

KIC 005272233

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})
005272233-01	OBS	2711.01	9.024385	133.541882	218.1	3.283	25.9	27.9	1.11	5885	1.95	183.85
005272233-02	OBS	2711.02	17.340938	138.965925	160.4	3.573	14.9	15.4	1.11	5885	1.71	76.96

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
005272233-01	OBS	PC	1.00	0	0	0	0	NO_COMMENT
005272233-02	OBS	PC	0.99	0	0	0	0	NO_COMMENT

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

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

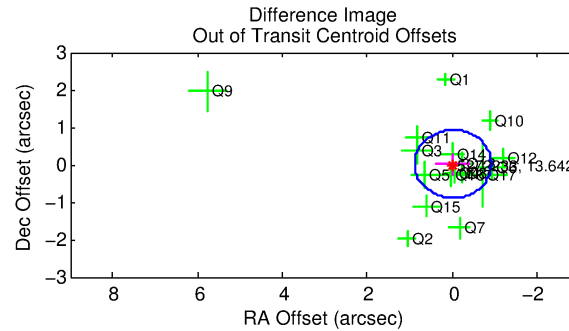
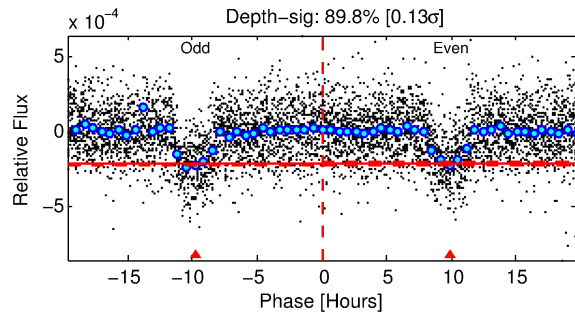
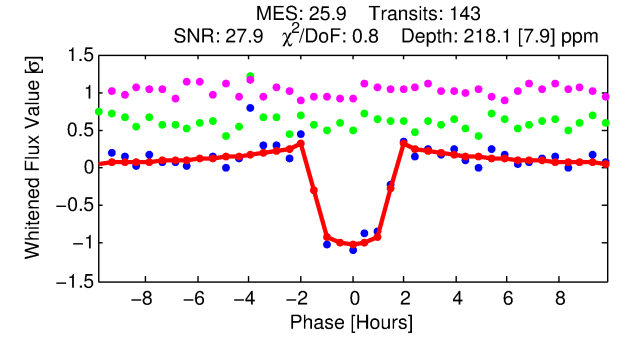
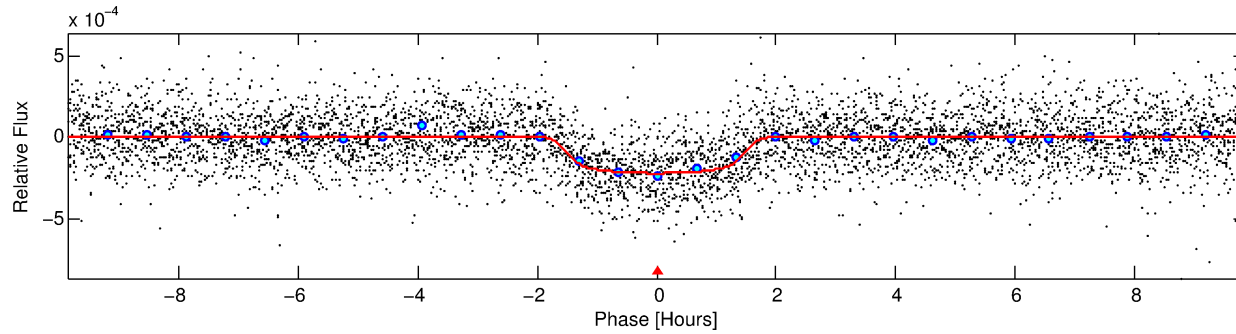
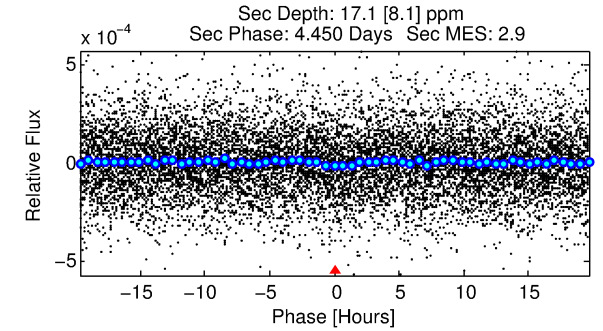
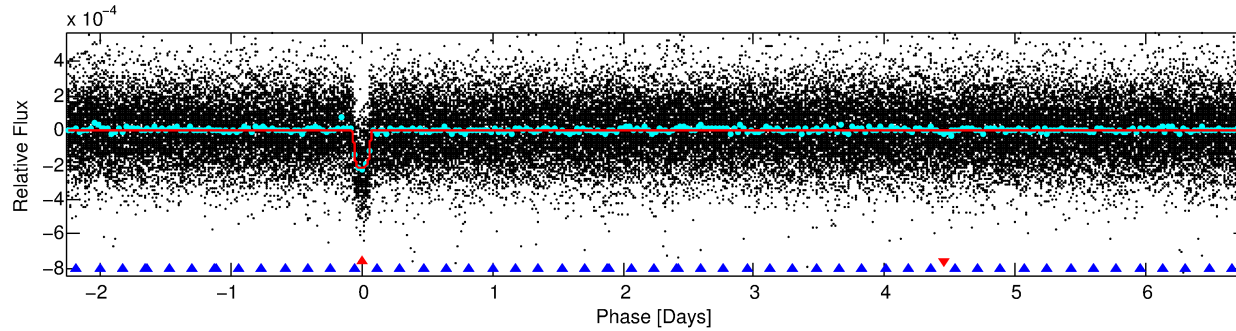
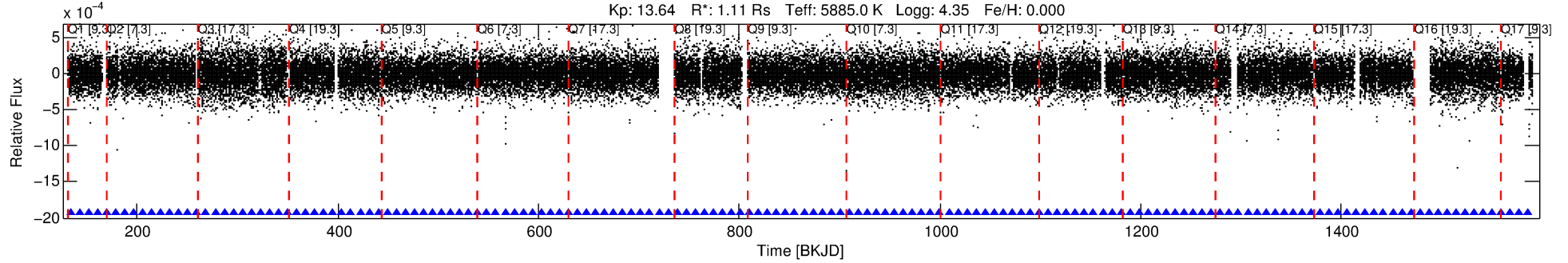
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 005272233-01

No Significant Match Found

DV One-Page Summary

KIC: 5272233 Candidate: 1 of 2 Period: 9.024 d
KOI: K02711.01 Name: Kepler-400b Corr: 0.978



DV Fit Results:

Period = 9.02438 [0.00002] d
Epoch = 133.5419 [0.0020] BKJD
Rp/R* = 0.0160 [0.0021]
a/R* = 9.95 [6.17]
b = 0.90 [0.13]
Seff = 183.85 [39.54]
Teq = 939 [50] K
Rp = 1.94 [0.40] Re
a = 0.0849 [0.0116] AU
Ag = 17.92 [10.32] [1.64σ]
Teffp = 2987 [408] K [4.98σ]

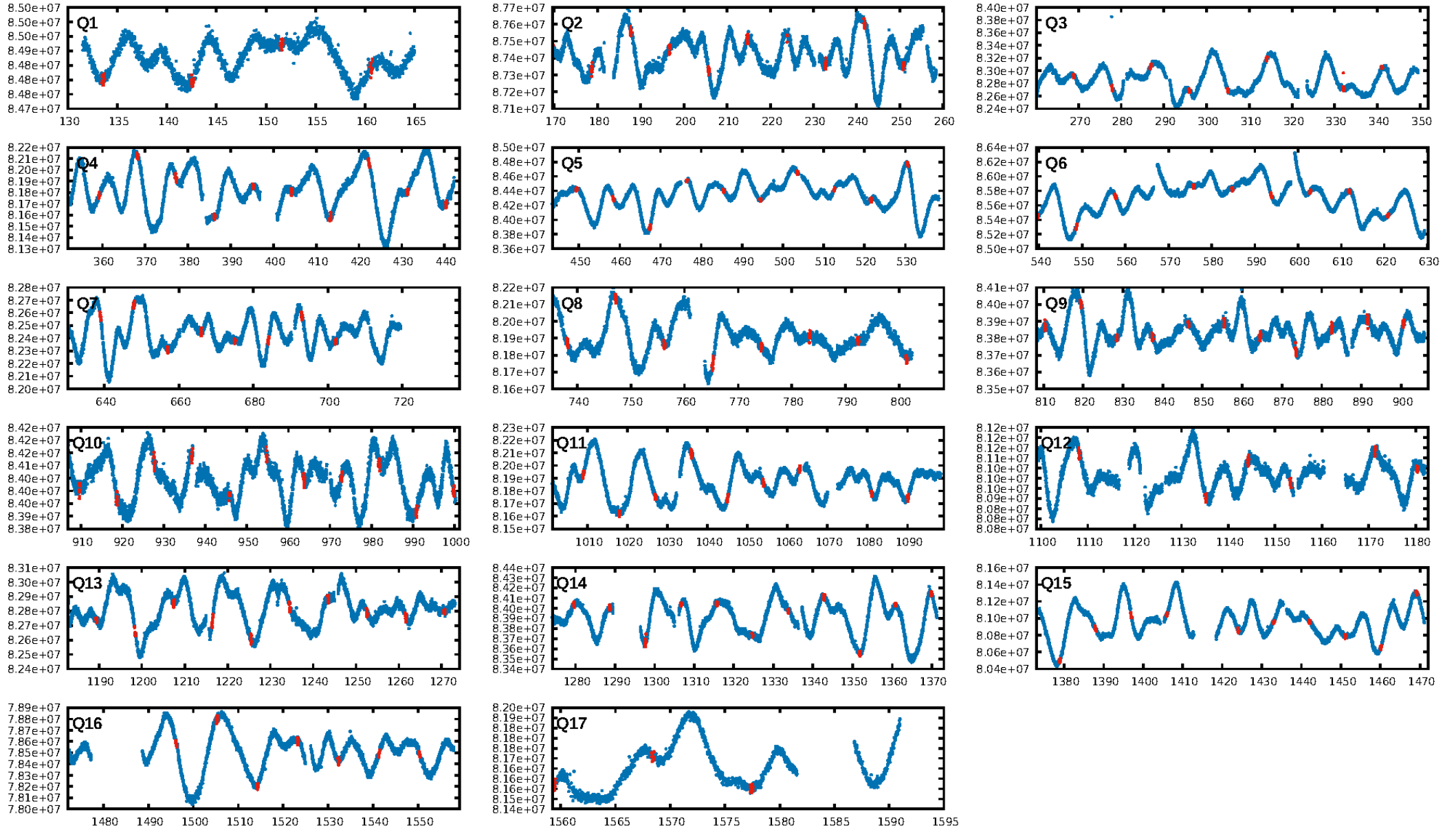
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: 100.0% [41.13σ]
ModelChiSquare2-sig: 99.9%
ModelChiSquareGof-sig: 100.0%
Bootstrap-pfa: 7.56e-141
RollingBand-fgt: 1.00 [136/136]
GhostDiagnostic-chr: 57.73
Centroid-sig: 1.0%
Centroid-so: 0.788 arcsec [2.50σ]
OotOffset-rm: 0.032 arcsec [0.11σ]
KicOffset-rm: 0.073 arcsec [0.28σ]
OotOffset-st: 4/4/4/5 [17]
KicOffset-st: 4/4/4/5 [17]
DiffImageQuality-fgm: 0.94 [16/17]
DiffImageOverlap-fno: 1.00 [17/17]

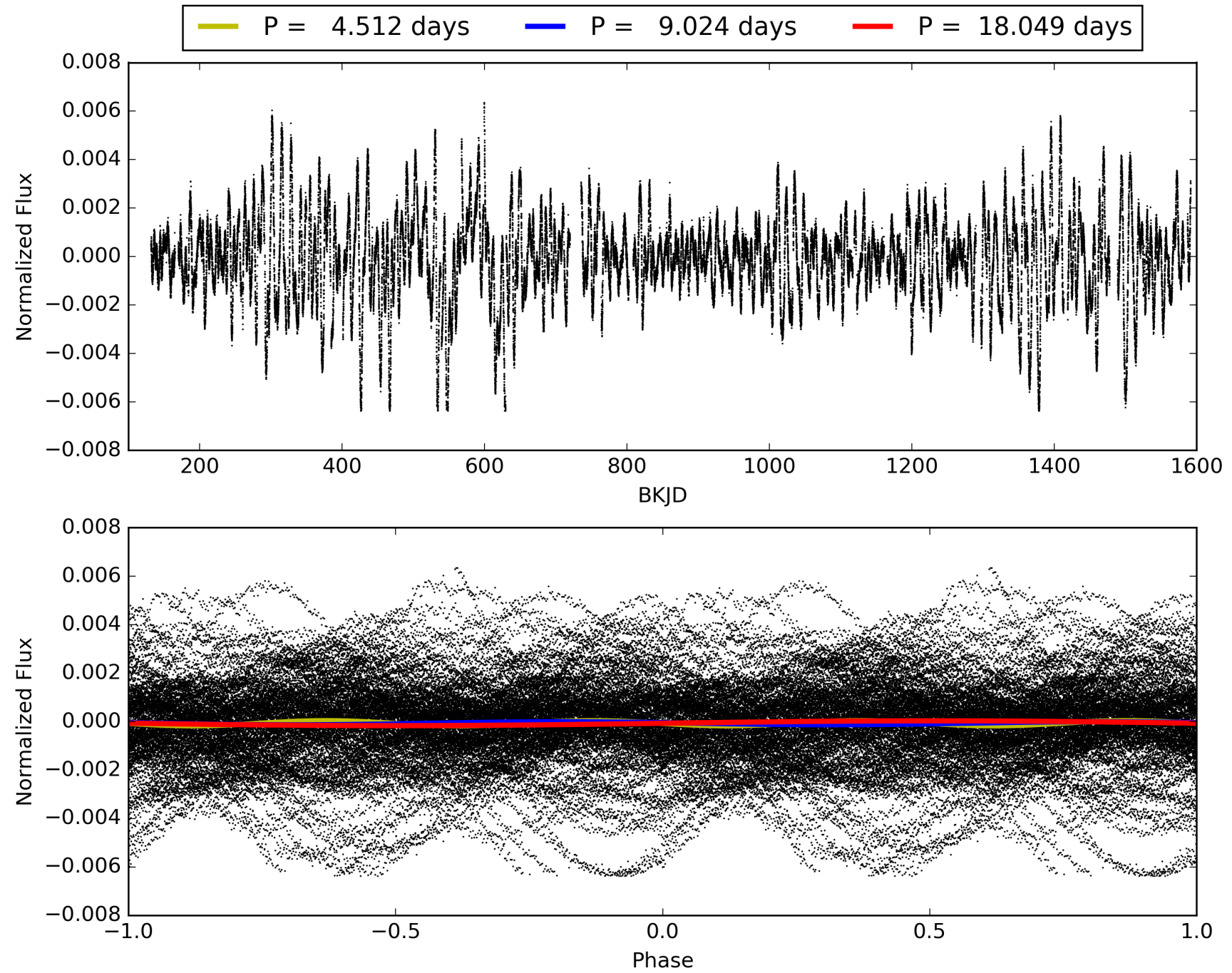
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 31-Jan-2016 10:04:40 Z

