

KIC 012315060

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})
012315060-01	OBS	No	1.325560	132.681929	52.0	5.657	8.7	8.2	0.69	5345	0.50	748.80
012315060-02	OBS	No	687.866379	195.723222	639.5	9.032	9.2	7.0	0.69	5345	1.77	0.18

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
012315060-01	OBS	FP	0.00	1	0	1	0	LPP_DV—LPP_ALT—CENT_RESOLVED_OFFSET
012315060-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_CHASES_MARSHALL—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT— INCONSISTENT_TRANS—CENT_FEW_DIFFS

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

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

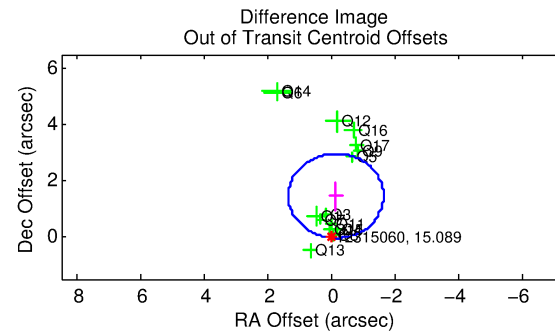
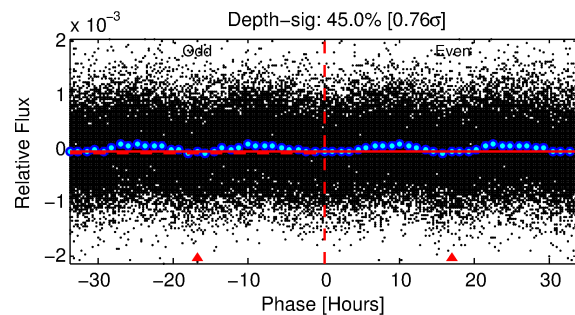
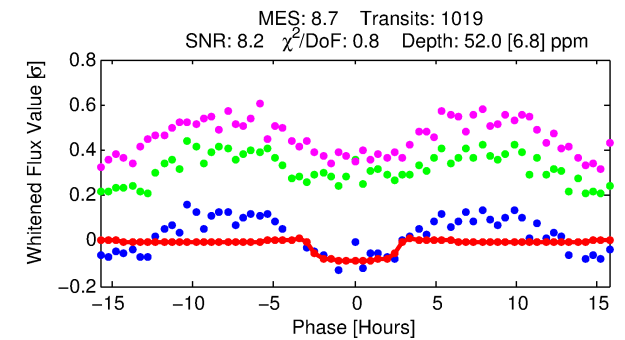
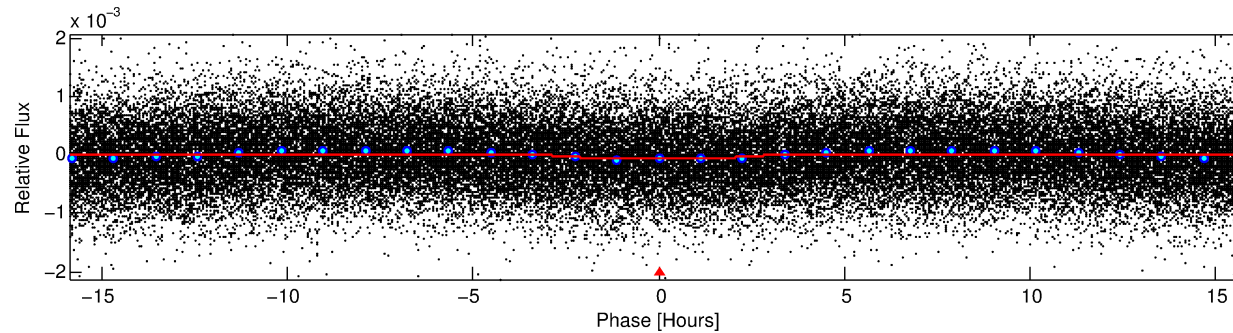
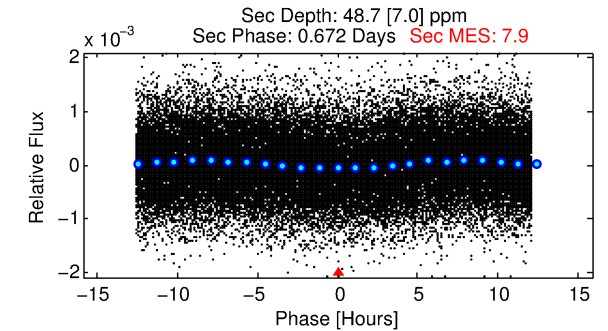
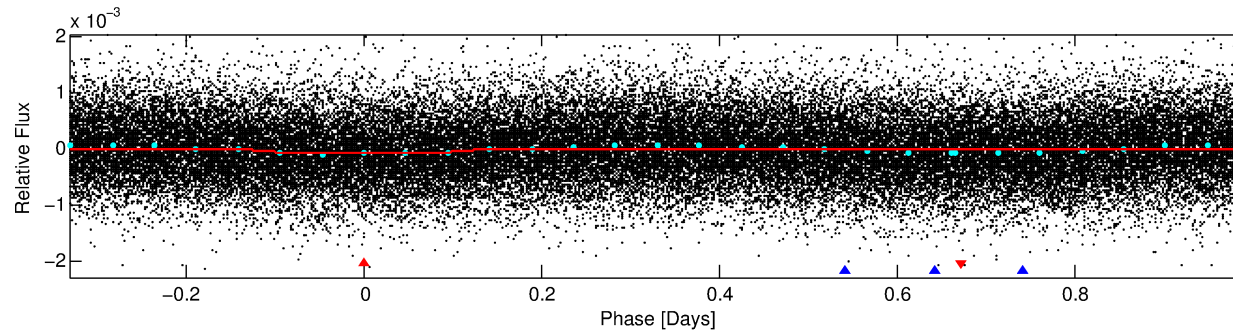
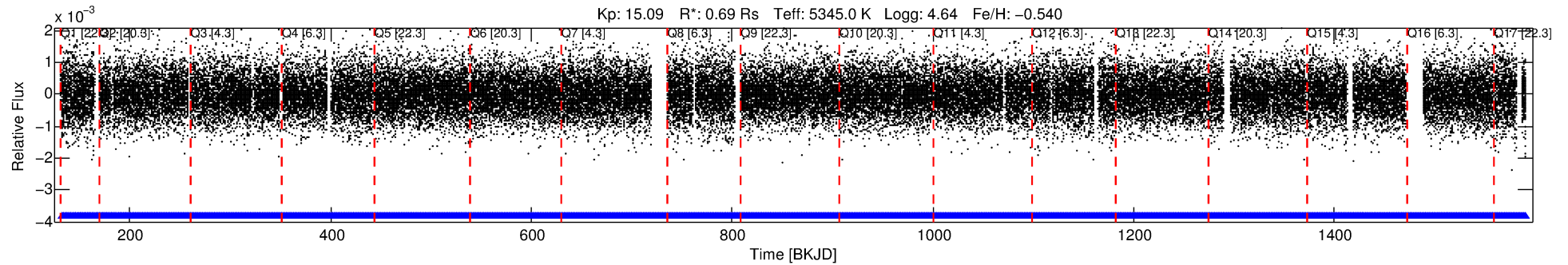
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 012315060-01

No Significant Match Found

DV One-Page Summary

KIC: 12315060 Candidate: 1 of 2 Period: 1.326 d



DV Fit Results:

Period = 1.32556 [0.00002] d
Epoch = 132.6819 [0.0079] BKJD
Rp/R* = 0.0067 [0.0093]
a/R* = 1.76 [6.96]
b = 0.44 [10.71]
Seff = 748.81 [156.78]
Teq = 1334 [70] K
Rp = 0.50 [0.70] Re
a = 0.0214 [0.0026] AU
Ag = 49.22 [137.80] [0.35σ]
Teffp = 5462 [3820] K [1.08σ]

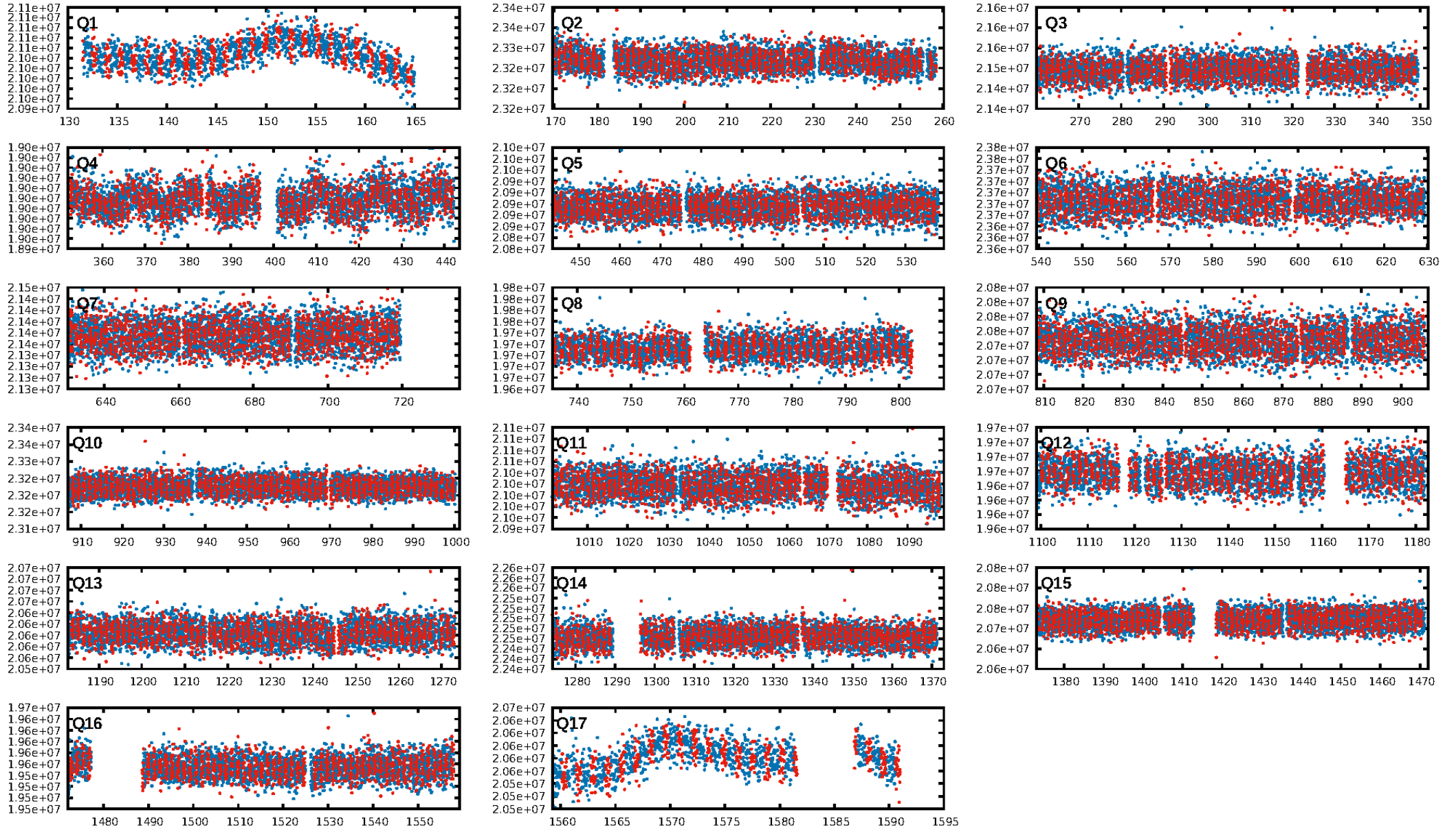
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: 100.0% [1546.09σ]
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: 4.02e-17
RollingBand-fgt: 1.00 [973/973]
GhostDiagnostic-chr: 0.4969
Centroid-sig: 0.0%
Centroid-so: 5.394 arcsec [7.31σ]
OotOffset-rm: 1.460 arcsec [2.92σ]
KicOffset-rm: 6.251 arcsec [13.99σ]
OotOffset-st: 2/4/4/5 [15]
KicOffset-st: 2/4/4/5 [15]
DiffImageQuality-fgm: 0.60 [9/15]
DiffImageOverlap-fno: 1.00 [17/17]

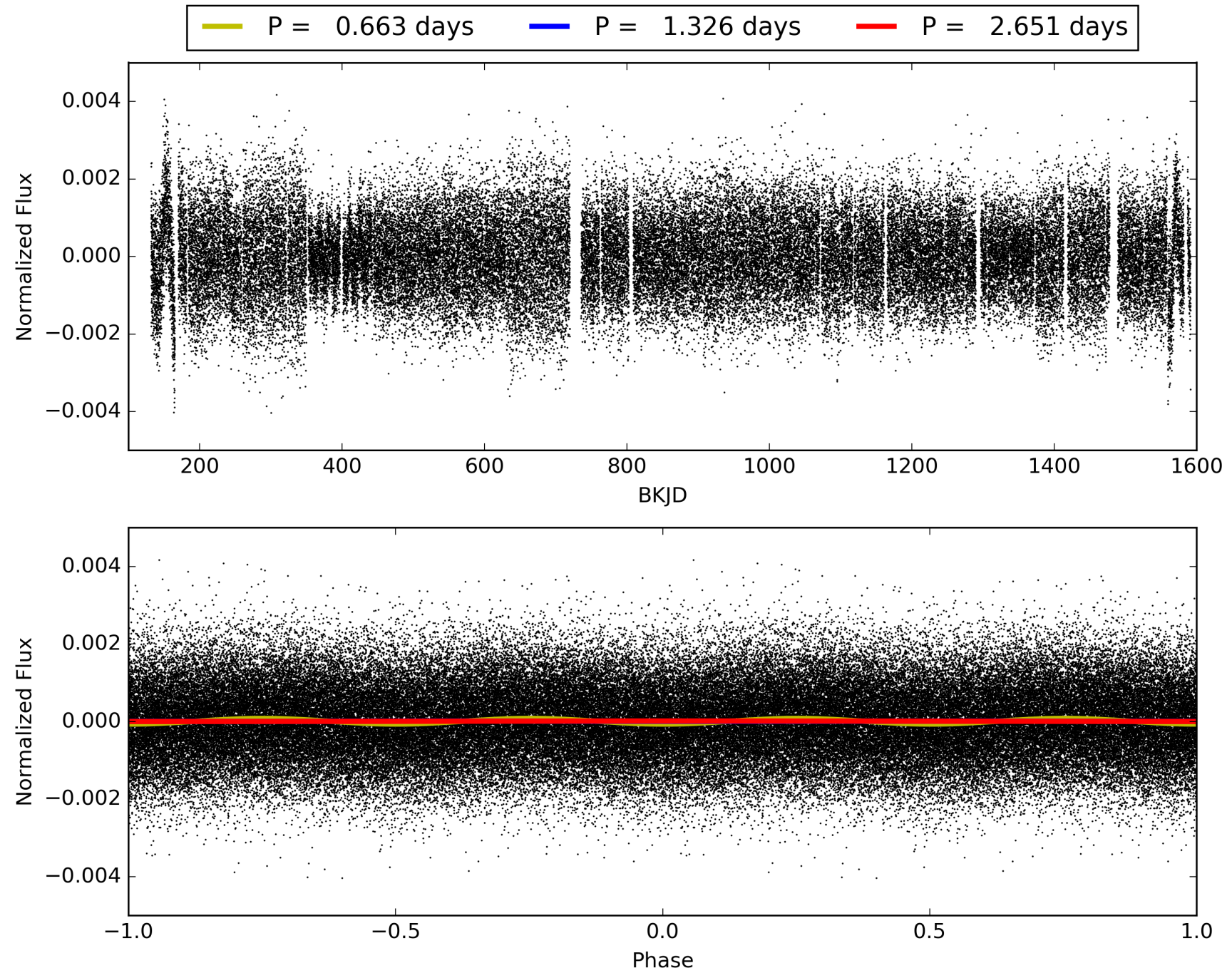
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 29-Jan-2016 02:02:14 Z

