

KIC 012835007

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})
012835007-01	OBS	No	346.890239	224.038779	249.6	3.168	10.7	0.5	0.54	4884	1.00	0.23
012835007-02	OBS	No	457.229892	578.458284	3431.5	3.452	13.0	6.8	0.54	4884	3.15	0.16

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
012835007-01	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_CHASES_MARSHALL_TRACKER—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV— MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_KIC_POS—HALO_GHOST
012835007-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT— MOD_TER_ALT—MOD_POS_ALT—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.

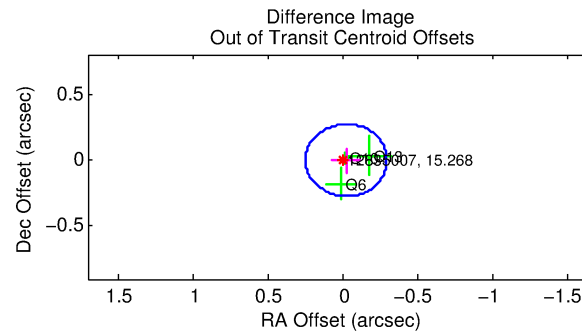
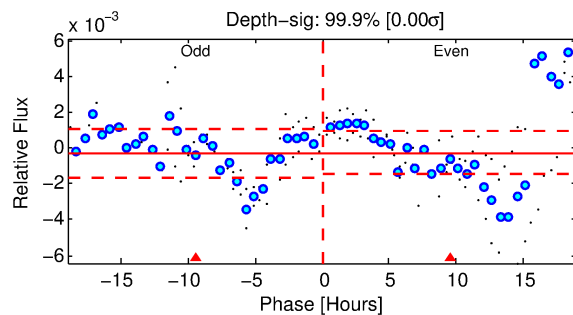
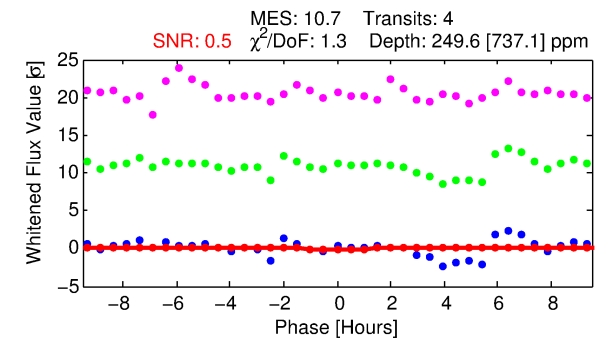
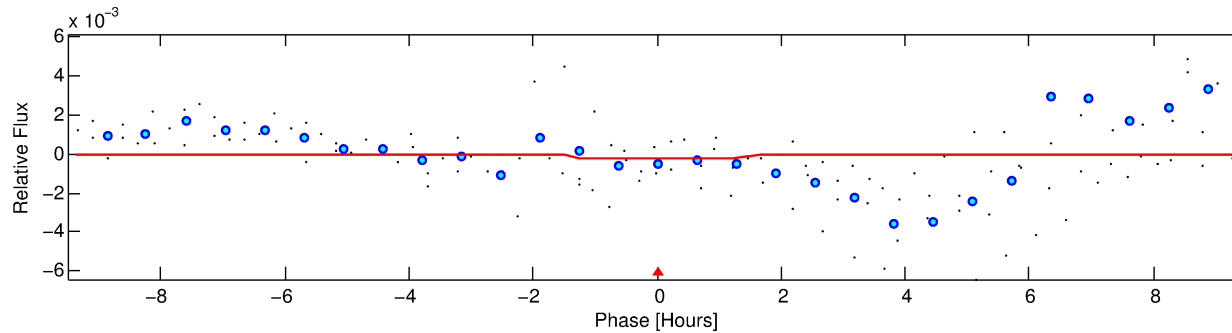
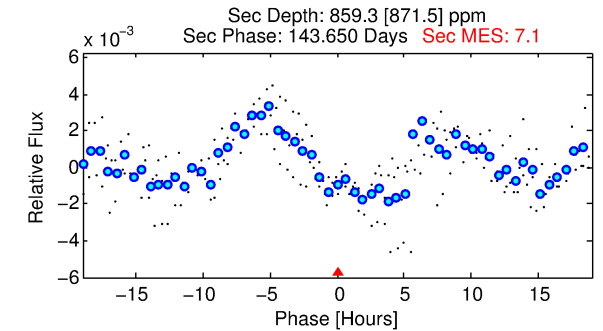
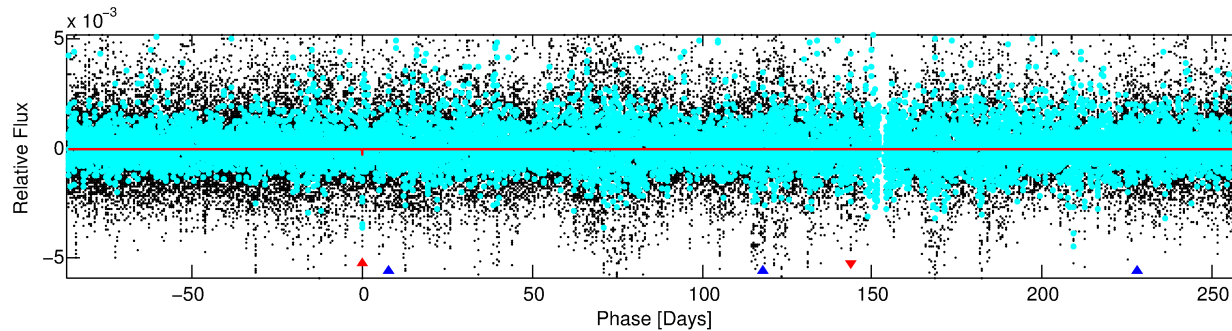
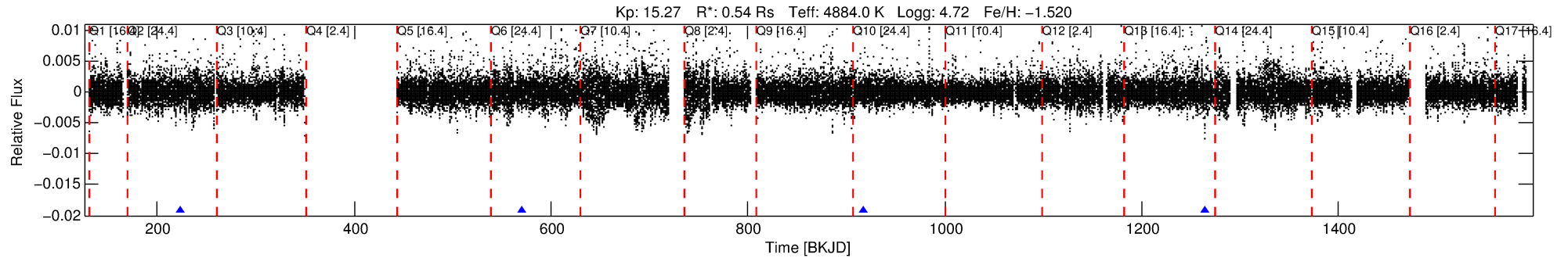
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 012835007-01

