

KIC 008526016

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})
008526016-01	OBS	No	581.536262	341.758511	402.6	14.684	10.5	10.4	4.22	5139	9.40	4.95
008526016-02	OBS	No	603.288535	151.712016	551.2	3.633	7.2	7.6	4.22	5139	11.40	4.72

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
008526016-01	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—LPP_DV—ALL_TRANS_CHASES—CENT_FEW_DIFFS
008526016-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—ALL_TRANS_CHASES—MOD_NONUNIQ_ALT—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.

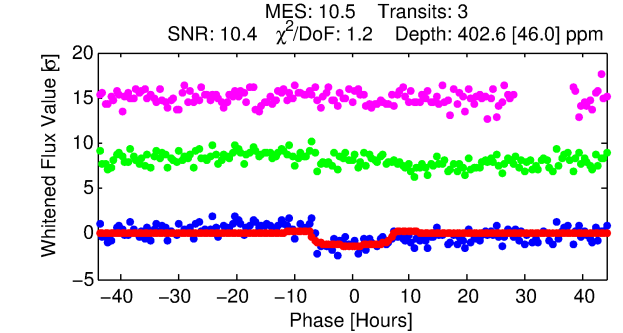
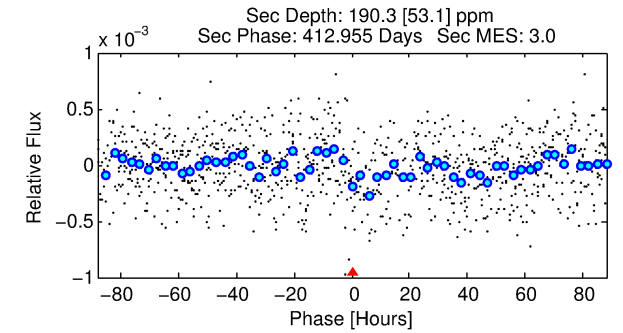
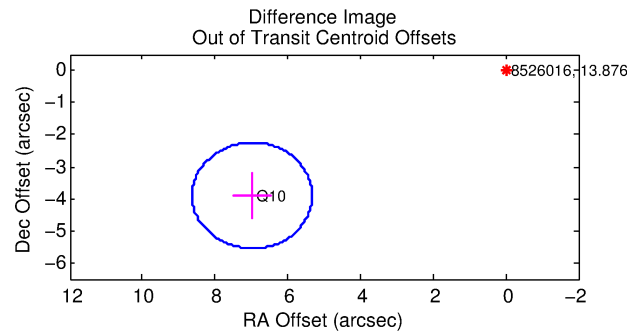
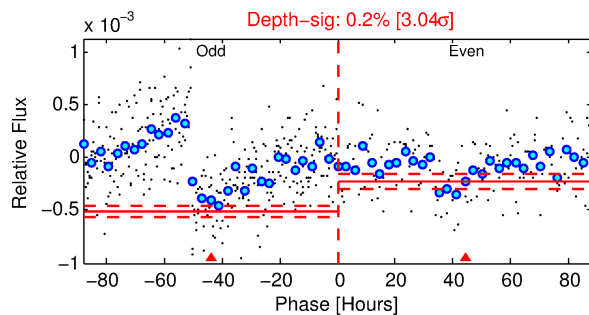
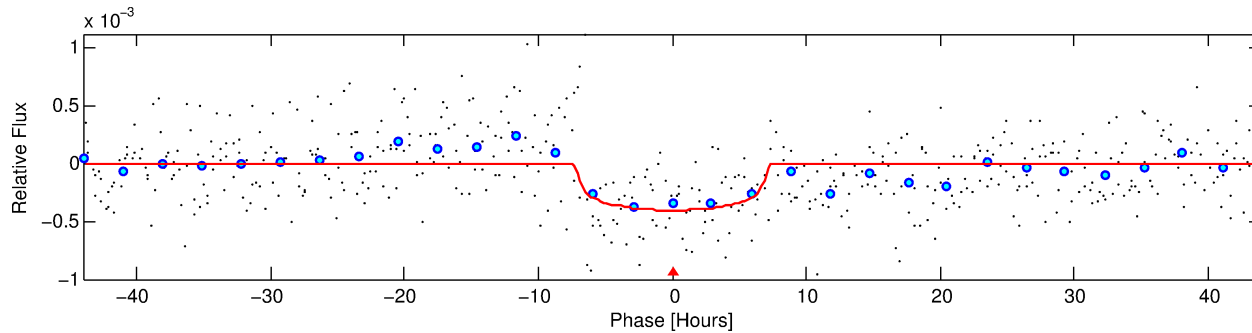
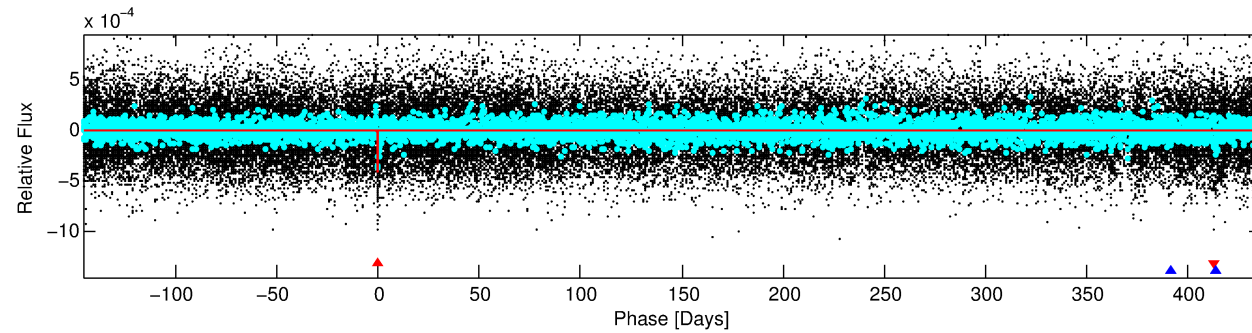
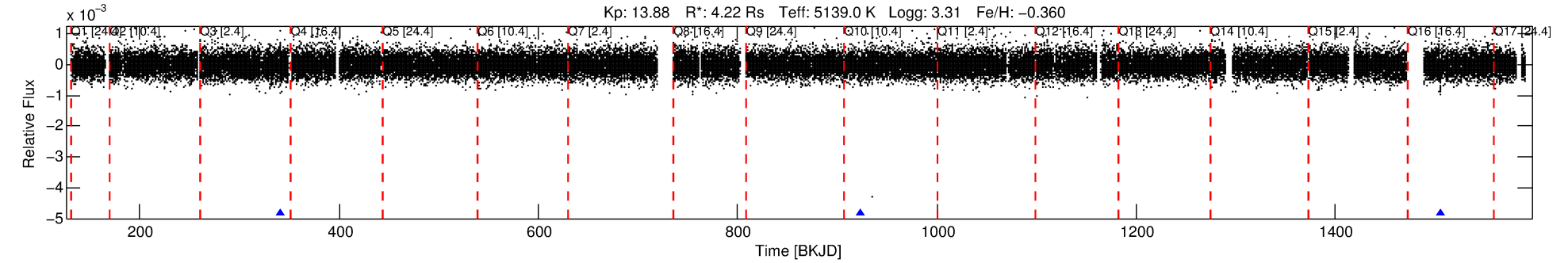
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 008526016-01

No Significant Match Found

DV One-Page Summary

KIC: 8526016 Candidate: 1 of 2 Period: 581.536 d



DV Fit Results:

Period = 581.53626 [0.01659] d
Epoch = 341.7585 [0.0214] BKJD
Rp/R* = 0.0204 [0.0069]
a/R* = 193.69 [260.01]
b = 0.79 [0.63]
Seff = 4.95 [2.80]
Teq = 380 [54] K
Rp = 9.40 [4.68] Re
a = 1.4974 [0.5214] AU
Ag = 2656.98 [2443.23] [1.09σ]
Teffp = 4223 [782] K [4.90σ]

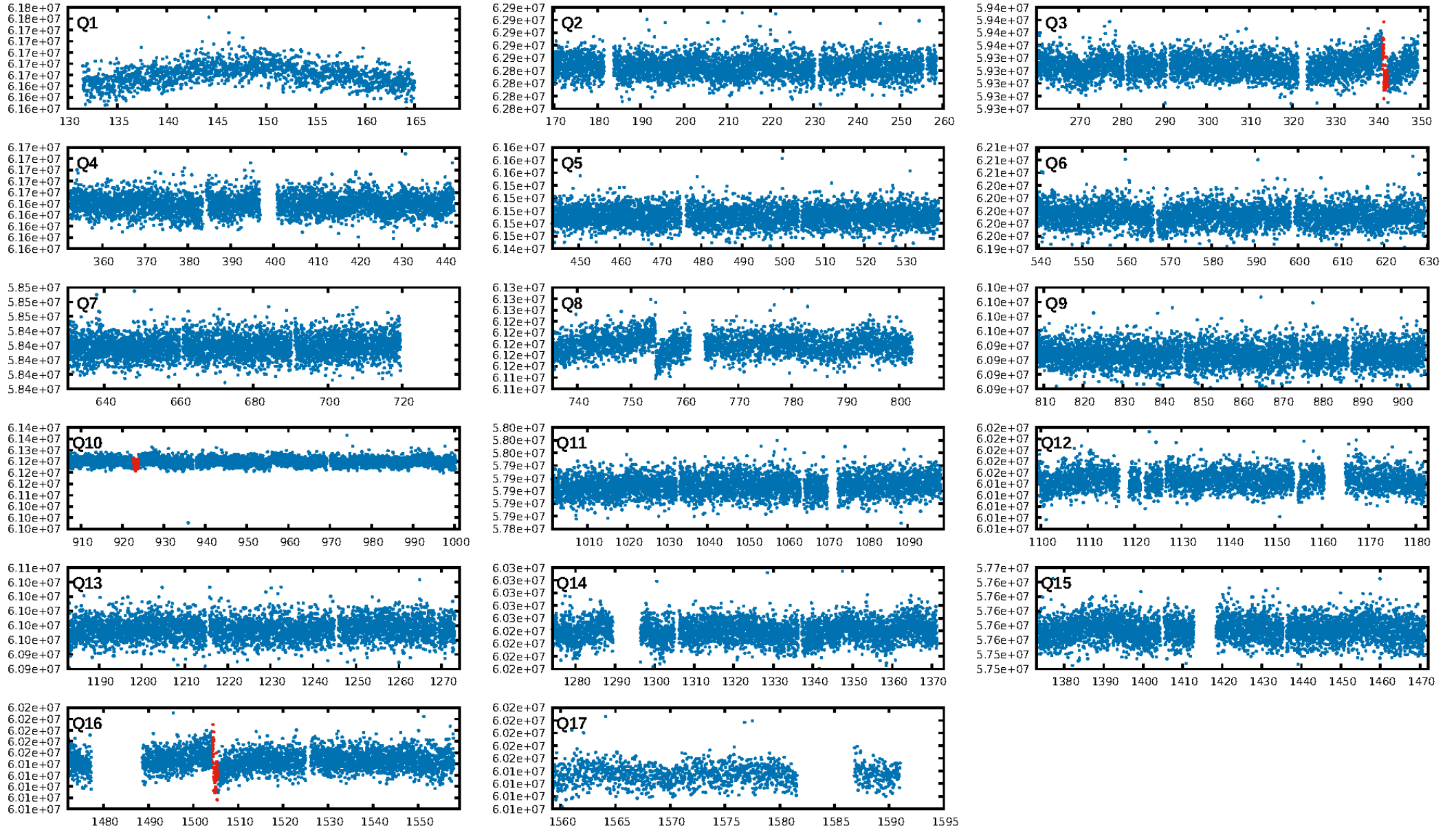
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: 100.0% [34.51σ]
ModelChiSquare2-sig: 0.2%
ModelChiSquareGof-sig: 99.0%
Bootstrap-pfa: 6.93e-27
RollingBand-fgt: 1.00 [3/3]
GhostDiagnostic-chr: 1.949
Centroid-sig: 3.4%
Centroid-so: 2.437 arcsec [1.33σ]
OotOffset-rm: 8.002 arcsec [14.55σ]
KicOffset-rm: 7.911 arcsec [14.39σ]
OotOffset-st: 1/0/0/0 [1]
KicOffset-st: 1/0/0/0 [1]
DiffImageQuality-fgm: 0.00 [0/1]
DiffImageOverlap-fno: 1.00 [2/2]

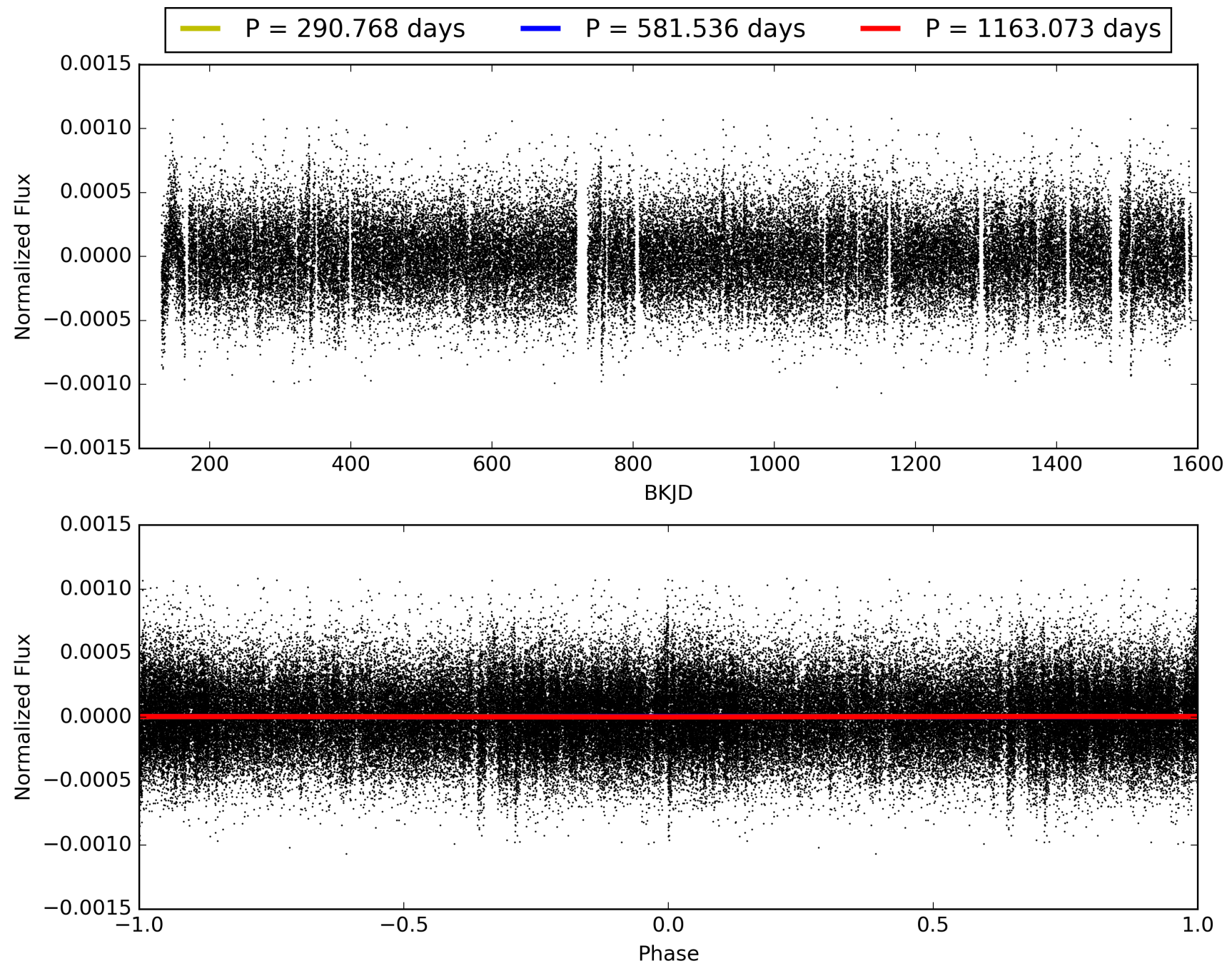
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 29-Jan-2016 22:11:00 Z