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

TCE 012315060-01, PDC Light Curves

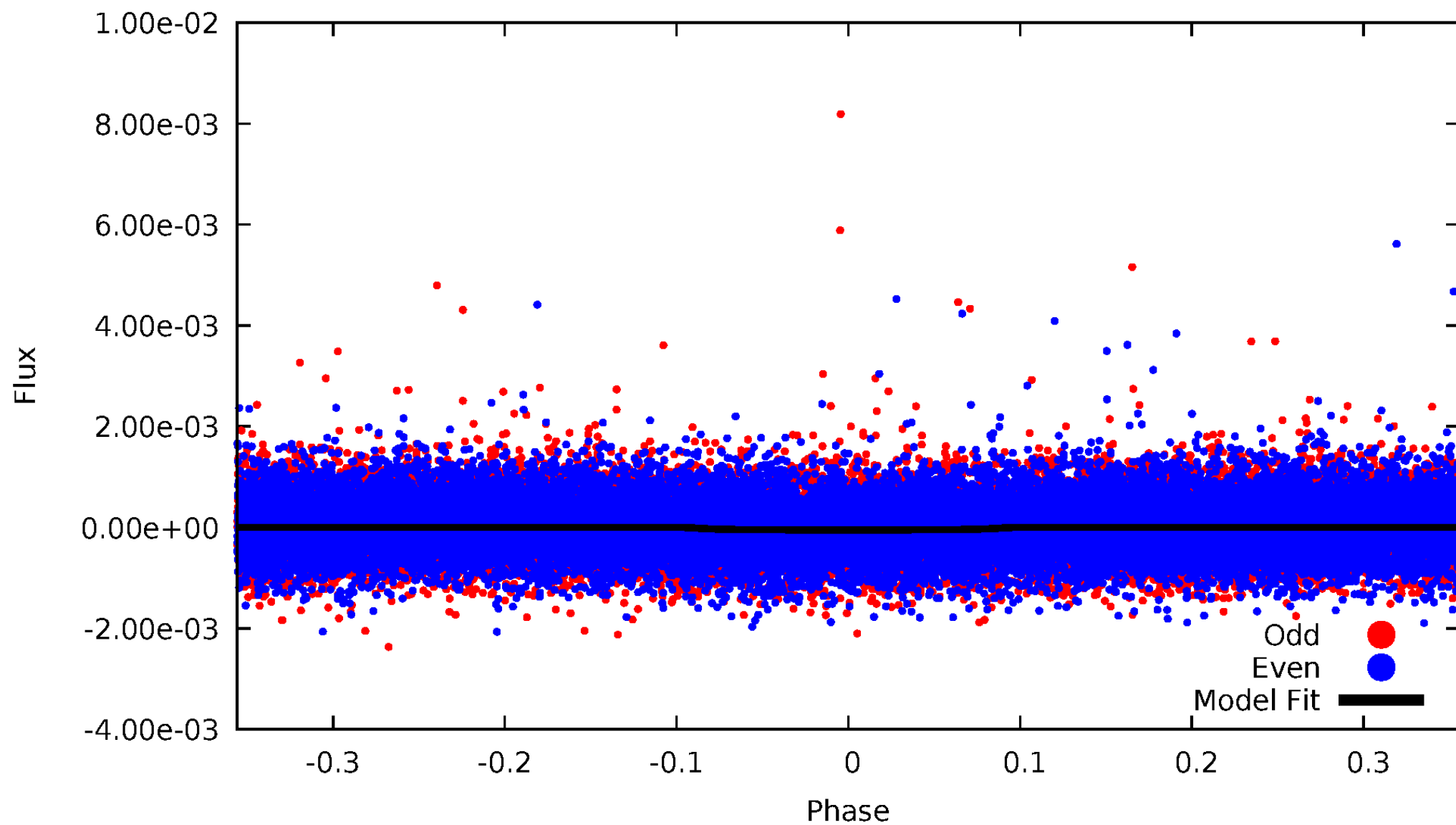


TCE 012315060-01



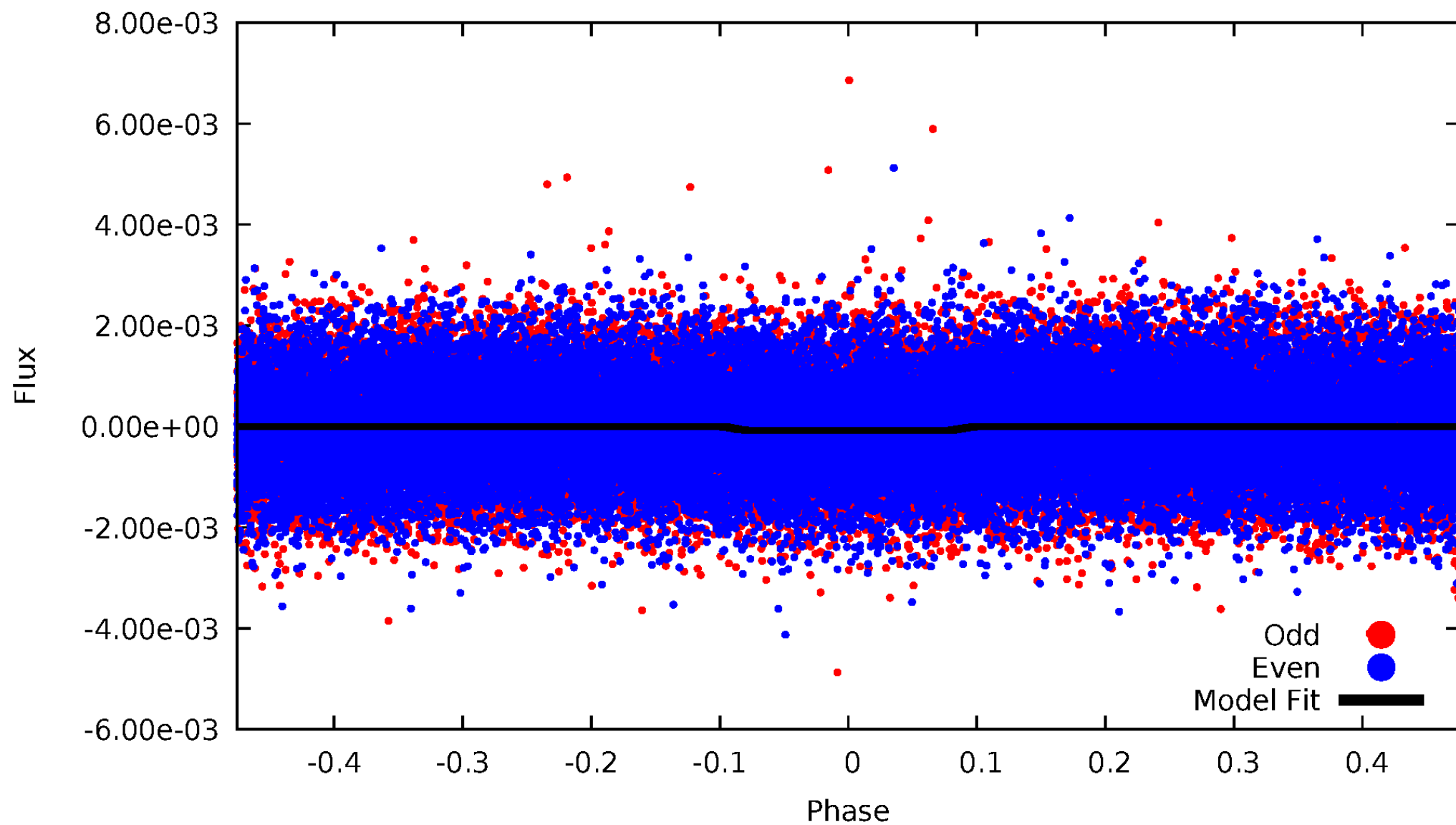
DV Odd/Even

TCE 012315060-01

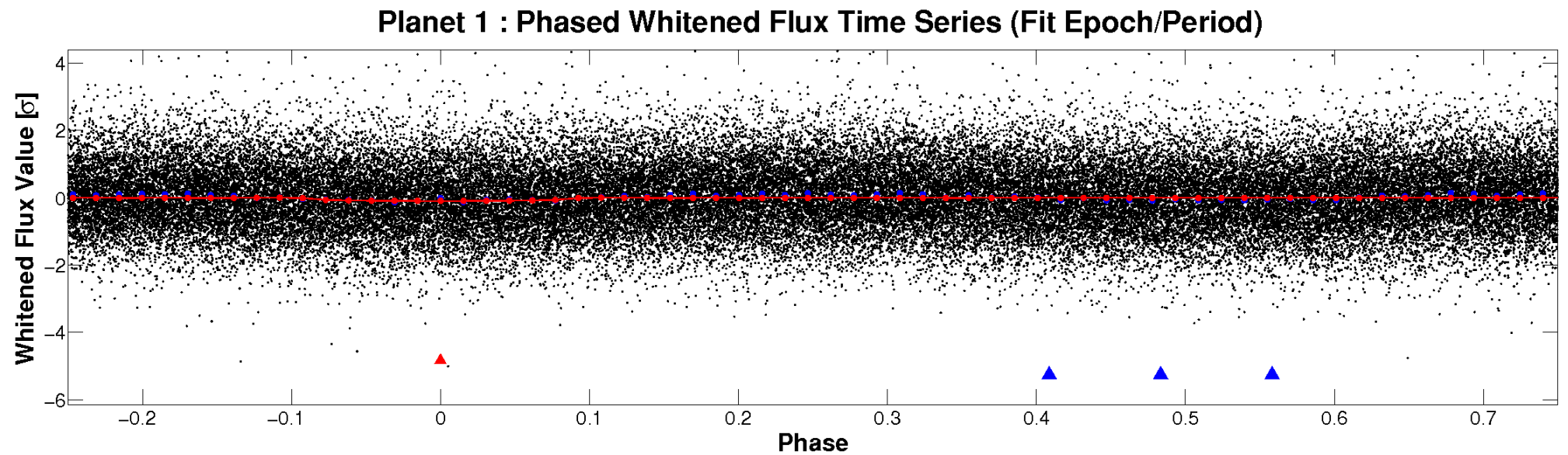
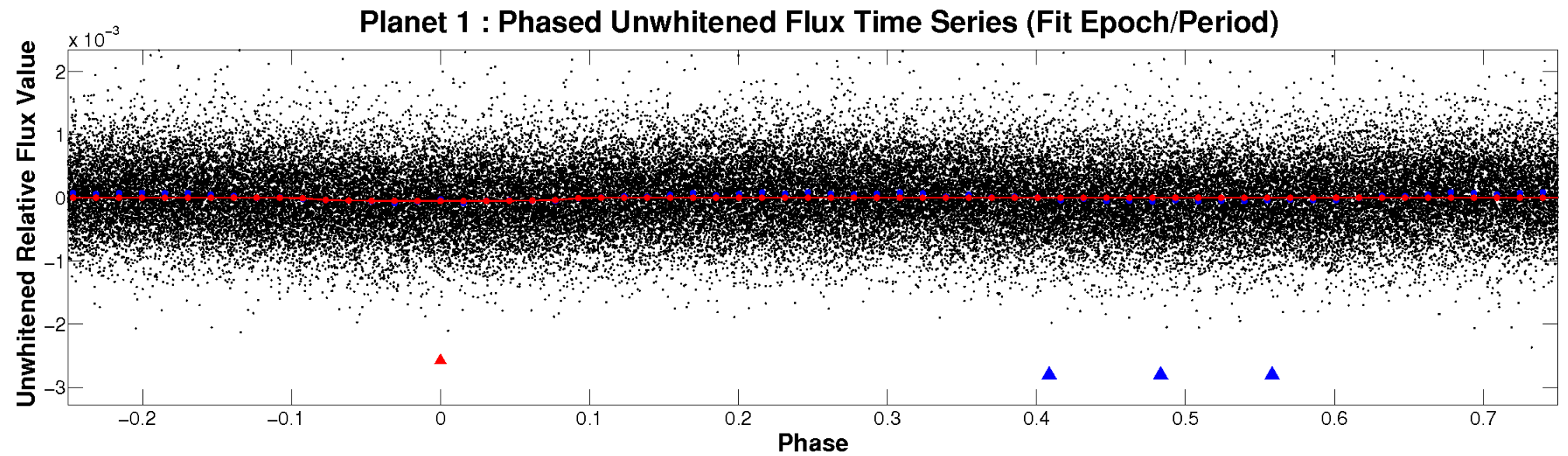


ALT Odd/Even

TCE 012315060-01

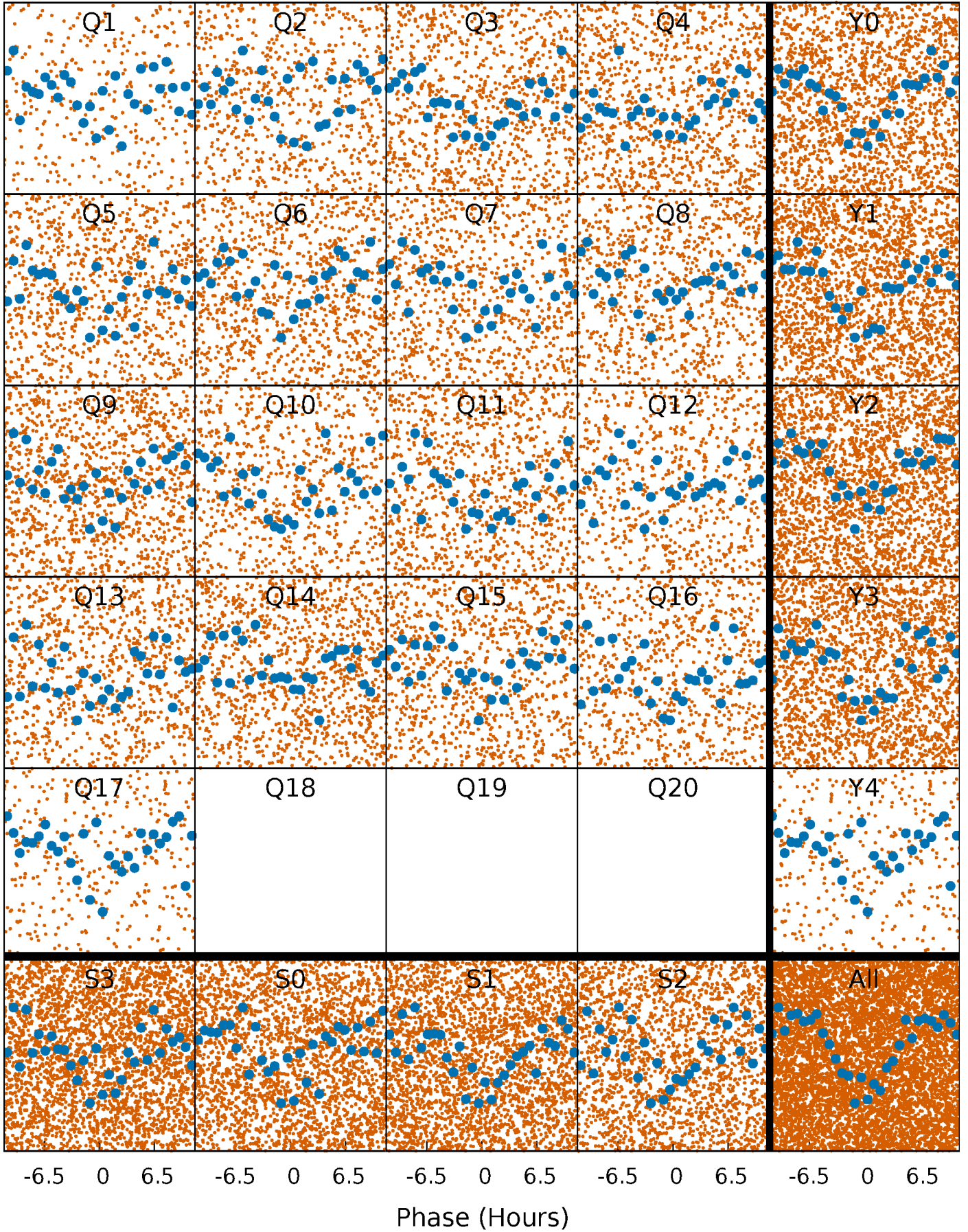


Non-Whitened Vs. Whitened Light Curve



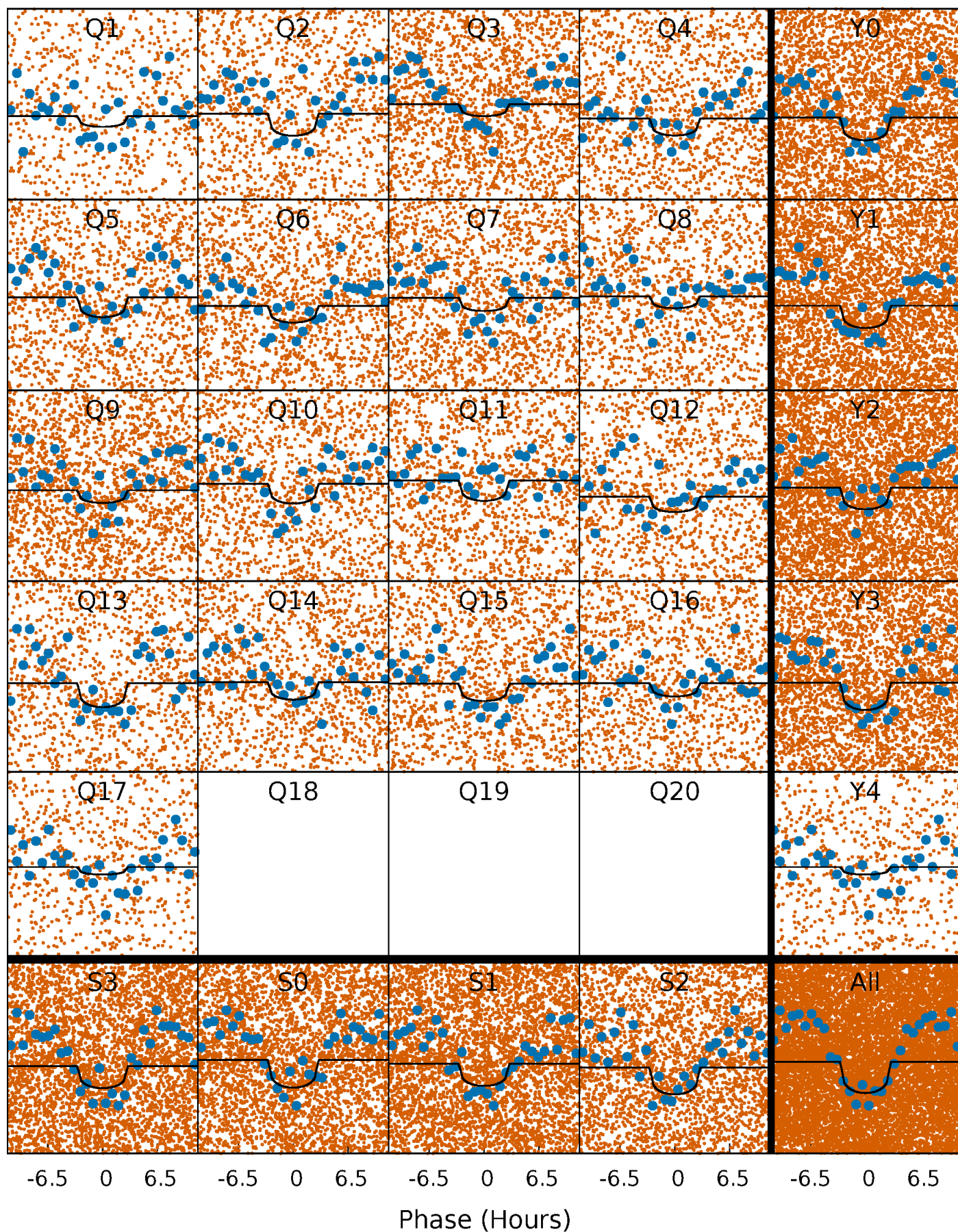
PDC Quarter-Phased Transit Curves

TCE 012315060-01 P= 1.325560 Days $T_0=132.681929$ (BKJD)



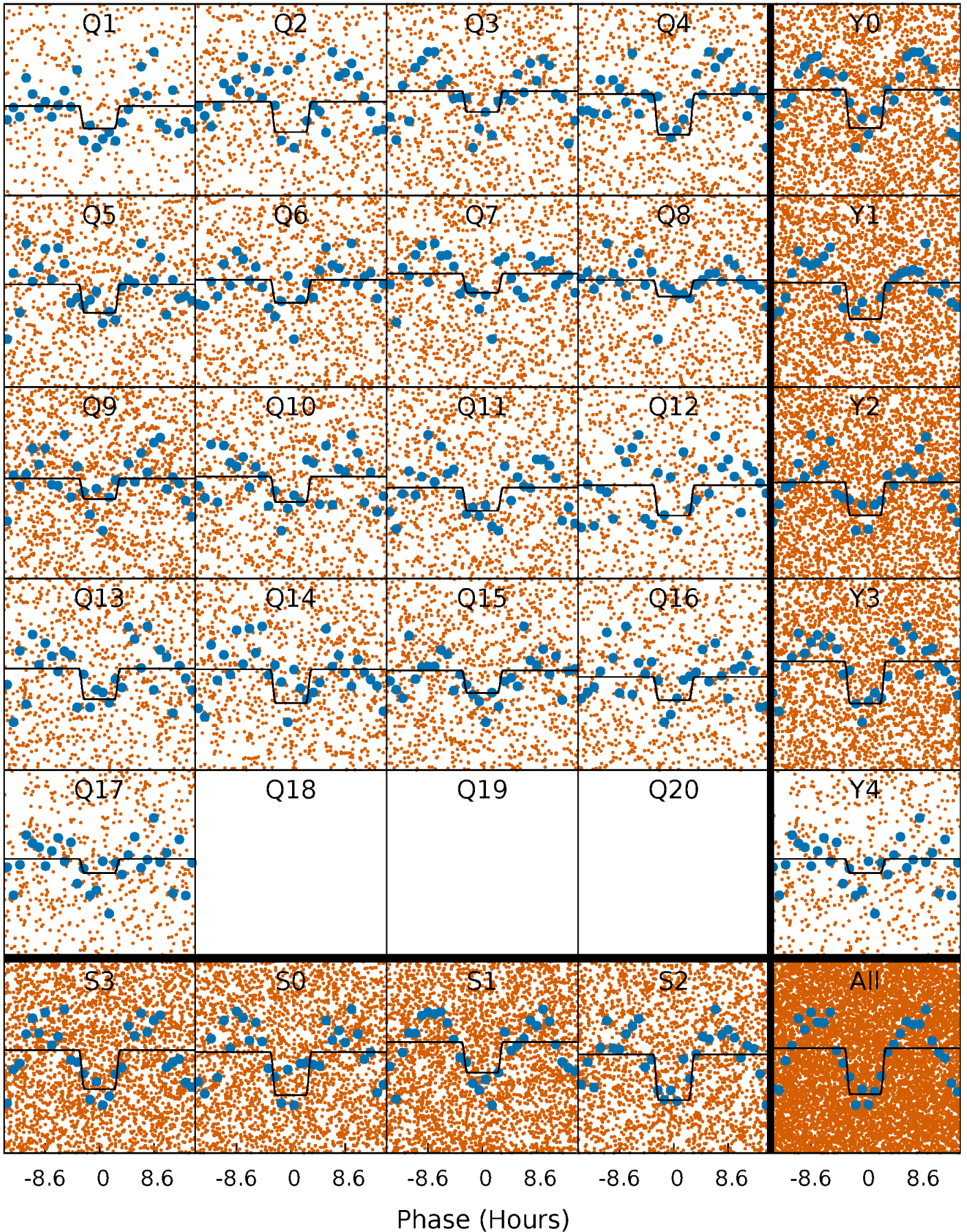
DV Quarter-Phased Transit Curves

TCE 012315060-01 P= 1.325560 Days $T_0=132.681929$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

