

KIC 002832589

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})
002832589-01	OBS	1942.01	10.849721	136.743310	1129.4	3.657	34.5	35.9	0.78	5251	3.01	49.43
002832589-02	OBS	1942.02	2.433700	133.836721	268.6	0.869	7.3	10.2	0.78	5251	1.57	362.65

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
002832589-01	OBS	PC	1.00	0	0	0	0	CENT_KIC_POS
002832589-02	OBS	PC	1.00	0	0	0	0	CENT_KIC_POS

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

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

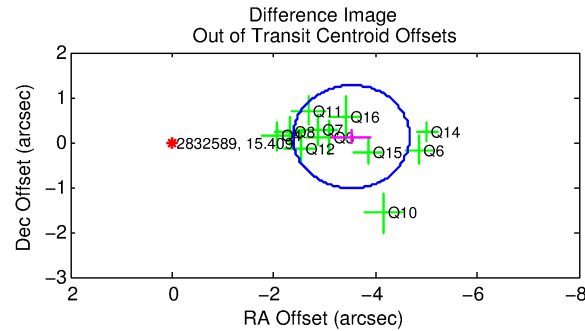
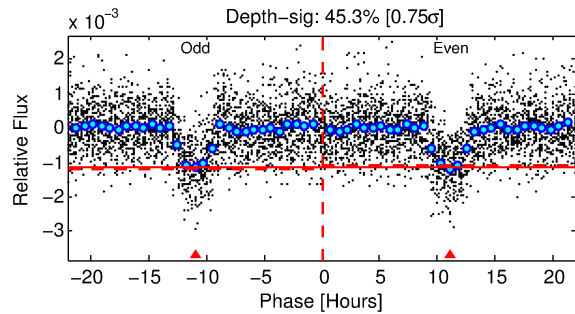
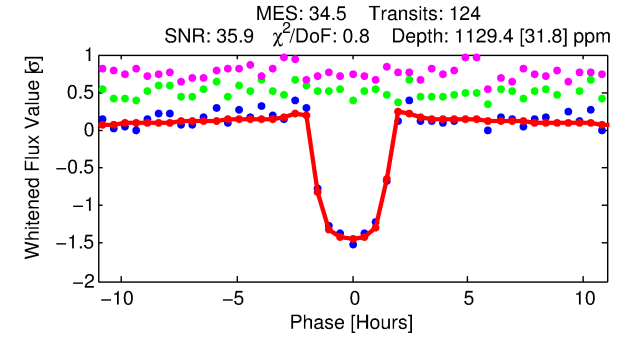
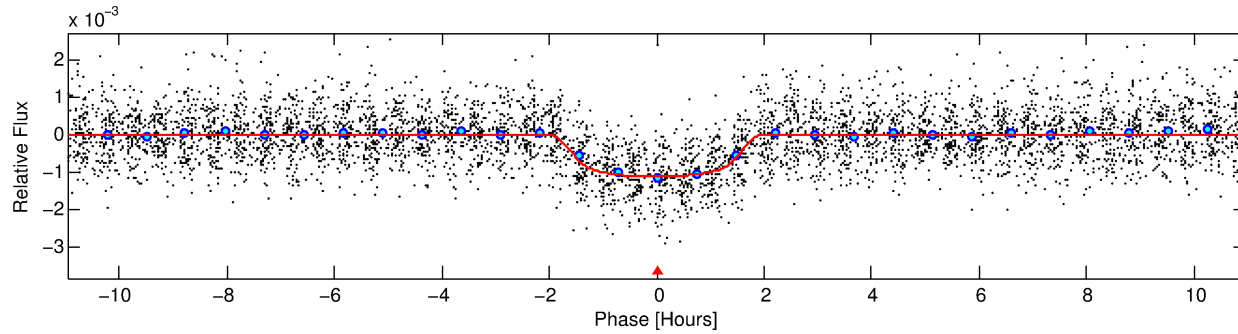
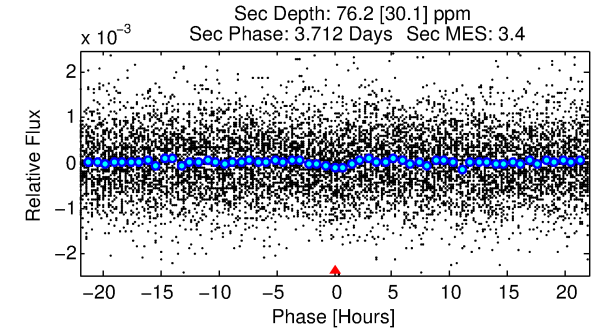
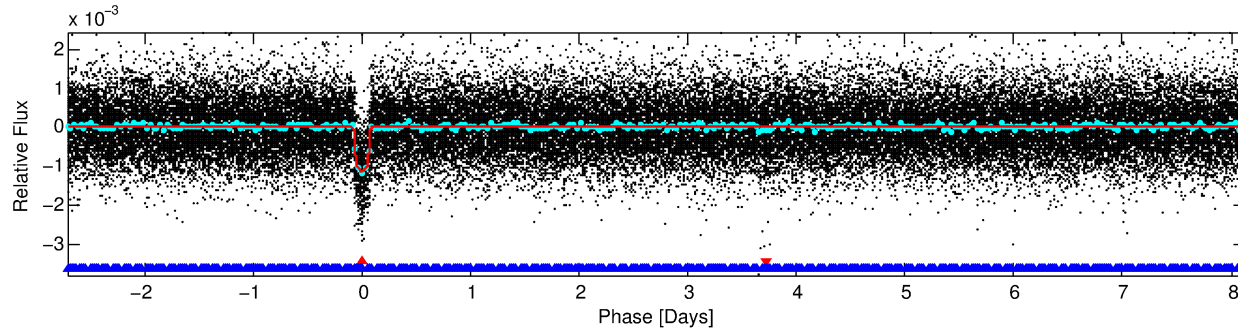
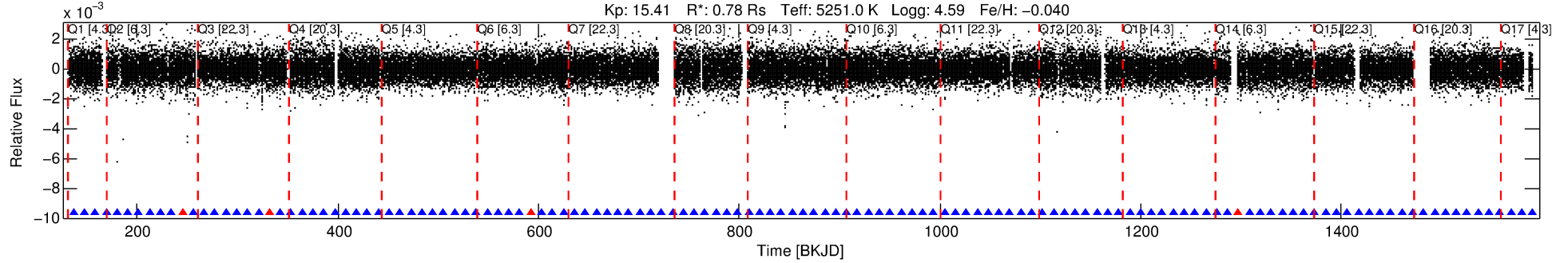
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 002832589-01

No Significant Match Found

DV One-Page Summary

KIC: 2832589 Candidate: 1 of 2 Period: 10.850 d
KOI: K01942.01 Corr: 0.984



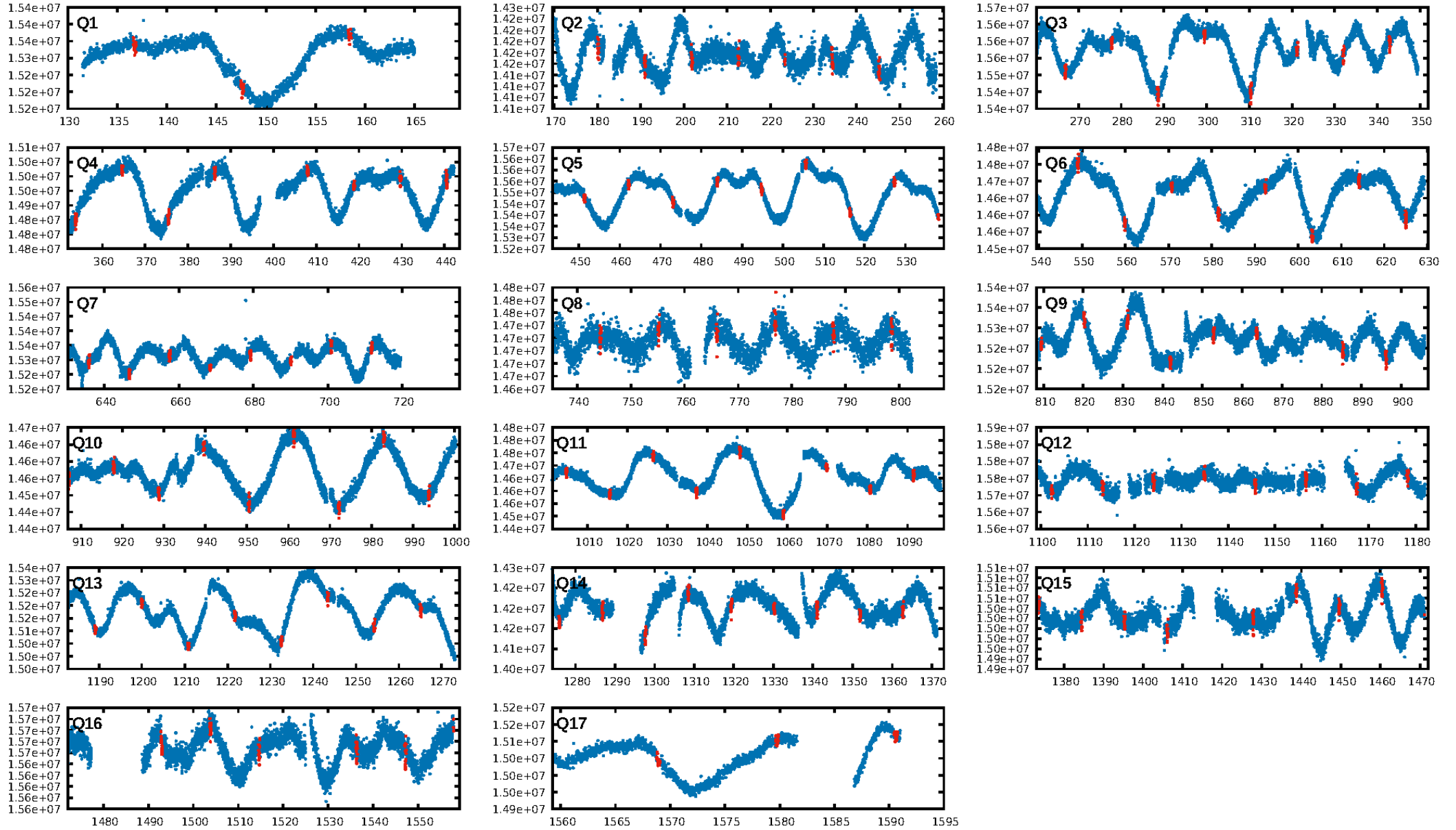
DV Fit Results:

Period = 10.84972 [0.00003] d
Epoch = 136.7433 [0.0020] BKJD
Rp/R* = 0.0354 [0.0030]
a/R* = 13.59 [4.41]
b = 0.85 [0.11]
Seff = 49.43 [10.59]
Teq = 676 [36] K
Rp = 3.01 [0.50] Re
a = 0.0913 [0.0111] AU
Ag = 38.66 [18.00] [2.09σ]
Teffp = 2607 [291] K [6.58σ]

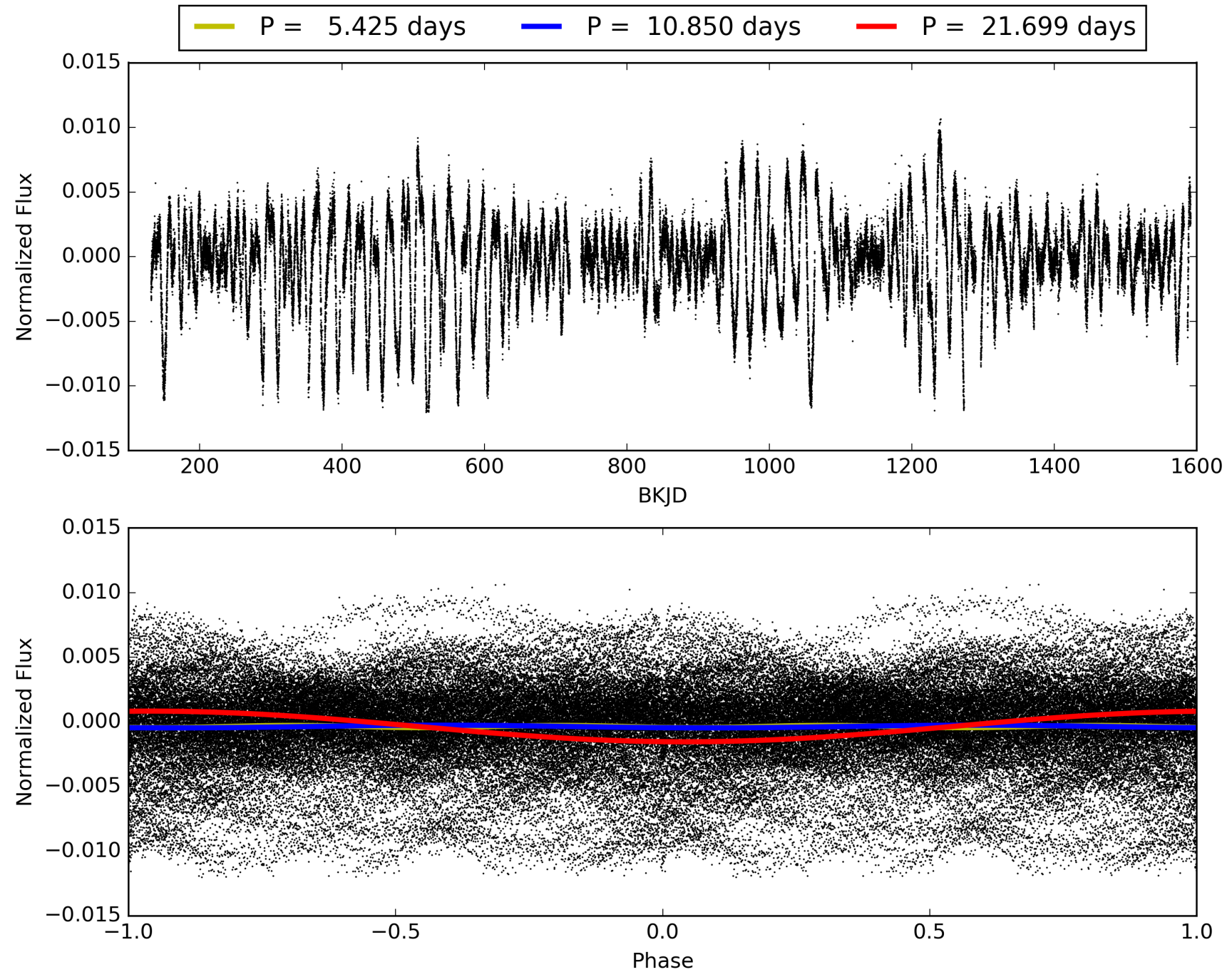
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [53.74σ]
LongPeriod-sig: N/A
ModelChiSquare2-sig: 98.4%
ModelChiSquareGof-sig: 100.0%
Bootstrap-pfa: 2.61e-238
RollingBand-fgt: 0.97 [114/118]
GhostDiagnostic-chr: 2.312
Centroid-sig: 0.0%
Centroid-so: 1.350 arcsec [7.88σ]
OotOffset-rm: 3.525 arcsec [9.22σ]
KicOffset-rm: 0.268 arcsec [1.42σ]
OotOffset-st: 3/4/4/0 [11]
KicOffset-st: 3/4/4/5 [16]
DiffImageQuality-fgm: 1.00 [16/16]
DiffImageOverlap-fno: 1.00 [17/17]

