

KIC 007513516

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})
007513516-01	OBS	No	367.431722	399.243662	238.3	6.250	10.9	10.4	1.83	6603	3.23	4.60
007513516-02	OBS	No	421.980690	360.936466	323.9	3.986	7.3	8.6	1.83	6603	4.26	3.82
007513516-03	OBS	No	391.159197	354.463344	206.4	18.481	8.6	10.0	1.83	6603	2.73	4.23

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
007513516-01	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL_ZUMA—INCONSISTENT_TRANS—CENT_FEW_DIFFS
007513516-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES—ALL_TRANS_CHASES—MOD_NONUNIQ_ALT—INCONSISTENT_TRANS—CENT_FEW_DIFFS
007513516-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_MARSHALL—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.

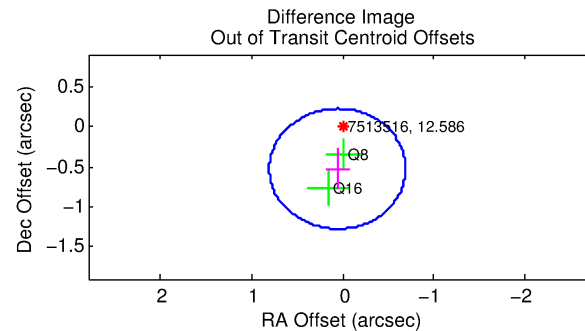
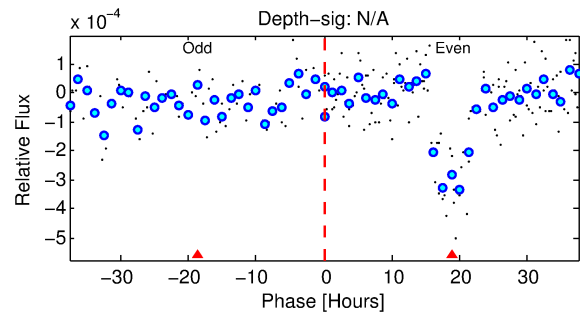
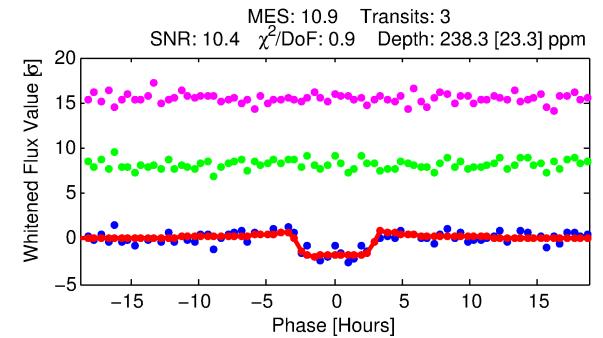
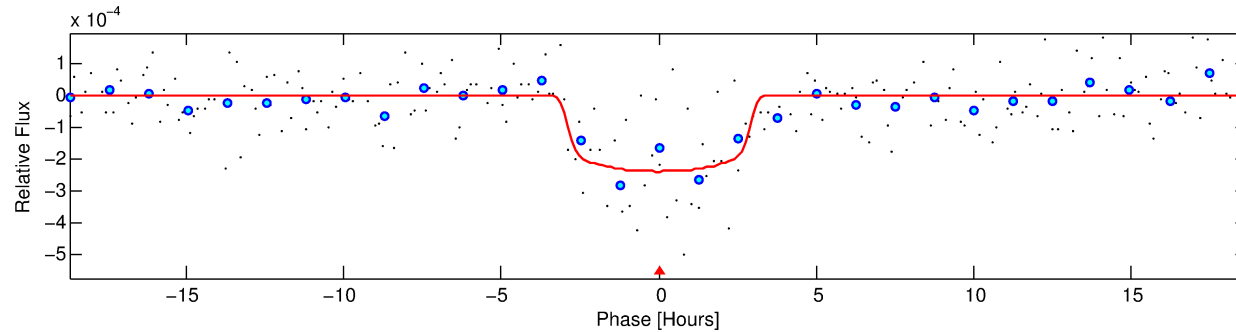
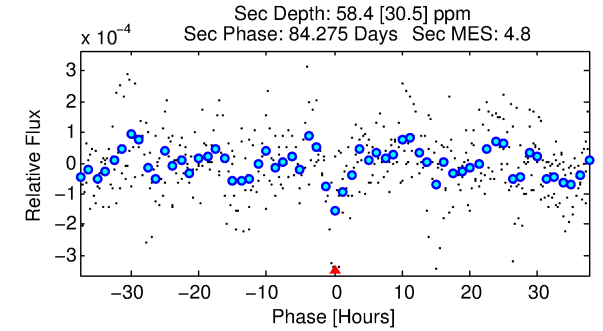
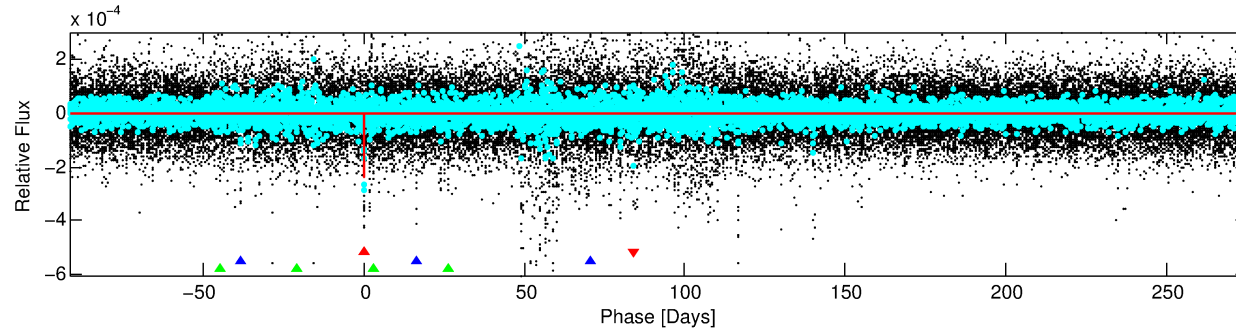
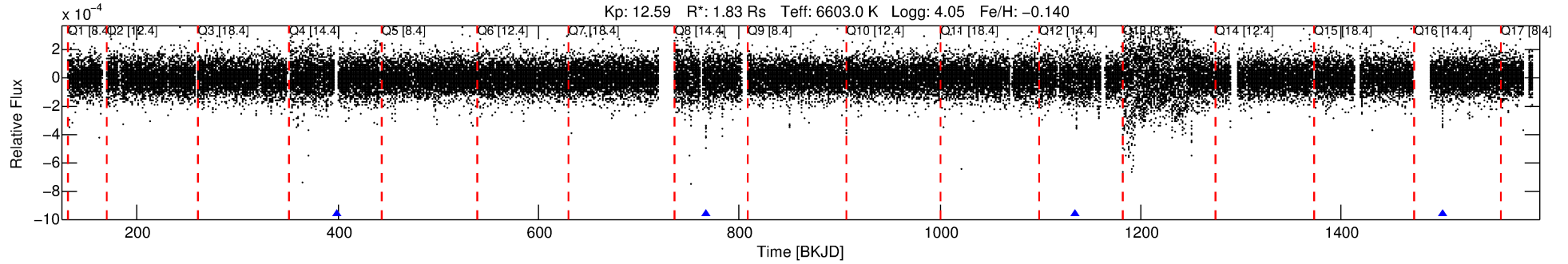
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 007513516-01

No Significant Match Found

DV One-Page Summary

KIC: 7513516 Candidate: 1 of 3 Period: 367.432 d



DV Fit Results:

Period = 367.43172 [0.00571] d
Epoch = 399.2437 [0.0137] BKJD
Rp/R* = 0.0162 [0.0040]
a/R* = 235.60 [323.42]
b = 0.87 [0.39]
Seff = 4.60 [2.26]
Teq = 373 [46] K
Rp = 3.23 [1.39] Re
a = 1.1137 [0.3453] AU
Ag = 3824.10 [3283.80] [1.16σ]
Teffp = 4540 [835] K [4.98σ]

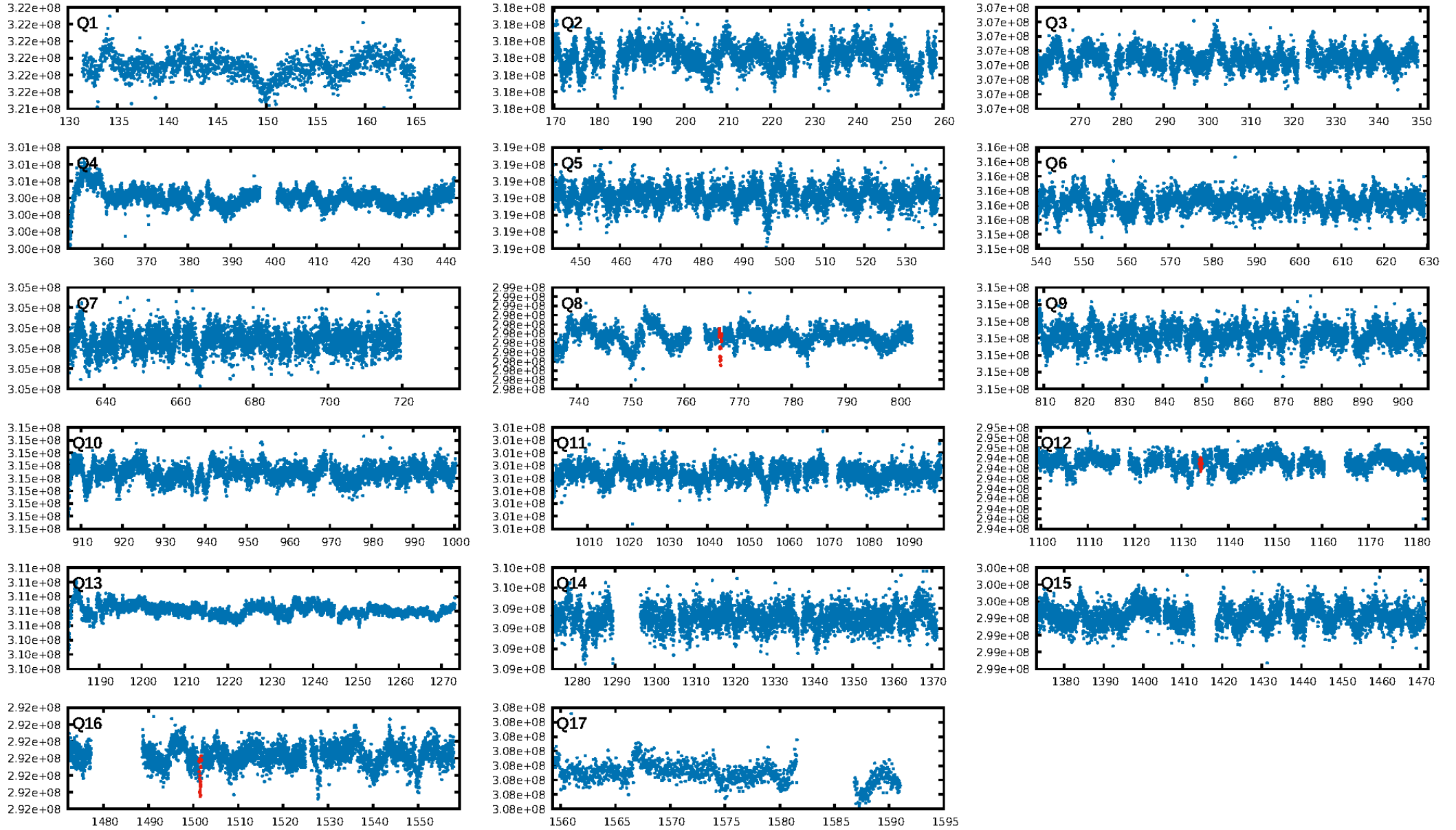
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: 100.0% [29.19σ]
ModelChiSquare2-sig: 0.0%
ModelChiSquareGof-sig: 78.8%
Bootstrap-pfa: 1.25e-14
RollingBand-fgt: 1.00 [3/3]
GhostDiagnostic-chr: -4.122
Centroid-sig: 7.5%
Centroid-so: 0.977 arcsec [1.27σ]
OotOffset-rm: 0.529 arcsec [2.12σ]
OotOffset-st: 0/0/2/0 [2]
KicOffset-rm: 0.470 arcsec [1.94σ]
KicOffset-st: 0/0/2/0 [2]
DiffImageQuality-fgm: 1.00 [2/2]
DiffImageOverlap-fno: 1.00 [2/2]

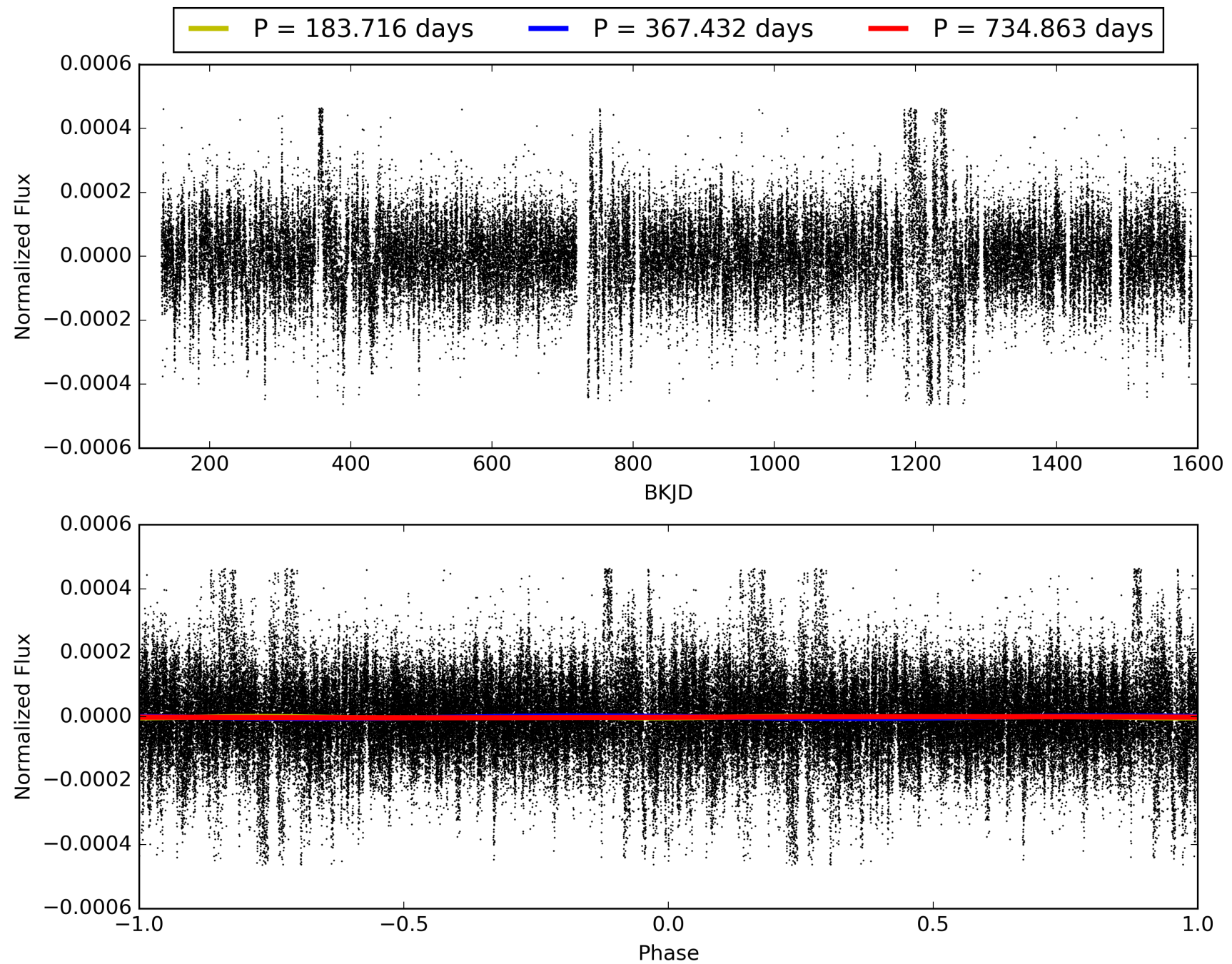
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 01-Feb-2016 06:25:00 Z

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

TCE 007513516-01, PDC Light Curves

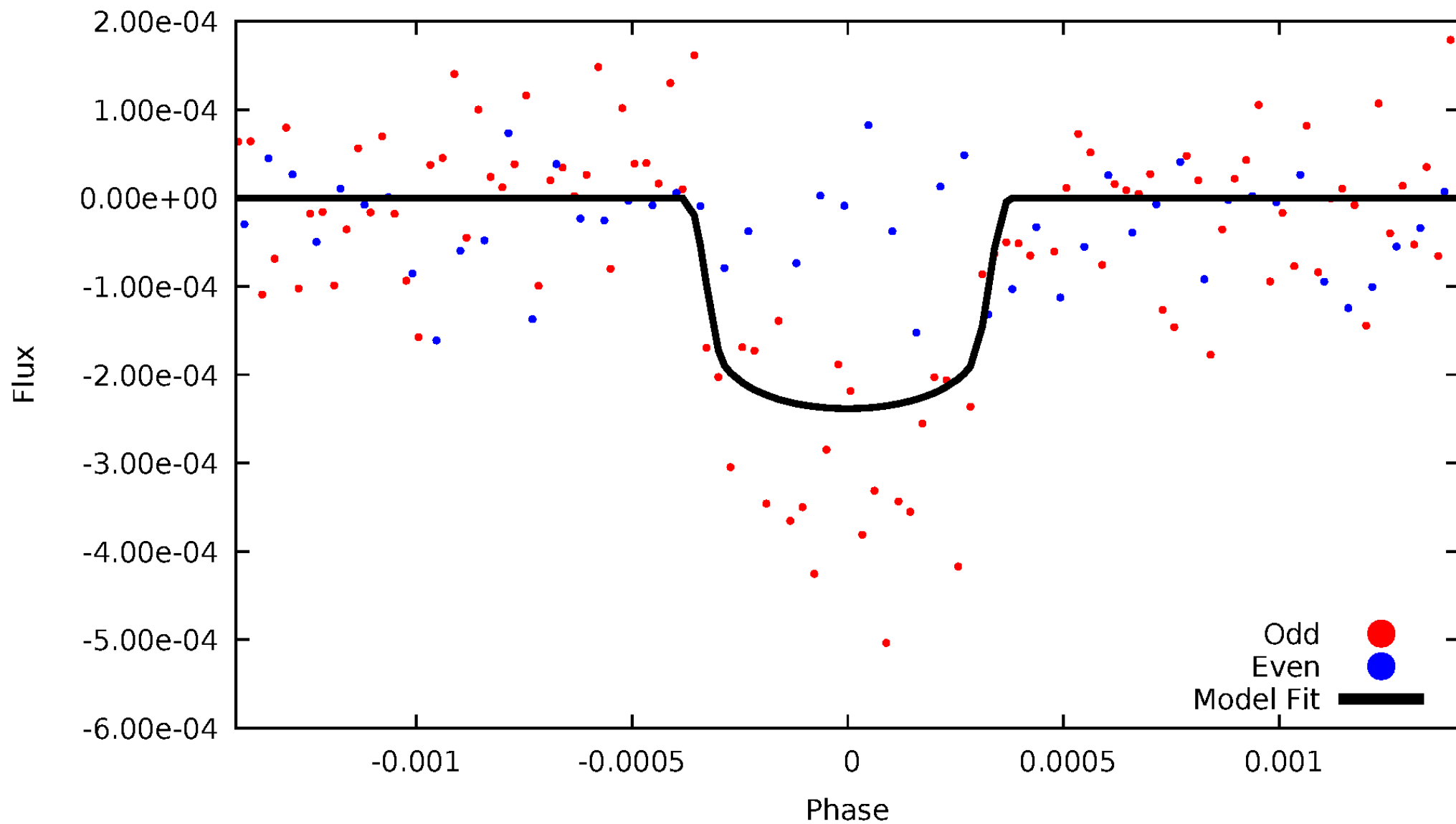


TCE 007513516-01



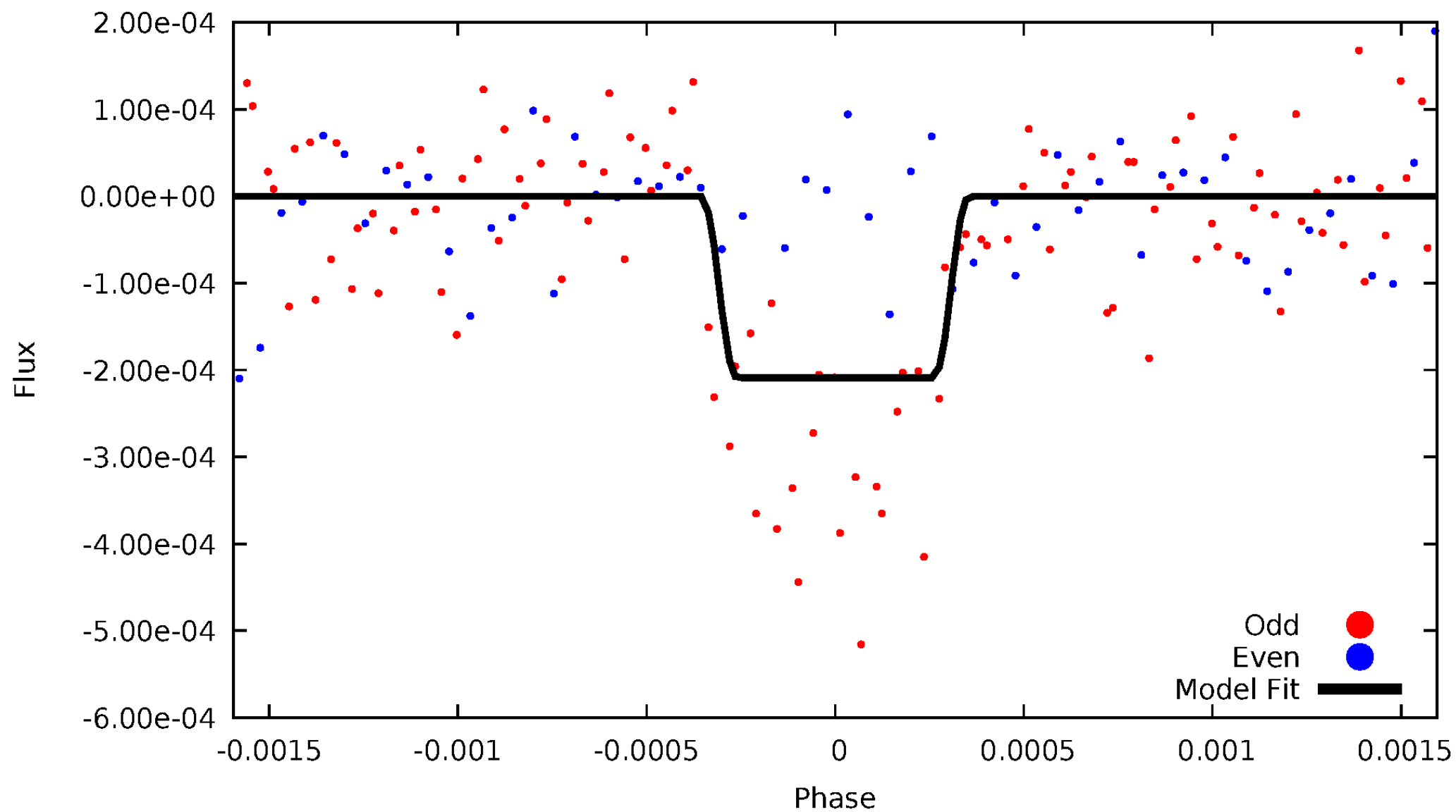
DV Odd/Even

TCE 007513516-01

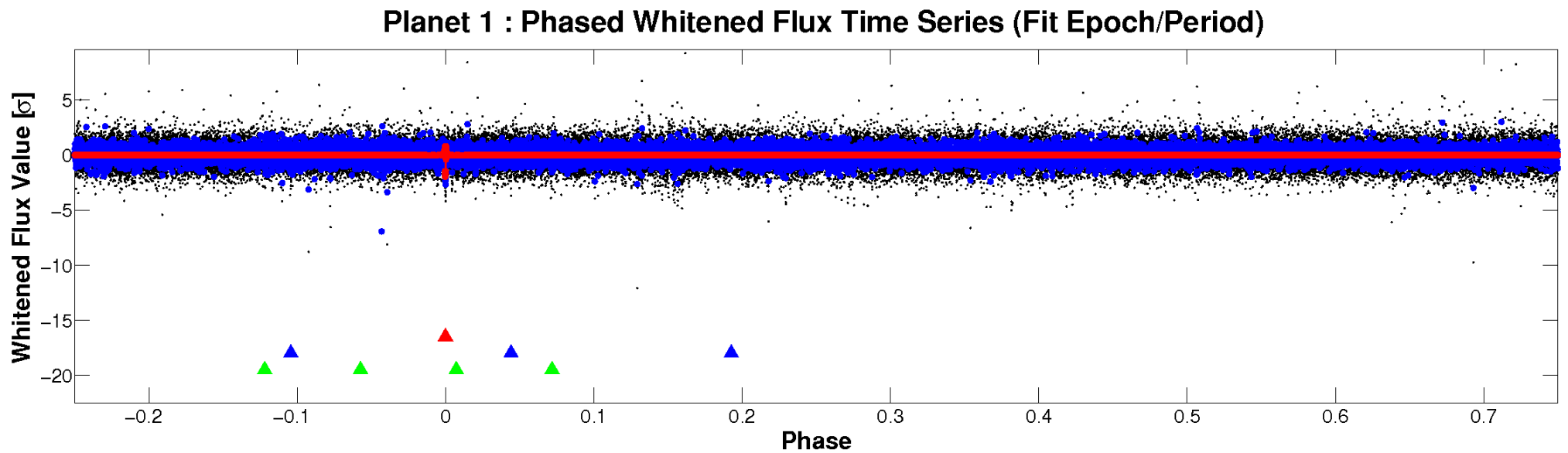
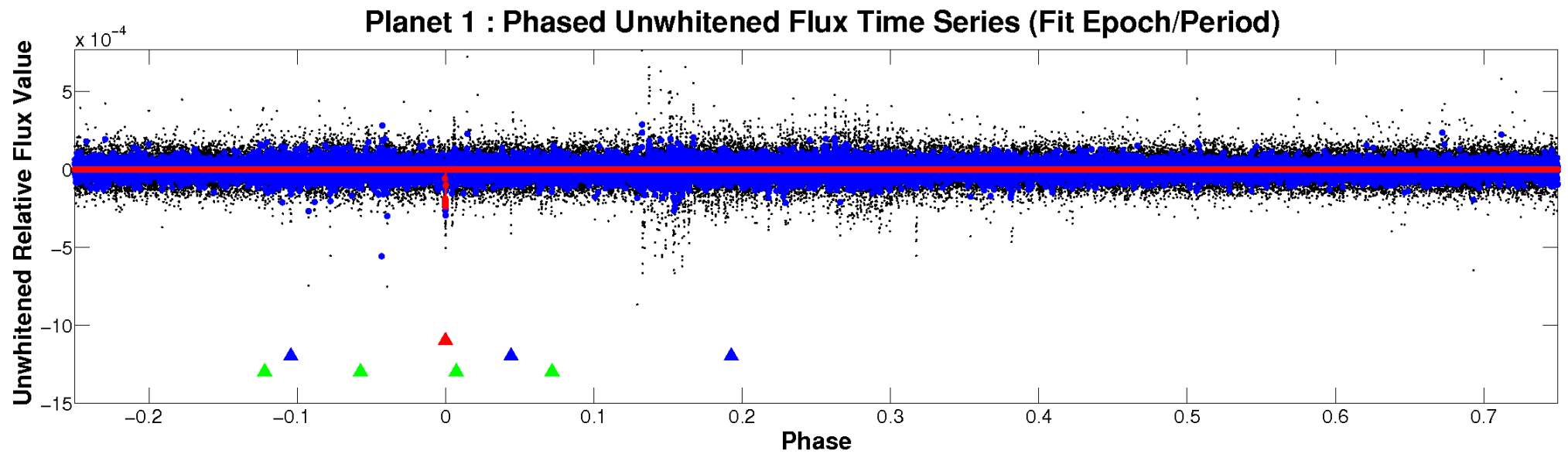