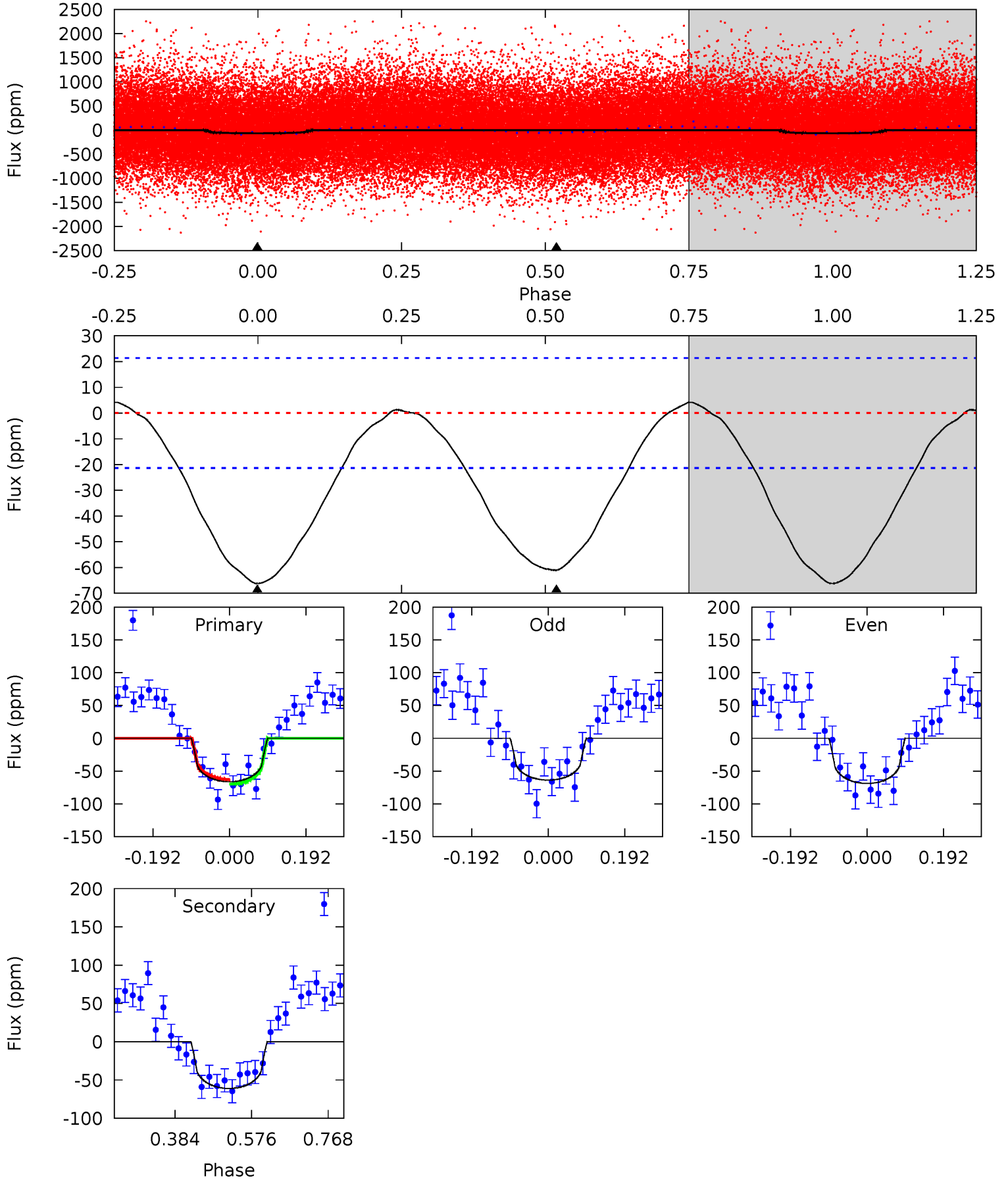
TCE 012315060-01 P= 1.325589 Days $T_0=132.671087$ (BKJD)



DV Model-Shift Uniqueness Test

012315060-01, P = 1.325560 Days, E = 131.356369 Days

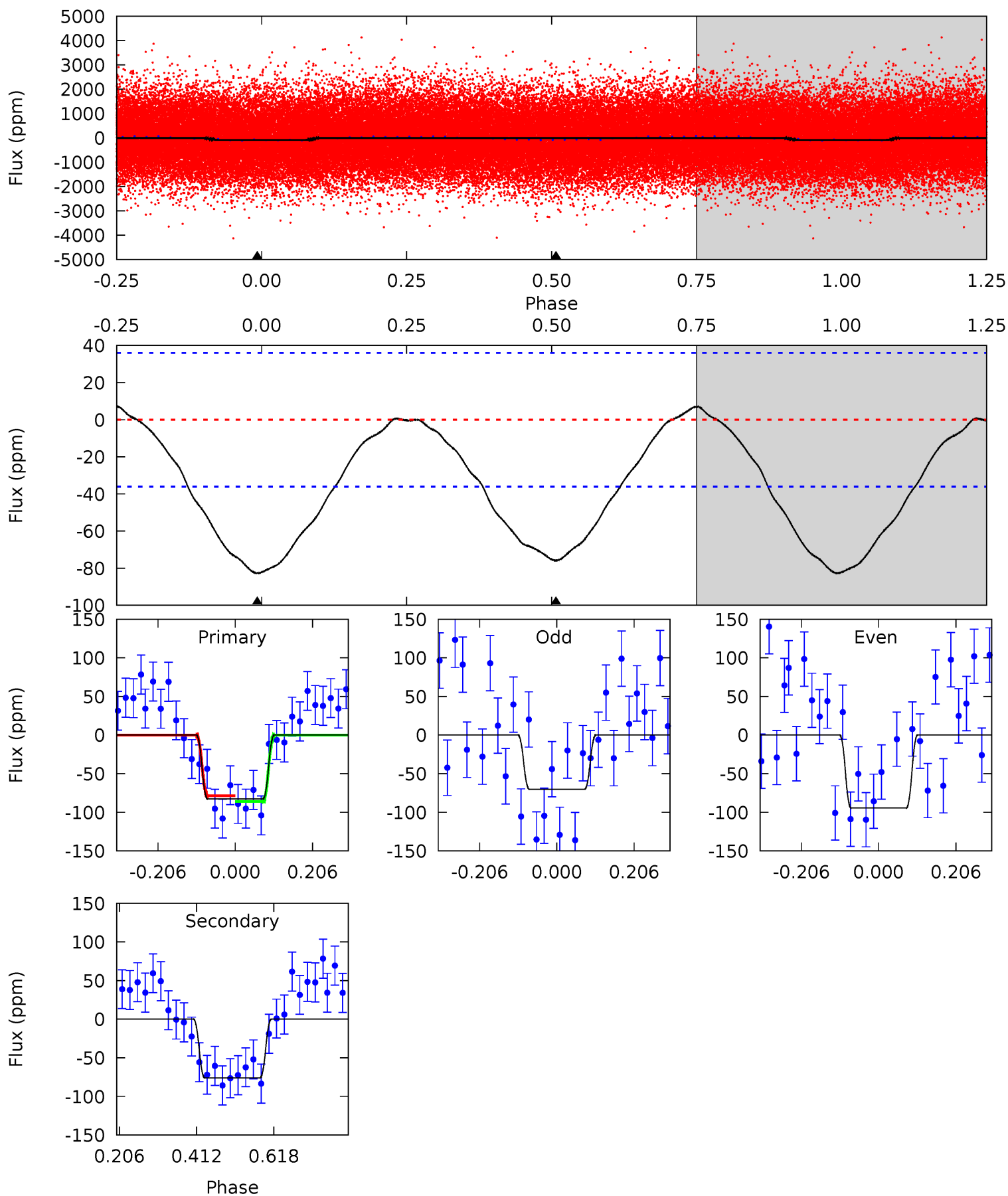
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
13.7	12.7	0	0	4.43	1.30	0.71	13.7	13.7	12.7	12.7	0.53	0.90	0.06	0.72



Alt Model-Shift Uniqueness Test

012315060-01, P = 1.325589 Days, E = 131.345498 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
10.1	9.28	0	0	4.41	1.26	0.46	10.1	10.1	9.28	9.28	1.49	1.02	0.08	0.45



Stellar Parameters For KIC 012315060

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	$M(M_{\odot})$	p_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	5345^{+160}_{-160}	$4.639^{+0.036}_{-0.090}$	$-0.540^{+0.350}_{-0.300}$	$0.686^{+0.105}_{-0.052}$	$0.747^{+0.079}_{-0.064}$	$3.264^{+0.533}_{-0.911}$
	+3%/-3%	+1%/-2%	+65%/-56%	+15%/-8%	+11%/-9%	+16%/-28%
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 012315060-01 / KOI

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	-61 ± 5	$0.74^{+0.65}_{-0.44}$	1883^{+78}_{-71}	4849^{+2723}_{-994}	28^{+138}_{-20}
Alt.	-76 ± 8	$0.87^{+0.64}_{-0.57}$	1880^{+76}_{-70}	4766^{+3003}_{-903}	26^{+169}_{-17}

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

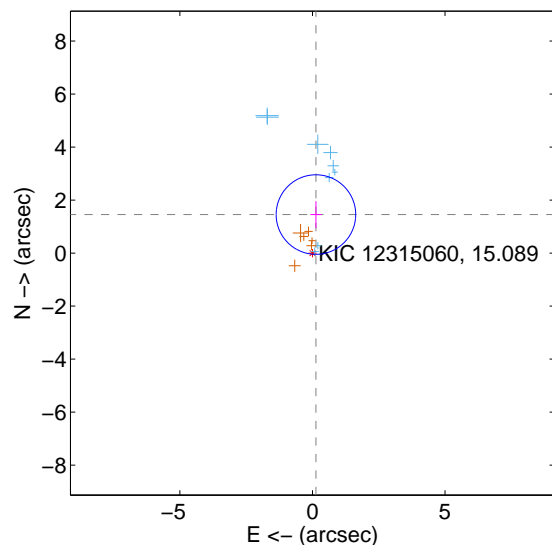
Supplemental centroid analysis for 012315060-01. Kepler magnitude: 15.09. Transit SNR 8.16

There are 9 quarters with good PRF difference image offsets

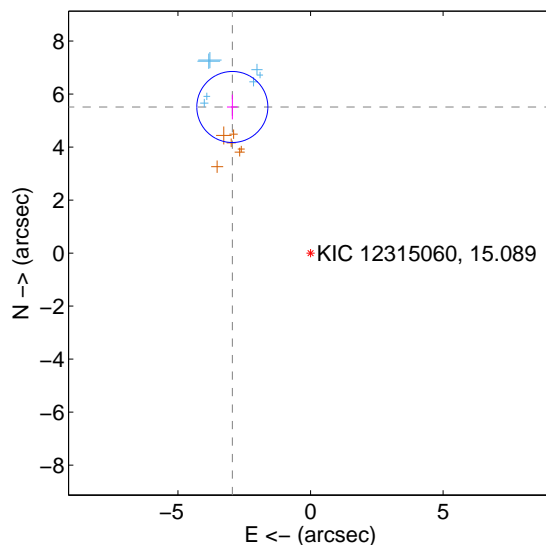
The OOT PRF centroid is offset from the target star catalog position by about 4.58 arcsec so the offset from difference PRF-fit to OOT-fit may be invalid.

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	1.460 ± 0.500	2.92	-0.131 ± 0.209	1.454 ± 0.505
PRF-fit source offset from KIC position	6.251 ± 0.447	13.99	2.949 ± 0.201	5.511 ± 0.468
photometric centroid source offset	5.39 ± 0.74	7.31	3.38 ± 0.64	4.20 ± 0.79

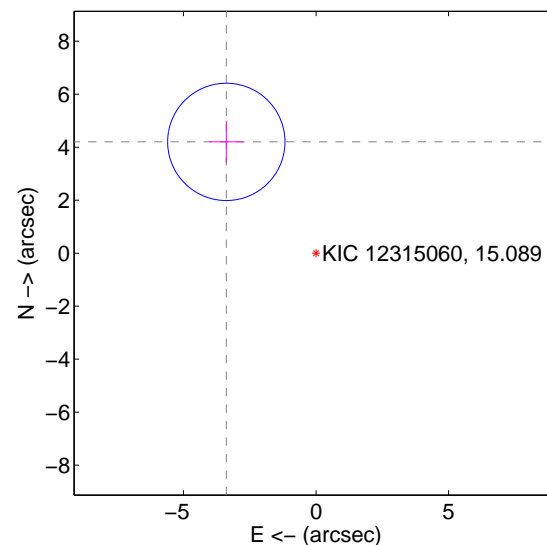
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position

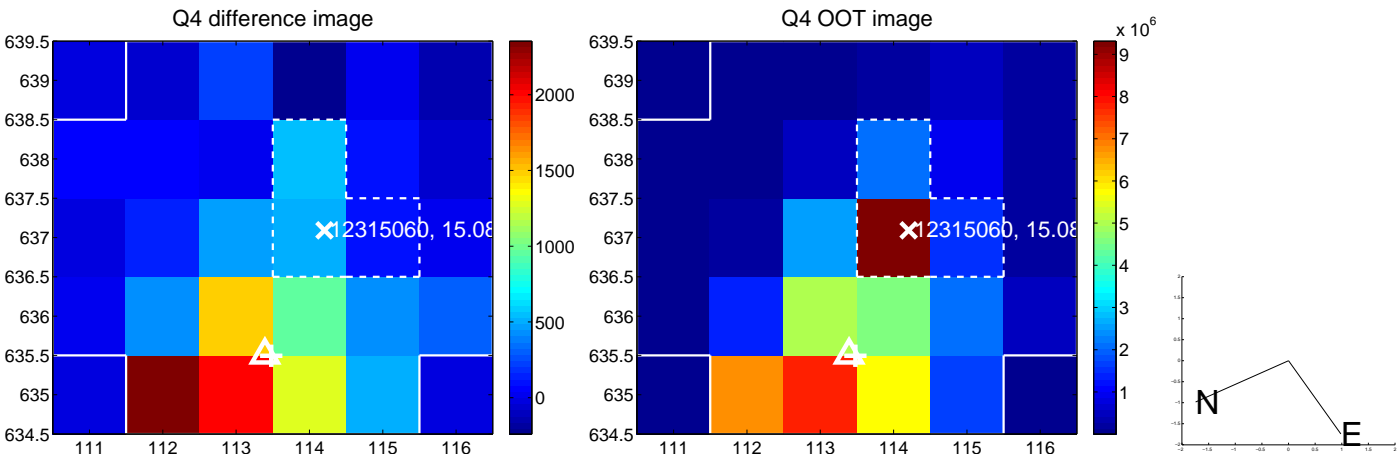
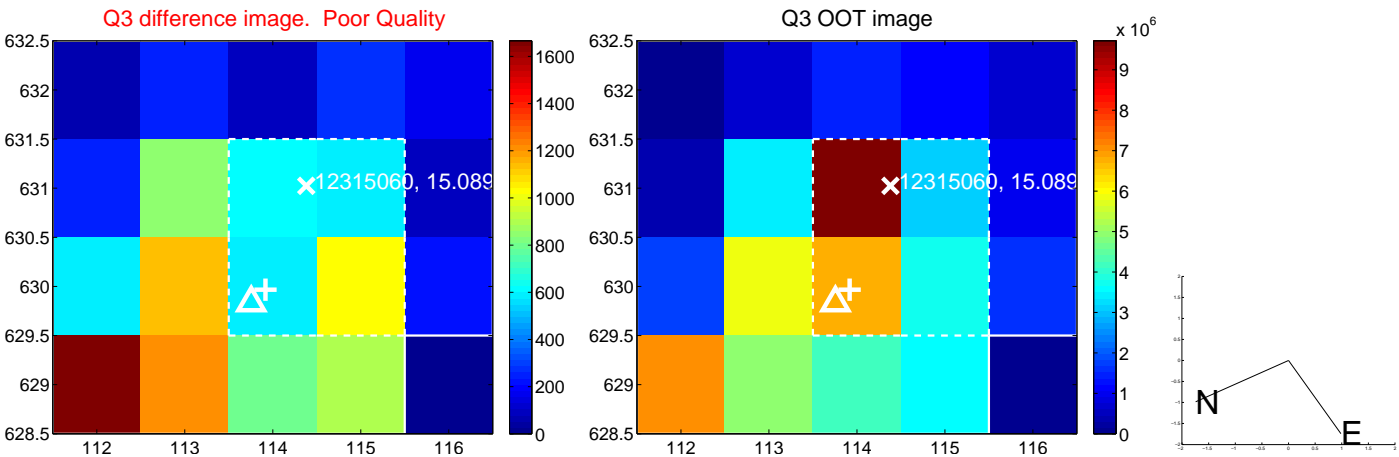
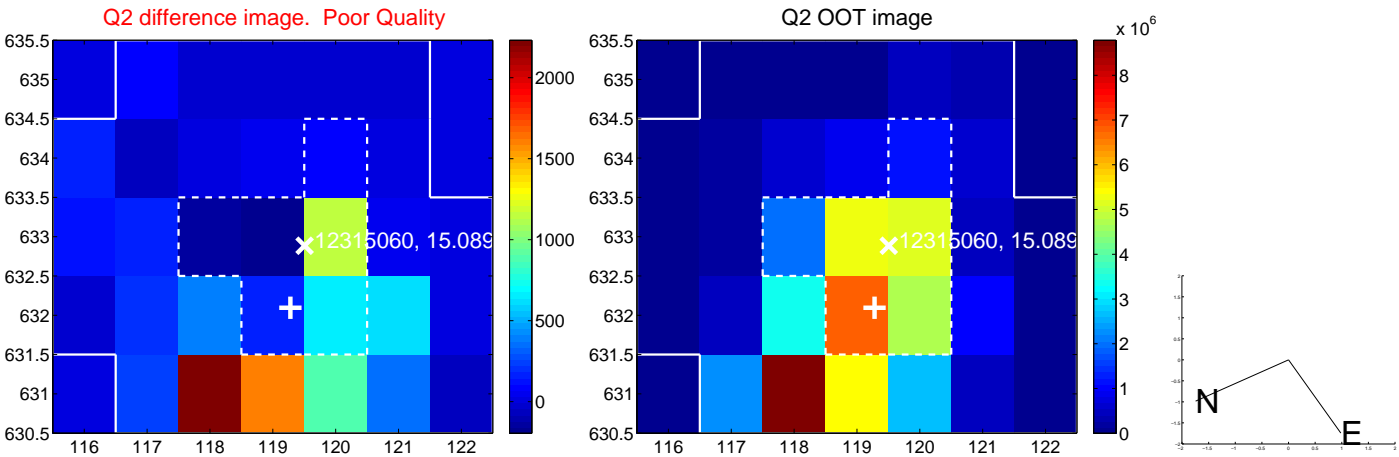
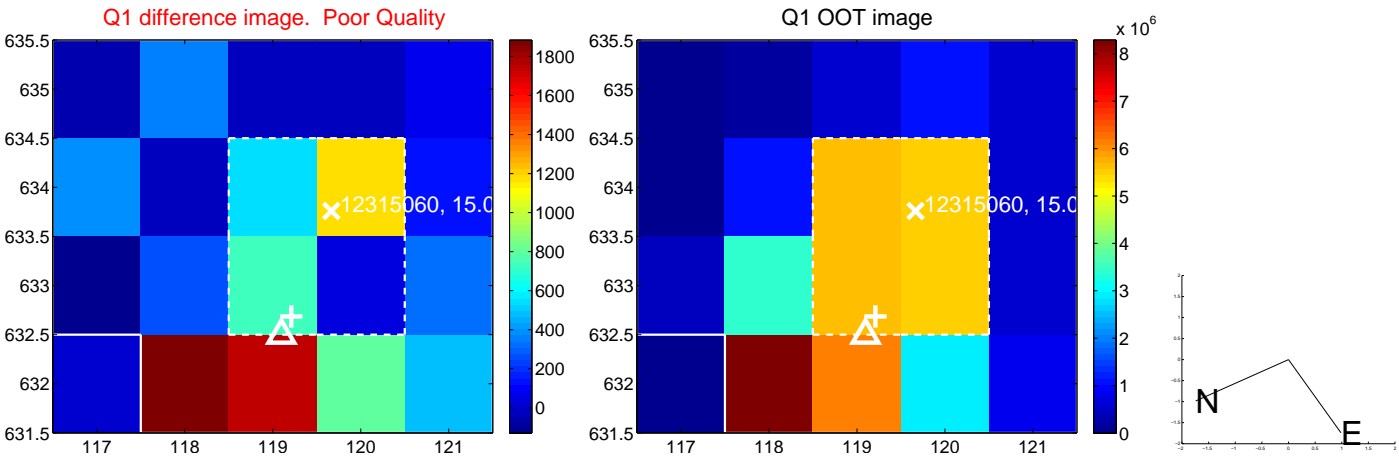


