

KIC 011815158

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})
011815158-01	OBS	No	0.534383	131.601961	901.5	0.626	9.4	14.5	1.88	7232	6.73	40933.24
011815158-02	OBS	No	0.534387	131.754073	794.2	1.013	9.1	17.4	1.88	7232	5.75	40932.75

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
011815158-01	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_POS_ALT
011815158-02	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_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.

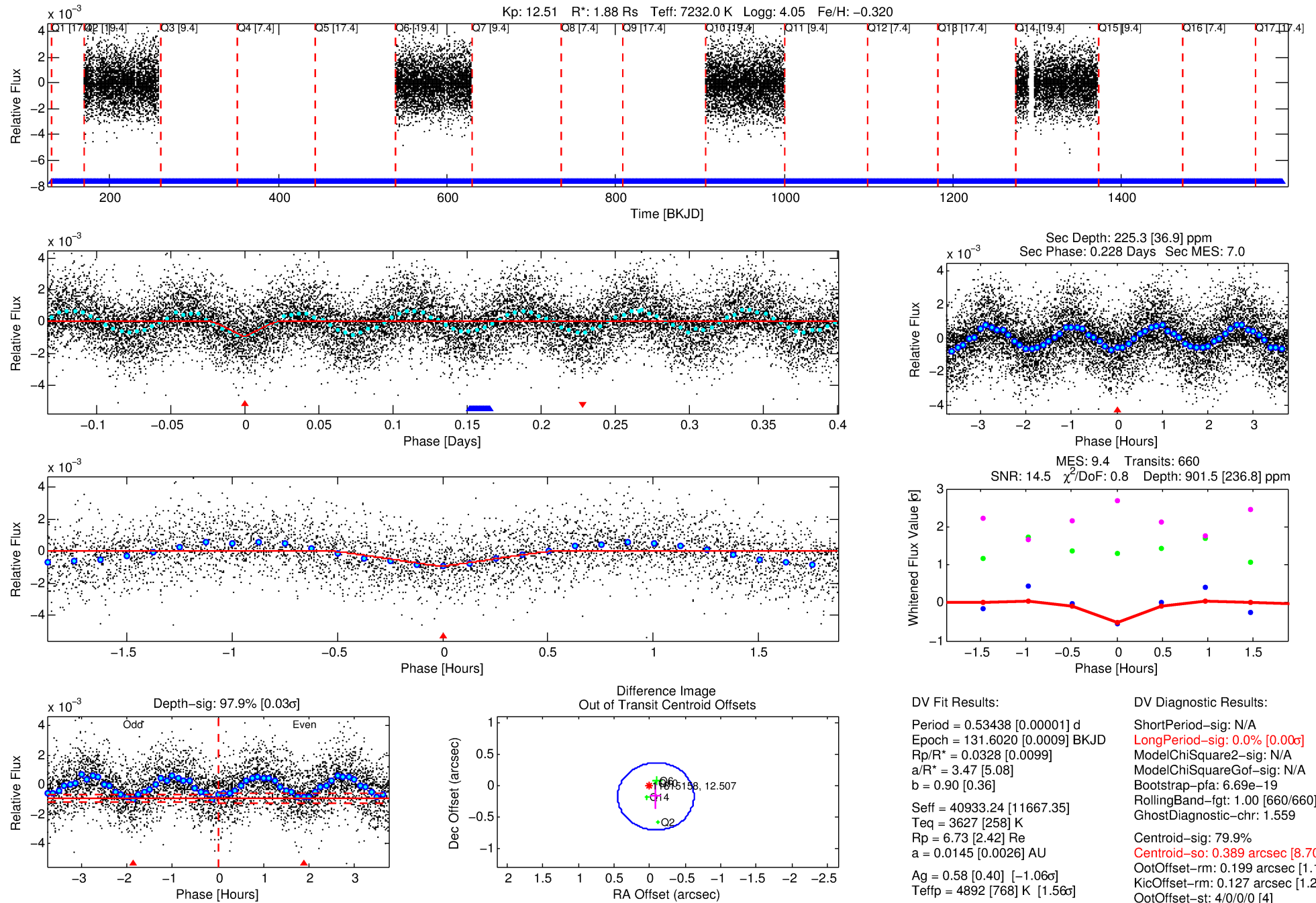
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 011815158-01

No Significant Match Found

DV One-Page Summary

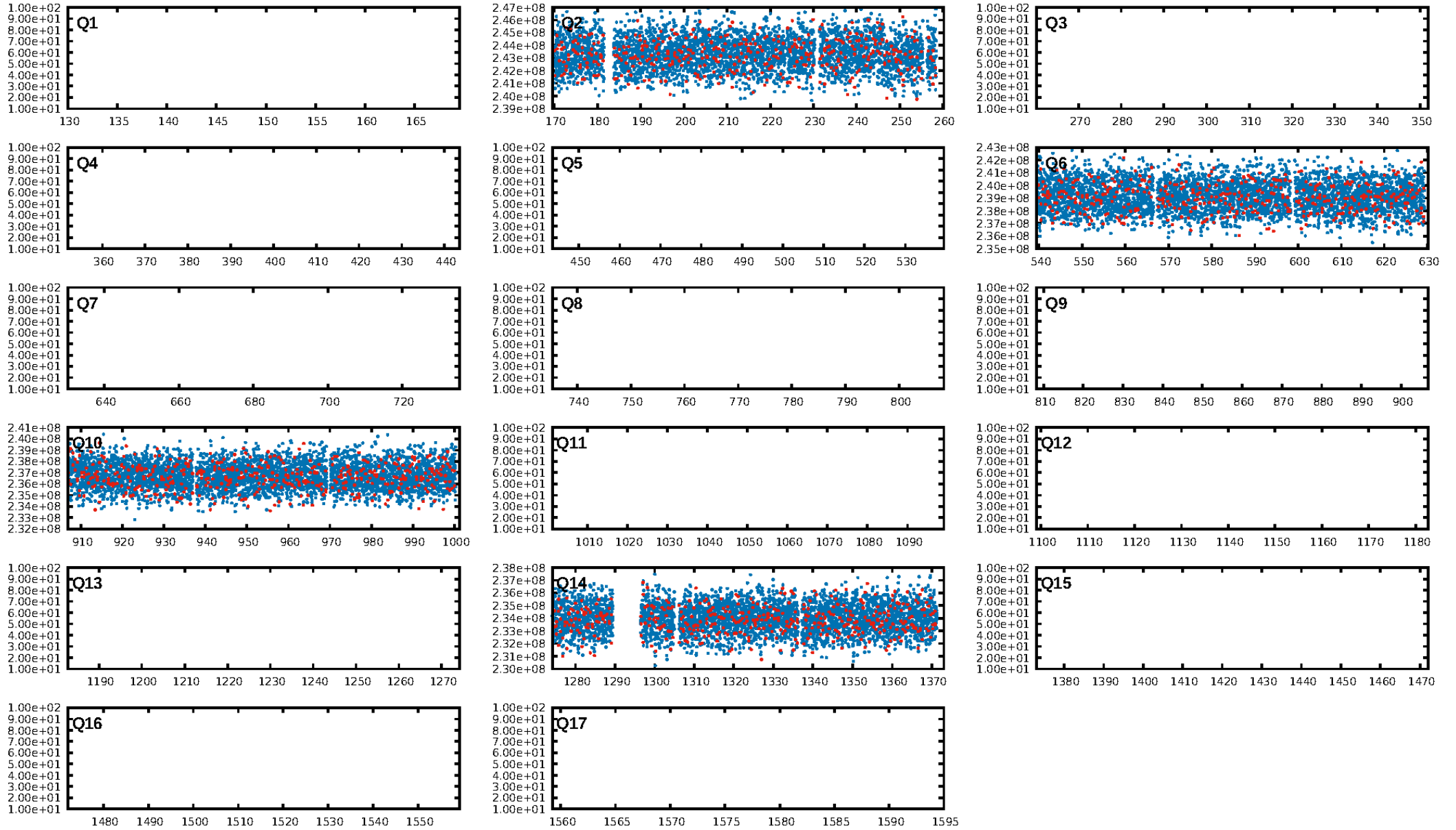
KIC: 11815158 Candidate: 1 of 2 Period: 0.534 d



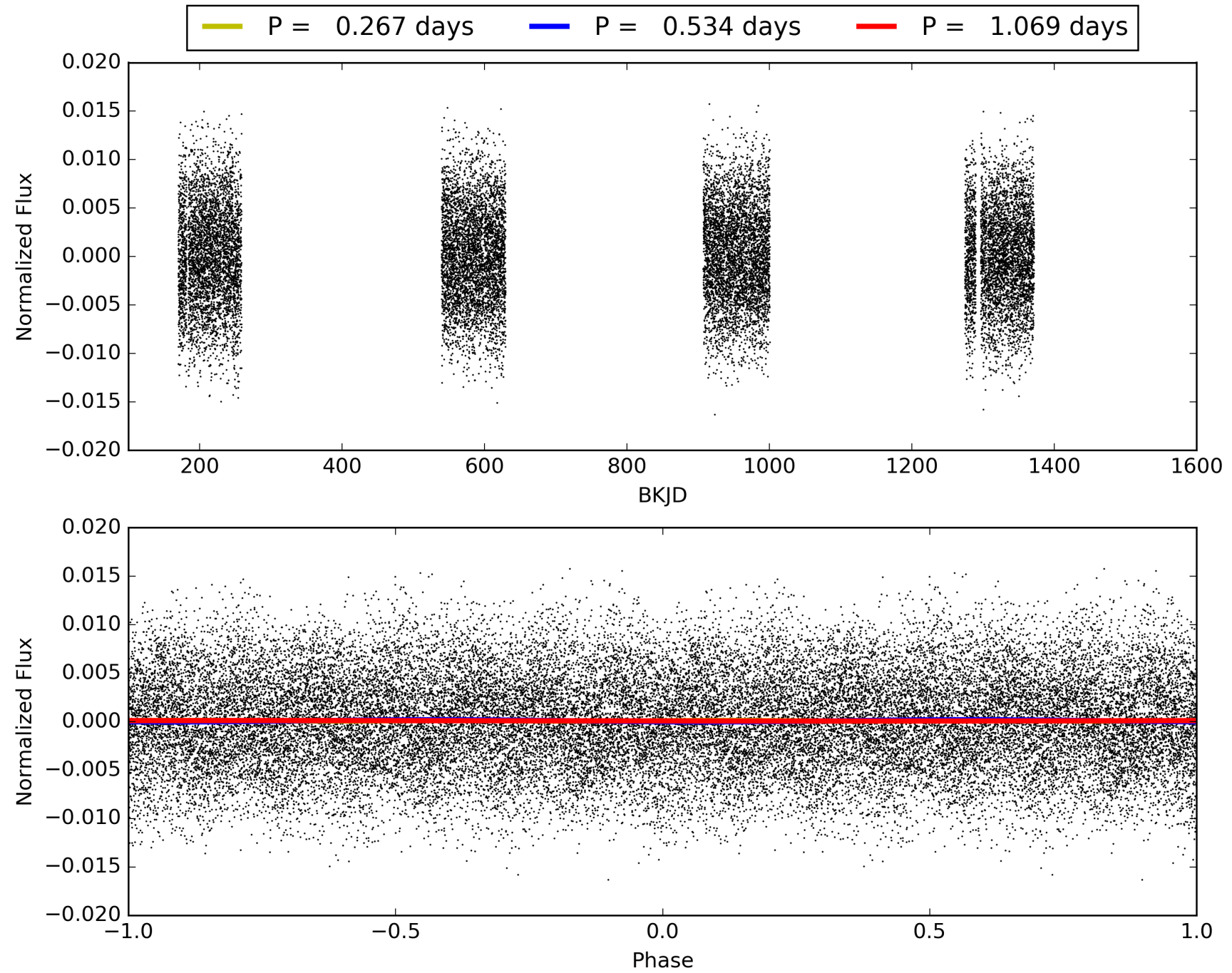
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 29-Jan-2016 11:15:15 Z

