

KIC 003216700

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})
003216700-01	OBS	No	4.274986	135.142701	180.0	12.357	7.9	8.0	0.54	3897	0.82	33.65
003216700-02	OBS	No	379.314588	191.701610	1530.9	14.513	12.4	6.9	0.54	3897	2.16	0.09

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
003216700-01	OBS	FP	0.00	1	0	0	0	SWEET_NTL—LPP_DV
003216700-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—INCONSISTENT_TRANS

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

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

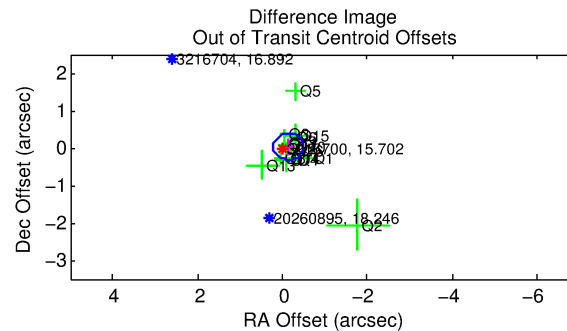
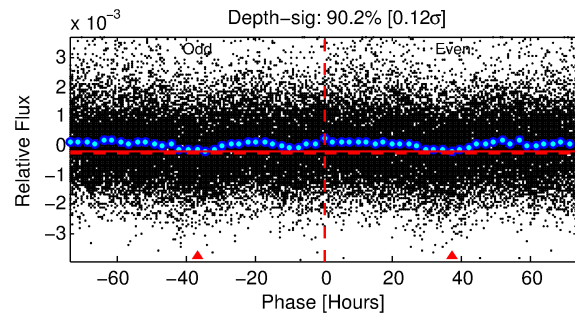
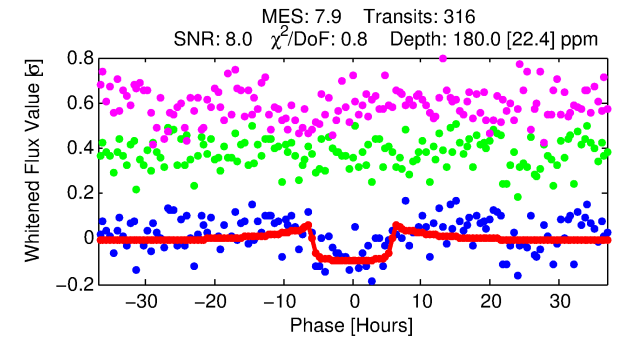
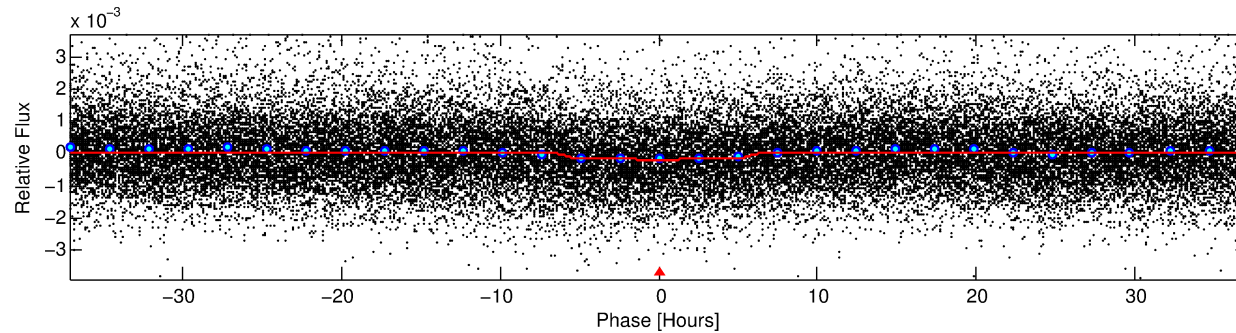
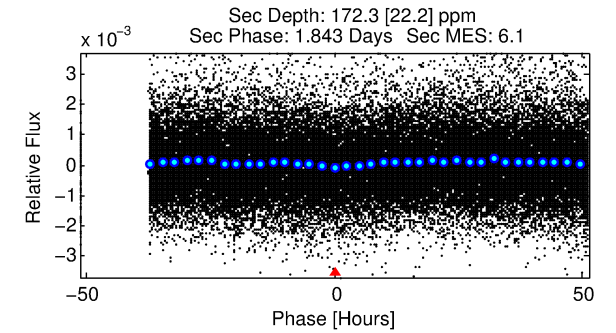
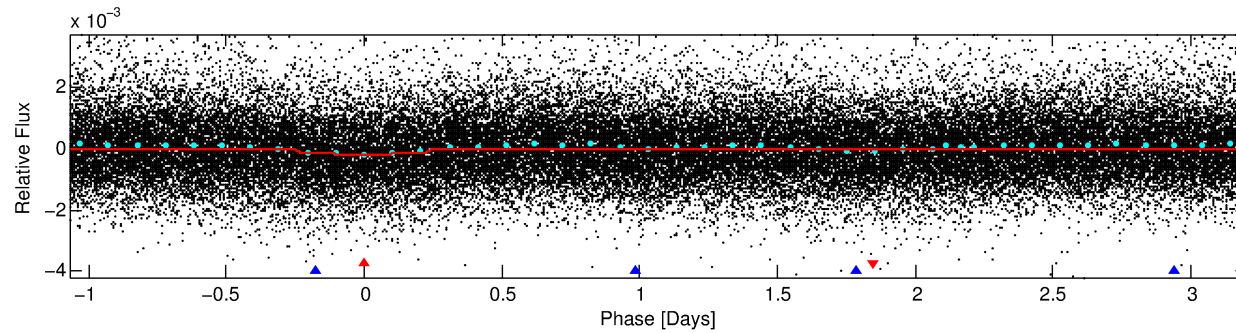
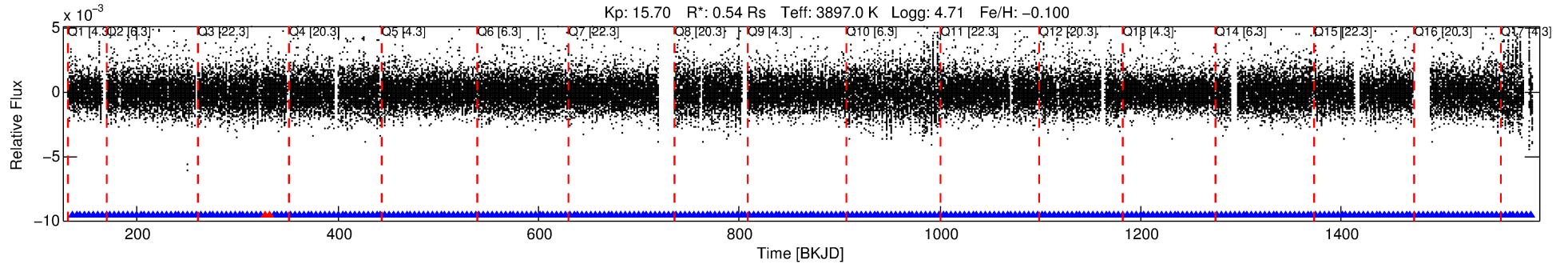
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 003216700-01

No Significant Match Found

DV One-Page Summary

KIC: 3216700 Candidate: 1 of 2 Period: 4.275 d



DV Fit Results:

Period = 4.27499 [0.00007] d
Epoch = 135.1427 [0.0116] BKJD
Rp/R* = 0.0139 [0.0033]
a/R* = 1.77 [1.22]
b = 0.83 [0.37]
Seff = 33.65 [4.03]
Teff = 614 [18] K
Rp = 0.82 [0.20] Re
a = 0.0422 [0.0021] AU
Ag = 253.00 [125.79] [2.00σ]
Teffp = 3787 [476] K [6.66σ]

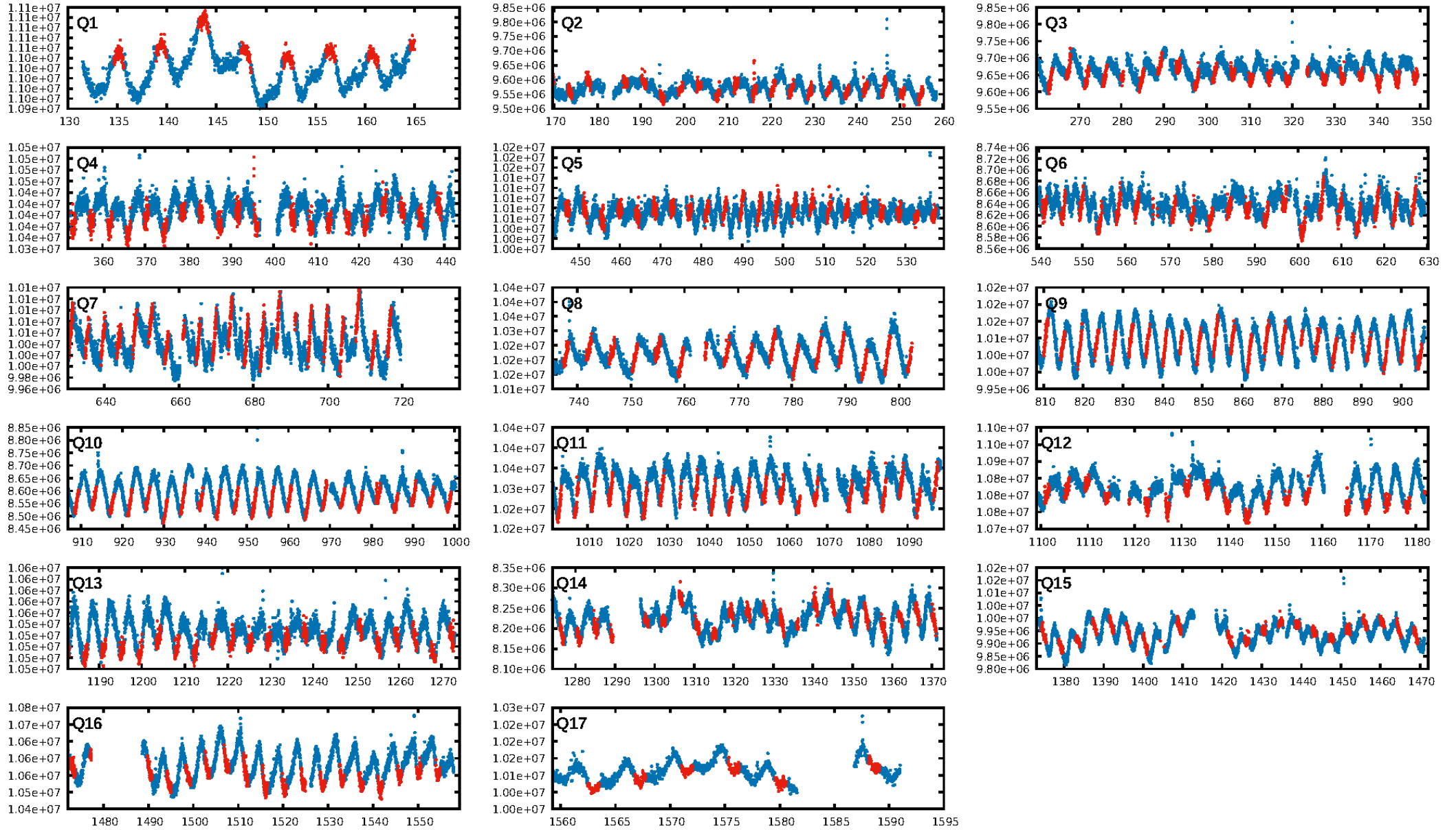
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: 100.0% [472.22σ]
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: 1.95e-10
RollingBand-fgt: 0.99 [300/302]
GhostDiagnostic-chr: 2.33
Centroid-sig: 5.1%
Centroid-so: 1.636 arcsec [2.10σ]
OotOffset-rm: 0.143 arcsec [1.22σ]
KicOffset-rm: 0.035 arcsec [0.17σ]
OotOffset-st: 4/4/4/4 [16]
KicOffset-st: 4/4/4/4 [16]
DiffImageQuality-fgm: 0.62 [10/16]
DiffImageOverlap-fno: 1.00 [17/17]

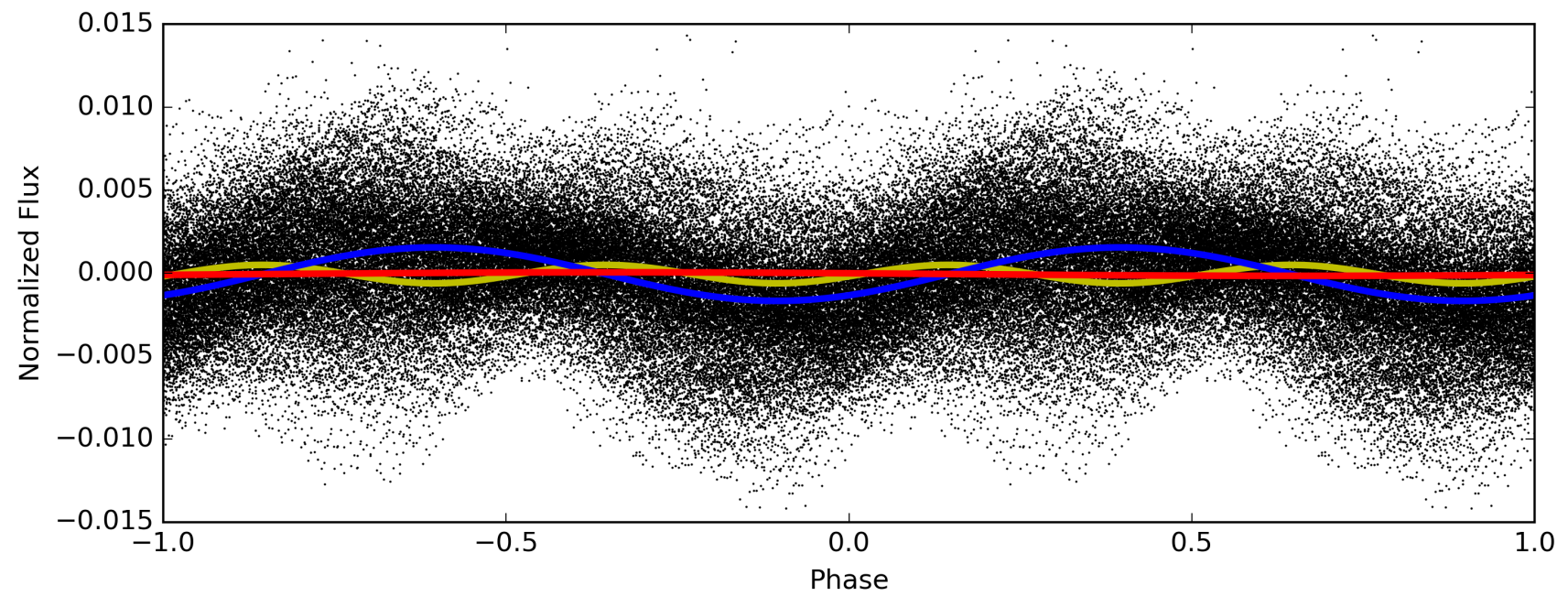
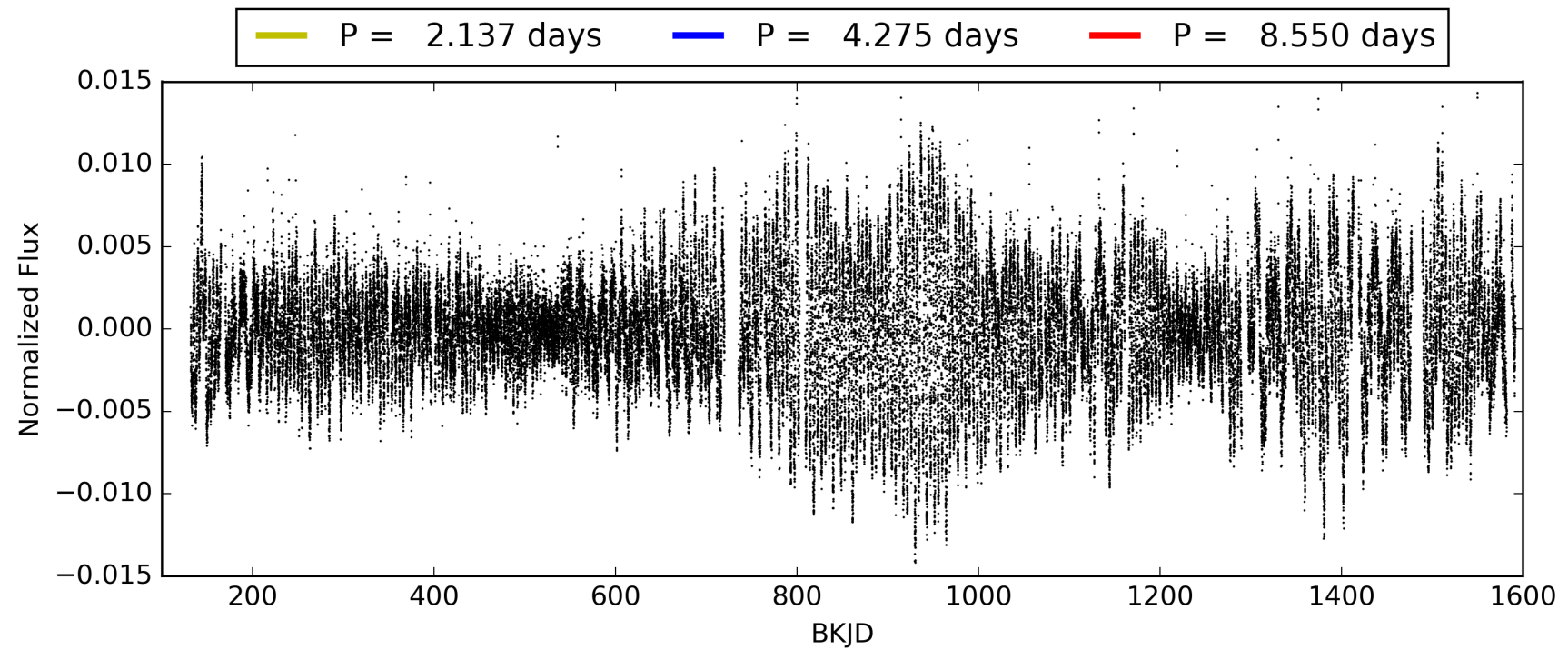
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 01-Feb-2016 01:47:40 Z

