

KIC 007670496

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})
007670496-01	OBS	No	279.459674	255.347100	3658.8	15.424	12.7	12.7	0.95	5839	7.51	1.36
007670496-02	OBS	No	487.323253	521.028776	1508.6	19.748	7.7	8.0	0.95	5839	4.53	0.65

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
007670496-01	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL_SKYE_ZUMA—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—INCONSISTENT_TRANS—CENT_FEW_DIFFS
007670496-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_MARSHALL—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—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.

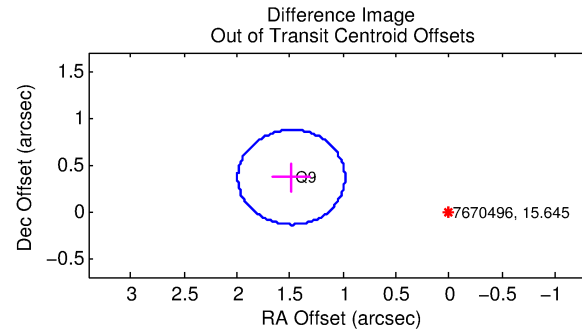
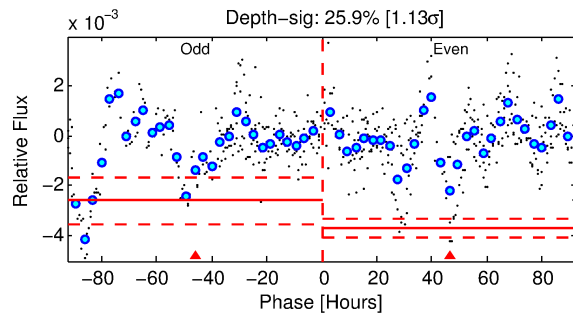
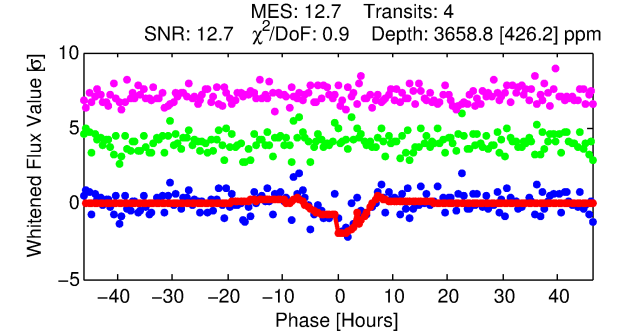
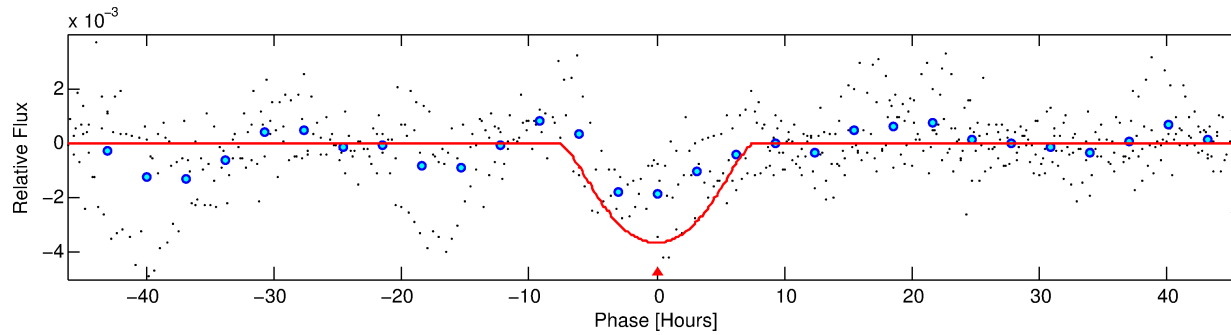
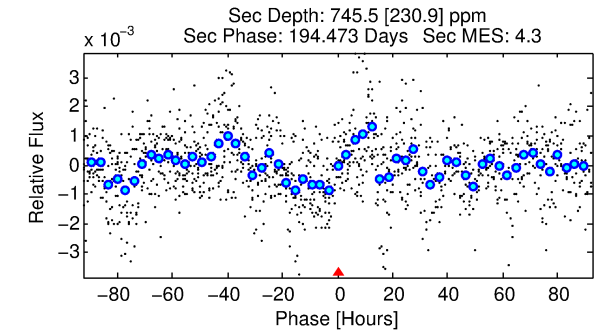
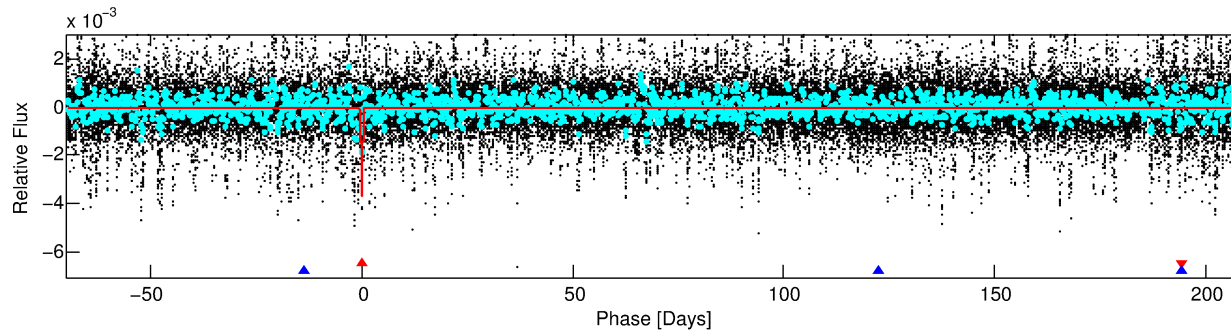
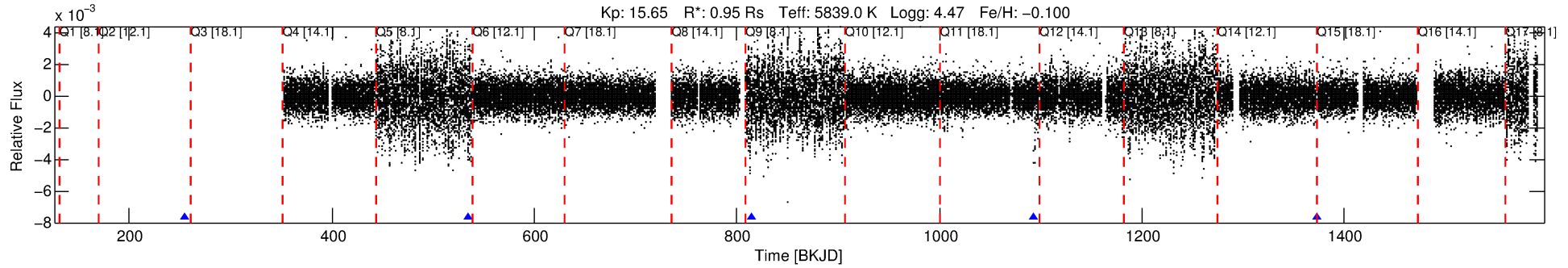
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 007670496-01

No Significant Match Found

DV One-Page Summary

KIC: 7670496 Candidate: 1 of 2 Period: 279.460 d



DV Fit Results:

Period = 279.45967 [0.02149] d
Epoch = 255.3471 [0.0524] BKJD
Rp/R^{*} = 0.0728 [0.0236]
a/R^{*} = 70.15 [11.43]
b = 0.95 [0.06]
Seff = 1.36 [0.54]
Teq = 276 [27] K
Rp = 7.51 [3.31] Re
a = 0.8270 [0.2089] AU
Ag = 4973.13 [4018.15] [1.24σ]
Teffp = 3577 [655] K [5.04σ]

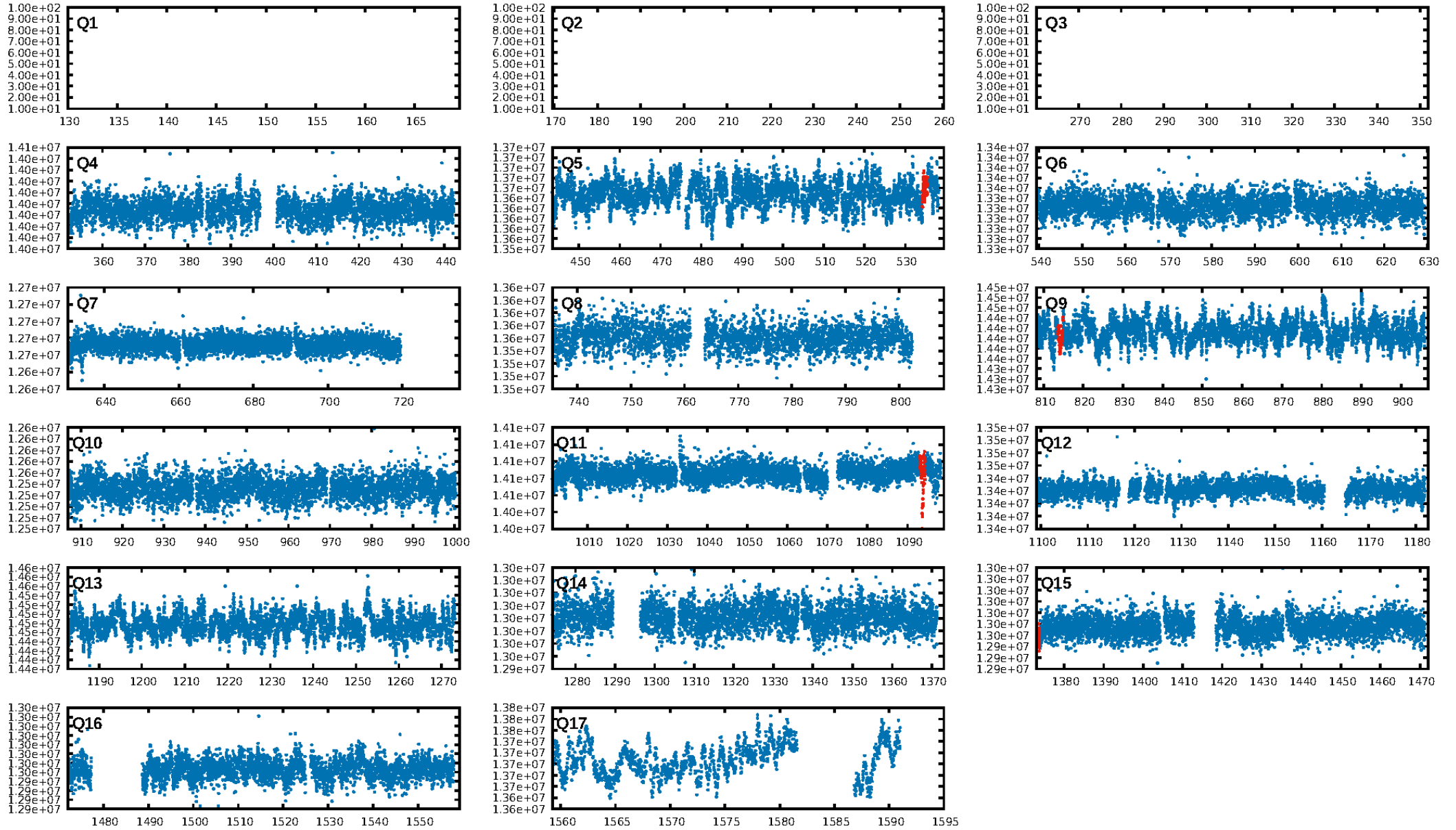
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: 100.0% [199.09σ]
ModelChiSquare2-sig: 10.1%
ModelChiSquareGof-sig: 100.0%
Bootstrap-pfa: 3.23e-19
RollingBand-fgt: 1.00 [4/4]
GhostDiagnostic-chr: 0.7595
Centroid-sig: 54.7%
Centroid-so: 2.387 arcsec [9.88σ]
OotOffset-rm: 1.529 arcsec [9.07σ]
KicOffset-rm: 4.867 arcsec [29.54σ]
OotOffset-st: 0/0/0/1 [1]
KicOffset-st: 0/0/0/1 [1]
DiffImageQuality-fgm: 1.00 [1/1]
DiffImageOverlap-fno: 1.00 [2/2]

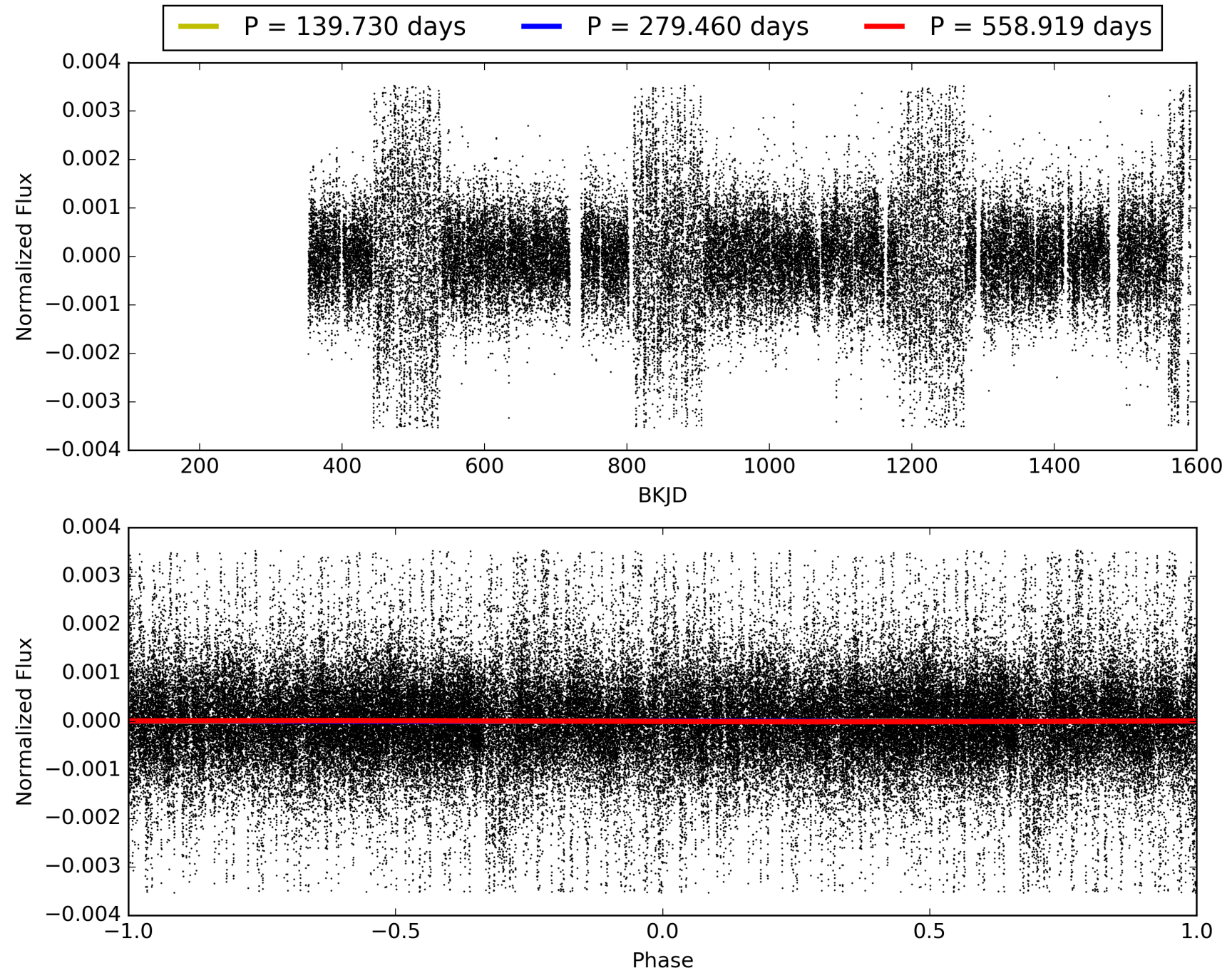
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 01-Feb-2016 04:15:06 Z

