

KIC 003548639

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})
003548639-01	OBS	4191.01	13.845552	136.948867	86.3	2.915	12.4	12.8	2.32	6845	2.52	628.25
003548639-02	OBS	No	13.845369	132.120742	119.8	2.299	11.8	13.8	2.32	6845	4.92	628.26

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
003548639-01	OBS	FP	0.00	0	1	1	0	MOD_SEC_DV—MOD_SEC_ALT—HAS_SEC_TCE—CENT_UNRESOLVED_OFFSET
003548639-02	OBS	FP	0.00	1	1	1	0	IS_SEC_TCE—CENT_UNRESOLVED_OFFSET

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

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

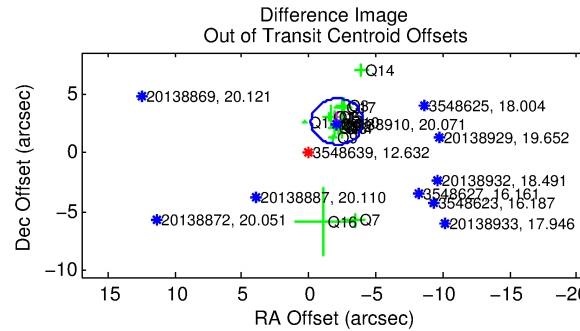
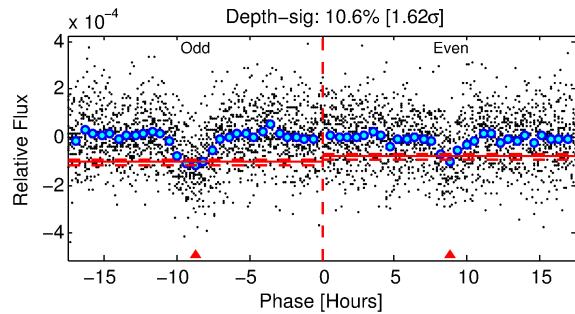
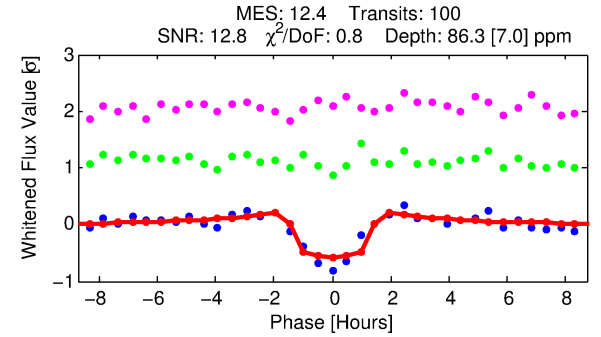
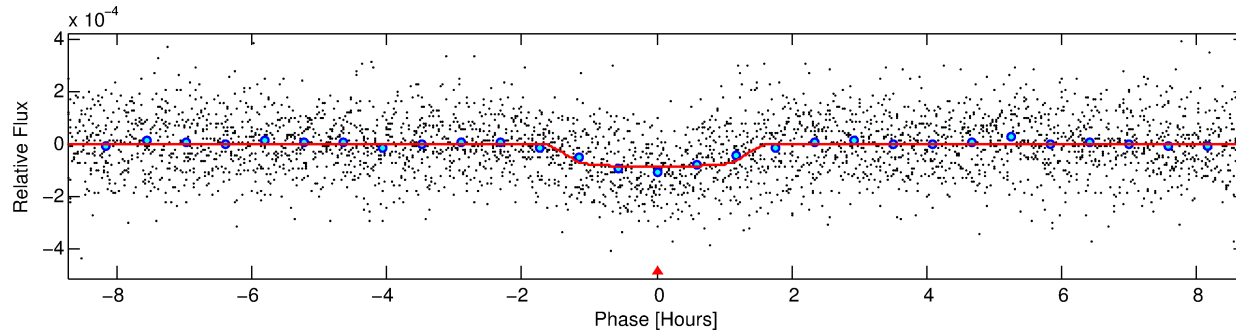
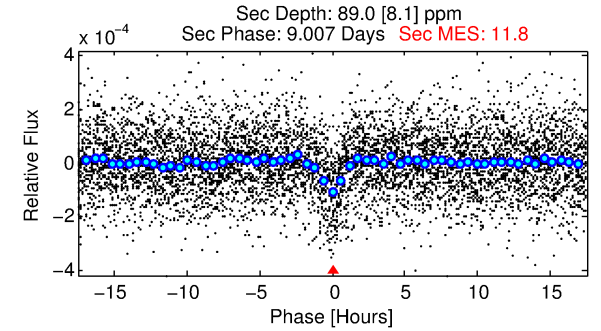
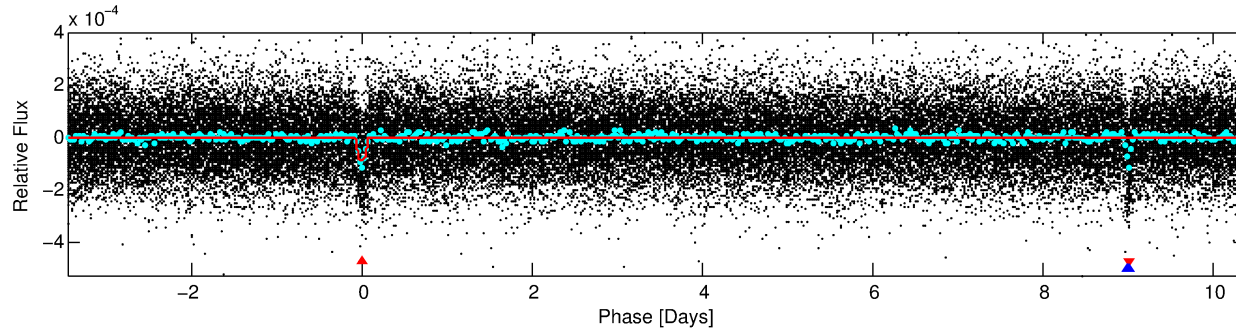
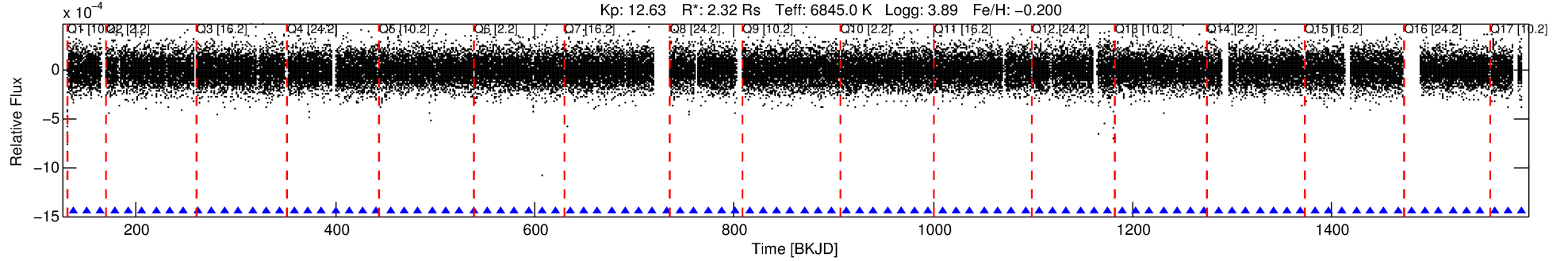
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 003548639-01

No Significant Match Found

DV One-Page Summary

KIC: 3548639 Candidate: 1 of 2 Period: 13.846 d
KOI: K04191.01 Corr: 0.934



DV Fit Results:

Period = 13.84555 [0.00007] d
Epoch = 136.9489 [0.0042] BKJD
Rp/R* = 0.0099 [0.0031]
a/R* = 16.57 [30.68]
b = 0.90 [0.39]
Seff = 628.25 [303.30]
Teq = 1277 [154] K
Rp = 2.52 [1.14] Re
a = 0.1300 [0.0392] AU
Ag = 130.86 [102.03] [1.27σ]
Teffp = 6676 [1068] K [5.00σ]

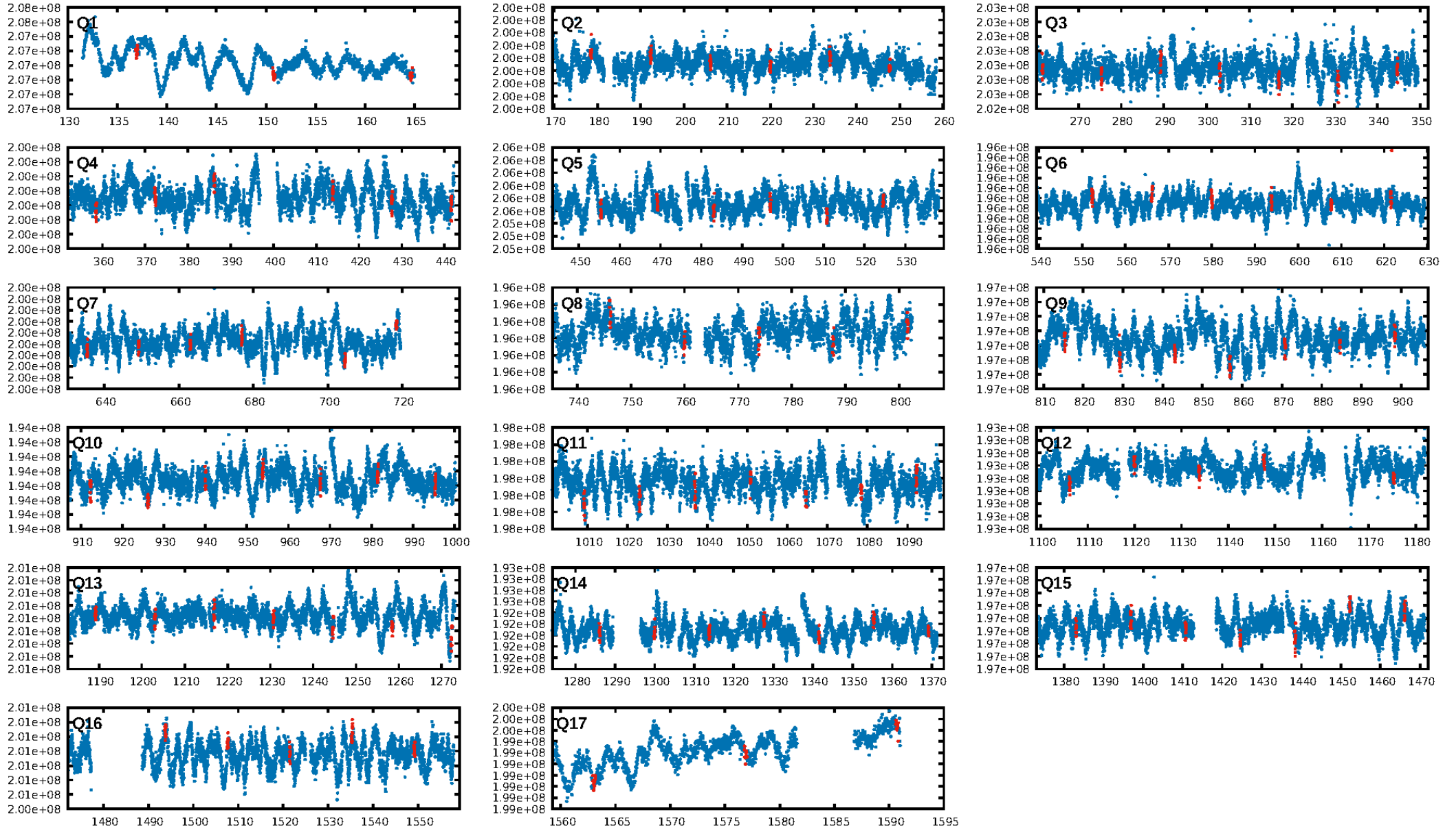
DV Diagnostic Results:

ShortPeriod-sig: 0.1% [0.00σ]
LongPeriod-sig: N/A
ModelChiSquare2-sig: 97.5%
ModelChiSquareGof-sig: 100.0%
Bootstrap-pfa: 3.05e-35
RollingBand-fgt: 1.00 [94/94]
GhostDiagnostic-chr: 1.279
Centroid-sig: 0.0%
Centroid-so: 1.646 arcsec [2.38σ]
OotOffset-rm: 3.385 arcsec [5.25σ]
KicOffset-rm: 3.187 arcsec [4.98σ]
OotOffset-st: 3/4/4/5 [16]
KicOffset-st: 3/4/4/5 [16]
DiffImageQuality-fgm: 0.75 [12/16]
DiffImageOverlap-fno: 1.00 [17/17]

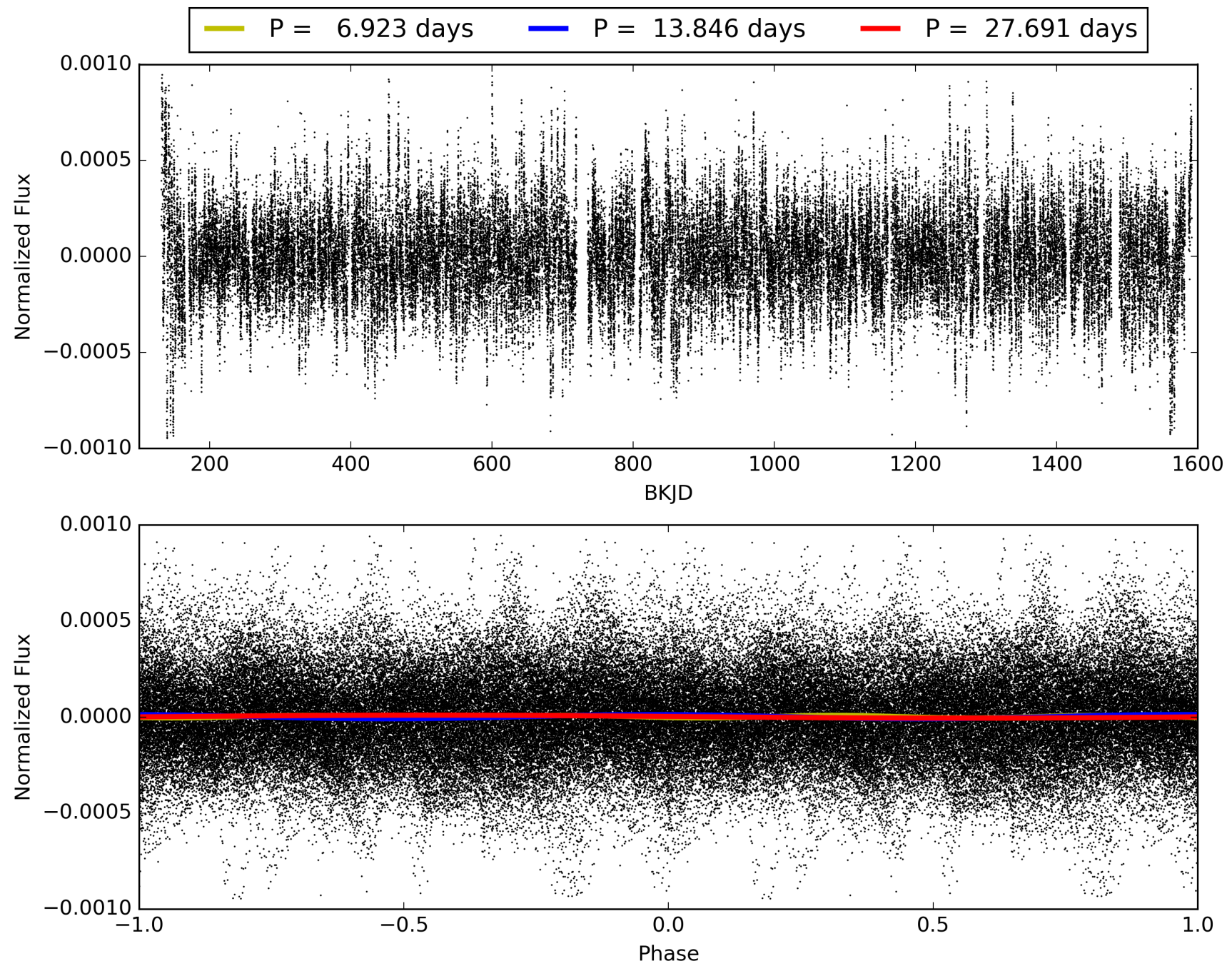
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 31-Jan-2016 01:06:58 Z

