

KIC 003632089

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})
003632089-01	OBS	3308.01	31.778838	136.765528	252.9	8.300	18.5	19.5	0.93	5638	1.66	24.00
003632089-02	OBS	3308.02	5.327917	133.542097	75.0	4.668	11.2	11.6	0.93	5638	0.95	259.63

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
003632089-01	OBS	PC	1.00	0	0	0	0	NO_COMMENT
003632089-02	OBS	PC	0.96	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.

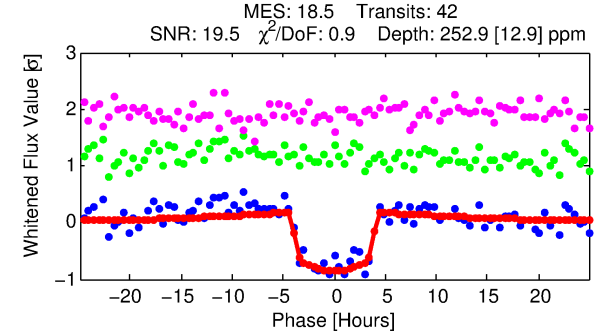
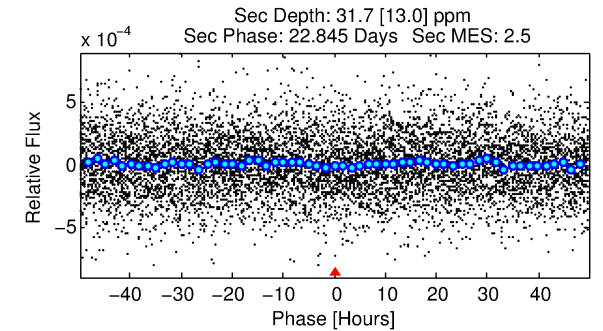
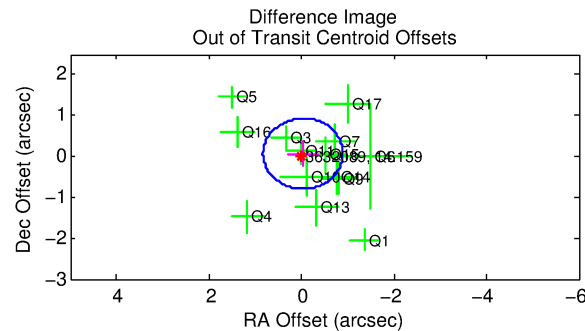
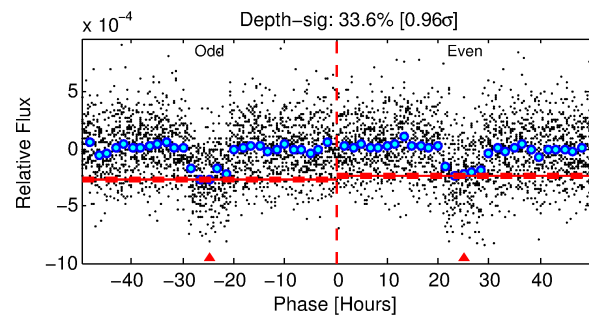
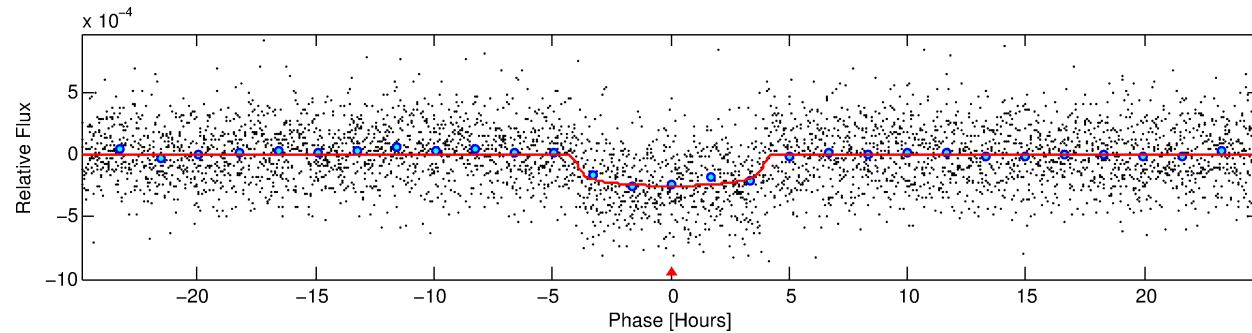
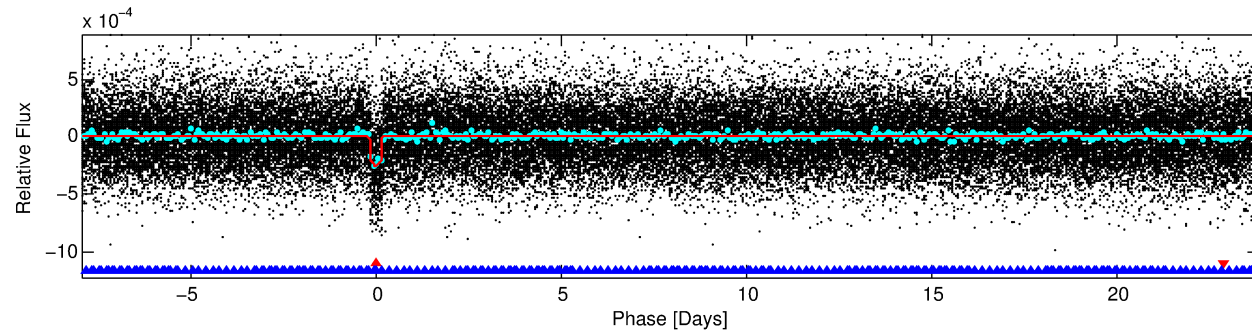
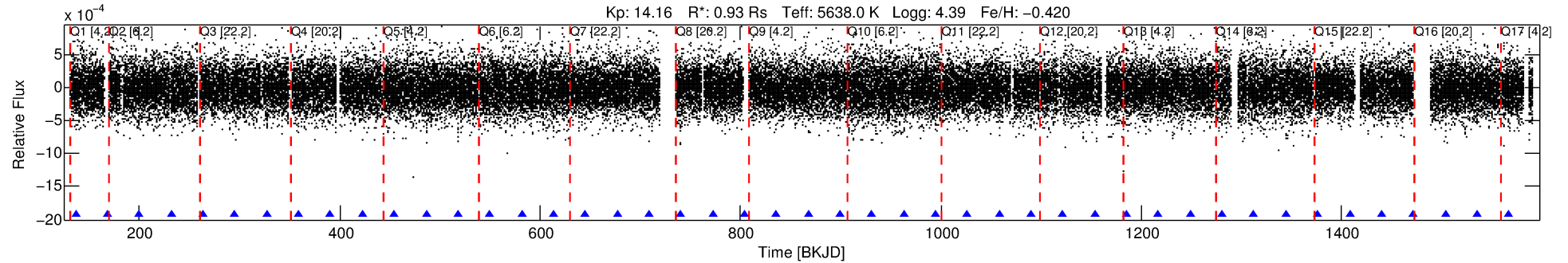
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 003632089-01

No Significant Match Found

DV One-Page Summary

KIC: 3632089 Candidate: 1 of 2 Period: 31.779 d
KOI: K03308.01 Corr: 0.984



DV Fit Results:

Period = 31.77884 [0.00026] d
Epoch = 136.7655 [0.0067] BKJD
Rp/R* = 0.0164 [0.0028]
a/R* = 17.25 [13.70]
b = 0.83 [0.31]
Seff = 24.00 [9.21]
Teff = 564 [54] K
Rp = 1.66 [0.53] Re
a = 0.1802 [0.0436] AU
Ag = 205.74 [133.67] [1.53 σ]
Teffp = 3305 [451] K [6.03 σ]

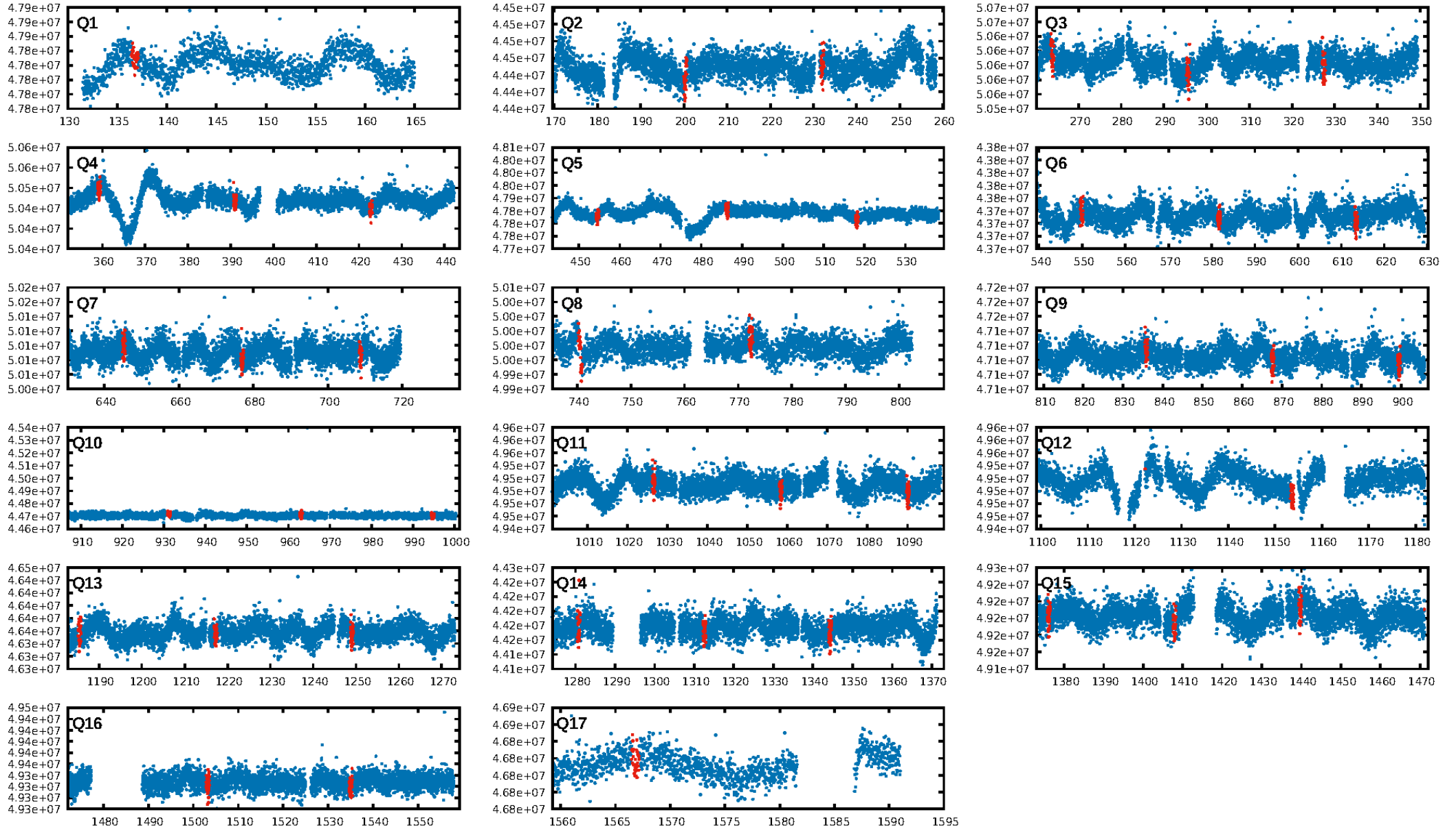
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [66.67 σ]
LongPeriod-sig: N/A
ModelChiSquare2-sig: 62.7%
ModelChiSquareGof-sig: 100.0%
Bootstrap-pfa: 9.64e-73
RollingBand-fgt: 1.00 [40/40]
GhostDiagnostic-chr: 16.01
Centroid-sig: 4.1%
Centroid-so: 1.112 arcsec [1.95 σ]
OotOffset-rm: 0.075 arcsec [0.26 σ]
KicOffset-rm: 0.152 arcsec [0.51 σ]
OotOffset-st: 3/4/2/5 [14]
KicOffset-st: 3/4/2/5 [14]
DiffImageQuality-fgm: 0.93 [13/14]
DiffImageOverlap-fno: 0.73 [11/15]

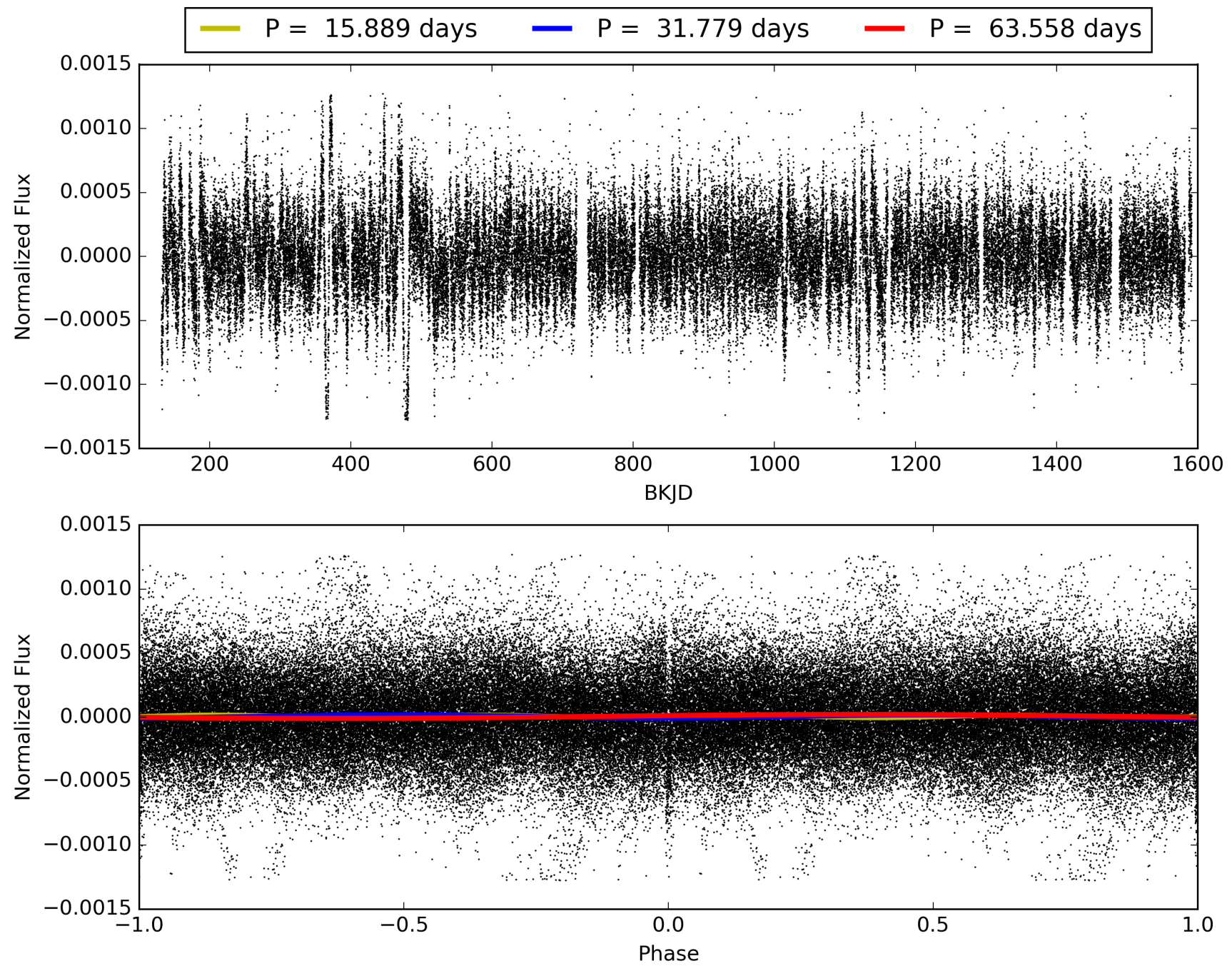
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 31-Jan-2016 21:01:22 Z

