

KIC 004270253

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})
004270253-01	OBS	0551.01	11.637014	132.297534	592.3	3.467	30.2	33.4	1.20	5576	3.26	127.65
004270253-02	OBS	0551.02	5.687984	133.955929	474.6	2.467	28.3	31.8	1.20	5576	3.26	331.55

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
004270253-01	OBS	PC	1.00	0	0	0	0	NO_COMMENT
004270253-02	OBS	PC	1.00	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.

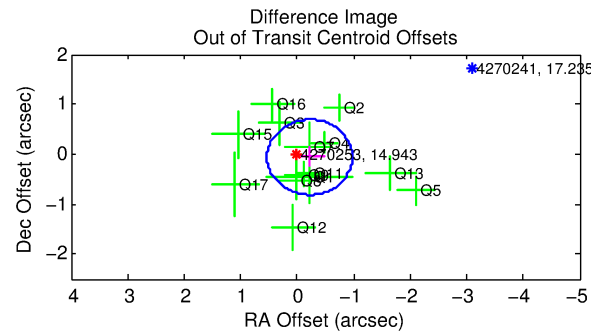
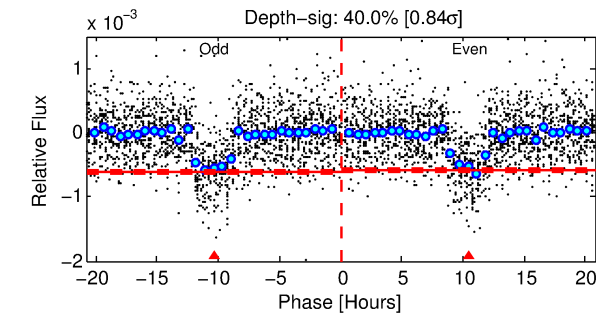
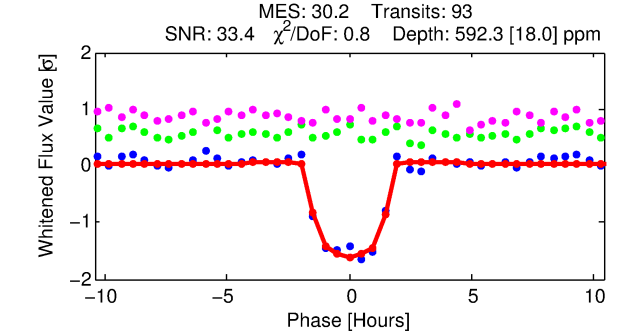
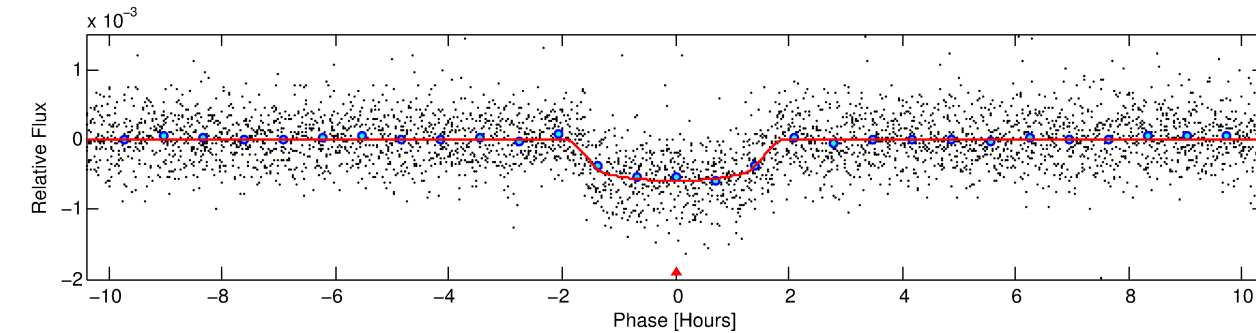
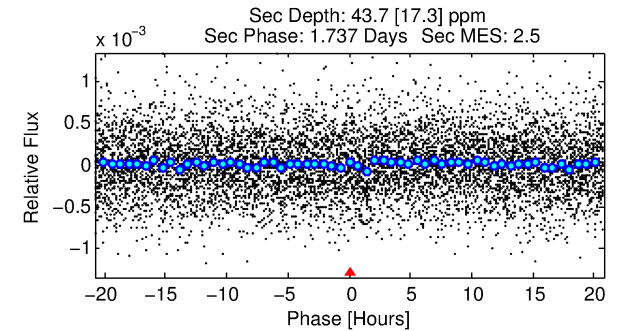
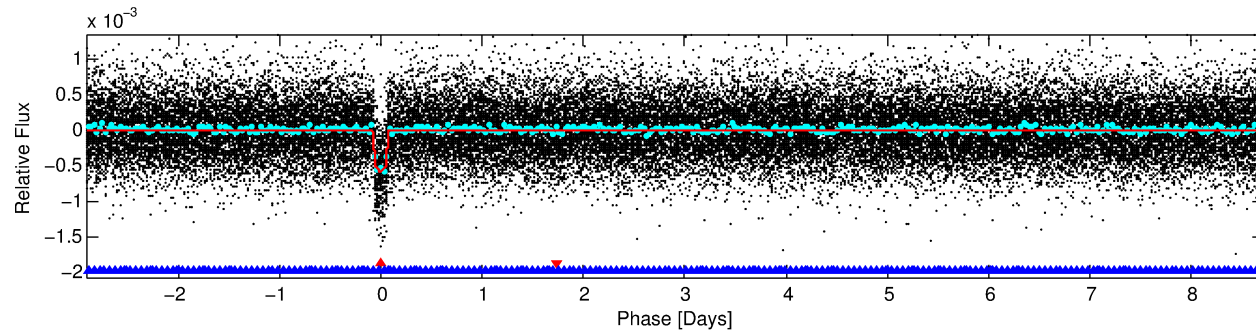
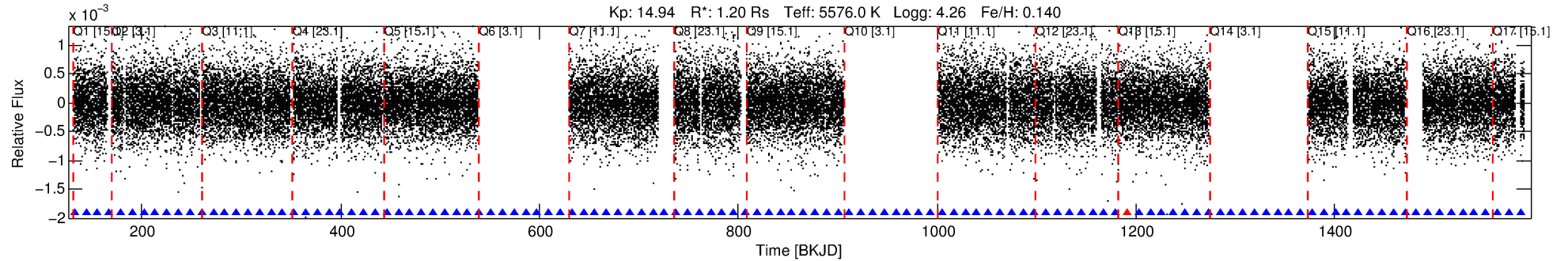
Ephemeris Match Information For 004270253-01

No Significant Match Found

DV One-Page Summary

KIC: 4270253 Candidate: 1 of 2 Period: 11.637 d
KOI: K00551.01 Name: Kepler-183c Corr: 0.983

Kp: 14.94 R*: 1.20 Rs Teff: 5576.0 K Logg: 4.26 Fe/H: 0.140



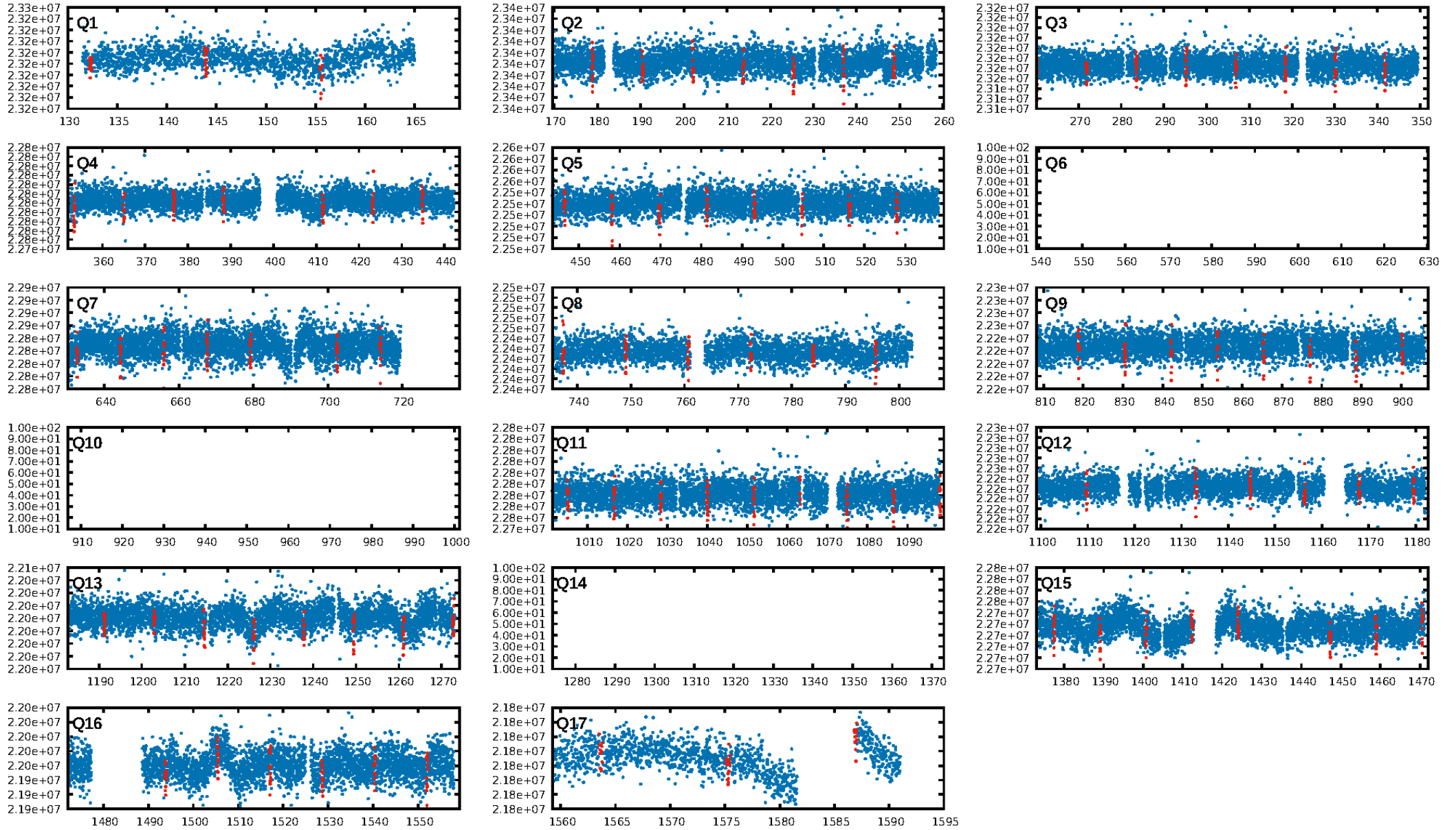
DV Fit Results:

Period = 11.63701 [0.00003] d
Epoch = 132.2975 [0.0021] BKJD
Rp/R* = 0.0250 [0.0058]
a/R* = 16.17 [15.52]
b = 0.81 [0.42]
Seff = 127.65 [36.76]
Teff = 857 [62] K
Rp = 3.26 [0.94] Re
a = 0.0987 [0.0170] AU
Ag = 21.98 [14.76] [1.42σ]
Teffp = 2869 [439] K [4.54σ]

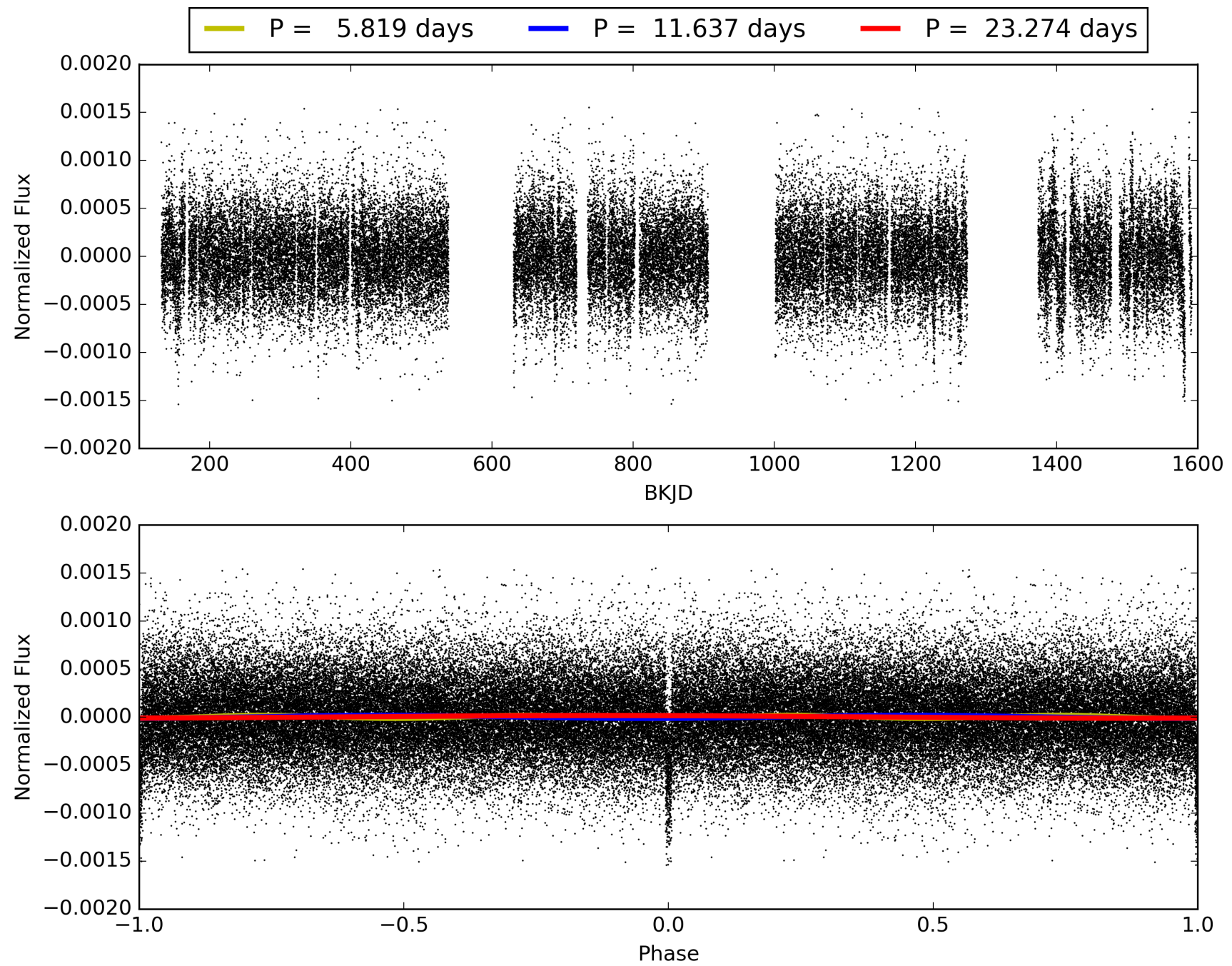
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [33.55σ]
LongPeriod-sig: N/A
ModelChiSquare2-sig: 99.1%
ModelChiSquareGof-sig: 100.0%
Bootstrap-pfa: 2.53e-195
RollingBand-fgt: 0.99 [86/87]
GhostDiagnostic-chr: 3.083
Centroid-sig: 28.8%
Centroid-so: 0.094 arcsec [0.26σ]
OotOffset-rm: 0.228 arcsec [0.91σ]
KicOffset-rm: 0.353 arcsec [1.59σ]
OotOffset-st: 1/4/4/5 [14]
KicOffset-st: 1/4/4/5 [14]
DiffImageQuality-fgm: 1.00 [14/14]
DiffImageOverlap-fno: 1.00 [14/14]

