

KIC 005211199

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})
005211199-01	OBS	2158.01	4.562034	132.643526	84.4	2.815	20.3	22.2	2.51	5343	2.76	1307.61
005211199-02	OBS	2158.02	6.682358	132.187406	48.5	3.342	10.1	11.1	2.51	5343	2.12	786.05

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
005211199-01	OBS	PC	0.94	0	0	0	0	NO_COMMENT
005211199-02	OBS	PC	1.00	0	0	0	0	NO_COMMENT

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

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

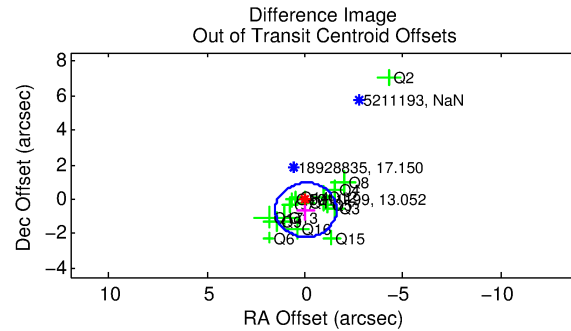
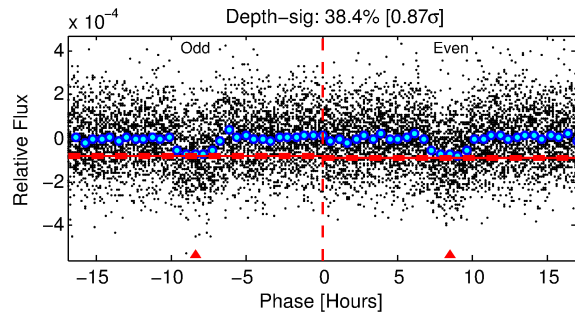
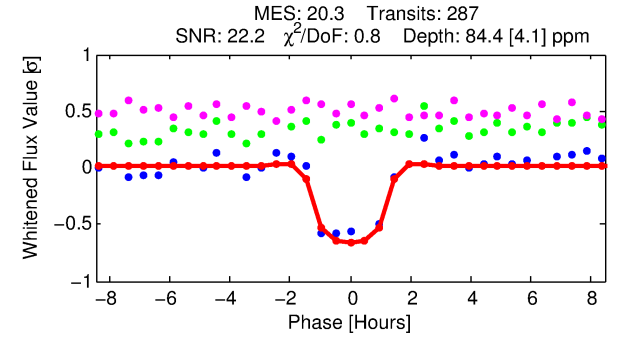
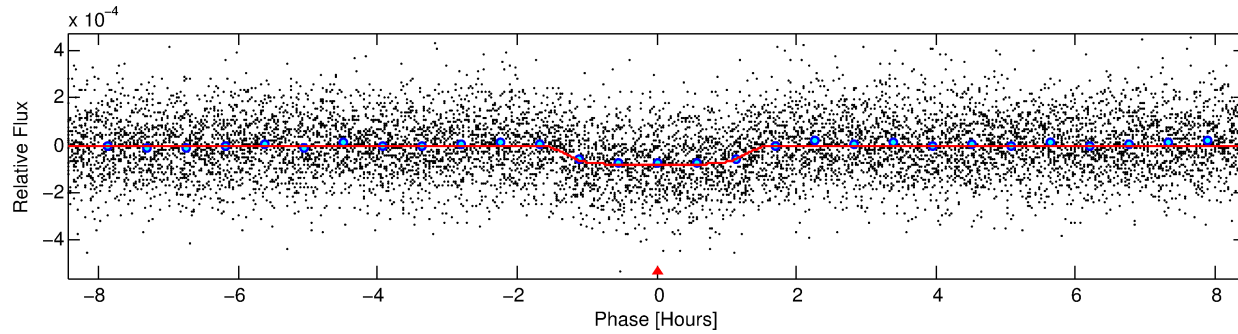
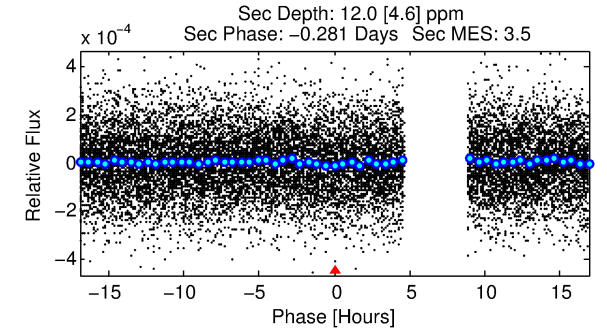
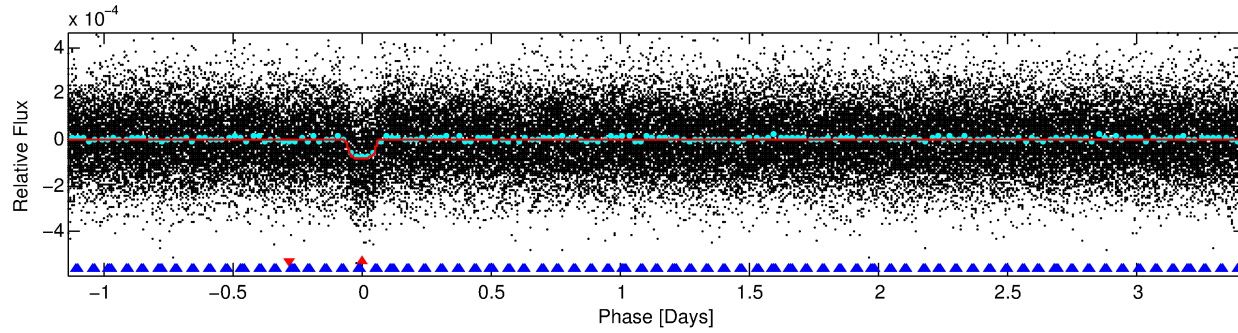
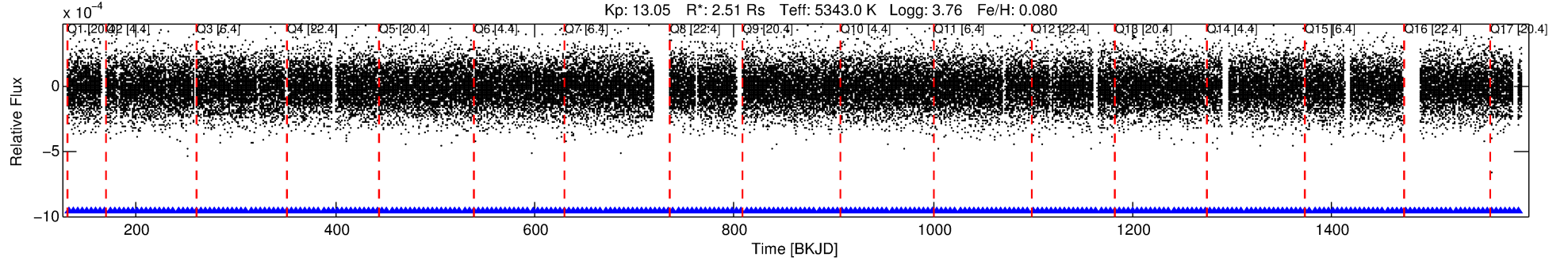
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 005211199-01

No Significant Match Found

DV One-Page Summary

KIC: 5211199 Candidate: 1 of 2 Period: 4.562 d
KOI: K02158.01 Corr: 0.990



DV Fit Results:

Period = 4.56203 [0.00001] d
Epoch = 132.6435 [0.0022] BKJD
Rp/R* = 0.0101 [0.0036]
a/R* = 5.87 [8.84]
b = 0.89 [0.35]
Seff = 1307.61 [571.61]
Teq = 1533 [168] K
Rp = 2.76 [1.37] Re
a = 0.0592 [0.0175] AU
Ag = 3.03 [2.78] [0.73σ]
Teffp = 3128 [636] K [2.42σ]

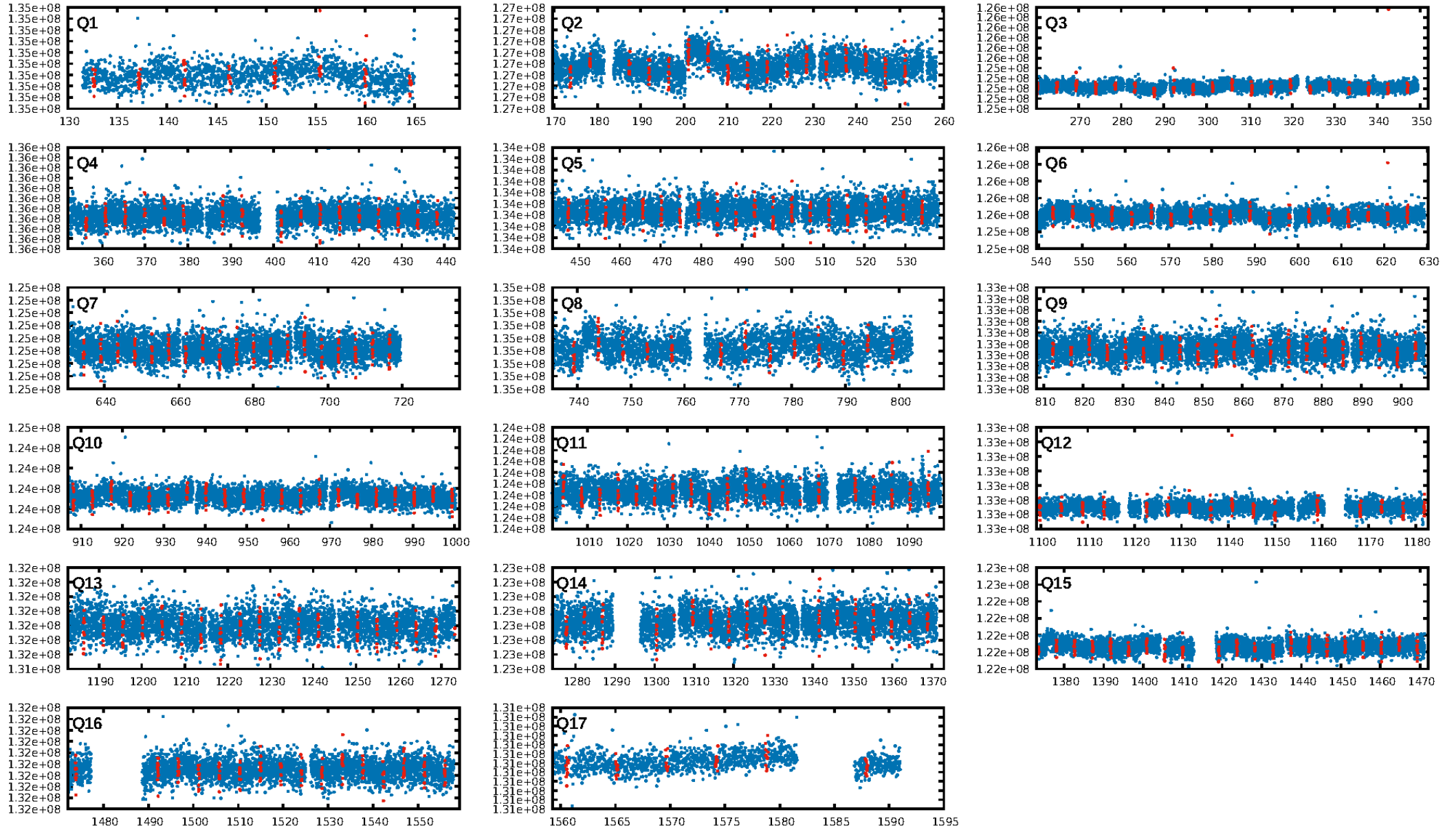
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: 100.0% [11.65σ]
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: 2.38e-88
RollingBand-fgt: 1.00 [273/273]
GhostDiagnostic-chr: 4.394
Centroid-sig: 1.2%
Centroid-so: 1.279 arcsec [1.79σ]
OotOffset-rm: 0.625 arcsec [1.20σ]
KicOffset-rm: 0.968 arcsec [2.20σ]
OotOffset-st: 4/4/4/4 [16]
KicOffset-st: 4/4/4/4 [16]
DiffImageQuality-fgm: 0.94 [15/16]
DiffImageOverlap-fno: 1.00 [17/17]

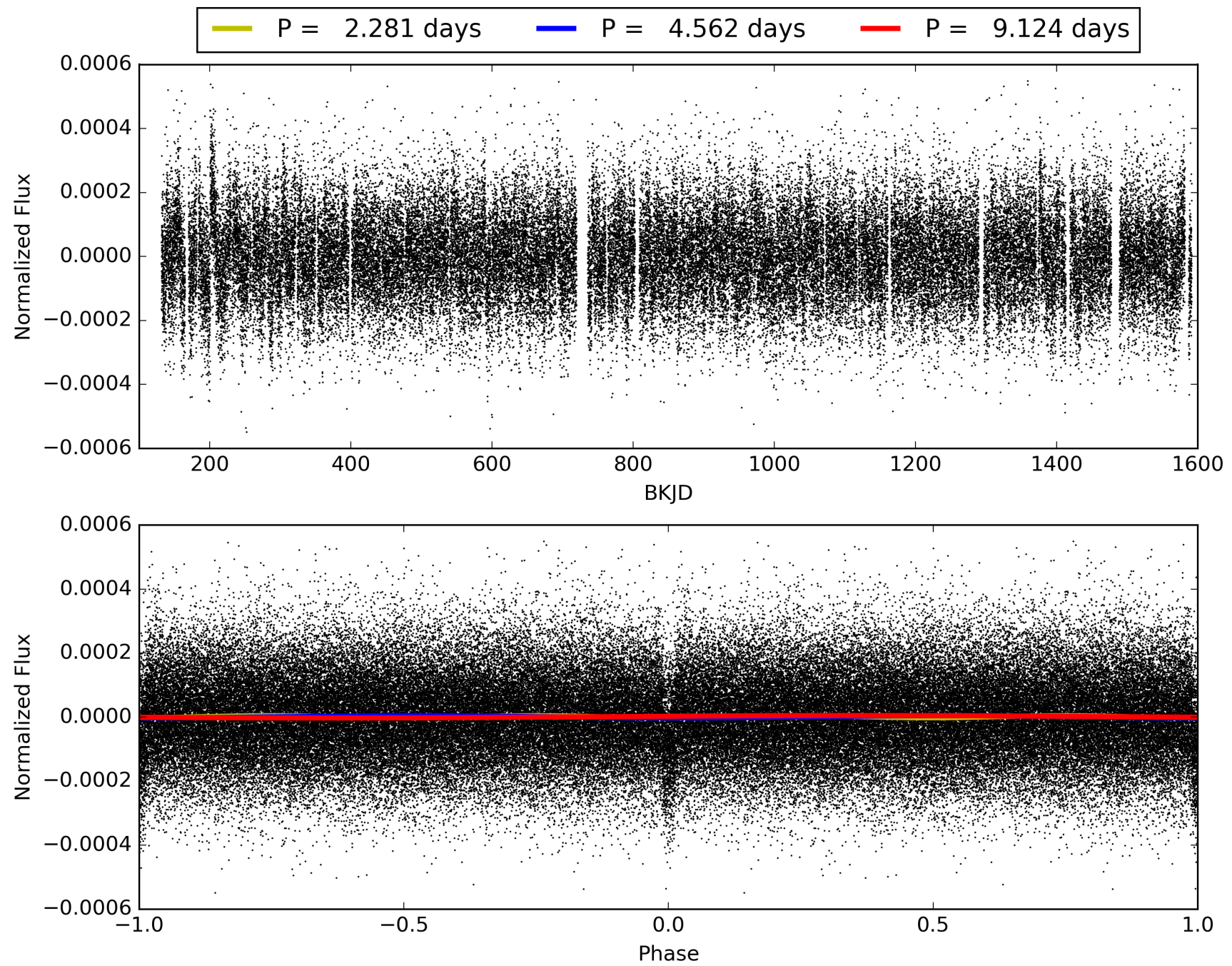
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 29-Jan-2016 12:27:46 Z