TCE 002832589-01, PDC Light Curves

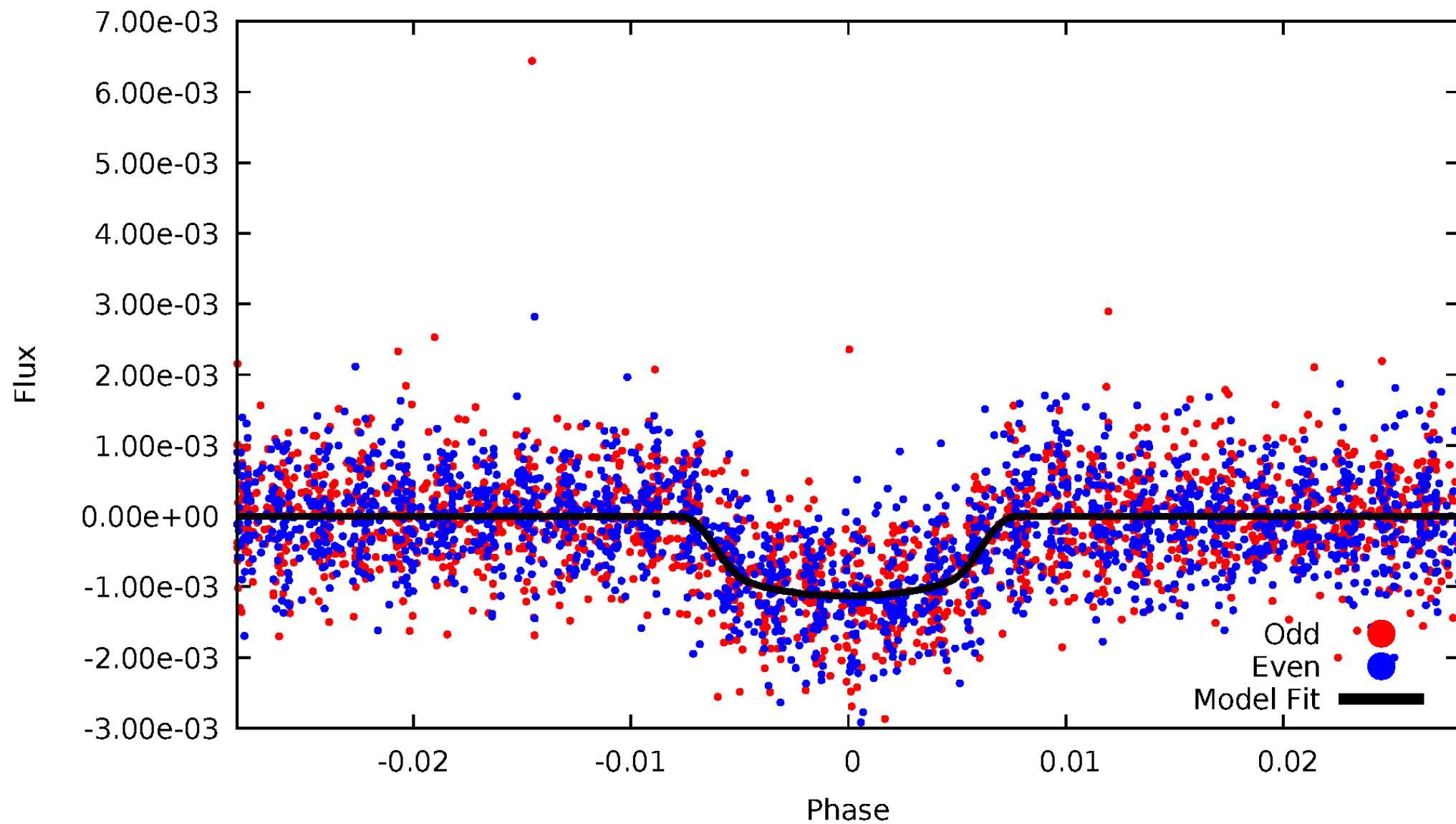


TCE 002832589-01



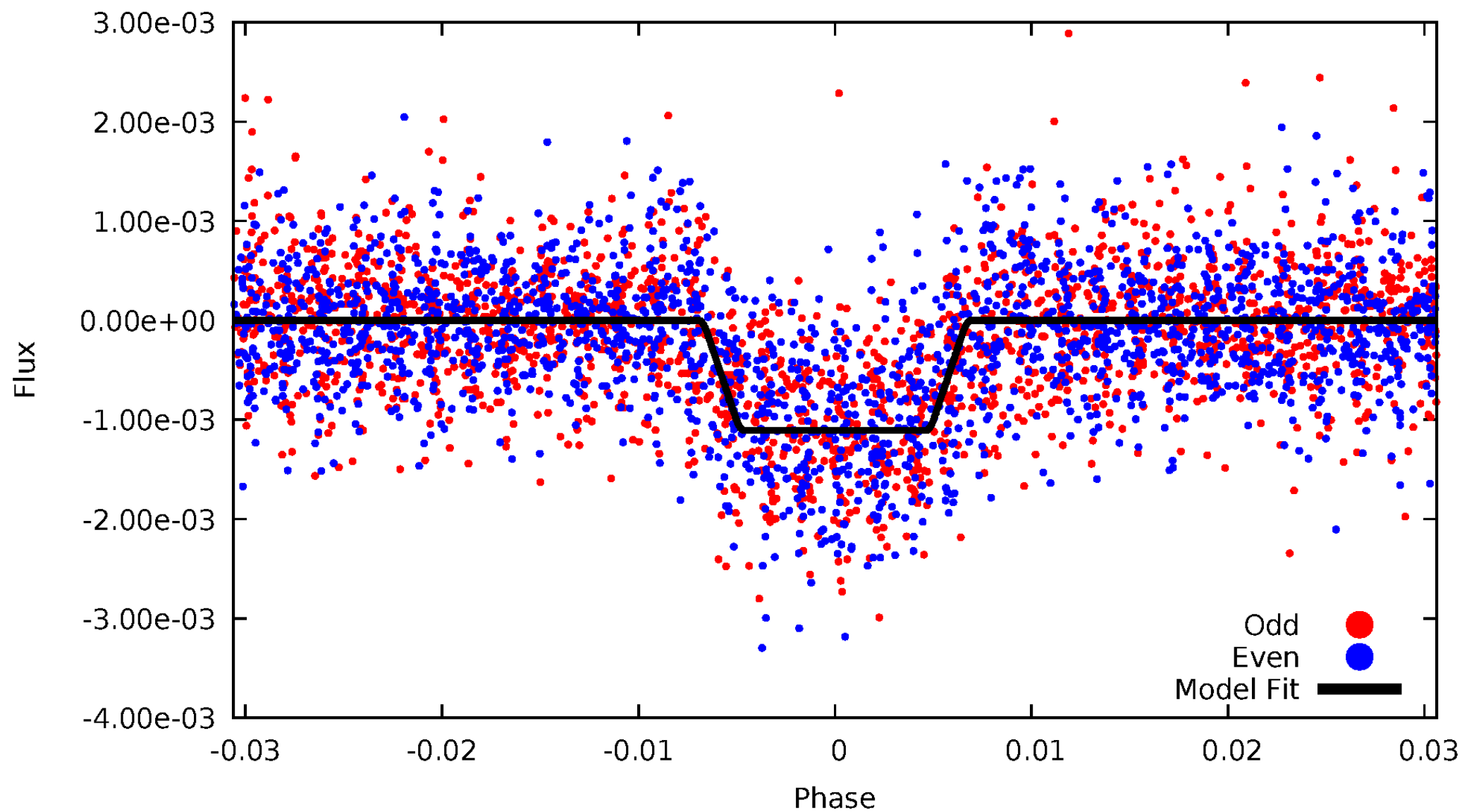
DV Odd/Even

TCE 002832589-01



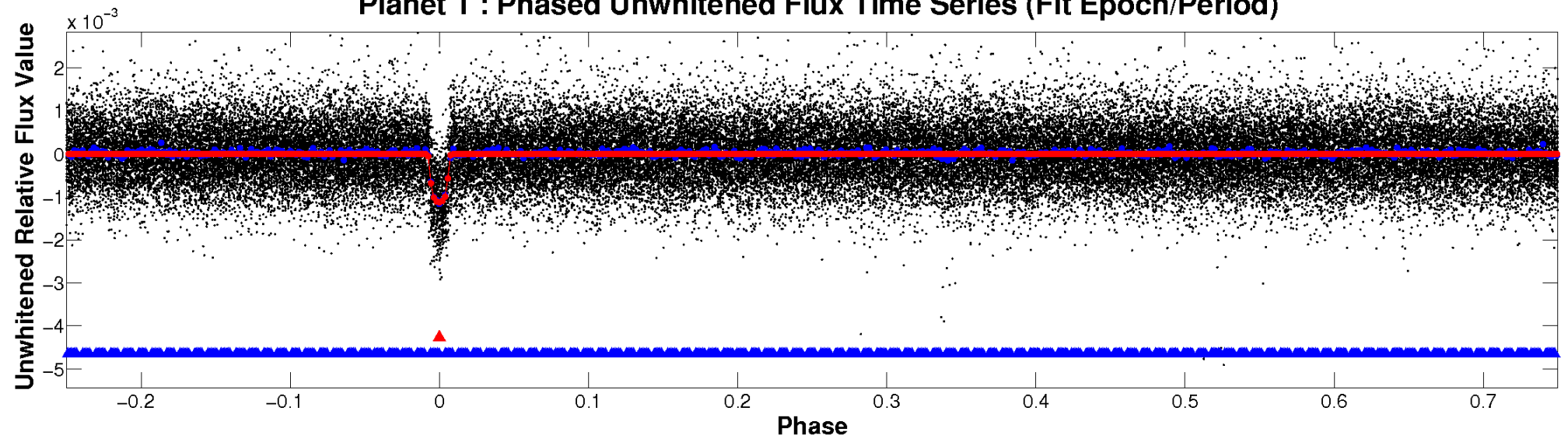
ALT Odd/Even

TCE 002832589-01

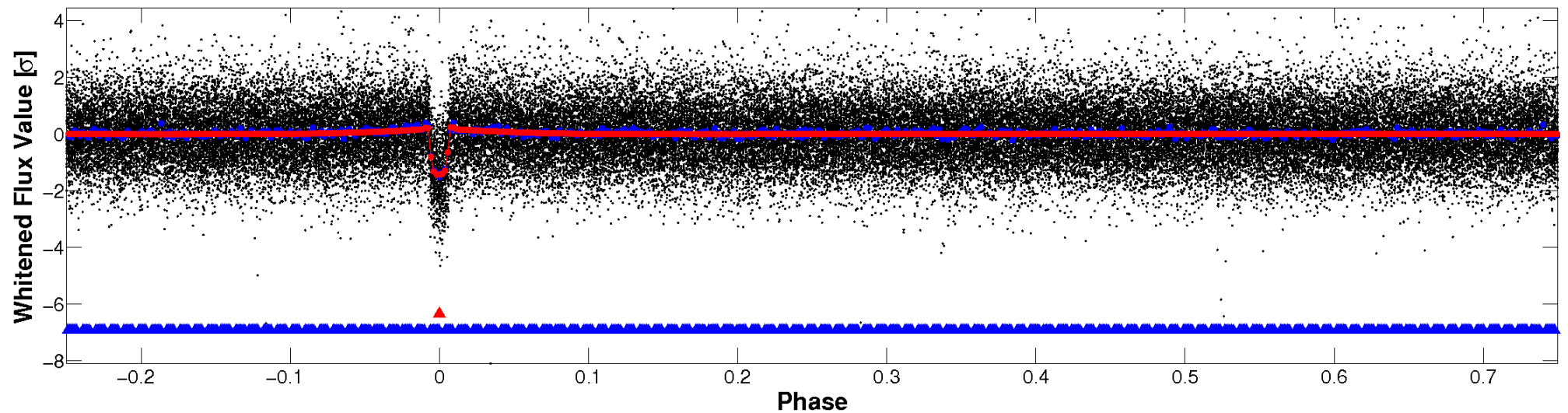


Non-Whitened Vs. Whitened Light Curve

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

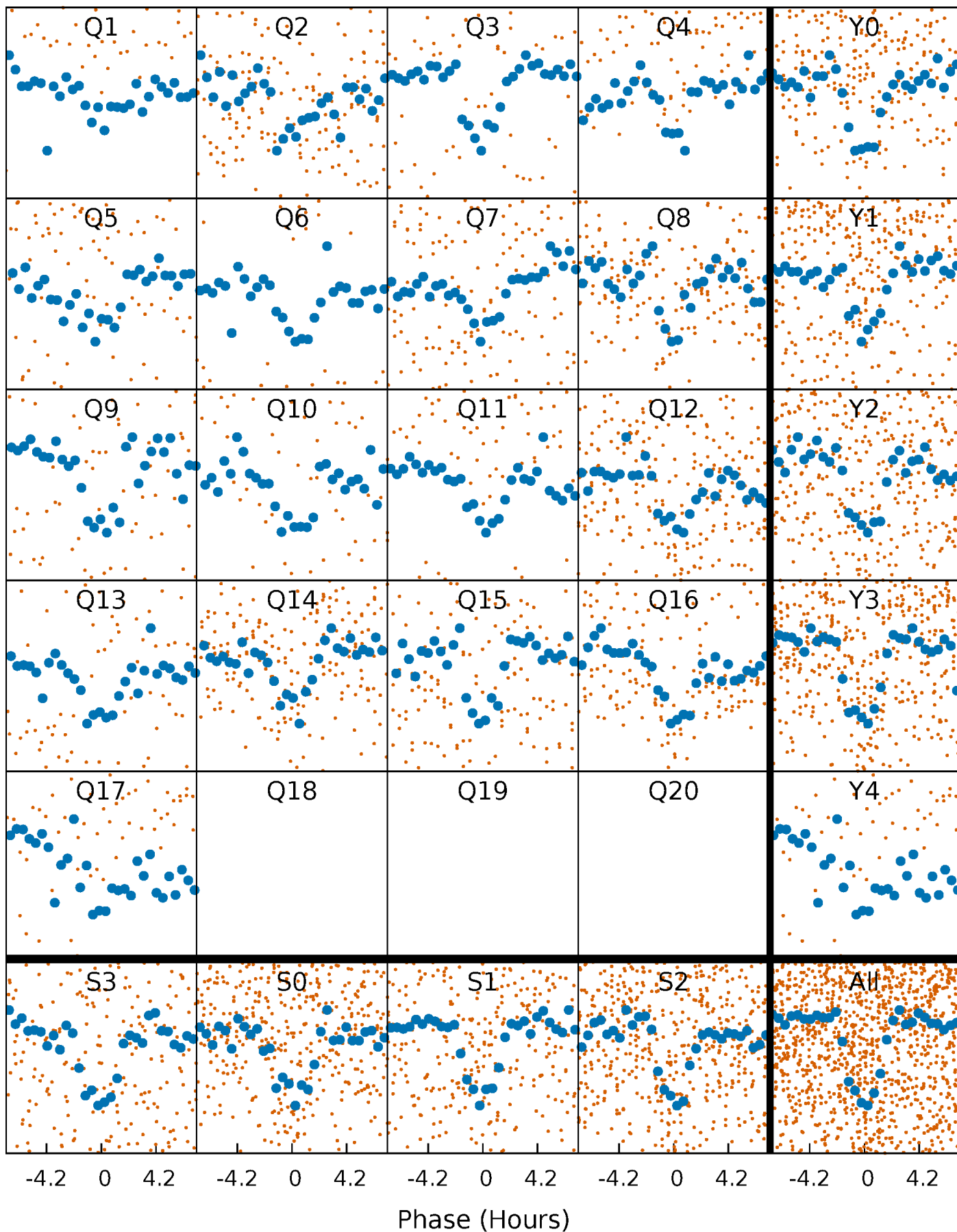


Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)



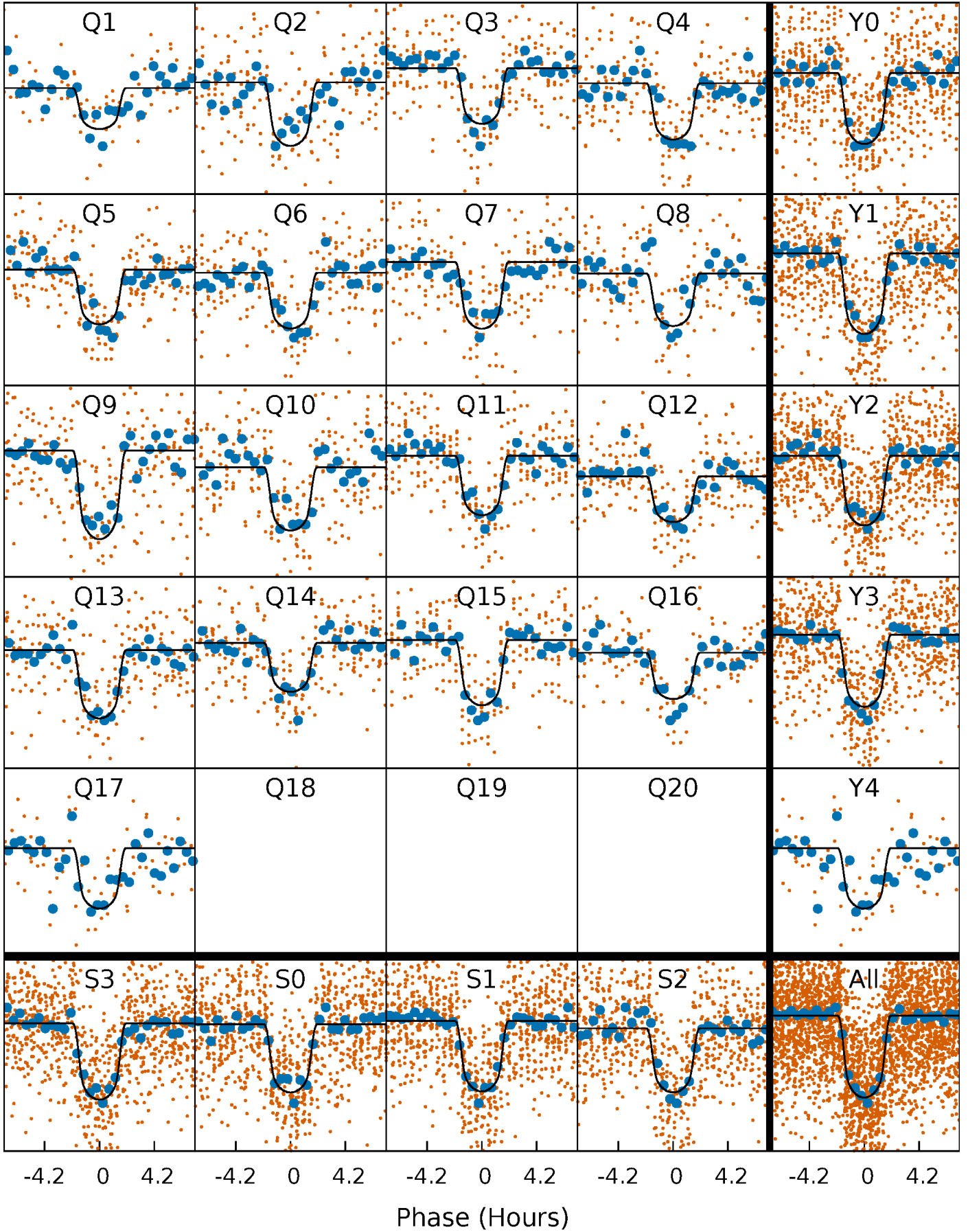
PDC Quarter-Phased Transit Curves

TCE 002832589-01 P= 10.849721 Days $T_0=136.743310$ (BKJD)



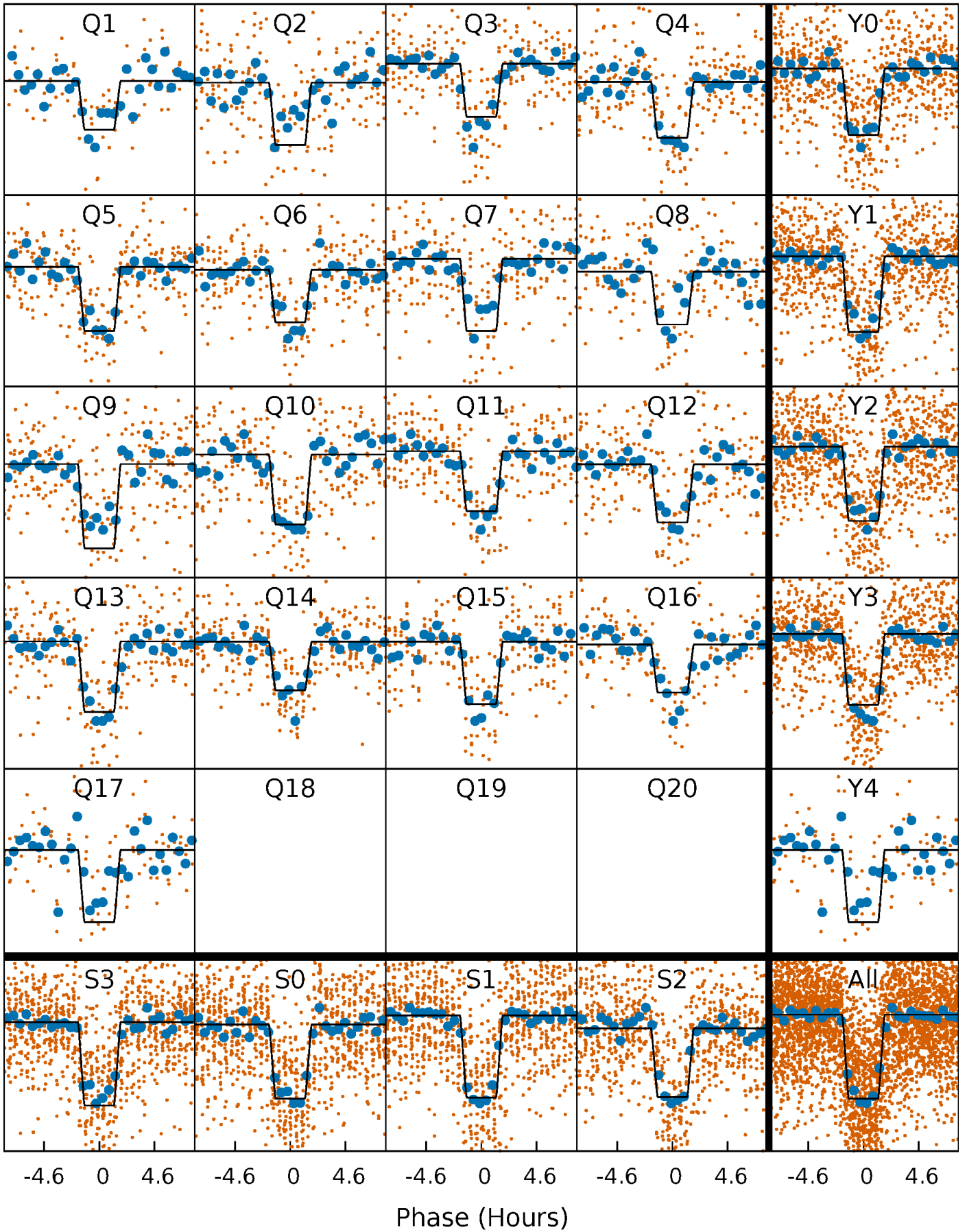
DV Quarter-Phased Transit Curves

TCE 002832589-01 P= 10.849721 Days $T_0=136.743310$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

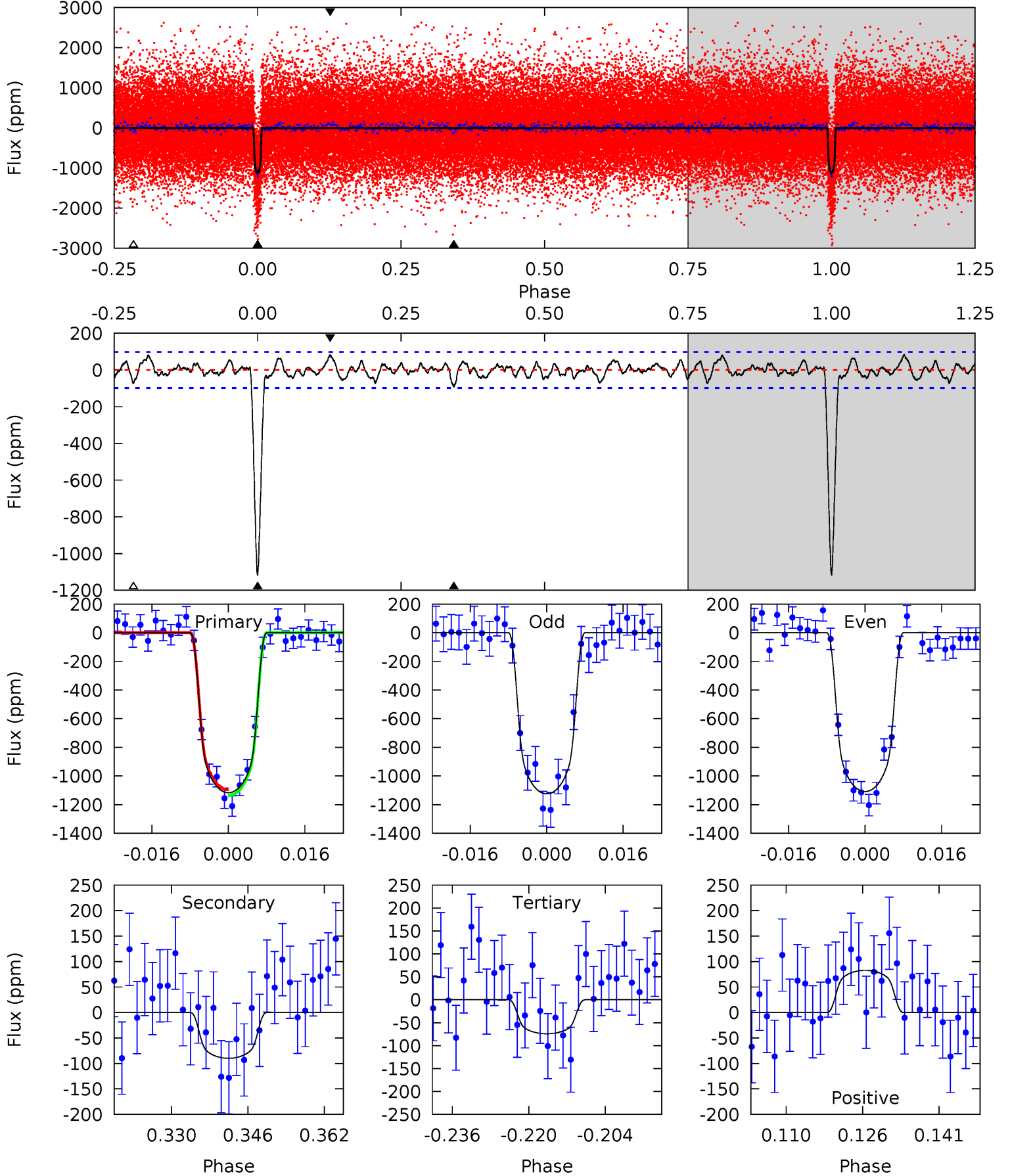
TCE 002832589-01 P= 10.849586 Days $T_0=136.751848$ (BKJD)



