

KIC 003942911

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})
003942911-01	OBS	No	0.522533	131.798737	40.6	1.816	11.3	10.3	2.13	7502	1.57	56023.63
003942911-02	OBS	No	1.825926	131.758979	82.6	6.363	8.2	10.1	2.13	7502	2.24	10565.21

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
003942911-01	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—CENT_SATURATED
003942911-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_SKYE_ZUMA—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—CENT_SATURATED

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

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

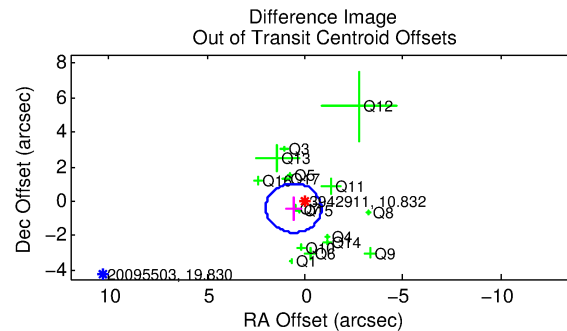
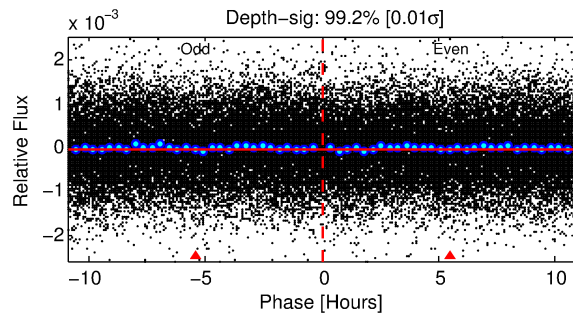
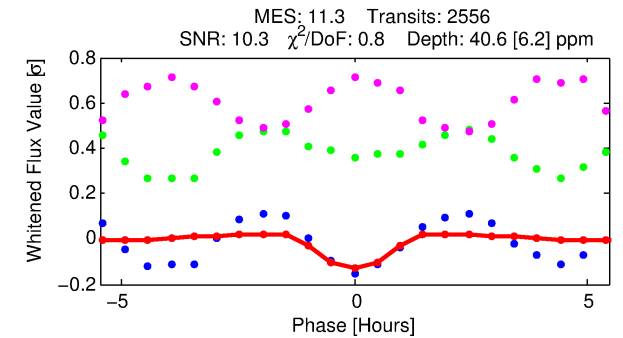
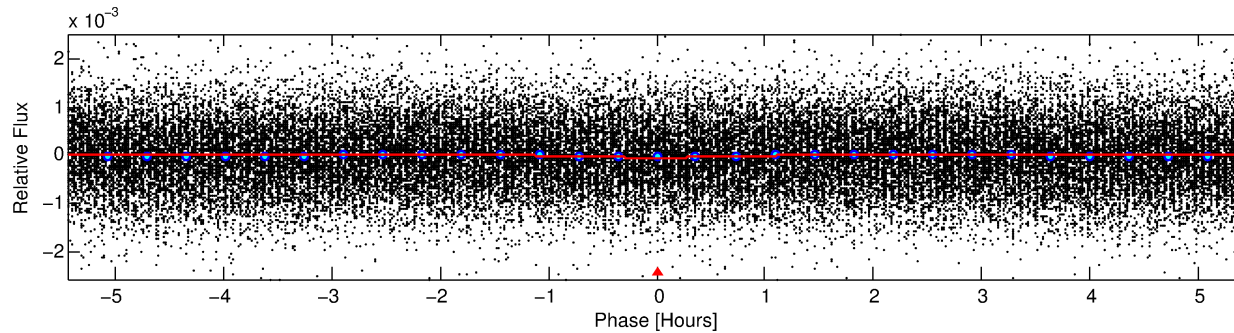
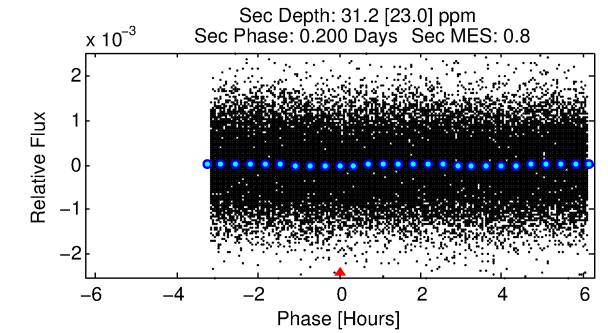
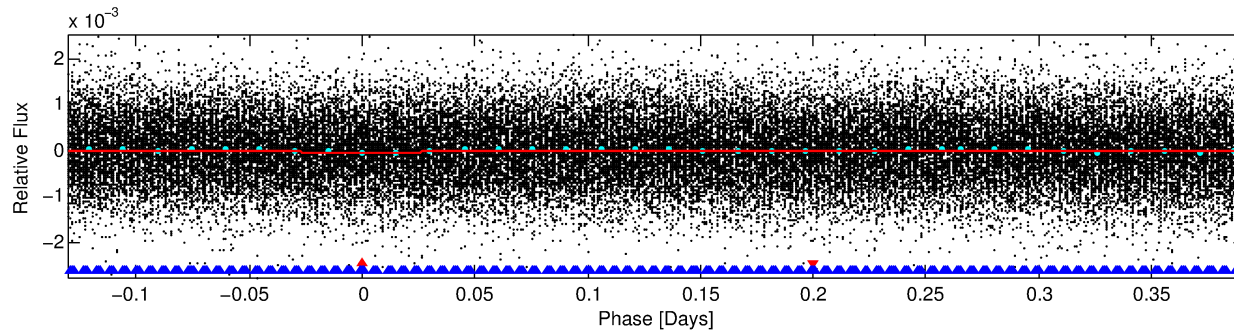
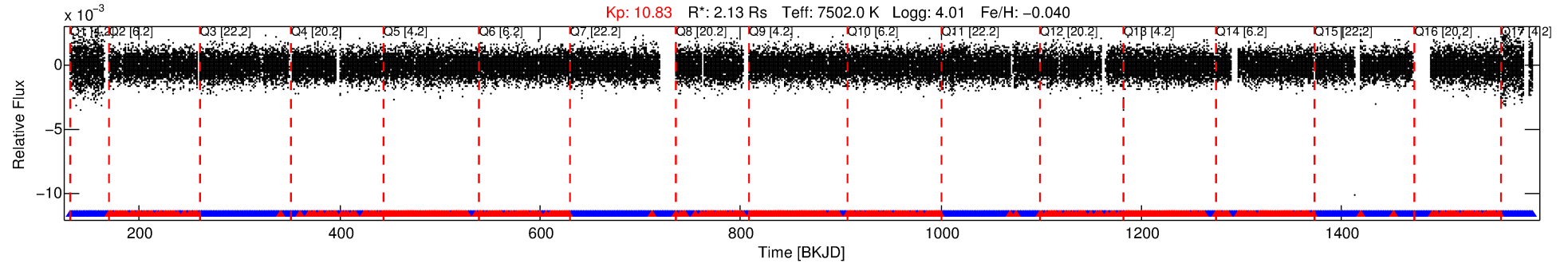
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 003942911-01

No Significant Match Found

DV One-Page Summary

KIC: 3942911 Candidate: 1 of 2 Period: 0.523 d



DV Fit Results:

Period = 0.52253 [0.00001] d
Epoch = 131.7987 [0.0027] BKJD
Rp/R* = 0.0067 [0.0047]
a/R* = 1.38 [2.97]
b = 0.90 [1.02]
Seff = 56023.63 [20180.73]
Teq = 3923 [353] K
Rp = 1.57 [1.16] Re
a = 0.0152 [0.0033] AU
Ag = 1.61 [2.57] [0.24σ]
Teffp = 6829 [2692] K [1.07σ]

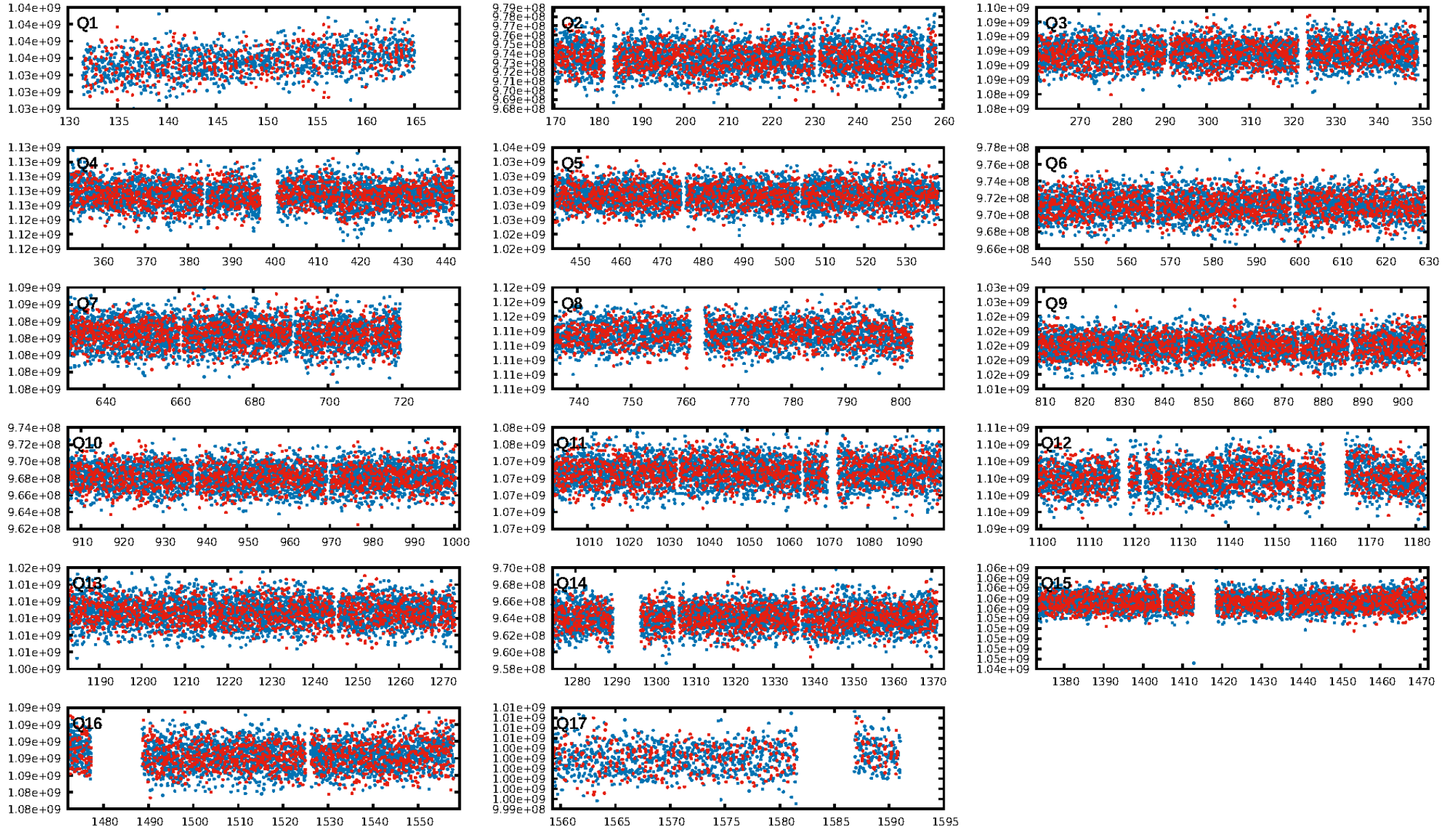
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: 100.0% [4.73σ]
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: 9.91e-35
RollingBand-fgt: 0.65 [1583/2441]
GhostDiagnostic-chr: -16.68
Centroid-sig: 24.2%
Centroid-so: 0.292 arcsec [1.16σ]
OotOffset-rm: 0.713 arcsec [1.51σ]
OotOffset-st: 3/4/4/5 [16]
KicOffset-rm: 1.161 arcsec [2.14σ]
KicOffset-st: 3/4/4/5 [16]
DiffImageQuality-fgm: 0.62 [10/16]
DiffImageOverlap-fno: 1.00 [17/17]

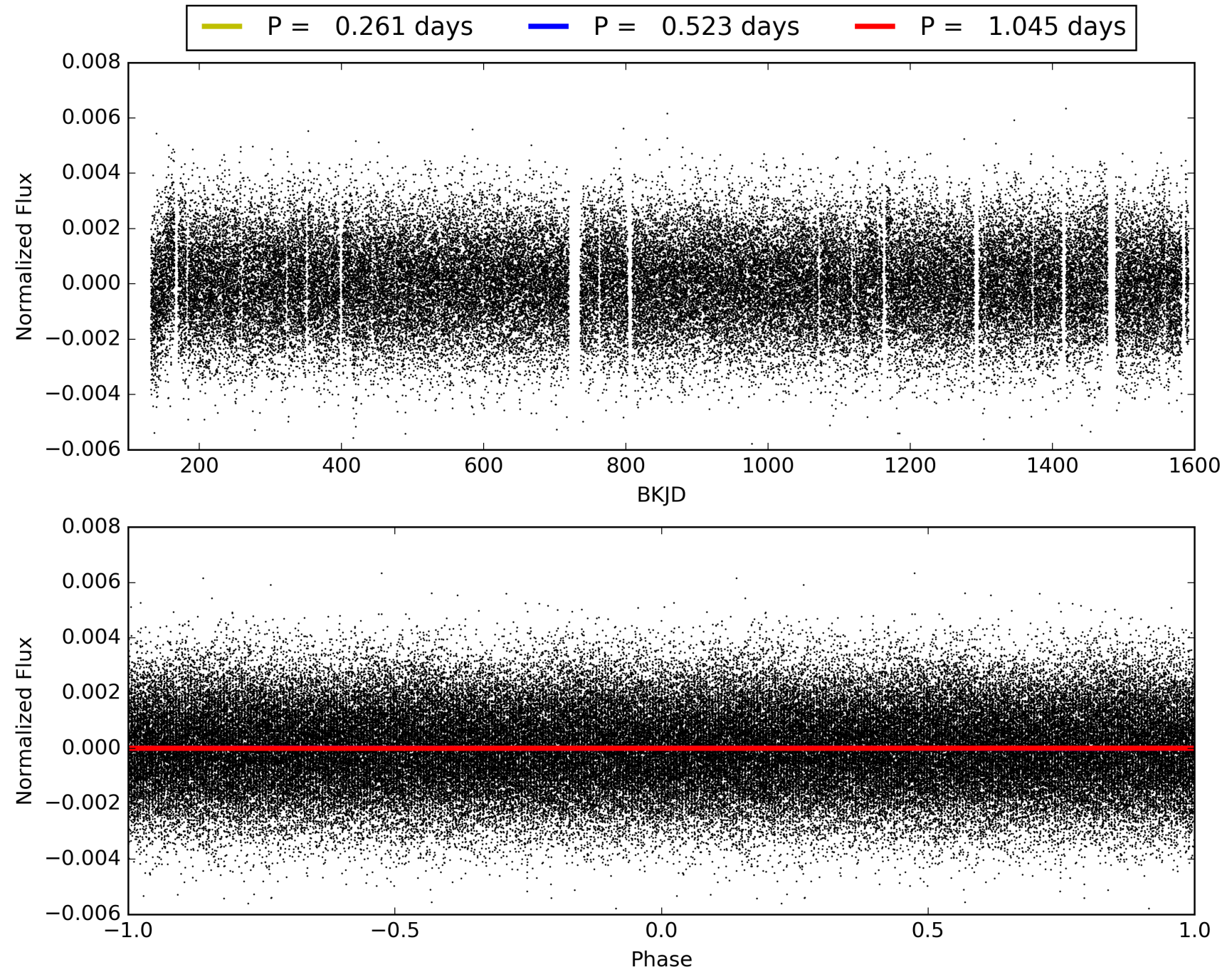
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 01-Feb-2016 03:03:30 Z