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

TCE 011815158-01, PDC Light Curves

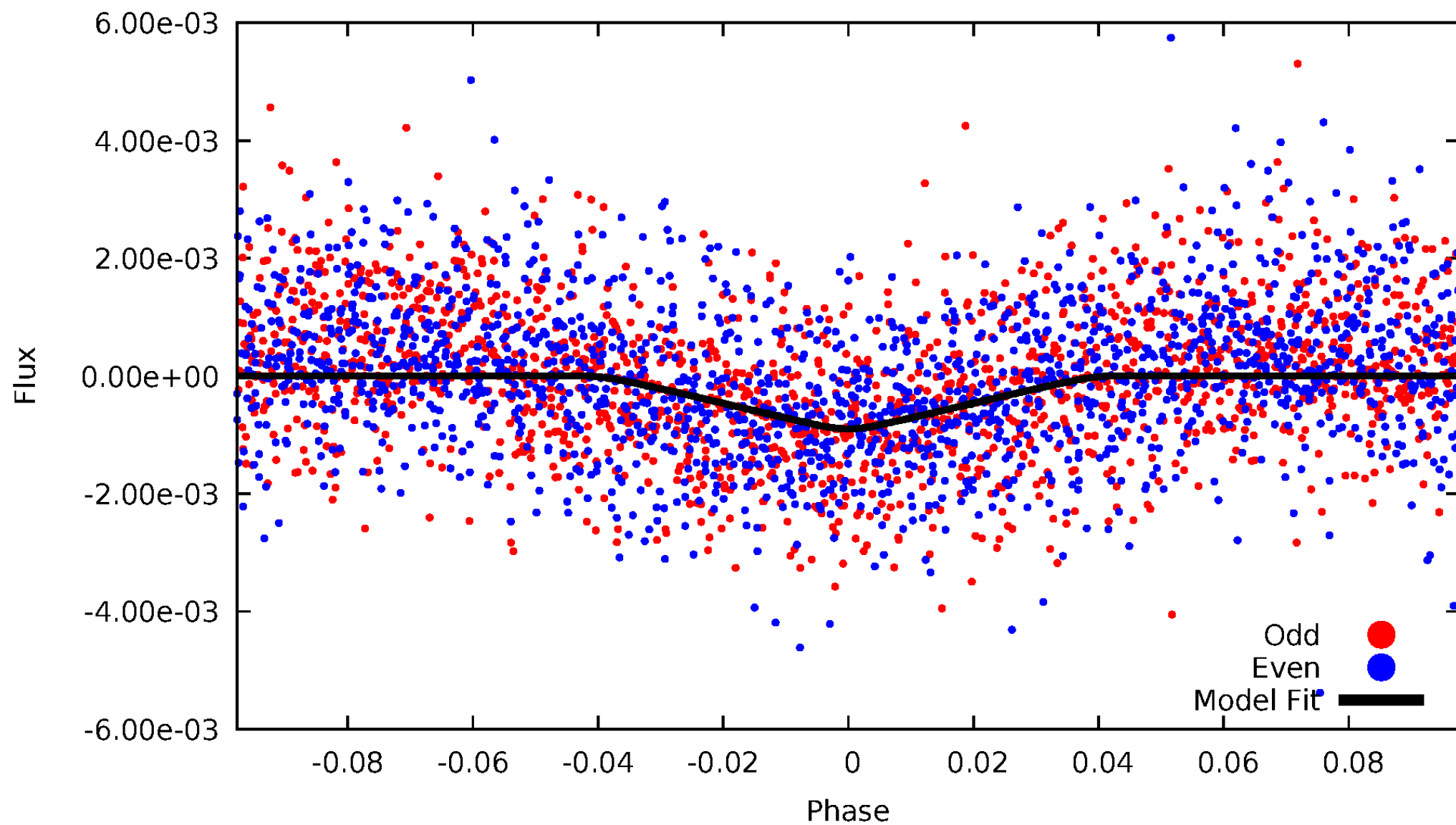


TCE 011815158-01



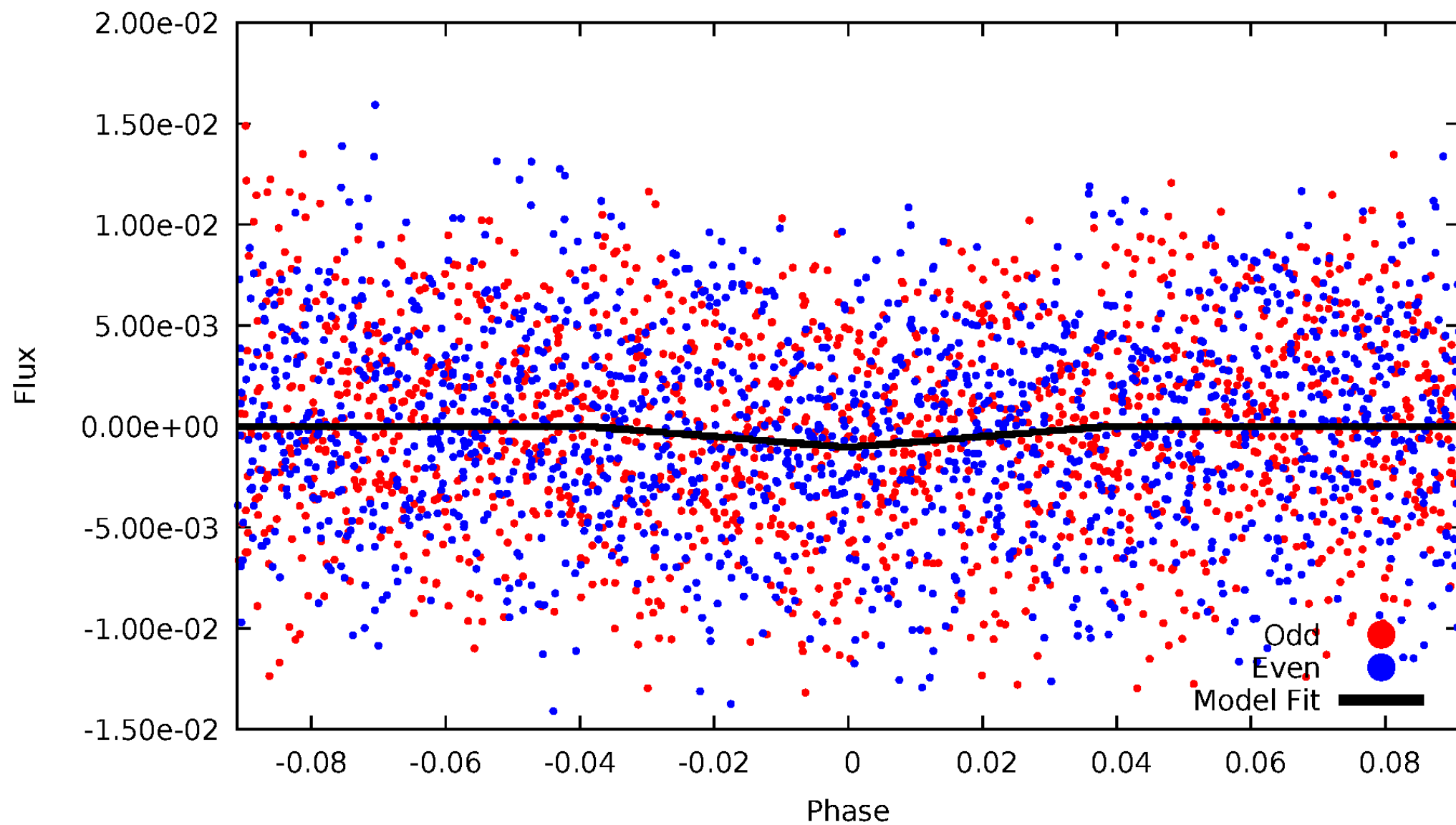
DV Odd/Even

TCE 011815158-01



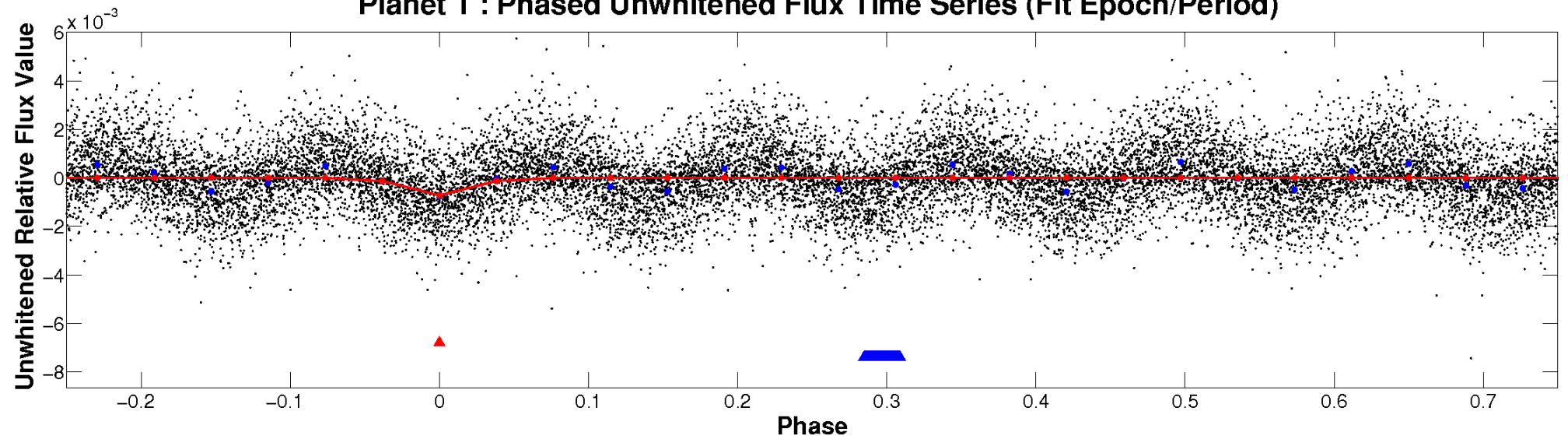
ALT Odd/Even

TCE 011815158-01

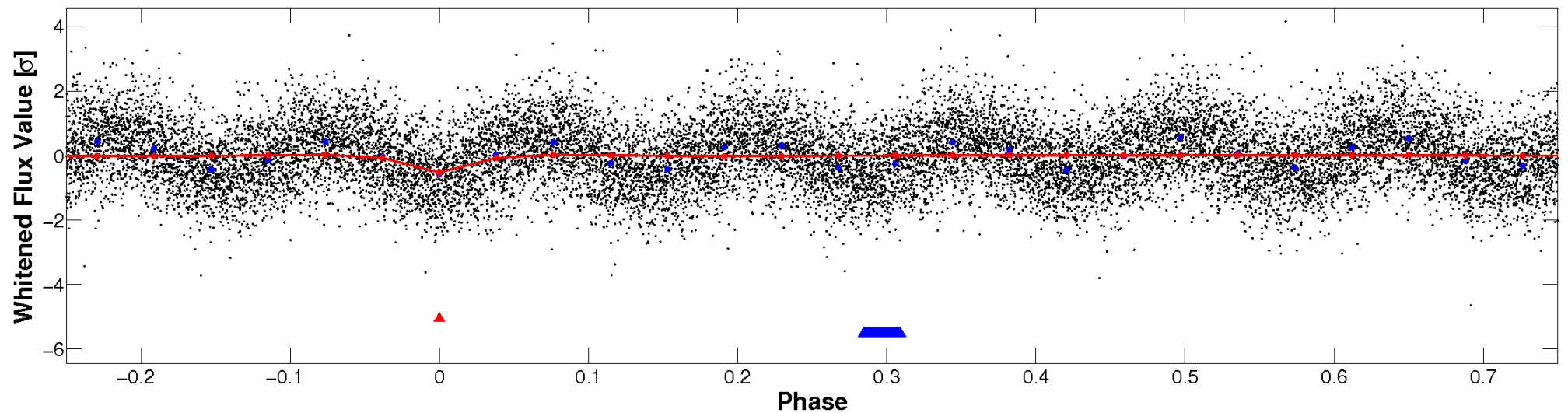


Non-Whitened Vs. Whitened Light Curve

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

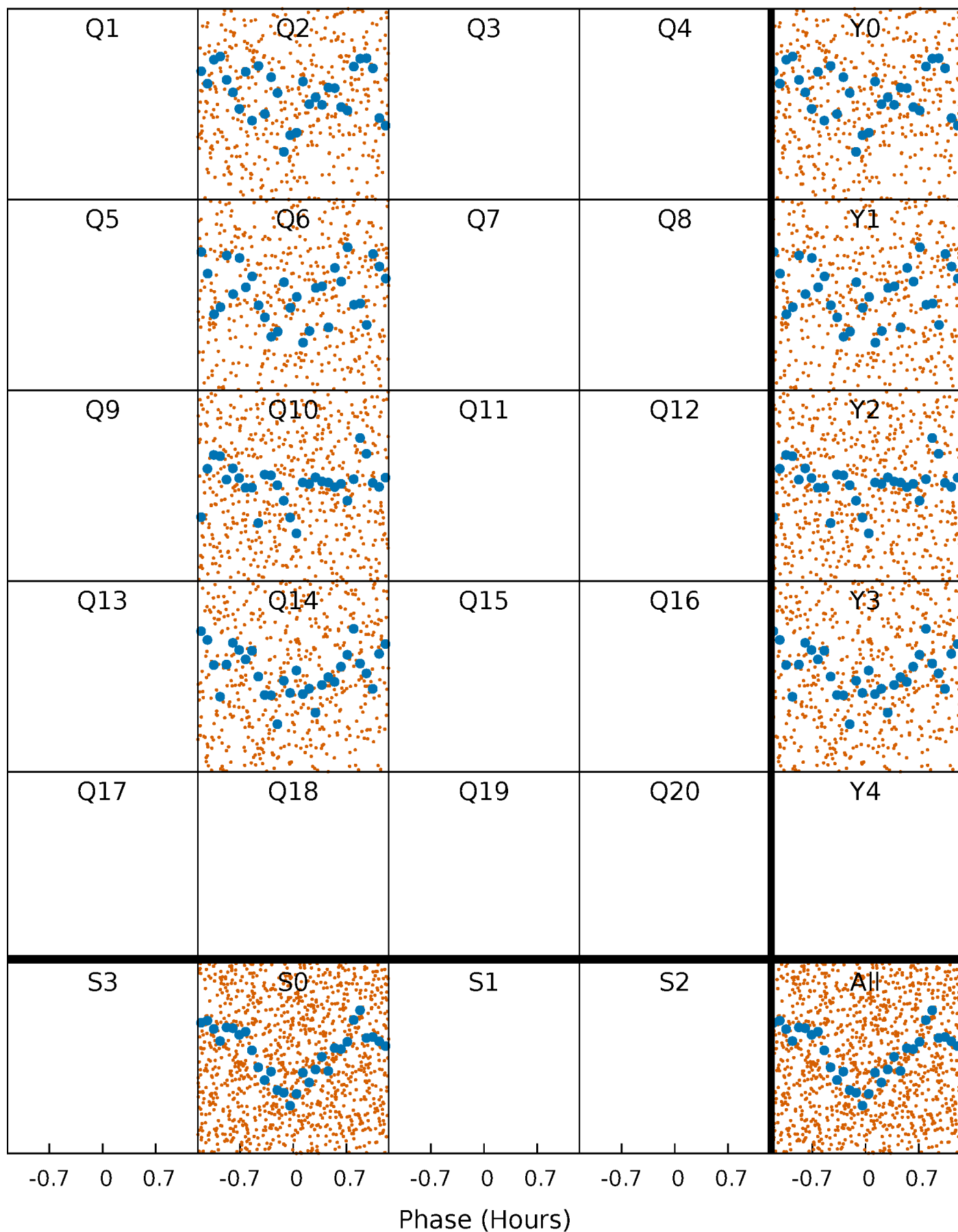


Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)



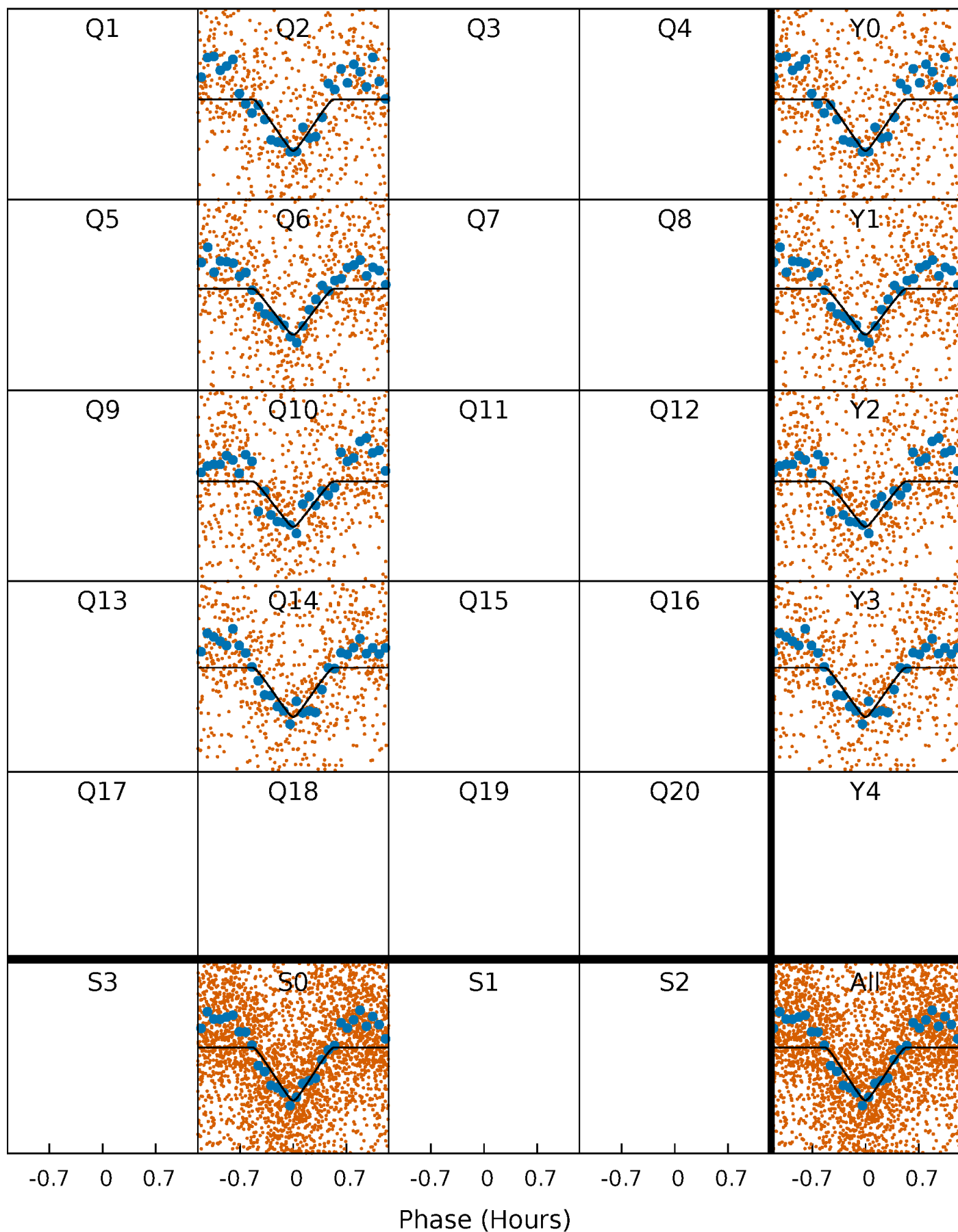
PDC Quarter-Phased Transit Curves

TCE 011815158-01 P= 0.534383 Days $T_0=131.601961$ (BKJD)



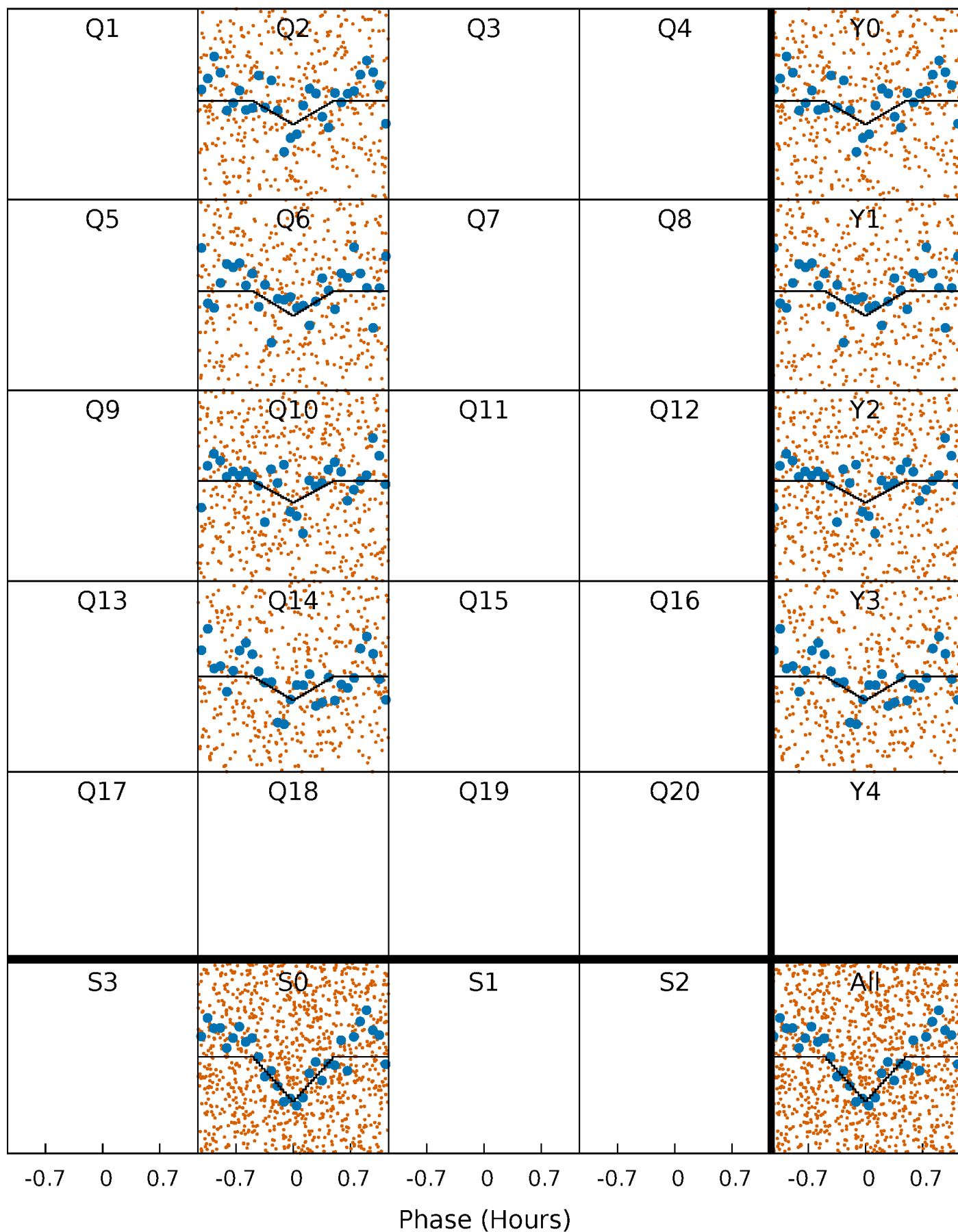
DV Quarter-Phased Transit Curves

TCE 011815158-01 P= 0.534383 Days $T_0=131.601961$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