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

TCE 003548639-01, PDC Light Curves

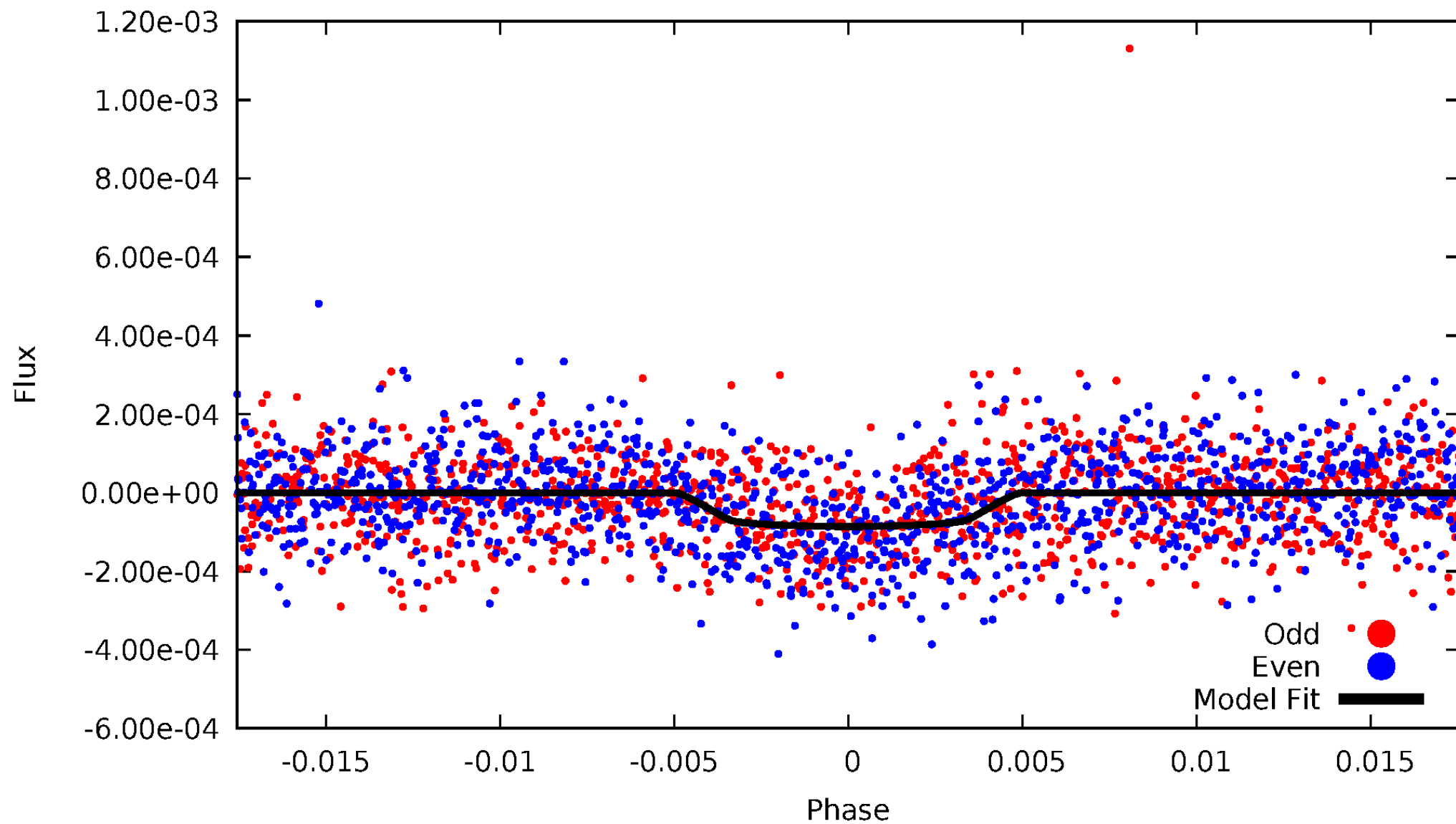


TCE 003548639-01



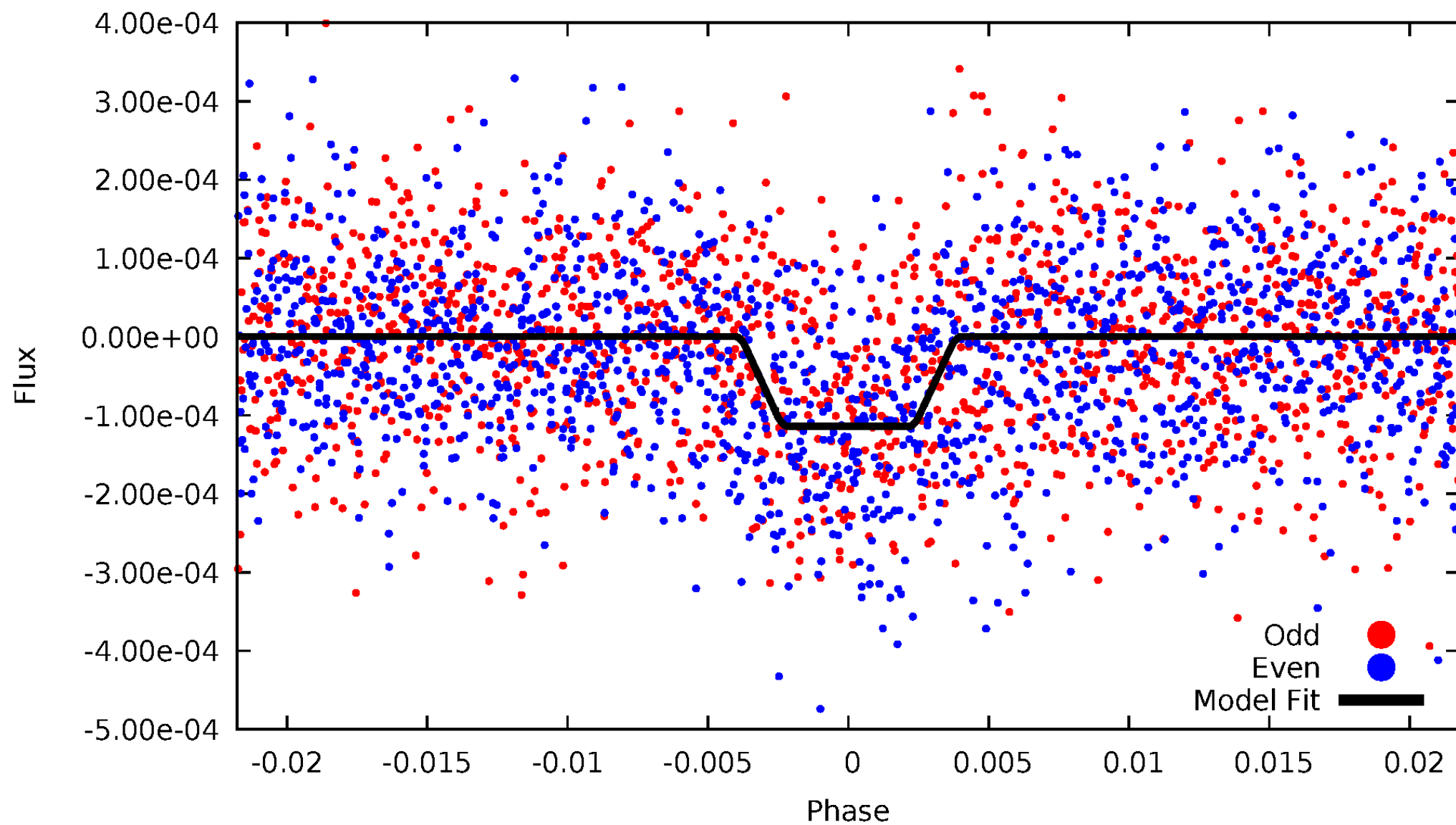
DV Odd/Even

TCE 003548639-01

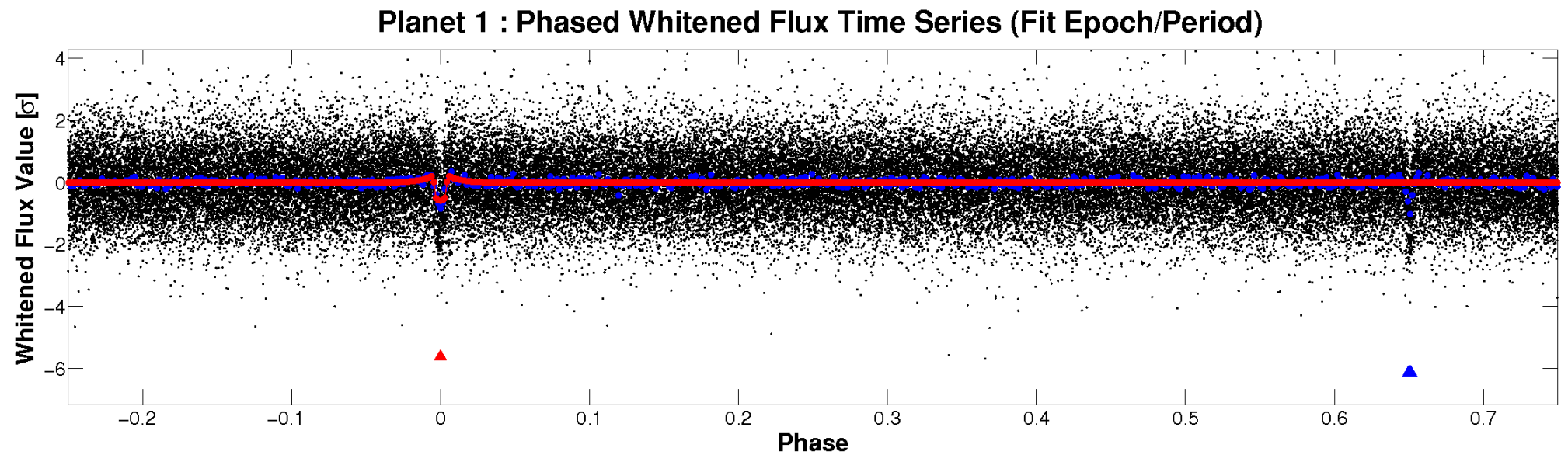
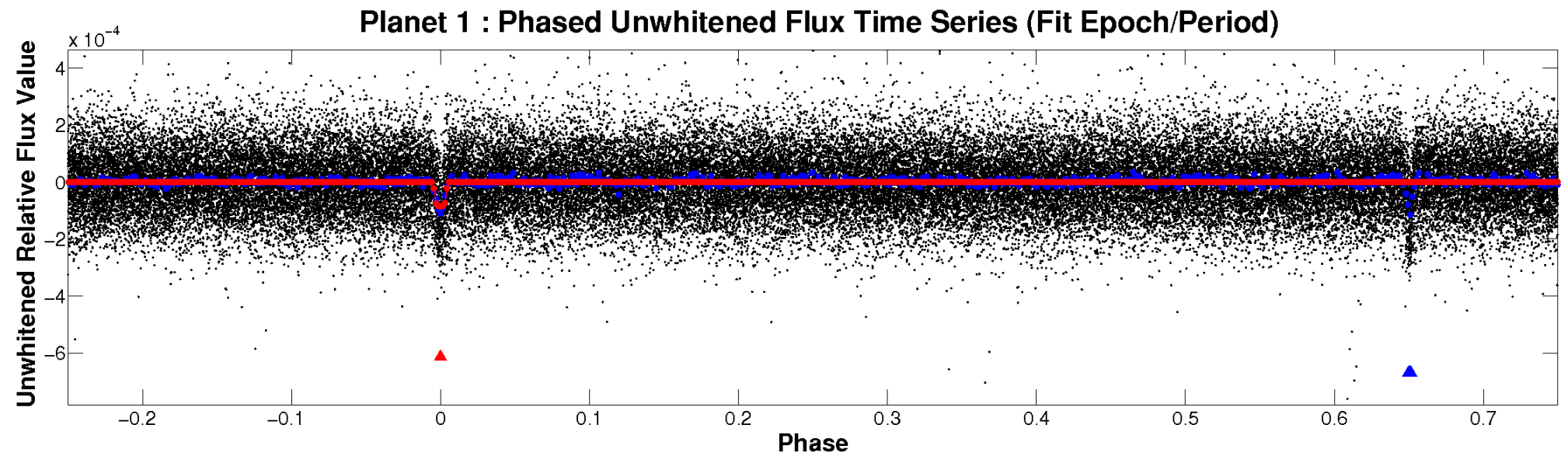


ALT Odd/Even

TCE 003548639-01

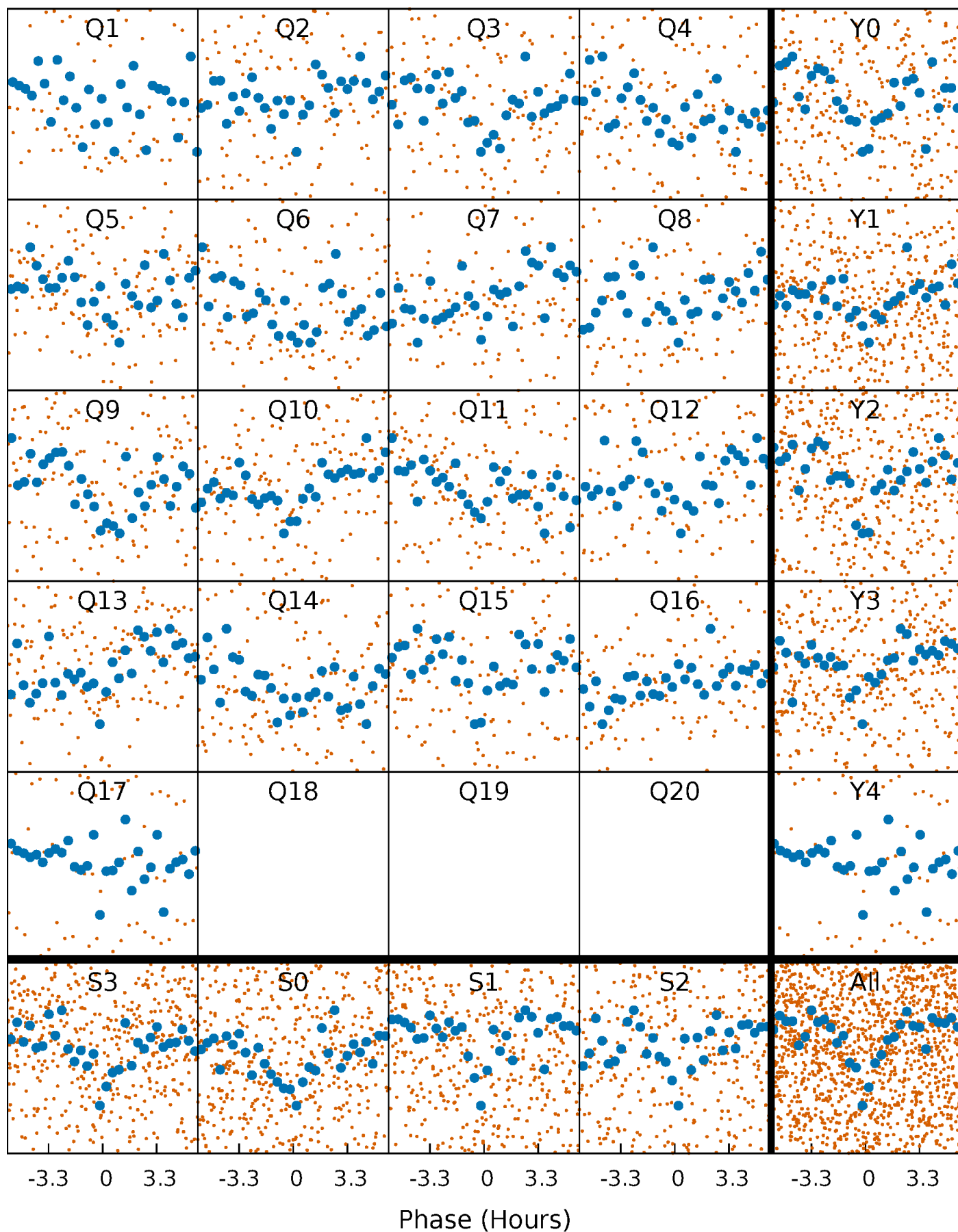


Non-Whitened Vs. Whitened Light Curve



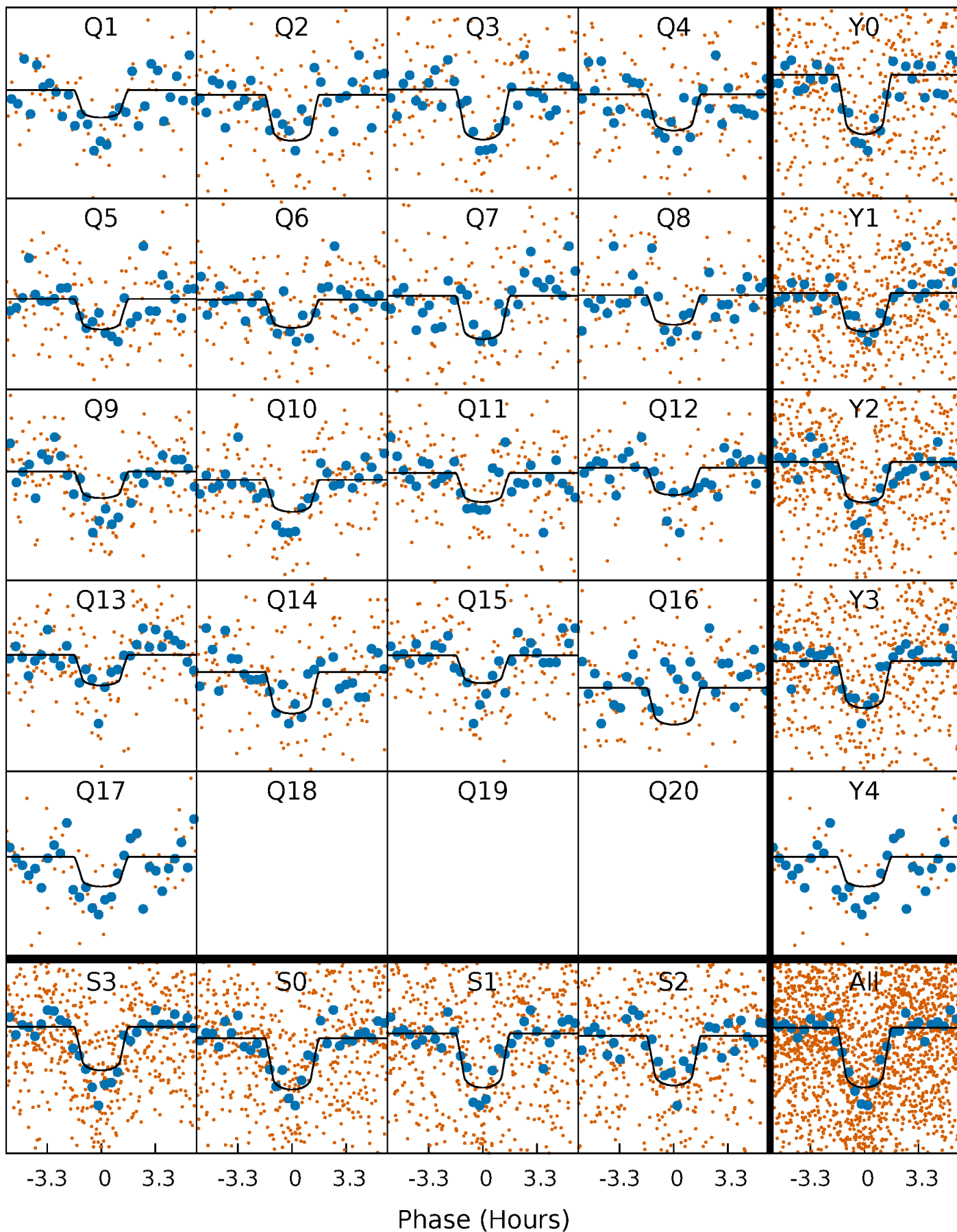
PDC Quarter-Phased Transit Curves

TCE 003548639-01 P= 13.845552 Days $T_0=136.948867$ (BKJD)



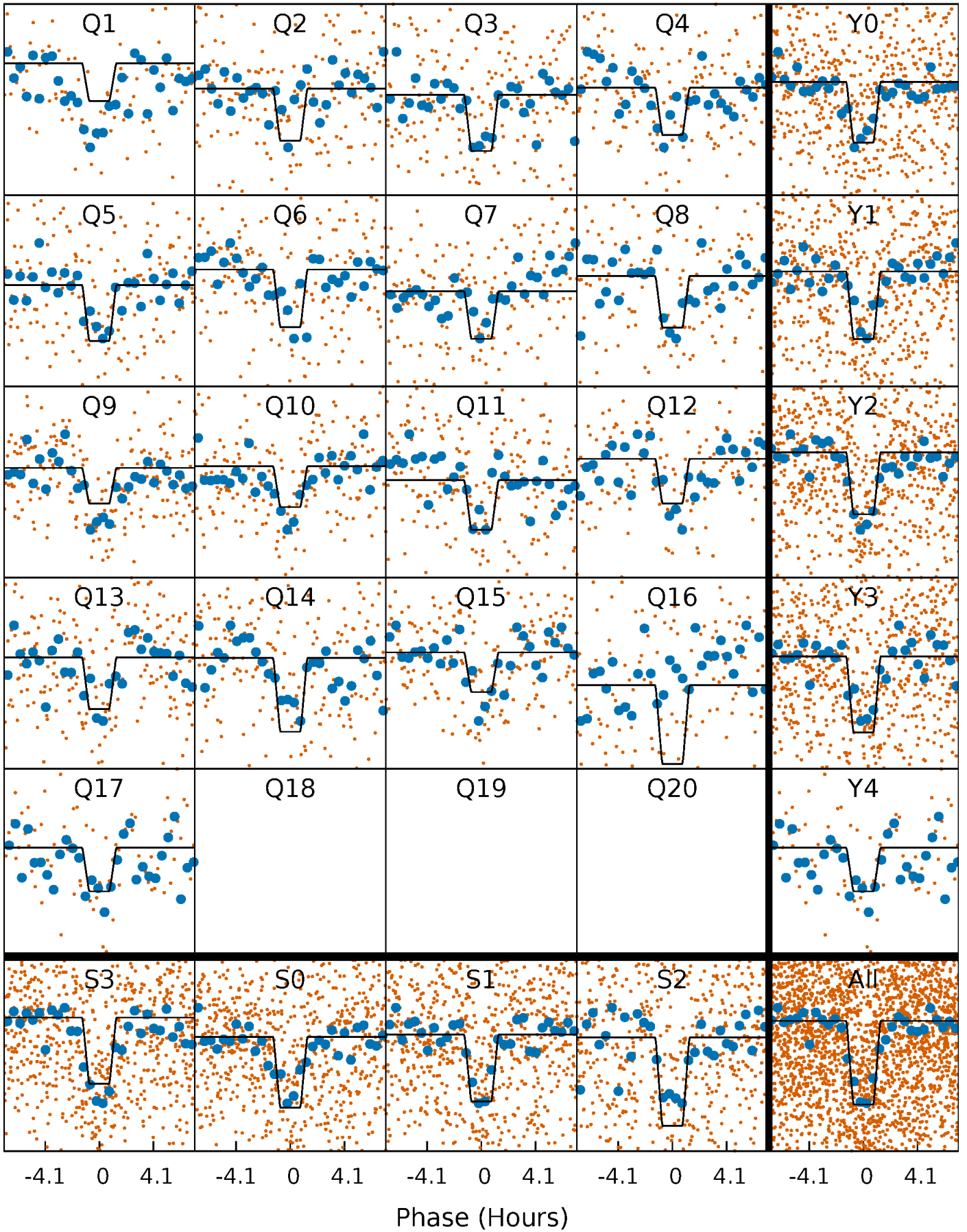
DV Quarter-Phased Transit Curves

TCE 003548639-01 P= 13.845552 Days $T_0=136.948867$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

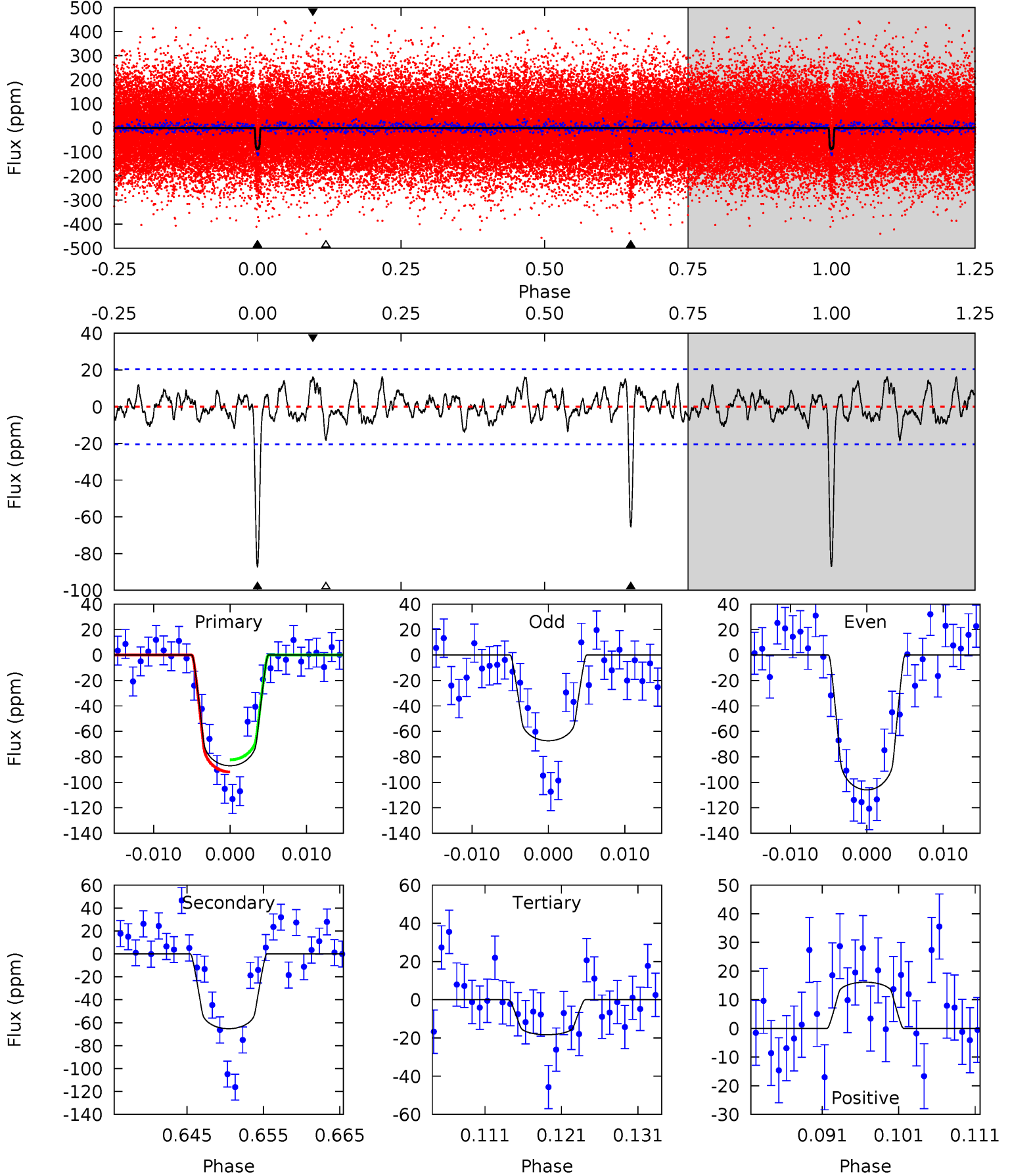
TCE 003548639-01 P= 13.845265 Days $T_0=136.961854$ (BKJD)