TCE 004270253-01, PDC Light Curves

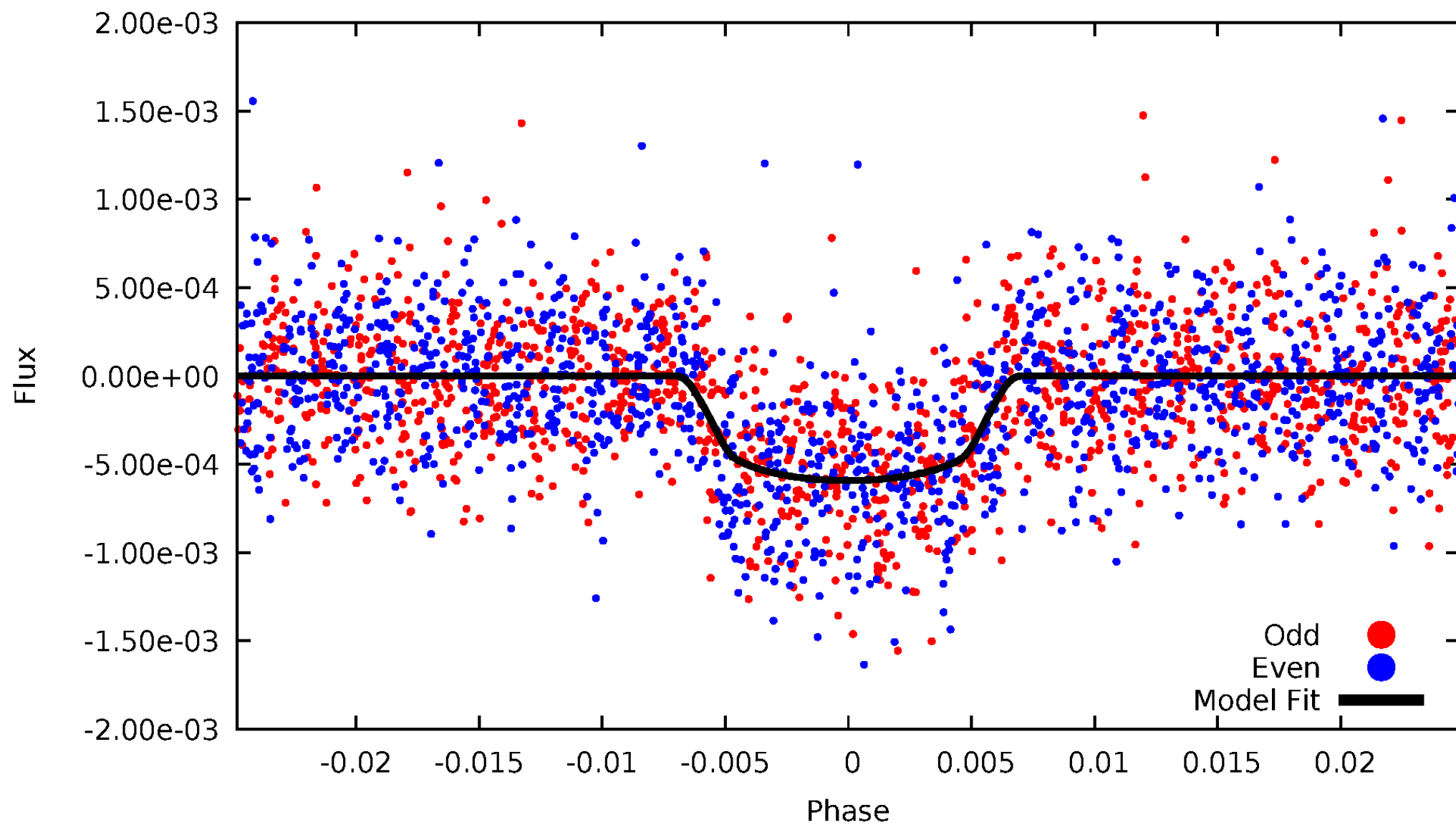


TCE 004270253-01



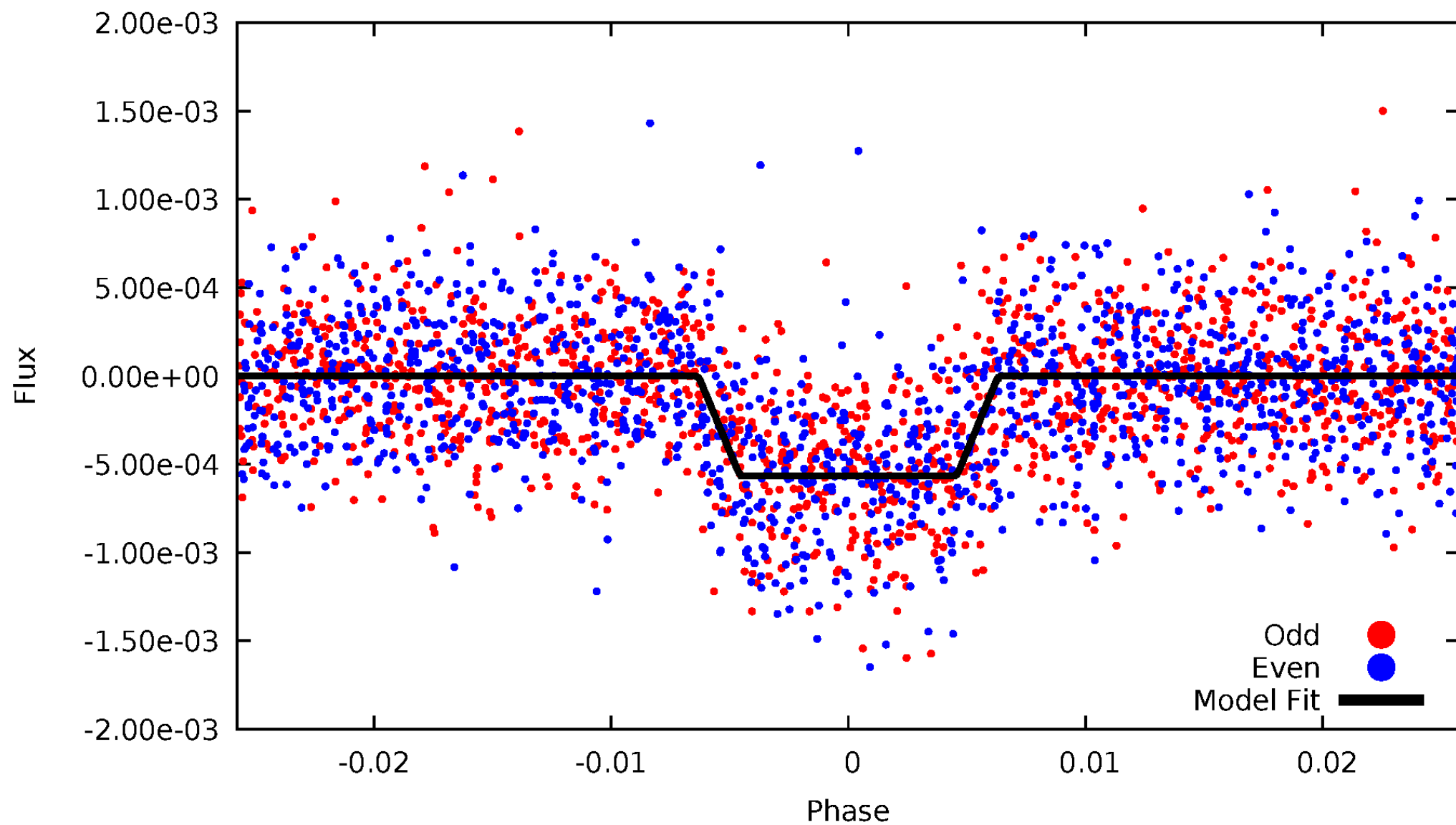
DV Odd/Even

TCE 004270253-01

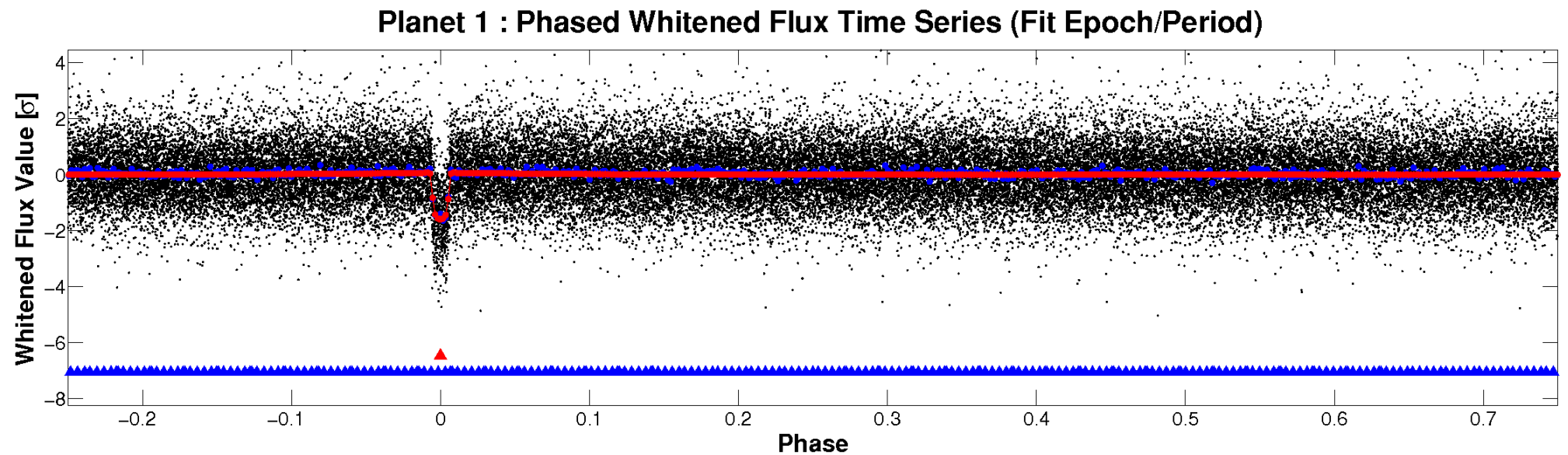
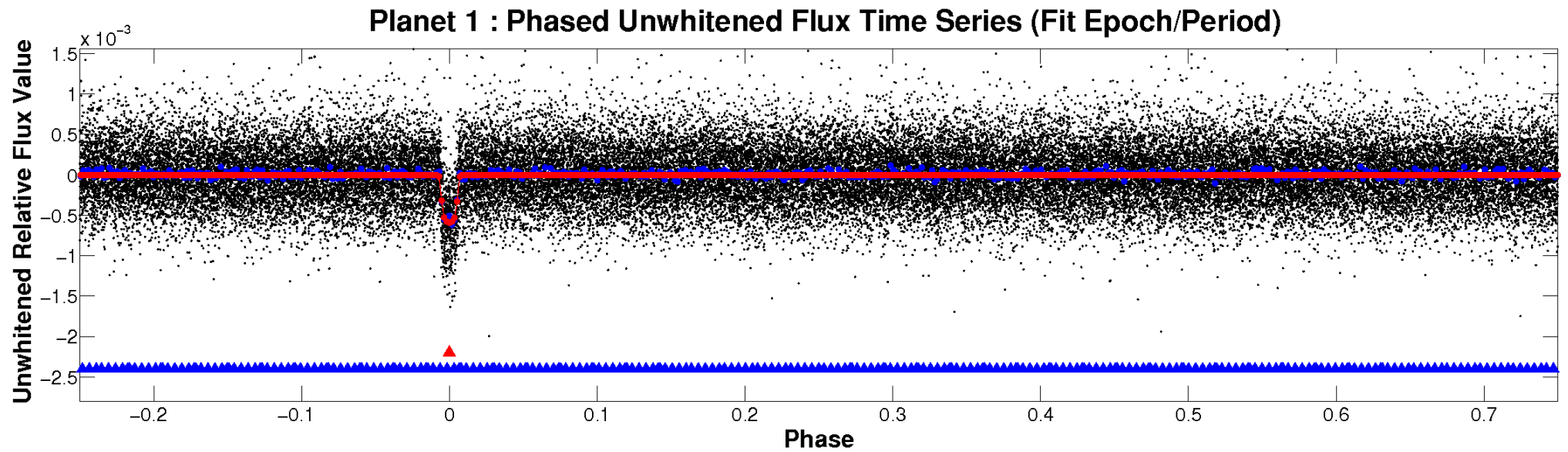


ALT Odd/Even

TCE 004270253-01

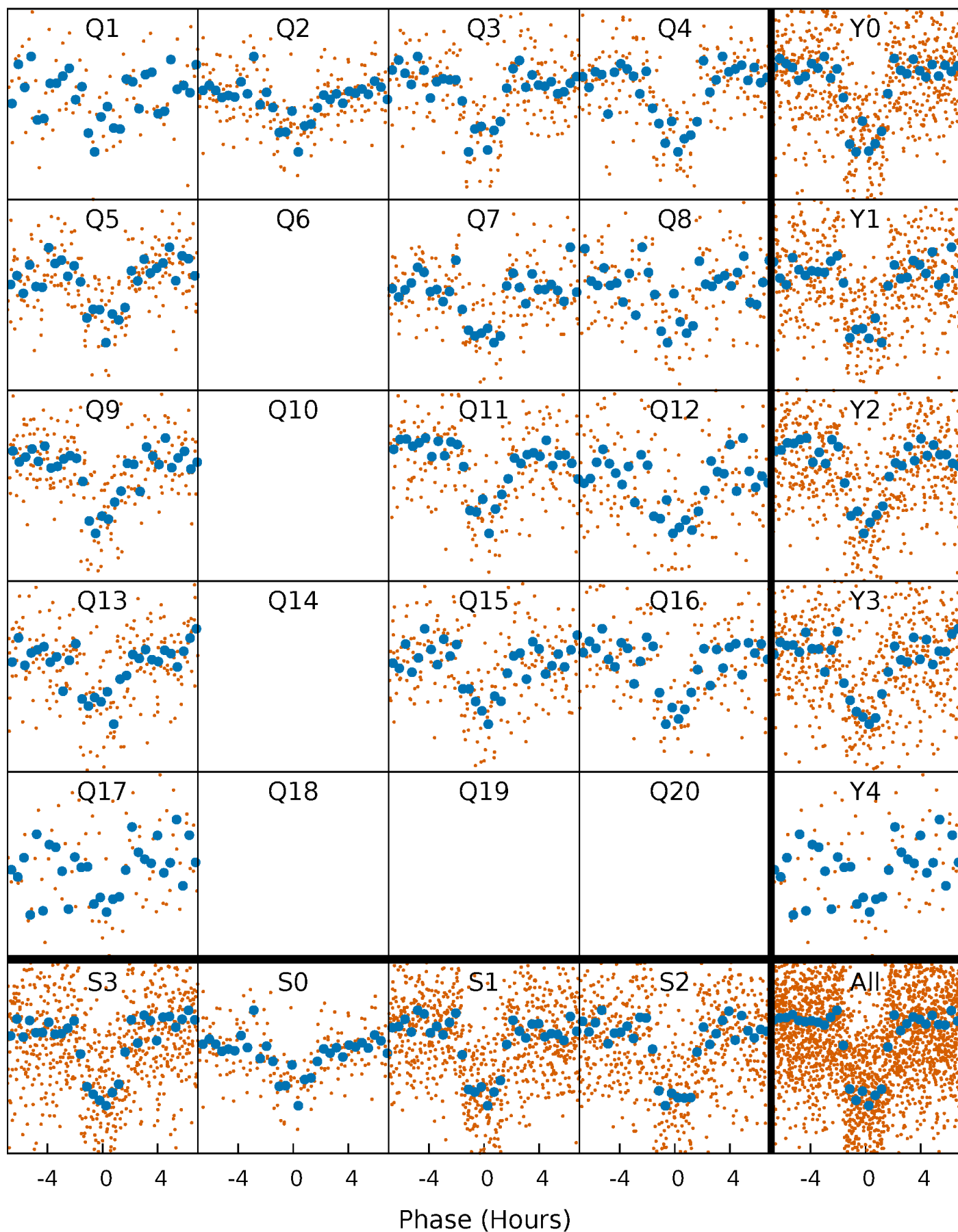


Non-Whitened Vs. Whitened Light Curve



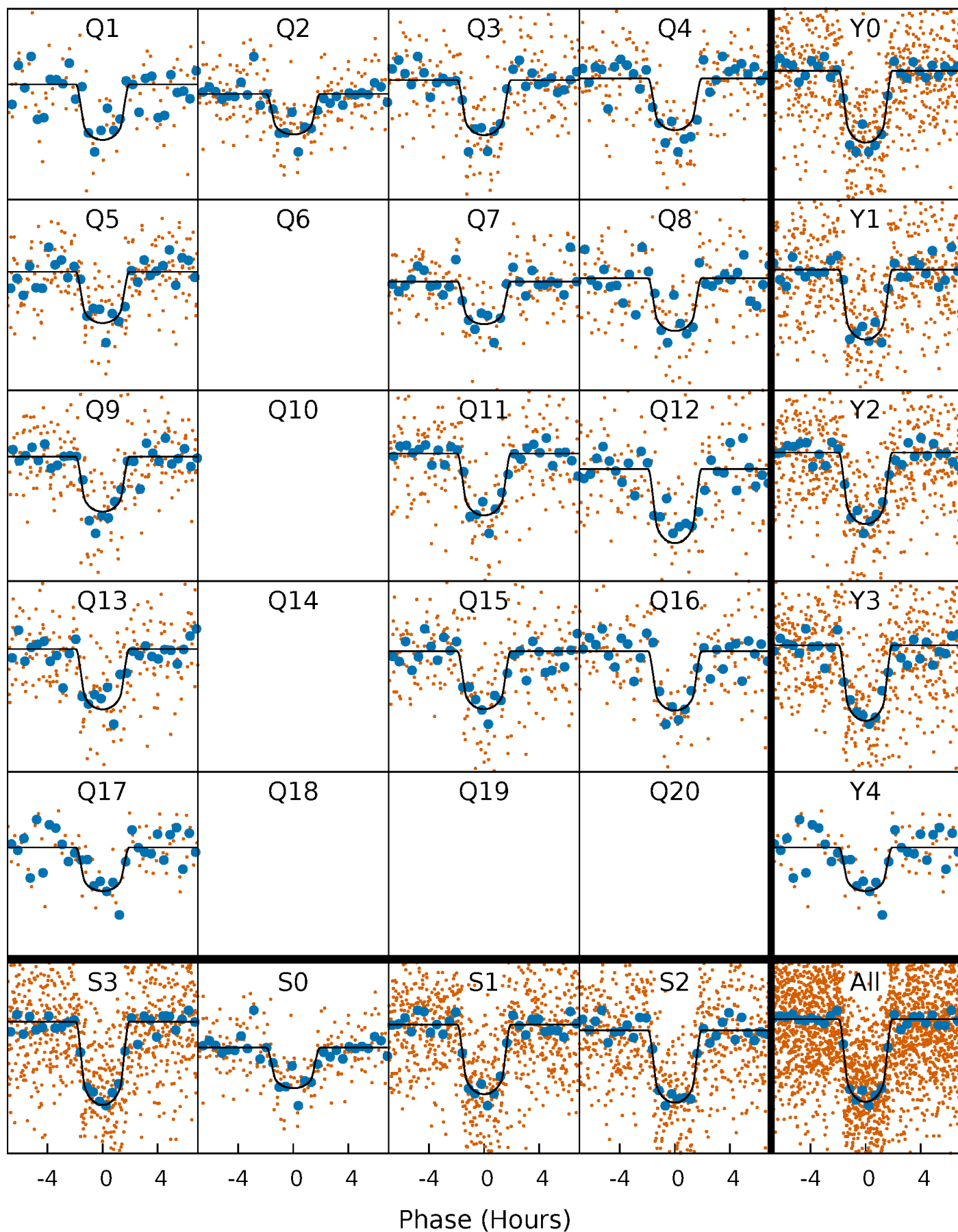
PDC Quarter-Phased Transit Curves

TCE 004270253-01 P= 11.637014 Days $T_0=132.297534$ (BKJD)



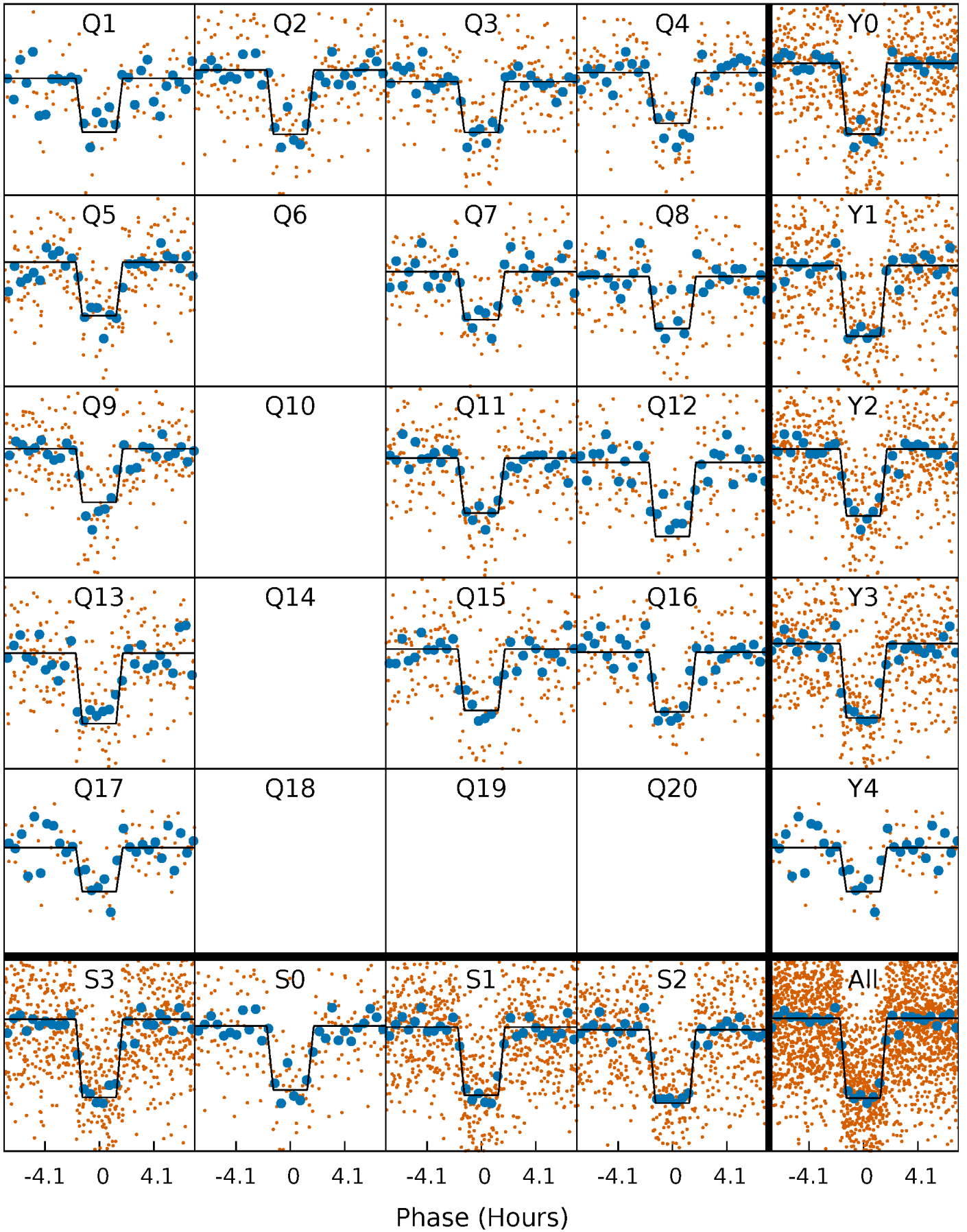
DV Quarter-Phased Transit Curves

TCE 004270253-01 P= 11.637014 Days $T_0=132.297534$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

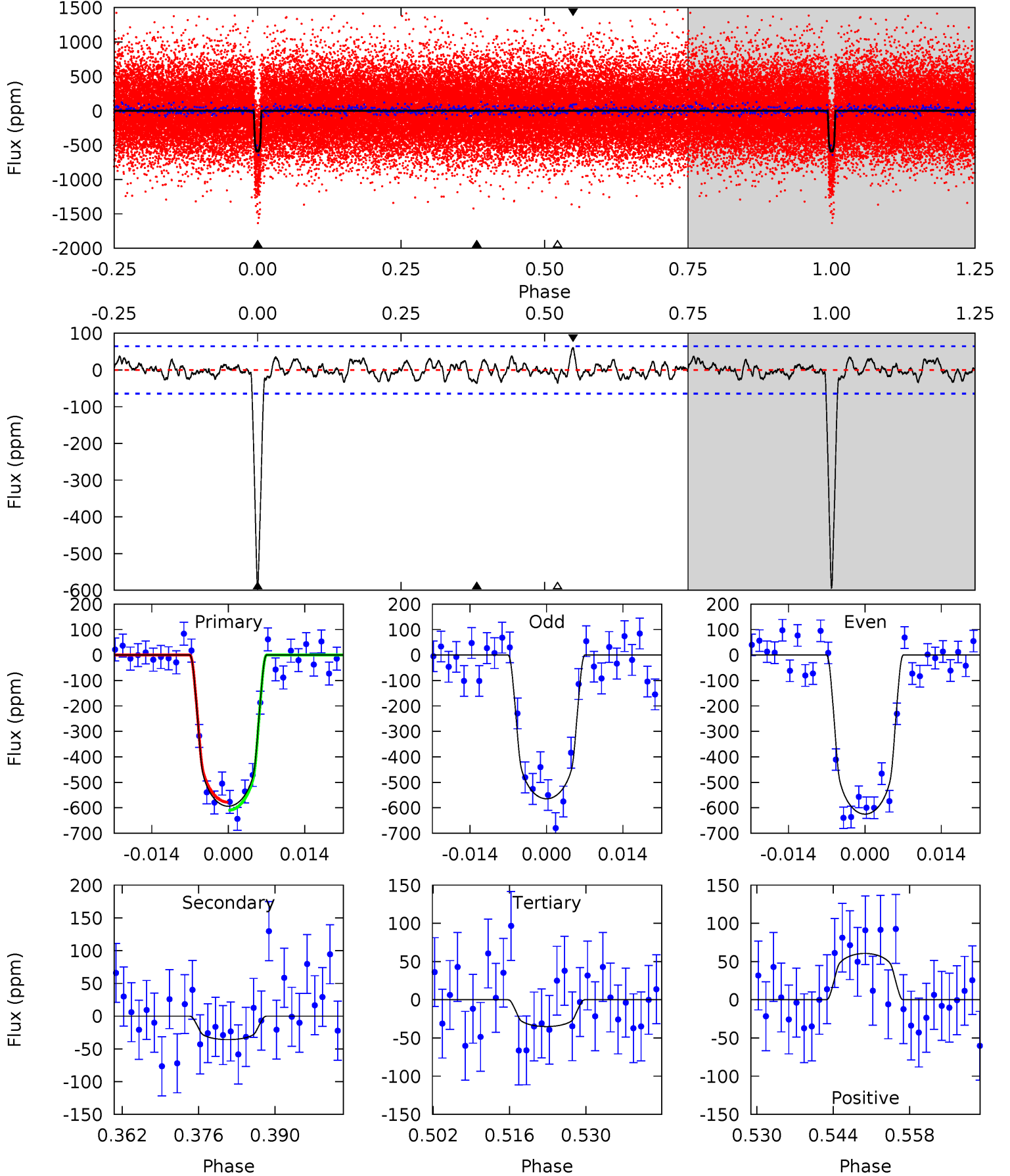
TCE 004270253-01 P= 11.637124 Days $T_0=132.291390$ (BKJD)



