

KIC 010231171

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})
010231171-01	OBS	No	4.709211	131.992012	36.9	15.604	8.7	8.3	1.34	6517	0.87	847.86
010231171-02	OBS	No	4.708777	133.574783	151.3	15.000	8.5	-1.0	1.34	6517	1.66	847.96

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
010231171-01	OBS	FP	0.00	1	0	0	0	SWEET_NTL—LPP_DV
010231171-02	OBS	FP	0.00	1	0	1	0	SWEET_NTL—LPP_DV—LPP_ALT—MOD_NONUNIQ_ALT—SAME_NTL_PERIOD—CENT_NOFITS—HALO_GHOST

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

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

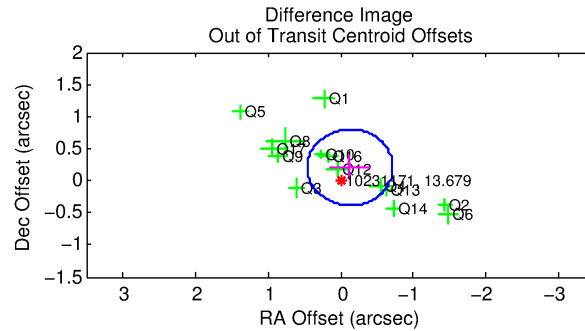
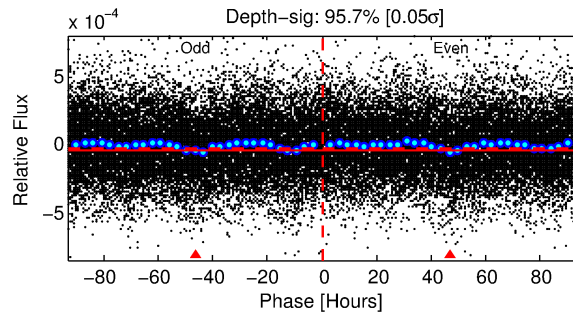
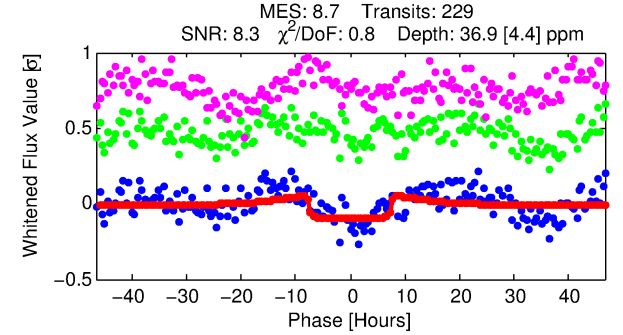
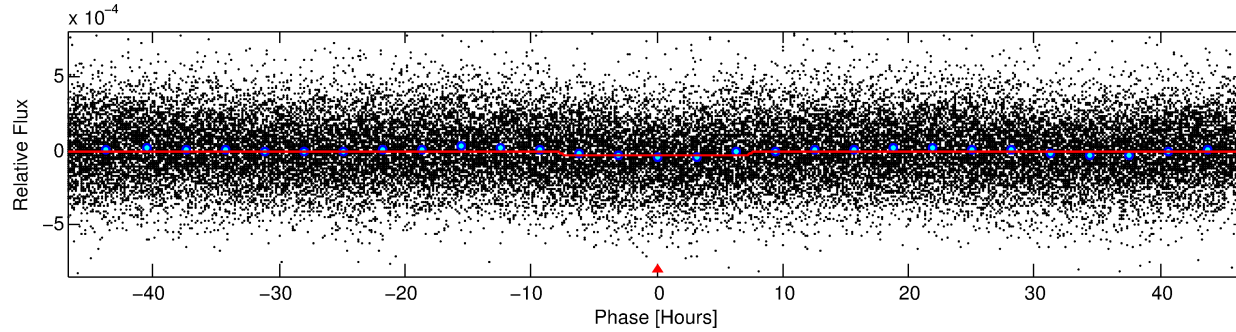
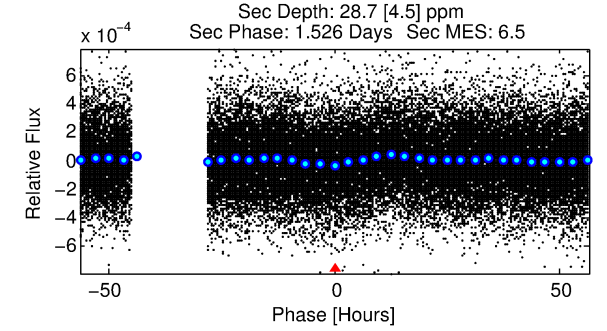
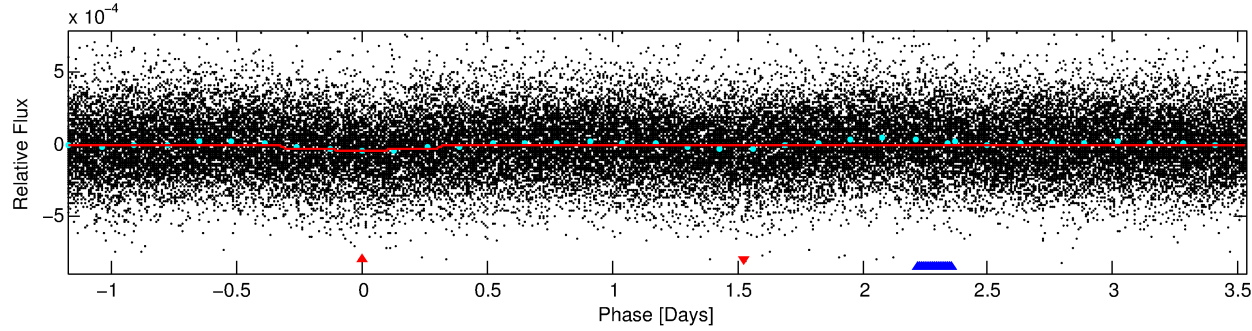
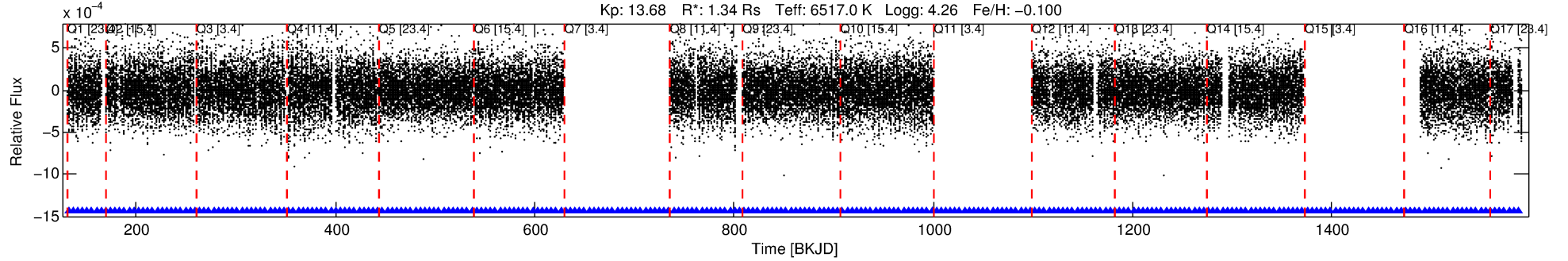
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 010231171-01

No Significant Match Found

DV One-Page Summary

KIC: 10231171 Candidate: 1 of 2 Period: 4.709 d



DV Fit Results:

Period = 4.70921 [0.00008] d
Epoch = 131.9920 [0.0119] BKJD
Rp/R* = 0.0059 [0.0019]
a/R* = 1.90 [2.32]
b = 0.67 [1.37]
Seff = 847.86 [327.63]
Teq = 1376 [133] K
Rp = 0.87 [0.39] Re
a = 0.0586 [0.0152] AU
Ag = 72.06 [53.34] [1.33σ]
Teffp = 6198 [1020] K [4.69σ]

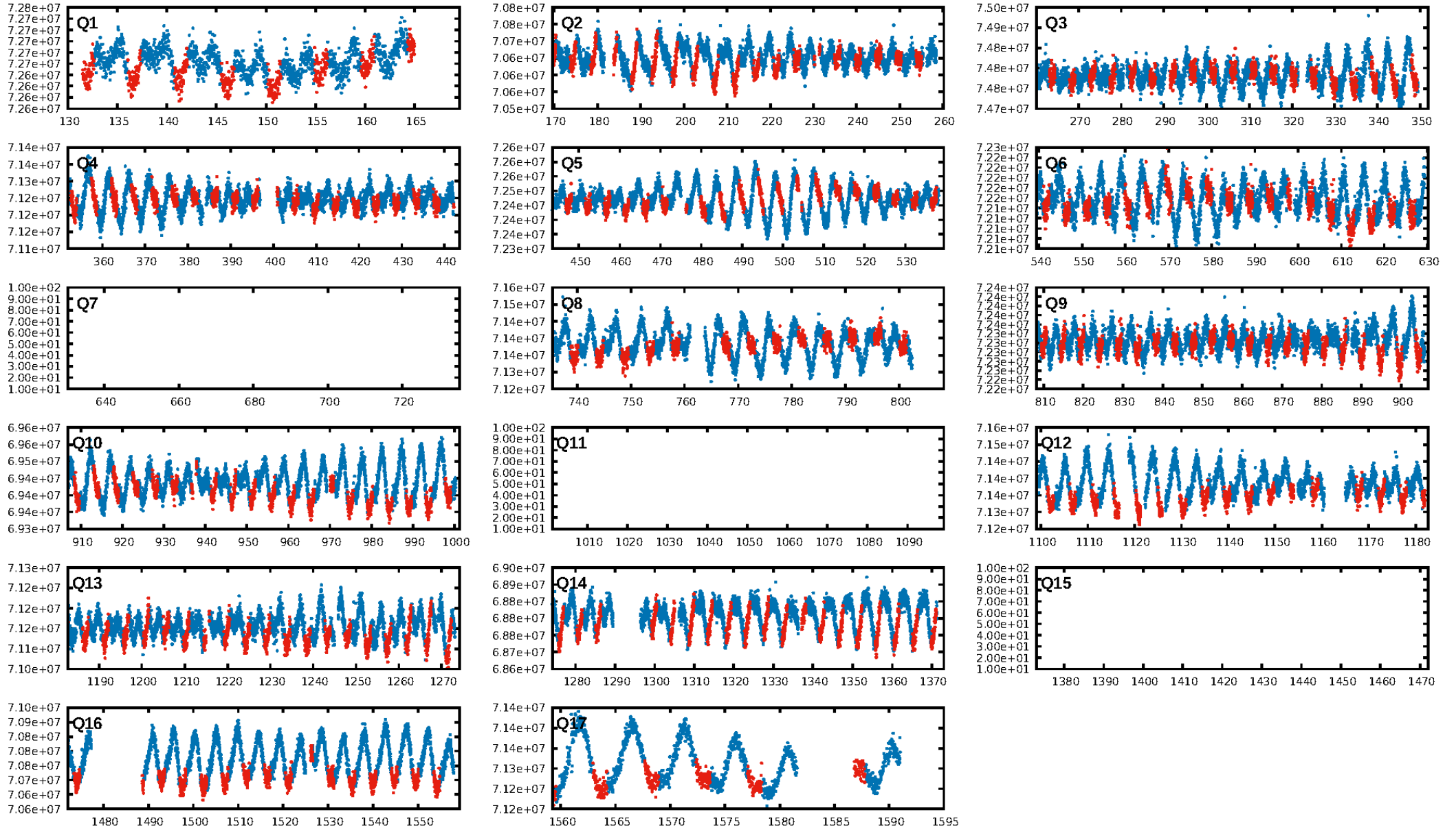
DV Diagnostic Results:

ShortPeriod-sig: 0.0% [0.00σ]
LongPeriod-sig: N/A
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: 3.30e-12
RollingBand-fgt: 1.00 [216/216]
GhostDiagnostic-chr: 0.7193
Centroid-sig: 11.8%
Centroid-so: 1.544 arcsec [1.39σ]
OotOffset-rm: 0.243 arcsec [1.24σ]
OotOffset-st: 4/1/4/5 [14]
KicOffset-rm: 0.195 arcsec [0.83σ]
KicOffset-st: 4/1/4/5 [14]
DiffImageQuality-fgm: 1.00 [14/14]
DiffImageOverlap-fno: 1.00 [14/14]

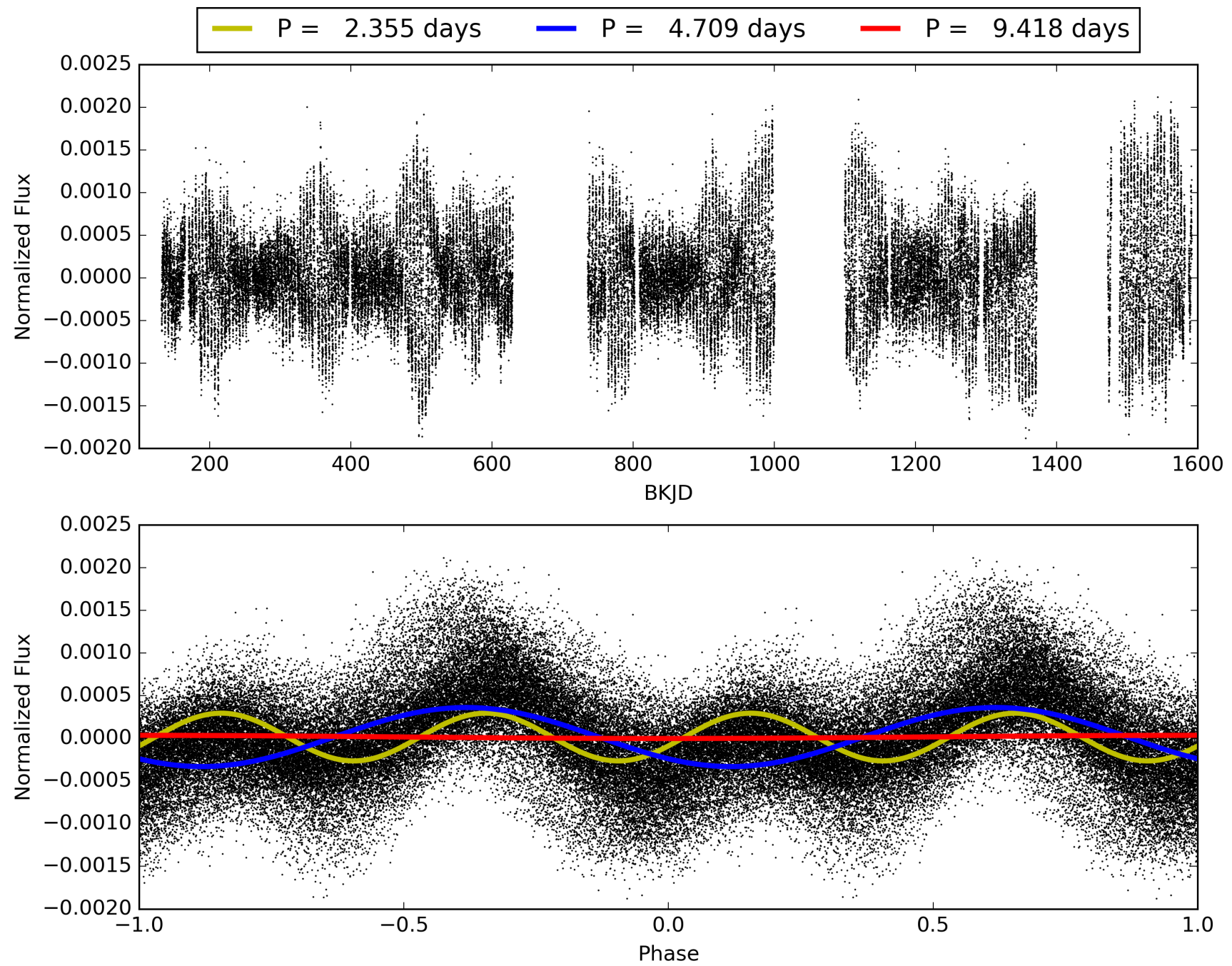
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 31-Jan-2016 10:49:25 Z