ALT Odd/Even

TCE 007513516-01

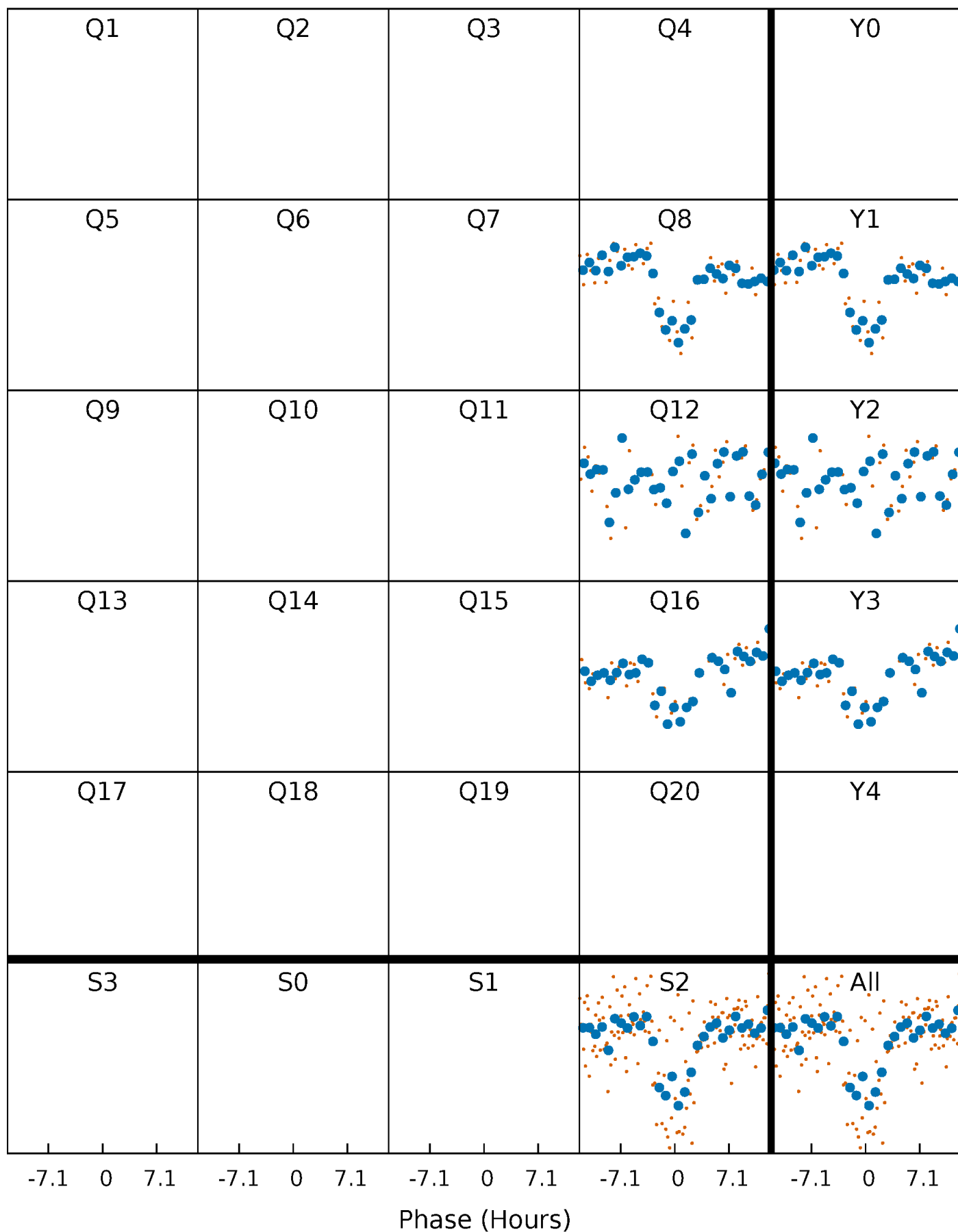


Non-Whitened Vs. Whitened Light Curve



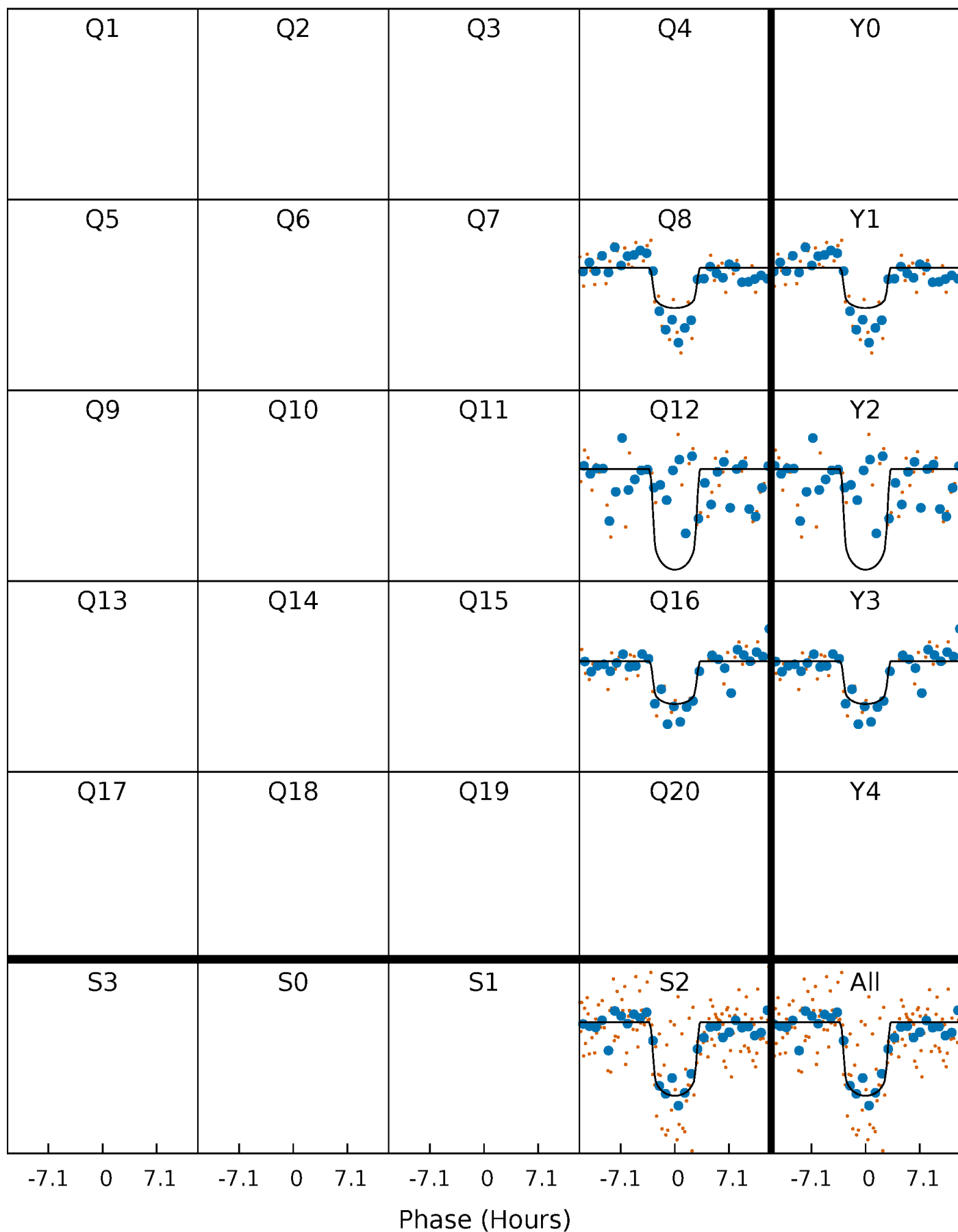
PDC Quarter-Phased Transit Curves

TCE 007513516-01 P=367.431722 Days $T_0=399.243662$ (BKJD)



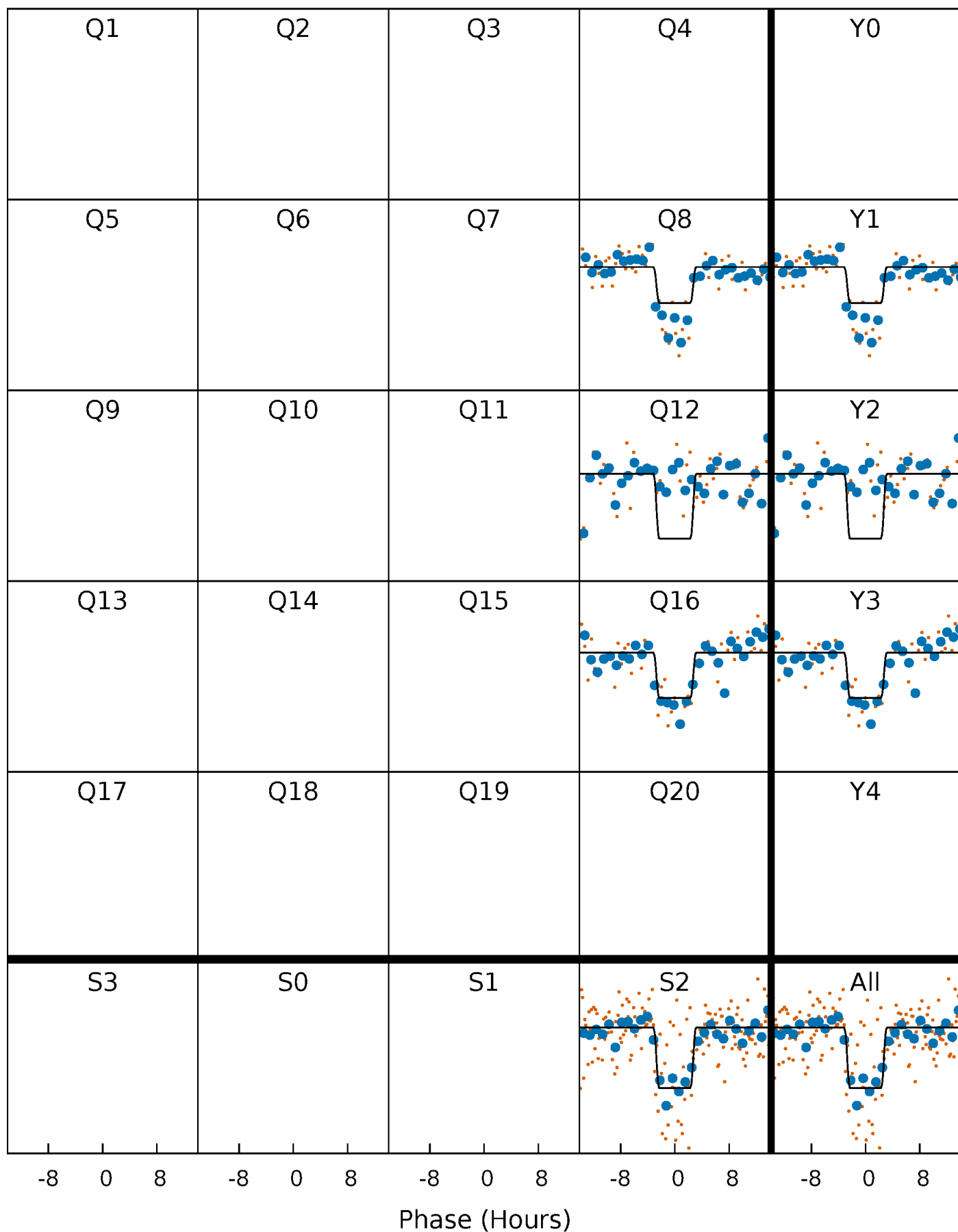
DV Quarter-Phased Transit Curves

TCE 007513516-01 P=367.431722 Days $T_0=399.243662$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

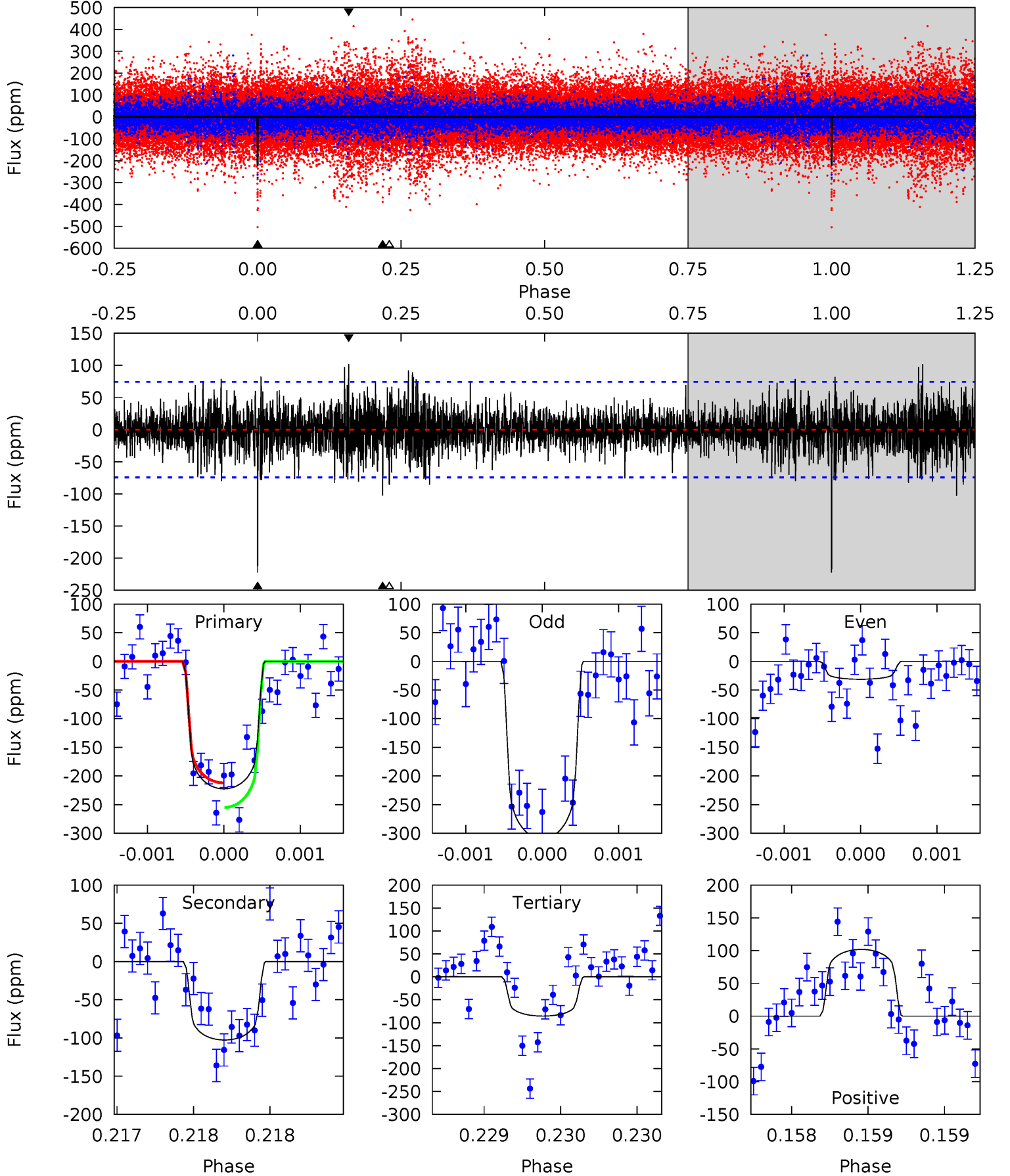
TCE 007513516-01 P=367.429465 Days $T_0=399.253554$ (BKJD)



DV Model-Shift Uniqueness Test

007513516-01, $P = 367.431722$ Days, $E = 31.811940$ Days

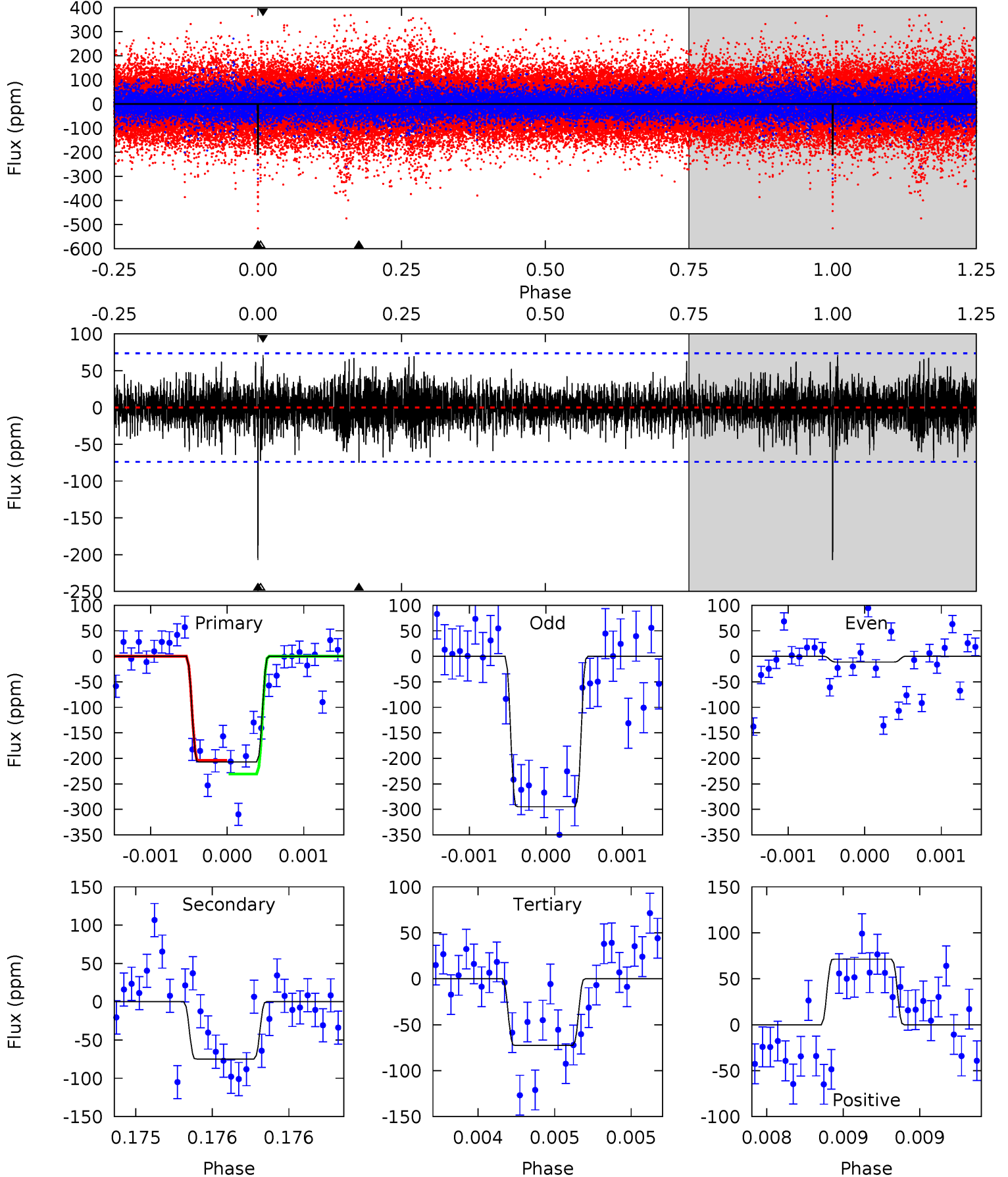
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
16.5	7.62	6.35	7.56	5.51	3.39	1.62	10.2	8.95	1.27	0.06	9.11	0.78	0.31	1.58



Alt Model-Shift Uniqueness Test

007513516-01, P = 367.429465 Days, E = 31.824089 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
15.5	5.60	5.43	5.34	5.52	3.40	1.29	10.1	10.2	0.16	0.26	9.68	0.79	0.26	0.99



Stellar Parameters For KIC 007513516

	$T_{\text{eff}} (K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R (R_{\odot})$	$M (M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	6603^{+181}_{-250}	$4.048^{+0.264}_{-0.176}$	$-0.140^{+0.250}_{-0.300}$	$1.830^{+0.527}_{-0.644}$	$1.370^{+0.193}_{-0.289}$	$0.315^{+0.543}_{-0.155}$
	+3%/-4%	+7%/-4%	+179%/-214%	+29%/-35%	+14%/-21%	+173%/-49%
Source	PHO54	PHO54	PHO54	DSEP		

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

Secondary Eclipse Parameters for KIC 007513516-01 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-103 ± 13	$3.13^{+1.03}_{-0.94}$	517^{+44}_{-46}	5251^{+785}_{-510}	7138^{+6996}_{-3132}
Alt.	-75 ± 13	$2.87^{+0.94}_{-0.91}$	519^{+44}_{-48}	5135^{+812}_{-515}	6240^{+6966}_{-2743}