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

TCE 003216700-01, PDC Light Curves

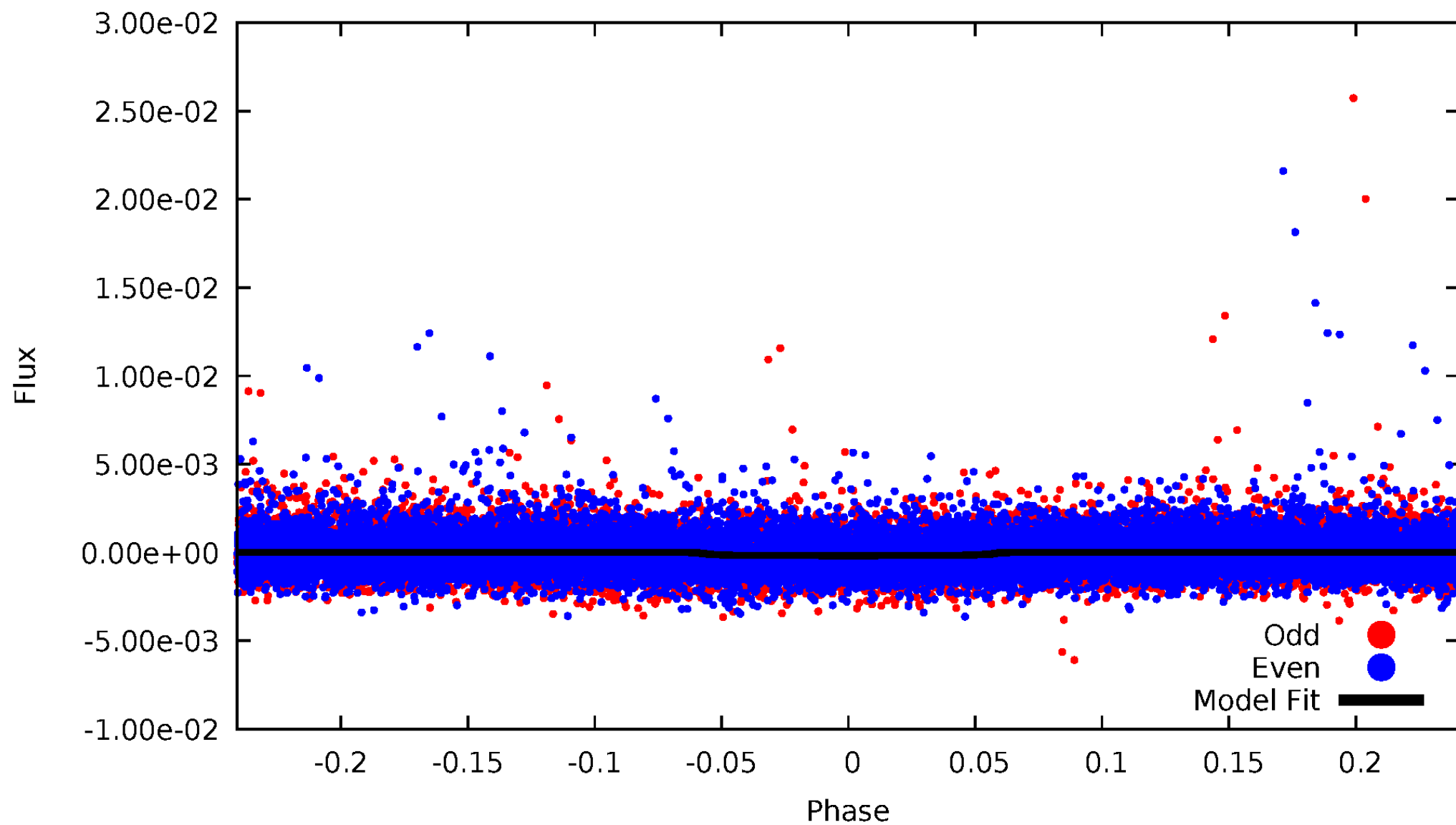


TCE 003216700-01



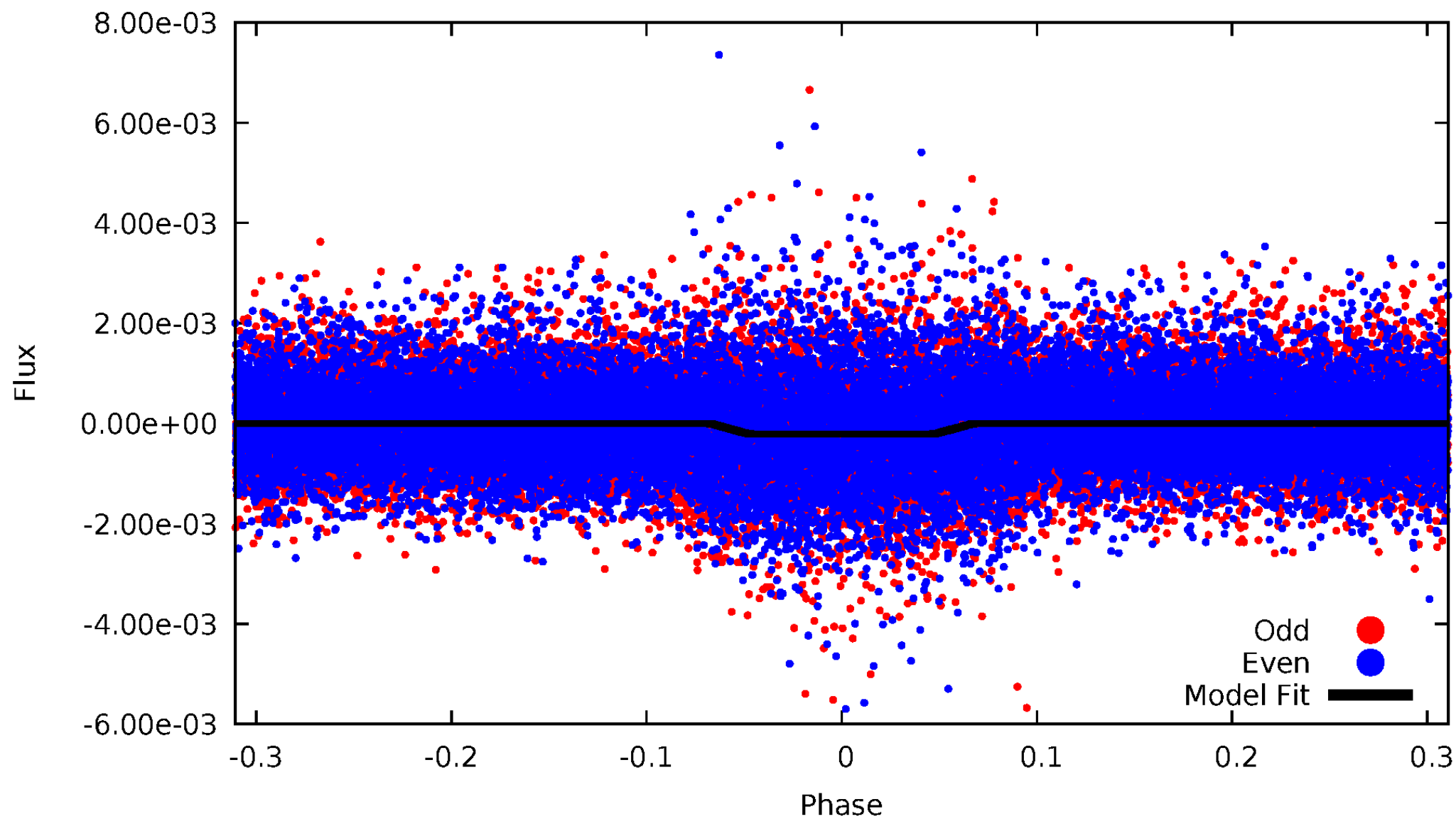
DV Odd/Even

TCE 003216700-01

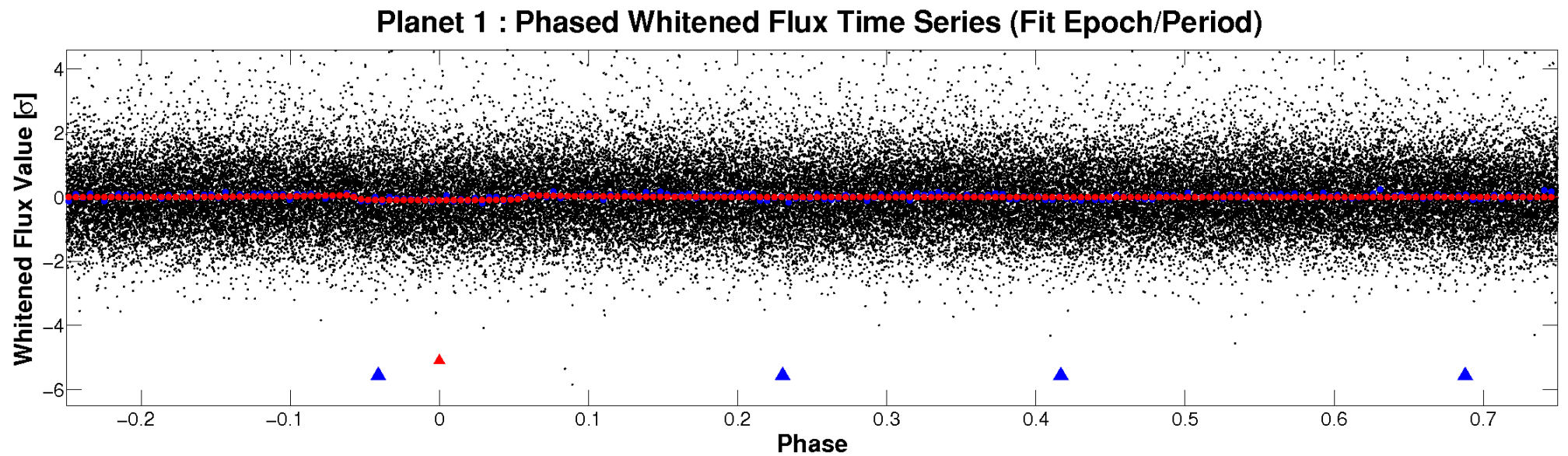
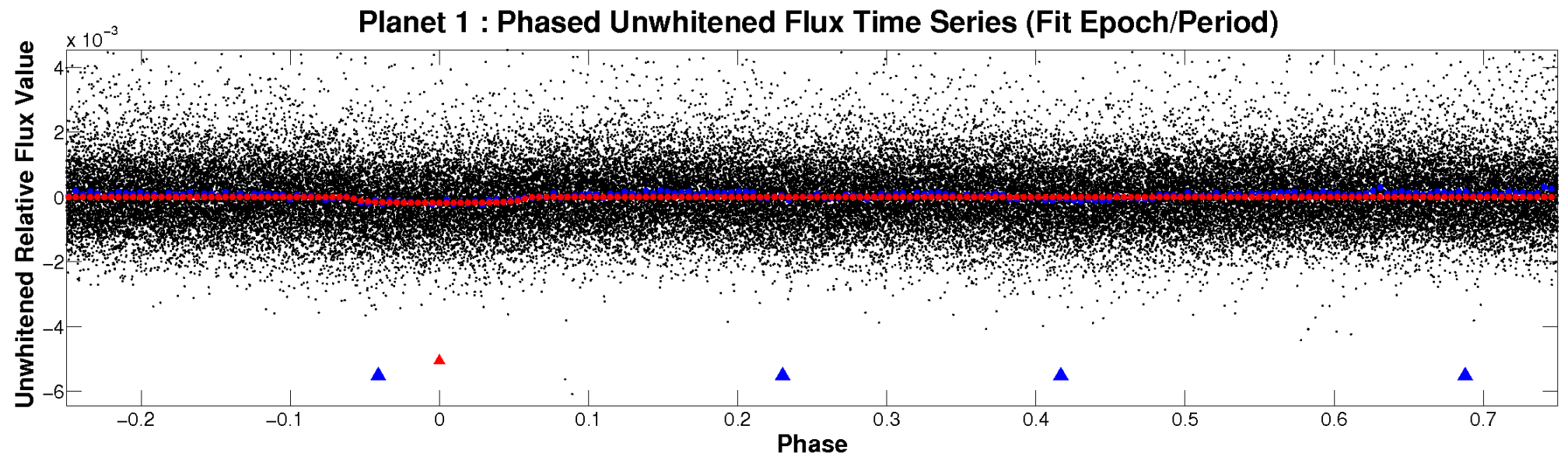


ALT Odd/Even

TCE 003216700-01

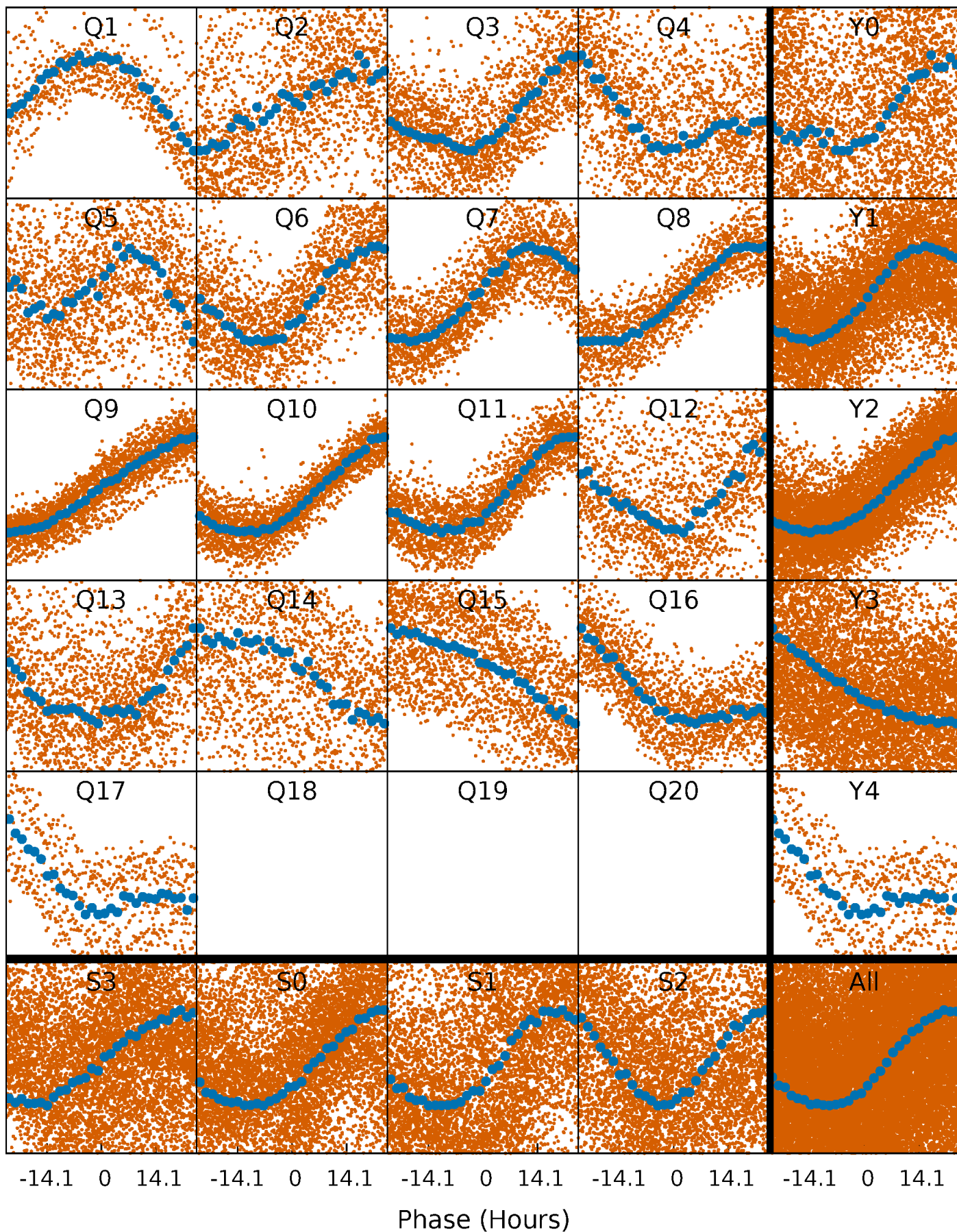


Non-Whitened Vs. Whitened Light Curve



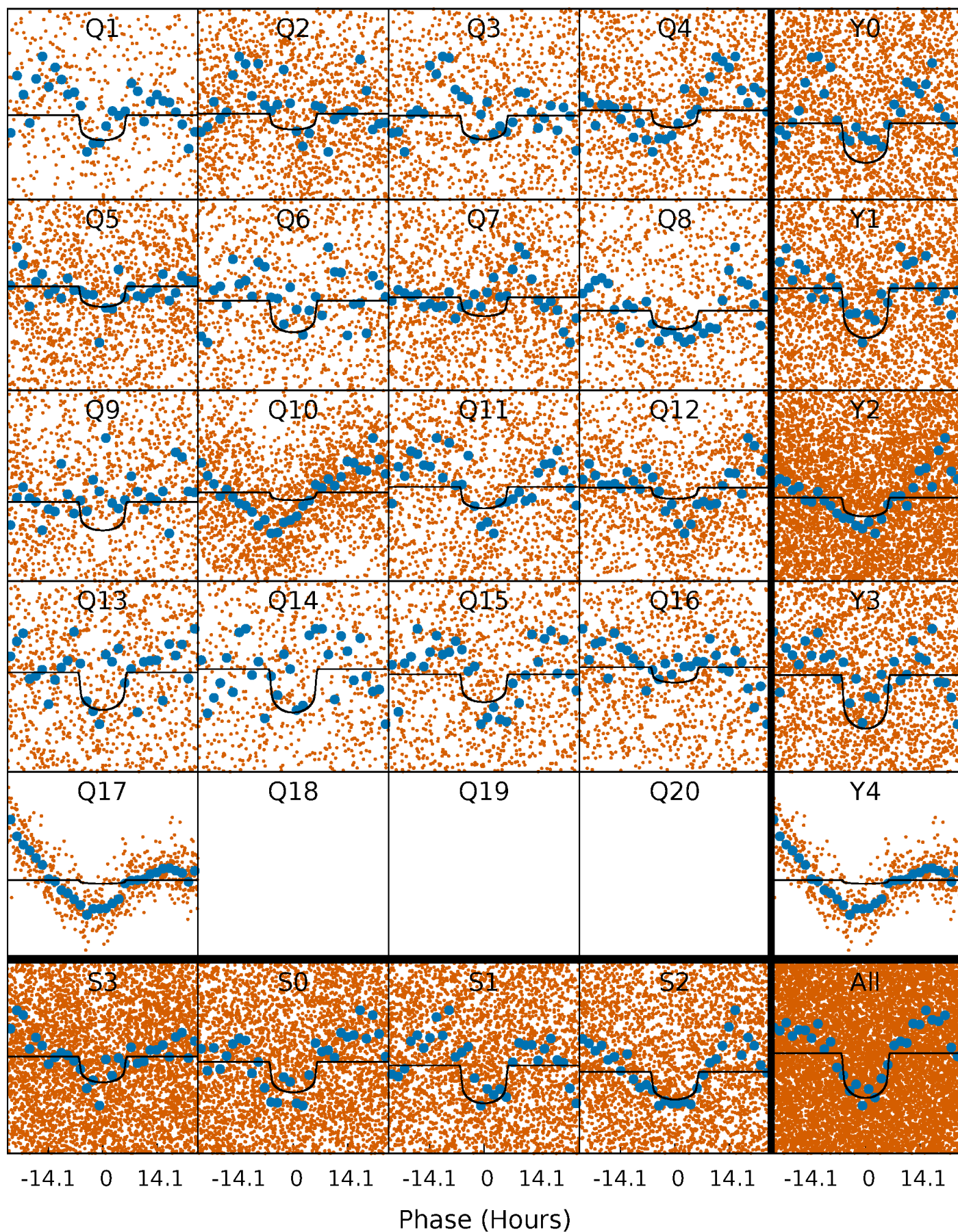
PDC Quarter-Phased Transit Curves

TCE 003216700-01 P= 4.274986 Days $T_0=135.142701$ (BKJD)



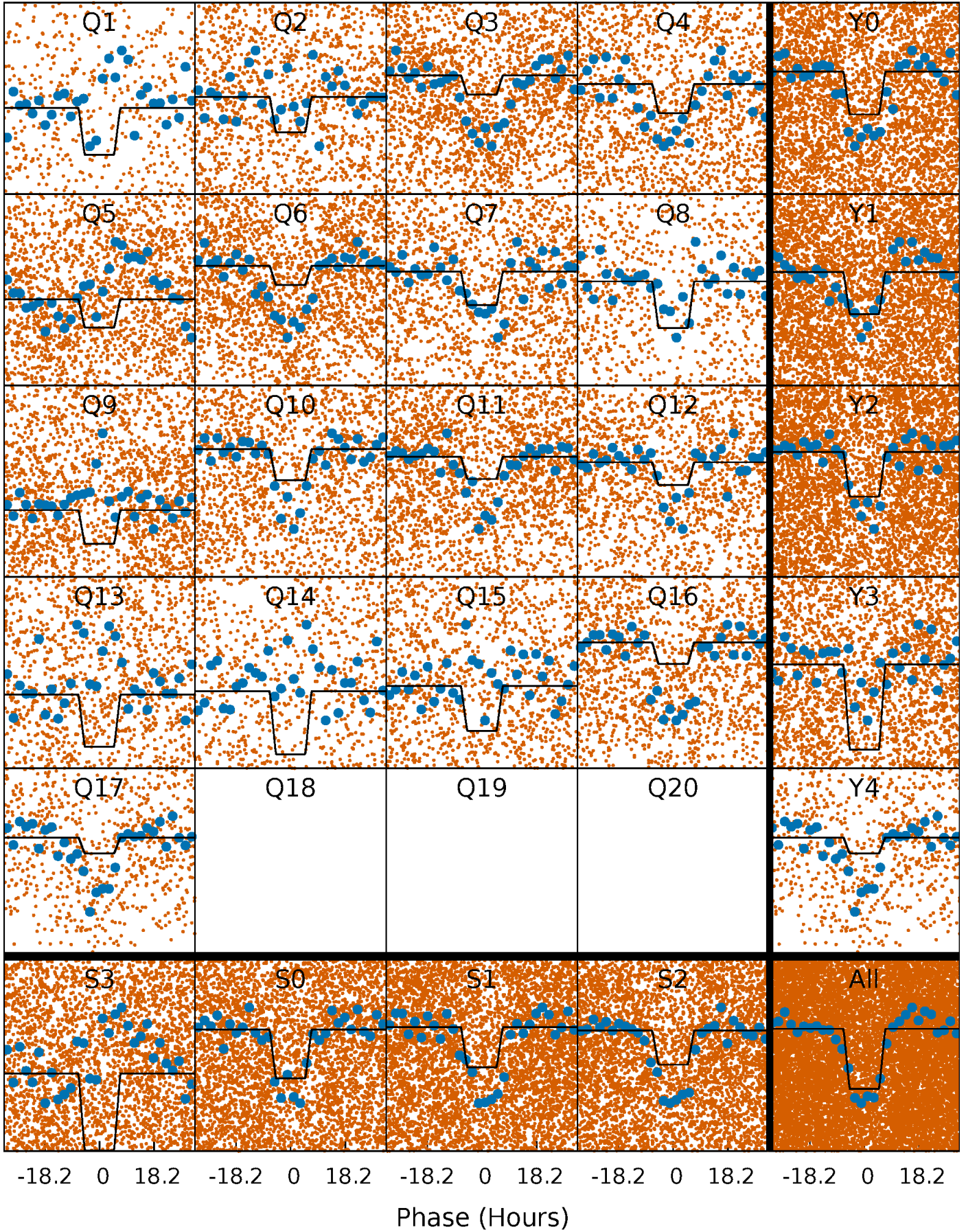
DV Quarter-Phased Transit Curves

TCE 003216700-01 P= 4.274986 Days $T_0=135.142701$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