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

TCE 005272233-01, PDC Light Curves

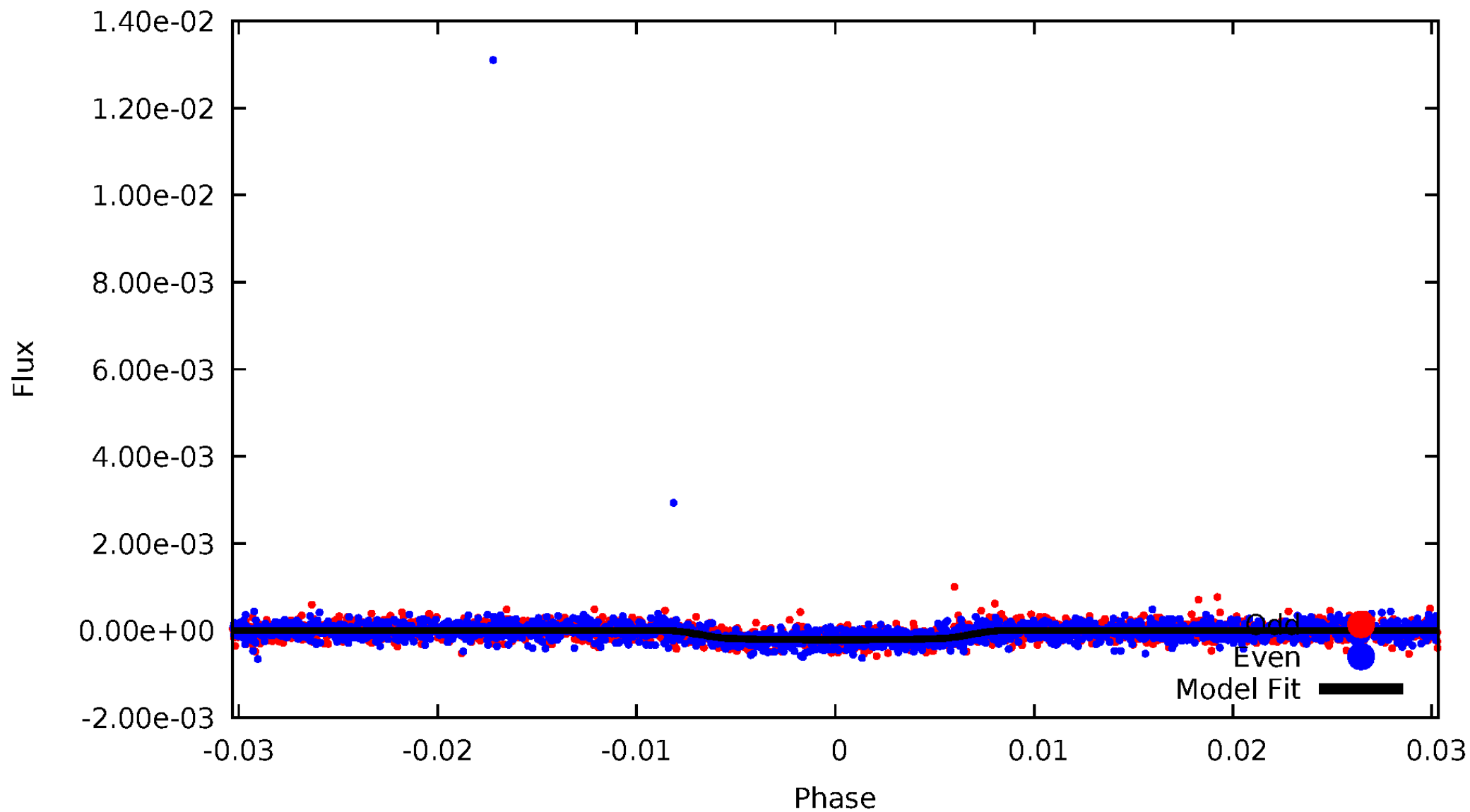


TCE 005272233-01



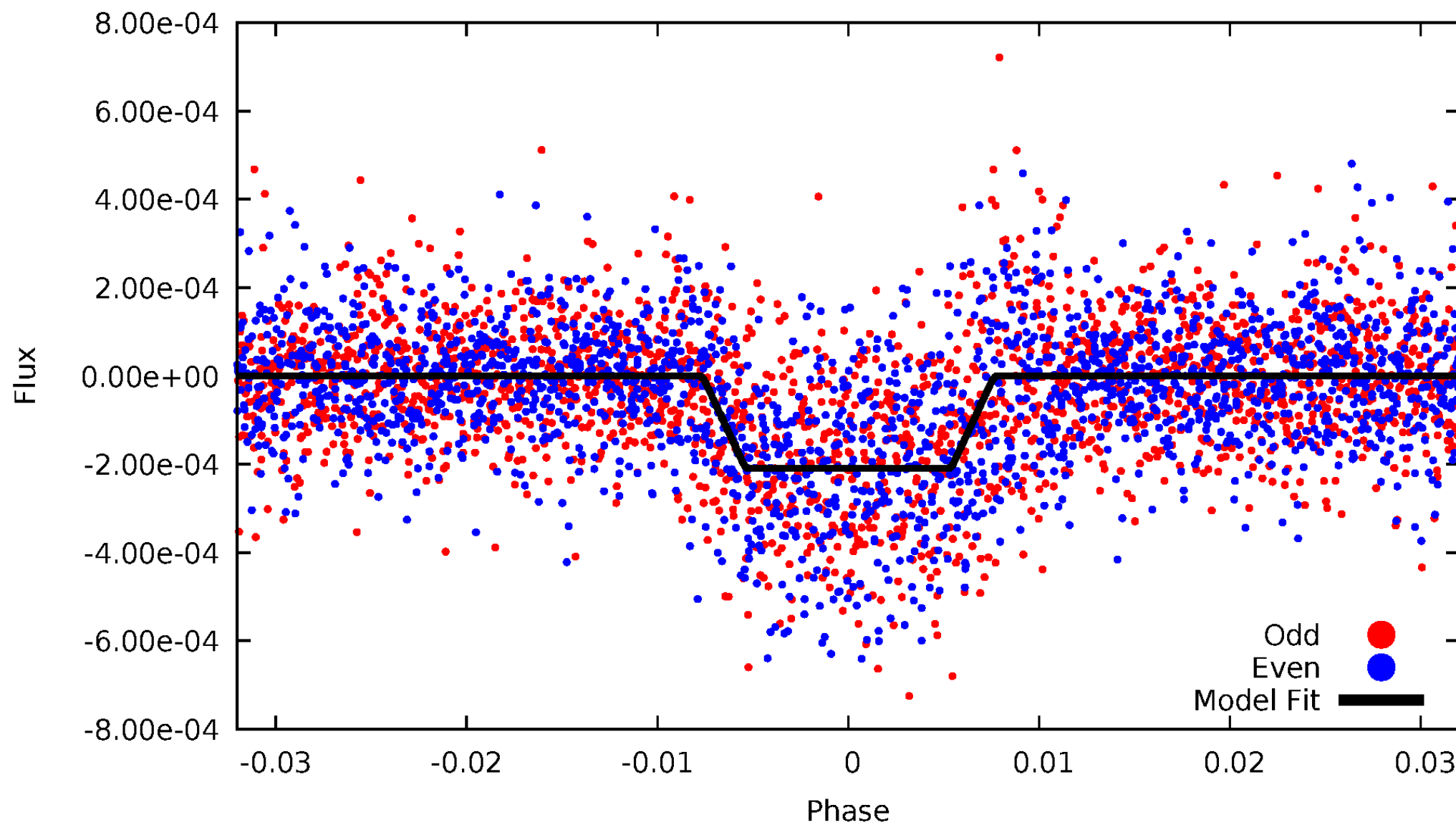
DV Odd/Even

TCE 005272233-01



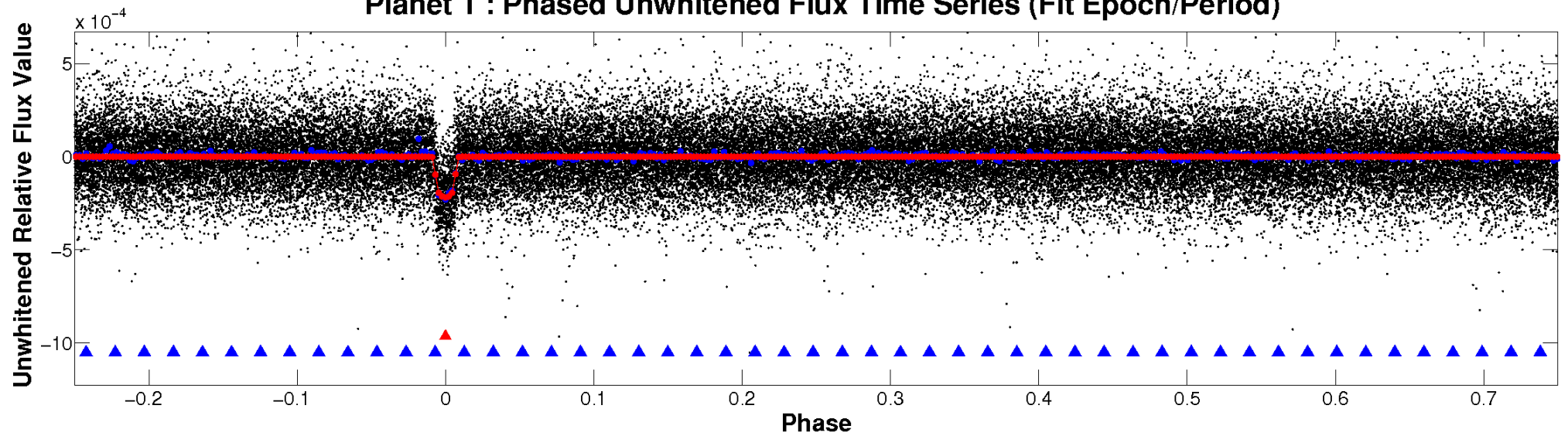
ALT Odd/Even

TCE 005272233-01

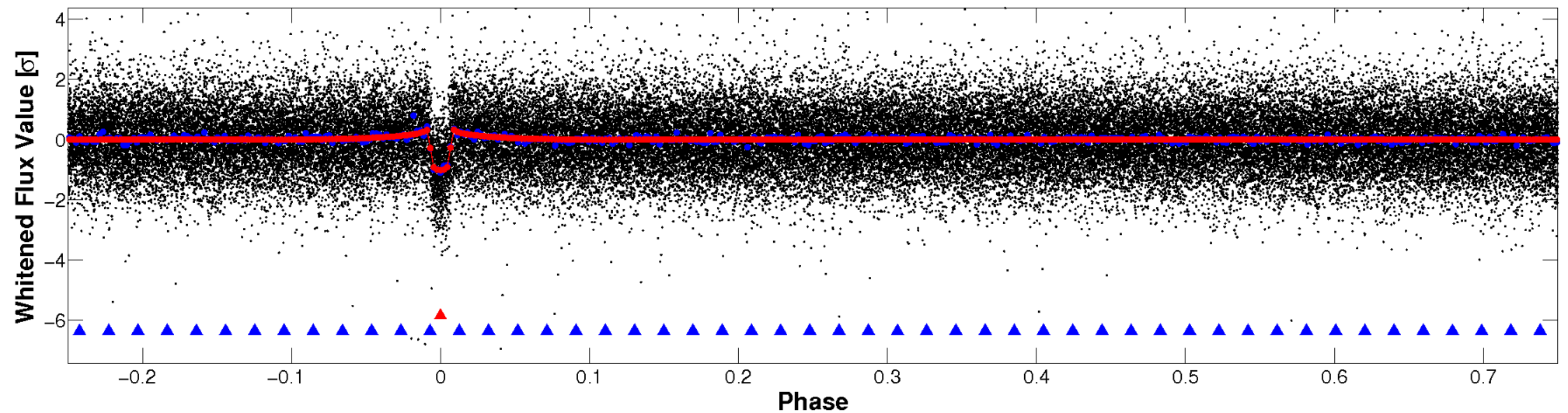


Non-Whitened Vs. Whitened Light Curve

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

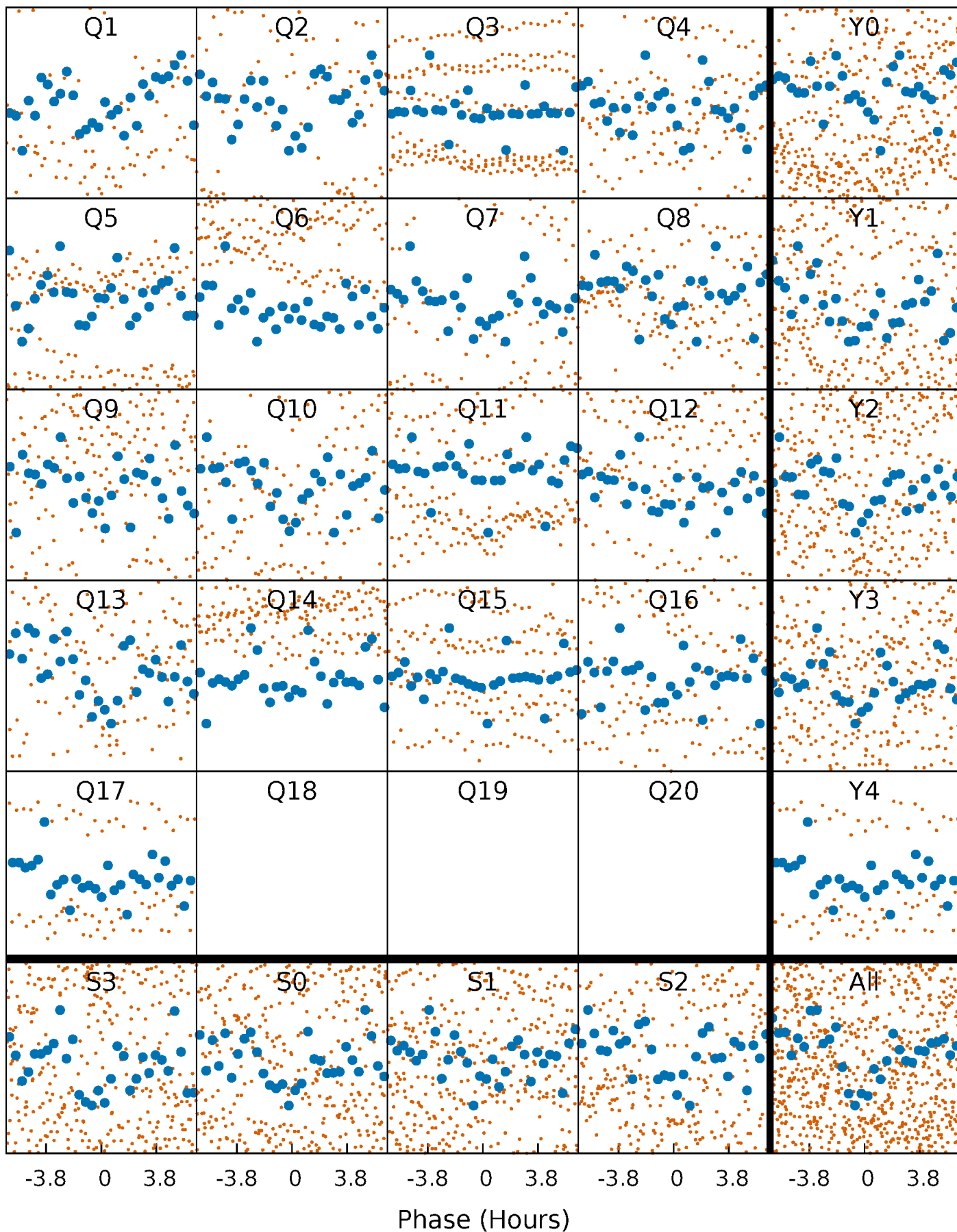


Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)



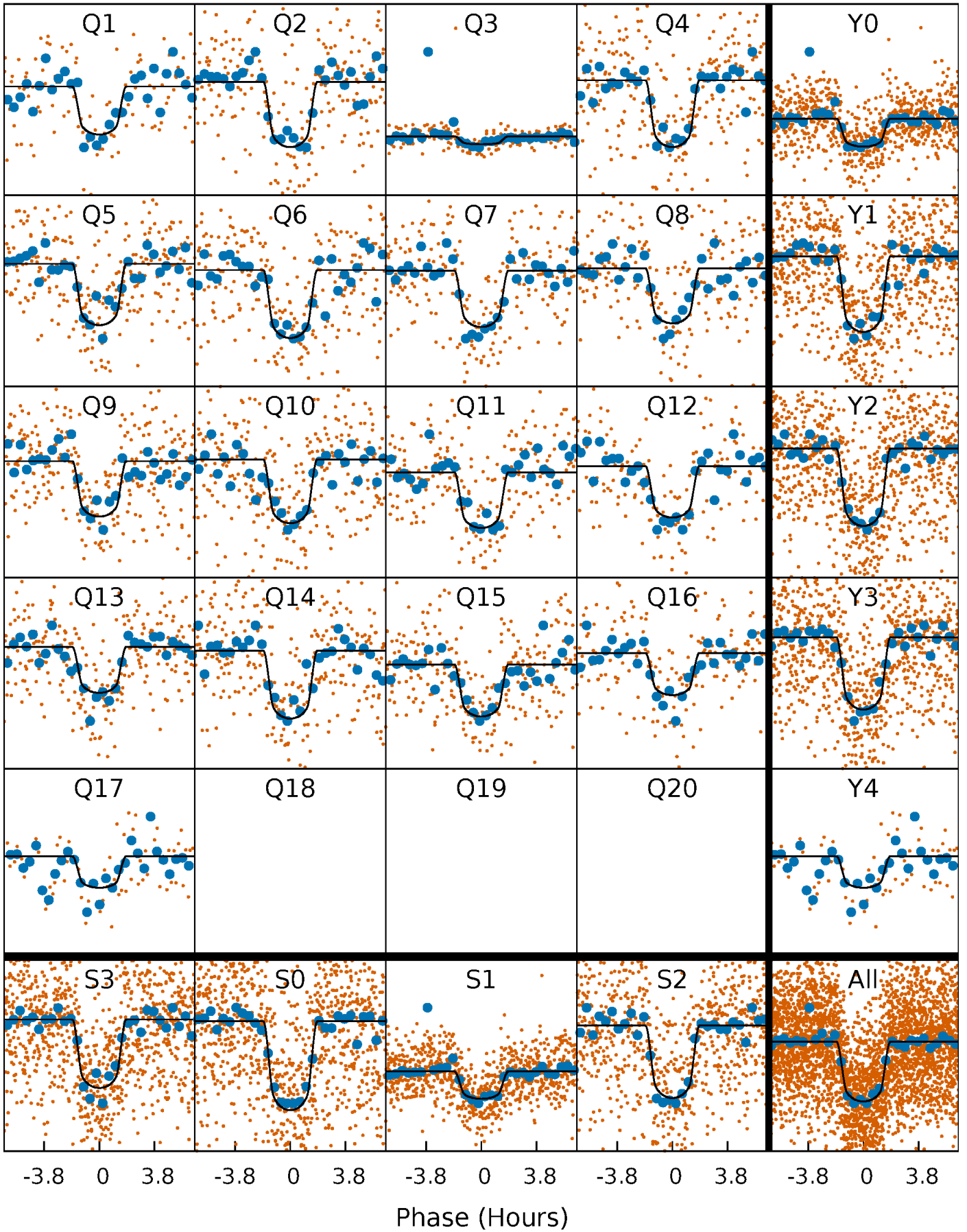
PDC Quarter-Phased Transit Curves

TCE 005272233-01 P= 9.024385 Days $T_0=133.541882$ (BKJD)



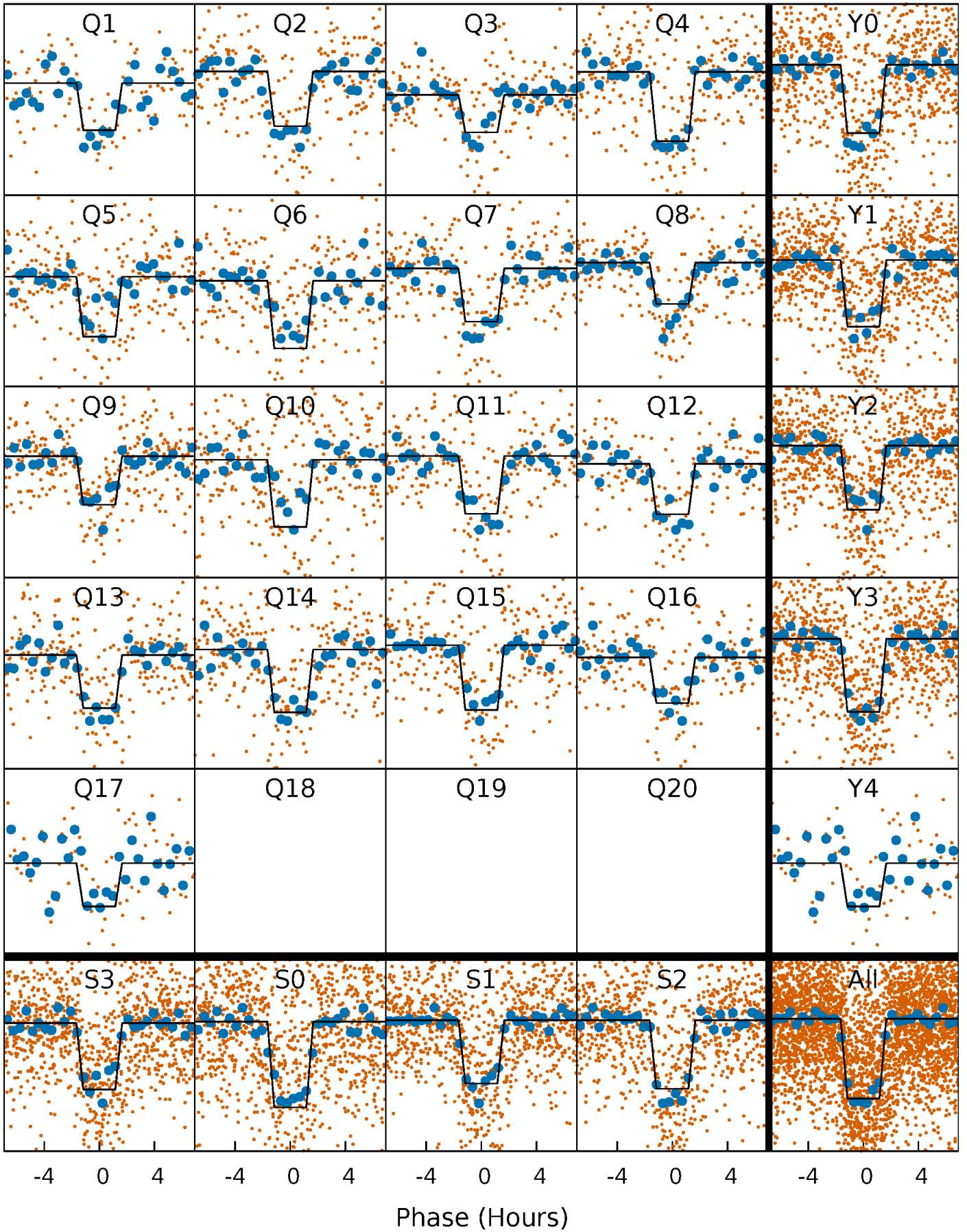
DV Quarter-Phased Transit Curves

TCE 005272233-01 P= 9.024385 Days $T_0=133.541882$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

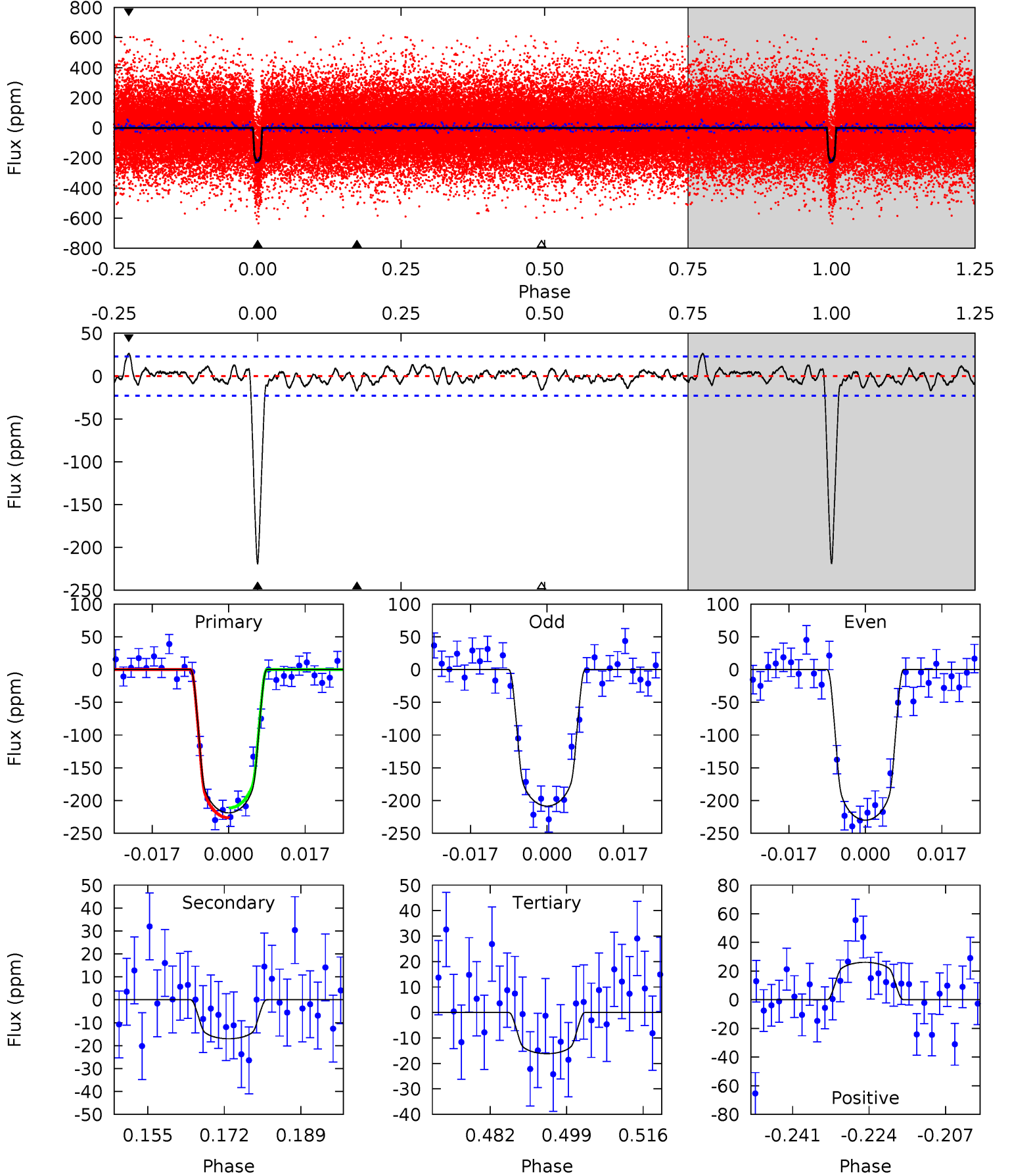
TCE 005272233-01 P= 9.024322 Days $T_0=133.544781$ (BKJD)



