

KIC 010358759

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})
010358759-01	OBS	0738.01	10.339302	139.364672	1150.9	4.433	38.3	42.6	0.87	5730	4.67	86.54
010358759-02	OBS	0738.02	13.286871	132.258107	882.9	5.264	28.1	30.8	0.87	5730	4.20	61.94

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
010358759-01	OBS	PC	1.00	0	0	0	0	NO_COMMENT
010358759-02	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.

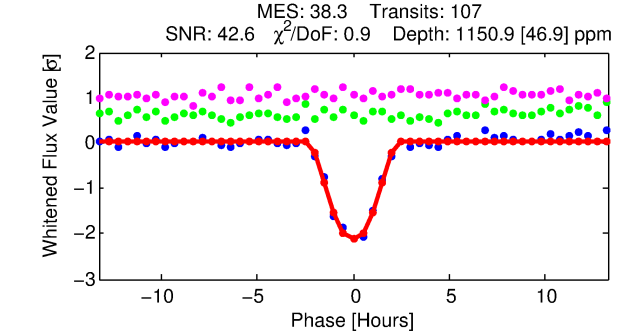
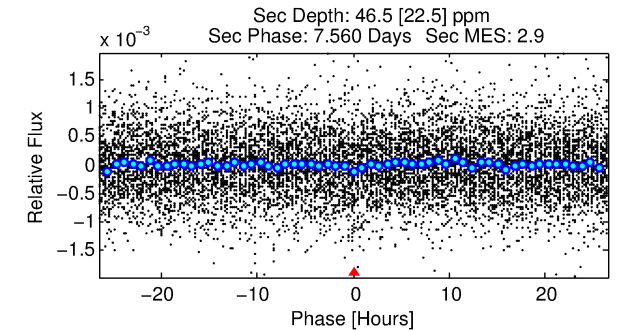
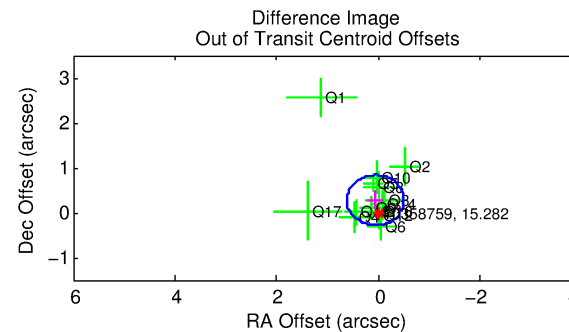
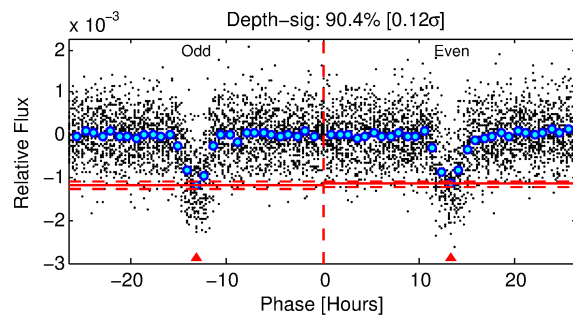
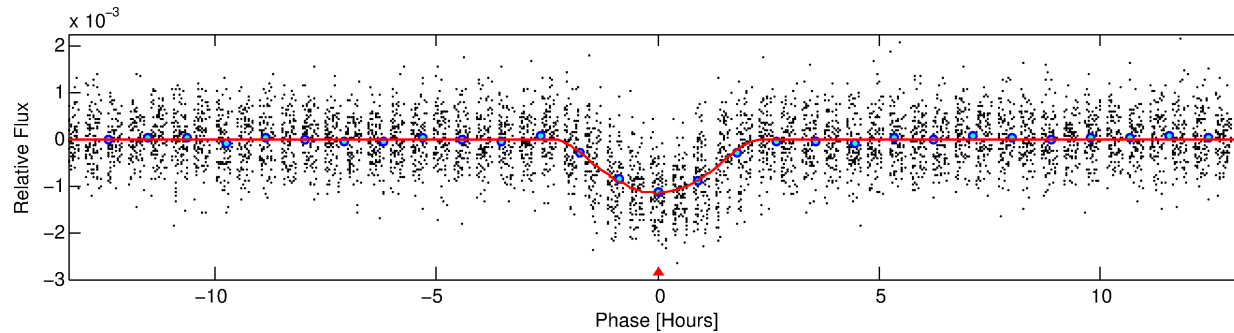
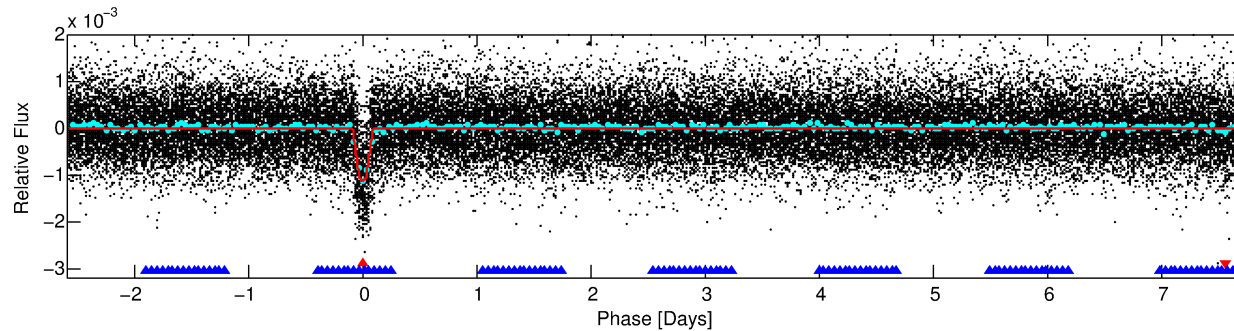
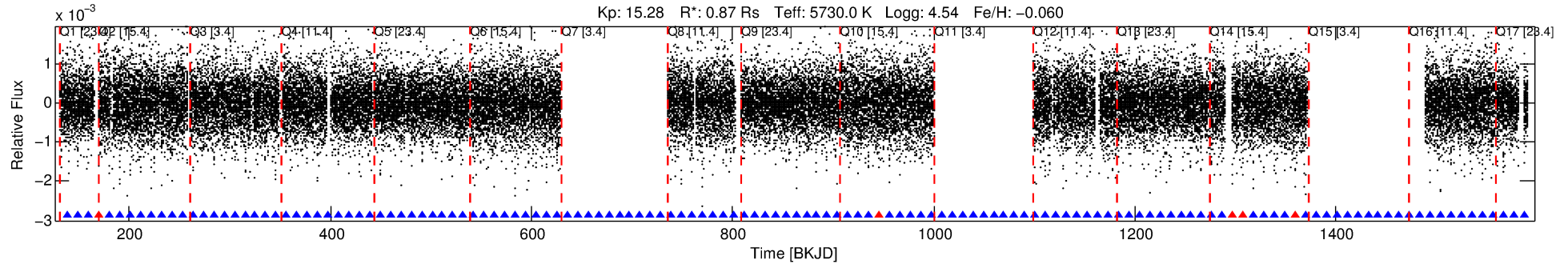
Ephemeris Match Information For 010358759-01

No Significant Match Found

DV One-Page Summary

KIC: 10358759 Candidate: 1 of 2 Period: 10.339 d
KOI: K00738.01 Name: Kepler-29b Corr: 0.958

Kp: 15.28 R*: 0.87 Rs Teff: 5730.0 K Logg: 4.54 Fe/H: -0.060



DV Fit Results:

Period = 10.33930 [0.00003] d
Epoch = 139.3647 [0.0025] BKJD
Rp/R* = 0.0492 [0.0221]
a/R* = 6.68 [1.03]
b = 0.98 [0.04]
Seff = 86.54 [11.62]
Teq = 778 [26] K
Rp = 4.67 [2.13] Re
a = 0.0919 [0.0060] AU
Ag = 9.92 [10.17] [0.88σ]
Teffp = 2134 [547] K [2.48σ]

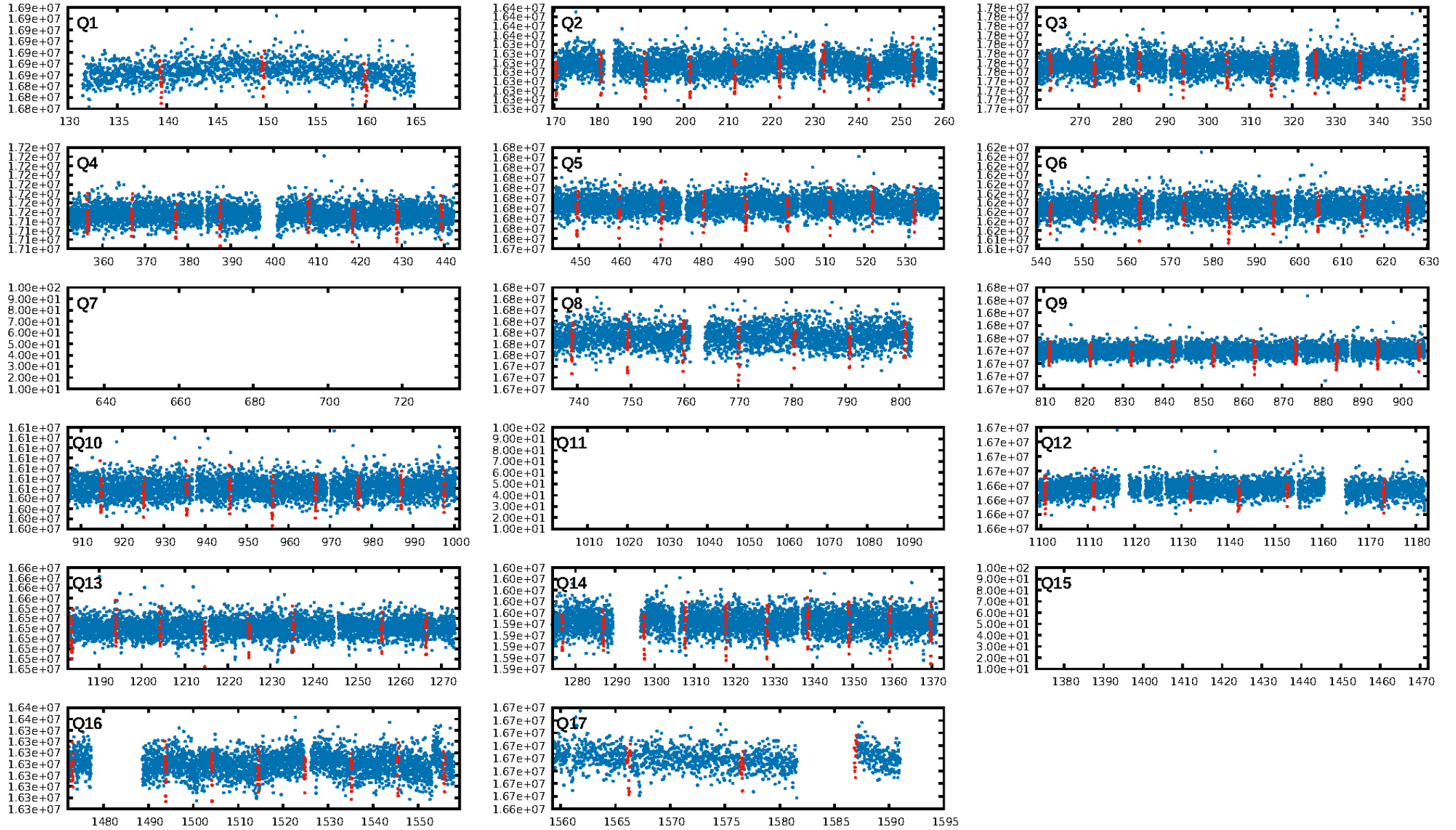
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: 100.0% [10.28σ]
ModelChiSquare2-sig: 91.7%
ModelChiSquareGof-sig: 100.0%
Bootstrap-pfa: 0.00e+00
RollingBand-fgt: 0.95 [96/101]
GhostDiagnostic-chr: 22.2
Centroid-sig: 0.0%
Centroid-so: 0.924 arcsec [2.98σ]
OotOffset-rm: 0.281 arcsec [1.51σ]
KicOffset-rm: 0.441 arcsec [2.26σ]
OotOffset-st: 4/1/4/5 [14]
KicOffset-st: 4/1/4/5 [14]
DiffImageQuality-fgm: 1.00 [14/14]
DiffImageOverlap-fno: 1.00 [14/14]

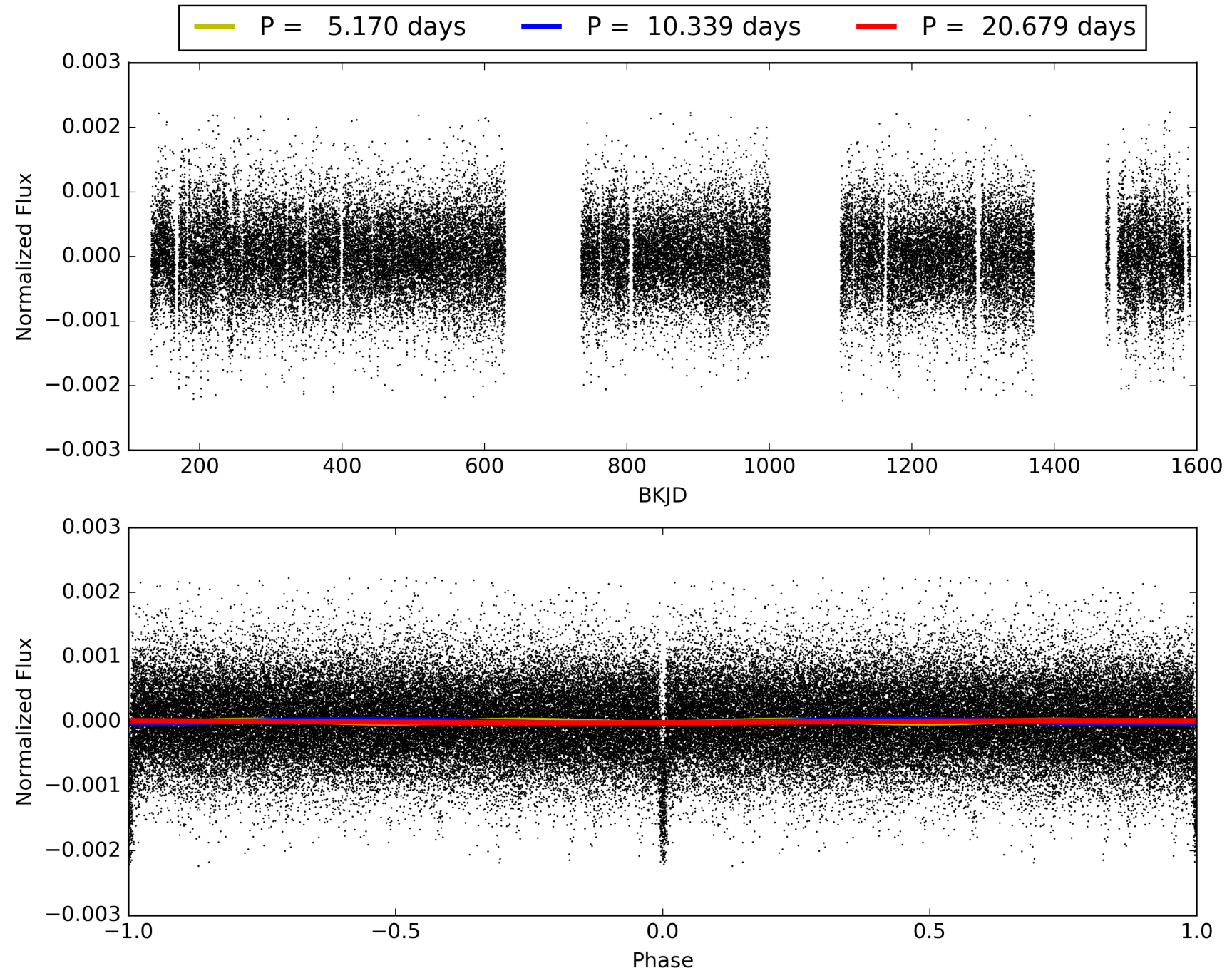
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 31-Jan-2016 15:23:50 Z

