

KIC 010973583

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})
010973583-01	OBS	6232.01	6.256352	133.543127	3263.0	2.331	108.5	119.7	0.84	5772	7.56	168.49
010973583-02	OBS	No	3.128183	133.519278	1512.9	2.344	50.5	58.2	0.84	5772	5.51	424.57

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
010973583-01	OBS	FP	0.00	0	1	0	0	MOD_SEC_DV—MOD_SEC_ALT—DEEP_V_SHAPED—HAS_SEC_TCE
010973583-02	OBS	FP	0.00	1	1	0	0	IS_SEC_TCE

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.

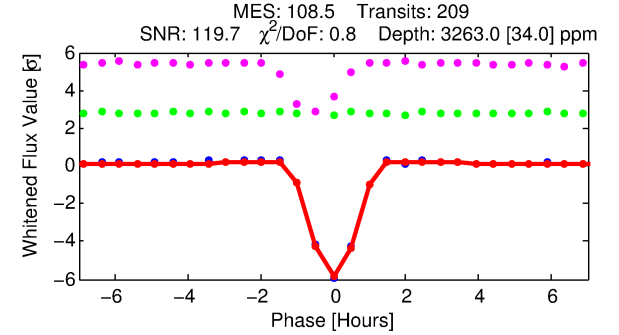
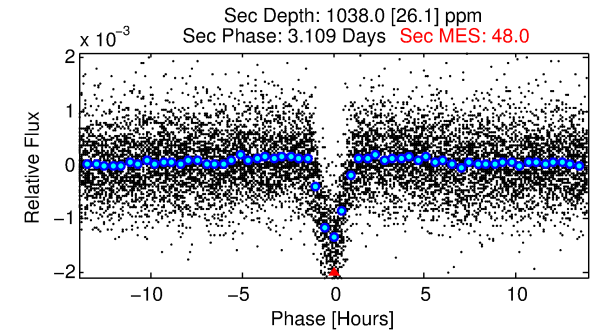
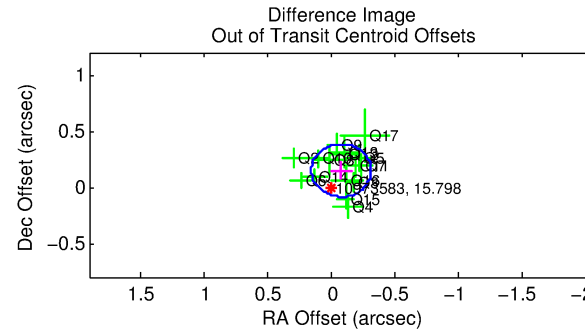
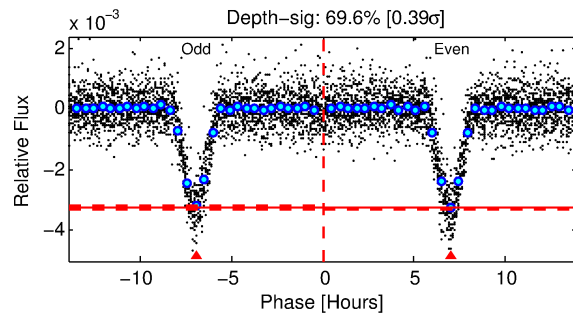
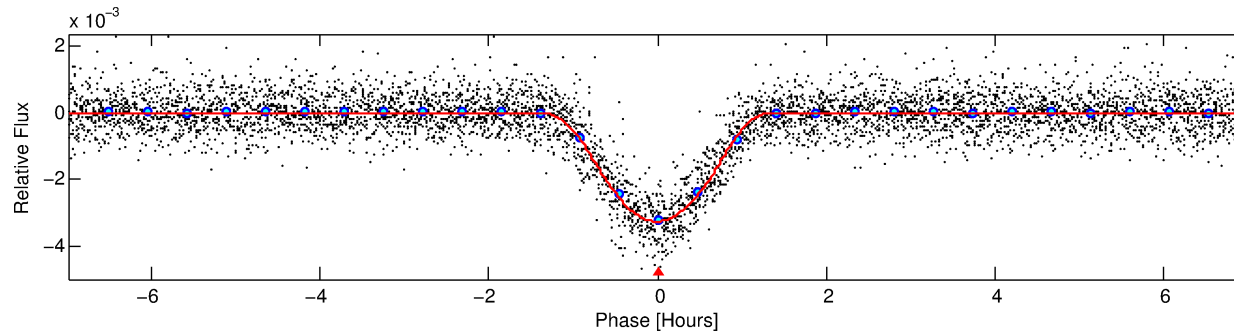
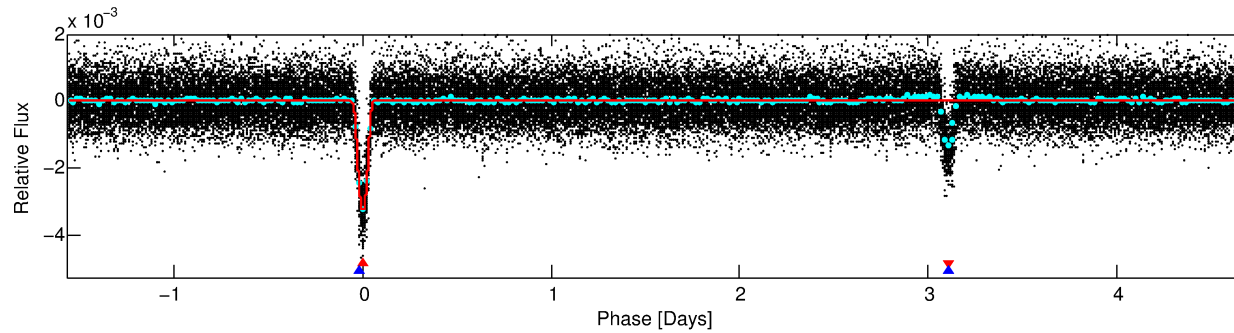
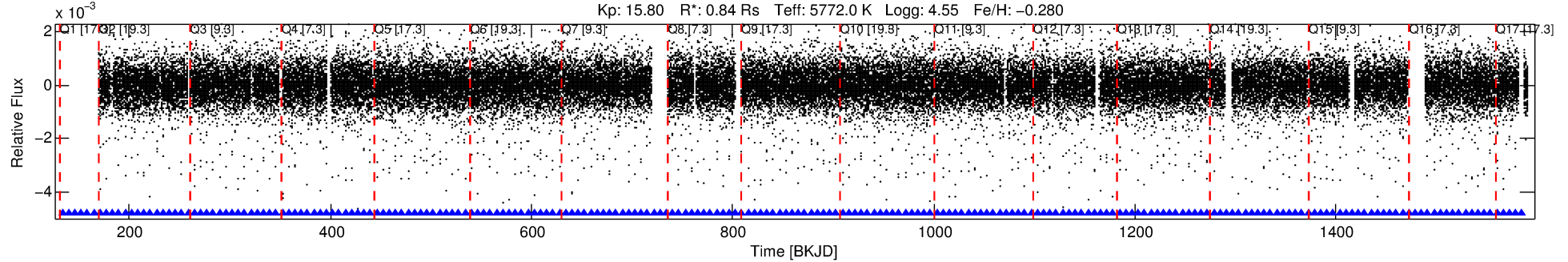
Ephemeris Match Information For 010973583-01

No Significant Match Found

DV One-Page Summary

KIC: 10973583 Candidate: 1 of 2 Period: 6.256 d
KOI: K06232.01 Corr: 0.986

Kp: 15.80 R*: 0.84 Rs Teff: 5772.0 K Logg: 4.55 Fe/H: -0.280



DV Fit Results:

Period = 6.25635 [0.00000] d
Epoch = 133.5431 [0.0004] BKJD
Rp/R* = 0.0828 [0.0206]
a/R* = 9.70 [0.70]
b = 0.98 [0.04]
Seff = 168.49 [60.61]
Teq = 919 [83] K
Rp = 7.56 [2.85] Re
a = 0.0642 [0.0151] AU
Ag = 41.24 [24.89] [1.62σ]
Teffp = 3599 [462] K [5.71σ]

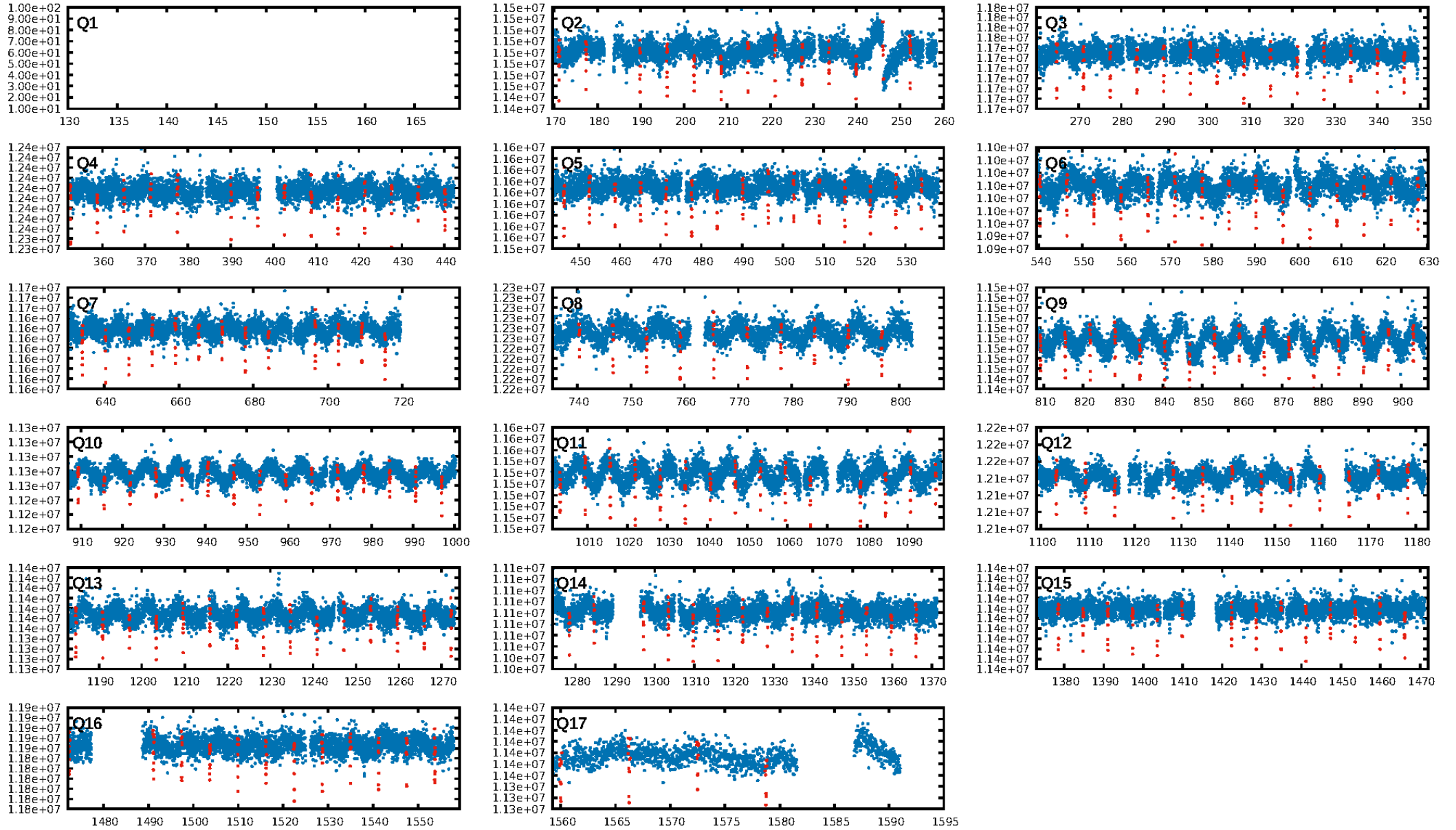
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [22.71σ]
LongPeriod-sig: N/A
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: 0.00e+00
RollingBand-fgt: 1.00 [205/205]
GhostDiagnostic-chr: 5.154
Centroid-sig: 0.0%
Centroid-so: 0.586 arcsec [4.61σ]
OotOffset-rm: 0.169 arcsec [2.16σ]
KicOffset-rm: 0.172 arcsec [1.98σ]
OotOffset-st: 4/4/4/4 [16]
KicOffset-st: 4/4/4/4 [16]
DiffImageQuality-fgm: 1.00 [16/16]
DiffImageOverlap-fno: 0.00 [0/16]

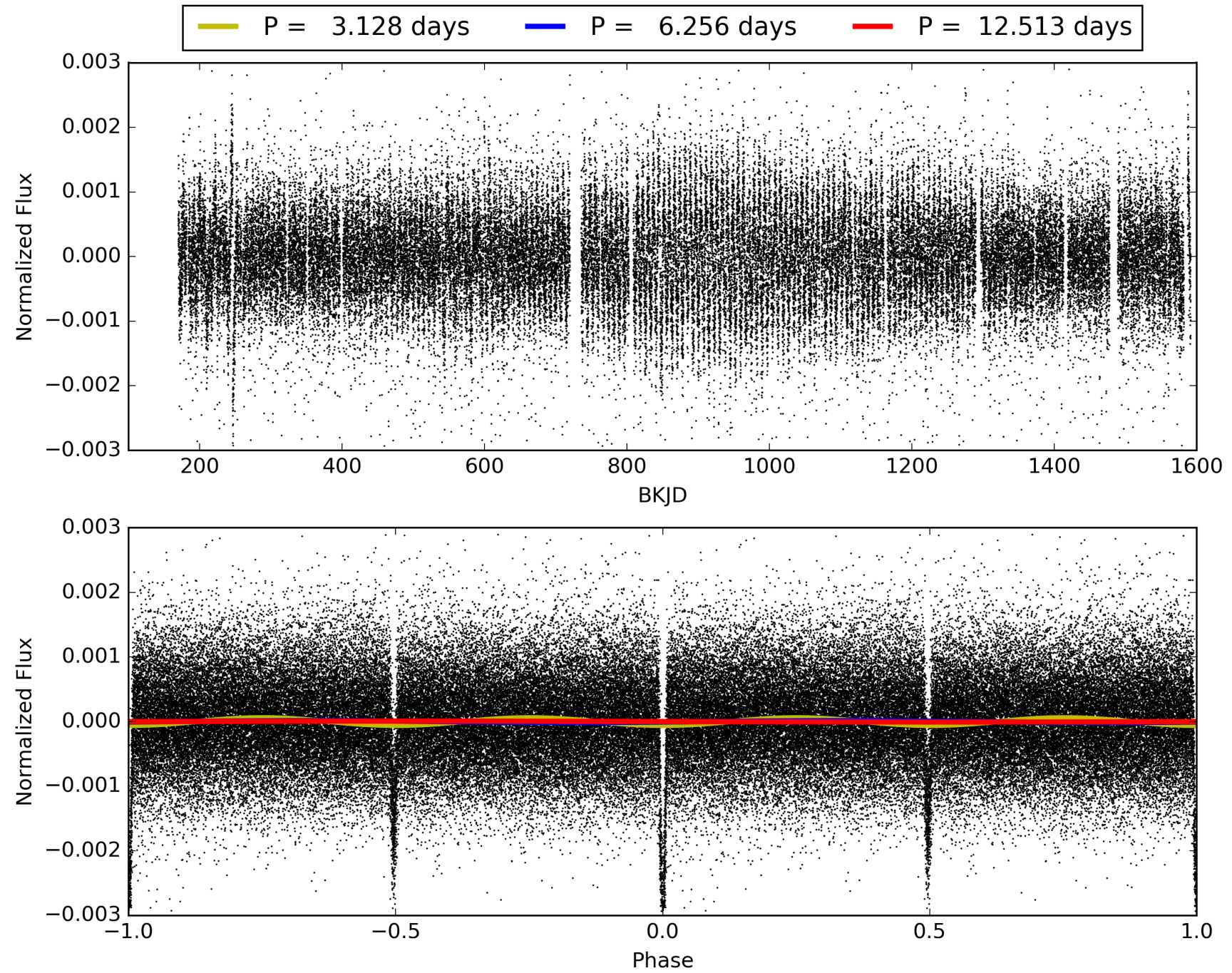
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 29-Jan-2016 06:13:09 Z