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

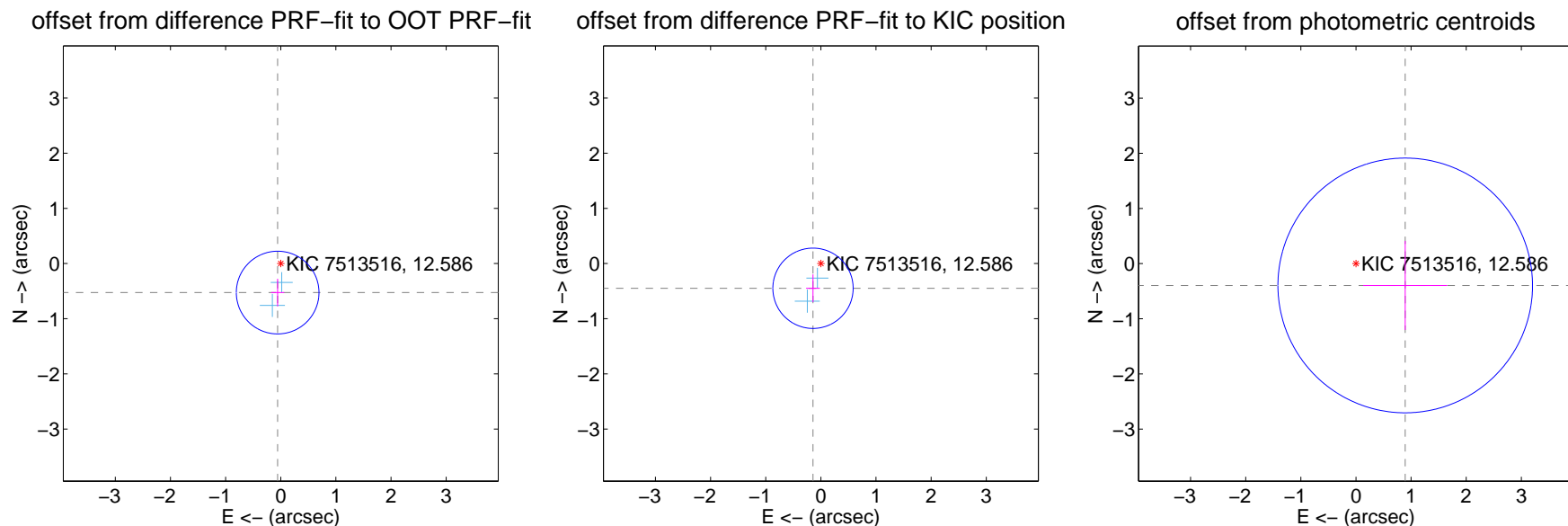
DV Centroid Data

Supplemental centroid analysis for 007513516-01. Kepler magnitude: 12.59. Transit SNR 10.43

There are 2 quarters with good PRF difference image offsets

The direct PRF centroid is offset from the target star catalog position by about 0.12 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.529 ± 0.250	2.12	0.056 ± 0.119	-0.526 ± 0.251
PRF-fit source offset from KIC position	0.470 ± 0.243	1.94	0.143 ± 0.126	-0.448 ± 0.252
photometric centroid source offset	0.98 ± 0.77	1.27	-0.89 ± 0.76	-0.40 ± 0.81

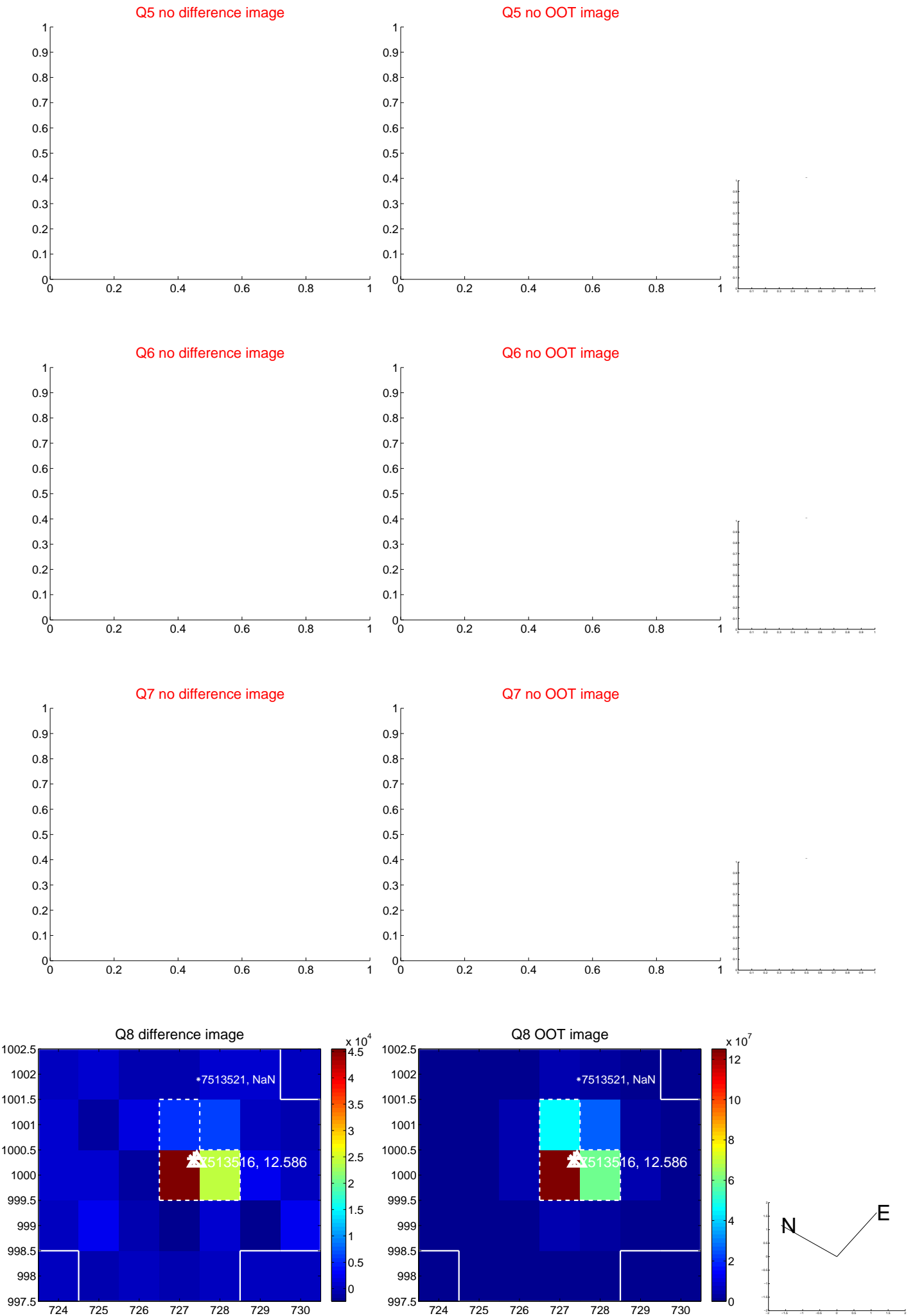


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ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



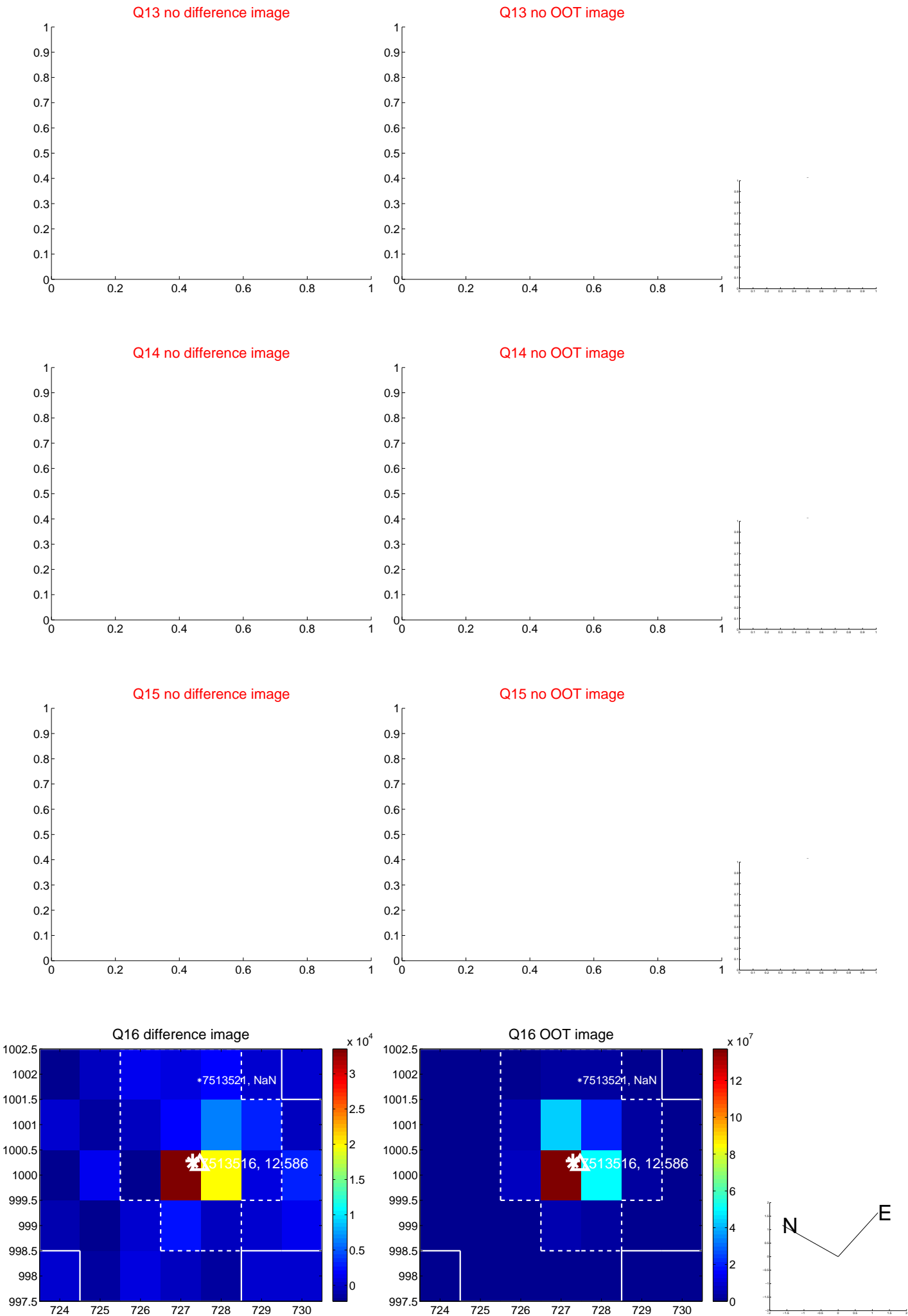
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



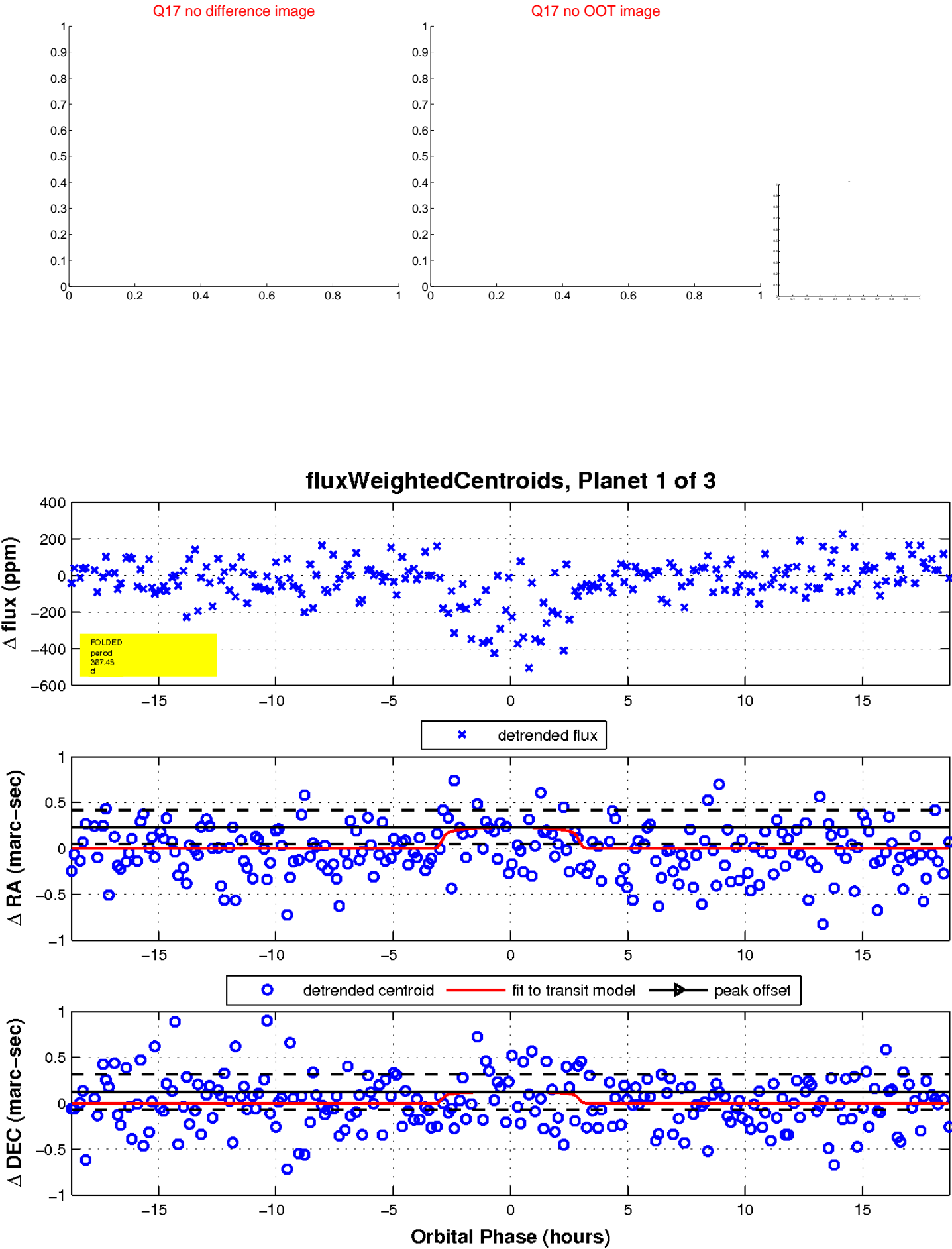
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

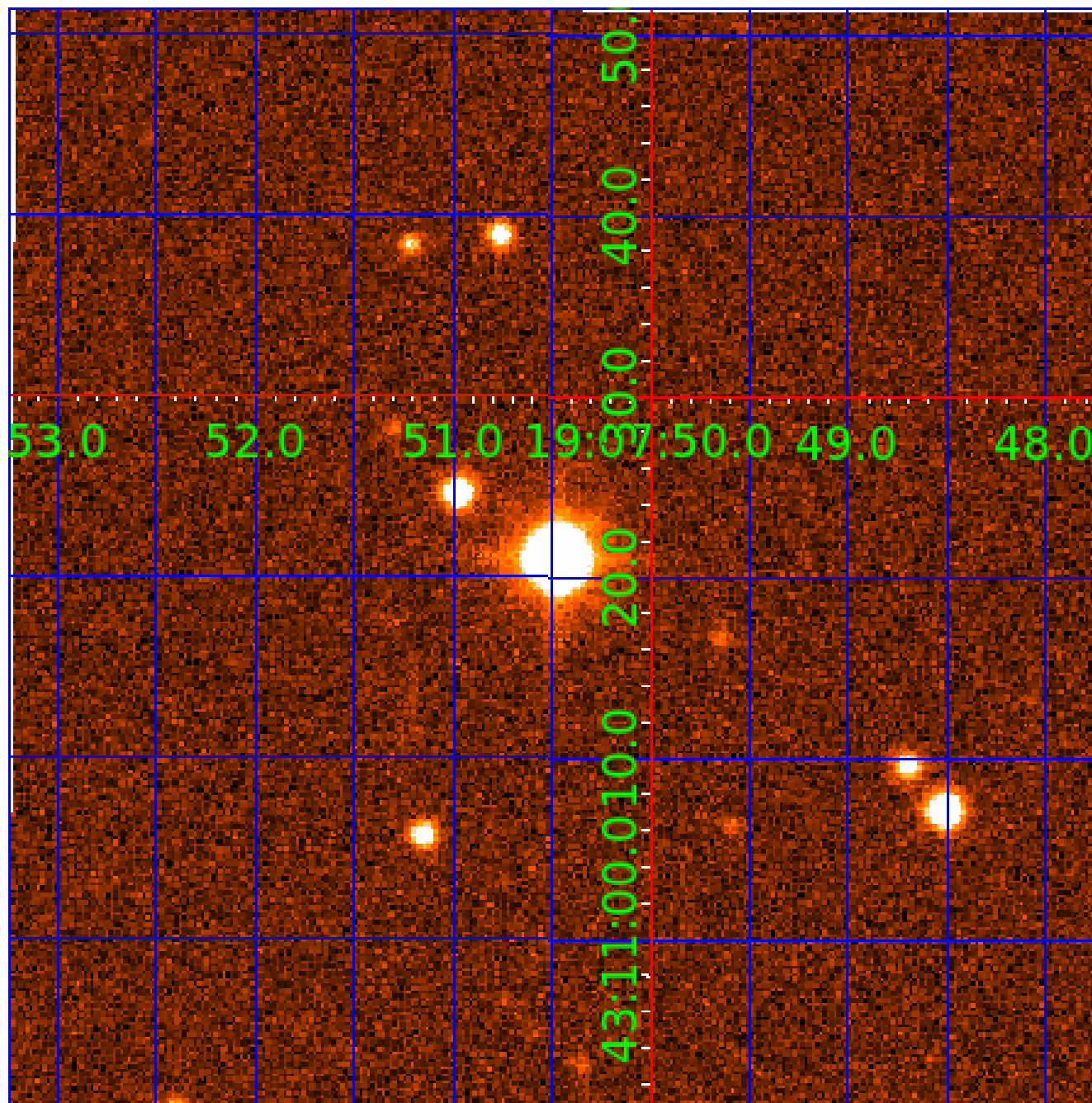


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 007513516

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})
007513516-01	OBS	No	367.431722	399.243662	238.3	6.250	10.9	10.4	1.83	6603	3.23	4.60
007513516-02	OBS	No	421.980690	360.936466	323.9	3.986	7.3	8.6	1.83	6603	4.26	3.82
007513516-03	OBS	No	391.159197	354.463344	206.4	18.481	8.6	10.0	1.83	6603	2.73	4.23

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
007513516-01	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL_ZUMA—INCONSISTENT_TRANS—CENT_FEW_DIFFS
007513516-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES—ALL_TRANS_CHASES—MOD_NONUNIQ_ALT—INCONSISTENT_TRANS—CENT_FEW_DIFFS
007513516-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_MARSHALL—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.

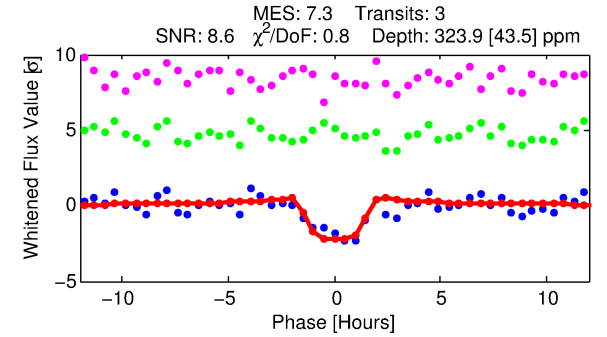
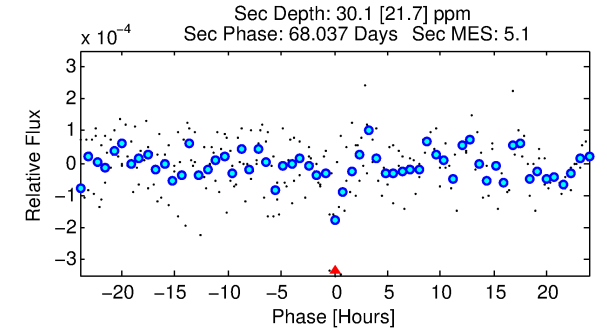
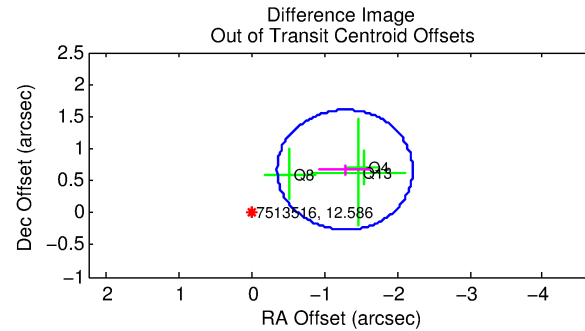
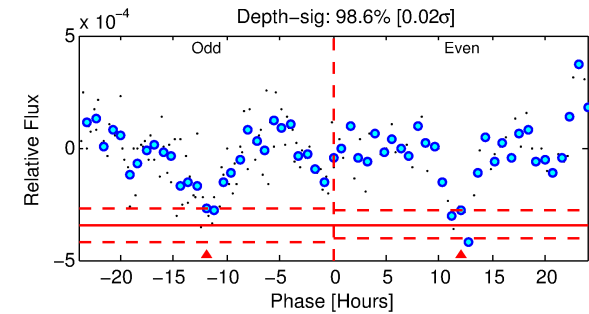
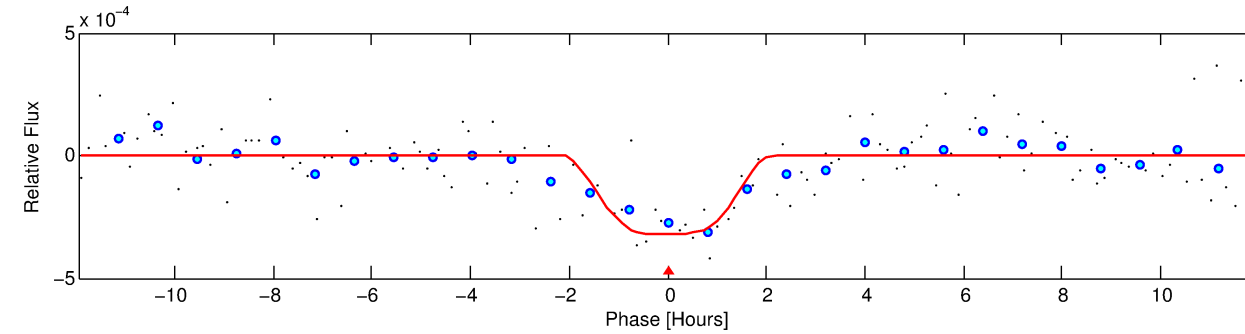
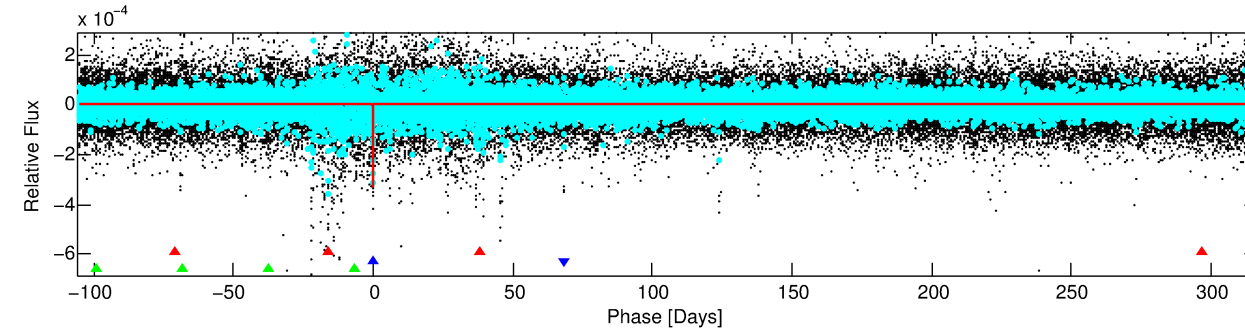
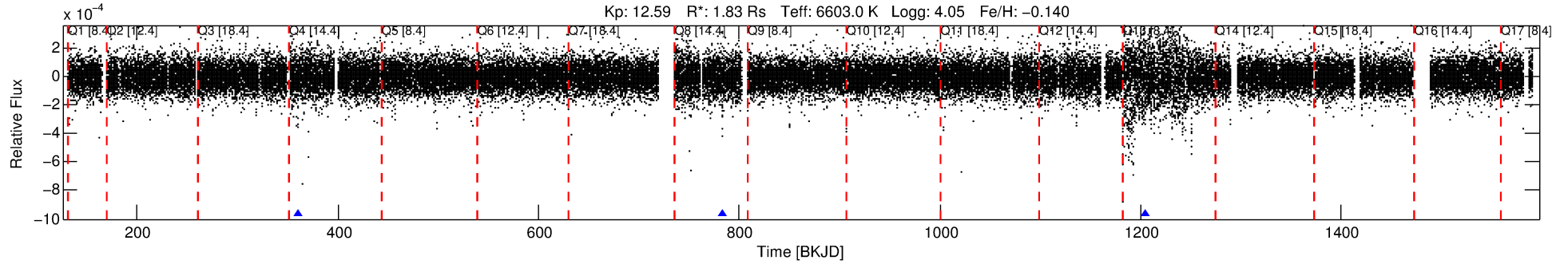
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 007513516-02

No Significant Match Found

DV One-Page Summary

KIC: 7513516 Candidate: 2 of 3 Period: 421.981 d



DV Fit Results:

Period = 421.98069 [0.00607] d
Epoch = 360.9365 [0.0061] BKJD
Rp/R* = 0.0214 [0.0019]
a/R* = 252.66 [56.59]
b = 0.97 [0.01]
Seff = 3.82 [1.88]
Teff = 357 [44] K
Rp = 4.26 [1.55] Re
a = 1.2214 [0.3786] AU
Ag = 1357.93 [1192.05] [1.14 σ]
Teffp = 3347 [634] K [4.70 σ]