No Significant Match Found

DV One-Page Summary

KIC: 12835007 Candidate: 1 of 2 Period: 346.890 d



DV Fit Results:

Period = 346.89024 [0.05648] d
Epoch = 224.0388 [0.0995] BKJD
Rp/R* = 0.0170 [0.1074]
a/R* = 412.70 [11035.14]
b = 0.89 [6.36]
Seff = 0.24 [0.04]
Teq = 178 [7] K
Rp = 1.00 [6.30] Re
a = 0.7919 [0.0416] AU
Ag = 297562.06 [3770035.54] [0.08σ]
Teff = 6413 [20313] K [0.31σ]

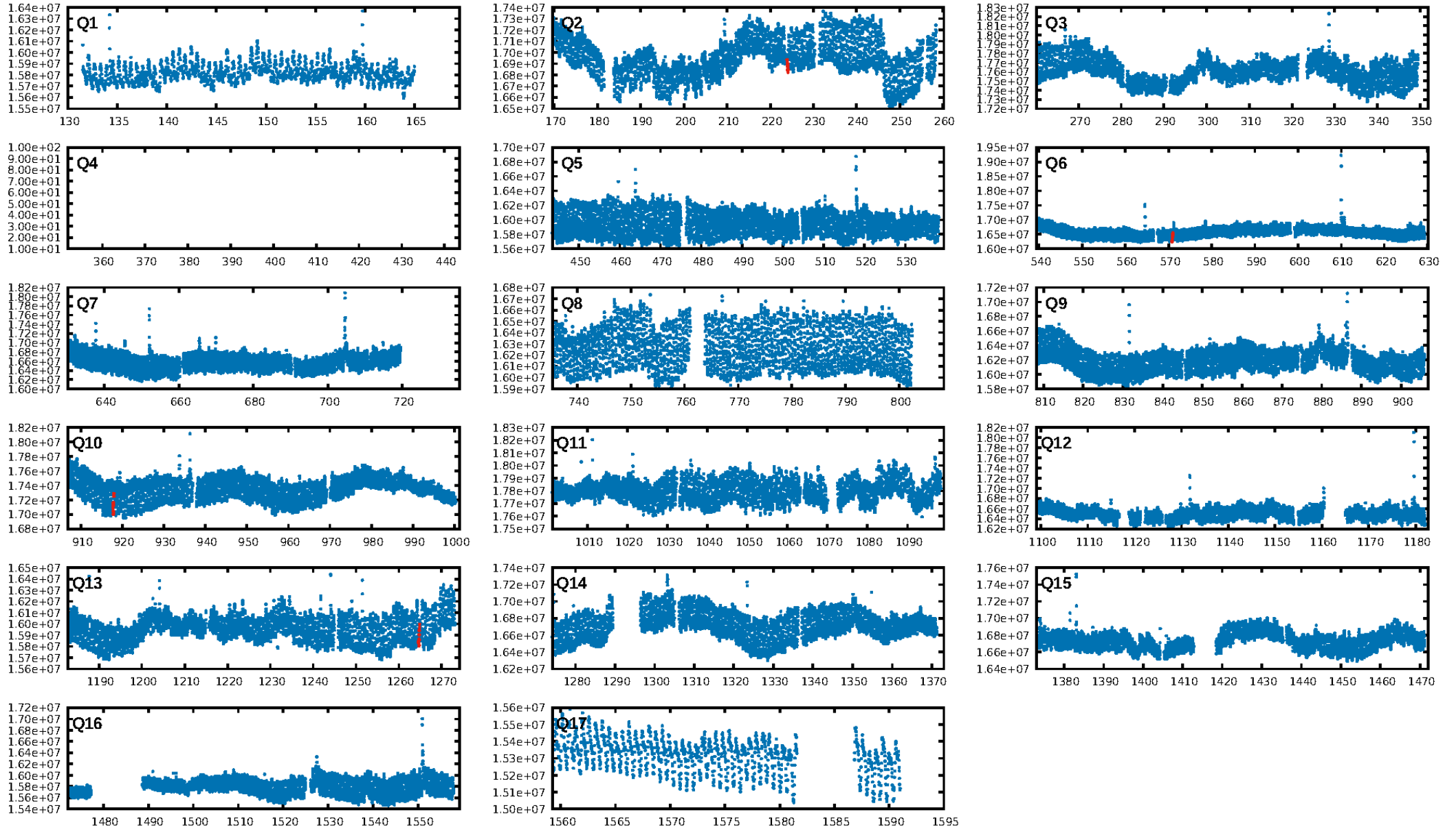
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: 100.0% [565.27σ]
ModelChiSquare2-sig: 59.0%
ModelChiSquareGof-sig: 93.0%
Bootstrap-pfa: 1.64e-08
RollingBand-fgt: 1.00 [4/4]
GhostDiagnostic-chr: -0.2076
Centroid-sig: 68.3%
Centroid-so: 6.373 arcsec [0.70σ]
OotOffset-rm: 0.026 arcsec [0.29σ]
KicOffset-st: 2/0/0/1 [3]
KicOffset-st: 2/0/0/1 [3]
DiffImageQuality-fgm: 1.00 [3/3]
DiffImageOverlap-fno: 1.00 [3/3]