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

TCE 010973583-01, PDC Light Curves

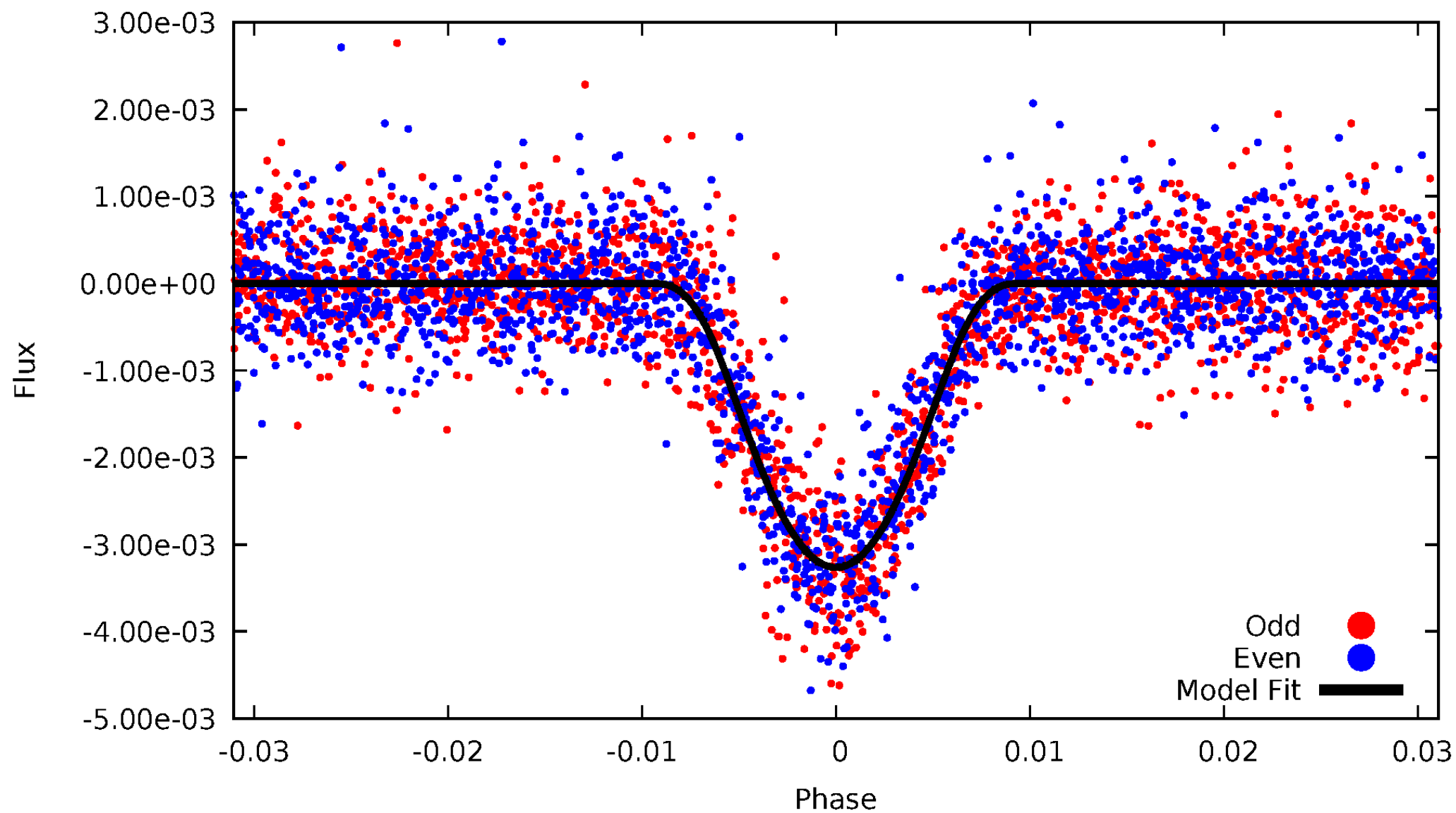


TCE 010973583-01



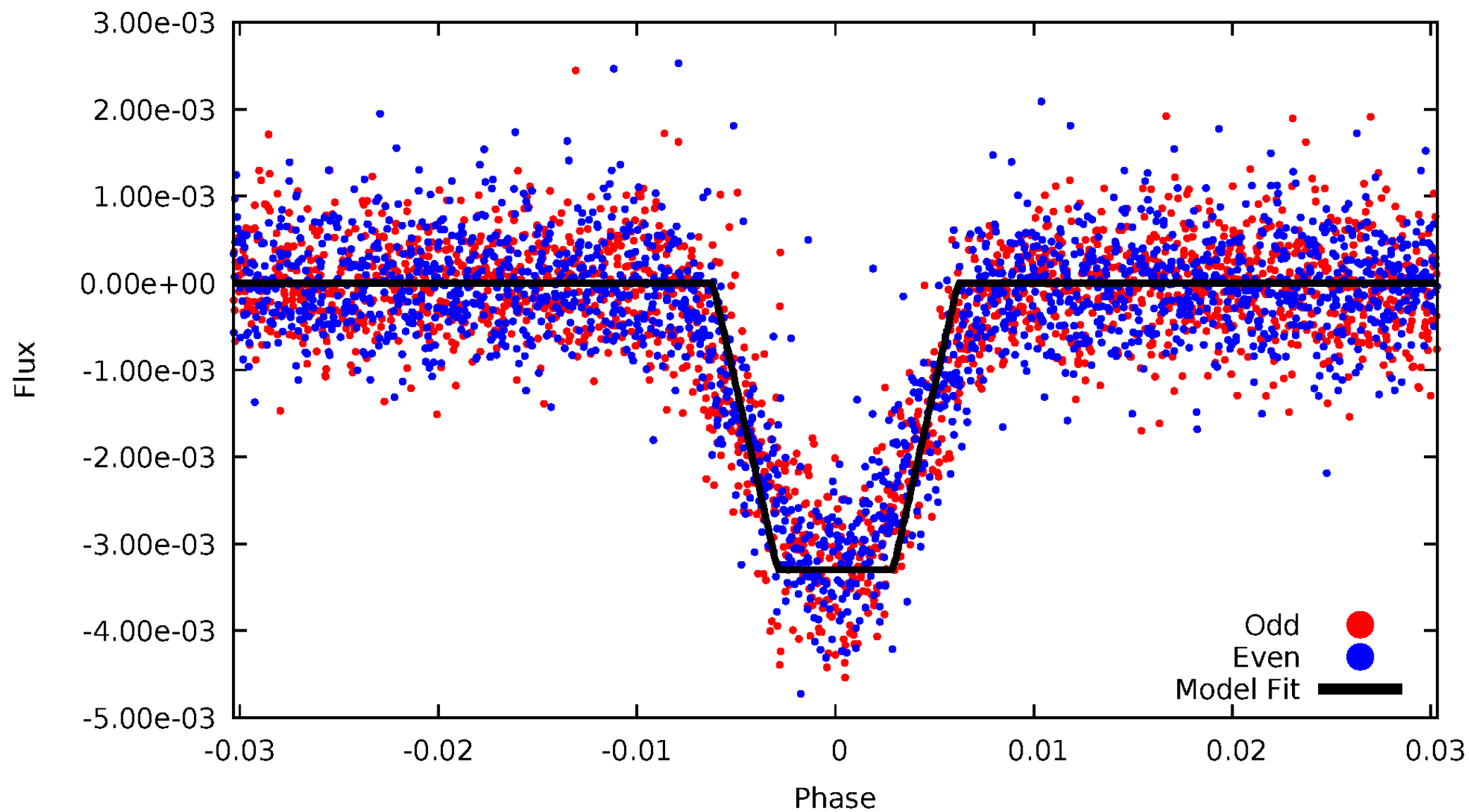
DV Odd/Even

TCE 010973583-01



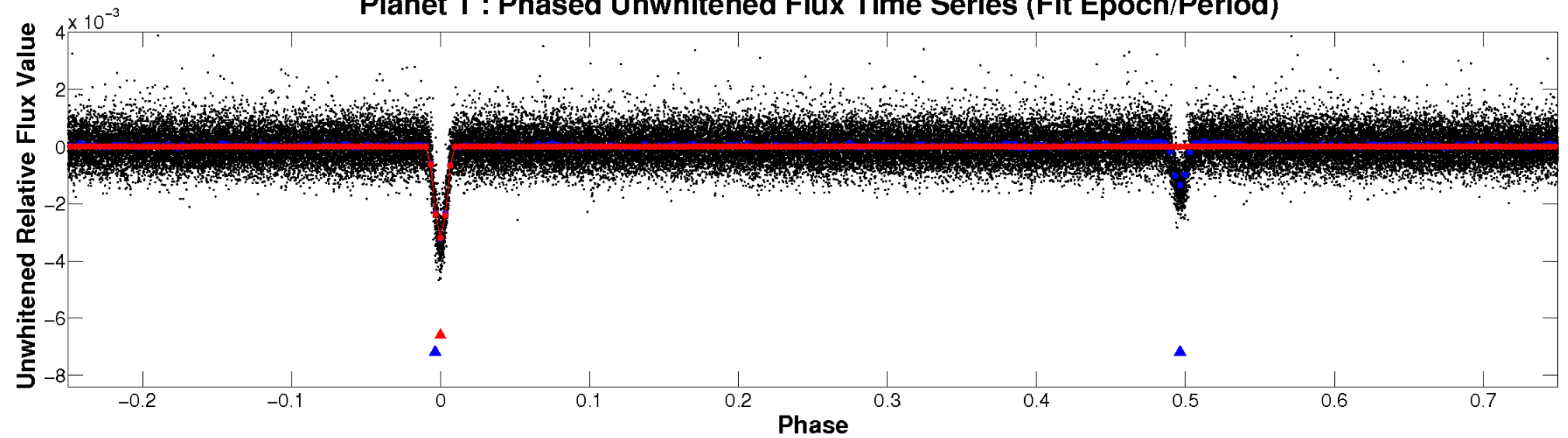
ALT Odd/Even

TCE 010973583-01

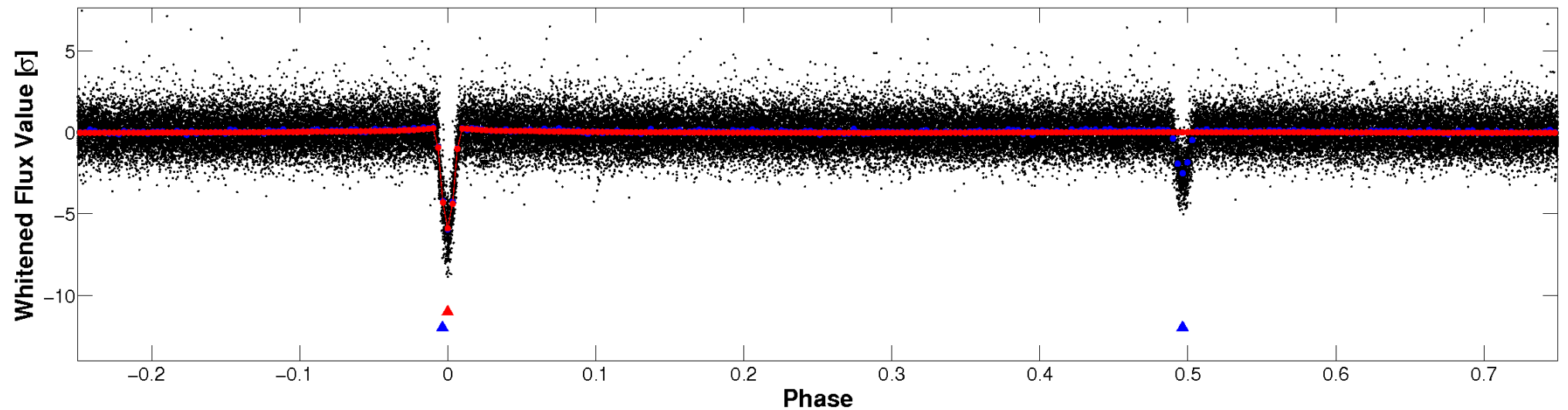


Non-Whitened Vs. Whitened Light Curve

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

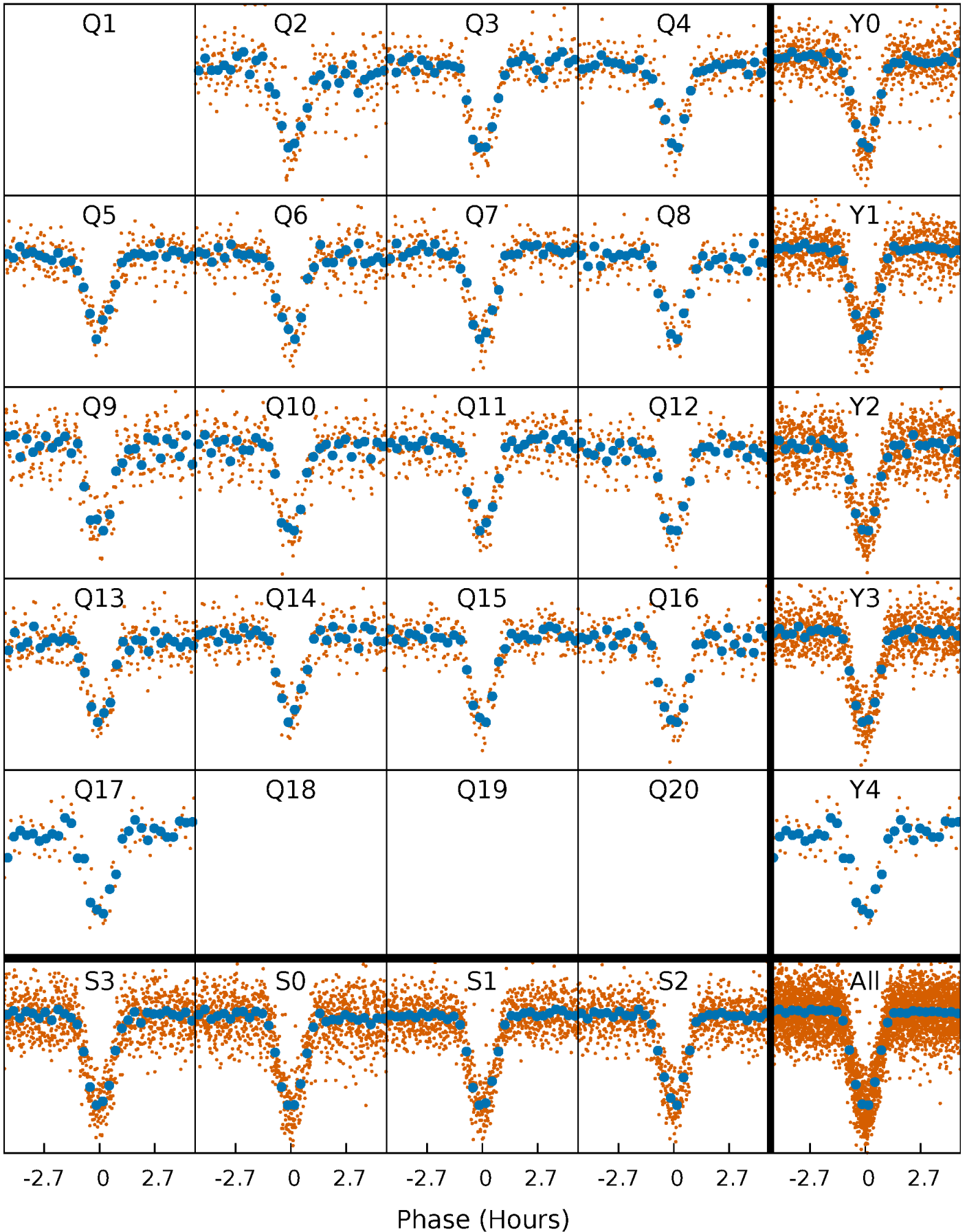


Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)



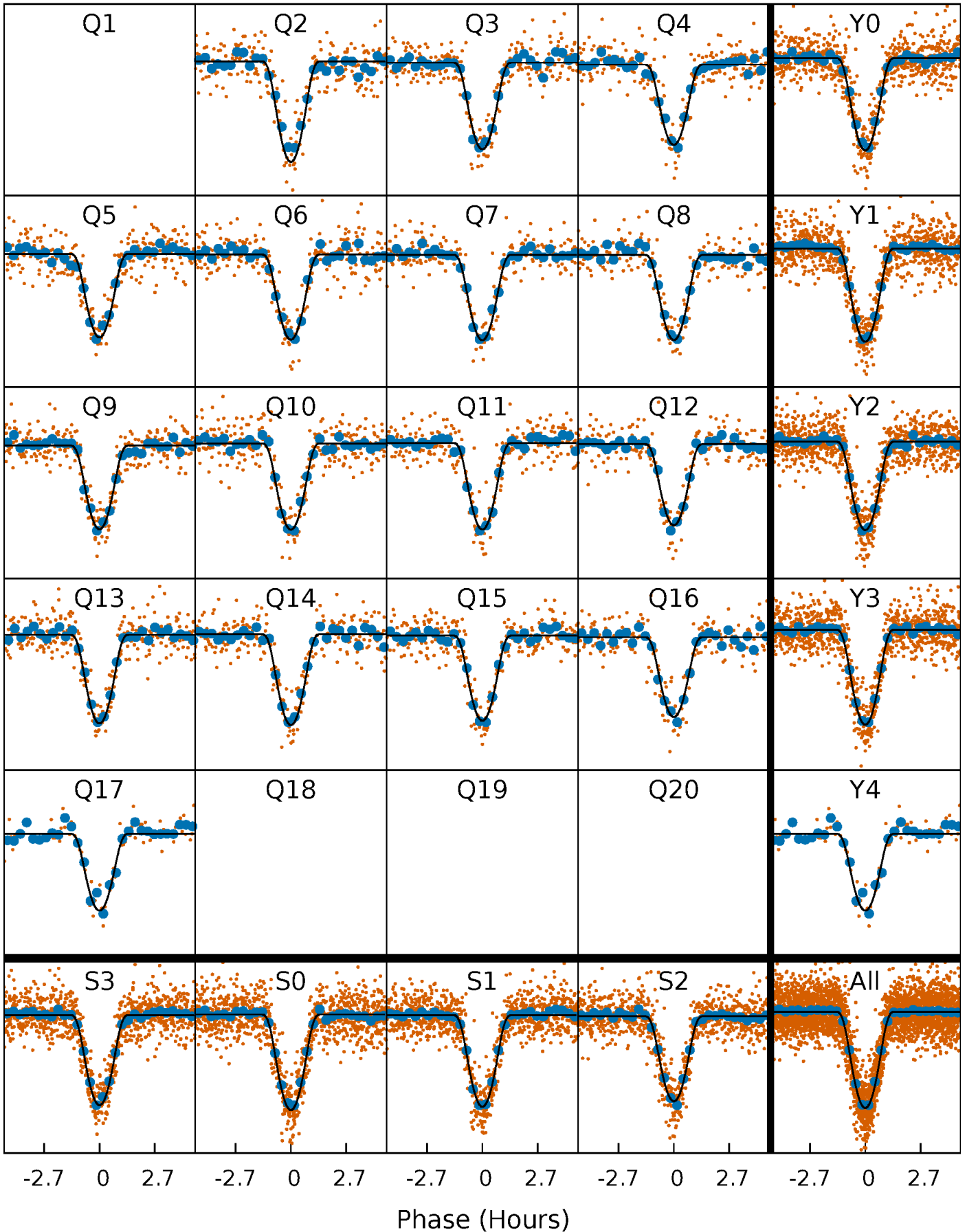
PDC Quarter-Phased Transit Curves

TCE 010973583-01 P= 6.256352 Days $T_0=133.543127$ (BKJD)



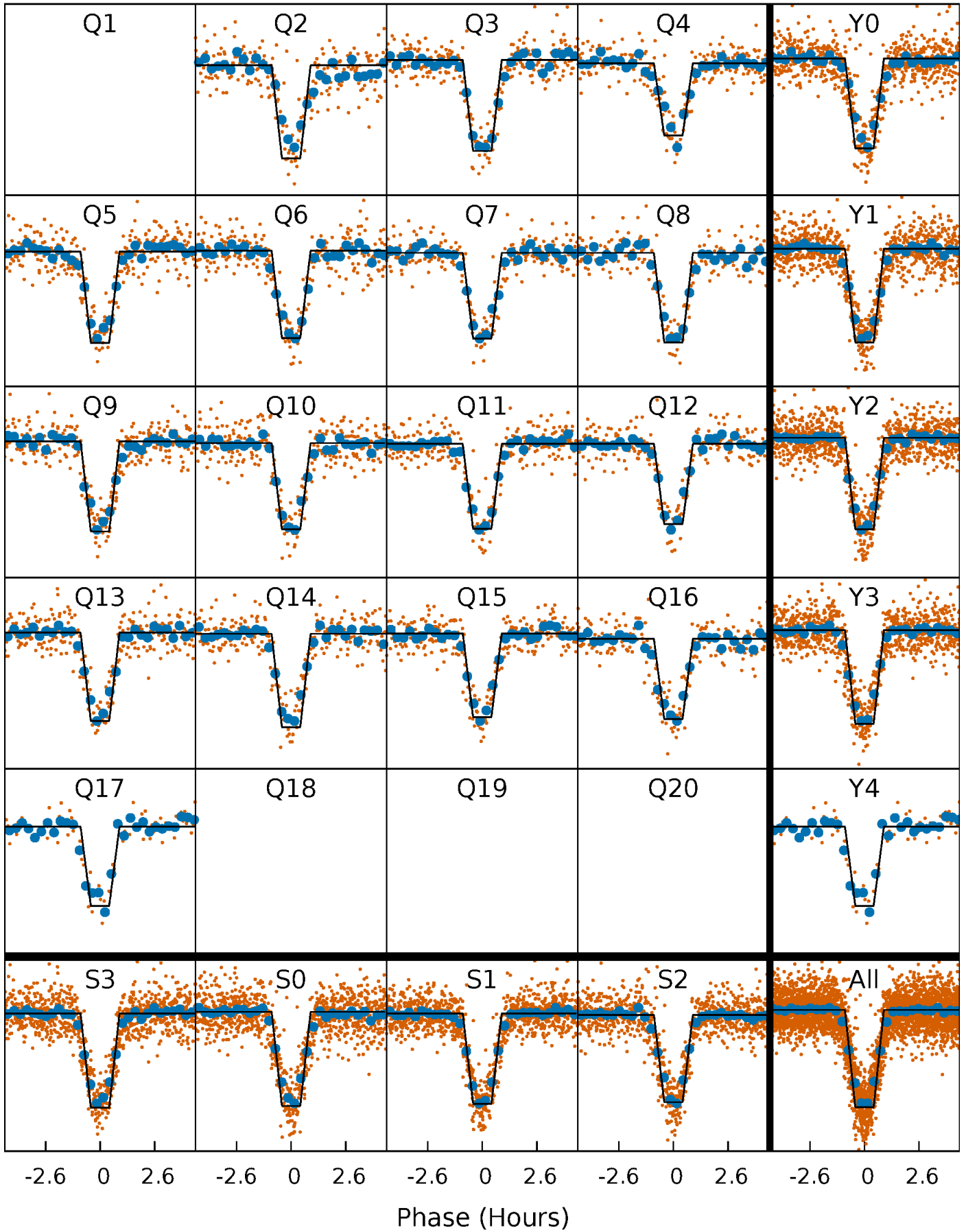
DV Quarter-Phased Transit Curves

TCE 010973583-01 P= 6.256352 Days $T_0=133.543127$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

