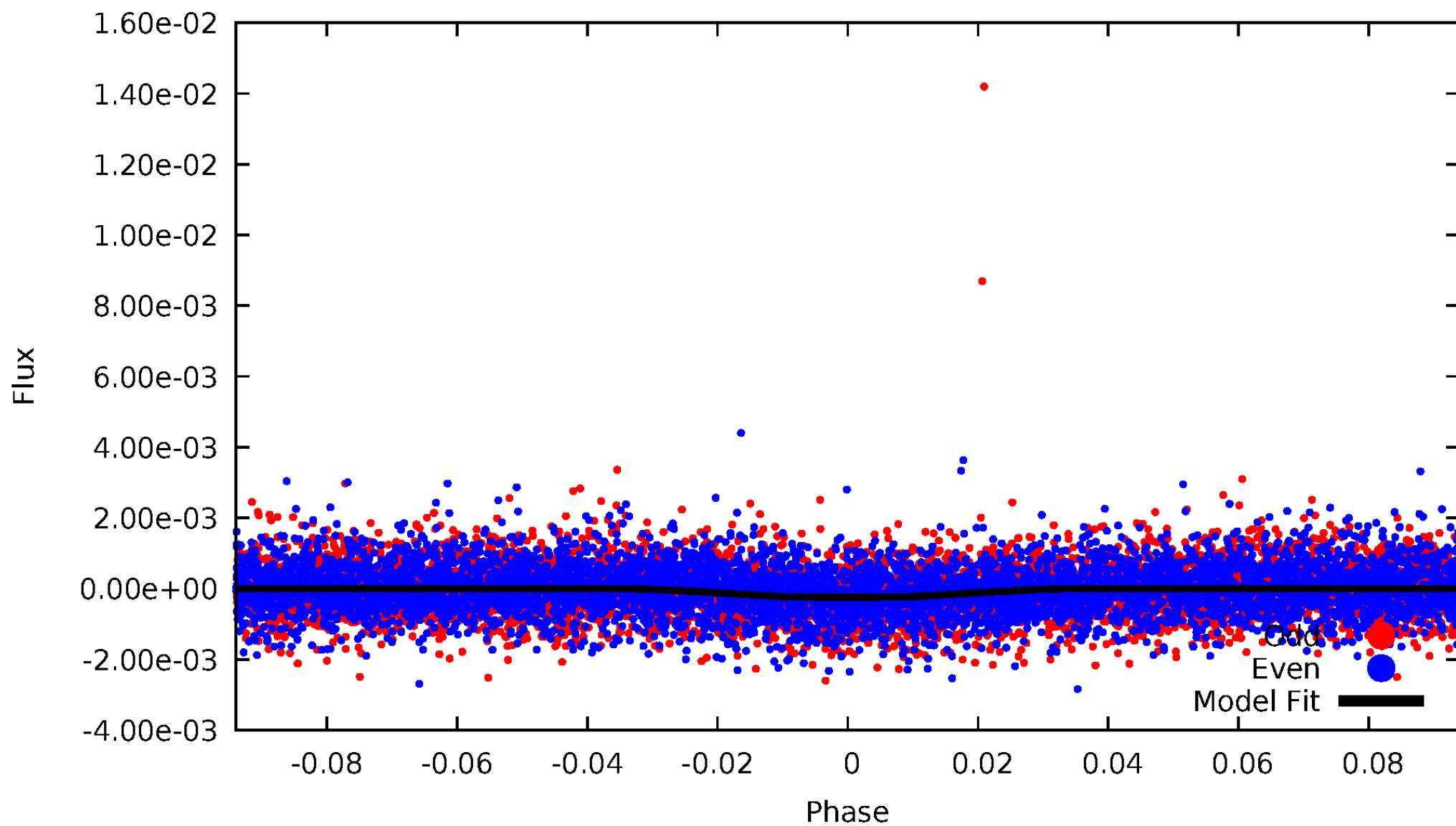


TCE 002851100-01



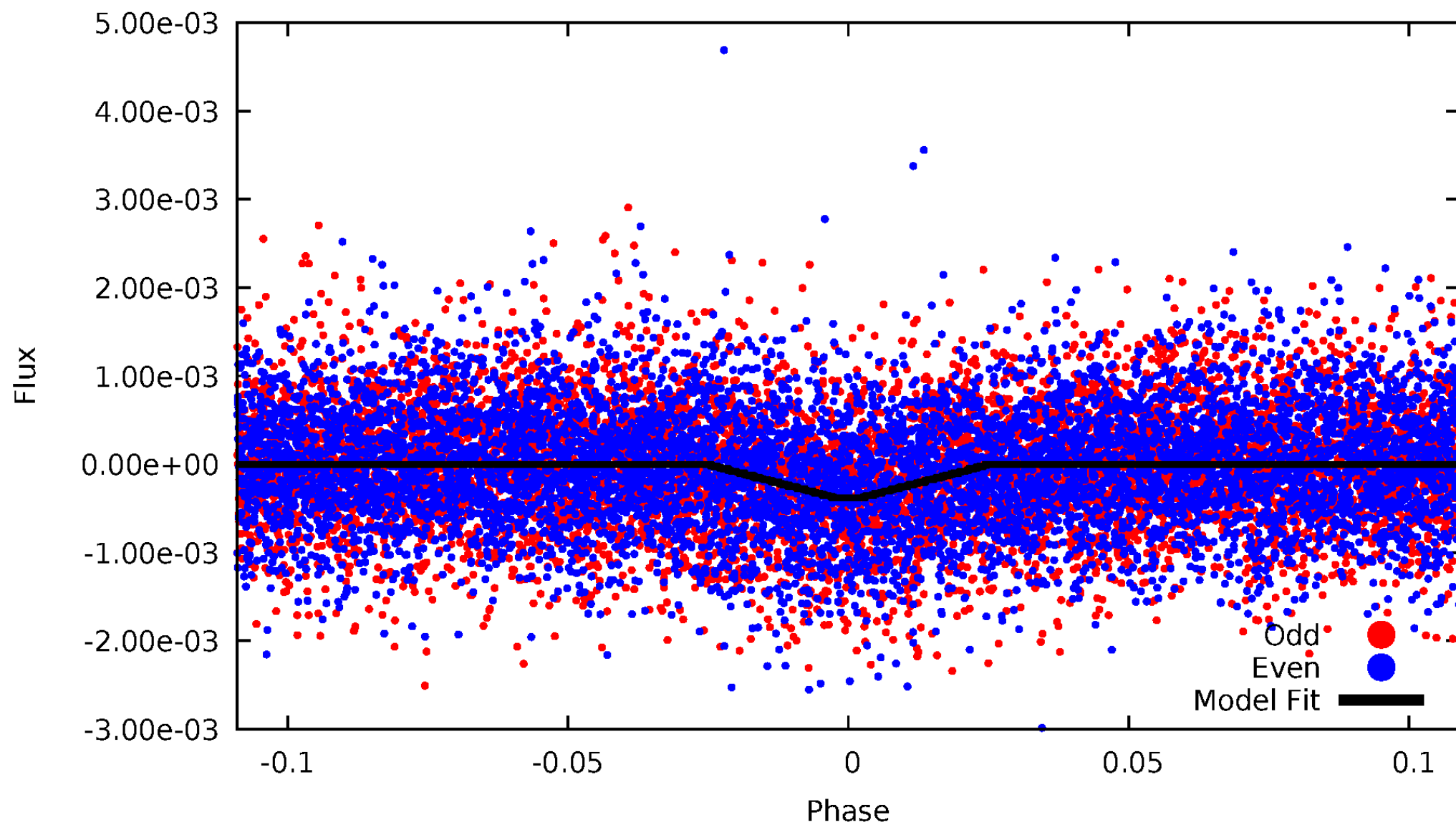
DV Odd/Even

TCE 002851100-01



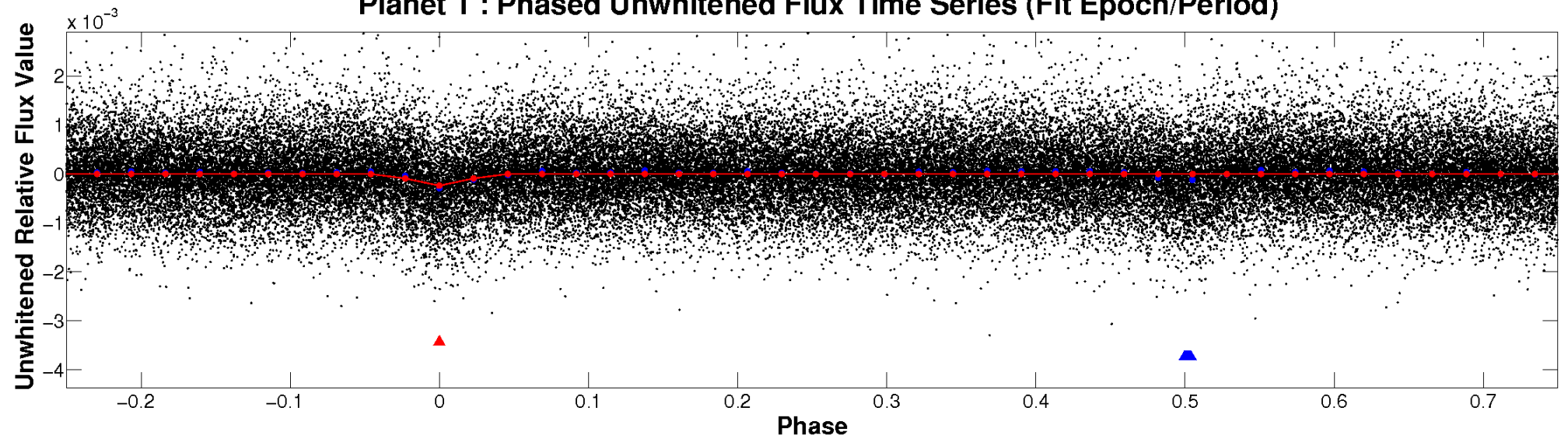
ALT Odd/Even

TCE 002851100-01

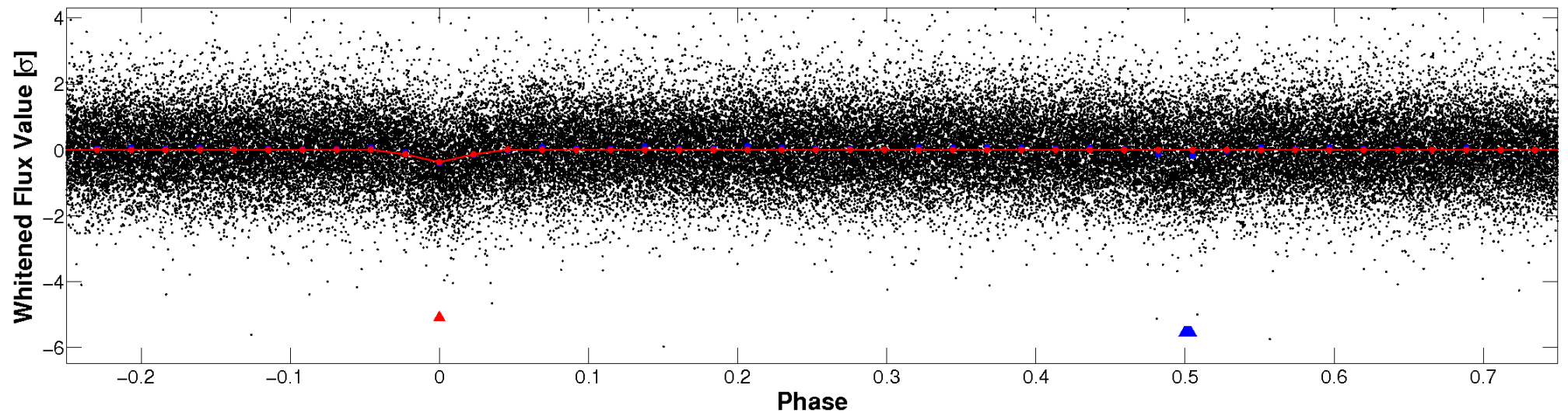


Non-Whitened Vs. Whitened Light Curve

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

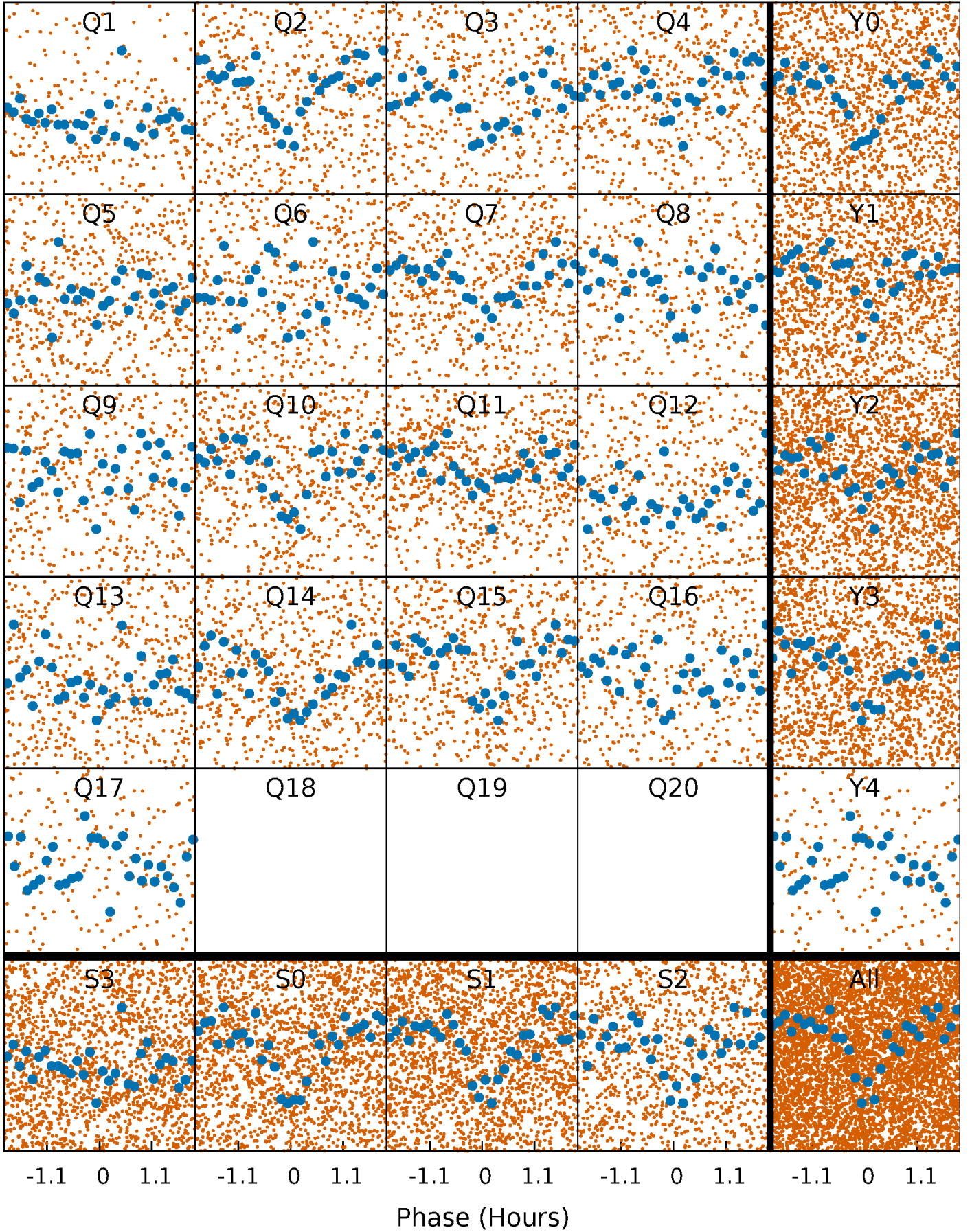


Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)



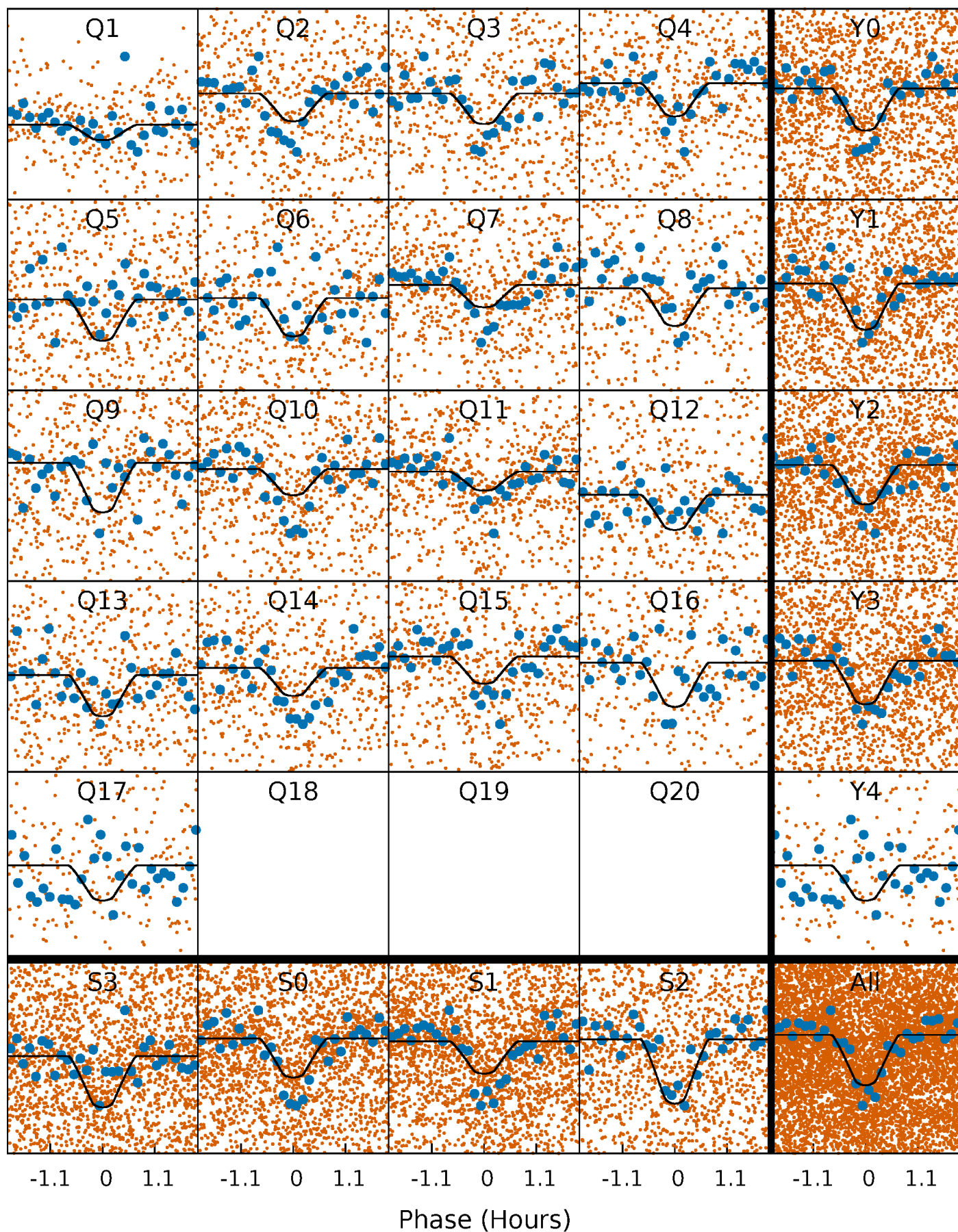
PDC Quarter-Phased Transit Curves

TCE 002851100-01 P= 0.890106 Days $T_0=132.376271$ (BKJD)