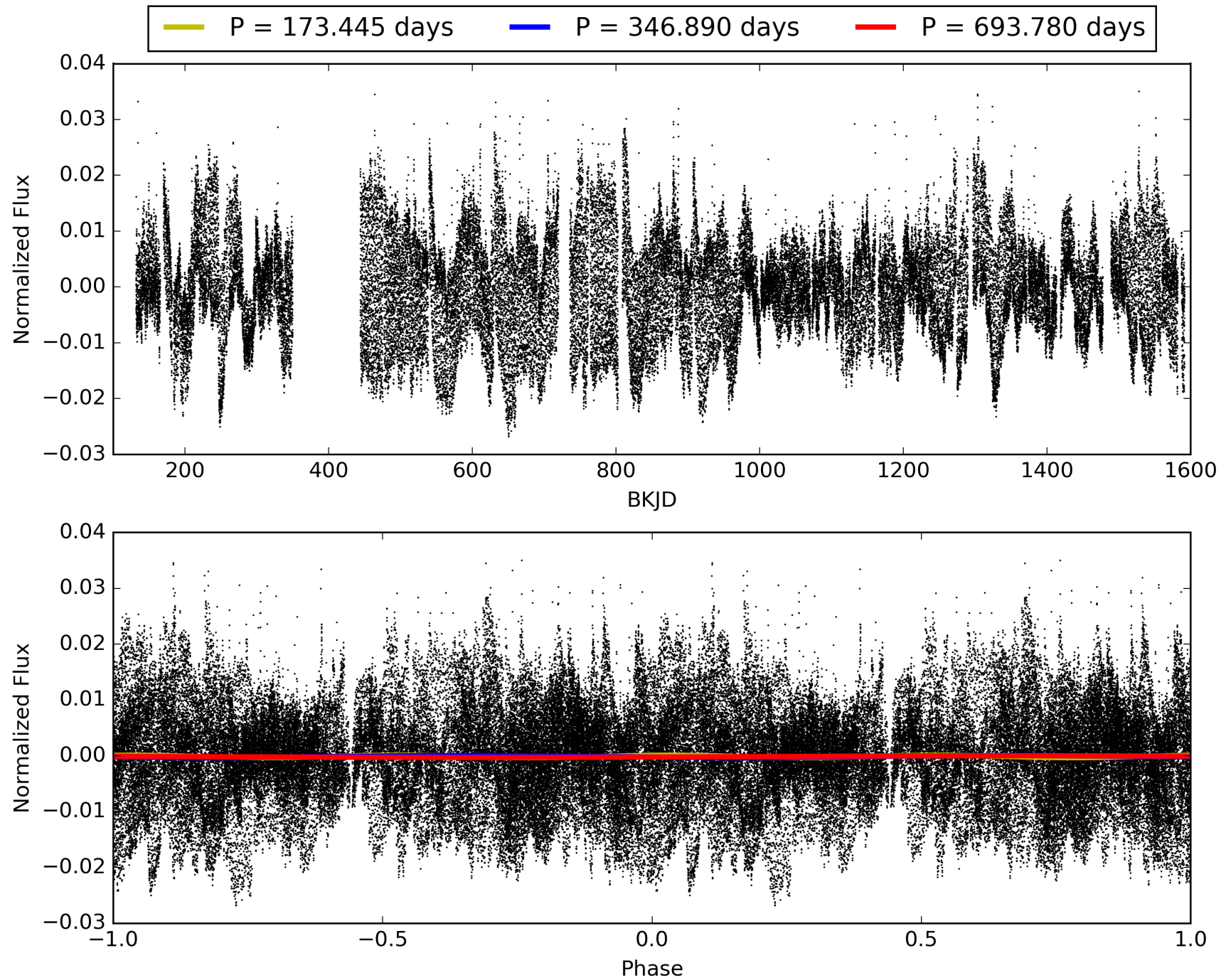
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 29-Jan-2016 09:11:20 Z