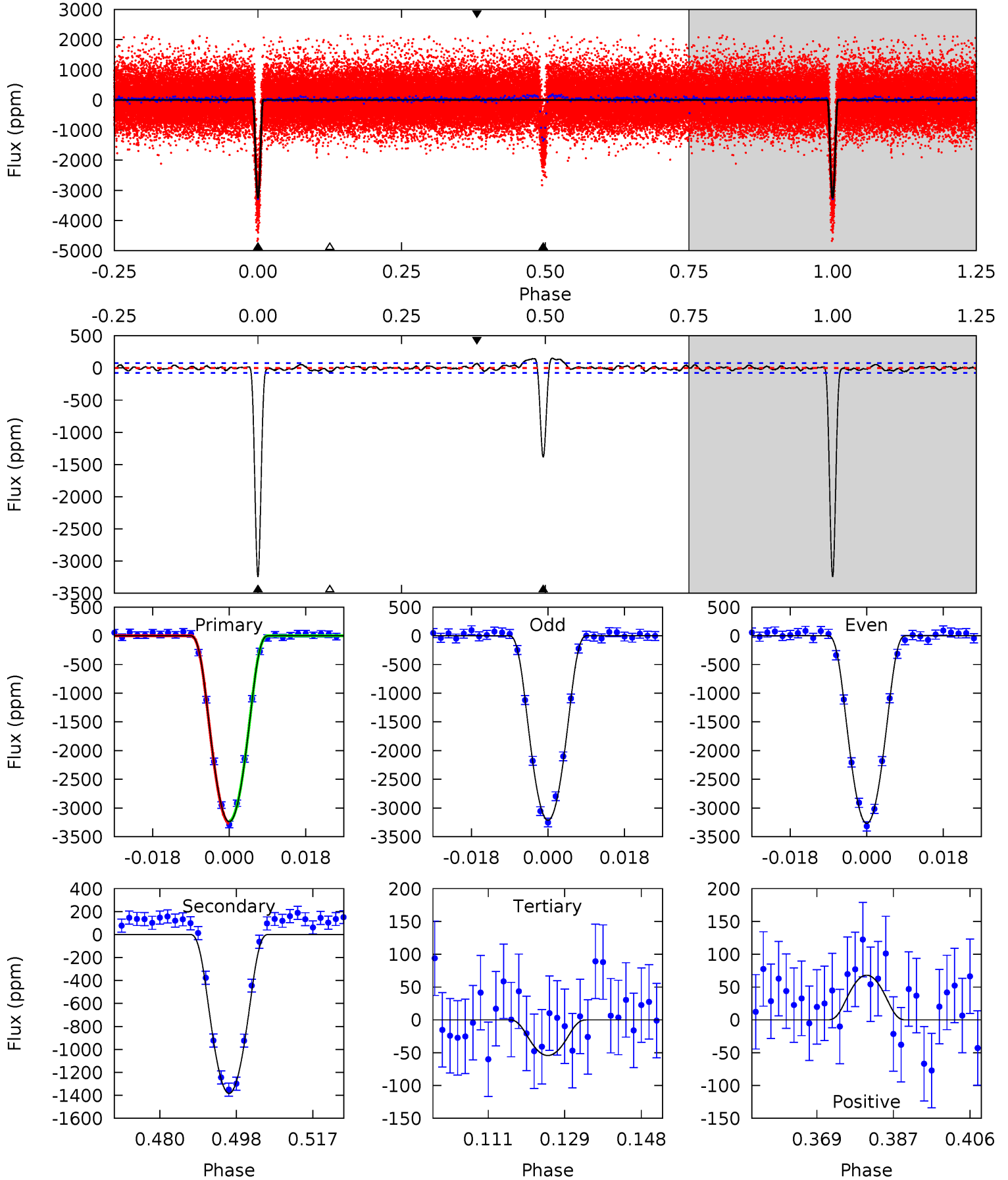
TCE 010973583-01 P= 6.256380 Days $T_0=133.539836$ (BKJD)



DV Model-Shift Uniqueness Test

010973583-01, P = 6.256352 Days, E = 133.543127 Days

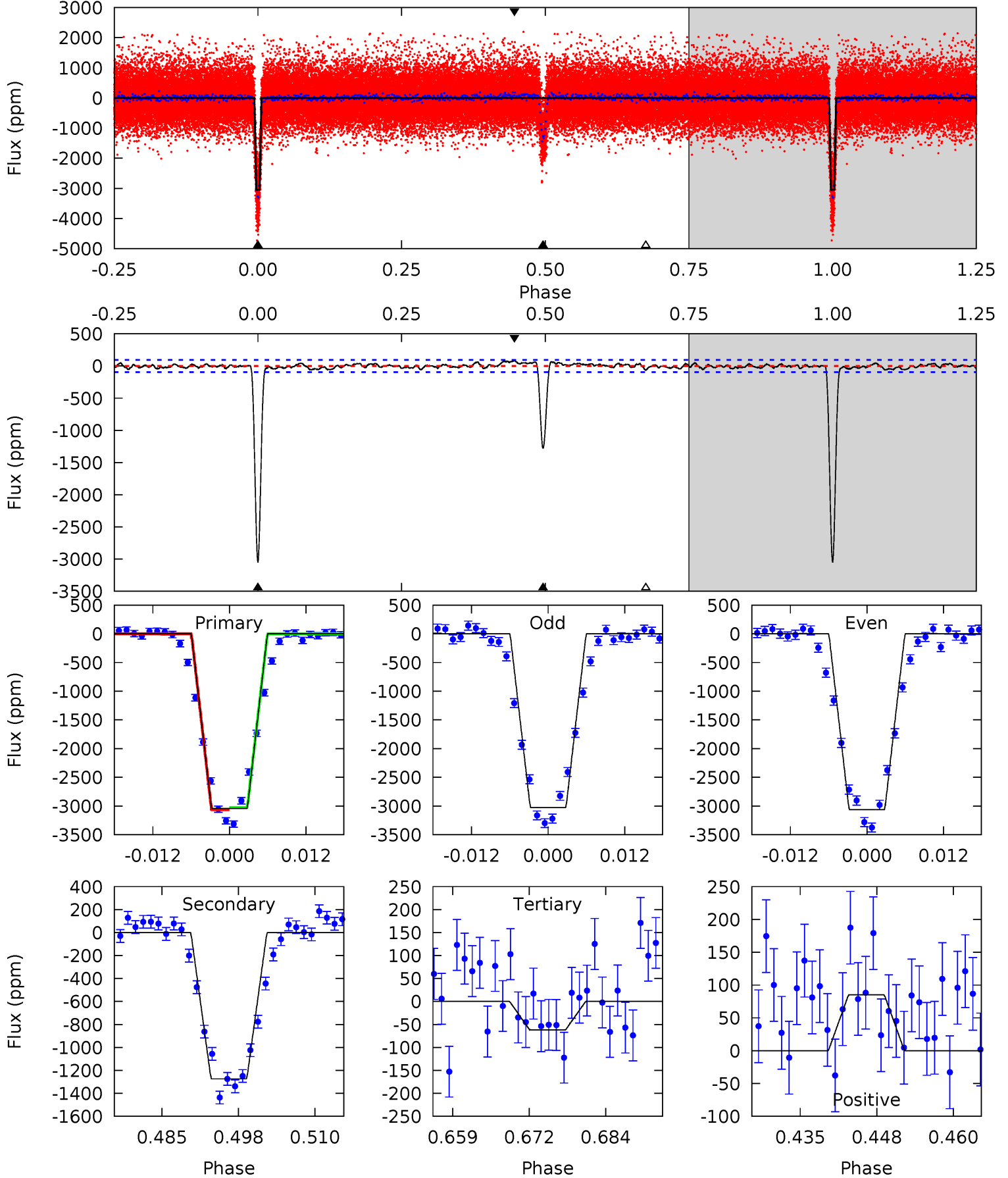
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
209.9	89.7	3.52	4.41	4.91	2.36	2.12	206.4	205.5	86.1	85.3	1.72	1.01	0.04	0.95



Alt Model-Shift Uniqueness Test

010973583-01, P = 6.256380 Days, E = 133.539836 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
160.7	67.2	3.28	4.49	4.98	2.50	1.48	157.4	156.2	63.9	62.7	0.95	1.00	0.03	1.05



Stellar Parameters For KIC 010973583

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	5772^{+155}_{-172}	$4.549^{+0.046}_{-0.184}$	$-0.280^{+0.300}_{-0.300}$	$0.836^{+0.236}_{-0.079}$	$0.903^{+0.098}_{-0.098}$	$2.175^{+0.529}_{-1.042}$
	+3%/-3%	+1%/-4%	+107%/-107%	+28%/-9%	+11%/-11%	+24%/-48%
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 010973583-01 / KOI 6232.01

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-1383 ± 15	$7.92^{+2.06}_{-2.16}$	1311^{+83}_{-60}	4141^{+505}_{-305}	50^{+41}_{-19}
Alt.	-1274 ± 19	$5.54^{+2.17}_{-2.06}$	1307^{+87}_{-56}	4677^{+1014}_{-558}	92^{+146}_{-43}

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 $A_{\text{obs}} \gg 1.0$

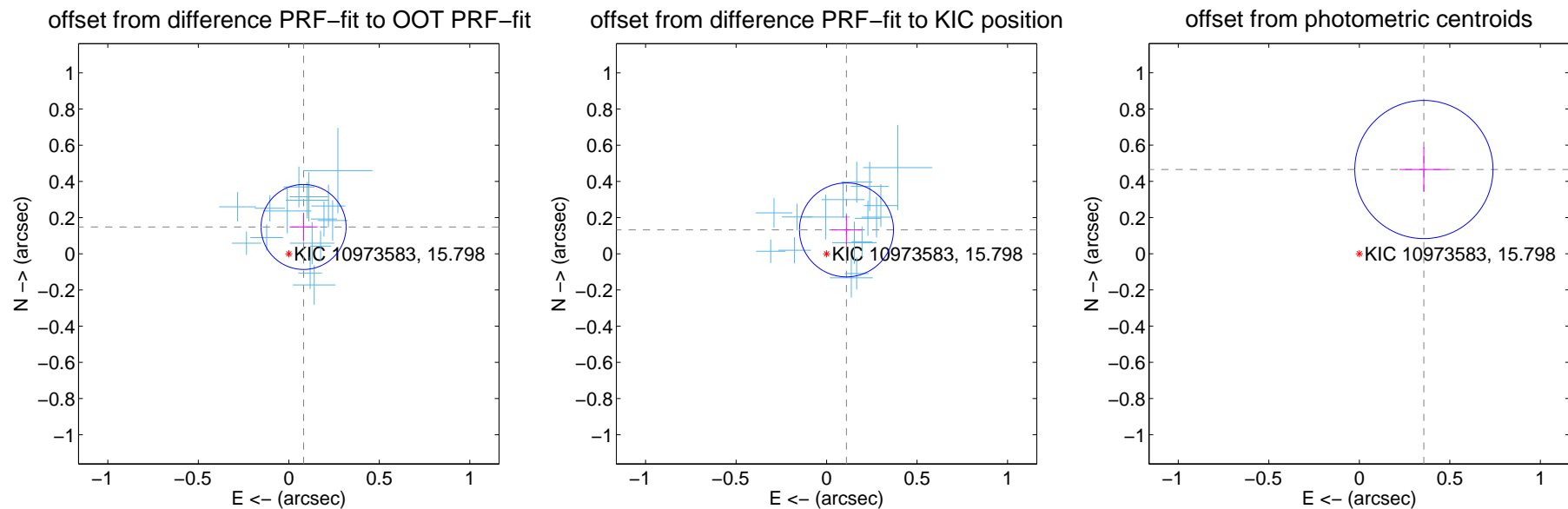
DV Centroid Data

Supplemental centroid analysis for 010973583-01. Kepler magnitude: 15.80. Transit SNR 119.70

There are 16 quarters with good PRF difference image offsets

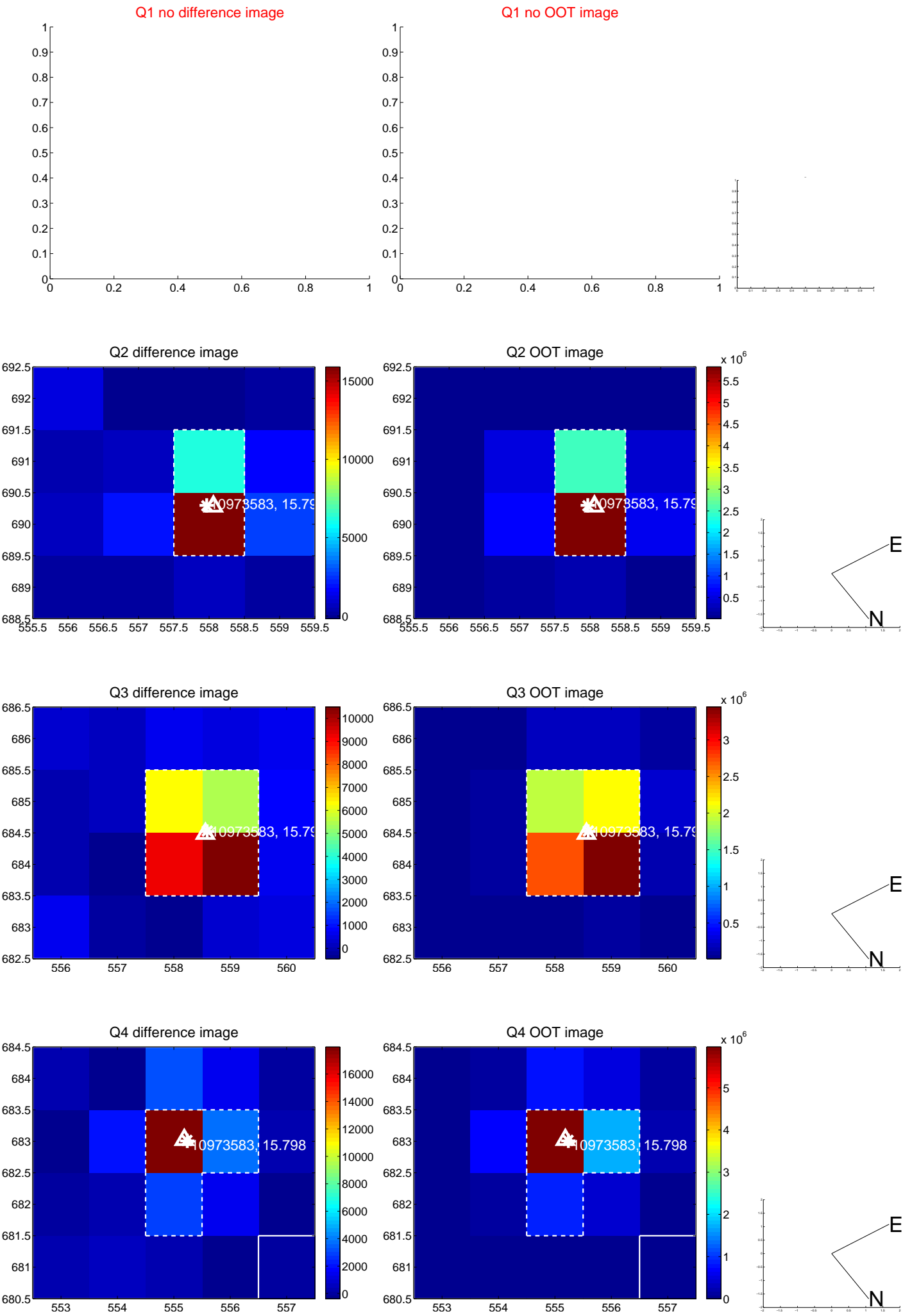
The direct PRF centroid is offset from the target star catalog position by about 0.12 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.169 ± 0.078	2.16	-0.082 ± 0.078	0.148 ± 0.079
PRF-fit source offset from KIC position	0.172 ± 0.087	1.98	-0.110 ± 0.084	0.132 ± 0.079
photometric centroid source offset	0.59 ± 0.13	4.61	-0.36 ± 0.13	0.47 ± 0.12

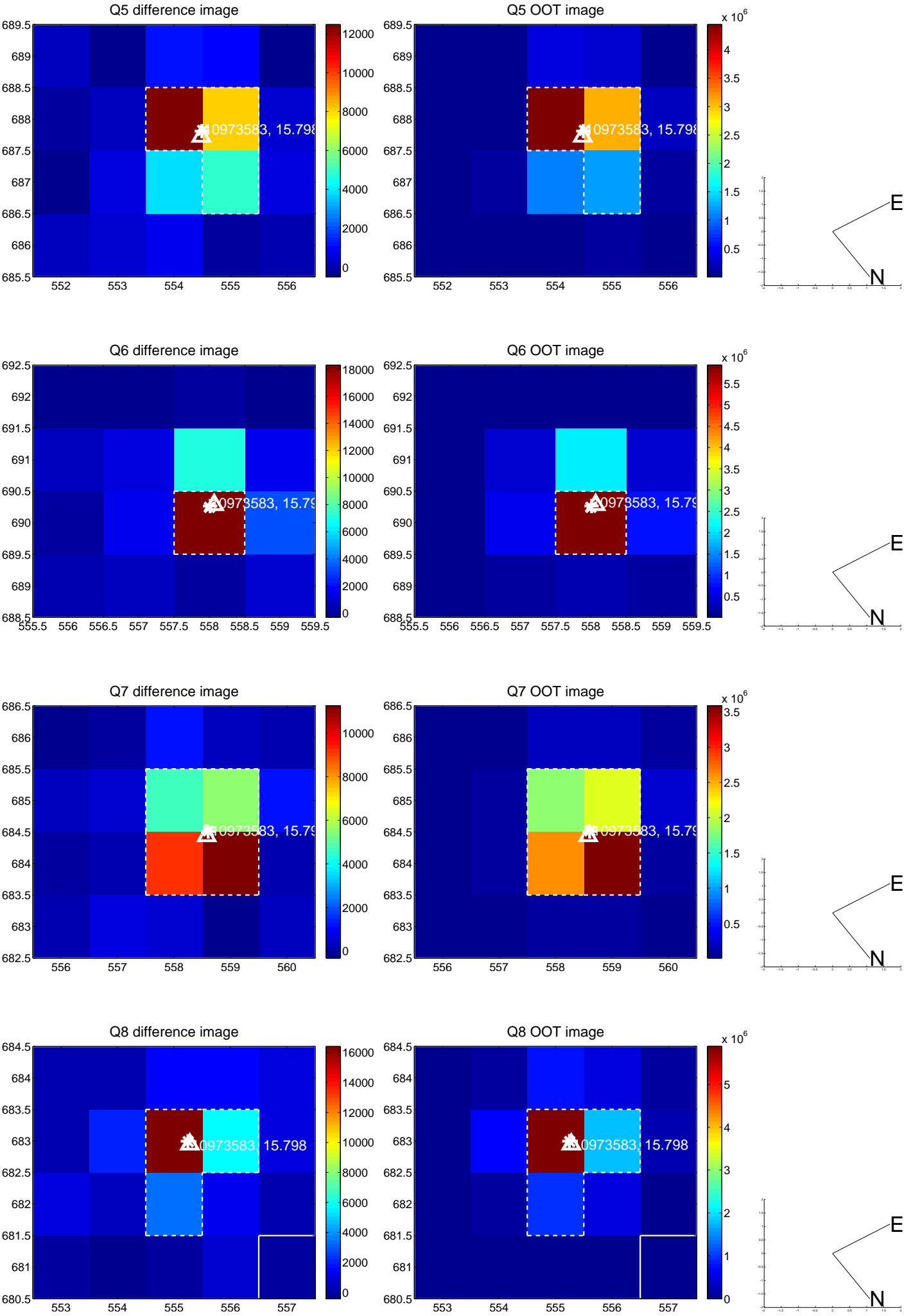


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses:** good quarterly centroid offsets; **Vermillion crosses:** bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

