

KIC 006511933

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})
006511933-01	OBS	No	371.824036	309.127122	1866.3	26.601	8.8	9.9	0.95	5952	7.69	1.13
006511933-02	OBS	No	446.697391	326.844089	763.5	18.515	8.2	8.6	0.95	5952	2.69	0.89

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
006511933-01	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_MARSHALL_SKYE—LPP_DV—ALL_TRANS_CHASES—CENT_FEW_DIFFS
006511933-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_MARSHALL—LPP_DV—ALL_TRANS_CHASES—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.

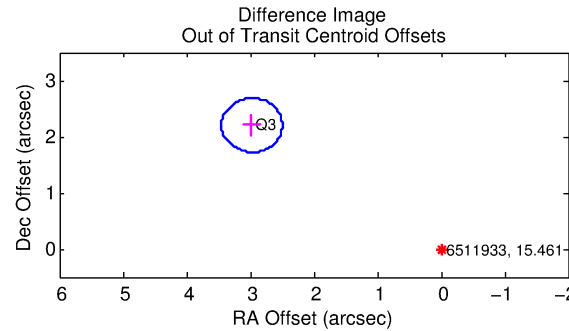
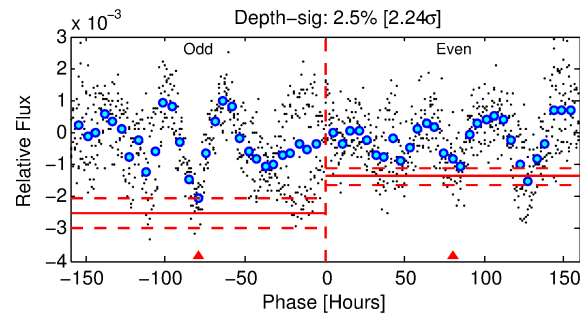
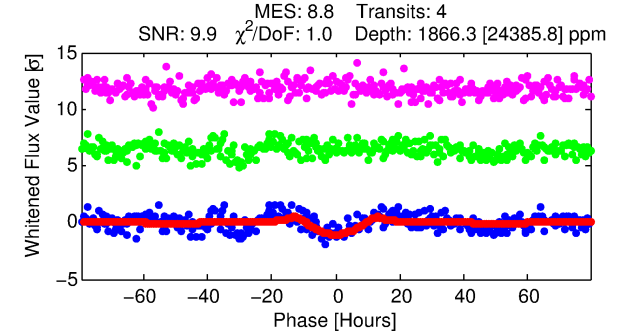
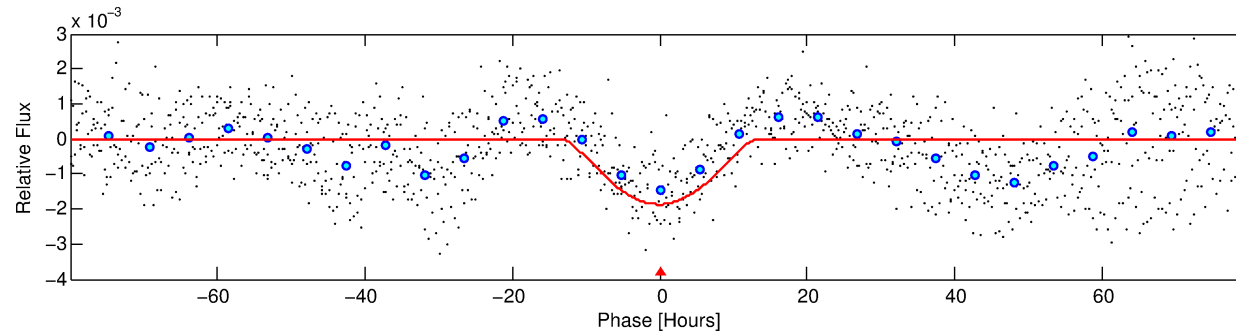
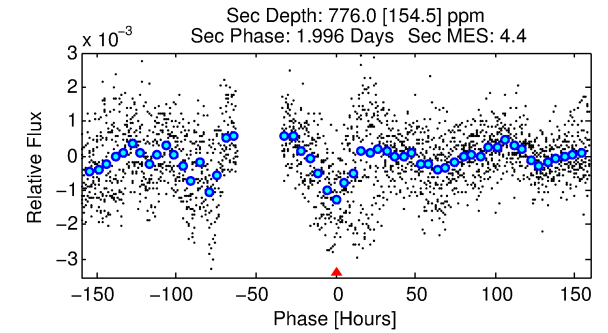
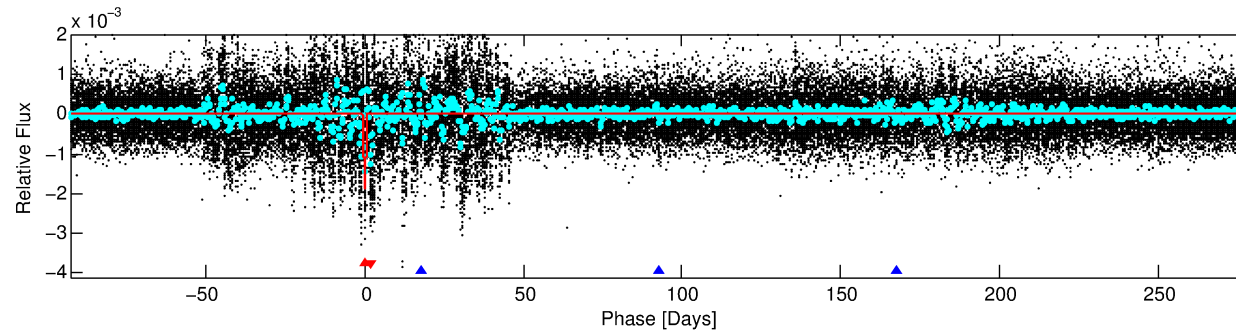
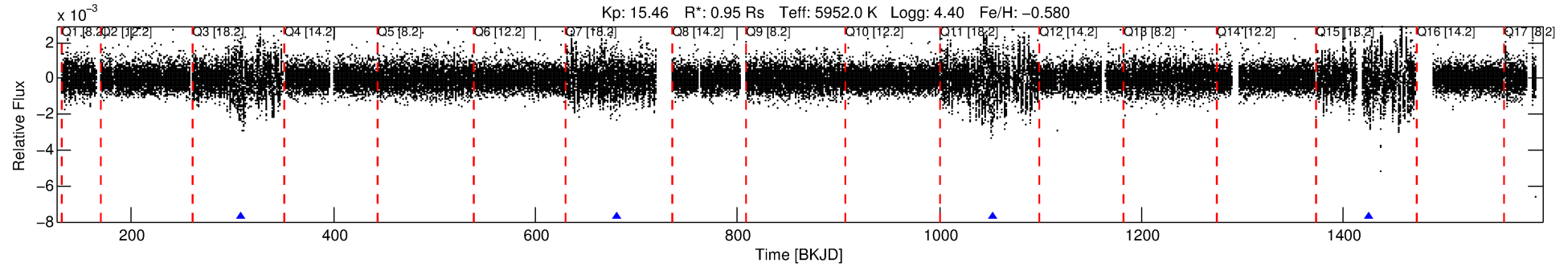
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 006511933-01

No Significant Match Found

DV One-Page Summary

KIC: 6511933 Candidate: 1 of 2 Period: 371.824 d



DV Fit Results:

Period = 371.82404 [0.02267] d
Epoch = 309.1271 [0.0377] BKJD
Rp/R* = 0.0741 [0.1430]
a/R* = 41.88 [17.73]
b = 1.00 [0.45]
Seff = 1.13 [0.39]
Teq = 263 [23] K
Rp = 7.69 [14.96] Re
a = 0.9485 [0.2084] AU
Ag = 6492.18 [25165.68] [0.26σ]
Teff = 3649 [3525] K [0.96σ]

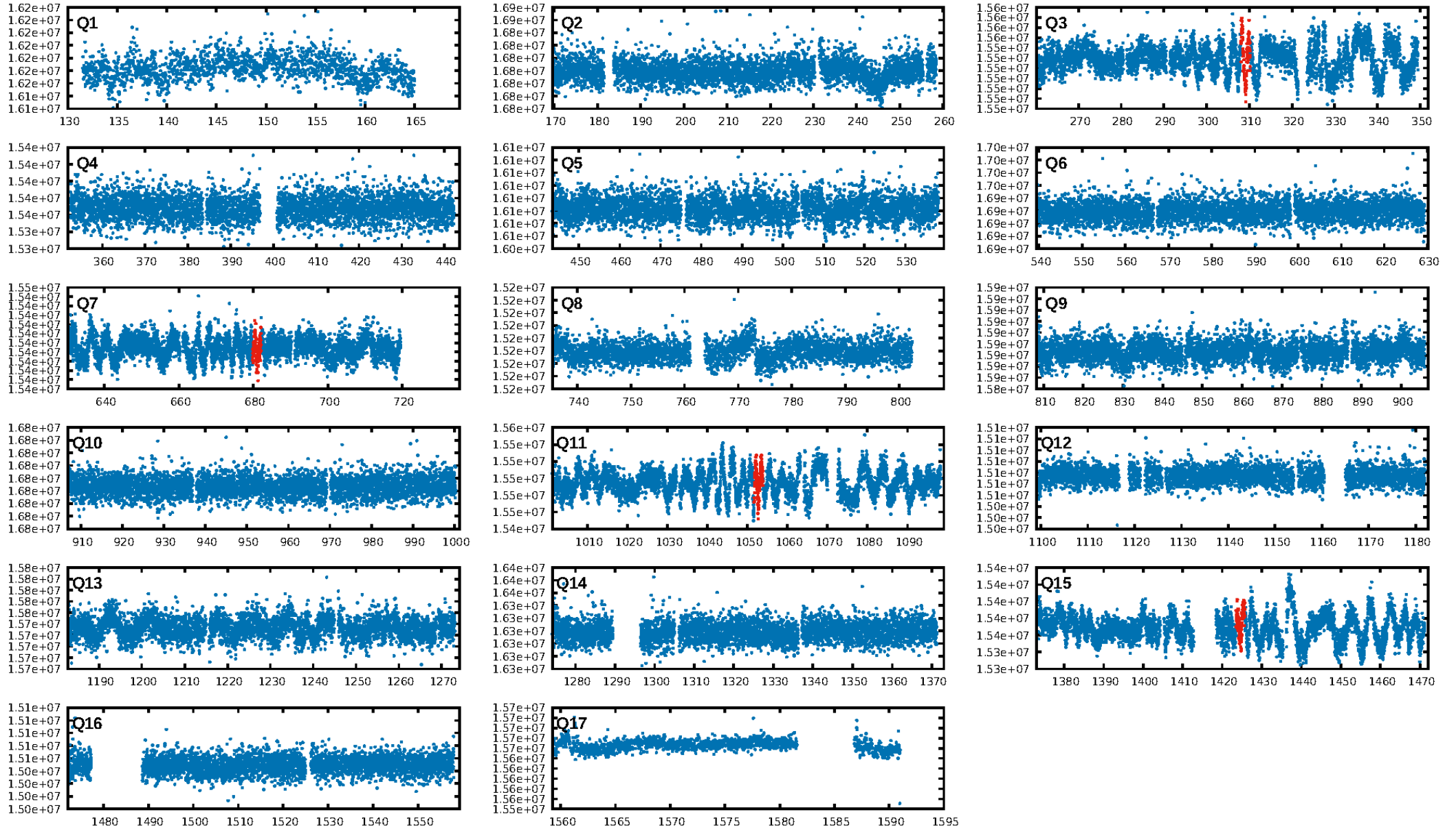
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: 100.0% [55.44σ]
ModelChiSquare2-sig: 20.6%
ModelChiSquareGof-sig: 100.0%
Bootstrap-pfa: 9.07e-14
RollingBand-fgt: 1.00 [4/4]
GhostDiagnostic-chr: -1.397
Centroid-sig: 7.9%
Centroid-so: 2.190 arcsec [1.52σ]
OotOffset-rm: 3.701 arcsec [23.18σ]
KicOffset-rm: 3.502 arcsec [22.37σ]
OotOffset-st: 0/1/0/0 [1]
KicOffset-st: 0/1/0/0 [1]
DiffImageQuality-fgm: 0.00 [0/1]
DiffImageOverlap-fno: 1.00 [4/4]

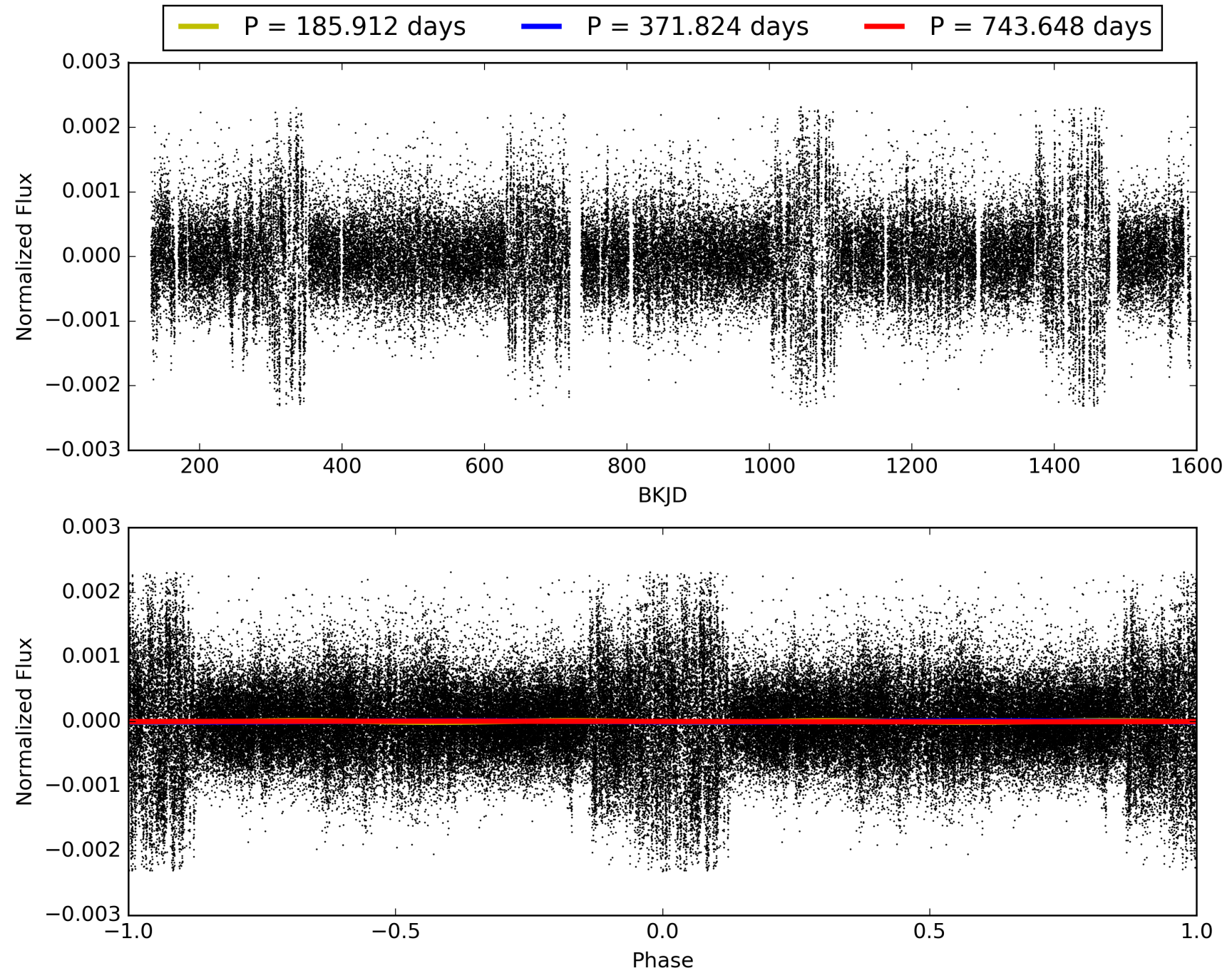
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 31-Jan-2016 20:25:15 Z