DV Model-Shift Uniqueness Test

004270253-01, P = 11.637014 Days, E = 120.660520 Days

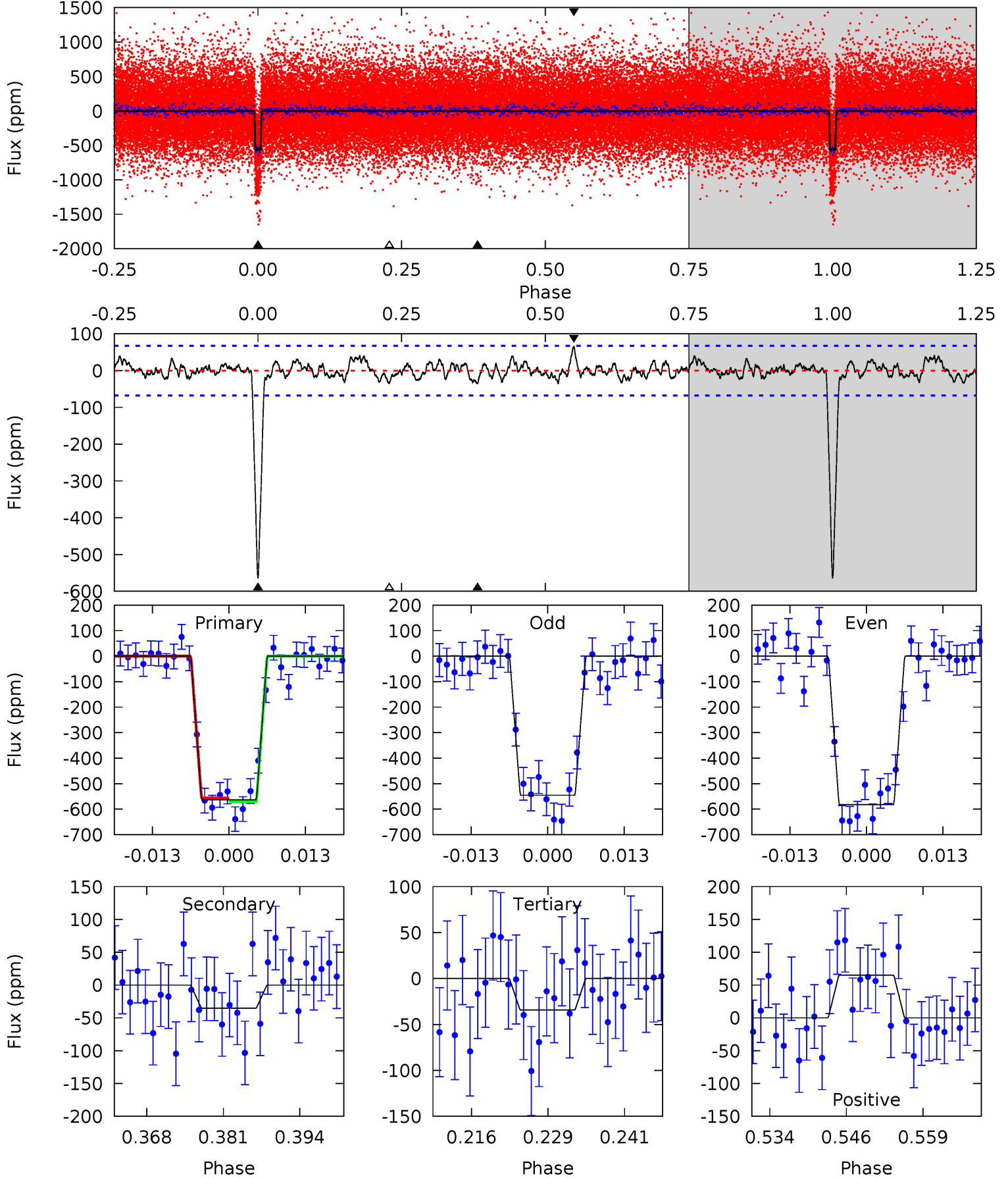
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
45.6	2.76	2.69	4.66	4.96	2.46	1.20	42.9	40.9	0.06	-1.90	2.31	0.99	0.09	1.21



Alt Model-Shift Uniqueness Test

004270253-01, P = 11.637124 Days, E = 120.654266 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
41.6	2.61	2.53	4.80	4.98	2.49	1.18	39.1	36.8	0.08	-2.19	1.35	1.02	0.10	0.52



Stellar Parameters For KIC 004270253

	$T_{\text{eff}} (K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M (M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	5576^{+83}_{-75}	$4.257^{+0.168}_{-0.112}$	$0.140^{+0.150}_{-0.150}$	$1.198^{+0.186}_{-0.204}$	$0.945^{+0.073}_{-0.046}$	$0.774^{+0.609}_{-0.248}$
	+1%/-1%	+4%/-3%	+107%/-107%	+16%/-17%	+8%/-5%	+79%/-32%
Source	SPE90	SPE90	SPE90	DSEP		

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

Secondary Eclipse Parameters for KIC 004270253-01 / KOI 0551.01

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-36 ± 13	$3.18^{+0.84}_{-0.78}$	1192^{+56}_{-60}	3272^{+357}_{-280}	19^{+17}_{-9}
Alt.	-35 ± 14	$3.12^{+0.83}_{-0.78}$	1193^{+53}_{-63}	3288^{+347}_{-281}	19^{+20}_{-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 $T_{\text{obs}} \gg T_{\text{max}}$ AND $A_{\text{obs}} \gg 1.0$

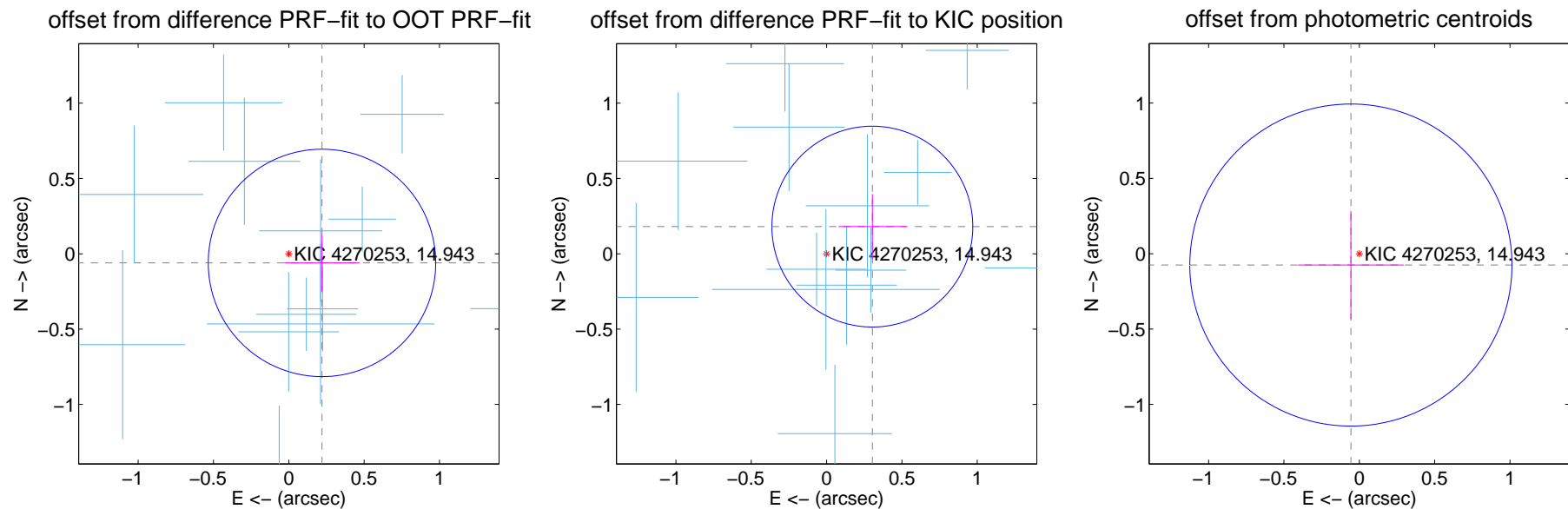
DV Centroid Data

Supplemental centroid analysis for 004270253-01. Kepler magnitude: 14.94. Transit SNR 33.38

There are 14 quarters with good PRF difference image offsets

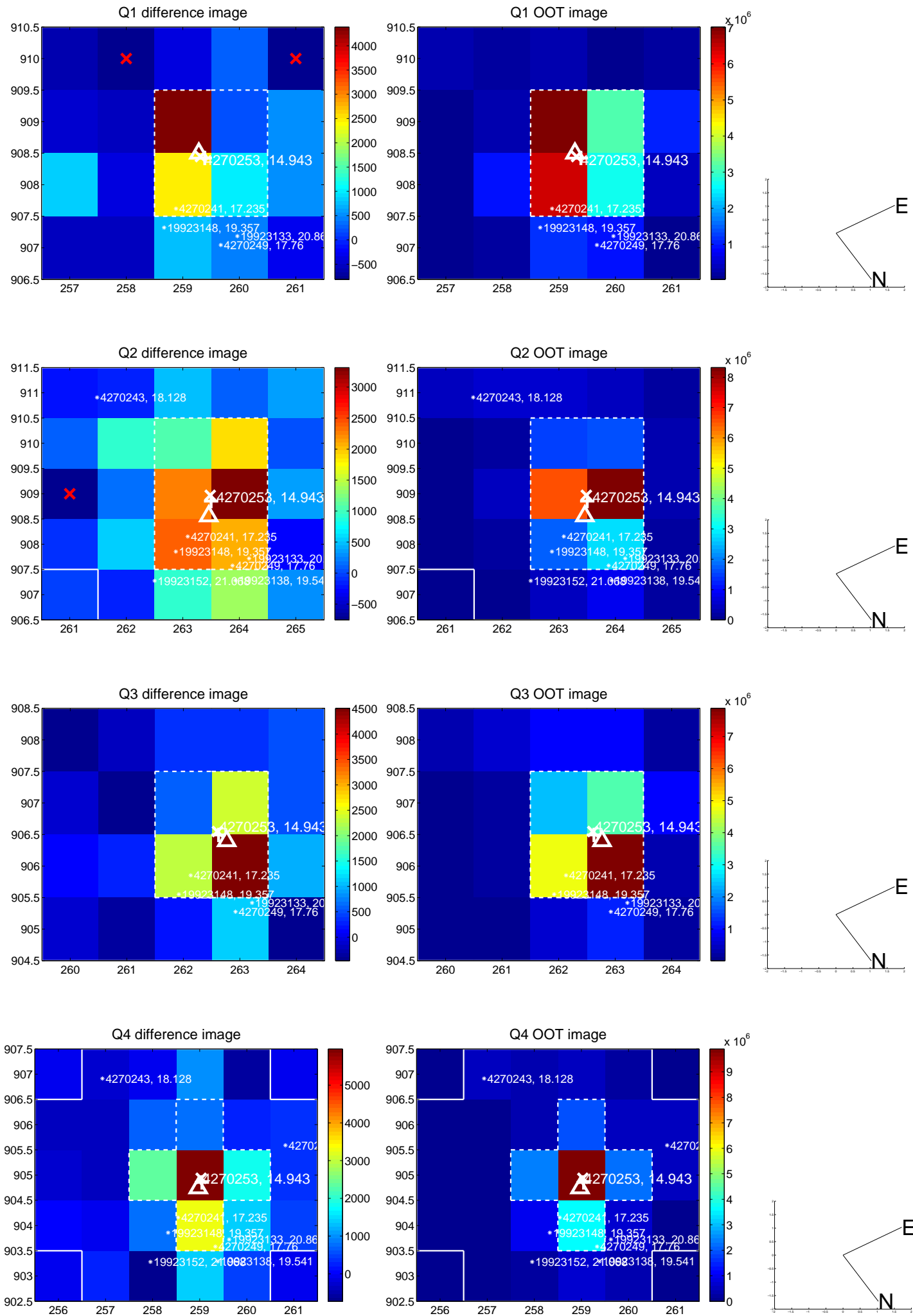
The direct PRF centroid is offset from the target star catalog position by about 0.35 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.228 ± 0.252	0.91	-0.220 ± 0.250	-0.061 ± 0.188
PRF-fit source offset from KIC position	0.353 ± 0.222	1.59	-0.304 ± 0.225	0.180 ± 0.215
photometric centroid source offset	0.09 ± 0.36	0.26	0.06 ± 0.35	-0.08 ± 0.36

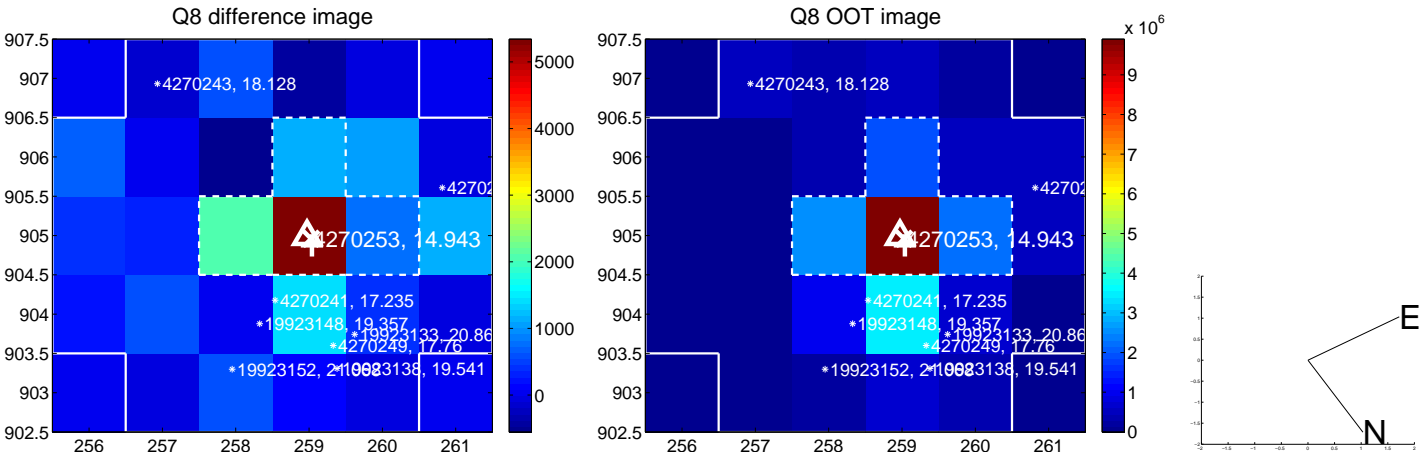
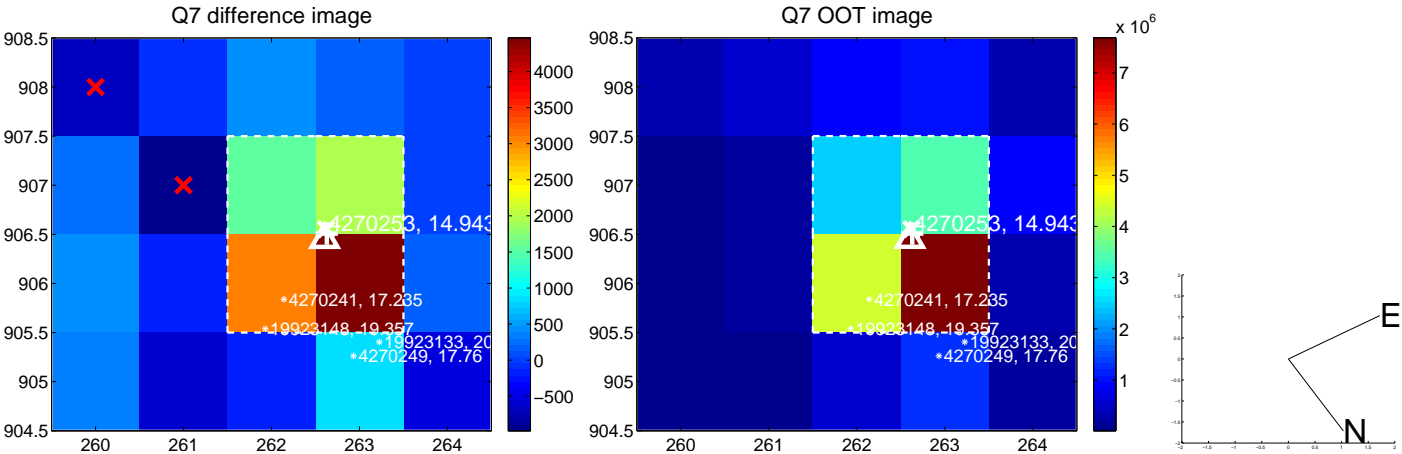
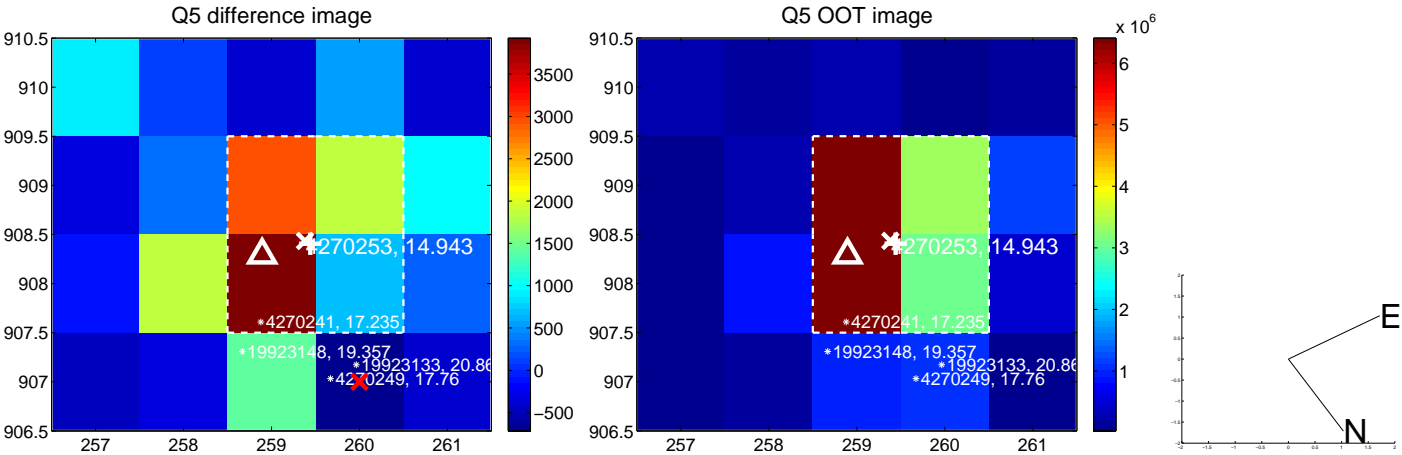


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses:** good quarterly centroid offsets; **Vermillion crosses:** bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