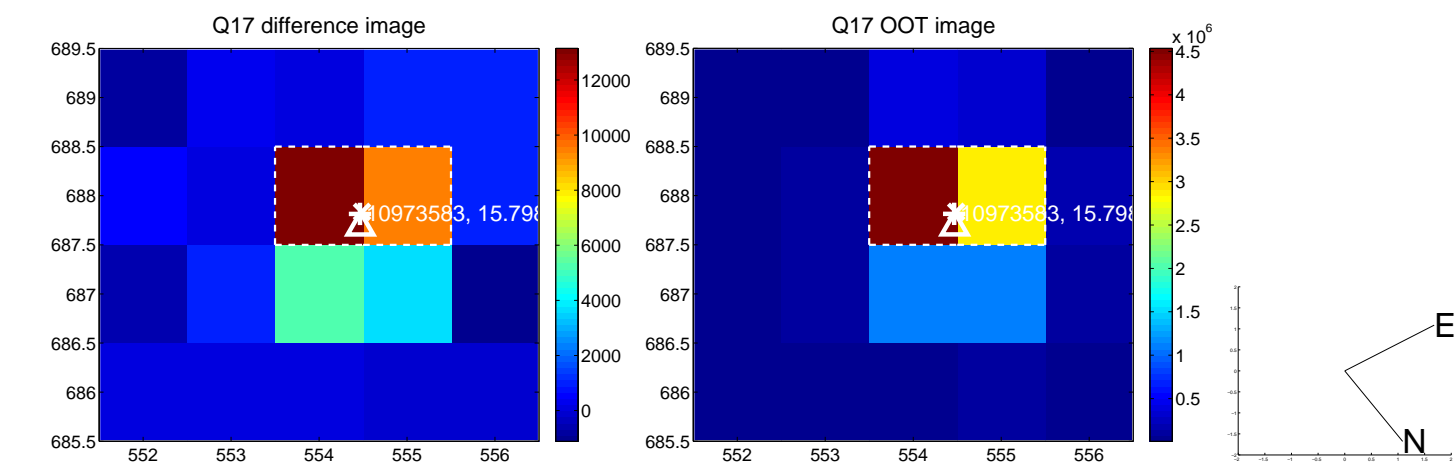
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



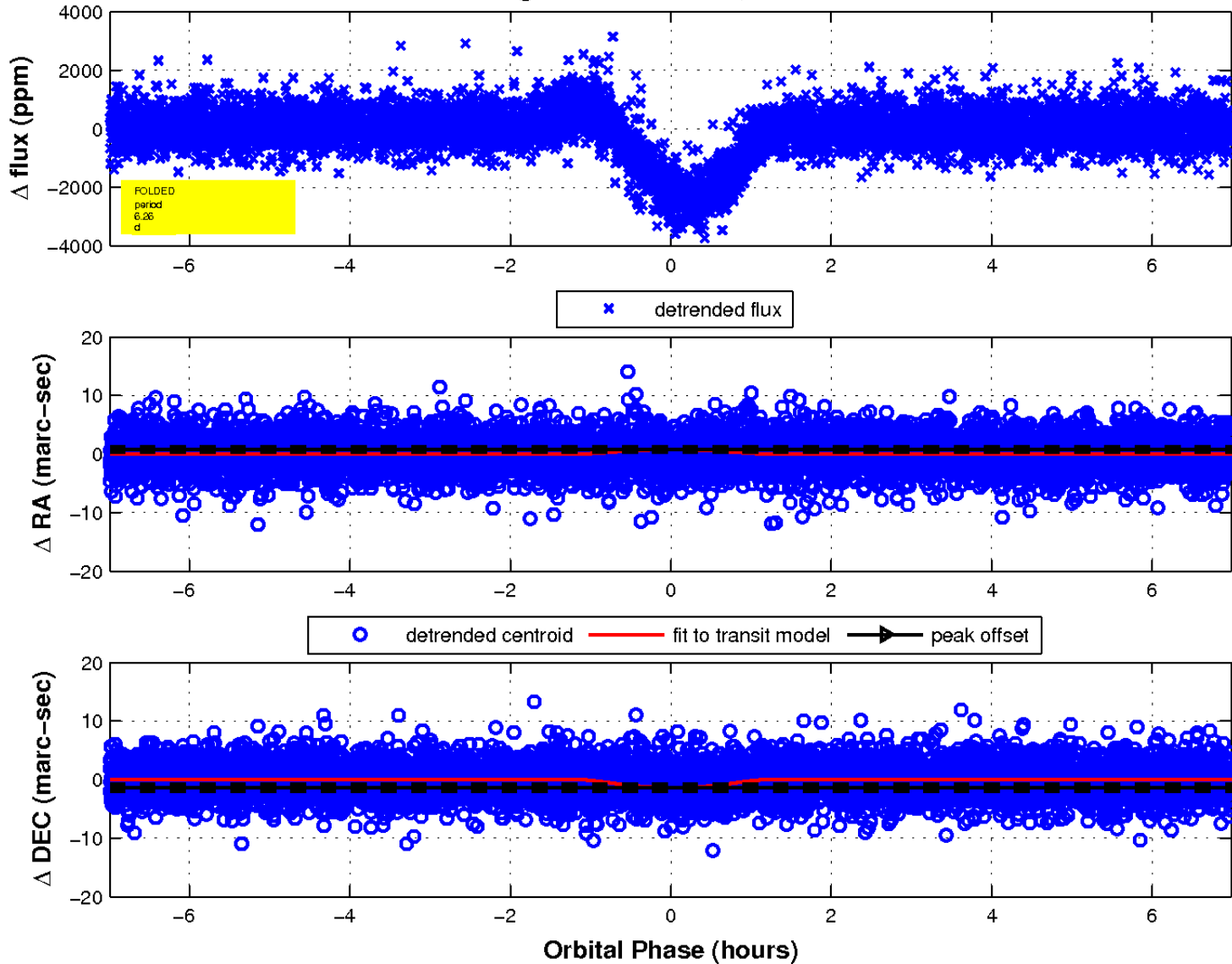
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

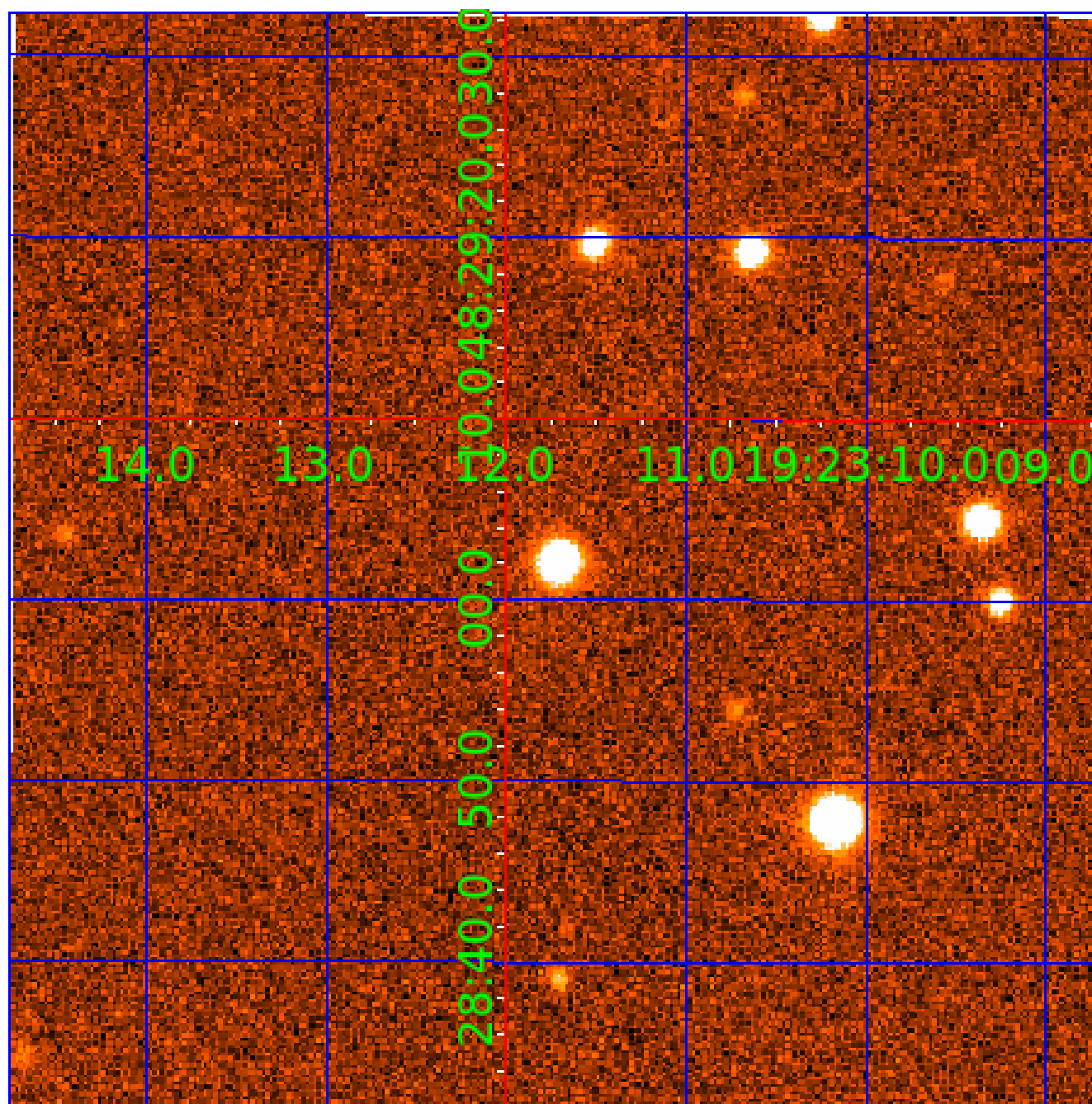


fluxWeightedCentroids, Planet 1 of 2



UKIRT Image

Declination



KIC 010973583

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})
010973583-01	OBS	6232.01	6.256352	133.543127	3263.0	2.331	108.5	119.7	0.84	5772	7.56	168.49
010973583-02	OBS	No	3.128183	133.519278	1512.9	2.344	50.5	58.2	0.84	5772	5.51	424.57

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
010973583-01	OBS	FP	0.00	0	1	0	0	MOD_SEC_DV—MOD_SEC_ALT—DEEP_V_SHAPED—HAS_SEC_TCE
010973583-02	OBS	FP	0.00	1	1	0	0	IS_SEC_TCE

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.

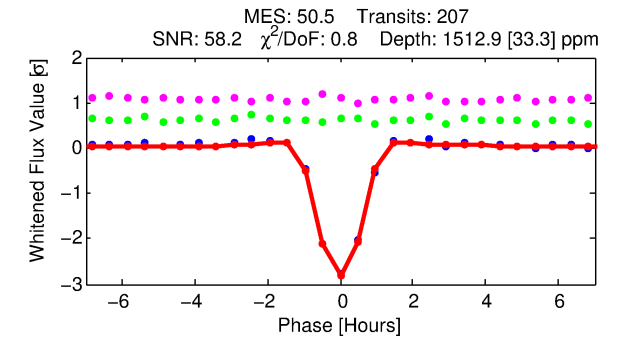
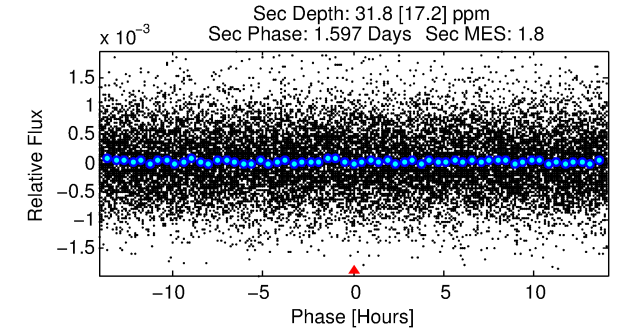
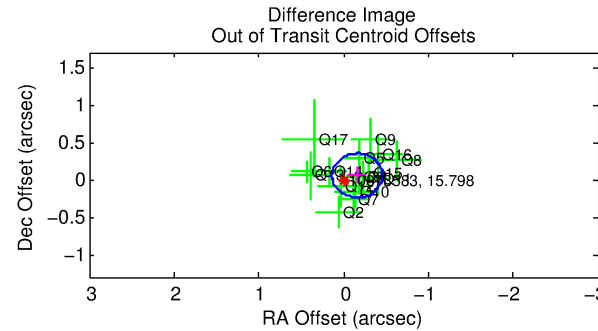
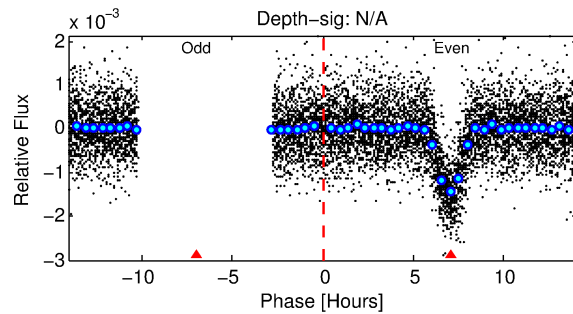
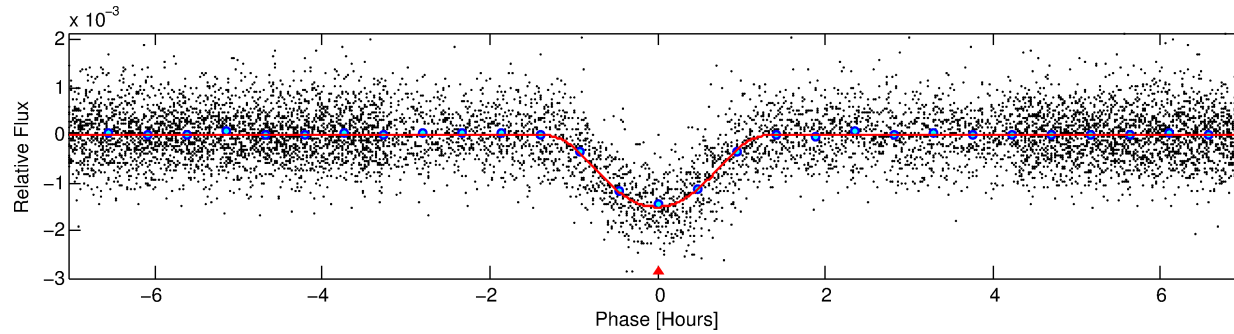
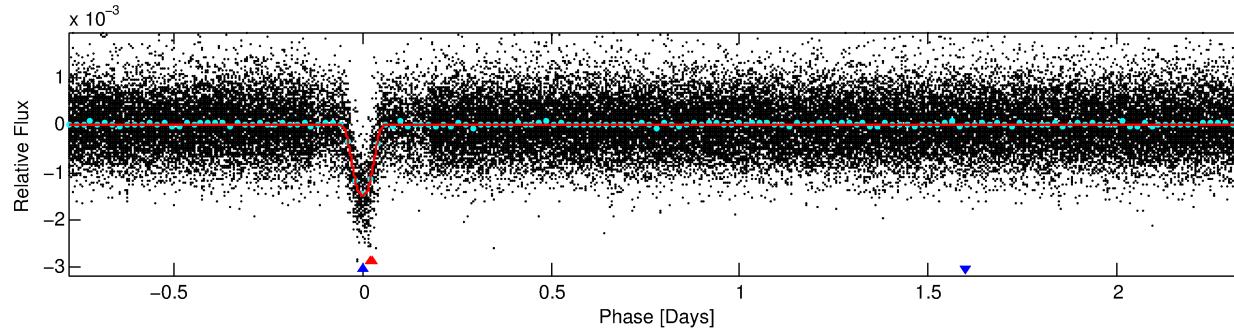
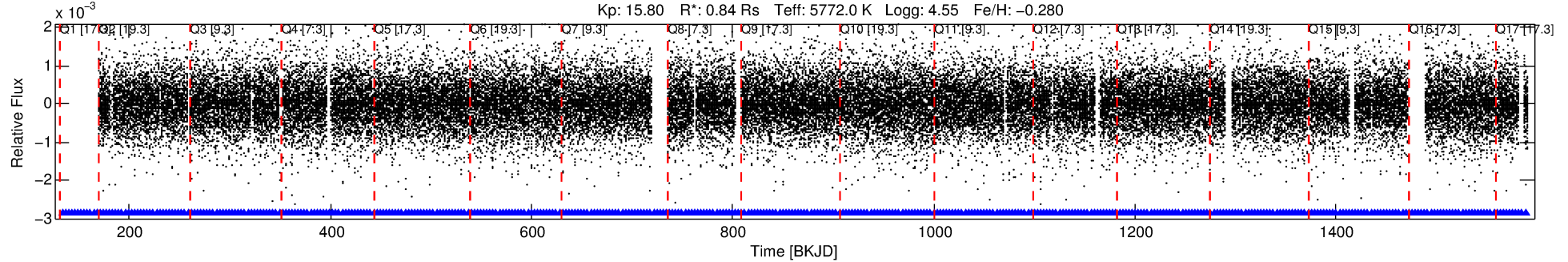
Ephemeris Match Information For 010973583-02

No Significant Match Found

DV One-Page Summary

KIC: 10973583 Candidate: 2 of 2 Period: 3.128 d
KOI: K06232 Corr: No Ephemeris Match

Kp: 15.80 R*: 0.84 Rs Teff: 5772.0 K Logg: 4.55 Fe/H: -0.280



DV Fit Results:

Period = 3.12818 [0.00000] d
Epoch = 133.5193 [0.0007] BKJD
Rp/R* = 0.0604 [0.0346]
a/R* = 4.08 [0.63]
b = 0.99 [0.06]
Seff = 424.57 [152.73]
Teq = 1157 [104] K
Rp = 5.51 [3.52] Re
a = 0.0405 [0.0095] AU
Ag = 0.95 [1.24] [-0.04σ]
Teffp = 1765 [563] K [1.06σ]