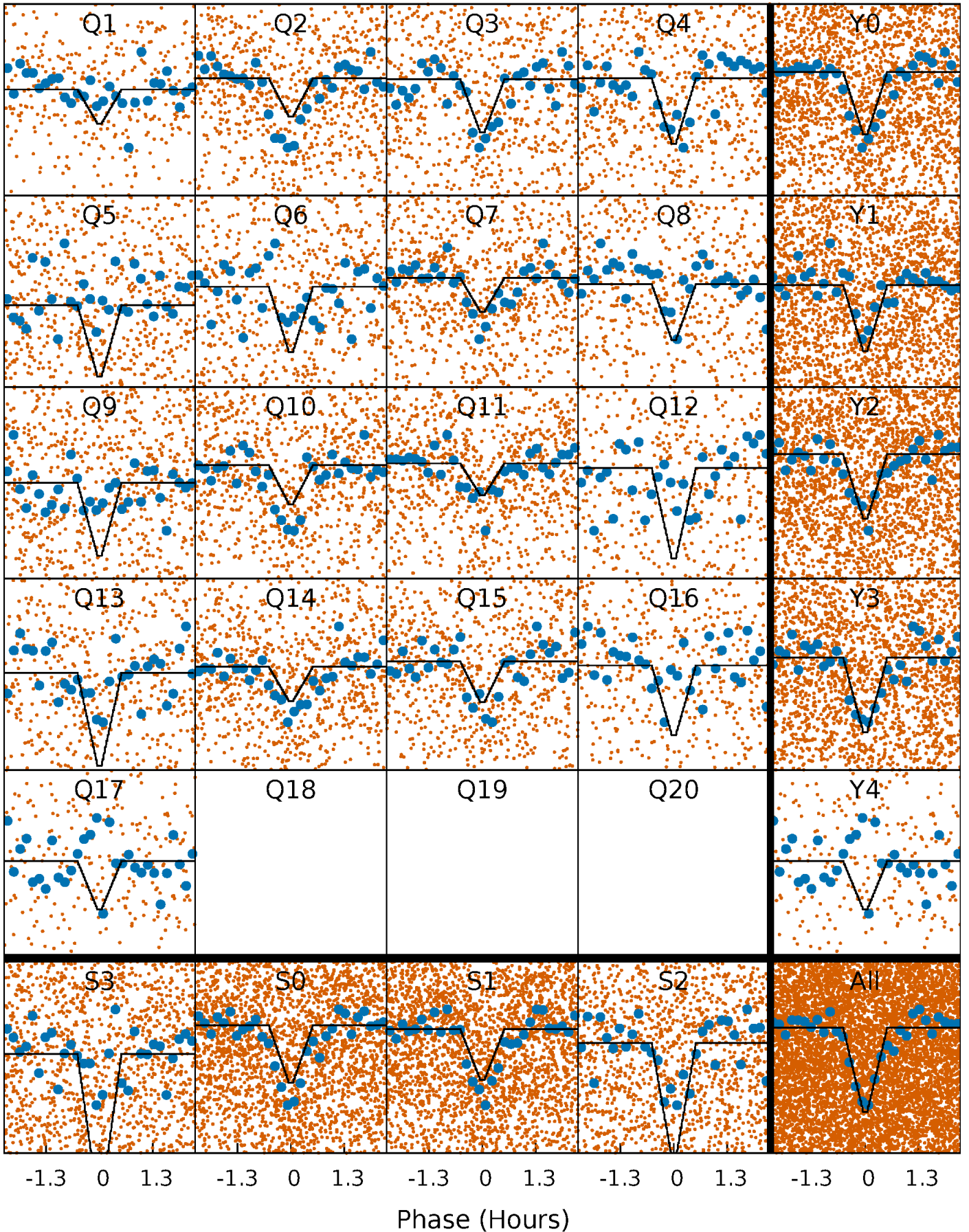
DV Quarter-Phased Transit Curves

TCE 002851100-01 P= 0.890106 Days $T_0=132.376271$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

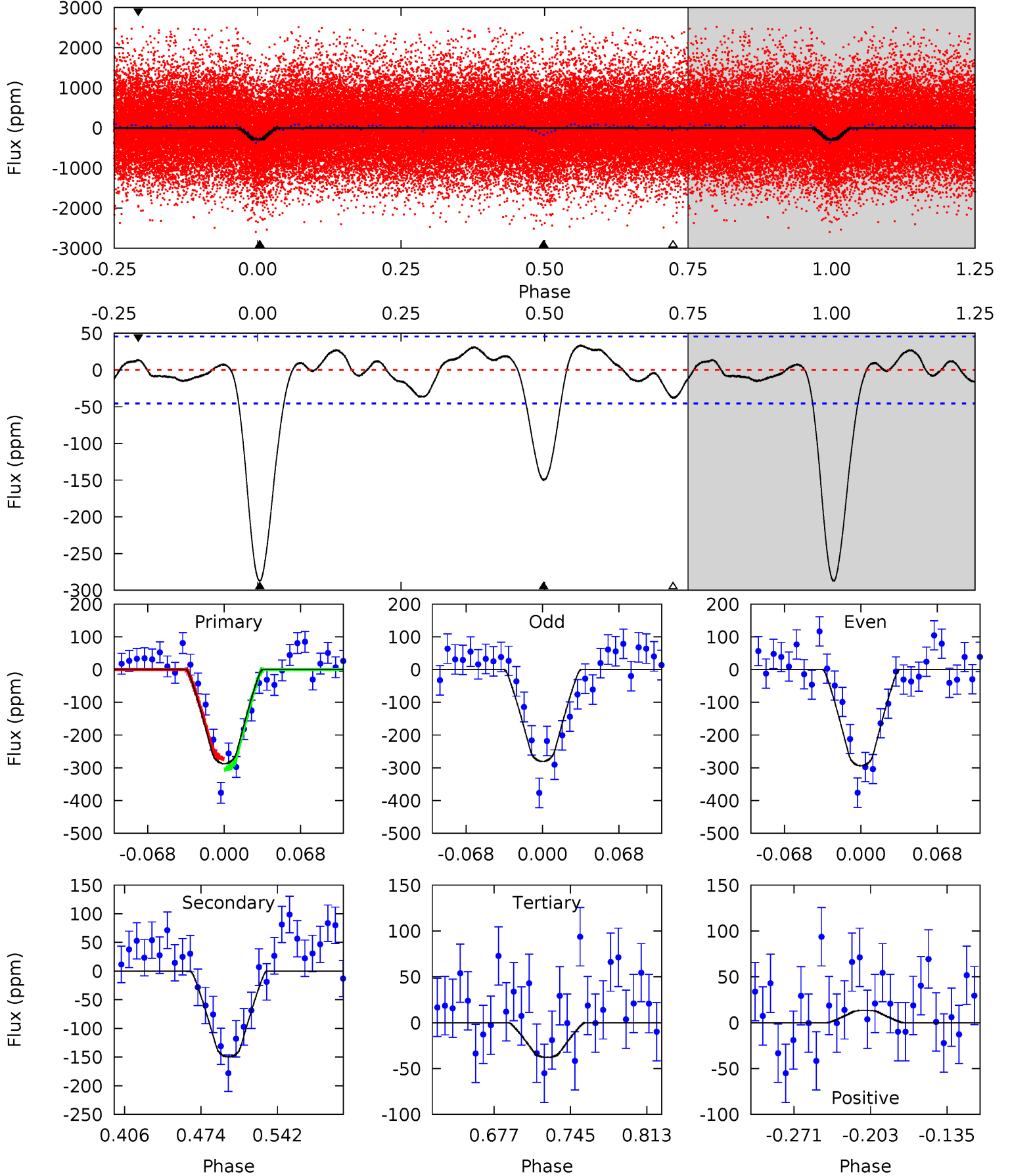
TCE 002851100-01 P= 0.890110 Days $T_0=132.376035$ (BKJD)



DV Model-Shift Uniqueness Test

002851100-01, P = 0.890106 Days, E = 131.486165 Days

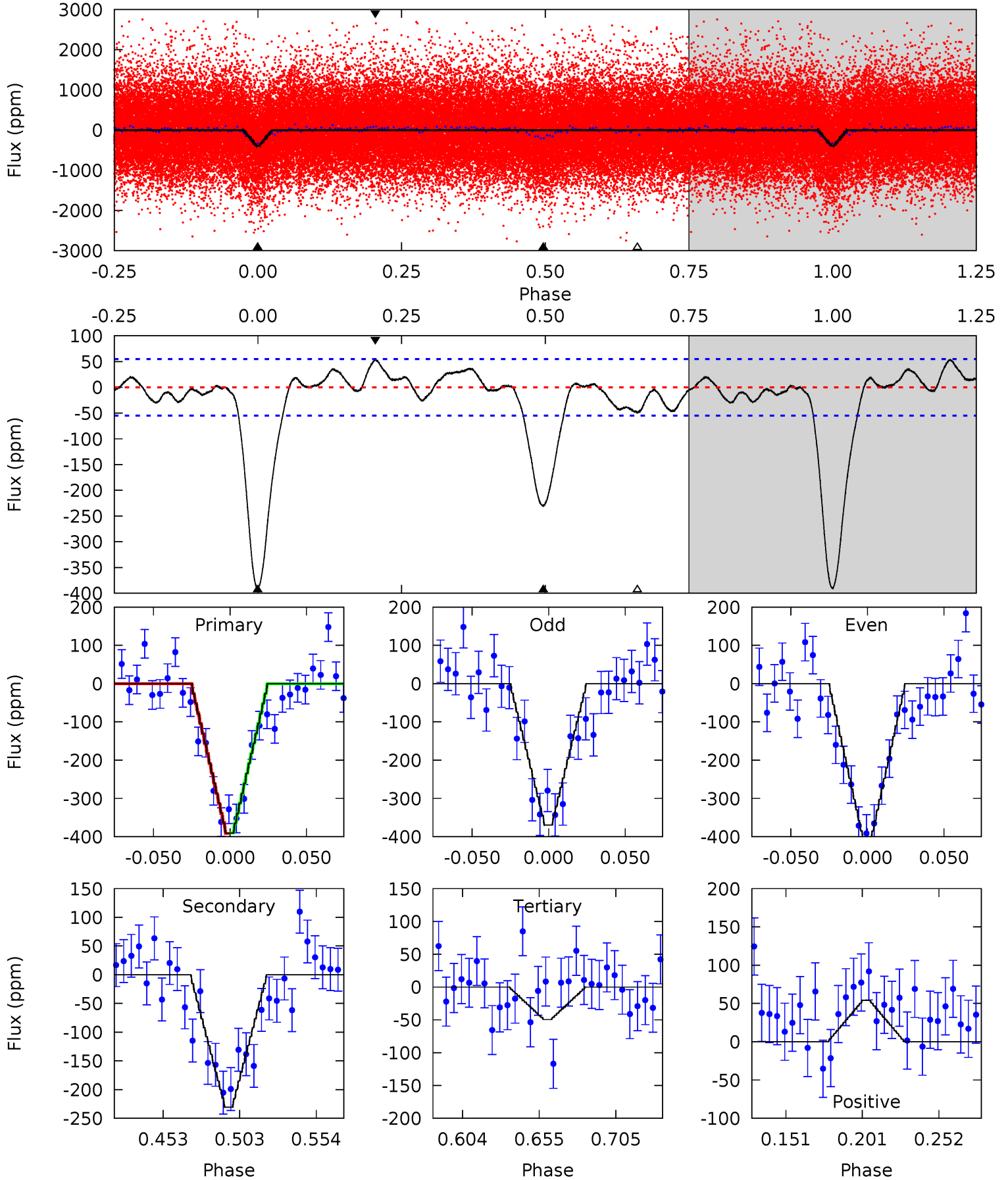
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
29.2	15.2	3.84	1.37	4.65	1.83	1.77	25.4	27.8	11.4	13.8	0.69	1.02	0.10	1.64



Alt Model-Shift Uniqueness Test

002851100-01, P = 0.890110 Days, E = 131.485925 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
33.5	19.8	4.25	4.62	4.71	1.96	1.89	29.2	28.9	15.5	15.2	1.84	1.02	0.12	0.06



Stellar Parameters For KIC 002851100

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	M (M_{\odot})	p_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	4768^{+143}_{-129}	$4.628^{+0.020}_{-0.060}$	$0.210^{+0.200}_{-0.350}$	$0.711^{+0.064}_{-0.043}$	$0.815^{+0.030}_{-0.077}$	$3.189^{+0.371}_{-0.721}$
	+3%/-3%	+0%/-1%	+95%/-167%	+9%/-6%	+4%/-9%	+12%/-23%
Source	PHO1	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 002851100-01 / KOI 1104.01

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	-150 ± 10	$1.47^{+0.80}_{-0.79}$	1942^{+66}_{-65}	4073^{+1464}_{-581}	11^{+39}_{-6}
Alt.	-231 ± 12	$1.61^{+0.74}_{-0.77}$	1935^{+66}_{-54}	4256^{+1350}_{-556}	14^{+34}_{-8}

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 $A_{obs} \gg 1.0$

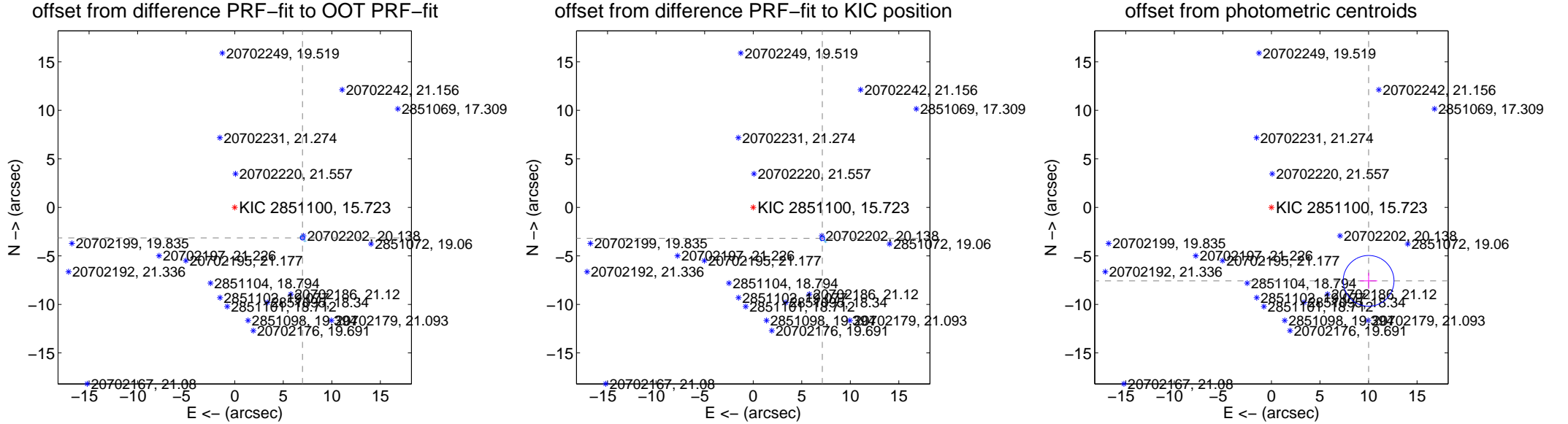
DV Centroid Data

Supplemental centroid analysis for 002851100-01. Kepler magnitude: 15.72. Transit SNR 16.61