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

TCE 010231171-01, PDC Light Curves

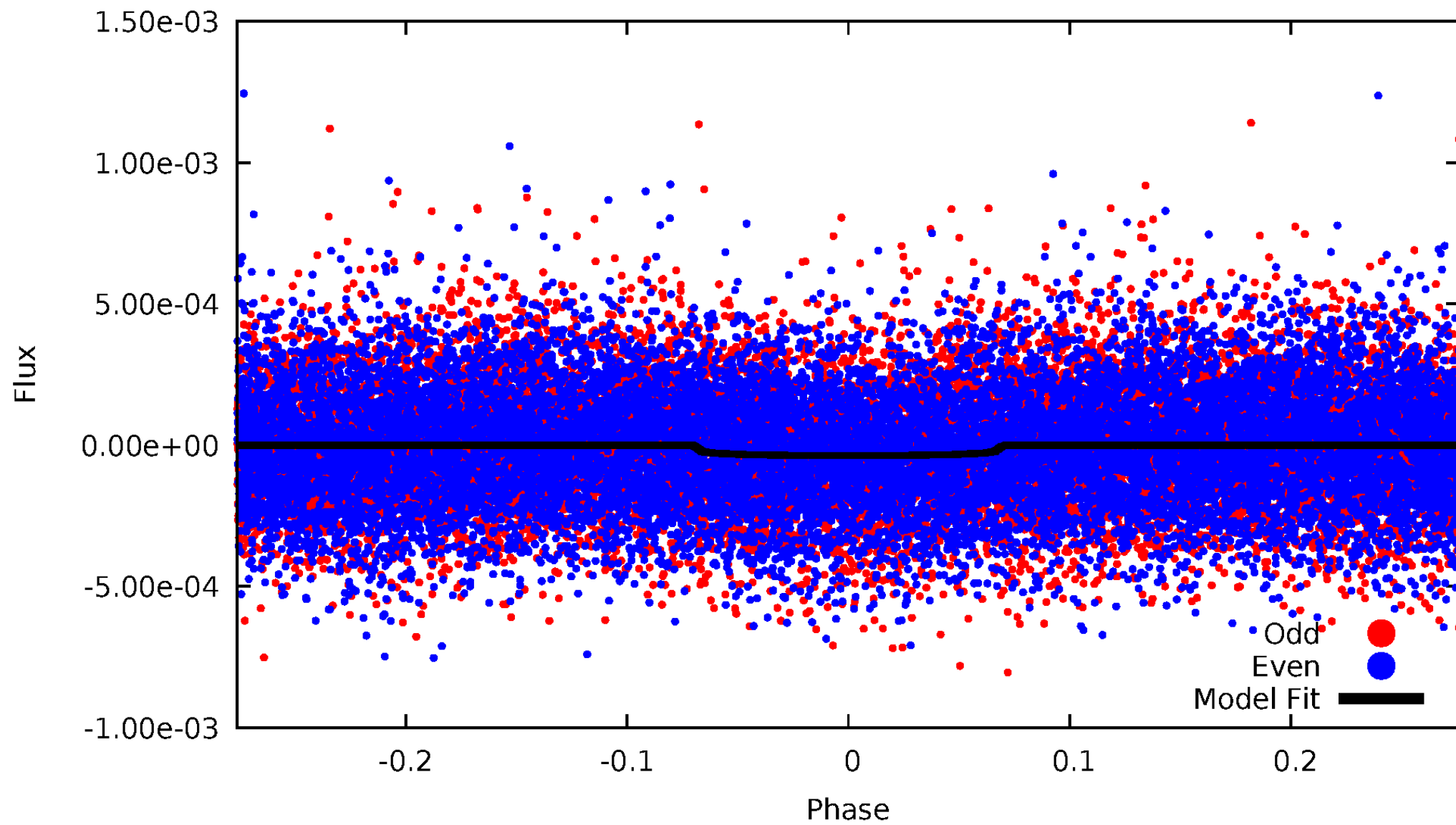


TCE 010231171-01



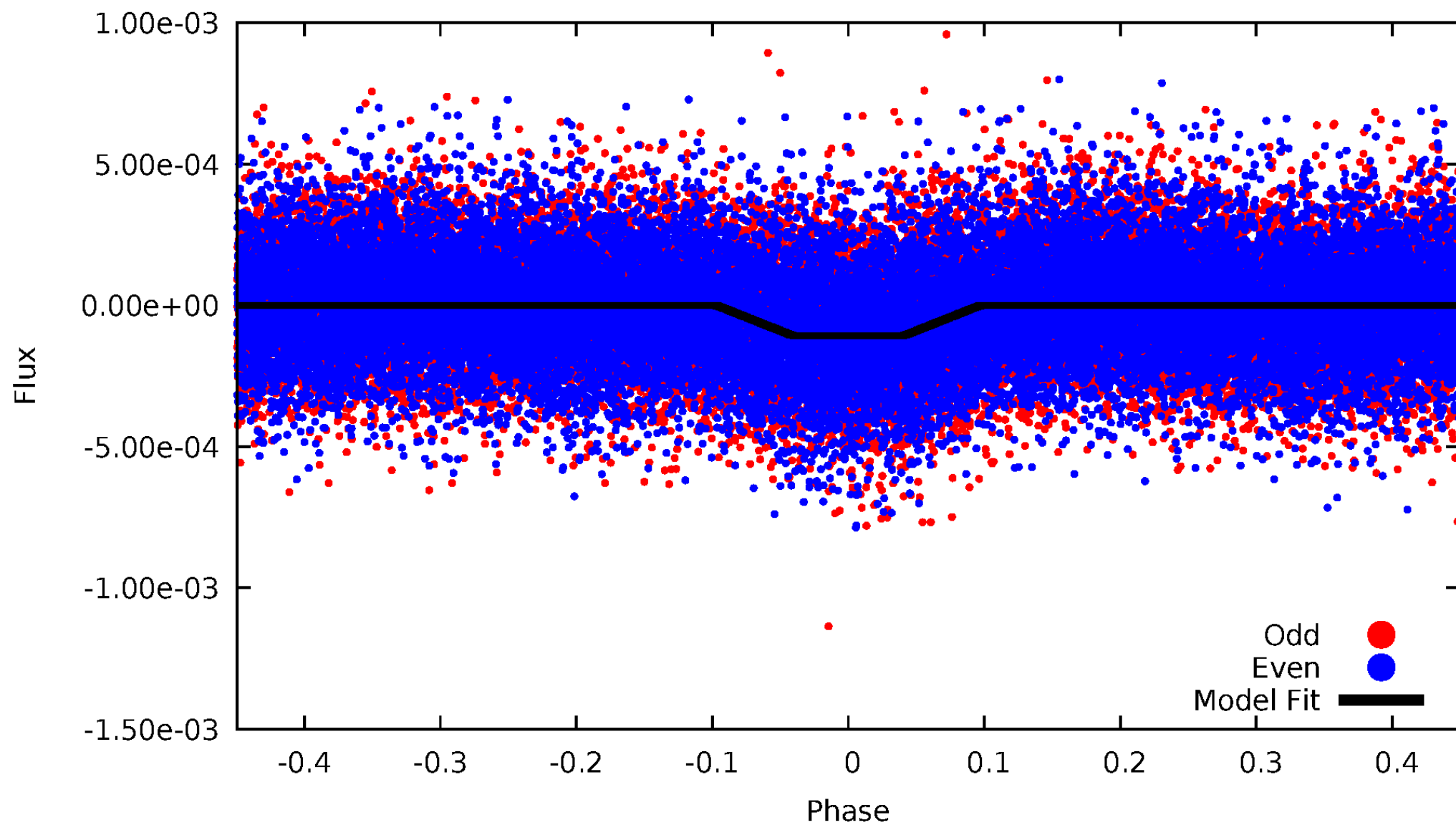
DV Odd/Even

TCE 010231171-01



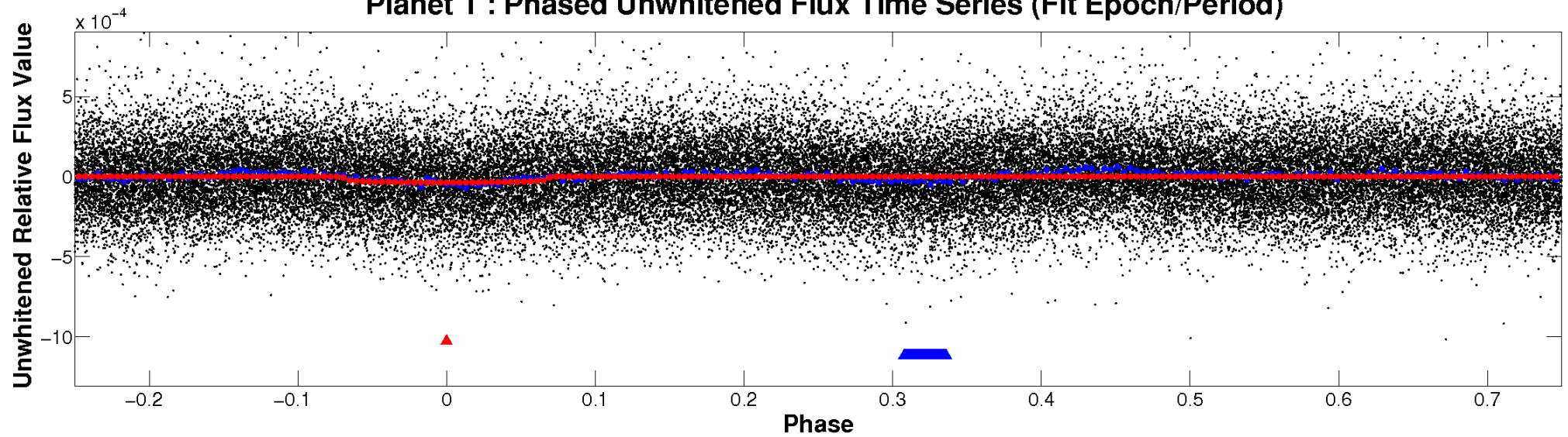
ALT Odd/Even

TCE 010231171-01

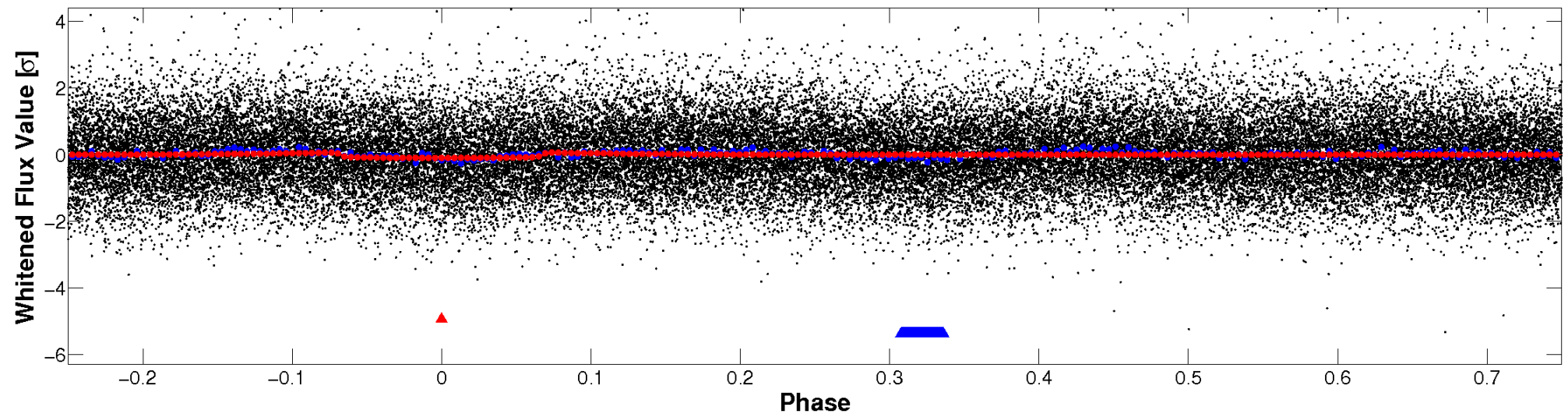


Non-Whitened Vs. Whitened Light Curve

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

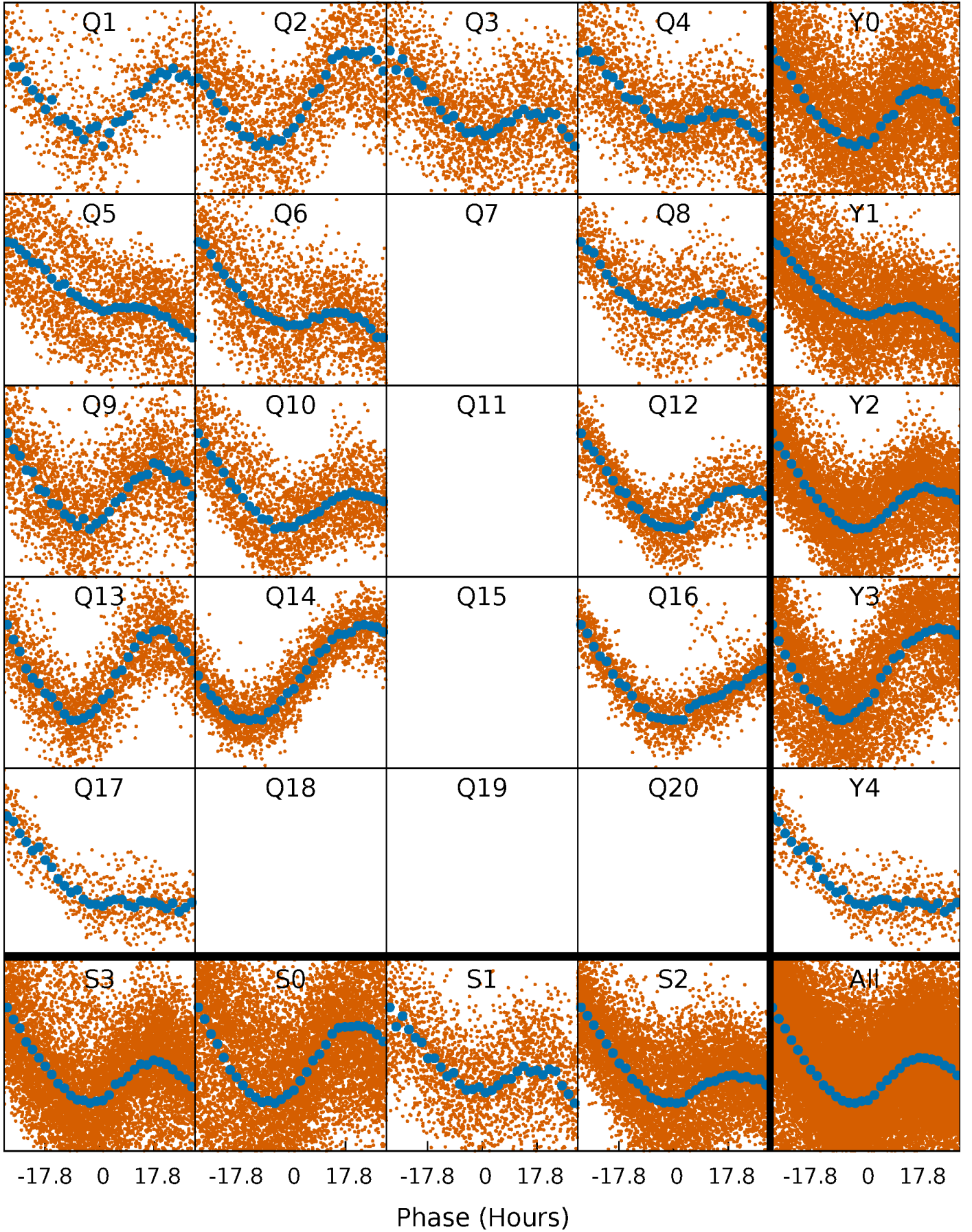


Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)



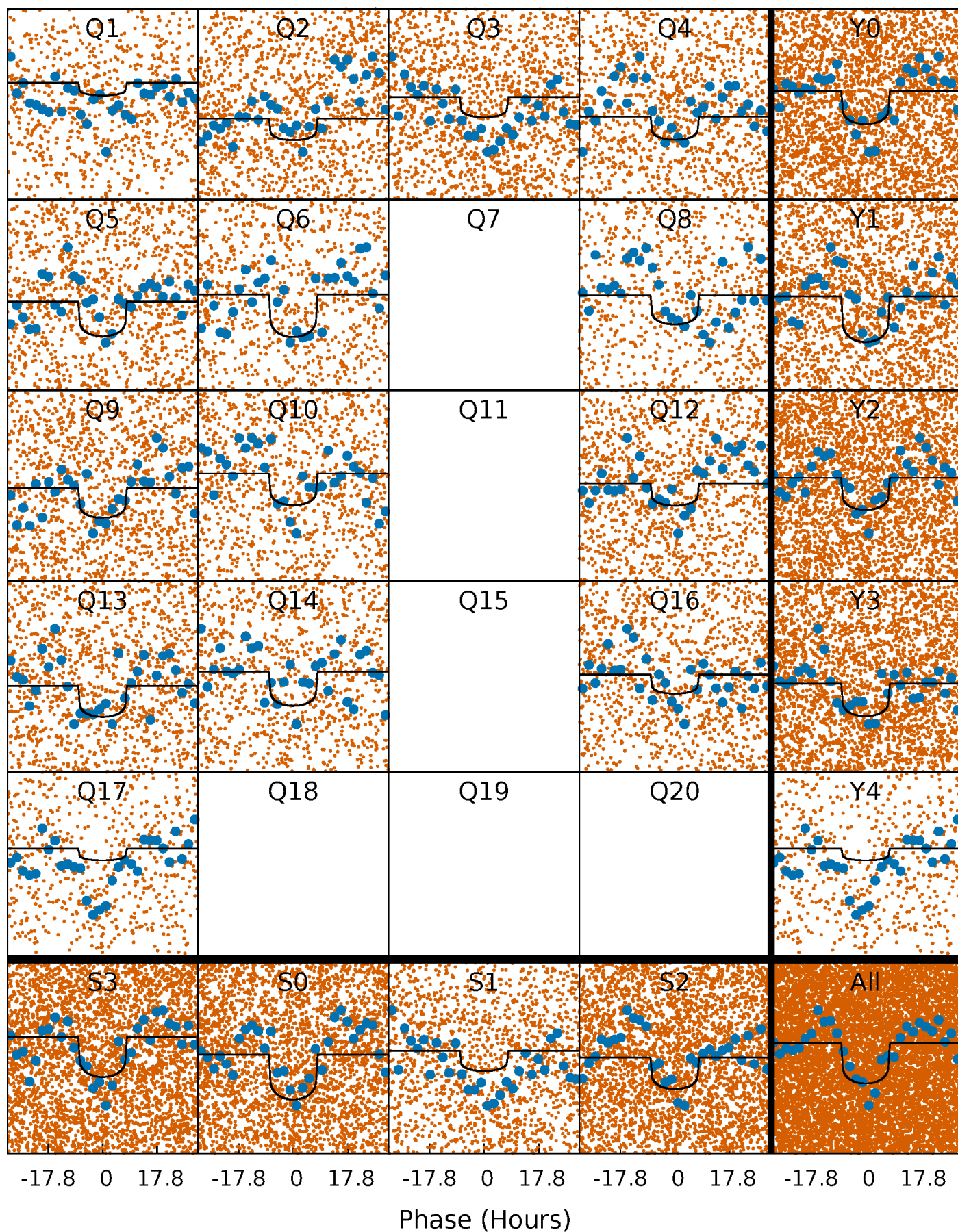
PDC Quarter-Phased Transit Curves

TCE 010231171-01 P= 4.709211 Days $T_0=131.992012$ (BKJD)



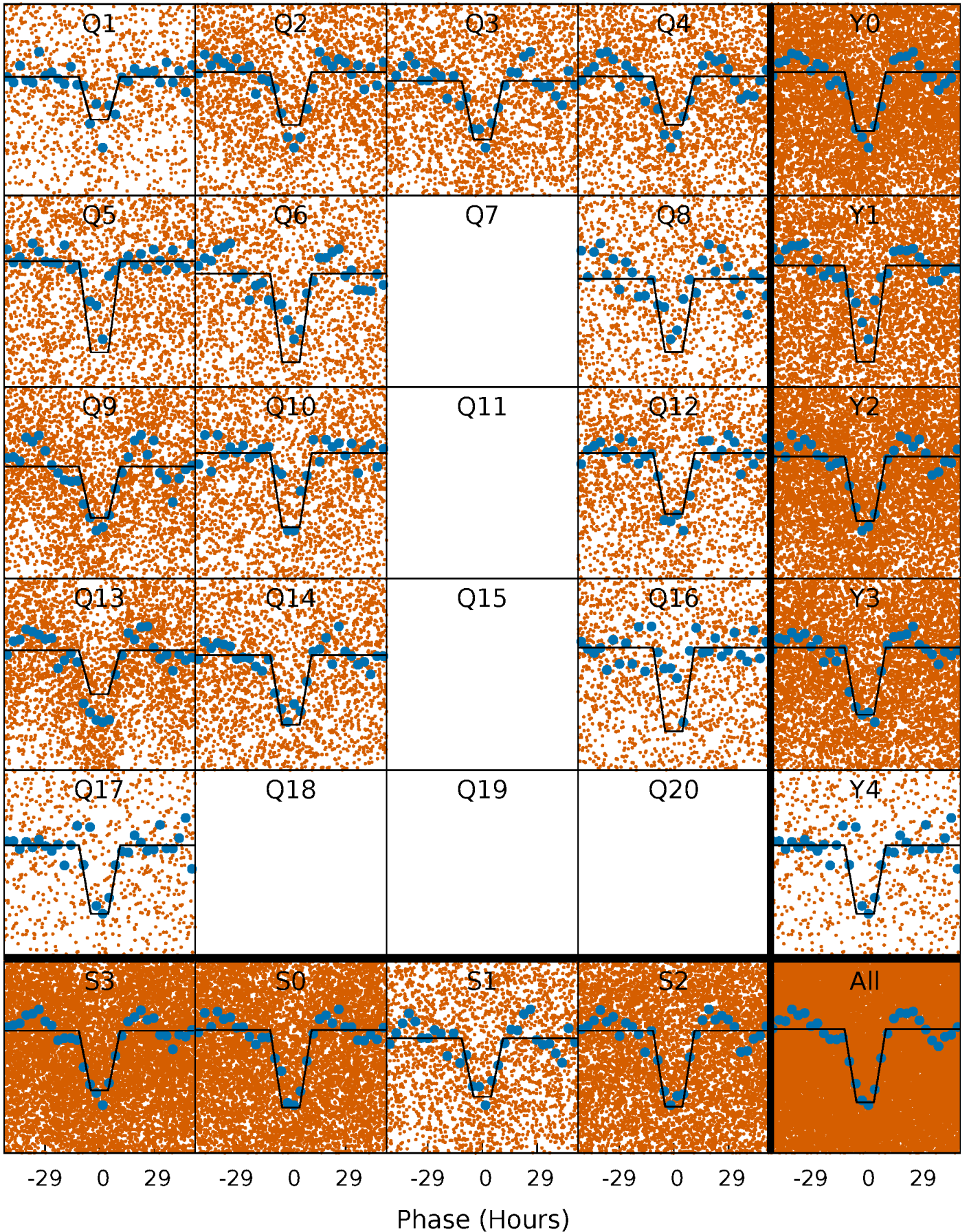
DV Quarter-Phased Transit Curves

TCE 010231171-01 P= 4.709211 Days $T_0=131.992012$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