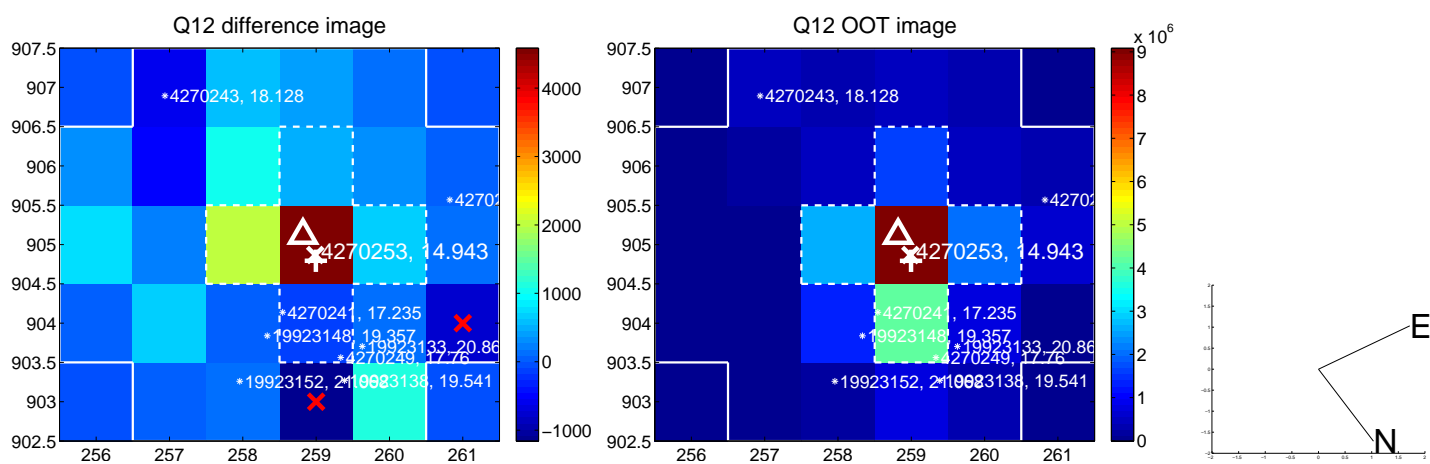
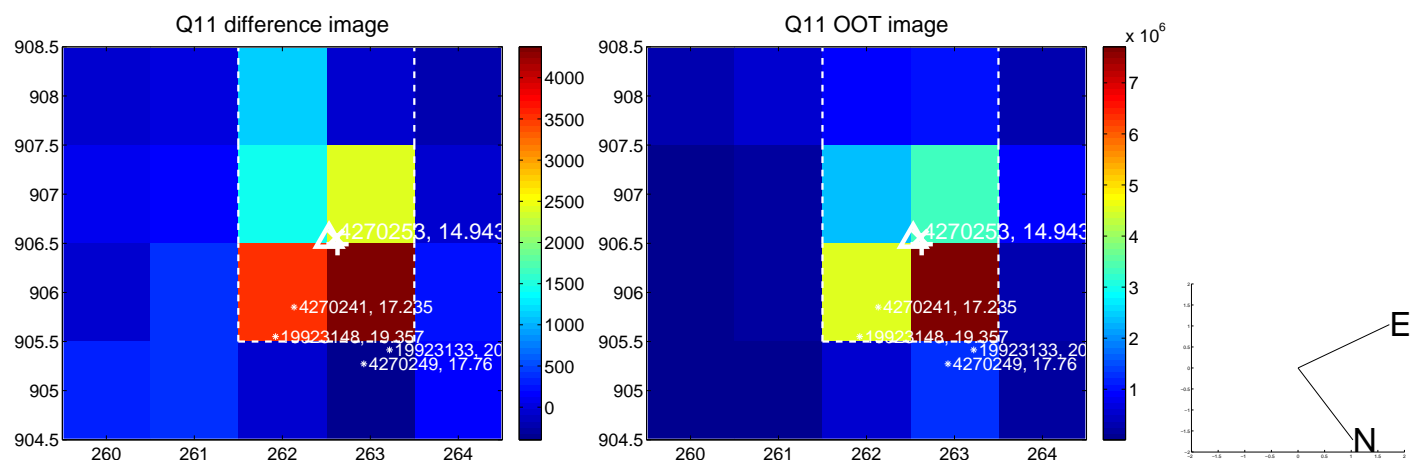
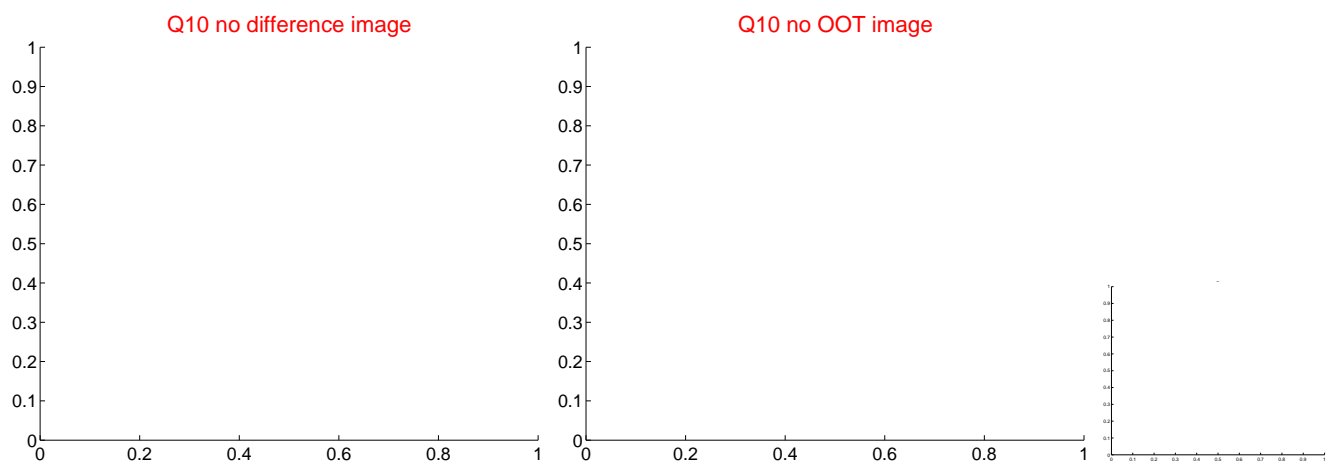
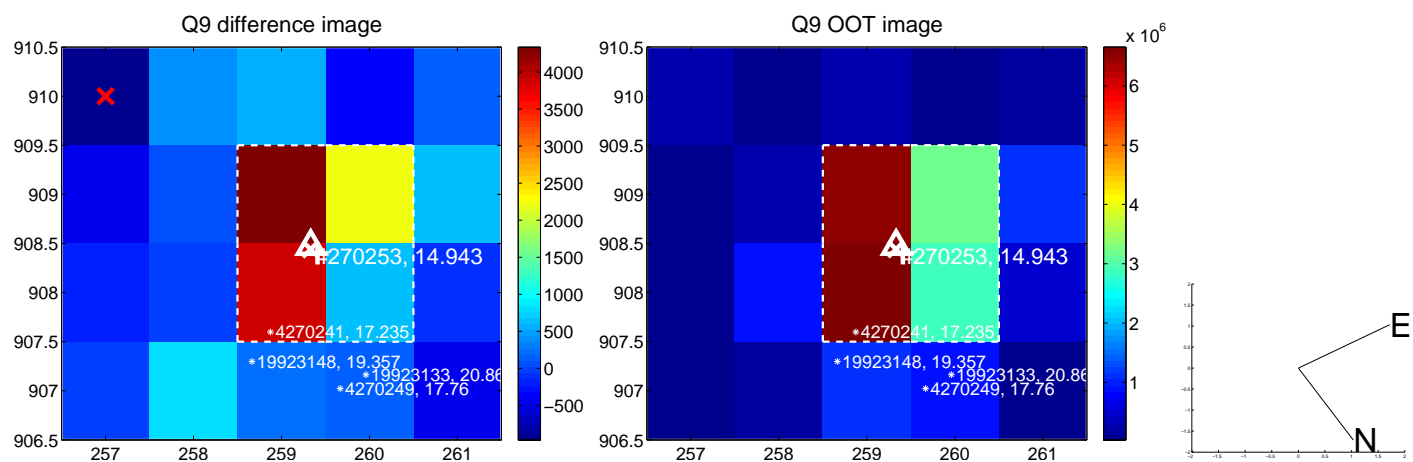
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



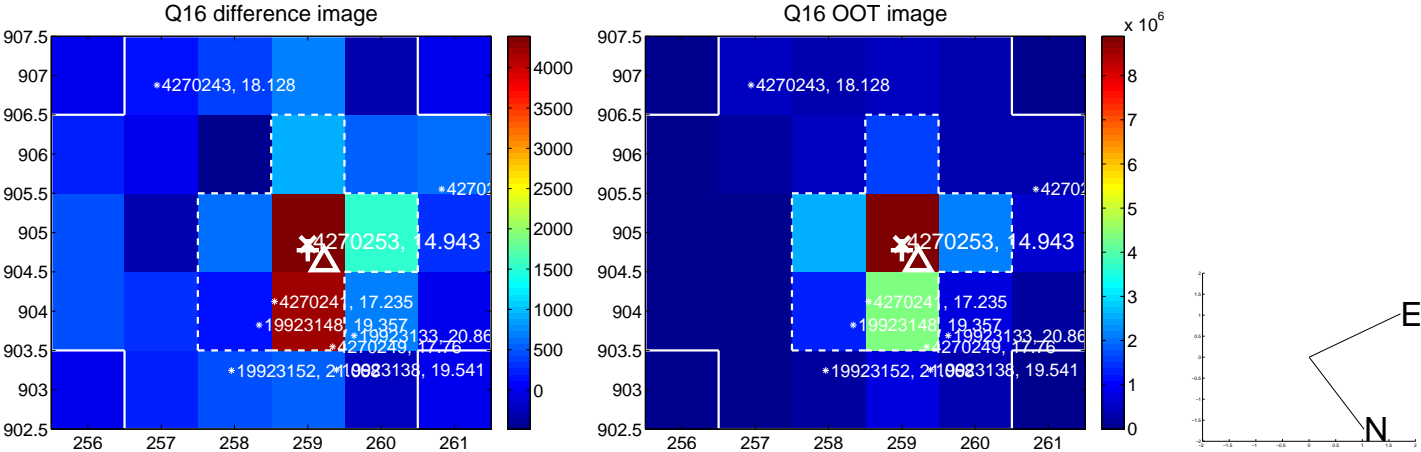
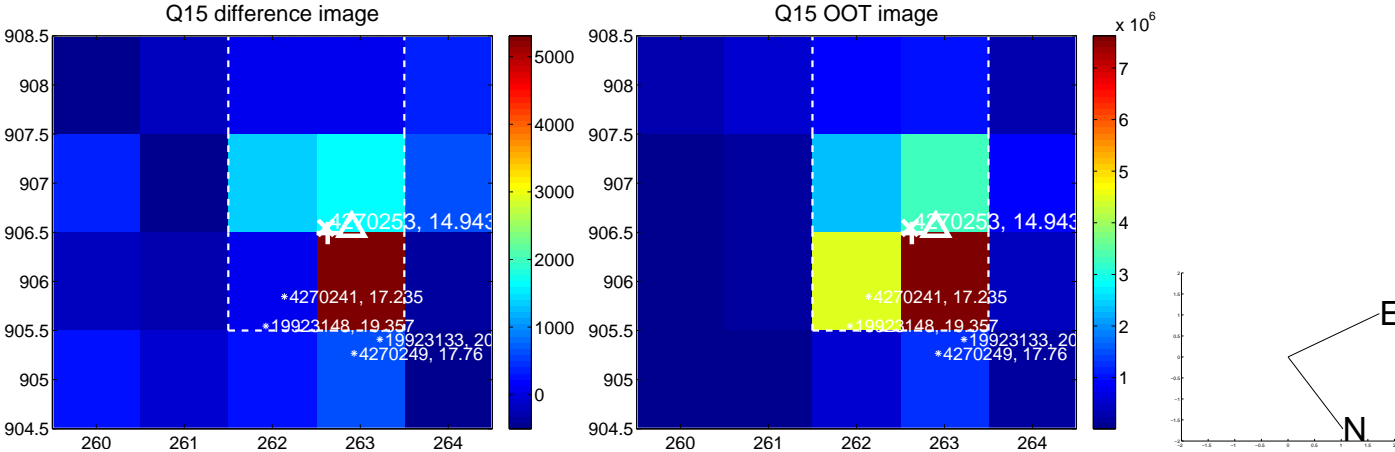
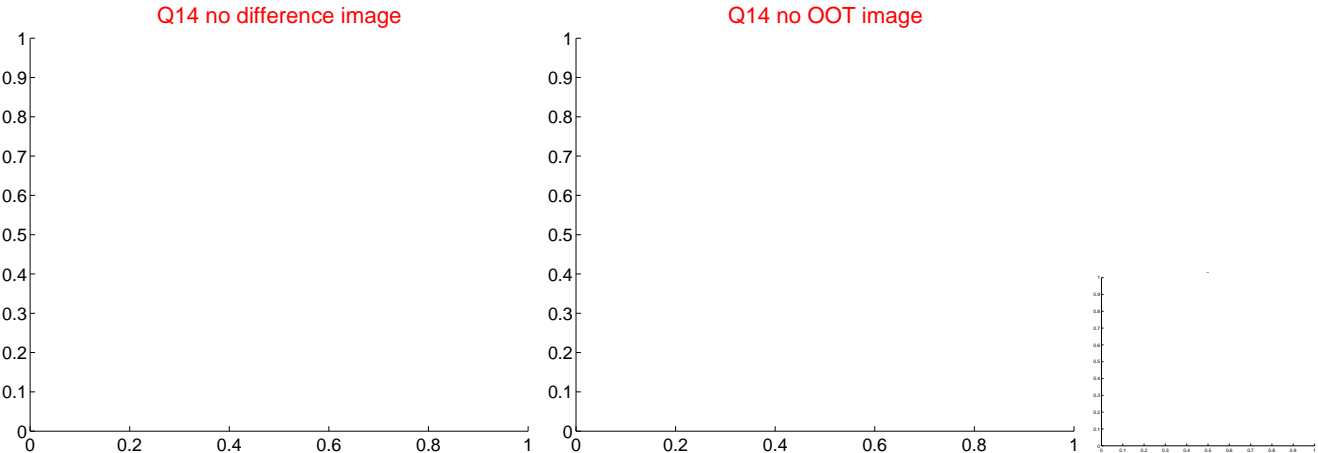
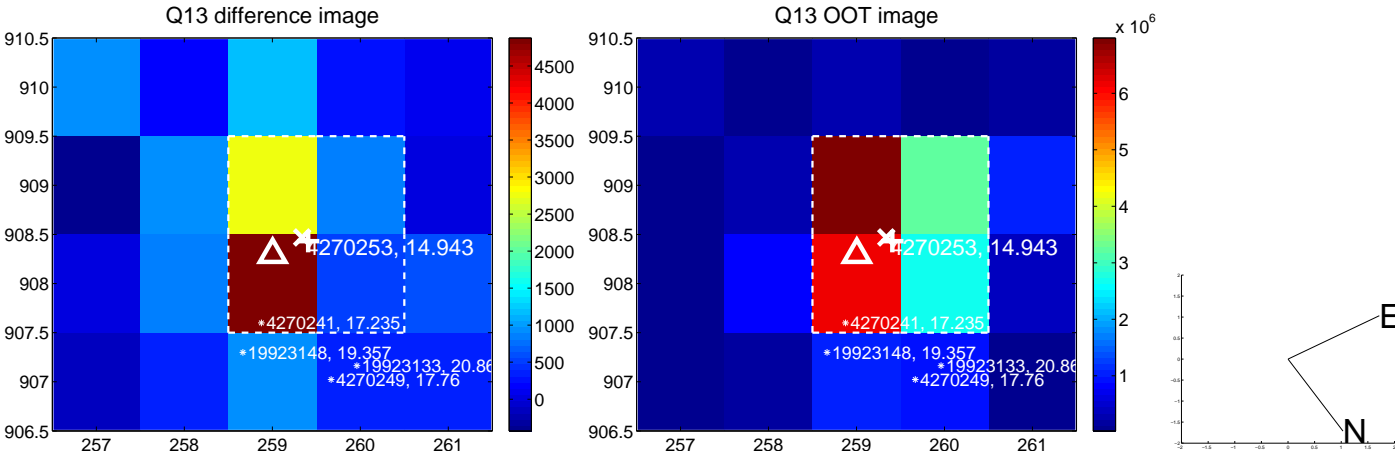
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



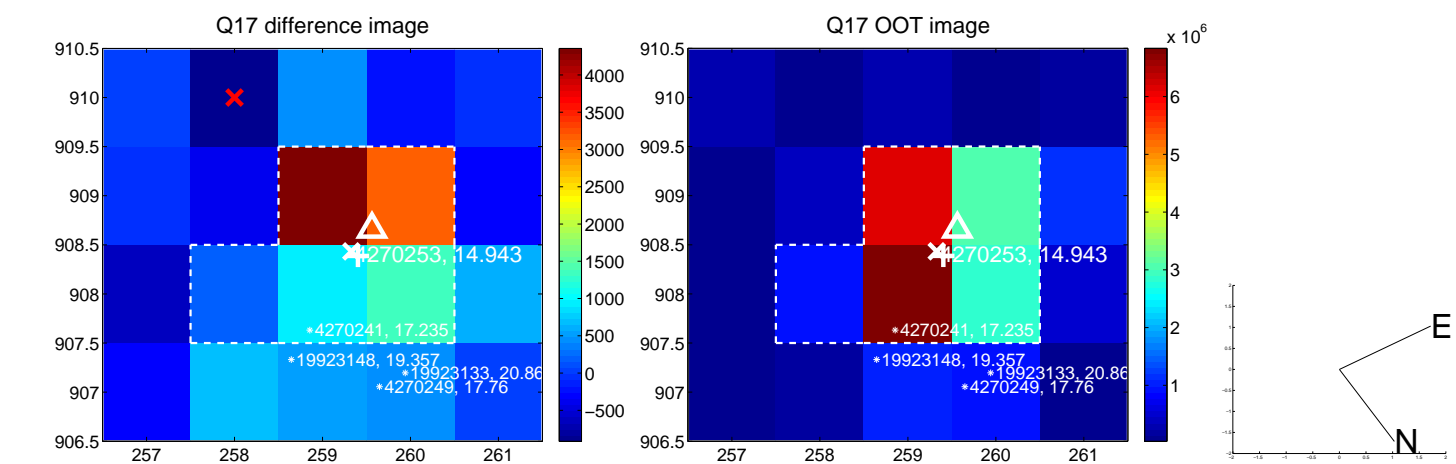
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



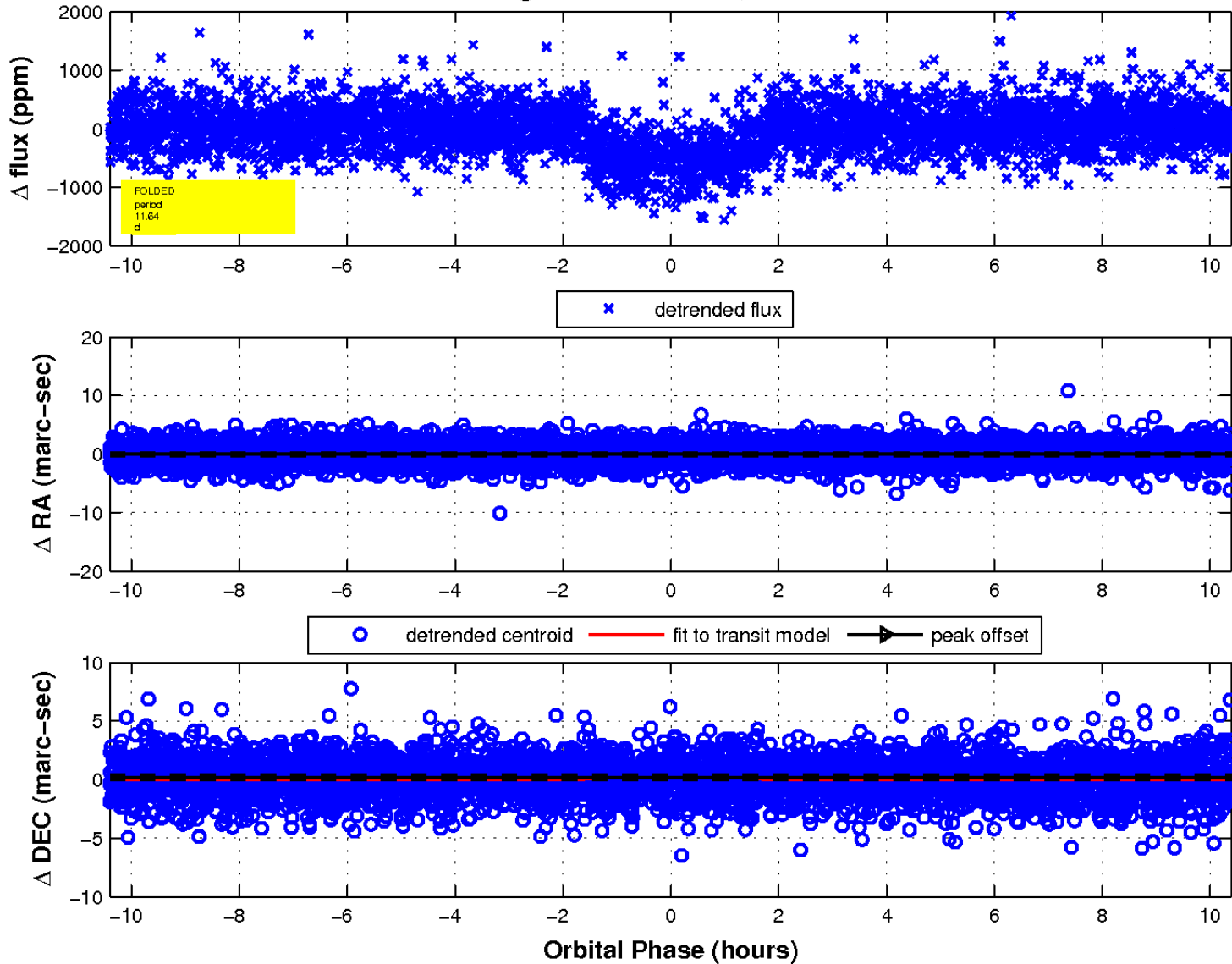
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