There are 17 quarters with good PRF difference image offsets

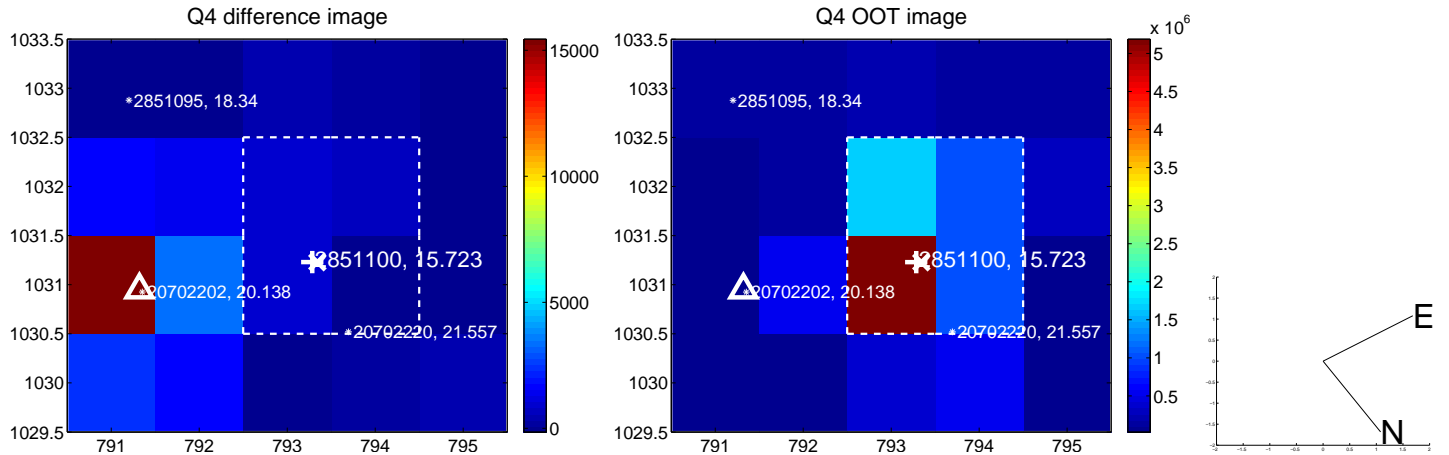
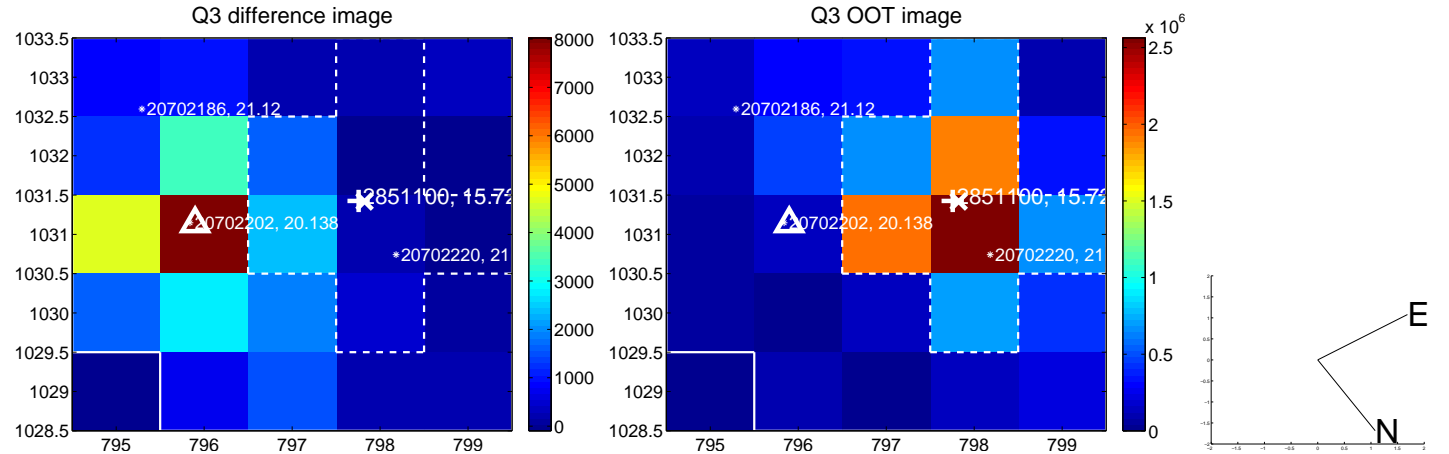
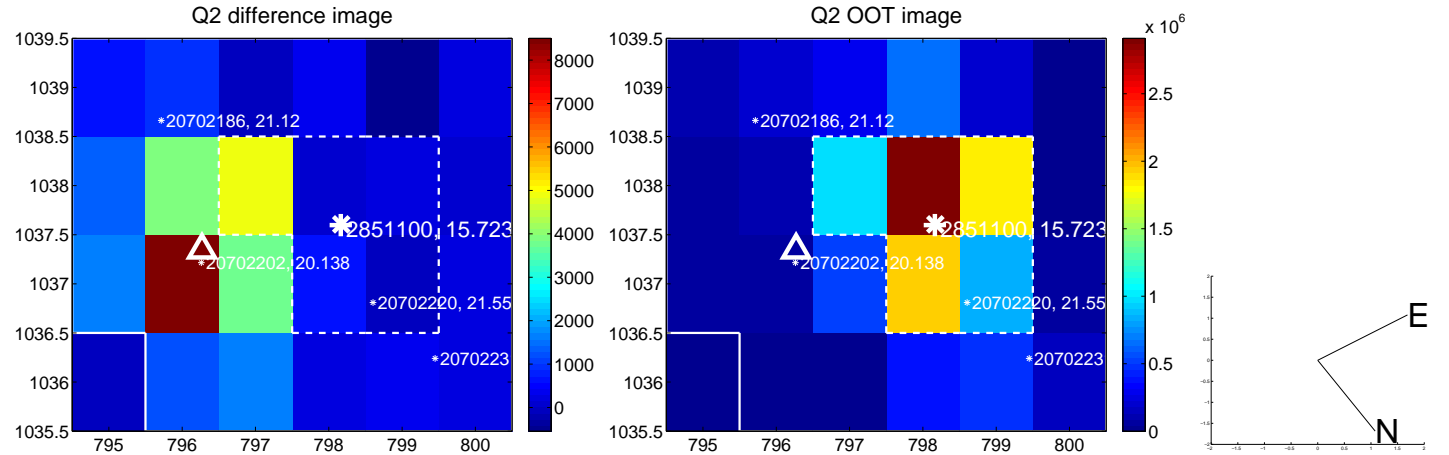
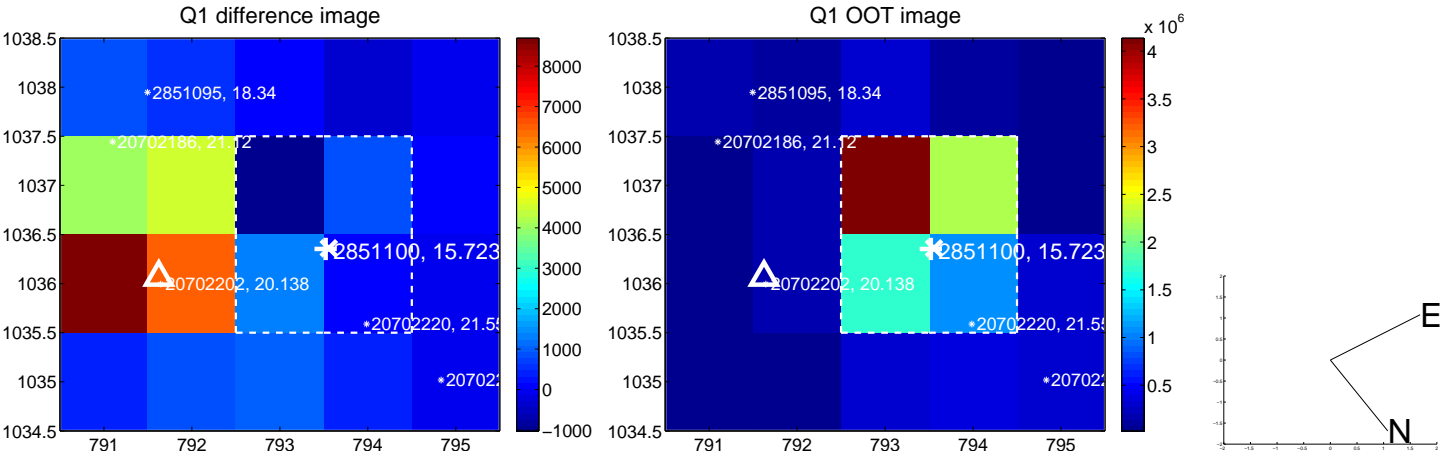
The direct PRF centroid is offset from the target star catalog position by about 0.15 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	7.655 ± 0.074	103.37	-6.979 ± 0.073	-3.145 ± 0.074
PRF-fit source offset from KIC position	7.798 ± 0.078	99.35	-7.115 ± 0.076	-3.190 ± 0.075
photometric centroid source offset	12.55 ± 0.87	14.40	-10.01 ± 0.89	-7.57 ± 0.83

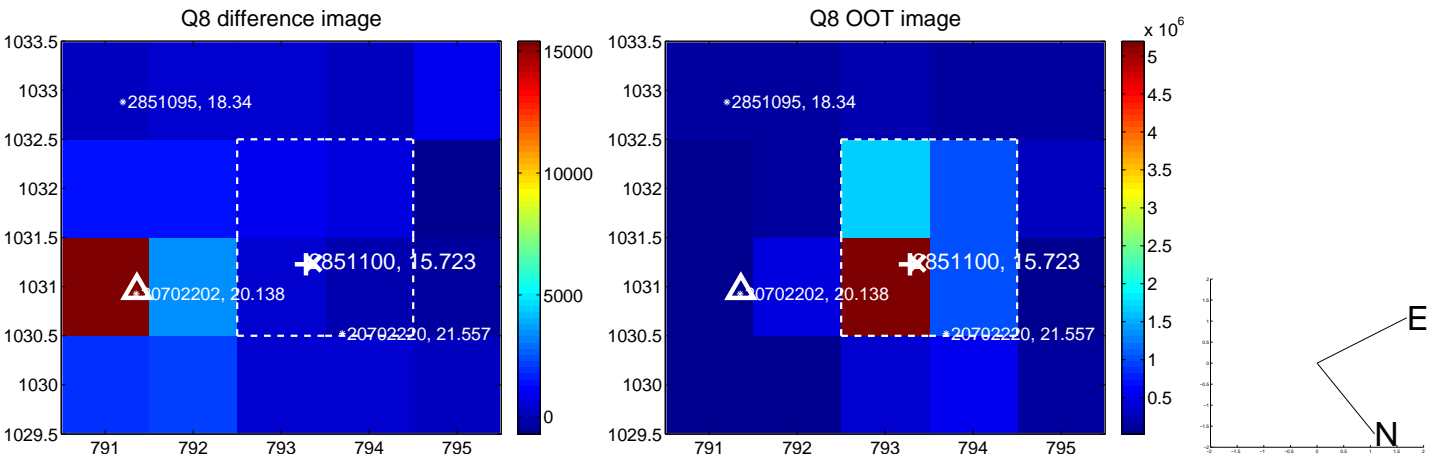
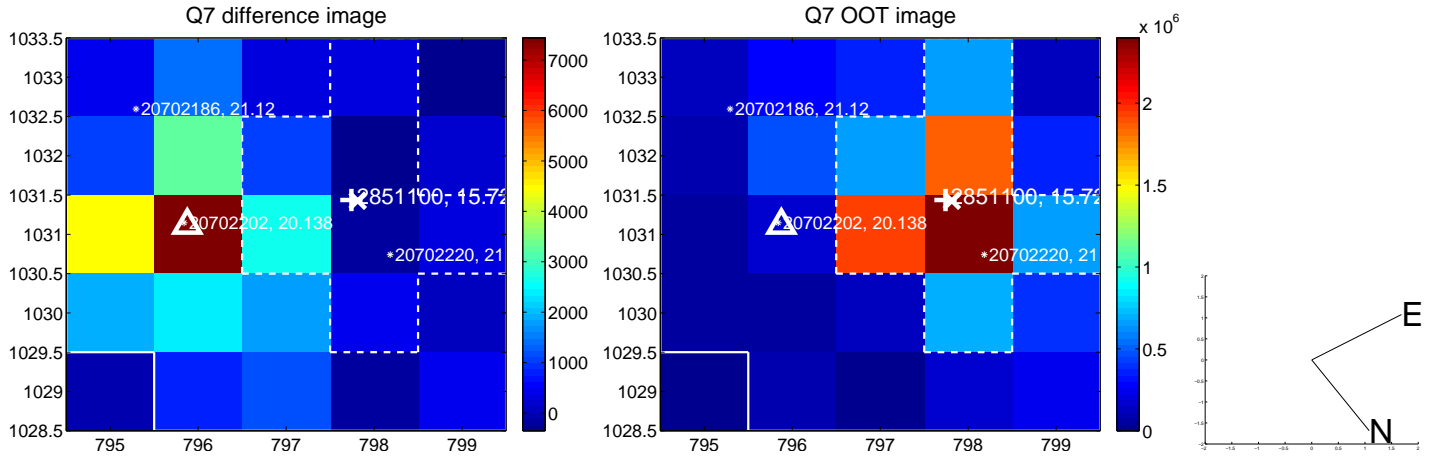
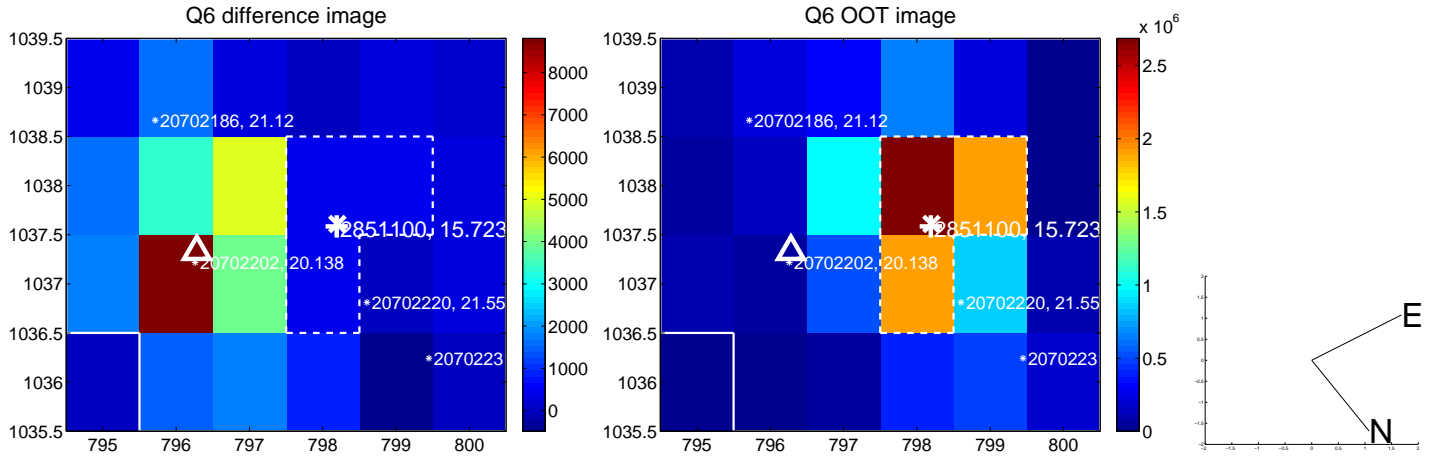
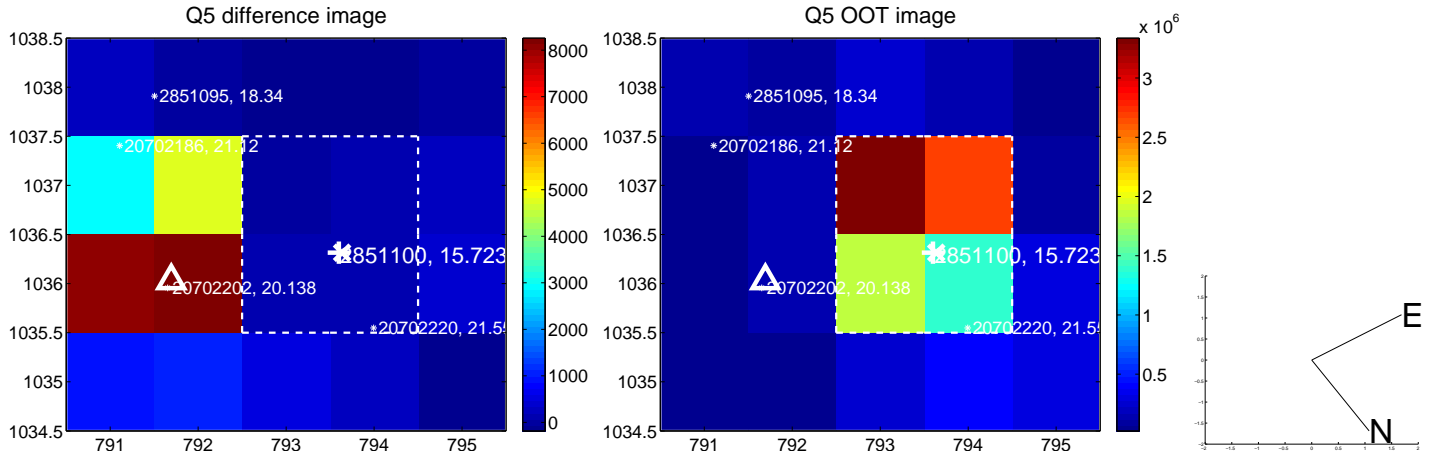


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses:** good quarterly centroid offsets; **Vermillion crosses:** bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

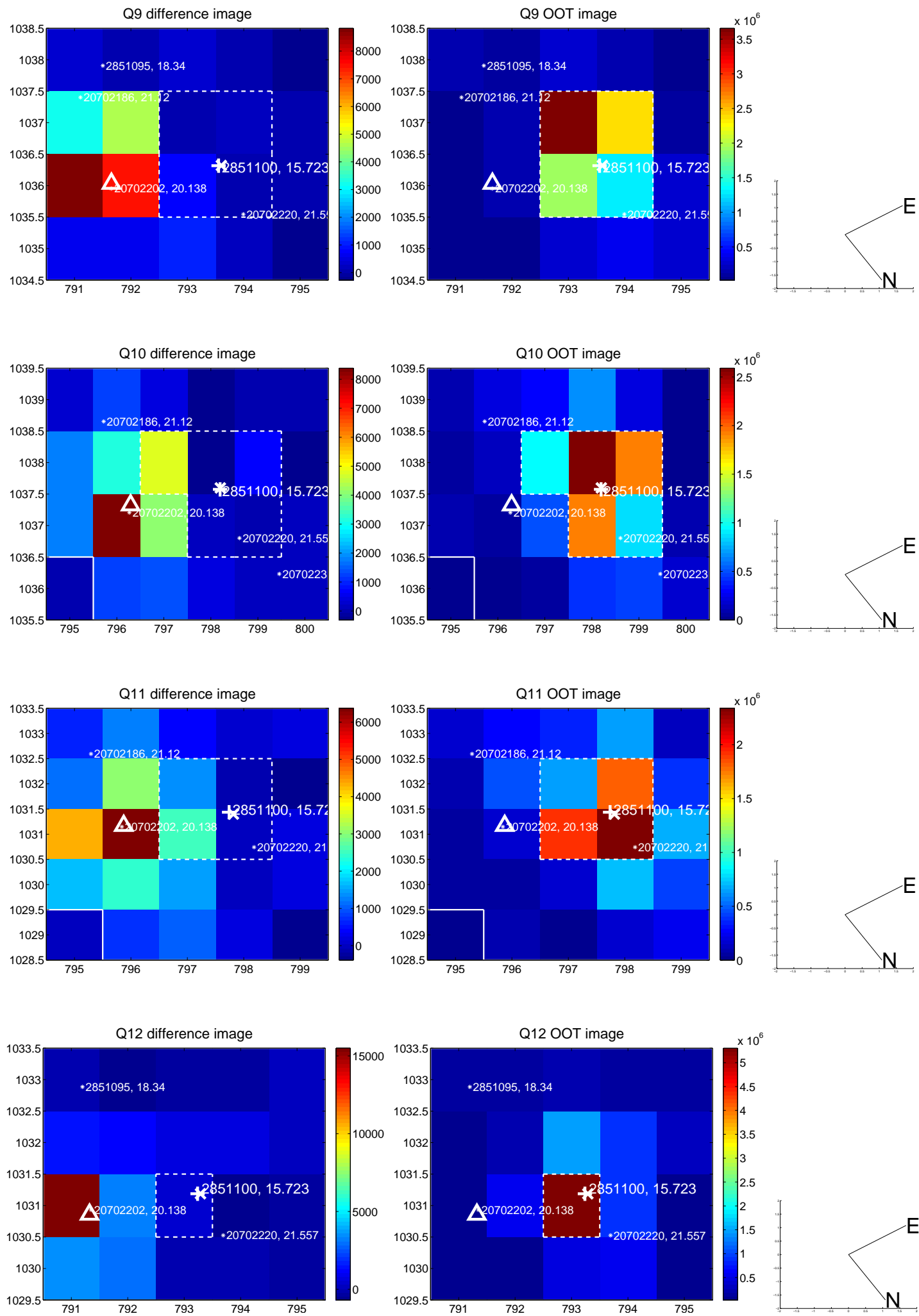
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