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

TCE 003942911-01, PDC Light Curves

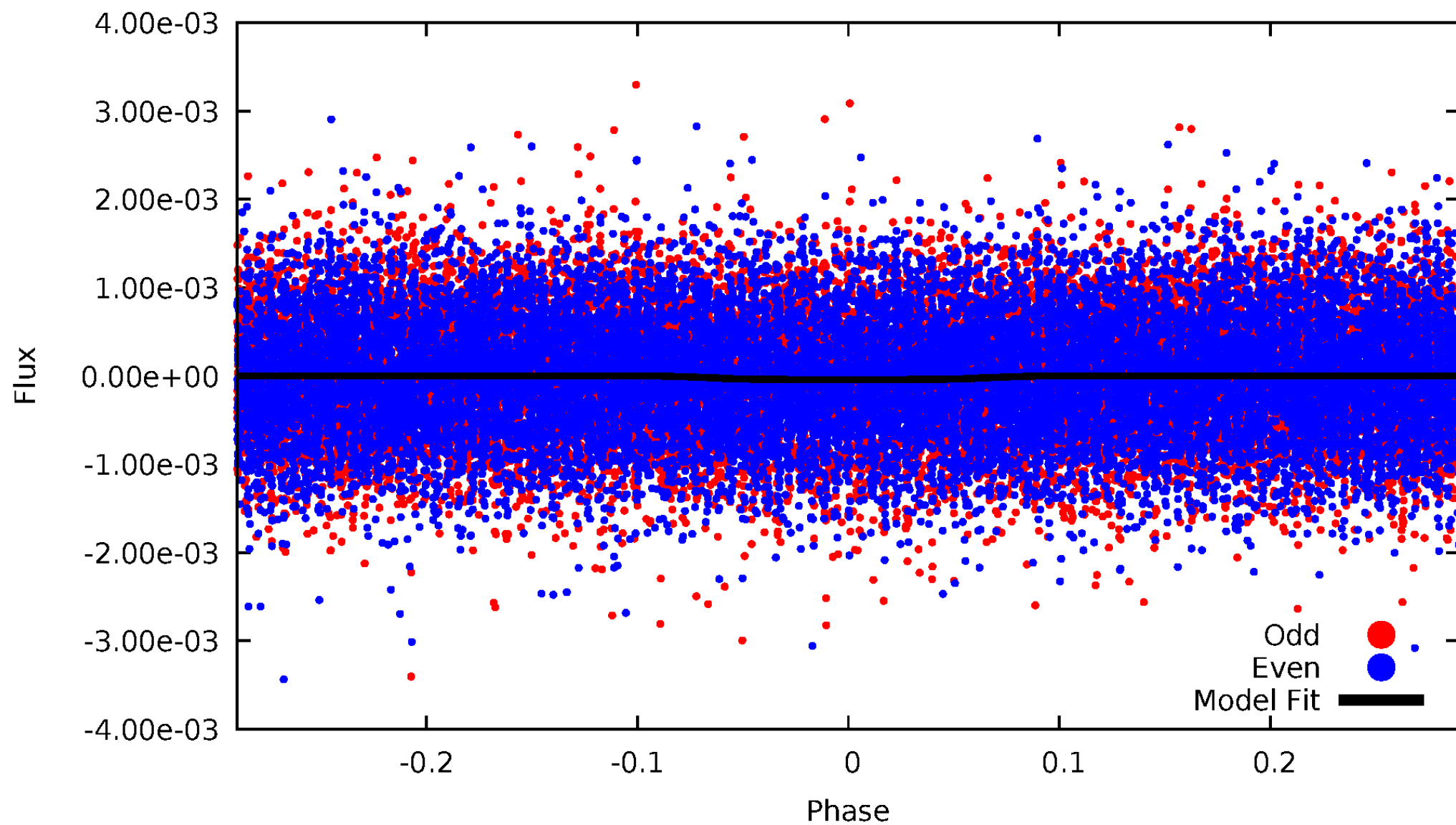


TCE 003942911-01



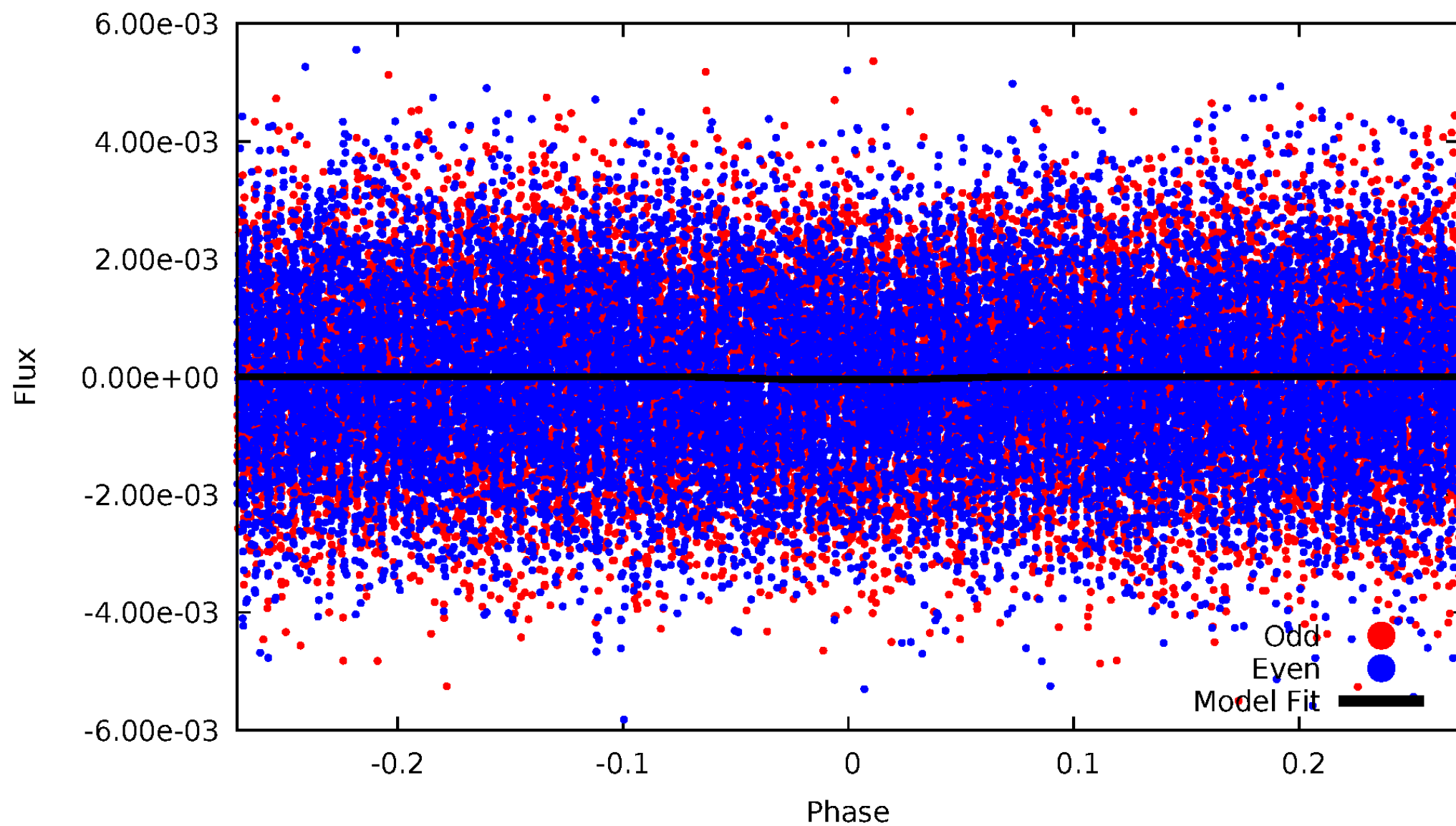
DV Odd/Even

TCE 003942911-01



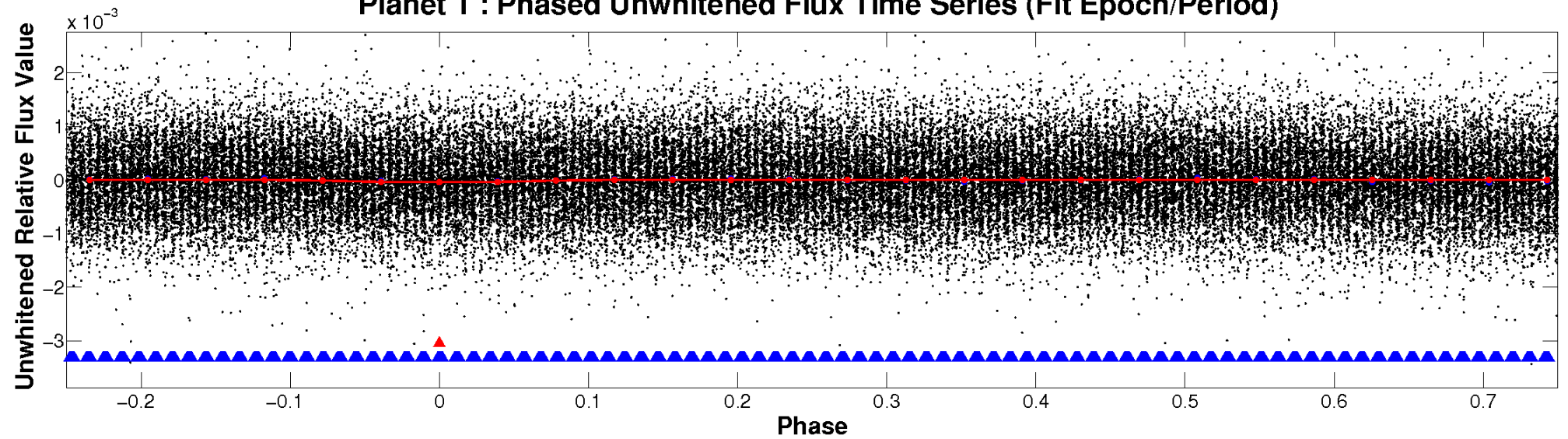
ALT Odd/Even

TCE 003942911-01

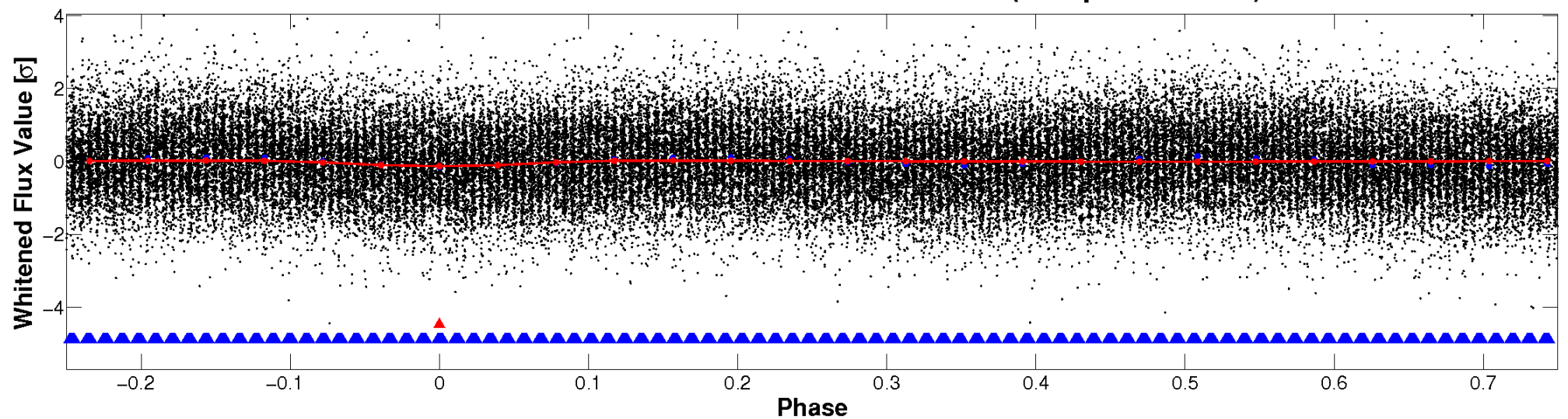


Non-Whitened Vs. Whitened Light Curve

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

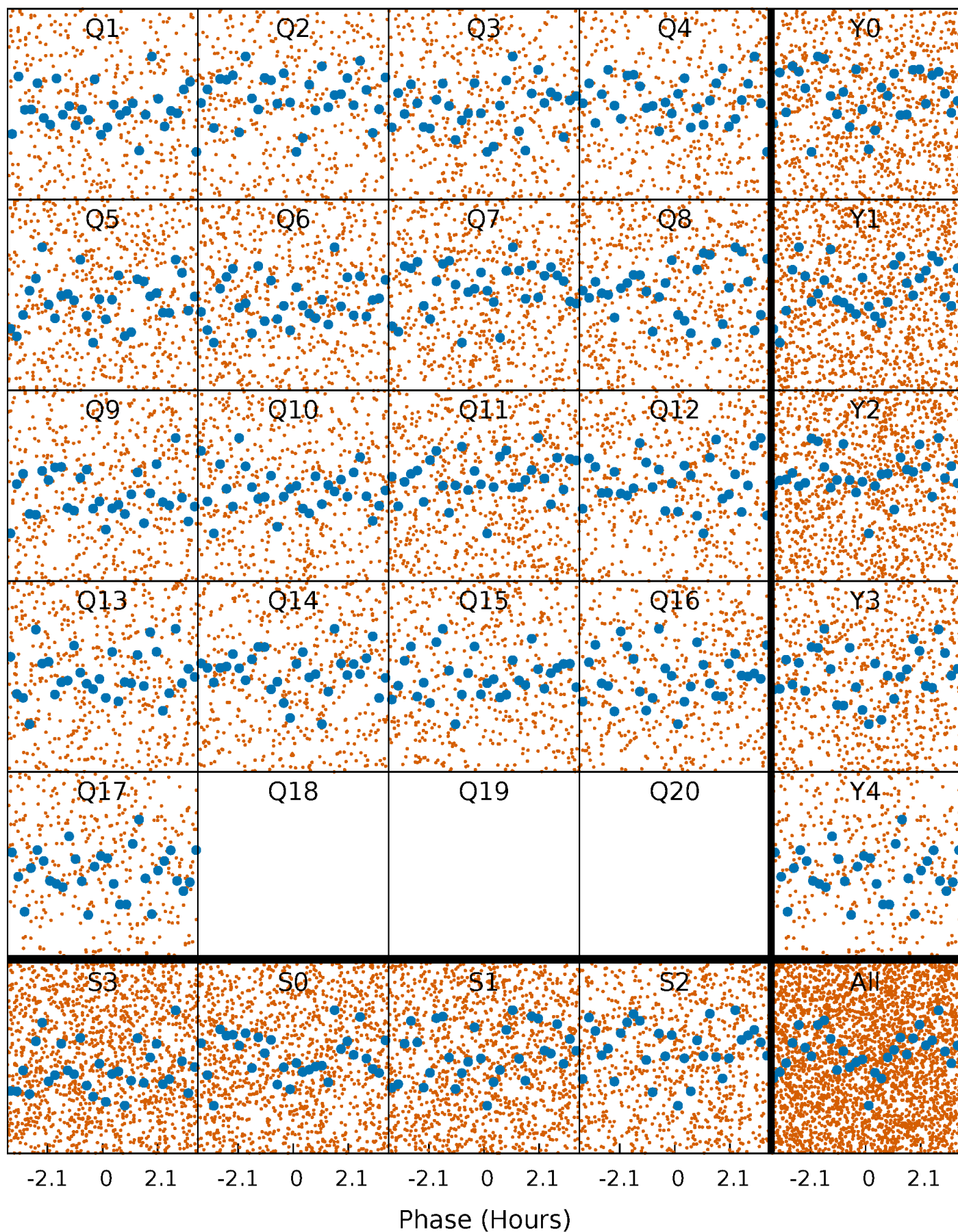


Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)



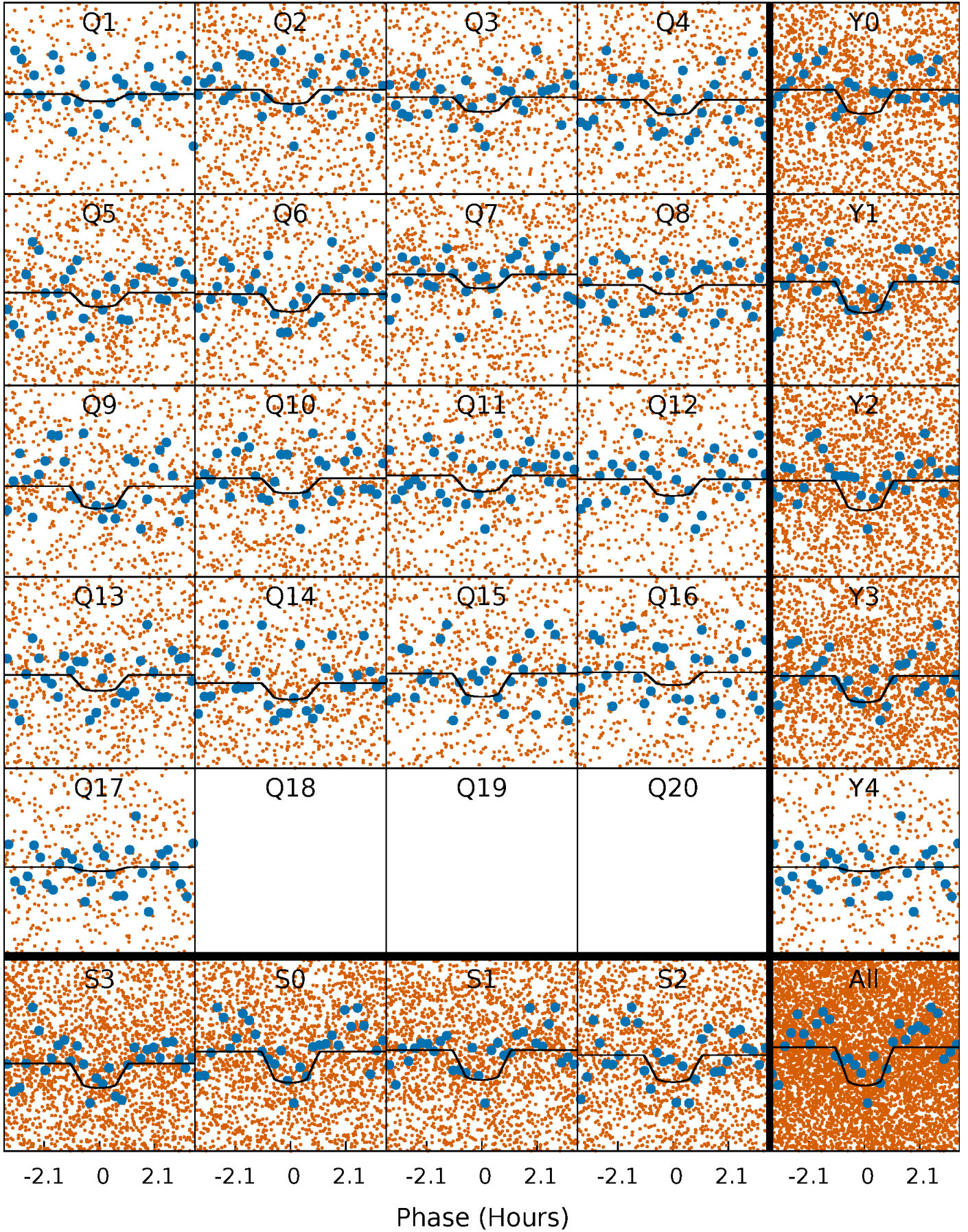
PDC Quarter-Phased Transit Curves

TCE 003942911-01 P= 0.522533 Days $T_0=131.798737$ (BKJD)



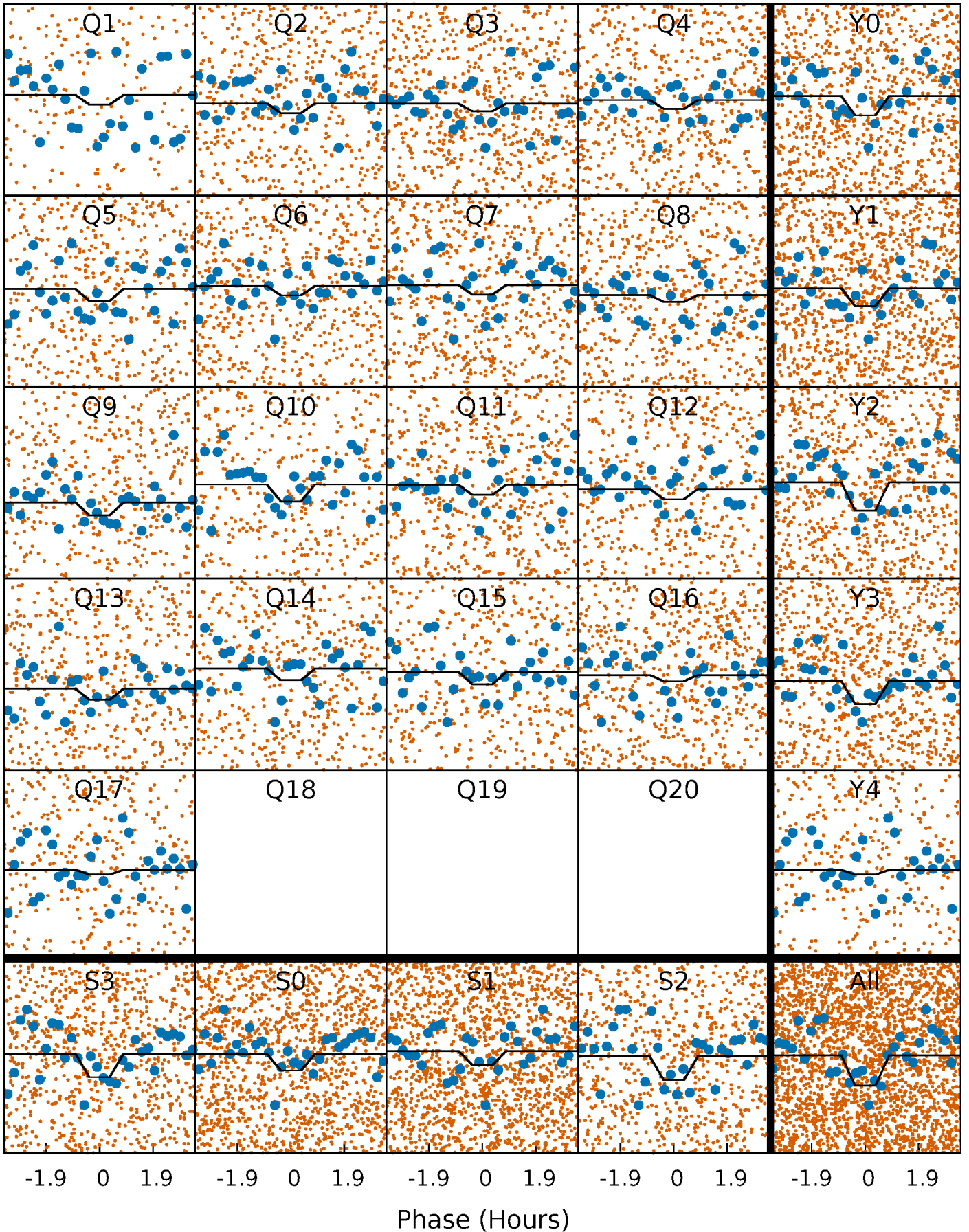
DV Quarter-Phased Transit Curves

TCE 003942911-01 P= 0.522533 Days $T_0=131.798737$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