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

TCE 008526016-01, PDC Light Curves

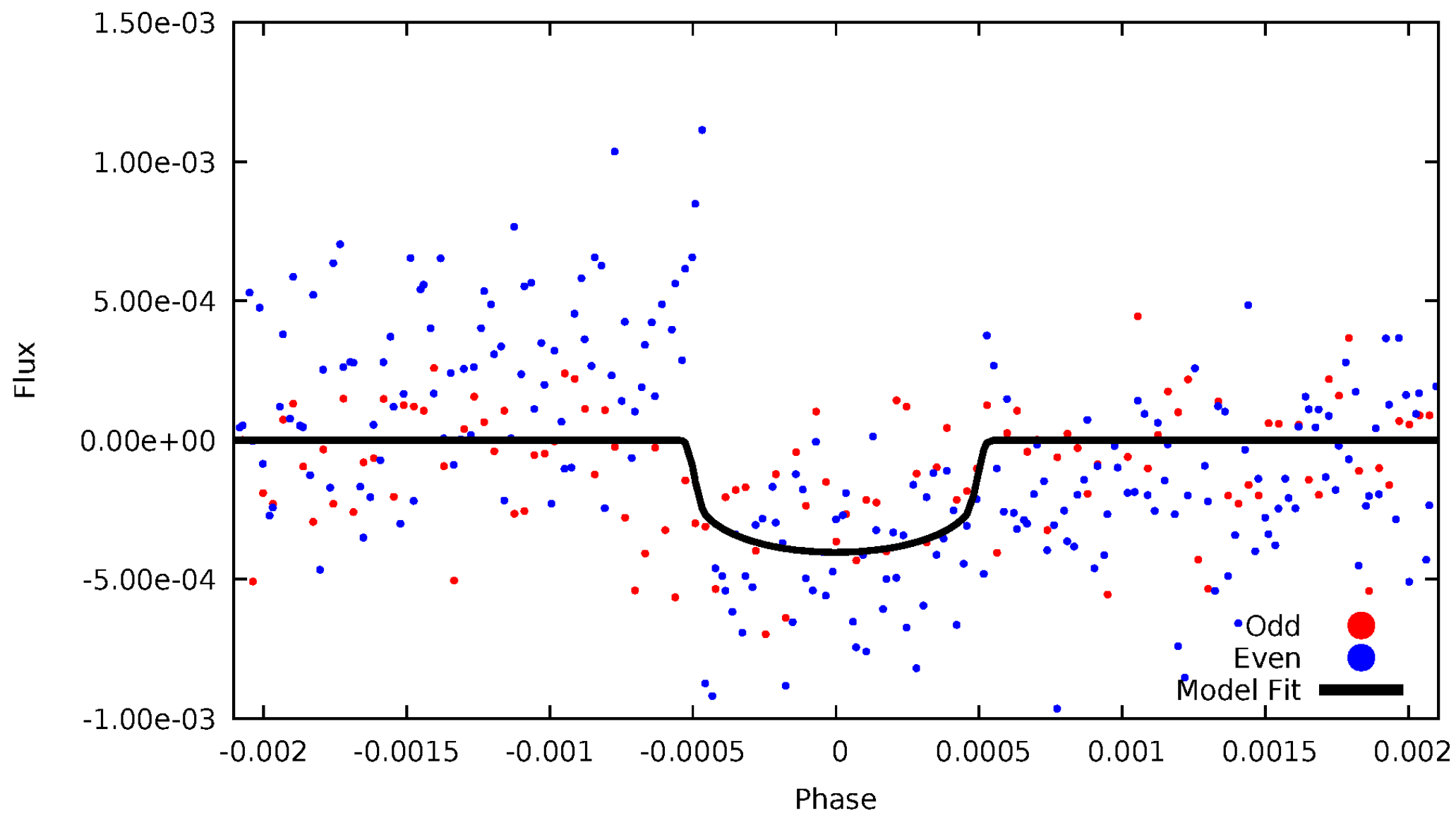


TCE 008526016-01



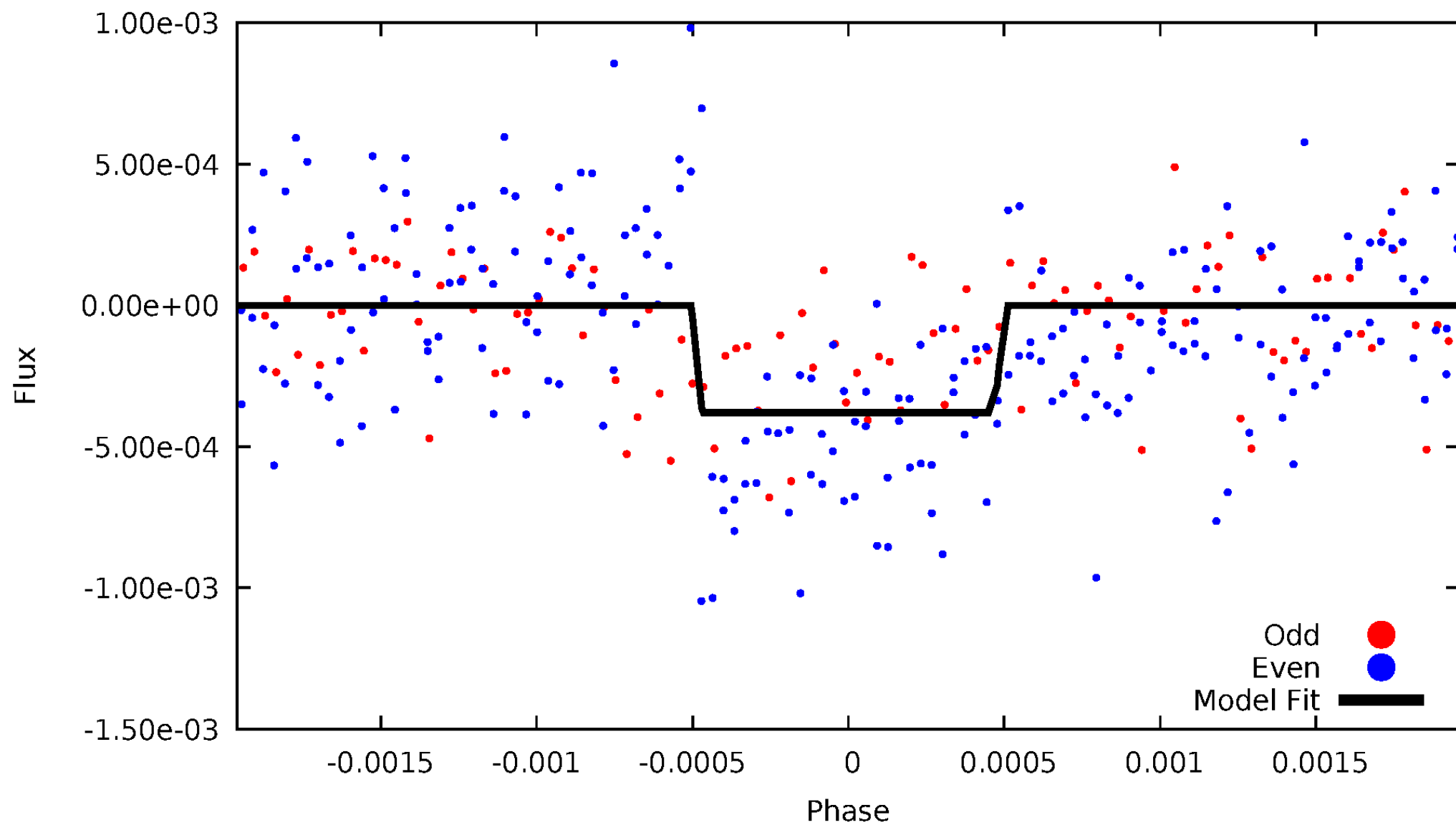
DV Odd/Even

TCE 008526016-01



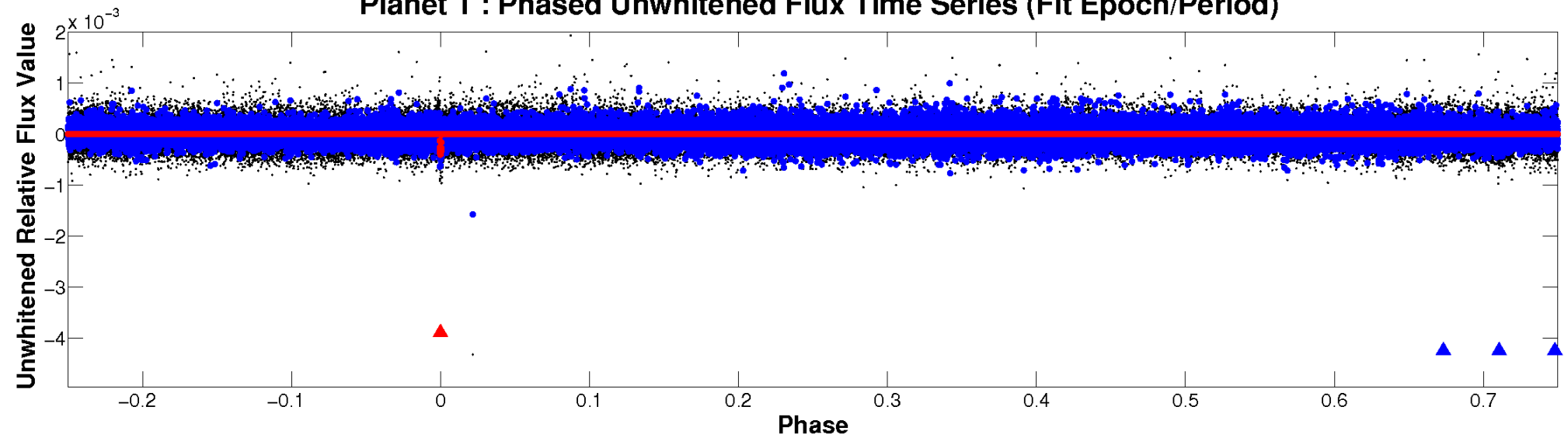
ALT Odd/Even

TCE 008526016-01

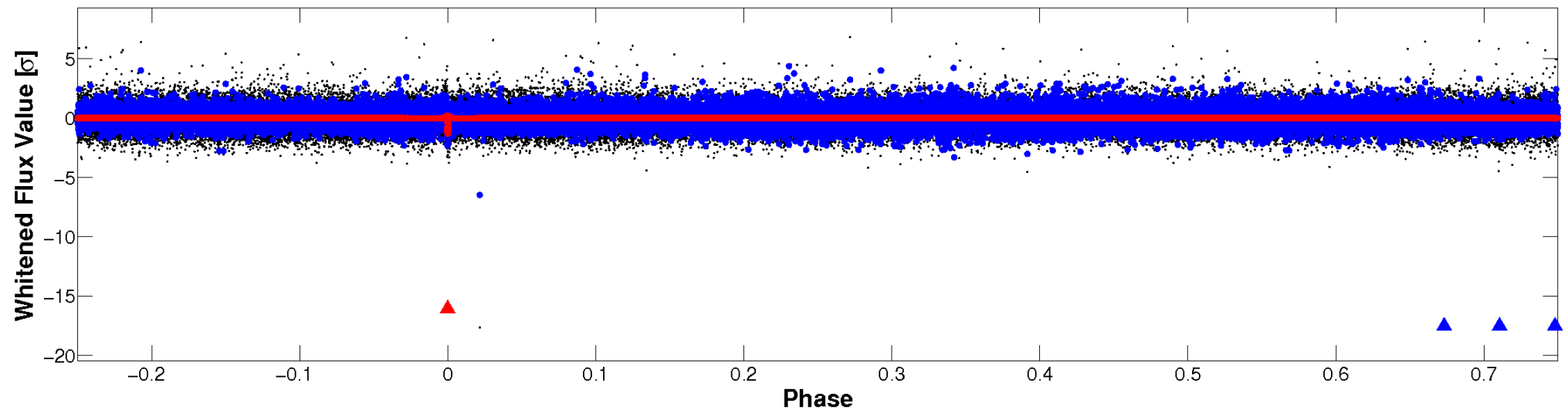


Non-Whitened Vs. Whitened Light Curve

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 008526016-01 P=581.536262 Days $T_0=341.758511$ (BKJD)



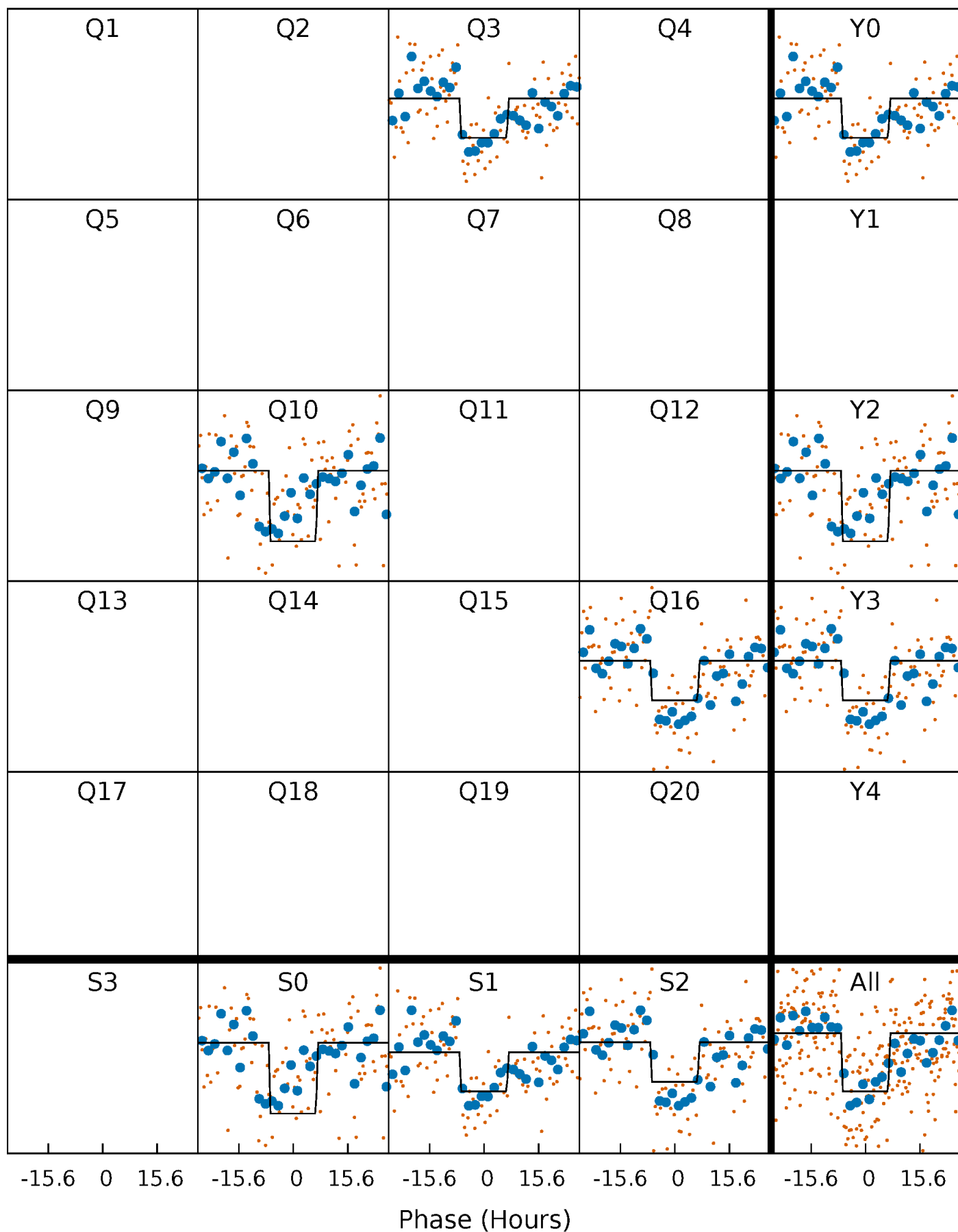
DV Quarter-Phased Transit Curves

TCE 008526016-01 P=581.536262 Days $T_0=341.758511$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