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

TCE 007670496-01, PDC Light Curves

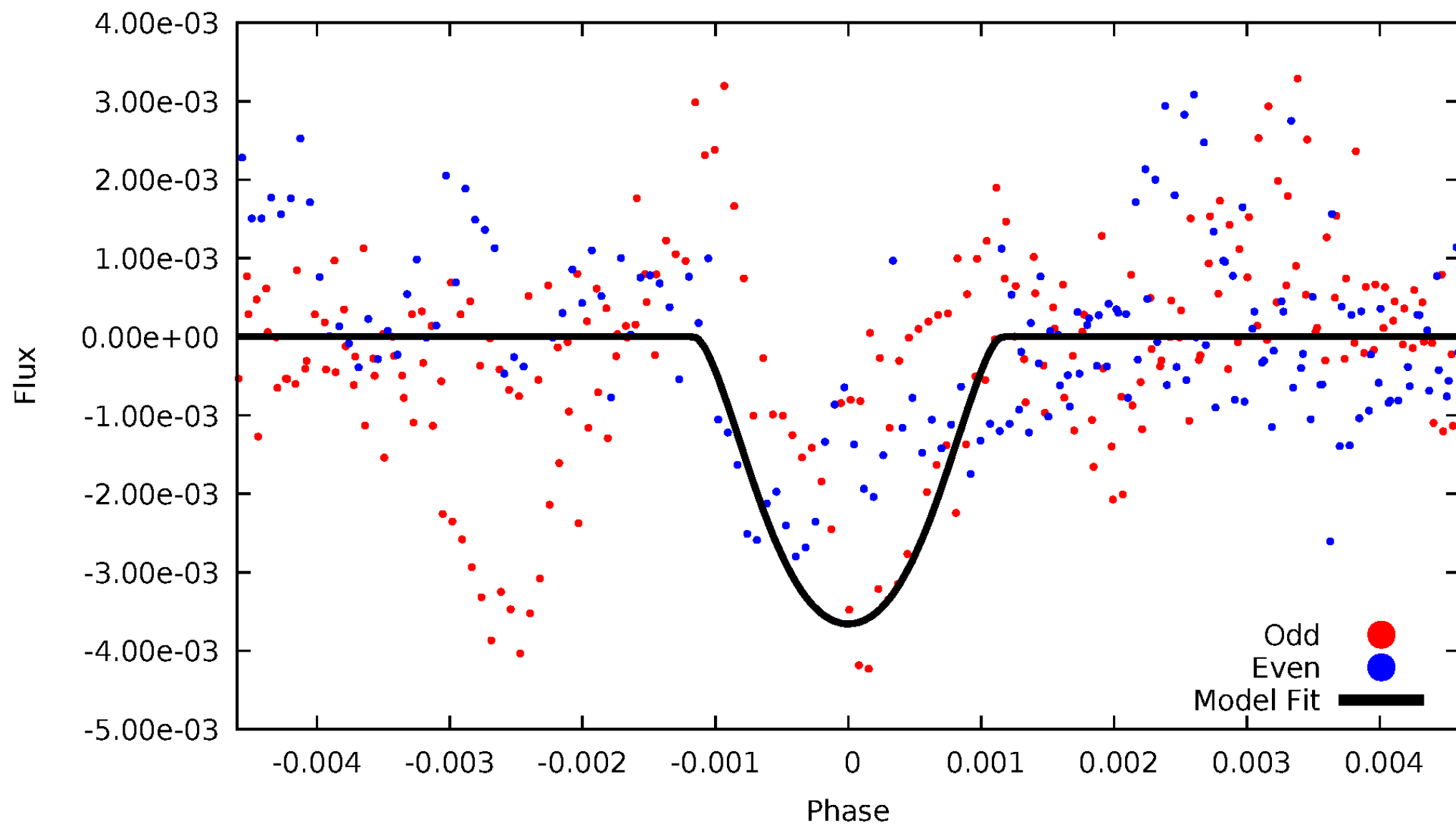


TCE 007670496-01



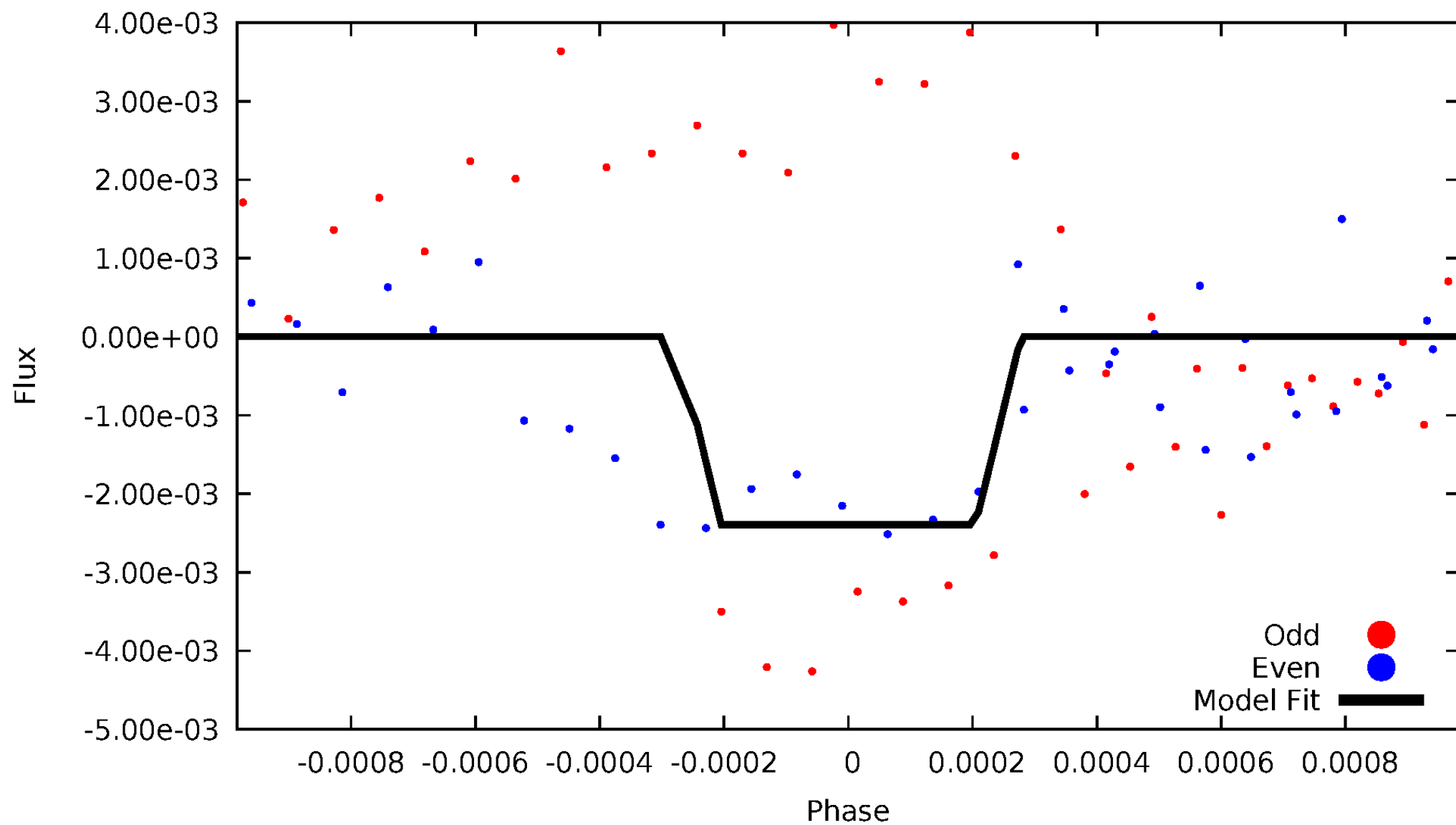
DV Odd/Even

TCE 007670496-01



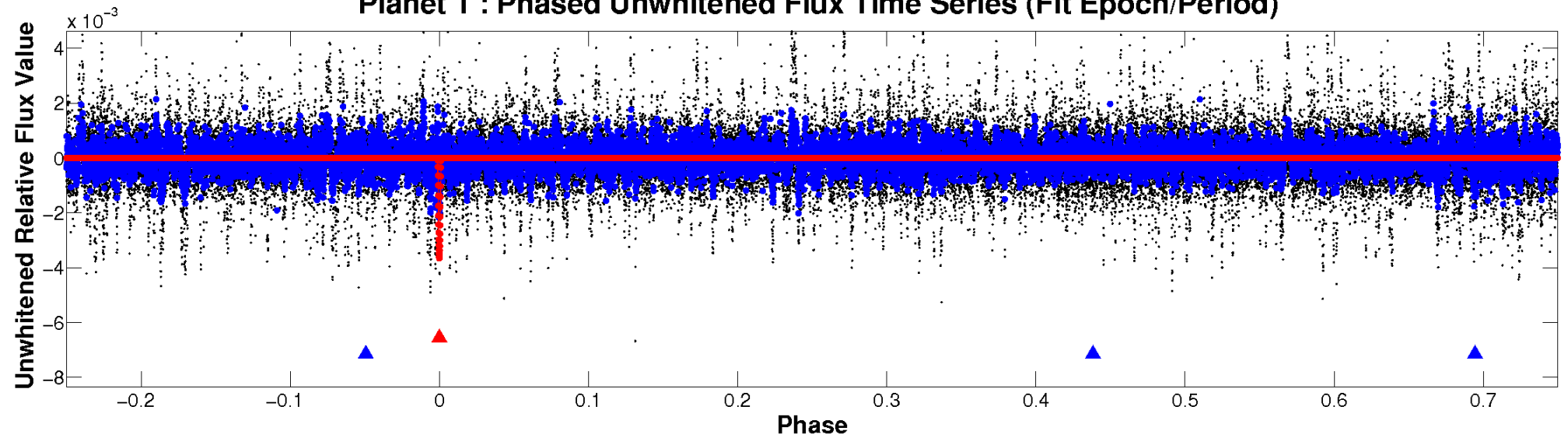
ALT Odd/Even

TCE 007670496-01

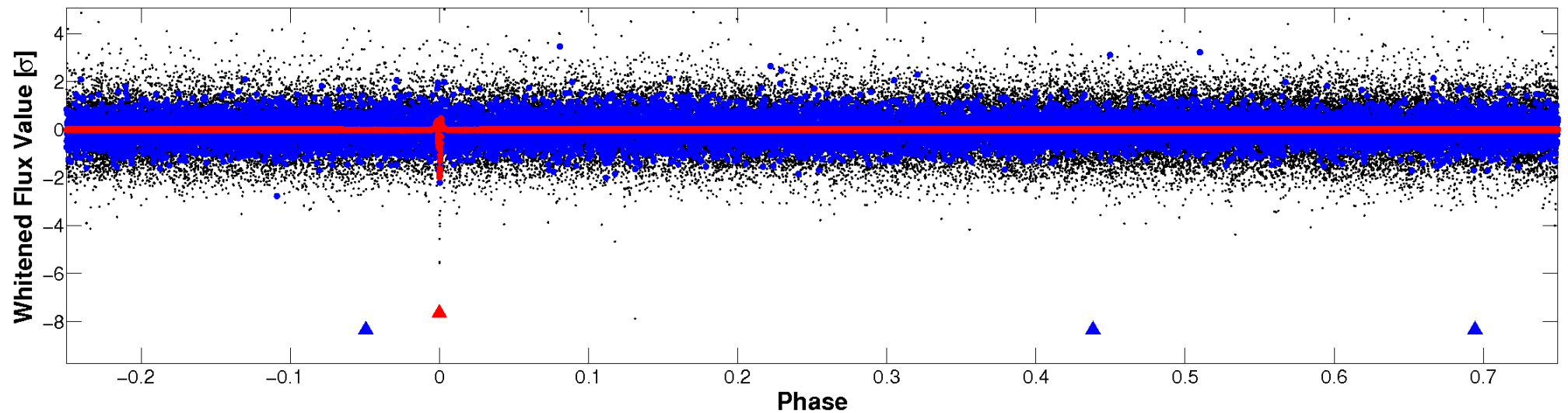


Non-Whitened Vs. Whitened Light Curve

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



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



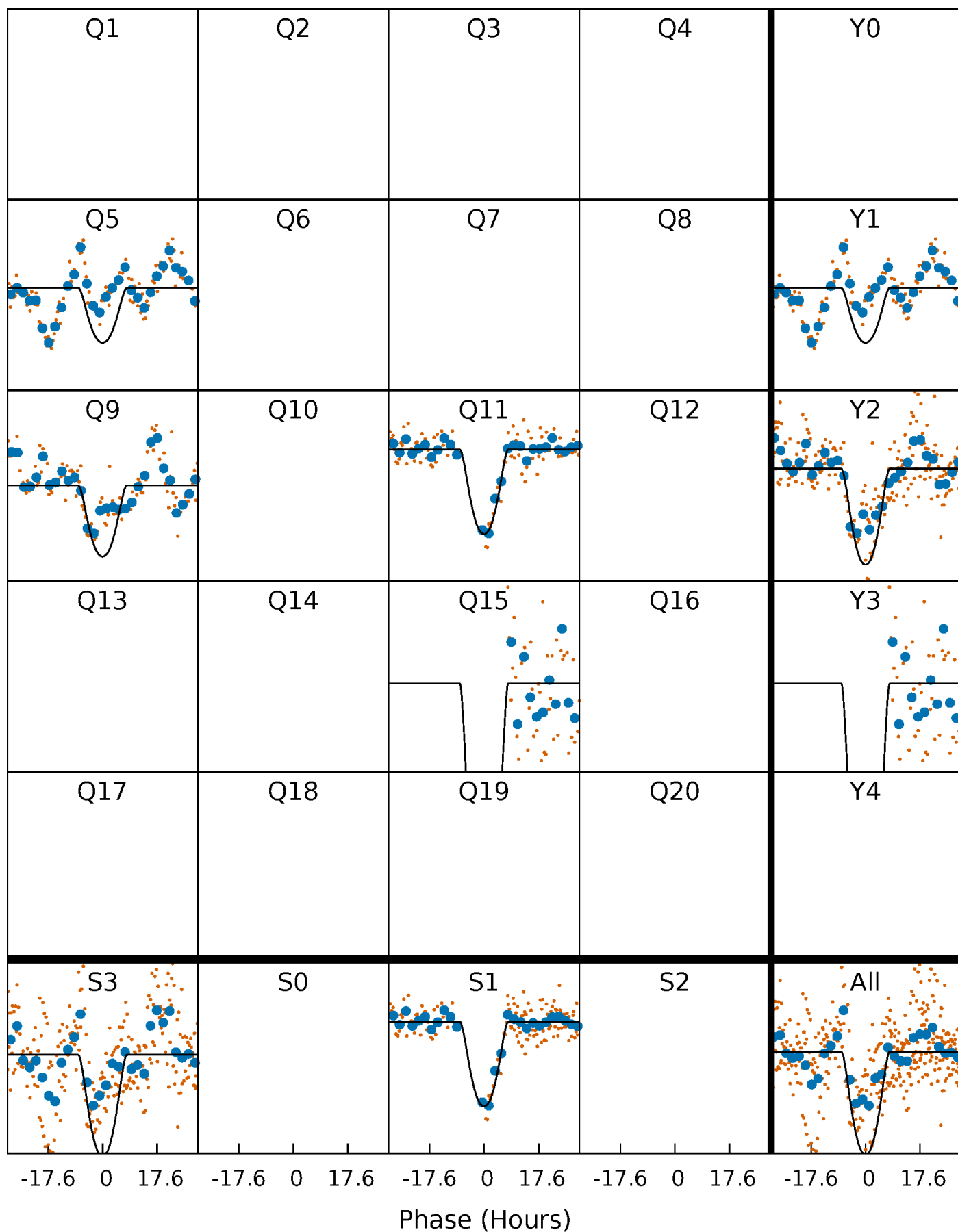
PDC Quarter-Phased Transit Curves

TCE 007670496-01 P=279.459674 Days $T_0=255.347100$ (BKJD)