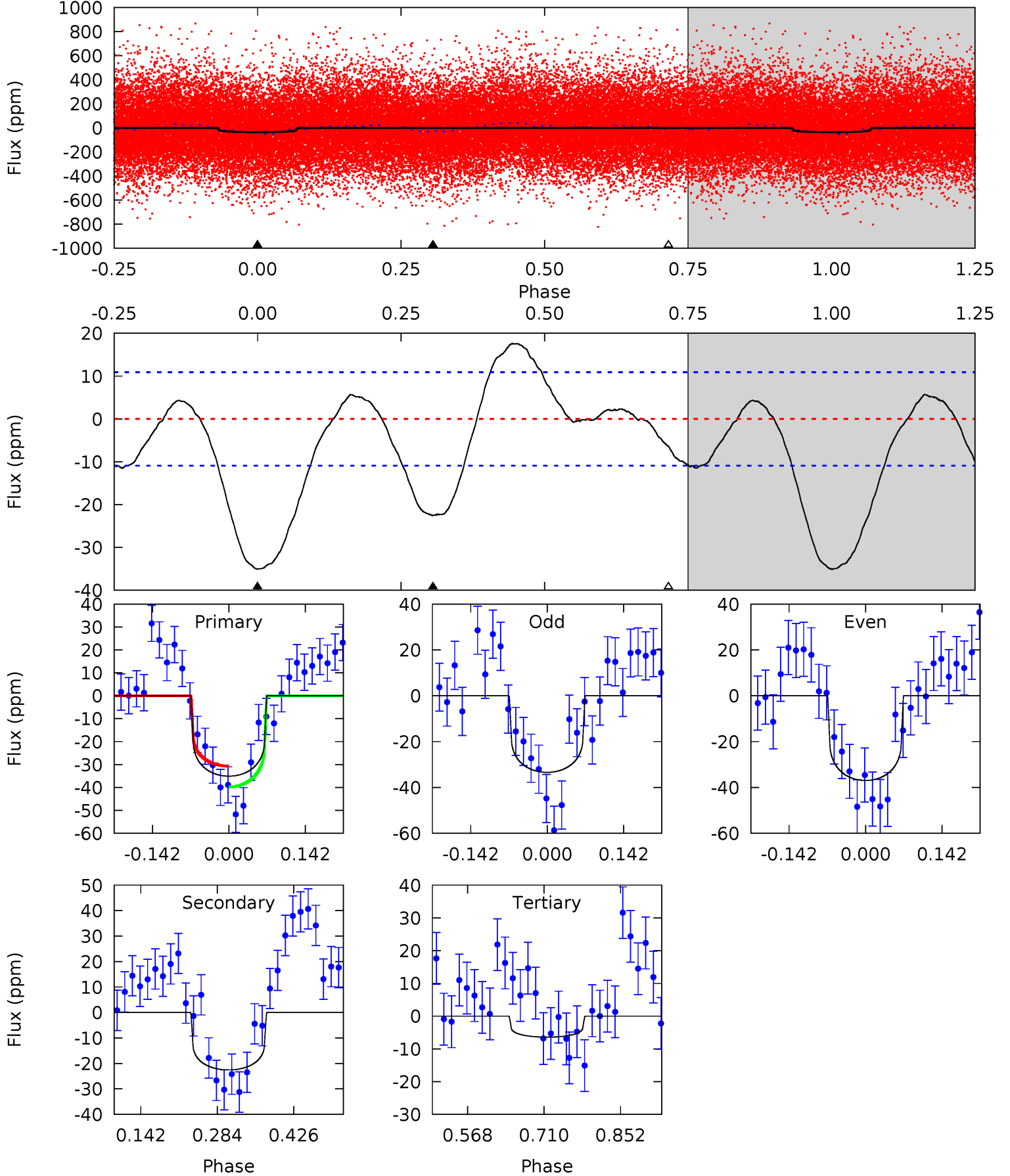
TCE 010231171-01 P= 4.708772 Days $T_0=131.993039$ (BKJD)



DV Model-Shift Uniqueness Test

010231171-01, P = 4.709211 Days, E = 127.282801 Days

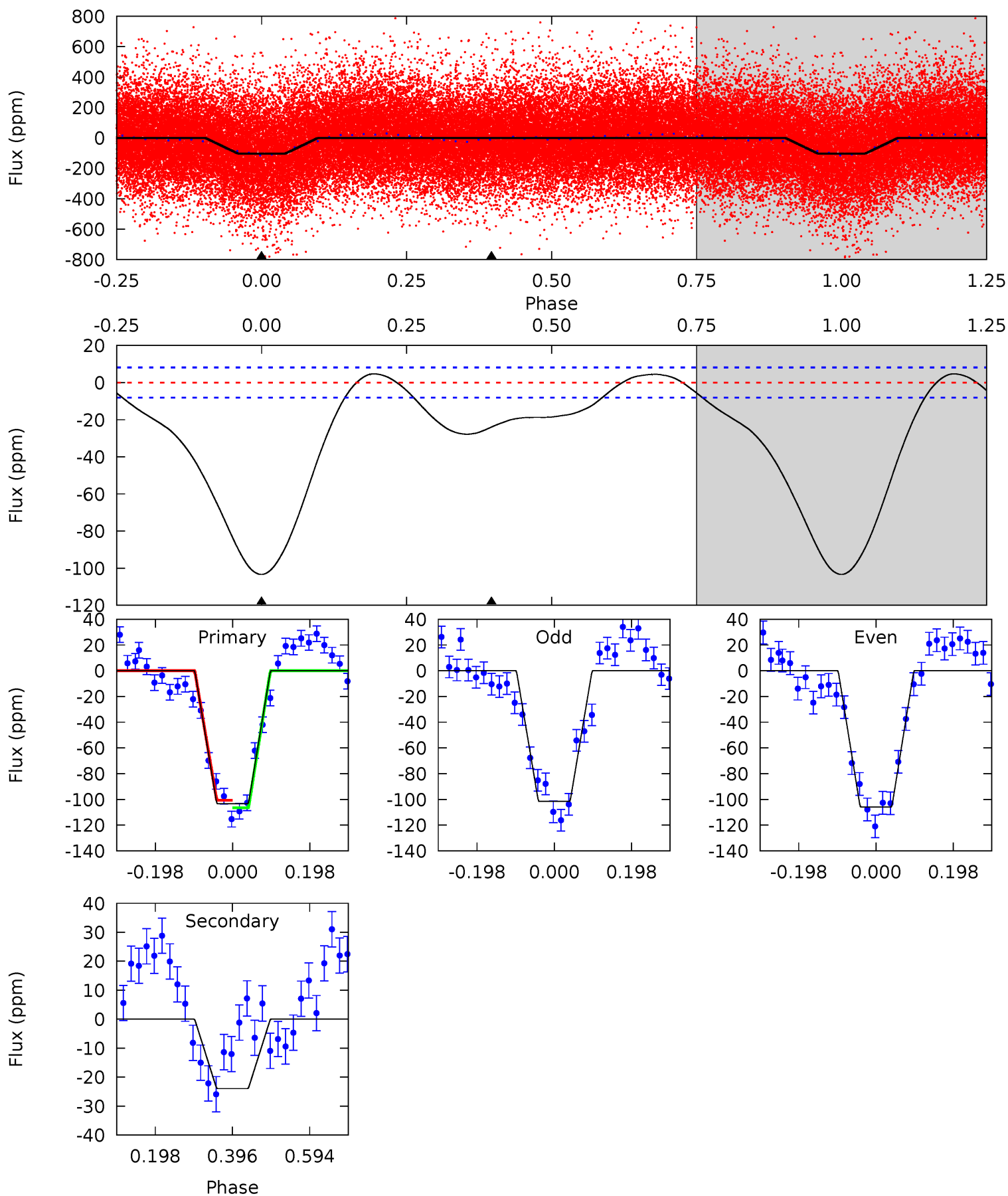
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
14.4	9.28	2.64	0	4.49	1.47	2.97	11.8	14.4	6.64	9.28	0.73	1.14	0.33	1.88



Alt Model-Shift Uniqueness Test

010231171-01, P = 4.708772 Days, E = 127.284267 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
56.3	13.0	0	0	4.42	1.29	3.51	56.3	56.3	13.0	13.0	1.16	0.94	0.04	1.60



Stellar Parameters For KIC 010231171

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	6517^{+155}_{-214}	$4.265^{+0.112}_{-0.192}$	$-0.100^{+0.250}_{-0.300}$	$1.342^{+0.428}_{-0.230}$	$1.212^{+0.192}_{-0.174}$	$0.706^{+0.430}_{-0.363}$
	+2%/-3%	+3%/-5%	+250%/-300%	+32%/-17%	+16%/-14%	+61%/-51%
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 010231171-01 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	-23 ± 2	$0.89^{+0.35}_{-0.27}$	1933^{+154}_{-104}	5791^{+1113}_{-723}	53^{+53}_{-26}
Alt.	-24 ± 2	$1.55^{+0.36}_{-0.33}$	1939^{+140}_{-120}	4609^{+428}_{-336}	19^{+12}_{-7}

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 $A_{obs} \gg 1.0$

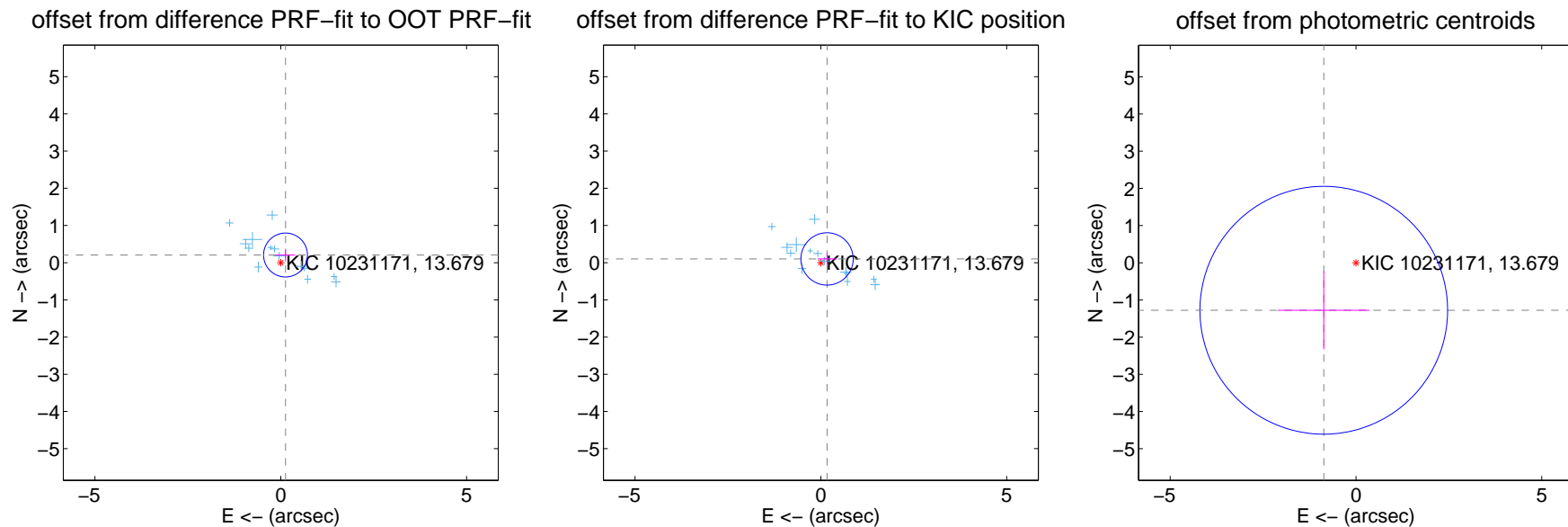
DV Centroid Data

Supplemental centroid analysis for 010231171-01. Kepler magnitude: 13.68. Transit SNR 8.27

There are 14 quarters with good PRF difference image offsets

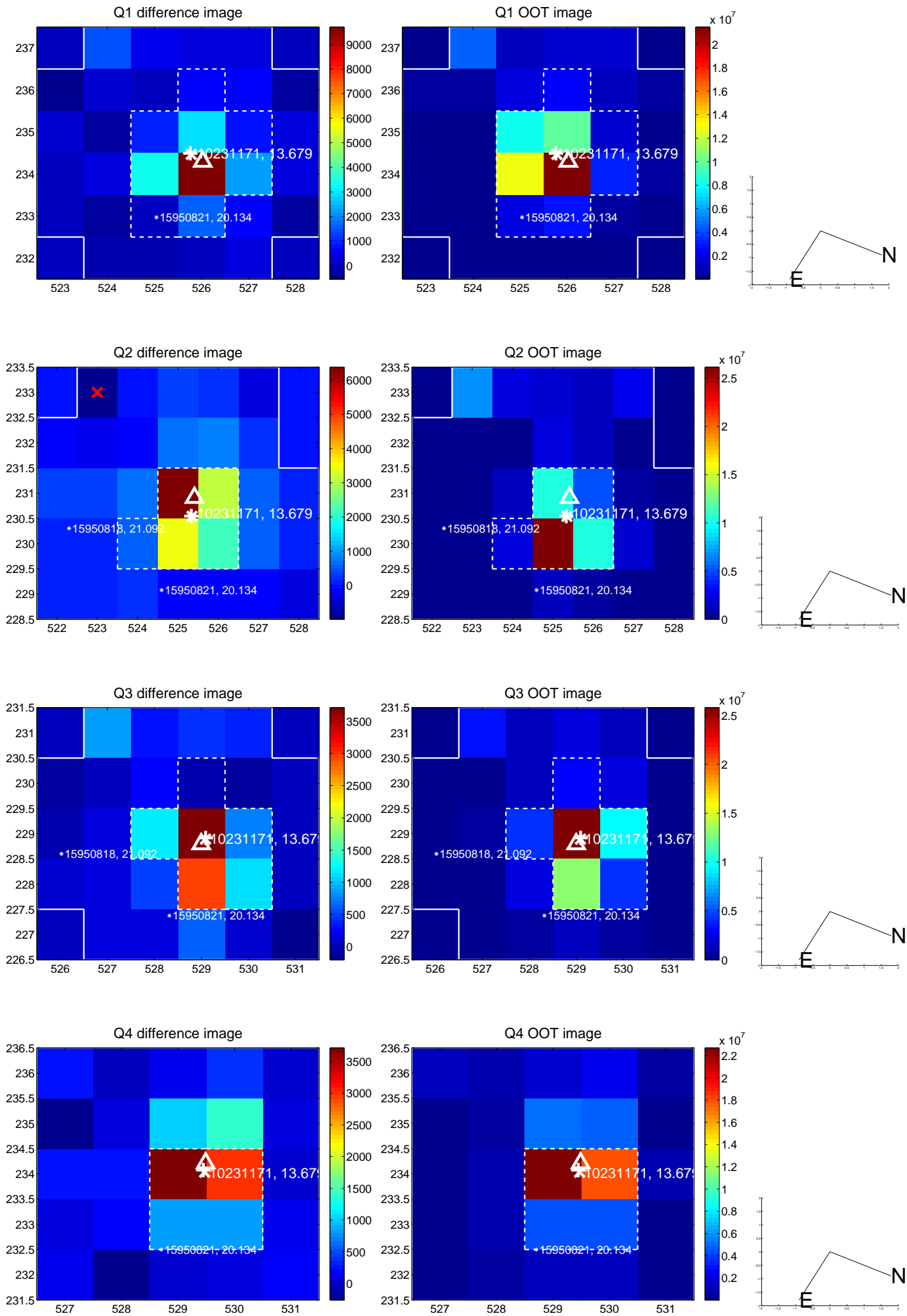
The direct PRF centroid is offset from the target star catalog position by about 0.10 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.243 ± 0.197	1.24	-0.128 ± 0.261	0.207 ± 0.166
PRF-fit source offset from KIC position	0.195 ± 0.234	0.83	-0.167 ± 0.257	0.101 ± 0.159
photometric centroid source offset	1.54 ± 1.11	1.39	0.87 ± 1.23	-1.28 ± 1.05