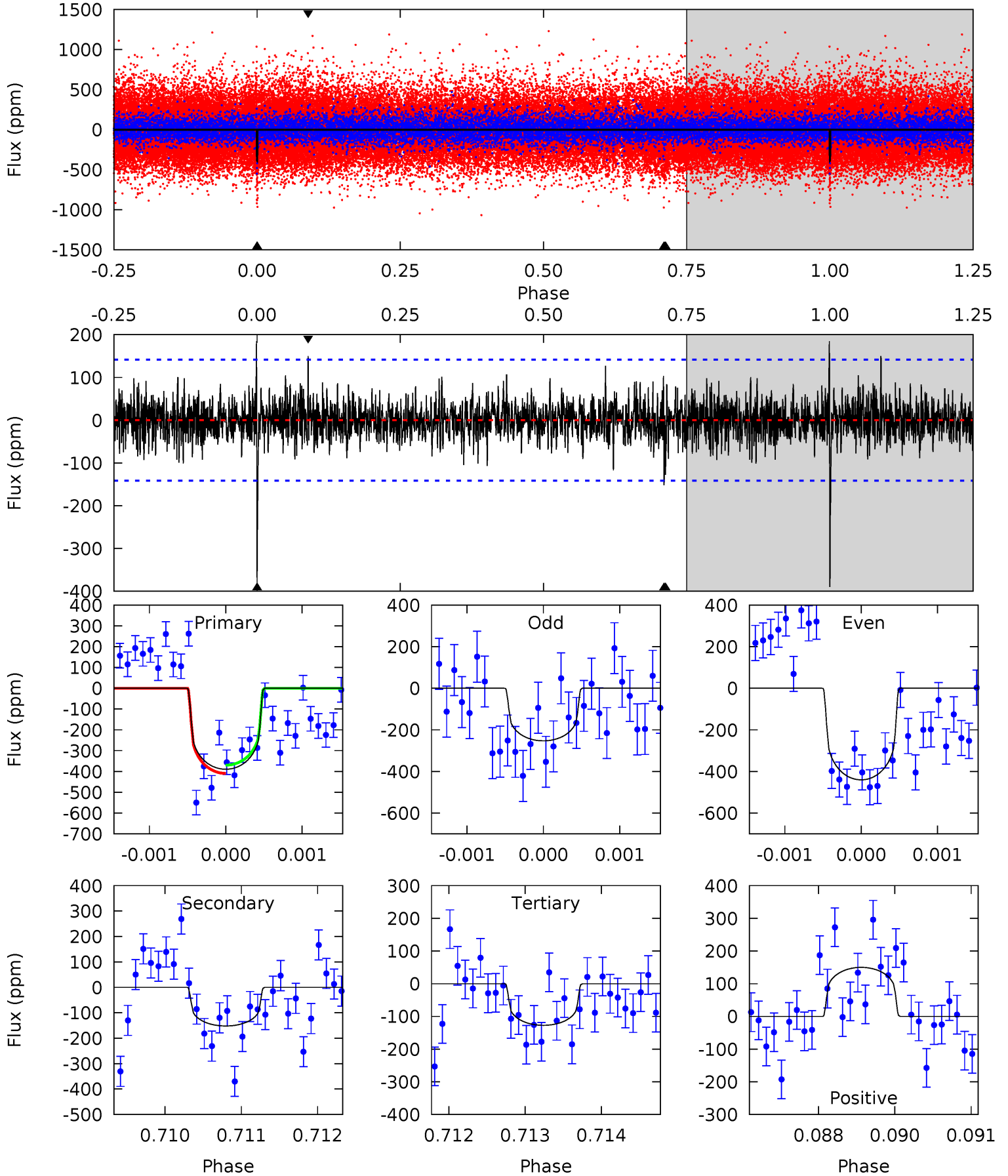
TCE 008526016-01 P=581.518684 Days $T_0=341.780940$ (BKJD)



DV Model-Shift Uniqueness Test

008526016-01, P = 581.536262 Days, E = 341.758511 Days

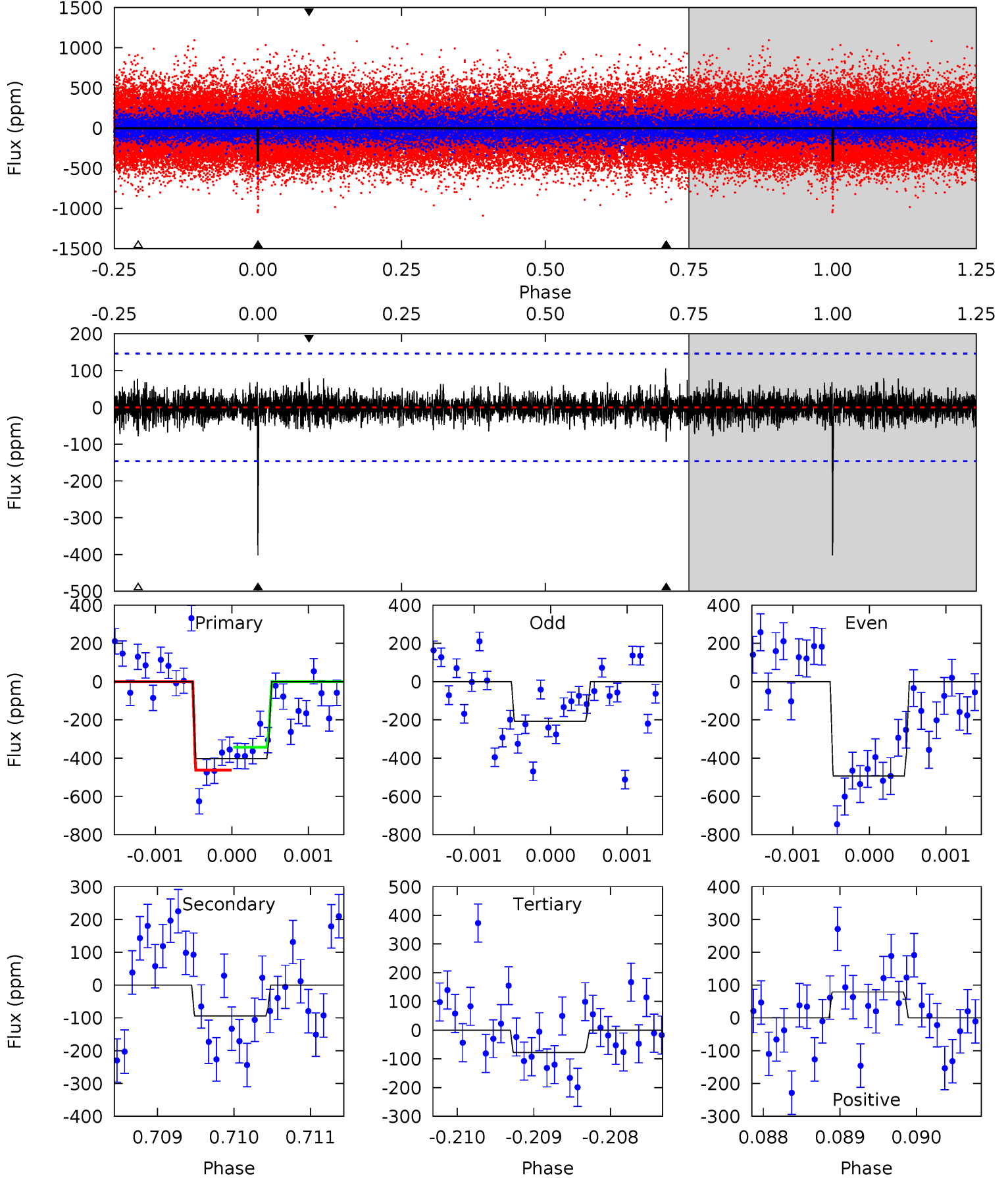
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
15.0	5.85	4.90	5.77	5.44	3.27	1.29	10.1	9.21	0.95	0.08	3.44	0.94	0.32	0.76



Alt Model-Shift Uniqueness Test

008526016-01, P = 581.518684 Days, E = 341.780940 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
15.0	3.52	2.92	2.95	5.45	3.30	0.79	12.1	12.1	0.60	0.57	5.00	0.88	0.21	2.22



Stellar Parameters For KIC 008526016

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	M (M_{\odot})	p_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	5139^{+138}_{-138}	$3.310^{+0.325}_{-0.266}$	$-0.360^{+0.250}_{-0.250}$	$4.216^{+1.536}_{-1.536}$	$1.323^{+0.197}_{-0.394}$	$0.025^{+0.062}_{-0.014}$
	+3%/-3%	+10%/-8%	+69%/-69%	+36%/-36%	+15%/-30%	+249%/-56%
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 008526016-01 / KOI

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	-152 ± 26	$9.13^{+3.95}_{-3.69}$	531^{+55}_{-57}	4201^{+781}_{-467}	2191^{+3623}_{-1159}
Alt.	-94 ± 27	$8.48^{+3.48}_{-3.73}$	528^{+60}_{-53}	3943^{+859}_{-465}	1536^{+3023}_{-840}

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

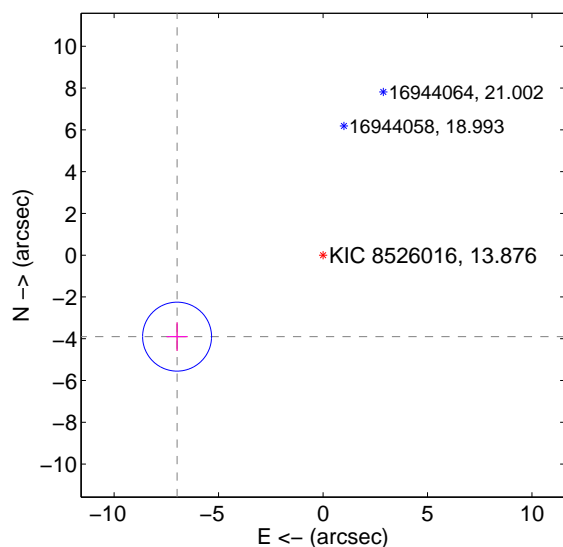
Supplemental centroid analysis for 008526016-01. Kepler magnitude: 13.88. Transit SNR 10.36

There are 0 quarters with good PRF difference image offsets

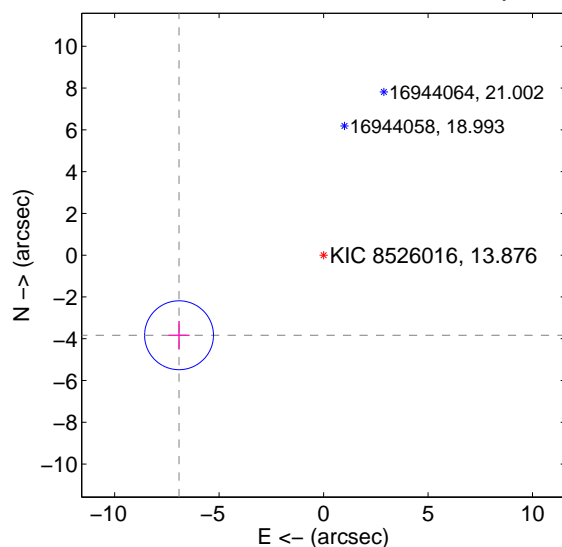
The direct PRF centroid is offset from the target star catalog position by about 0.09 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	8.002 ± 0.550	14.55	6.987 ± 0.502	-3.900 ± 0.682
PRF-fit source offset from KIC position	7.911 ± 0.550	14.39	6.920 ± 0.502	-3.833 ± 0.682
photometric centroid source offset	2.44 ± 1.84	1.33	-2.14 ± 1.91	1.17 ± 1.59

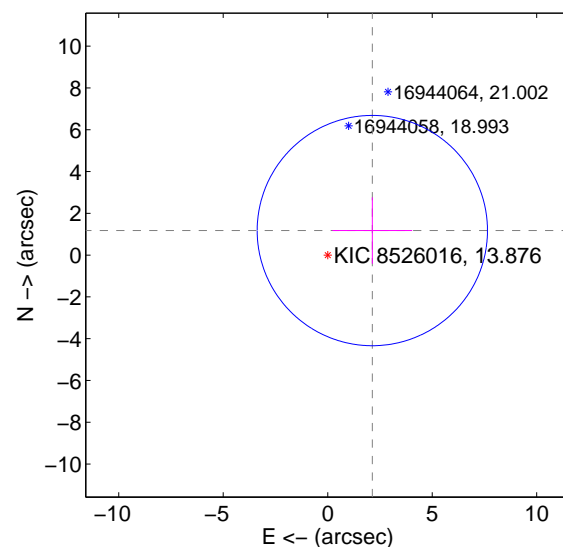
offset from difference PRF-fit to OOT PRF-fit



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.

Q1 no difference image



Q1 no OOT image



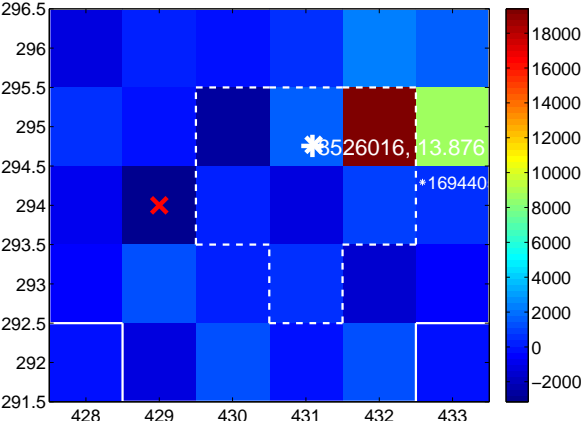
Q2 no difference image



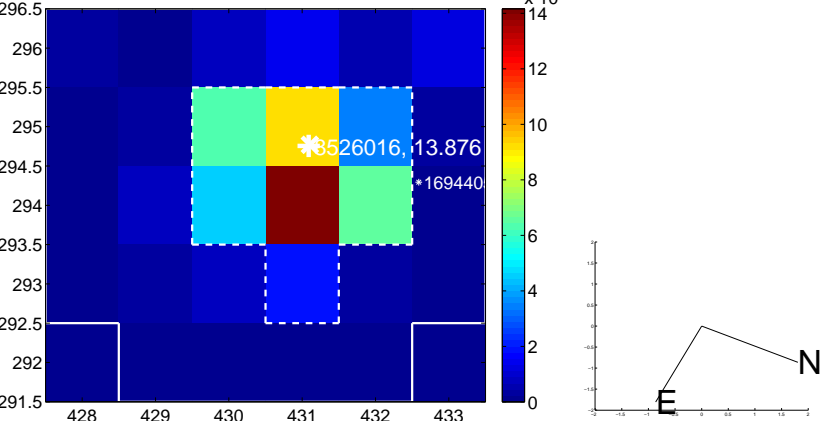
Q2 no OOT image



Q3 difference image. Poor Quality



Q3 OOT image



Q4 no difference image



Q4 no OOT image



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



white ×: KIC target position; +: OOT centroid; △: difference centroid. red ✕: large negative pixel value.