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

TCE 010358759-01, PDC Light Curves

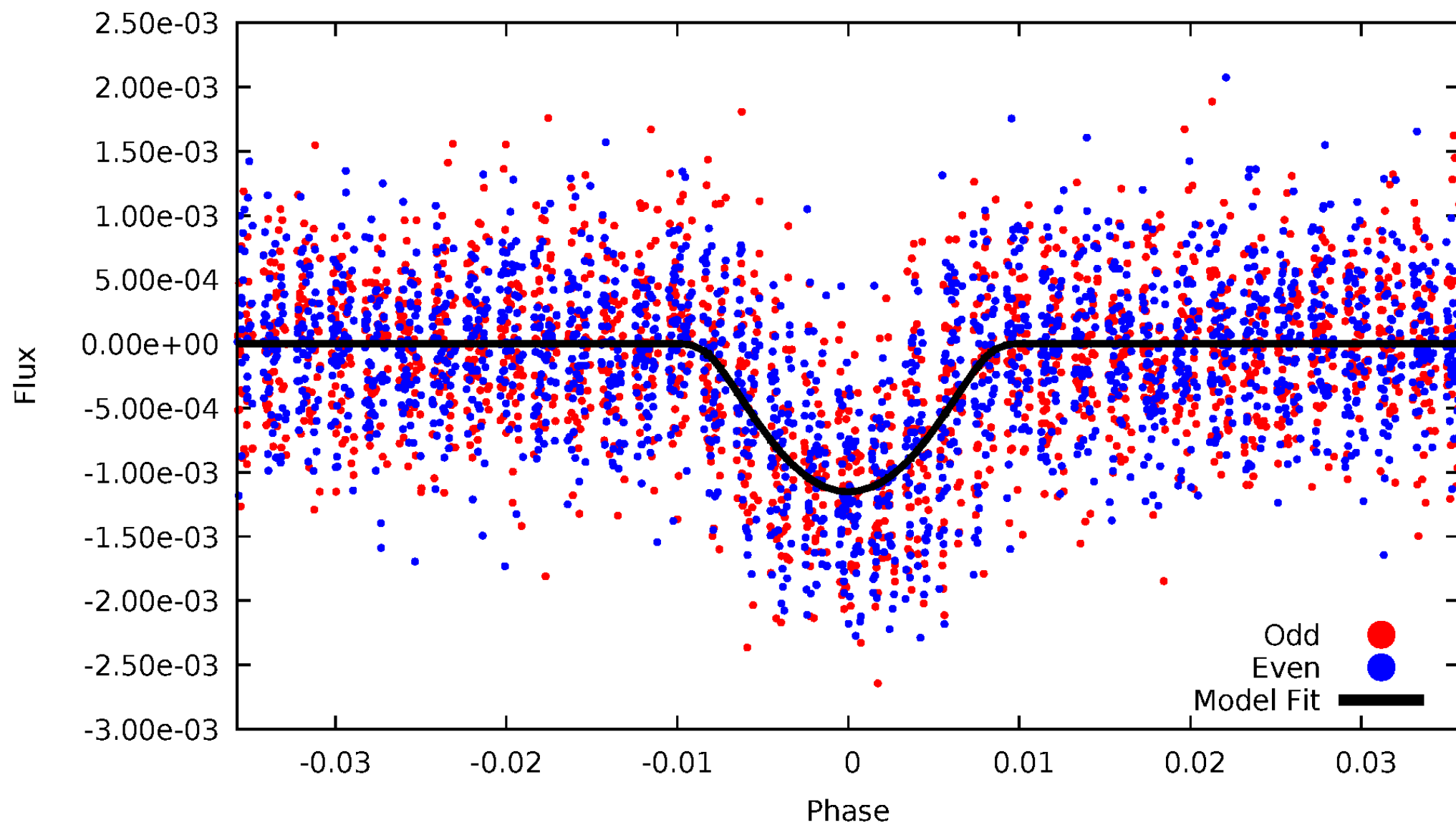


TCE 010358759-01



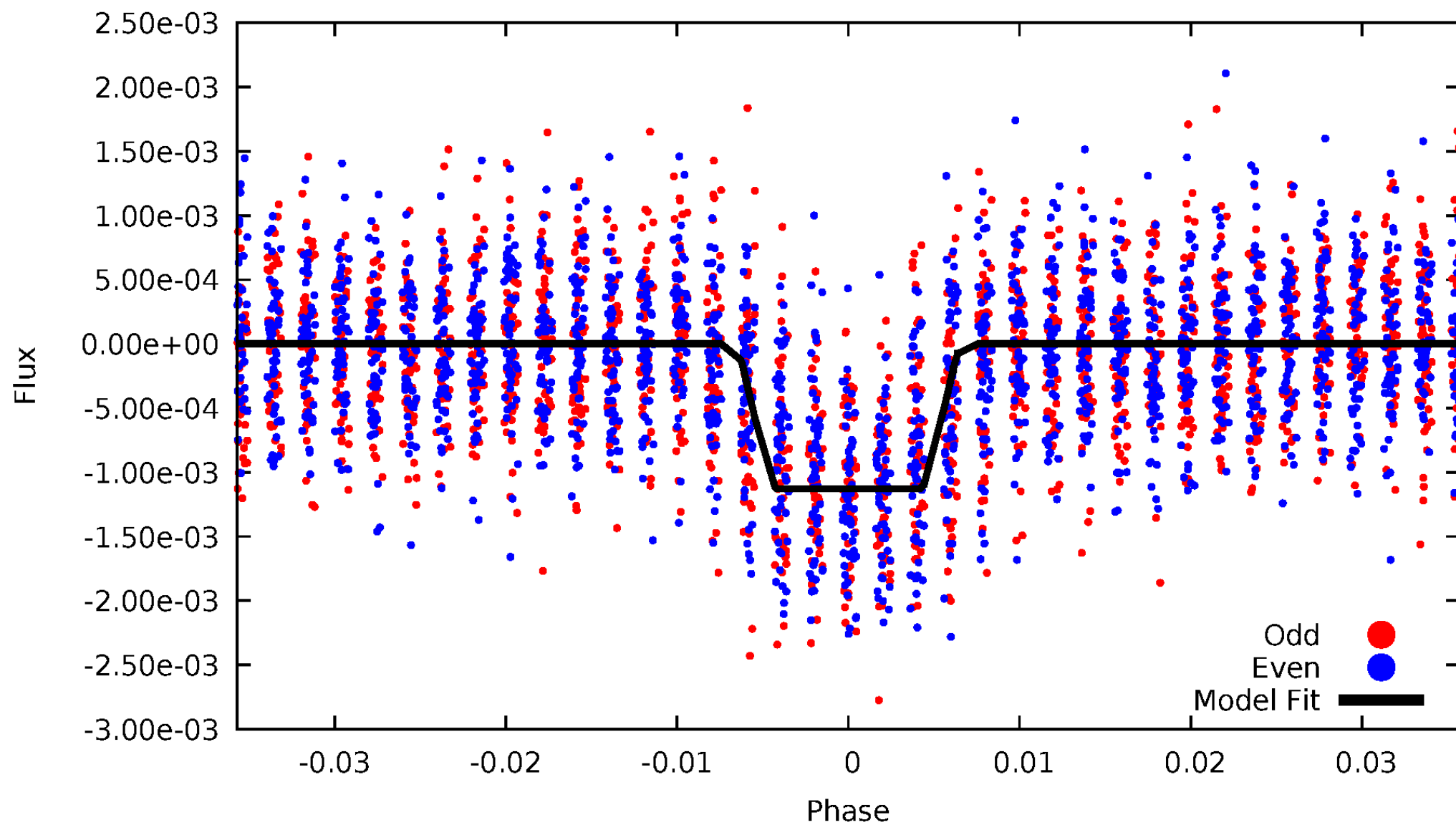
DV Odd/Even

TCE 010358759-01



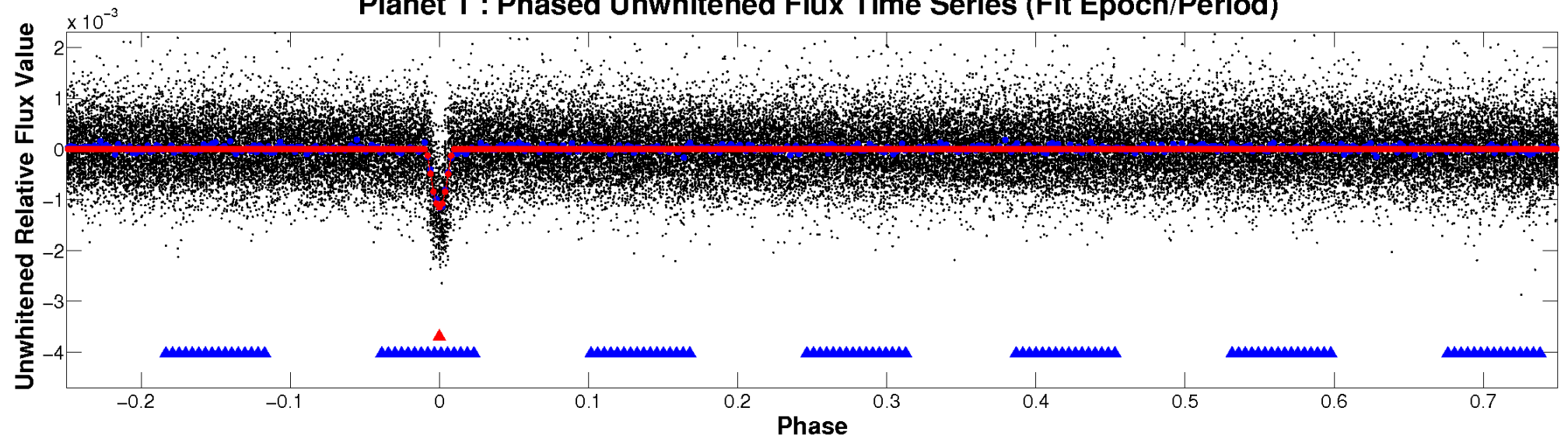
ALT Odd/Even

TCE 010358759-01

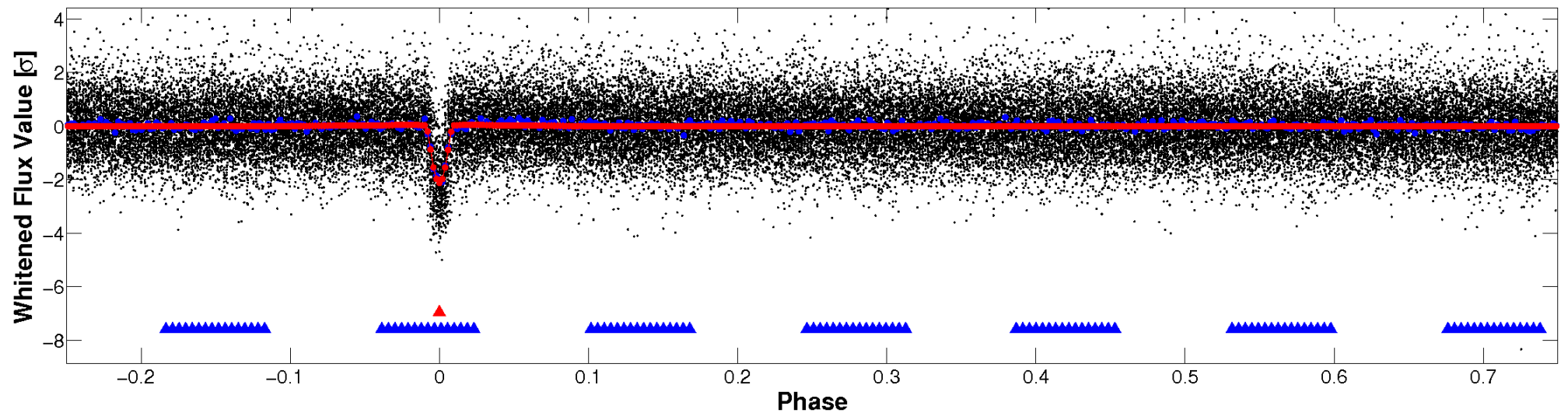


Non-Whitened Vs. Whitened Light Curve

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

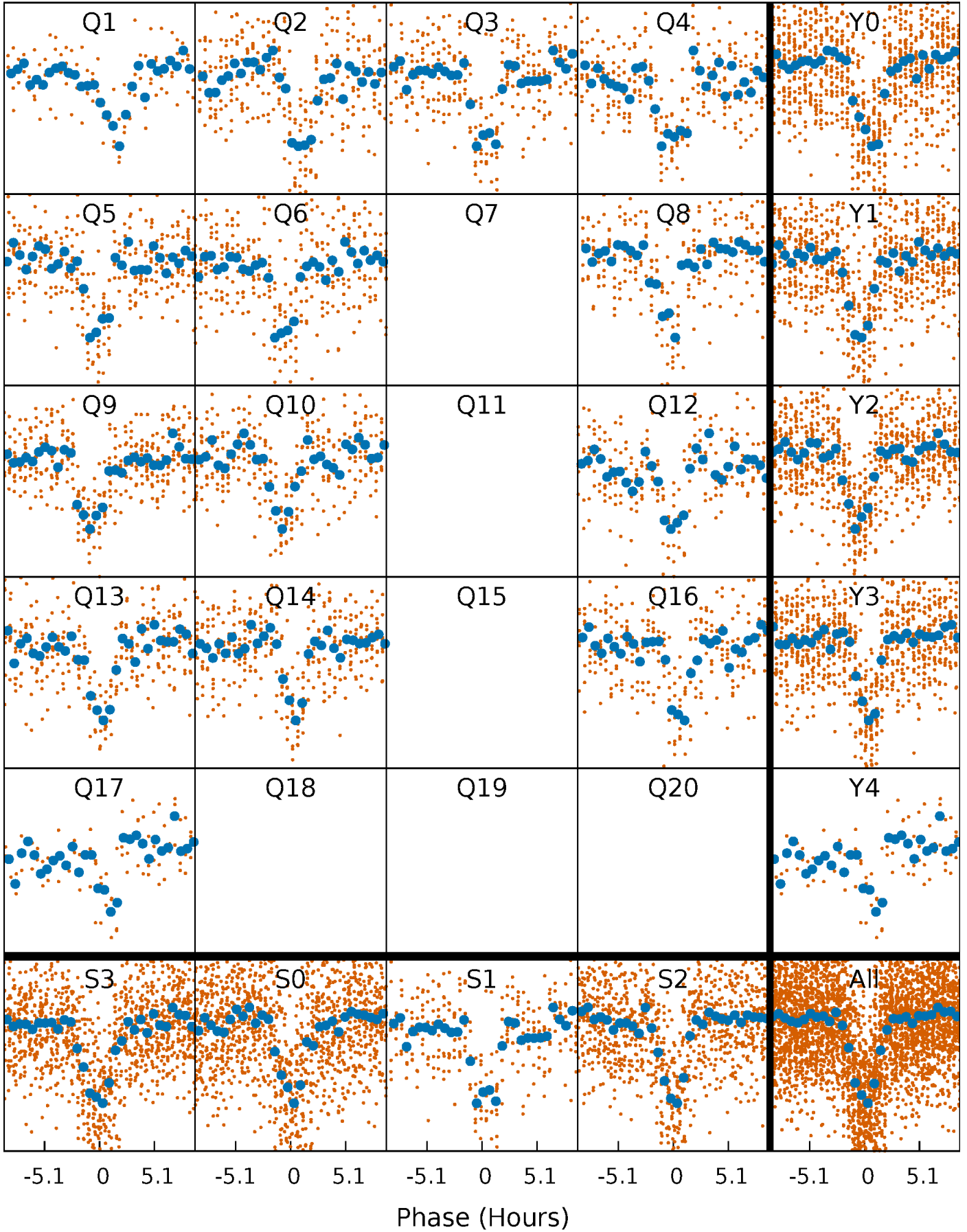


Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)



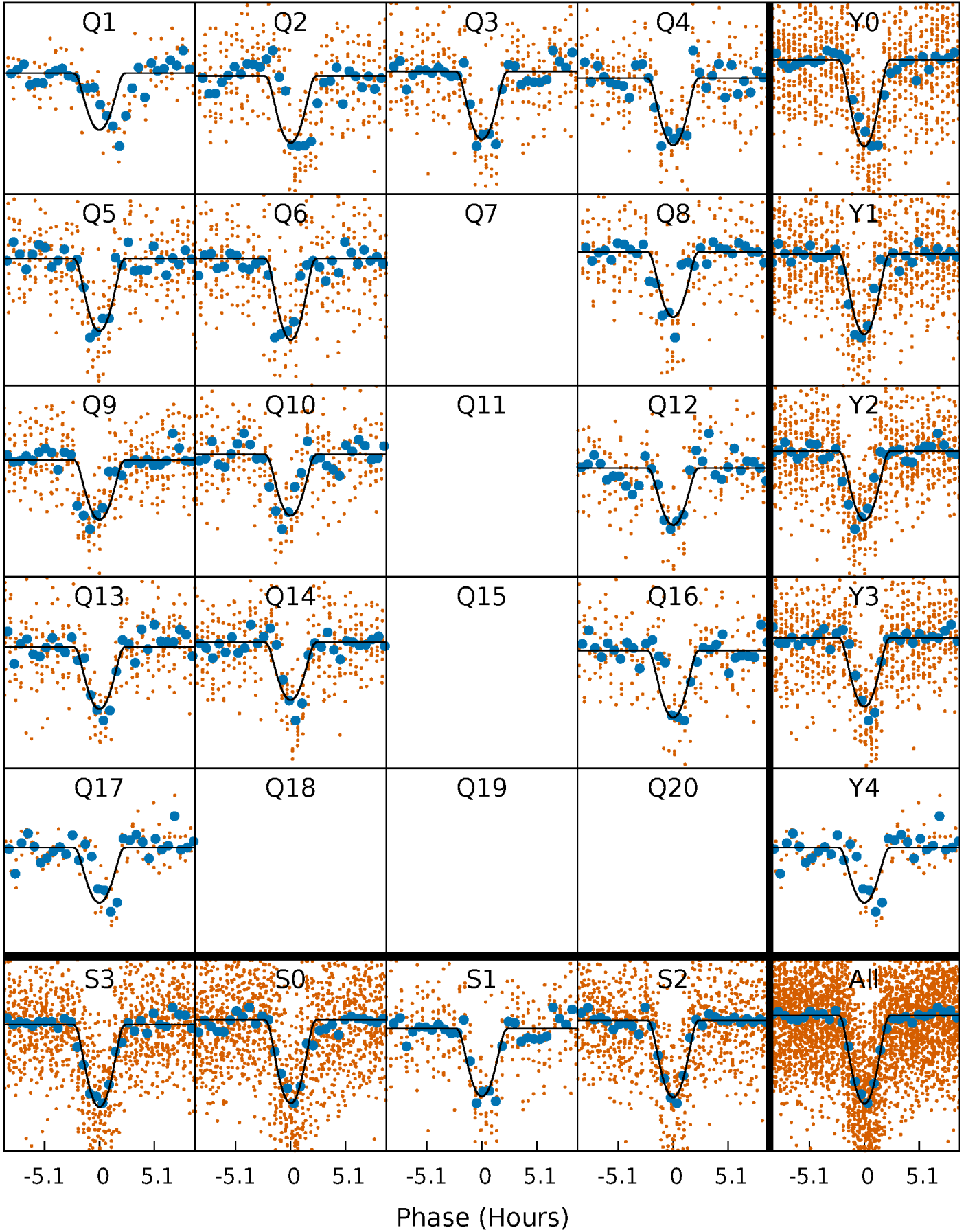
PDC Quarter-Phased Transit Curves

TCE 010358759-01 P= 10.339302 Days $T_0=139.364672$ (BKJD)



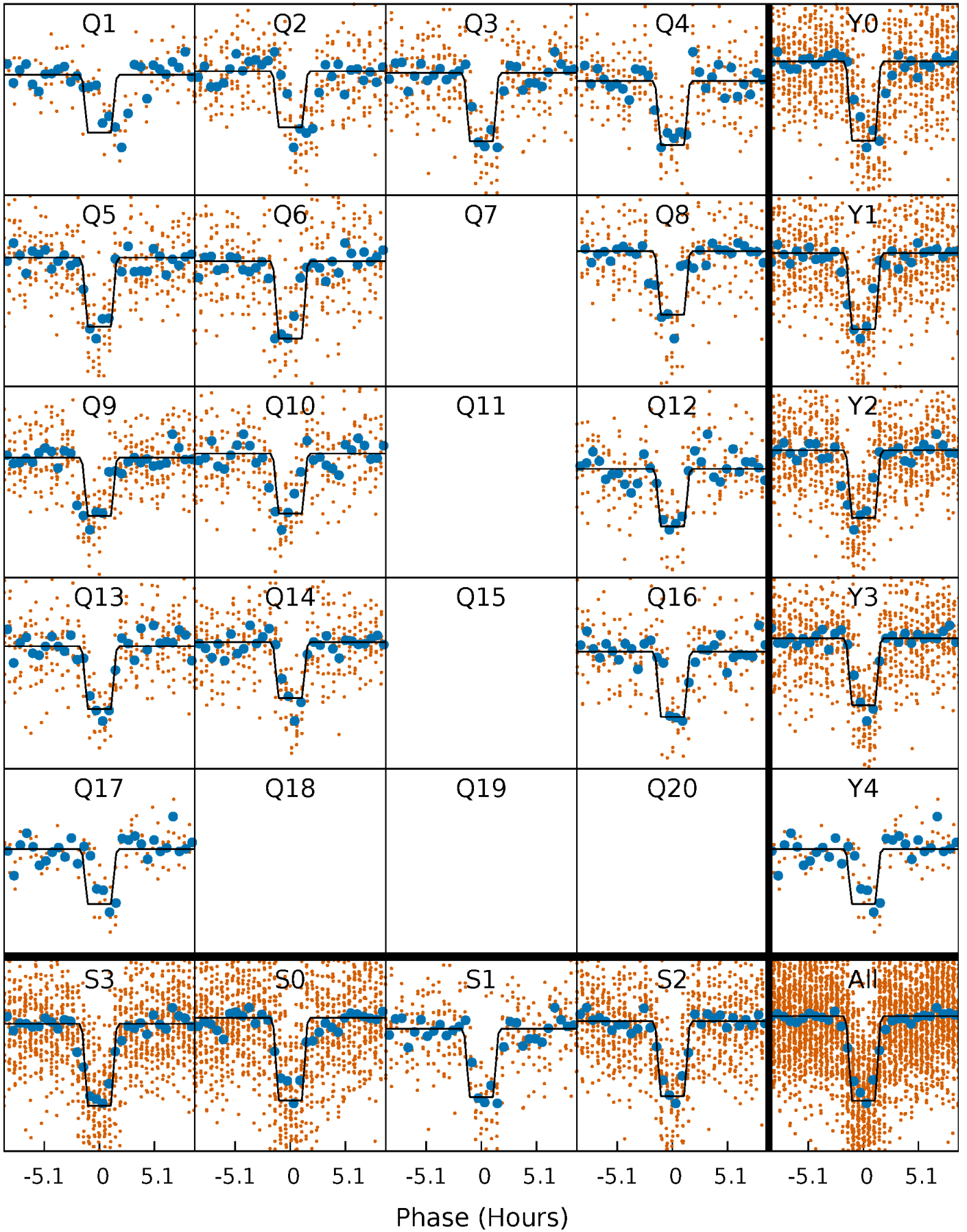
DV Quarter-Phased Transit Curves

TCE 010358759-01 P= 10.339302 Days $T_0=139.364672$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

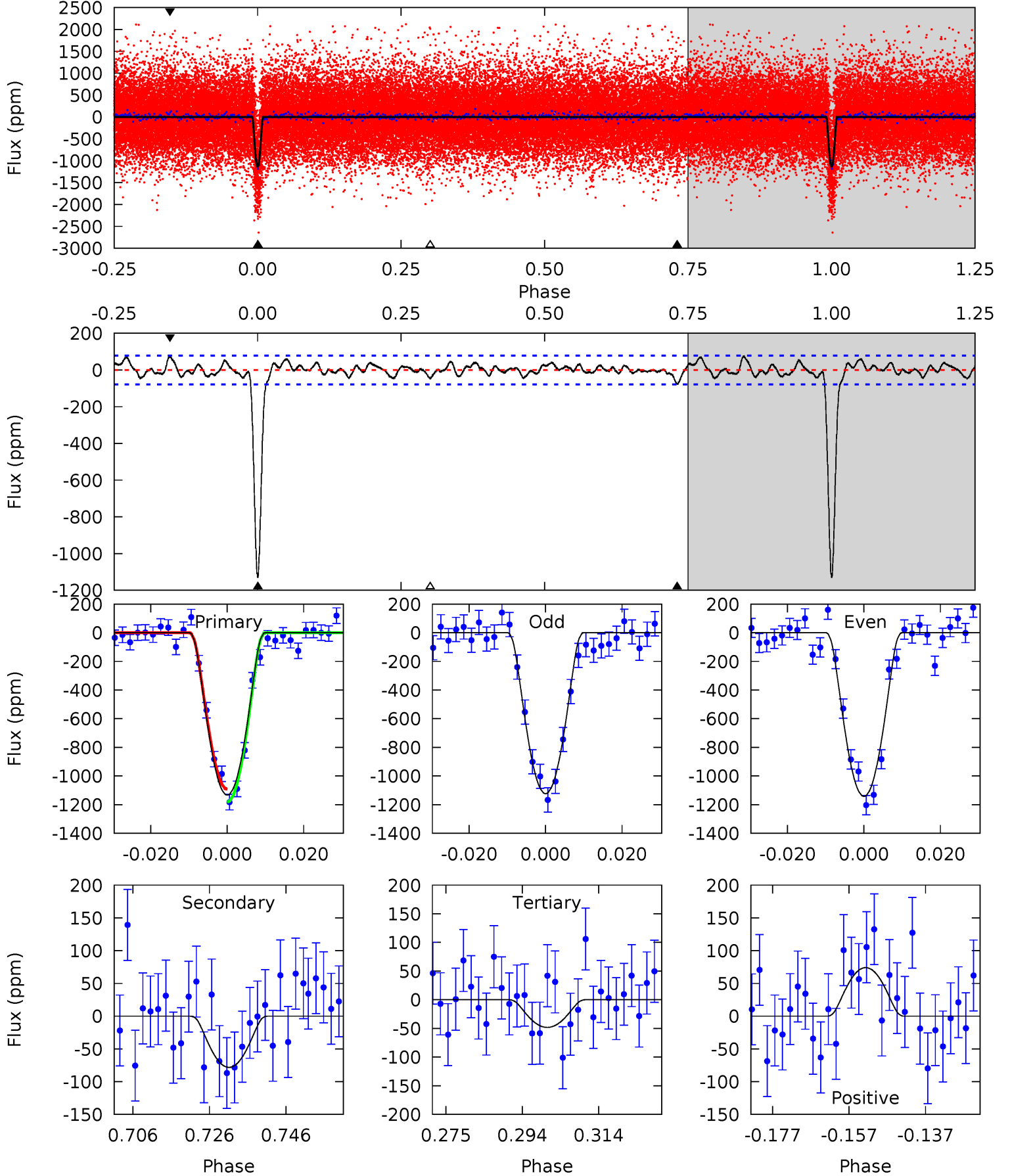
TCE 010358759-01 P= 10.339361 Days $T_0=139.360410$ (BKJD)