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

TCE 005211199-01, PDC Light Curves

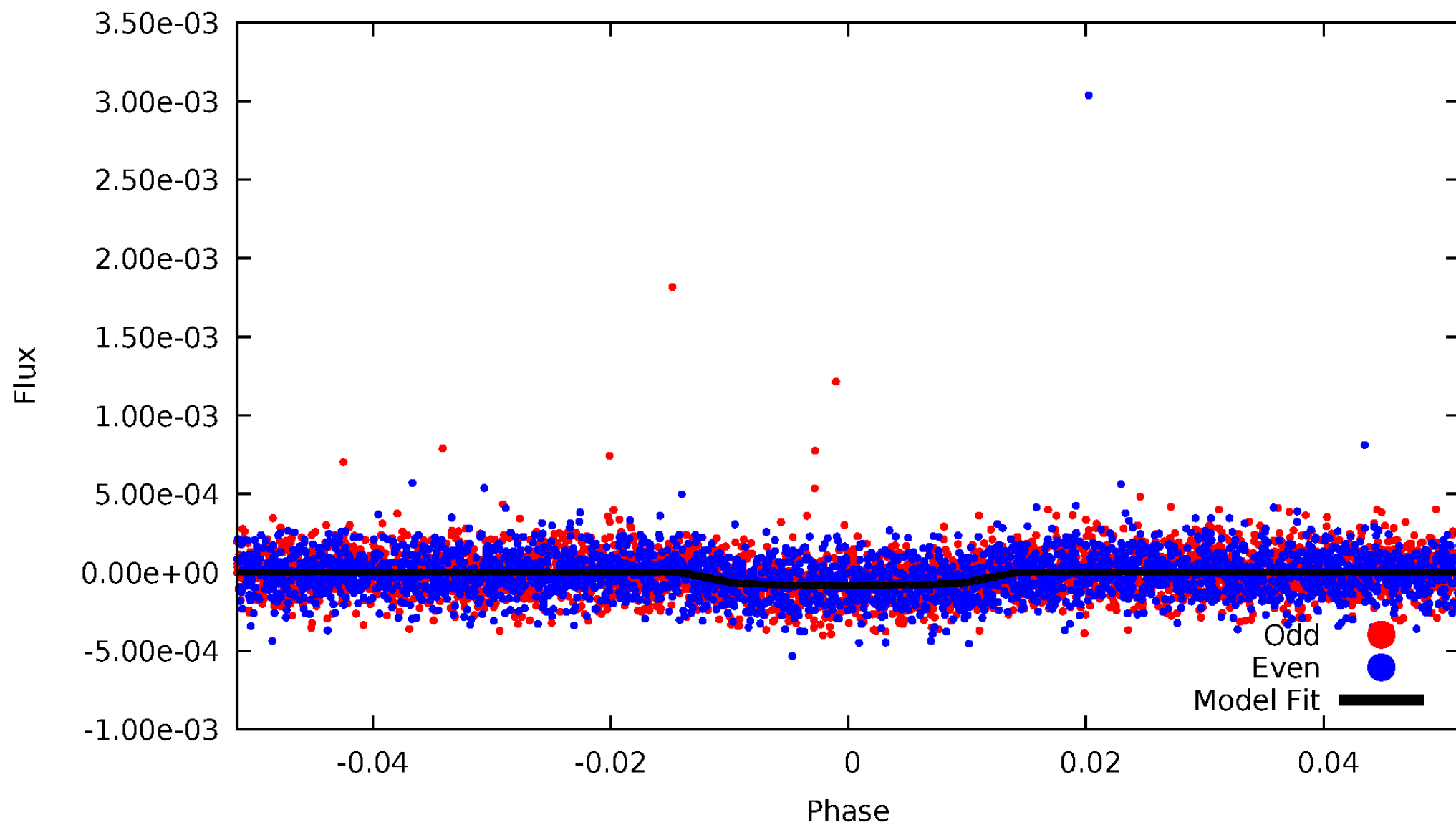


TCE 005211199-01



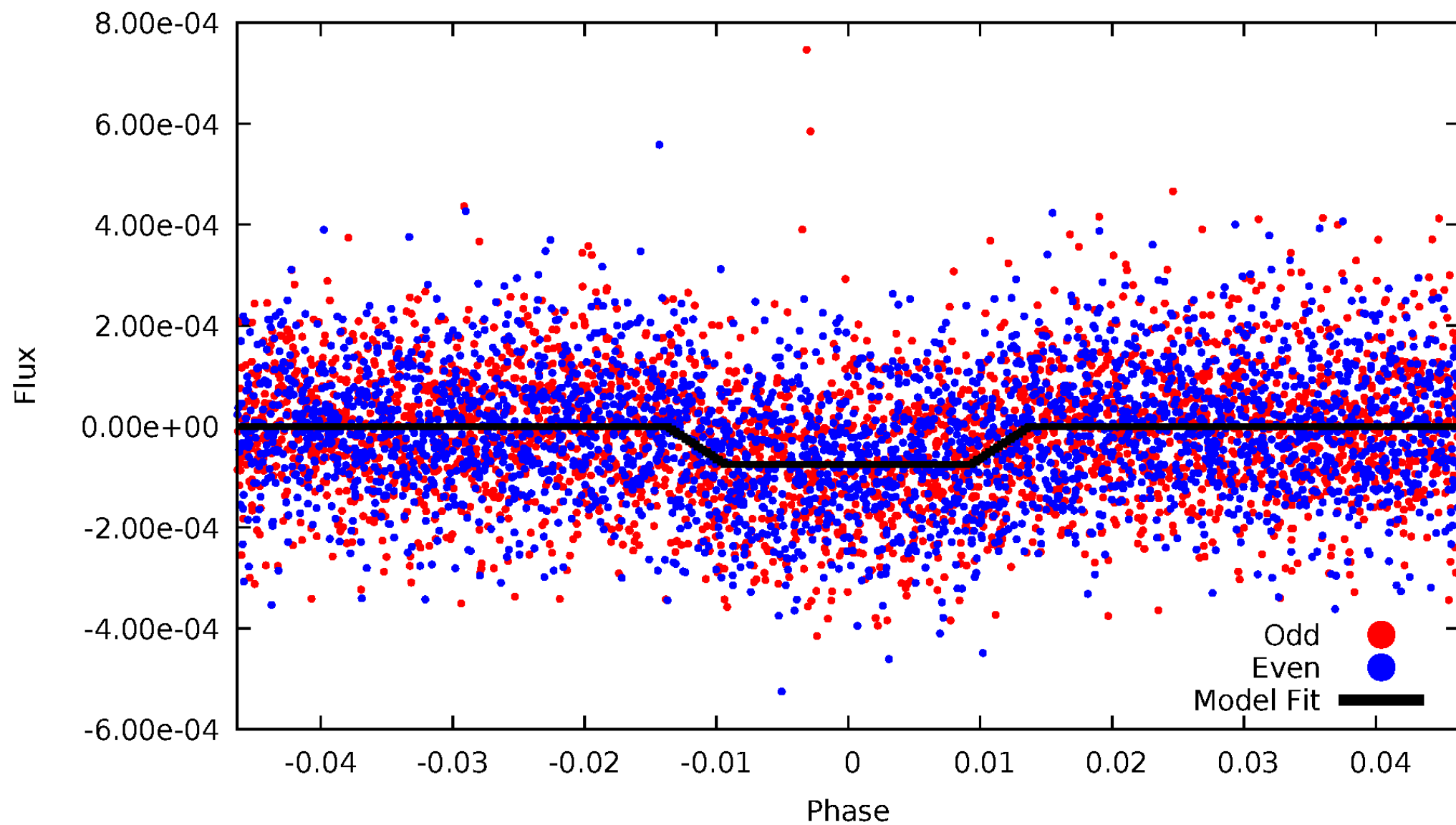
DV Odd/Even

TCE 005211199-01



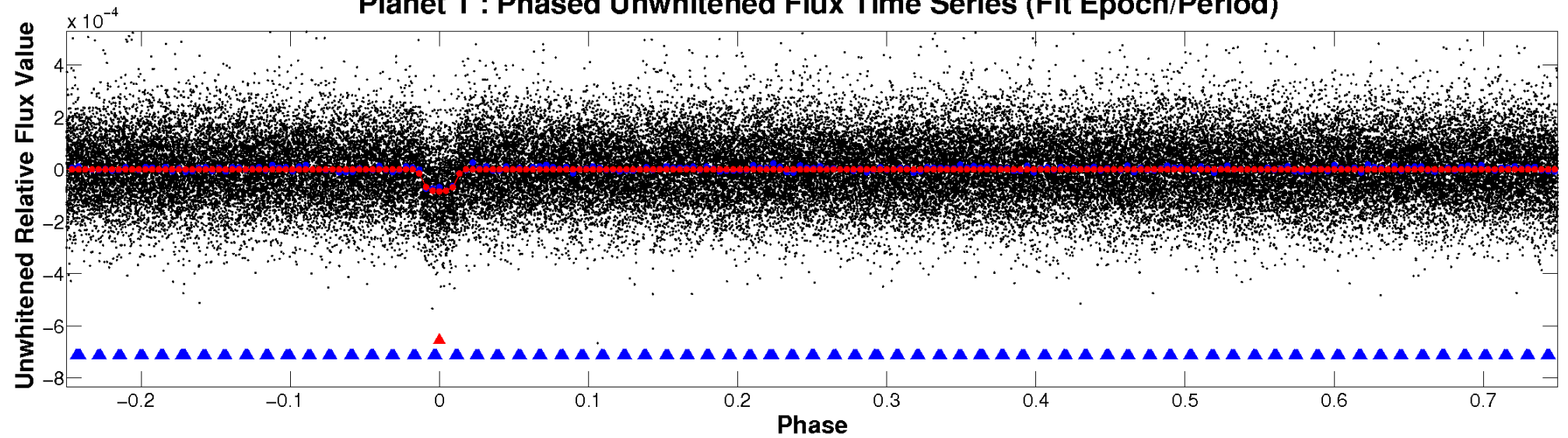
ALT Odd/Even

TCE 005211199-01

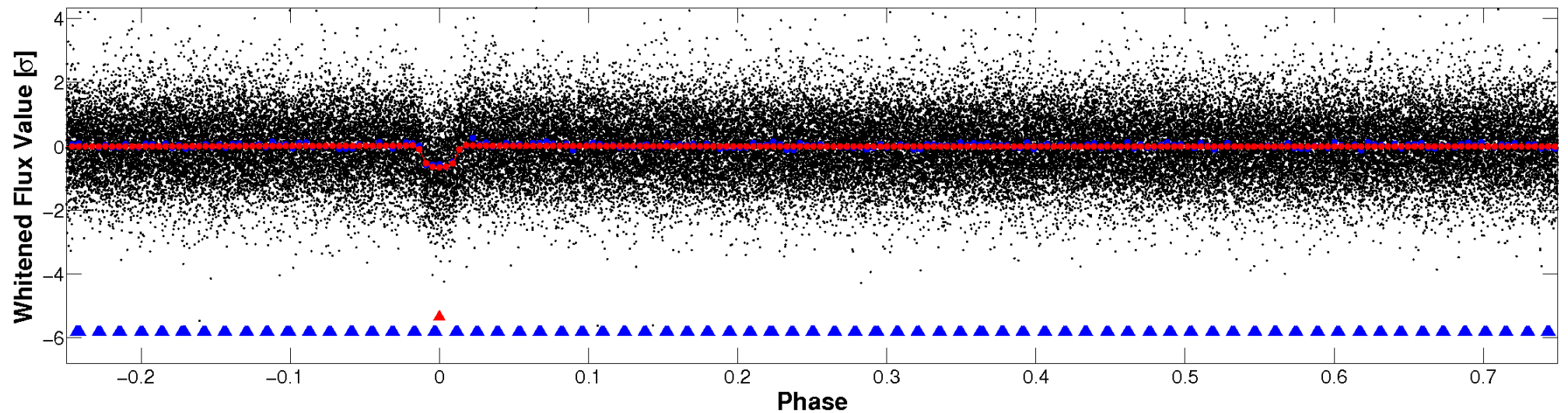


Non-Whitened Vs. Whitened Light Curve

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

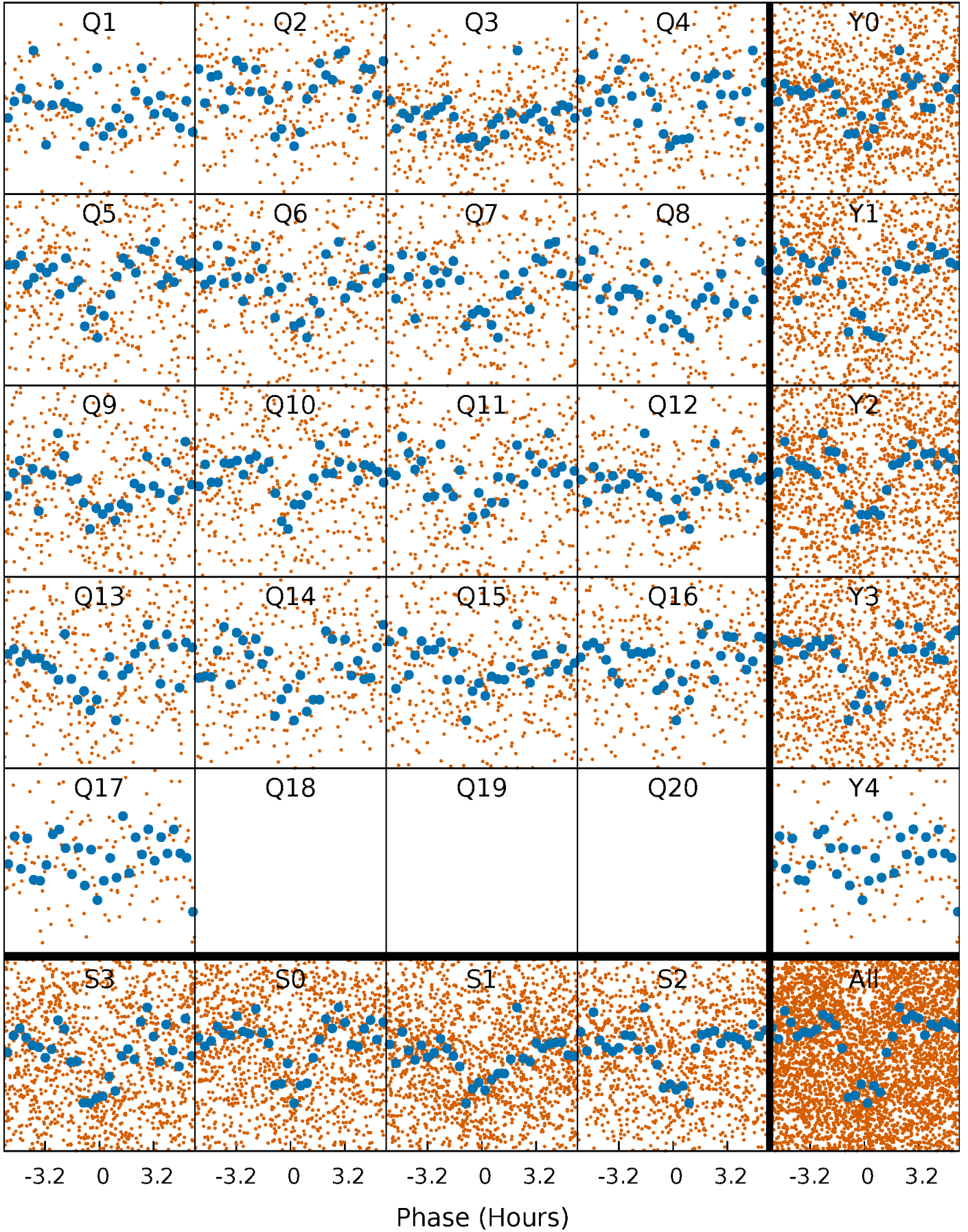


Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)



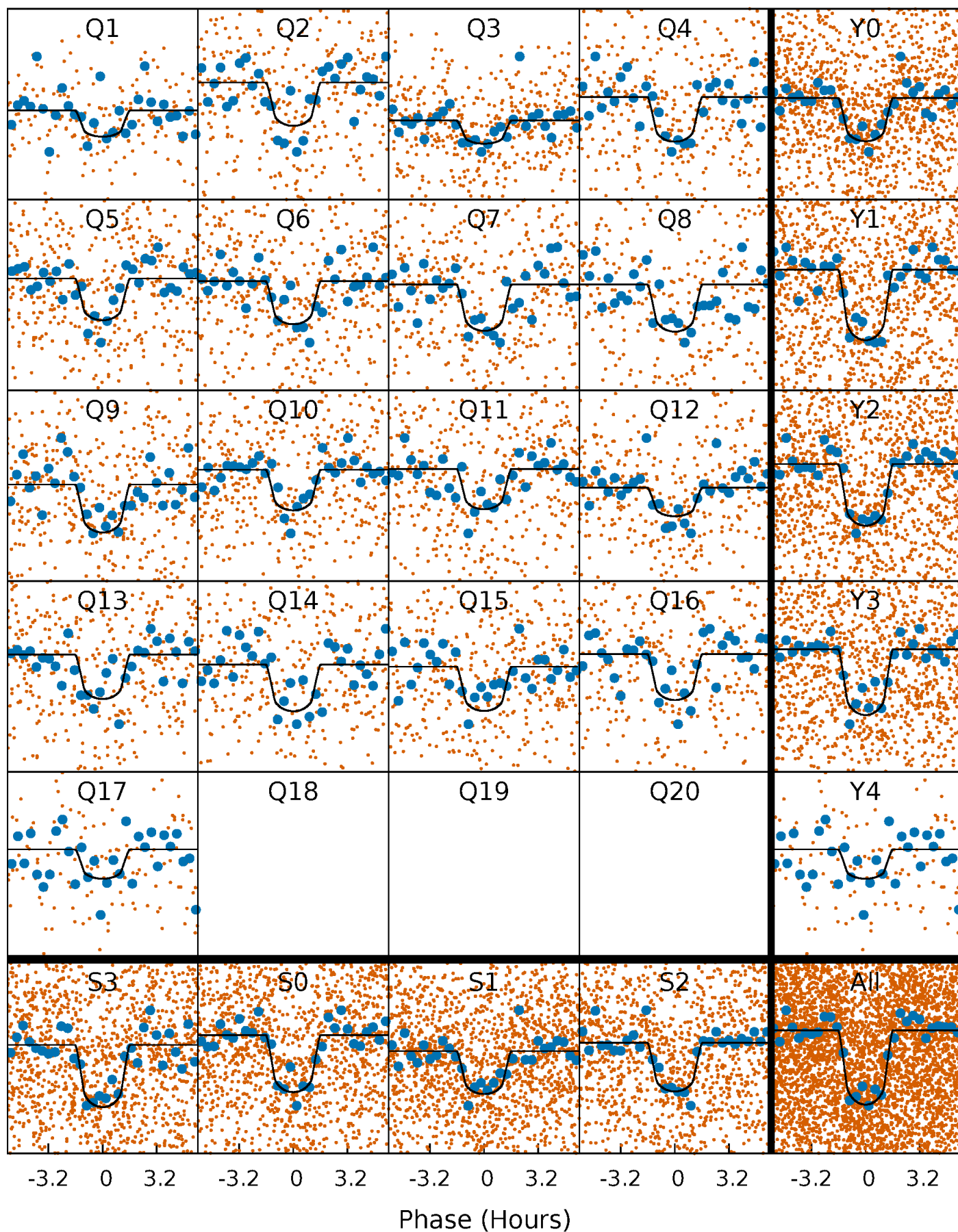
PDC Quarter-Phased Transit Curves

TCE 005211199-01 P= 4.562034 Days $T_0=132.643526$ (BKJD)



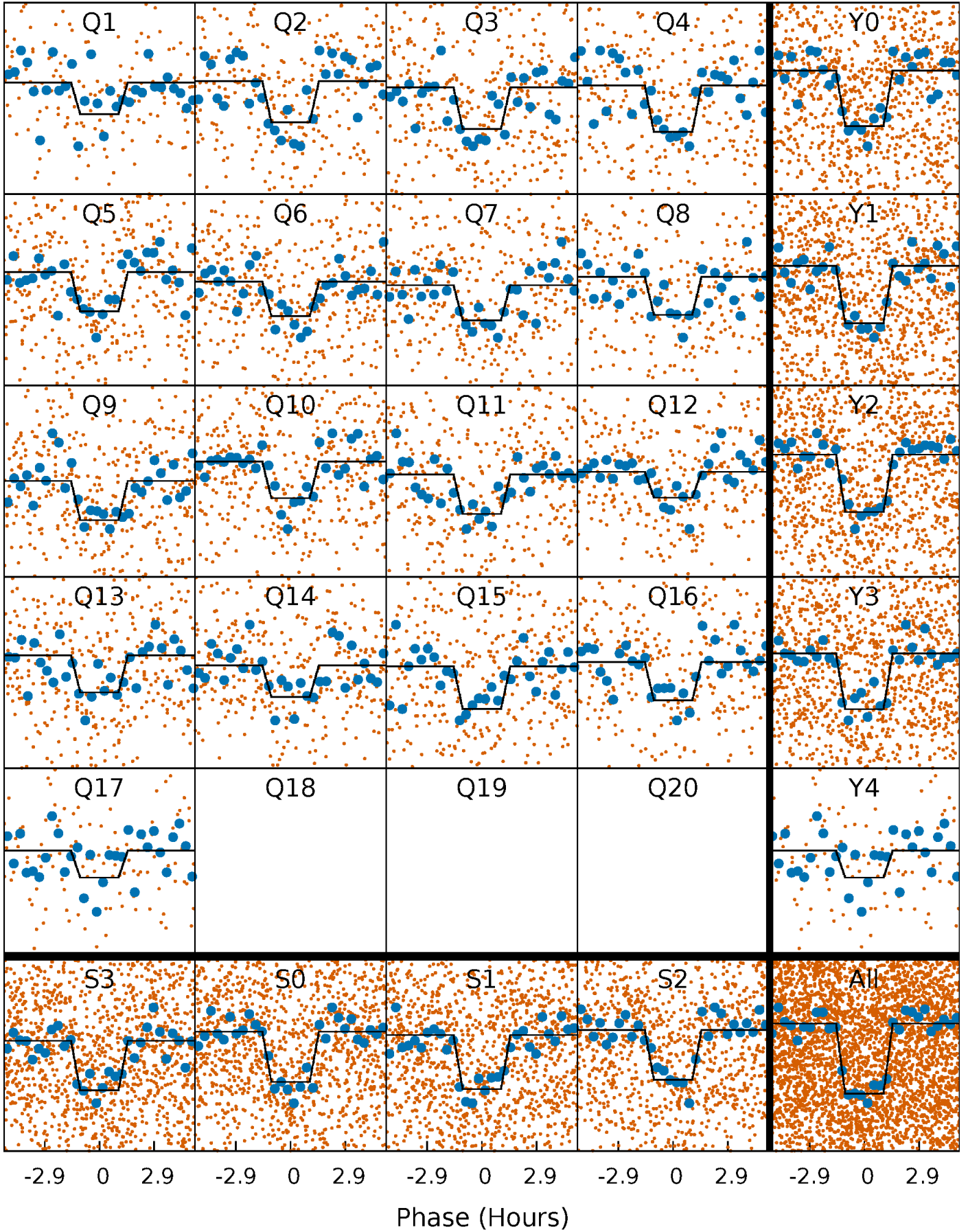
DV Quarter-Phased Transit Curves

TCE 005211199-01 P= 4.562034 Days $T_0=132.643526$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

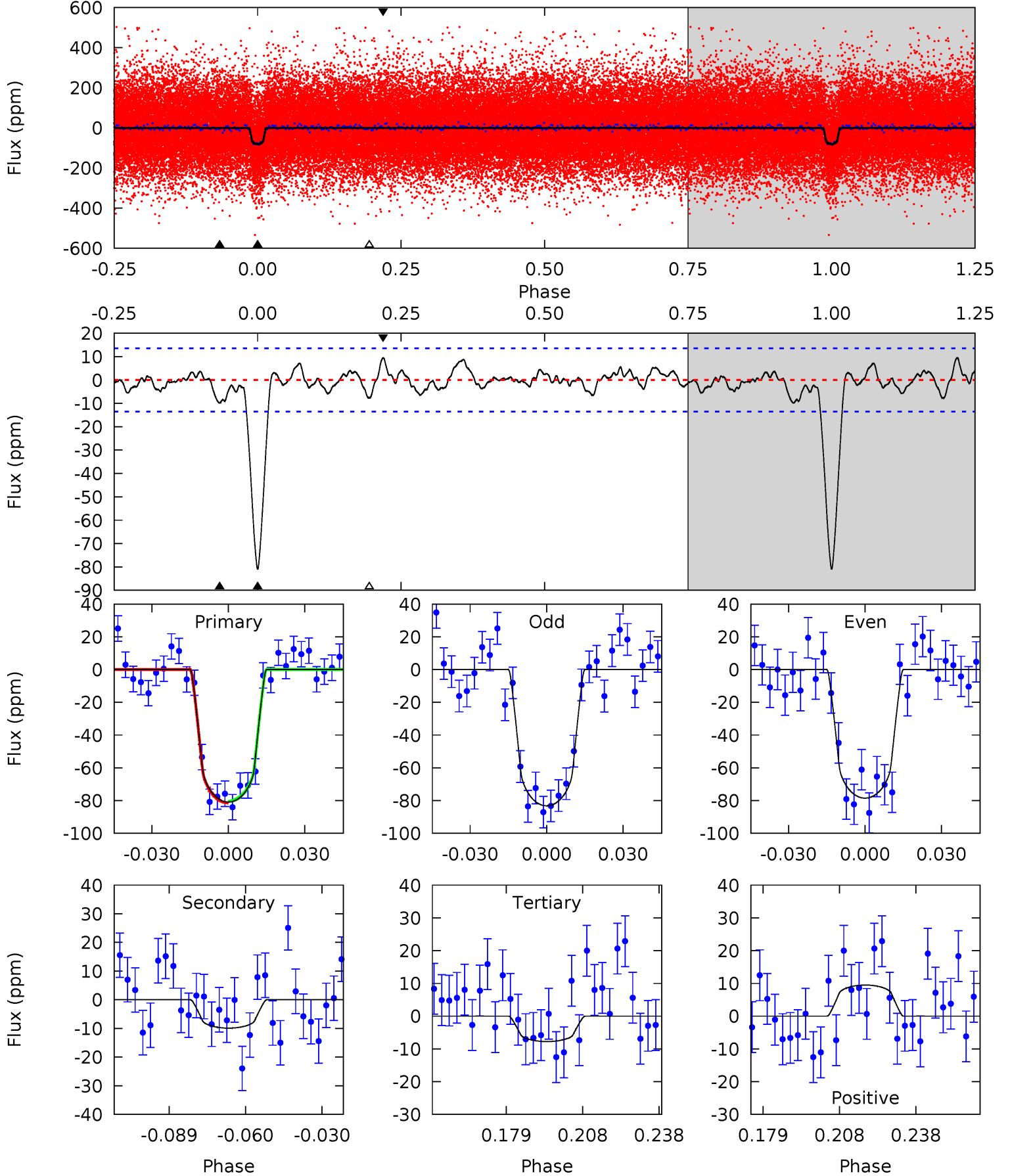
TCE 005211199-01 P= 4.562027 Days $T_0=132.645176$ (BKJD)