DV Model-Shift Uniqueness Test

003548639-01, P = 13.845552 Days, E = 123.103315 Days

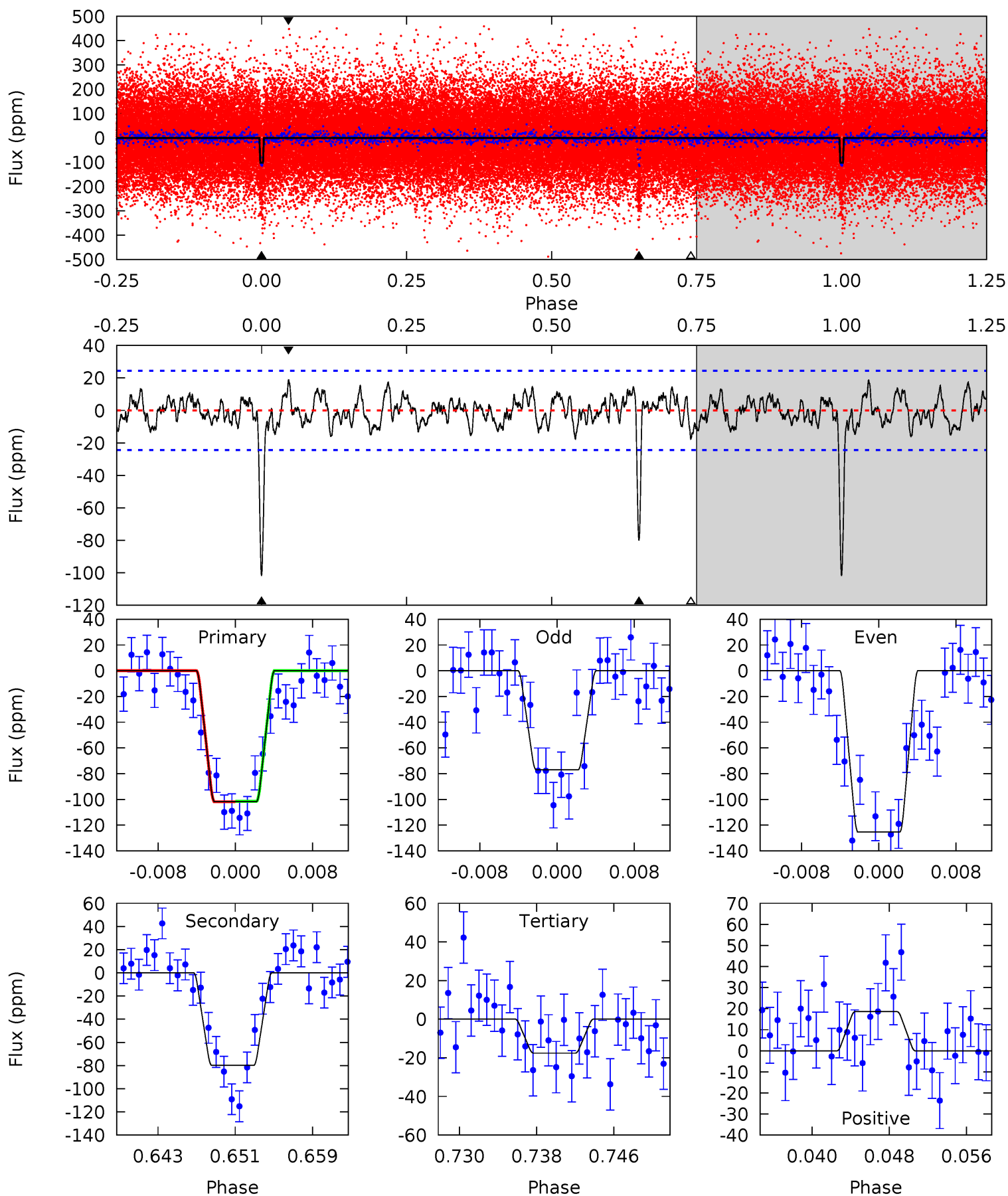
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
21.4	16.0	4.49	3.96	5.02	2.57	1.47	16.9	17.4	11.5	12.1	4.74	0.99	0.16	1.17



Alt Model-Shift Uniqueness Test

003548639-01, $P = 13.845265$ Days, $E = 123.116589$ Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
21.1	16.6	3.65	3.86	5.07	2.65	1.45	17.5	17.3	12.9	12.7	5.01	1.06	0.15	0.04



Stellar Parameters For KIC 003548639

	$T_{\text{eff}} (K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M (M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	6845^{+184}_{-225}	$3.890^{+0.266}_{-0.114}$	$-0.200^{+0.300}_{-0.250}$	$2.324^{+0.475}_{-0.772}$	$1.529^{+0.194}_{-0.292}$	$0.172^{+0.296}_{-0.069}$
	+3%/-3%	+7%/-3%	+150%/-125%	+20%/-33%	+13%/-19%	+172%/-40%
Source	PHO1	FLK73	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 003548639-01 / KOI 4191.01

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-65 ± 4	$2.31^{+0.95}_{-0.71}$	1758^{+117}_{-142}	6217^{+1254}_{-849}	111^{+121}_{-54}
Alt.	-80 ± 5	$2.57^{+0.90}_{-0.85}$	1757^{+113}_{-151}	6208^{+1249}_{-705}	111^{+135}_{-49}

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

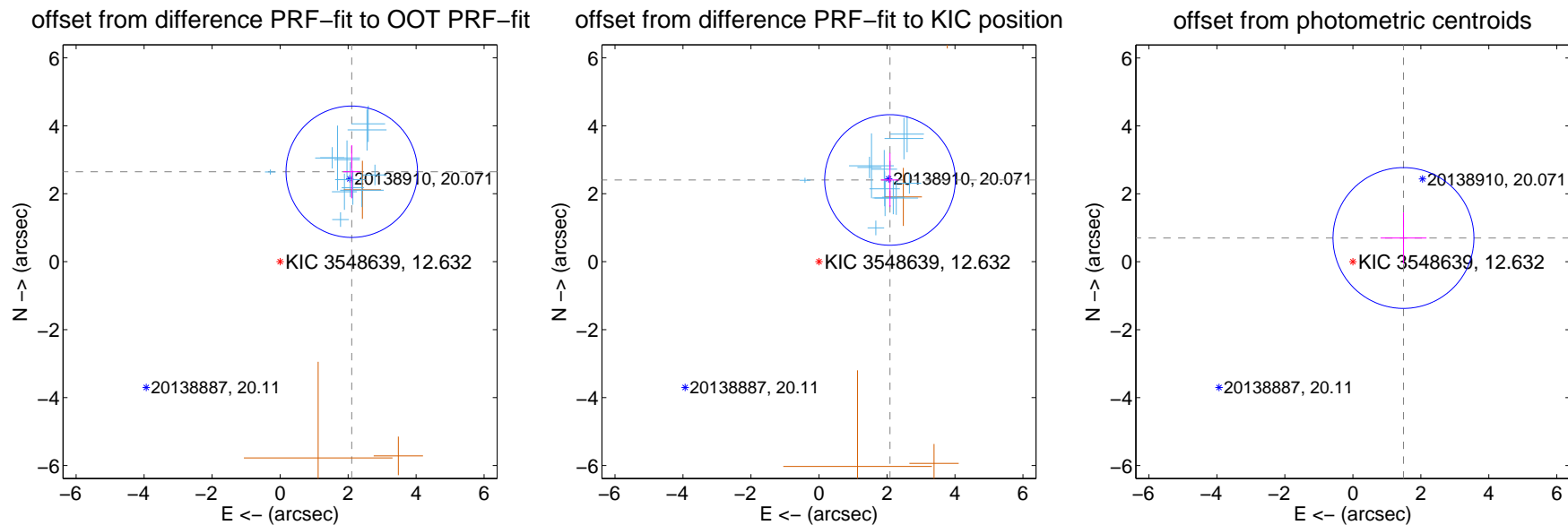
DV Centroid Data

Supplemental centroid analysis for 003548639-01. Kepler magnitude: 12.63. Transit SNR 12.79

There are 12 quarters with good PRF difference image offsets

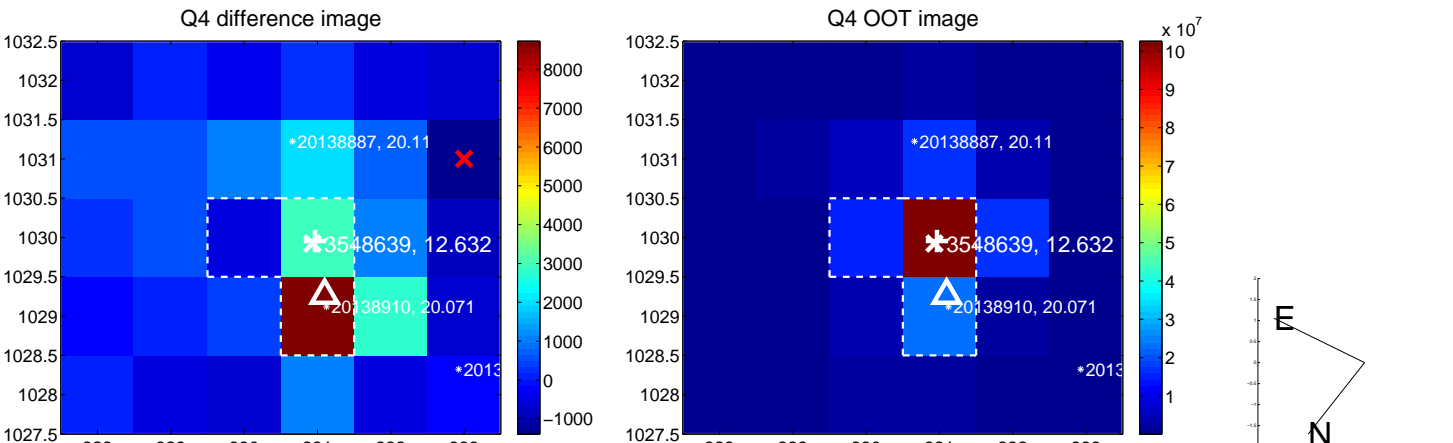
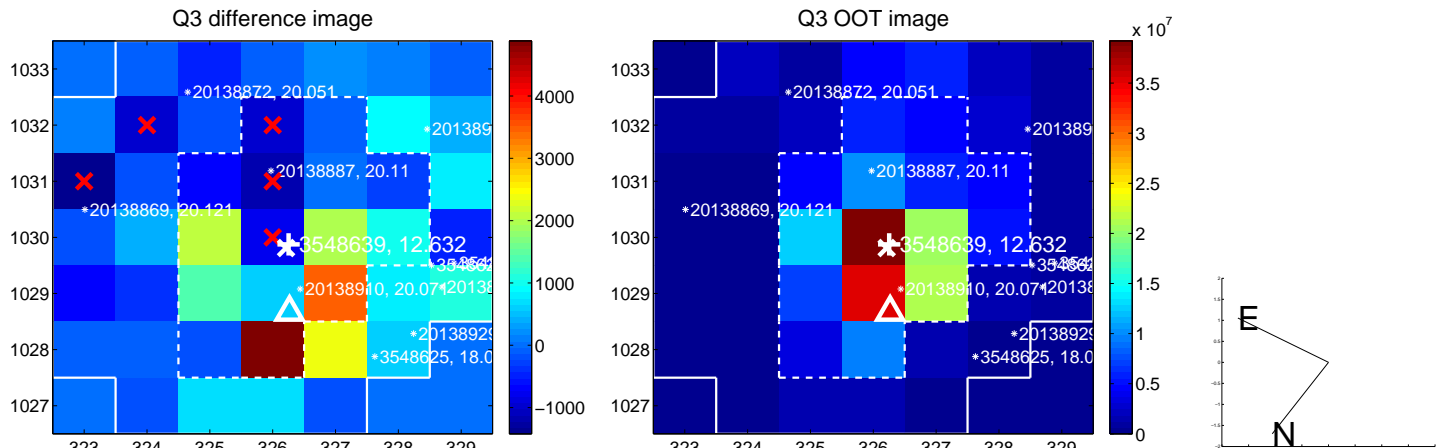
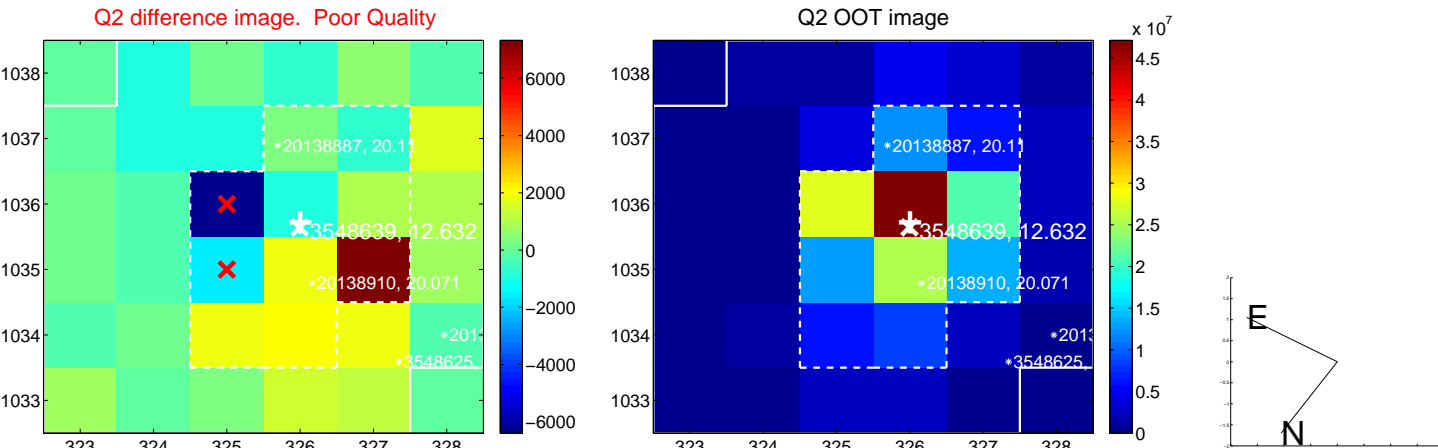
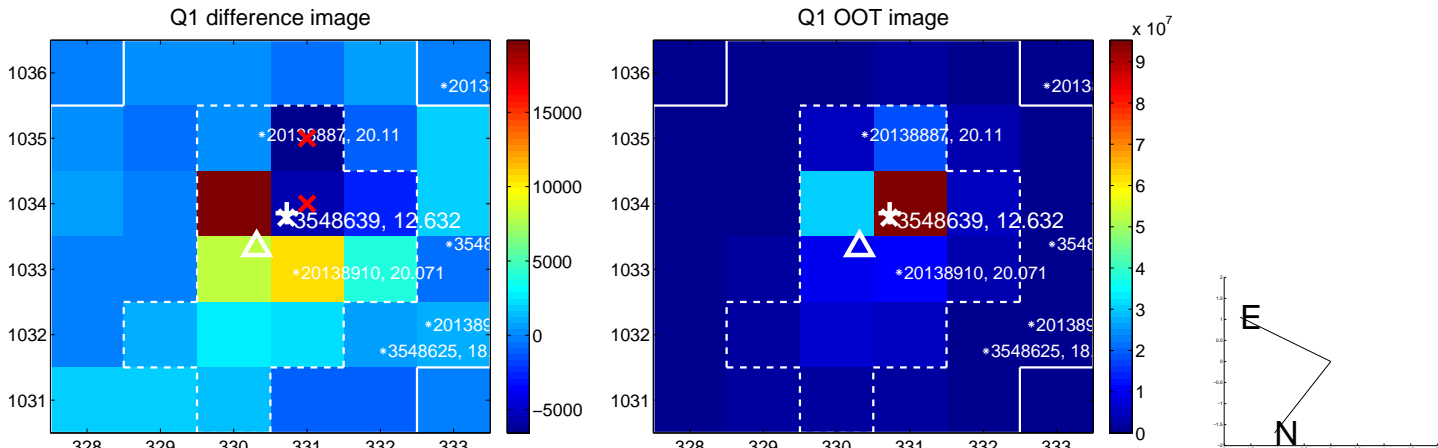
The direct PRF centroid is offset from the target star catalog position by about 0.26 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	3.385 ± 0.645	5.25	-2.109 ± 0.248	2.649 ± 0.782
PRF-fit source offset from KIC position	3.187 ± 0.641	4.98	-2.090 ± 0.259	2.407 ± 0.793
photometric centroid source offset	1.65 ± 0.69	2.38	-1.49 ± 0.68	0.70 ± 0.75