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

TCE 012835007-01, PDC Light Curves

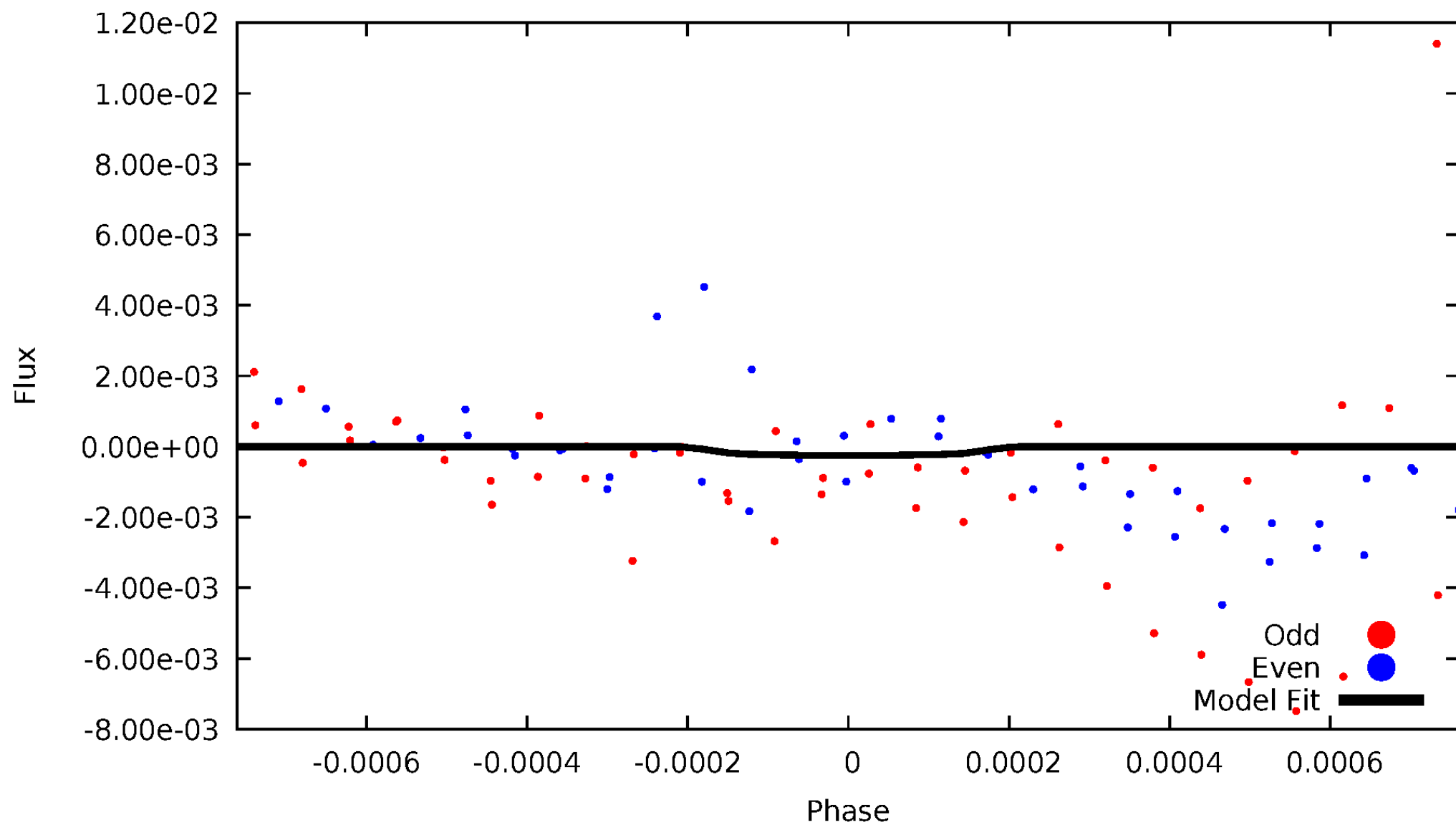


TCE 012835007-01