DV Model-Shift Uniqueness Test

005211199-01, P = 4.562034 Days, E = 128.081492 Days

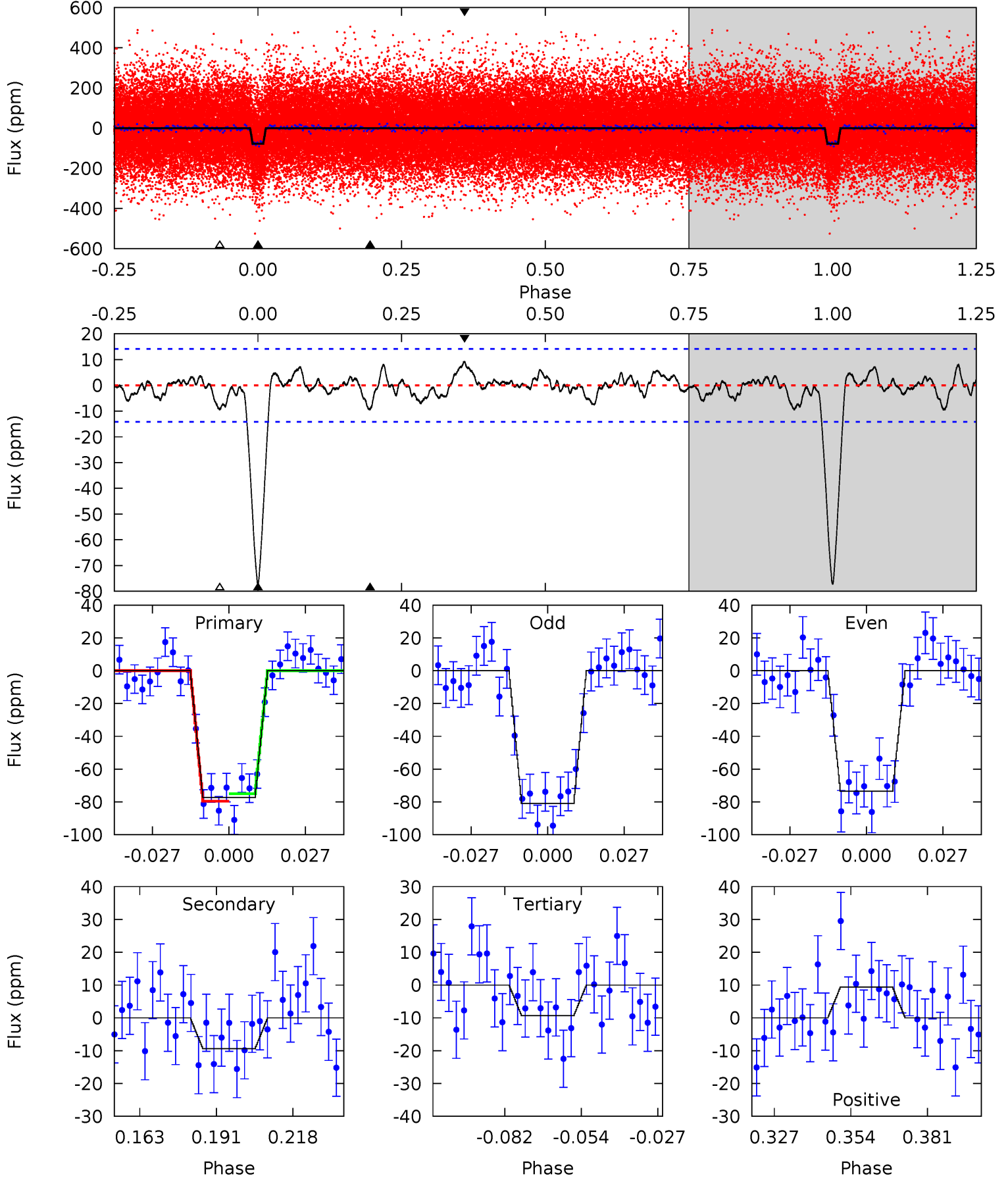
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
28.8	3.52	2.76	3.38	4.81	2.17	1.13	26.0	25.4	0.76	0.14	0.84	0.93	0.10	0.17



Alt Model-Shift Uniqueness Test

005211199-01, P = 4.562027 Days, E = 128.083149 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
26.3	3.21	3.19	3.19	4.83	2.21	1.10	23.2	23.2	0.02	0.02	1.28	0.93	0.11	0.77



Stellar Parameters For KIC 005211199

	$T_{\text{eff}} (K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R (R_{\odot})$	$M (M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	5343^{+85}_{-74}	$3.764^{+0.238}_{-0.102}$	$0.080^{+0.150}_{-0.150}$	$2.506^{+0.468}_{-0.870}$	$1.330^{+0.146}_{-0.341}$	$0.119^{+0.191}_{-0.040}$
	+2%/-1%	+6%/-3%	+188%/-188%	+19%/-35%	+11%/-26%	+160%/-34%
Source	SPE90	FLK73	SPE90	DSEP		

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

Secondary Eclipse Parameters for KIC 005211199-01 / KOI 2158.01

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-10 ± 3	$2.60^{+1.11}_{-0.94}$	2125^{+112}_{-159}	3395^{+605}_{-416}	$2.771^{+4.300}_{-1.522}$
Alt.	-9 ± 3	$2.22^{+1.12}_{-0.89}$	2125^{+111}_{-169}	3523^{+773}_{-493}	$3.427^{+6.589}_{-2.019}$

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

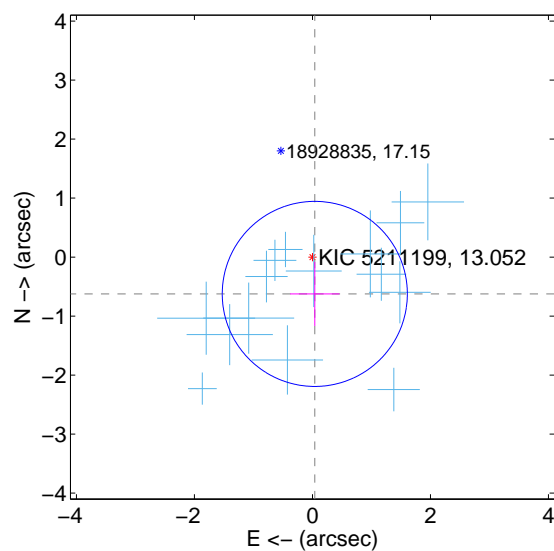
Supplemental centroid analysis for 005211199-01. Kepler magnitude: 13.05. Transit SNR 22.15

There are 15 quarters with good PRF difference image offsets

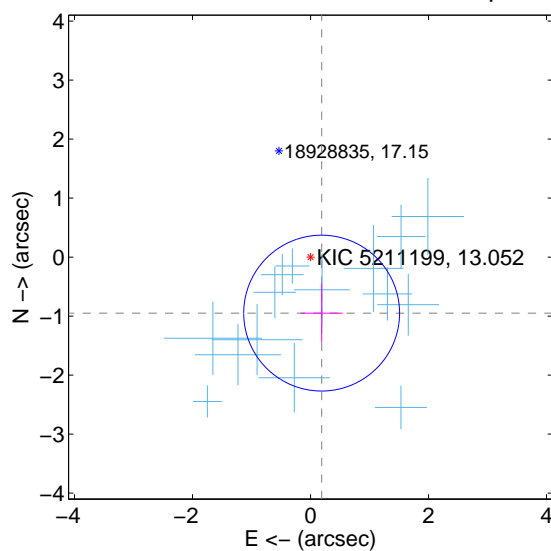
The direct PRF centroid is offset from the target star catalog position by about 0.37 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.625 ± 0.523	1.20	-0.040 ± 0.420	-0.624 ± 0.543
PRF-fit source offset from KIC position	0.968 ± 0.440	2.20	-0.188 ± 0.359	-0.949 ± 0.495
photometric centroid source offset	1.28 ± 0.71	1.79	-0.08 ± 0.70	-1.28 ± 0.71

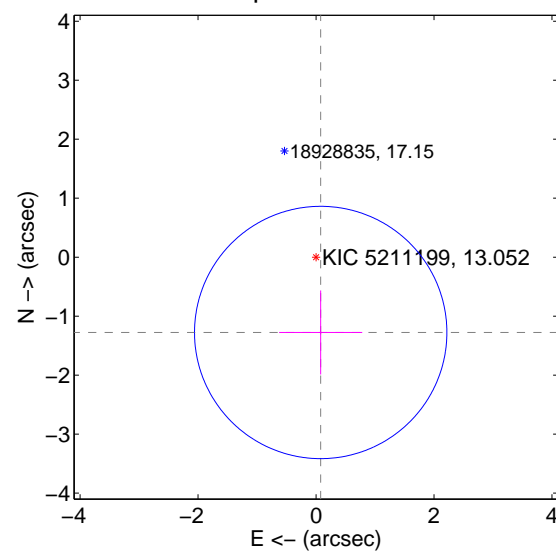
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position

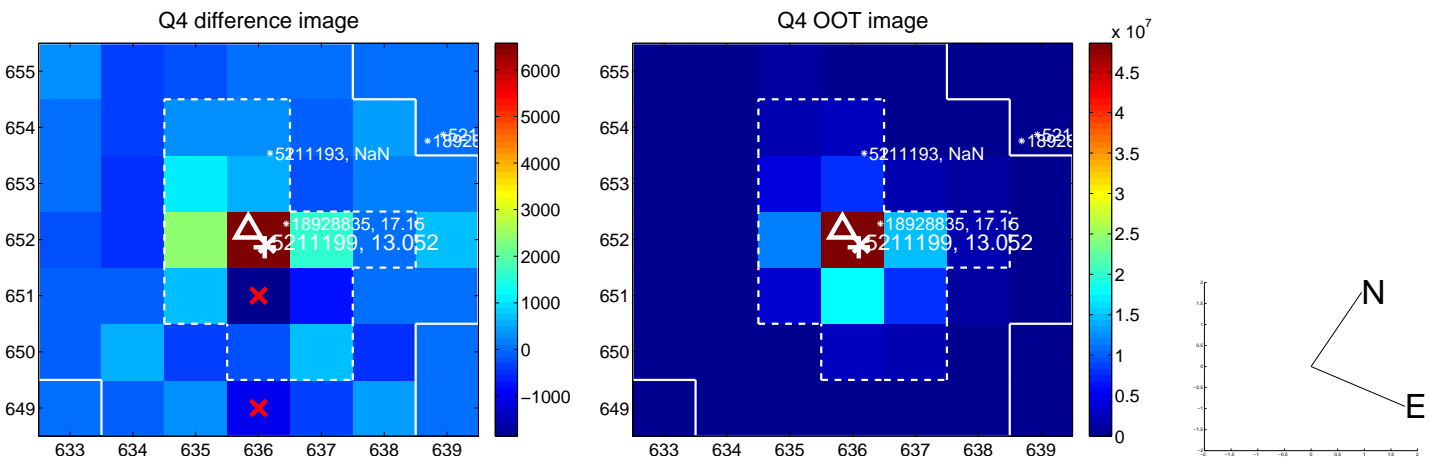
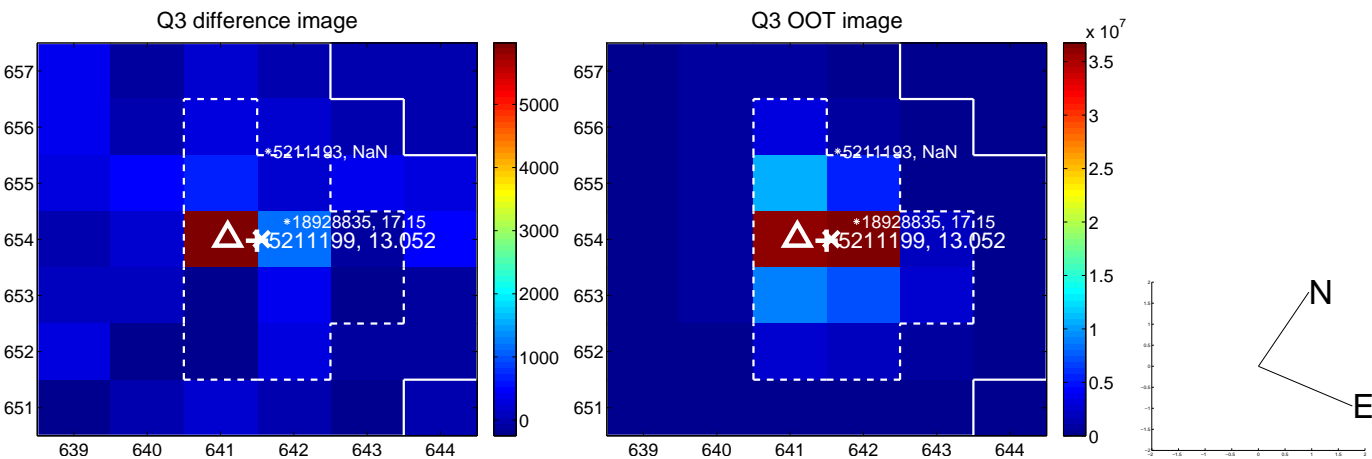
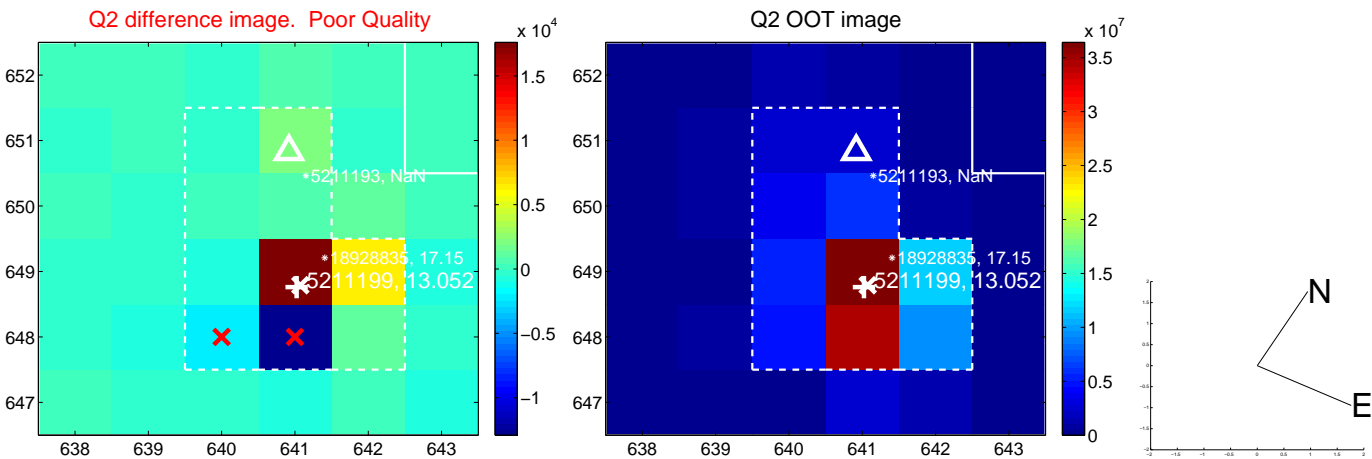
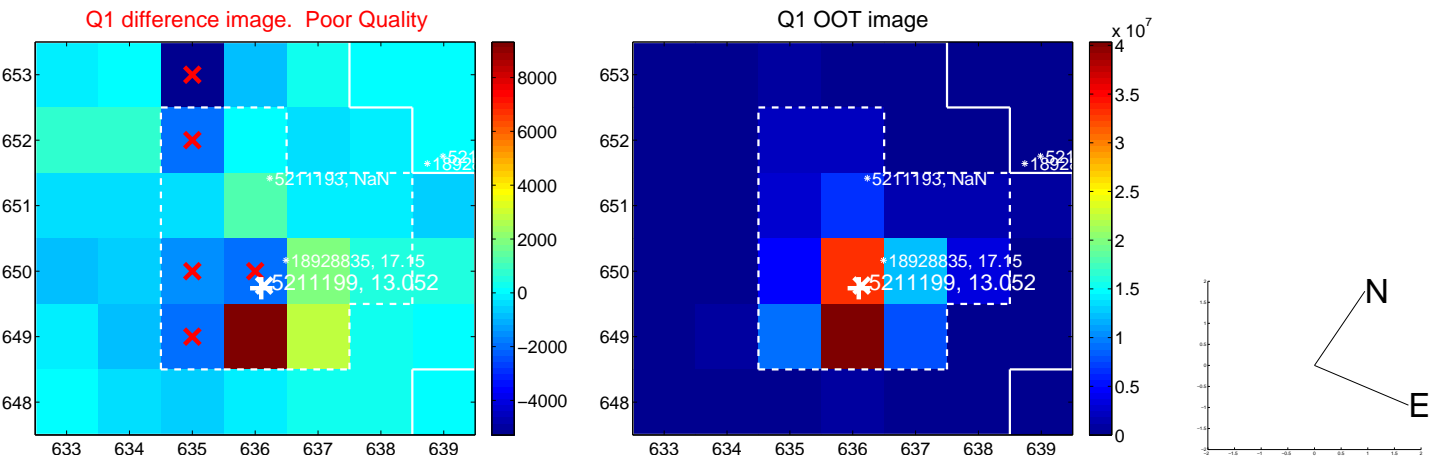


offset from photometric centroids

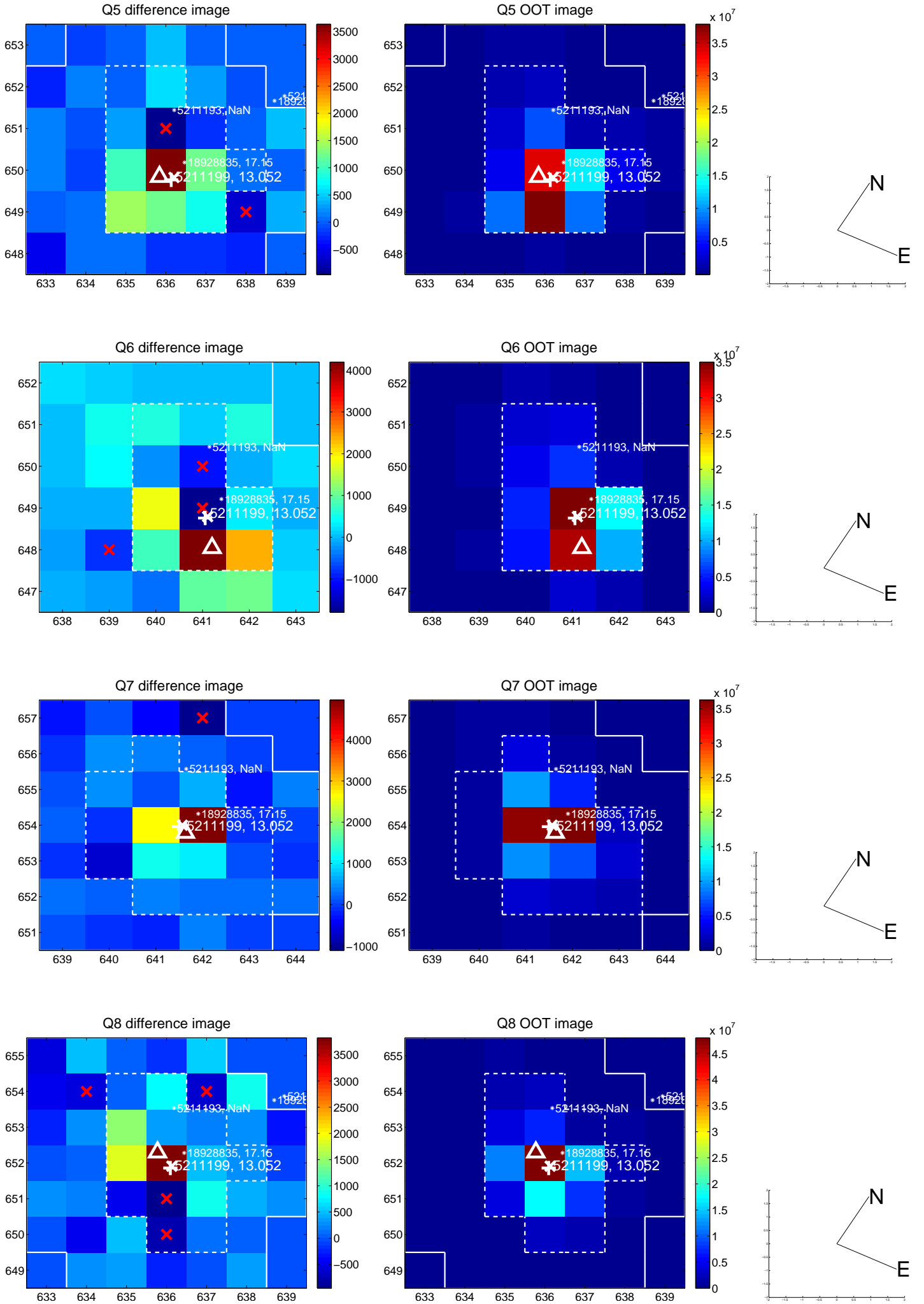


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses:** good quarterly centroid offsets; **Vermillion crosses:** bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