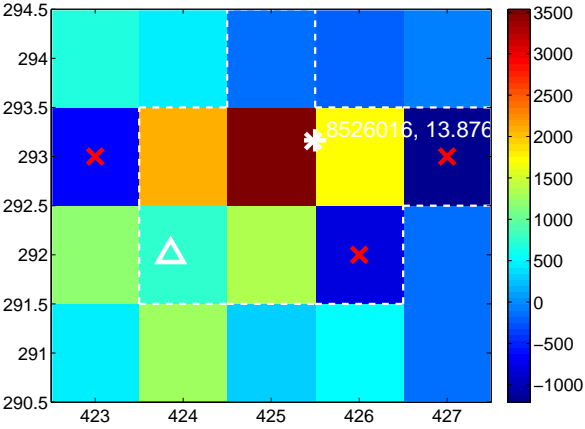
Q9 no difference image



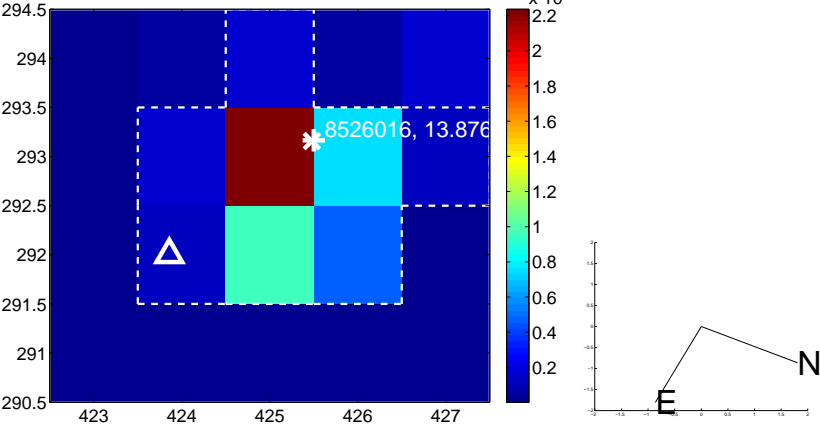
Q9 no OOT image



Q10 difference image. Poor Quality



Q10 OOT image



Q11 no difference image



Q11 no OOT image



Q12 no difference image



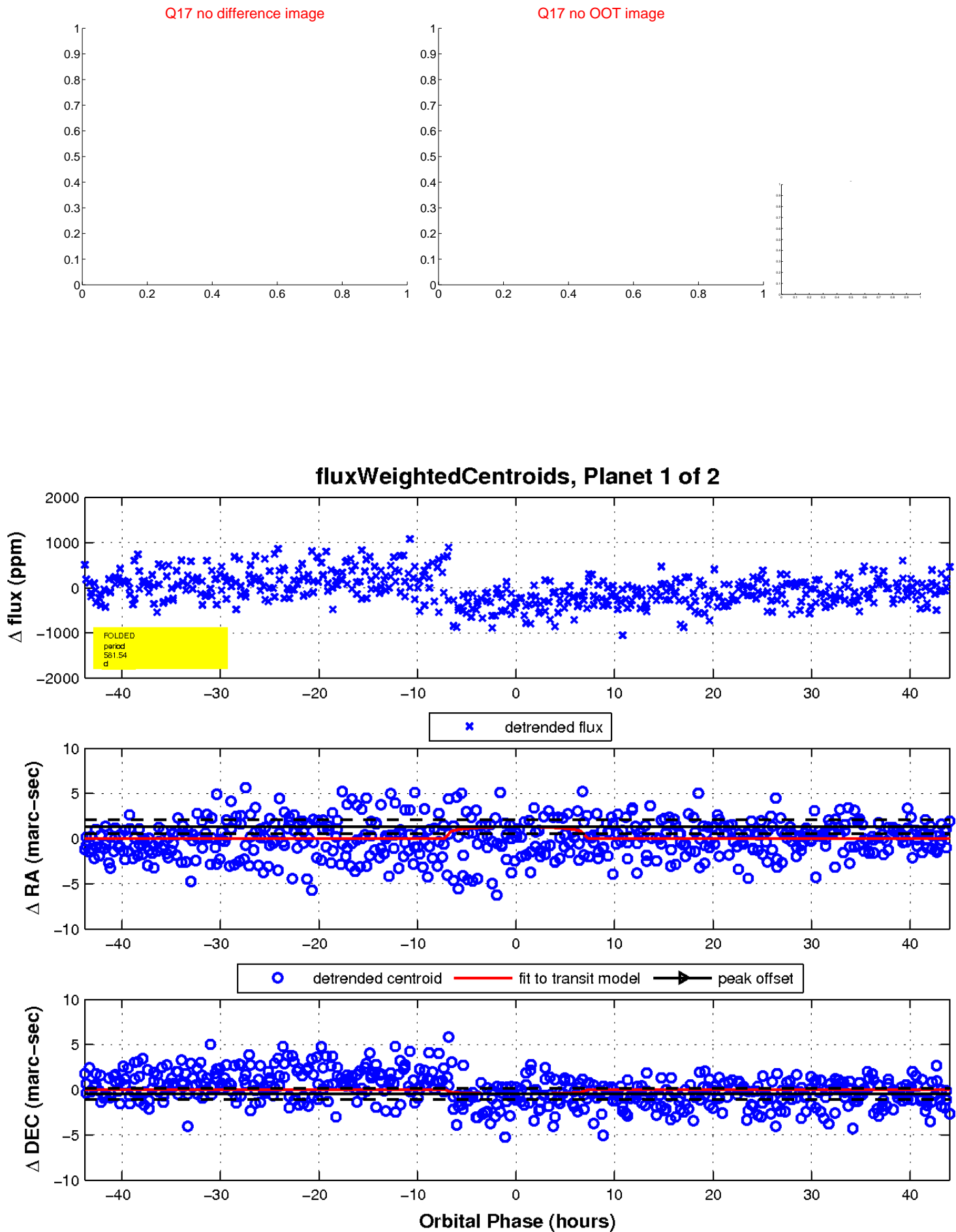
Q12 no OOT image



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

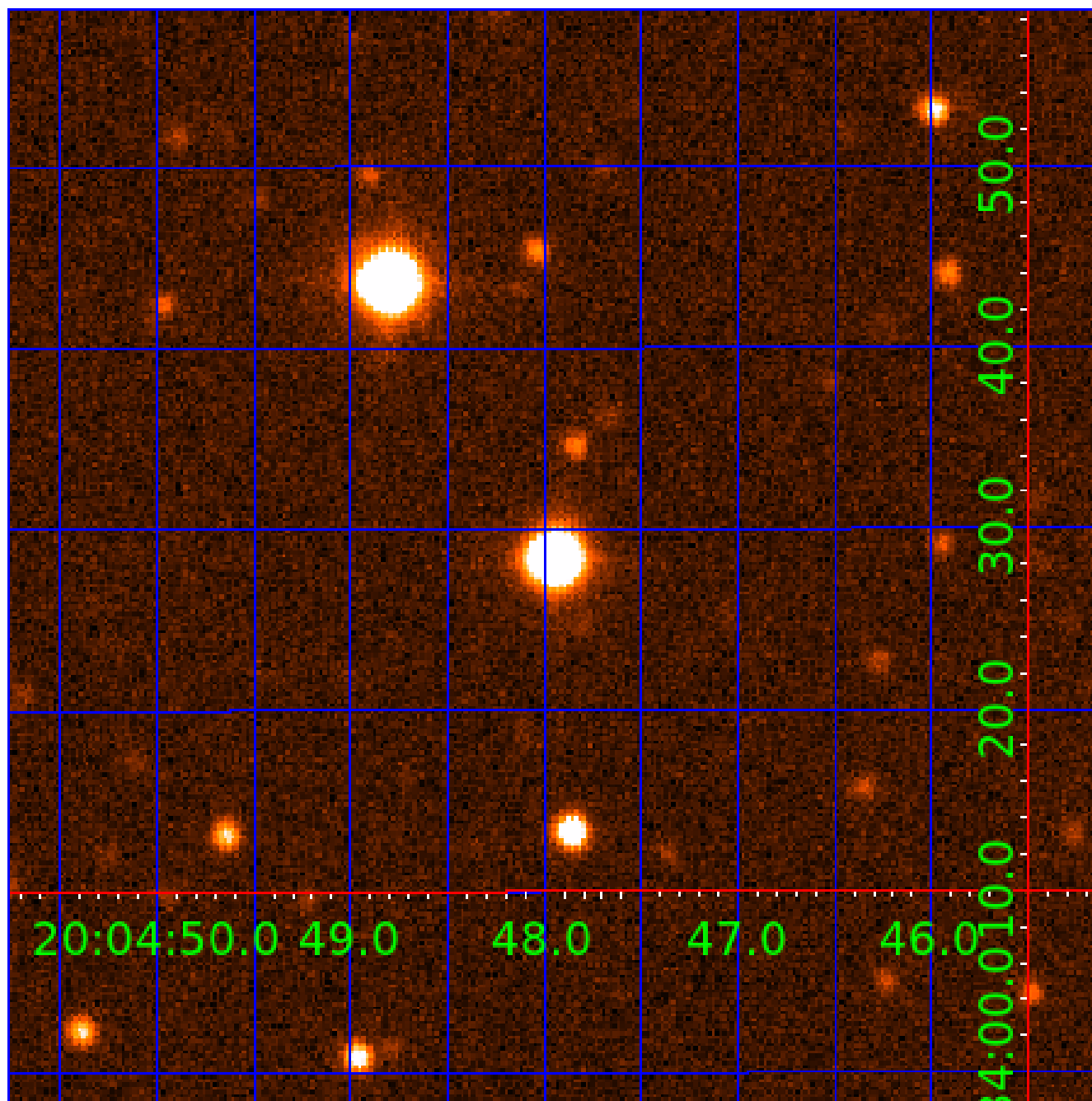


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 008526016

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})
008526016-01	OBS	No	581.536262	341.758511	402.6	14.684	10.5	10.4	4.22	5139	9.40	4.95
008526016-02	OBS	No	603.288535	151.712016	551.2	3.633	7.2	7.6	4.22	5139	11.40	4.72

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
008526016-01	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—LPP_DV—ALL_TRANS_CHASES—CENT_FEW_DIFFS
008526016-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—ALL_TRANS_CHASES—MOD_NONUNIQ_ALT—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.

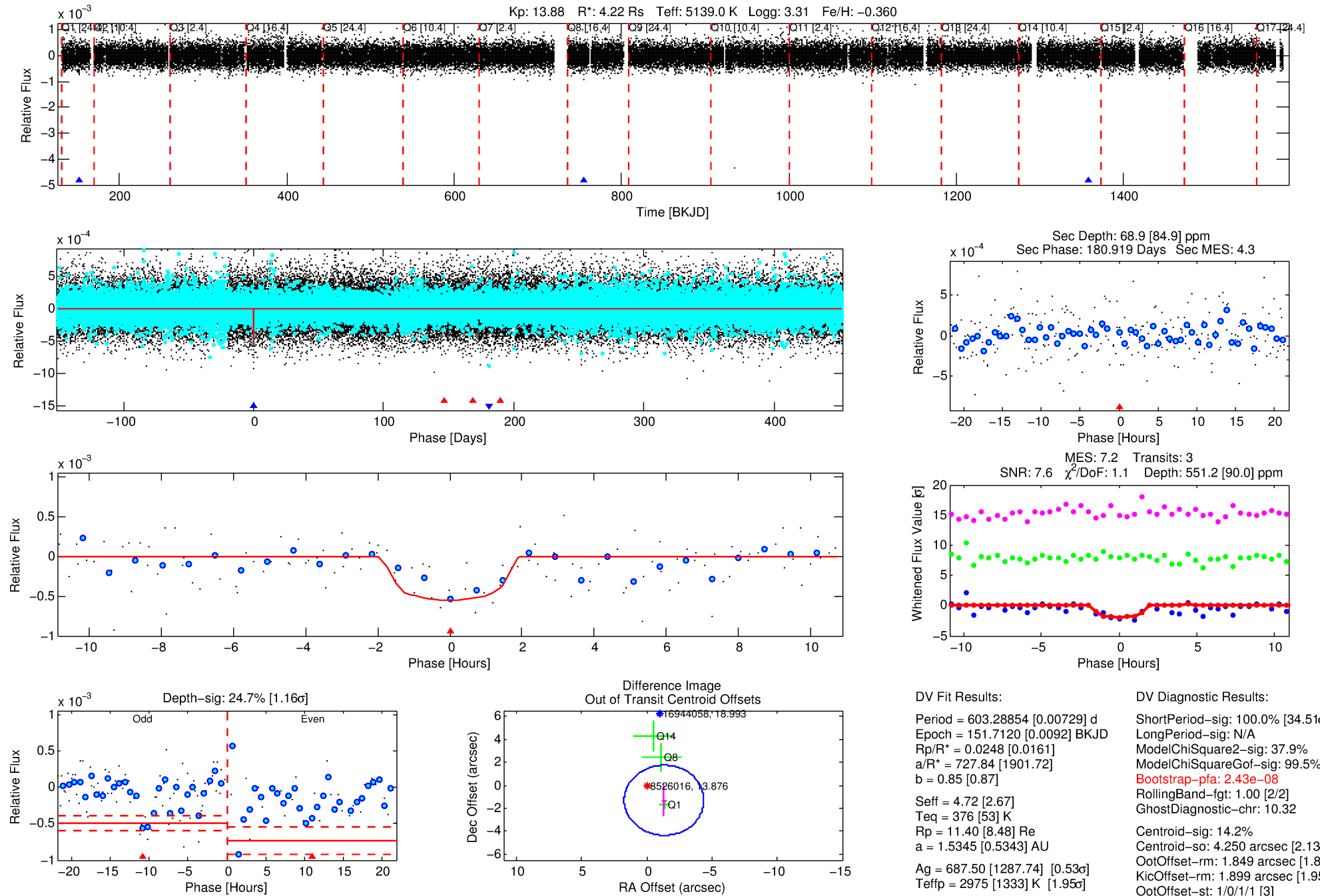
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 008526016-02