DV Model-Shift Uniqueness Test

005272233-01, P = 9.024385 Days, E = 124.517497 Days

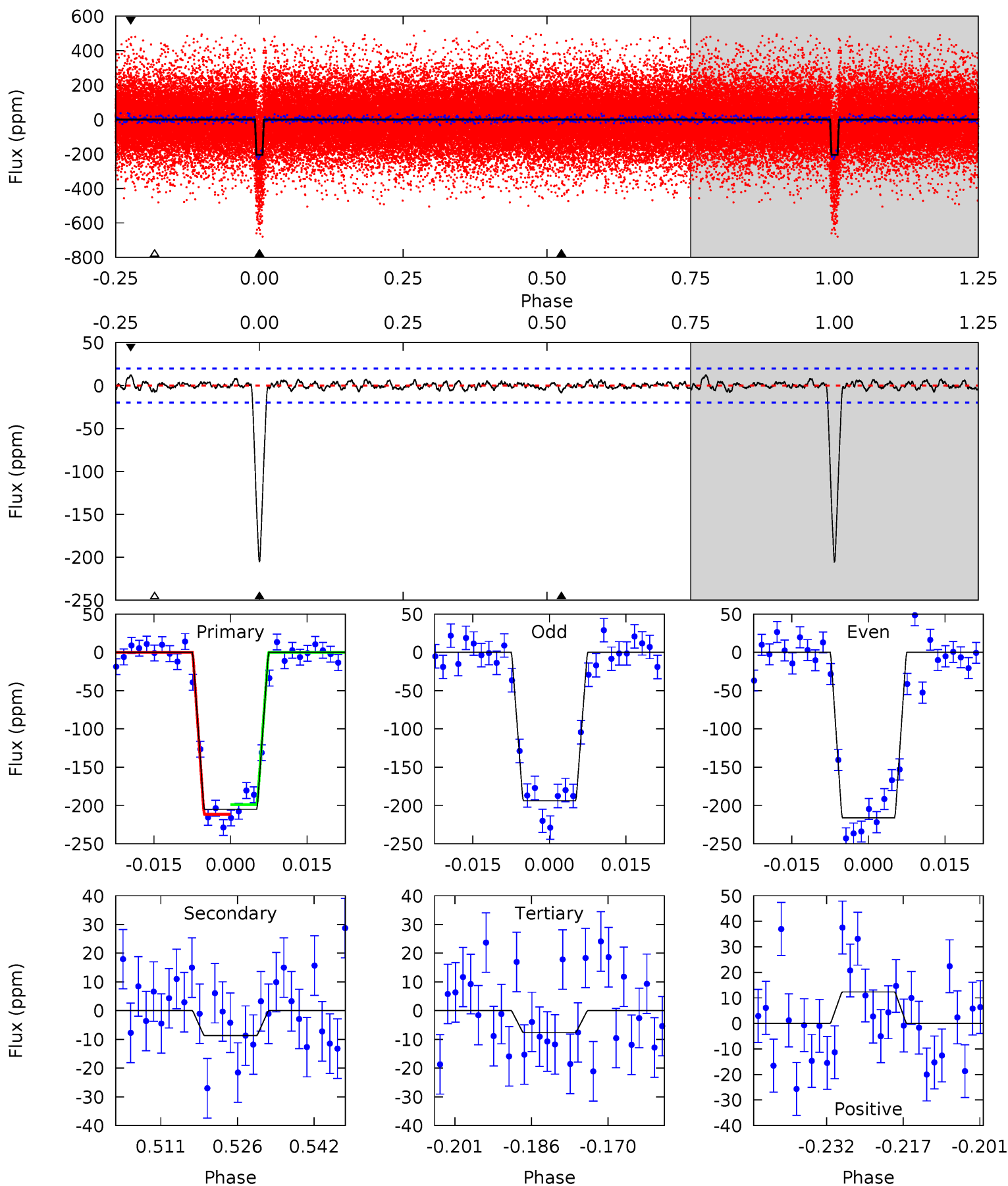
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
47.0	3.65	3.48	5.62	4.92	2.38	1.33	43.6	41.4	0.18	-1.96	2.31	1.00	0.11	1.62



Alt Model-Shift Uniqueness Test

005272233-01, P = 9.024322 Days, E = 124.520459 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
51.0	2.15	1.88	3.06	4.94	2.42	0.77	49.1	47.9	0.27	-0.91	2.76	0.99	0.06	1.58



Stellar Parameters For KIC 005272233

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	5885^{+105}_{-117}	$4.348^{+0.110}_{-0.110}$	$0.000^{+0.150}_{-0.150}$	$1.111^{+0.178}_{-0.134}$	$1.004^{+0.082}_{-0.067}$	$1.031^{+0.486}_{-0.329}$
	+2%/-2%	+3%/-3%	+inf%/-inf%	+16%/-12%	+8%/-7%	+47%/-32%
Source	SPE58	SPE58	SPE58	DSEP		

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

Secondary Eclipse Parameters for KIC 005272233-01 / KOI 2711.01

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-17 ± 5	$1.95^{+0.32}_{-0.28}$	1310^{+55}_{-55}	3454^{+231}_{-221}	18^{+9}_{-7}
Alt.	-9 ± 4	$1.77^{+0.29}_{-0.28}$	1310^{+59}_{-57}	3191^{+276}_{-296}	10^{+7}_{-5}

T_{max} = Theoretical Maximum Planetary Temperature

T_{obs} = Observed Planetary Temperature (Assuming A=0.3)

A_{obs} = Observed Albedo (Assuming T=0)

If a secondary eclipse is present, the system is likely an EB if $T_{\text{obs}} \gg T_{\text{max}}$ AND $A_{\text{obs}} \gg 1.0$

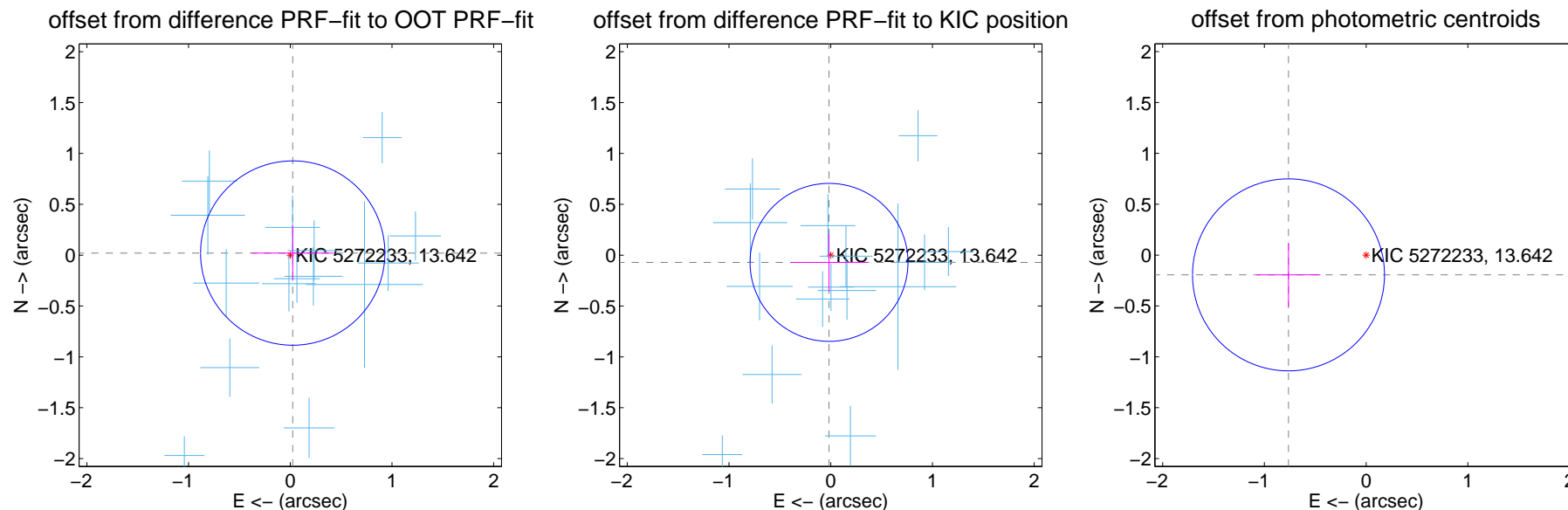
DV Centroid Data

Supplemental centroid analysis for 005272233-01. Kepler magnitude: 13.64. Transit SNR 27.90

There are 16 quarters with good PRF difference image offsets

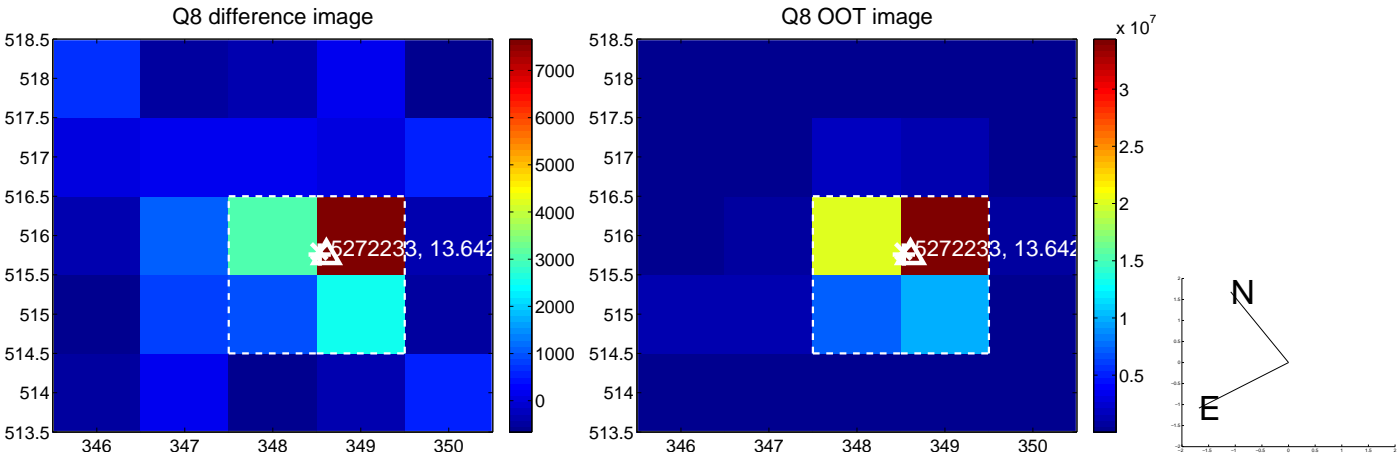
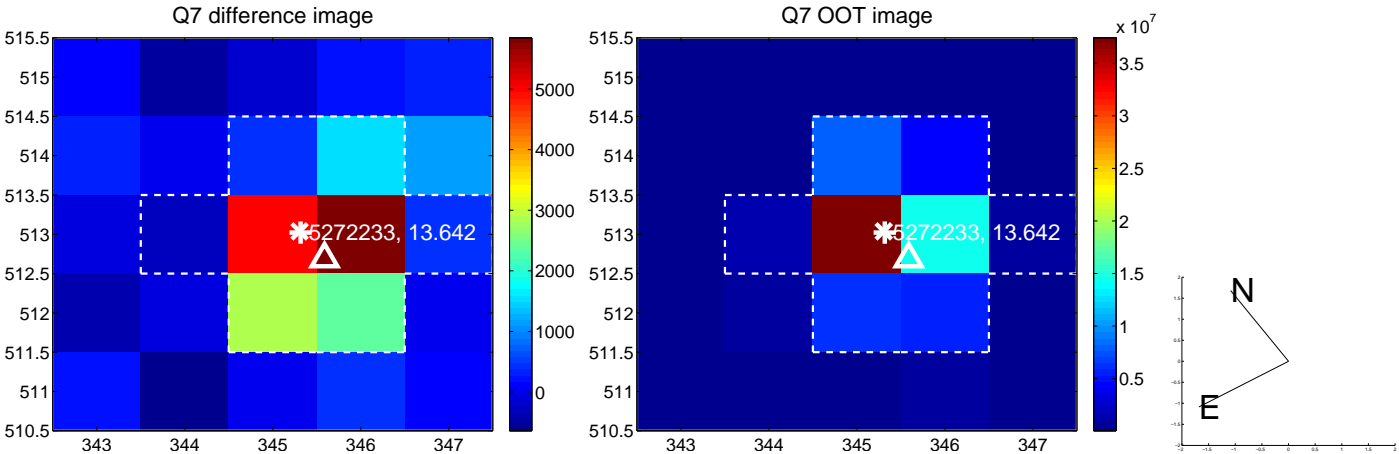
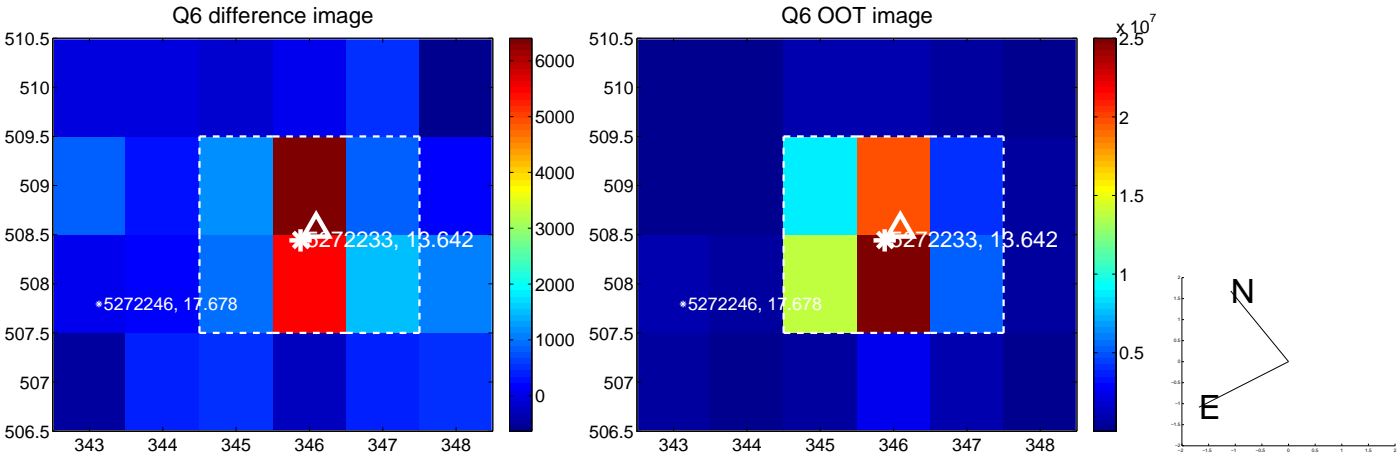
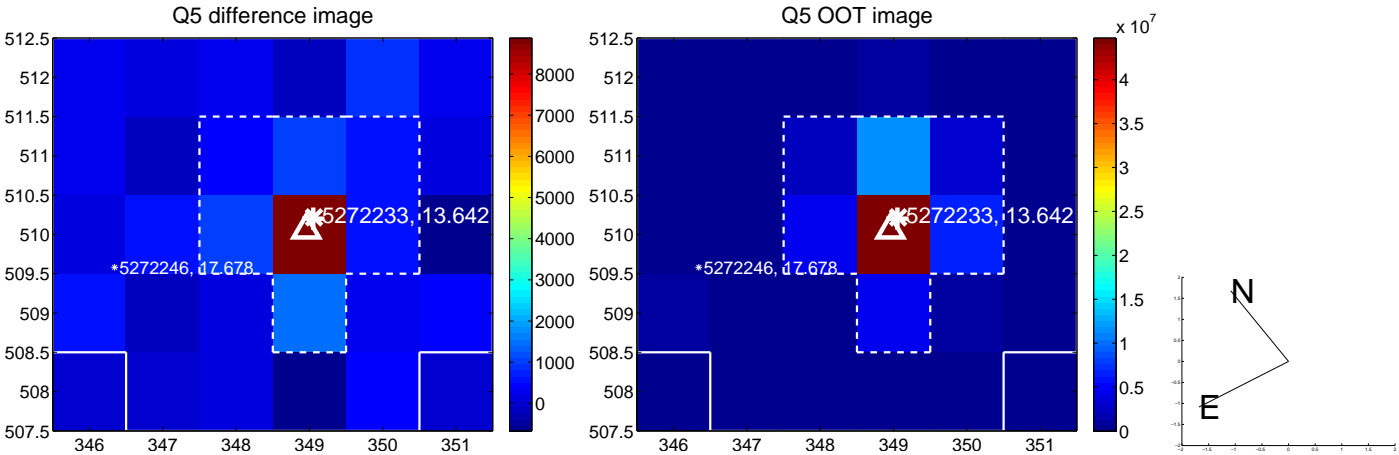
The direct PRF centroid is offset from the target star catalog position by about 0.07 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.032 ± 0.302	0.11	-0.024 ± 0.401	0.021 ± 0.271
PRF-fit source offset from KIC position	0.073 ± 0.259	0.28	0.017 ± 0.377	-0.071 ± 0.285
photometric centroid source offset	0.79 ± 0.31	2.50	0.76 ± 0.31	-0.19 ± 0.31

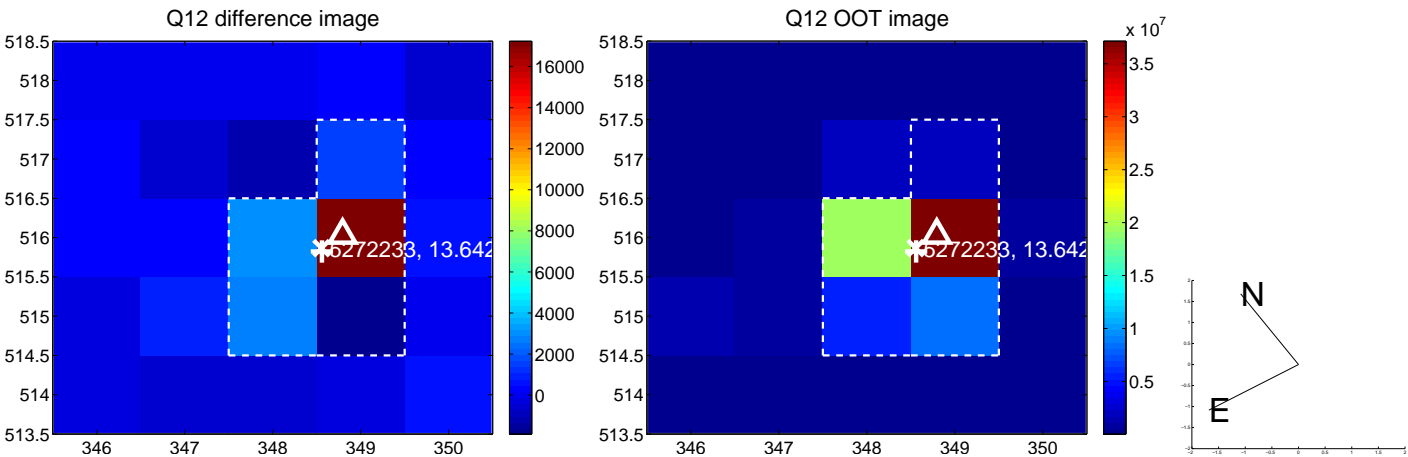
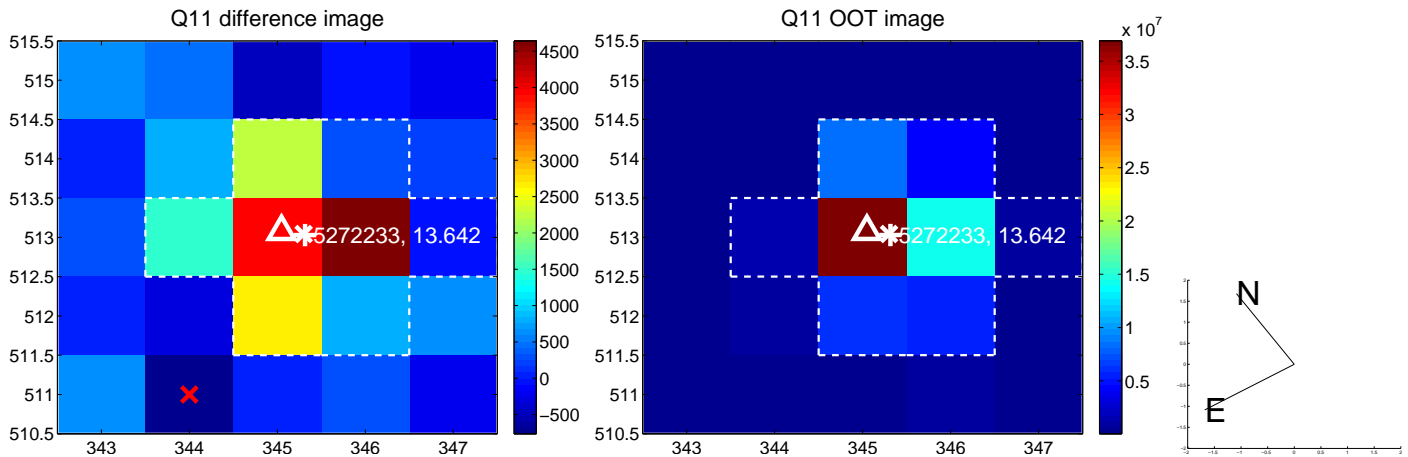
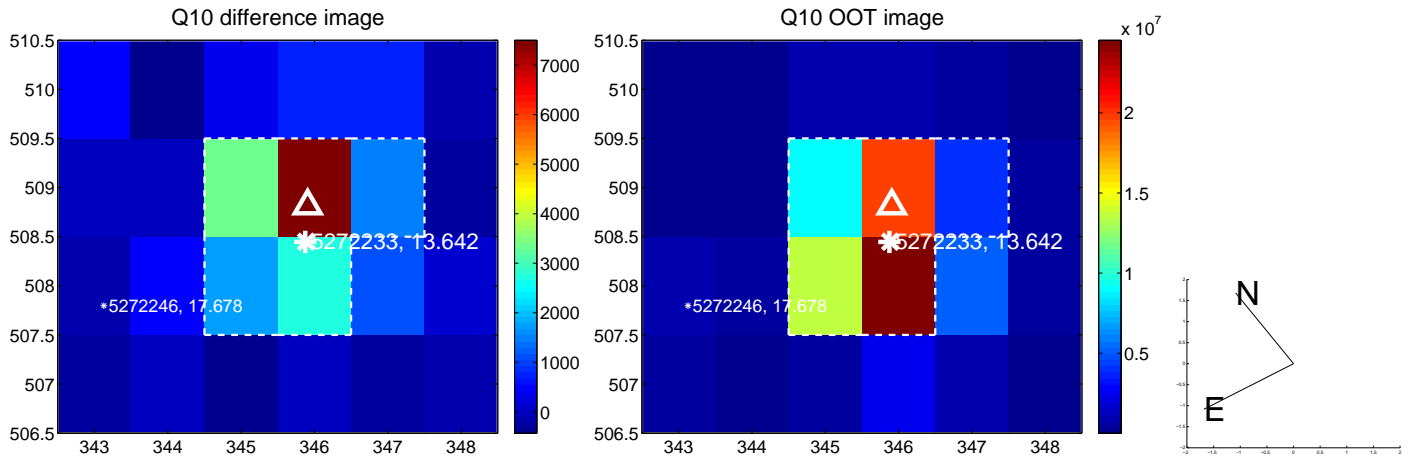
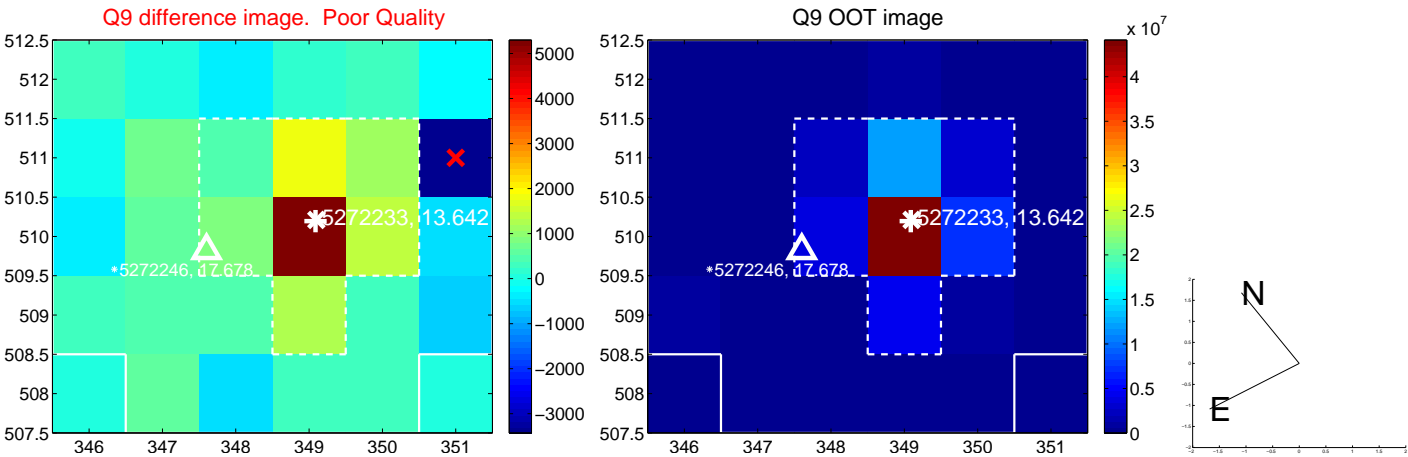