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

TCE 006511933-01, PDC Light Curves

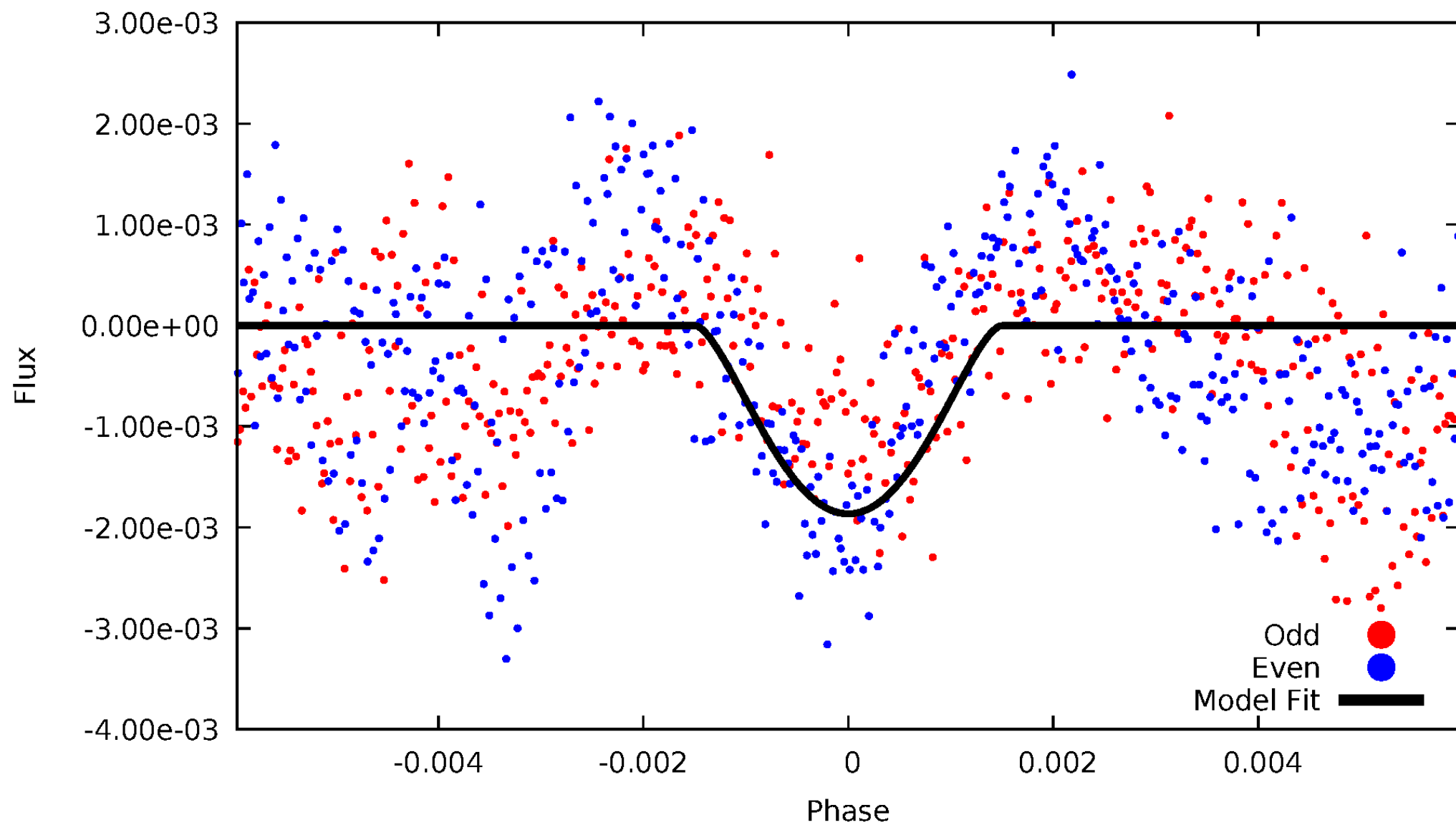


TCE 006511933-01



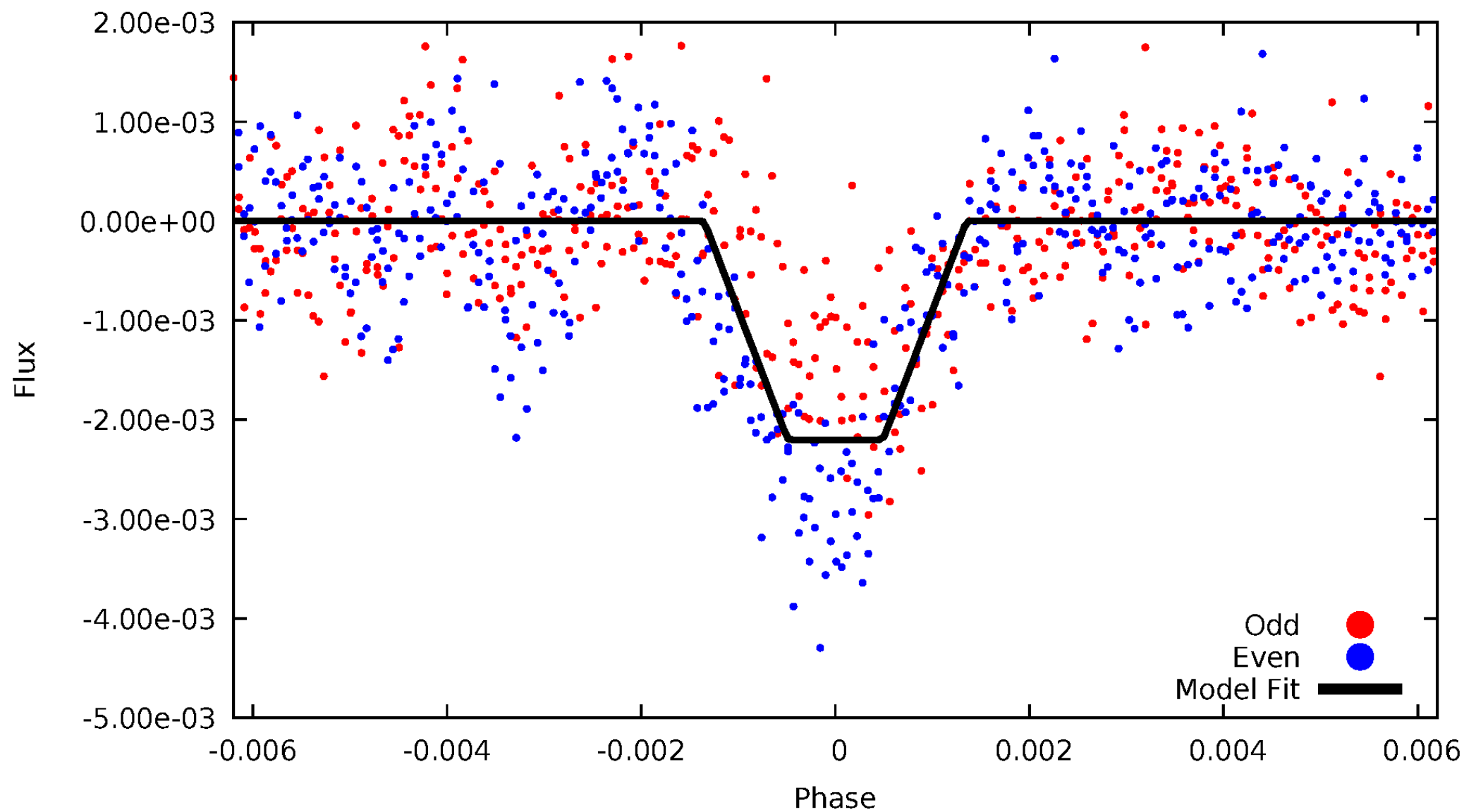
DV Odd/Even

TCE 006511933-01



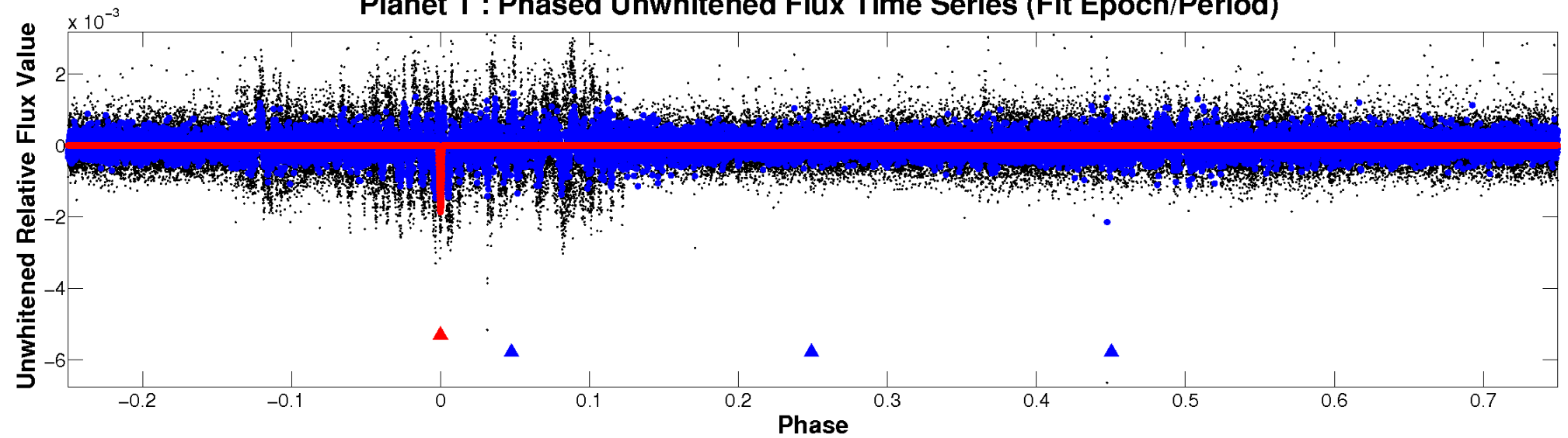
ALT Odd/Even

TCE 006511933-01

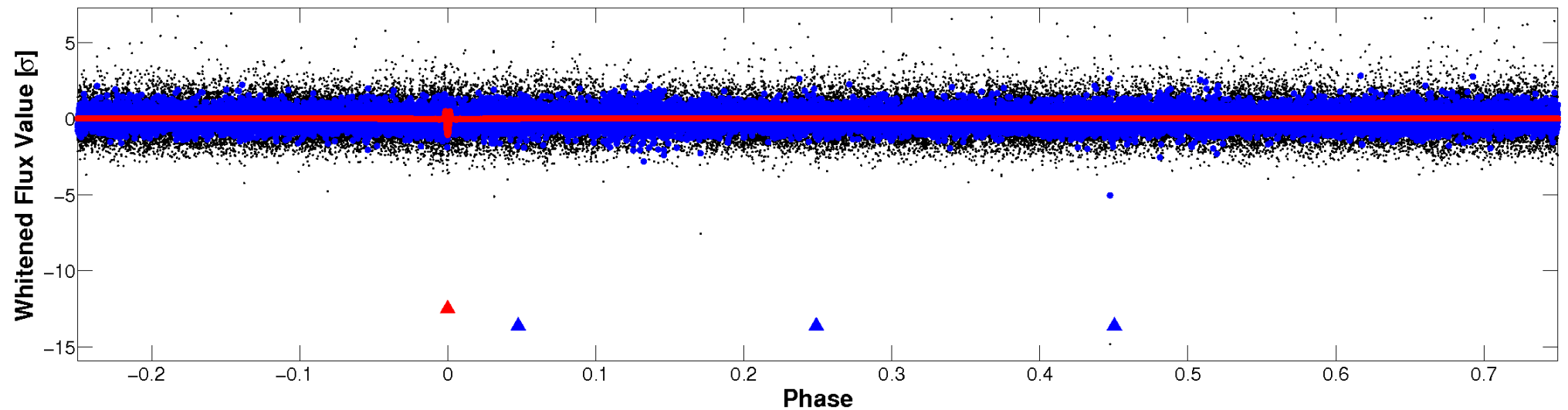


Non-Whitened Vs. Whitened Light Curve

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

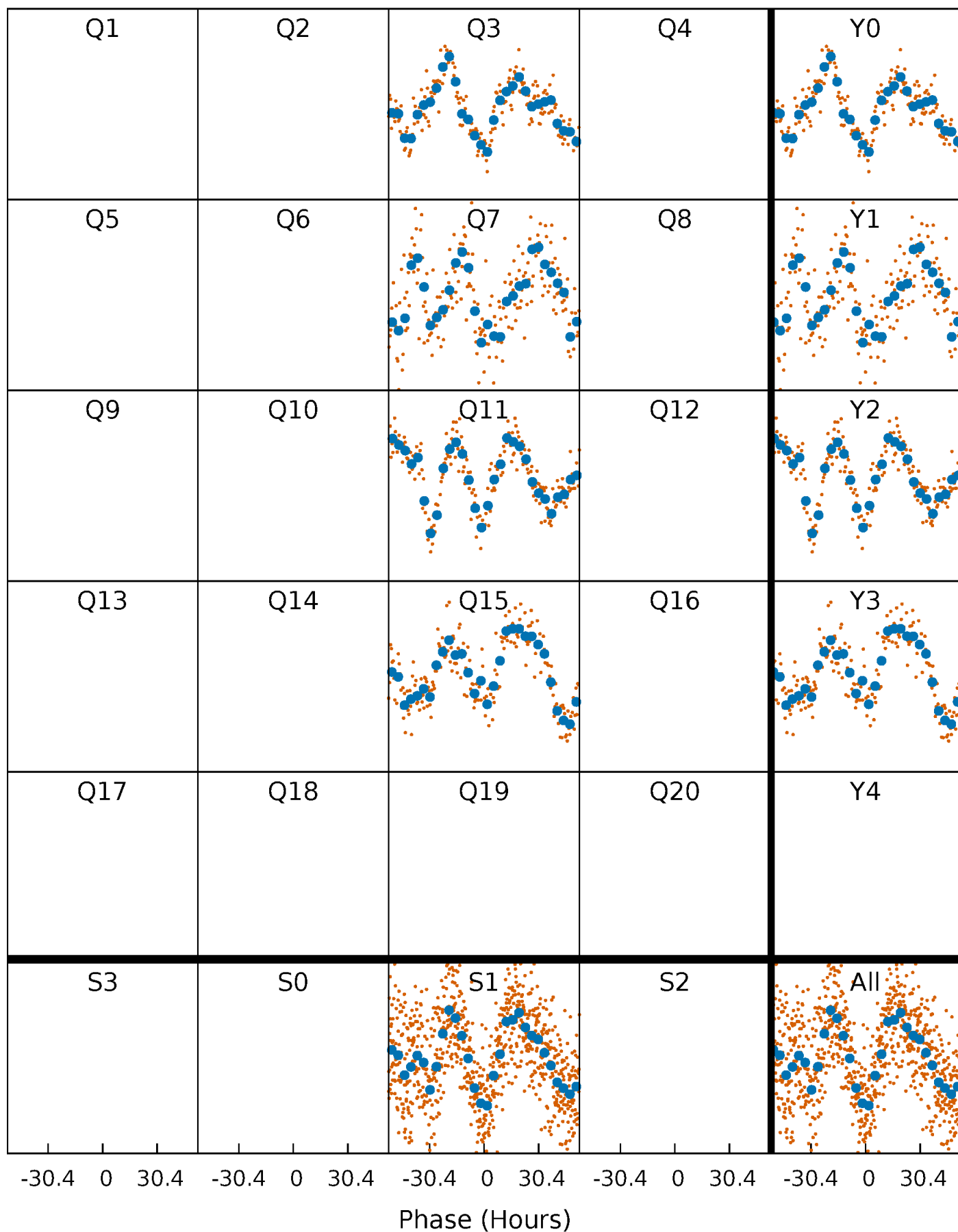


Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)



