

KIC 008817159

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})
008817159-01	OBS	No	3.158441	131.755440	0.0	6.884	9.3	0.0	1.88	7276	0.03	3631.99
008817159-02	OBS	No	3.158405	131.875245	34.8	30.654	9.3	9.7	1.88	7276	1.16	3632.04

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
008817159-01	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_SKYE_ZUMA_TRACKER—SWEET_NTL—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_NONUNIQ_ALT
008817159-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_SKYE_ZUMA—LPP_DV—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.

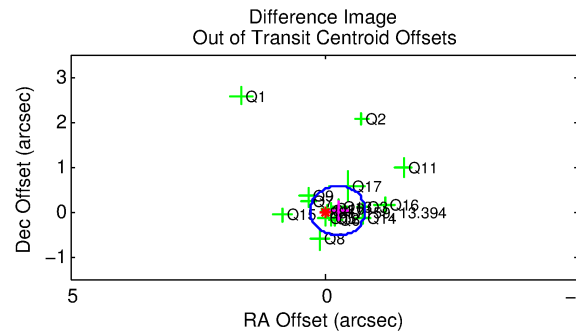
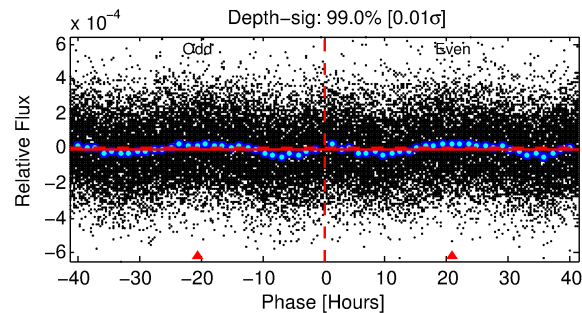
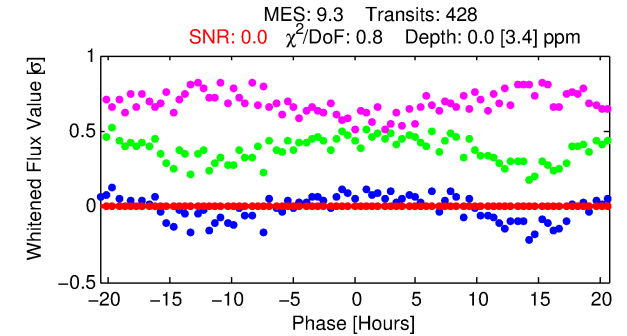
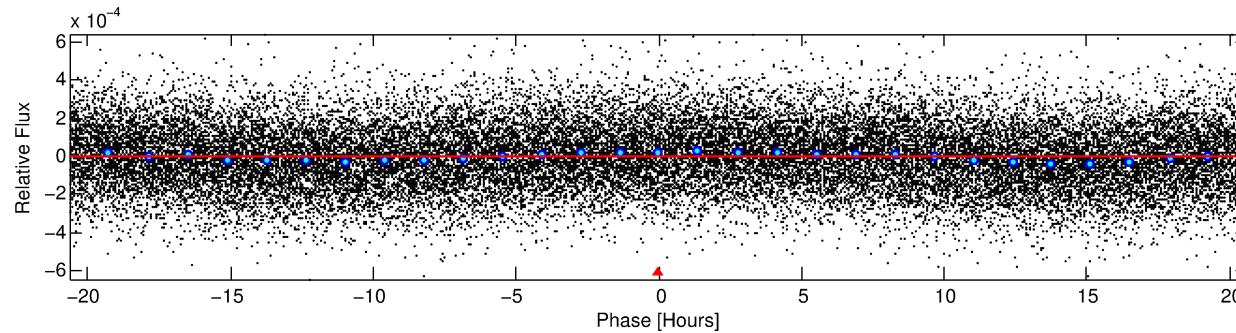
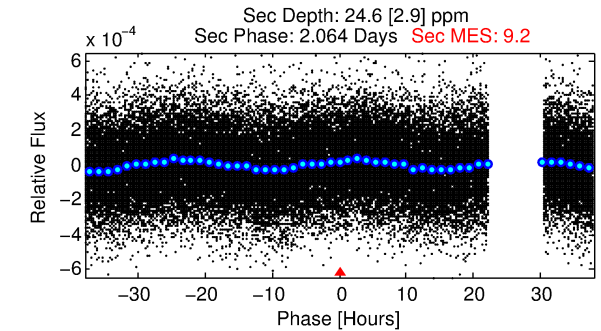
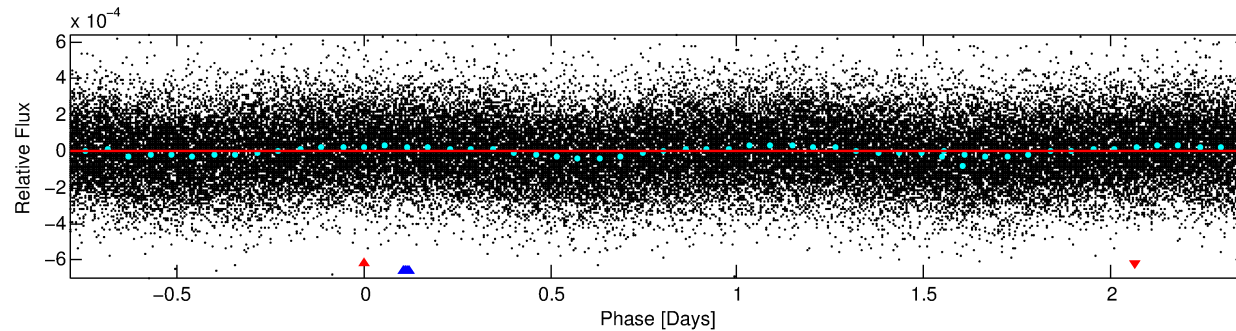
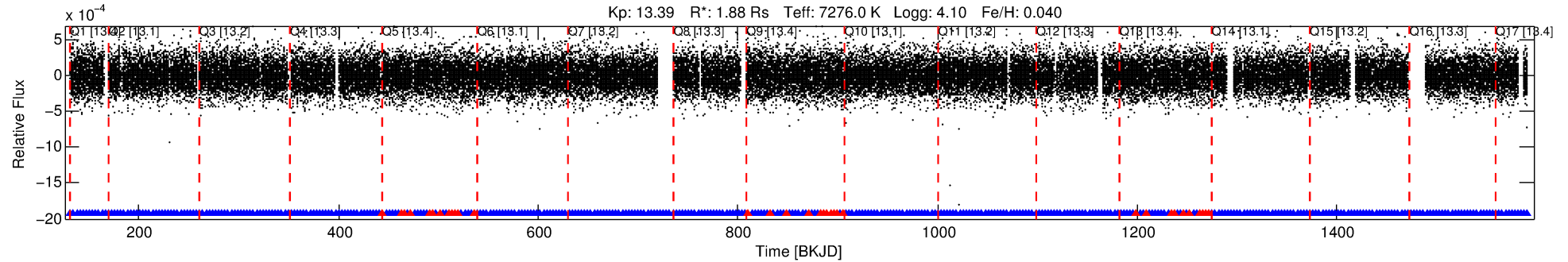
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 008817159-01

No Significant Match Found

DV One-Page Summary

KIC: 8817159 Candidate: 1 of 2 Period: 3.158 d



DV Fit Results:

Period = 3.15844 [0.05540] d
Epoch = 131.7554 [10.1589] BKJD
Rp/R* = 0.0001 [0.0141]
a/R* = 1.48 [35.38]
b = 0.95 [5.94]
Seff = 3631.99 [1376.36]
Teff = 1980 [188] K
Rp = 0.03 [2.90] Re
a = 0.0494 [0.0120] AU
Ag = 35401.16 [6726340.21] [0.01σ]
Teffp = 41981 [1994203] K [0.02σ]

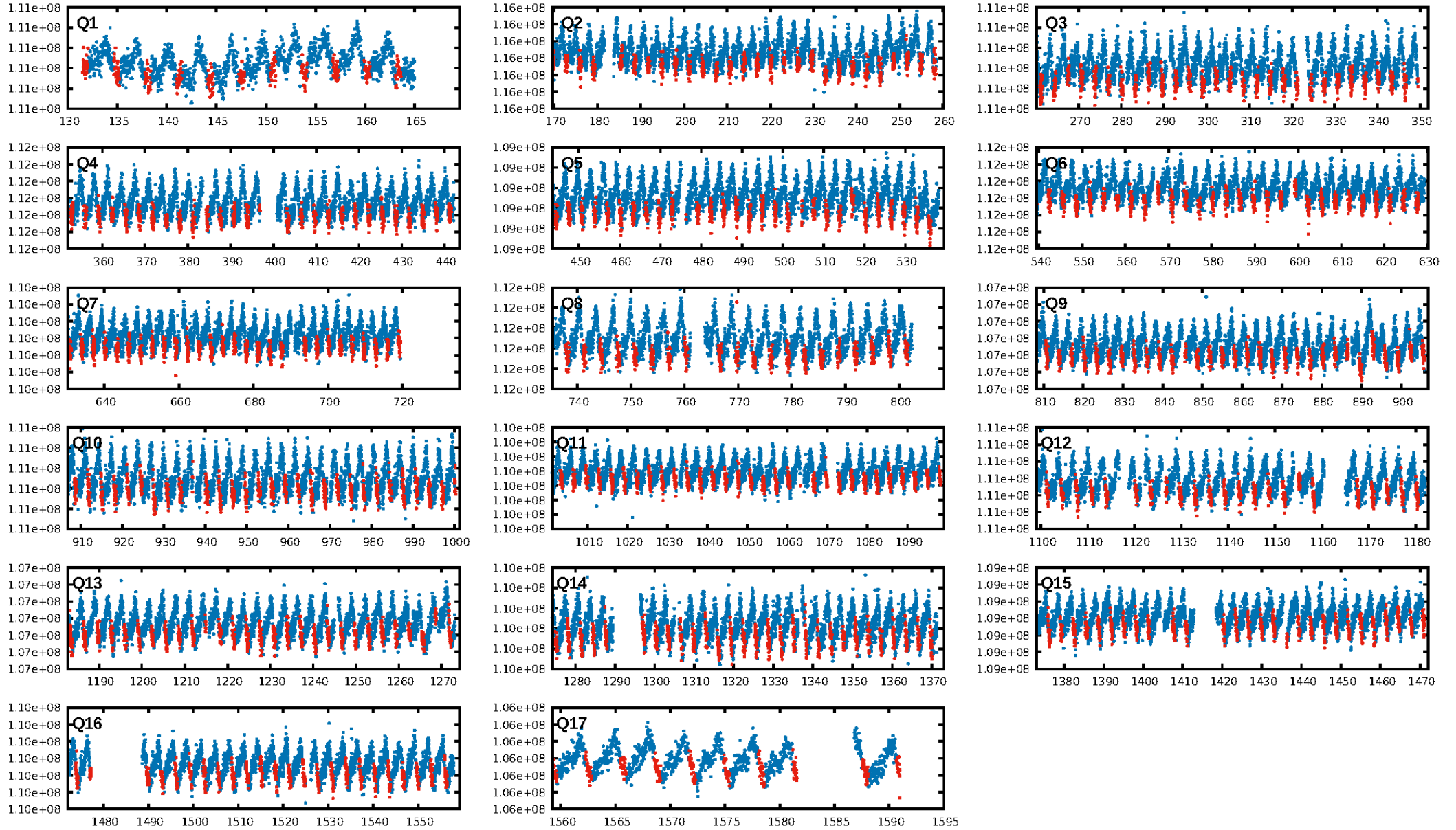
DV Diagnostic Results:

ShortPeriod-sig: 0.0% [0.00σ]
LongPeriod-sig: N/A
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: N/A
RollingBand-fgt: 0.92 [374/407]
GhostDiagnostic-chr: N/A
Centroid-sig: N/A
Centroid-so: N/A
OotOffset-rm: 0.258 arcsec [1.42σ]
KicOffset-rm: 0.285 arcsec [1.50σ]
OotOffset-st: 4/4/4/5 [17]
KicOffset-st: 4/4/4/5 [17]
DiffImageQuality-fgm: 1.00 [17/17]
DiffImageOverlap-fno: 0.00 [0/17]

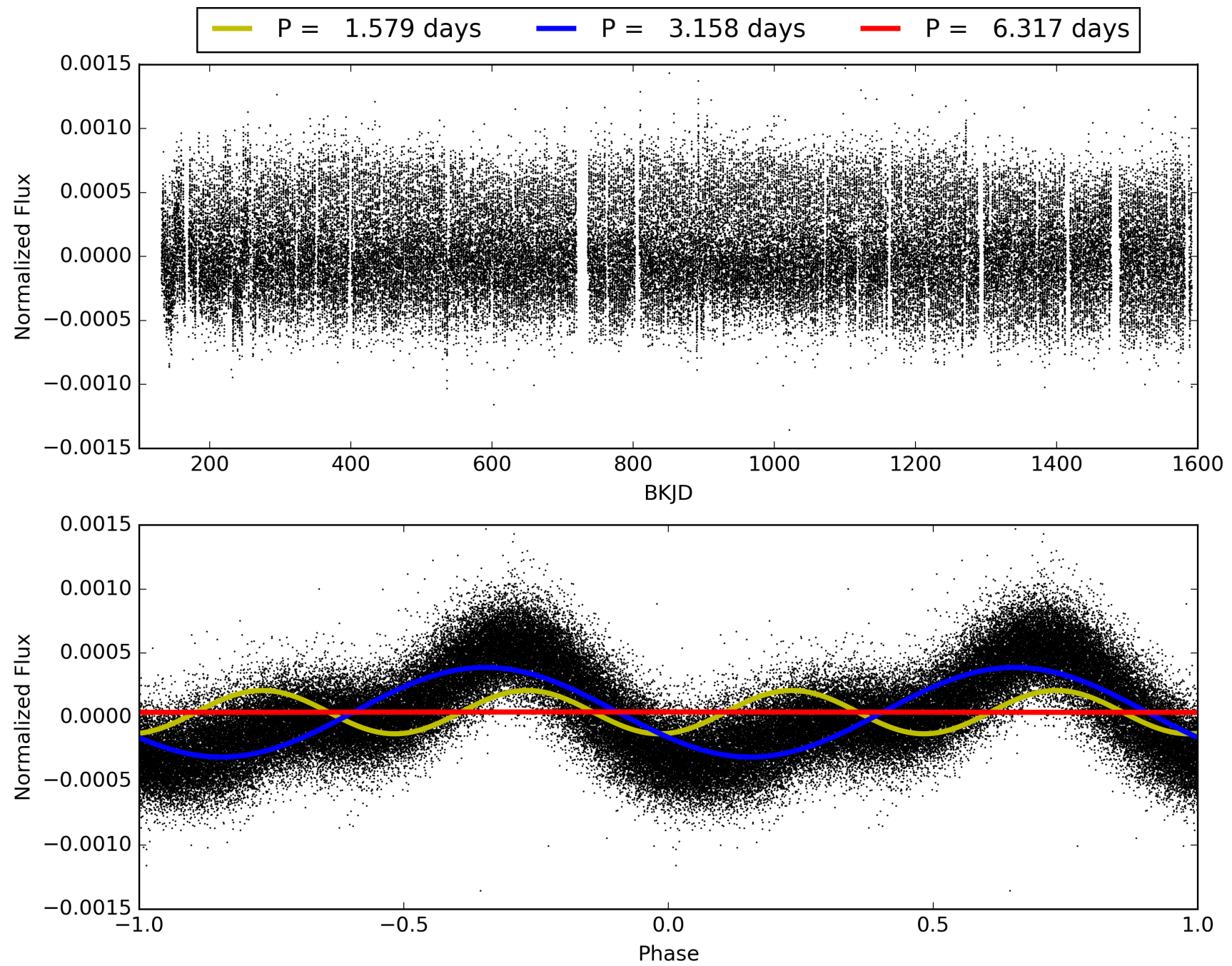
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This Data Validation Report Summary was produced in the Kepler Science Operations Center Pipeline at NASA Ames Research Center