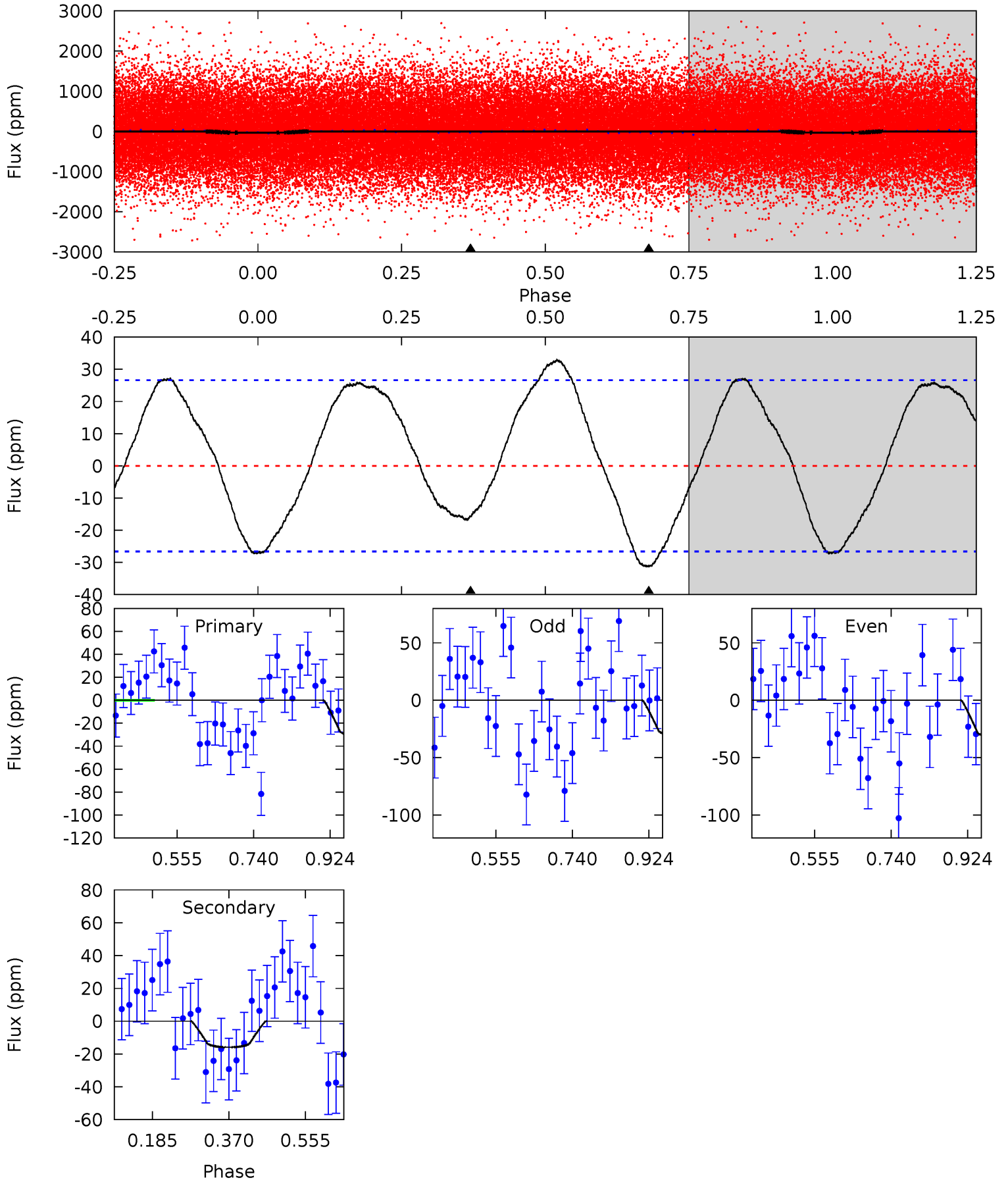
TCE 003942911-01 P= 0.522537 Days $T_0=131.798887$ (BKJD)



DV Model-Shift Uniqueness Test

003942911-01, P = 0.522533 Days, E = 131.276204 Days

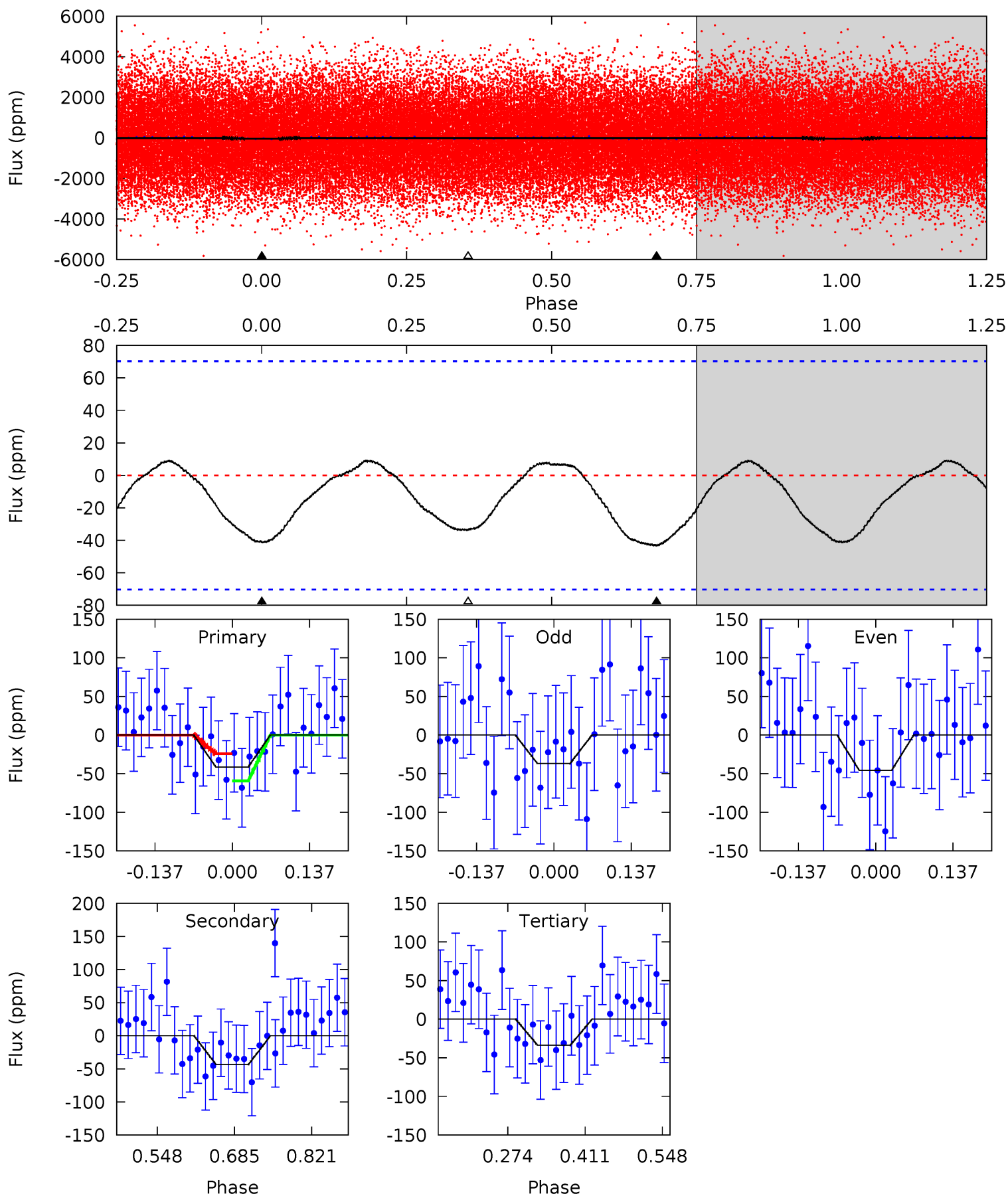
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
5.24	2.65	0	0	4.43	1.33	2.99	5.24	5.24	2.65	2.65	0.13	1.03	0.51	1.12



Alt Model-Shift Uniqueness Test

003942911-01, P = 0.522537 Days, E = 131.276350 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
2.64	2.78	2.17	0	4.50	1.49	0.97	0.48	2.64	0.61	2.78	0.28	1.02	0.17	1.12



Stellar Parameters For KIC 003942911

	$T_{\text{eff}} (K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R (R_{\odot})$	$M (M_{\odot})$	$\rho_{\star} (\text{g}\cdot\text{cm}^{-3})$
	7502^{+237}_{-316}	$4.012^{+0.175}_{-0.158}$	$-0.040^{+0.200}_{-0.300}$	$2.130^{+0.546}_{-0.546}$	$1.699^{+0.204}_{-0.272}$	$0.248^{+0.249}_{-0.106}$
	+3%/-4%	+4%/-4%	+500%/-750%	+26%/-26%	+12%/-16%	+100%/-43%
Source	KIC0	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 003942911-01 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-16 ± 6	$1.74^{+1.20}_{-1.00}$	5496^{+368}_{-402}	4725^{+3281}_{-8467}	$0.633^{+2.762}_{-0.432}$
Alt.	-43 ± 16	$1.72^{+0.99}_{-0.92}$	5466^{+394}_{-401}	6543^{+4665}_{-1905}	$1.799^{+6.448}_{-1.191}$

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

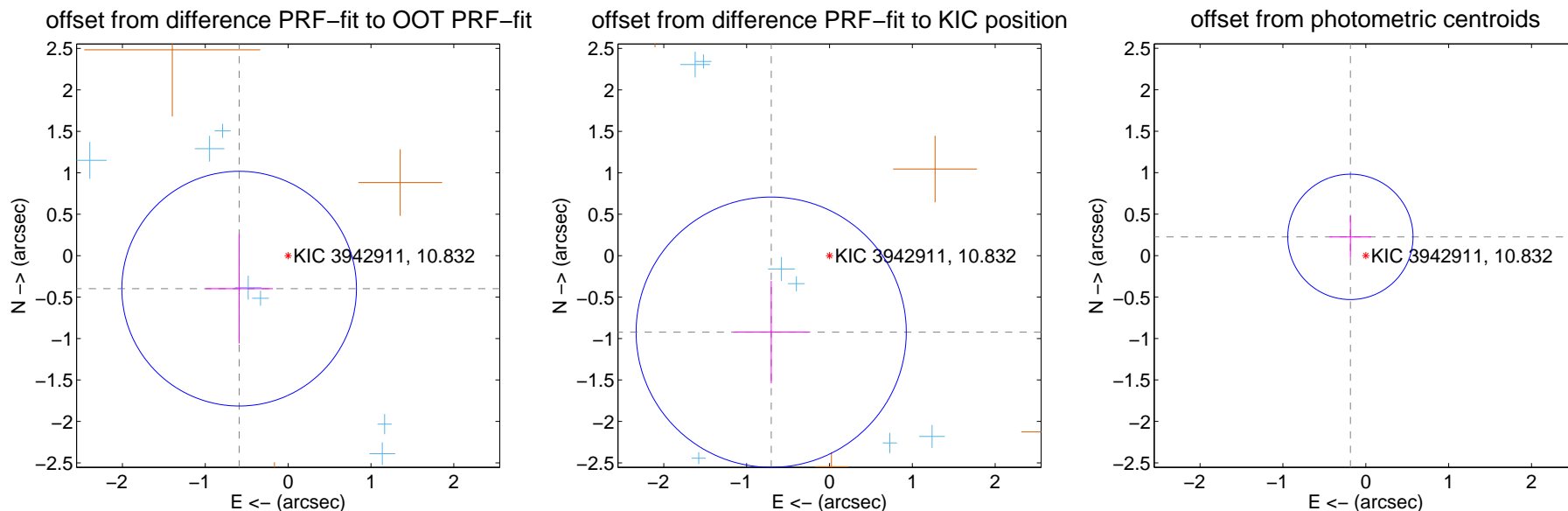
DV Centroid Data

Supplemental centroid analysis for 003942911-01. **Kepler magnitude: 10.83.** Transit SNR 10.33

There are 10 quarters with good PRF difference image offsets

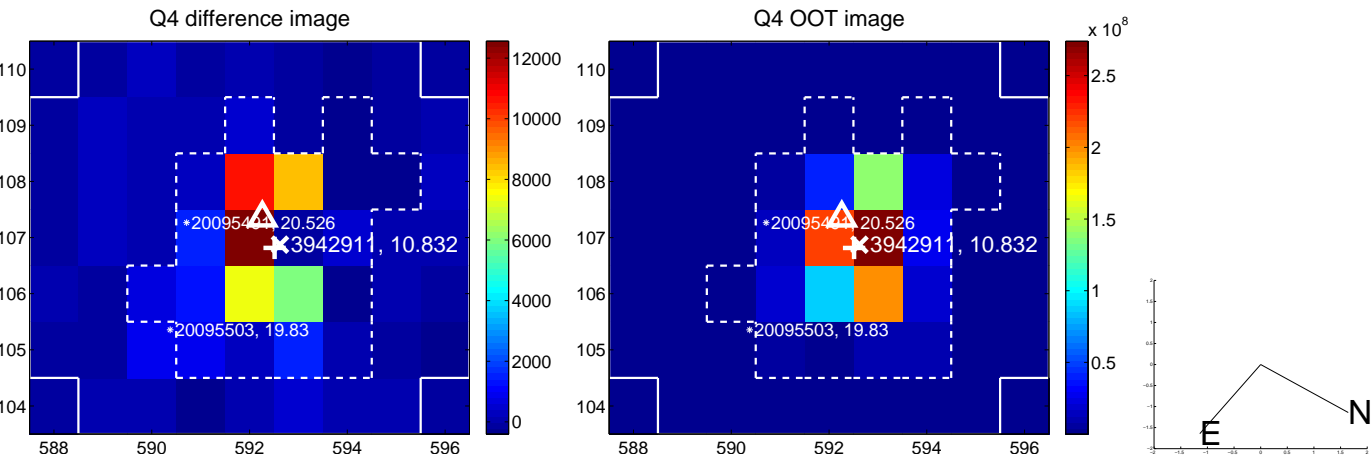
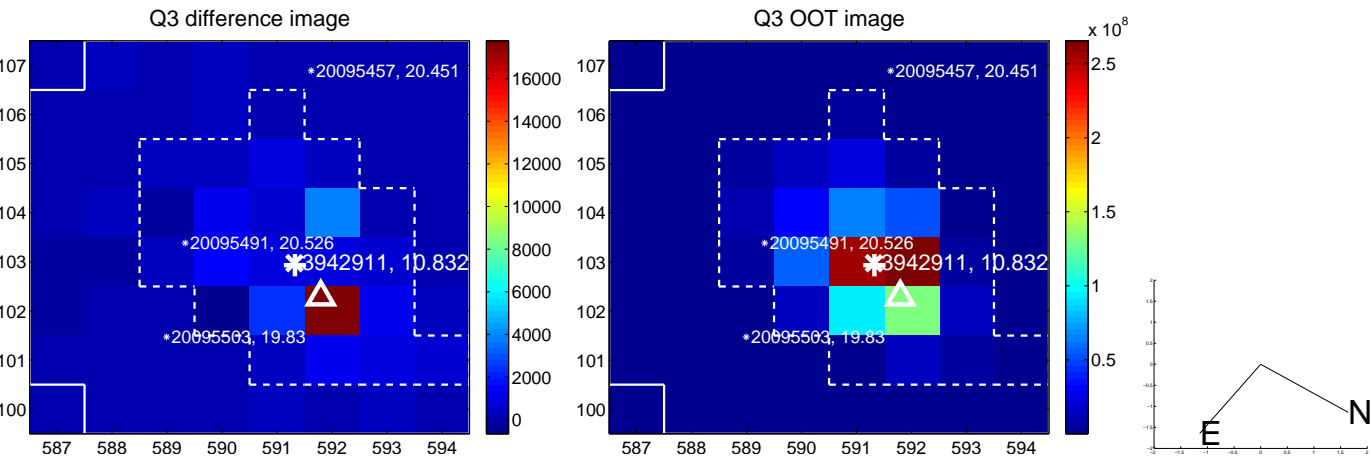
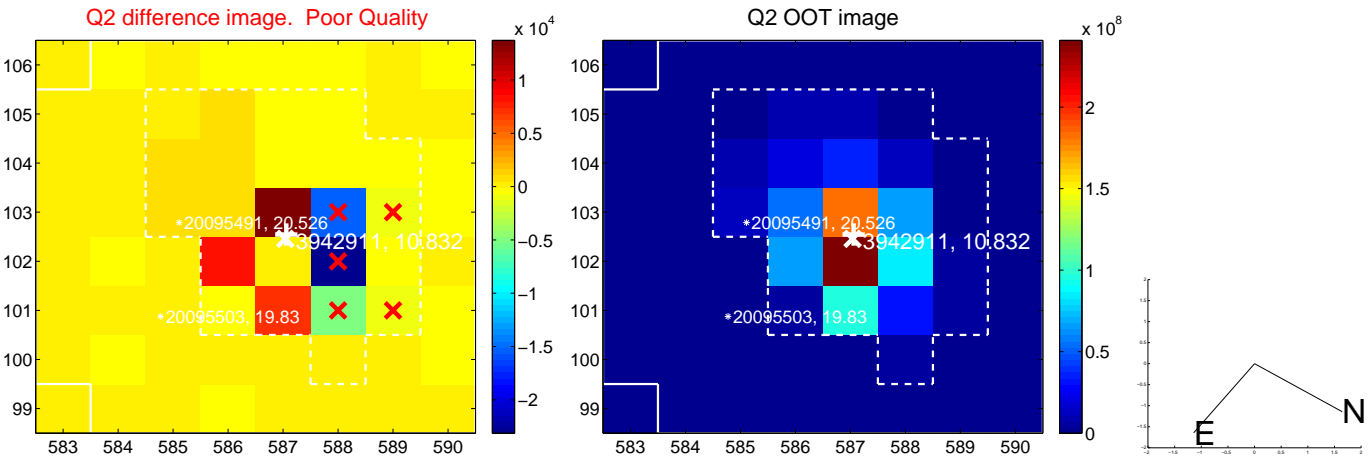
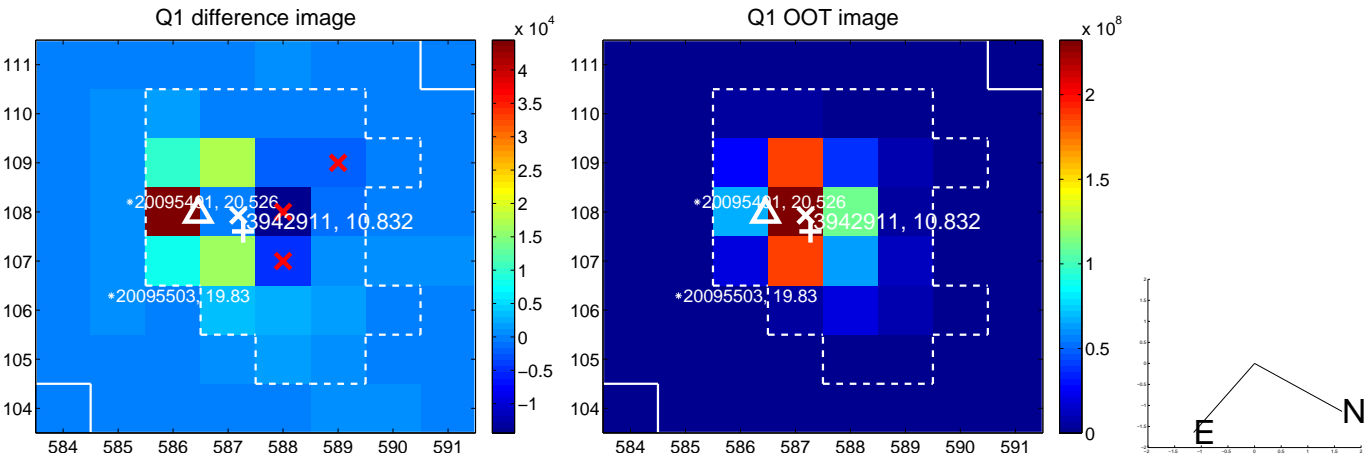
The direct PRF centroid is offset from the target star catalog position by about 1.22 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.713 ± 0.472	1.51	0.591 ± 0.407	-0.398 ± 0.662
PRF-fit source offset from KIC position	1.161 ± 0.544	2.14	0.704 ± 0.454	-0.923 ± 0.618
photometric centroid source offset	0.29 ± 0.25	1.16	0.19 ± 0.25	0.23 ± 0.25