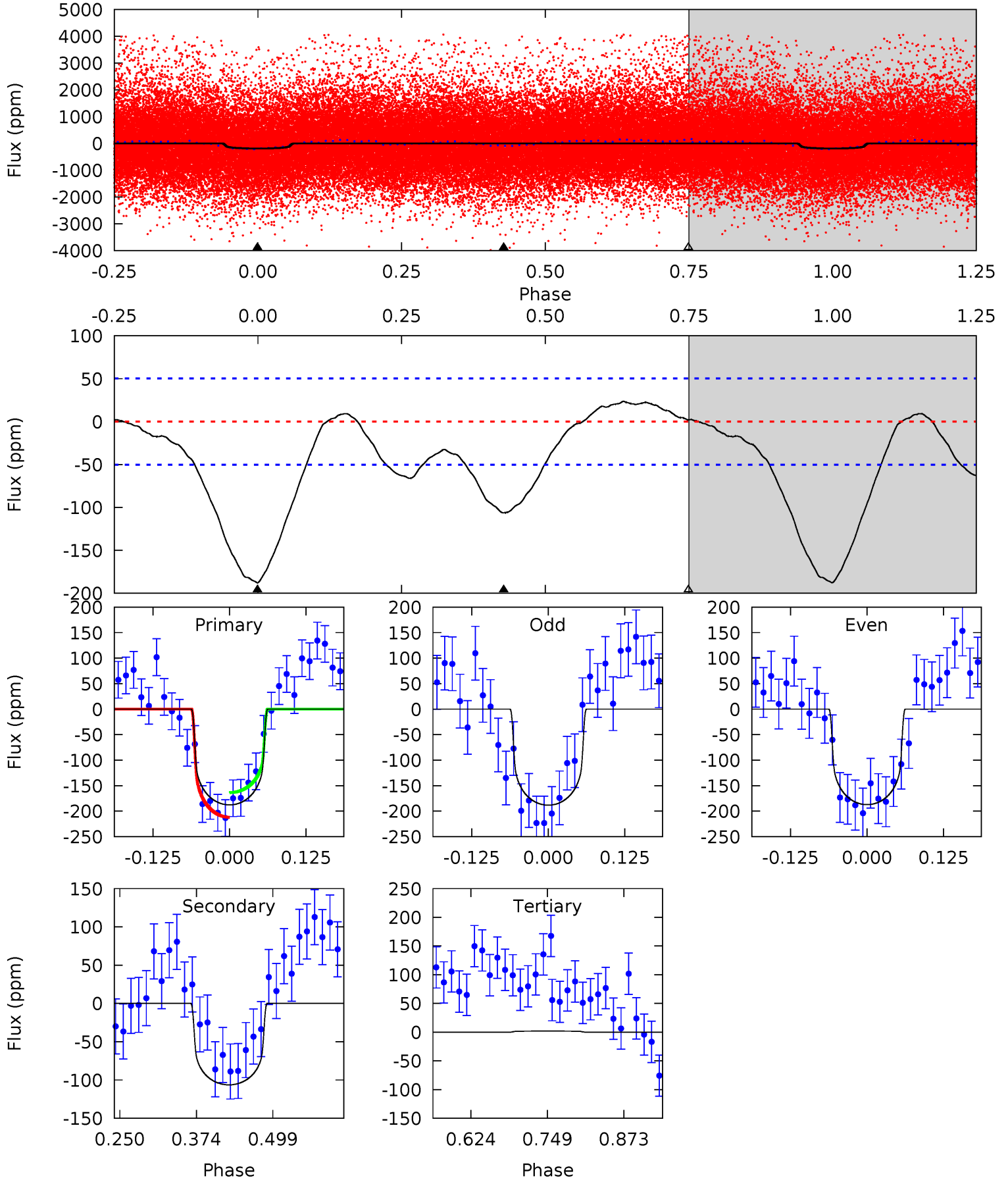
TCE 003216700-01 P= 4.274924 Days $T_0=135.120123$ (BKJD)



DV Model-Shift Uniqueness Test

003216700-01, P = 4.274986 Days, E = 130.867715 Days

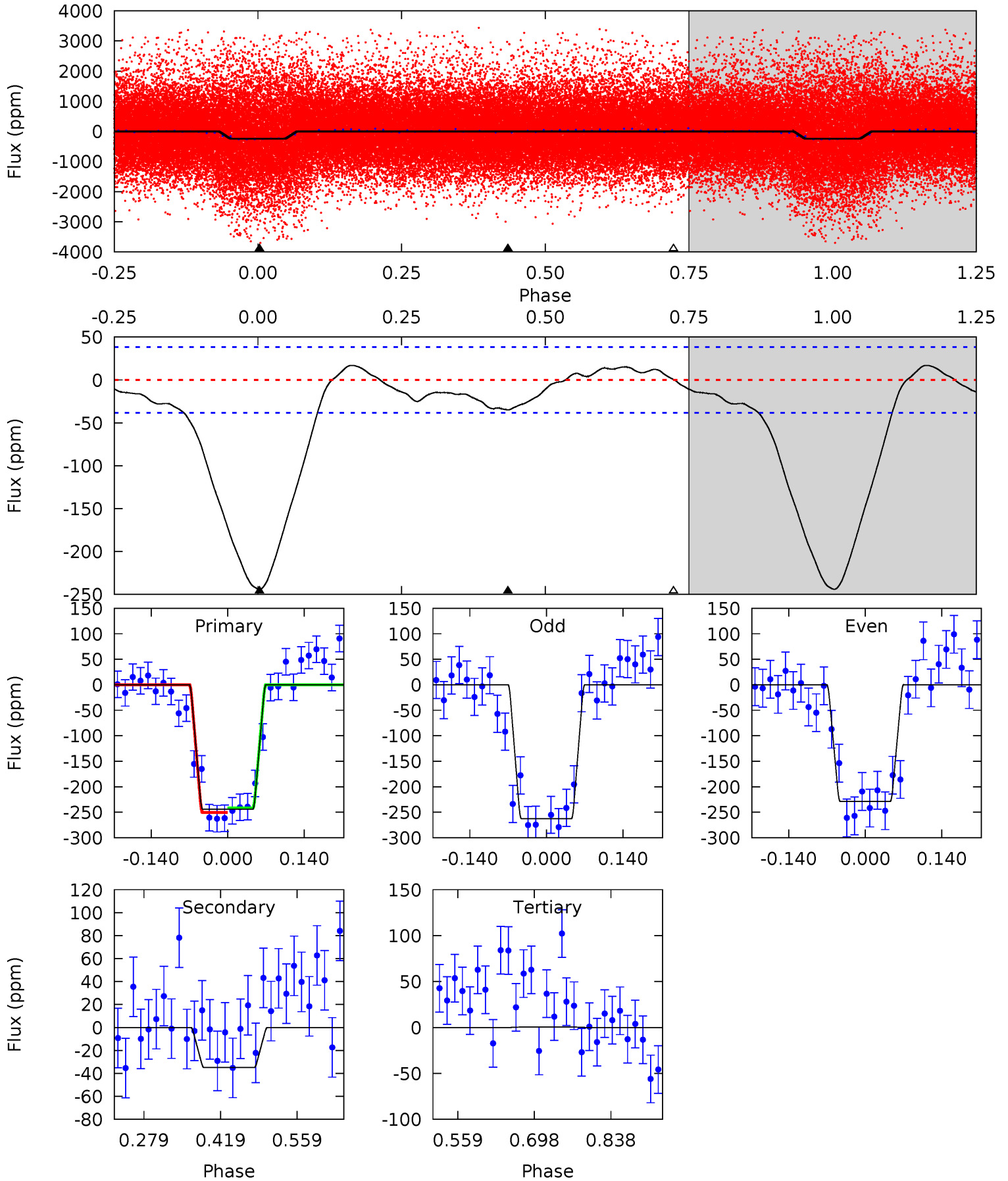
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
16.9	9.56	-0.17	0	4.52	1.54	2.39	17.0	16.9	9.73	9.56	0.05	0.92	0.11	2.17



Alt Model-Shift Uniqueness Test

003216700-01, P = 4.274924 Days, E = 130.845199 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
28.6	4.10	-0.06	0	4.49	1.48	1.80	28.7	28.6	4.15	4.10	1.99	1.60	0.07	0.51



Stellar Parameters For KIC 003216700

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	3897^{+97}_{-97}	$4.715^{+0.033}_{-0.024}$	$-0.100^{+0.100}_{-0.100}$	$0.539^{+0.029}_{-0.035}$	$0.550^{+0.030}_{-0.034}$	$4.945^{+0.741}_{-0.534}$
	+2%/-2%	+1%/-1%	+100%/-100%	+5%/-6%	+5%/-6%	+15%/-11%
Source	PHO2	PHO2	PHO2	DSEP		

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

Secondary Eclipse Parameters for KIC 003216700-01 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-106 ± 11	$0.81^{+0.20}_{-0.20}$	857^{+24}_{-24}	3536^{+370}_{-247}	158^{+125}_{-55}
Alt.	-35 ± 9	$0.84^{+0.20}_{-0.20}$	857^{+23}_{-23}	2967^{+257}_{-221}	49^{+37}_{-21}

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

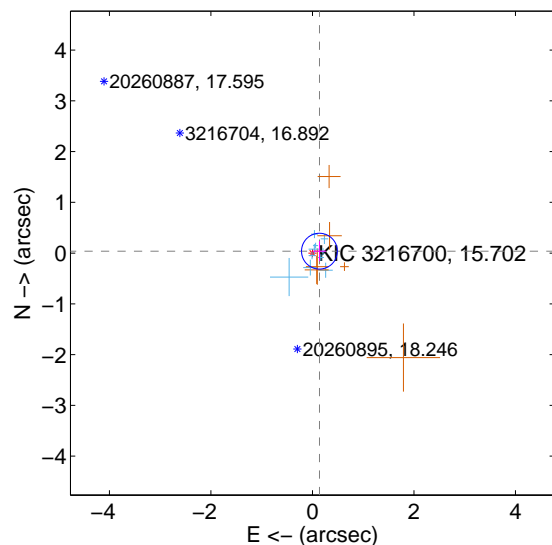
Supplemental centroid analysis for 003216700-01. Kepler magnitude: 15.70. Transit SNR 8.01

There are 10 quarters with good PRF difference image offsets

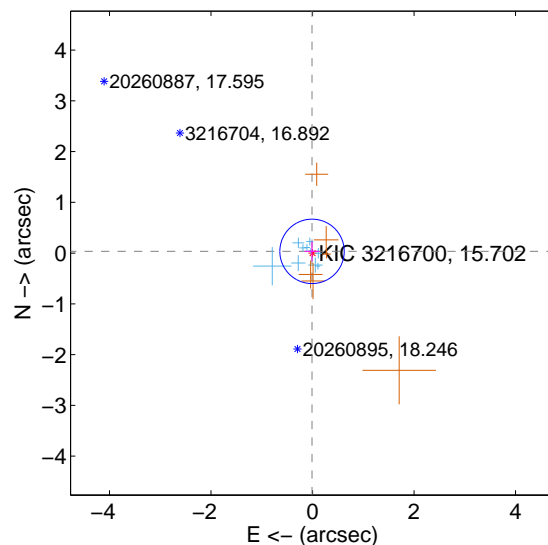
The direct PRF centroid is offset from the target star catalog position by about 0.34 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.143 ± 0.118	1.22	-0.138 ± 0.131	0.038 ± 0.196
PRF-fit source offset from KIC position	0.035 ± 0.211	0.17	0.010 ± 0.149	0.034 ± 0.195
photometric centroid source offset	1.64 ± 0.78	2.10	-0.36 ± 0.75	-1.60 ± 0.78

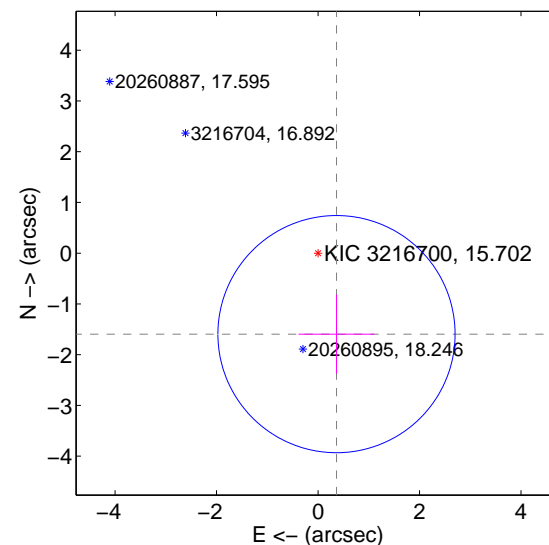
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position

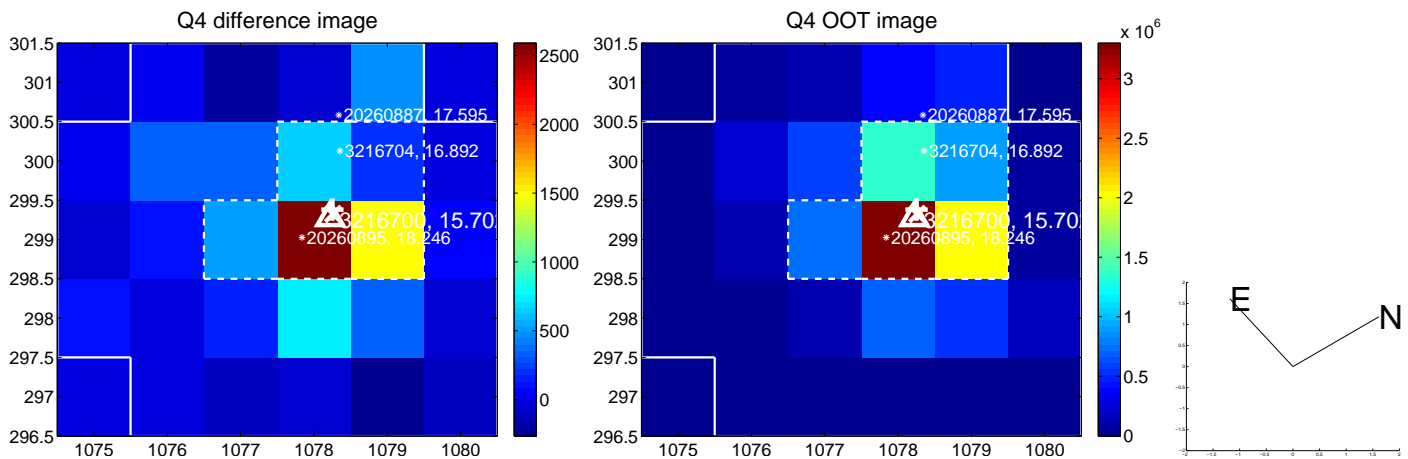
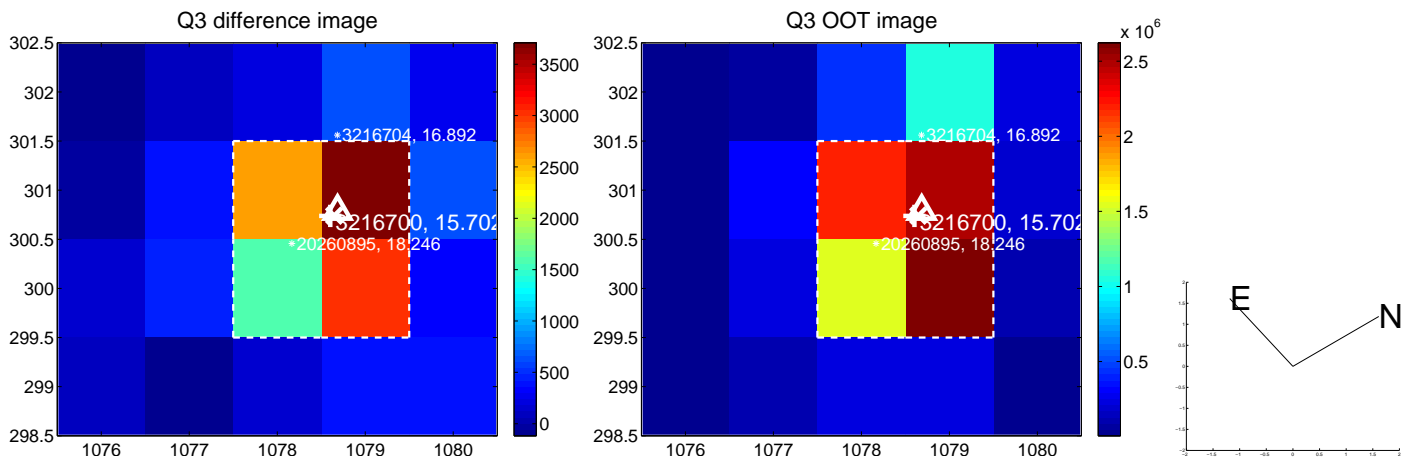
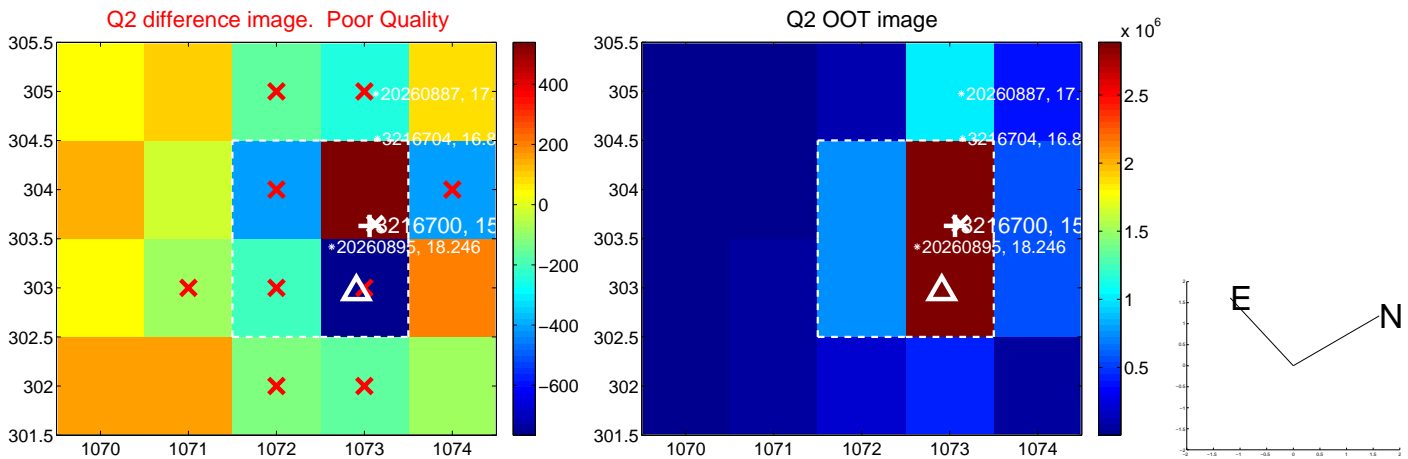
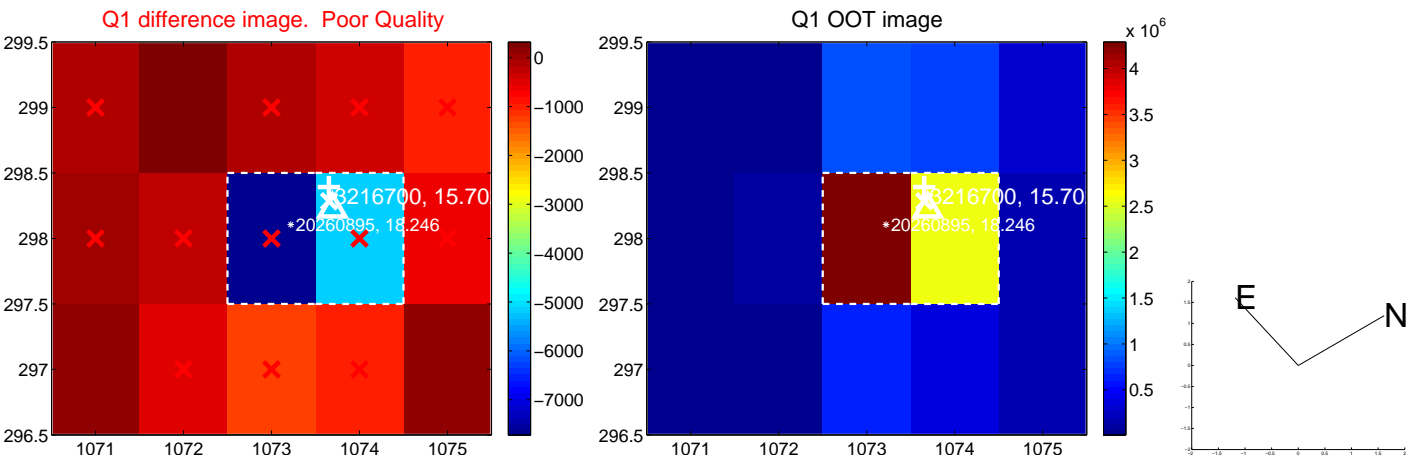