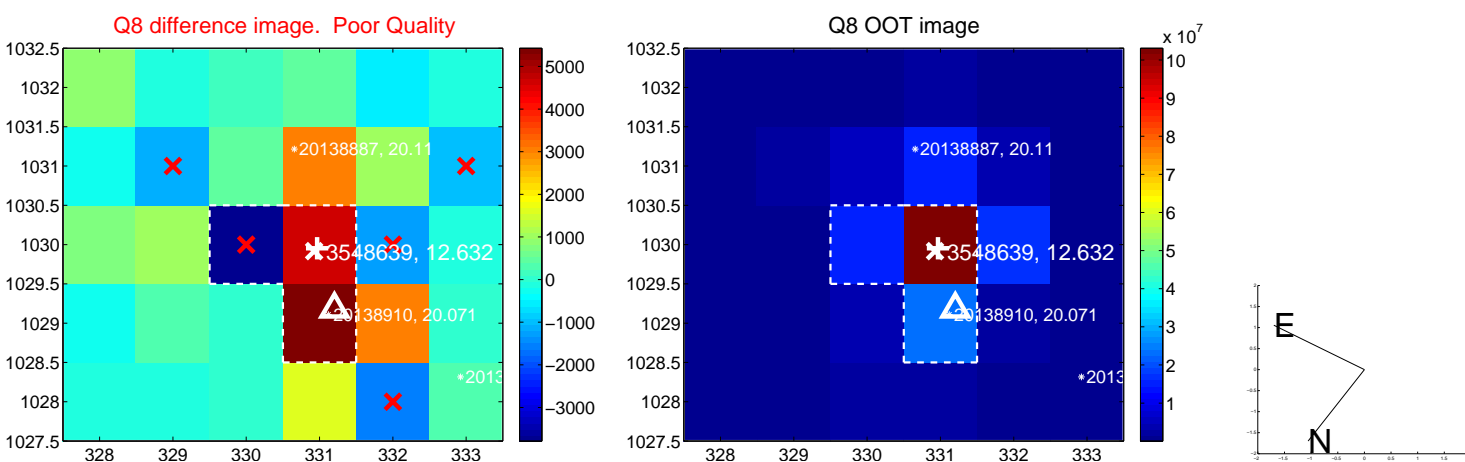
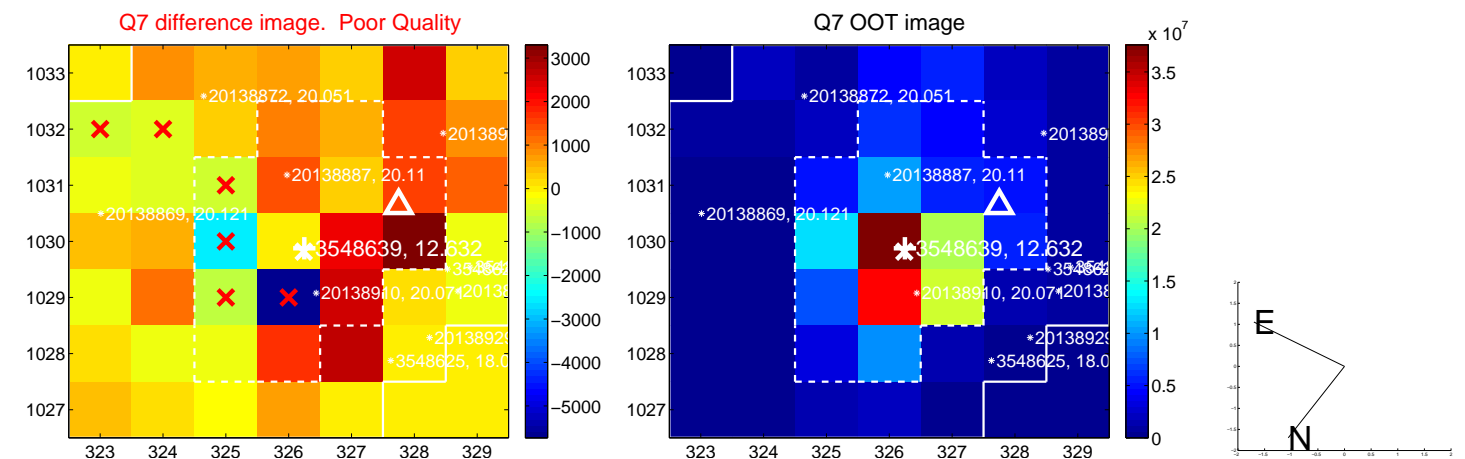
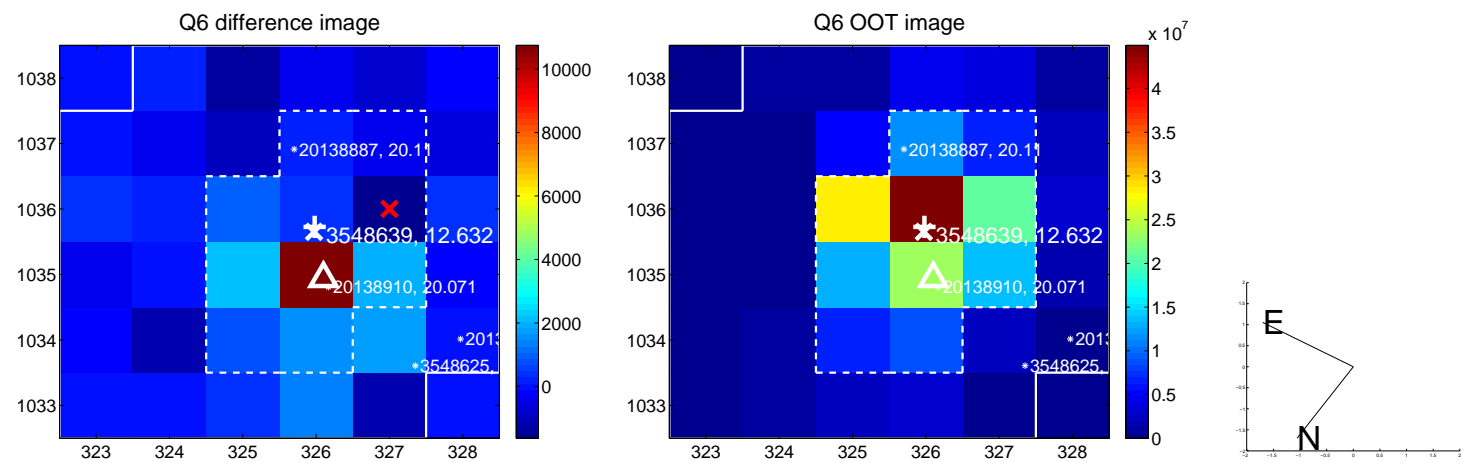
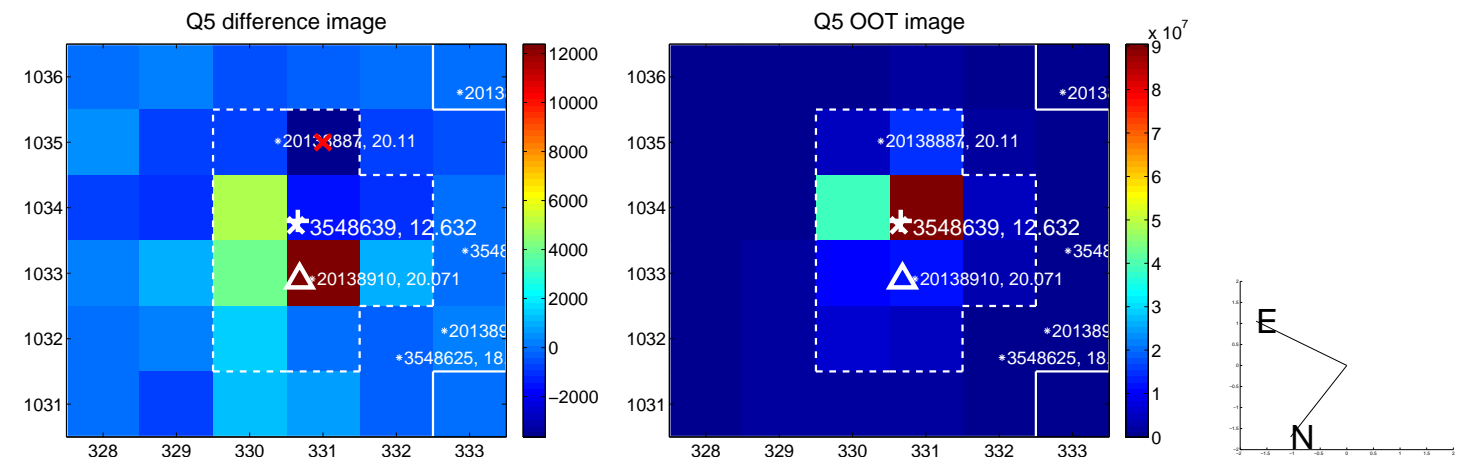


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses:** good quarterly centroid offsets; **Vermillion crosses:** bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

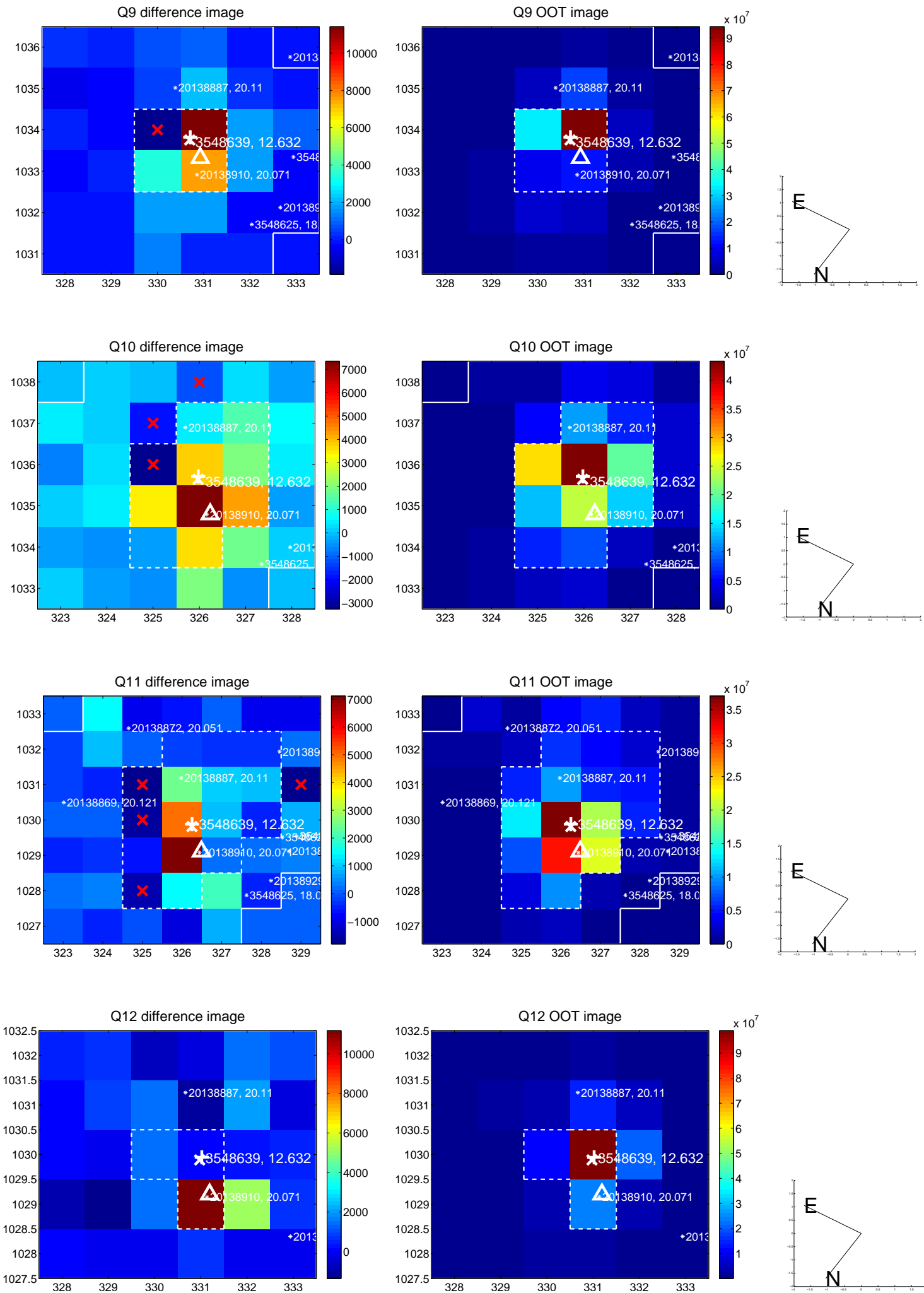
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



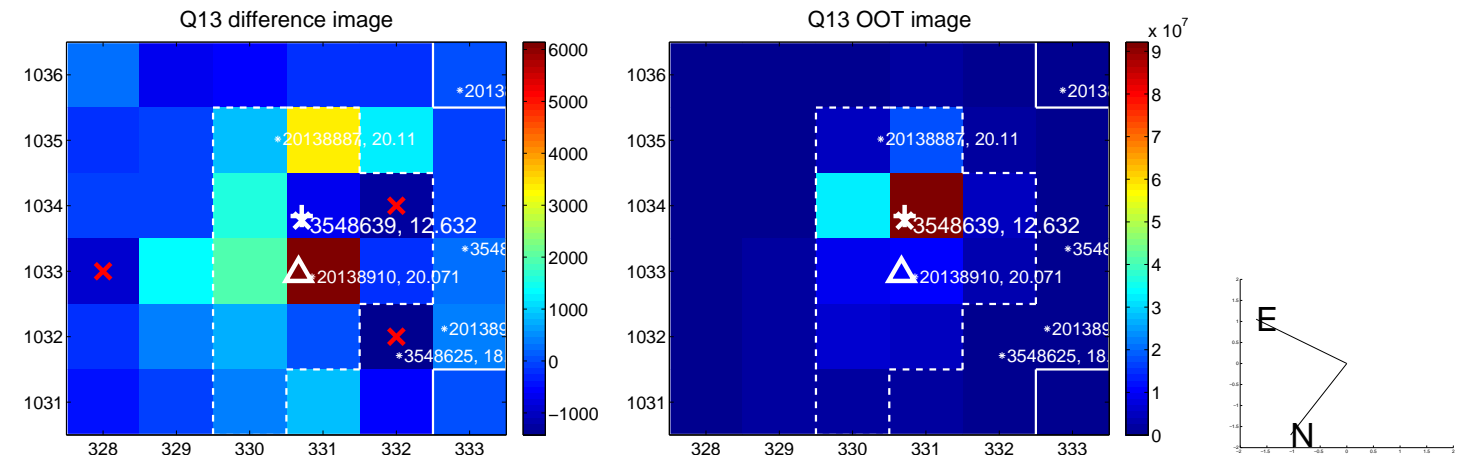
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



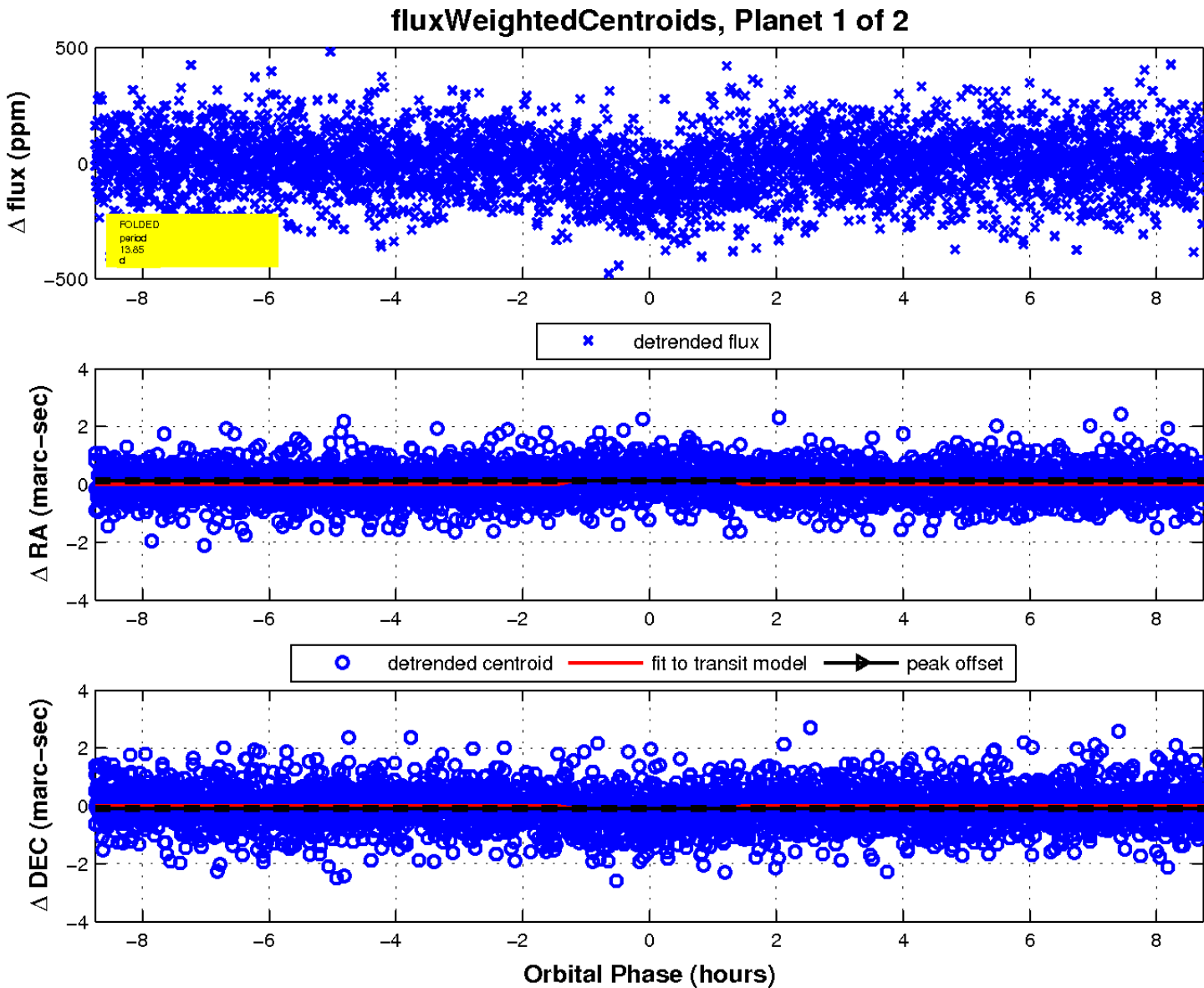
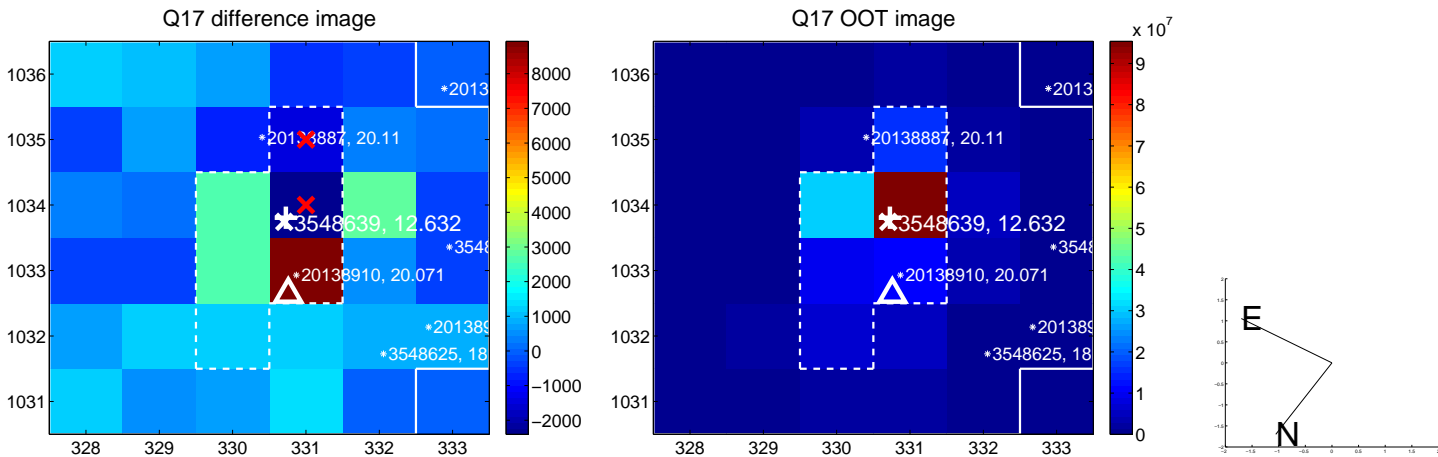
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

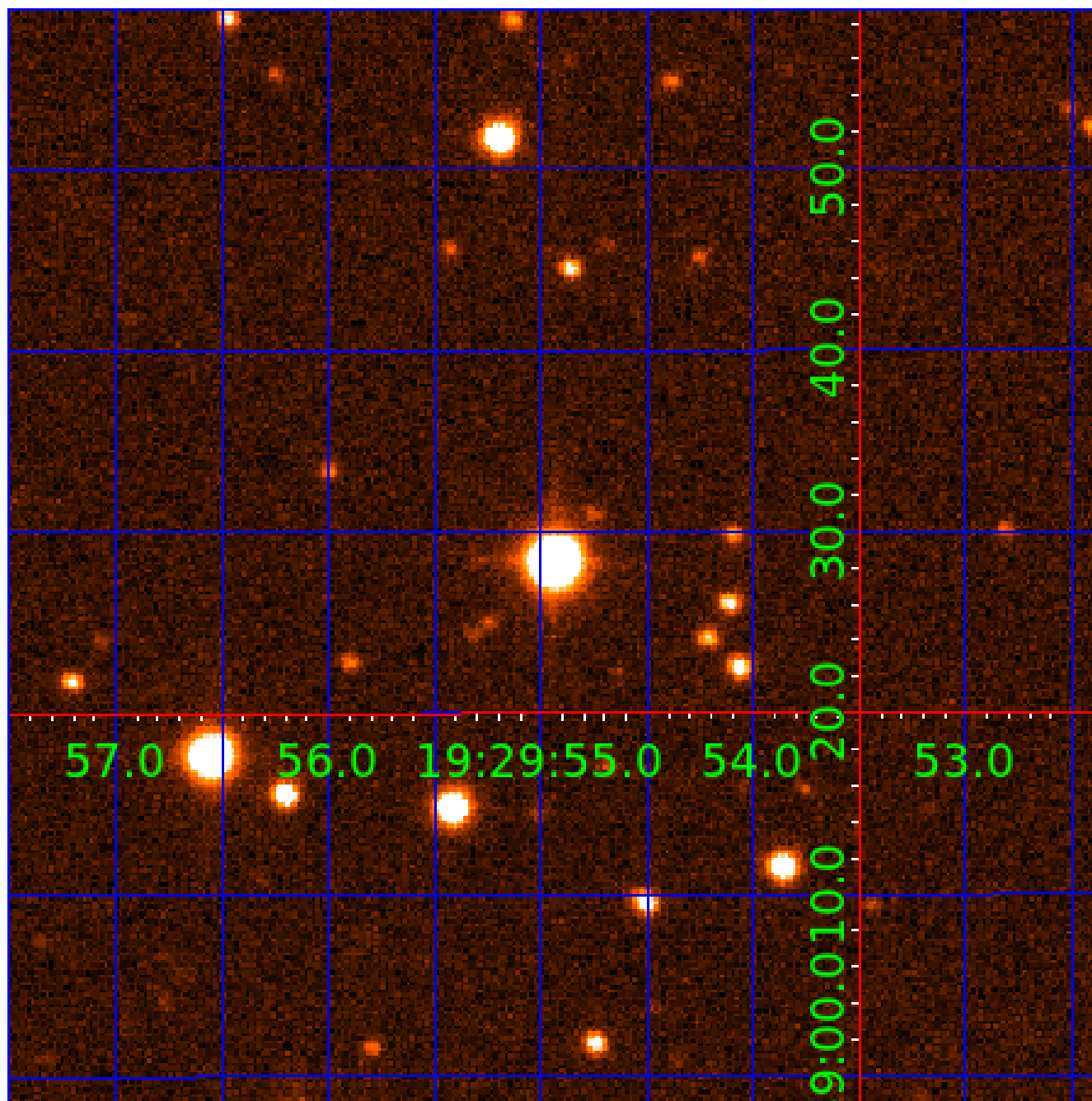


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 003548639

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})
003548639-01	OBS	4191.01	13.845552	136.948867	86.3	2.915	12.4	12.8	2.32	6845	2.52	628.25
003548639-02	OBS	No	13.845369	132.120742	119.8	2.299	11.8	13.8	2.32	6845	4.92	628.26