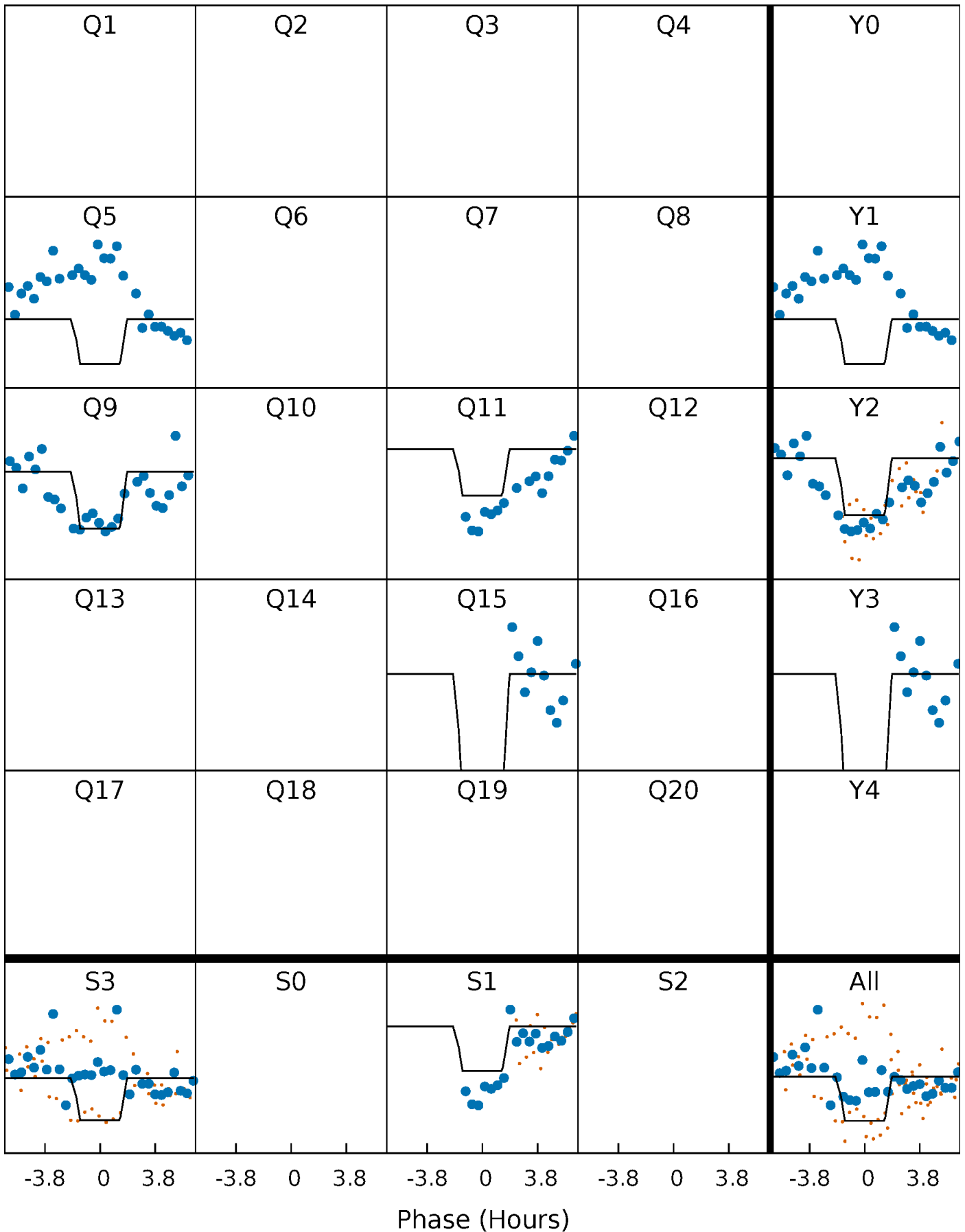
DV Quarter-Phased Transit Curves

TCE 007670496-01 $P=279.459674$ Days $T_0=255.347100$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

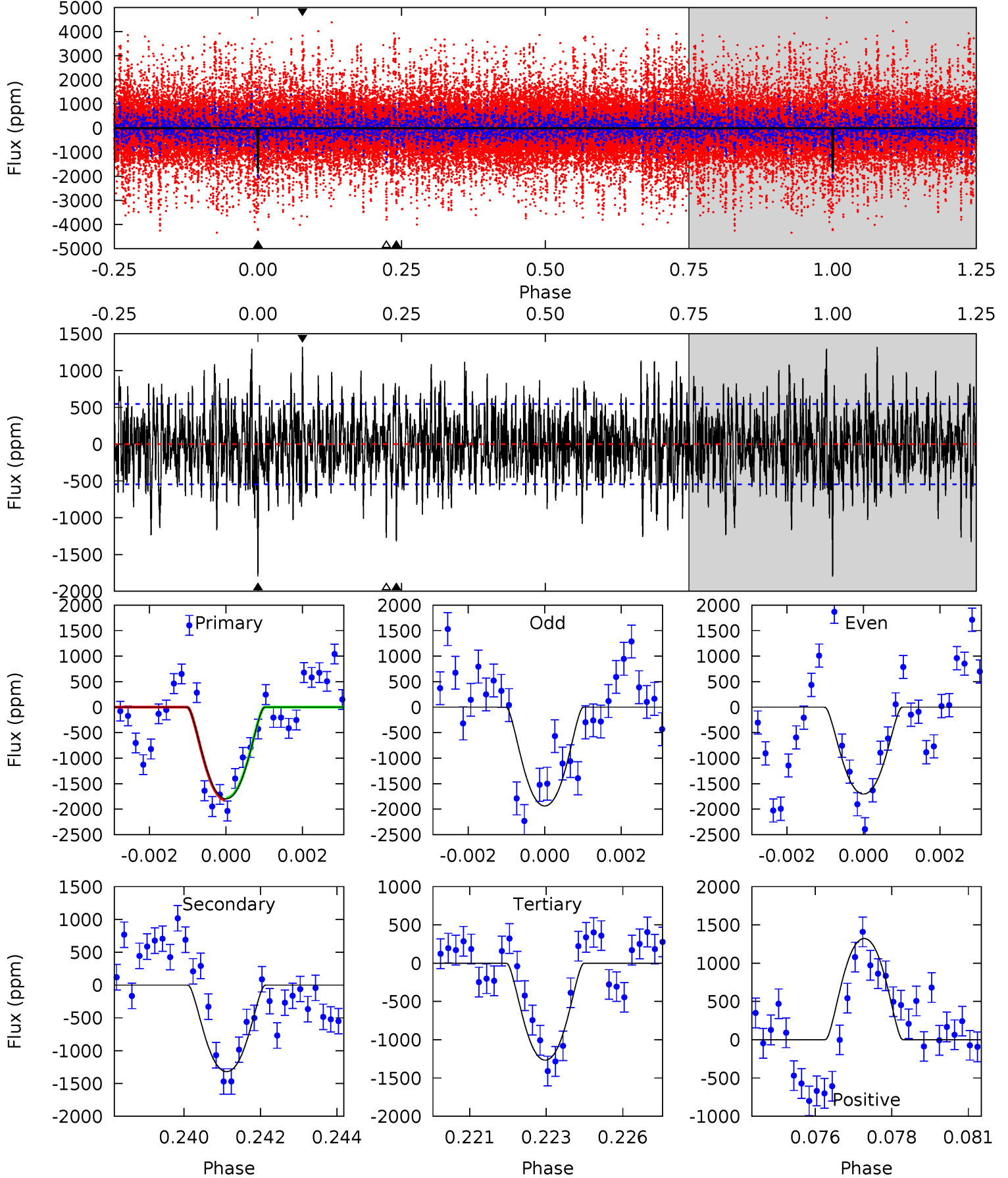
TCE 007670496-01 P=279.646891 Days $T_0=254.844473$ (BKJD)



DV Model-Shift Uniqueness Test

007670496-01, P = 279.459674 Days, E = 255.347100 Days

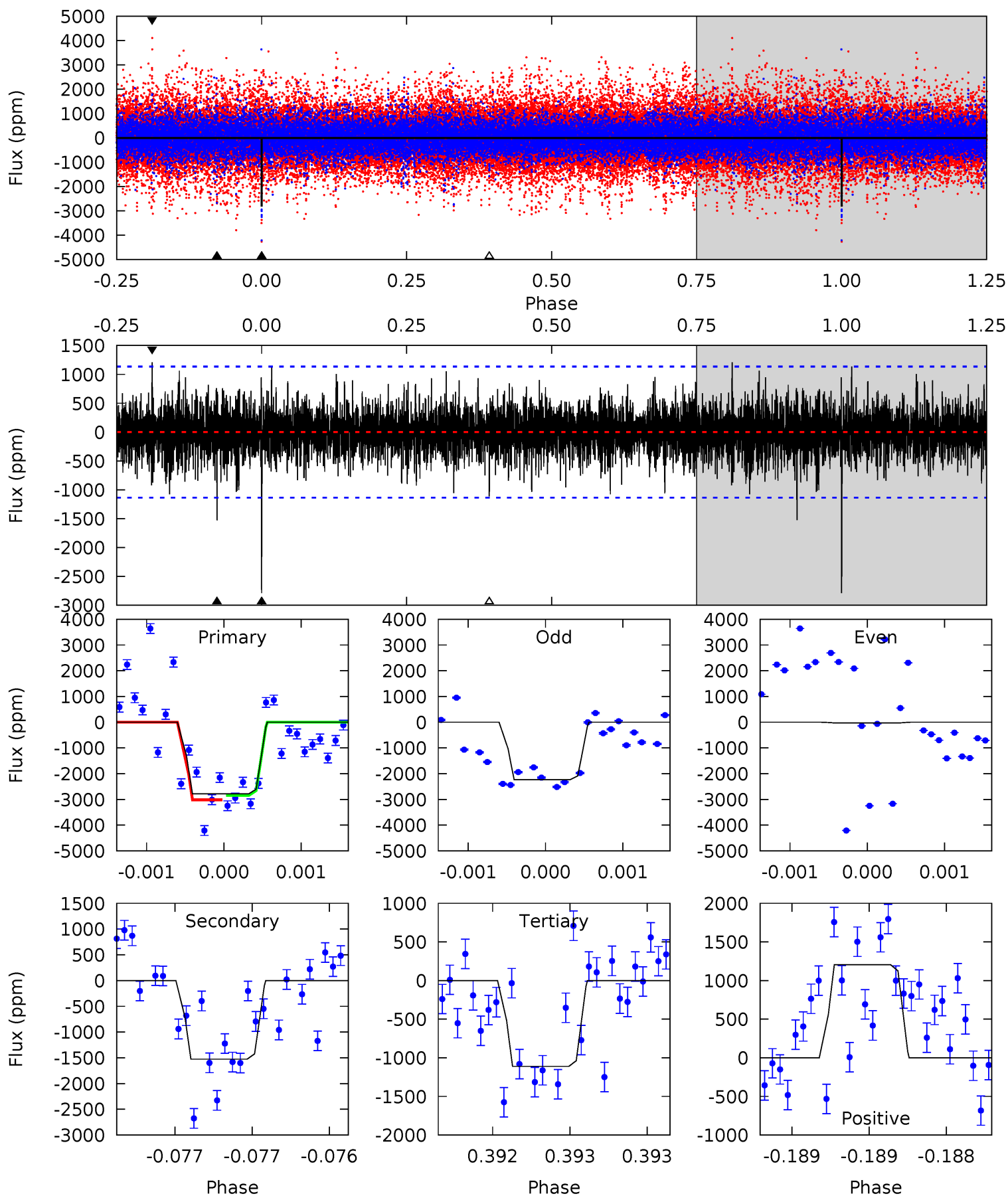
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
17.4	12.8	12.3	12.8	5.30	3.05	3.66	5.15	4.62	0.51	-0.02	1.09	1.09	0.42	0.18



Alt Model-Shift Uniqueness Test

007670496-01, P = 279.646891 Days, E = 254.844473 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	7.48	5.45	5.91	5.57	3.48	1.40	8.22	7.76	2.03	1.57	5.86	0.40	0.30	0.41



Stellar Parameters For KIC 007670496

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	5839^{+163}_{-204}	$4.471^{+0.067}_{-0.202}$	$-0.100^{+0.300}_{-0.300}$	$0.946^{+0.283}_{-0.121}$	$0.966^{+0.127}_{-0.116}$	$1.609^{+0.550}_{-0.795}$
	+3%/-3%	+1%/-5%	+300%/-300%	+30%/-13%	+13%/-12%	+34%/-49%
Source	KIC0	KIC0	KIC0	DSEP		

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

Secondary Eclipse Parameters for KIC 007670496-01 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-1320 ± 103	$7.91^{+2.61}_{-2.65}$	392^{+31}_{-21}	4338^{+731}_{-415}	7900^{+9613}_{-3435}
Alt.	-1526 ± 204	$5.23^{+2.49}_{-2.42}$	392^{+27}_{-20}	5317^{+1783}_{-847}	21128^{+49044}_{-11814}

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

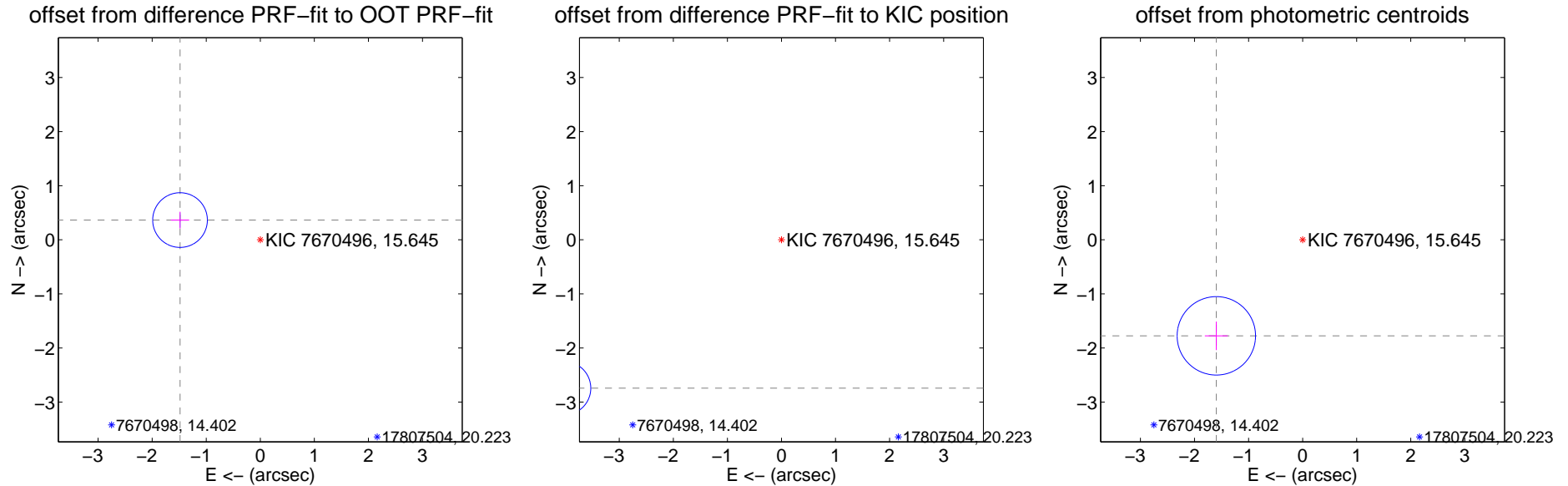
DV Centroid Data

Supplemental centroid analysis for 007670496-01. Kepler magnitude: 15.64. Transit SNR 12.74

There are 1 quarters with good PRF difference image offsets

The OOT PRF centroid is offset from the target star catalog position by about 4.01 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	1.529 ± 0.169	9.07	1.484 ± 0.169	0.365 ± 0.155
PRF-fit source offset from KIC position	4.867 ± 0.165	29.54	4.021 ± 0.169	-2.743 ± 0.155
photometric centroid source offset	2.39 ± 0.24	9.88	1.60 ± 0.21	-1.77 ± 0.26