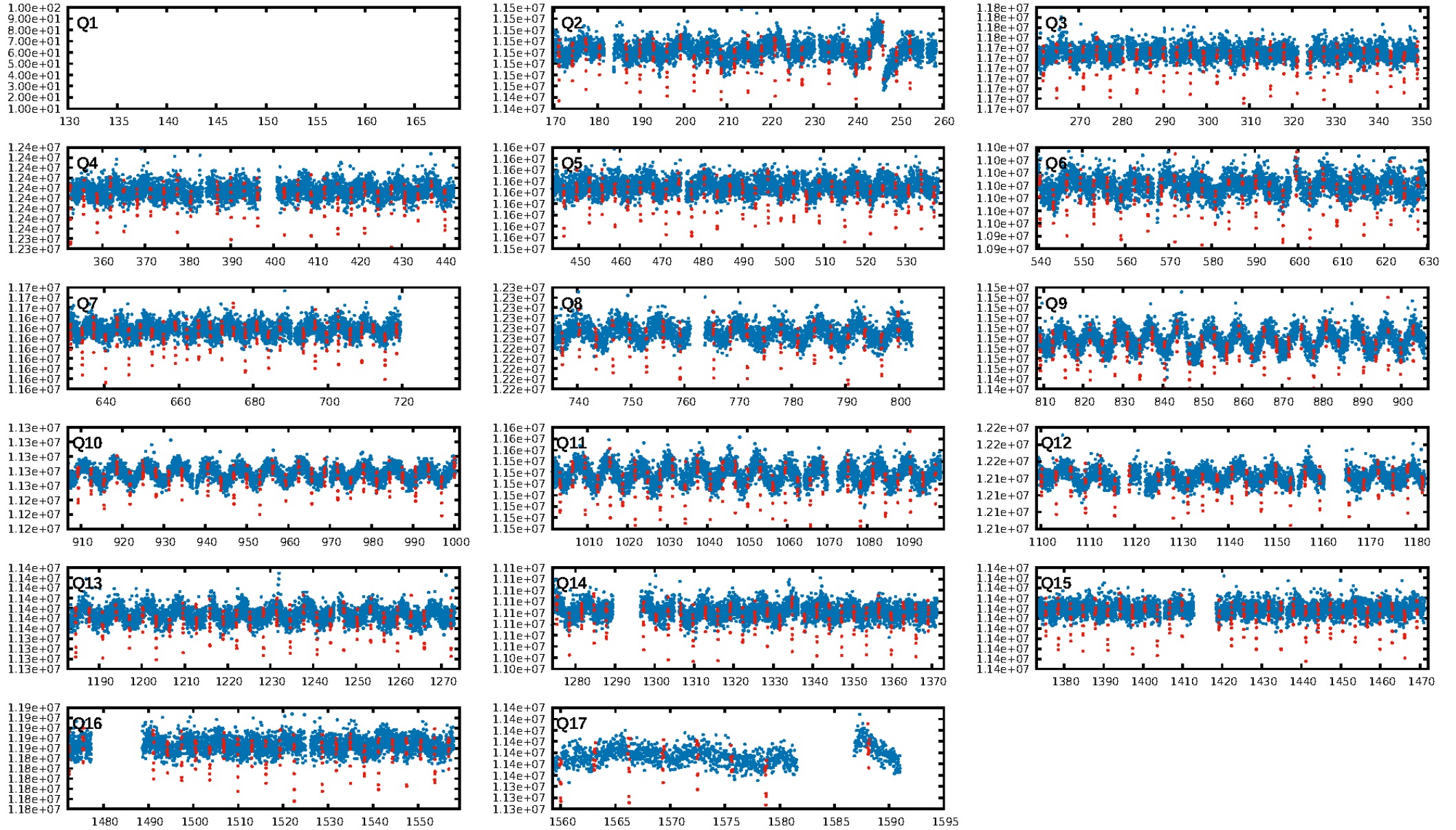
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: 100.0% [22.71σ]
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: 0.00e+00
RollingBand-fgt: 1.00 [203/203]
GhostDiagnostic-chr: 2.482
Centroid-sig: 0.9%
Centroid-so: 0.351 arcsec [1.78σ]
OotOffset-rm: 0.171 arcsec [1.74σ]
KicOffset-rm: 0.196 arcsec [1.92σ]
OotOffset-st: 4/4/4/4 [16]
KicOffset-st: 4/4/4/4 [16]
DiffImageQuality-fgm: 1.00 [16/16]
DiffImageOverlap-fno: 1.00 [16/16]

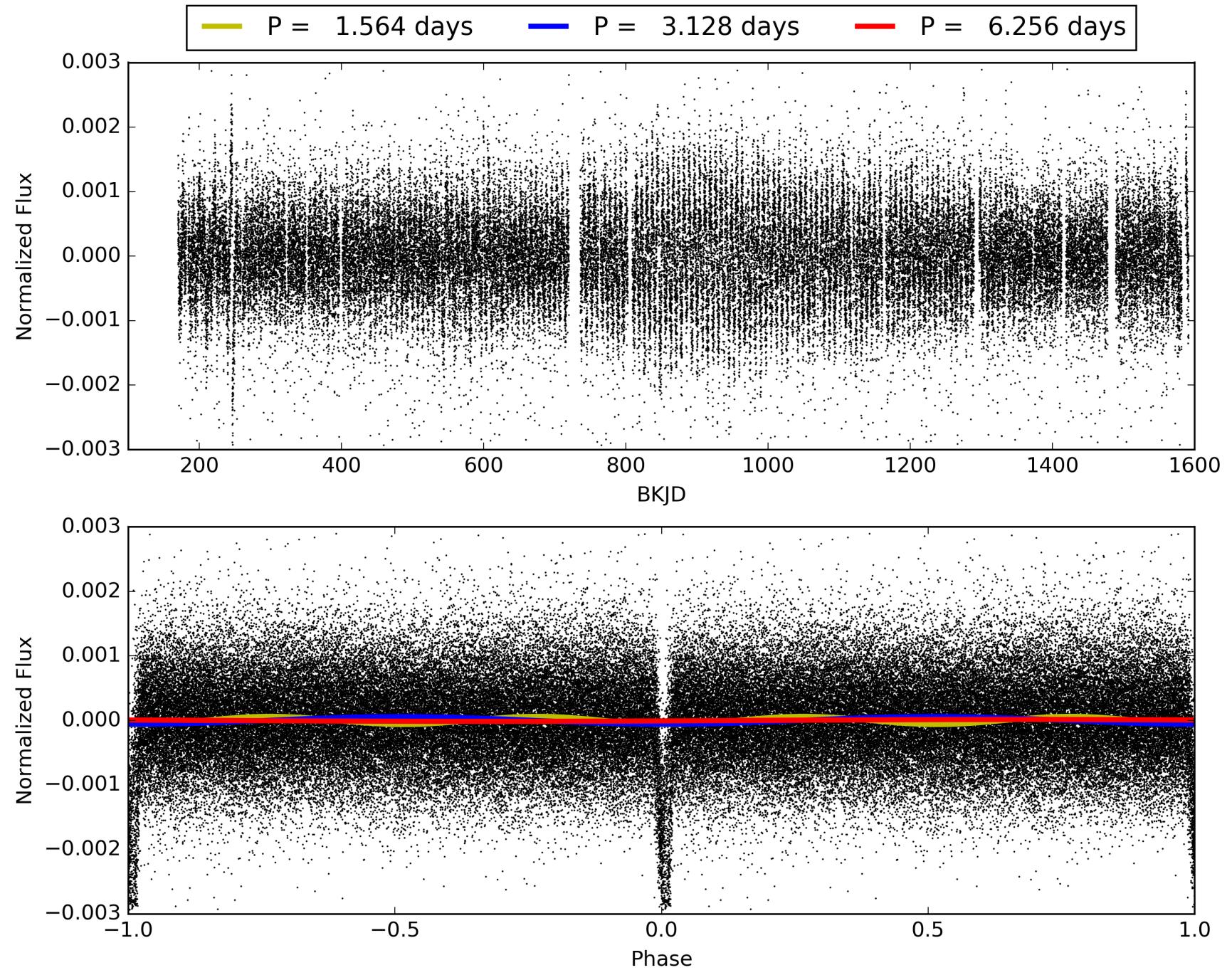
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 29-Jan-2016 06:13:16 Z

