

KIC 003963203

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})
003963203-01	OBS	No	2.849437	132.492583	24.6	9.534	8.0	5.6	1.57	6628	0.94	2392.94
003963203-02	OBS	No	2.850013	133.673115	45.1	14.800	11.5	13.2	1.57	6628	1.06	2392.30

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
003963203-01	OBS	FP	0.00	1	0	0	0	SWEET_NTL—LPP_DV—LPP_ALT
003963203-02	OBS	FP	0.00	1	0	0	0	SWEET_NTL—LPP_DV—LPP_ALT—MOD_NONUNIQ_ALT—SAME_NTL_PERIOD

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

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

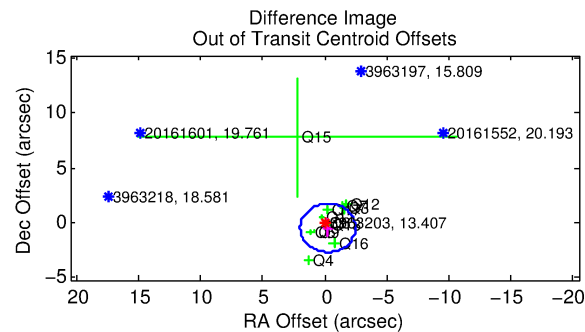
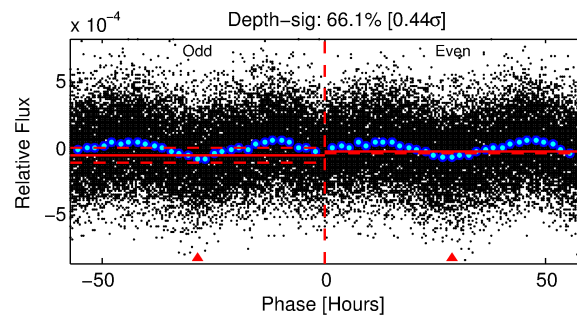
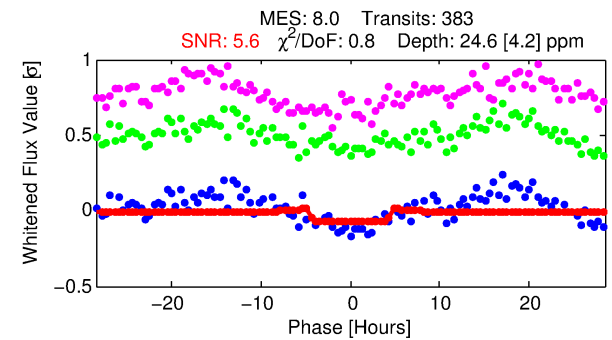
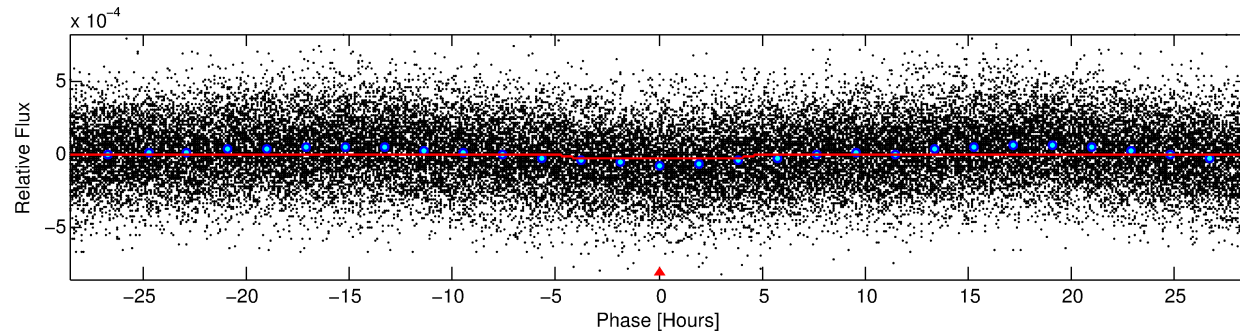
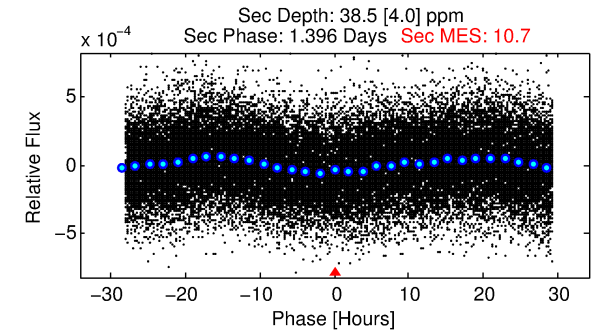
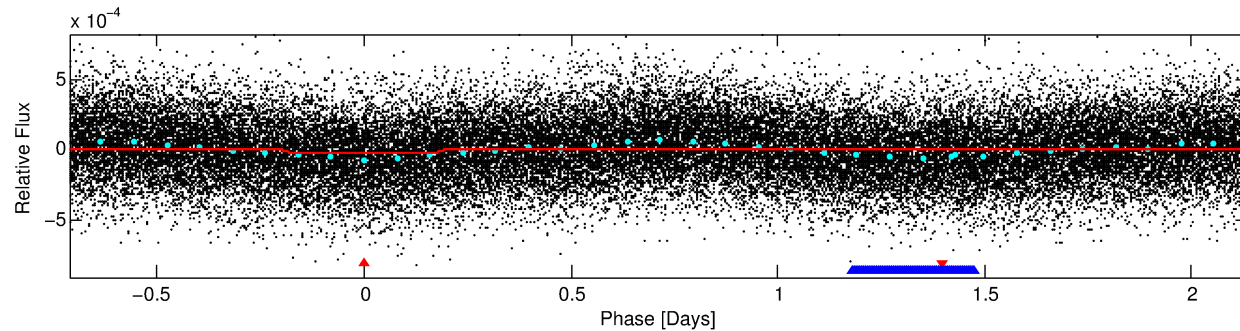
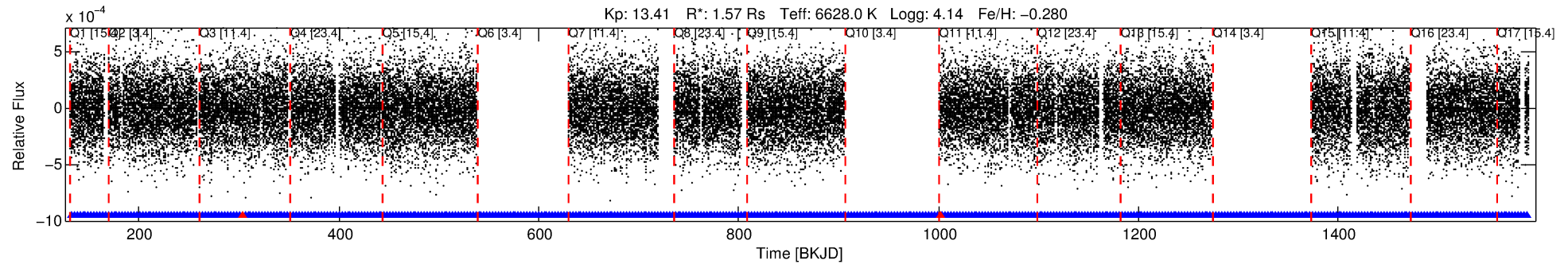
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 003963203-01

No Significant Match Found

DV One-Page Summary

KIC: 3963203 Candidate: 1 of 2 Period: 2.849 d



DV Fit Results:

Period = 2.84944 [0.00006] d
Epoch = 132.4926 [0.0109] BKJD
Rp/R* = 0.0054 [0.0013]
a/R* = 1.30 [0.74]
b = 0.93 [0.21]
Seff = 2392.94 [944.29]
Teq = 1783 [176] K
Rp = 0.93 [0.35] Re
a = 0.0423 [0.0104] AU
Ag = 43.50 [26.93] [1.58σ]
Teffp = 7081 [908] K [5.73σ]

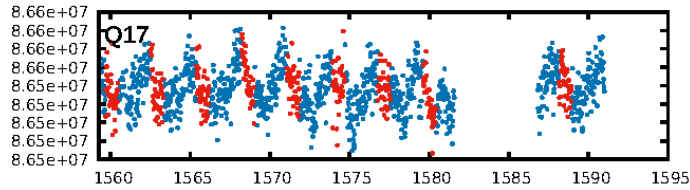
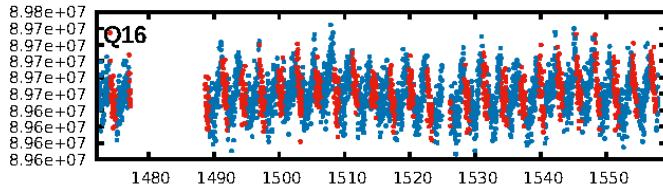
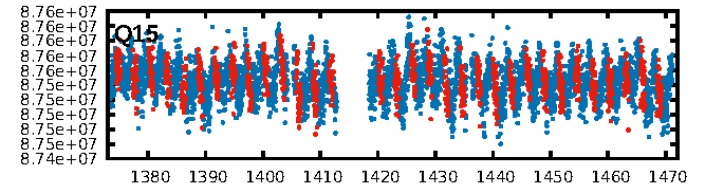
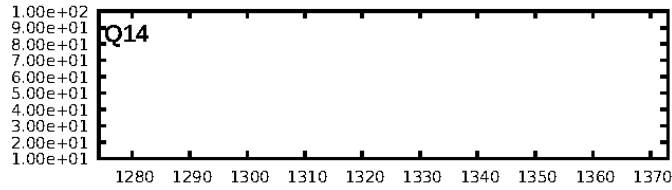
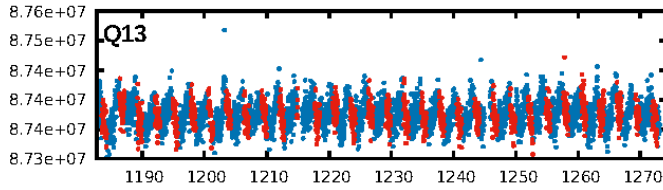
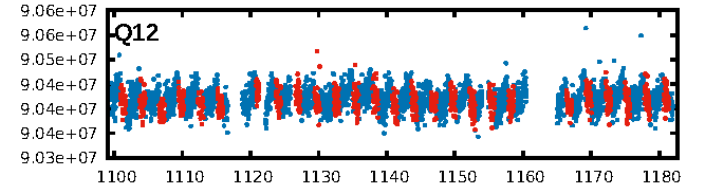
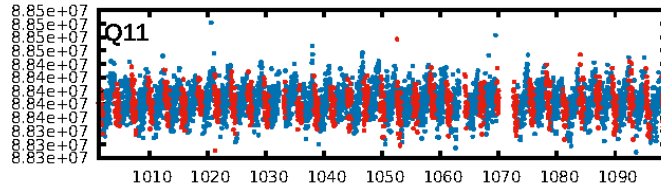
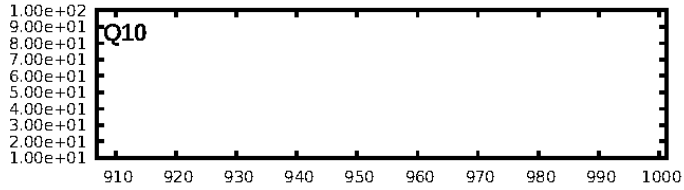
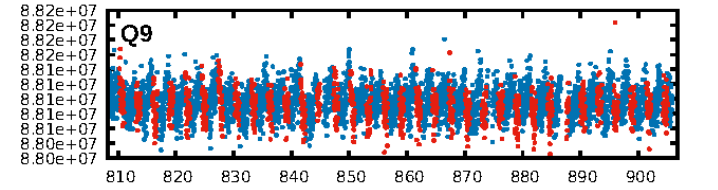
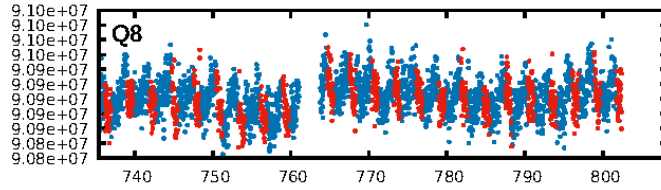
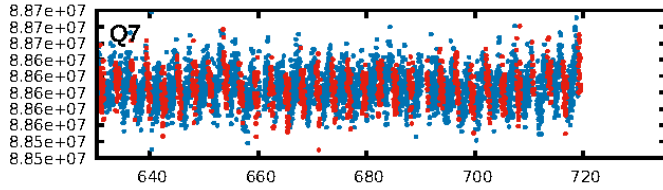
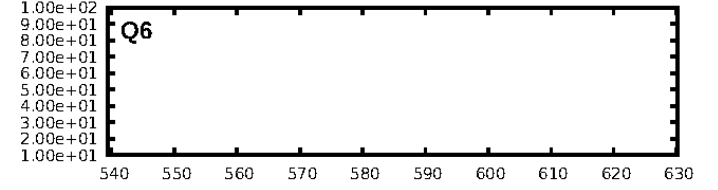
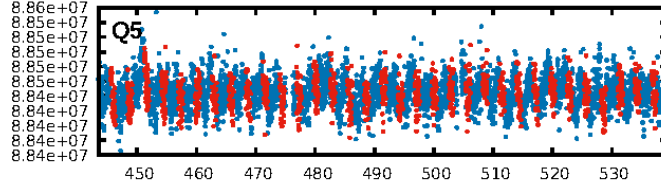
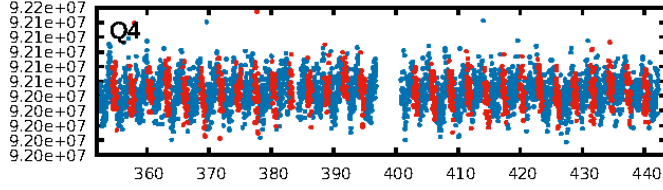
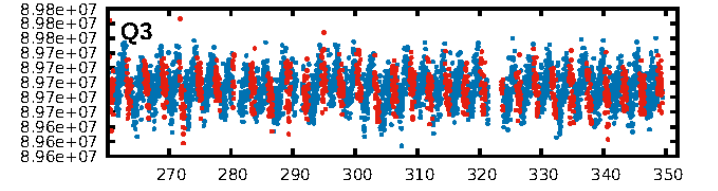
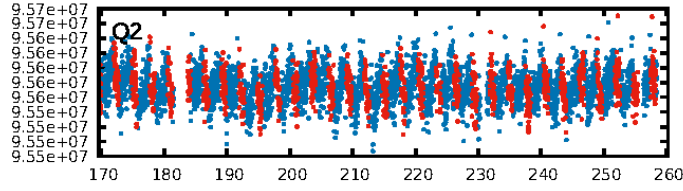
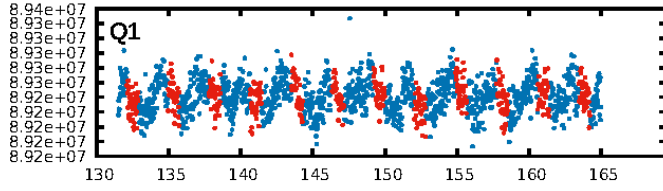
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: 0.1% [0.00σ]
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: N/A
RollingBand-fgt: 0.99 [360/362]
GhostDiagnostic-chr: 1.272
Centroid-sig: 59.5%
Centroid-so: 0.942 arcsec [0.69σ]
OotOffset-rm: 0.549 arcsec [0.74σ]
OotOffset-st: 0/4/4/4 [12]
KicOffset-rm: 0.515 arcsec [0.71σ]
KicOffset-st: 0/4/4/4 [12]
DiffImageQuality-fgm: 0.83 [10/12]
DiffImageOverlap-fno: 1.00 [14/14]

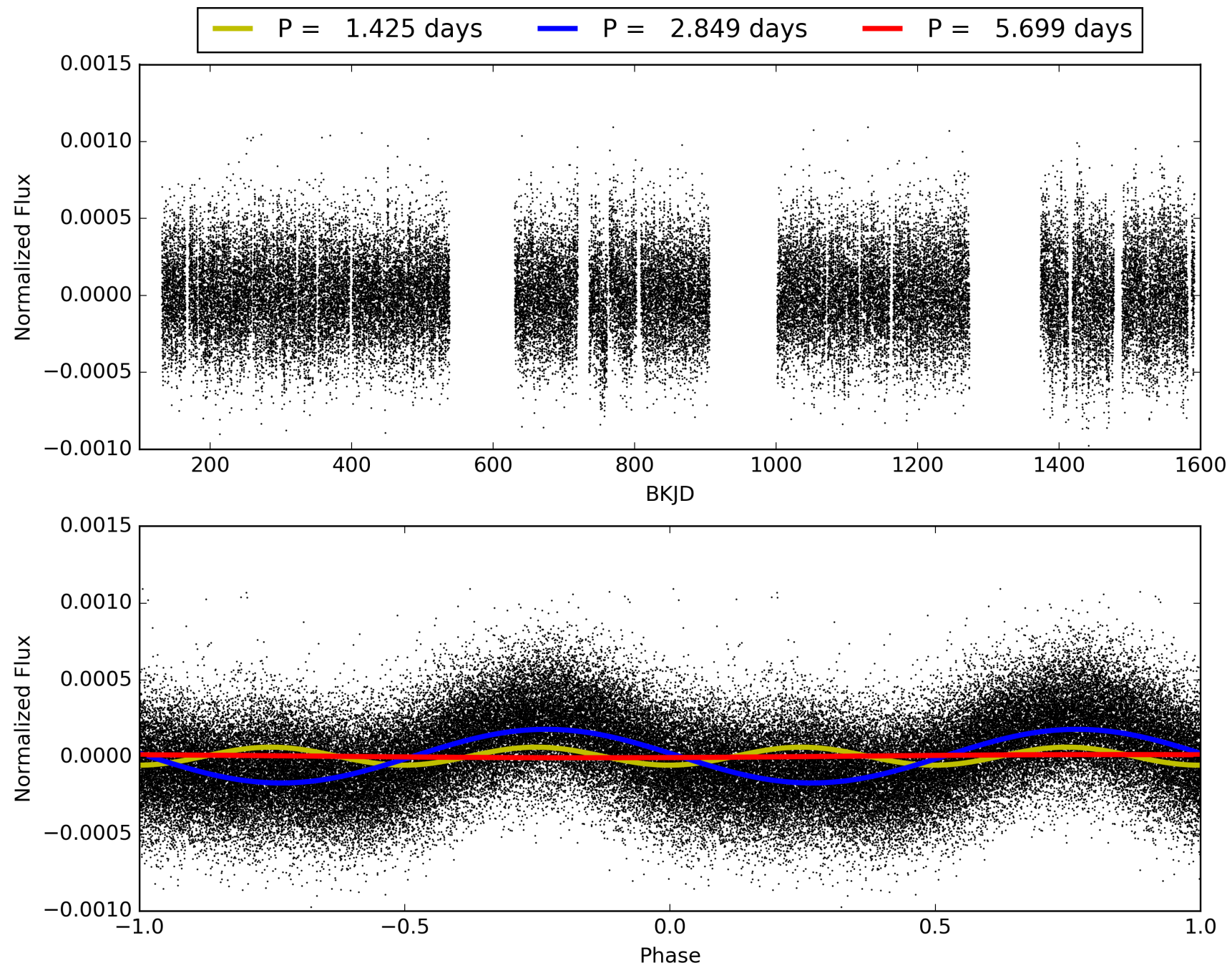
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This Data Validation Report Summary was produced in the Kepler Science Operations Center Pipeline at NASA Ames Research Center