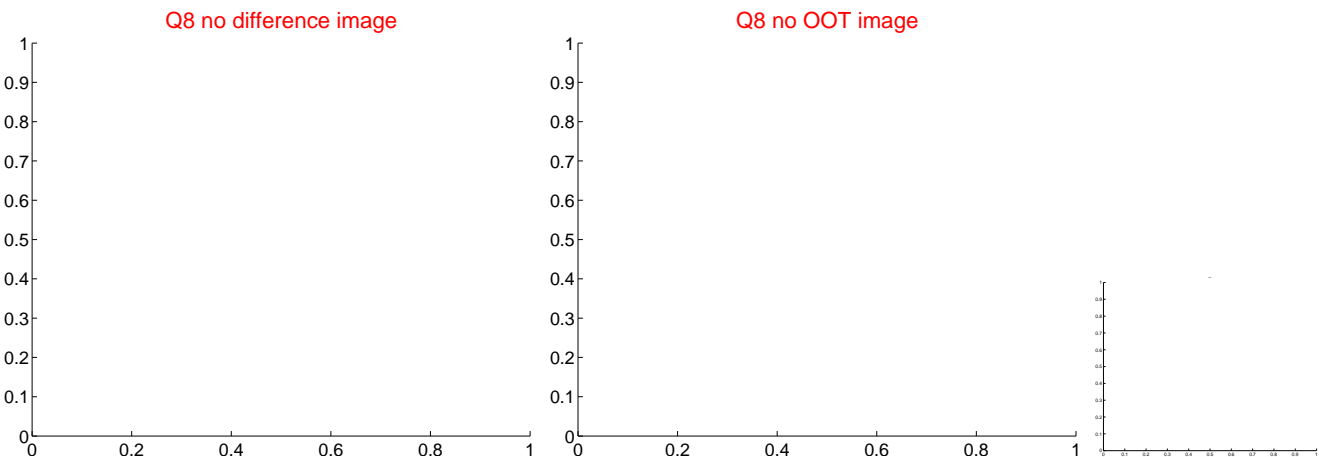
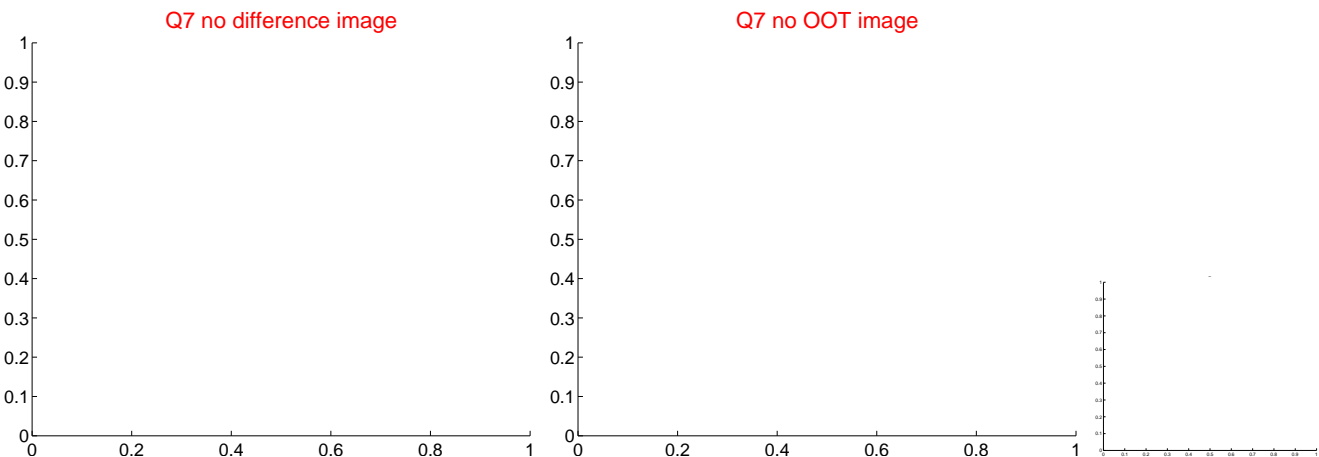
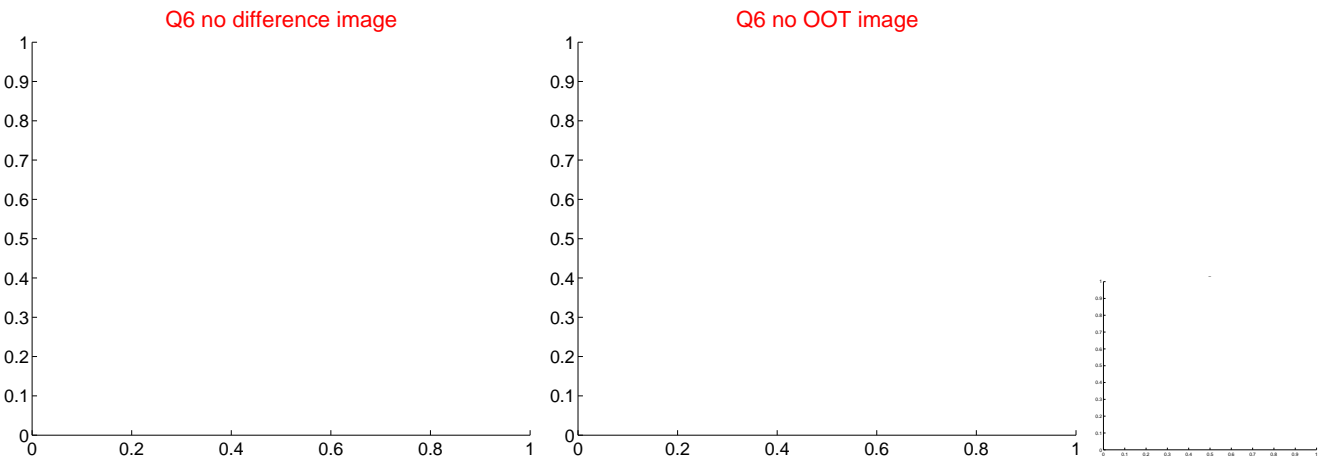
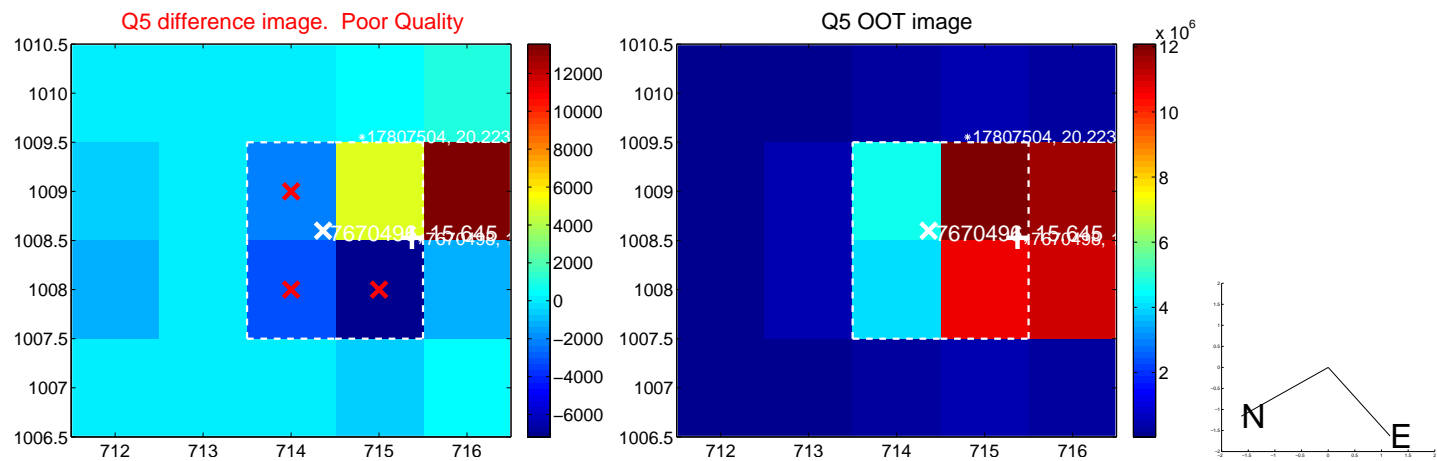


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ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

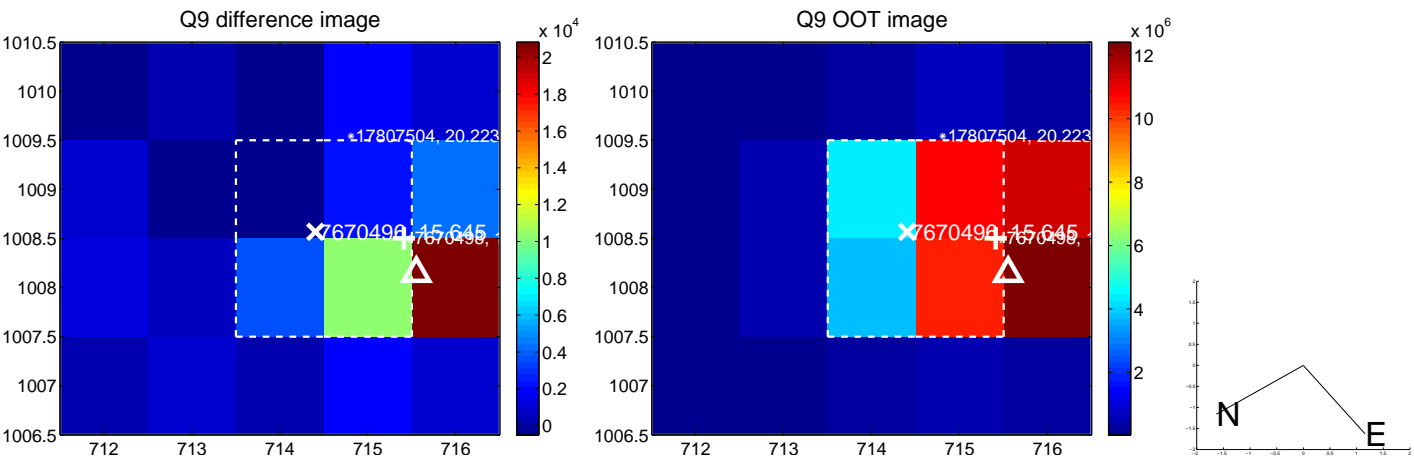
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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



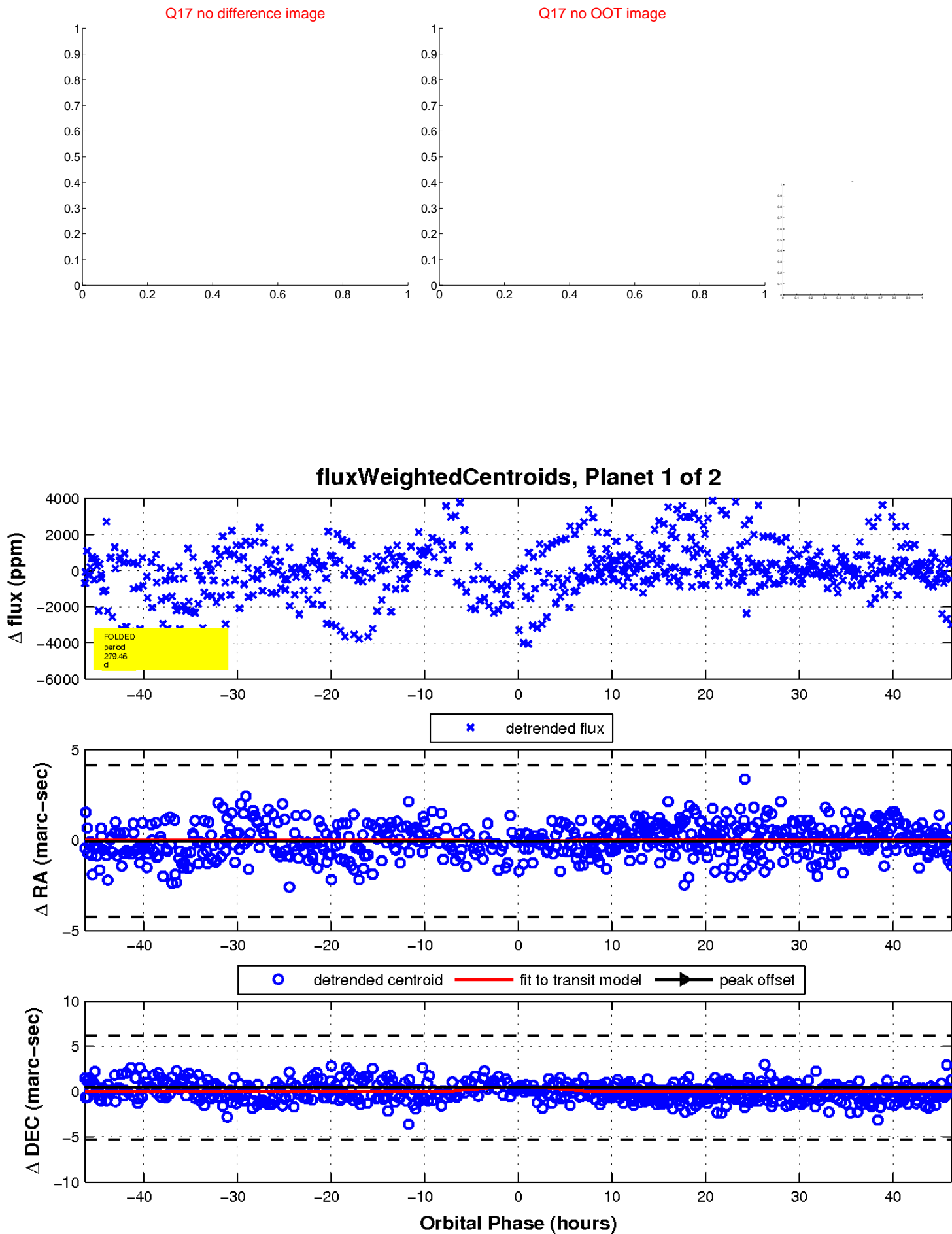
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

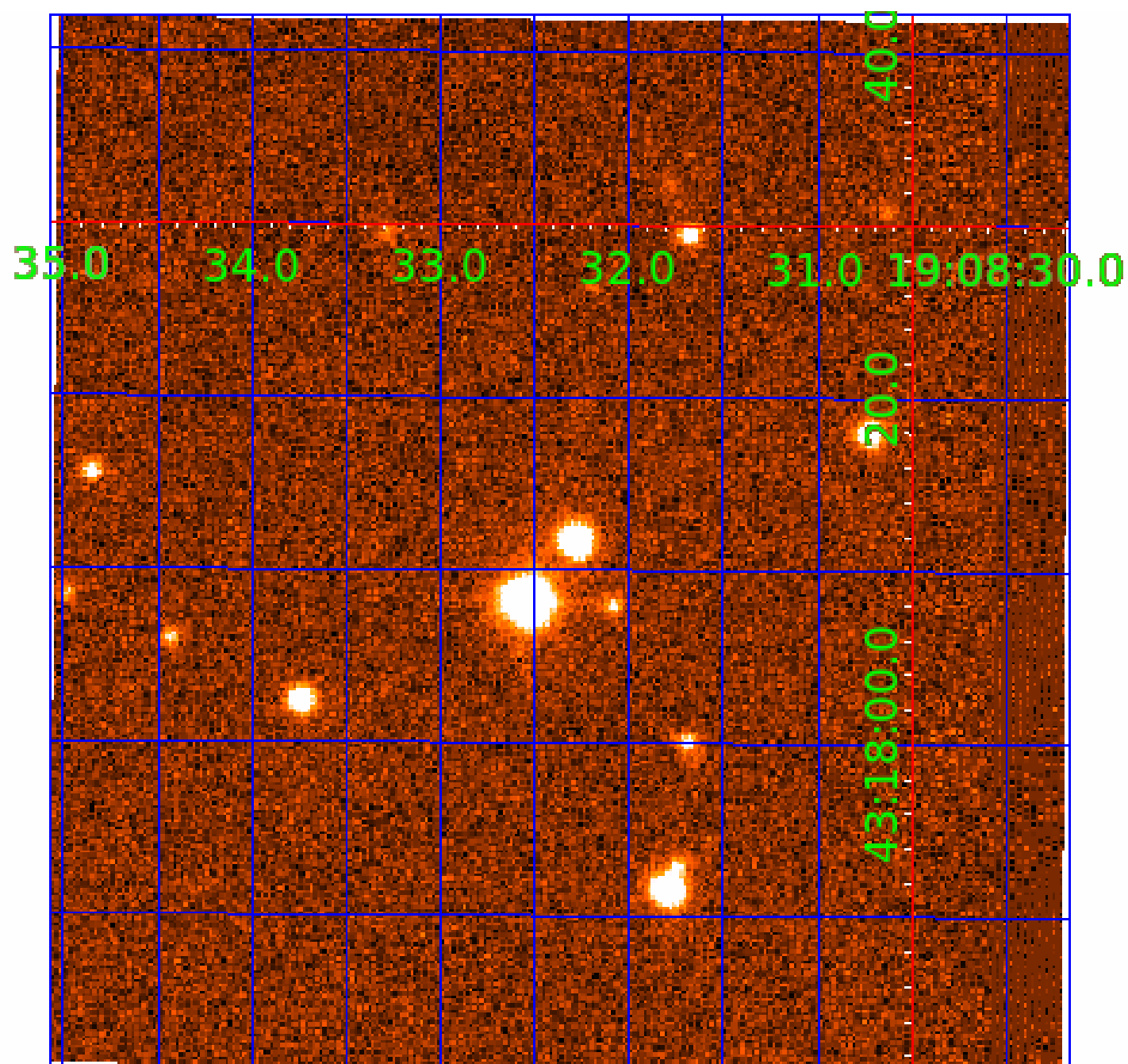


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 007670496

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})
007670496-01	OBS	No	279.459674	255.347100	3658.8	15.424	12.7	12.7	0.95	5839	7.51	1.36
007670496-02	OBS	No	487.323253	521.028776	1508.6	19.748	7.7	8.0	0.95	5839	4.53	0.65

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
007670496-01	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL_SKYE_ZUMA—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—INCONSISTENT_TRANS—CENT_FEW_DIFFS
007670496-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_MARSHALL—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—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.