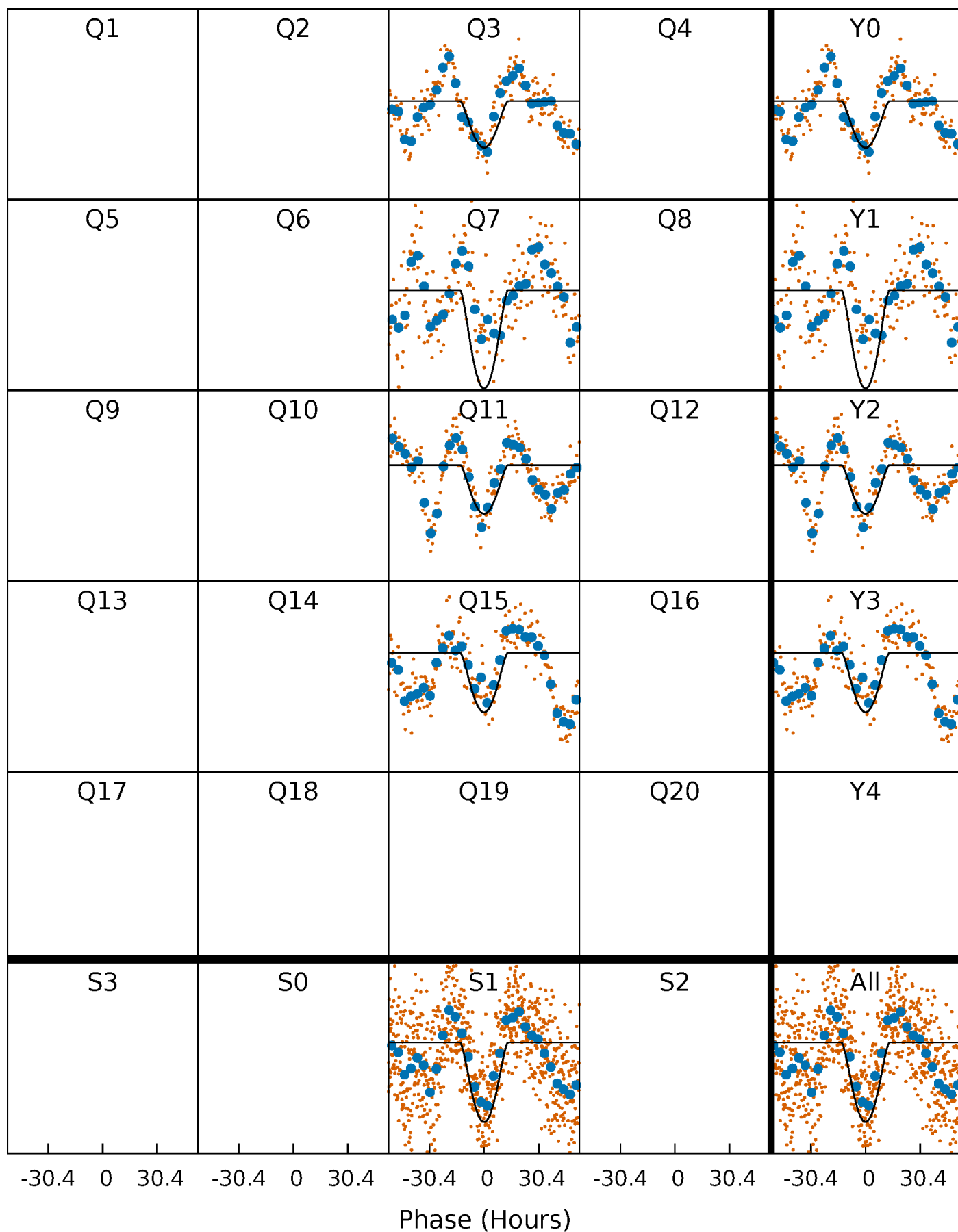
PDC Quarter-Phased Transit Curves

TCE 006511933-01 P=371.824036 Days $T_0=309.127122$ (BKJD)



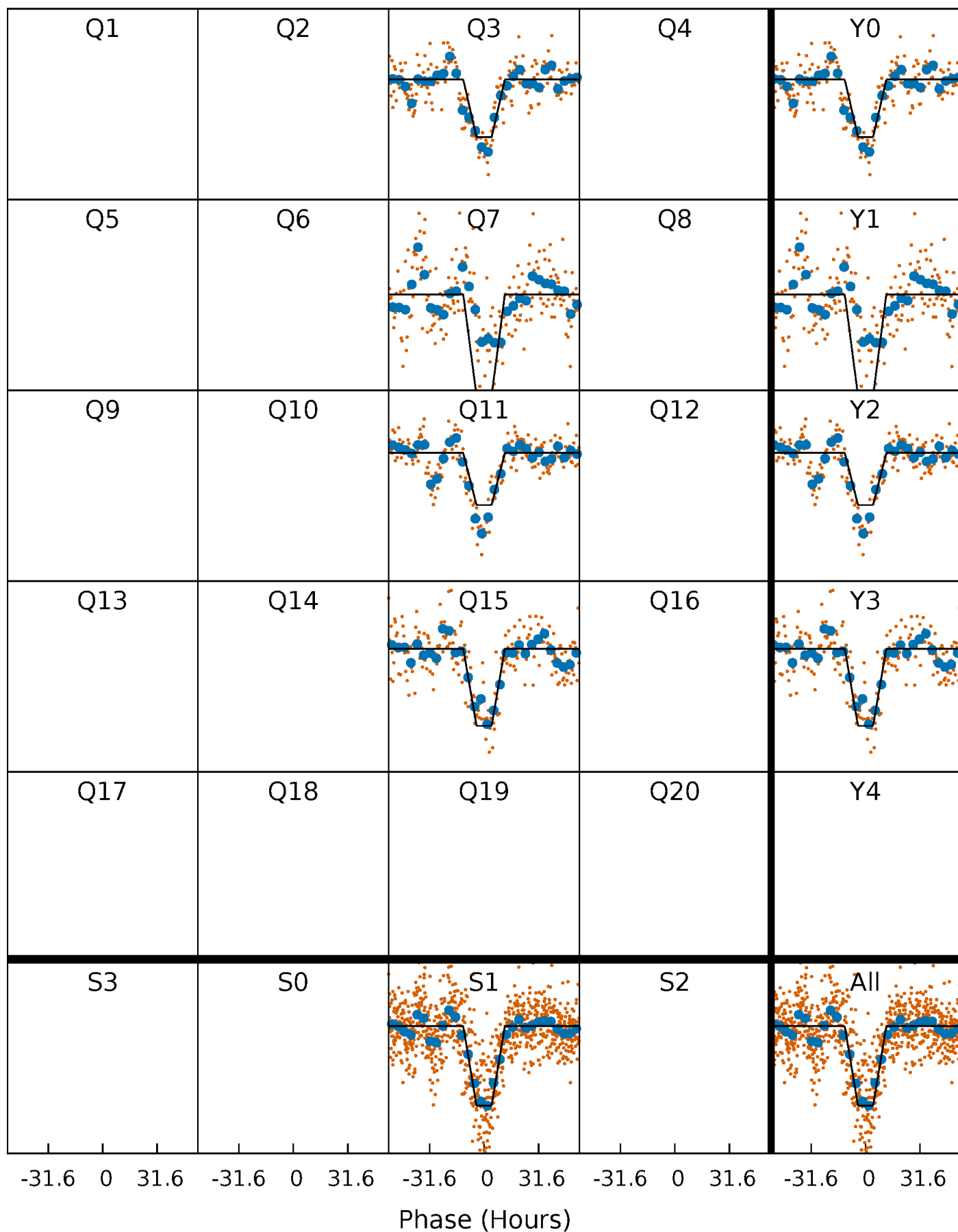
DV Quarter-Phased Transit Curves

TCE 006511933-01 P=371.824036 Days $T_0=309.127122$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

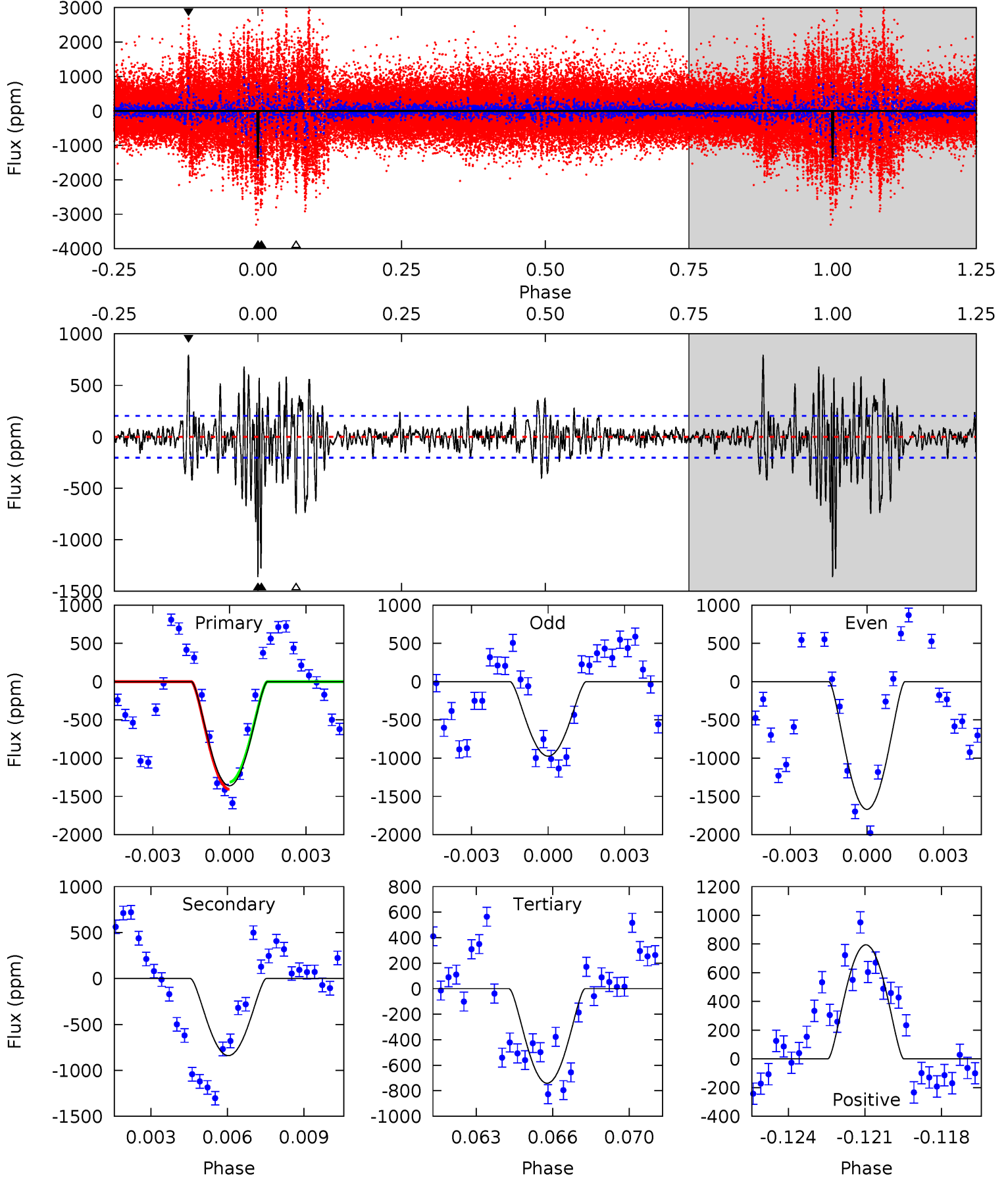
TCE 006511933-01 P=371.829491 Days $T_0=309.097913$ (BKJD)



DV Model-Shift Uniqueness Test

006511933-01, P = 371.824036 Days, E = 309.127122 Days

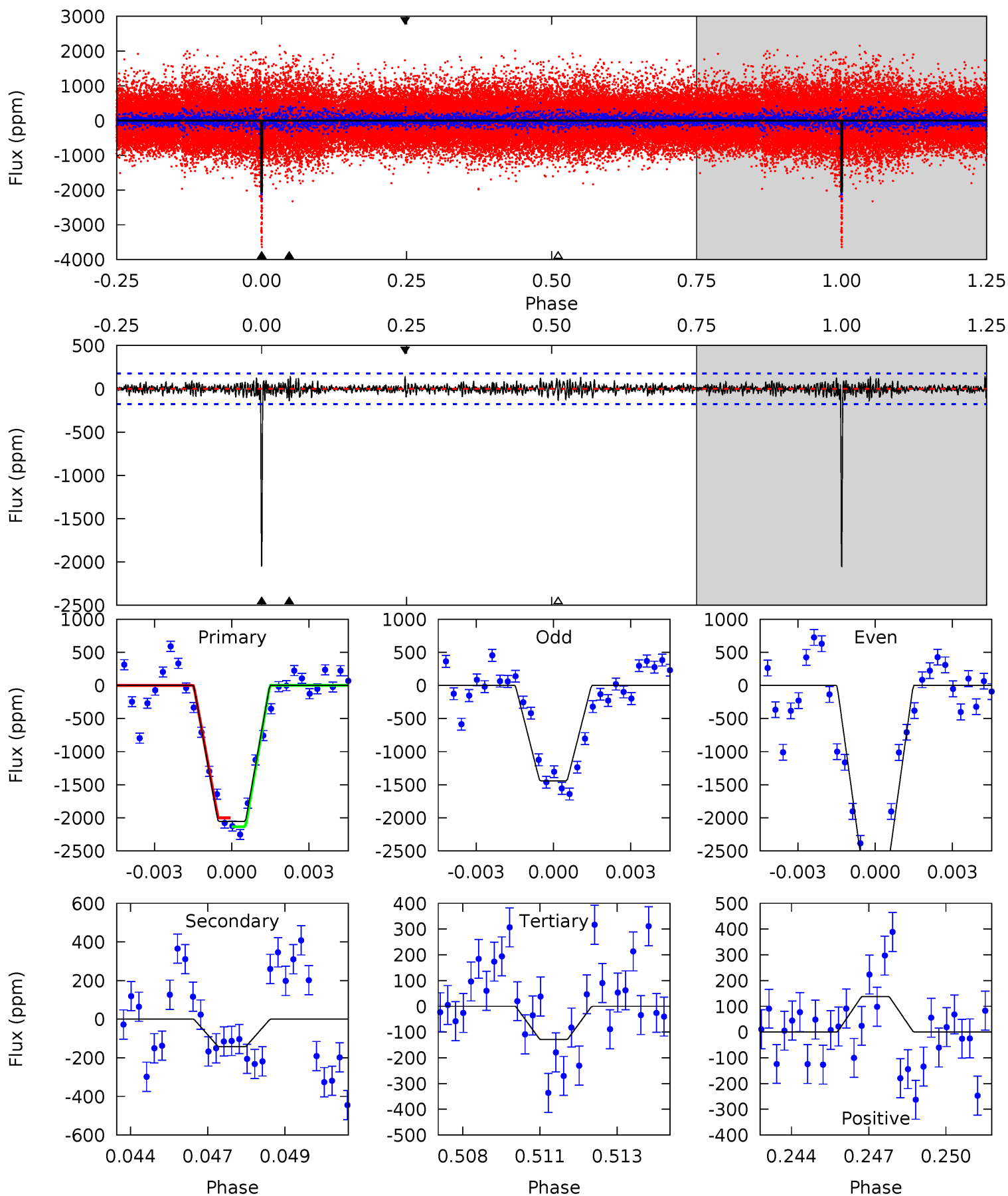
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
35.2	21.7	19.2	20.6	5.25	2.97	4.12	16.0	14.7	2.56	1.17	8.93	0.93	0.37	1.21



Alt Model-Shift Uniqueness Test

006511933-01, P = 371.829491 Days, E = 309.097913 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
61.1	4.25	3.84	4.11	5.27	2.99	1.05	57.3	57.0	0.41	0.14	18.1	0.93	0.06	1.97



Stellar Parameters For KIC 006511933

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	5952^{+177}_{-177}	$4.397^{+0.149}_{-0.182}$	$-0.580^{+0.300}_{-0.300}$	$0.951^{+0.242}_{-0.162}$	$0.823^{+0.105}_{-0.061}$	$1.347^{+0.925}_{-0.639}$
	+3%/-3%	+3%/-4%	+52%/-52%	+25%/-17%	+13%/-7%	+69%/-47%
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 006511933-01 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	-840 ± 39	$13.53^{+12.84}_{-9.36}$	368^{+26}_{-23}	3371^{+1699}_{-597}	2308^{+21860}_{-1700}
Alt.	-143 ± 34	$11.87^{+13.76}_{-7.85}$	369^{+26}_{-23}	2721^{+1012}_{-461}	512^{+3884}_{-405}

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

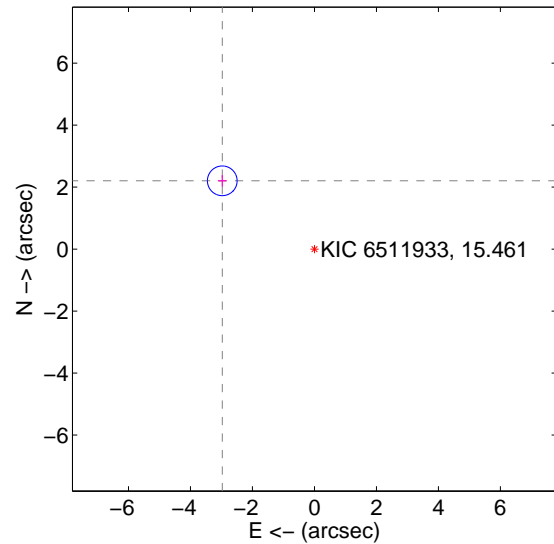
Supplemental centroid analysis for 006511933-01. Kepler magnitude: 15.46. Transit SNR 9.94