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

TCE 003632089-01, PDC Light Curves

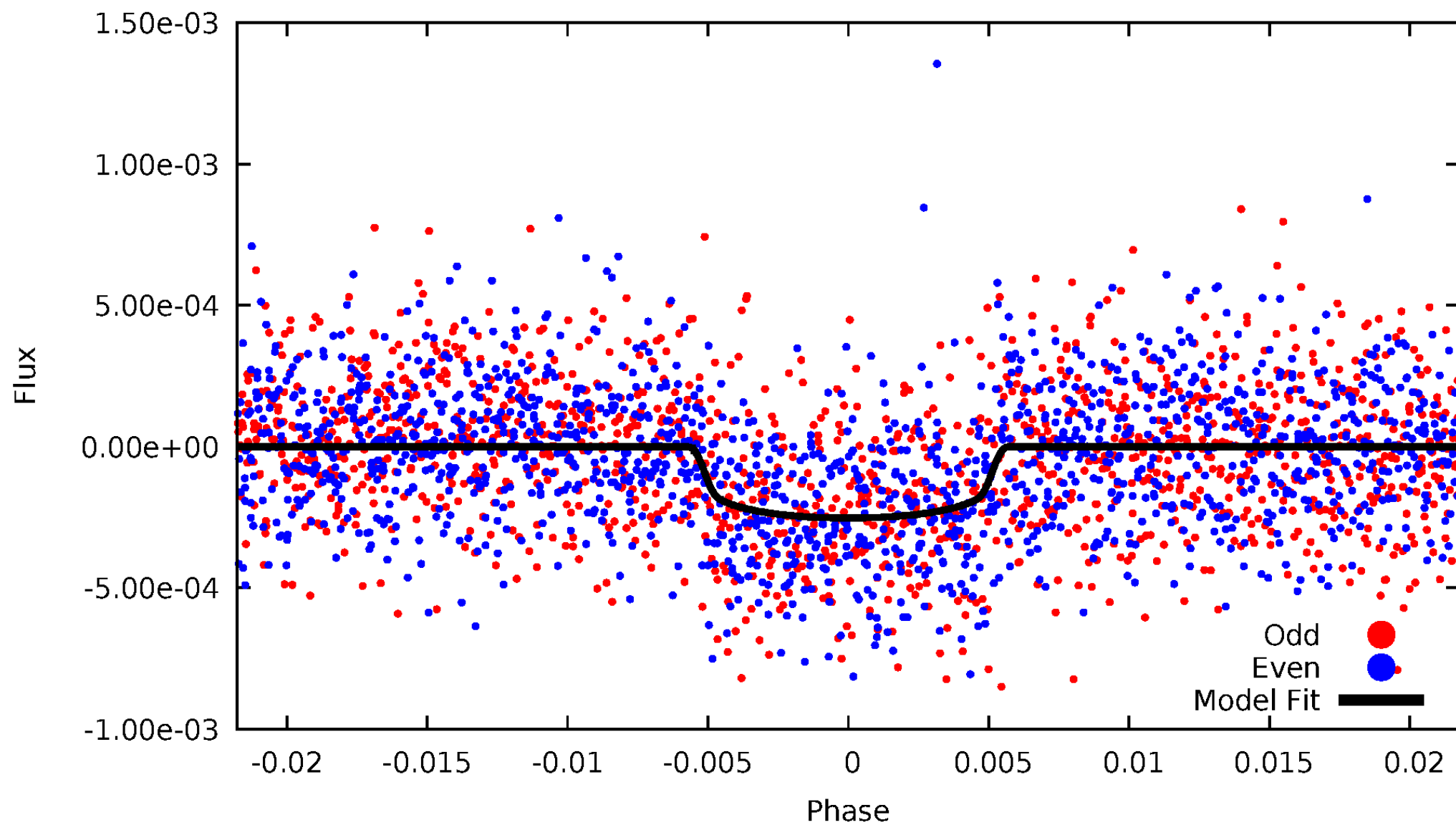


TCE 003632089-01



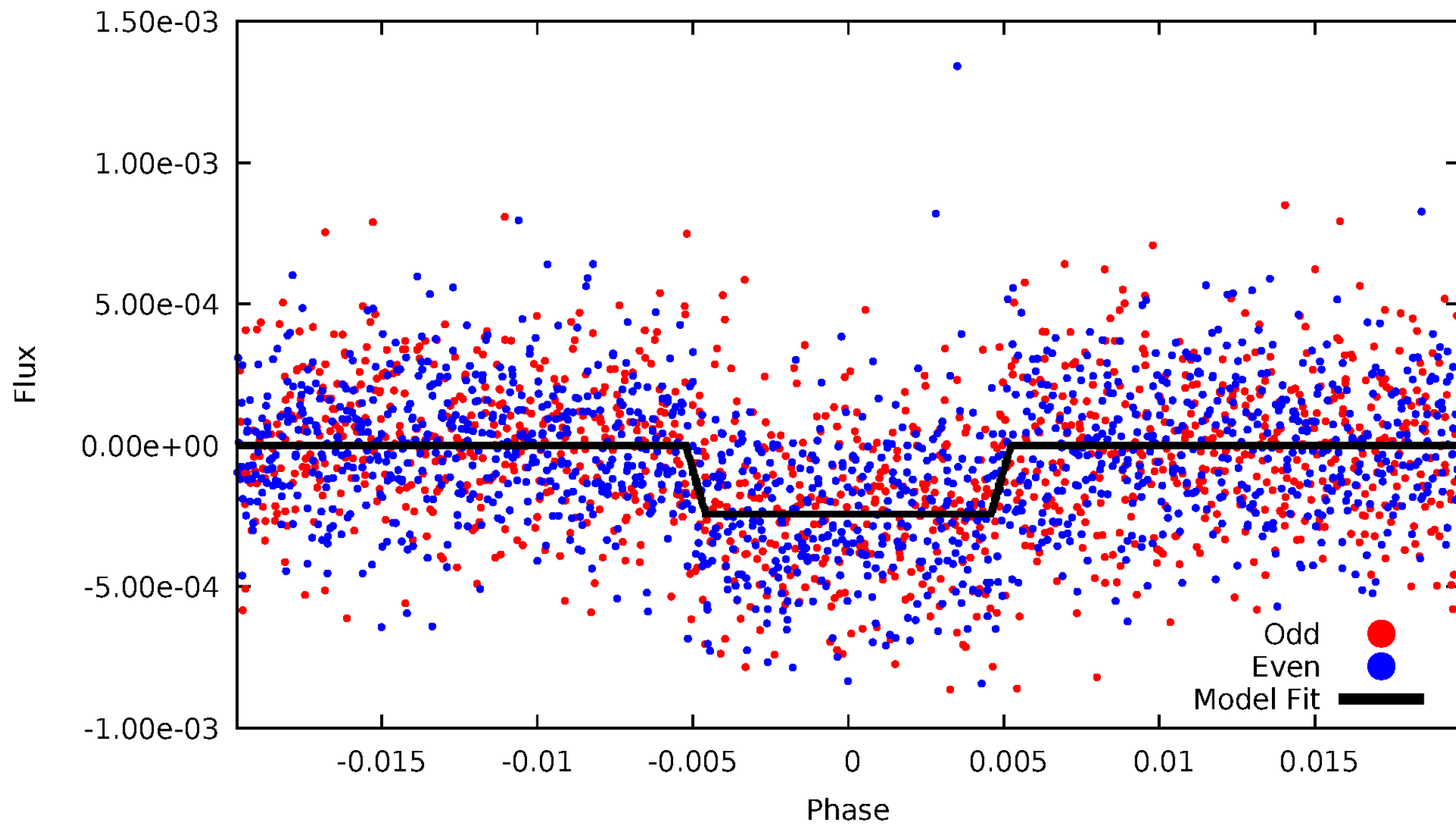
DV Odd/Even

TCE 003632089-01



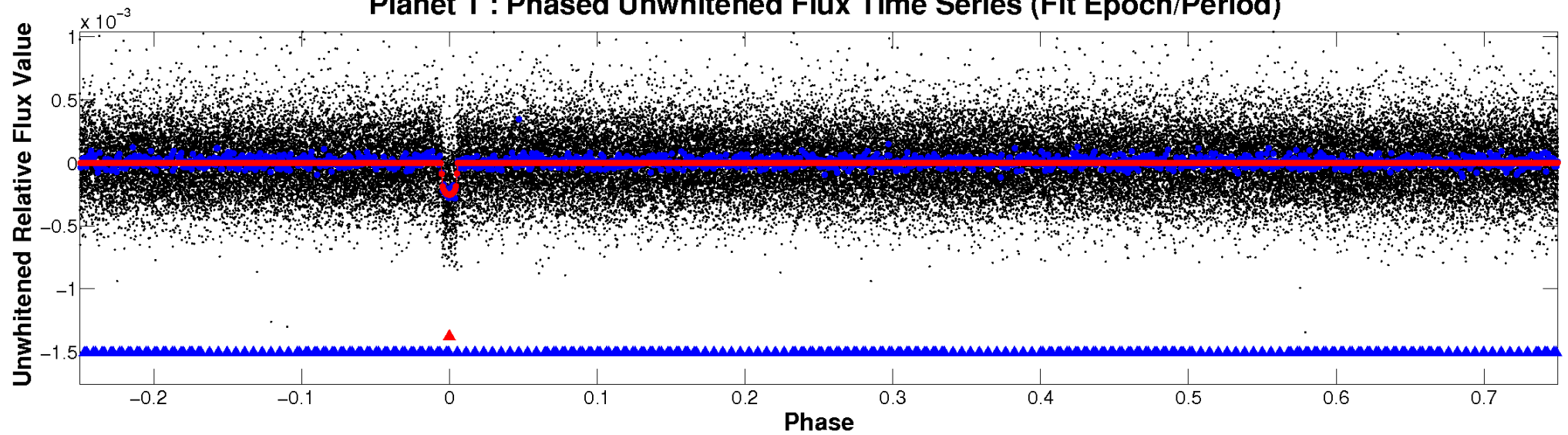
ALT Odd/Even

TCE 003632089-01

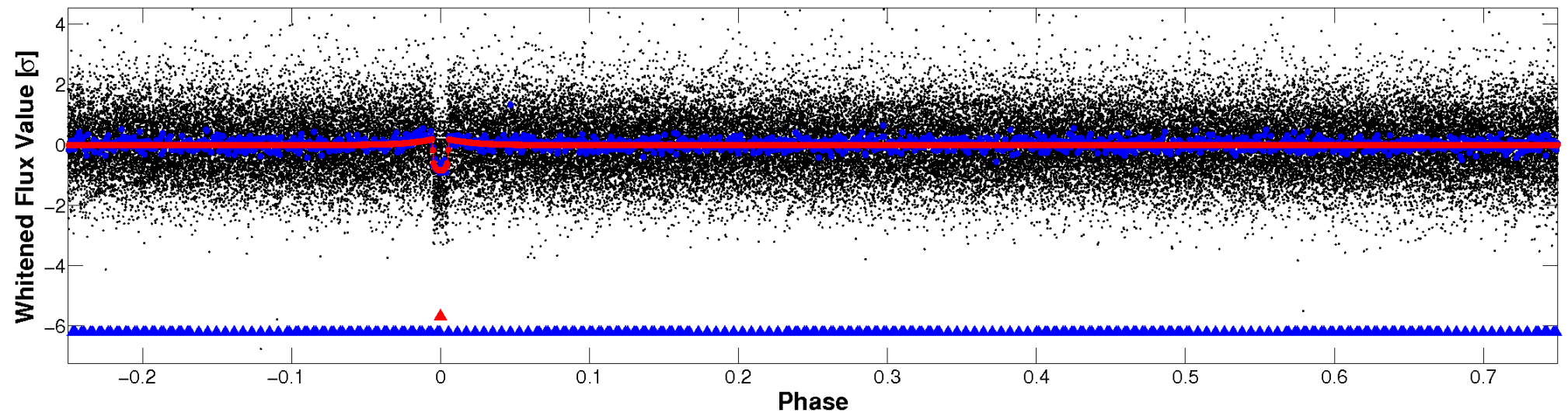


Non-Whitened Vs. Whitened Light Curve

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

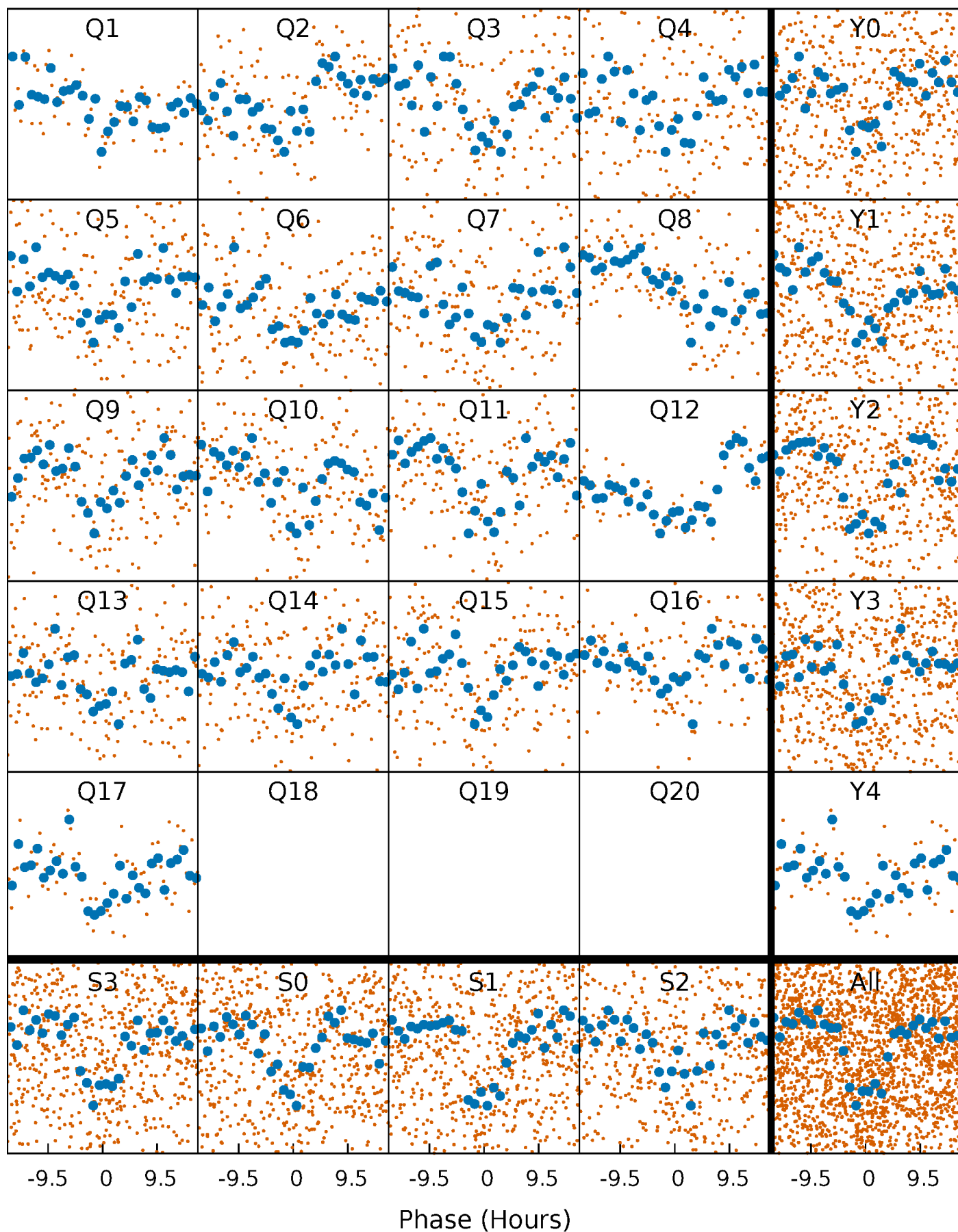


Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)



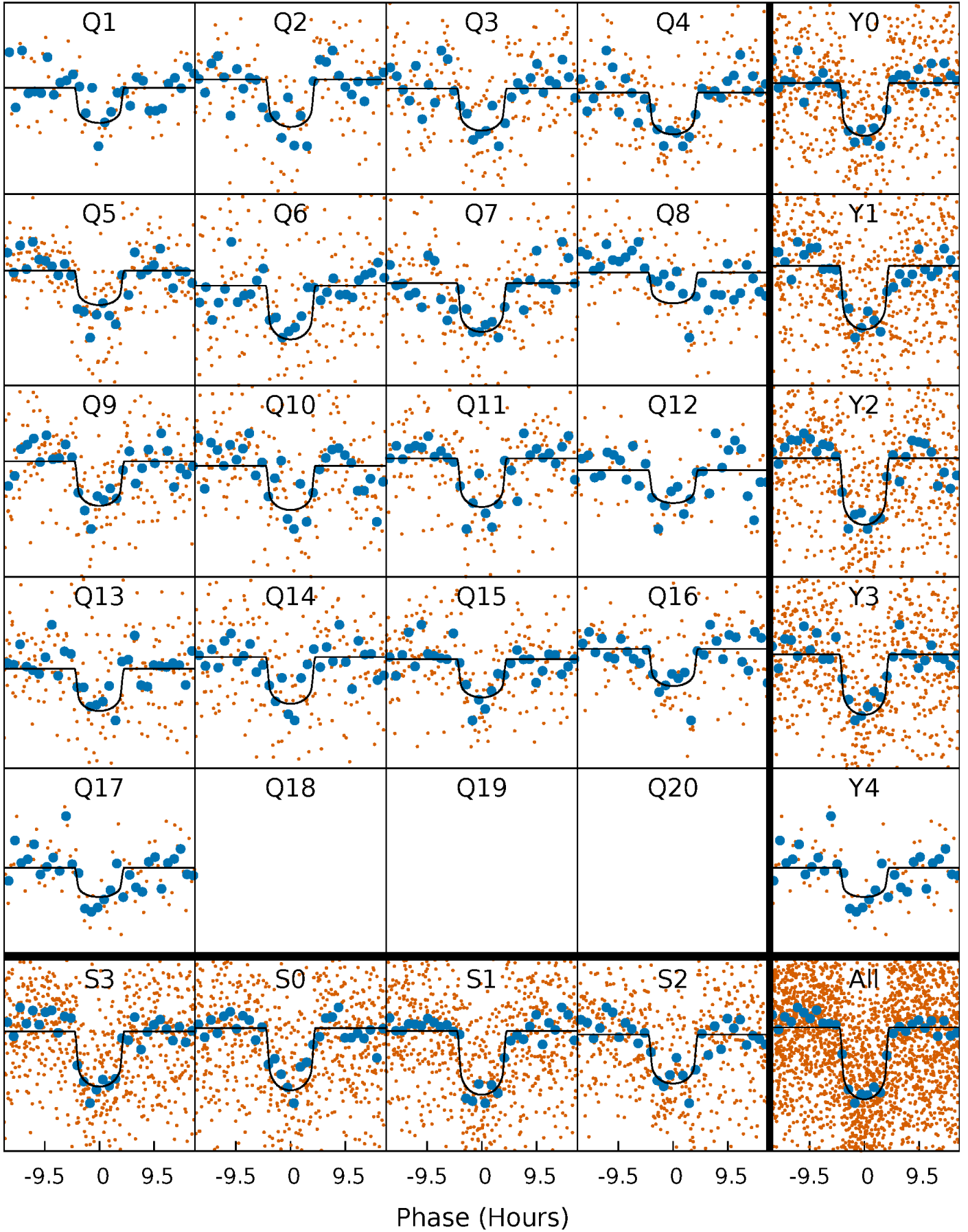
PDC Quarter-Phased Transit Curves

TCE 003632089-01 P= 31.778838 Days $T_0=136.765528$ (BKJD)



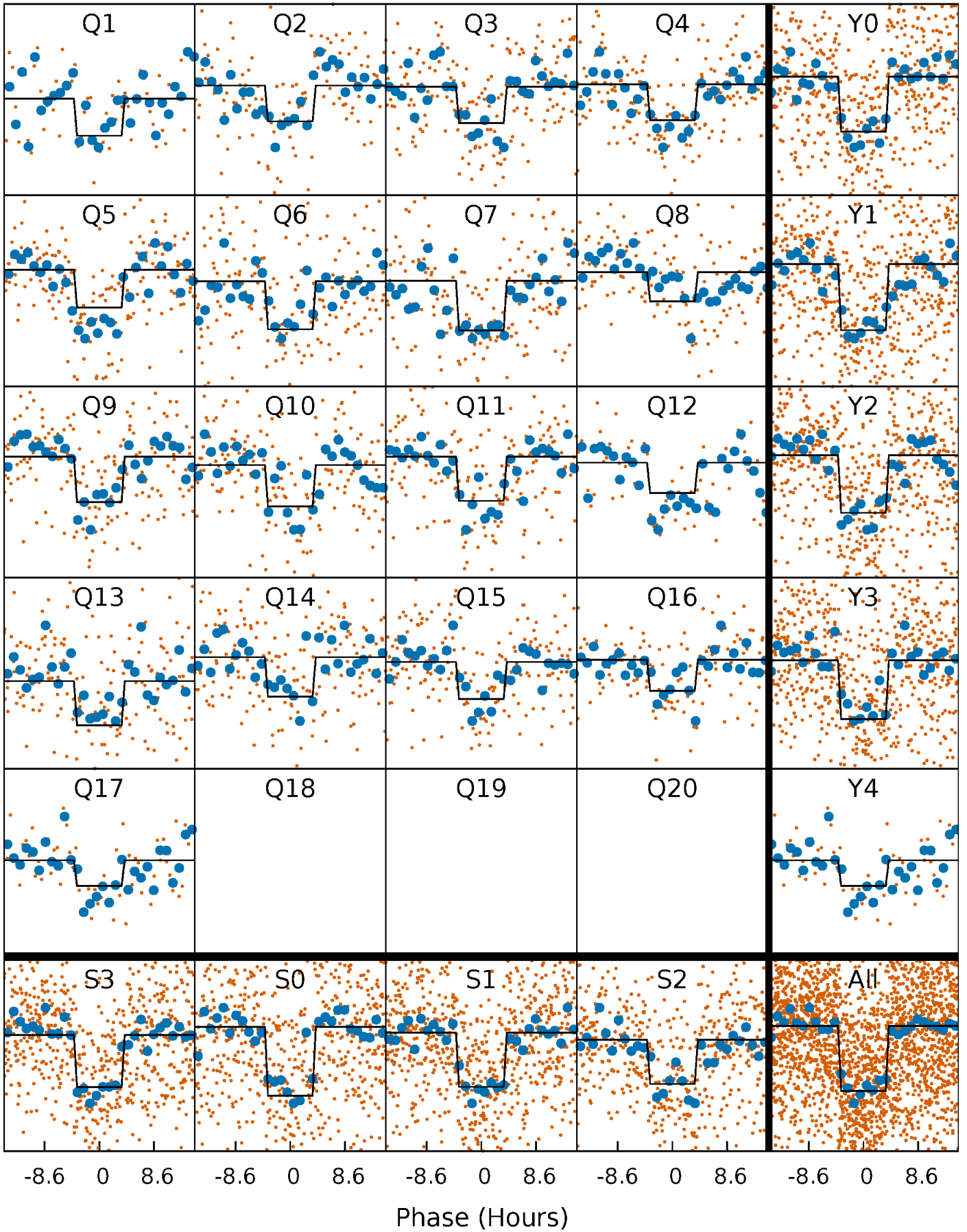
DV Quarter-Phased Transit Curves

TCE 003632089-01 P= 31.778838 Days $T_0=136.765528$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

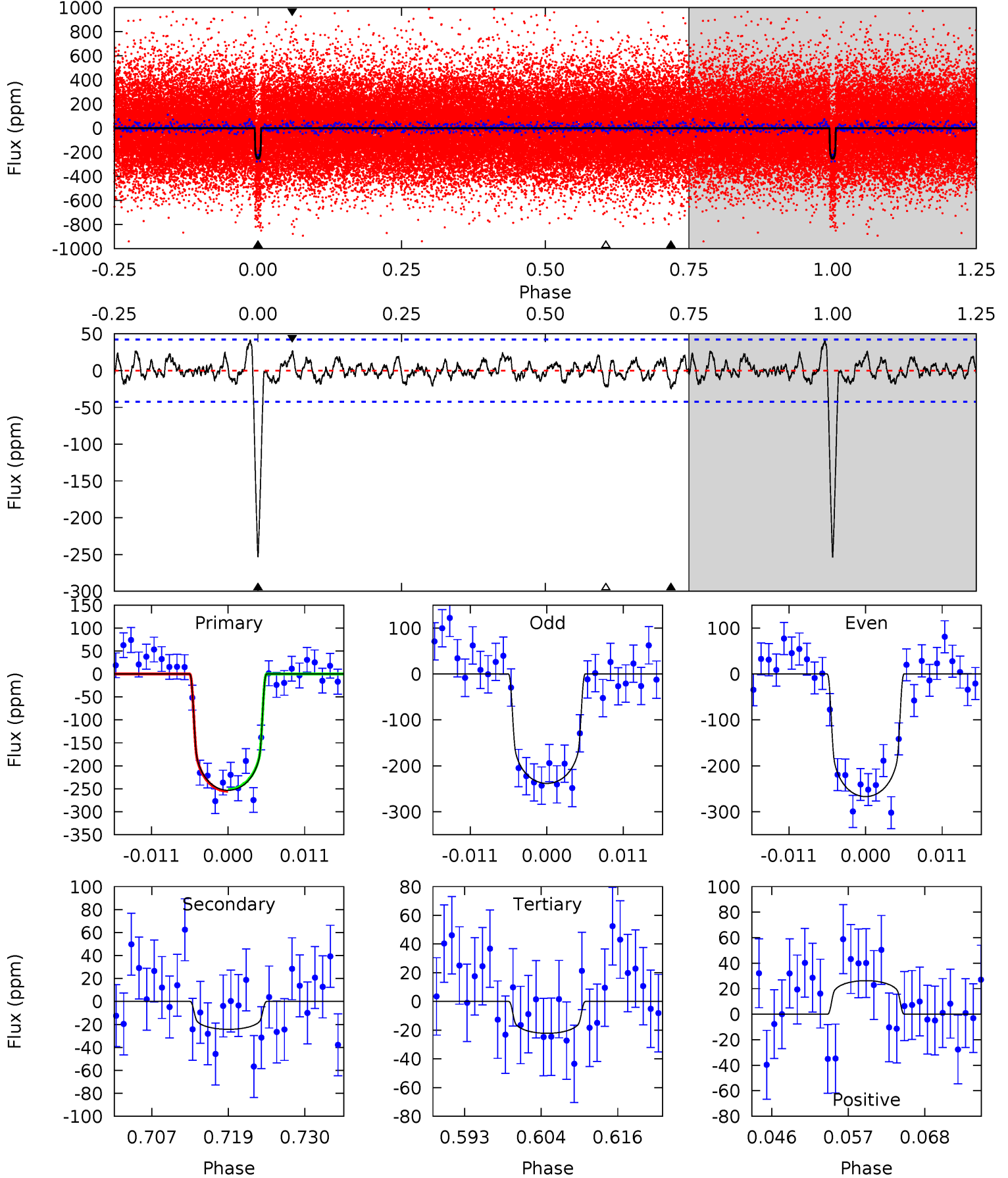
TCE 003632089-01 P= 31.778126 Days $T_0=136.780196$ (BKJD)



DV Model-Shift Uniqueness Test

003632089-01, P = 31.778838 Days, E = 104.986690 Days

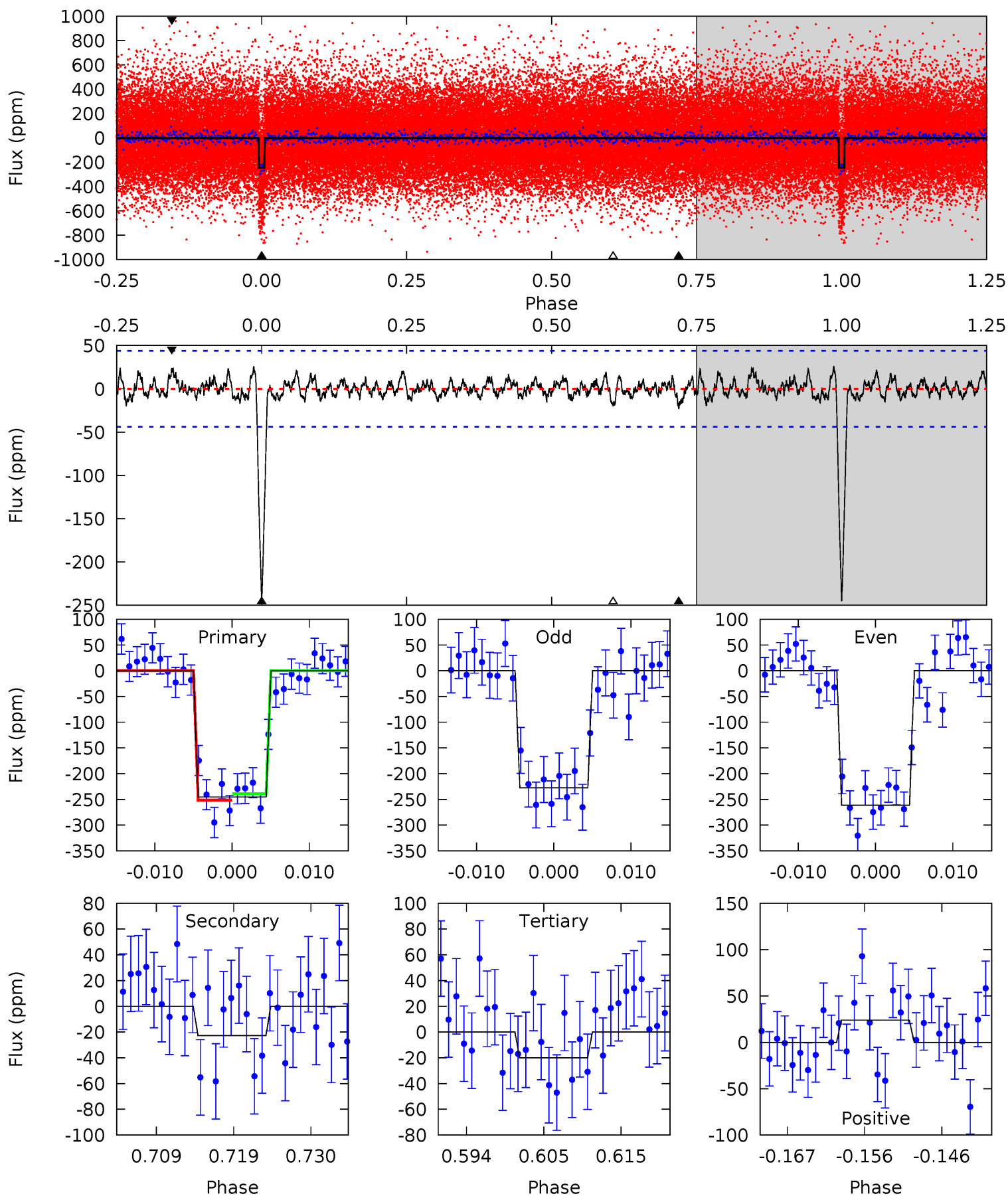
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
29.9	2.87	2.62	3.11	5.00	2.53	1.17	27.3	26.8	0.25	-0.24	1.70	0.96	0.14	0.23