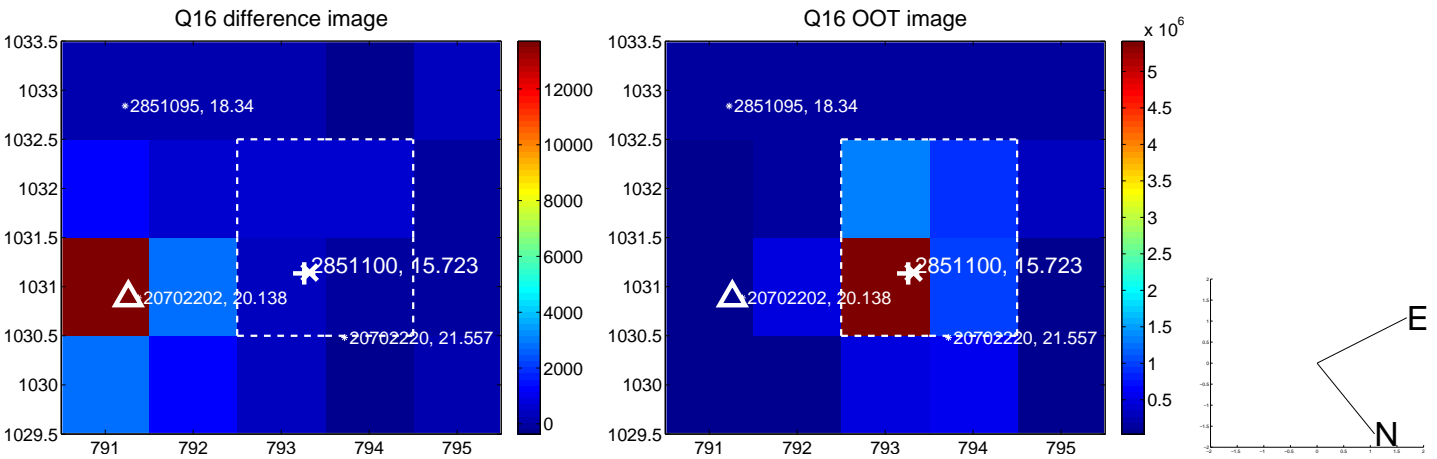
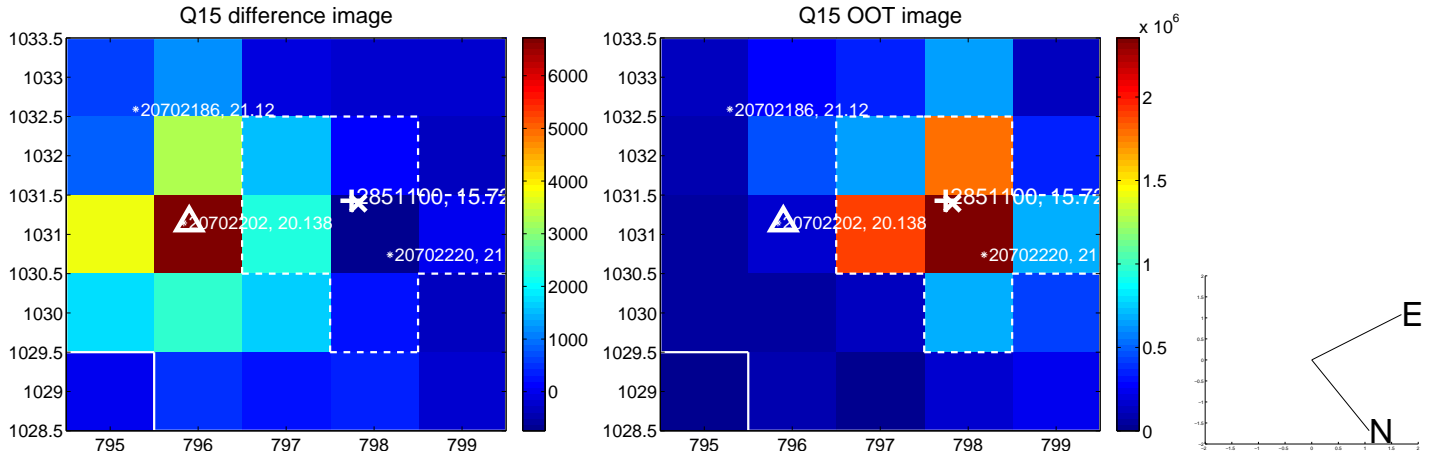
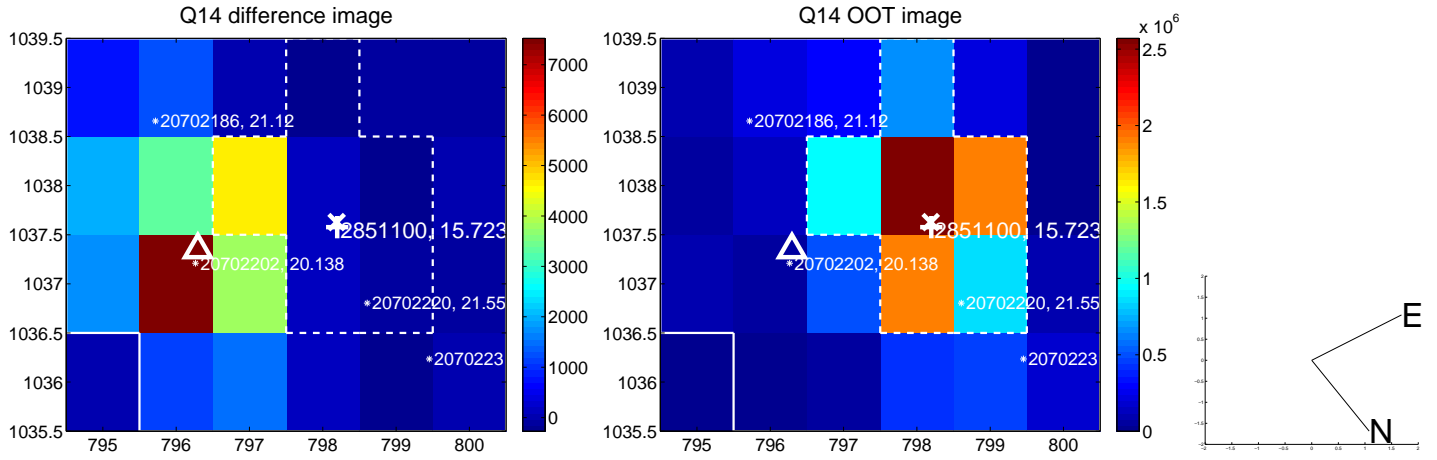
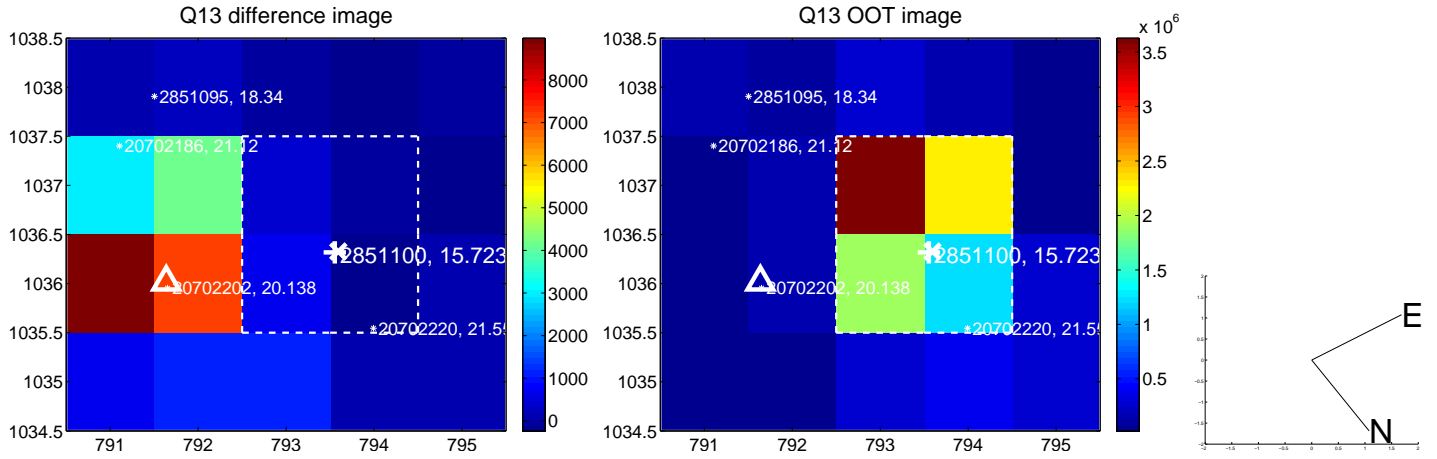
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

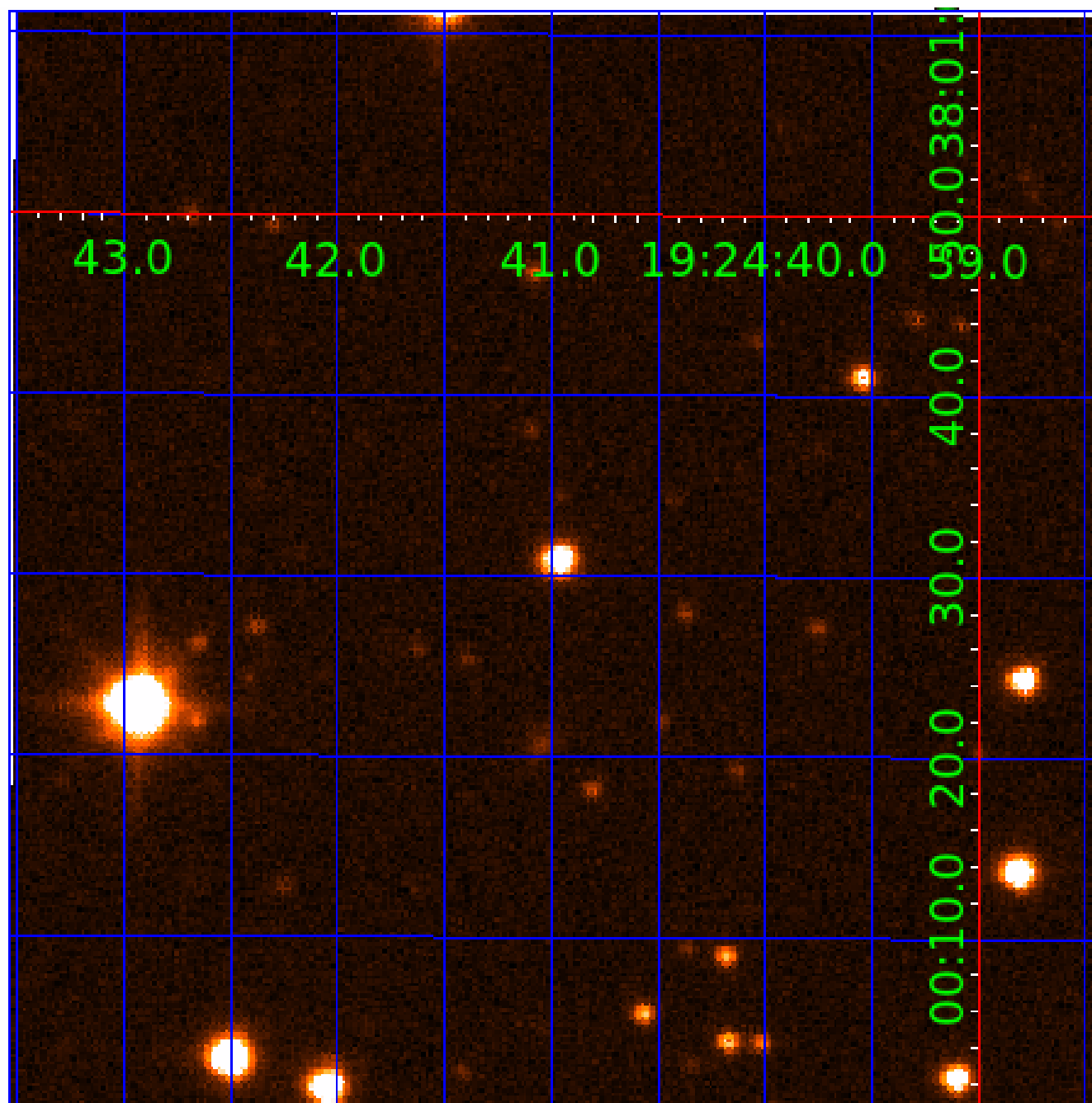


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 002851100

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})
002851100-01	OBS	1104.01	0.890106	132.376271	248.8	1.003	13.8	16.6	0.71	4768	1.40	839.90
002851100-02	OBS	No	0.890104	131.934730	137.1	1.293	9.7	10.6	0.71	4768	1.04	839.91

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
002851100-01	OBS	FP	0.00	0	1	1	0	MOD_SEC_DV—MOD_SEC_ALT—HAS_SEC_TCE—CENT_RESOLVED_OFFSET
002851100-02	OBS	FP	0.00	1	1	1	0	IS_SEC_TCE—CENT_RESOLVED_OFFSET

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.

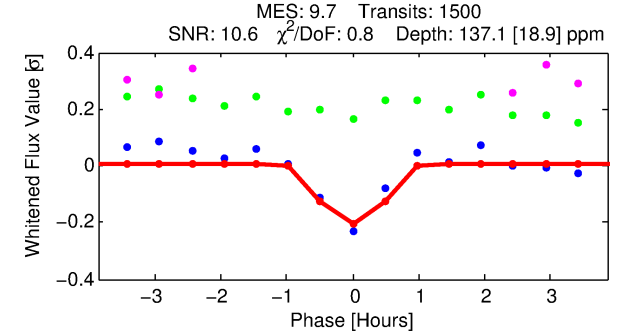
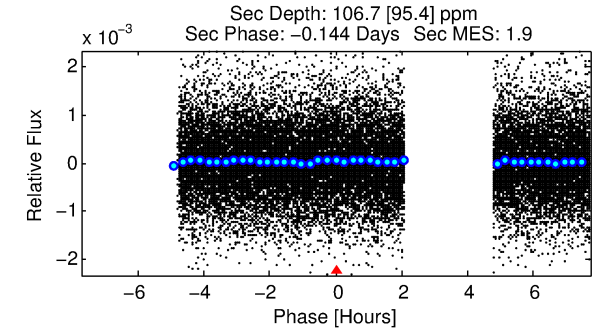
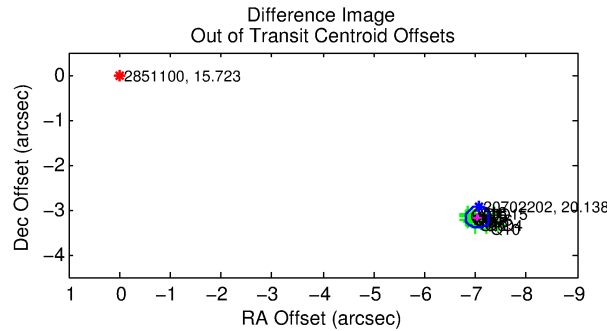
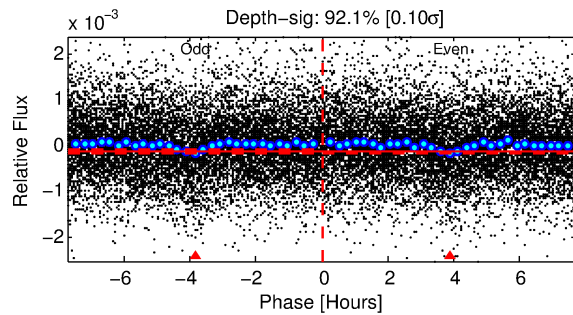
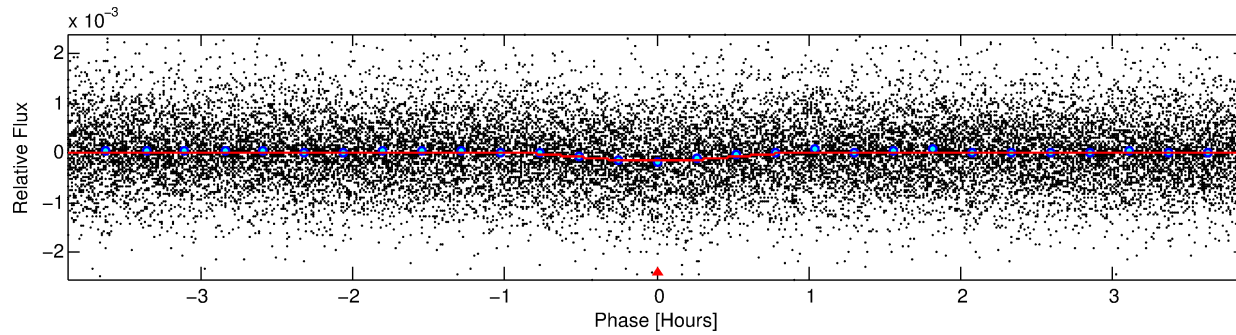
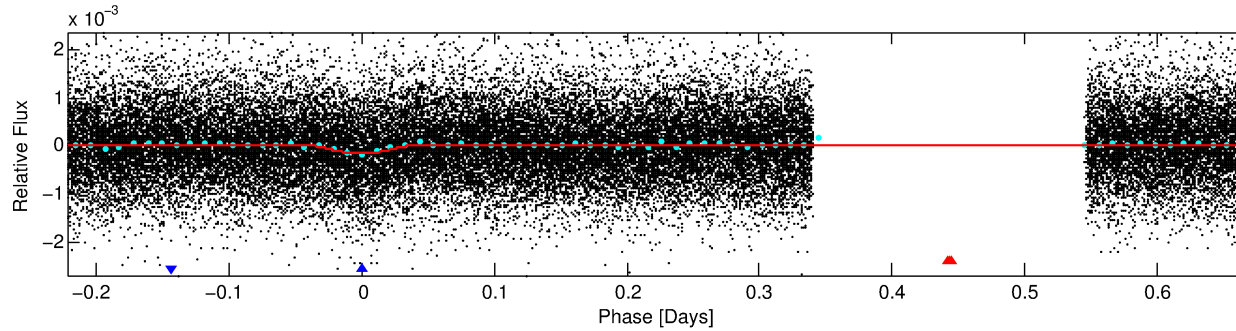
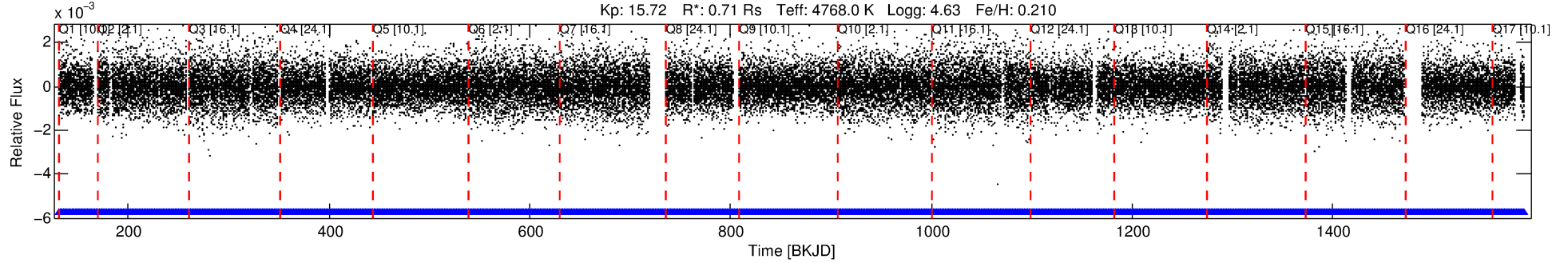
Ephemeris Match Information For 002851100-02

No Significant Match Found

DV One-Page Summary

KIC: 2851100 Candidate: 2 of 2 Period: 0.890 d
KOI: K01104 Corr: No Ephemeris Match