offset from photometric centroids

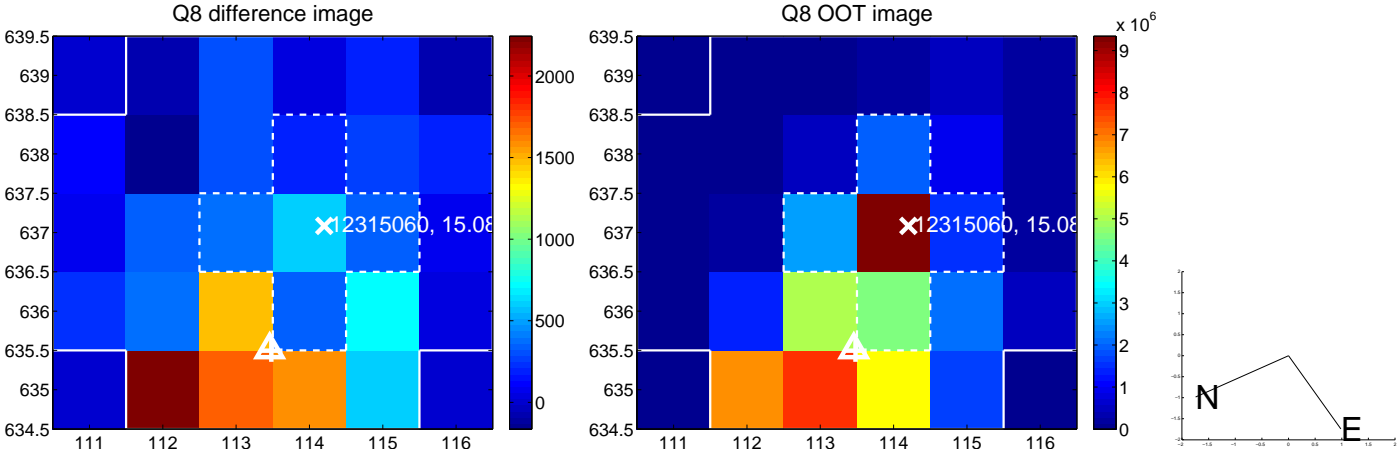
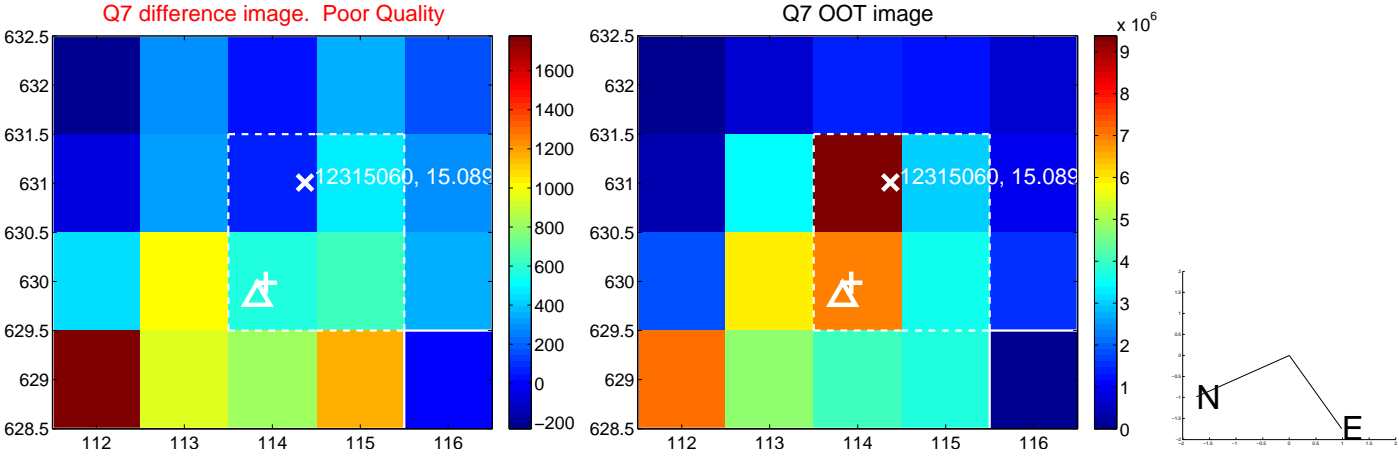
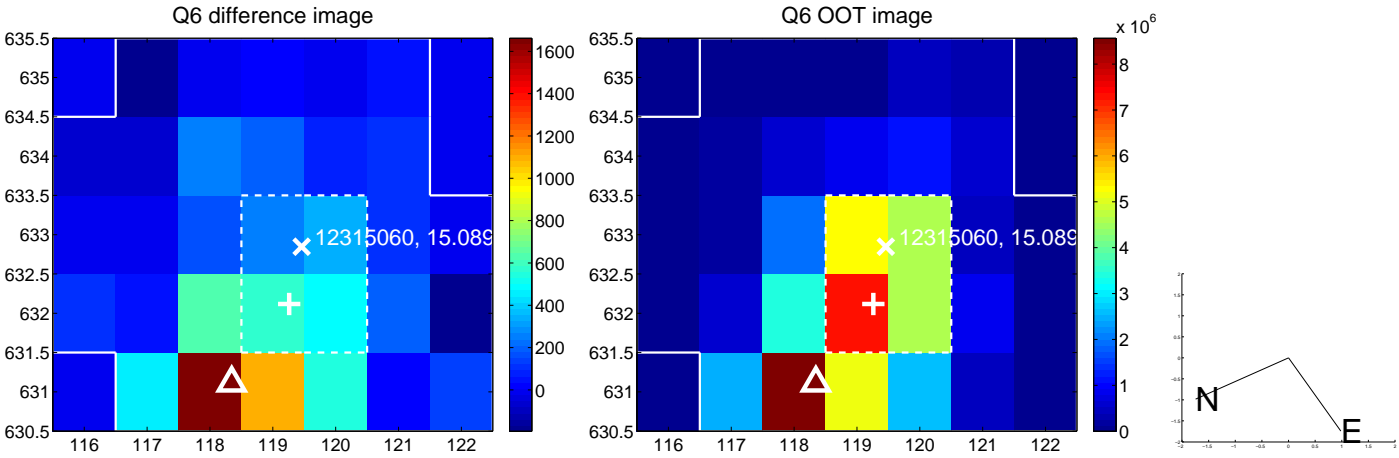
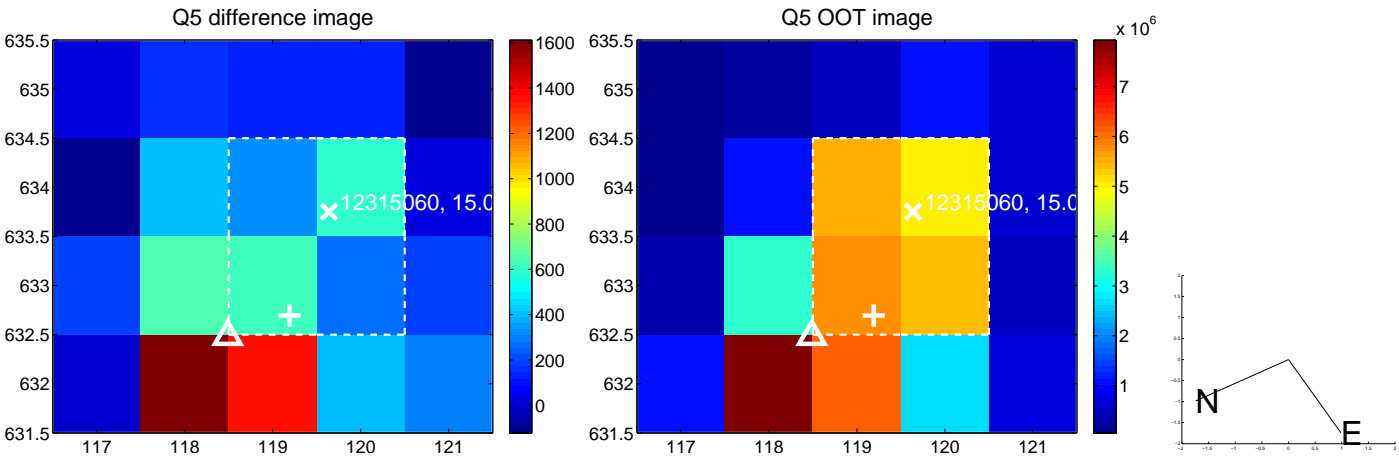


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

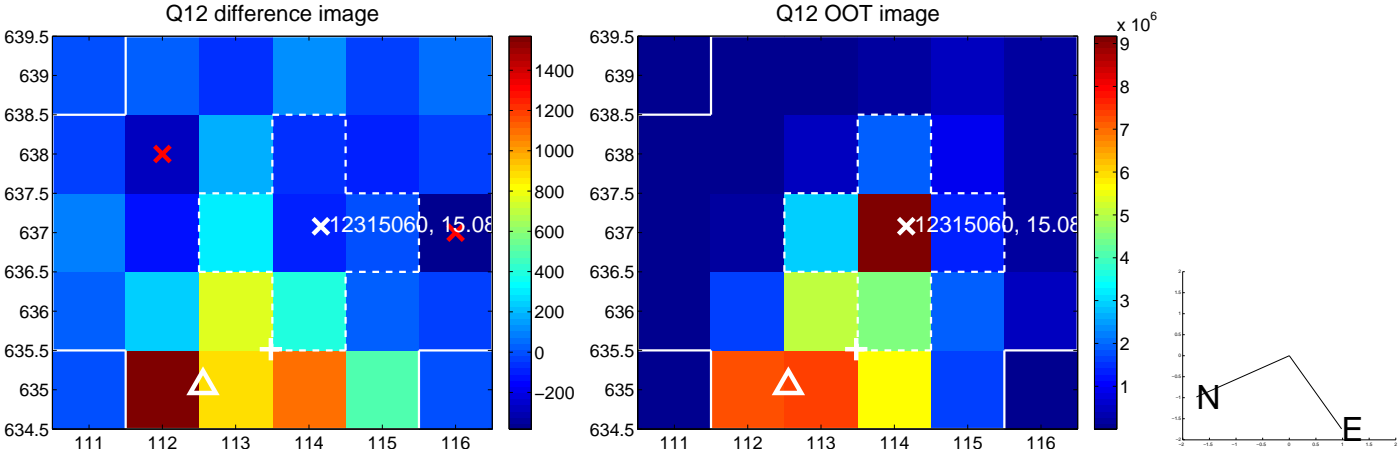
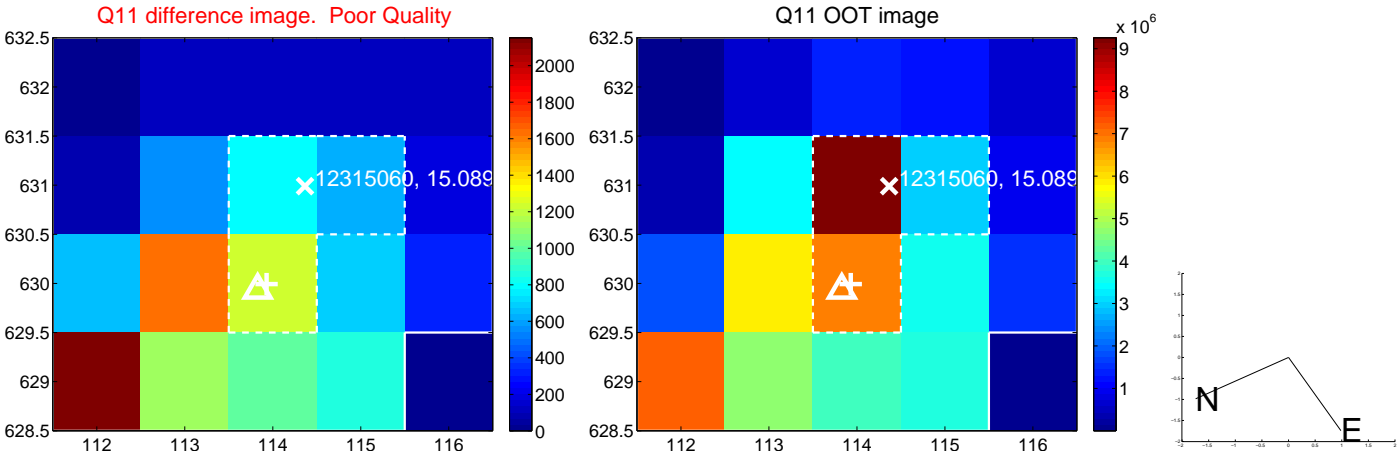
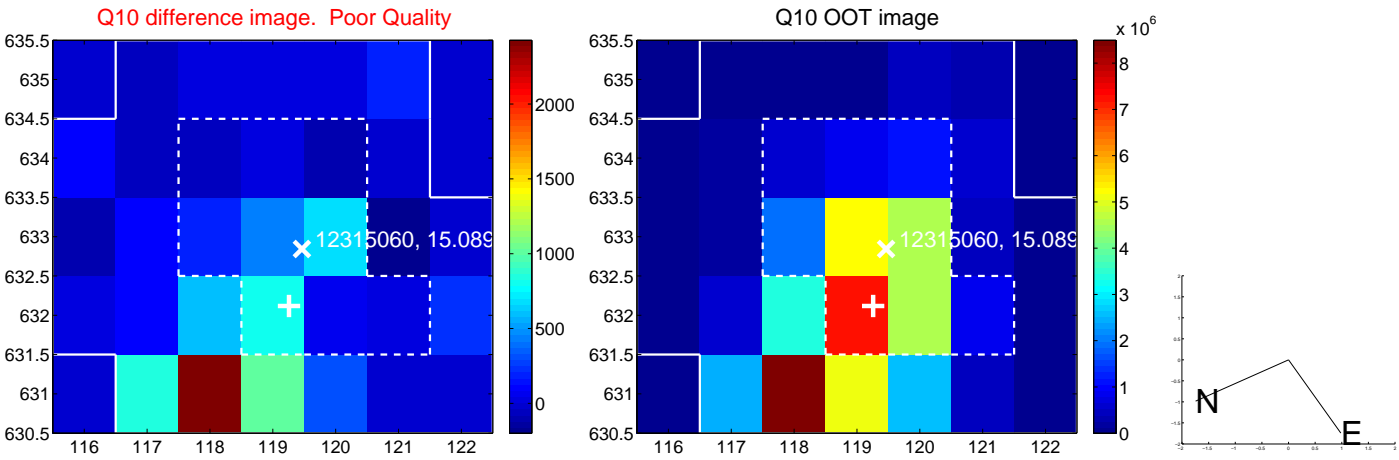
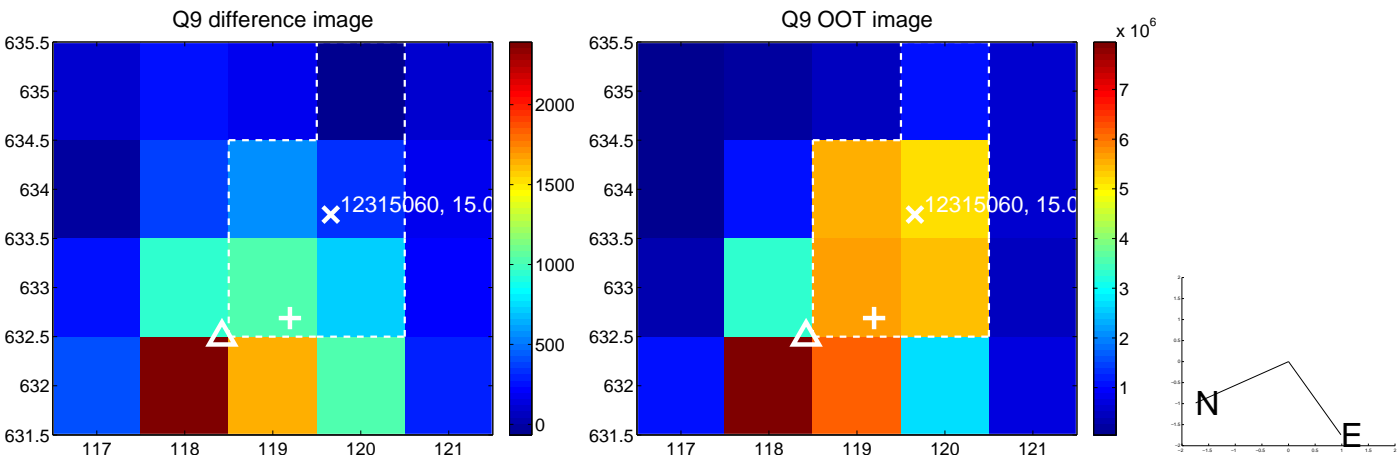
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



