

KIC 003532985

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})
003532985-01	OBS	5987.01	5.288564	135.804937	2135.0	3.253	164.4	164.3	9.17	4918	54.61	7011.53
003532985-02	OBS	No	5.288535	133.166313	111.2	2.891	9.7	10.6	9.17	4918	11.84	7011.58

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
003532985-01	OBS	FP	0.05	0	1	0	0	MOD_SEC_DV—MOD_SEC_ALT—HAS_SEC_TCE—CENT_SATURATED
003532985-02	OBS	FP	0.00	1	1	0	0	IS_SEC_TCE—CENT_SATURATED

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 003532985-01

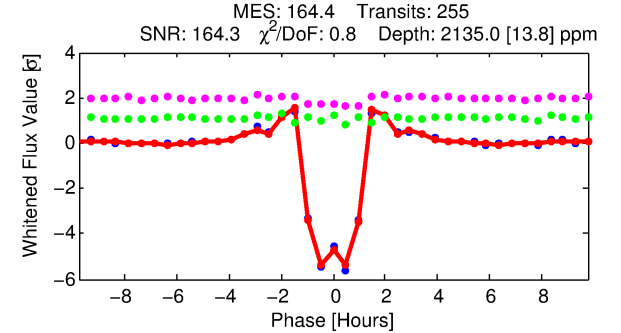
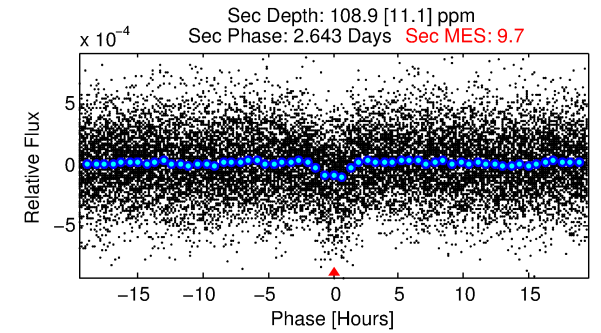
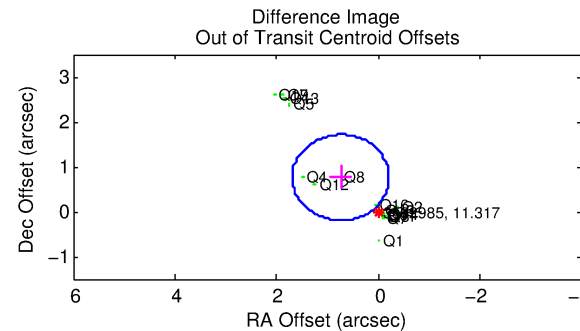
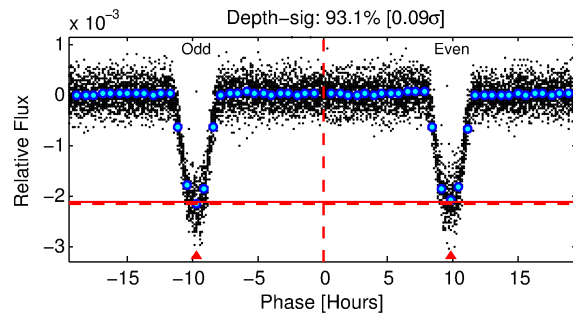
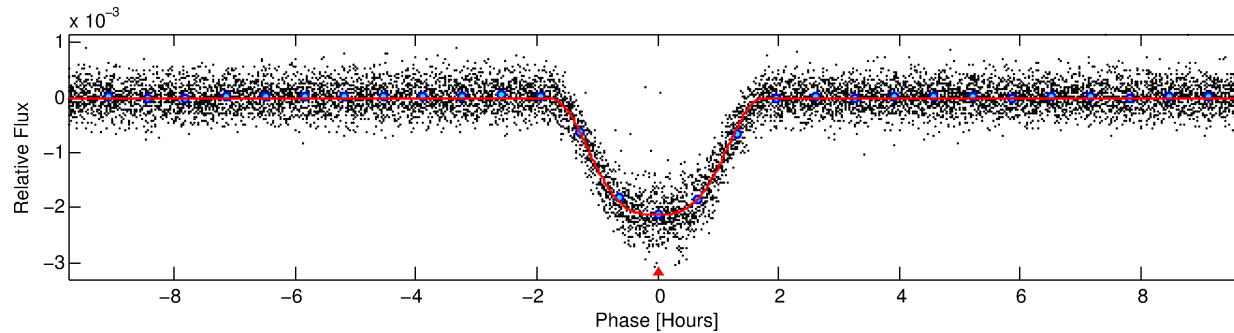
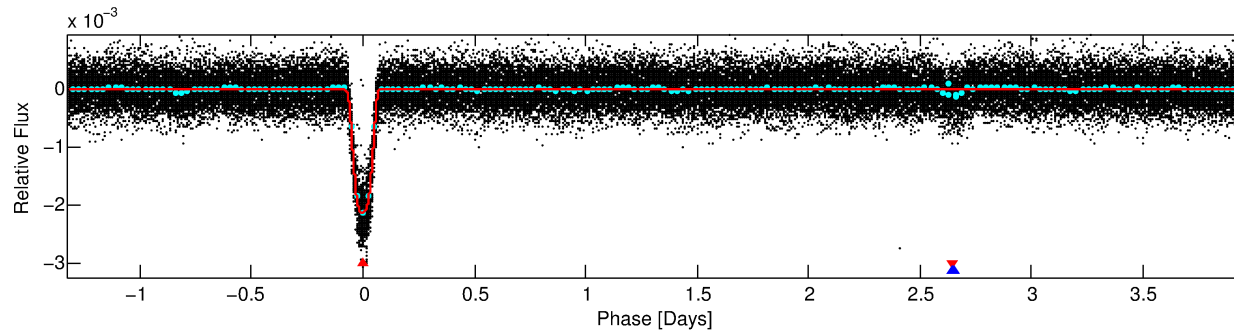
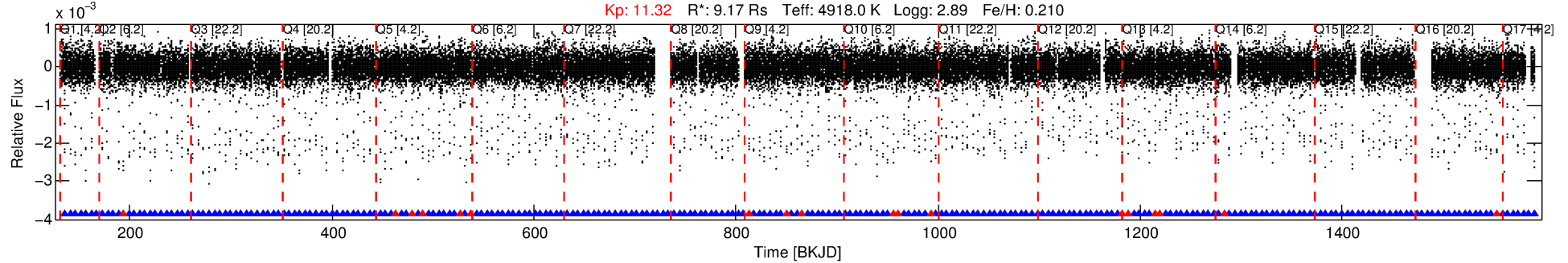
No Significant Match Found

DV One-Page Summary

KIC: 3532985 Candidate: 1 of 2 Period: 5.289 d

KOI: K05987.01 Corr: 0.992

Kp: 11.32 R*: 9.17 Rs Teff: 4918.0 K Logg: 2.89 Fe/H: 0.210



DV Fit Results:

Period = 5.28856 [0.00000] d
Epoch = 135.8049 [0.0002] BKJD
Rp/R* = 0.0546 [0.0002]
a/R* = 6.20 [0.03]
b = 0.93 [0.00]
Seff = 7011.53 [3100.70]
Teq = 2333 [258] K
Rp = 54.61 [20.75] Re
a = 0.0793 [0.0244] AU
Ag = 0.13 [0.06] [-15.59σ]
Teffp = 2150 [75] K [-0.68σ]

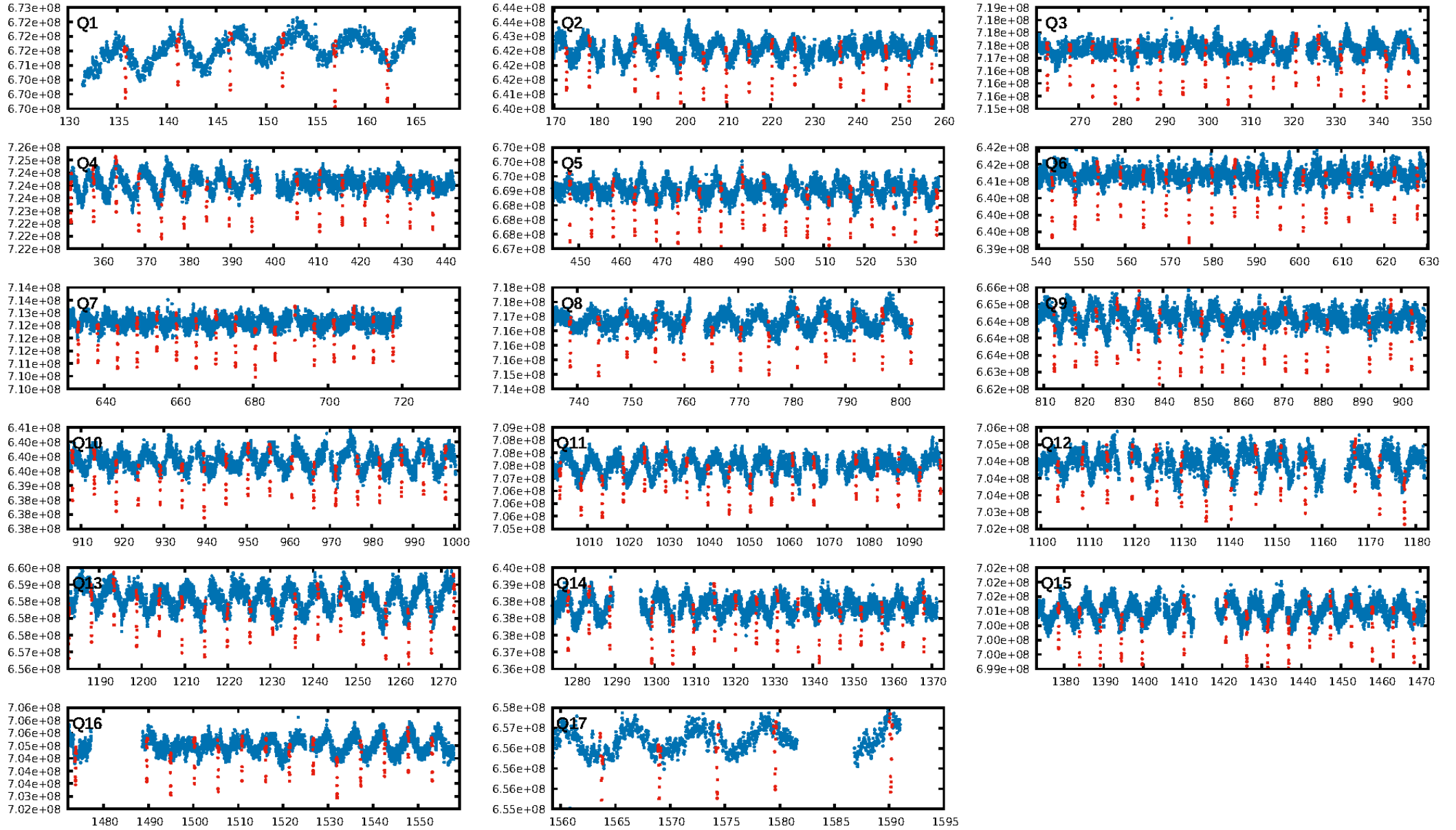
DV Diagnostic Results:

ShortPeriod-sig: 0.0% [0.00σ]
LongPeriod-sig: N/A
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: 0.00e+00
RollingBand-fgt: 0.93 [226/244]
GhostDiagnostic-chr: 3.499
Centroid-sig: 0.0%
Centroid-so: 0.111 arcsec [6.70σ]
OotOffset-rm: 1.060 arcsec [3.33σ]
OotOffset-st: 4/4/4/5 [17]
KicOffset-rm: 1.089 arcsec [2.97σ]
KicOffset-st: 4/4/4/5 [17]
DiffImageQuality-fgm: 1.00 [17/17]
DiffImageOverlap-fno: 1.00 [17/17]

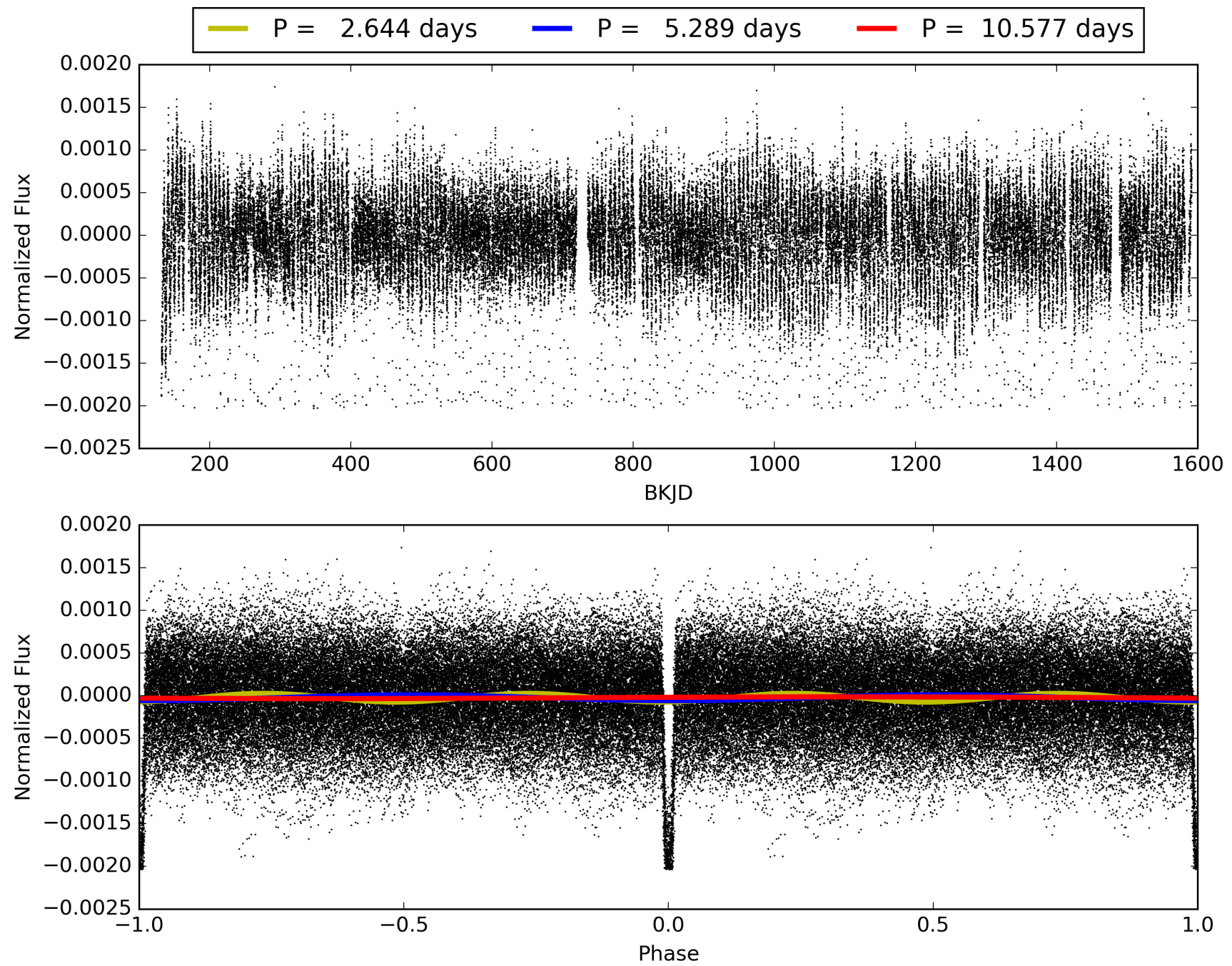
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 31-Jan-2016 22:50:32 Z