offset from photometric centroids

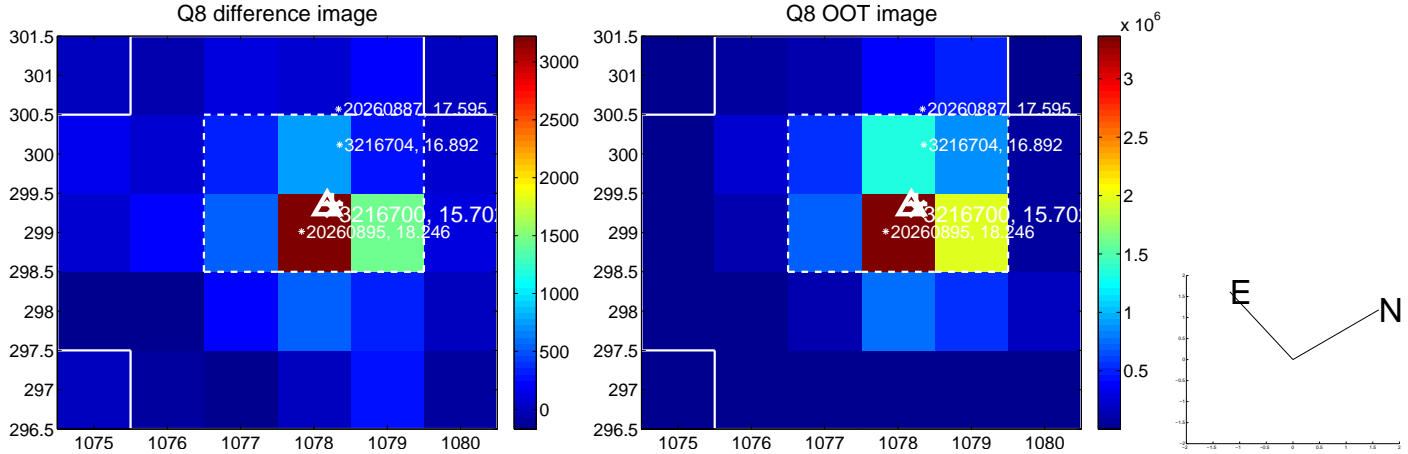
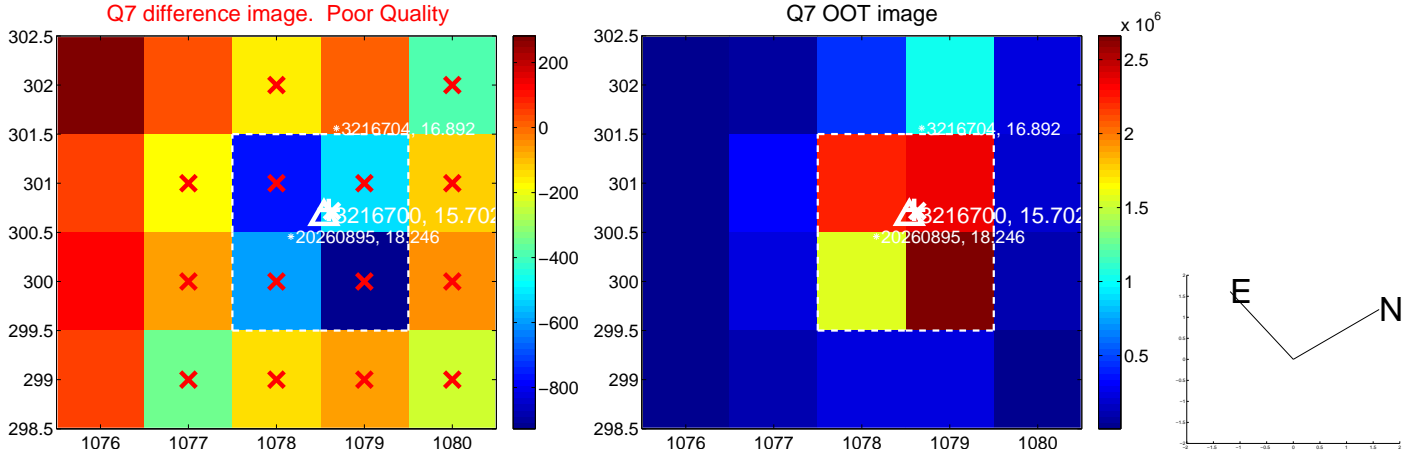
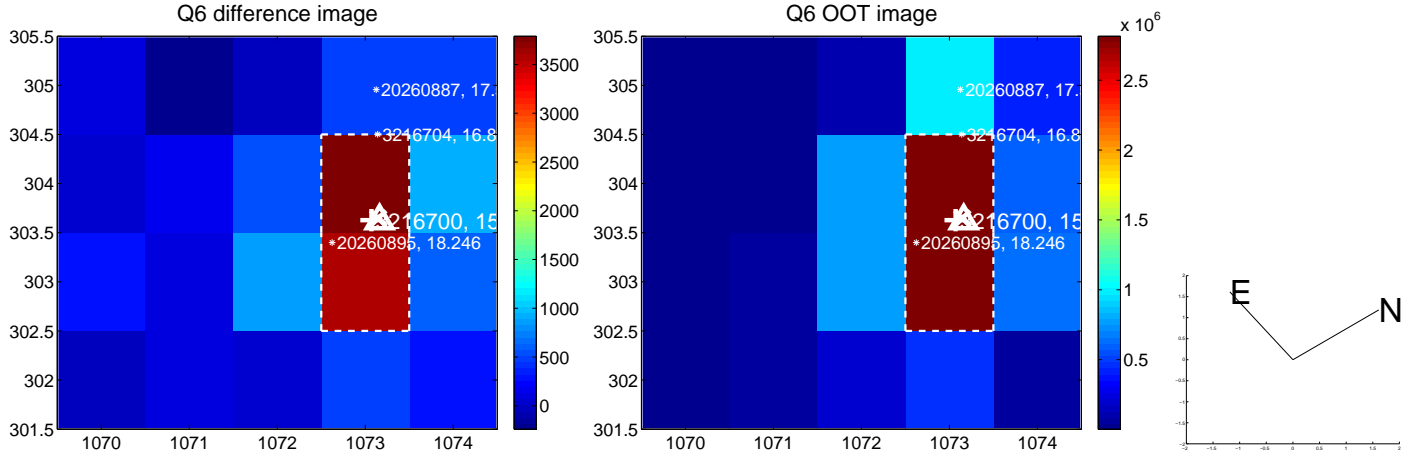
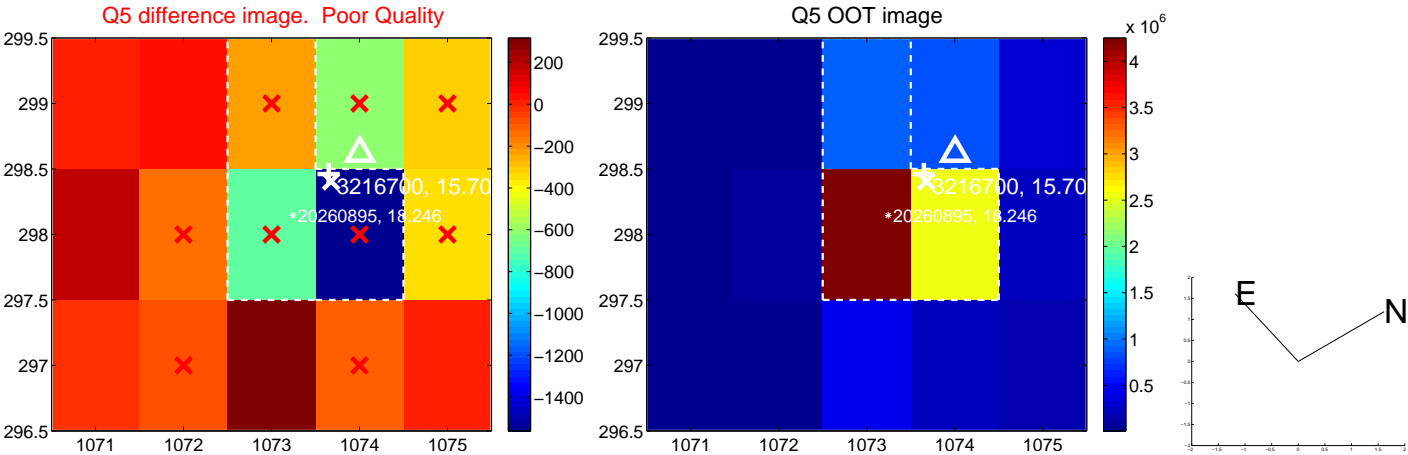


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

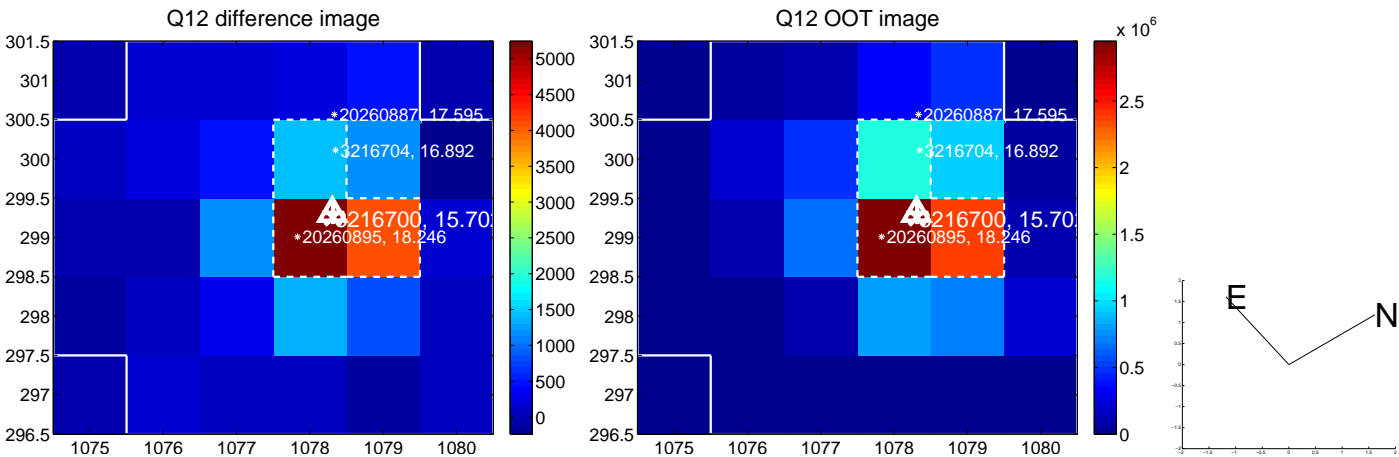
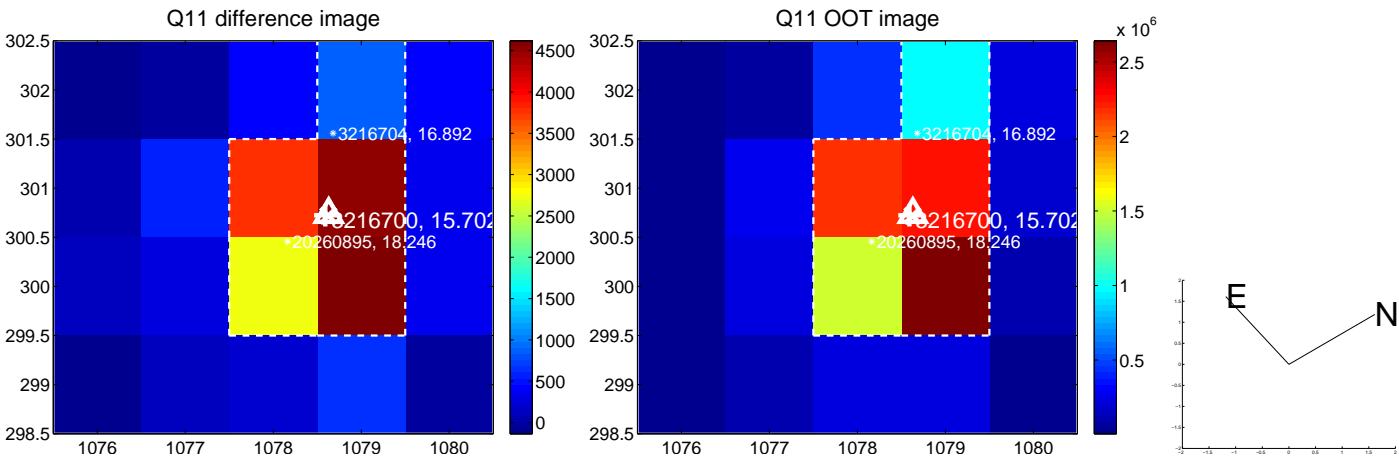
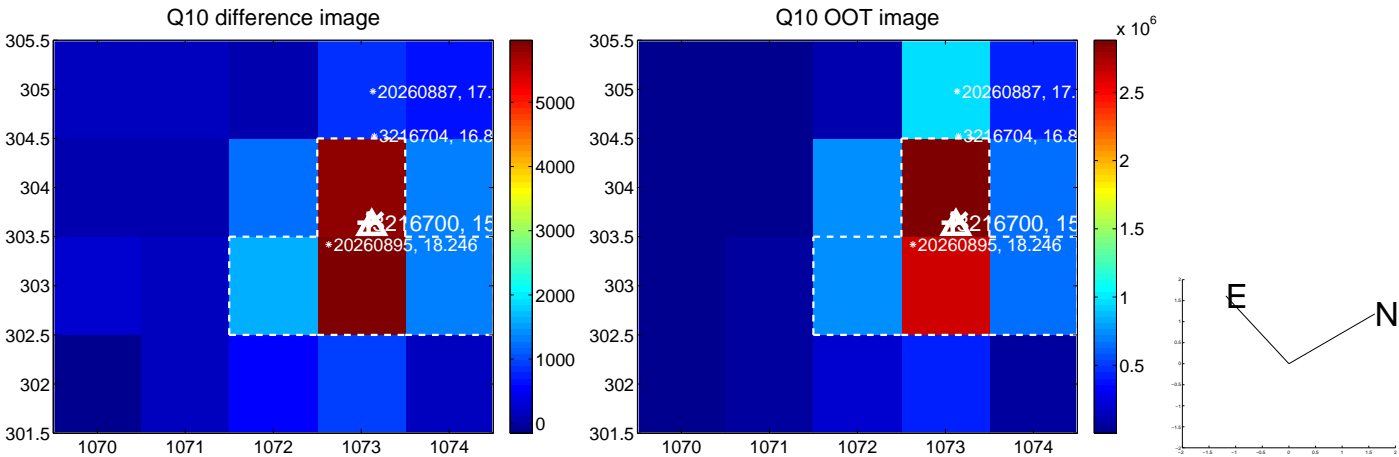
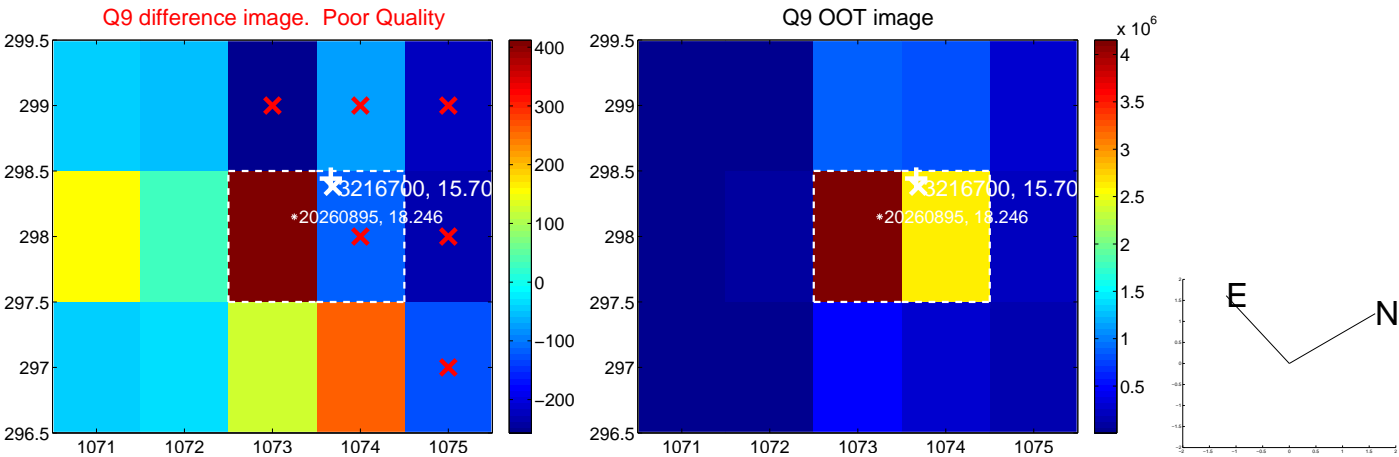
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



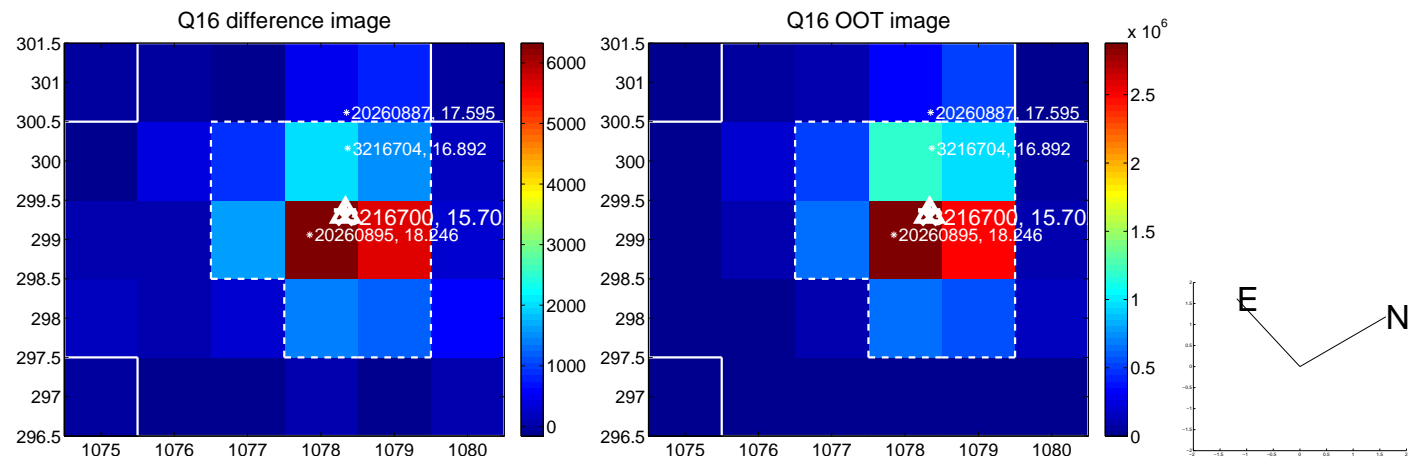
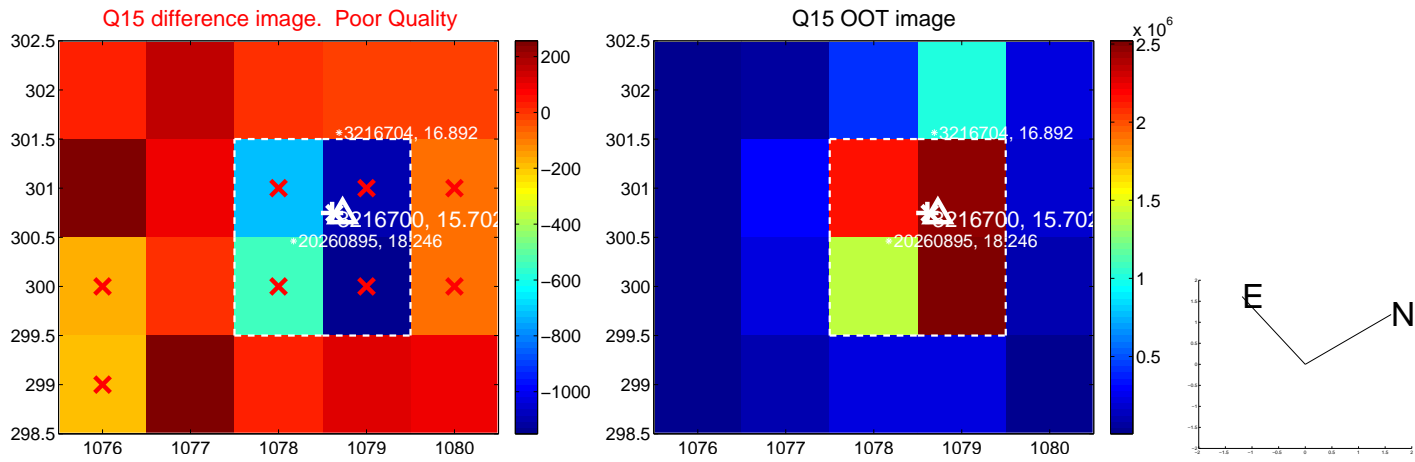
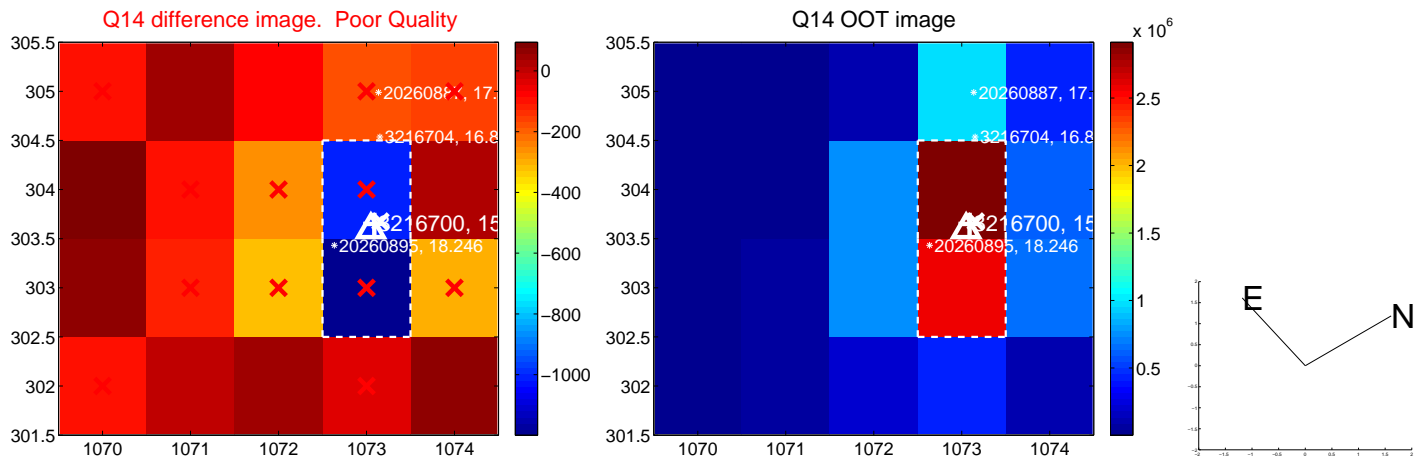
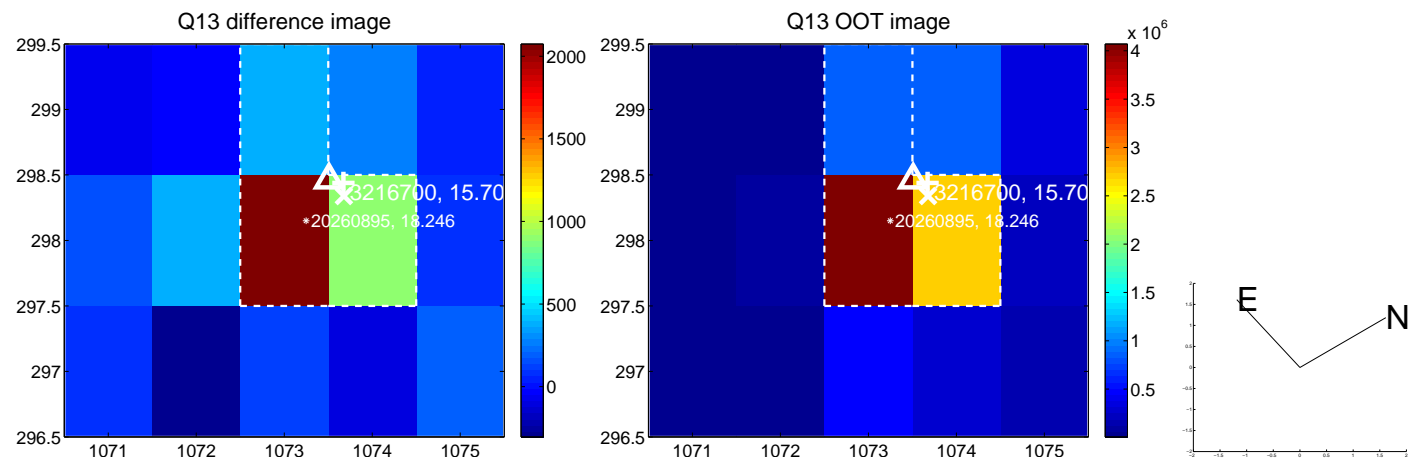
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