Alt Model-Shift Uniqueness Test

003632089-01, P = 31.778126 Days, E = 105.002070 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
28.1	2.60	2.29	2.76	5.02	2.56	0.90	25.8	25.3	0.31	-0.15	1.94	0.99	0.10	0.70



Stellar Parameters For KIC 003632089

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	5638^{+152}_{-152}	$4.391^{+0.171}_{-0.209}$	$-0.420^{+0.350}_{-0.300}$	$0.928^{+0.252}_{-0.168}$	$0.773^{+0.124}_{-0.053}$	$1.361^{+1.088}_{-0.695}$
	+3%/-3%	+4%/-5%	+83%/-71%	+27%/-18%	+16%/-7%	+80%/-51%
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 003632089-01 / KOI 3308.01

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	-24 ± 8	$1.68^{+0.40}_{-0.38}$	791^{+67}_{-57}	3543^{+344}_{-310}	153^{+133}_{-74}
Alt.	-23 ± 9	$1.62^{+0.39}_{-0.35}$	792^{+61}_{-55}	3567^{+300}_{-325}	152^{+135}_{-71}

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

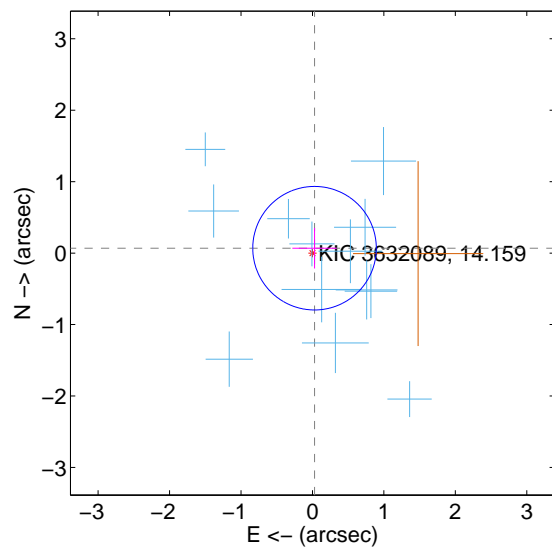
Supplemental centroid analysis for 003632089-01. Kepler magnitude: 14.16. Transit SNR 19.52

There are 13 quarters with good PRF difference image offsets

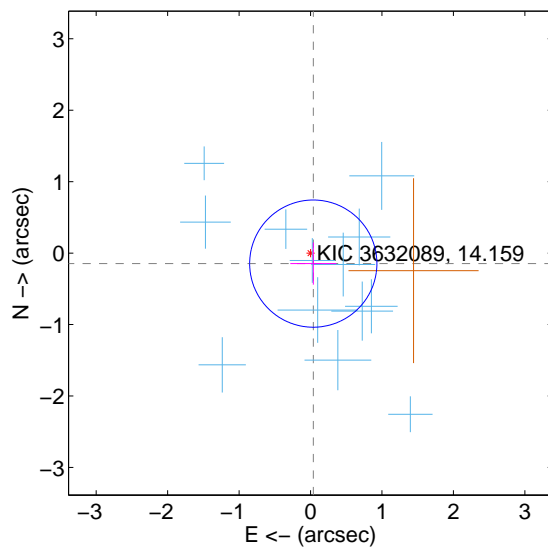
The direct PRF centroid is offset from the target star catalog position by about 0.21 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.075 ± 0.288	0.26	-0.029 ± 0.310	0.069 ± 0.284
PRF-fit source offset from KIC position	0.152 ± 0.297	0.51	-0.039 ± 0.321	-0.147 ± 0.295
photometric centroid source offset	1.11 ± 0.57	1.95	0.77 ± 0.52	-0.80 ± 0.61

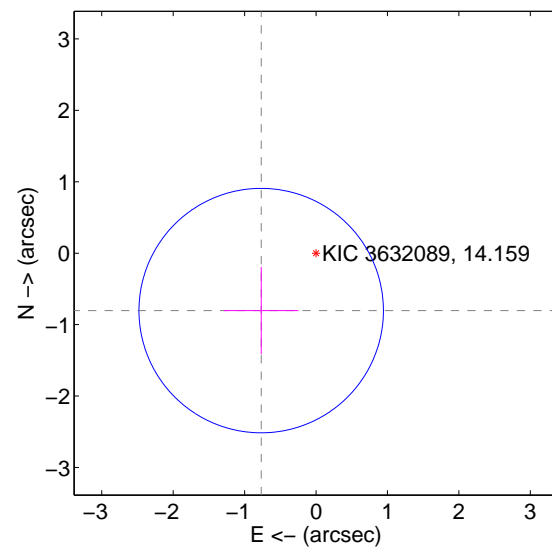
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position

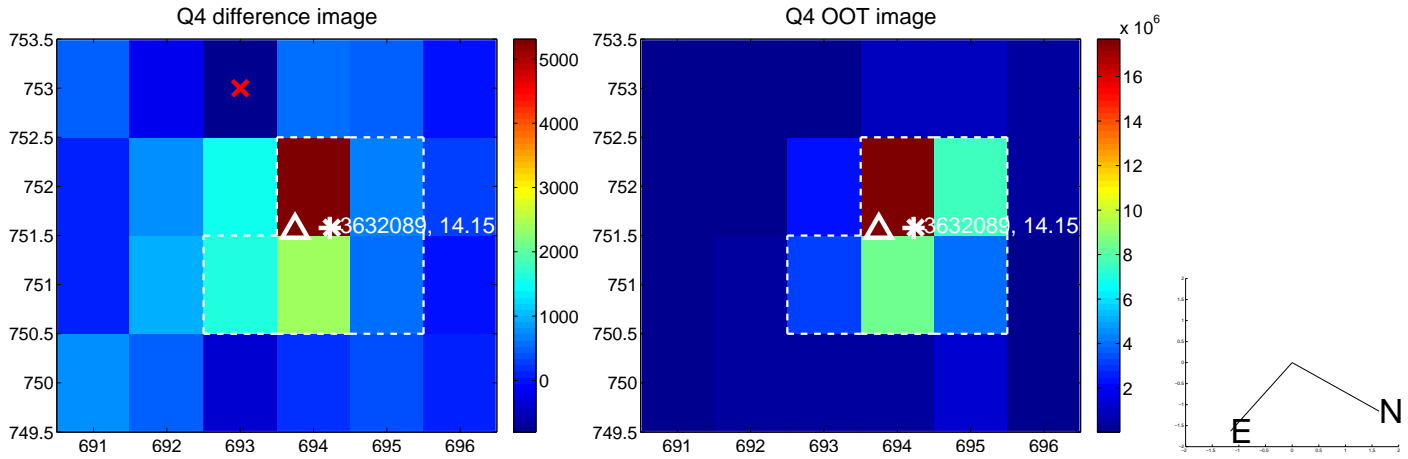
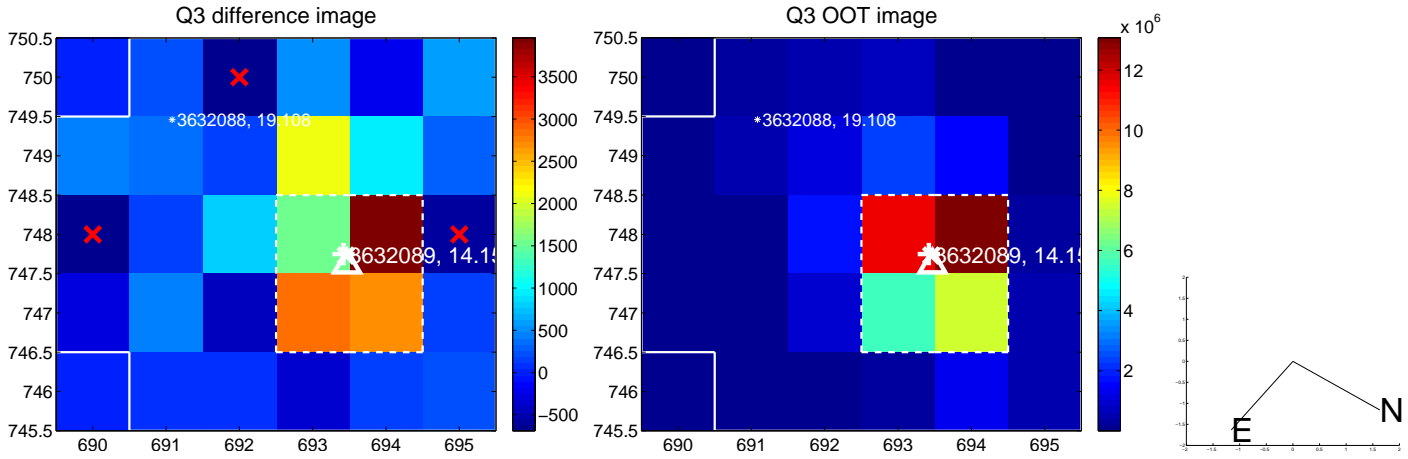
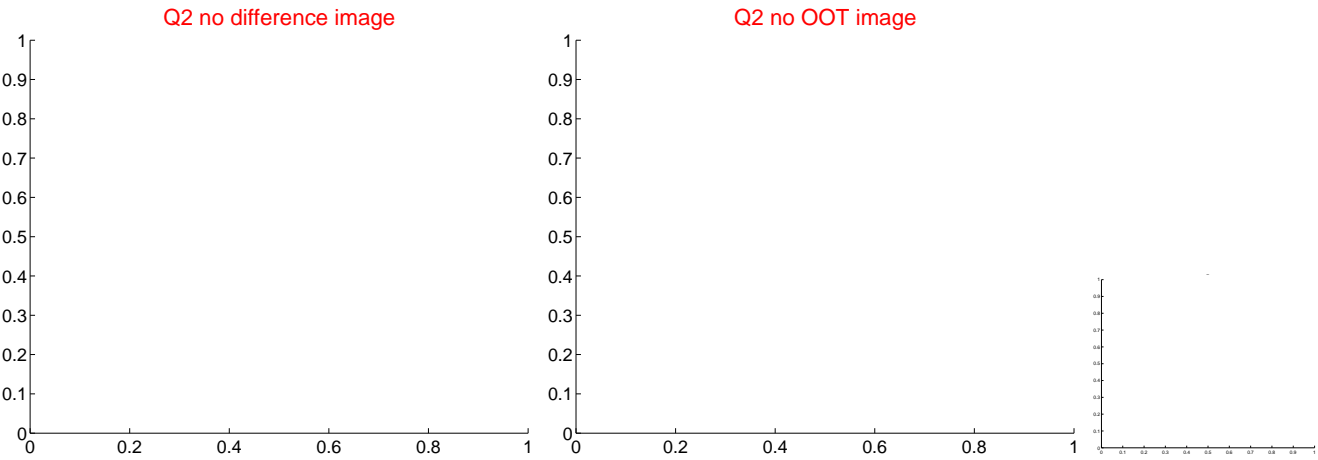
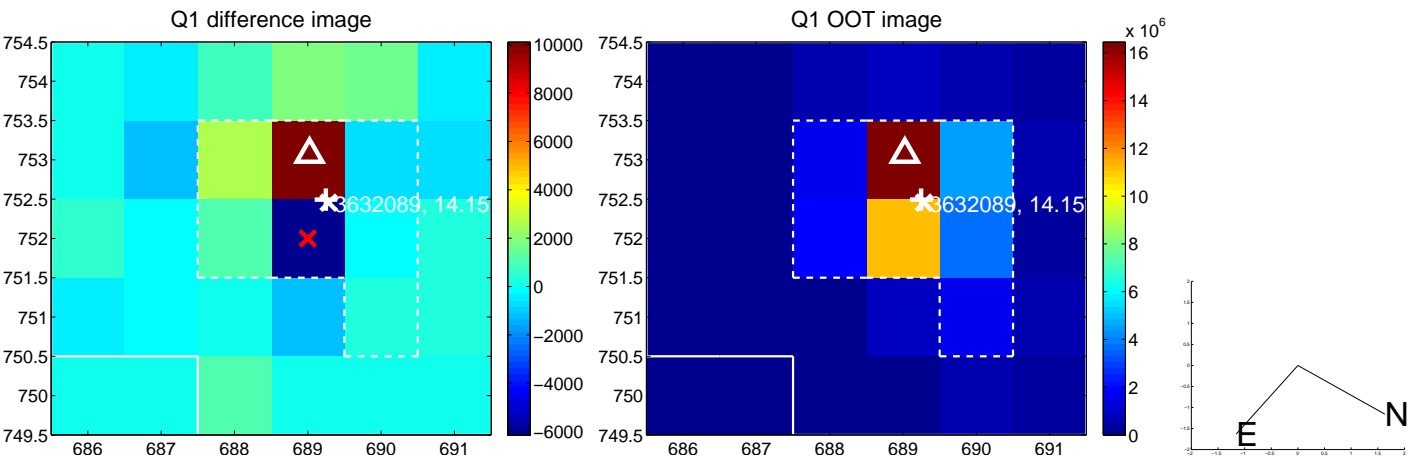


offset from photometric centroids

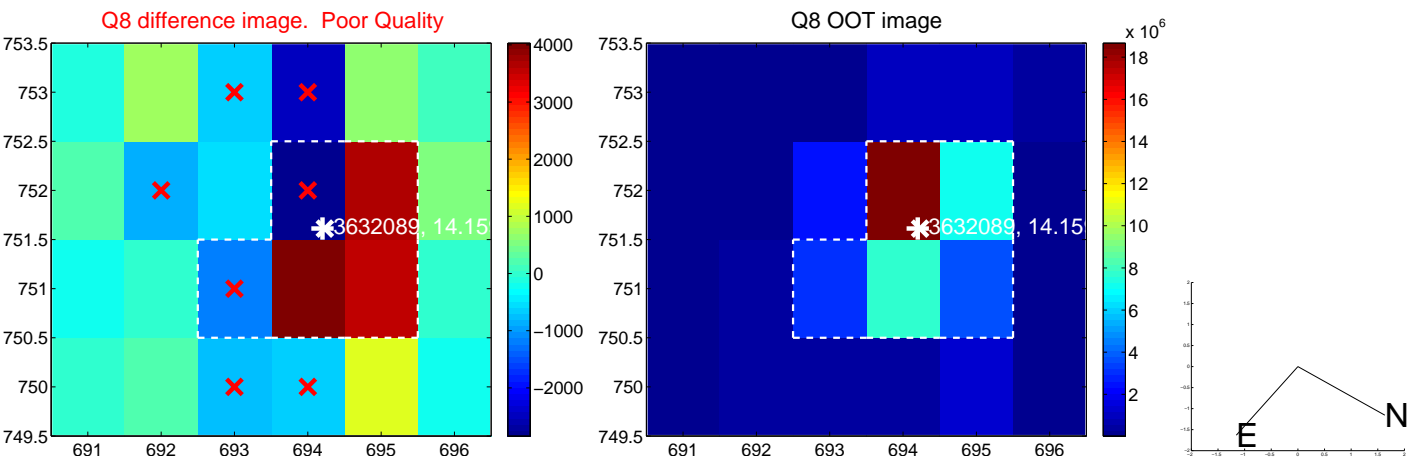
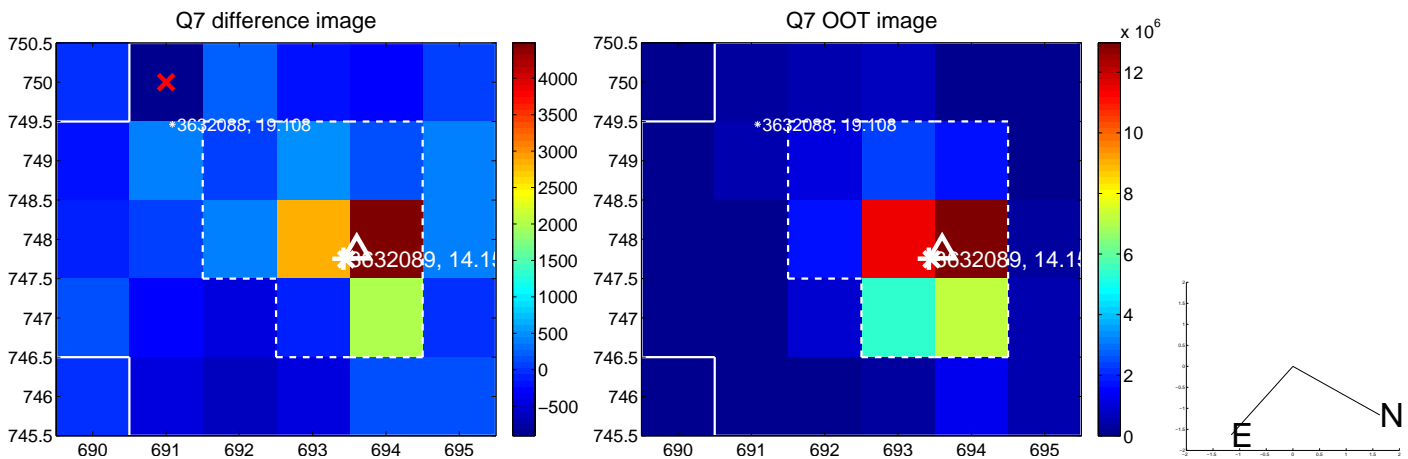
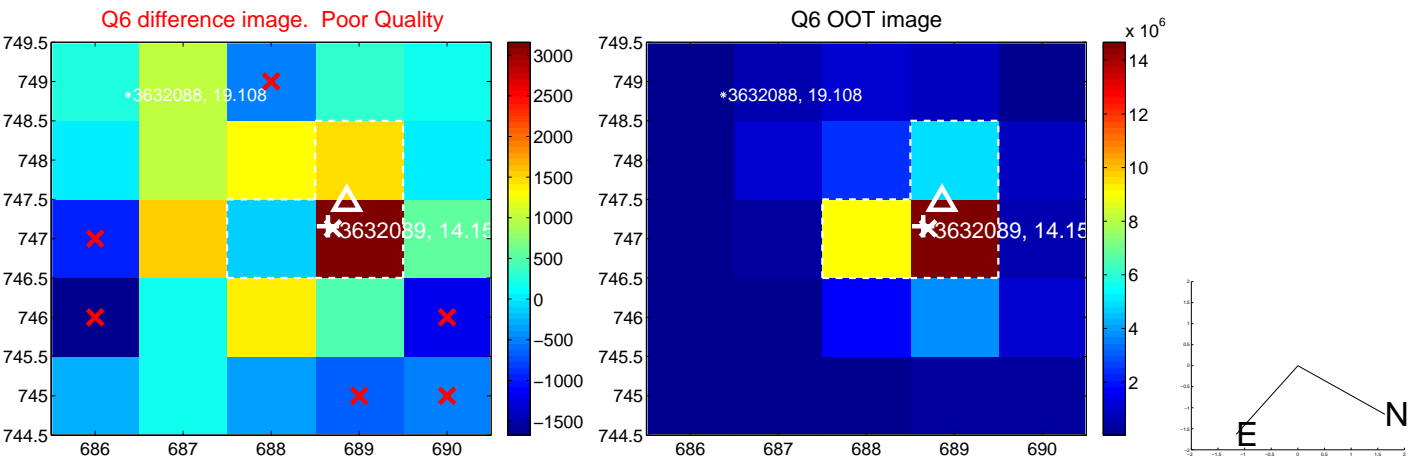
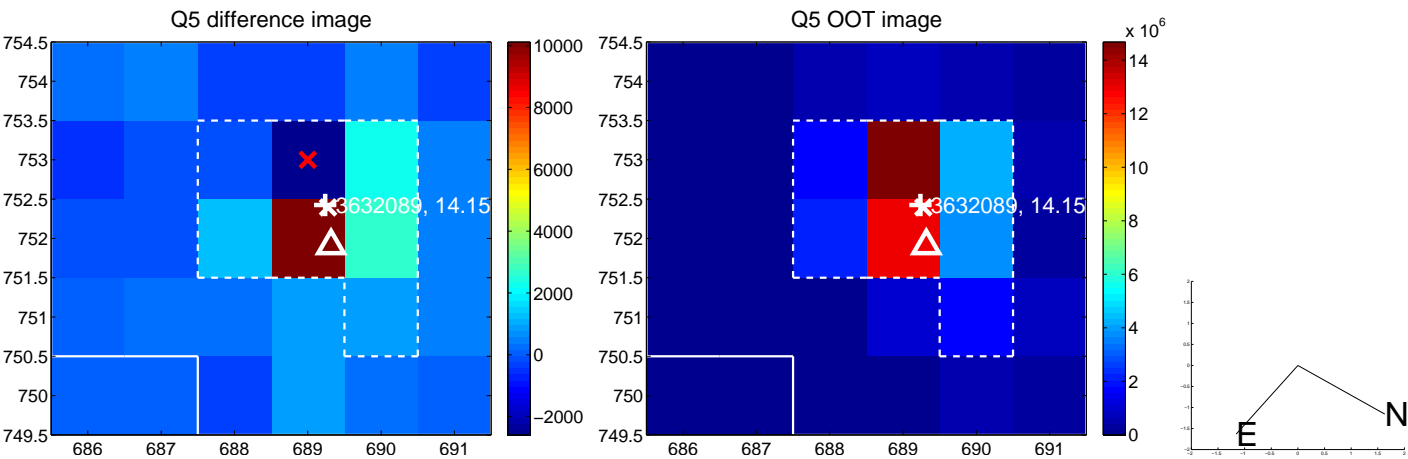


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses:** good quarterly centroid offsets; **Vermillion crosses:** bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