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

TCE 003532985-01, PDC Light Curves

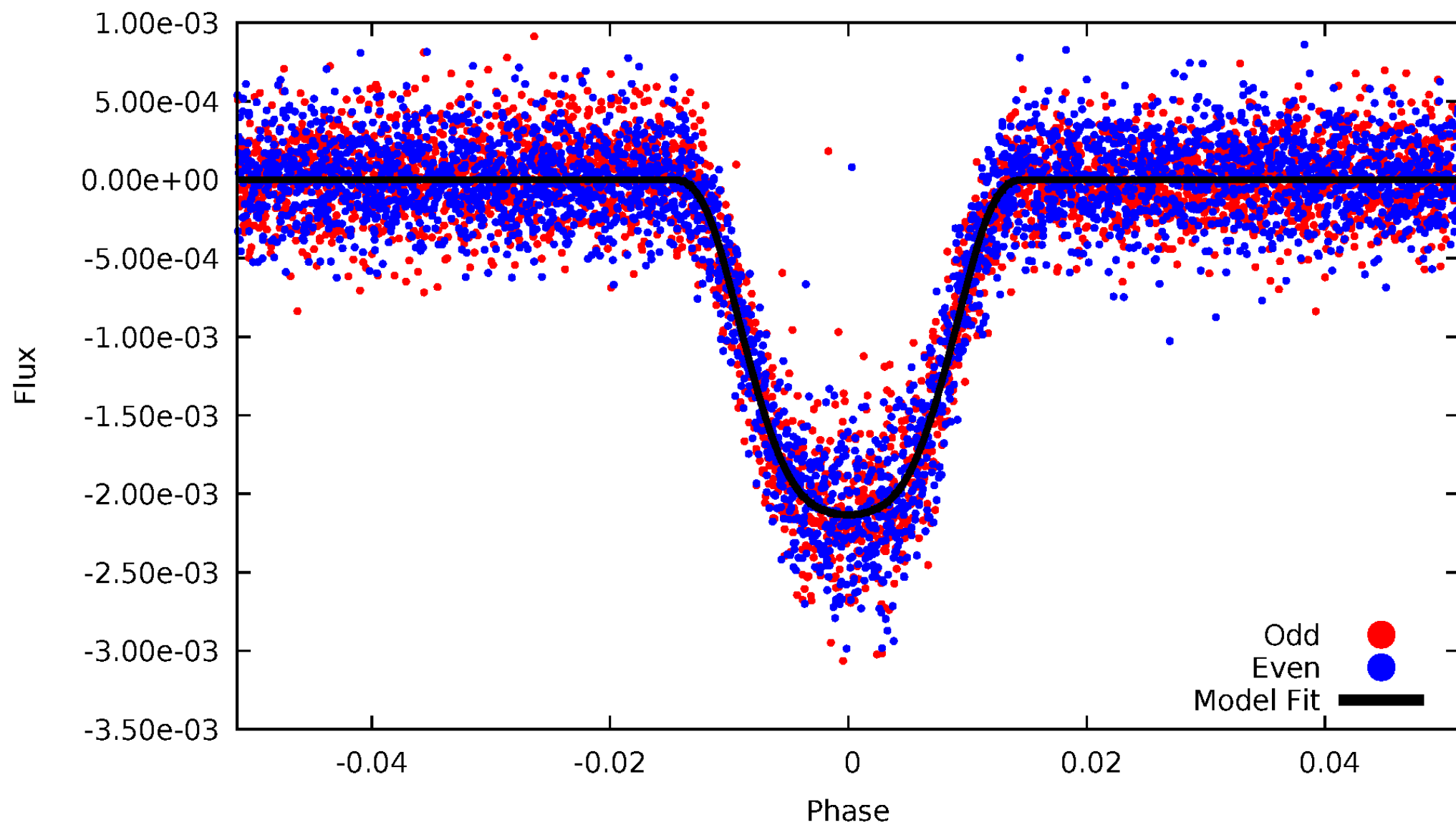


TCE 003532985-01



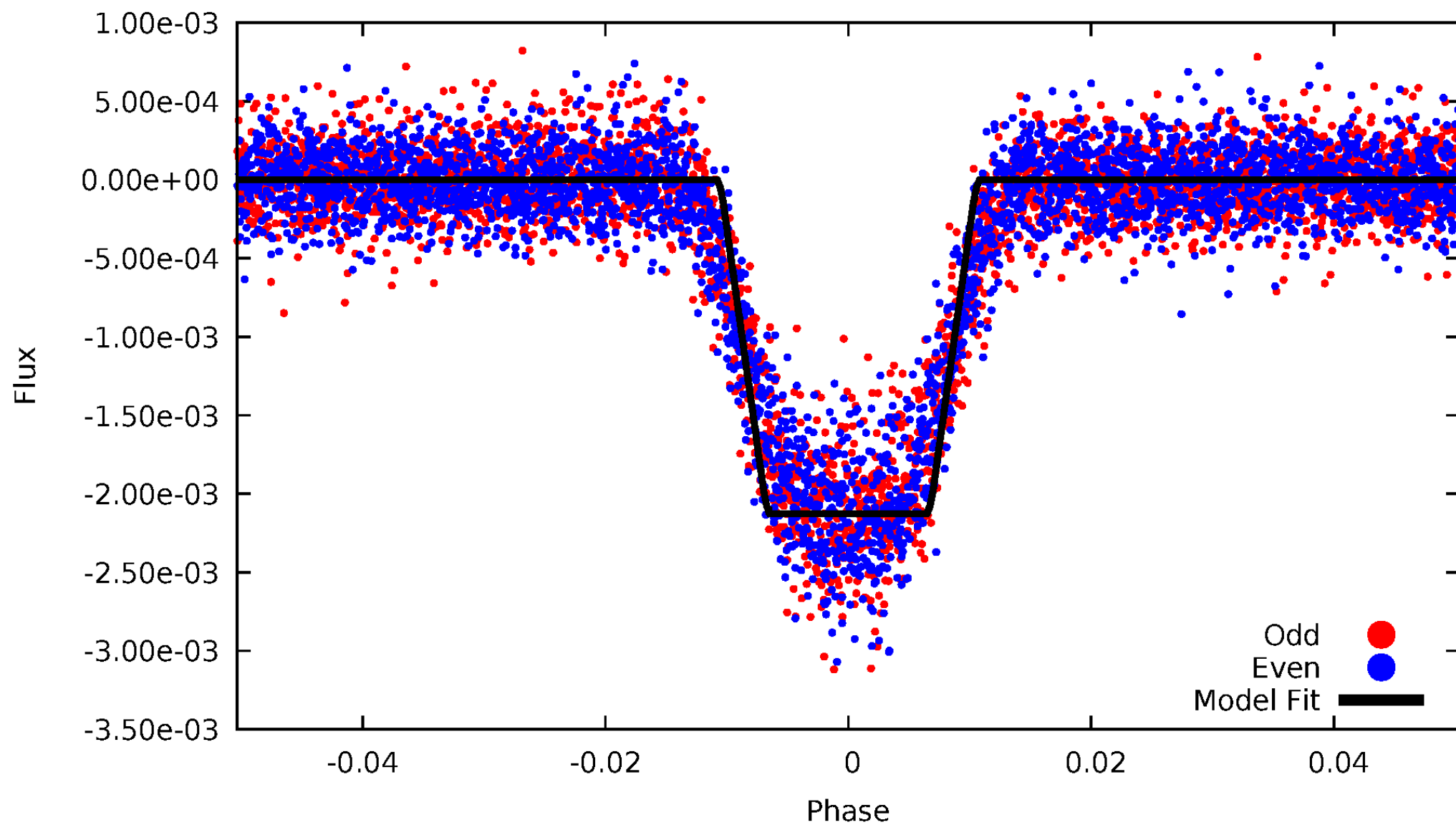
DV Odd/Even

TCE 003532985-01



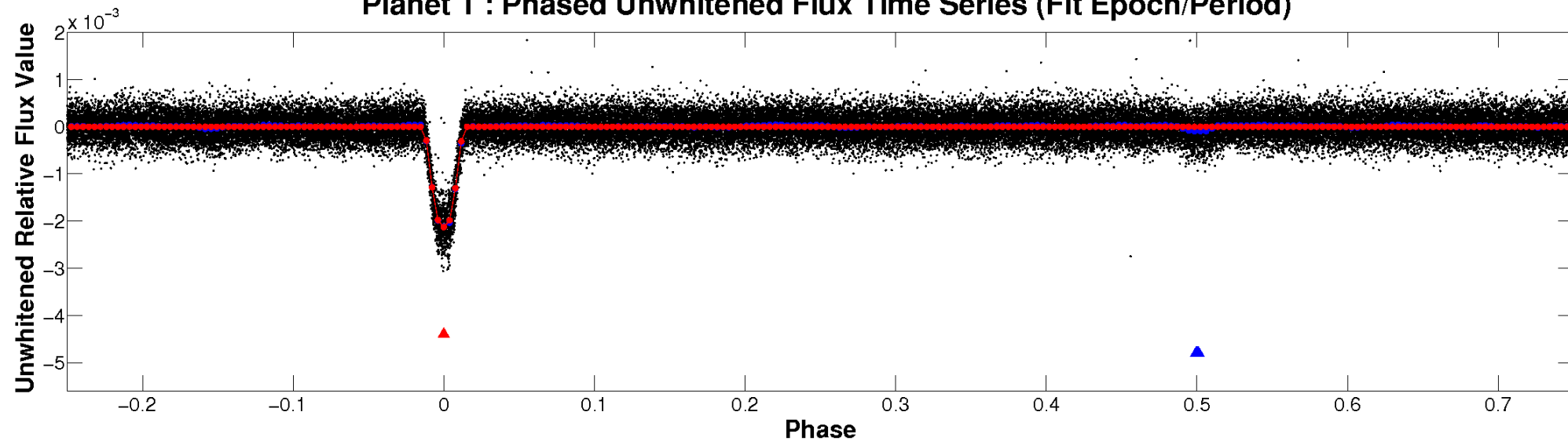
ALT Odd/Even

TCE 003532985-01

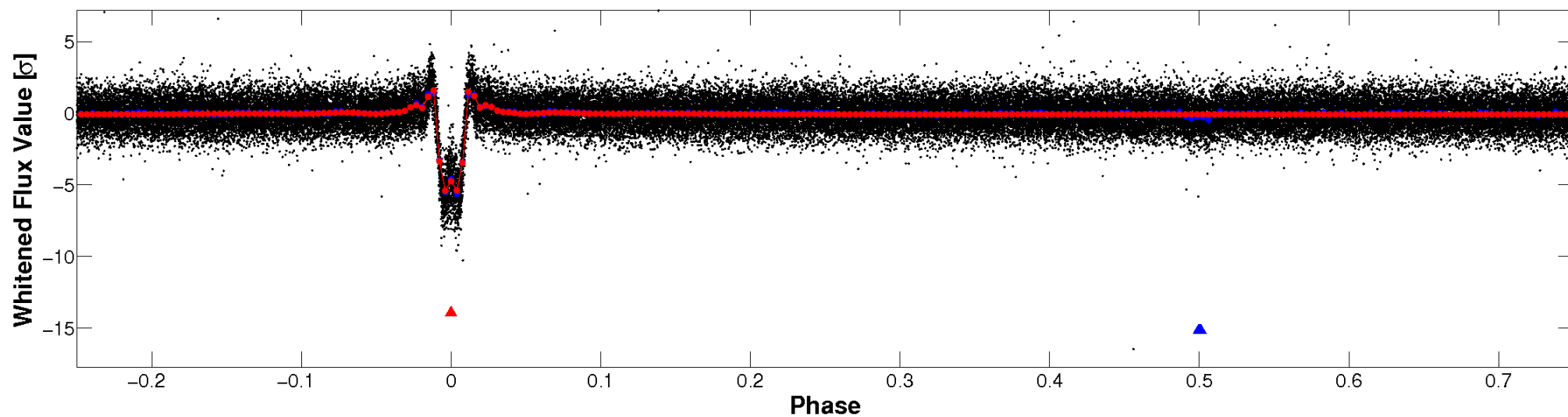


Non-Whitened Vs. Whitened Light Curve

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

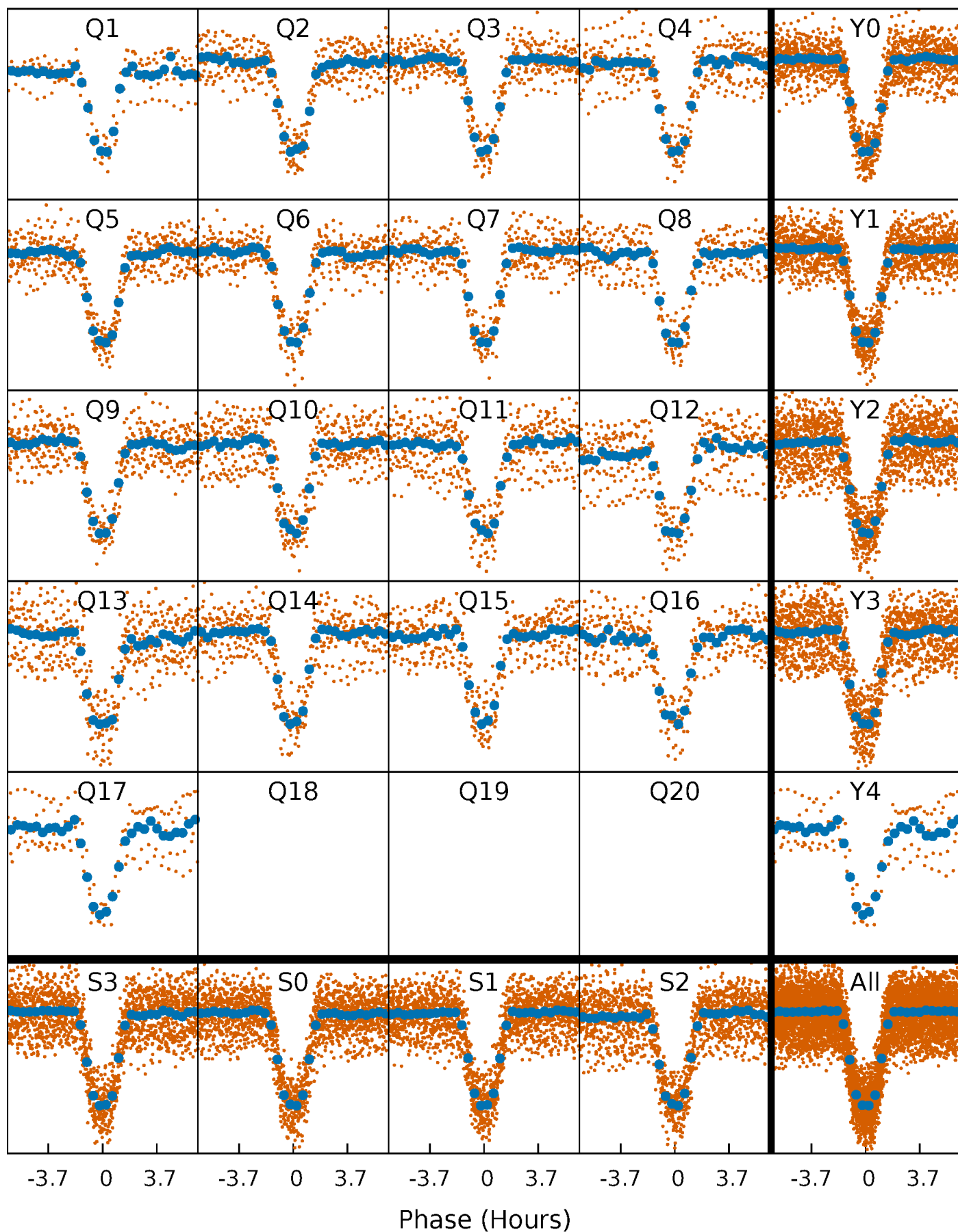


Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)



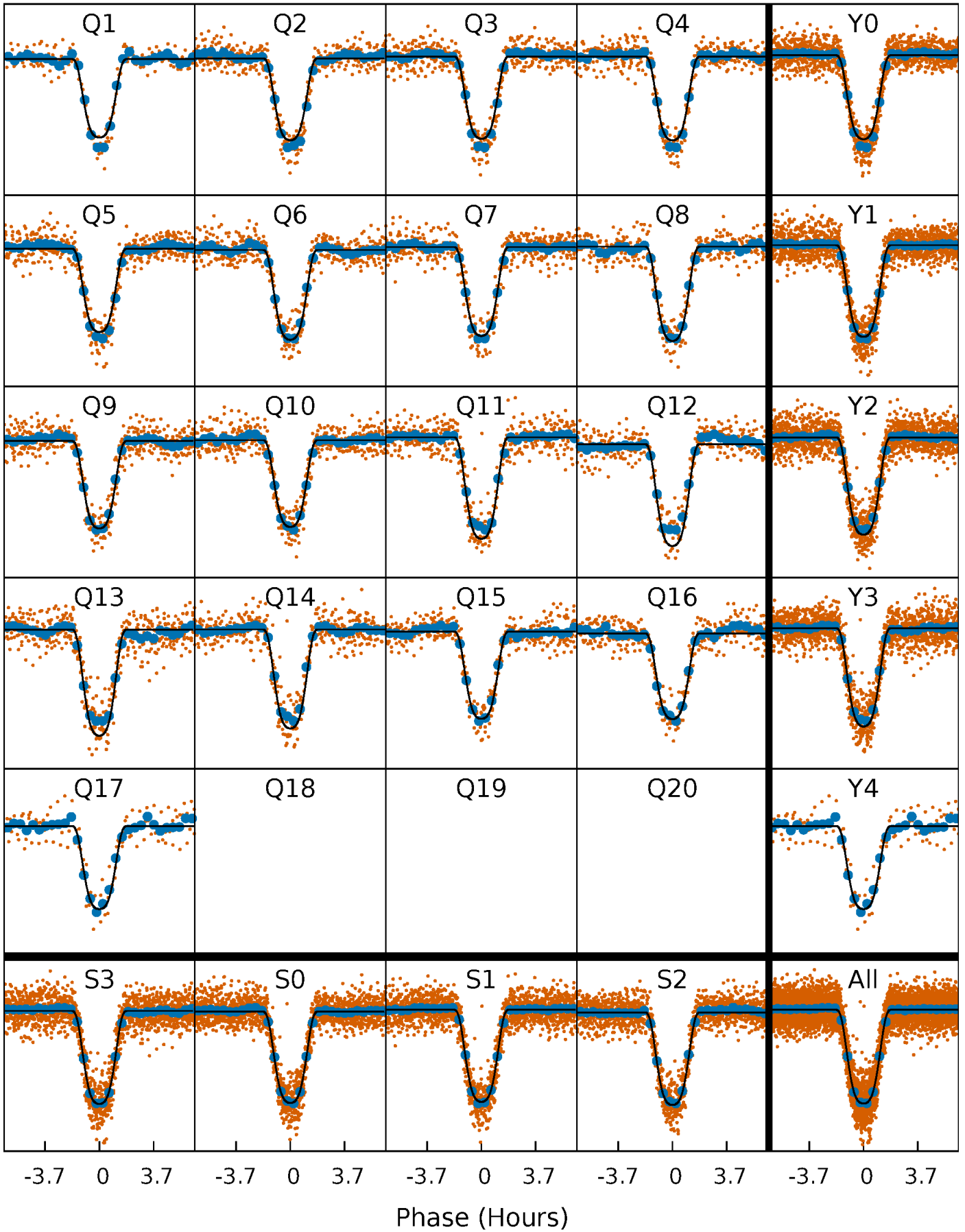
PDC Quarter-Phased Transit Curves

TCE 003532985-01 P= 5.288564 Days $T_0=135.804937$ (BKJD)



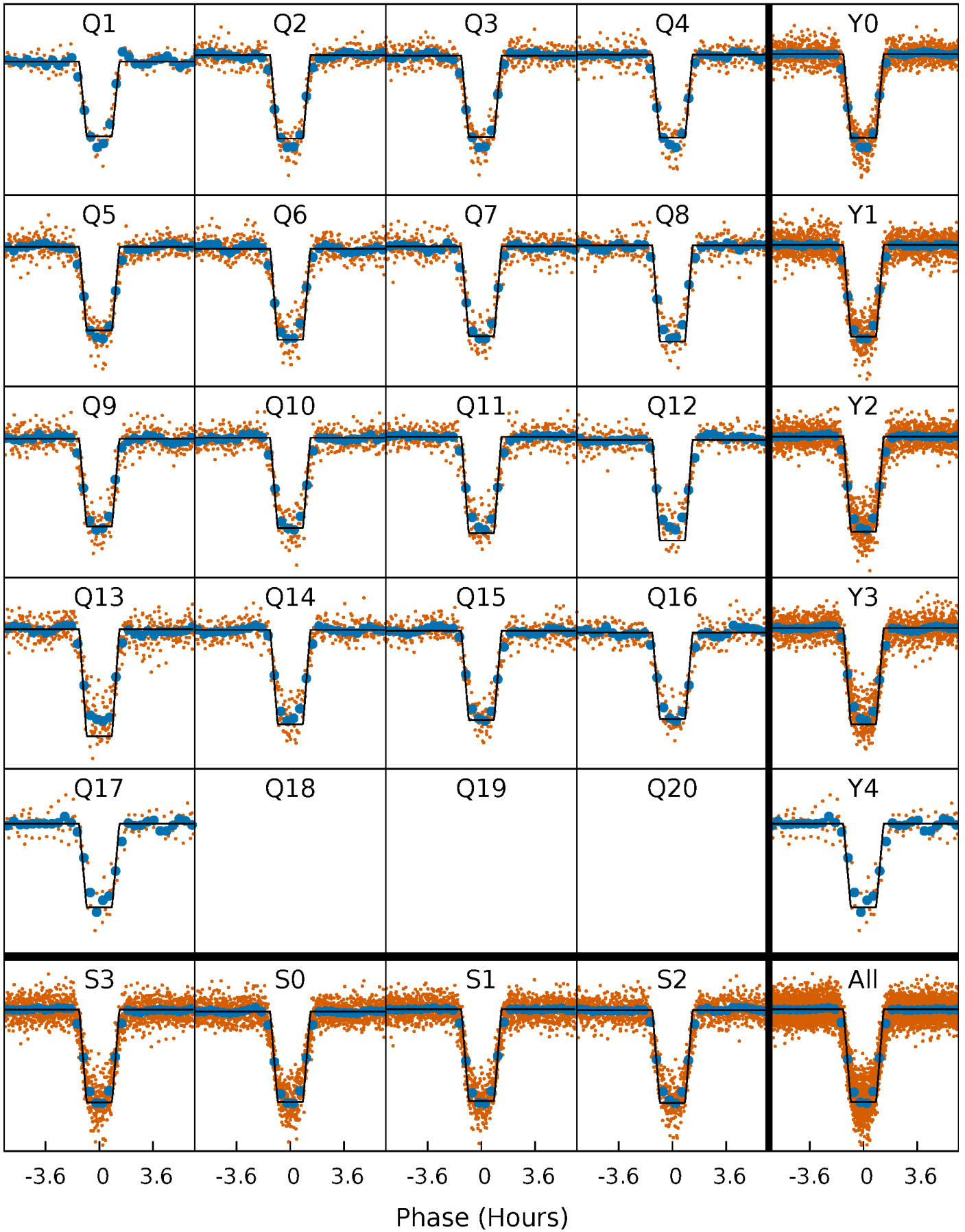
DV Quarter-Phased Transit Curves

TCE 003532985-01 P= 5.288564 Days $T_0=135.804937$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