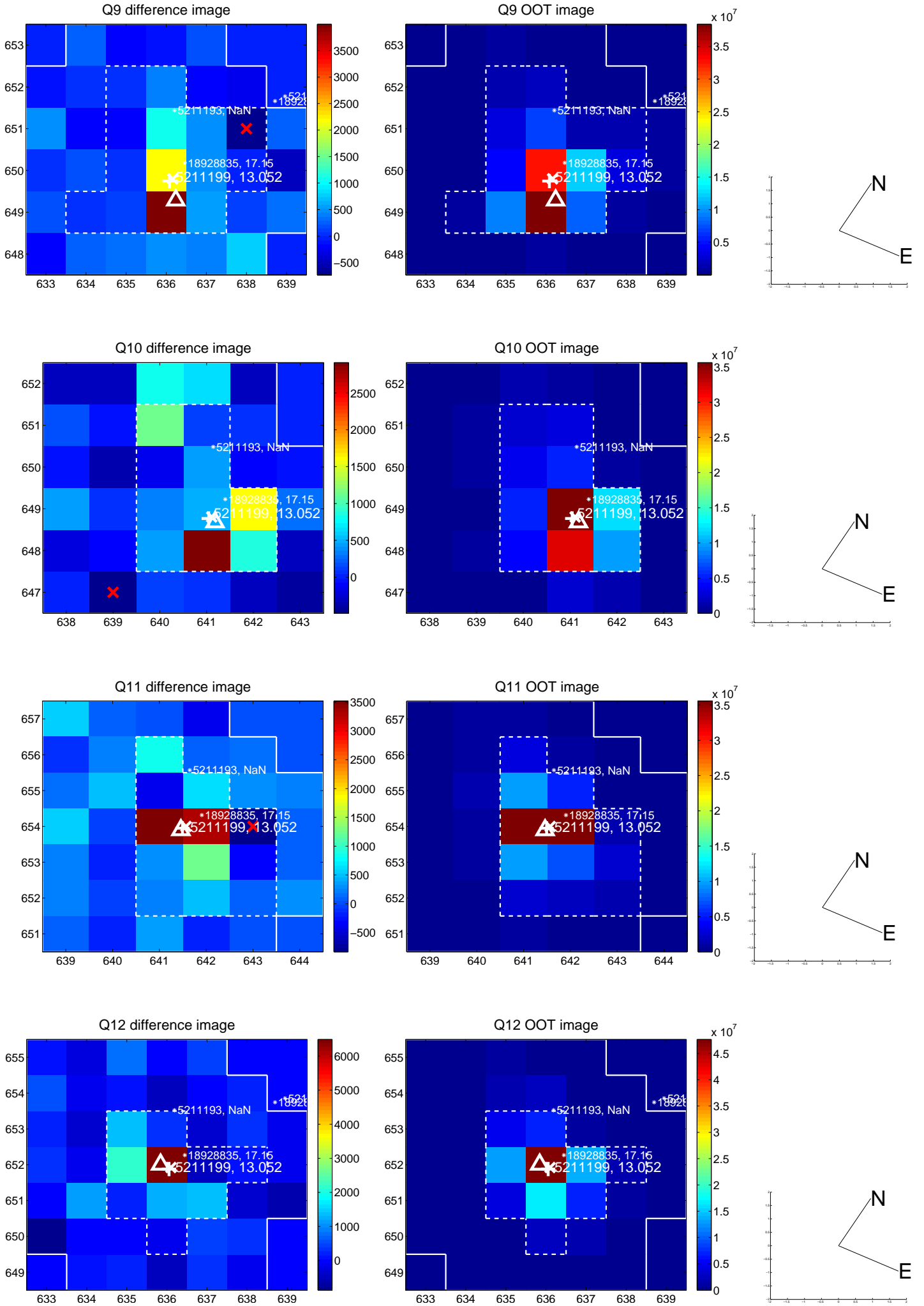
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



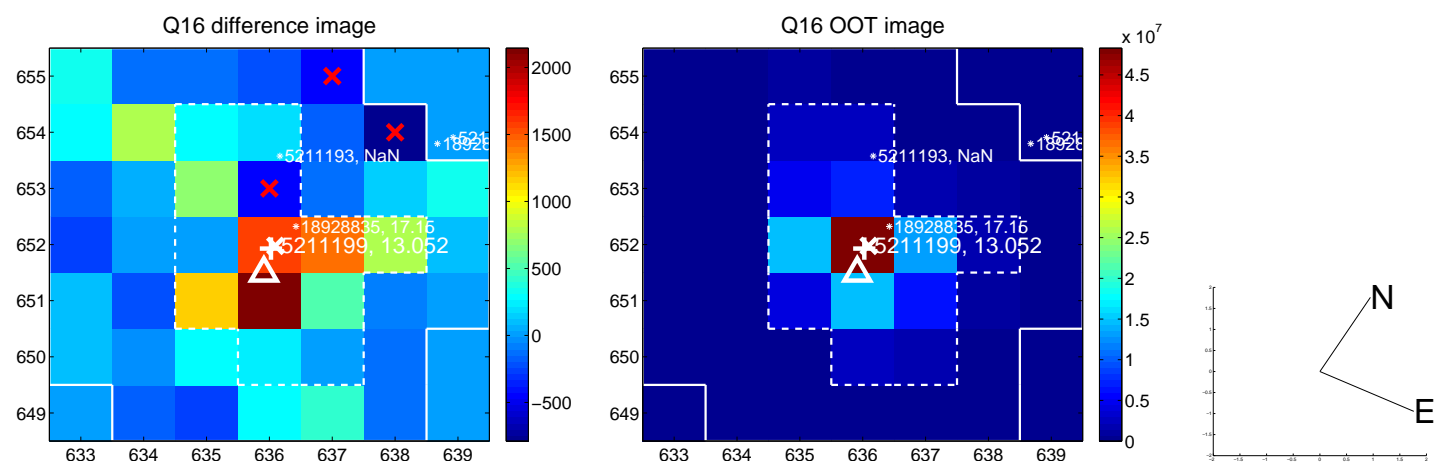
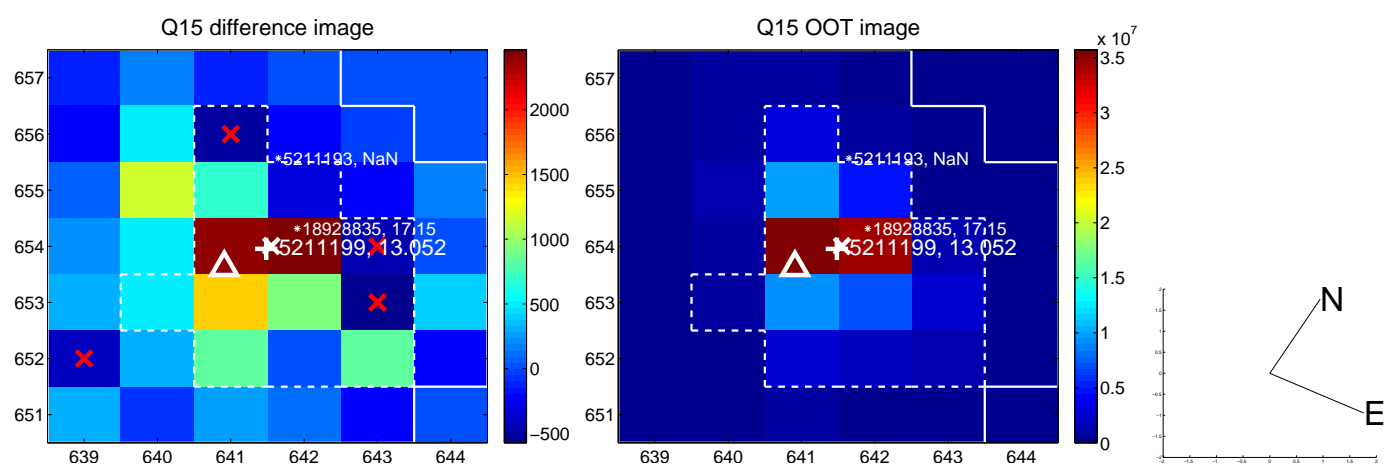
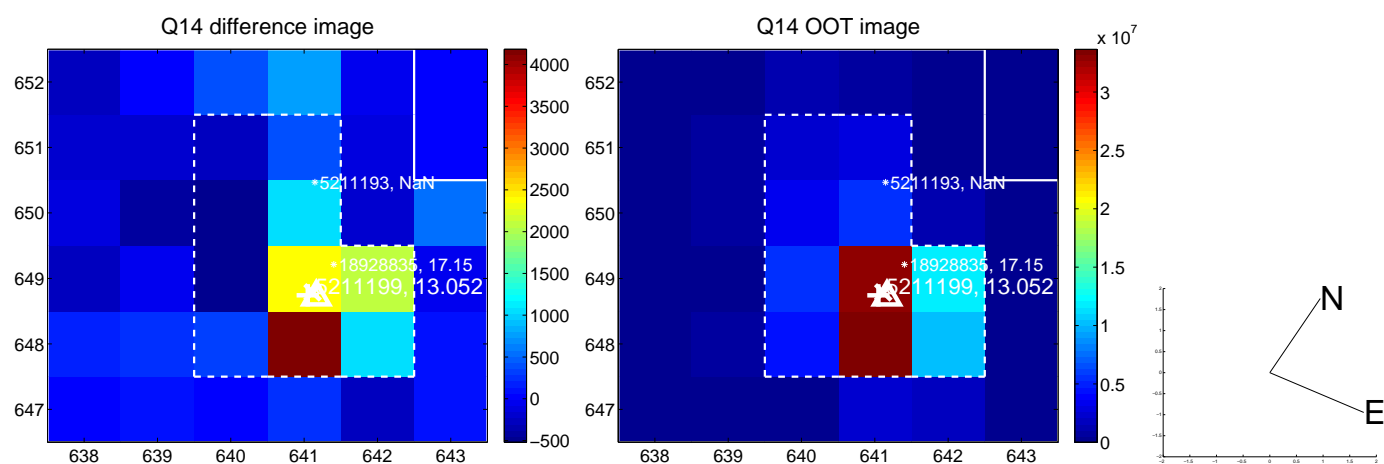
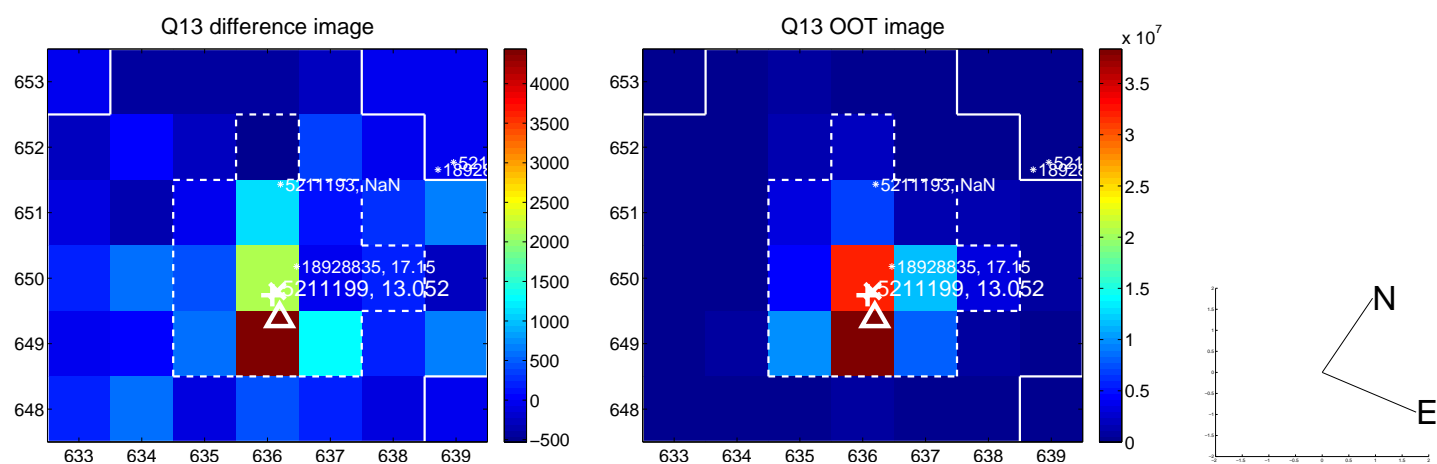
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



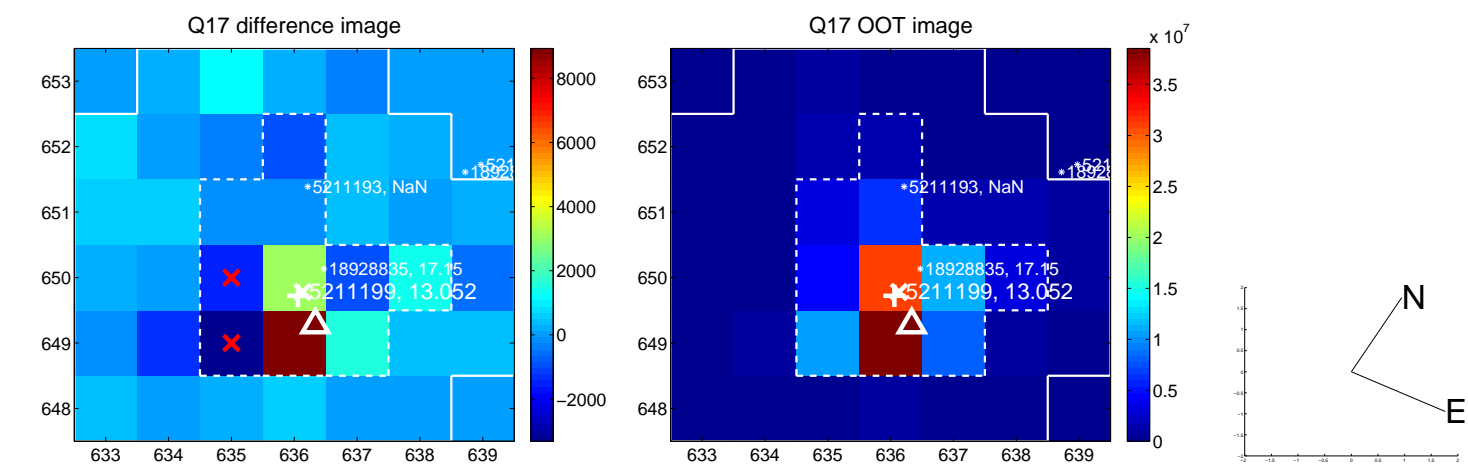
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



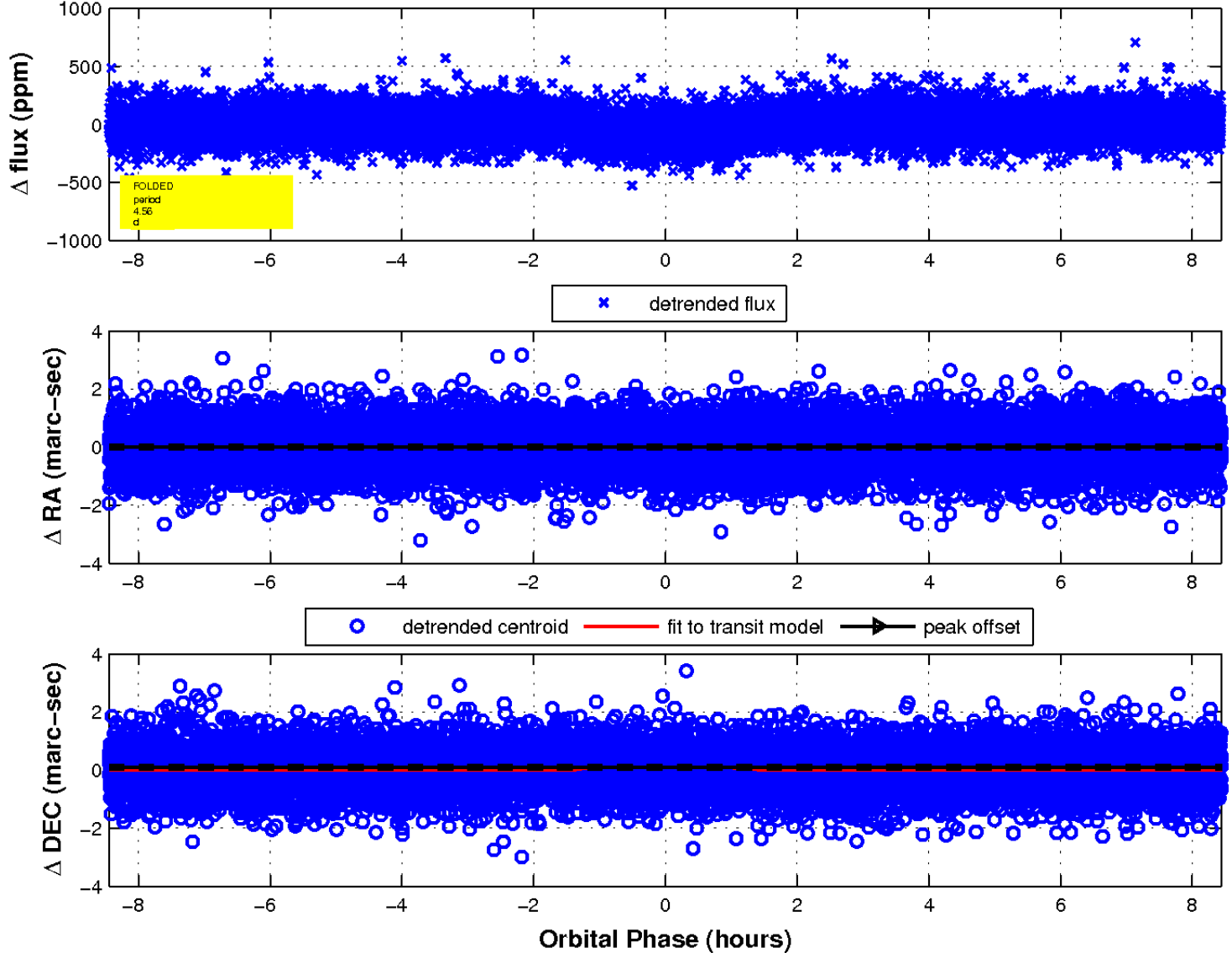
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

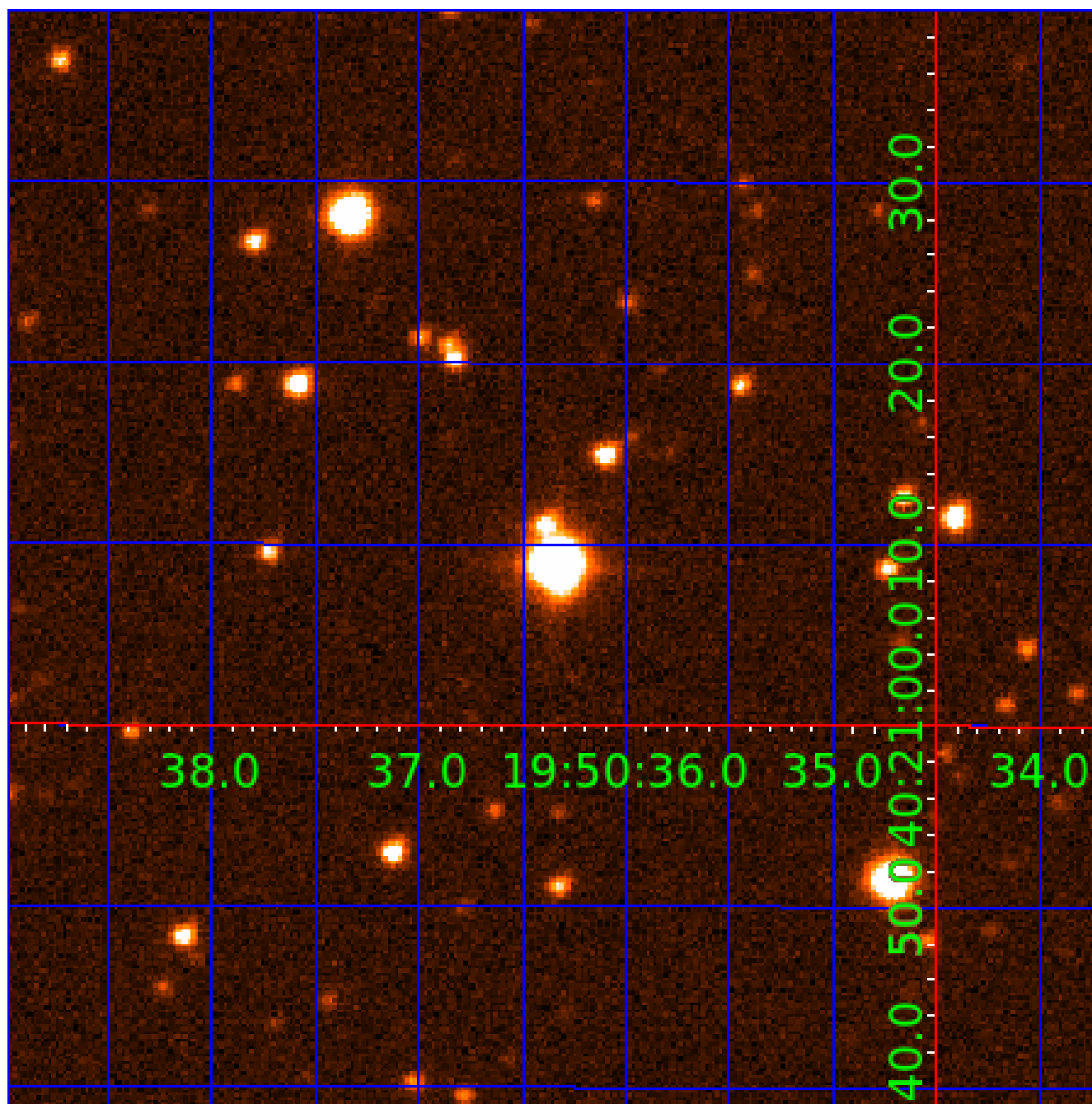


fluxWeightedCentroids, Planet 1 of 2



UKIRT Image

Declination



KIC 005211199

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})
005211199-01	OBS	2158.01	4.562034	132.643526	84.4	2.815	20.3	22.2	2.51	5343	2.76	1307.61
005211199-02	OBS	2158.02	6.682358	132.187406	48.5	3.342	10.1	11.1	2.51	5343	2.12	786.05

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
005211199-01	OBS	PC	0.94	0	0	0	0	NO_COMMENT
005211199-02	OBS	PC	1.00	0	0	0	0	NO_COMMENT