DV Model-Shift Uniqueness Test

010358759-01, P = 10.339302 Days, E = 129.025370 Days

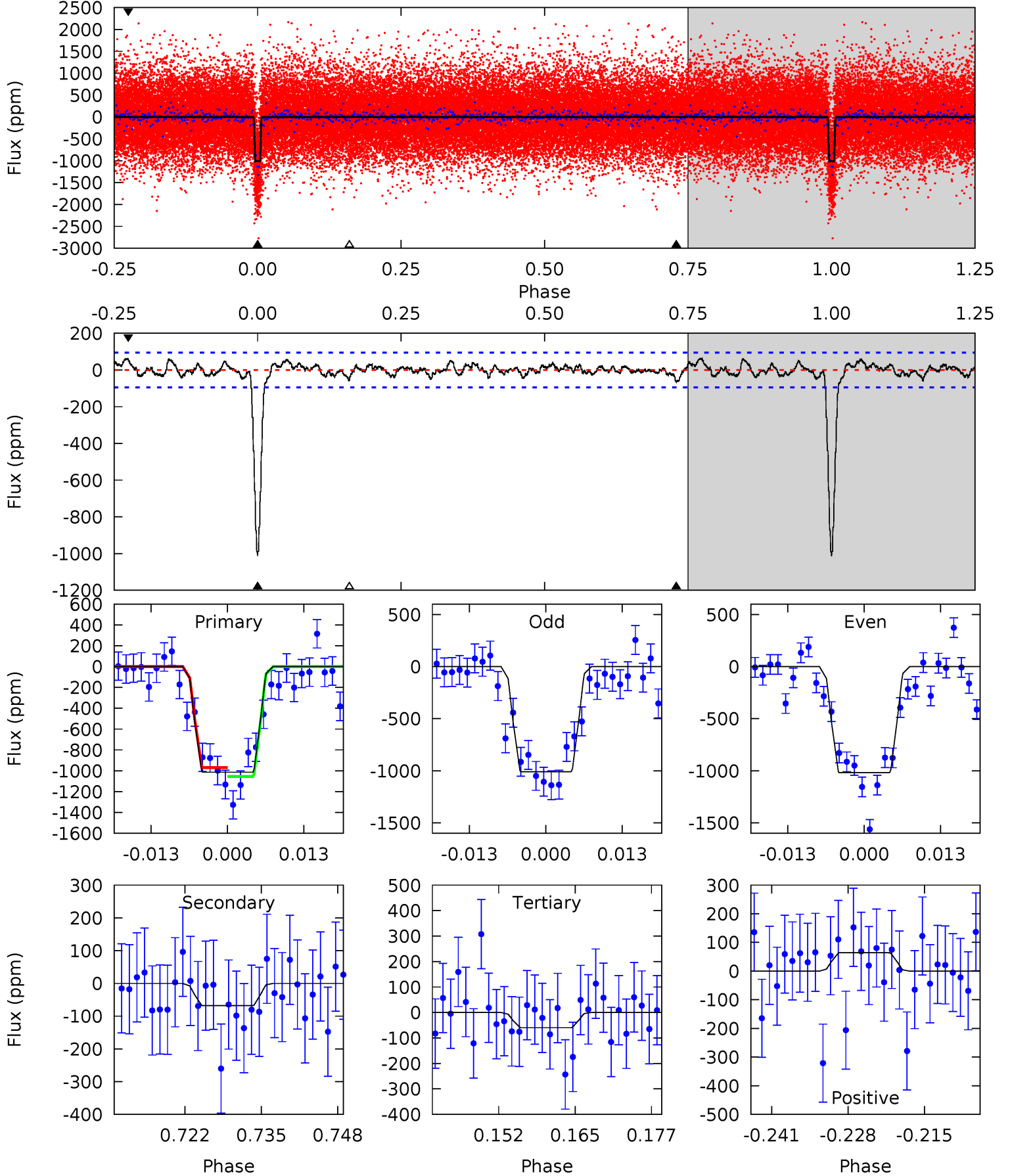
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
70.5	4.86	3.00	4.60	4.90	2.33	1.43	67.5	65.9	1.87	0.26	0.60	1.00	0.06	2.78



Alt Model-Shift Uniqueness Test

010358759-01, $P = 10.339361$ Days, $E = 129.021049$ Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
53.2	3.55	3.14	3.34	4.98	2.49	1.18	50.1	49.9	0.41	0.21	0.24	1.00	0.06	2.26



Stellar Parameters For KIC 010358759

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	5730^{+90}_{-136}	$4.545^{+0.021}_{-0.052}$	$-0.060^{+0.150}_{-0.150}$	$0.870^{+0.067}_{-0.042}$	$0.968^{+0.046}_{-0.069}$	$2.069^{+0.228}_{-0.365}$
	+2%/-2%	+0%/-1%	+250%/-250%	+8%/-5%	+5%/-7%	+11%/-18%
Source	SPE34	SPE34	SPE34	DSEP		

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

Secondary Eclipse Parameters for KIC 010358759-01 / KOI 0738.01

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	-78 ± 16	$4.69^{+1.97}_{-2.02}$	1091^{+25}_{-28}	3061^{+596}_{-310}	16^{+36}_{-8}
Alt.	-68 ± 19	$3.45^{+2.10}_{-1.91}$	1092^{+25}_{-29}	3268^{+963}_{-441}	26^{+92}_{-16}

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 $A_{obs} \gg 1.0$

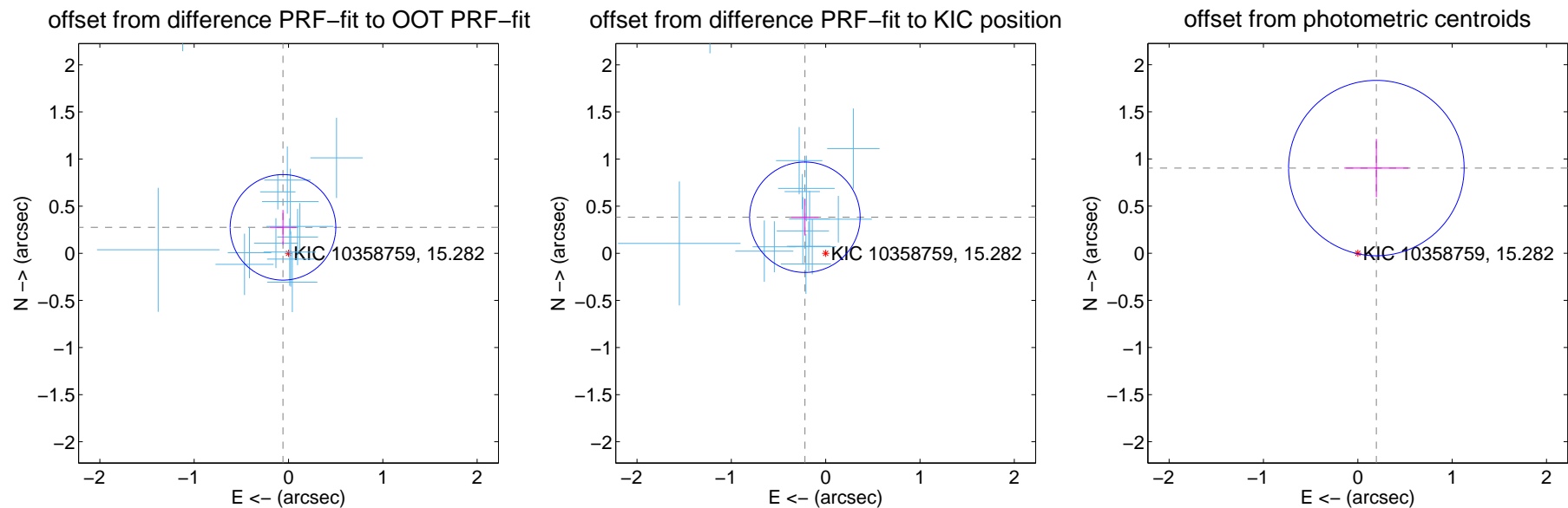
DV Centroid Data

Supplemental centroid analysis for 010358759-01. Kepler magnitude: 15.28. Transit SNR 42.57

There are 14 quarters with good PRF difference image offsets

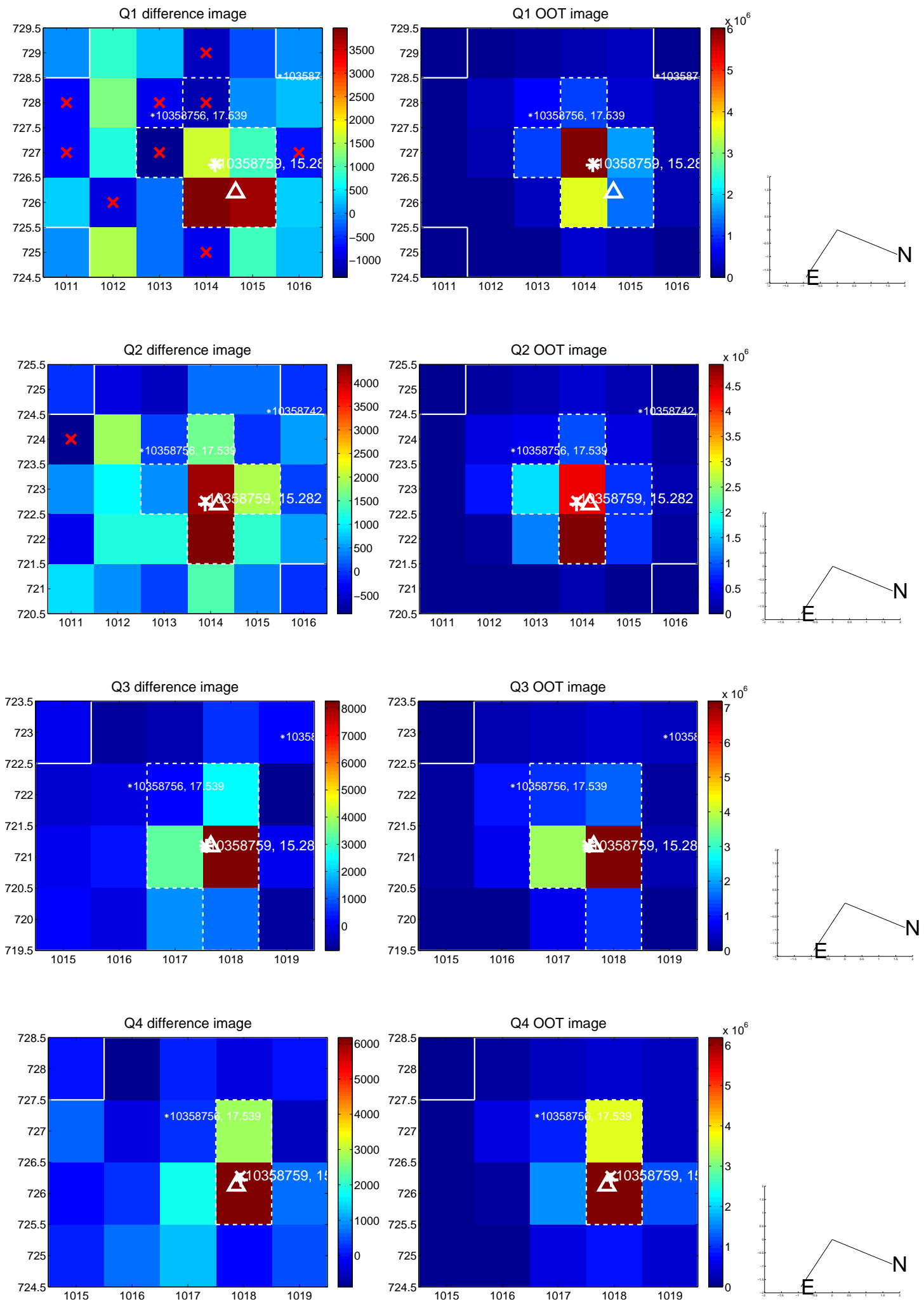
The direct PRF centroid is offset from the target star catalog position by about 0.18 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.281 ± 0.187	1.51	0.058 ± 0.141	0.275 ± 0.185
PRF-fit source offset from KIC position	0.441 ± 0.195	2.26	0.220 ± 0.145	0.382 ± 0.195
photometric centroid source offset	0.92 ± 0.31	2.98	-0.20 ± 0.34	0.90 ± 0.31

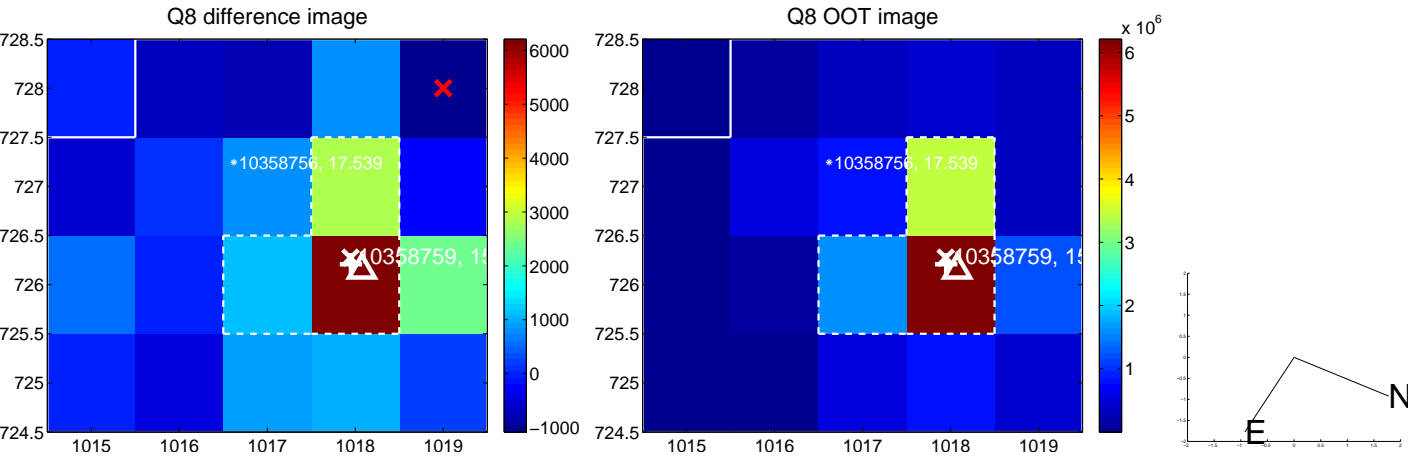
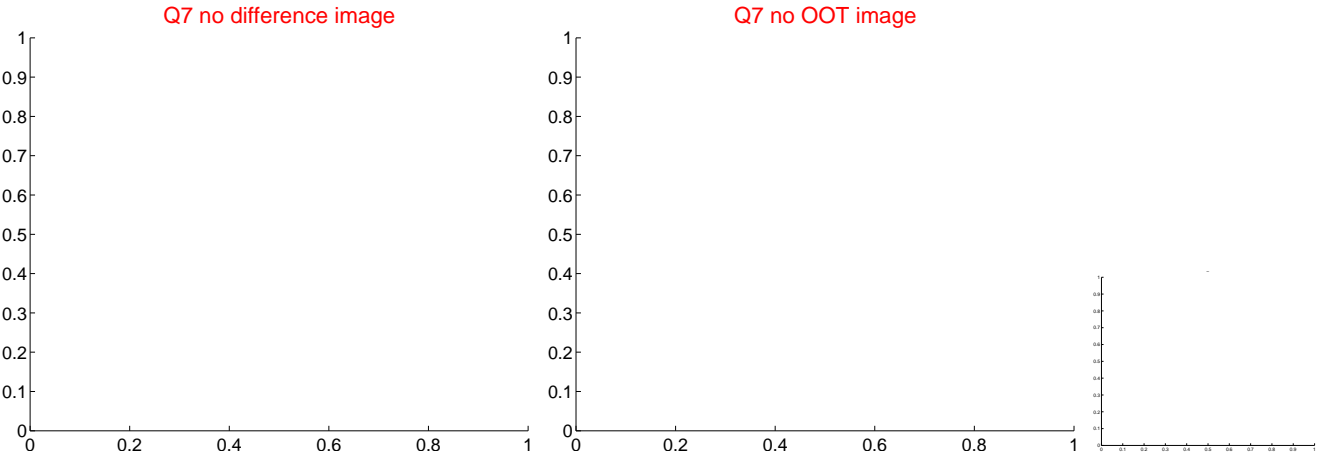
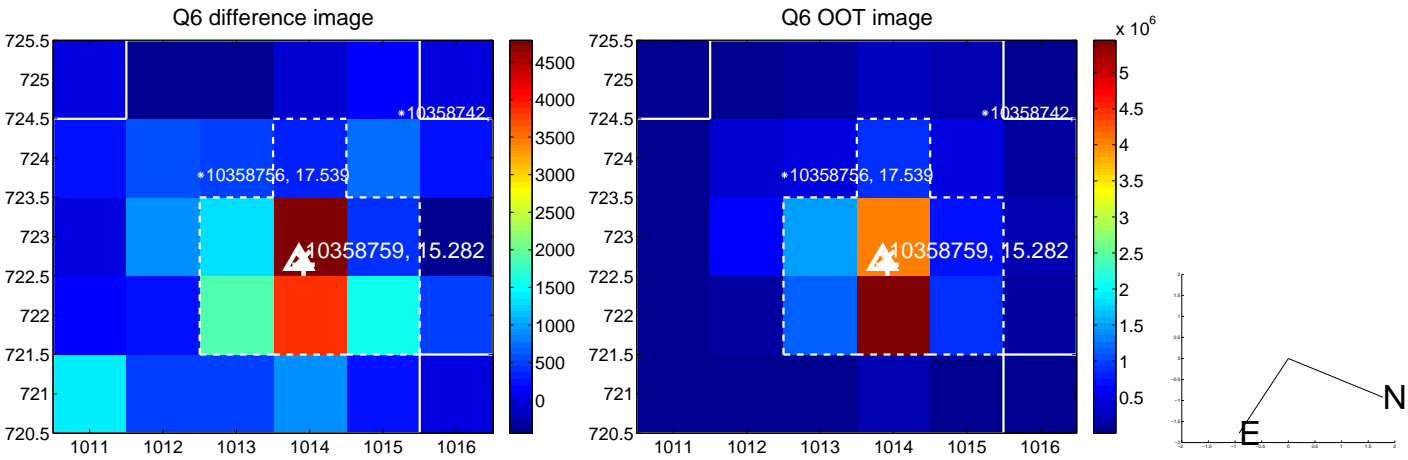
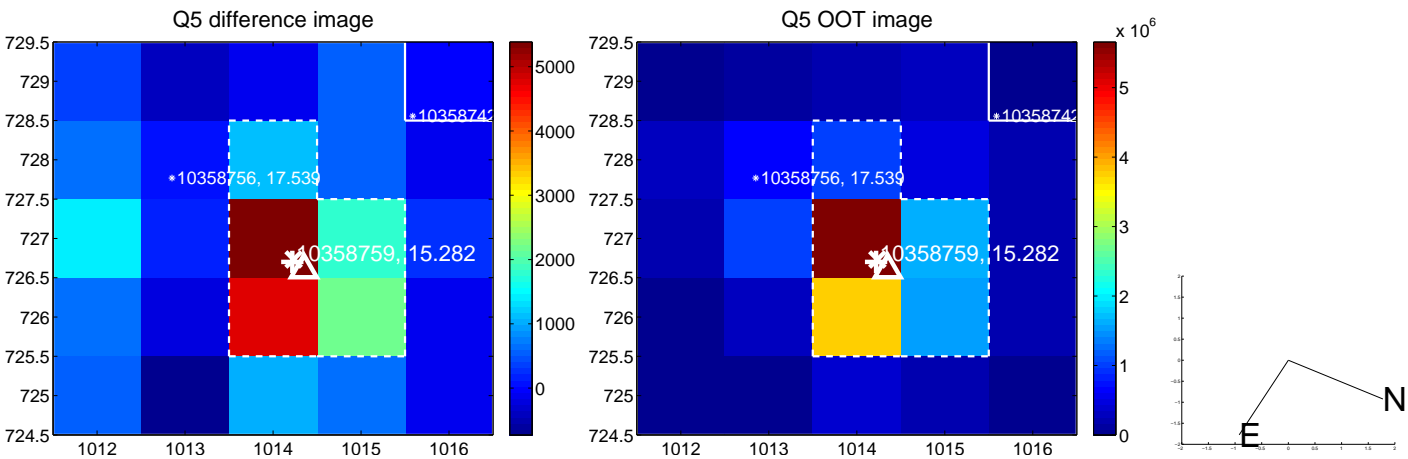


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses:** good quarterly centroid offsets; **Vermillion crosses:** bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