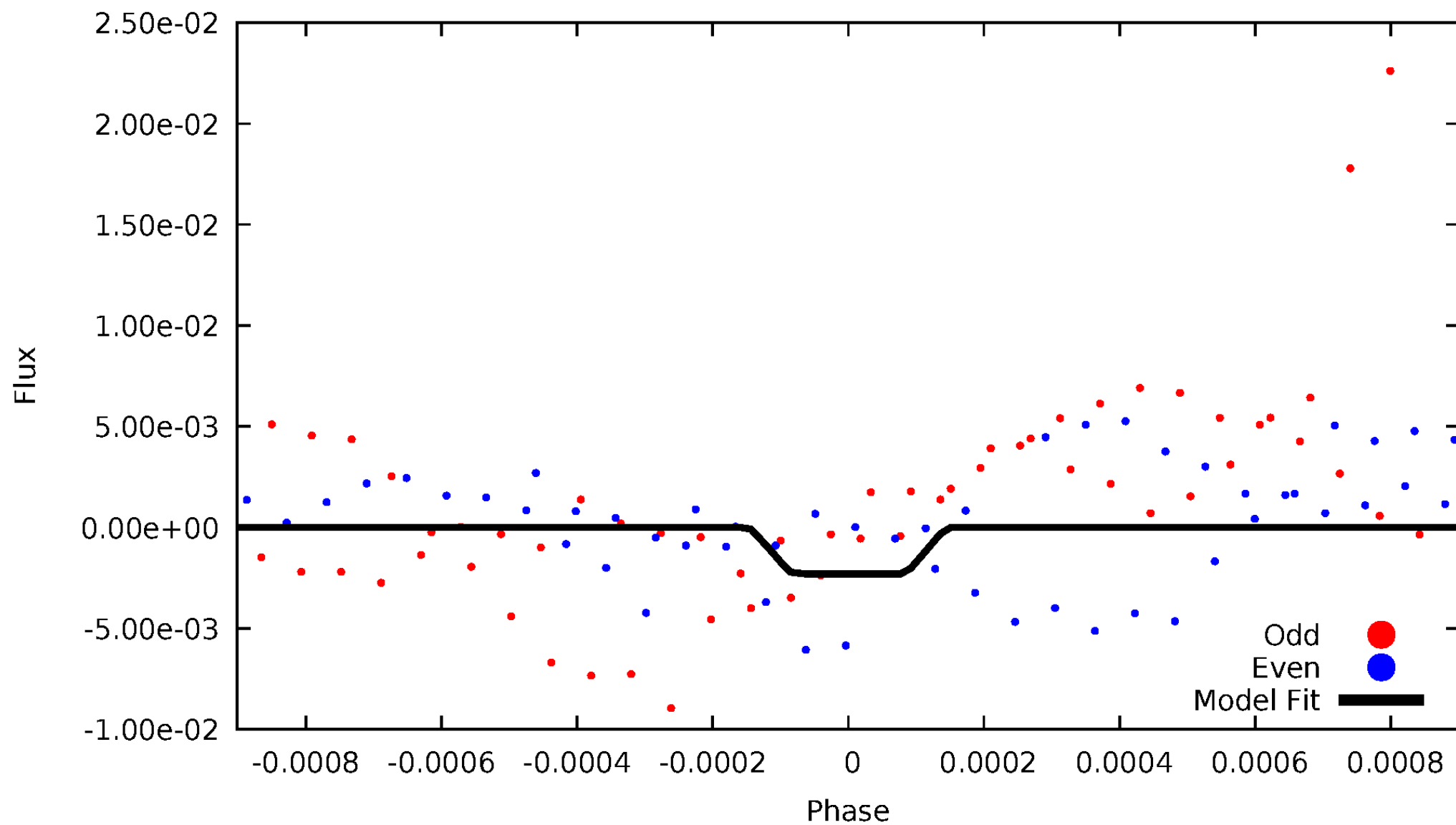
DV Odd/Even

TCE 012835007-01

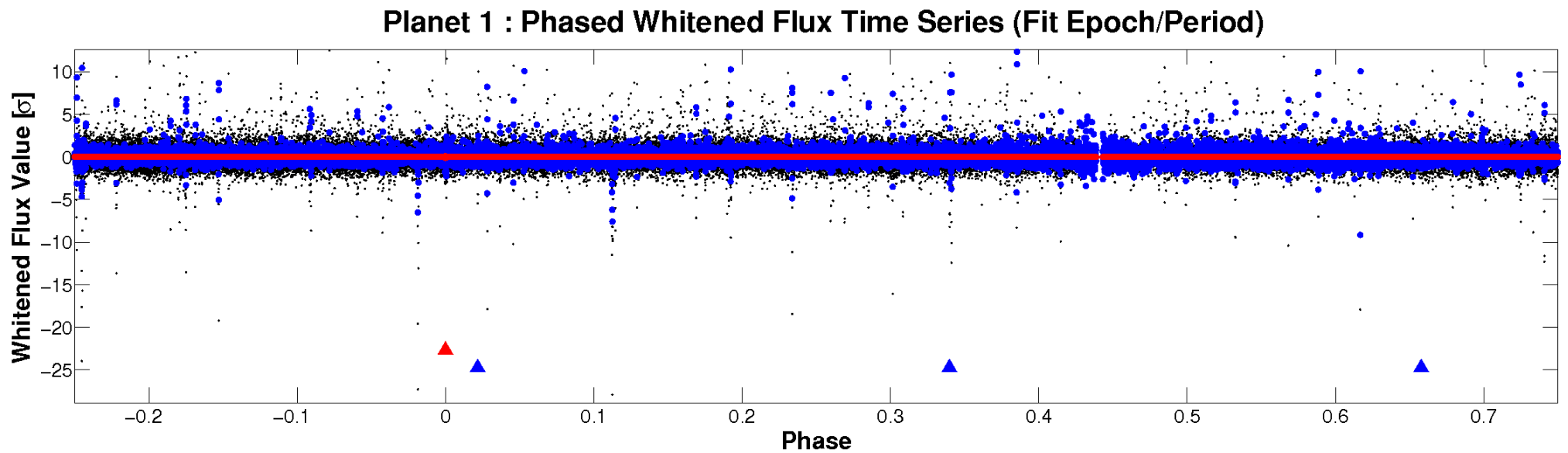
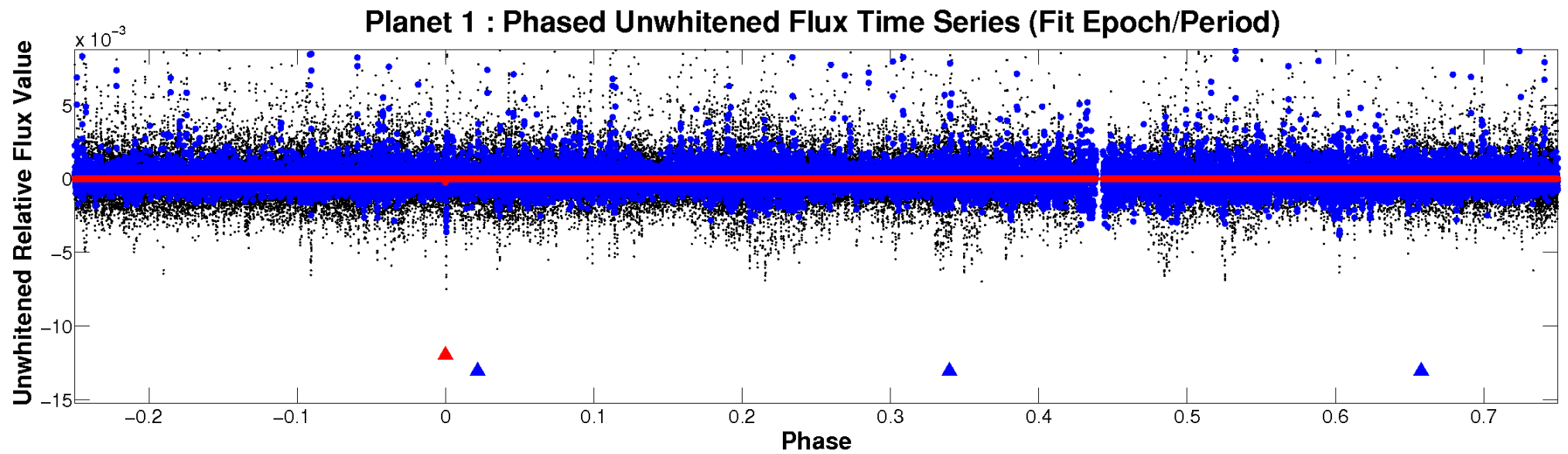