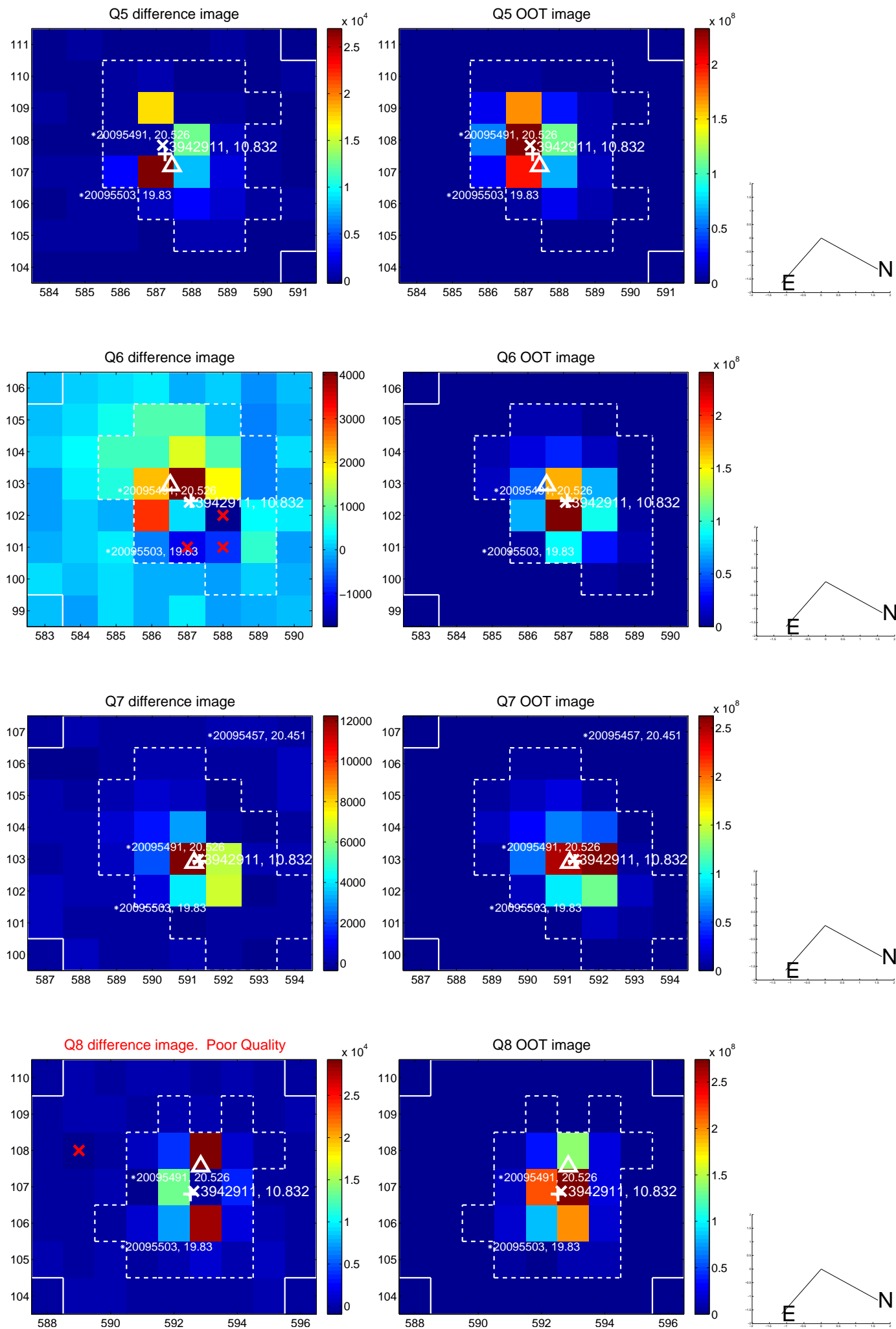


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets;** magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

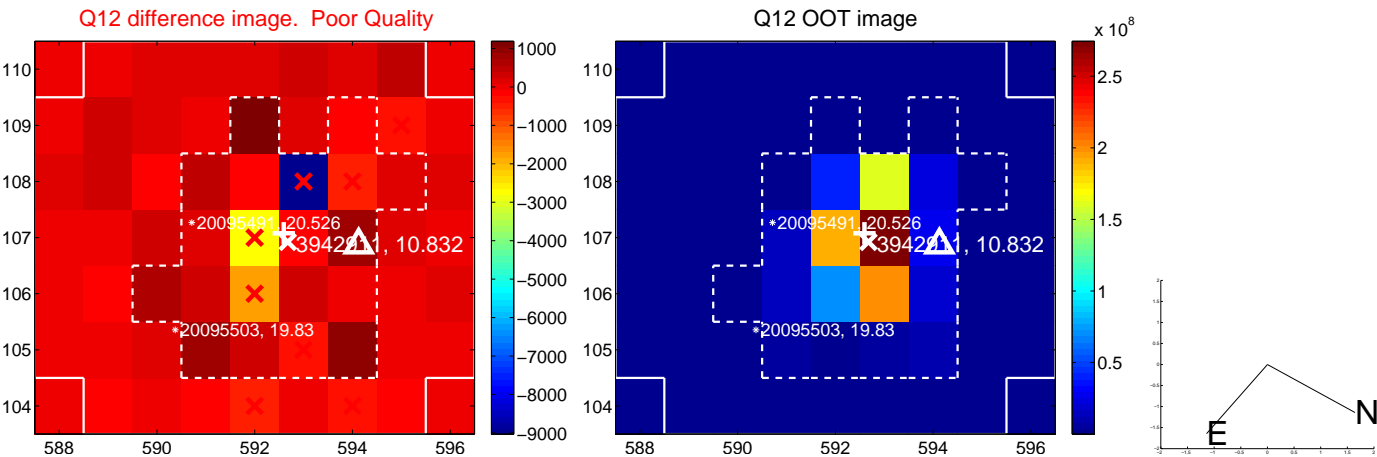
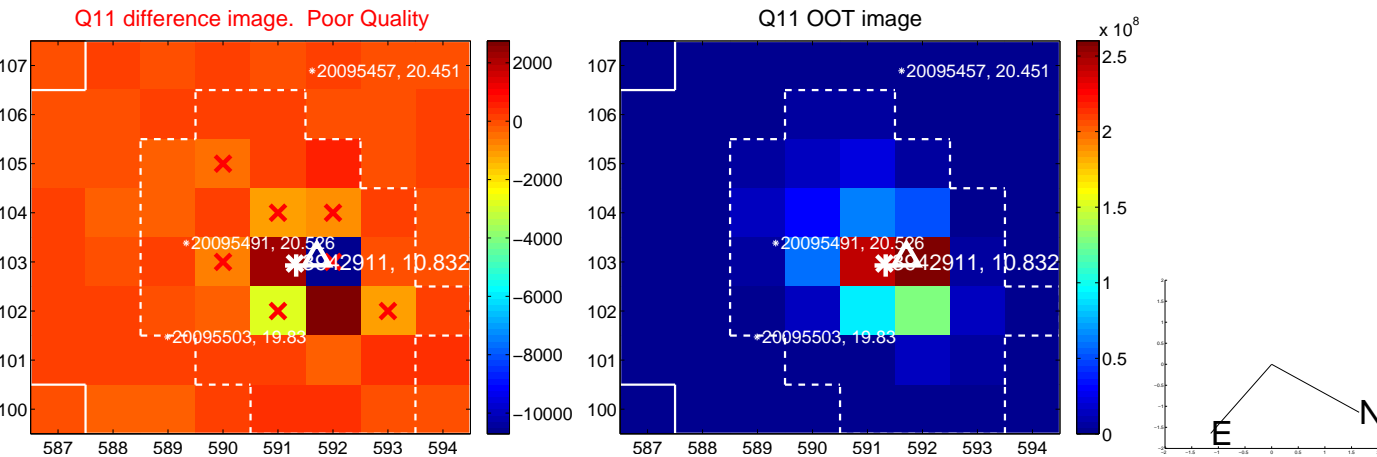
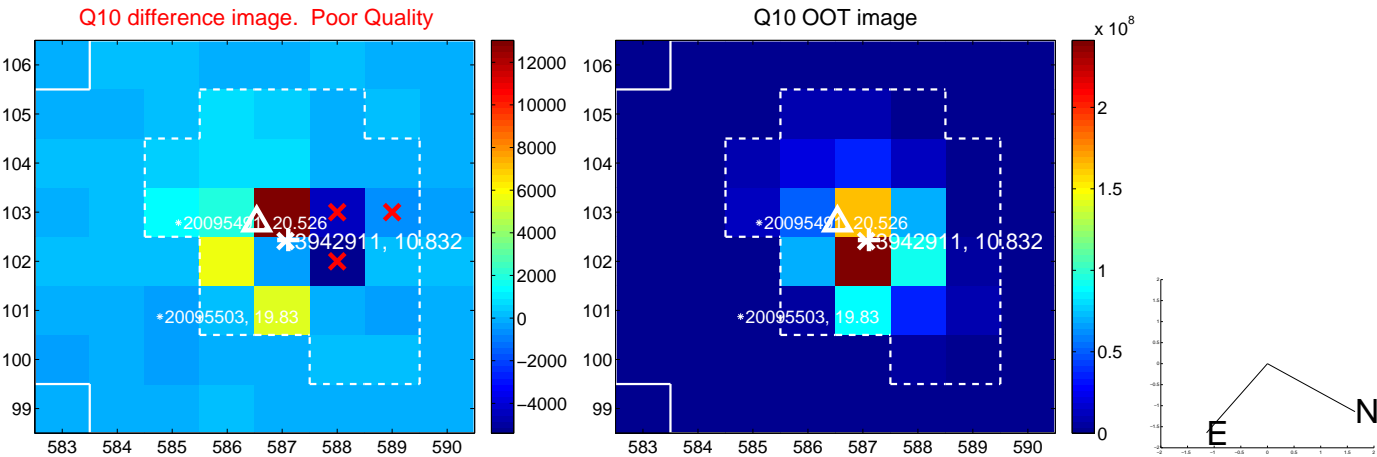
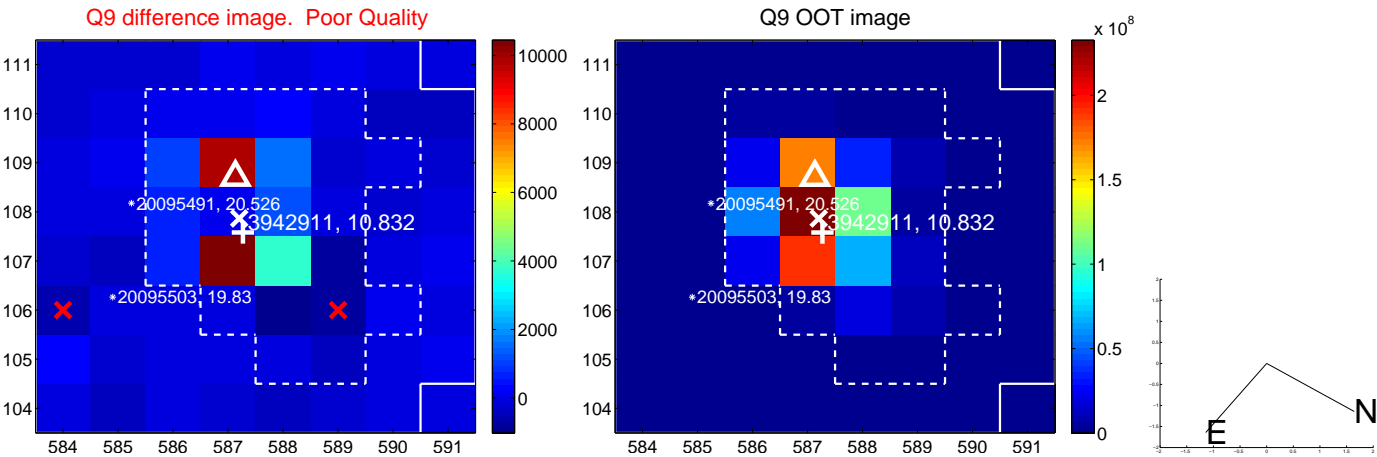
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



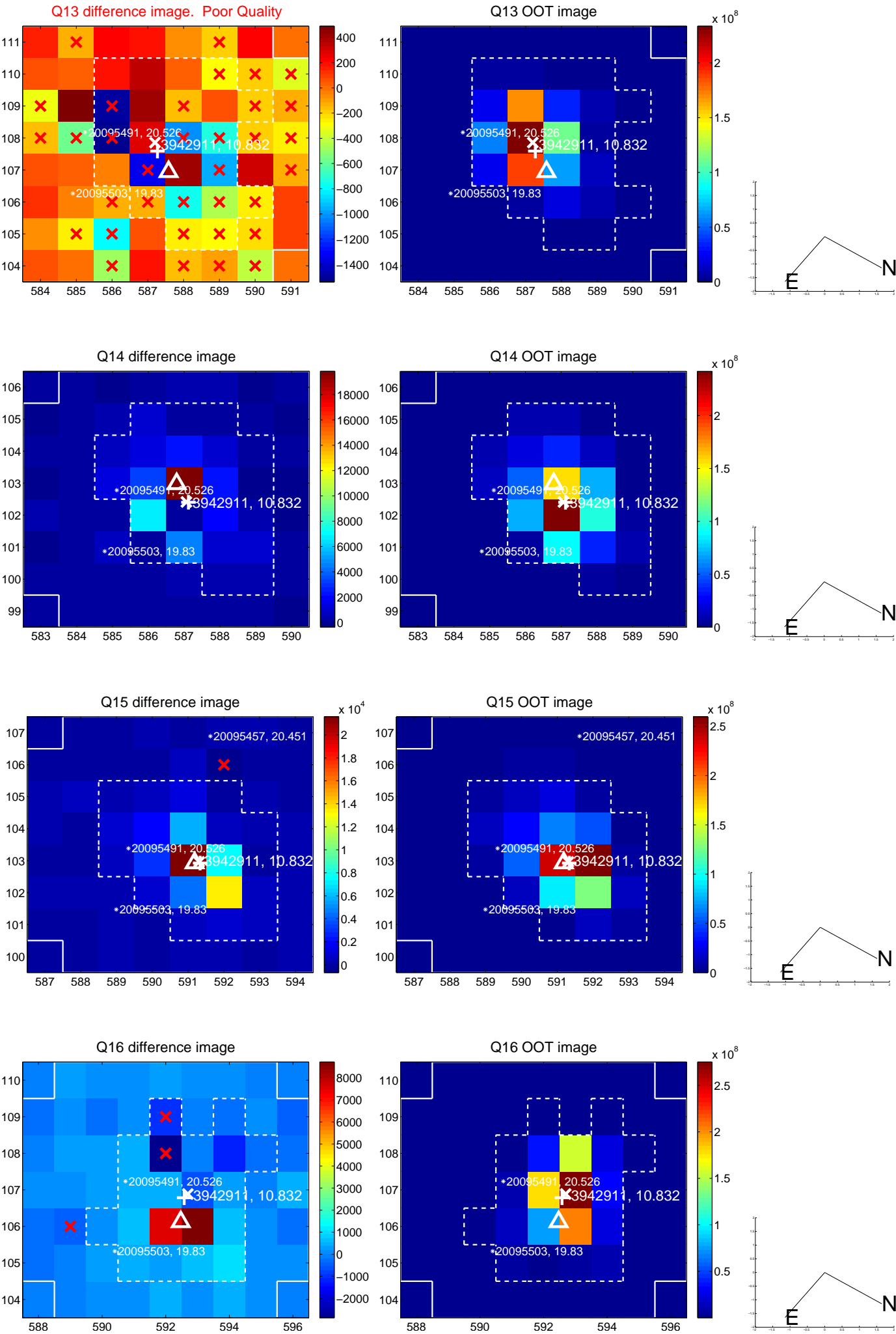
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



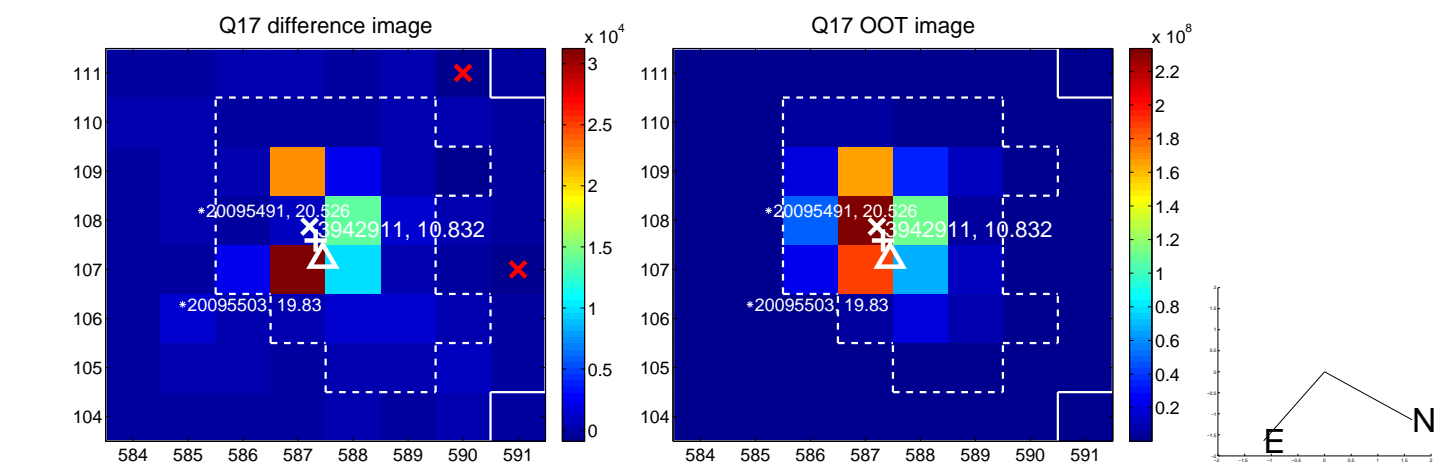
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



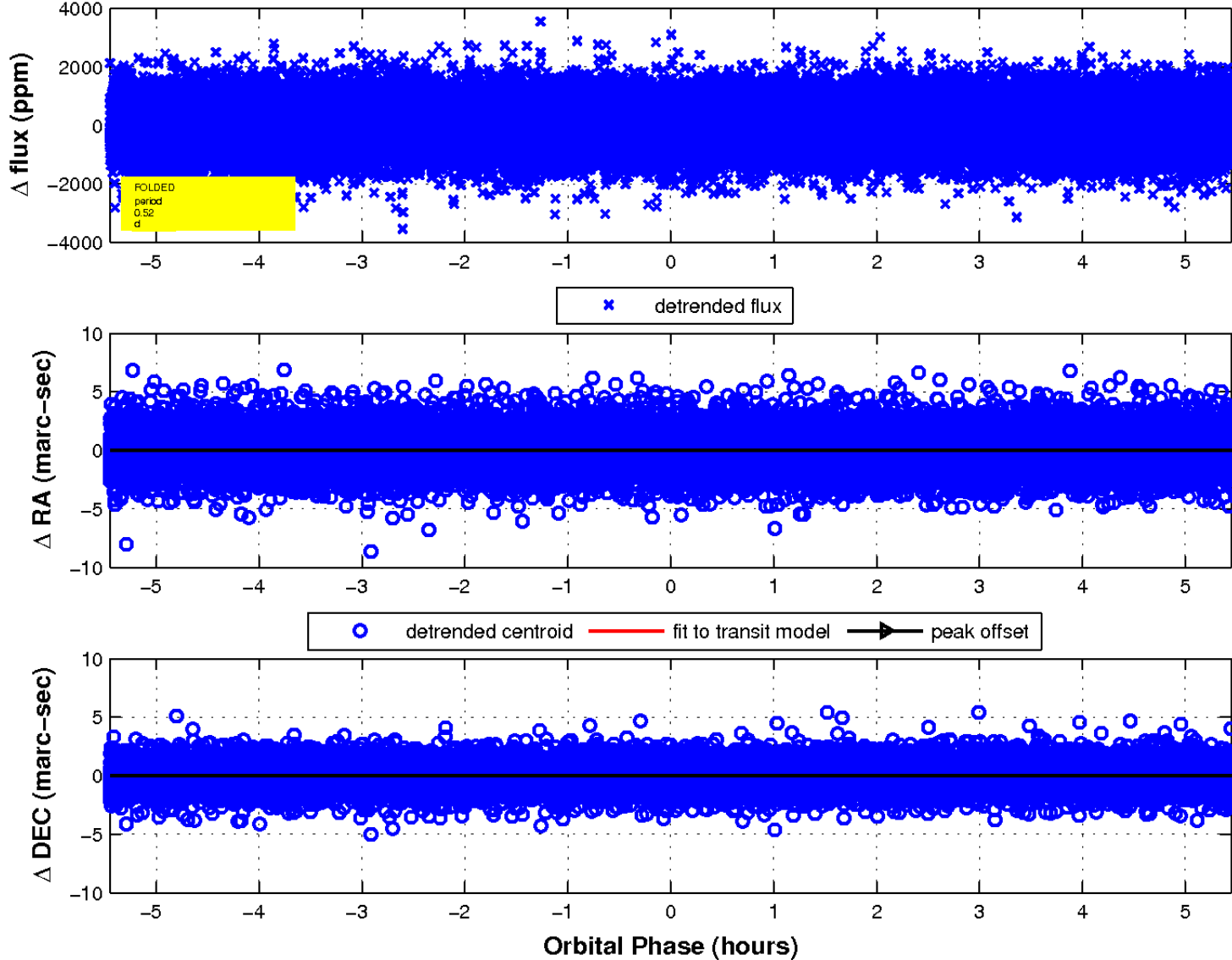
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