DV Model-Shift Uniqueness Test

002832589-01, $P = 10.849721$ Days, $E = 125.893589$ Days

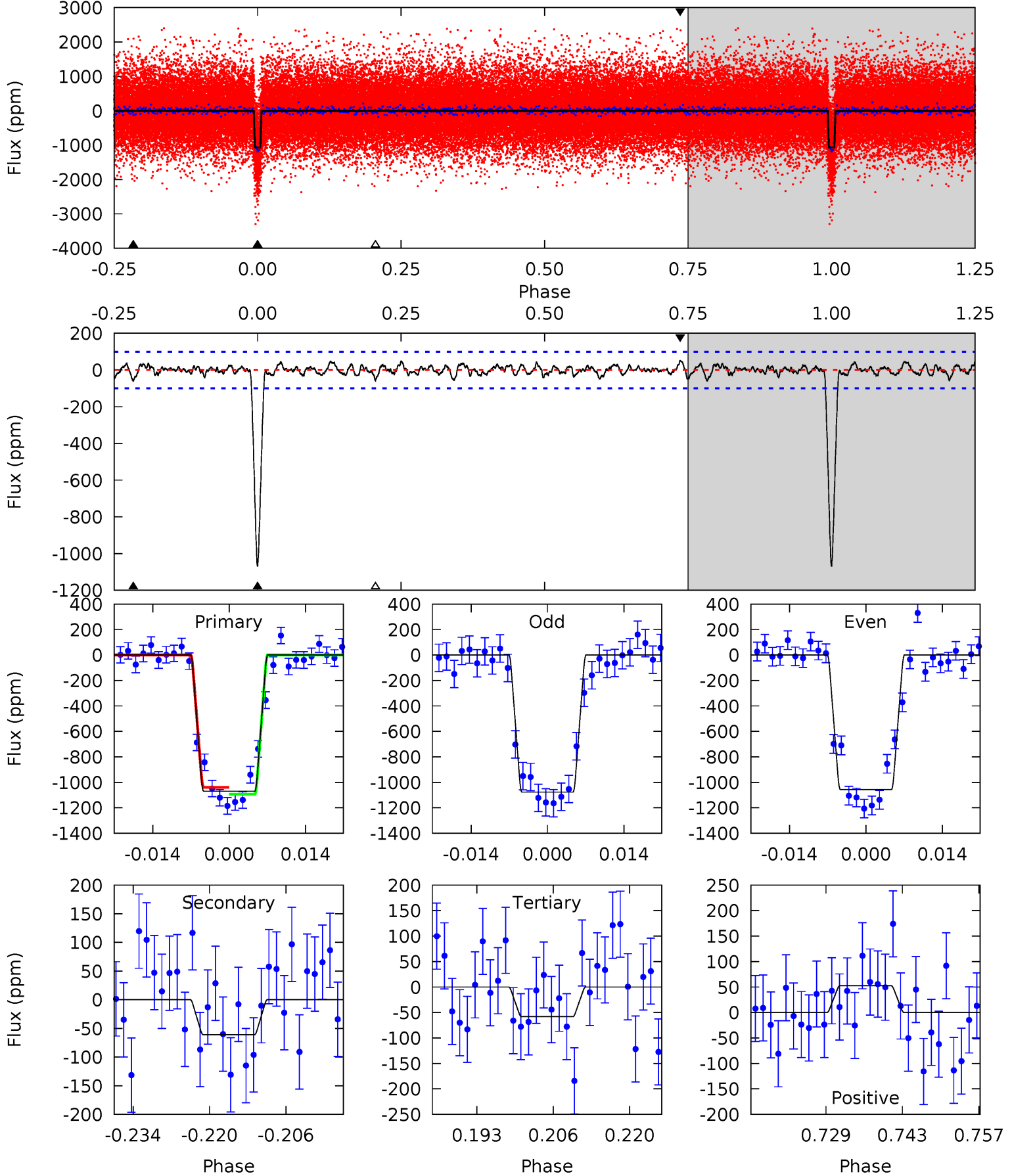
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
55.9	4.50	3.71	4.14	4.94	2.42	1.38	52.2	51.8	0.79	0.36	0.40	0.98	0.07	1.00



Alt Model-Shift Uniqueness Test

002832589-01, P = 10.849586 Days, E = 125.902262 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
53.3	3.04	2.91	2.62	4.96	2.46	0.95	50.4	50.7	0.13	0.42	0.52	1.02	0.05	1.32



Stellar Parameters For KIC 002832589

	$T_{\text{eff}} (K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R (R_{\odot})$	$M (M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	5251^{+158}_{-158}	$4.592^{+0.032}_{-0.097}$	$-0.040^{+0.300}_{-0.300}$	$0.778^{+0.112}_{-0.060}$	$0.869^{+0.060}_{-0.095}$	$2.601^{+0.451}_{-0.811}$
	+3%/-3%	+1%/-2%	+750%/-750%	+14%/-8%	+7%/-11%	+17%/-31%
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 002832589-01 / KOI 1942.01

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-90 ± 20	$3.09^{+0.33}_{-0.32}$	959^{+39}_{-37}	3246^{+170}_{-152}	42^{+15}_{-11}
Alt.	-61 ± 20	$2.91^{+0.33}_{-0.31}$	959^{+38}_{-38}	3123^{+181}_{-202}	32^{+14}_{-12}

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

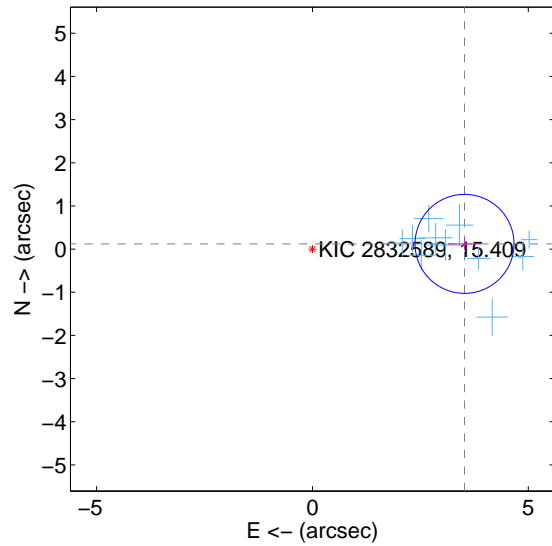
Supplemental centroid analysis for 002832589-01. Kepler magnitude: 15.41. Transit SNR 35.93

There are 16 quarters with good PRF difference image offsets

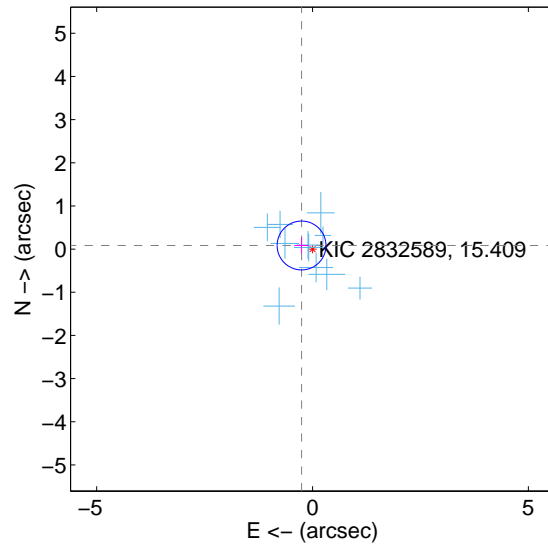
The OOT PRF centroid is offset from the target star catalog position by about 3.23 arcsec so the offset from difference PRF-fit to OOT-fit may be invalid.

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	3.525 ± 0.382	9.22	-3.523 ± 0.382	0.121 ± 0.135
PRF-fit source offset from KIC position	0.268 ± 0.189	1.42	0.254 ± 0.168	0.084 ± 0.180
photometric centroid source offset	1.35 ± 0.17	7.88	0.94 ± 0.20	-0.97 ± 0.14

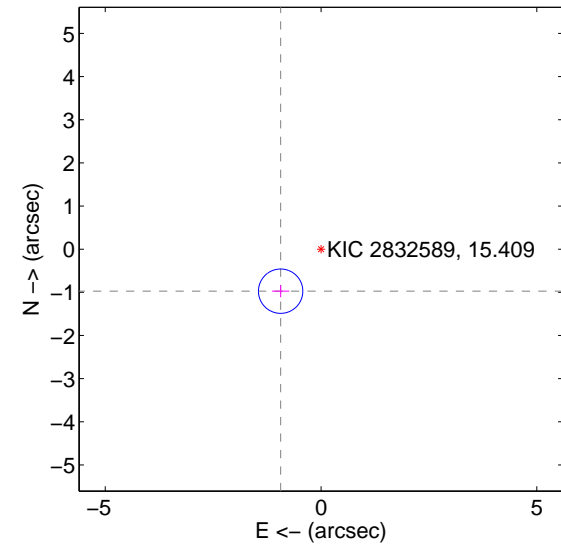
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position

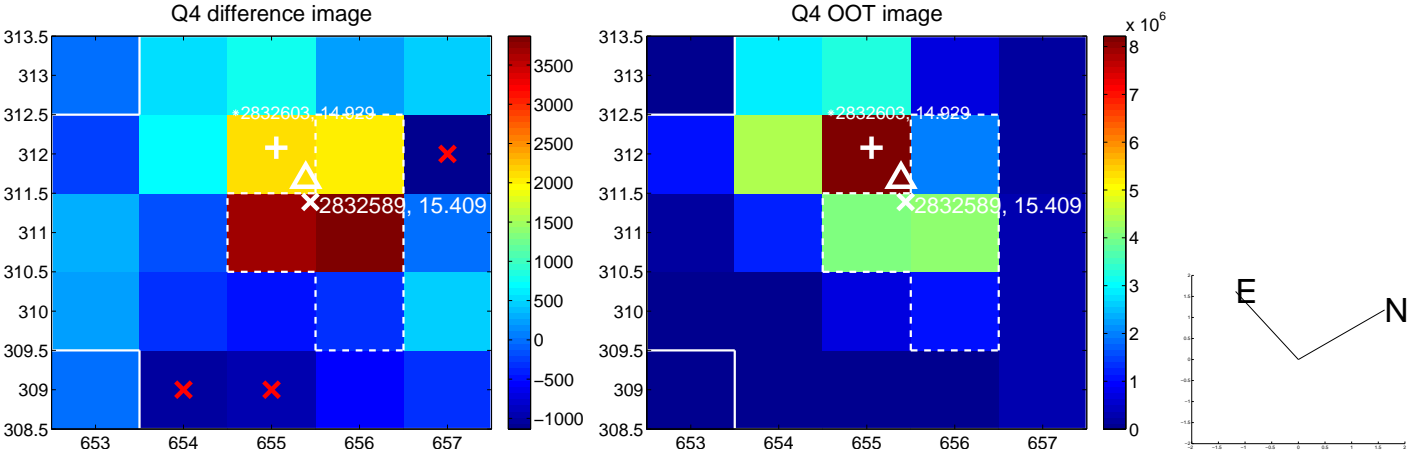
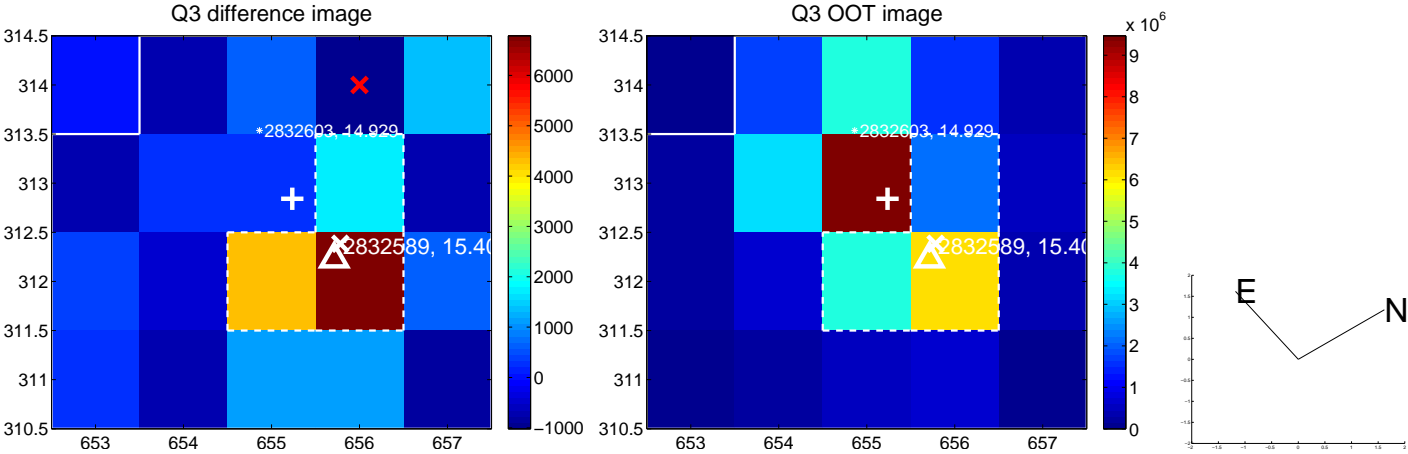
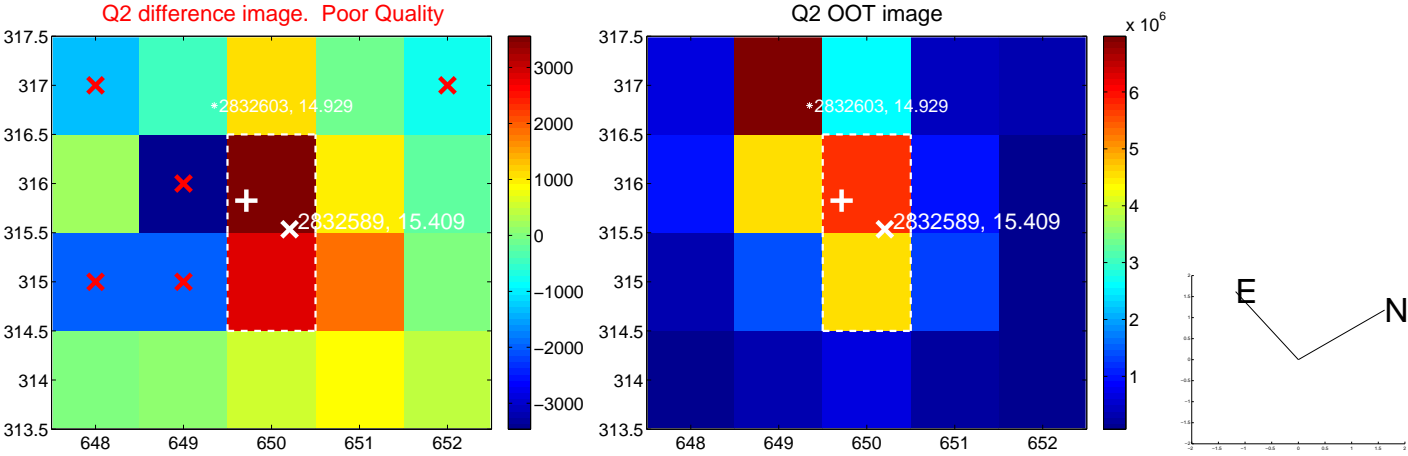
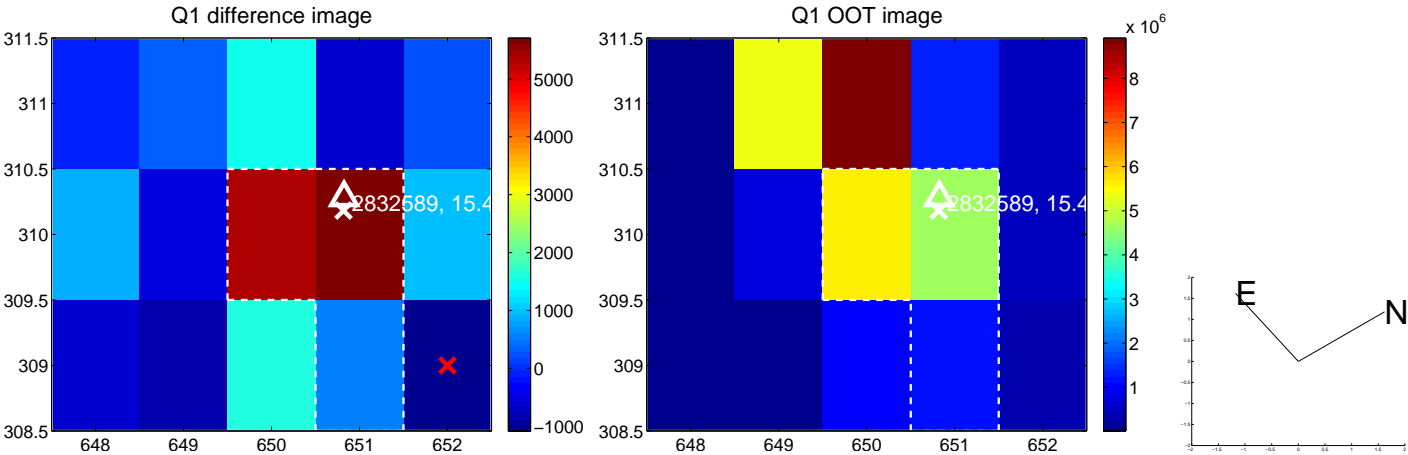


offset from photometric centroids

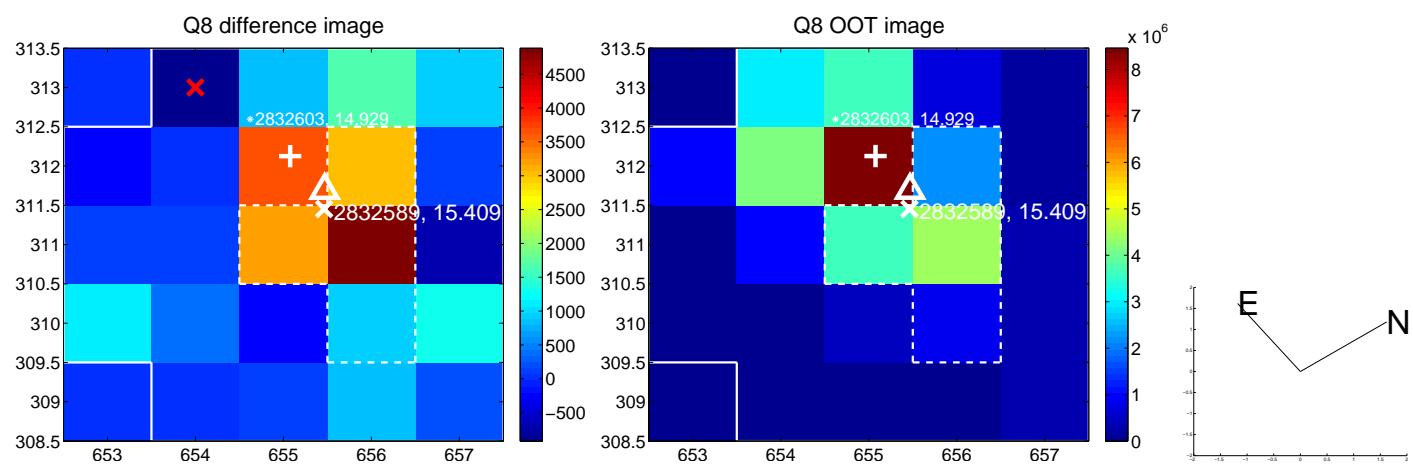
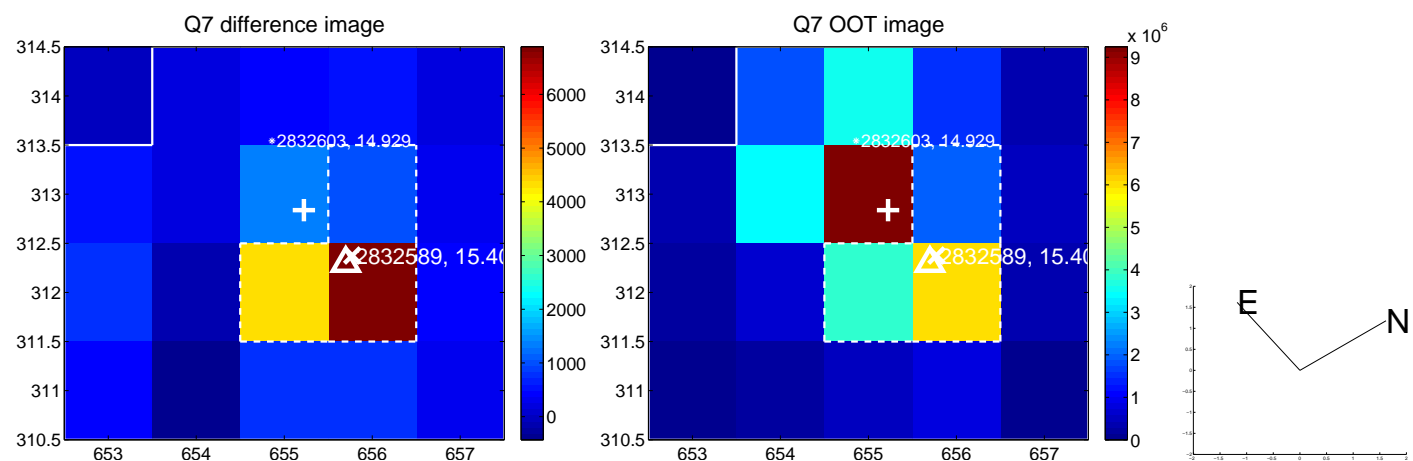
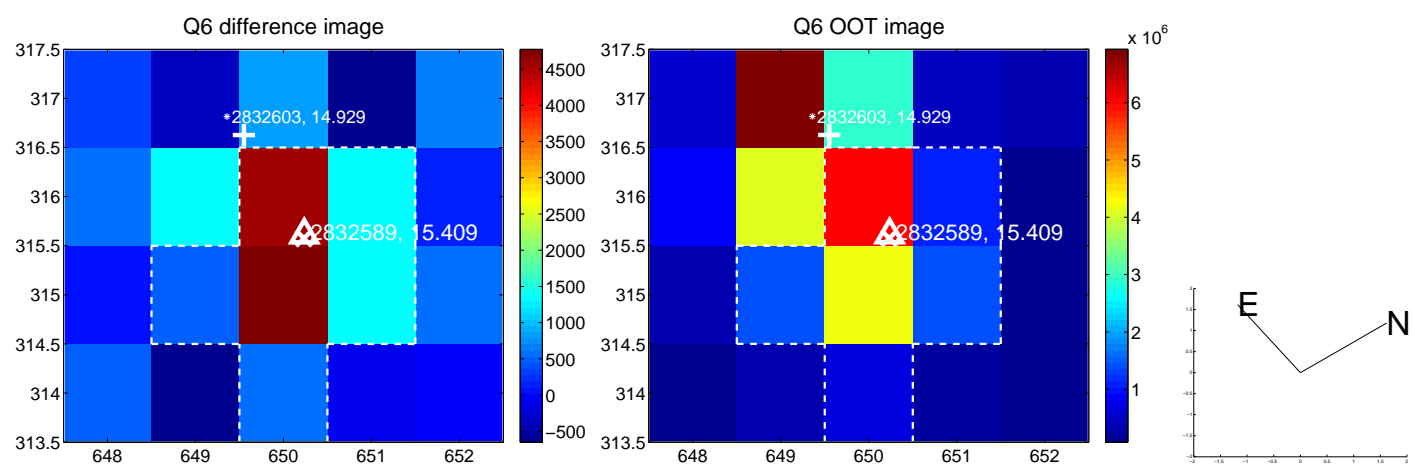
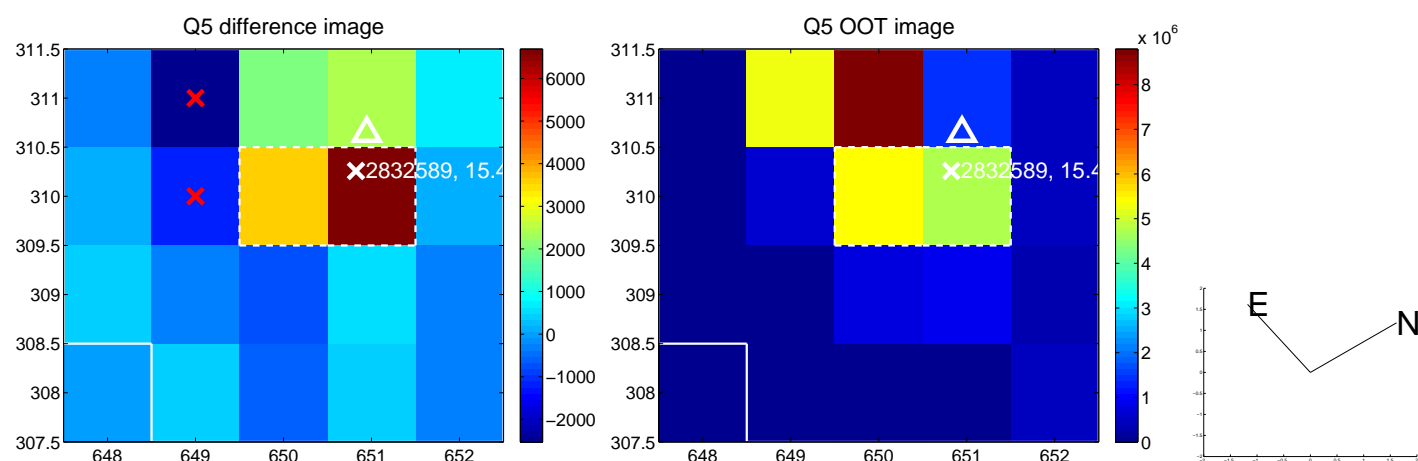