TCE 003963203-01, PDC Light Curves

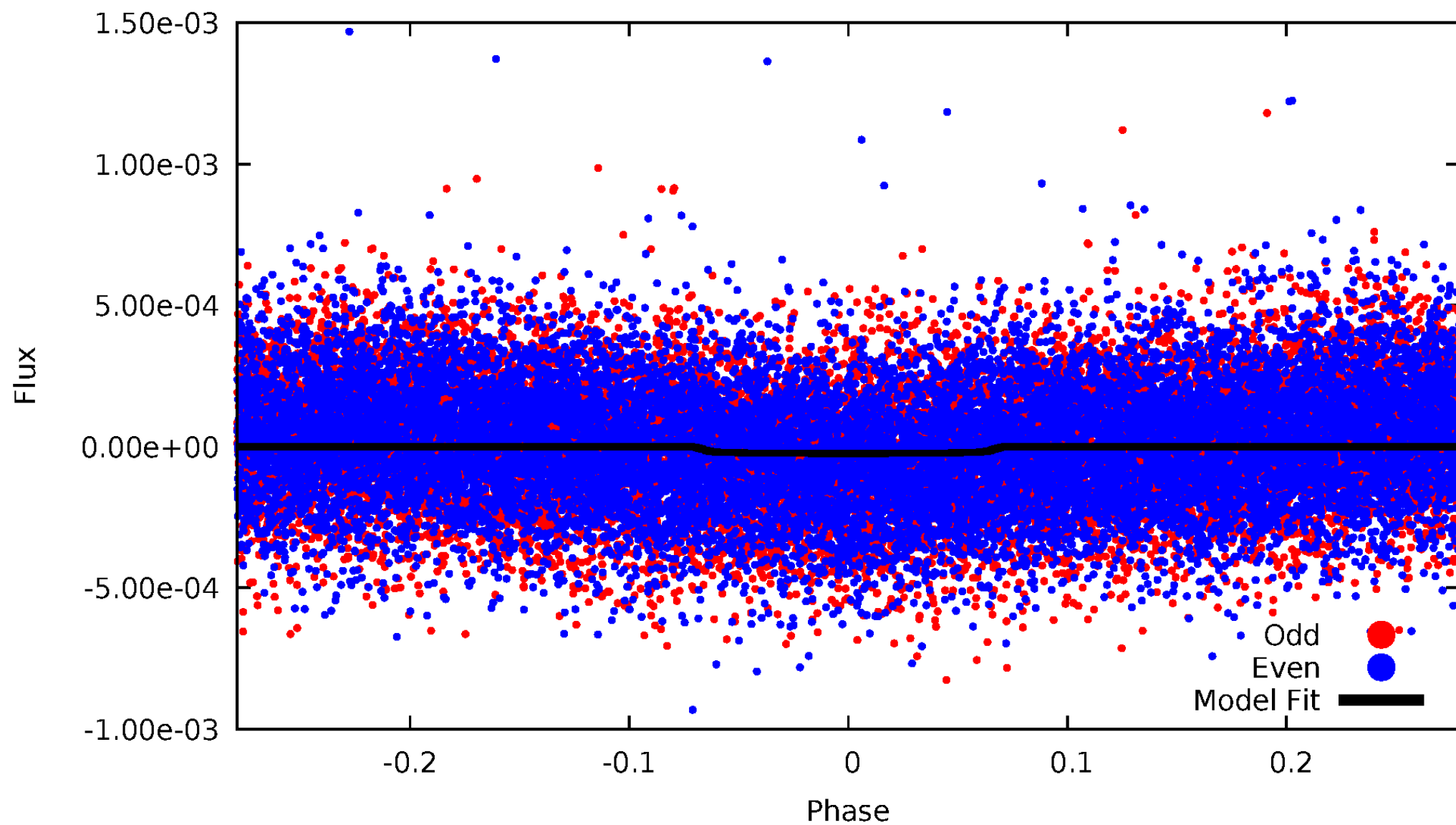


TCE 003963203-01



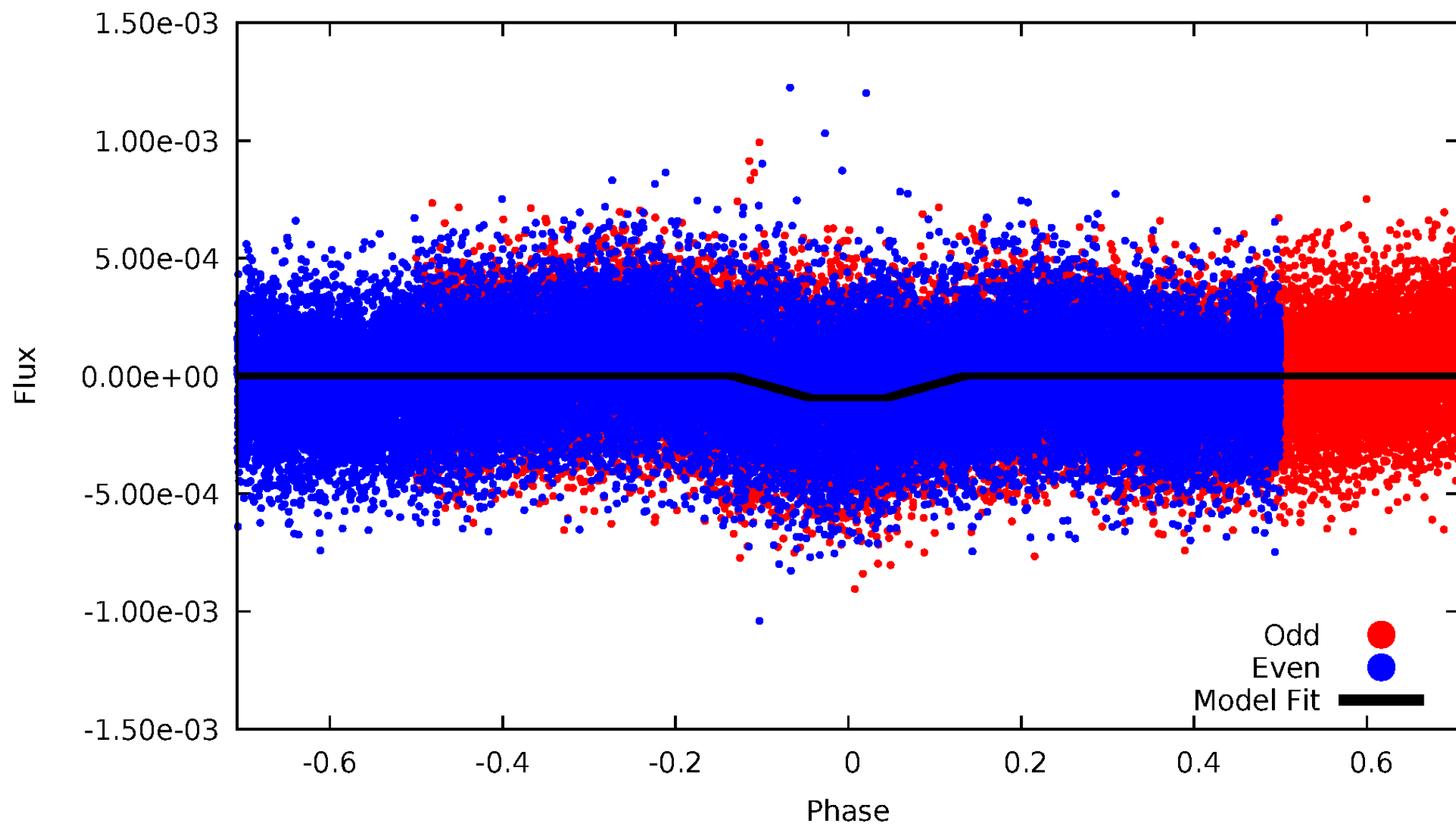
DV Odd/Even

TCE 003963203-01

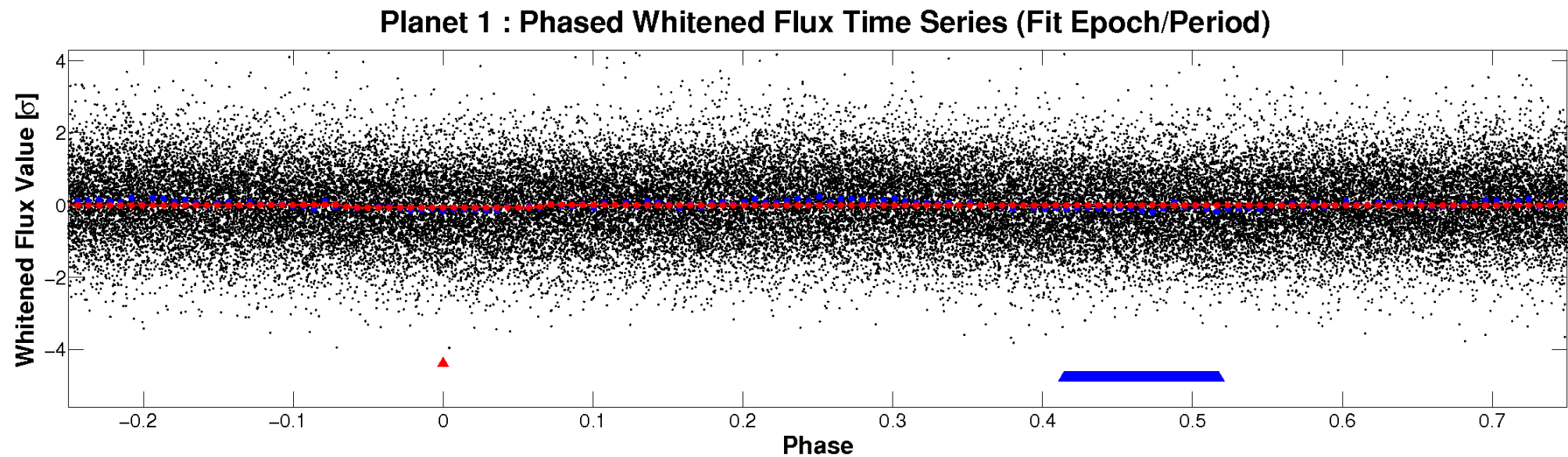
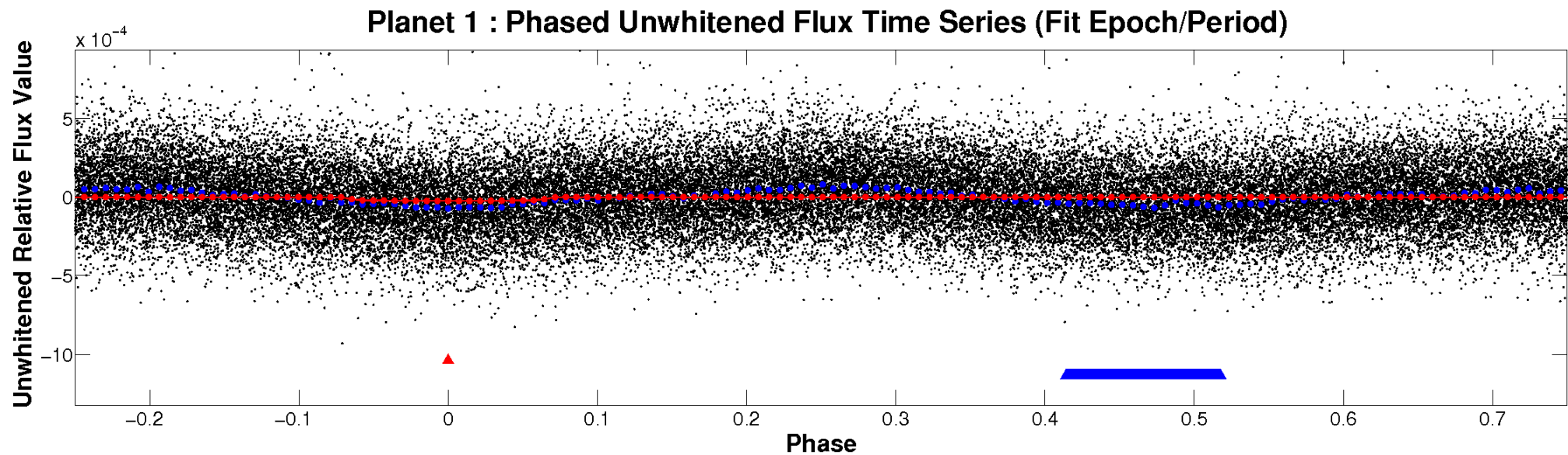


ALT Odd/Even

TCE 003963203-01

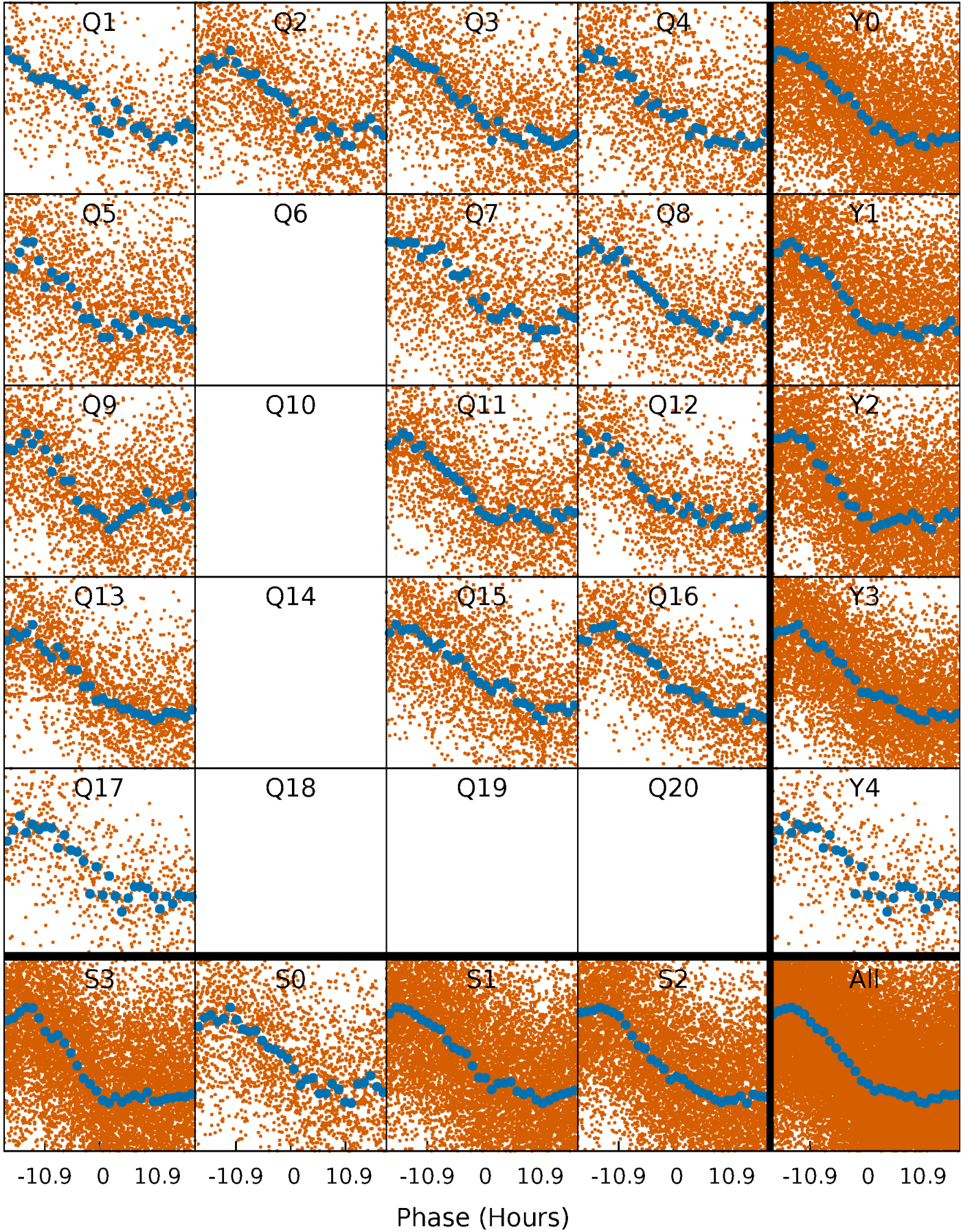


Non-Whitened Vs. Whitened Light Curve



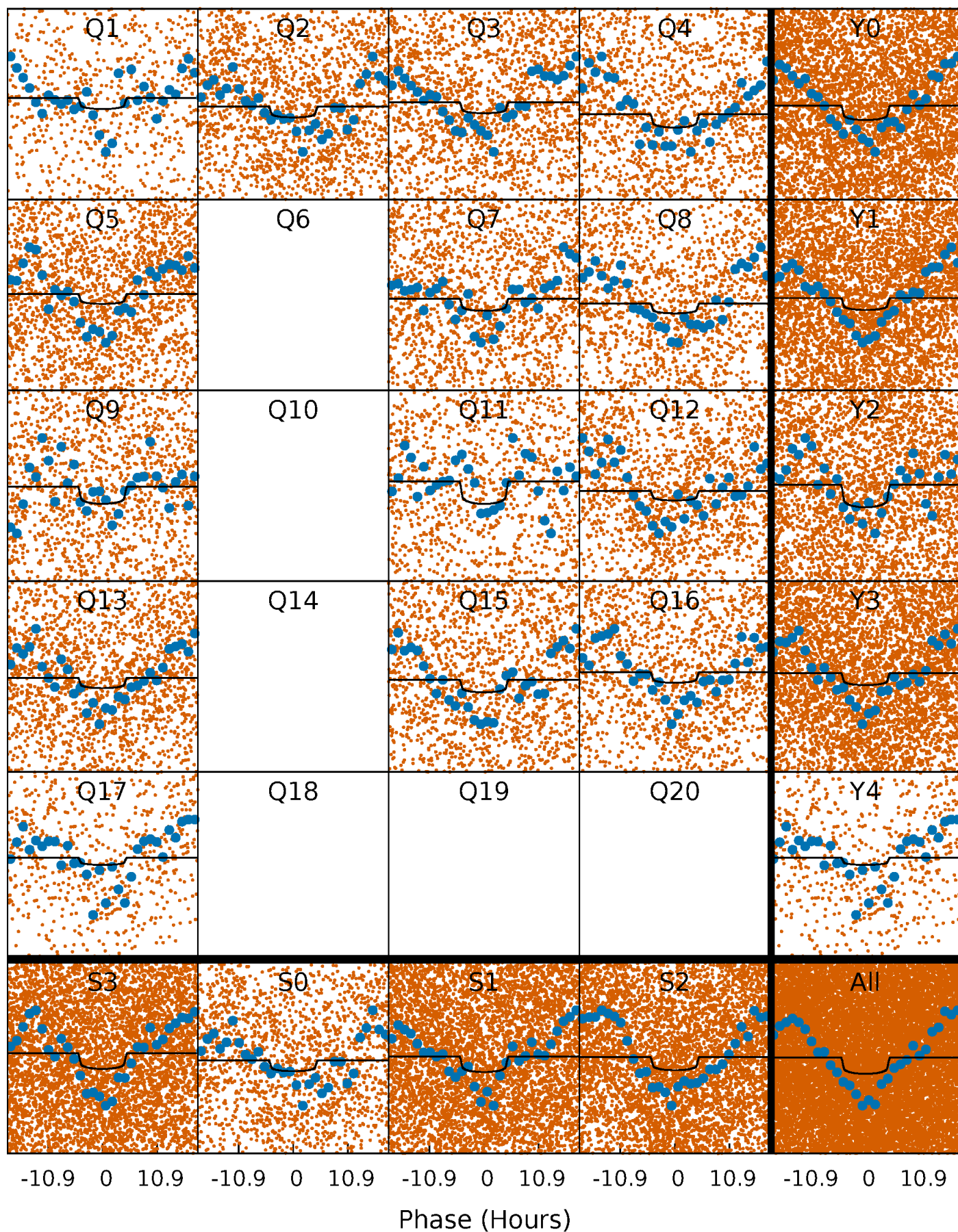
PDC Quarter-Phased Transit Curves

TCE 003963203-01 P= 2.849437 Days $T_0=132.492583$ (BKJD)



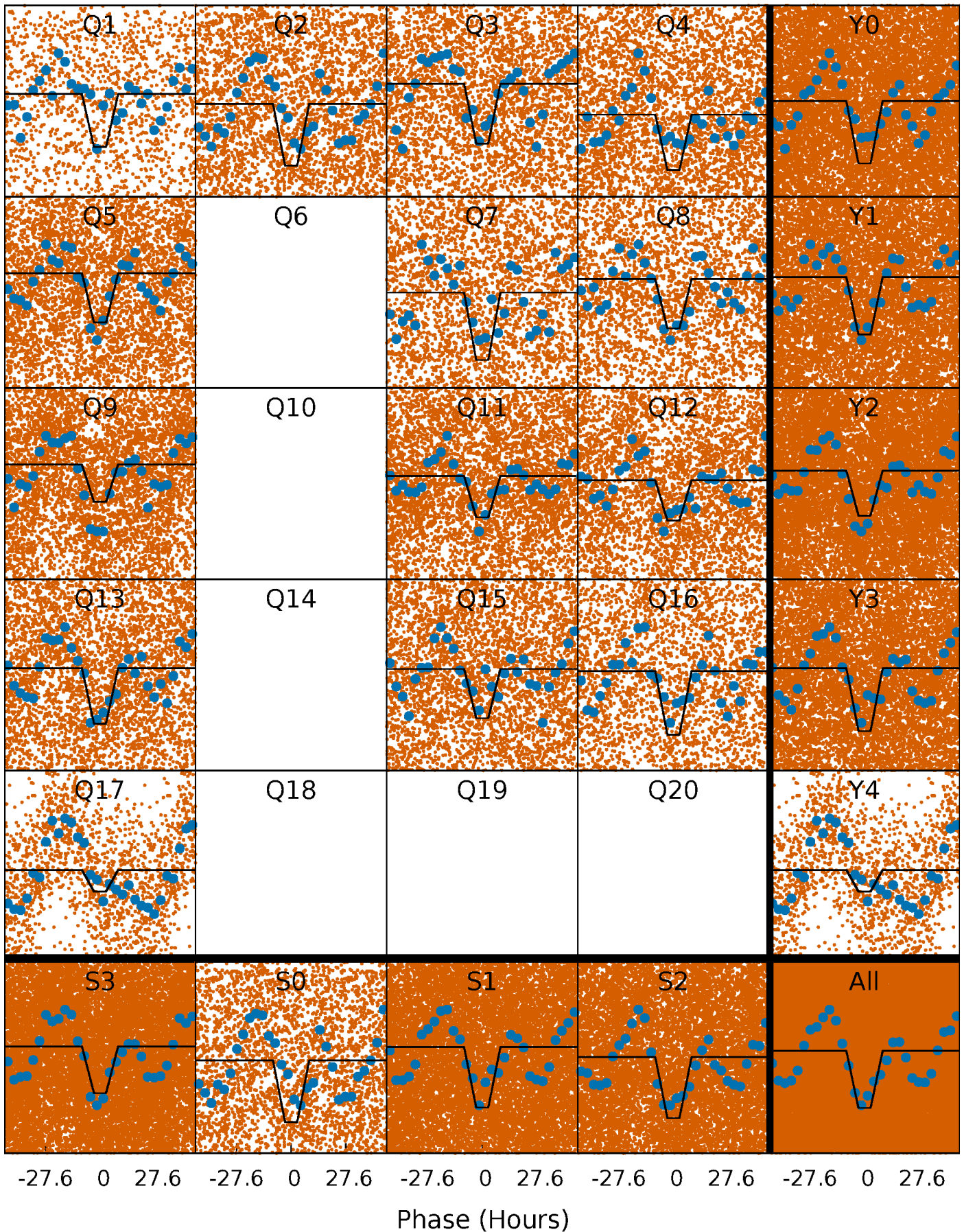
DV Quarter-Phased Transit Curves

TCE 003963203-01 P= 2.849437 Days $T_0=132.492583$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

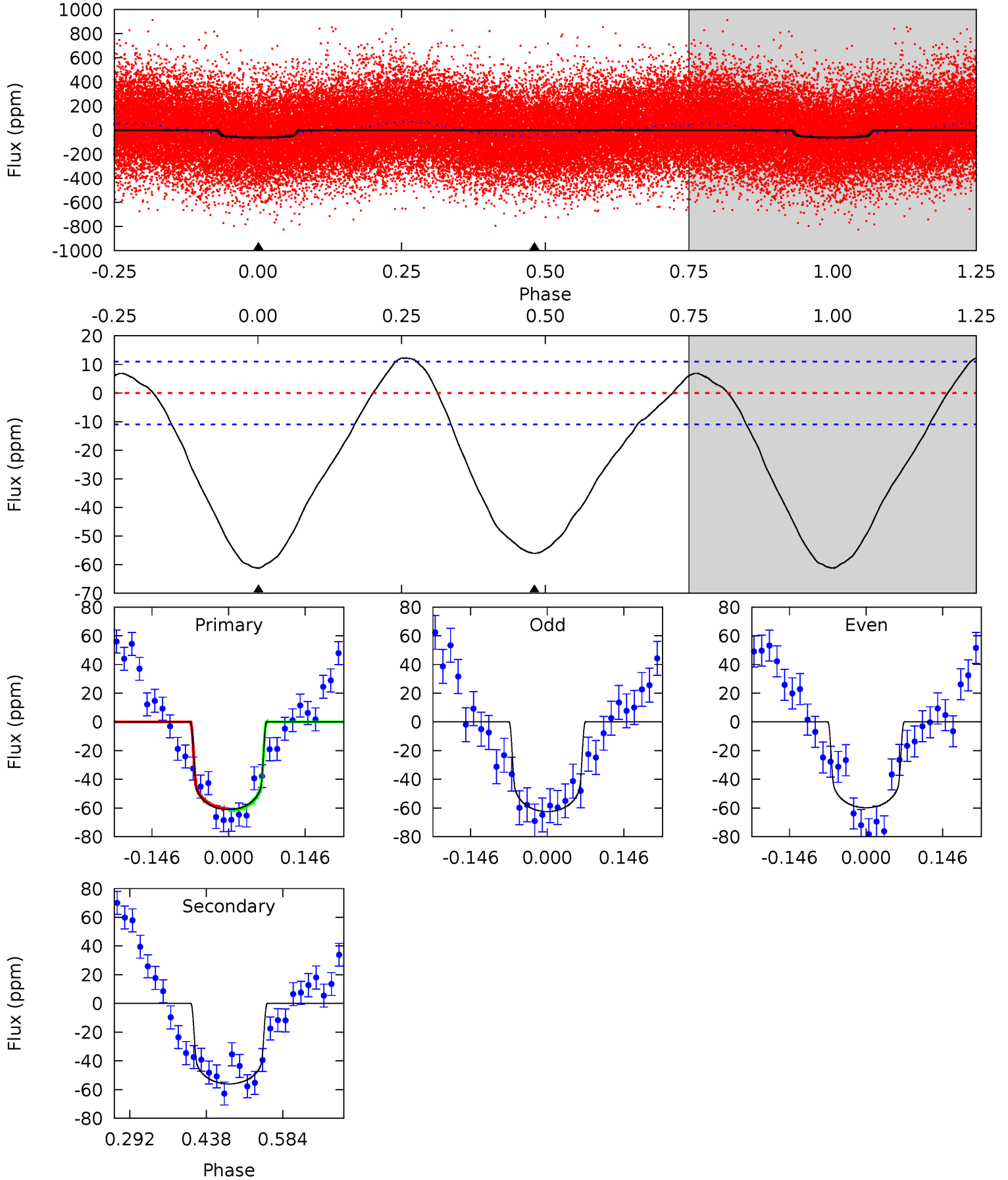
TCE 003963203-01 P= 2.849528 Days $T_0=132.555154$ (BKJD)