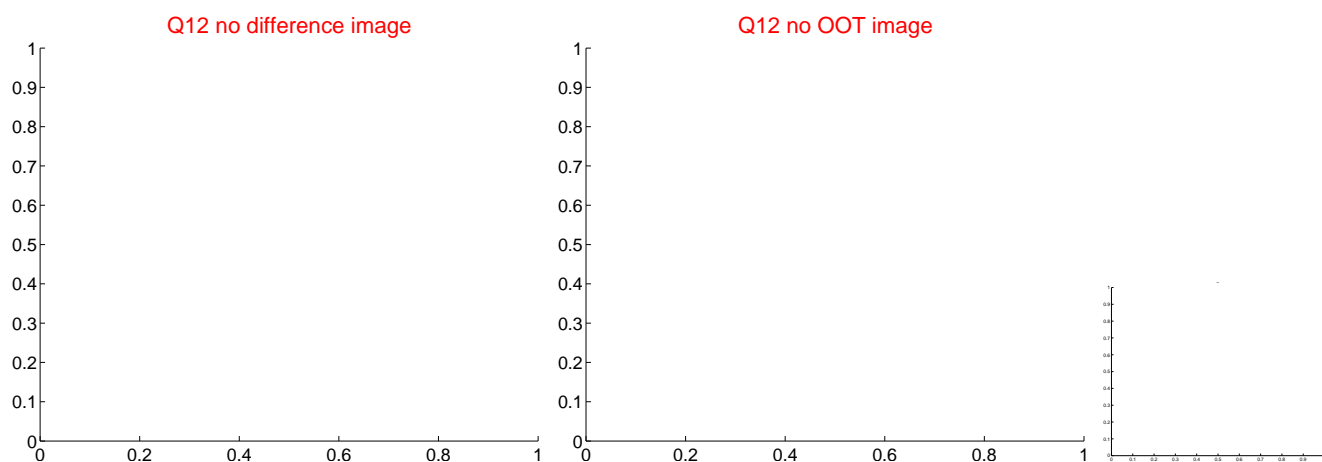
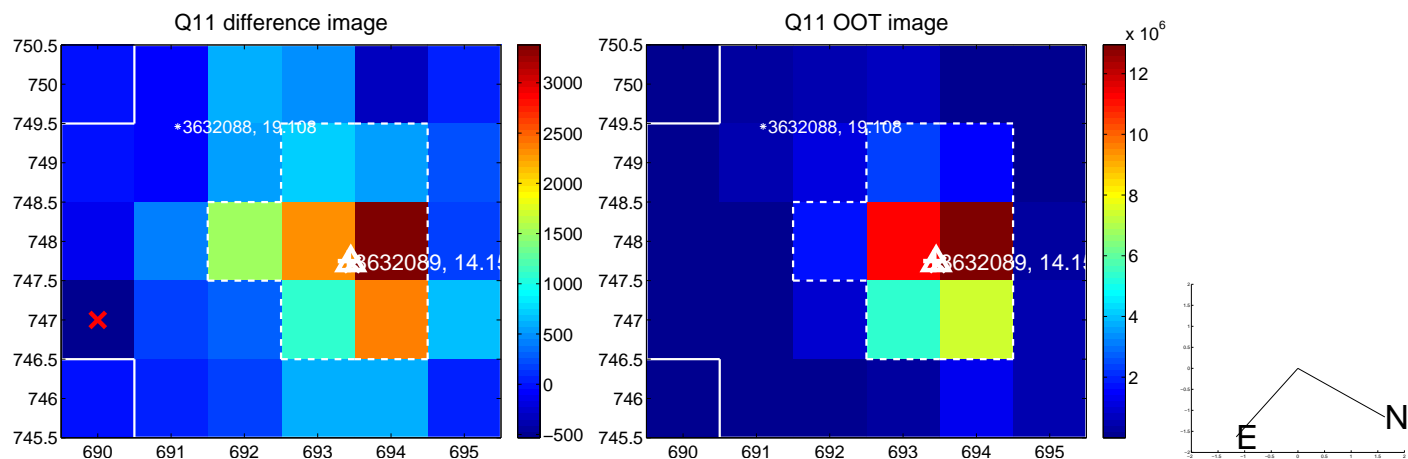
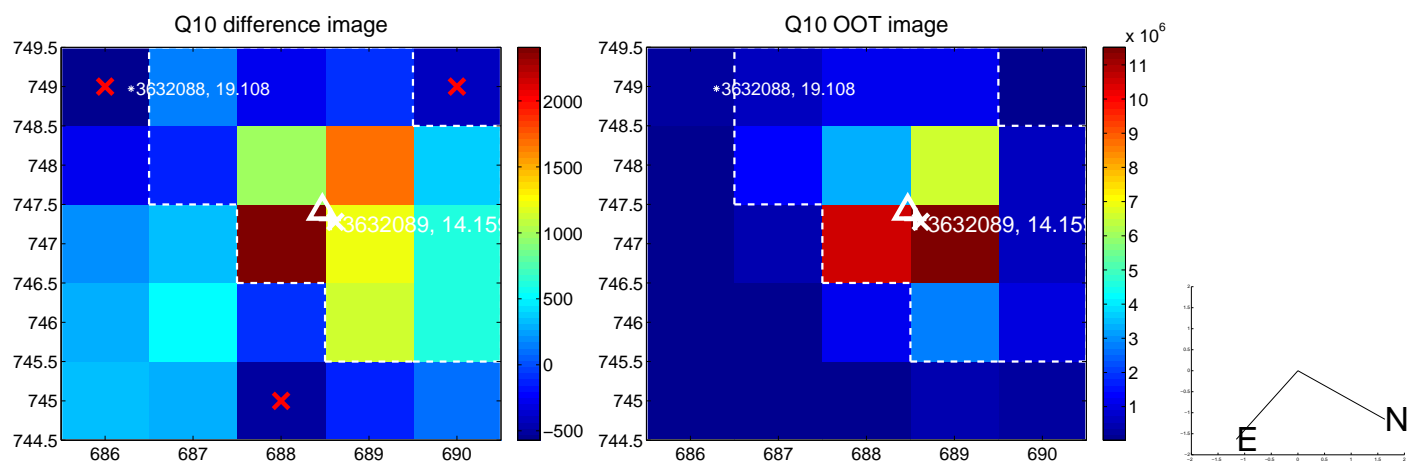
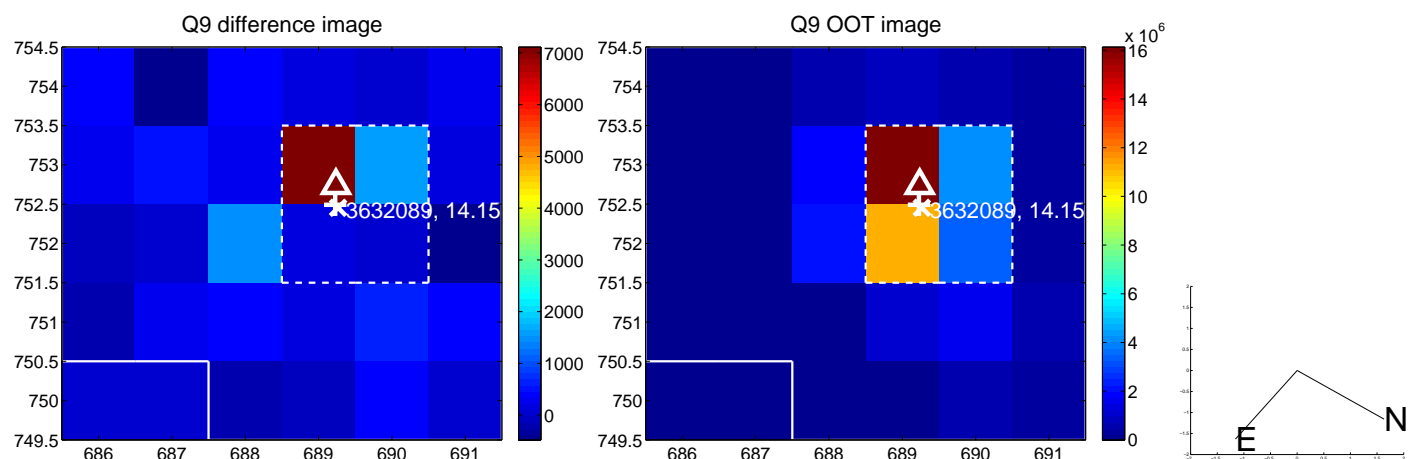
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



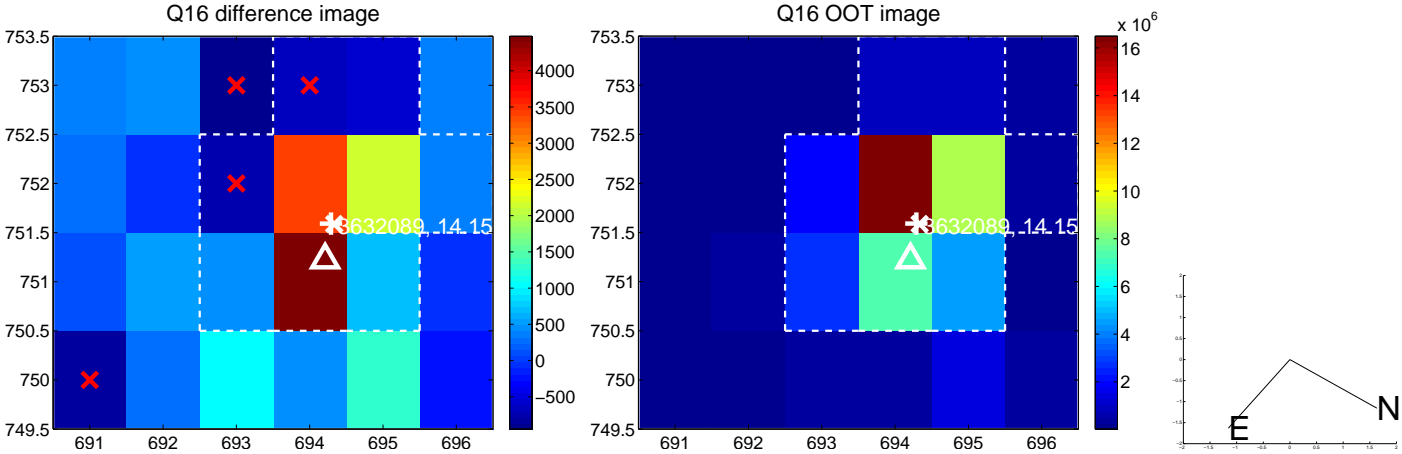
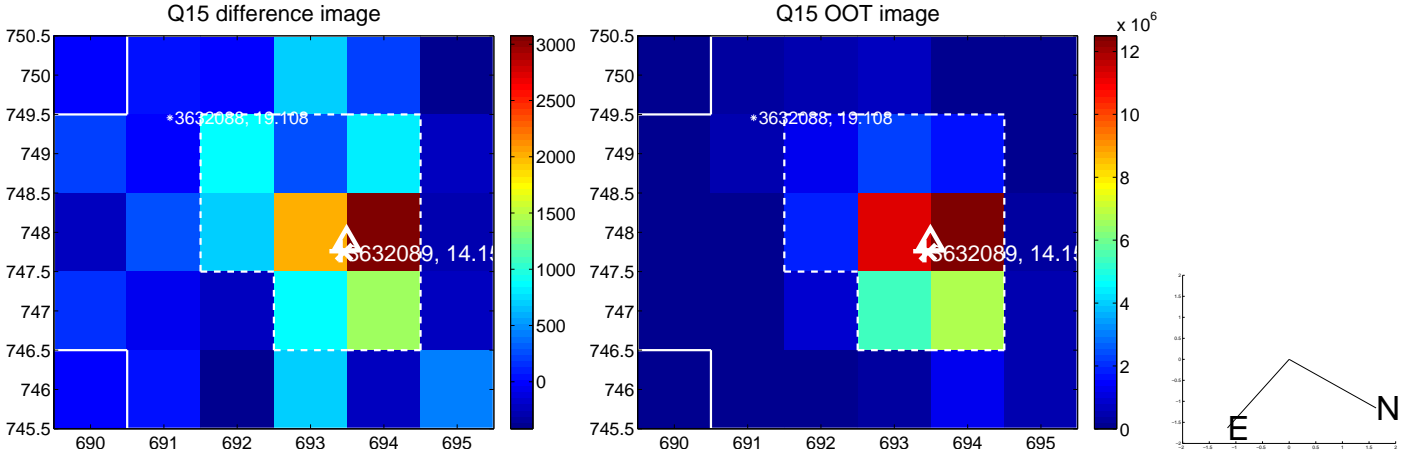
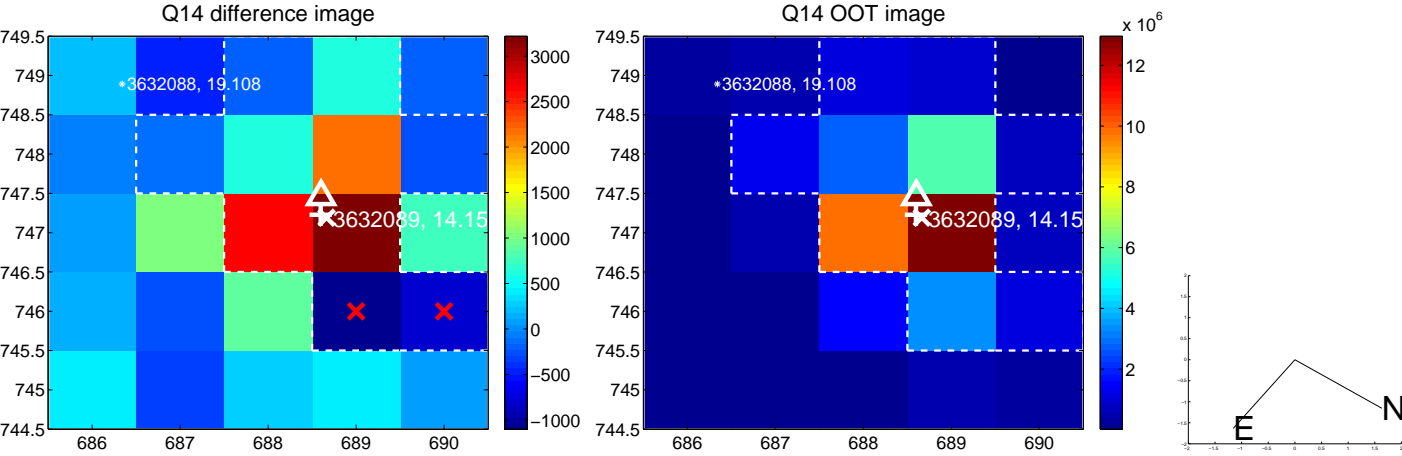
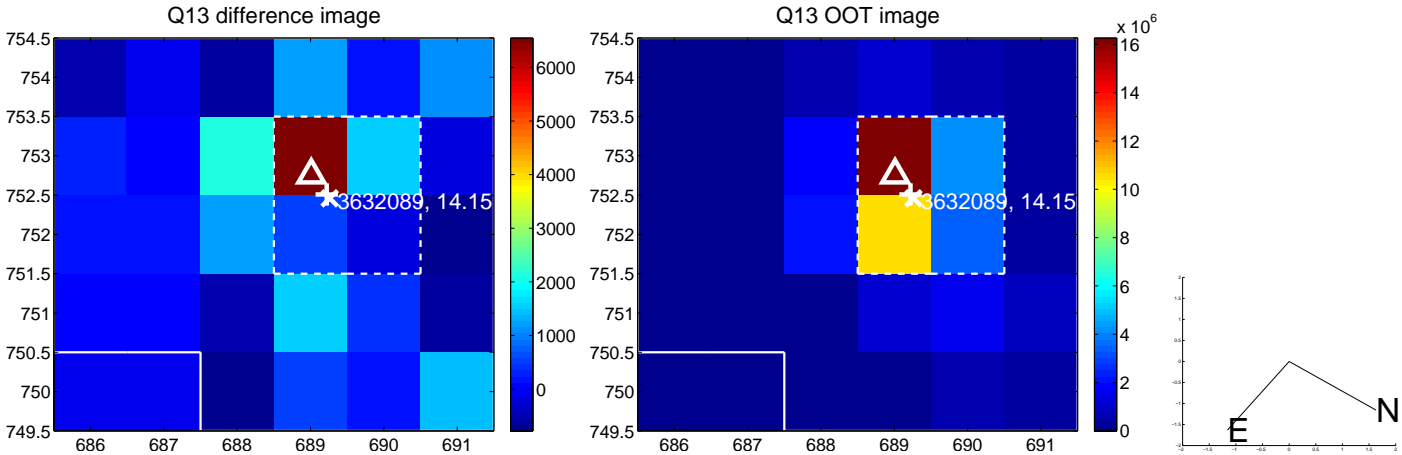
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



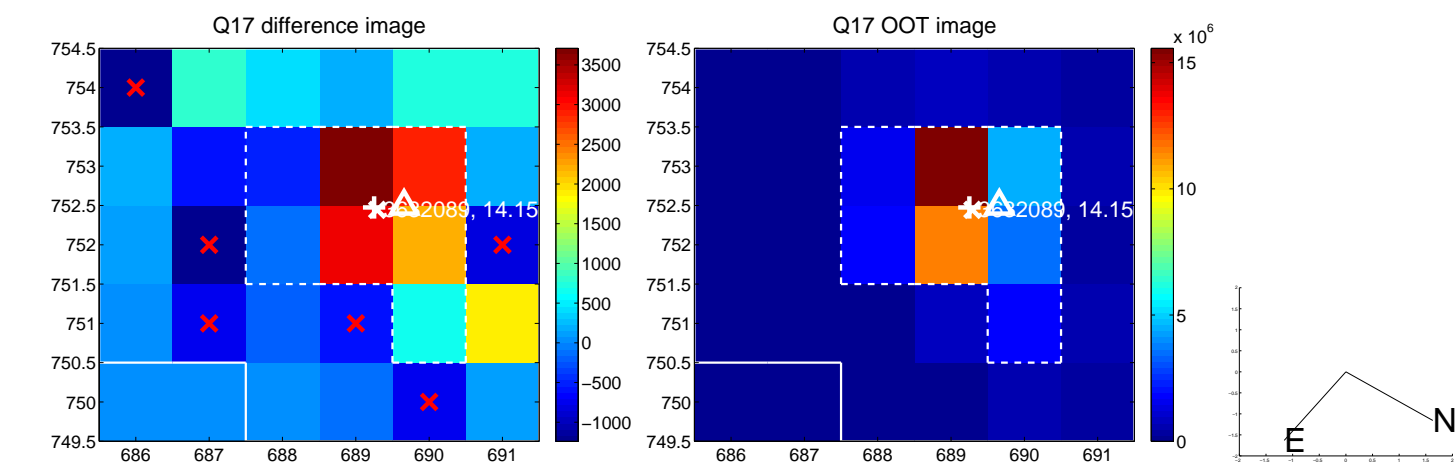
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



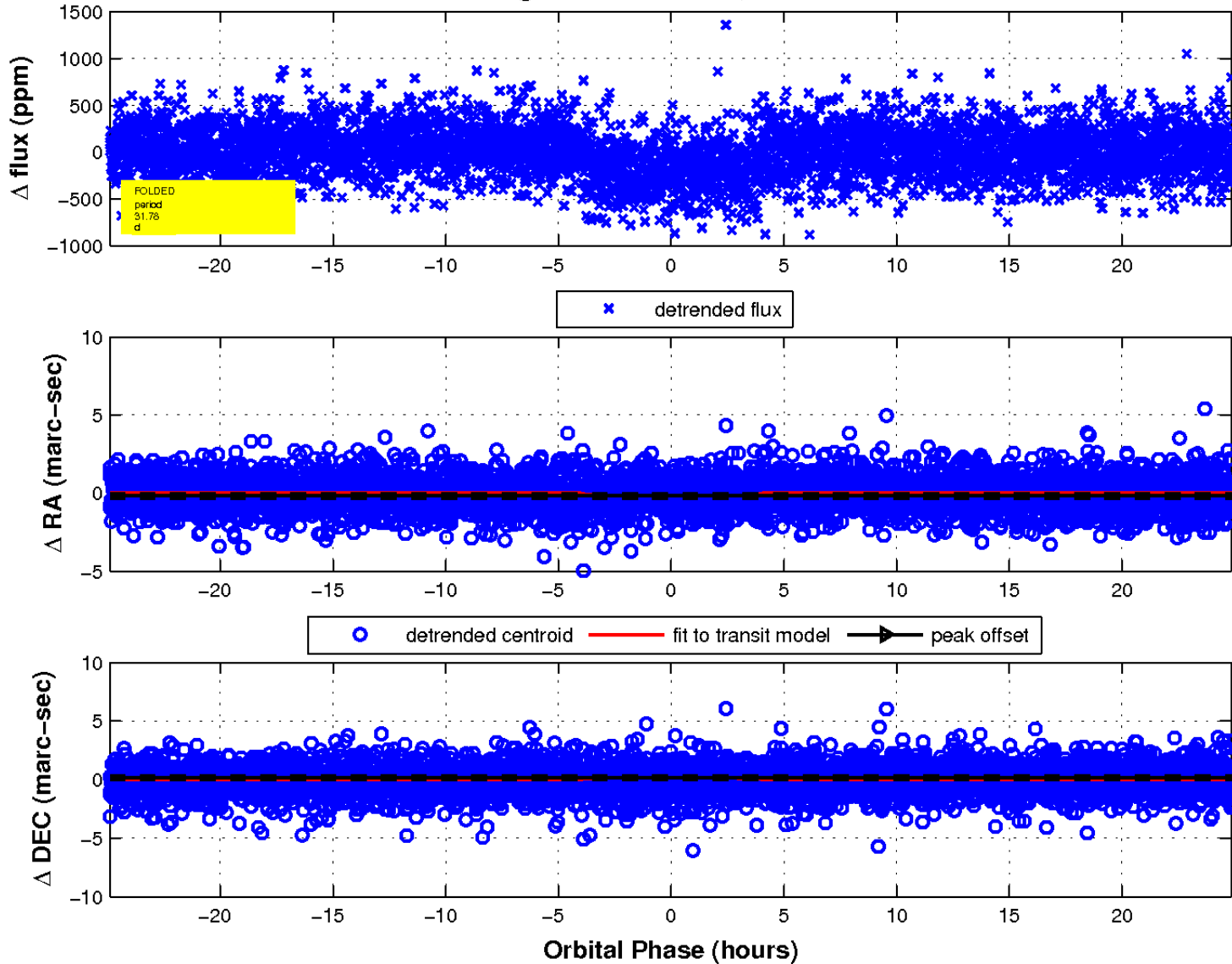
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

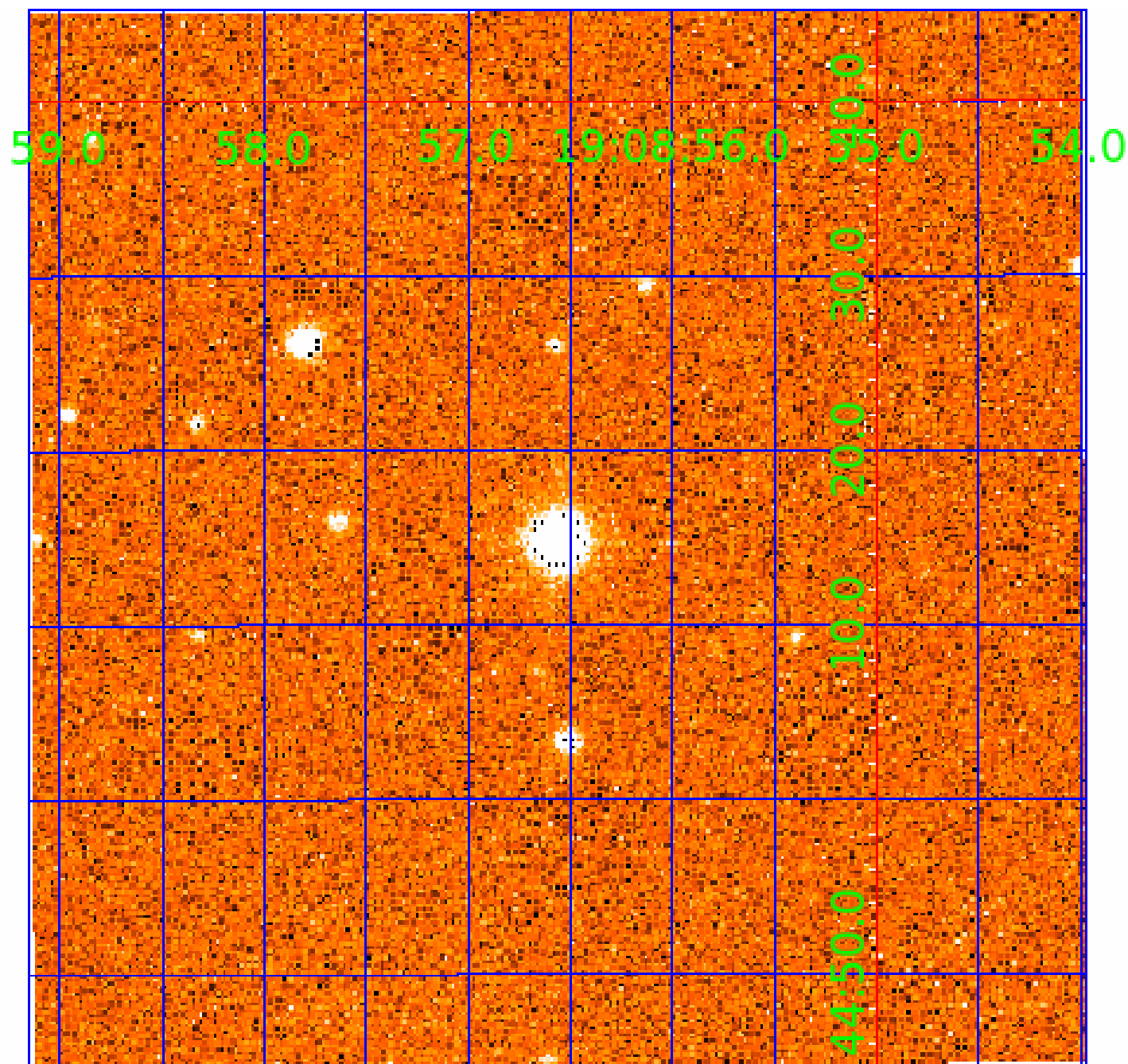


fluxWeightedCentroids, Planet 1 of 2



UKIRT Image

Declination



KIC 003632089

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})
003632089-01	OBS	3308.01	31.778838	136.765528	252.9	8.300	18.5	19.5	0.93	5638	1.66	24.00
003632089-02	OBS	3308.02	5.327917	133.542097	75.0	4.668	11.2	11.6	0.93	5638	0.95	259.63

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
003632089-01	OBS	PC	1.00	0	0	0	0	NO_COMMENT
003632089-02	OBS	PC	0.96	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.