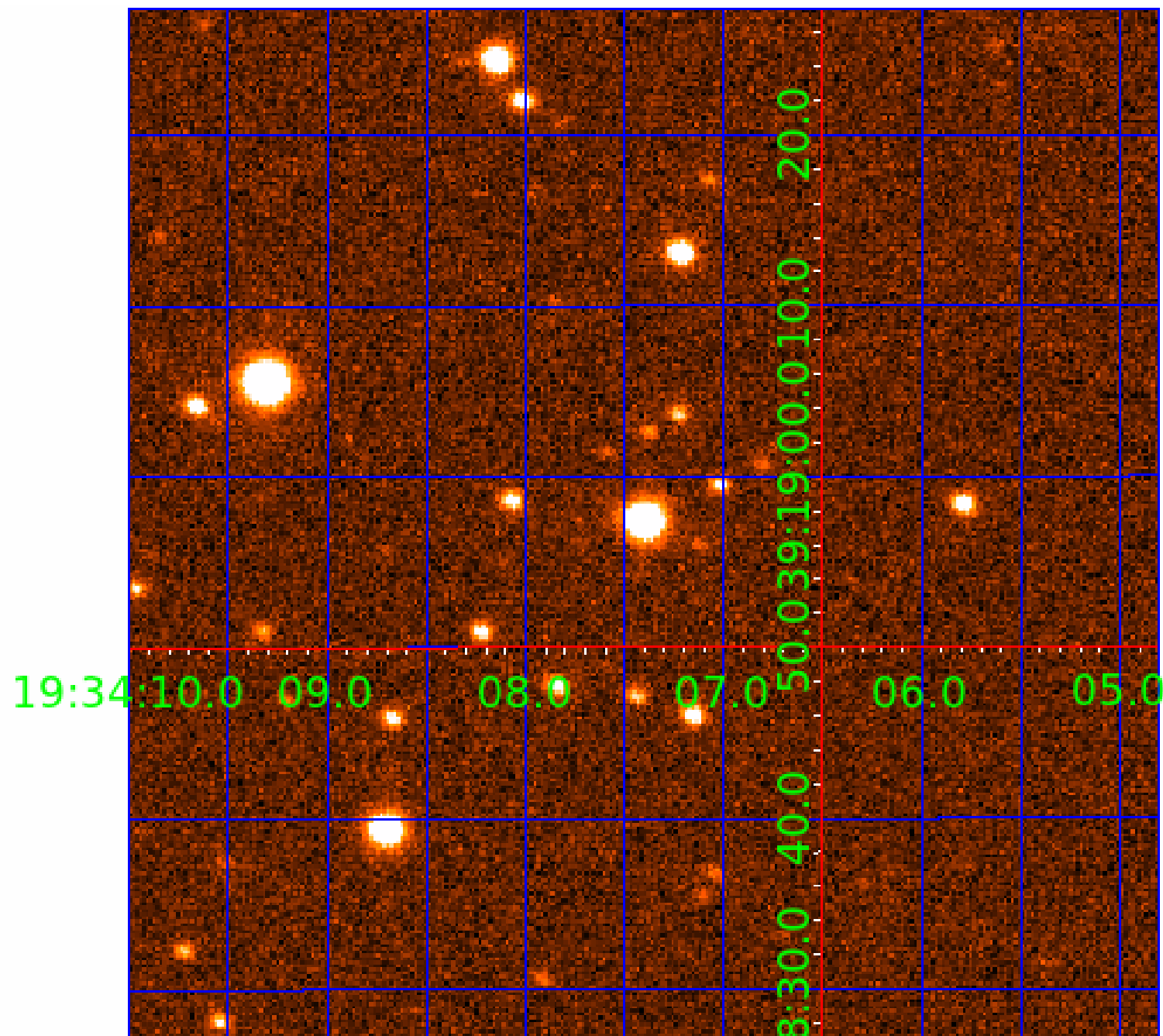


fluxWeightedCentroids, Planet 1 of 2



UKIRT Image

Declination



KIC 004270253

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})
004270253-01	OBS	0551.01	11.637014	132.297534	592.3	3.467	30.2	33.4	1.20	5576	3.26	127.65
004270253-02	OBS	0551.02	5.687984	133.955929	474.6	2.467	28.3	31.8	1.20	5576	3.26	331.55

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
004270253-01	OBS	PC	1.00	0	0	0	0	NO_COMMENT
004270253-02	OBS	PC	1.00	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.

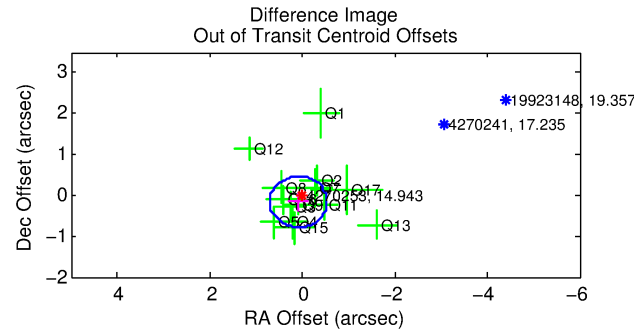
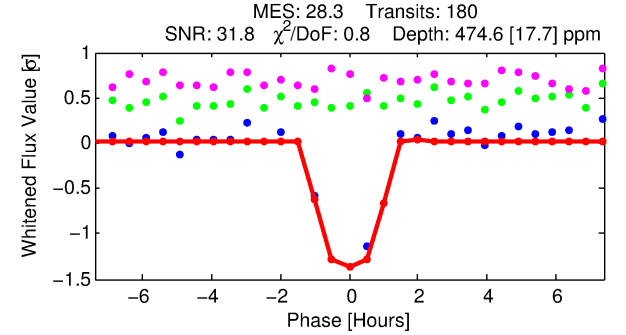
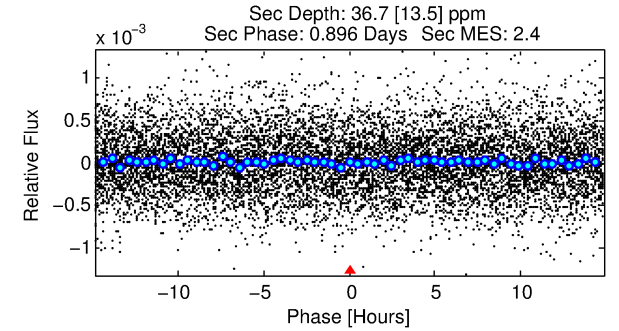
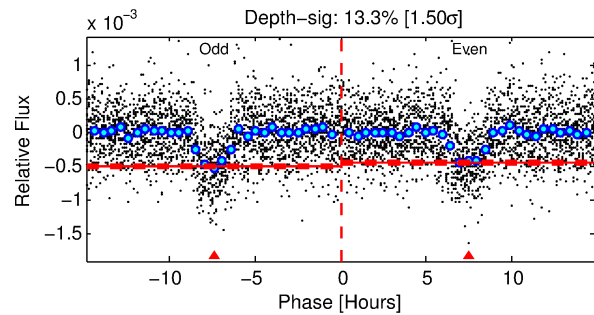
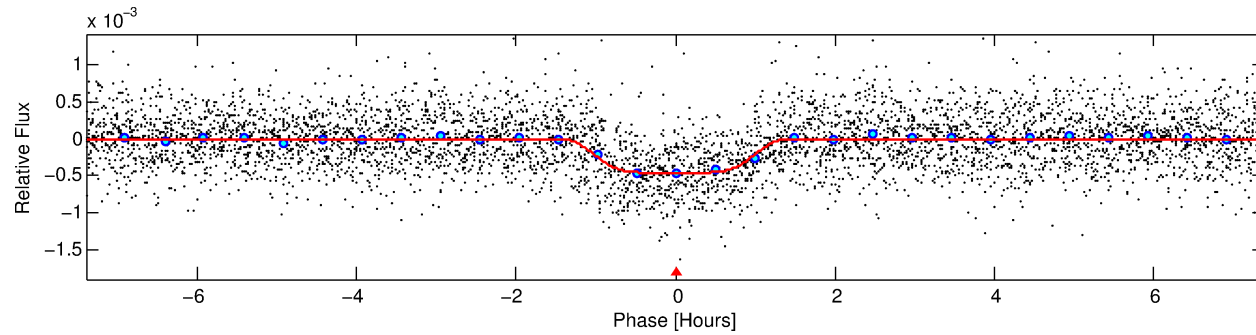
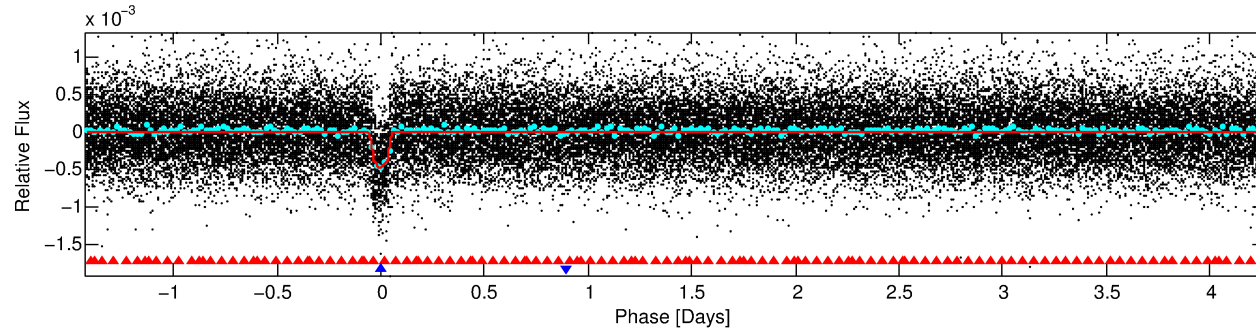
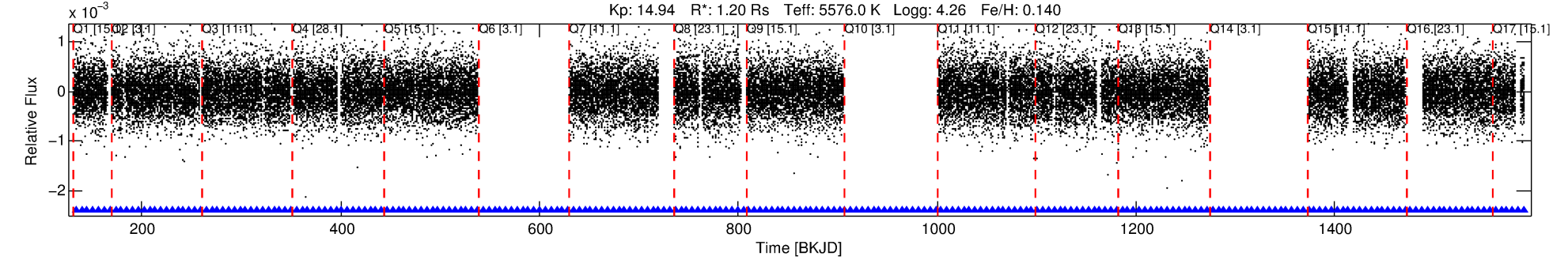
Ephemeris Match Information For 004270253-02

No Significant Match Found

DV One-Page Summary

KIC: 4270253 Candidate: 2 of 2 Period: 5.688 d
KOI: K00551.02 Name: Kepler-183b Corr: 0.947

Kp: 14.94 R*: 1.20 Rs T_{eff}: 5576.0 K Logg: 4.26 Fe/H: 0.140



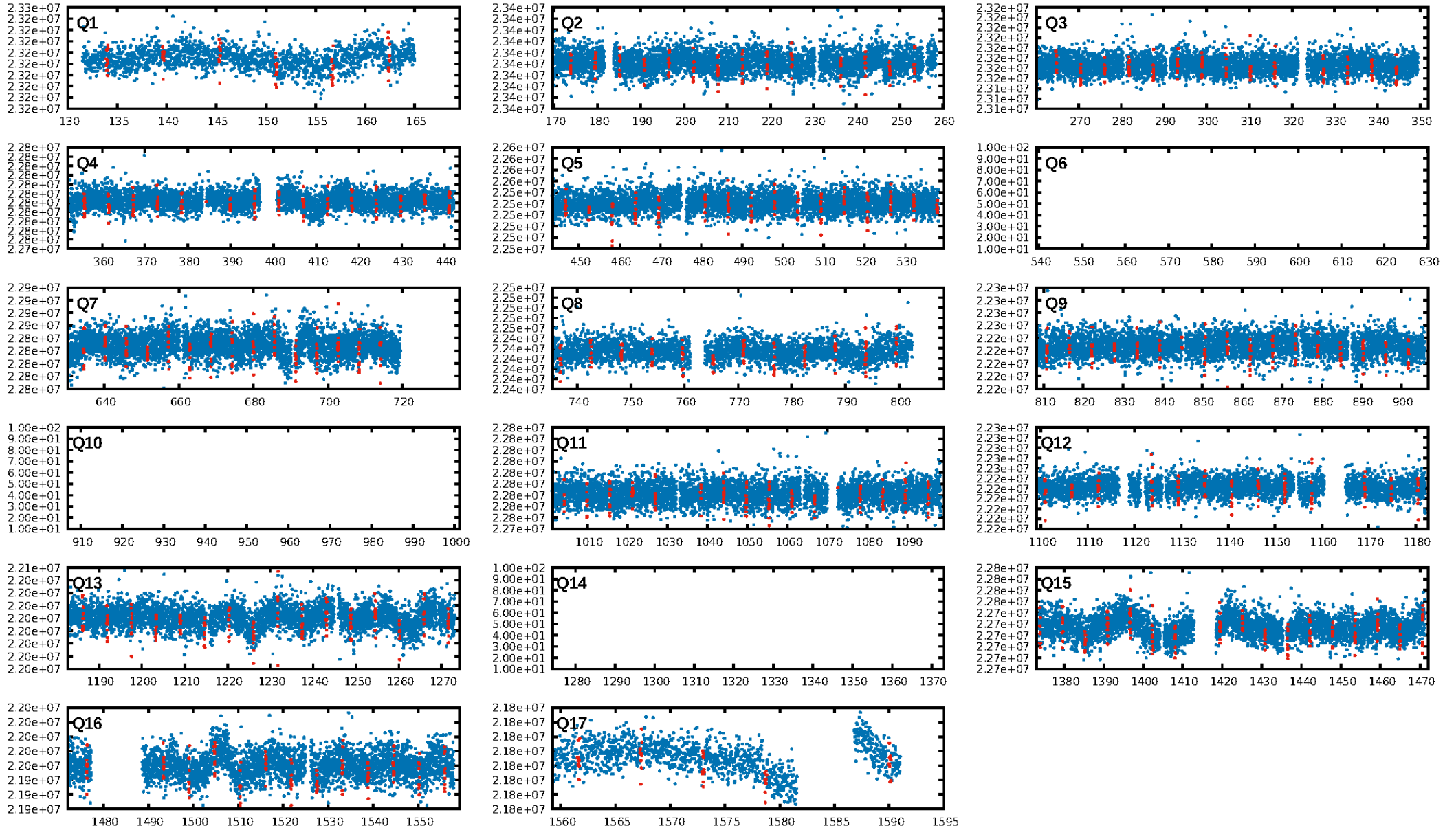
DV Fit Results:

Period = 5.68798 [0.00001] d
Epoch = 133.9559 [0.0015] BKJD
Rp/R* = 0.0249 [0.0021]
a/R* = 7.59 [2.66]
b = 0.93 [0.05]
Seff = 331.55 [95.48]
T_{eq} = 1088 [78] K
Rp = 3.26 [0.62] Re
a = 0.0612 [0.0105] AU
Ag = 7.15 [3.51] [1.75σ]
T_{effp} = 2751 [280] K [5.73σ]

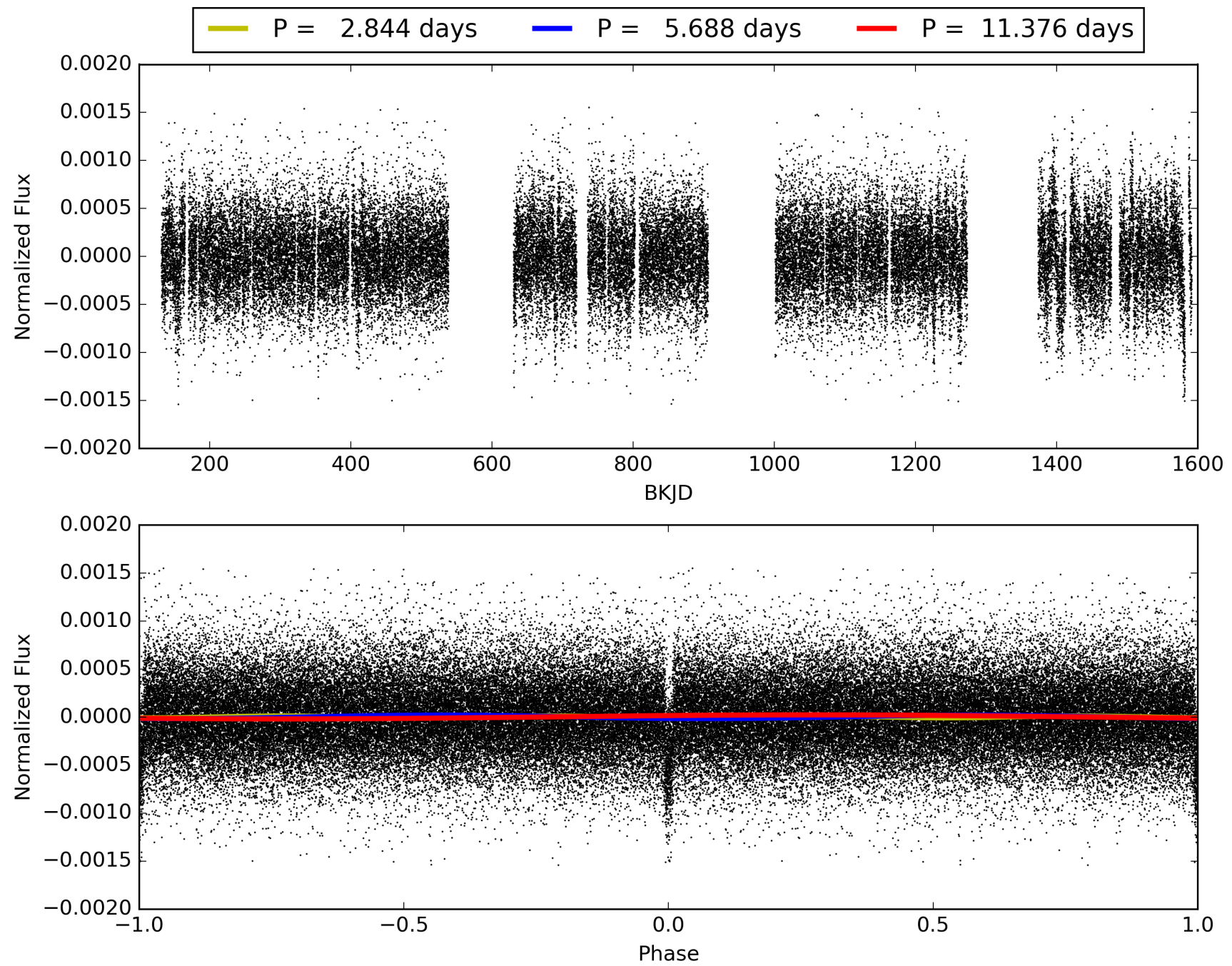
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: 100.0% [33.55σ]
ModelChiSquare2-sig: 99.9%
ModelChiSquareGof-sig: 100.0%
Bootstrap-pfa: 4.66e-172
RollingBand-fgt: 1.00 [169/169]
GhostDiagnostic-chr: 3.427
Centroid-sig: 0.0%
Centroid-so: 0.947 arcsec [2.47σ]
OotOffset-rm: 0.183 arcsec [0.88σ]
KicOffset-rm: 0.135 arcsec [0.65σ]
OotOffset-st: 1/4/4/5 [14]
KicOffset-st: 1/4/4/5 [14]
DiffImageQuality-fgm: 1.00 [14/14]
DiffImageOverlap-fno: 1.00 [14/14]