DV Model-Shift Uniqueness Test

003963203-01, P = 2.849437 Days, E = 129.643146 Days

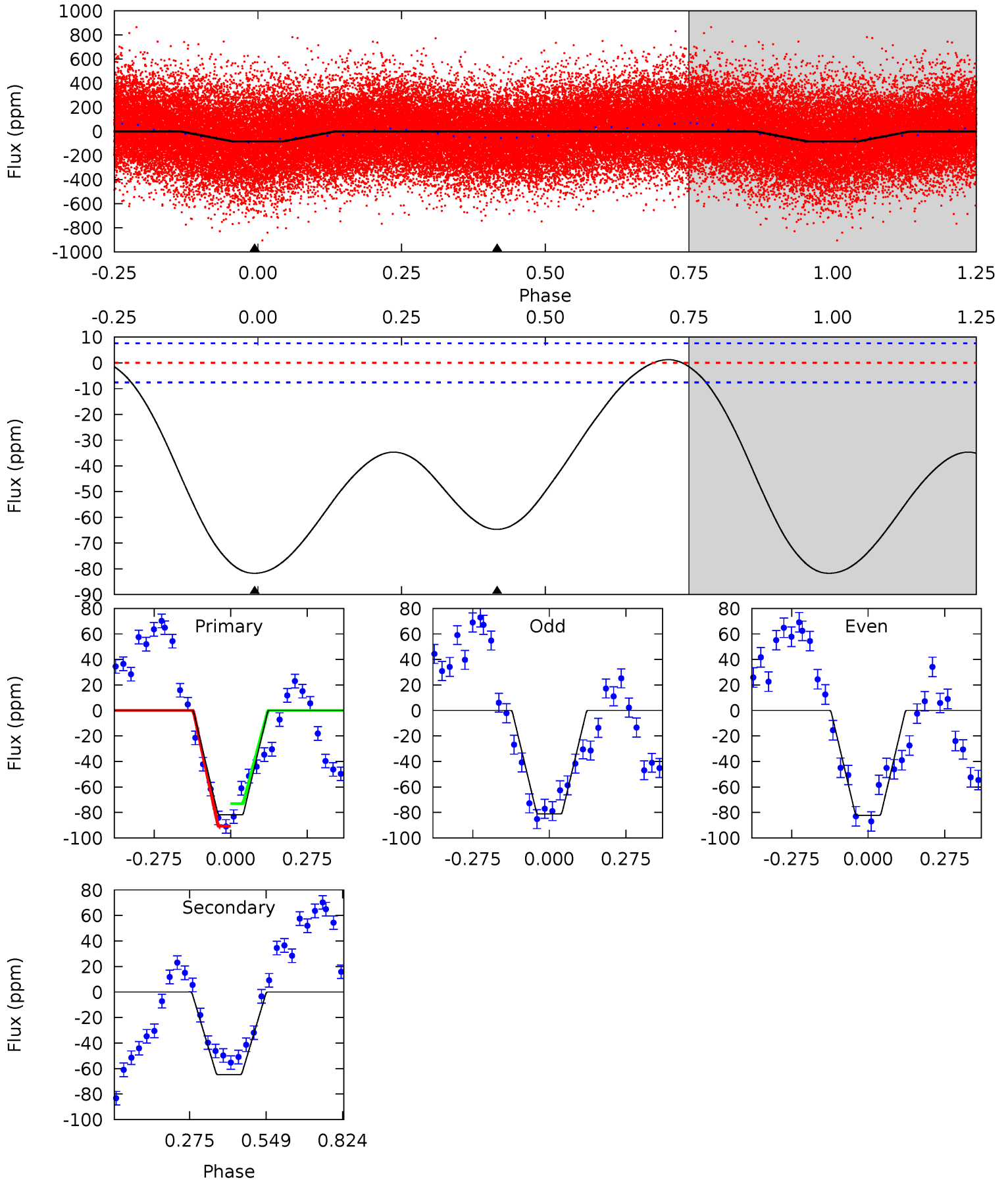
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
25.0	22.9	0	0	4.48	1.45	3.47	25.0	25.0	22.9	22.9	0.55	1.04	0.17	0.28



Alt Model-Shift Uniqueness Test

003963203-01, P = 2.849528 Days, E = 129.705626 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
46.9	37.1	0	0	4.35	1.09	0.89	46.9	46.9	37.1	37.1	0.32	0.86	0.02	5.03



Stellar Parameters For KIC 003963203

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	6628^{+181}_{-221}	$4.139^{+0.209}_{-0.171}$	$-0.280^{+0.250}_{-0.300}$	$1.575^{+0.442}_{-0.398}$	$1.253^{+0.185}_{-0.226}$	$0.452^{+0.542}_{-0.215}$
	+3%/-3%	+5%/-4%	+89%/-107%	+28%/-25%	+15%/-18%	+120%/-48%
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 003963203-01 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	-56 ± 2	$0.91^{+0.27}_{-0.24}$	2487^{+181}_{-192}	8010^{+1686}_{-993}	66^{+59}_{-26}
Alt.	-65 ± 2	$1.62^{+0.36}_{-0.31}$	2482^{+181}_{-184}	6039^{+519}_{-433}	24^{+12}_{-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 $T_{obs} \gg T_{max}$ AND $A_{obs} \gg 1.0$

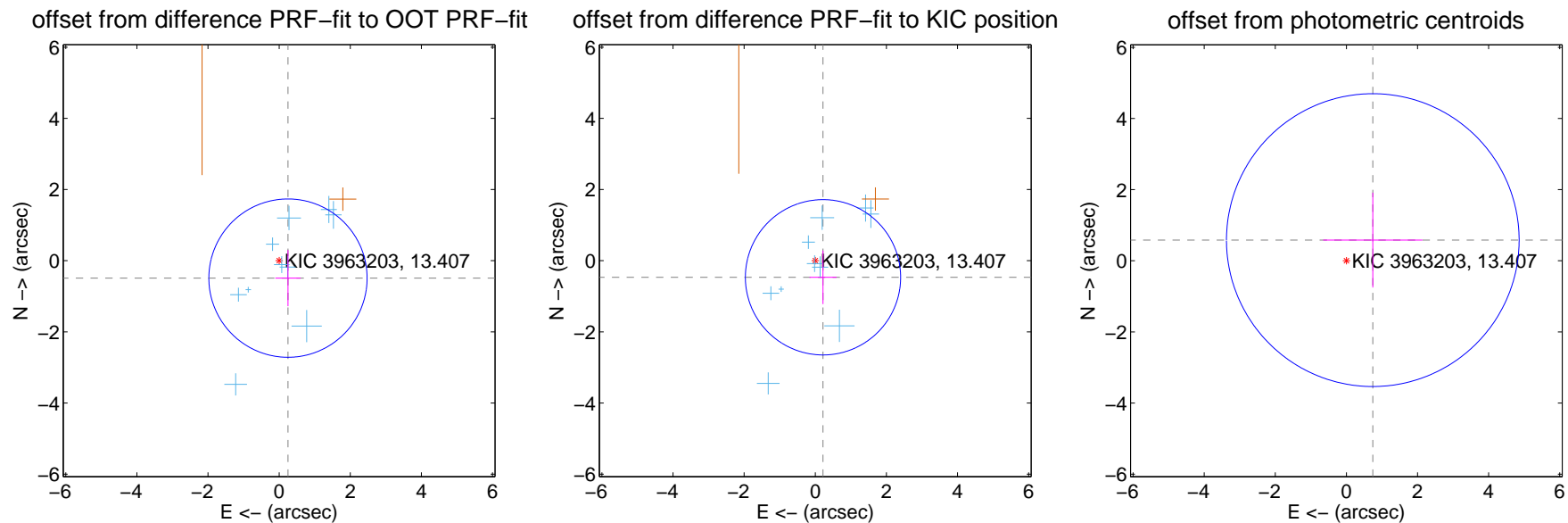
DV Centroid Data

Supplemental centroid analysis for 003963203-01. Kepler magnitude: 13.41. Transit SNR 5.63

There are 10 quarters with good PRF difference image offsets

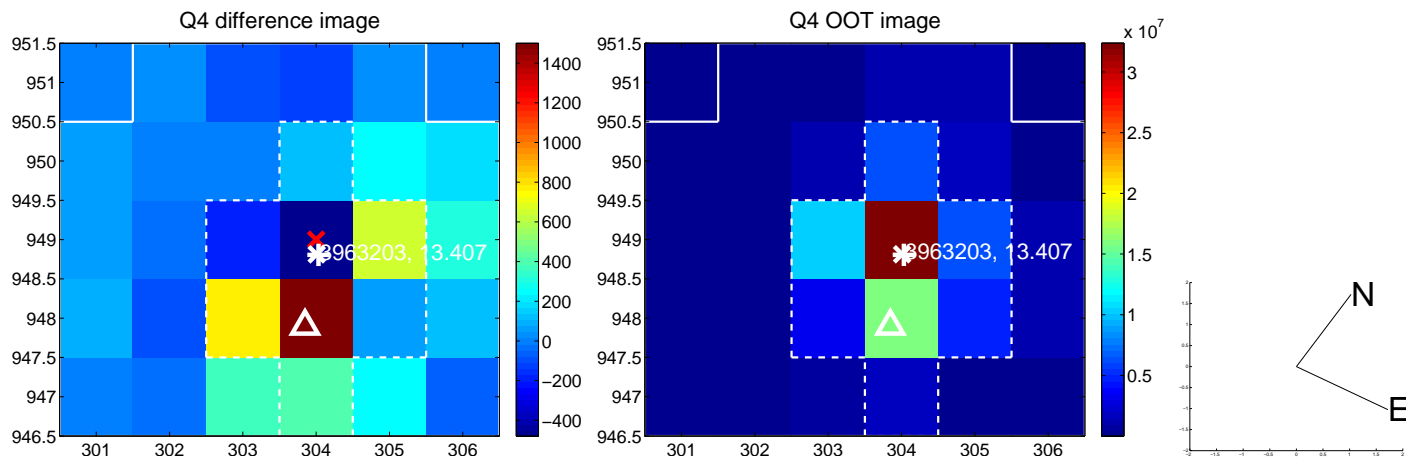
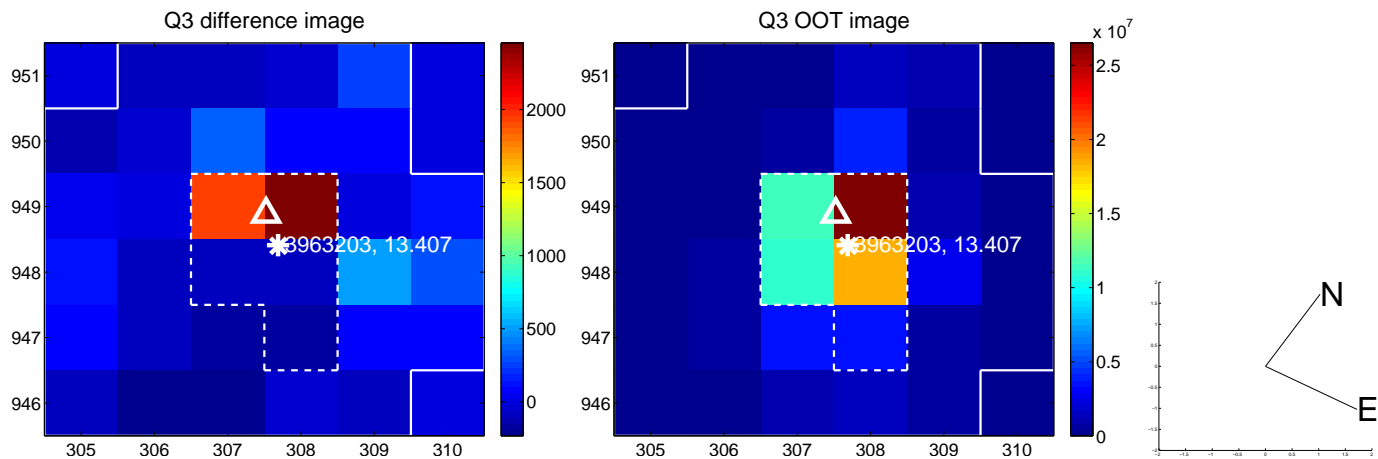
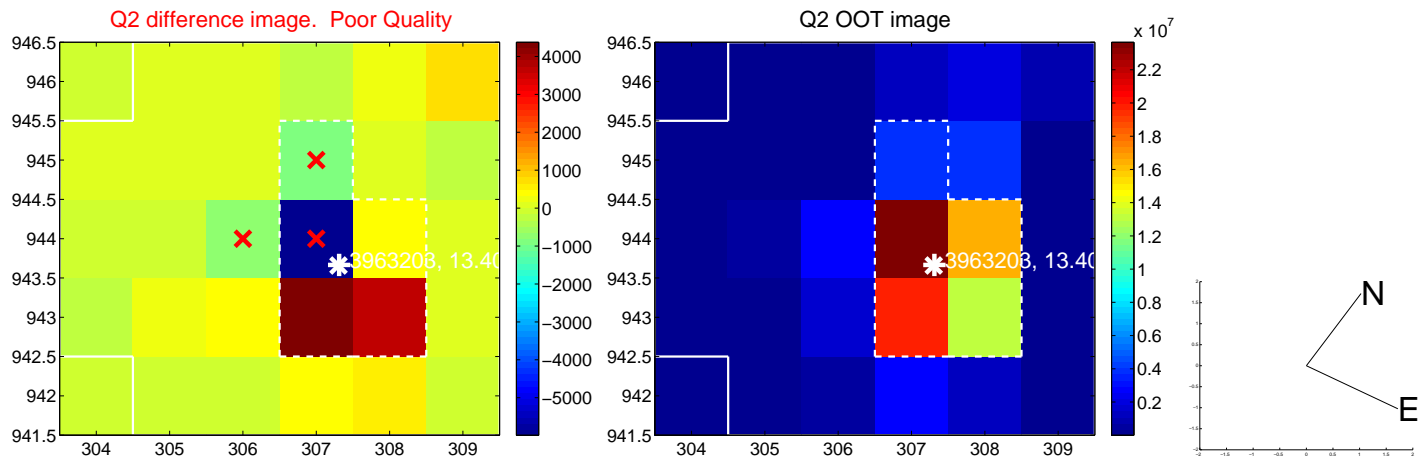
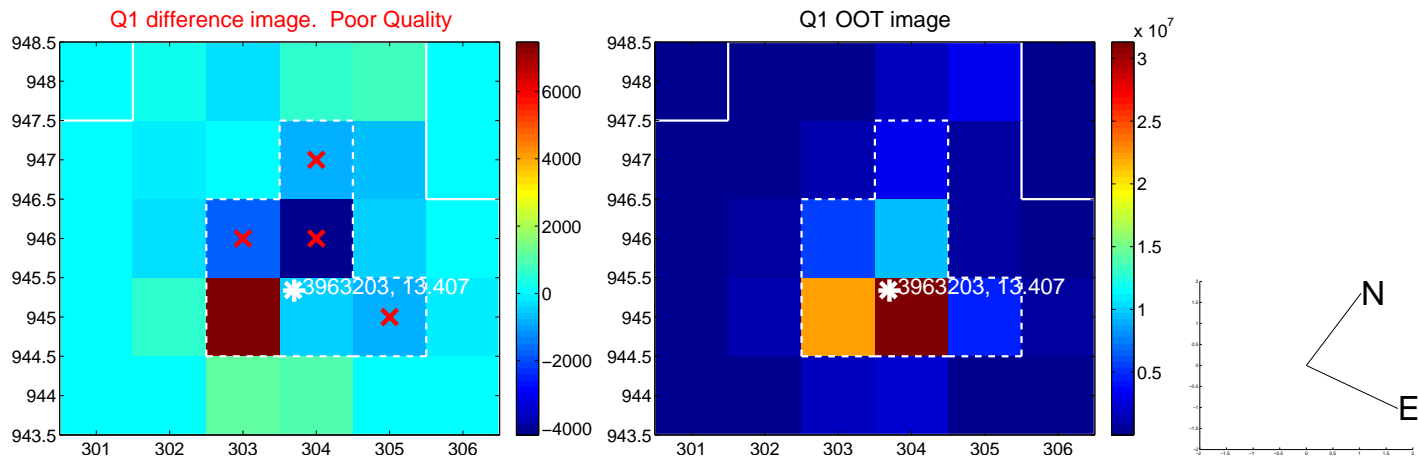
The direct PRF centroid is offset from the target star catalog position by about 0.08 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.549 ± 0.742	0.74	-0.248 ± 0.355	-0.490 ± 0.789
PRF-fit source offset from KIC position	0.515 ± 0.727	0.71	-0.217 ± 0.380	-0.466 ± 0.752
photometric centroid source offset	0.94 ± 1.37	0.69	-0.74 ± 1.40	0.58 ± 1.33

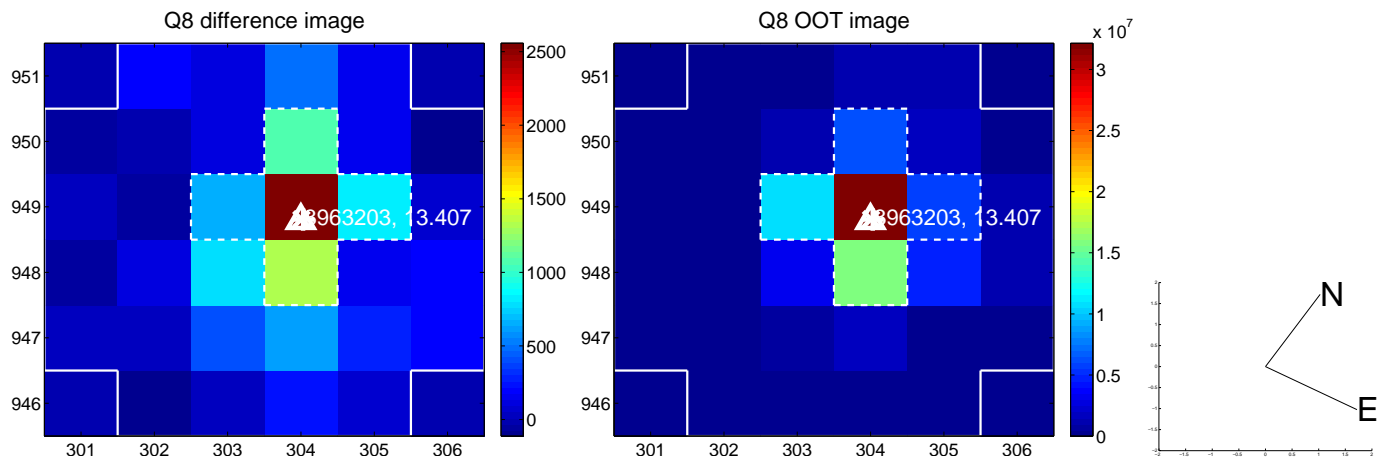
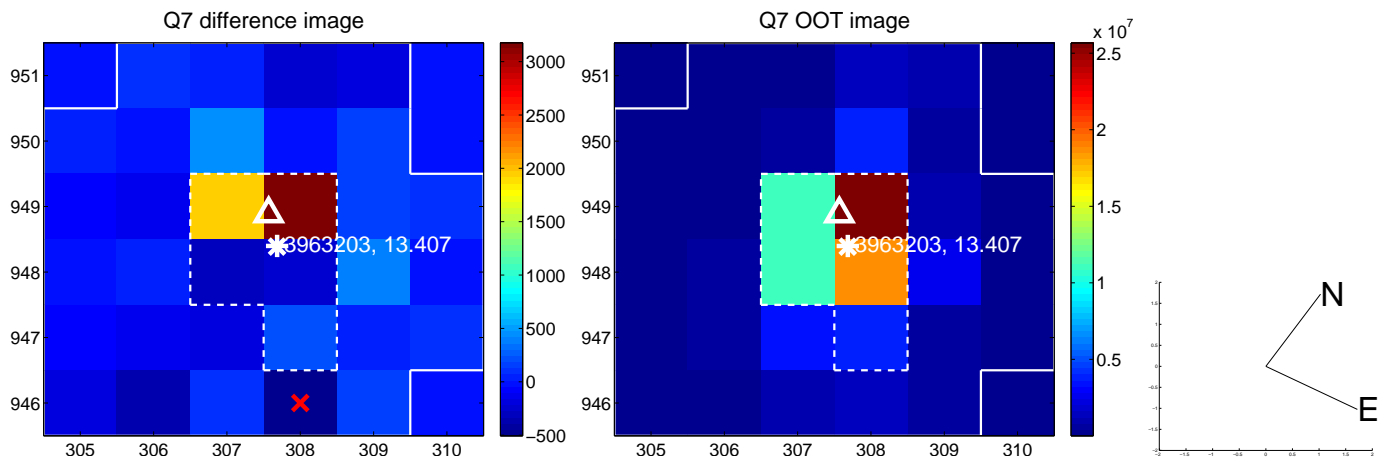
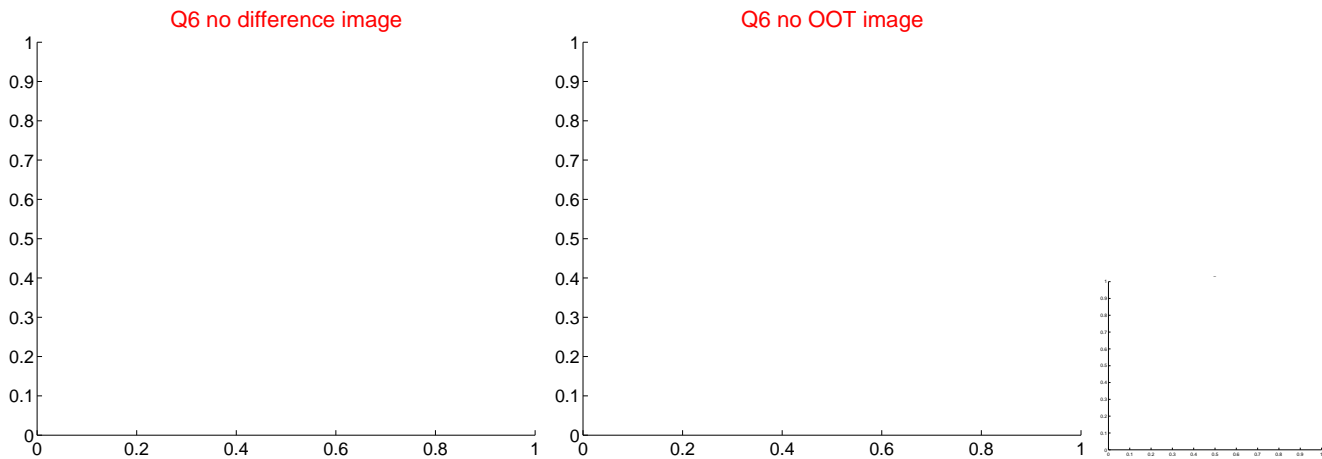
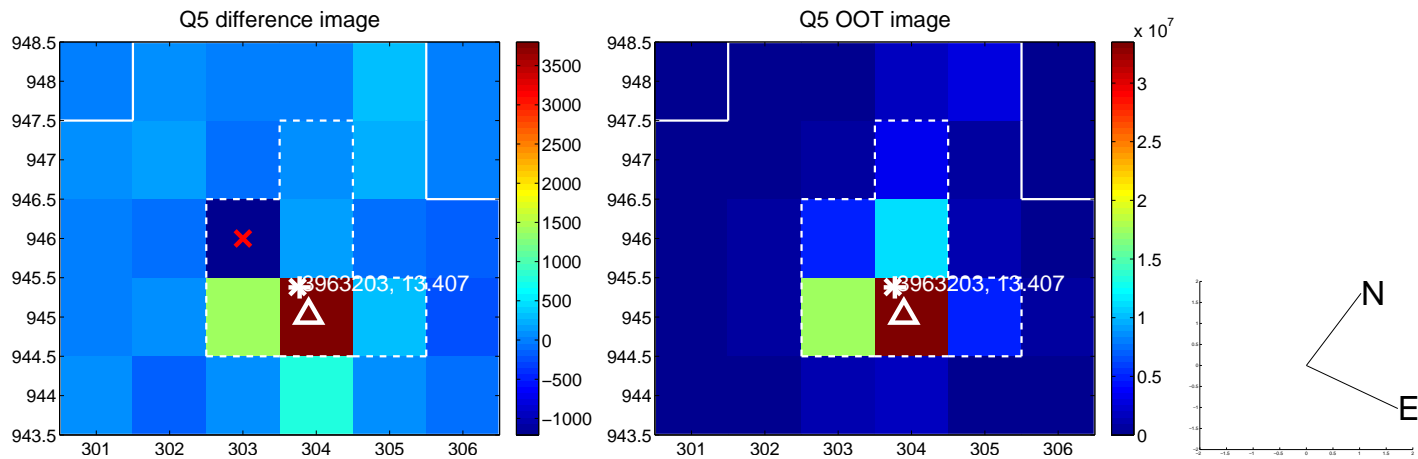