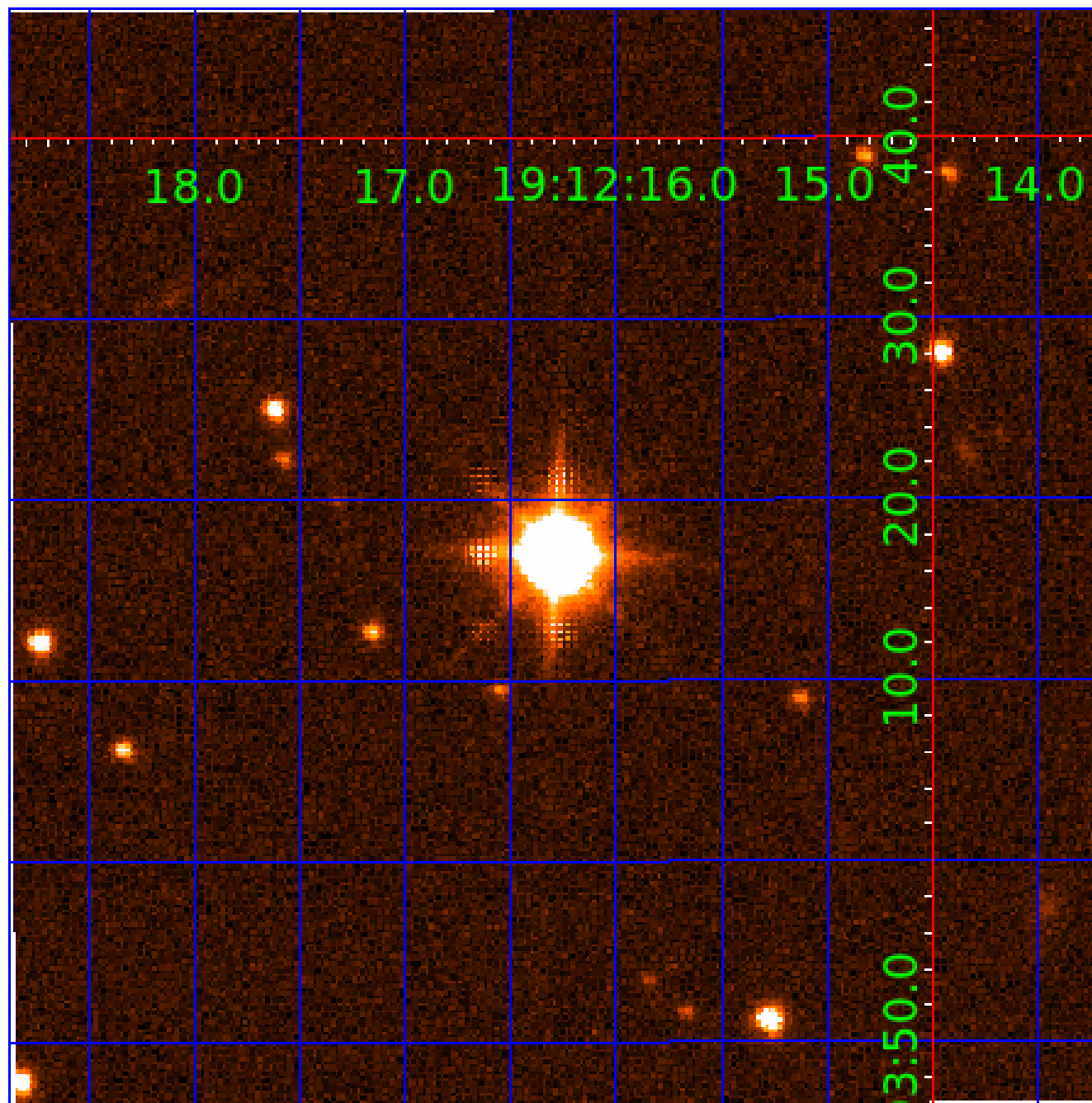


fluxWeightedCentroids, Planet 1 of 2



UKIRT Image

Declination



KIC 003942911

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})
003942911-01	OBS	No	0.522533	131.798737	40.6	1.816	11.3	10.3	2.13	7502	1.57	56023.63
003942911-02	OBS	No	1.825926	131.758979	82.6	6.363	8.2	10.1	2.13	7502	2.24	10565.21

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
003942911-01	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—CENT_SATURATED
003942911-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_SKYE_ZUMA—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—CENT_SATURATED

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

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

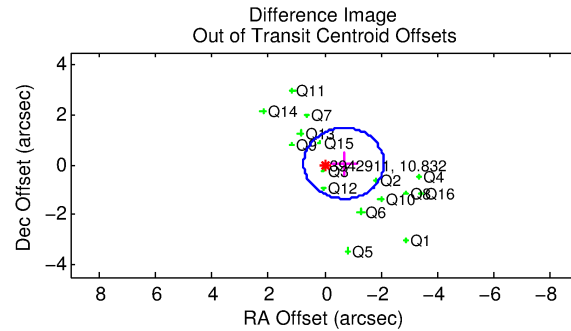
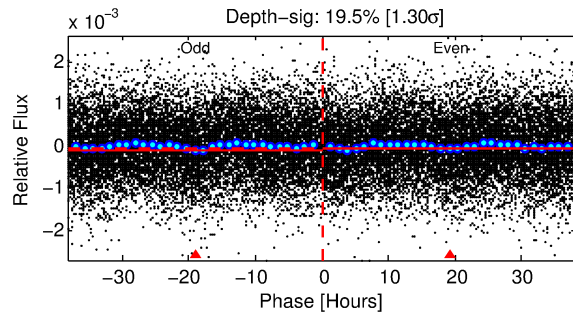
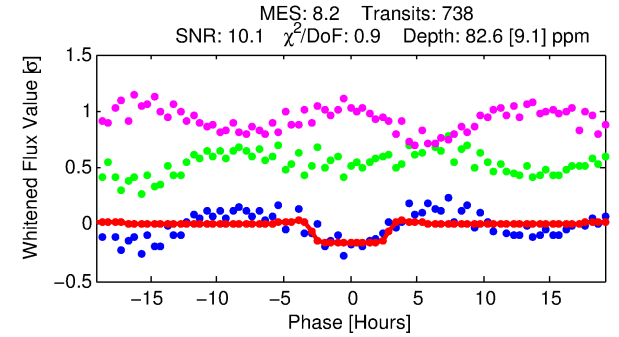
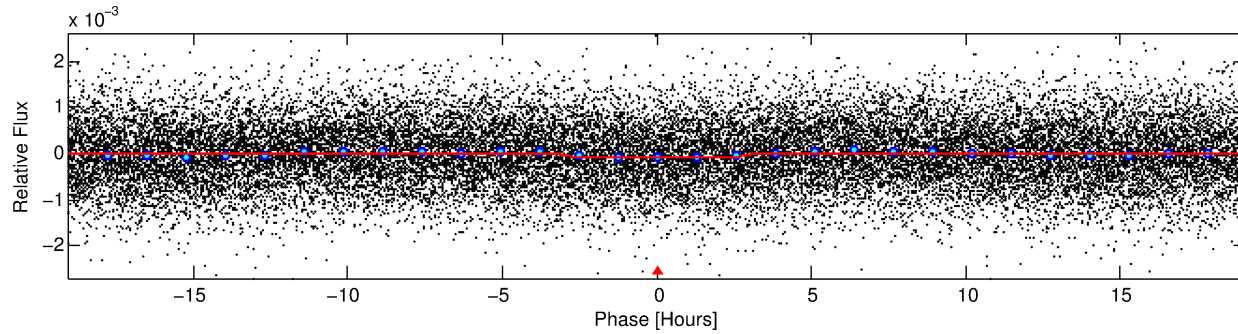
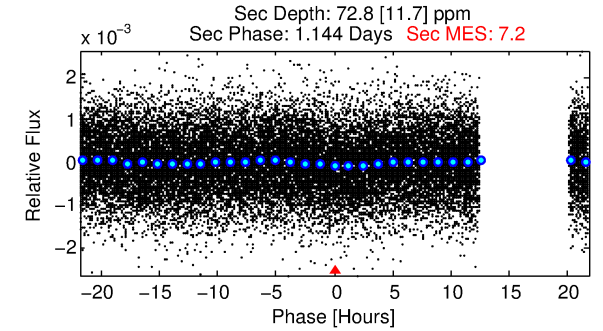
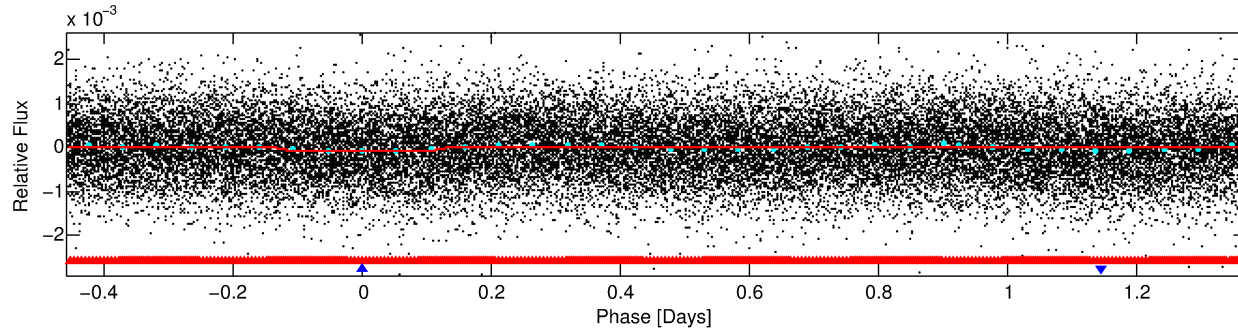
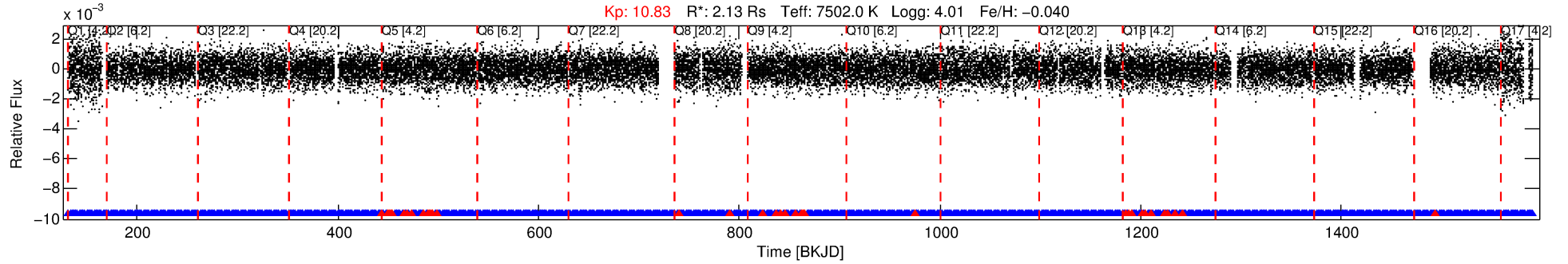
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 003942911-02

No Significant Match Found

DV One-Page Summary

KIC: 3942911 Candidate: 2 of 2 Period: 1.826 d



DV Fit Results:

Period = 1.82593 [0.00002] d
Epoch = 131.7590 [0.0072] BKJD
 $R_p/R^* = 0.0096$ [0.0036]
 $a/R^* = 1.37$ [1.56]
 $b = 0.90$ [0.52]
 $\text{Seff} = 10565.21$ [3805.78]
 $T_{\text{eq}} = 2585$ [233] K
 $R_p = 2.24$ [1.01] R_e
 $a = 0.0349$ [0.0076] AU
 $A_g = 9.74$ [8.01] [1.09σ]
 $T_{\text{eff}} = 7062$ [1371] K [3.22σ]

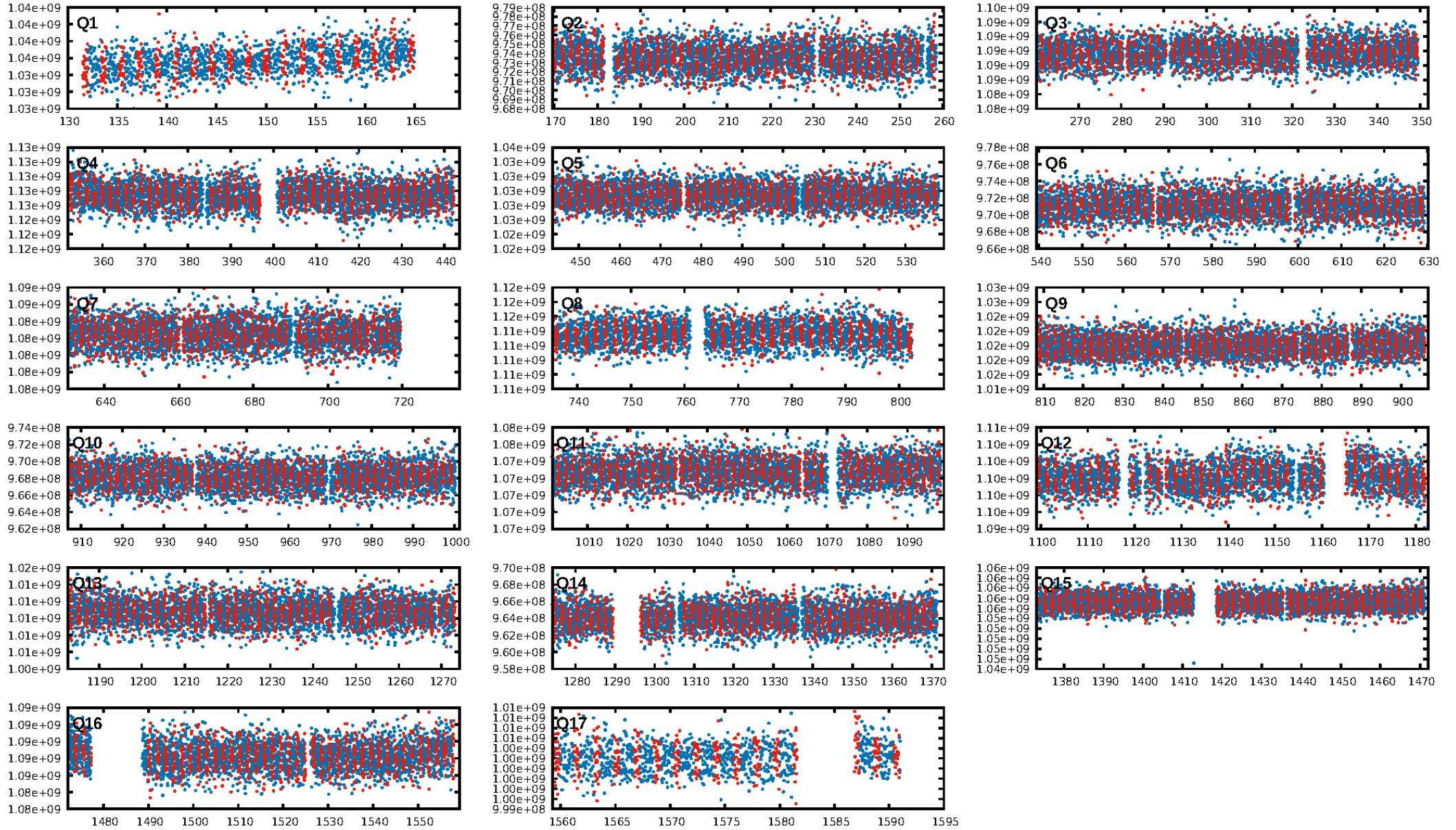
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [4.73σ]
LongPeriod-sig: N/A
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: 6.44e-15
RollingBand-fgt: 0.95 [667/703]
GhostDiagnostic-chr: 1.072
Centroid-sig: 78.8%
Centroid-so: 0.151 arcsec [0.88σ]
OotOffset-rm: 0.678 arcsec [1.44σ]
OotOffset-st: 4/4/4/4 [16]
KicOffset-rm: 0.583 arcsec [1.34σ]
KicOffset-st: 4/4/4/4 [16]
DiffImageQuality-fgm: 0.69 [11/16]
DiffImageOverlap-fno: 0.00 [0/17]

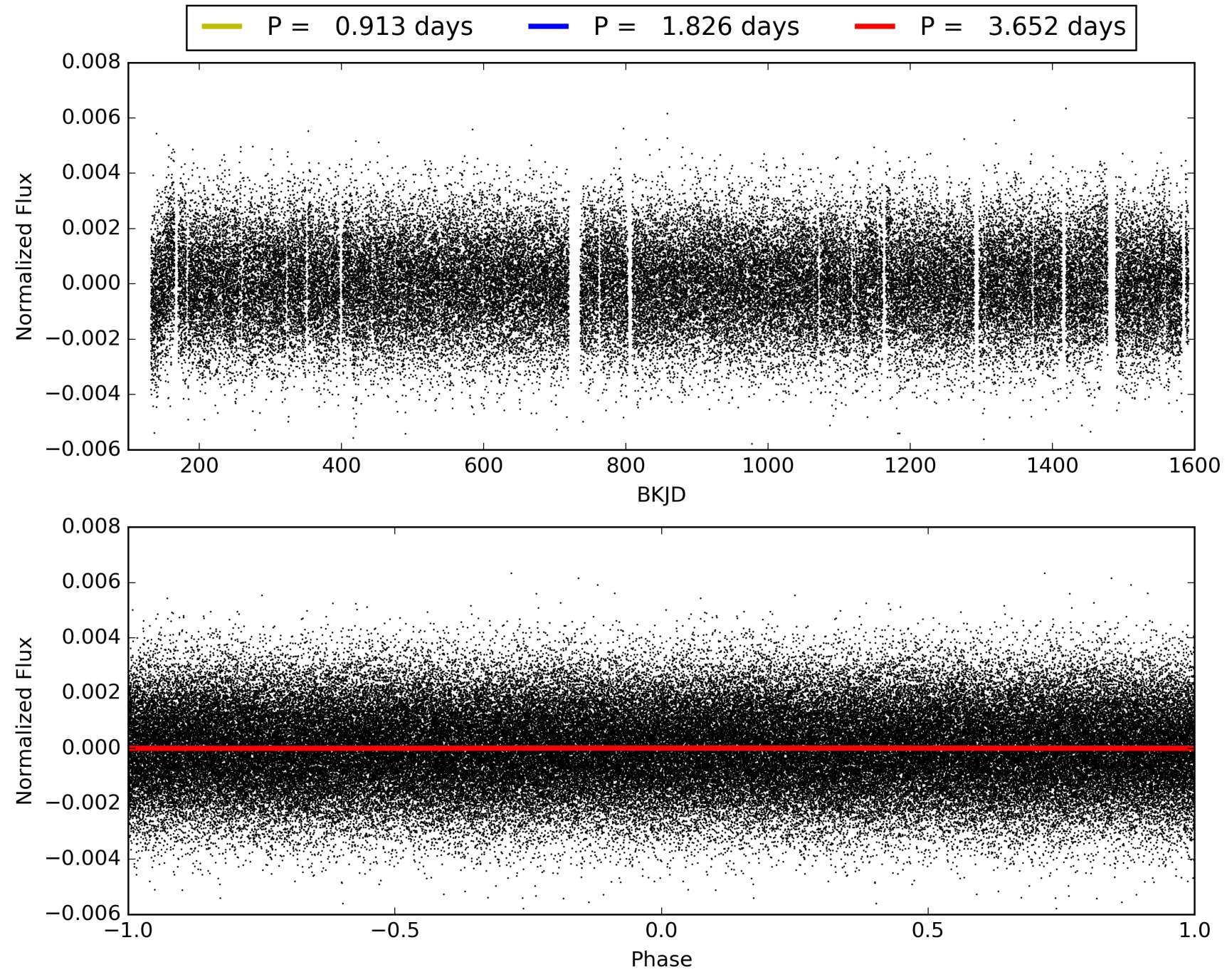
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 01-Feb-2016 03:03:42 Z