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses:** good quarterly centroid offsets; **Vermillion crosses:** bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

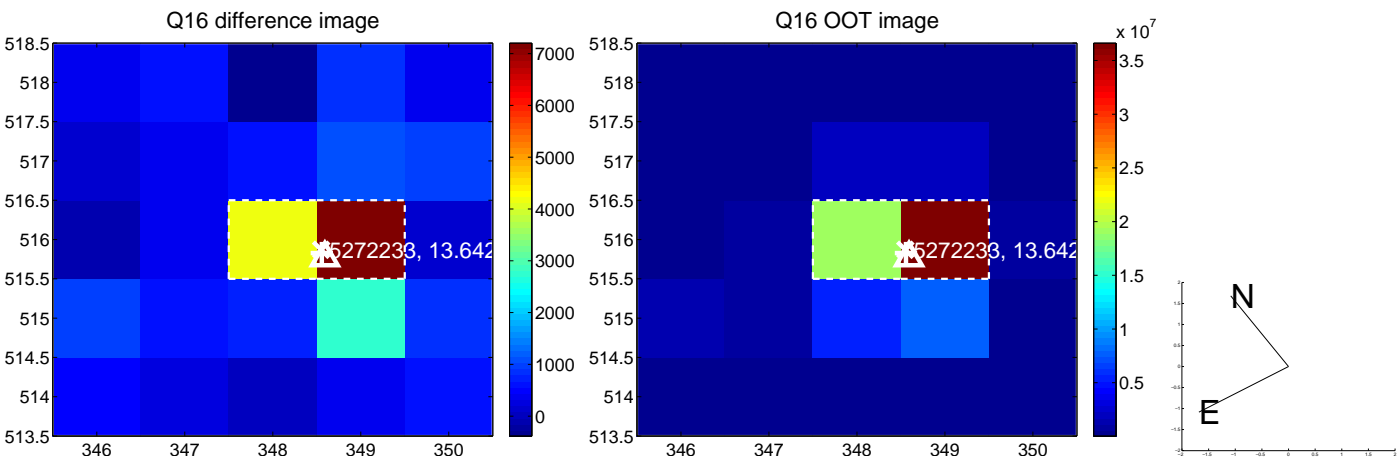
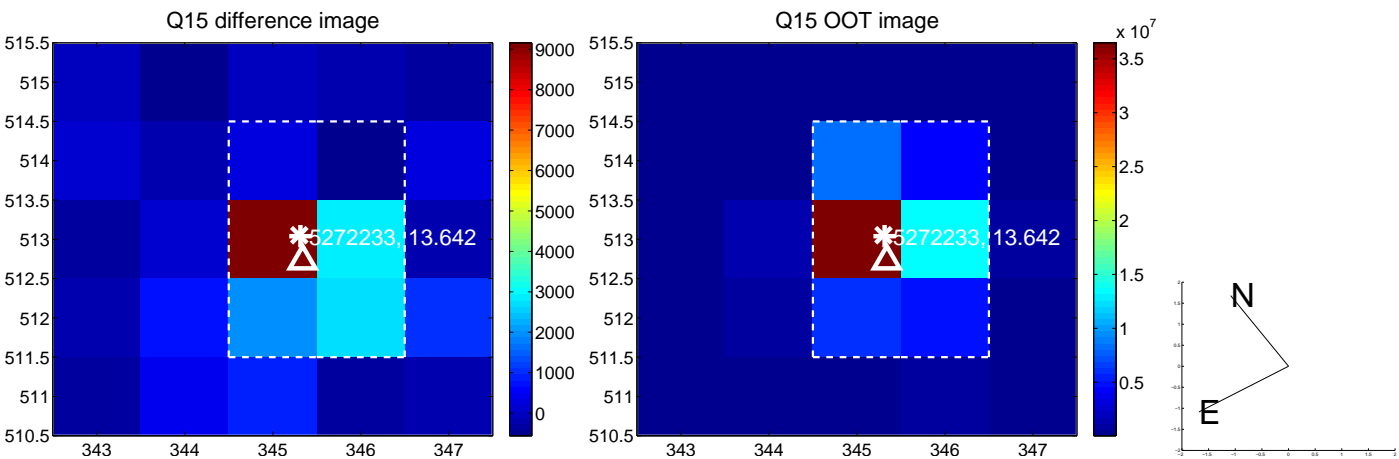
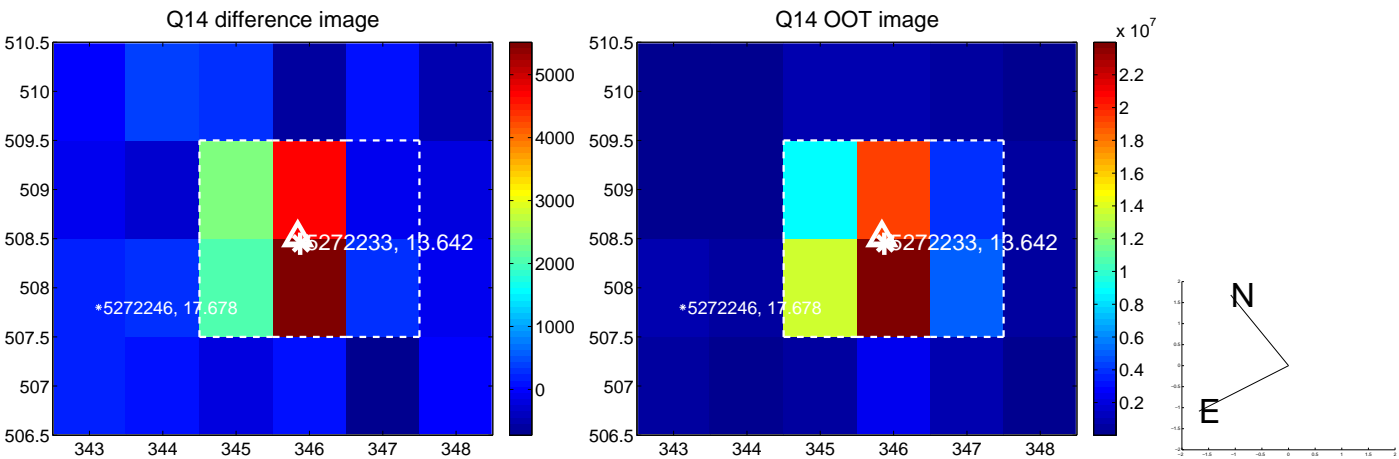
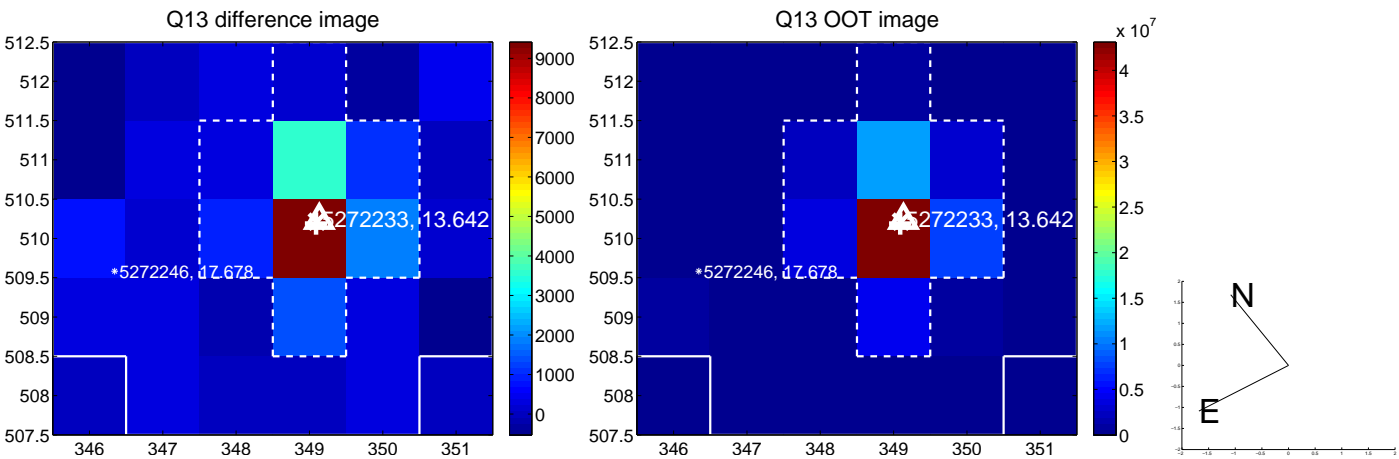
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



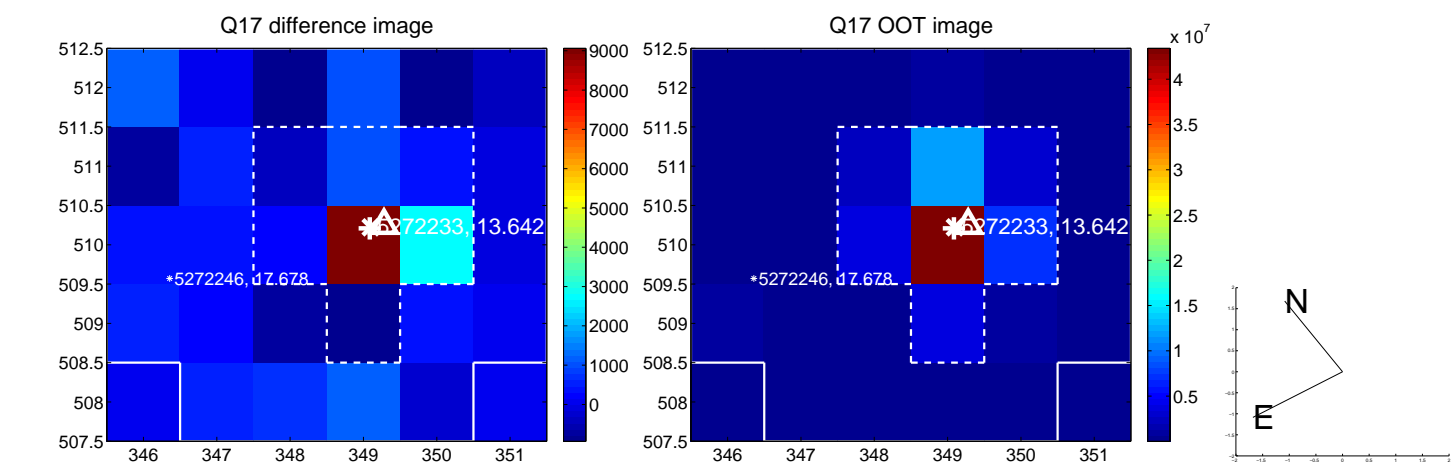
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



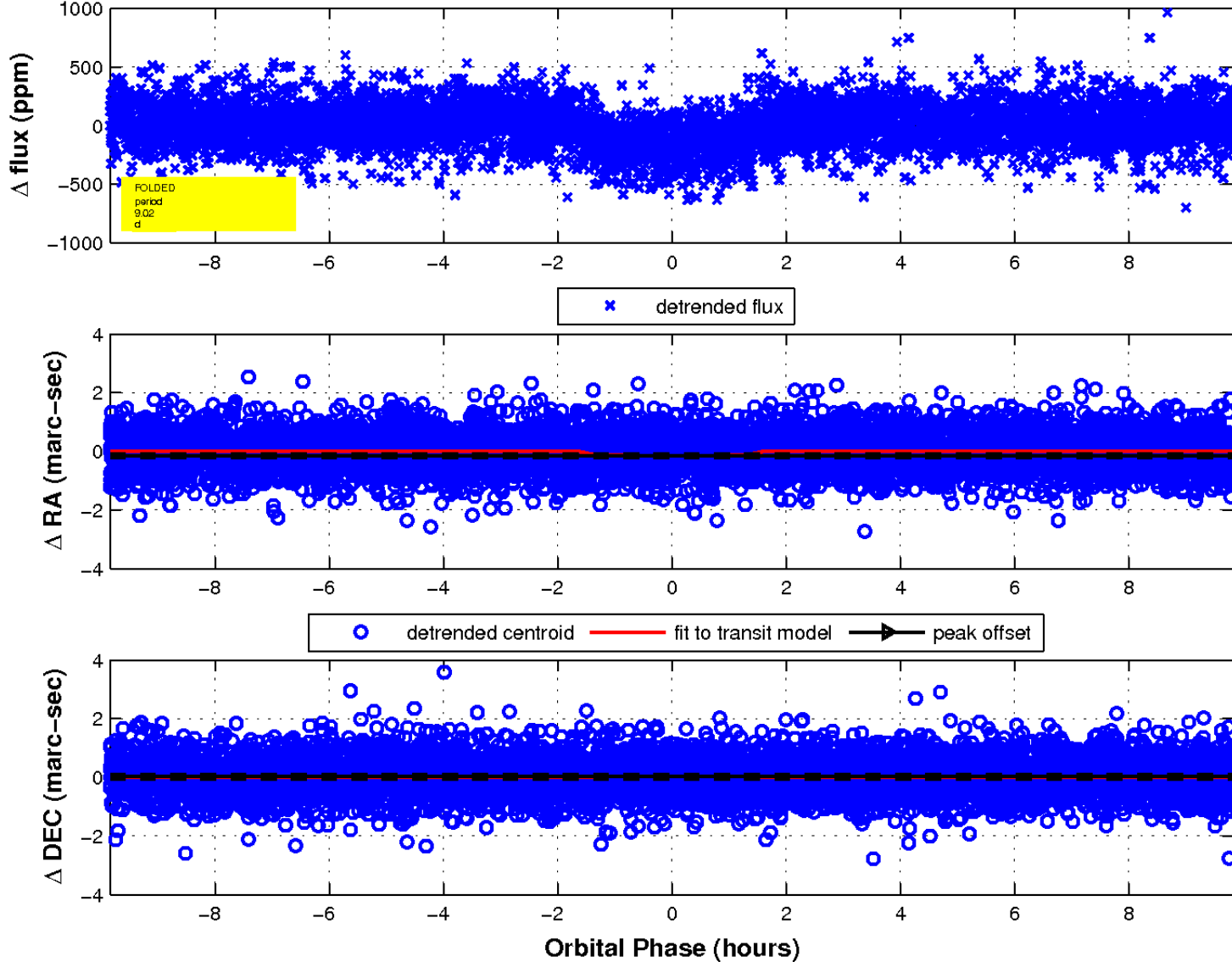
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

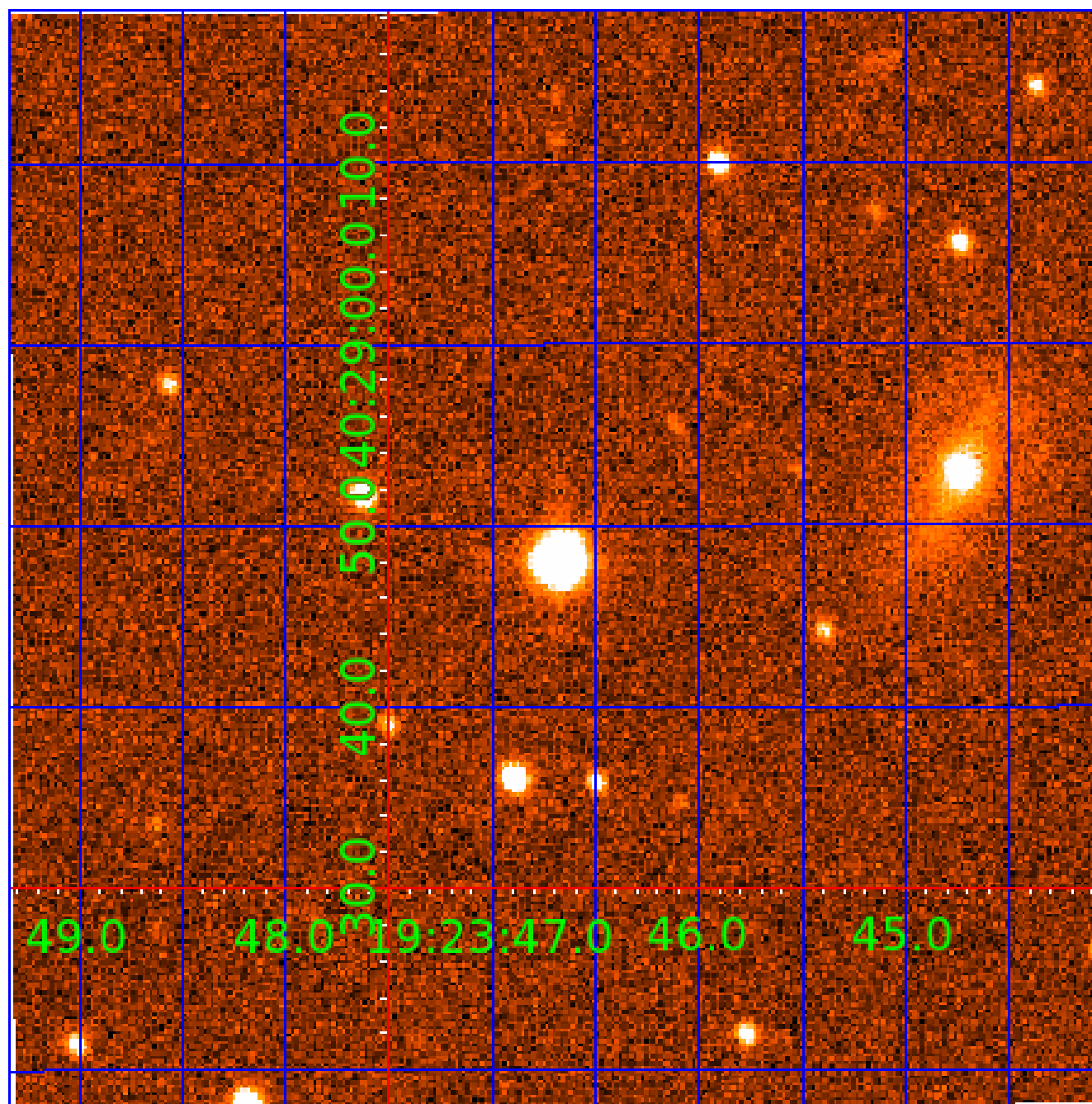


fluxWeightedCentroids, Planet 1 of 2



UKIRT Image

Declination



KIC 005272233

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})
005272233-01	OBS	2711.01	9.024385	133.541882	218.1	3.283	25.9	27.9	1.11	5885	1.95	183.85
005272233-02	OBS	2711.02	17.340938	138.965925	160.4	3.573	14.9	15.4	1.11	5885	1.71	76.96

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
005272233-01	OBS	PC	1.00	0	0	0	0	NO_COMMENT
005272233-02	OBS	PC	0.99	0	0	0	0	NO_COMMENT