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

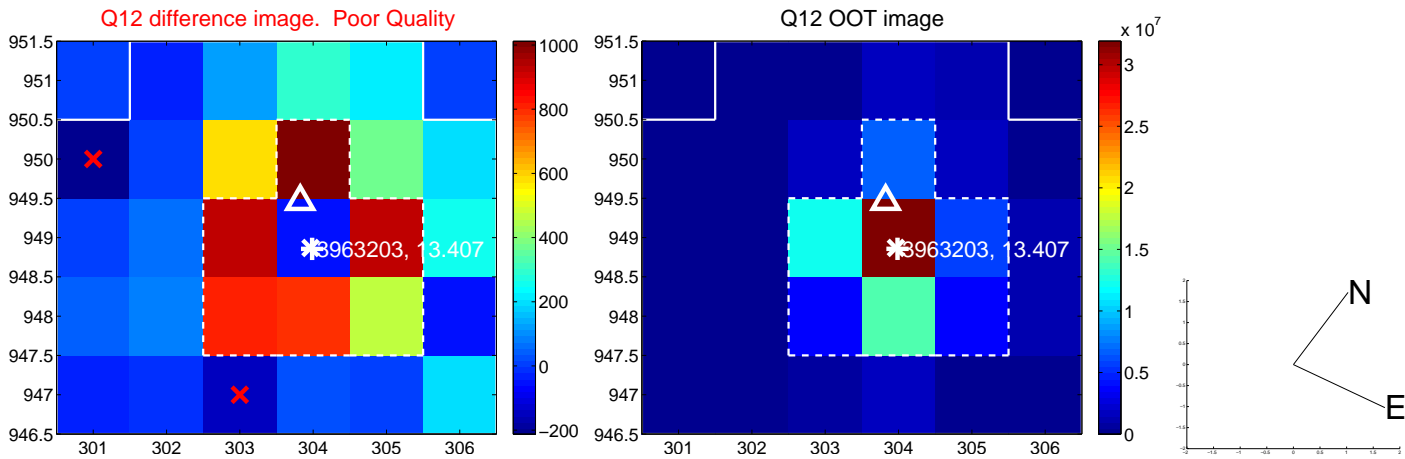
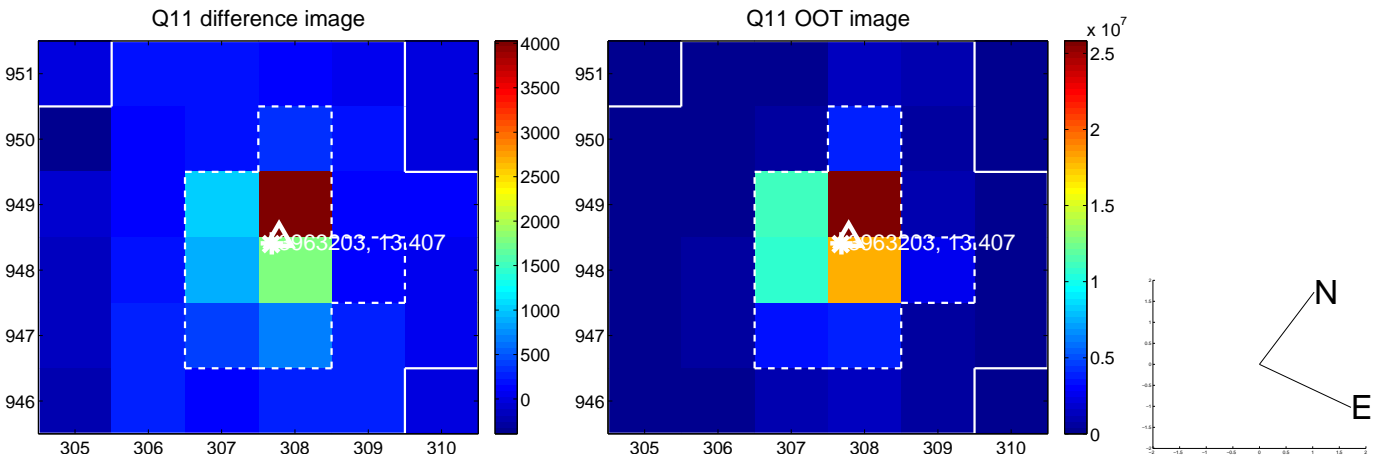
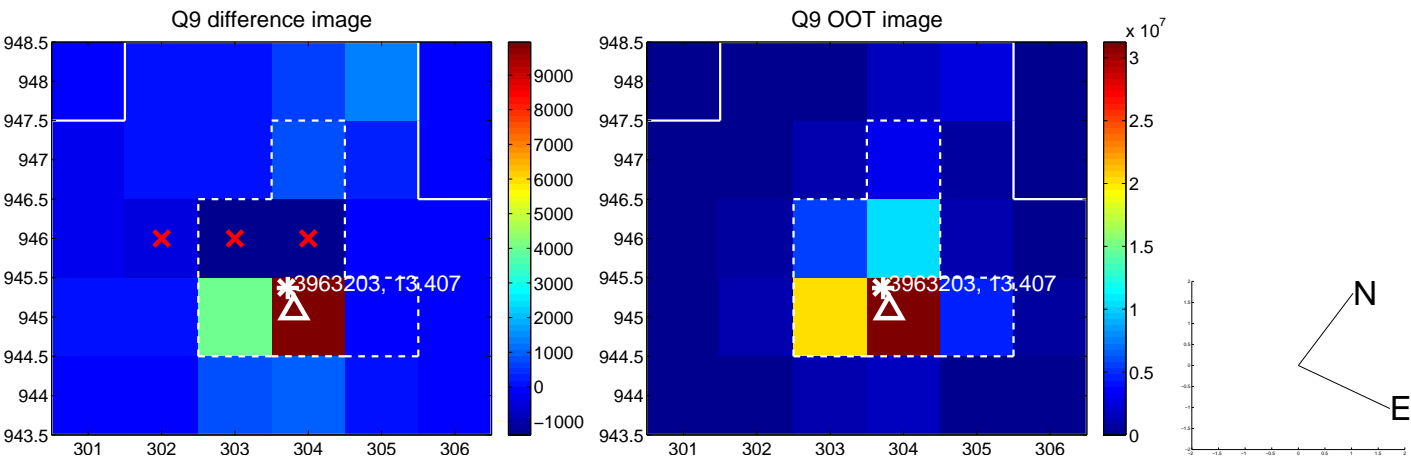
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



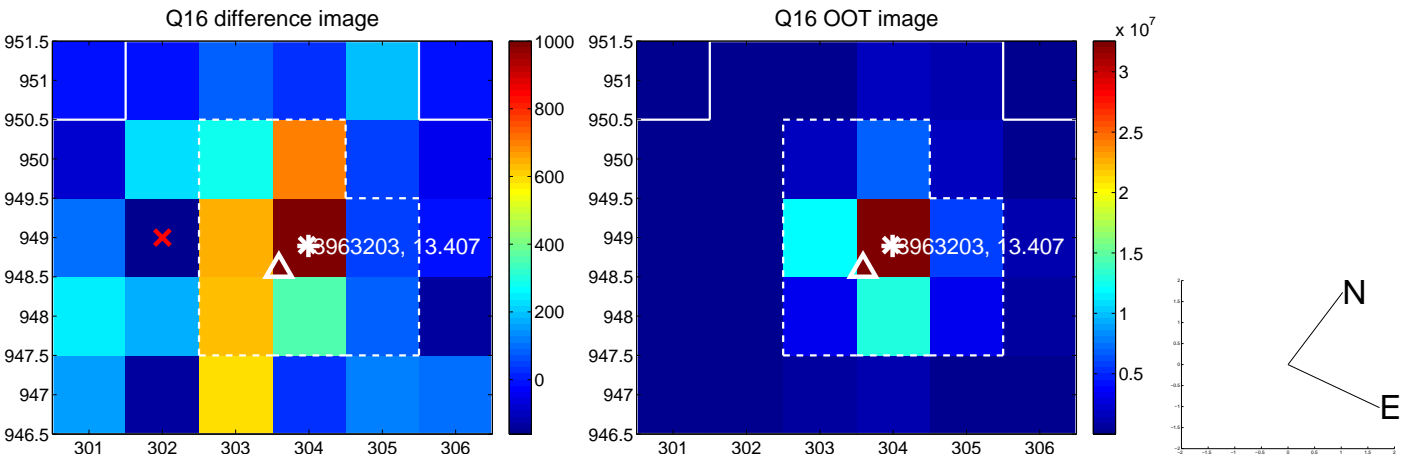
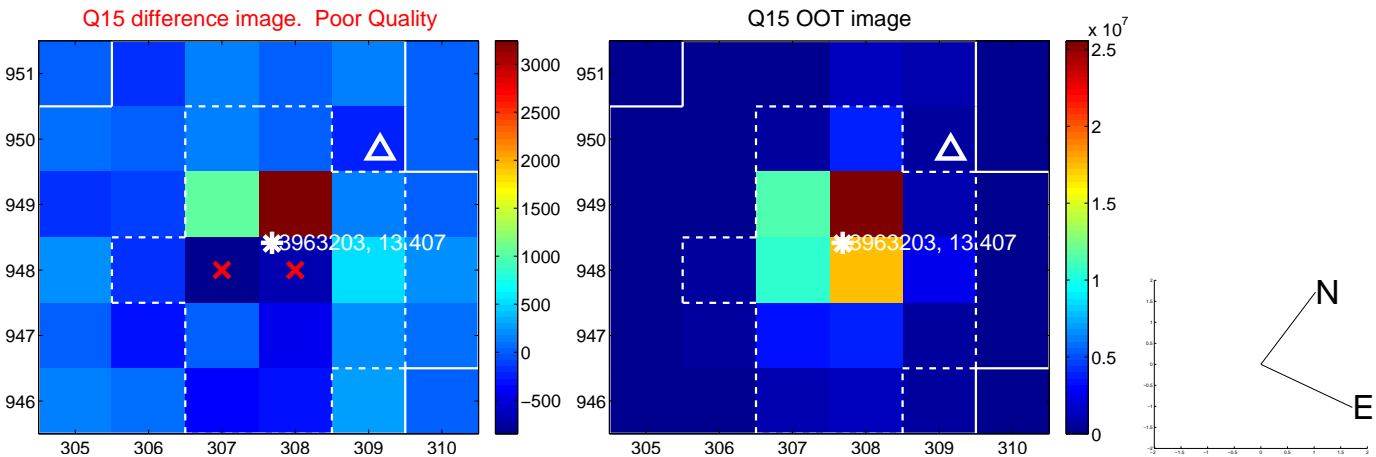
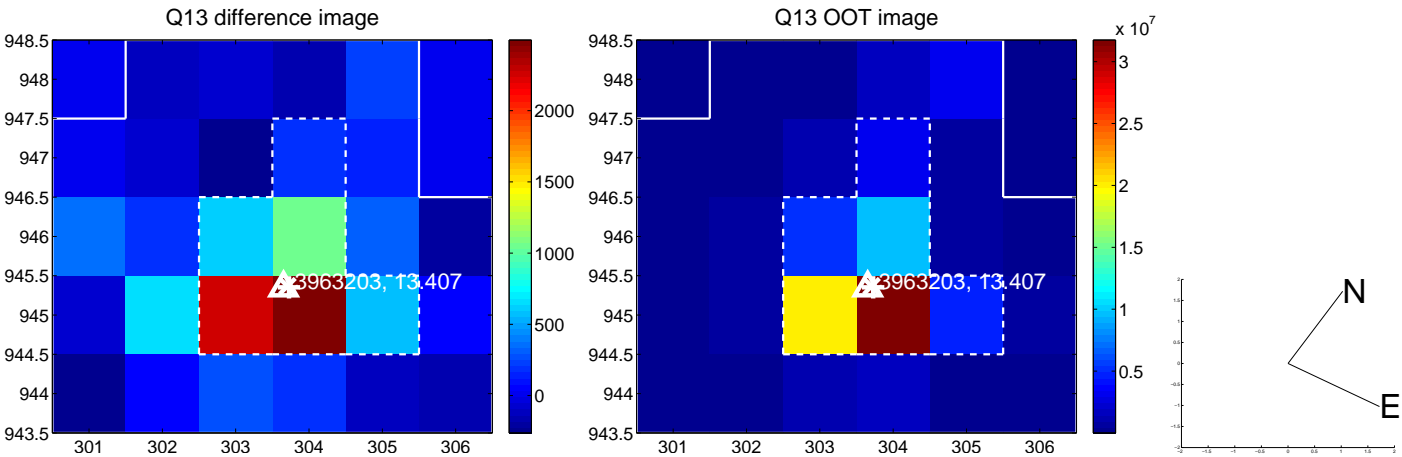
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



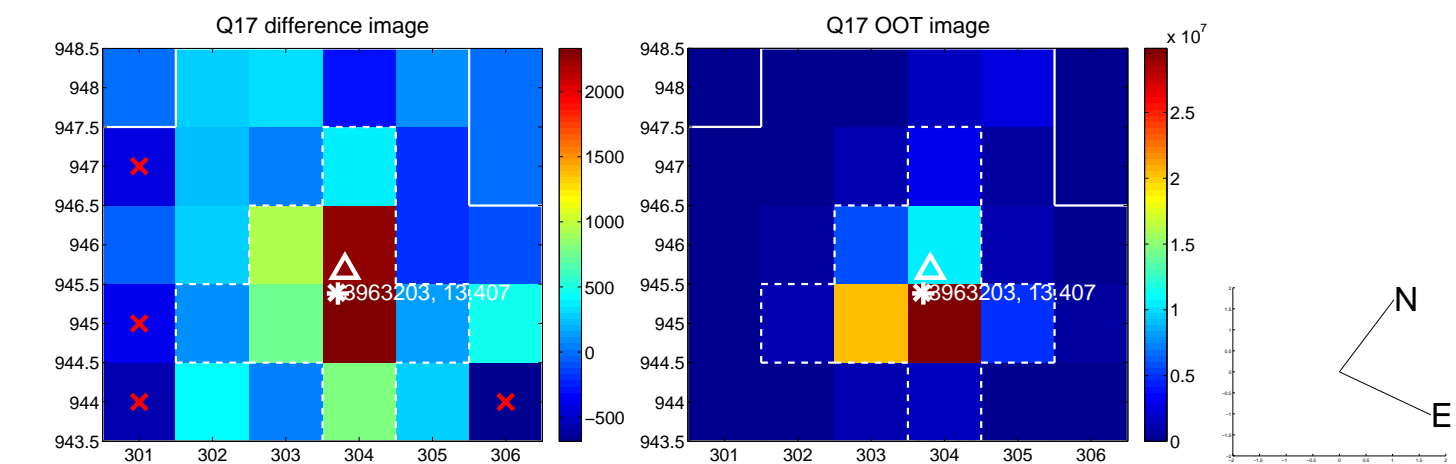
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



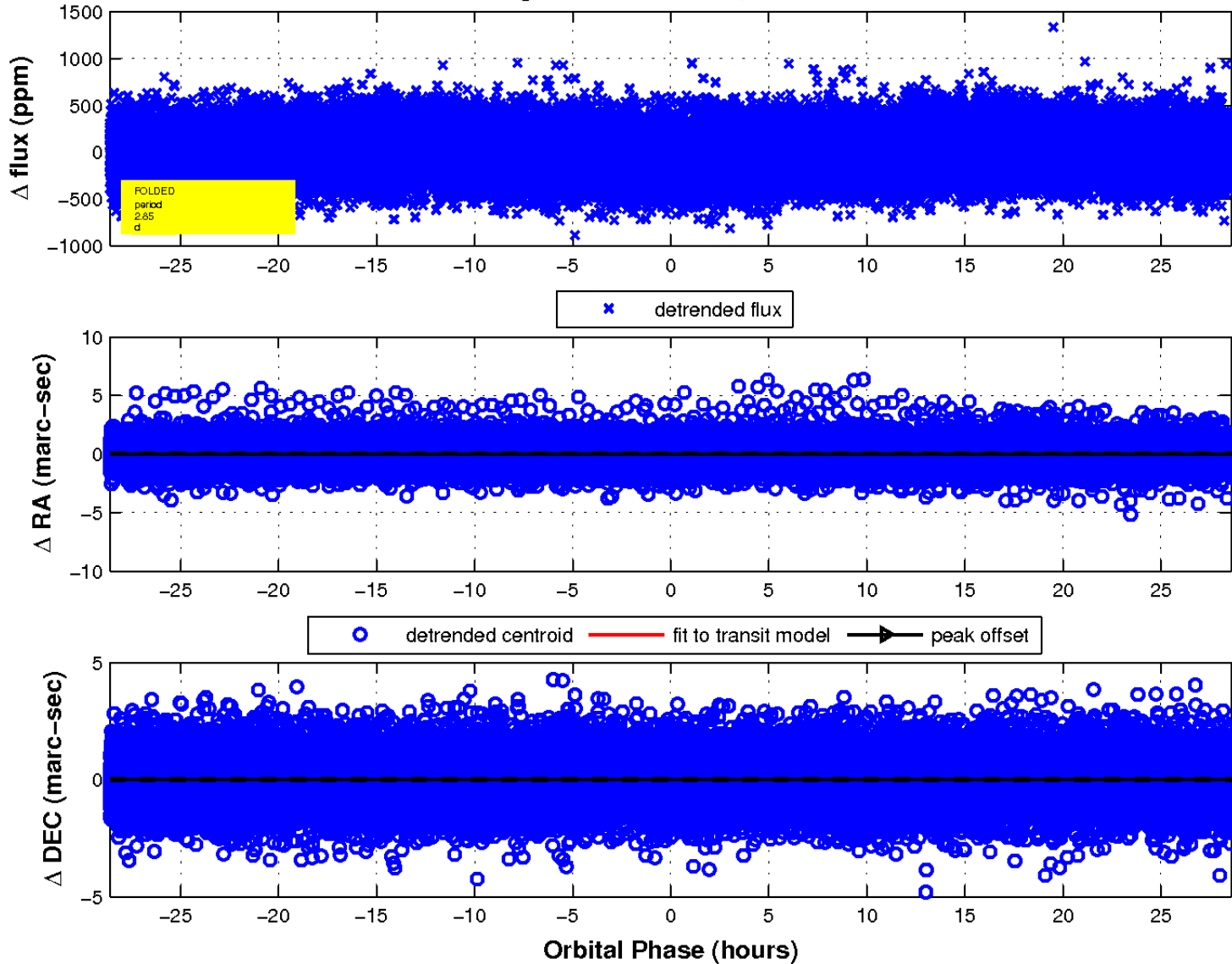
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