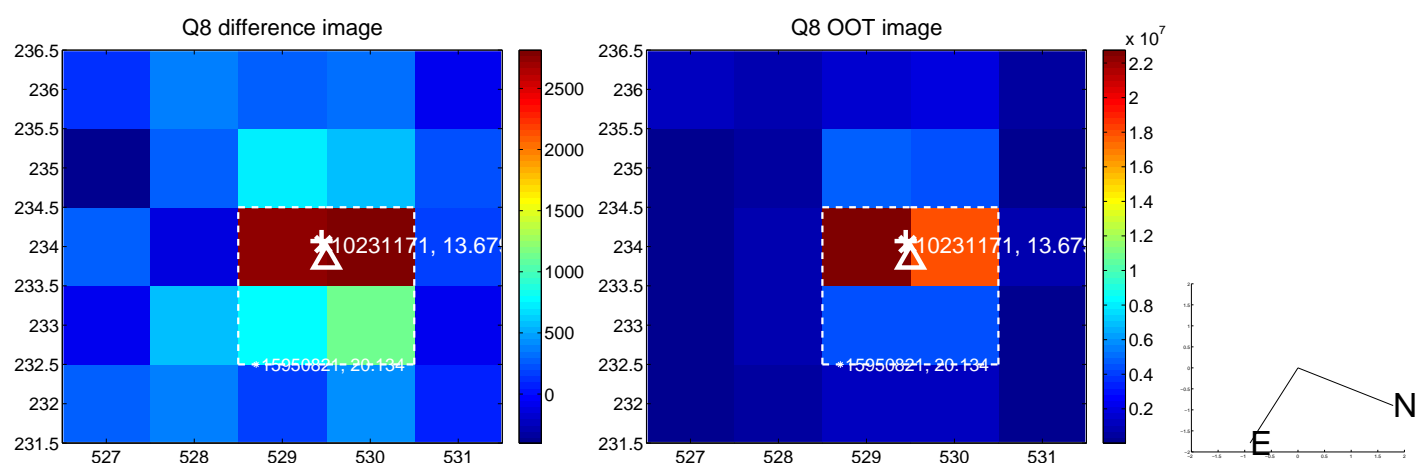
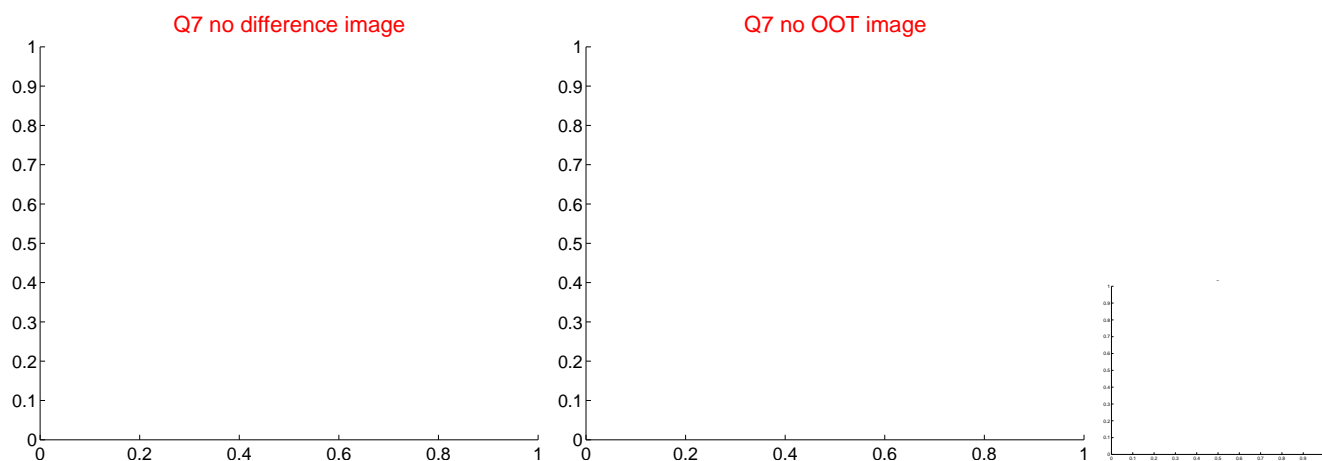
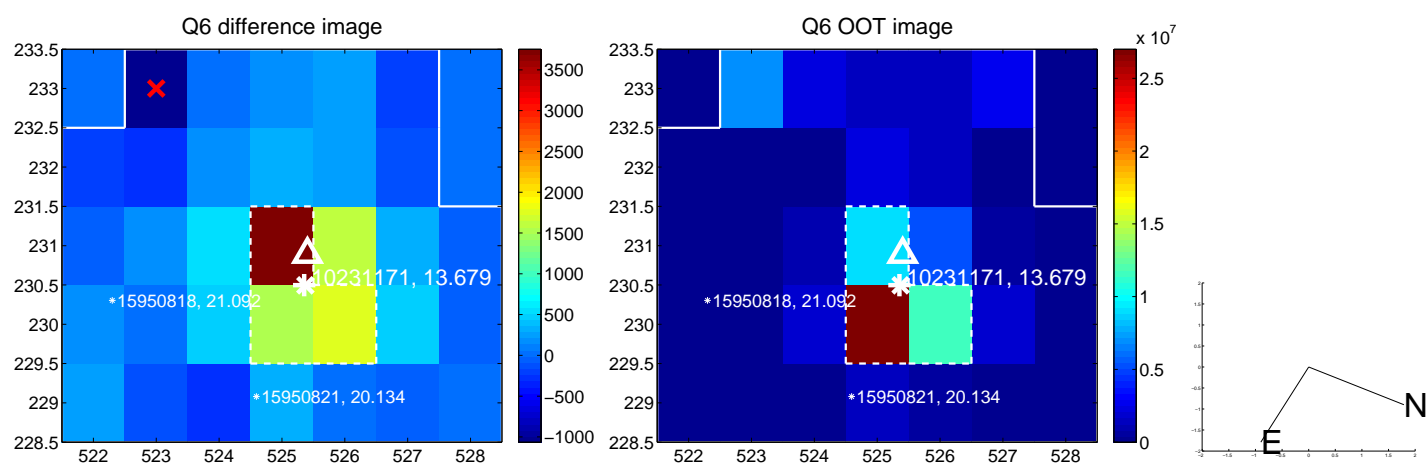
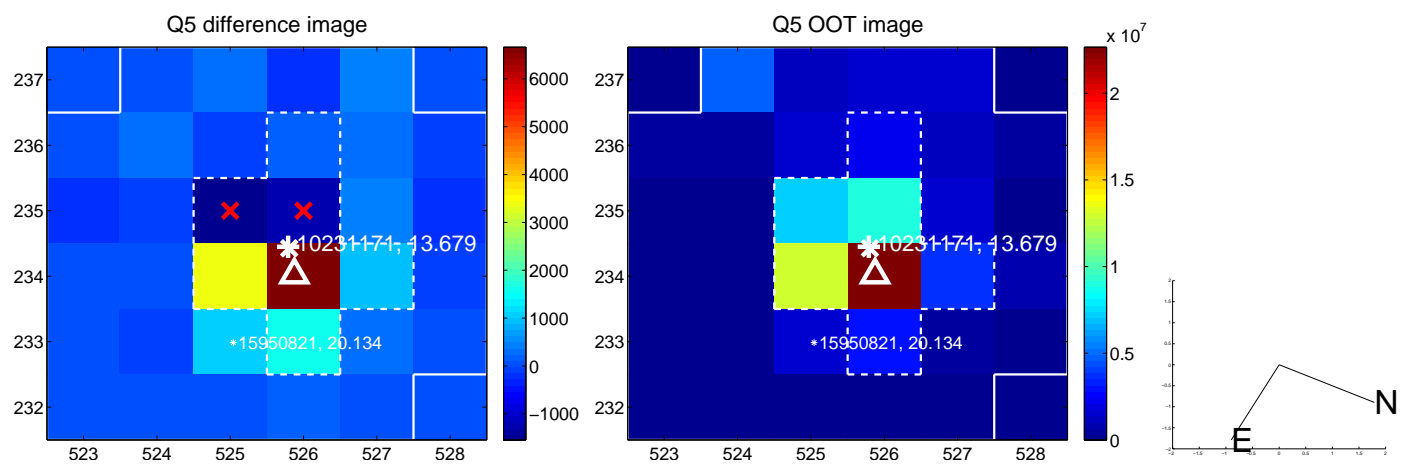


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets**; **Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

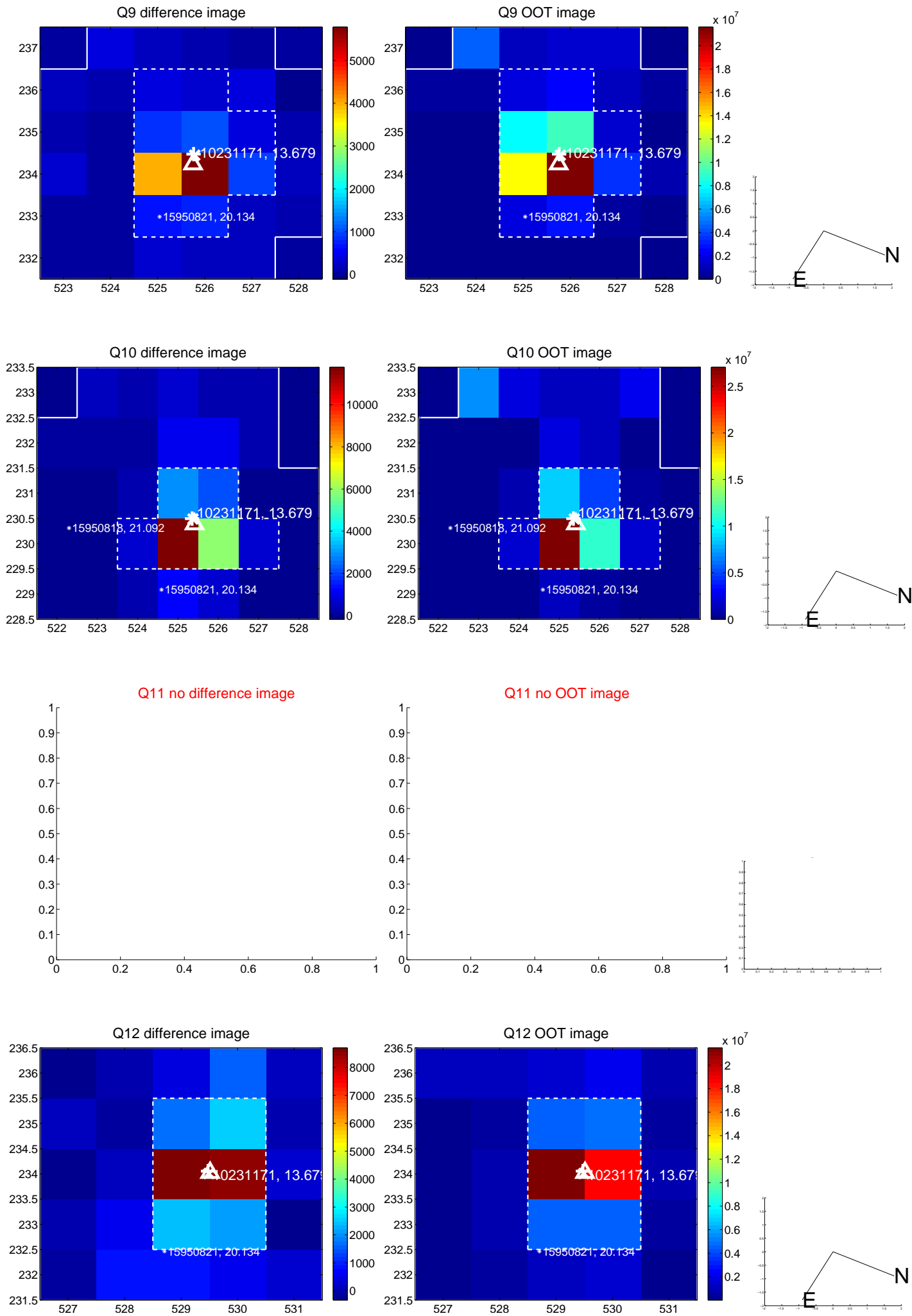
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



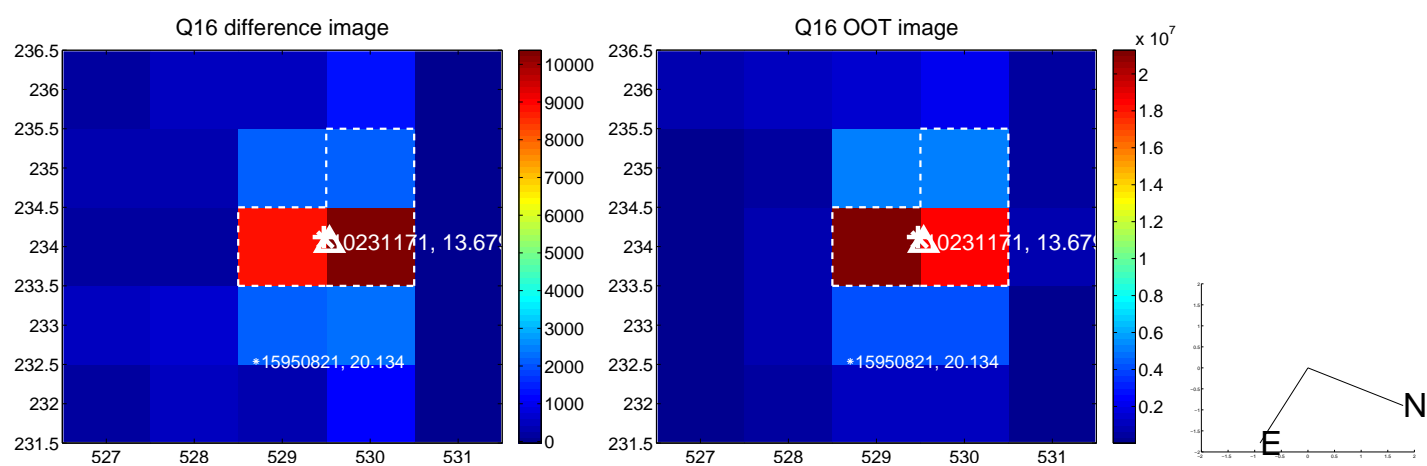
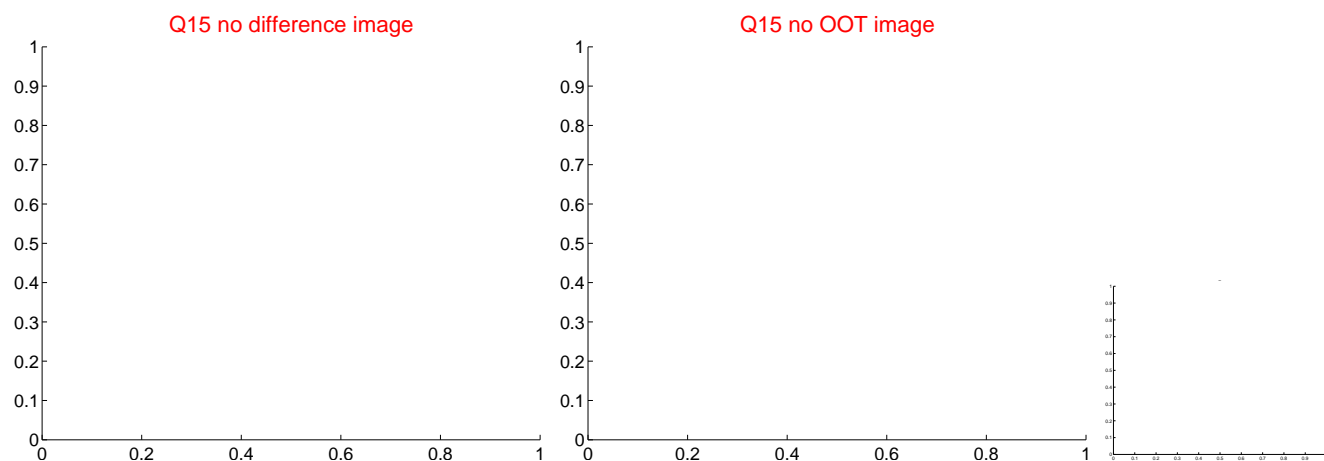
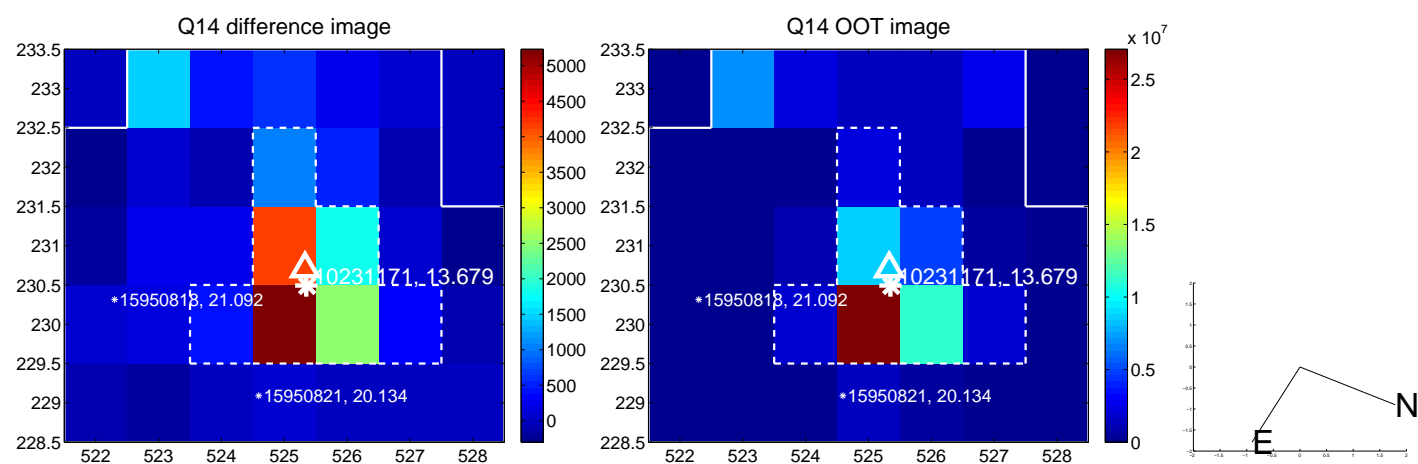
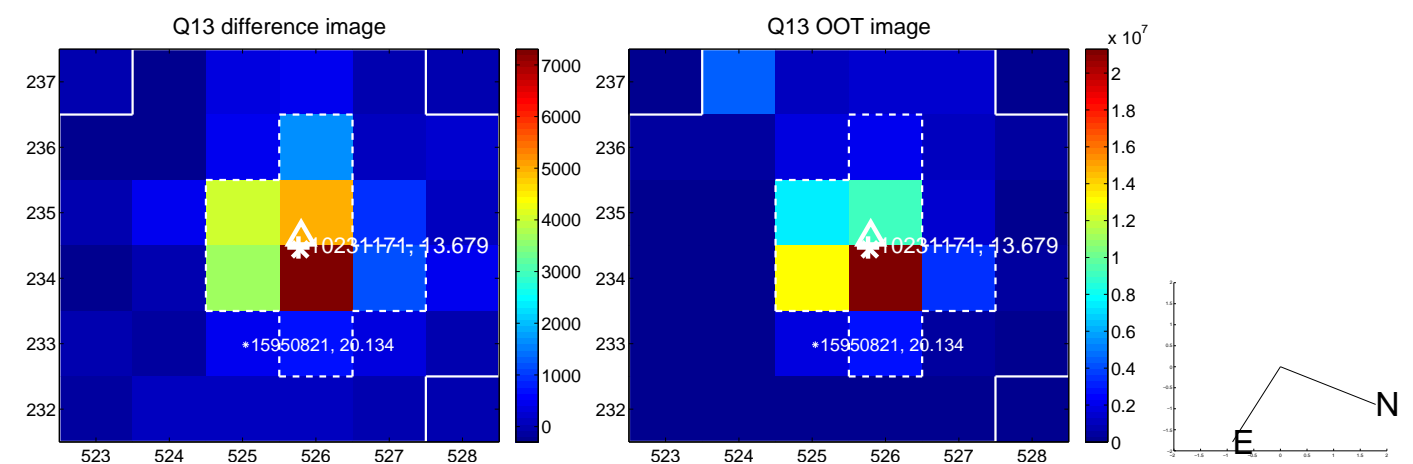
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value