TCE 008817159-01, PDC Light Curves

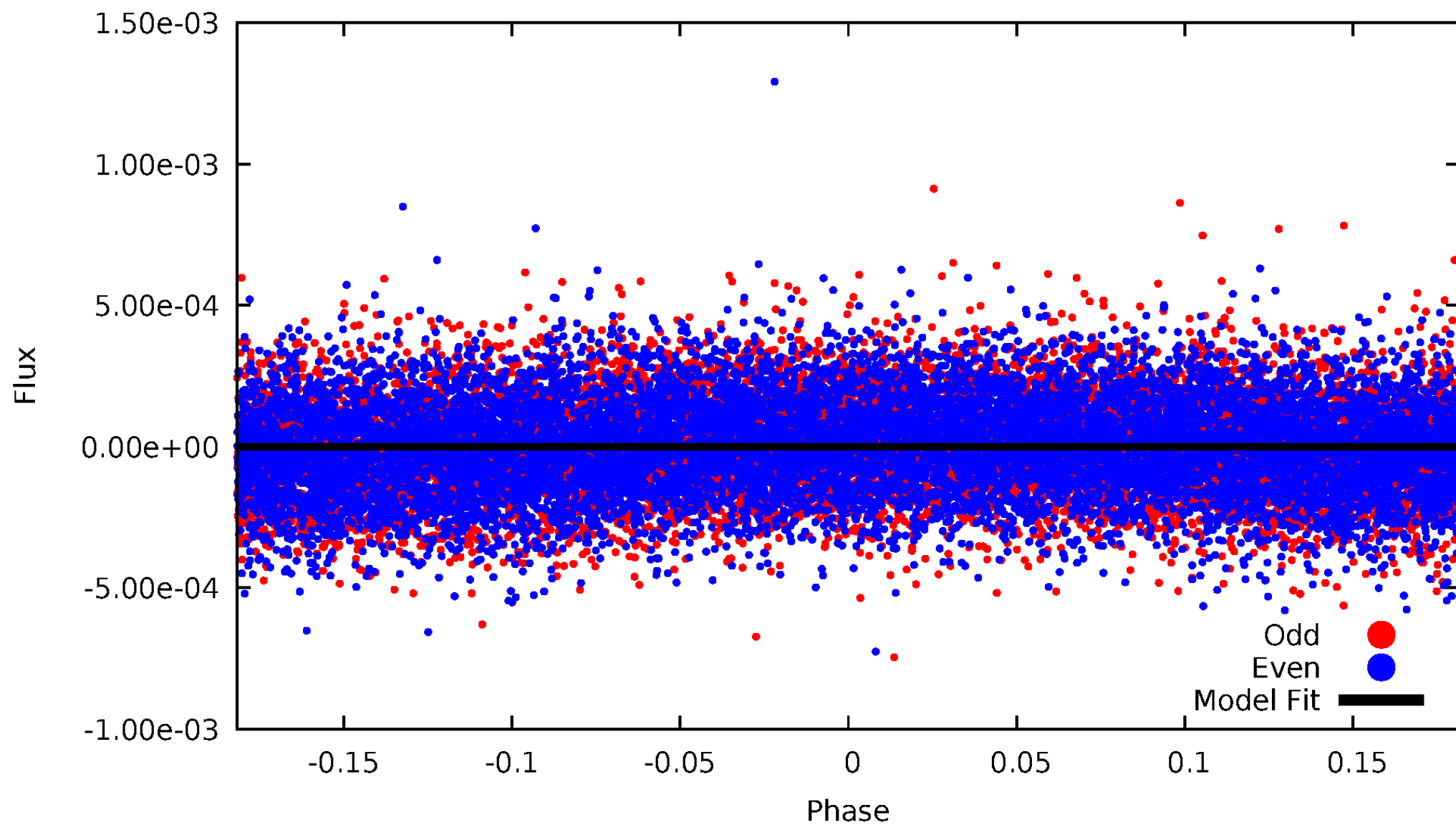


TCE 008817159-01



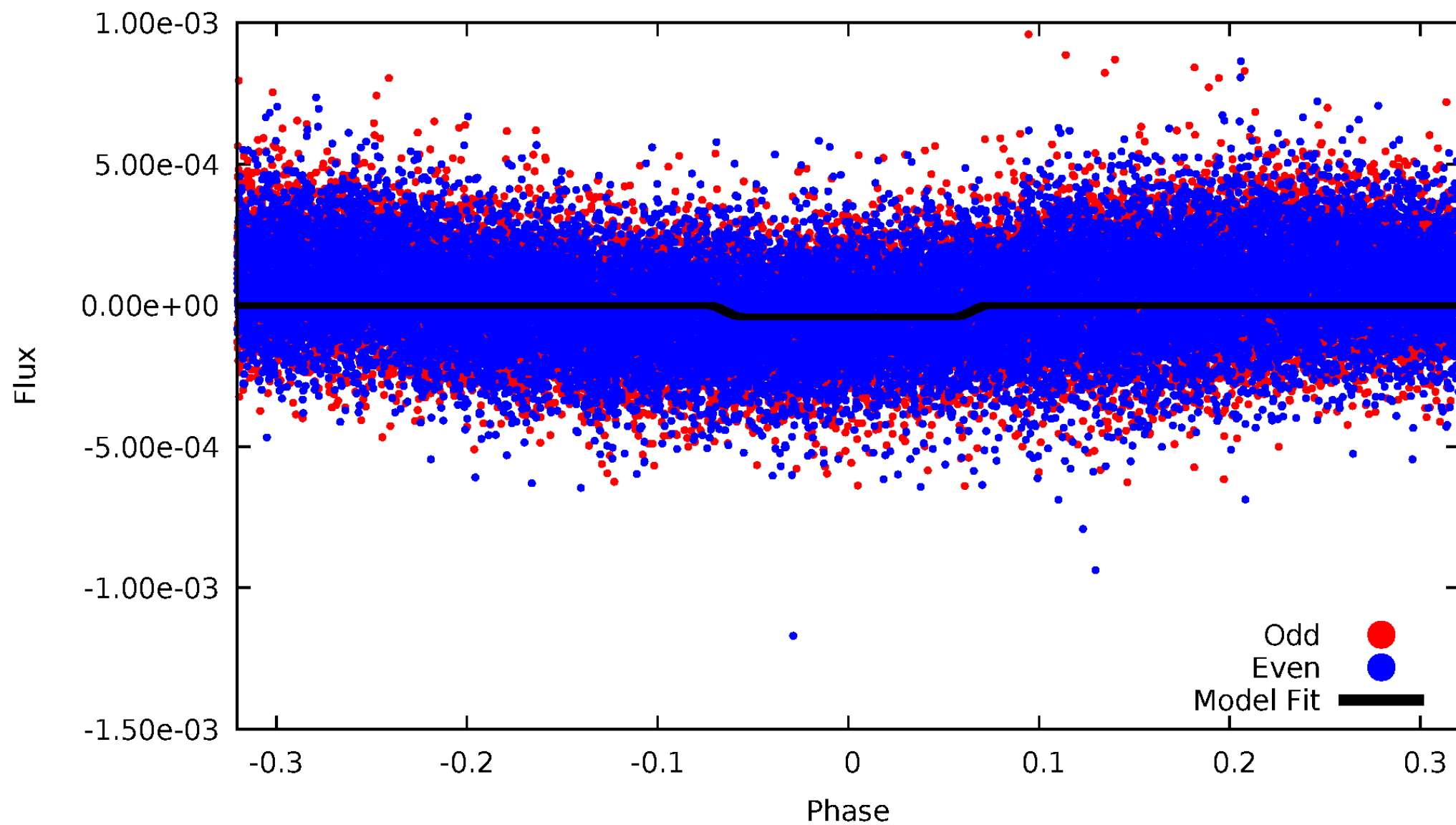
DV Odd/Even

TCE 008817159-01



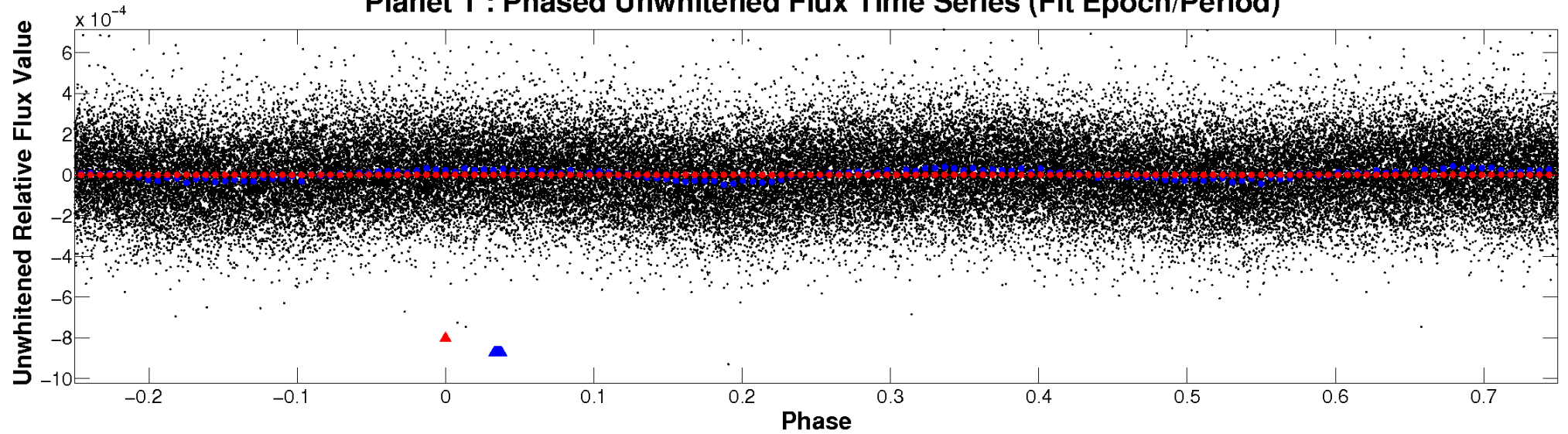
ALT Odd/Even

TCE 008817159-01

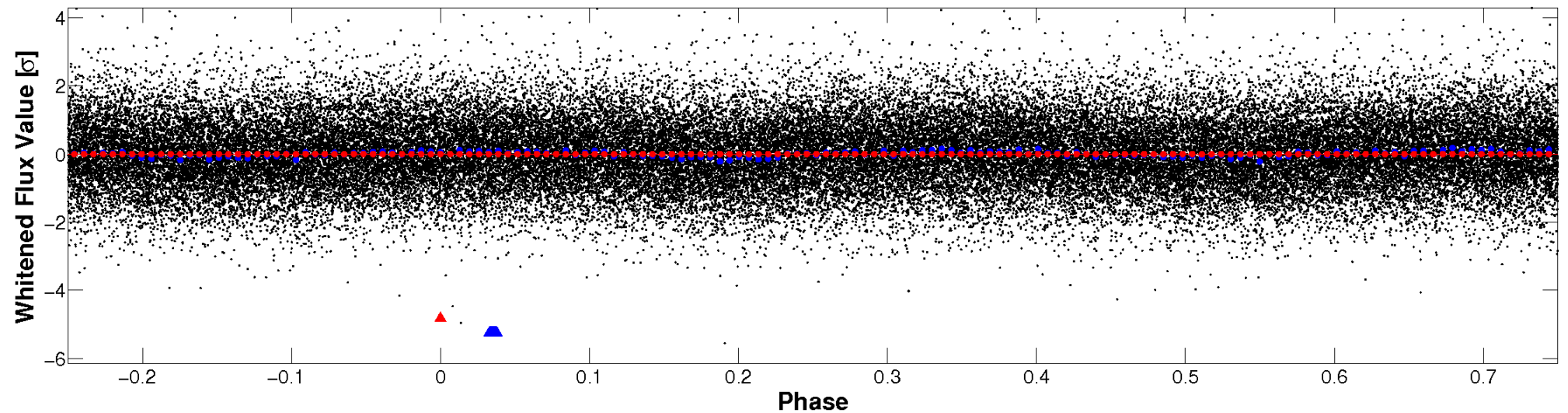


Non-Whitened Vs. Whitened Light Curve

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

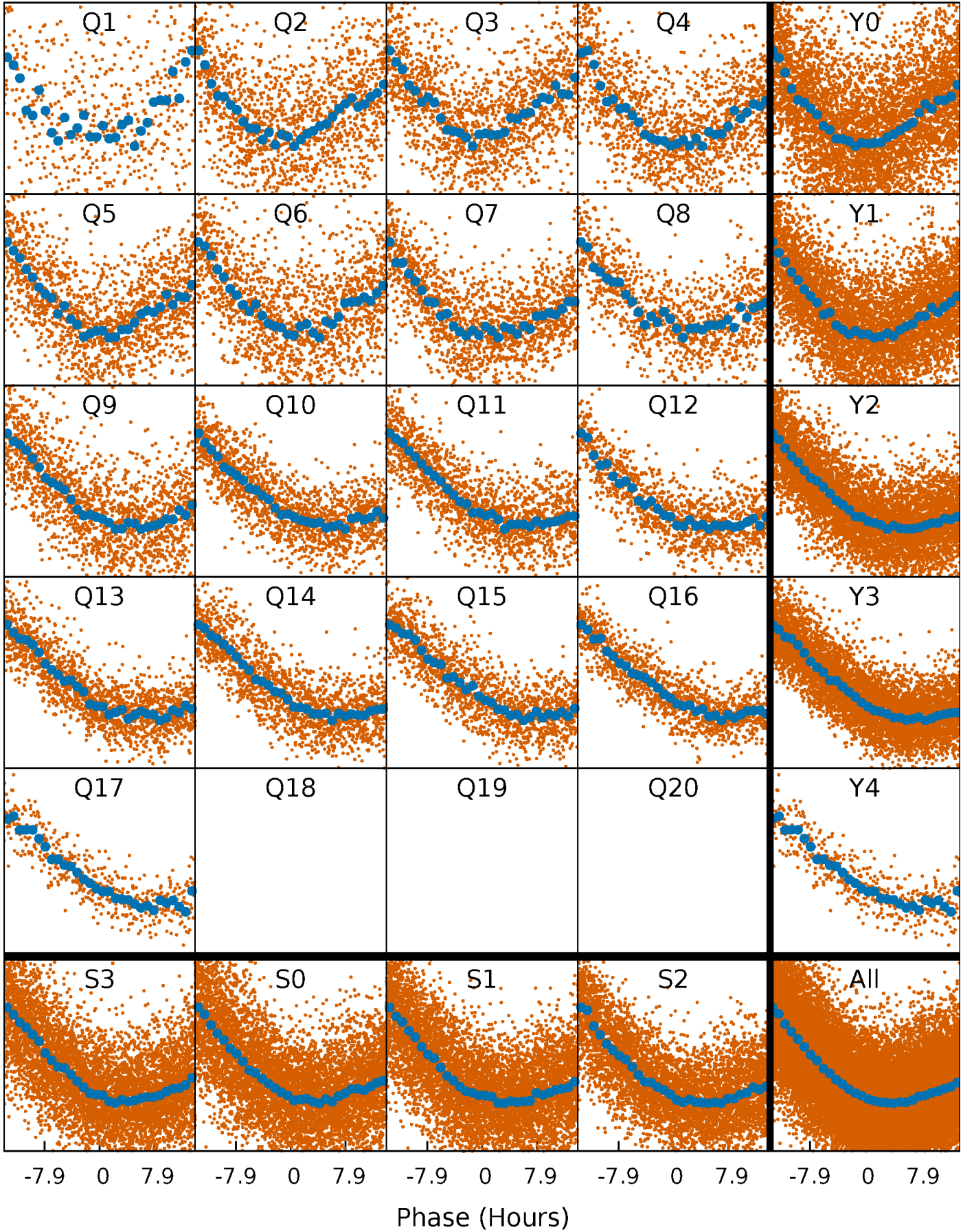


Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)



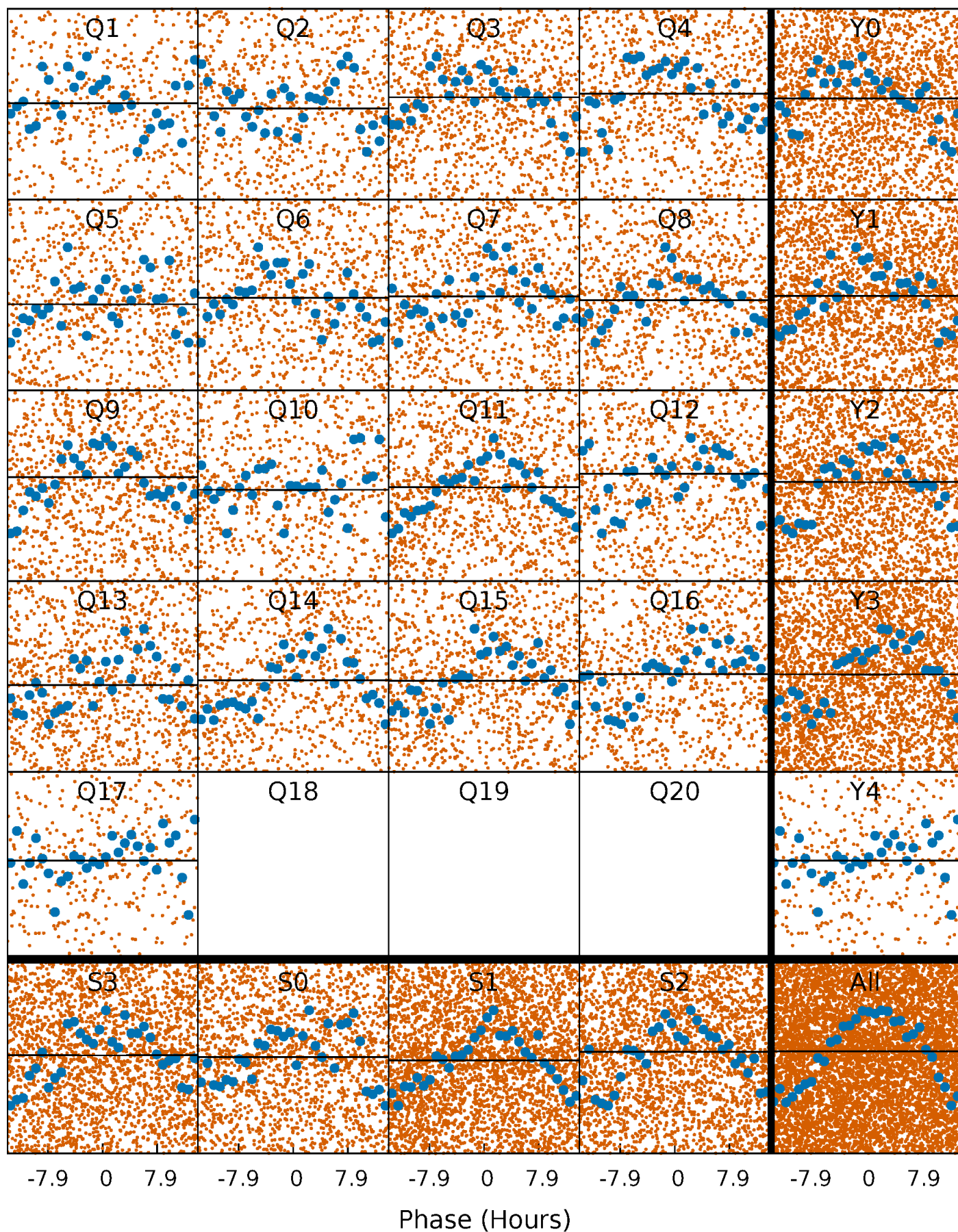
PDC Quarter-Phased Transit Curves

TCE 008817159-01 P= 3.158441 Days $T_0=131.755440$ (BKJD)



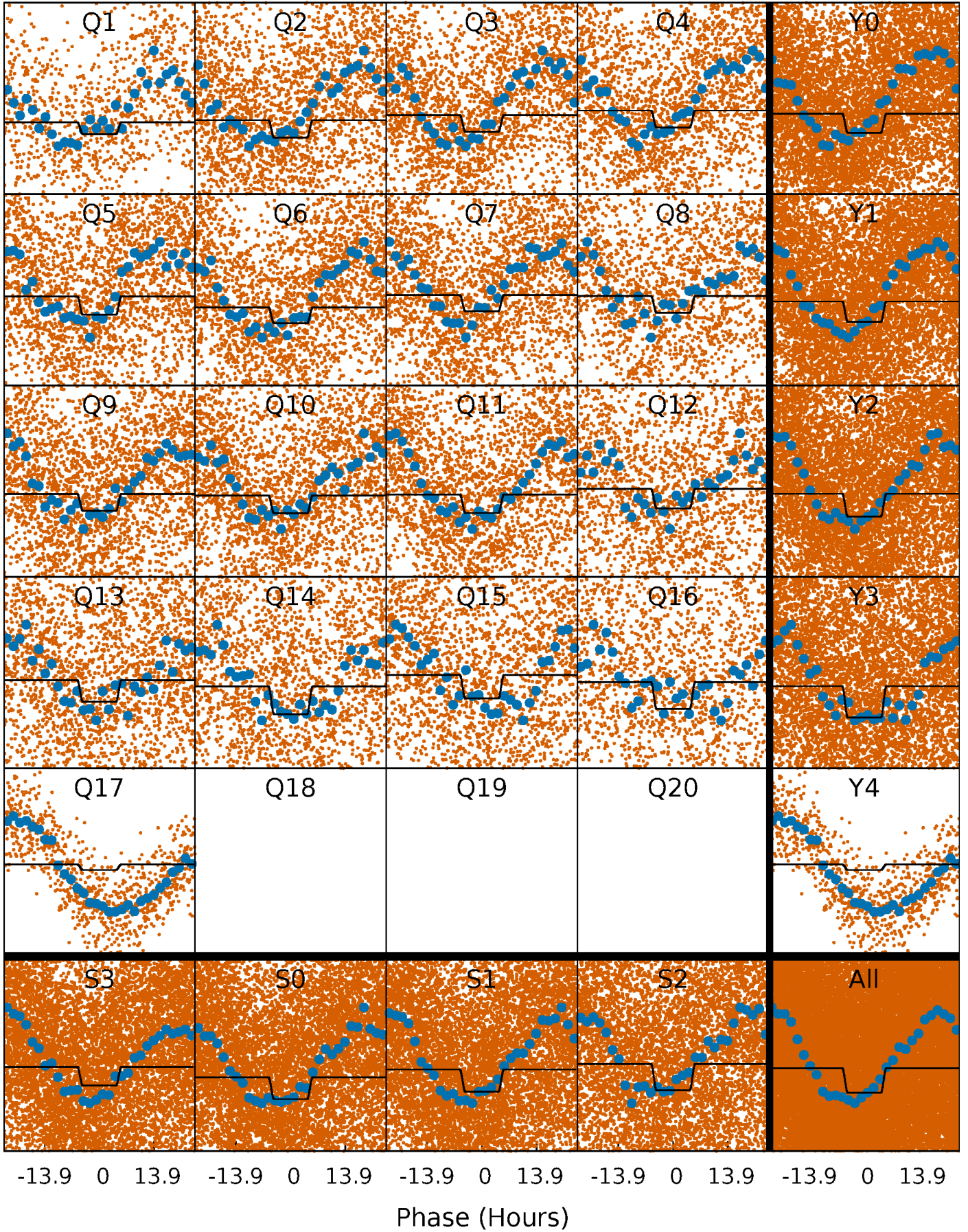
DV Quarter-Phased Transit Curves

TCE 008817159-01 P= 3.158441 Days $T_0=131.755440$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

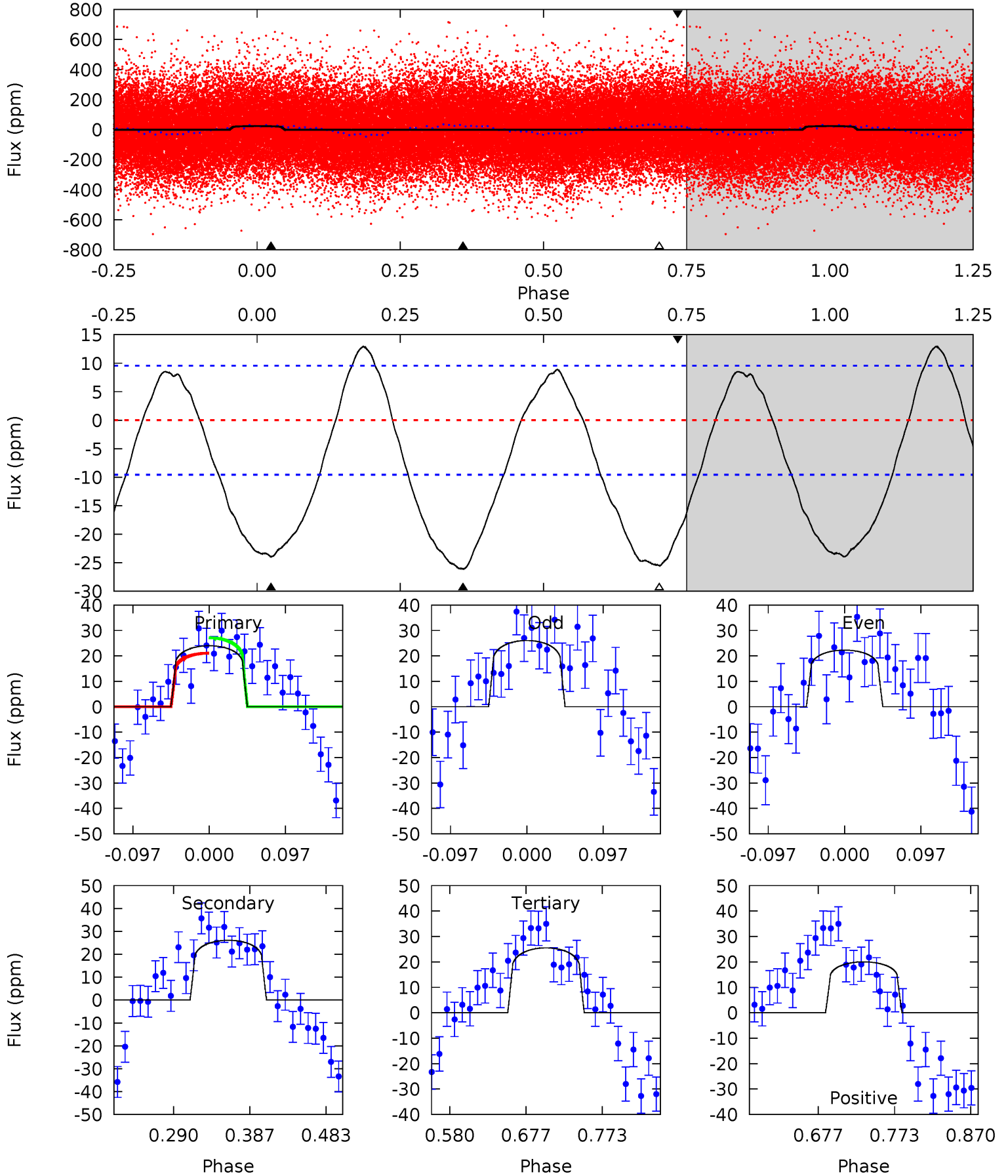
TCE 008817159-01 P= 3.158757 Days $T_0=131.726291$ (BKJD)



DV Model-Shift Uniqueness Test

008817159-01, P = 3.158441 Days, E = 128.596999 Days

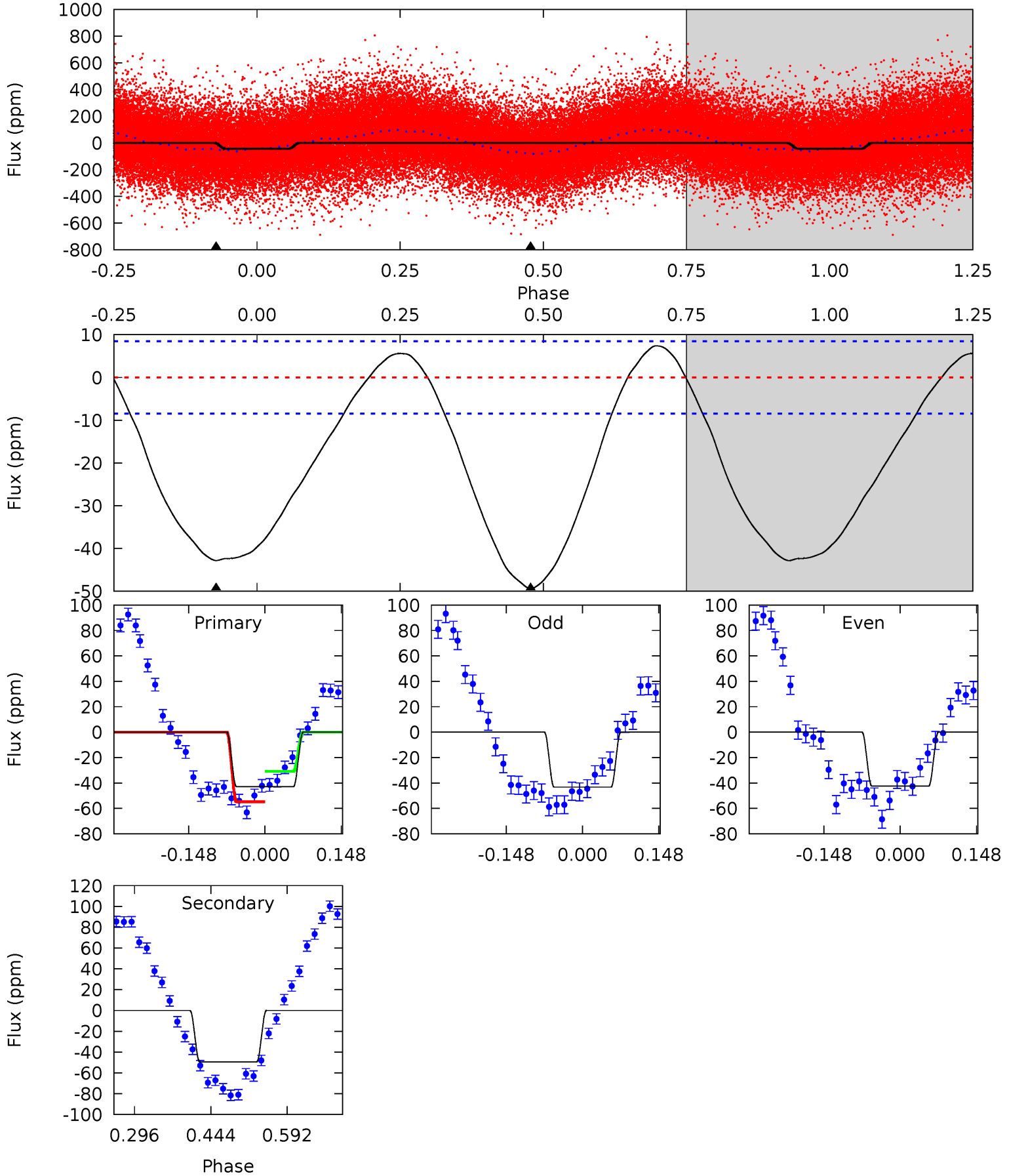
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
11.5	12.5	12.2	-9.57	4.57	1.66	5.51	-0.74	21.0	0.28	22.1	0.90	1.24	0.33	1.44