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

TCE 010973583-02, PDC Light Curves

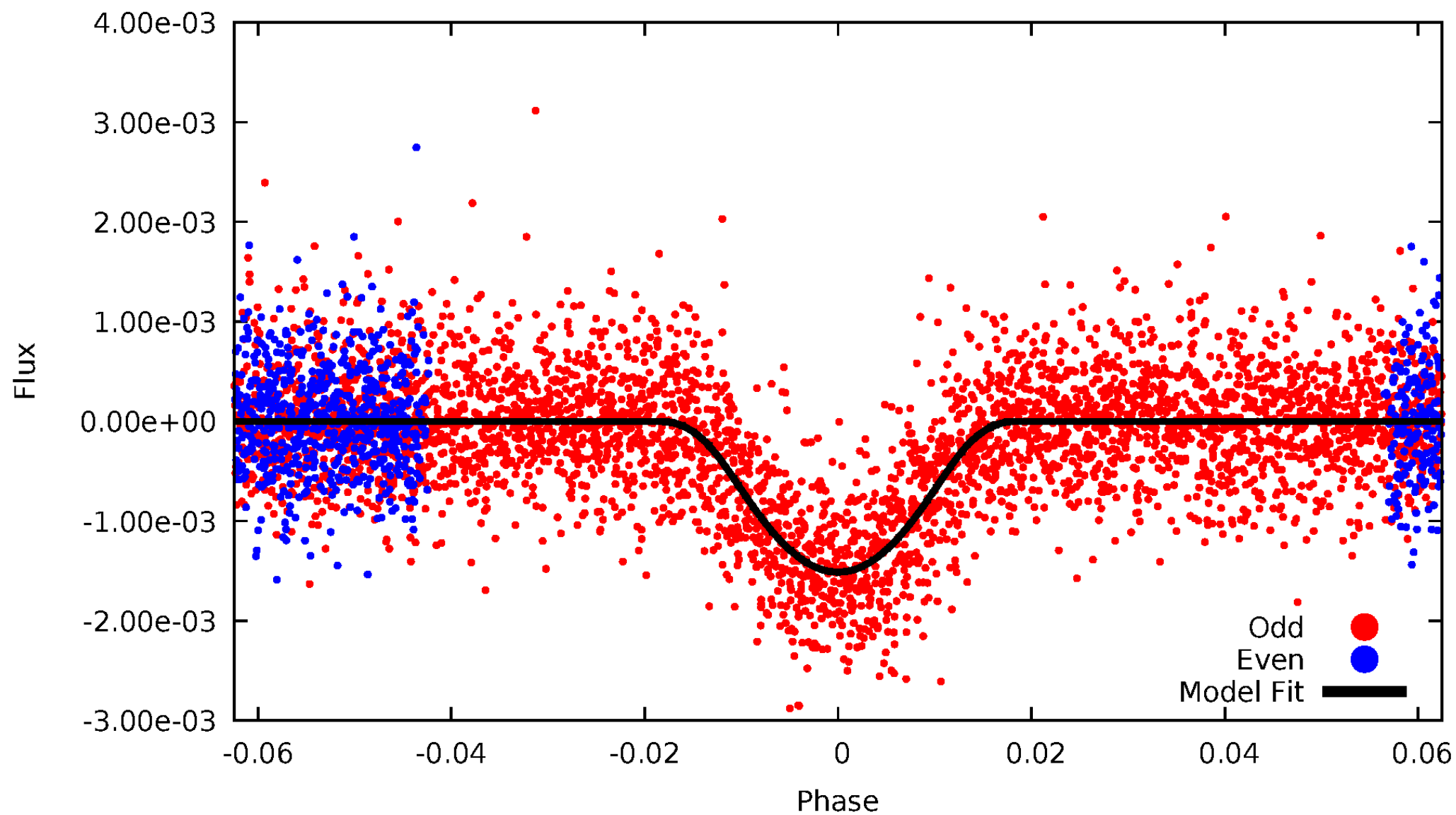


TCE 010973583-02



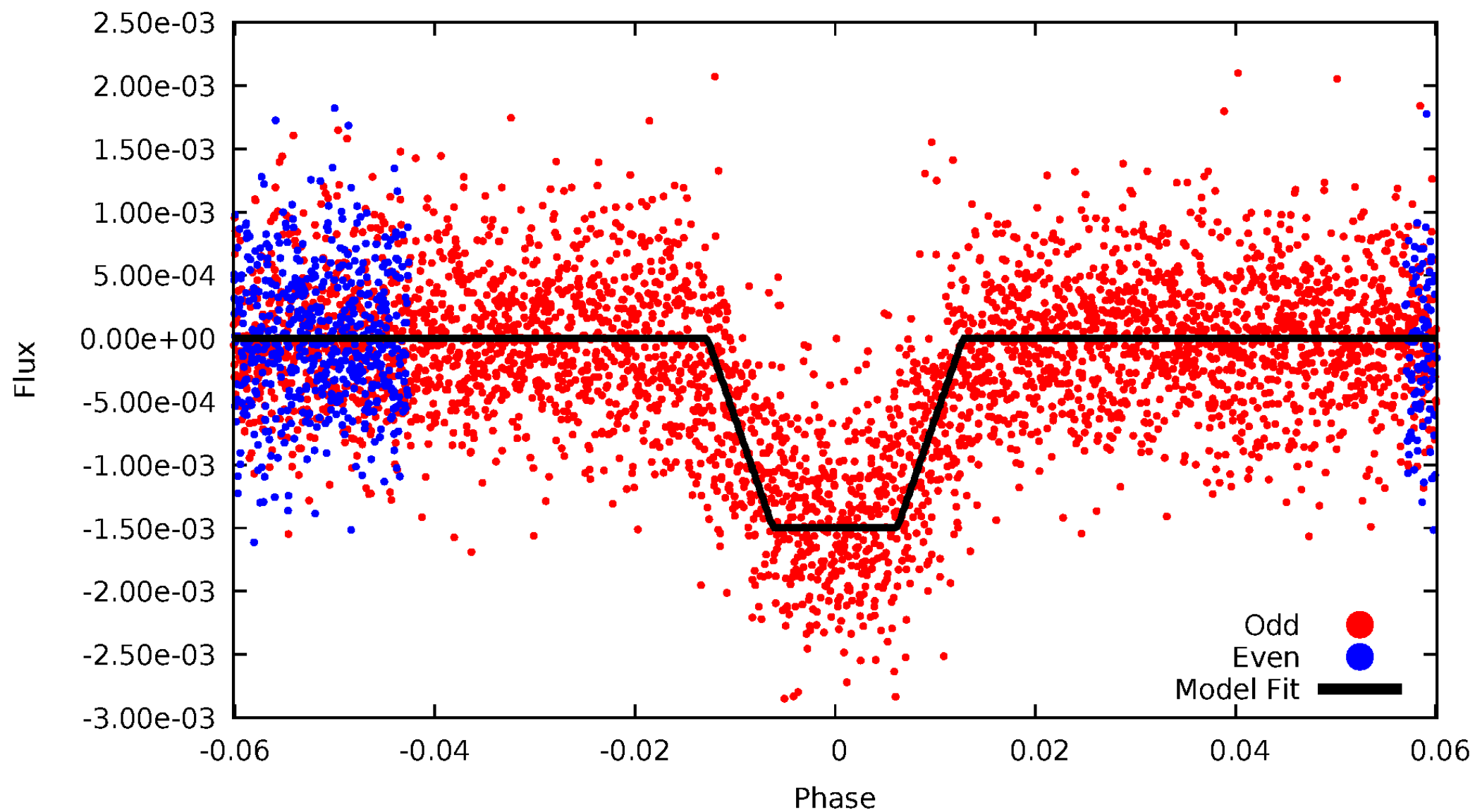
DV Odd/Even

TCE 010973583-02



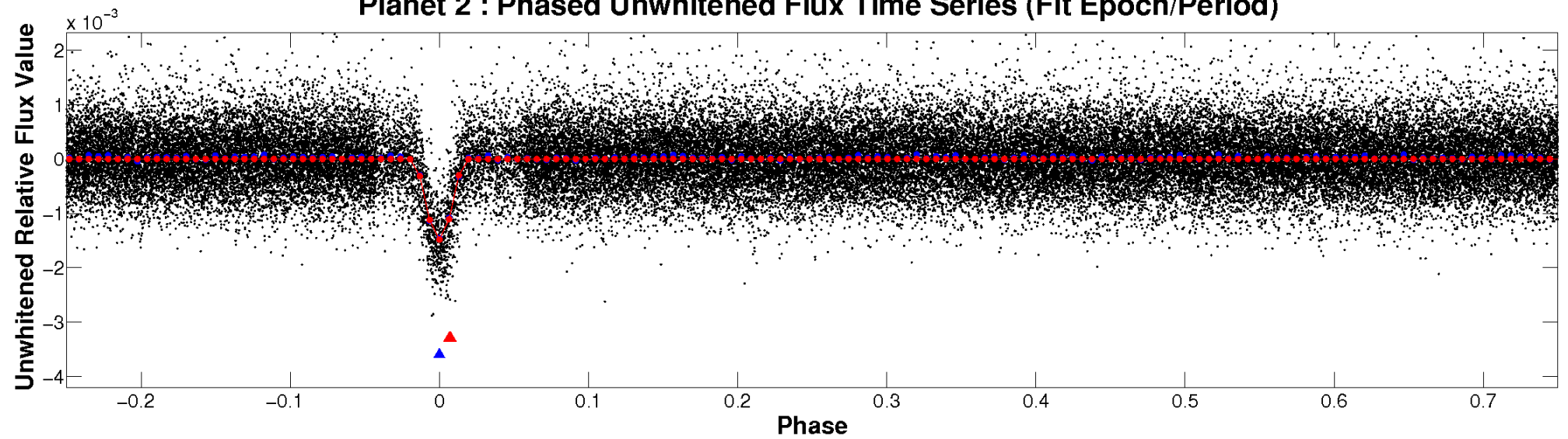
ALT Odd/Even

TCE 010973583-02

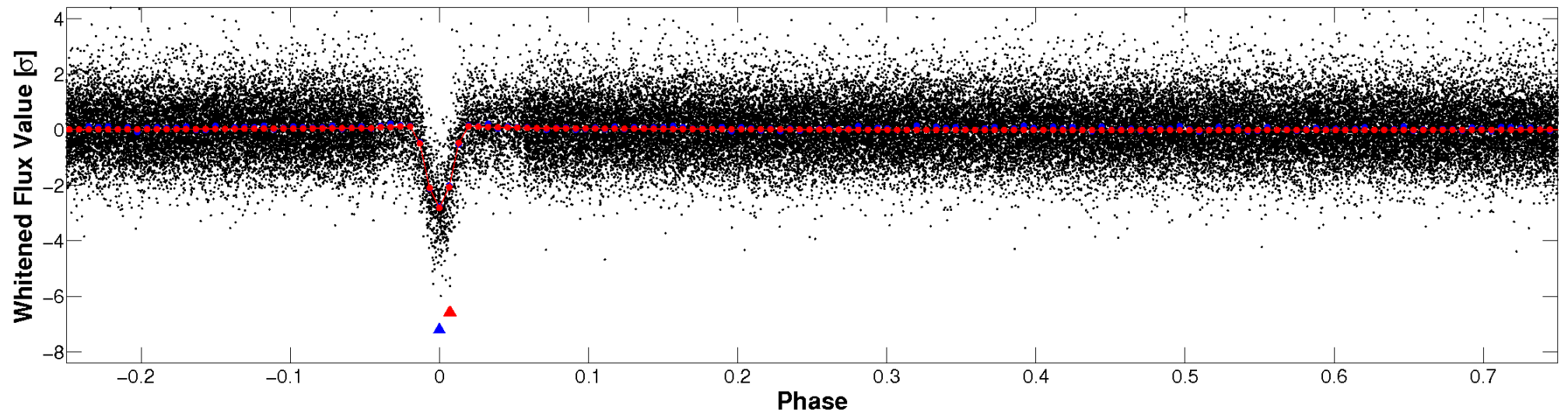


Non-Whitened Vs. Whitened Light Curve

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

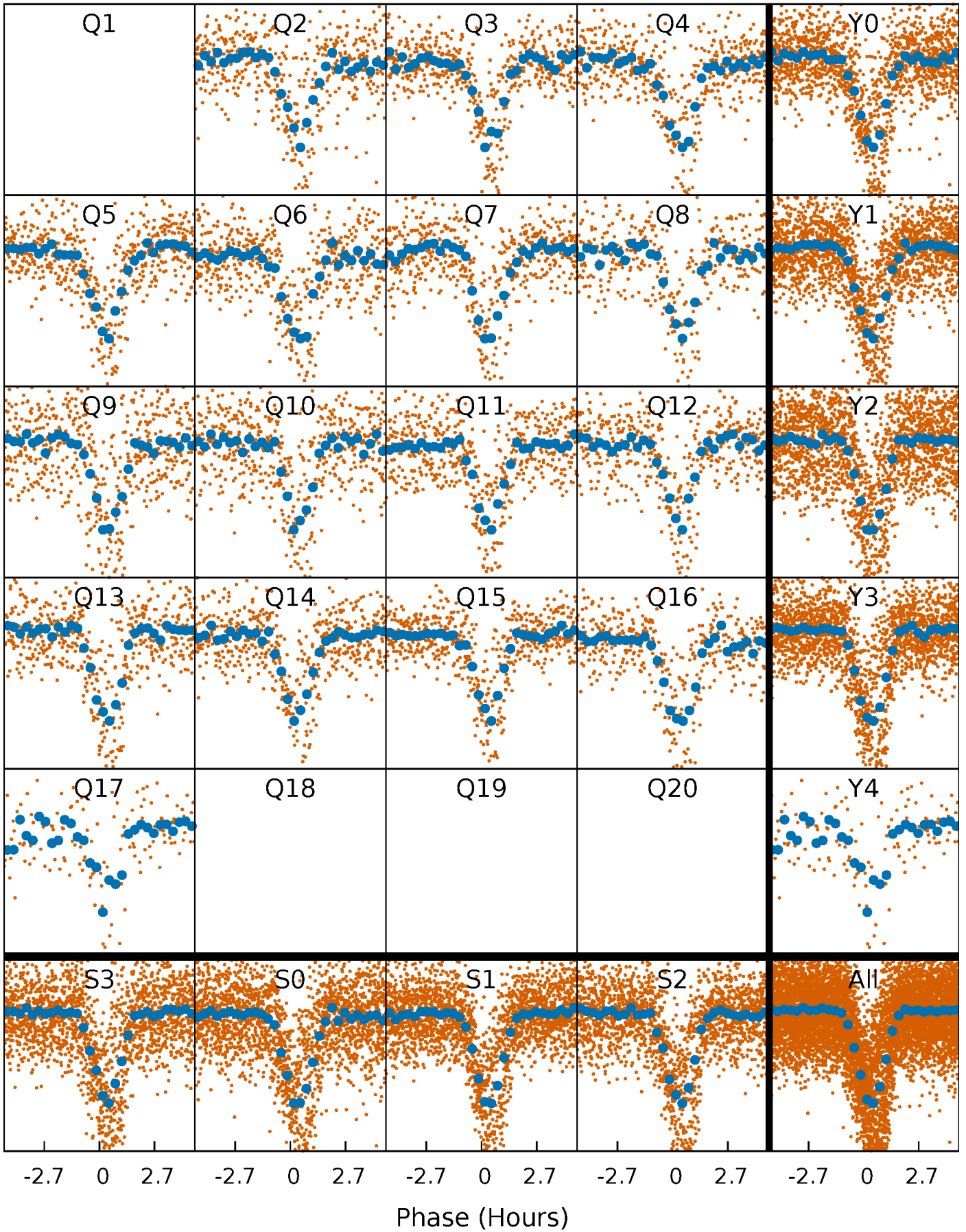


Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



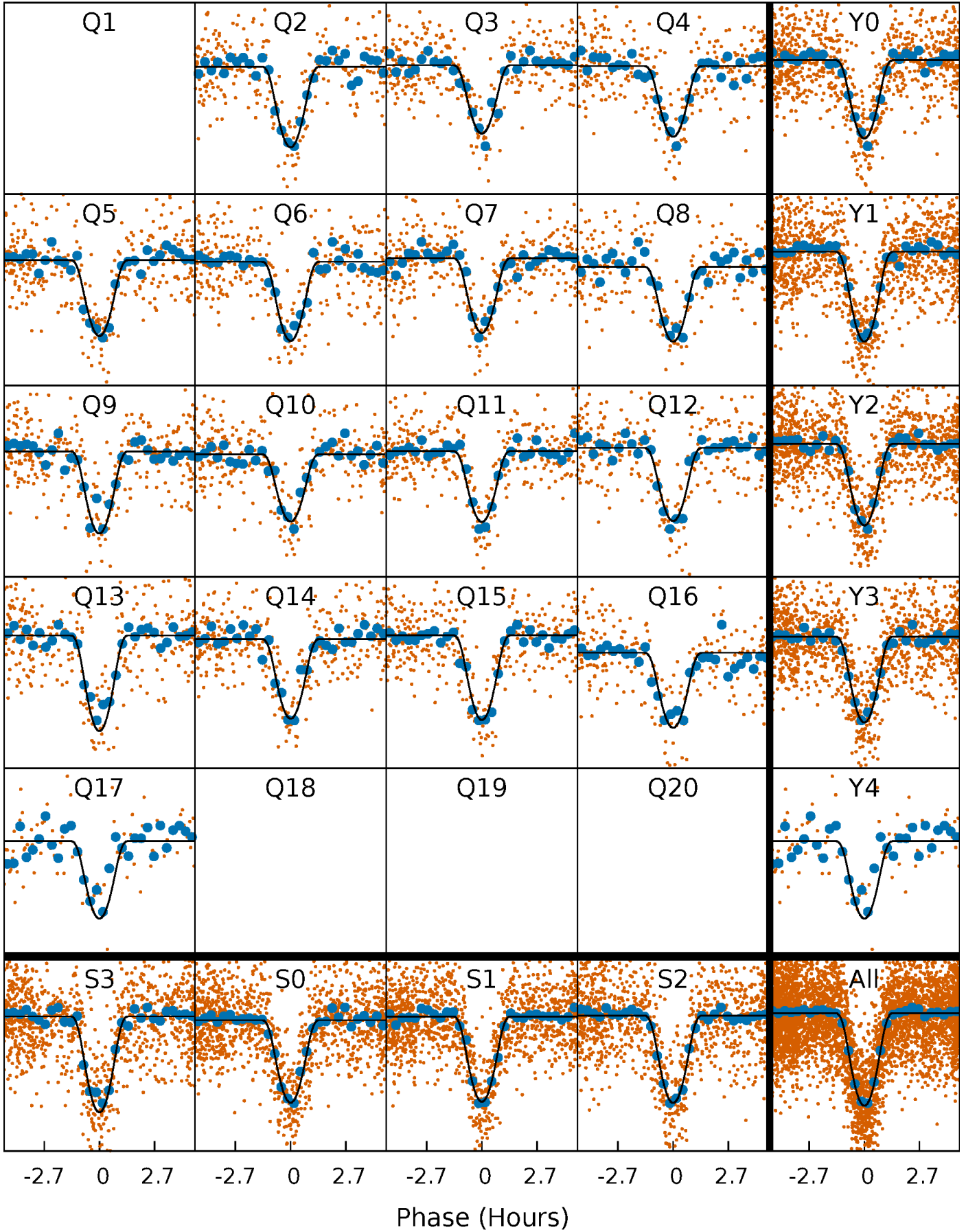
PDC Quarter-Phased Transit Curves

TCE 010973583-02 P= 3.128183 Days $T_0=133.519278$ (BKJD)



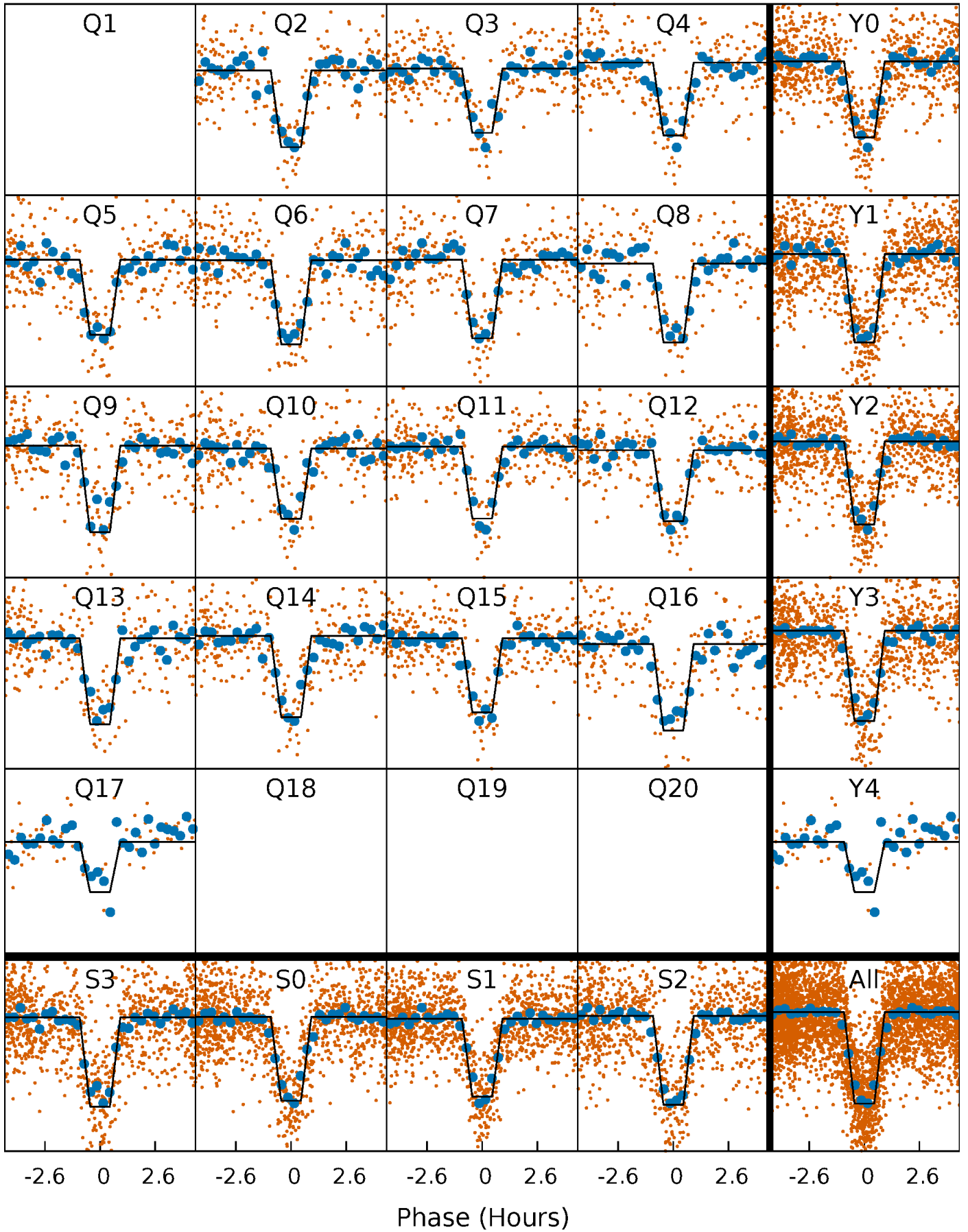
DV Quarter-Phased Transit Curves

TCE 010973583-02 $P = 3.128183$ Days $T_0 = 133.519278$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

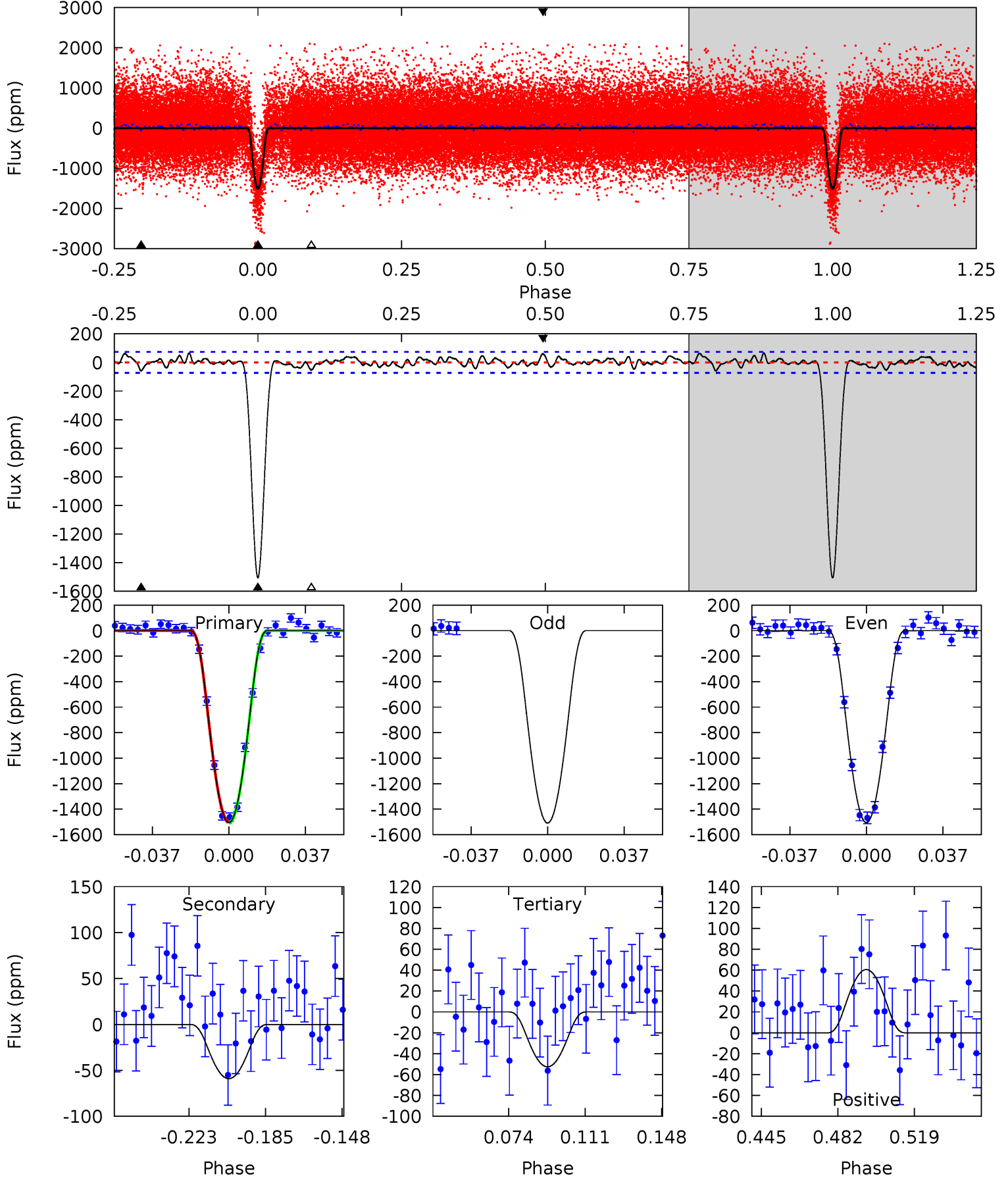
TCE 010973583-02 $P = 3.128177$ Days $T_0 = 133.520388$ (BKJD)



DV Model-Shift Uniqueness Test

010973583-02, P = 3.128183 Days, E = 133.519278 Days

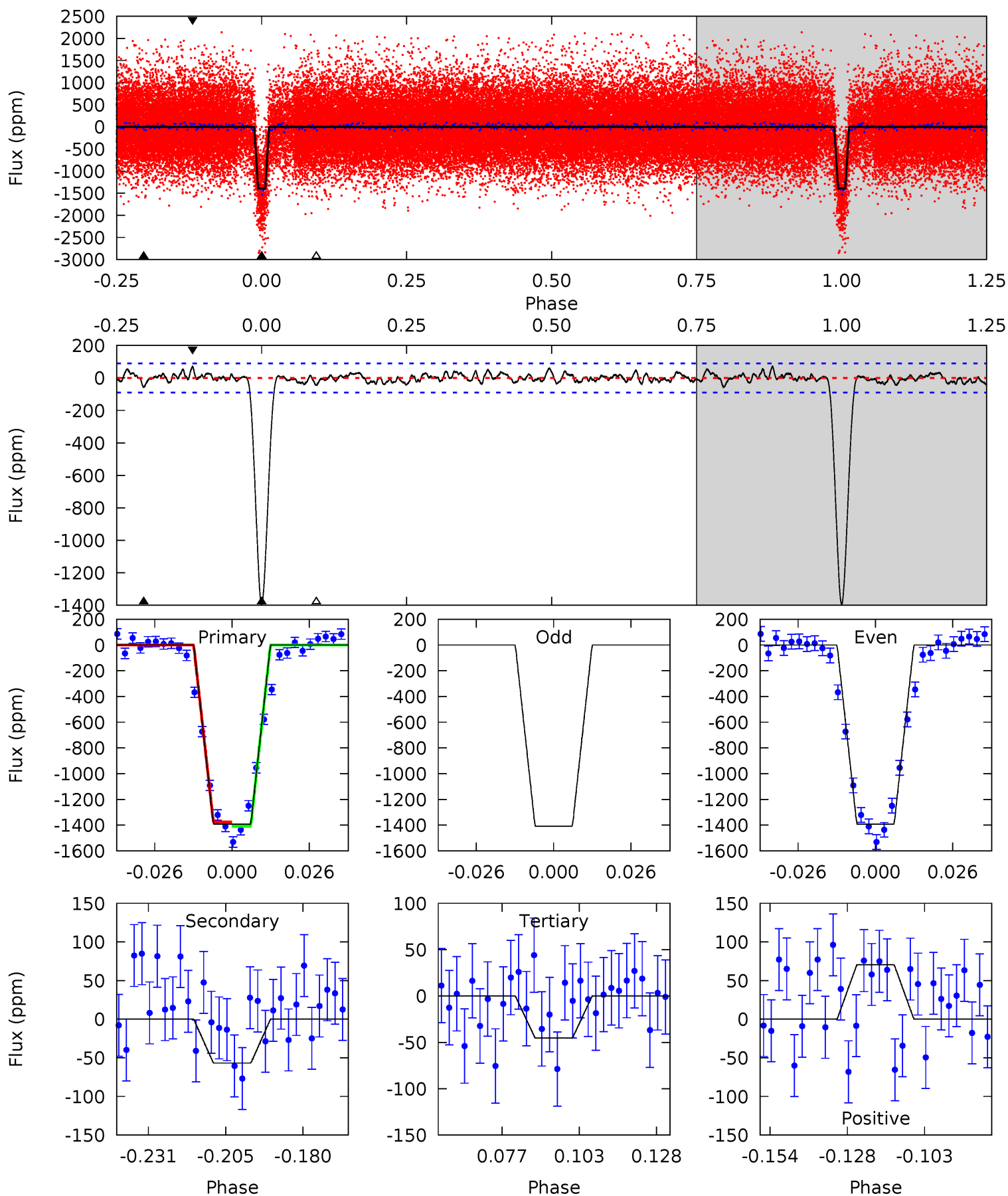
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
97.9	3.84	3.42	3.94	4.77	2.08	1.39	94.5	93.9	0.42	-0.10	0.14	1.02	0.04	0.25