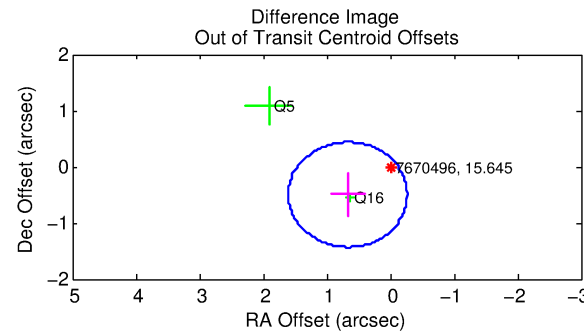
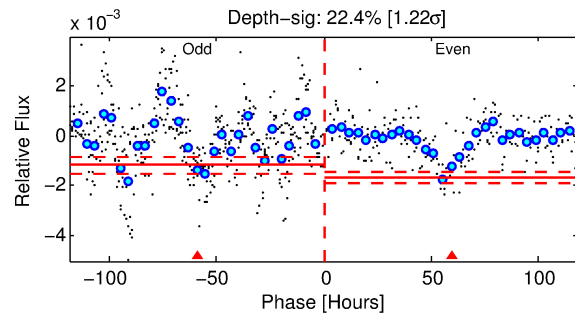
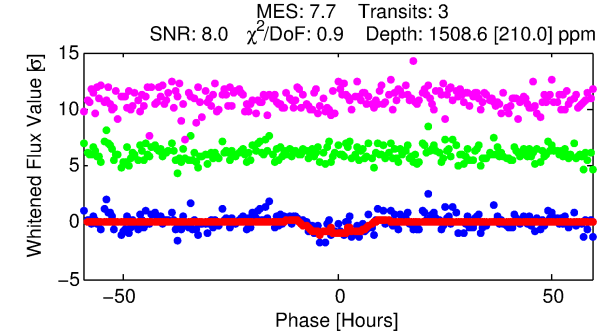
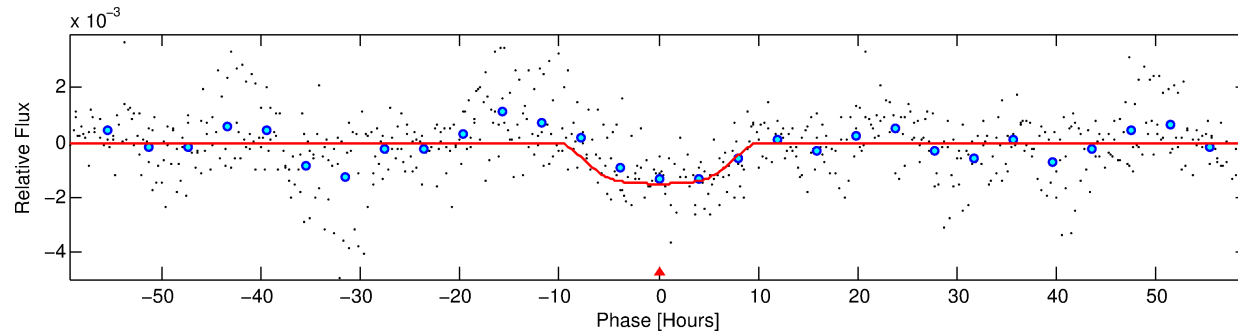
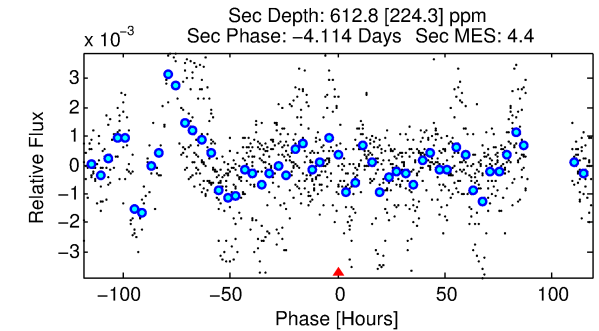
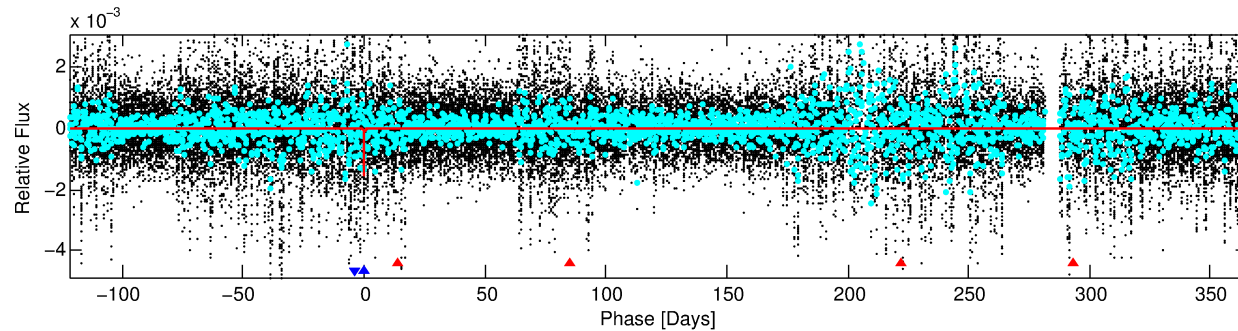
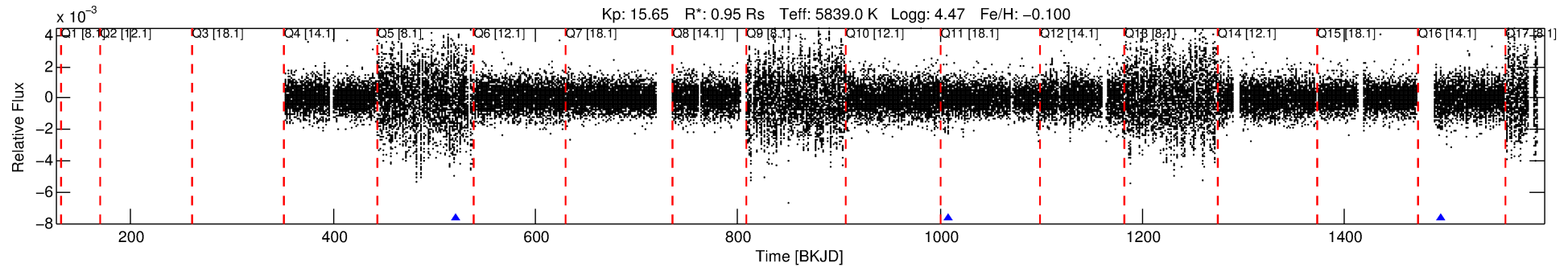
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 007670496-02

No Significant Match Found

DV One-Page Summary

KIC: 7670496 Candidate: 2 of 2 Period: 487.323 d



DV Fit Results:

Period = 487.32325 [0.04158] d
Epoch = 521.0288 [0.0531] BKJD
Rp/R* = 0.0439 [0.0040]
a/R* = 88.55 [16.52]
b = 0.93 [0.03]
Seff = 0.65 [0.26]
Teq = 229 [23] K
Rp = 4.53 [1.42] Re
a = 1.1981 [0.3027] AU
Ag = 23581.73 [12986.25] [1.82σ]
Teff = 4385 [474] K [8.76σ]

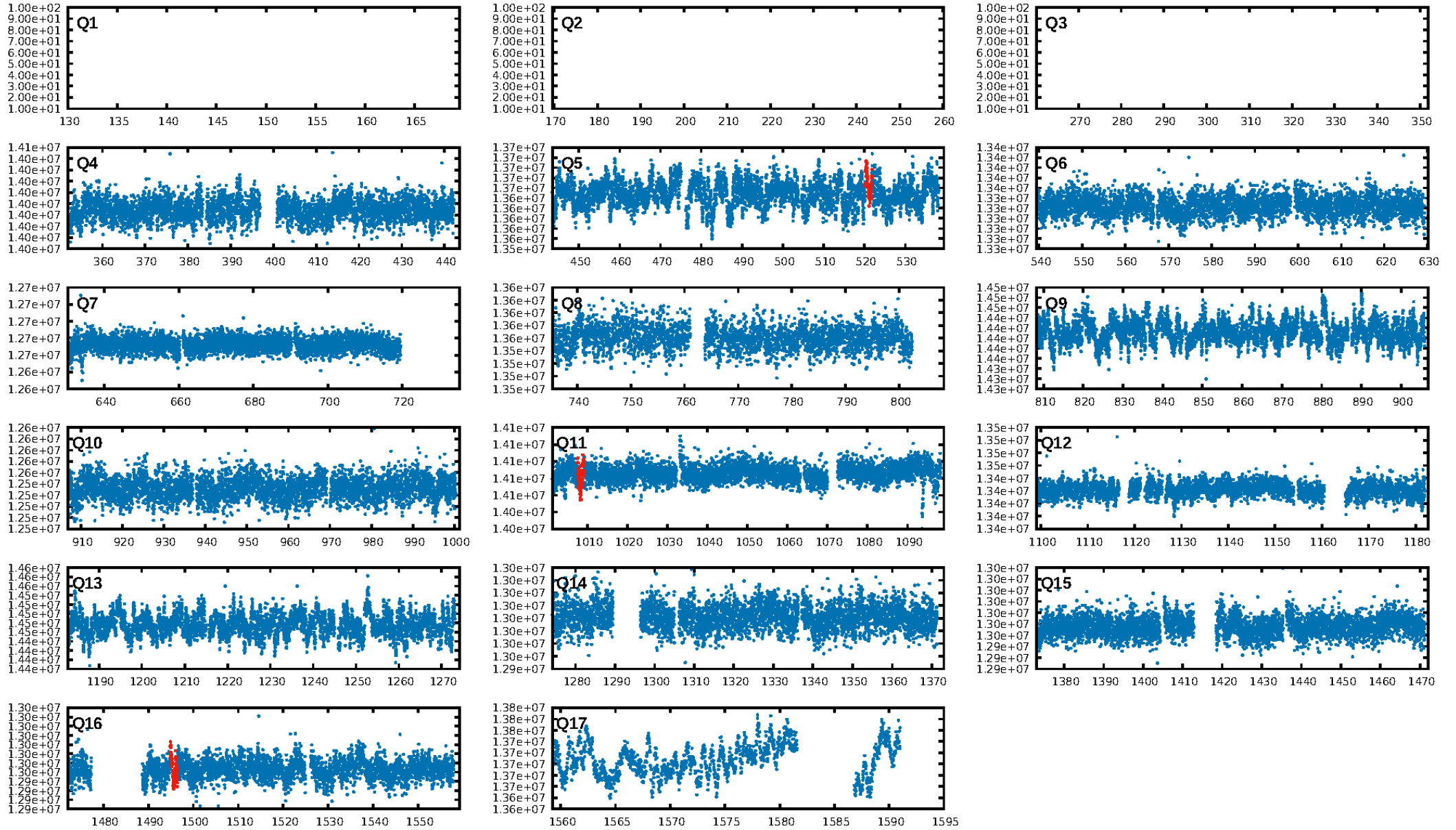
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [199.09σ]
LongPeriod-sig: N/A
ModelChiSquare2-sig: 63.8%
ModelChiSquareGof-sig: 100.0%
Bootstrap-pfa: 2.46e-08
RollingBand-fgt: 1.00 [3/3]
GhostDiagnostic-chr: 0.7041
Centroid-sig: 7.7%
Centroid-so: 2.367 arcsec [5.43σ]
OotOffset-rm: 0.835 arcsec [2.68σ]
KicOffset-rm: 4.539 arcsec [14.78σ]
OotOffset-st: 0/0/1/1 [2]
KicOffset-st: 0/0/1/1 [2]
DiffImageQuality-fgm: 1.00 [2/2]
DiffImageOverlap-fno: 1.00 [2/2]

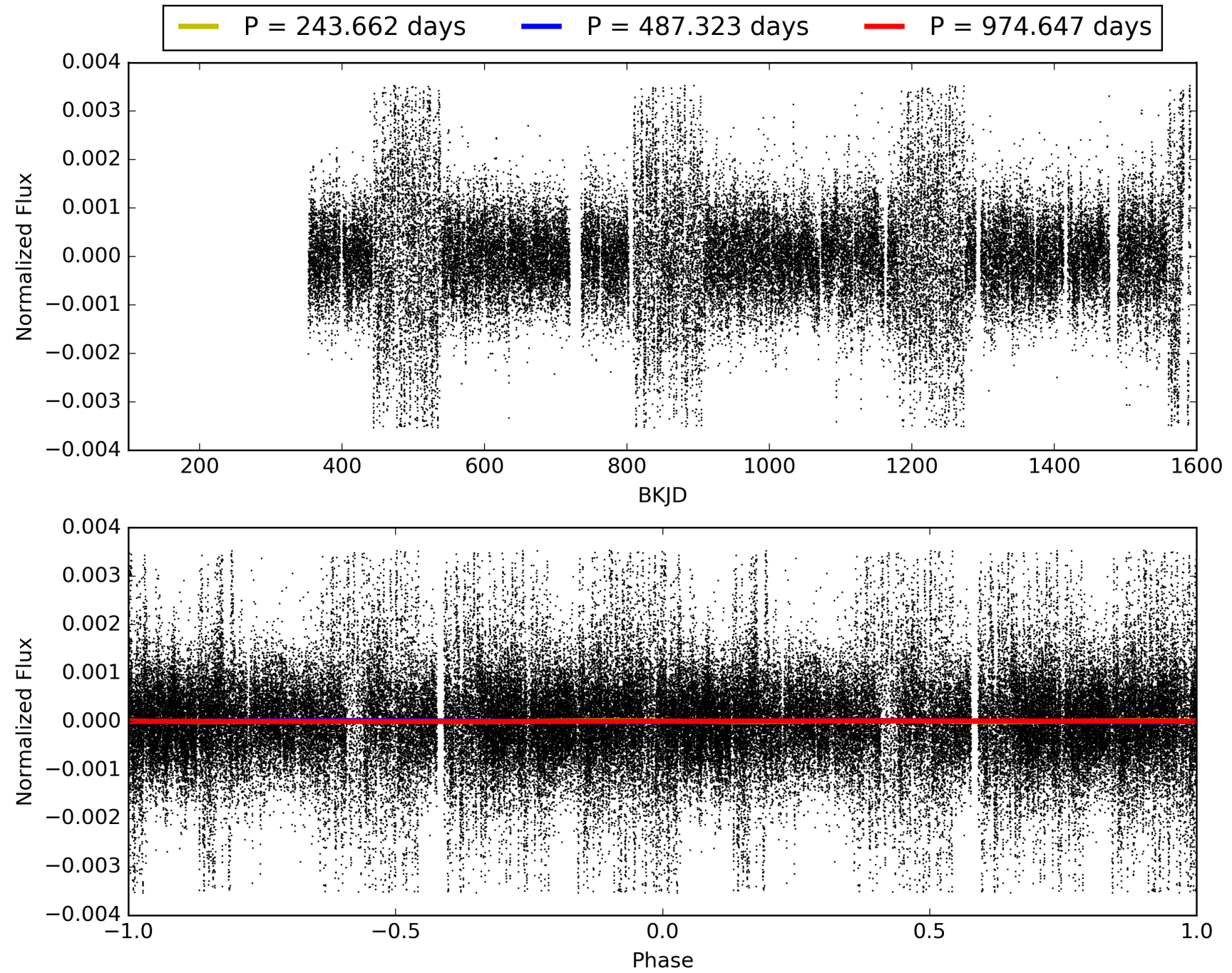
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 01-Feb-2016 04:15:19 Z