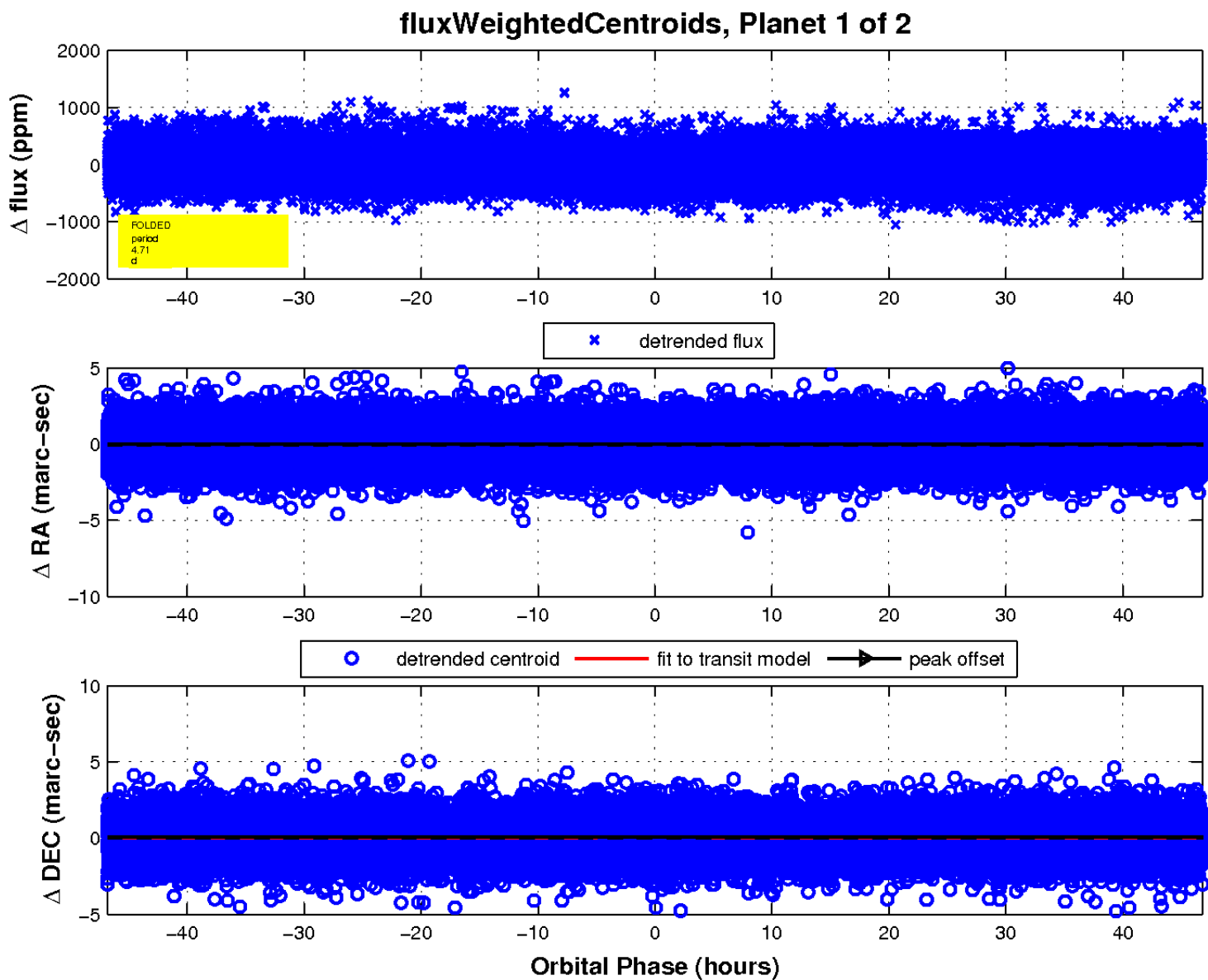
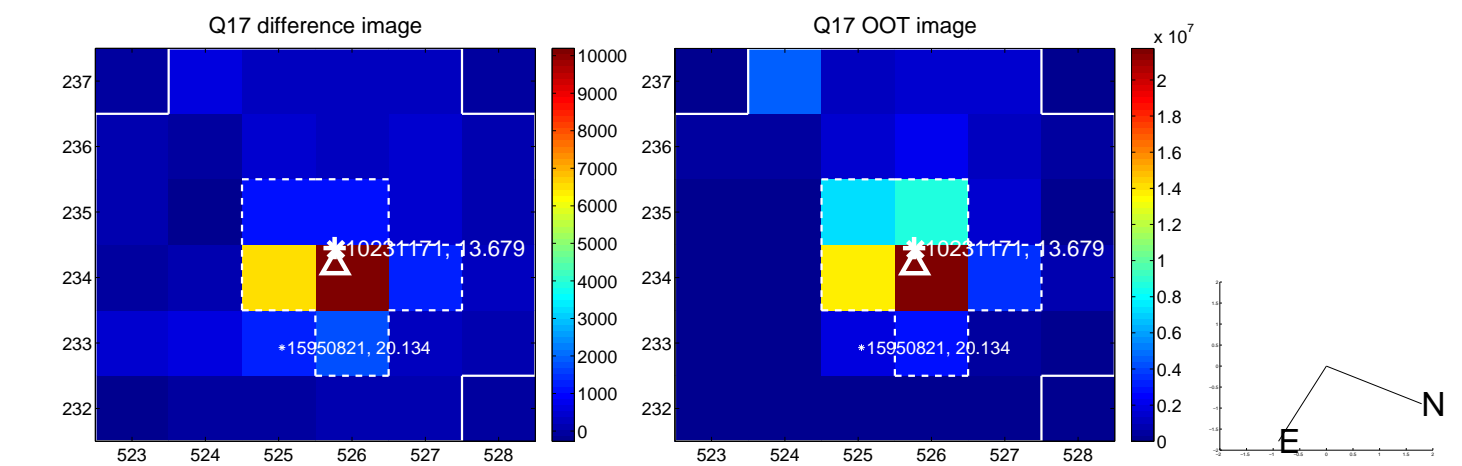
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

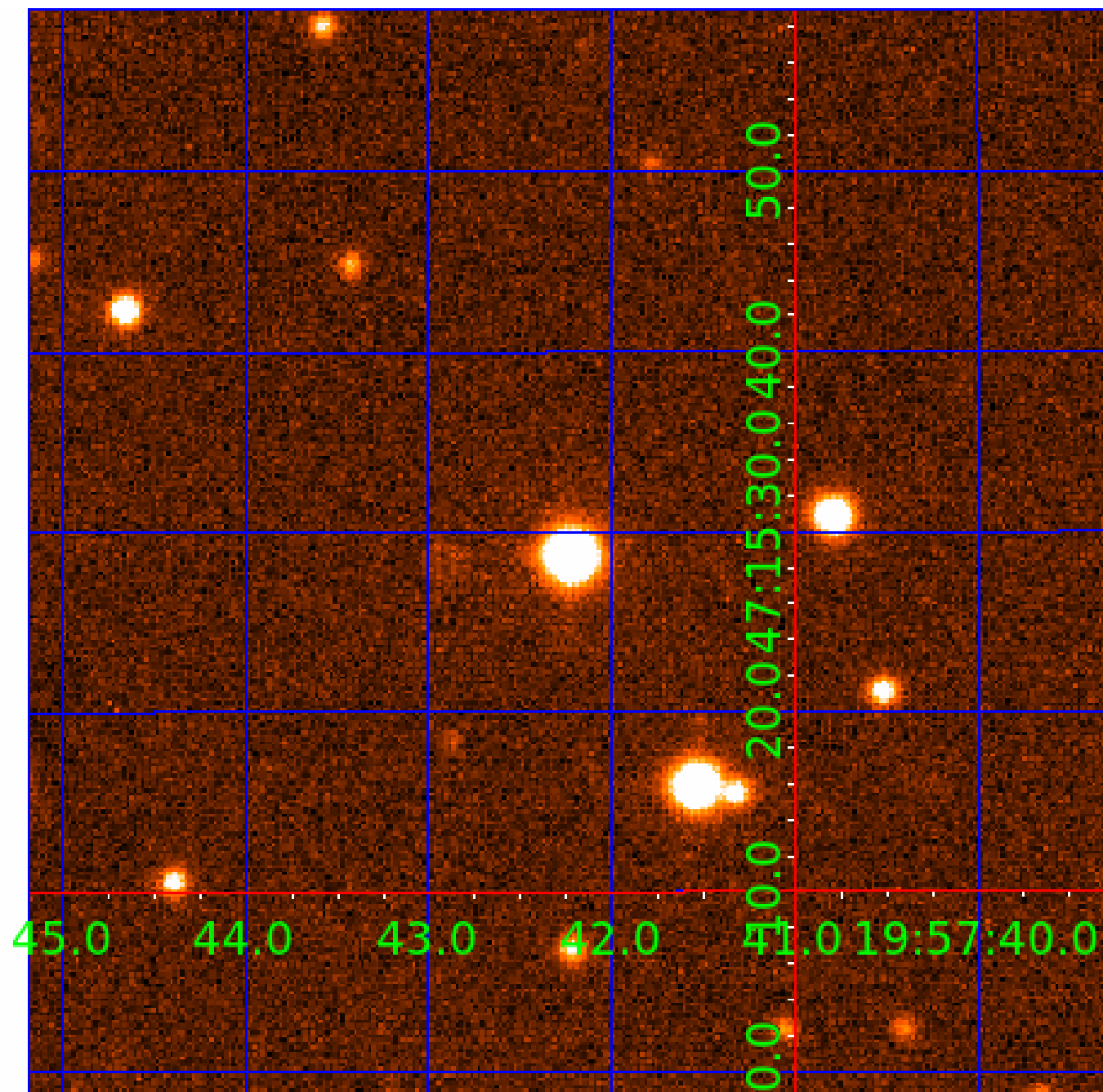


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 010231171

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})
010231171-01	OBS	No	4.709211	131.992012	36.9	15.604	8.7	8.3	1.34	6517	0.87	847.86
010231171-02	OBS	No	4.708777	133.574783	151.3	15.000	8.5	-1.0	1.34	6517	1.66	847.96

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
010231171-01	OBS	FP	0.00	1	0	0	0	SWEET_NTL—LPP_DV
010231171-02	OBS	FP	0.00	1	0	1	0	SWEET_NTL—LPP_DV—LPP_ALT—MOD_NONUNIQ_ALT—SAME_NTL_PERIOD—CENT_NOFITS—HALO_GHOST

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

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

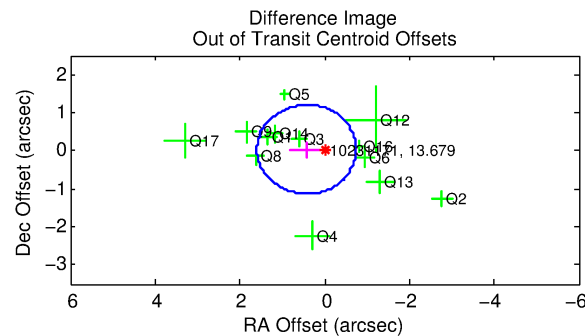
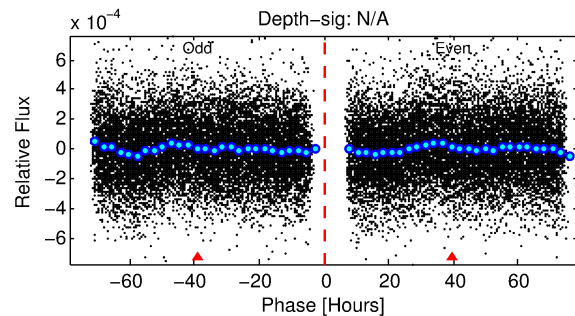
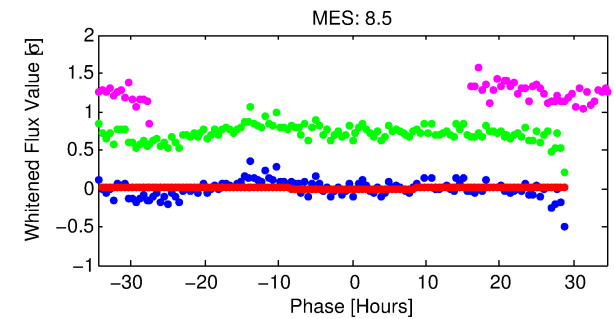
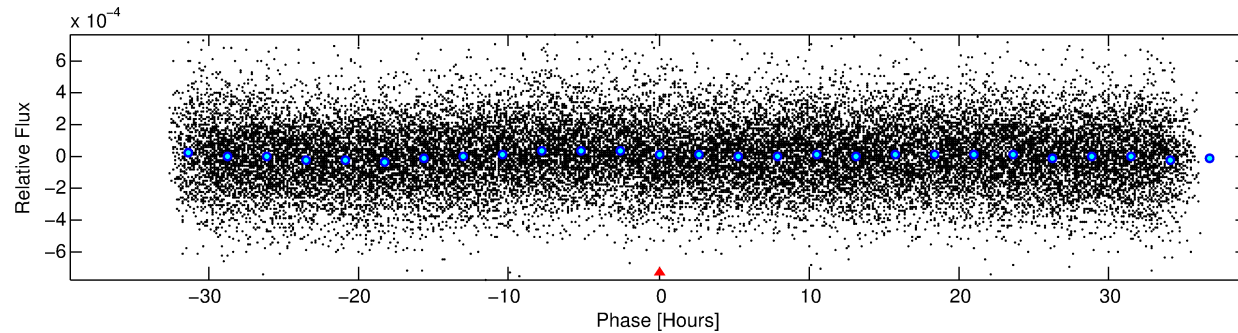
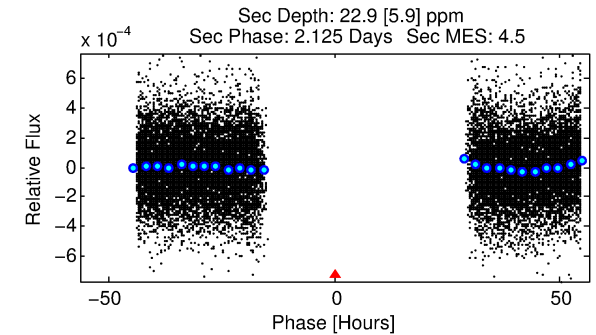
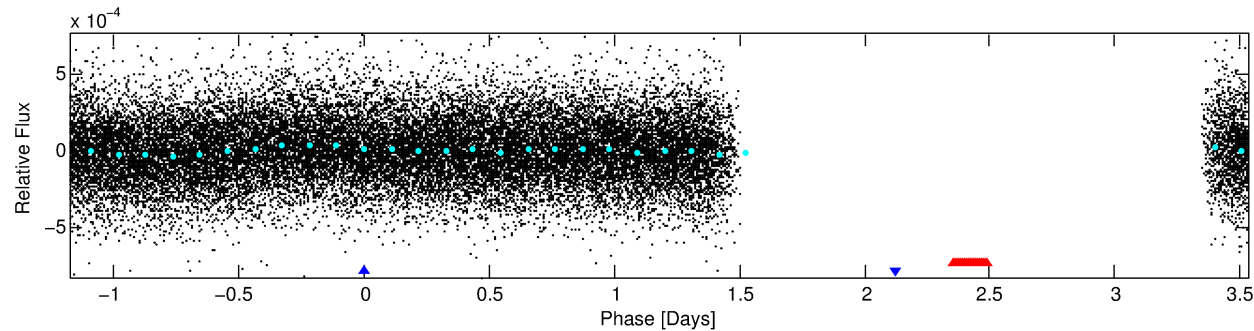
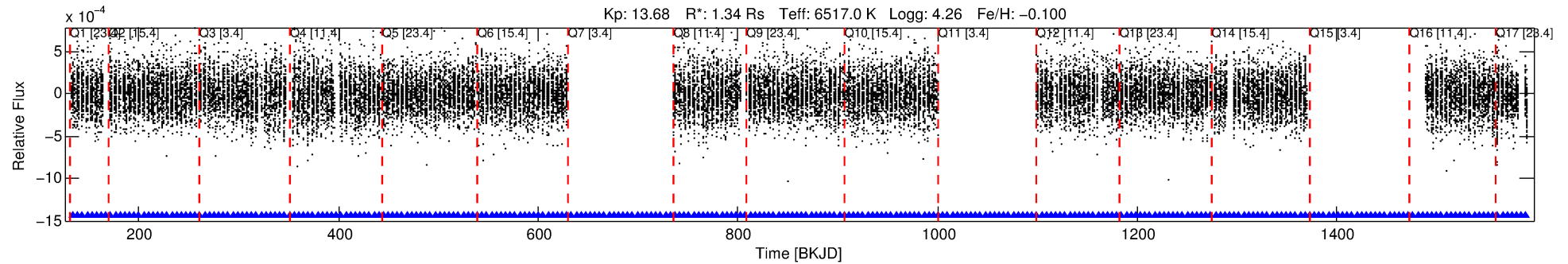
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 010231171-02

No Significant Match Found

DV One-Page Summary

KIC: 10231171 Candidate: 2 of 2 Period: 4.709 d



TPS TCE Results:

Period = 4.70878 d
Epoch = 133.5748 BKJD

DV fit results are unavailable

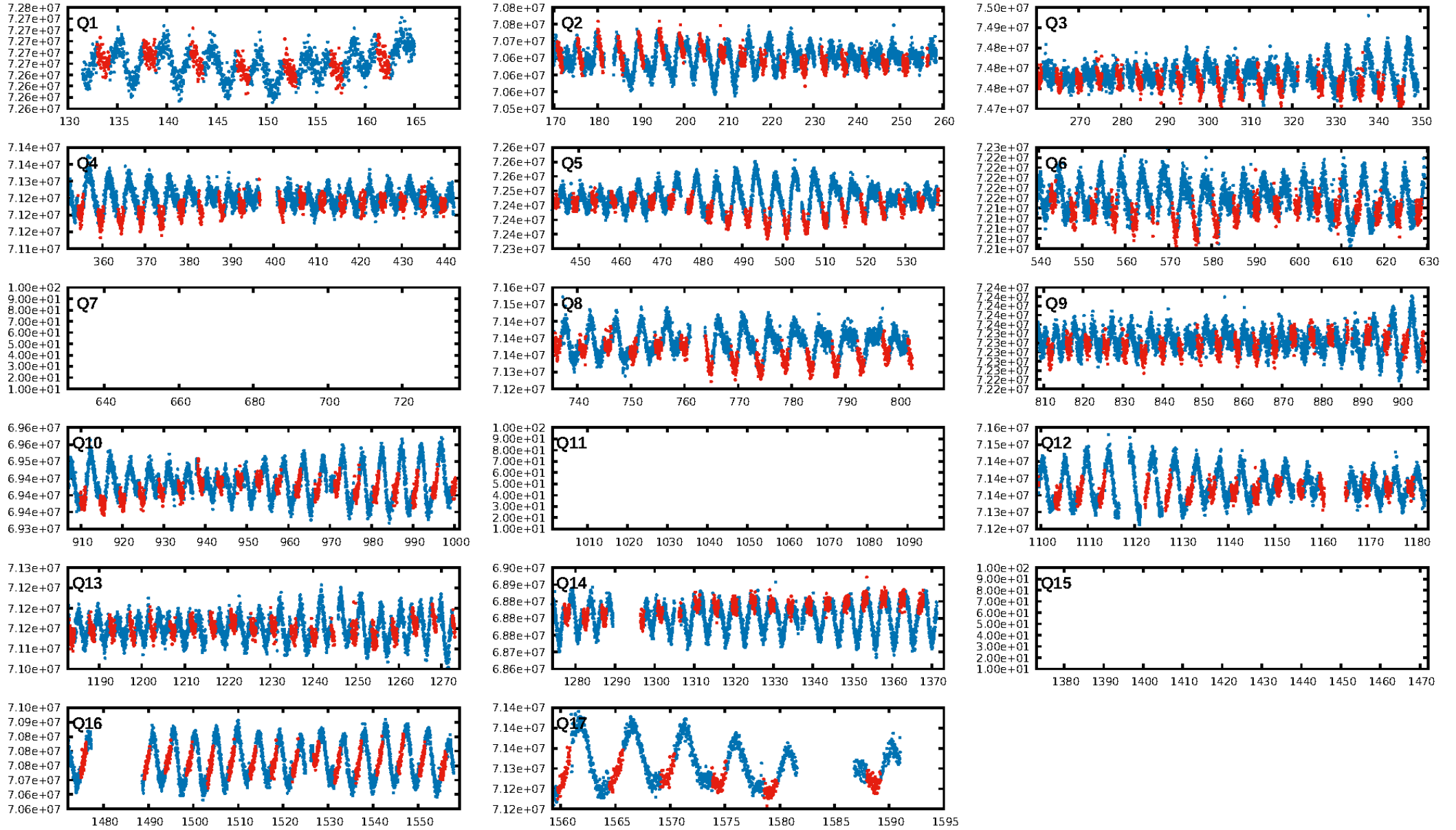
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: 0.0% [0.00σ]
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: 7.37e-11
RollingBand-fgt: 1.00 [216/216]
GhostDiagnostic-chr: -0.03027
Centroid-sig: 10.1%
Centroid-so: 13.904 arcsec [1.73σ]
OotOffset-rm: 0.427 arcsec [1.10σ]
KicOffset-rm: 0.357 arcsec [0.86σ]
OotOffset-st: 3/1/4/5 [13]
KicOffset-st: 3/1/4/5 [13]
DiffImageQuality-fgm: 0.77 [10/13]
DiffImageOverlap-fno: 1.00 [14/14]