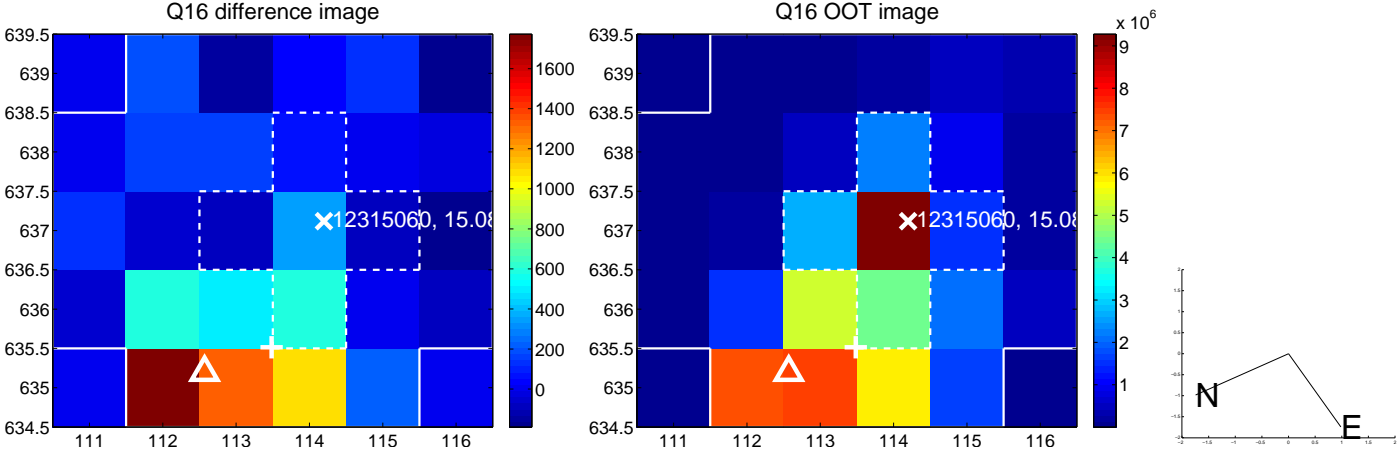
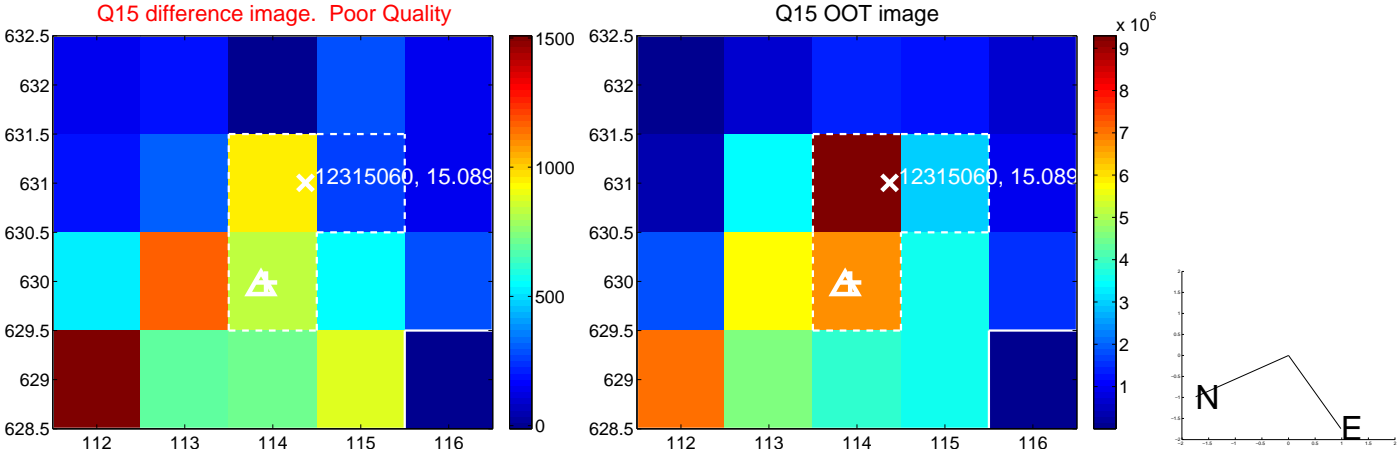
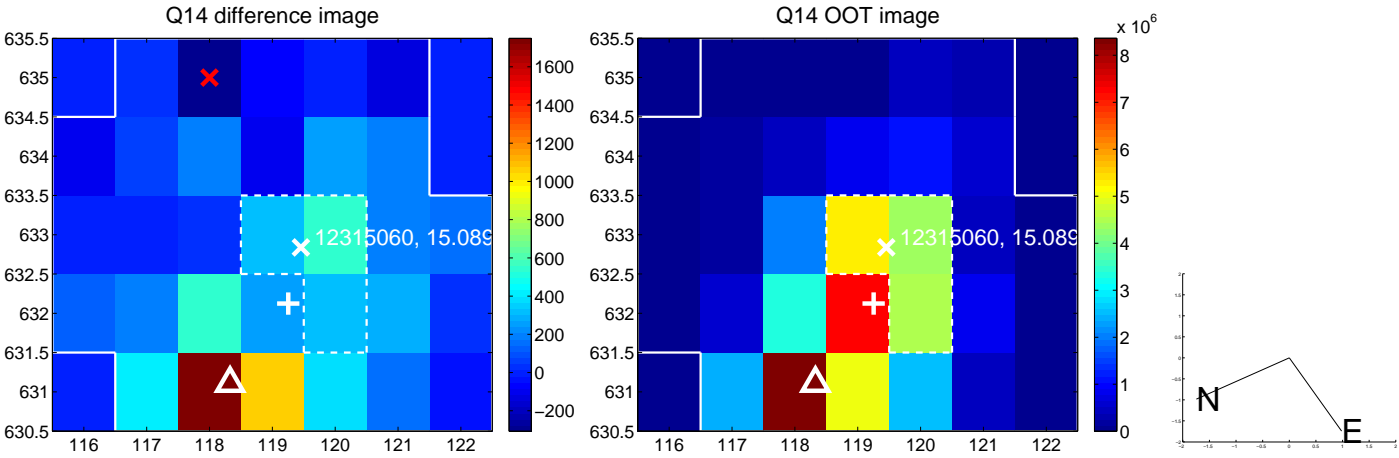
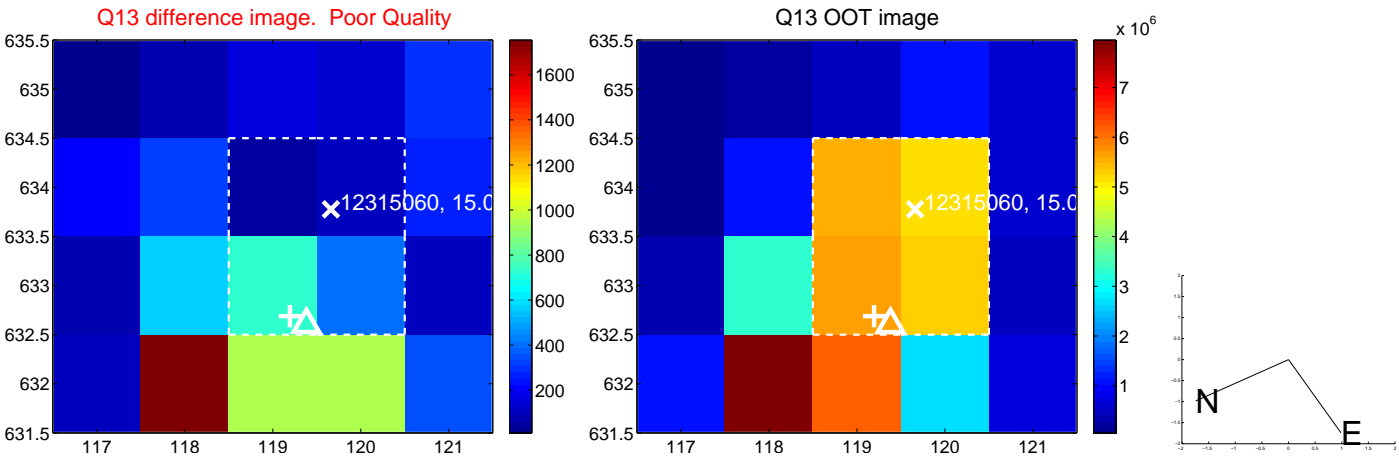
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



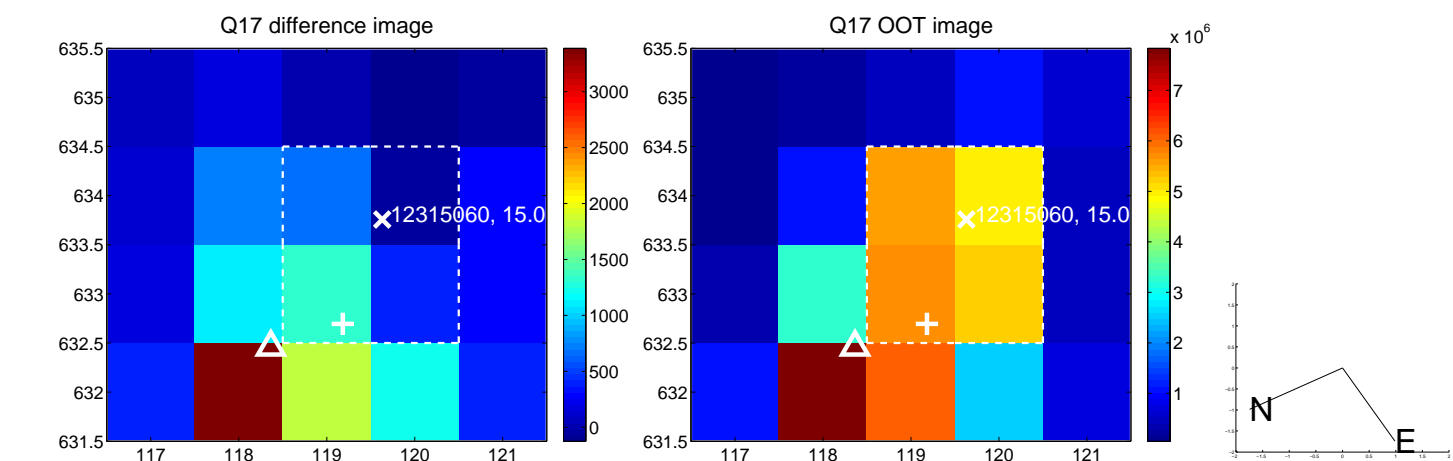
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



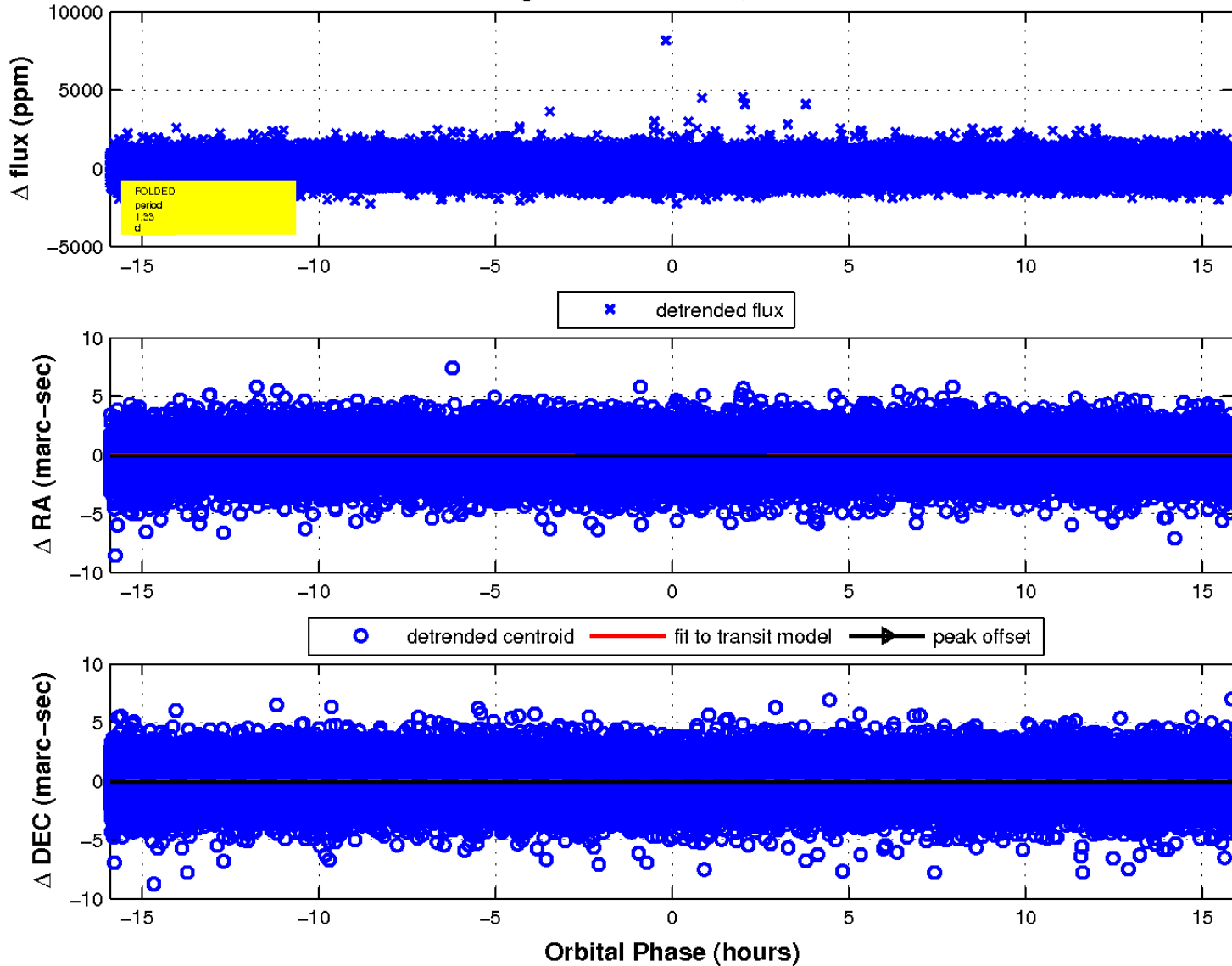
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

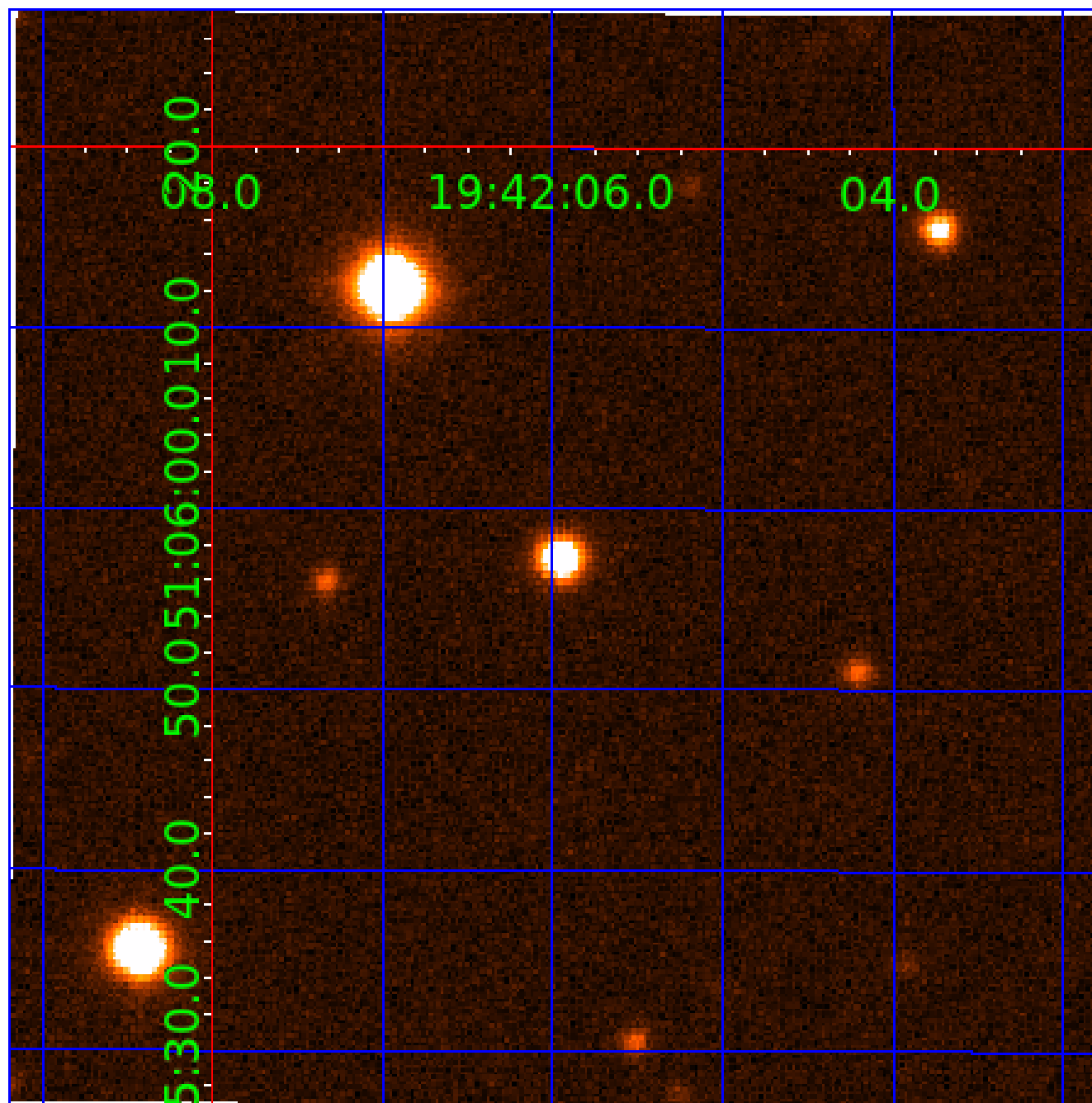


fluxWeightedCentroids, Planet 1 of 2



UKIRT Image

Declination



KIC 012315060

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})
012315060-01	OBS	No	1.325560	132.681929	52.0	5.657	8.7	8.2	0.69	5345	0.50	748.80
012315060-02	OBS	No	687.866379	195.723222	639.5	9.032	9.2	7.0	0.69	5345	1.77	0.18

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
012315060-01	OBS	FP	0.00	1	0	1	0	LPP_DV—LPP_ALT—CENT_RESOLVED_OFFSET
012315060-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_CHASES_MARSHALL—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT— INCONSISTENT_TRANS—CENT_FEW_DIFFS

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

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

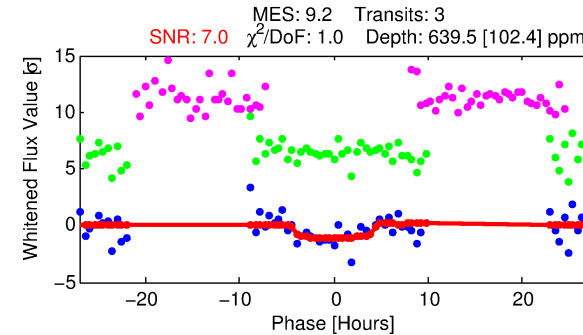
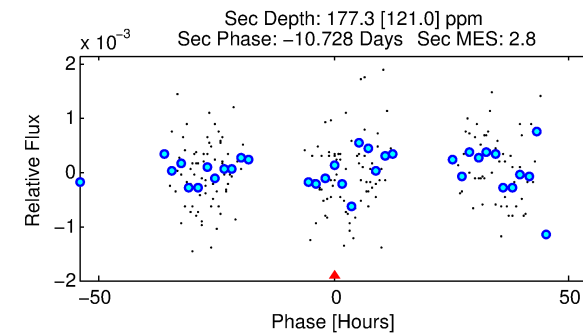
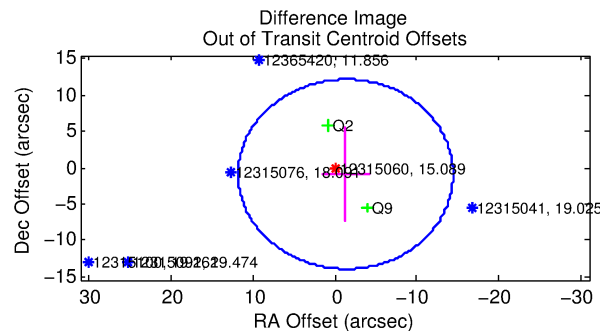
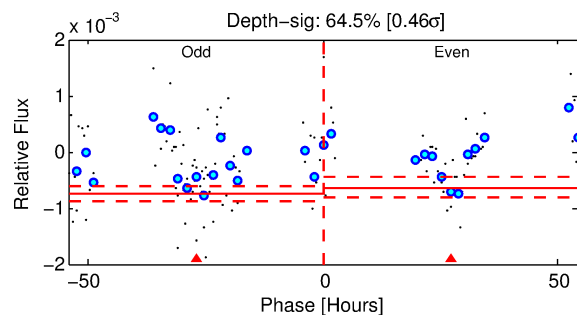
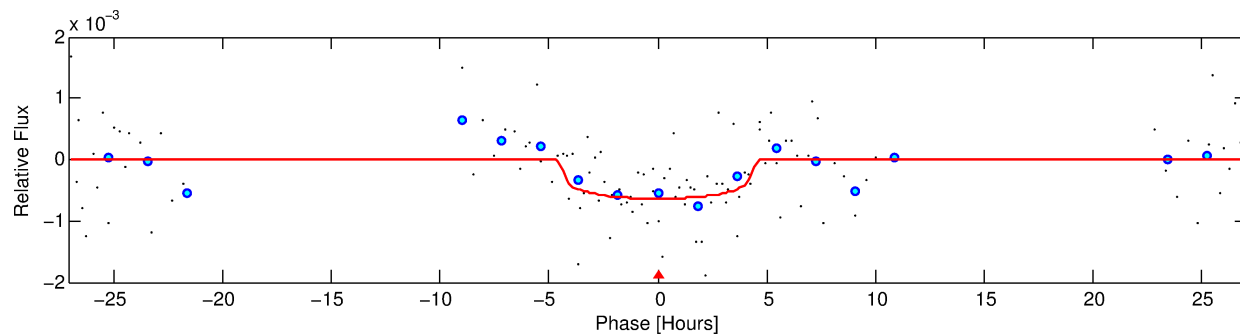
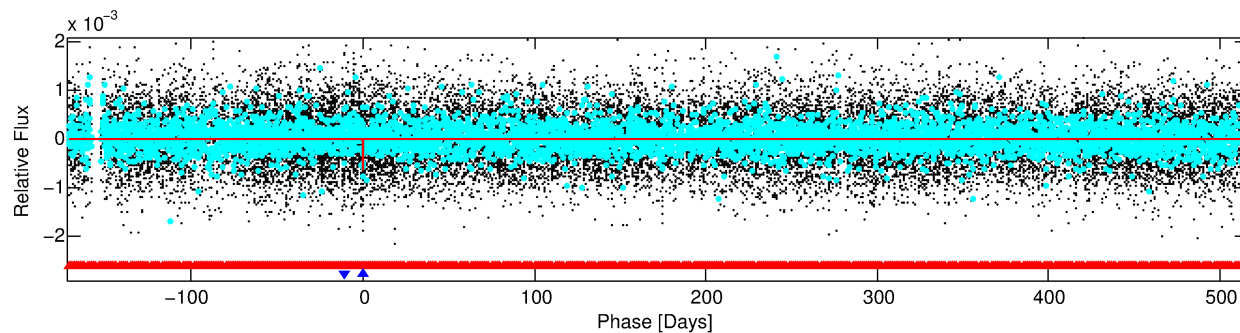
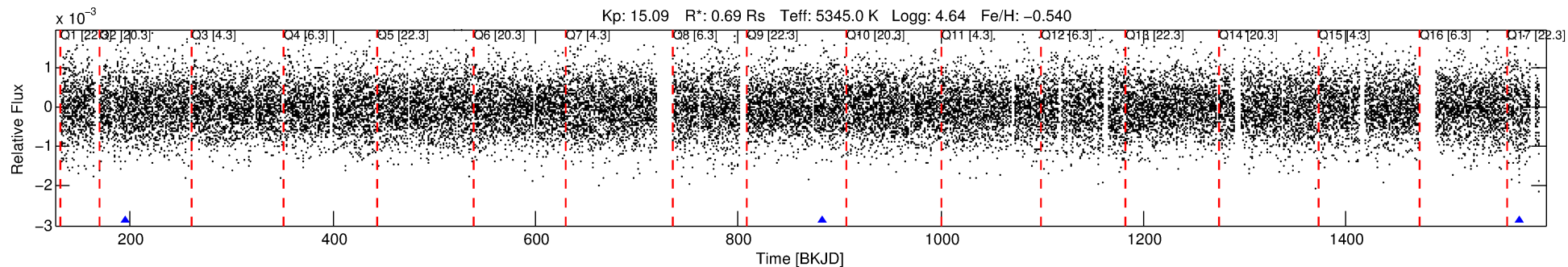
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 012315060-02