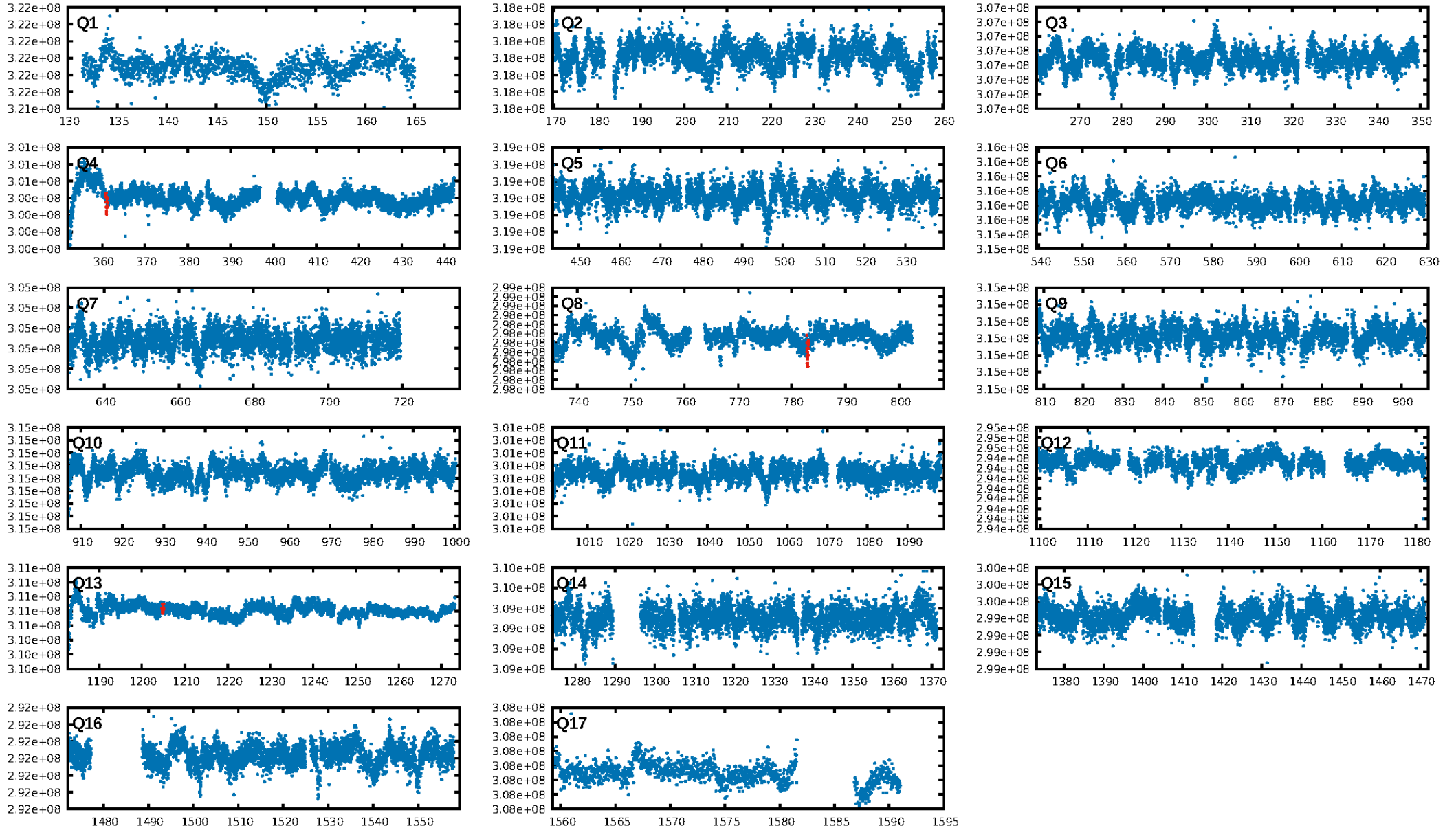
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [39.13 σ]
LongPeriod-sig: N/A
ModelChiSquare2-sig: 52.0%
ModelChiSquareGof-sig: 100.0%
Bootstrap-pfa: 5.93e-10
RollingBand-fgt: 1.00 [3/3]
GhostDiagnostic-chr: 7.387
Centroid-sig: 28.7%
Centroid-so: 0.546 arcsec [0.85 σ]
OotOffset-rm: 1.445 arcsec [4.64 σ]
KicOffset-rm: 1.411 arcsec [4.45 σ]
OotOffset-st: 0/0/2/1 [3]
KicOffset-st: 0/0/2/1 [3]
DiffImageQuality-fgm: 1.00 [3/3]
DiffImageOverlap-fno: 1.00 [3/3]

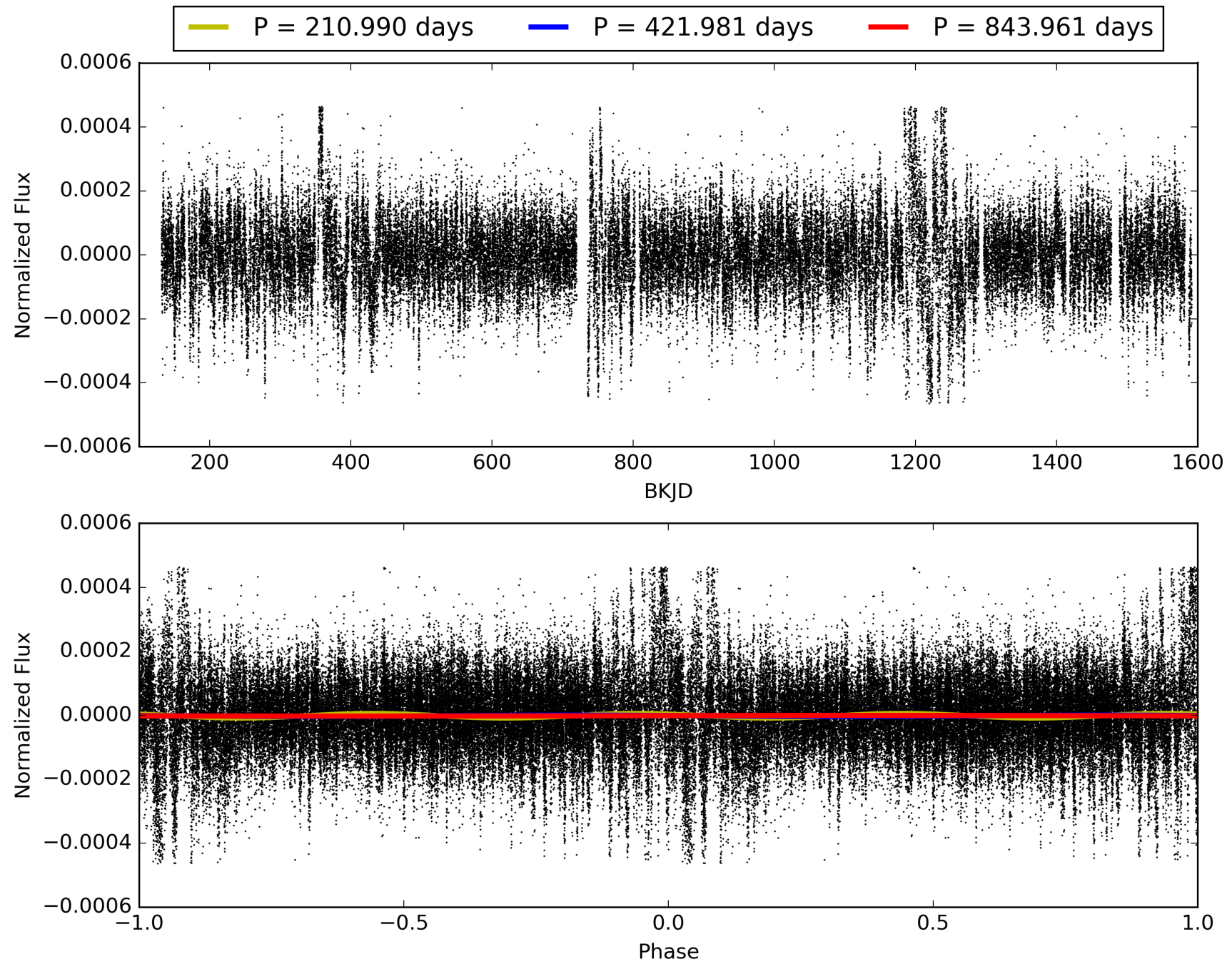
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 01-Feb-2016 06:25:16 Z

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

TCE 007513516-02, PDC Light Curves

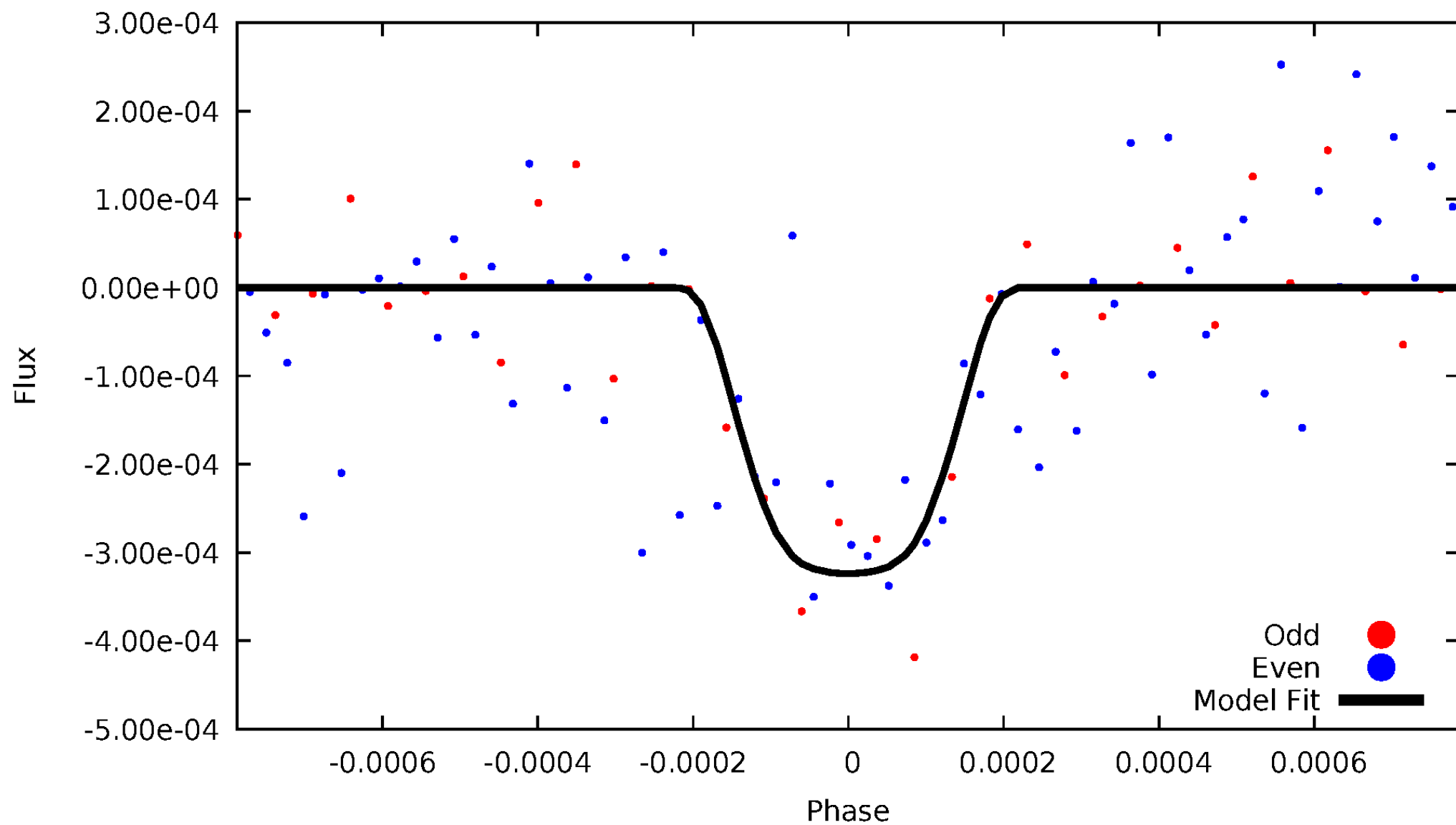


TCE 007513516-02



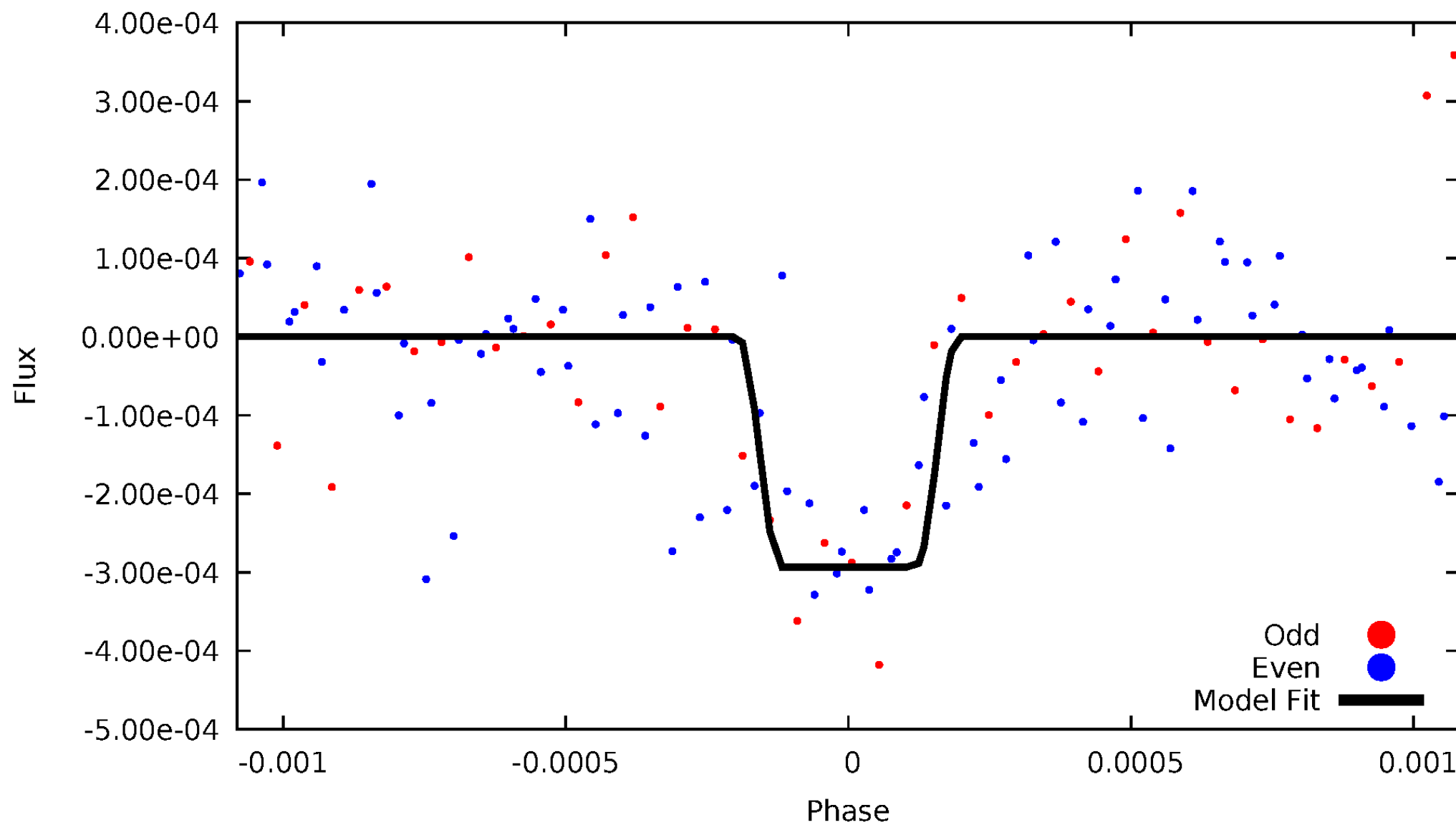
DV Odd/Even

TCE 007513516-02



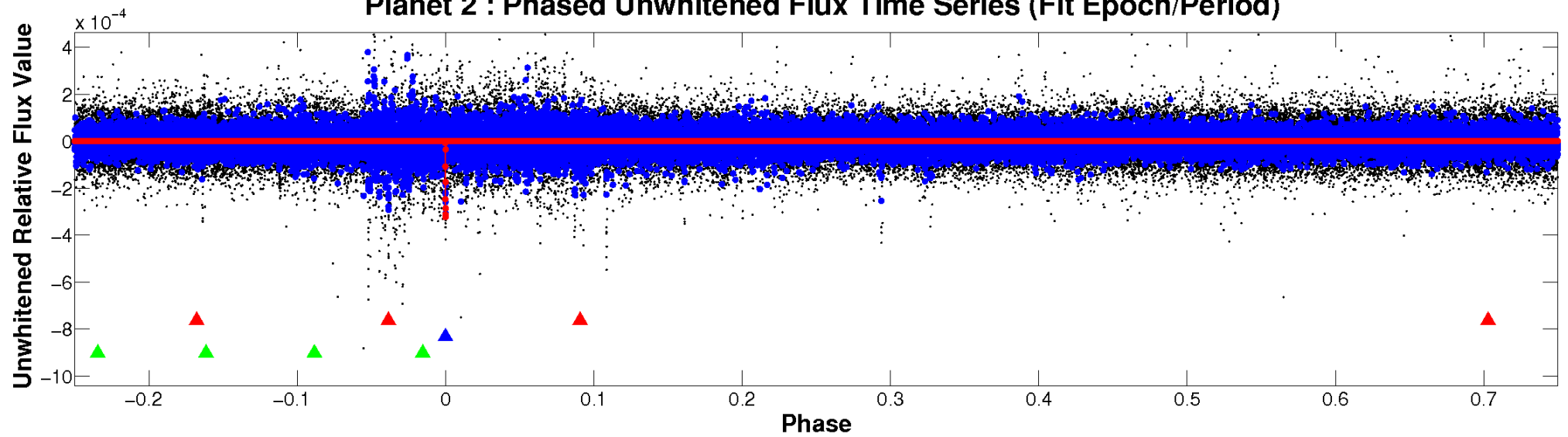
ALT Odd/Even

TCE 007513516-02

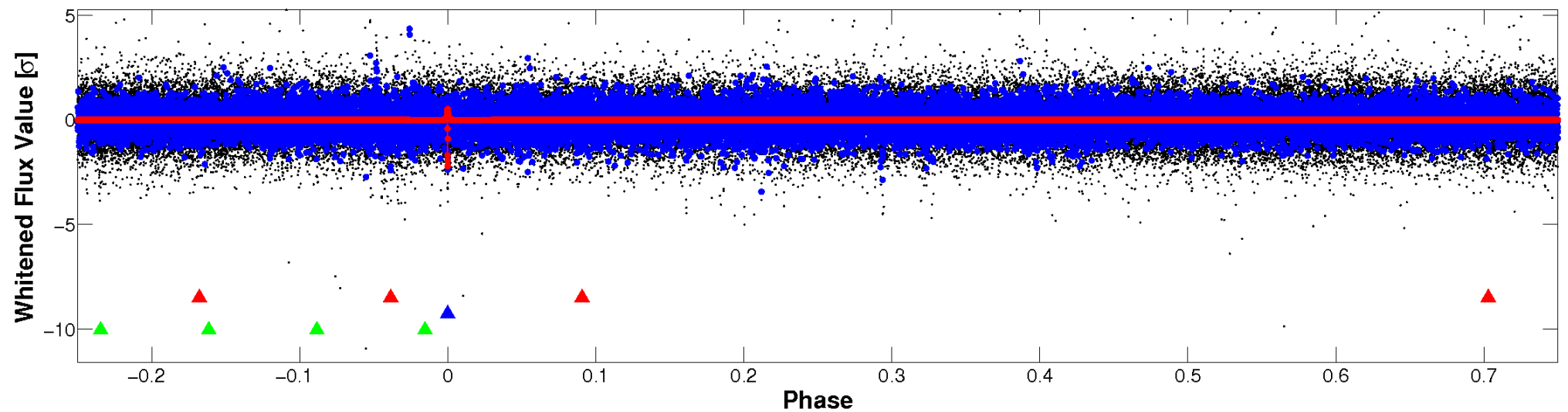


Non-Whitened Vs. Whitened Light Curve

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

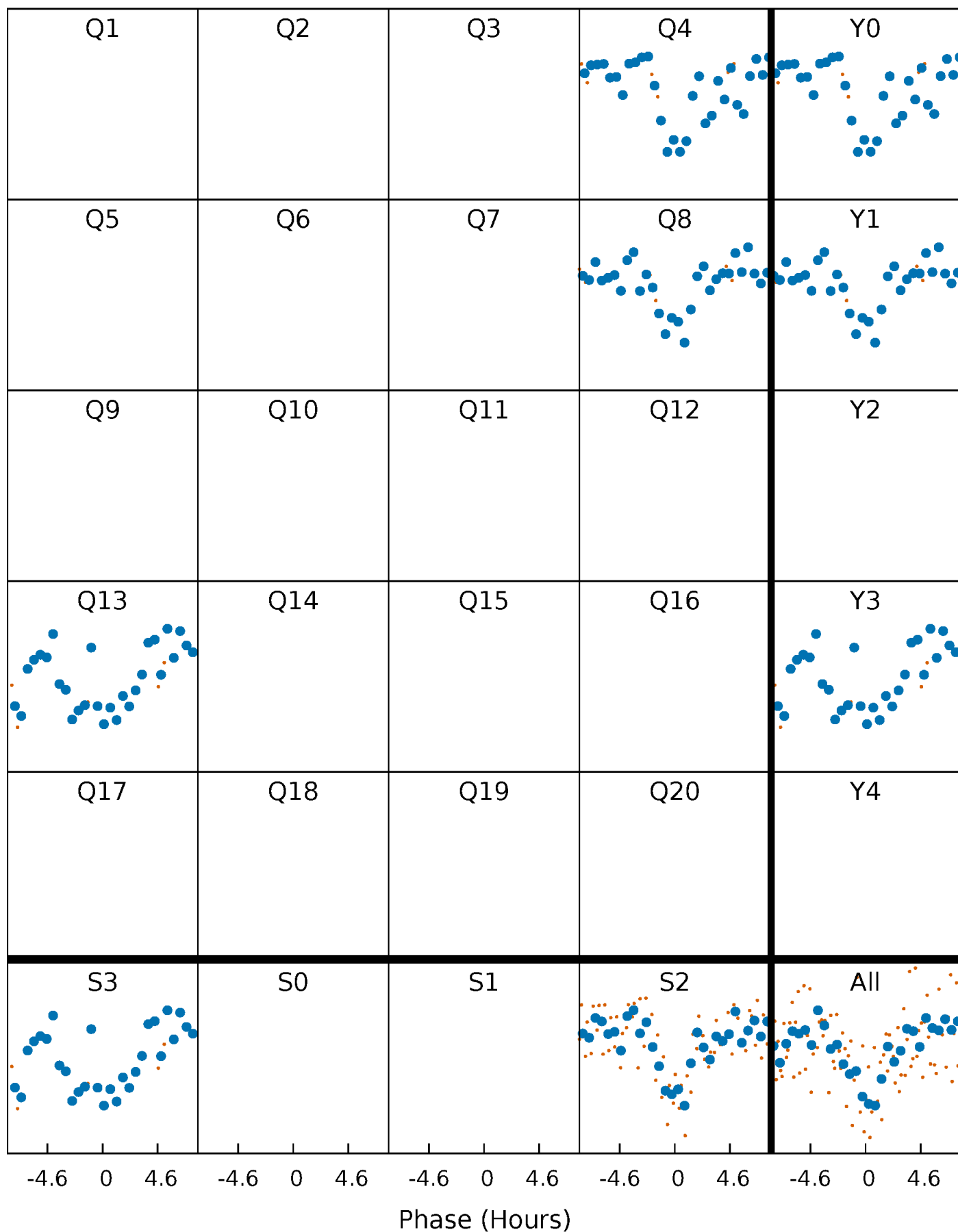


Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



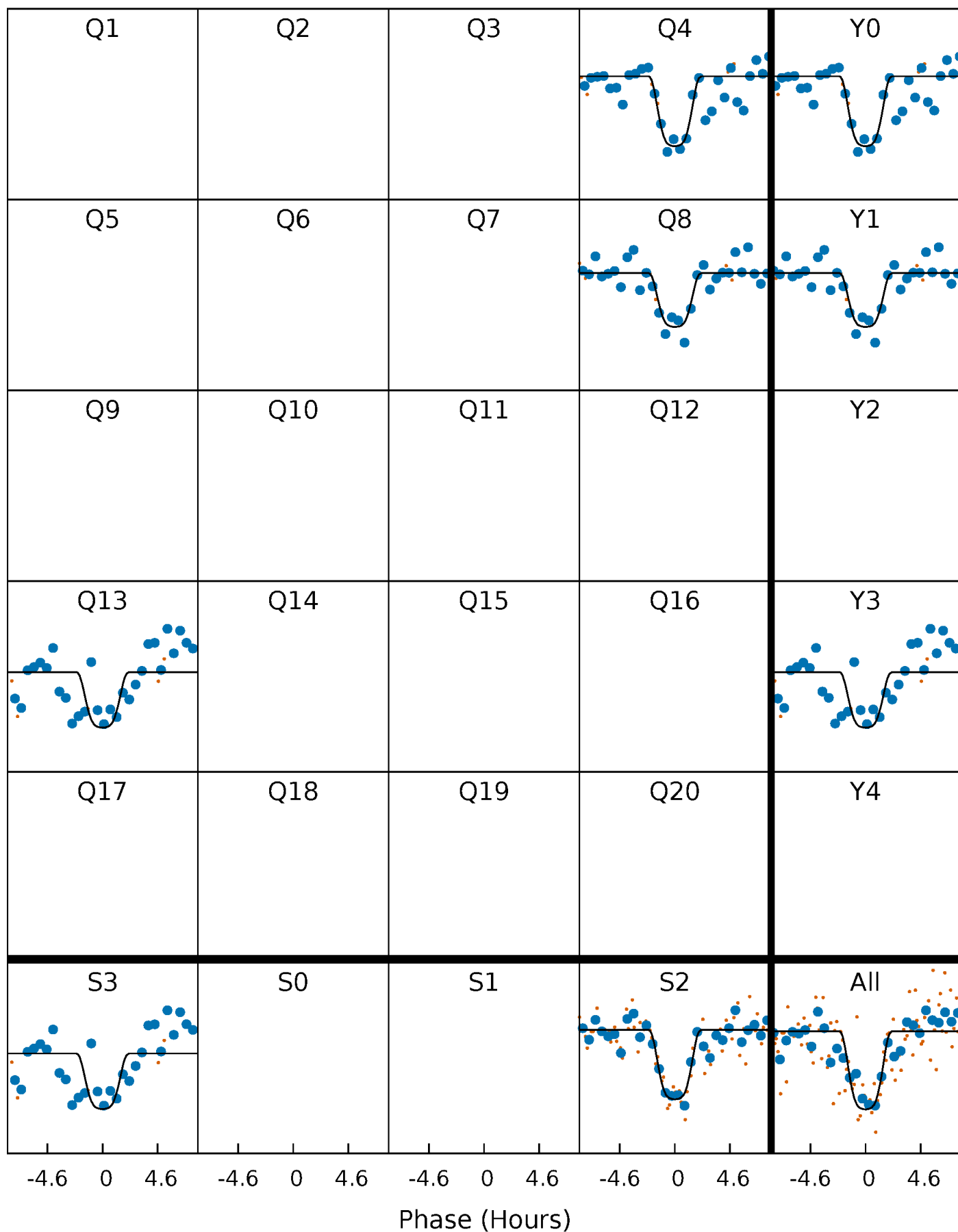
PDC Quarter-Phased Transit Curves

TCE 007513516-02 P=421.980690 Days $T_0=360.936466$ (BKJD)