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

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

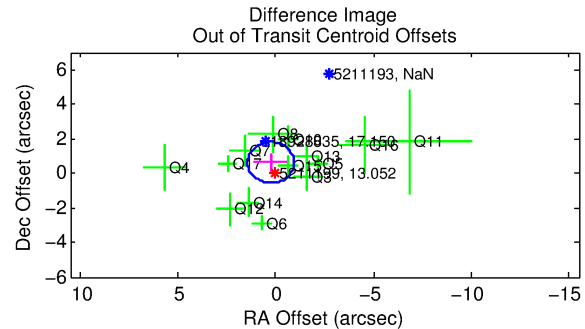
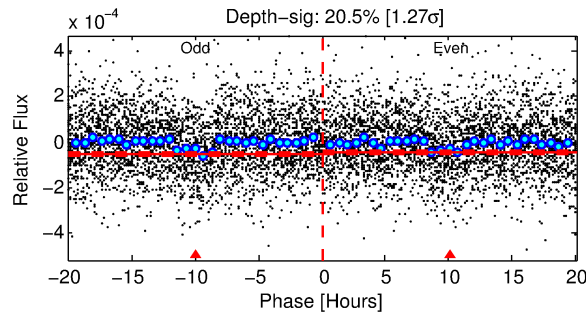
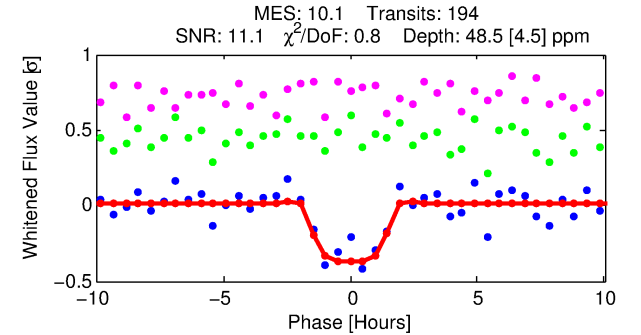
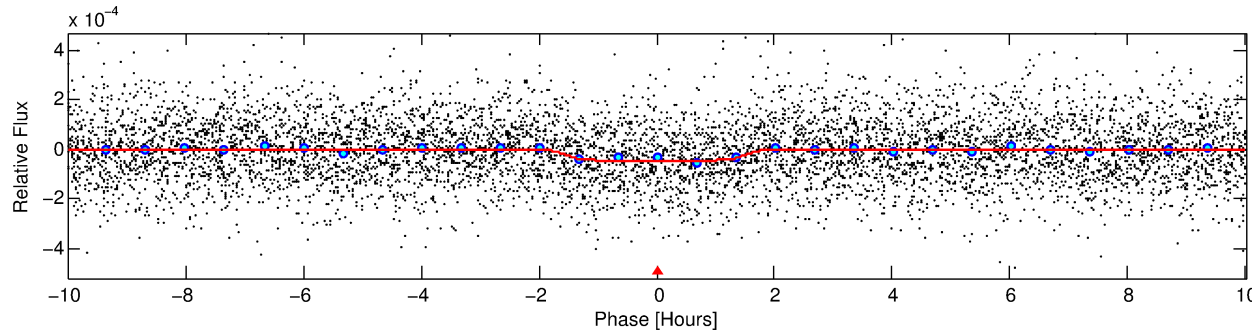
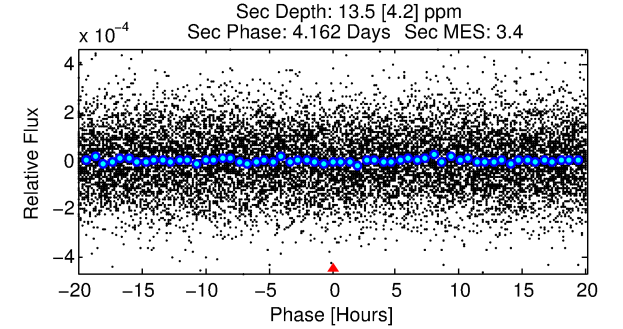
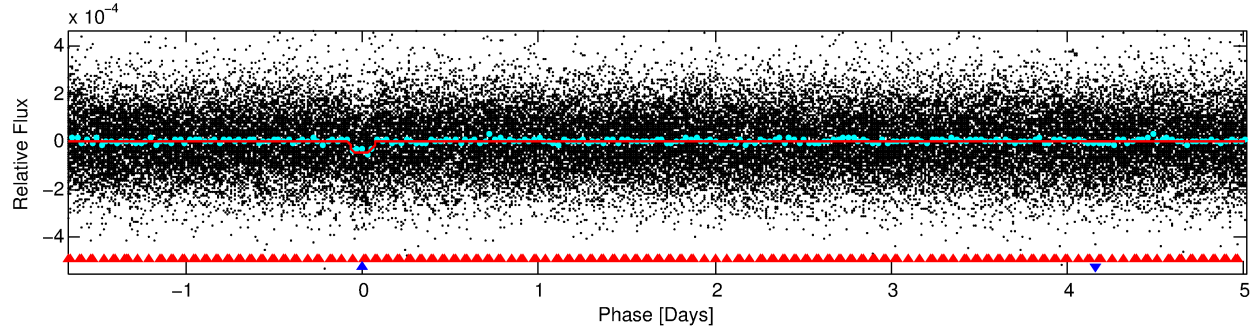
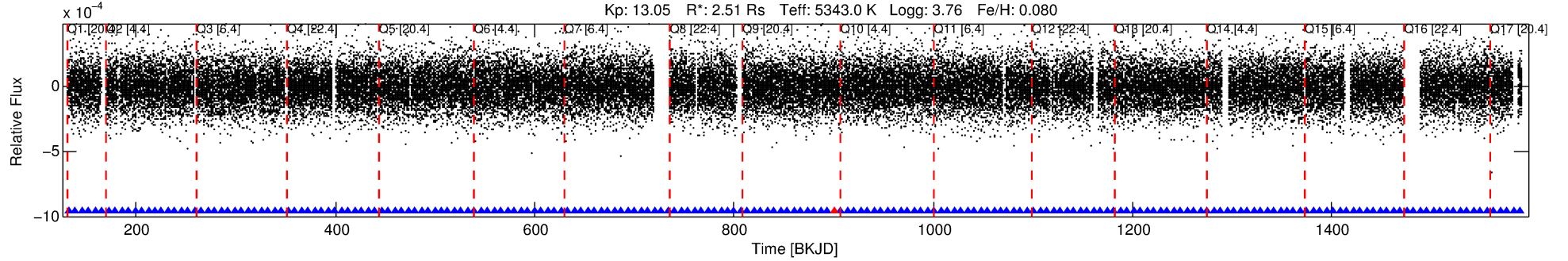
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 005211199-02

No Significant Match Found

DV One-Page Summary

KIC: 5211199 Candidate: 2 of 2 Period: 6.682 d
KOI: K02158.02 Corr: 0.961



DV Fit Results:

Period = 6.68236 [0.00005] d
Epoch = 132.1874 [0.0057] BKJD
Rp/R* = 0.0078 [0.0045]
a/R* = 6.71 [16.99]
b = 0.91 [0.51]
Seff = 786.05 [343.61]
Teff = 1350 [148] K
Rp = 2.12 [1.44] Re
a = 0.0764 [0.0225] AU
Ag = 9.62 [12.33] [0.70σ]
Teffp = 3677 [1110] K [2.08σ]

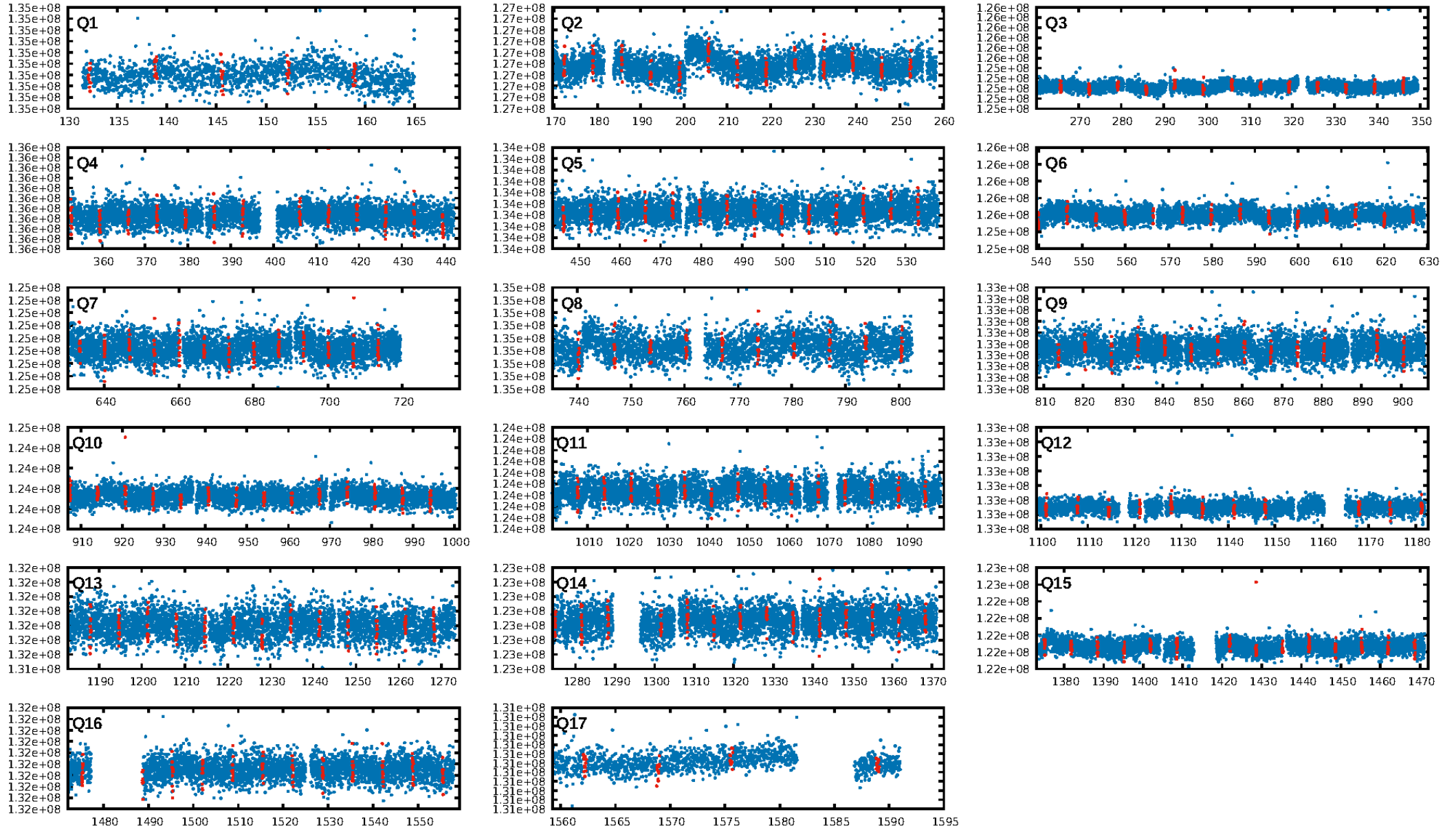
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [11.65σ]
LongPeriod-sig: N/A
ModelChiSquare2-sig: 100.0%
ModelChiSquareGof-sig: 100.0%
Bootstrap-pfa: 6.02e-24
RollingBand-fgt: 0.99 [184/185]
GhostDiagnostic-chr: -18.22
Centroid-sig: 37.8%
Centroid-so: 1.459 arcsec [1.08σ]
OotOffset-rm: 0.672 arcsec [1.69σ]
KicOffset-rm: 0.315 arcsec [0.84σ]
OotOffset-st: 3/4/4/3 [14]
KicOffset-st: 3/4/4/3 [14]
DiffImageQuality-fgm: 0.64 [9/14]
DiffImageOverlap-fno: 1.00 [17/17]

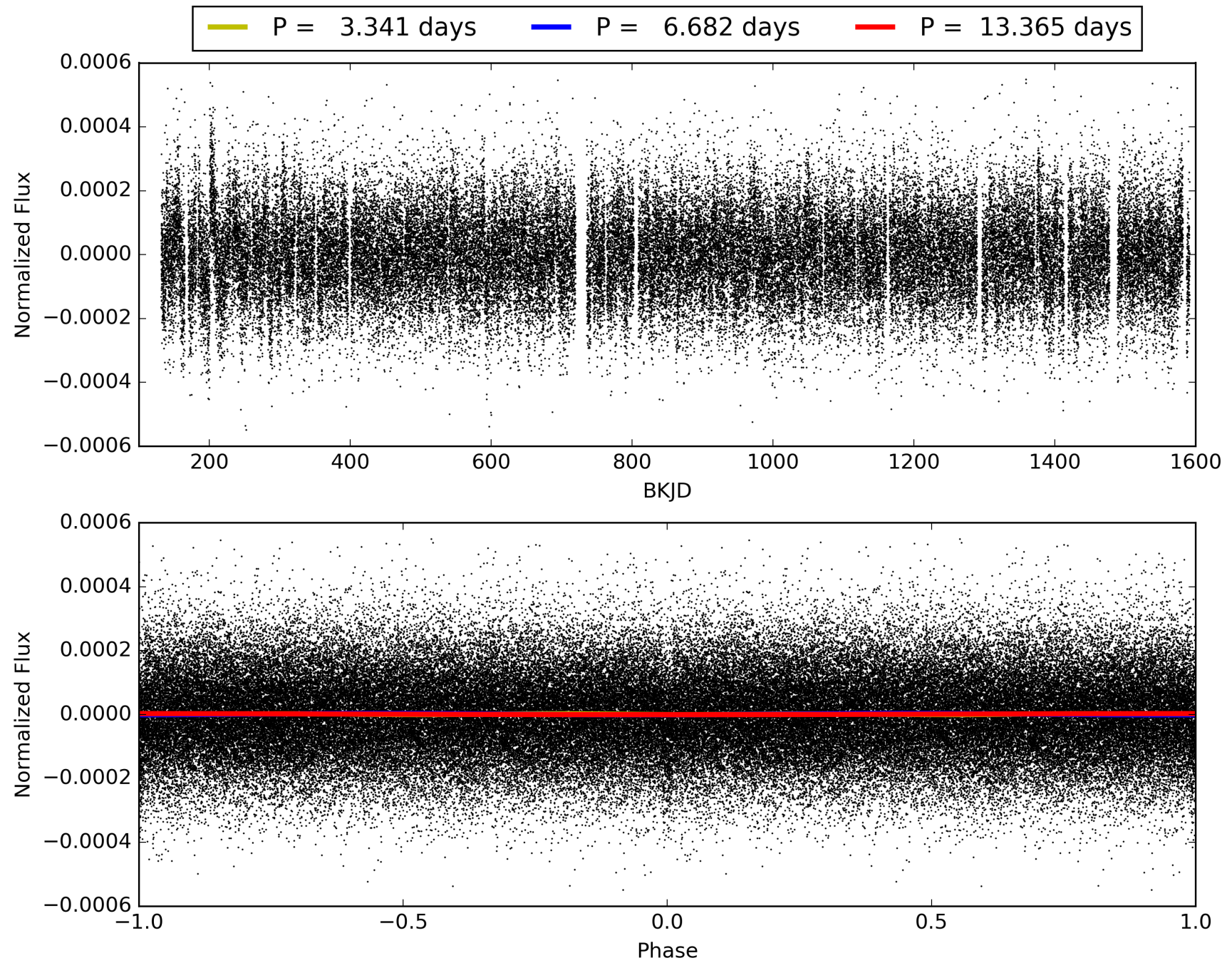
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 29-Jan-2016 12:27:53 Z