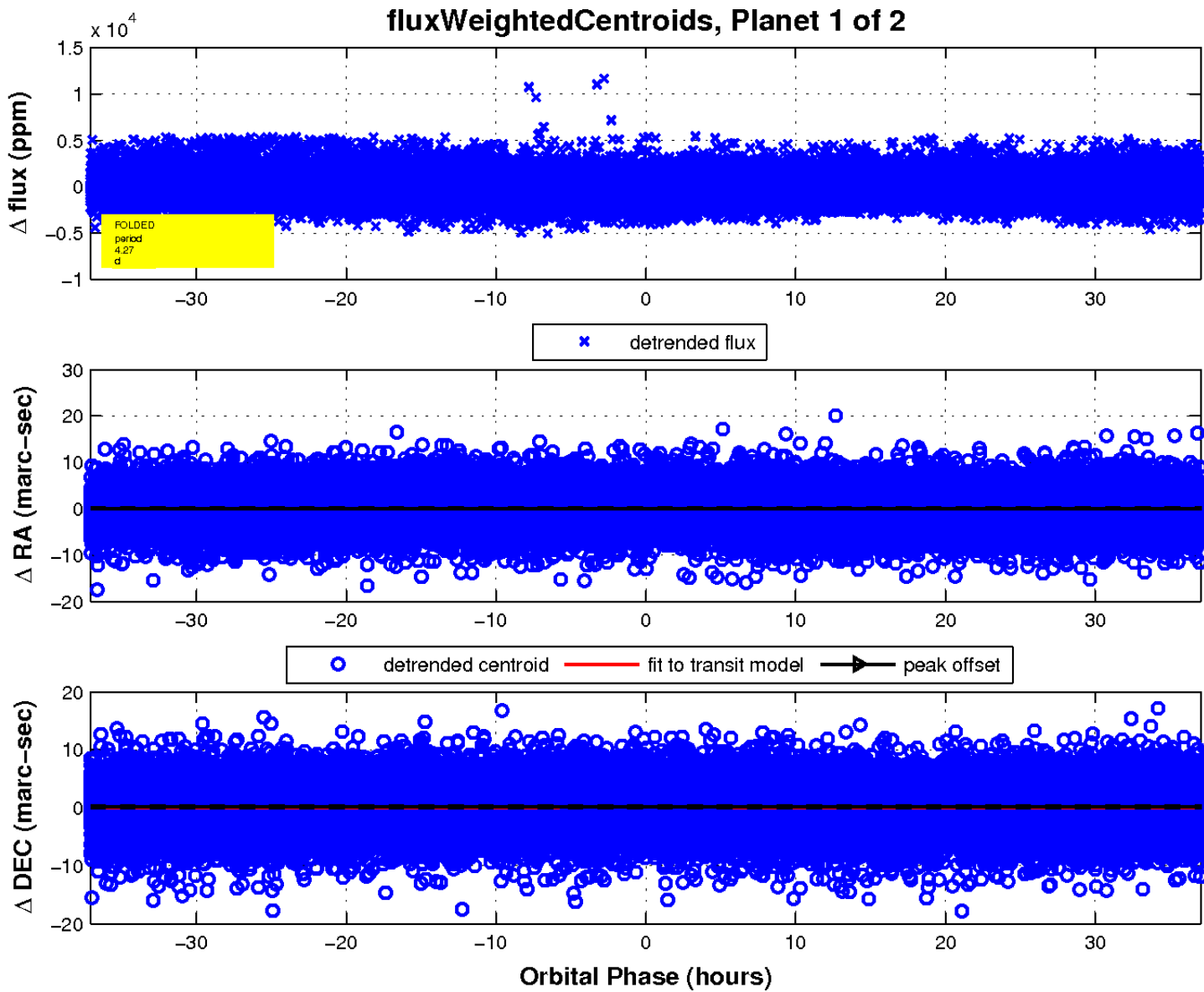
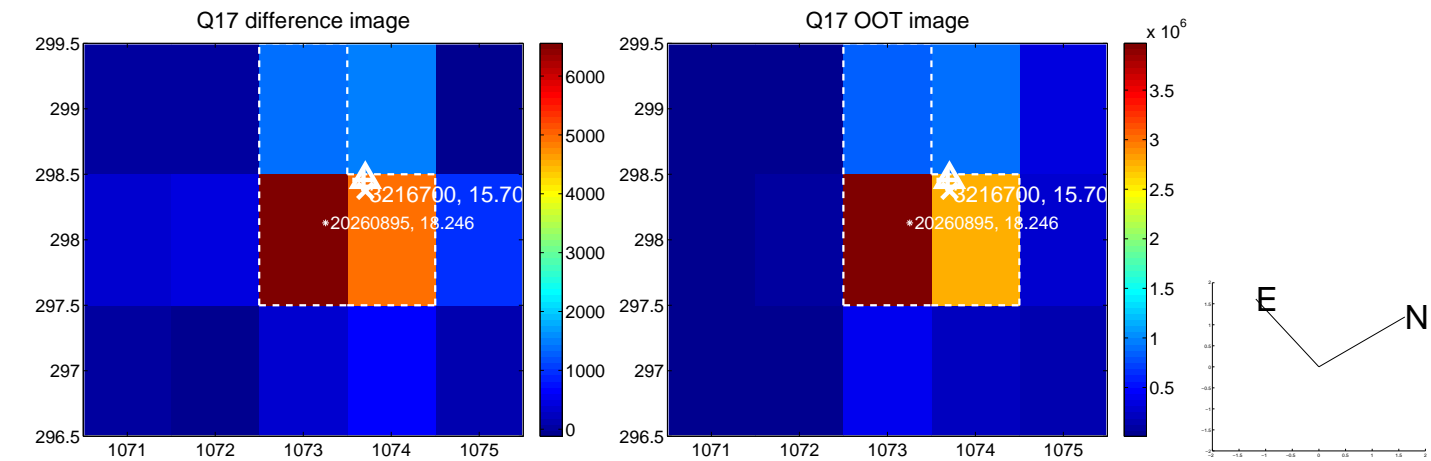
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

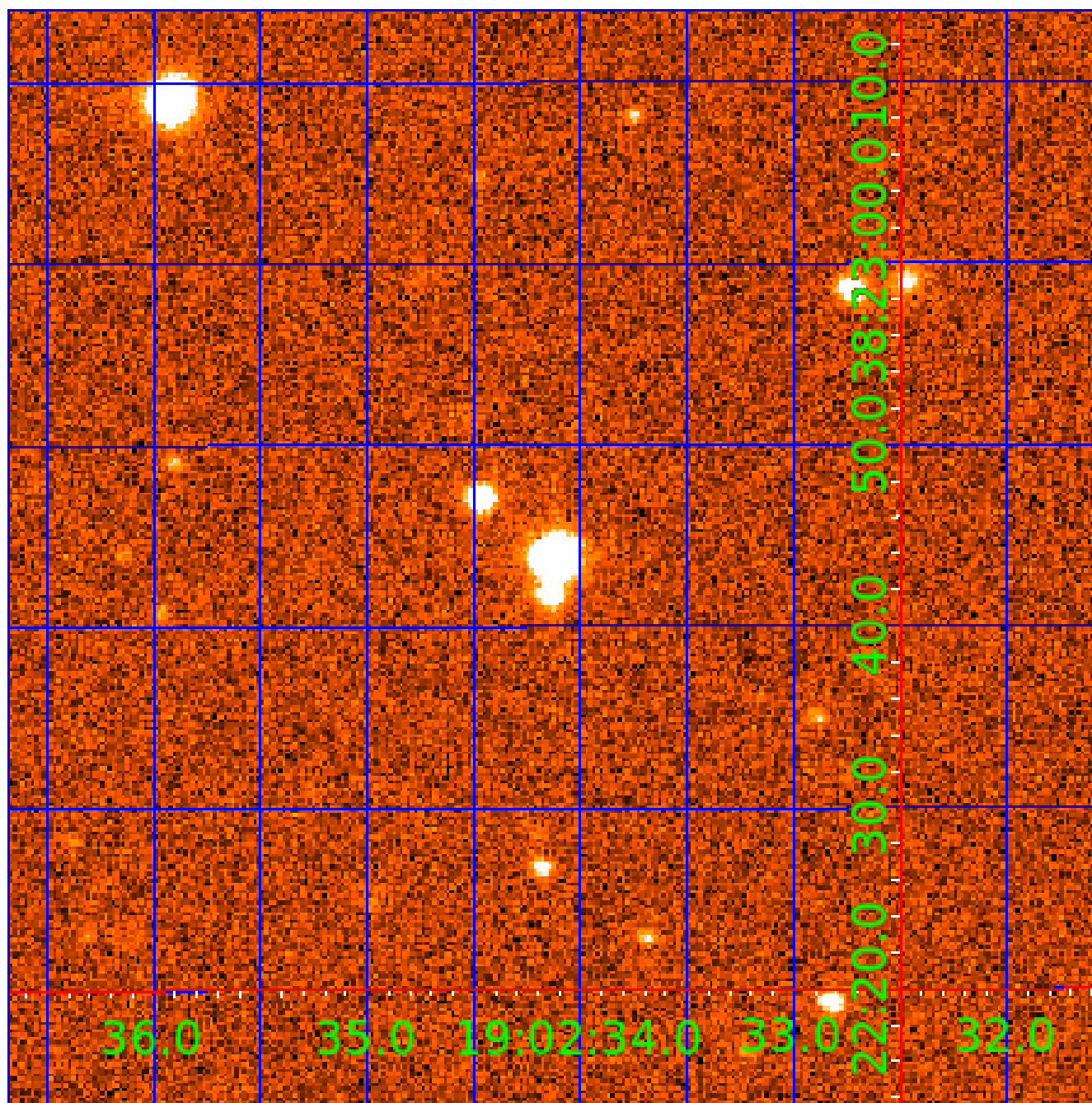


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 003216700

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})
003216700-01	OBS	No	4.274986	135.142701	180.0	12.357	7.9	8.0	0.54	3897	0.82	33.65
003216700-02	OBS	No	379.314588	191.701610	1530.9	14.513	12.4	6.9	0.54	3897	2.16	0.09

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
003216700-01	OBS	FP	0.00	1	0	0	0	SWEET_NTL—LPP_DV
003216700-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—INCONSISTENT_TRANS

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

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

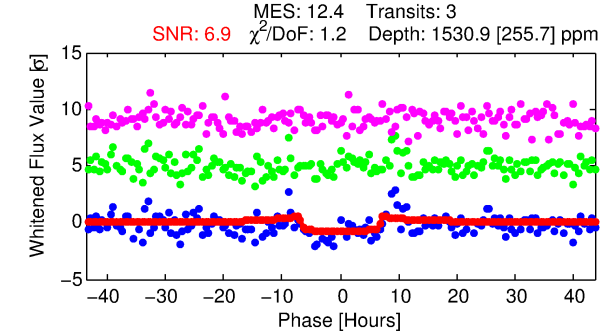
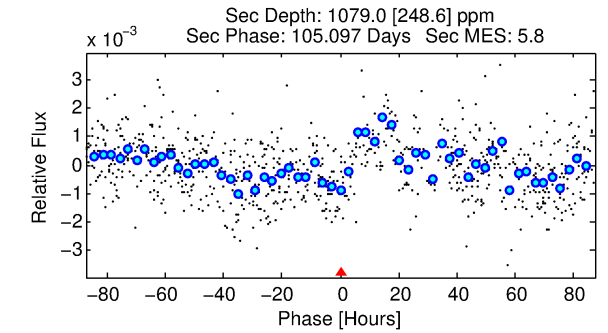
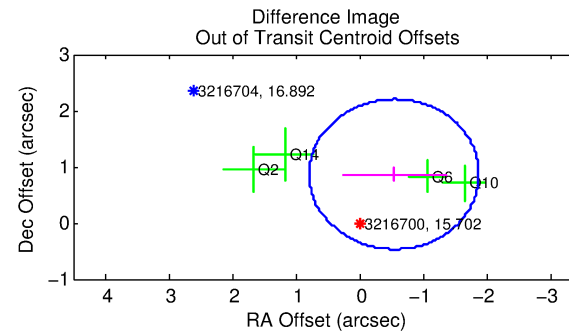
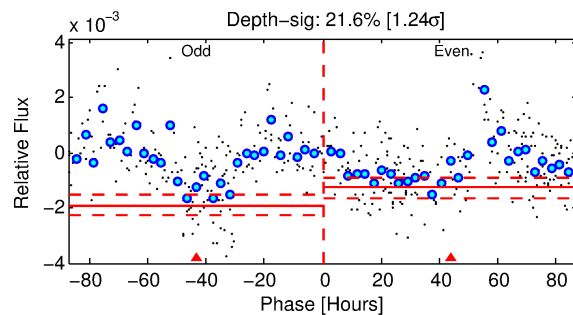
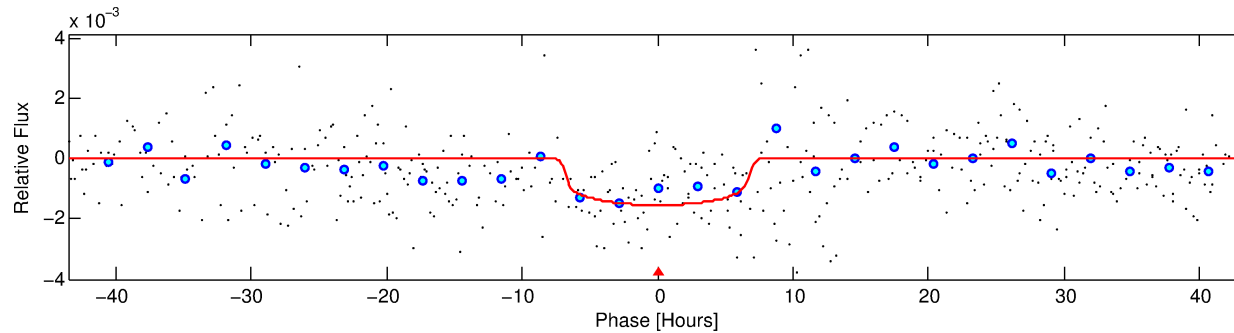
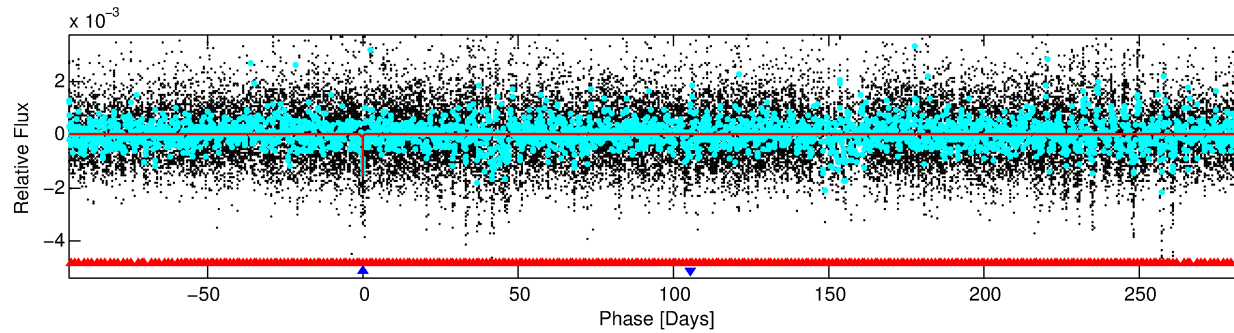
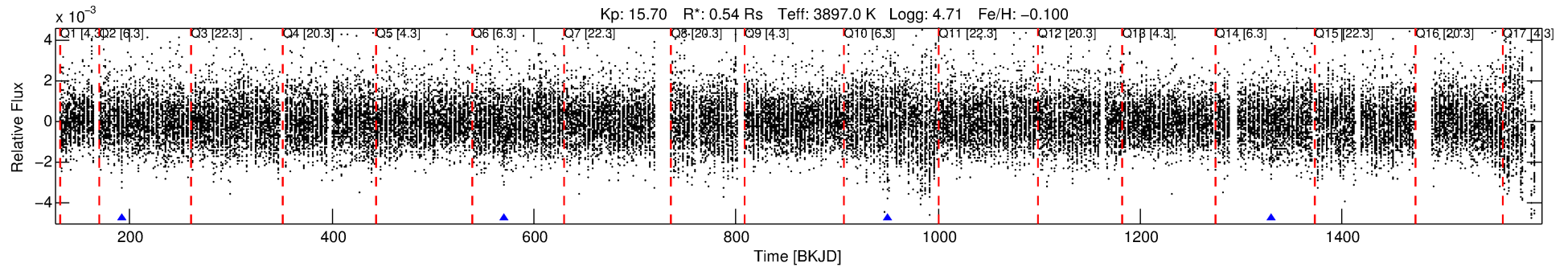
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 003216700-02

No Significant Match Found

DV One-Page Summary

KIC: 3216700 Candidate: 2 of 2 Period: 379.315 d



DV Fit Results:

Period = 379.31459 [0.01330] d
Epoch = 191.7016 [0.0303] BKJD
Rp/R* = 0.0367 [0.0150]
a/R* = 178.20 [294.74]
b = 0.53 [2.27]
Seff = 0.09 [0.01]
Teq = 138 [4] K
Rp = 2.16 [0.89] Re
a = 0.8403 [0.0421] AU
Ag = 89891.36 [76321.84] [1.18σ]
Teffp = 3686 [785] K [4.52σ]