Kp: 15.72 R*: 0.71 Rs Teff: 4768.0 K Logg: 4.63 Fe/H: 0.210



DV Fit Results:

Period = 0.89010 [0.00001] d
Epoch = 131.9347 [0.0020] BKJD
Rp/R* = 0.0134 [0.0120]
a/R* = 2.57 [7.49]
b = 0.91 [0.71]
Seff = 839.91 [136.67]
Teq = 1373 [56] K
Rp = 1.04 [0.94] Re
a = 0.0167 [0.0013] AU
Ag = 15.21 [30.62] [0.46σ]
Teff = 4191 [2110] K [1.33σ]

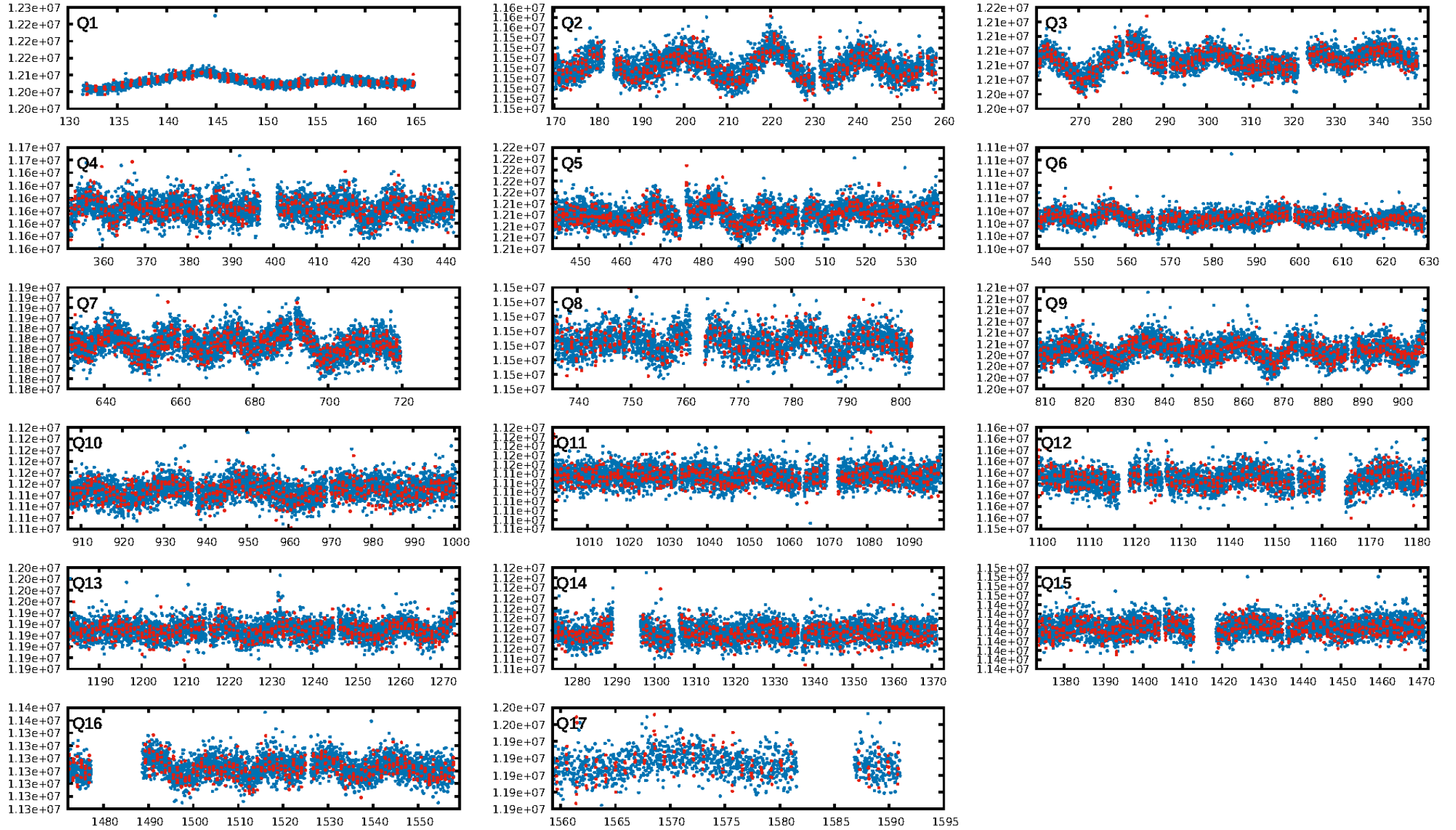
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: 0.0% [0.00σ]
ModelChiSquare2-sig: N/A
ModelChiSquareGoF-sig: N/A
Bootstrap-pfa: 1.56e-23
RollingBand-fgt: 1.00 [1432/1432]
GhostDiagnostic-chr: -1.536
Centroid-sig: 0.0%
Centroid-so: 12.468 arcsec [9.51σ]
OotOffset-rm: 7.715 arcsec [97.59σ]
KicOffset-rm: 7.862 arcsec [97.46σ]
OotOffset-st: 4/4/4/5 [17]
KicOffset-st: 4/4/4/5 [17]
DiffImageQuality-fgm: 1.00 [17/17]
DiffImageOverlap-fno: 1.00 [17/17]

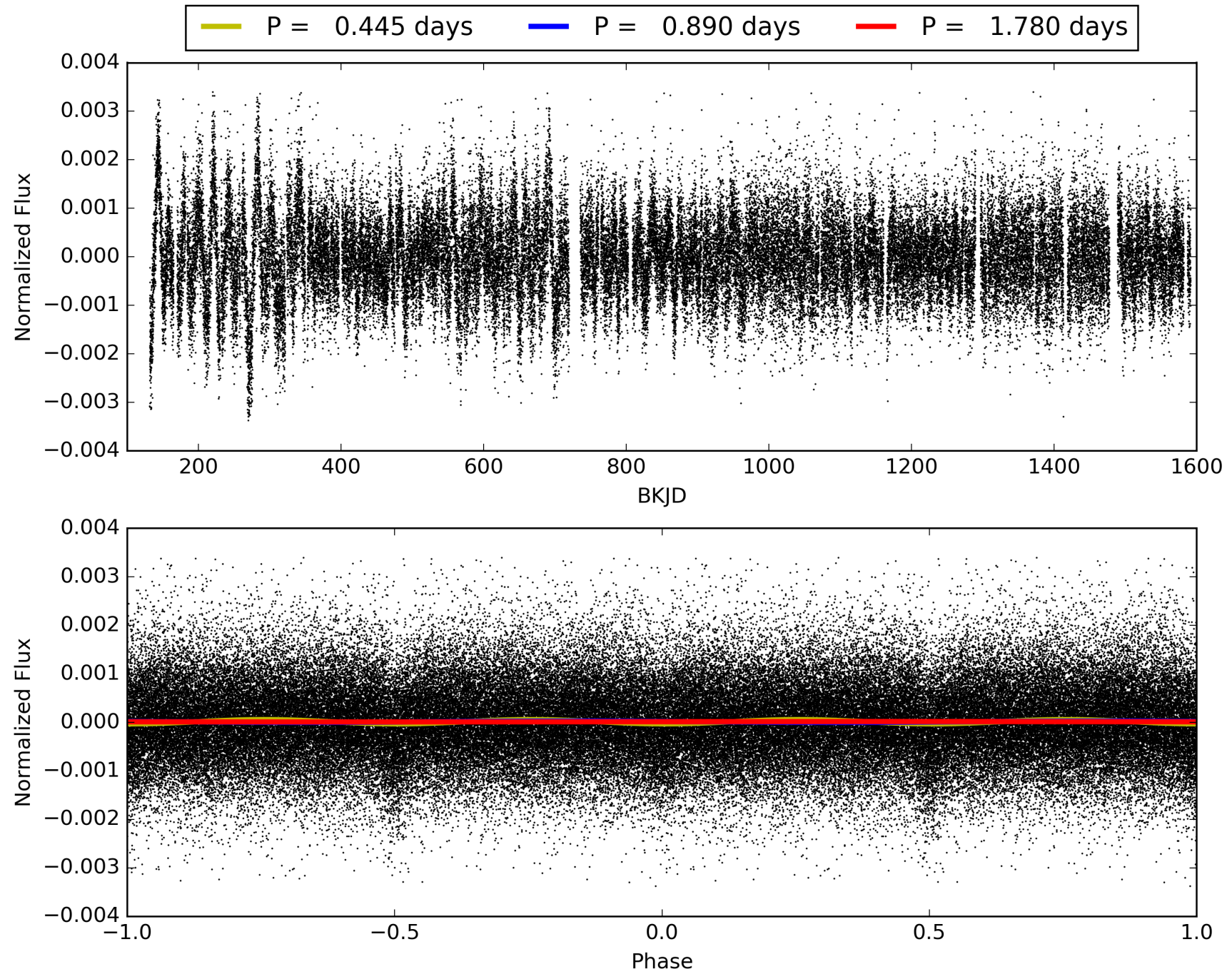
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This Data Validation Report Summary was produced in the Kepler Science Operations Center Pipeline at NASA Ames Research Center