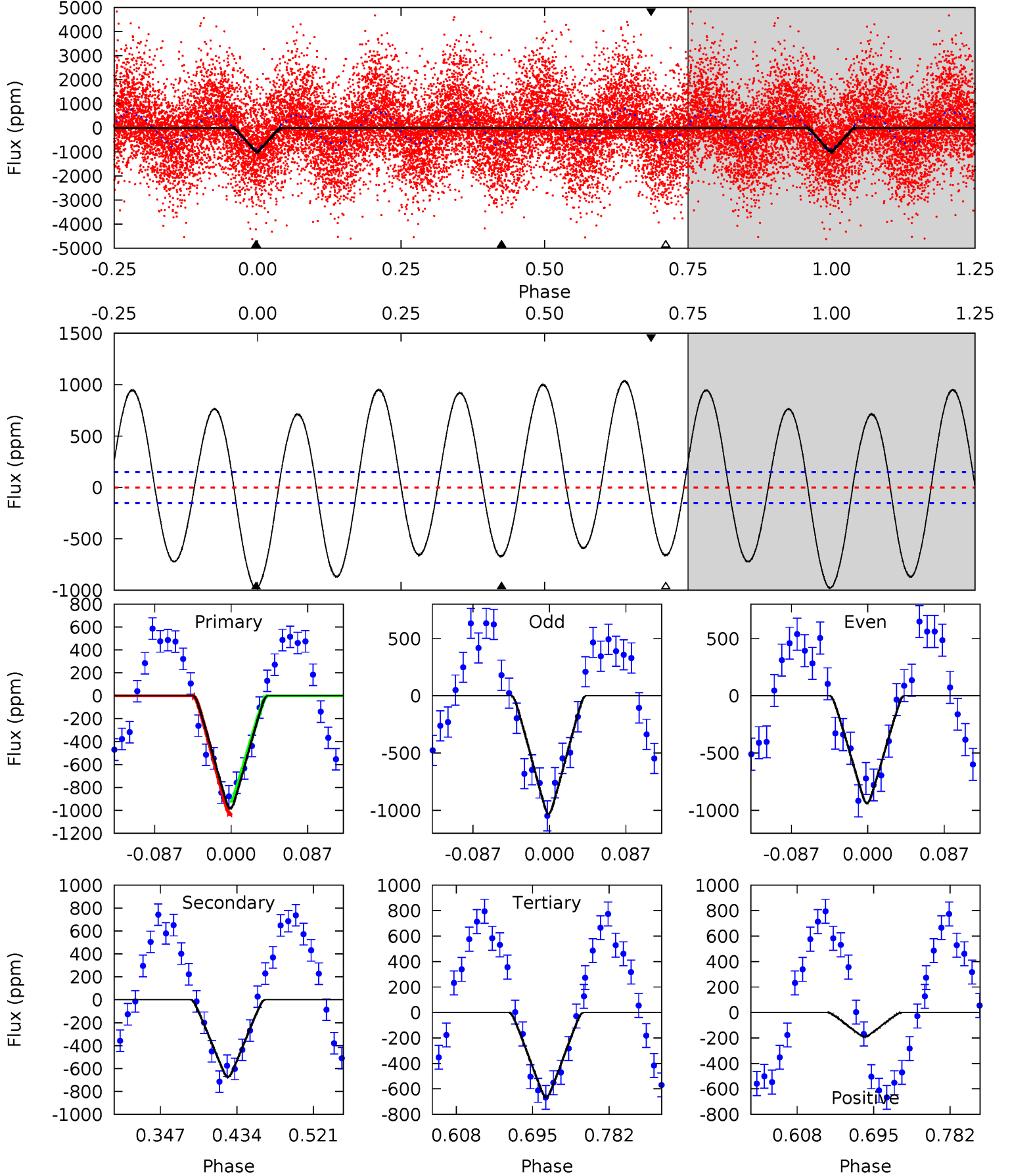
TCE 011815158-01 P= 0.534381 Days $T_0=131.601945$ (BKJD)



DV Model-Shift Uniqueness Test

011815158-01, P = 0.534383 Days, E = 131.601961 Days

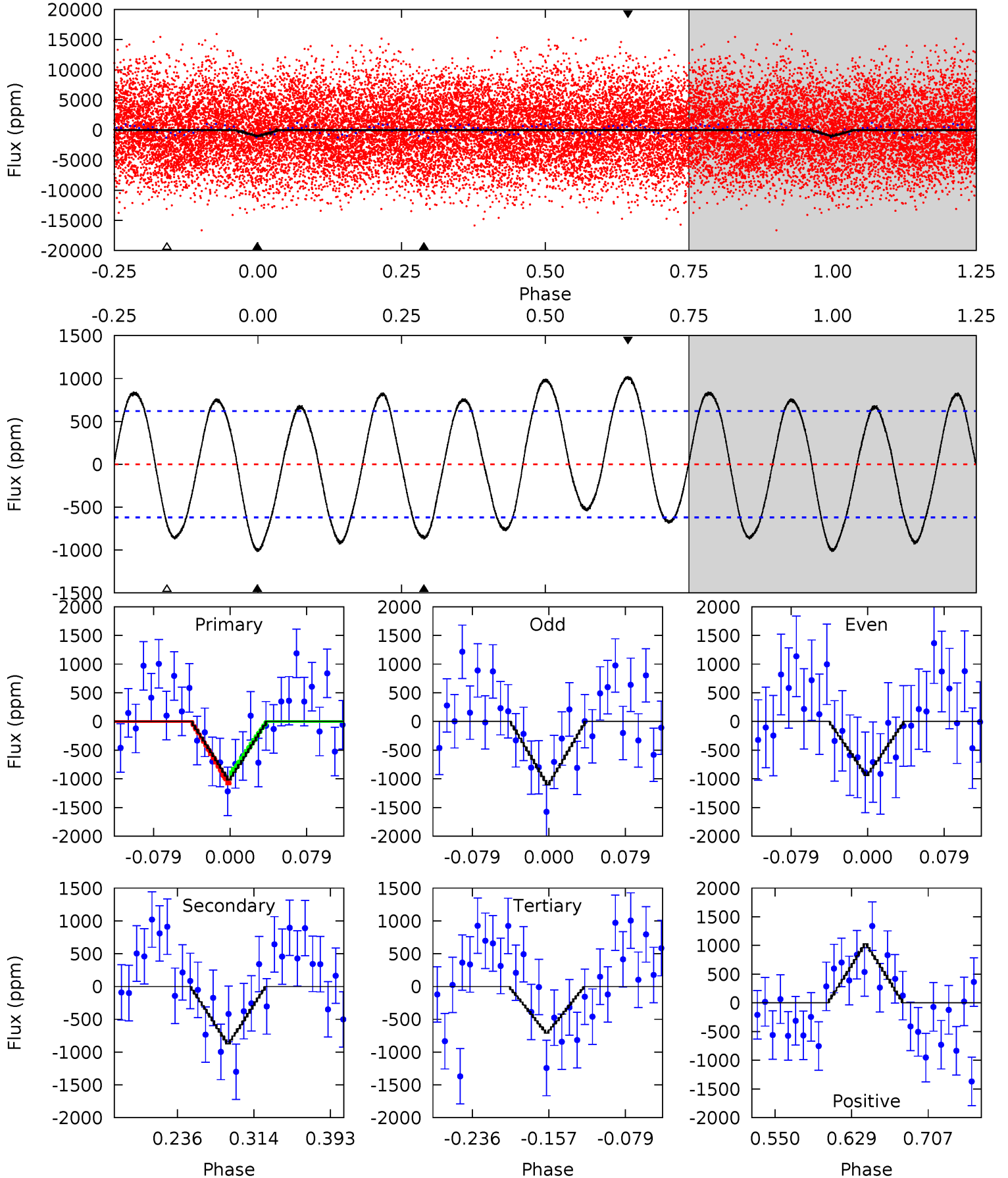
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
29.9	20.5	20.2	-5.82	4.59	1.71	17.3	9.69	35.8	0.23	26.3	1.38	1.00	0.51	1.72



Alt Model-Shift Uniqueness Test

011815158-01, P = 0.534381 Days, E = 131.601945 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
7.60	6.51	5.29	7.66	4.62	1.76	4.30	2.30	-0.06	1.22	-1.15	0.60	1.35	0.50	0.56



Stellar Parameters For KIC 011815158

	$T_{\text{eff}} (K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M (M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	7232^{+86}_{-79}	$4.047^{+0.162}_{-0.108}$	$-0.320^{+0.200}_{-0.150}$	$1.879^{+0.369}_{-0.369}$	$1.435^{+0.126}_{-0.126}$	$0.304^{+0.225}_{-0.110}$
	+1%/-1%	+4%/-3%	+62%/-47%	+20%/-20%	+9%/-9%	+74%/-36%
Source	SPE68	SPE68	SPE68	DSEP		

KIC = Kepler Input Catalog; PHO = Photometry; SPE = Spectroscopy; AST = Asteroseismology
 TRA = Transits; DESP = Dartmouth Models; MULT = Multiple Models

Secondary Eclipse Parameters for KIC 011815158-01 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	-670 ± 33	$6.53^{+2.19}_{-2.04}$	5048^{+226}_{-284}	6129^{+1498}_{-952}	$1.827^{+2.049}_{-0.794}$
Alt.	-875 ± 134	$6.48^{+2.17}_{-2.08}$	5044^{+237}_{-254}	6677^{+1832}_{-1074}	$2.447^{+2.830}_{-1.137}$

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 $A_{obs} \gg 1.0$

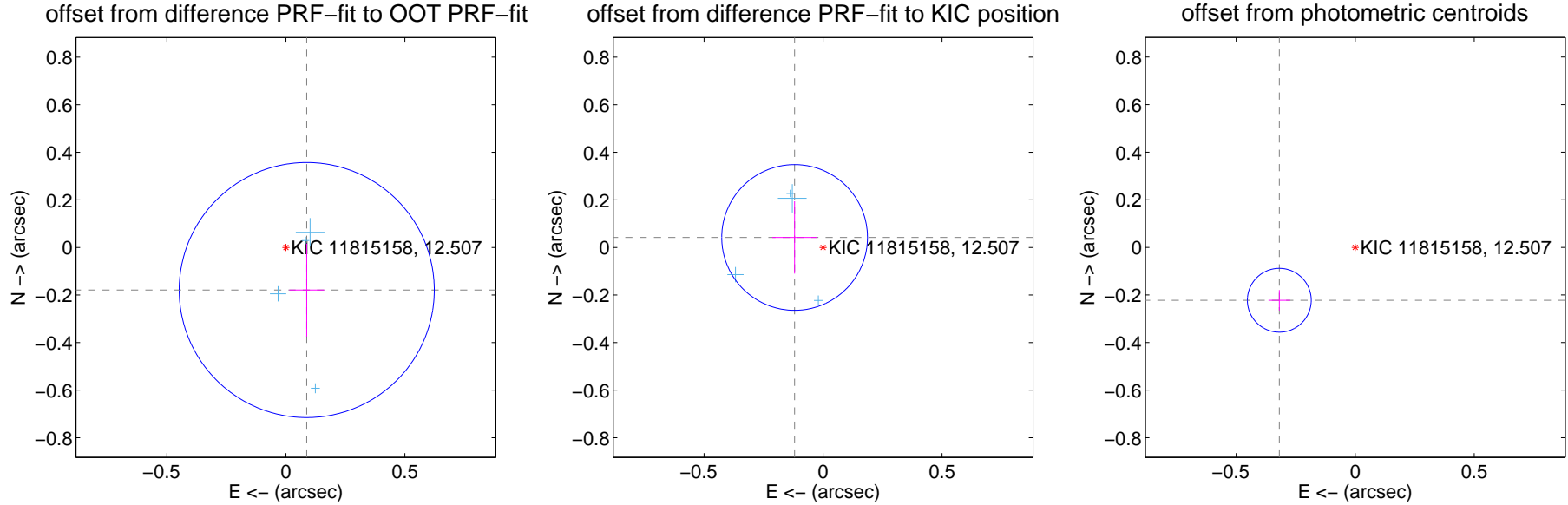
DV Centroid Data

Supplemental centroid analysis for 011815158-01. Kepler magnitude: 12.51. Transit SNR 14.45

There are 4 quarters with good PRF difference image offsets

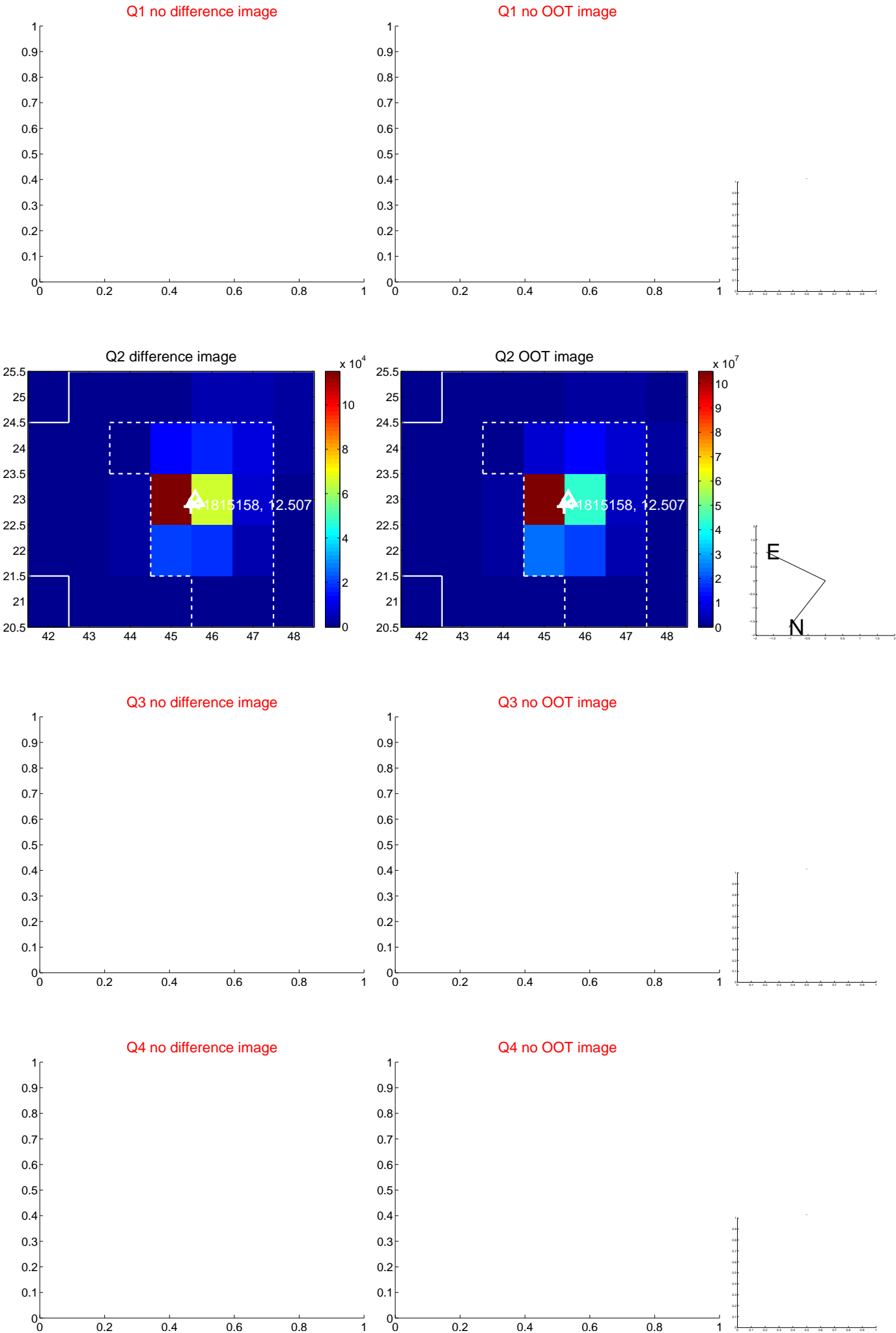
The direct PRF centroid is offset from the target star catalog position by about 0.34 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.199 ± 0.179	1.12	-0.088 ± 0.073	-0.179 ± 0.196
PRF-fit source offset from KIC position	0.127 ± 0.102	1.24	0.120 ± 0.094	0.042 ± 0.152
photometric centroid source offset	0.39 ± 0.04	8.70	0.32 ± 0.05	-0.22 ± 0.04