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

TCE 007670496-02, PDC Light Curves

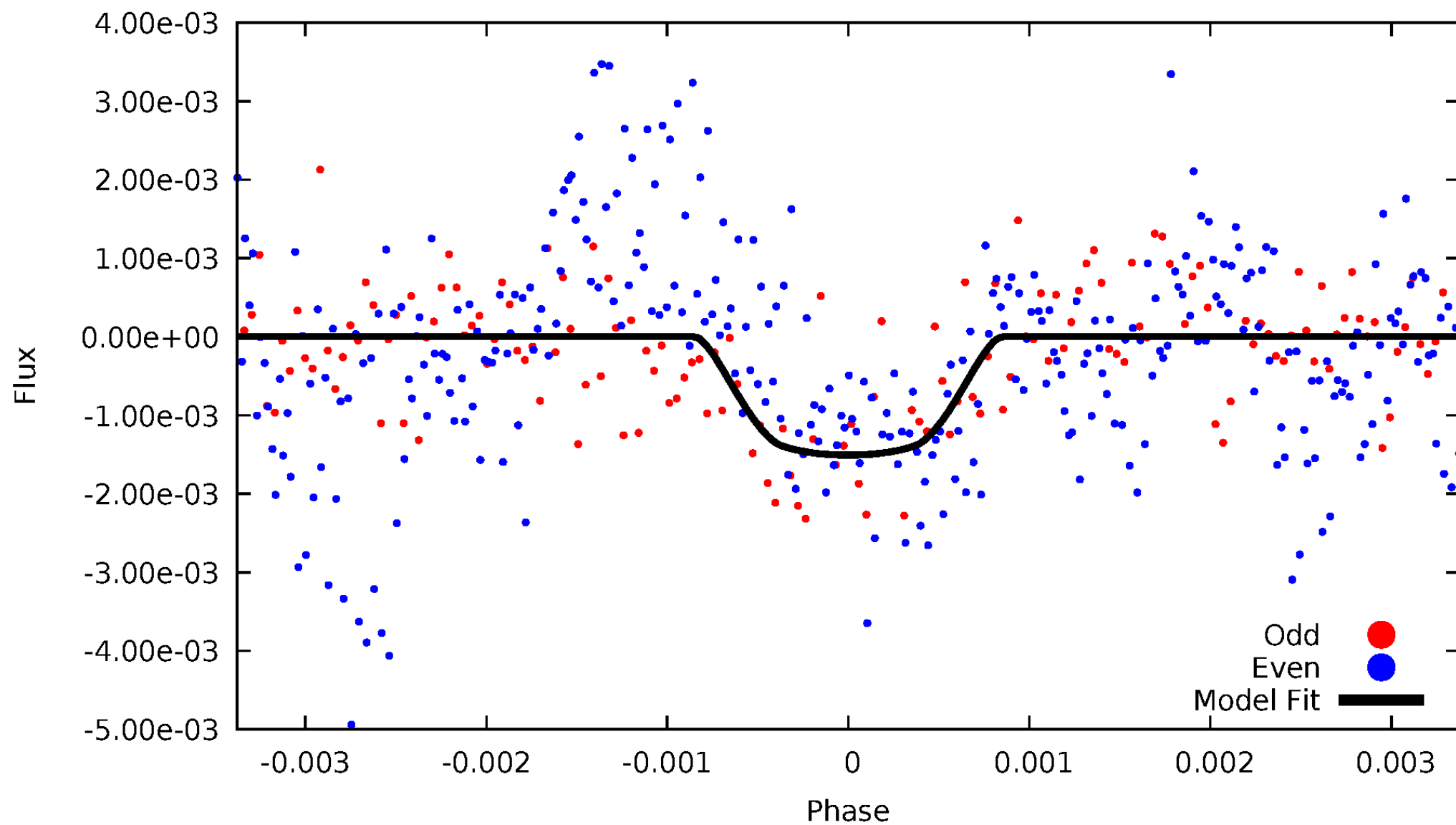


TCE 007670496-02



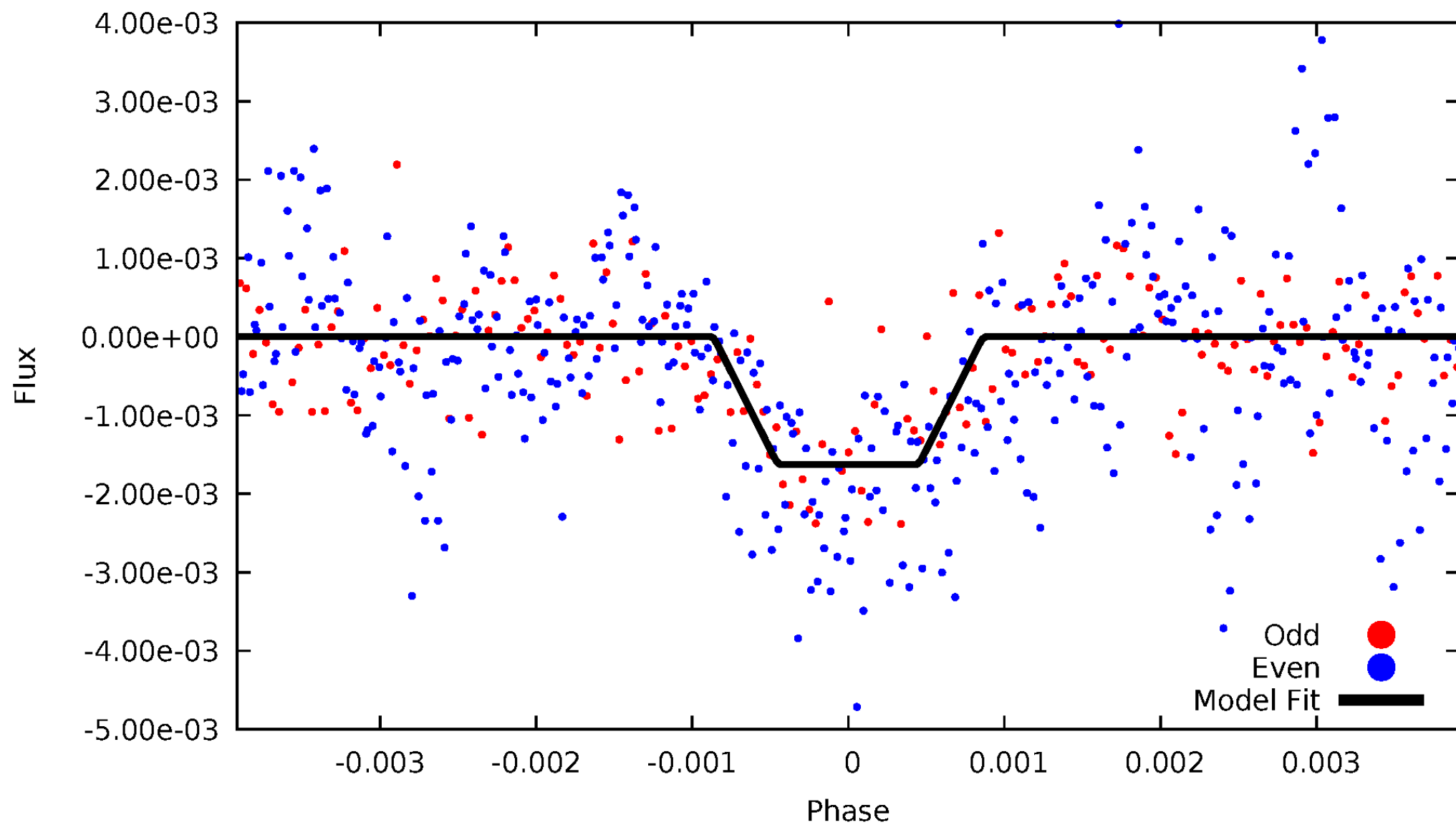
DV Odd/Even

TCE 007670496-02



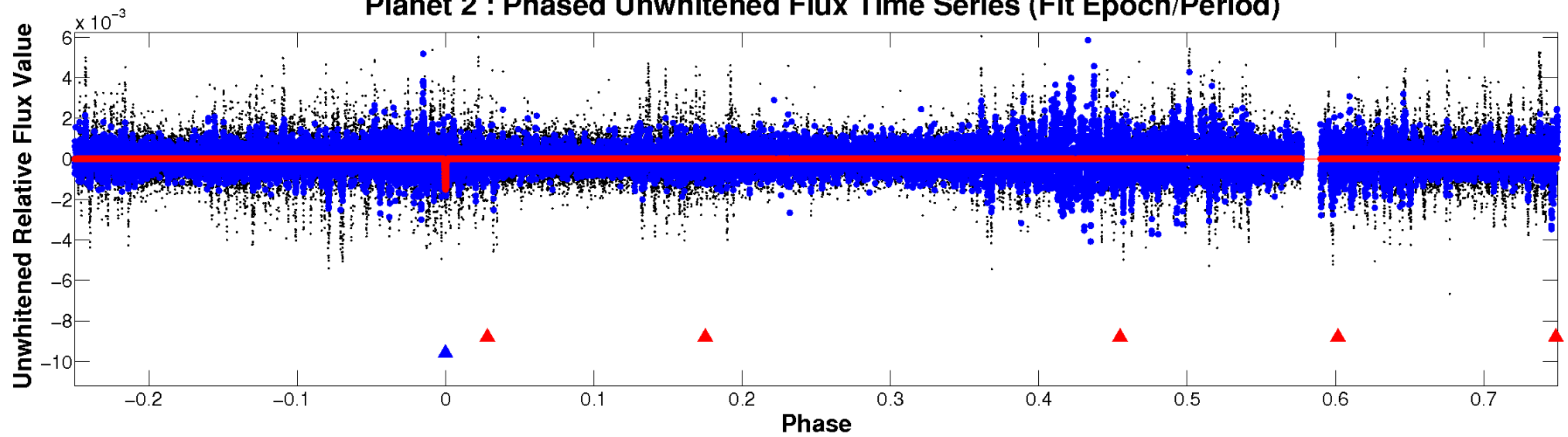
ALT Odd/Even

TCE 007670496-02

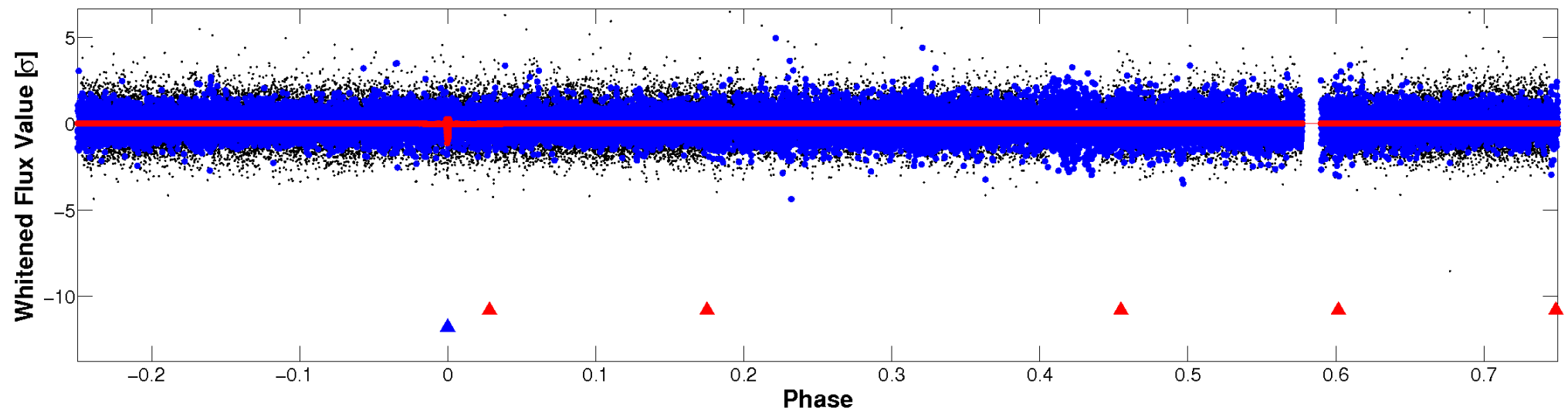


Non-Whitened Vs. Whitened Light Curve

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

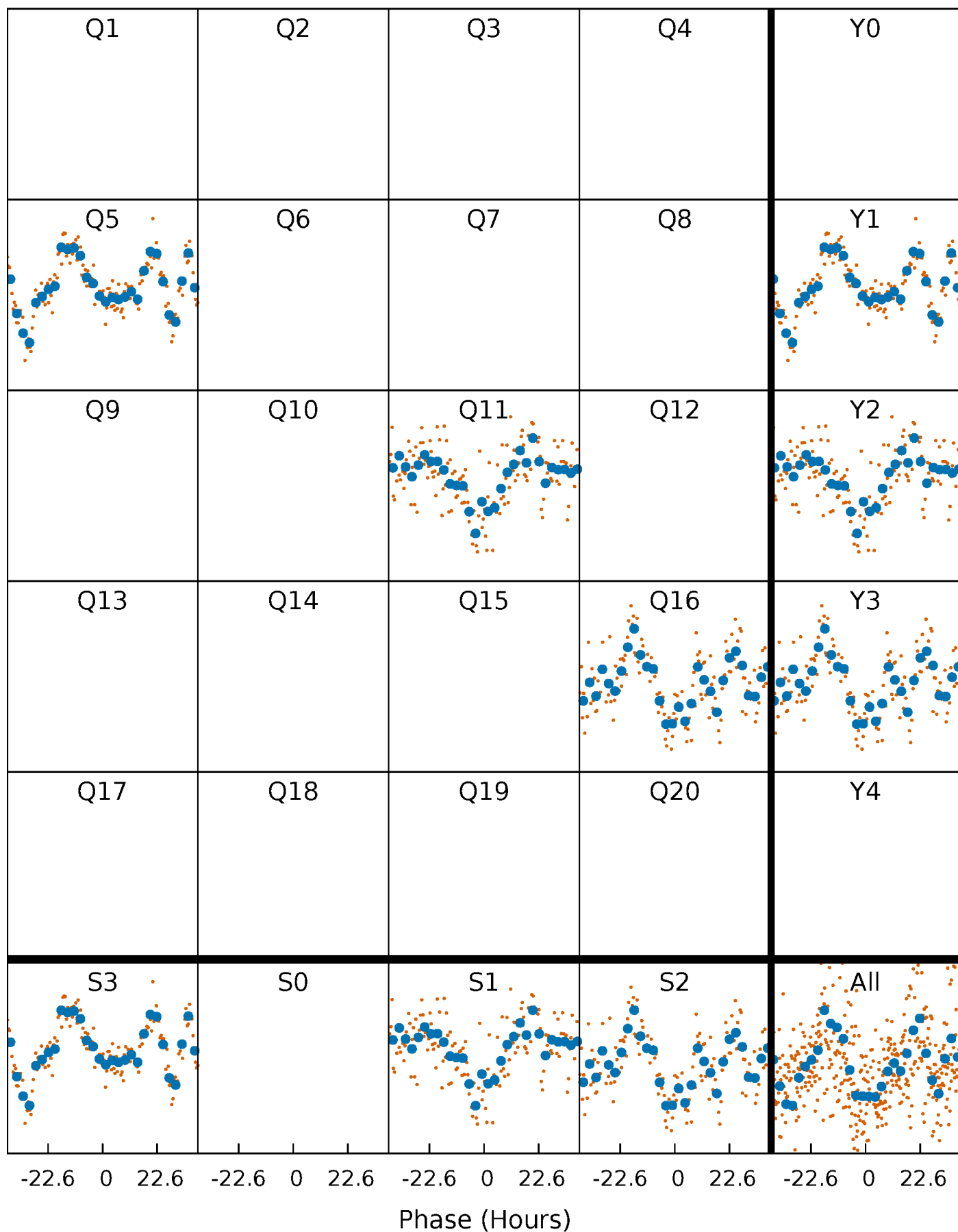


Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



PDC Quarter-Phased Transit Curves

TCE 007670496-02 $P=487.323253$ Days $T_0=521.028776$ (BKJD)



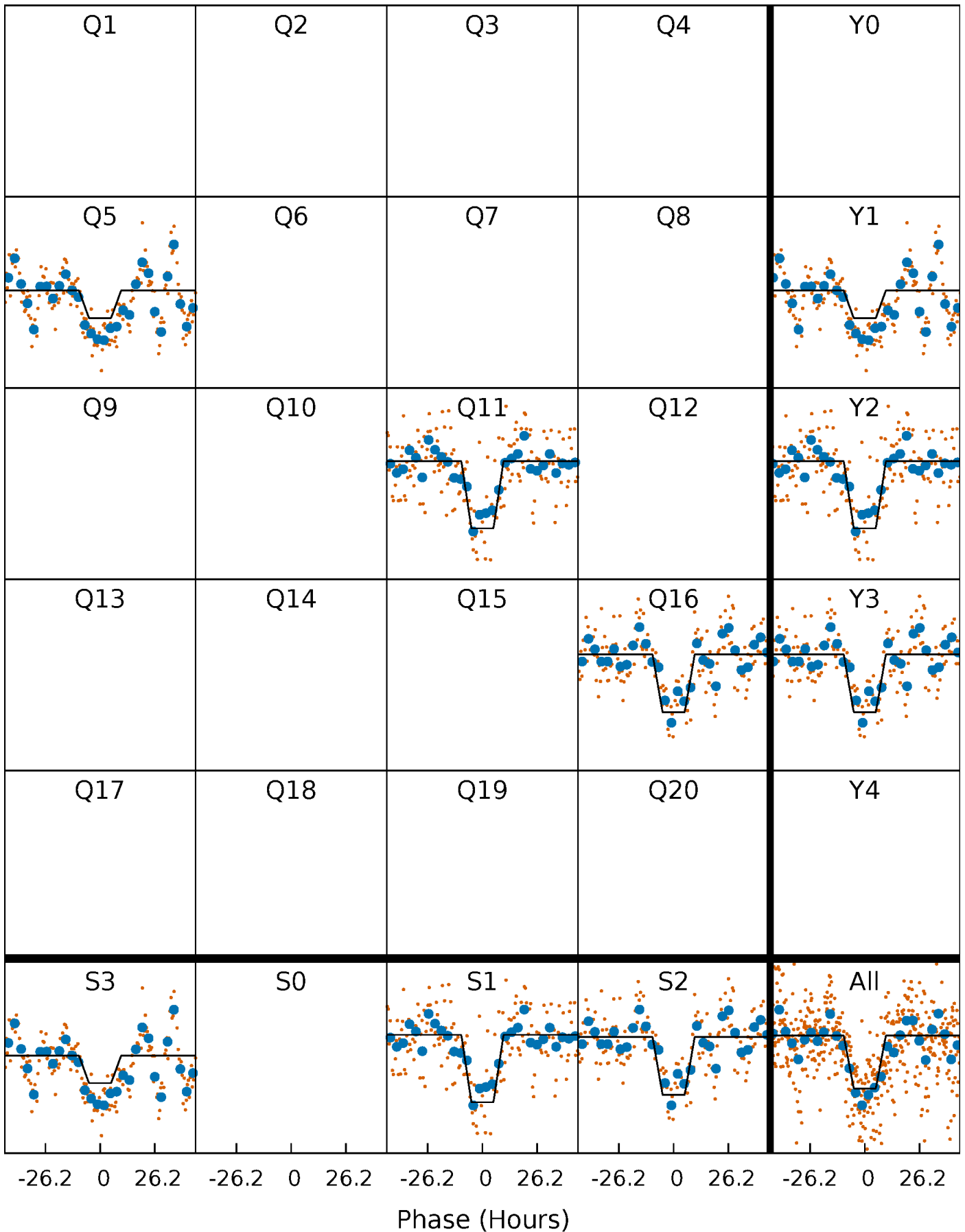
DV Quarter-Phased Transit Curves

TCE 007670496-02 $P=487.323253$ Days $T_0=521.028776$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