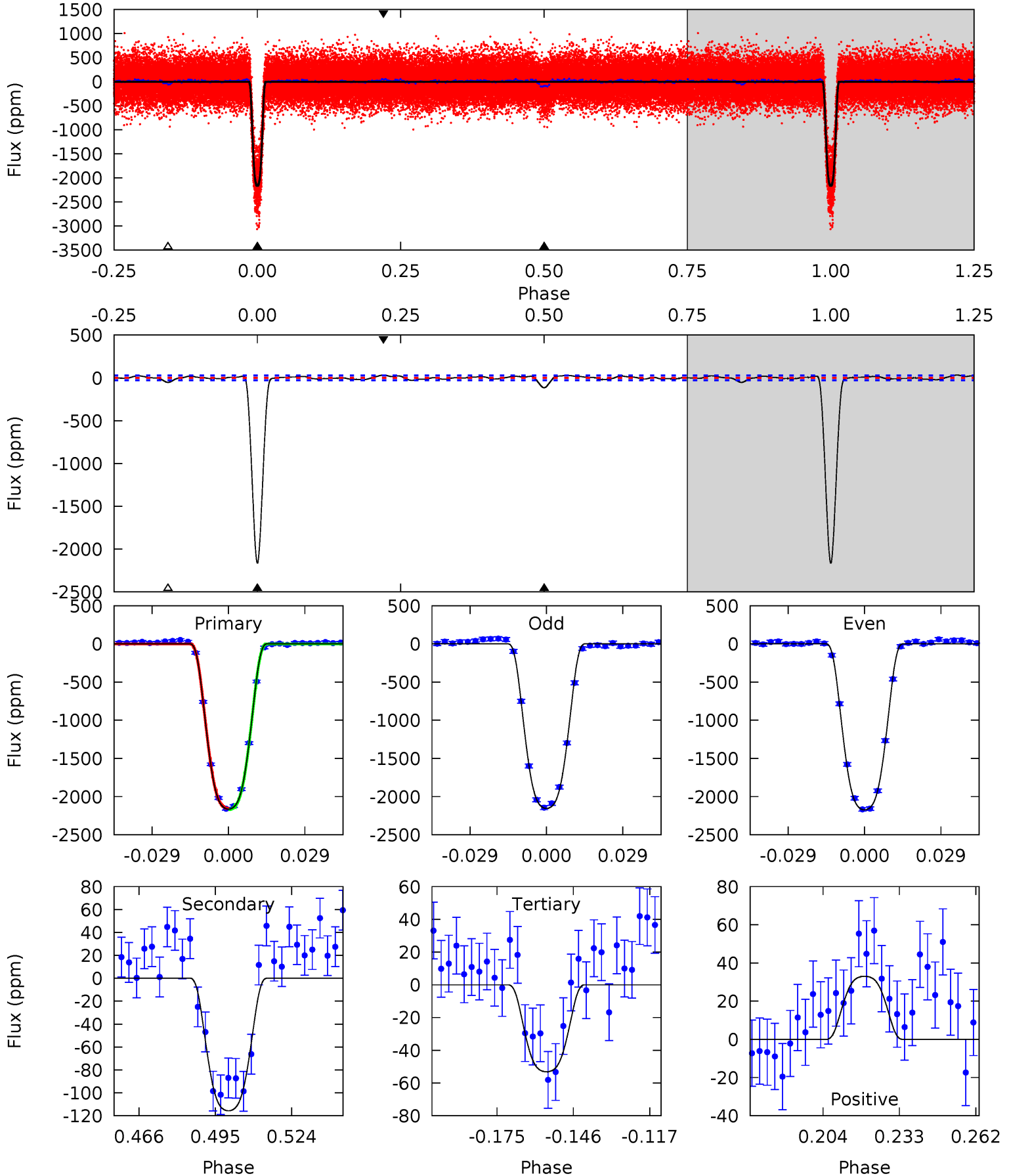
TCE 003532985-01 P= 5.288529 Days $T_0=135.809724$ (BKJD)



DV Model-Shift Uniqueness Test

003532985-01, P = 5.288564 Days, E = 130.516373 Days

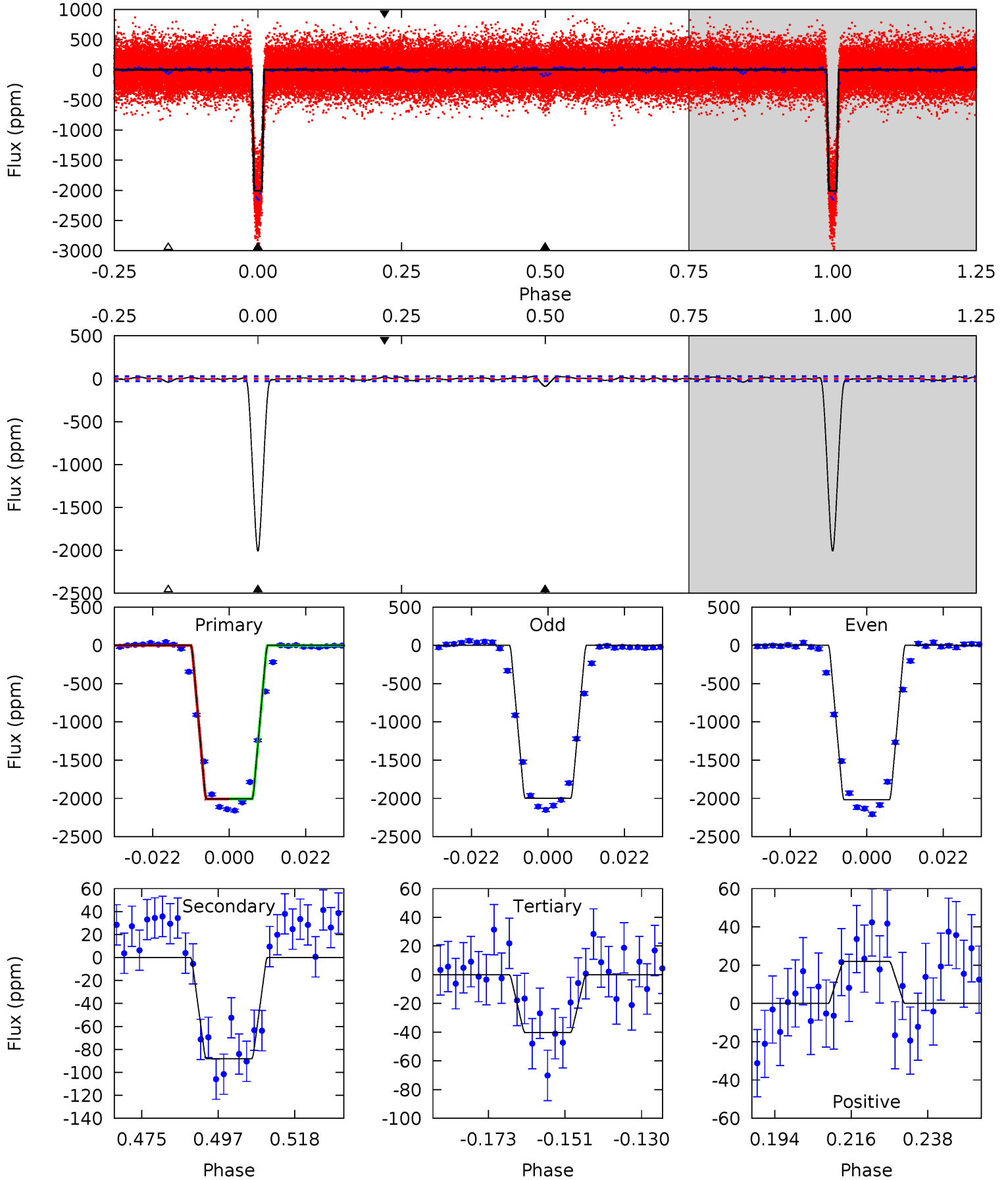
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
382.6	20.5	9.40	5.84	4.82	2.18	2.52	373.2	376.7	11.1	14.6	1.66	0.99	0.02	1.41



Alt Model-Shift Uniqueness Test

003532985-01, P = 5.288529 Days, E = 130.521195 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
353.7	15.5	7.09	3.87	4.88	2.30	1.86	346.7	349.9	8.43	11.7	1.59	0.99	0.01	0.20



Stellar Parameters For KIC 003532985

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	$M(M_{\odot})$	p_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	4918^{+51}_{-116}	$2.889^{+0.228}_{-0.152}$	$0.210^{+0.150}_{-0.200}$	$9.169^{+2.850}_{-3.484}$	$2.376^{+0.409}_{-0.954}$	$0.004^{+0.008}_{-0.002}$
	+1%/-2%	+8%/-5%	+71%/-95%	+31%/-38%	+17%/-40%	+182%/-42%
Source	SPE74	SPE74	SPE74	DSEP		

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

Secondary Eclipse Parameters for KIC 003532985-01 / KOI 5987.01

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	-116 ± 6	$54.19^{+8.05}_{-10.98}$	3223^{+211}_{-251}	-2917^{+255}_{-183}	$0.138^{+0.050}_{-0.032}$
Alt.	-88 ± 6	$46.41^{+6.59}_{-9.19}$	3233^{+219}_{-261}	-2910^{+302}_{-183}	$0.143^{+0.058}_{-0.032}$

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

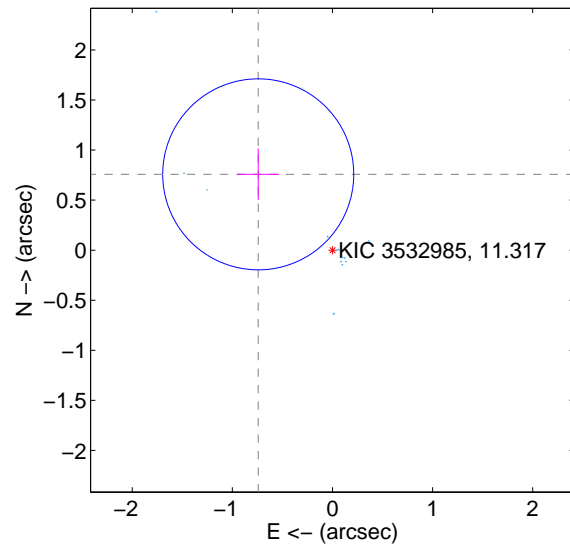
Supplemental centroid analysis for 003532985-01. **Kepler magnitude: 11.32.** Transit SNR 164.34

There are 17 quarters with good PRF difference image offsets

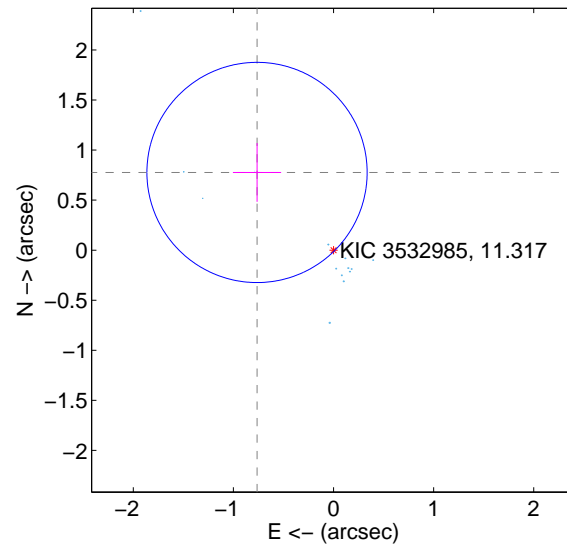
The direct PRF centroid is offset from the target star catalog position by about 0.13 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	1.060 ± 0.318	3.33	0.742 ± 0.210	0.758 ± 0.257
PRF-fit source offset from KIC position	1.089 ± 0.367	2.97	0.764 ± 0.241	0.776 ± 0.293
photometric centroid source offset	0.11 ± 0.02	6.70	0.03 ± 0.02	-0.11 ± 0.02

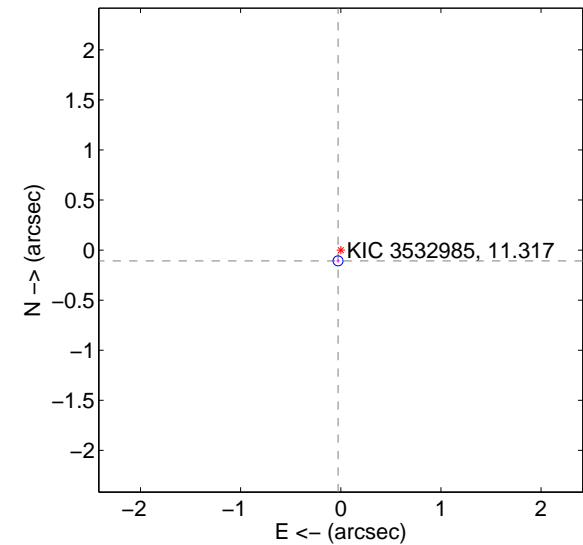
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position

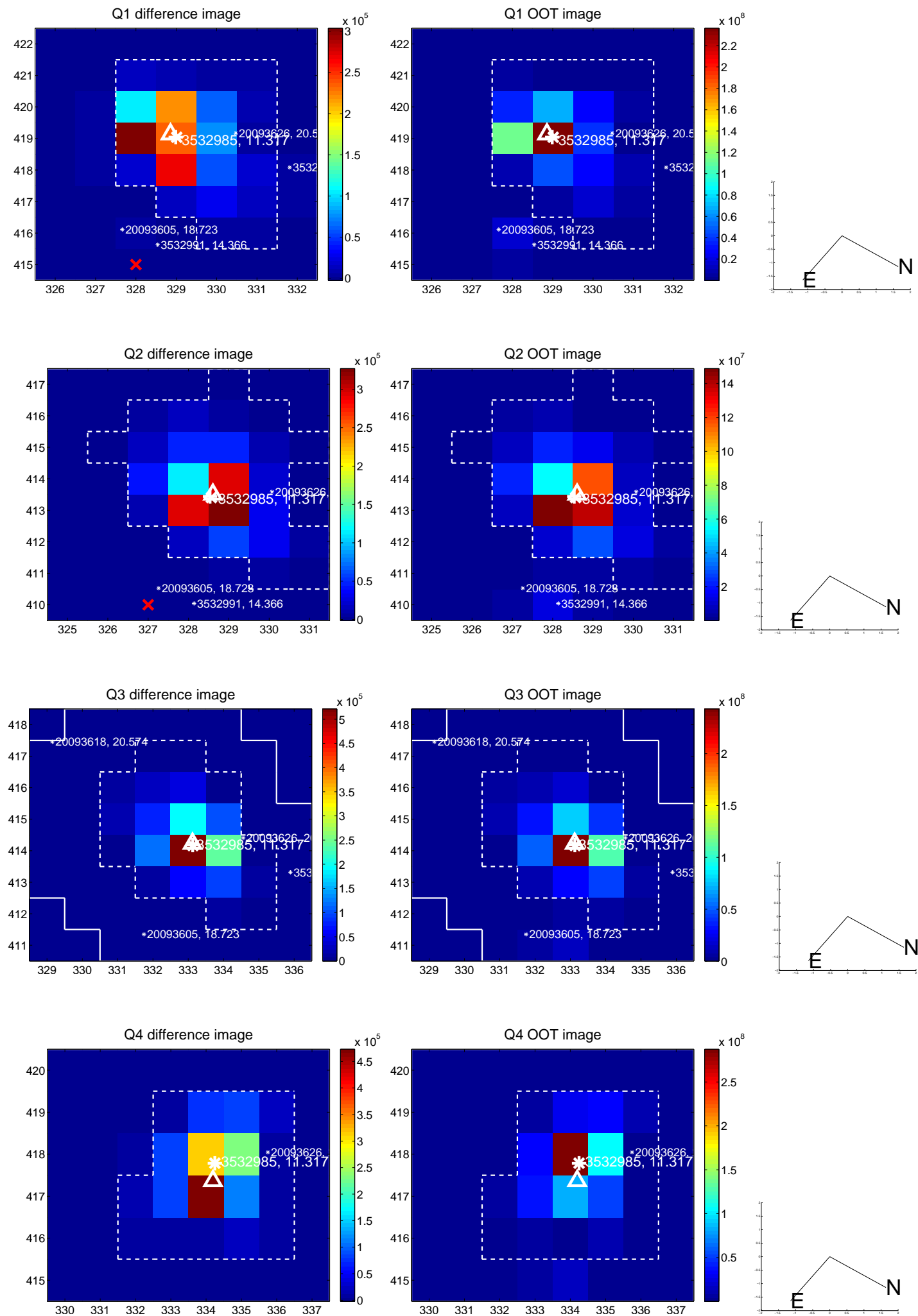


offset from photometric centroids

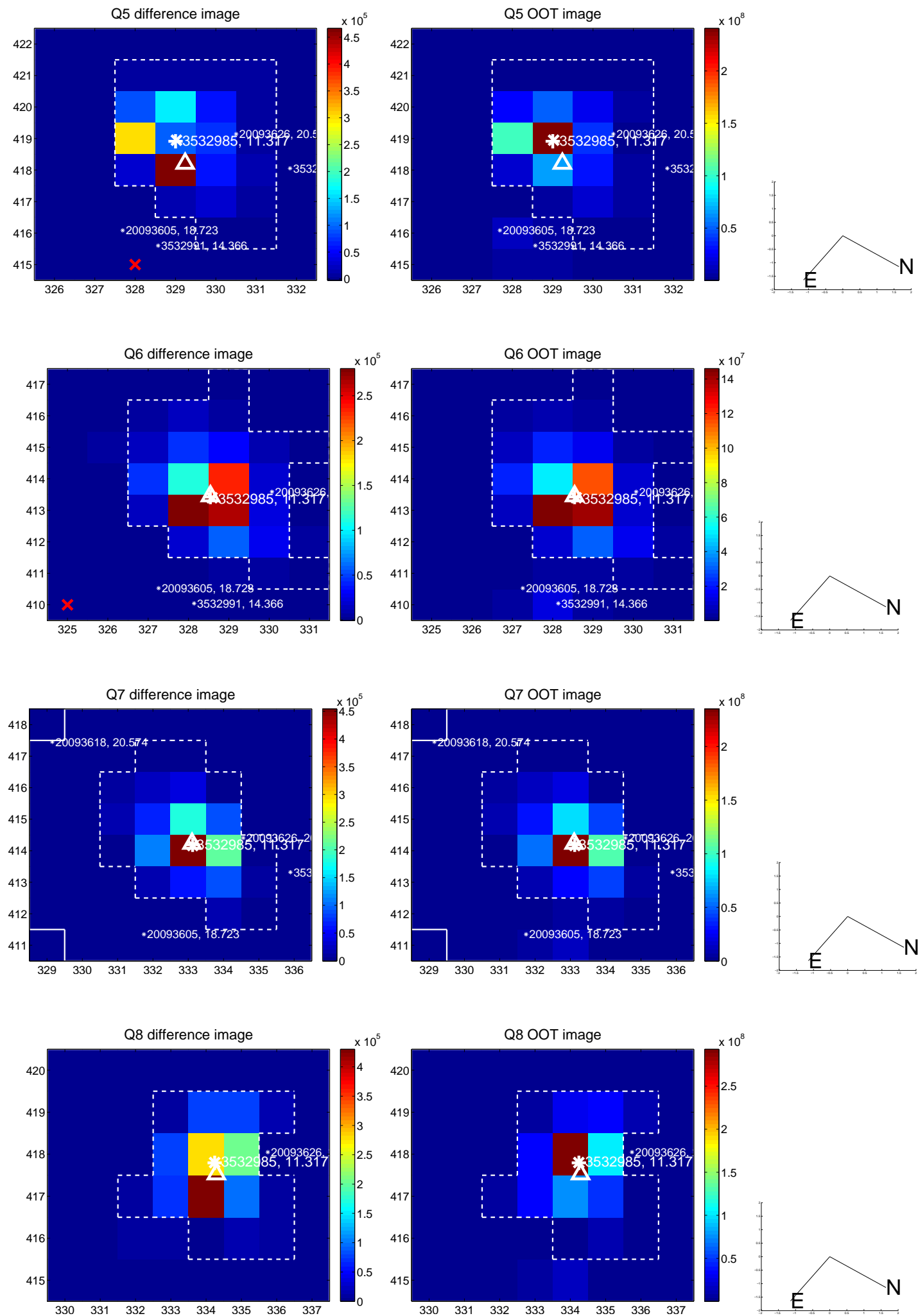


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets;** magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