There are 0 quarters with good PRF difference image offsets

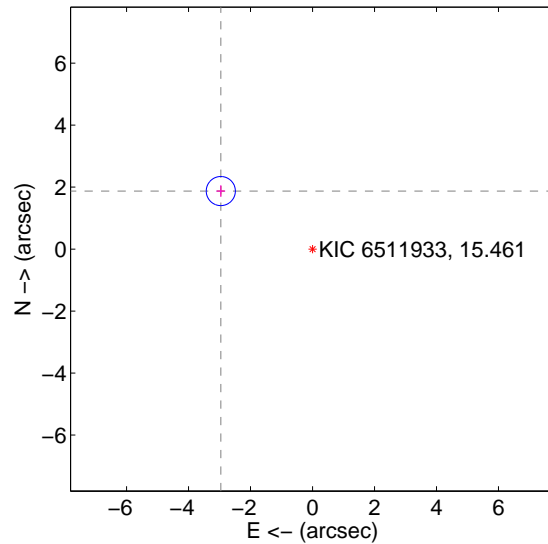
The direct PRF centroid is offset from the target star catalog position by about 0.33 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	3.701 ± 0.160	23.18	2.974 ± 0.143	2.203 ± 0.187
PRF-fit source offset from KIC position	3.502 ± 0.157	22.37	2.959 ± 0.143	1.873 ± 0.187
photometric centroid source offset	2.19 ± 1.44	1.52	-2.17 ± 1.42	0.32 ± 2.14

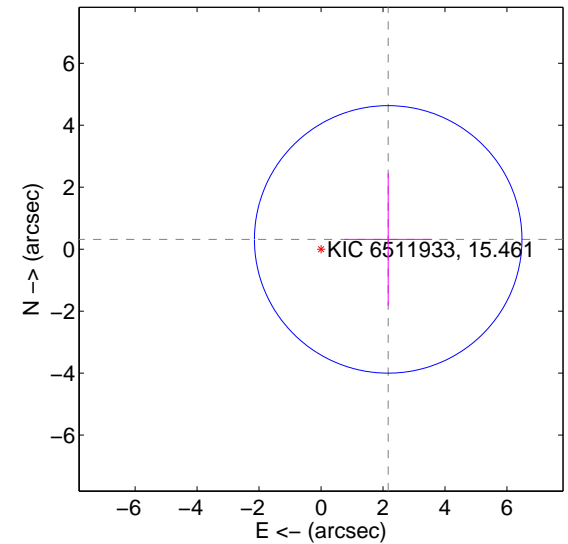
offset from difference PRF-fit to OOT PRF-fit



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



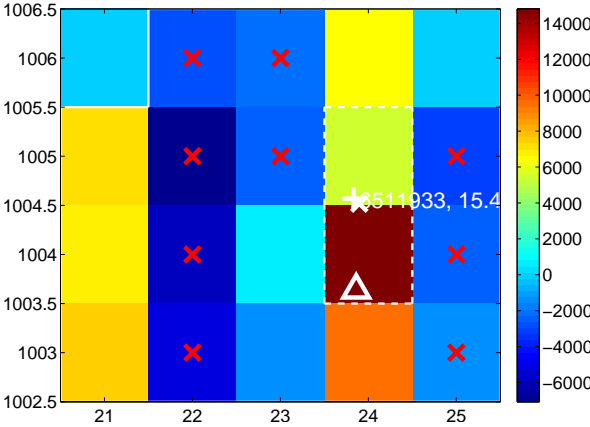
Q2 no difference image



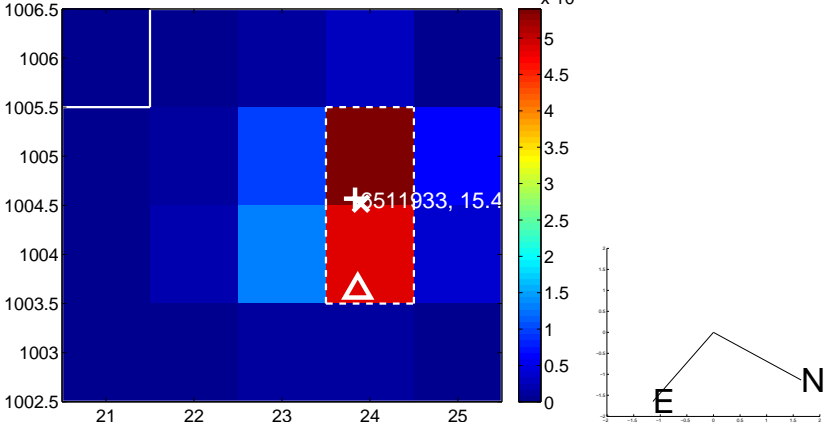
Q2 no OOT image



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.

Q5 no difference image



Q5 no OOT image



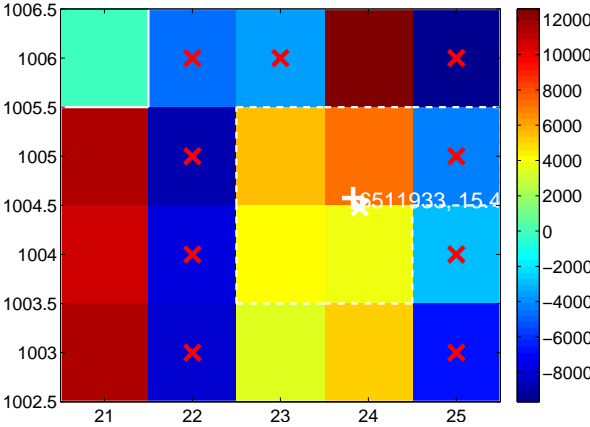
Q6 no difference image



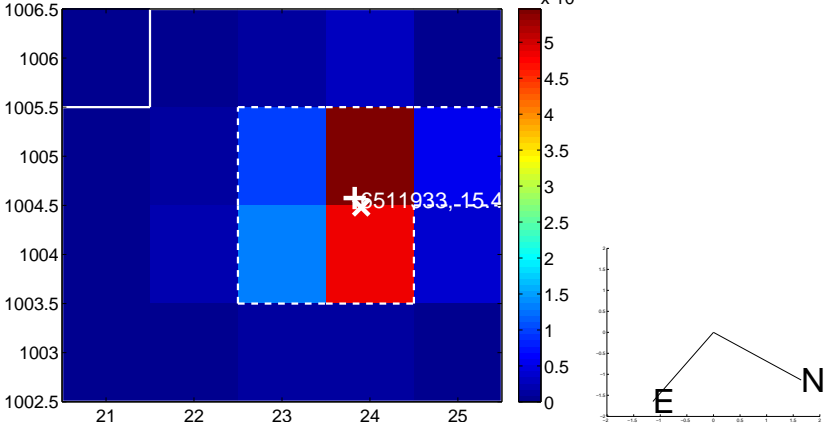
Q6 no OOT image



Q7 difference image. Poor Quality



Q7 OOT image



Q8 no difference image

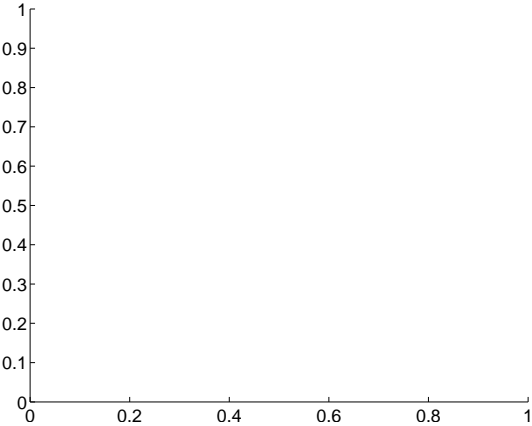


Q8 no OOT image

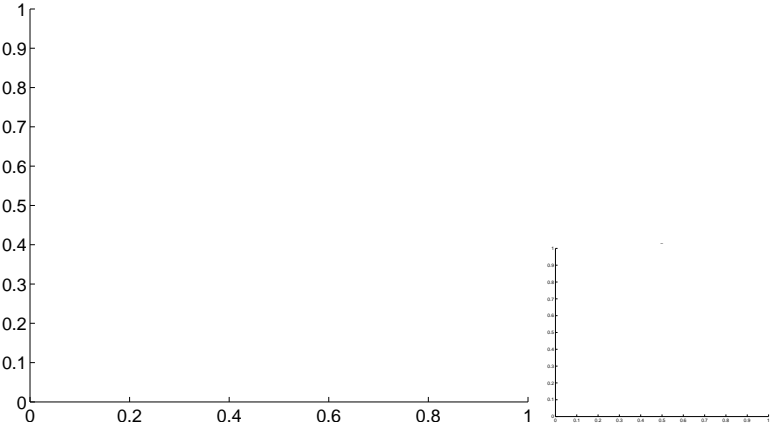


white ×: KIC target position; +: OOT centroid; △: difference centroid. red ×: large negative pixel value.