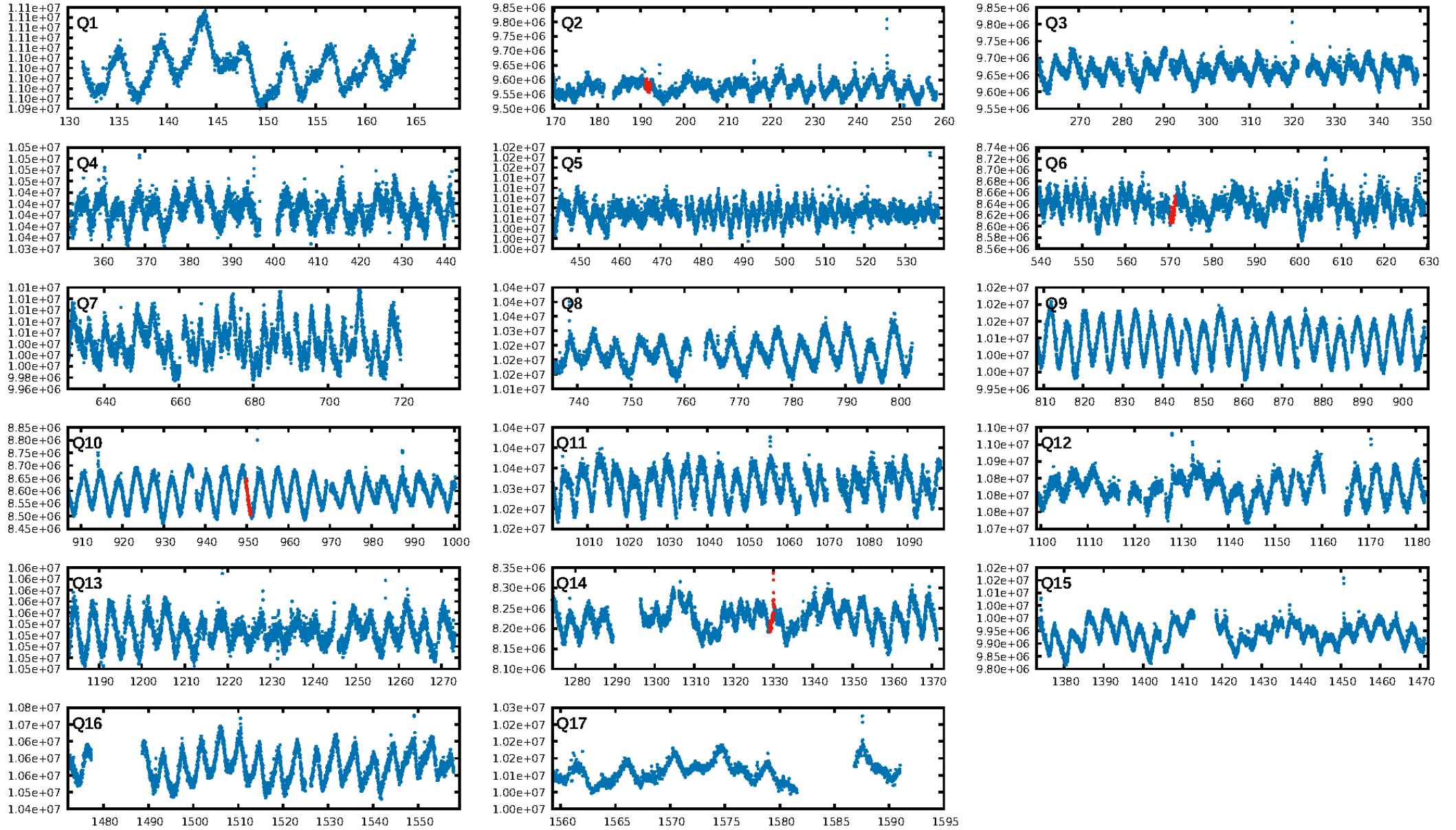
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [472.22σ]
LongPeriod-sig: N/A
ModelChiSquare2-sig: 0.2%
ModelChiSquareGof-sig: 91.7%
Bootstrap-pfa: 8.36e-19
RollingBand-fgt: 1.00 [3/3]
GhostDiagnostic-chr: -105.6
Centroid-sig: 0.9%
Centroid-so: 0.582 arcsec [0.77σ]
OotOffset-rm: 1.023 arcsec [2.30σ]
OotOffset-st: 4/0/0/0 [4]
KicOffset-rm: 0.737 arcsec [1.40σ]
KicOffset-st: 4/0/0/0 [4]
DiffImageQuality-fgm: 1.00 [4/4]
DiffImageOverlap-fno: 0.50 [2/4]

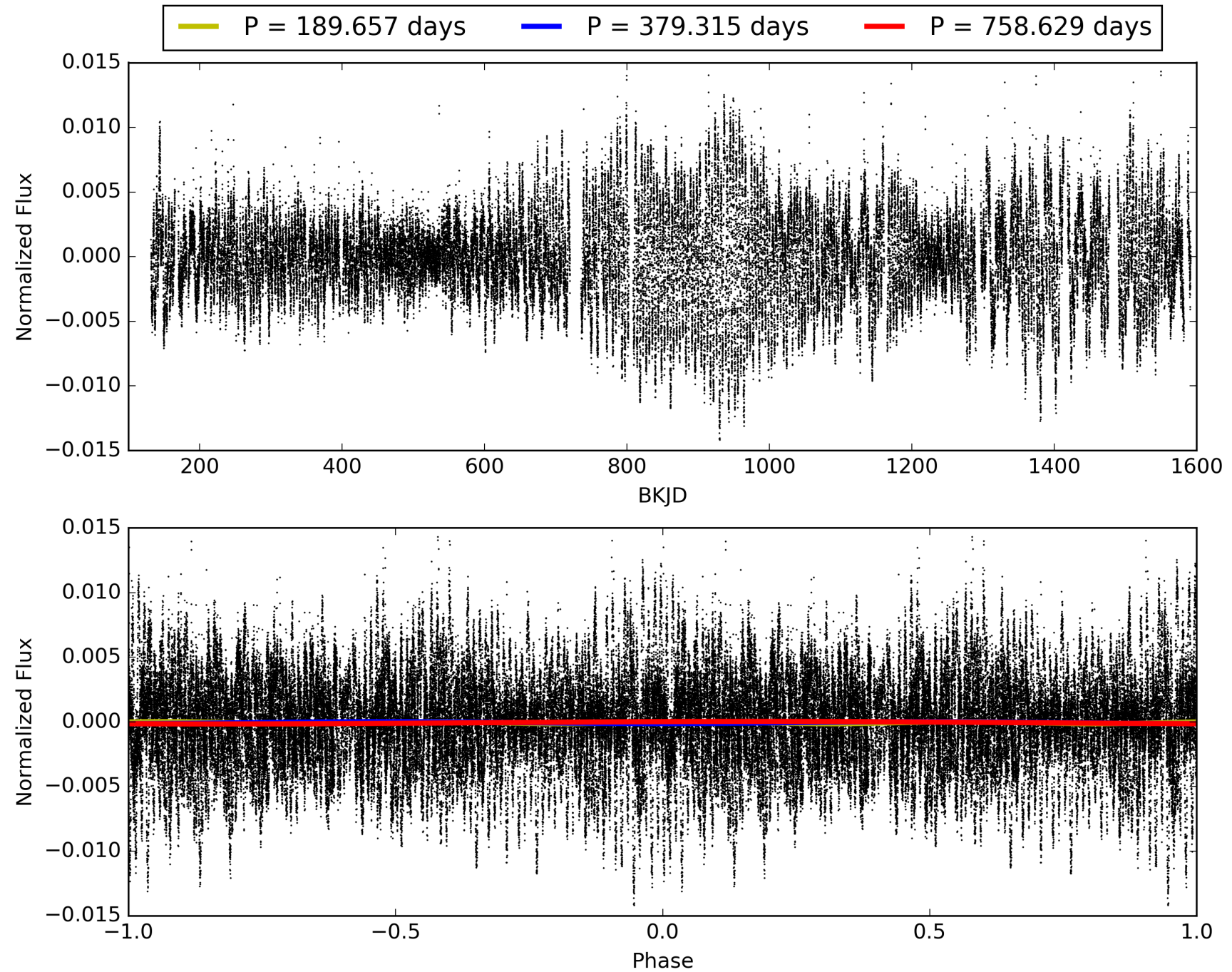
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 01-Feb-2016 01:47:51 Z