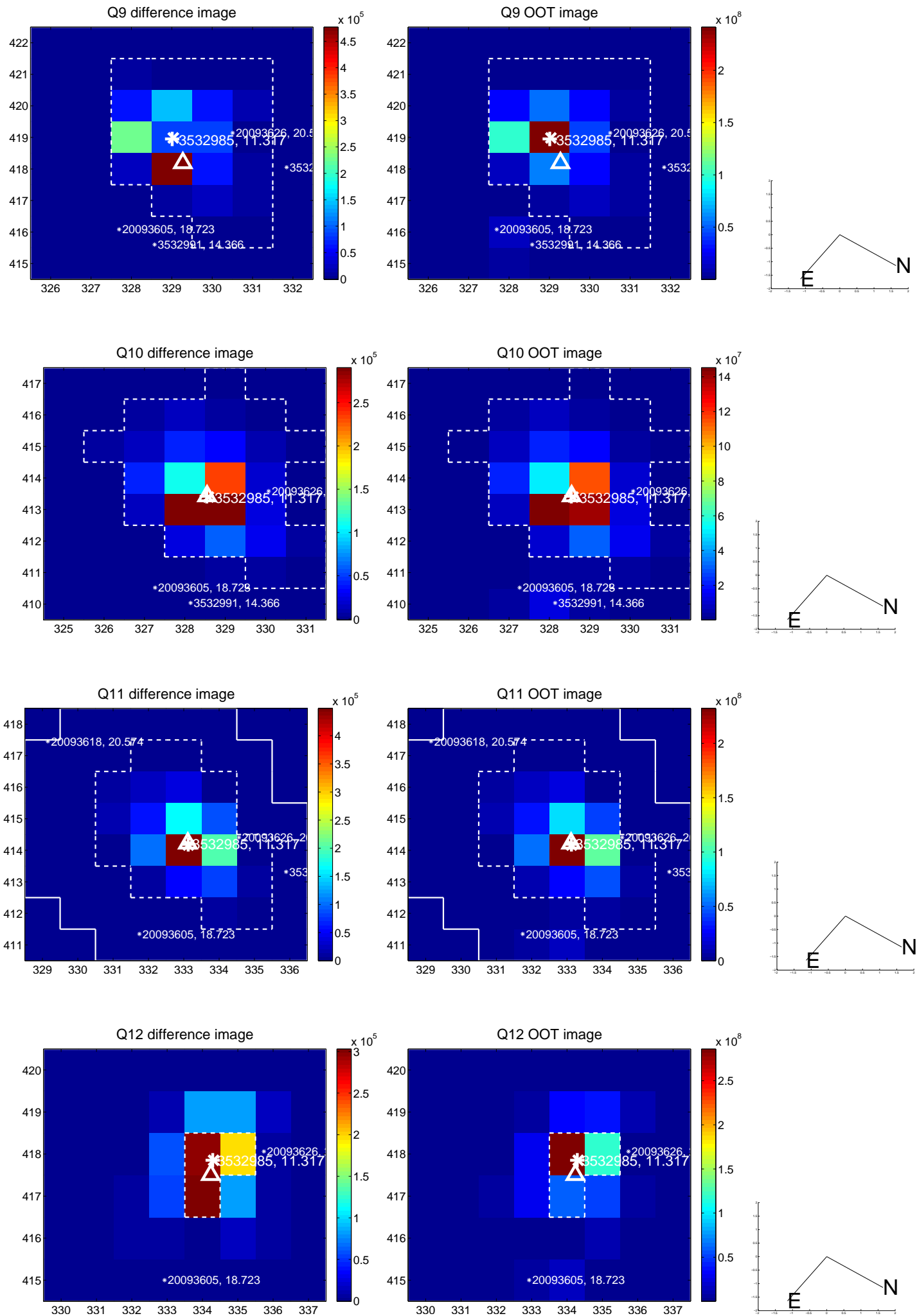
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



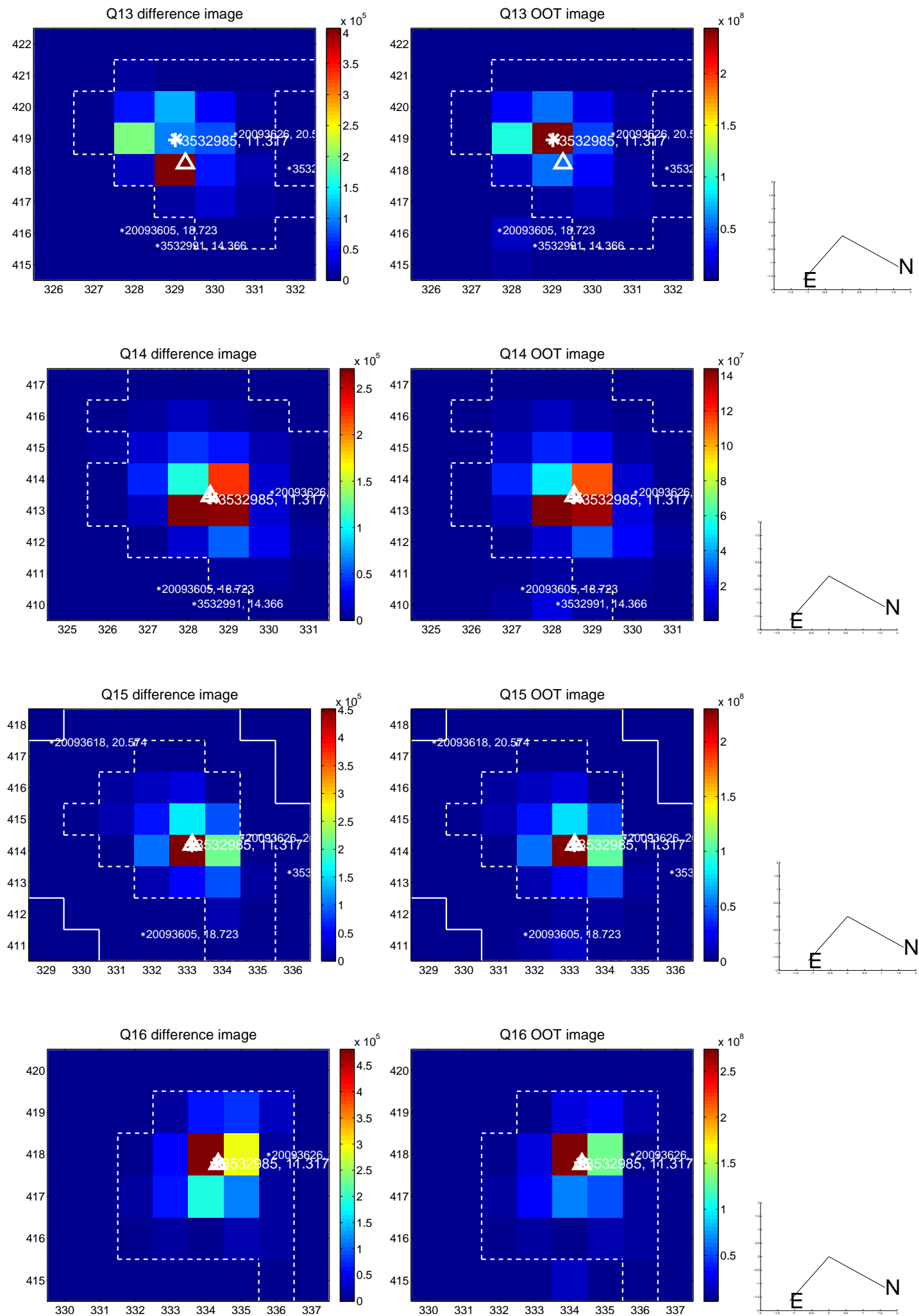
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



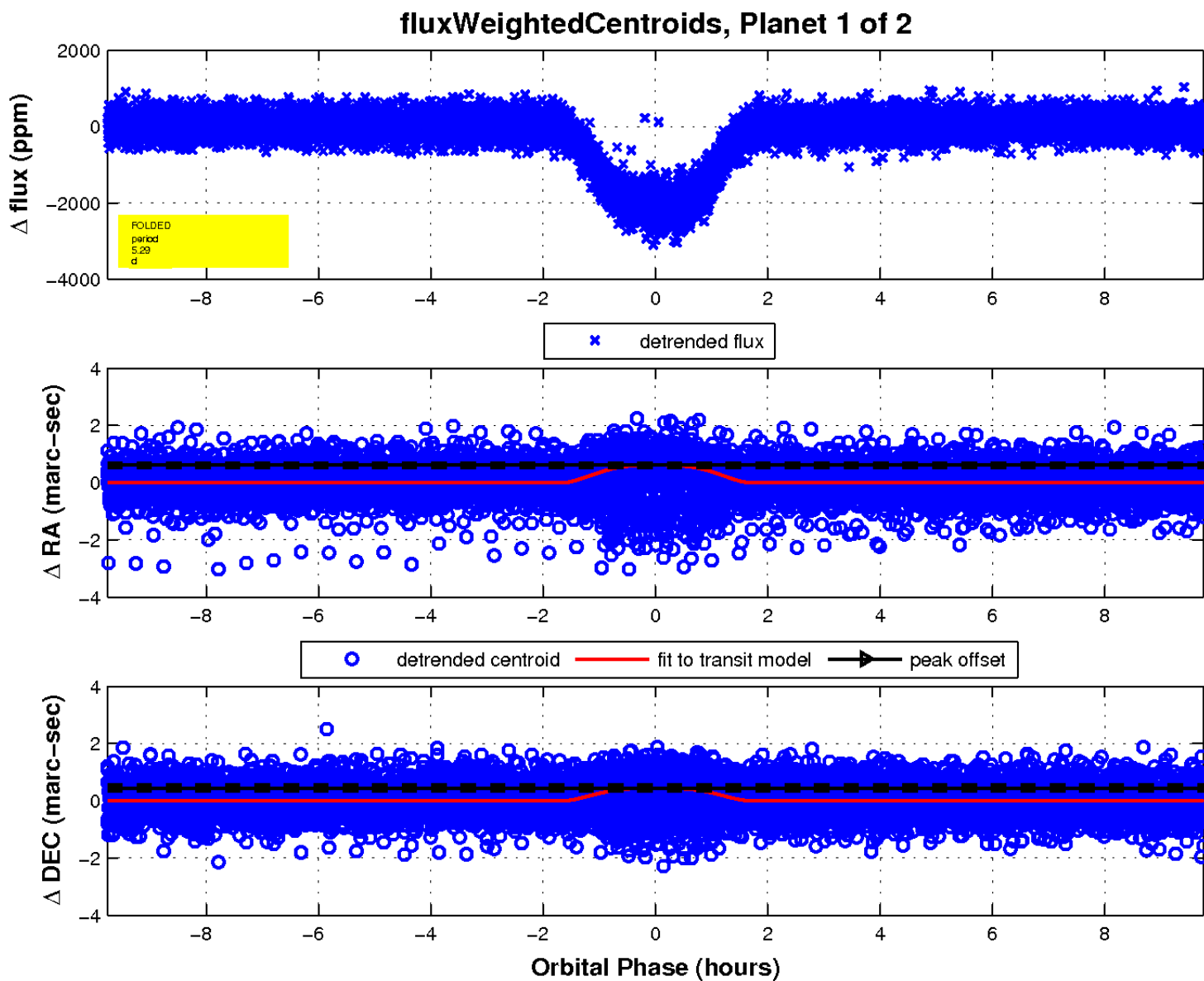
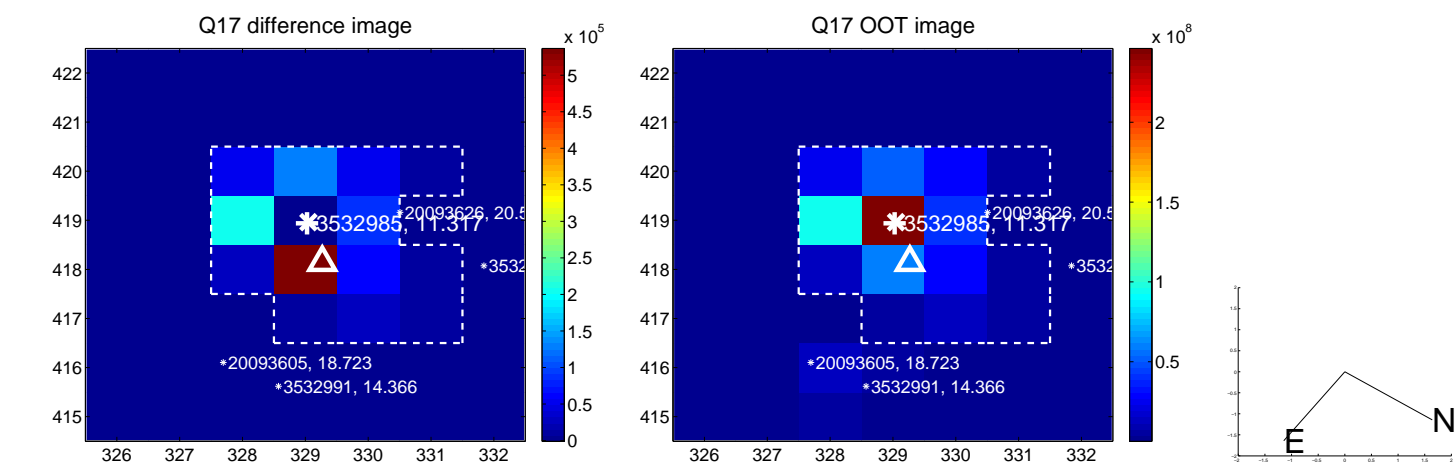
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

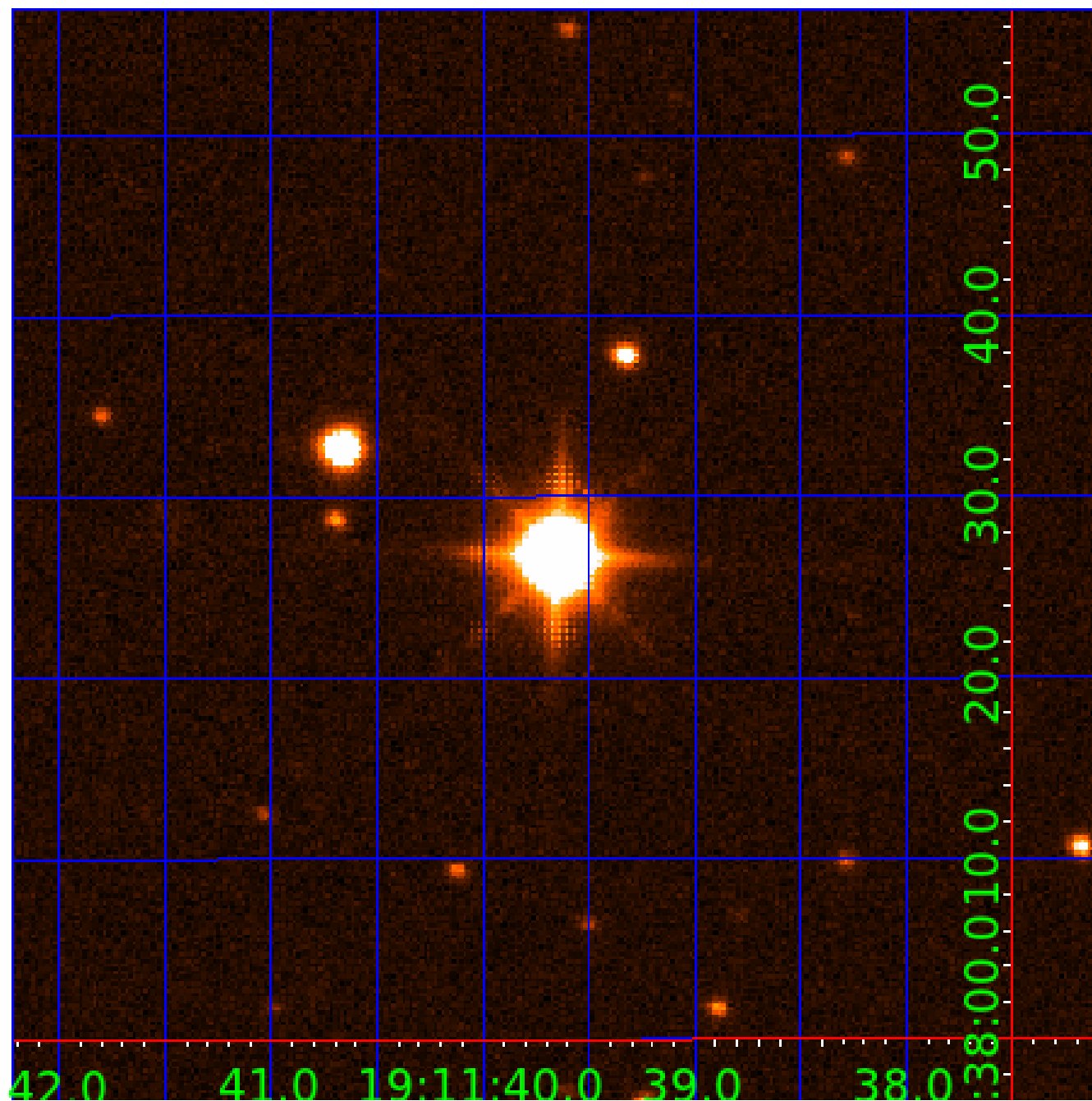


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 003532985

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})
003532985-01	OBS	5987.01	5.288564	135.804937	2135.0	3.253	164.4	164.3	9.17	4918	54.61	7011.53
003532985-02	OBS	No	5.288535	133.166313	111.2	2.891	9.7	10.6	9.17	4918	11.84	7011.58