No Significant Match Found

DV One-Page Summary

KIC: 12315060 Candidate: 2 of 2 Period: 687.866 d



DV Fit Results:

Period = 687.86638 [0.01611] d
Epoch = 195.7232 [0.0191] BKJD
Rp/R* = 0.0236 [0.0390]
a/R* = 518.78 [3576.04]
b = 0.50 [10.33]
Seff = 0.18 [0.04]
Teq = 166 [9] K
Rp = 1.77 [2.93] Re
a = 1.3844 [0.1706] AU
Ag = 59784.36 [201914.59] [0.30 σ]
Teff = 4013 [3386] K [1.14 σ]

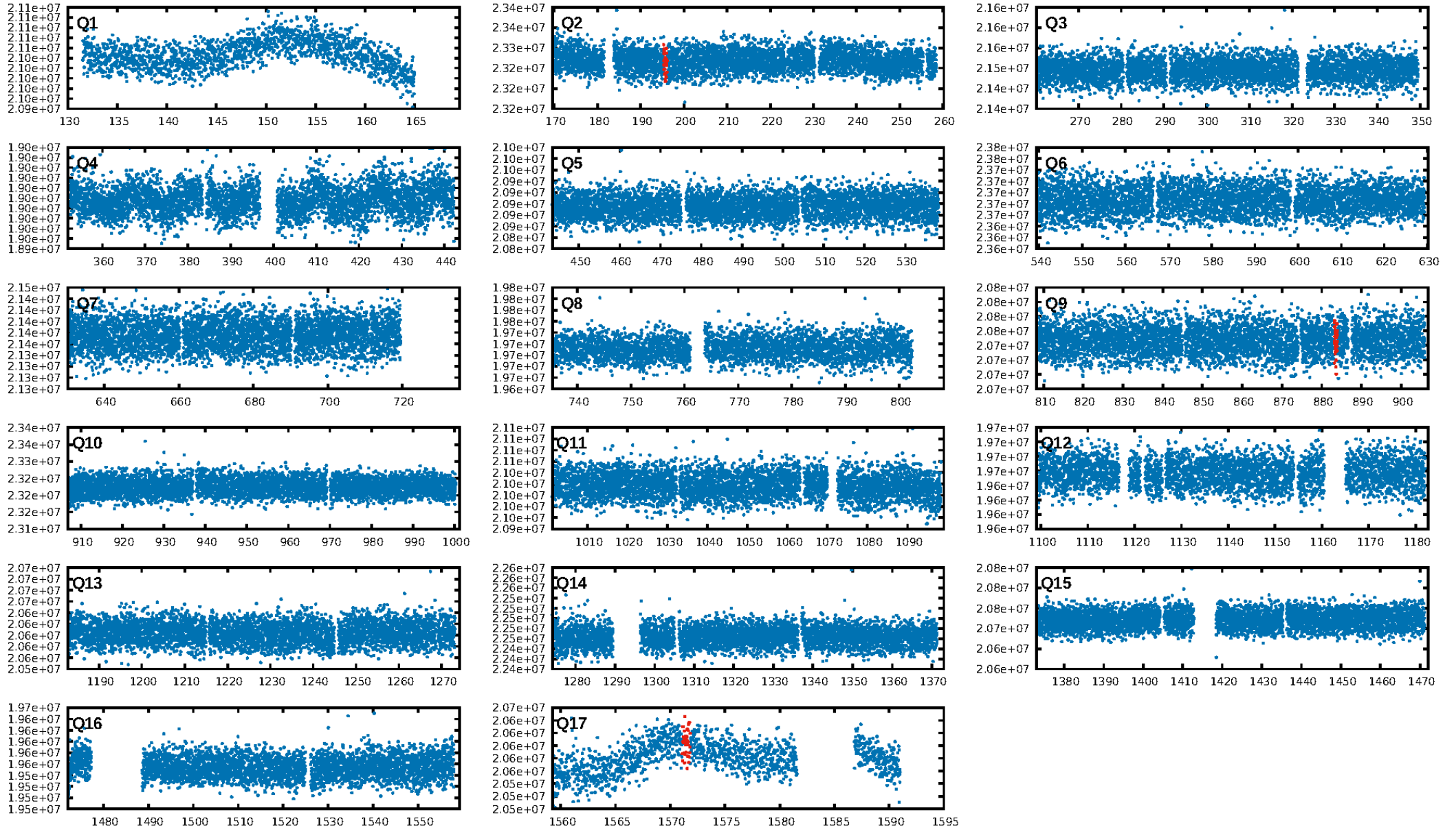
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [1546.09 σ]
LongPeriod-sig: N/A
ModelChiSquare2-sig: 18.3%
ModelChiSquareGof-sig: 99.3%
Bootstrap-pfa: 3.91e-16
RollingBand-fgt: 1.00 [2/2]
GhostDiagnostic-chr: 1.222
Centroid-sig: 81.8%
Centroid-so: 3.317 arcsec [3.67 σ]
OotOffset-rm: 1.606 arcsec [0.37 σ]
KicOffset-rm: 2.730 arcsec [0.50 σ]
OotOffset-st: 1/0/0/1 [2]
KicOffset-st: 1/0/0/1 [2]
DiffImageQuality-fgm: 1.00 [2/2]
DiffImageOverlap-fno: 0.00 [0/3]

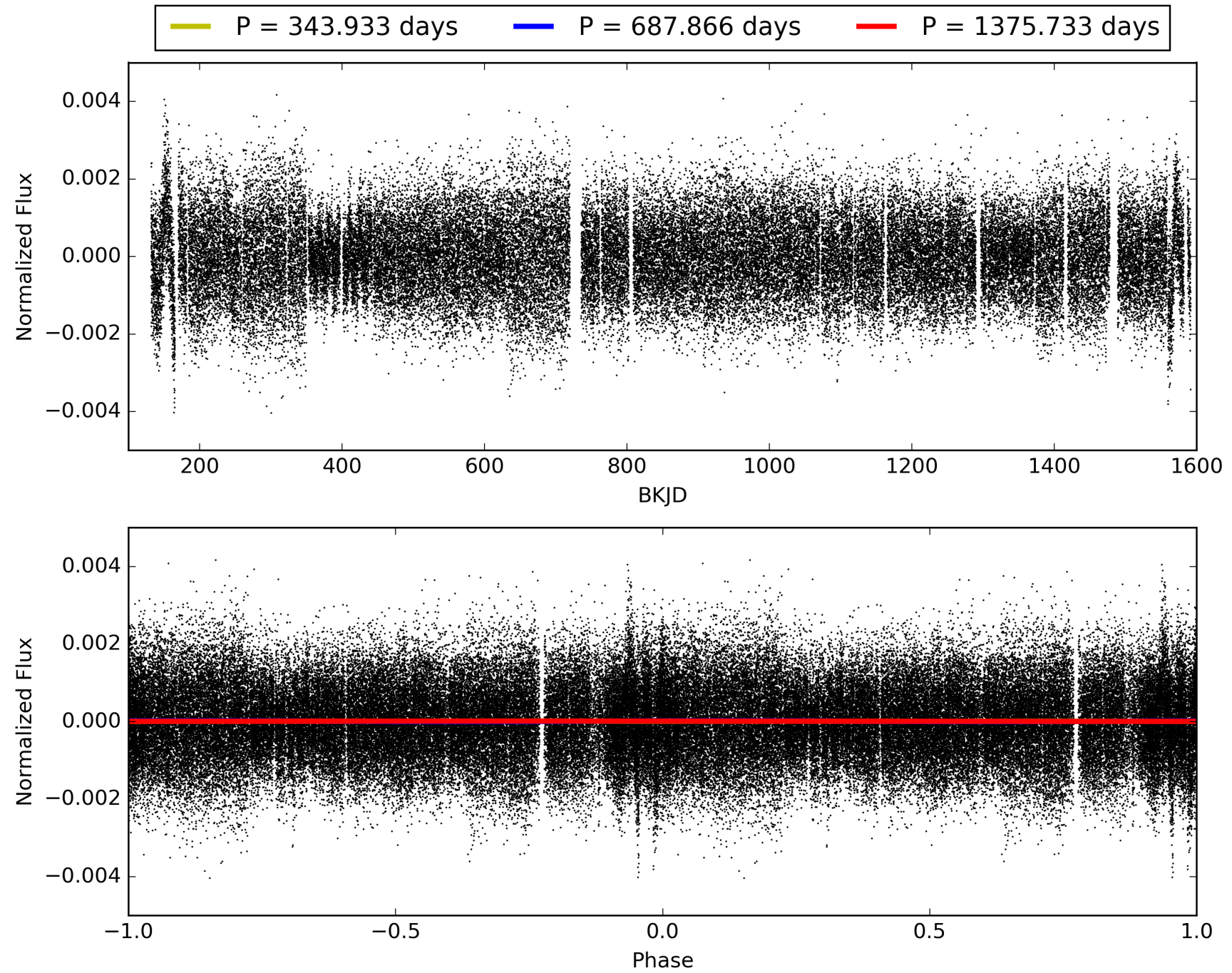
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 29-Jan-2016 02:02:28 Z