ALT Odd/Even

TCE 012835007-01

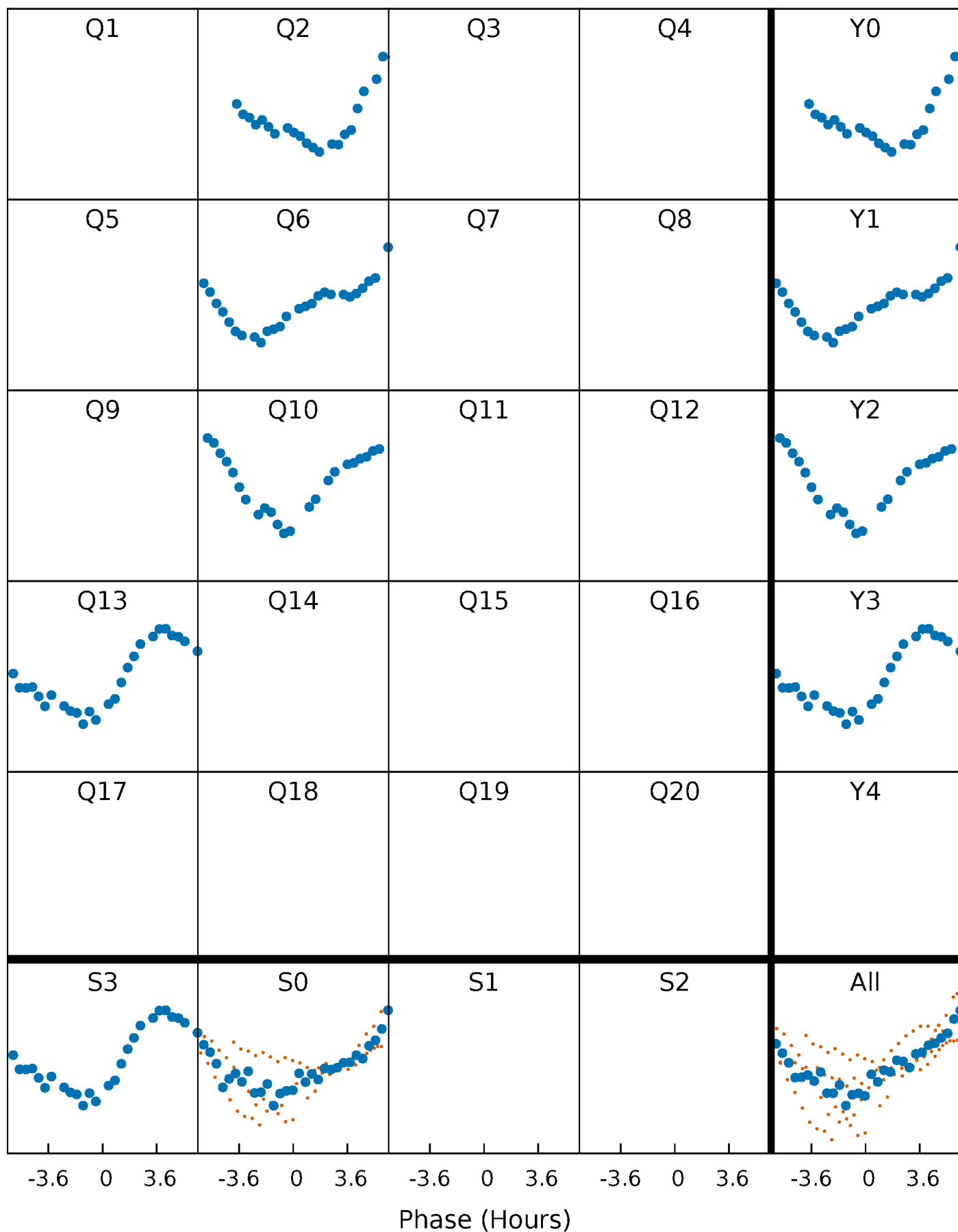


Non-Whitened Vs. Whitened Light Curve



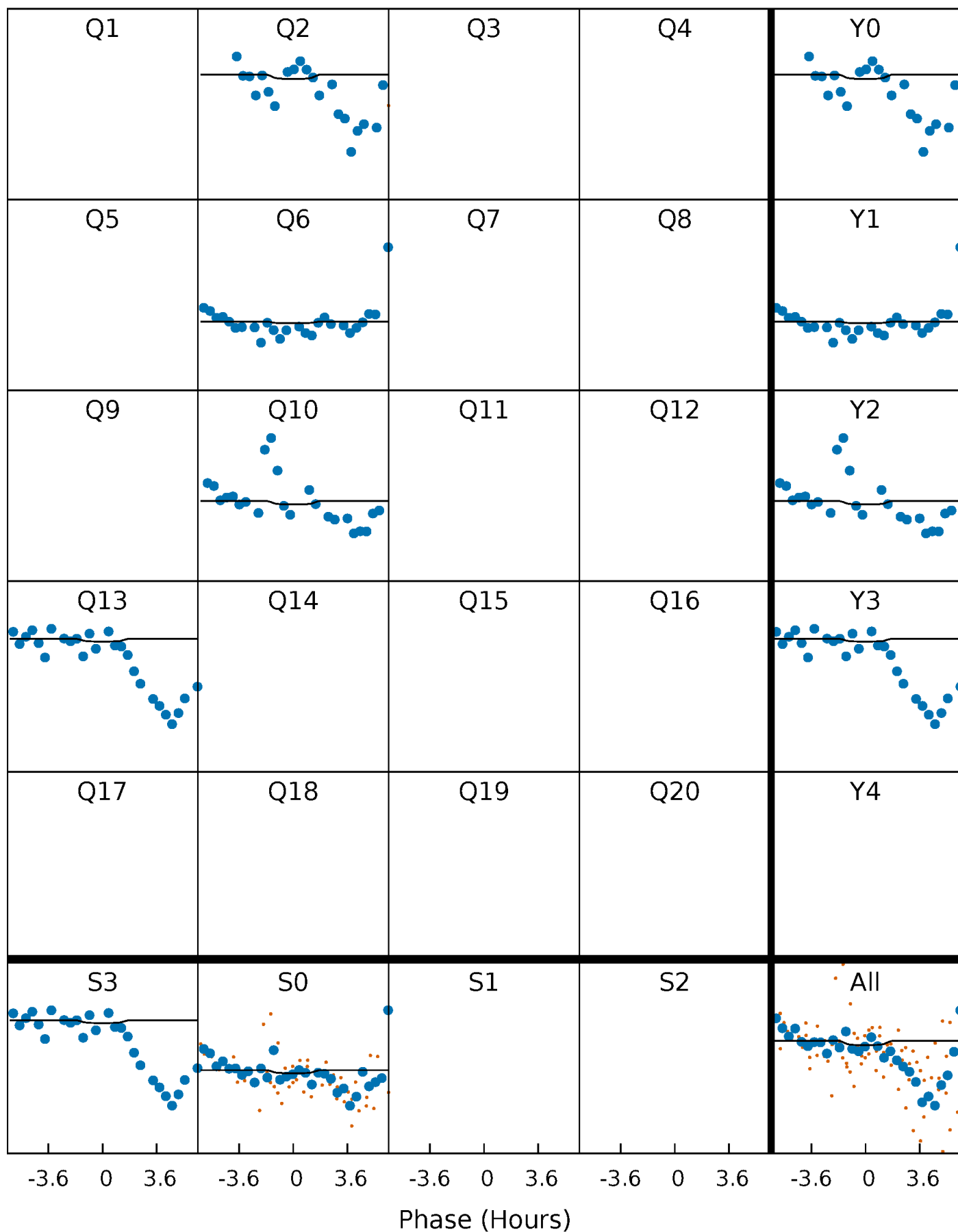
PDC Quarter-Phased Transit Curves

TCE 012835007-01 $P=346.890239$ Days $T_0=224.038779$ (BKJD)