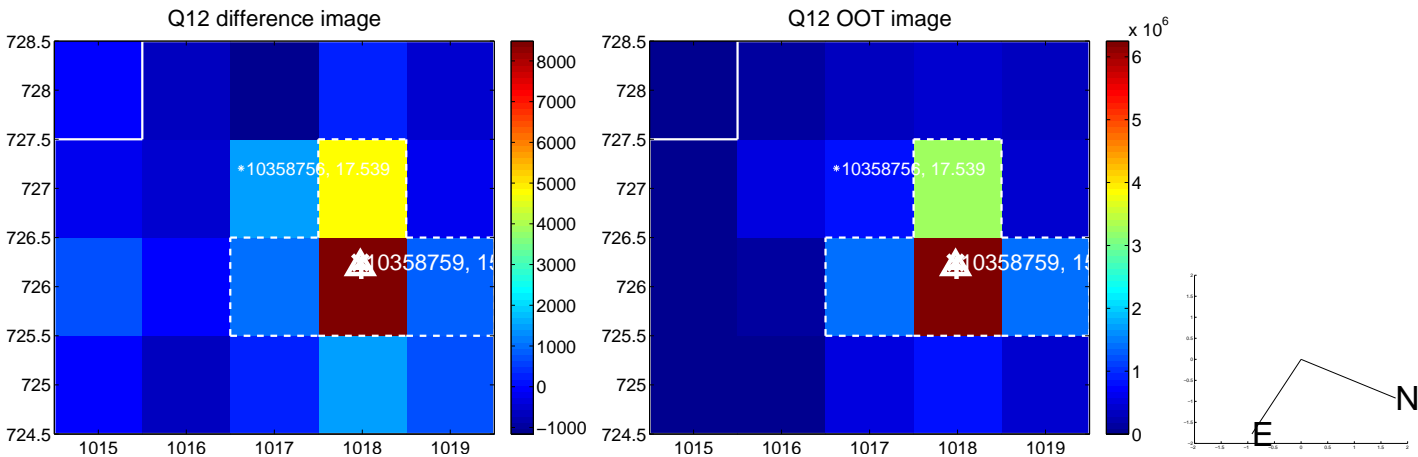
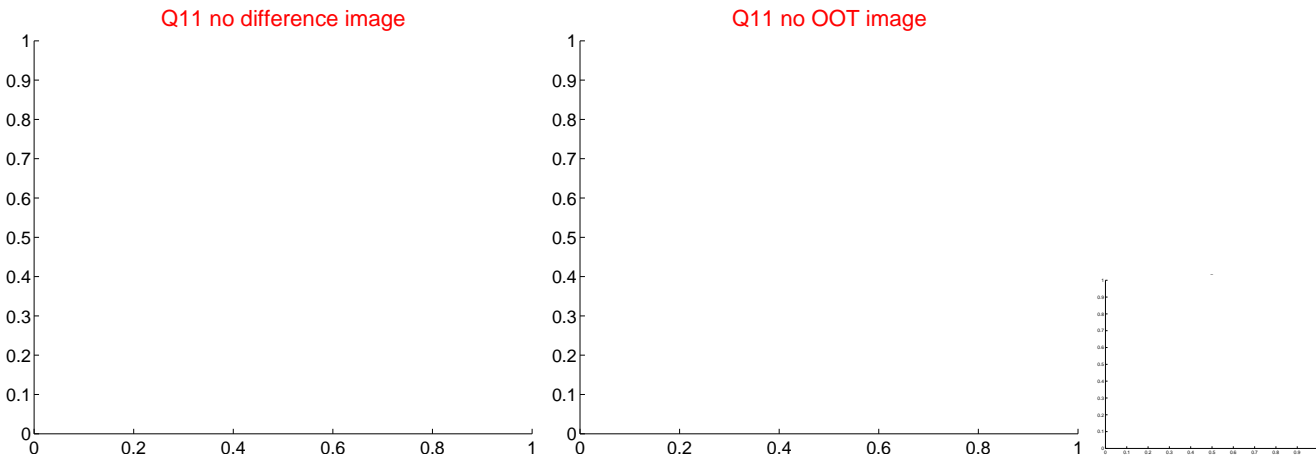
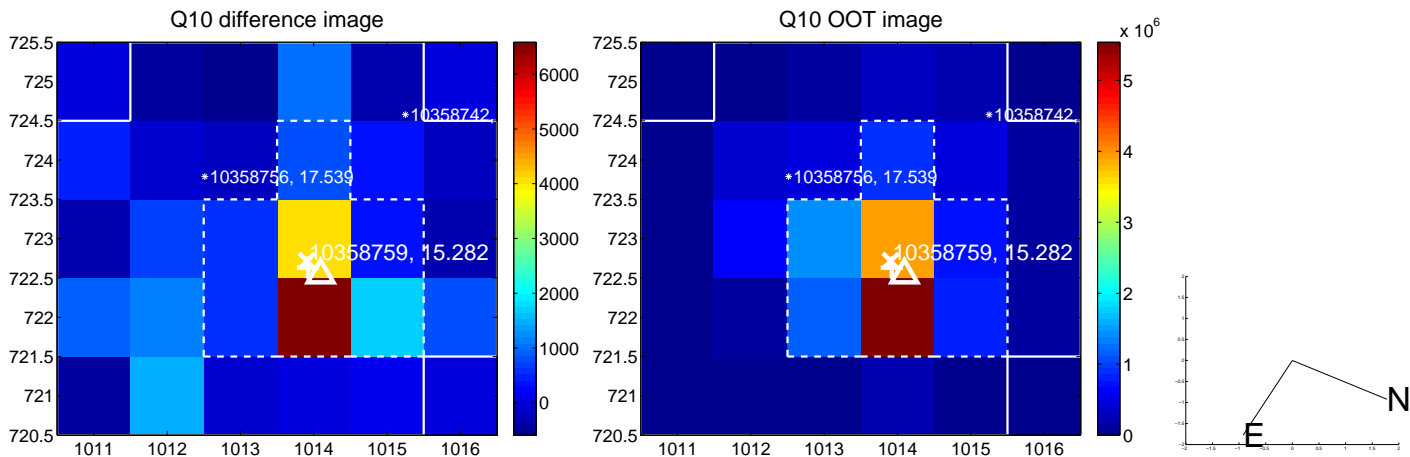
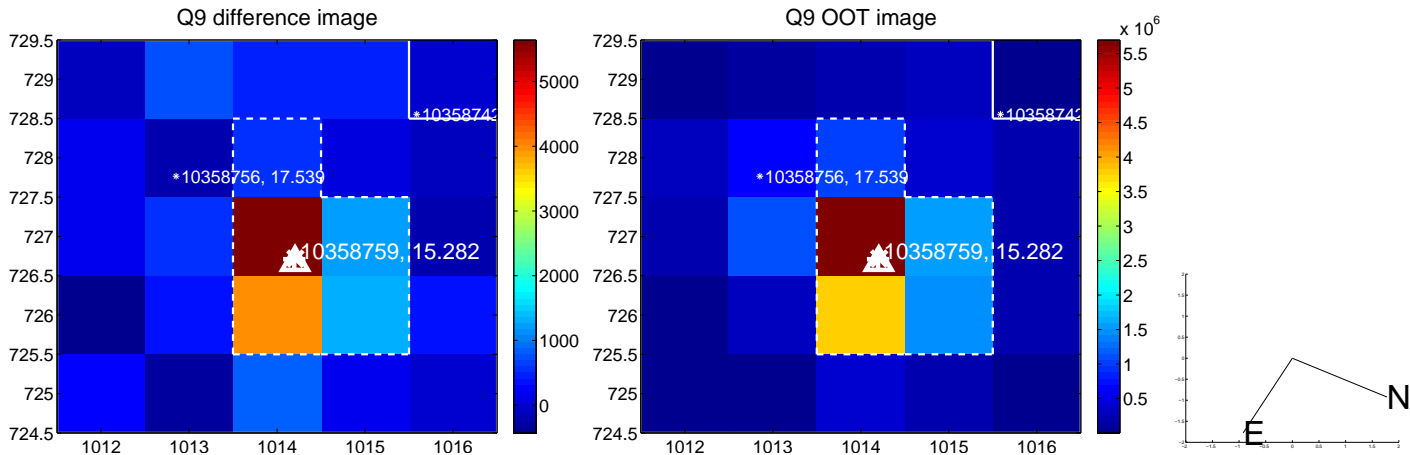
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



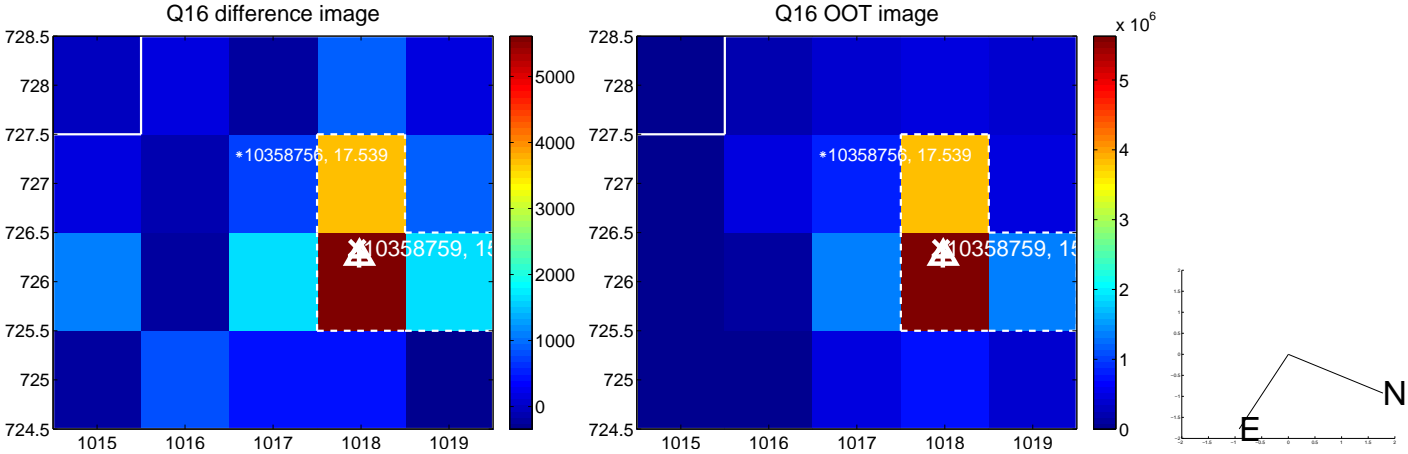
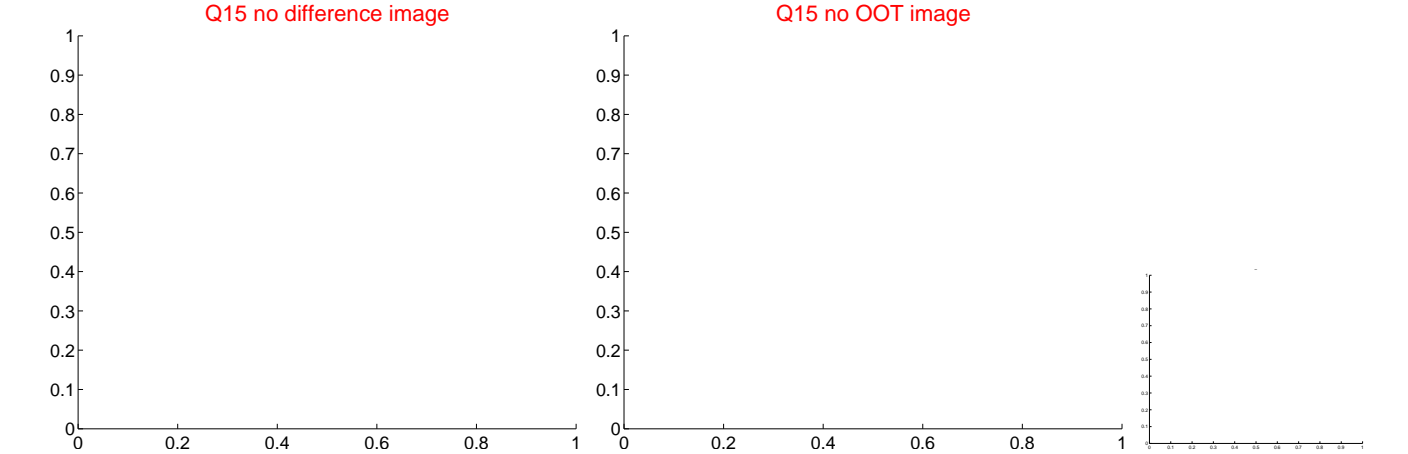
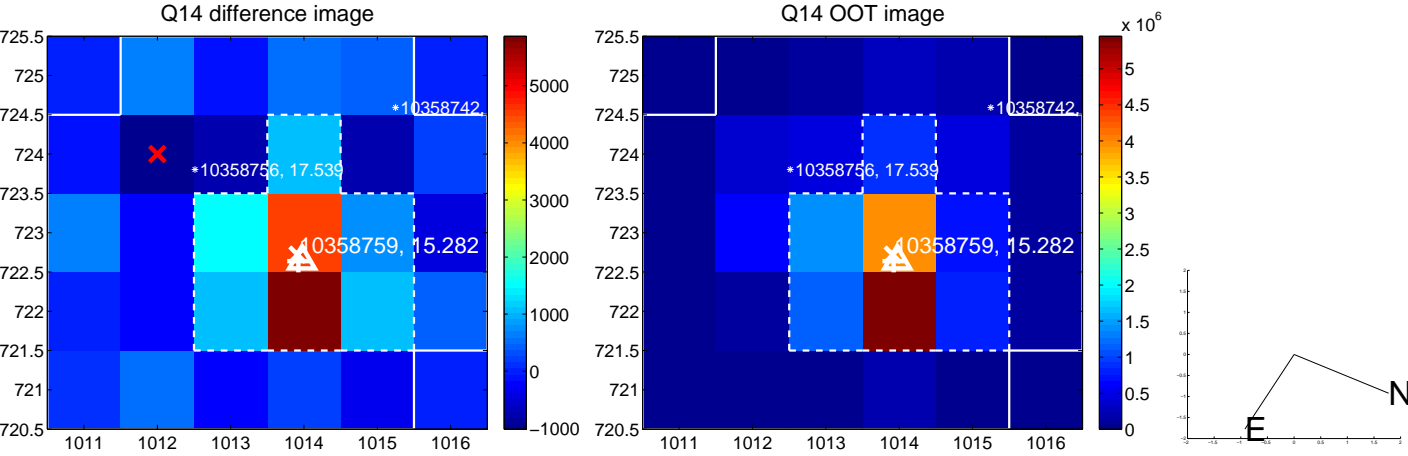
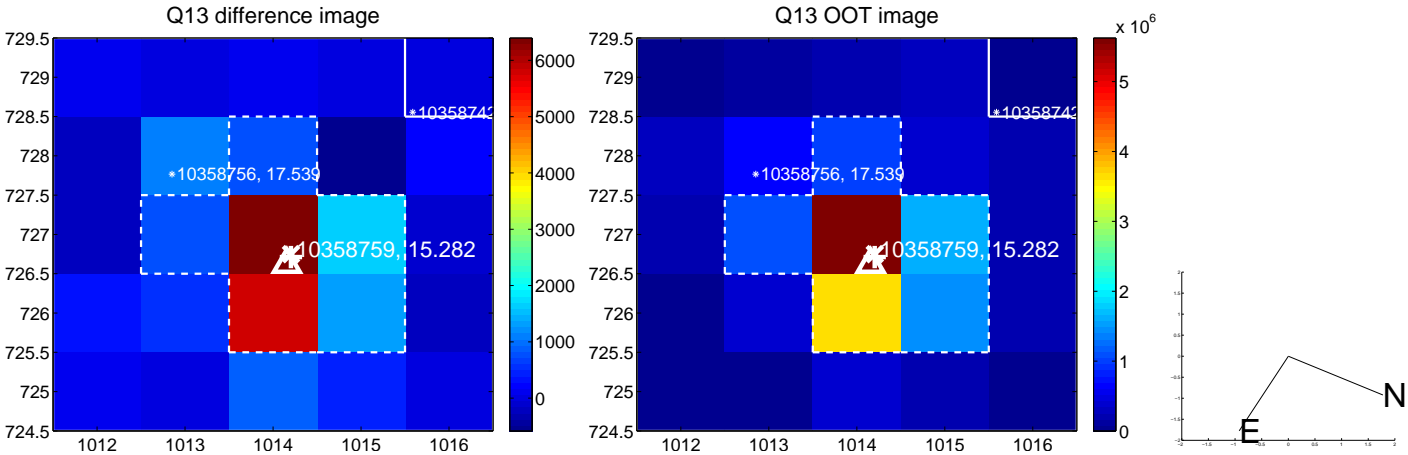
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



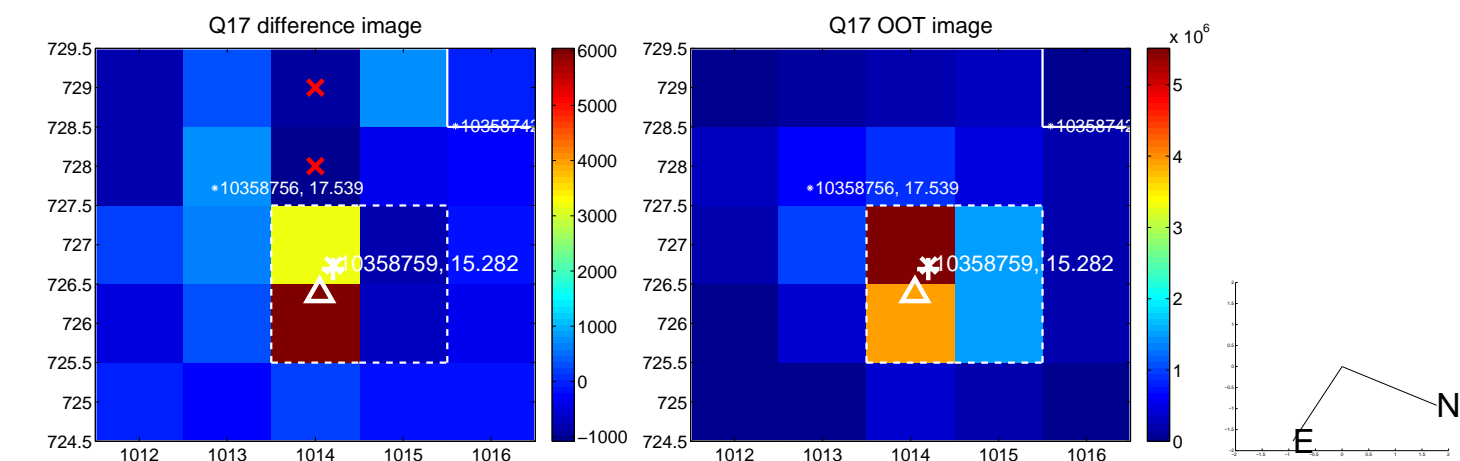
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



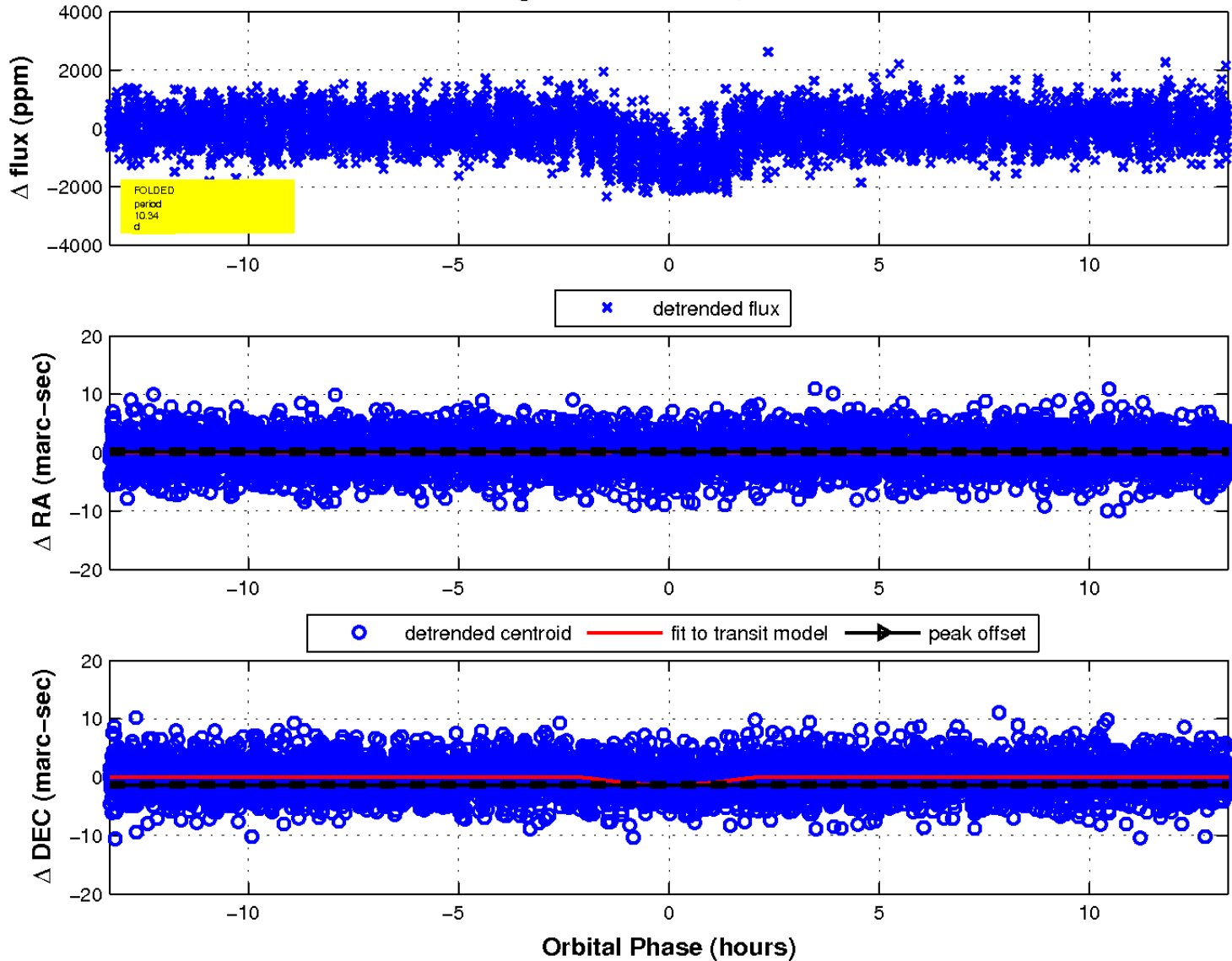
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

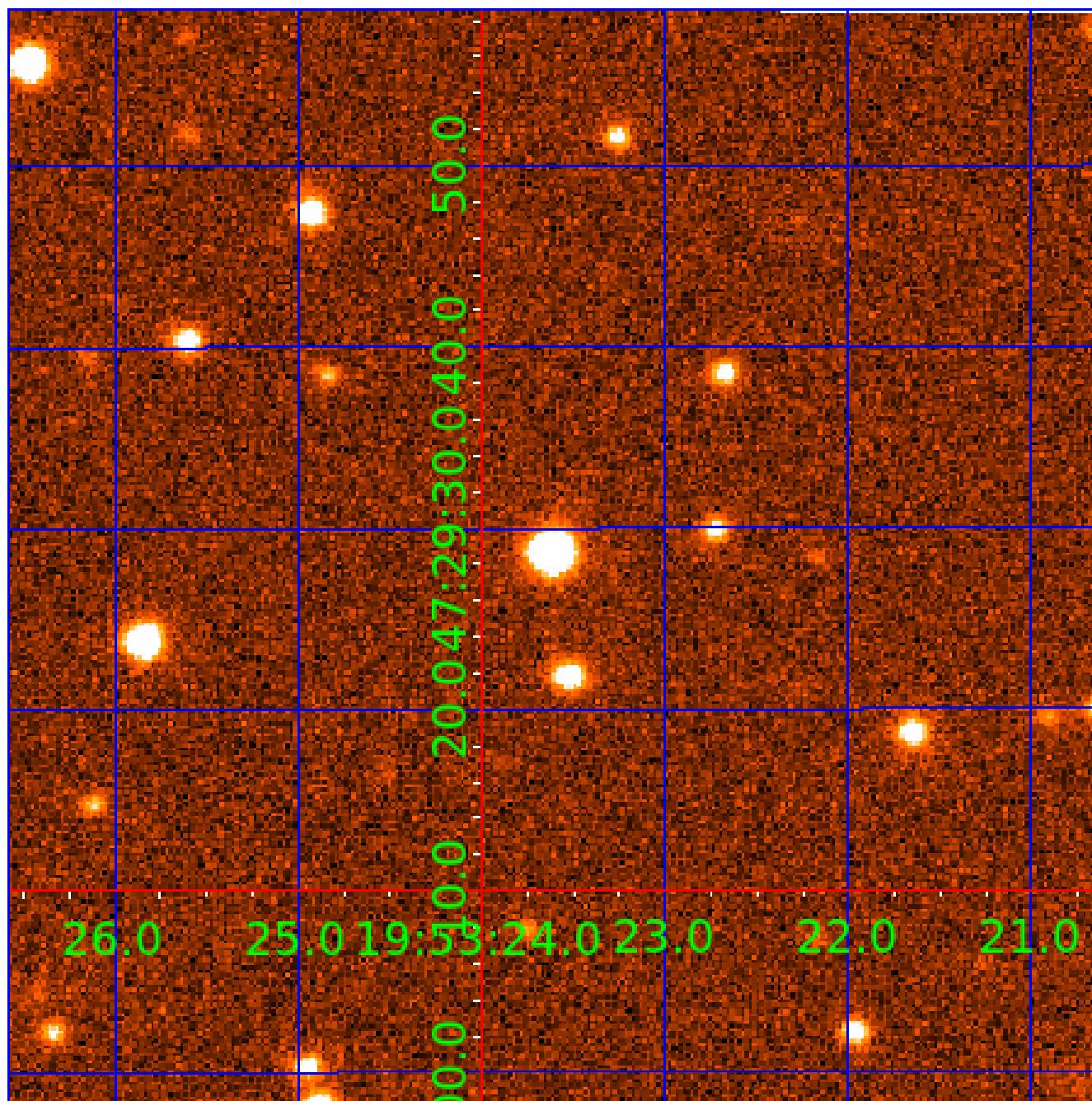


fluxWeightedCentroids, Planet 1 of 2



UKIRT Image

Declination



KIC 010358759

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})
010358759-01	OBS	0738.01	10.339302	139.364672	1150.9	4.433	38.3	42.6	0.87	5730	4.67	86.54
010358759-02	OBS	0738.02	13.286871	132.258107	882.9	5.264	28.1	30.8	0.87	5730	4.20	61.94

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
010358759-01	OBS	PC	1.00	0	0	0	0	NO_COMMENT
010358759-02	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.