TCE 004270253-02, PDC Light Curves

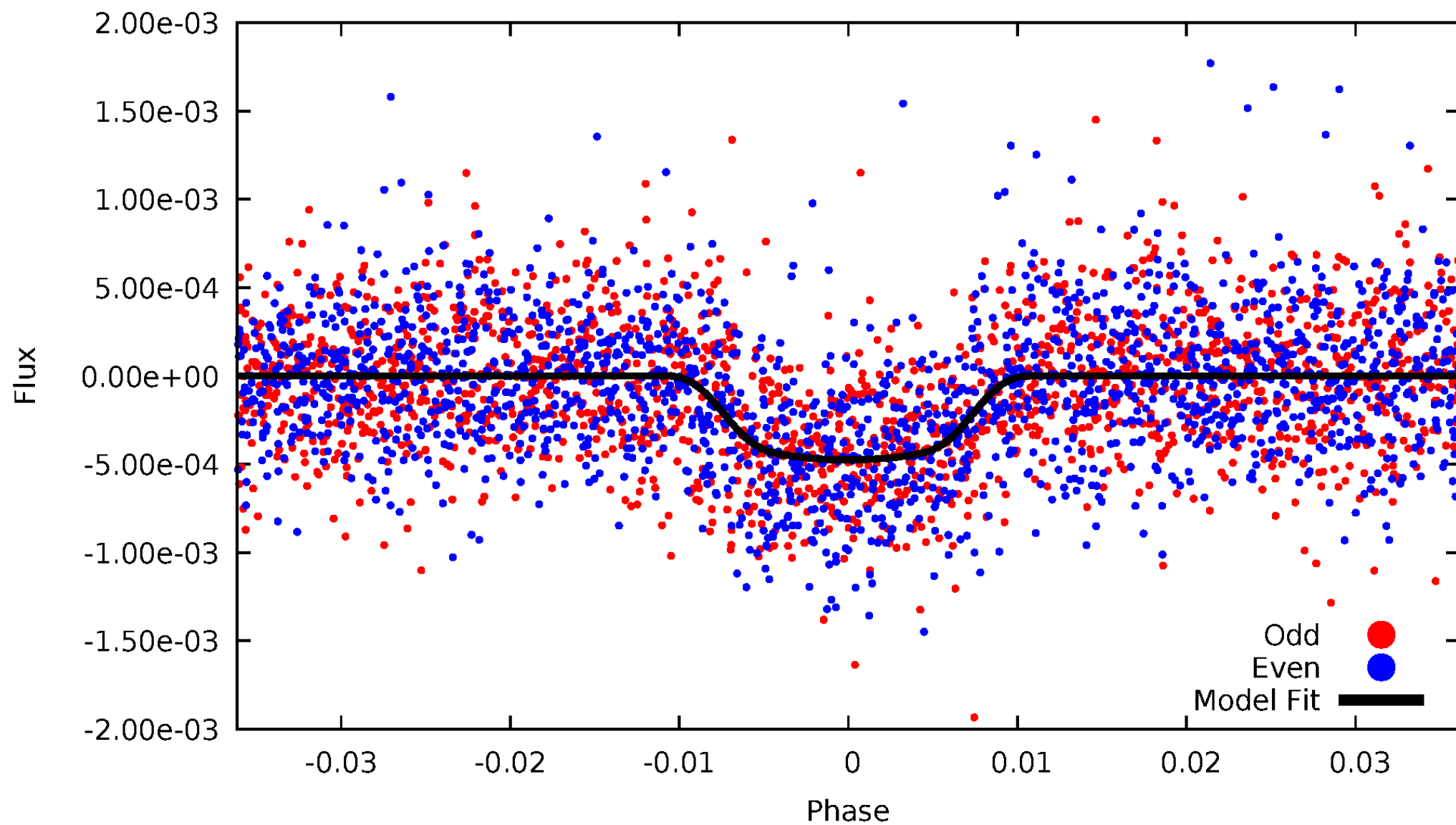


TCE 004270253-02



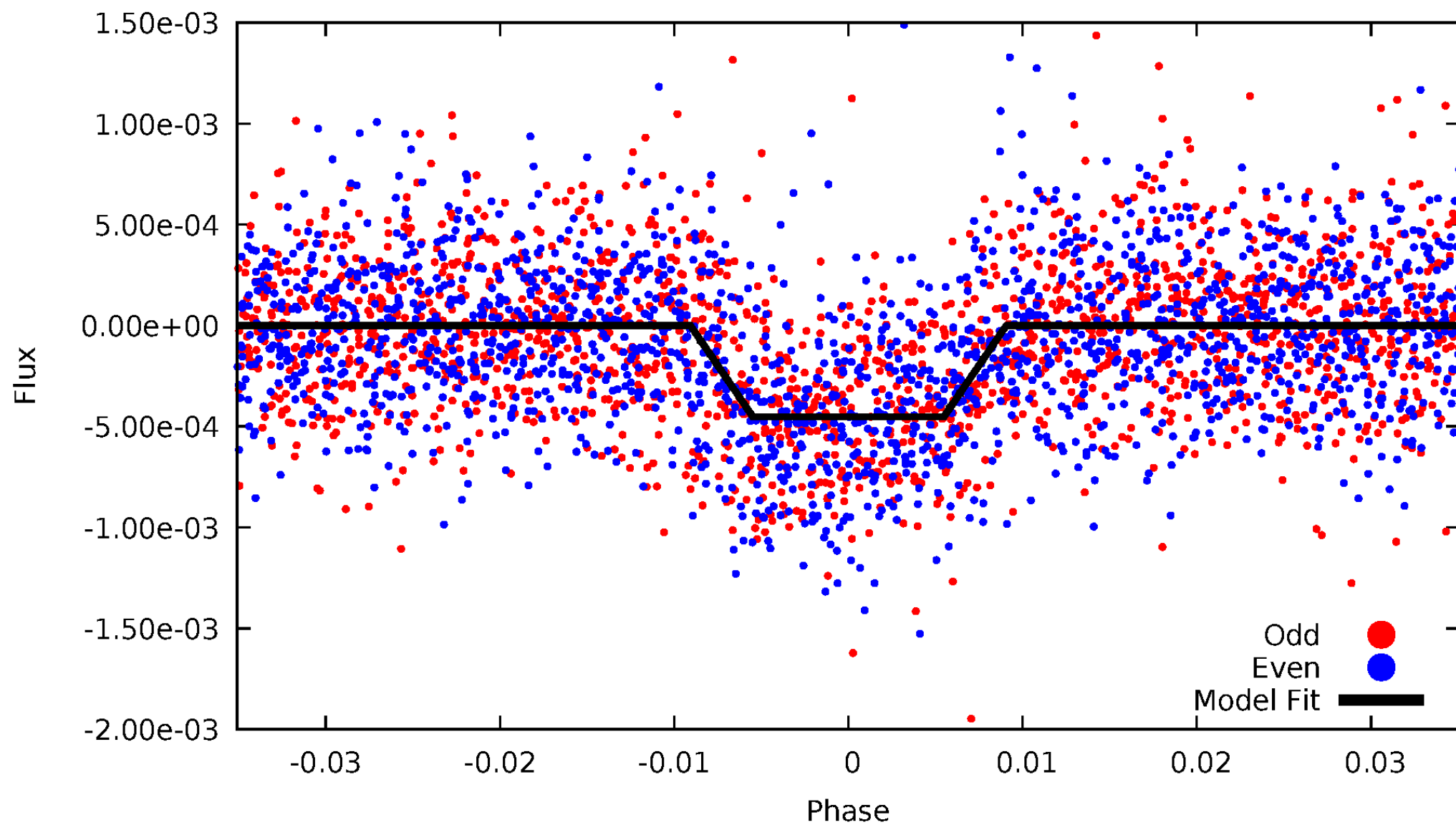
DV Odd/Even

TCE 004270253-02



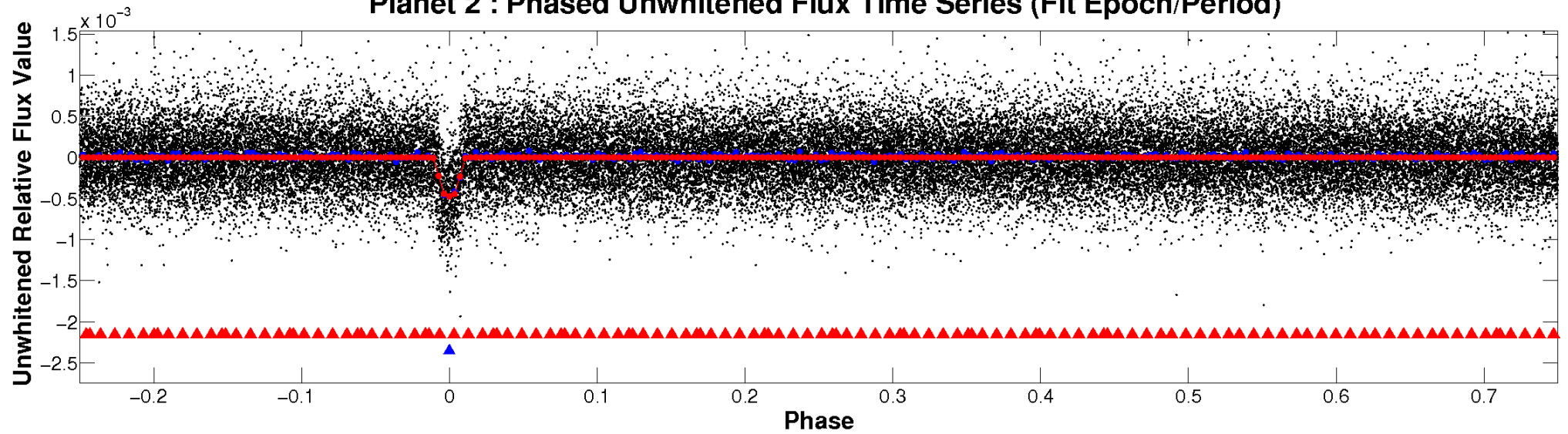
ALT Odd/Even

TCE 004270253-02

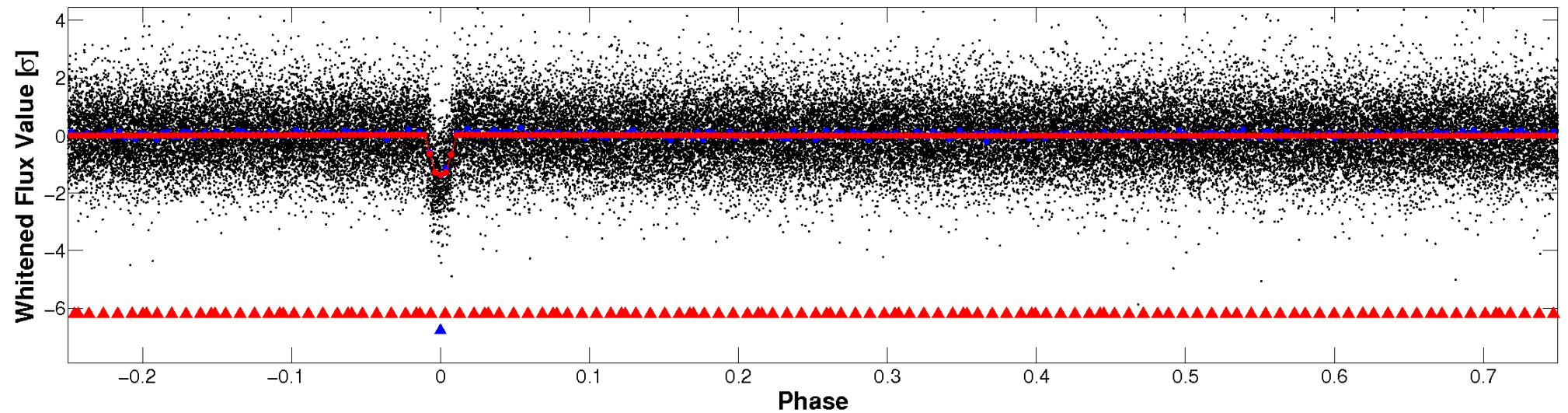


Non-Whitened Vs. Whitened Light Curve

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

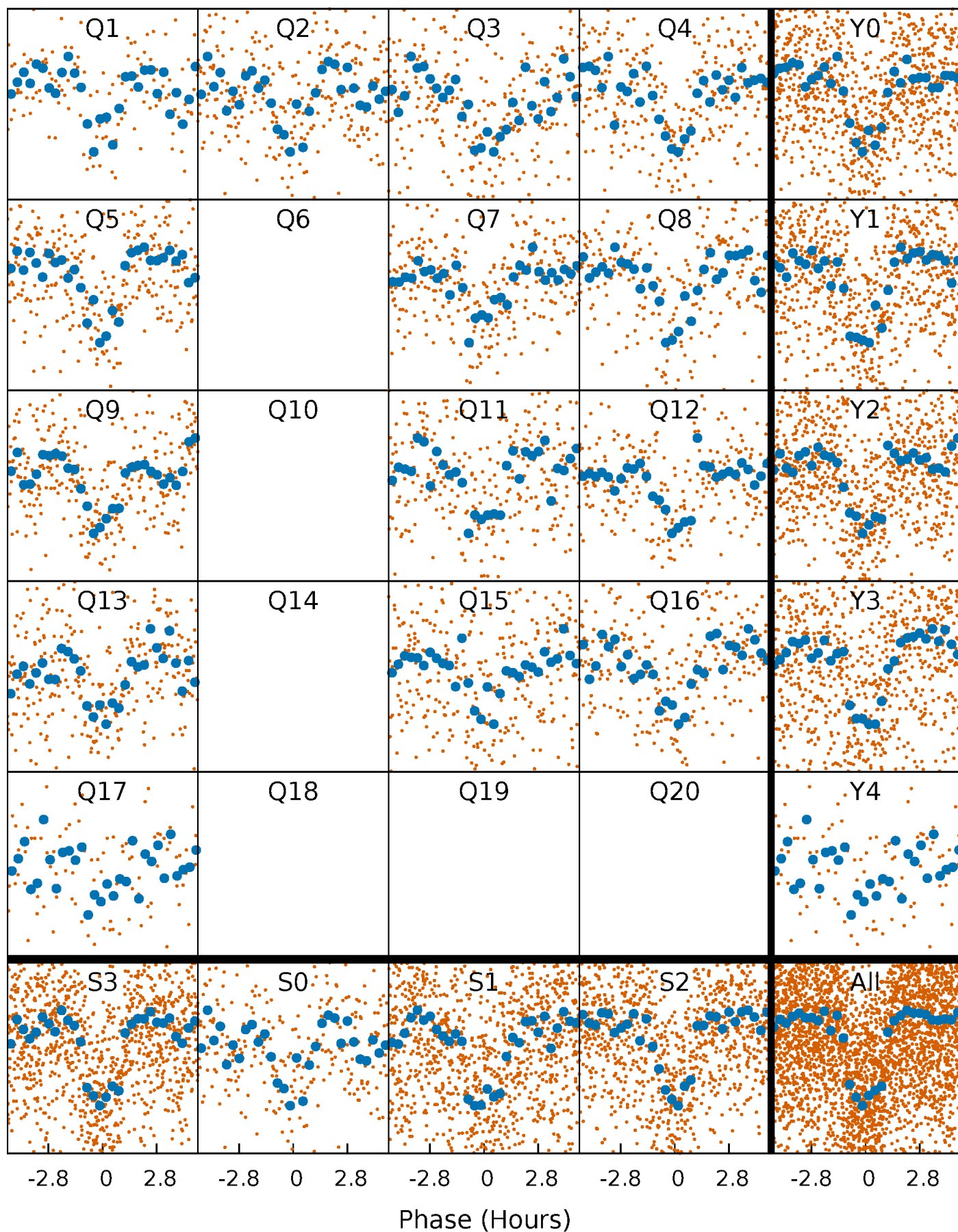


Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



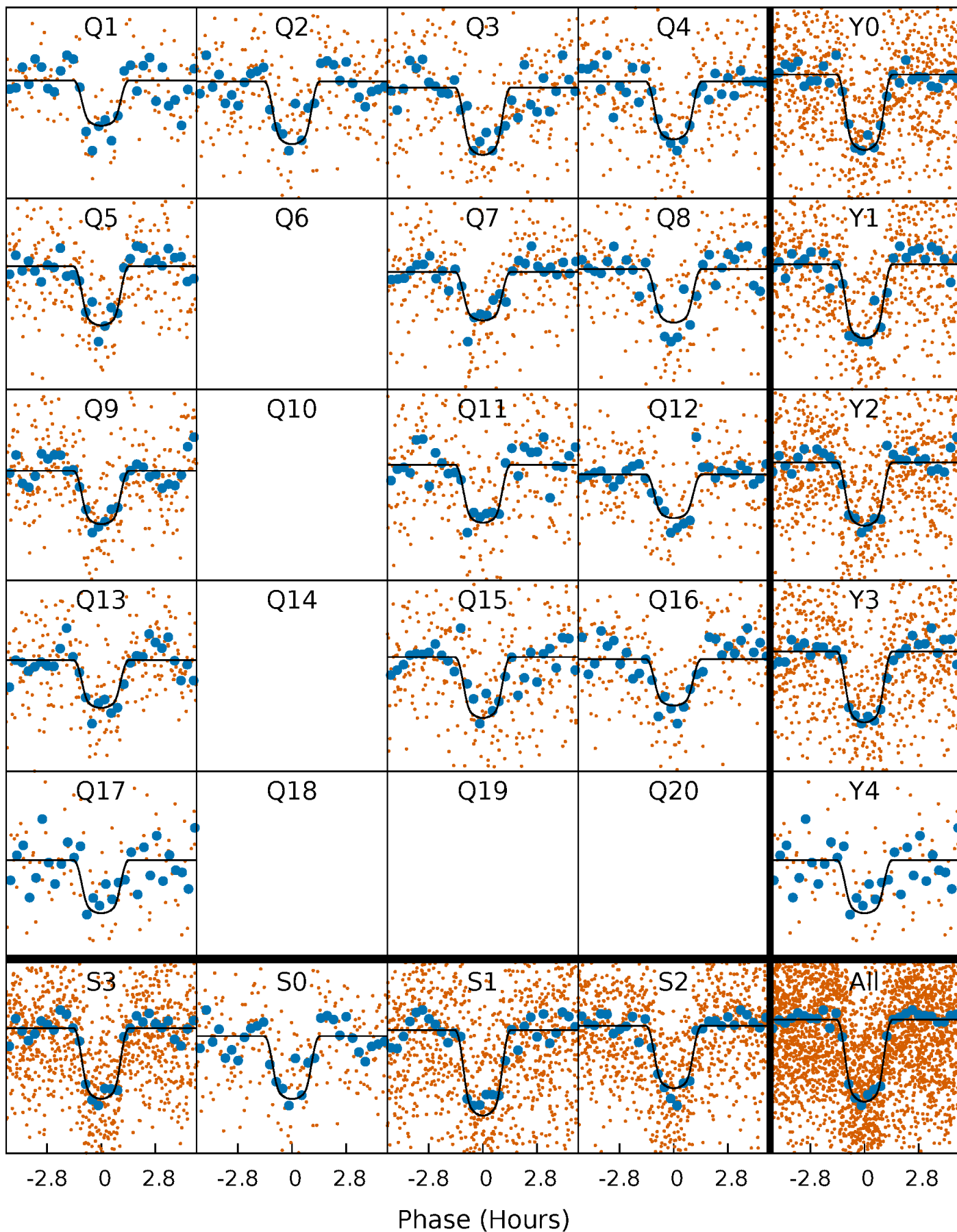
PDC Quarter-Phased Transit Curves

TCE 004270253-02 P= 5.687984 Days $T_0=133.955929$ (BKJD)



DV Quarter-Phased Transit Curves

TCE 004270253-02 P= 5.687984 Days $T_0=133.955929$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

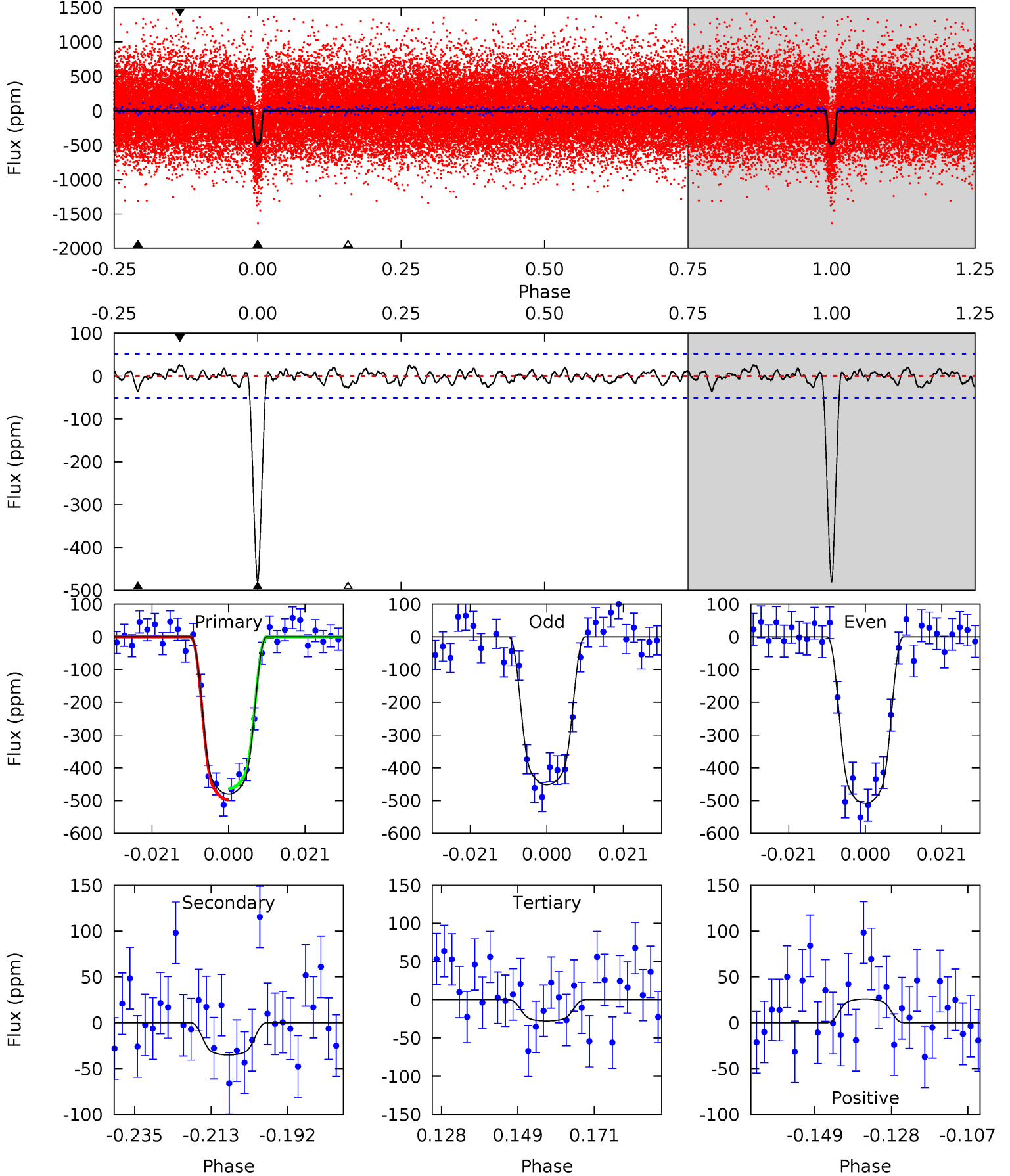
TCE 004270253-02 P= 5.688007 Days $T_0=133.953848$ (BKJD)