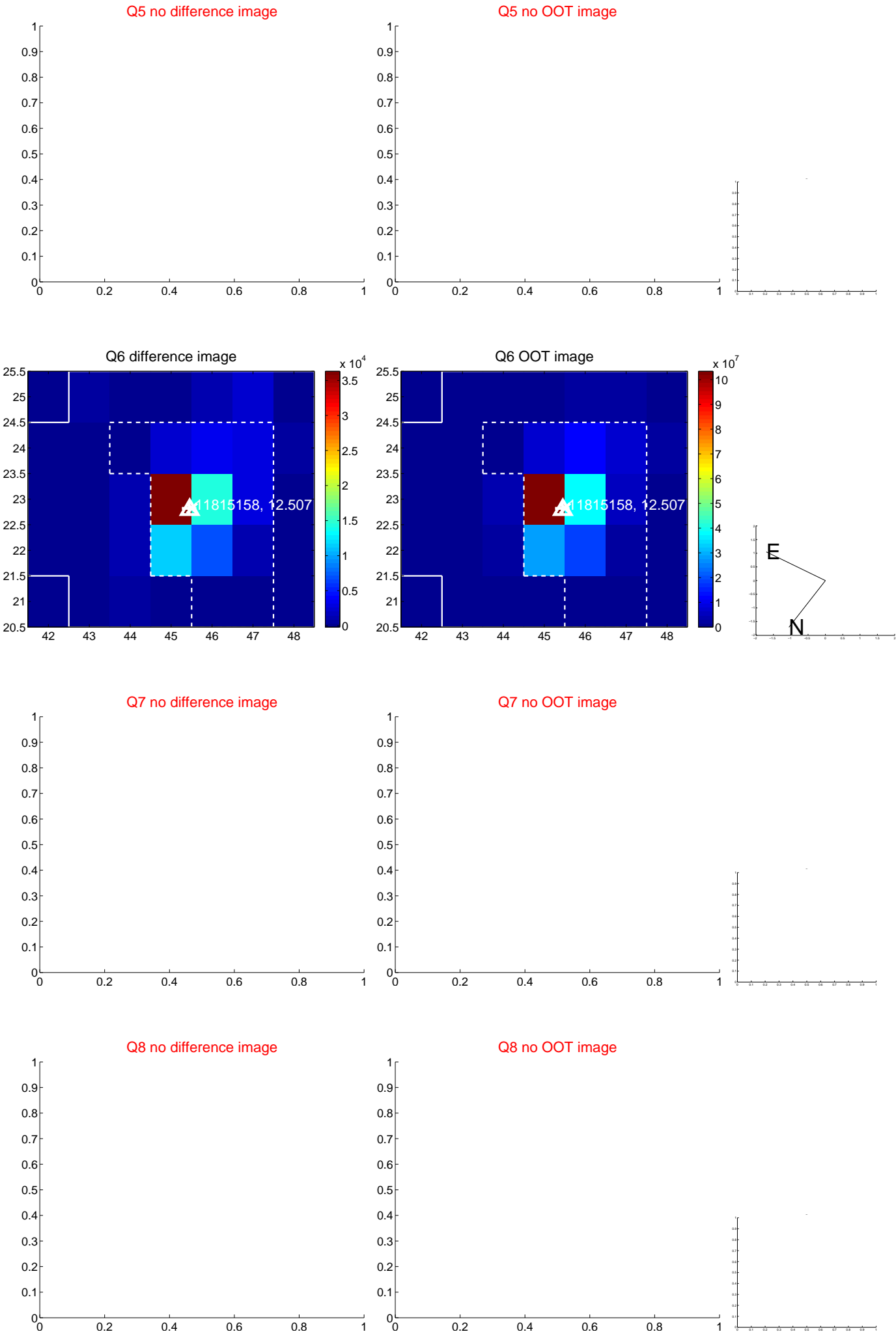


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses:** good quarterly centroid offsets; **Vermillion crosses:** bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

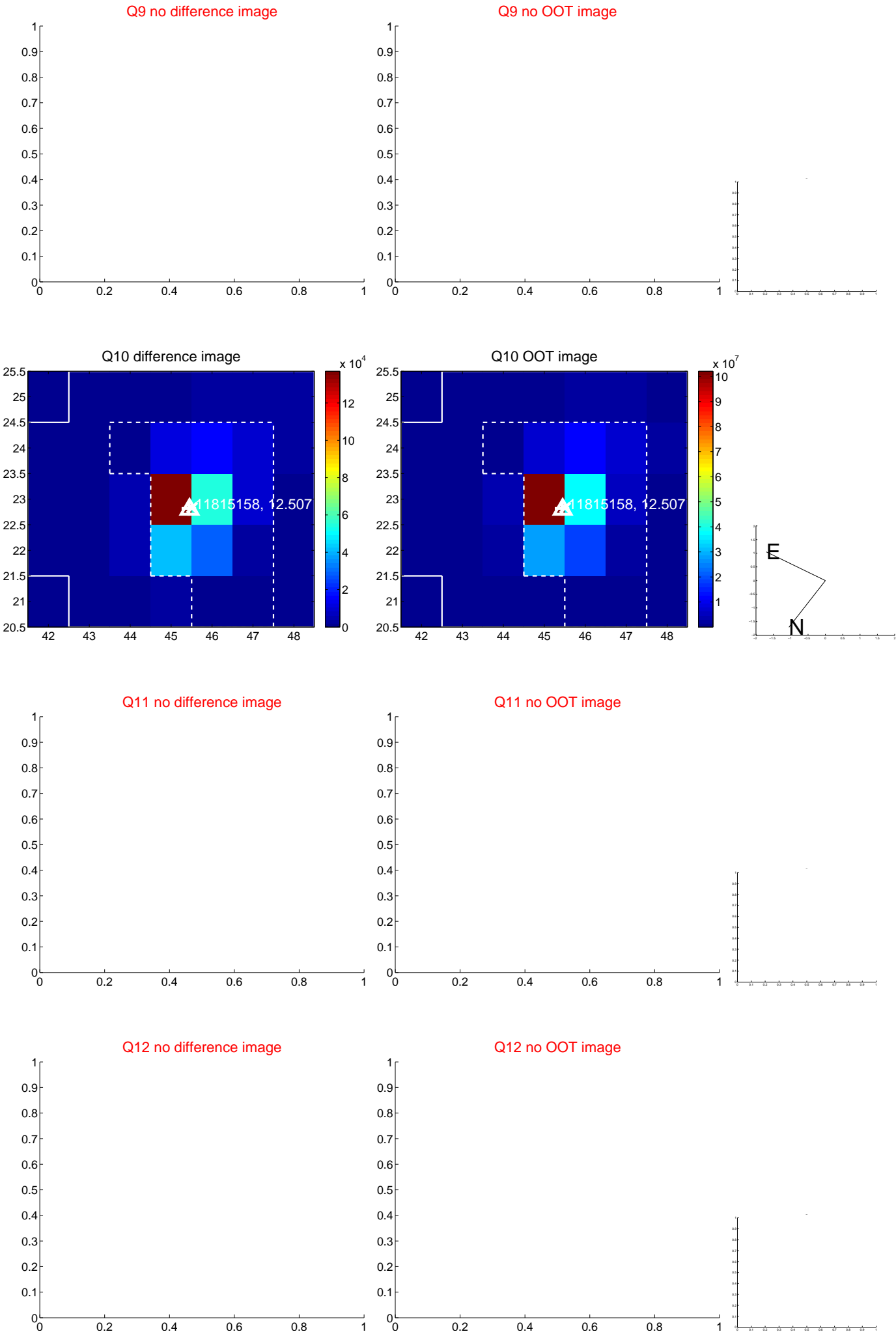
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



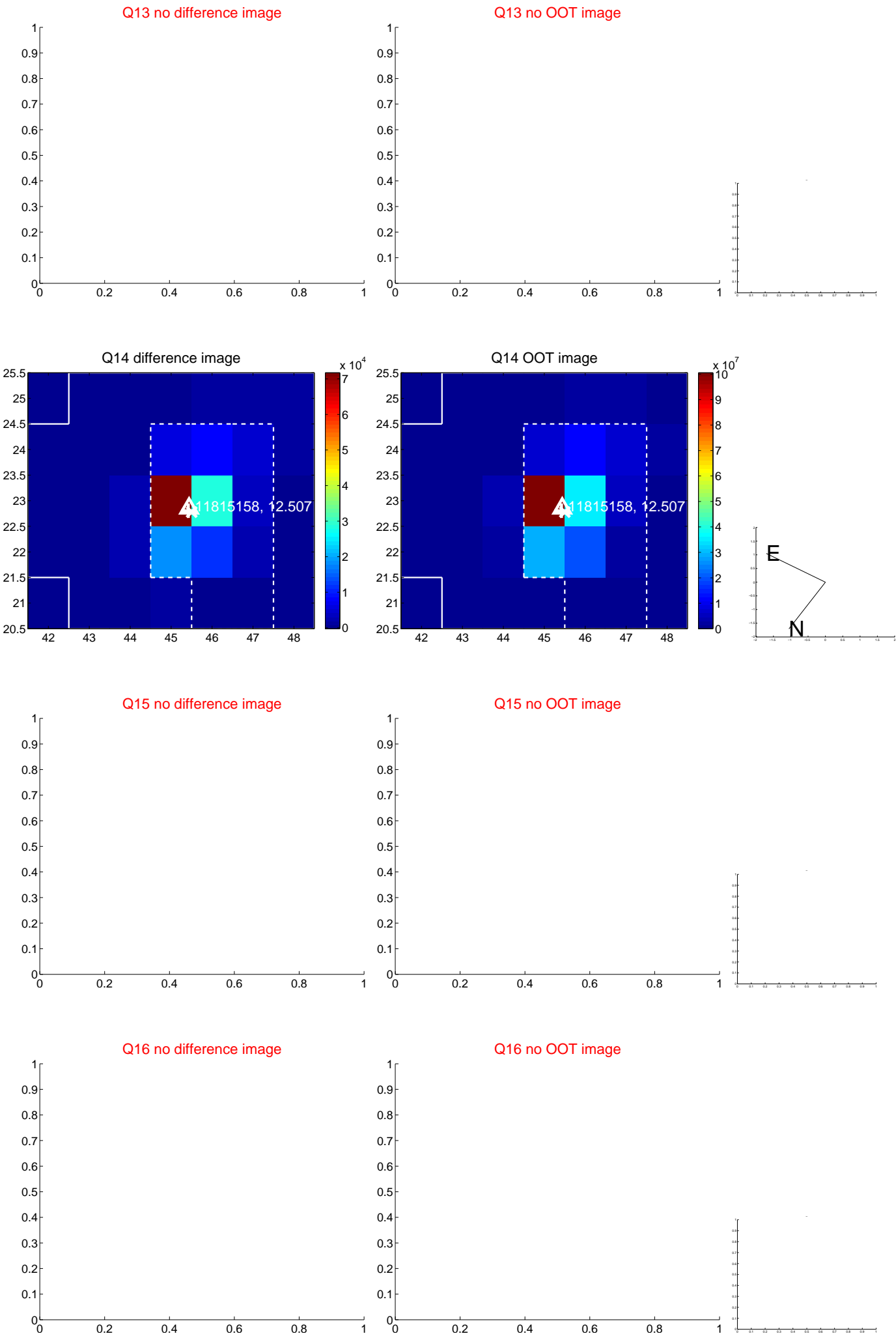
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



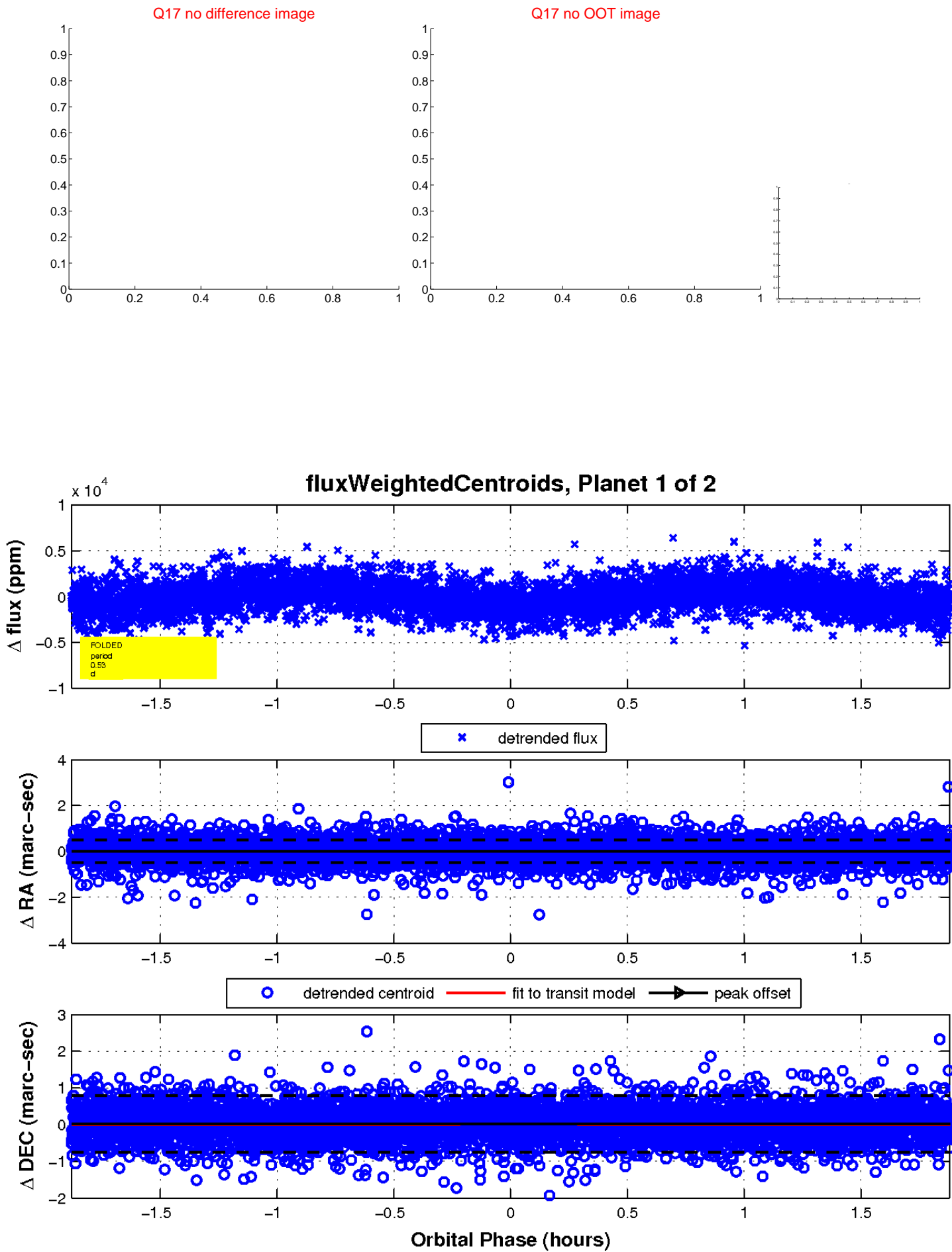
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

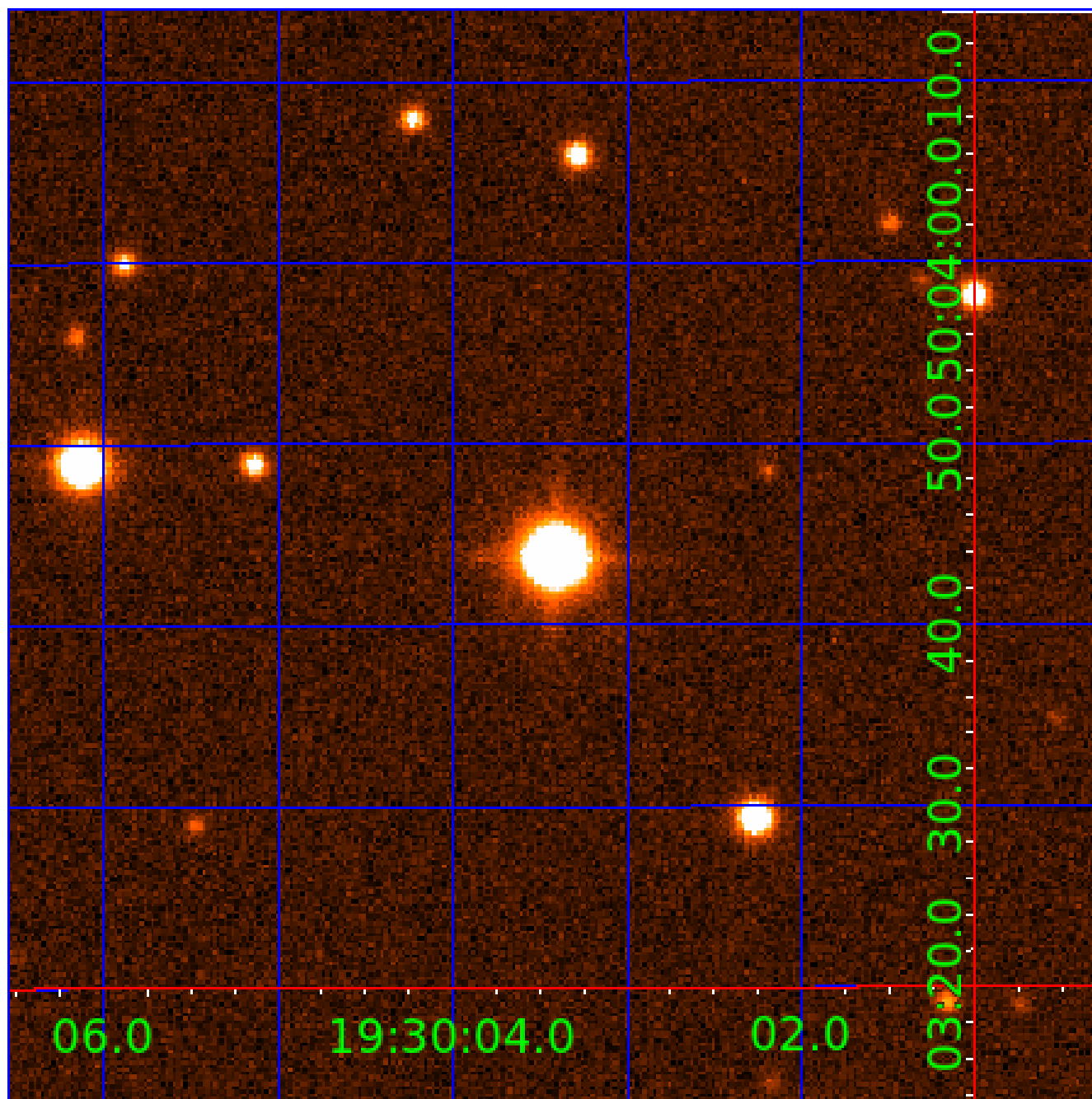


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 011815158

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})
011815158-01	OBS	No	0.534383	131.601961	901.5	0.626	9.4	14.5	1.88	7232	6.73	40933.24
011815158-02	OBS	No	0.534387	131.754073	794.2	1.013	9.1	17.4	1.88	7232	5.75	40932.75

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
011815158-01	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_POS_ALT
011815158-02	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_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.