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses:** good quarterly centroid offsets; **Vermillion crosses:** bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

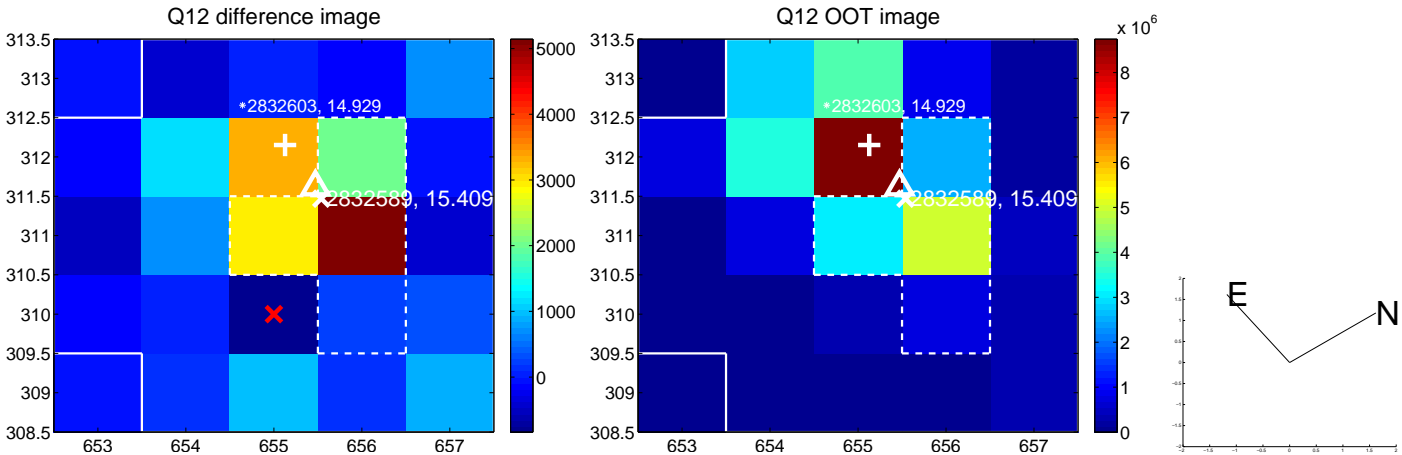
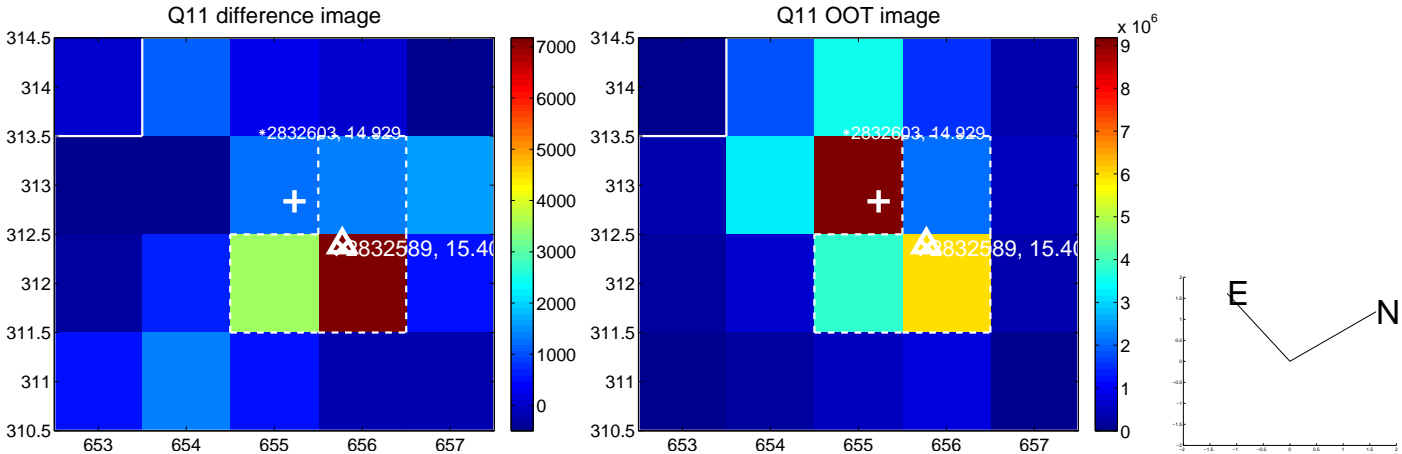
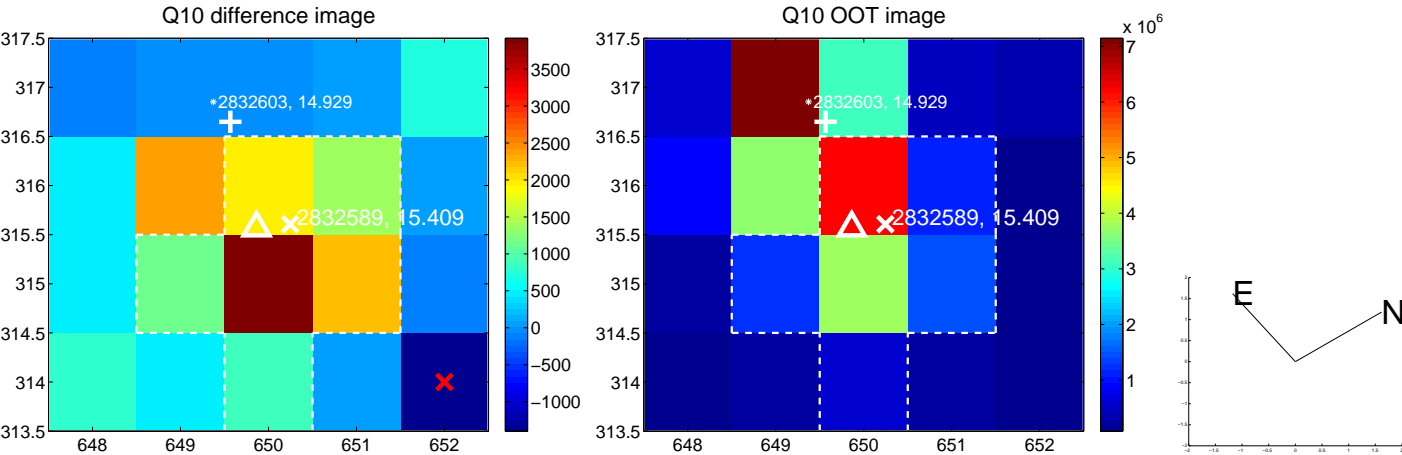
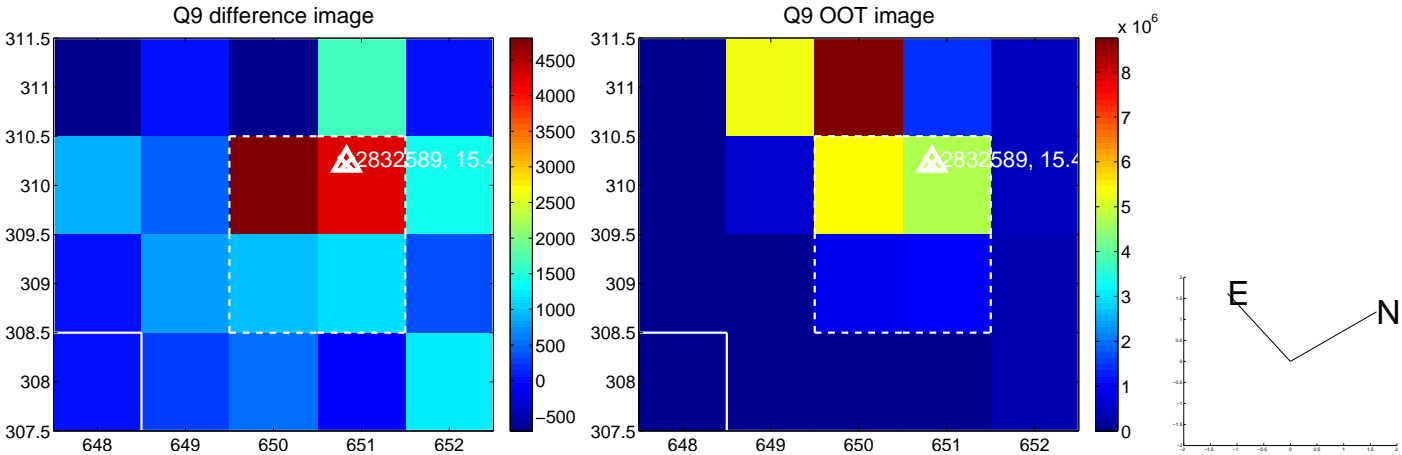
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



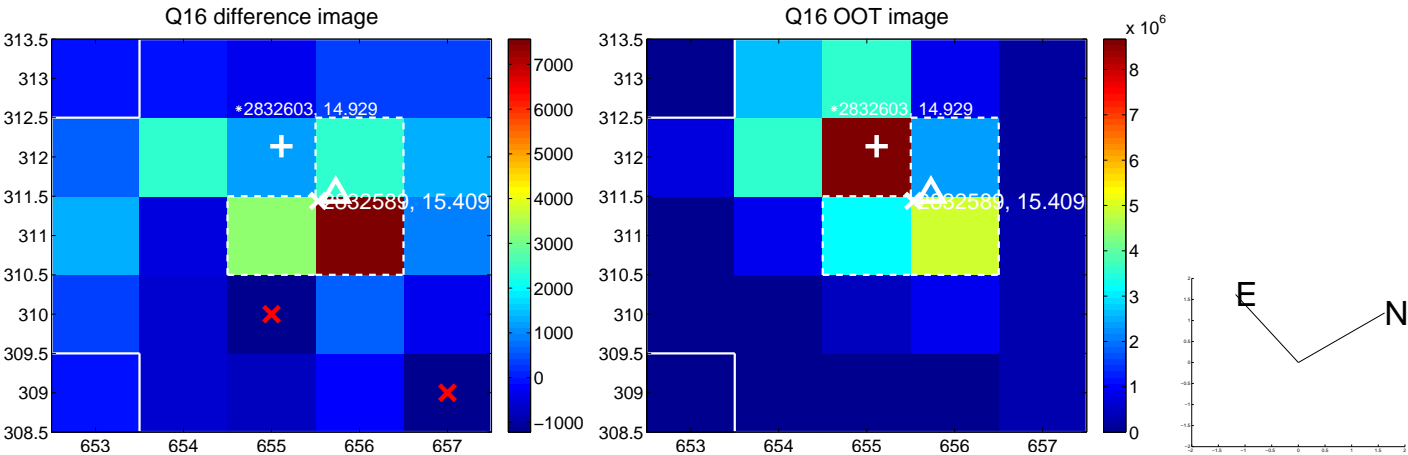
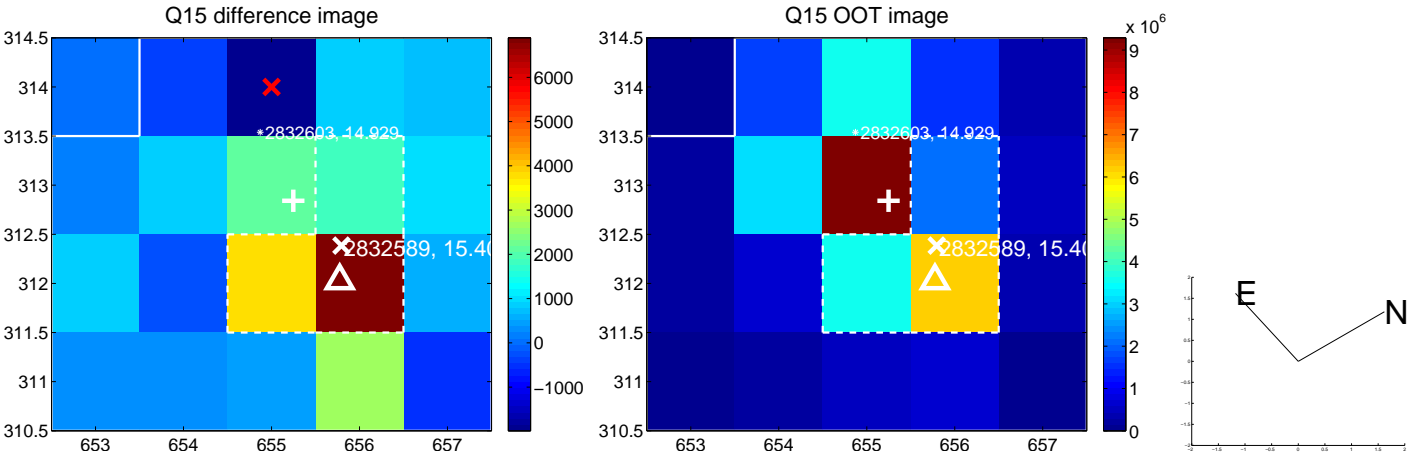
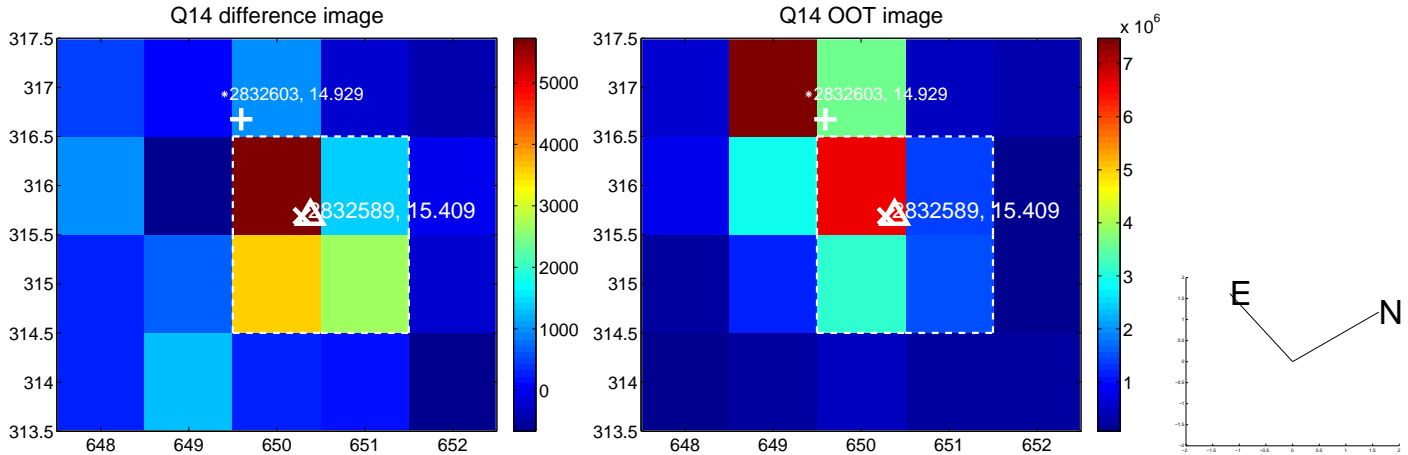
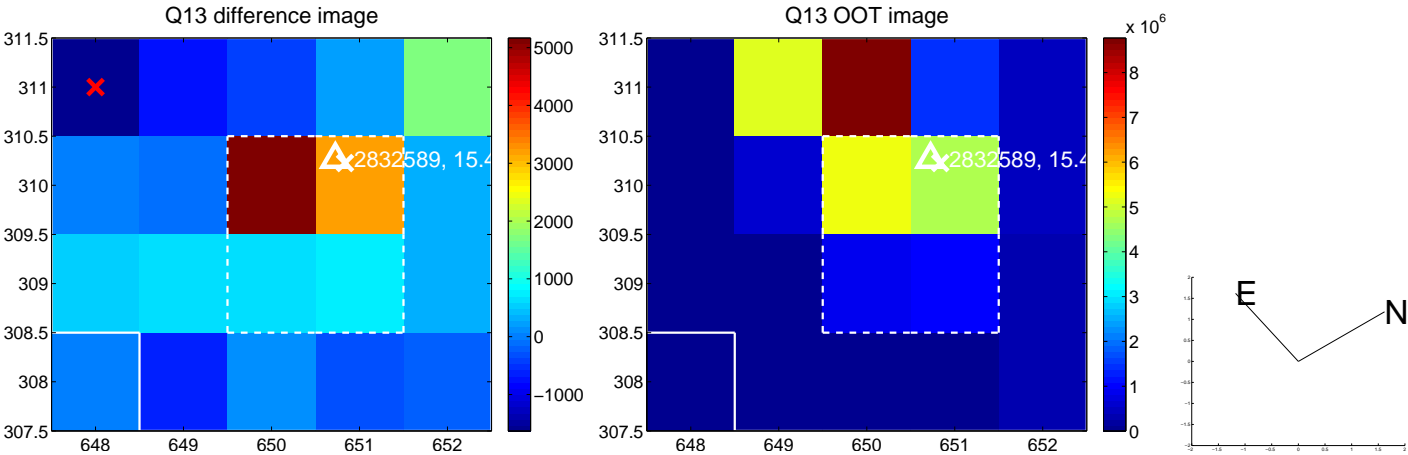
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



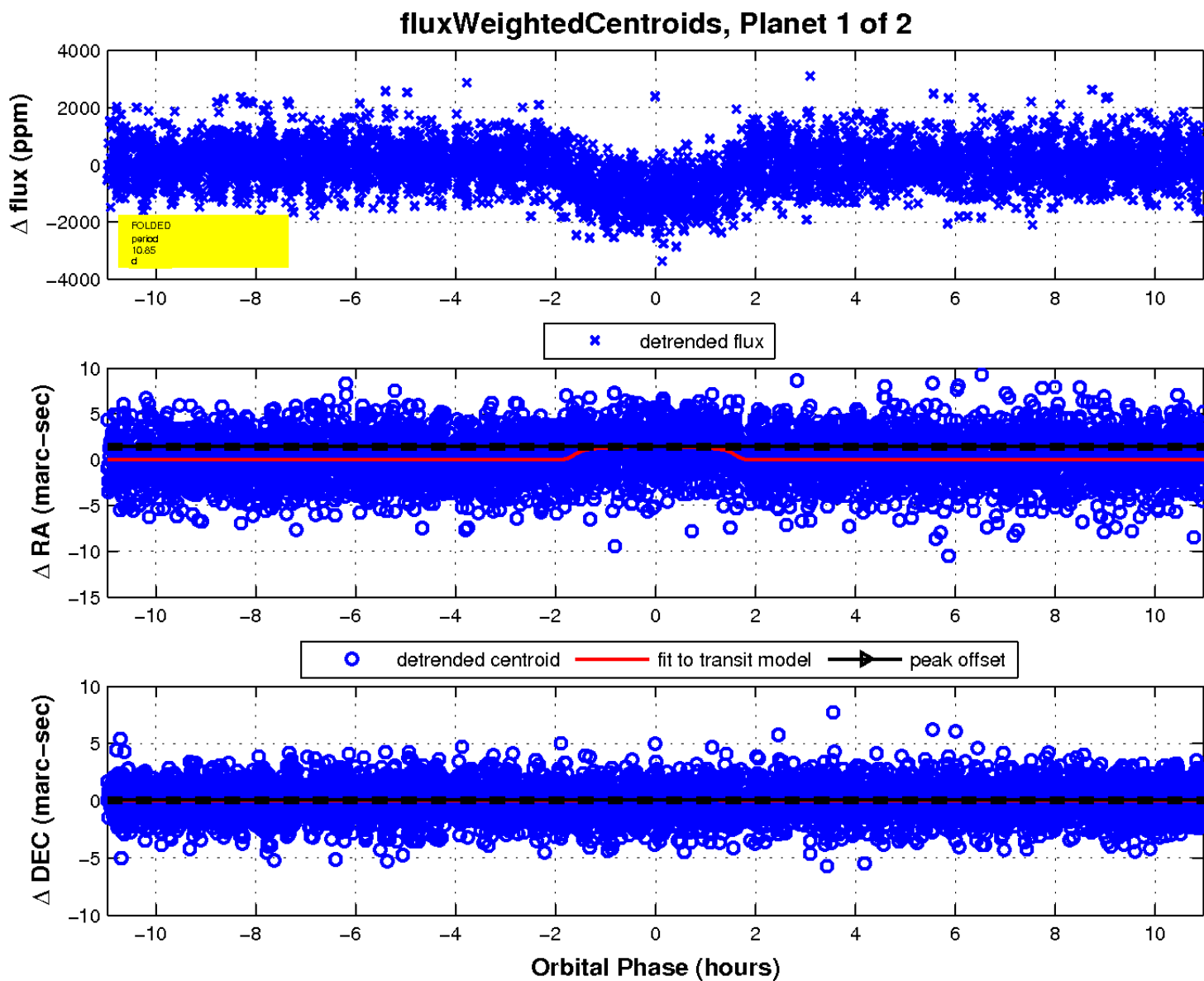
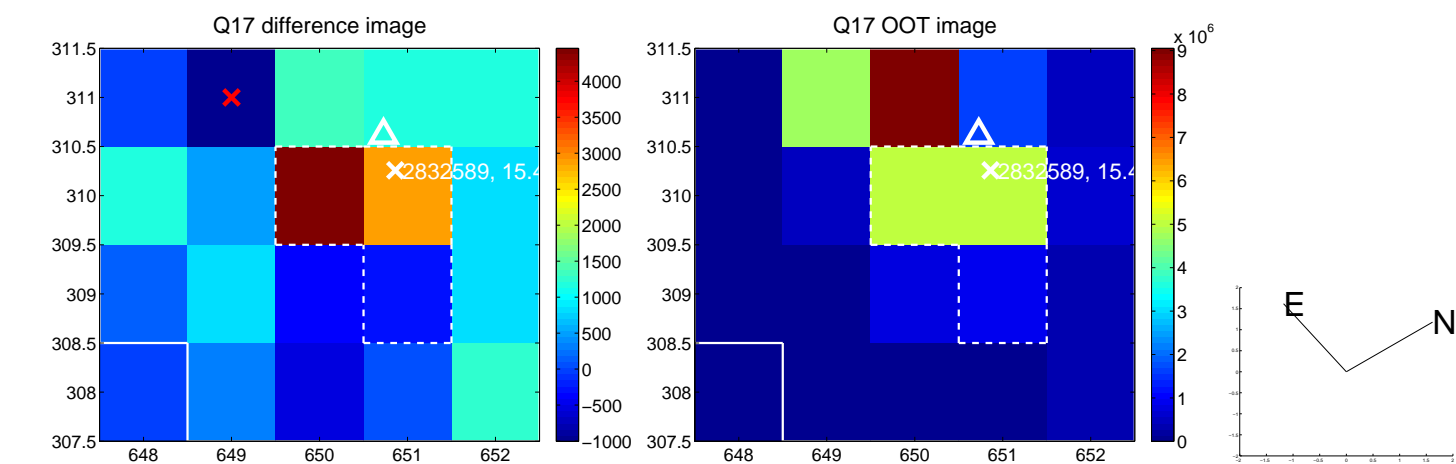
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