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

TCE 003942911-02, PDC Light Curves

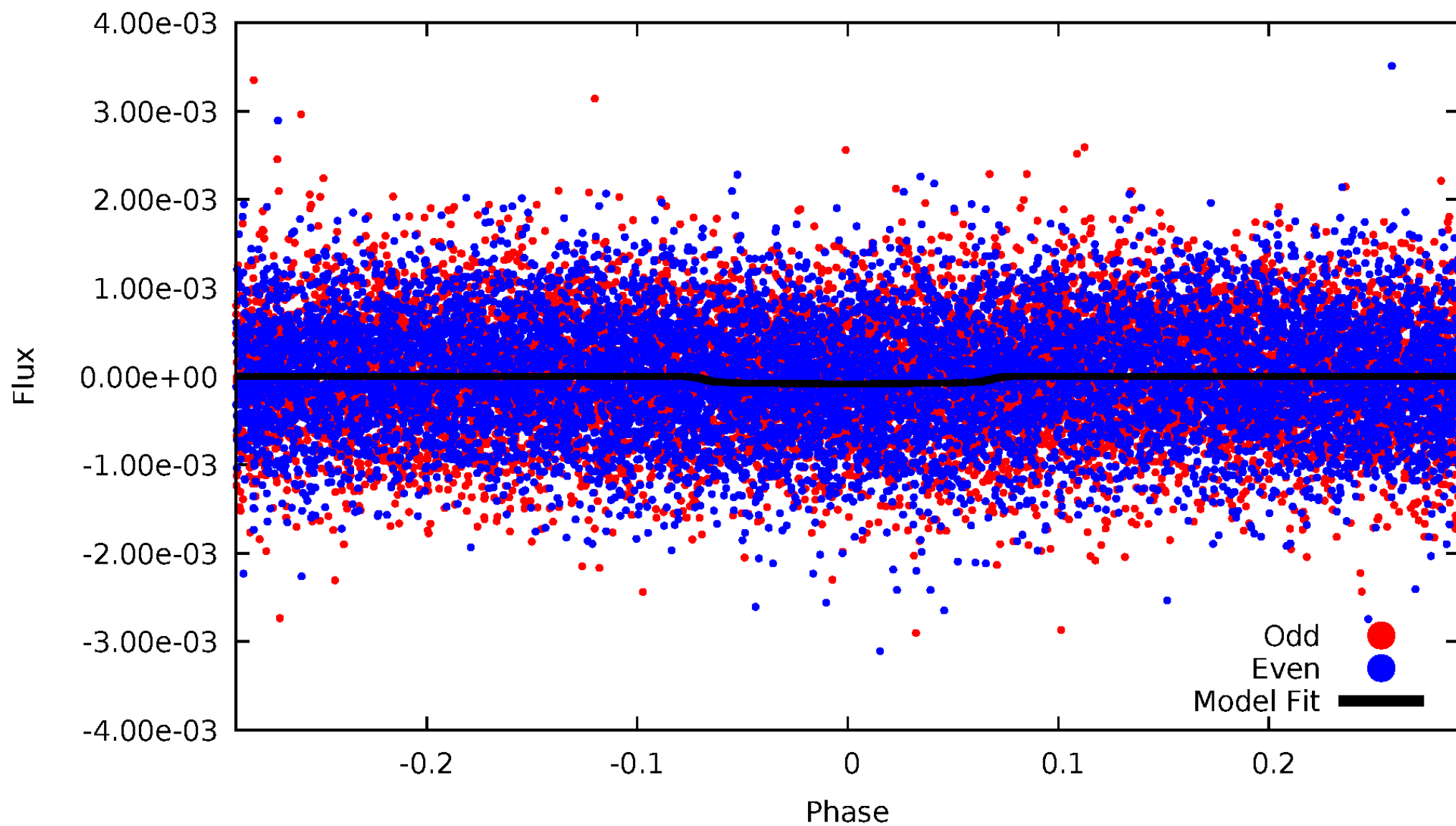


TCE 003942911-02



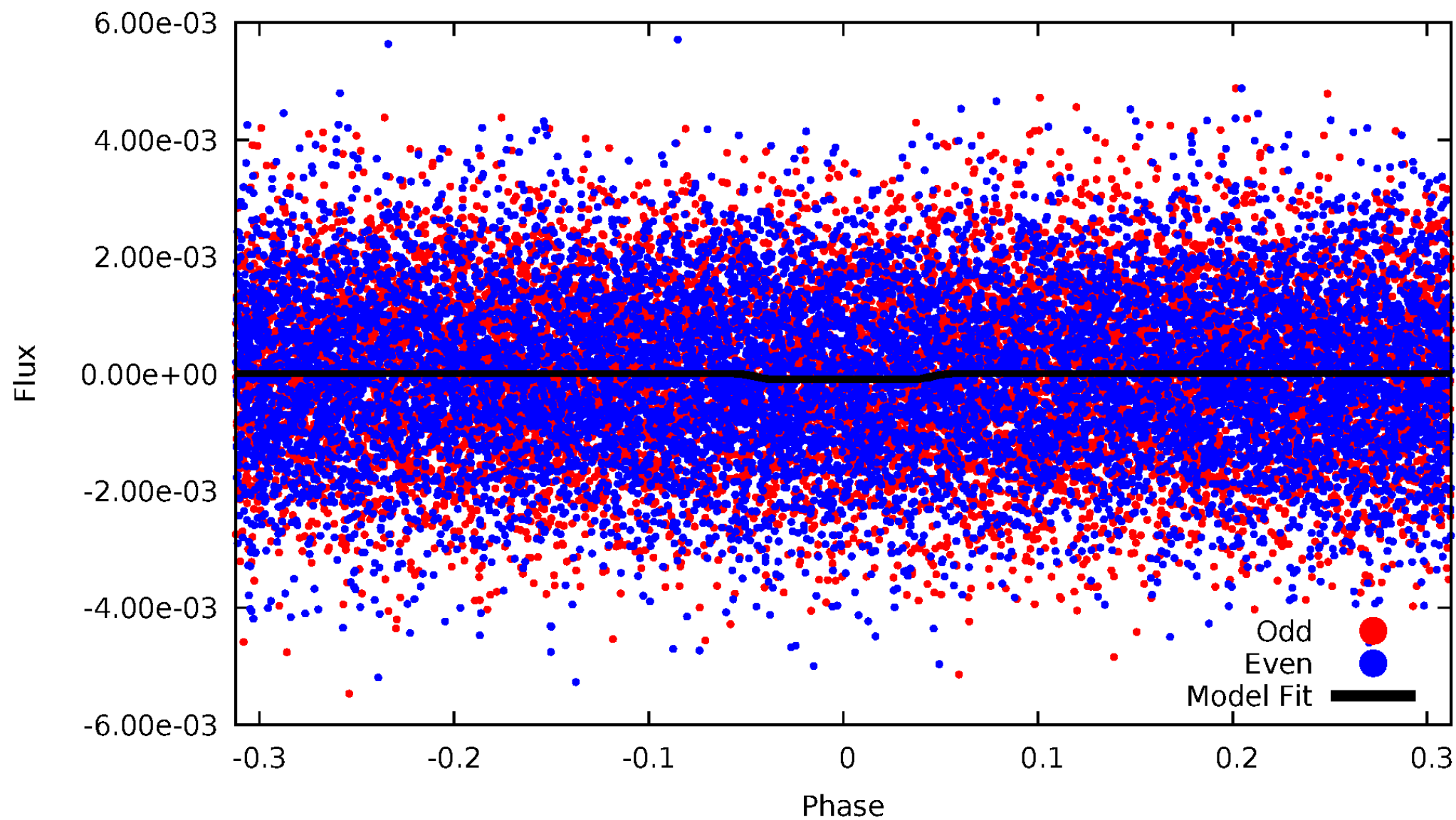
DV Odd/Even

TCE 003942911-02



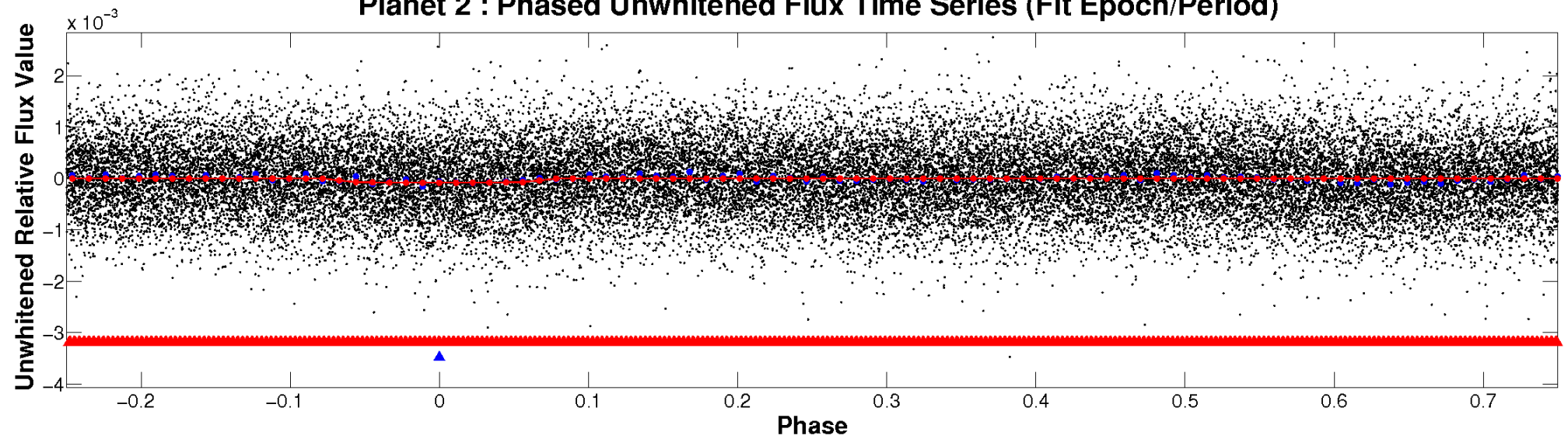
ALT Odd/Even

TCE 003942911-02

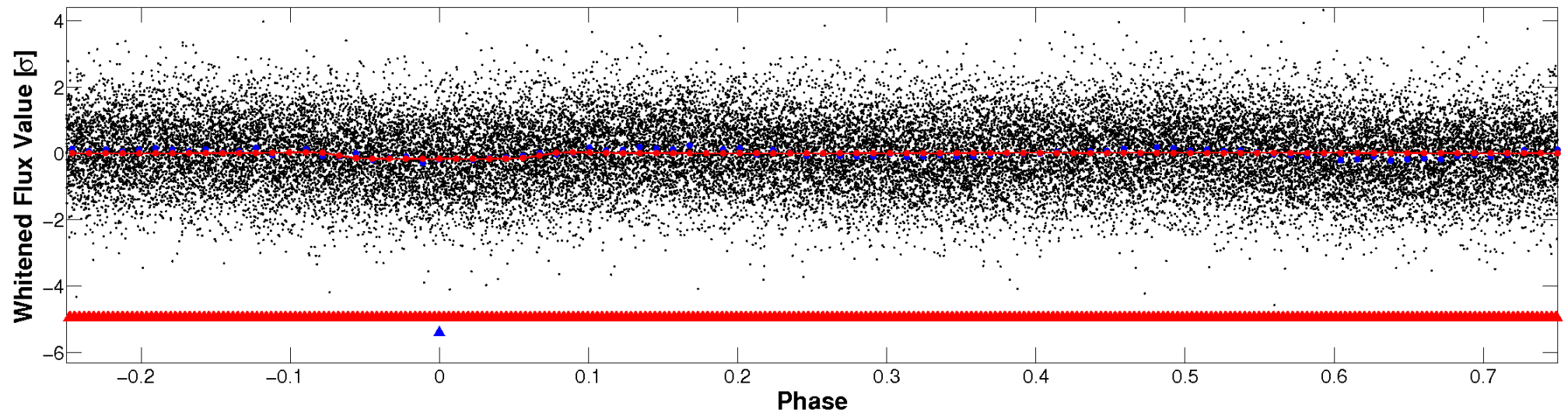


Non-Whitened Vs. Whitened Light Curve

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

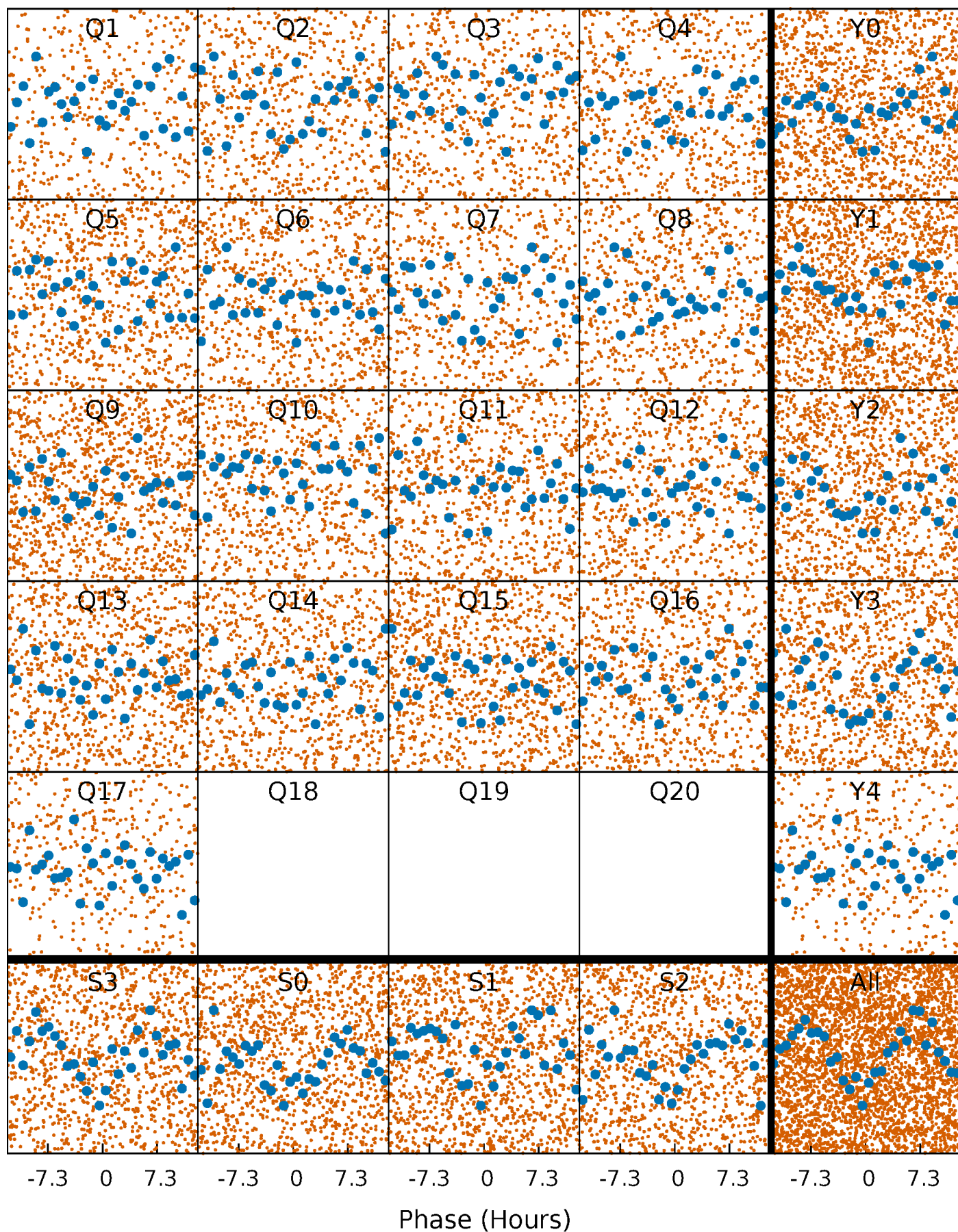


Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



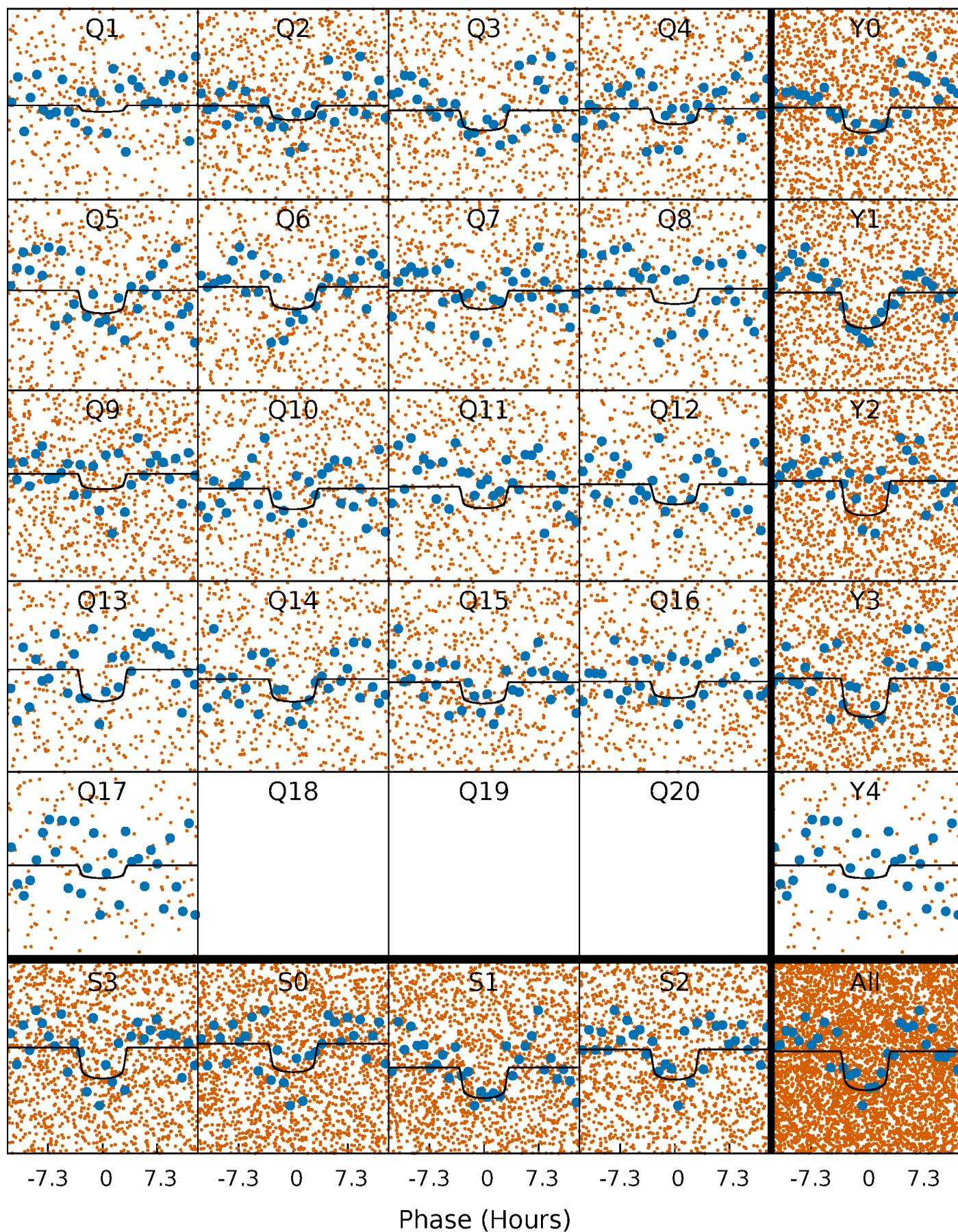
PDC Quarter-Phased Transit Curves

TCE 003942911-02 P= 1.825926 Days $T_0=131.758979$ (BKJD)