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
003548639-01	OBS	FP	0.00	0	1	1	0	MOD_SEC_DV—MOD_SEC_ALT—HAS_SEC_TCE—CENT_UNRESOLVED_OFFSET
003548639-02	OBS	FP	0.00	1	1	1	0	IS_SEC_TCE—CENT_UNRESOLVED_OFFSET

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

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

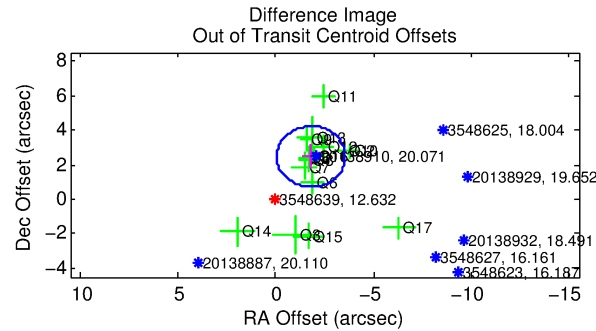
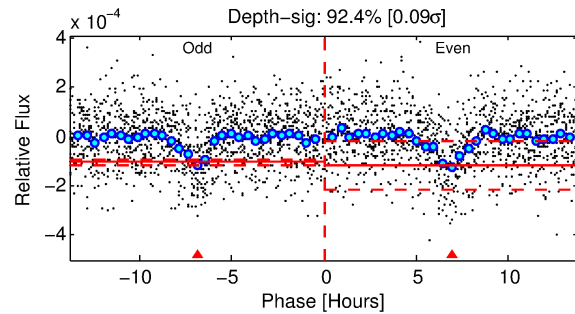
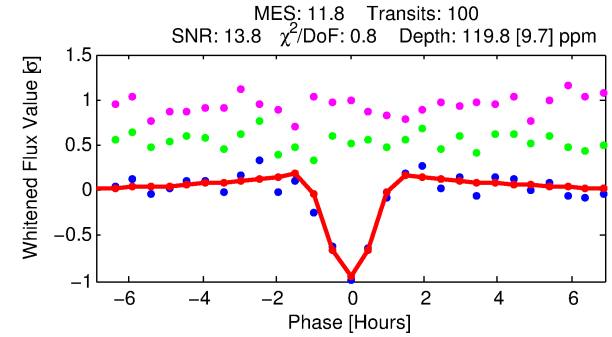
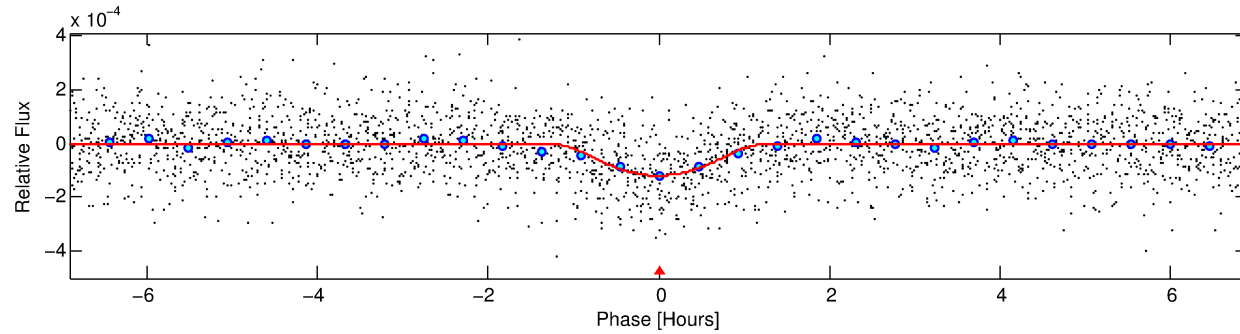
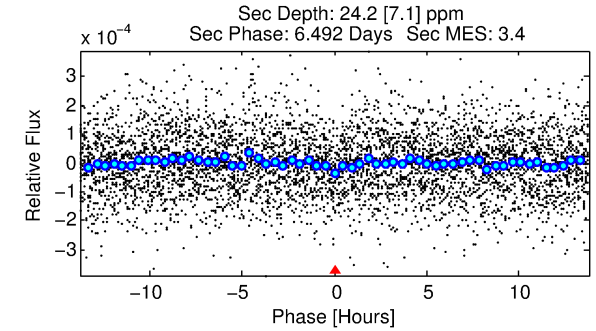
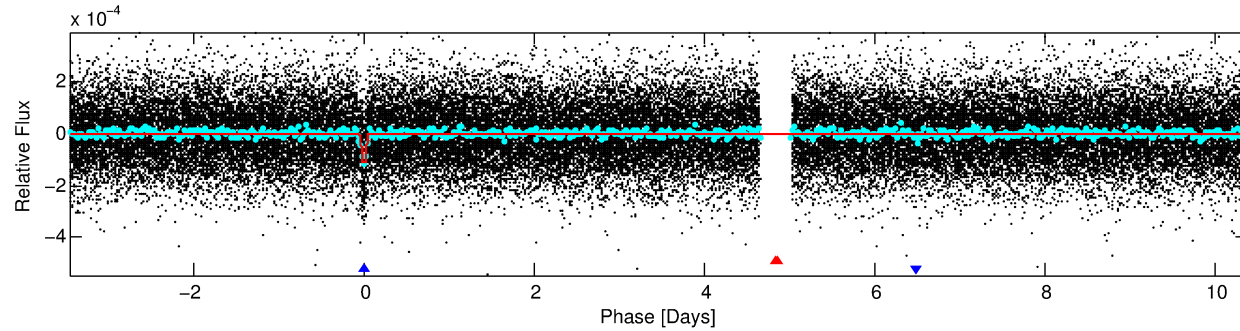
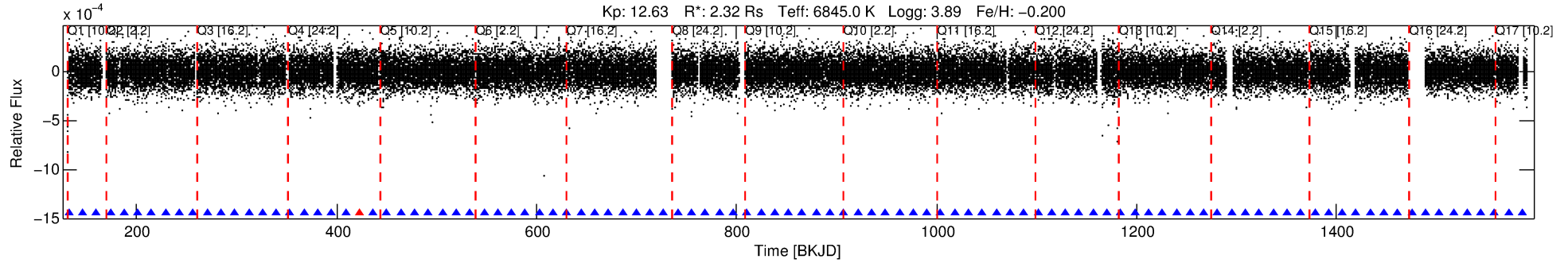
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 003548639-02

No Significant Match Found

DV One-Page Summary

KIC: 3548639 Candidate: 2 of 2 Period: 13.845 d
KOI: K04191 Corr: No Ephemeris Match



DV Fit Results:

Period = 13.84537 [0.00006] d
Epoch = 132.1207 [0.0034] BKJD
Rp/R* = 0.0194 [0.0488]
a/R* = 9.40 [6.86]
b = 1.00 [0.08]
Seff = 628.26 [303.30]
Teq = 1277 [154] K
Rp = 4.92 [12.49] Re
a = 0.1300 [0.0392] AU
Ag = 9.33 [47.26] [0.18σ]
Teffp = 3449 [4353] K [0.50σ]

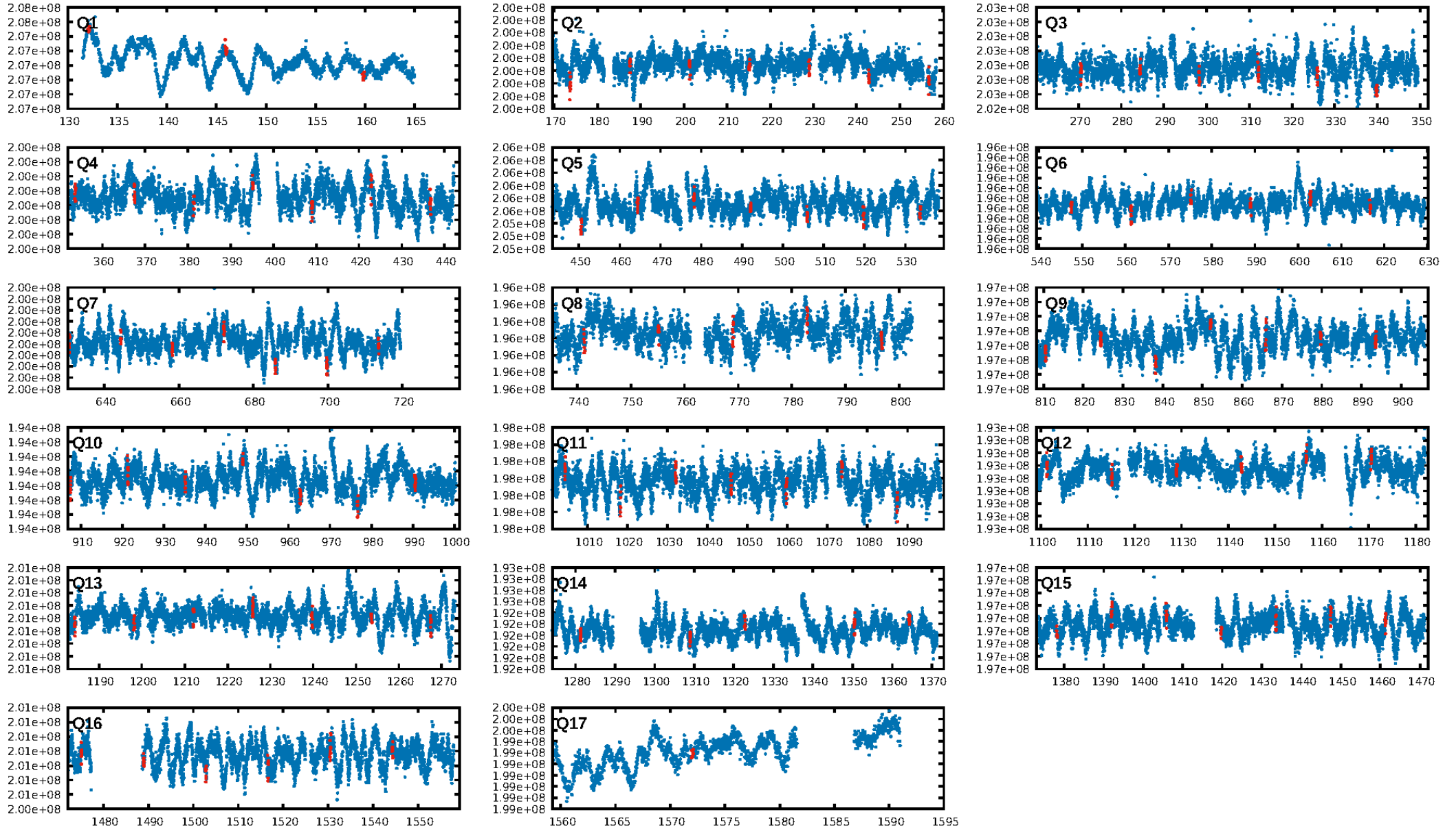
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: 0.1% [0.00σ]
ModelChiSquare2-sig: 99.7%
ModelChiSquareGof-sig: 100.0%
Bootstrap-pfa: 1.12e-31
RollingBand-fgt: 0.99 [95/96]
GhostDiagnostic-chr: 2.165
Centroid-sig: 0.0%
Centroid-so: 1.710 arcsec [2.36σ]
OotOffset-rm: 3.047 arcsec [5.21σ]
KicOffset-rm: 2.659 arcsec [5.06σ]
OotOffset-st: 4/4/3/4 [15]
KicOffset-st: 4/4/3/4 [15]
DiffImageQuality-fgm: 0.40 [6/15]
DiffImageOverlap-fno: 1.00 [17/17]

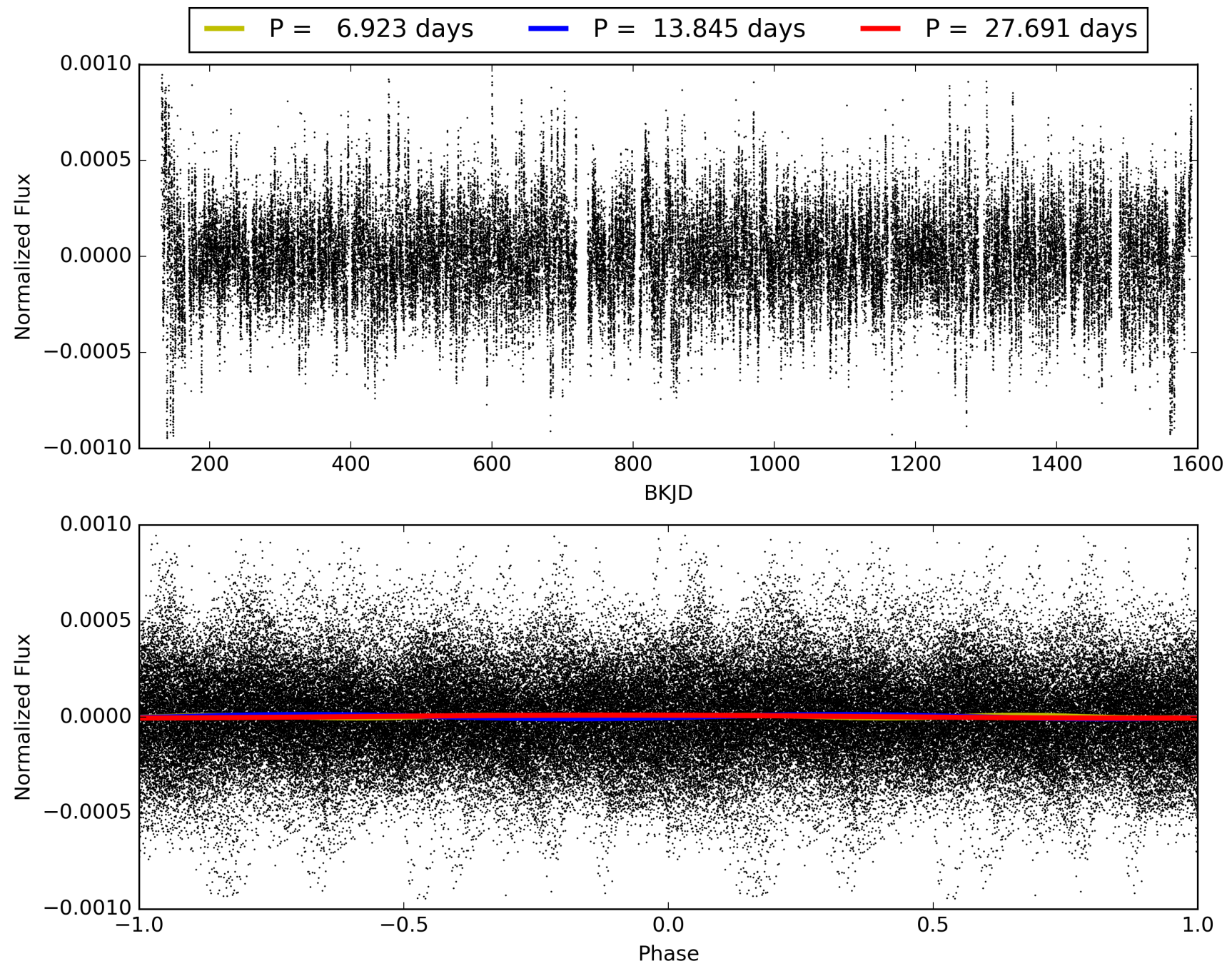
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 31-Jan-2016 01:07:05 Z