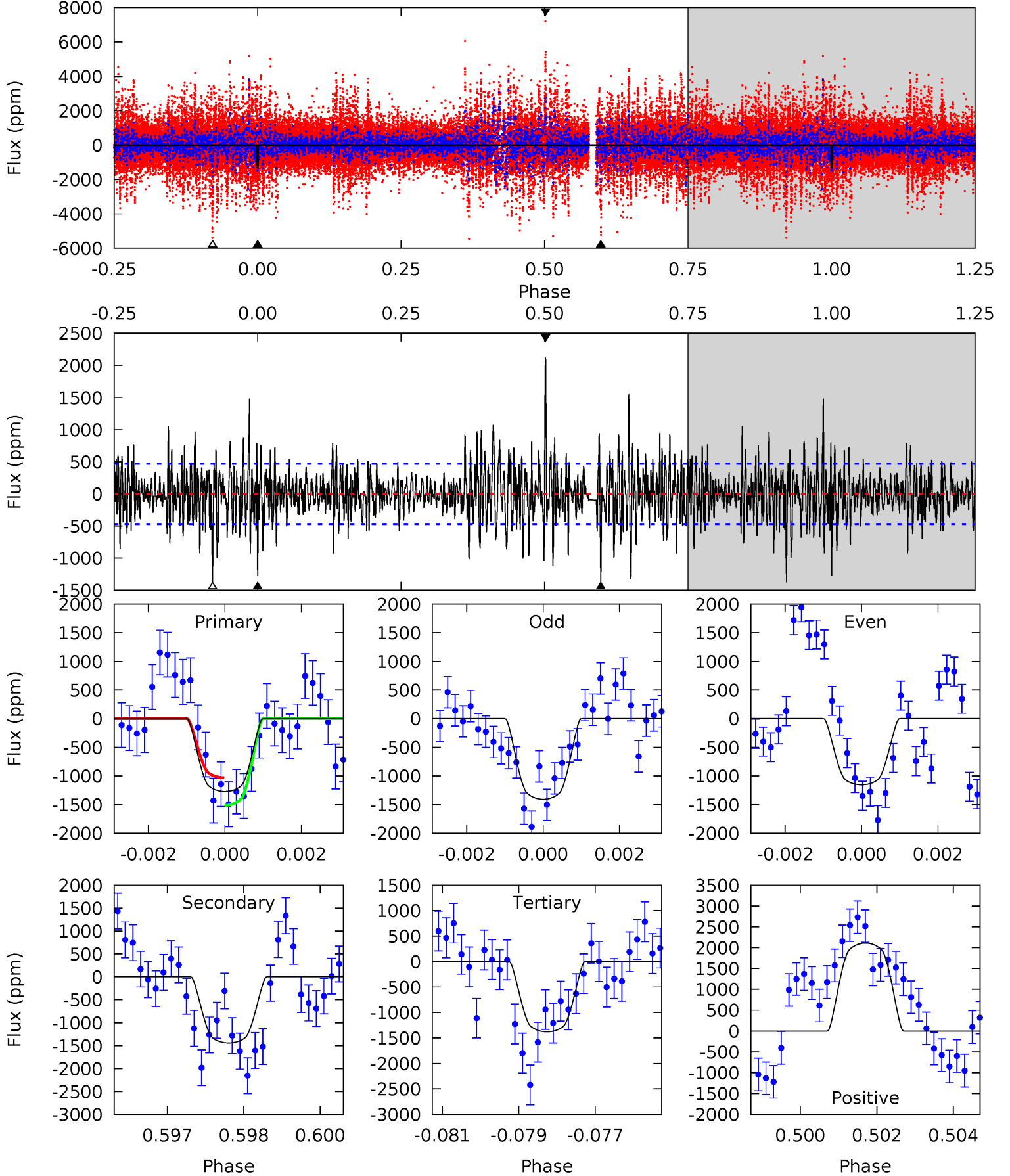
TCE 007670496-02 $P=487.285916$ Days $T_0=521.053014$ (BKJD)



DV Model-Shift Uniqueness Test

007670496-02, $P = 487.323253$ Days, $E = 33.705523$ Days

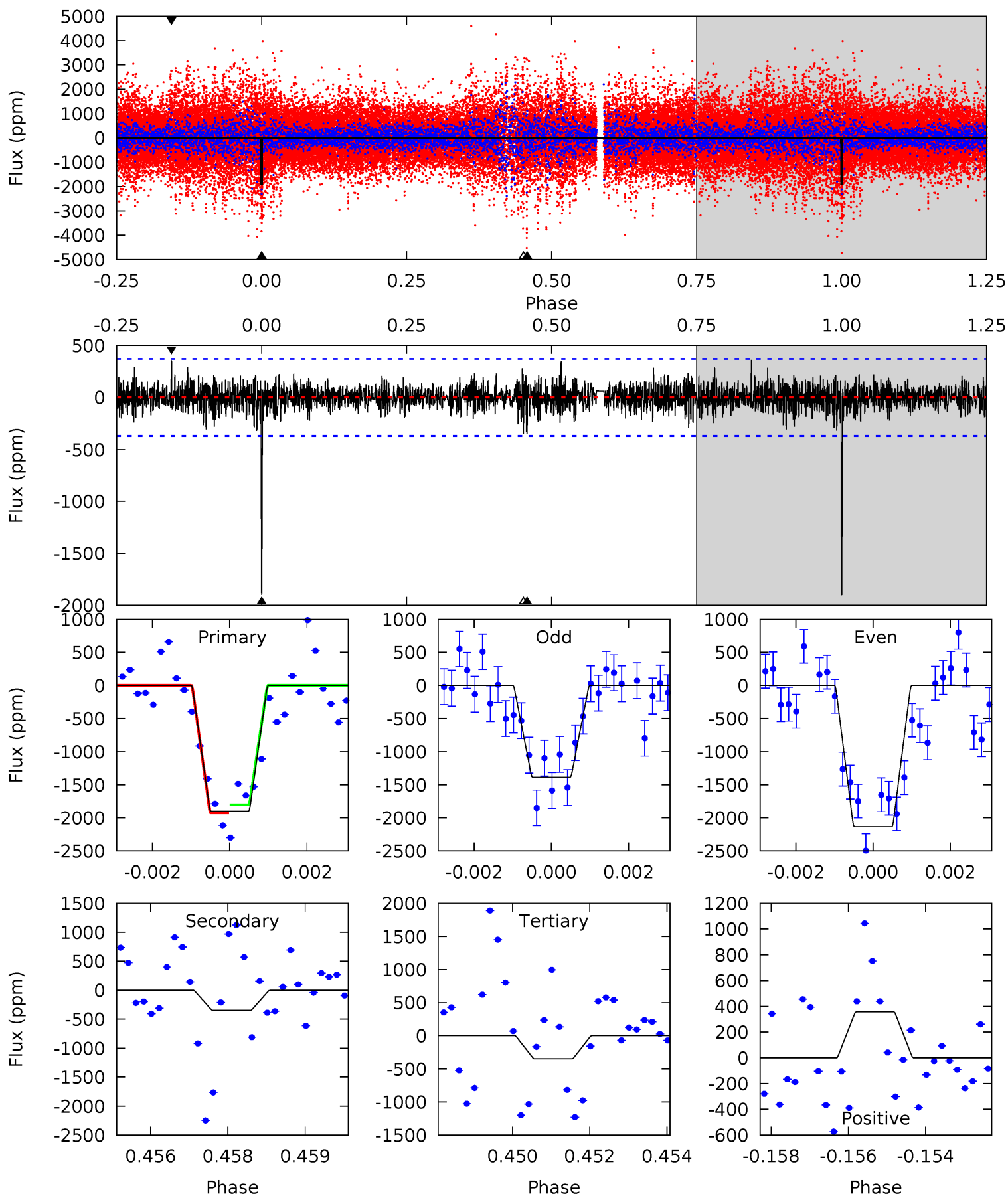
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
14.5	16.4	15.7	24.0	5.35	3.13	3.88	-1.22	-9.55	0.73	-7.60	1.29	0.99	0.59	2.77



Alt Model-Shift Uniqueness Test

007670496-02, P = 487.285916 Days, E = 33.767098 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
27.4	5.03	5.01	5.14	5.35	3.13	1.25	22.4	22.3	0.02	-0.10	4.91	1.34	0.16	0.89



Stellar Parameters For KIC 007670496

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	5839^{+163}_{-204}	$4.471^{+0.067}_{-0.202}$	$-0.100^{+0.300}_{-0.300}$	$0.946^{+0.283}_{-0.121}$	$0.966^{+0.127}_{-0.116}$	$1.609^{+0.550}_{-0.795}$
	+3%/-3%	+1%/-5%	+300%/-300%	+30%/-13%	+13%/-12%	+34%/-49%
Source	KIC0	KIC0	KIC0	DSEP		

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

Secondary Eclipse Parameters for KIC 007670496-02 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	-1442 ± 88	$4.67^{+0.84}_{-0.65}$	325^{+25}_{-16}	5464^{+308}_{-280}	51397^{+17085}_{-13423}
Alt.	-349 ± 69	$4.33^{+0.74}_{-0.60}$	326^{+21}_{-16}	4224^{+235}_{-248}	14215^{+5489}_{-4289}

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 $A_{obs} \gg 1.0$

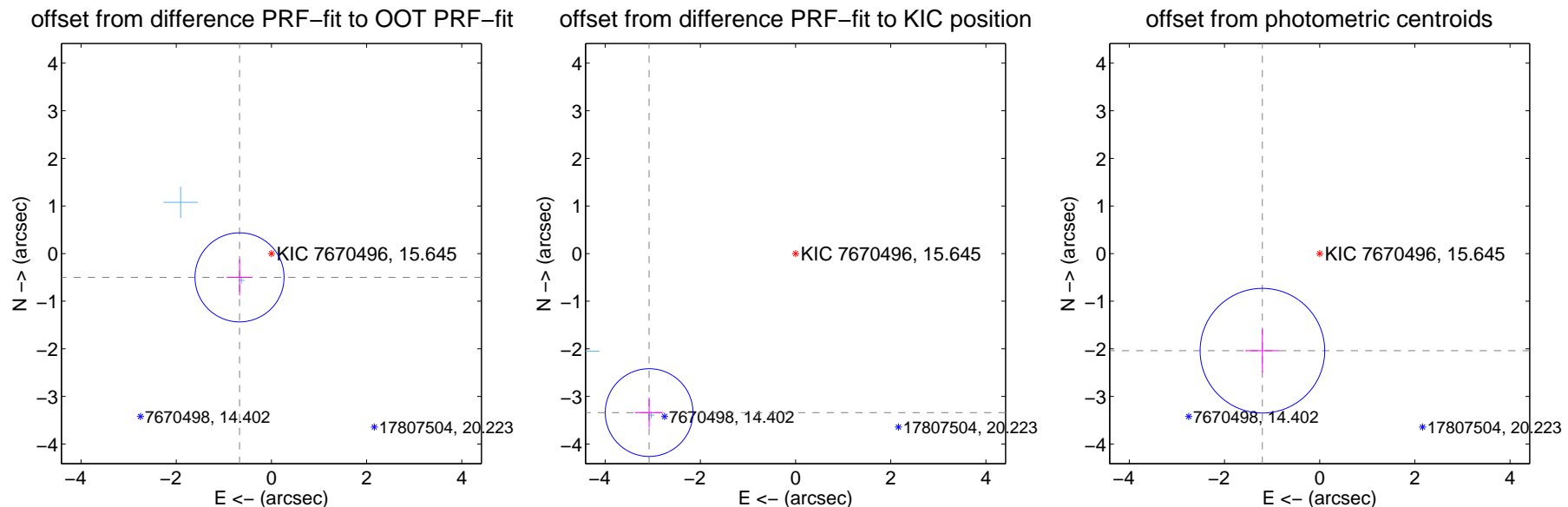
DV Centroid Data

Supplemental centroid analysis for 007670496-02. Kepler magnitude: 15.64. Transit SNR 8.02

There are 2 quarters with good PRF difference image offsets

The OOT PRF centroid is offset from the target star catalog position by about 3.71 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	0.835 ± 0.312	2.68	0.670 ± 0.268	-0.499 ± 0.379
PRF-fit source offset from KIC position	4.539 ± 0.307	14.78	3.076 ± 0.300	-3.339 ± 0.313
photometric centroid source offset	2.37 ± 0.44	5.43	1.20 ± 0.36	-2.04 ± 0.46