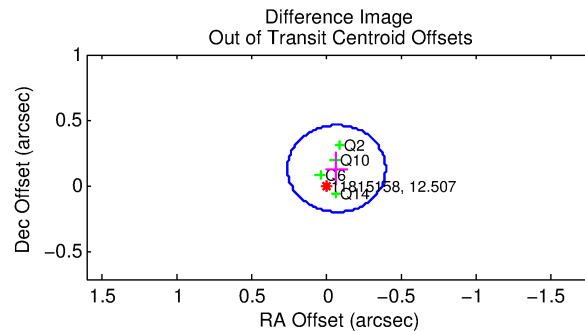
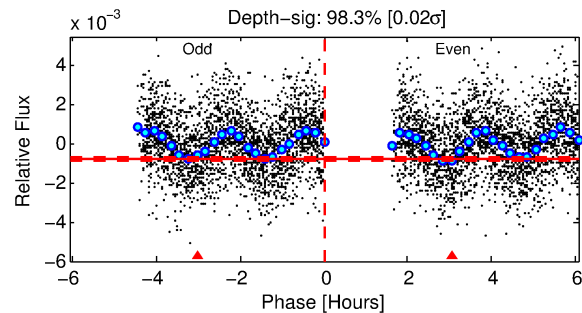
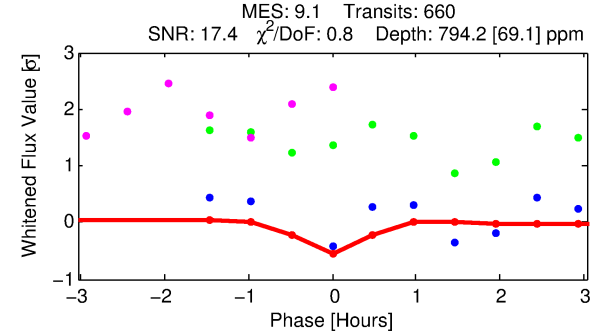
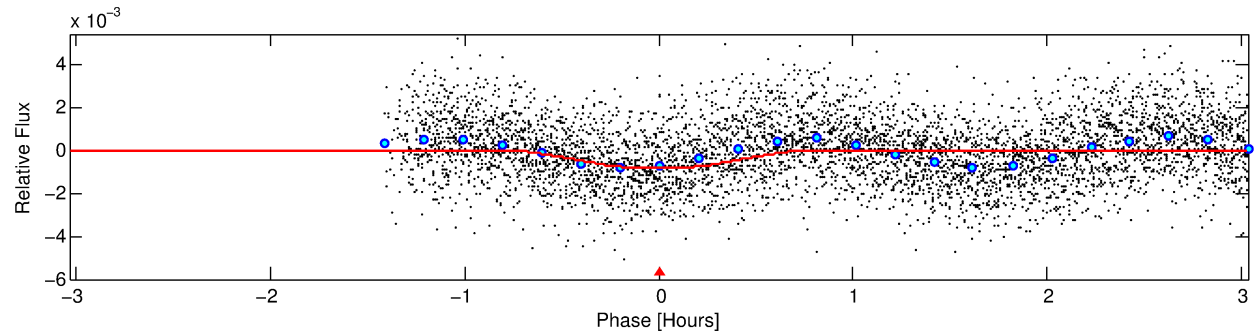
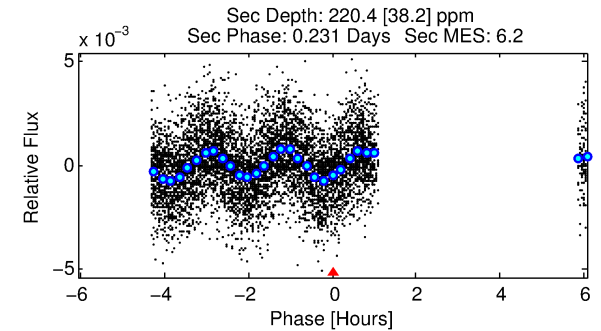
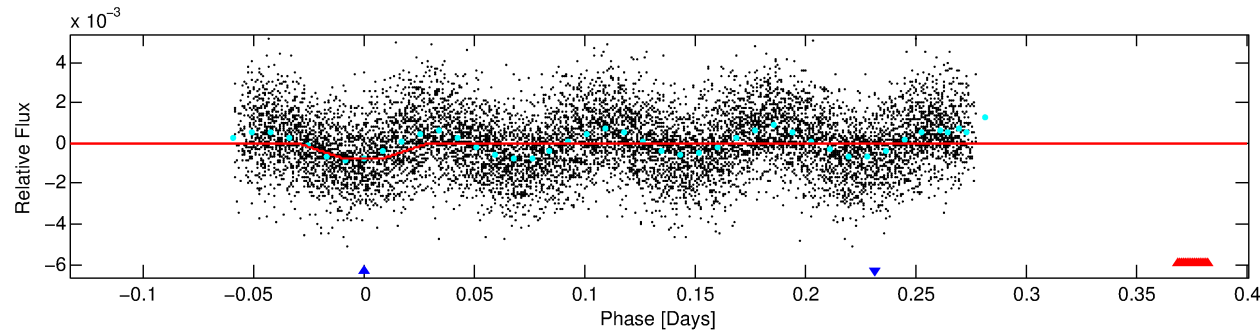
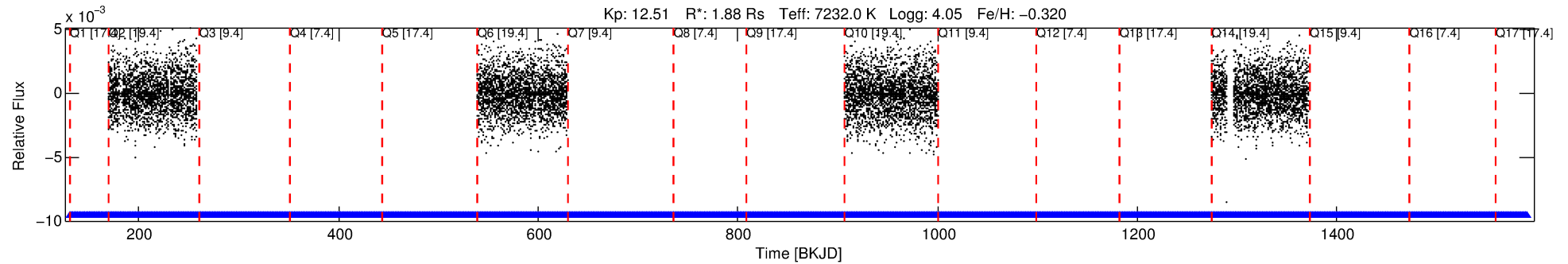
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 011815158-02

No Significant Match Found

DV One-Page Summary

KIC: 11815158 Candidate: 2 of 2 Period: 0.534 d



DV Fit Results:

Period = 0.53439 [0.00001] d
Epoch = 131.7541 [0.0010] BKJD
Rp/R* = 0.0281 [0.0112]
a/R* = 3.05 [6.60]
b = 0.73 [1.59]
Seff = 40932.75 [11667.21]
Teq = 3627 [258] K
Rp = 5.75 [2.56] Re
a = 0.0145 [0.0026] AU
Ag = 0.77 [0.67] [-0.34σ]
Teffp = 5260 [1076] K [1.48σ]

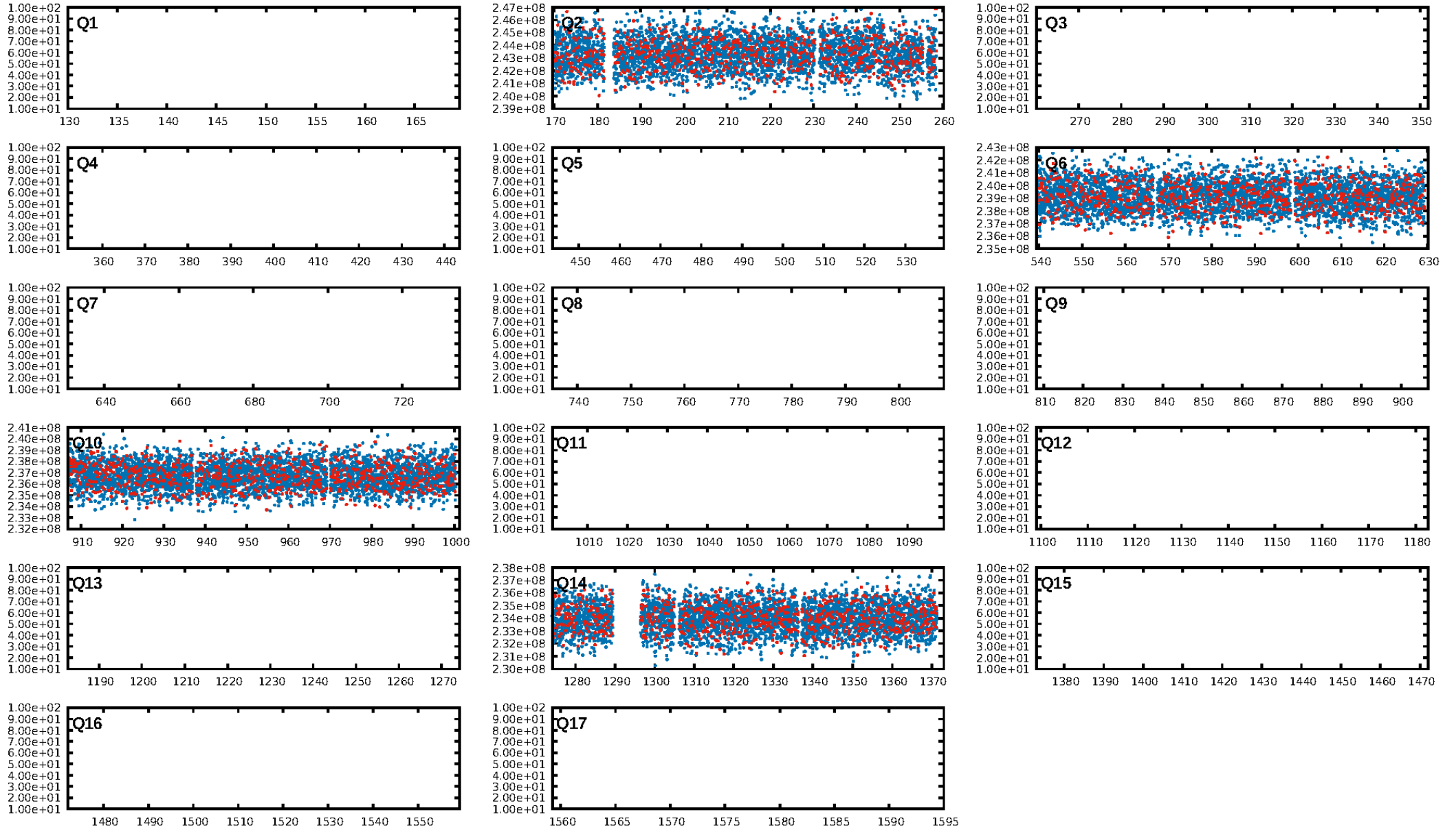
DV Diagnostic Results:

ShortPeriod-sig: 0.0% [0.00σ]
LongPeriod-sig: N/A
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: 4.16e-18
RollingBand-fgt: 1.00 [660/660]
GhostDiagnostic-chr: 1.607
Centroid-sig: 14.0%
Centroid-so: 0.439 arcsec [11.65σ]
OotOffset-rm: 0.154 arcsec [1.40σ]
KicOffset-rm: 0.382 arcsec [2.25σ]
OotOffset-st: 4/0/0/0 [4]
KicOffset-st: 4/0/0/0 [4]
DiffImageQuality-fgm: 1.00 [4/4]
DiffImageOverlap-fno: 0.00 [0/4]

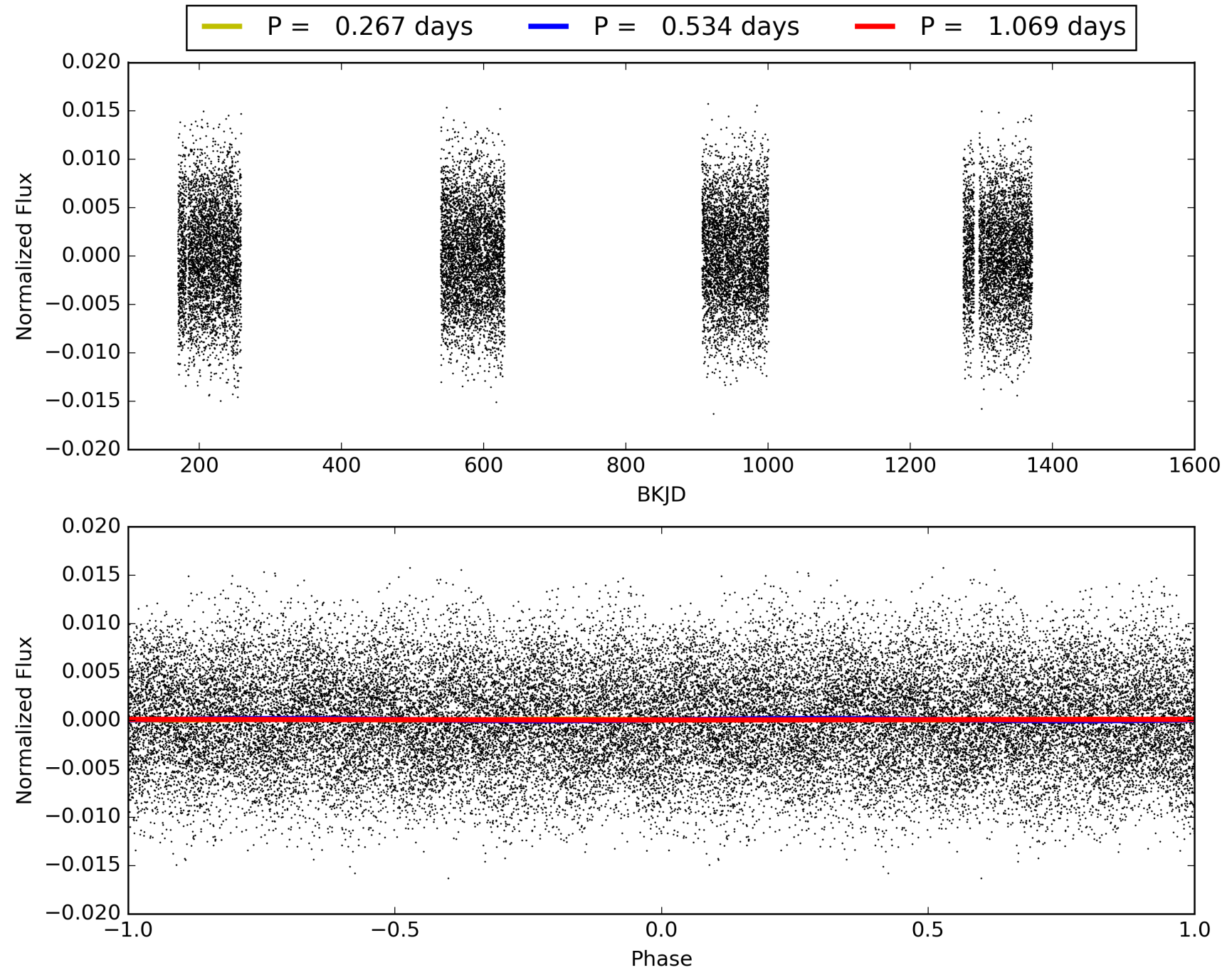
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 29-Jan-2016 11:15:20 Z