DV Model-Shift Uniqueness Test

004270253-02, P = 5.687984 Days, E = 128.267945 Days

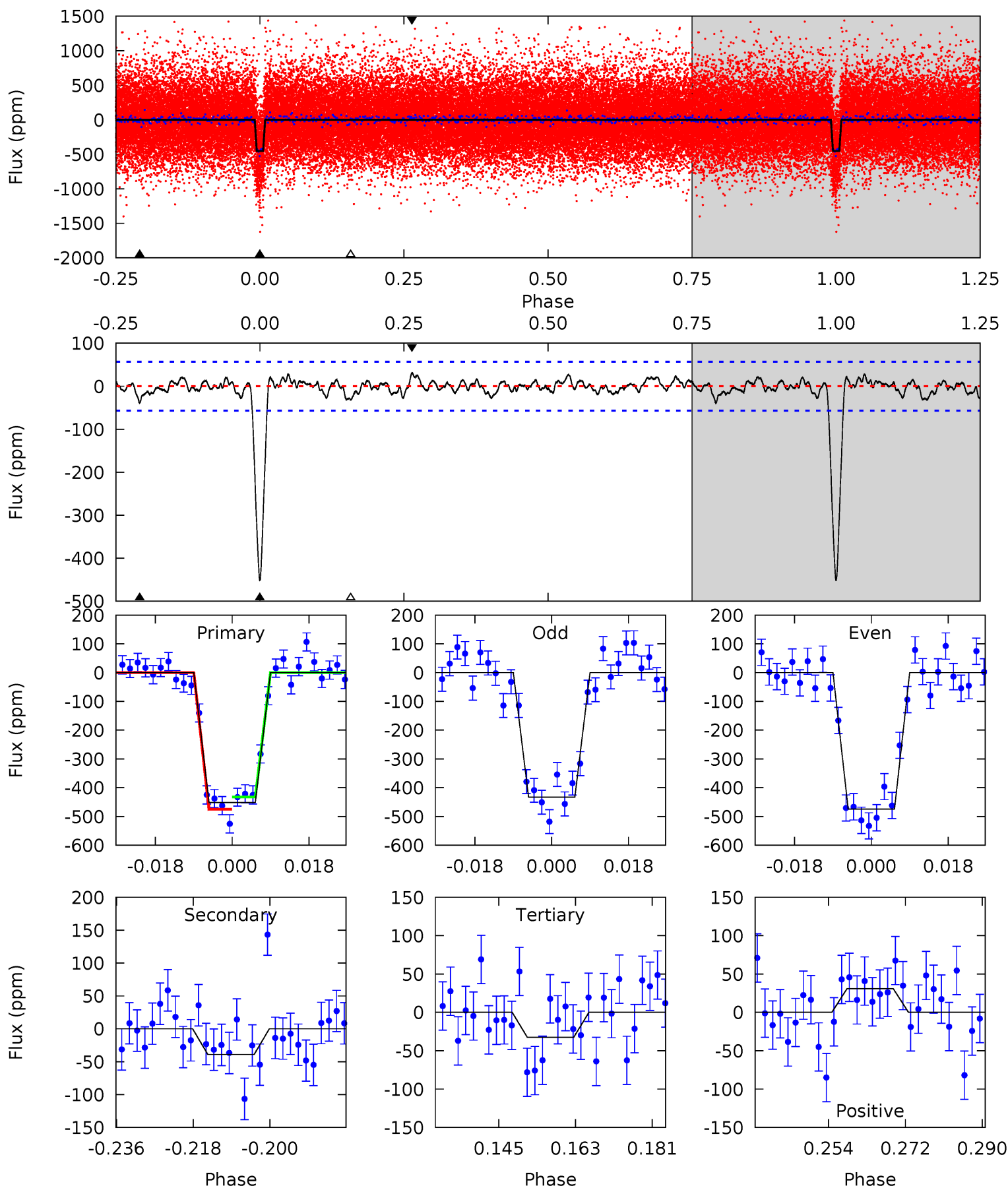
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
45.0	3.30	2.60	2.41	4.88	2.30	1.01	42.4	42.5	0.70	0.89	2.67	1.00	0.05	1.59



Alt Model-Shift Uniqueness Test

004270253-02, P = 5.688007 Days, E = 128.265841 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
39.0	3.37	2.82	2.66	4.91	2.36	1.00	36.2	36.3	0.55	0.71	1.80	1.00	0.06	1.85



Stellar Parameters For KIC 004270253

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	5576^{+83}_{-75}	$4.257^{+0.168}_{-0.112}$	$0.140^{+0.150}_{-0.150}$	$1.198^{+0.186}_{-0.204}$	$0.945^{+0.073}_{-0.046}$	$0.774^{+0.609}_{-0.248}$
	+1%/-1%	+4%/-3%	+107%/-107%	+16%/-17%	+8%/-5%	+79%/-32%
Source	SPE90	SPE90	SPE90	DSEP		

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

Secondary Eclipse Parameters for KIC 004270253-02 / KOI 0551.02

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	-35 ± 11	$3.22^{+0.45}_{-0.39}$	1516^{+70}_{-79}	3246^{+185}_{-212}	$6.822^{+3.325}_{-2.575}$
Alt.	-39 ± 12	$2.74^{+0.40}_{-0.35}$	1511^{+70}_{-73}	3489^{+206}_{-226}	11^{+6}_{-4}

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 $A_{obs} \gg 1.0$

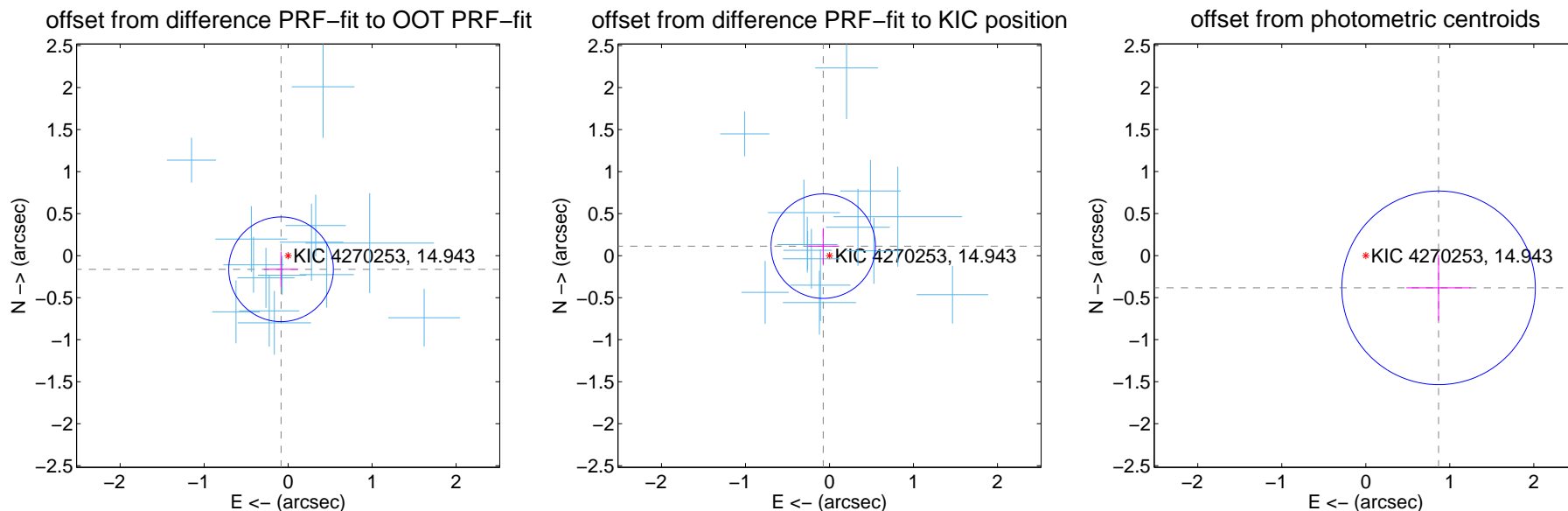
DV Centroid Data

Supplemental centroid analysis for 004270253-02. Kepler magnitude: 14.94. Transit SNR 31.78

There are 14 quarters with good PRF difference image offsets

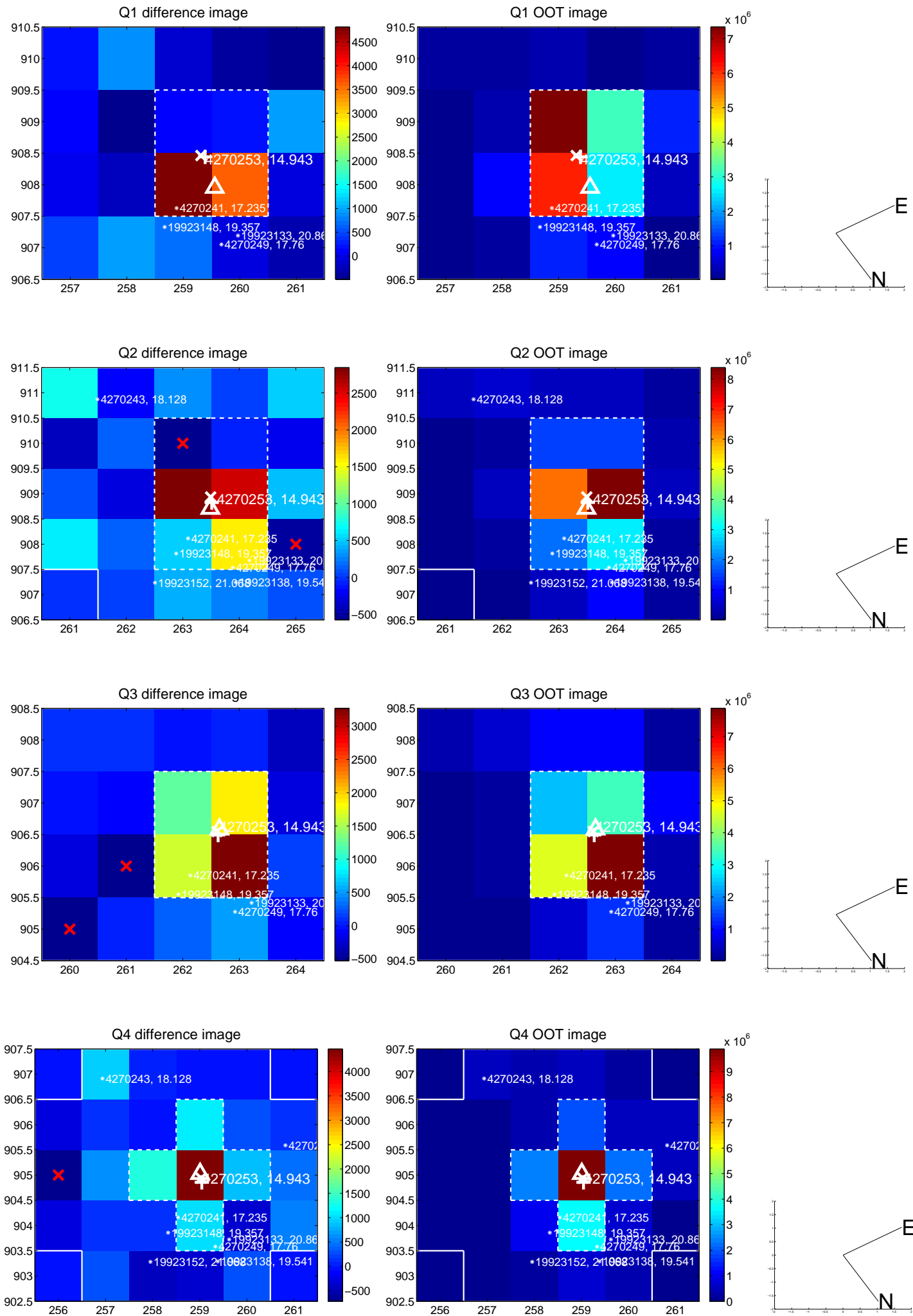
The direct PRF centroid is offset from the target star catalog position by about 0.35 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.183 ± 0.208	0.88	0.084 ± 0.203	-0.162 ± 0.211
PRF-fit source offset from KIC position	0.135 ± 0.207	0.65	0.074 ± 0.178	0.113 ± 0.215
photometric centroid source offset	0.95 ± 0.38	2.47	-0.87 ± 0.38	-0.38 ± 0.39

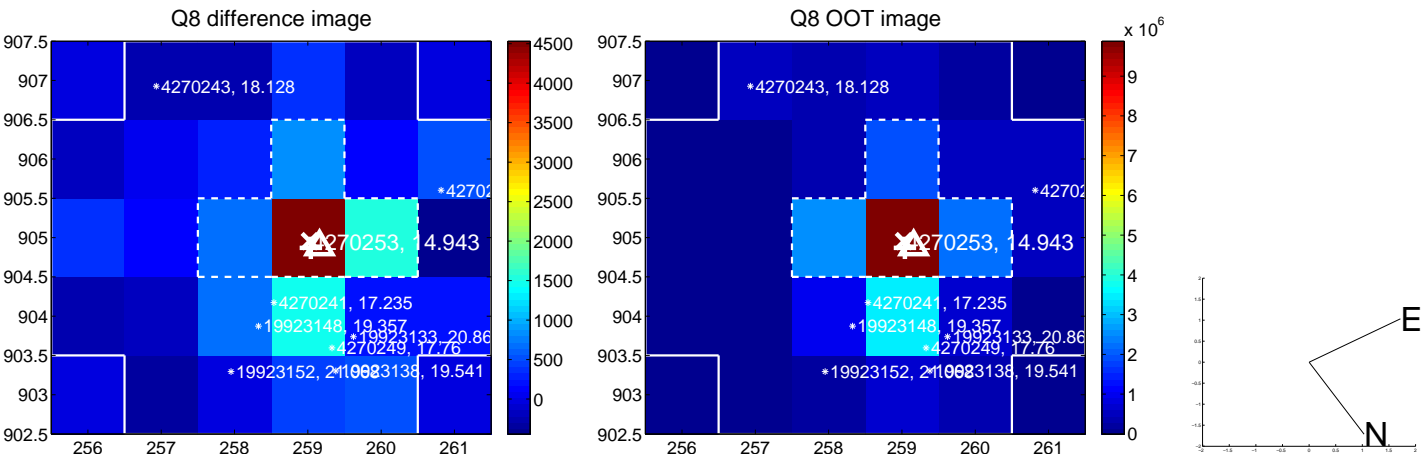
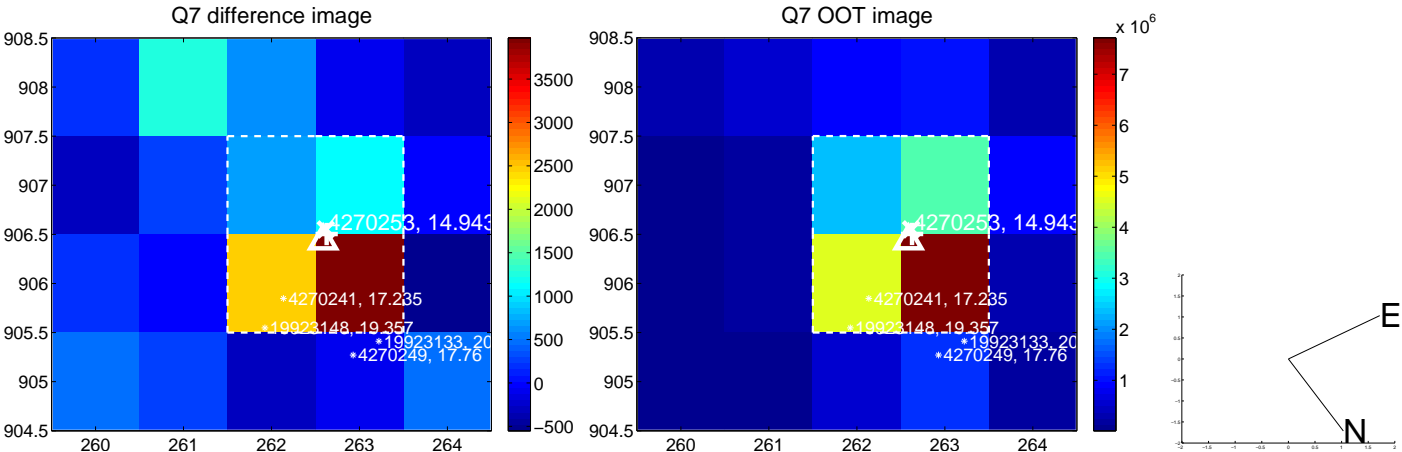
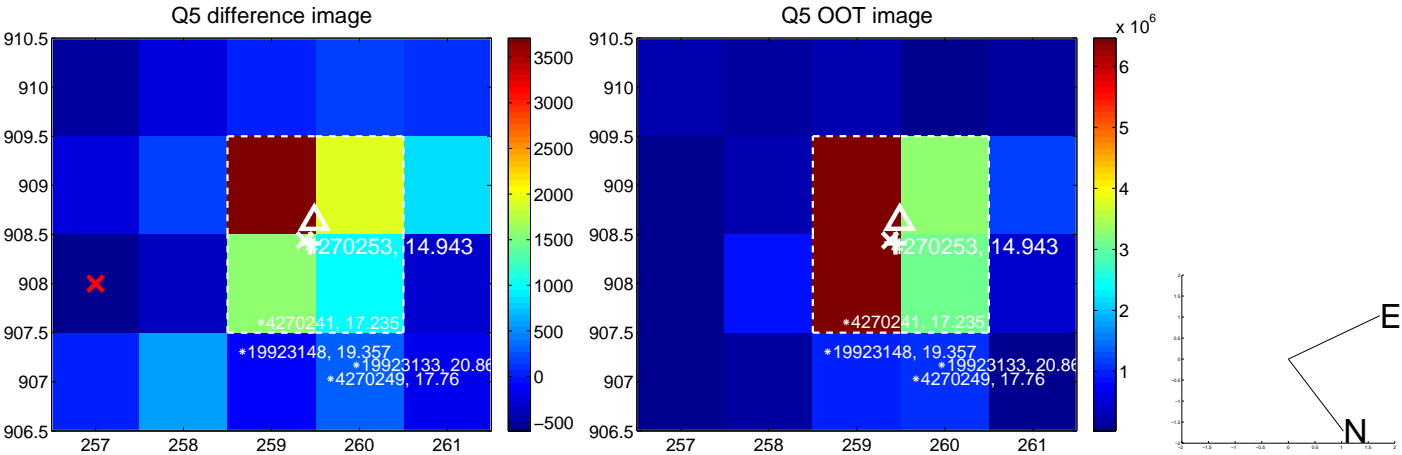


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses:** good quarterly centroid offsets; **Vermillion crosses:** bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