Alt Model-Shift Uniqueness Test

008817159-01, P = 3.158757 Days, E = 128.567534 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
22.6	26.1	0	0	4.48	1.45	4.33	22.6	22.6	26.1	26.1	0.23	1.14	0.13	6.31



Stellar Parameters For KIC 008817159

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	7276^{+228}_{-314}	$4.097^{+0.128}_{-0.176}$	$0.040^{+0.200}_{-0.350}$	$1.877^{+0.565}_{-0.377}$	$1.604^{+0.204}_{-0.249}$	$0.342^{+0.245}_{-0.164}$
	+3%/-4%	+3%/-4%	+500%/-875%	+30%/-20%	+13%/-16%	+72%/-48%
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 008817159-01 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	-26 ± 2	$1.96^{+2.30}_{-1.39}$	2772^{+204}_{-187}	5242^{+5676}_{-1418}	$9.194^{+104.610}_{-7.333}$
Alt.	-49 ± 2	$2.50^{+2.55}_{-1.65}$	2777^{+199}_{-172}	5436^{+4885}_{-1369}	10^{+80}_{-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 $A_{obs} \gg 1.0$

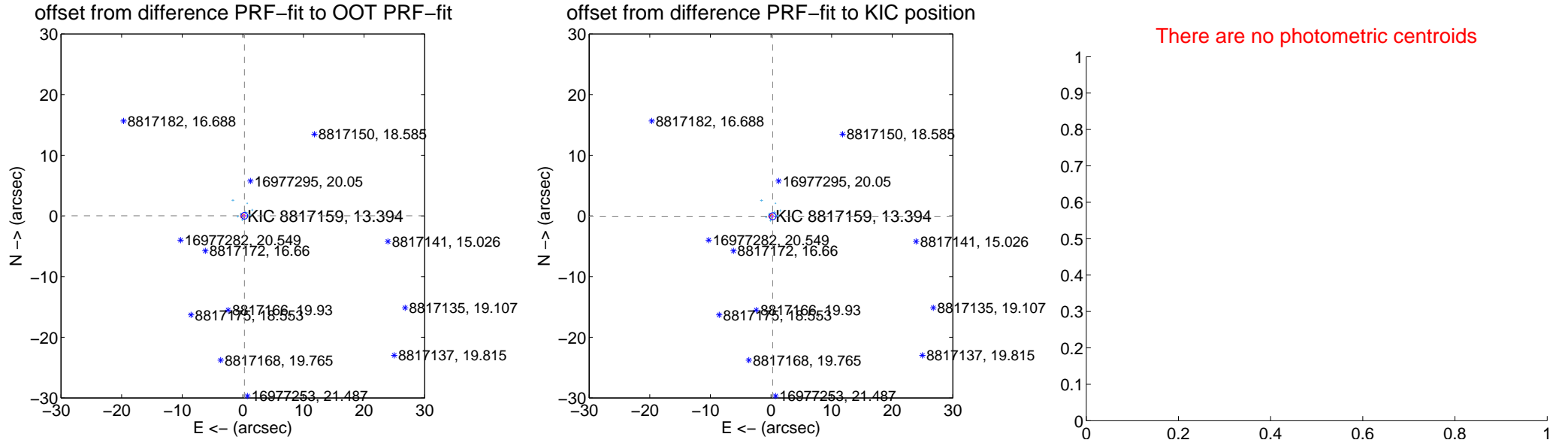
DV Centroid Data

Supplemental centroid analysis for 008817159-01. Kepler magnitude: 13.39. Transit SNR 0.01

There are 17 quarters with good PRF difference image offsets

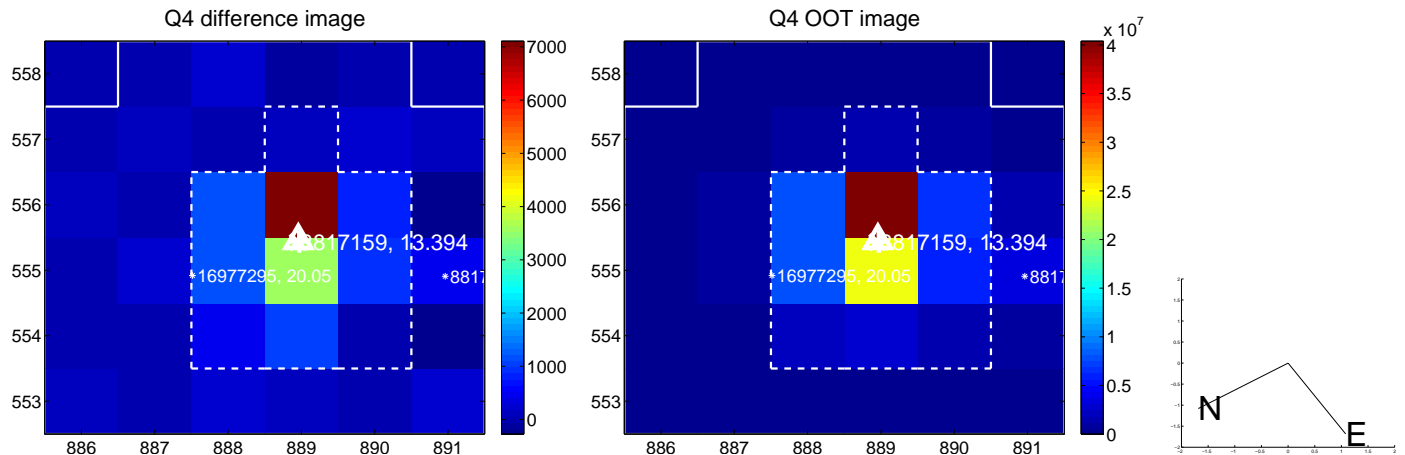
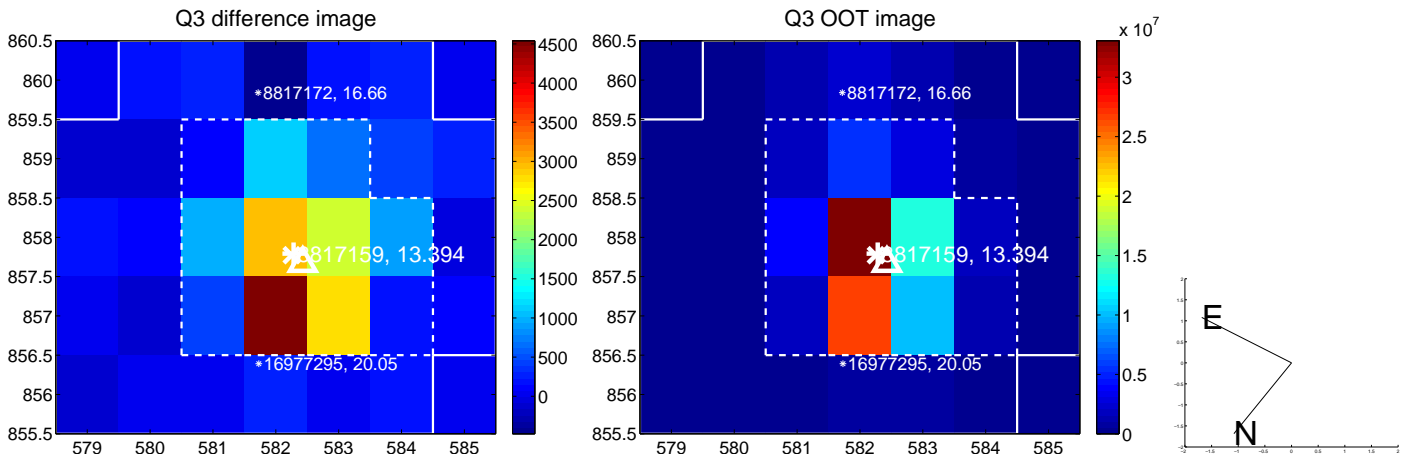
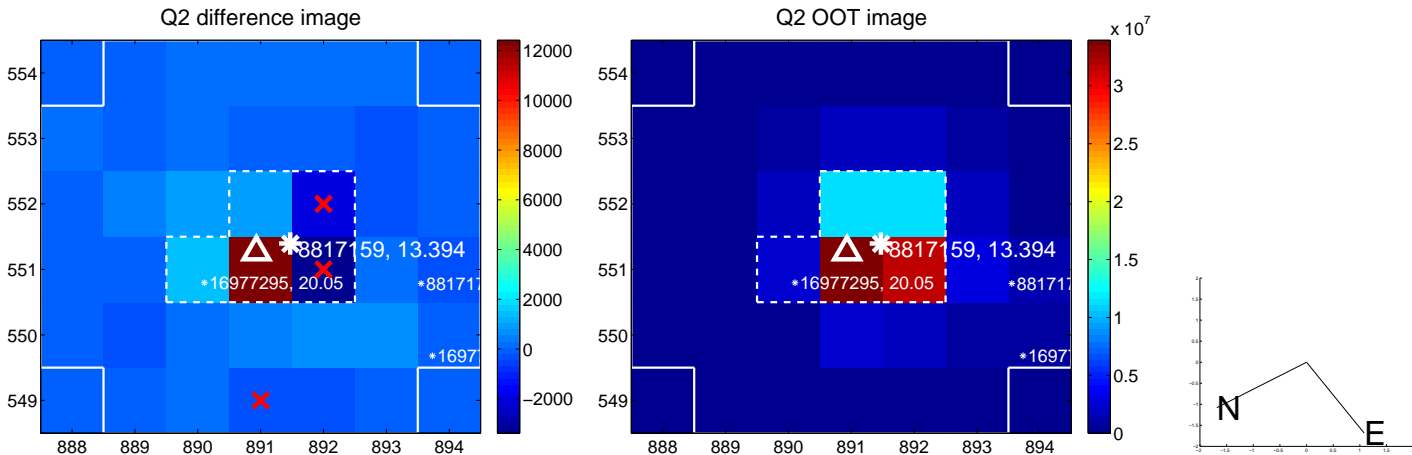
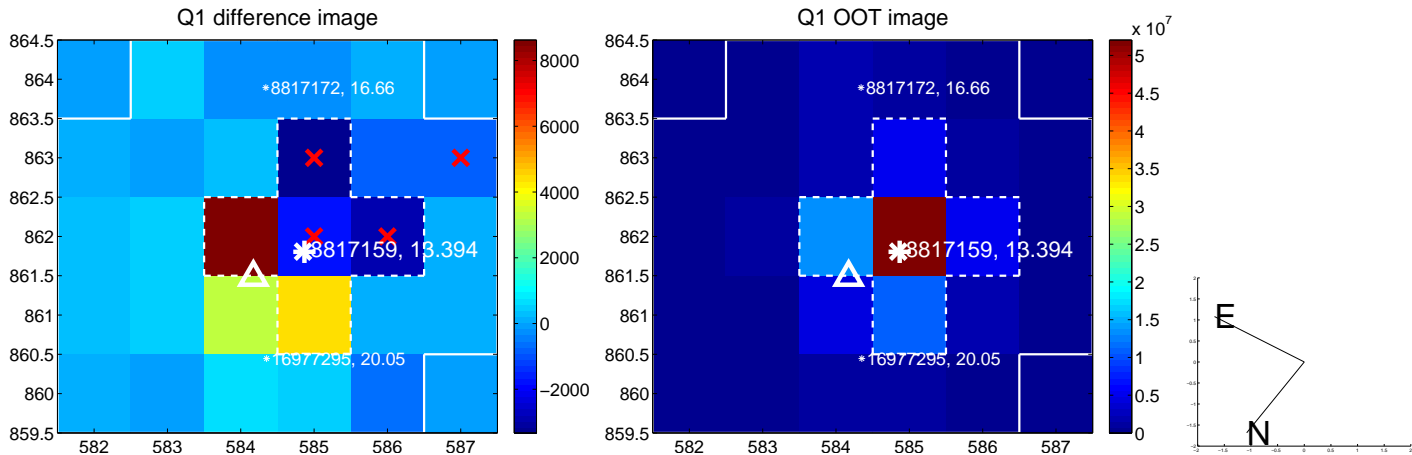
The direct PRF centroid is offset from the target star catalog position by about 0.09 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.258 ± 0.182	1.42	-0.258 ± 0.185	0.018 ± 0.207
PRF-fit source offset from KIC position	0.285 ± 0.190	1.50	-0.280 ± 0.185	-0.050 ± 0.211
photometric centroid source offset	—	—	—	—

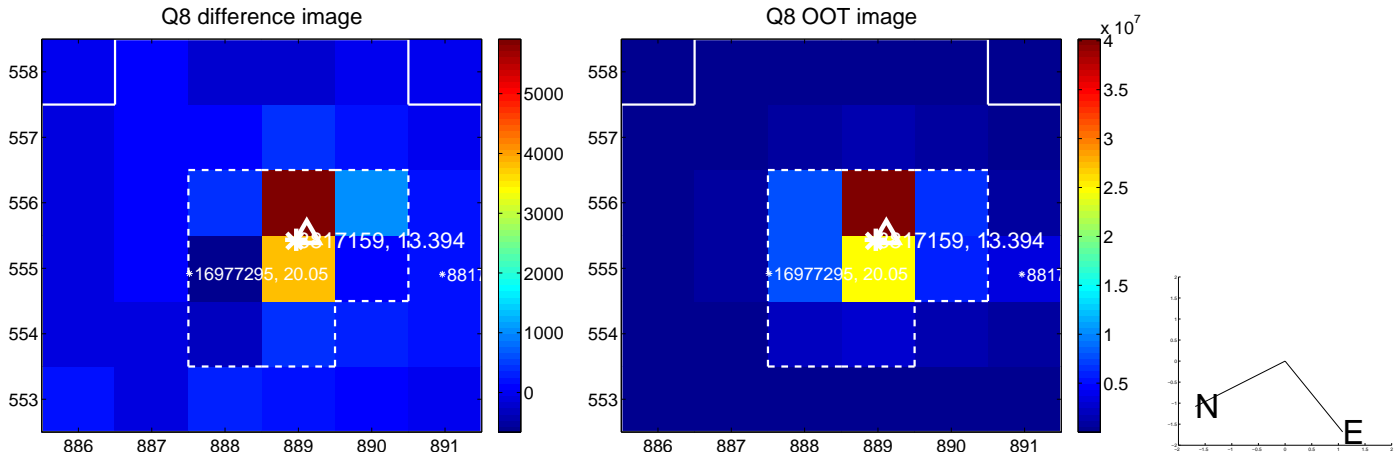
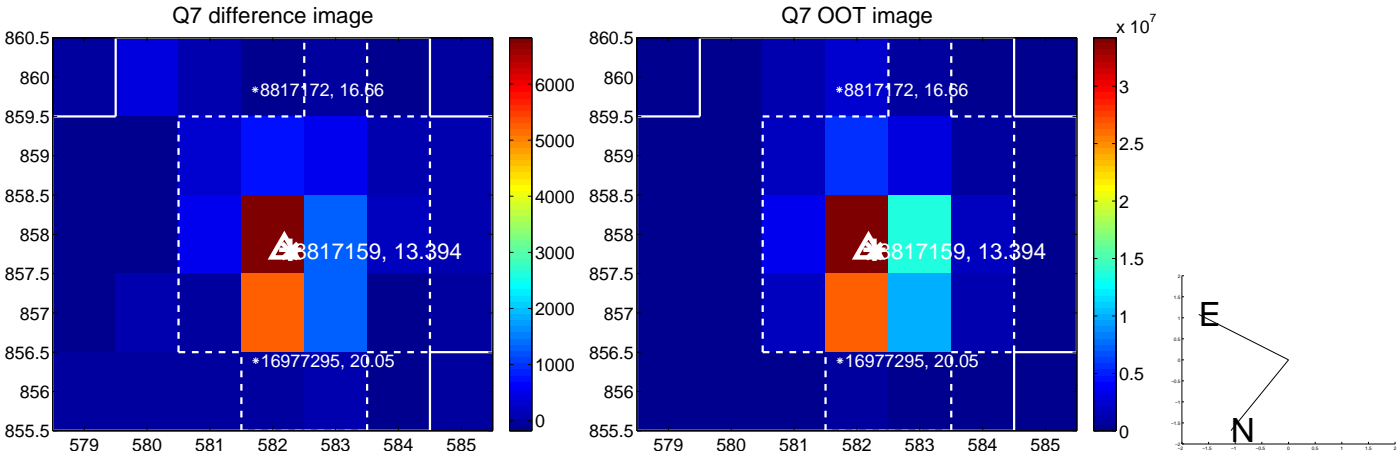
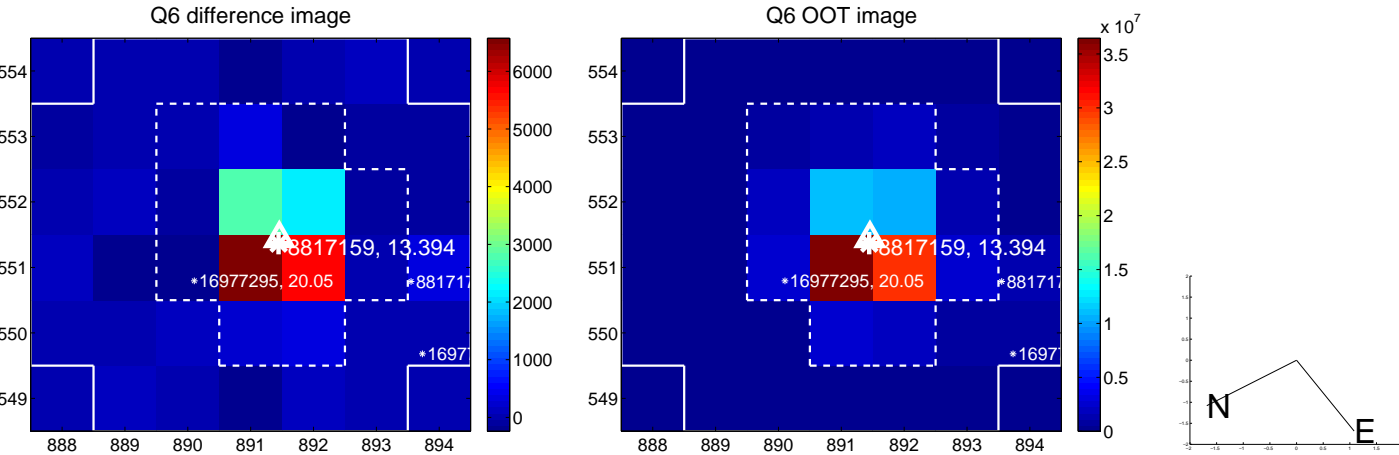
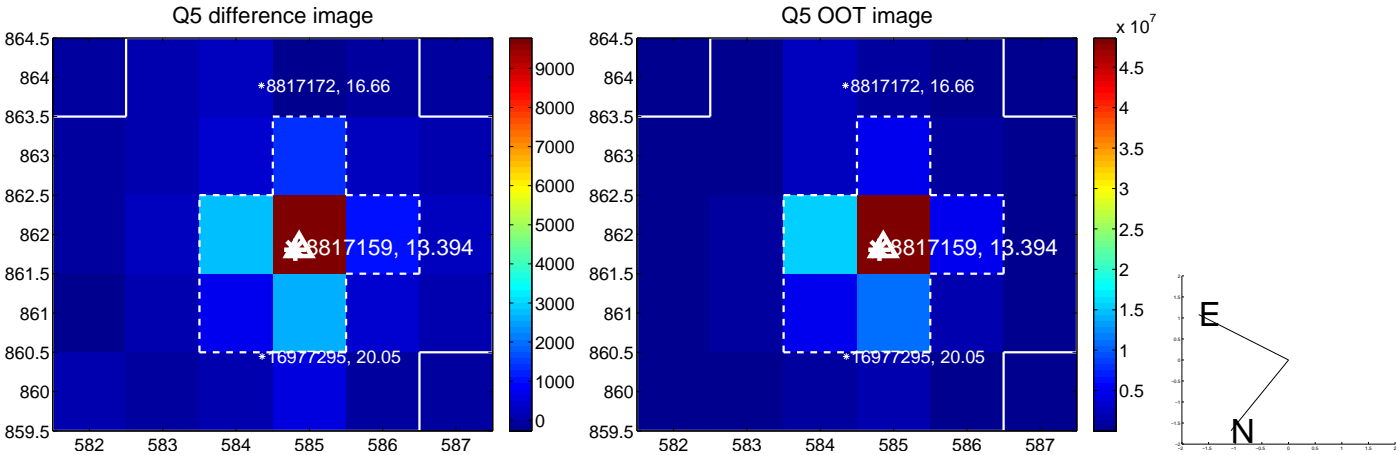


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses:** good quarterly centroid offsets; **Vermillion crosses:** bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