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

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

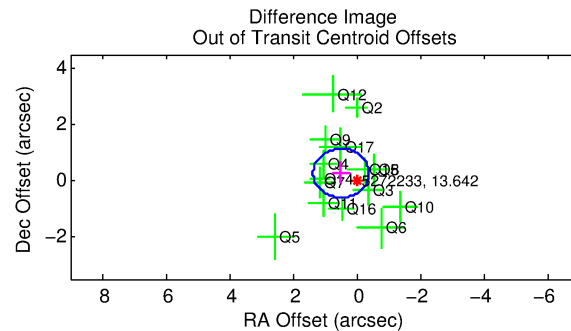
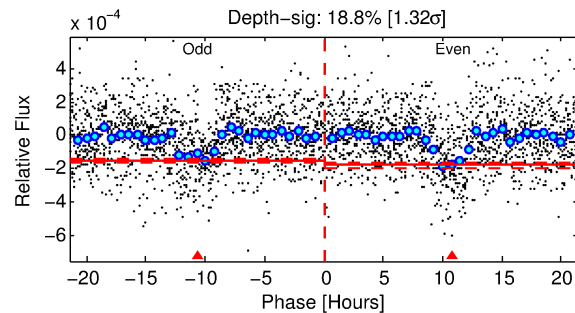
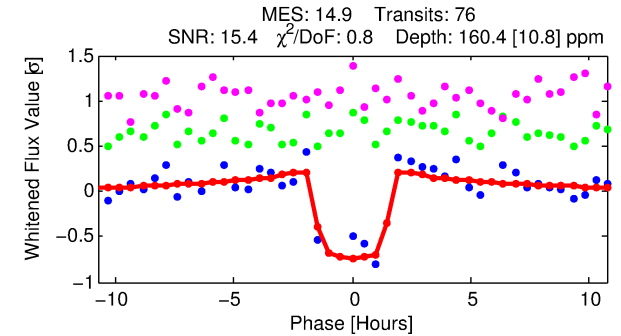
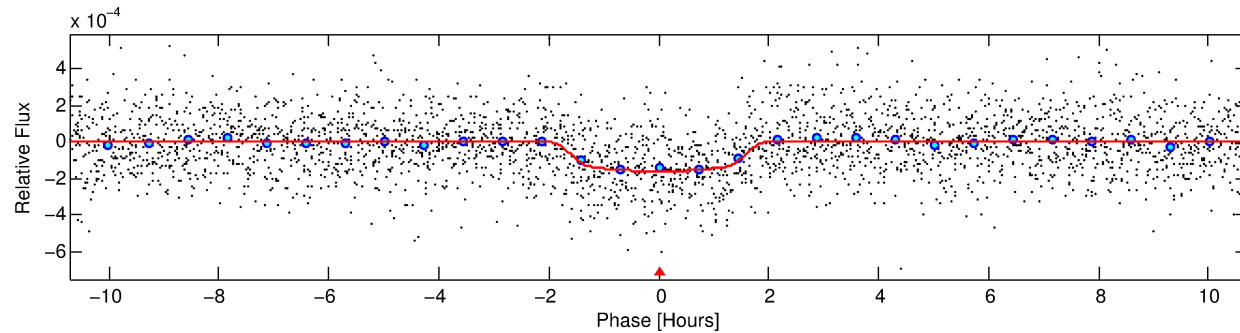
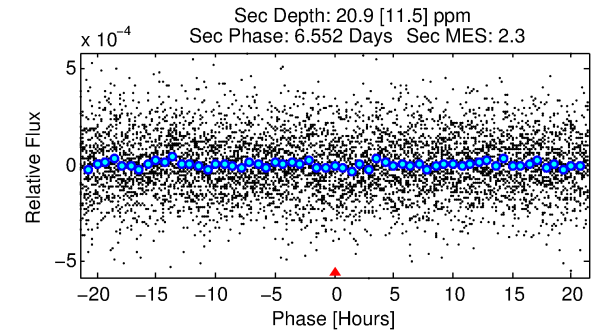
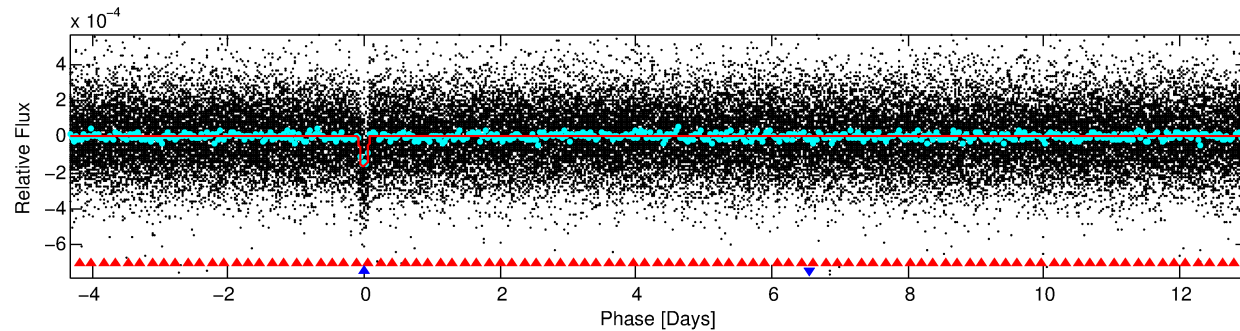
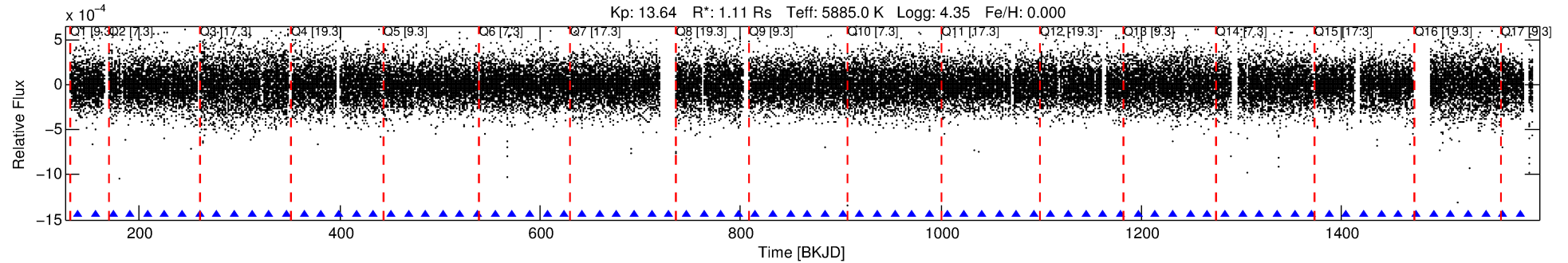
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 005272233-02

No Significant Match Found

DV One-Page Summary

KIC: 5272233 Candidate: 2 of 2 Period: 17.341 d
KOI: K02711.02 Name: Kepler-400c Corr: 0.981



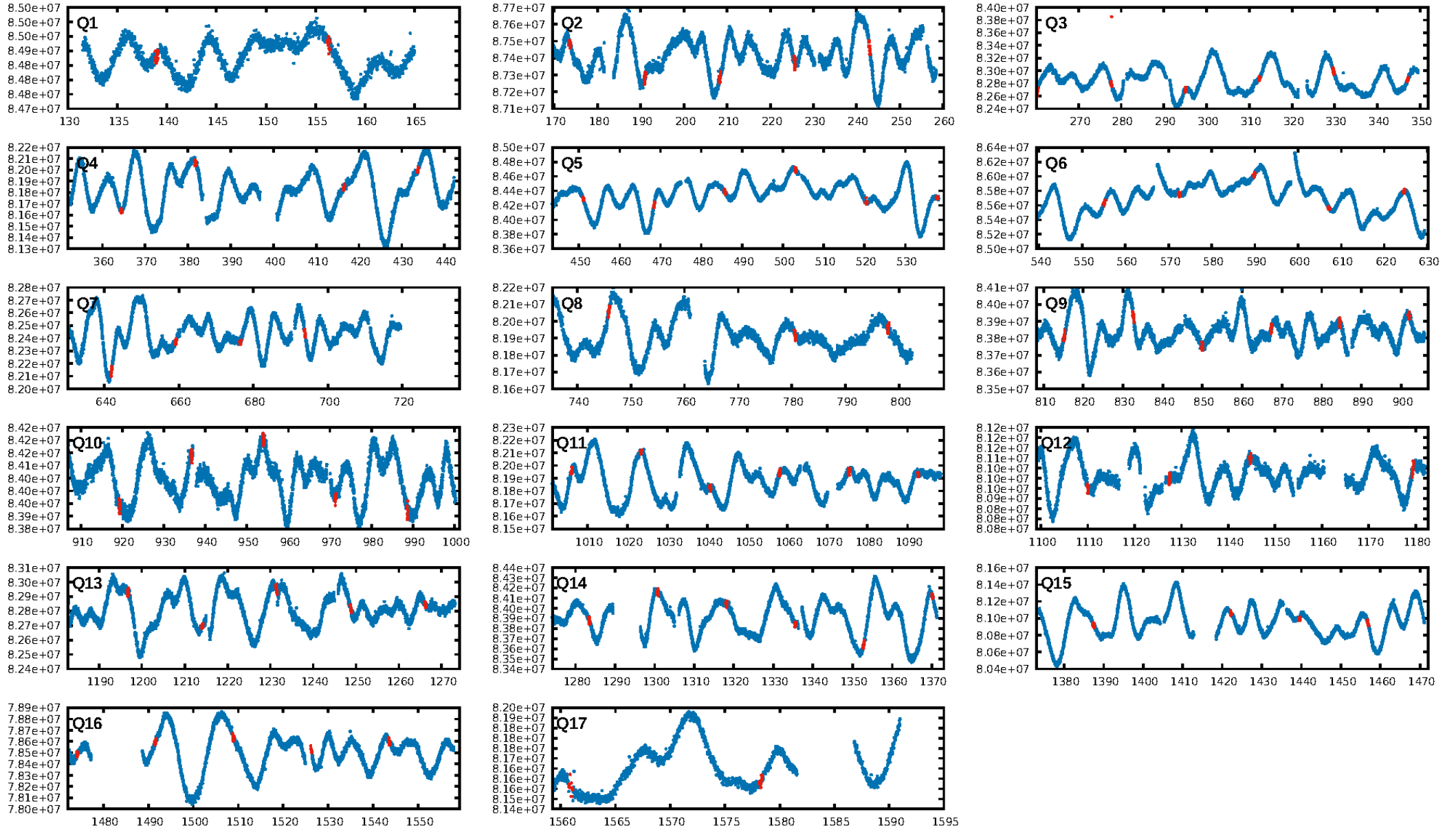
DV Fit Results:

Period = 17.34094 [0.00009] d
Epoch = 138.9659 [0.0042] BKJD
Rp/R* = 0.0141 [0.0025]
a/R* = 15.45 [13.39]
b = 0.92 [0.14]
Seff = 76.96 [16.55]
Teq = 755 [41] K
Rp = 1.71 [0.41] Re
a = 0.1313 [0.0179] AU
Ag = 67.35 [46.14] [1.44σ]
Teffp = 3345 [552] K [4.68σ]

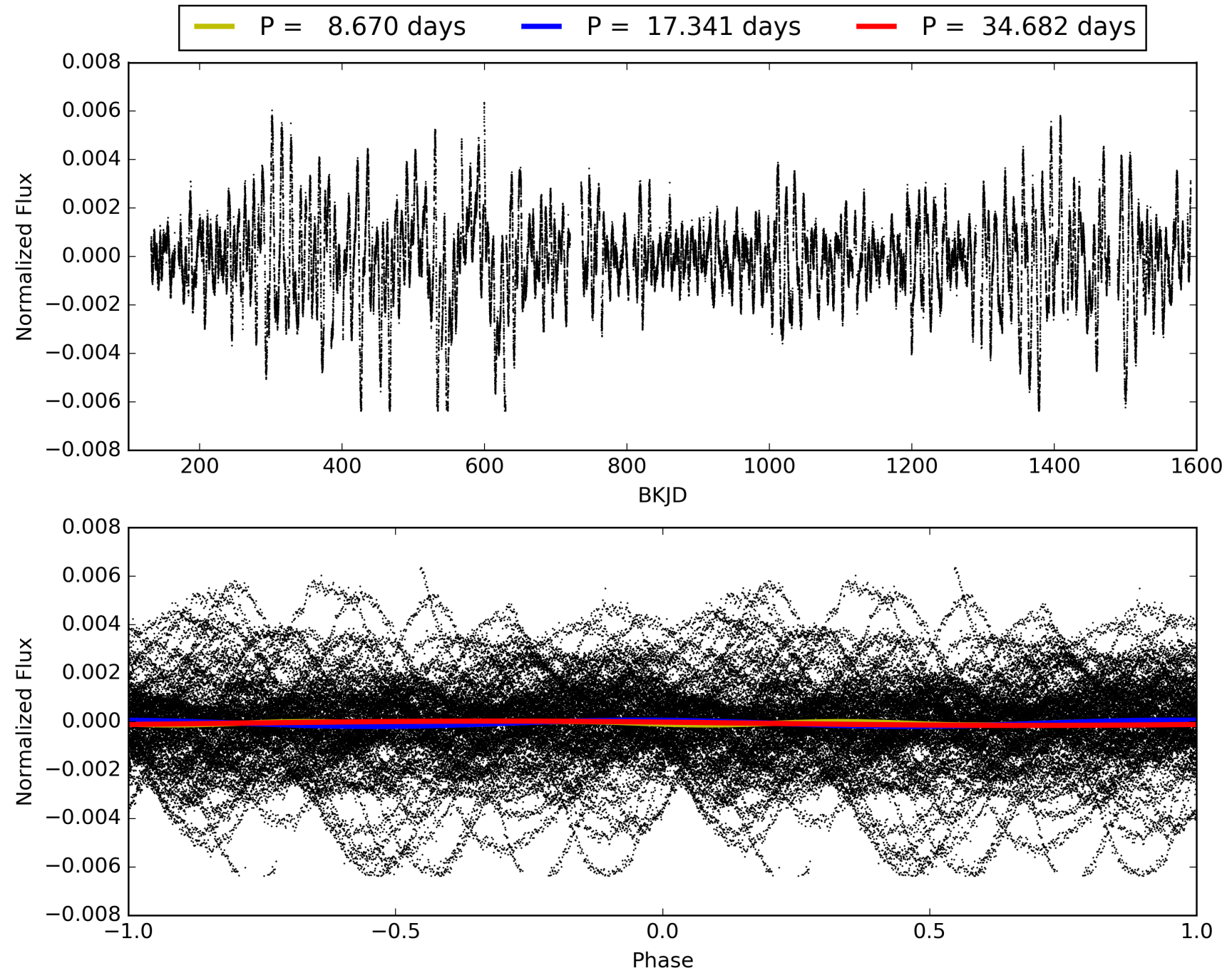
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [41.13σ]
LongPeriod-sig: N/A
ModelChiSquare2-sig: 56.5%
ModelChiSquareGof-sig: 100.0%
Bootstrap-pfa: 2.09e-47
RollingBand-fgt: 1.00 [72/72]
GhostDiagnostic-chr: -26.87
Centroid-sig: 62.2%
Centroid-so: 0.234 arcsec [0.41σ]
OotOffset-rm: 0.561 arcsec [1.93σ]
OotOffset-st: 4/4/4/3 [15]
KicOffset-rm: 0.555 arcsec [2.07σ]
KicOffset-st: 4/4/4/3 [15]
DiffImageQuality-fgm: 0.87 [13/15]
DiffImageOverlap-fno: 1.00 [17/17]