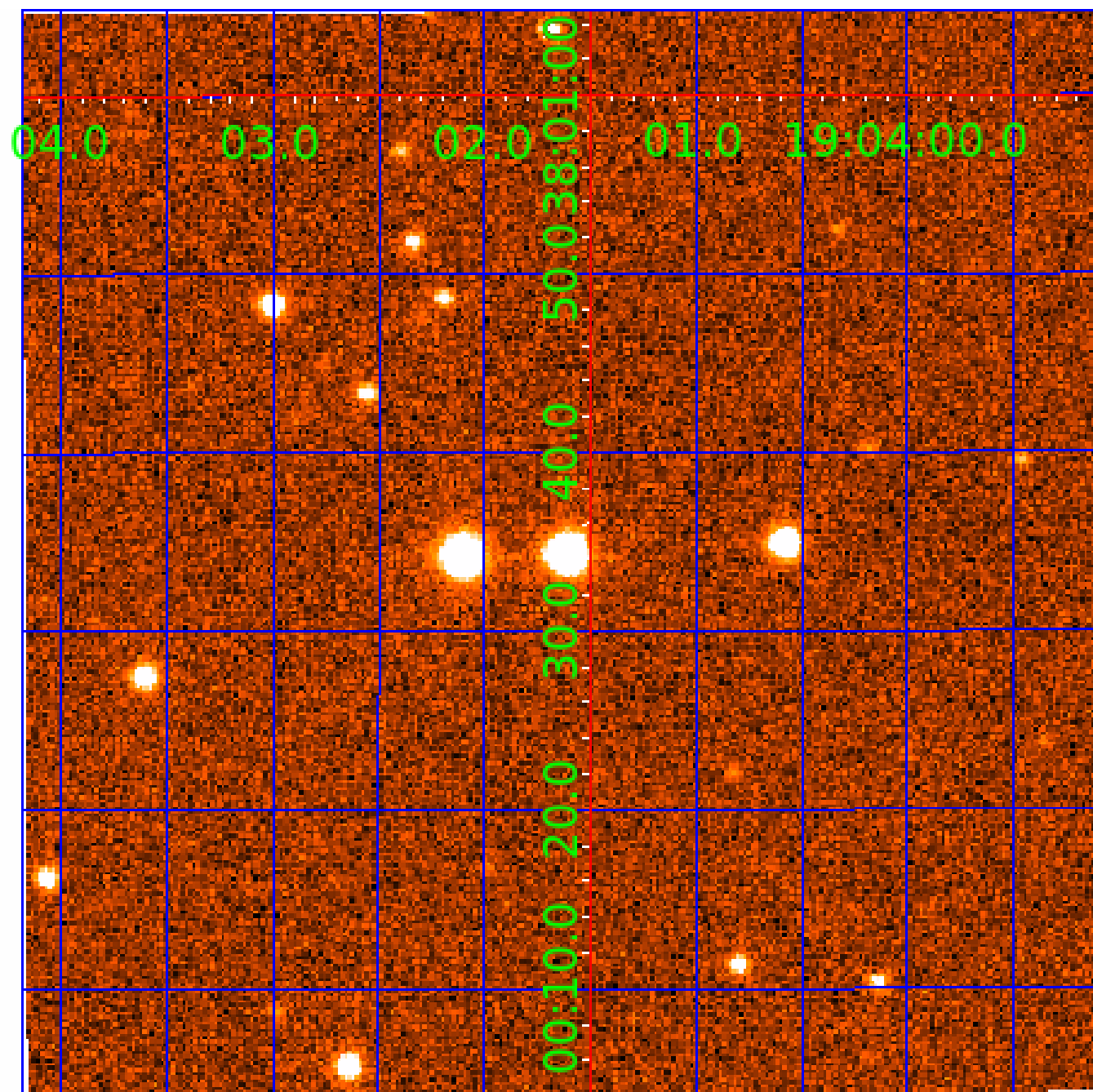


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 002832589

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})
002832589-01	OBS	1942.01	10.849721	136.743310	1129.4	3.657	34.5	35.9	0.78	5251	3.01	49.43
002832589-02	OBS	1942.02	2.433700	133.836721	268.6	0.869	7.3	10.2	0.78	5251	1.57	362.65

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
002832589-01	OBS	PC	1.00	0	0	0	0	CENT_KIC_POS
002832589-02	OBS	PC	1.00	0	0	0	0	CENT_KIC_POS

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

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

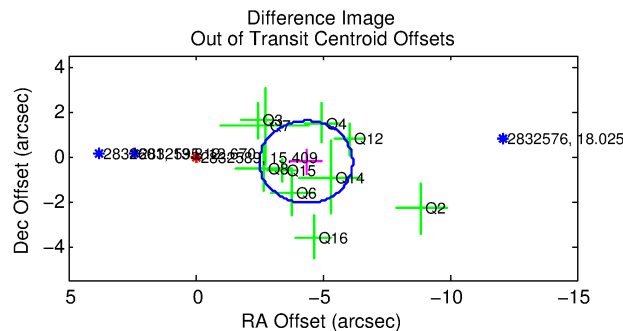
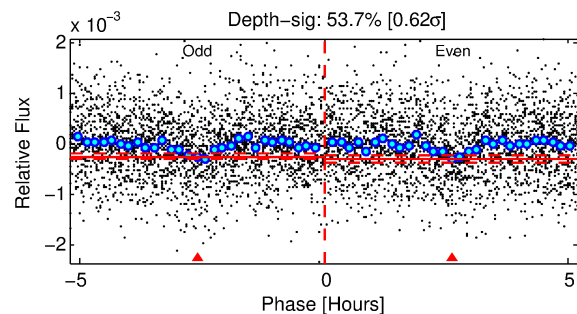
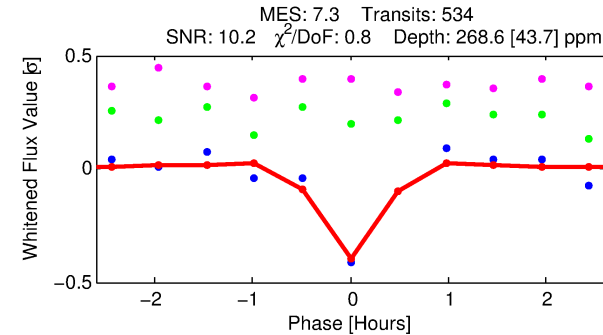
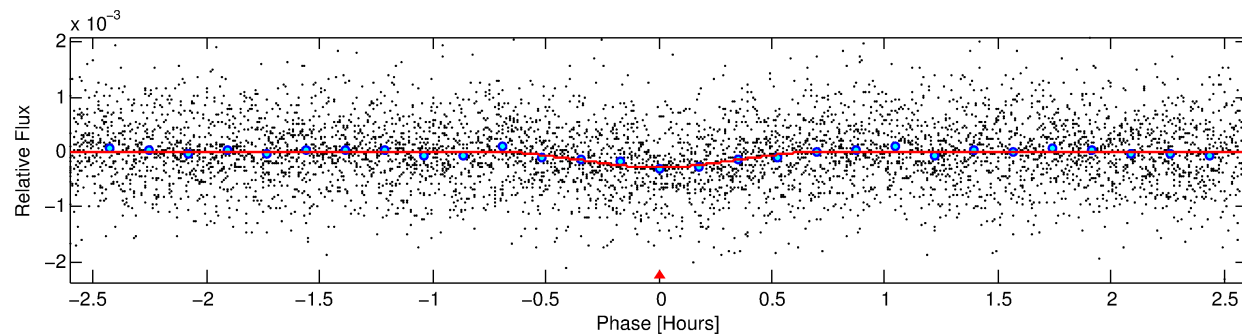
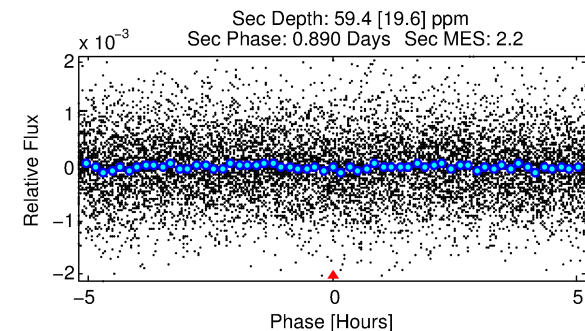
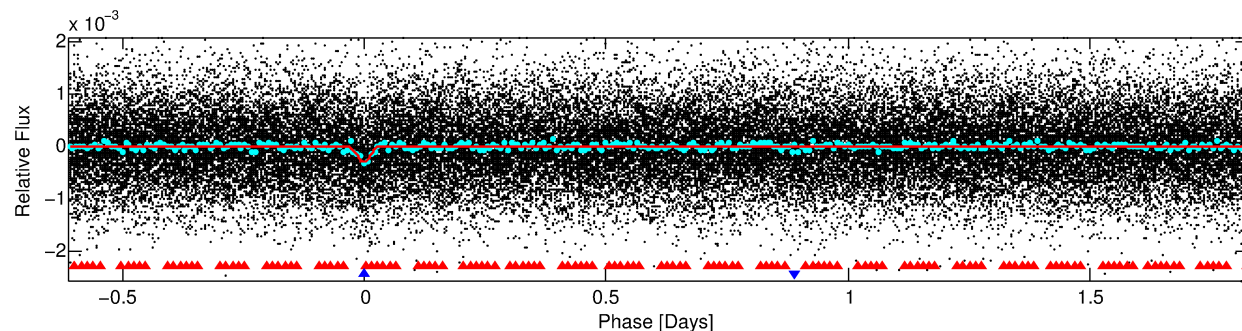
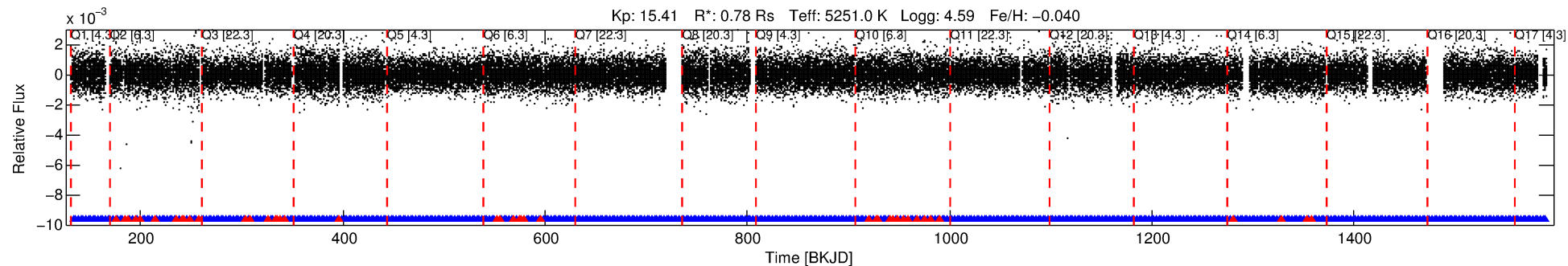
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 002832589-02

No Significant Match Found

DV One-Page Summary

KIC: 2832589 Candidate: 2 of 2 Period: 2.434 d
KOI: K01942 Corr: No Ephemeris Match



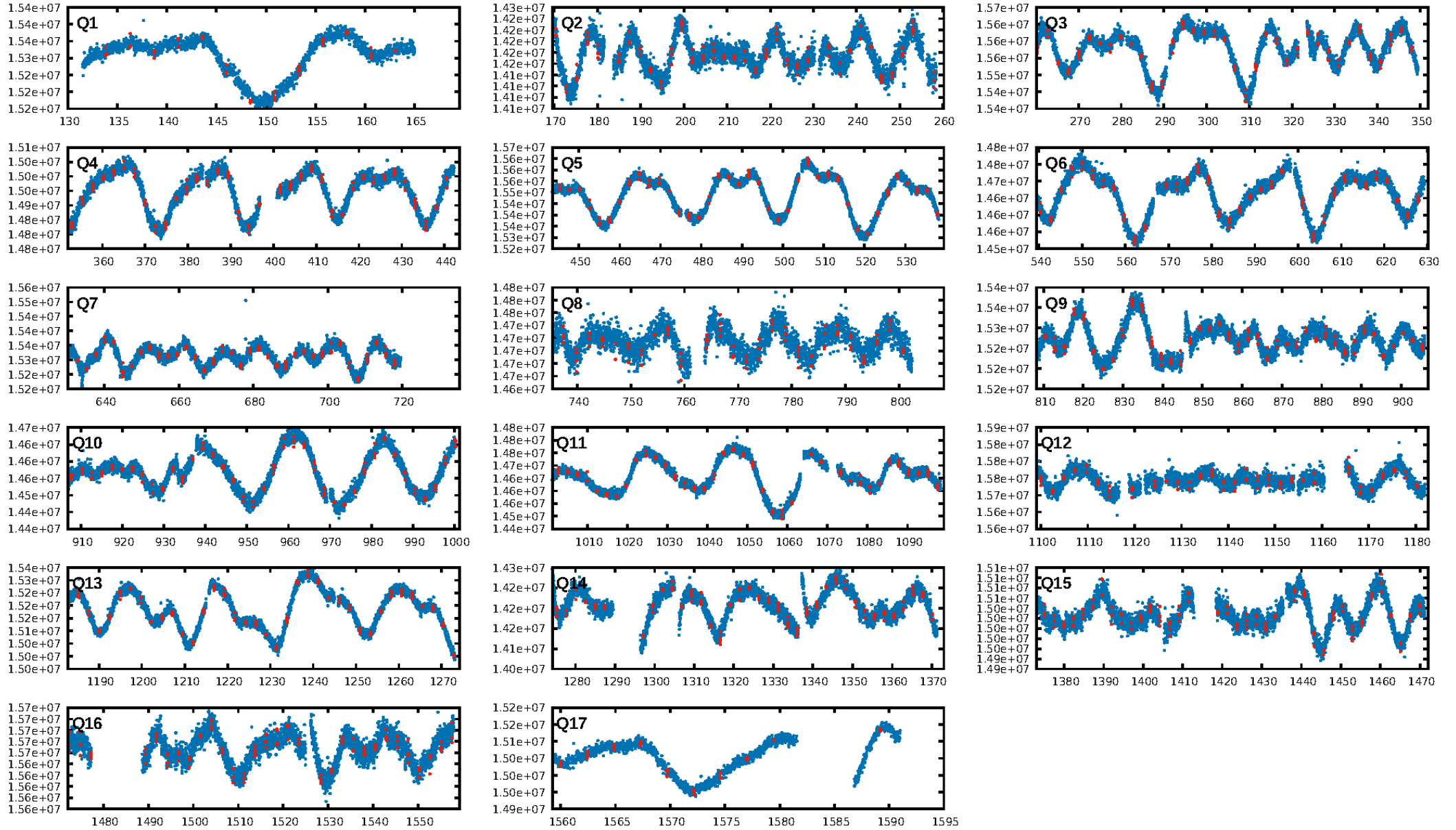
DV Fit Results:

Period = 2.43370 [0.00001] d
Epoch = 133.8367 [0.0015] BKJD
Rp/R* = 0.0185 [0.0164]
a/R* = 10.05 [36.74]
b = 0.90 [0.77]
Seff = 362.65 [77.67]
Teq = 1113 [60] K
Rp = 1.57 [1.41] Re
a = 0.0337 [0.0041] AU
Ag = 15.03 [27.22] [0.52σ]
Teffp = 3388 [1530] K [1.49σ]

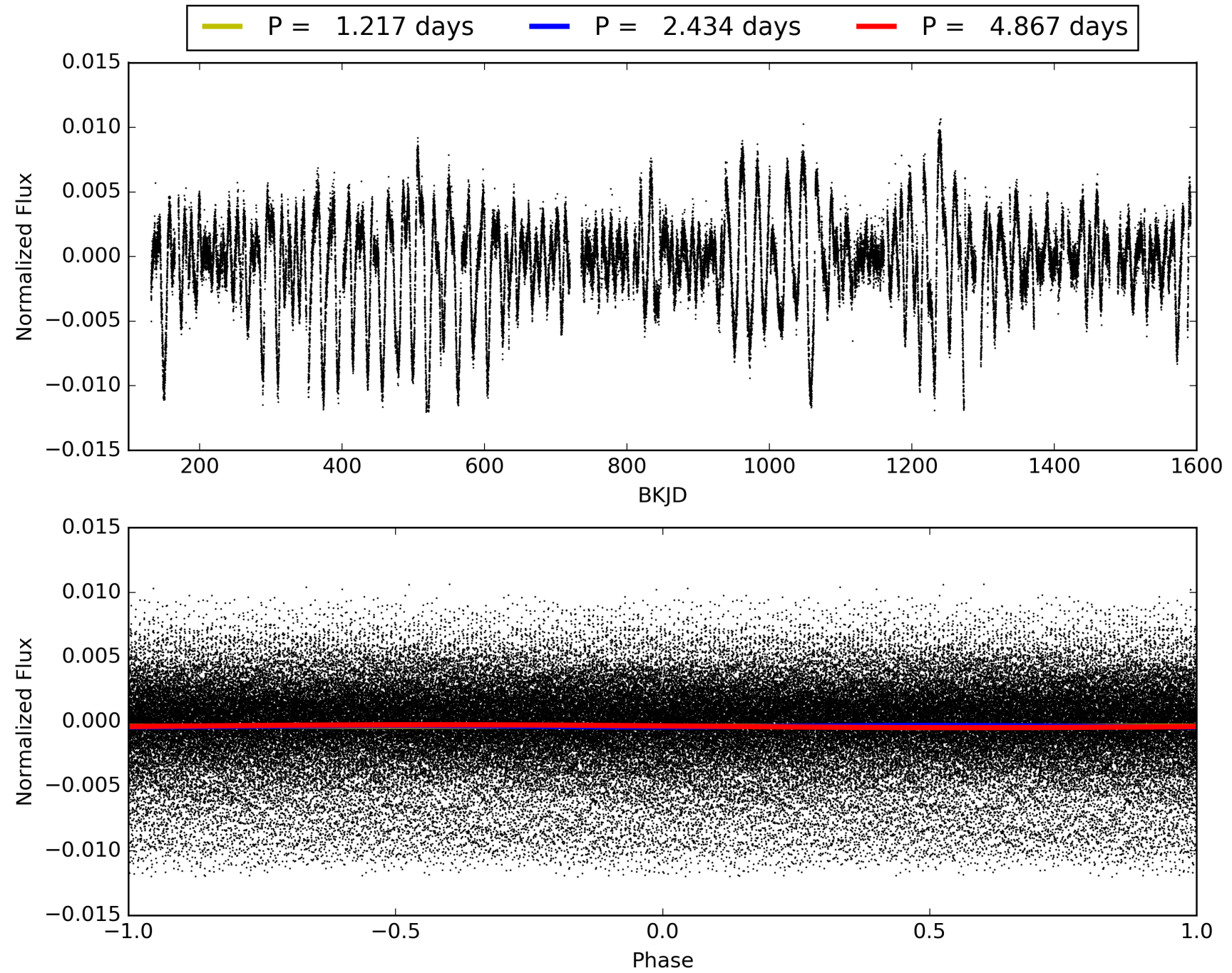
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: 100.0% [53.74σ]
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: 4.04e-13
RollingBand-fgt: 0.92 [469/511]
GhostDiagnostic-chr: 1.642
Centroid-sig: 0.1%
Centroid-so: 1.153 arcsec [1.59σ]
OotOffset-rm: 4.357 arcsec [7.12σ]
OotOffset-st: 3/3/4/0 [10]
KicOffset-rm: 1.072 arcsec [0.81σ]
KicOffset-st: 3/3/4/3 [13]
DiffImageQuality-fgm: 0.15 [2/13]
DiffImageOverlap-fno: 1.00 [17/17]