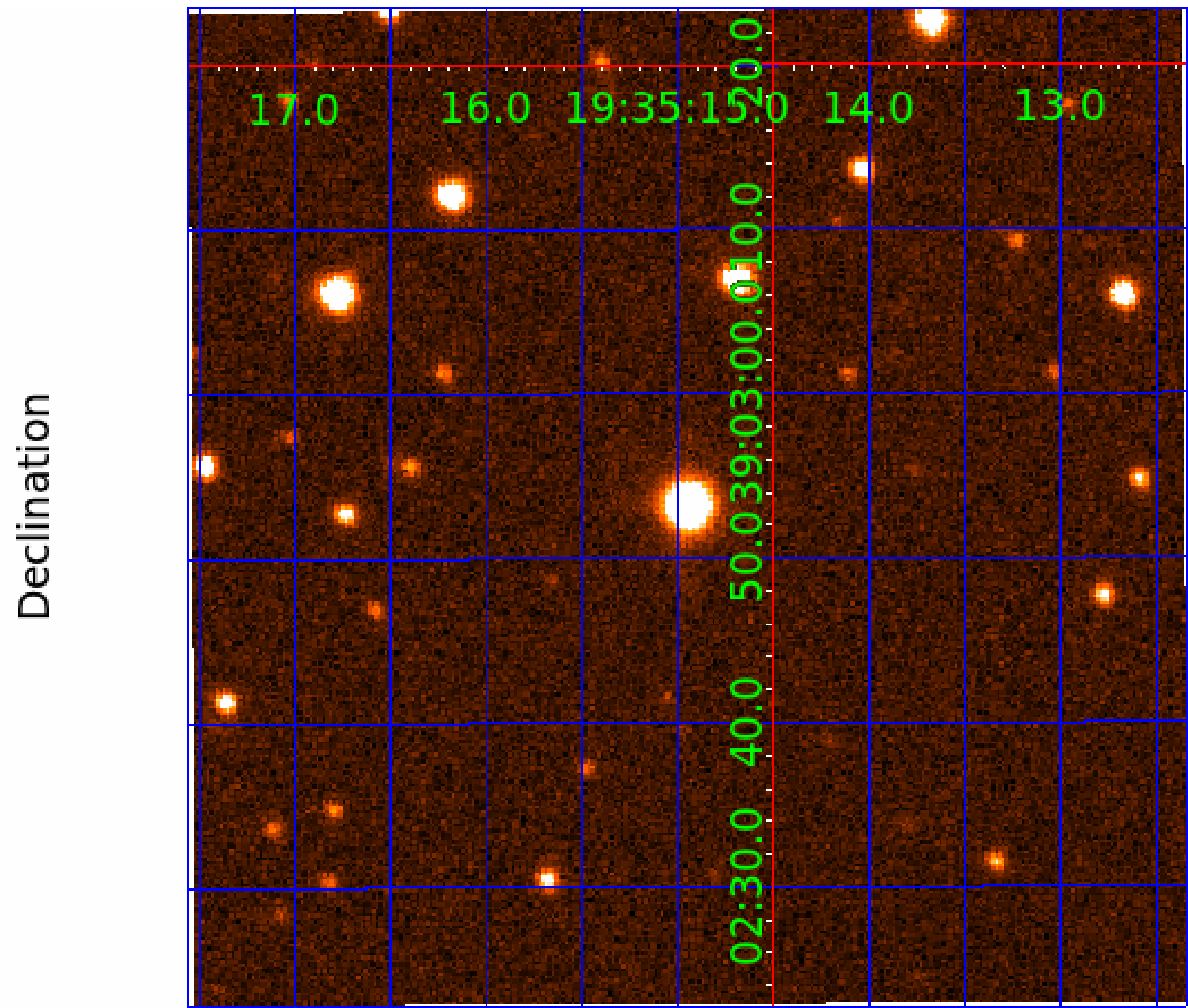
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



fluxWeightedCentroids, Planet 1 of 2



UKIRT Image



KIC 003963203

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})
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003963203-02	OBS	No	2.850013	133.673115	45.1	14.800	11.5	13.2	1.57	6628	1.06	2392.30

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
003963203-01	OBS	FP	0.00	1	0	0	0	SWEET_NTL—LPP_DV—LPP_ALT
003963203-02	OBS	FP	0.00	1	0	0	0	SWEET_NTL—LPP_DV—LPP_ALT—MOD_NONUNIQ_ALT—SAME_NTL_PERIOD

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

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

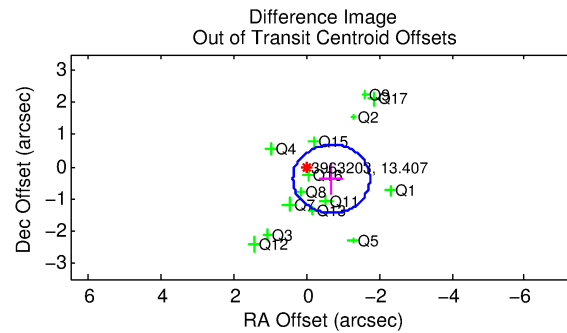
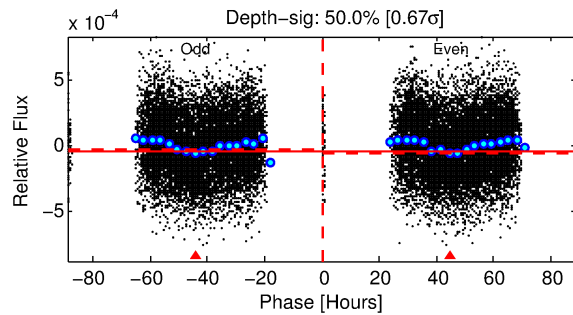
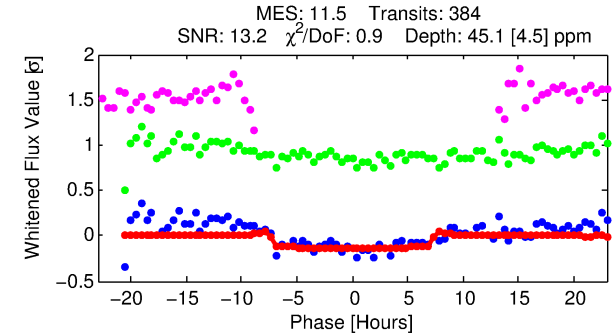
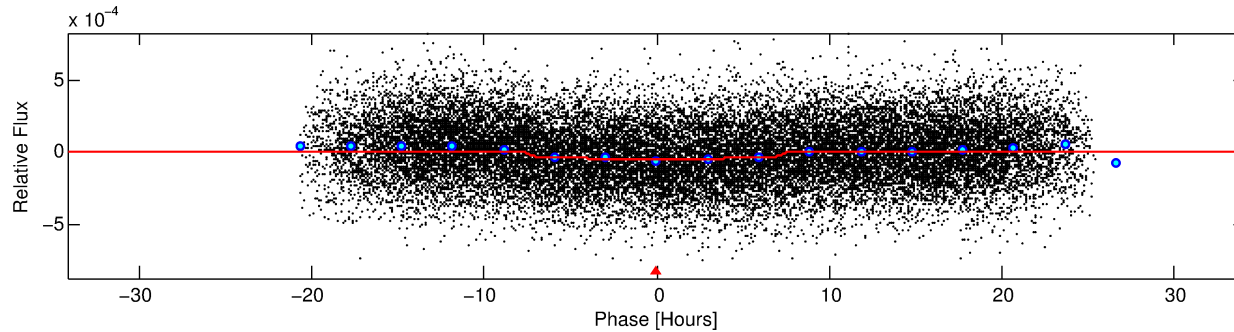
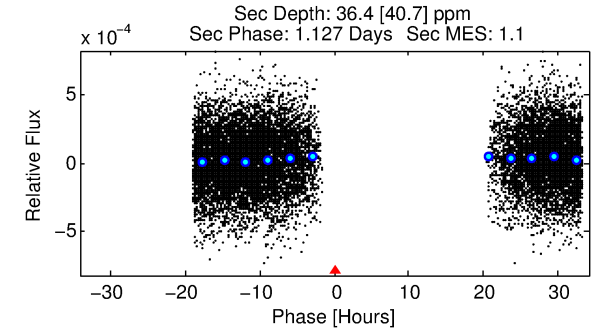
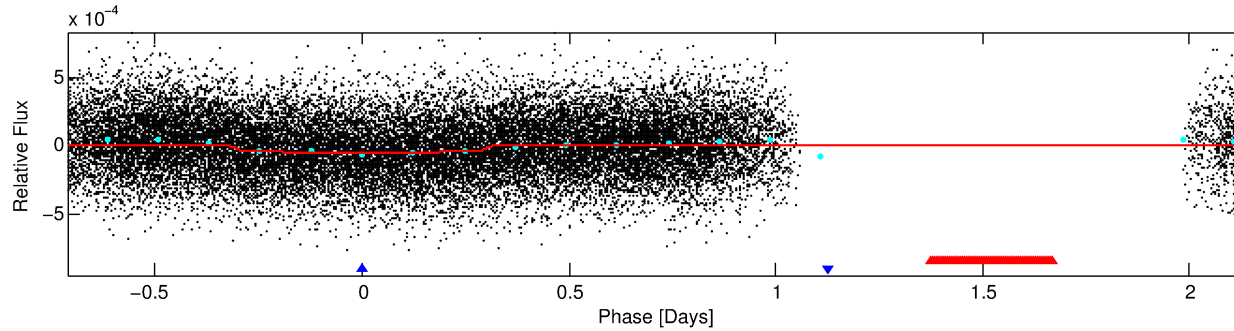
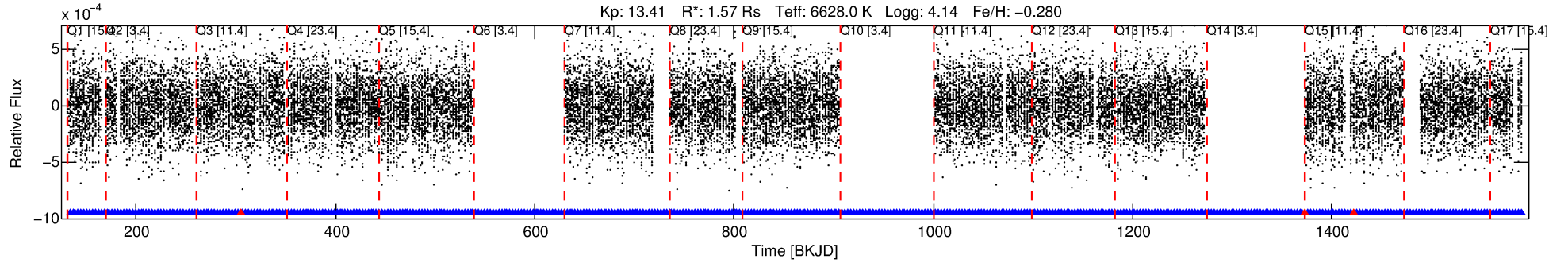
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 003963203-02

No Significant Match Found

DV One-Page Summary

KIC: 3963203 Candidate: 2 of 2 Period: 2.850 d



DV Fit Results:

Period = 2.85001 [0.00003] d
Epoch = 133.6731 [0.0066] BKJD
Rp/R* = 0.0062 [0.0047]
a/R* = 1.60 [4.04]
b = 0.01 [636.54]
Seff = 2392.30 [944.04]
Teq = 1783 [176] K
Rp = 1.07 [0.86] Re
a = 0.0423 [0.0104] AU
Ag = 31.64 [60.70] [0.50σ]
Teffp = 6539 [3085] K [1.54σ]

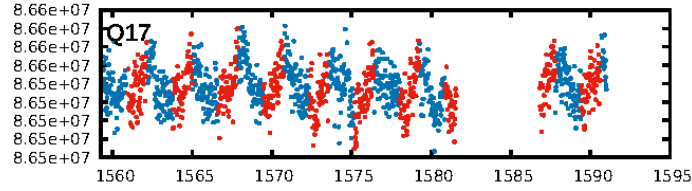
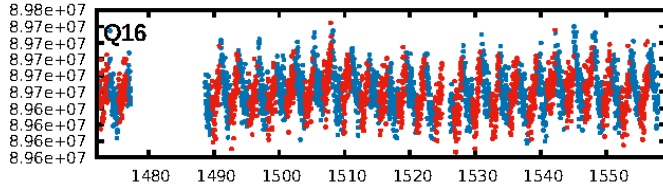
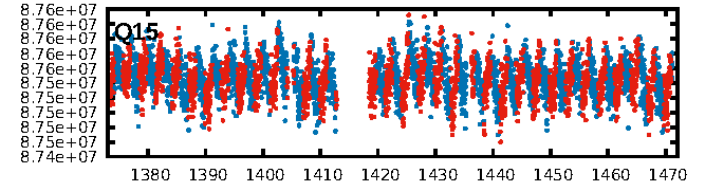
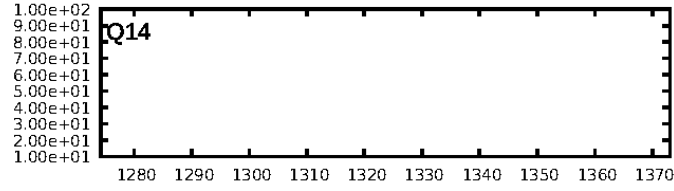
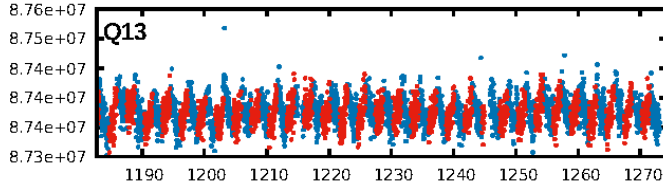
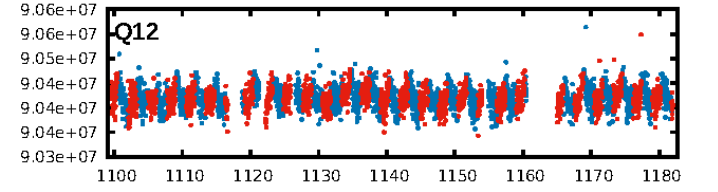
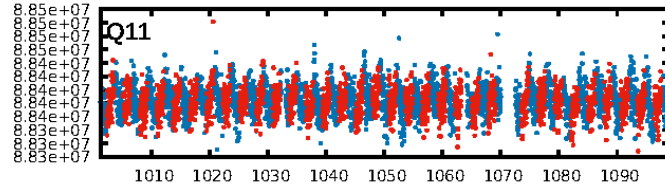
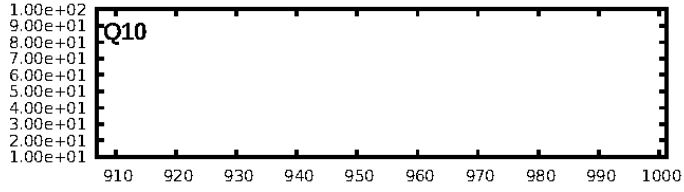
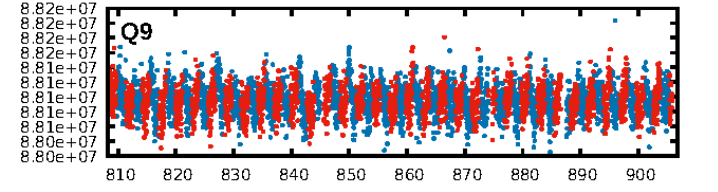
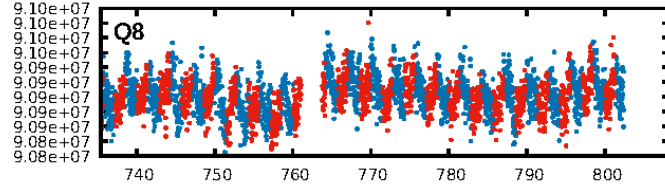
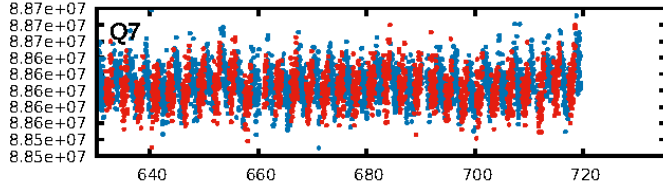
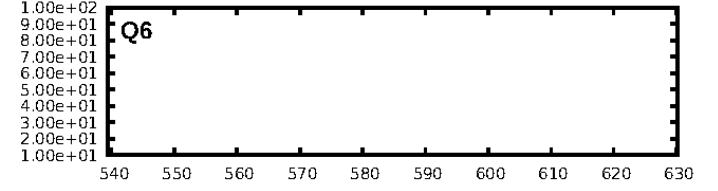
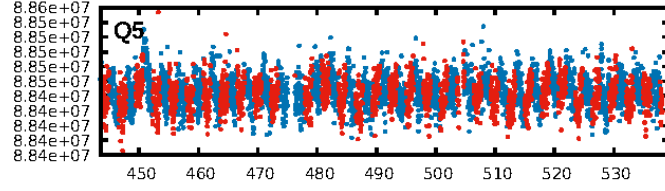
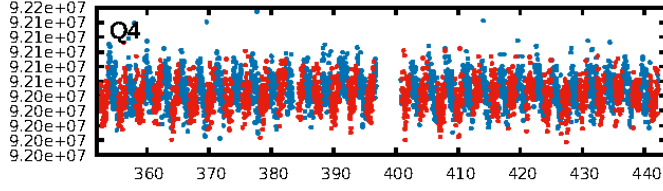
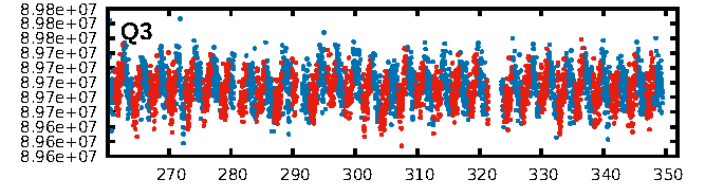
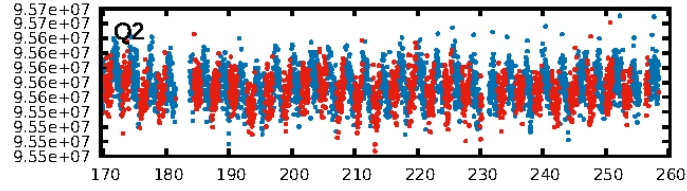
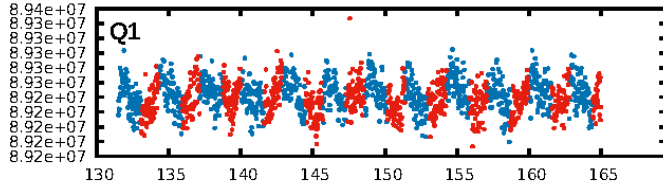
DV Diagnostic Results:

ShortPeriod-sig: 0.1% [0.00σ]
LongPeriod-sig: N/A
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: N/A
RollingBand-fgt: 0.99 [359/362]
GhostDiagnostic-chr: 3.991
Centroid-sig: 0.1%
Centroid-so: 1.145 arcsec [1.85σ]
OotOffset-rm: 0.783 arcsec [2.22σ]
KicOffset-rm: 0.726 arcsec [2.05σ]
OotOffset-st: 1/4/4/5 [14]
KicOffset-st: 1/4/4/5 [14]
DiffImageQuality-fgm: 0.93 [13/14]
DiffImageOverlap-fno: 0.71 [10/14]

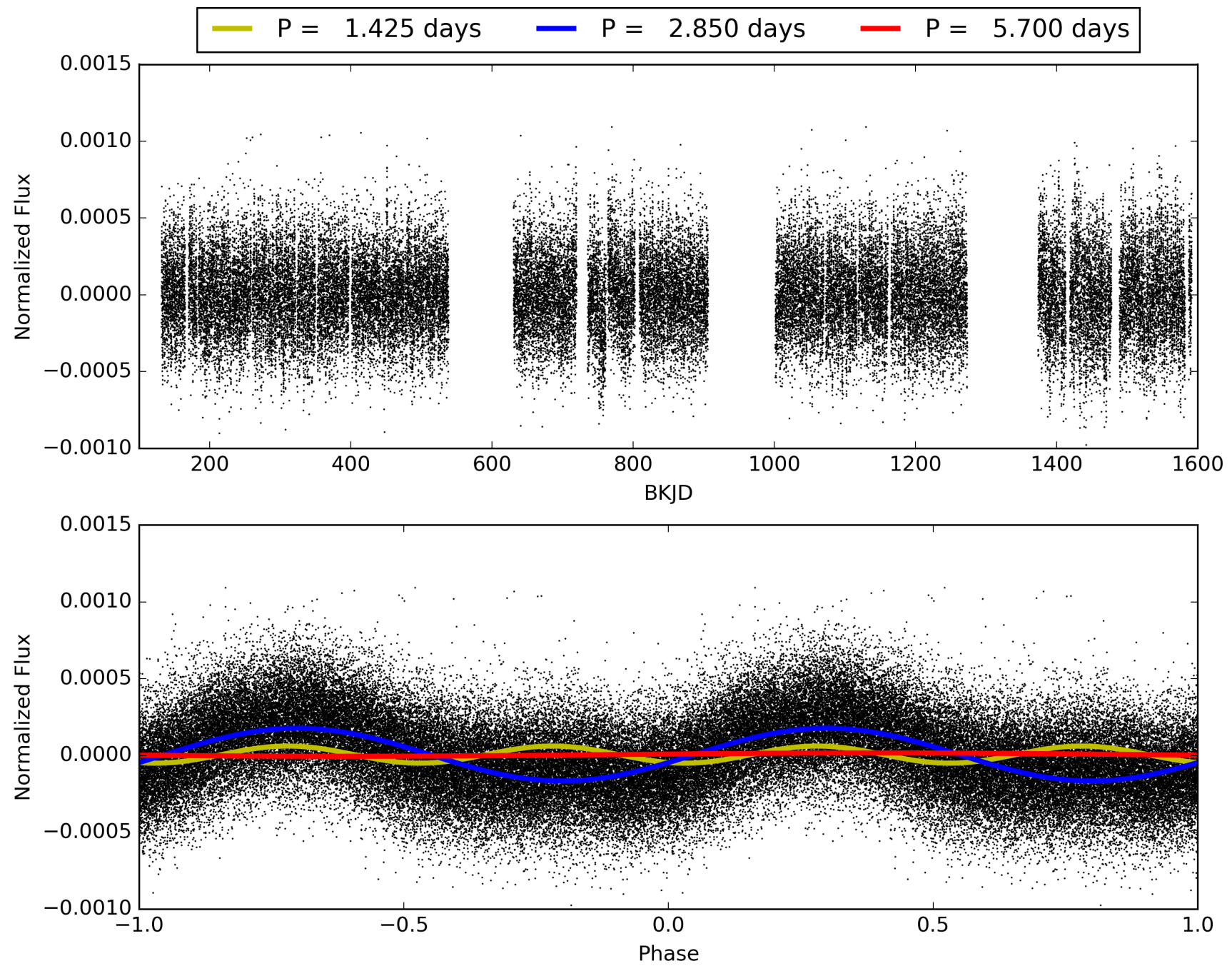
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 18:13:37 Z