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

TCE 003216700-02, PDC Light Curves

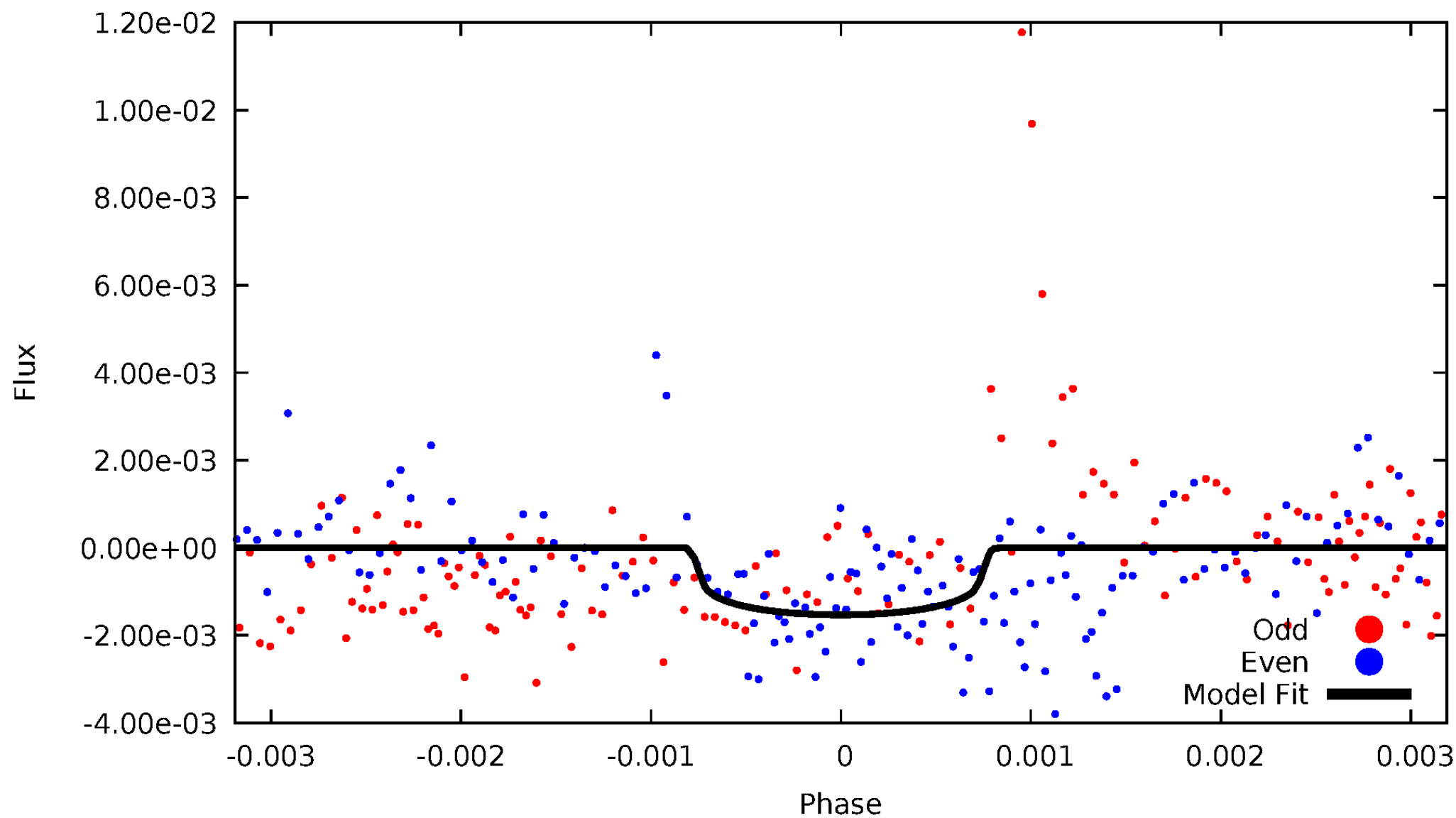


TCE 003216700-02



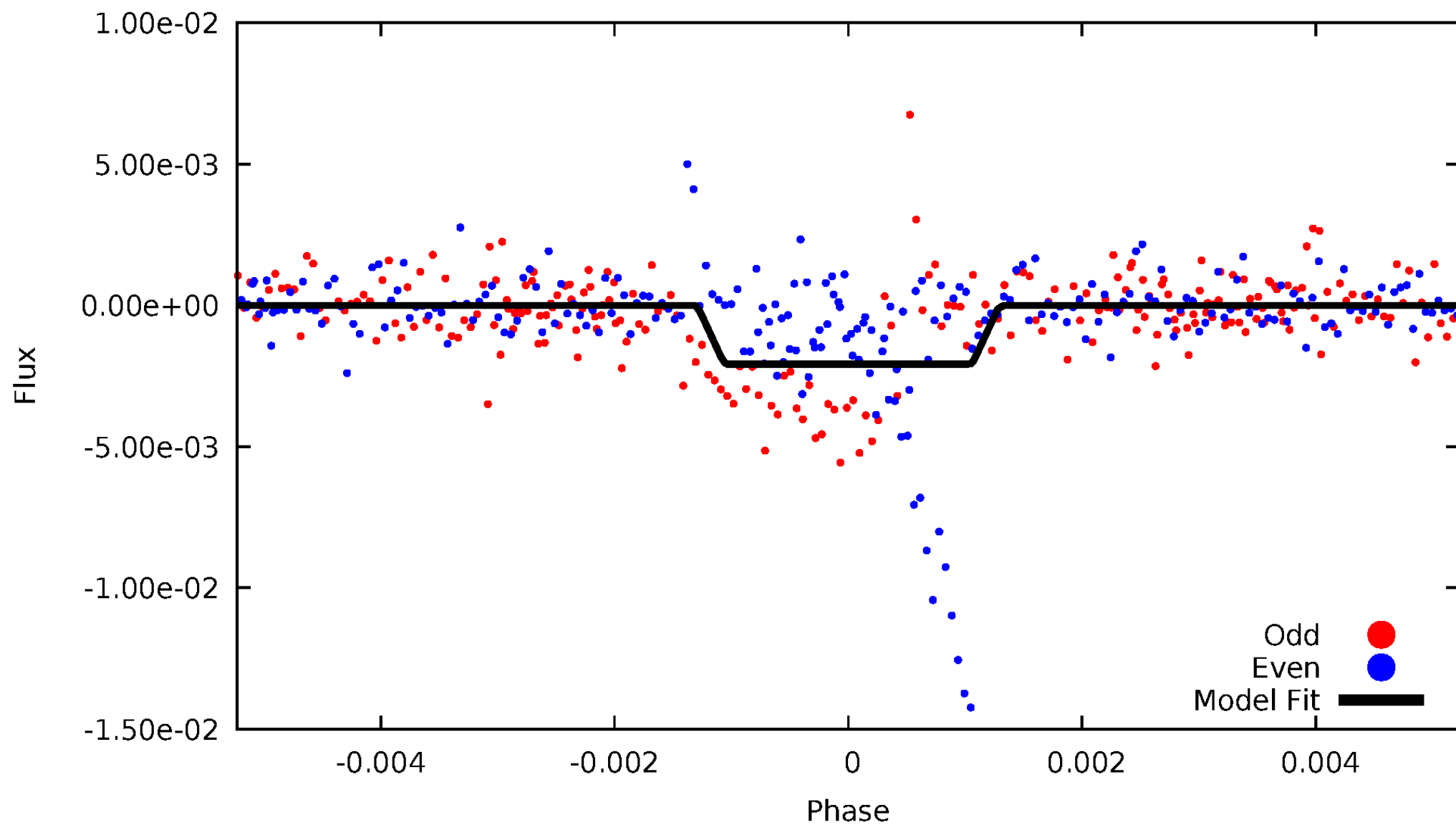
DV Odd/Even

TCE 003216700-02



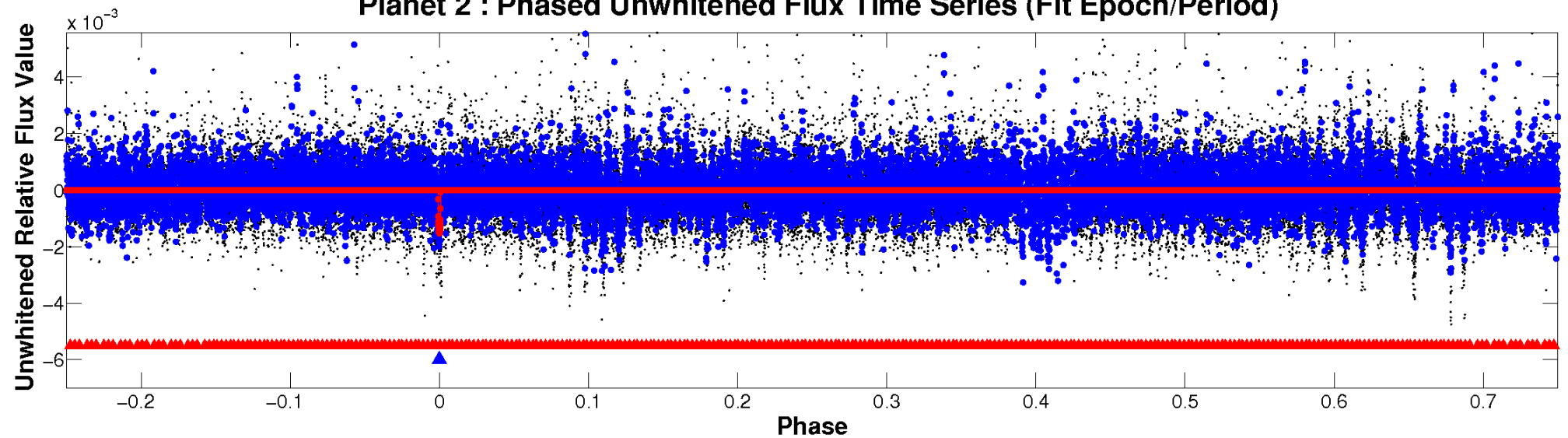
ALT Odd/Even

TCE 003216700-02

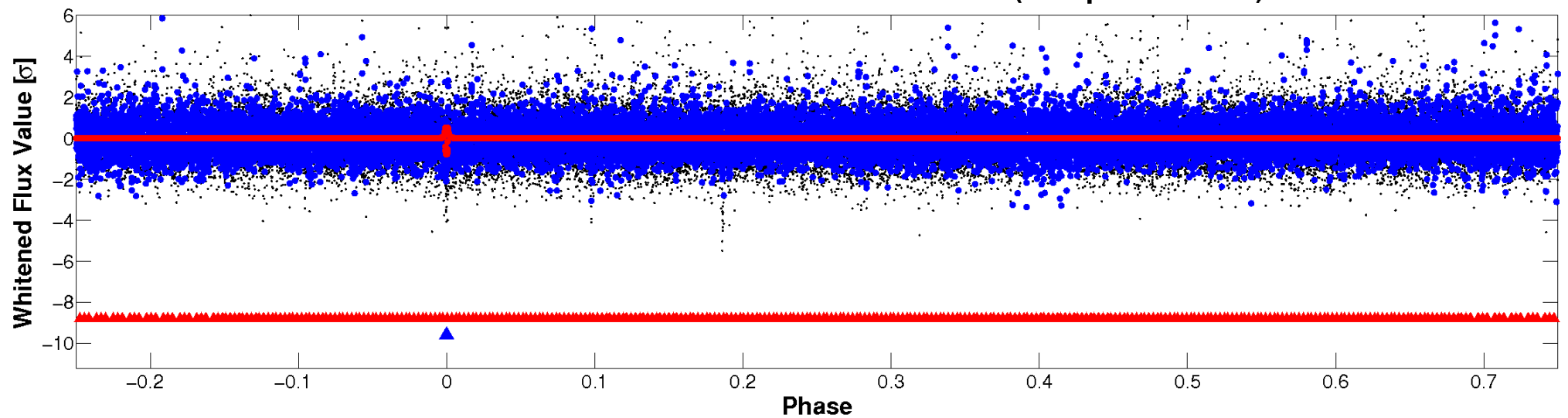


Non-Whitened Vs. Whitened Light Curve

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

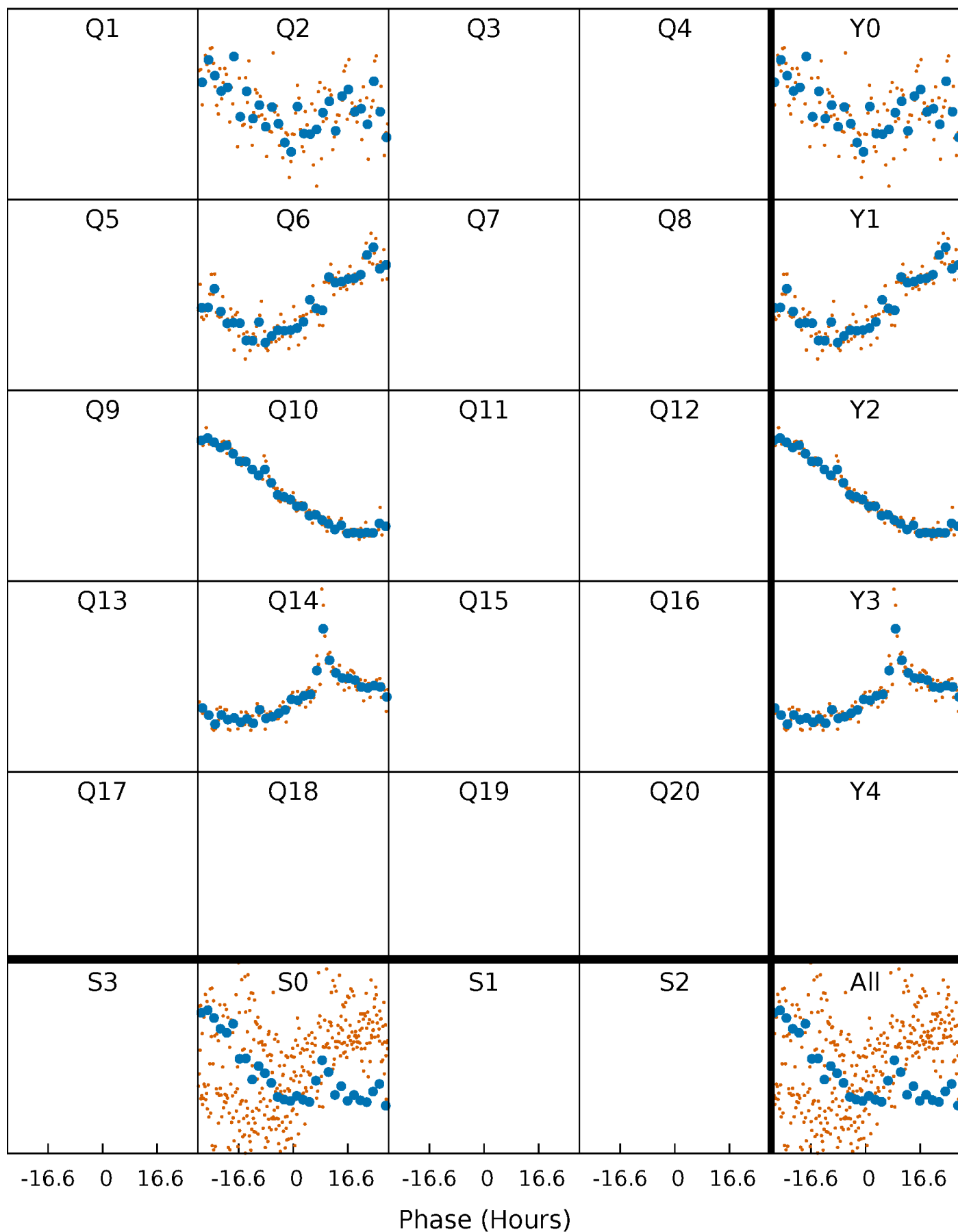


Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



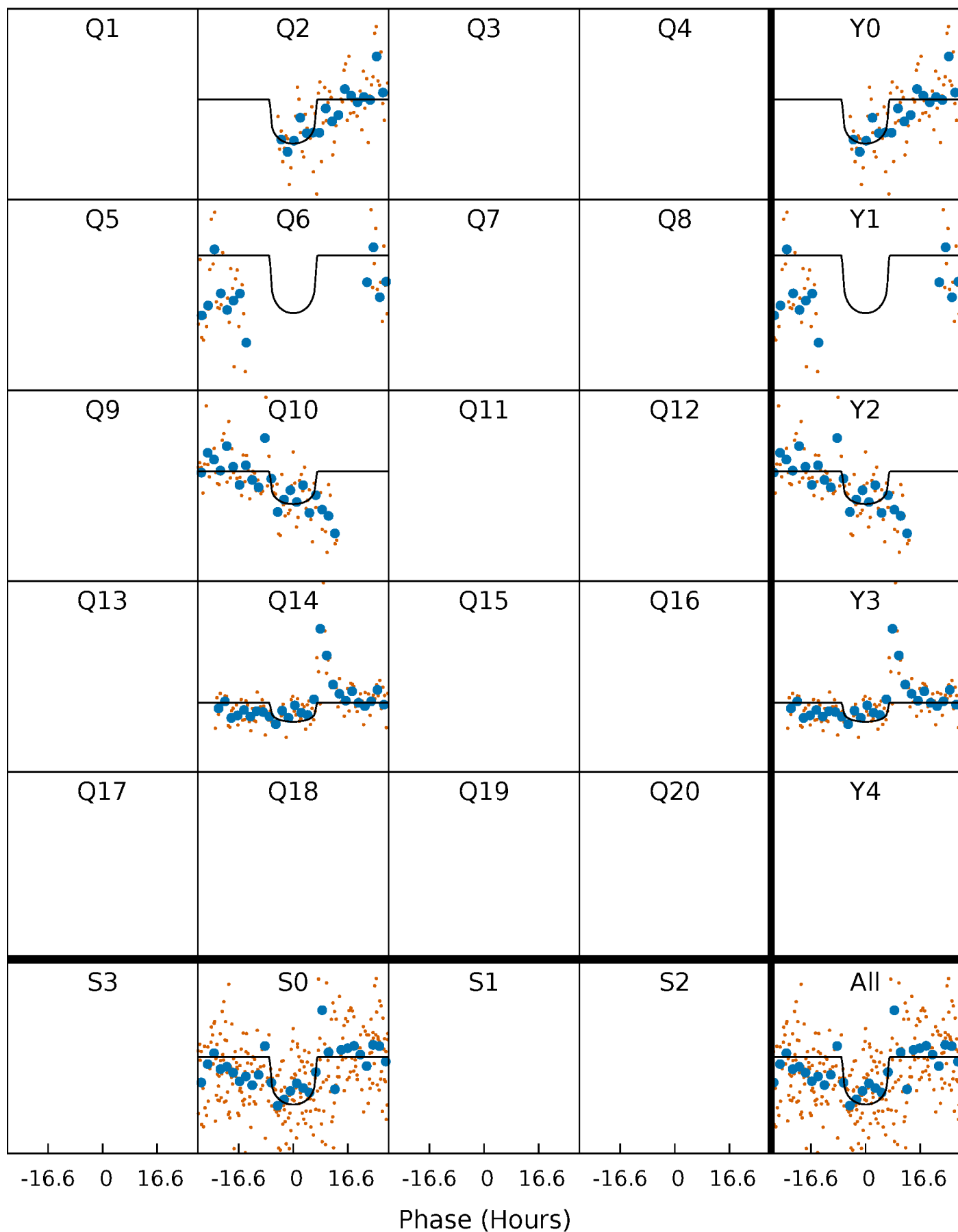
PDC Quarter-Phased Transit Curves

TCE 003216700-02 $P=379.314588$ Days $T_0=191.701610$ (BKJD)



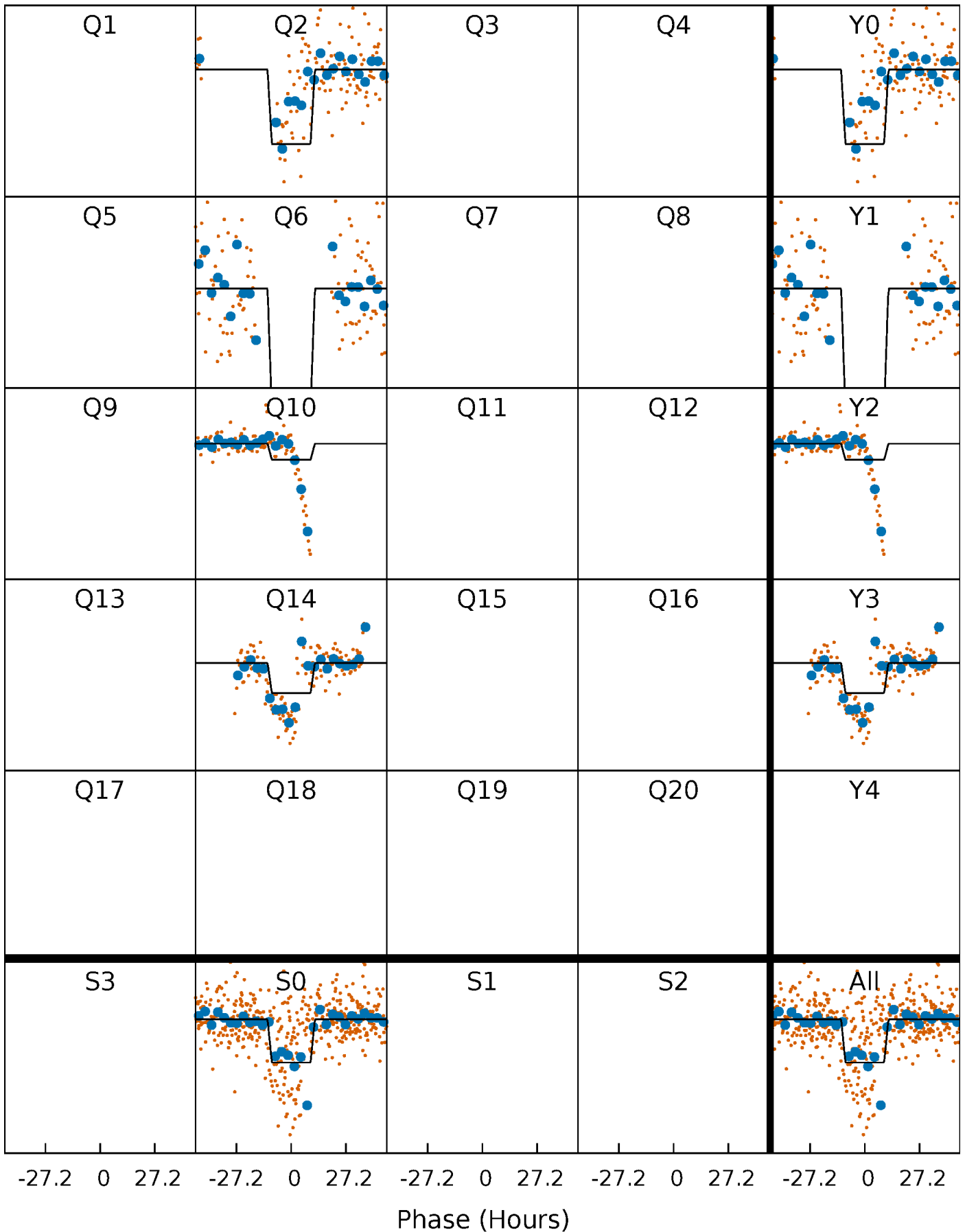
DV Quarter-Phased Transit Curves

TCE 003216700-02 $P=379.314588$ Days $T_0=191.701610$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

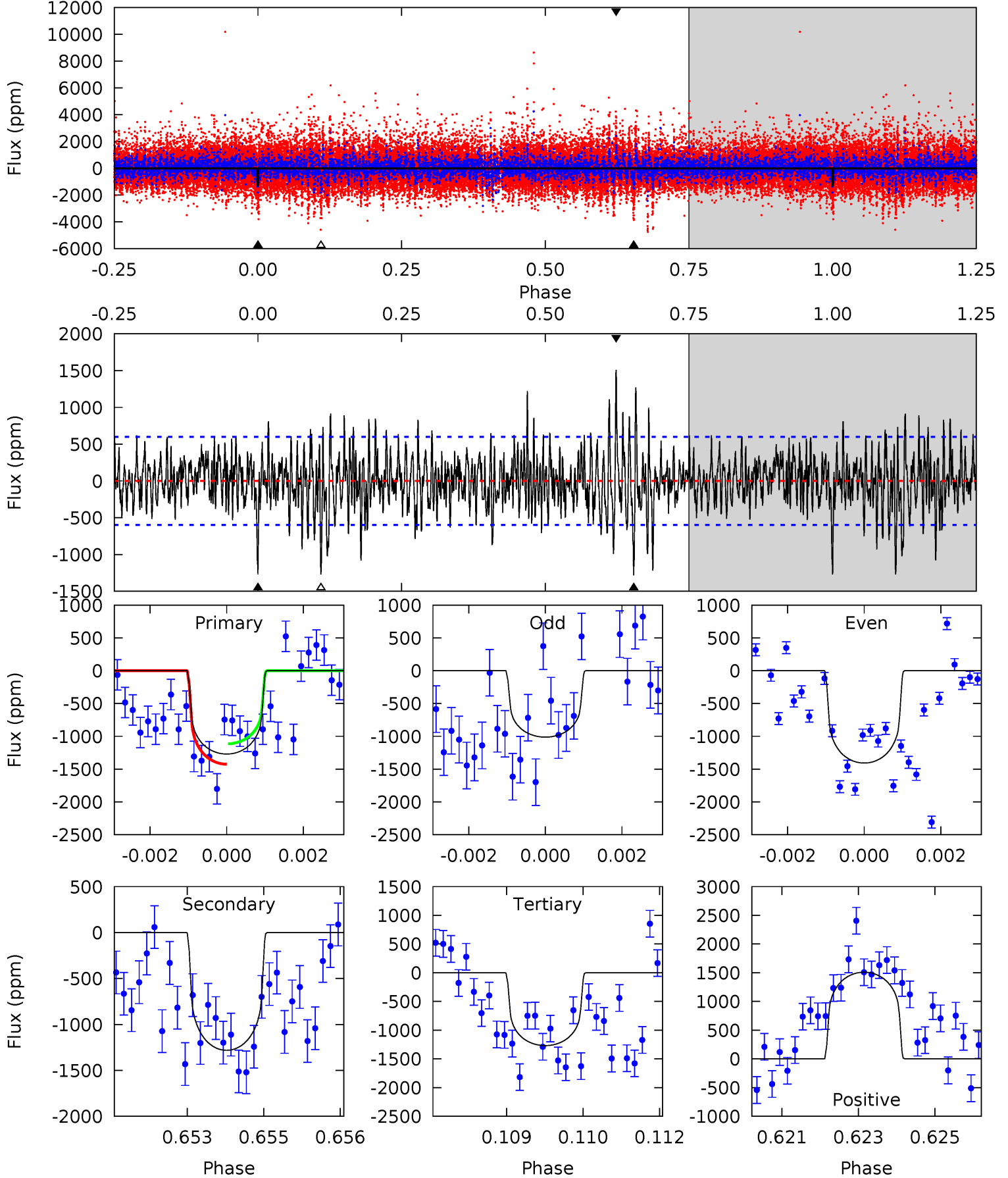
TCE 003216700-02 $P=379.342230$ Days $T_0=191.800414$ (BKJD)



DV Model-Shift Uniqueness Test

003216700-02, $P = 379.314588$ Days, $E = 191.701610$ Days

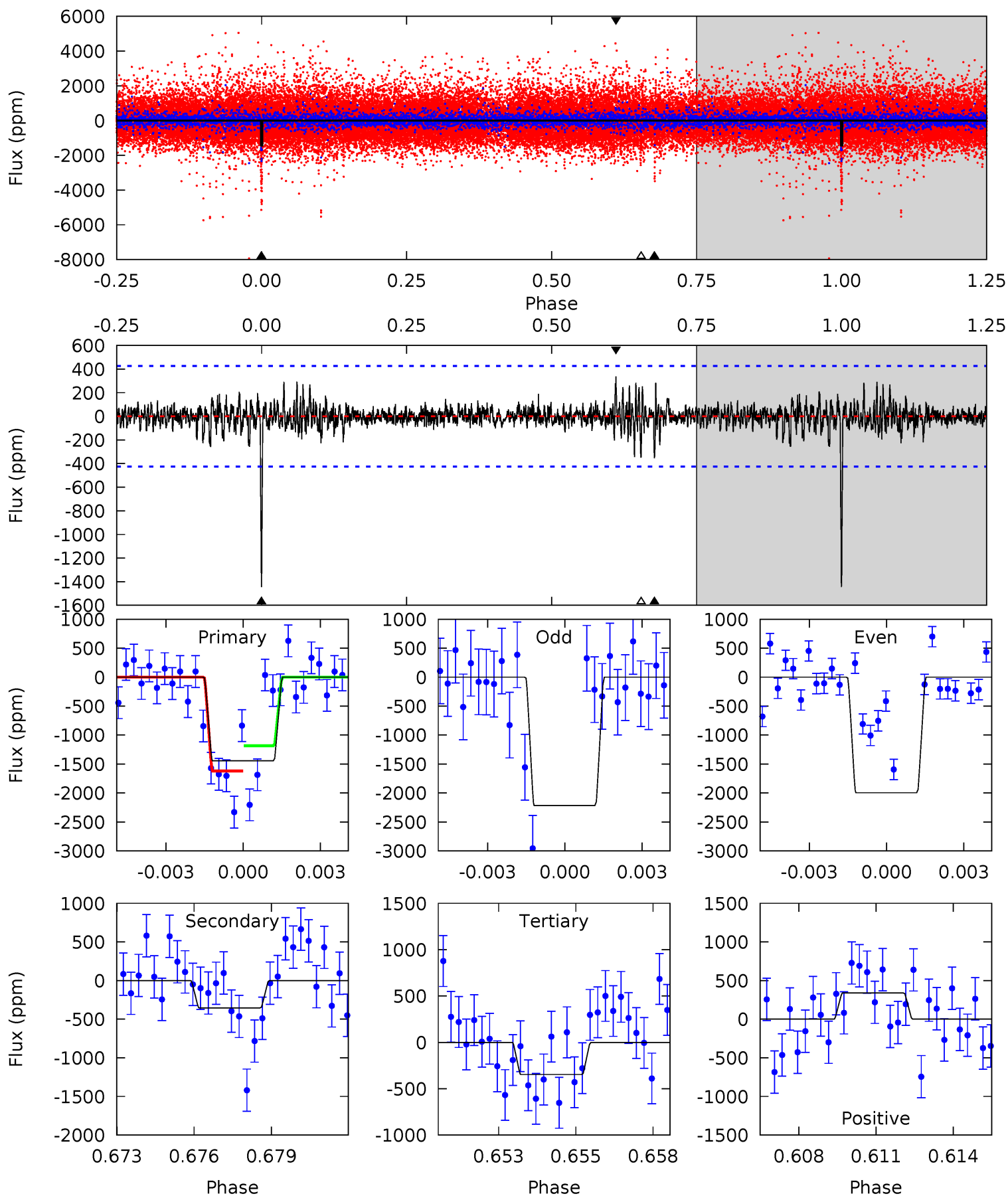
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
11.4	11.5	11.4	13.5	5.37	3.16	2.93	0.01	-2.14	0.12	-2.04	1.66	0.91	0.54	1.39



Alt Model-Shift Uniqueness Test

003216700-02, P = 379.342230 Days, E = 191.800414 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
17.9	4.40	4.29	4.20	5.28	3.01	0.85	13.6	13.7	0.10	0.20	1.37	0.95	0.19	2.70



Stellar Parameters For KIC 003216700

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	3897^{+97}_{-97}	$4.715^{+0.033}_{-0.024}$	$-0.100^{+0.100}_{-0.100}$	$0.539^{+0.029}_{-0.035}$	$0.550^{+0.030}_{-0.034}$	$4.945^{+0.741}_{-0.534}$
	+2%/-2%	+1%/-1%	+100%/-100%	+5%/-6%	+5%/-6%	+15%/-11%
Source	PHO2	PHO2	PHO2	DSEP		

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

Secondary Eclipse Parameters for KIC 003216700-02 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-1282 ± 111	$2.14^{+0.93}_{-0.84}$	192^{+5}_{-5}	3875^{+807}_{-450}	$108342^{+181678}_{-55809}$
Alt.	-355 ± 81	$2.71^{+0.87}_{-0.91}$	192^{+5}_{-5}	2961^{+393}_{-245}	18809^{+26484}_{-8452}

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

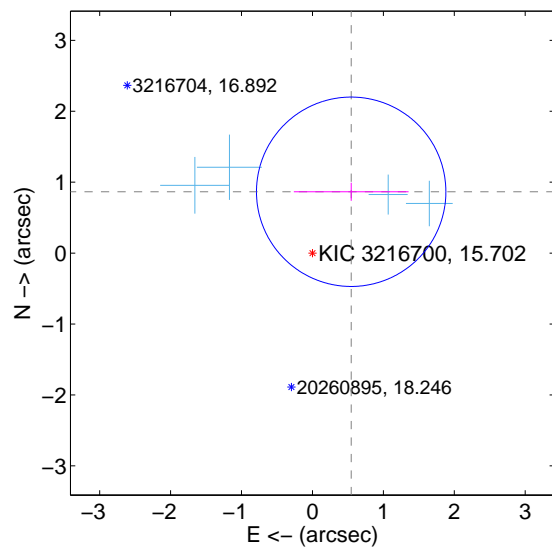
Supplemental centroid analysis for 003216700-02. Kepler magnitude: 15.70. Transit SNR 6.90