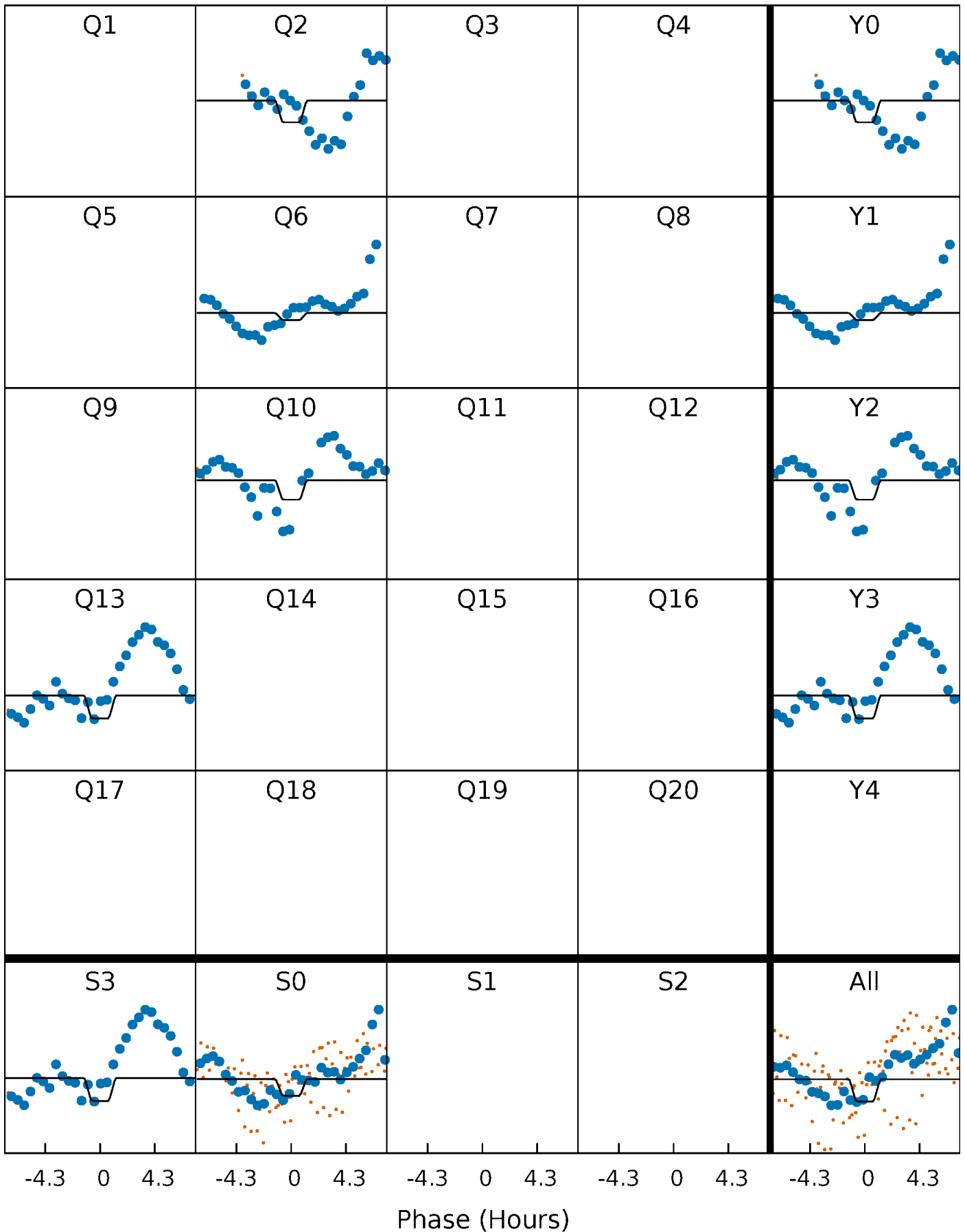
DV Quarter-Phased Transit Curves

TCE 012835007-01 P=346.890239 Days $T_0=224.038779$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

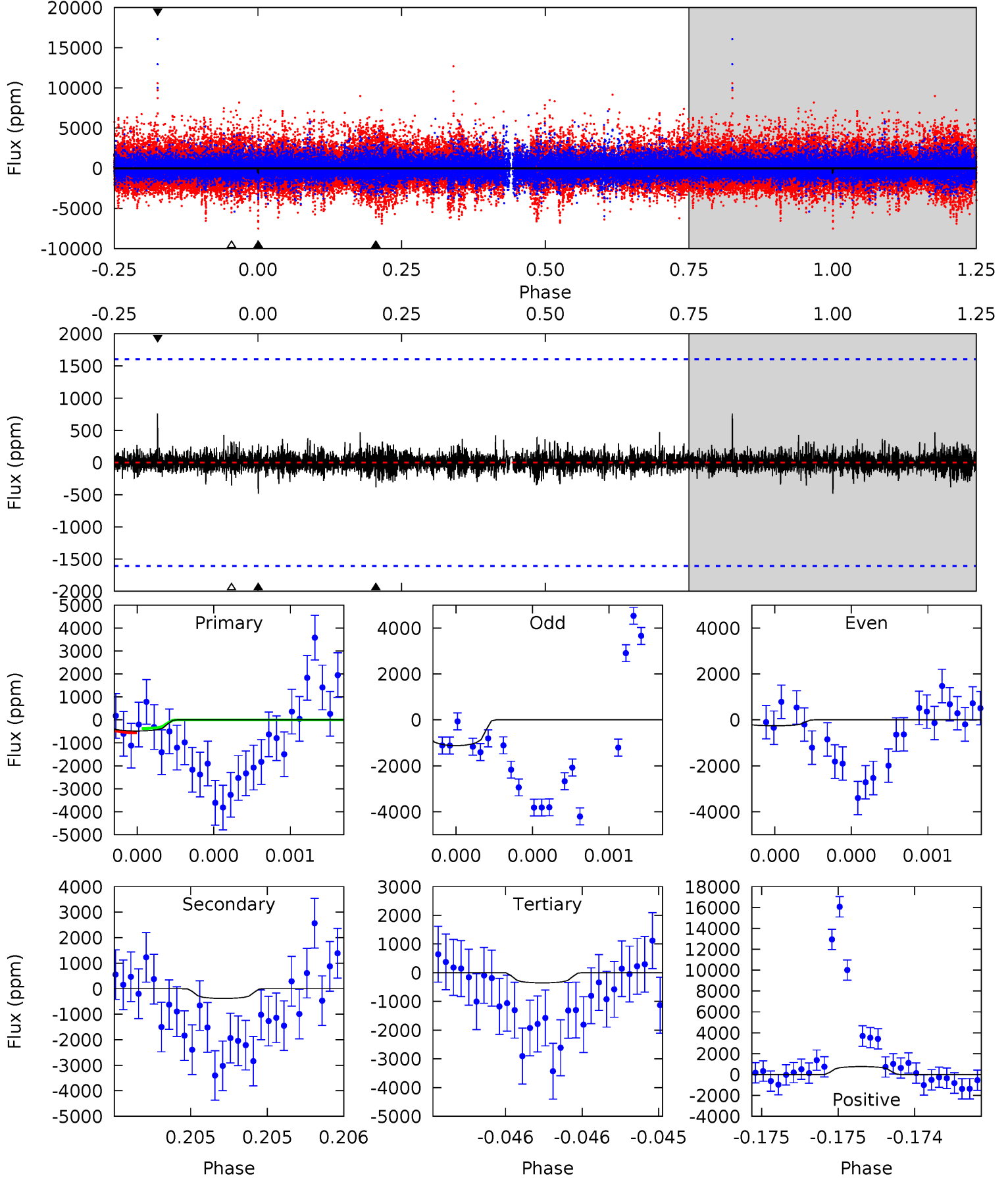
TCE 012835007-01 P=346.893183 Days $T_0=224.033256$ (BKJD)