TCE 002851100-02, PDC Light Curves

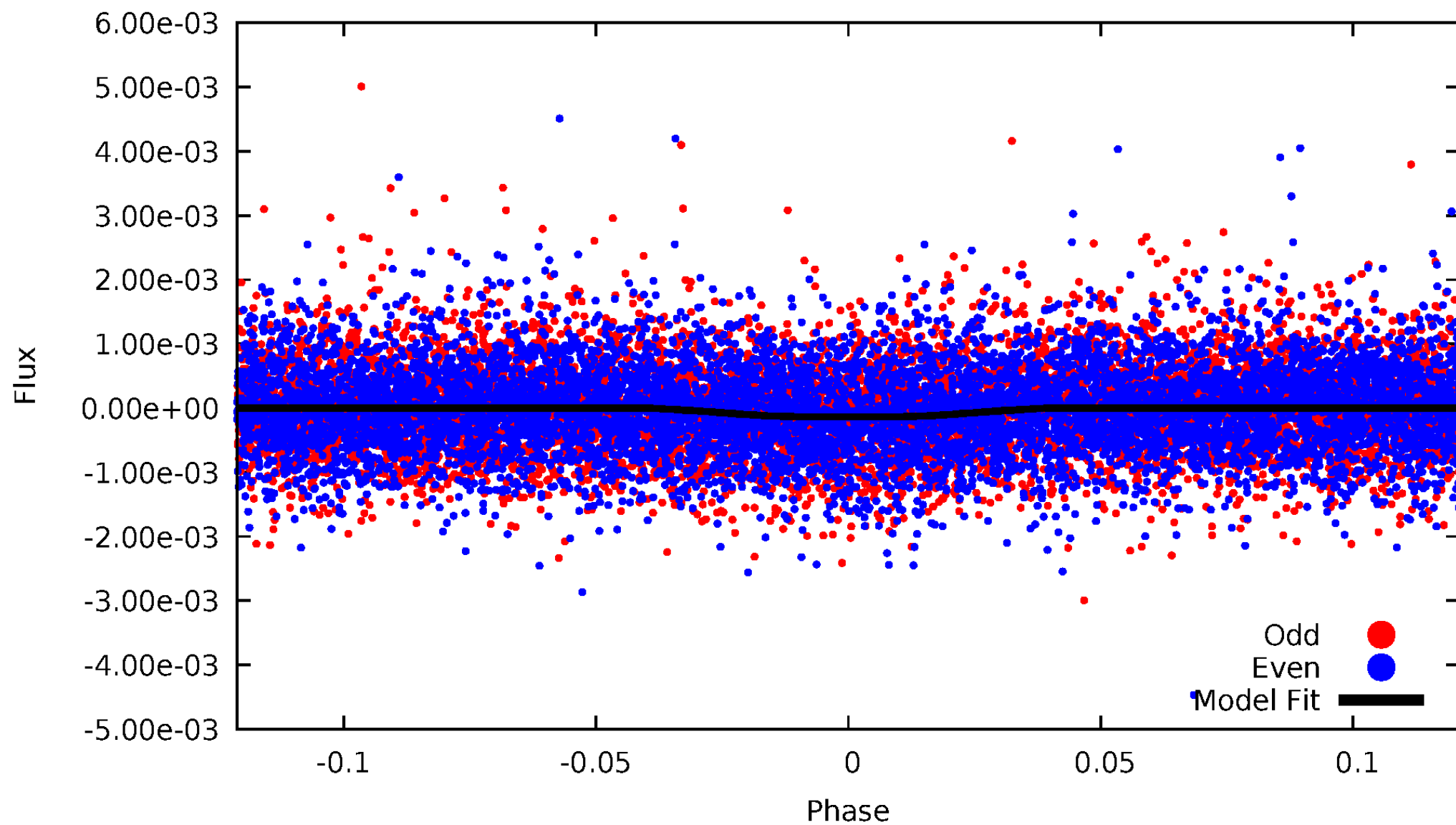


TCE 002851100-02



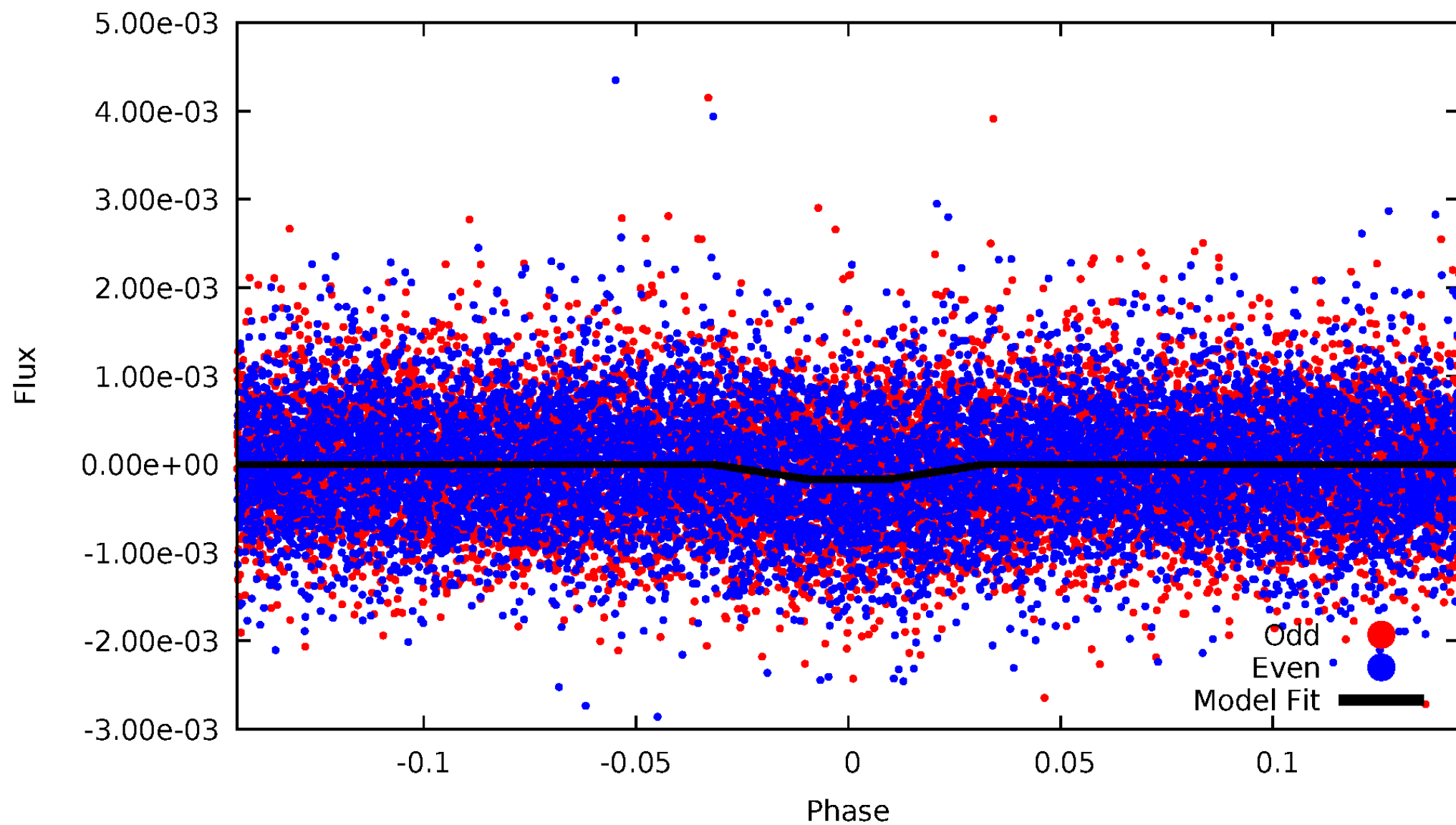
DV Odd/Even

TCE 002851100-02



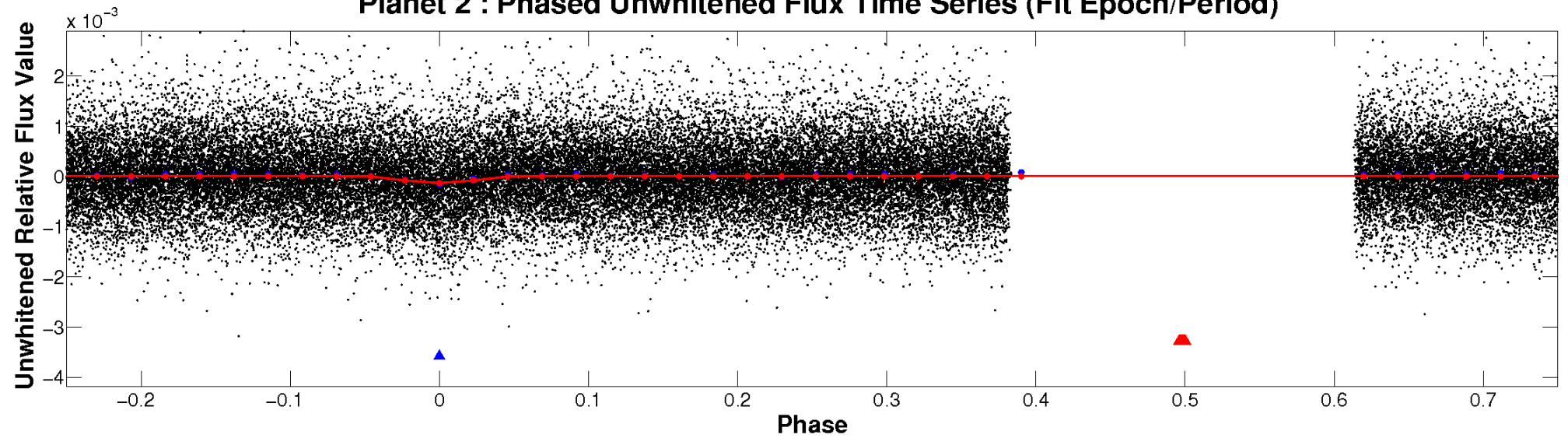
ALT Odd/Even

TCE 002851100-02

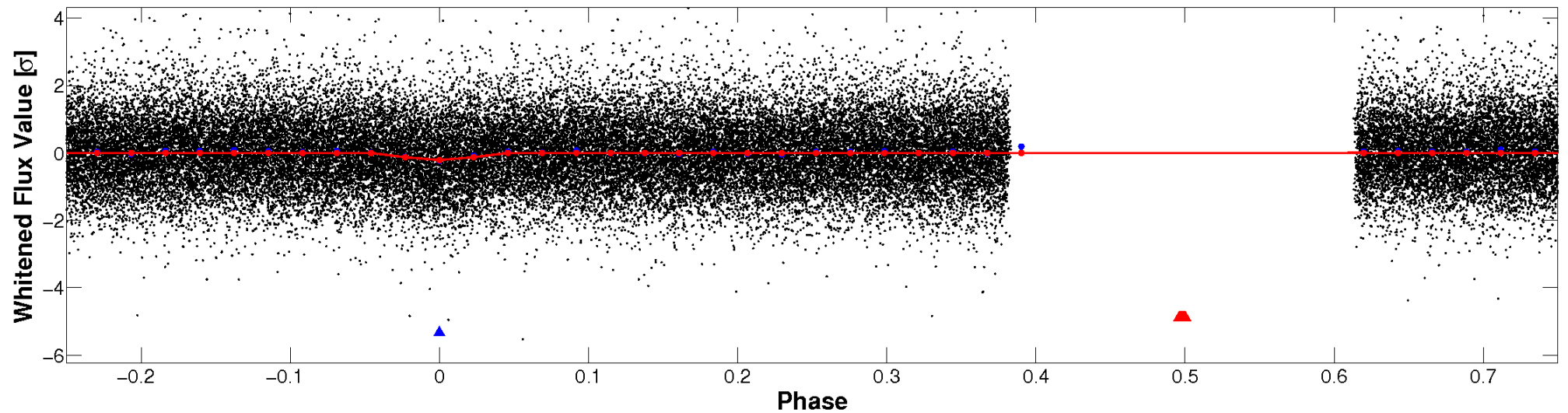


Non-Whitened Vs. Whitened Light Curve

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

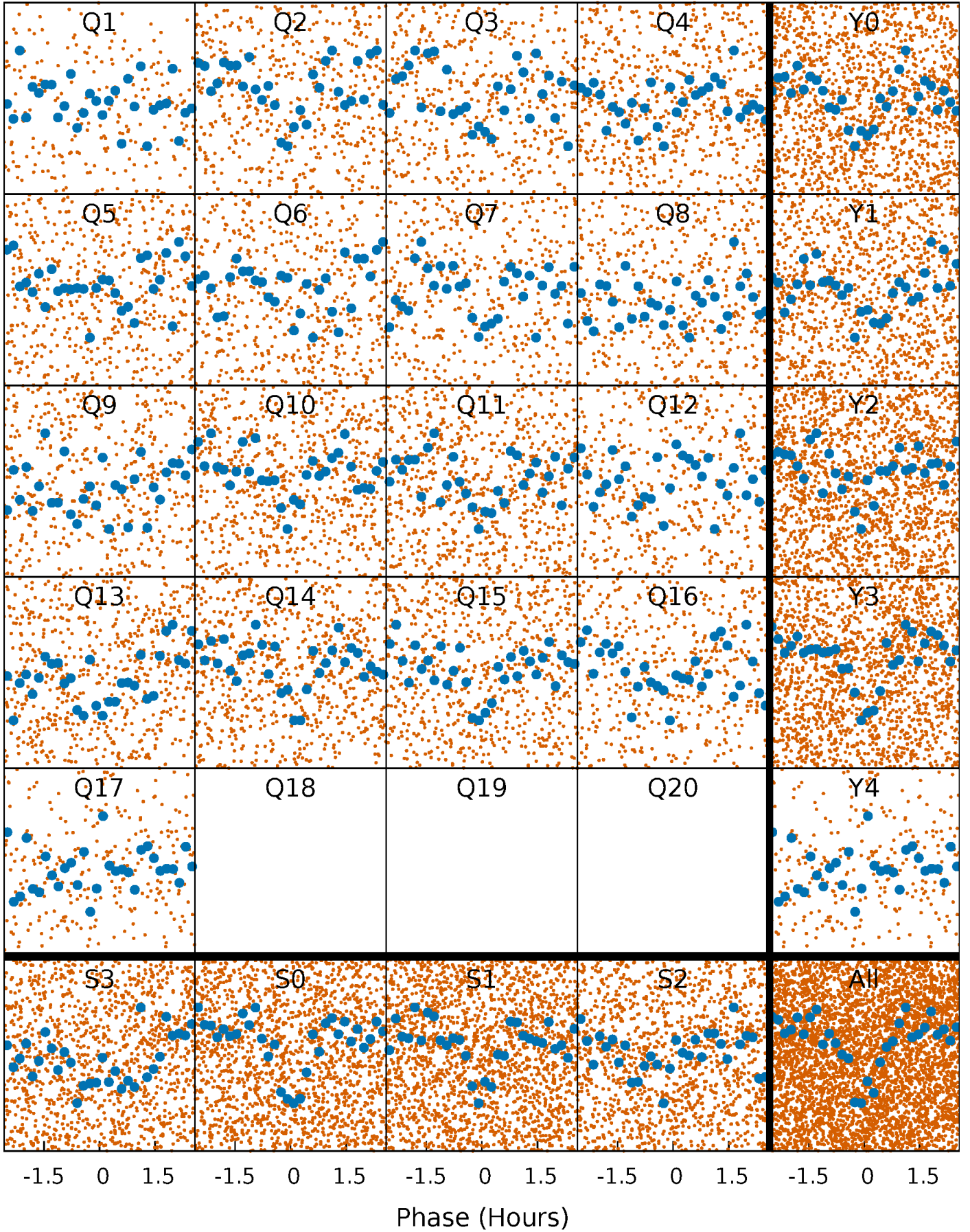


Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



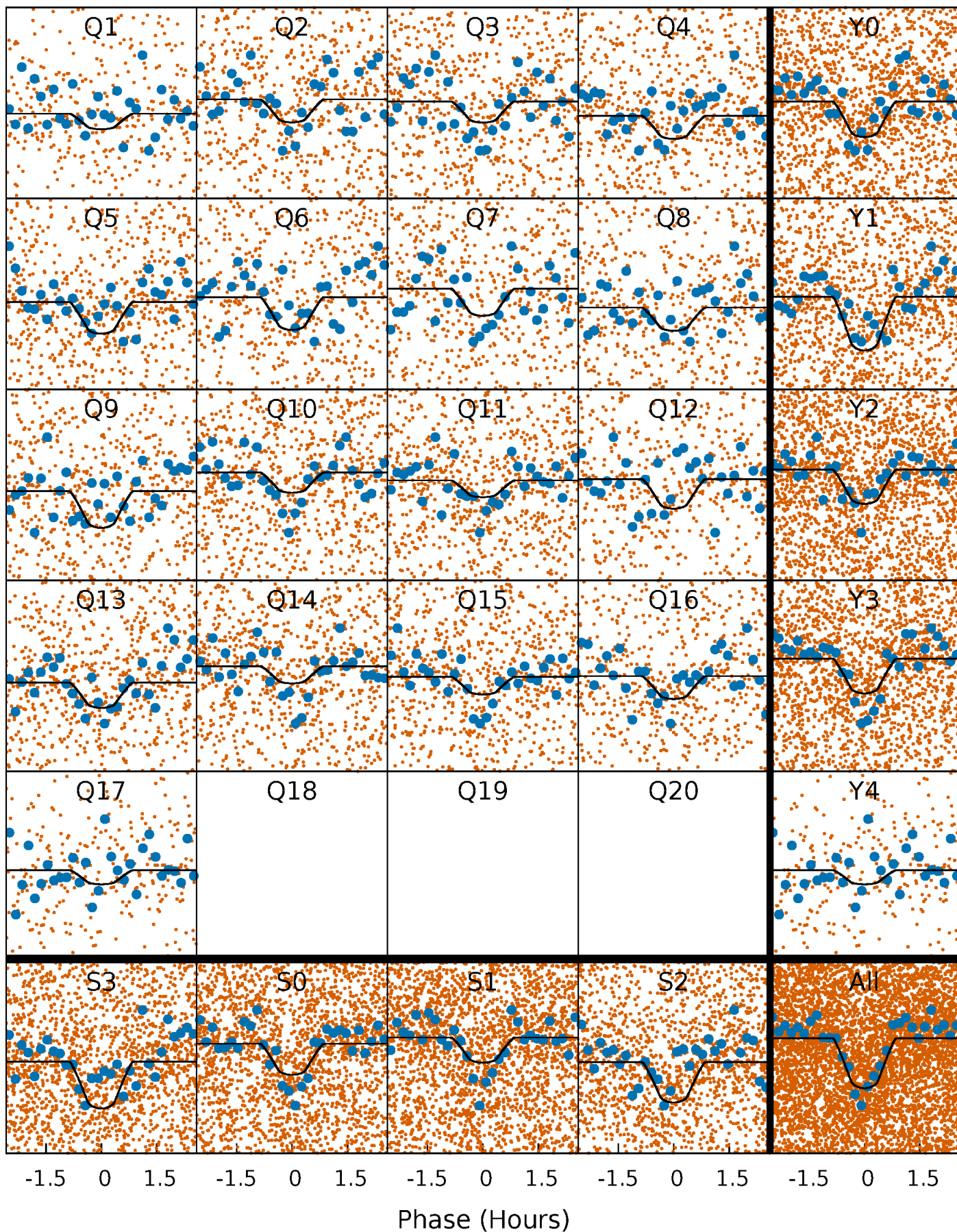
PDC Quarter-Phased Transit Curves

TCE 002851100-02 P= 0.890104 Days $T_0=131.934730$ (BKJD)



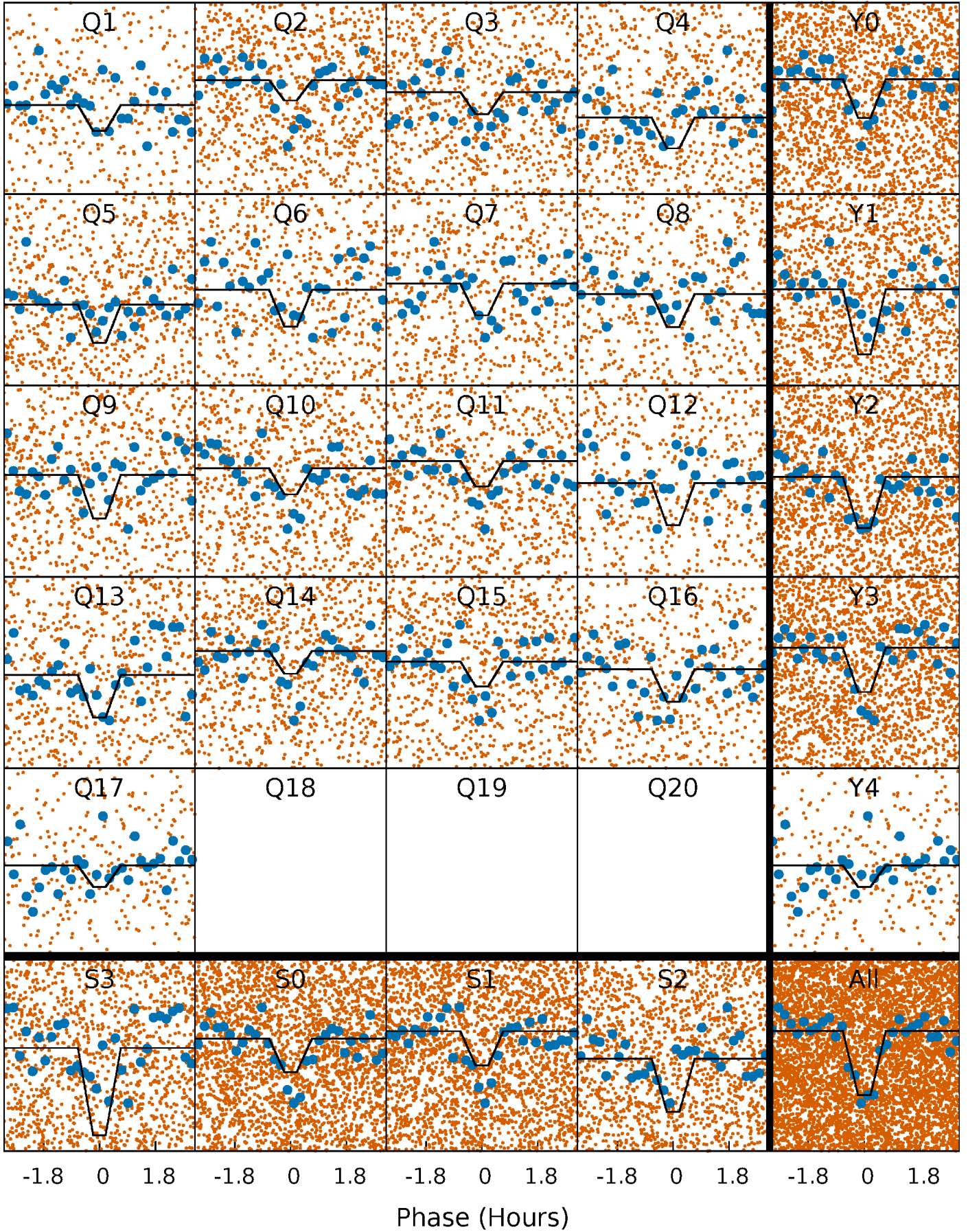
DV Quarter-Phased Transit Curves

TCE 002851100-02 P= 0.890104 Days $T_0=131.934730$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

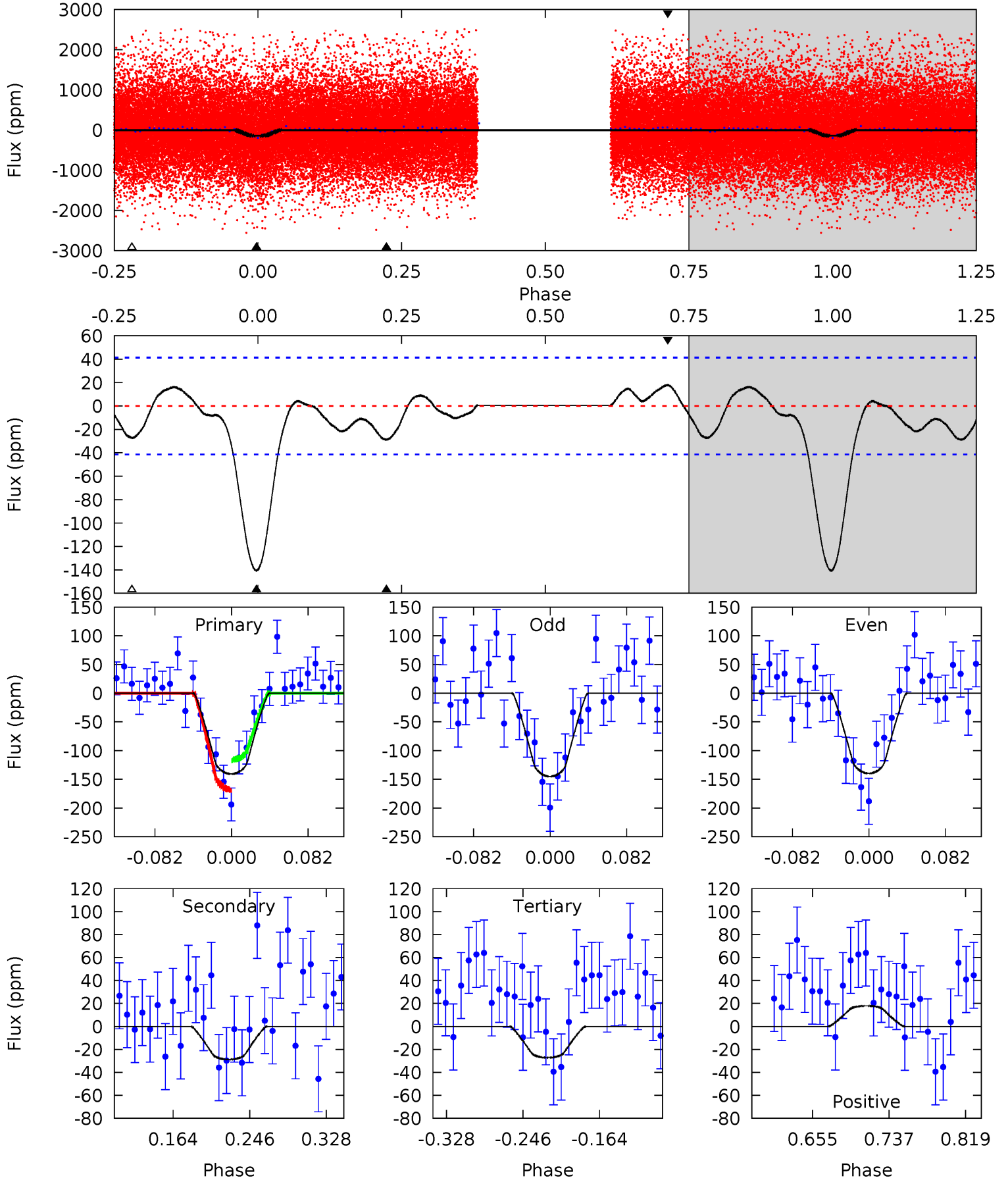
TCE 002851100-02 P= 0.890110 Days $T_0=131.926856$ (BKJD)