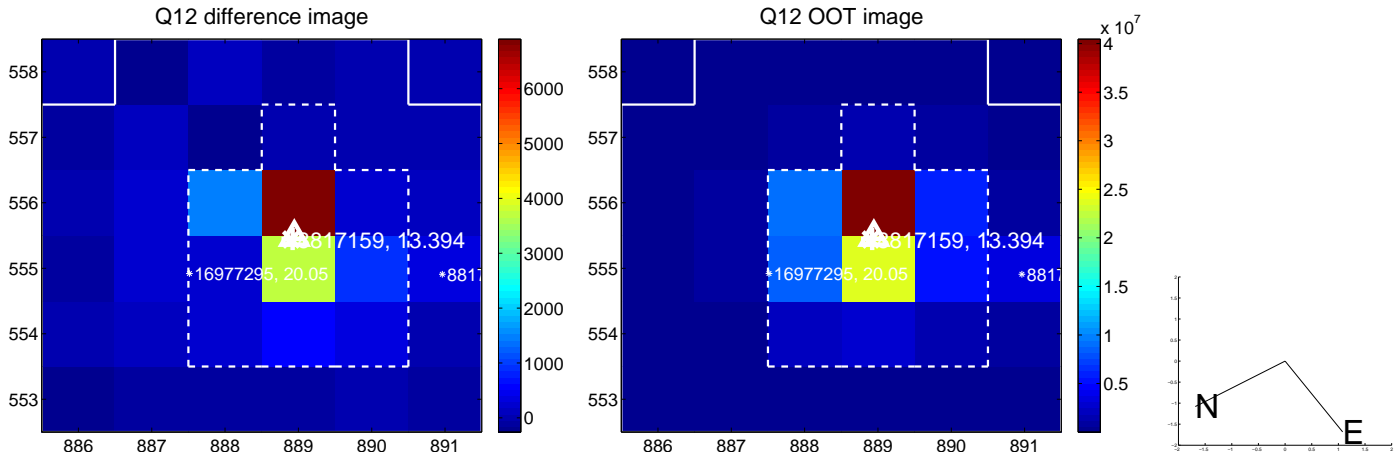
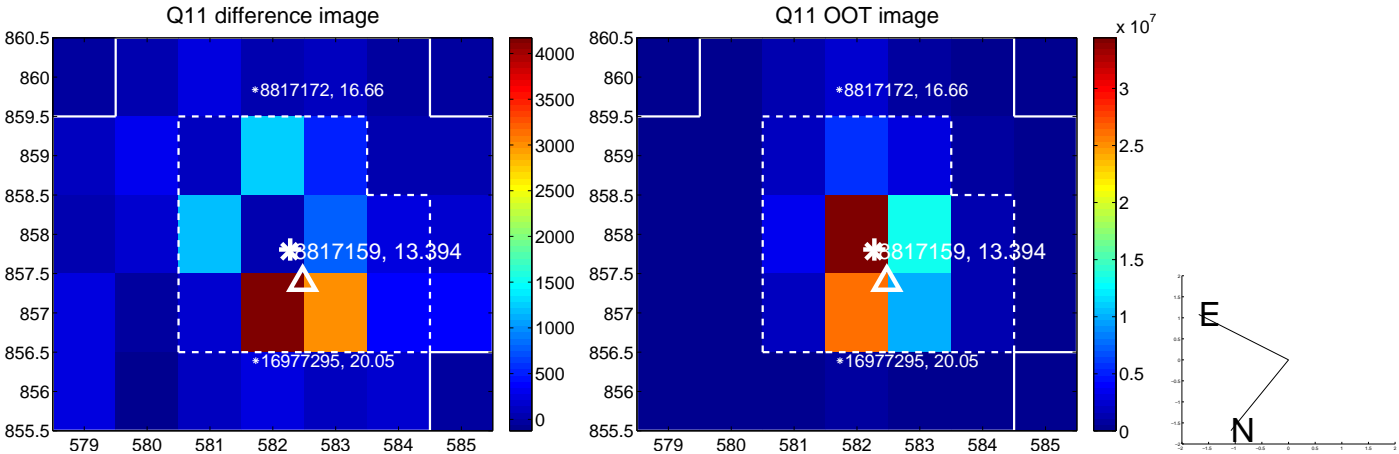
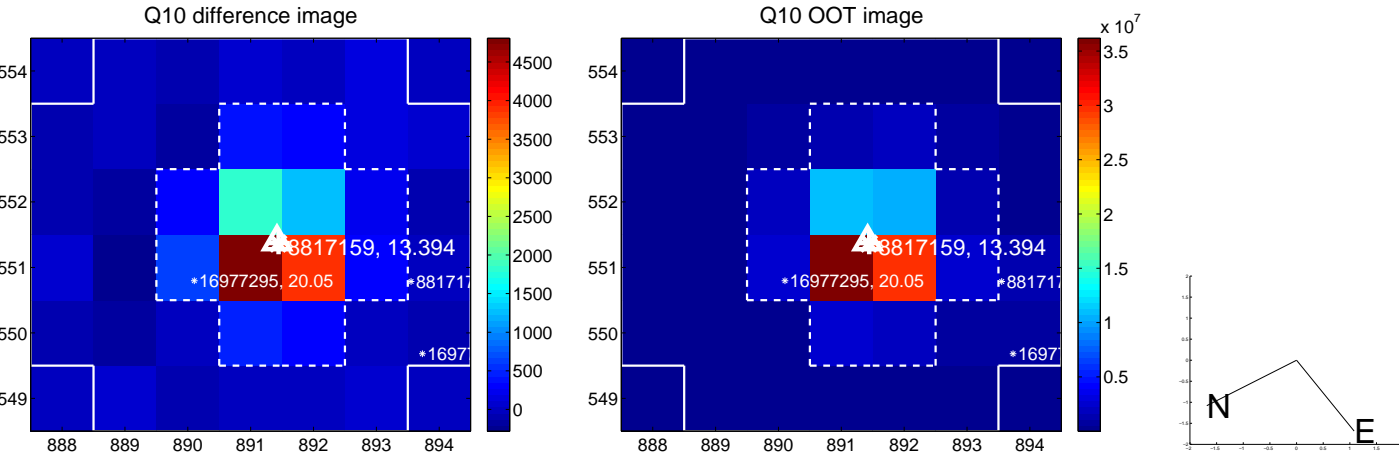
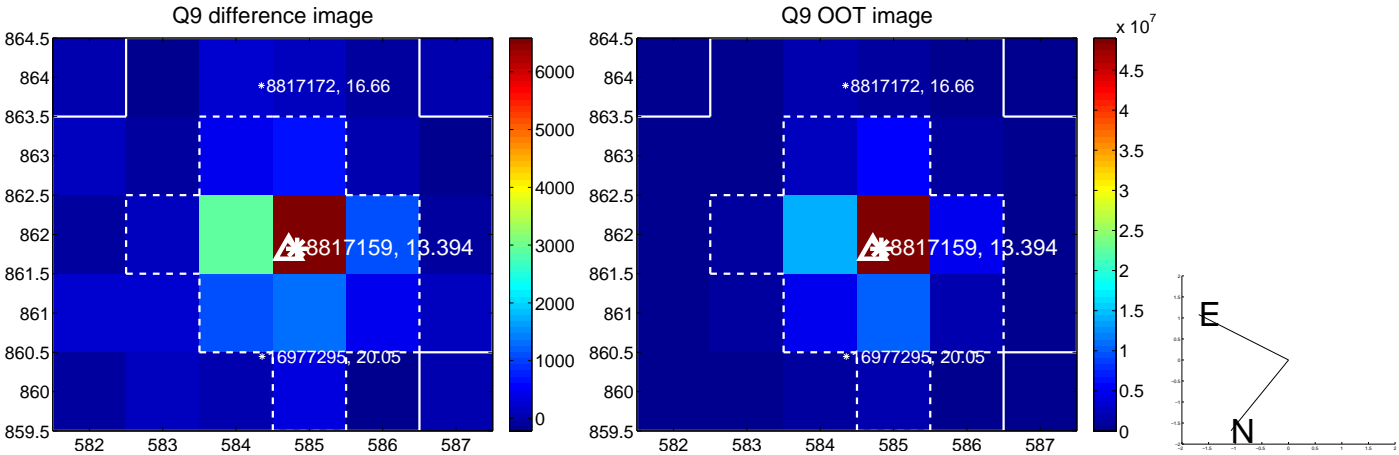
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



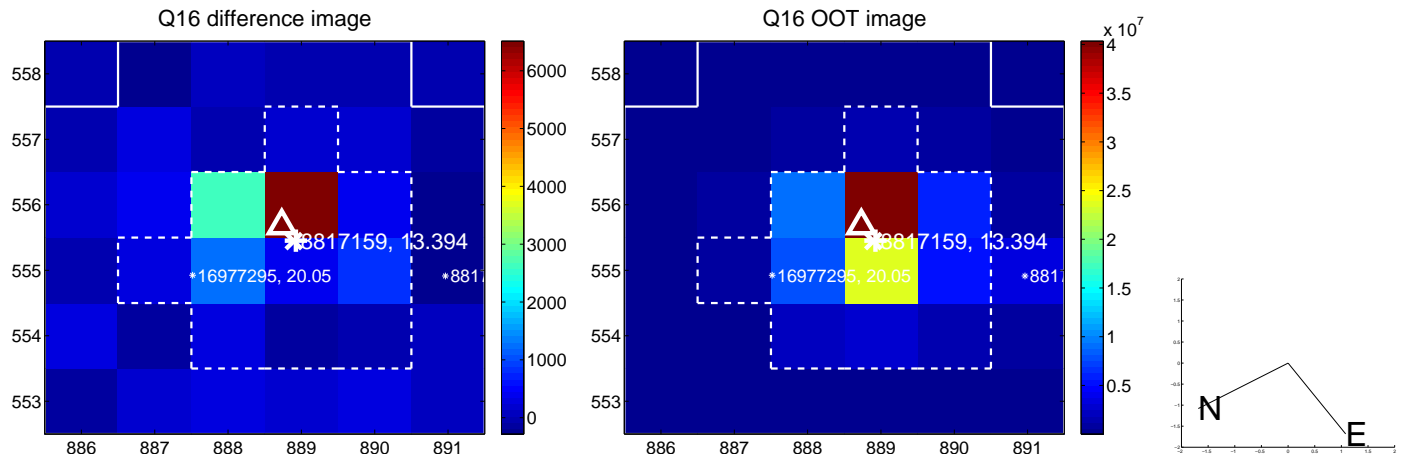
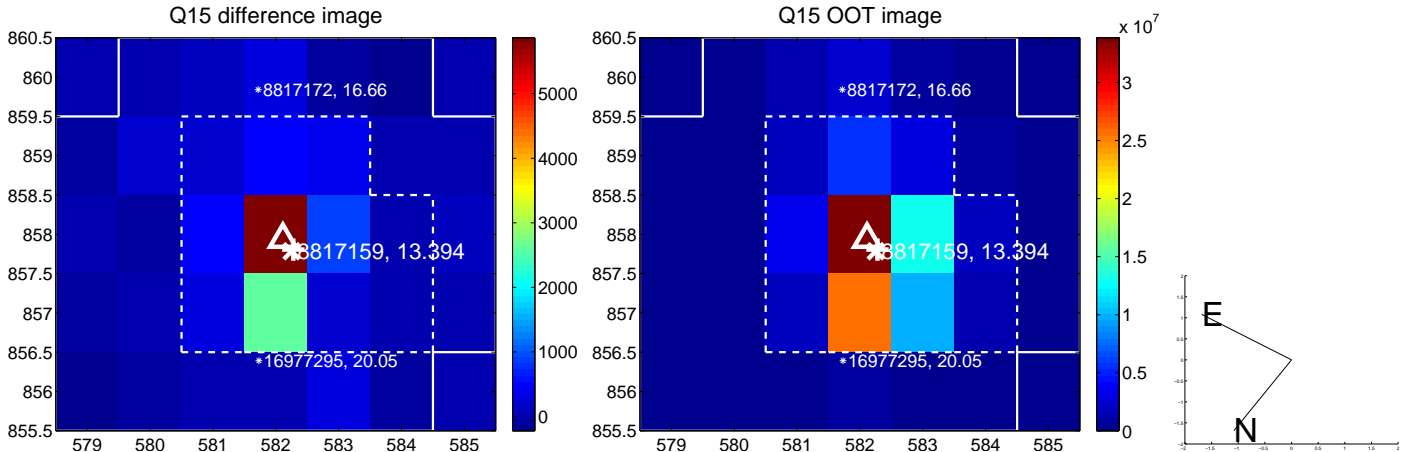
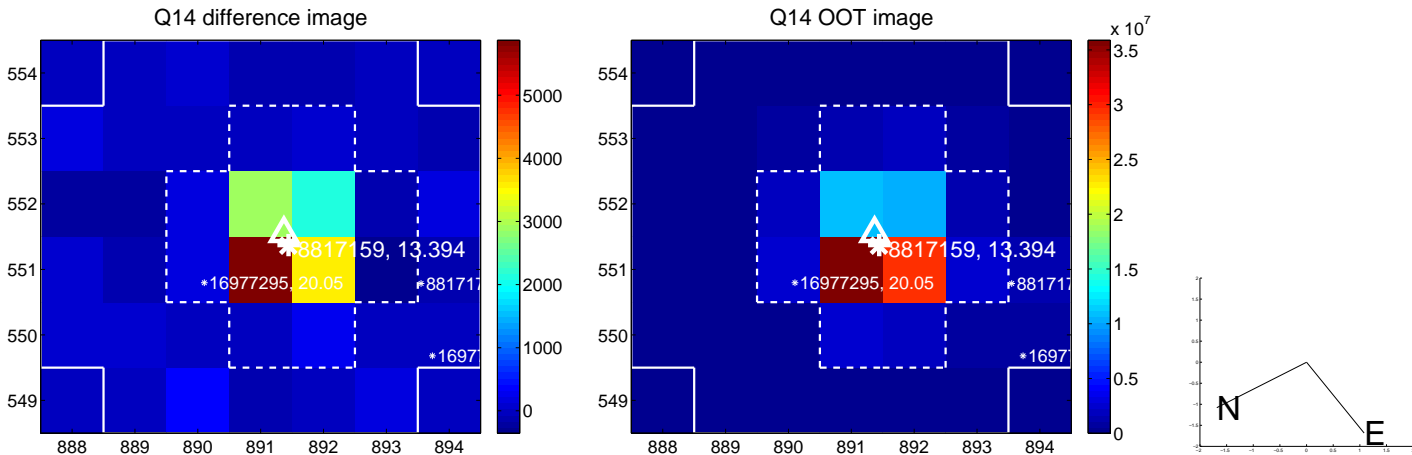
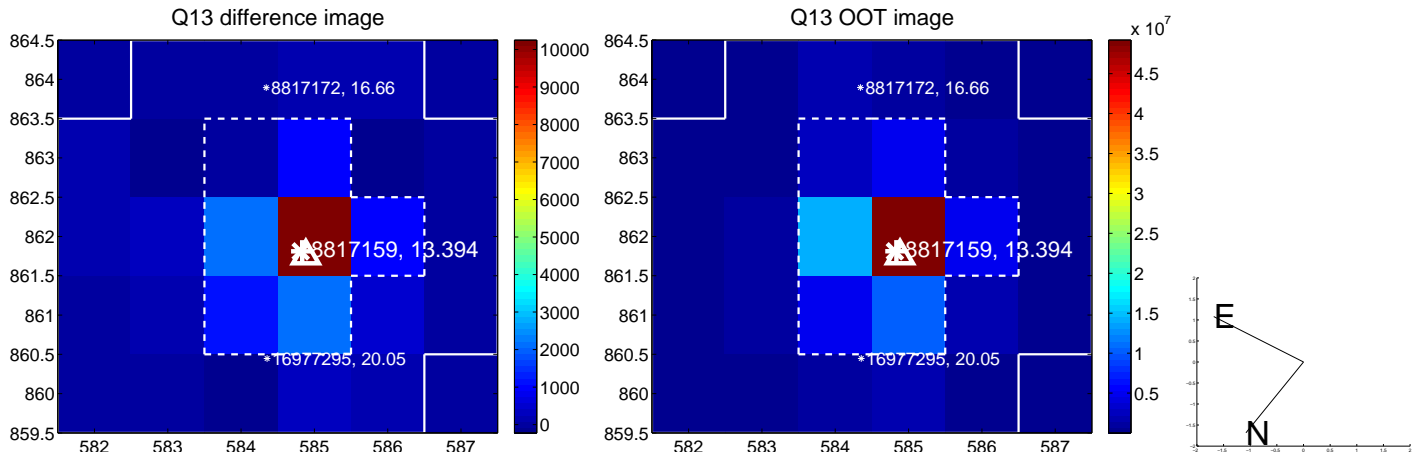
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



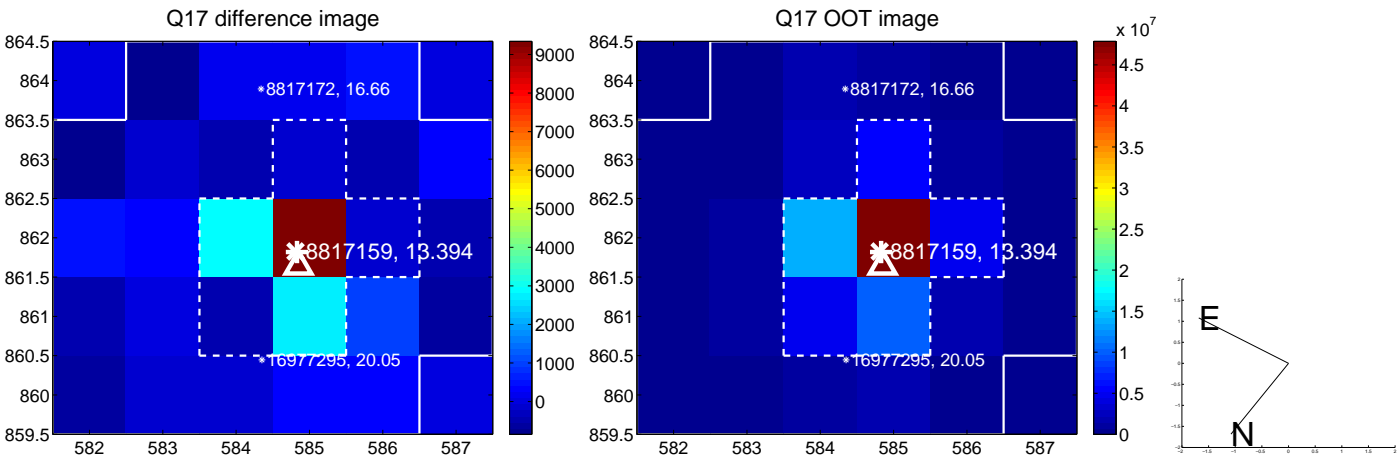
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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



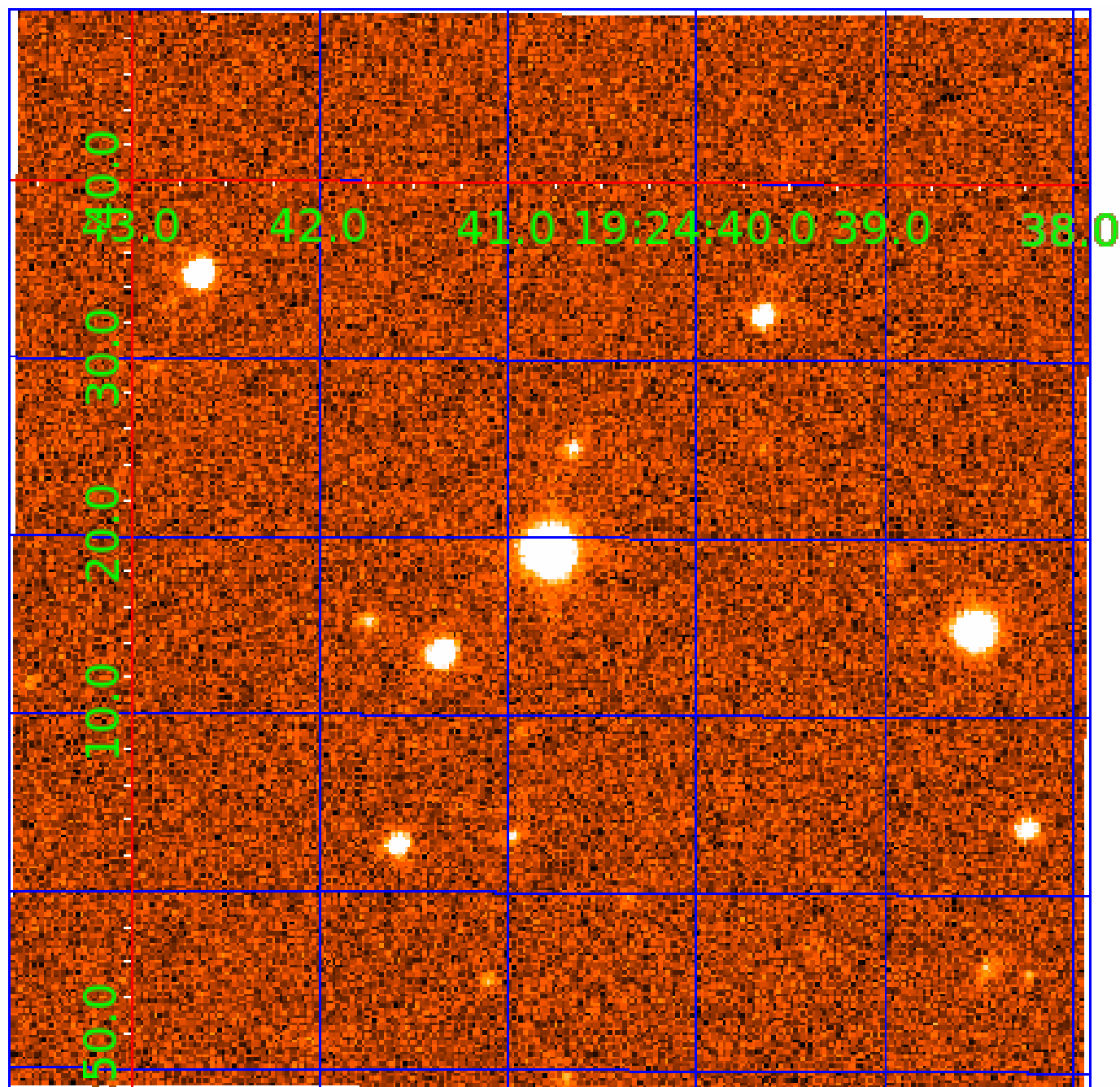
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



folded centroid time series figure for this object.

UKIRT Image

Declination



KIC 008817159

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})
008817159-01	OBS	No	3.158441	131.755440	0.0	6.884	9.3	0.0	1.88	7276	0.03	3631.99
008817159-02	OBS	No	3.158405	131.875245	34.8	30.654	9.3	9.7	1.88	7276	1.16	3632.04

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
008817159-01	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_SKYE_ZUMA_TRACKER—SWEET_NTL—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_NONUNIQ_ALT
008817159-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_SKYE_ZUMA—LPP_DV—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.