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

TCE 011815158-02, PDC Light Curves

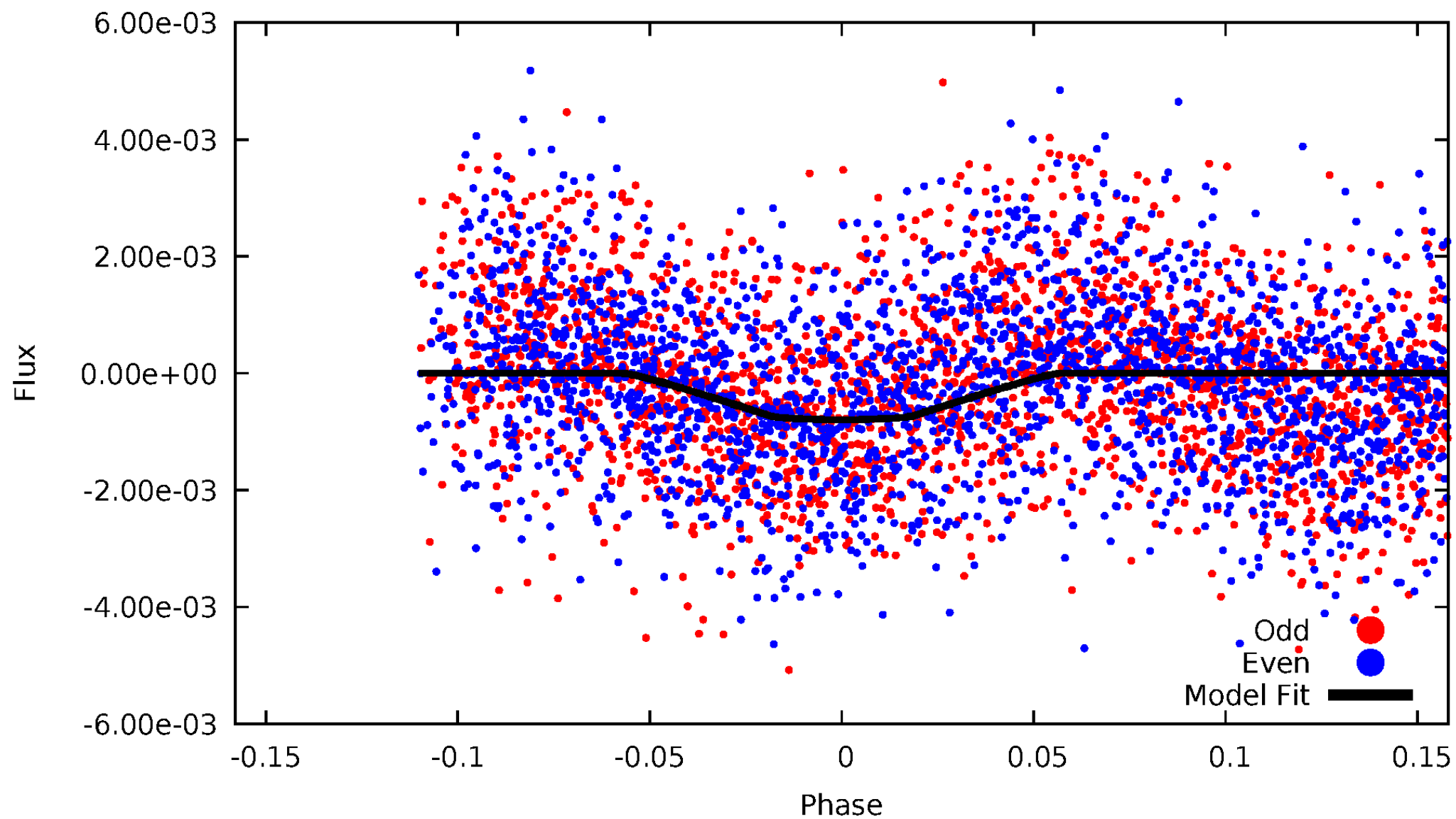


TCE 011815158-02



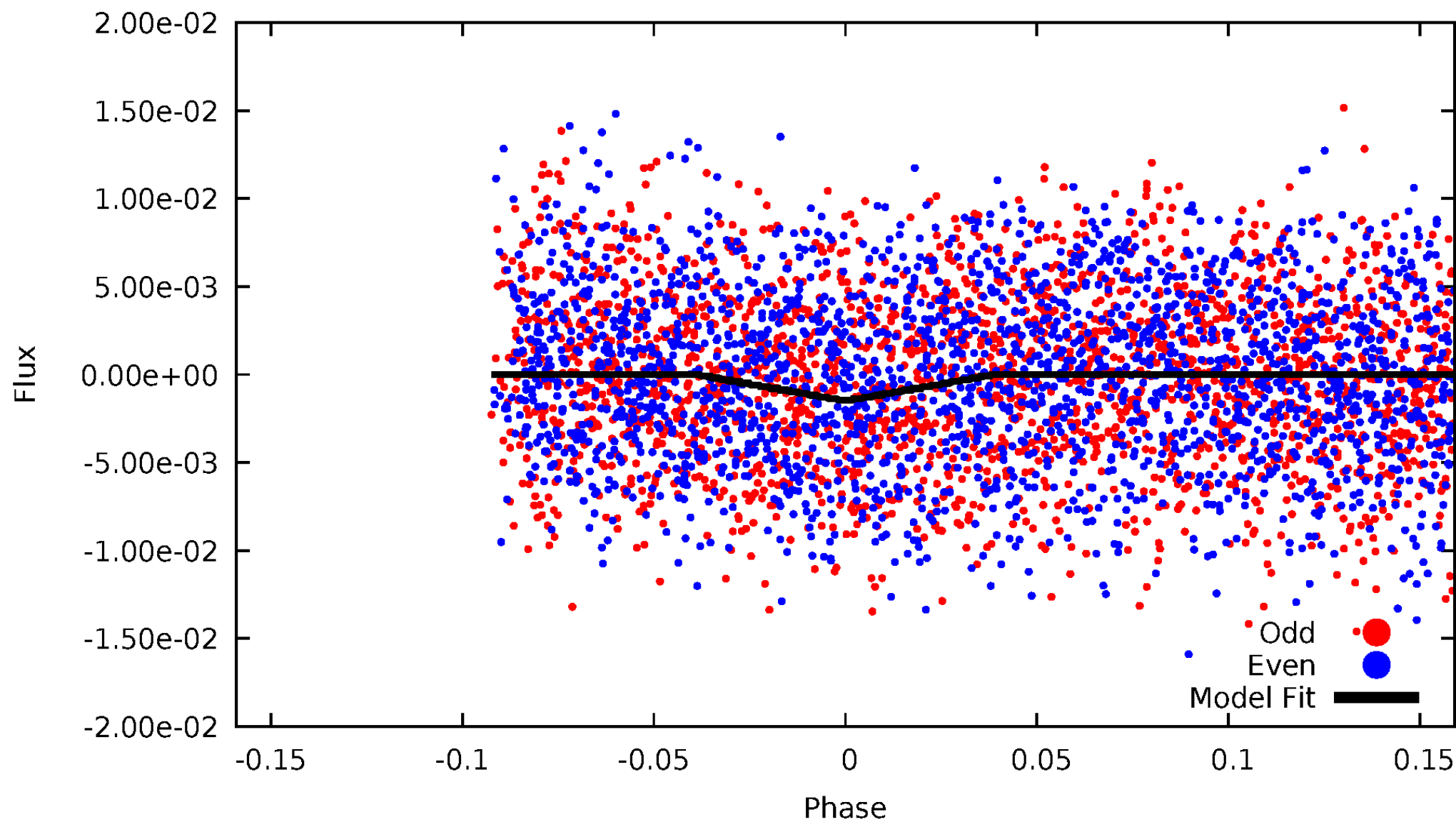
DV Odd/Even

TCE 011815158-02



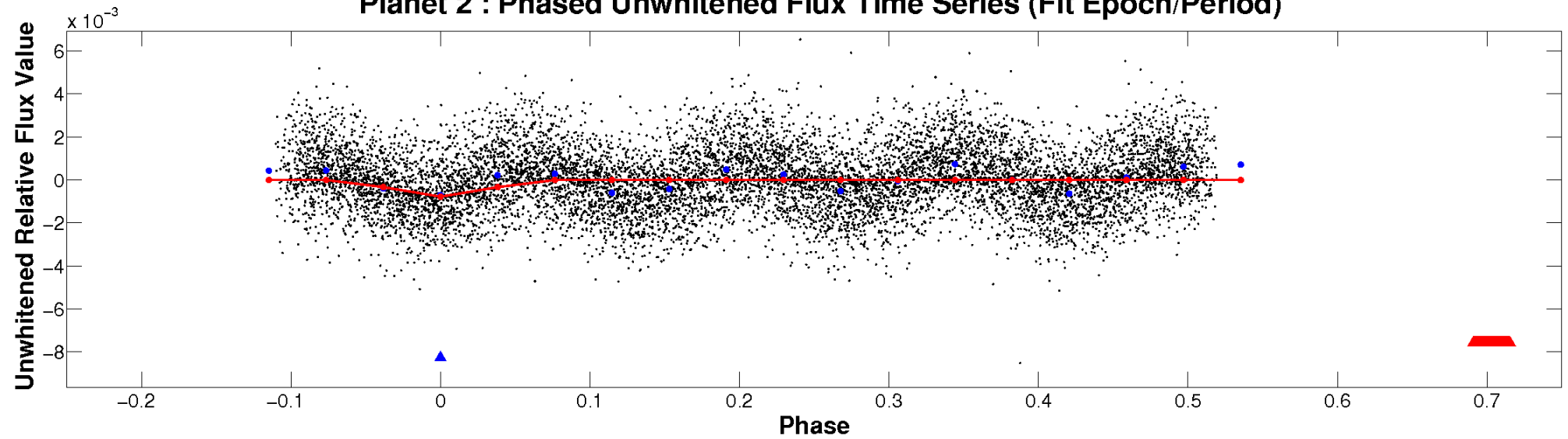
ALT Odd/Even

TCE 011815158-02

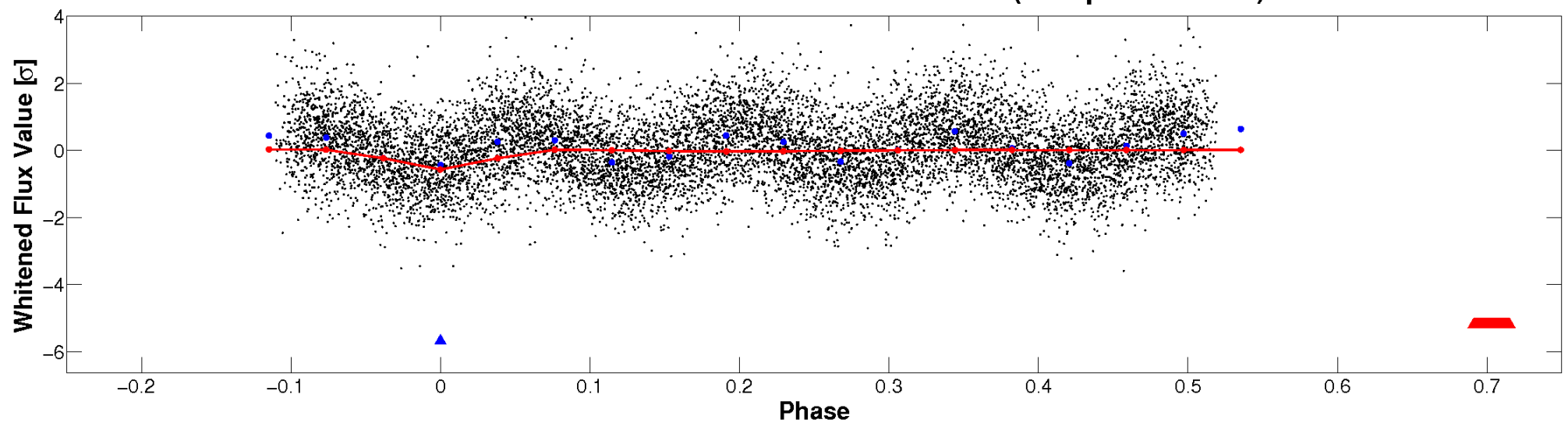


Non-Whitened Vs. Whitened Light Curve

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

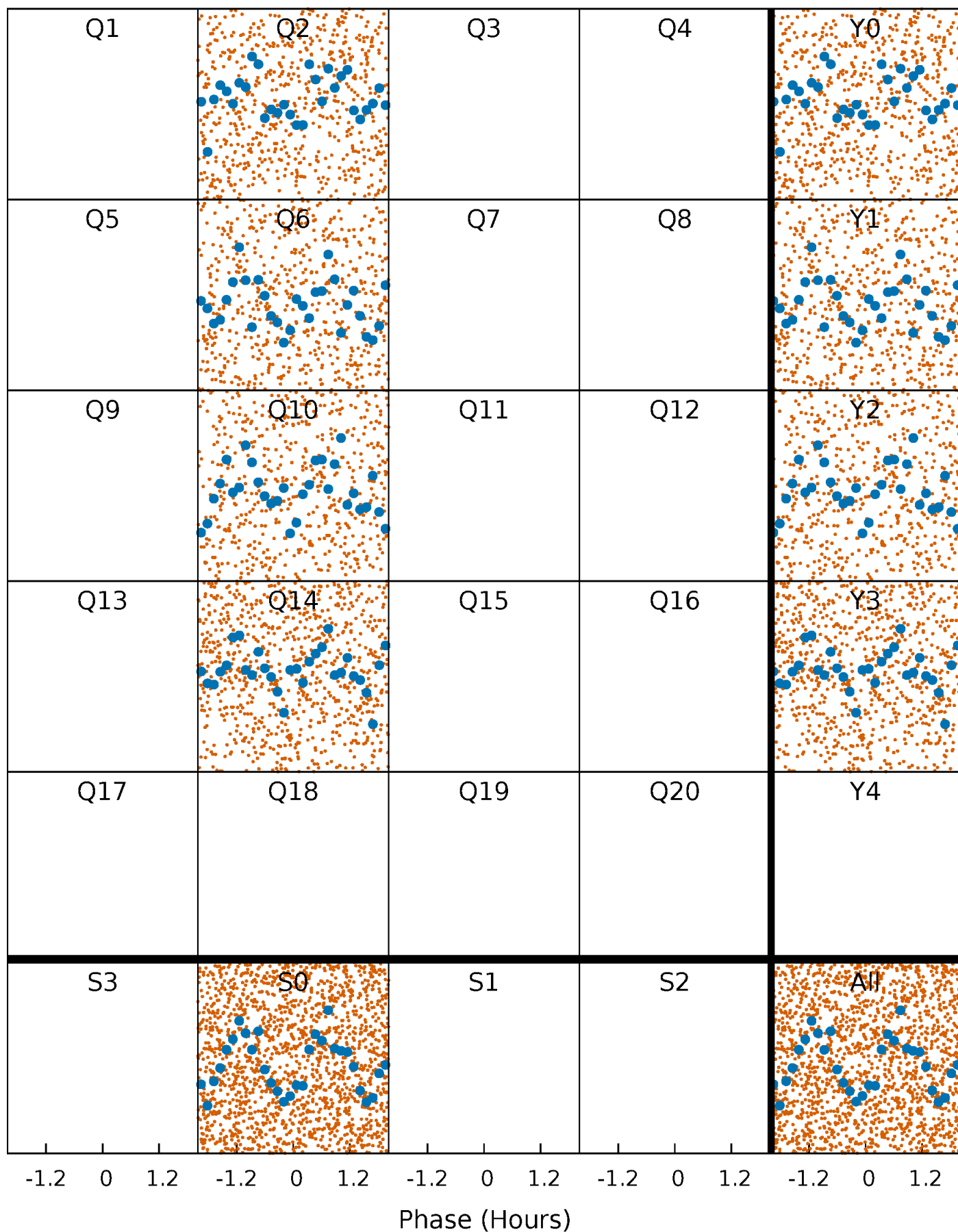


Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



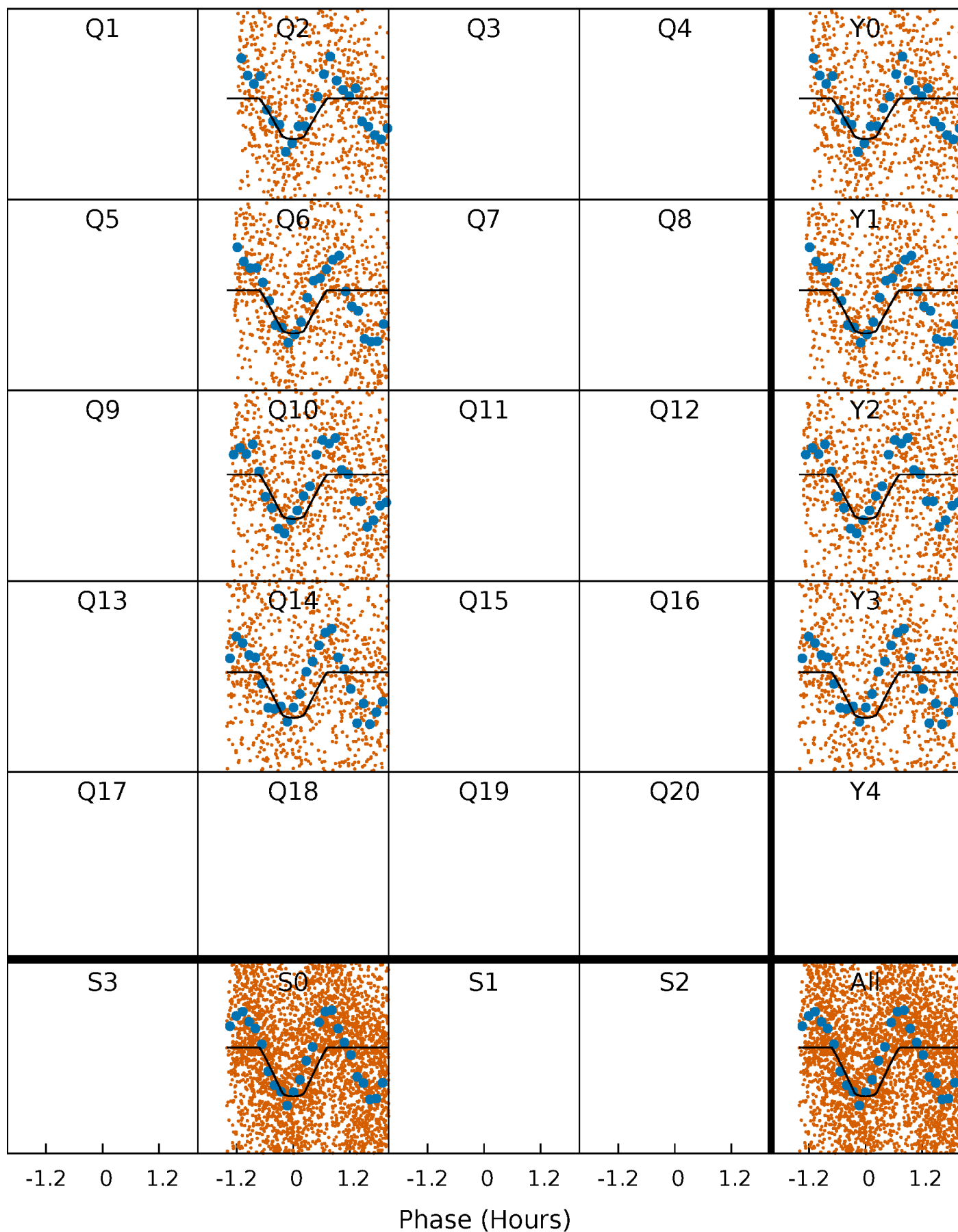
PDC Quarter-Phased Transit Curves

TCE 011815158-02 P= 0.534387 Days $T_0=131.754073$ (BKJD)