Alt Model-Shift Uniqueness Test

010973583-02, P = 3.128177 Days, E = 133.520388 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
75.2	3.07	2.45	3.80	4.84	2.23	1.14	72.7	71.4	0.62	-0.73	0.50	0.98	0.05	0.87



Stellar Parameters For KIC 010973583

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	M (M_{\odot})	p_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	5772^{+155}_{-172}	$4.549^{+0.046}_{-0.184}$	$-0.280^{+0.300}_{-0.300}$	$0.836^{+0.236}_{-0.079}$	$0.903^{+0.098}_{-0.098}$	$2.175^{+0.529}_{-1.042}$
	+3%/-3%	+1%/-4%	+107%/-107%	+28%/-9%	+11%/-11%	+24%/-48%
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 010973583-02 / KOI

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	-59 ± 15	$5.87^{+3.12}_{-3.18}$	1649^{+111}_{-72}	2712^{+706}_{-422}	$1.525^{+5.518}_{-0.922}$
Alt.	-57 ± 19	$4.41^{+3.02}_{-2.82}$	1649^{+102}_{-71}	2934^{+1171}_{-511}	$2.527^{+16.652}_{-1.748}$

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 $A_{\text{obs}} \gg 1.0$

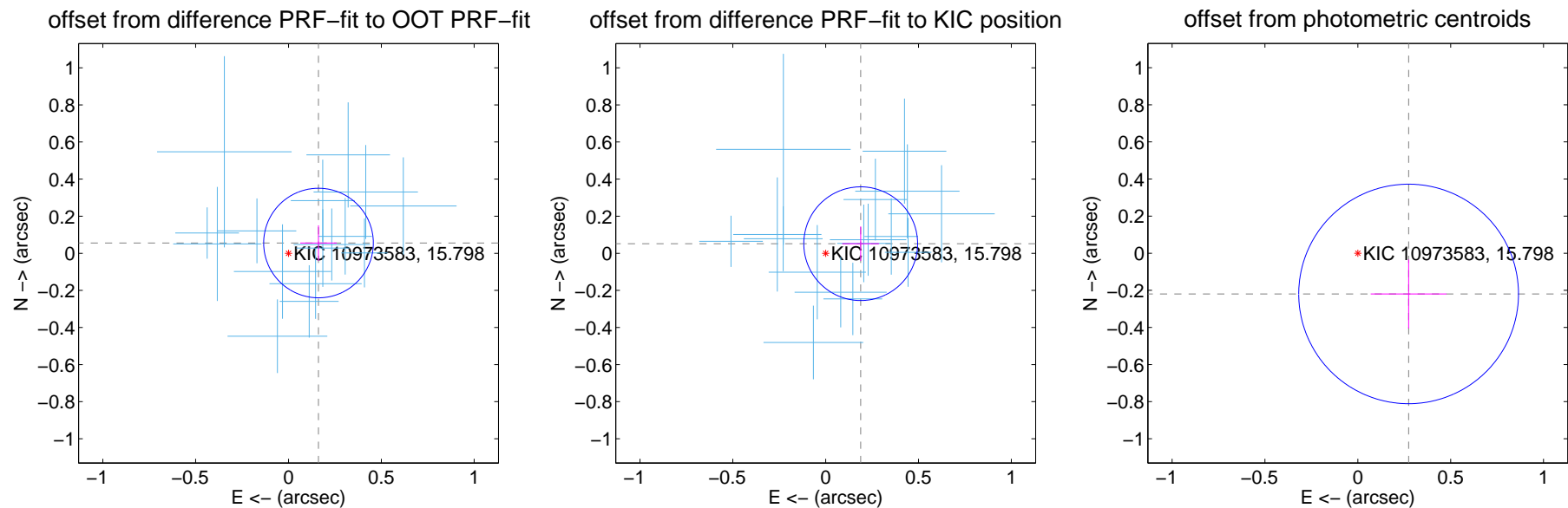
DV Centroid Data

Supplemental centroid analysis for 010973583-02. Kepler magnitude: 15.80. Transit SNR 58.16

There are 16 quarters with good PRF difference image offsets

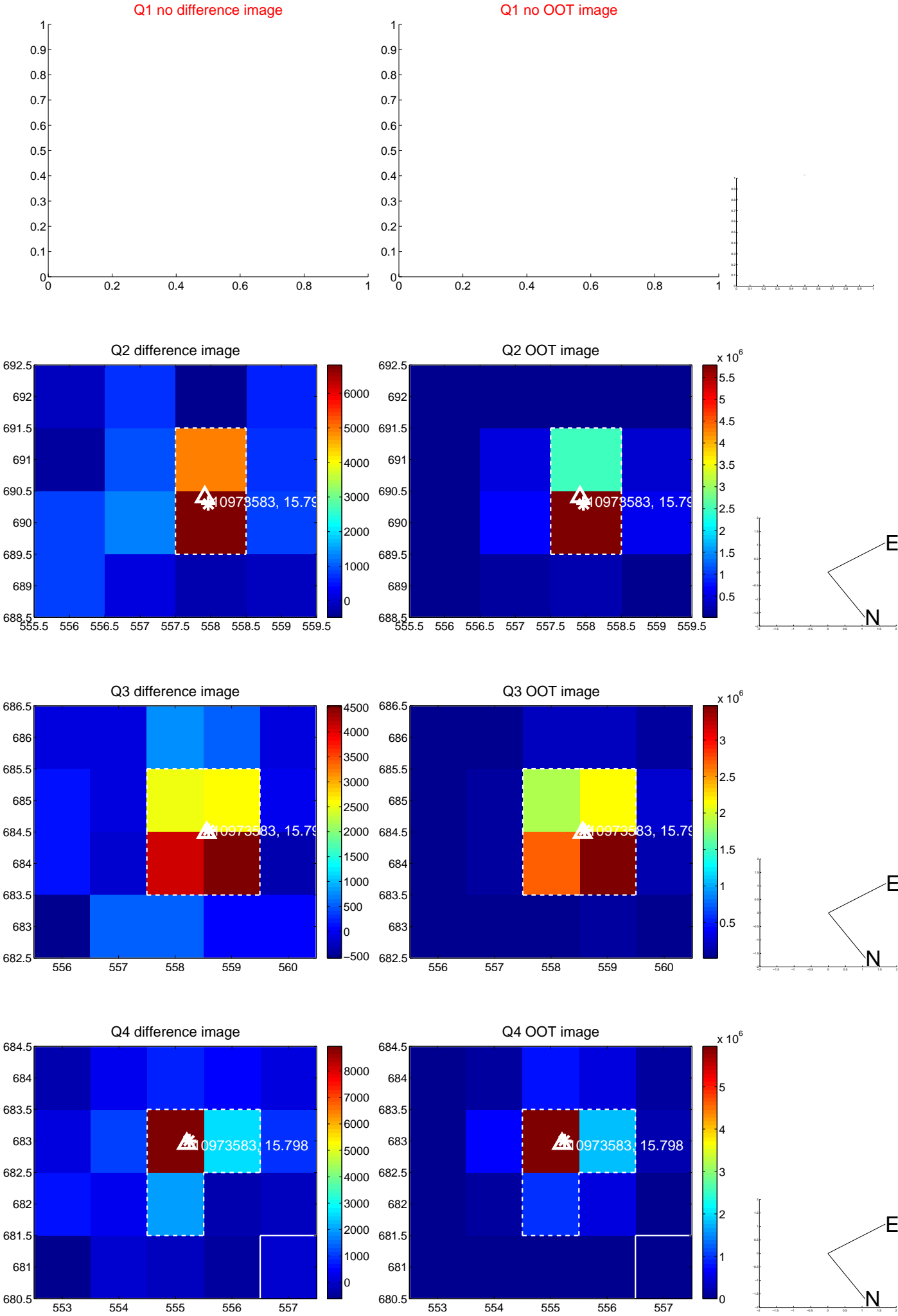
The direct PRF centroid is offset from the target star catalog position by about 0.12 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.171 ± 0.098	1.74	-0.162 ± 0.098	0.055 ± 0.096
PRF-fit source offset from KIC position	0.196 ± 0.102	1.92	-0.189 ± 0.100	0.052 ± 0.093
photometric centroid source offset	0.35 ± 0.20	1.78	-0.27 ± 0.20	-0.22 ± 0.19

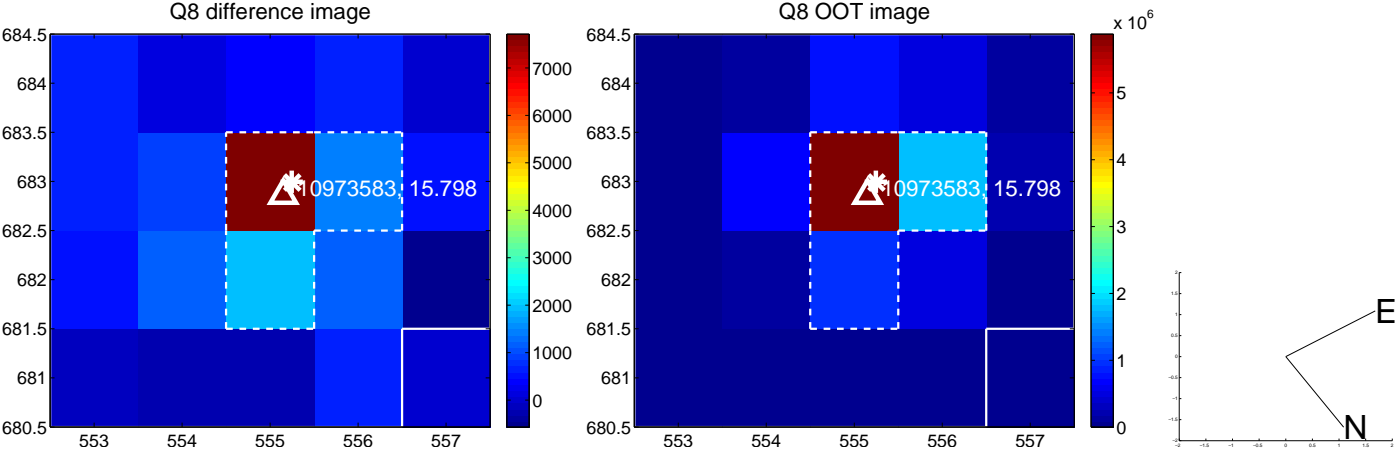
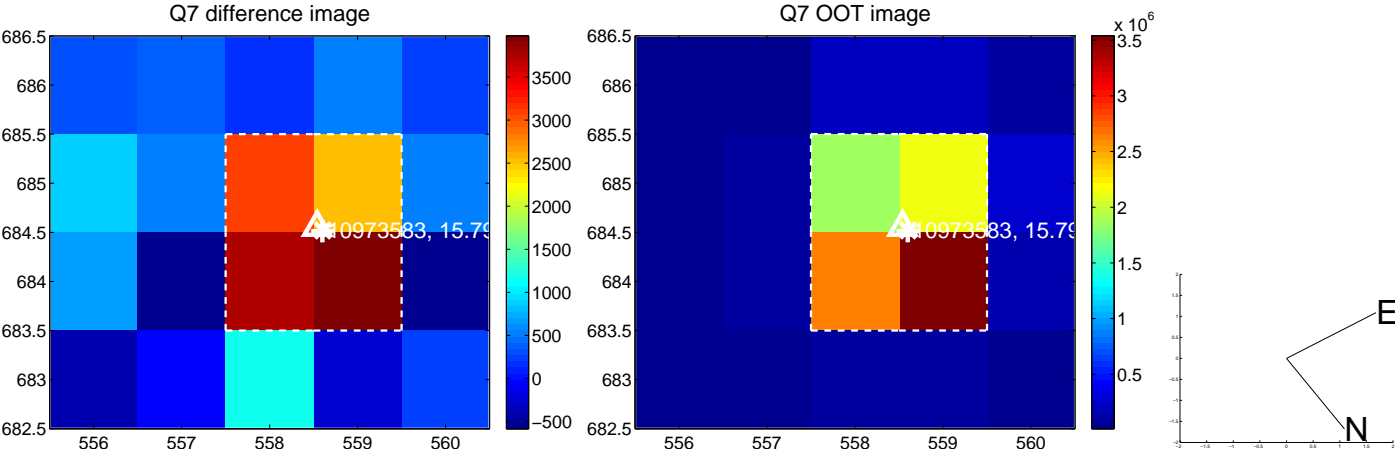
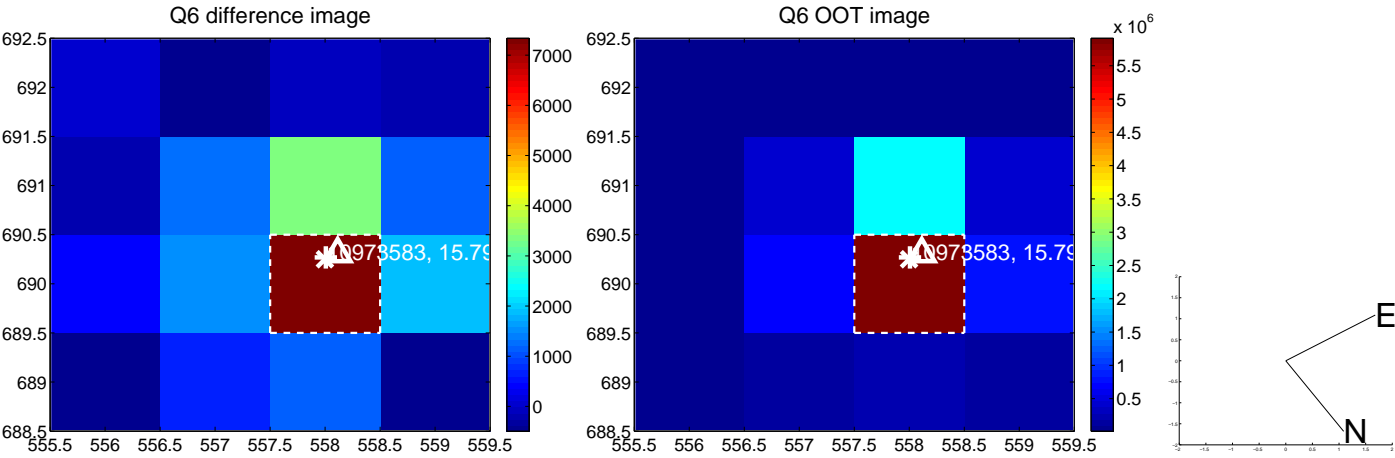
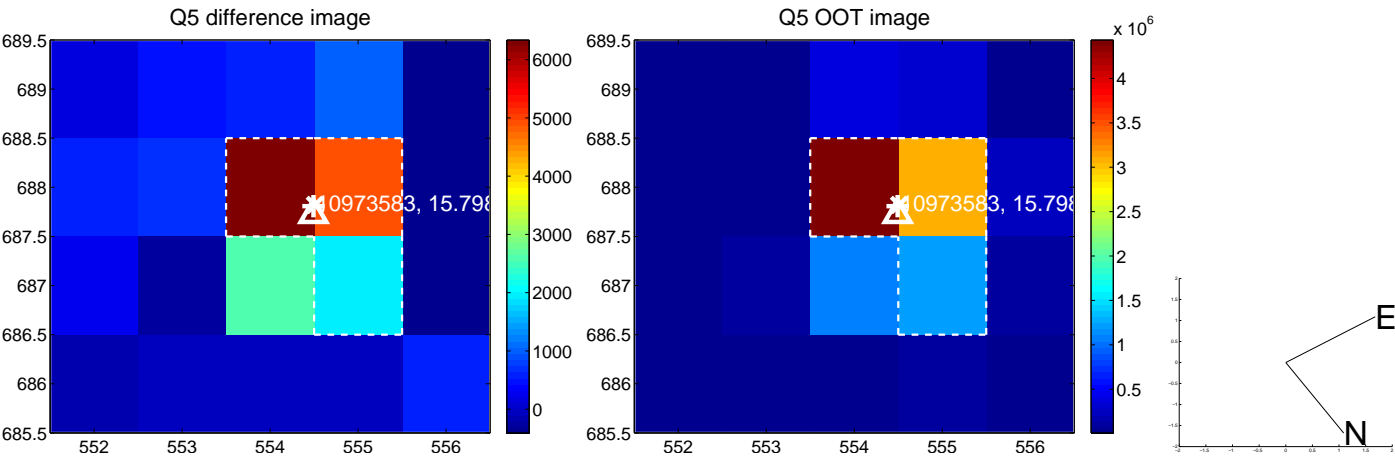


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses:** good quarterly centroid offsets; **Vermillion crosses:** bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