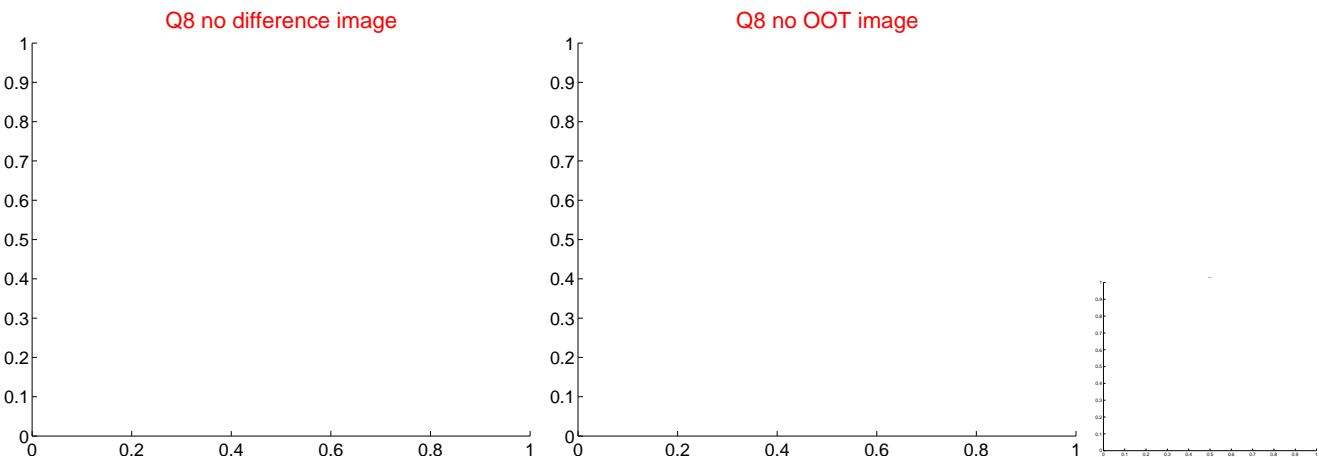
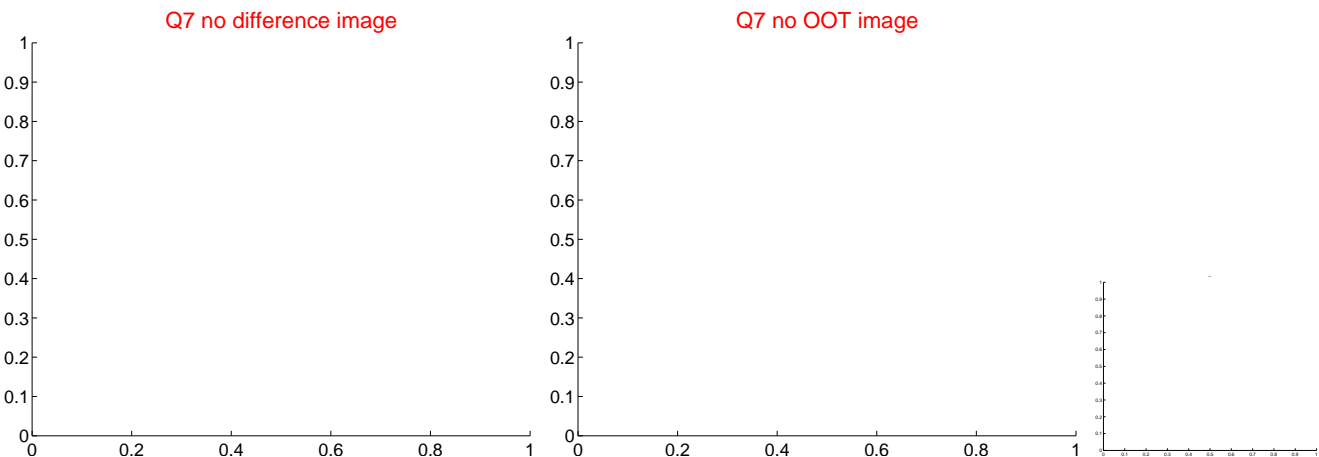
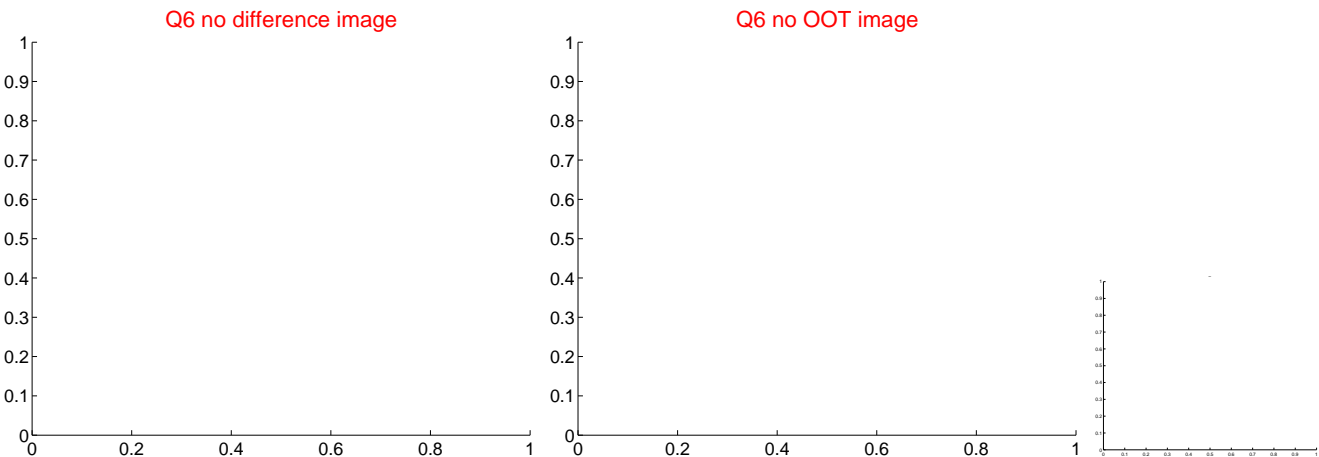
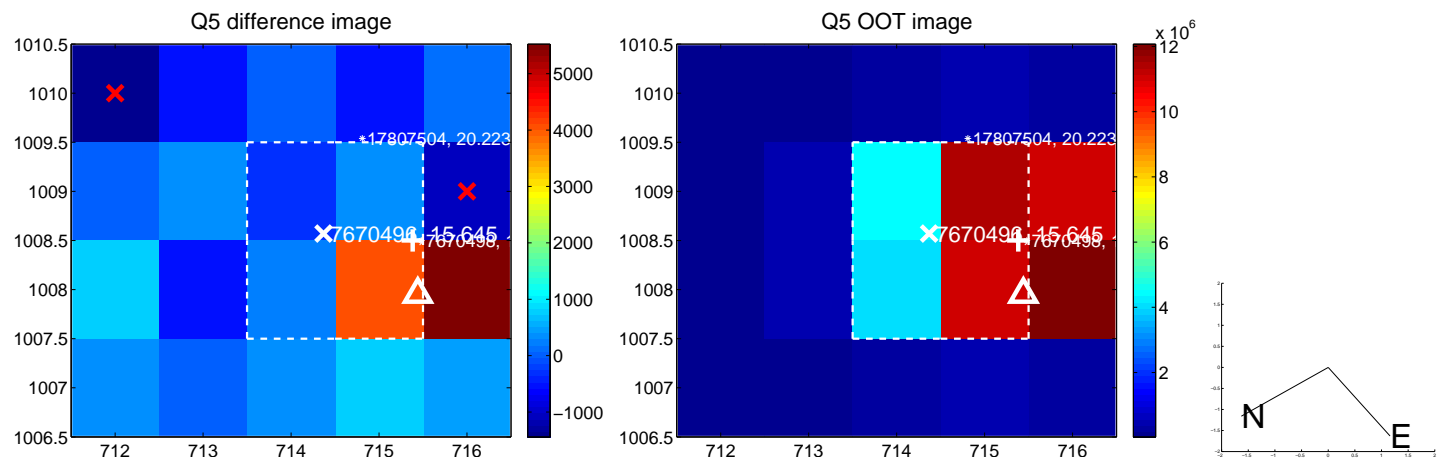


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ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

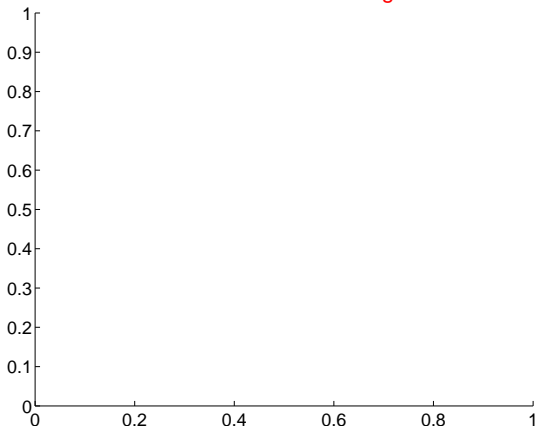


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.

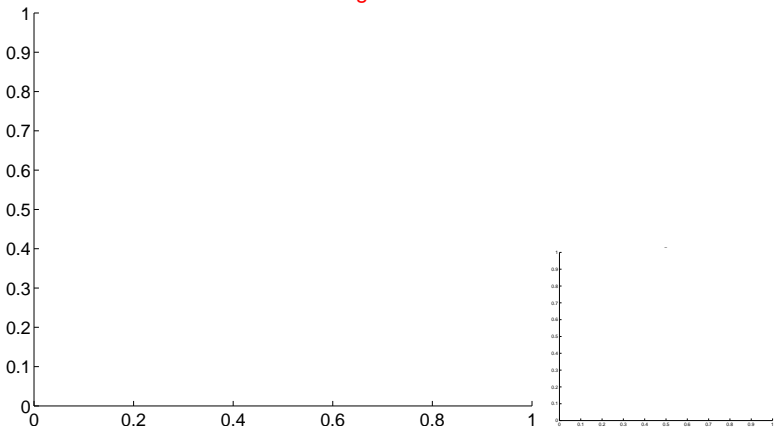


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.

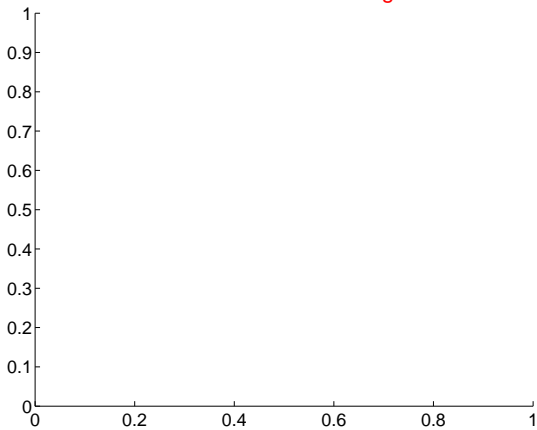
Q13 no difference image



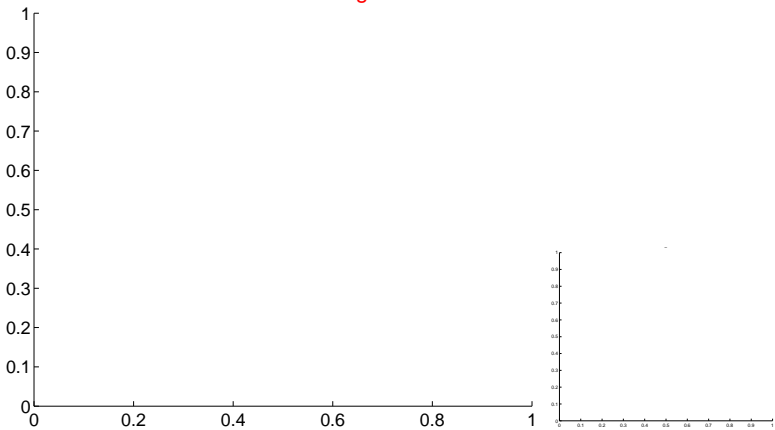
Q13 no OOT image



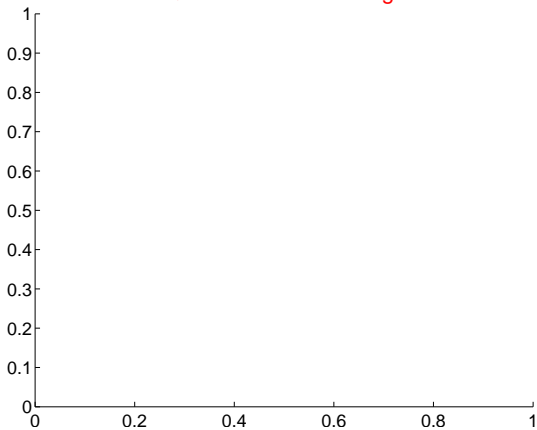
Q14 no difference image



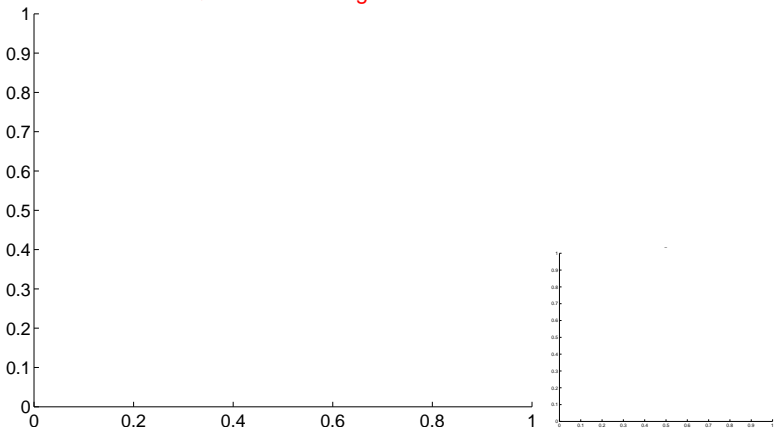
Q14 no OOT image



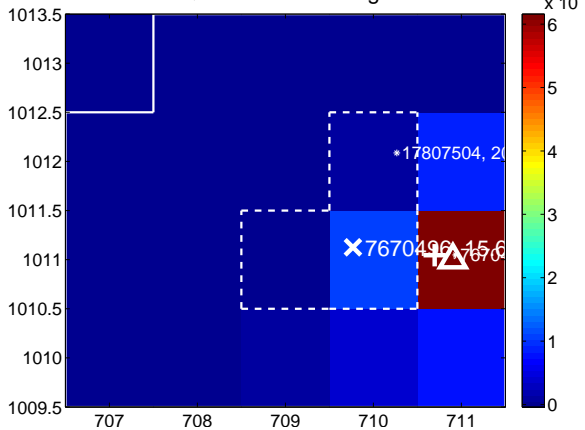
Q15 no difference image



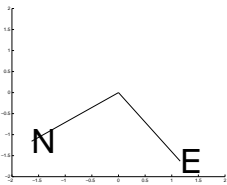
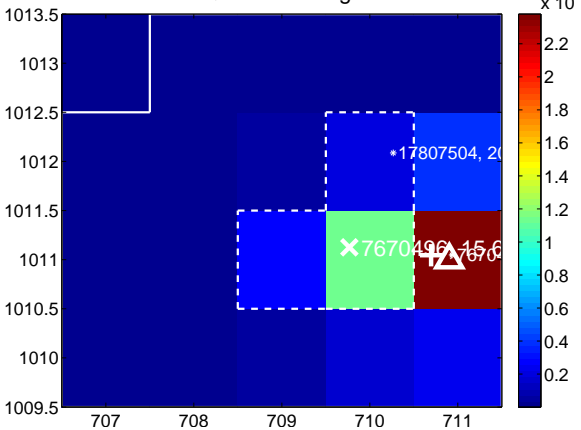
Q15 no OOT image



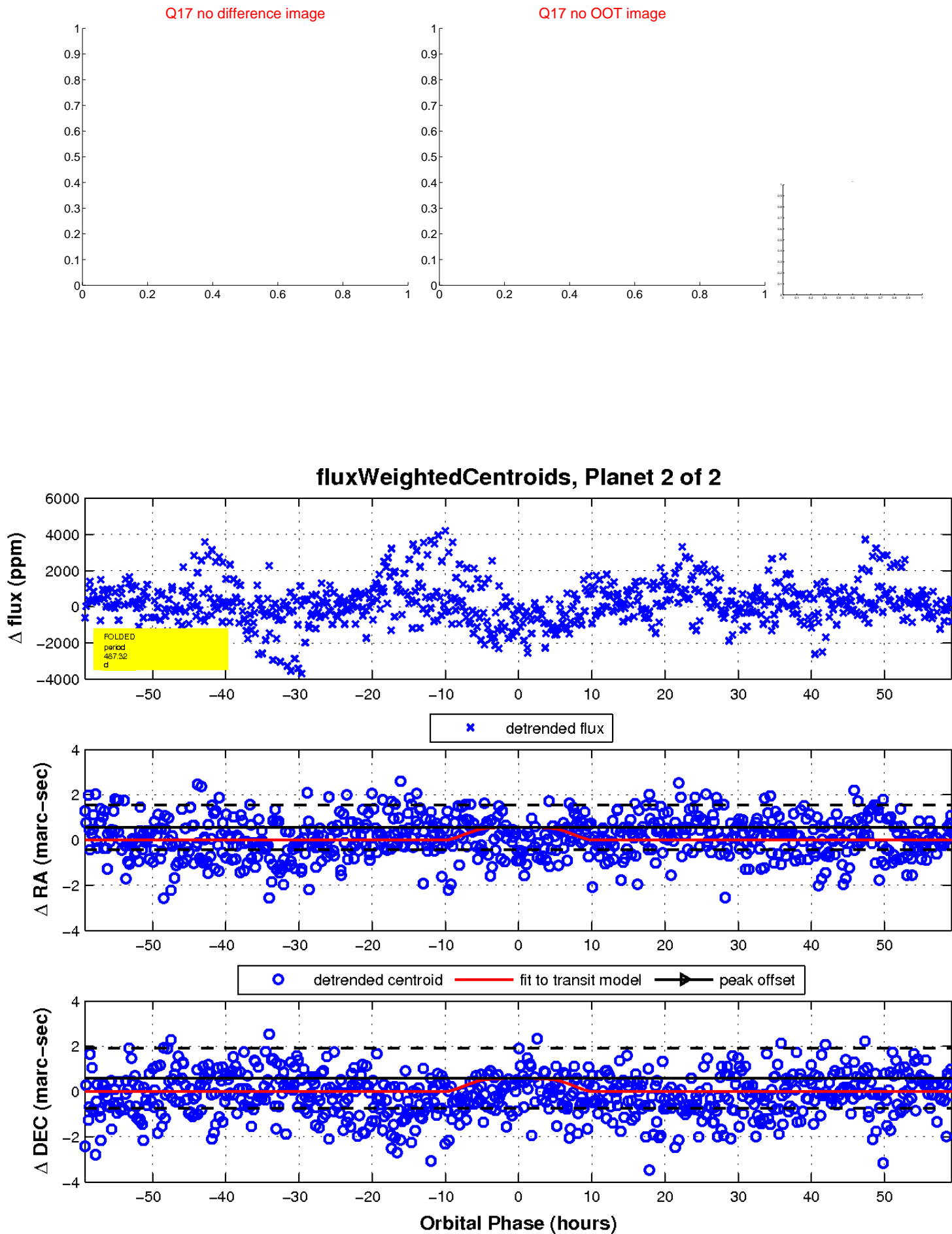
Q16 difference image



Q16 OOT image



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



UKIRT Image

Declination