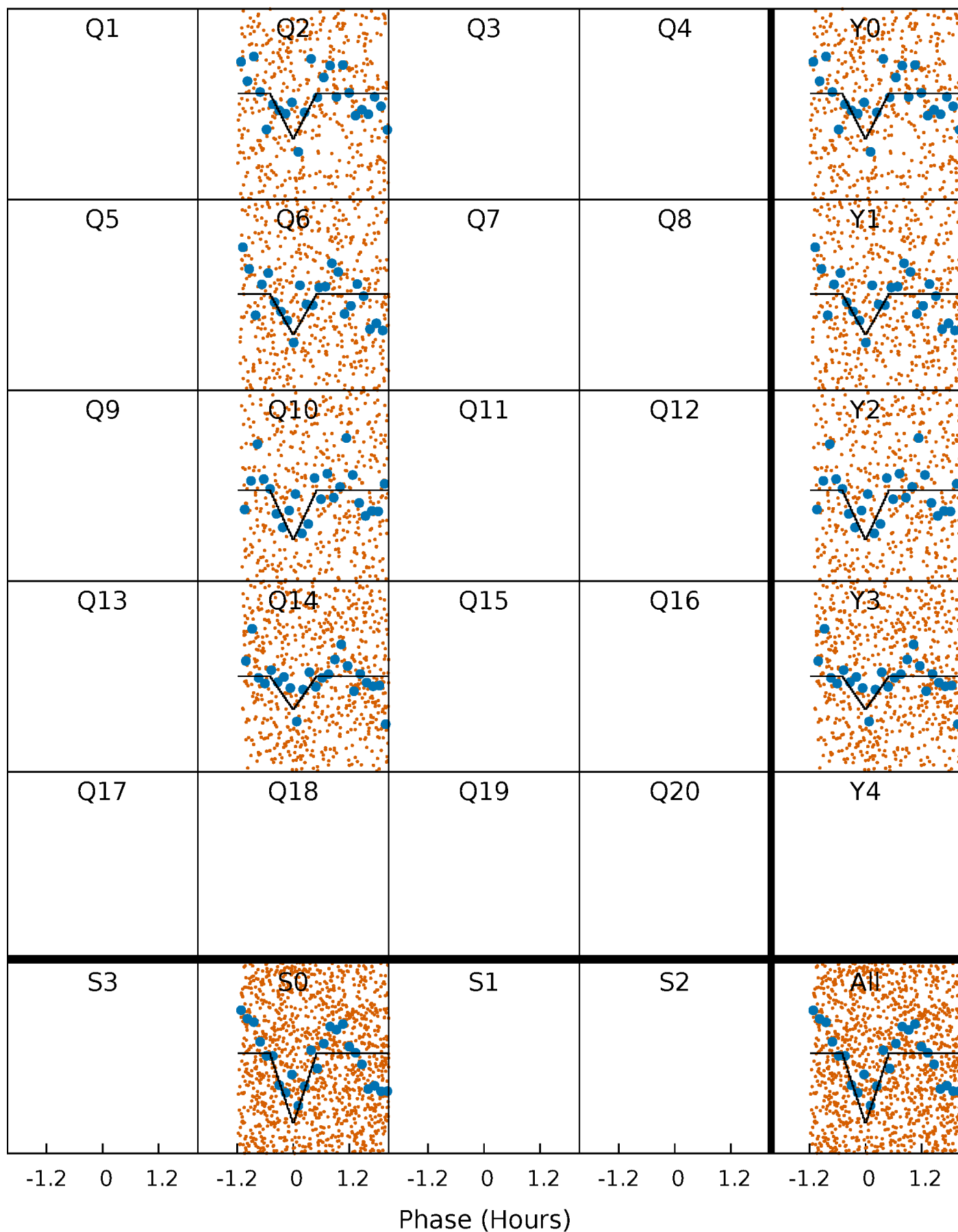
DV Quarter-Phased Transit Curves

TCE 011815158-02 P= 0.534387 Days $T_0=131.754073$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

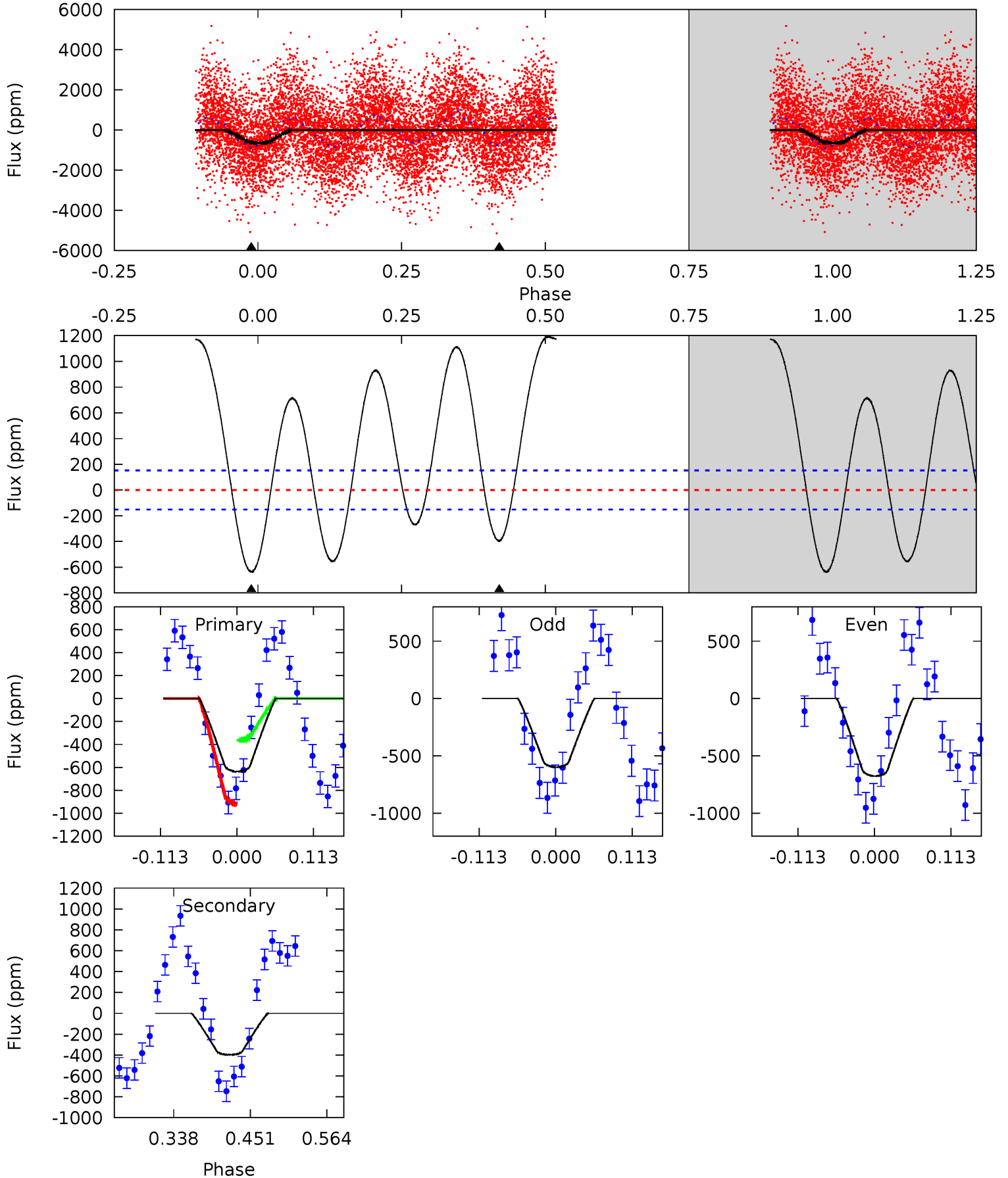
TCE 011815158-02 P= 0.534381 Days $T_0=131.755471$ (BKJD)



DV Model-Shift Uniqueness Test

011815158-02, P = 0.534387 Days, E = 131.754073 Days

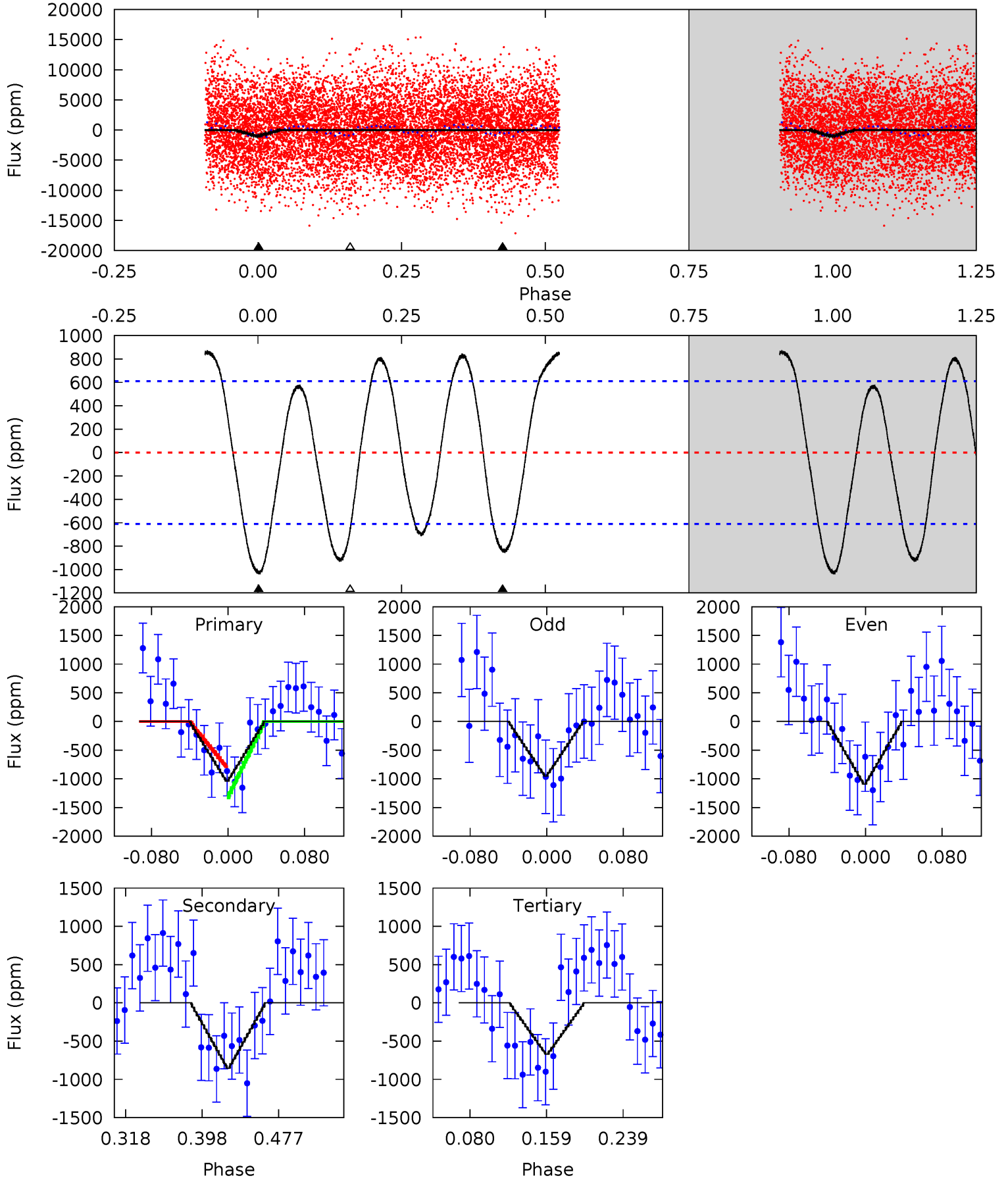
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
19.0	11.9	0	0	4.54	1.59	14.2	19.0	19.0	11.9	11.9	1.18	0.92	0.65	8.26



Alt Model-Shift Uniqueness Test

011815158-02, P = 0.534381 Days, E = 131.755471 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
7.86	6.45	5.09	0	4.61	1.75	4.41	2.77	7.86	1.36	6.45	0.52	1.37	0.46	1.90



Stellar Parameters For KIC 011815158

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	$M(M_{\odot})$	p_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	7232^{+86}_{-79}	$4.047^{+0.162}_{-0.108}$	$-0.320^{+0.200}_{-0.150}$	$1.879^{+0.369}_{-0.369}$	$1.435^{+0.126}_{-0.126}$	$0.304^{+0.225}_{-0.110}$
	+1%/-1%	+4%/-3%	+62%/-47%	+20%/-20%	+9%/-9%	+74%/-36%
Source	SPE68	SPE68	SPE68	DSEP		

KIC = Kepler Input Catalog; PHO = Photometry; SPE = Spectroscopy; AST = Asteroseismology
 TRA = Transits; DESP = Dartmouth Models; MULT = Multiple Models

Secondary Eclipse Parameters for KIC 011815158-02 / KOI

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	-398 ± 33	$5.61^{+2.47}_{-2.19}$	5039^{+240}_{-262}	5709^{+1964}_{-1120}	$1.487^{+2.414}_{-0.772}$
Alt.	-853 ± 132	$7.86^{+2.40}_{-2.31}$	5046^{+256}_{-255}	5893^{+1433}_{-838}	$1.615^{+1.727}_{-0.673}$

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 $A_{obs} \gg 1.0$

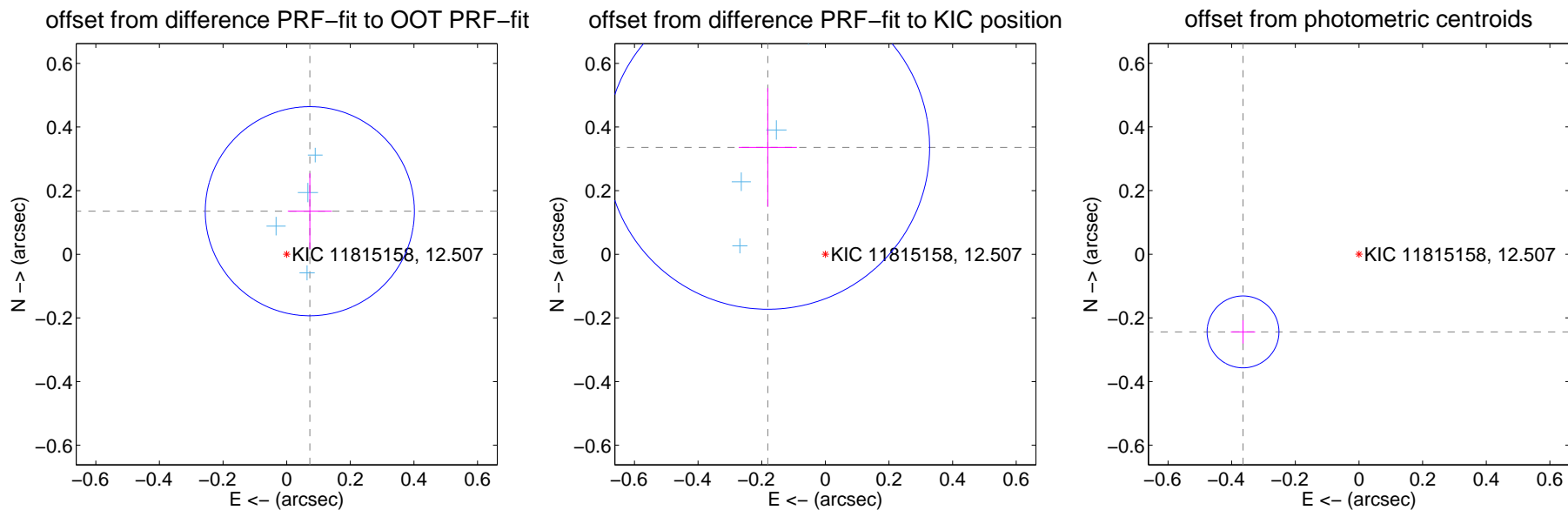
DV Centroid Data

Supplemental centroid analysis for 011815158-02. Kepler magnitude: 12.51. Transit SNR 17.42