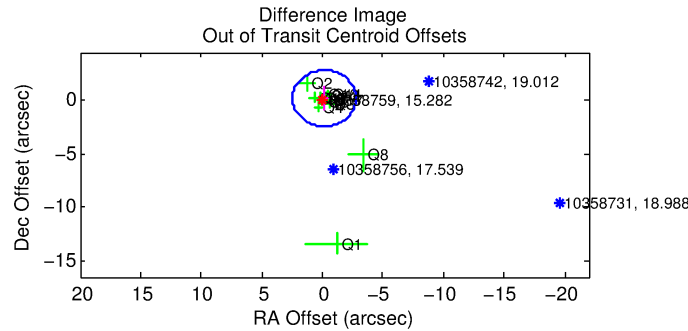
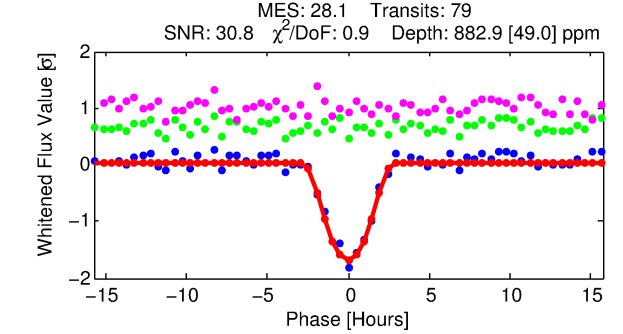
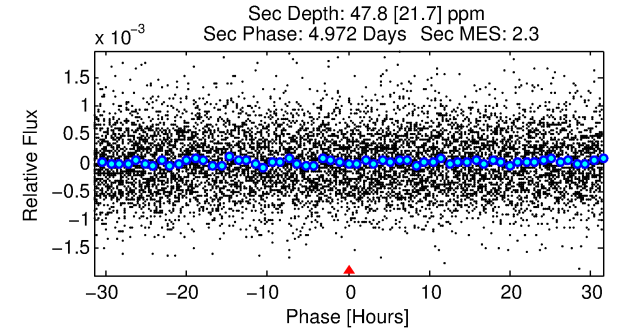
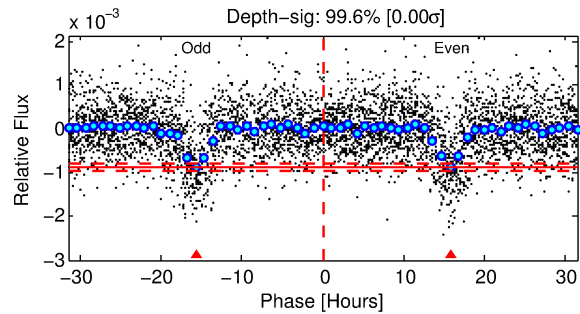
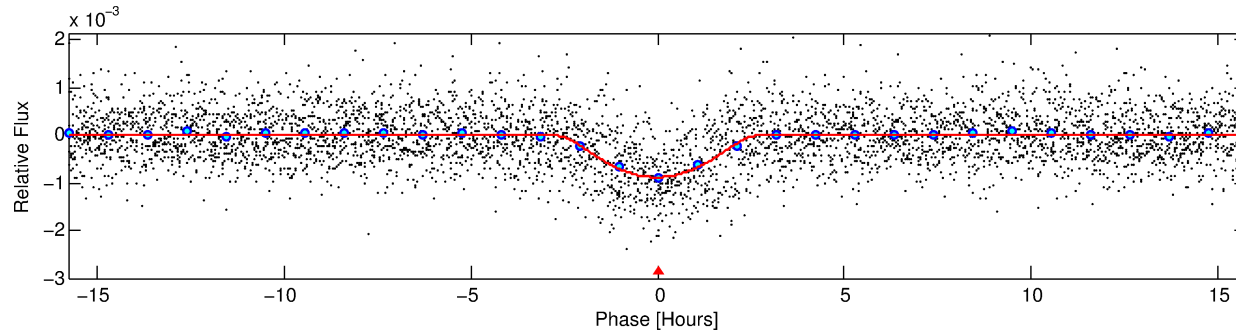
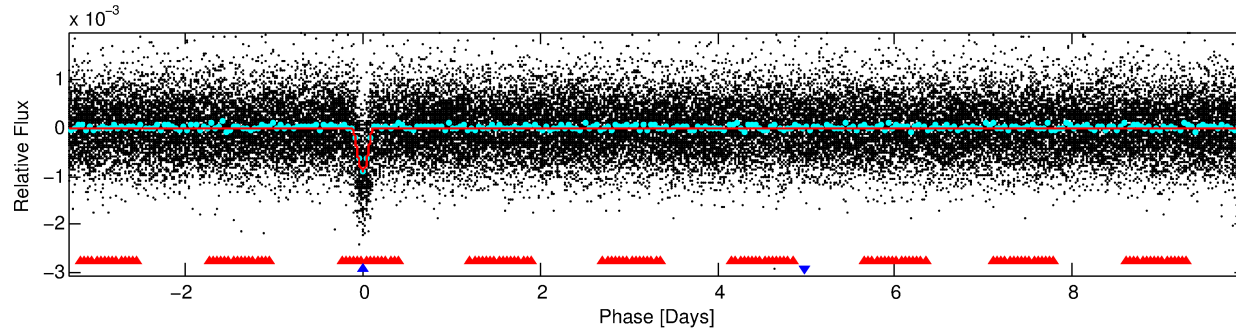
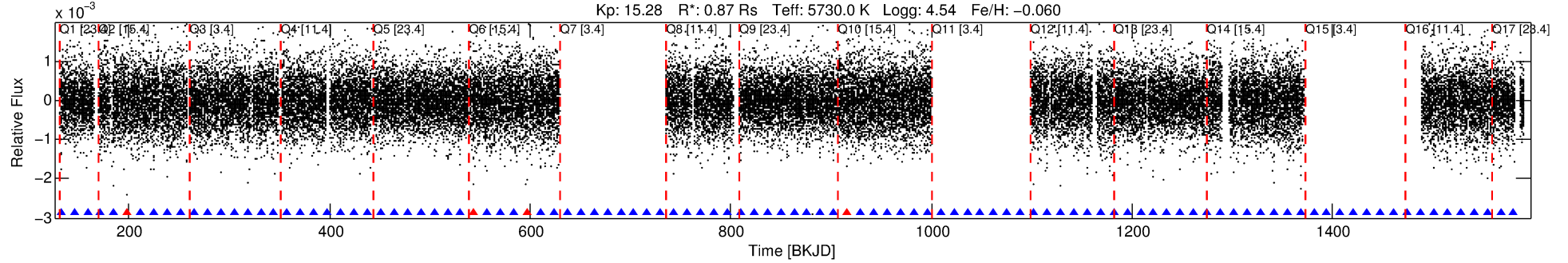
Ephemeris Match Information For 010358759-02

No Significant Match Found

DV One-Page Summary

KIC: 10358759 Candidate: 2 of 2 Period: 13.287 d
KOI: K00738.02 Name: Kepler-29c Corr: 0.909

Kp: 15.28 R*: 0.87 Rs Teff: 5730.0 K Logg: 4.54 Fe/H: -0.060



DV Fit Results:

Period = 13.28687 [0.00007] d
Epoch = 132.2581 [0.0040] BKJD
Rp/R* = 0.0442 [0.0294]
a/R* = 6.76 [1.50]
b = 0.98 [0.05]
Seff = 61.94 [8.31]
Teff = 715 [24] K
Rp = 4.20 [2.81] Re
a = 0.1086 [0.0071] AU
Ag = 17.63 [24.84] [0.67σ]
Teffp = 2266 [798] K [1.94σ]

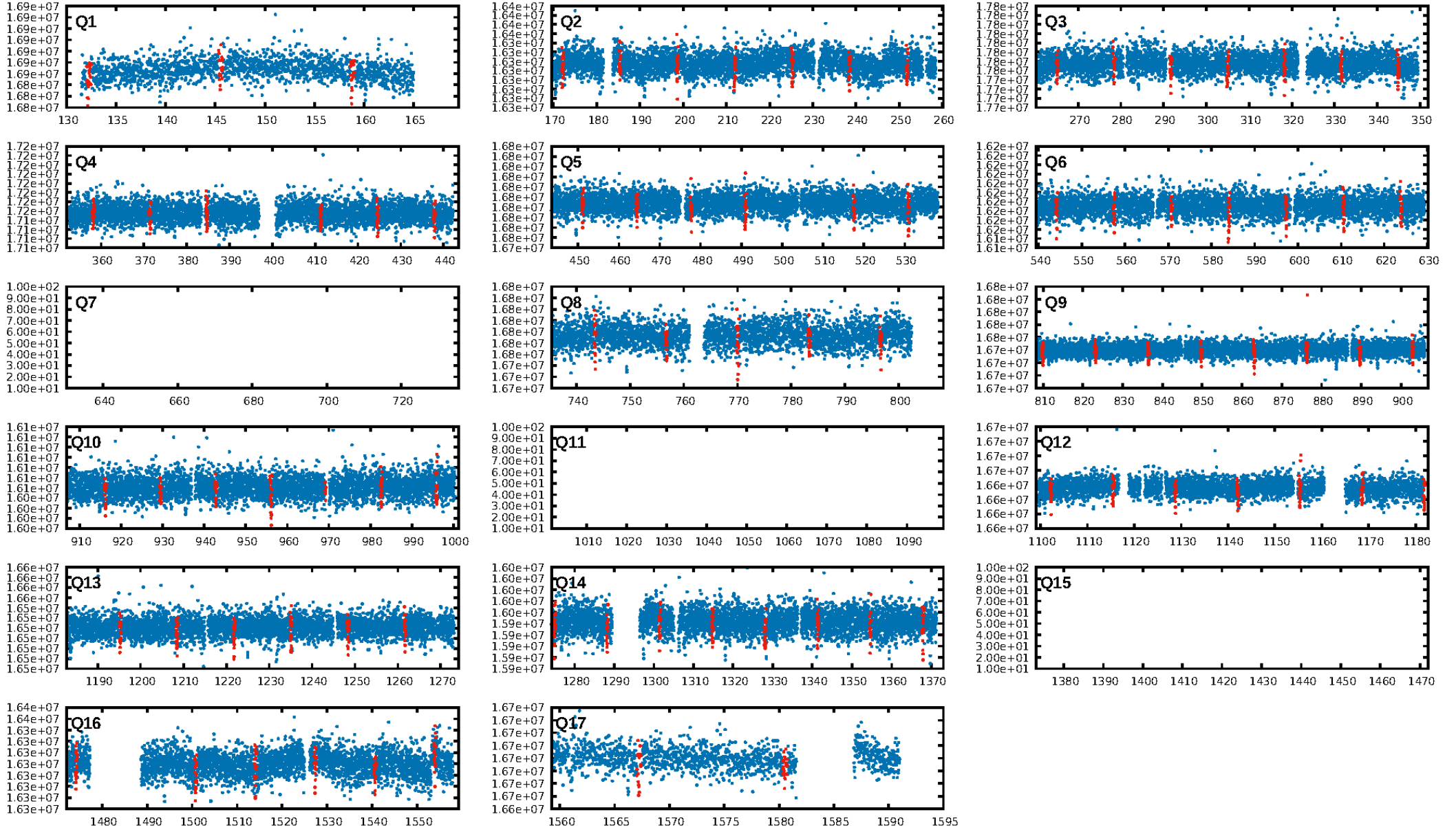
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [10.28σ]
LongPeriod-sig: N/A
ModelChiSquare2-sig: 95.3%
ModelChiSquareGof-sig: 100.0%
Bootstrap-pfa: 4.01e-169
RollingBand-fgt: 0.95 [70/74]
GhostDiagnostic-chr: 3.4
Centroid-sig: 0.0%
Centroid-so: 0.909 arcsec [2.15σ]
OotOffset-rm: 0.237 arcsec [0.27σ]
KicOffset-rm: 0.306 arcsec [0.29σ]
OotOffset-st: 4/1/4/5 [14]
KicOffset-st: 4/1/4/5 [14]
DiffImageQuality-fgm: 0.86 [12/14]
DiffImageOverlap-fno: 1.00 [14/14]

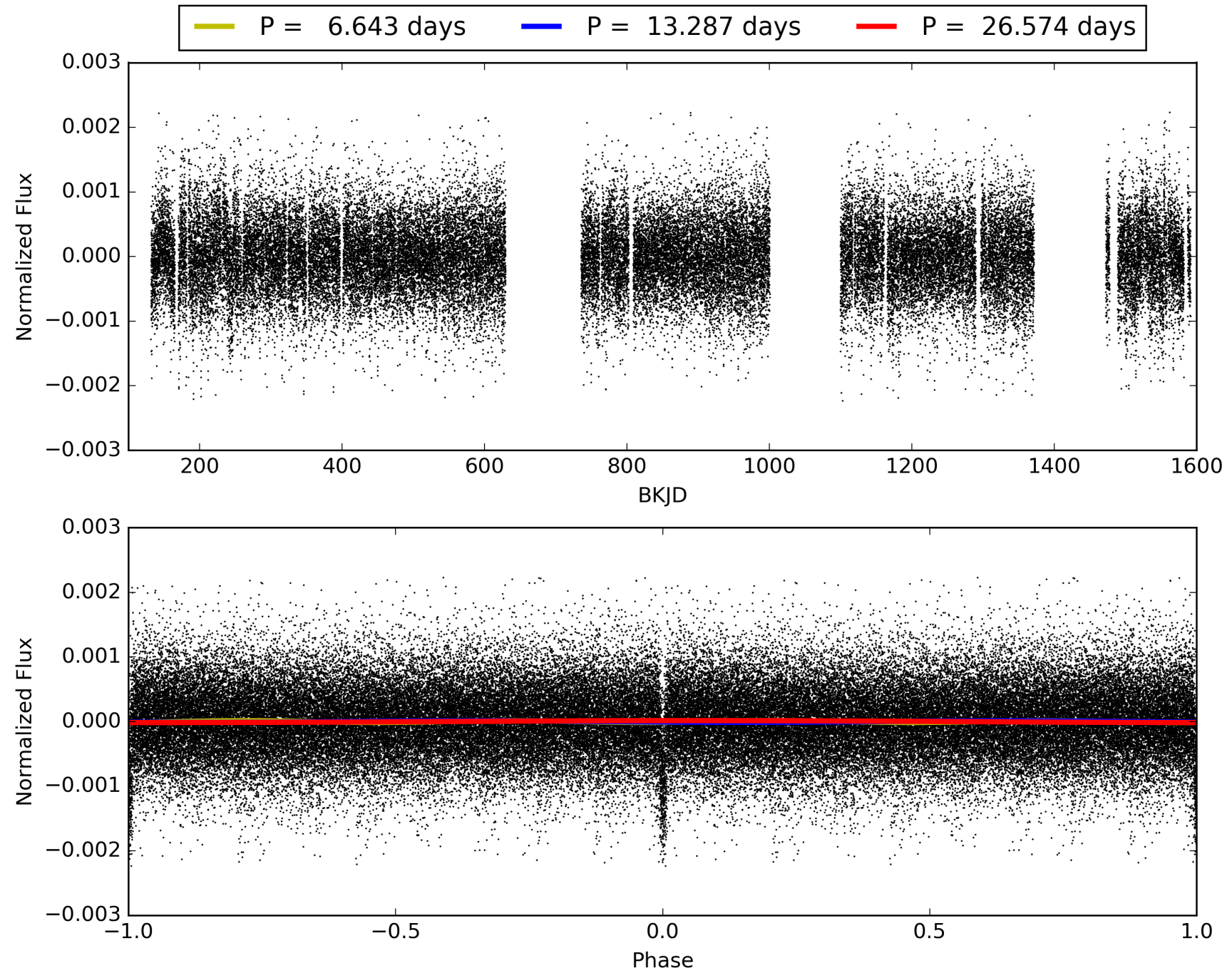
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 31-Jan-2016 15:23:57 Z