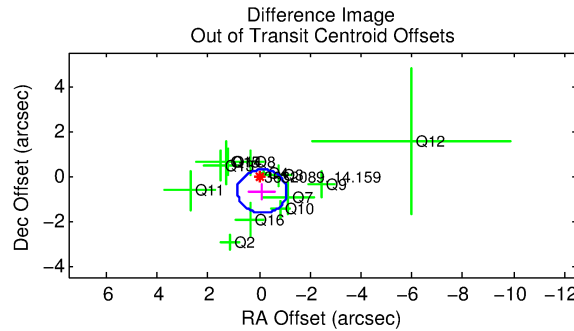
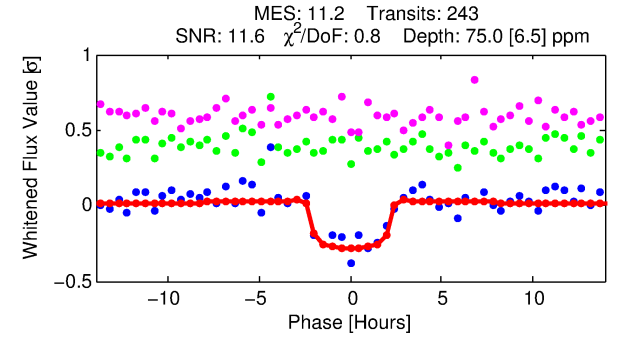
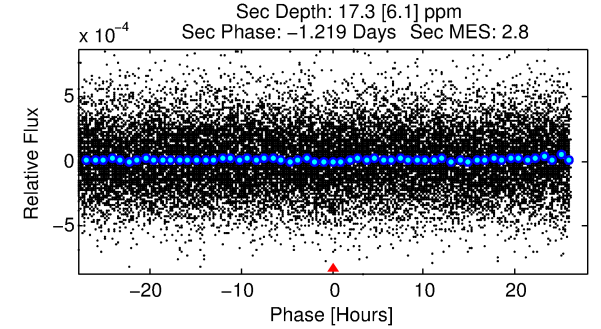
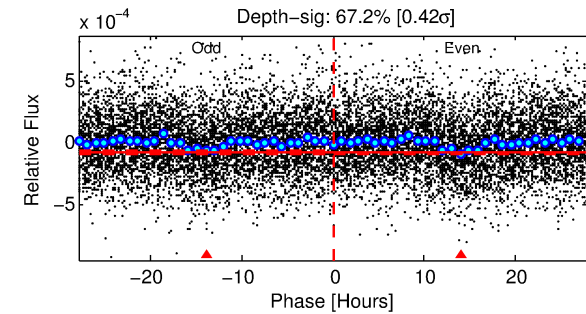
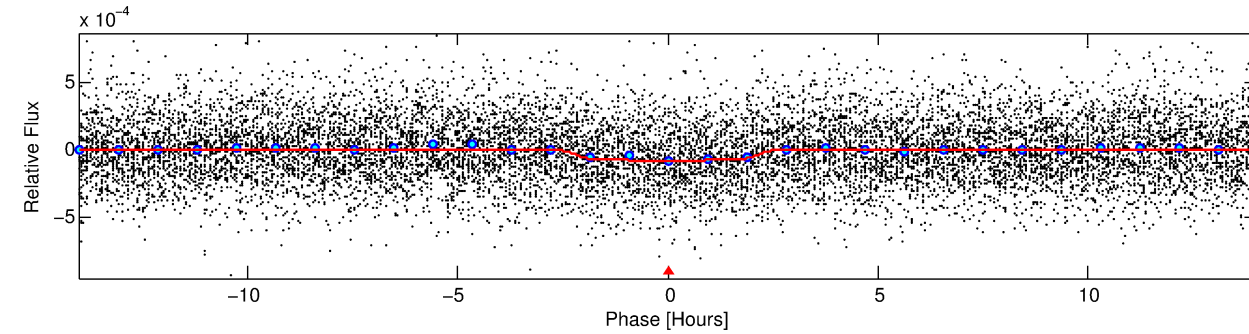
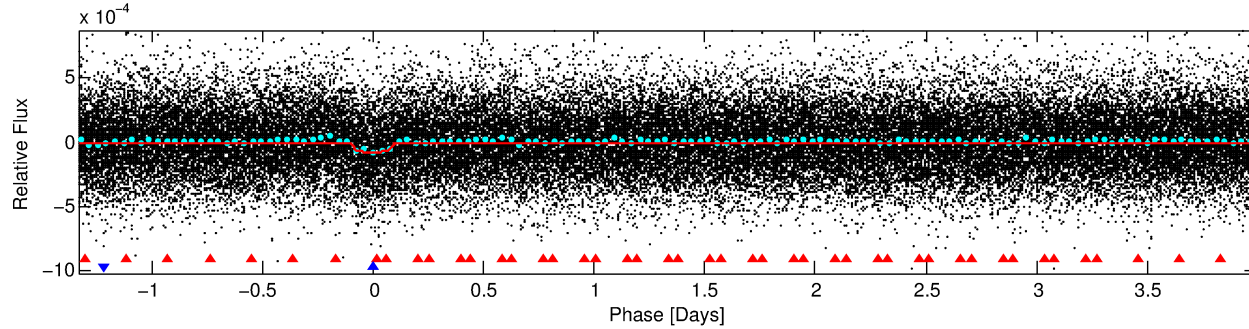
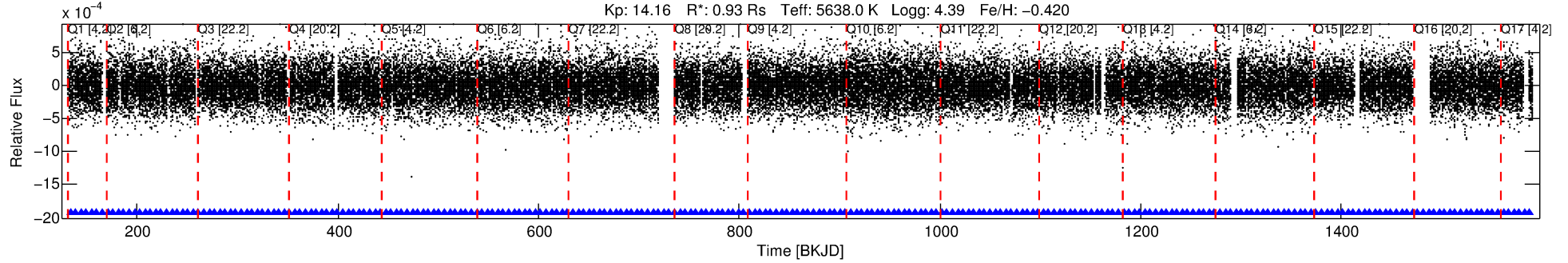
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 003632089-02

No Significant Match Found

DV One-Page Summary

KIC: 3632089 Candidate: 2 of 2 Period: 5.328 d
KOI: K03308.02 Corr: 0.980



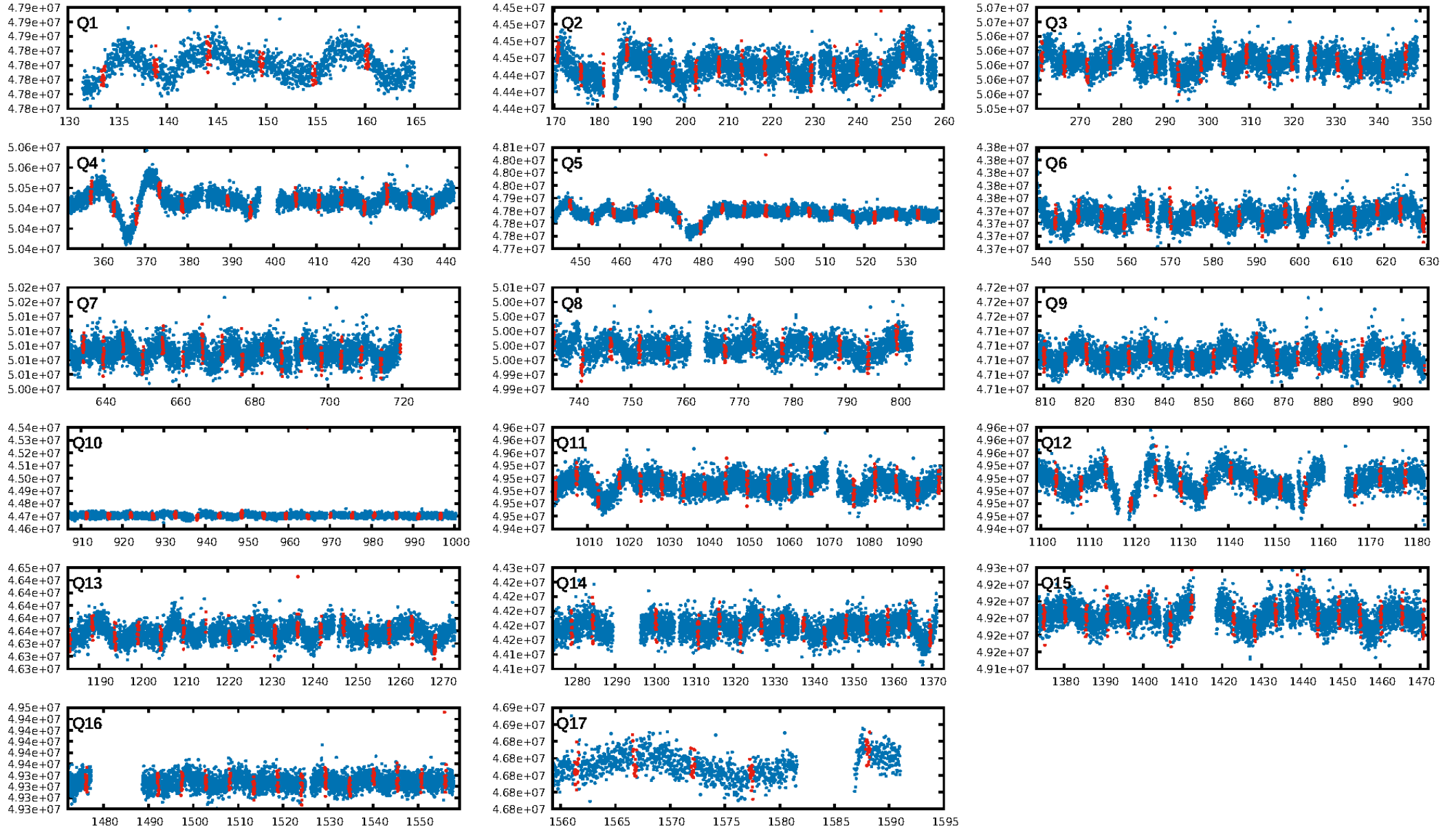
DV Fit Results:

Period = 5.32792 [0.00004] d
Epoch = 133.5421 [0.0060] BKJD
Rp/R* = 0.0094 [0.0037]
a/R* = 4.07 [7.37]
b = 0.90 [0.41]
Seff = 259.63 [99.66]
Teq = 1024 [98] K
Rp = 0.95 [0.45] Re
a = 0.0548 [0.0133] AU
Ag = 31.48 [29.42] [1.04 σ]
Teffp = 3749 [811] K [3.33 σ]

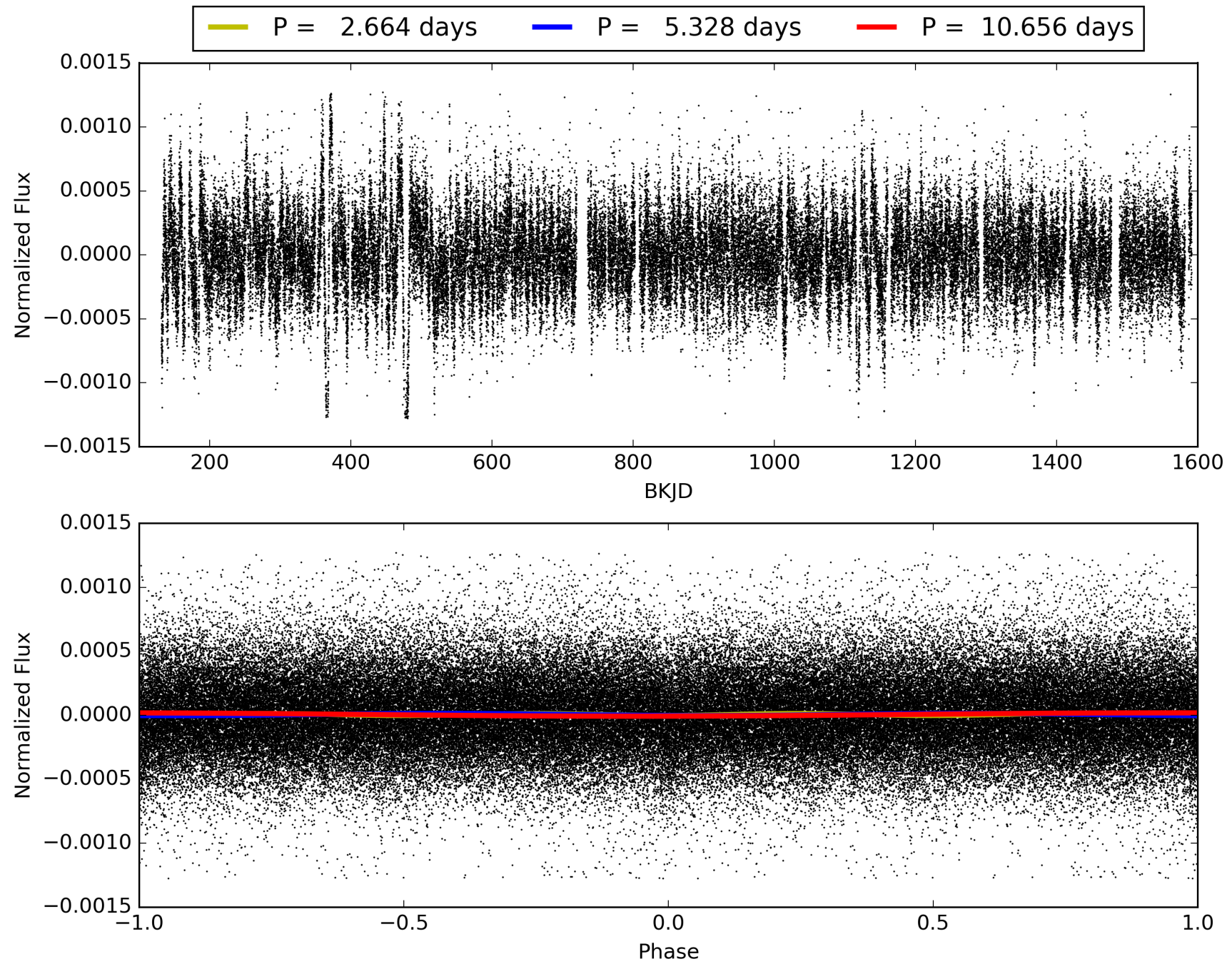
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: 100.0% [66.67 σ]
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: 2.69e-27
RollingBand-fgt: 1.00 [233/233]
GhostDiagnostic-chr: 2.121
Centroid-sig: 0.0%
Centroid-so: 2.720 arcsec [2.90 σ]
OotOffset-rm: 0.700 arcsec [2.16 σ]
KicOffset-rm: 1.046 arcsec [3.26 σ]
OotOffset-st: 3/4/4/2 [13]
KicOffset-st: 3/4/4/2 [13]
DiffImageQuality-fgm: 0.77 [10/13]
DiffImageOverlap-fno: 1.00 [17/17]