TCE 002832589-02, PDC Light Curves

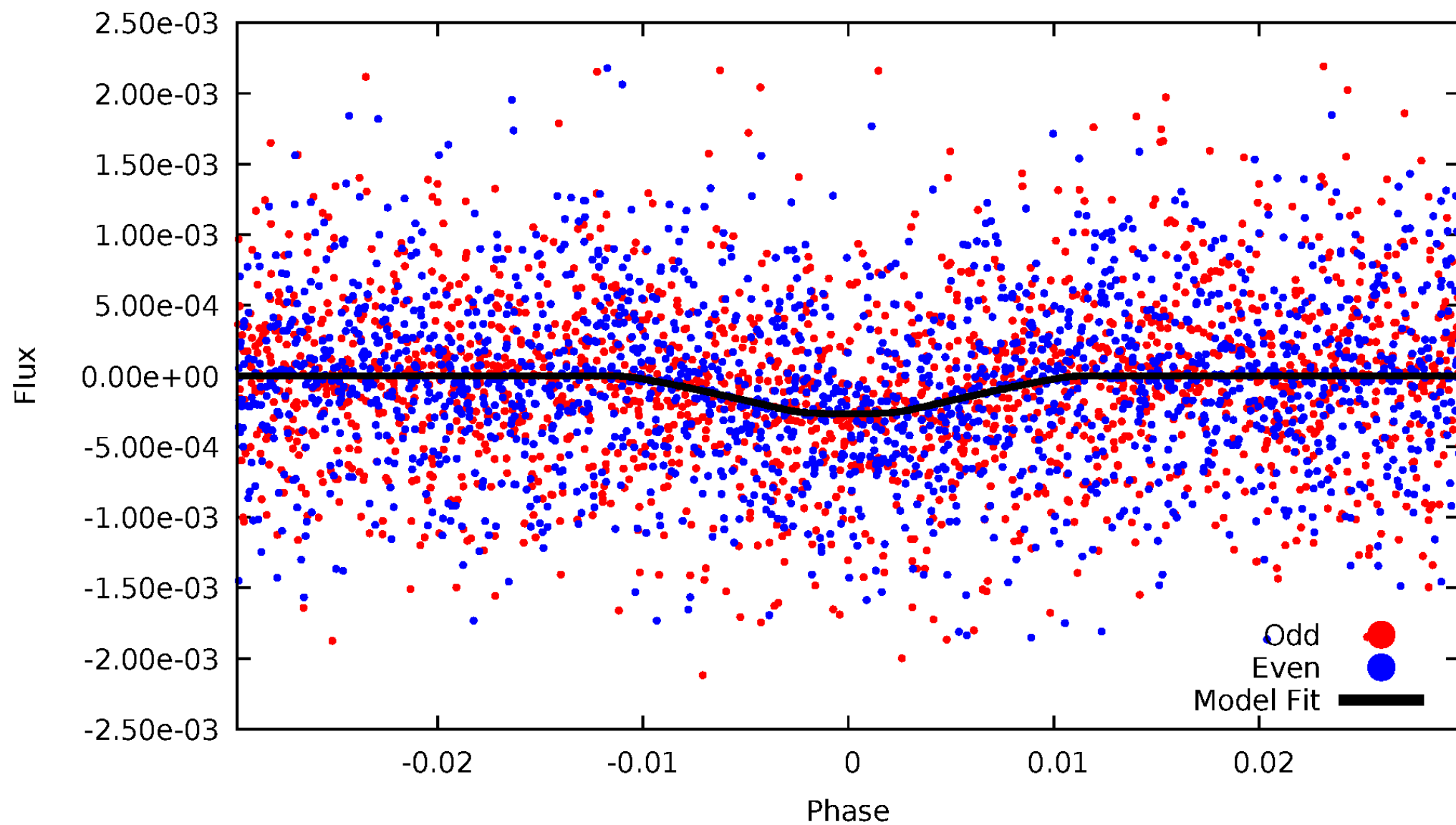


TCE 002832589-02



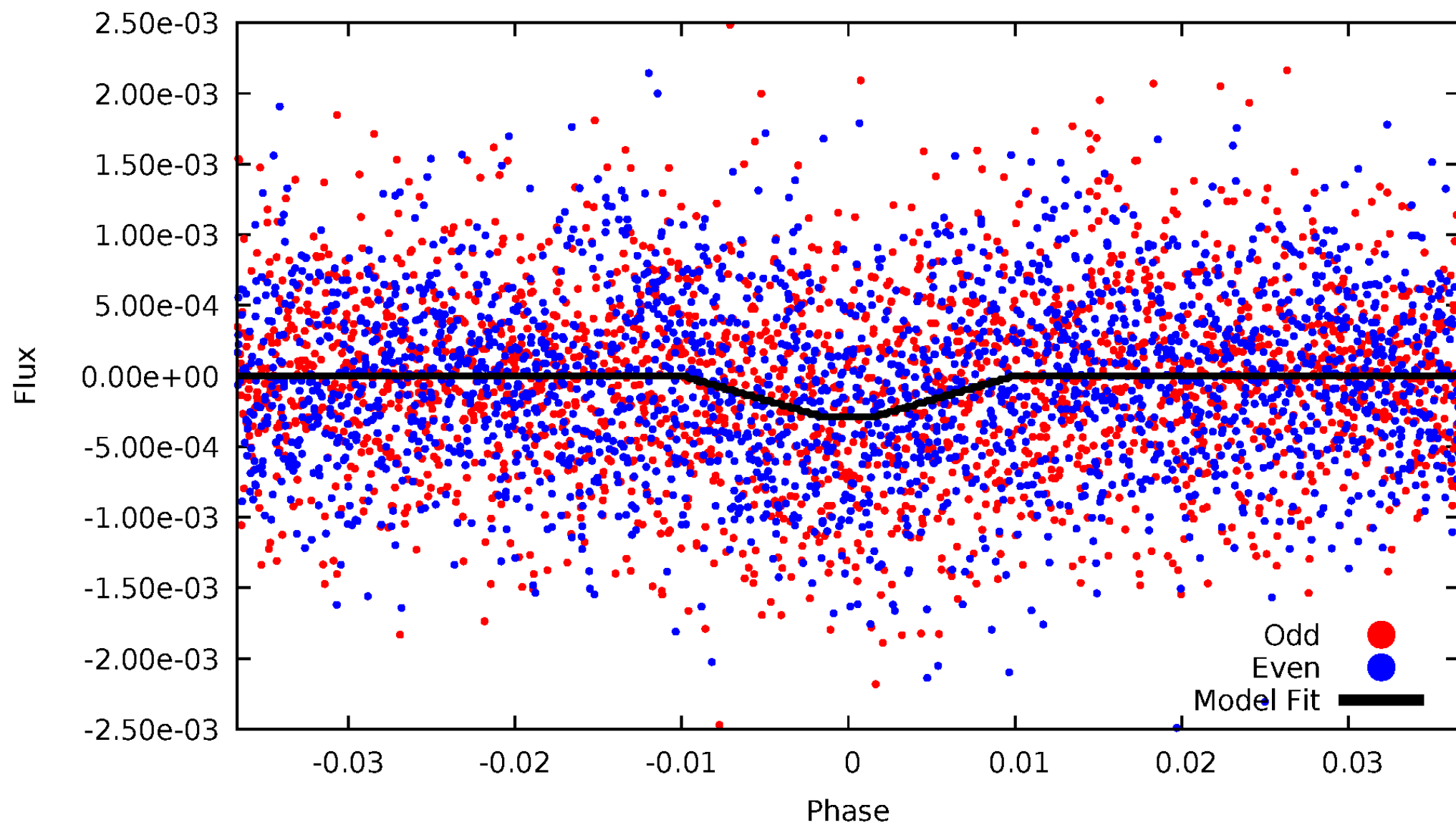
DV Odd/Even

TCE 002832589-02



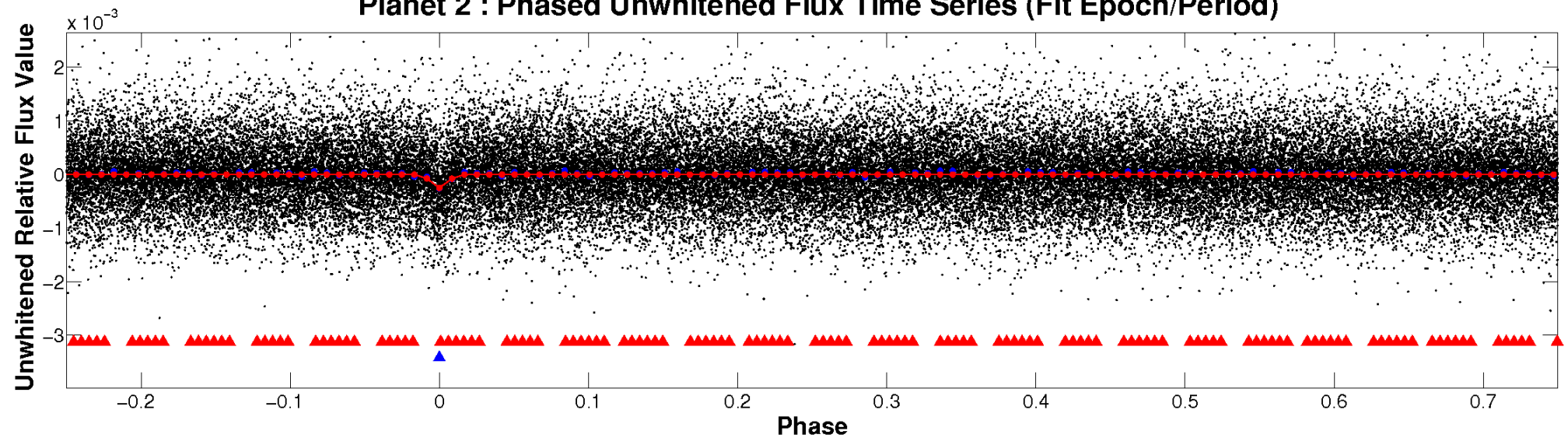
ALT Odd/Even

TCE 002832589-02

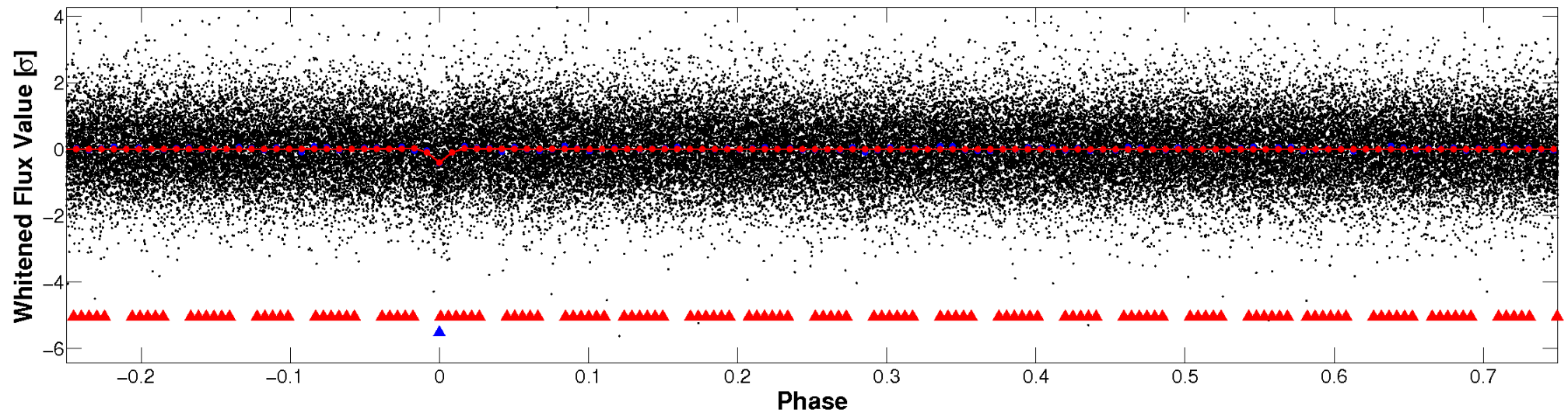


Non-Whitened Vs. Whitened Light Curve

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

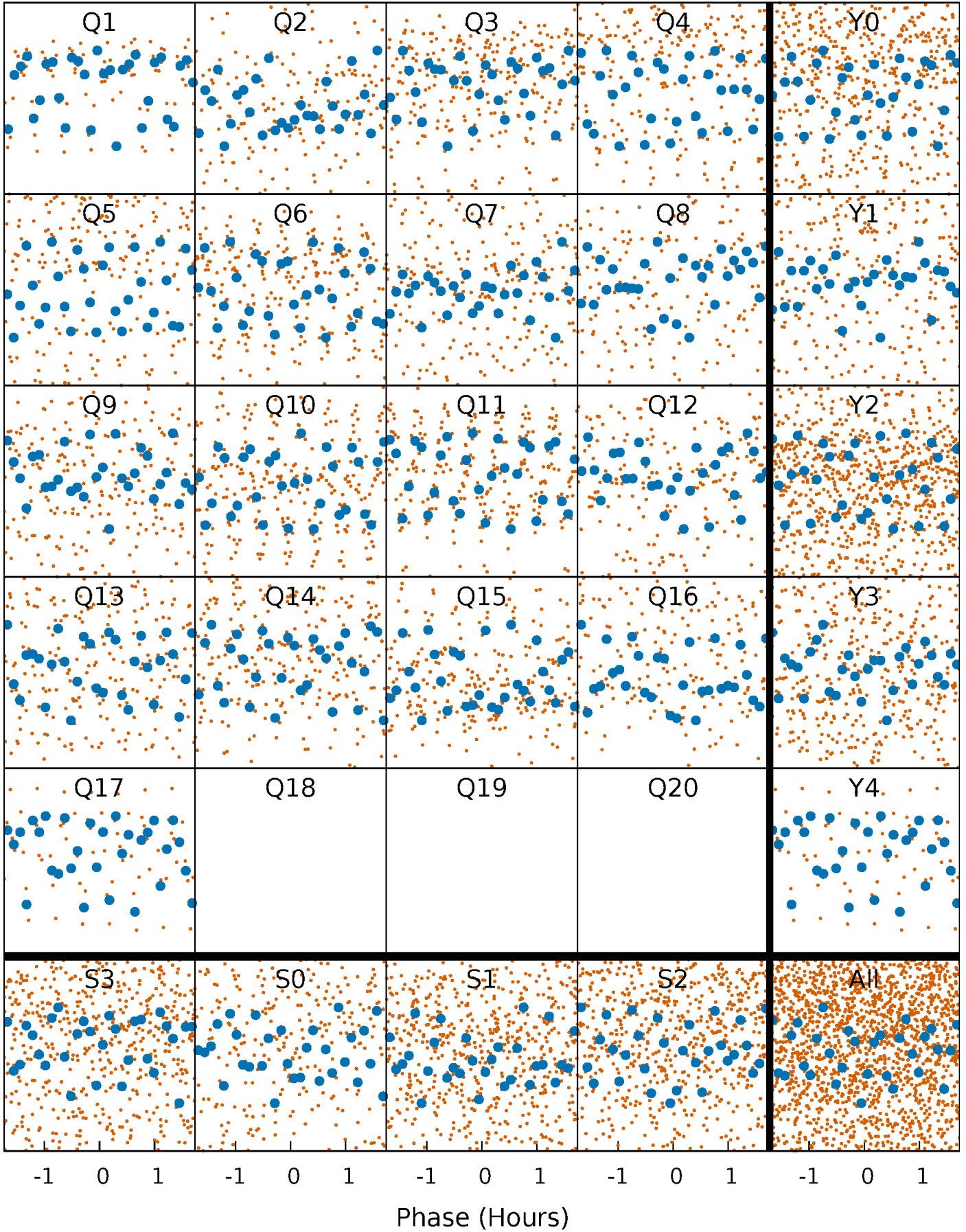


Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



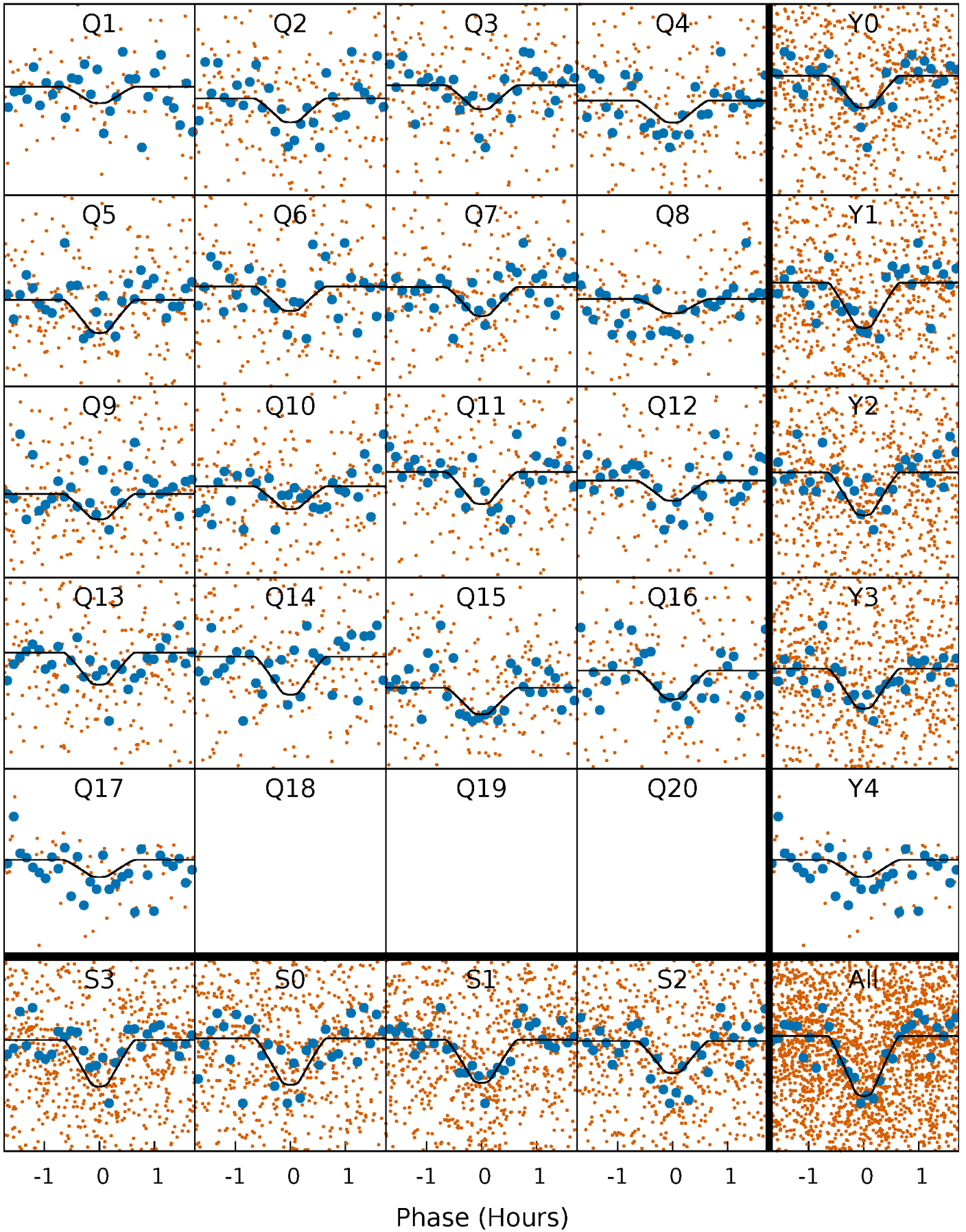
PDC Quarter-Phased Transit Curves

TCE 002832589-02 P= 2.433700 Days $T_0=133.836721$ (BKJD)



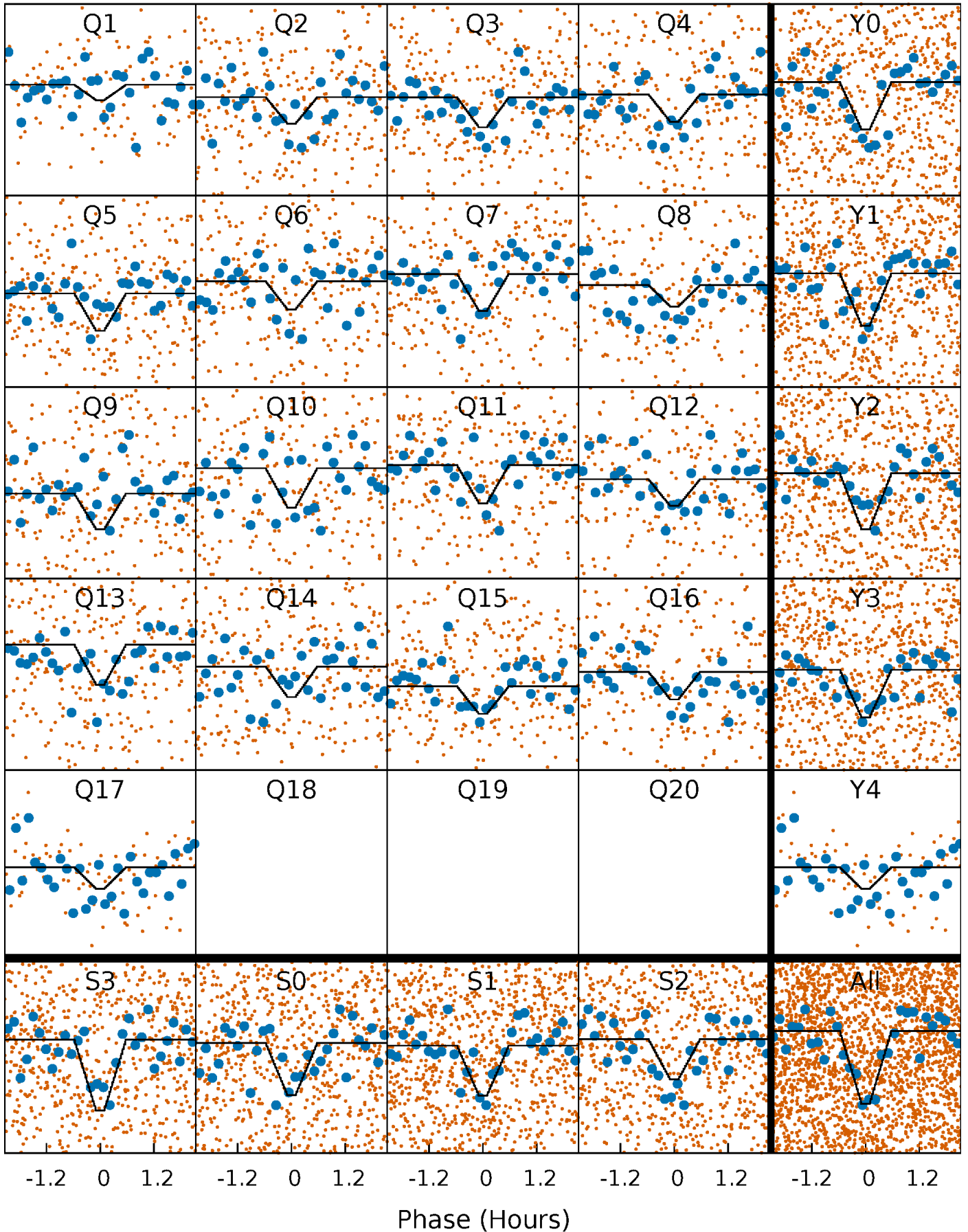
DV Quarter-Phased Transit Curves

TCE 002832589-02 $P = 2.433700$ Days $T_0 = 133.836721$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