TCE 005272233-02, PDC Light Curves

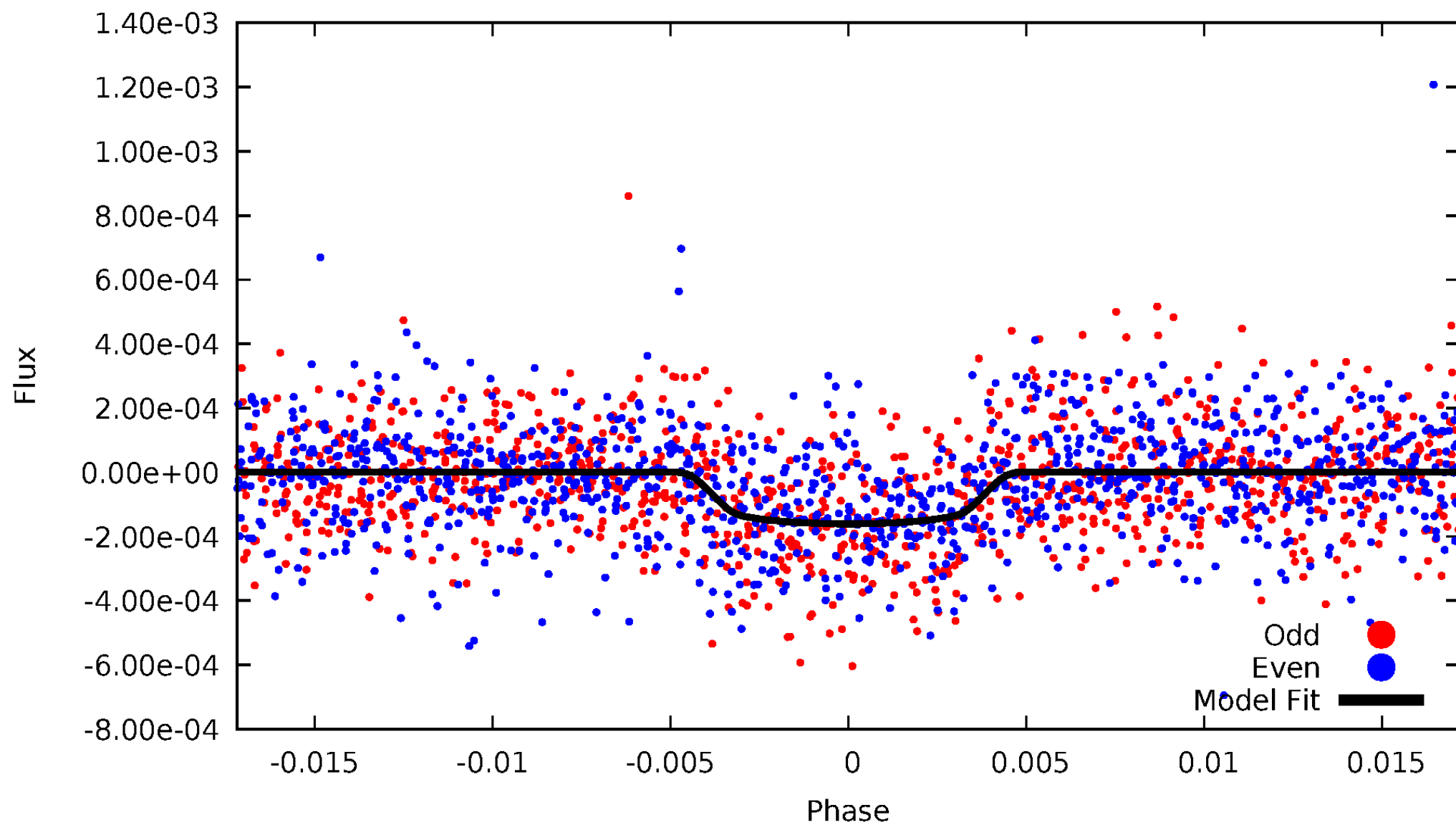


TCE 005272233-02



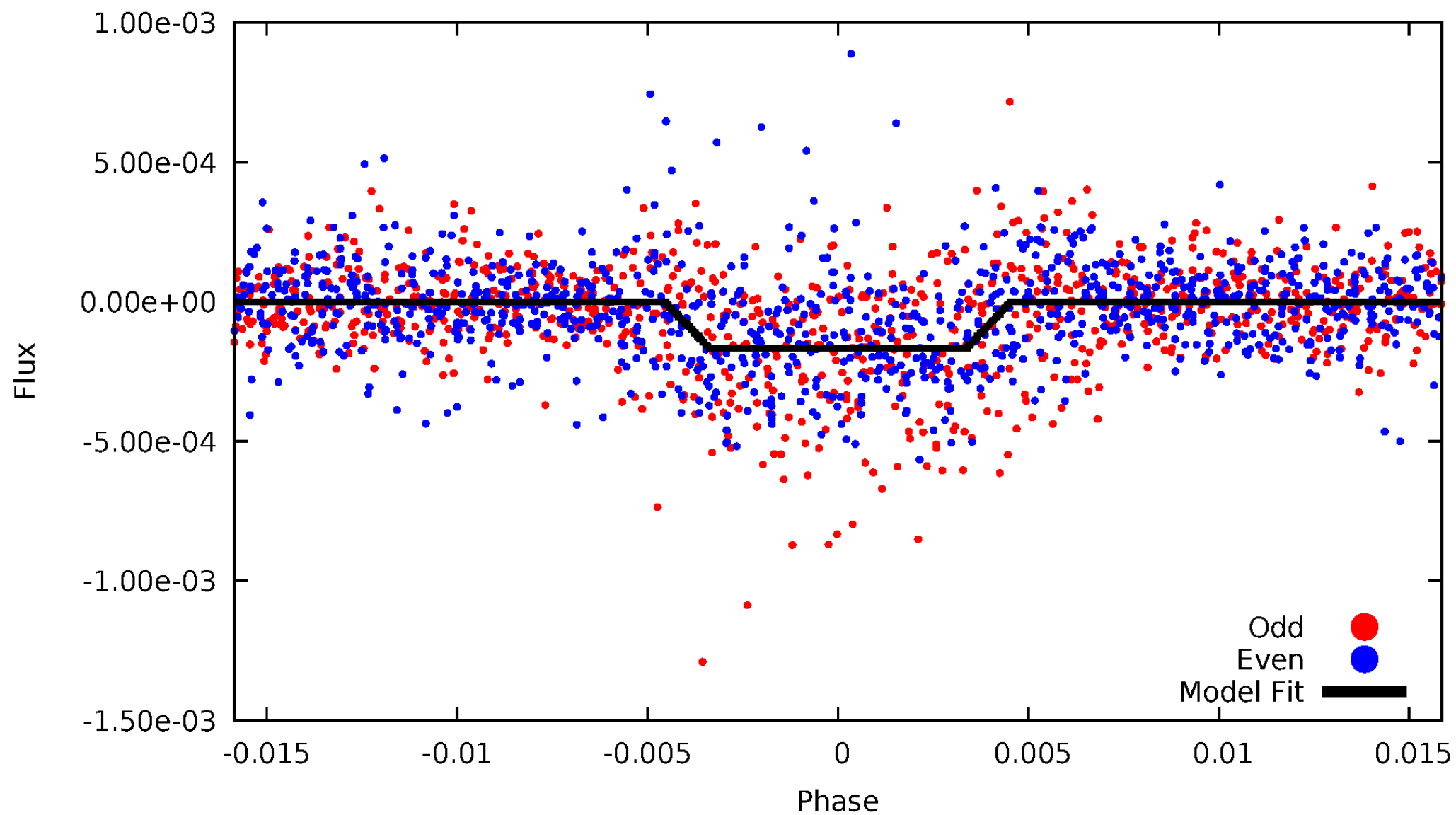
DV Odd/Even

TCE 005272233-02



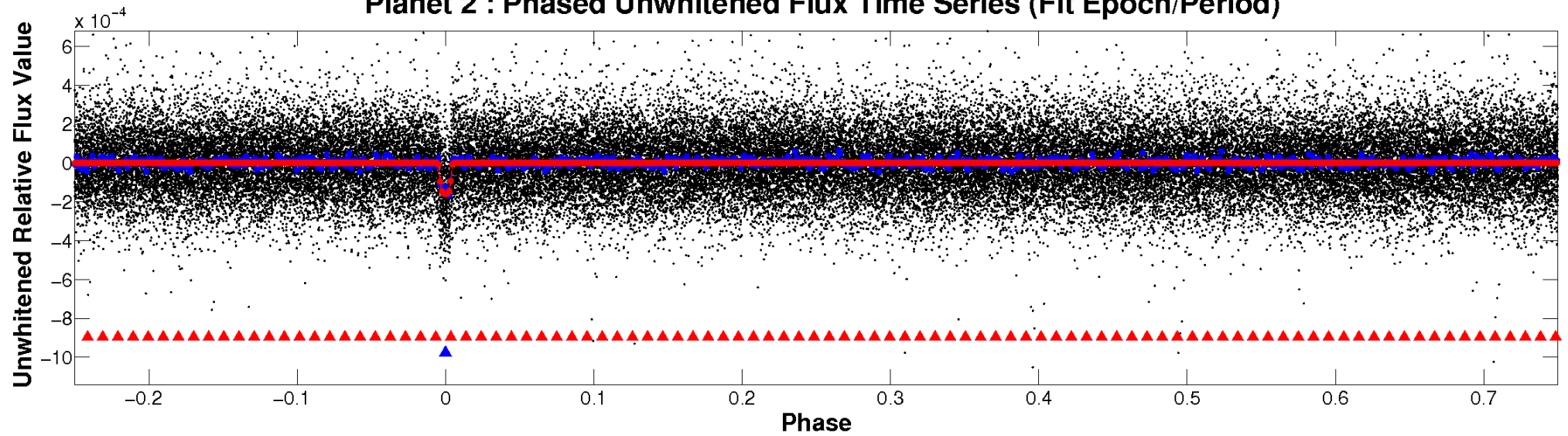
ALT Odd/Even

TCE 005272233-02

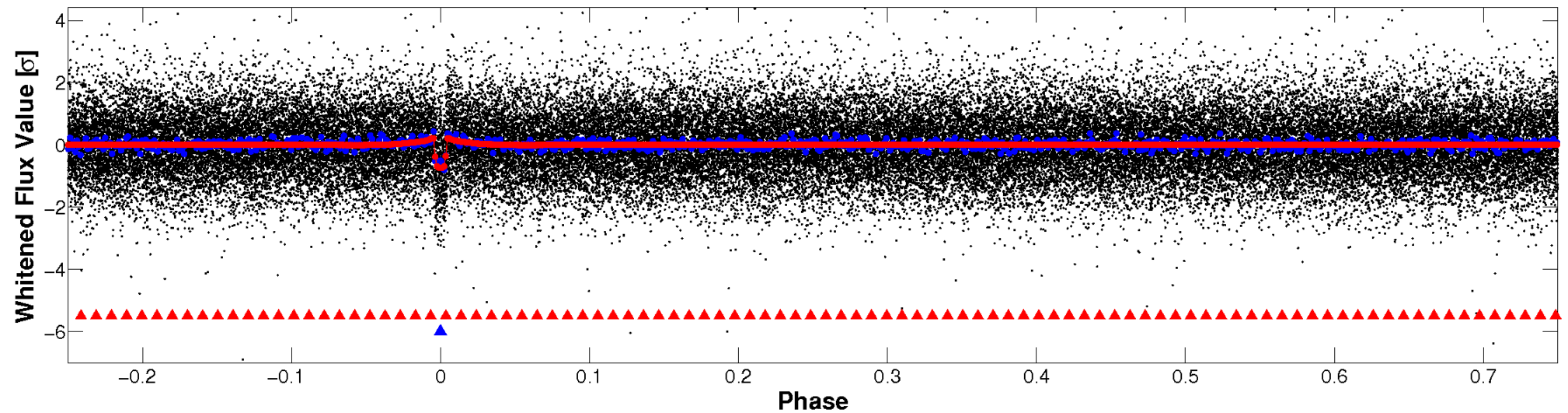


Non-Whitened Vs. Whitened Light Curve

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

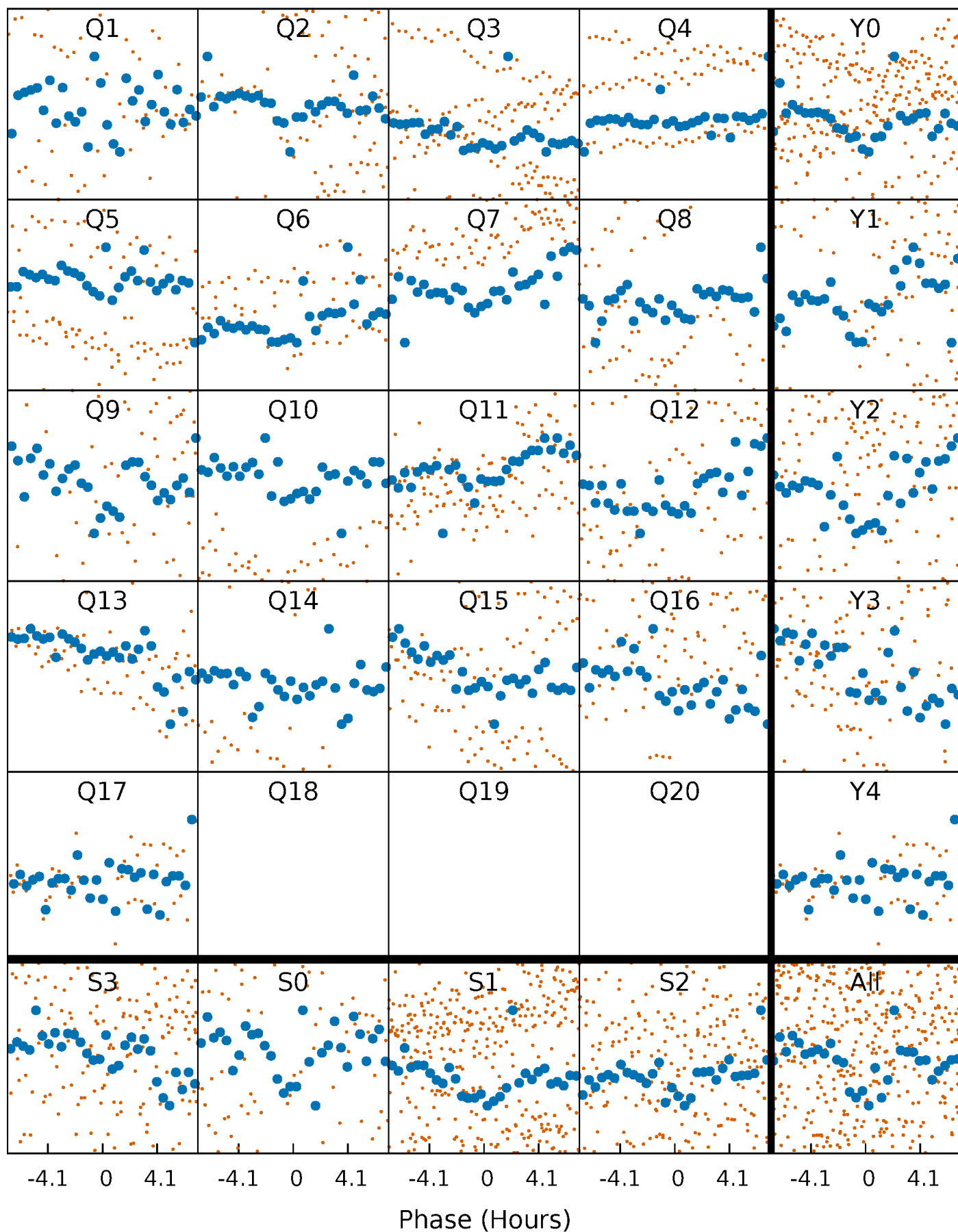


Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



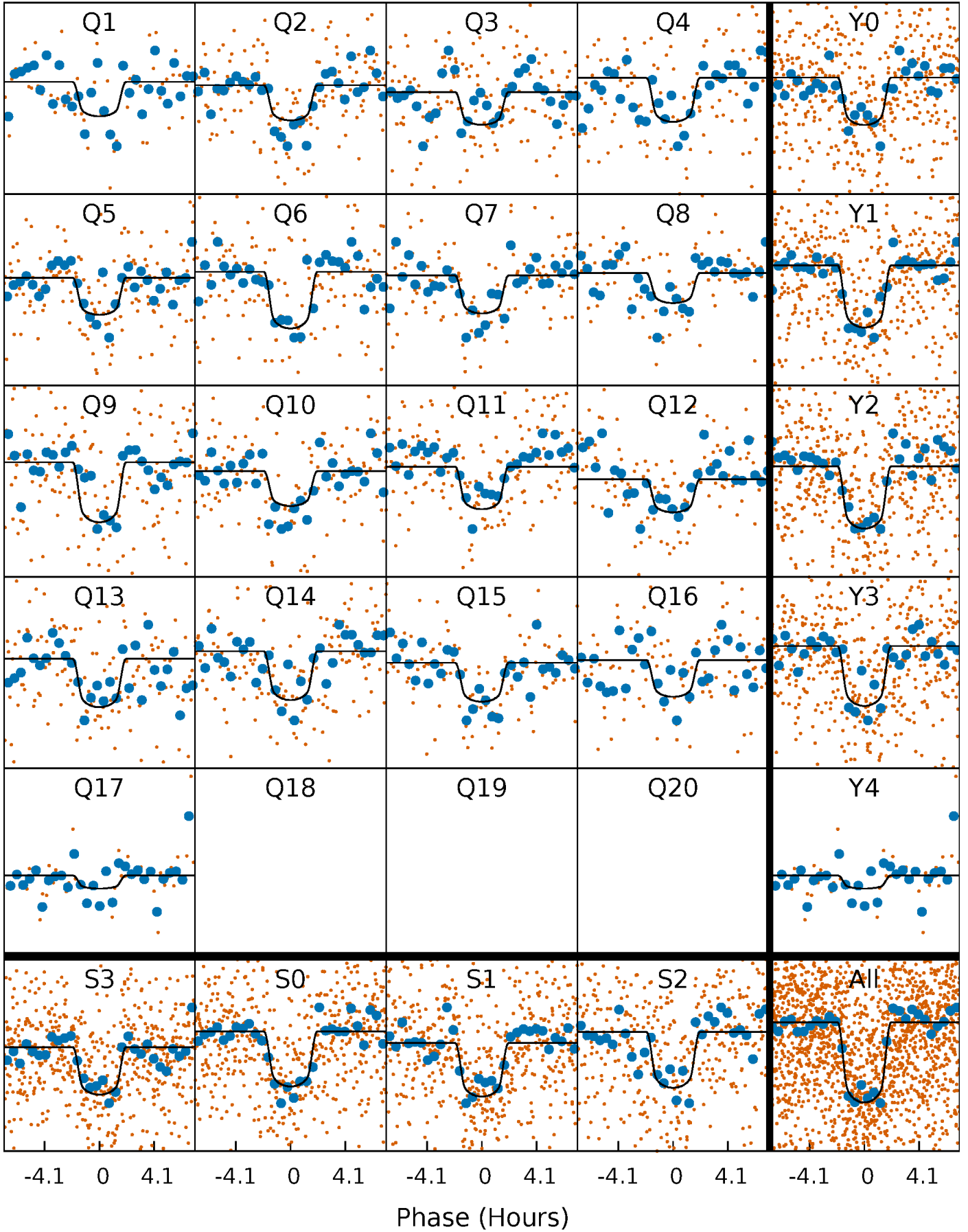
PDC Quarter-Phased Transit Curves

TCE 005272233-02 P= 17.340938 Days $T_0=138.965925$ (BKJD)



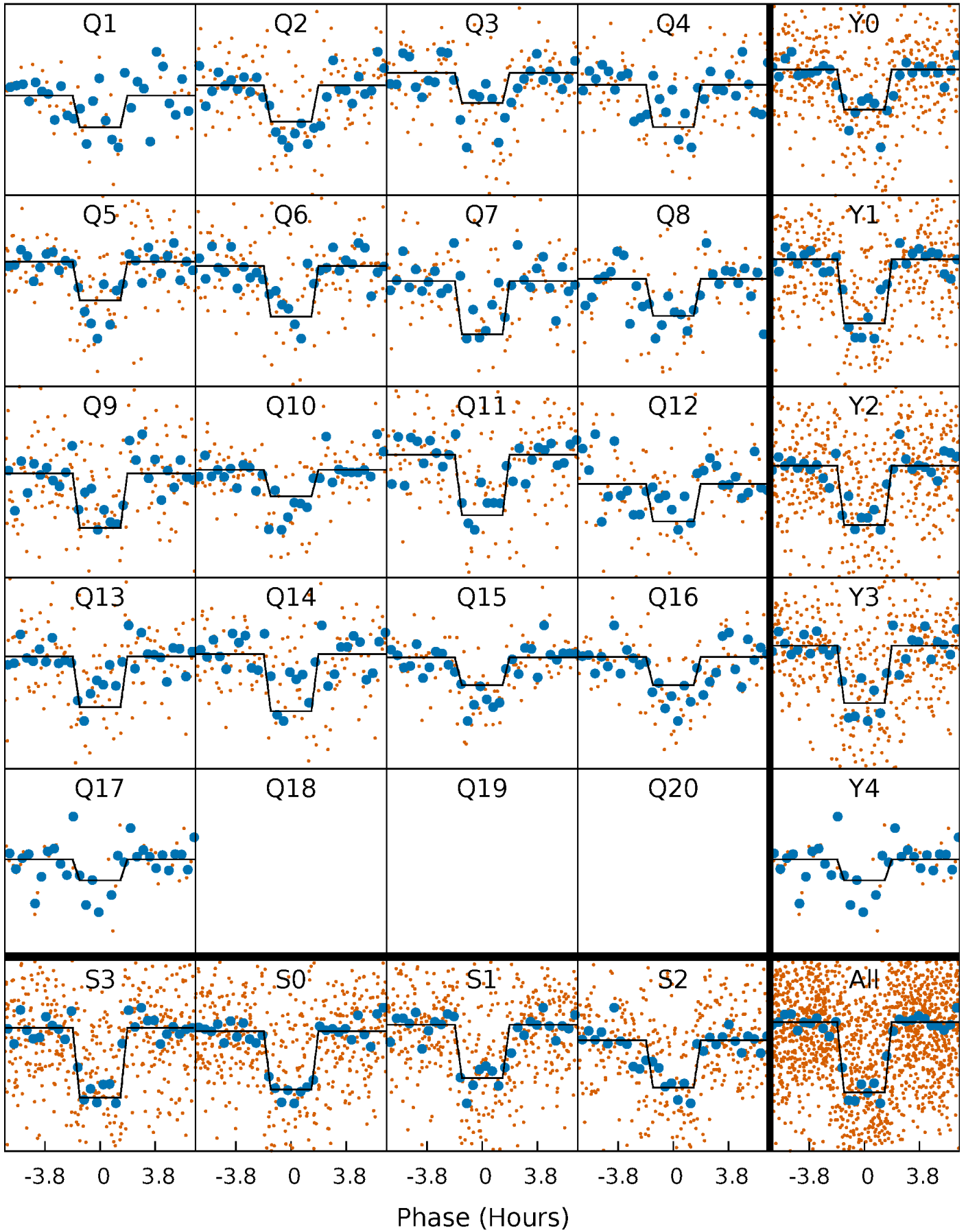
DV Quarter-Phased Transit Curves

TCE 005272233-02 P= 17.340938 Days $T_0=138.965925$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

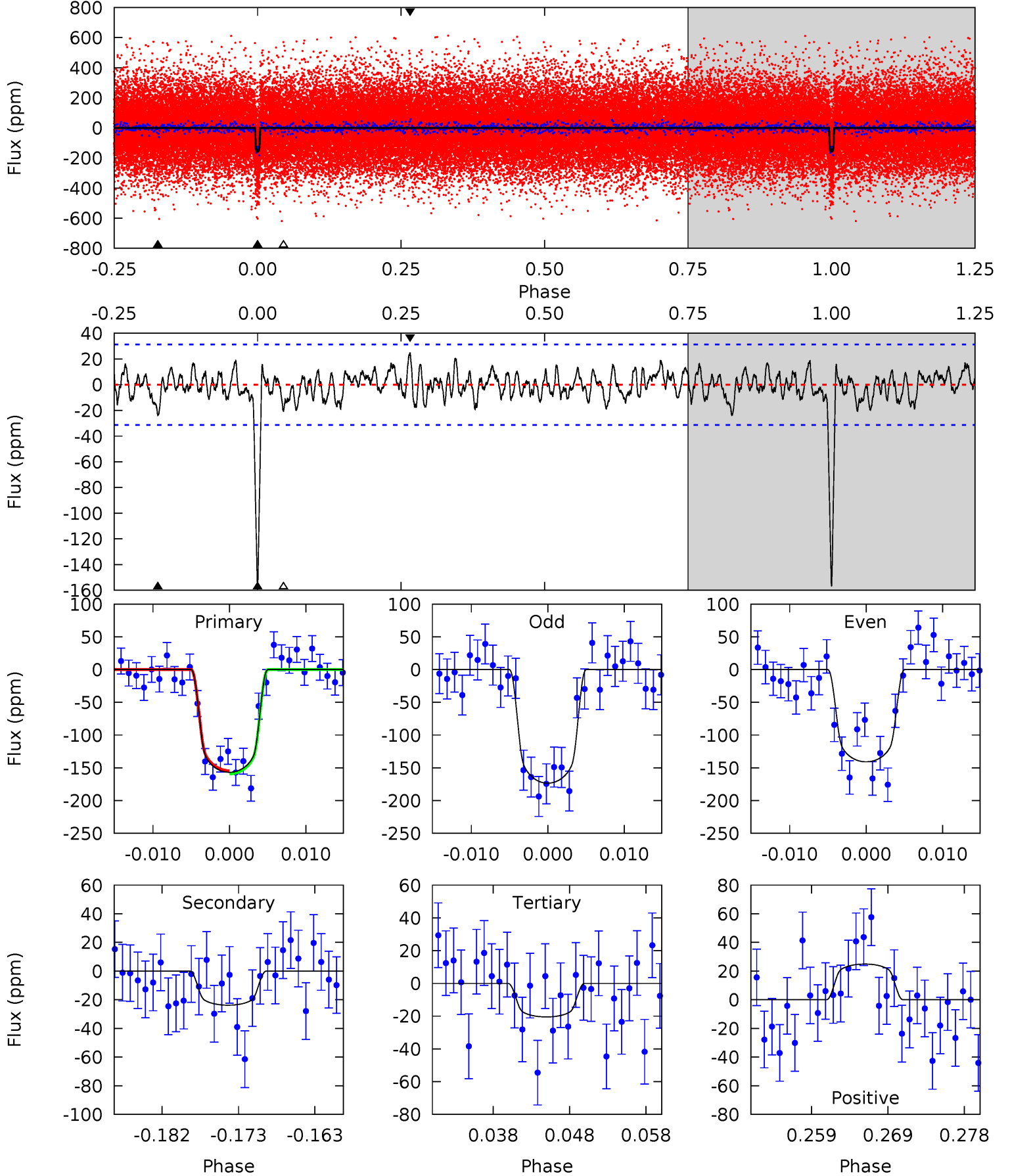
TCE 005272233-02 P= 17.341038 Days $T_0=138.960605$ (BKJD)



DV Model-Shift Uniqueness Test

005272233-02, P = 17.340938 Days, E = 121.624987 Days

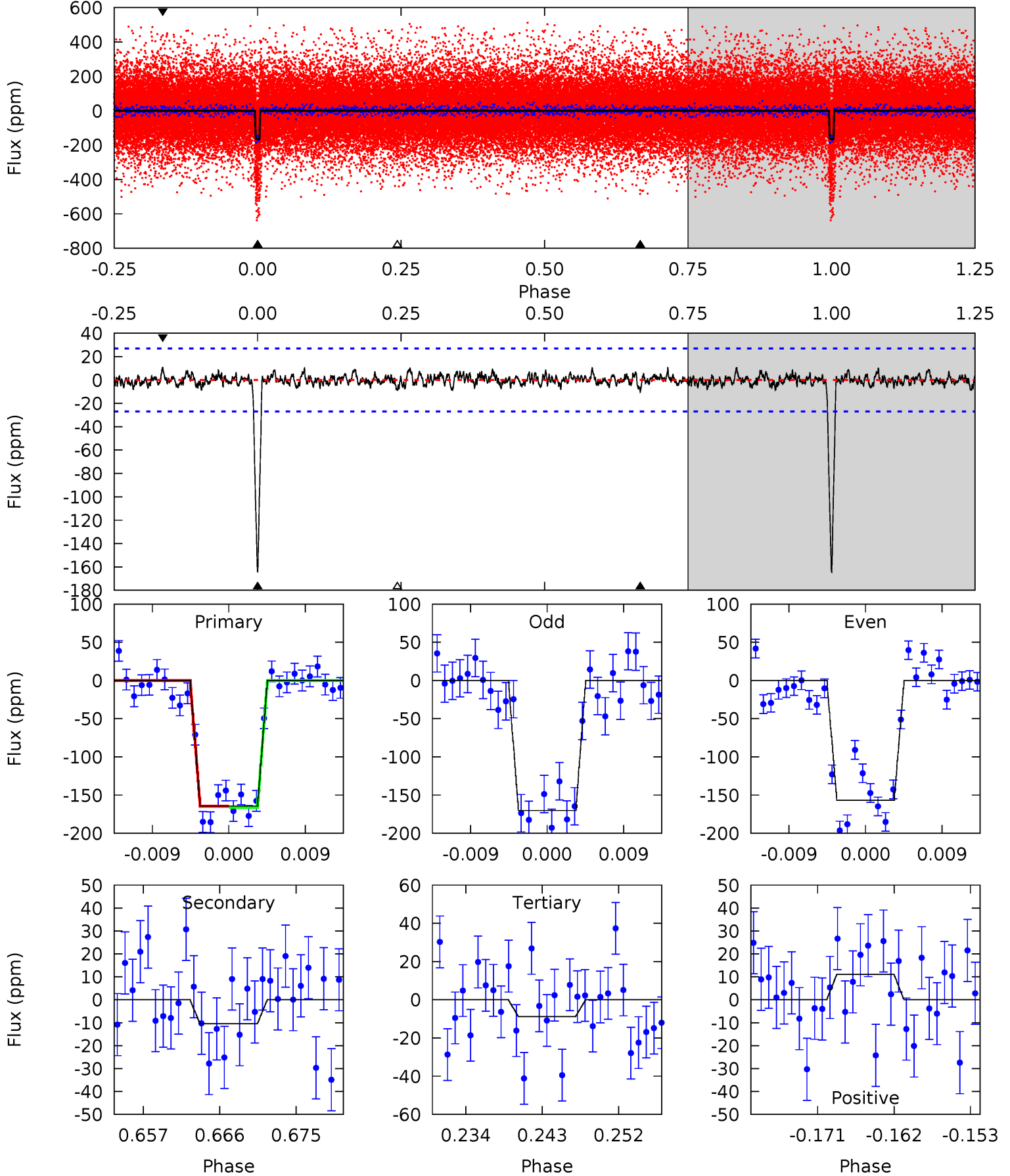
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
25.2	3.82	3.29	4.00	5.03	2.59	1.32	21.9	21.2	0.53	-0.18	2.62	1.02	0.14	0.38