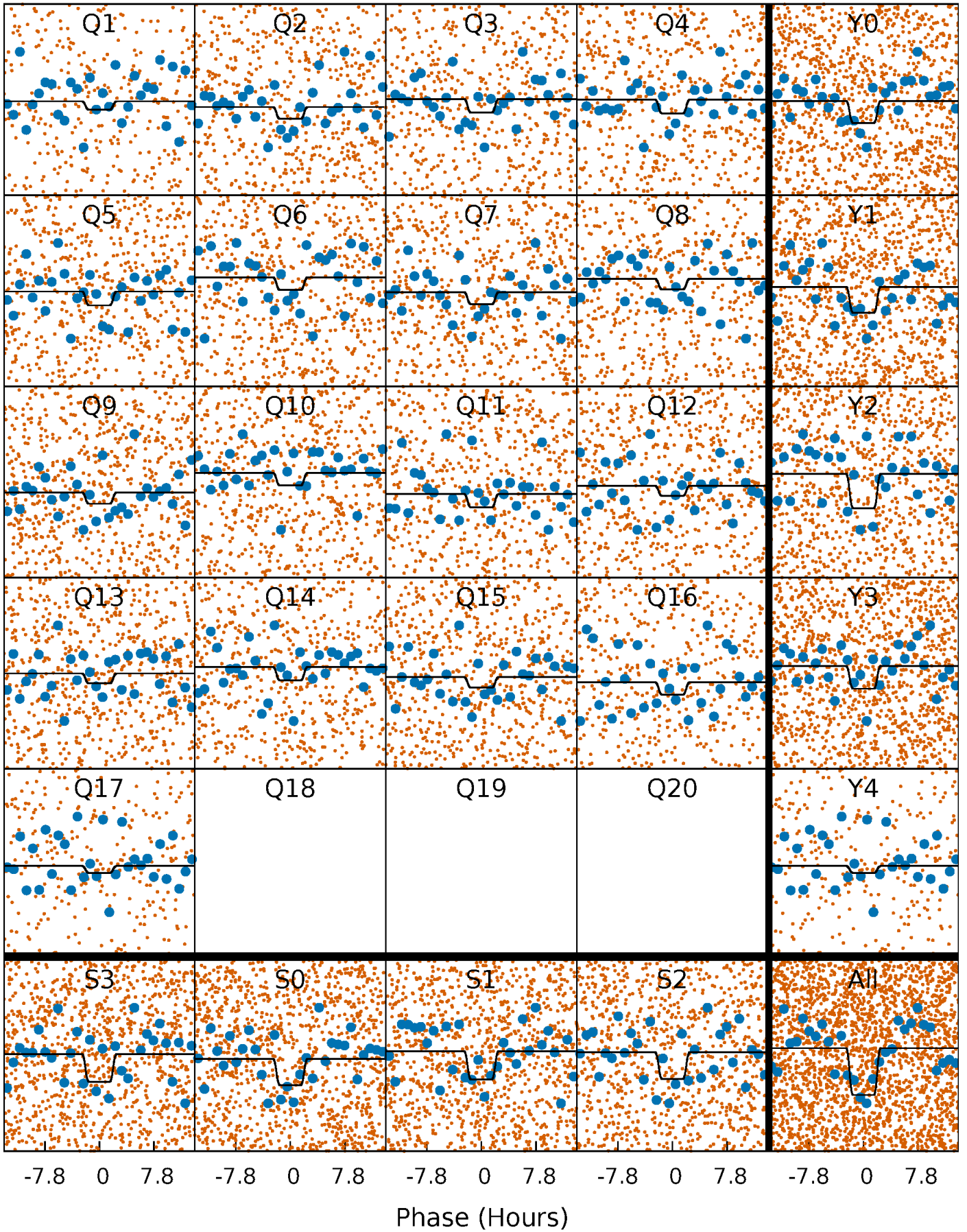
DV Quarter-Phased Transit Curves

TCE 003942911-02 P= 1.825926 Days $T_0=131.758979$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

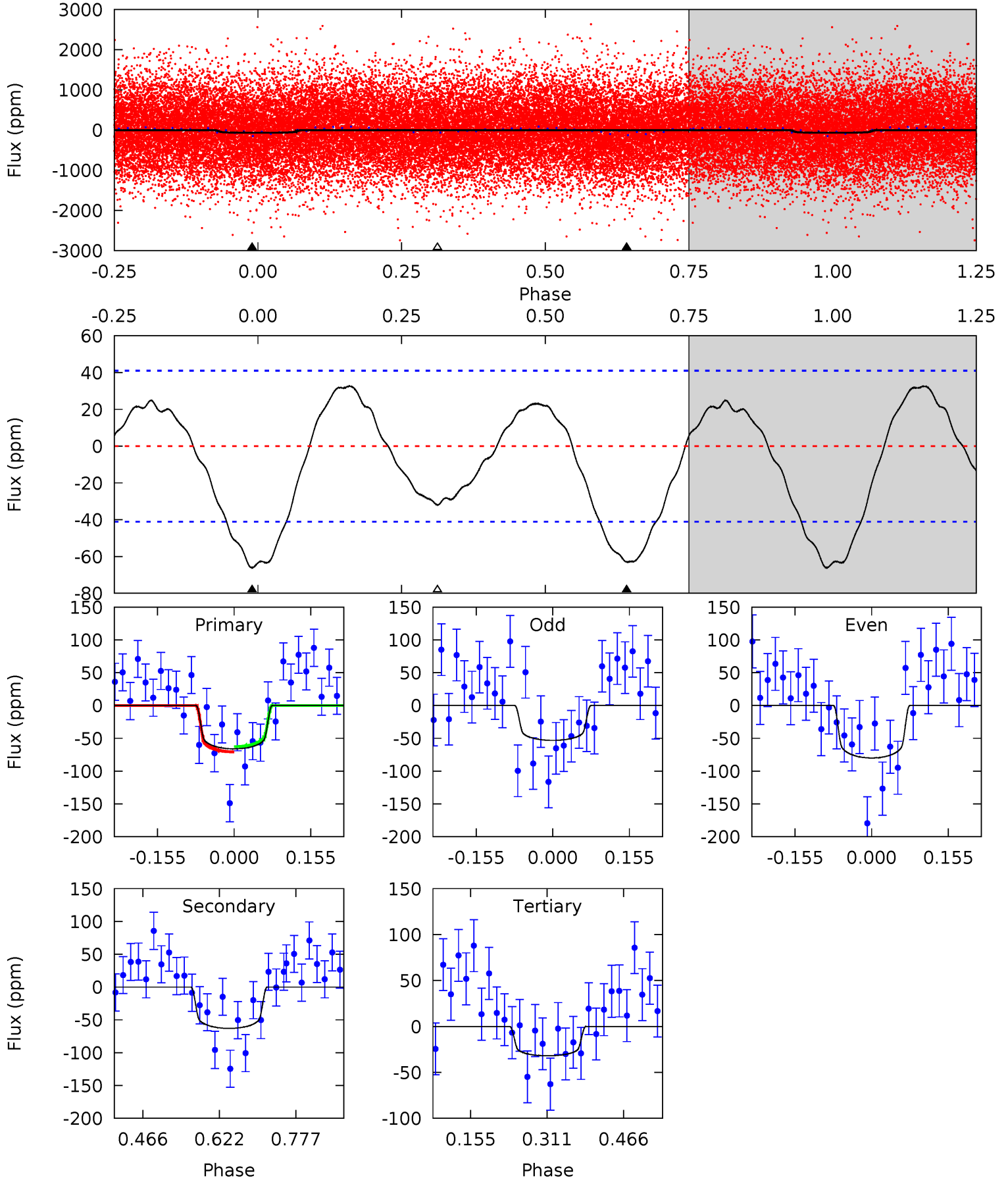
TCE 003942911-02 P= 1.825892 Days $T_0=131.765434$ (BKJD)



DV Model-Shift Uniqueness Test

003942911-02, P = 1.825926 Days, E = 129.933053 Days

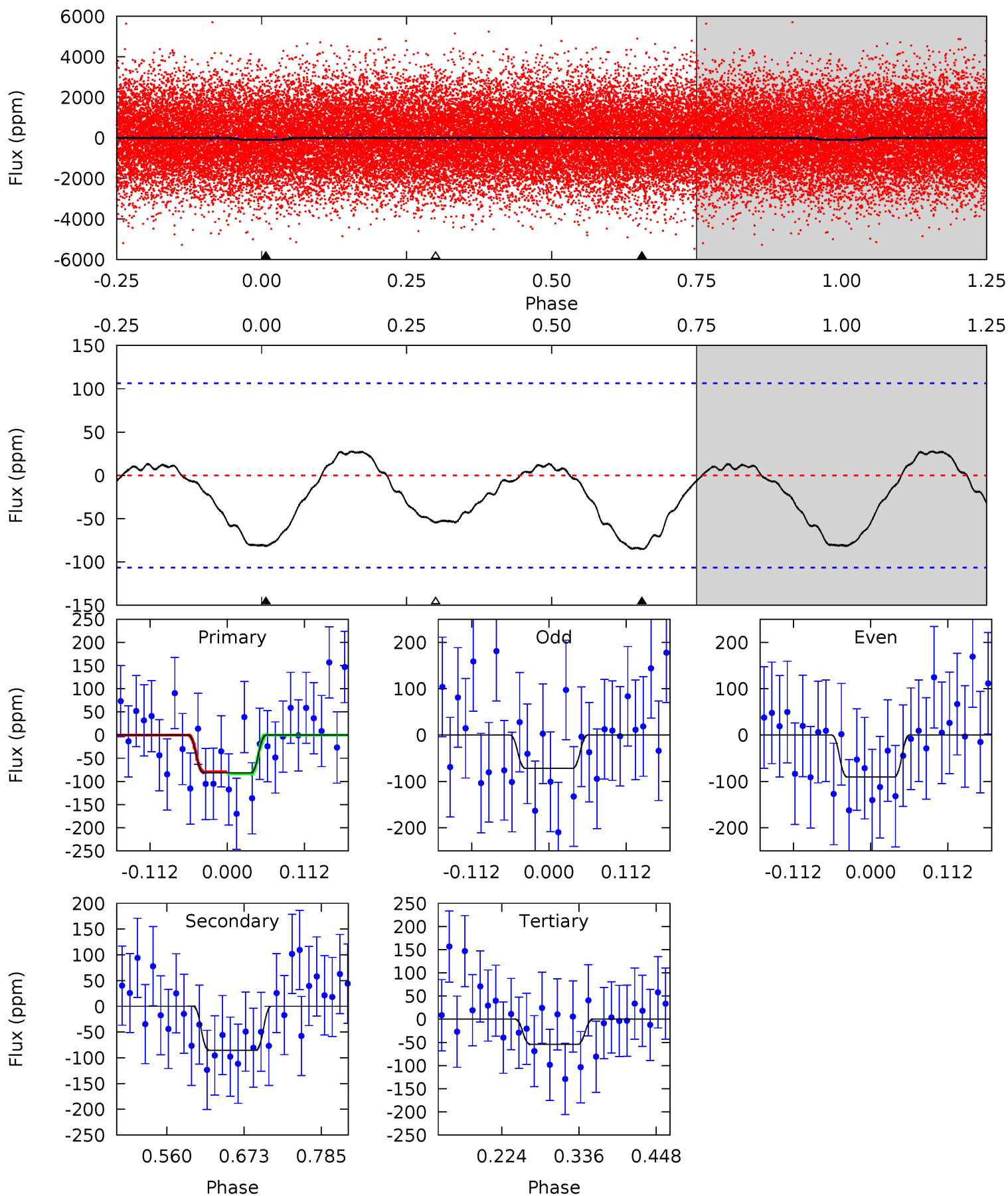
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
7.20	6.86	3.48	0	4.47	1.42	2.30	3.71	7.20	3.38	6.86	1.46	1.05	0.33	0.44



Alt Model-Shift Uniqueness Test

003942911-02, P = 1.825892 Days, E = 129.939542 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
3.47	3.64	2.32	0	4.54	1.59	1.05	1.15	3.47	1.32	3.64	0.40	0.81	0.24	0.08



Stellar Parameters For KIC 003942911

	$T_{\text{eff}} (K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R (R_{\odot})$	$M (M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	7502^{+237}_{-316}	$4.012^{+0.175}_{-0.158}$	$-0.040^{+0.200}_{-0.300}$	$2.130^{+0.546}_{-0.546}$	$1.699^{+0.204}_{-0.272}$	$0.248^{+0.249}_{-0.106}$
	+3%/-4%	+4%/-4%	+500%/-750%	+26%/-26%	+12%/-16%	+100%/-43%
Source	KIC0	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 003942911-02 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-63 ± 9	$2.16^{+0.99}_{-0.78}$	3596^{+256}_{-250}	6635^{+2069}_{-1057}	$8.659^{+13.087}_{-4.565}$
Alt.	-85 ± 23	$2.23^{+0.93}_{-0.79}$	3614^{+248}_{-249}	7127^{+2528}_{-1252}	11^{+16}_{-6}

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

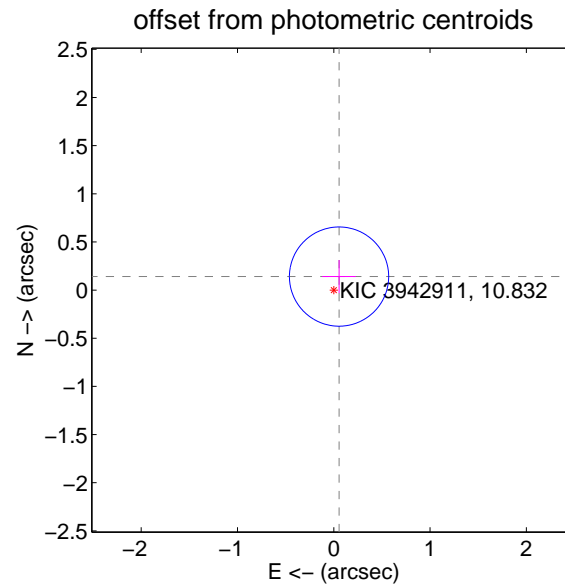
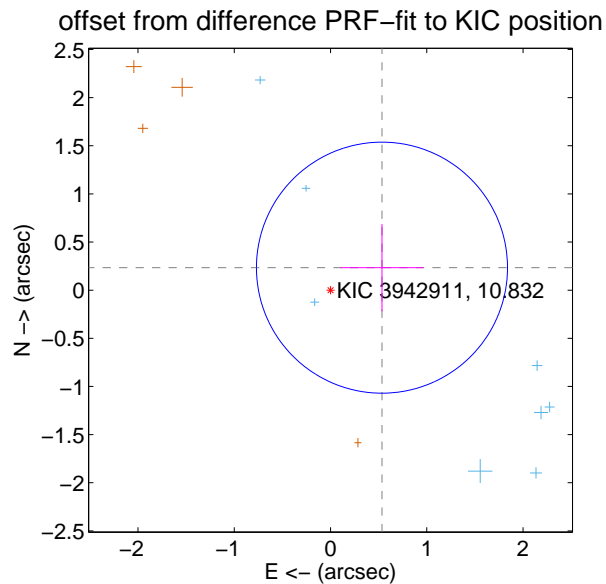
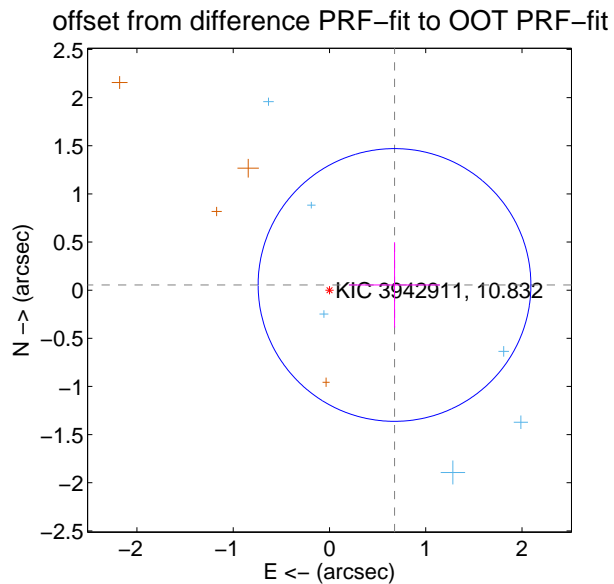
DV Centroid Data

Supplemental centroid analysis for 003942911-02. **Kepler magnitude: 10.83.** Transit SNR 10.13

There are 11 quarters with good PRF difference image offsets

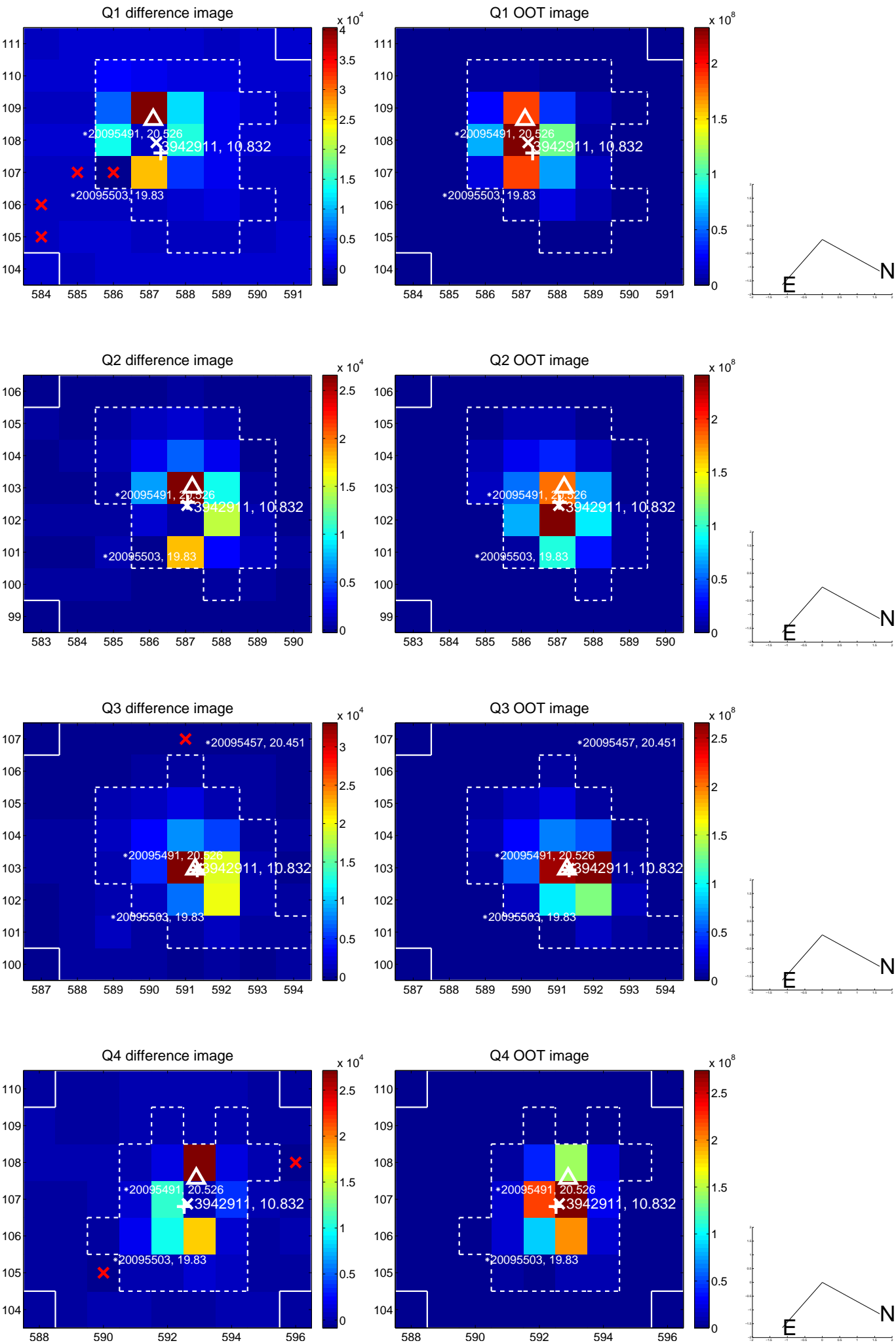
The direct PRF centroid is offset from the target star catalog position by about 0.78 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.678 ± 0.472	1.44	-0.676 ± 0.472	0.054 ± 0.444
PRF-fit source offset from KIC position	0.583 ± 0.435	1.34	-0.534 ± 0.431	0.234 ± 0.453
photometric centroid source offset	0.15 ± 0.17	0.88	-0.05 ± 0.17	0.14 ± 0.17