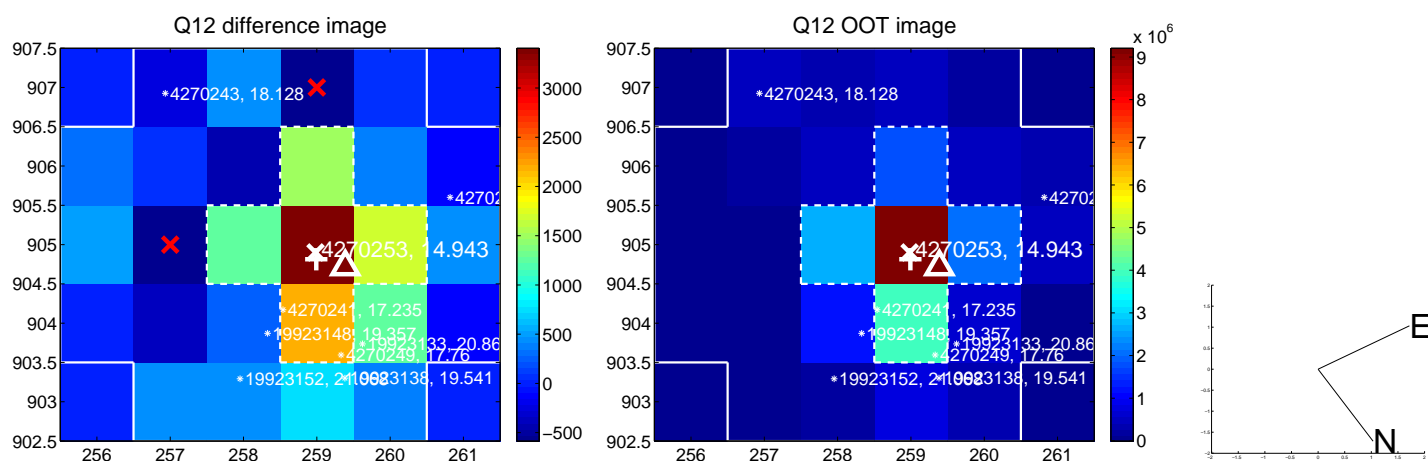
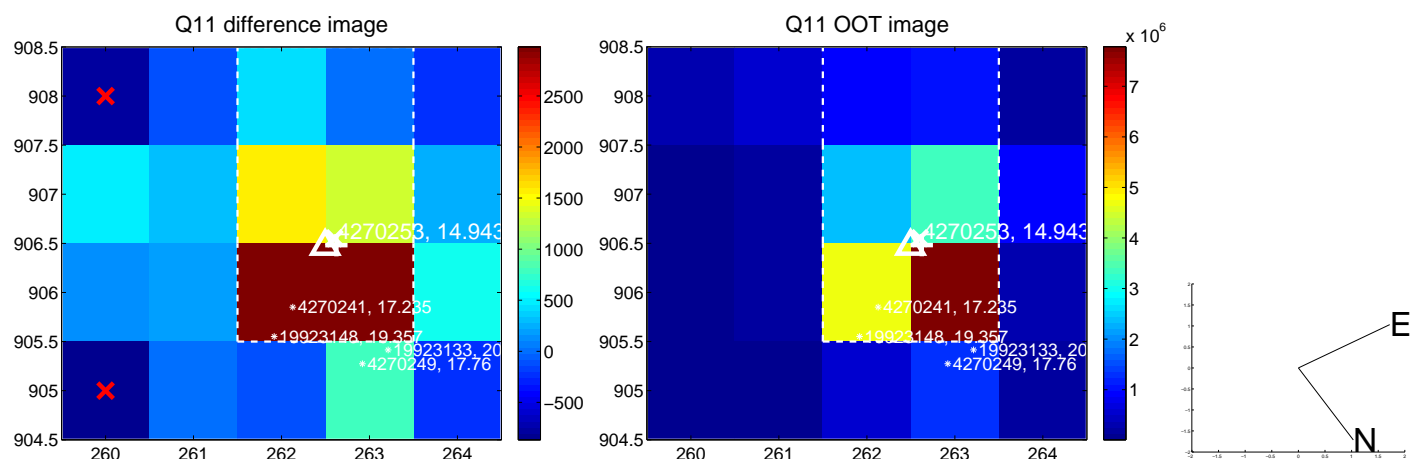
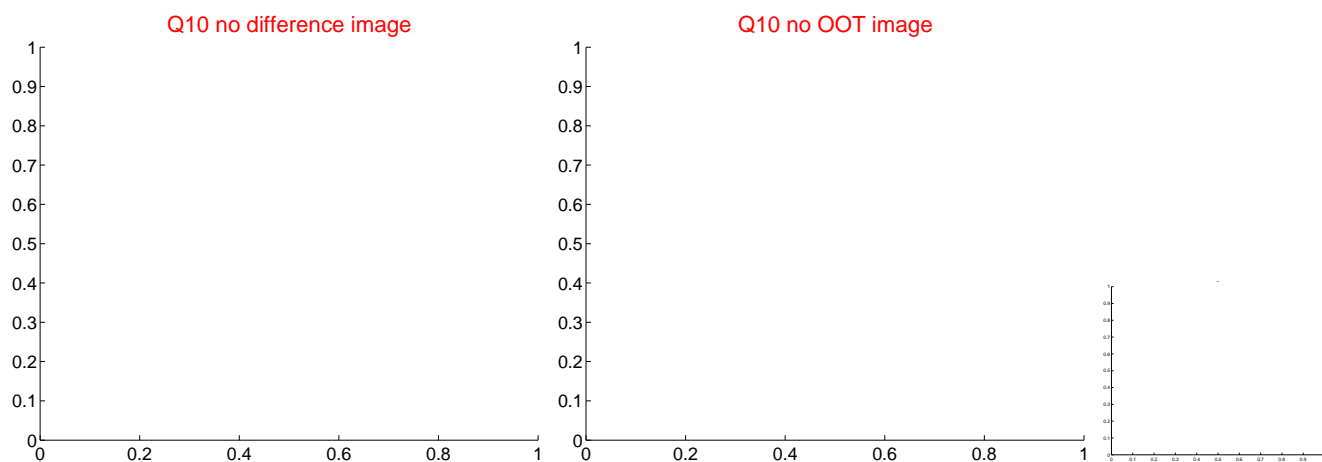
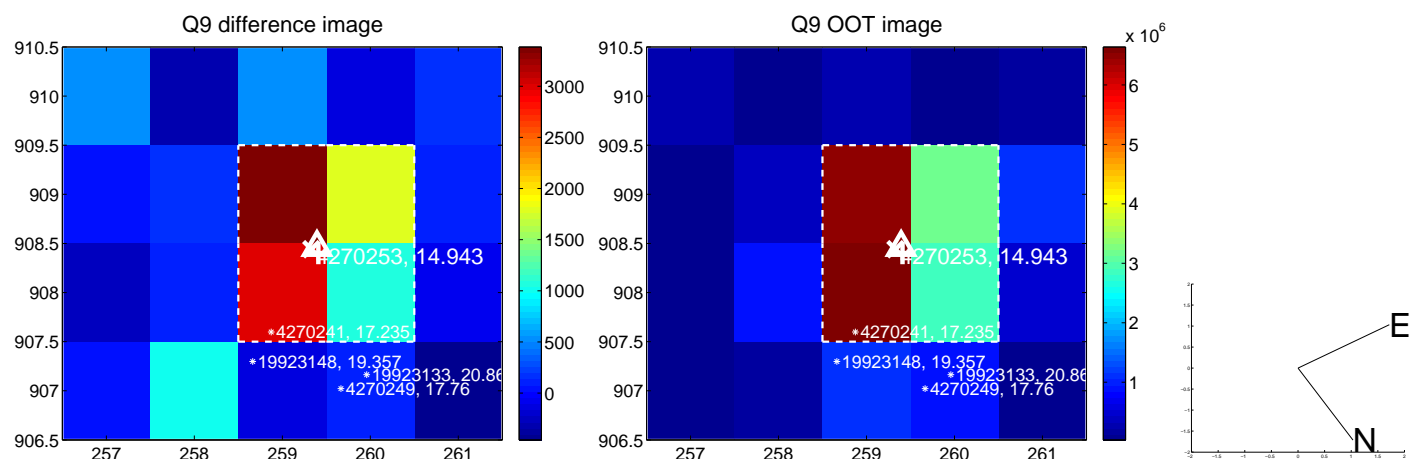
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



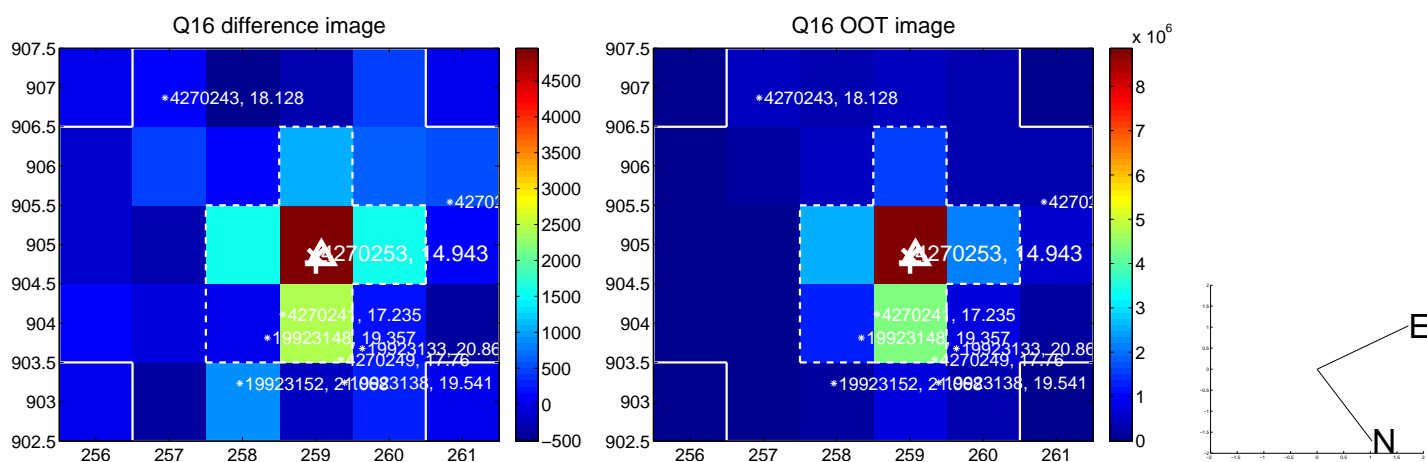
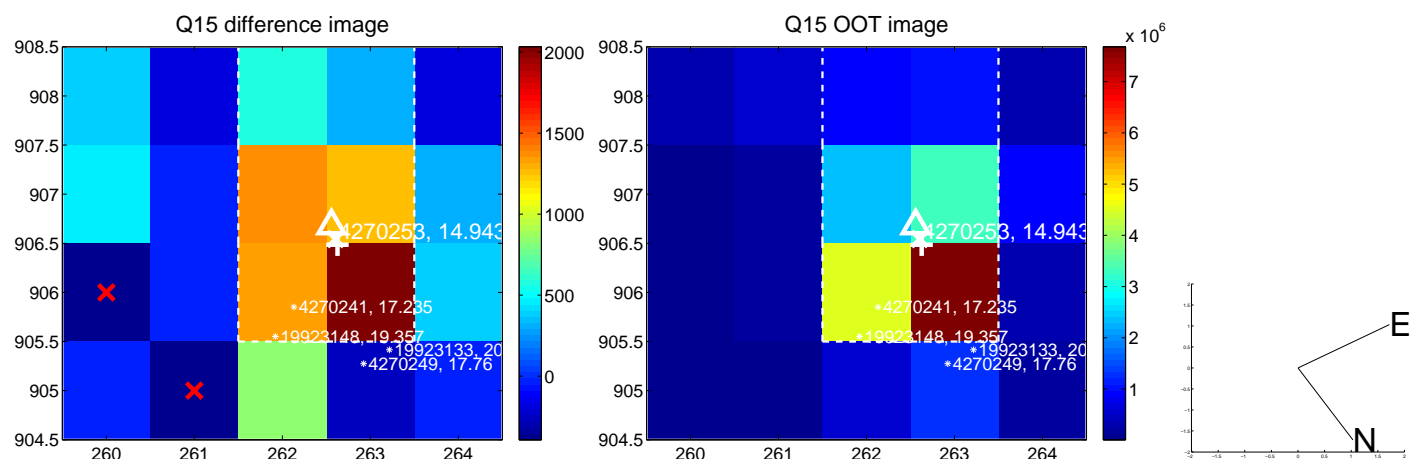
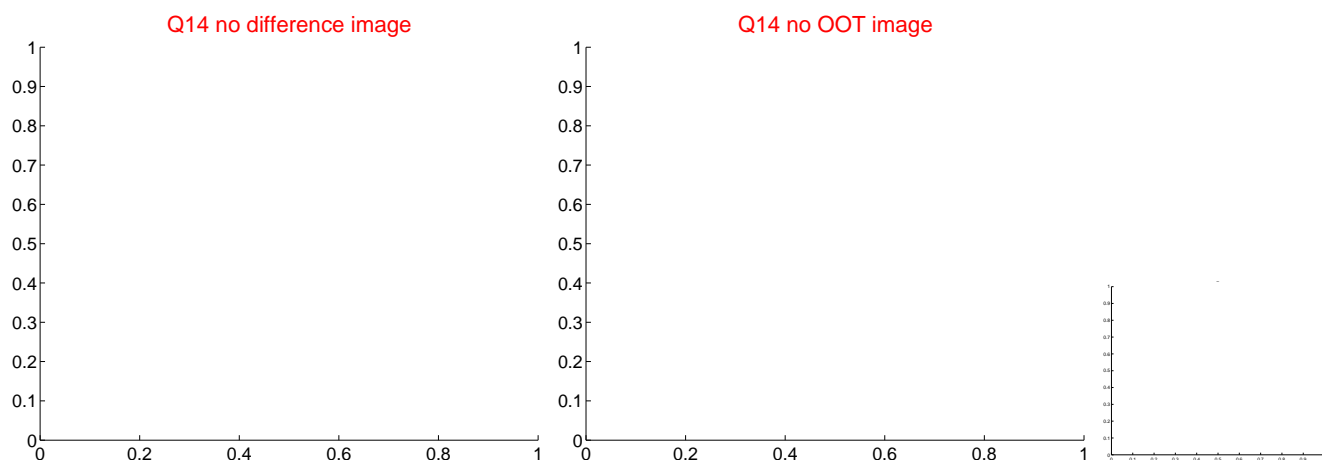
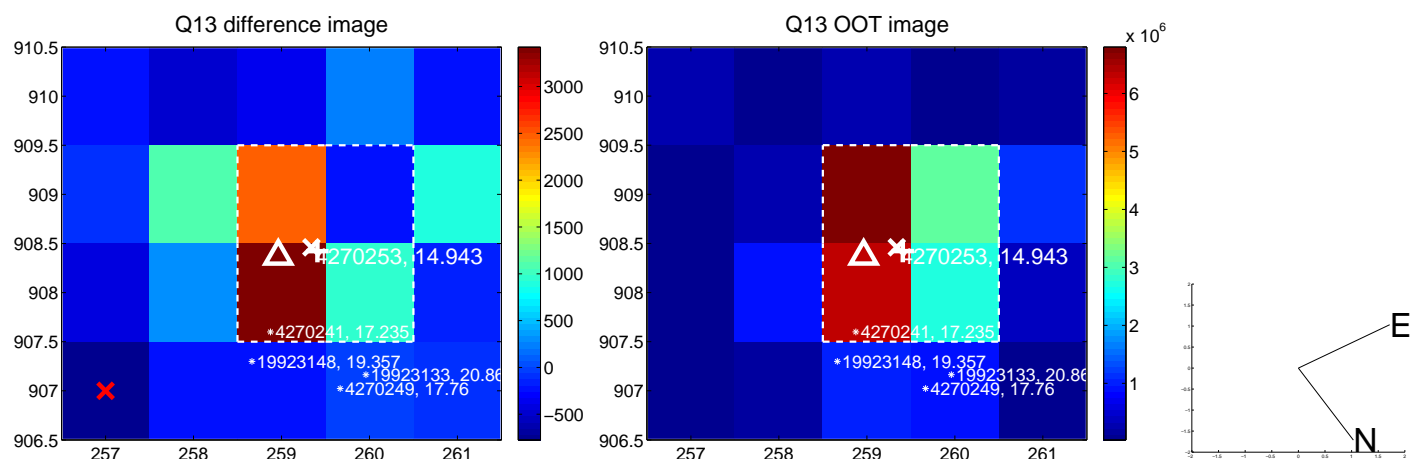
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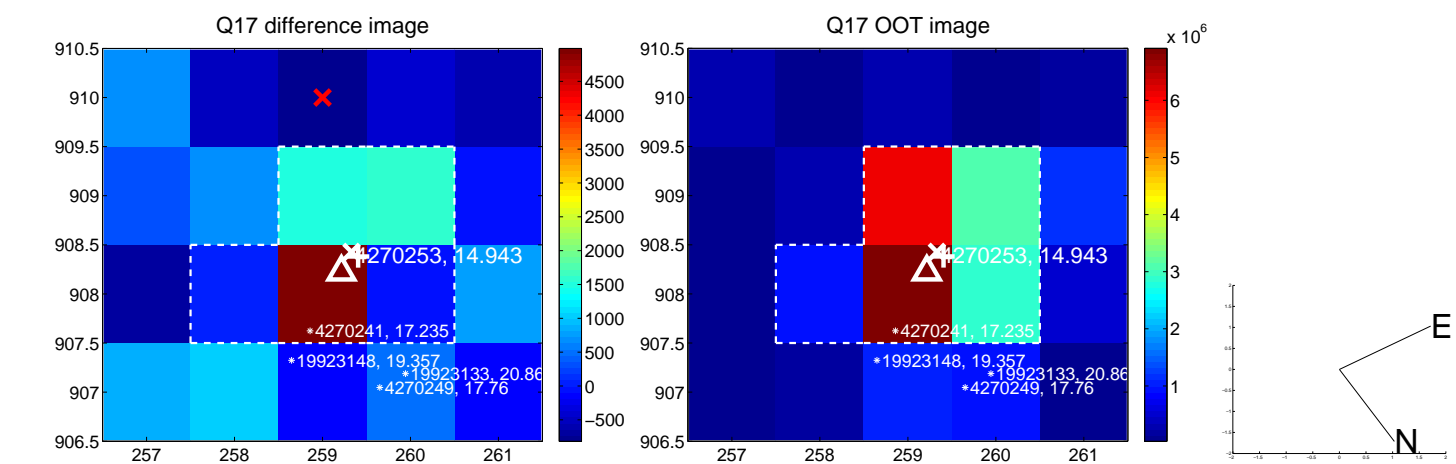
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



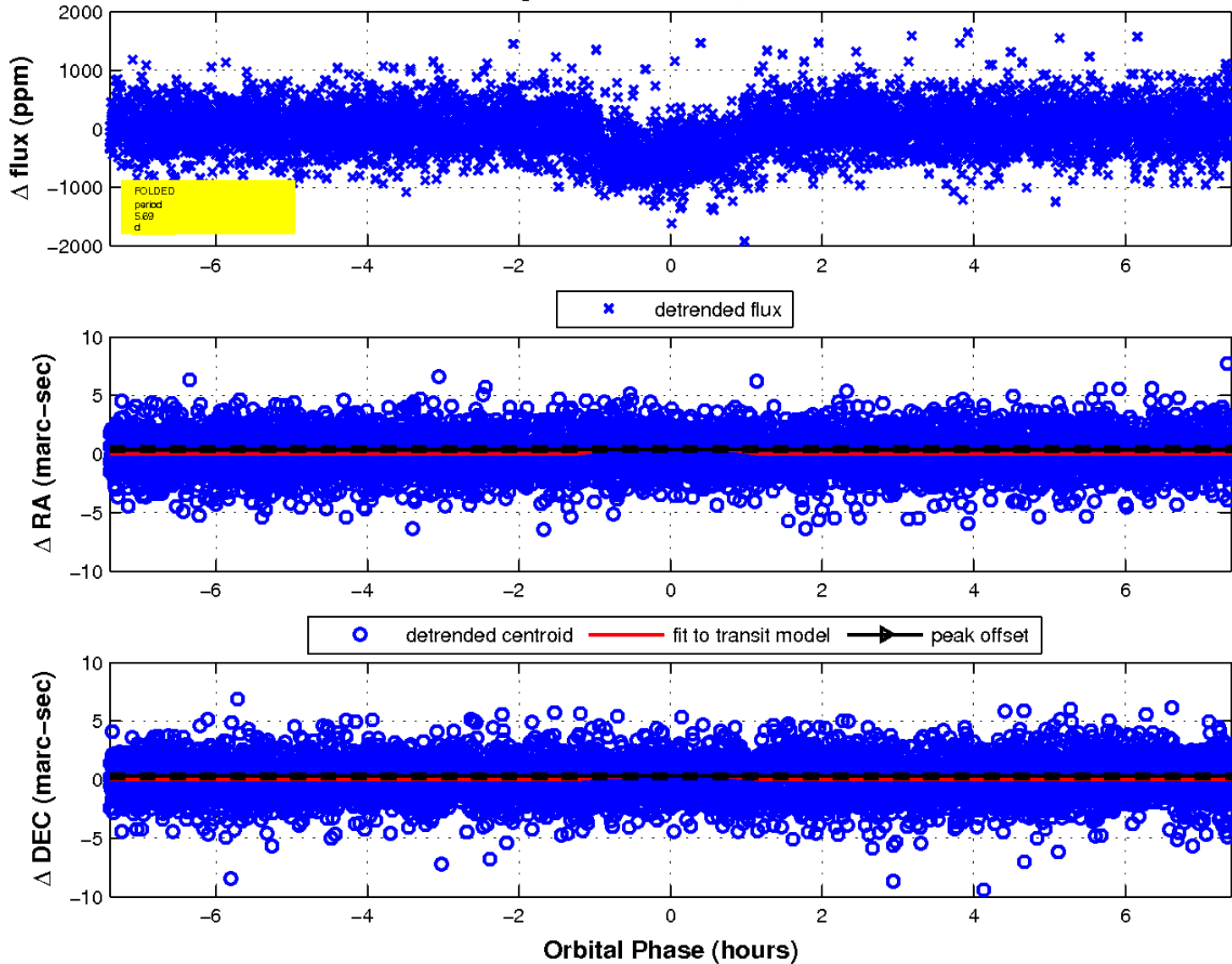
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fluxWeightedCentroids, Planet 2 of 2



UKIRT Image

Declination