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
003532985-01	OBS	FP	0.05	0	1	0	0	MOD_SEC_DV—MOD_SEC_ALT—HAS_SEC_TCE—CENT_SATURATED
003532985-02	OBS	FP	0.00	1	1	0	0	IS_SEC_TCE—CENT_SATURATED

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 003532985-02

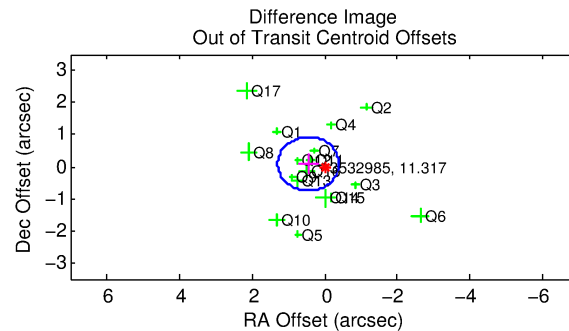
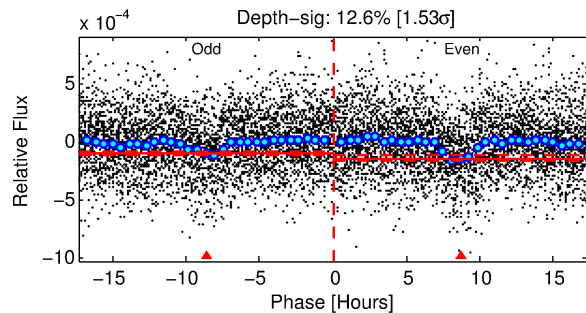
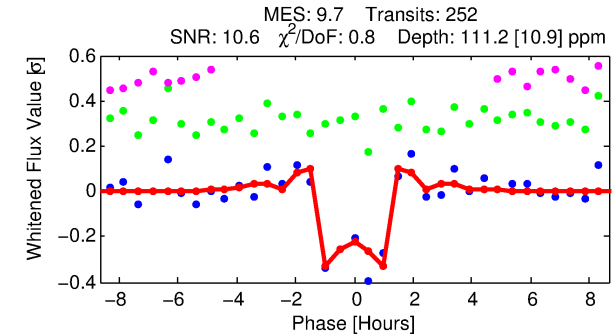
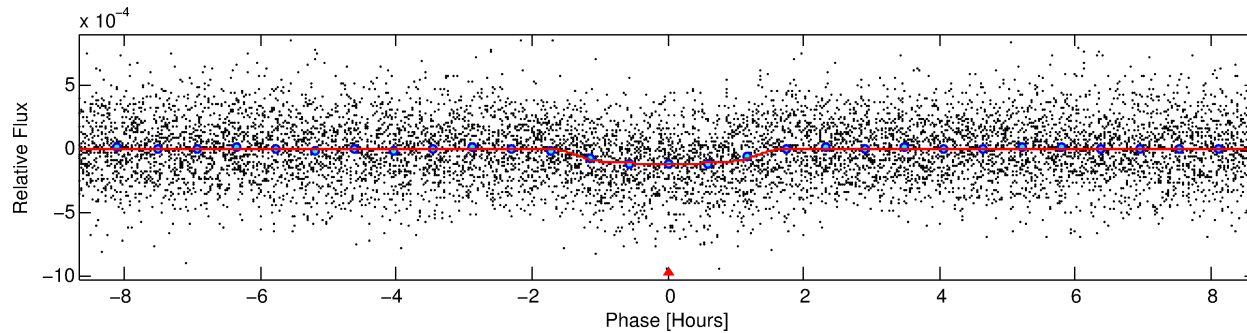
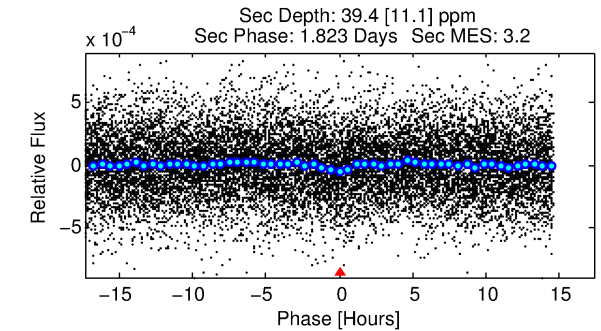
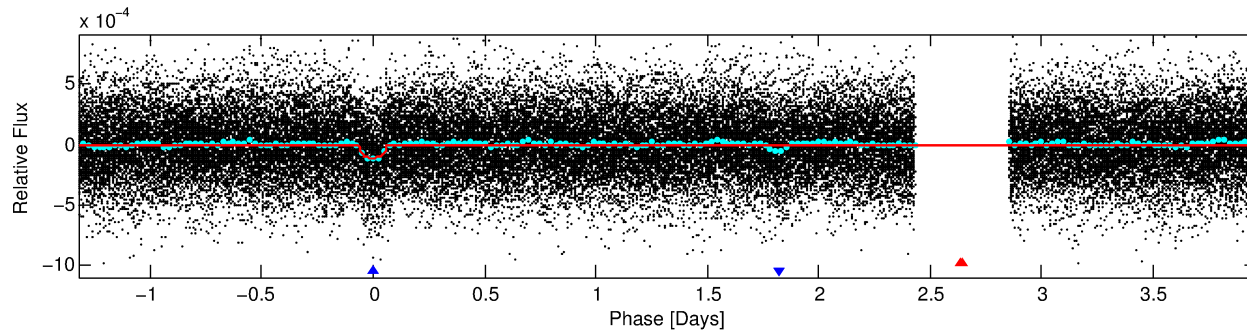
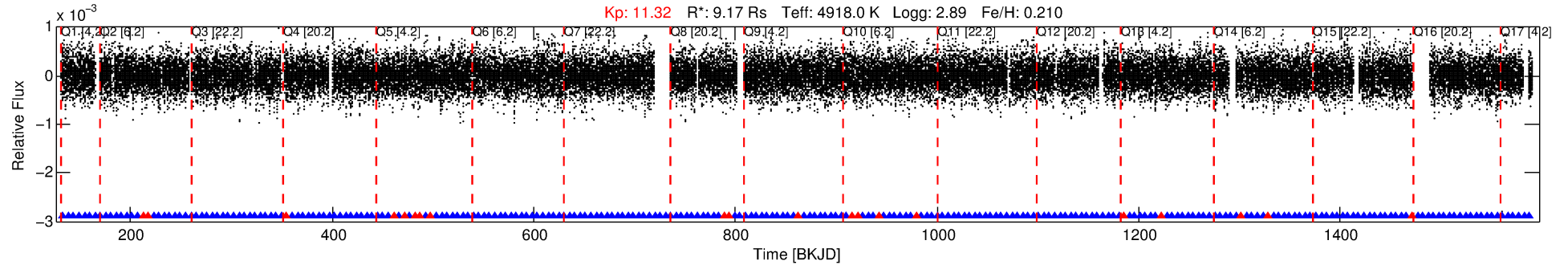
No Significant Match Found

DV One-Page Summary

KIC: 3532985 Candidate: 2 of 2 Period: 5.289 d

KOI: K05987 Corr: No Ephemeris Match

Kp: 11.32 R*: 9.17 Rs Teff: 4918.0 K Logg: 2.89 Fe/H: 0.210



DV Fit Results:

Period = 5.28853 [0.00002] d
Epoch = 133.1663 [0.0018] BKJD
Rp/R* = 0.0118 [0.0031]
a/R* = 6.49 [6.54]
b = 0.90 [0.22]
Seff = 7011.58 [3100.72]
Teff = 2333 [258] K
Rp = 11.84 [5.47] Re
a = 0.0793 [0.0244] AU
Ag = 0.97 [0.71] [-0.04σ]
Teffp = 3581 [540] K [2.09σ]

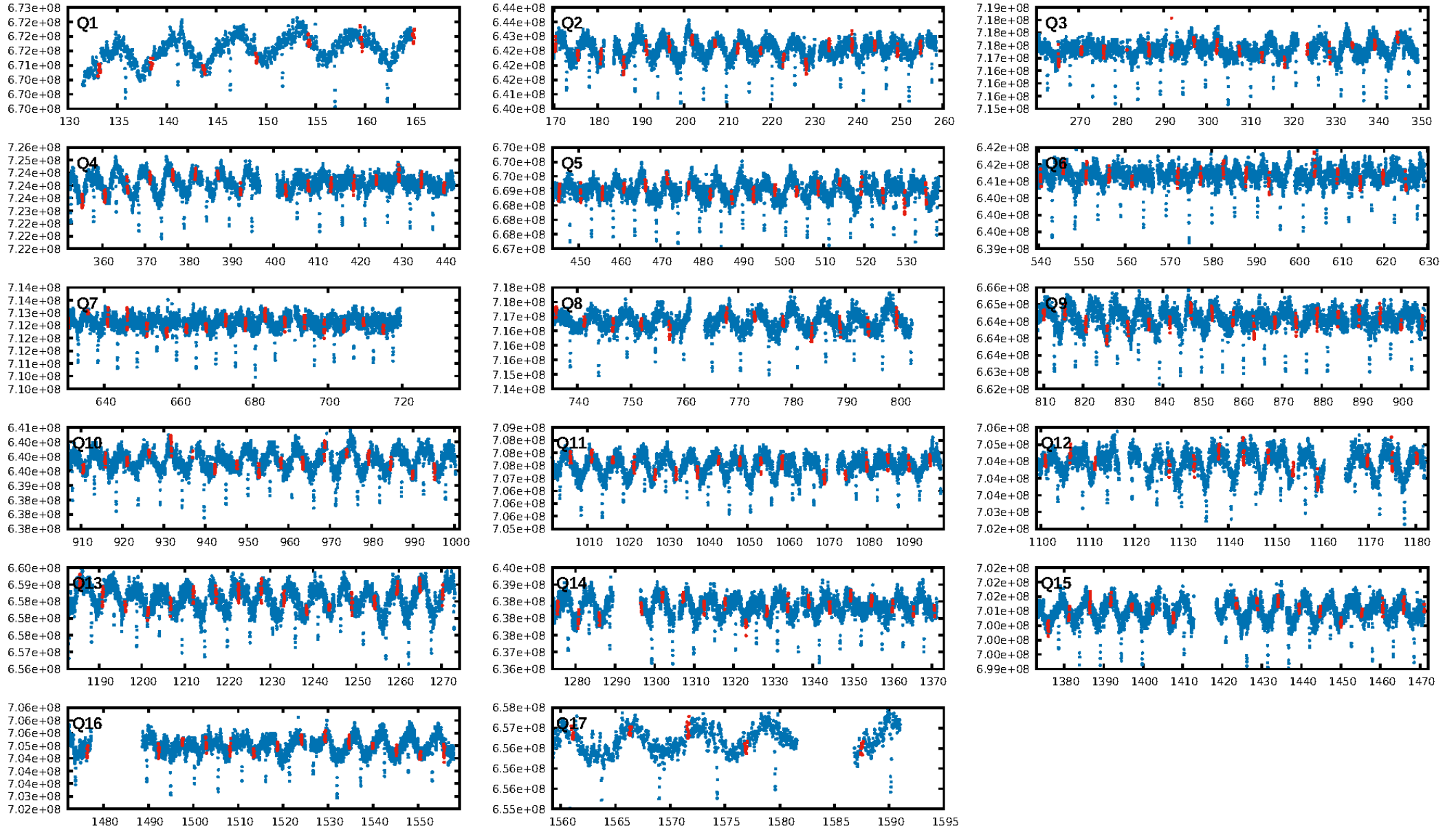
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: 0.0% [0.00σ]
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: 2.48e-20
RollingBand-fgt: 0.92 [220/240]
GhostDiagnostic-chr: 6.301
Centroid-sig: 0.0%
Centroid-so: 0.449 arcsec [1.65σ]
OotOffset-rm: 0.464 arcsec [1.66σ]
KicOffset-rm: 0.495 arcsec [1.67σ]
OotOffset-st: 4/4/4/5 [17]
KicOffset-st: 4/4/4/5 [17]
DiffImageQuality-fgm: 0.88 [15/17]
DiffImageOverlap-fno: 1.00 [17/17]

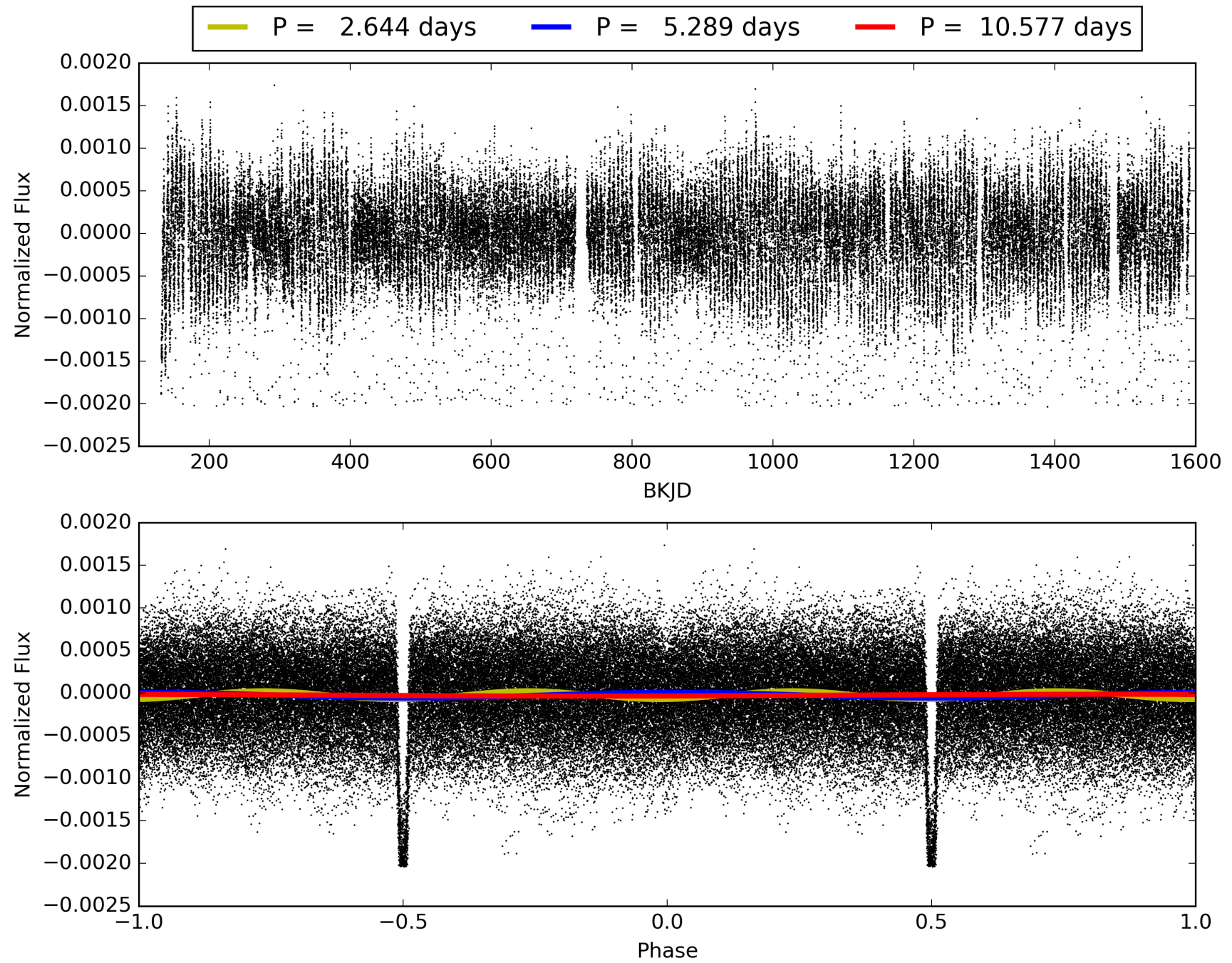
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 31-Jan-2016 22:50:38 Z