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

TCE 010358759-02, PDC Light Curves

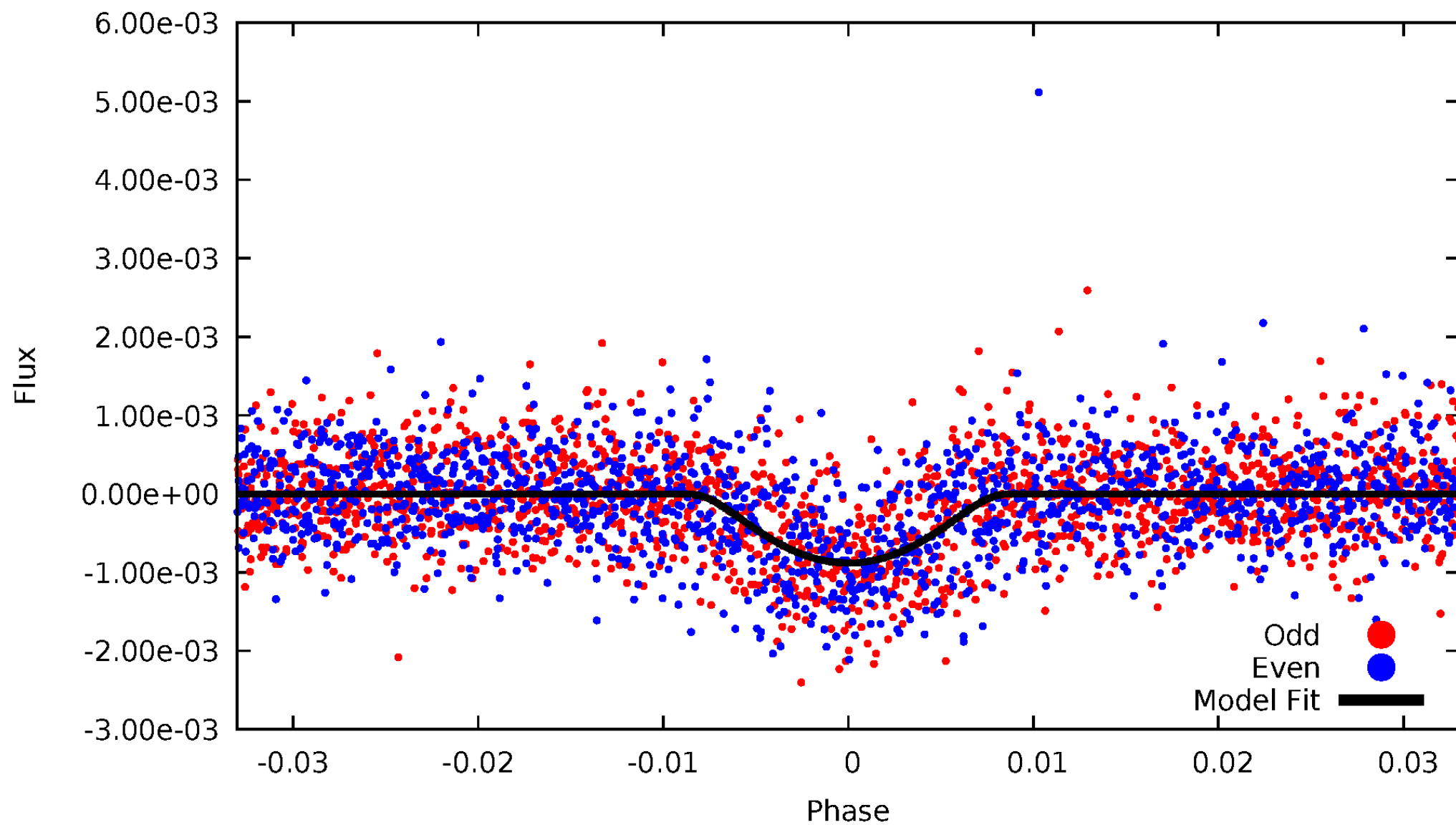


TCE 010358759-02



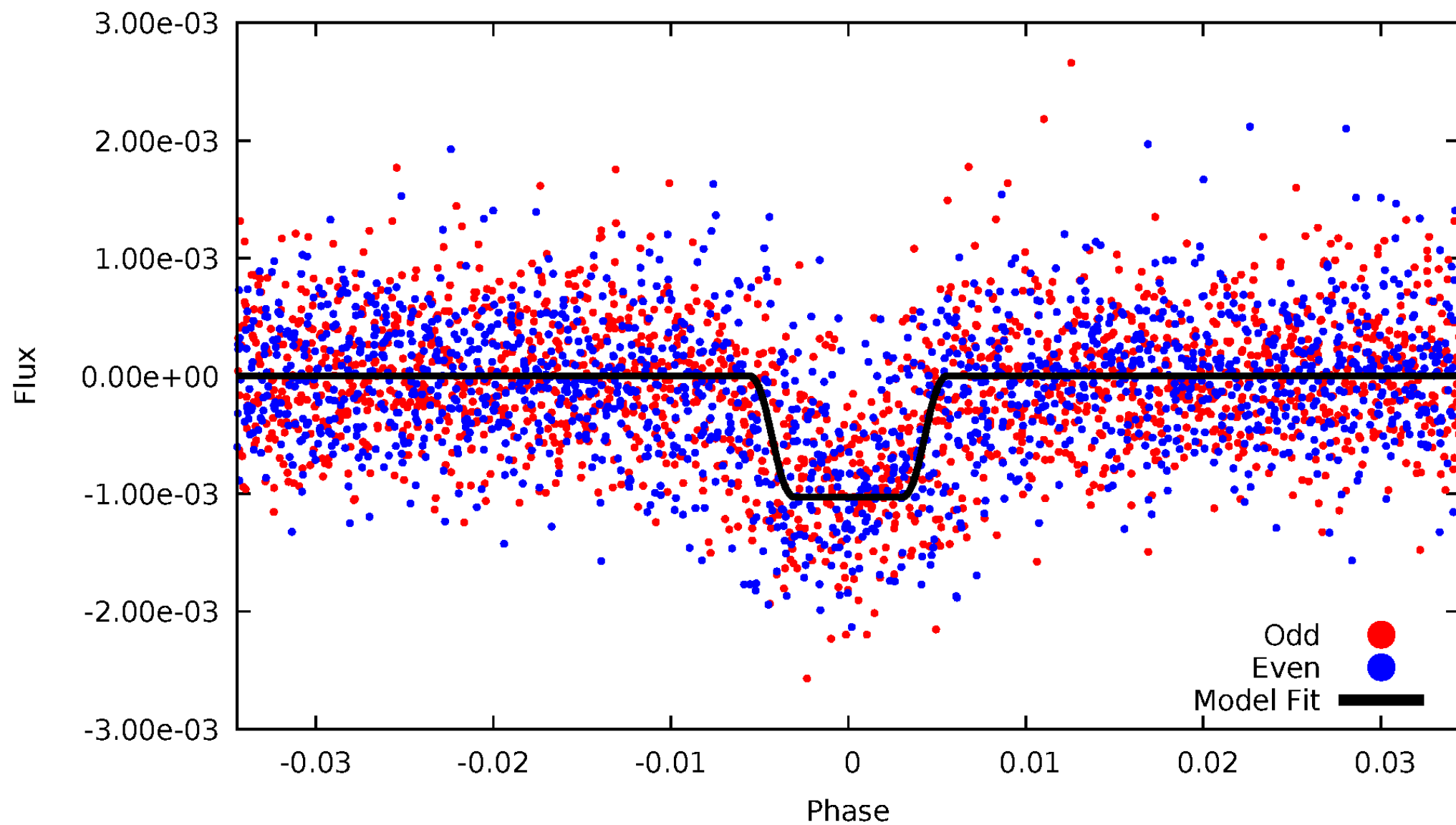
DV Odd/Even

TCE 010358759-02



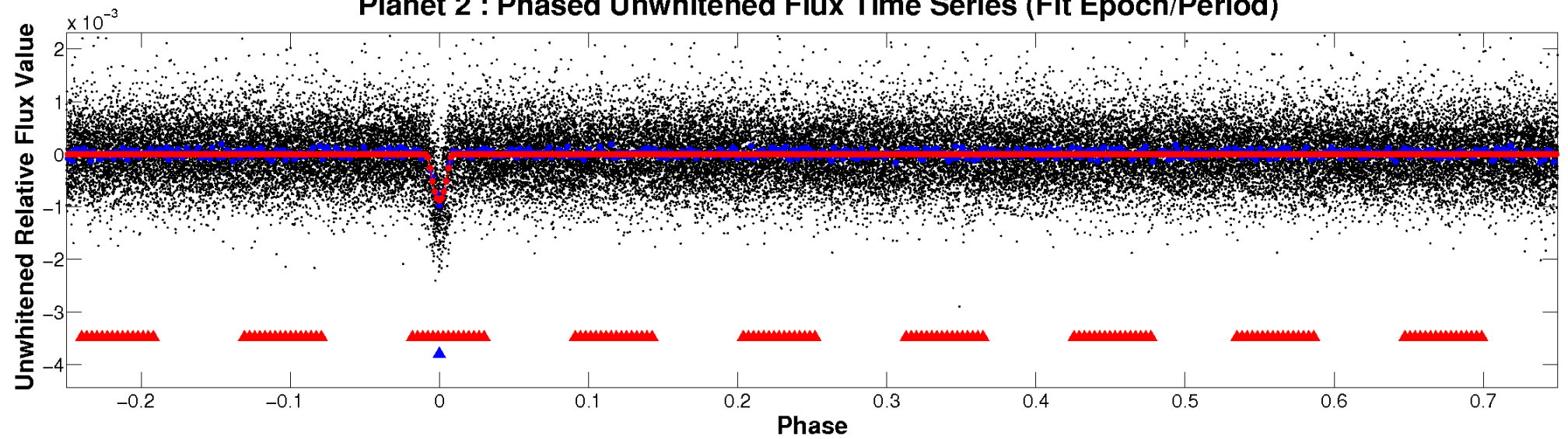
ALT Odd/Even

TCE 010358759-02

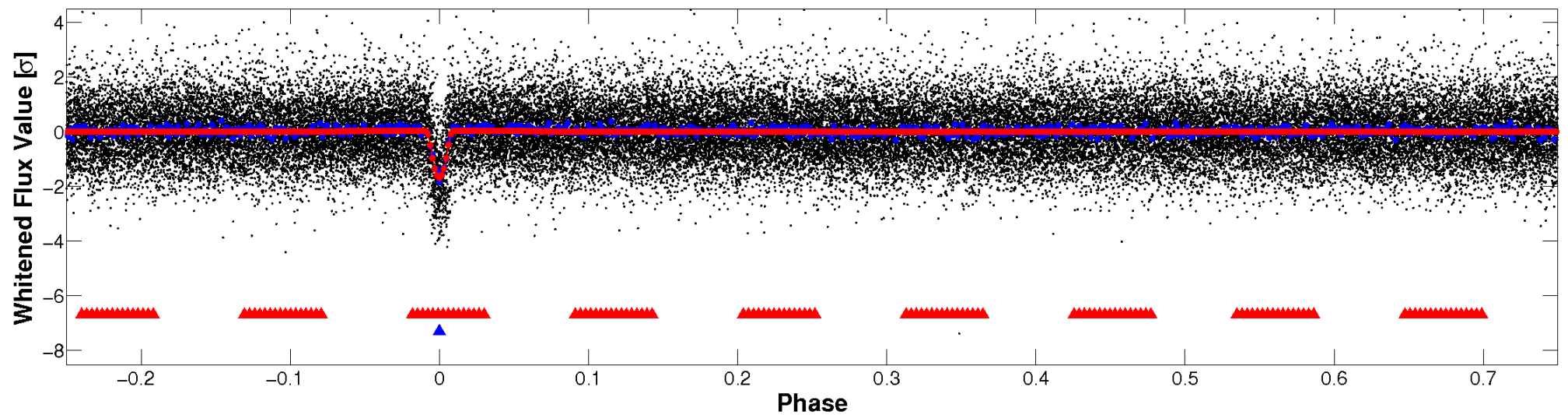


Non-Whitened Vs. Whitened Light Curve

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

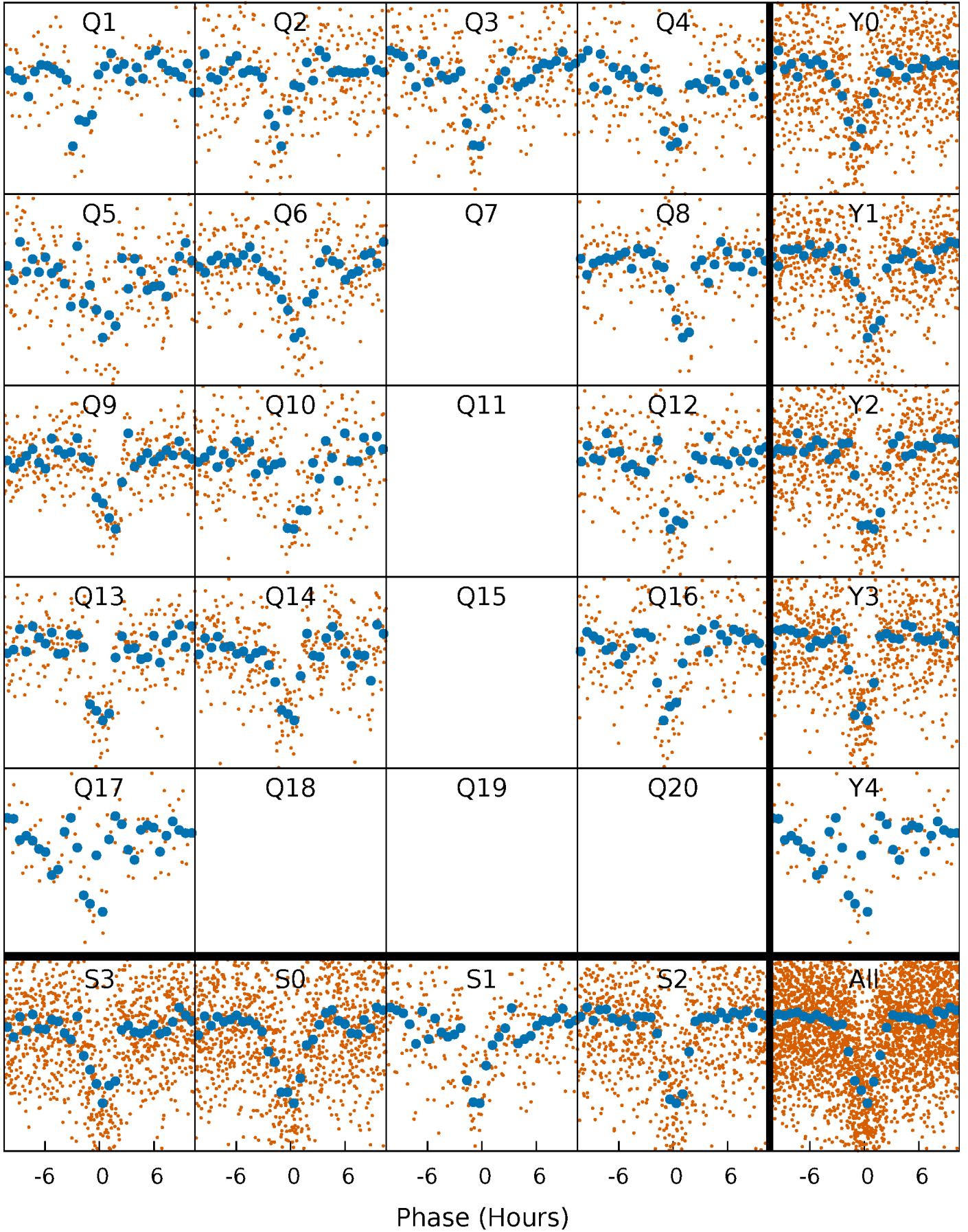


Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



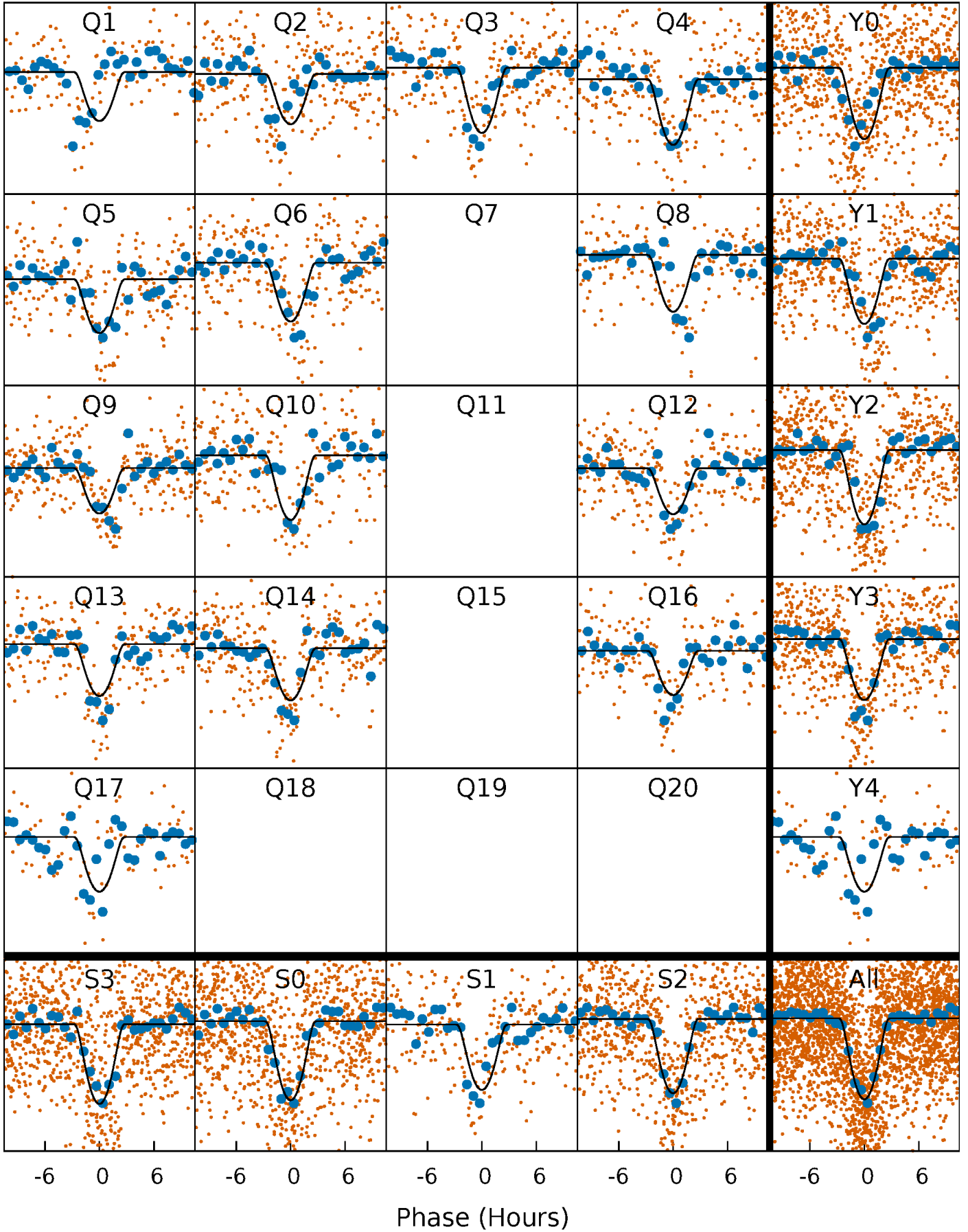
PDC Quarter-Phased Transit Curves

TCE 010358759-02 P= 13.286871 Days $T_0=132.258107$ (BKJD)



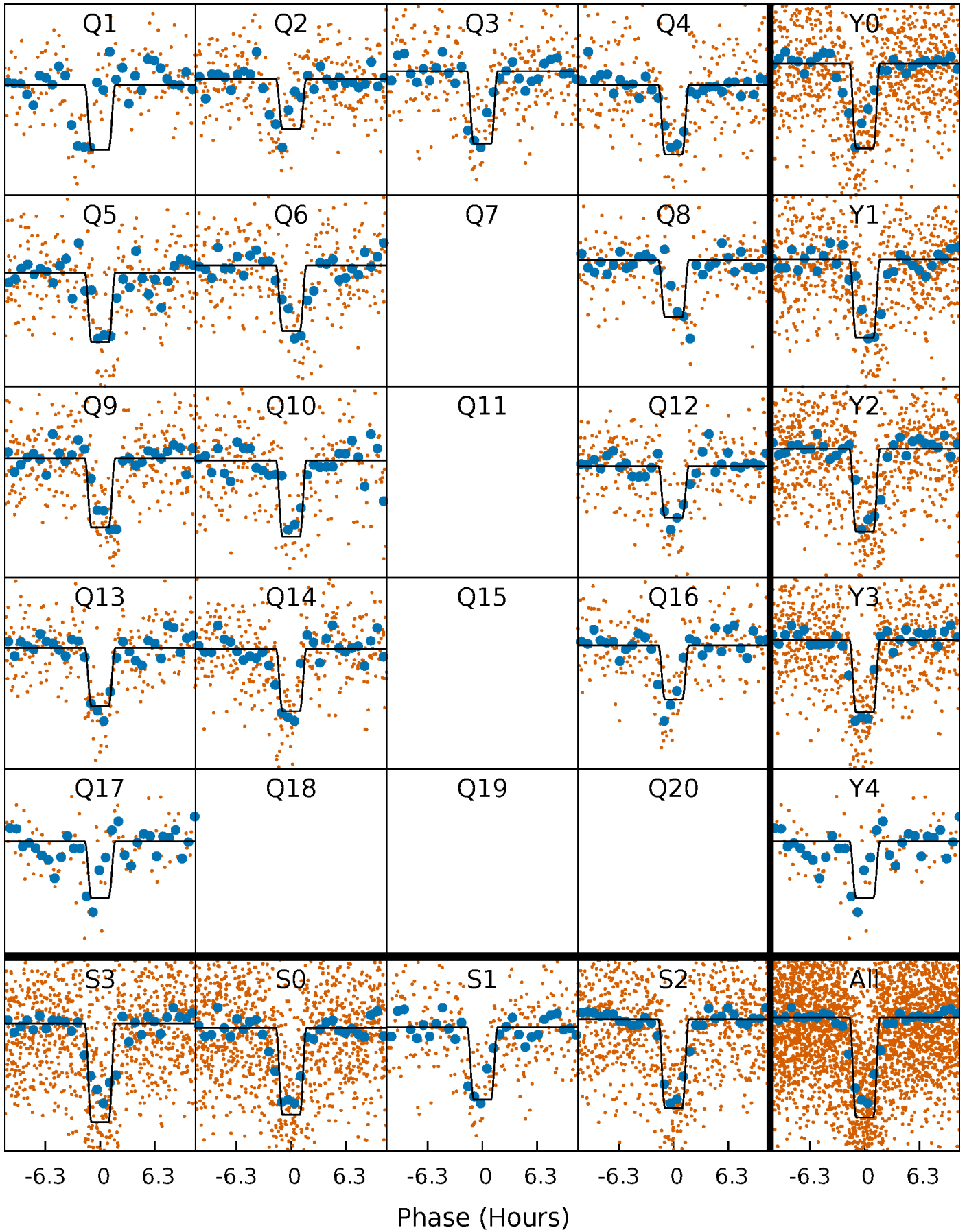
DV Quarter-Phased Transit Curves

TCE 010358759-02 P= 13.286871 Days $T_0=132.258107$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

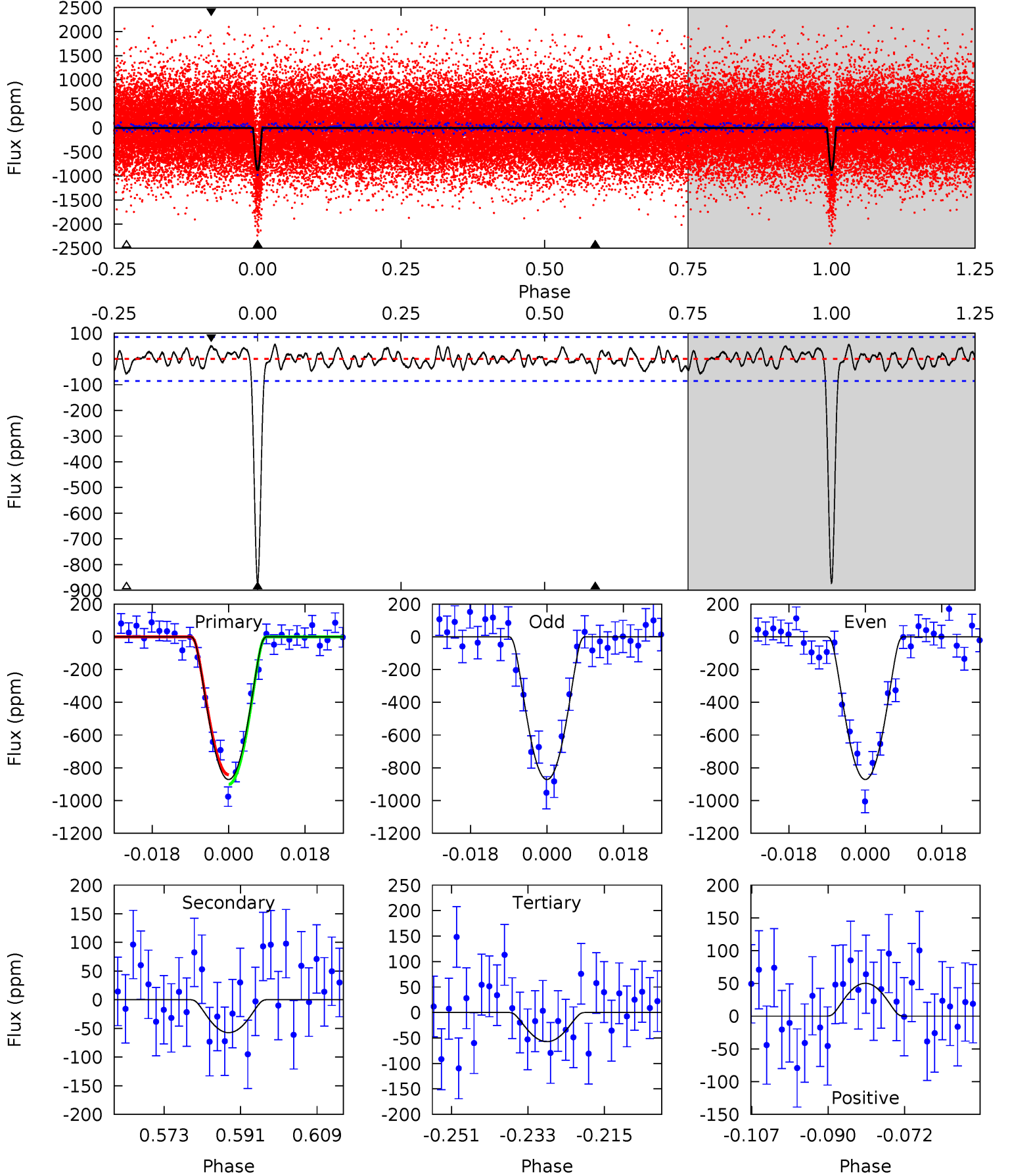
TCE 010358759-02 P= 13.286975 Days $T_0=132.254820$ (BKJD)