No Significant Match Found

DV One-Page Summary

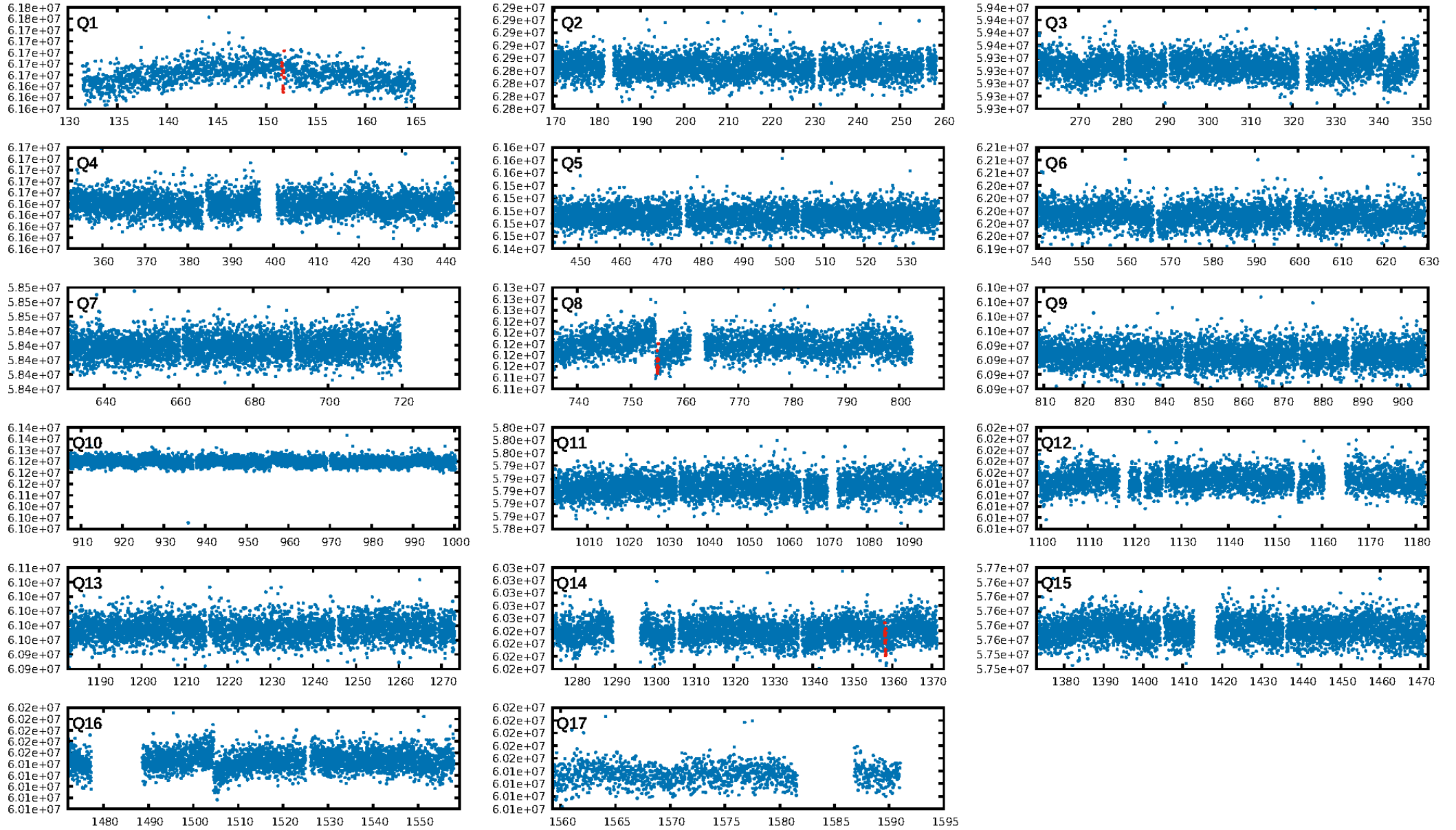
KIC: 8526016 Candidate: 2 of 2 Period: 603.289 d



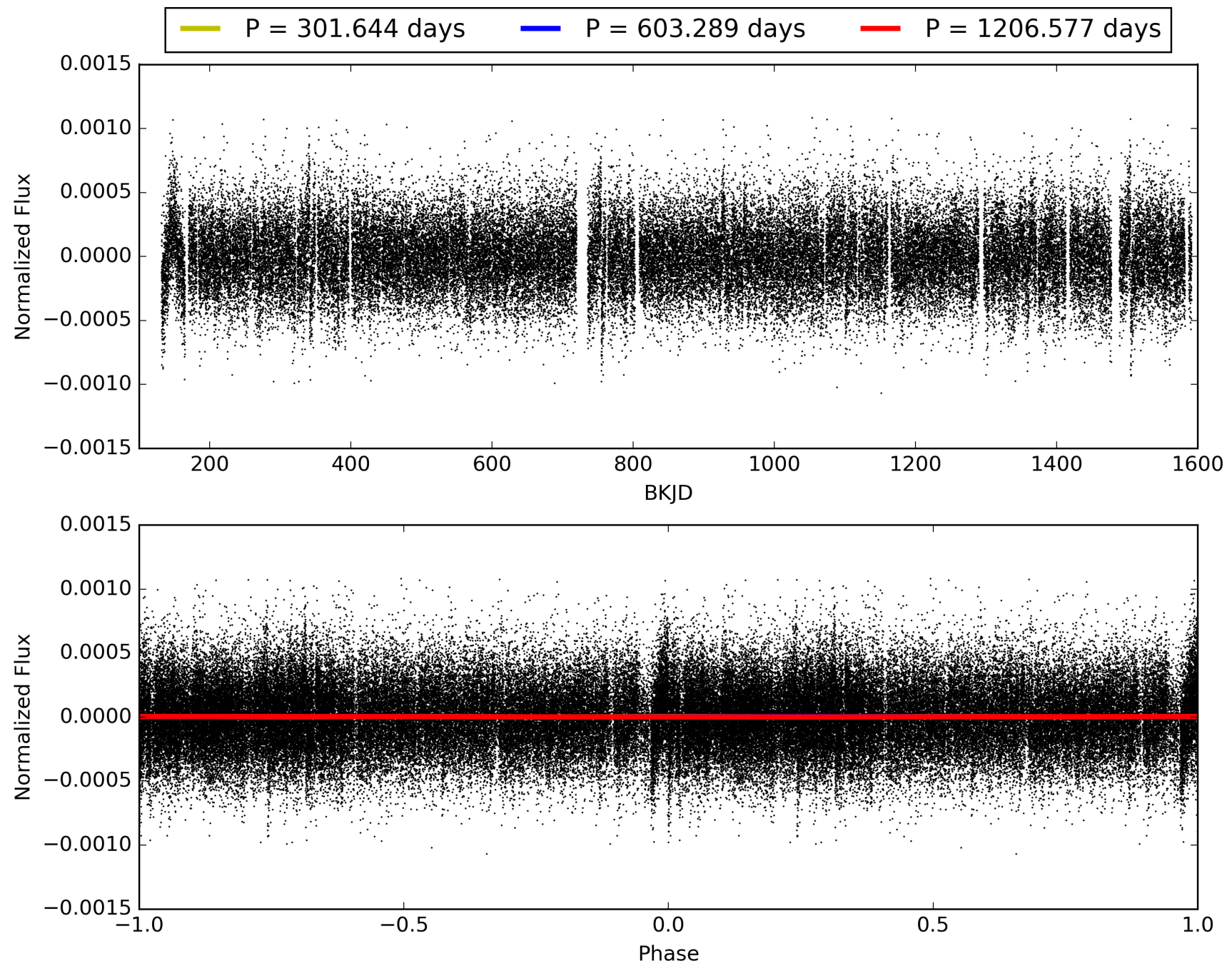
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 29-Jan-2016 22:11:36 Z