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

TCE 003548639-02, PDC Light Curves

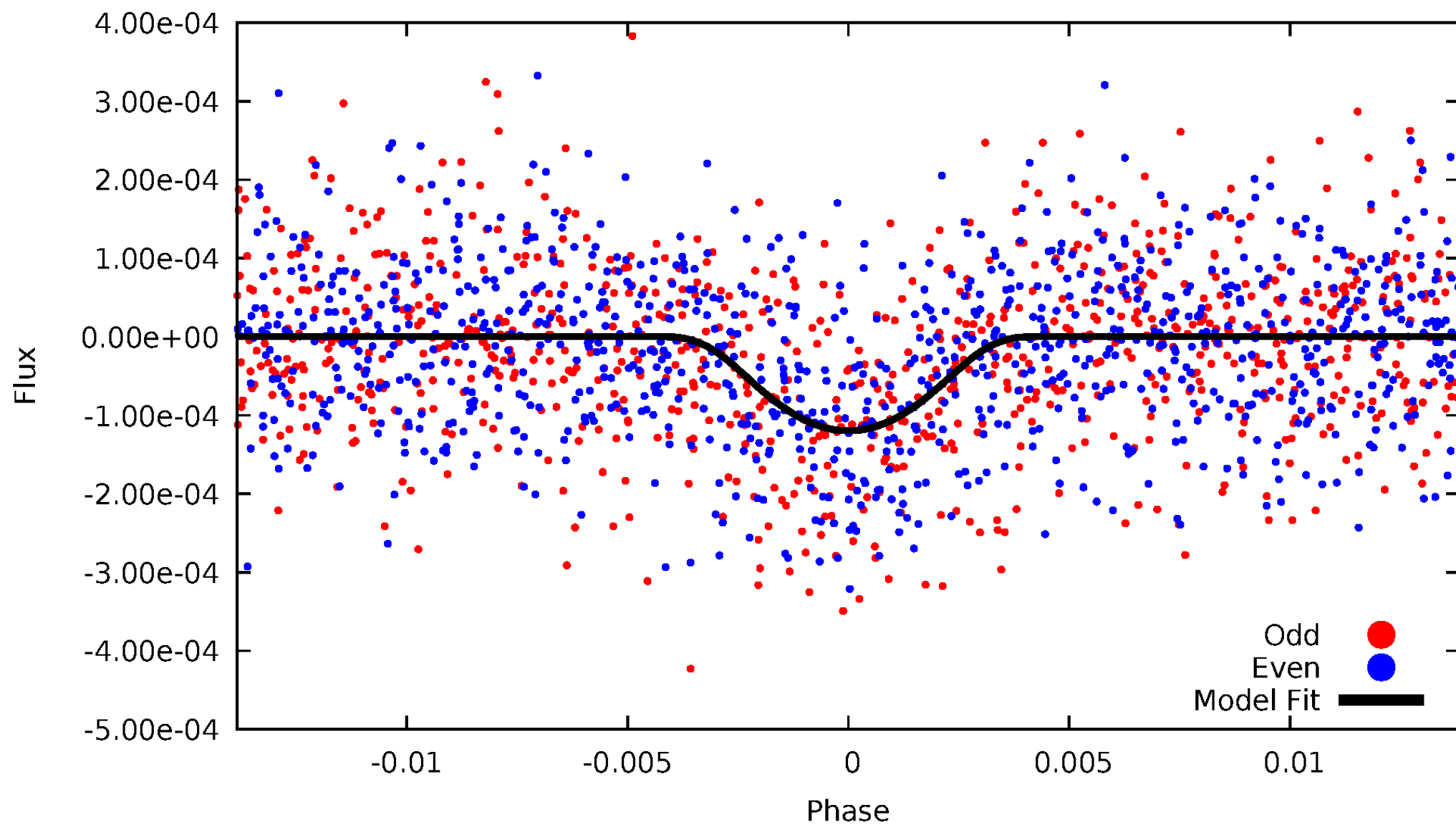


TCE 003548639-02



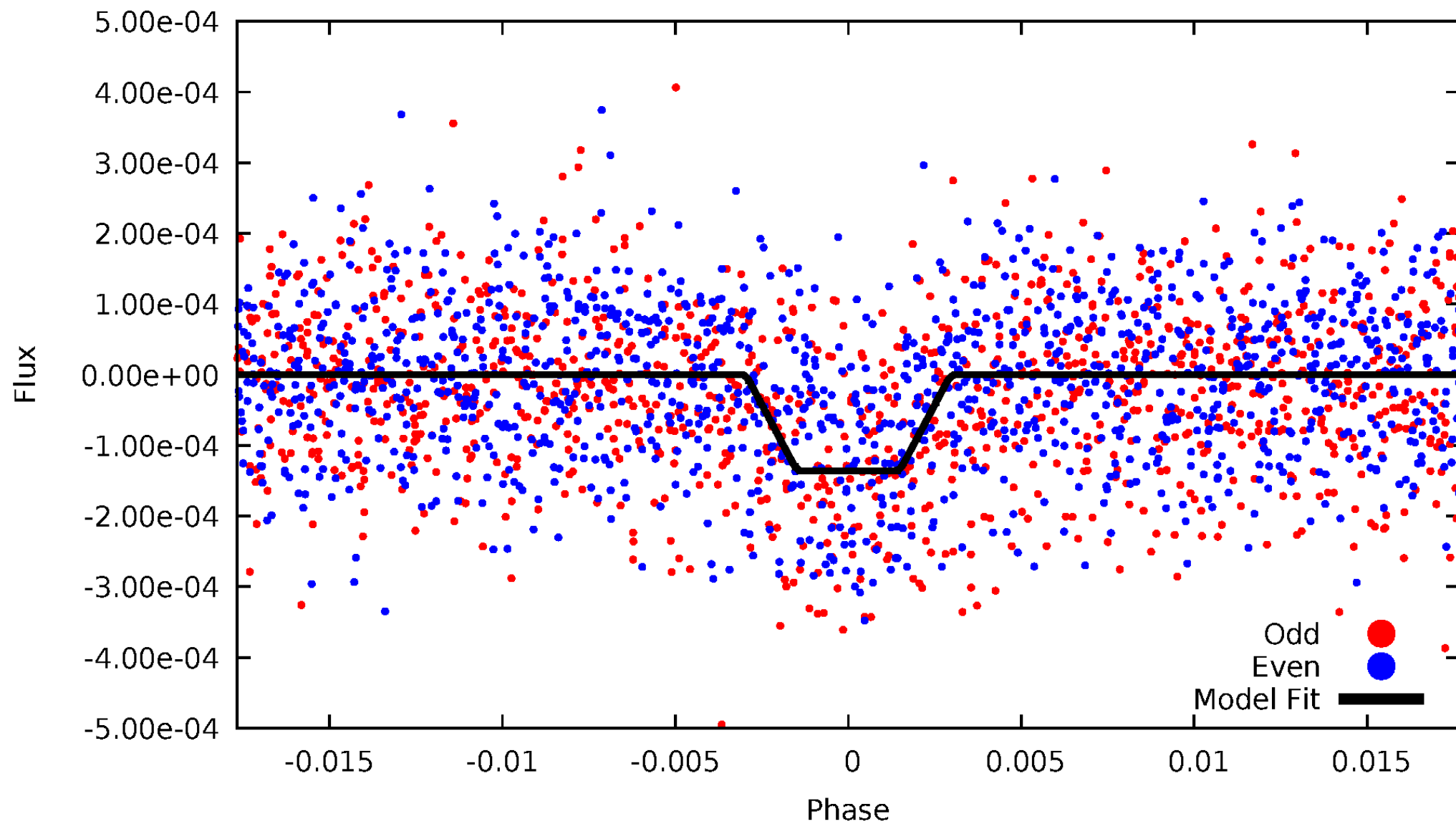
DV Odd/Even

TCE 003548639-02



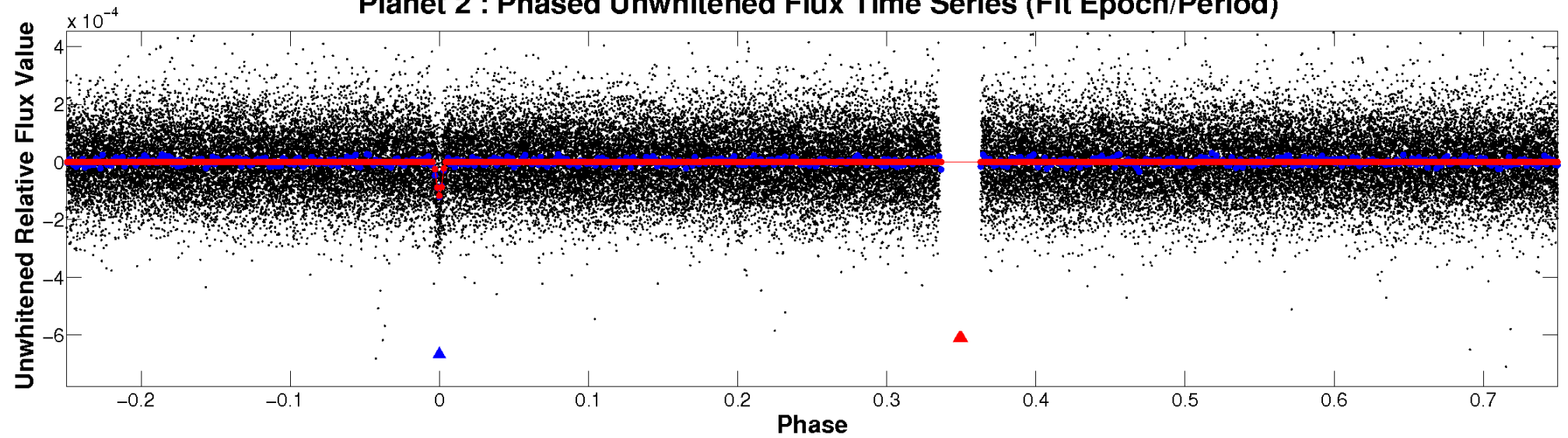
ALT Odd/Even

TCE 003548639-02

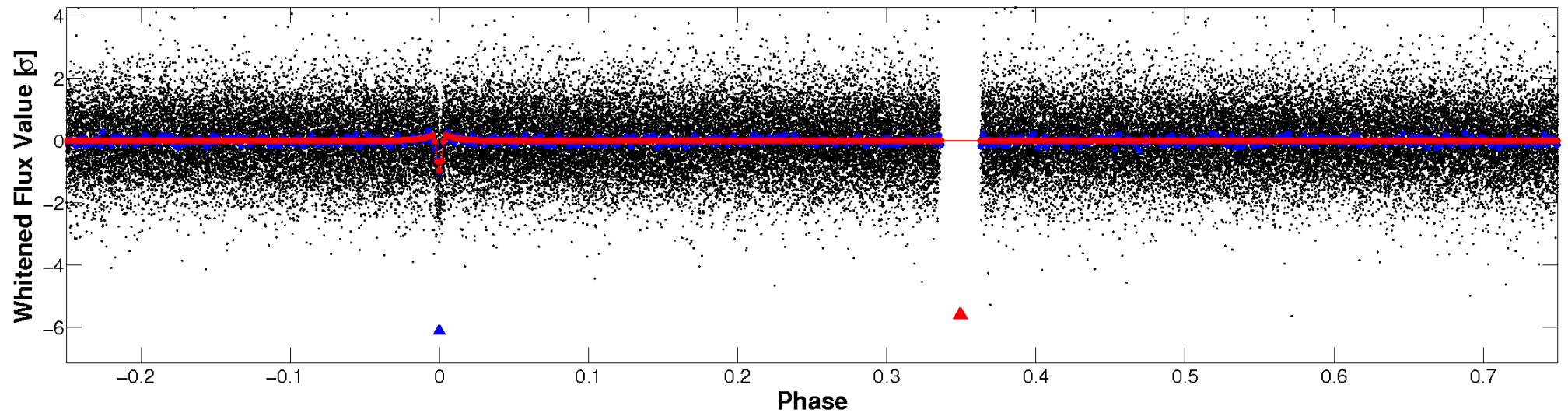


Non-Whitened Vs. Whitened Light Curve

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

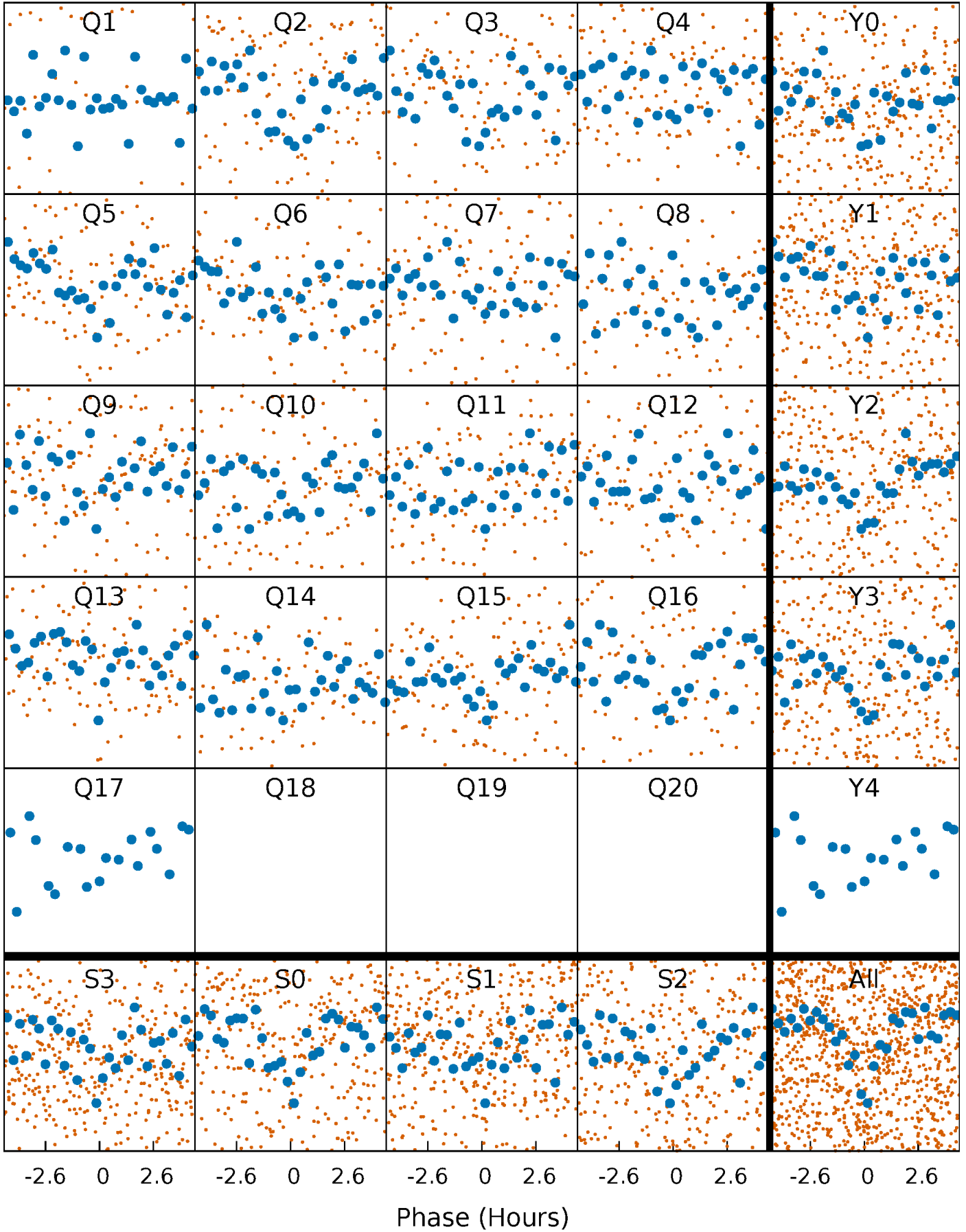


Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



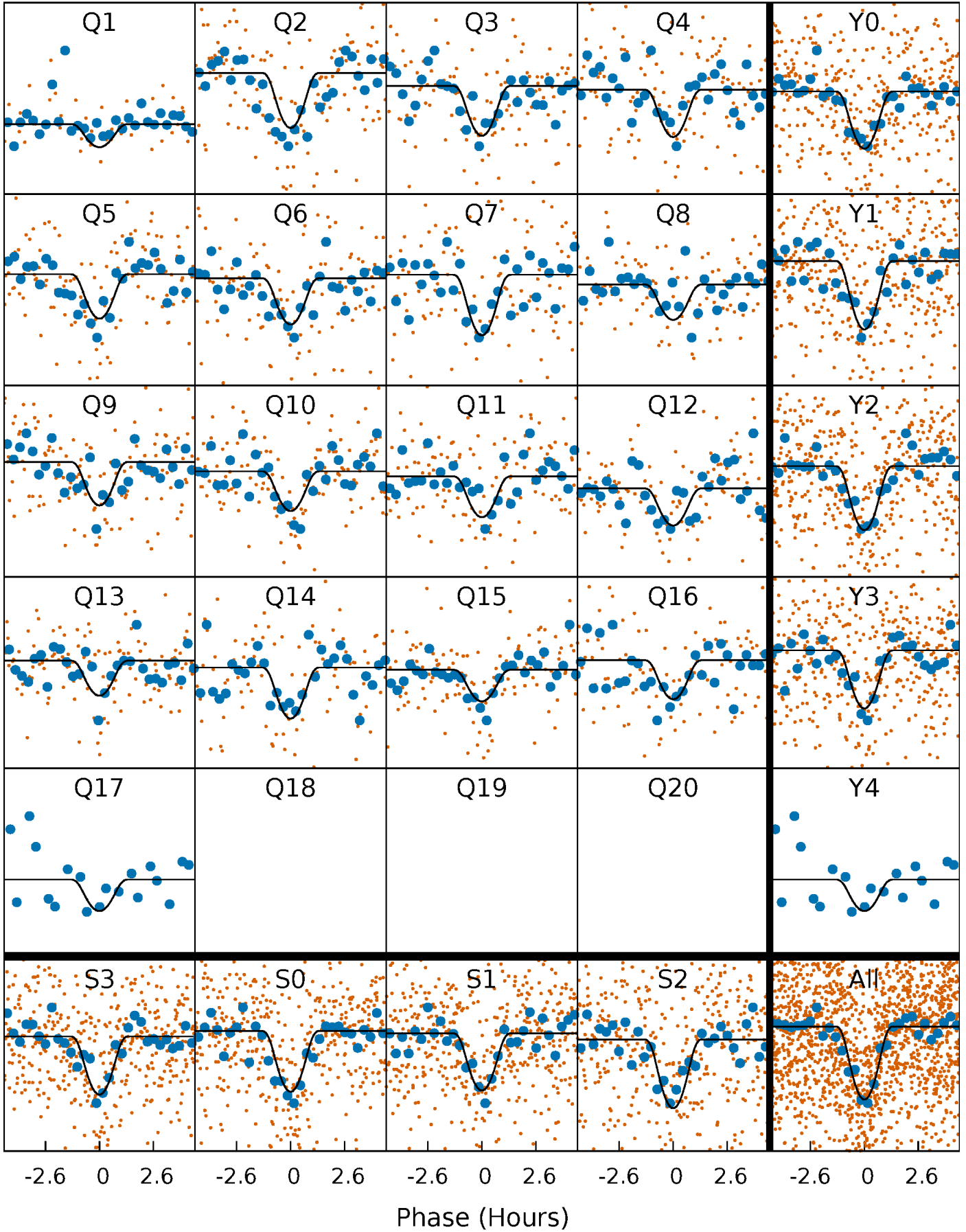
PDC Quarter-Phased Transit Curves

TCE 003548639-02 P= 13.845369 Days $T_0=132.120743$ (BKJD)



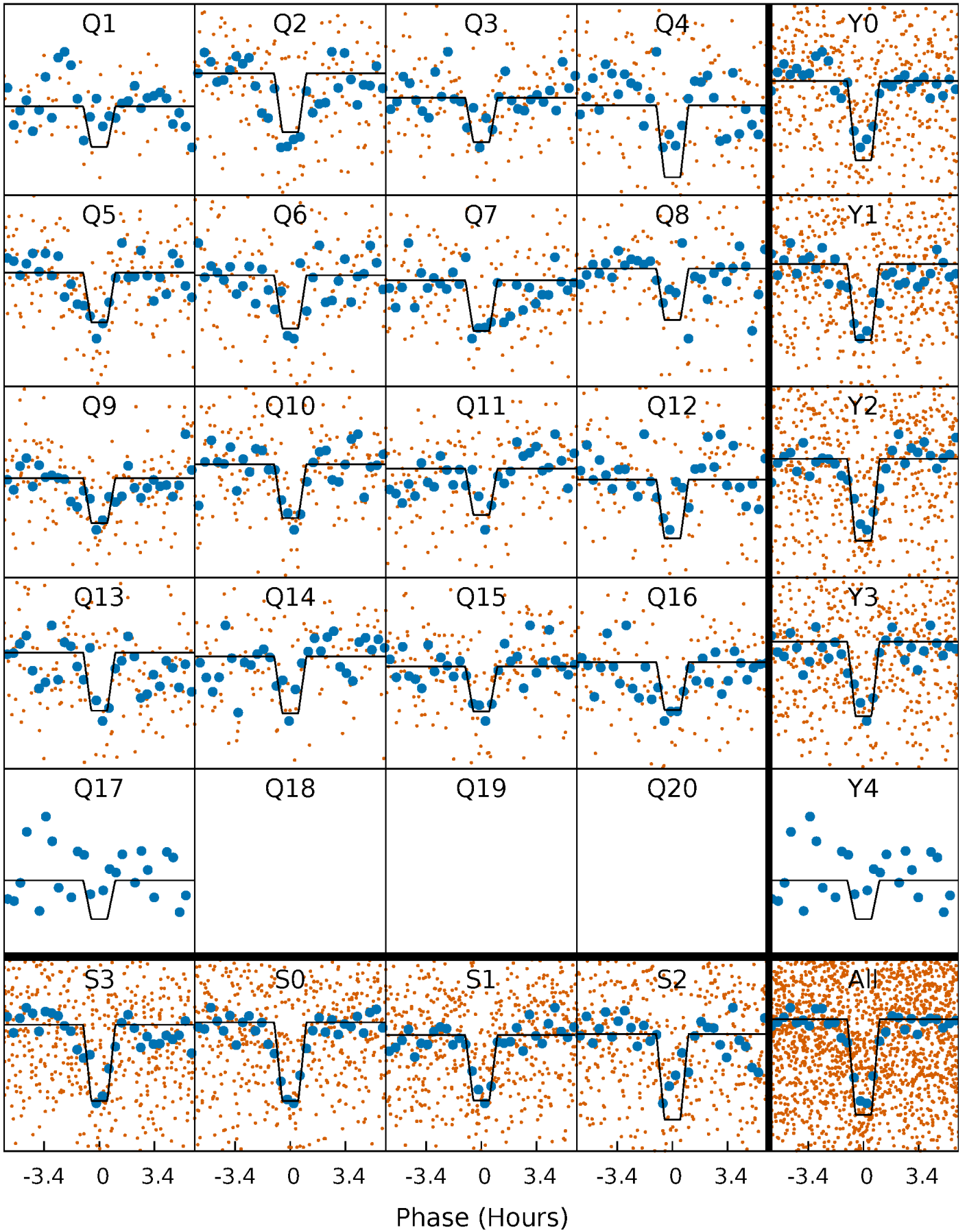
DV Quarter-Phased Transit Curves

TCE 003548639-02 P= 13.845369 Days $T_0=132.120743$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

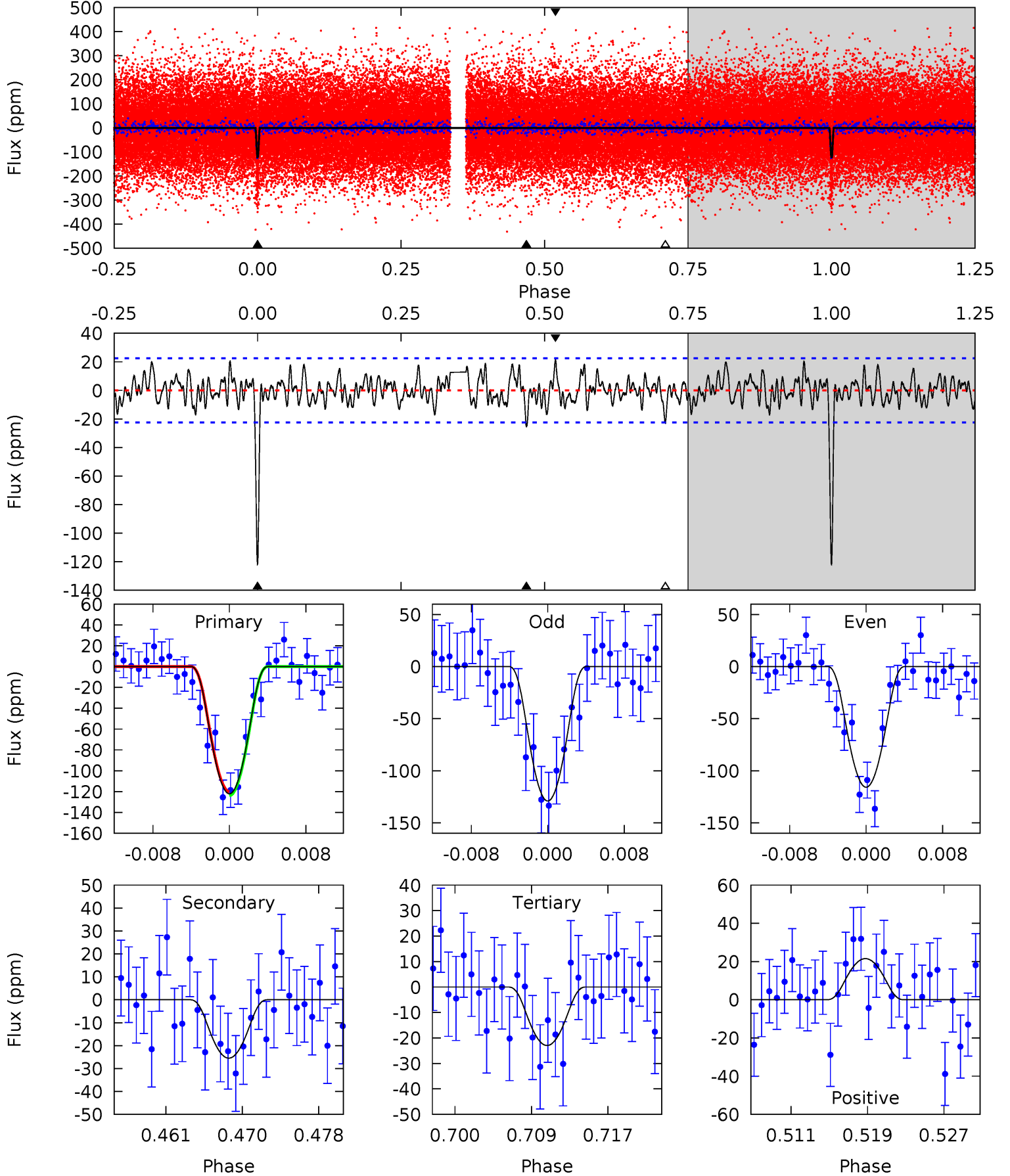
TCE 003548639-02 P= 13.845322 Days $T_0=132.122153$ (BKJD)