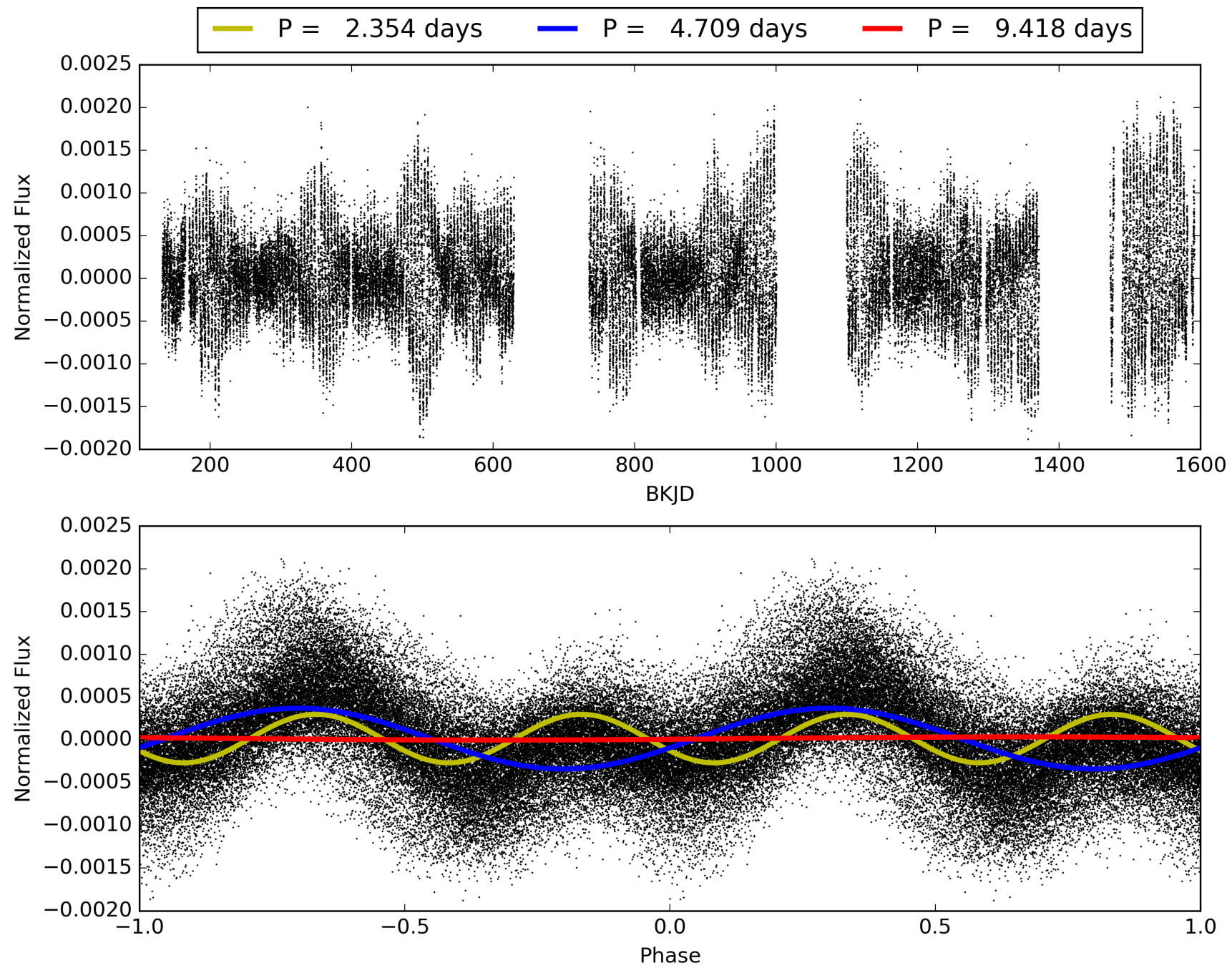
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 31-Jan-2016 10:49:36 Z

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

TCE 010231171-02, PDC Light Curves

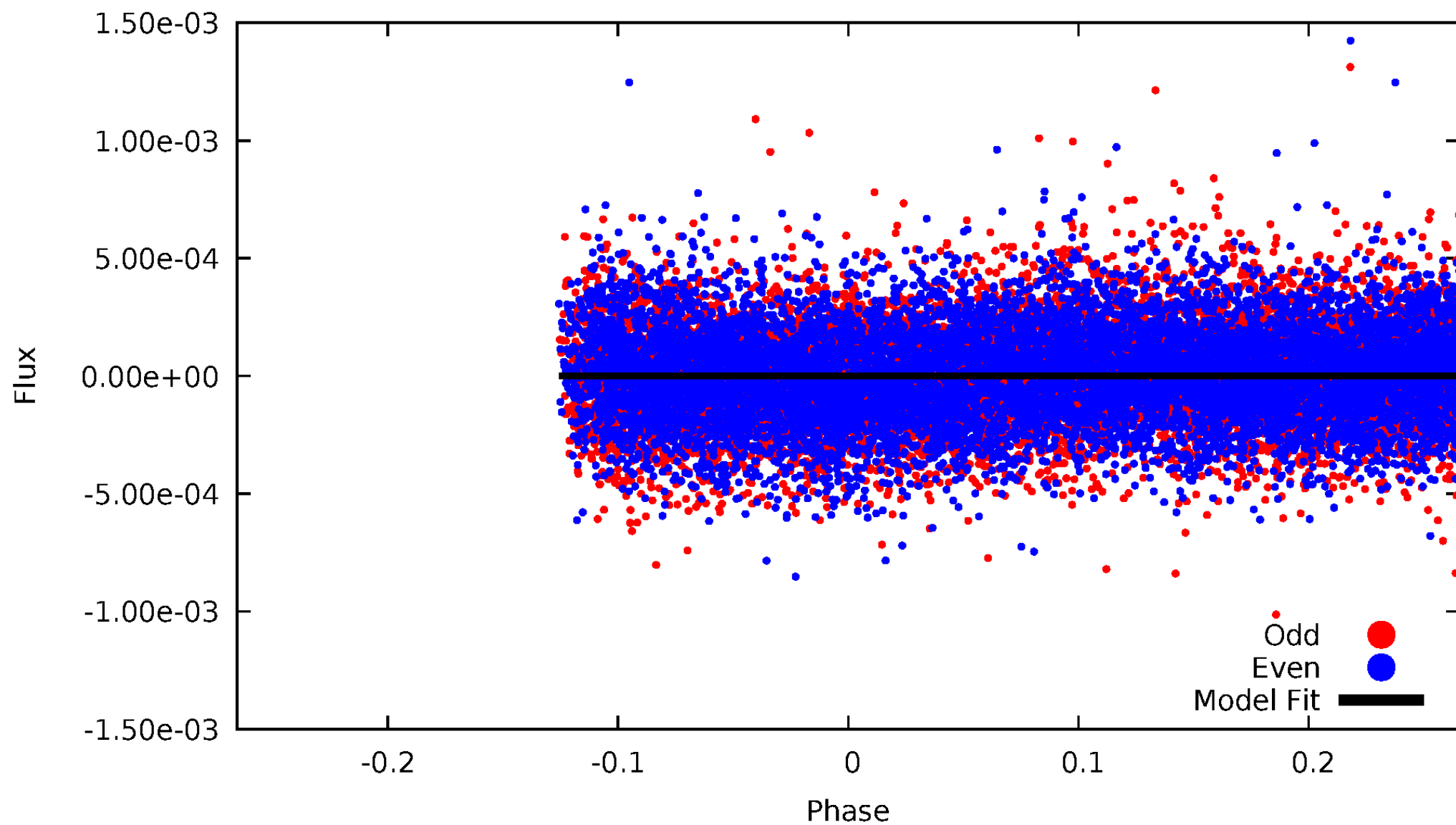


TCE 010231171-02



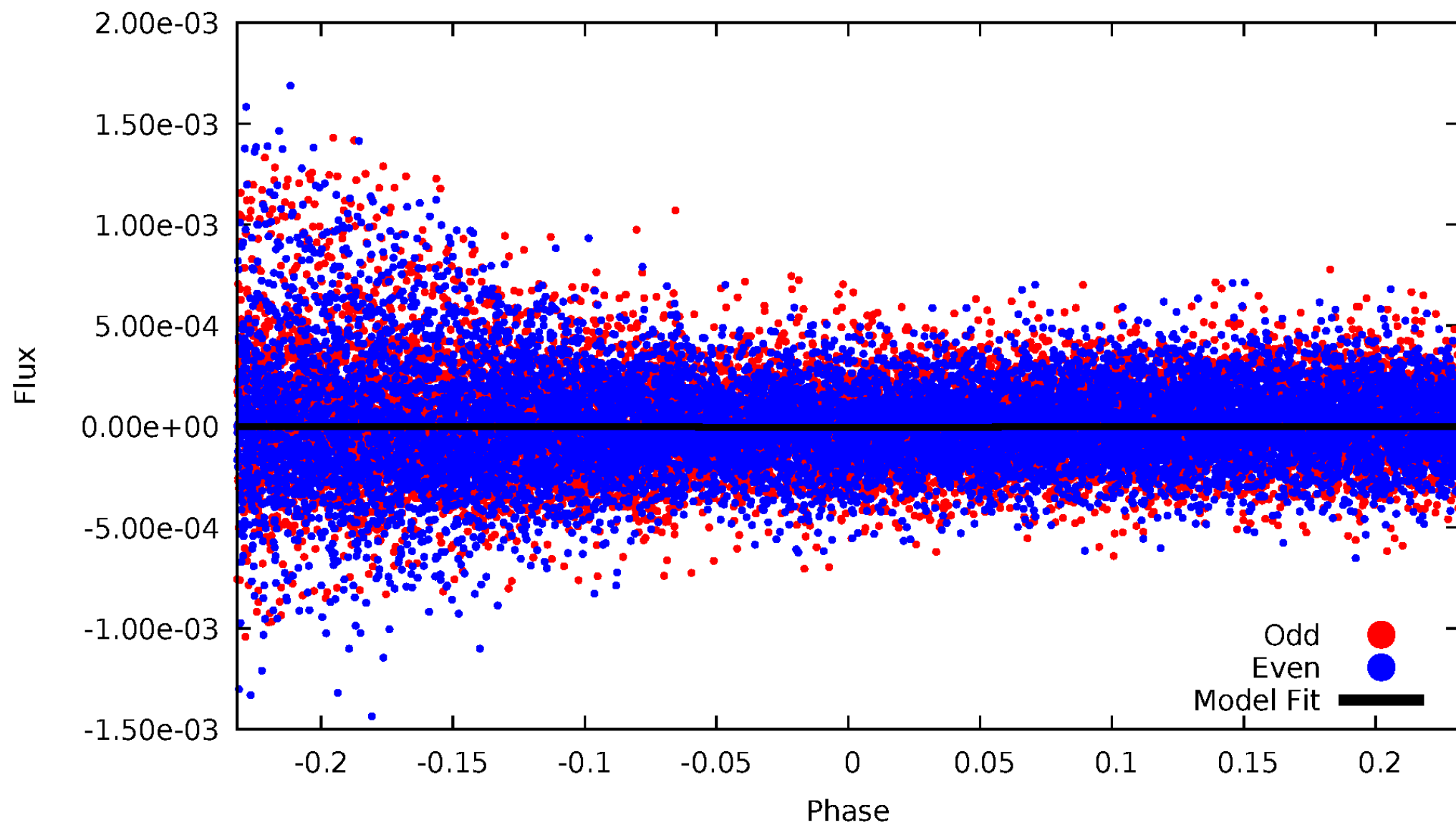
DV Odd/Even

TCE 010231171-02



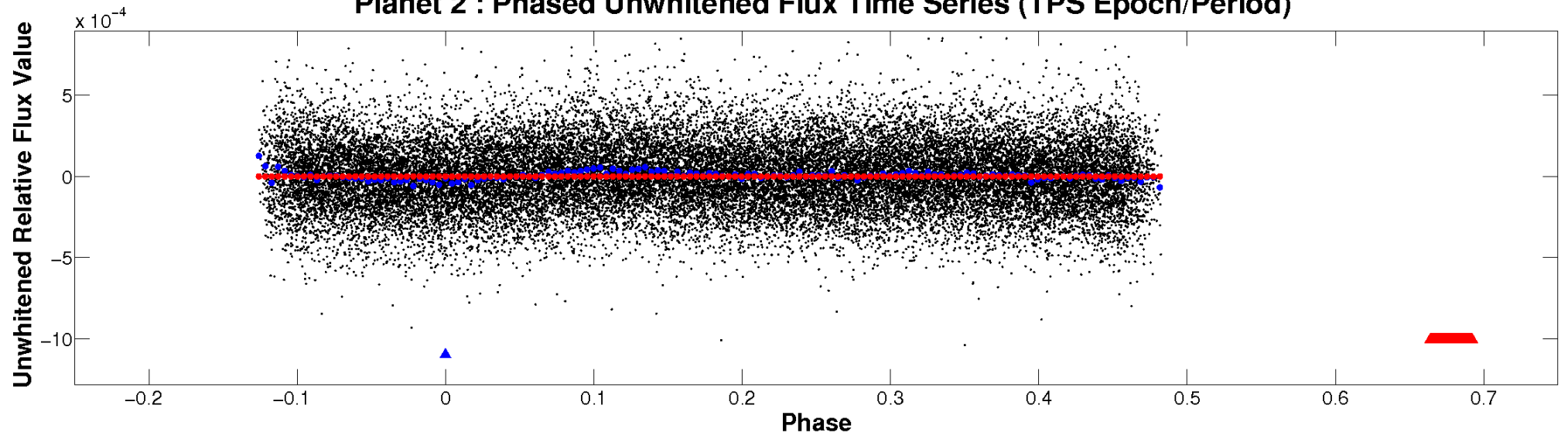
ALT Odd/Even

TCE 010231171-02

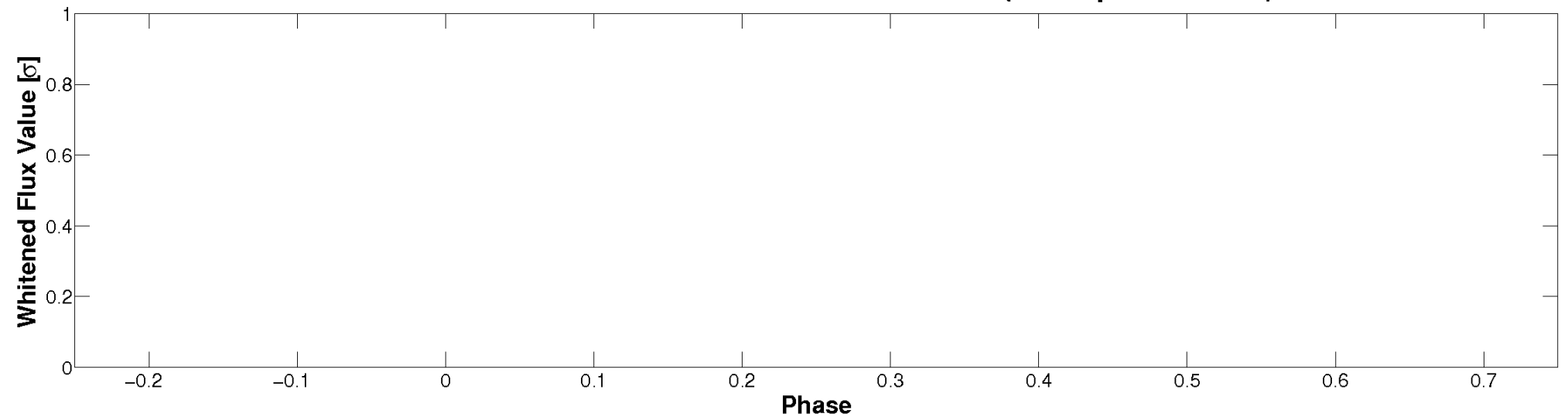


Non-Whitened Vs. Whitened Light Curve

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

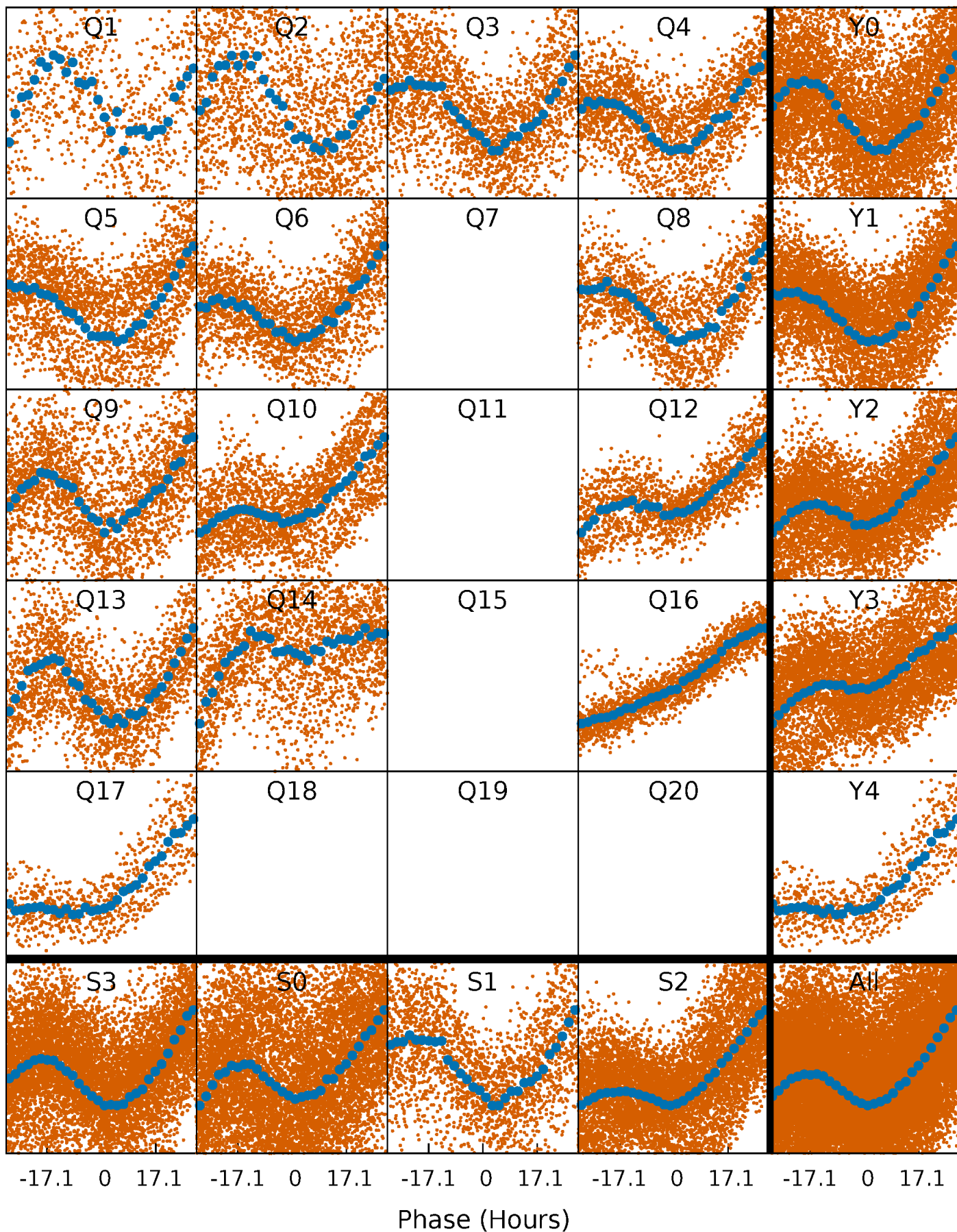


Planet 2 : Phased Whitened Flux Time Series (TPS Epoch/Period)