DV Model-Shift Uniqueness Test

010358759-02, P = 13.286871 Days, E = 118.971236 Days

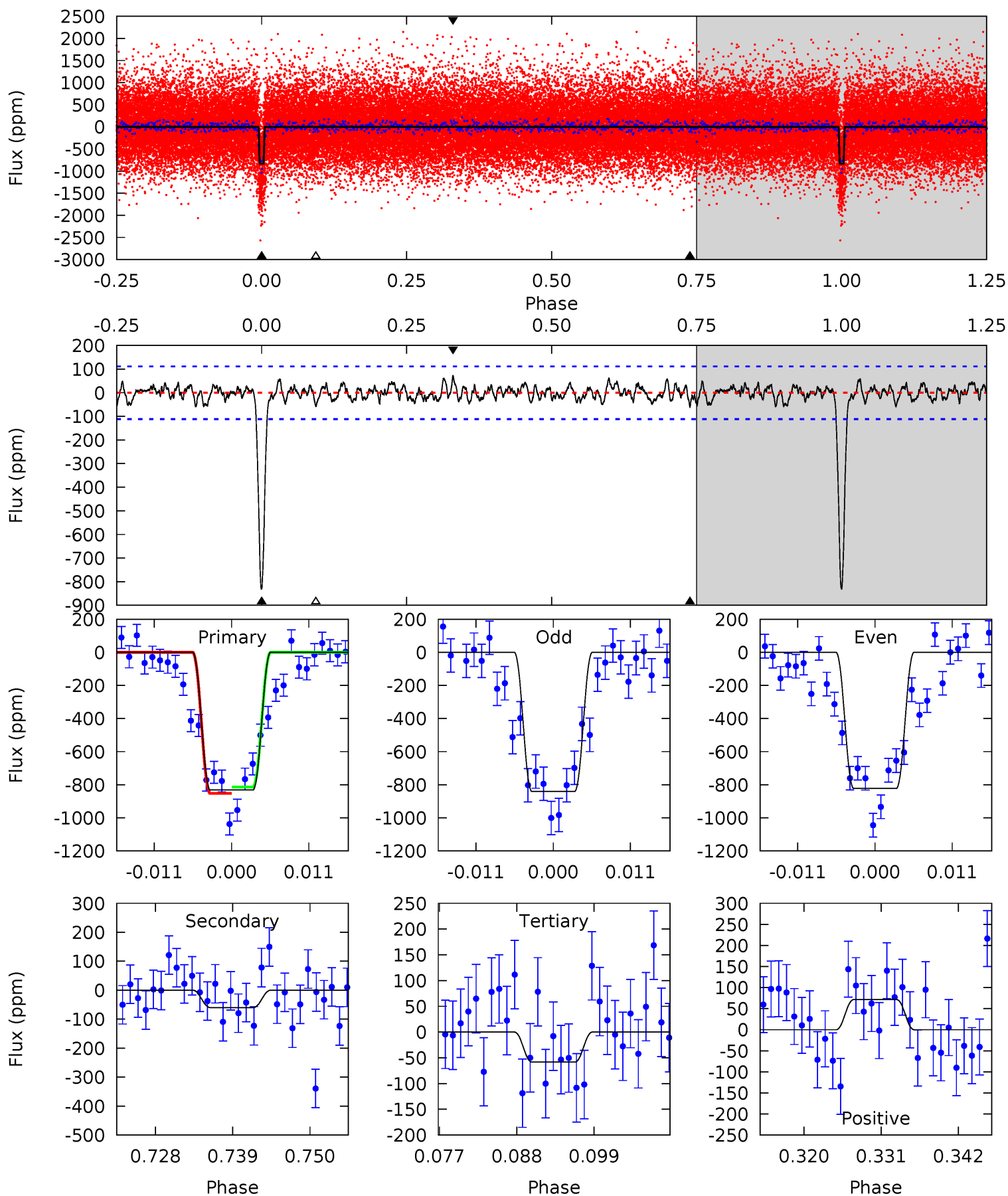
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
50.0	3.29	3.28	2.87	4.91	2.37	1.29	46.7	47.1	0.01	0.42	0.01	0.93	0.06	1.69



Alt Model-Shift Uniqueness Test

010358759-02, P = 13.286975 Days, E = 118.967845 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
37.4	2.69	2.62	3.22	5.01	2.54	1.06	34.8	34.2	0.07	-0.52	0.42	0.98	0.08	0.86



Stellar Parameters For KIC 010358759

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	5730^{+90}_{-136}	$4.545^{+0.021}_{-0.052}$	$-0.060^{+0.150}_{-0.150}$	$0.870^{+0.067}_{-0.042}$	$0.968^{+0.046}_{-0.069}$	$2.069^{+0.228}_{-0.365}$
	+2%/-2%	+0%/-1%	+250%/-250%	+8%/-5%	+5%/-7%	+11%/-18%
Source	SPE34	SPE34	SPE34	DSEP		

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

Secondary Eclipse Parameters for KIC 010358759-02 / KOI 0738.02

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-57 ± 17	$4.27^{+2.97}_{-2.50}$	1004^{+24}_{-24}	3018^{+855}_{-425}	21^{+83}_{-14}
Alt.	-60 ± 22	$3.51^{+2.89}_{-2.14}$	1003^{+23}_{-25}	3186^{+1197}_{-506}	29^{+168}_{-21}

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

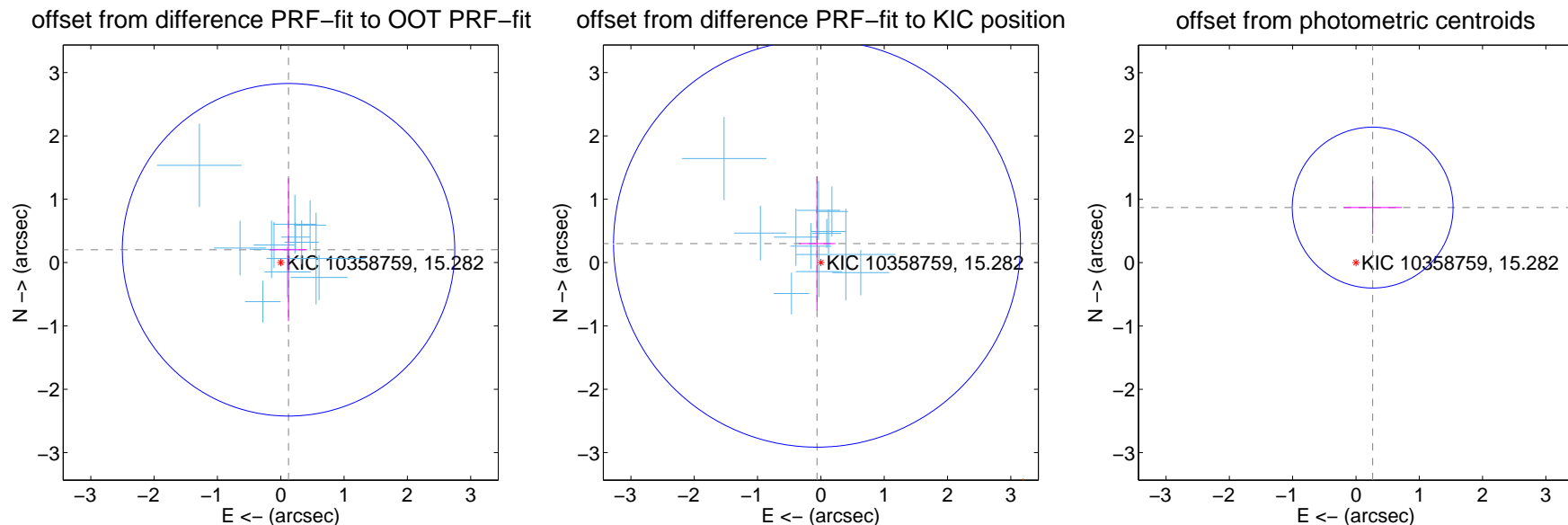
DV Centroid Data

Supplemental centroid analysis for 010358759-02. Kepler magnitude: 15.28. Transit SNR 30.77

There are 12 quarters with good PRF difference image offsets

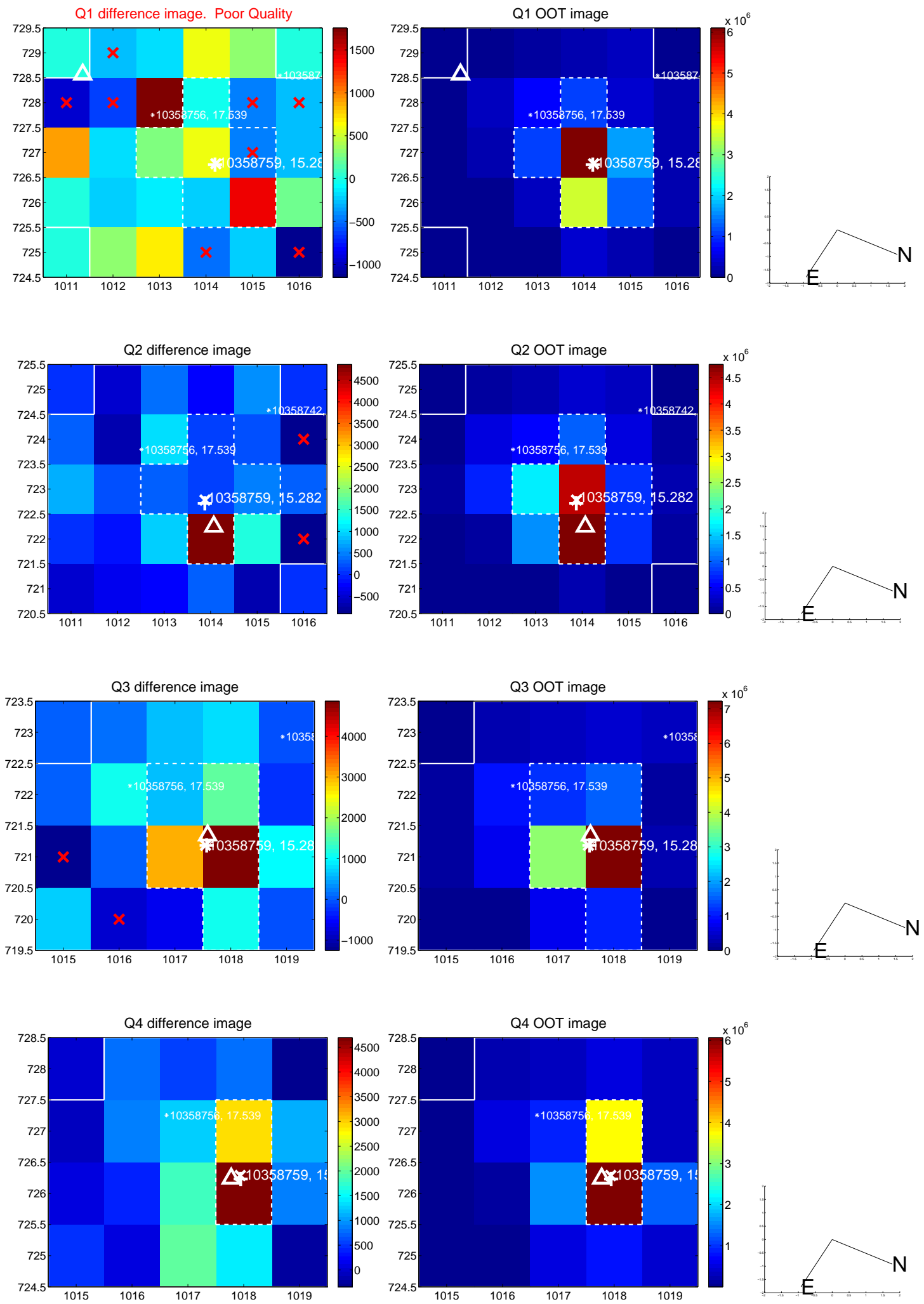
The direct PRF centroid is offset from the target star catalog position by about 0.18 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.237 ± 0.875	0.27	-0.123 ± 0.293	0.203 ± 1.127
PRF-fit source offset from KIC position	0.306 ± 1.071	0.29	0.061 ± 0.287	0.300 ± 1.057
photometric centroid source offset	0.91 ± 0.42	2.15	-0.26 ± 0.46	0.87 ± 0.42

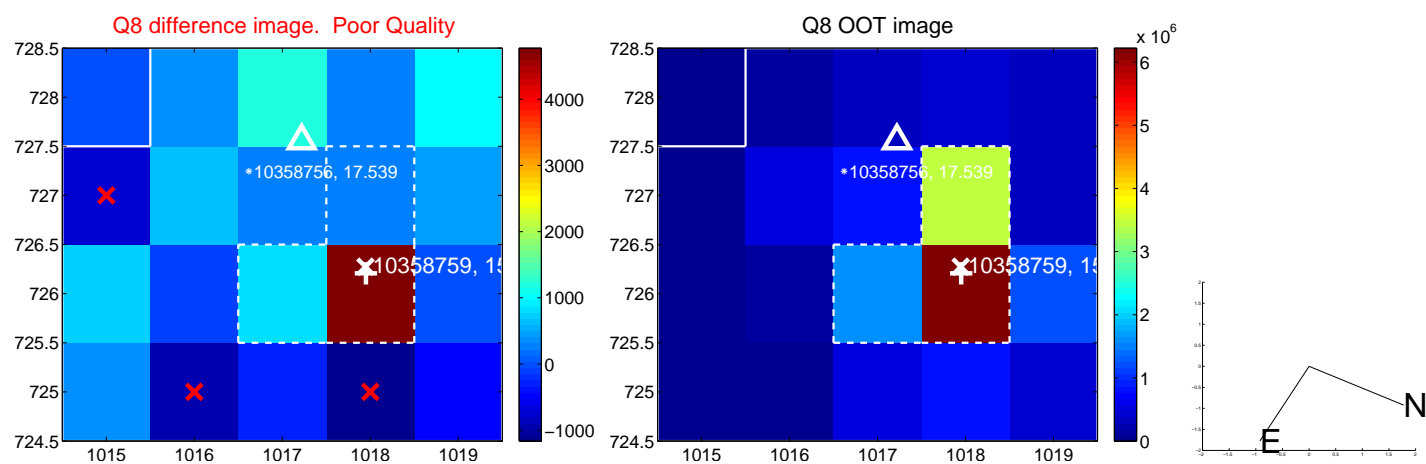
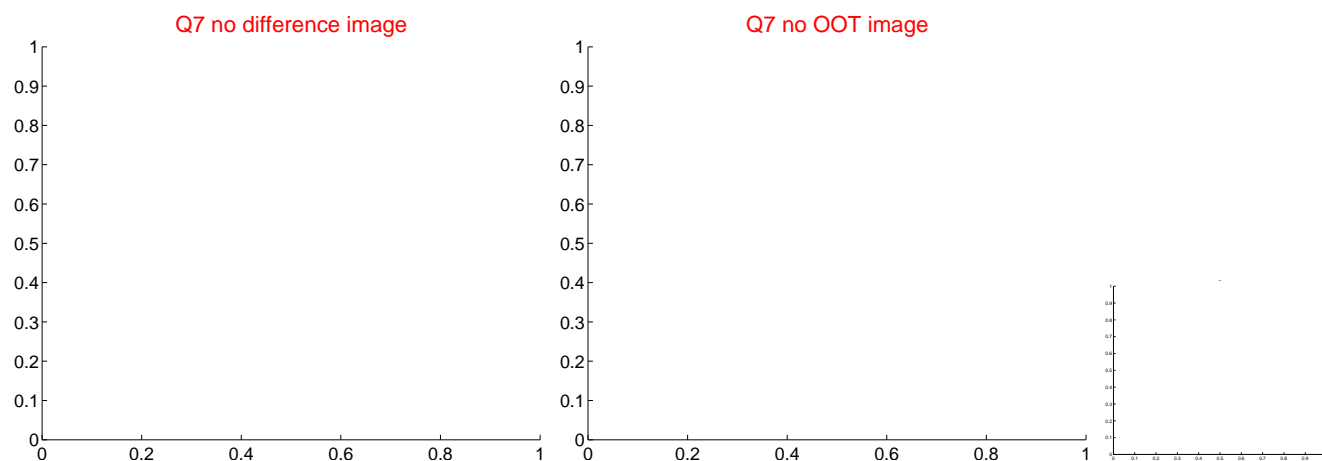
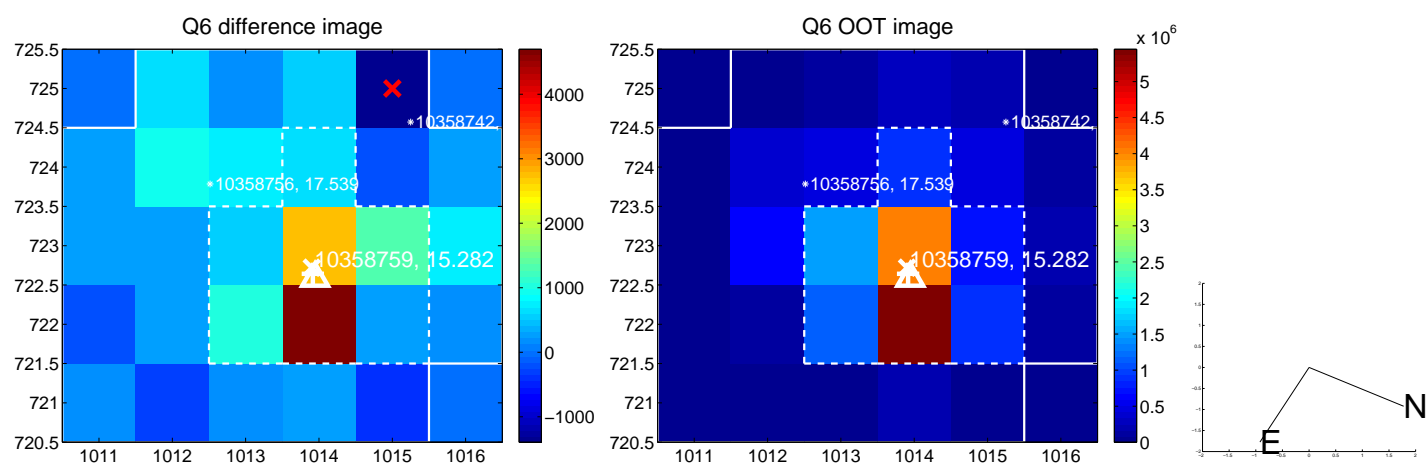
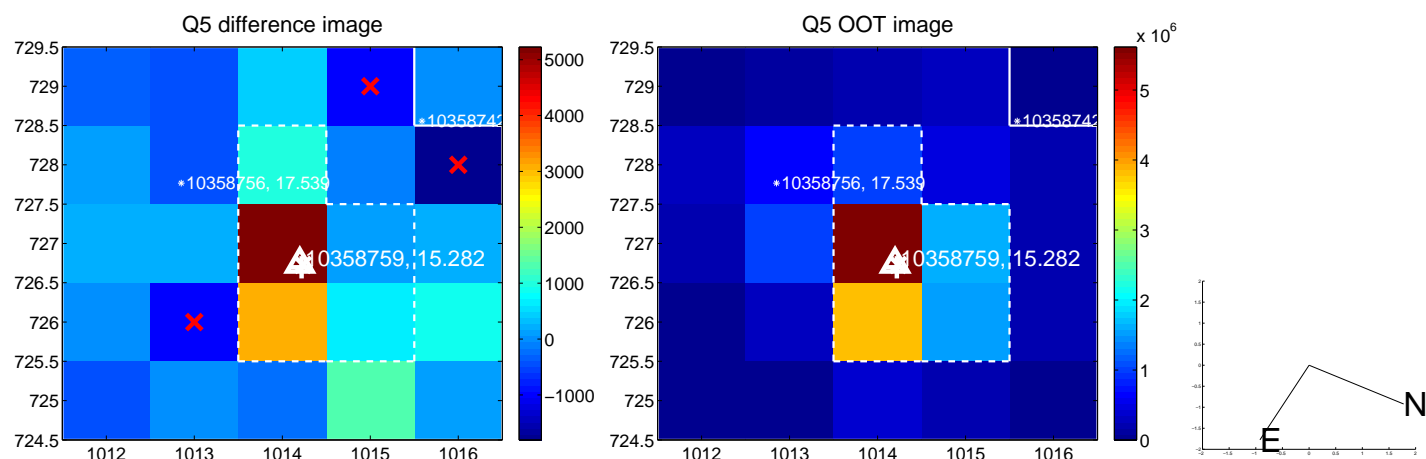


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses:** good quarterly centroid offsets; **Vermillion crosses:** bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