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

TCE 005211199-02, PDC Light Curves

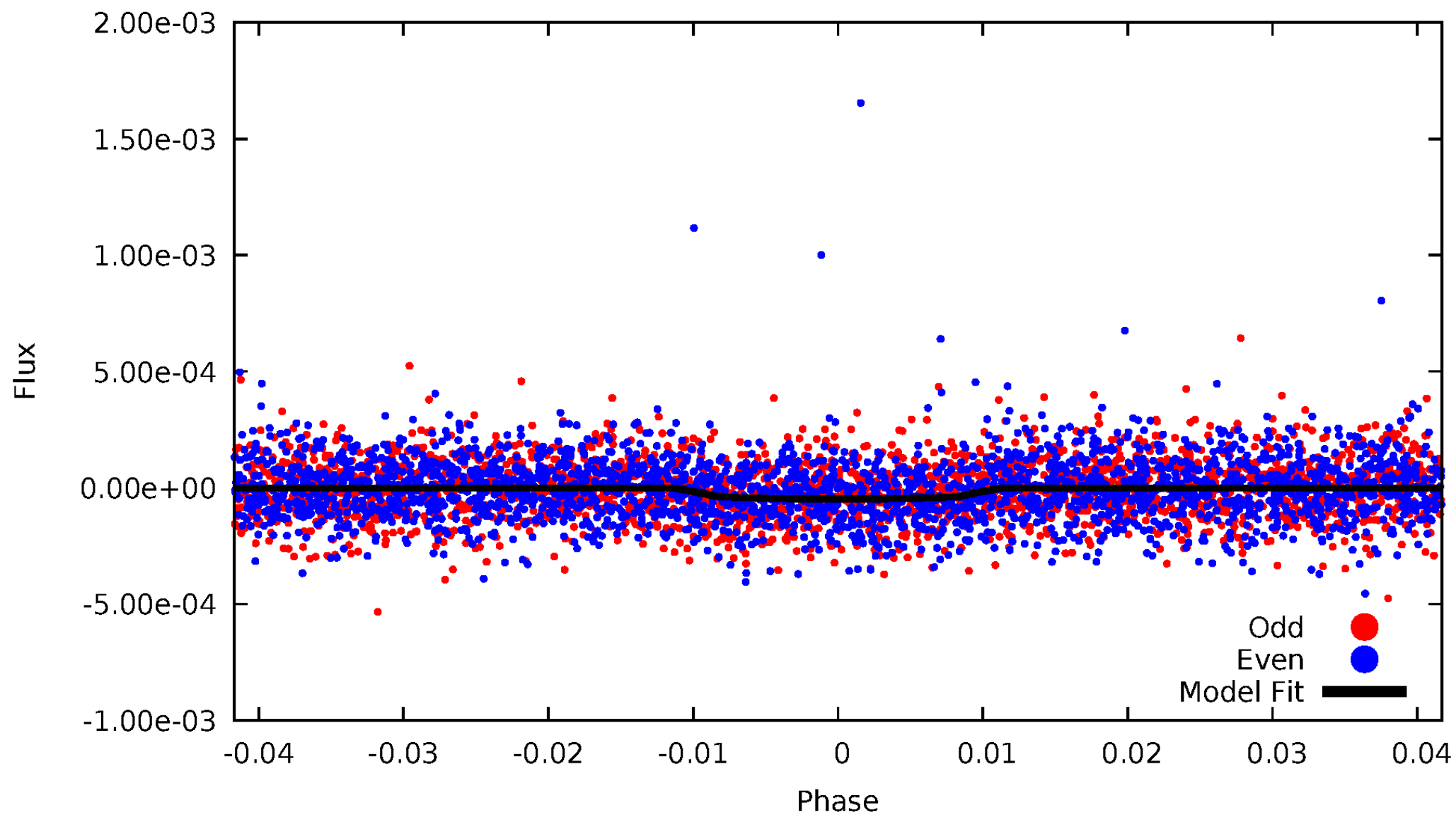


TCE 005211199-02



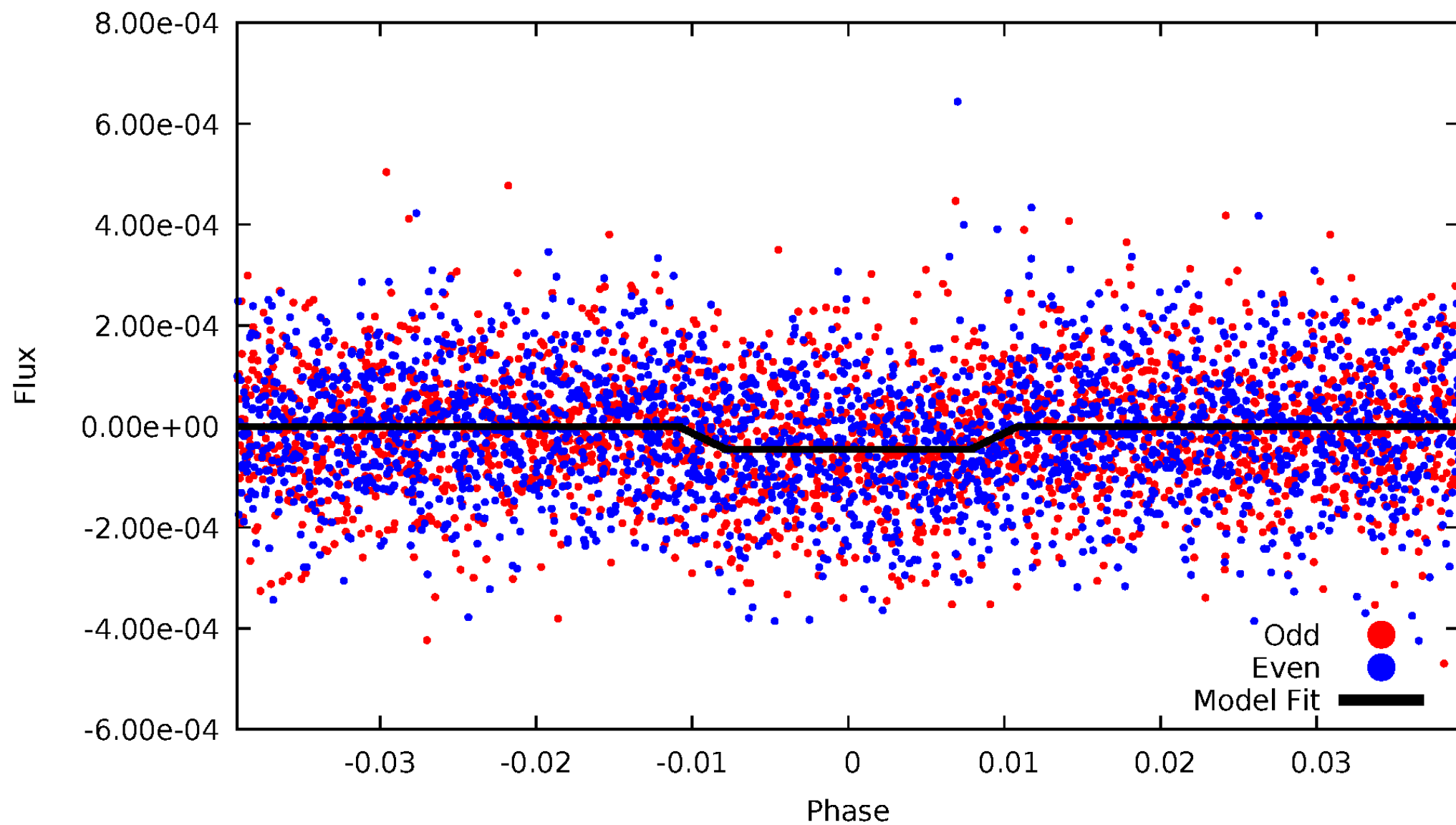
DV Odd/Even

TCE 005211199-02



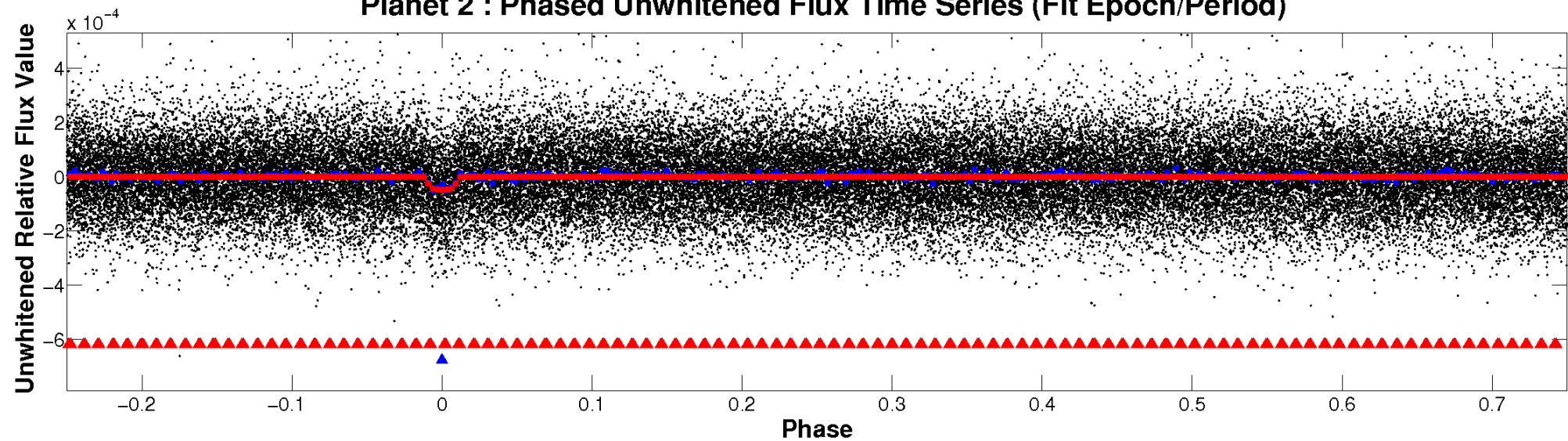
ALT Odd/Even

TCE 005211199-02

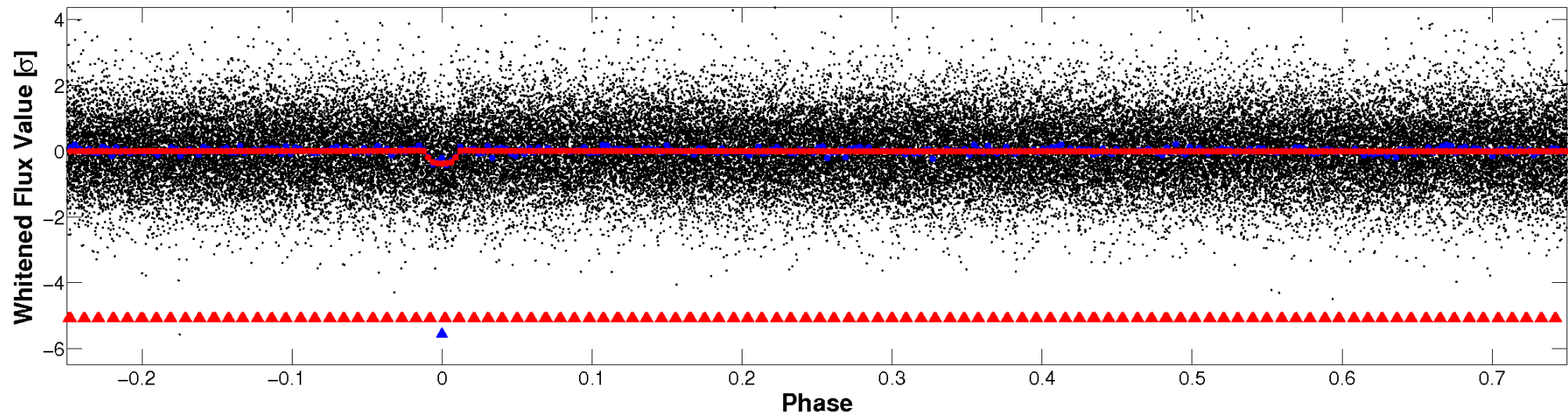


Non-Whitened Vs. Whitened Light Curve

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

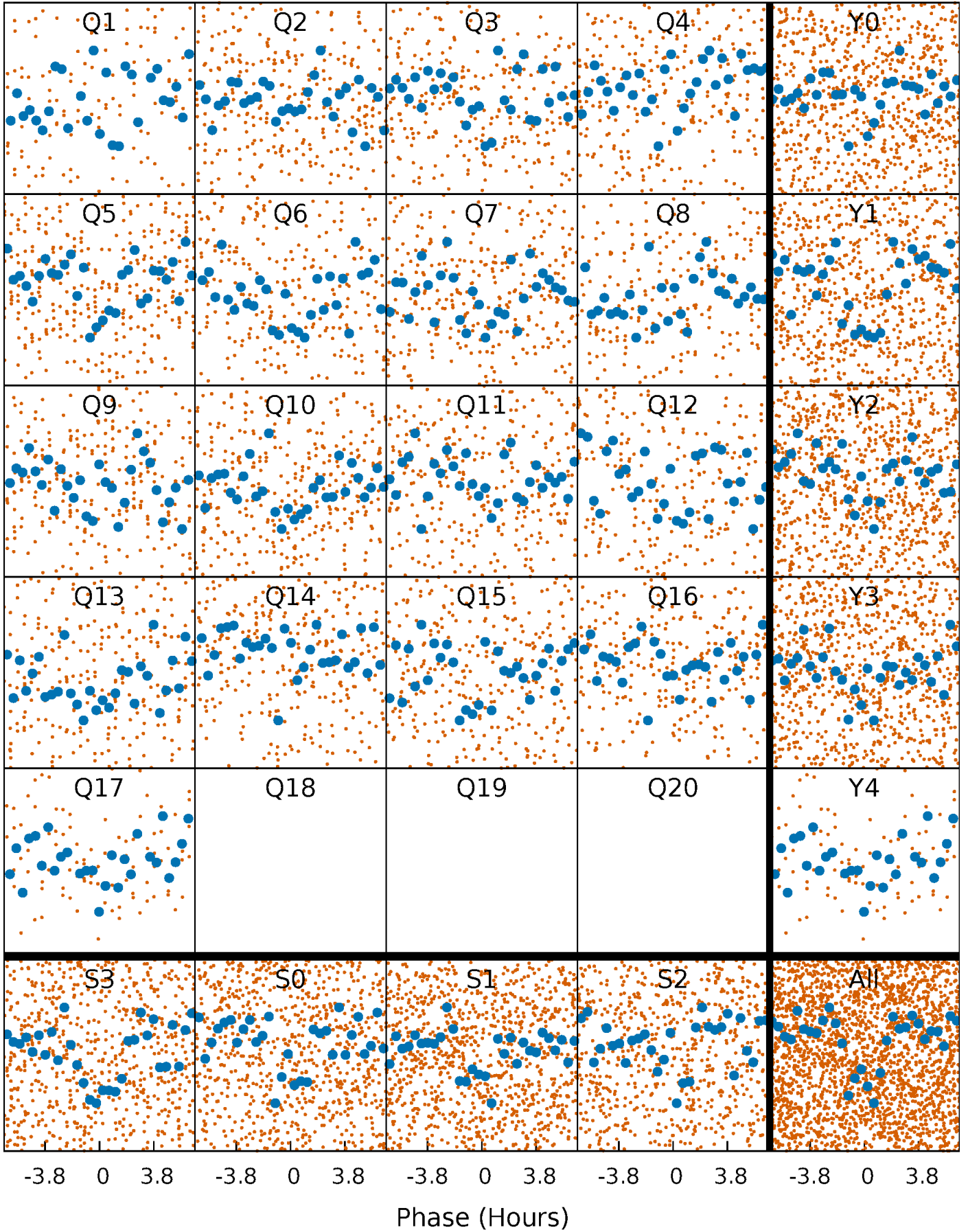


Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



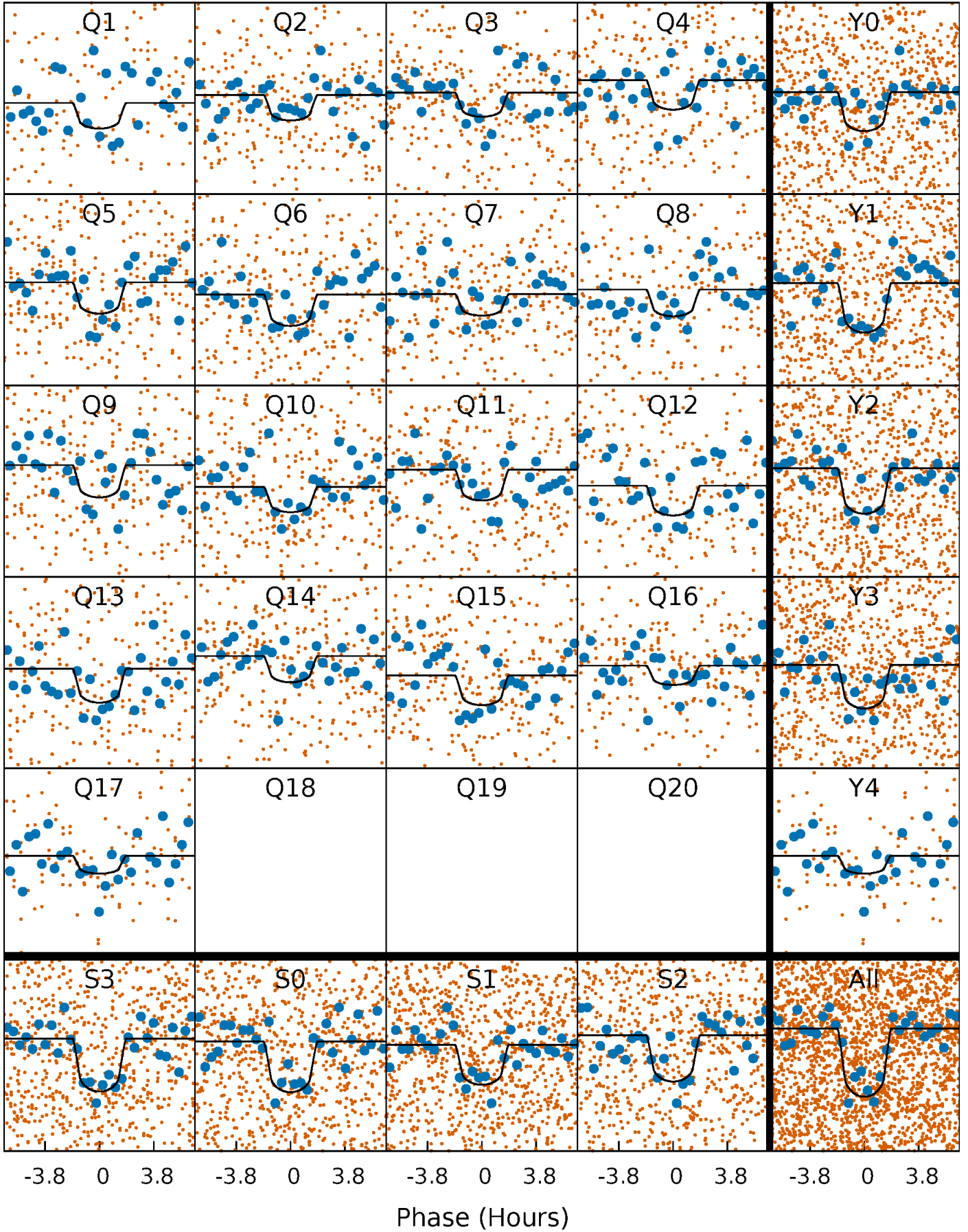
PDC Quarter-Phased Transit Curves

TCE 005211199-02 P= 6.682358 Days $T_0=132.187406$ (BKJD)



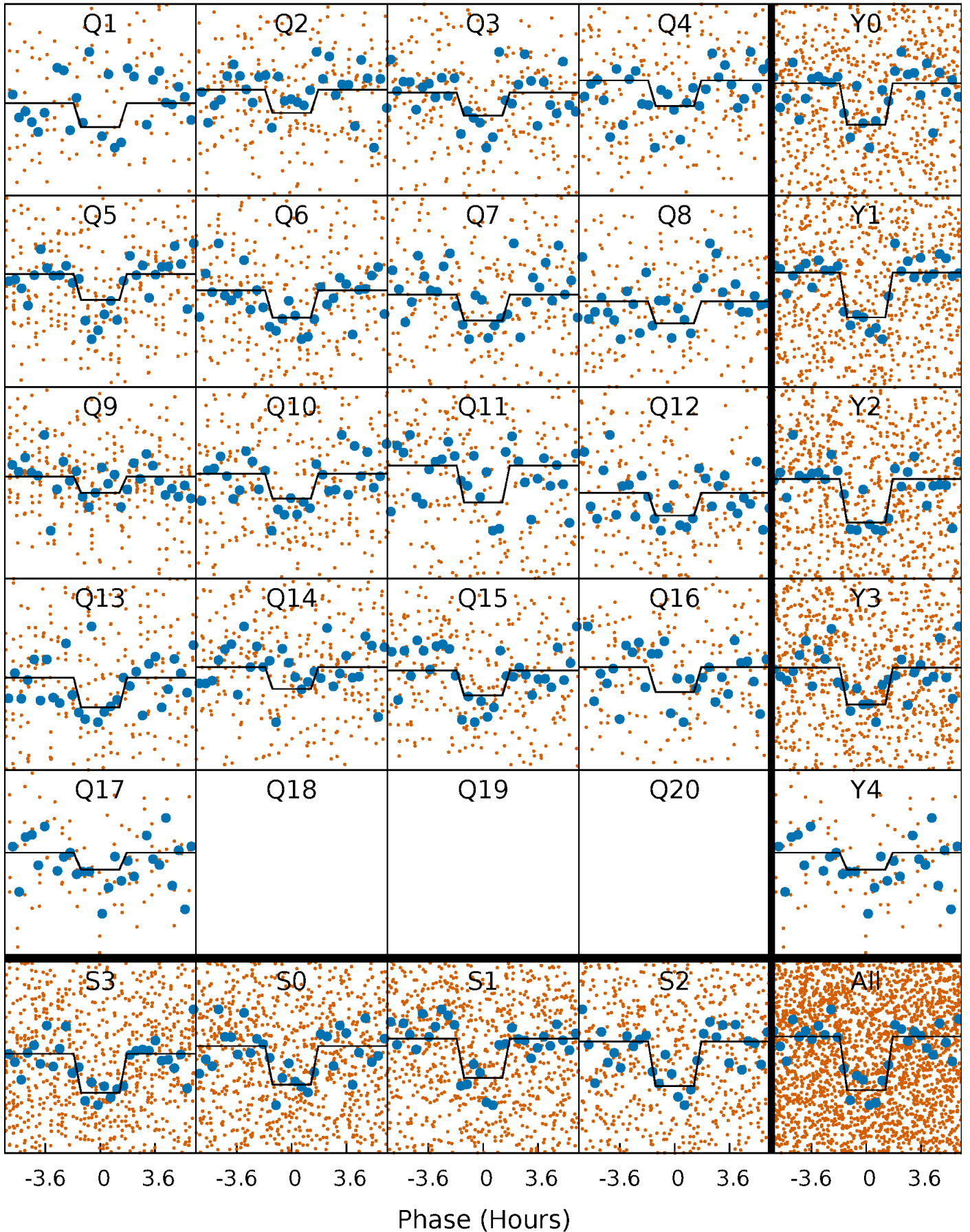
DV Quarter-Phased Transit Curves

TCE 005211199-02 P= 6.682358 Days $T_0=132.187406$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

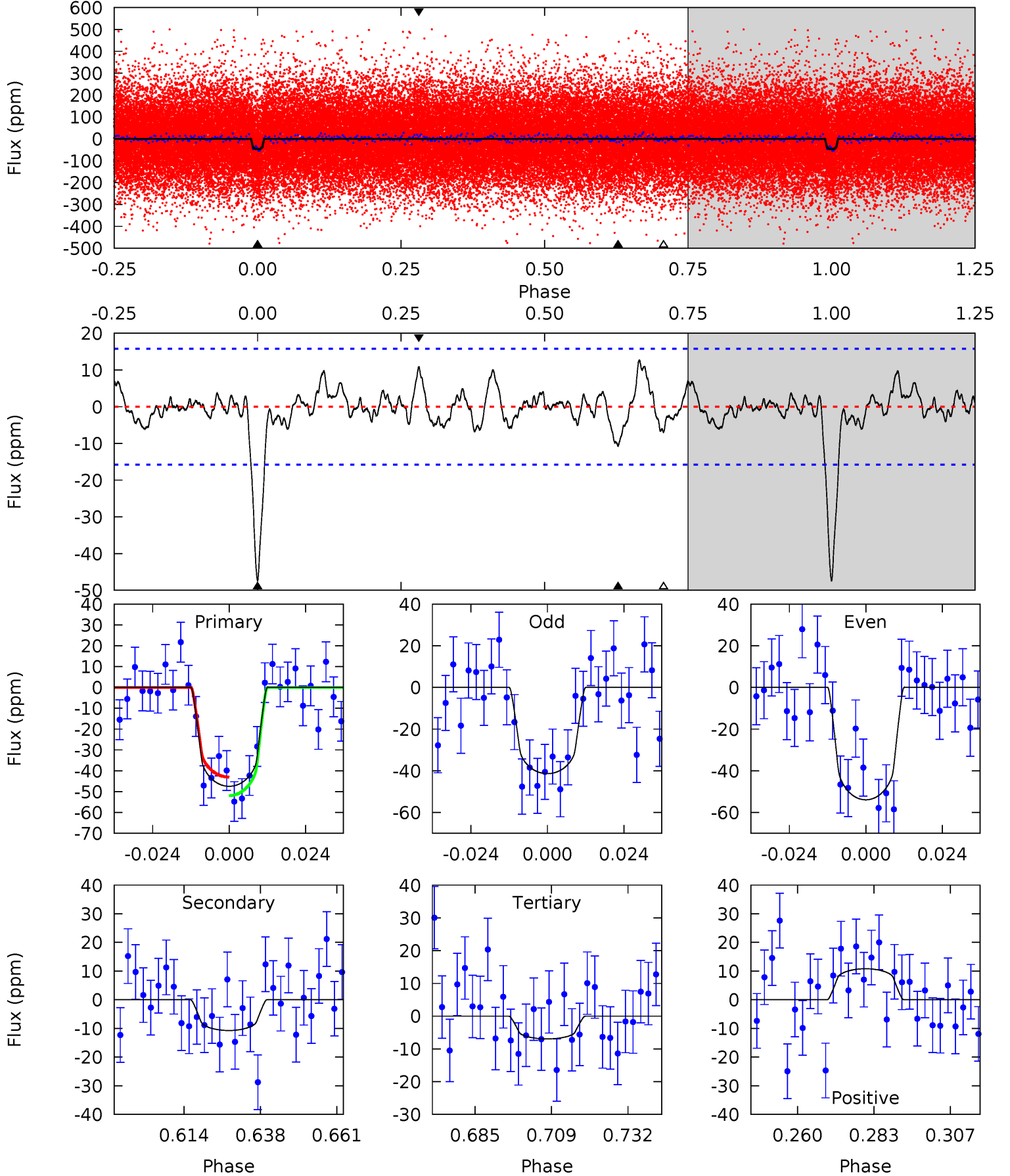
TCE 005211199-02 P= 6.682346 Days $T_0=132.188243$ (BKJD)