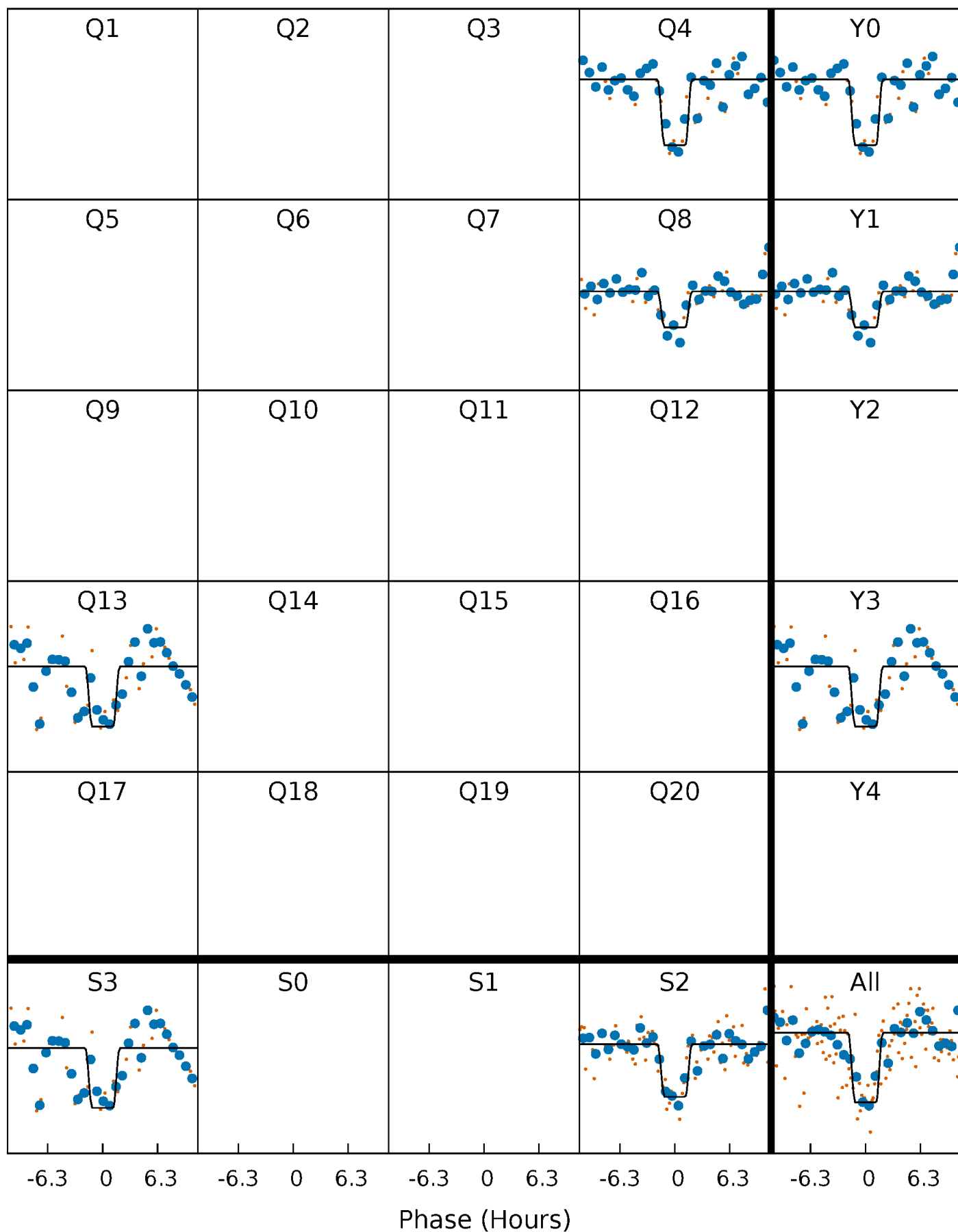
DV Quarter-Phased Transit Curves

TCE 007513516-02 $P=421.980690$ Days $T_0=360.936466$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

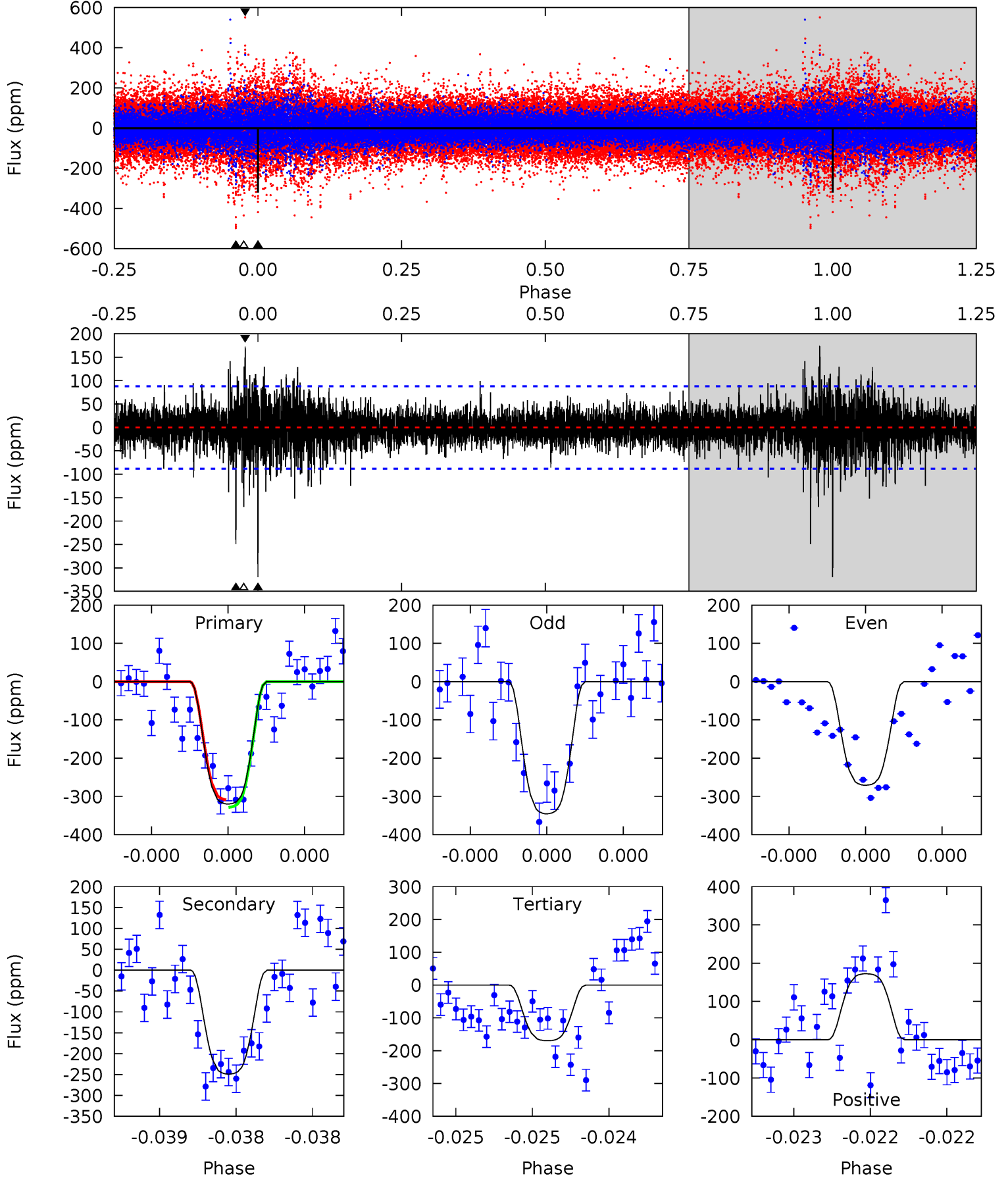
TCE 007513516-02 P=421.987070 Days $T_0=360.942850$ (BKJD)



DV Model-Shift Uniqueness Test

007513516-02, P = 421.980690 Days, E = 360.936466 Days

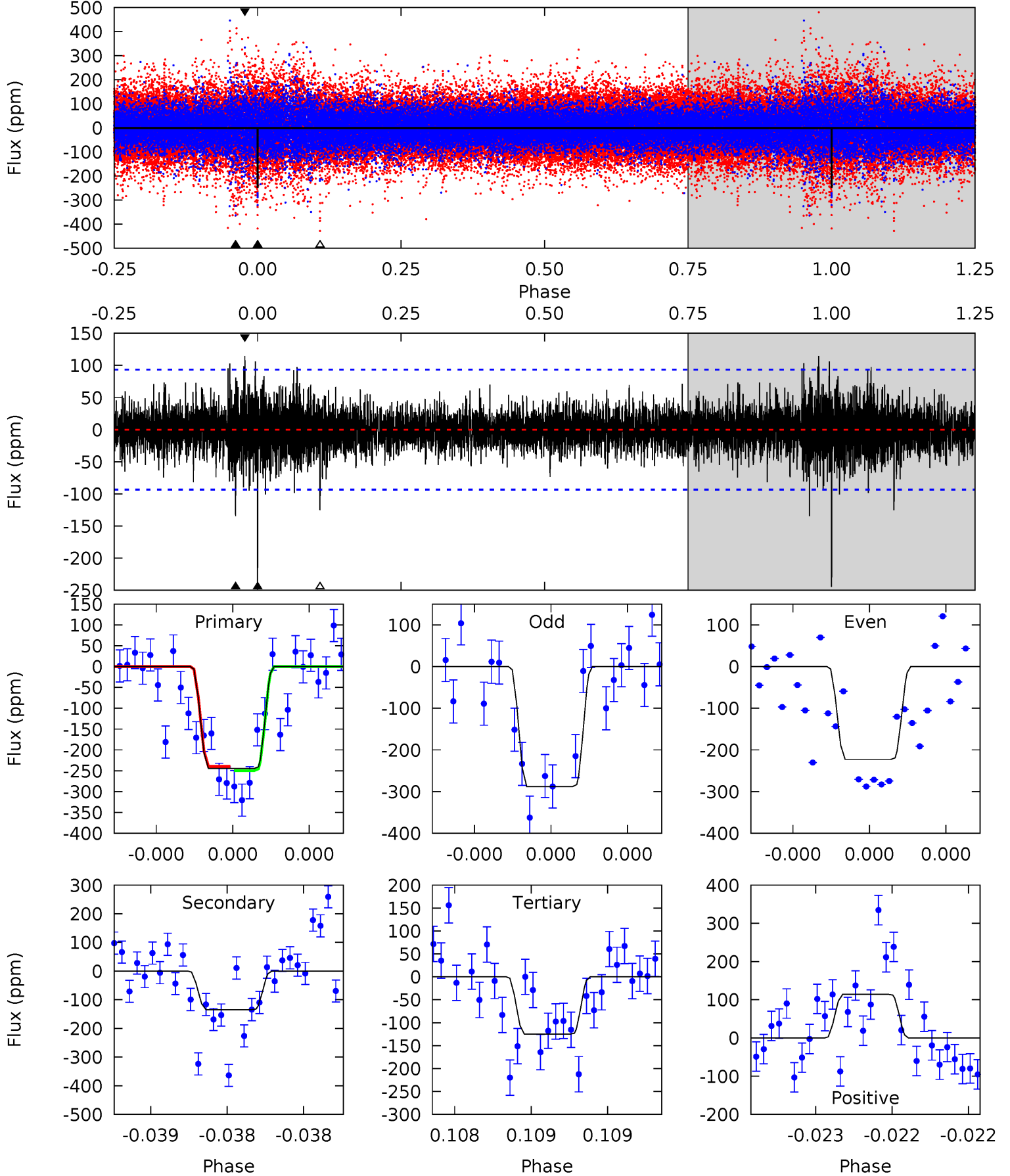
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
20.3	15.8	10.8	11.0	5.60	3.52	1.71	9.55	9.37	5.05	4.87	2.36	0.94	0.35	0.63



Alt Model-Shift Uniqueness Test

007513516-02, P = 421.987070 Days, E = 360.942850 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
14.7	8.11	7.53	6.88	5.63	3.56	1.31	7.19	7.84	0.57	1.22	1.88	0.98	0.32	0.31



Stellar Parameters For KIC 007513516

	$T_{\text{eff}} (K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R (R_{\odot})$	$M (M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	6603^{+181}_{-250}	$4.048^{+0.264}_{-0.176}$	$-0.140^{+0.250}_{-0.300}$	$1.830^{+0.527}_{-0.644}$	$1.370^{+0.193}_{-0.289}$	$0.315^{+0.543}_{-0.155}$
	+3%/-4%	+7%/-4%	+179%/-214%	+29%/-35%	+14%/-21%	+173%/-49%
Source	PHO54	PHO54	PHO54	DSEP		

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

Secondary Eclipse Parameters for KIC 007513516-02 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-249 ± 16	$4.23^{+0.82}_{-0.83}$	496^{+39}_{-44}	5660^{+326}_{-297}	11146^{+5801}_{-3089}
Alt.	-135 ± 17	$3.35^{+0.74}_{-0.70}$	495^{+38}_{-46}	5454^{+369}_{-373}	9720^{+5670}_{-3232}

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

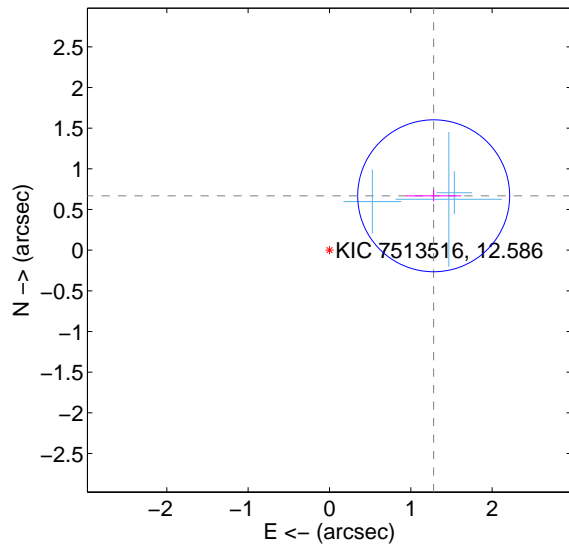
Supplemental centroid analysis for 007513516-02. Kepler magnitude: 12.59. Transit SNR 8.61

There are 3 quarters with good PRF difference image offsets

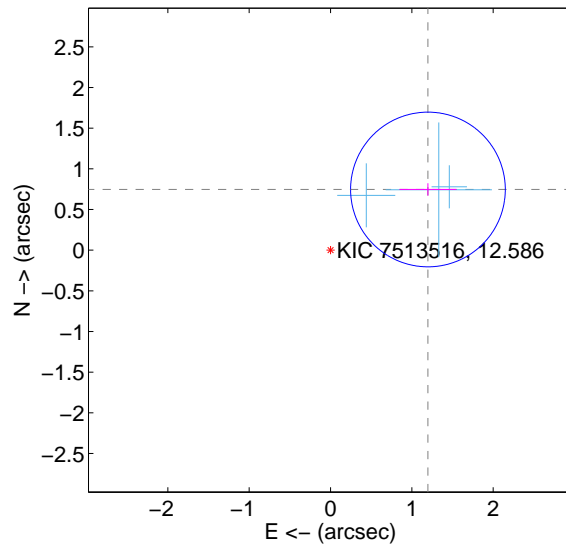
The direct PRF centroid is offset from the target star catalog position by about 0.18 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	1.445 ± 0.311	4.64	-1.281 ± 0.341	0.669 ± 0.071
PRF-fit source offset from KIC position	1.411 ± 0.317	4.45	-1.198 ± 0.349	0.746 ± 0.076
photometric centroid source offset	0.55 ± 0.64	0.85	-0.53 ± 0.64	0.14 ± 0.66

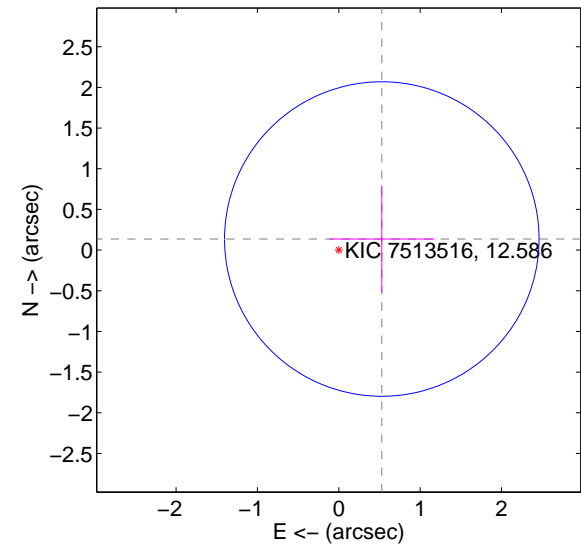
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position

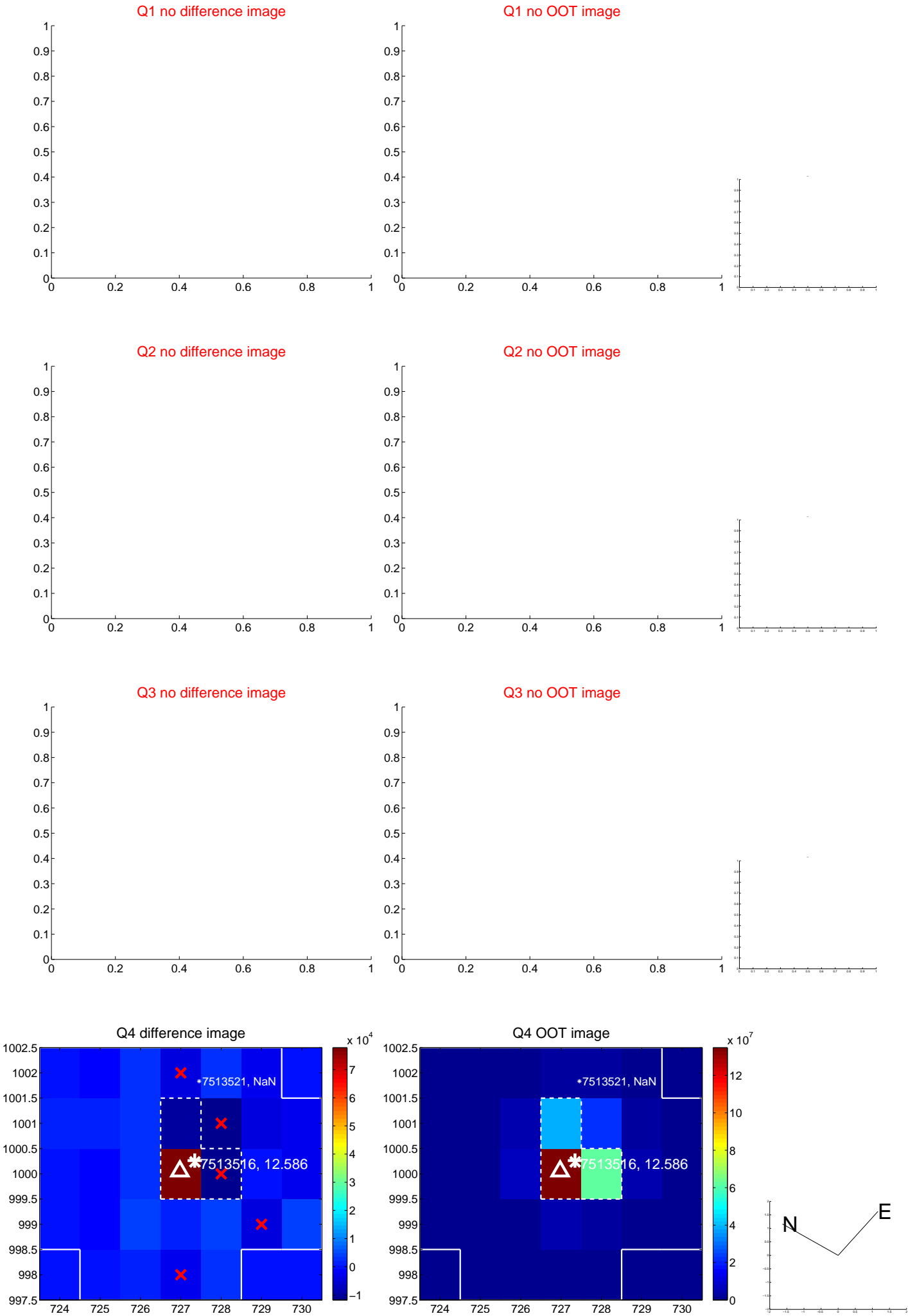


offset from photometric centroids

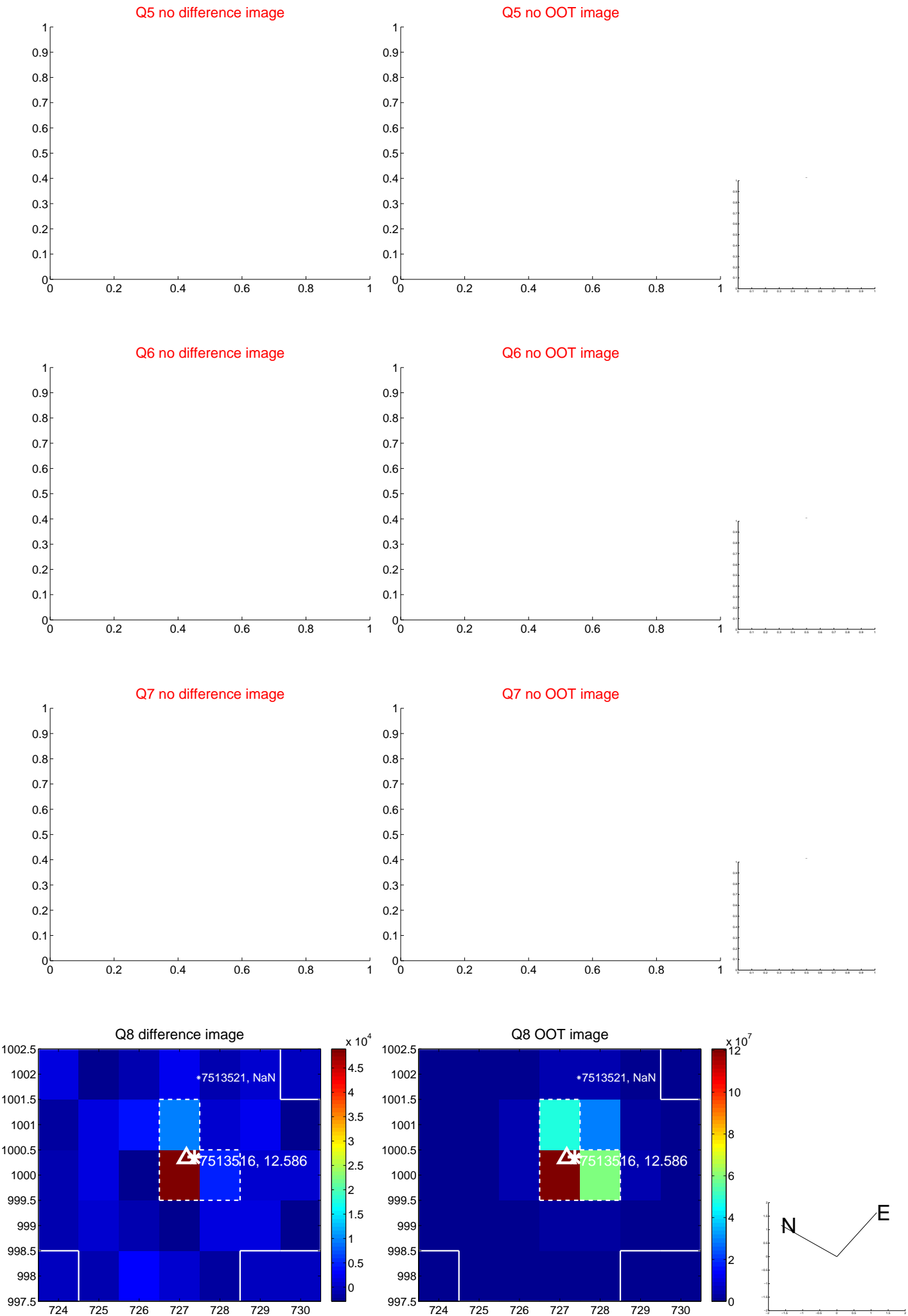


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ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