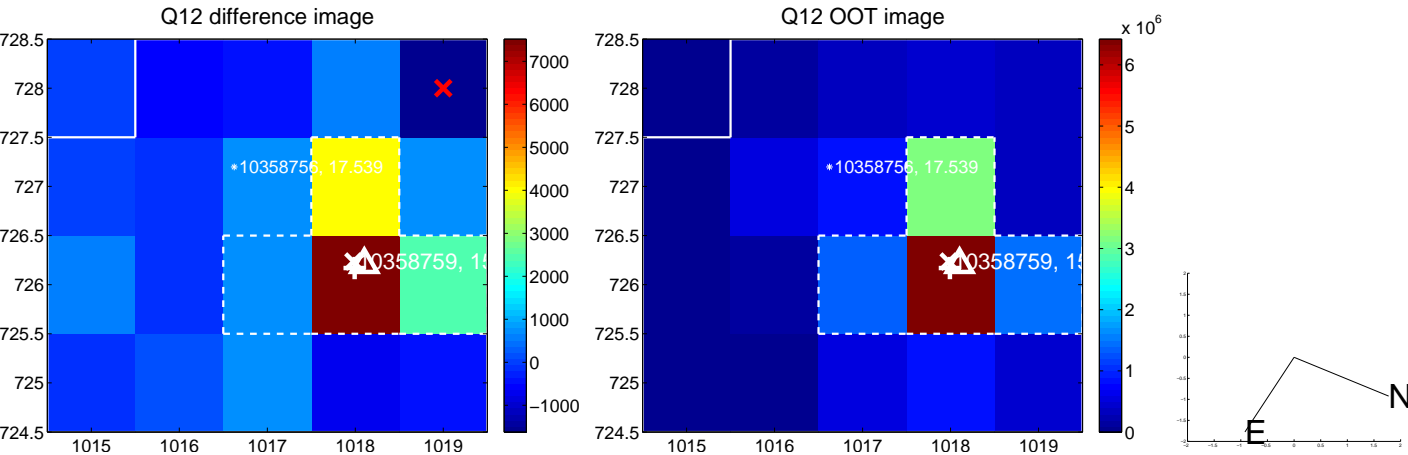
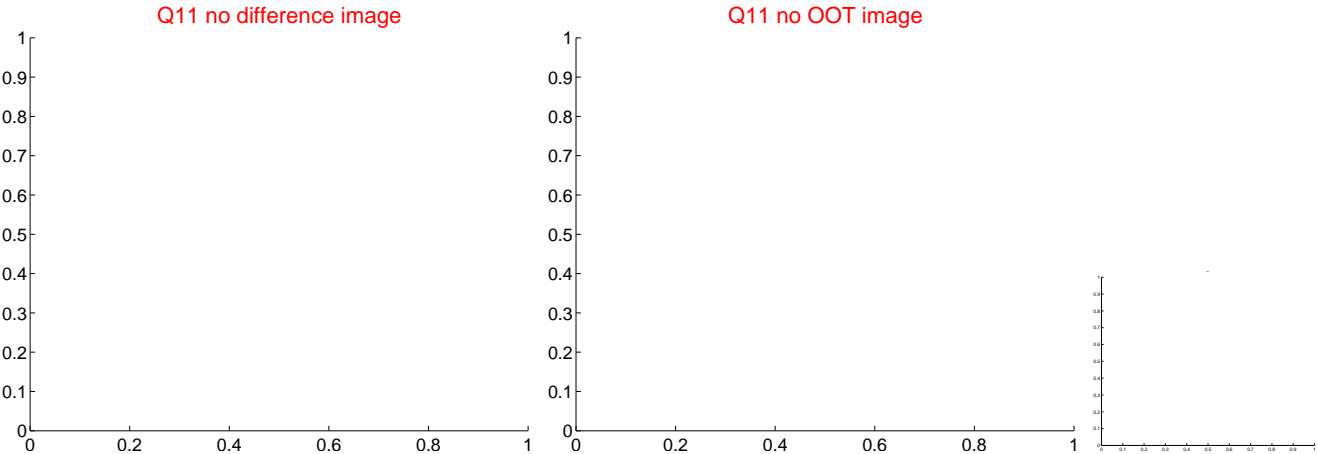
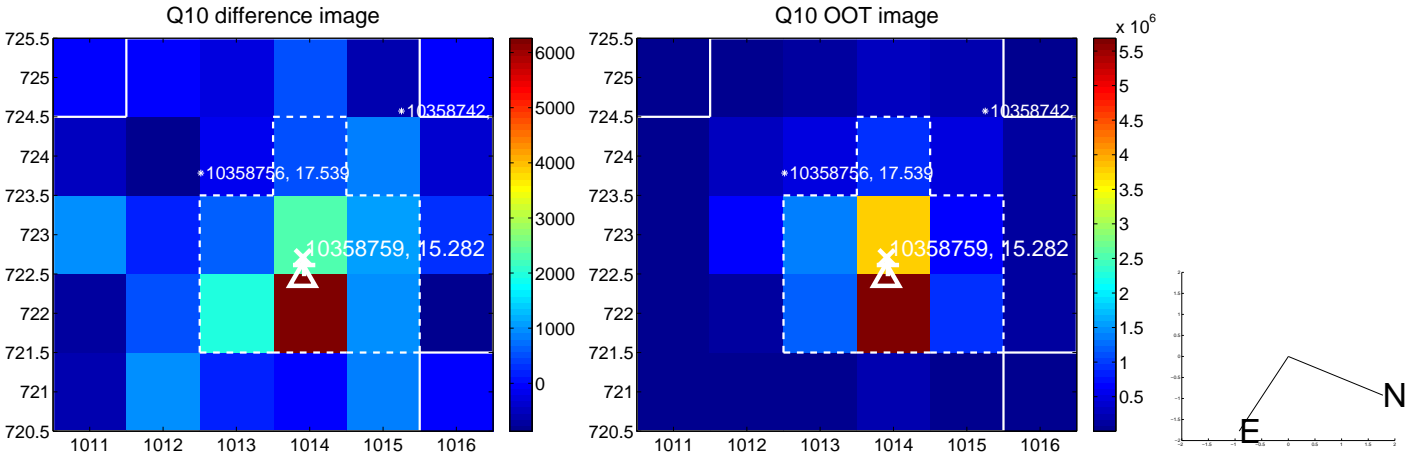
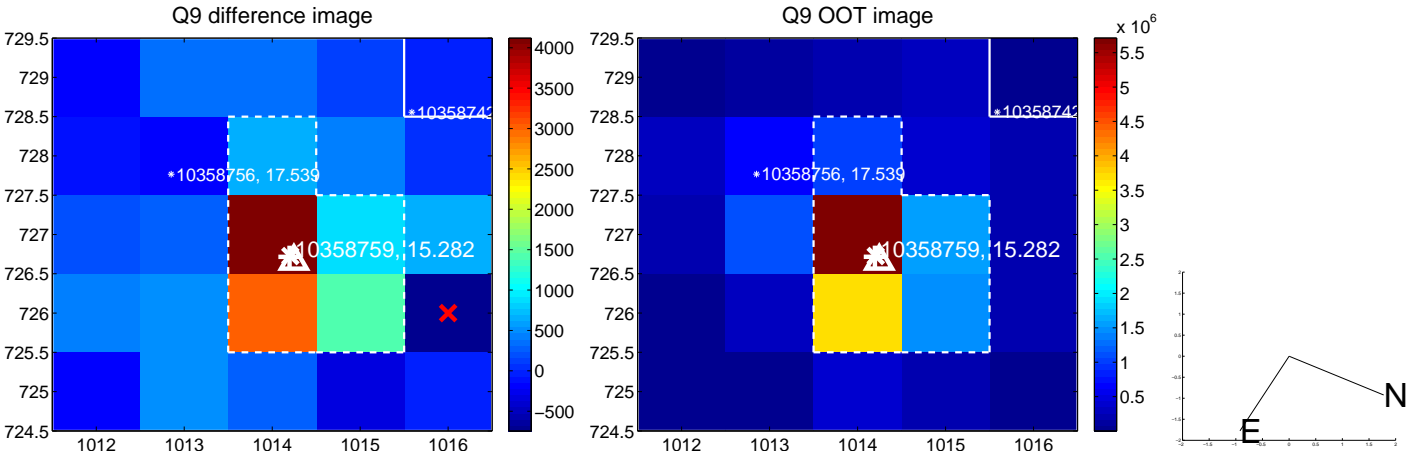
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



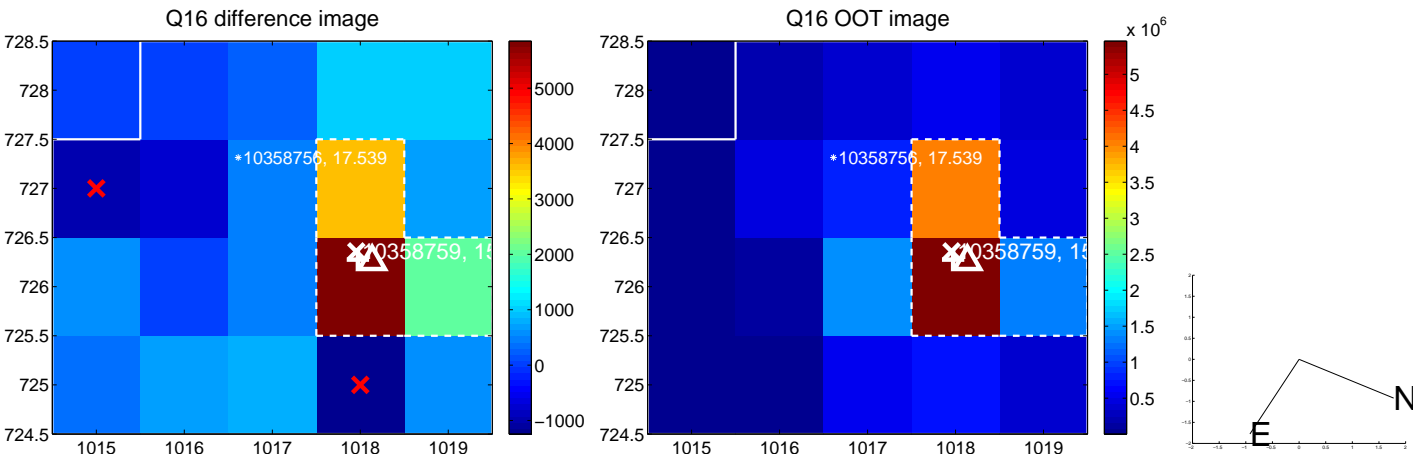
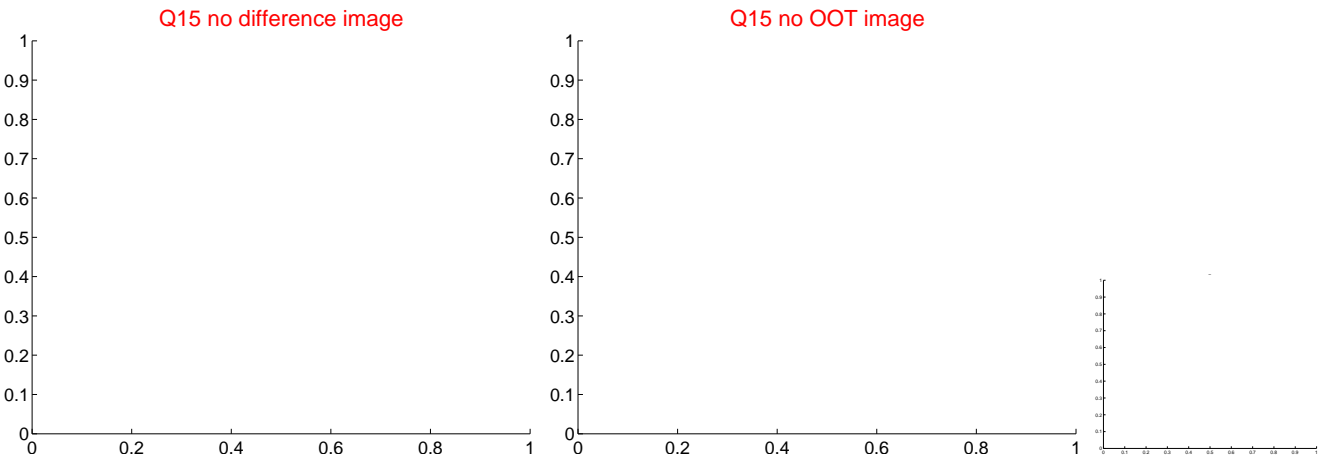
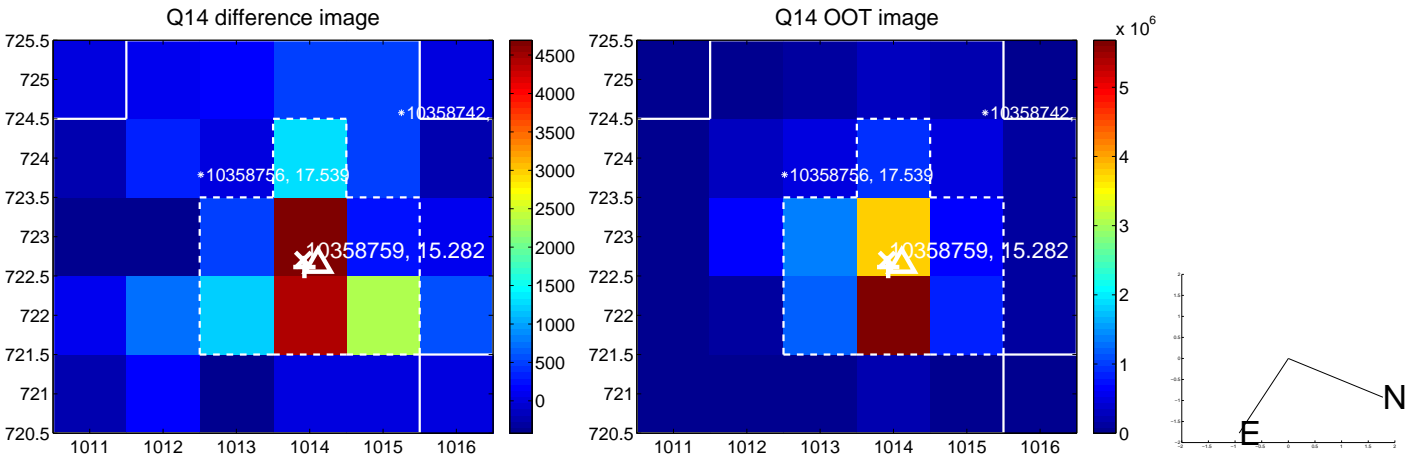
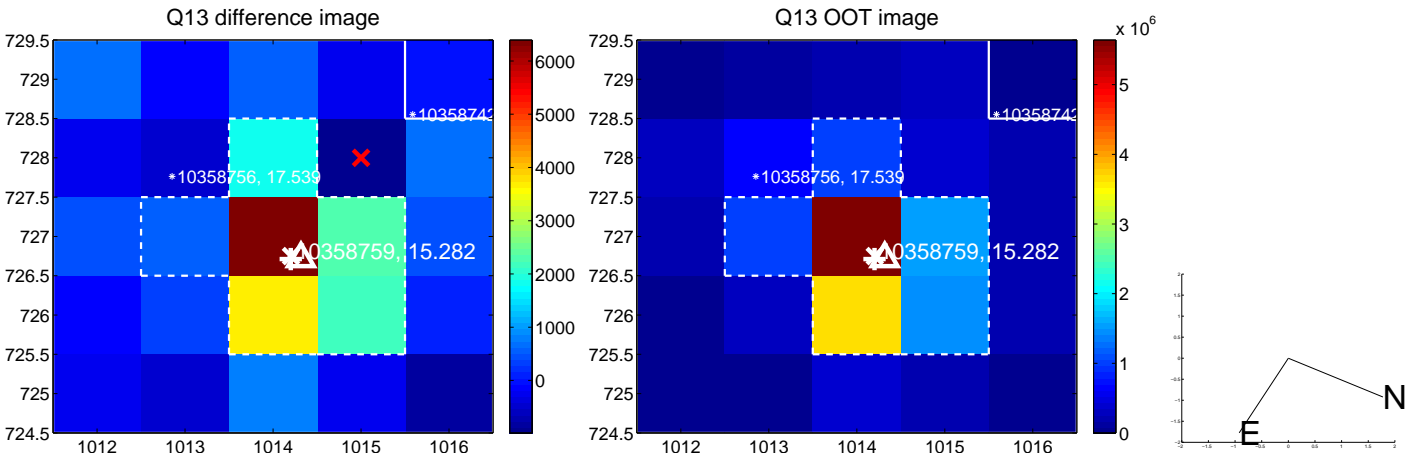
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



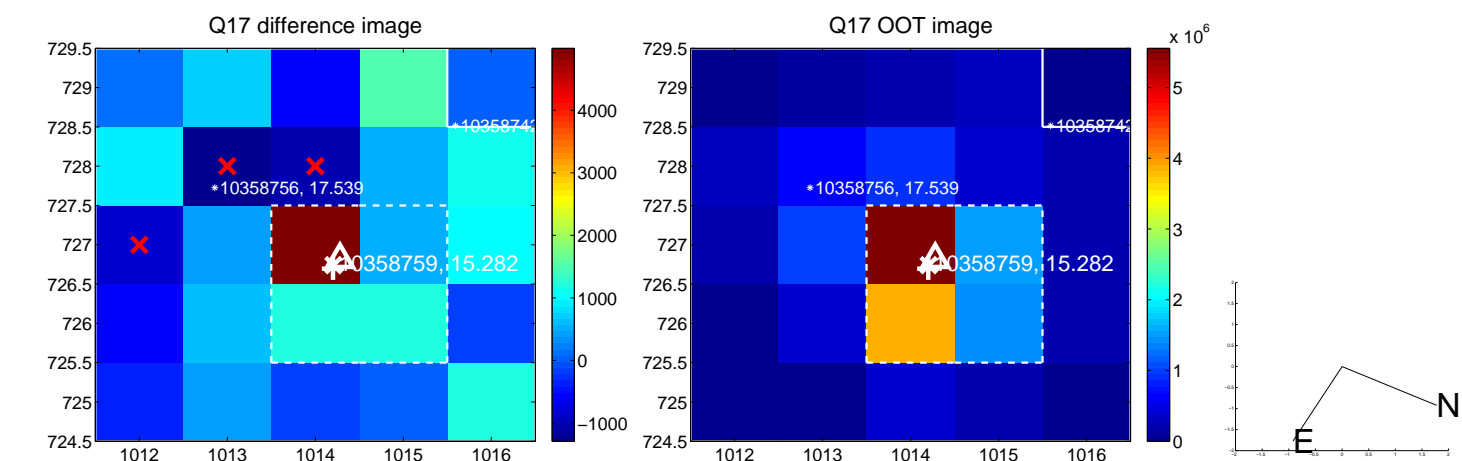
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



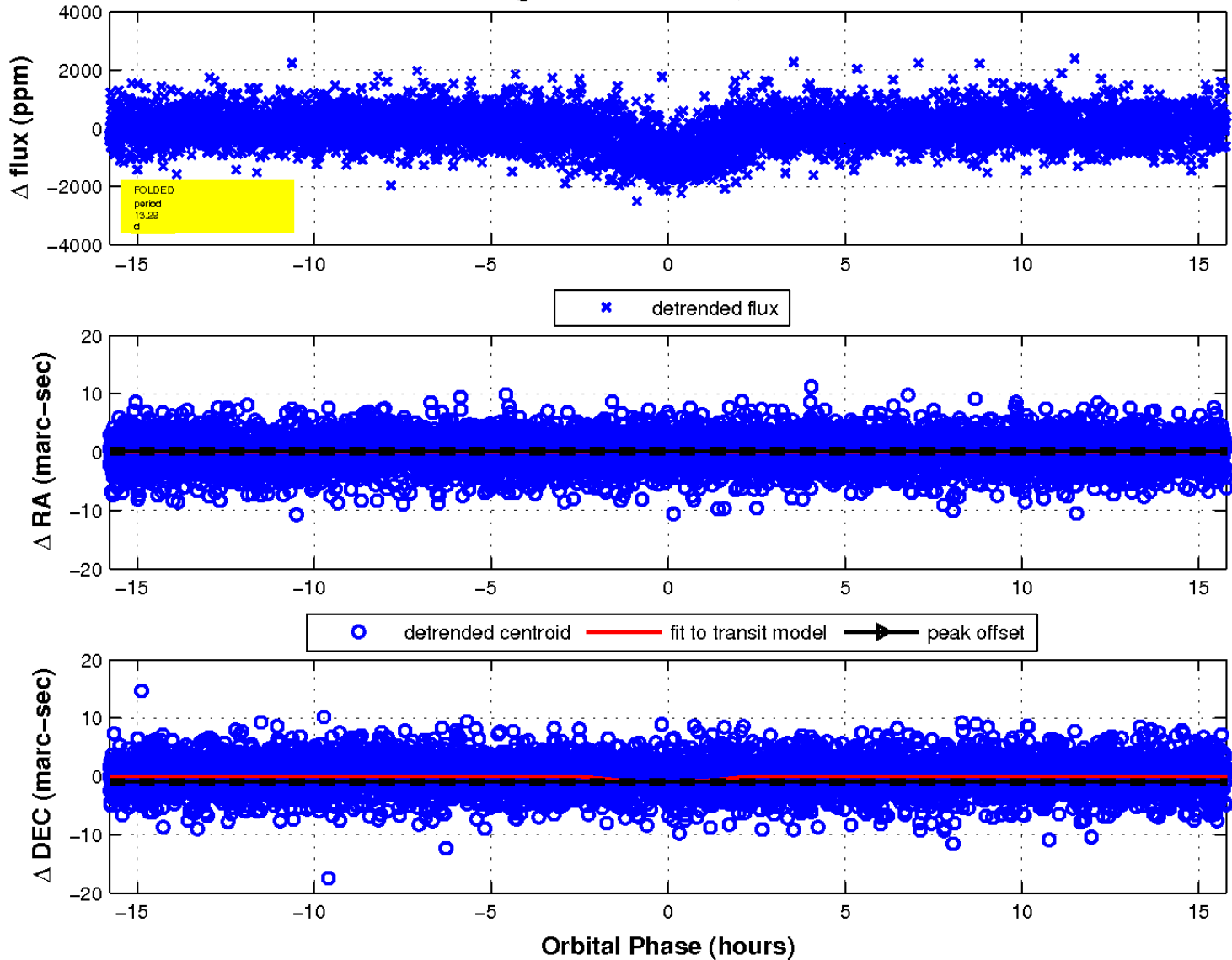
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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



fluxWeightedCentroids, Planet 2 of 2



UKIRT Image

Declination