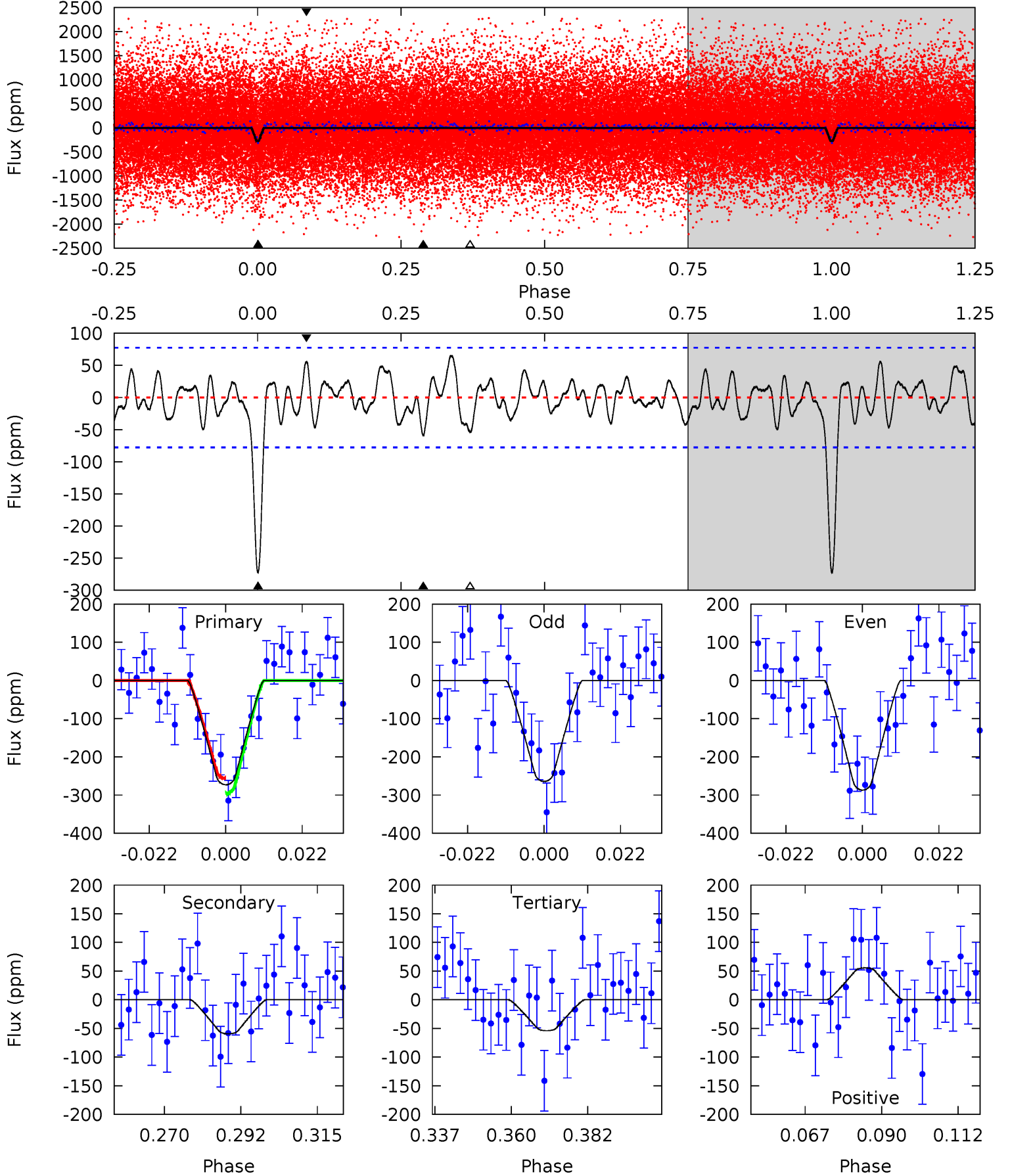
TCE 002832589-02 P= 2.433704 Days $T_0=133.837224$ (BKJD)



DV Model-Shift Uniqueness Test

002832589-02, P = 2.433700 Days, E = 131.403021 Days

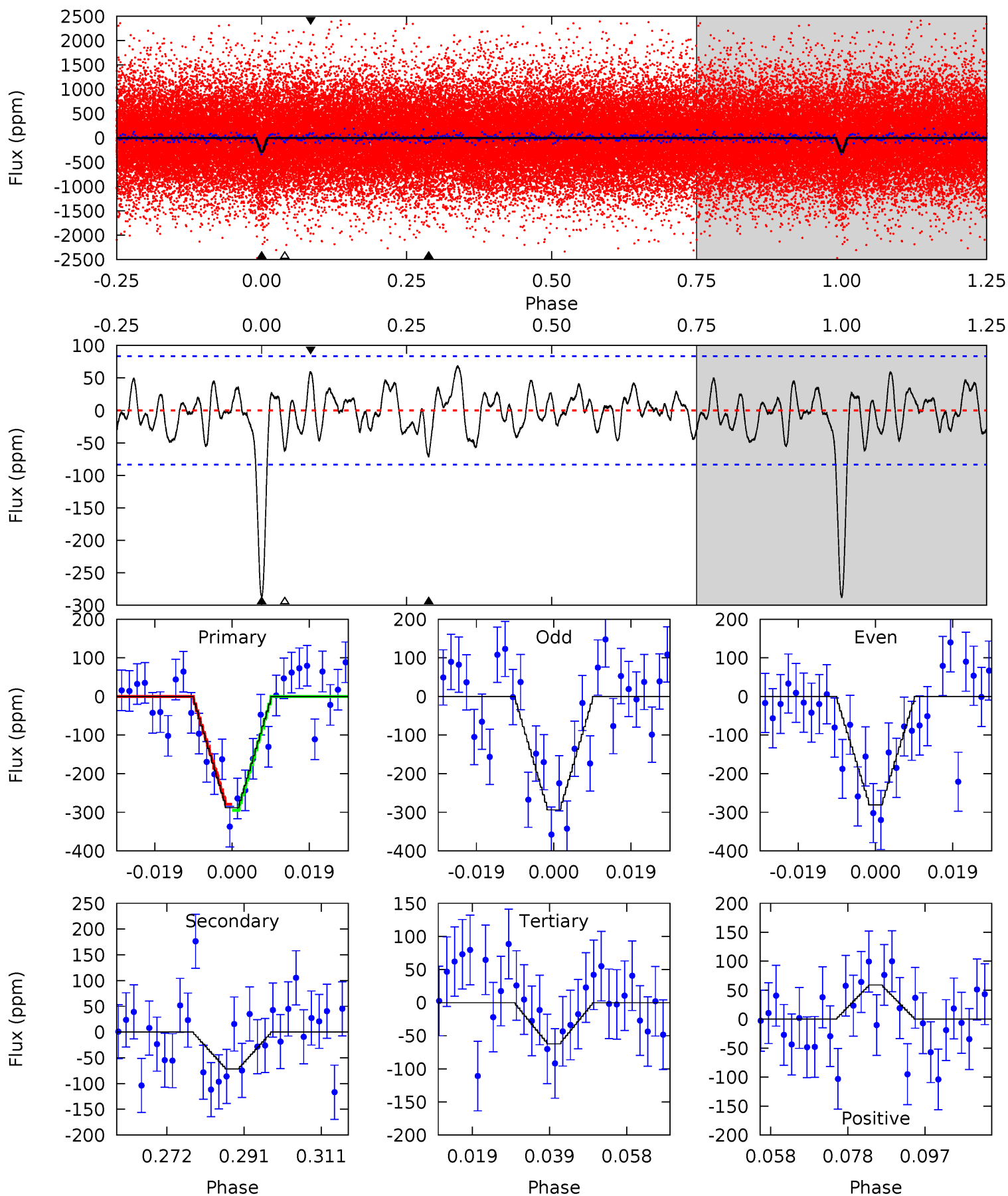
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
17.1	3.73	3.39	3.49	4.87	2.28	1.46	13.7	13.6	0.34	0.24	0.71	0.99	0.19	1.22



Alt Model-Shift Uniqueness Test

002832589-02, P = 2.433704 Days, E = 131.403520 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
16.9	4.21	3.66	3.47	4.90	2.34	1.46	13.3	13.5	0.55	0.74	0.38	0.90	0.19	0.47



Stellar Parameters For KIC 002832589

	$T_{\text{eff}} (K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R (R_{\odot})$	$M (M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	5251^{+158}_{-158}	$4.592^{+0.032}_{-0.097}$	$-0.040^{+0.300}_{-0.300}$	$0.778^{+0.112}_{-0.060}$	$0.869^{+0.060}_{-0.095}$	$2.601^{+0.451}_{-0.811}$
	+3%/-3%	+1%/-2%	+750%/-750%	+14%/-8%	+7%/-11%	+17%/-31%
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 002832589-02 / KOI 1942.02

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-59 ± 16	$1.82^{+1.30}_{-1.14}$	1573^{+63}_{-59}	3562^{+1647}_{-584}	11^{+65}_{-7}
Alt.	-72 ± 17	$1.79^{+1.35}_{-1.08}$	1580^{+63}_{-68}	3702^{+1705}_{-599}	14^{+76}_{-9}

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

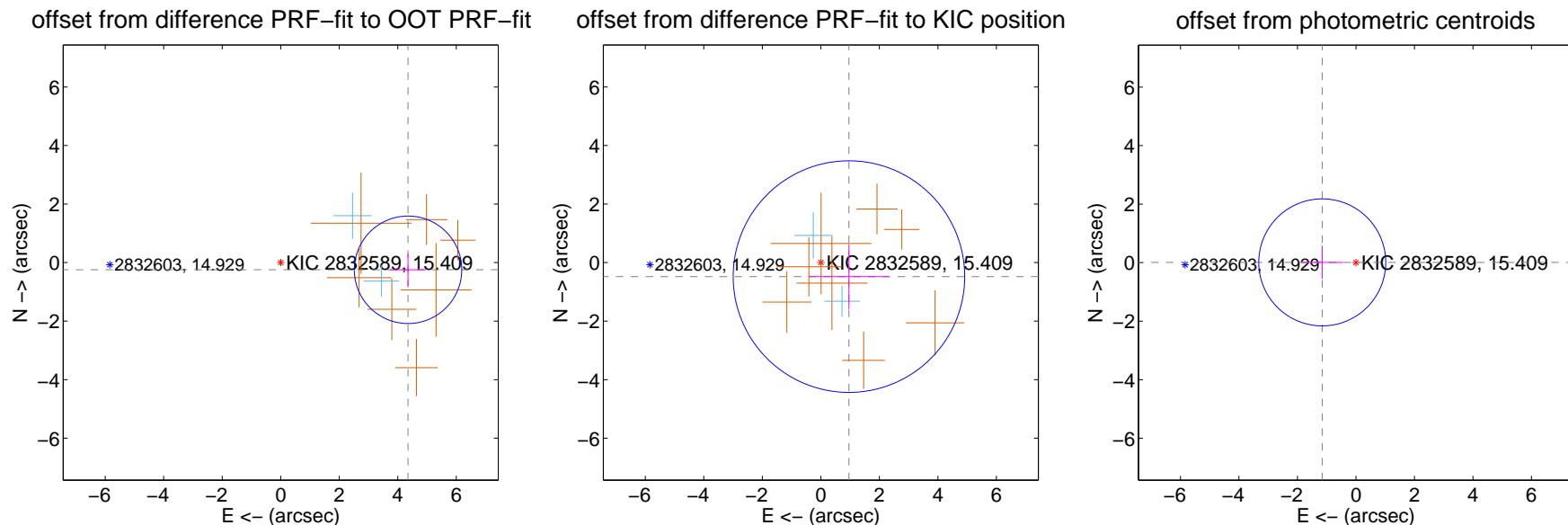
DV Centroid Data

Supplemental centroid analysis for 002832589-02. Kepler magnitude: 15.41. Transit SNR 10.19

There are 2 quarters with good PRF difference image offsets

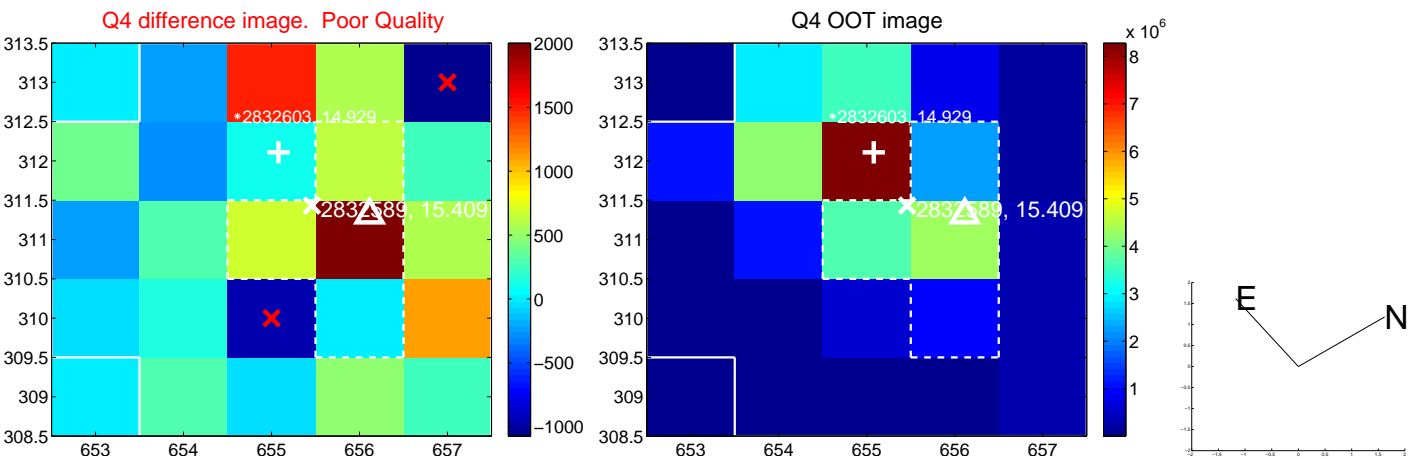
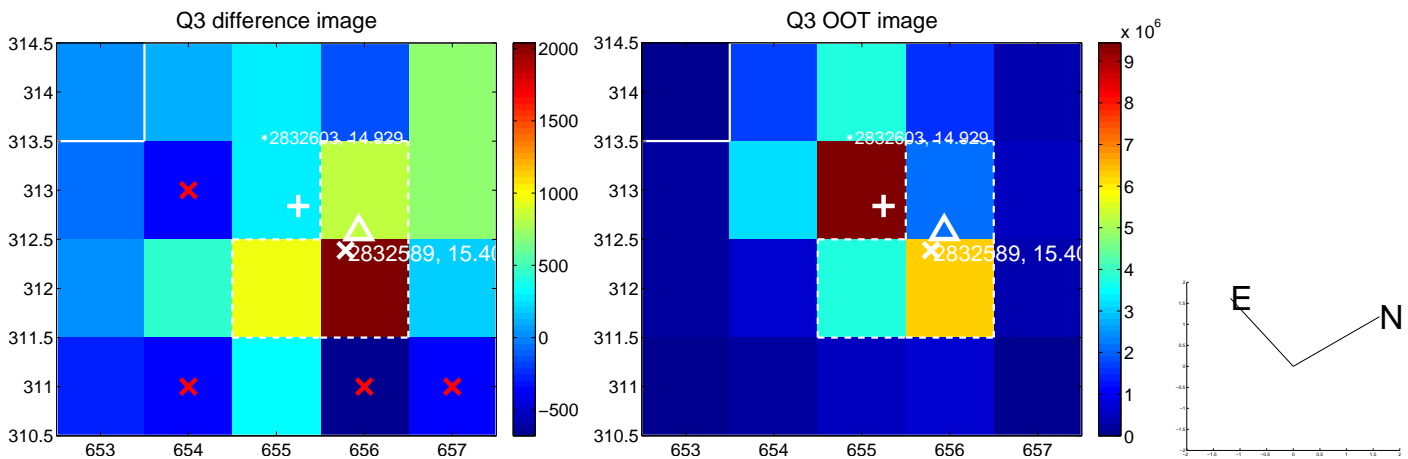
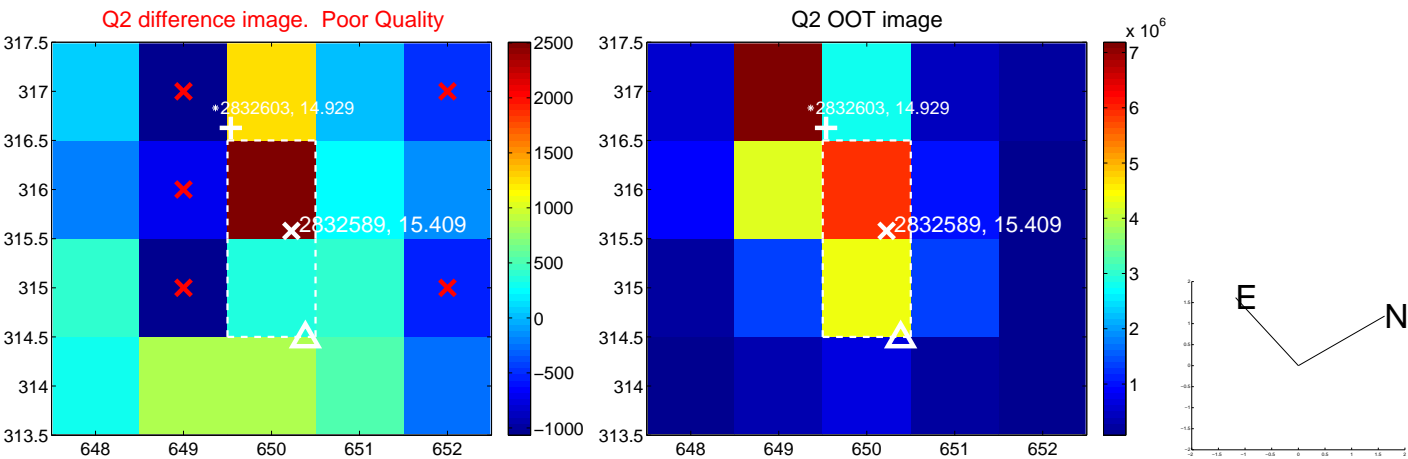
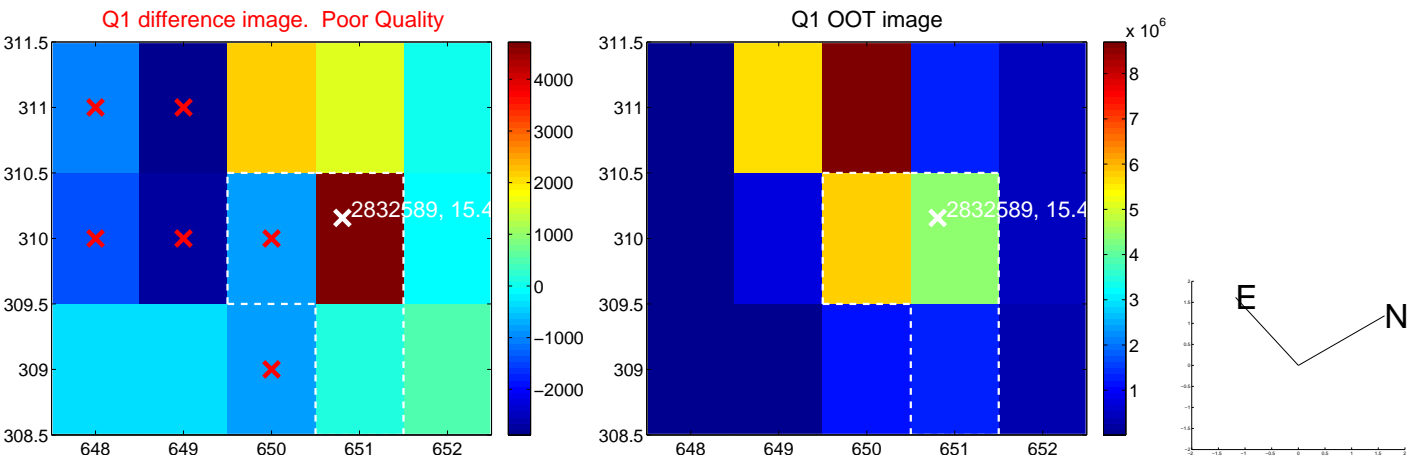
The OOT PRF centroid is offset from the target star catalog position by about 3.18 arcsec so the offset from difference PRF-fit to OOT-fit may be invalid.