There are 4 quarters with good PRF difference image offsets

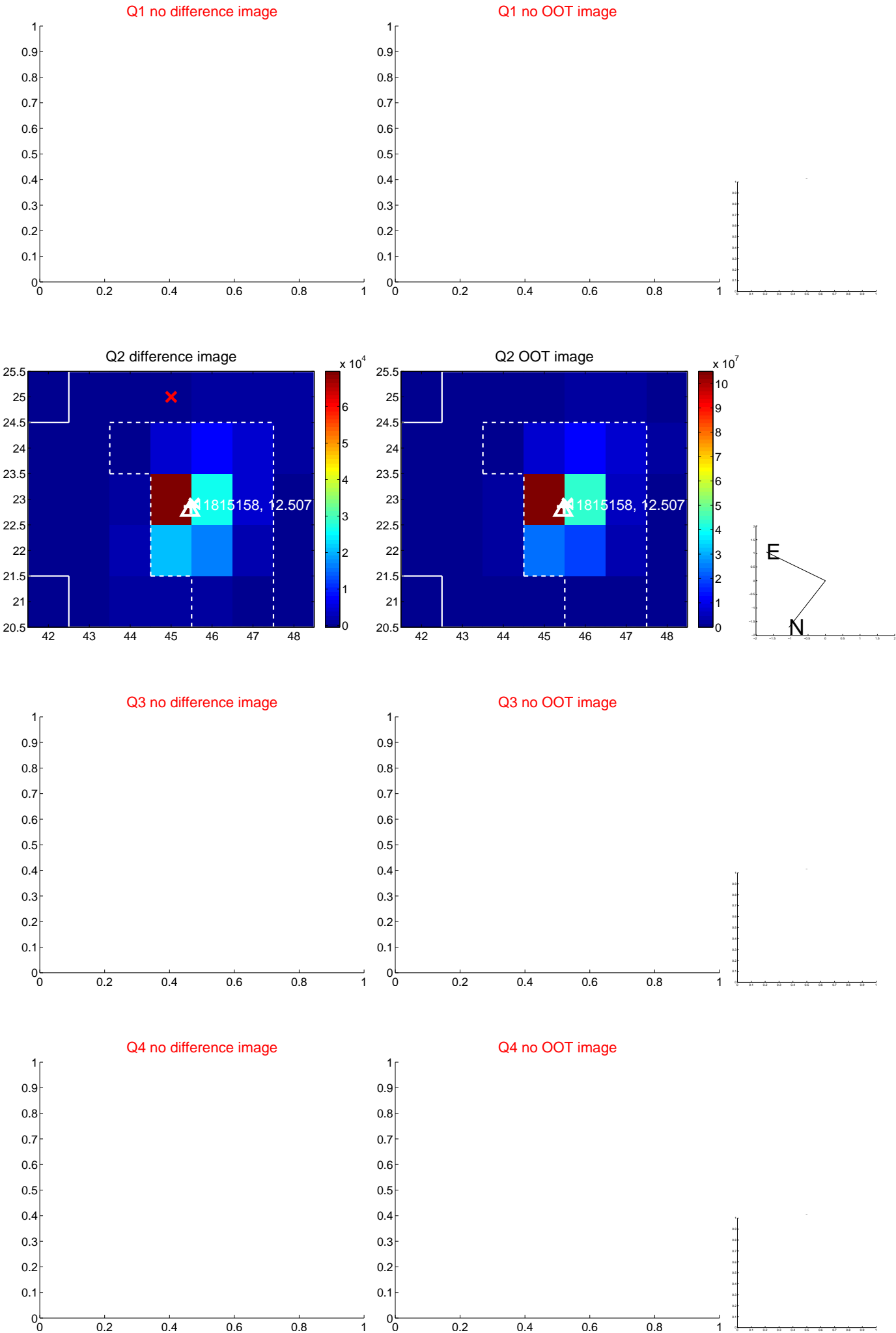
The direct PRF centroid is offset from the target star catalog position by about 0.34 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.154 ± 0.110	1.40	-0.073 ± 0.069	0.135 ± 0.119
PRF-fit source offset from KIC position	0.382 ± 0.170	2.25	0.181 ± 0.091	0.336 ± 0.186
photometric centroid source offset	0.44 ± 0.04	11.65	0.36 ± 0.04	-0.24 ± 0.04

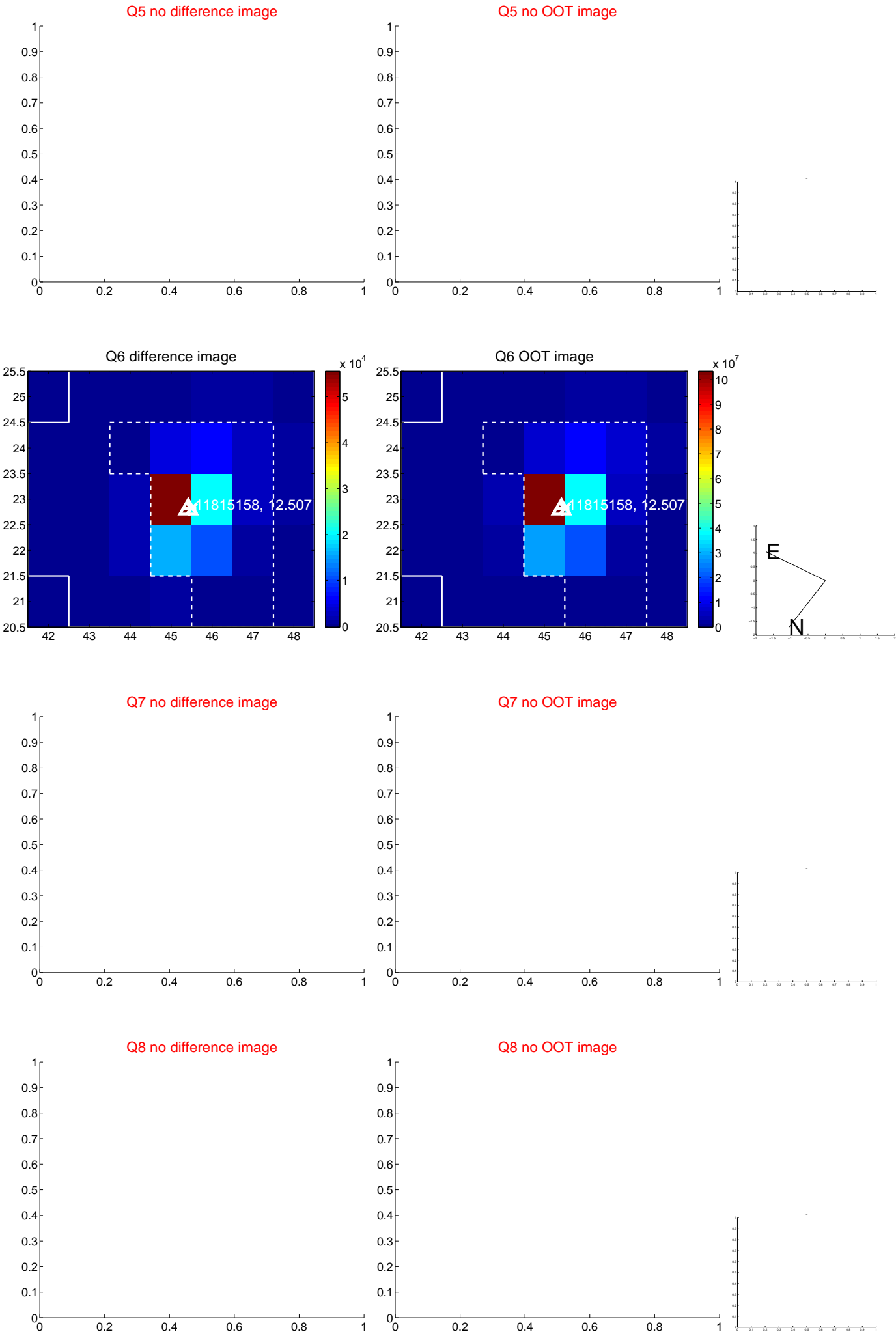


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses:** good quarterly centroid offsets; **Vermillion crosses:** bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

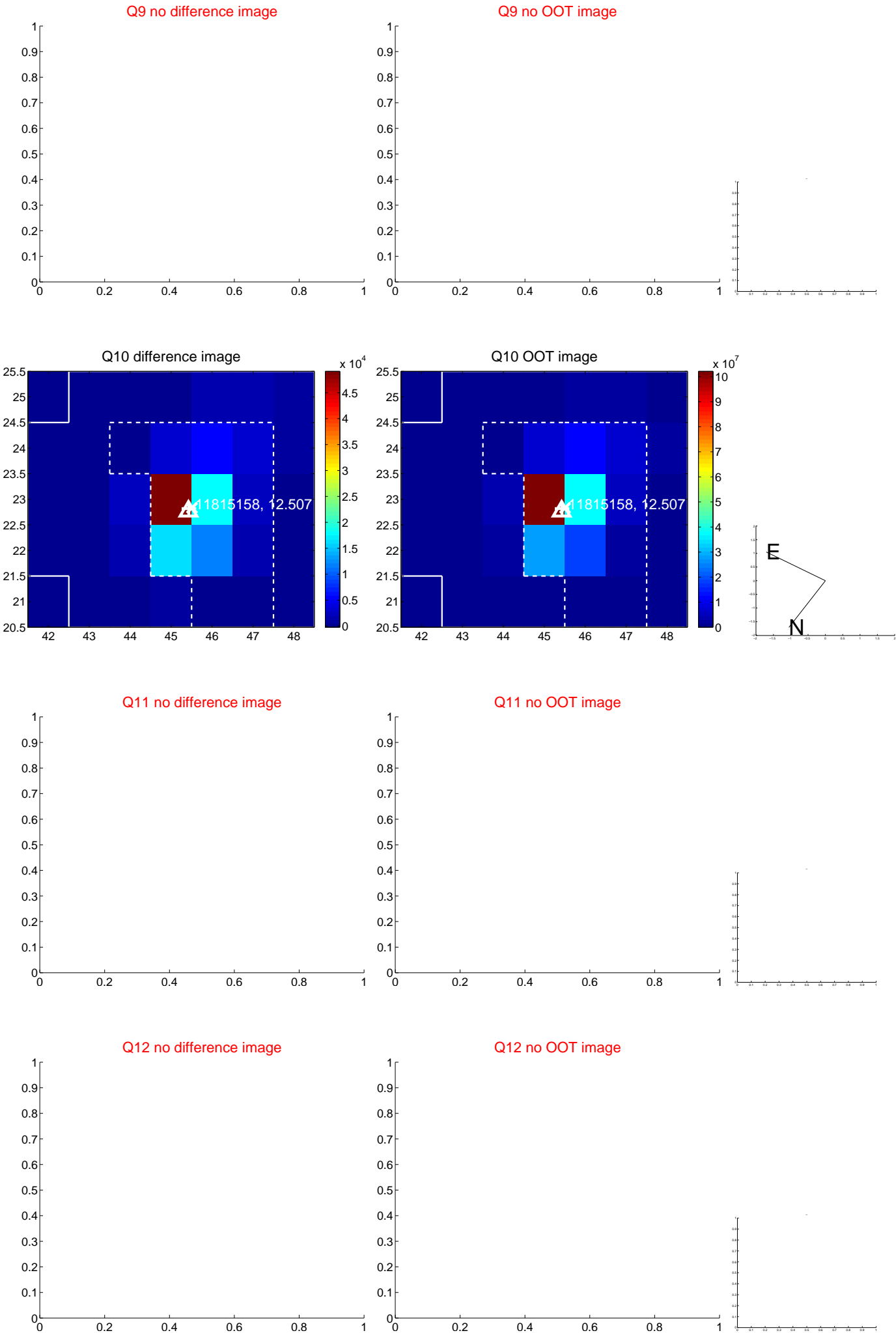
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



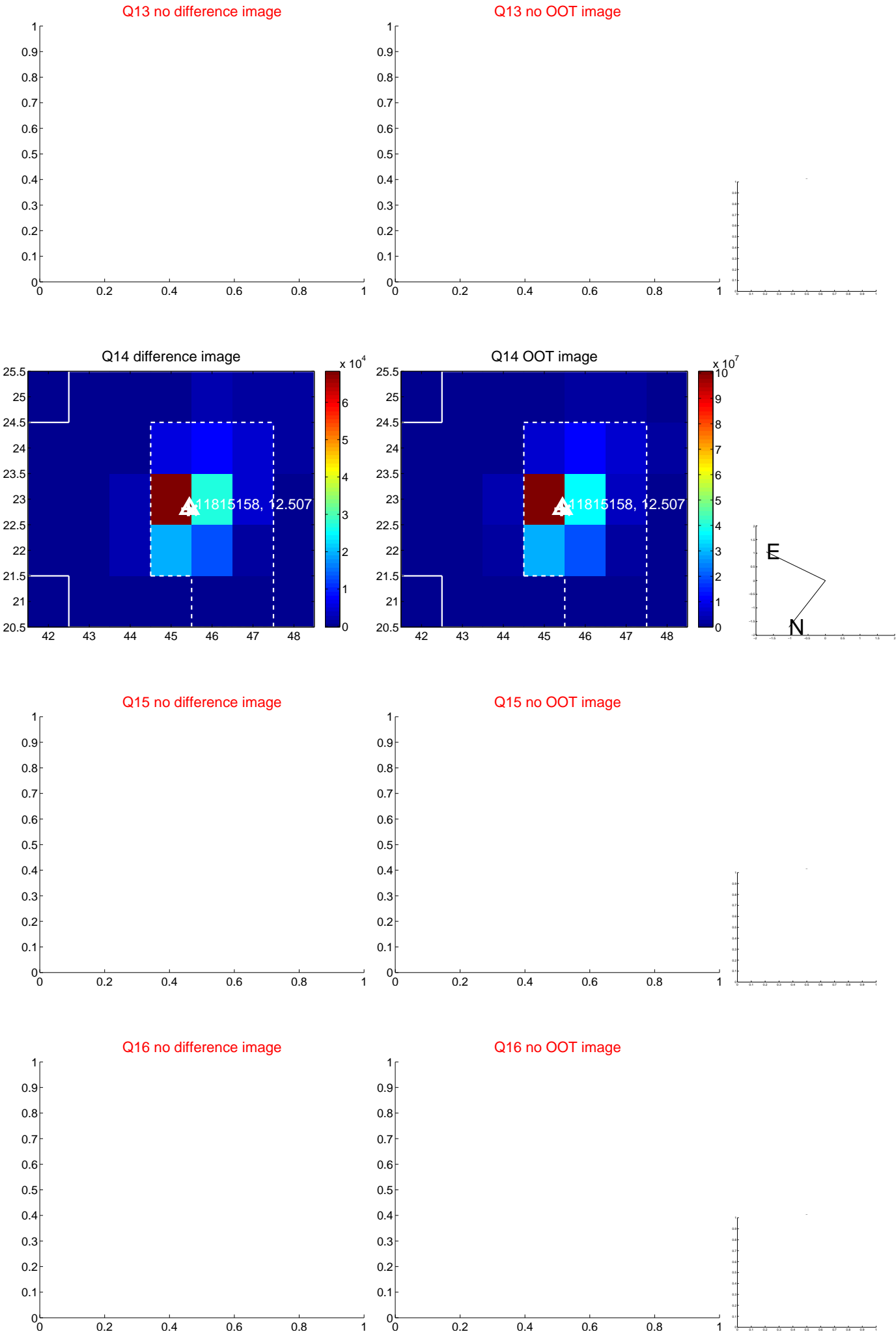
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



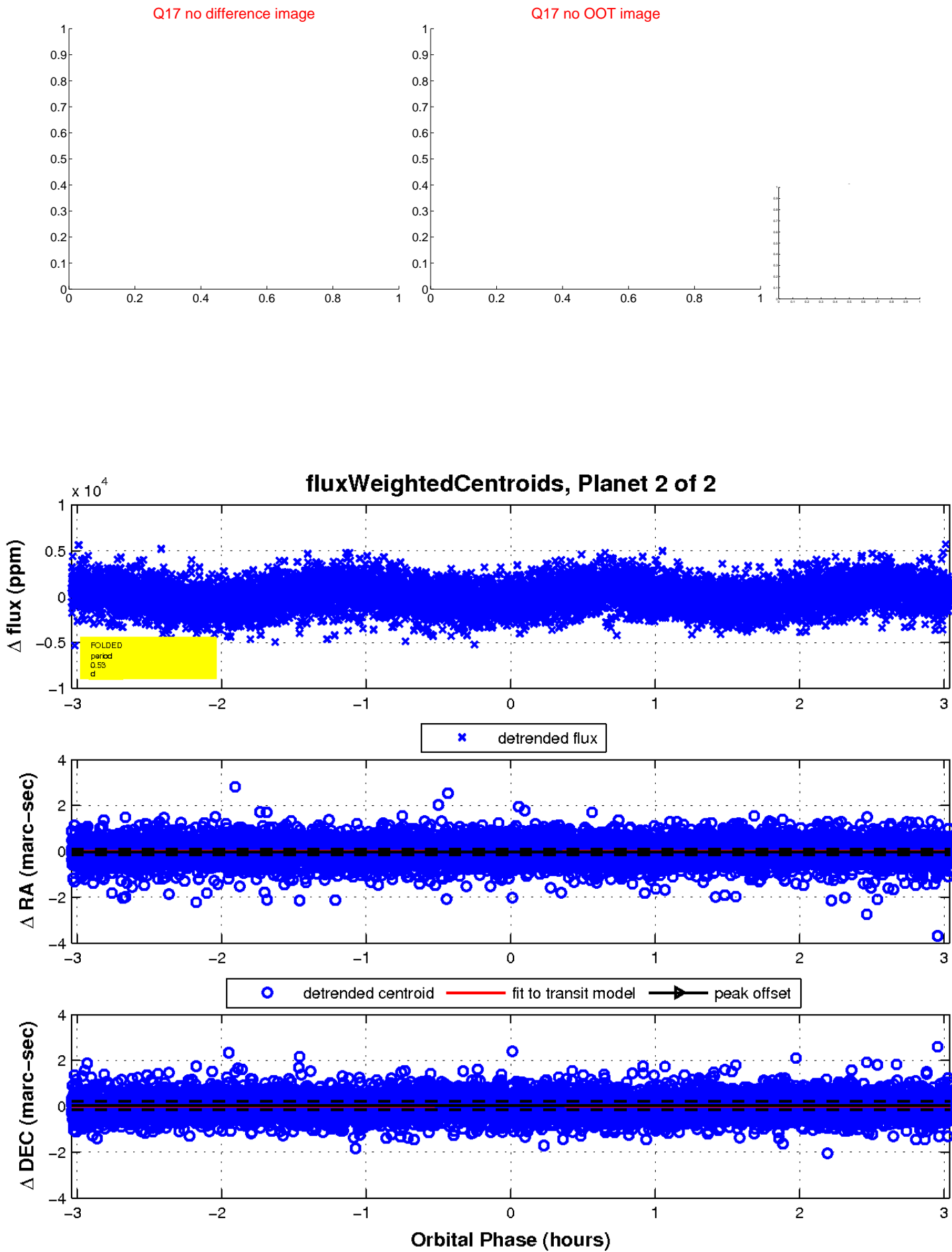
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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



UKIRT Image

Declination