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

TCE 008526016-02, PDC Light Curves

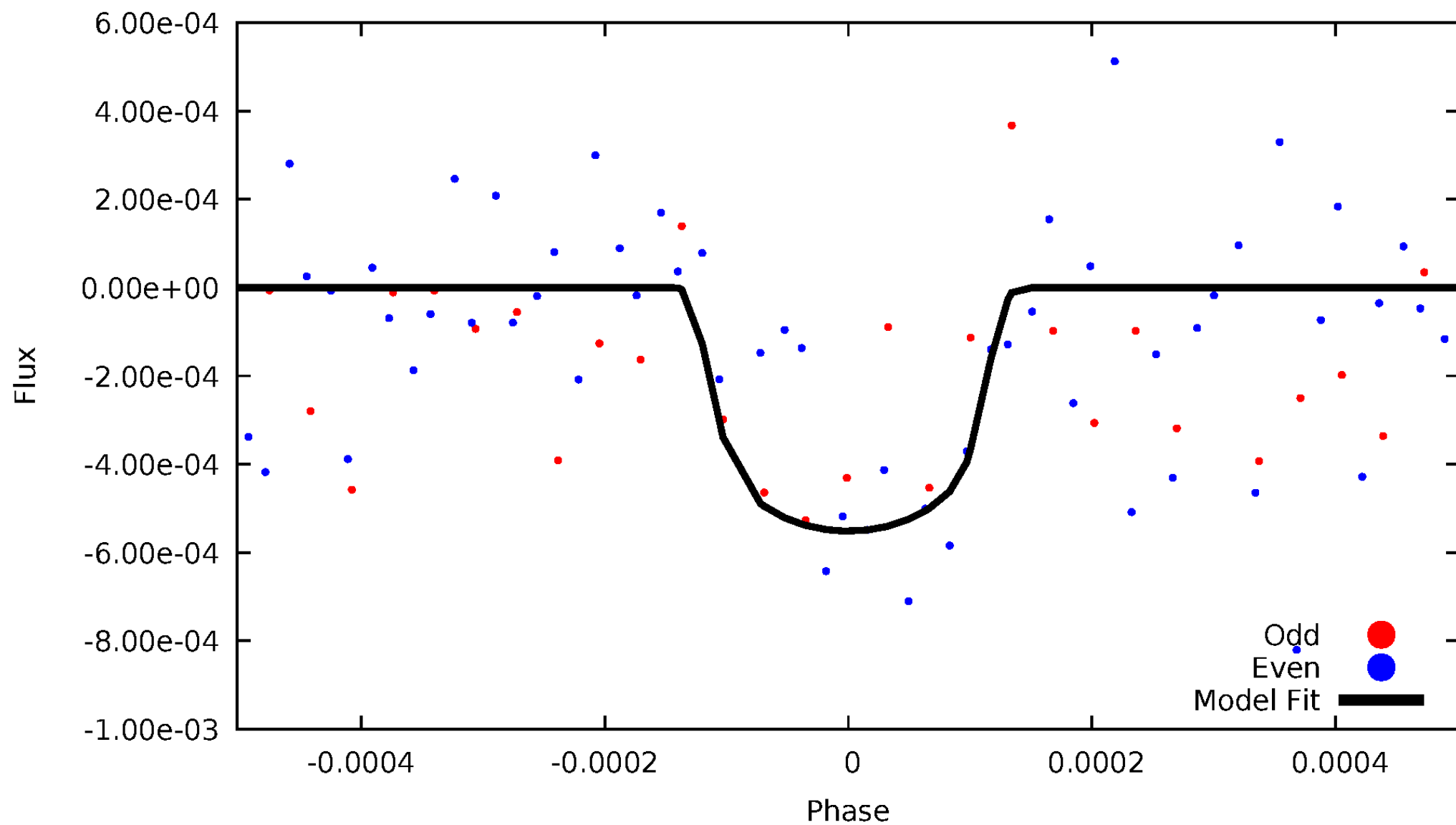


TCE 008526016-02



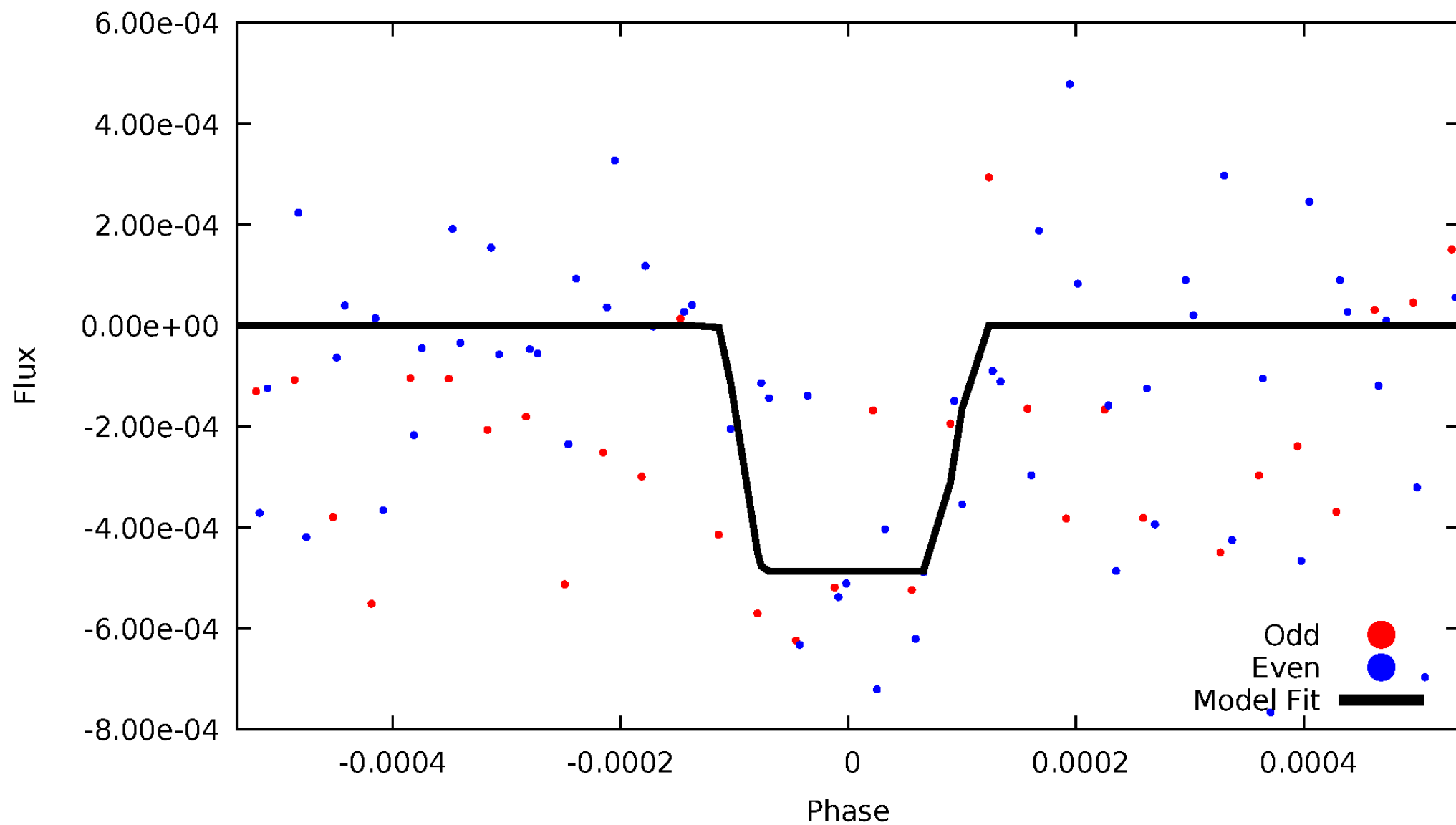
DV Odd/Even

TCE 008526016-02



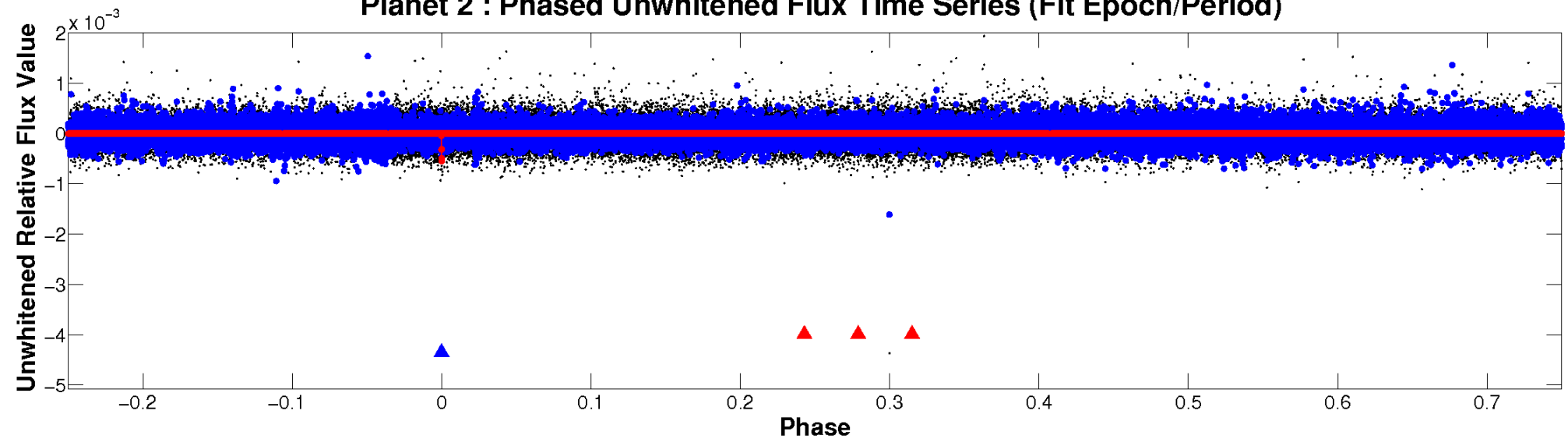
ALT Odd/Even

TCE 008526016-02

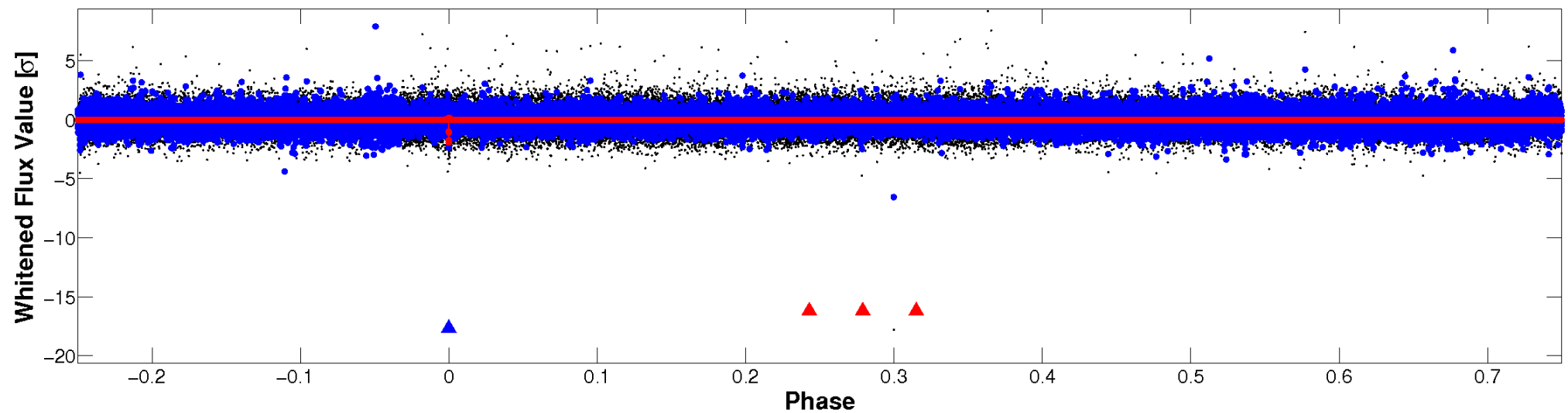


Non-Whitened Vs. Whitened Light Curve

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

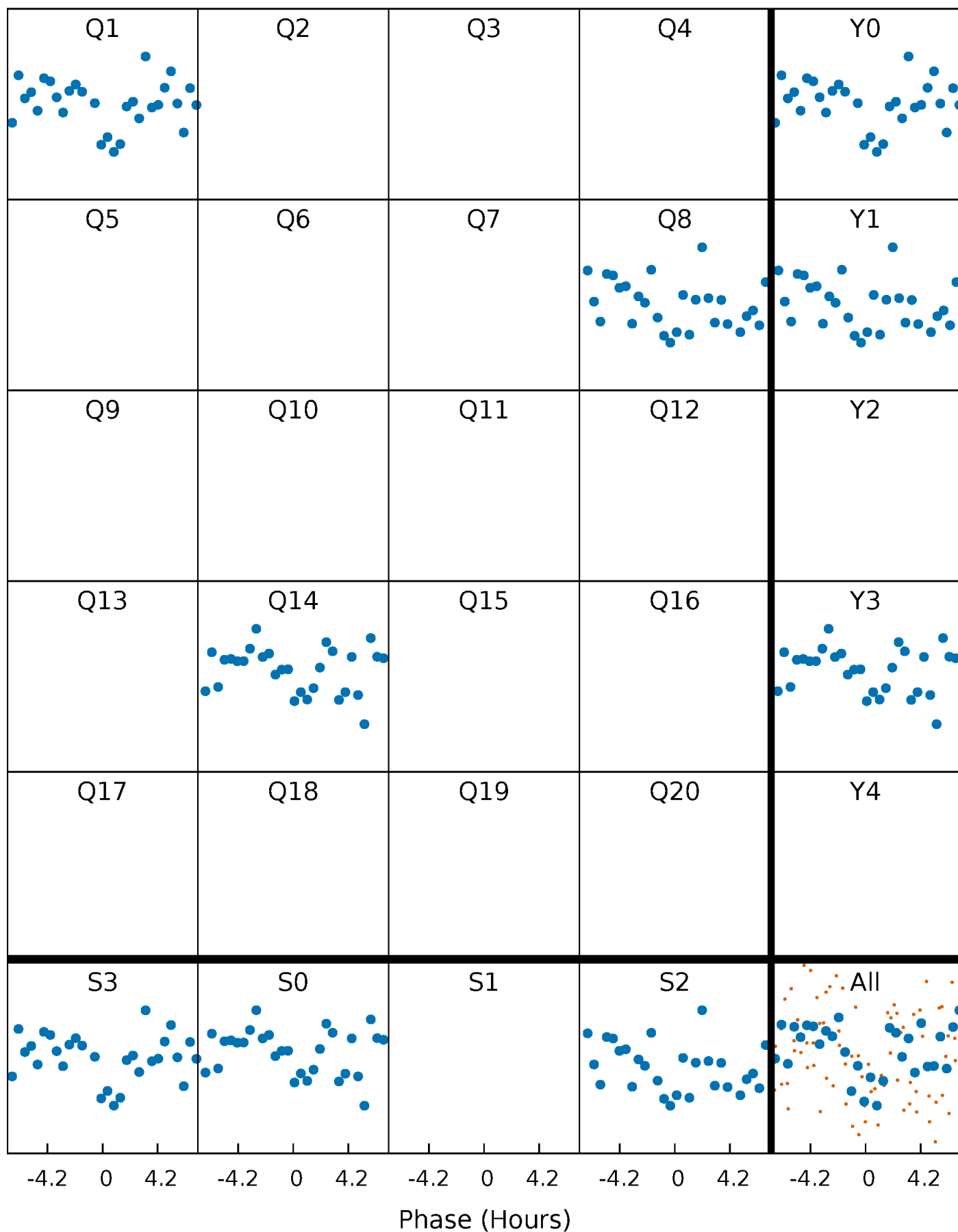


Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



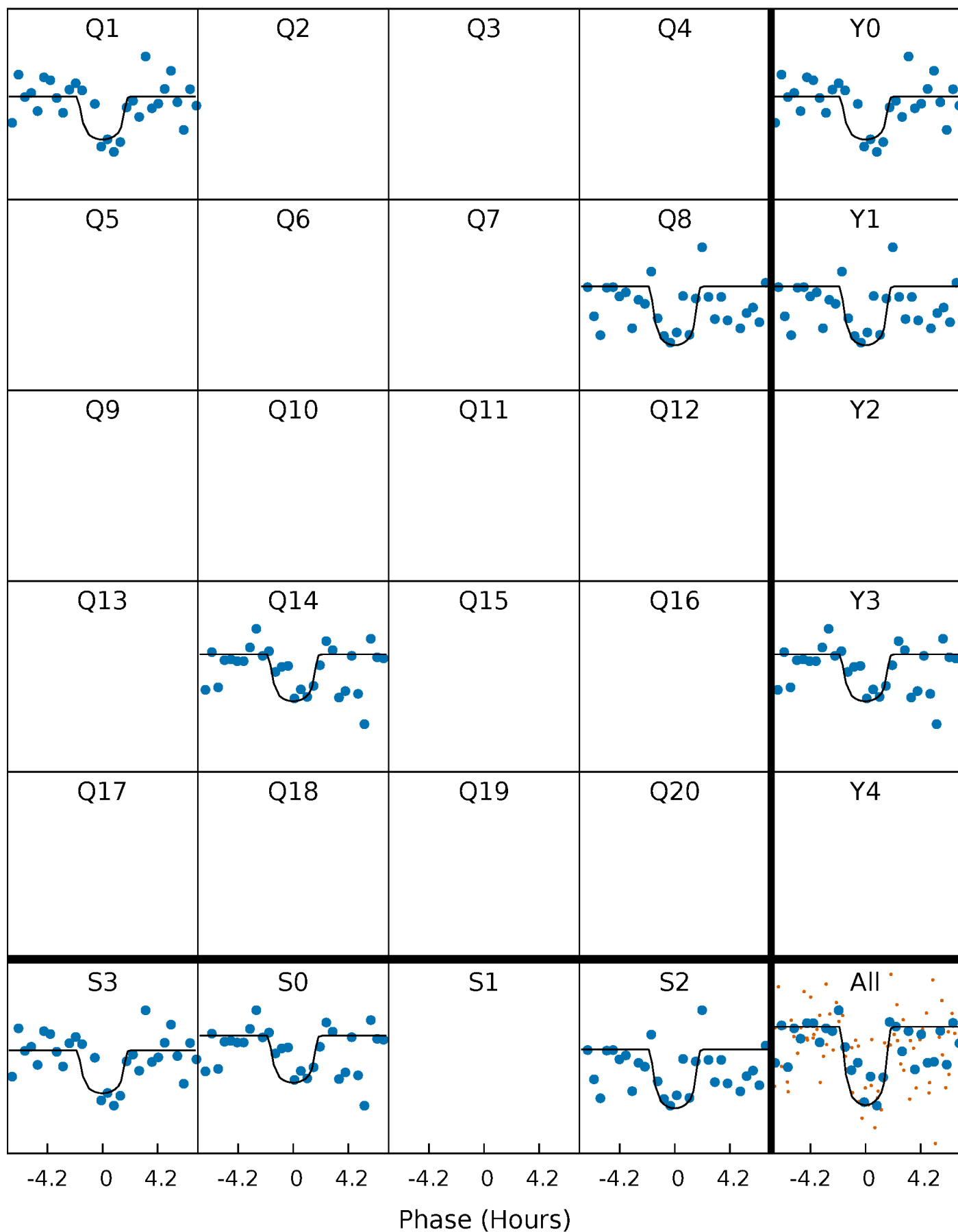
PDC Quarter-Phased Transit Curves

TCE 008526016-02 $P=603.288535$ Days $T_0=151.712016$ (BKJD)



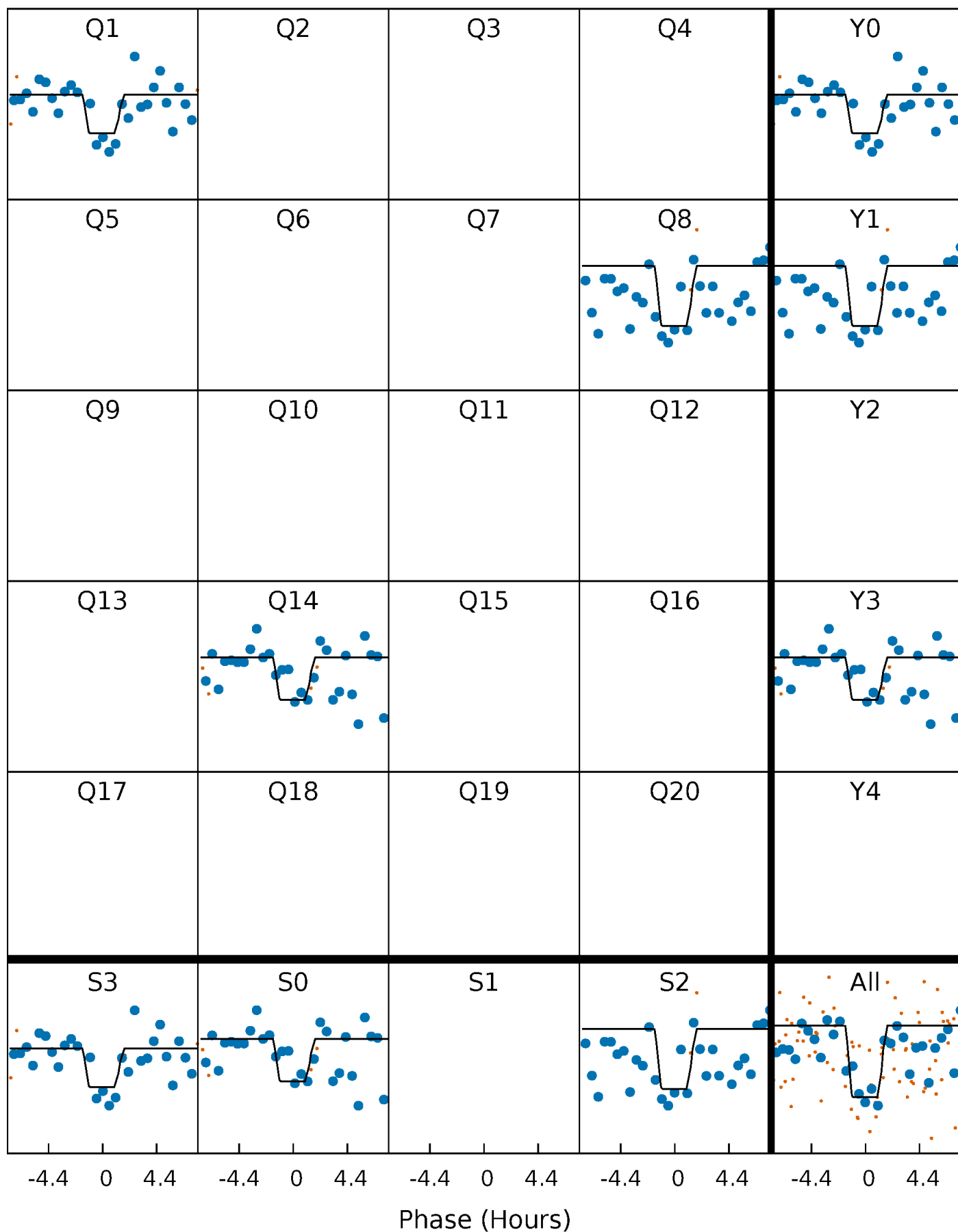
DV Quarter-Phased Transit Curves

TCE 008526016-02 P=603.288535 Days $T_0=151.712016$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