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

TCE 003963203-02, PDC Light Curves

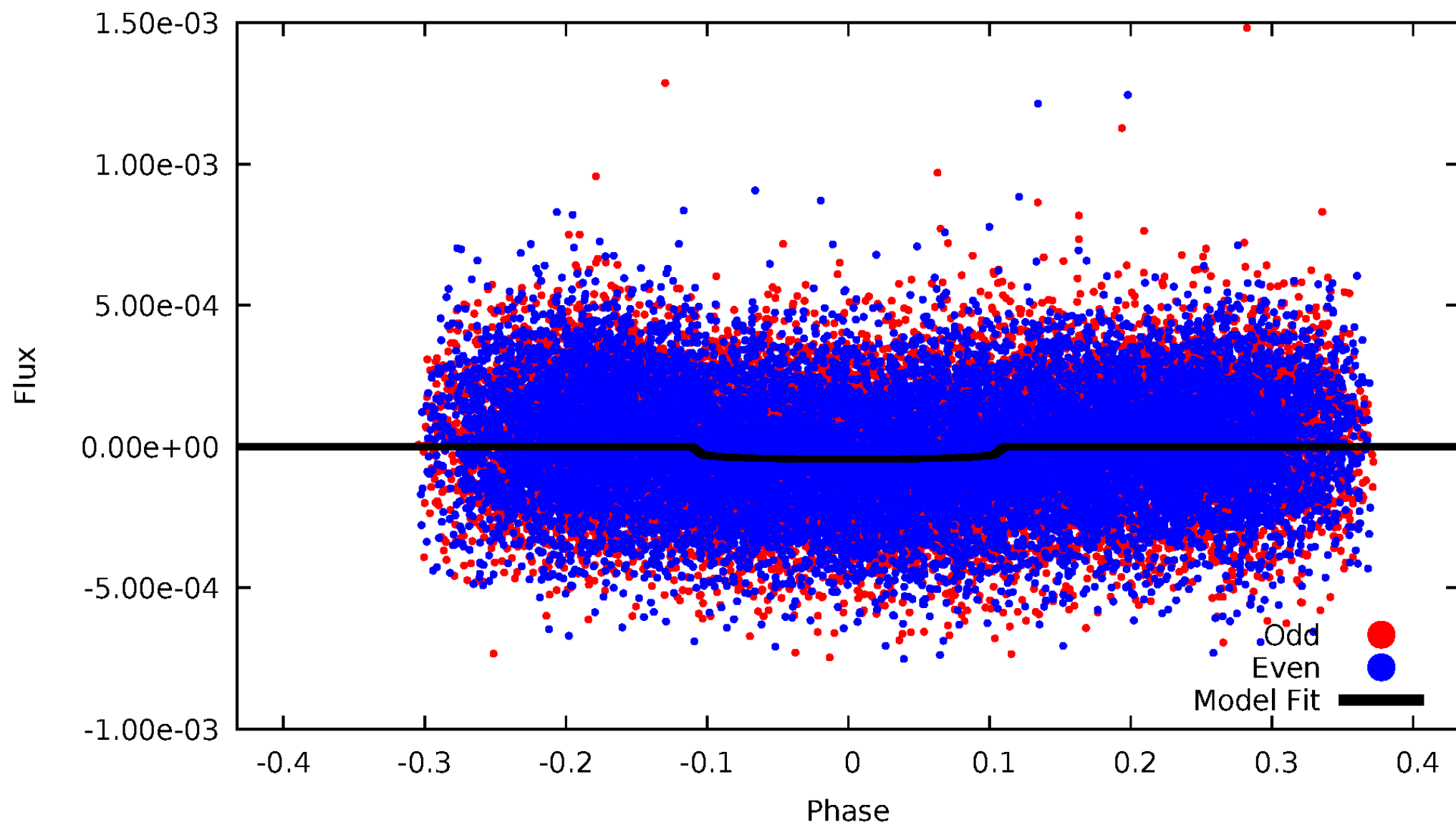


TCE 003963203-02



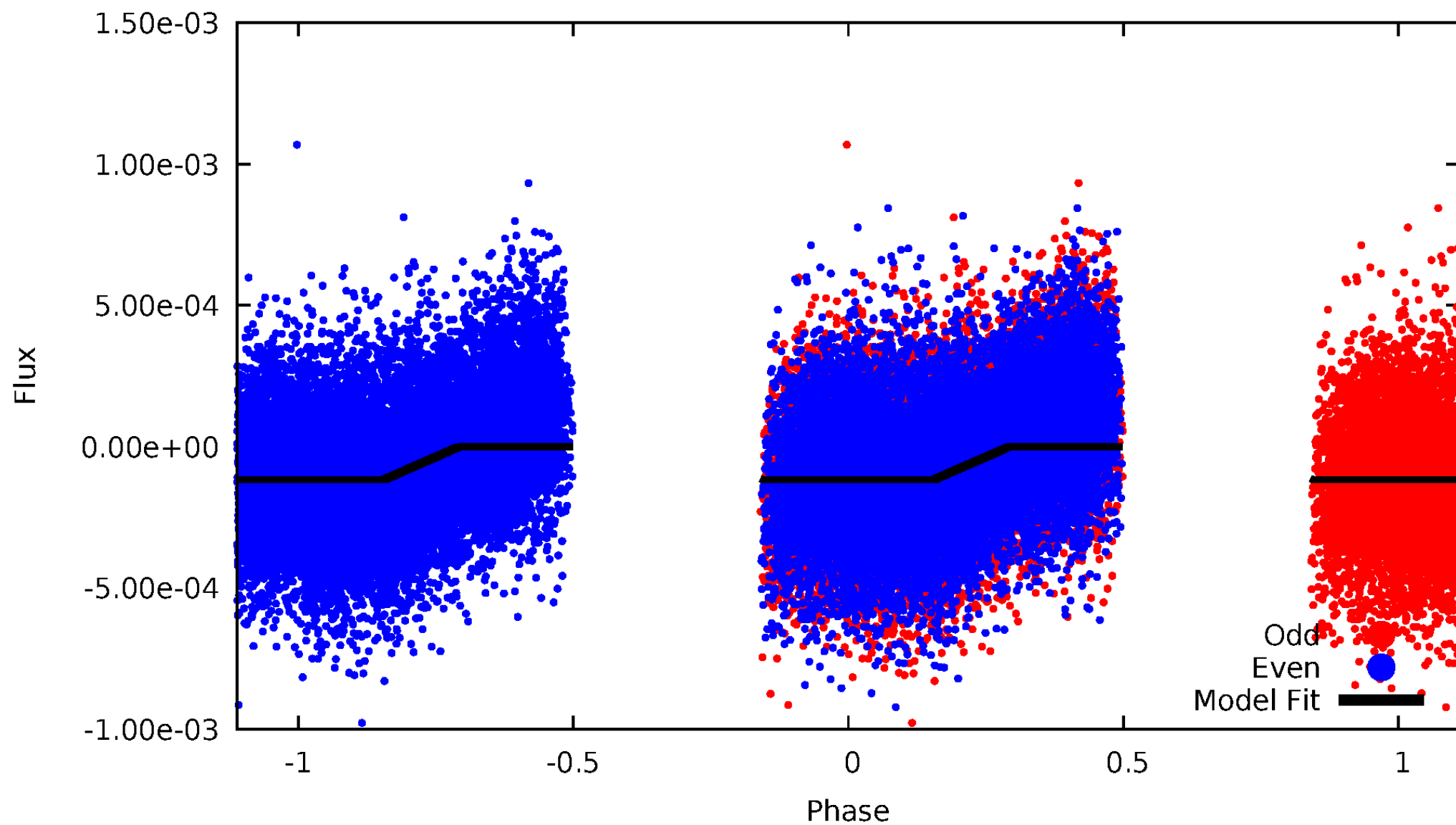
DV Odd/Even

TCE 003963203-02



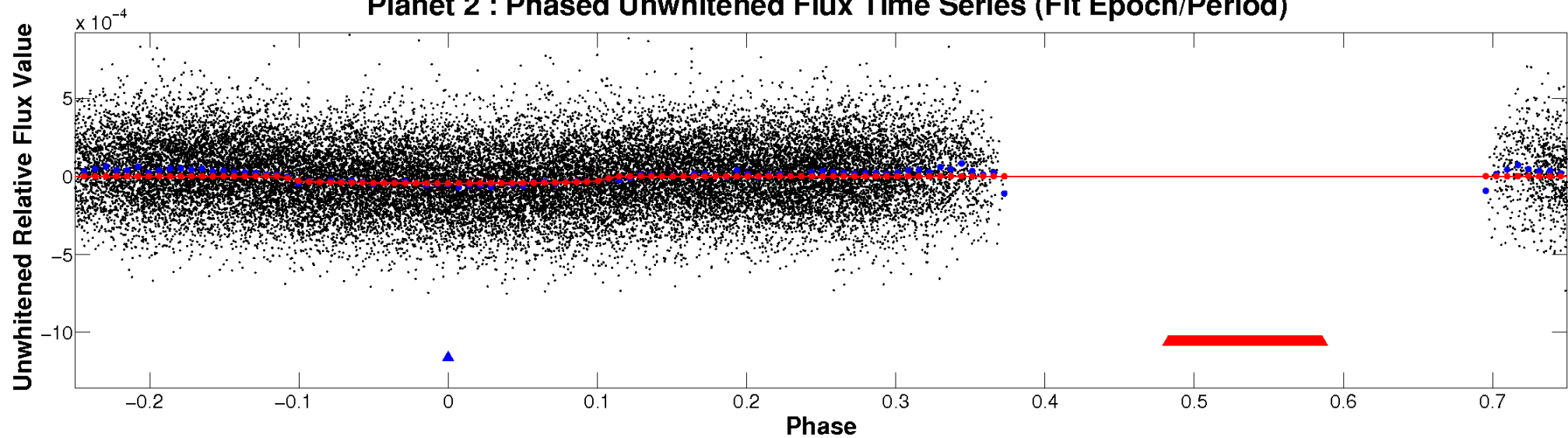
ALT Odd/Even

TCE 003963203-02

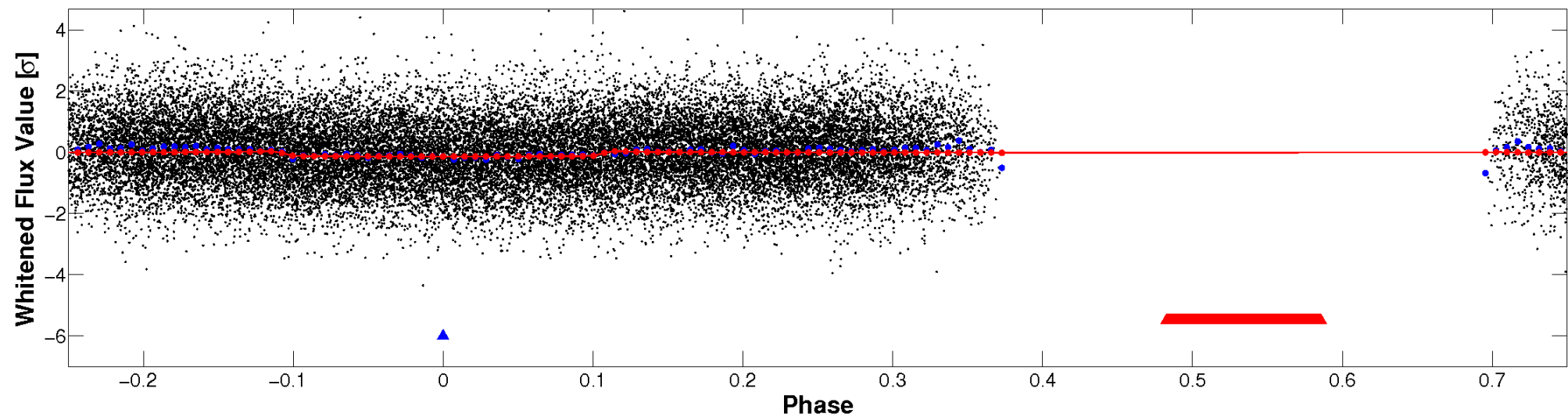


Non-Whitened Vs. Whitened Light Curve

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

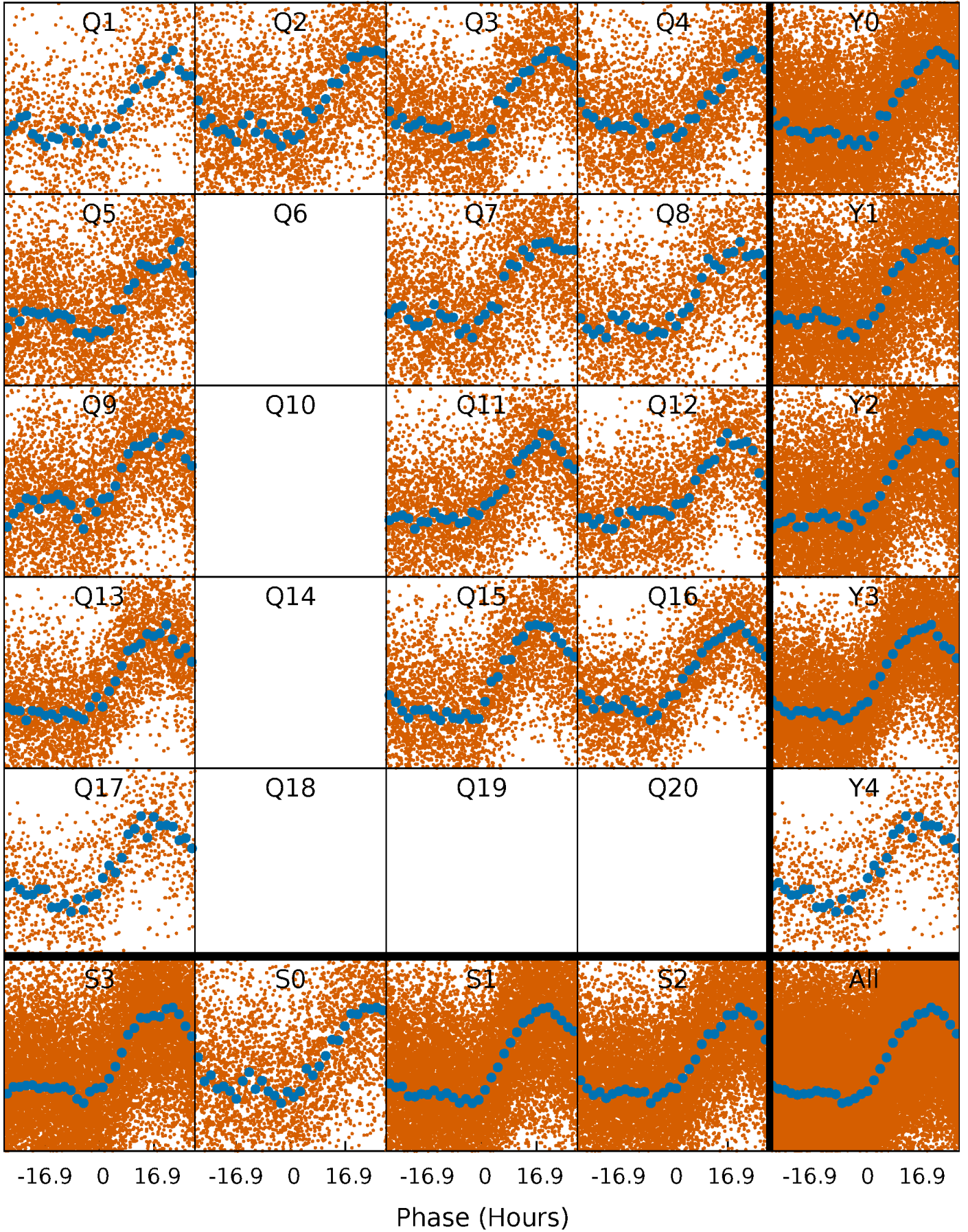


Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



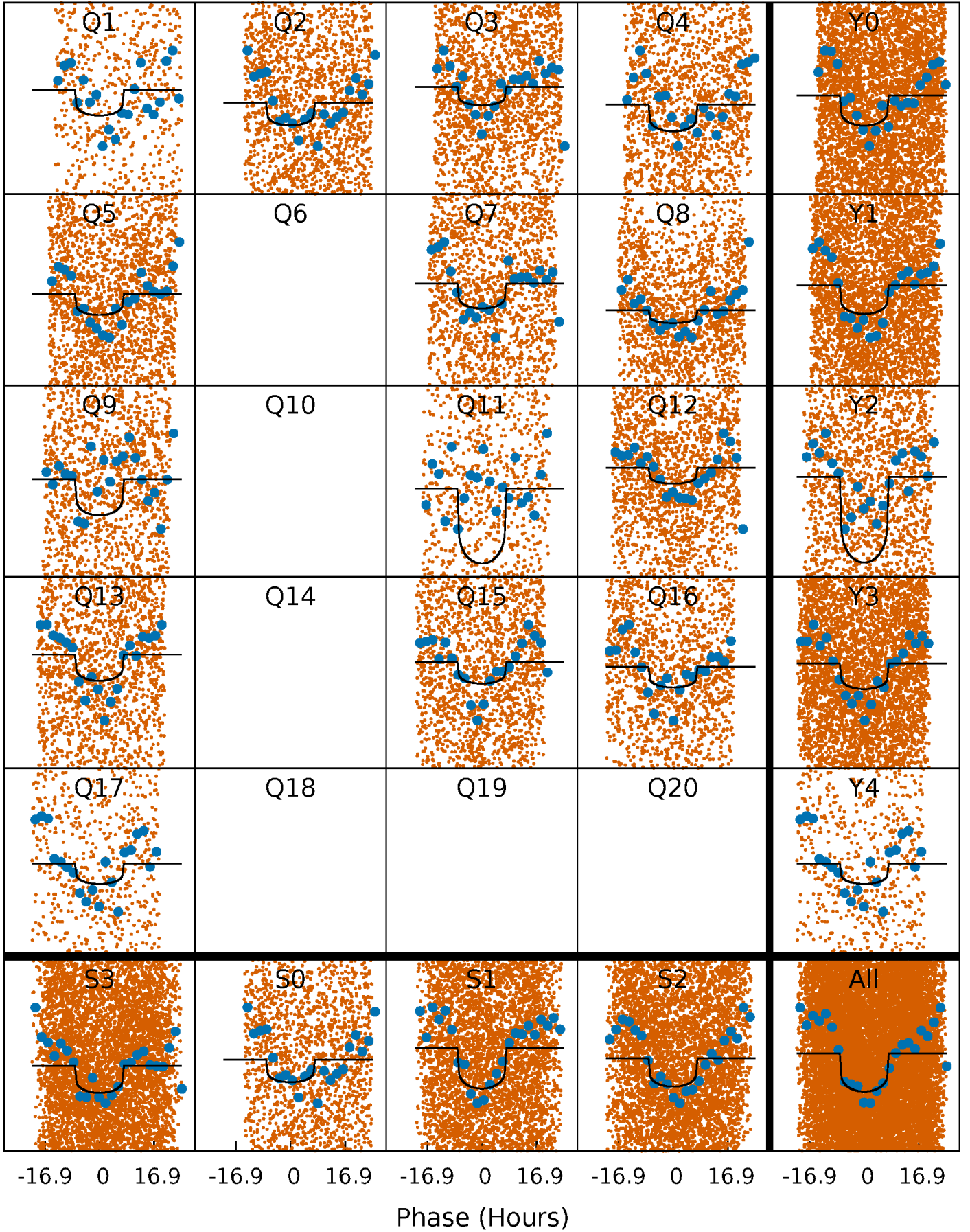
PDC Quarter-Phased Transit Curves

TCE 003963203-02 P= 2.850013 Days $T_0=133.673114$ (BKJD)



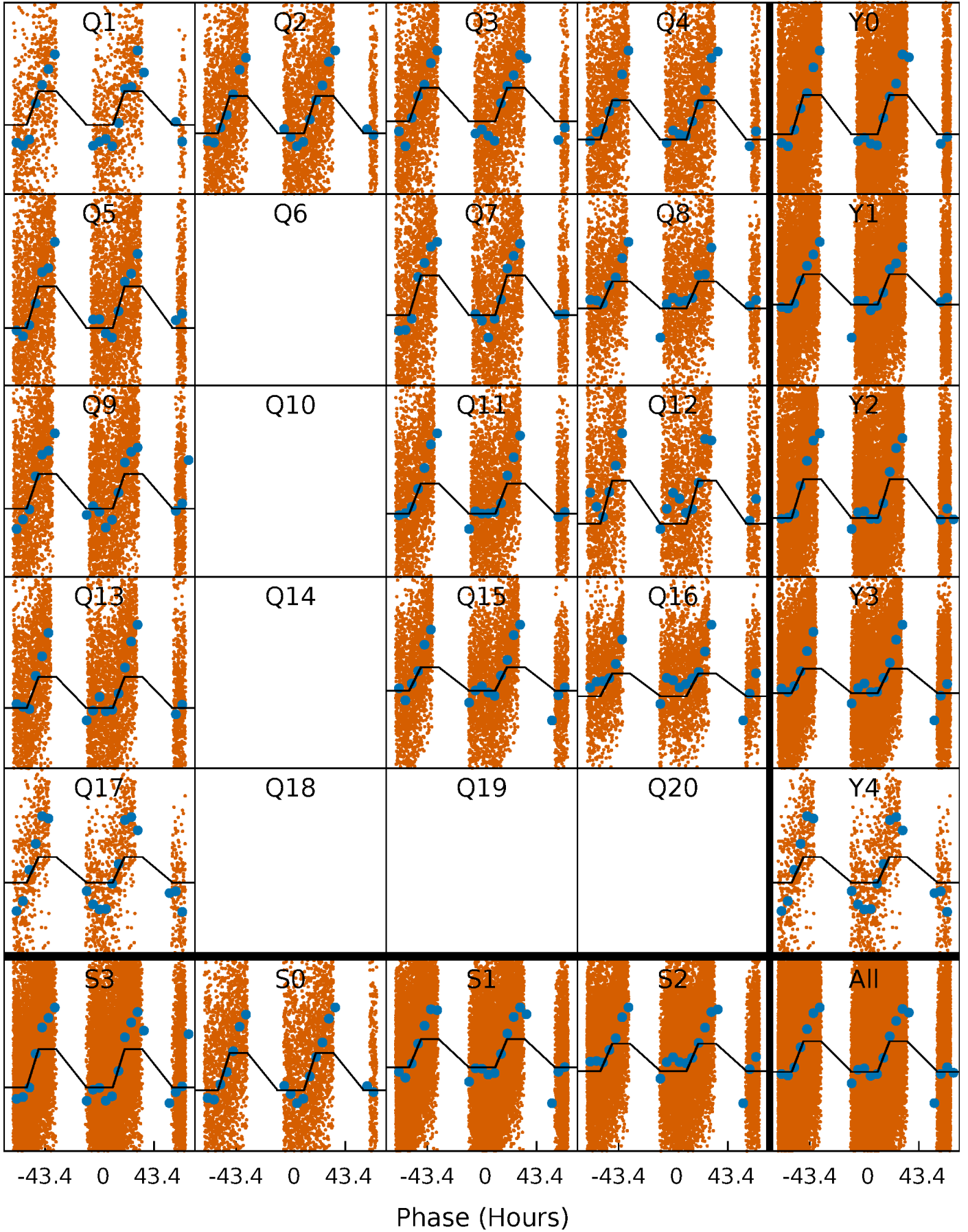
DV Quarter-Phased Transit Curves

TCE 003963203-02 $P = 2.850013$ Days $T_0 = 133.673114$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