DV Model-Shift Uniqueness Test

005211199-02, P = 6.682358 Days, E = 125.505048 Days

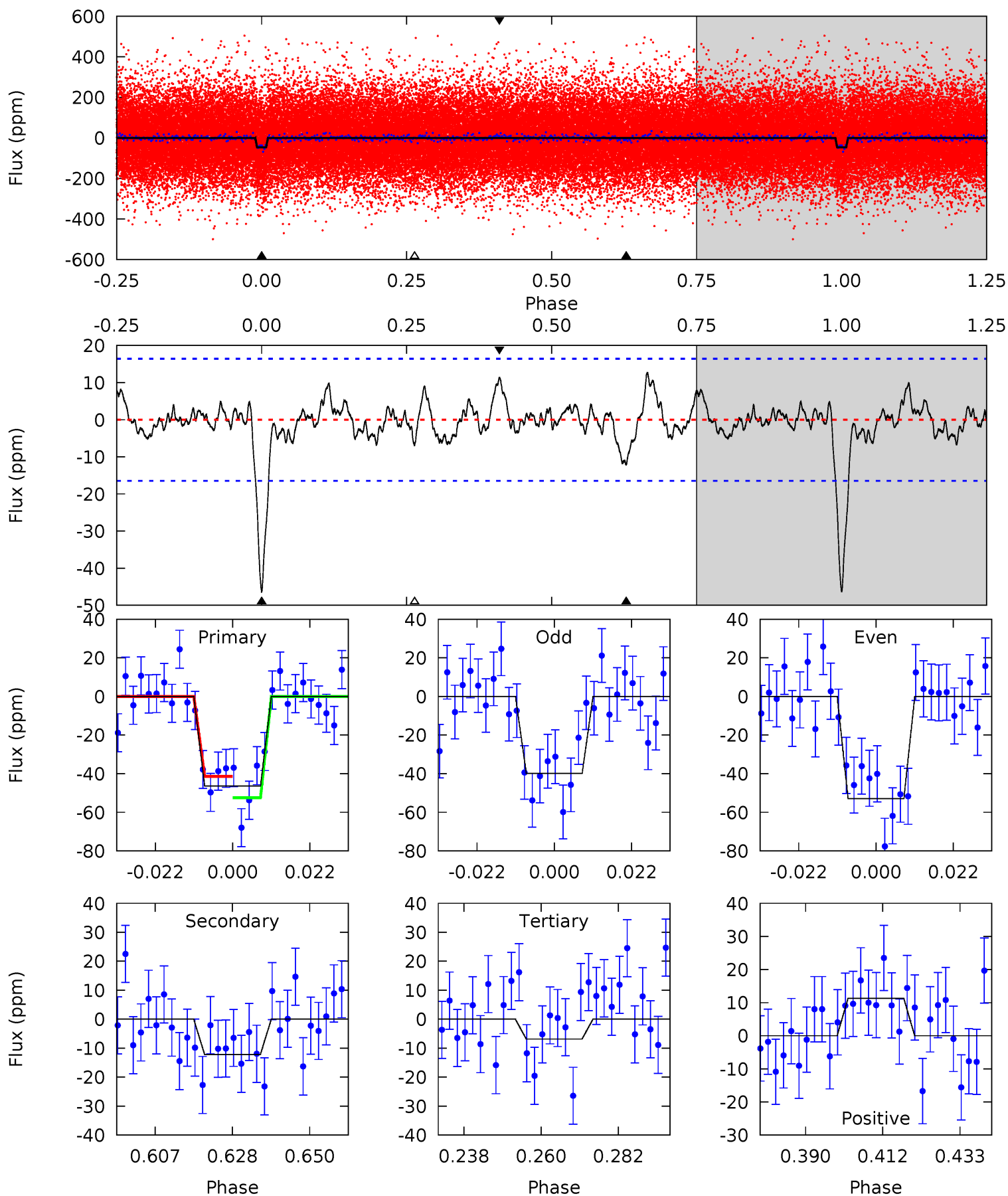
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
14.6	3.31	2.14	3.33	4.86	2.26	1.14	12.5	11.3	1.17	-0.03	1.94	1.04	0.21	1.37



Alt Model-Shift Uniqueness Test

005211199-02, P = 6.682346 Days, E = 125.505897 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
13.7	3.61	2.03	3.34	4.88	2.30	1.08	11.7	10.4	1.58	0.27	1.92	0.98	0.21	1.63



Stellar Parameters For KIC 005211199

	$T_{\text{eff}} (K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R (R_{\odot})$	$M (M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	5343^{+85}_{-74}	$3.764^{+0.238}_{-0.102}$	$0.080^{+0.150}_{-0.150}$	$2.506^{+0.468}_{-0.870}$	$1.330^{+0.146}_{-0.341}$	$0.119^{+0.191}_{-0.040}$
	+2%/-1%	+6%/-3%	+188%/-188%	+19%/-35%	+11%/-26%	+160%/-34%
Source	SPE90	FLK73	SPE90	DSEP		

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

Secondary Eclipse Parameters for KIC 005211199-02 / KOI 2158.02

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-11 ± 3	$2.06^{+1.29}_{-1.06}$	1862^{+97}_{-139}	3702^{+1227}_{-548}	$7.344^{+24.374}_{-4.608}$
Alt.	-12 ± 3	$1.81^{+1.32}_{-1.05}$	1874^{+93}_{-140}	3998^{+1677}_{-642}	12^{+57}_{-8}

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

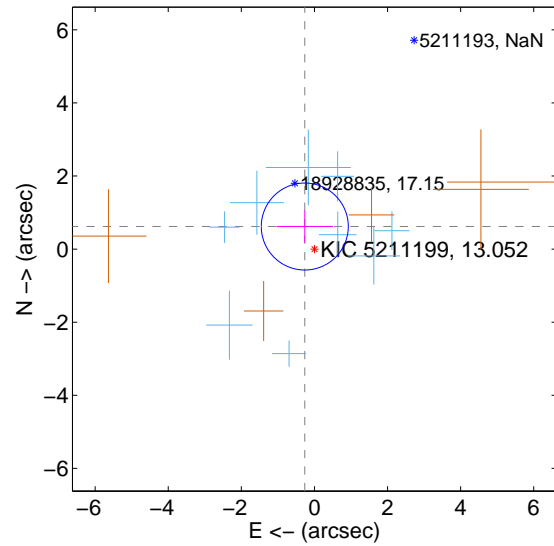
Supplemental centroid analysis for 005211199-02. Kepler magnitude: 13.05. Transit SNR 11.10

There are 9 quarters with good PRF difference image offsets

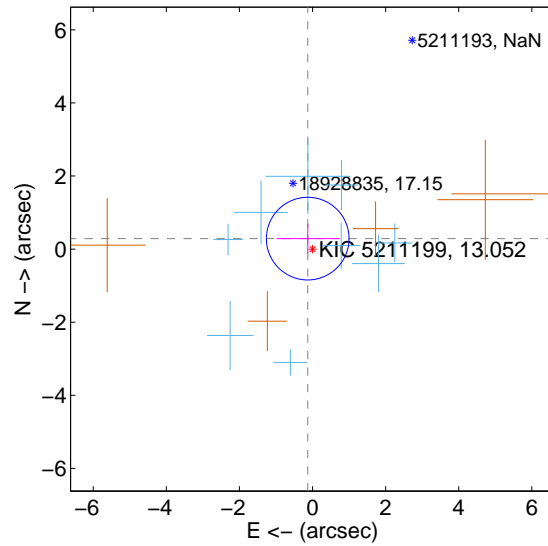
The direct PRF centroid is offset from the target star catalog position by about 0.37 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.672 ± 0.397	1.69	0.264 ± 0.773	0.618 ± 0.445
PRF-fit source offset from KIC position	0.315 ± 0.377	0.84	0.131 ± 0.853	0.286 ± 0.407
photometric centroid source offset	1.46 ± 1.35	1.08	-1.26 ± 1.35	-0.74 ± 1.36

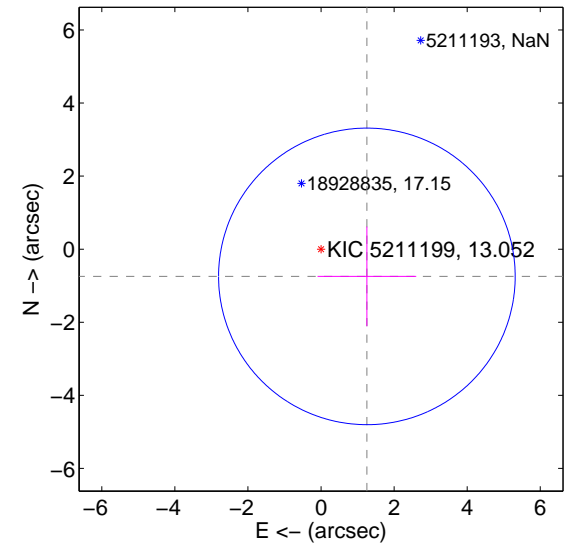
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position

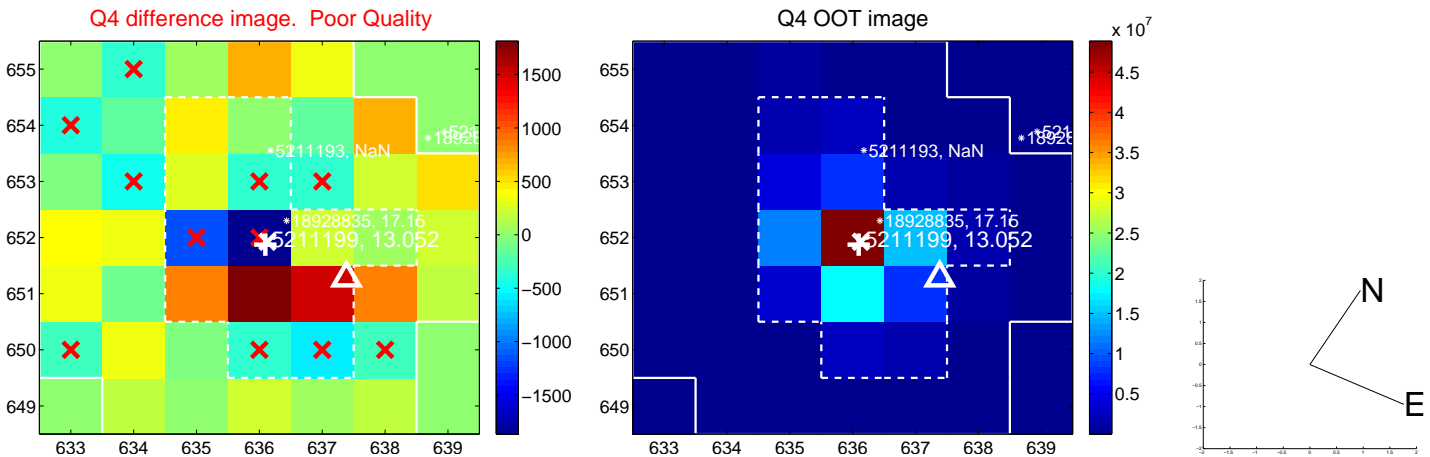
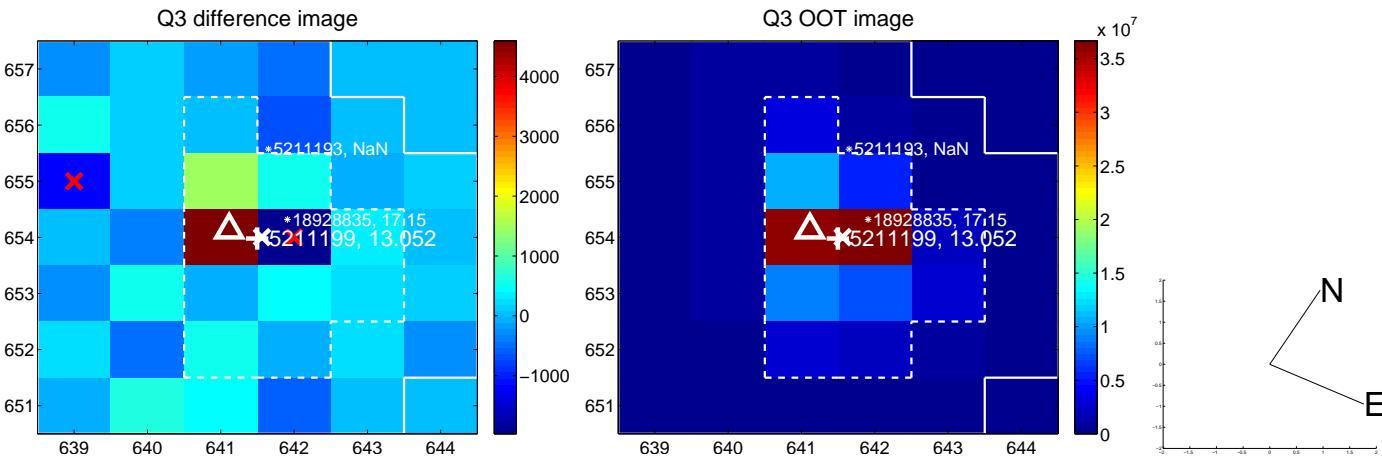
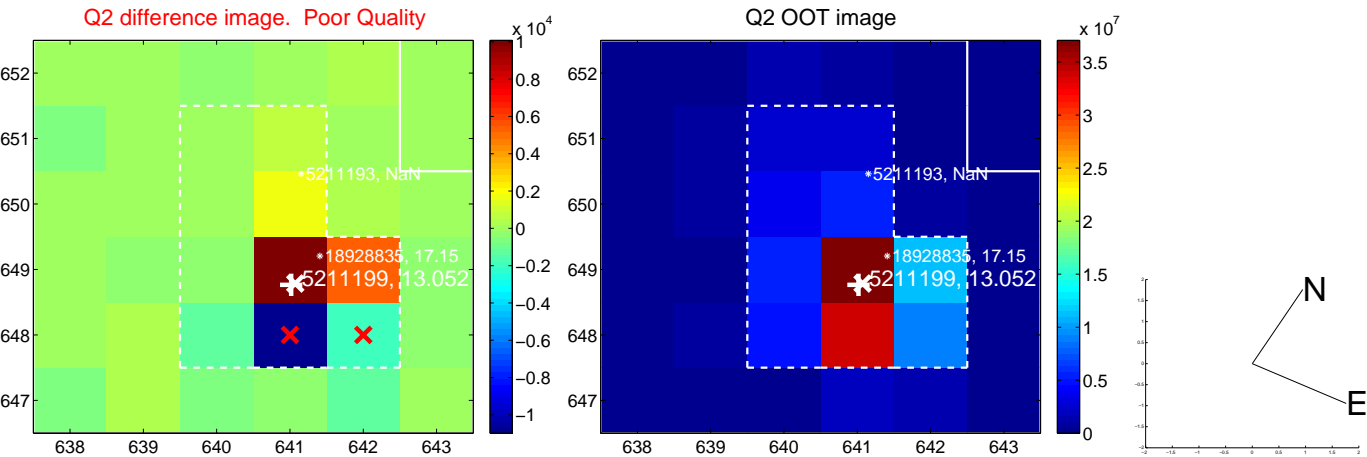
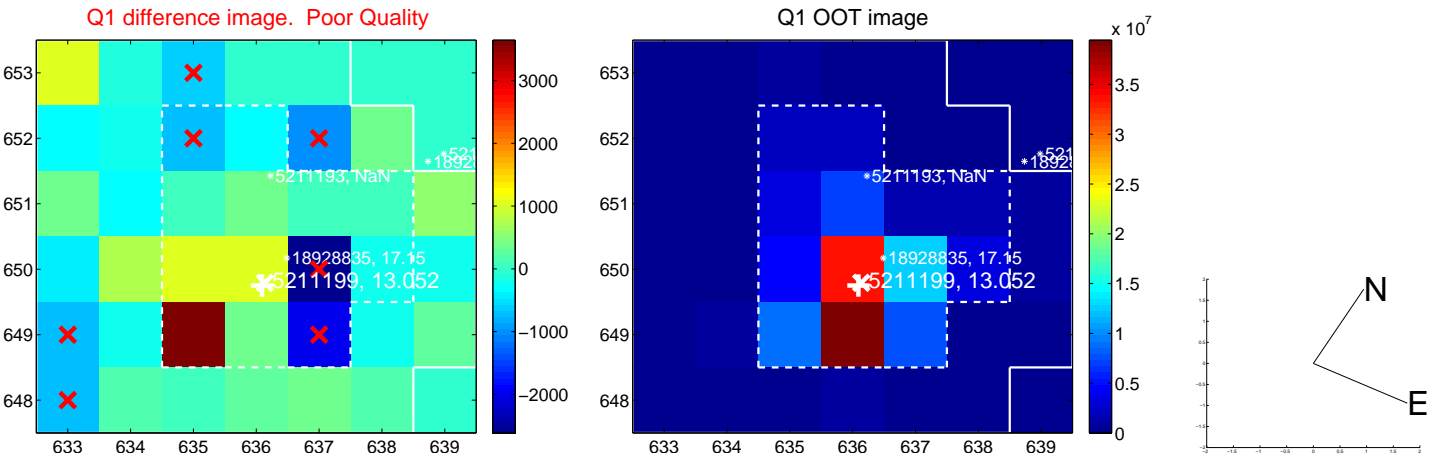


offset from photometric centroids

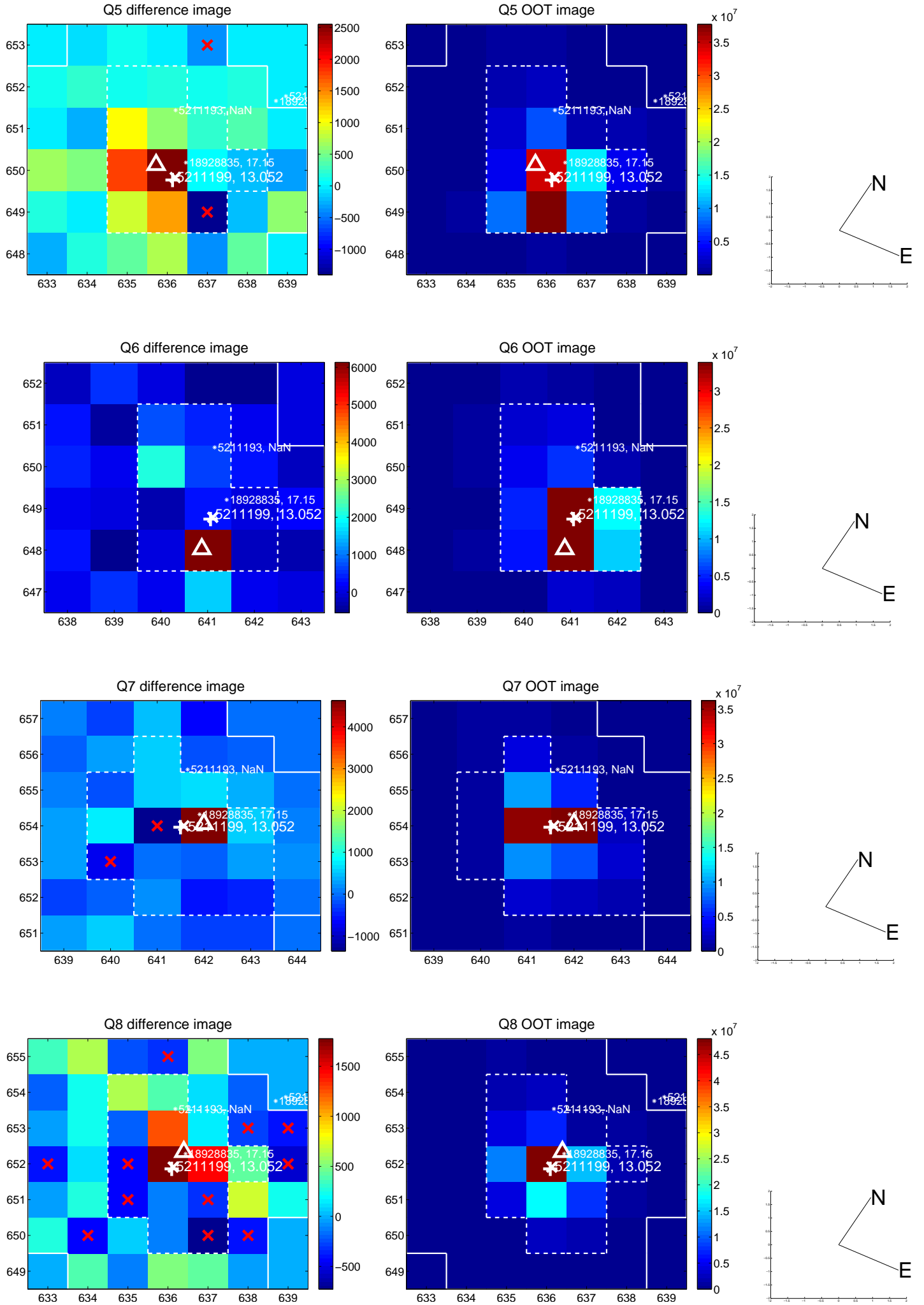


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses:** good quarterly centroid offsets; **Vermillion crosses:** bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