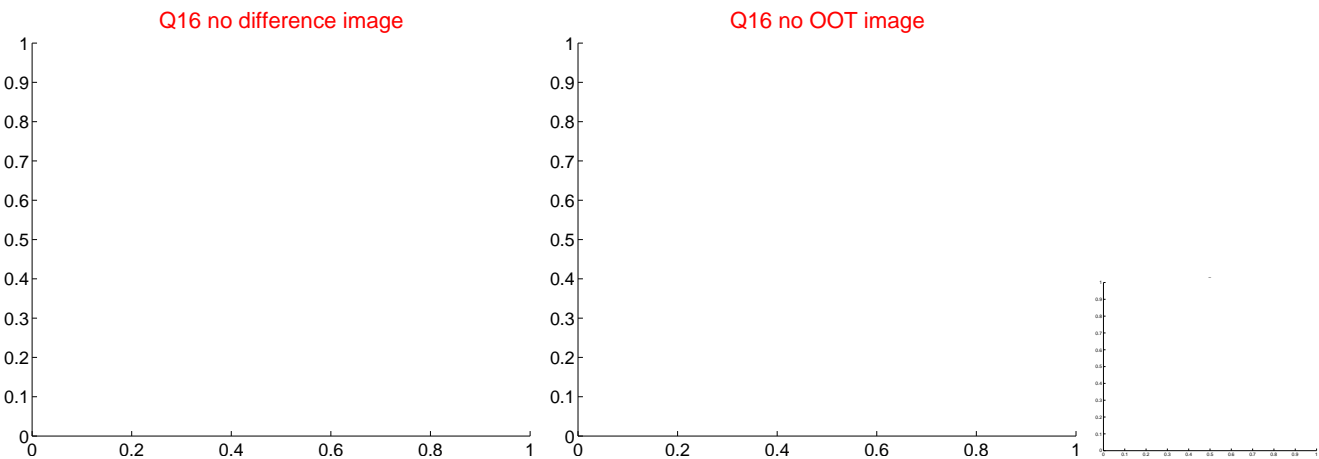
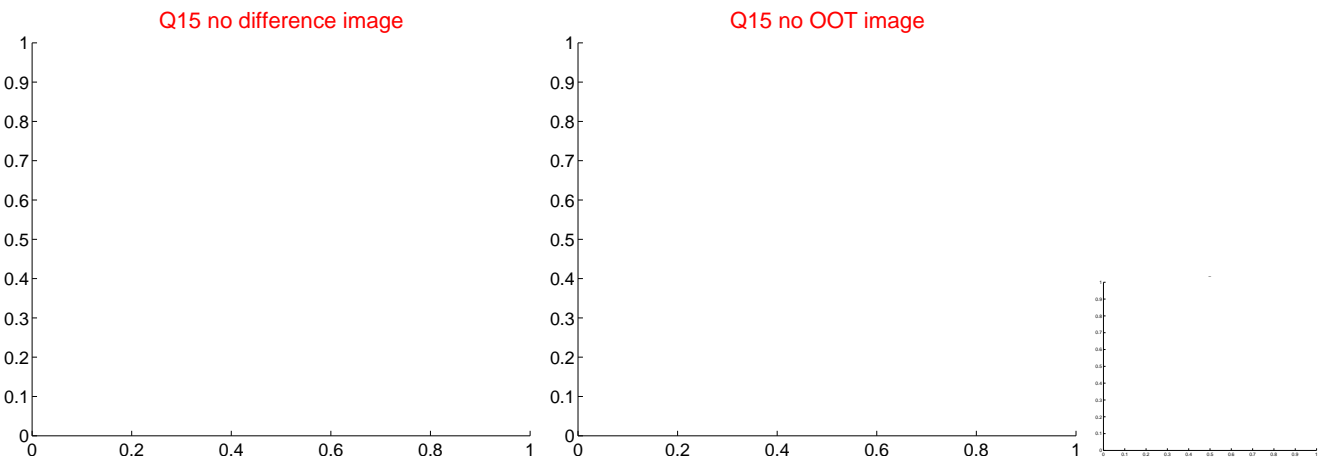
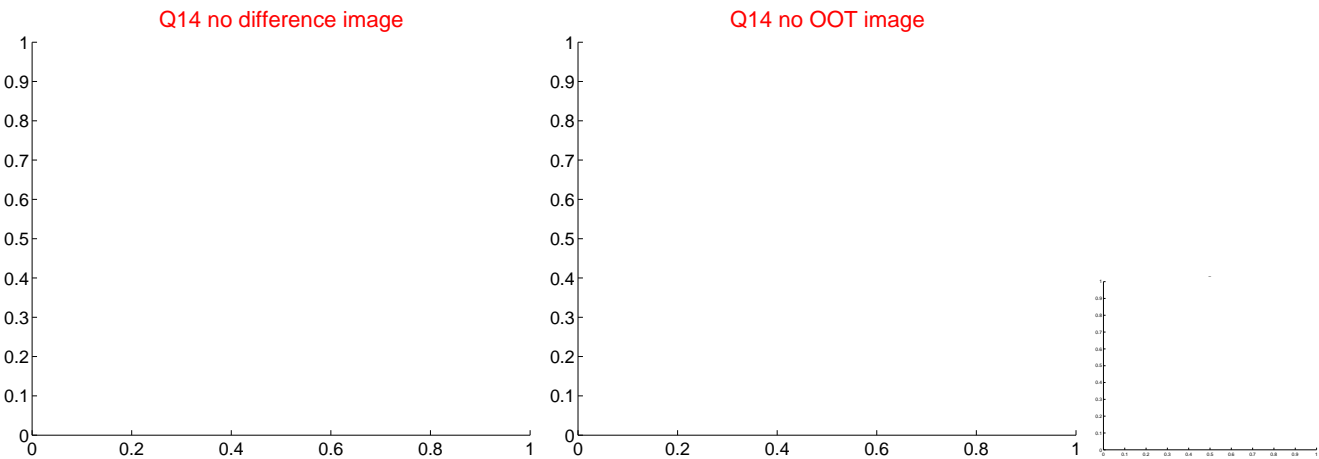
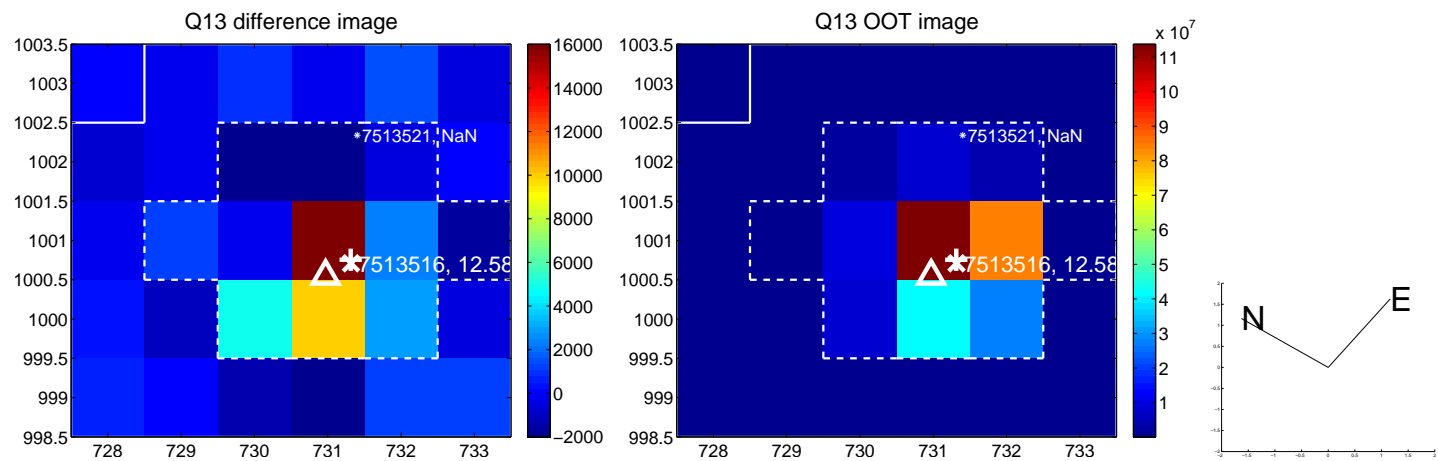
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



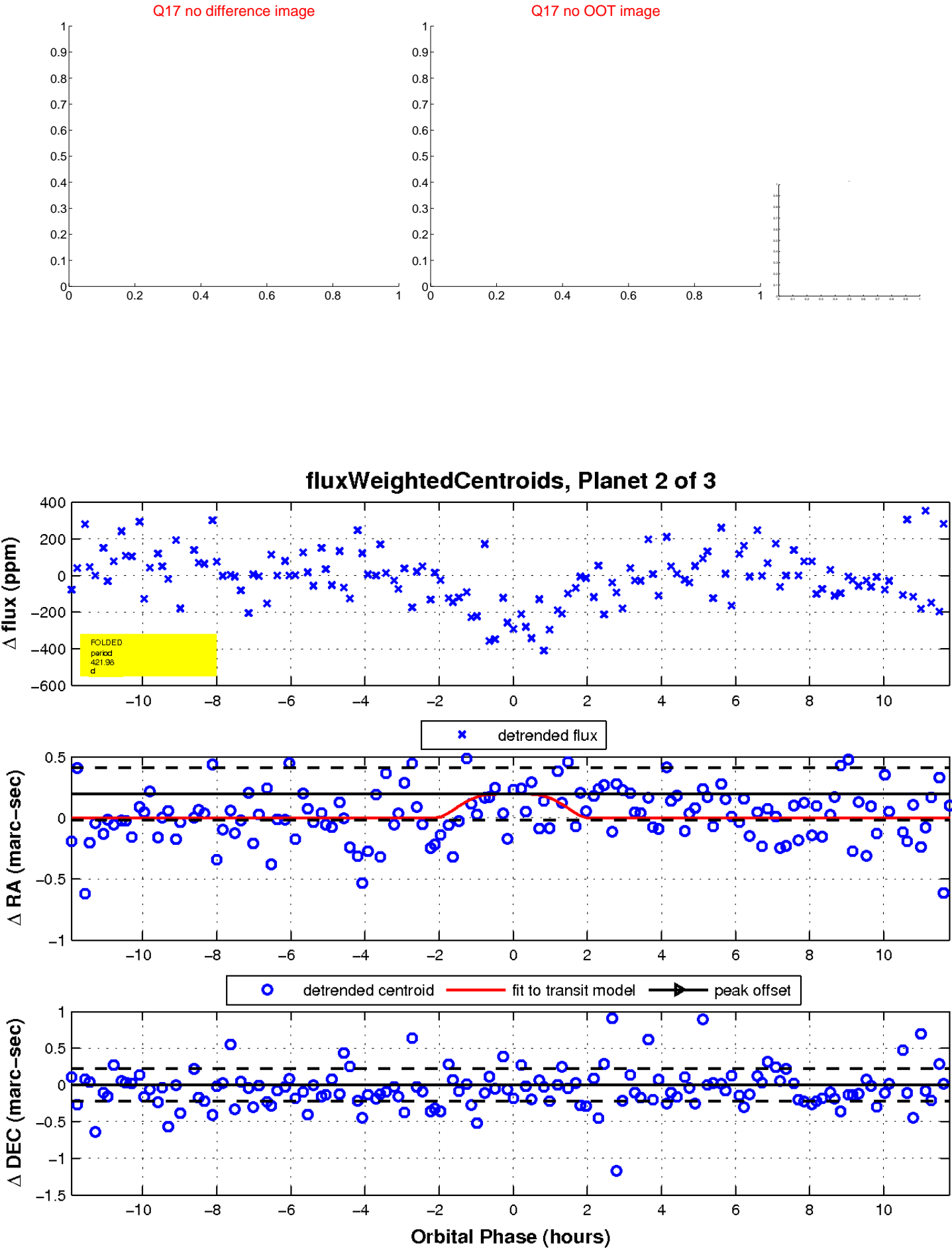
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

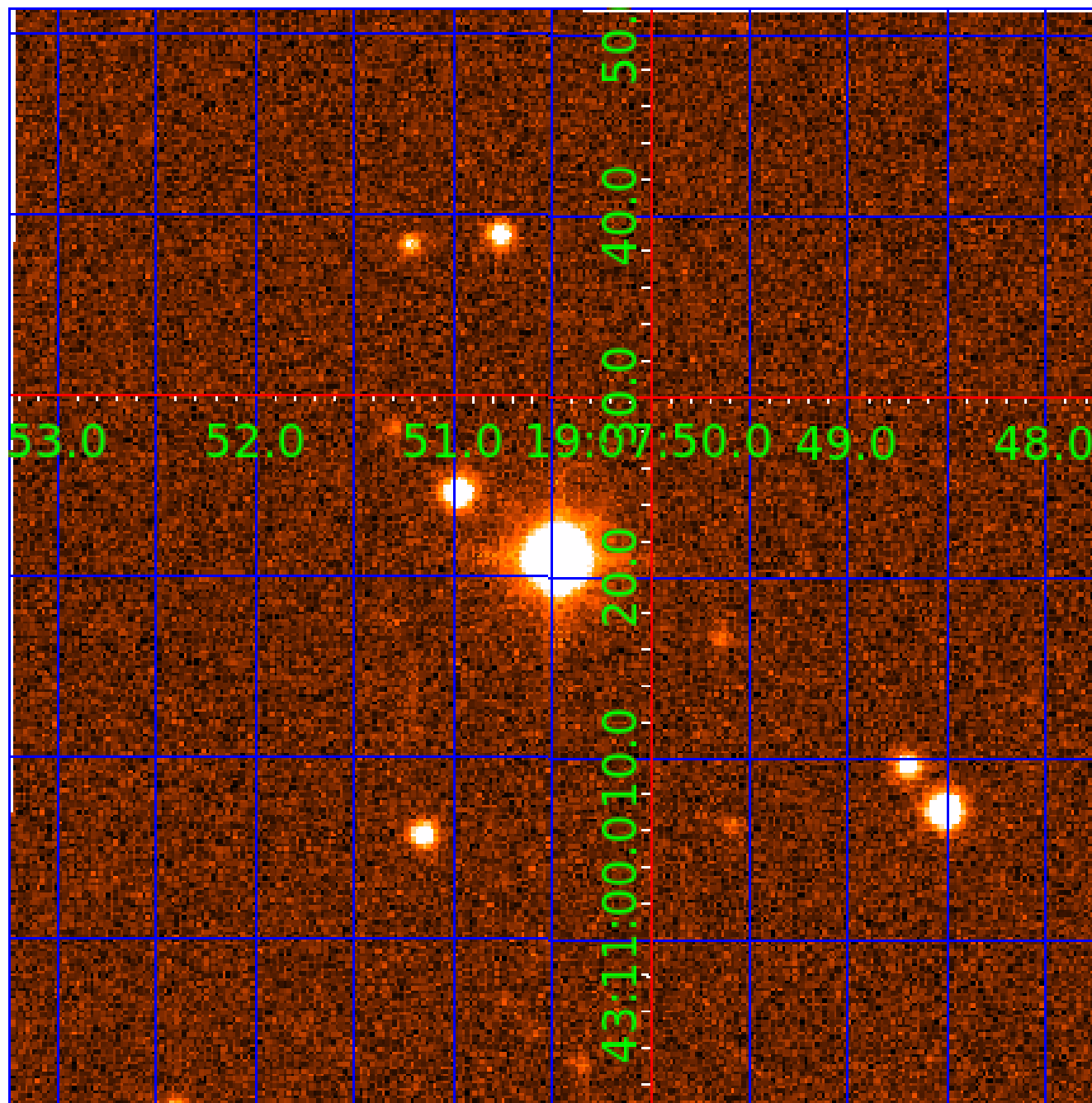


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 007513516

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})
007513516-01	OBS	No	367.431722	399.243662	238.3	6.250	10.9	10.4	1.83	6603	3.23	4.60
007513516-02	OBS	No	421.980690	360.936466	323.9	3.986	7.3	8.6	1.83	6603	4.26	3.82
007513516-03	OBS	No	391.159197	354.463344	206.4	18.481	8.6	10.0	1.83	6603	2.73	4.23

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
007513516-01	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL_ZUMA—INCONSISTENT_TRANS—CENT_FEW_DIFFS
007513516-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES—ALL_TRANS_CHASES—MOD_NONUNIQU_ALT—INCONSISTENT_TRANS—CENT_FEW_DIFFS
007513516-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_MARSHALL—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.

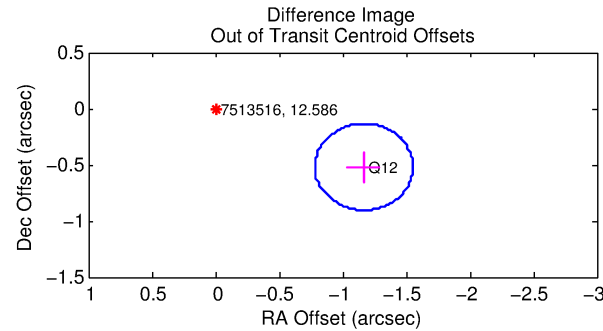
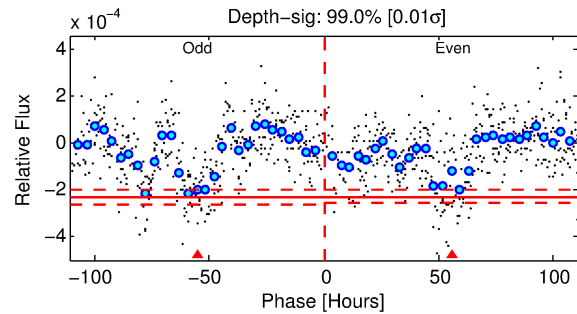
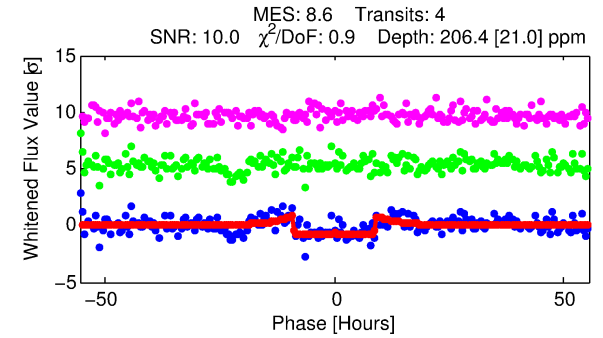
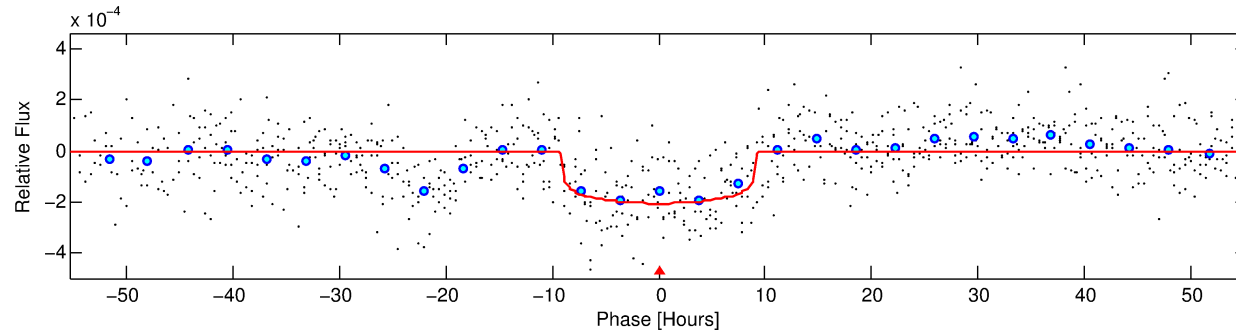
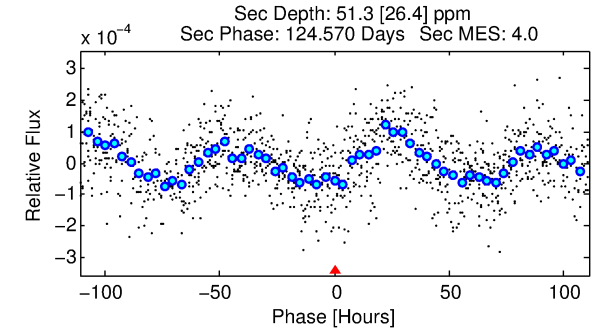
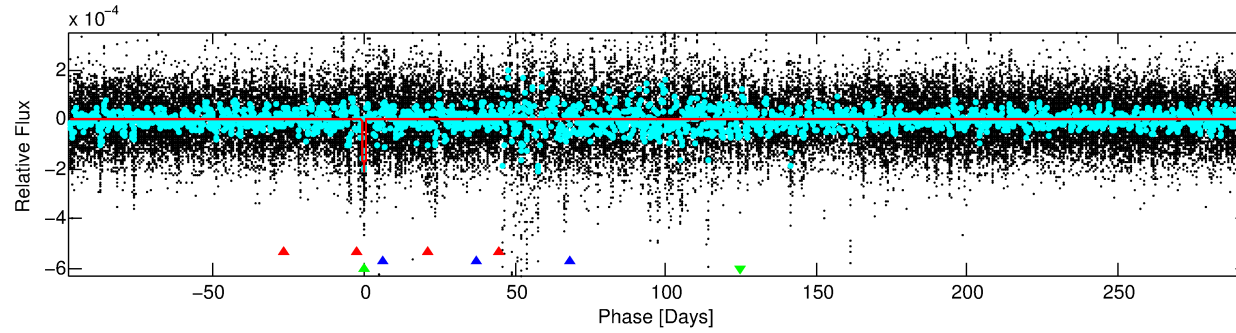
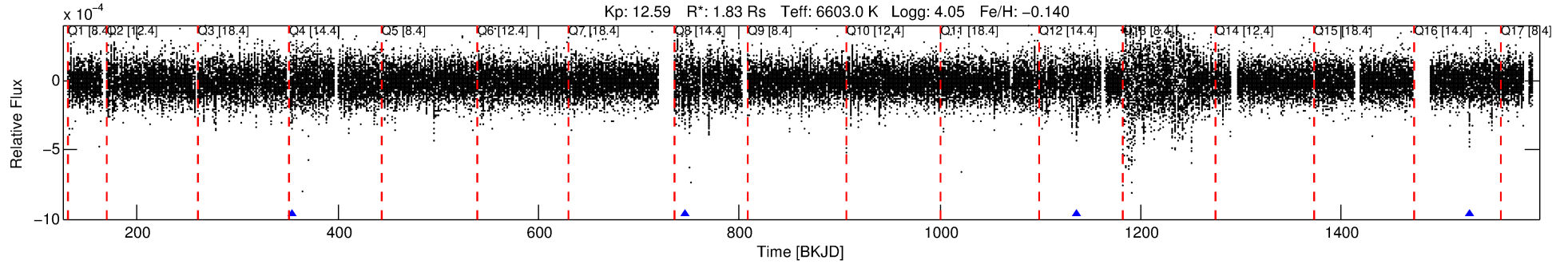
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 007513516-03

No Significant Match Found

DV One-Page Summary

KIC: 7513516 Candidate: 3 of 3 Period: 391.159 d



DV Fit Results:

Period = 391.15920 [0.00603] d
Epoch = 354.4633 [0.0121] BKJD
Rp/R* = 0.0137 [0.0026]
a/R* = 138.50 [135.25]
b = 0.54 [1.27]
Seff = 4.23 [2.08]
Teq = 366 [45] K
Rp = 2.73 [1.09] Re
a = 1.1612 [0.3600] AU
Ag = 5102.05 [4040.36] [1.26σ]
Teffp = 4779 [784] K [5.62σ]