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

TCE 003532985-02, PDC Light Curves

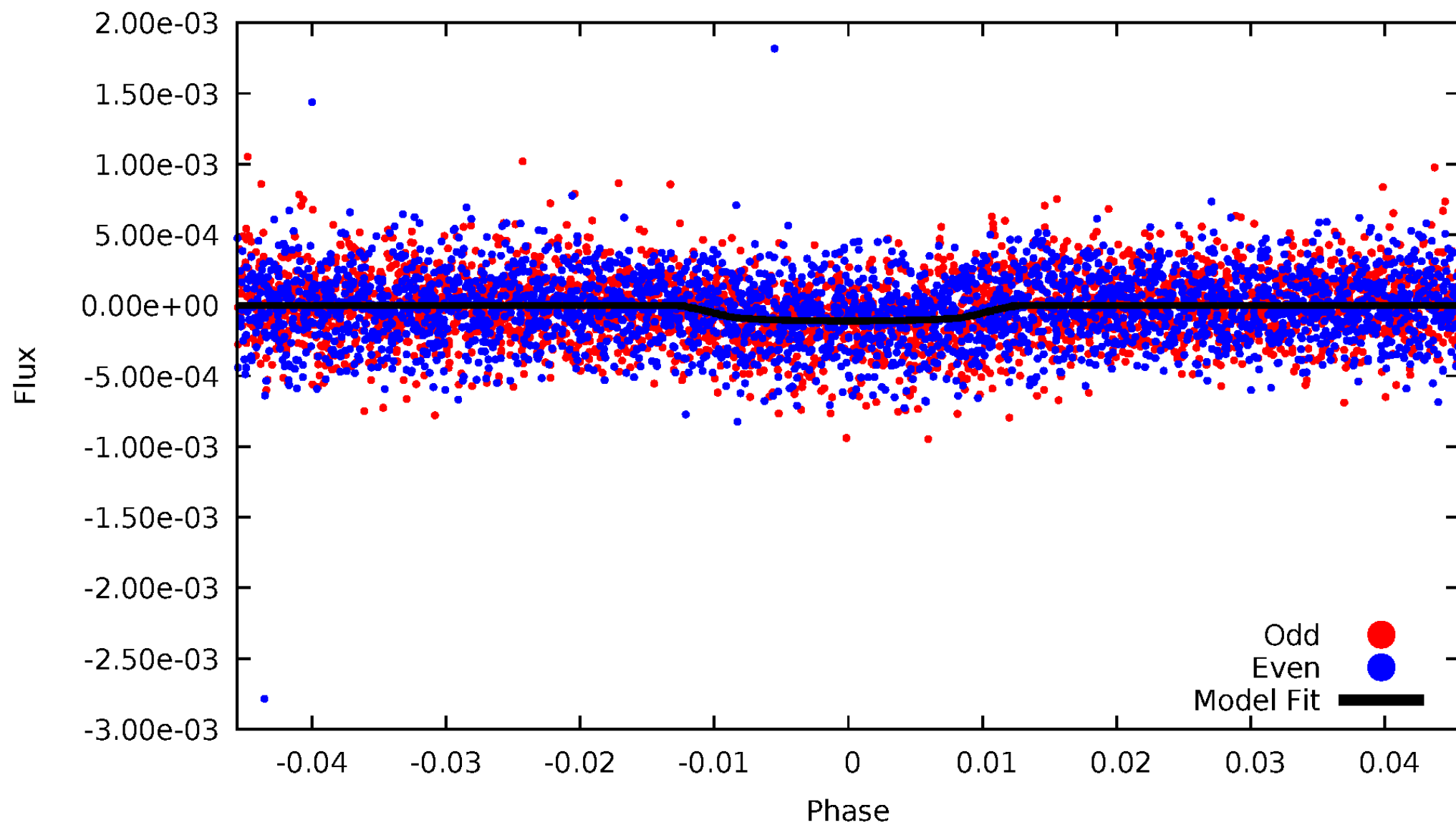


TCE 003532985-02



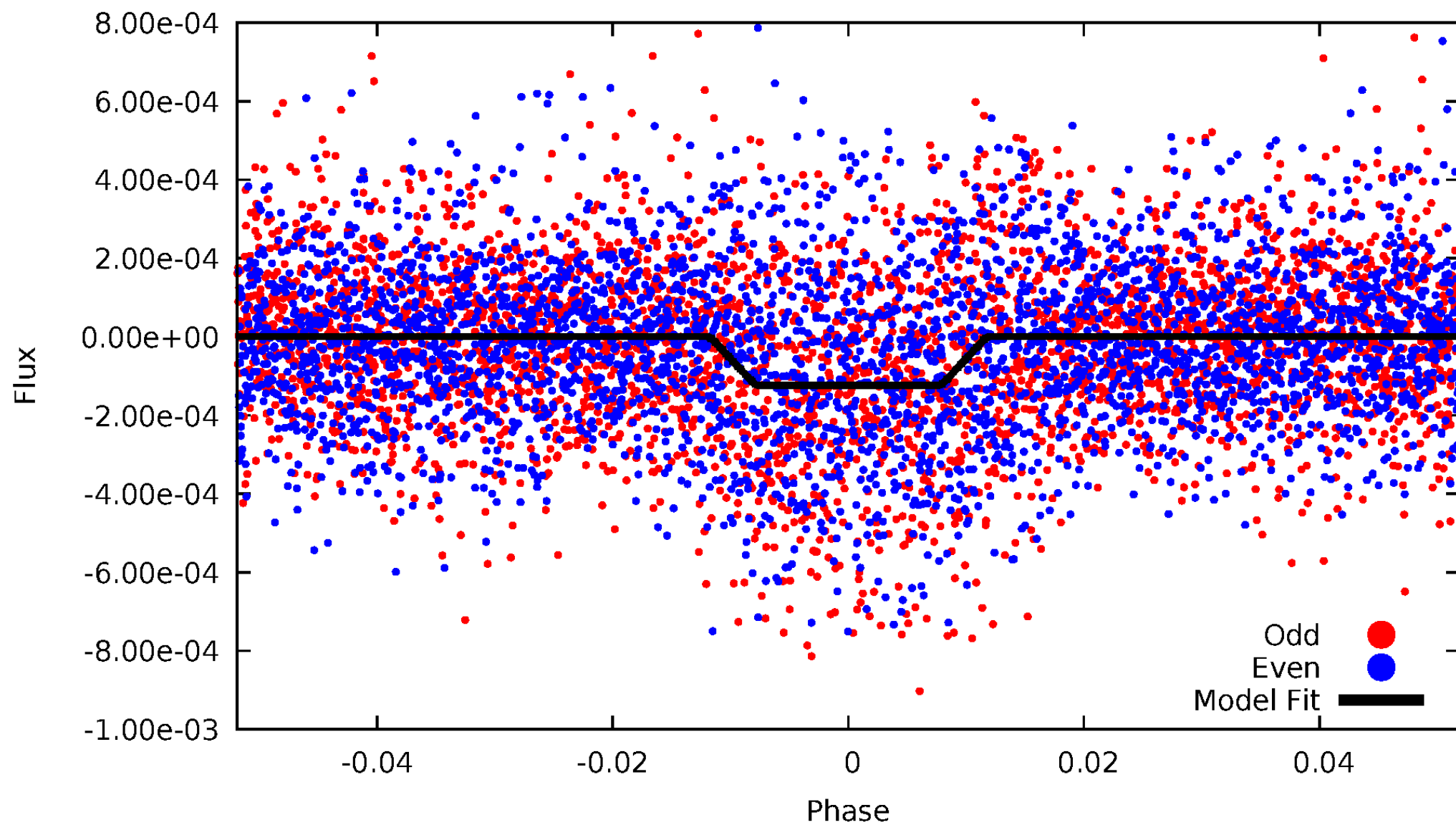
DV Odd/Even

TCE 003532985-02



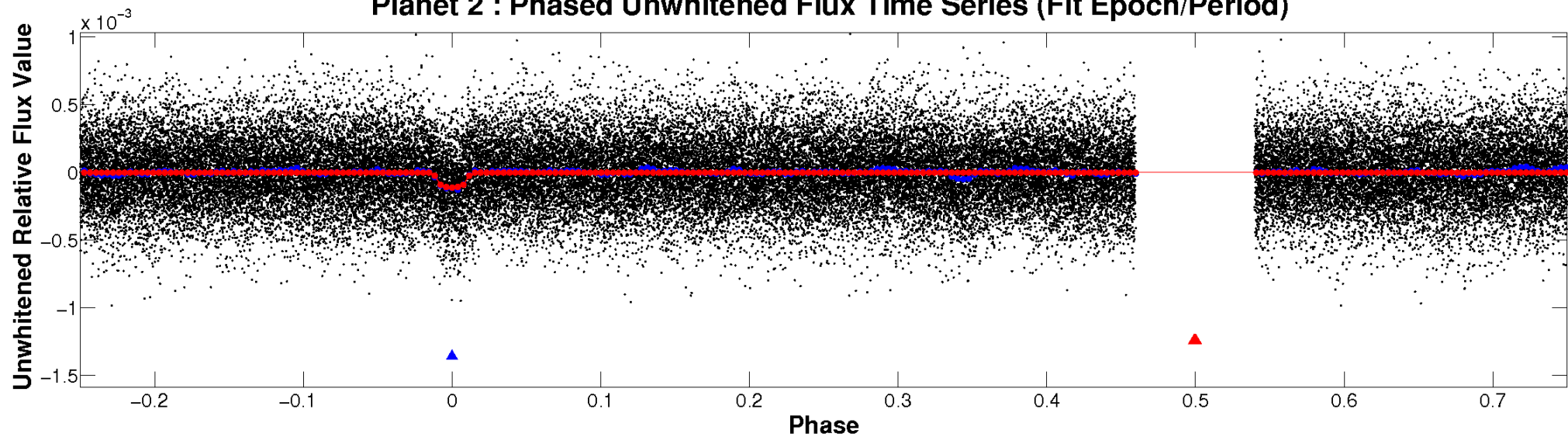
ALT Odd/Even

TCE 003532985-02

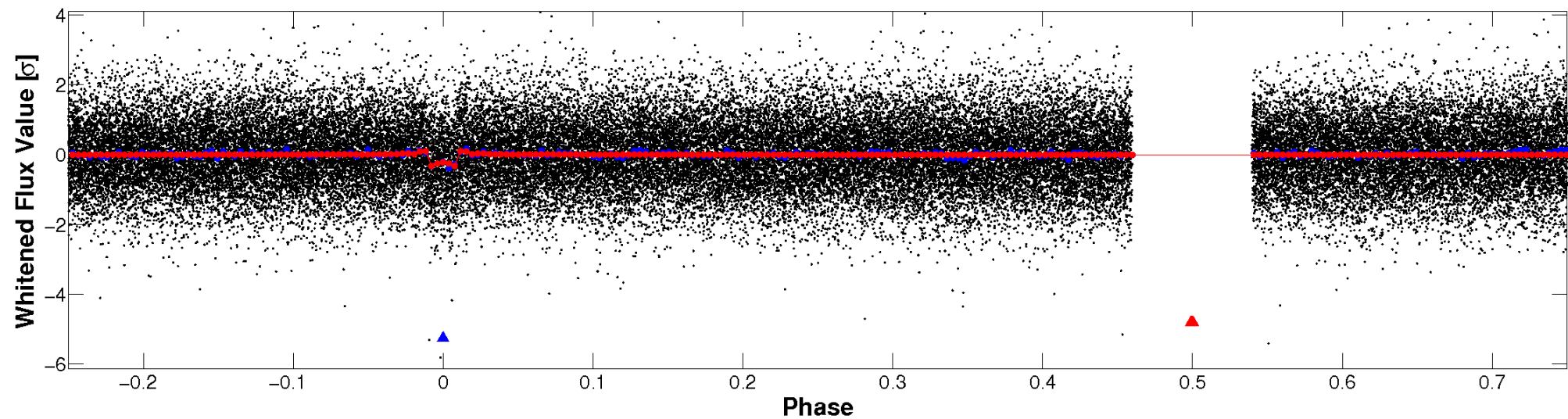


Non-Whitened Vs. Whitened Light Curve

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

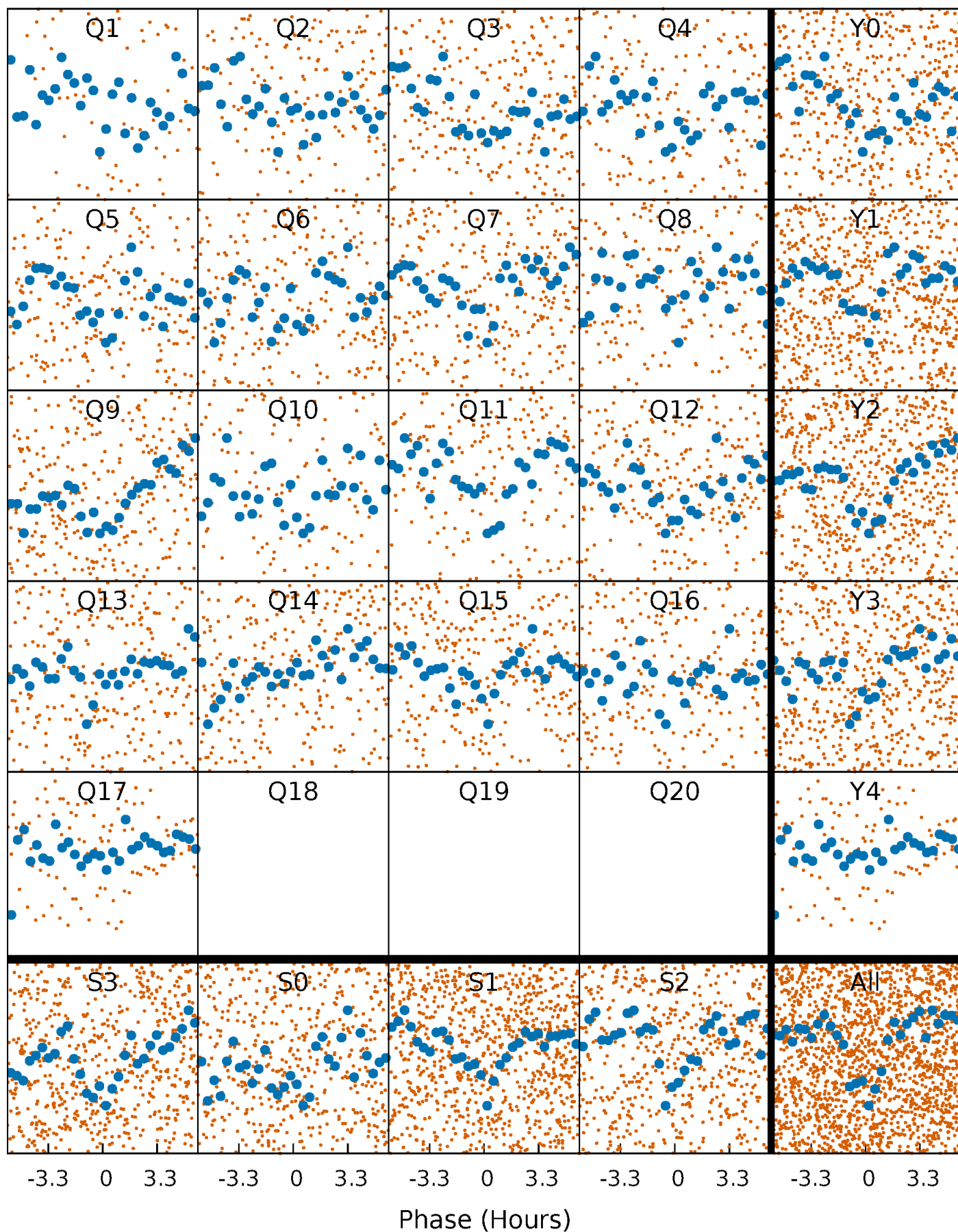


Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



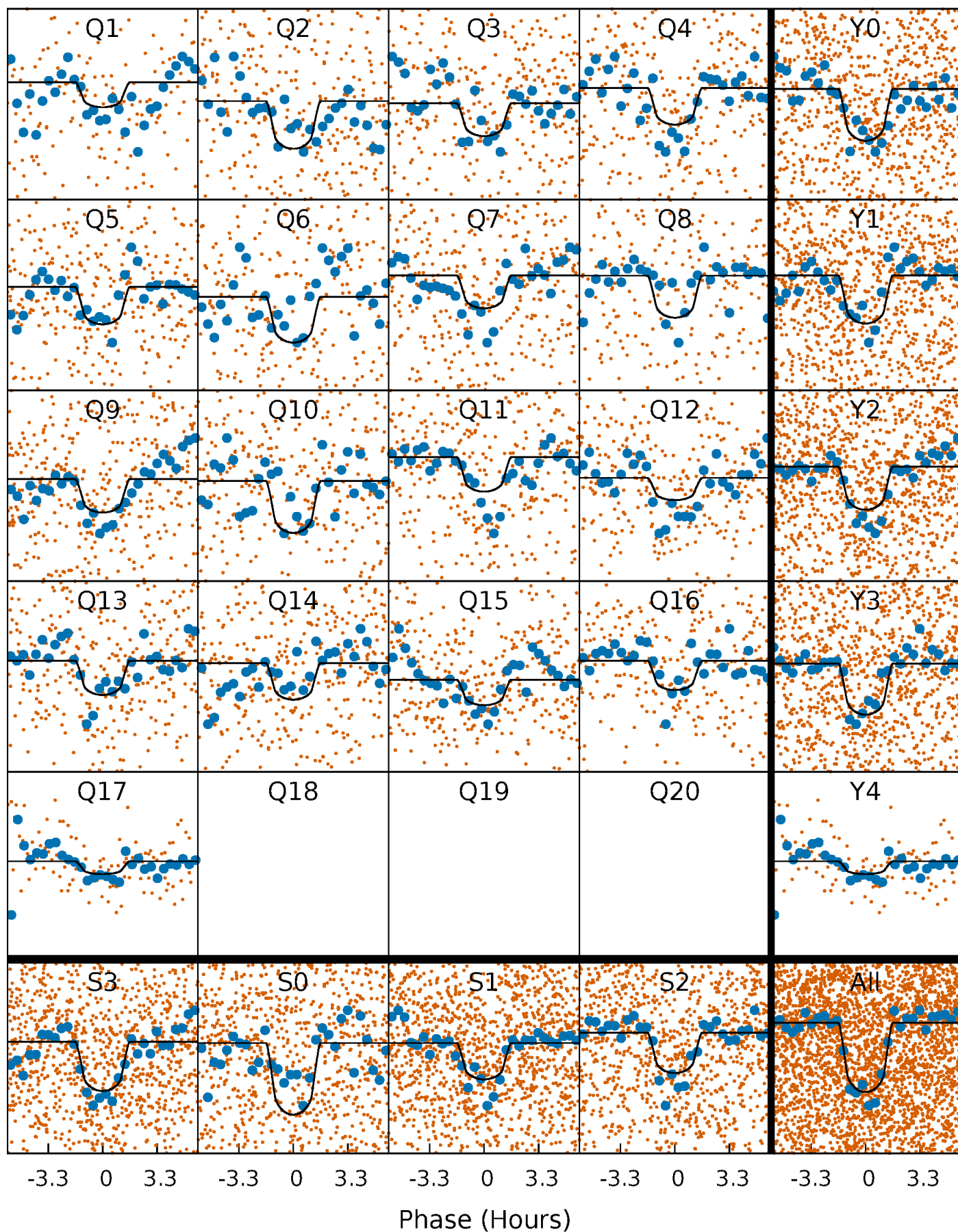
PDC Quarter-Phased Transit Curves

TCE 003532985-02 P= 5.288535 Days $T_0=133.166313$ (BKJD)



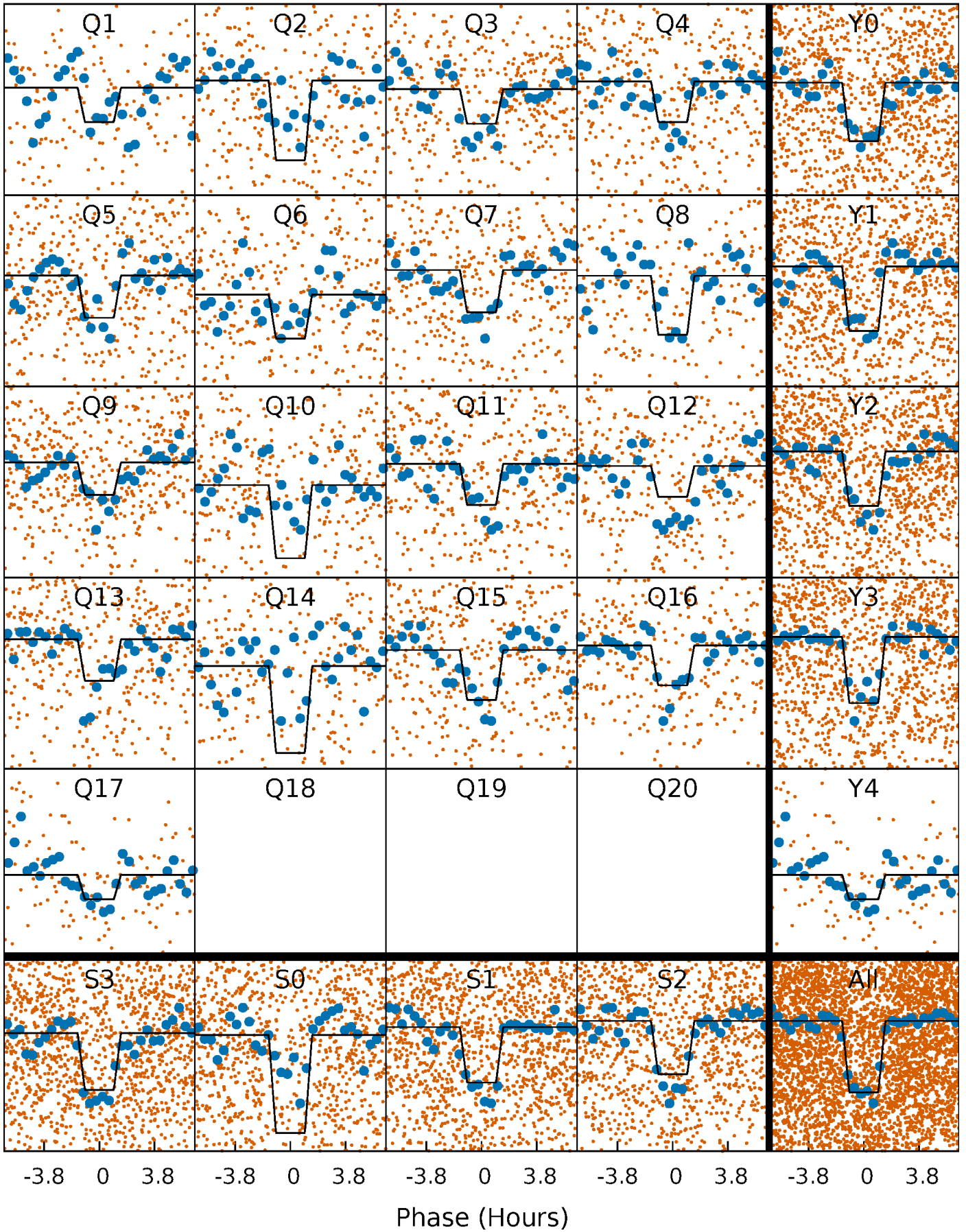
DV Quarter-Phased Transit Curves

TCE 003532985-02 $P = 5.288535$ Days $T_0 = 133.166313$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