Alt Model-Shift Uniqueness Test

005272233-02, $P = 17.341038$ Days, $E = 121.619567$ Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
30.7	1.96	1.64	2.06	5.05	2.61	0.63	29.1	28.7	0.32	-0.10	1.26	1.15	0.06	0.18



Stellar Parameters For KIC 005272233

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	5885^{+105}_{-117}	$4.348^{+0.110}_{-0.110}$	$0.000^{+0.150}_{-0.150}$	$1.111^{+0.178}_{-0.134}$	$1.004^{+0.082}_{-0.067}$	$1.031^{+0.486}_{-0.329}$
	+2%/-2%	+3%/-3%	+inf%/-inf%	+16%/-12%	+8%/-7%	+47%/-32%
Source	SPE58	SPE58	SPE58	DSEP		

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

Secondary Eclipse Parameters for KIC 005272233-02 / KOI 2711.02

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	-24 ± 6	$1.72^{+0.32}_{-0.31}$	1053^{+48}_{-43}	3812^{+330}_{-266}	76^{+45}_{-29}
Alt.	-10 ± 5	$1.57^{+0.33}_{-0.32}$	1054^{+44}_{-41}	3392^{+391}_{-425}	37^{+37}_{-23}

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 $A_{obs} \gg 1.0$

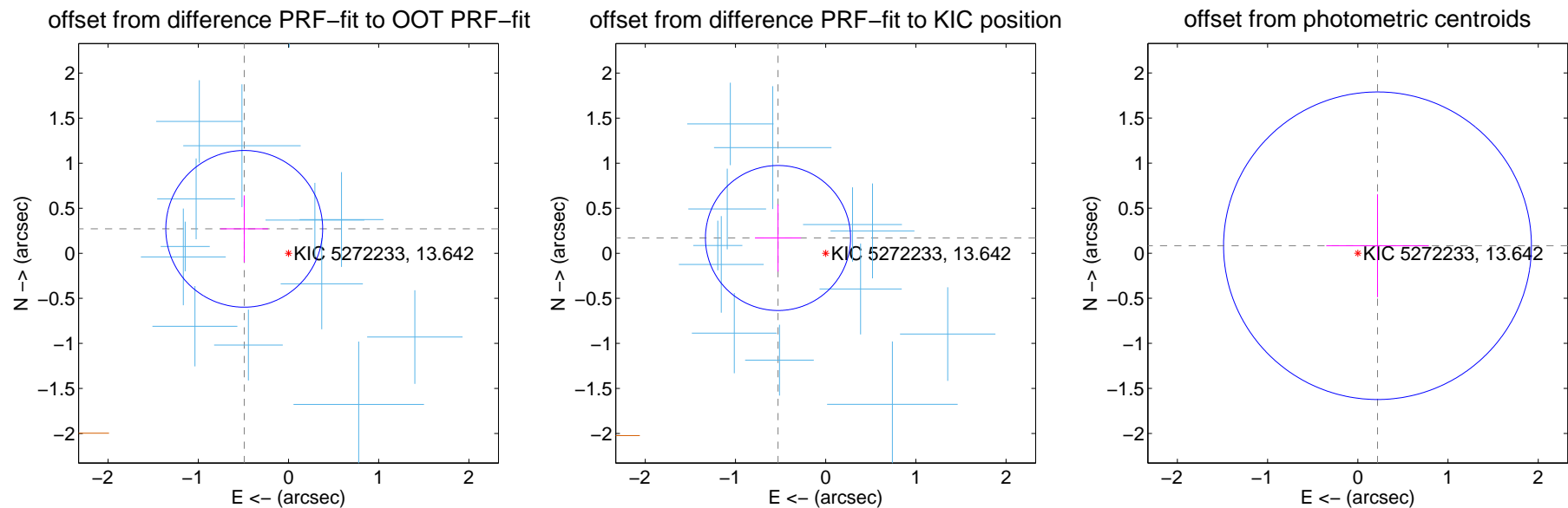
DV Centroid Data

Supplemental centroid analysis for 005272233-02. Kepler magnitude: 13.64. Transit SNR 15.35

There are 13 quarters with good PRF difference image offsets

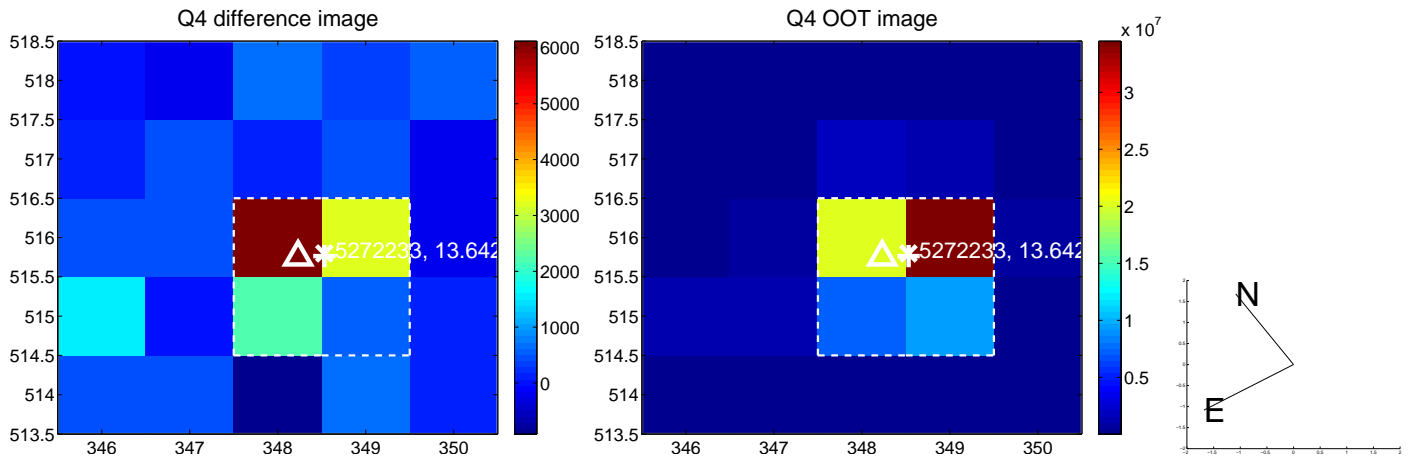
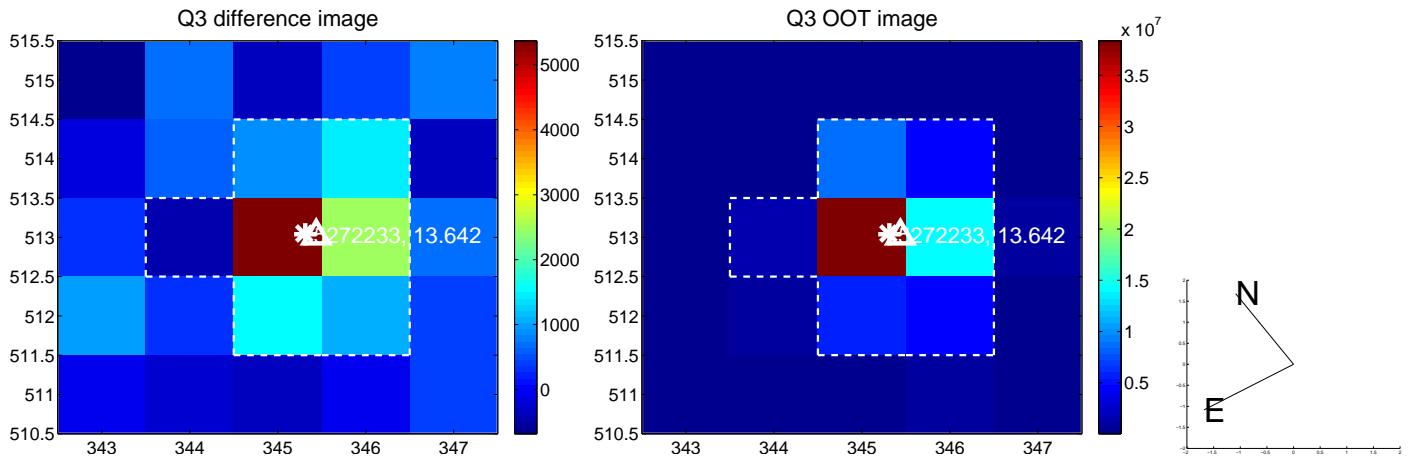
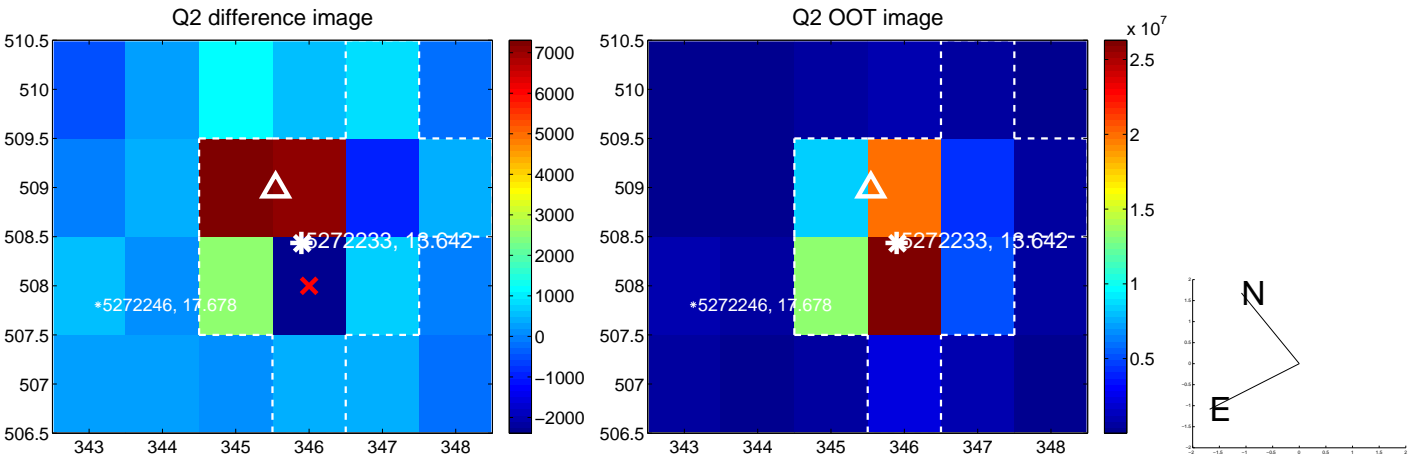
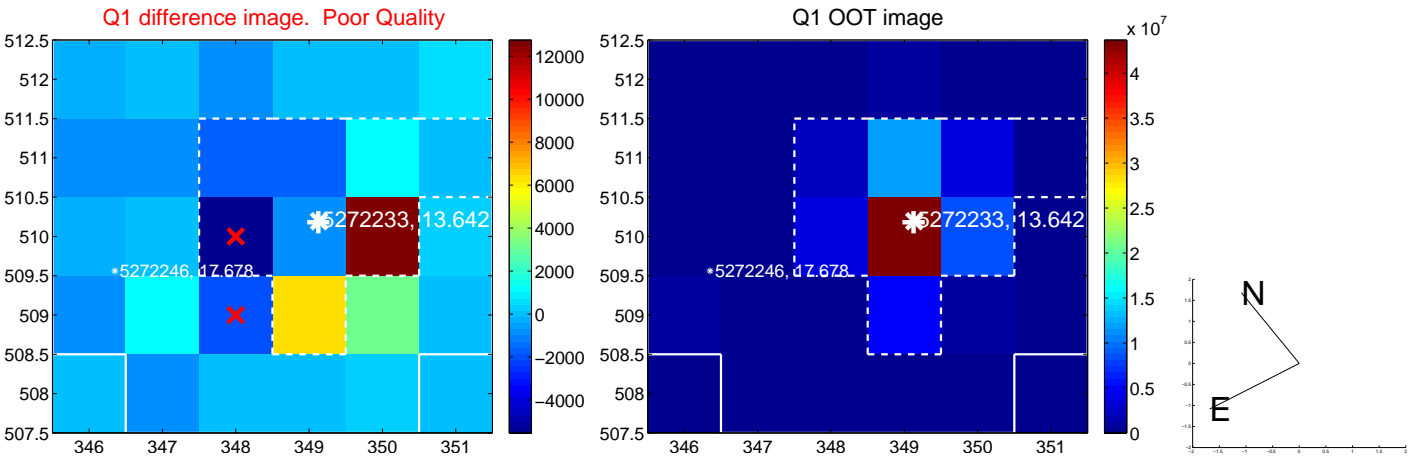
The direct PRF centroid is offset from the target star catalog position by about 0.07 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.561 ± 0.290	1.93	0.491 ± 0.265	0.271 ± 0.371
PRF-fit source offset from KIC position	0.555 ± 0.268	2.07	0.528 ± 0.256	0.170 ± 0.373
photometric centroid source offset	0.23 ± 0.57	0.41	-0.22 ± 0.57	0.08 ± 0.57

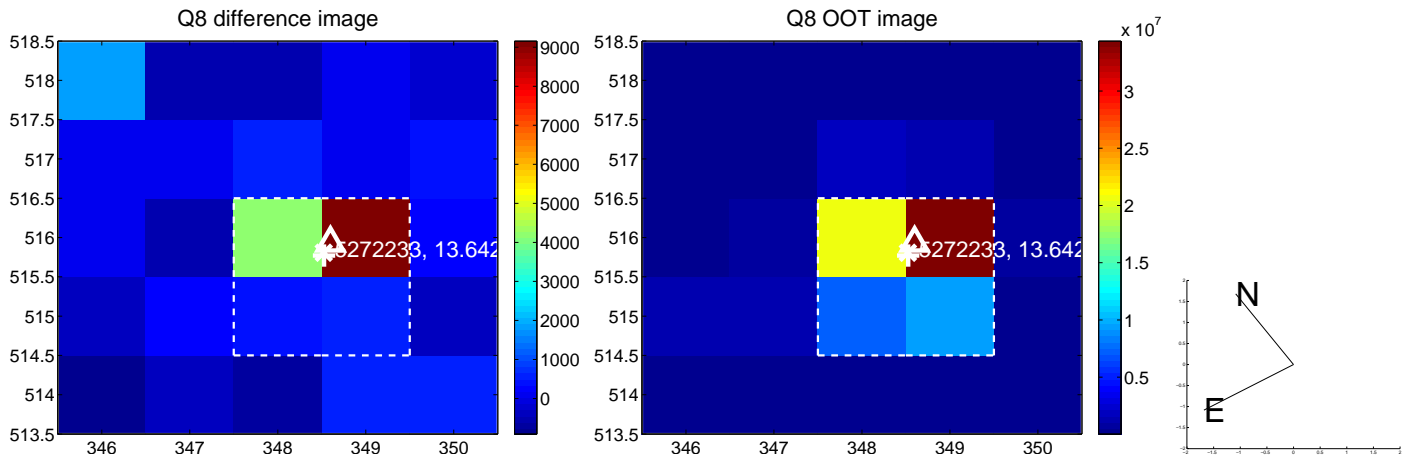
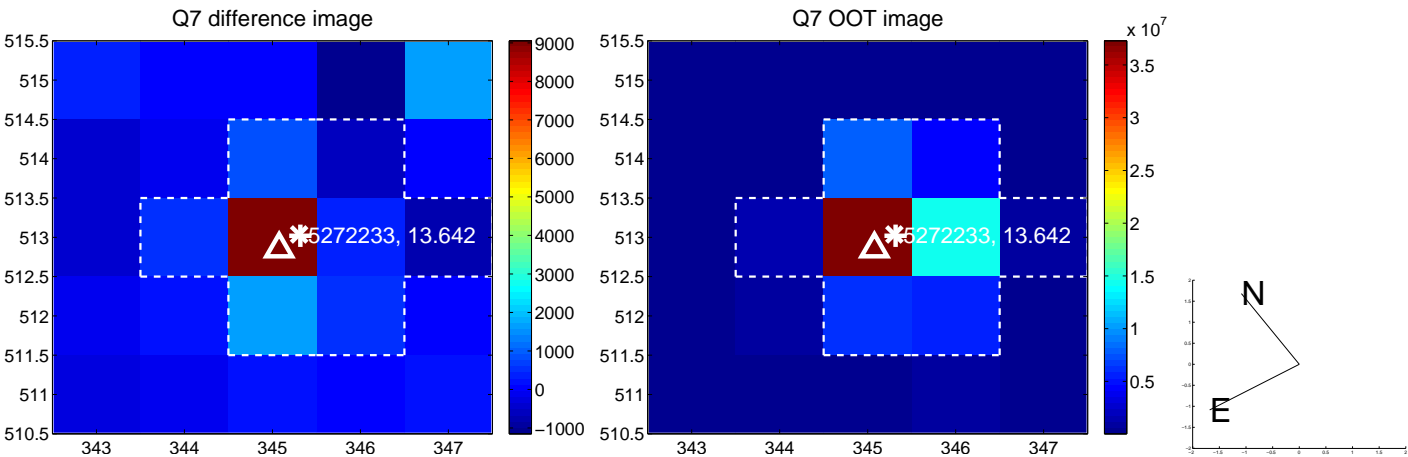
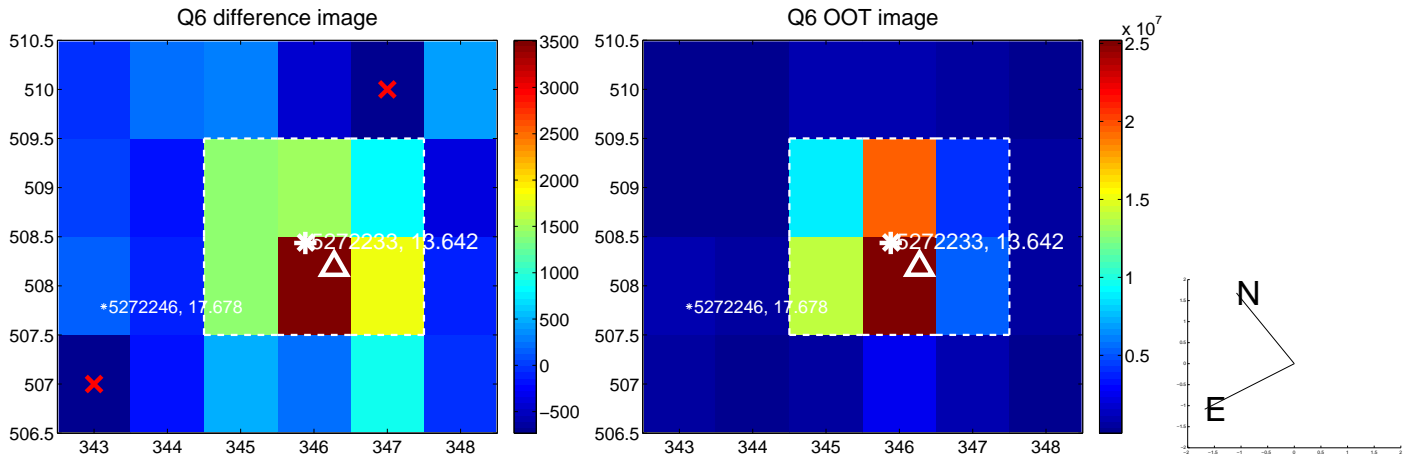
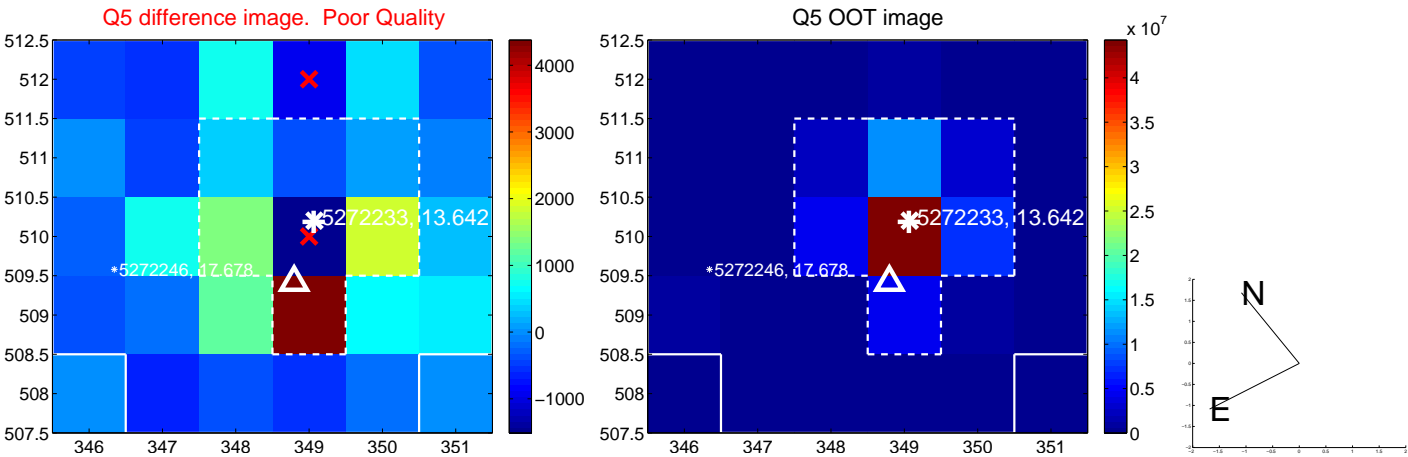


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ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