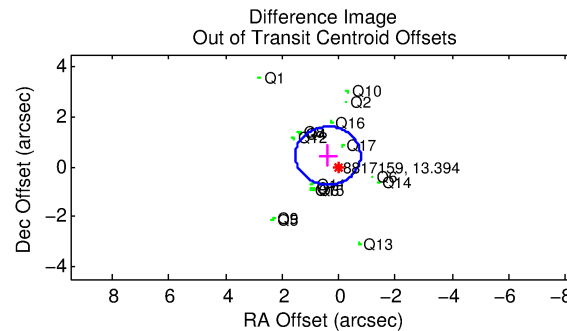
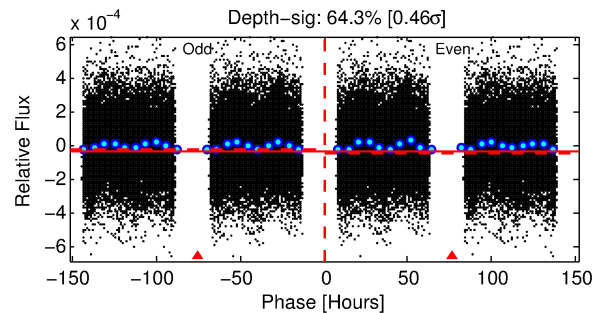
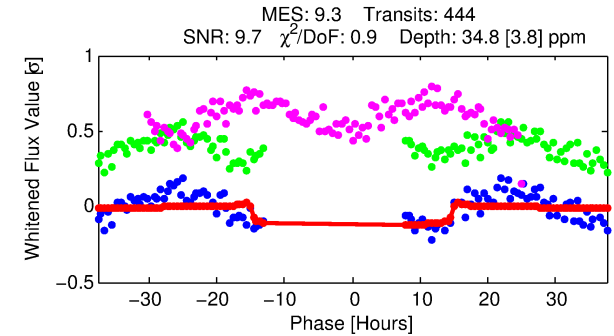
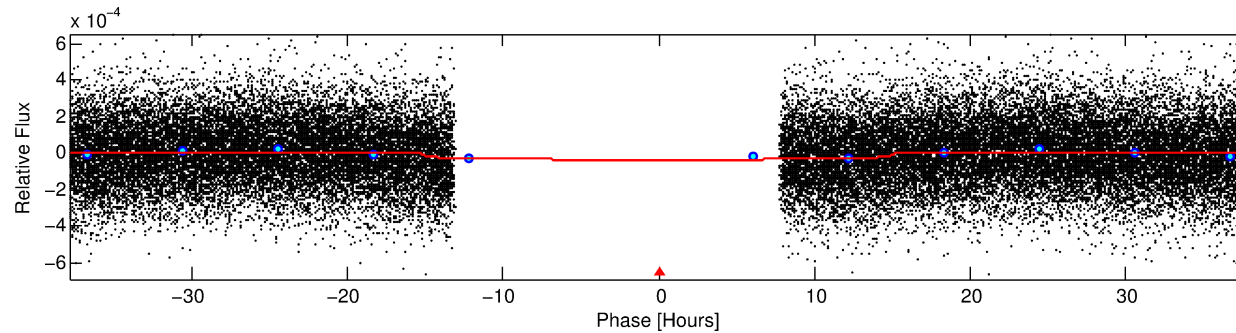
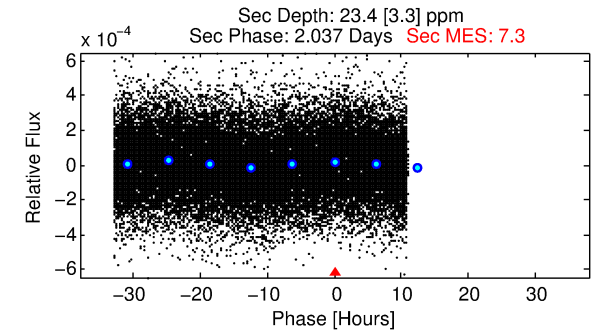
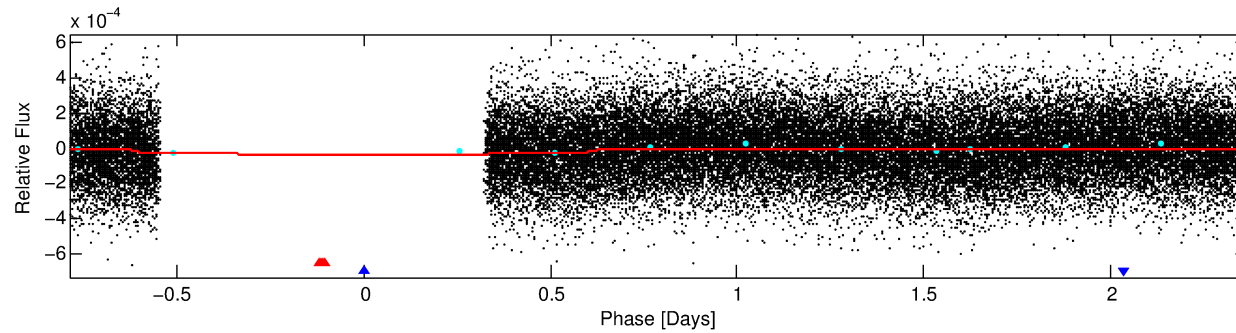
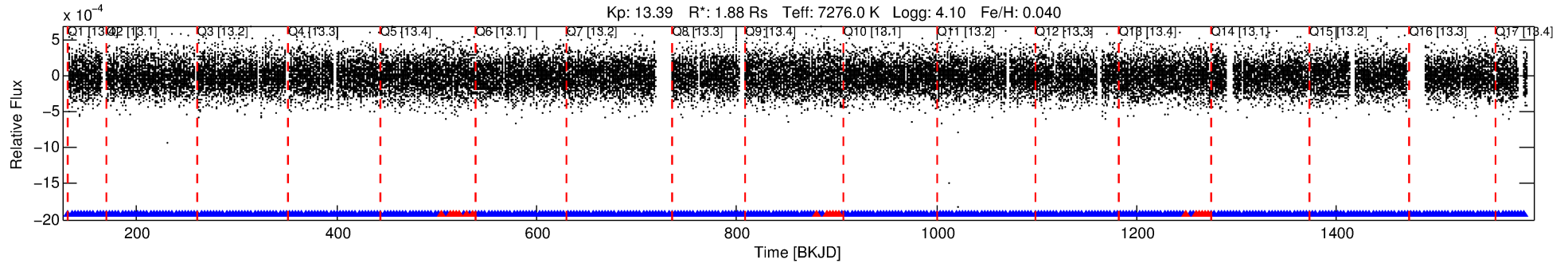
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 008817159-02

No Significant Match Found

DV One-Page Summary

KIC: 8817159 Candidate: 2 of 2 Period: 3.158 d



DV Fit Results:

Period = 3.15841 [0.00005] d
Epoch = 131.8752 [0.0096] BKJD
Rp/R* = 0.0057 [0.0011]
a/R* = 1.04 [0.08]
b = 0.57 [1.37]
Seff = 3632.04 [1373.76]
Teq = 1980 [187] K
Rp = 1.16 [0.41] Re
a = 0.0494 [0.0119] AU
Ag = 23.31 [12.16] [1.84σ]
Teffp = 6725 [730] K [6.30σ]

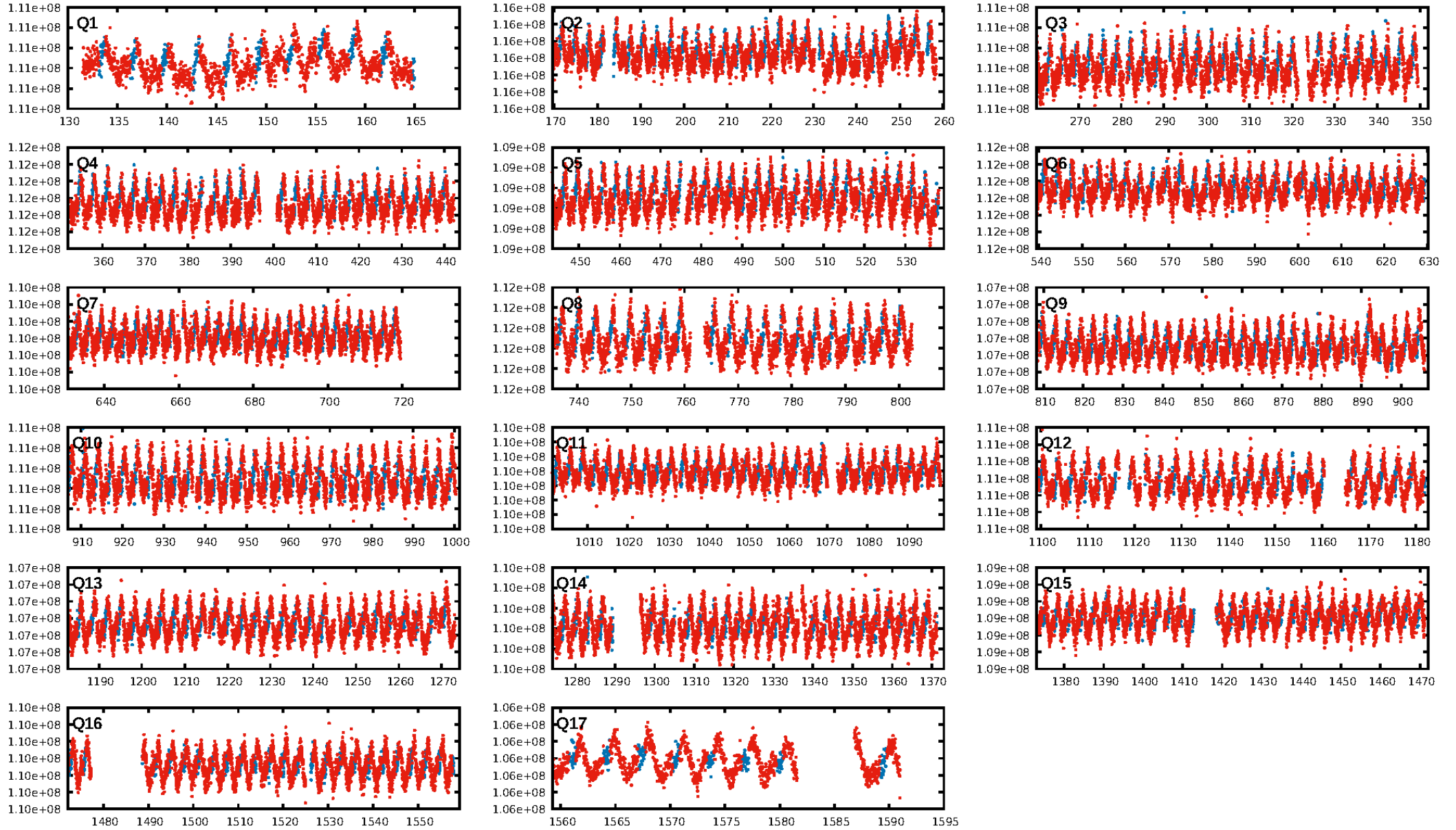
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: 0.0% [0.00σ]
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: N/A
RollingBand-fgt: 0.96 [404/423]
GhostDiagnostic-chr: 0.3393
Centroid-sig: 0.0%
Centroid-so: 3.251 arcsec [6.94σ]
OotOffset-rm: 0.587 arcsec [1.52σ]
KicOffset-rm: 0.485 arcsec [1.23σ]
OotOffset-st: 4/4/4/5 [17]
KicOffset-st: 4/4/4/5 [17]
DiffImageQuality-fgm: 0.76 [13/17]
DiffImageOverlap-fno: 0.00 [0/17]

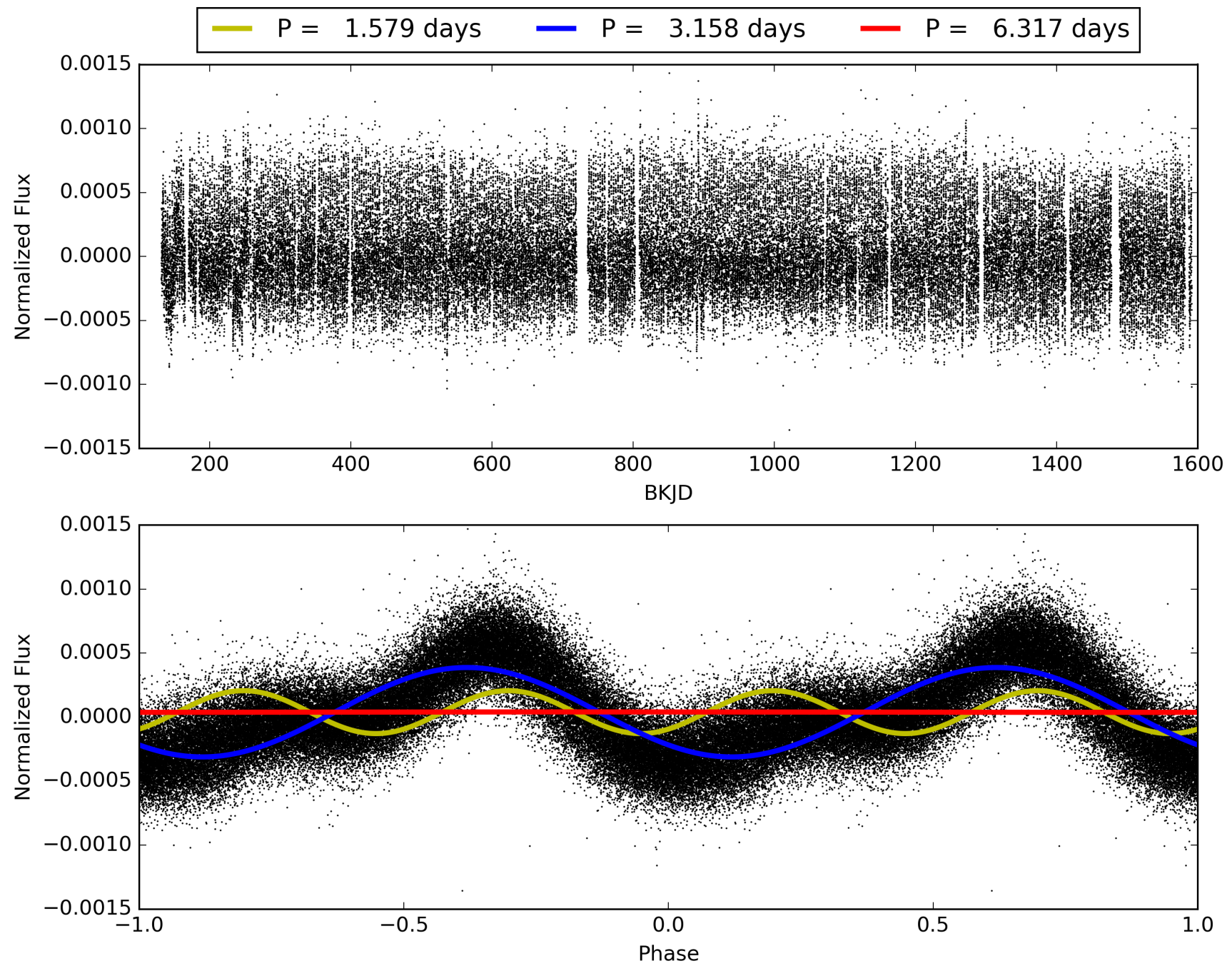
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 22:00:33 Z