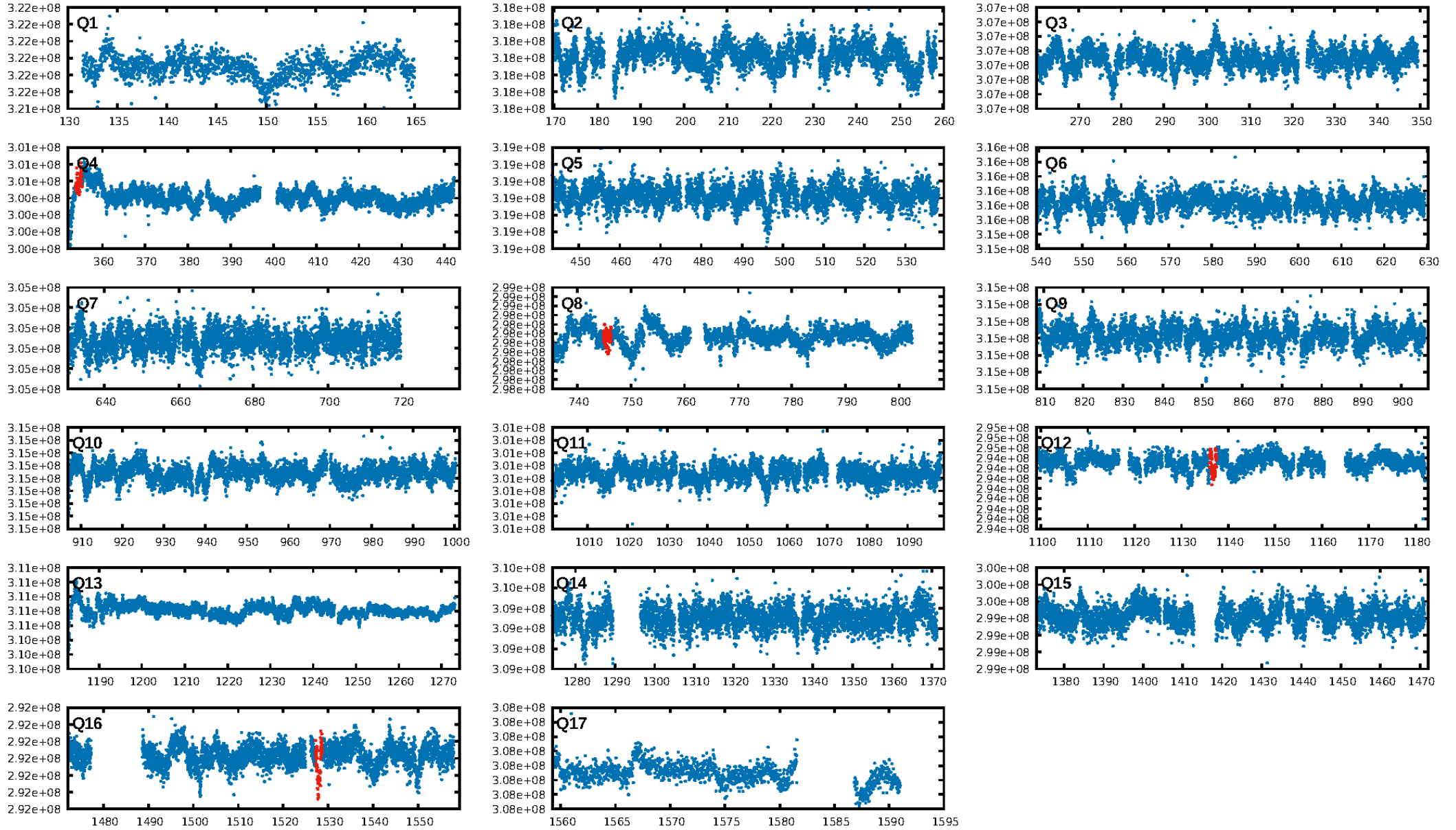
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [29.19σ]
LongPeriod-sig: 100.0% [39.13σ]
ModelChiSquare2-sig: 4.1%
ModelChiSquareGof-sig: 99.9%
Bootstrap-pfa: 1.13e-11
RollingBand-fgt: 1.00 [4/4]
GhostDiagnostic-chr: 45.88
Centroid-sig: 4.6%
Centroid-so: 0.841 arcsec [1.58σ]
OotOffset-rm: 1.277 arcsec [9.94σ]
KicOffset-rm: 1.155 arcsec [9.00σ]
OotOffset-st: 0/0/1/0 [1]
KicOffset-st: 0/0/1/0 [1]
DiffImageQuality-fgm: 1.00 [1/1]
DiffImageOverlap-fno: 1.00 [2/2]

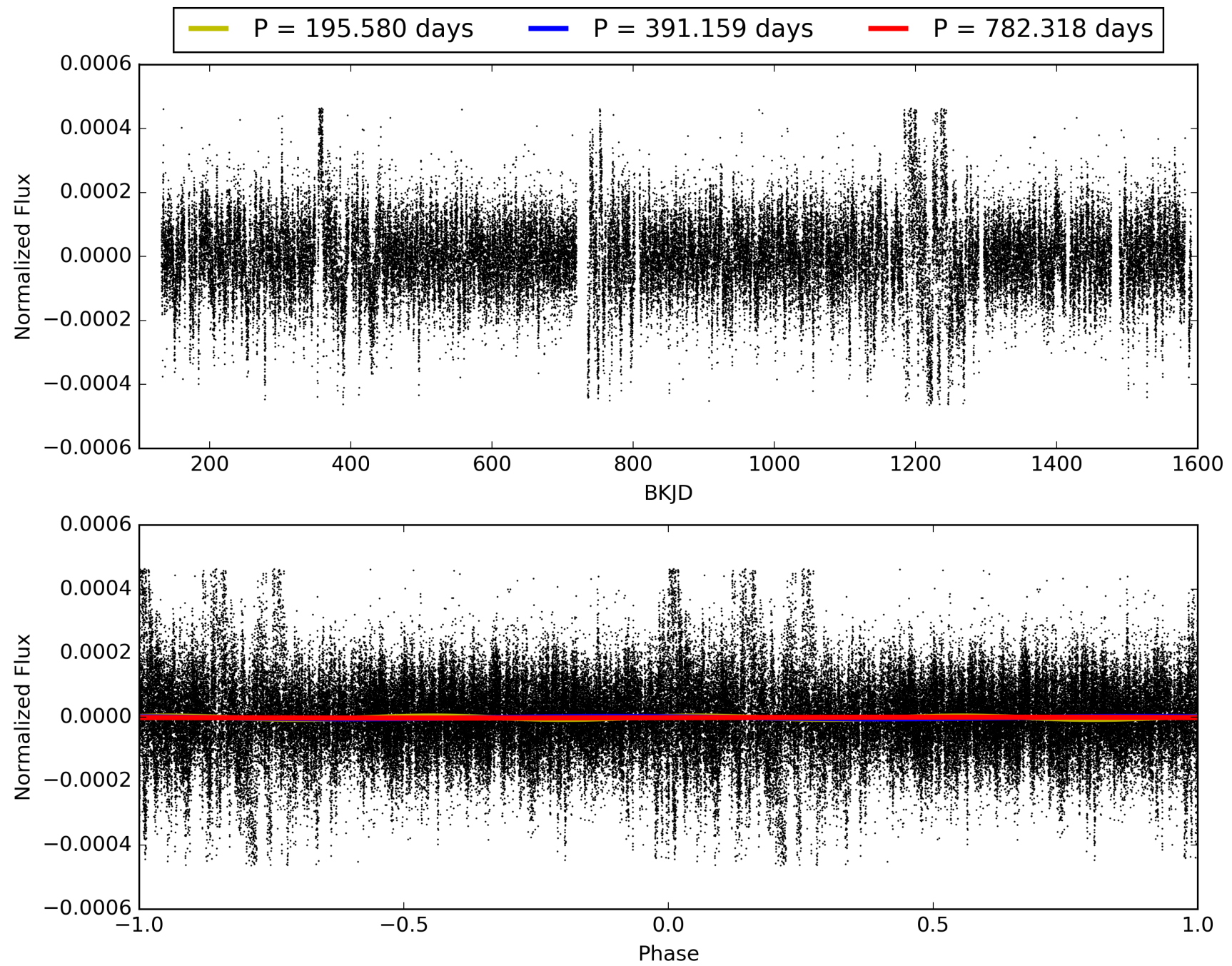
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 01-Feb-2016 06:25:25 Z

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

TCE 007513516-03, PDC Light Curves

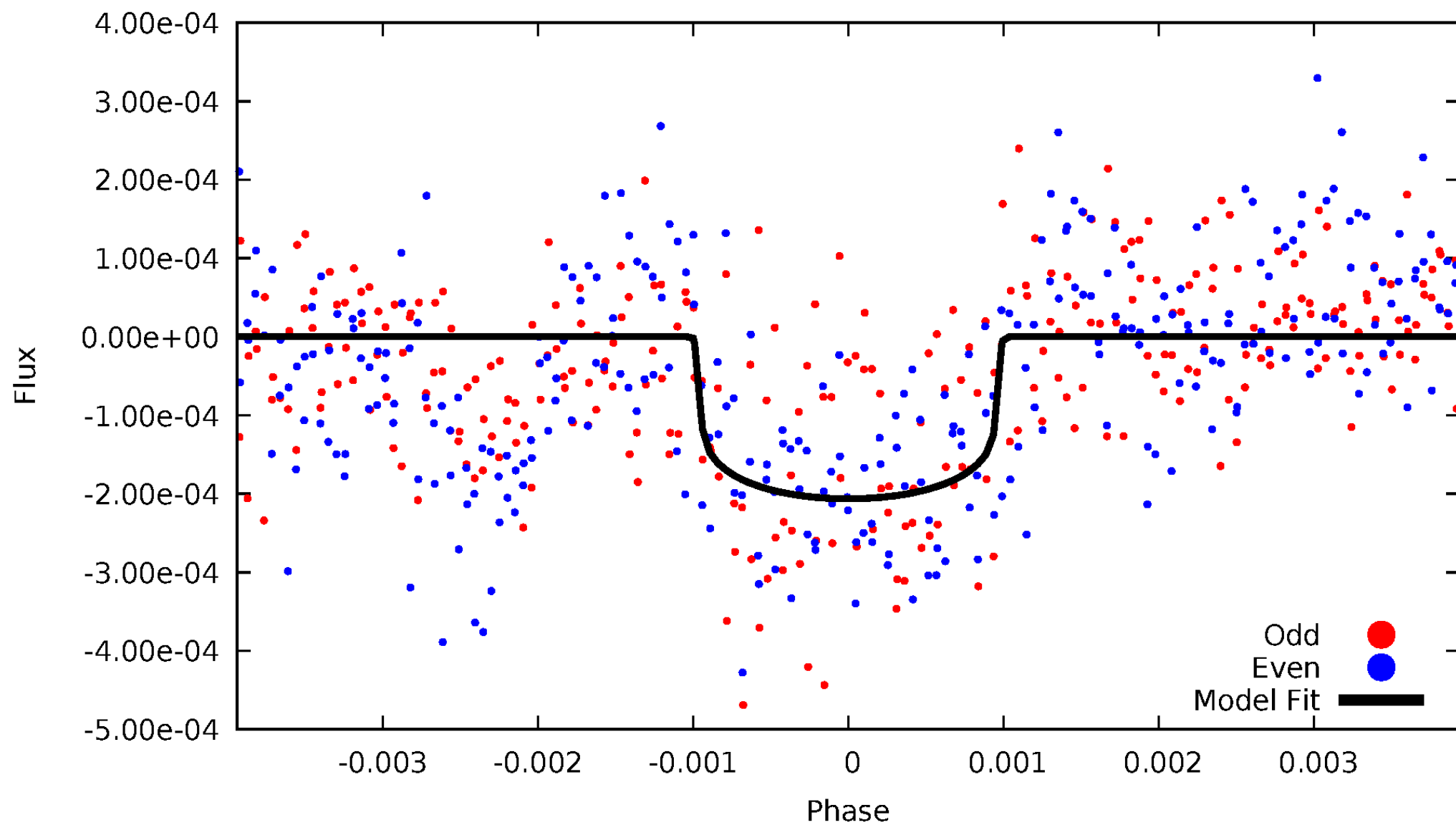


TCE 007513516-03



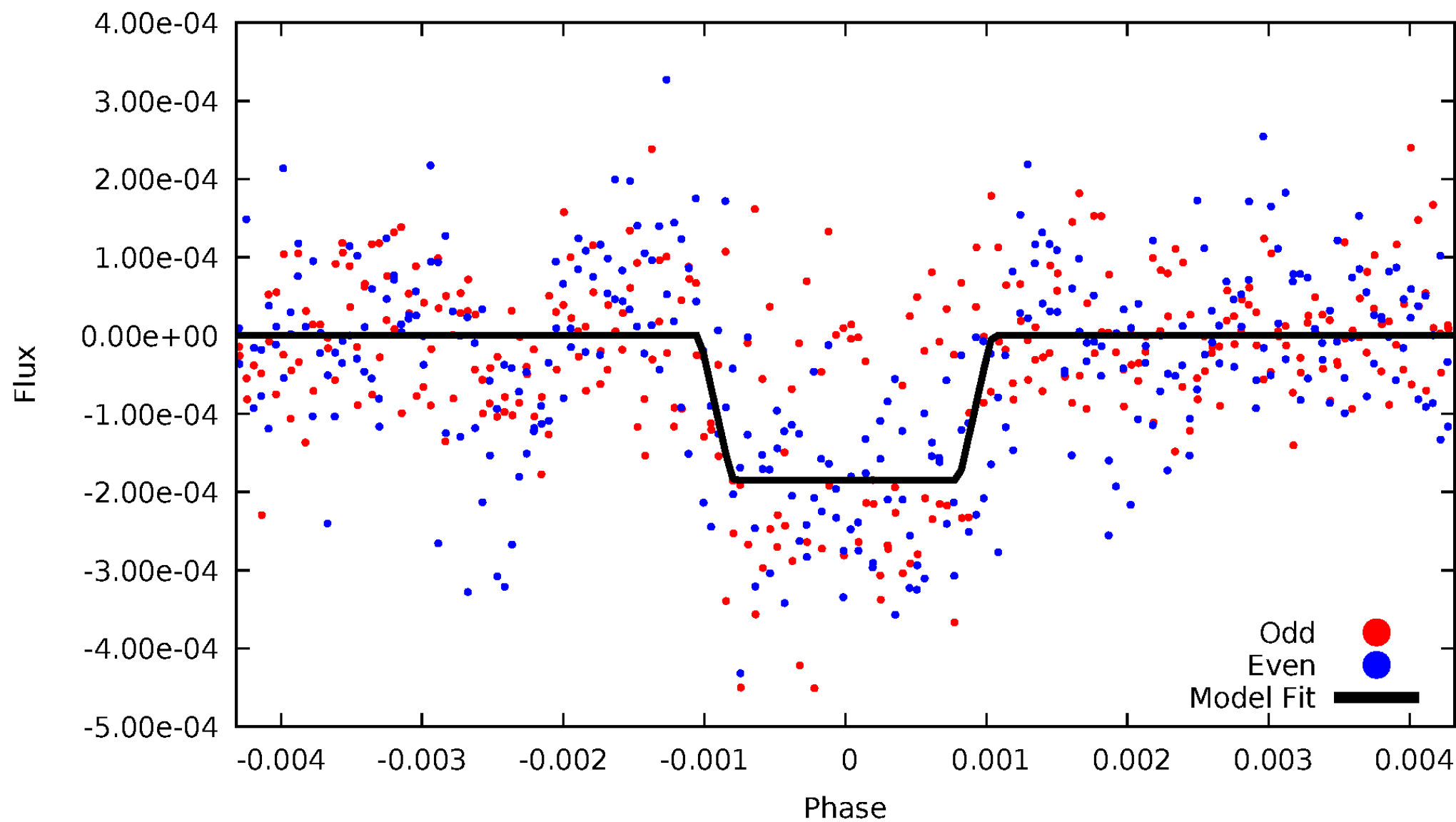
DV Odd/Even

TCE 007513516-03



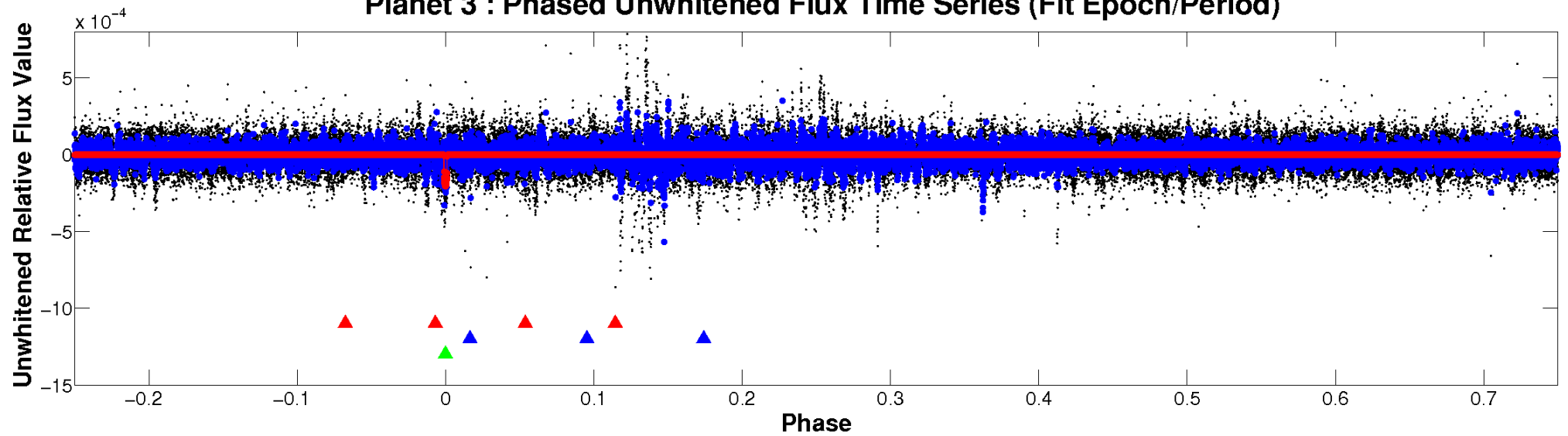
ALT Odd/Even

TCE 007513516-03

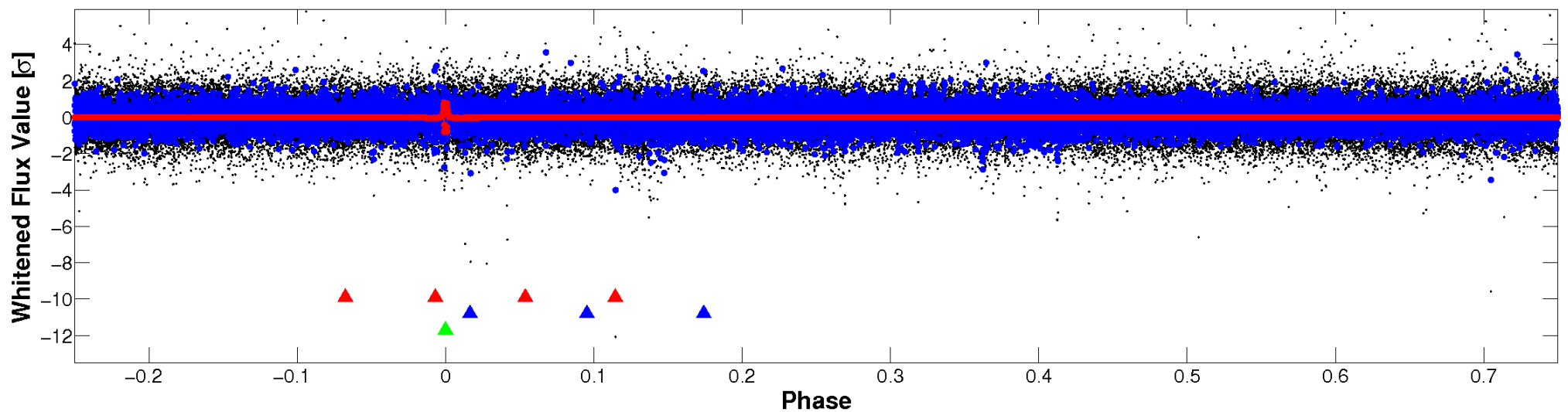


Non-Whitened Vs. Whitened Light Curve

Planet 3 : Phased Unwhitened Flux Time Series (Fit Epoch/Period)



Planet 3 : Phased Whitened Flux Time Series (Fit Epoch/Period)



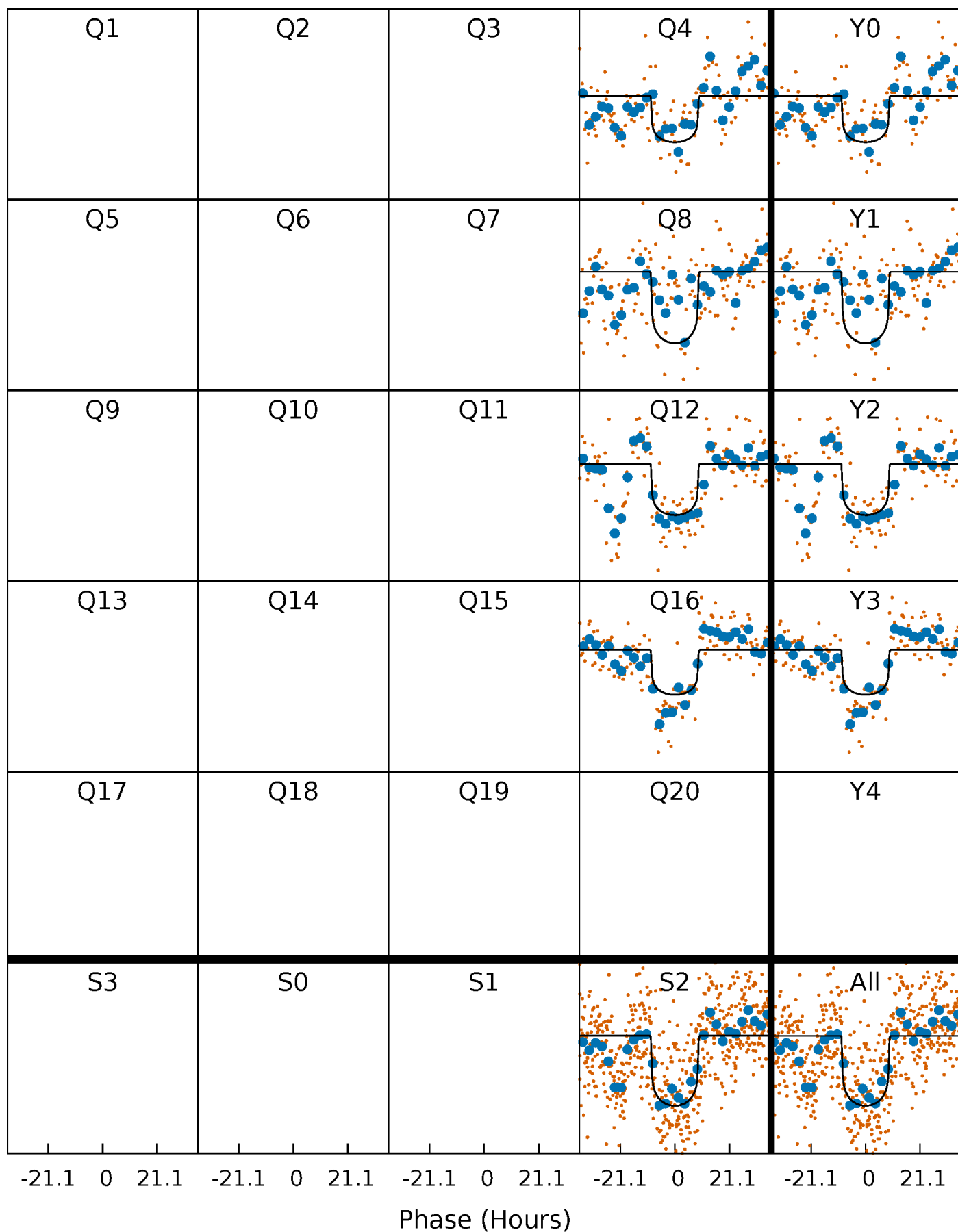
PDC Quarter-Phased Transit Curves

TCE 007513516-03 P=391.159197 Days $T_0=354.463345$ (BKJD)