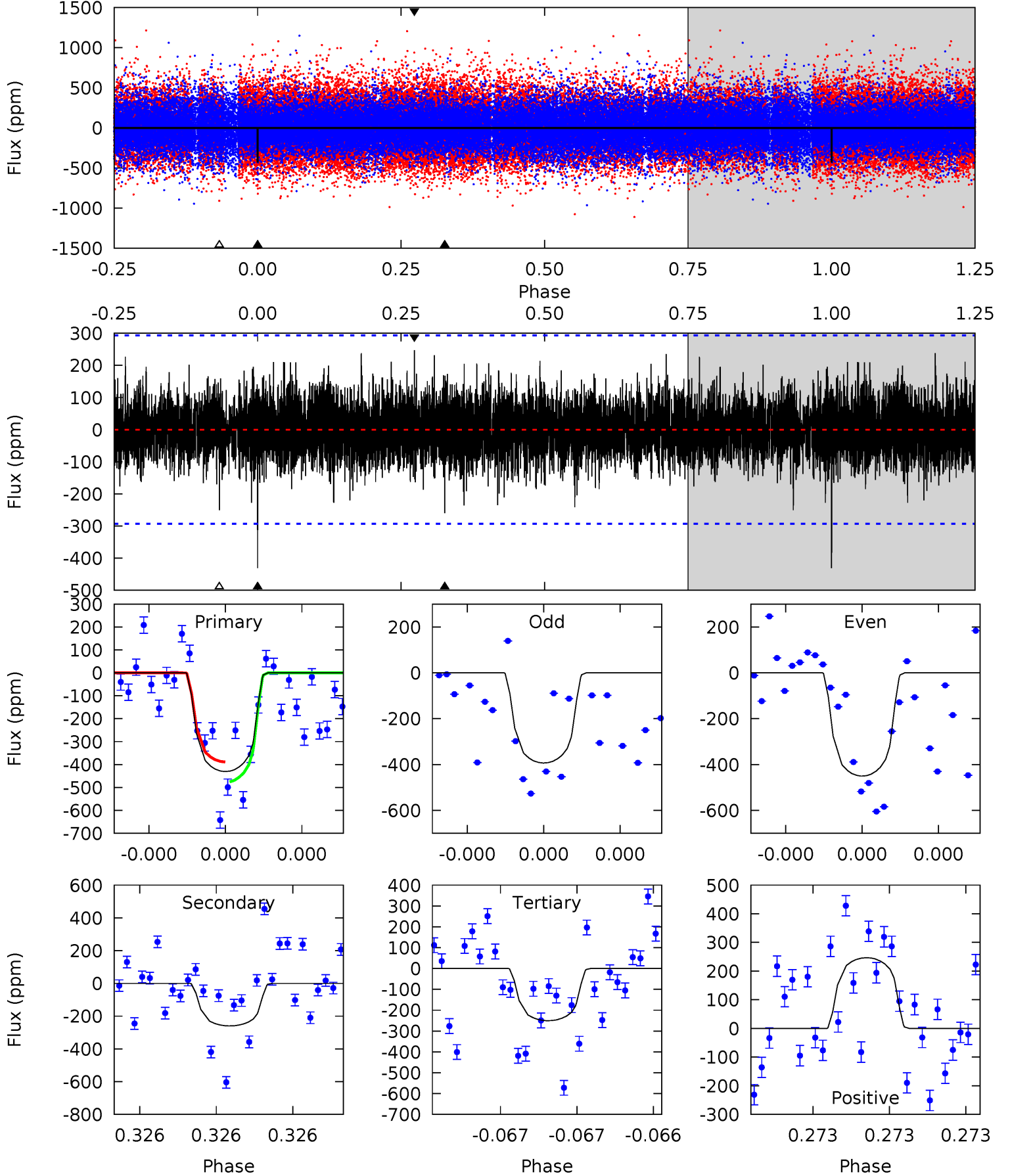
TCE 008526016-02 P=603.280425 Days $T_0=151.726634$ (BKJD)



DV Model-Shift Uniqueness Test

008526016-02, P = 603.288535 Days, E = 151.712016 Days

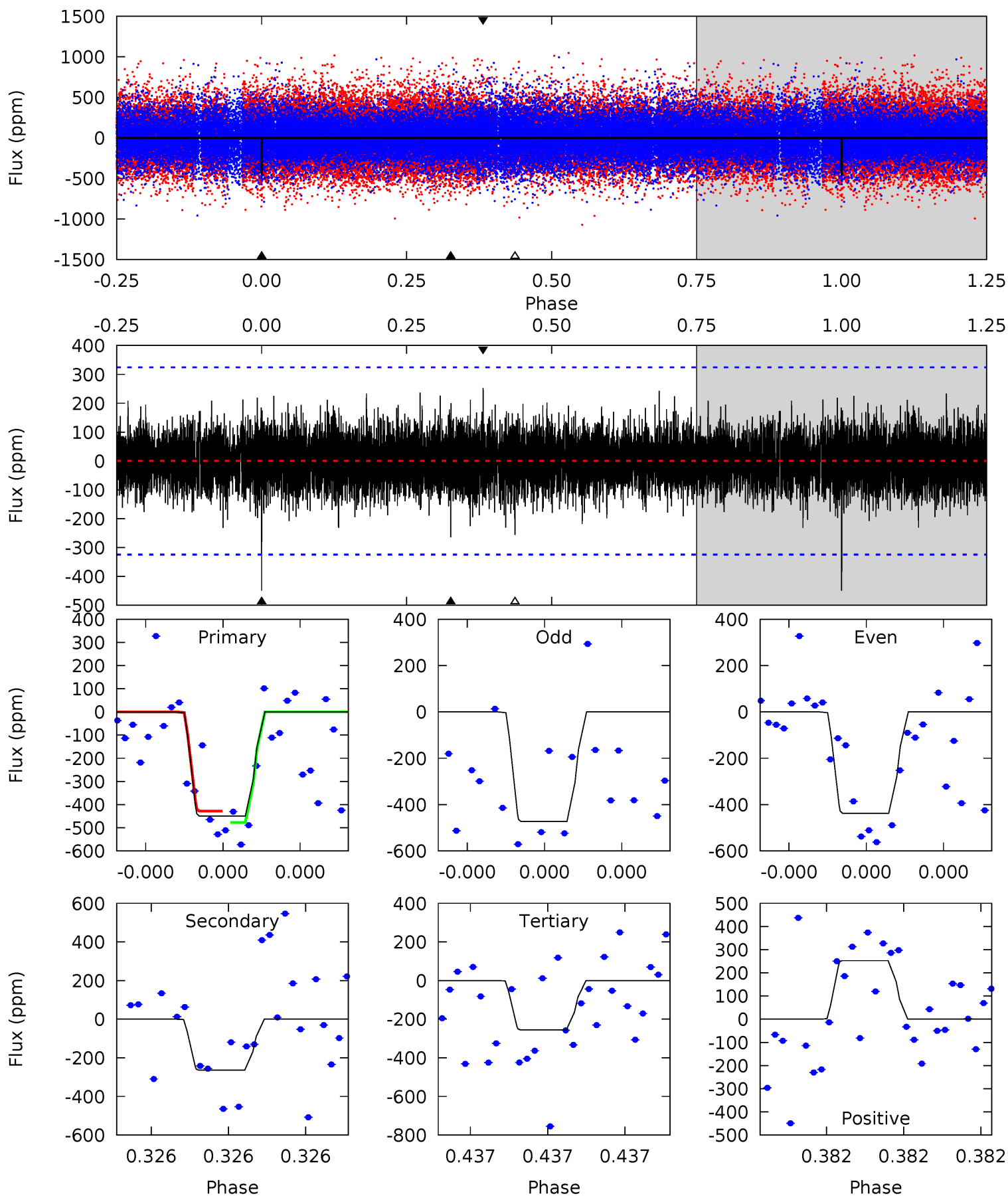
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
8.34	5.03	4.85	4.78	5.68	3.64	1.18	3.49	3.56	0.18	0.25	0.52	1.11	0.36	0.84



Alt Model-Shift Uniqueness Test

008526016-02, P = 603.280425 Days, E = 151.726634 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
7.90	4.64	4.49	4.44	5.71	3.69	1.08	3.41	3.46	0.15	0.20	0.30	0.95	0.36	0.43



Stellar Parameters For KIC 008526016

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	M (M_{\odot})	p_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	5139^{+138}_{-138}	$3.310^{+0.325}_{-0.266}$	$-0.360^{+0.250}_{-0.250}$	$4.216^{+1.536}_{-1.536}$	$1.323^{+0.197}_{-0.394}$	$0.025^{+0.062}_{-0.014}$
	+3%/-3%	+10%/-8%	+69%/-69%	+36%/-36%	+15%/-30%	+249%/-56%
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 008526016-02 / KOI

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	-260 ± 52	$11.49^{+7.92}_{-6.49}$	527^{+55}_{-50}	4239^{+1775}_{-620}	2428^{+10426}_{-1576}
Alt.	-264 ± 57	$10.39^{+7.80}_{-5.90}$	529^{+58}_{-53}	4413^{+2063}_{-713}	2835^{+13005}_{-1862}

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

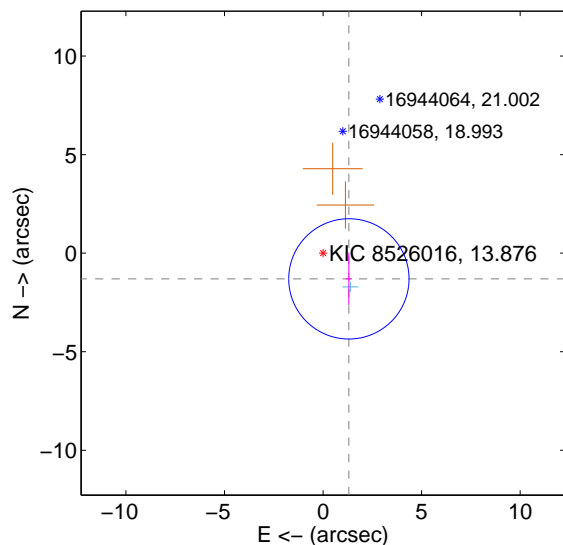
Supplemental centroid analysis for 008526016-02. Kepler magnitude: 13.88. Transit SNR 7.55

There are 1 quarters with good PRF difference image offsets

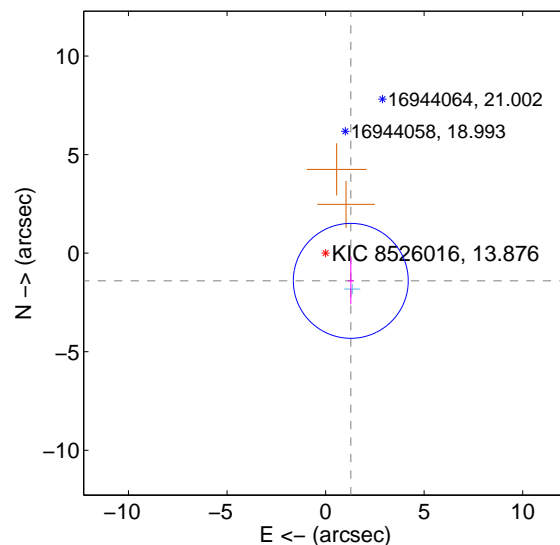
The direct PRF centroid is offset from the target star catalog position by about 0.08 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	1.849 ± 1.017	1.82	-1.311 ± 0.163	-1.304 ± 1.330
PRF-fit source offset from KIC position	1.899 ± 0.972	1.95	-1.279 ± 0.163	-1.404 ± 1.191
photometric centroid source offset	4.25 ± 1.99	2.13	4.22 ± 1.99	0.54 ± 1.87

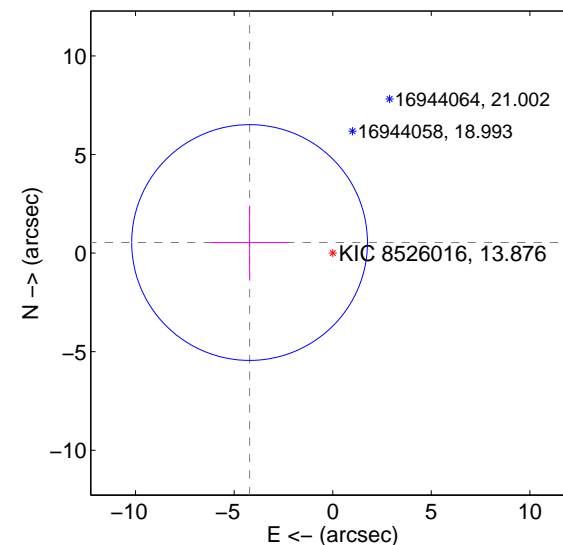
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position

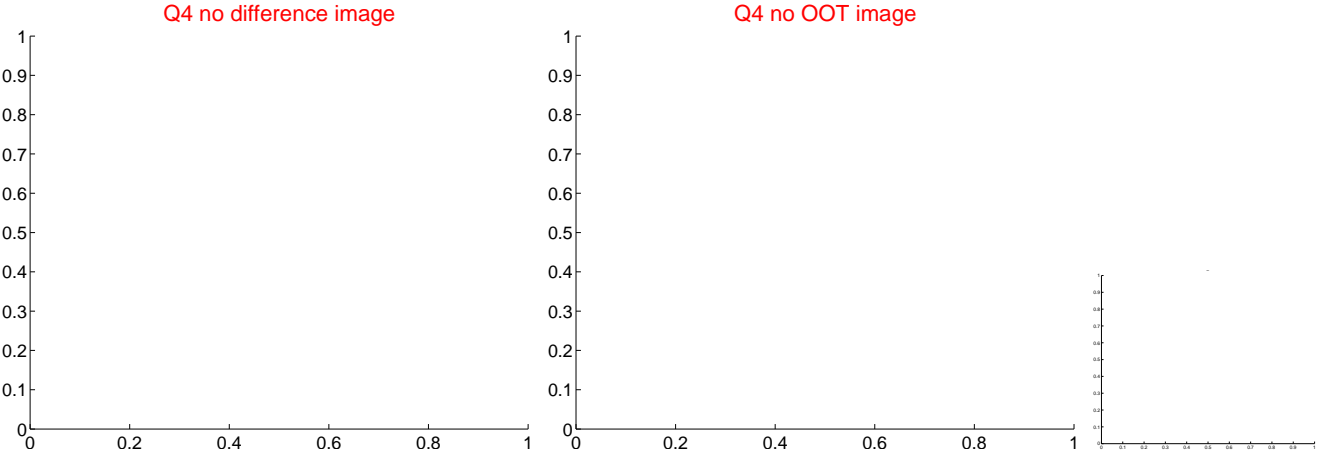
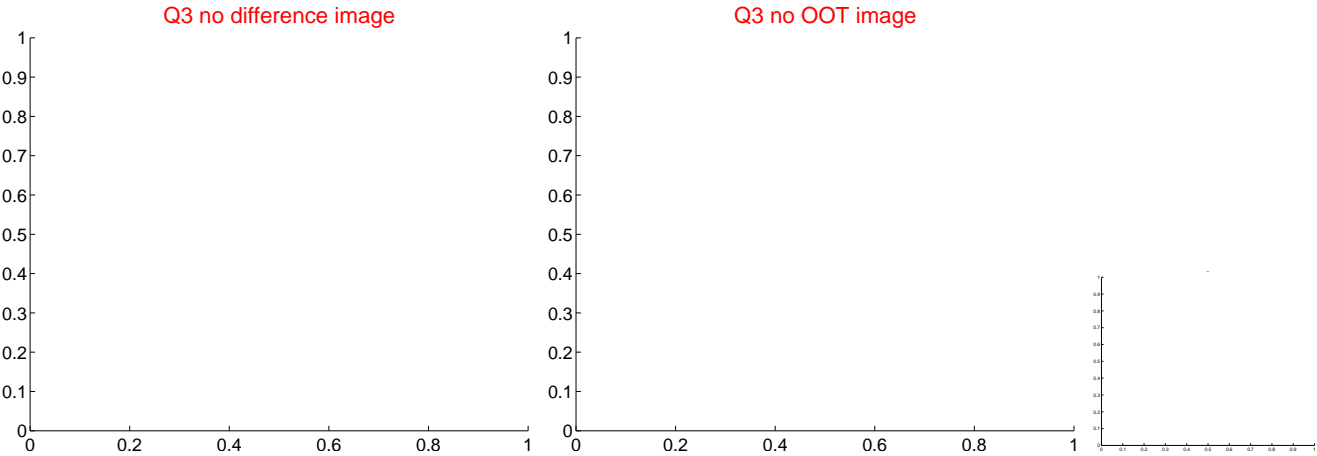
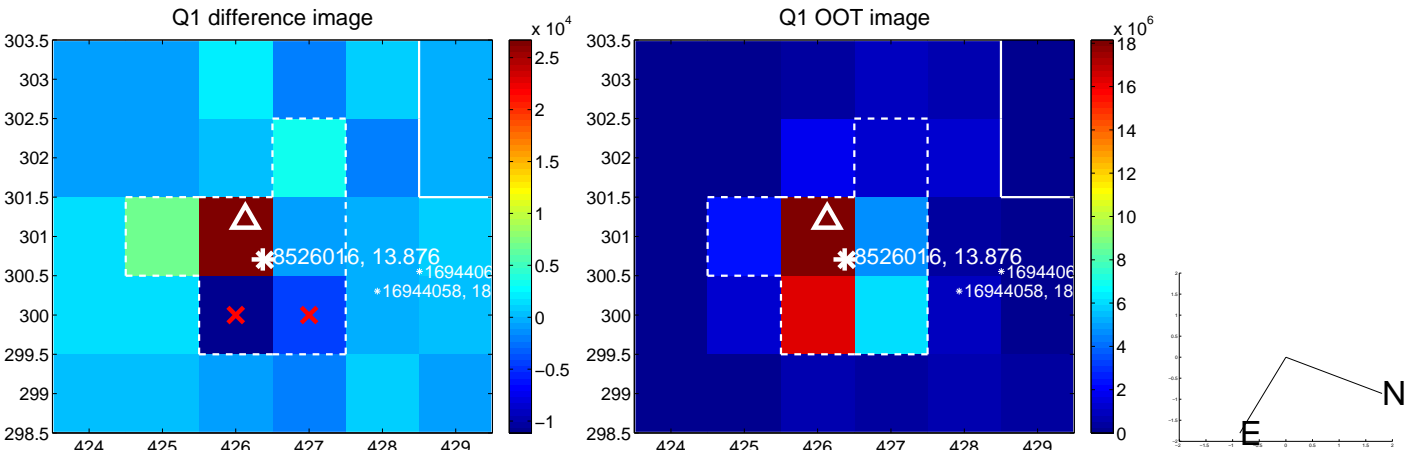