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

TCE 008817159-02, PDC Light Curves

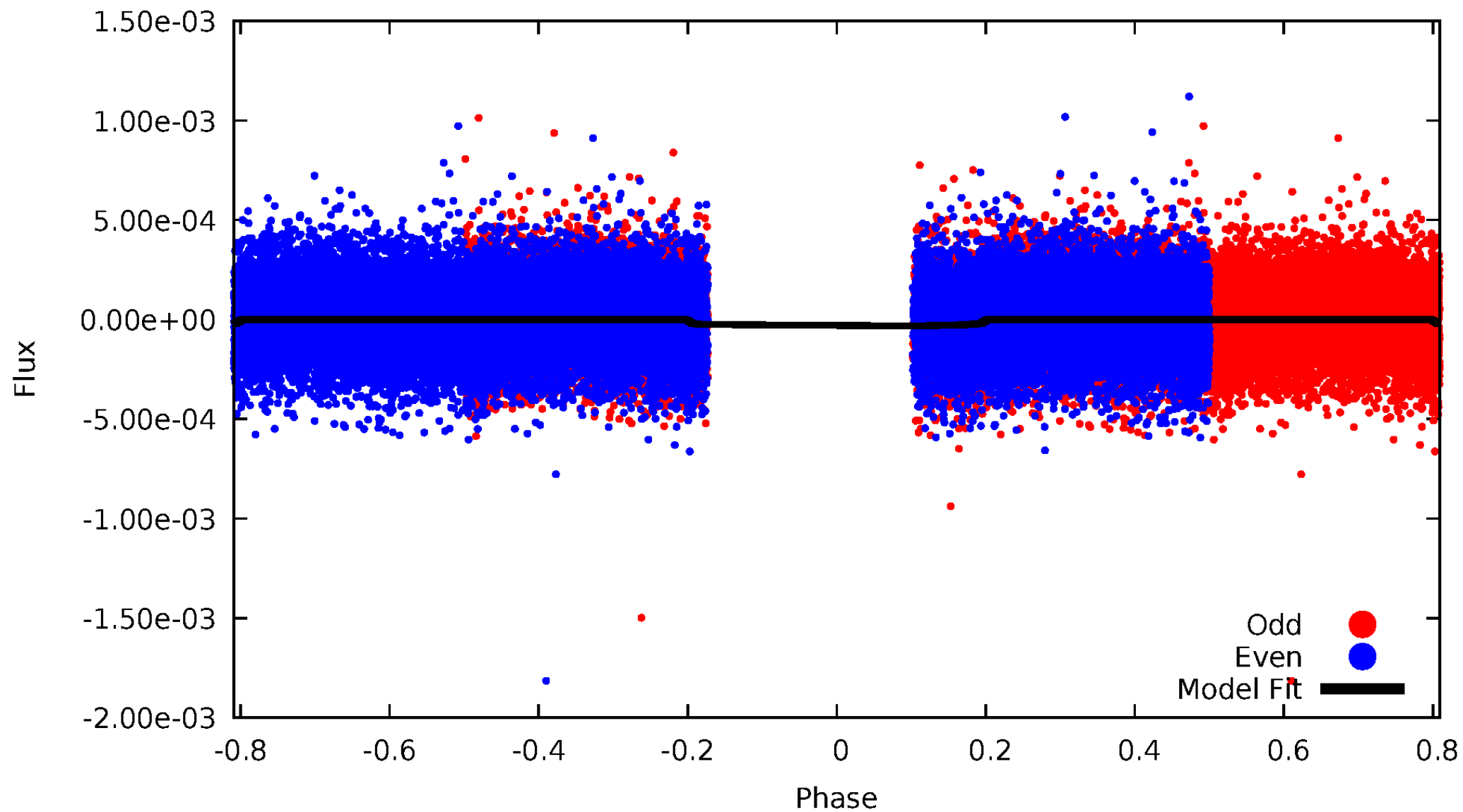


TCE 008817159-02



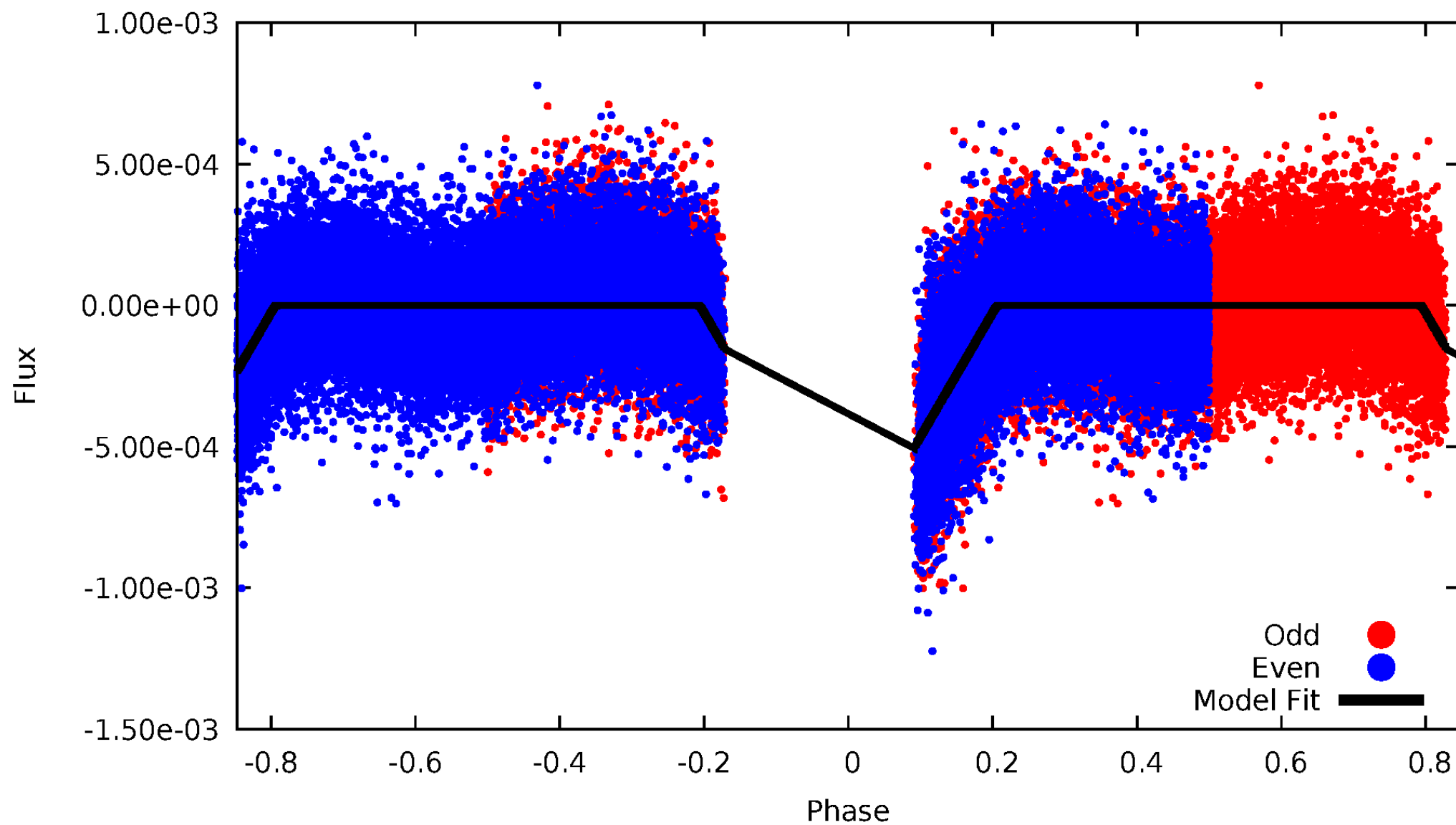
DV Odd/Even

TCE 008817159-02



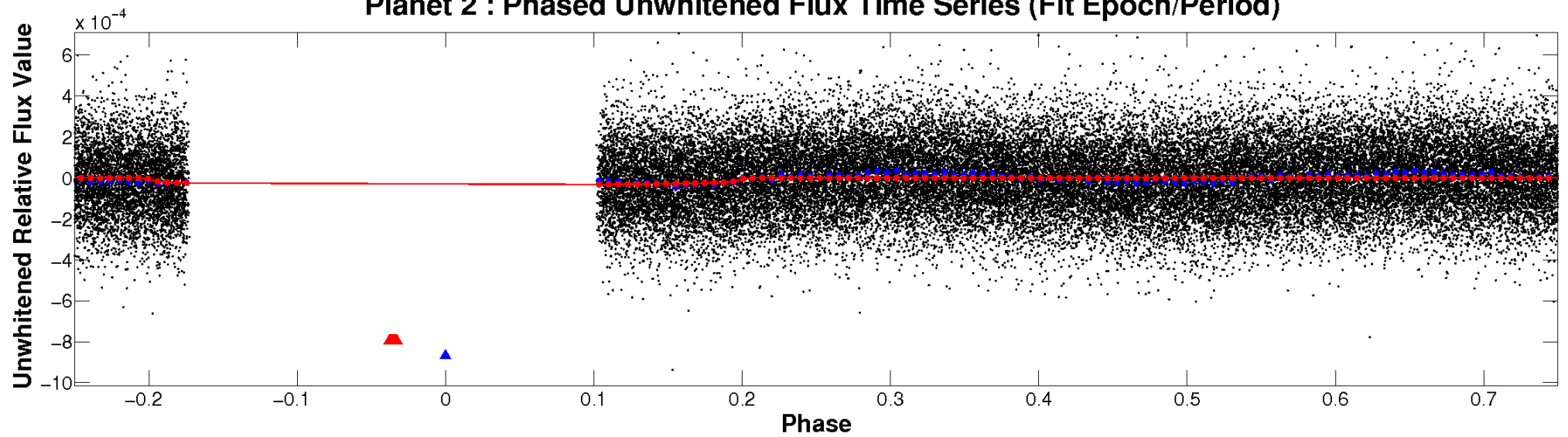
ALT Odd/Even

TCE 008817159-02

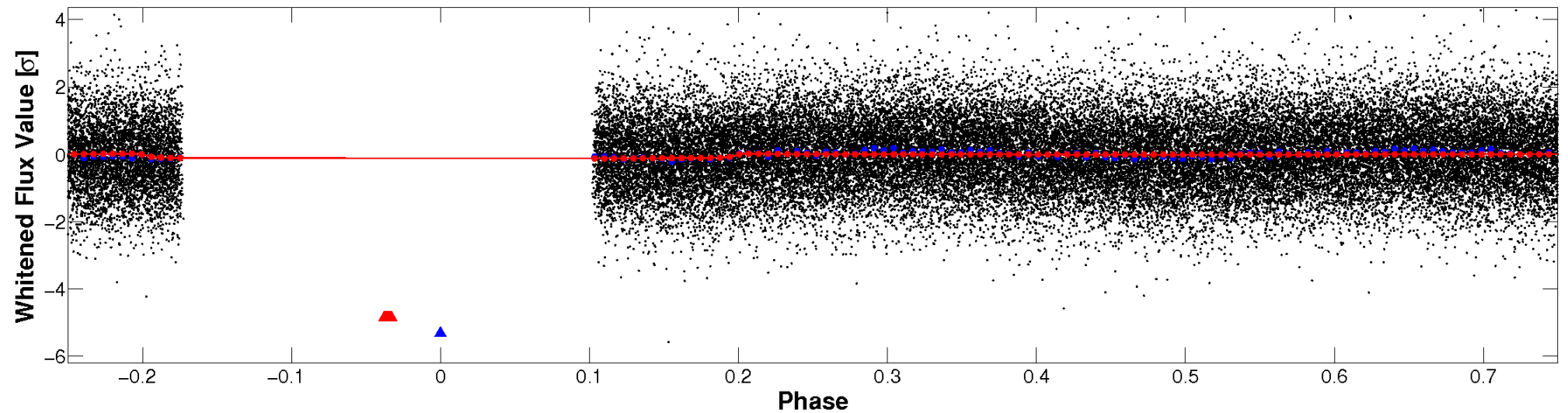


Non-Whitened Vs. Whitened Light Curve

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

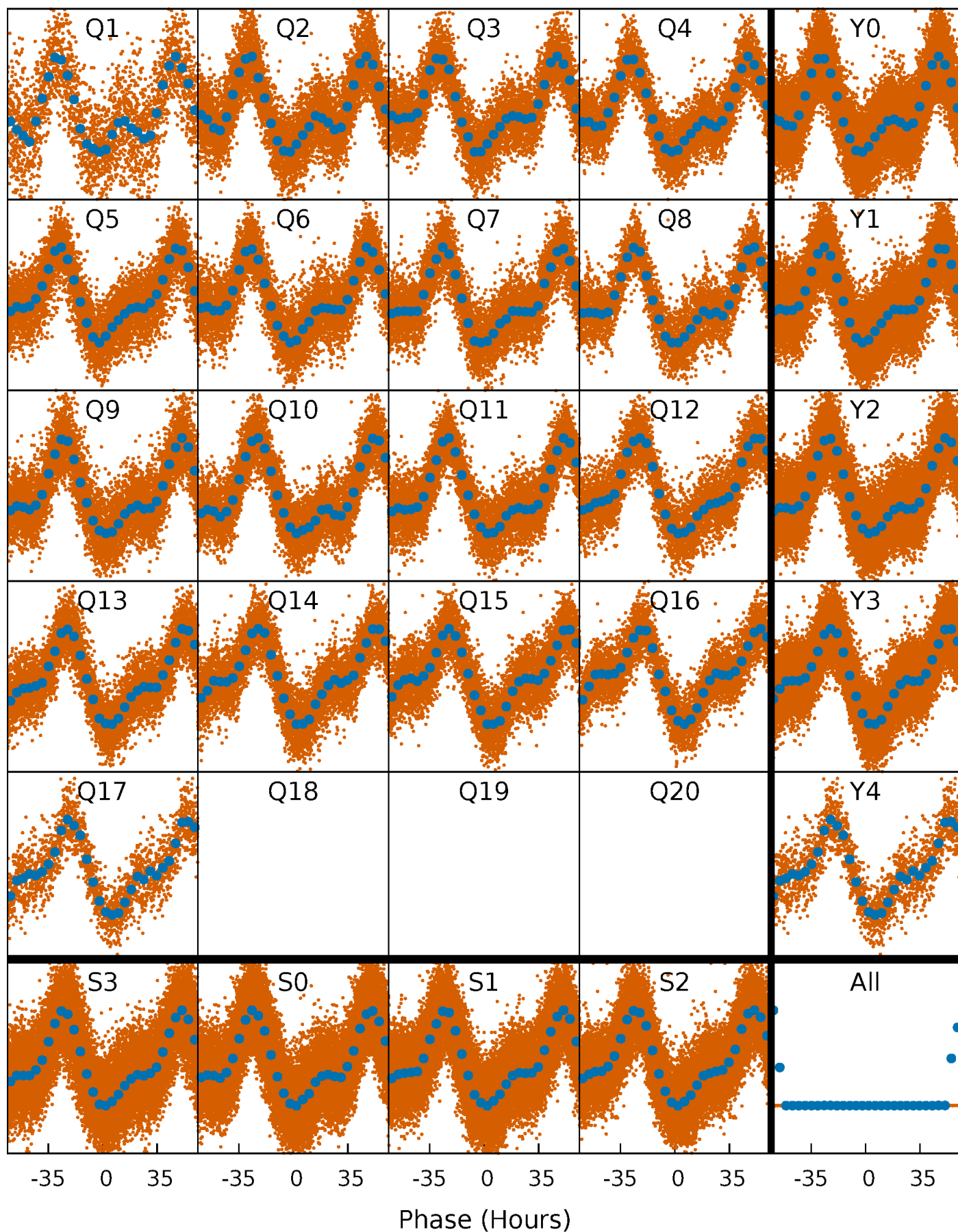


Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



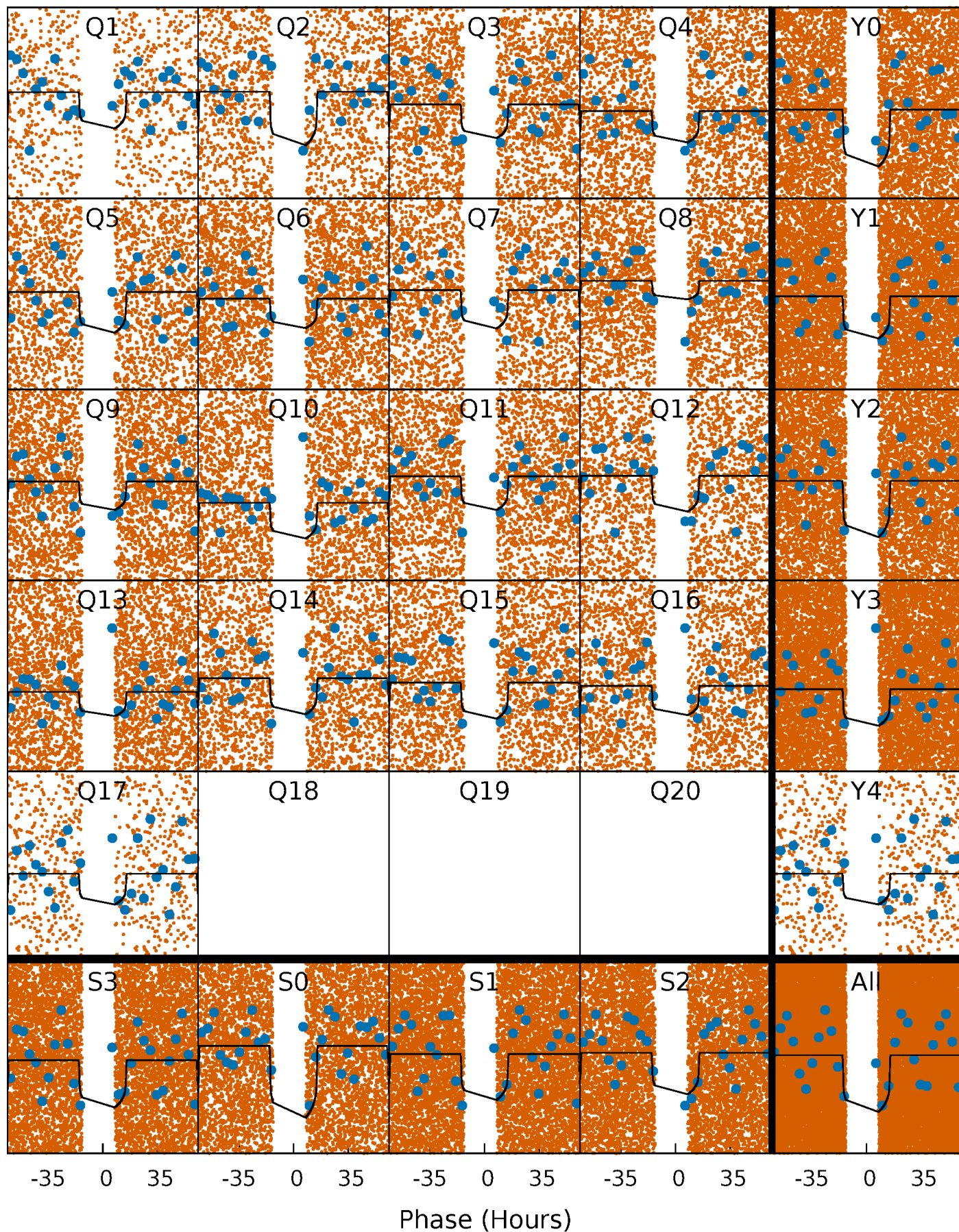
PDC Quarter-Phased Transit Curves

TCE 008817159-02 P= 3.158405 Days $T_0=131.875245$ (BKJD)



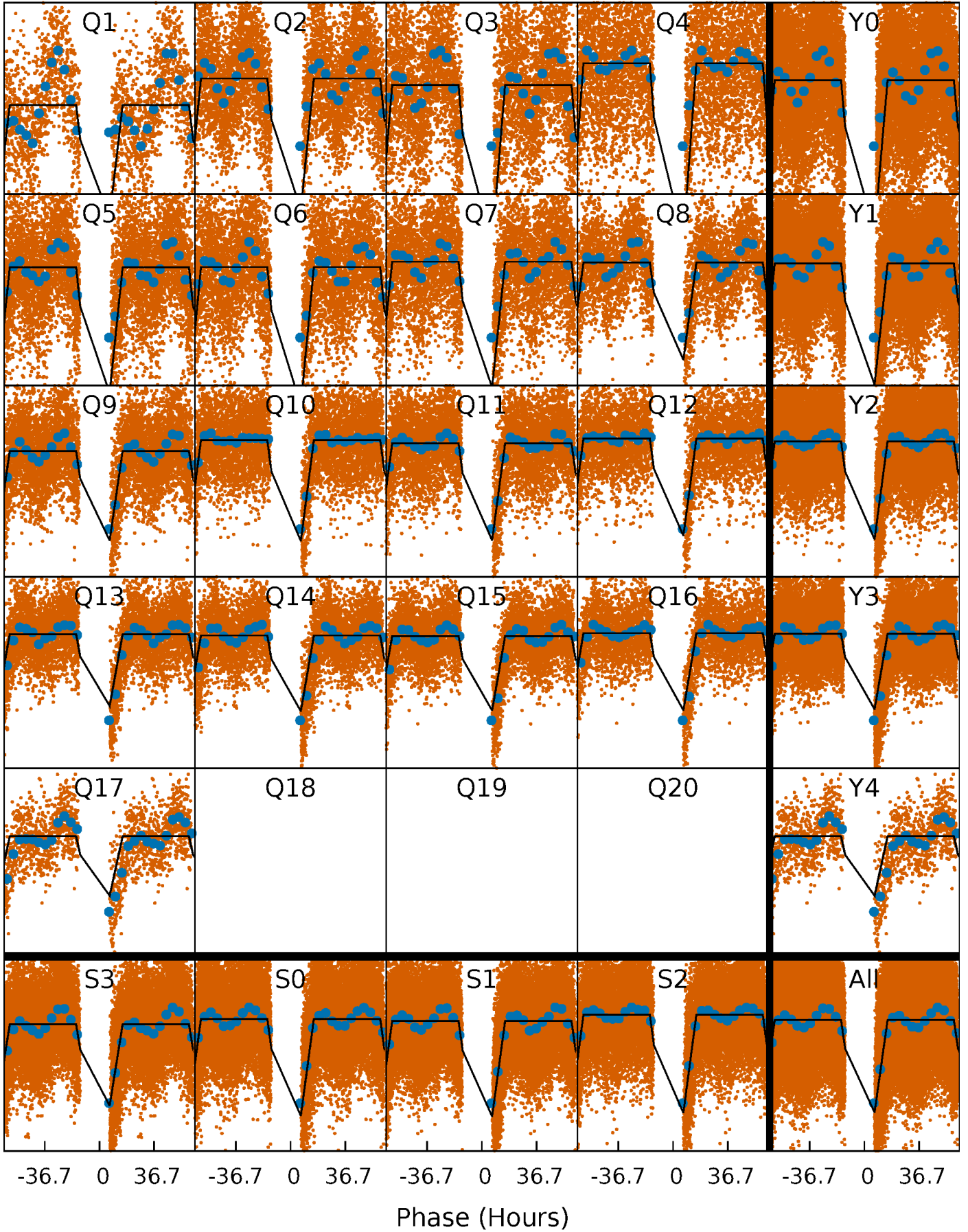
DV Quarter-Phased Transit Curves

TCE 008817159-02 P= 3.158405 Days $T_0=131.875245$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

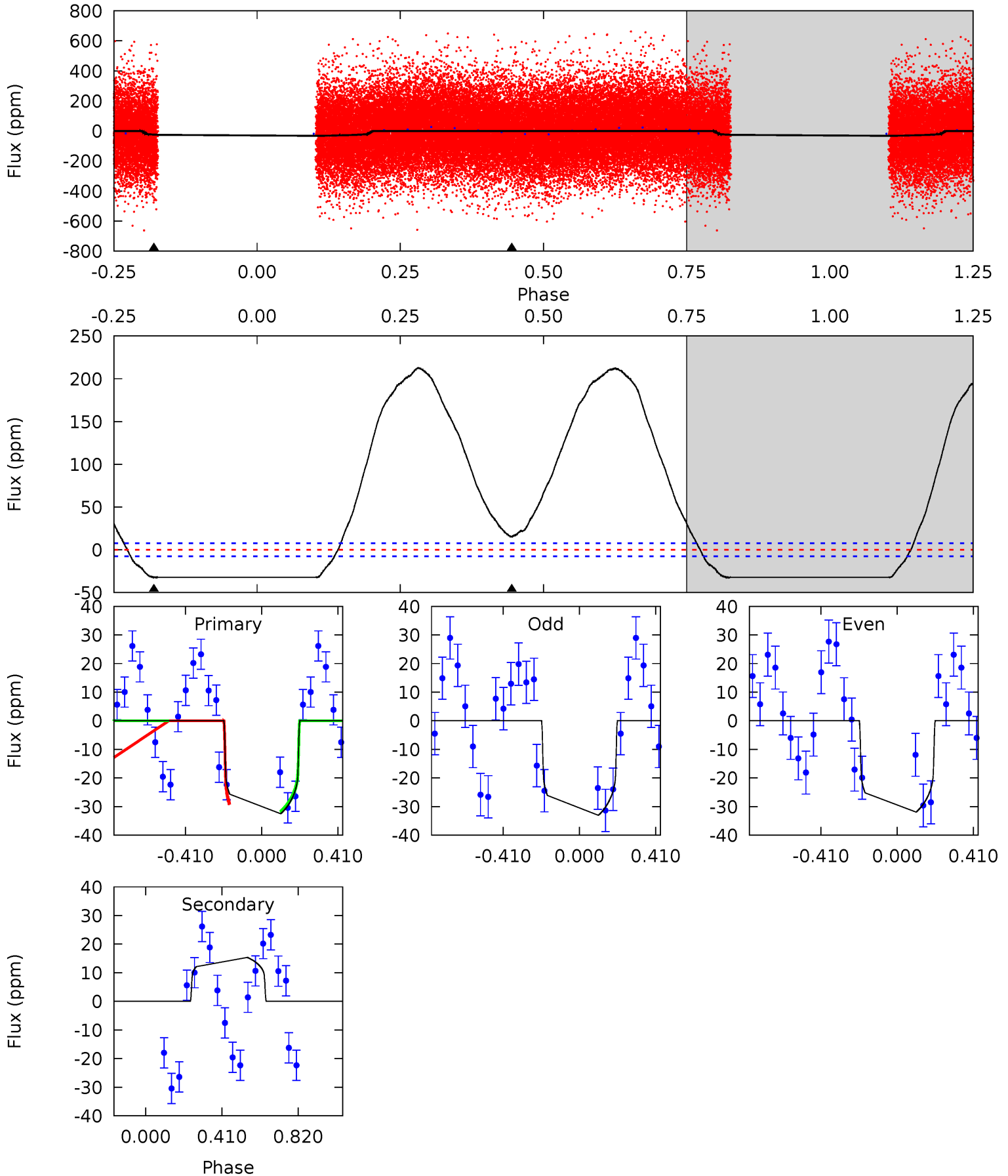
TCE 008817159-02 P= 3.158571 Days $T_0=131.851671$ (BKJD)



DV Model-Shift Uniqueness Test

008817159-02, P = 3.158405 Days, E = 131.875245 Days

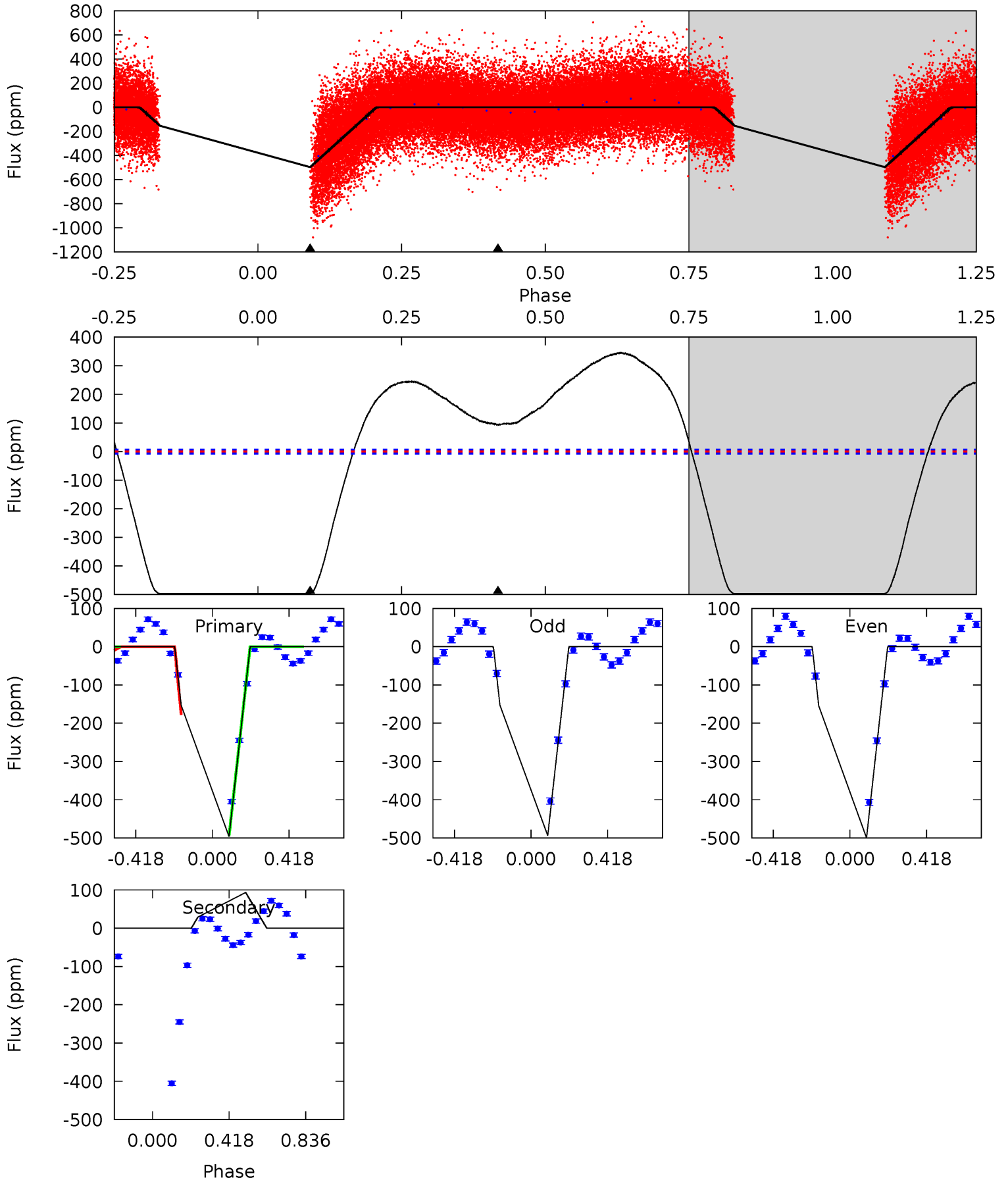
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
18.1	-8.55	0	0	4.26	0.82	16.5	18.1	18.1	-8.55	-8.55	0.31	1.10	0.87	0.59