TCE 003632089-02, PDC Light Curves

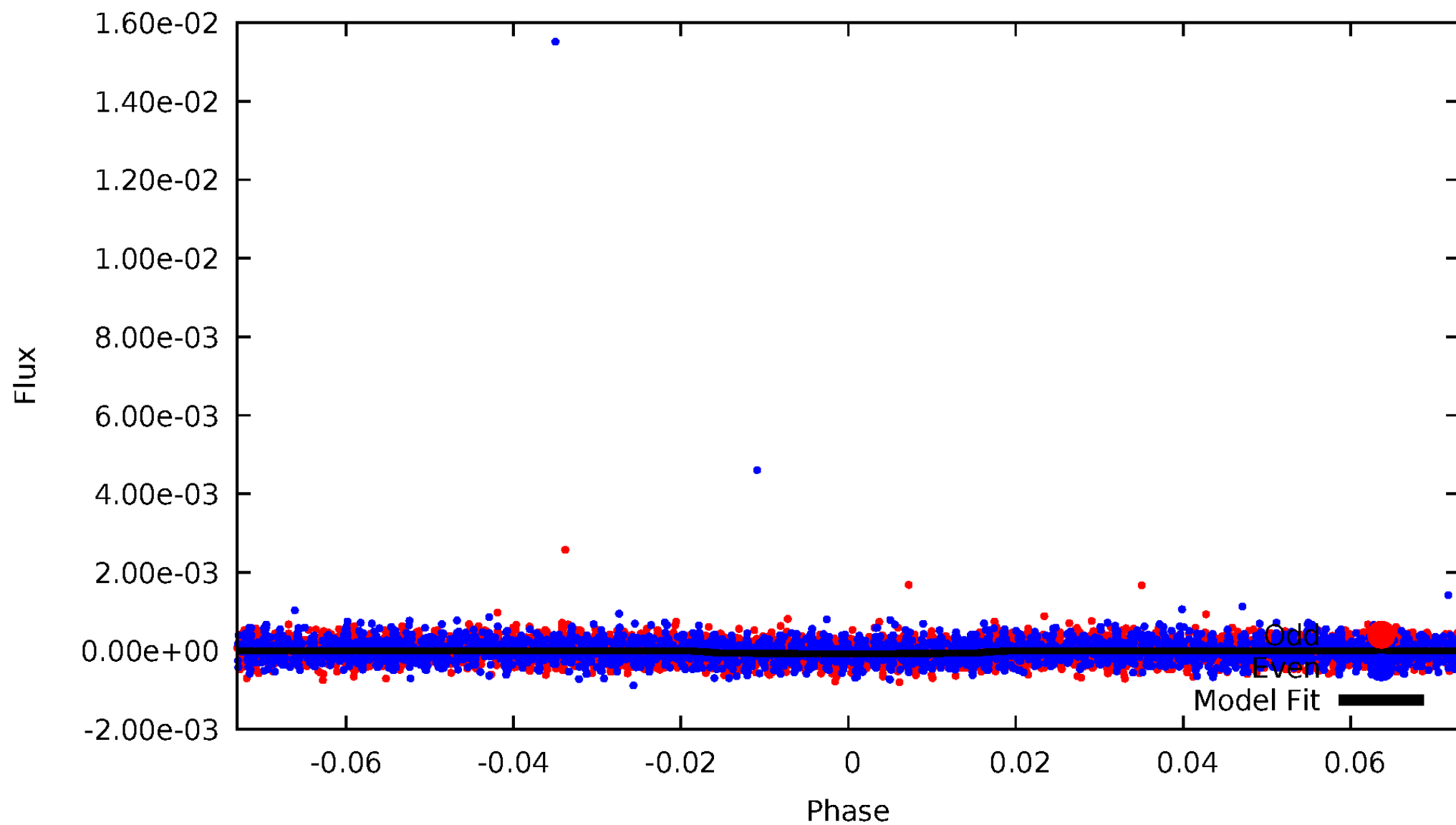


TCE 003632089-02



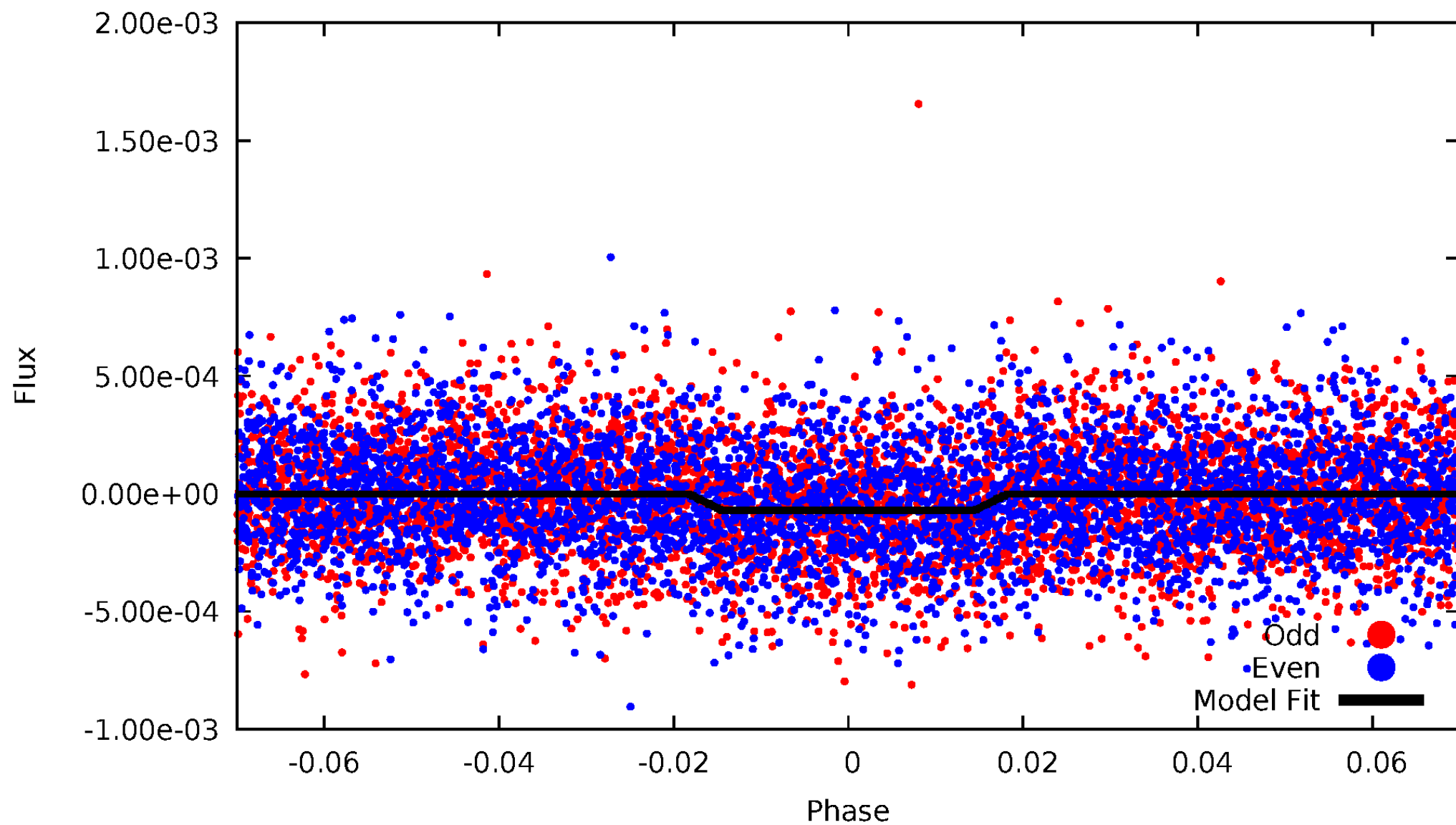
DV Odd/Even

TCE 003632089-02



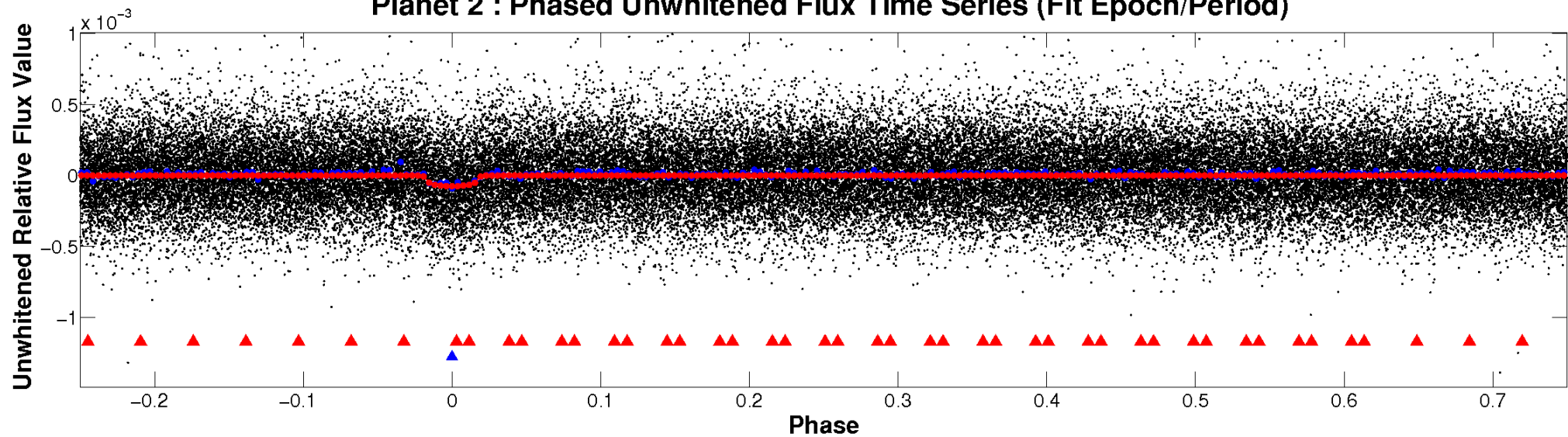
ALT Odd/Even

TCE 003632089-02

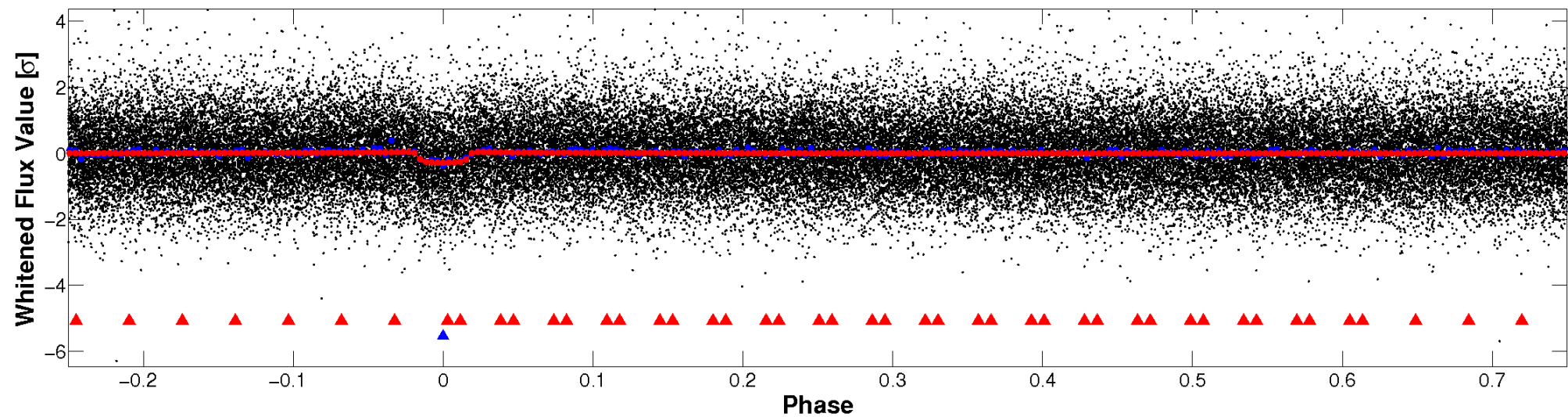


Non-Whitened Vs. Whitened Light Curve

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

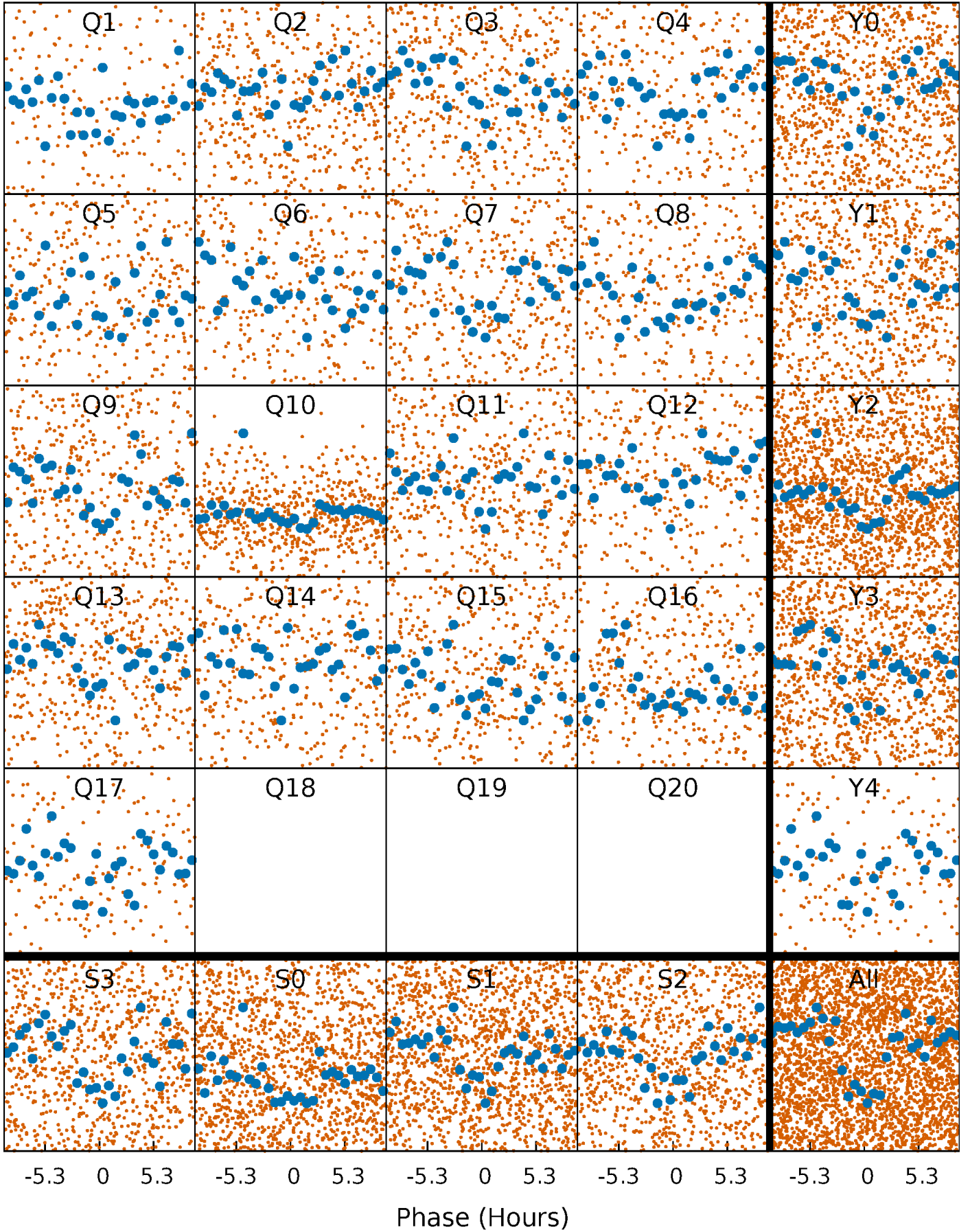


Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



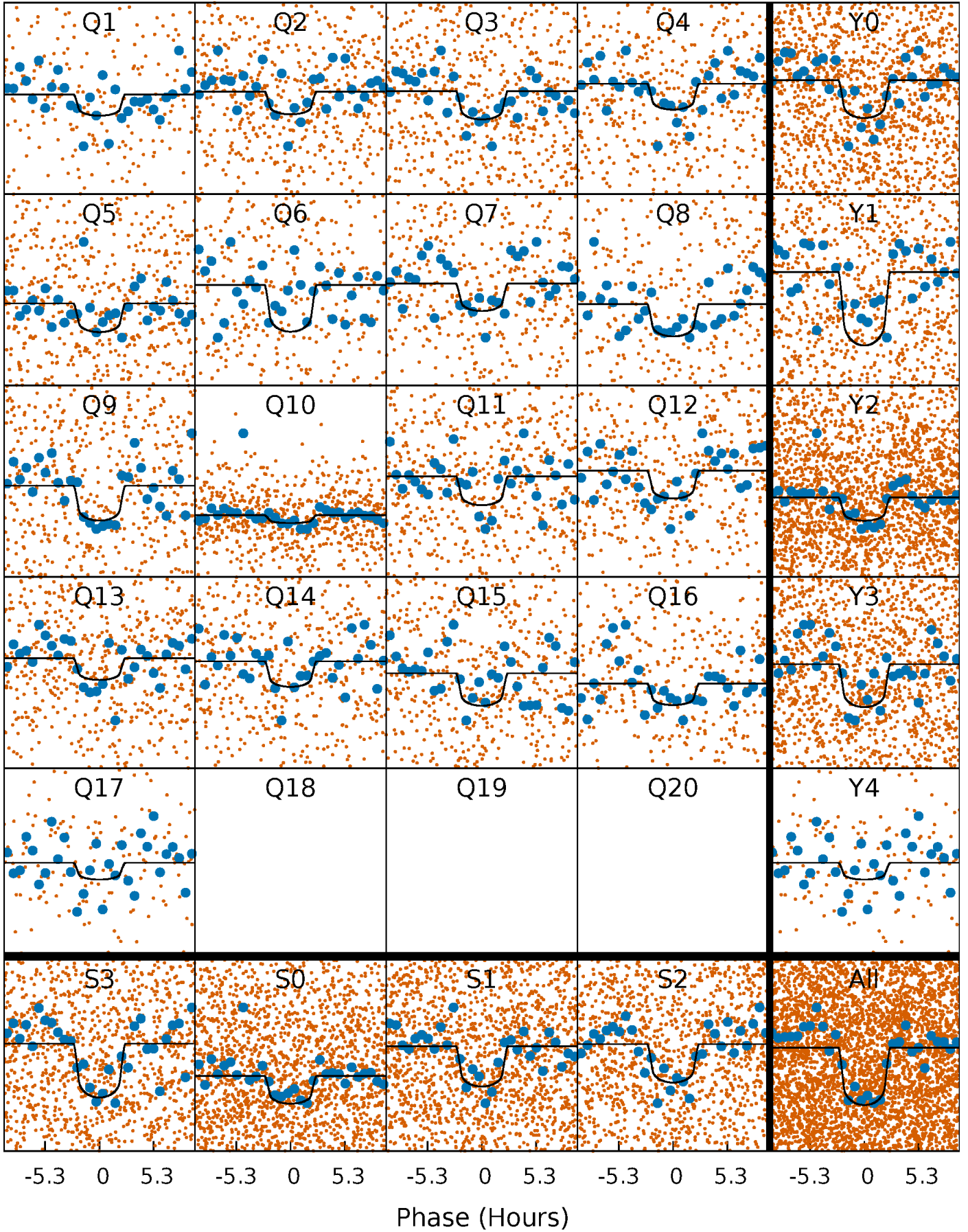
PDC Quarter-Phased Transit Curves

TCE 003632089-02 P= 5.327917 Days $T_0=133.542097$ (BKJD)



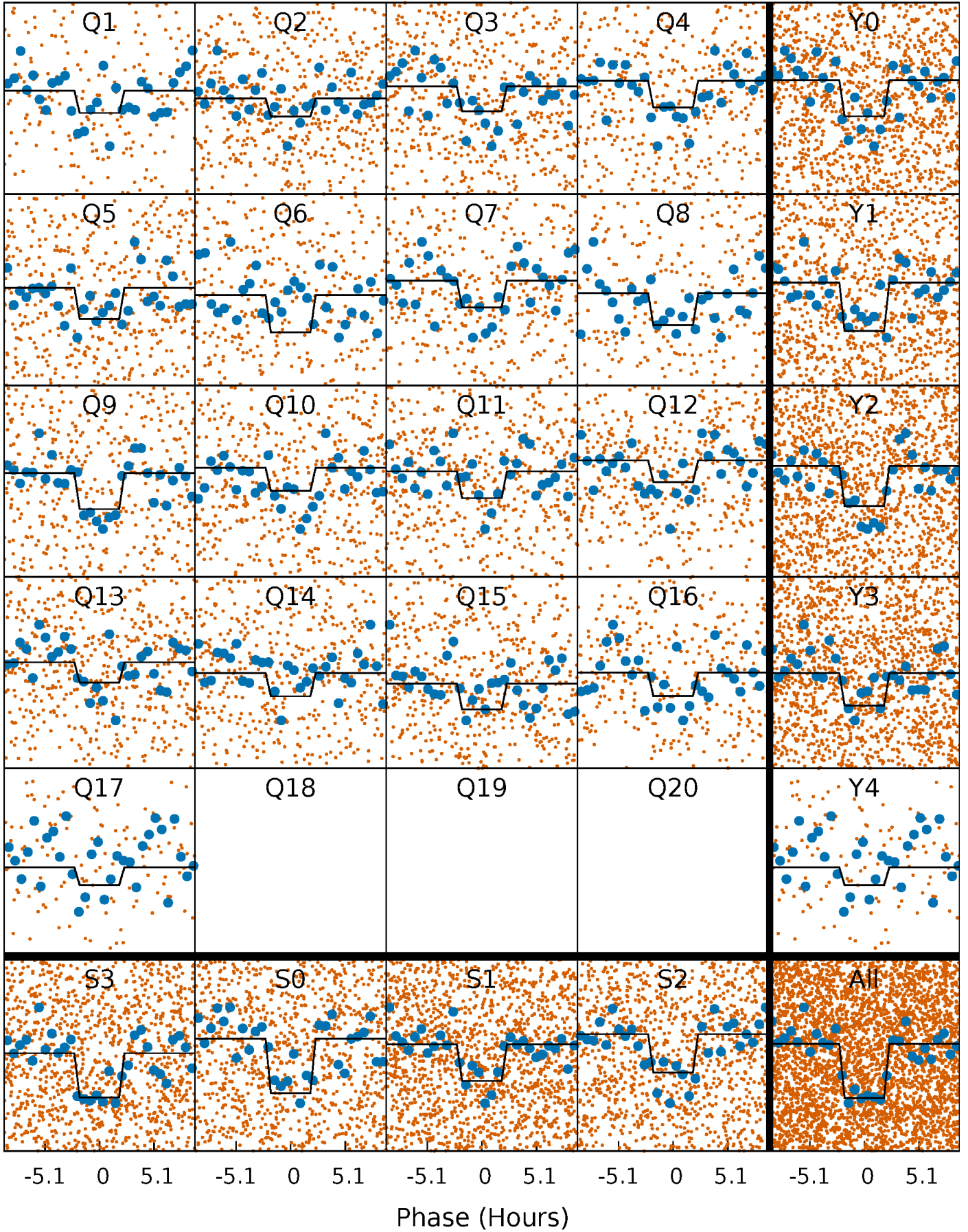
DV Quarter-Phased Transit Curves

TCE 003632089-02 P= 5.327917 Days $T_0=133.542097$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

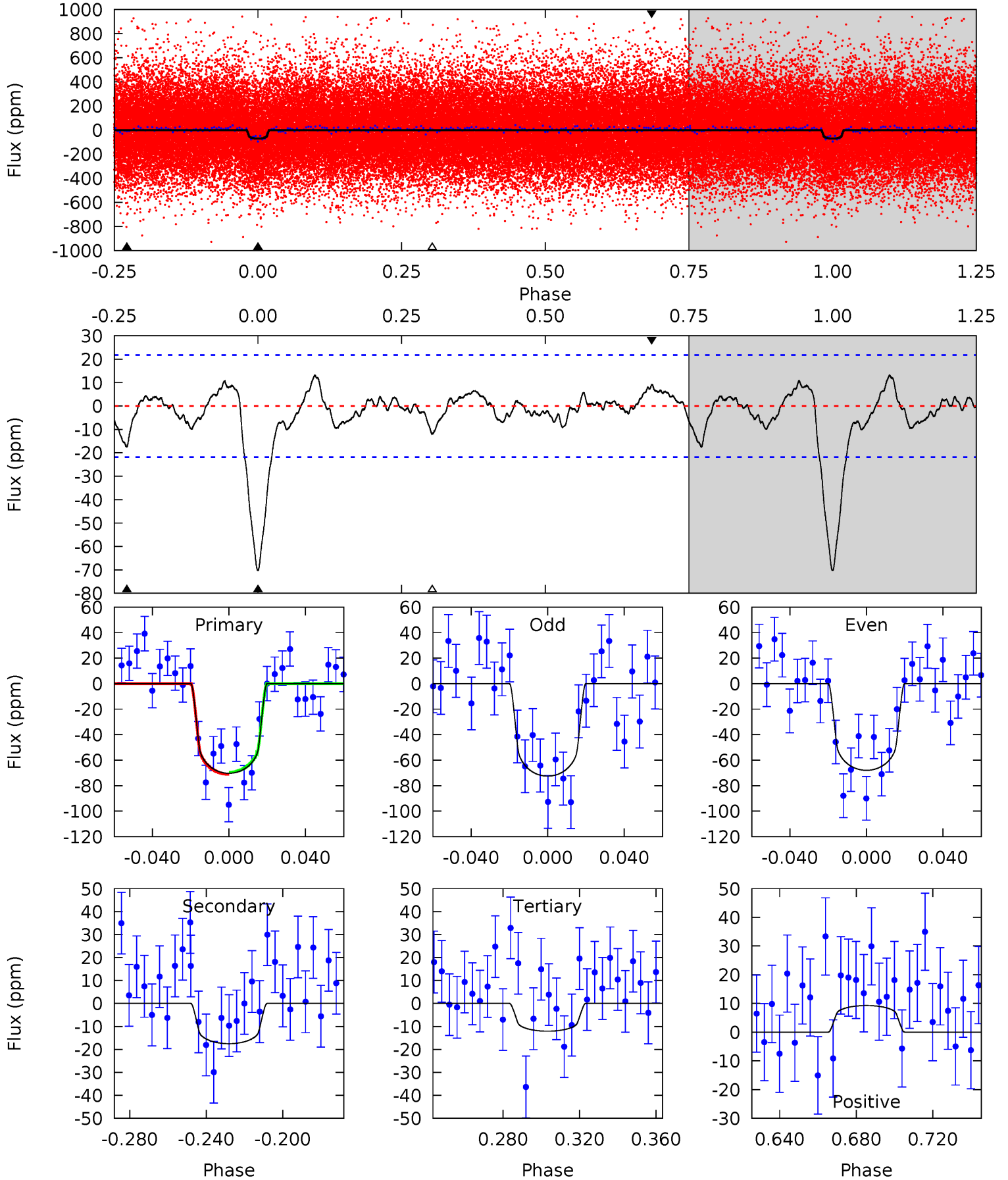
TCE 003632089-02 P= 5.327889 Days $T_0=133.543363$ (BKJD)