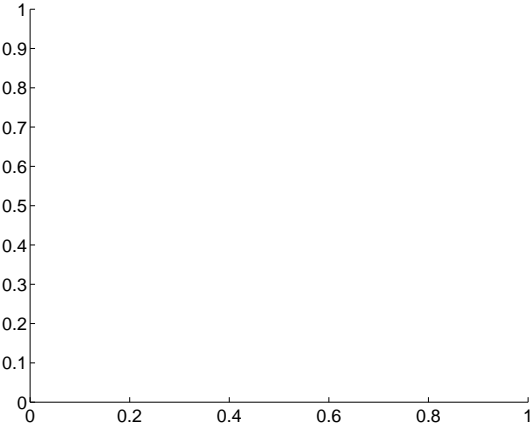
Q9 no difference image



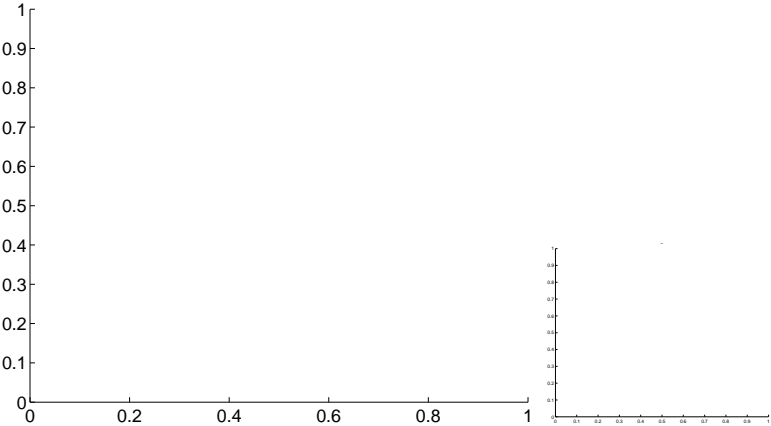
Q9 no OOT image



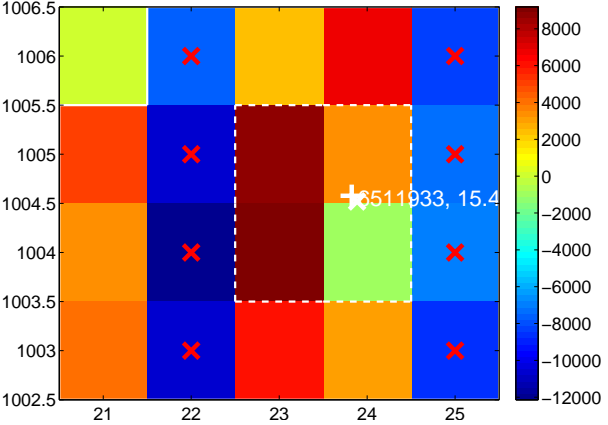
Q10 no difference image



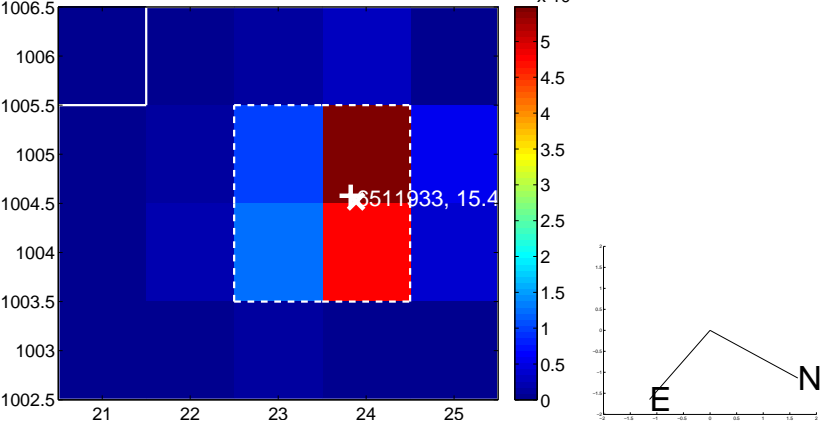
Q10 no OOT image



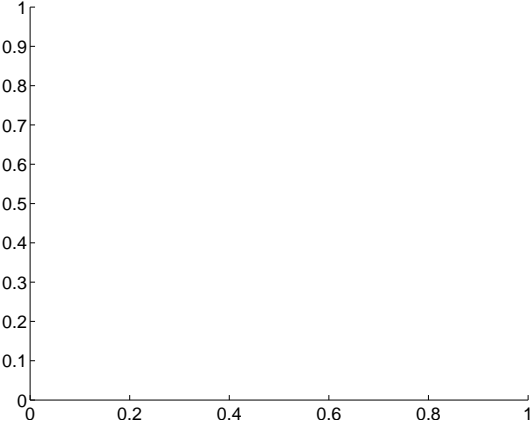
Q11 difference image. Poor Quality



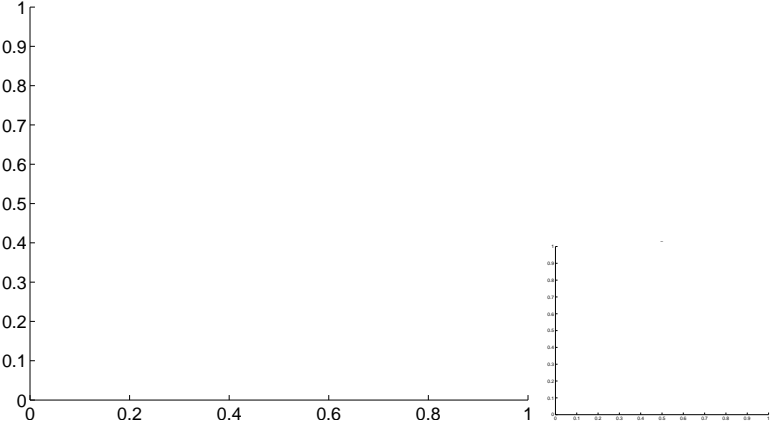
Q11 OOT image



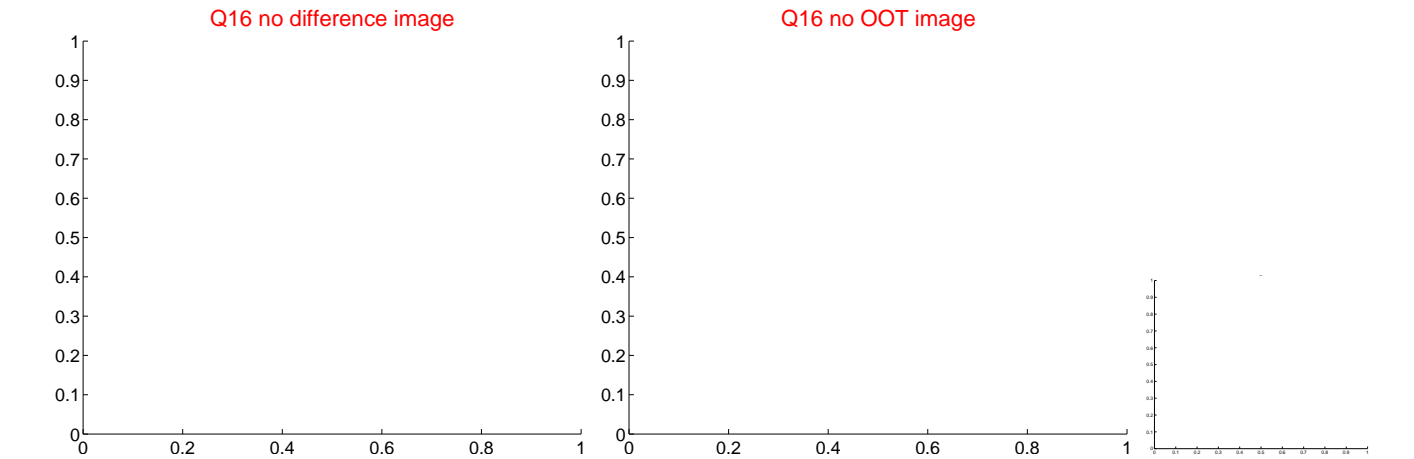
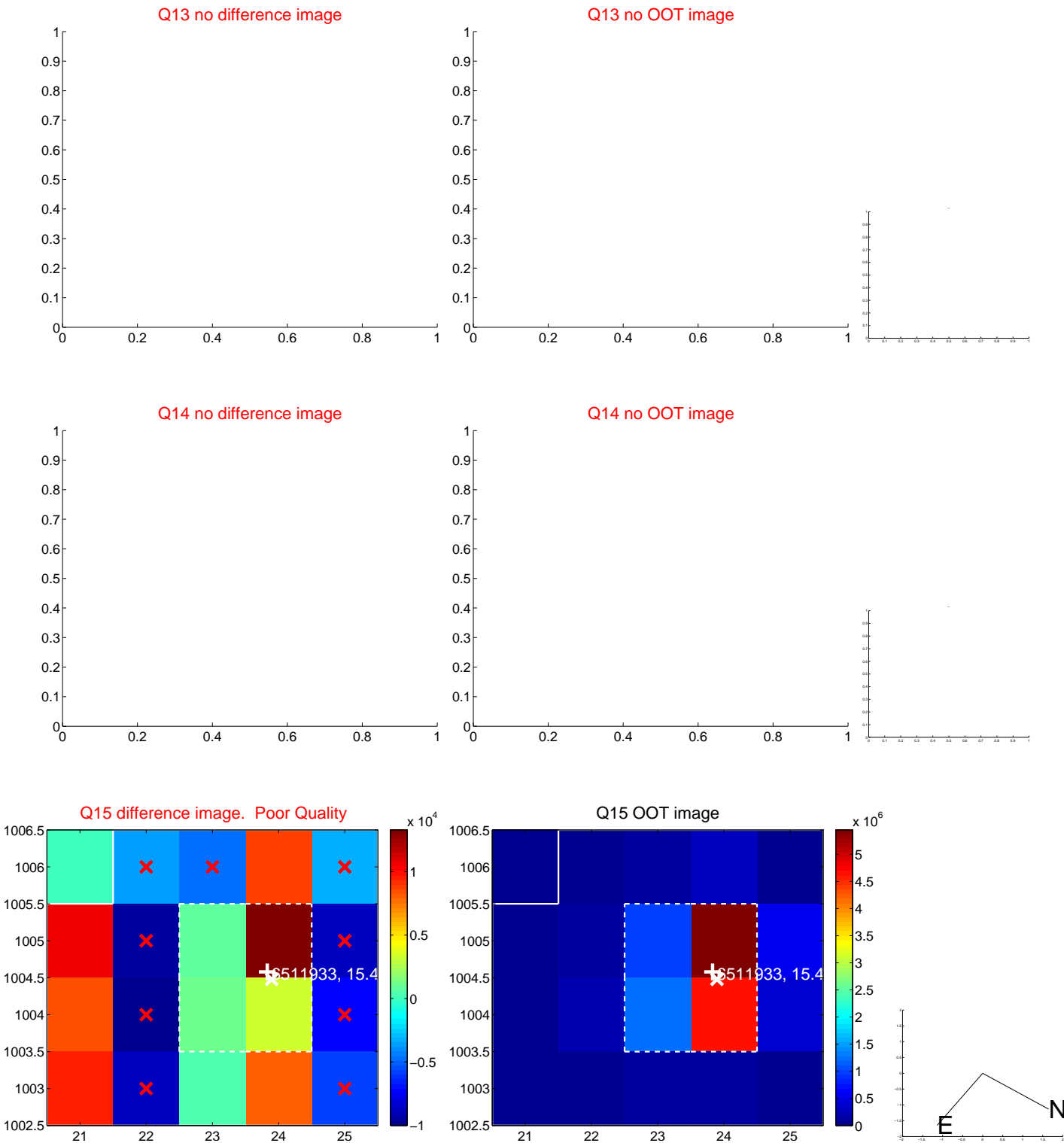
Q12 no difference image



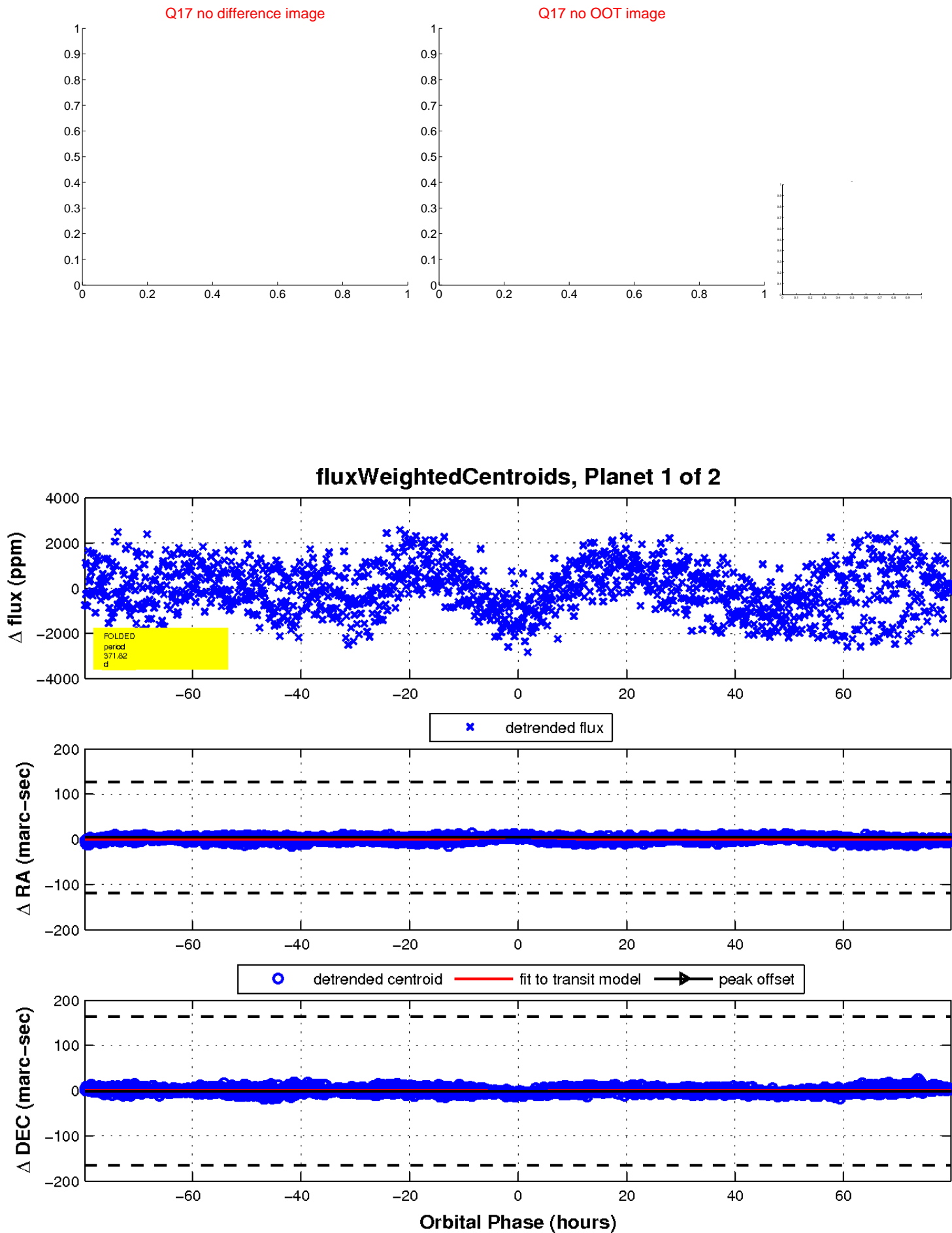
Q12 no OOT image



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

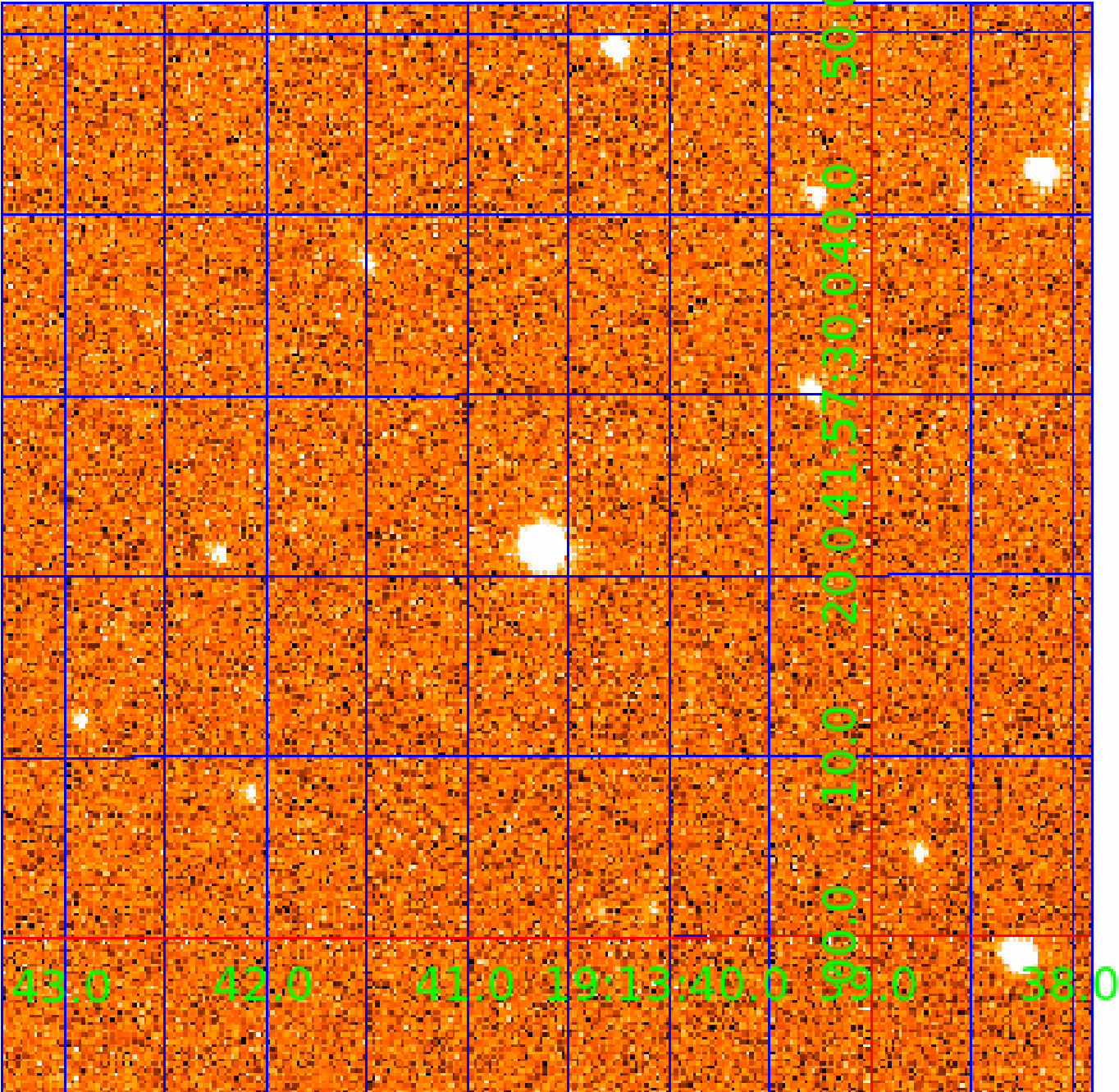


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 006511933

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})
006511933-01	OBS	No	371.824036	309.127122	1866.3	26.601	8.8	9.9	0.95	5952	7.69	1.13
006511933-02	OBS	No	446.697391	326.844089	763.5	18.515	8.2	8.6	0.95	5952	2.69	0.89

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
006511933-01	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_MARSHALL_SKYE—LPP_DV—ALL_TRANS_CHASES—CENT_FEW_DIFFS
006511933-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_MARSHALL—LPP_DV—ALL_TRANS_CHASES—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.

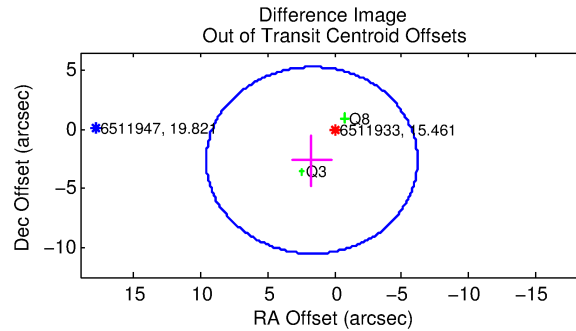
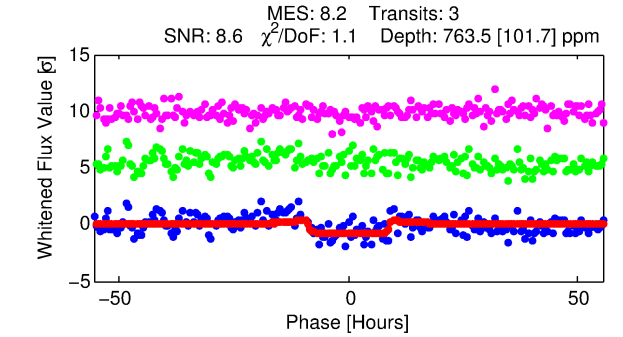
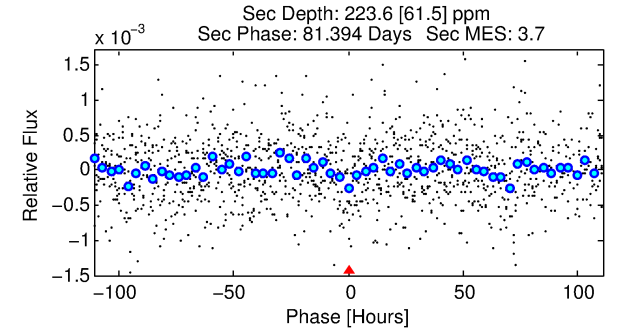
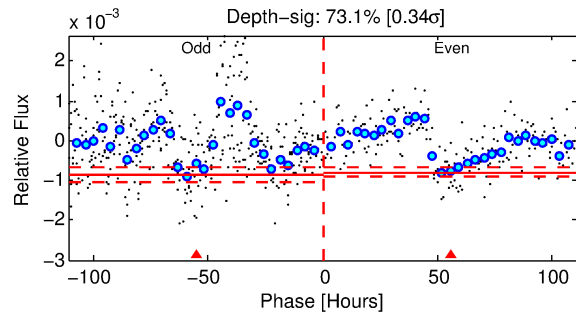
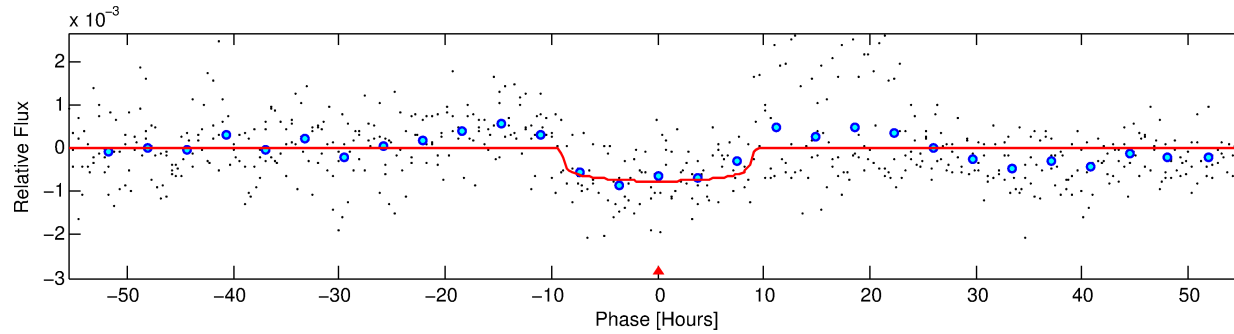
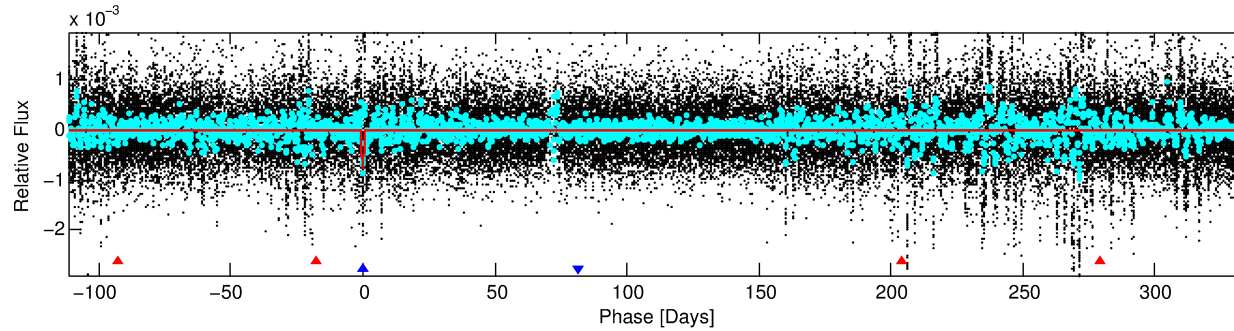
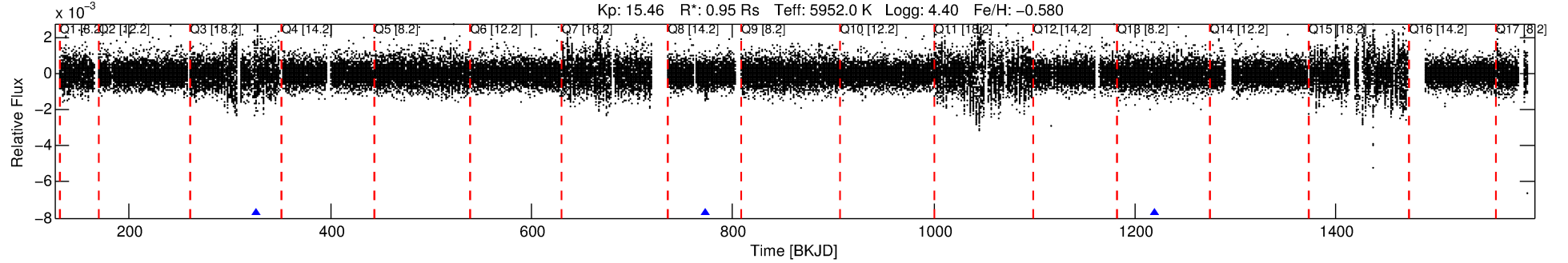
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 006511933-02