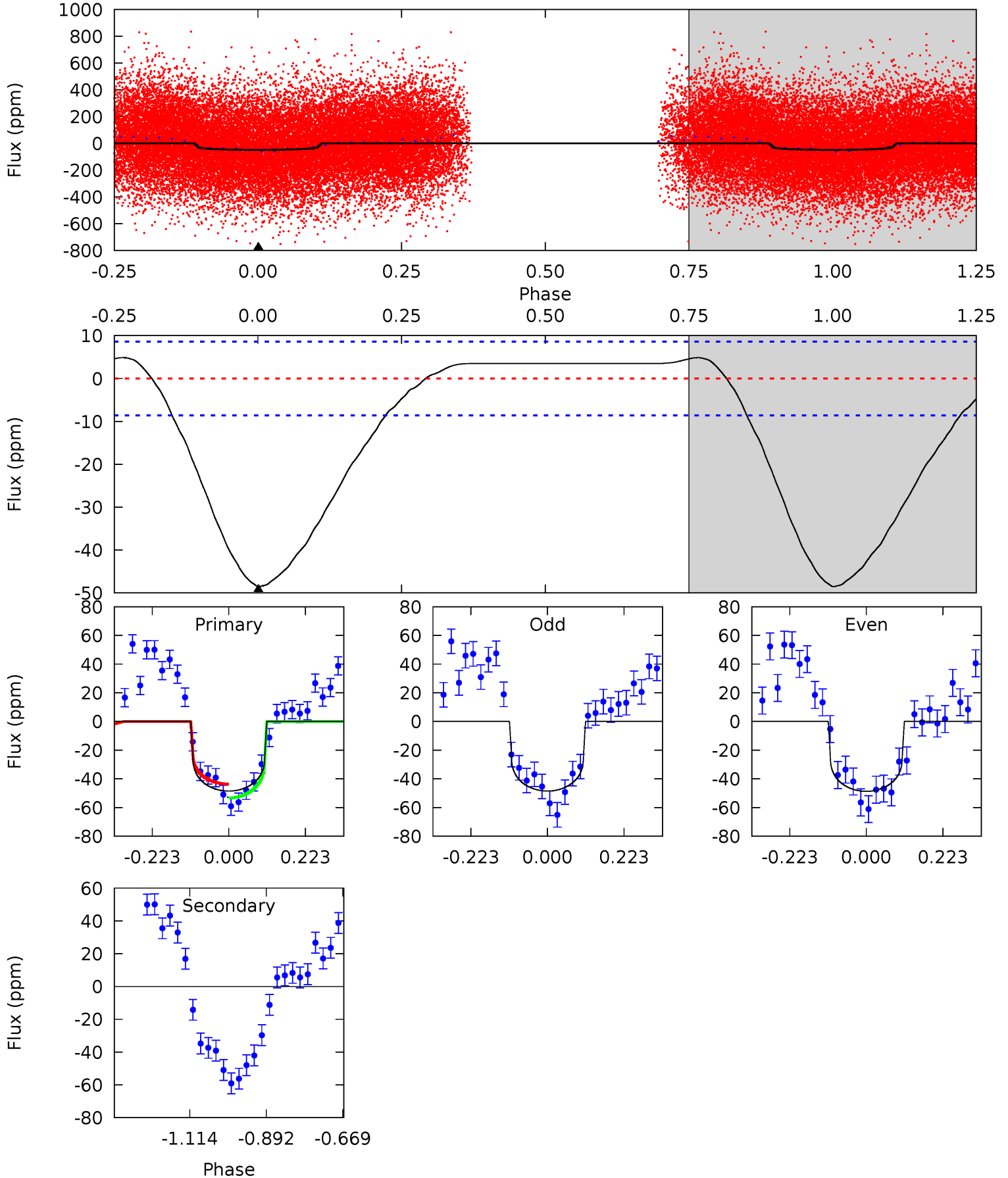
TCE 003963203-02 P= 2.849913 Days $T_0=133.311091$ (BKJD)



DV Model-Shift Uniqueness Test

003963203-02, P = 2.850013 Days, E = 130.823101 Days

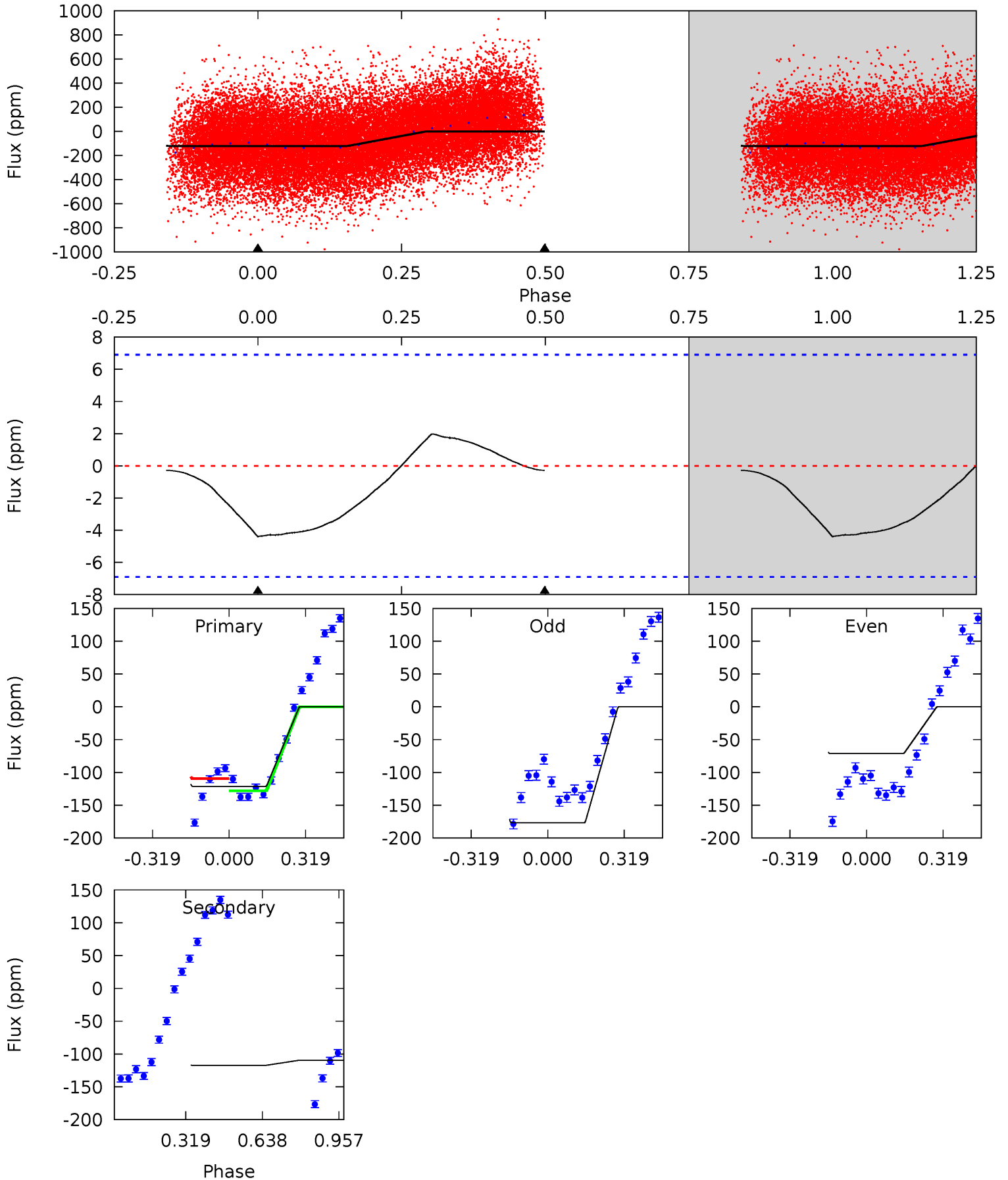
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
24.8	0	0	0	4.39	1.22	2.08	24.8	24.8	0	0	0.05	0.95	0.09	2.51



Alt Model-Shift Uniqueness Test

003963203-02, P = 2.849913 Days, E = 130.461178 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
2.75	0.17	0	0	4.32	1.00	0.40	2.75	2.75	0.17	0.17	1.20	0	0.31	1.06



Stellar Parameters For KIC 003963203

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	6628^{+181}_{-221}	$4.139^{+0.209}_{-0.171}$	$-0.280^{+0.250}_{-0.300}$	$1.575^{+0.442}_{-0.398}$	$1.253^{+0.185}_{-0.226}$	$0.452^{+0.542}_{-0.215}$
	+3%/-3%	+5%/-4%	+89%/-107%	+28%/-25%	+15%/-18%	+120%/-48%
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 003963203-02 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	0 ± 2	$1.12^{+0.90}_{-0.65}$	2489^{+178}_{-208}	-2811^{+6481}_{-954}	$-0.024^{+2.259}_{-1.935}$
Alt.	-0 ± 2	$1.84^{+0.87}_{-0.79}$	2478^{+186}_{-180}	-2721^{+5493}_{-450}	$0.043^{+0.576}_{-0.499}$

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

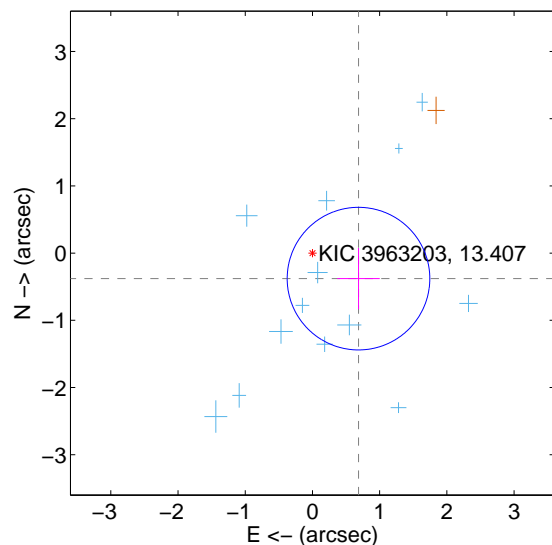
Supplemental centroid analysis for 003963203-02. Kepler magnitude: 13.41. Transit SNR 13.20

There are 13 quarters with good PRF difference image offsets

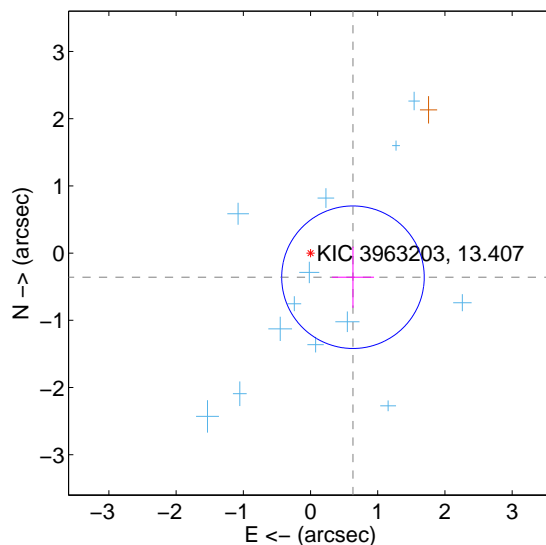
The direct PRF centroid is offset from the target star catalog position by about 0.08 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.783 ± 0.354	2.22	-0.685 ± 0.316	-0.380 ± 0.455
PRF-fit source offset from KIC position	0.726 ± 0.353	2.05	-0.631 ± 0.313	-0.359 ± 0.456
photometric centroid source offset	1.14 ± 0.62	1.85	0.51 ± 0.64	-1.02 ± 0.61

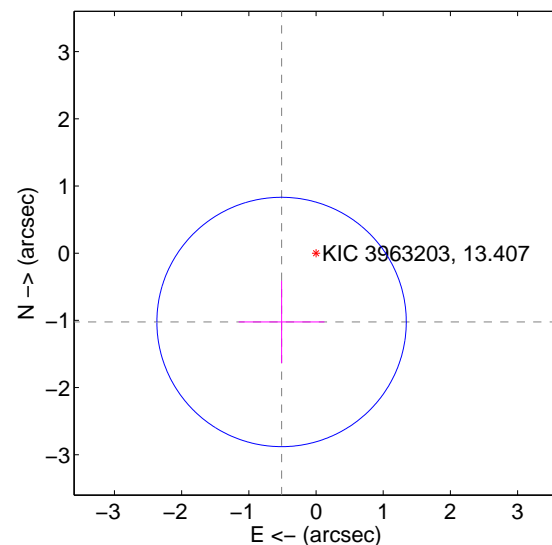
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position

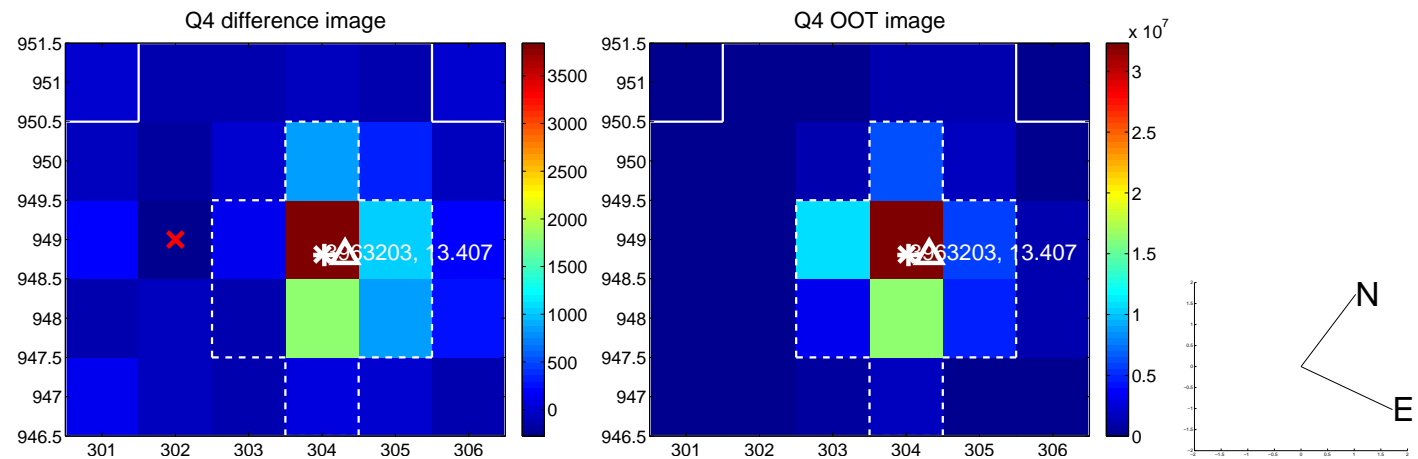
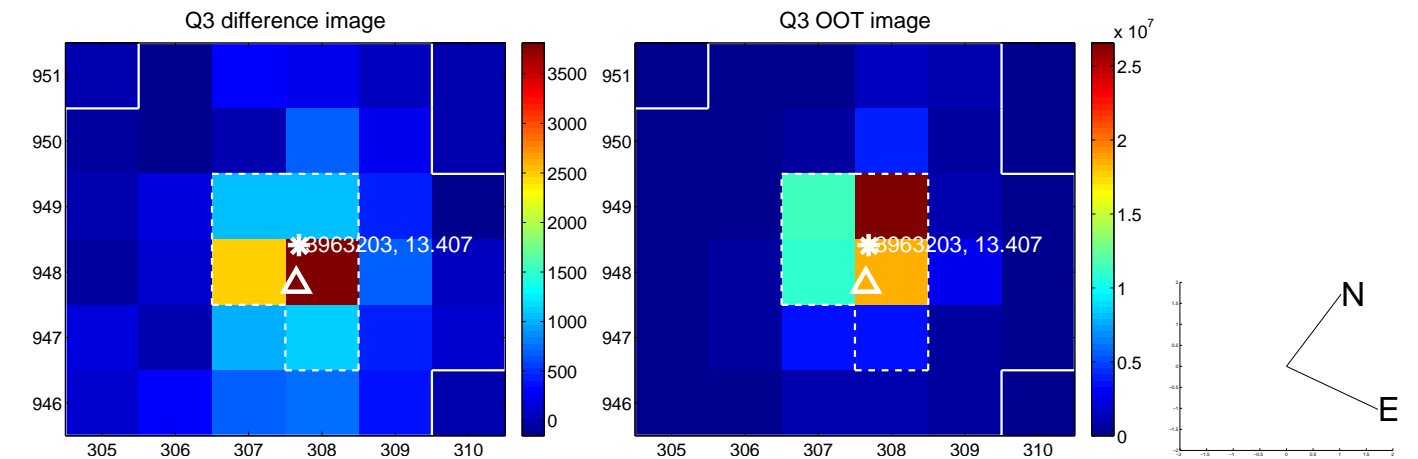
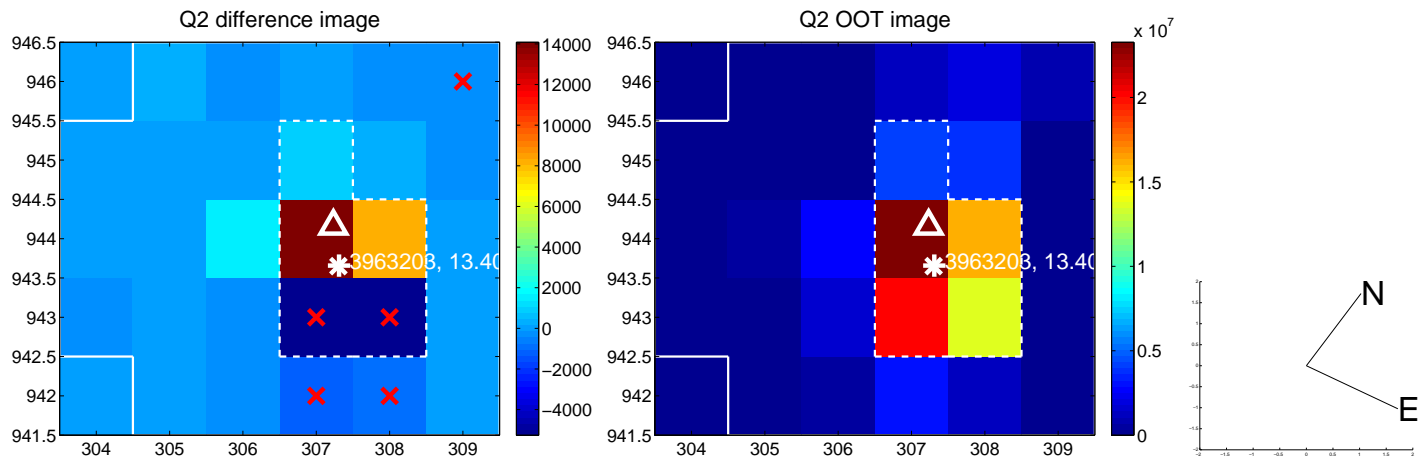
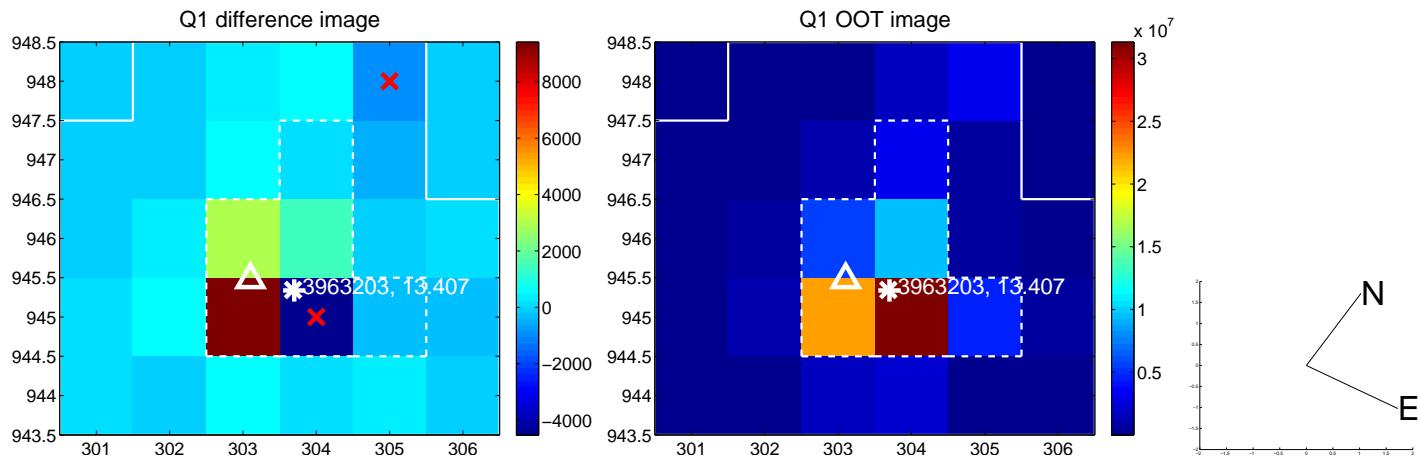


offset from photometric centroids

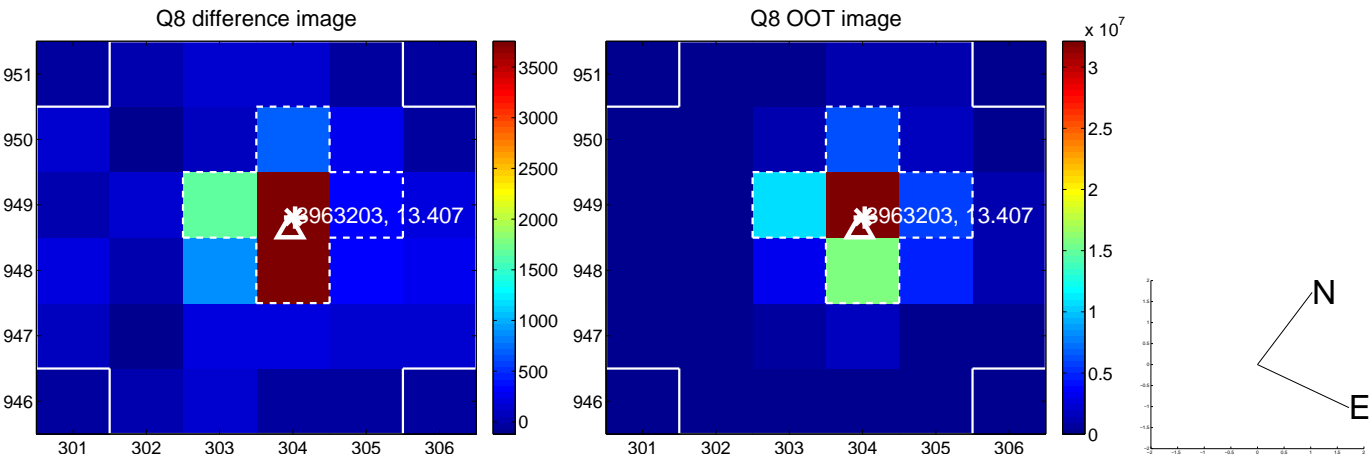
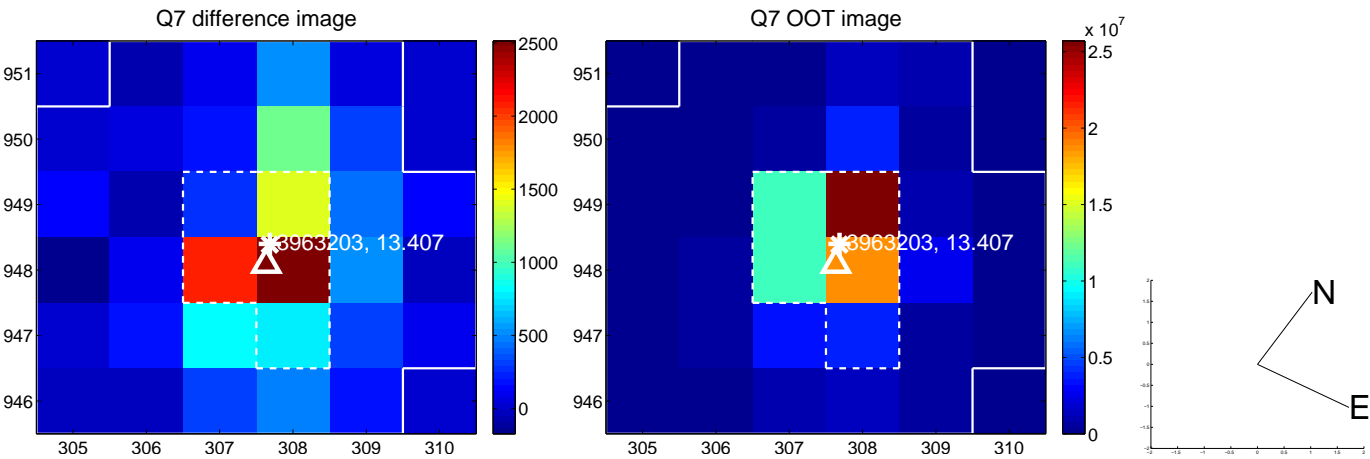
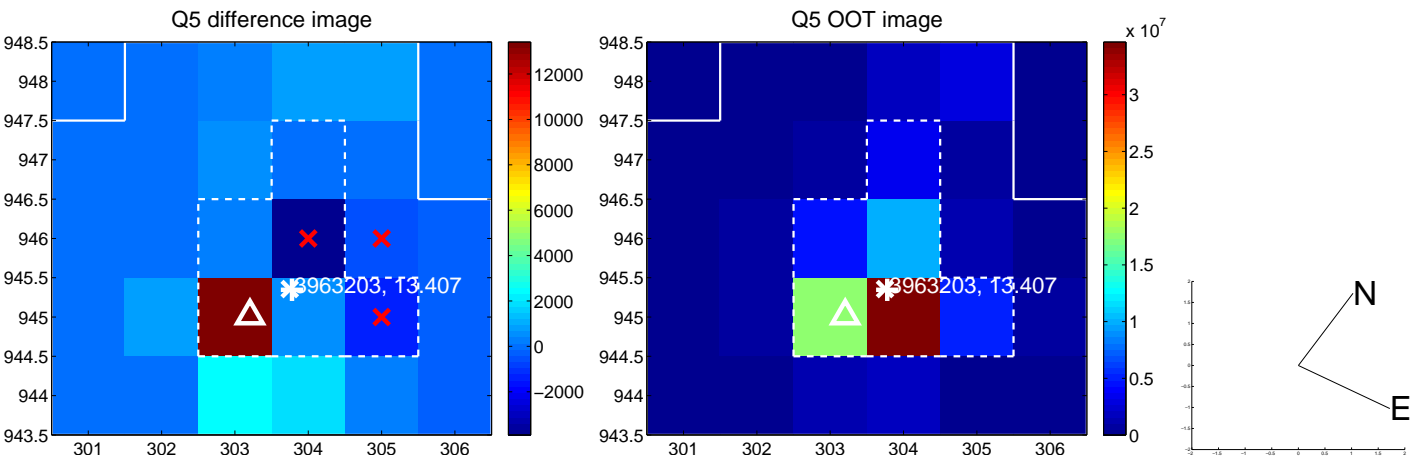