DV Model-Shift Uniqueness Test

003632089-02, P = 5.327917 Days, E = 128.214180 Days

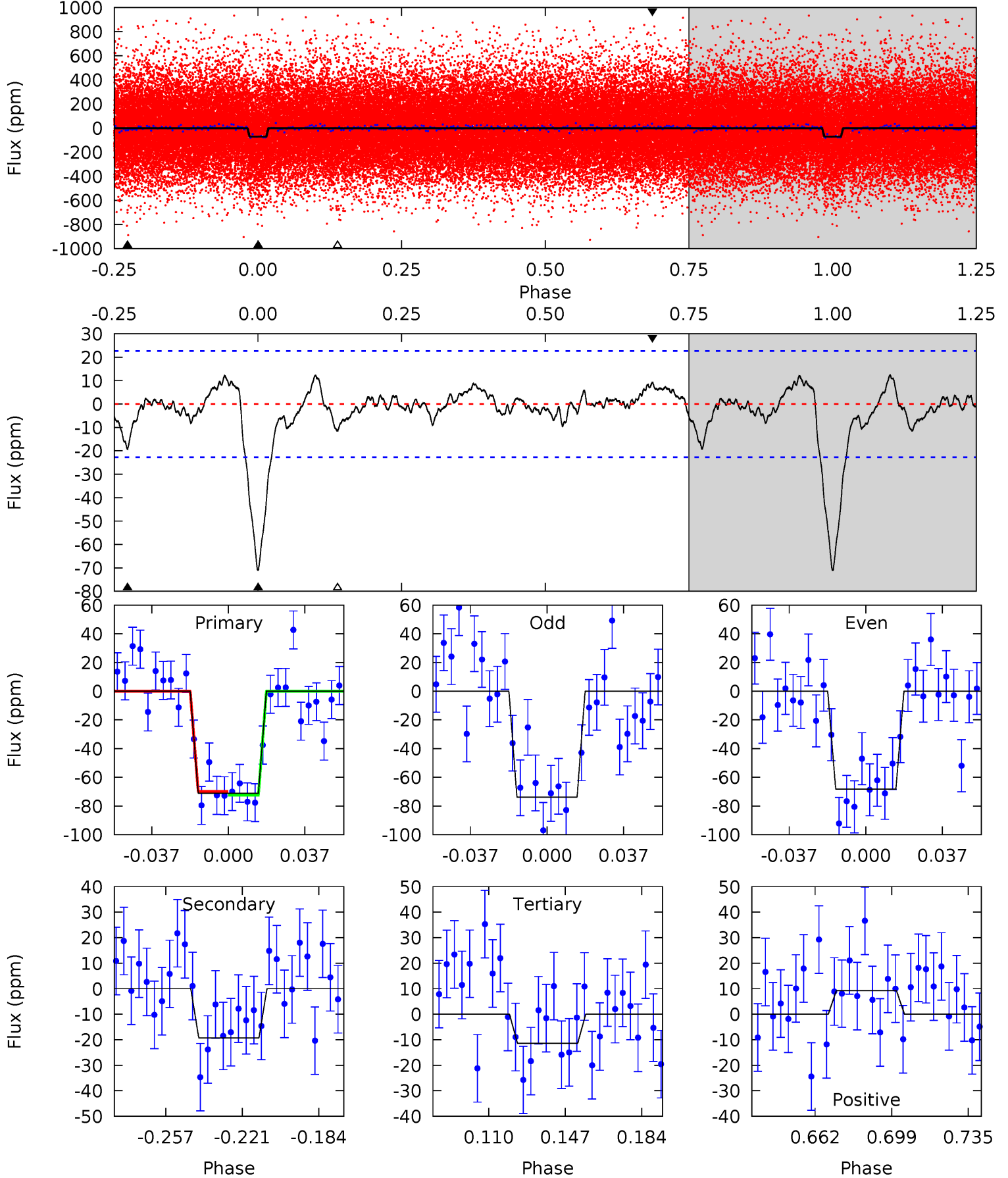
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
15.3	3.82	2.63	2.02	4.75	2.05	1.06	12.7	13.3	1.19	1.80	0.50	0.89	0.16	0.17



Alt Model-Shift Uniqueness Test

003632089-02, P = 5.327889 Days, E = 128.215474 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
14.9	4.05	2.40	1.93	4.77	2.09	0.98	12.5	13.0	1.66	2.12	0.58	0.93	0.15	0.28



Stellar Parameters For KIC 003632089

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	5638^{+152}_{-152}	$4.391^{+0.171}_{-0.209}$	$-0.420^{+0.350}_{-0.300}$	$0.928^{+0.252}_{-0.168}$	$0.773^{+0.124}_{-0.053}$	$1.361^{+1.088}_{-0.695}$
	+3%/-3%	+4%/-5%	+83%/-71%	+27%/-18%	+16%/-7%	+80%/-51%
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 003632089-02 / KOI 3308.02

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	-18 ± 5	$0.98^{+0.44}_{-0.39}$	1437^{+112}_{-93}	4032^{+808}_{-472}	30^{+52}_{-17}
Alt.	-19 ± 5	$0.85^{+0.42}_{-0.36}$	1439^{+109}_{-91}	4349^{+1138}_{-607}	46^{+93}_{-26}

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 $A_{obs} \gg 1.0$

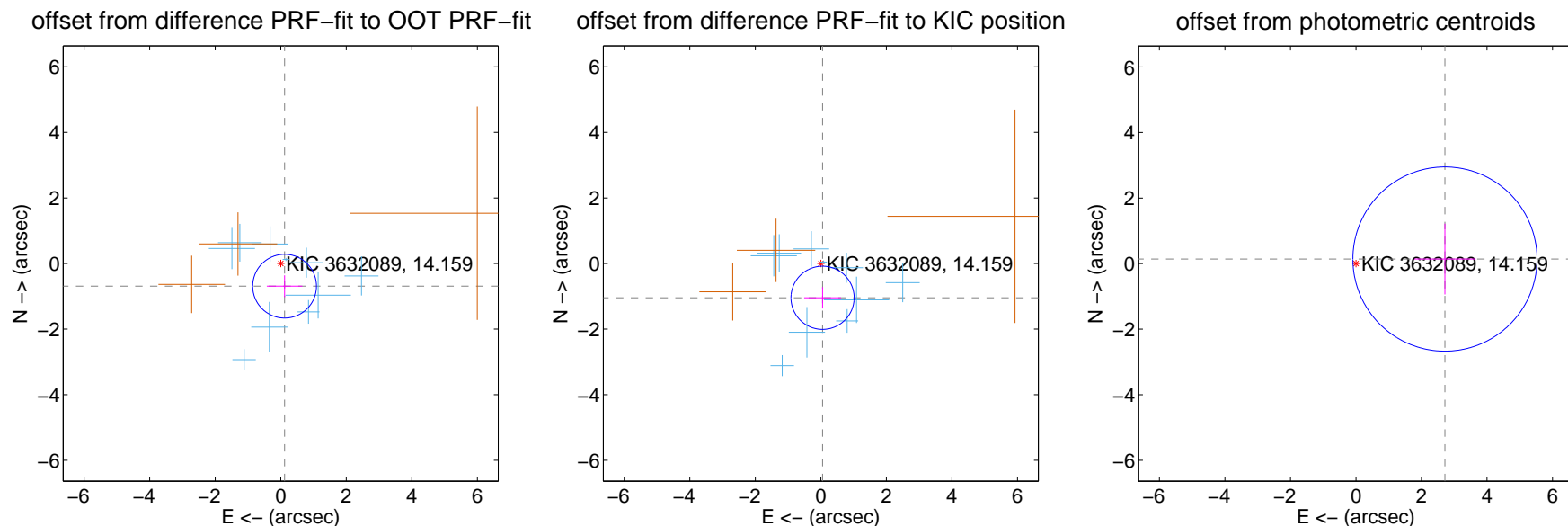
DV Centroid Data

Supplemental centroid analysis for 003632089-02. Kepler magnitude: 14.16. Transit SNR 11.58

There are 10 quarters with good PRF difference image offsets

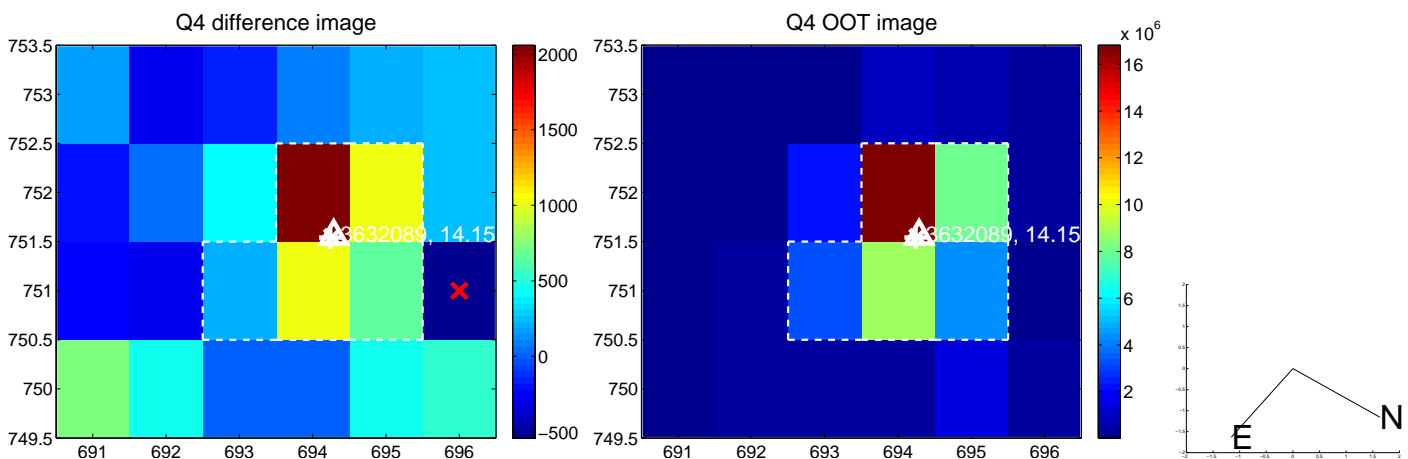
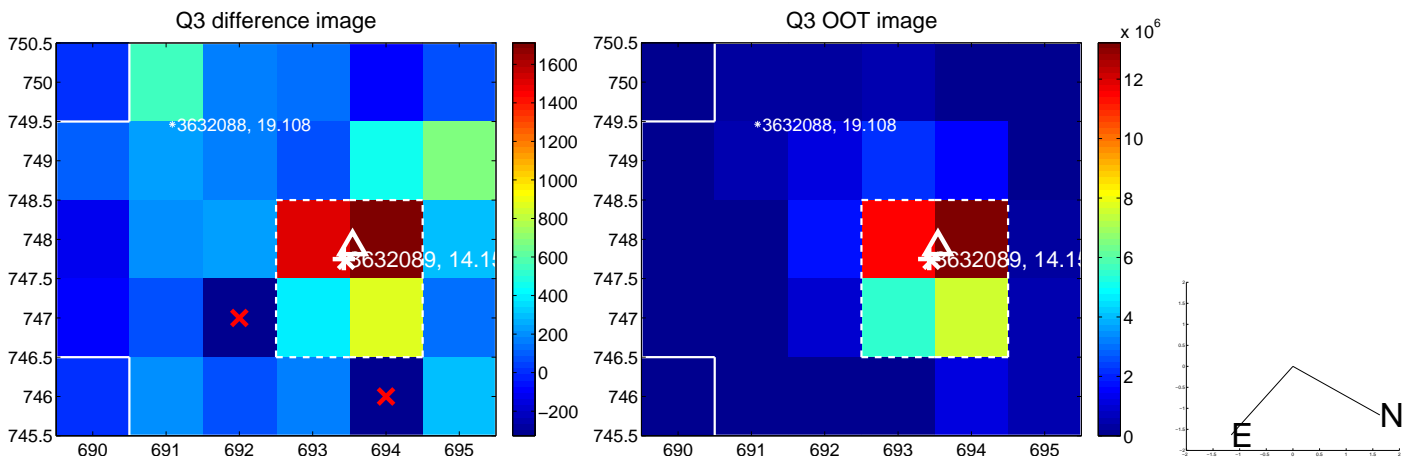
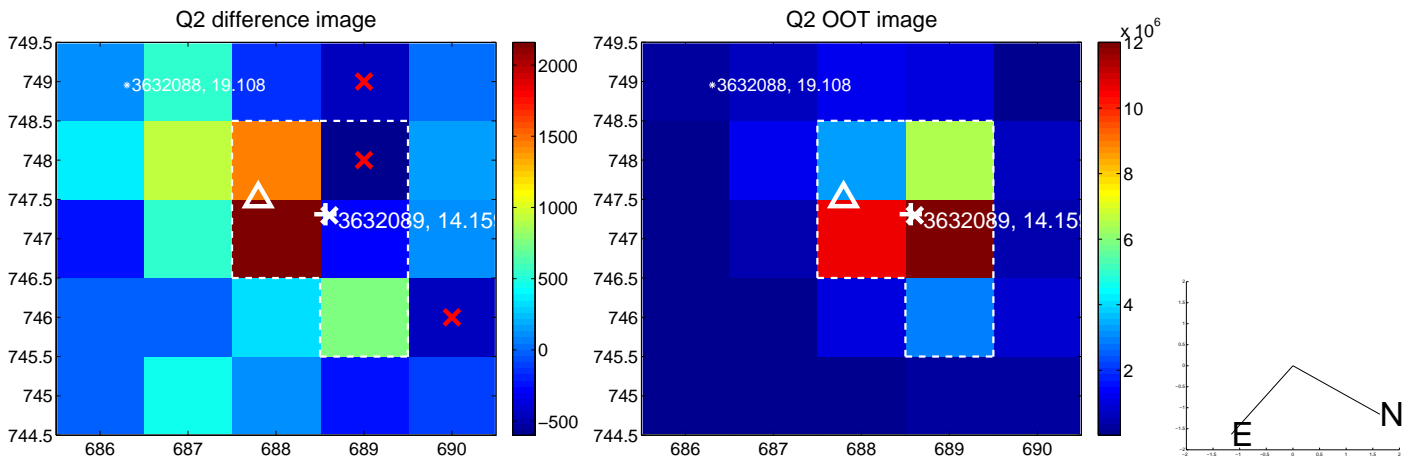
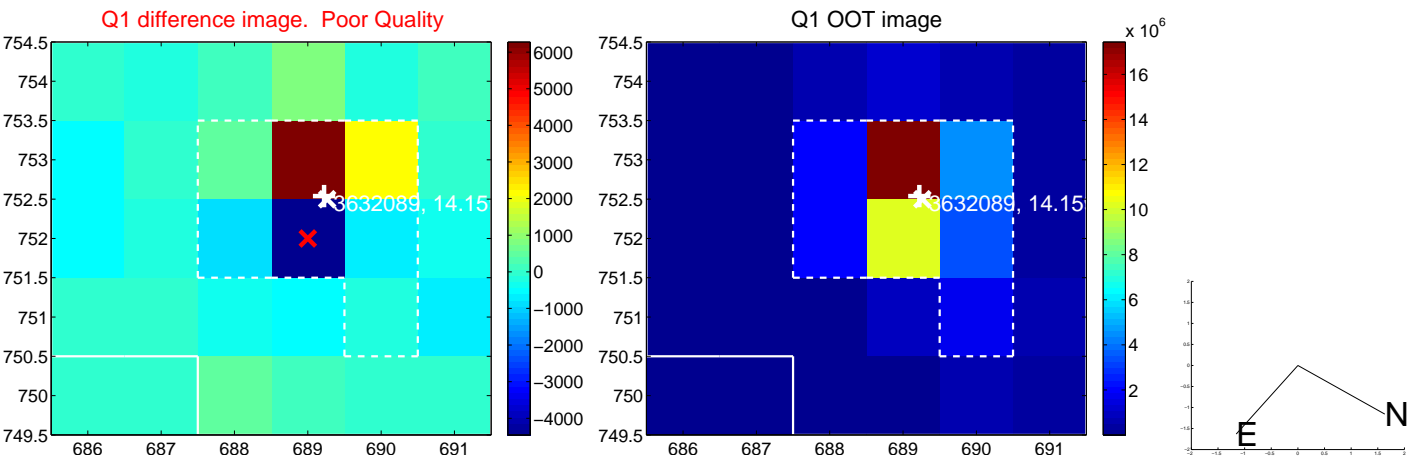
The direct PRF centroid is offset from the target star catalog position by about 0.18 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.700 ± 0.324	2.16	-0.117 ± 0.541	-0.690 ± 0.331
PRF-fit source offset from KIC position	1.046 ± 0.321	3.26	-0.052 ± 0.562	-1.045 ± 0.326
photometric centroid source offset	2.72 ± 0.94	2.90	-2.72 ± 0.94	0.14 ± 1.08

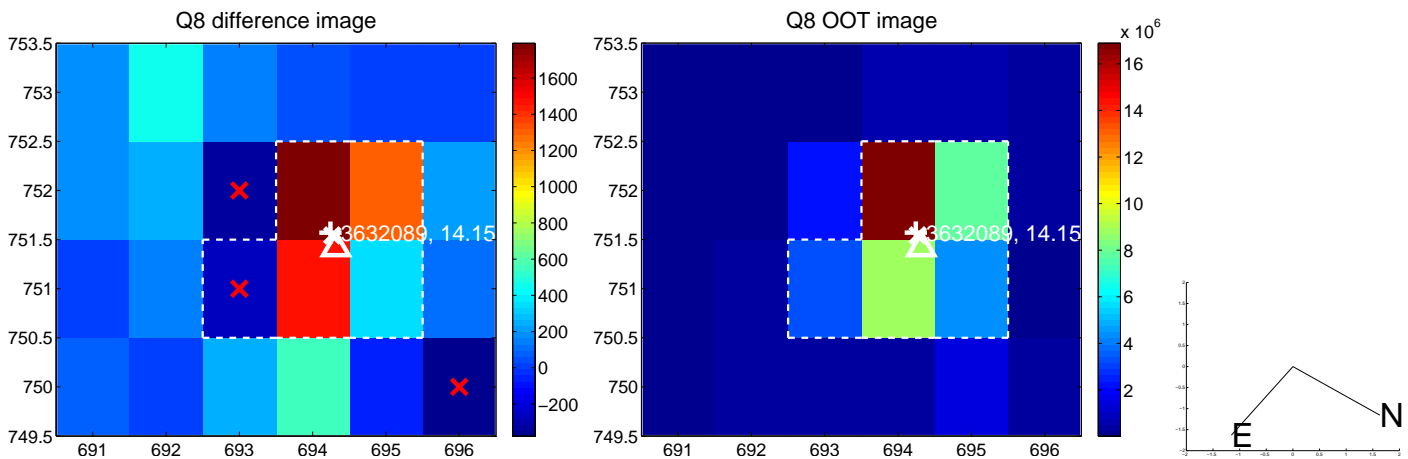
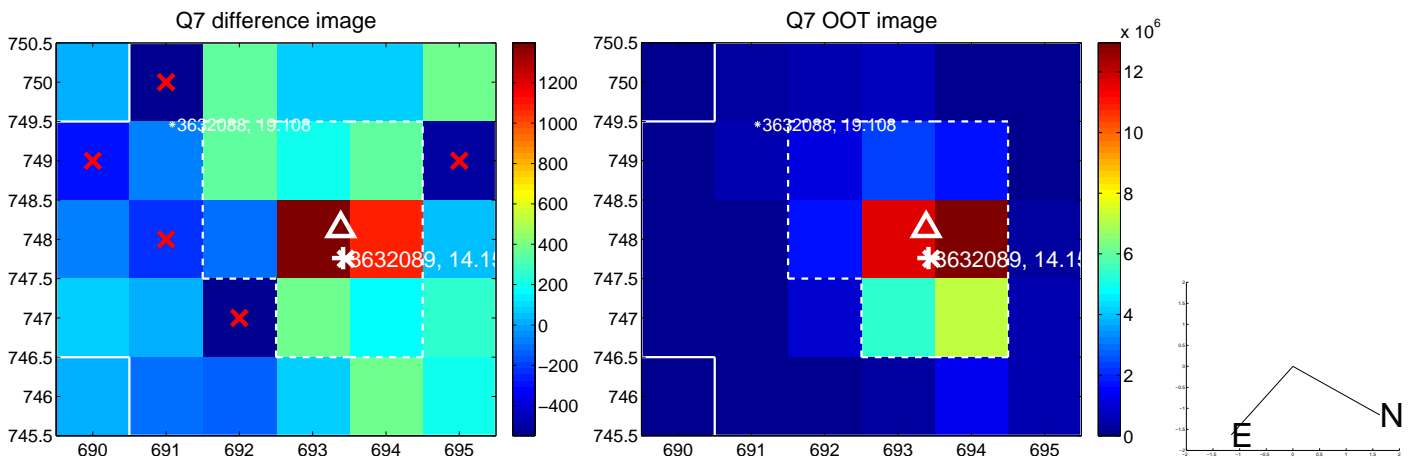
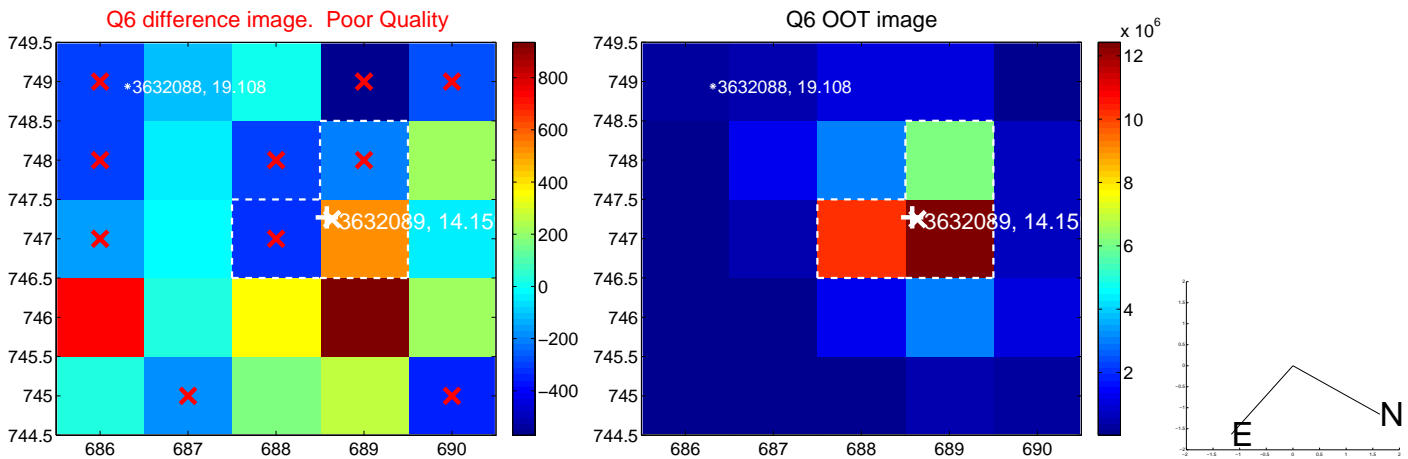
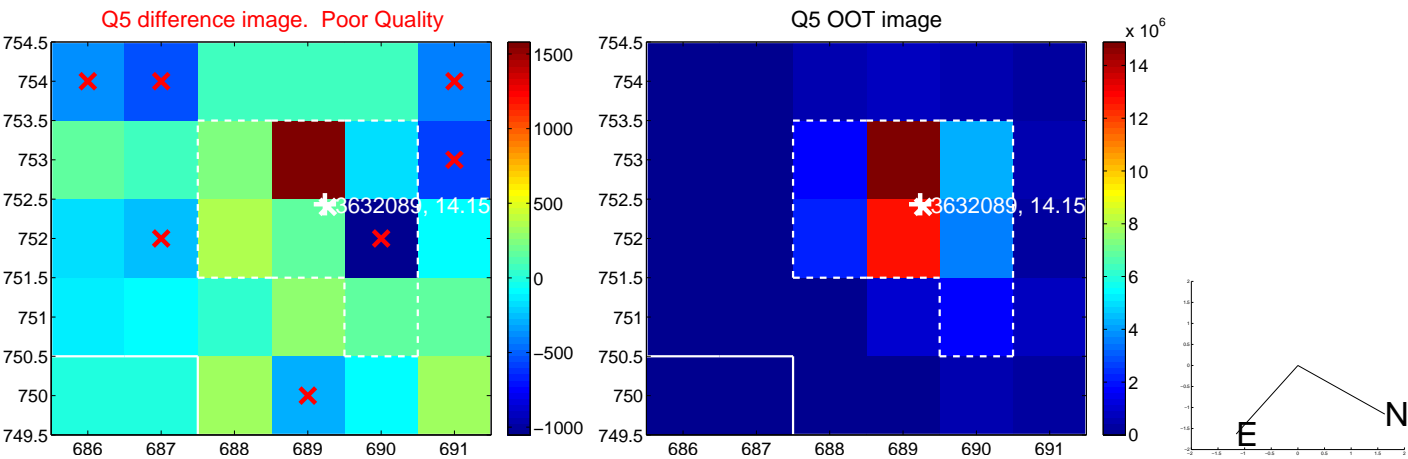