No Significant Match Found

DV One-Page Summary

KIC: 6511933 Candidate: 2 of 2 Period: 446.697 d



DV Fit Results:

Period = 446.69739 [0.01743] d
Epoch = 326.8441 [0.0232] BKJD
Rp/R* = 0.0259 [0.0086]
a/R* = 168.41 [266.67]
b = 0.47 [2.68]
Seff = 0.89 [0.31]
Teq = 247 [22] K
Rp = 2.69 [1.12] Re
a = 1.0719 [0.2356] AU
Ag = 19498.57 [15346.57] [1.27 σ]
Teffp = 4519 [820] K [5.21 σ]

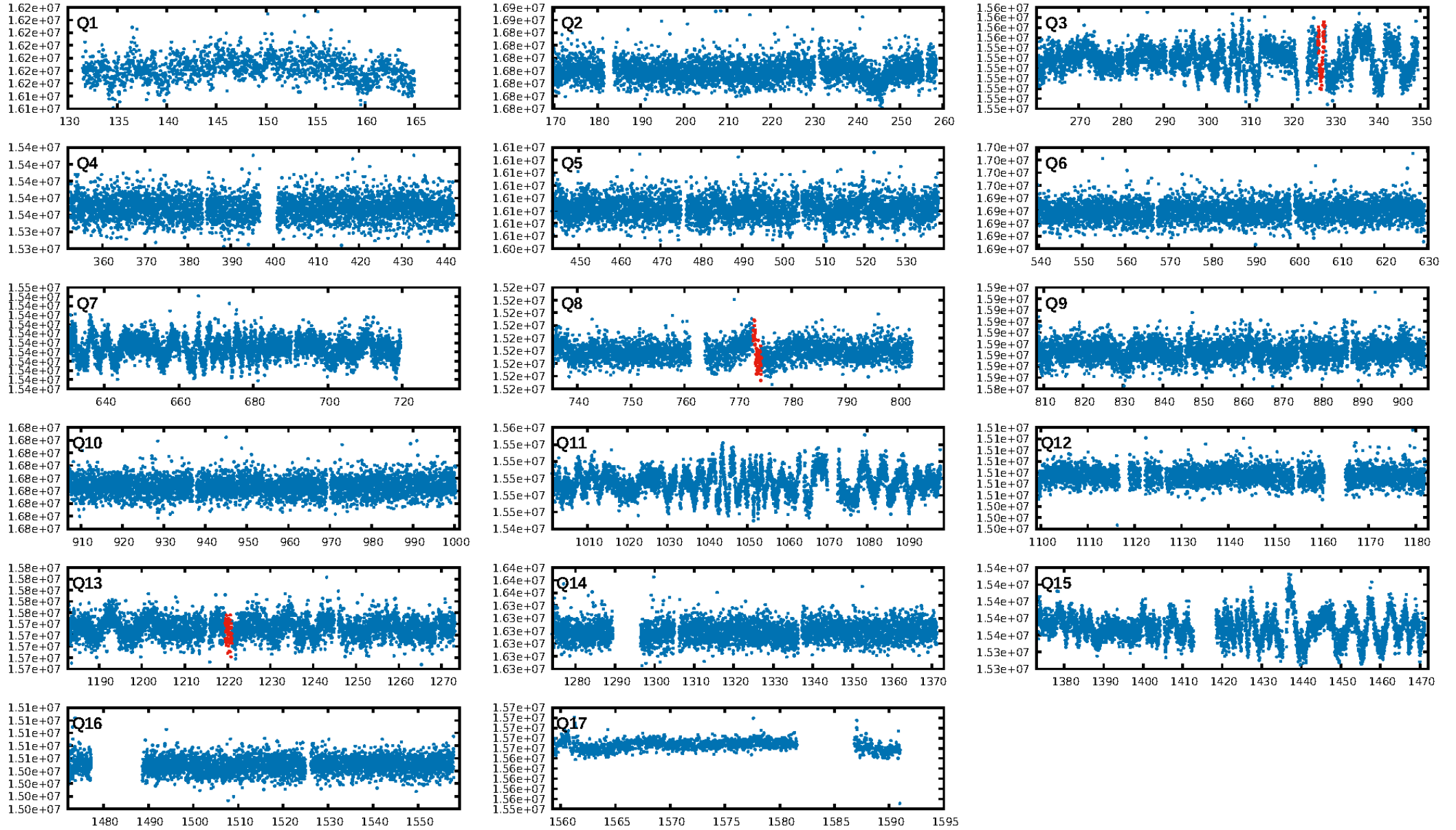
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [55.44 σ]
LongPeriod-sig: N/A
ModelChiSquare2-sig: 2.9%
ModelChiSquareGof-sig: 99.7%
Bootstrap-pfa: 1.32e-12
RollingBand-fgt: 1.00 [3/3]
GhostDiagnostic-chr: -1.038
Centroid-sig: 1.2%
Centroid-so: 2.054 arcsec [1.43 σ]
OotOffset-rm: 3.125 arcsec [1.19 σ]
OotOffset-st: 0/1/1/0 [2]
KicOffset-rm: 3.392 arcsec [1.51 σ]
KicOffset-st: 0/1/1/0 [2]
DiffImageQuality-fgm: 0.50 [1/2]
DiffImageOverlap-fno: 1.00 [2/2]

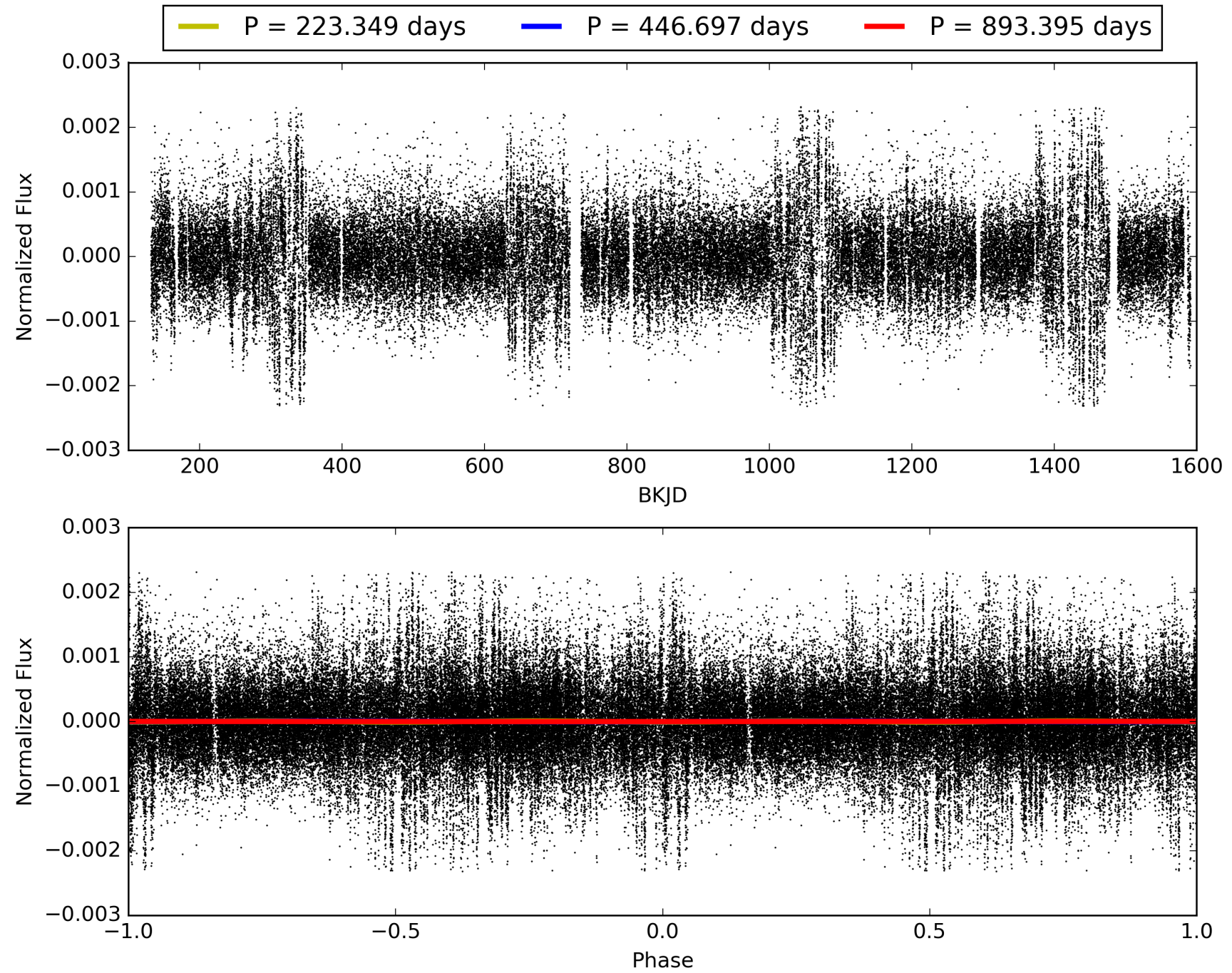
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 31-Jan-2016 20:25:23 Z