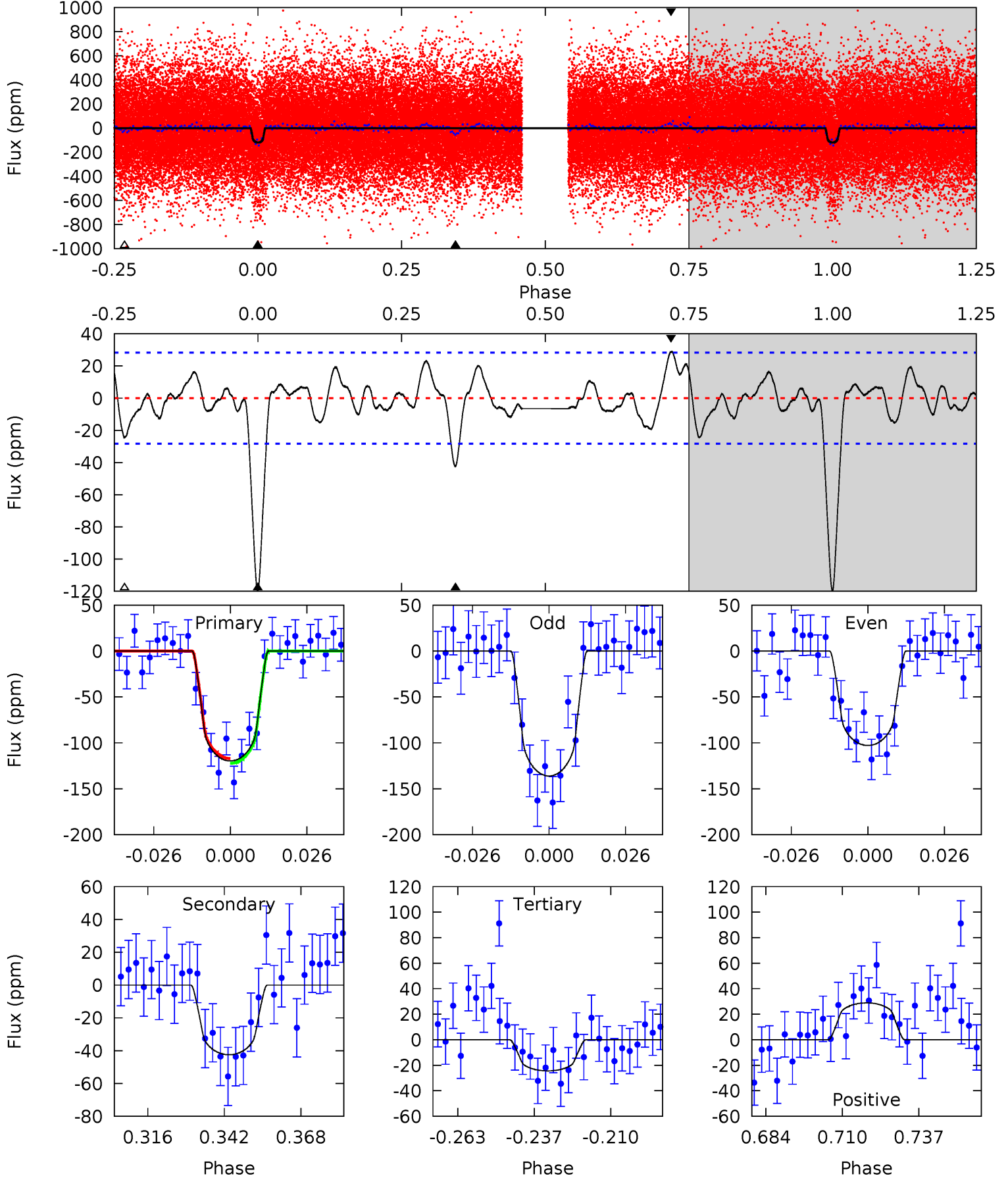
TCE 003532985-02 P= 5.288547 Days $T_0=133.162516$ (BKJD)



DV Model-Shift Uniqueness Test

003532985-02, P = 5.288535 Days, E = 127.877778 Days

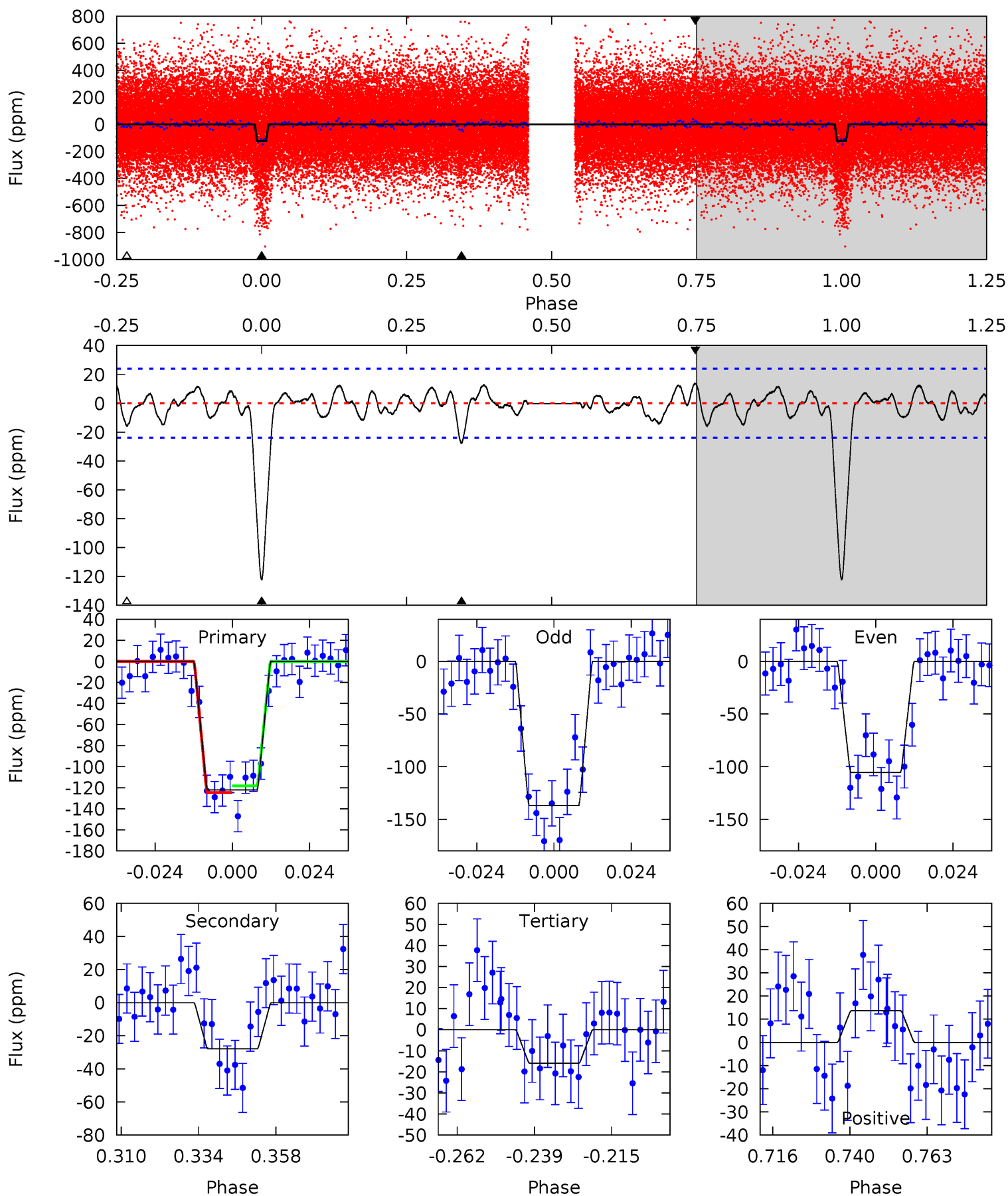
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
20.5	7.27	4.18	4.94	4.84	2.22	1.73	16.3	15.5	3.09	2.32	2.85	1.05	0.19	0.45



Alt Model-Shift Uniqueness Test

003532985-02, P = 5.288547 Days, E = 127.873969 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
24.8	5.65	3.22	2.77	4.86	2.26	1.28	21.6	22.0	2.43	2.88	3.18	1.09	0.10	0.66



Stellar Parameters For KIC 003532985

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	$M(M_{\odot})$	p_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	4918^{+51}_{-116}	$2.889^{+0.228}_{-0.152}$	$0.210^{+0.150}_{-0.200}$	$9.169^{+2.850}_{-3.484}$	$2.376^{+0.409}_{-0.954}$	$0.004^{+0.008}_{-0.002}$
	+1%/-2%	+8%/-5%	+71%/-95%	+31%/-38%	+17%/-40%	+182%/-42%
Source	SPE74	SPE74	SPE74	DSEP		

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

Secondary Eclipse Parameters for KIC 003532985-02 / KOI

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	-42 ± 6	$11.56^{+4.06}_{-3.77}$	3227^{+220}_{-261}	3667^{+543}_{-451}	$1.091^{+1.124}_{-0.480}$
Alt.	-28 ± 5	$10.66^{+4.19}_{-3.45}$	3234^{+220}_{-257}	3400^{+605}_{-506}	$0.798^{+0.899}_{-0.361}$

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 $A_{obs} \gg 1.0$

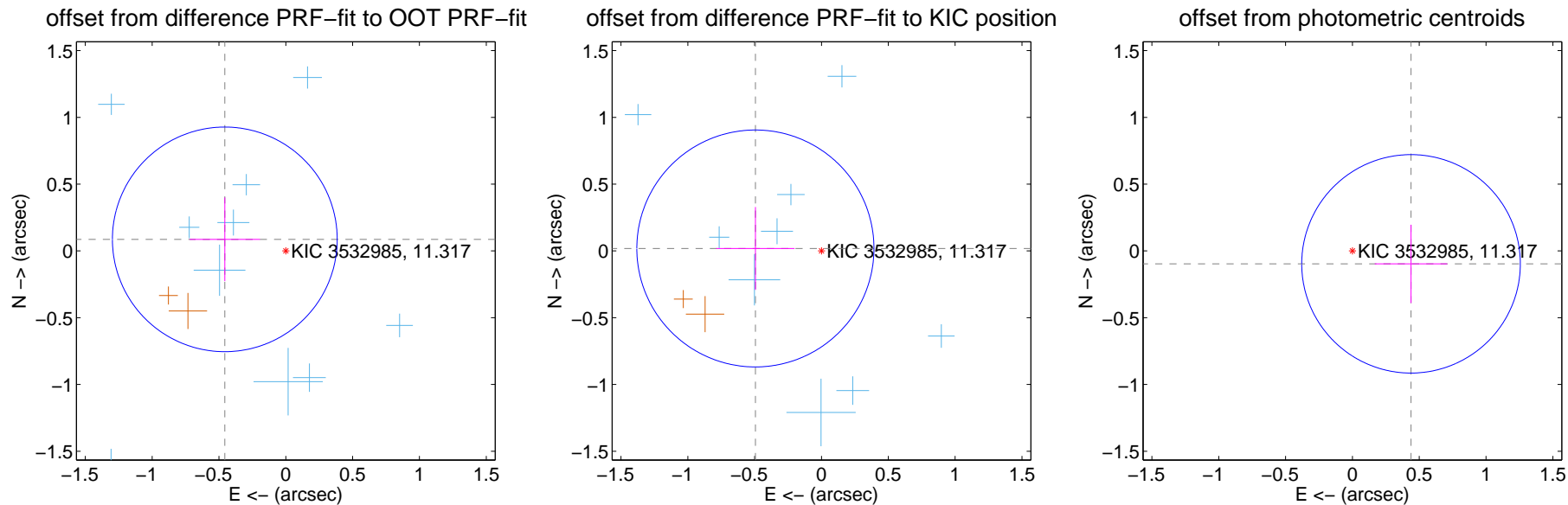
DV Centroid Data

Supplemental centroid analysis for 003532985-02. **Kepler magnitude: 11.32.** Transit SNR 10.57

There are 15 quarters with good PRF difference image offsets

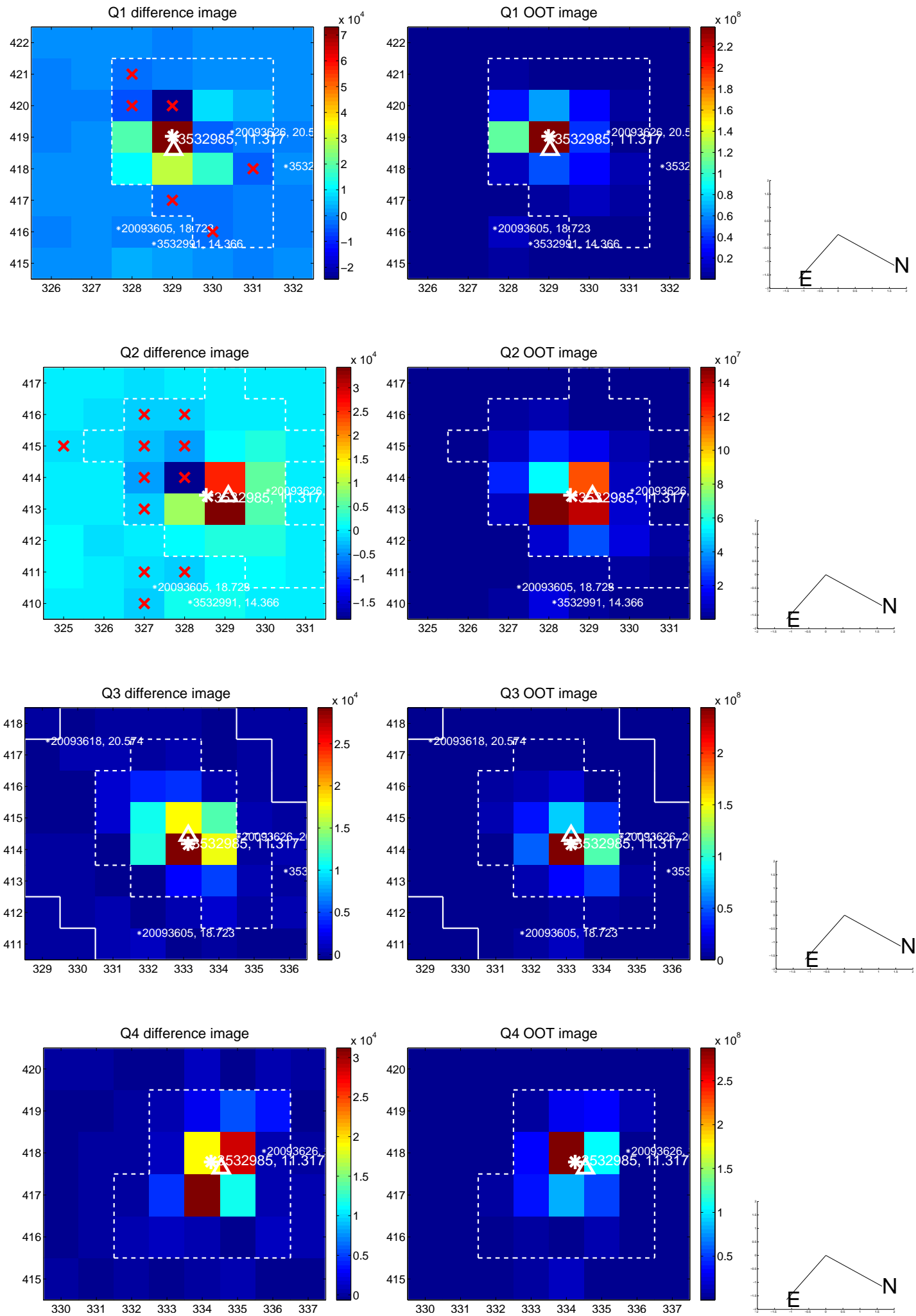
The direct PRF centroid is offset from the target star catalog position by about 0.13 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.464 ± 0.280	1.66	0.456 ± 0.263	0.086 ± 0.313
PRF-fit source offset from KIC position	0.495 ± 0.296	1.67	0.494 ± 0.293	0.018 ± 0.310
photometric centroid source offset	0.45 ± 0.27	1.65	-0.44 ± 0.27	-0.10 ± 0.29

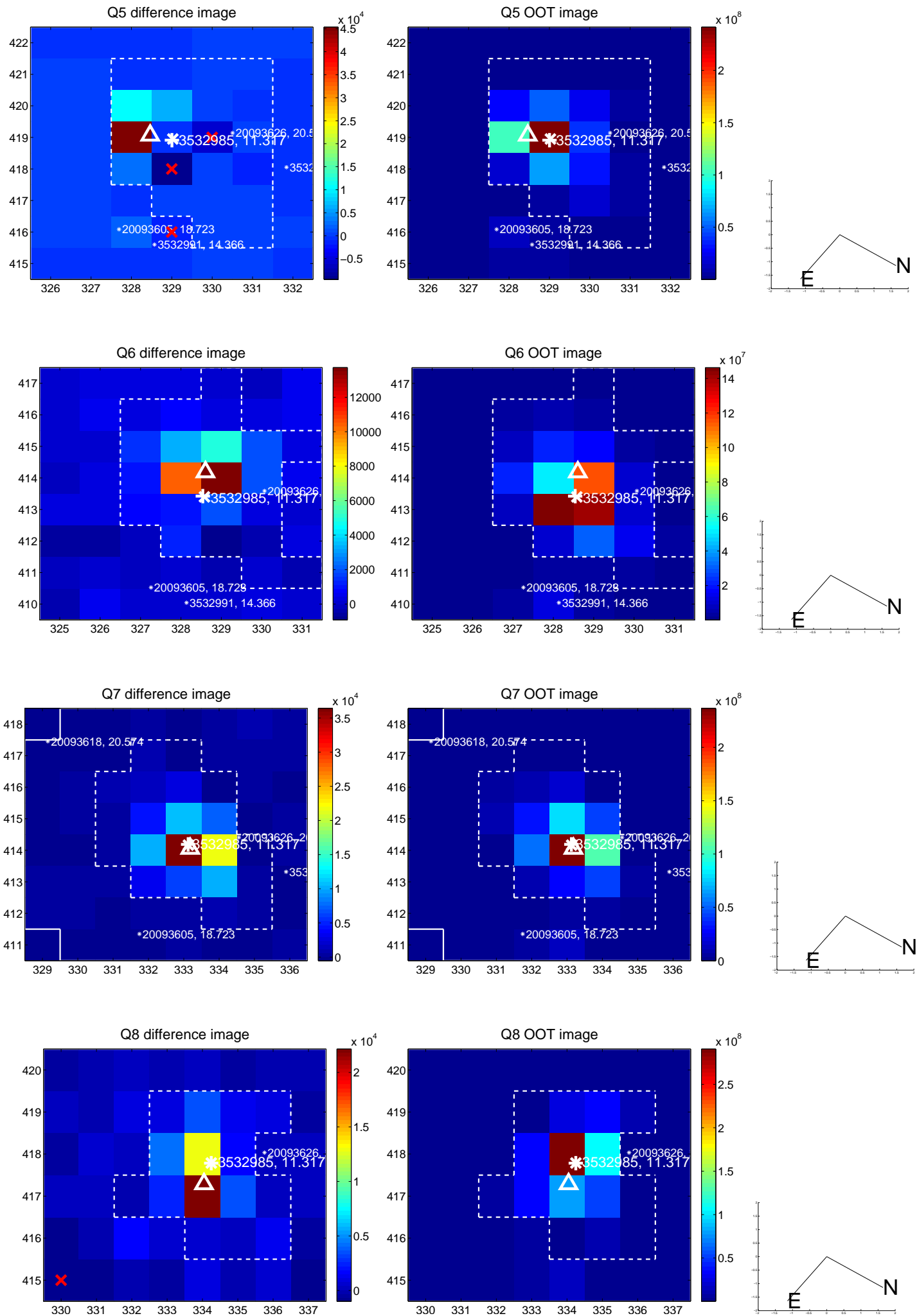


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets;** magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