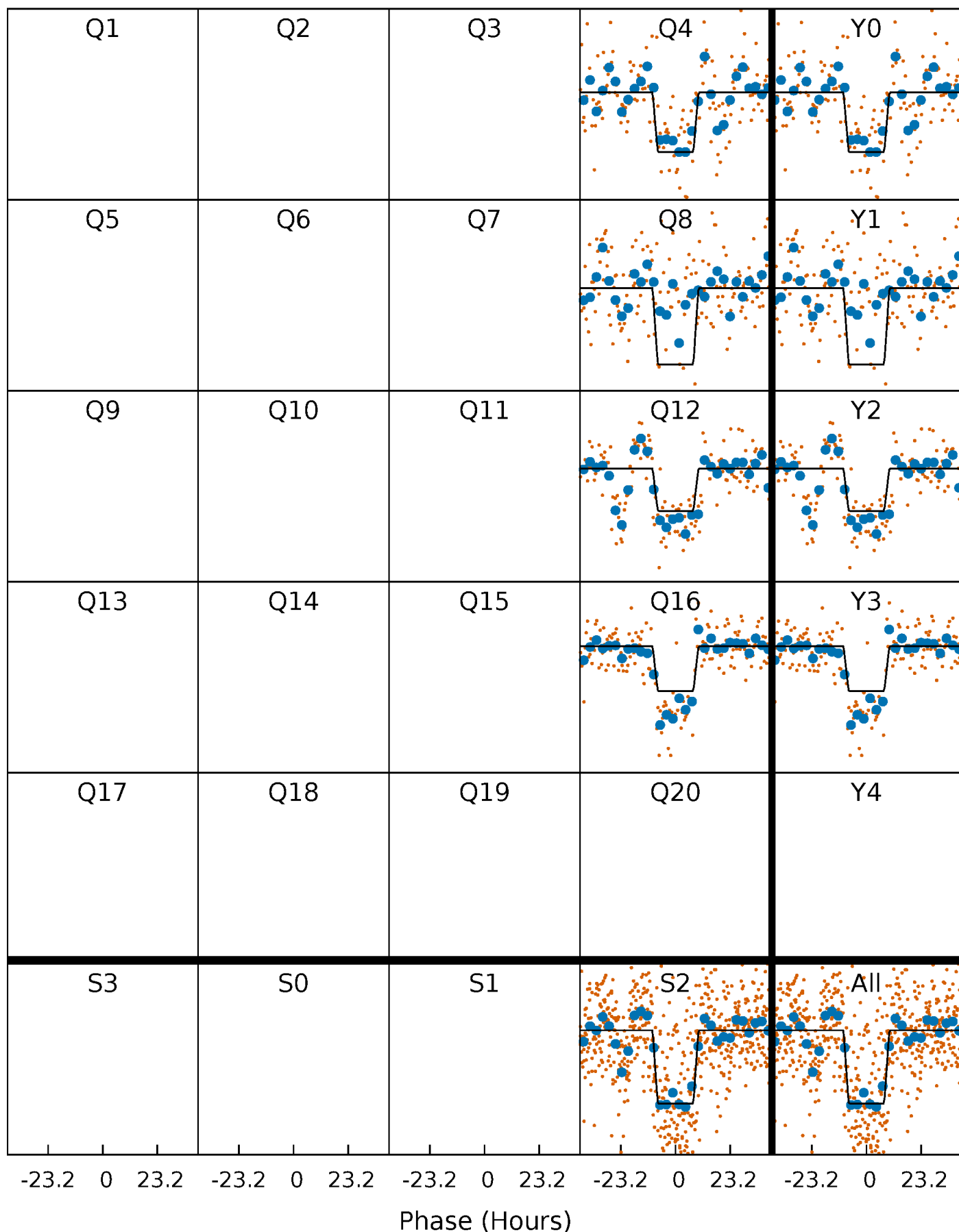
DV Quarter-Phased Transit Curves

TCE 007513516-03 $P=391.159197$ Days $T_0=354.463345$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

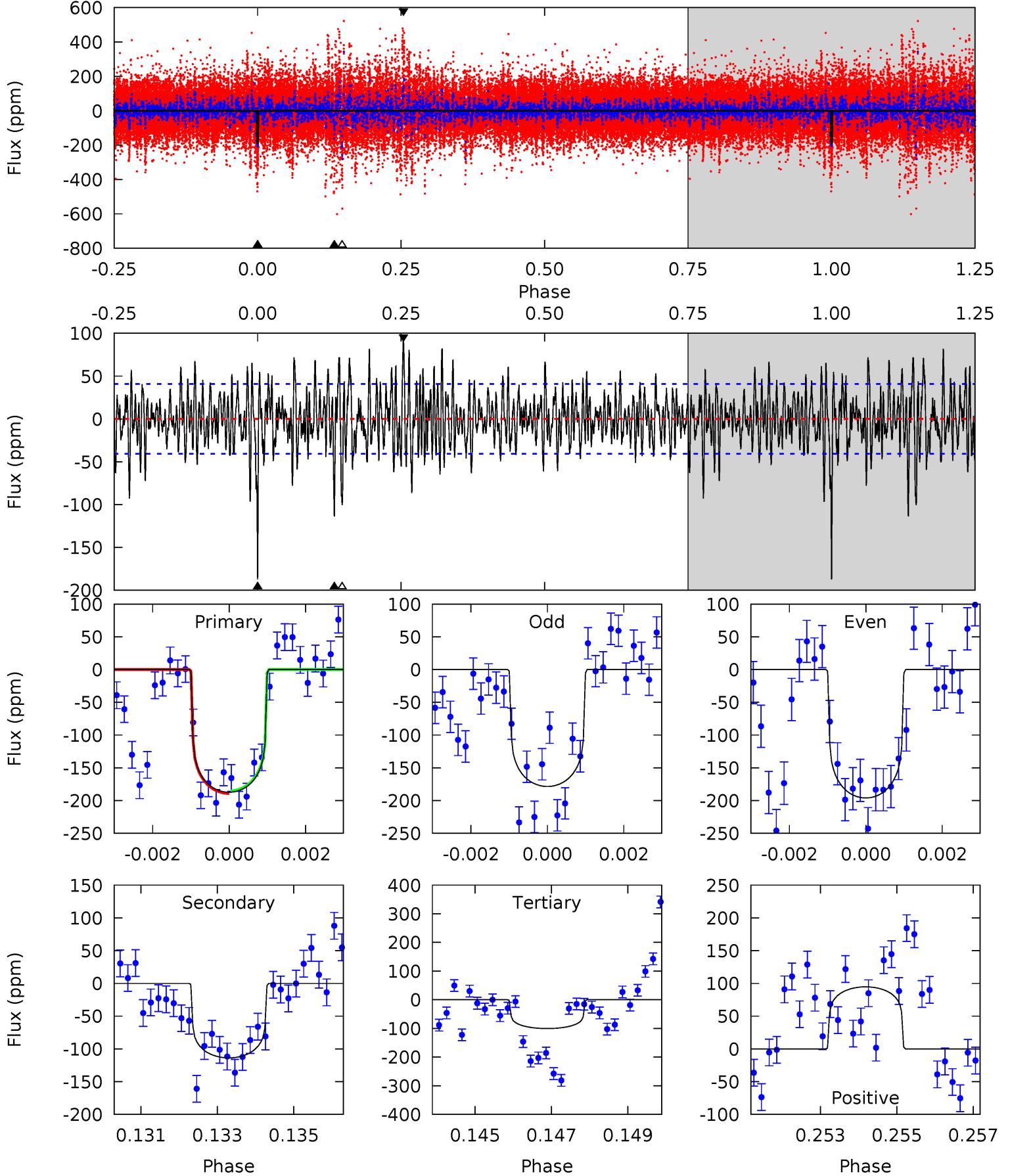
TCE 007513516-03 P=391.159639 Days $T_0=354.487158$ (BKJD)



DV Model-Shift Uniqueness Test

007513516-03, P = 391.159197 Days, E = 354.463345 Days

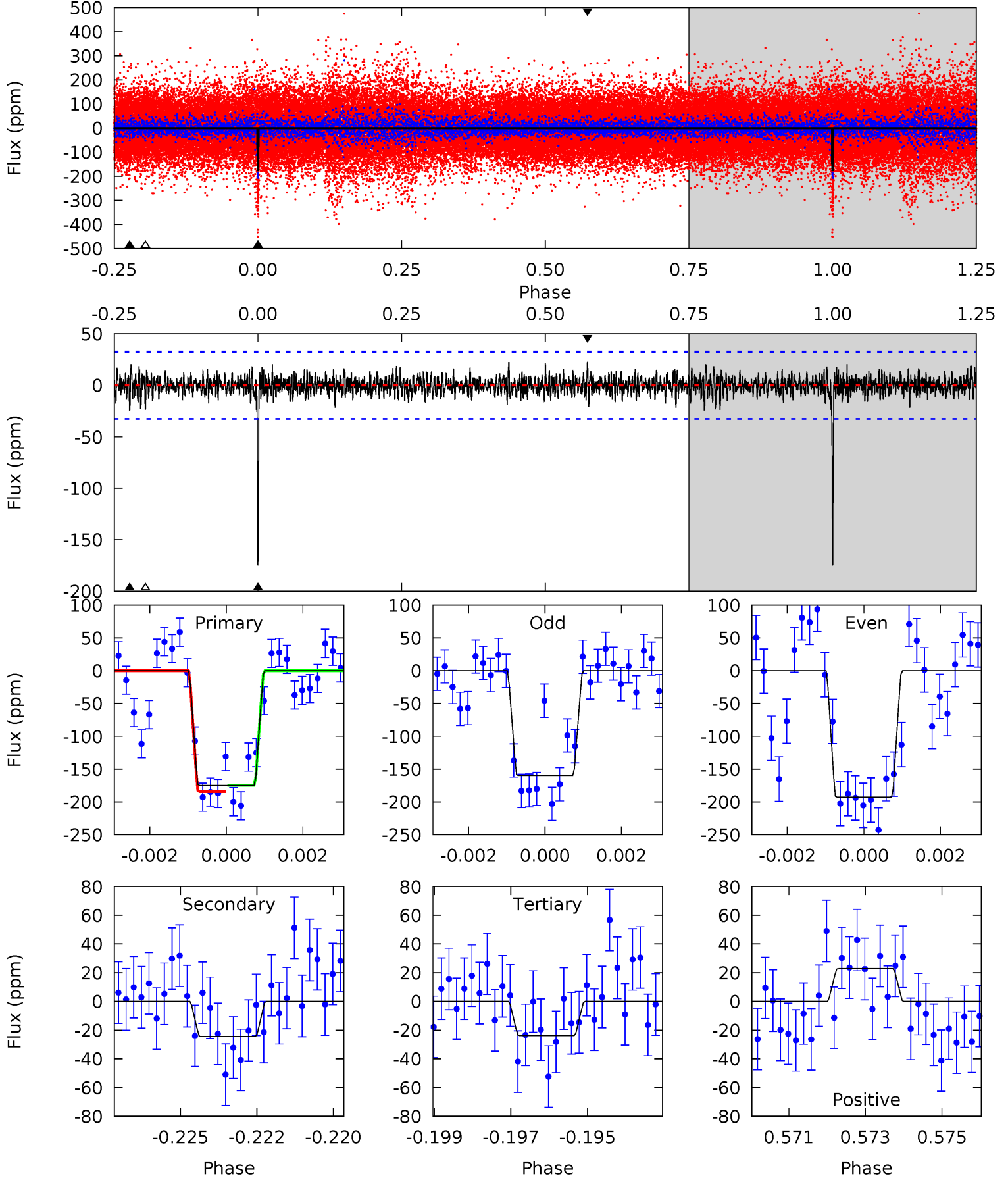
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
24.5	14.9	13.1	12.4	5.33	3.09	3.49	11.4	12.1	1.74	2.49	1.14	0.96	0.34	0.25



Alt Model-Shift Uniqueness Test

007513516-03, P = 391.159639 Days, E = 354.487158 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
28.5	3.97	3.86	3.71	5.31	3.07	1.07	24.6	24.8	0.11	0.26	2.69	0.91	0.12	0.76



Stellar Parameters For KIC 007513516

	$T_{\text{eff}} (K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M (M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	6603^{+181}_{-250}	$4.048^{+0.264}_{-0.176}$	$-0.140^{+0.250}_{-0.300}$	$1.830^{+0.527}_{-0.644}$	$1.370^{+0.193}_{-0.289}$	$0.315^{+0.543}_{-0.155}$
	+3%/-4%	+7%/-4%	+179%/-214%	+29%/-35%	+14%/-21%	+173%/-49%
Source	PHO54	PHO54	PHO54	DSEP		

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

Secondary Eclipse Parameters for KIC 007513516-03 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-114 ± 8	$2.67^{+0.76}_{-0.65}$	505^{+44}_{-45}	5773^{+692}_{-453}	11868^{+8130}_{-4720}
Alt.	-24 ± 6	$2.66^{+0.75}_{-0.63}$	509^{+39}_{-47}	4196^{+436}_{-355}	2435^{+1966}_{-1038}

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

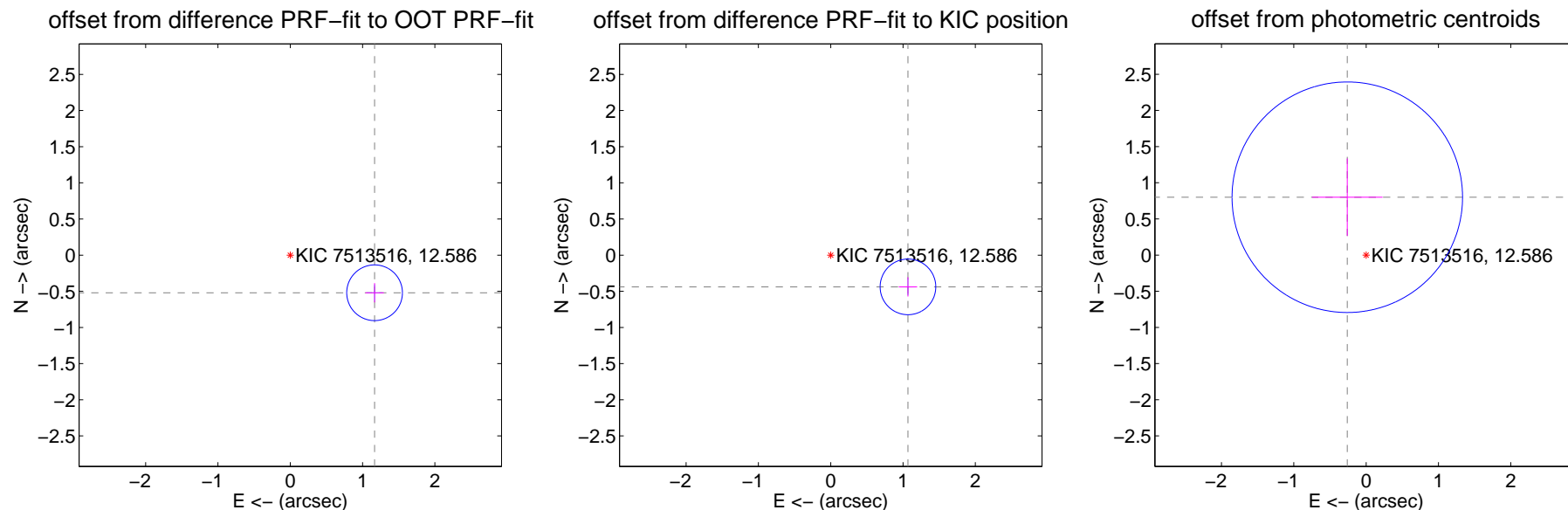
DV Centroid Data

Supplemental centroid analysis for 007513516-03. Kepler magnitude: 12.59. Transit SNR 10.02

There are 1 quarters with good PRF difference image offsets

The direct PRF centroid is offset from the target star catalog position by about 0.13 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	1.277 ± 0.128	9.94	-1.166 ± 0.127	-0.520 ± 0.134
PRF-fit source offset from KIC position	1.155 ± 0.128	9.00	-1.068 ± 0.127	-0.439 ± 0.134
photometric centroid source offset	0.84 ± 0.53	1.58	0.26 ± 0.49	0.80 ± 0.54



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.

Q5 no difference image



Q5 no OOT image



Q6 no difference image



Q6 no OOT image



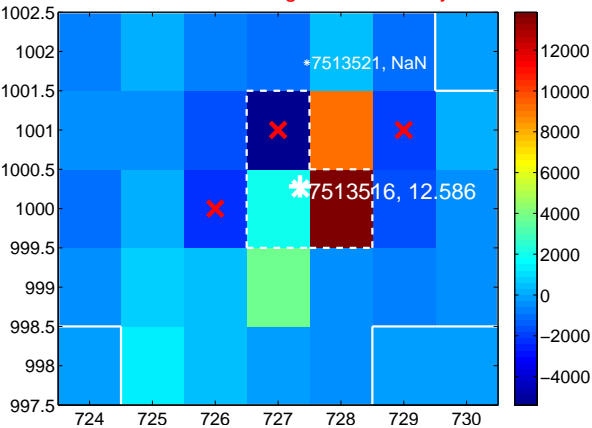
Q7 no difference image



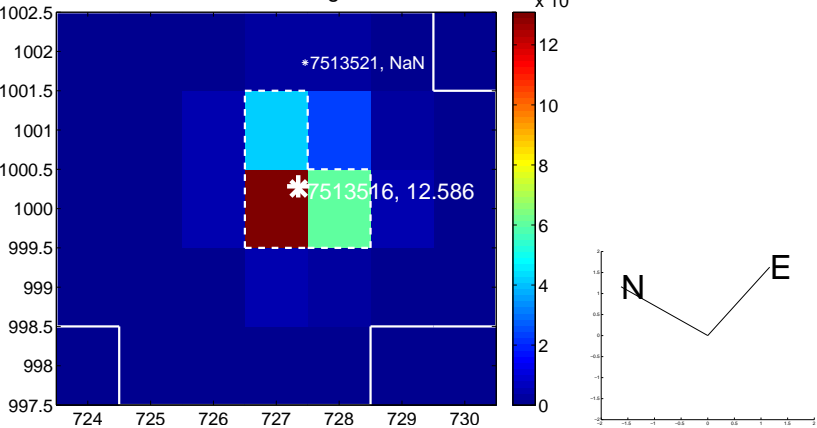
Q7 no OOT image



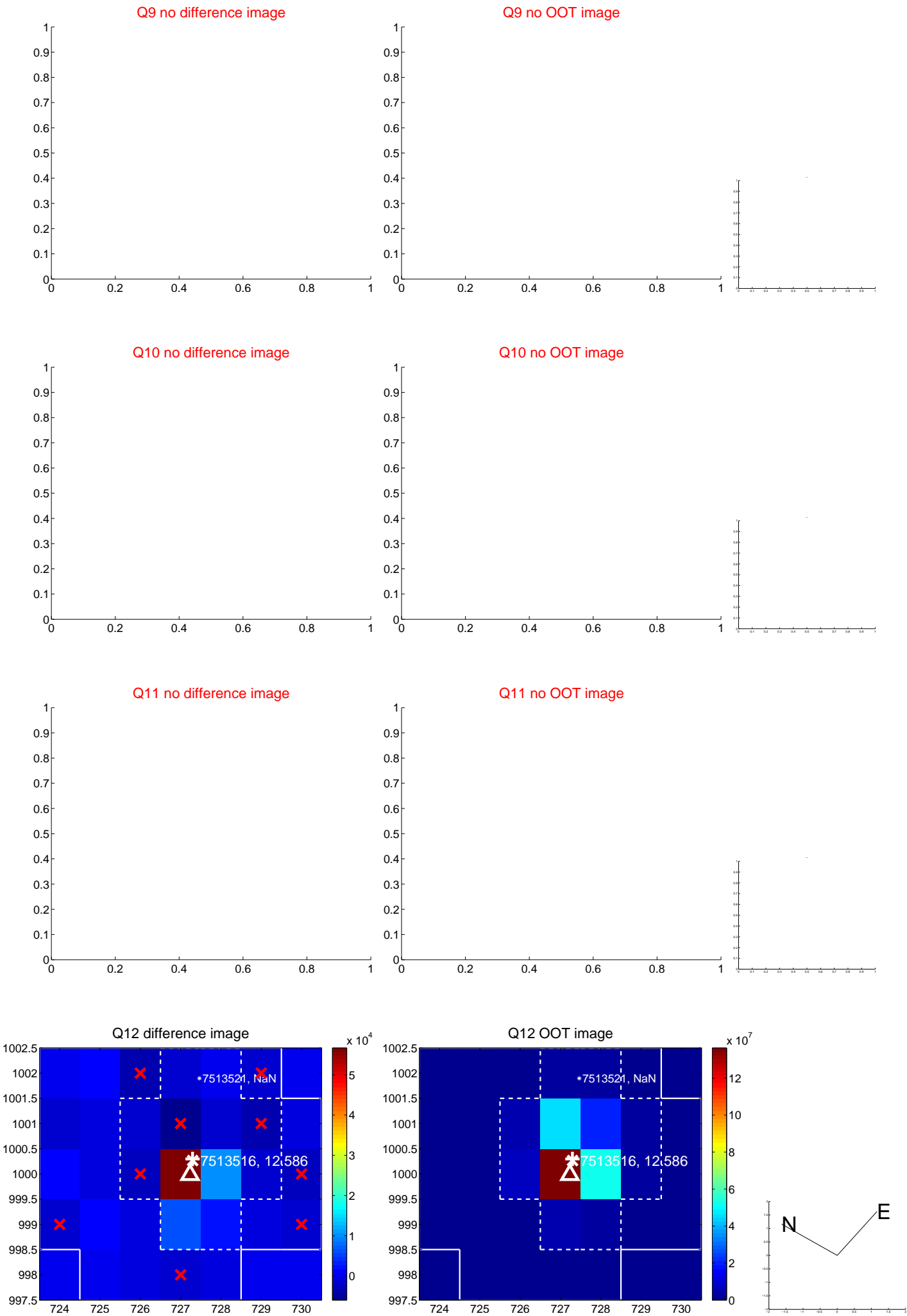
Q8 difference image. Poor Quality



Q8 OOT image



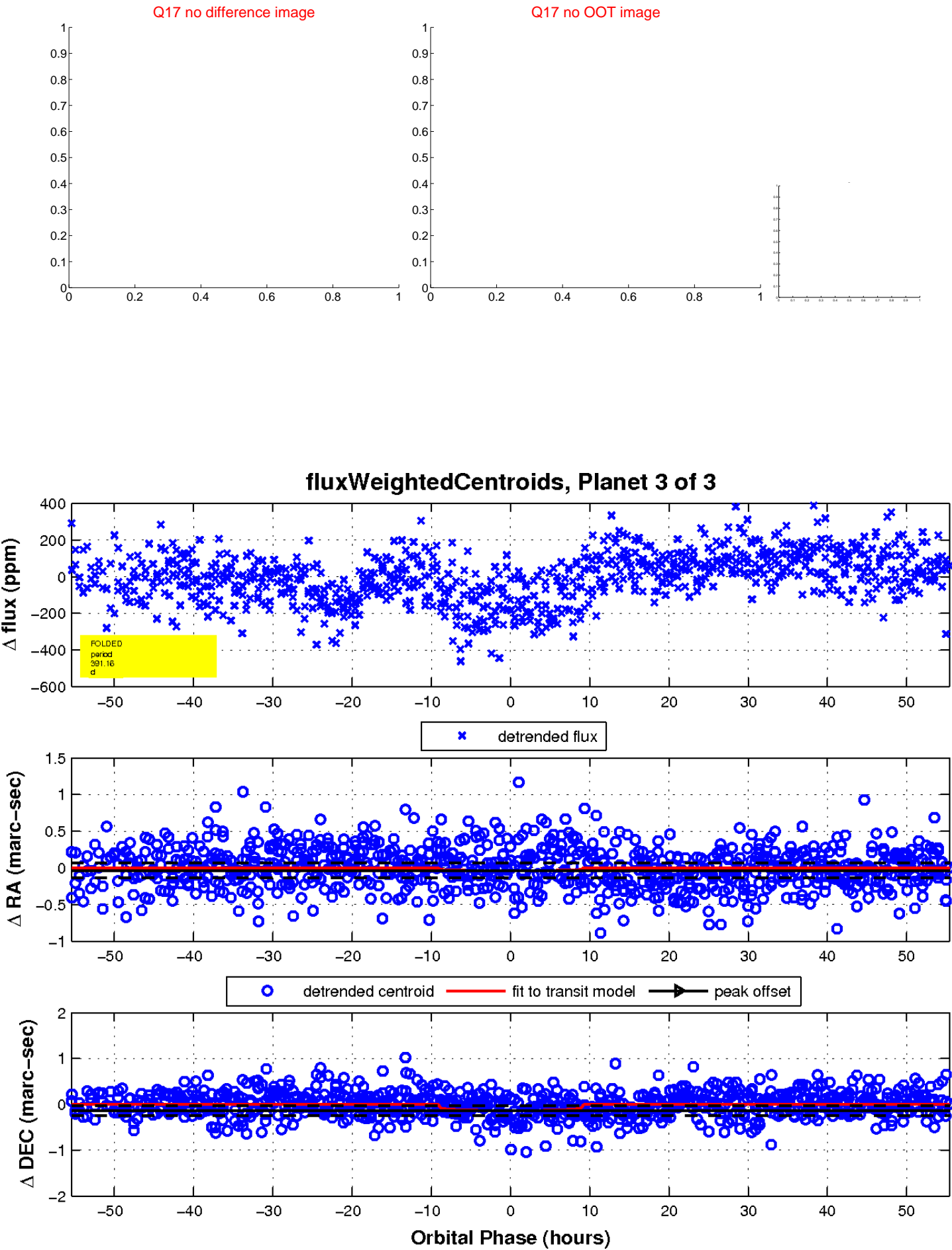
white ×: KIC target position; +: OOT centroid; △: difference centroid. red ✕: large negative pixel value.



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



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



UKIRT Image

Declination