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

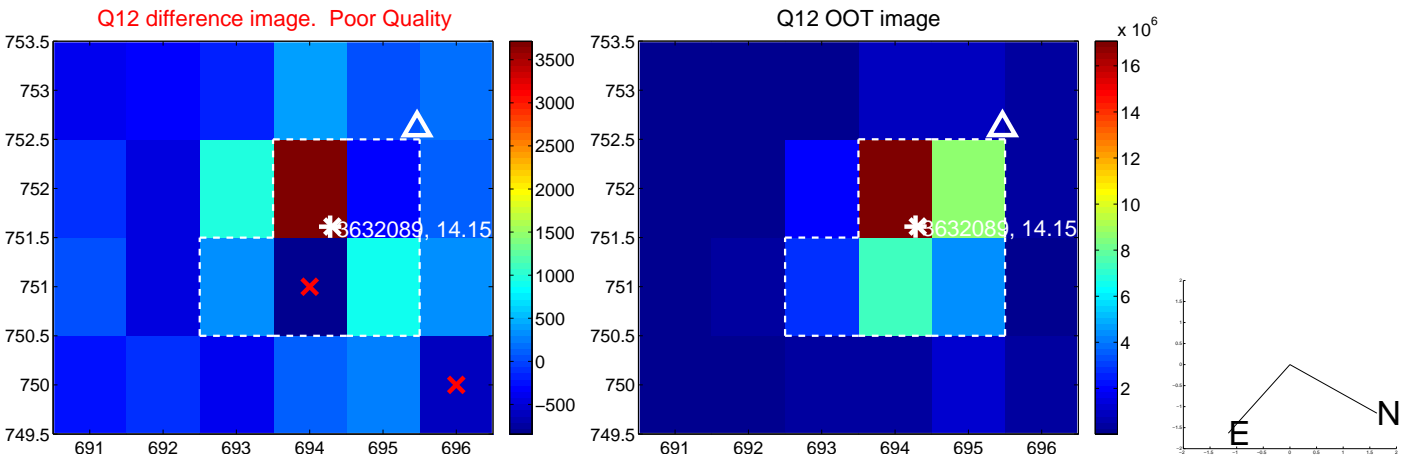
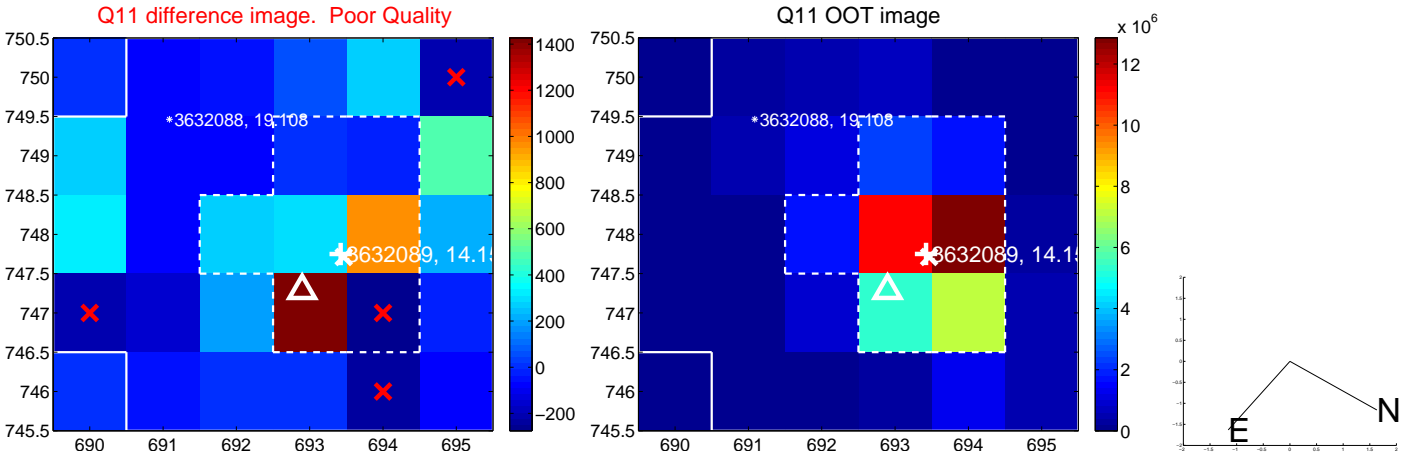
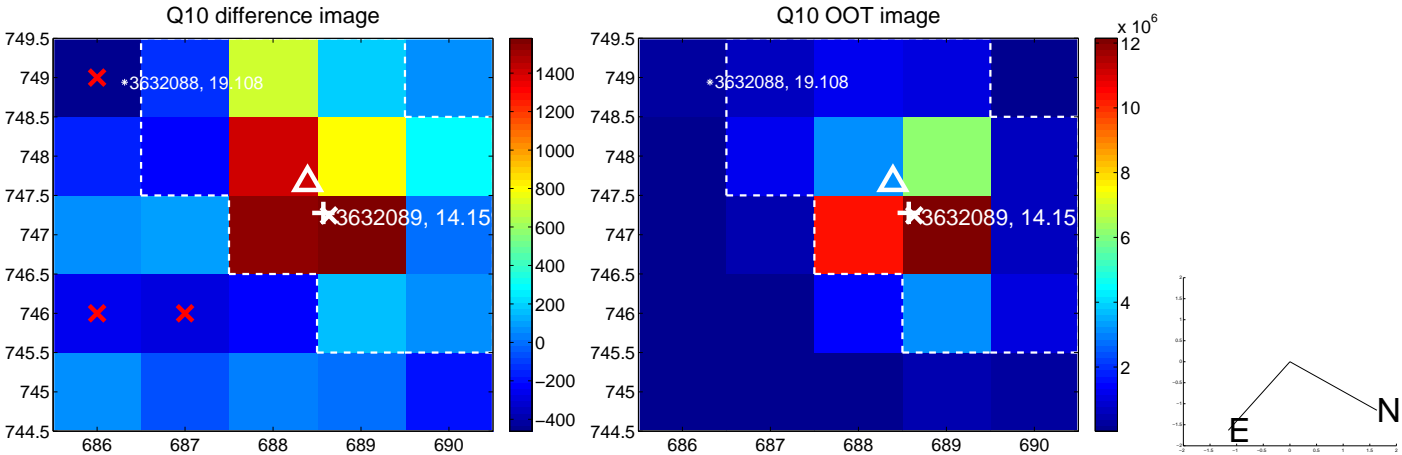
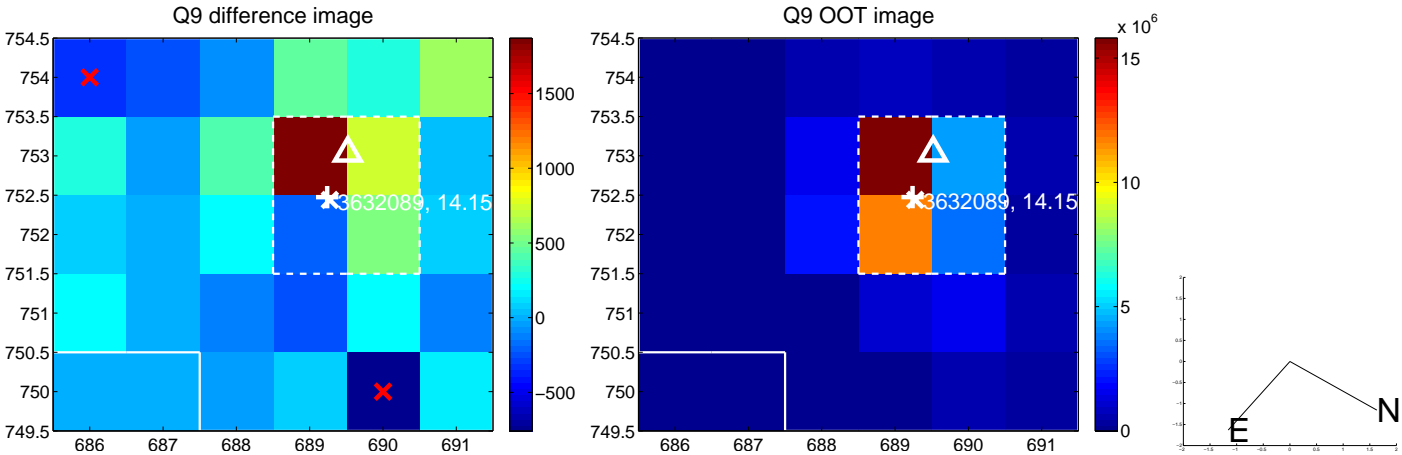
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



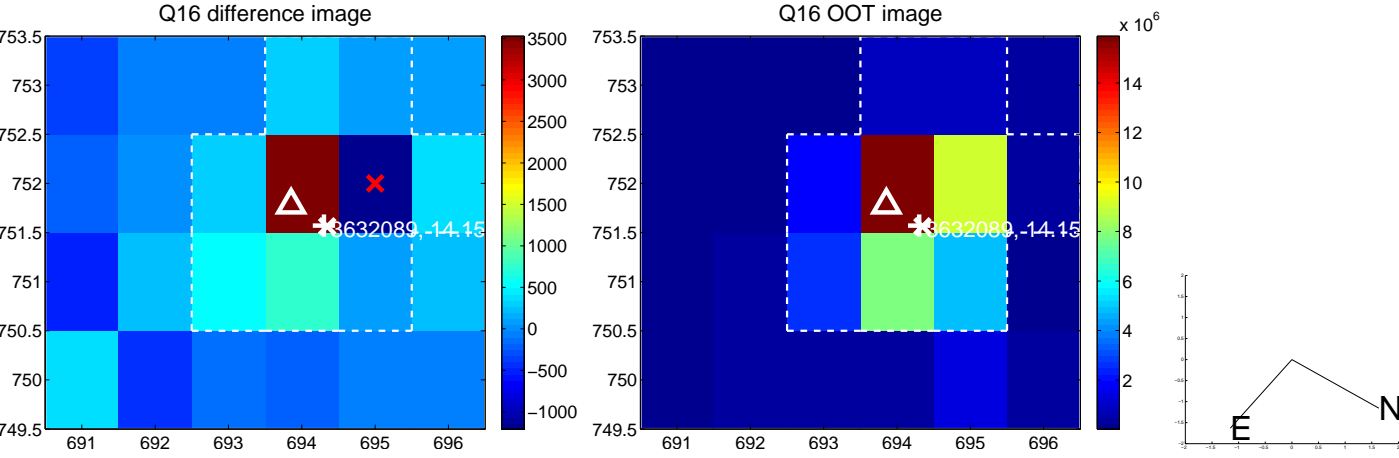
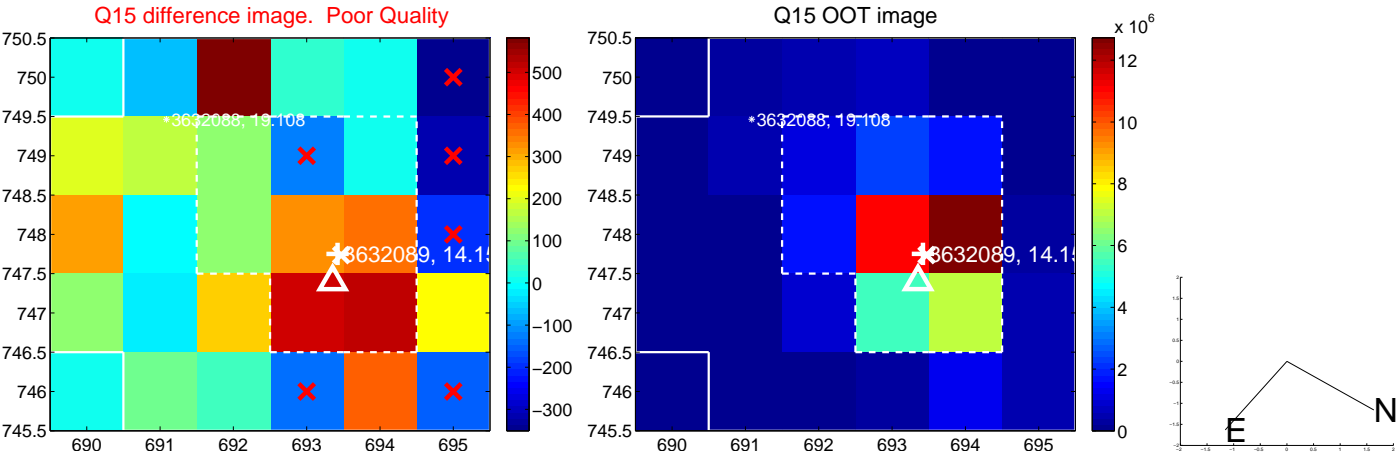
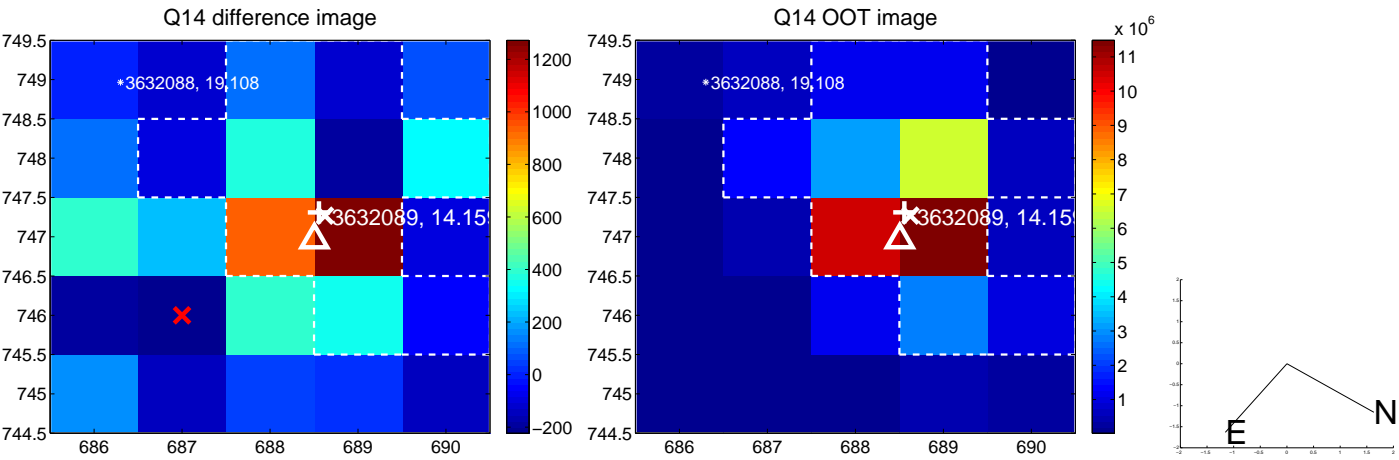
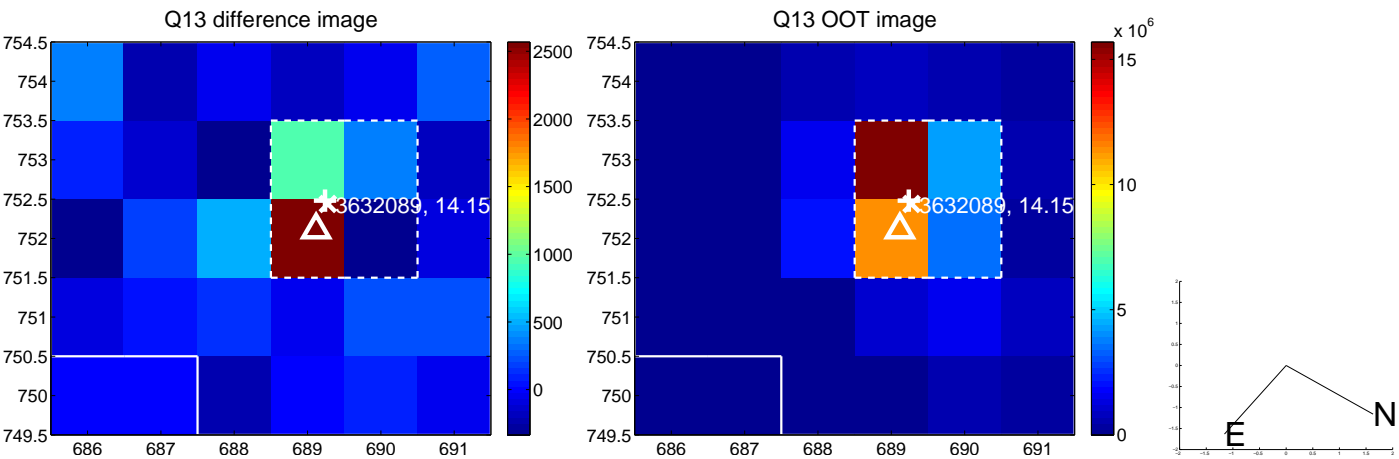
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



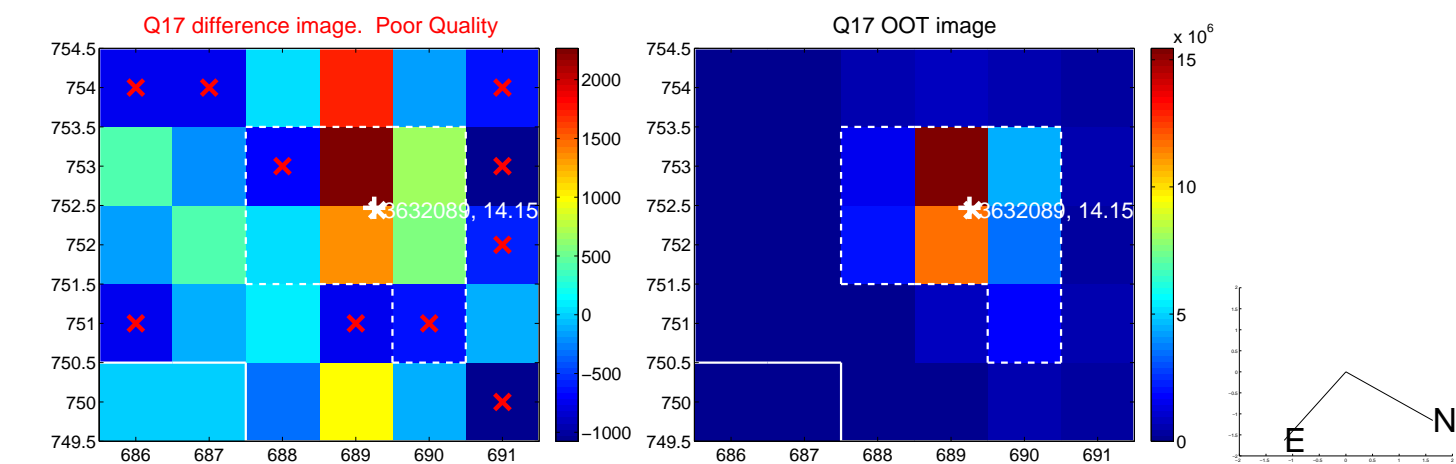
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



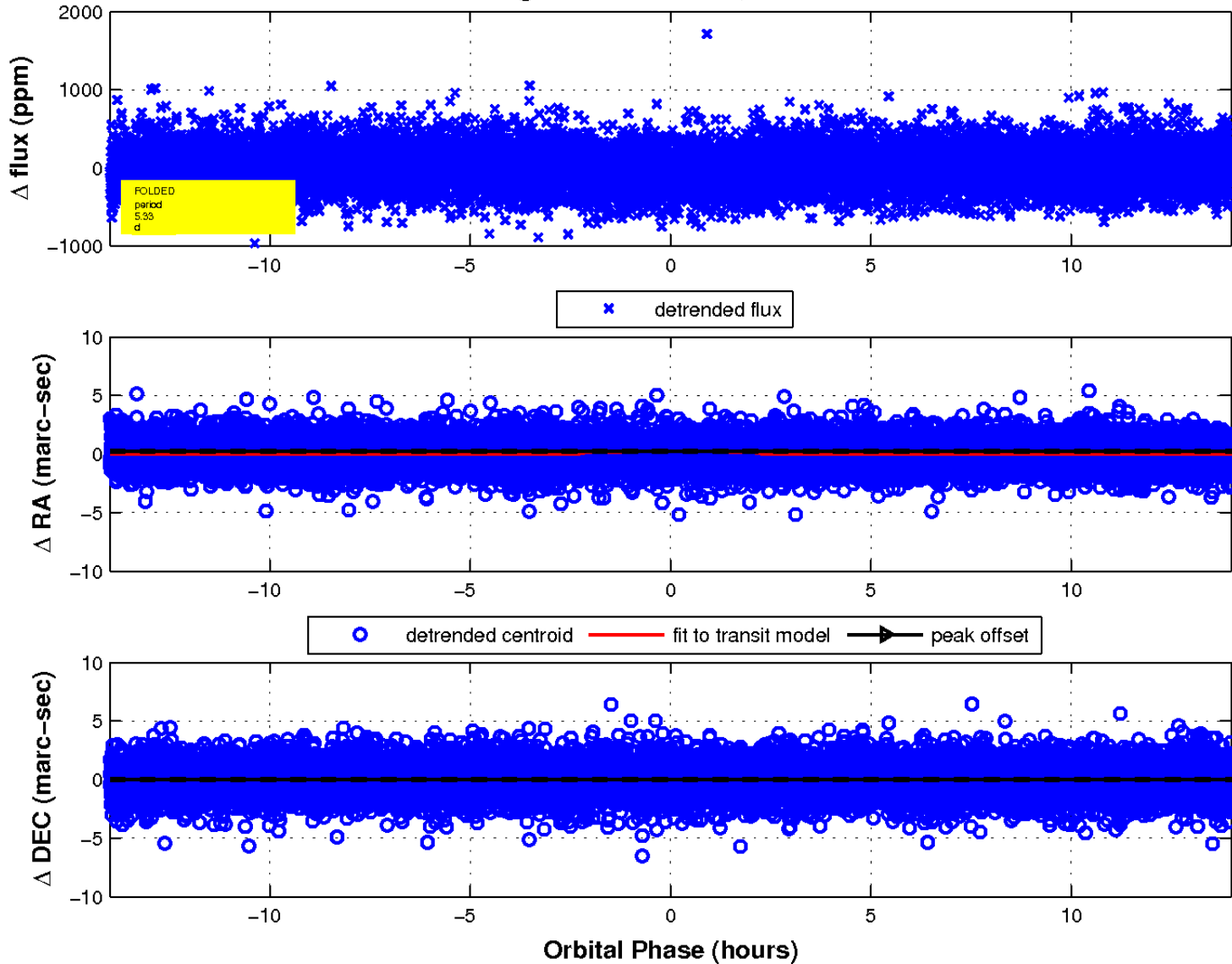
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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



fluxWeightedCentroids, Planet 2 of 2



UKIRT Image

Declination