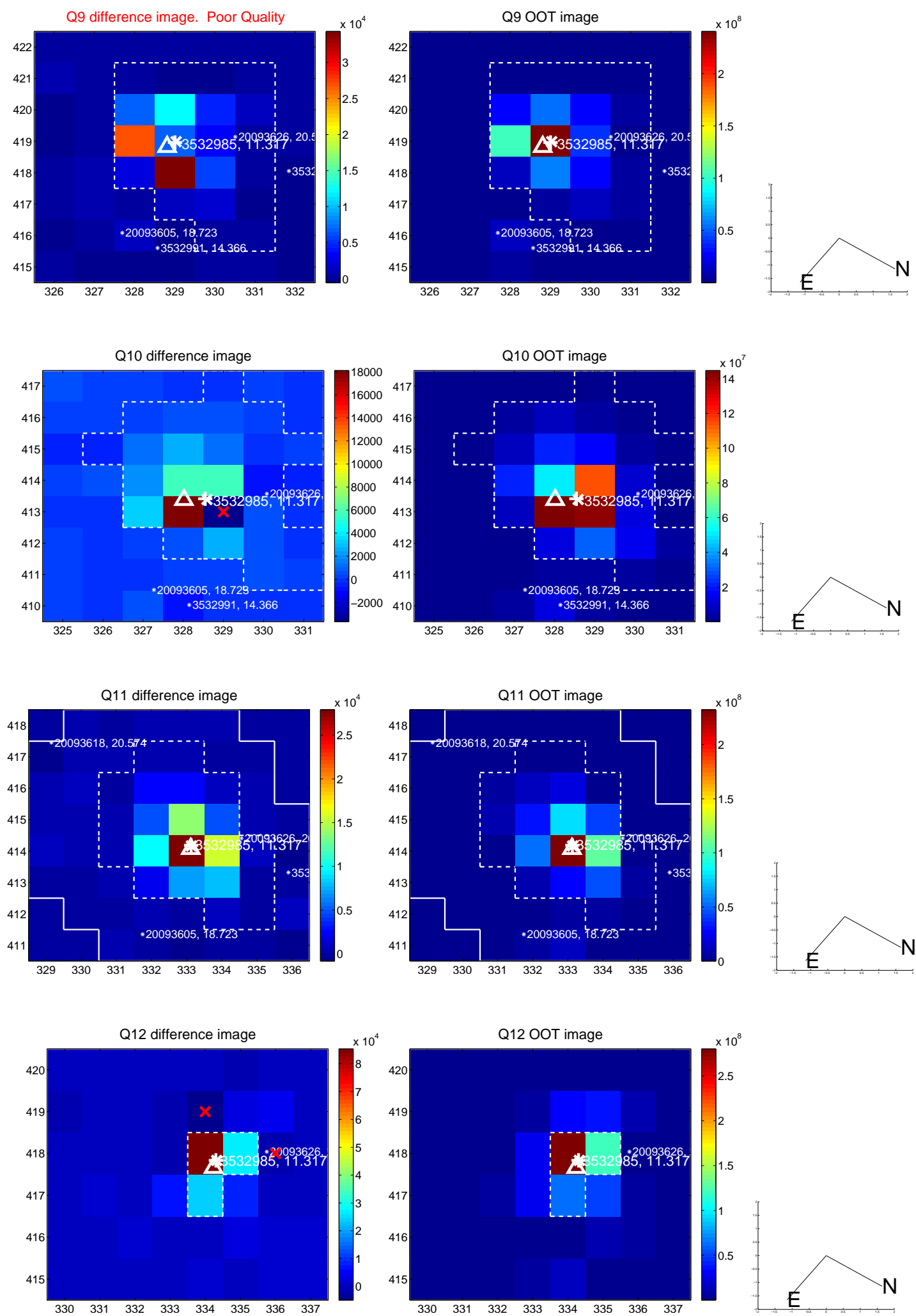
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



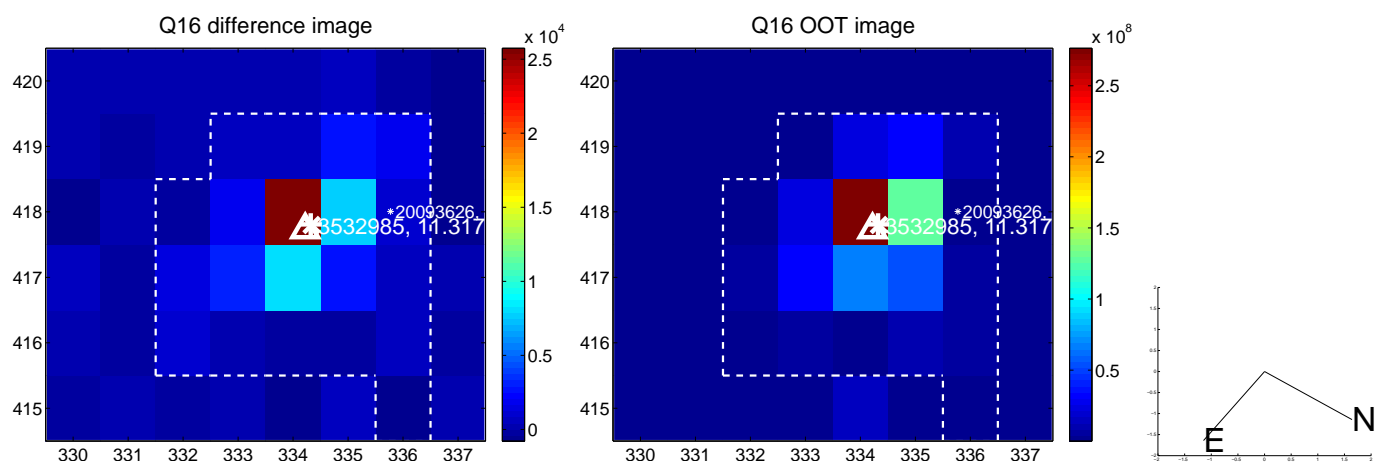
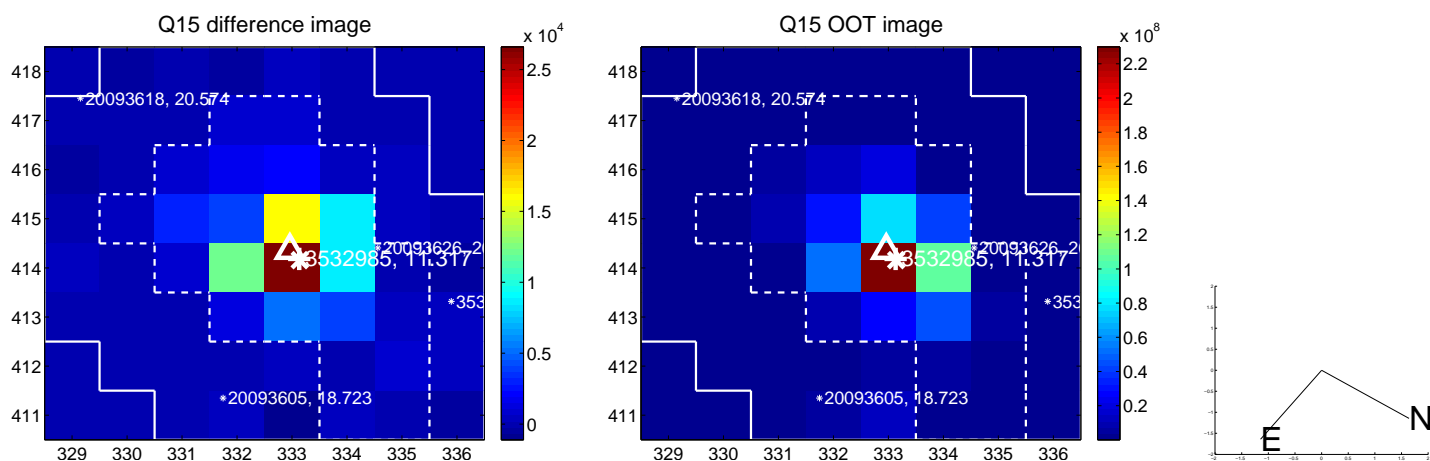
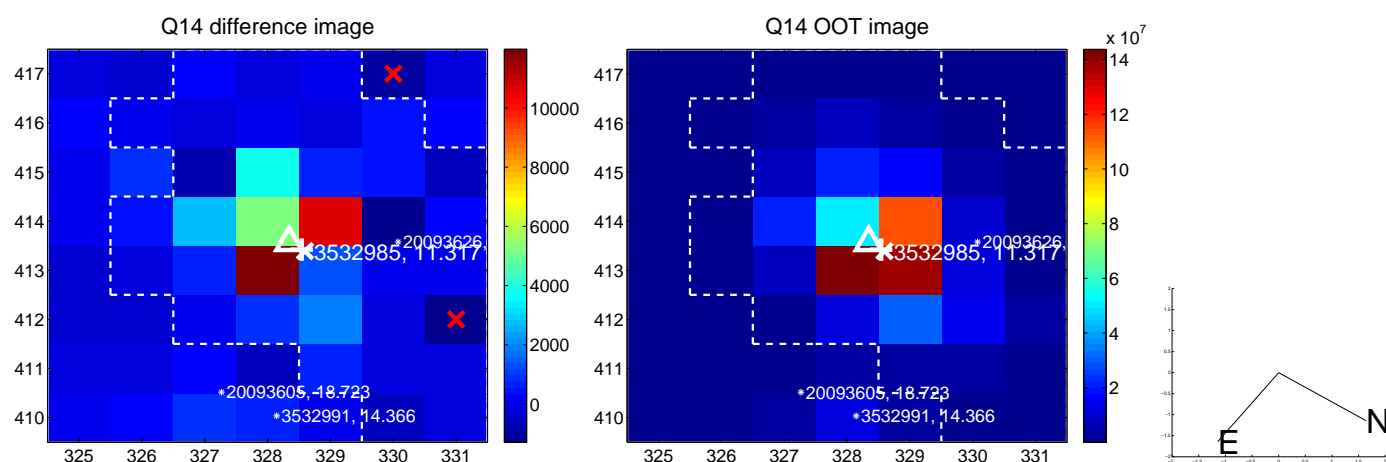
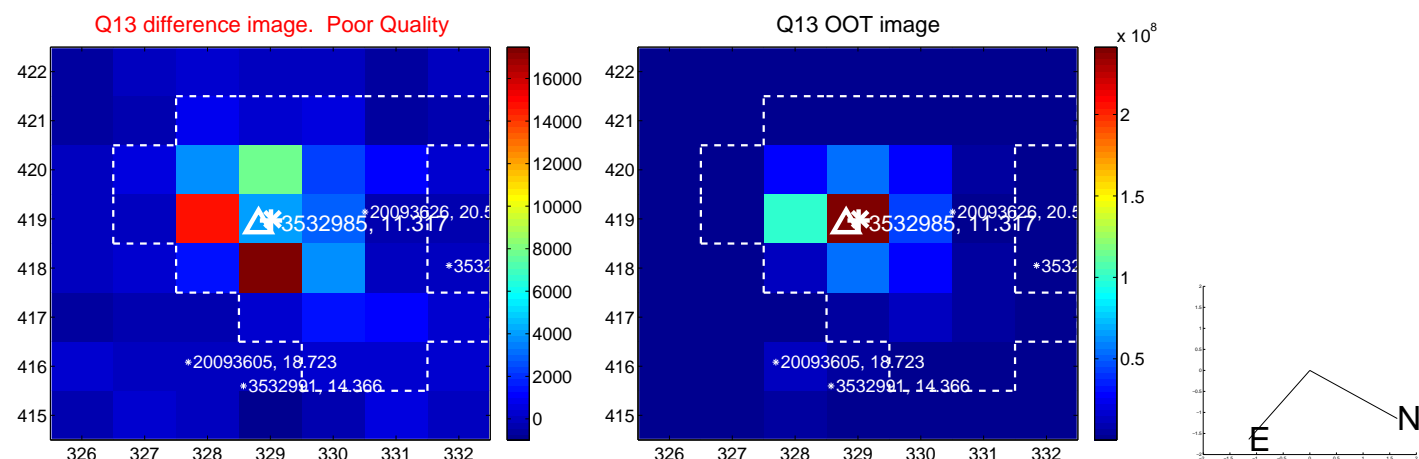
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



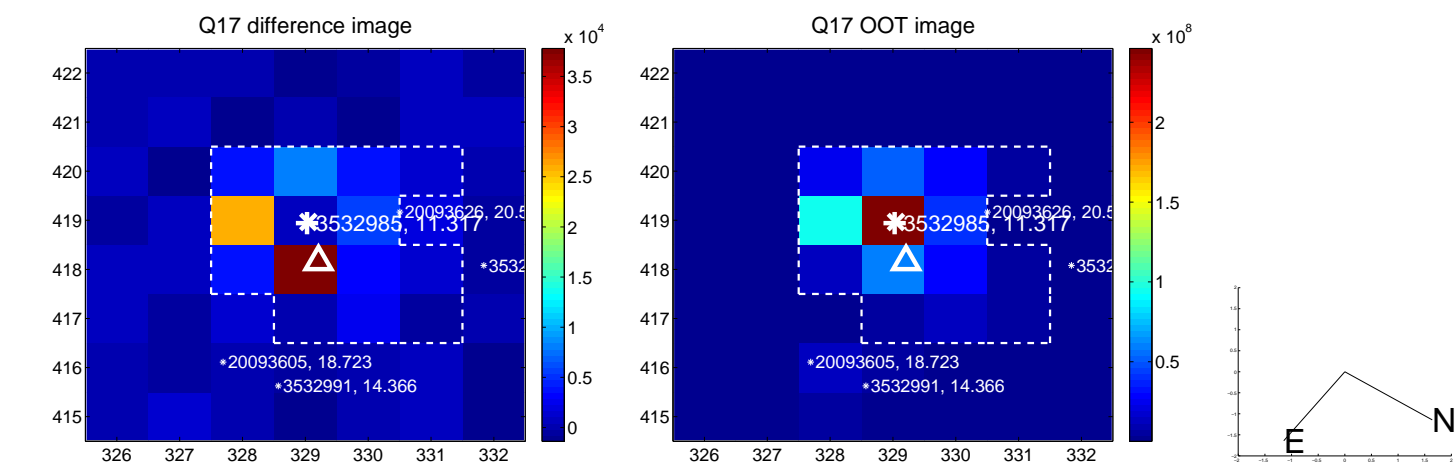
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



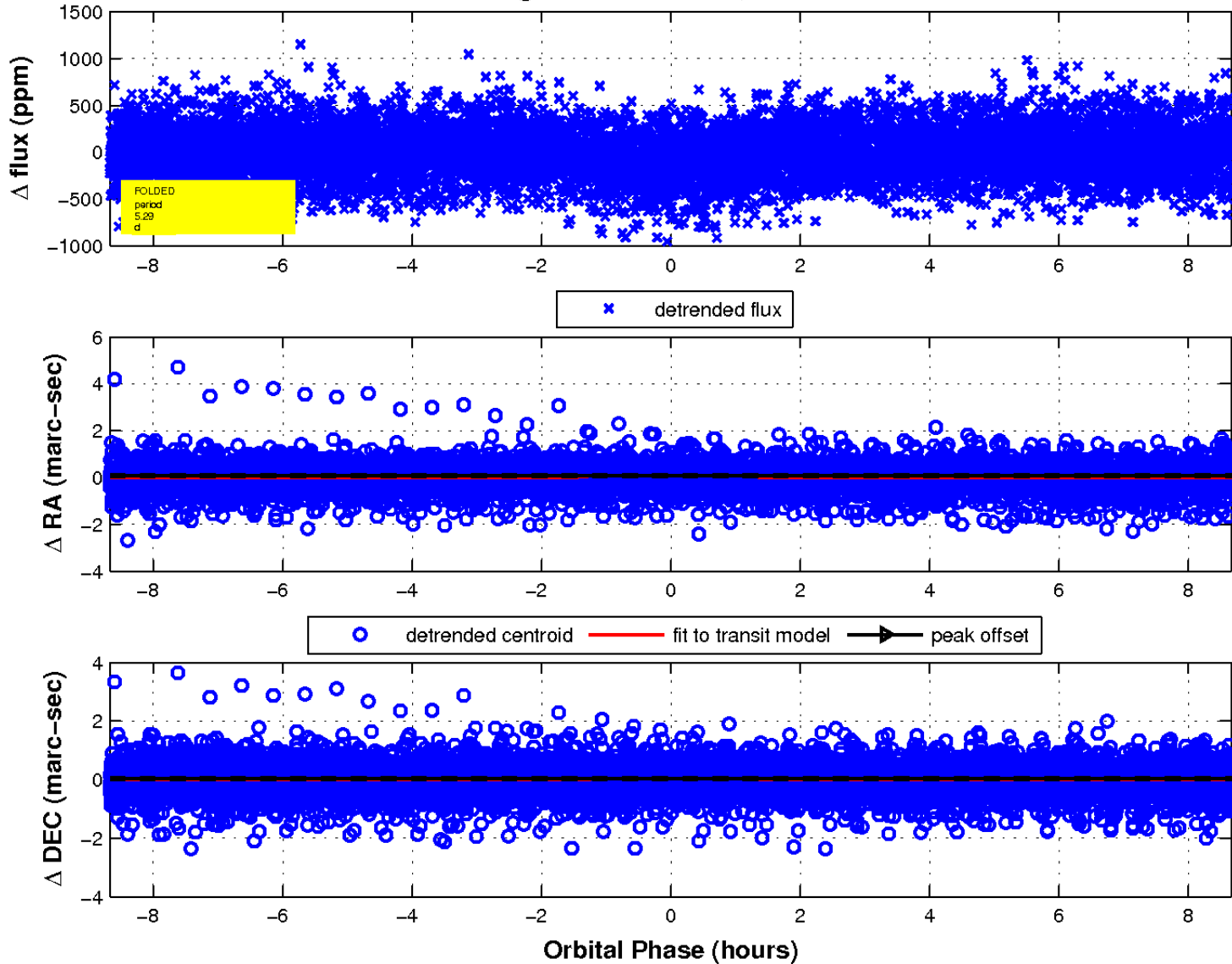
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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



fluxWeightedCentroids, Planet 2 of 2



UKIRT Image

Declination