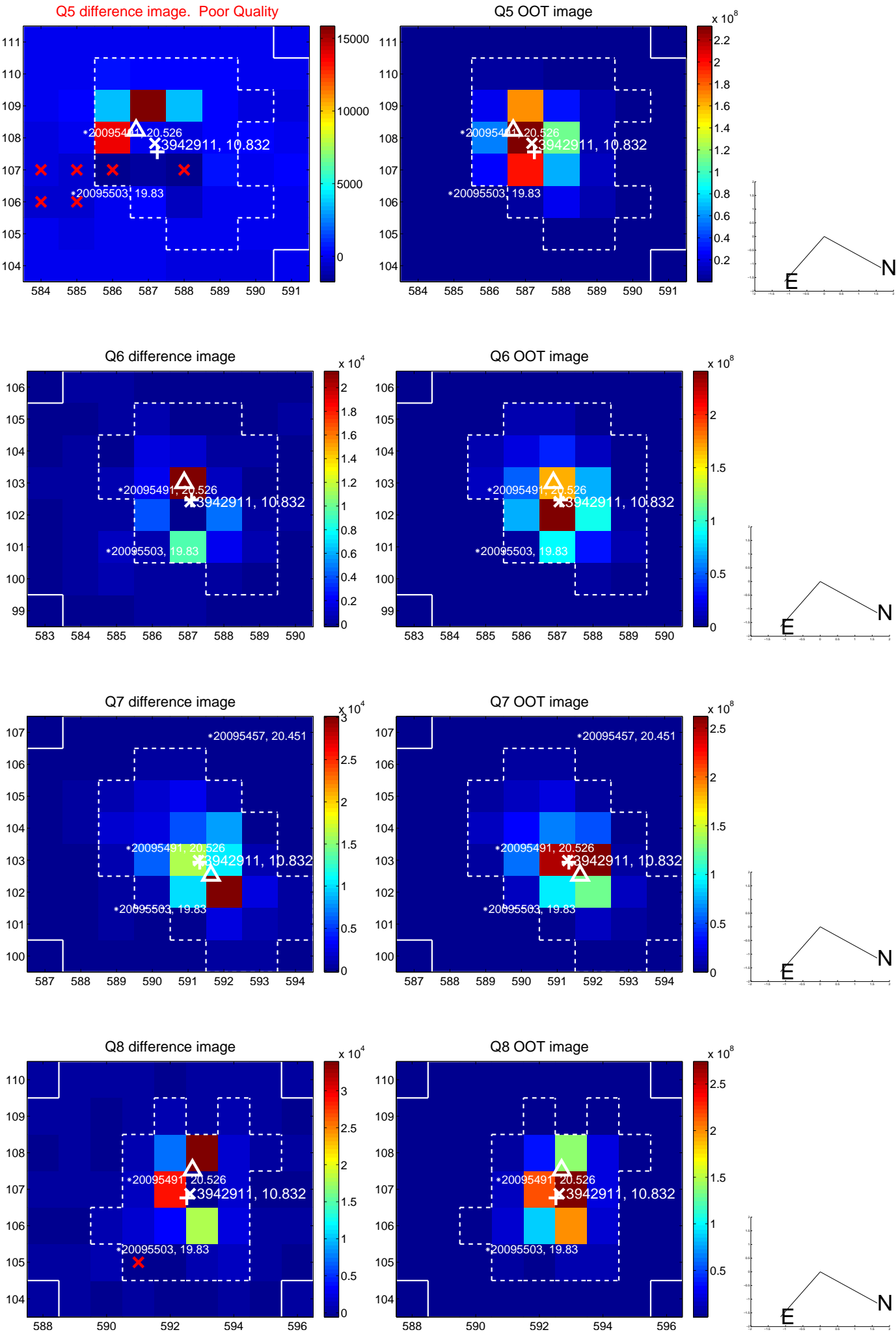


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets;** magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

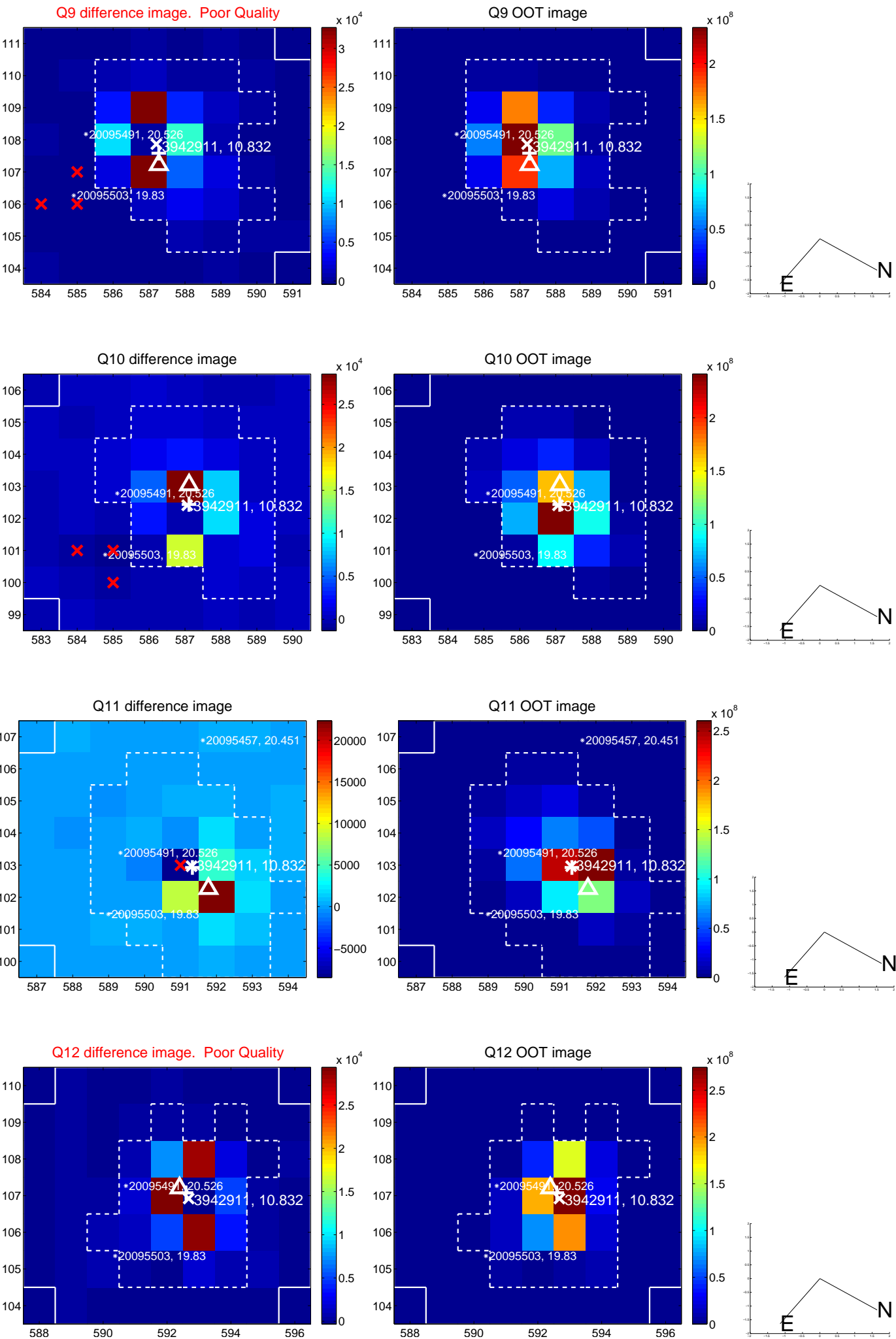
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



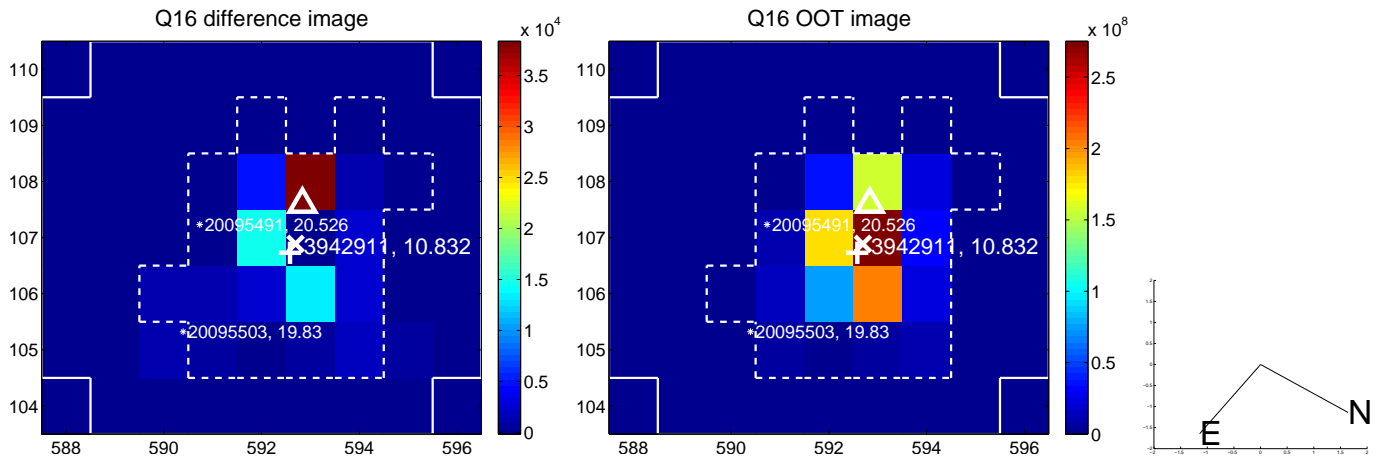
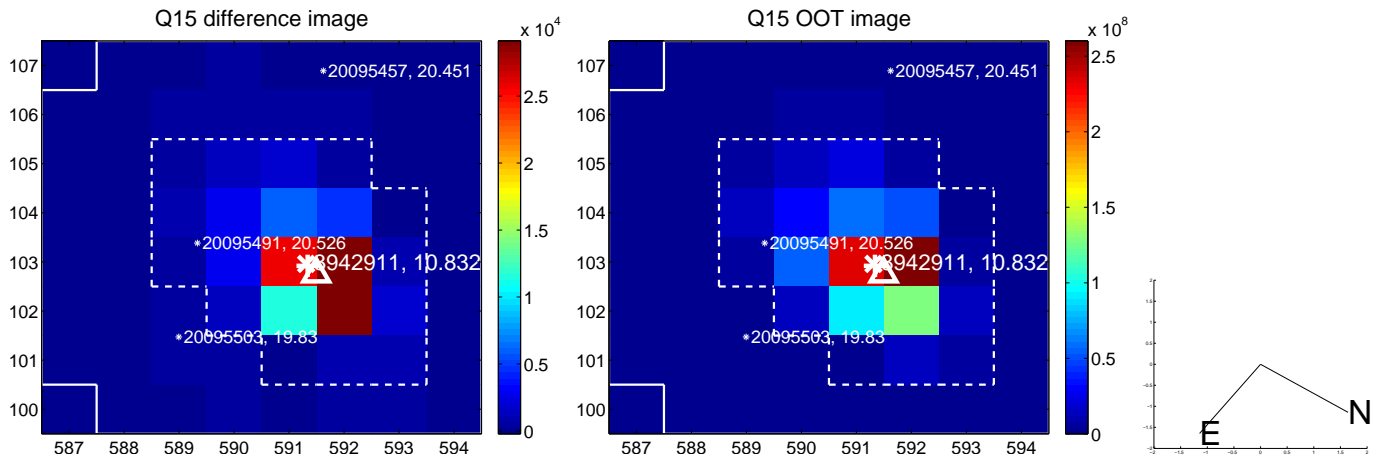
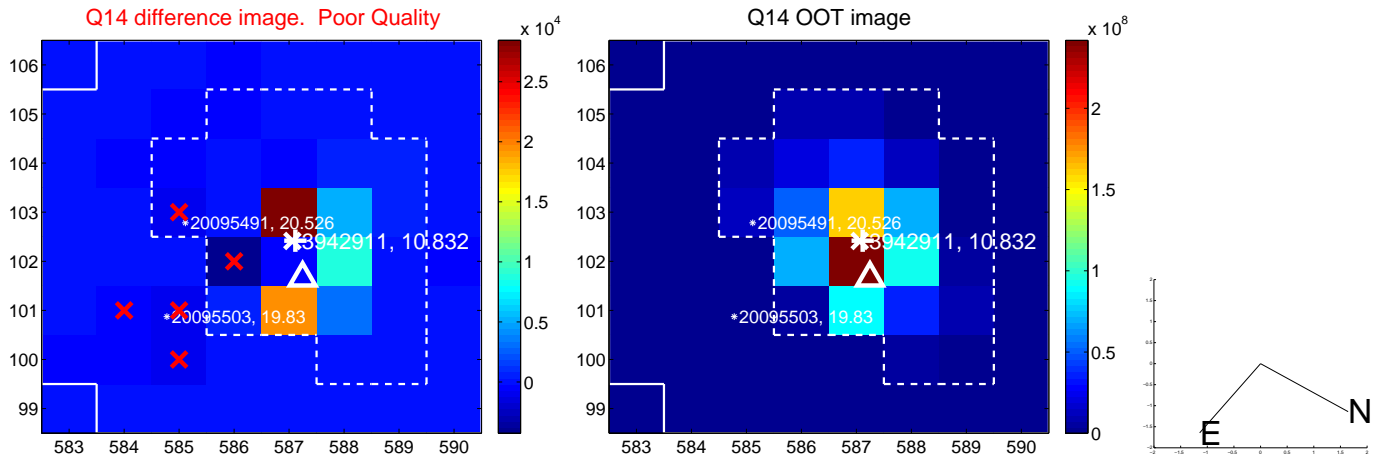
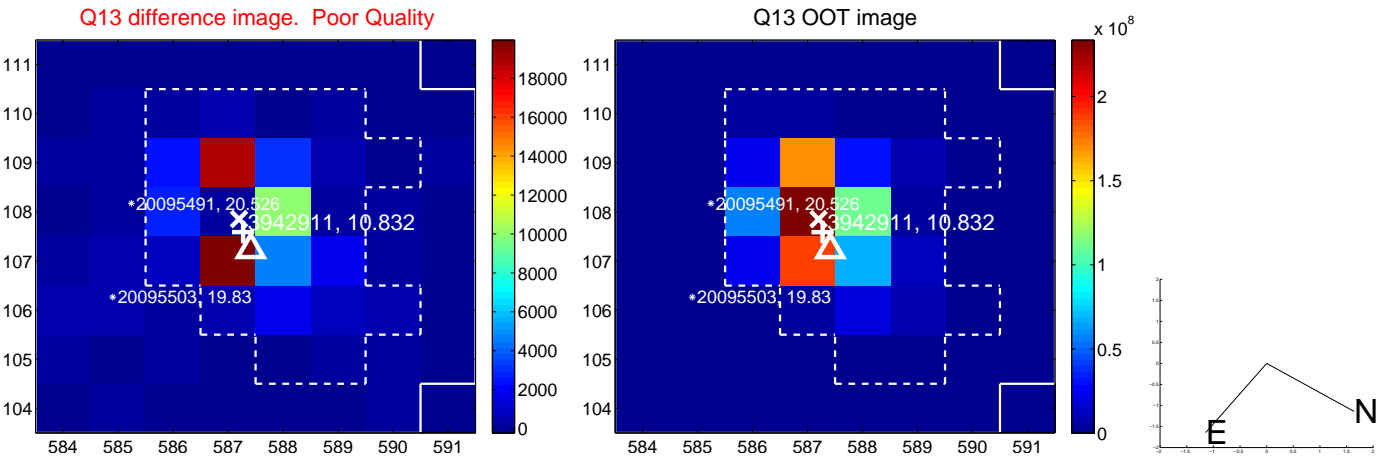
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



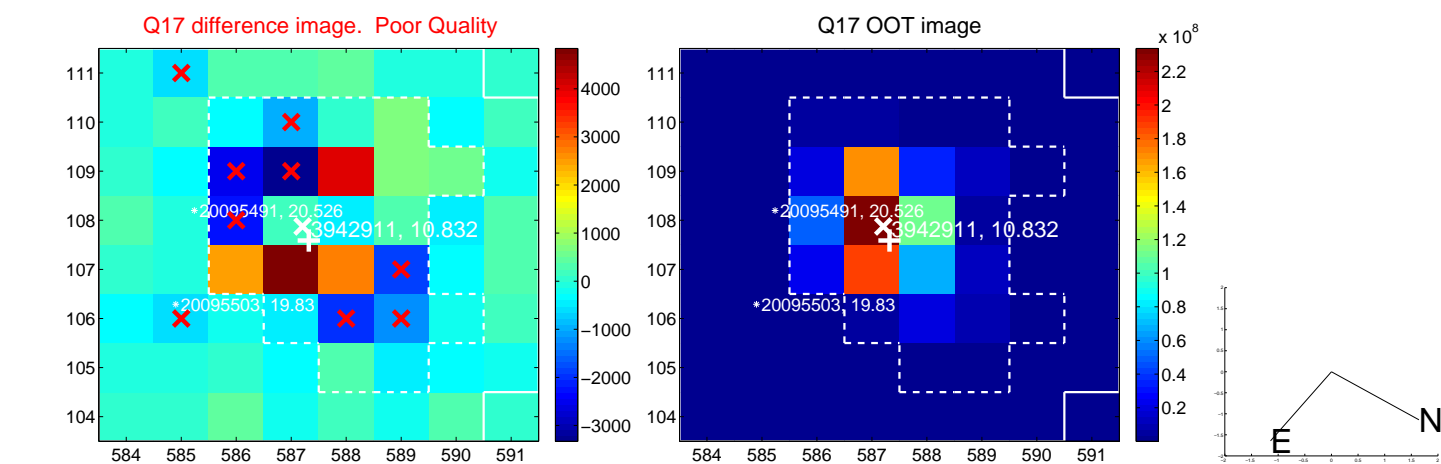
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



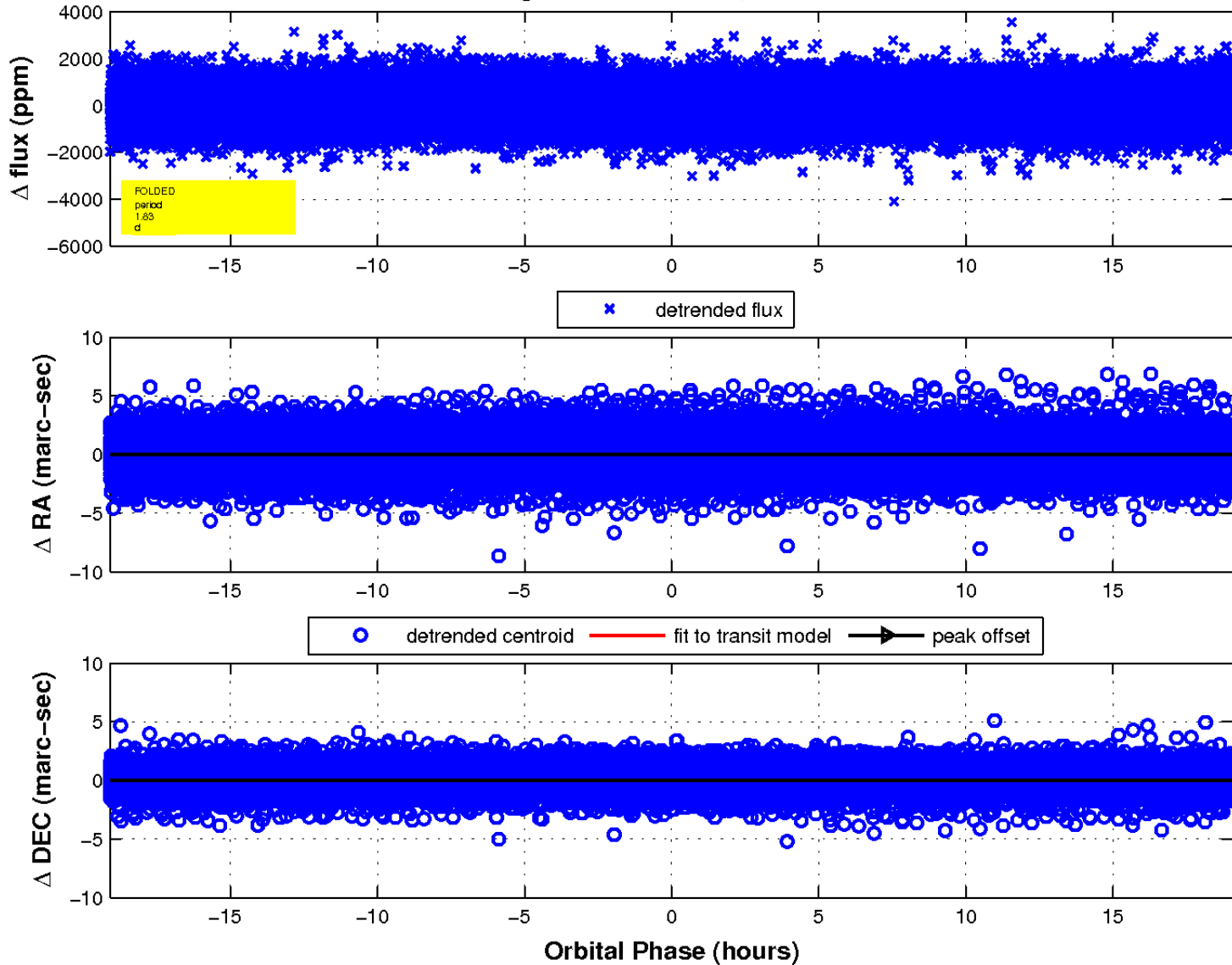
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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



fluxWeightedCentroids, Planet 2 of 2



UKIRT Image

Declination