offset from photometric centroids

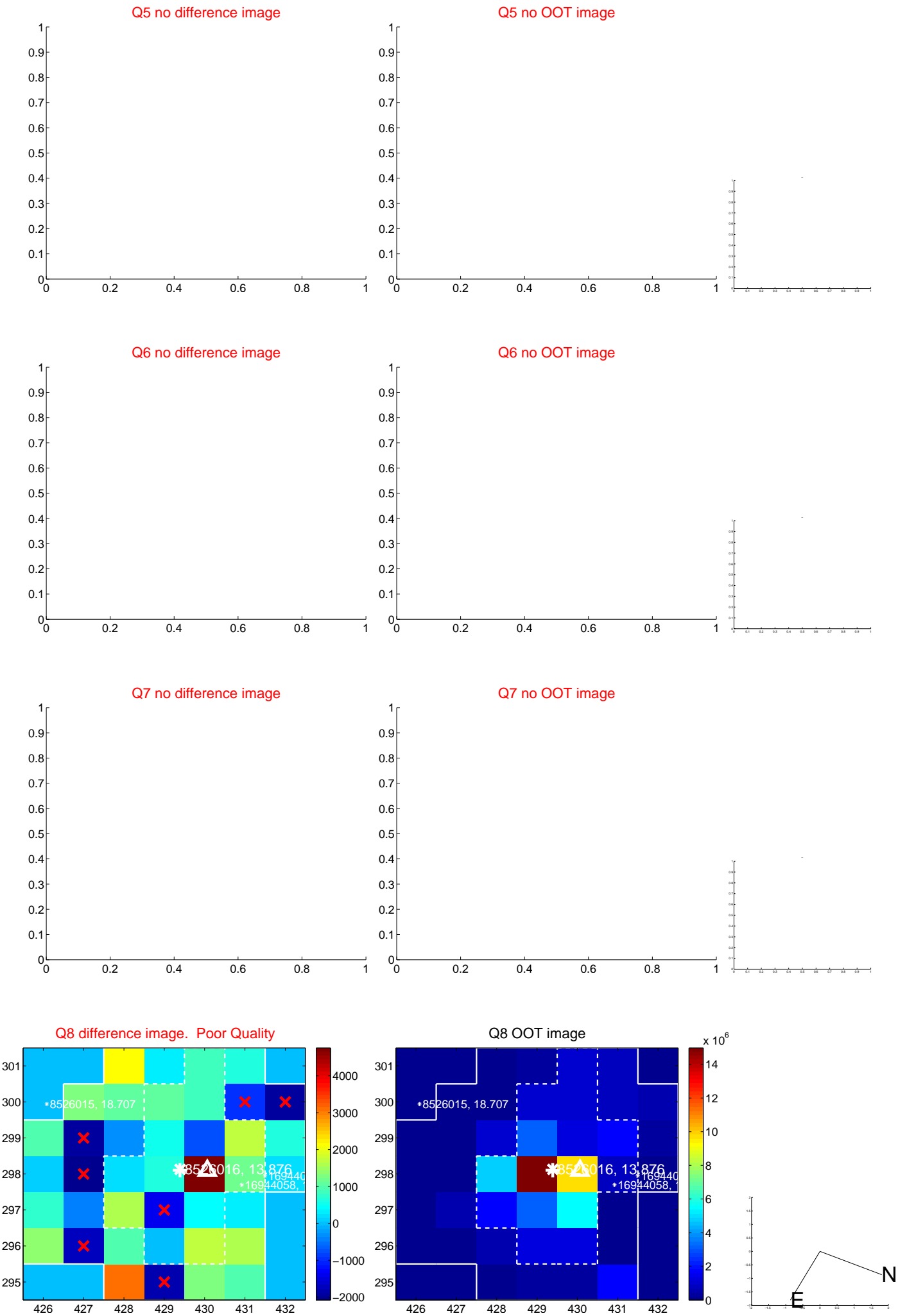


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ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

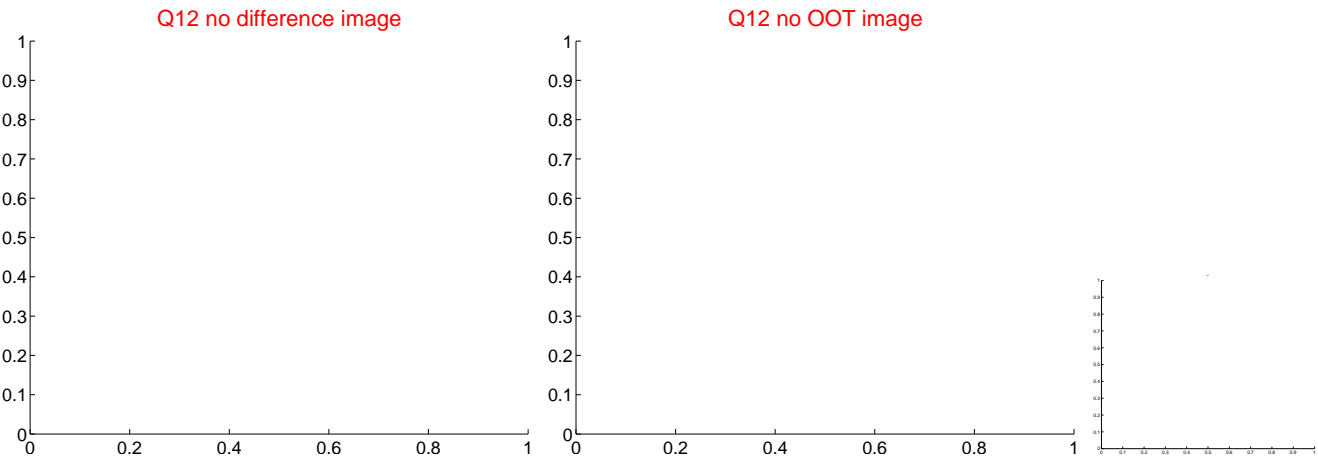
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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



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

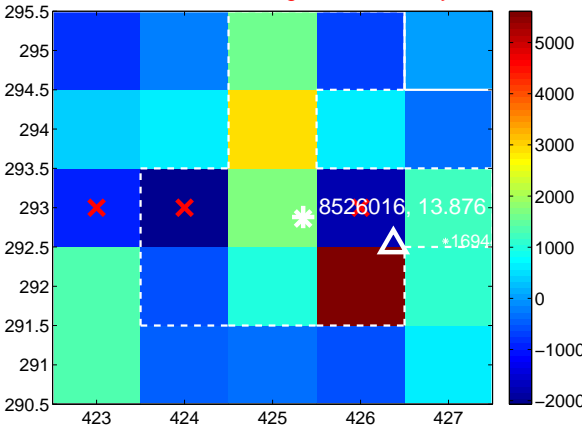
Q13 no difference image



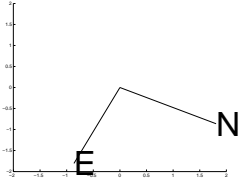
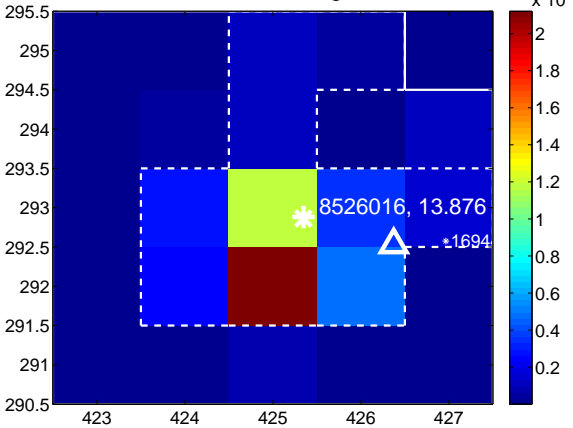
Q13 no OOT image



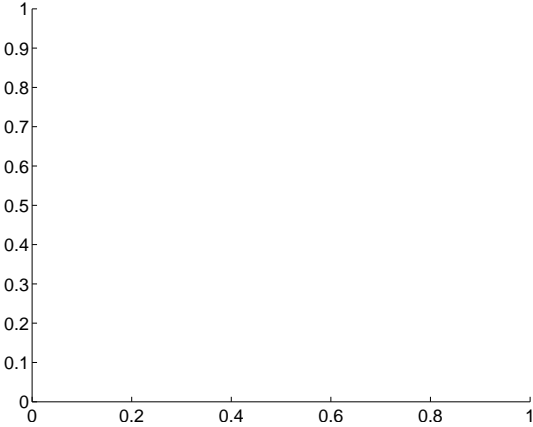
Q14 difference image. Poor Quality



Q14 OOT image



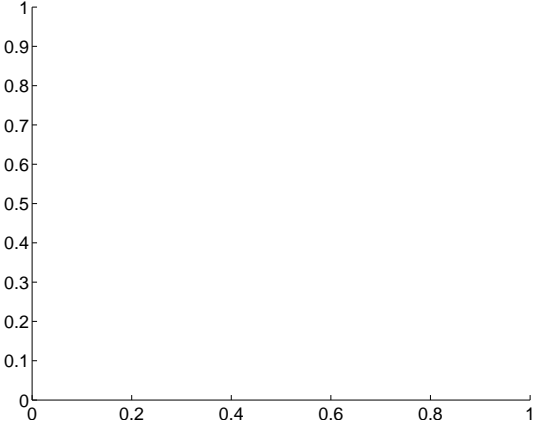
Q15 no difference image



Q15 no OOT image



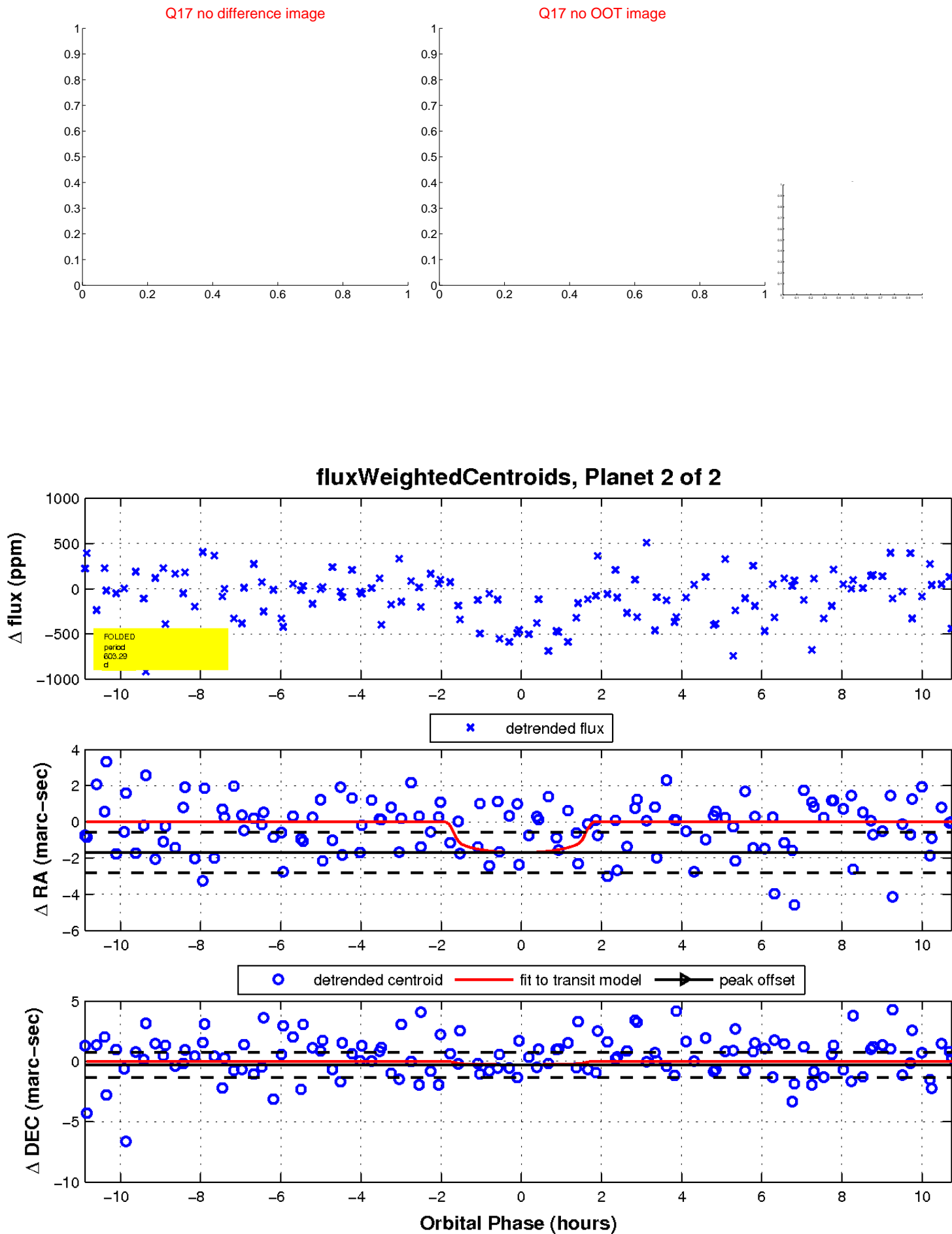
Q16 no difference image



Q16 no OOT image



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



UKIRT Image

Declination