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

TCE 006511933-02, PDC Light Curves

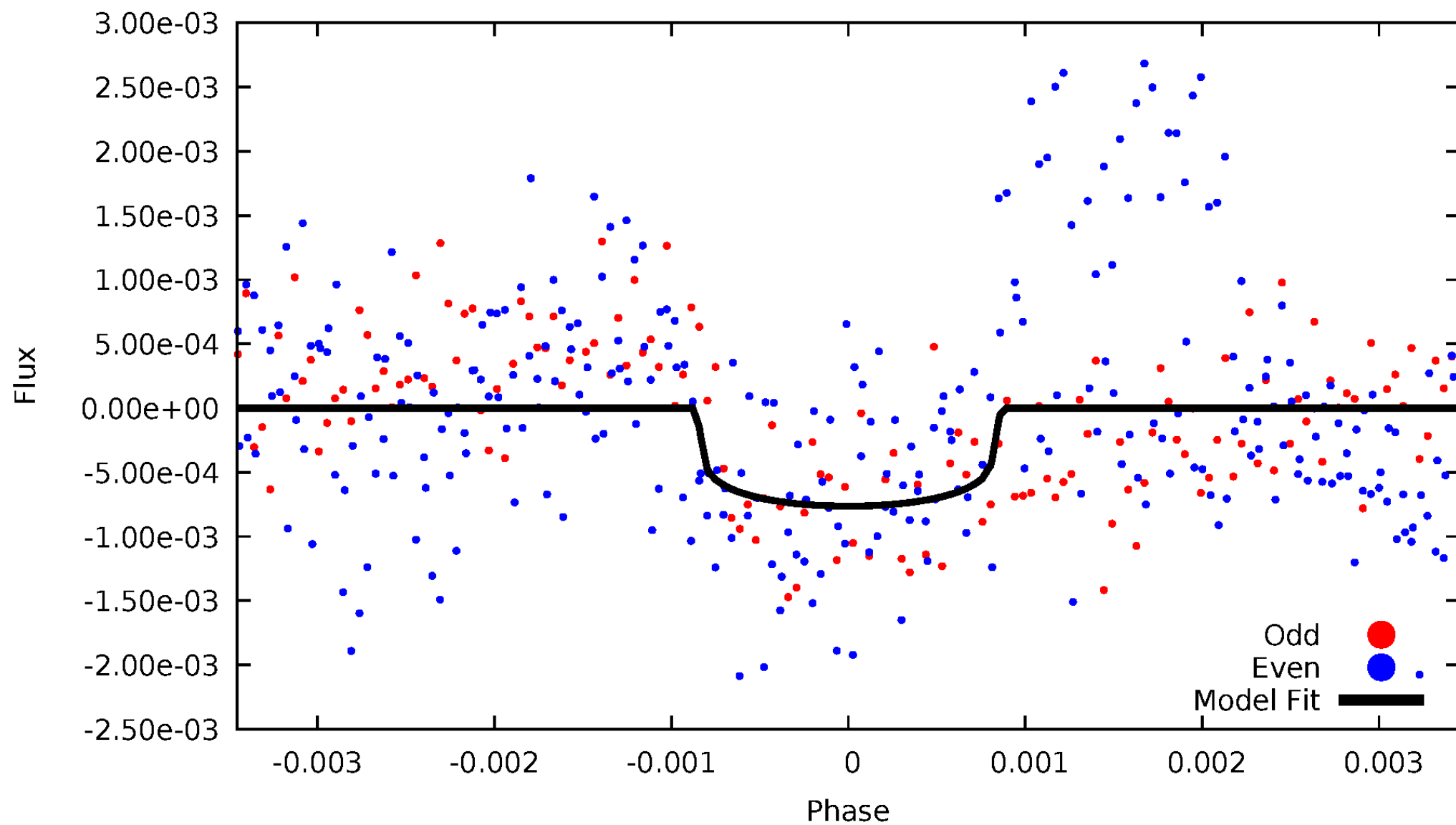


TCE 006511933-02



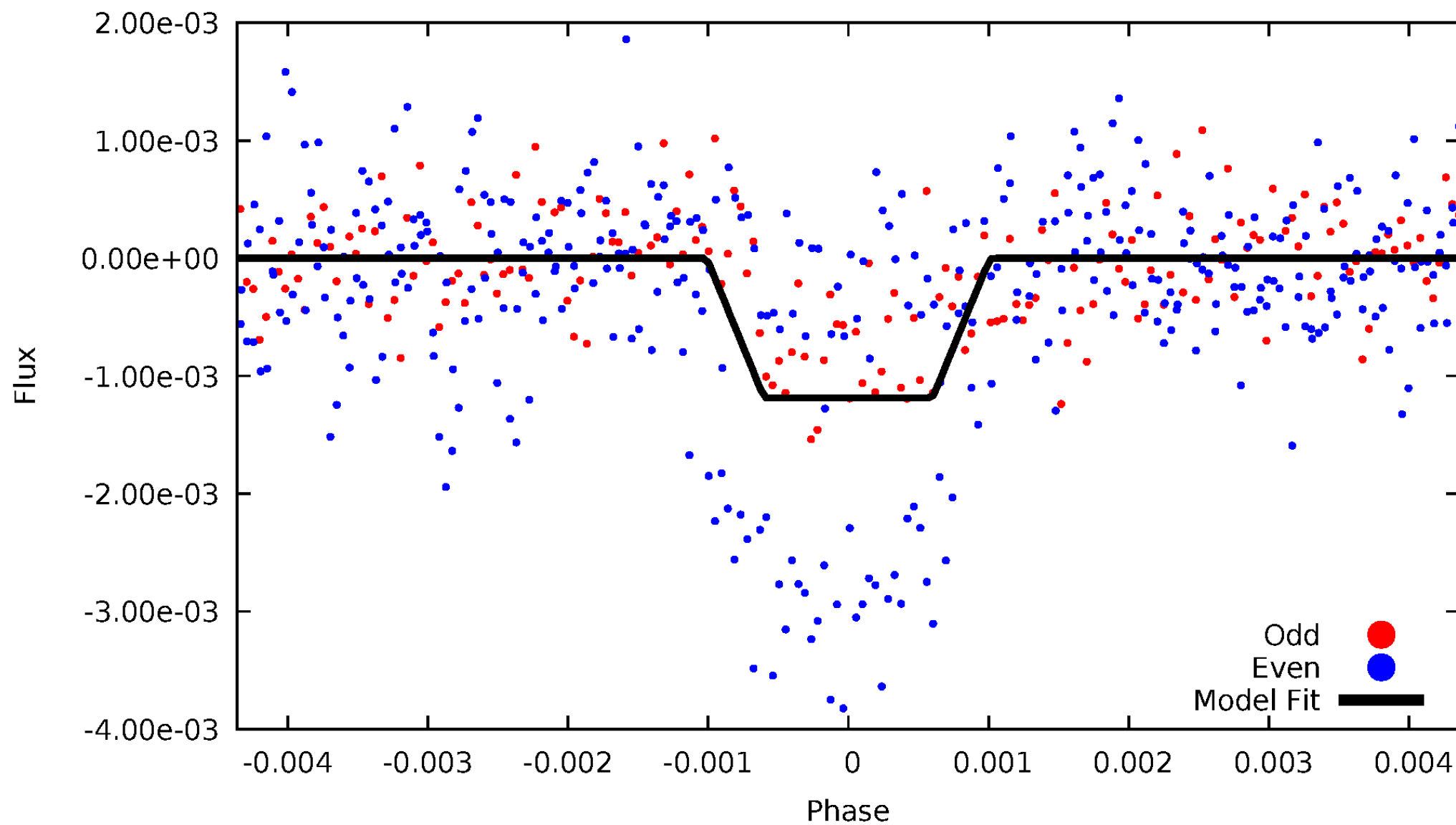
DV Odd/Even

TCE 006511933-02



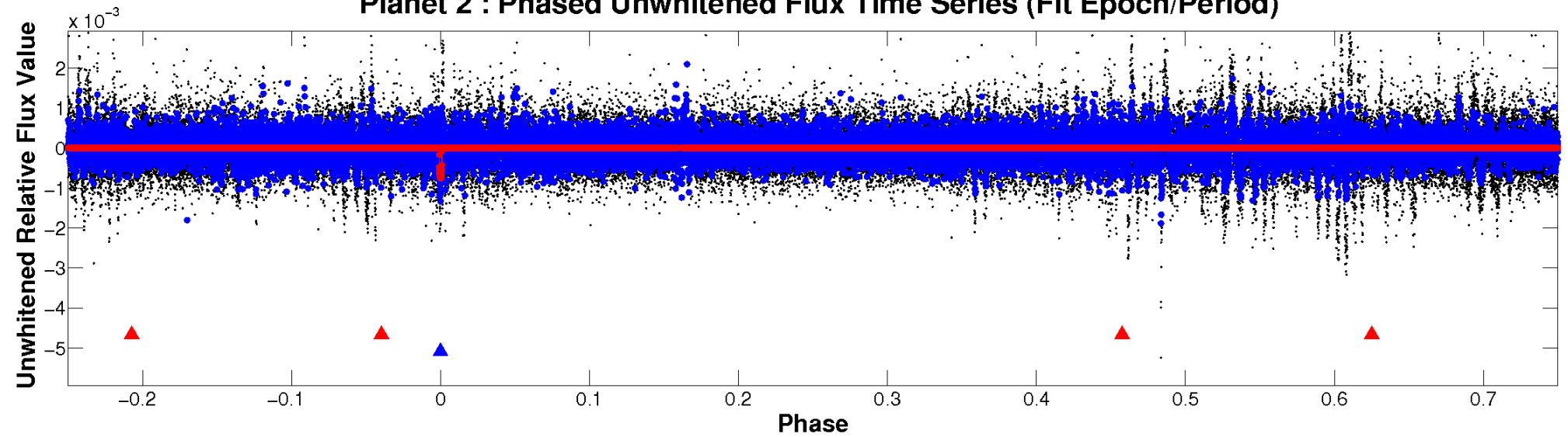
ALT Odd/Even

TCE 006511933-02

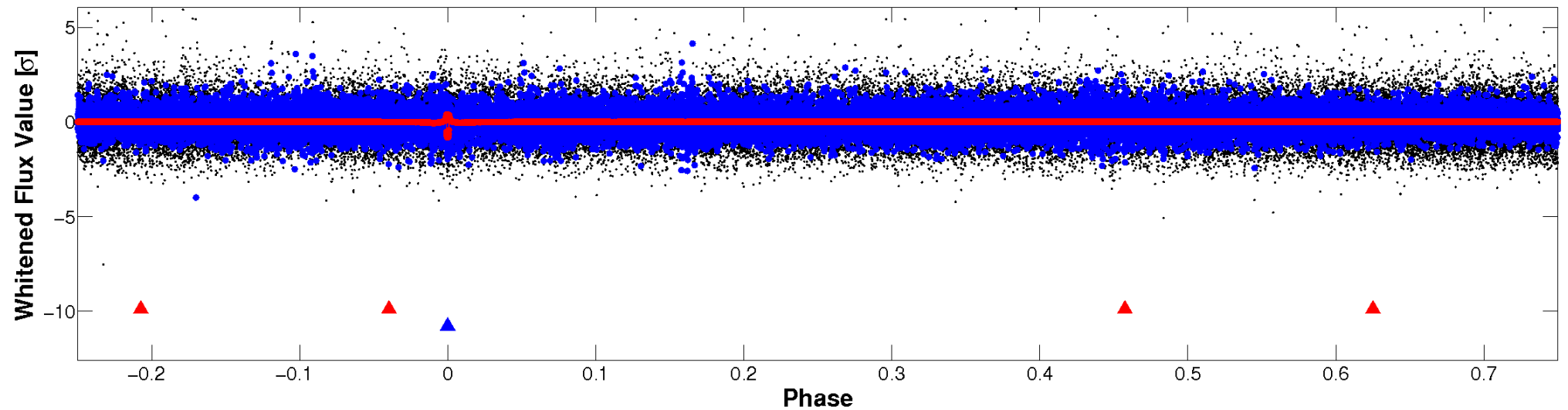


Non-Whitened Vs. Whitened Light Curve

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 006511933-02 $P=446.697391$ Days $T_0=326.844089$ (BKJD)



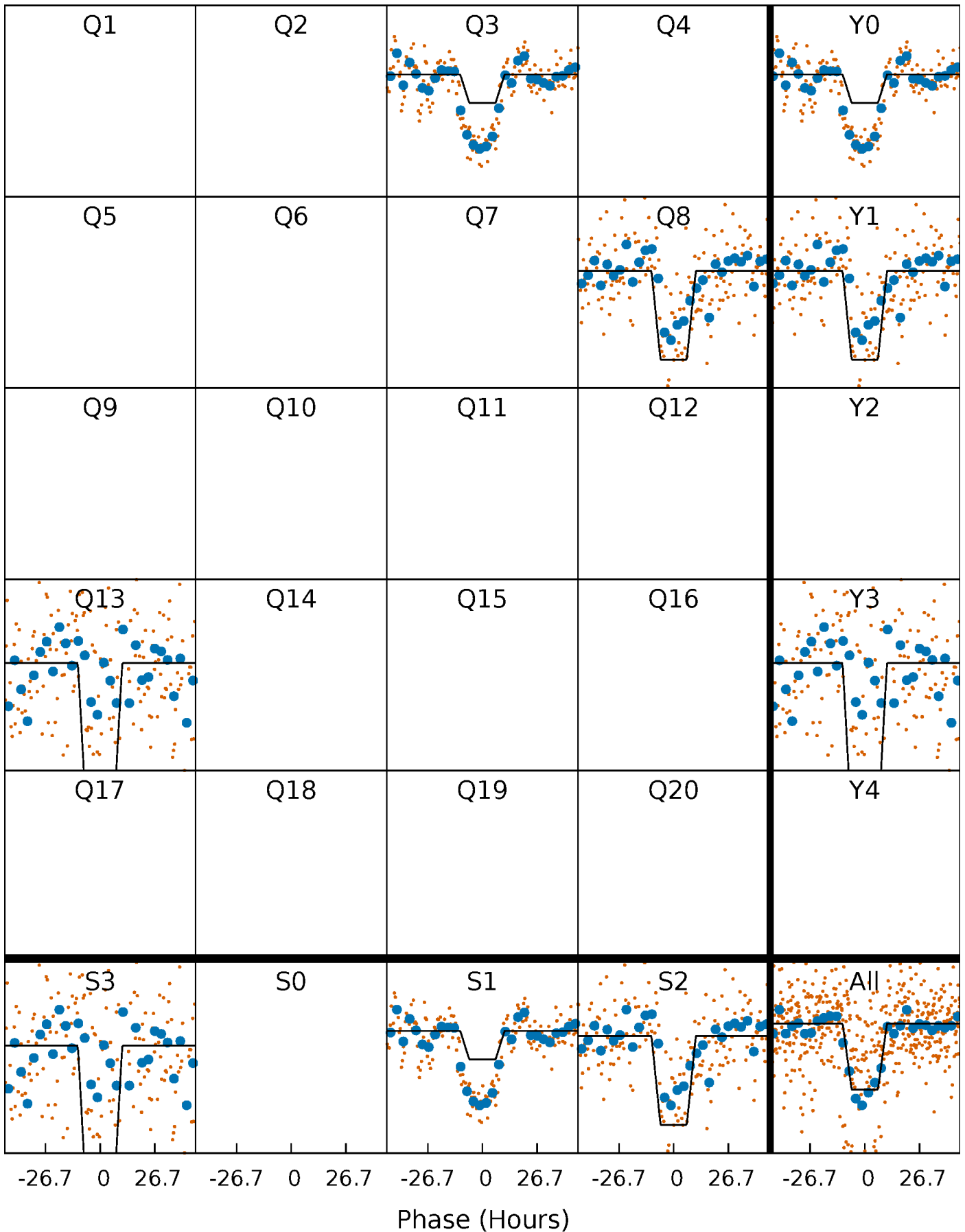
DV Quarter-Phased Transit Curves

TCE 006511933-02 $P=446.697391$ Days $T_0=326.844089$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

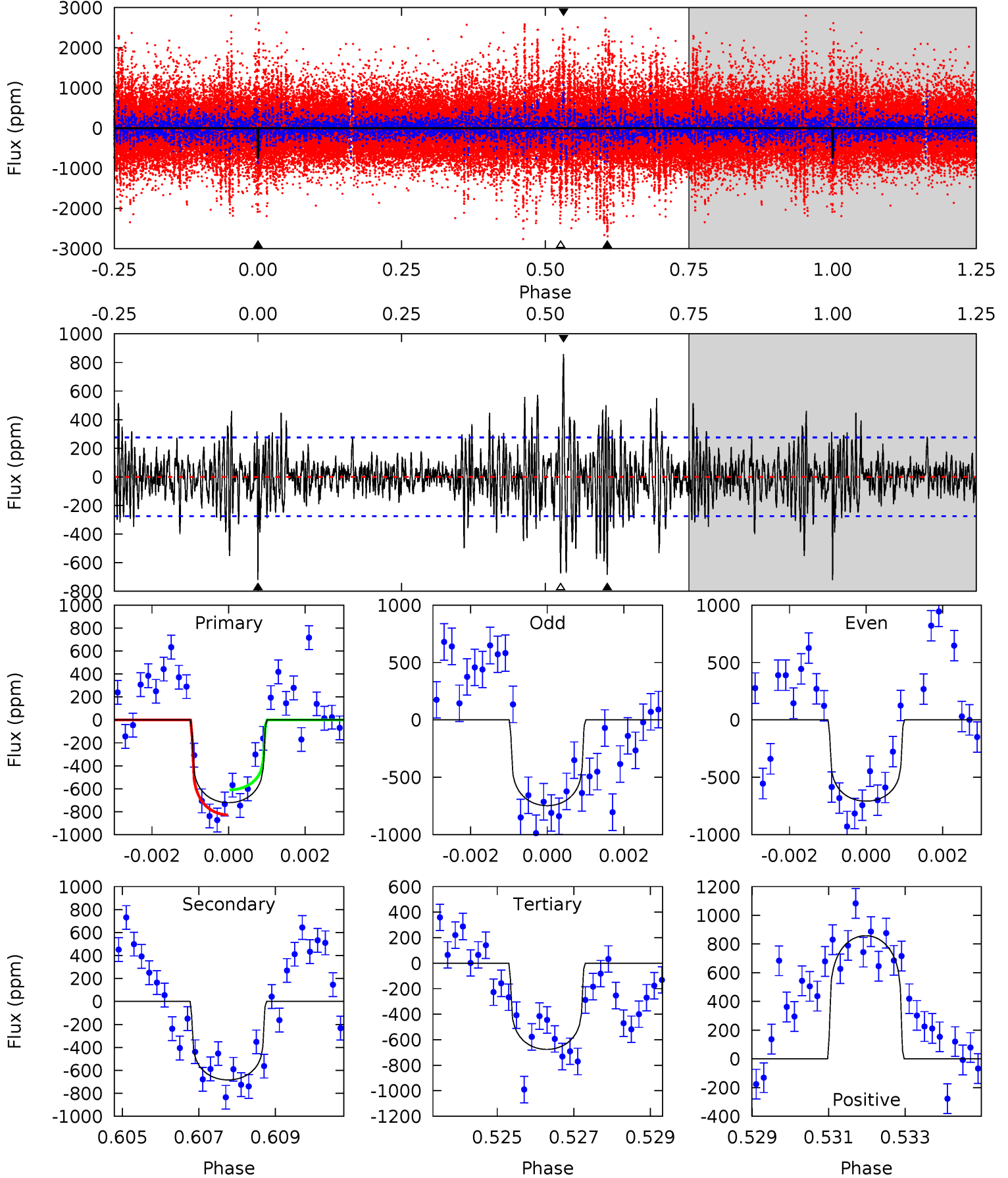
TCE 006511933-02 $P=446.636754$ Days $T_0=326.871734$ (BKJD)