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

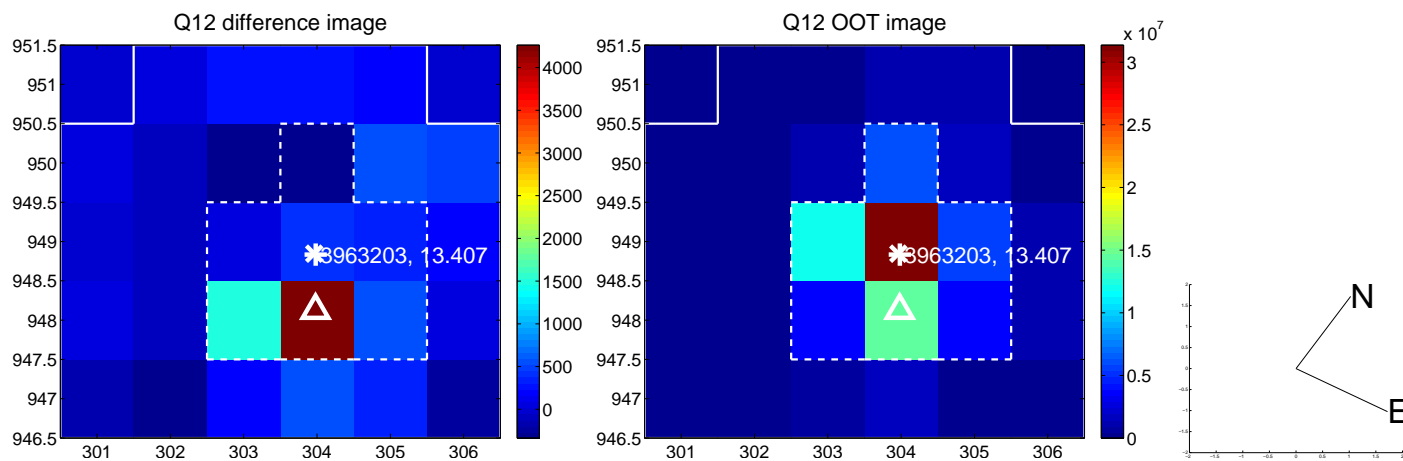
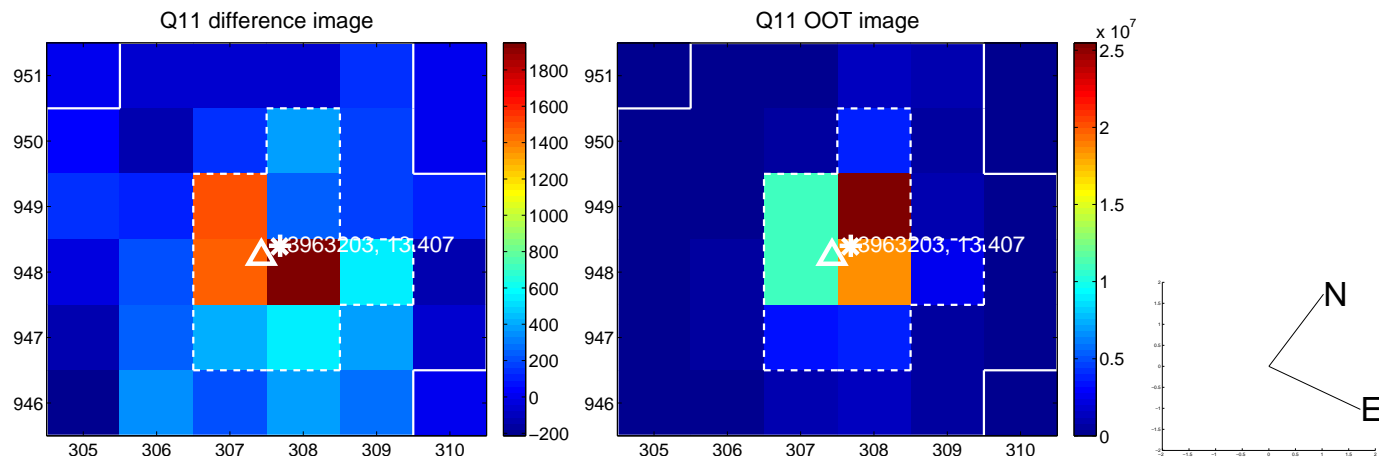
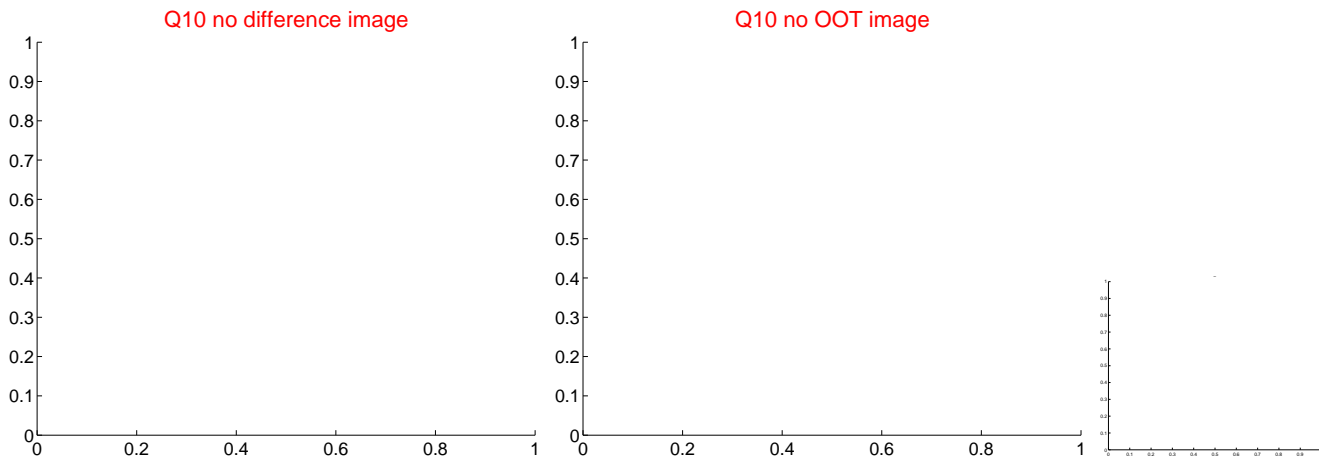
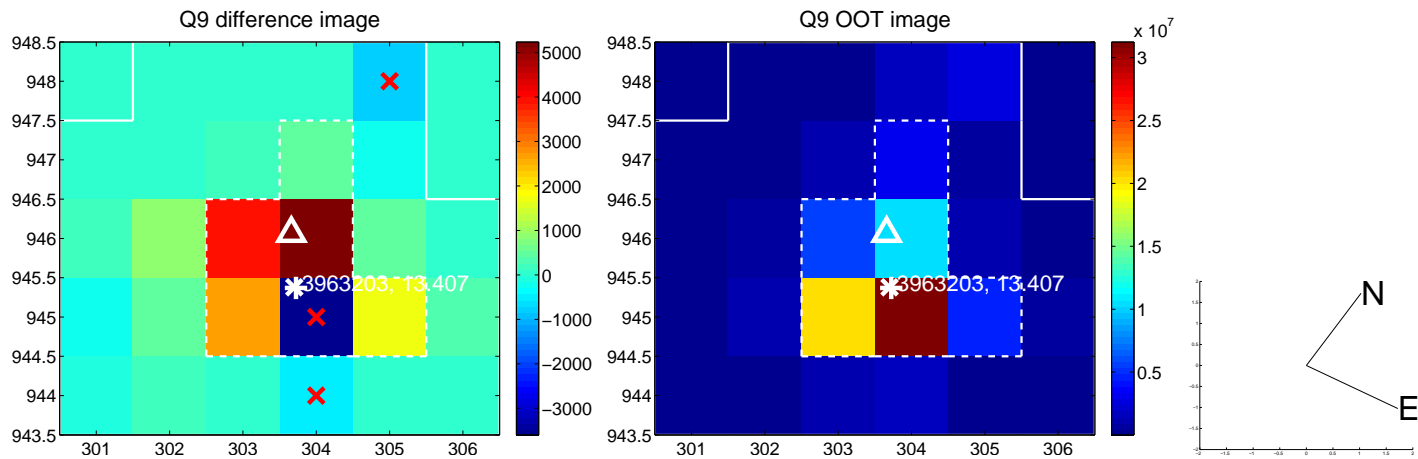
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



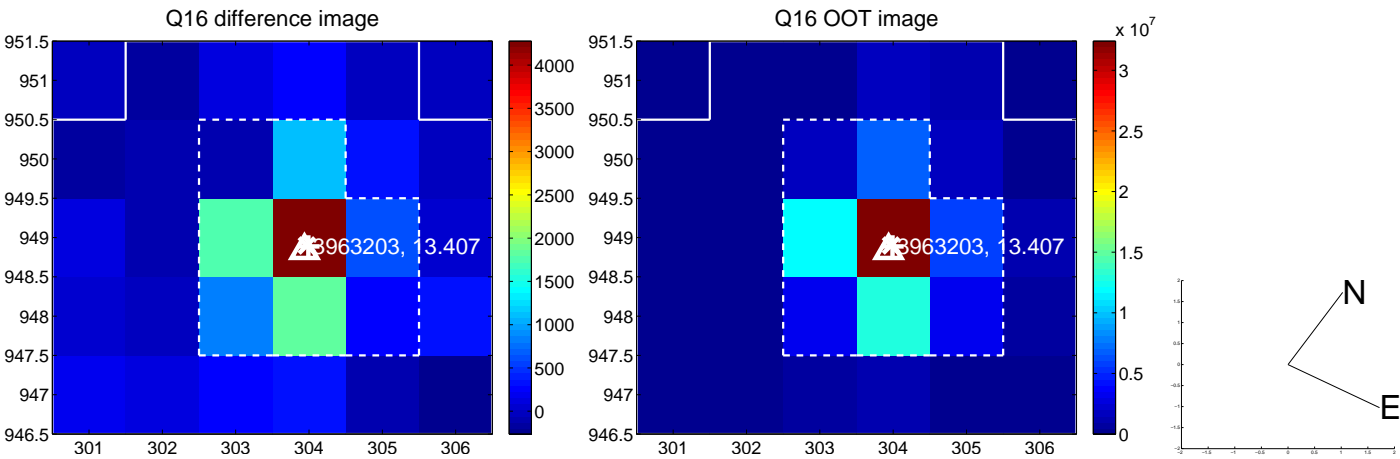
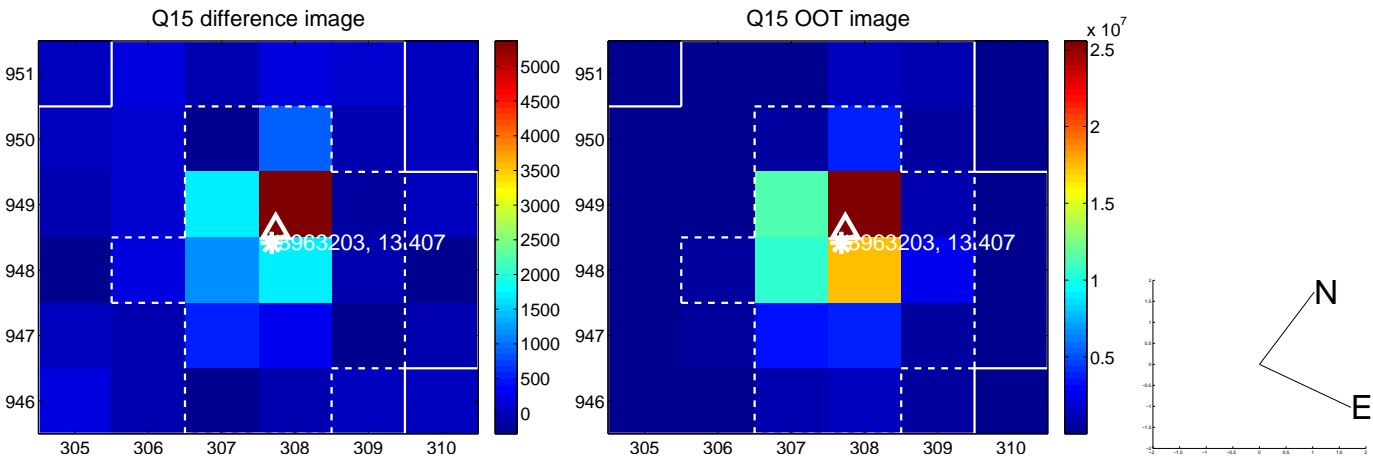
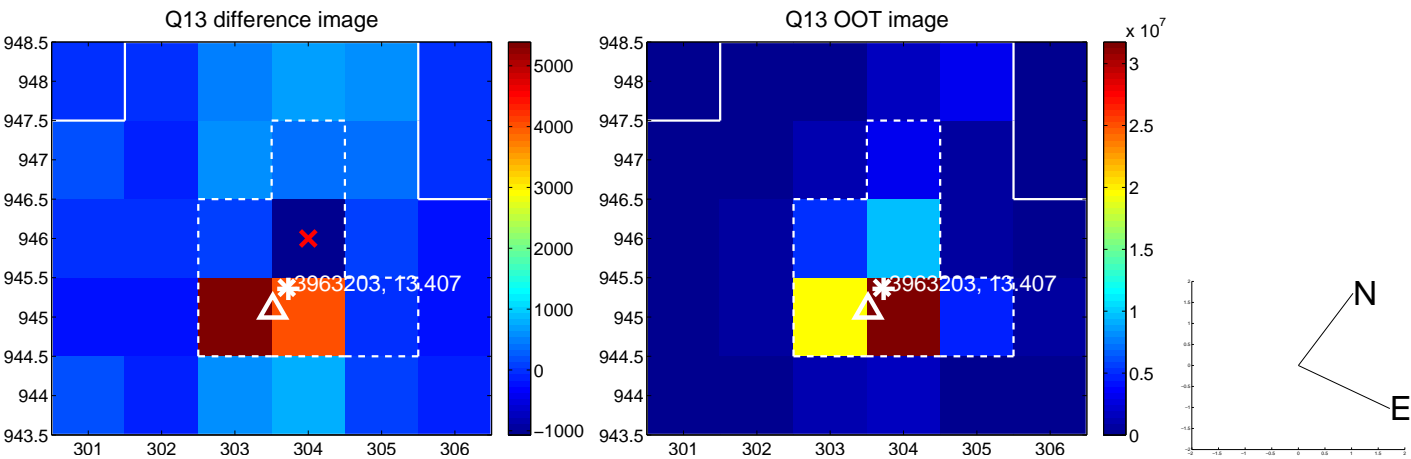
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



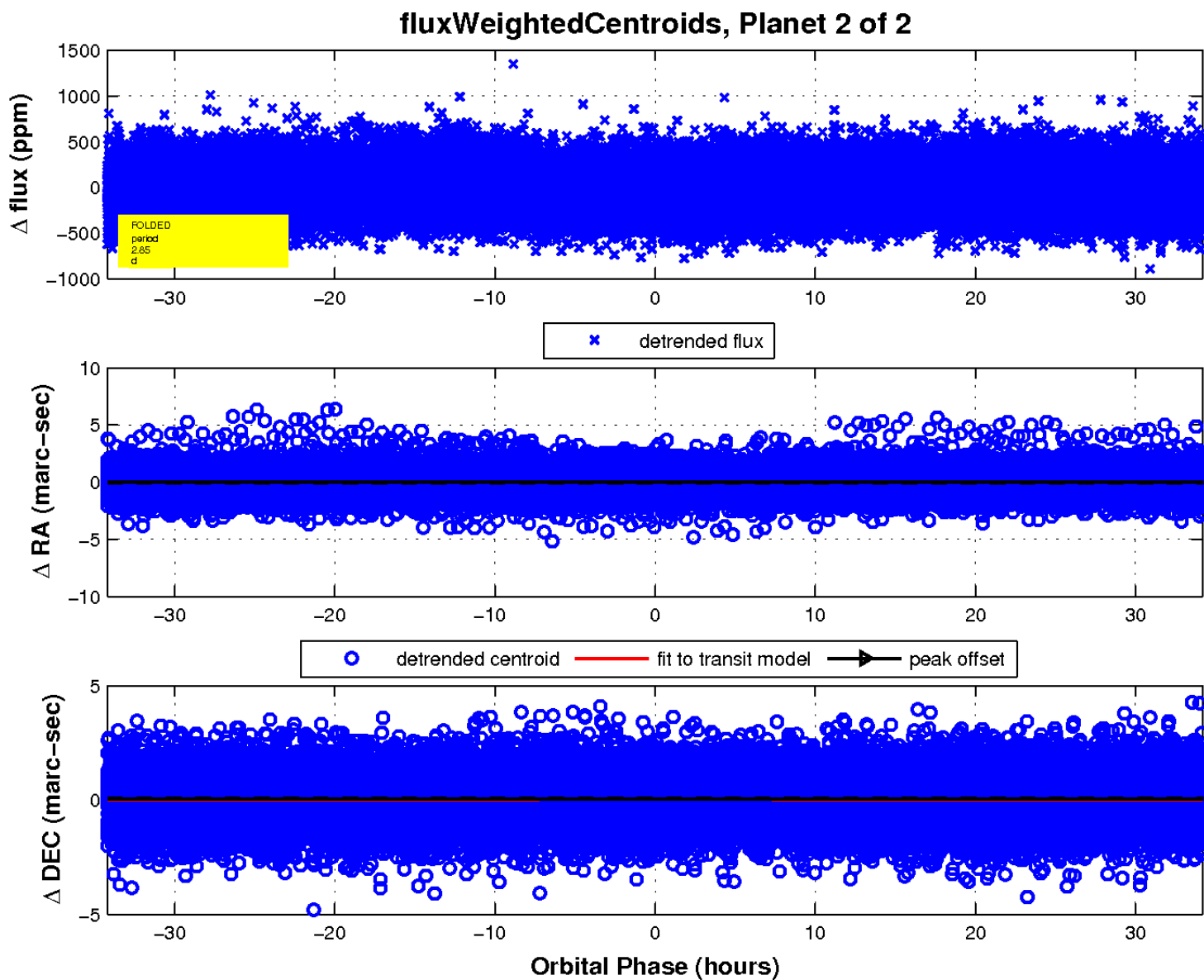
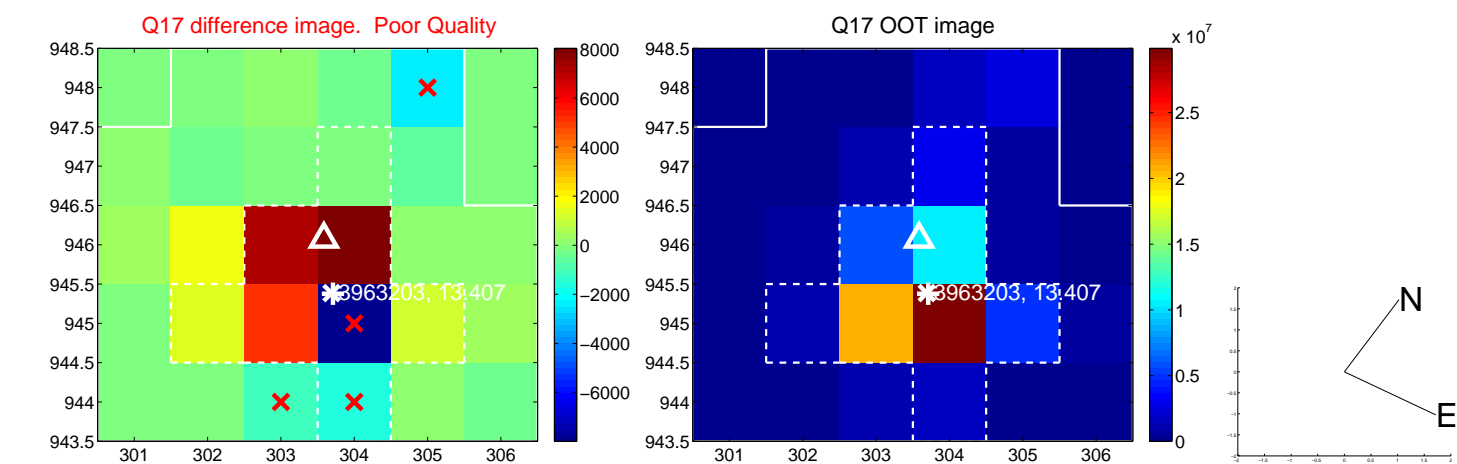
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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.



UKIRT Image