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

TCE 012315060-02, PDC Light Curves

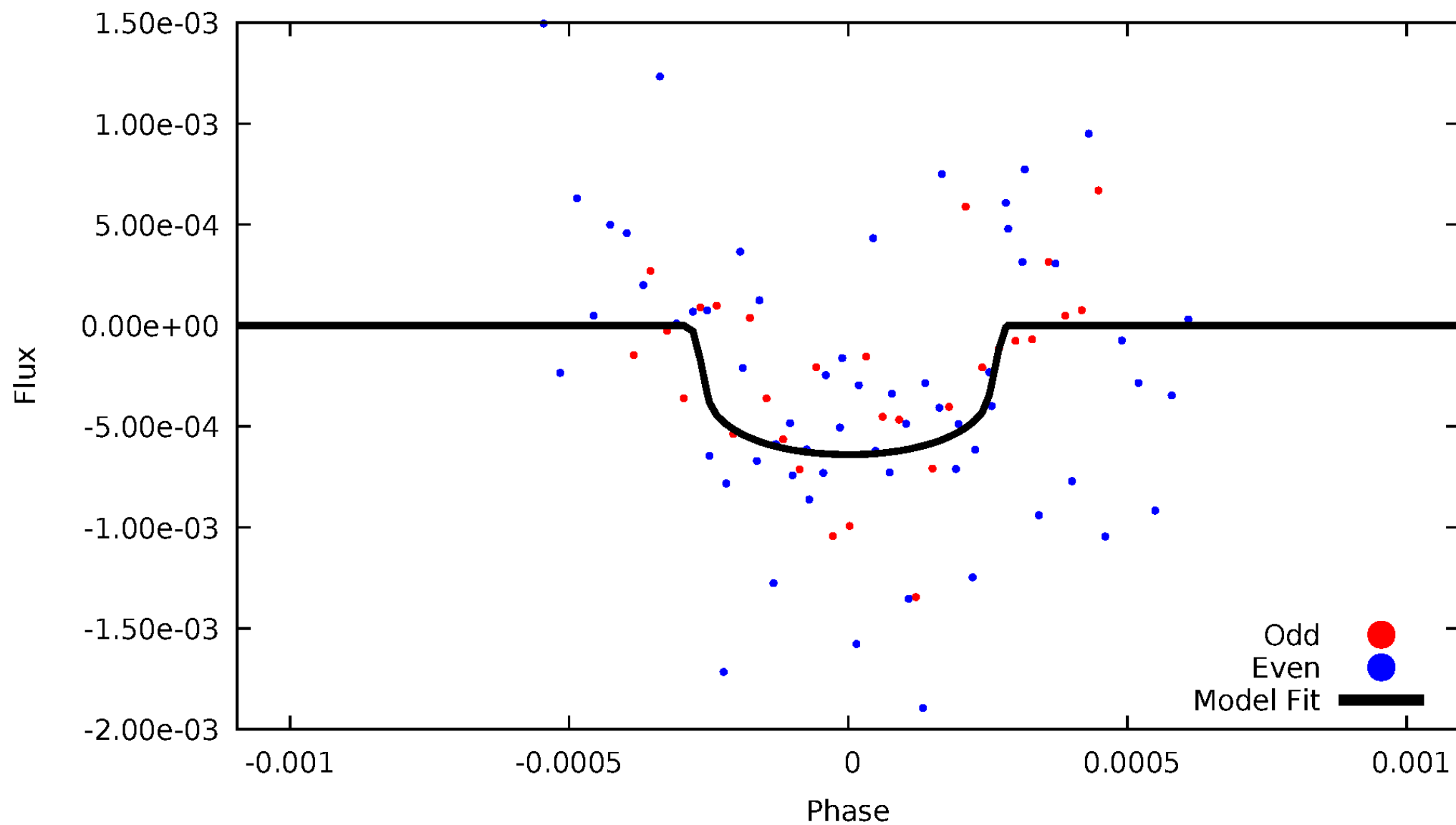


TCE 012315060-02



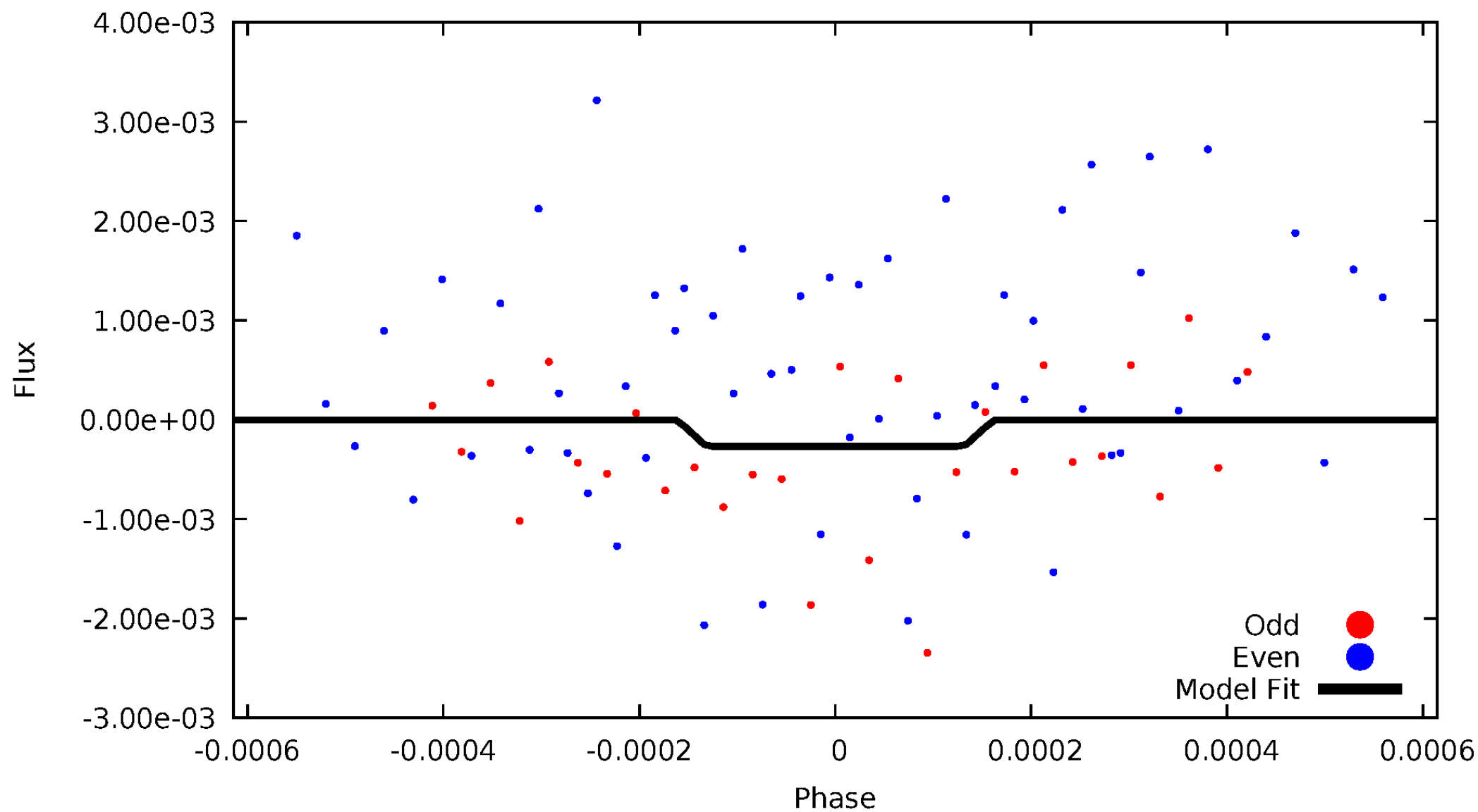
DV Odd/Even

TCE 012315060-02



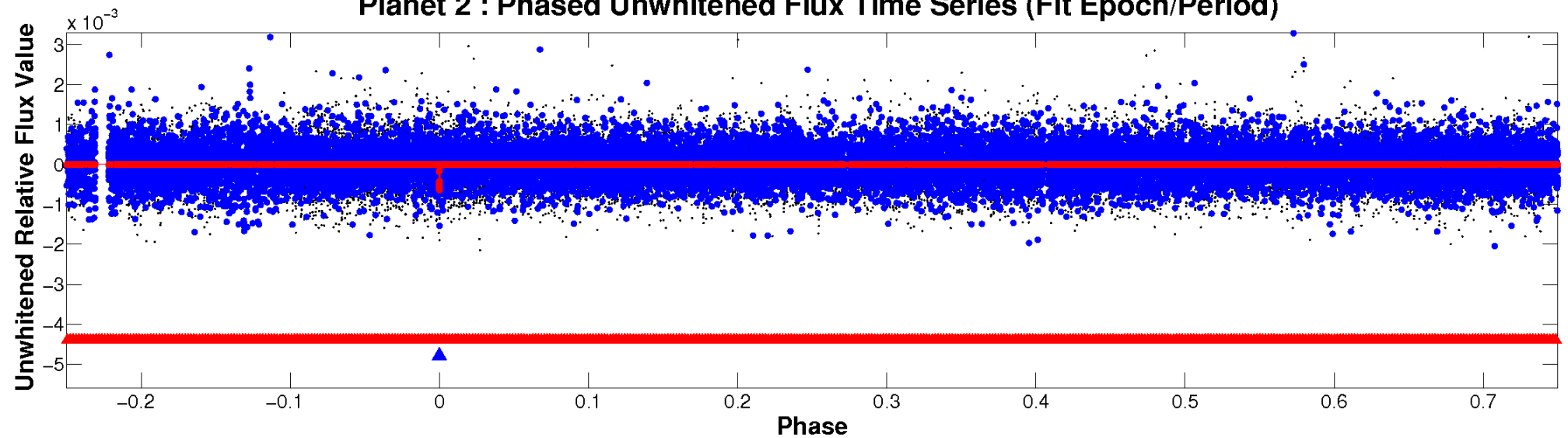
ALT Odd/Even

TCE 012315060-02

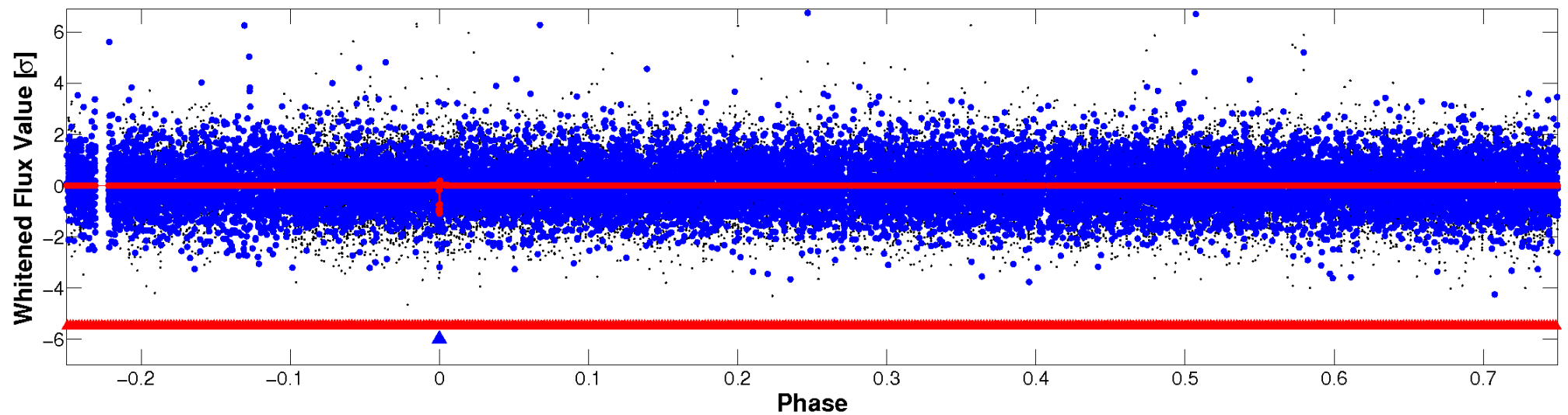


Non-Whitened Vs. Whitened Light Curve

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

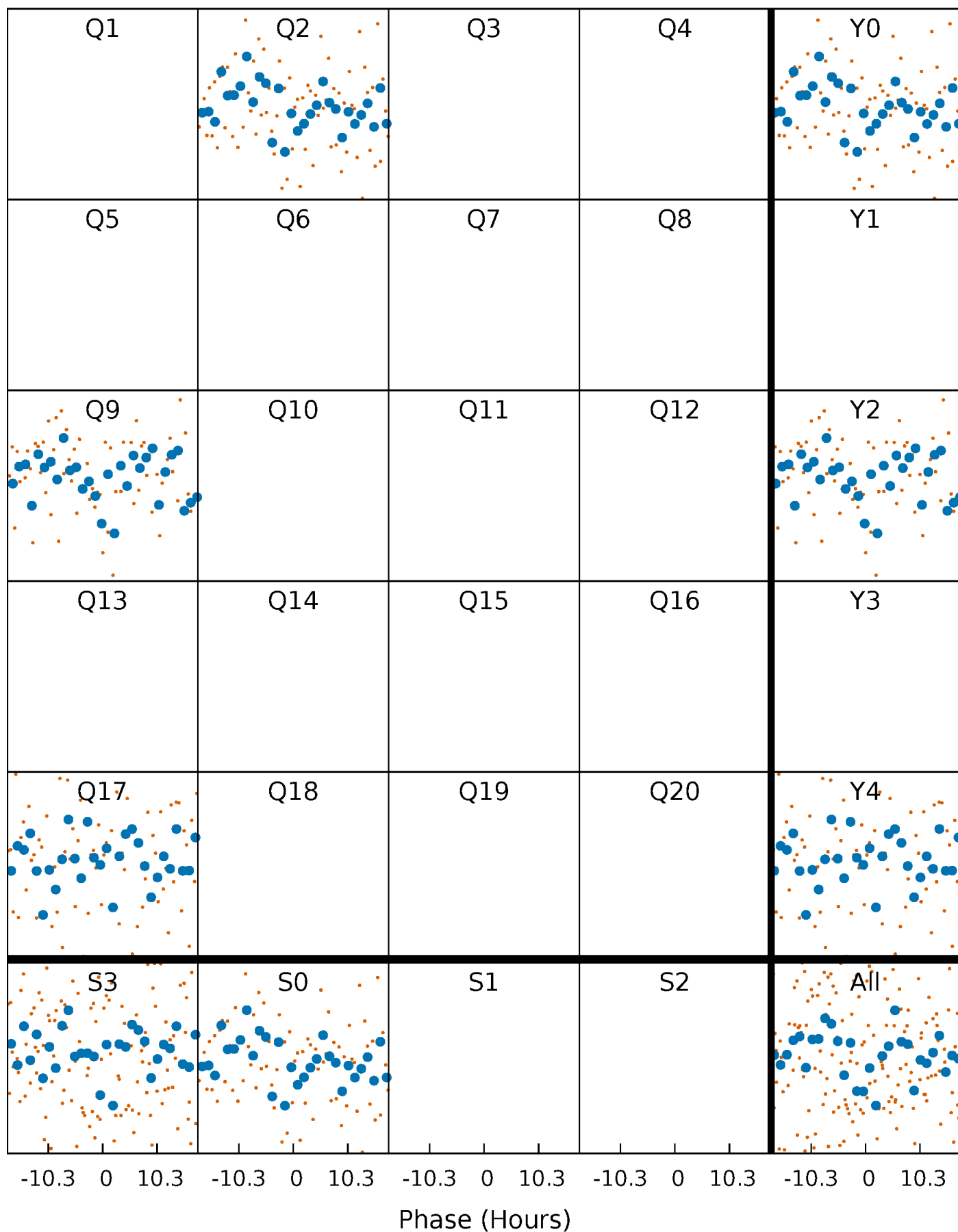


Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



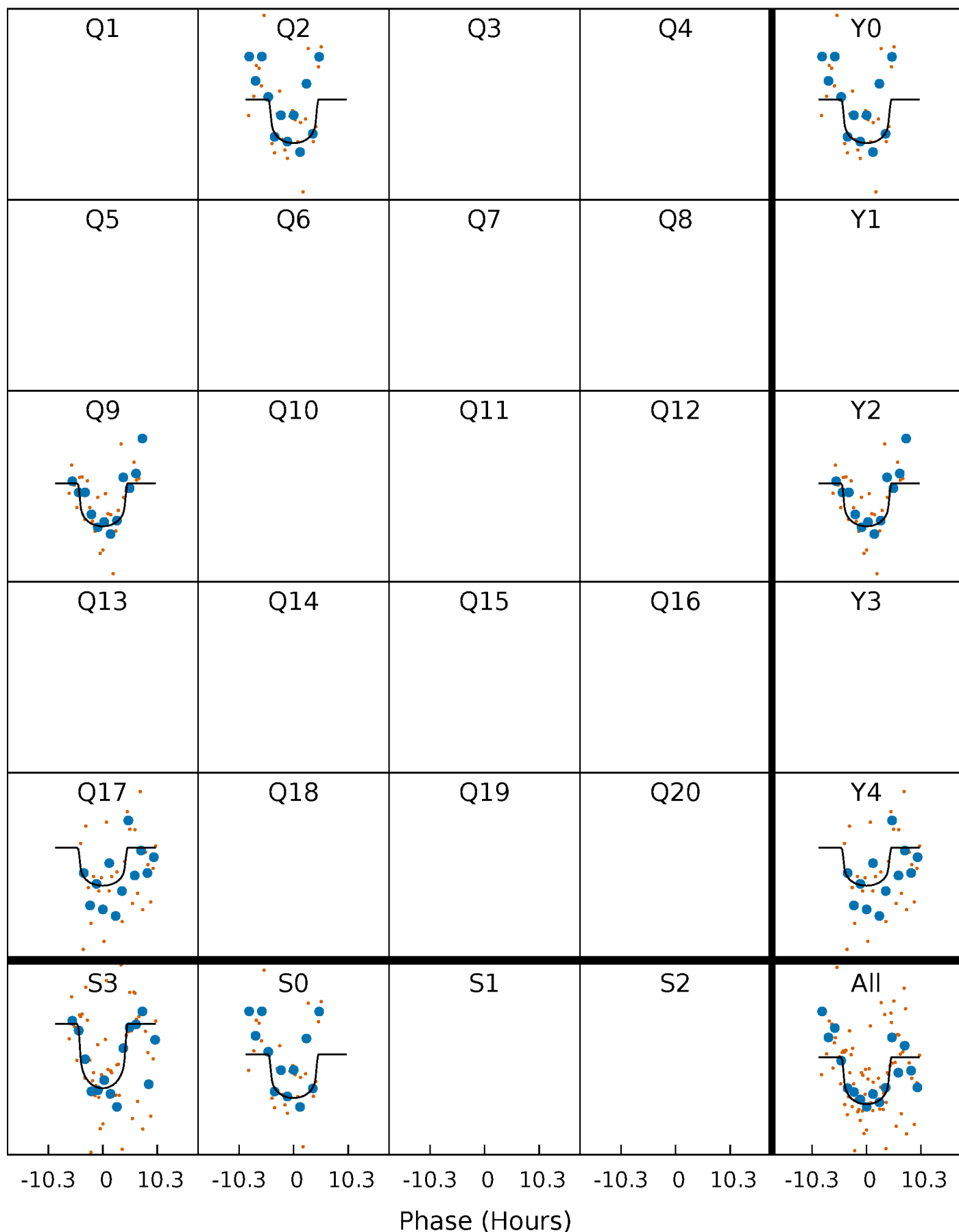
PDC Quarter-Phased Transit Curves

TCE 012315060-02 $P=687.866379$ Days $T_0=195.723222$ (BKJD)



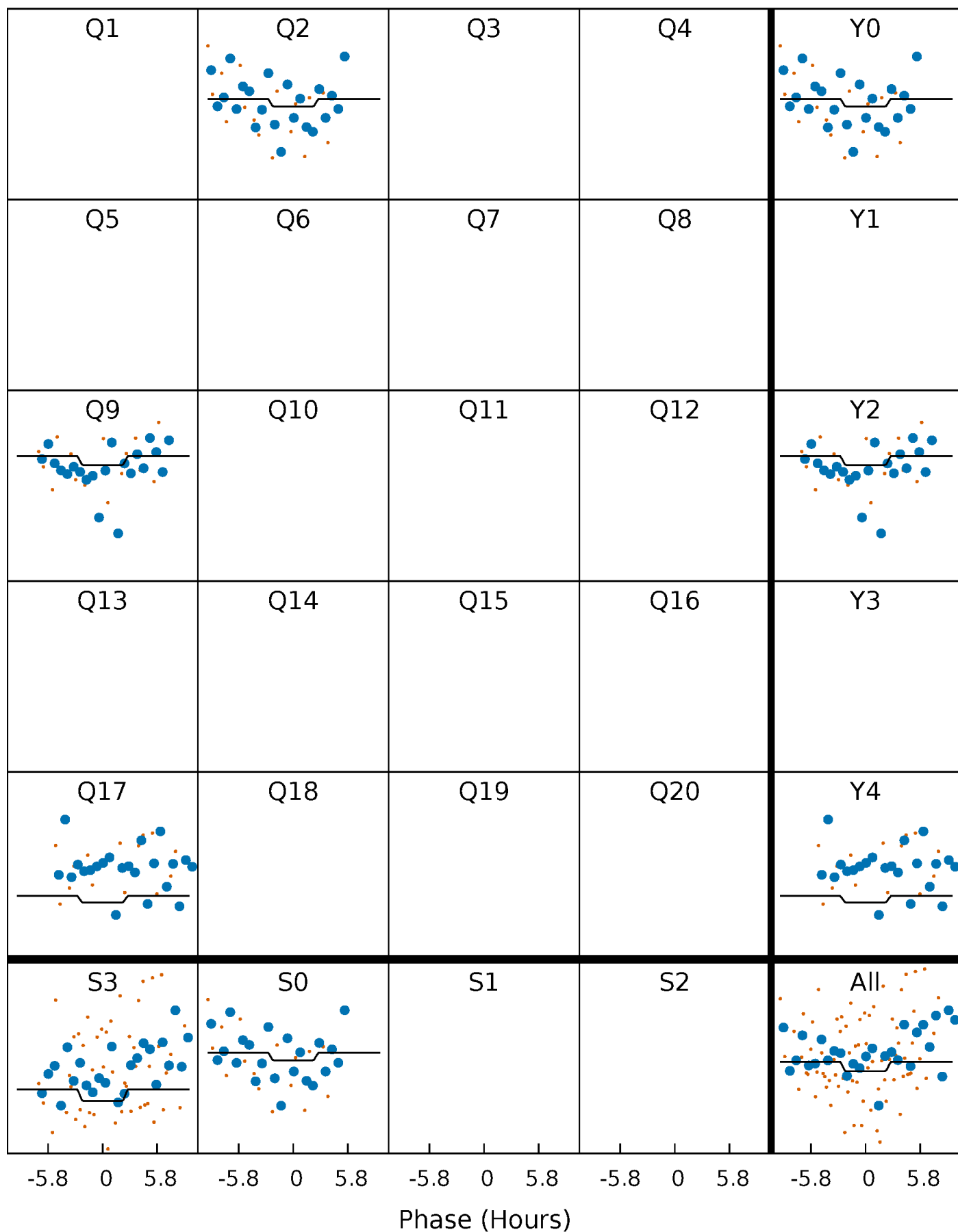
DV Quarter-Phased Transit Curves

TCE 012315060-02 P=687.866379 Days $T_0=195.723222$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

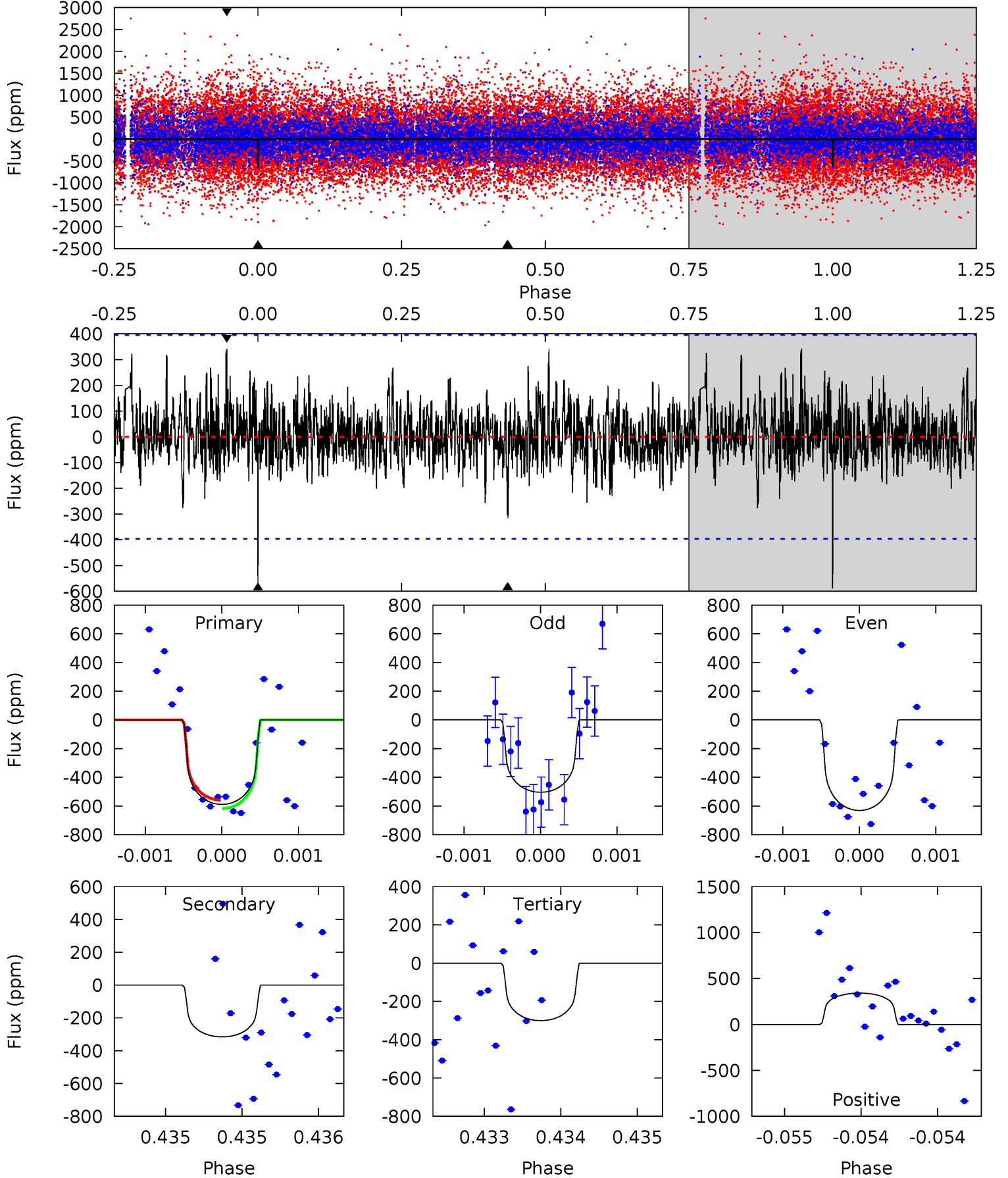
TCE 012315060-02 P=687.882175 Days $T_0=195.726055$ (BKJD)