DV Model-Shift Uniqueness Test

003548639-02, P = 13.845369 Days, E = 118.275374 Days

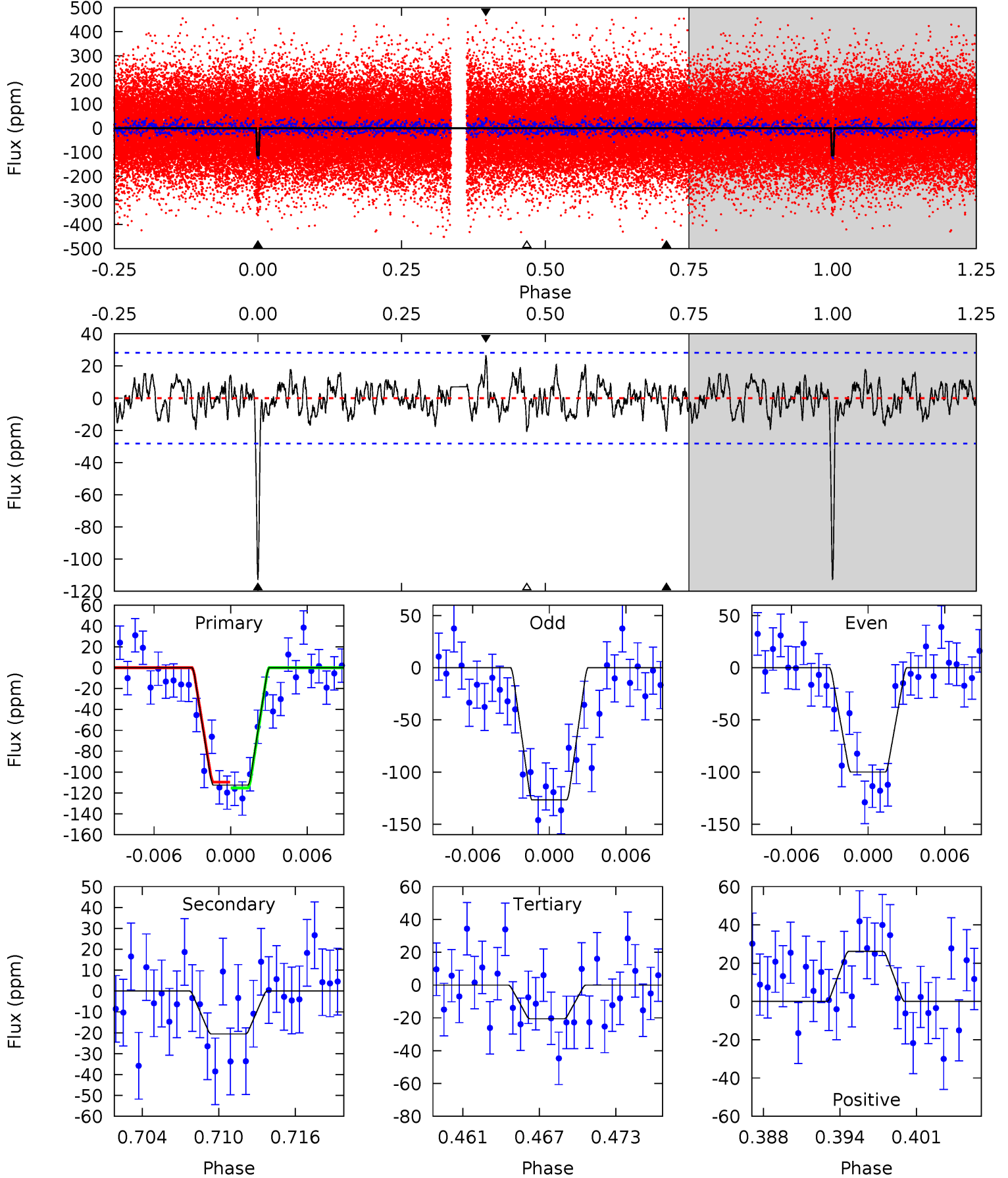
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
27.5	5.74	5.17	4.85	5.06	2.64	1.66	22.3	22.7	0.57	0.89	1.49	0.98	0.15	0.43



Alt Model-Shift Uniqueness Test

003548639-02, P = 13.845322 Days, E = 118.276831 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
20.4	3.74	3.73	4.75	5.12	2.74	1.36	16.7	15.7	0.01	-1.01	2.42	1.02	0.19	0.49



Stellar Parameters For KIC 003548639

	$T_{\text{eff}} (K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R (R_{\odot})$	$M (M_{\odot})$	$\rho_{\star} (\text{g}\cdot\text{cm}^{-3})$
	6845^{+184}_{-225}	$3.890^{+0.266}_{-0.114}$	$-0.200^{+0.300}_{-0.250}$	$2.324^{+0.475}_{-0.772}$	$1.529^{+0.194}_{-0.292}$	$0.172^{+0.296}_{-0.069}$
	+3%/-3%	+7%/-3%	+150%/-125%	+20%/-33%	+13%/-19%	+172%/-40%
Source	PHO1	FLK73	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 003548639-02 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-25 ± 4	$10.13^{+9.77}_{-7.19}$	1765^{+112}_{-138}	2958^{+1558}_{-632}	$2.192^{+25.816}_{-1.603}$
Alt.	-21 ± 6	$8.82^{+9.27}_{-6.04}$	1769^{+107}_{-148}	2999^{+1492}_{-733}	$2.507^{+20.862}_{-1.969}$

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

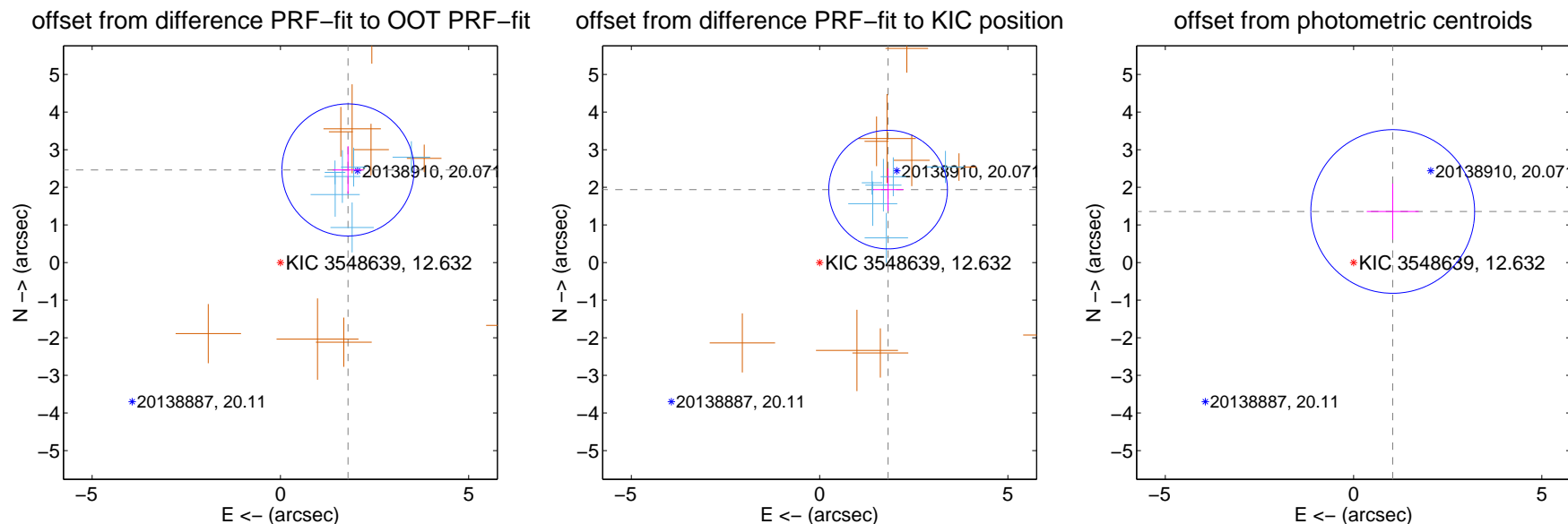
DV Centroid Data

Supplemental centroid analysis for 003548639-02. Kepler magnitude: 12.63. Transit SNR 13.78

There are 6 quarters with good PRF difference image offsets

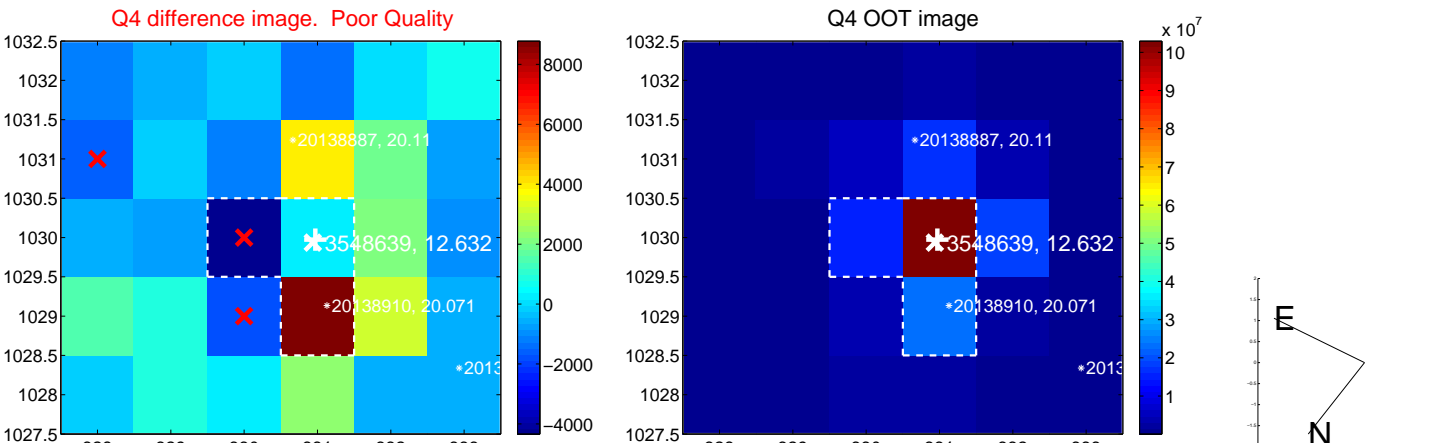
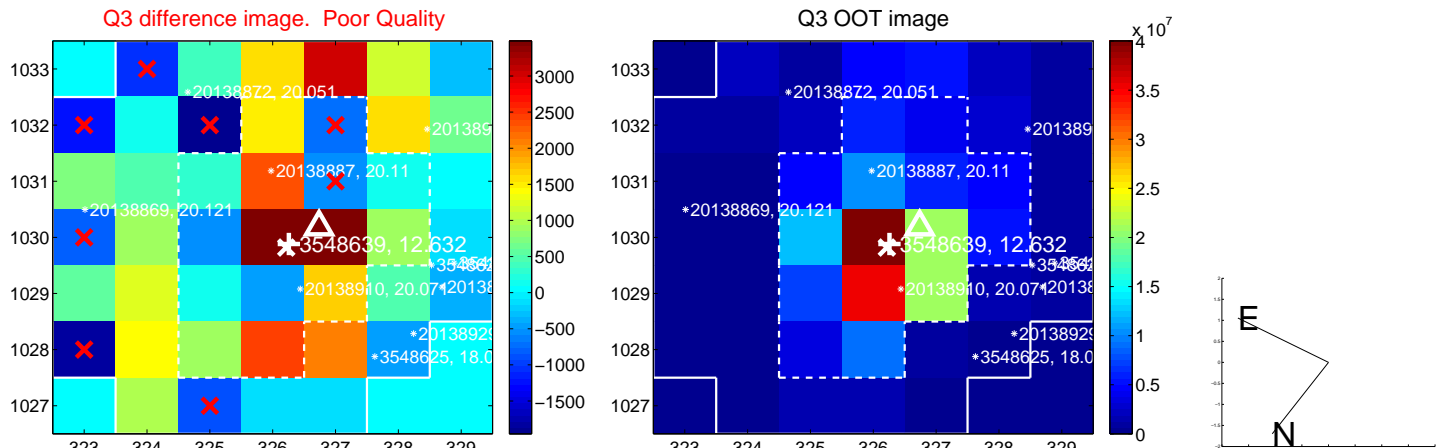
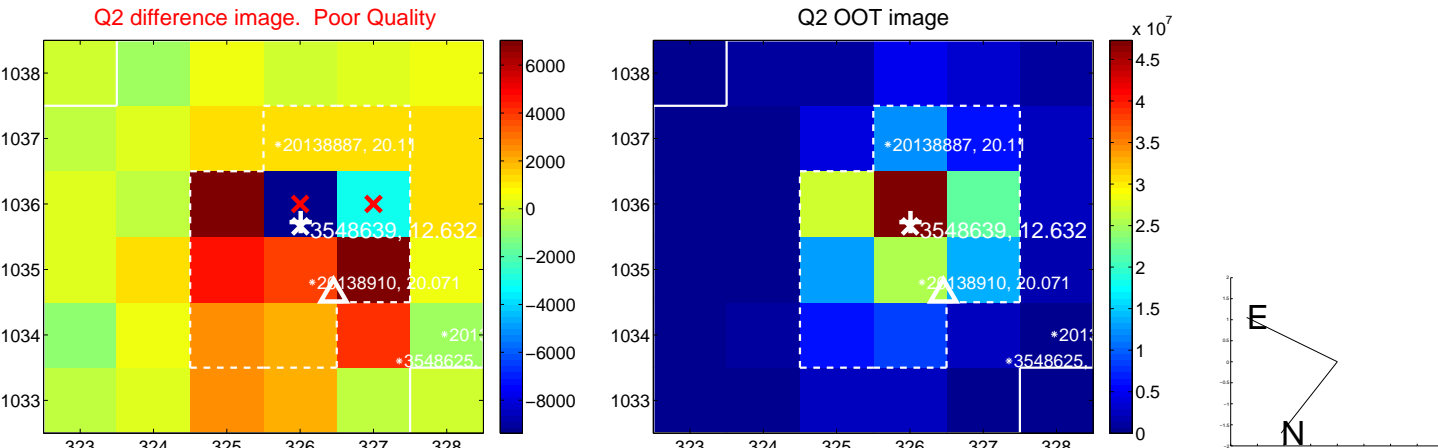
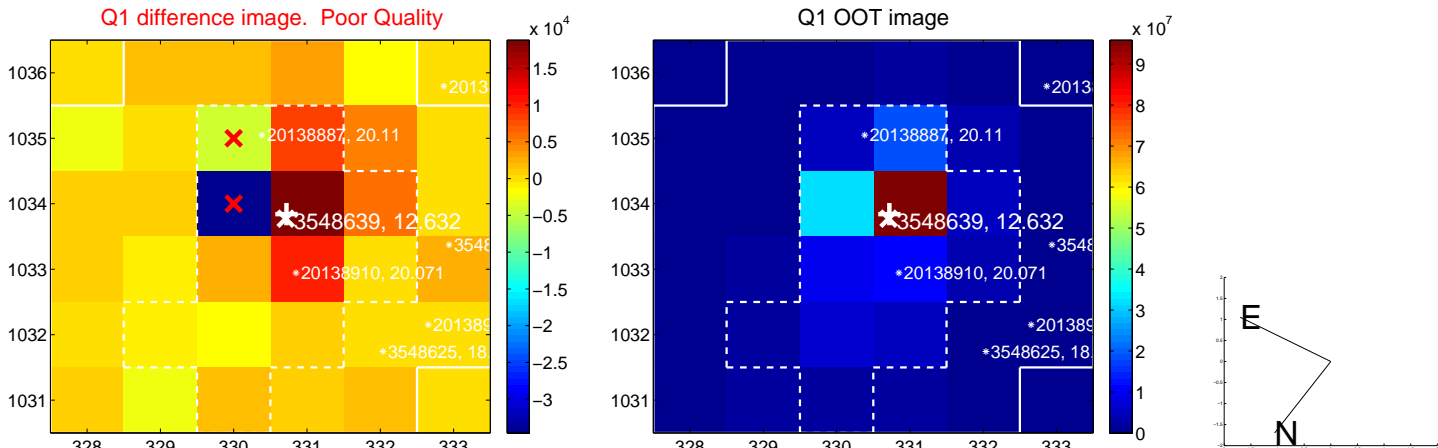
The direct PRF centroid is offset from the target star catalog position by about 0.26 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	3.047 ± 0.585	5.21	-1.795 ± 0.406	2.462 ± 0.632
PRF-fit source offset from KIC position	2.659 ± 0.525	5.06	-1.819 ± 0.403	1.939 ± 0.563
photometric centroid source offset	1.71 ± 0.73	2.36	-1.04 ± 0.69	1.36 ± 0.74