There are 4 quarters with good PRF difference image offsets

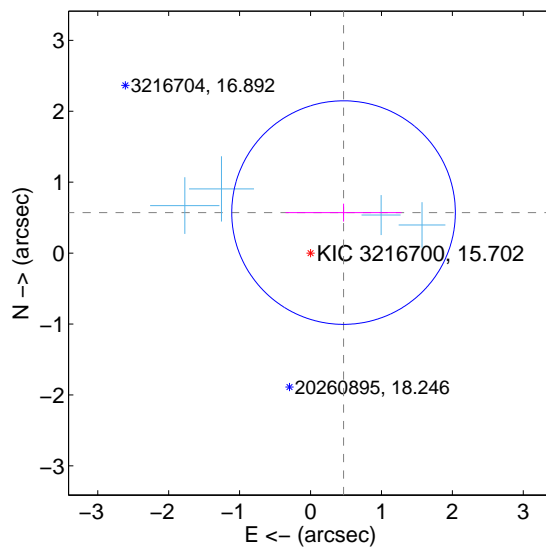
The direct PRF centroid is offset from the target star catalog position by about 0.32 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	1.023 ± 0.445	2.30	-0.546 ± 0.809	0.865 ± 0.127
PRF-fit source offset from KIC position	0.737 ± 0.526	1.40	-0.466 ± 0.817	0.571 ± 0.126
photometric centroid source offset	0.58 ± 0.75	0.77	0.21 ± 0.76	0.54 ± 0.75

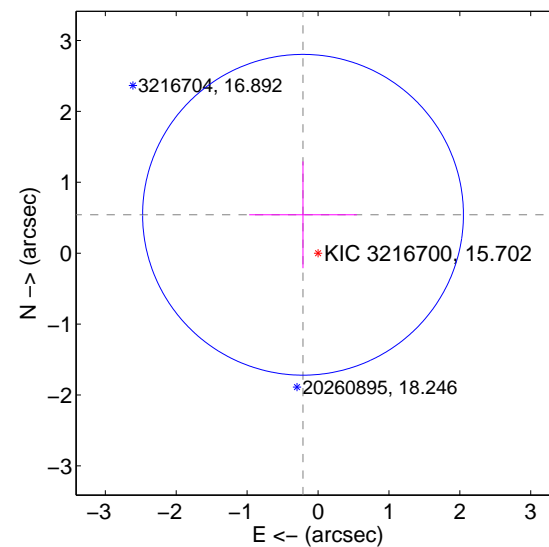
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position

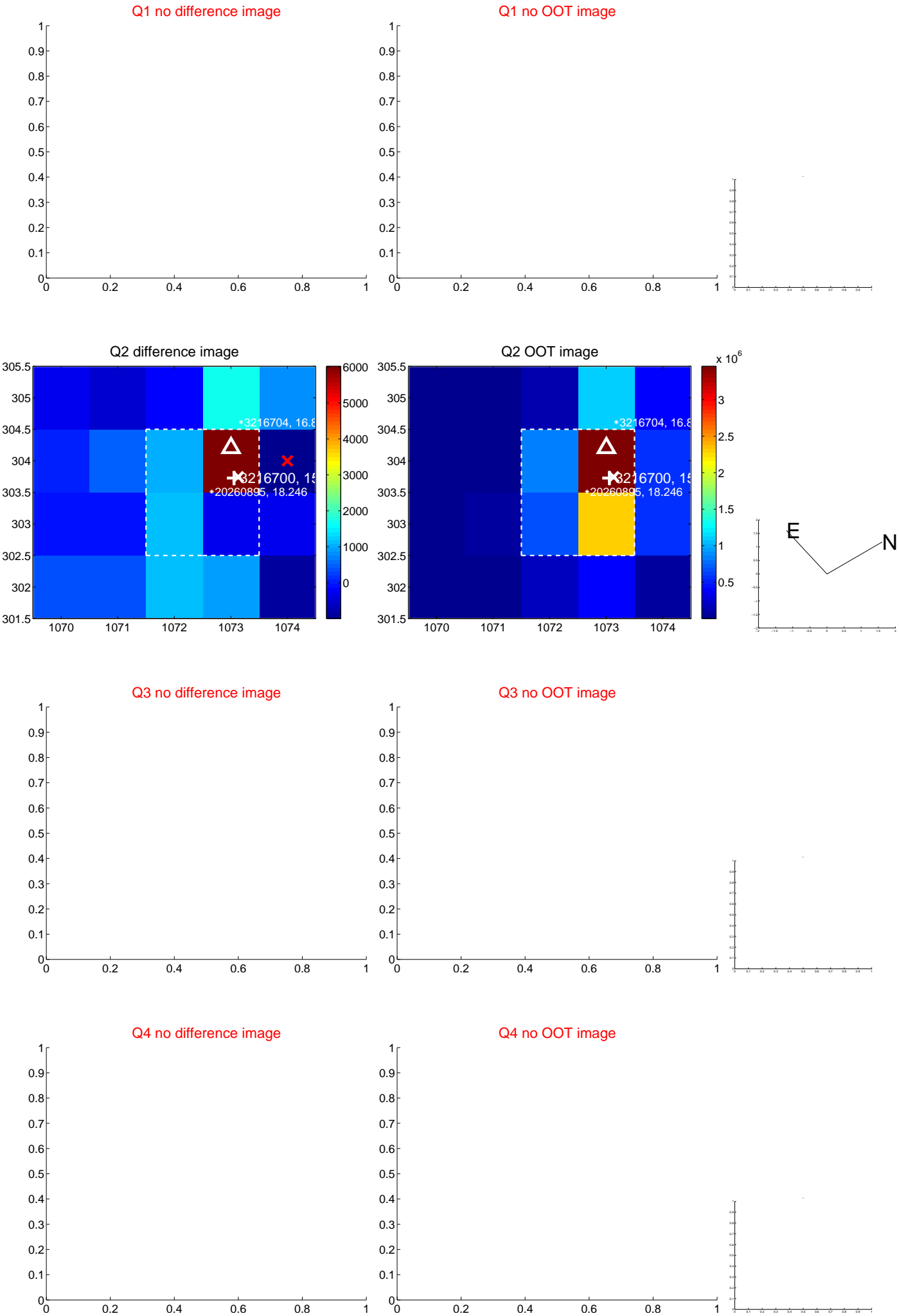


offset from photometric centroids

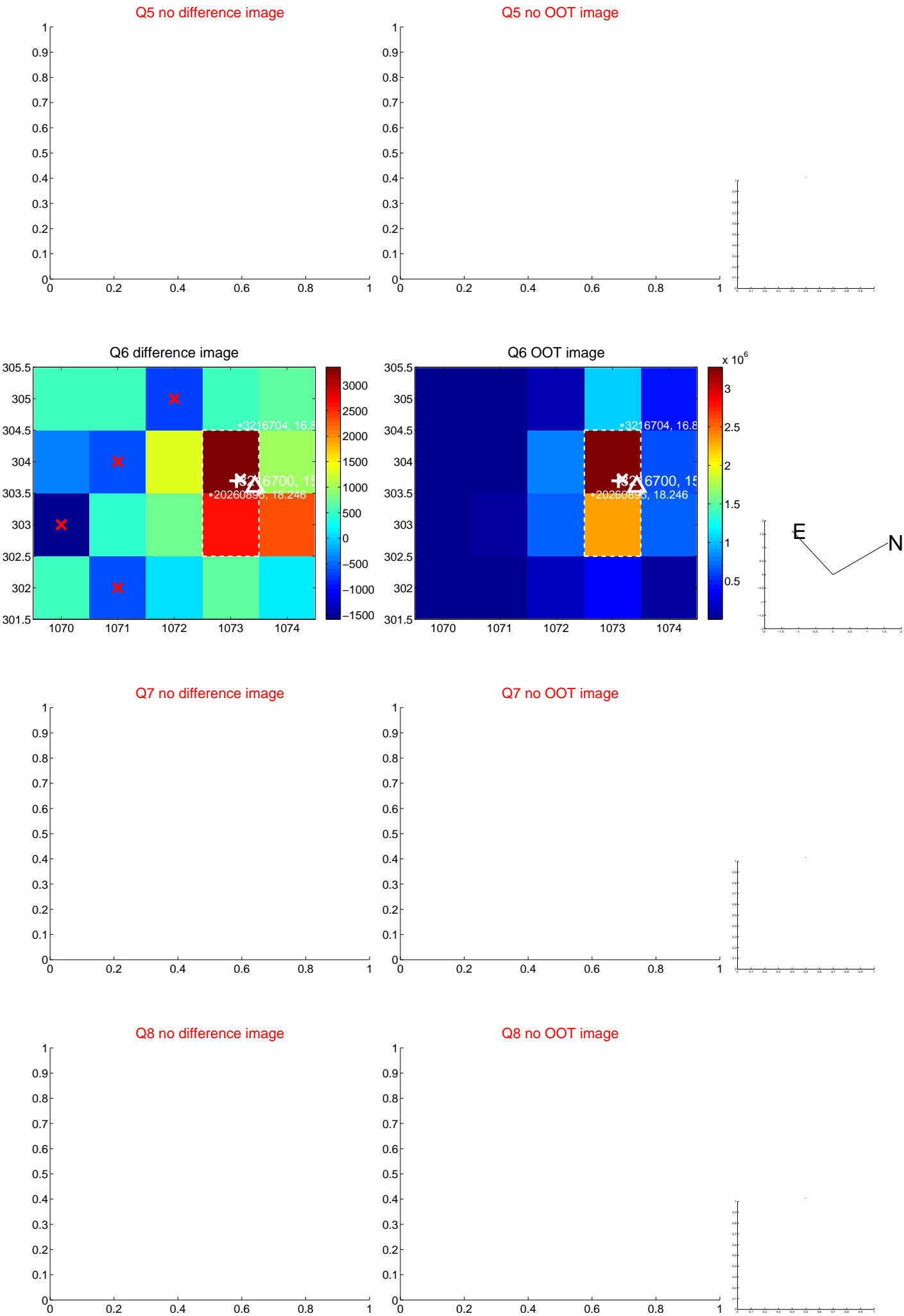


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

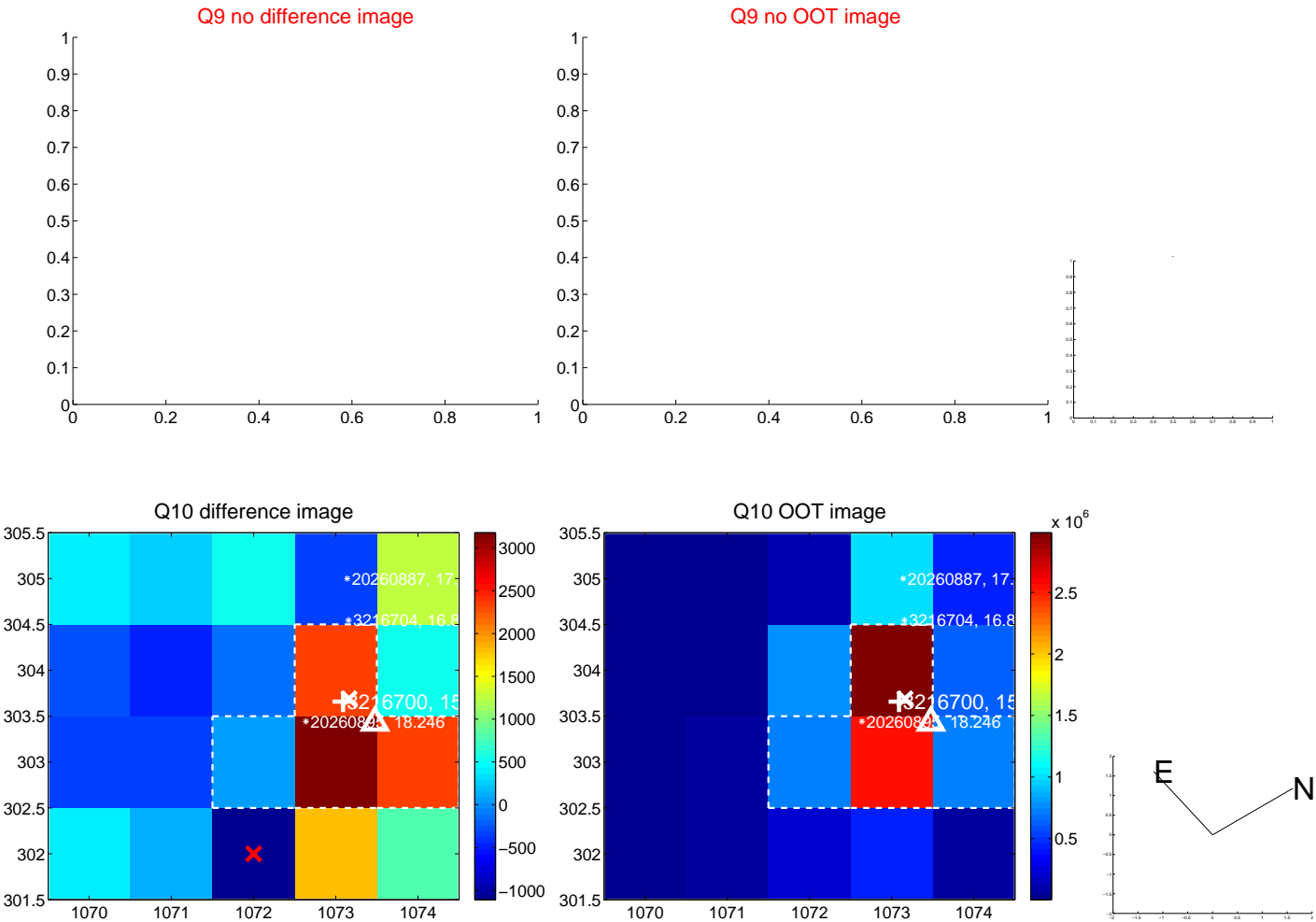
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



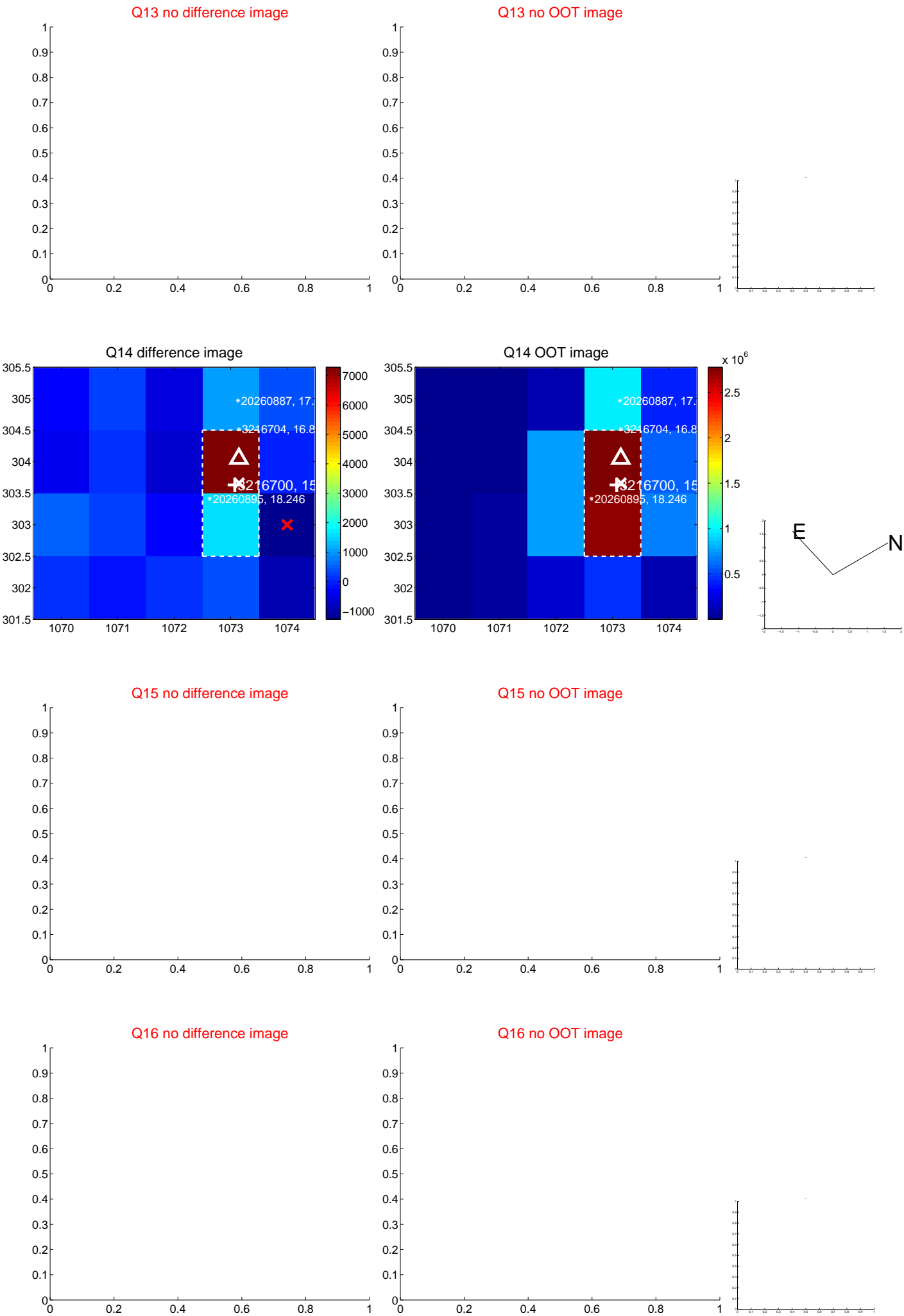
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



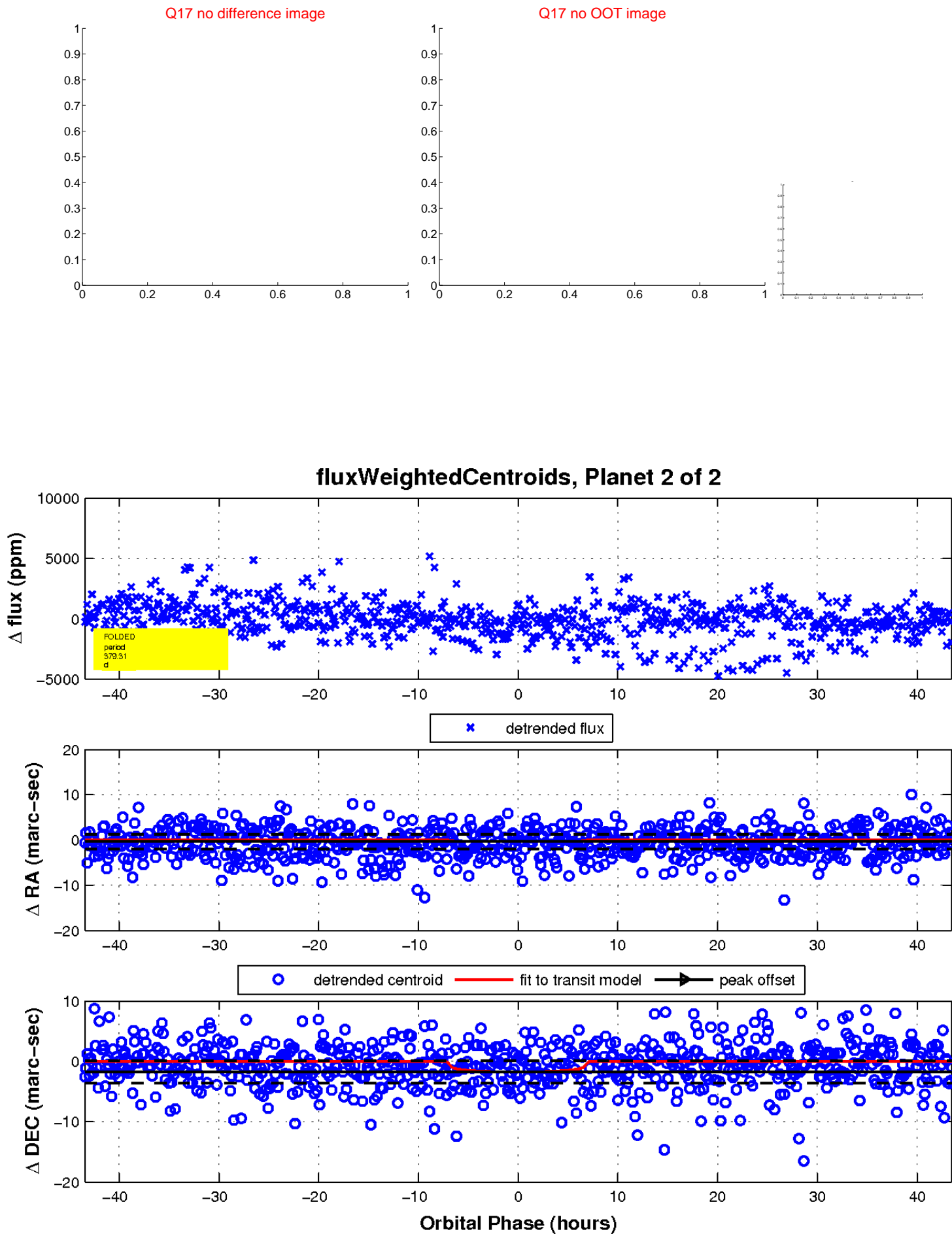
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

Declination