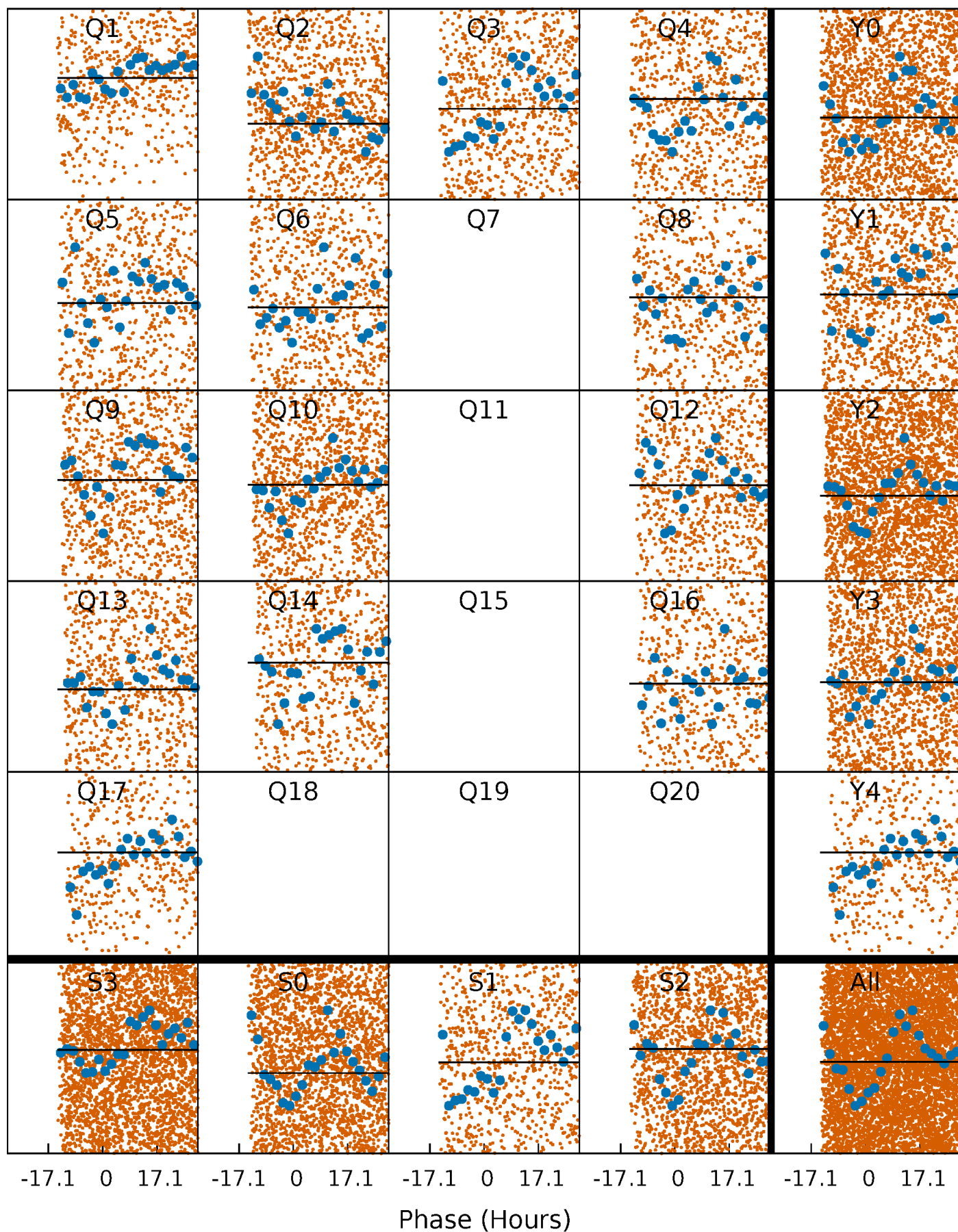
PDC Quarter-Phased Transit Curves

TCE 010231171-02 P= 4.708777 Days $T_0=133.574783$ (BKJD)



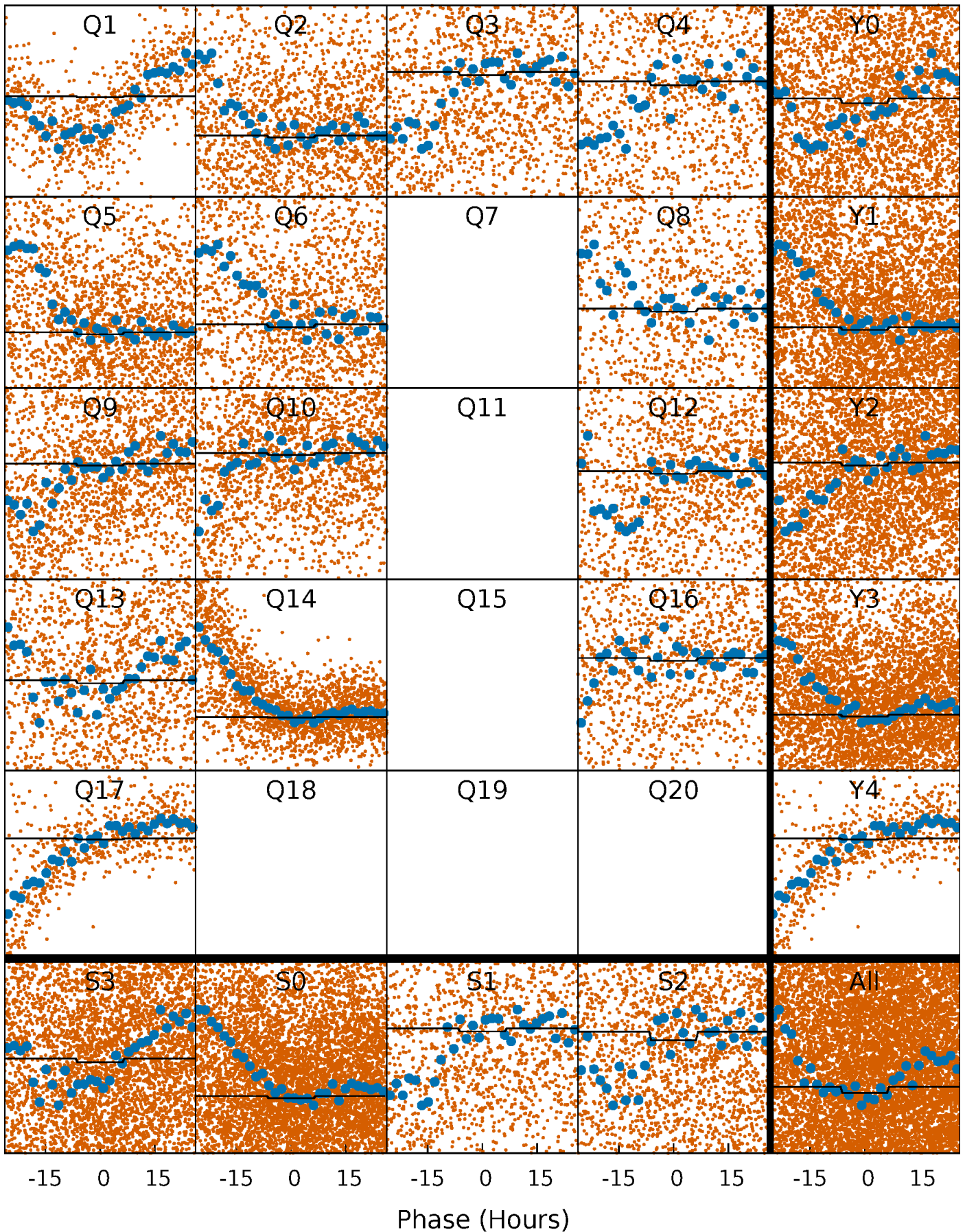
DV Quarter-Phased Transit Curves

TCE 010231171-02 P= 4.708777 Days $T_0=133.574783$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

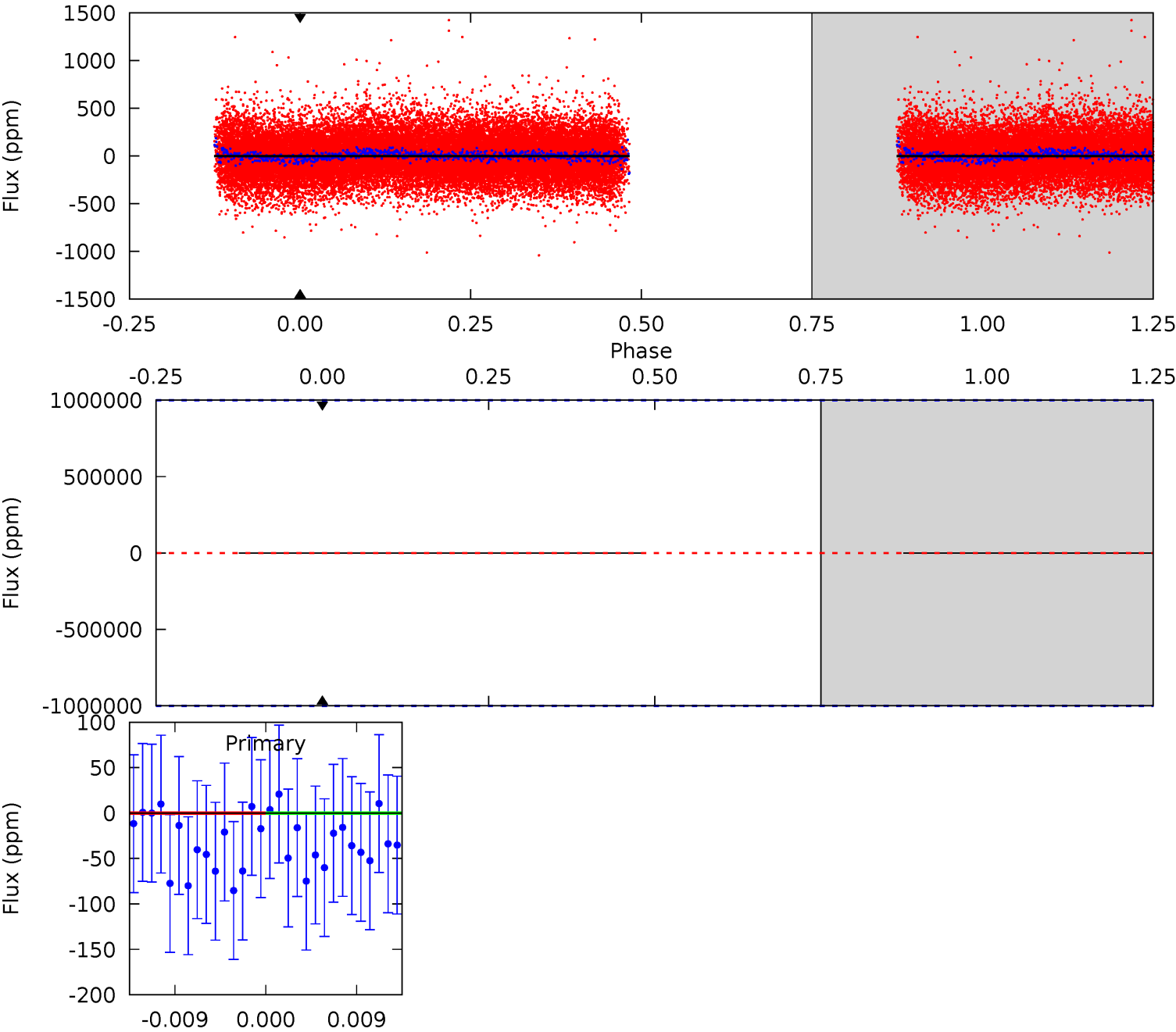
TCE 010231171-02 P= 4.708777 Days $T_0=134.342960$ (BKJD)



DV Model-Shift Uniqueness Test

010231171-02, P = 4.708777 Days, E = 128.866006 Days

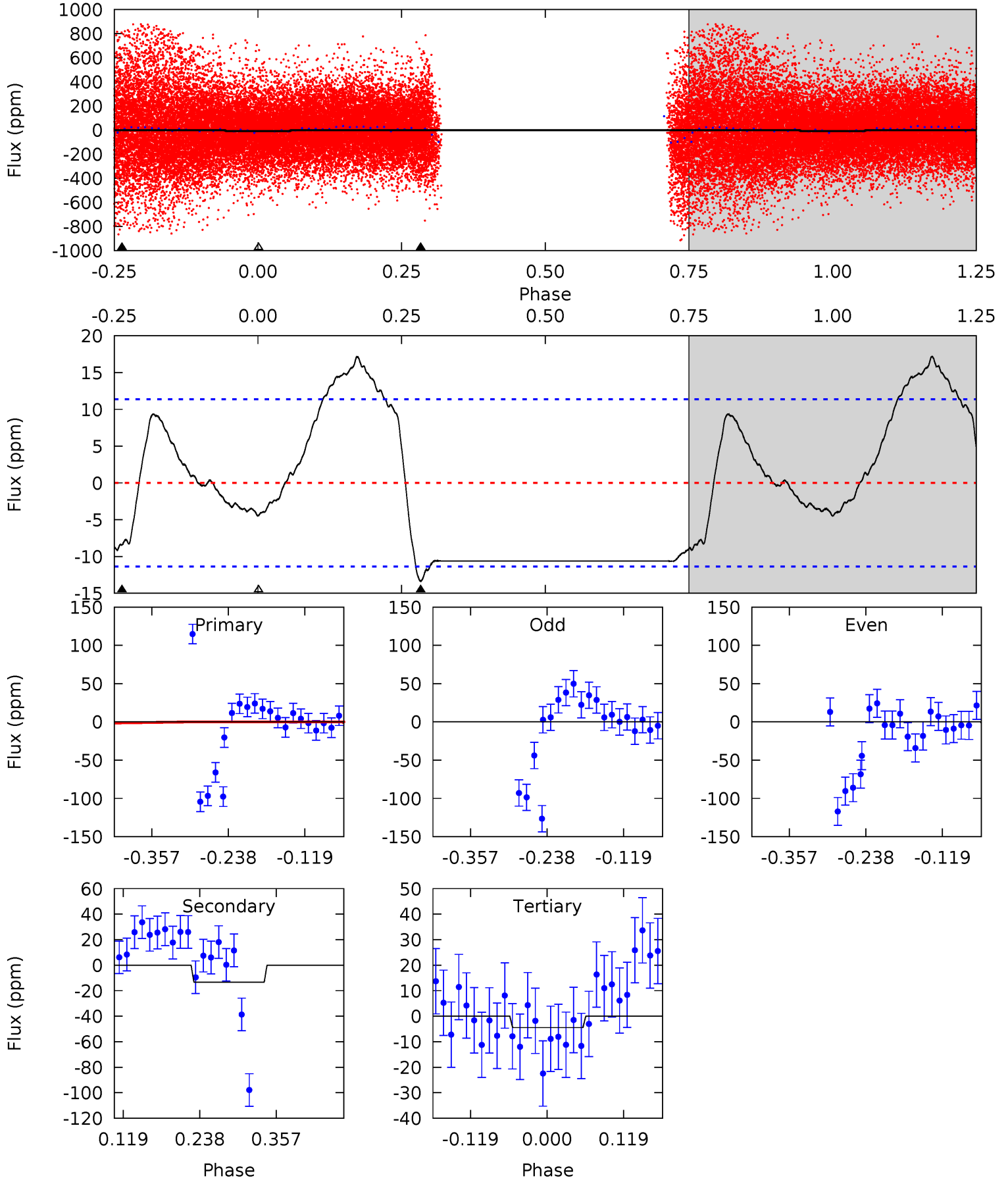
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
0	0	0	0	1.00	1.00	1.00	0	0	0	0	0	0	0	0



Alt Model-Shift Uniqueness Test

010231171-02, P = 4.708777 Days, E = 129.634183 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
3.35	5.33	1.78	0	4.53	1.56	2.58	1.57	3.35	3.54	5.33	1.23	5.26	0.56	0.07



Stellar Parameters For KIC 010231171

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	6517^{+155}_{-214}	$4.265^{+0.112}_{-0.192}$	$-0.100^{+0.250}_{-0.300}$	$1.342^{+0.428}_{-0.230}$	$1.212^{+0.192}_{-0.174}$	$0.706^{+0.430}_{-0.363}$
	+2%/-3%	+3%/-5%	+250%/-300%	+32%/-17%	+16%/-14%	+61%/-51%
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 010231171-02 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	0 ± 1000000	$10.87^{+13.07}_{-7.27}$	1948^{+155}_{-122}	3736^{+24261}_{-31371}	$6.648^{+2713.078}_{-2586.531}$
Alt.	-13 ± 3	$9.92^{+11.42}_{-6.67}$	1939^{+147}_{-105}	-2045^{+5213}_{-359}	$0.244^{+2.135}_{-0.188}$

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 $A_{obs} \gg 1.0$

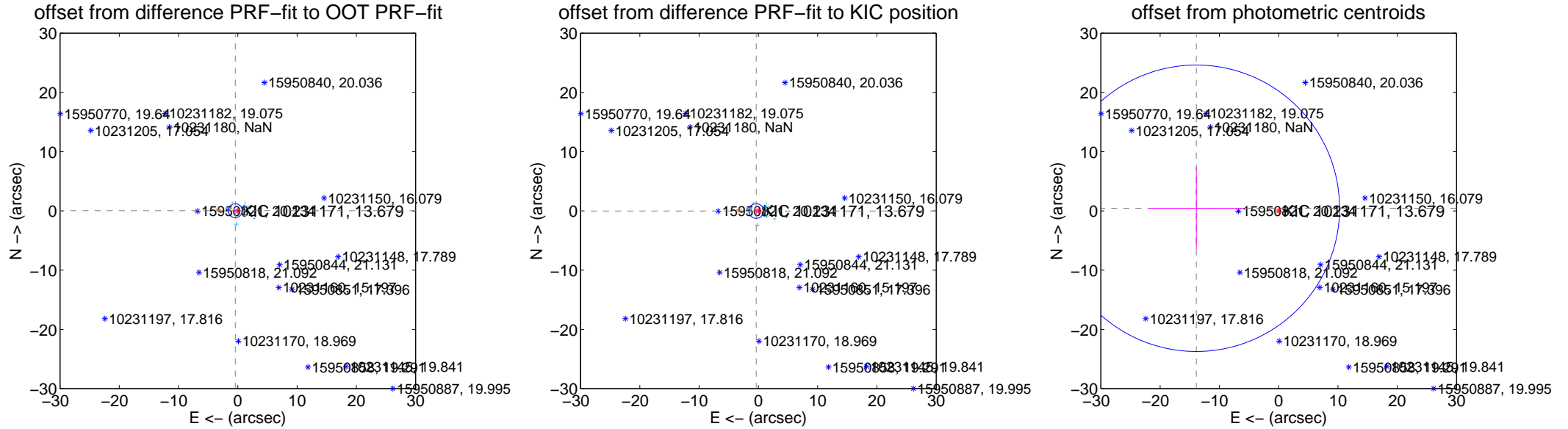
DV Centroid Data

Supplemental centroid analysis for 010231171-02. Kepler magnitude: 13.68. Transit SNR -1.00