DV Model-Shift Uniqueness Test

002851100-02, P = 0.890104 Days, E = 131.044626 Days

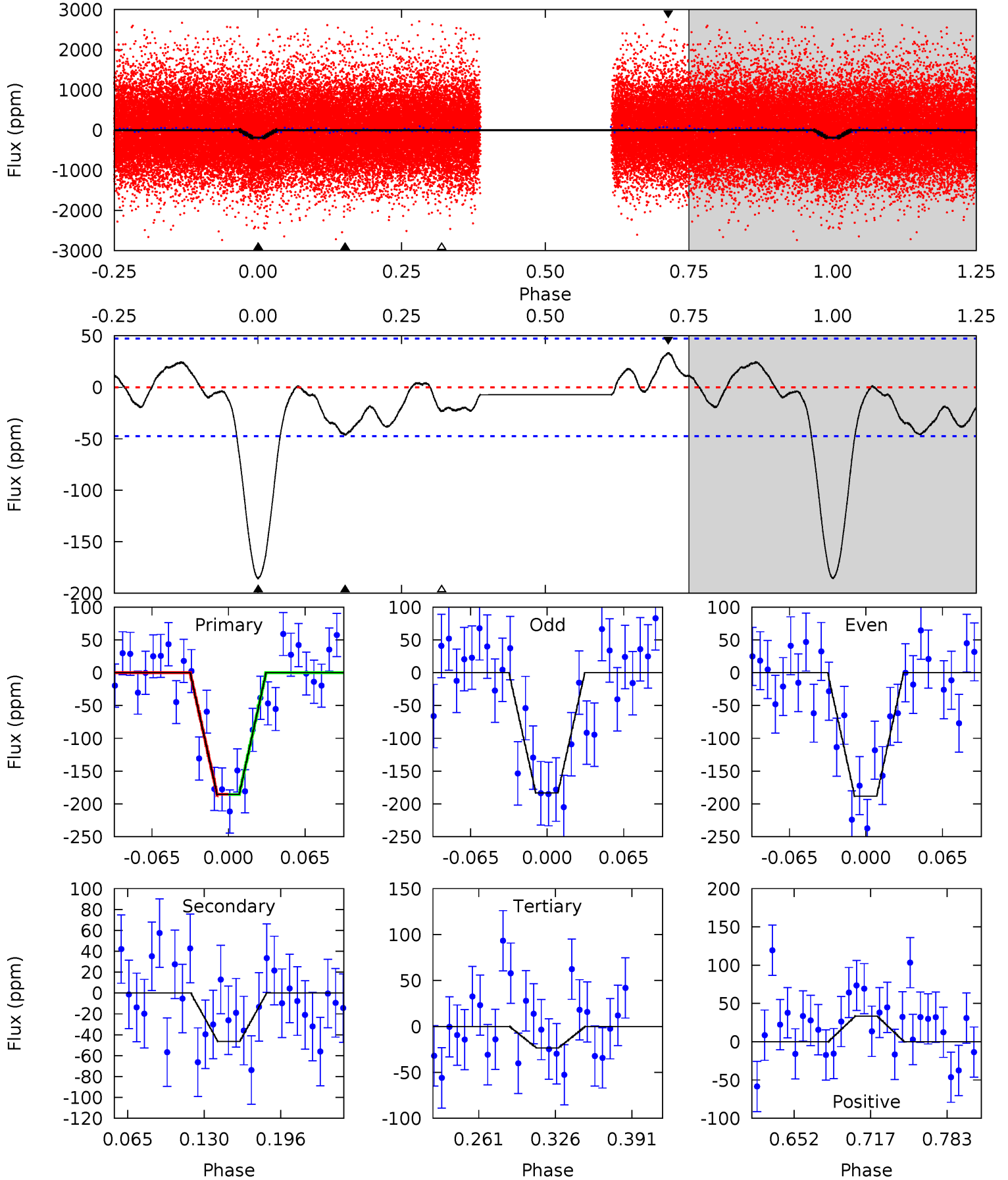
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
15.6	3.21	3.03	1.99	4.61	1.74	1.35	12.6	13.7	0.17	1.21	0.31	1.08	0.11	2.91



Alt Model-Shift Uniqueness Test

002851100-02, P = 0.890110 Days, E = 131.036746 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
18.2	4.54	2.30	3.27	4.65	1.84	1.65	15.9	14.9	2.24	1.27	0.25	1.10	0.15	0.02



Stellar Parameters For KIC 002851100

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	M (M_{\odot})	p_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	4768^{+143}_{-129}	$4.628^{+0.020}_{-0.060}$	$0.210^{+0.200}_{-0.350}$	$0.711^{+0.064}_{-0.043}$	$0.815^{+0.030}_{-0.077}$	$3.189^{+0.371}_{-0.721}$
	+3%/-3%	+0%/-1%	+95%/-167%	+9%/-6%	+4%/-9%	+12%/-23%
Source	PHO1	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 002851100-02 / KOI

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	-29 ± 9	$1.25^{+0.91}_{-0.73}$	1936^{+65}_{-58}	3214^{+1192}_{-583}	$2.862^{+12.434}_{-1.988}$
Alt.	-46 ± 10	$1.19^{+0.89}_{-0.70}$	1938^{+68}_{-65}	3541^{+1445}_{-619}	$4.921^{+25.553}_{-3.303}$

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 $A_{obs} \gg 1.0$

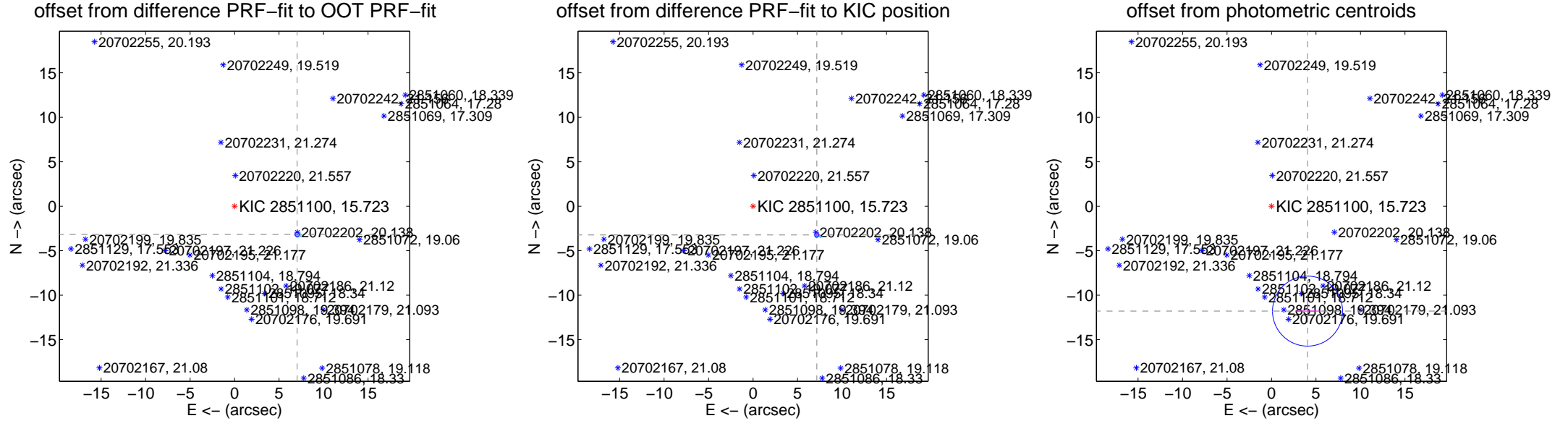
DV Centroid Data

Supplemental centroid analysis for 002851100-02. Kepler magnitude: 15.72. Transit SNR 10.63

There are 17 quarters with good PRF difference image offsets

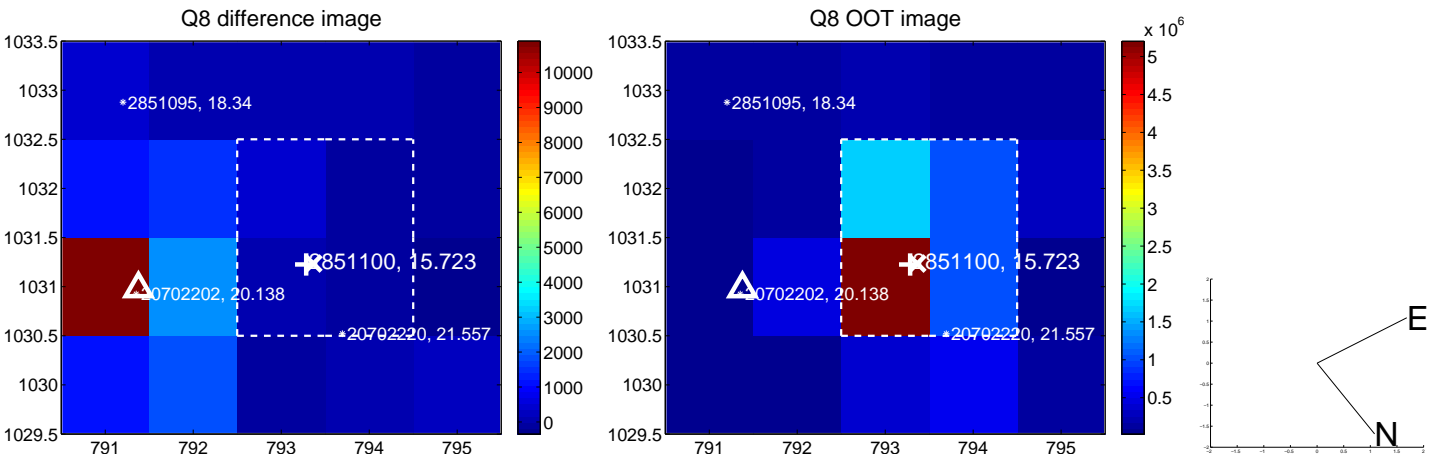
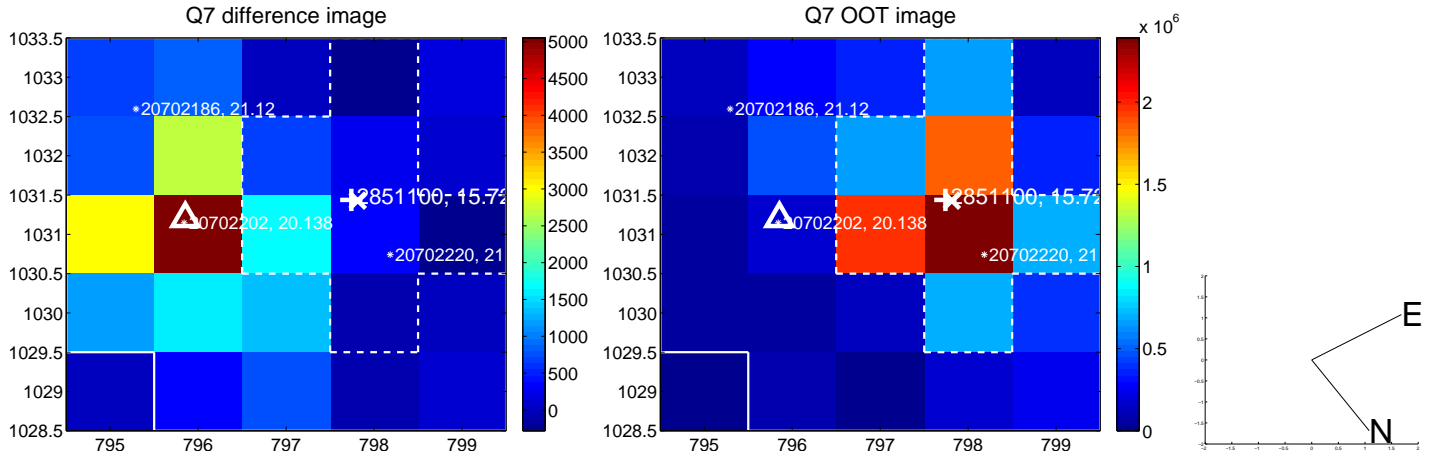
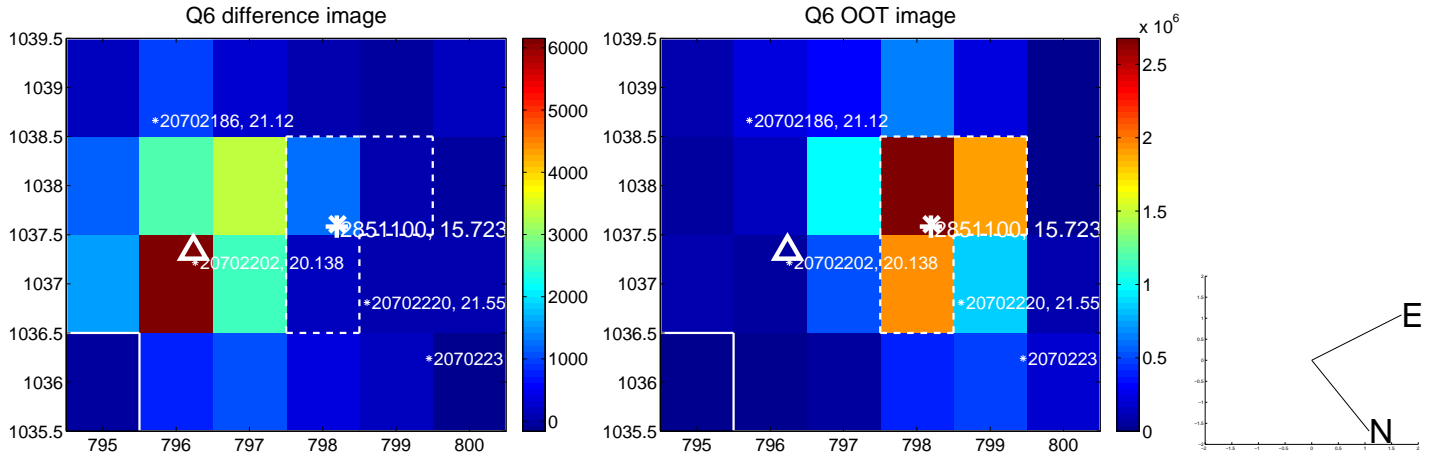
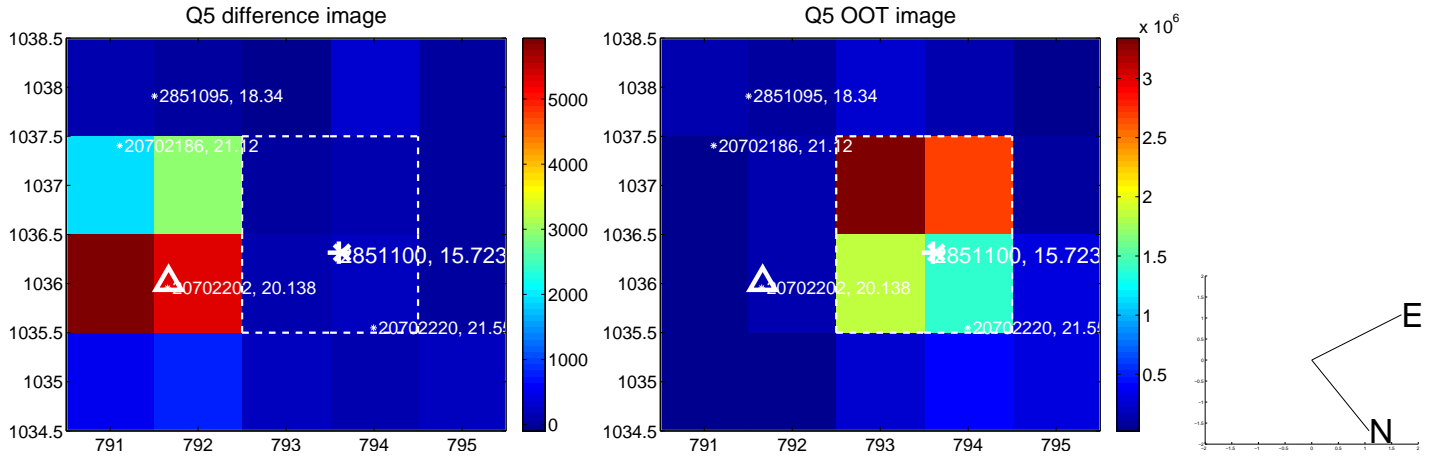
The direct PRF centroid is offset from the target star catalog position by about 0.15 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	7.715 \pm 0.079	97.59	-7.032 \pm 0.079	-3.175 \pm 0.072
PRF-fit source offset from KIC position	7.862 \pm 0.081	97.46	-7.167 \pm 0.079	-3.232 \pm 0.073
photometric centroid source offset	12.47 \pm 1.31	9.51	-4.05 \pm 1.40	-11.79 \pm 1.30