DV Model-Shift Uniqueness Test

012315060-02, P = 687.866379 Days, E = 195.723222 Days

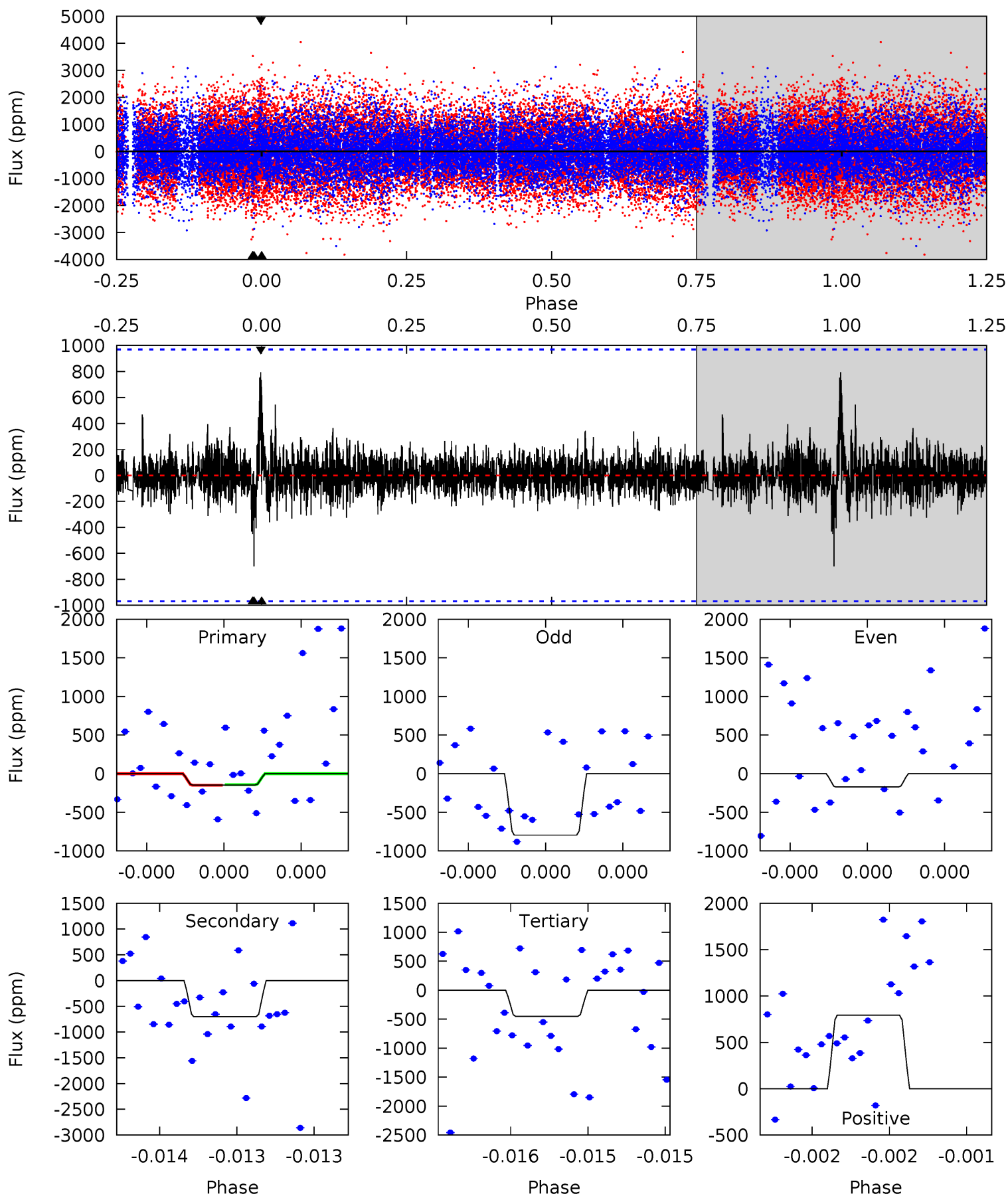
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
8.25	4.42	4.20	4.78	5.55	3.45	1.18	4.05	3.47	0.22	-0.35	0.83	1.17	0.37	0.41



Alt Model-Shift Uniqueness Test

012315060-02, P = 687.882175 Days, E = 195.726055 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
0.86	4.08	2.63	4.63	5.66	3.61	0.65	-1.77	-3.78	1.45	-0.55	1.73	0.19	0.53	0.02



Stellar Parameters For KIC 012315060

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	M (M_{\odot})	p_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	5345^{+160}_{-160}	$4.639^{+0.036}_{-0.090}$	$-0.540^{+0.350}_{-0.300}$	$0.686^{+0.105}_{-0.052}$	$0.747^{+0.079}_{-0.064}$	$3.264^{+0.533}_{-0.911}$
	+3%/-3%	+1%/-2%	+65%/-56%	+15%/-8%	+11%/-9%	+16%/-28%
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 012315060-02 / KOI

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	-316 ± 71	$2.88^{+2.55}_{-1.90}$	234^{+11}_{-8}	3971^{+2246}_{-760}	$40316^{+295337}_{-29341}$
Alt.	-699 ± 171	$2.68^{+2.50}_{-1.80}$	234^{+10}_{-9}	4693^{+3566}_{-1013}	$98996^{+877289}_{-73401}$

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 $A_{obs} \gg 1.0$

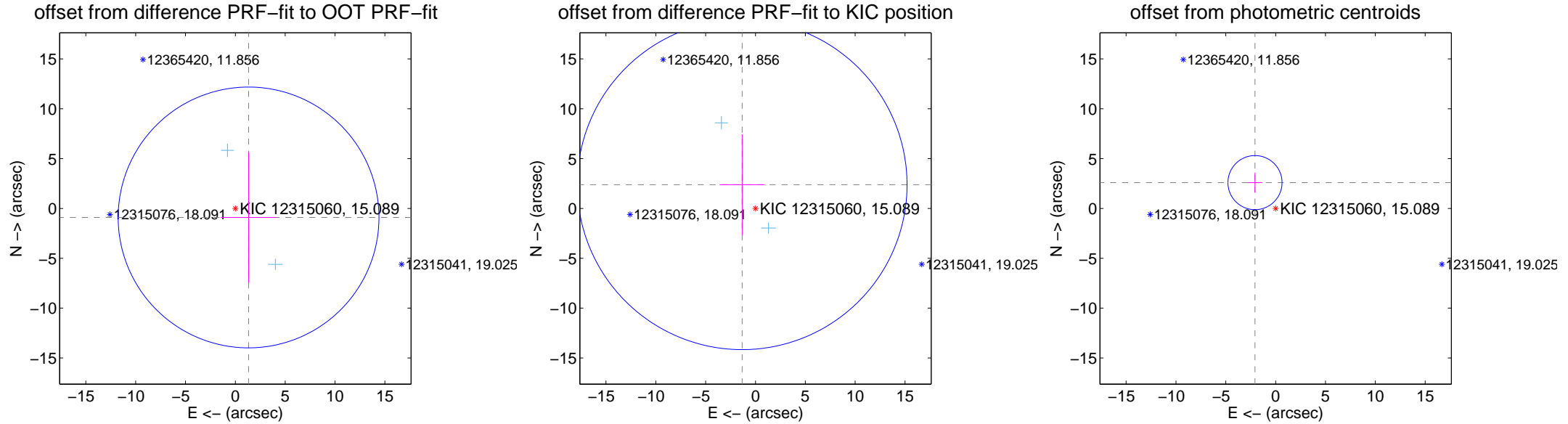
DV Centroid Data

Supplemental centroid analysis for 012315060-02. Kepler magnitude: 15.09. Transit SNR 7.02

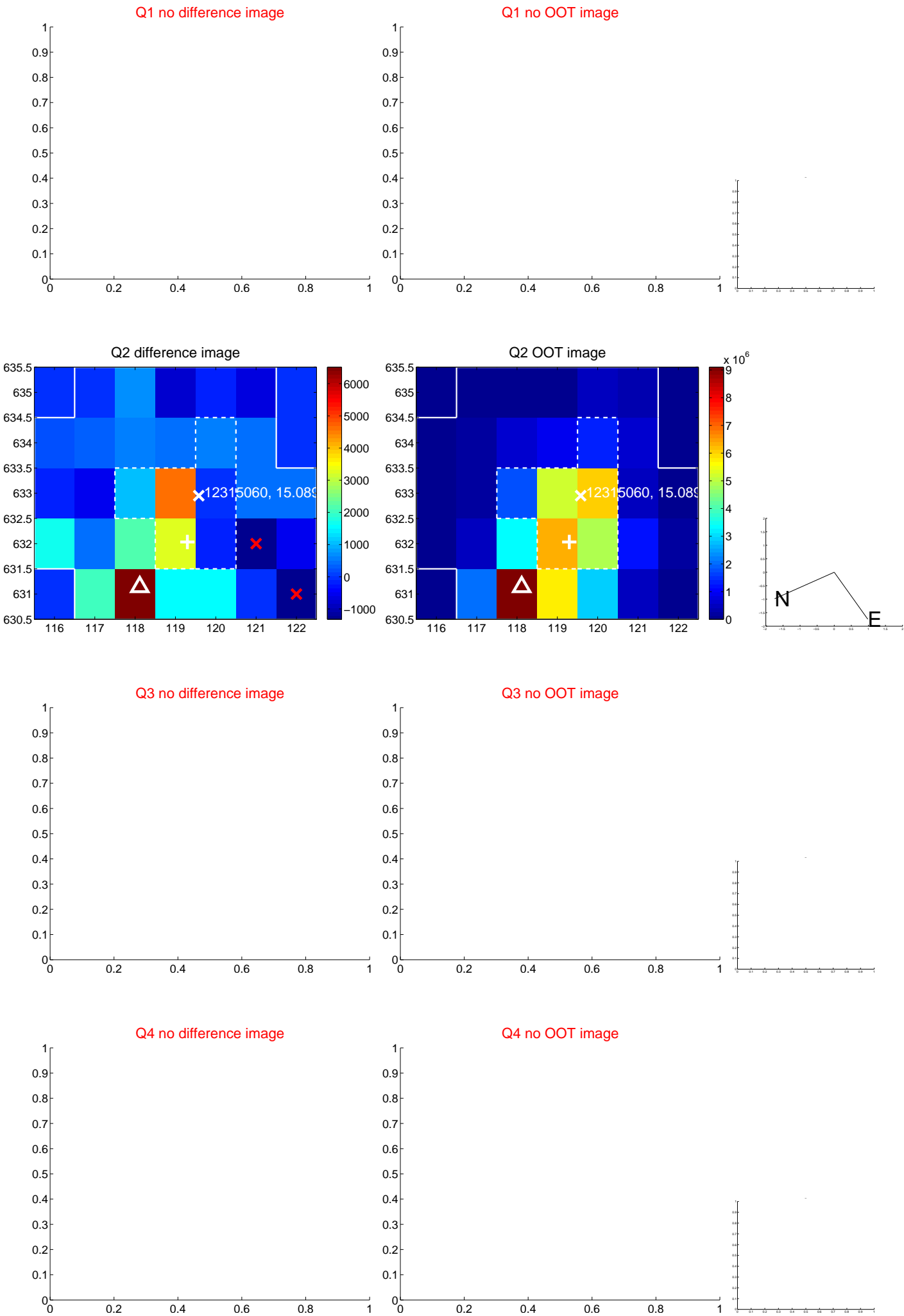
There are 2 quarters with good PRF difference image offsets

The OOT PRF centroid is offset from the target star catalog position by about 4.54 arcsec so the offset from difference PRF-fit to OOT-fit may be invalid.

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	1.606 ± 4.361	0.37	-1.328 ± 2.789	-0.904 ± 6.577
PRF-fit source offset from KIC position	2.730 ± 5.515	0.50	1.338 ± 2.261	2.380 ± 5.056
photometric centroid source offset	3.32 ± 0.90	3.67	2.07 ± 0.73	2.59 ± 1.00



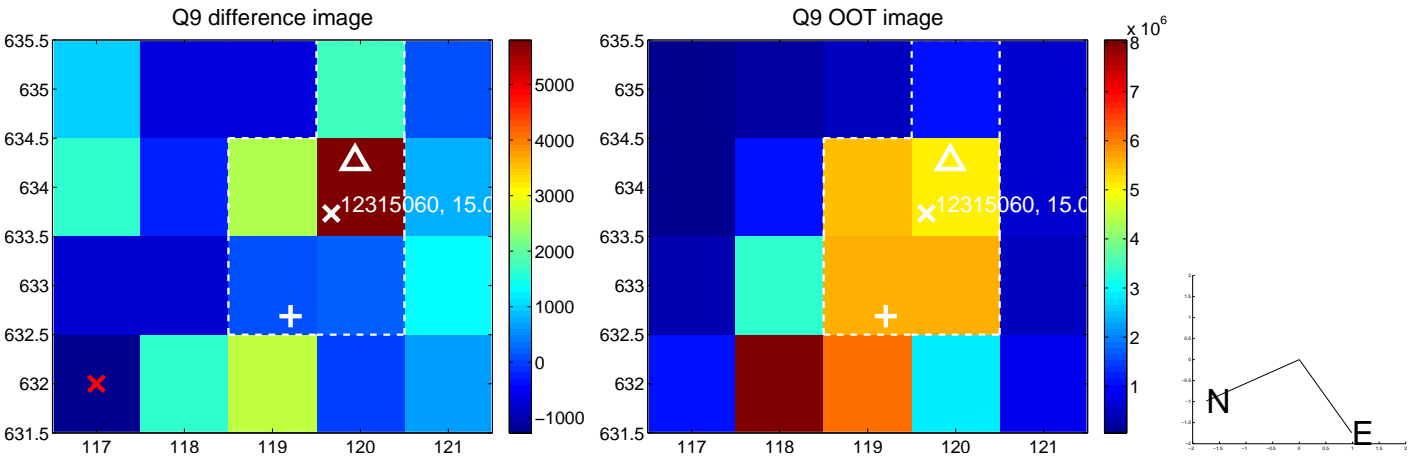
white \times : KIC target position; $+$: OOT centroid; Δ : difference centroid. red \times : large negative pixel value.



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



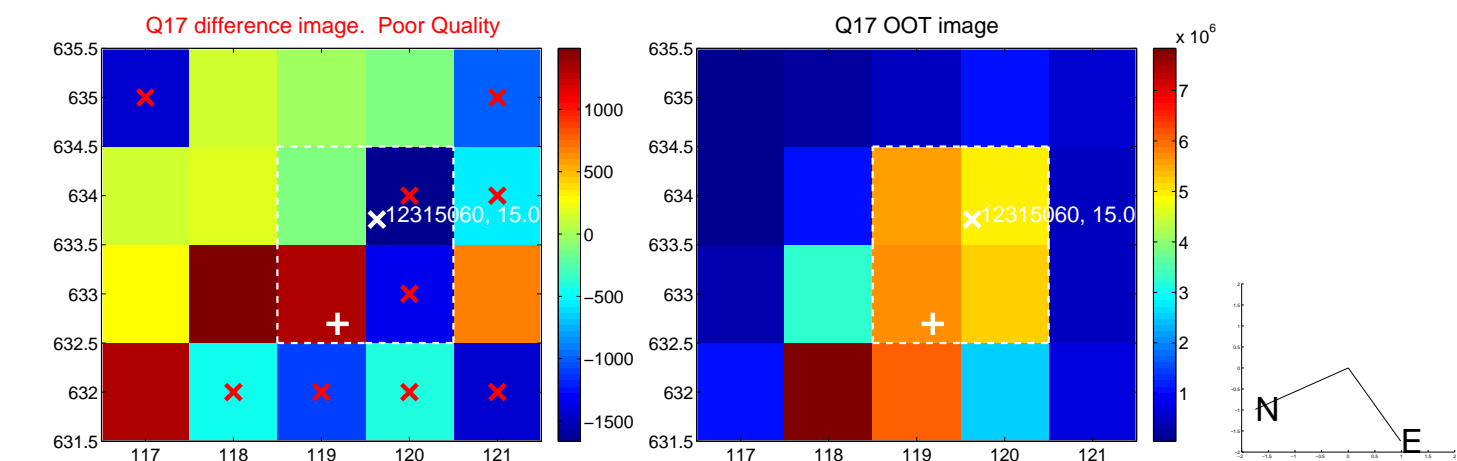
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



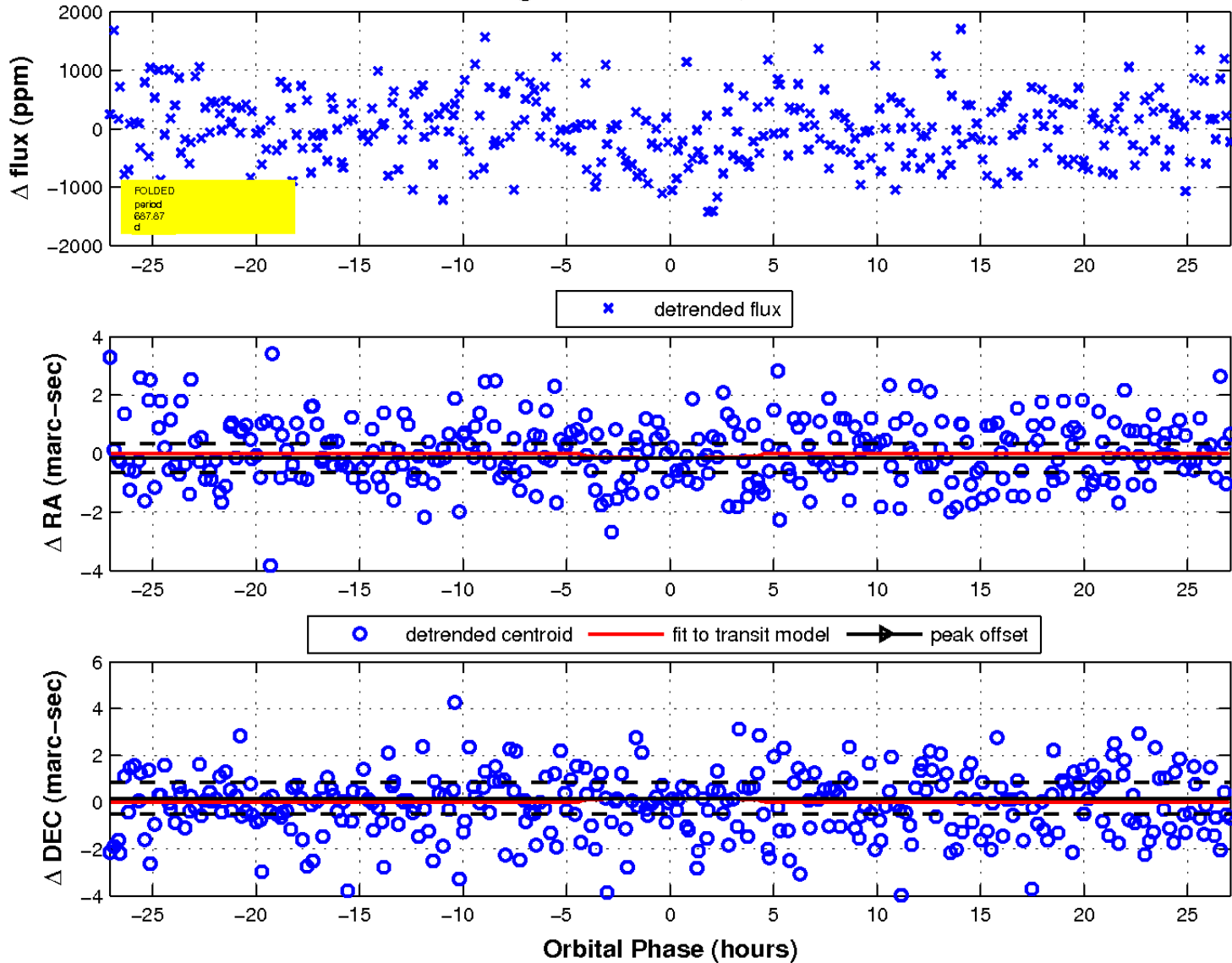
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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



fluxWeightedCentroids, Planet 2 of 2



UKIRT Image

Declination