Alt Model-Shift Uniqueness Test

008817159-02, P = 3.158571 Days, E = 131.851671 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
290.7	-54.7	0	0	4.26	0.81	89.4	290.7	290.7	-54.7	-54.7	1.67	1.03	0.41	70.2



Stellar Parameters For KIC 008817159

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	7276^{+228}_{-314}	$4.097^{+0.128}_{-0.176}$	$0.040^{+0.200}_{-0.350}$	$1.877^{+0.565}_{-0.377}$	$1.604^{+0.204}_{-0.249}$	$0.342^{+0.245}_{-0.164}$
	+3%/-4%	+3%/-4%	+500%/-875%	+30%/-20%	+13%/-16%	+72%/-48%
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 008817159-02 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	15 ± 2	$1.16^{+0.28}_{-0.26}$	2787^{+193}_{-188}	-6016^{+525}_{-703}	$-15.001^{+5.566}_{-9.997}$
Alt.	93 ± 2	$4.75^{+0.78}_{-0.60}$	2770^{+215}_{-172}	-4832^{+157}_{-149}	$-5.483^{+1.310}_{-1.594}$

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

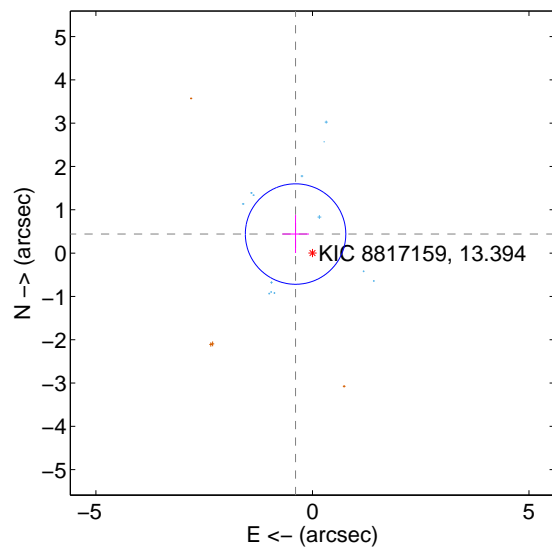
Supplemental centroid analysis for 008817159-02. Kepler magnitude: 13.39. Transit SNR 9.66

There are 13 quarters with good PRF difference image offsets

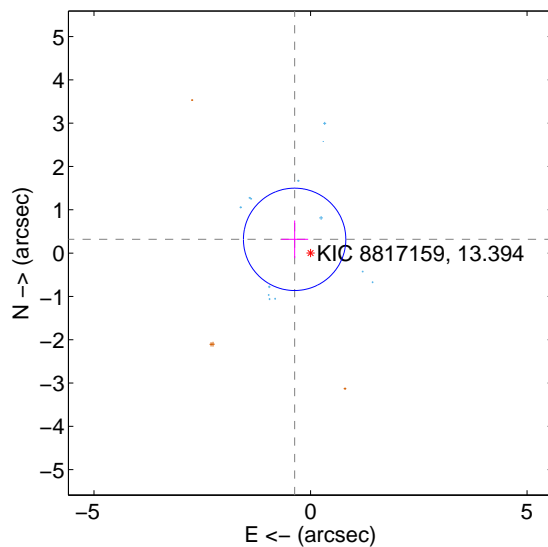
The direct PRF centroid is offset from the target star catalog position by about 0.09 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.587 ± 0.387	1.52	0.390 ± 0.308	0.440 ± 0.438
PRF-fit source offset from KIC position	0.485 ± 0.394	1.23	0.367 ± 0.312	0.318 ± 0.434
photometric centroid source offset	3.25 ± 0.47	6.94	-2.82 ± 0.47	1.61 ± 0.45

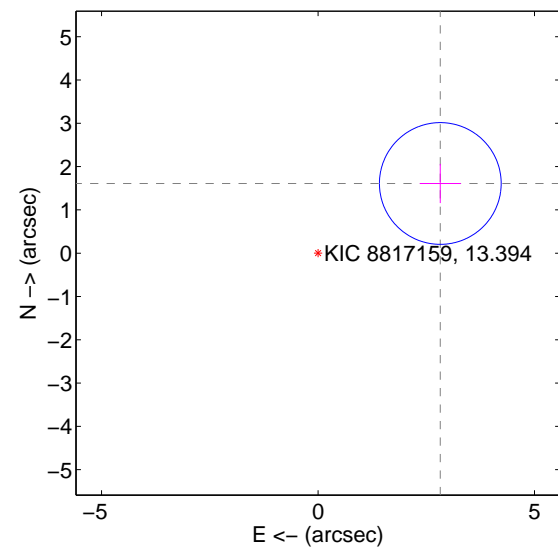
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position

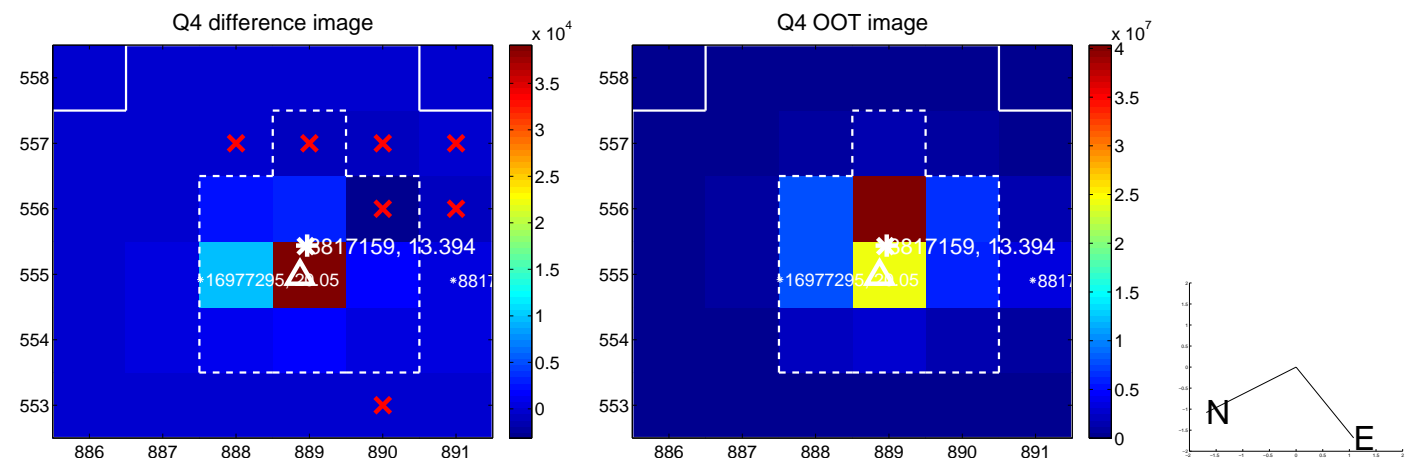
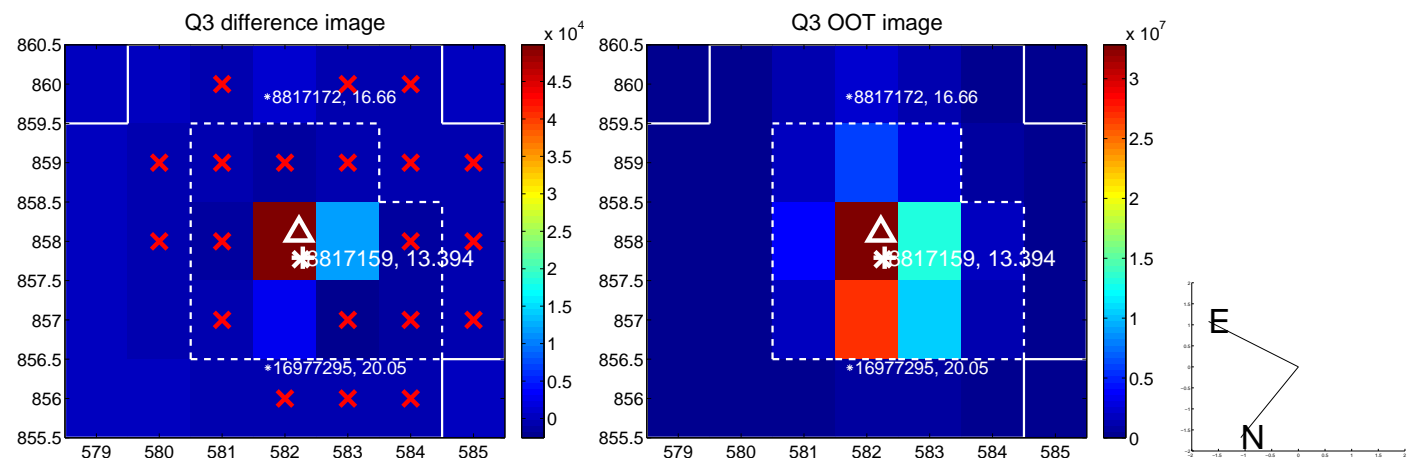
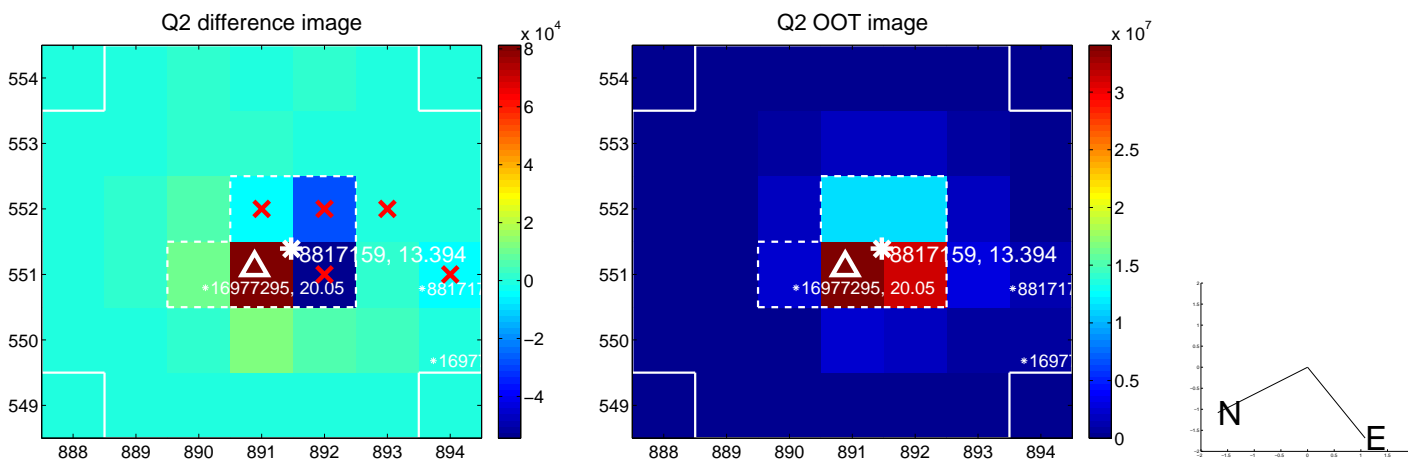
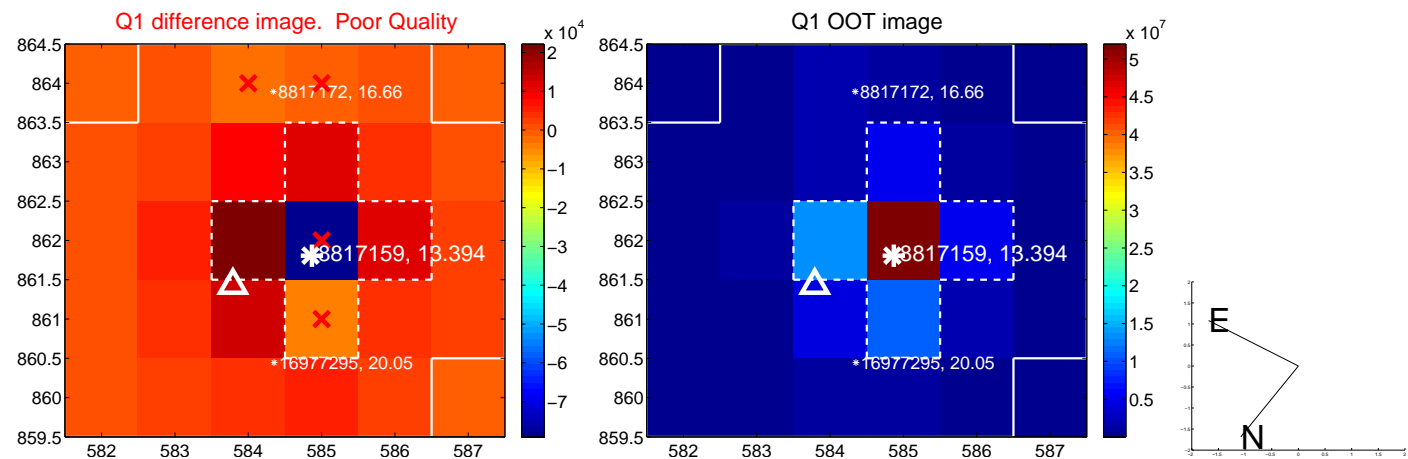


offset from photometric centroids

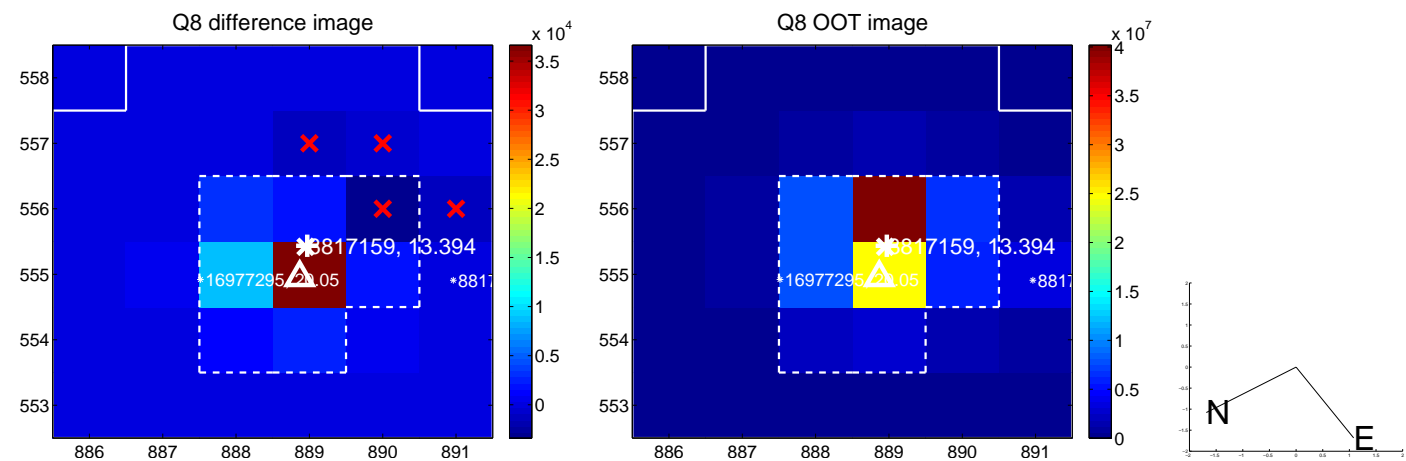
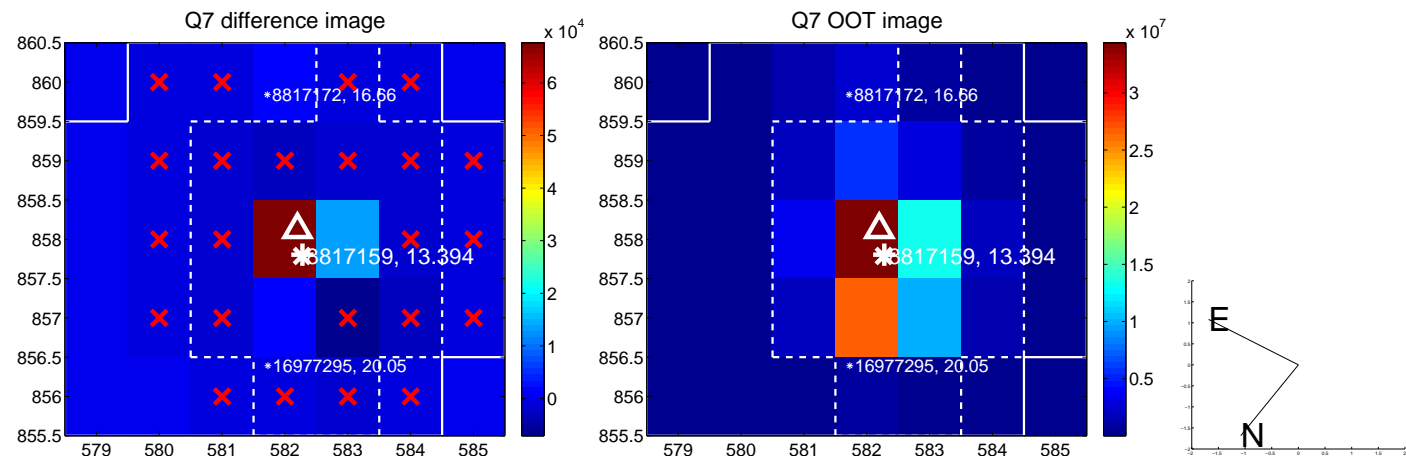
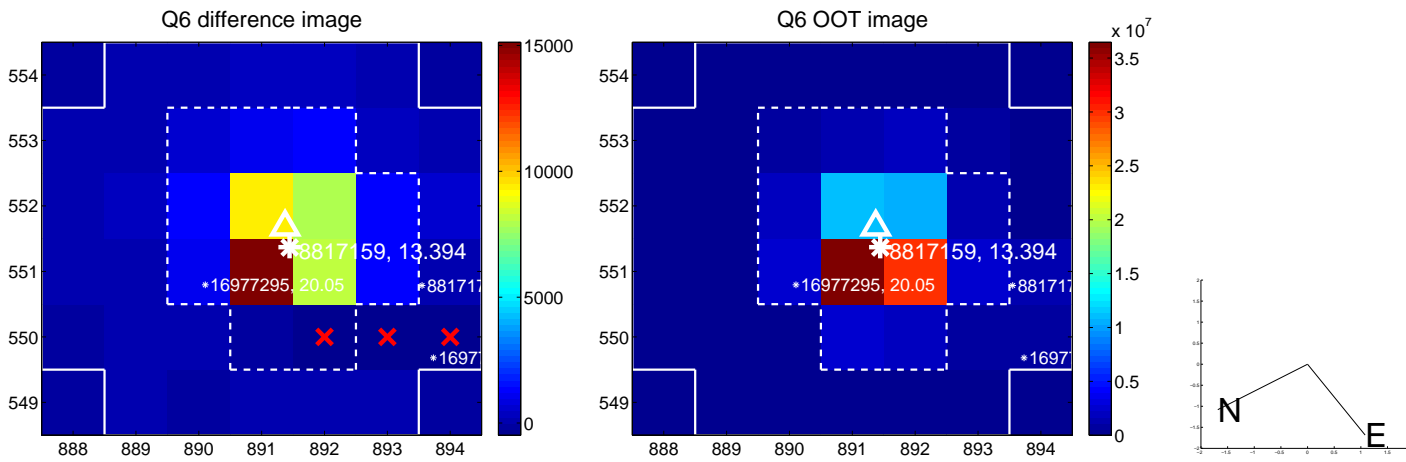
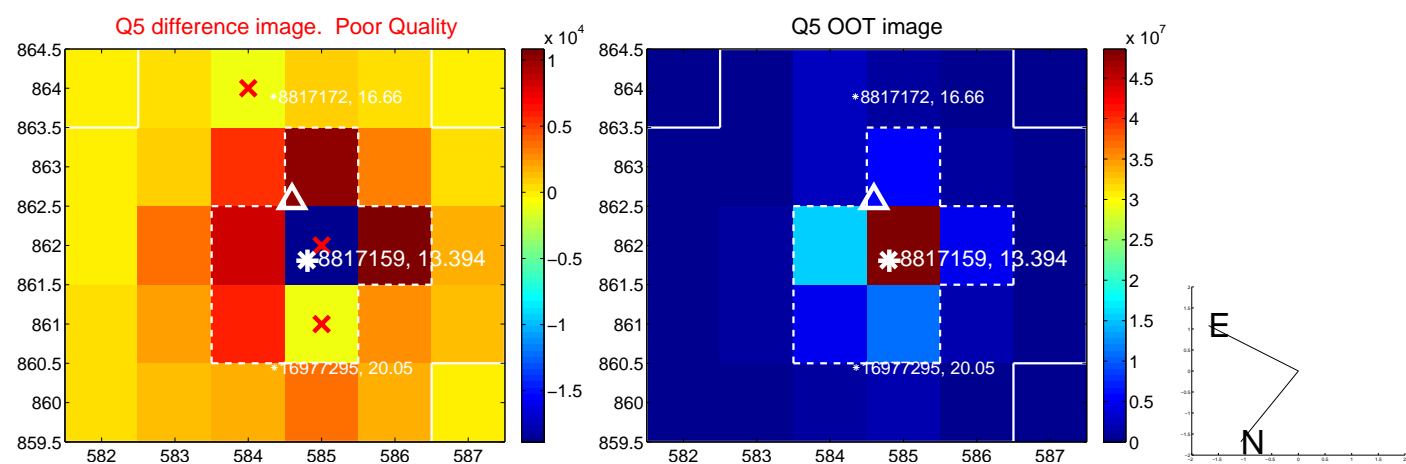