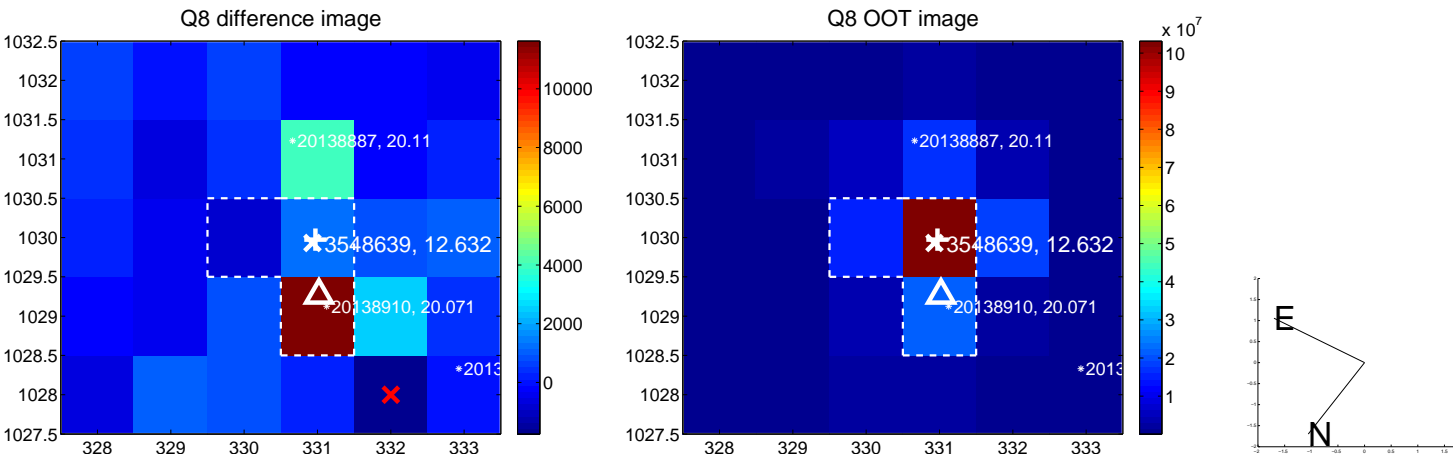
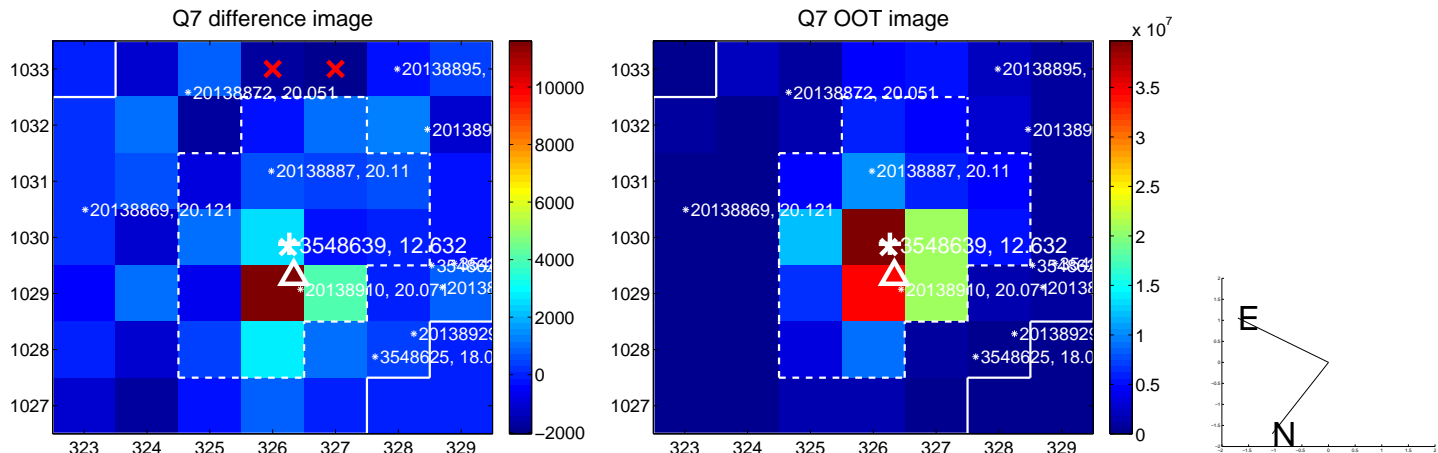
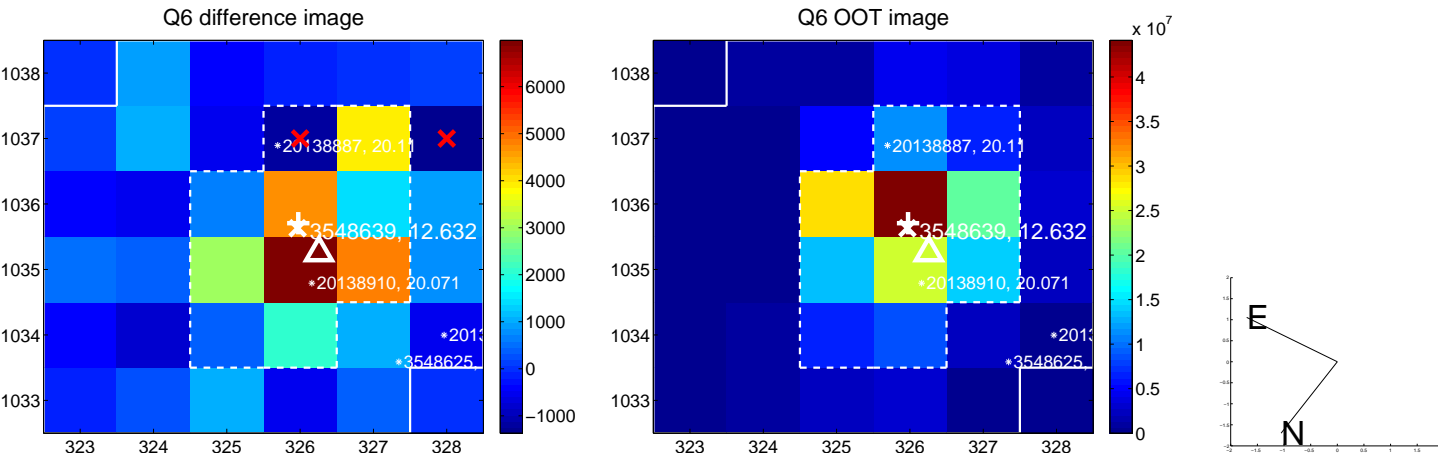
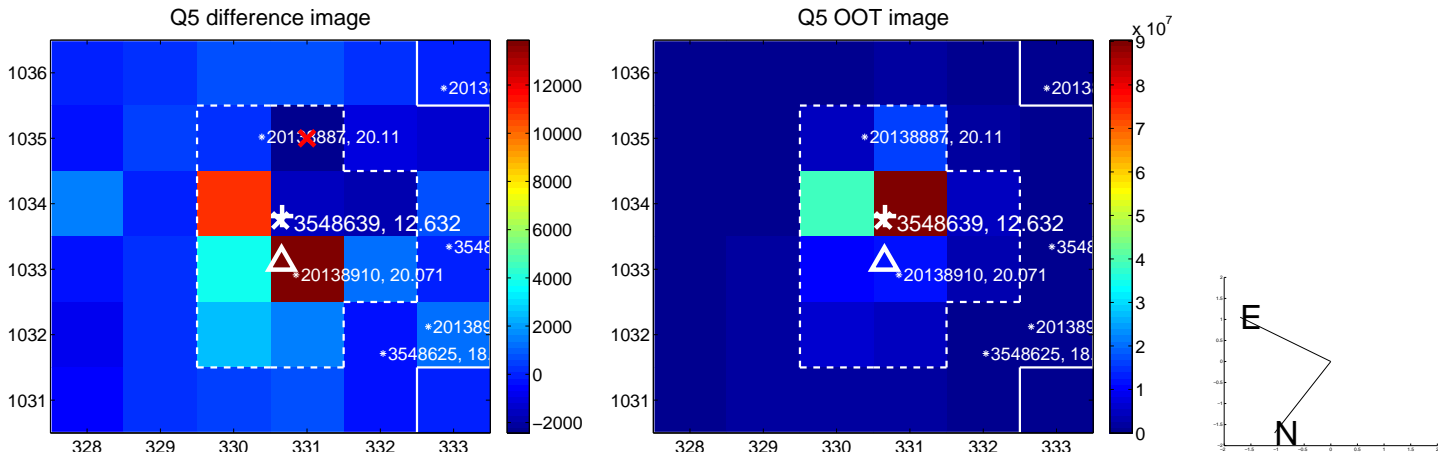


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets**; **Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

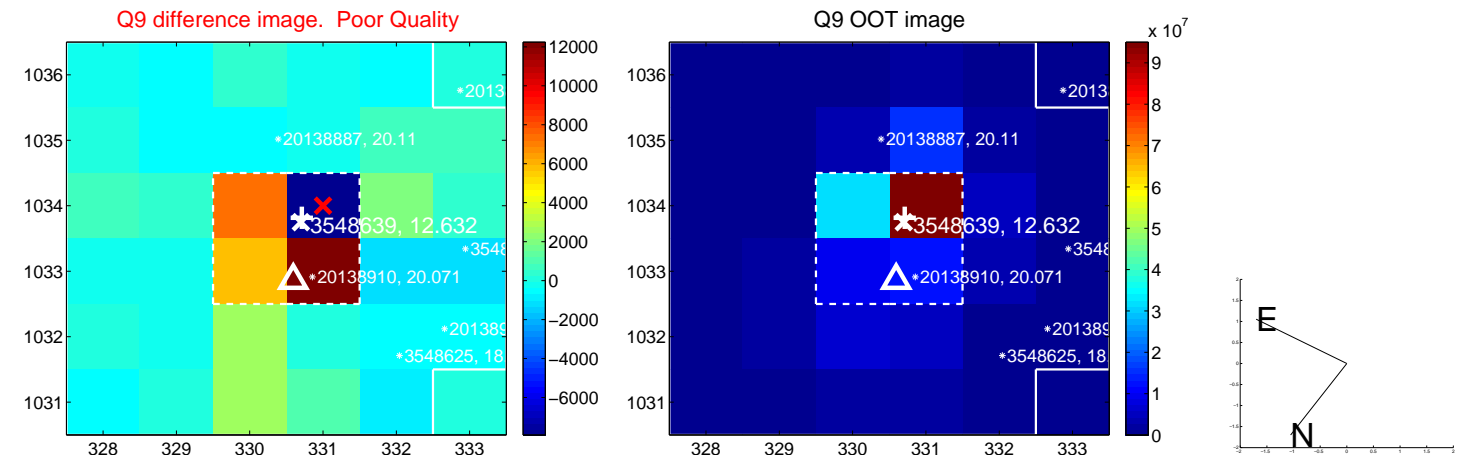
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



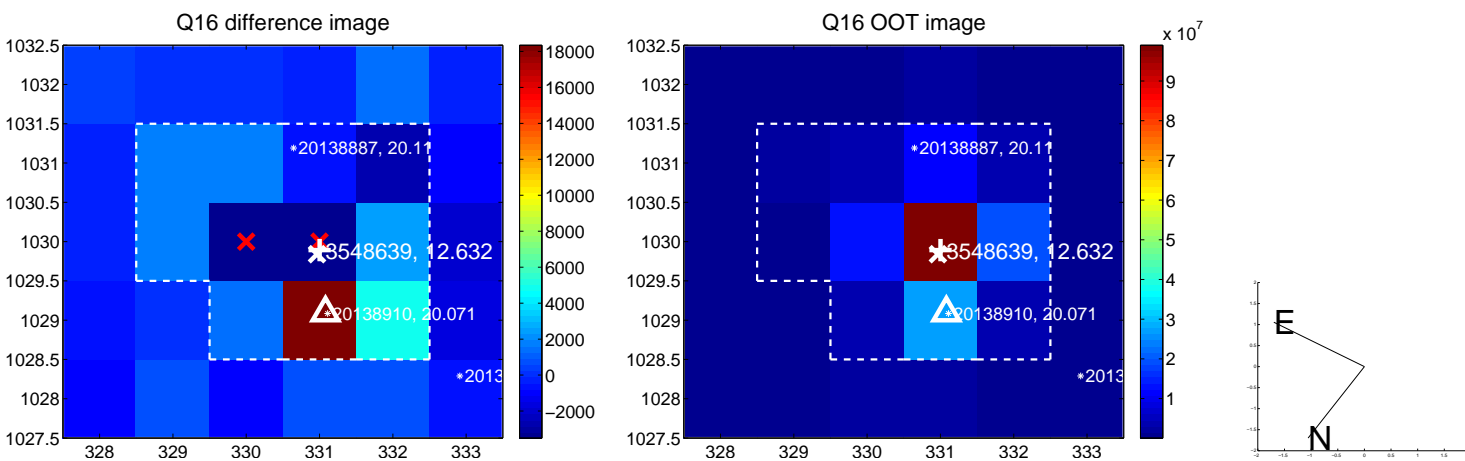
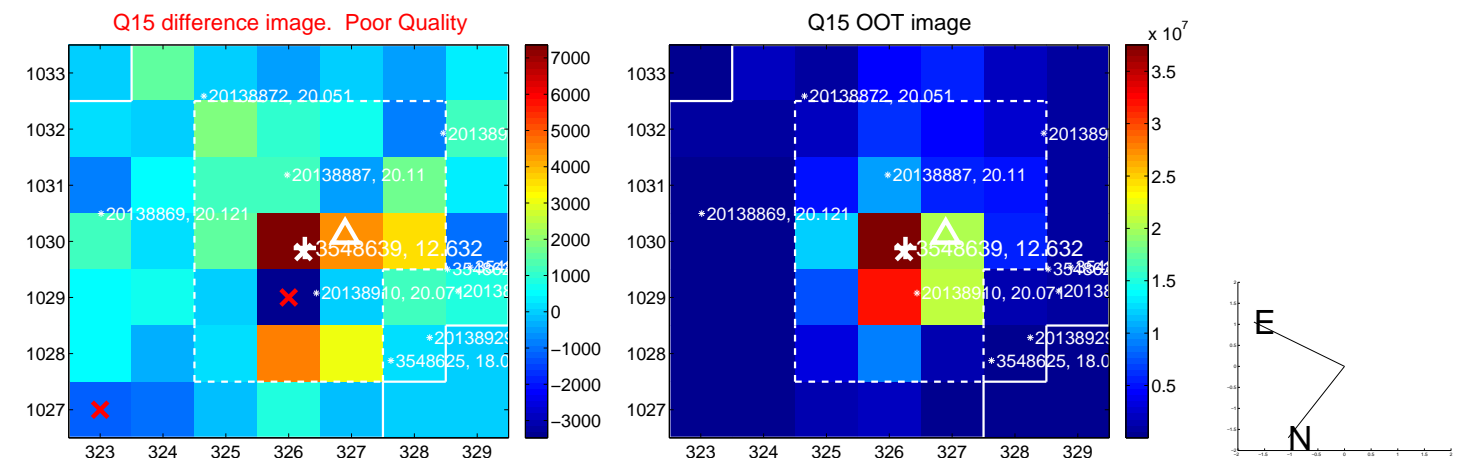
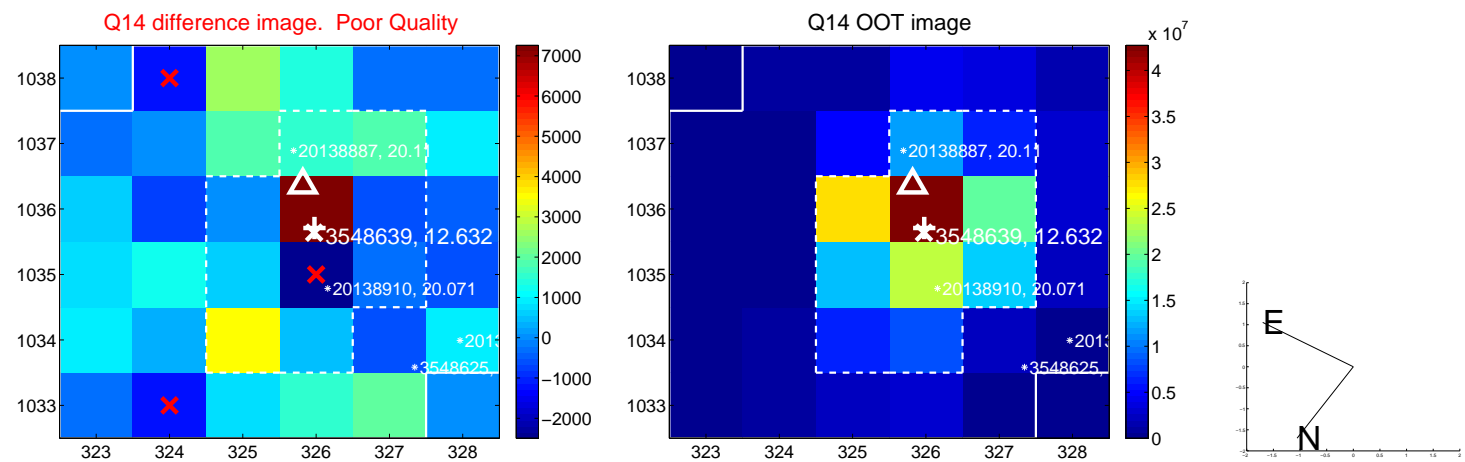
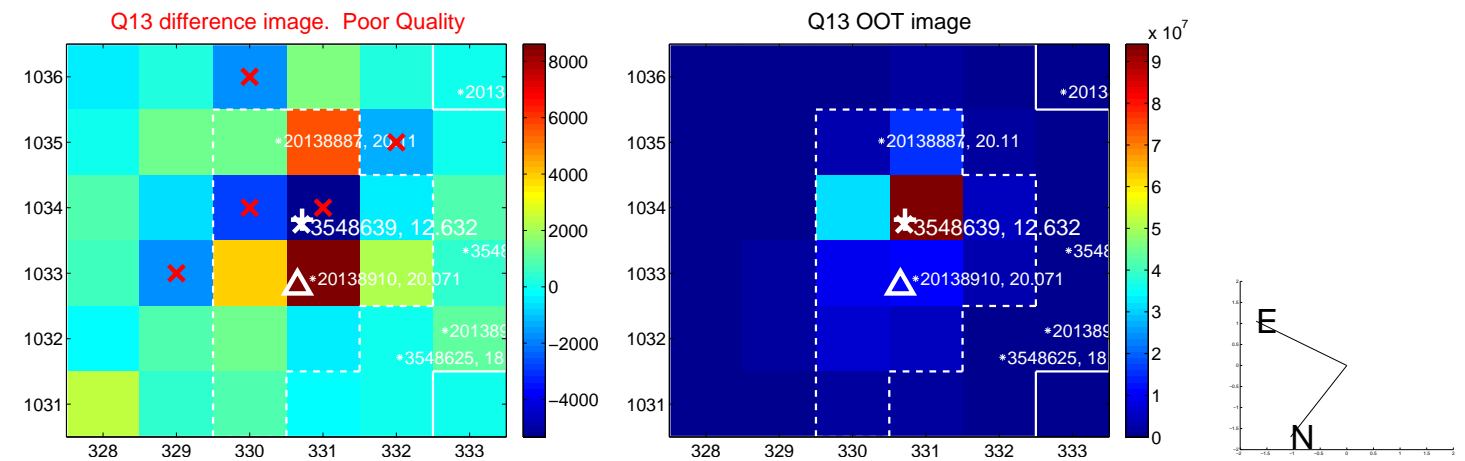
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



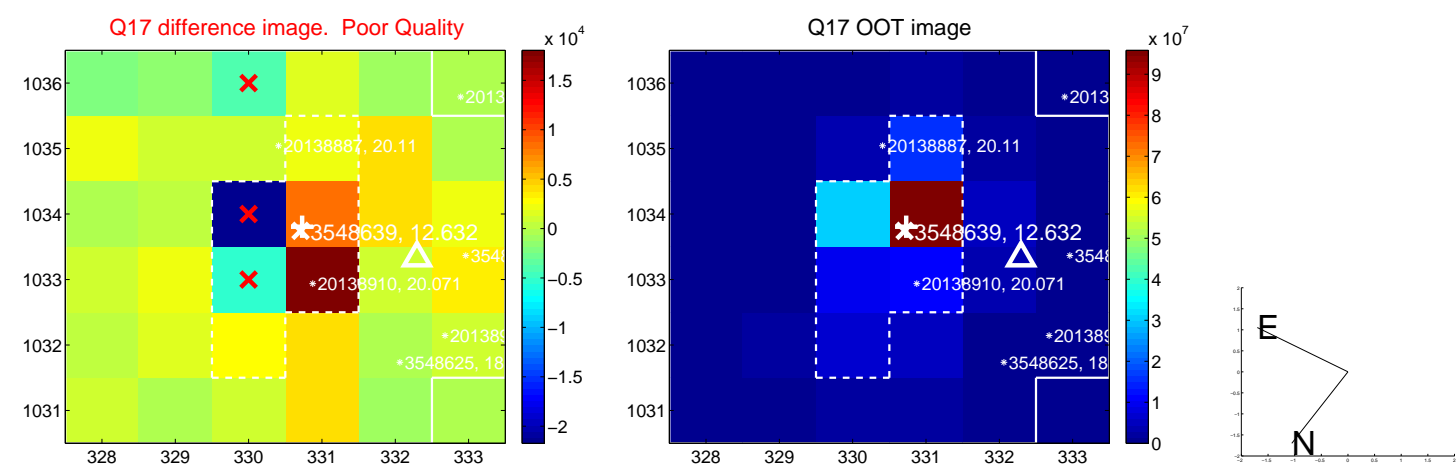
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



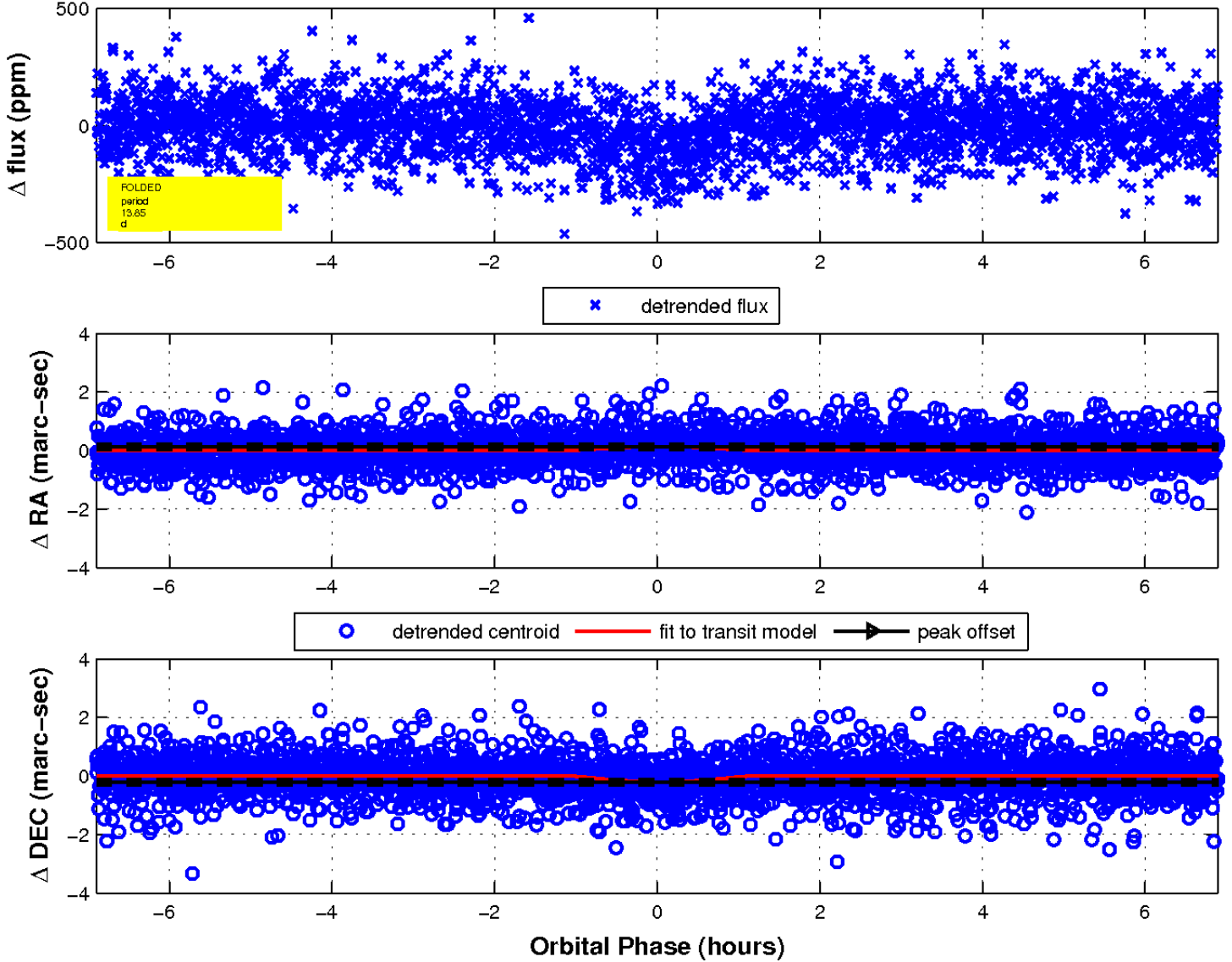
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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



fluxWeightedCentroids, Planet 2 of 2



UKIRT Image

Declination