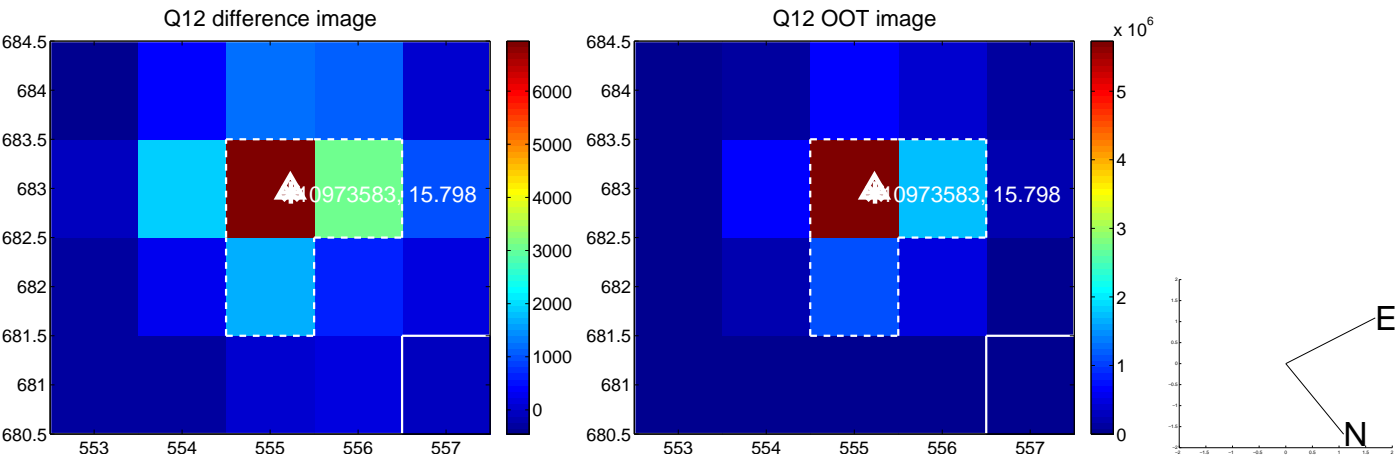
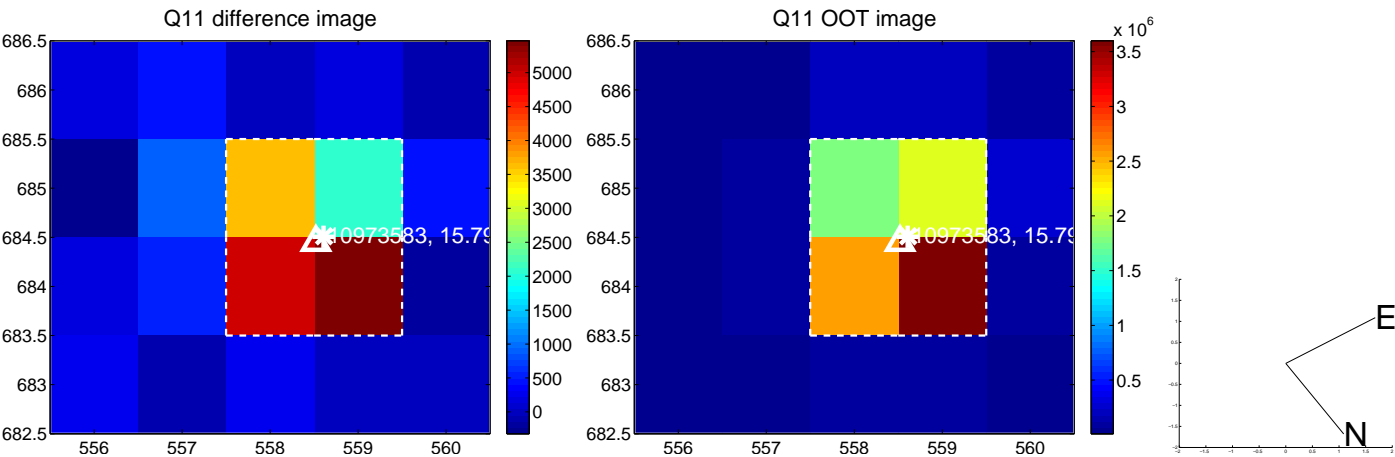
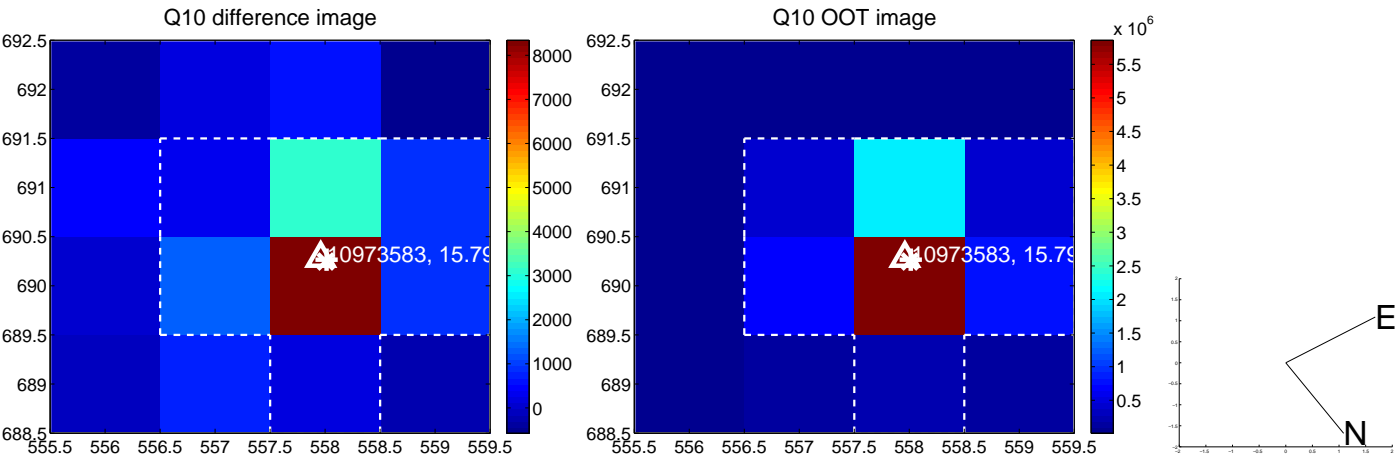
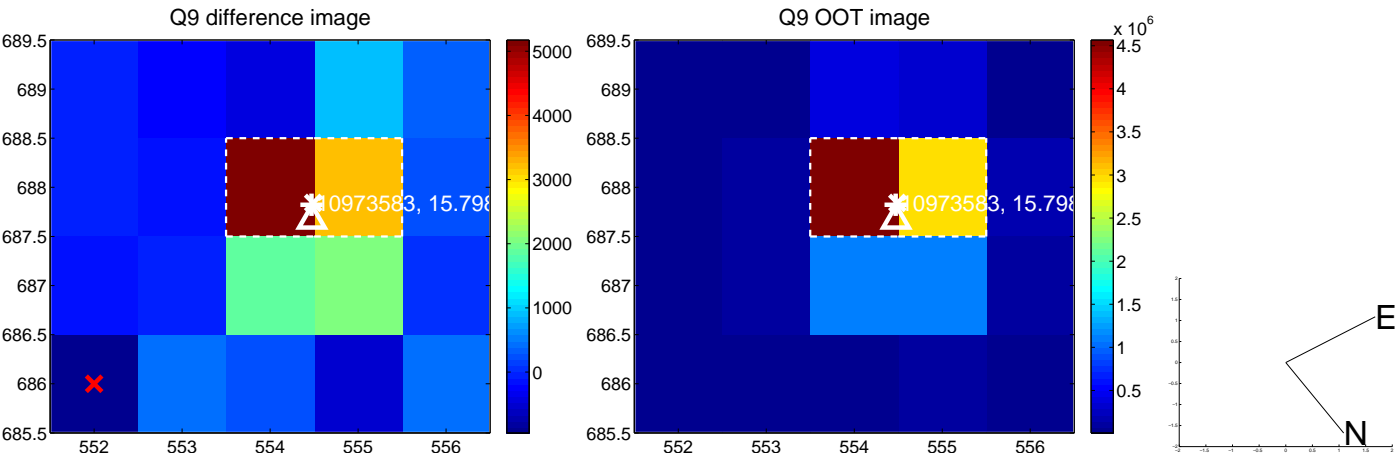
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



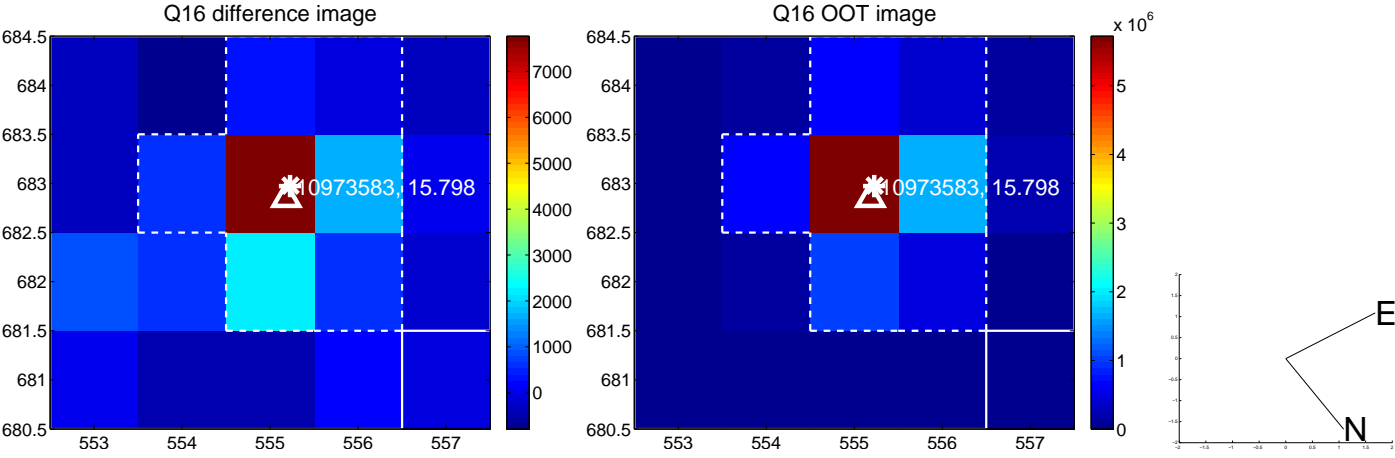
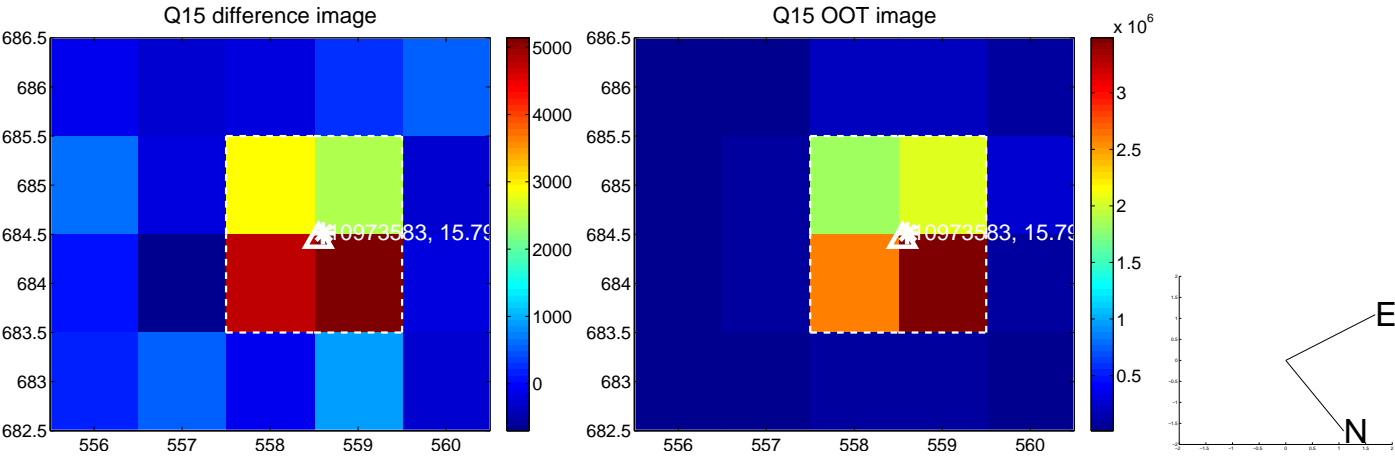
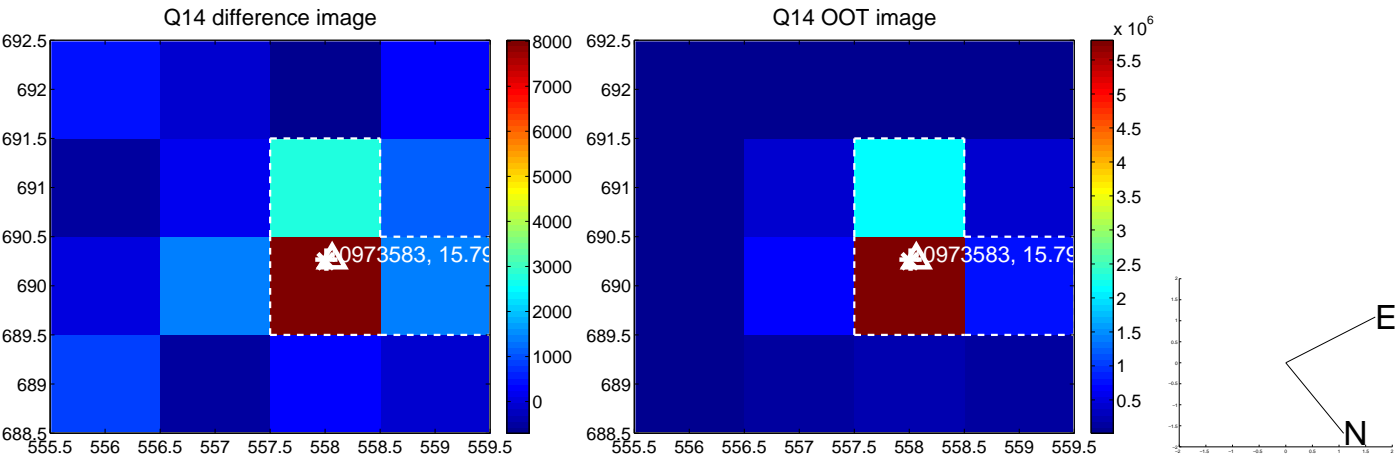
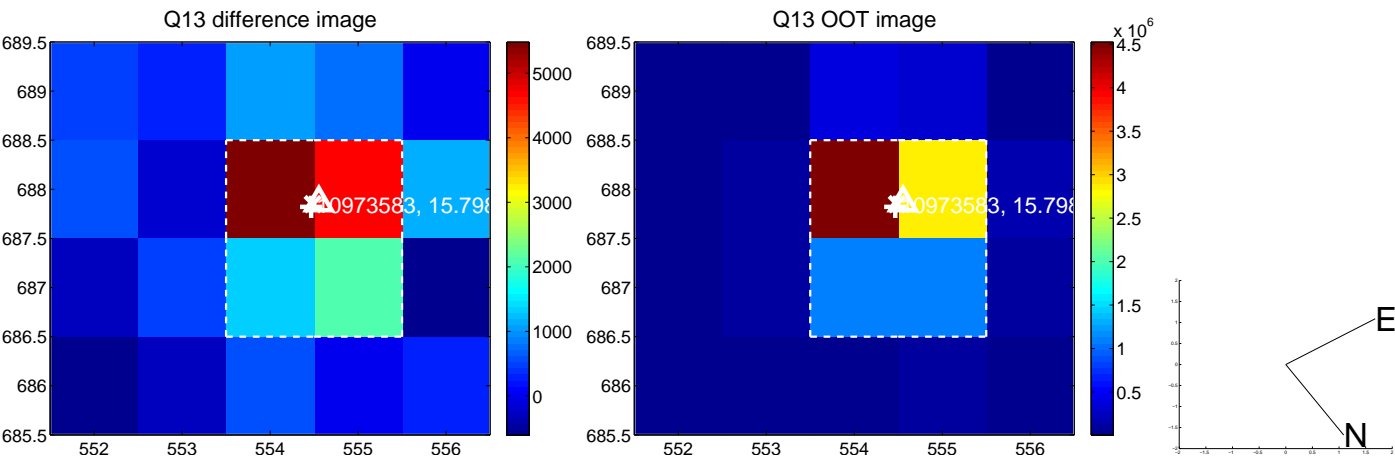
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



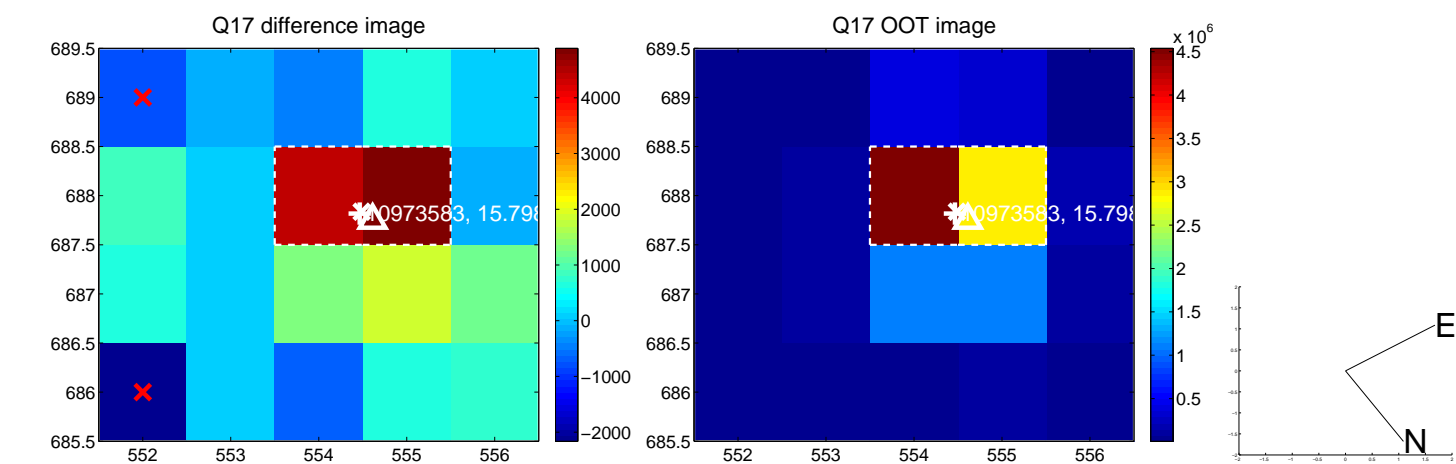
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



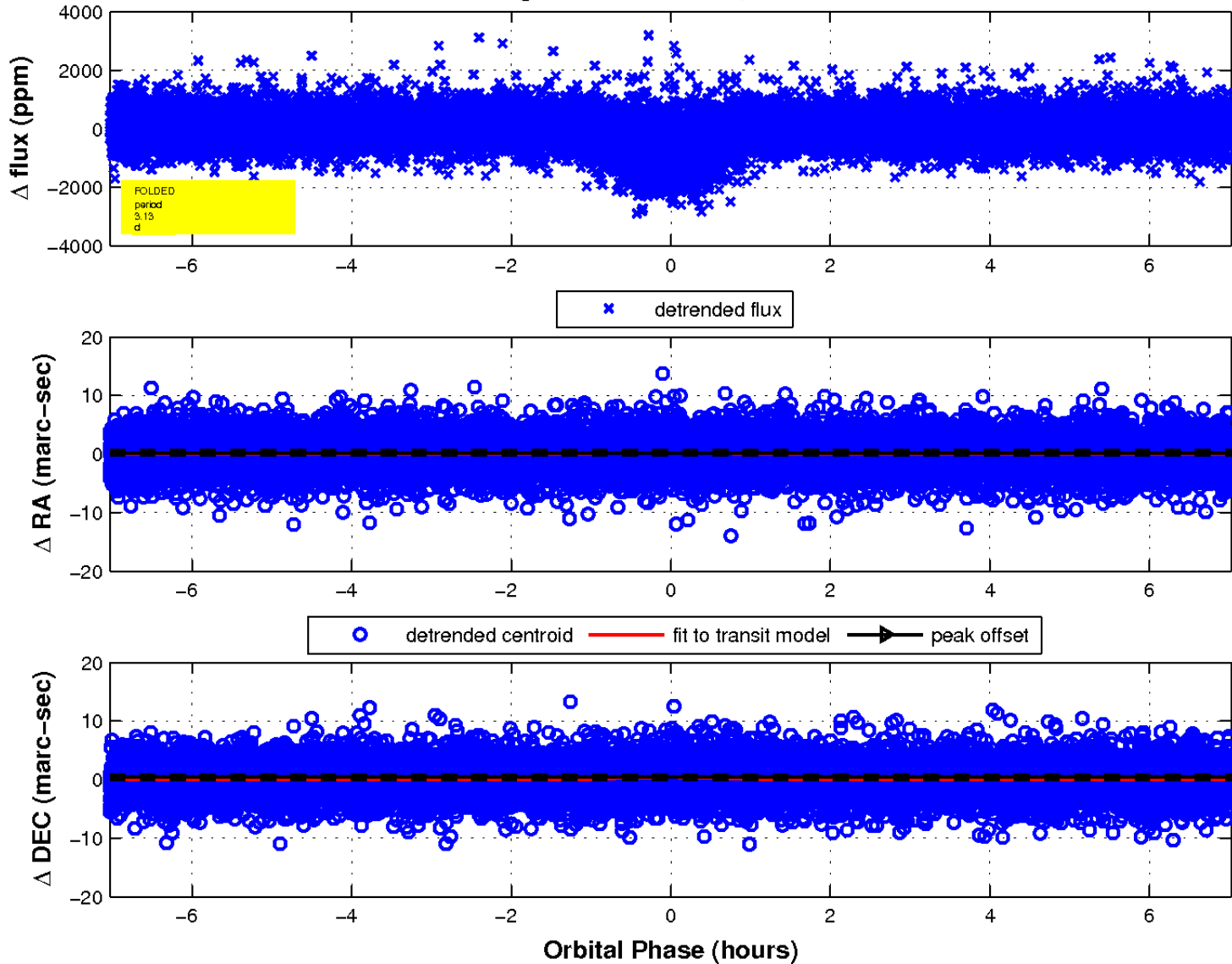
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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



fluxWeightedCentroids, Planet 2 of 2



UKIRT Image

Declination