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

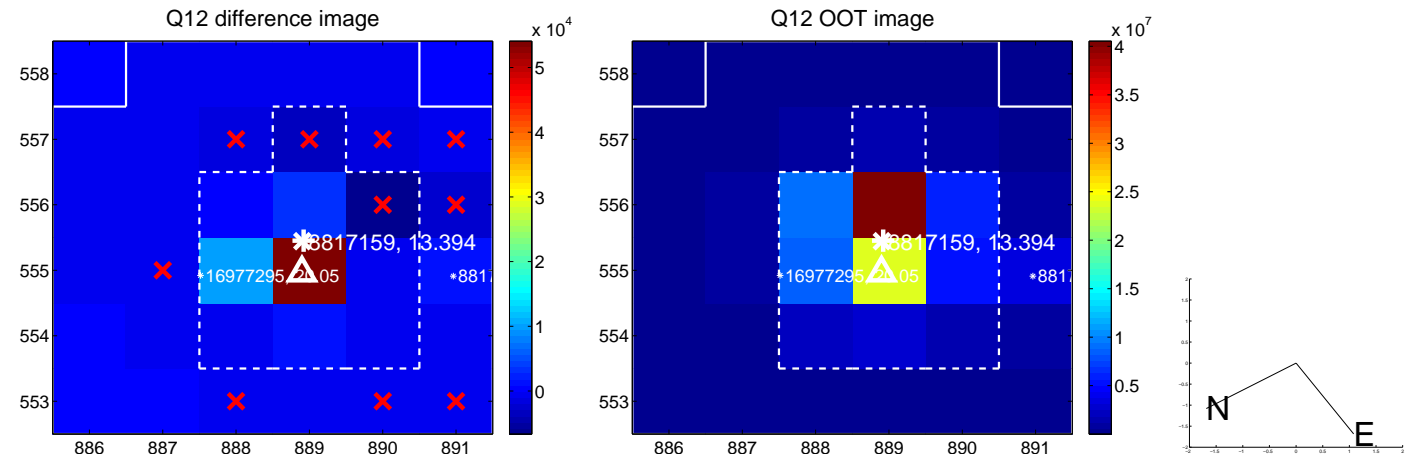
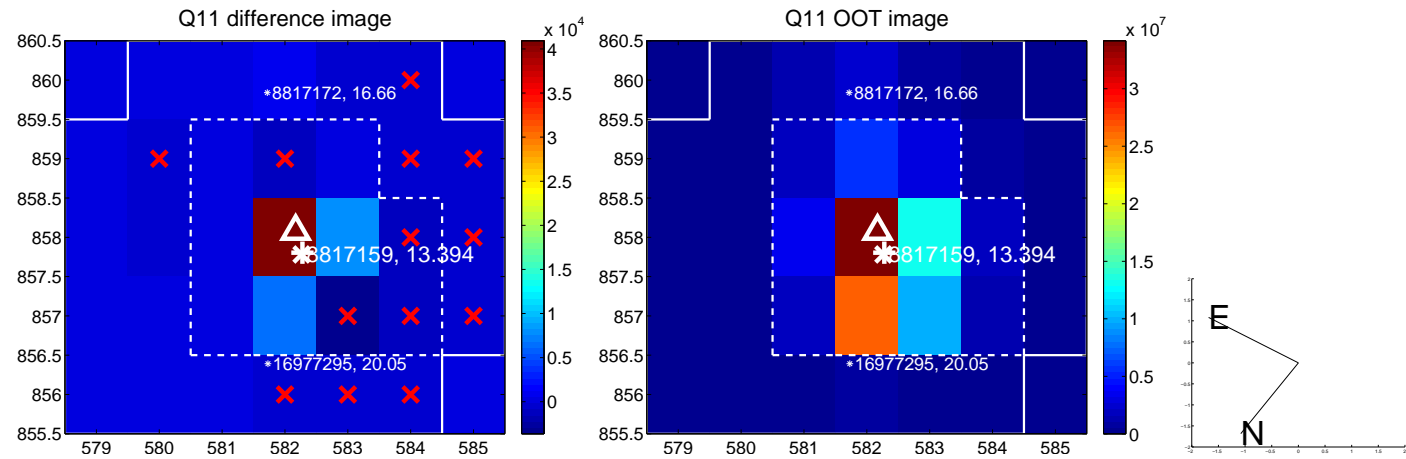
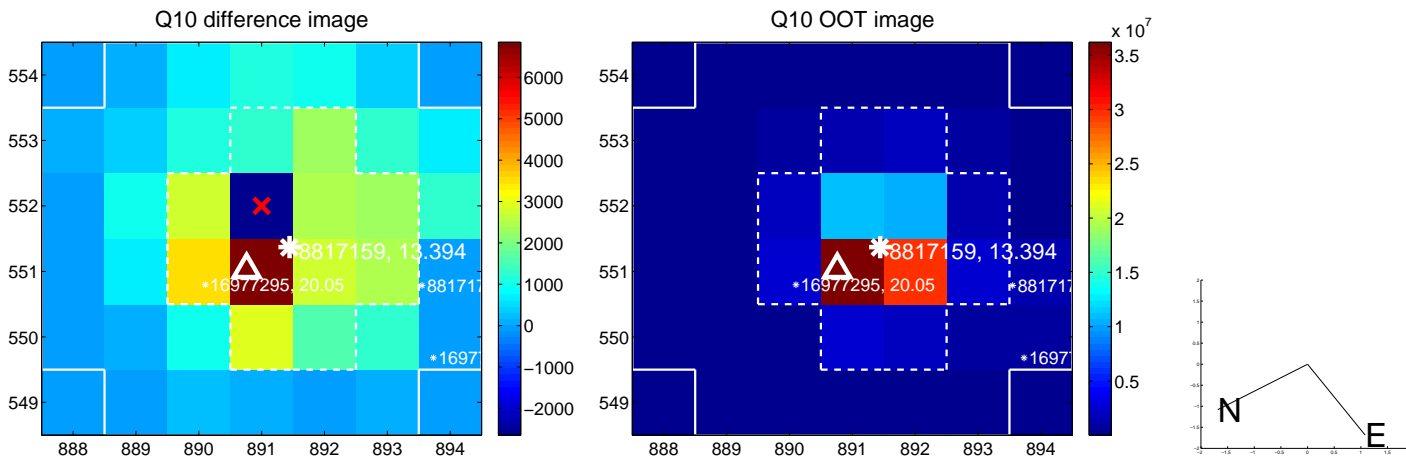
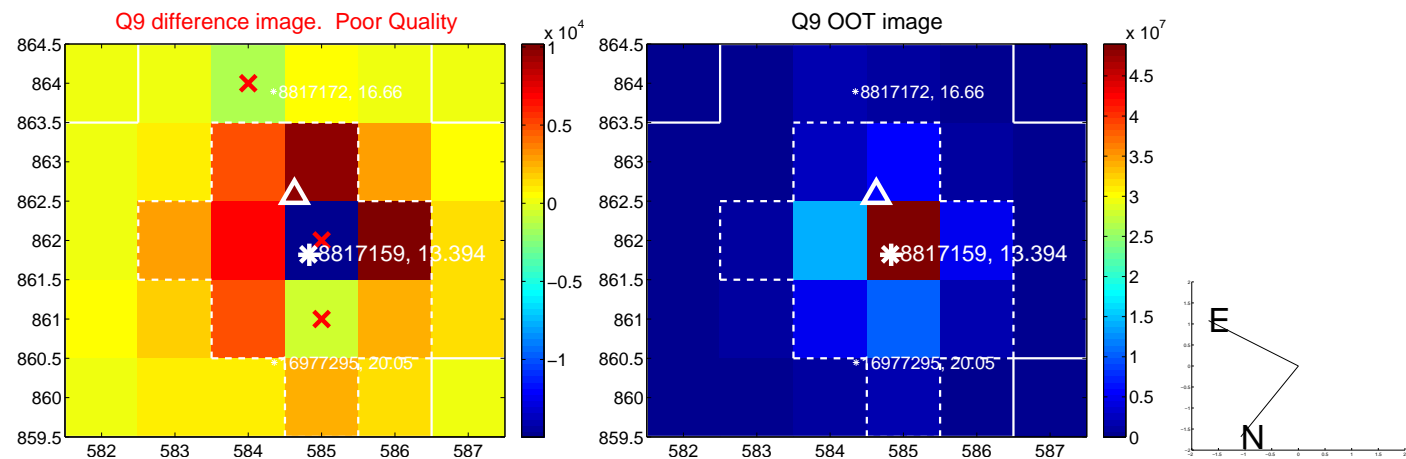
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



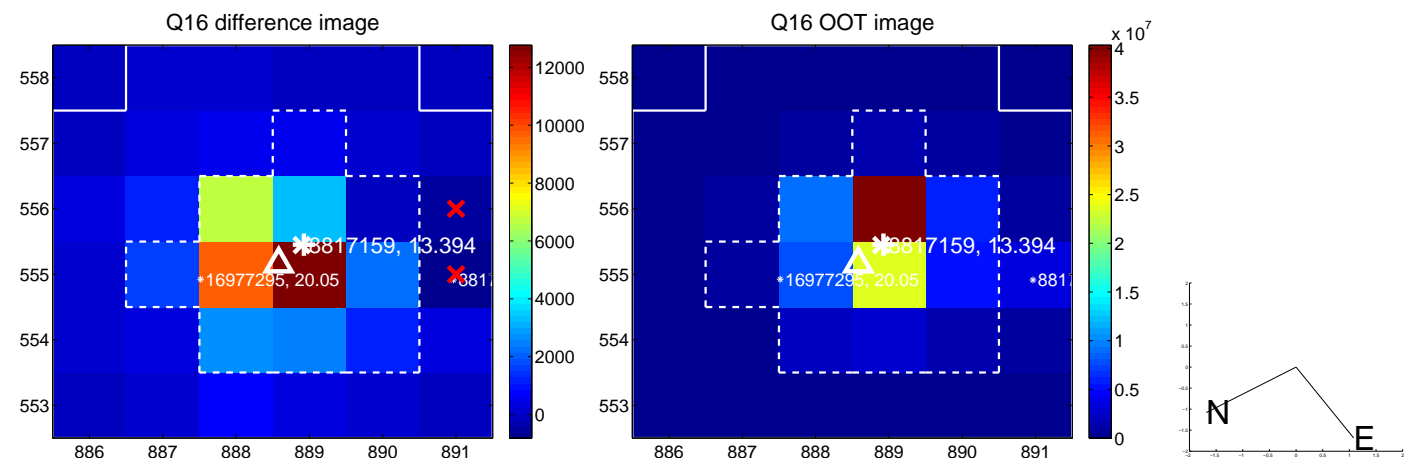
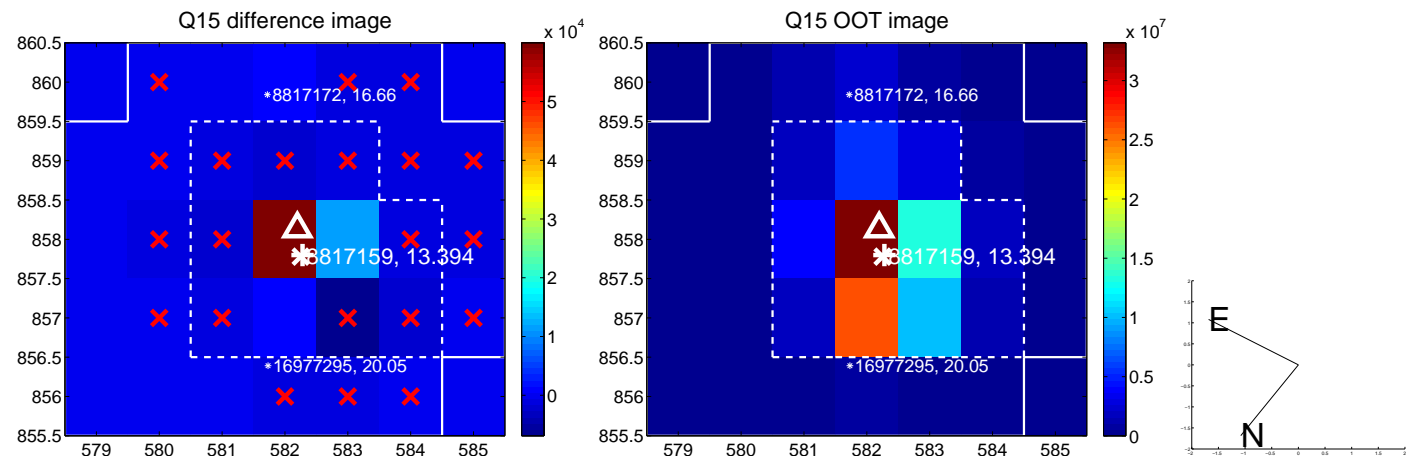
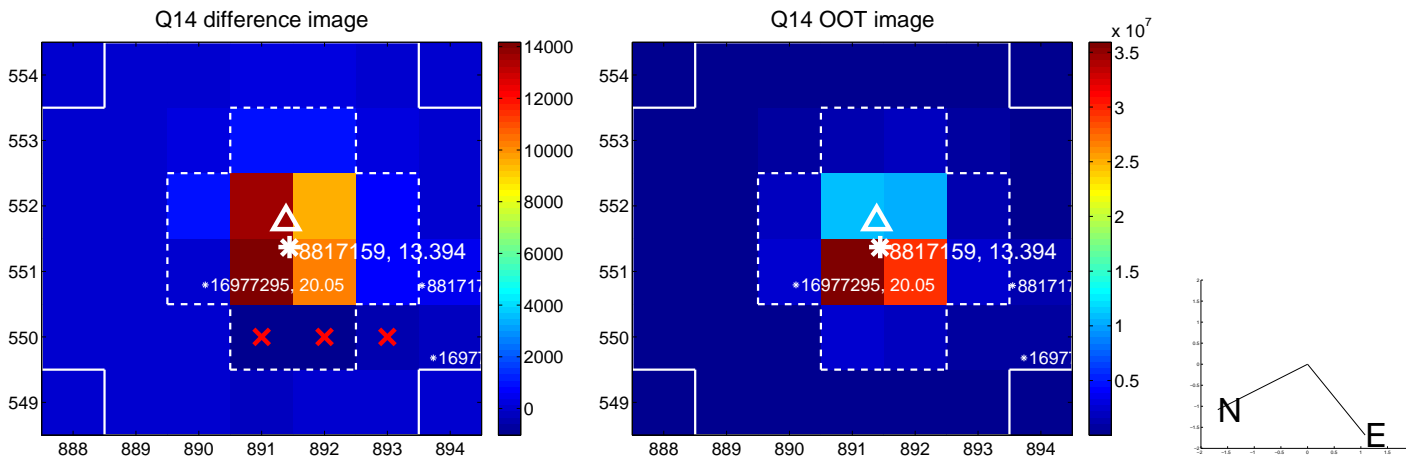
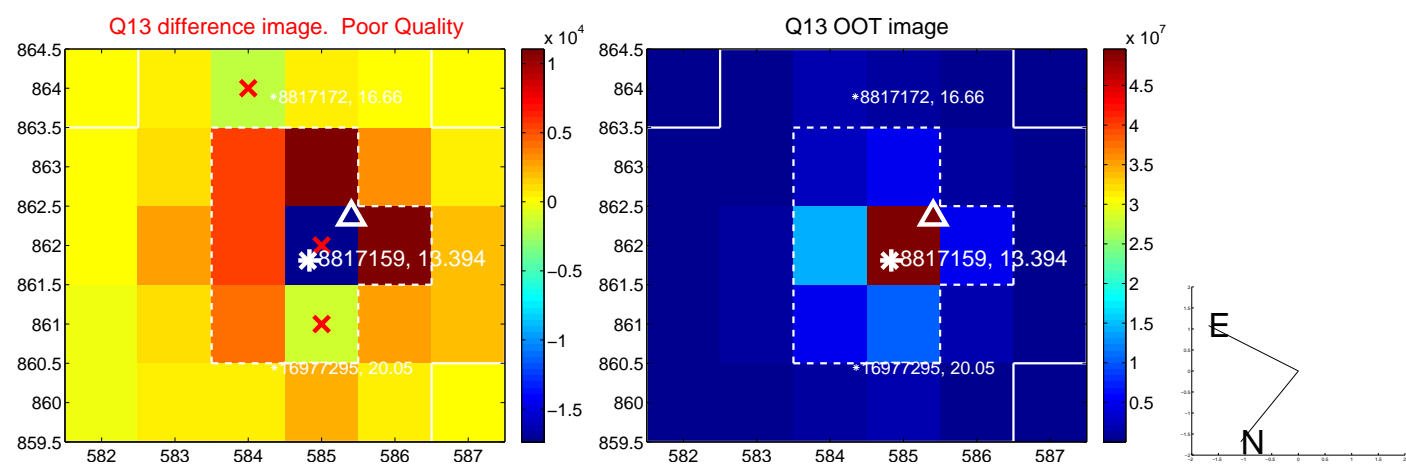
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



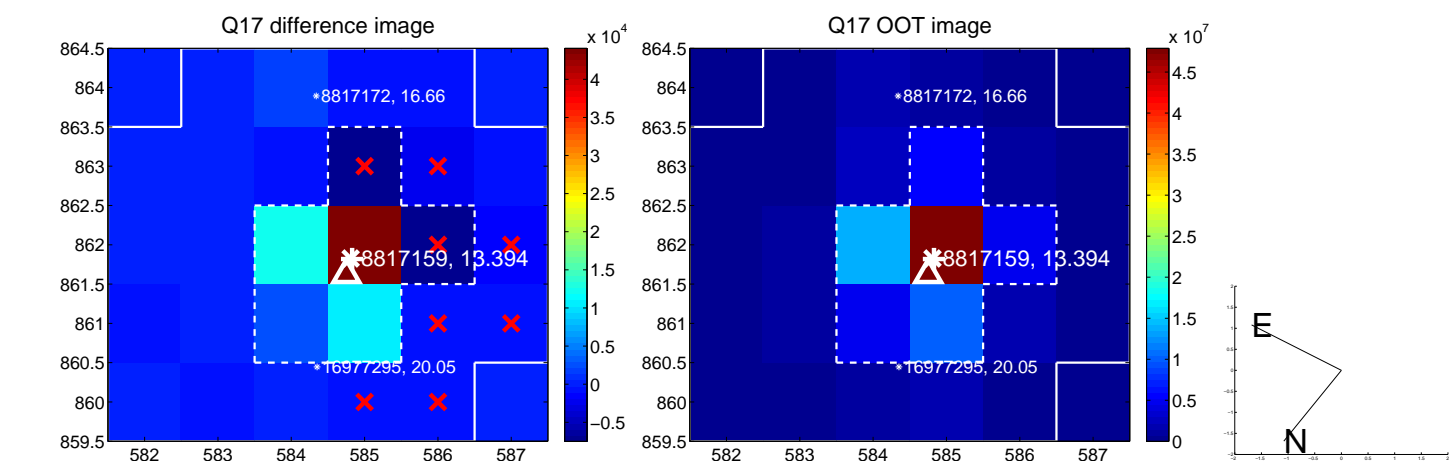
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



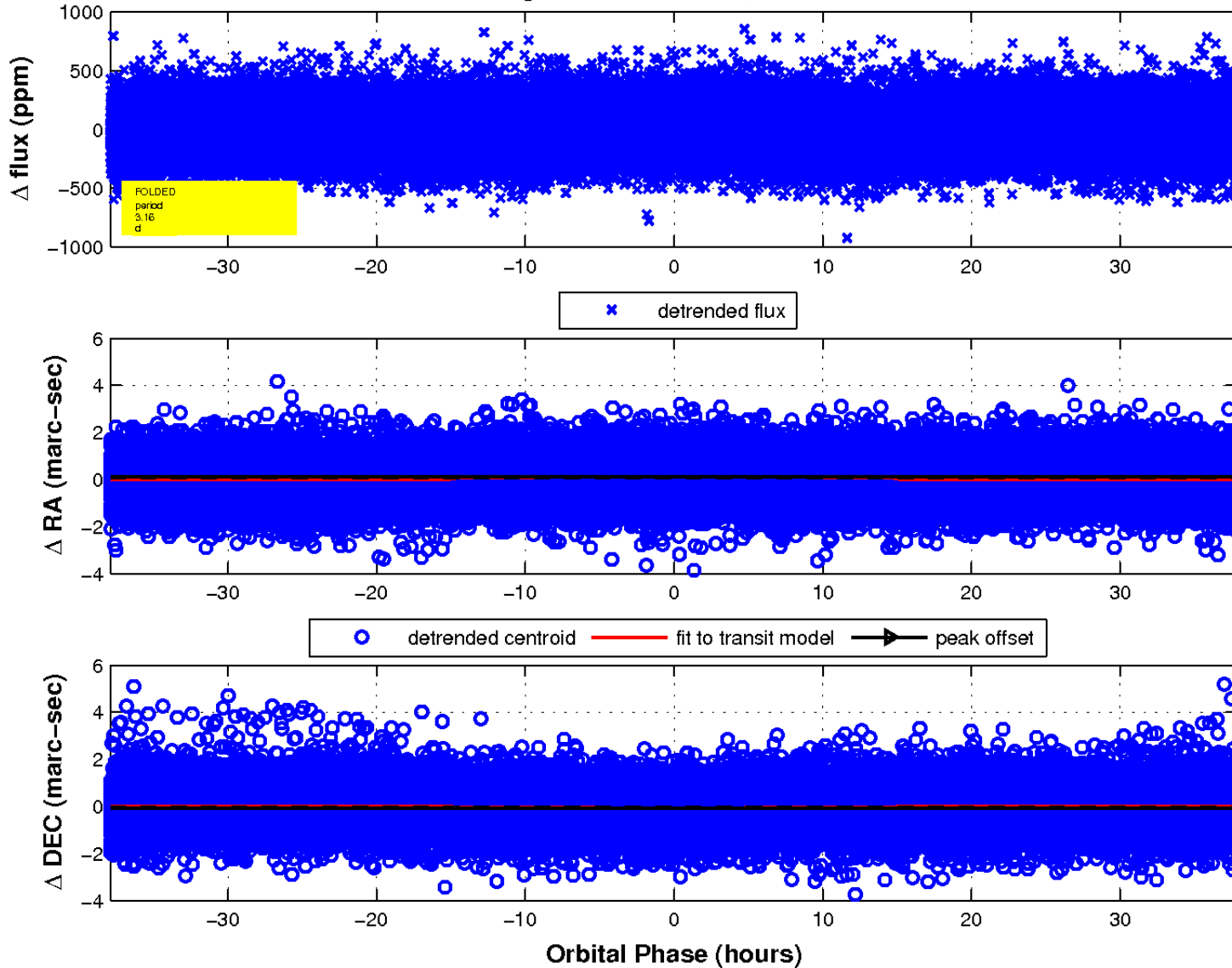
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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



fluxWeightedCentroids, Planet 2 of 2



UKIRT Image

Declination