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	4.357 ± 0.612	7.12	-4.350 ± 0.612	-0.246 ± 0.551
PRF-fit source offset from KIC position	1.072 ± 1.319	0.81	-0.959 ± 1.365	-0.479 ± 1.112
photometric centroid source offset	1.15 ± 0.72	1.59	1.15 ± 0.72	0.01 ± 0.57

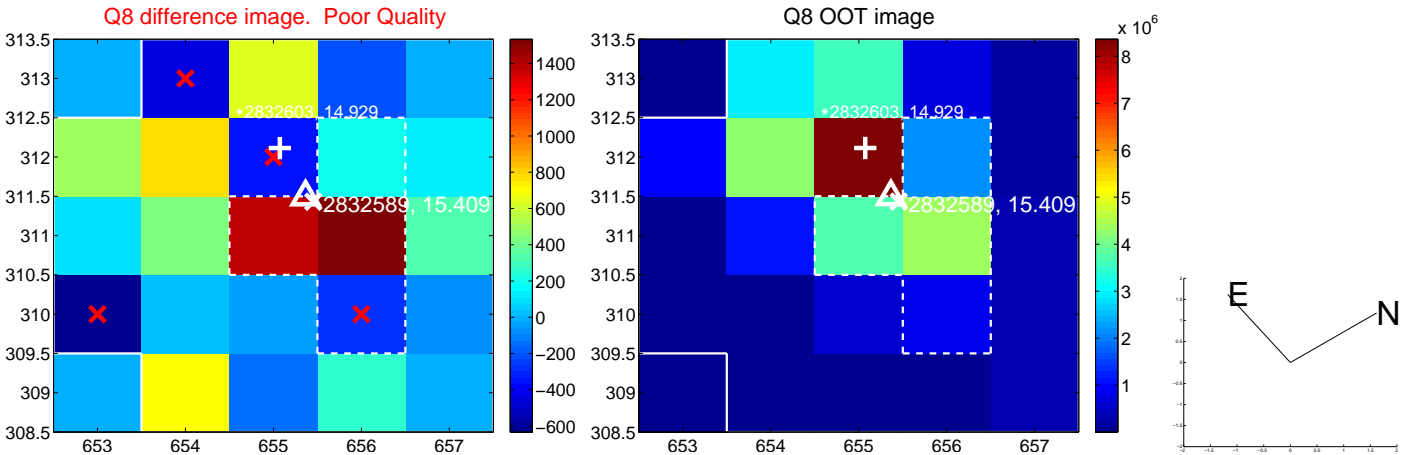
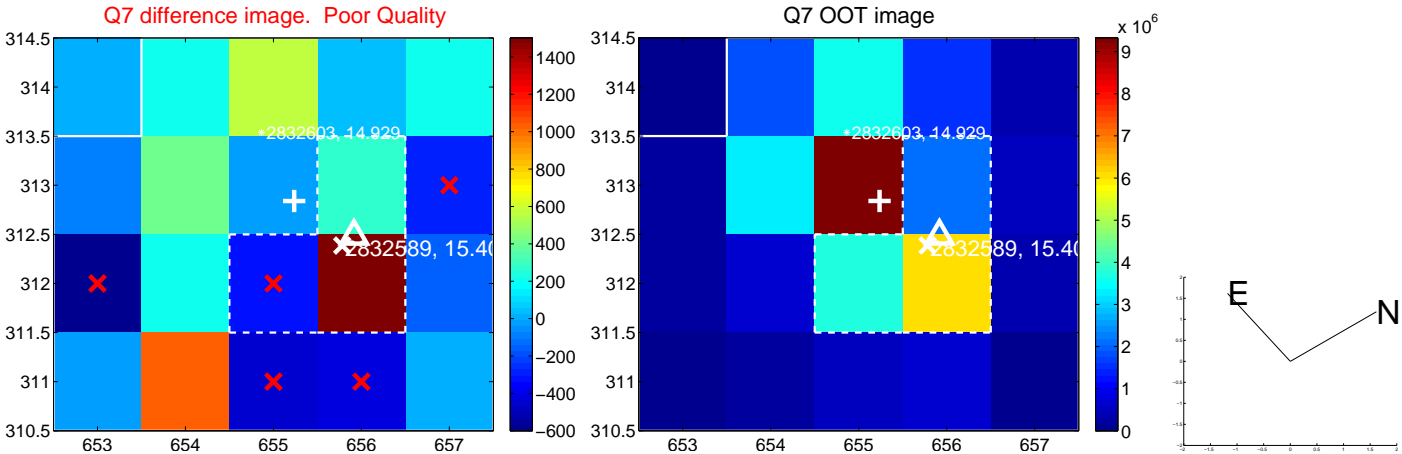
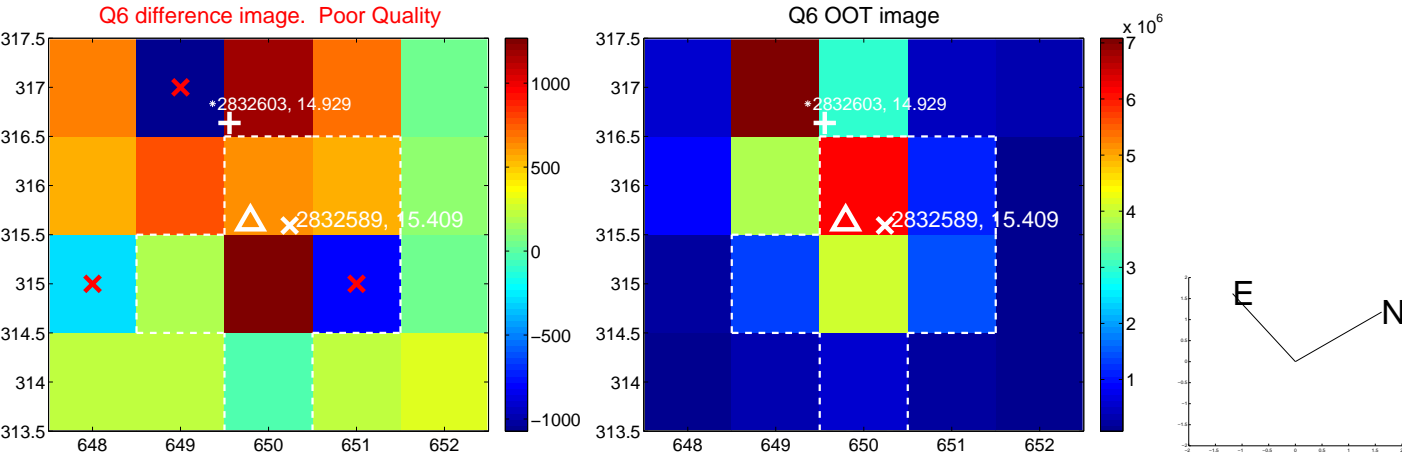
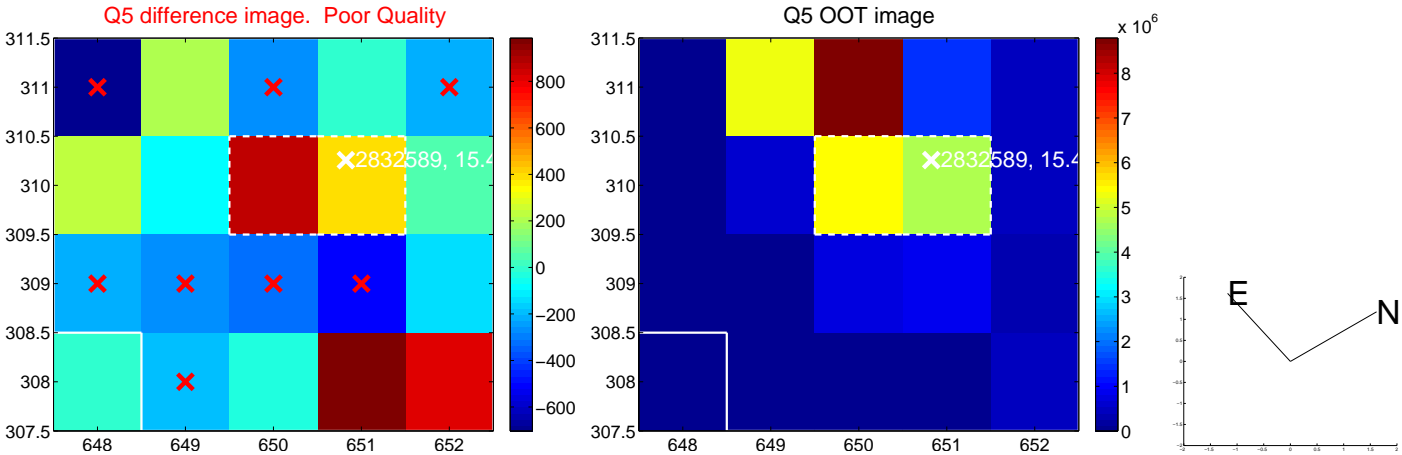


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

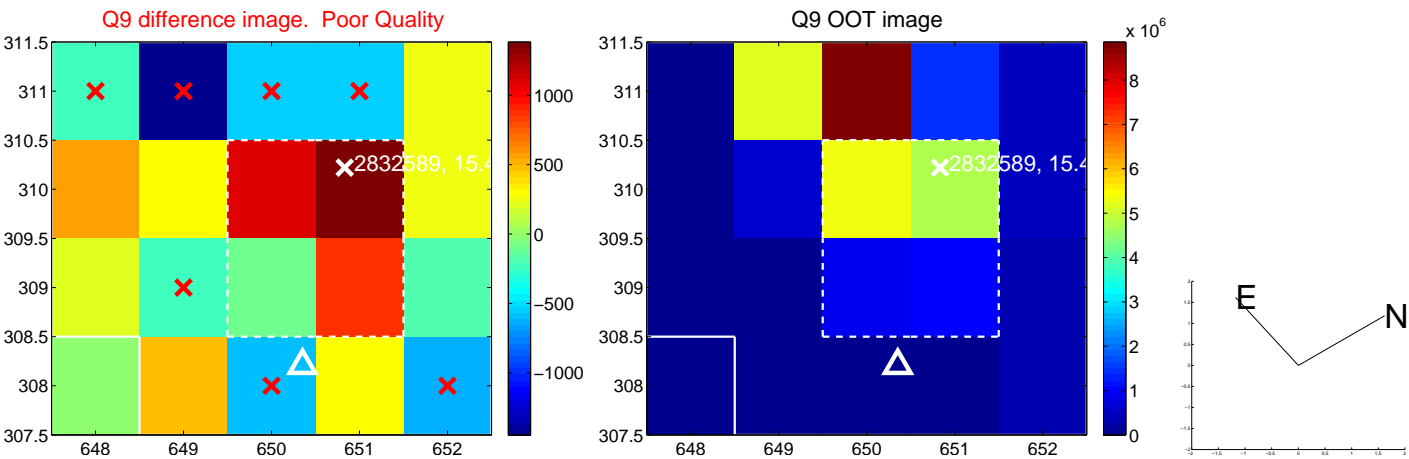
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



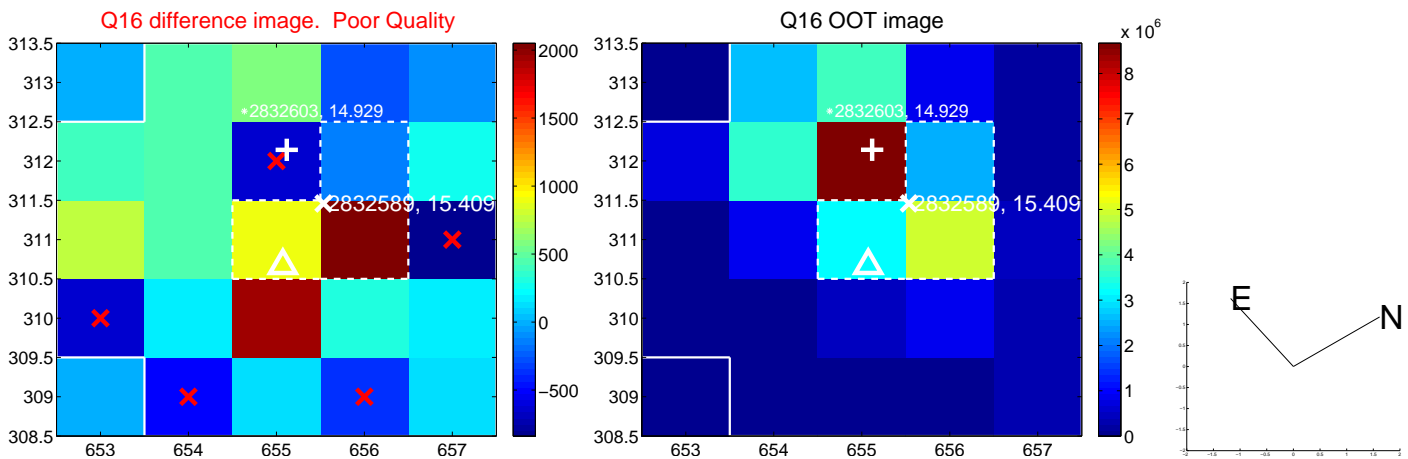
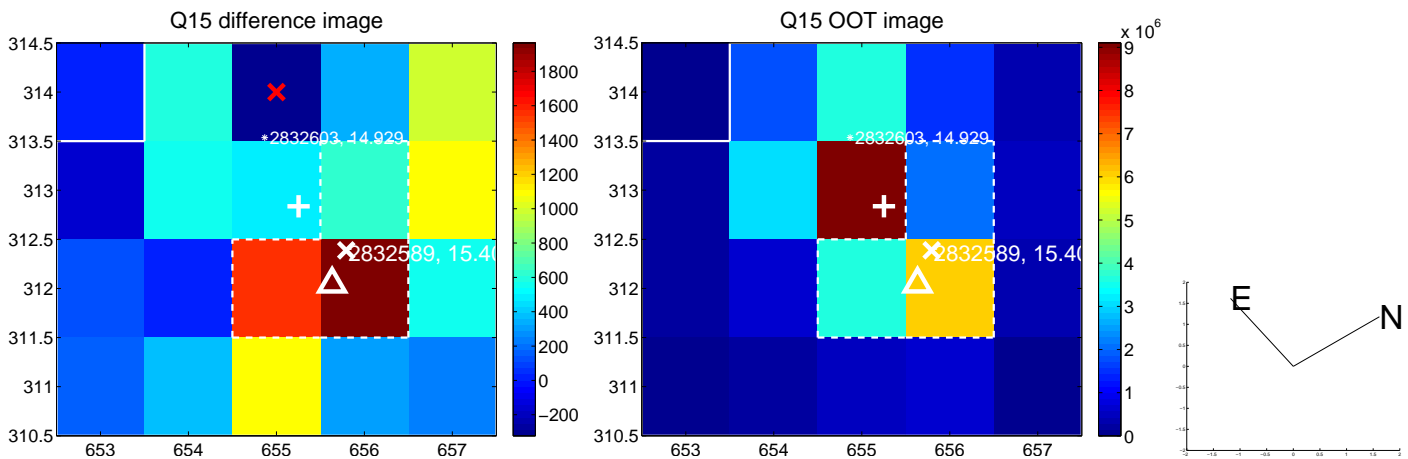
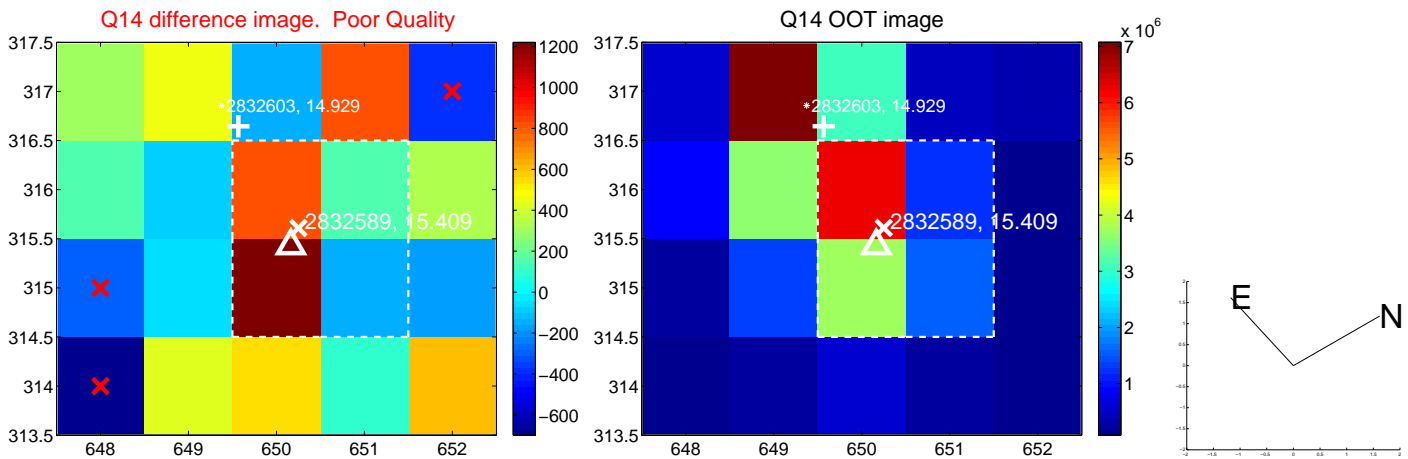
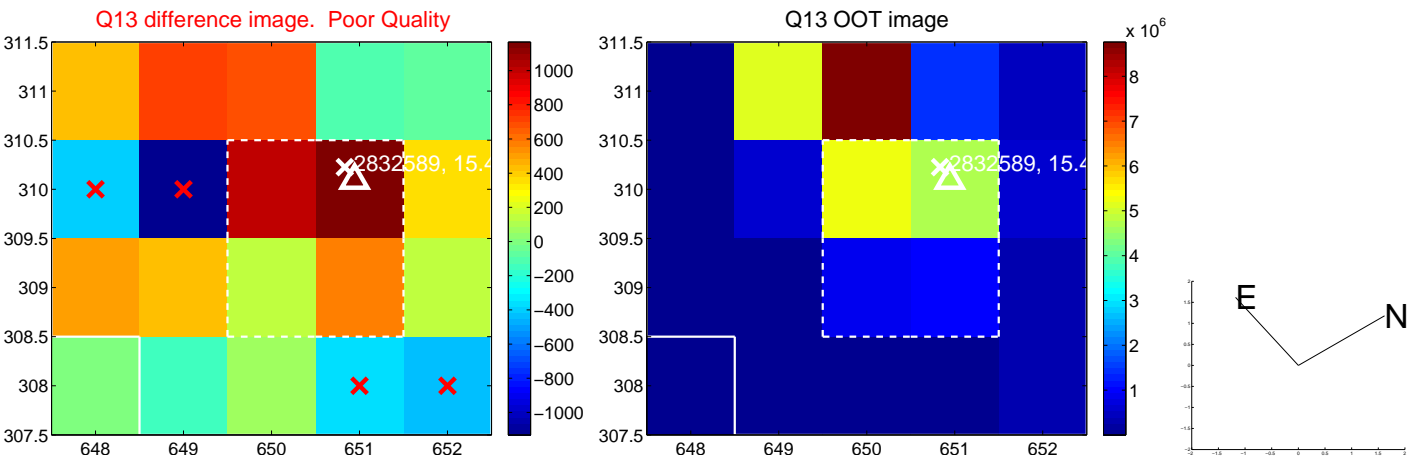
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



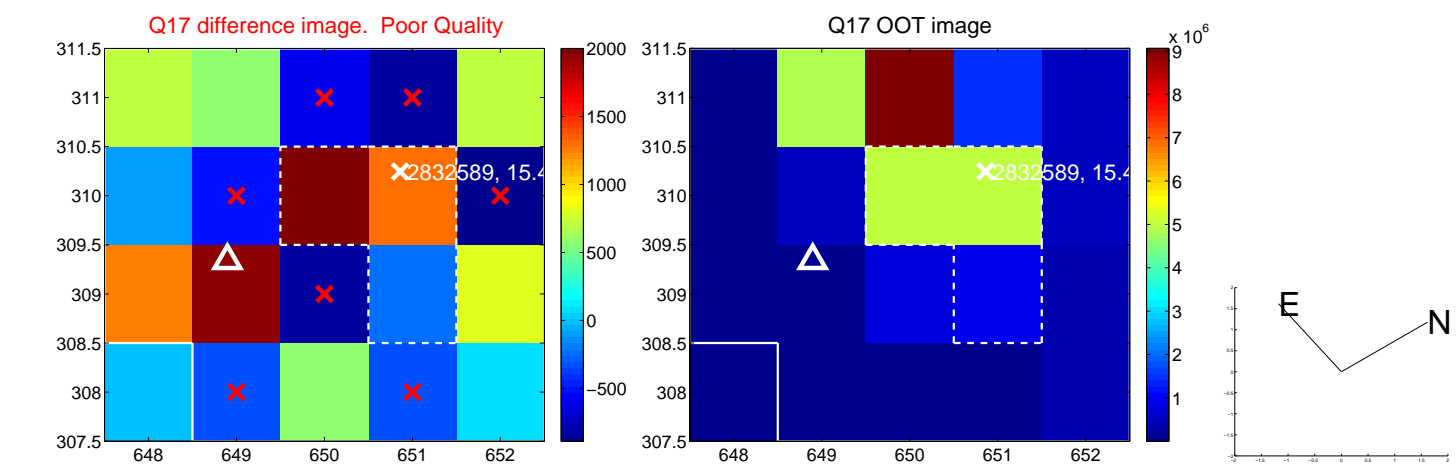
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



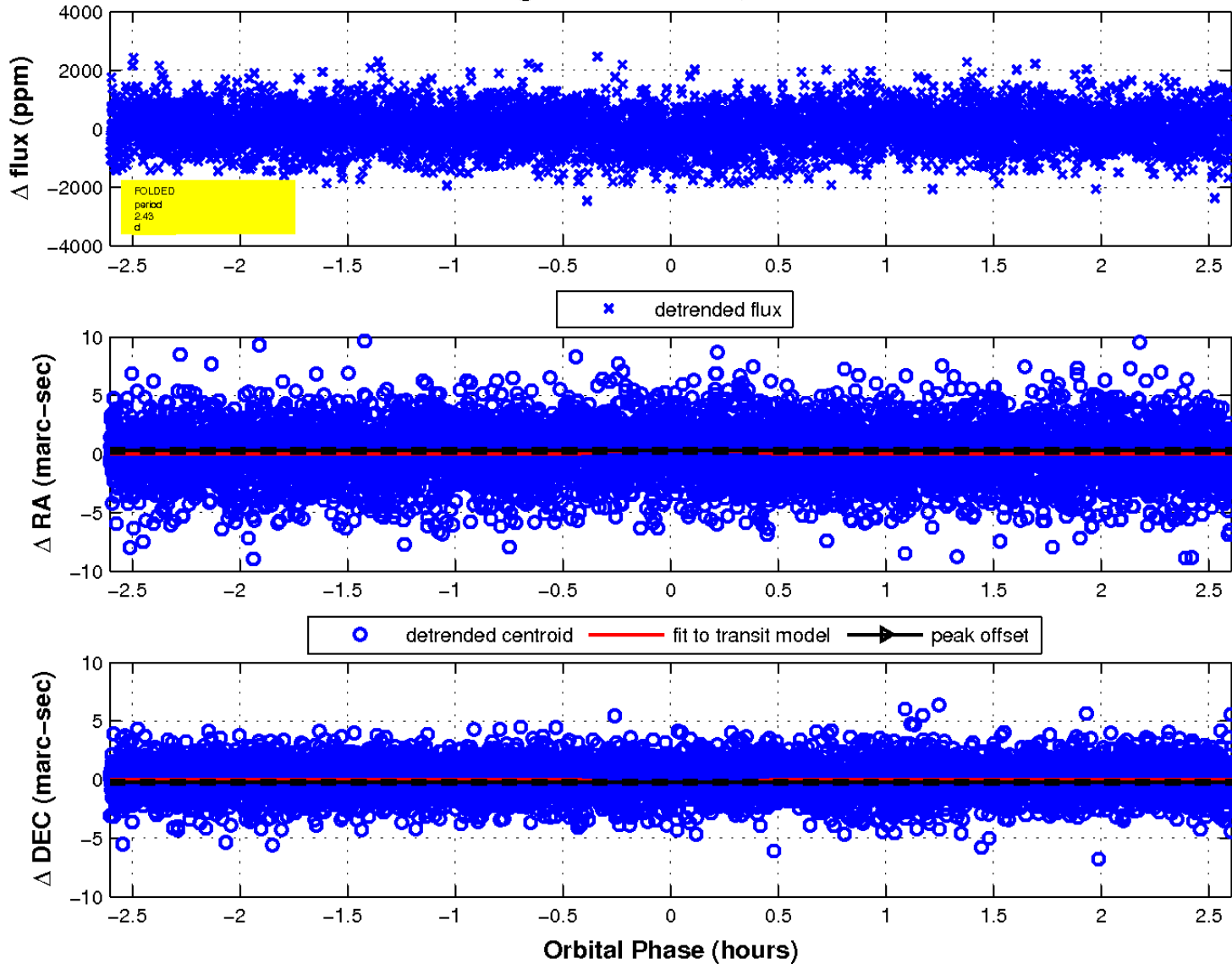
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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



fluxWeightedCentroids, Planet 2 of 2



UKIRT Image

Declination