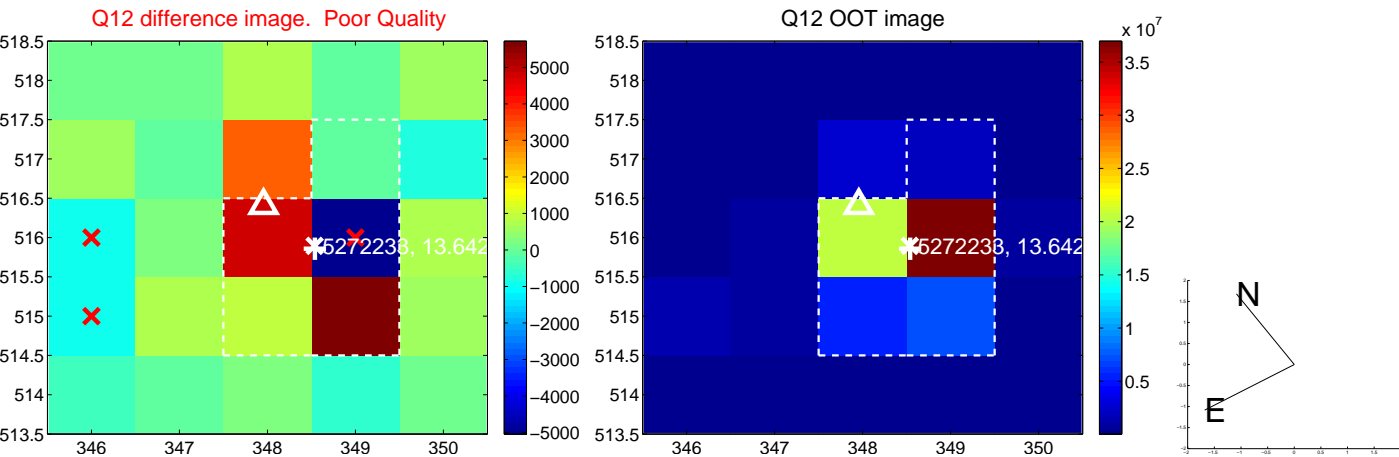
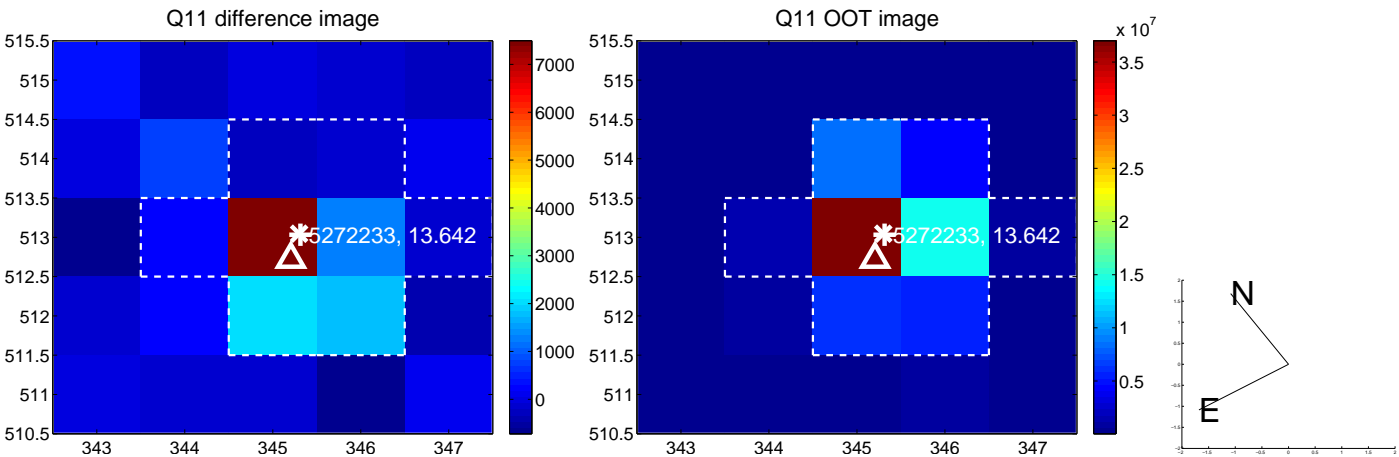
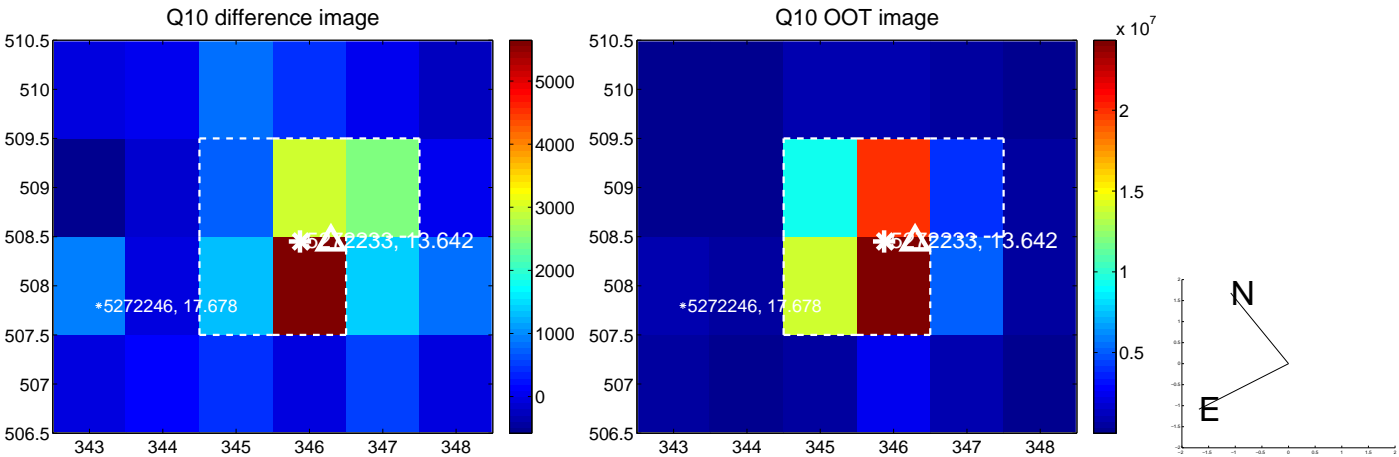
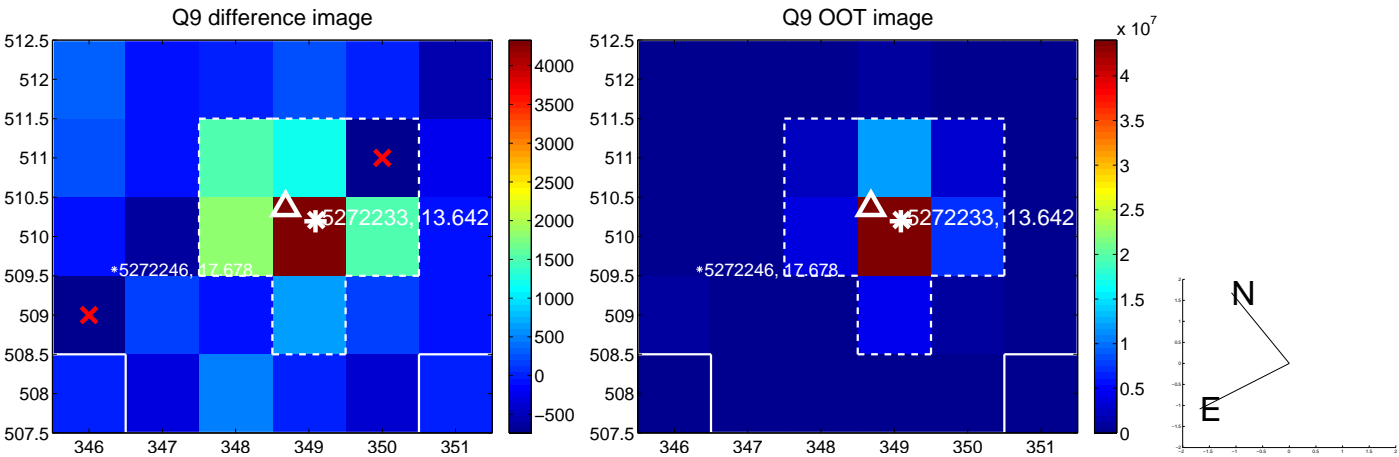
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



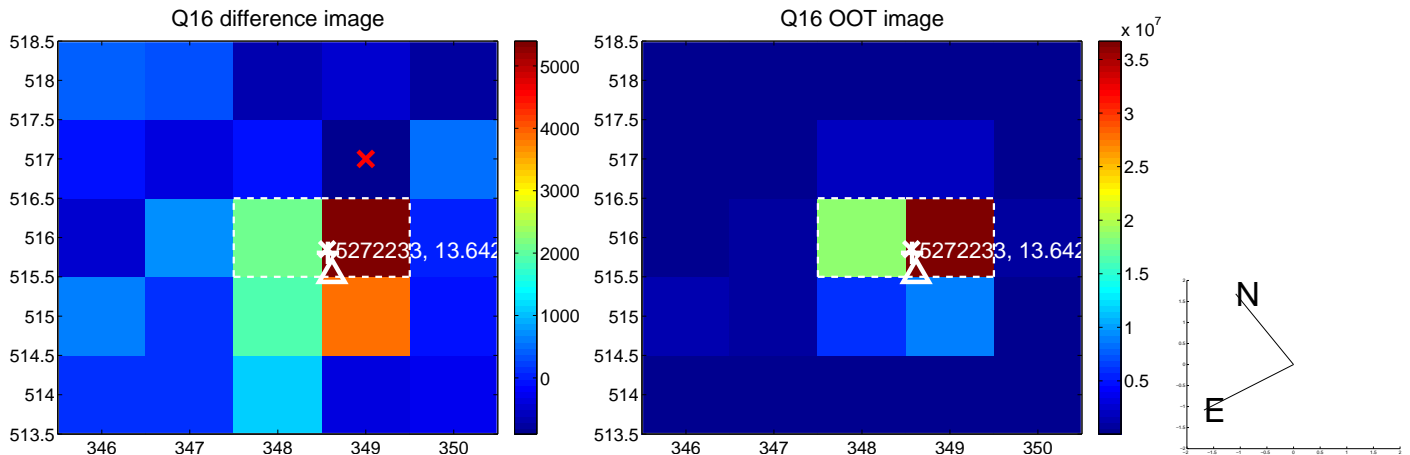
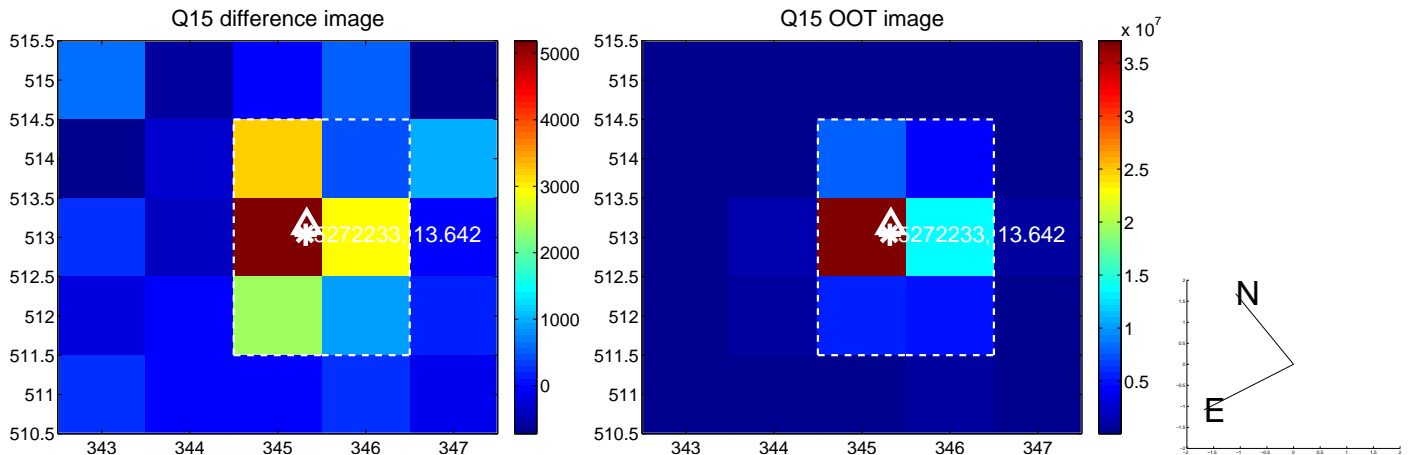
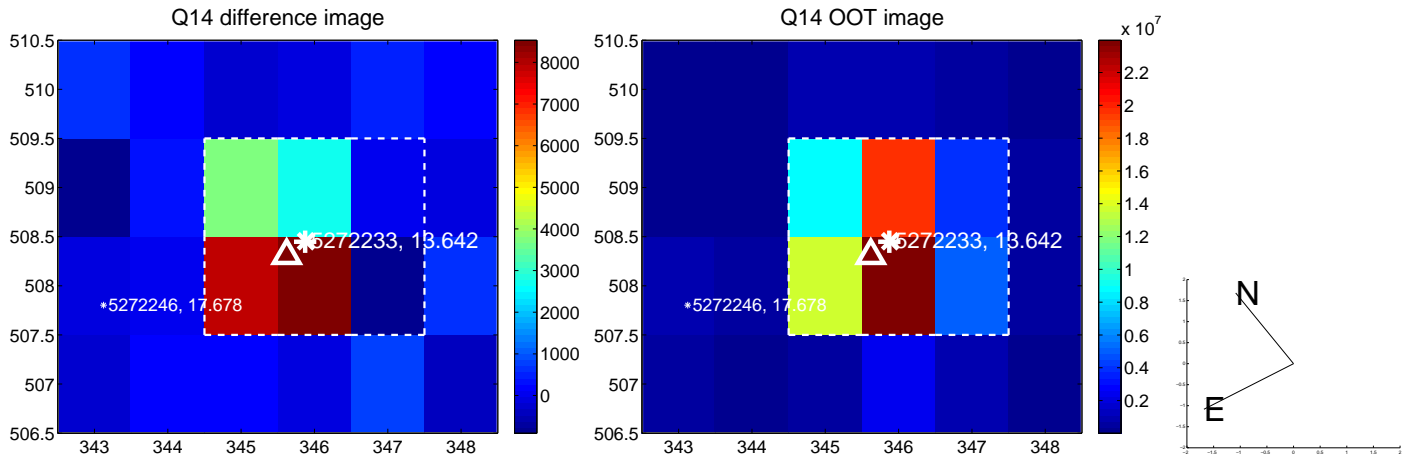
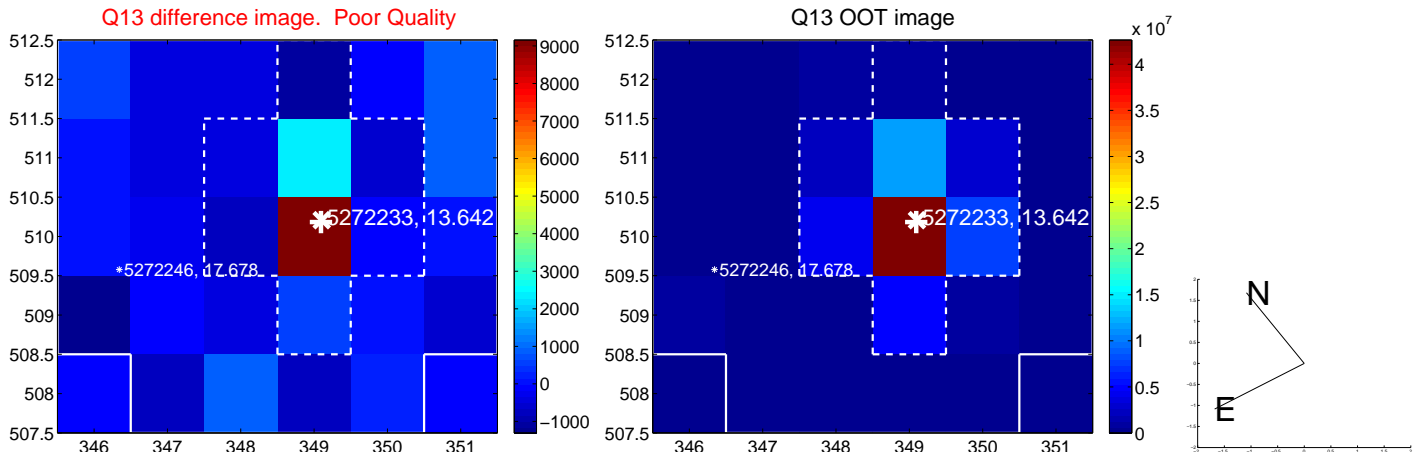
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



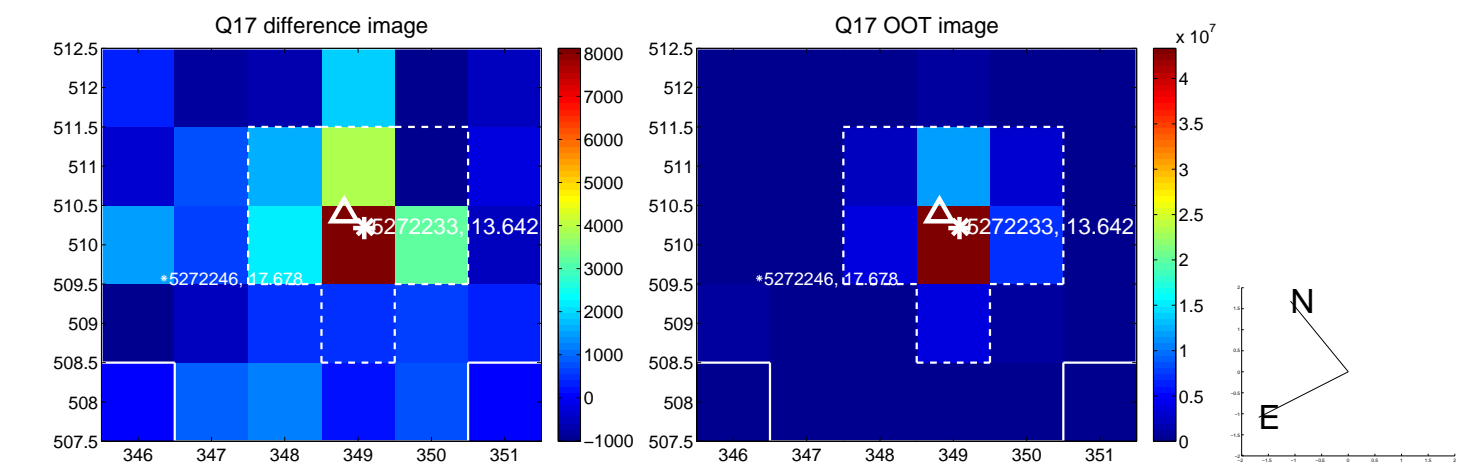
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



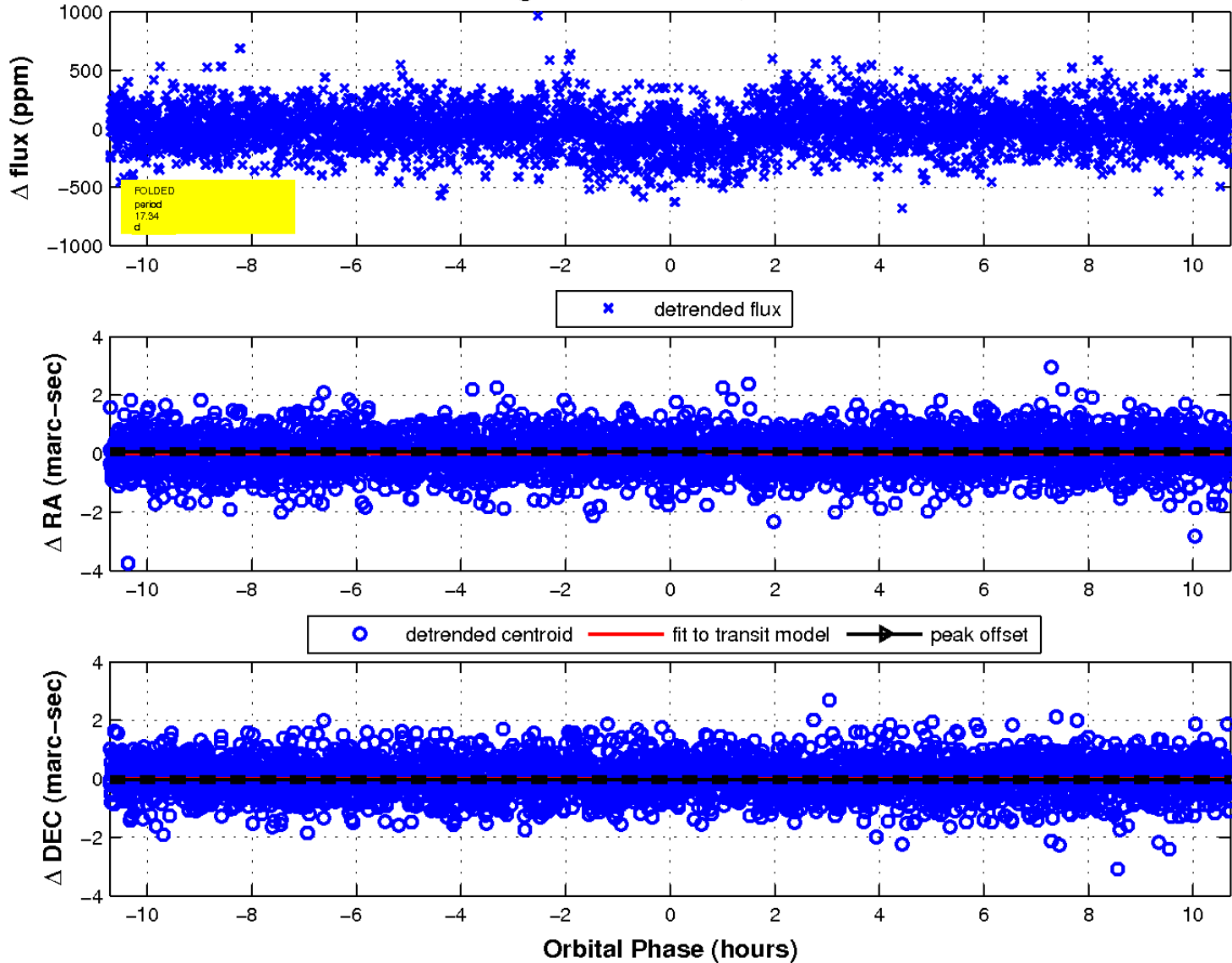
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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



fluxWeightedCentroids, Planet 2 of 2



UKIRT Image

Declination