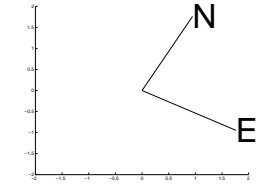
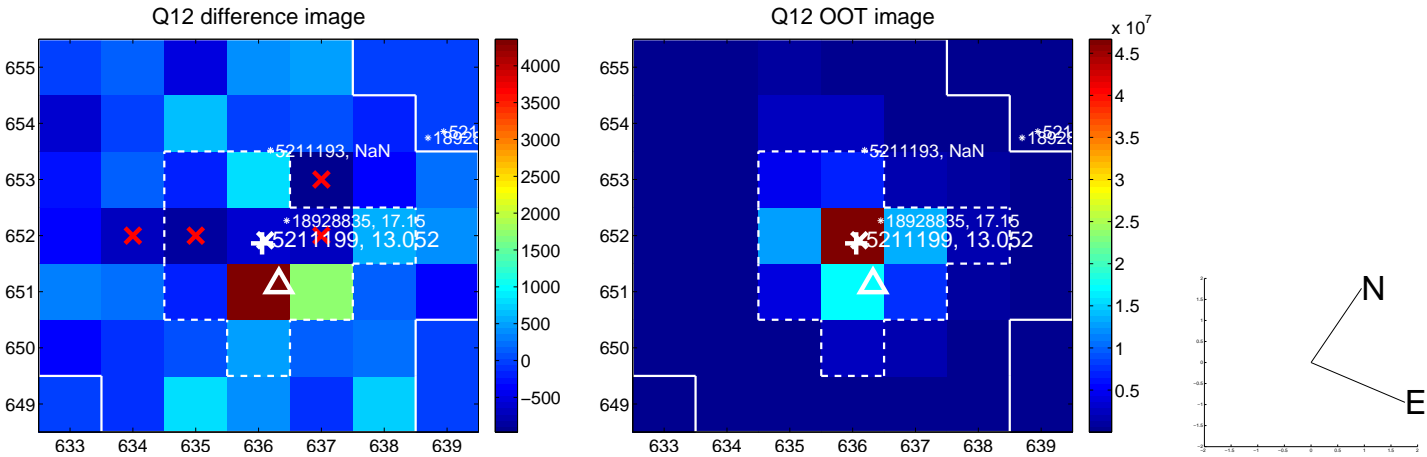
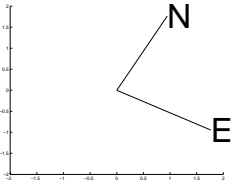
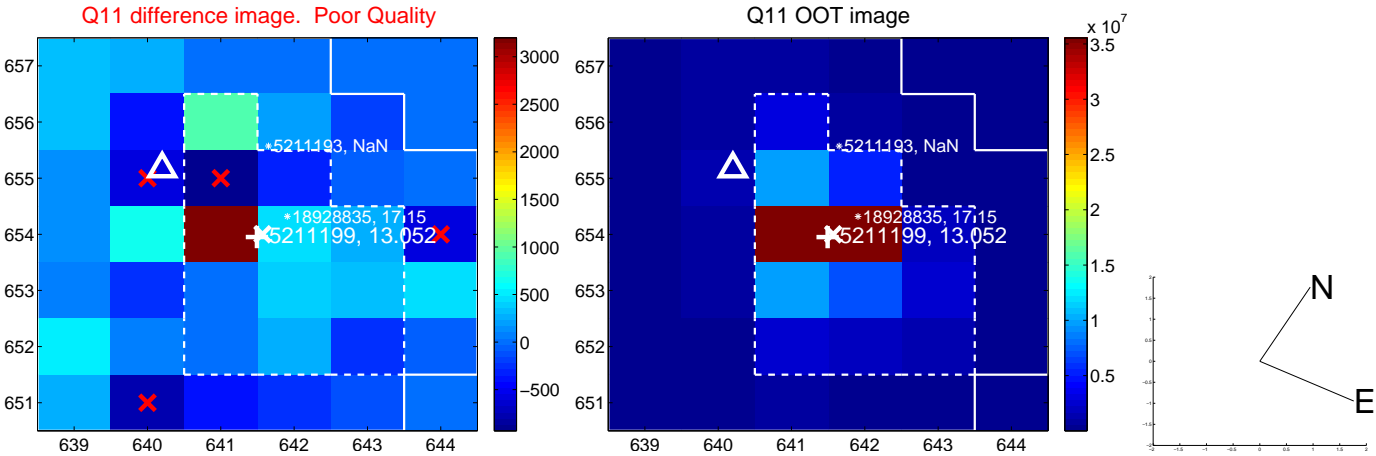
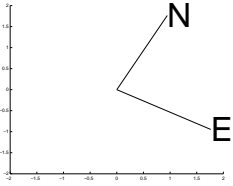
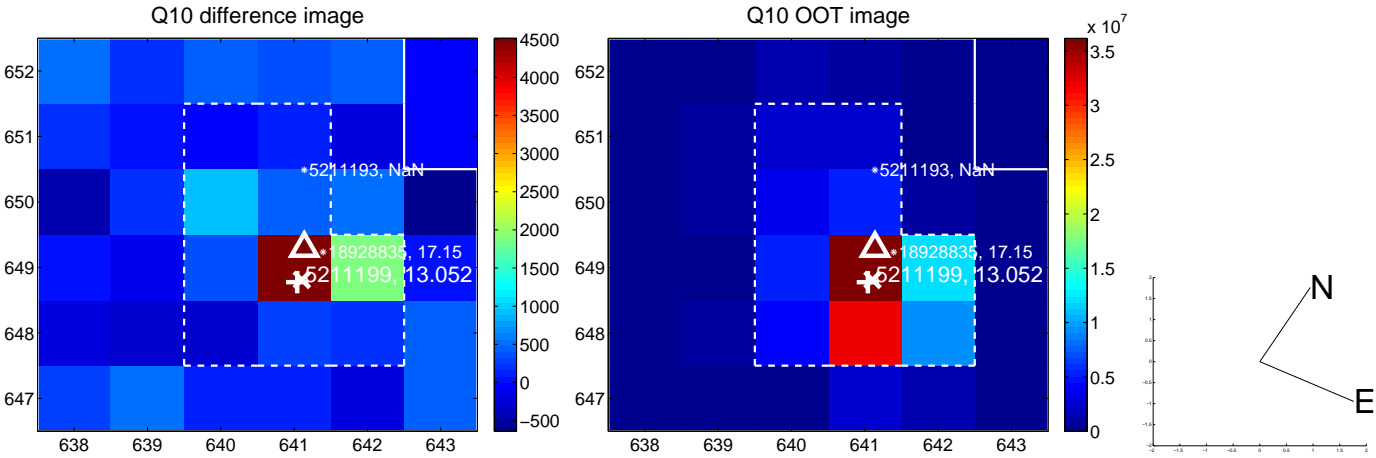
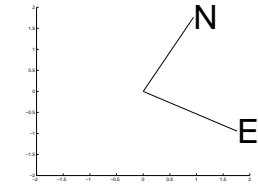
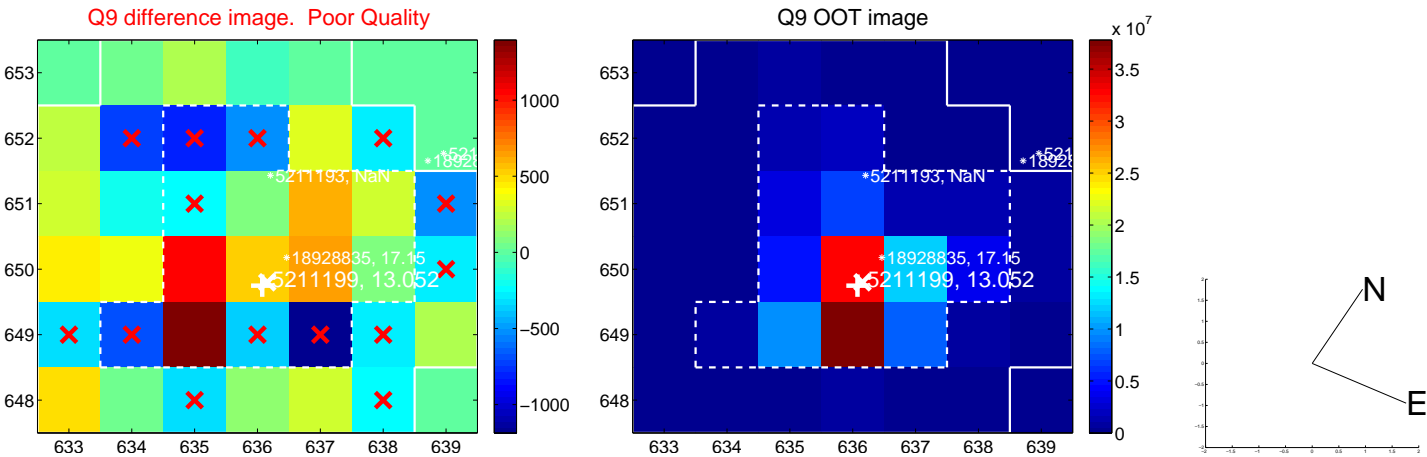
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



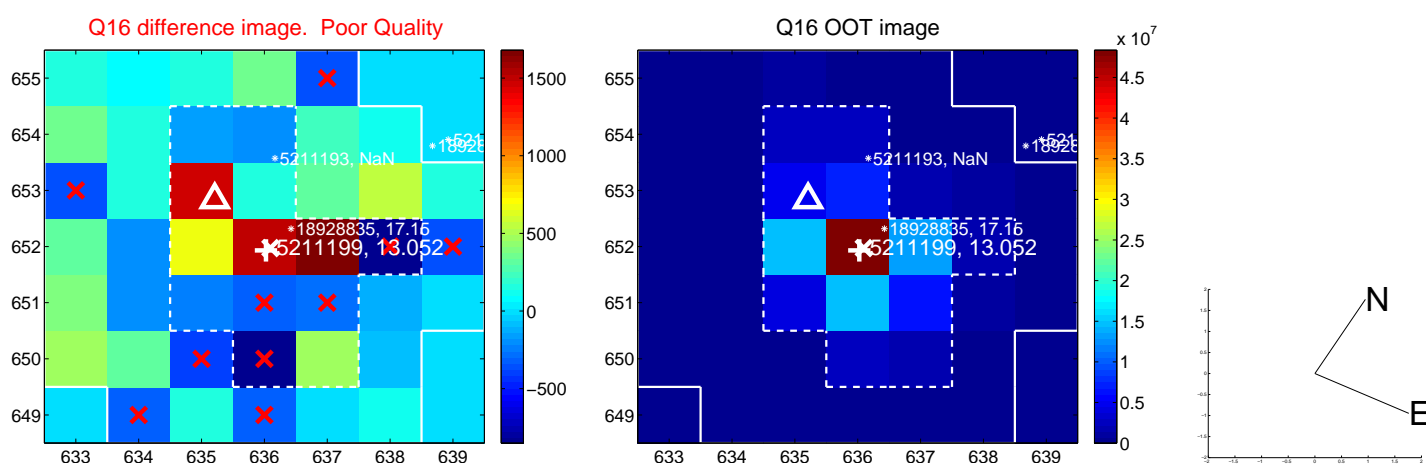
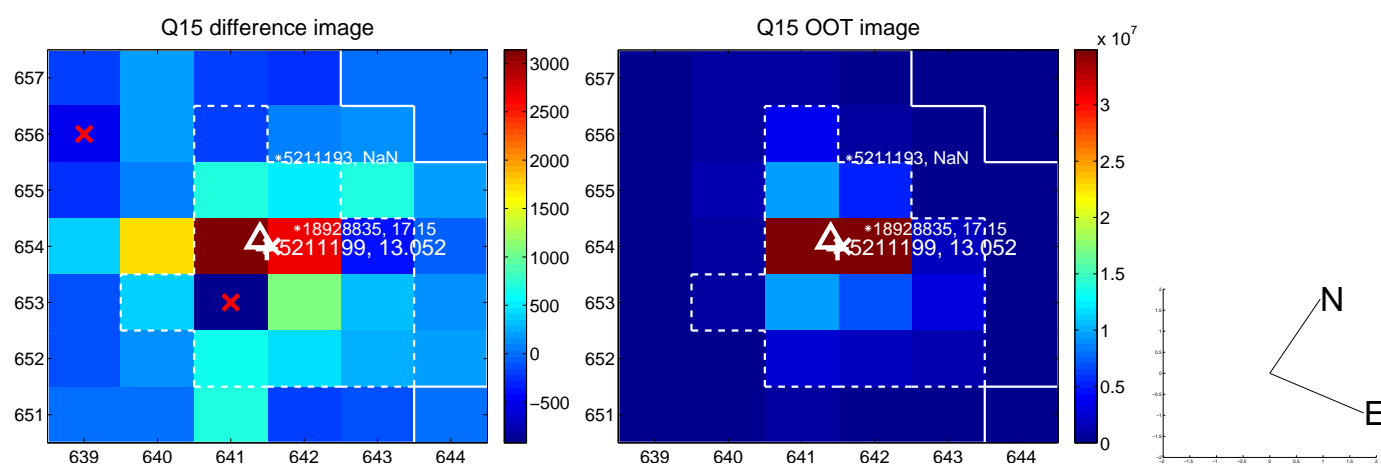
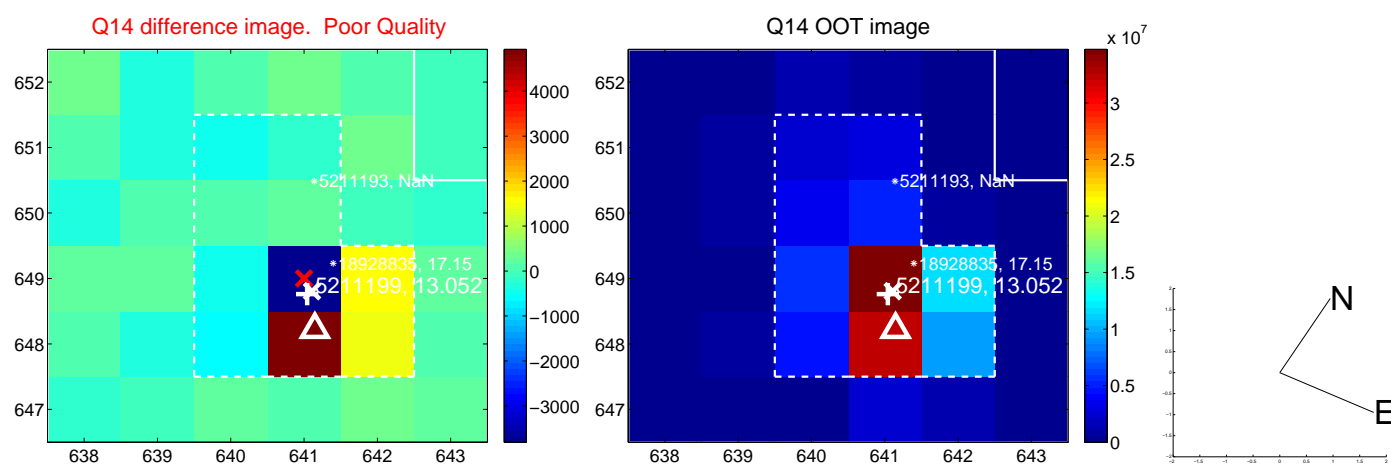
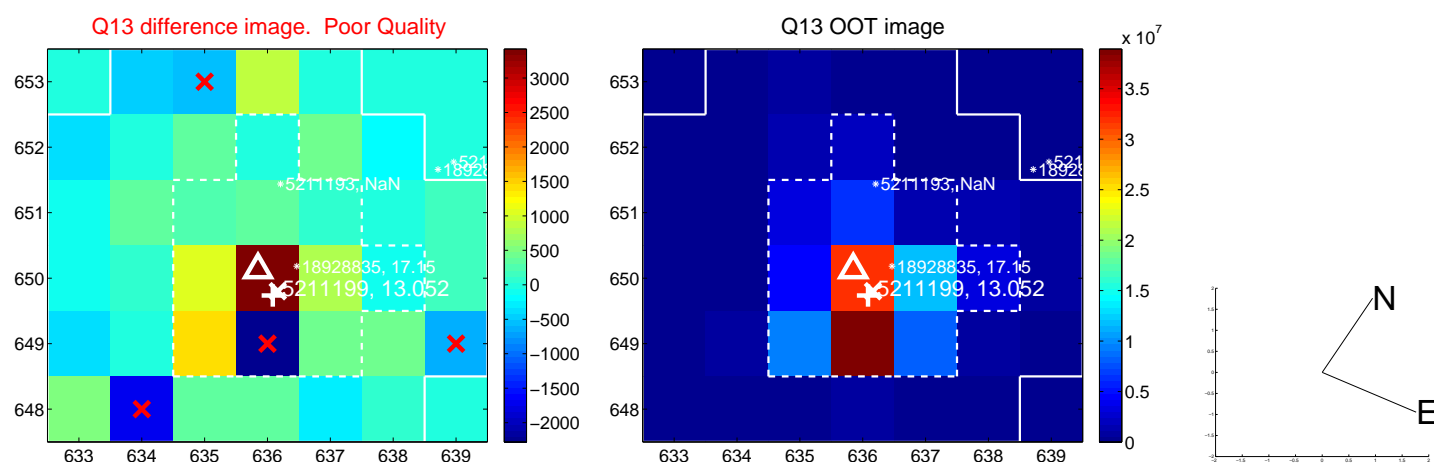
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



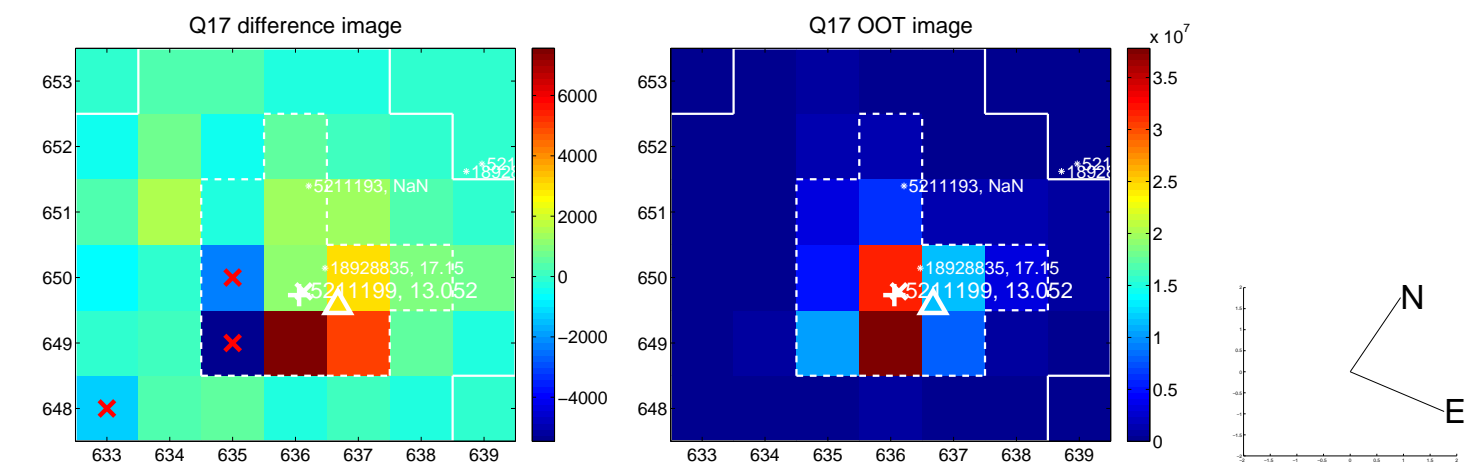
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



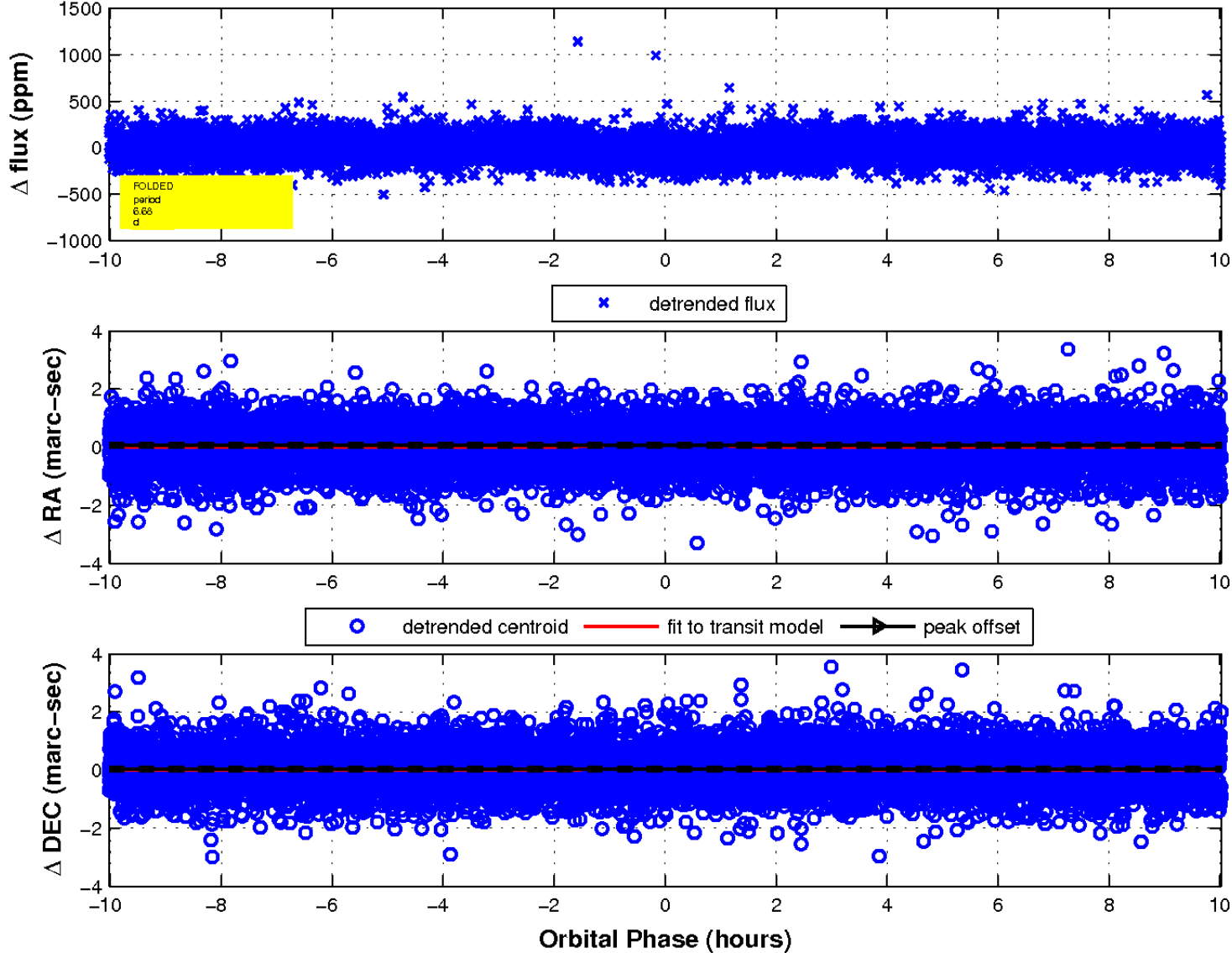
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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



fluxWeightedCentroids, Planet 2 of 2



UKIRT Image

Declination