DV Model-Shift Uniqueness Test

006511933-02, P = 446.697391 Days, E = 326.844089 Days

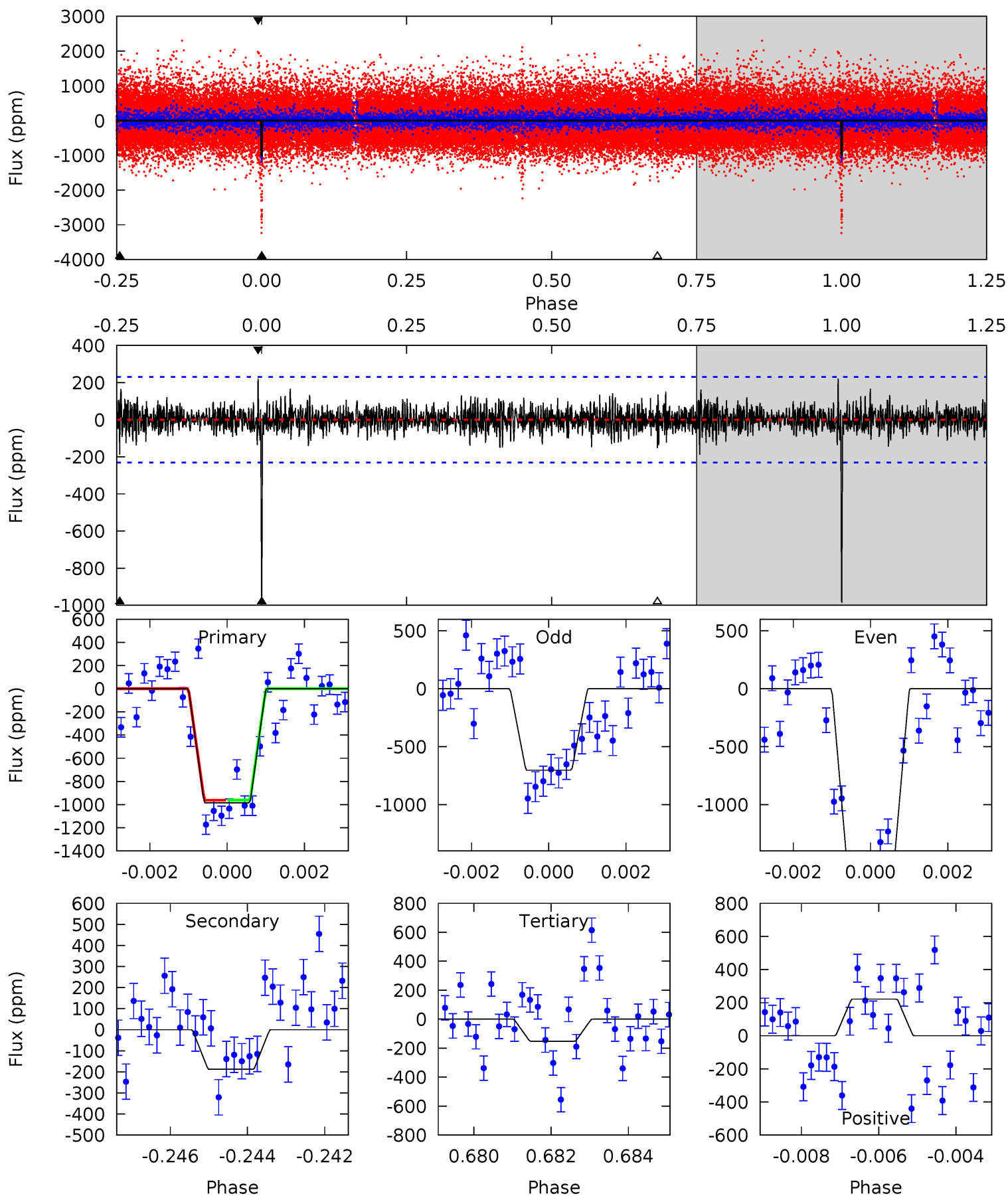
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
14.0	13.3	13.1	16.7	5.35	3.13	3.14	0.88	-2.66	0.15	-3.39	0.36	0.96	0.54	2.12



Alt Model-Shift Uniqueness Test

006511933-02, P = 446.636754 Days, E = 326.871734 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
22.7	4.34	3.50	5.11	5.33	3.09	1.05	19.2	17.6	0.84	-0.76	10.2	1.82	0.18	0.01



Stellar Parameters For KIC 006511933

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	$M(M_{\odot})$	p_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	5952^{+177}_{-177}	$4.397^{+0.149}_{-0.182}$	$-0.580^{+0.300}_{-0.300}$	$0.951^{+0.242}_{-0.162}$	$0.823^{+0.105}_{-0.061}$	$1.347^{+0.925}_{-0.639}$
	+3%/-3%	+3%/-4%	+52%/-52%	+25%/-17%	+13%/-7%	+69%/-47%
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 006511933-02 / KOI

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	-683 ± 51	$2.75^{+0.98}_{-1.01}$	345^{+26}_{-20}	5945^{+1483}_{-732}	58087^{+83534}_{-26562}
Alt.	-188 ± 43	$3.67^{+0.97}_{-0.93}$	347^{+24}_{-21}	4050^{+500}_{-357}	9054^{+7197}_{-3888}

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

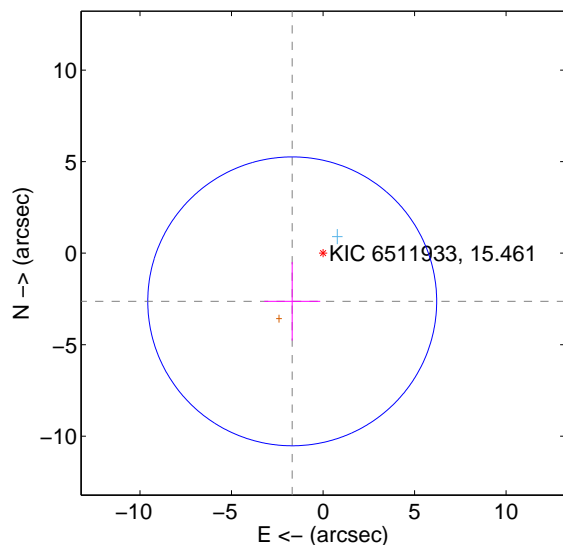
Supplemental centroid analysis for 006511933-02. Kepler magnitude: 15.46. Transit SNR 8.65

There are 1 quarters with good PRF difference image offsets

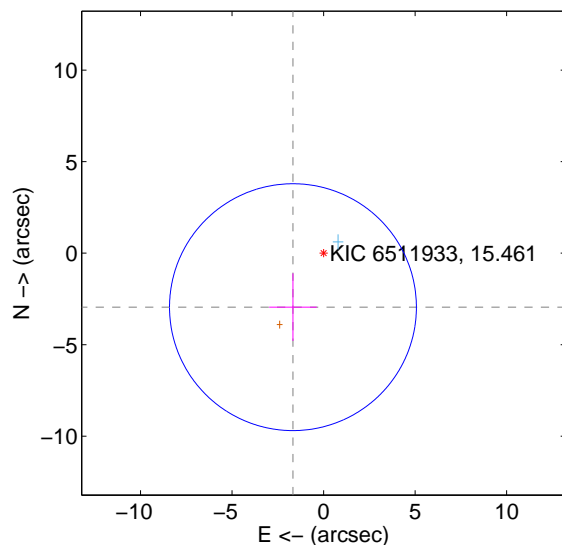
The direct PRF centroid is offset from the target star catalog position by about 0.29 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	3.125 ± 2.631	1.19	1.684 ± 1.528	-2.633 ± 2.147
PRF-fit source offset from KIC position	3.392 ± 2.249	1.51	1.674 ± 1.304	-2.951 ± 1.846
photometric centroid source offset	2.05 ± 1.44	1.43	-0.84 ± 1.49	1.87 ± 1.43

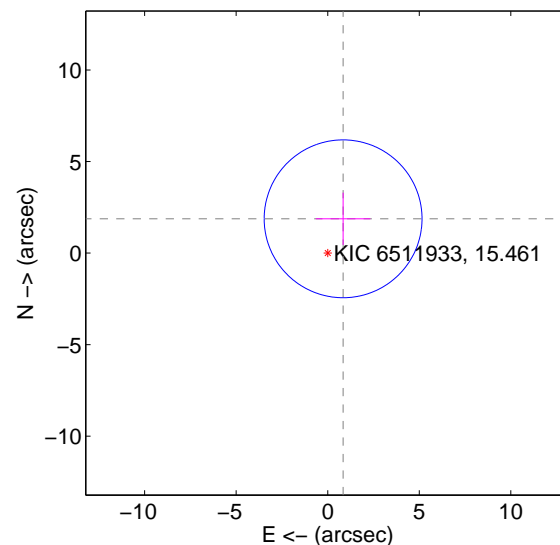
offset from difference PRF-fit to OOT PRF-fit



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



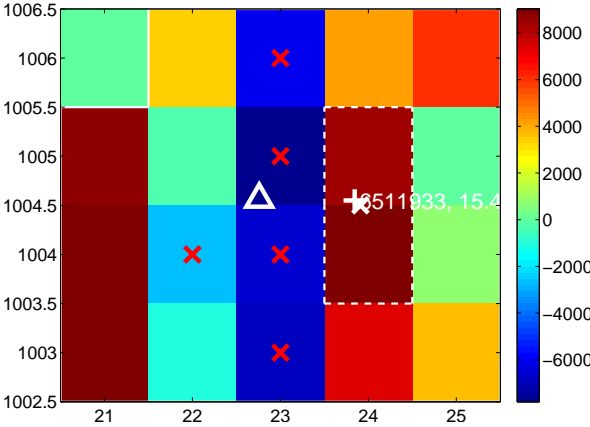
Q2 no difference image



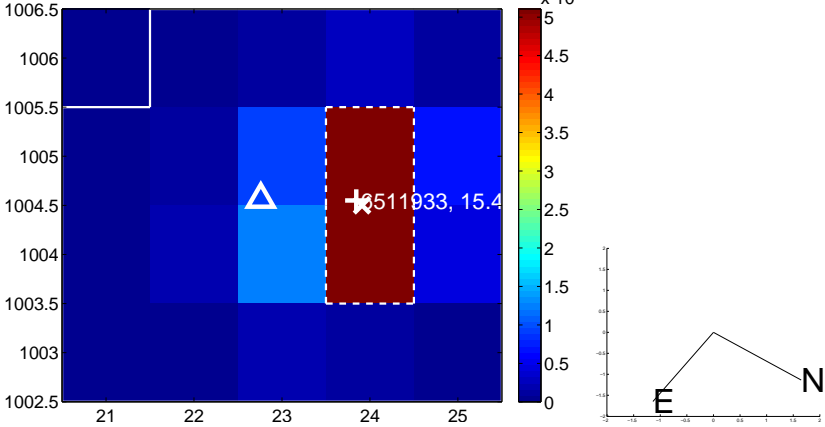
Q2 no OOT image



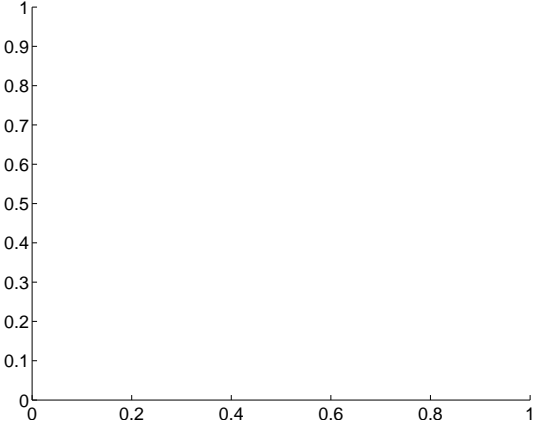
Q3 difference image. Poor Quality



Q3 OOT image



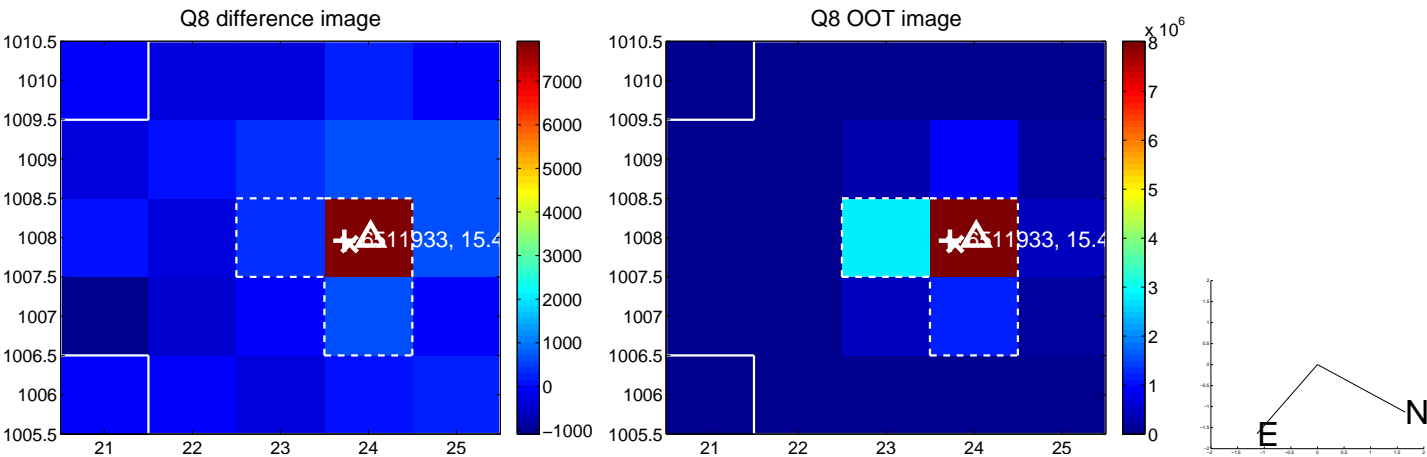
Q4 no difference image



Q4 no OOT image



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



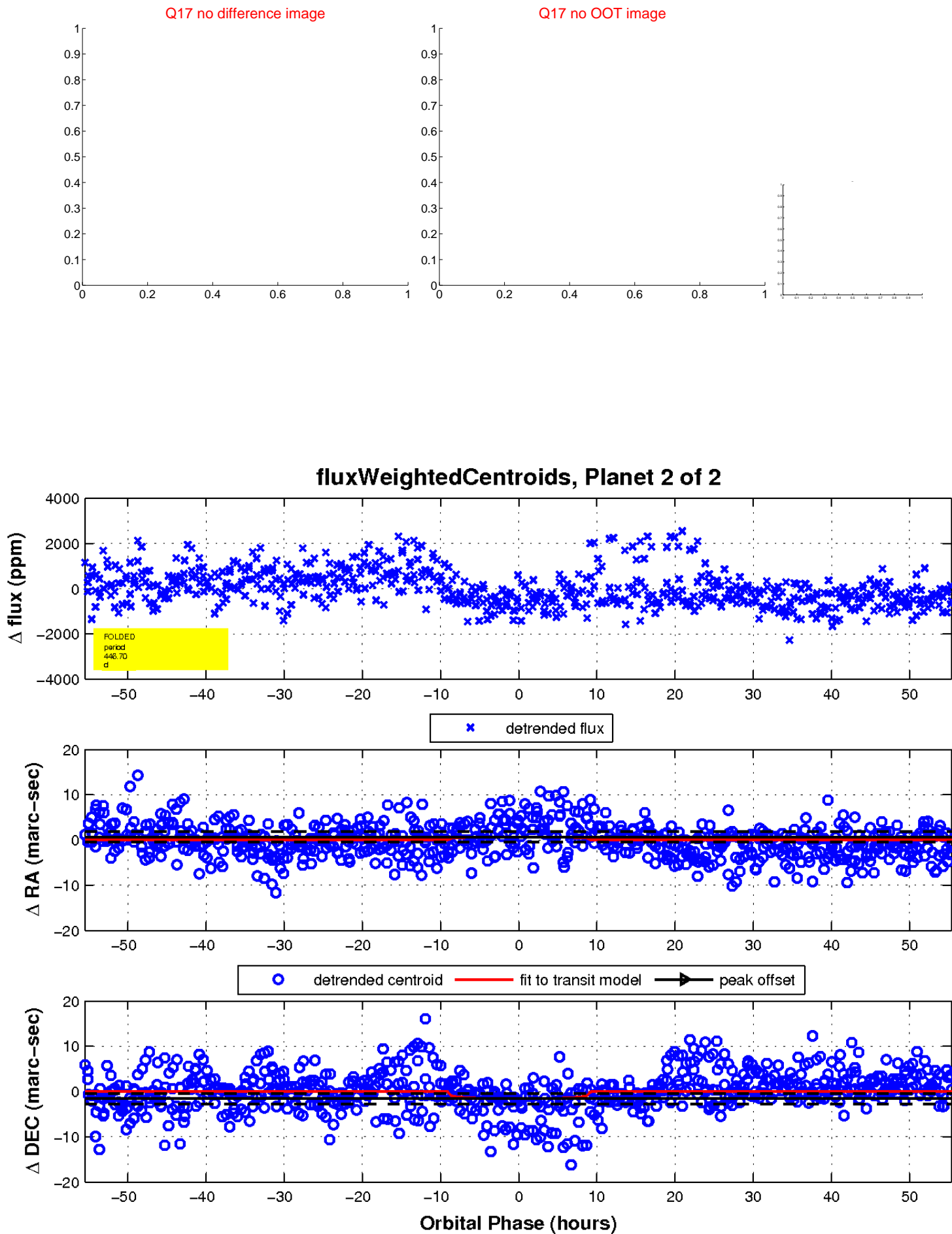
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