There are 10 quarters with good PRF difference image offsets

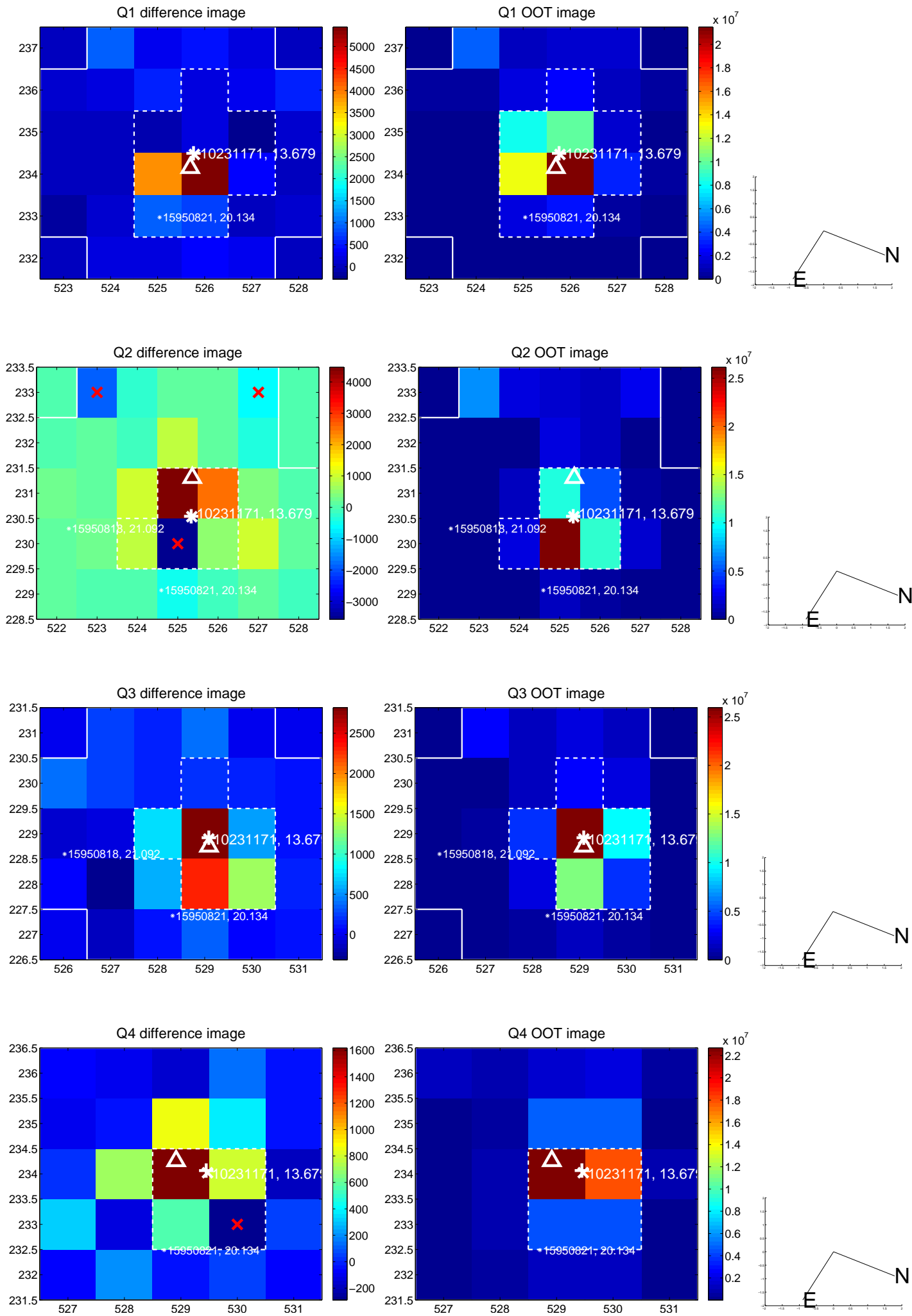
The direct PRF centroid is offset from the target star catalog position by about 0.11 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.427 ± 0.390	1.10	0.426 ± 0.391	0.035 ± 0.192
PRF-fit source offset from KIC position	0.357 ± 0.414	0.86	0.357 ± 0.421	-0.022 ± 0.277
photometric centroid source offset	13.90 ± 8.06	1.73	13.90 ± 8.06	0.45 ± 6.93

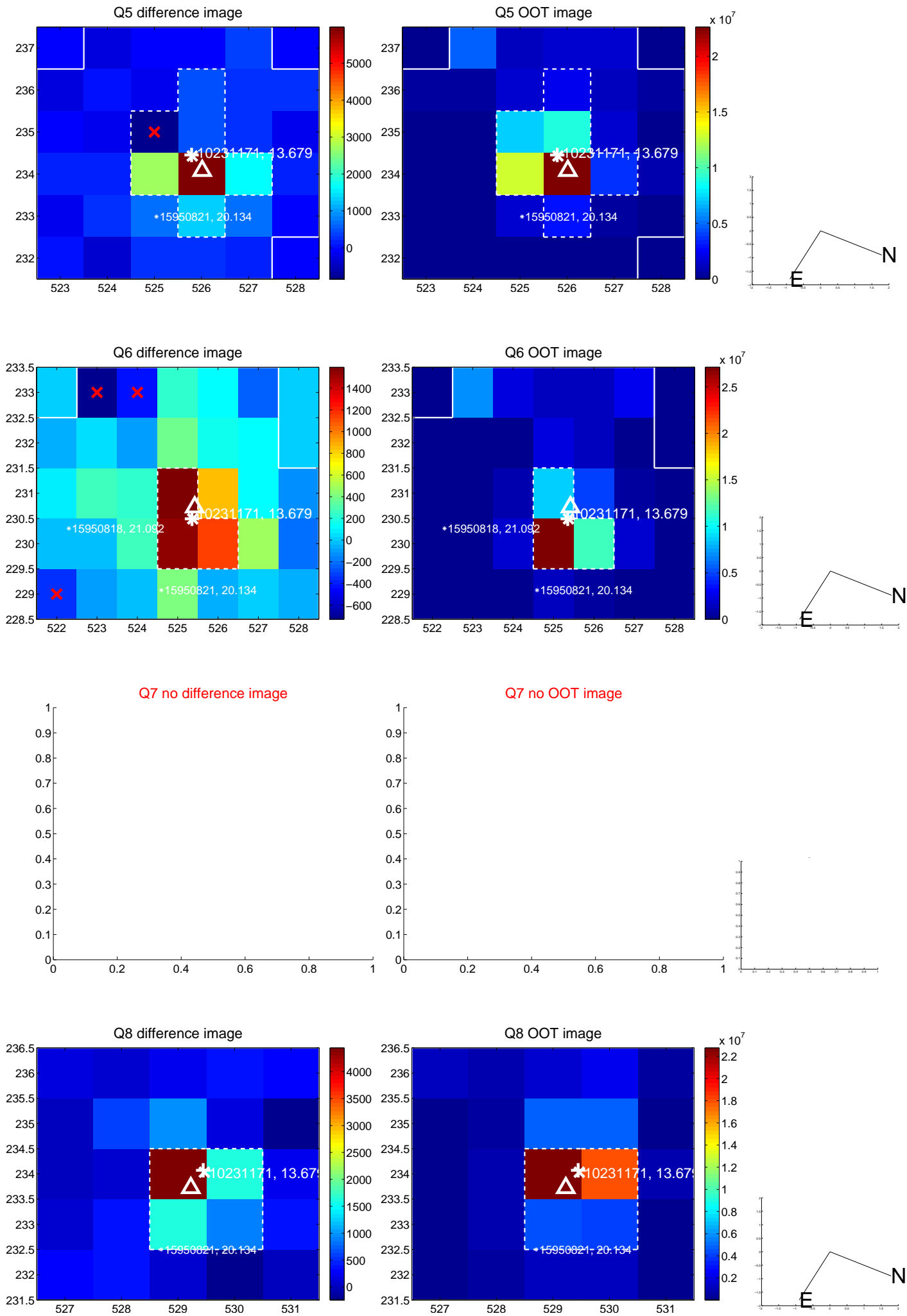


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ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

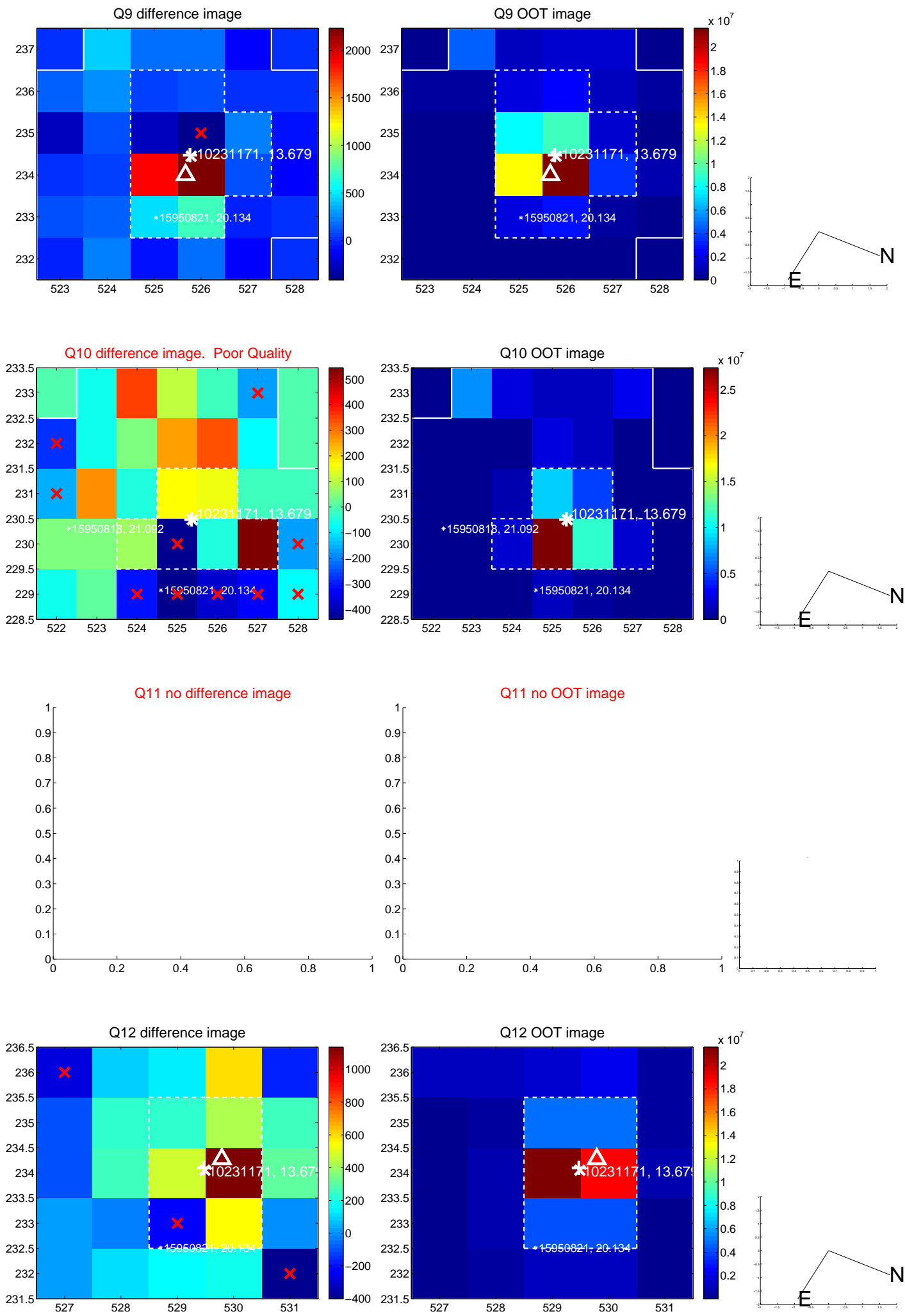
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



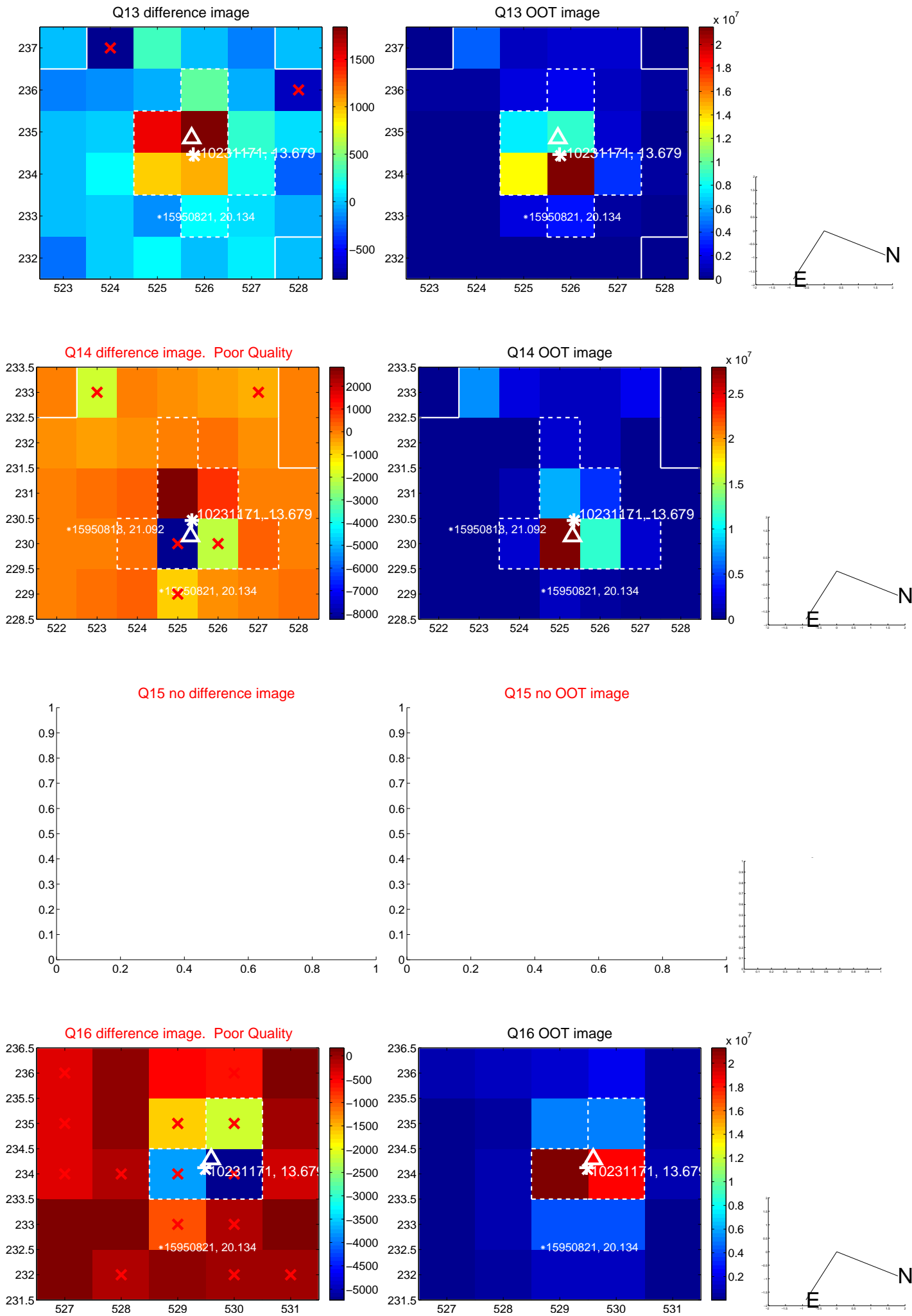
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



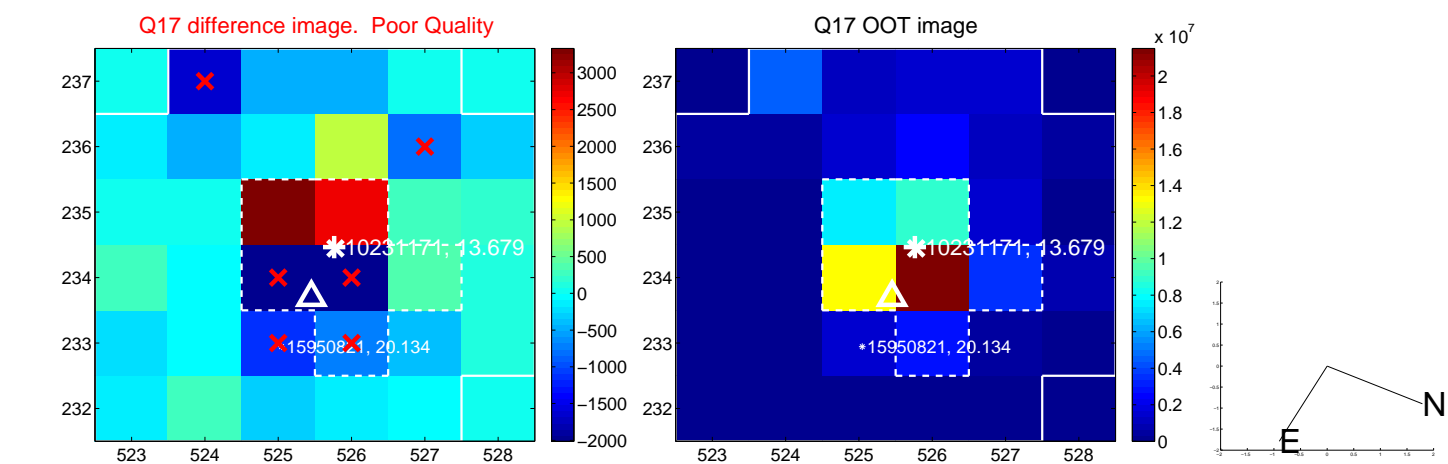
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



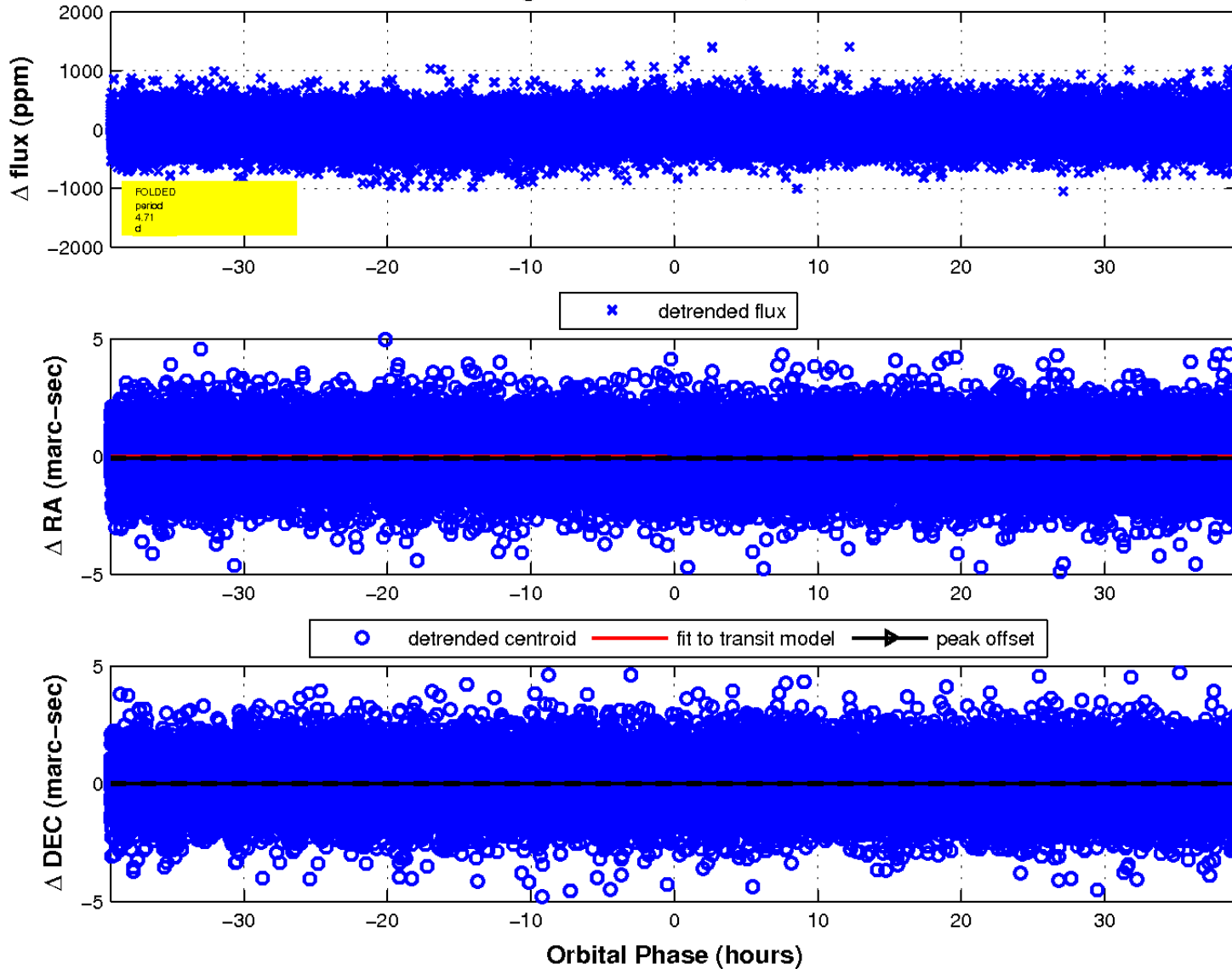
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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



fluxWeightedCentroids, Planet 2 of 2



UKIRT Image

Declination