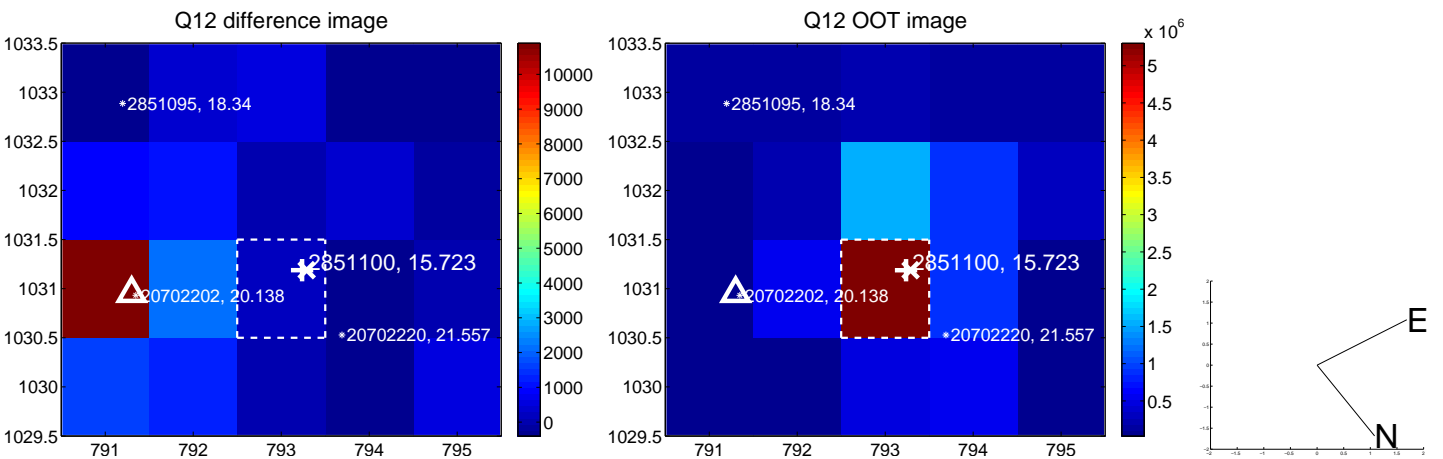
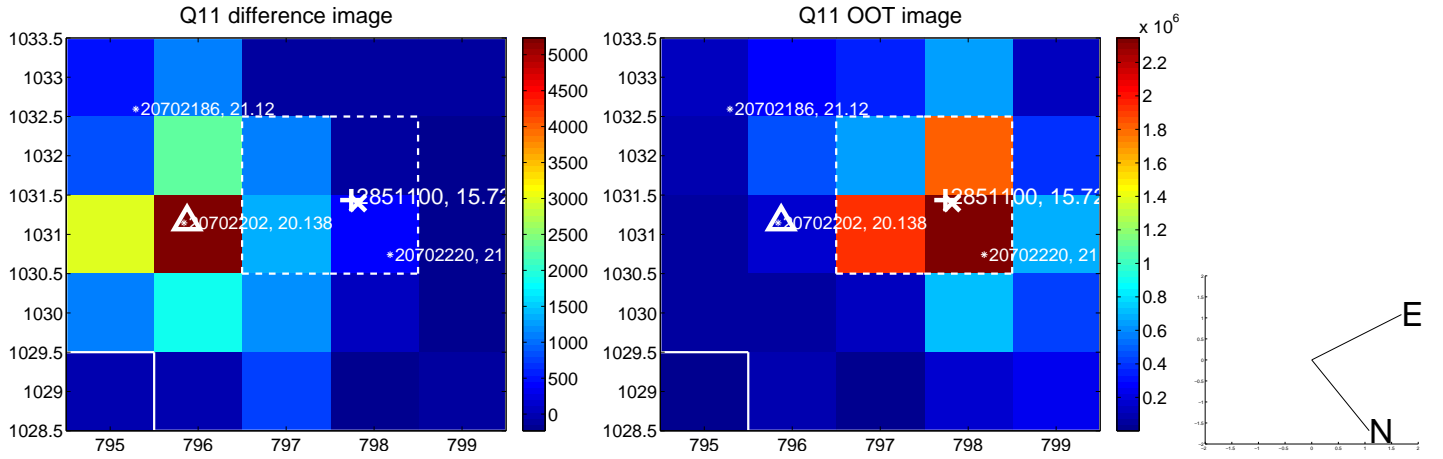
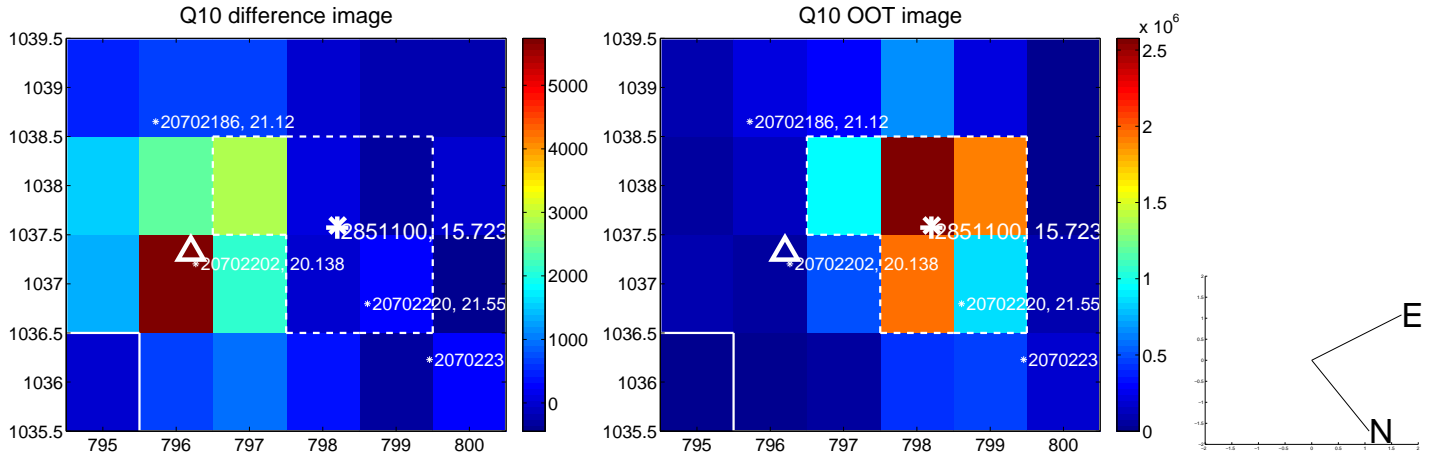
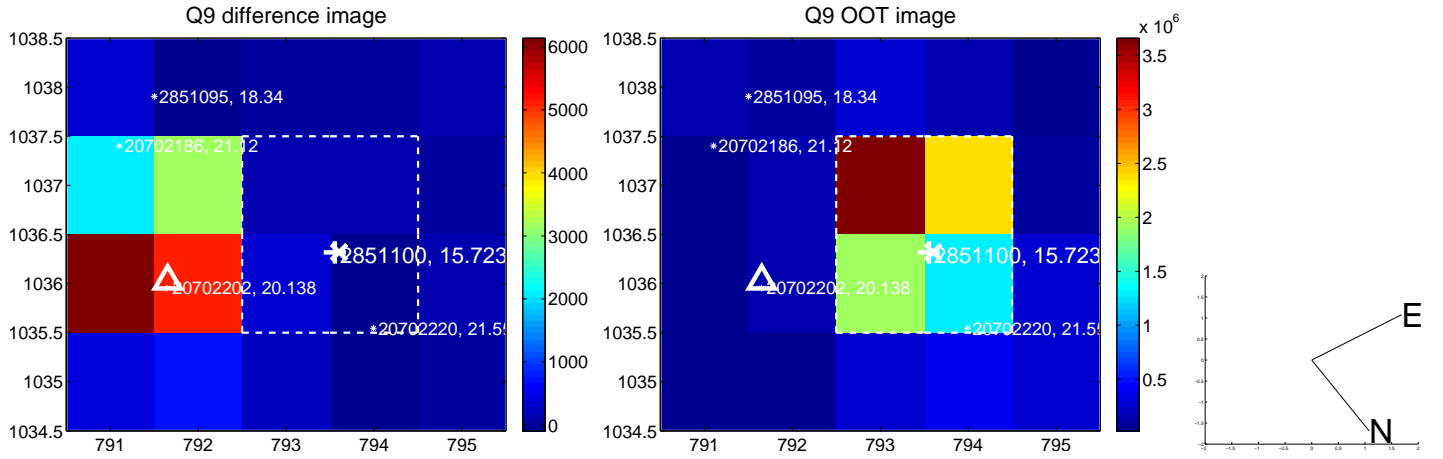


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

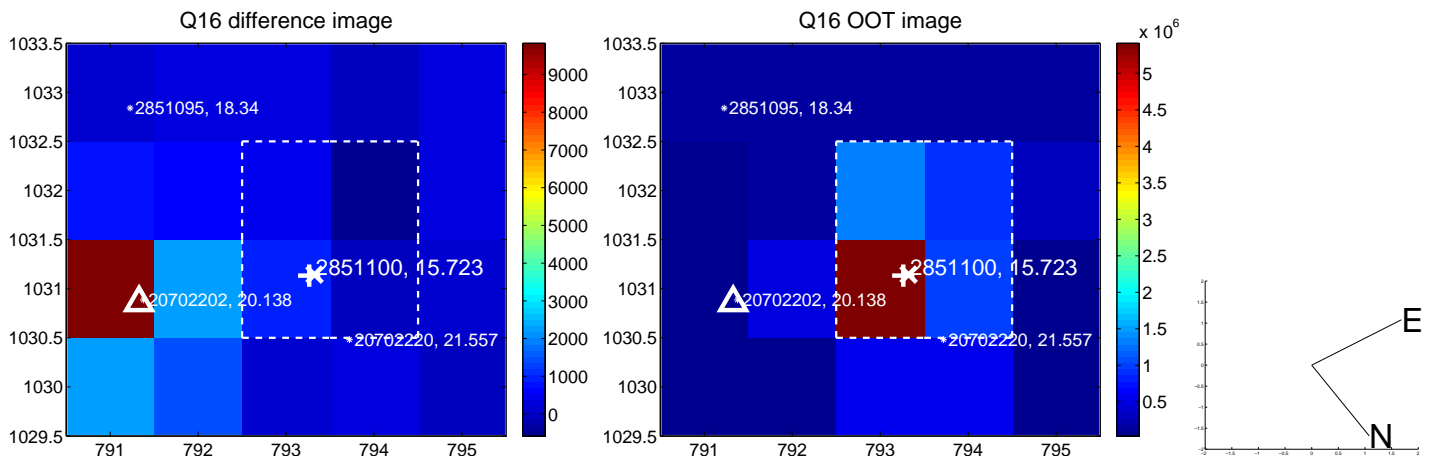
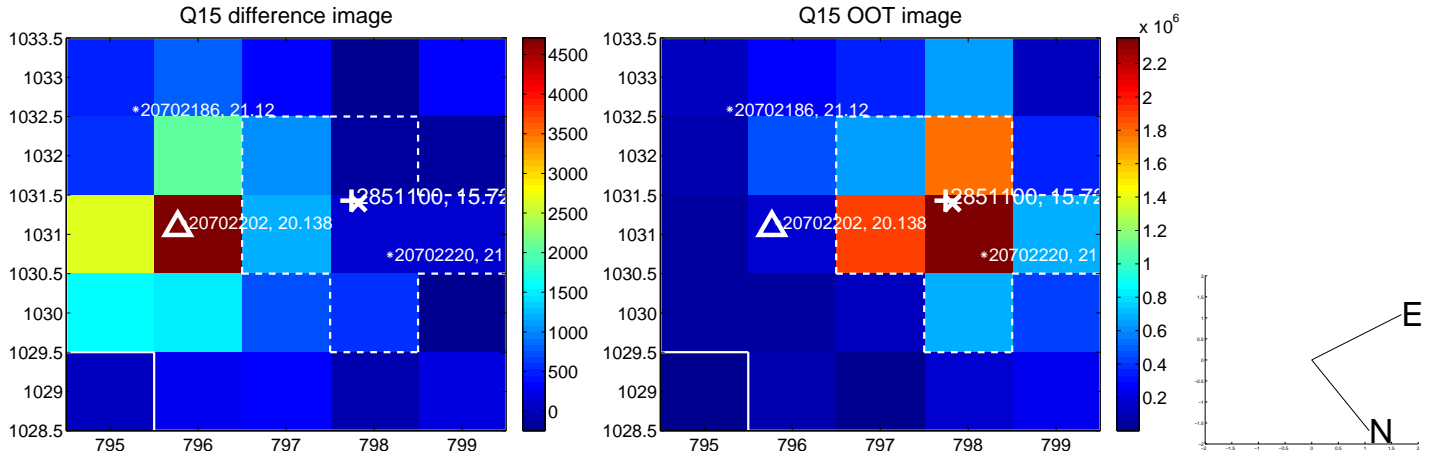
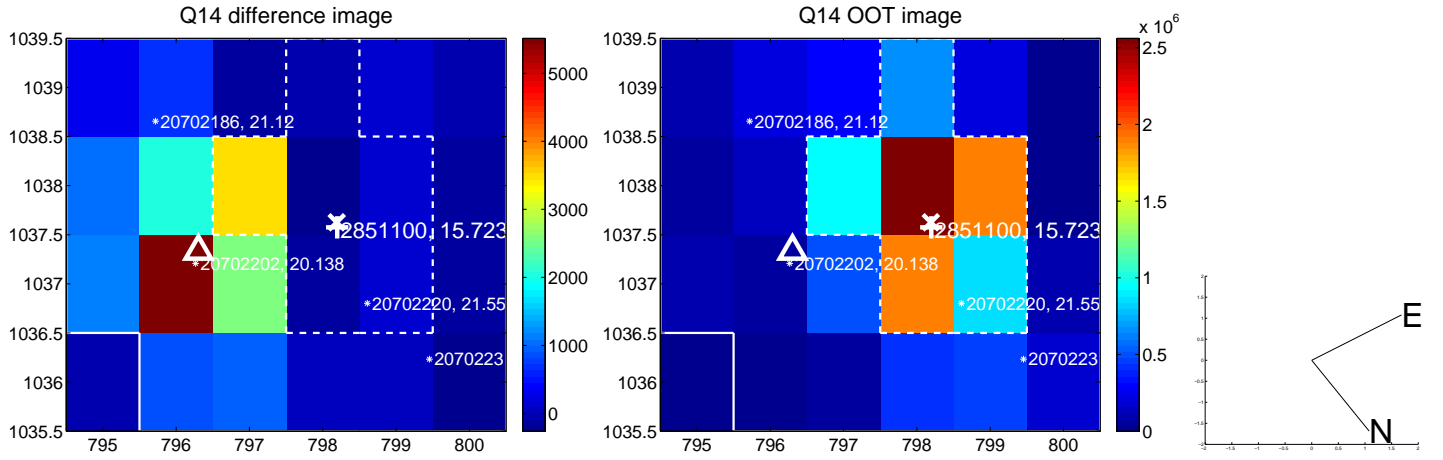
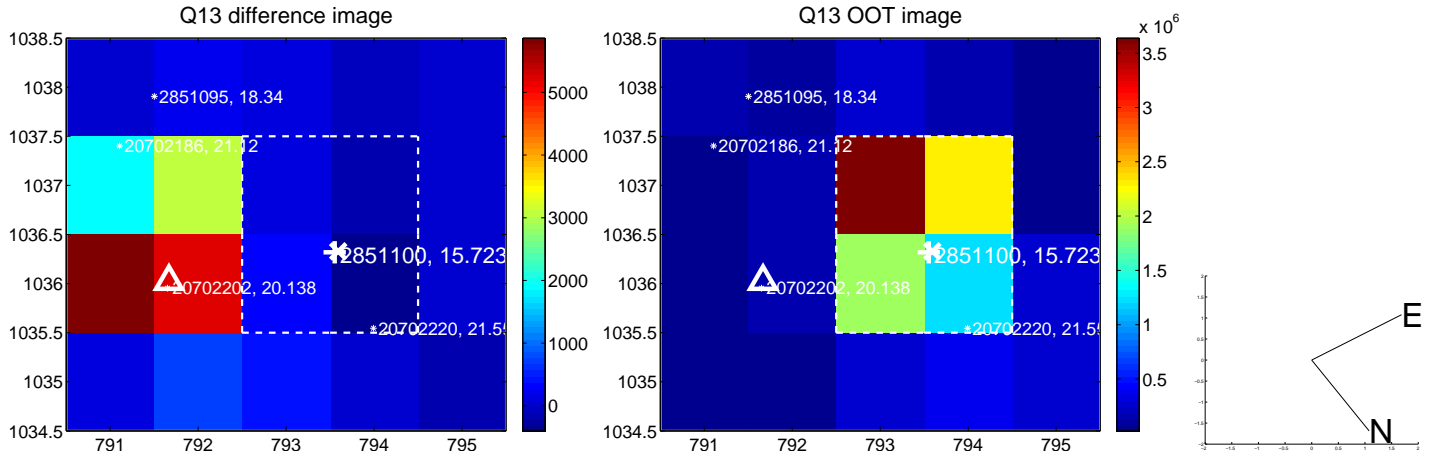
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



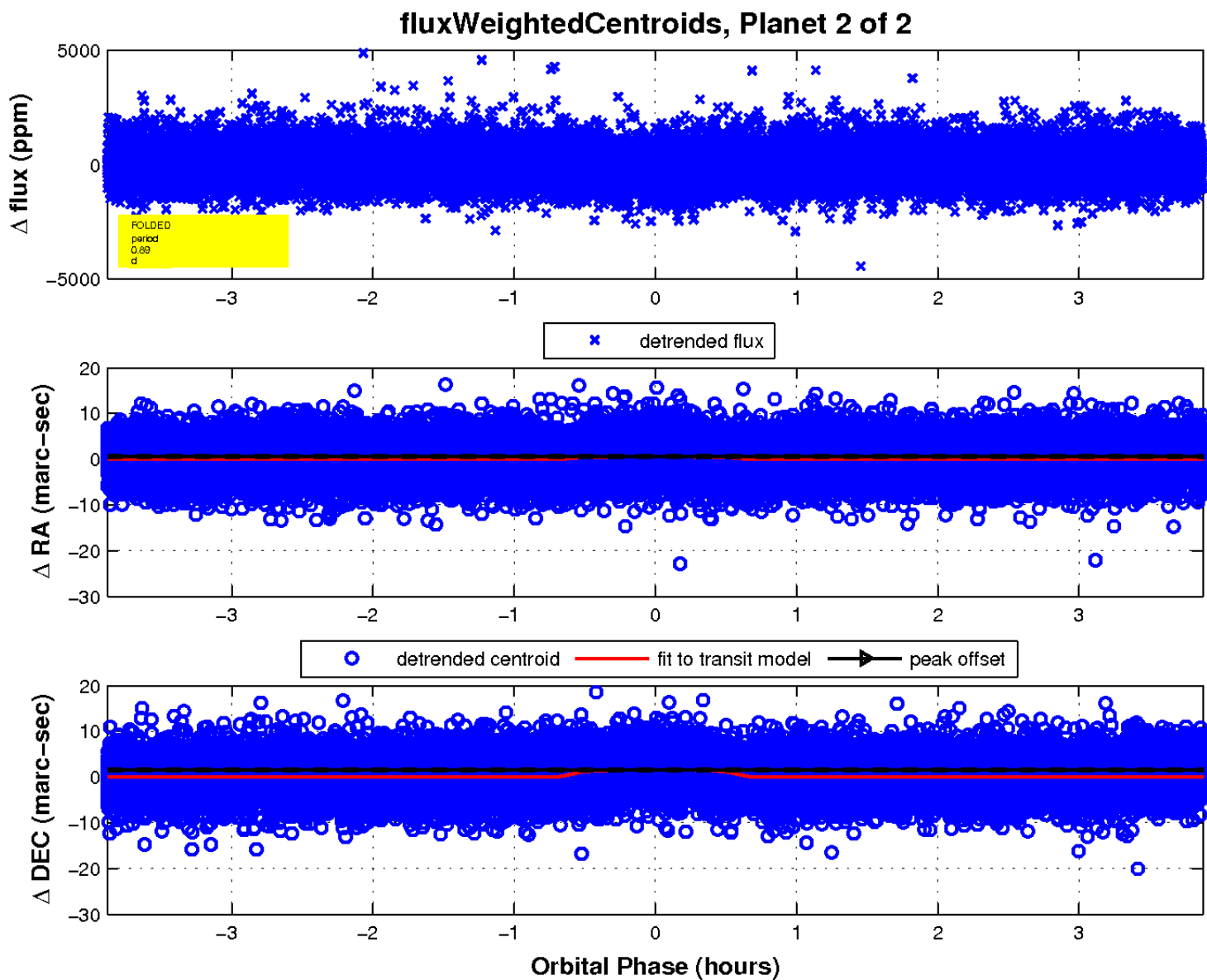
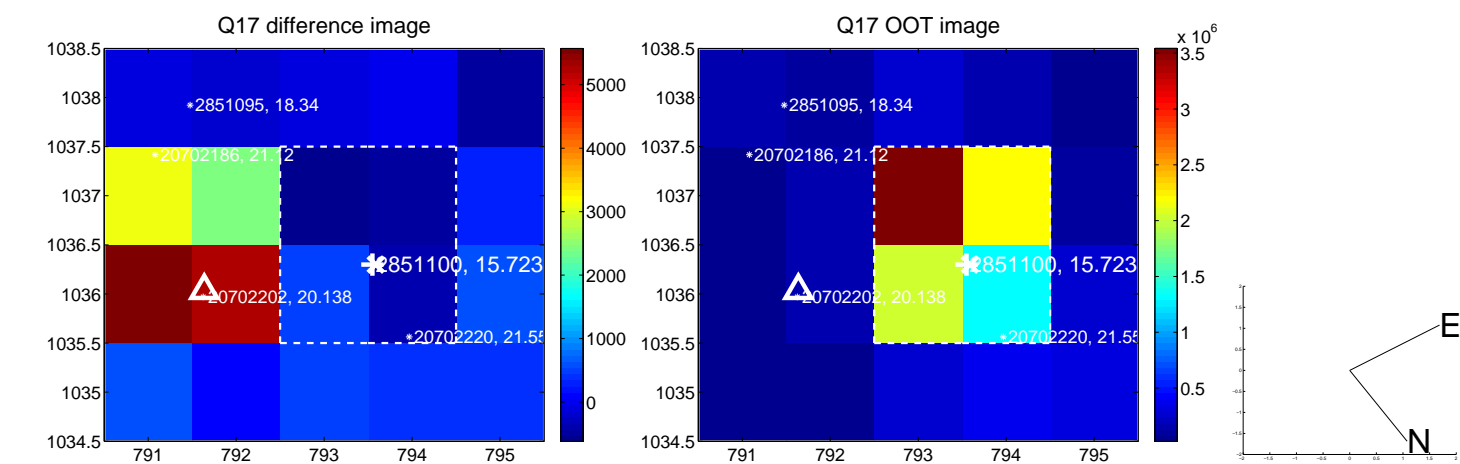
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