DV Model-Shift Uniqueness Test

012835007-01, P = 346.890239 Days, E = 224.038779 Days

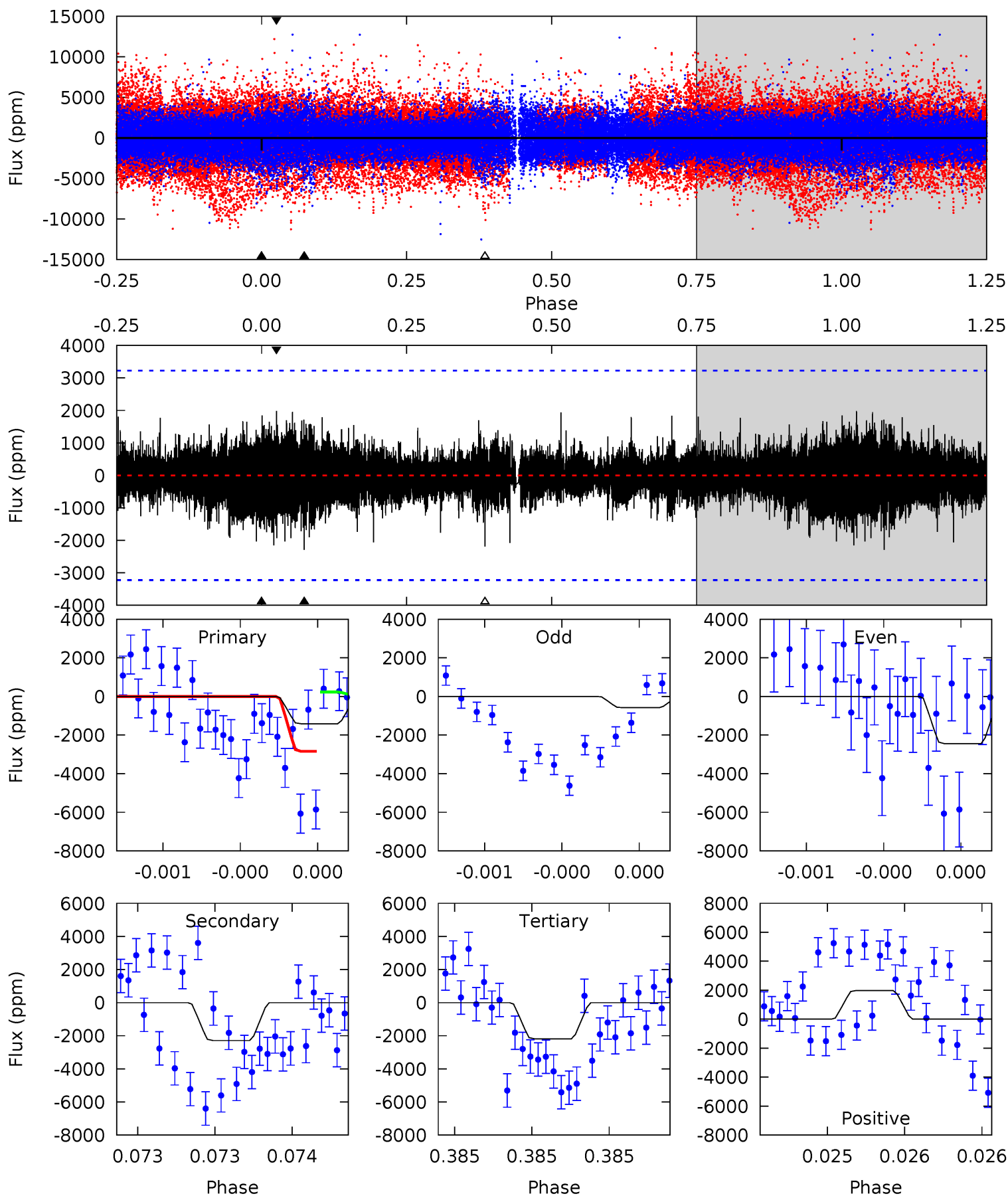
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
1.68	1.33	1.23	2.65	5.60	3.51	0.35	0.45	-0.97	0.10	-1.32	1.41	1.60	0.61	0.31



Alt Model-Shift Uniqueness Test

012835007-01, P = 346.893183 Days, E = 224.033256 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
2.48	4.02	3.84	3.48	5.66	3.62	1.00	-1.36	-1.00	0.18	0.54	1.61	2.69	0.46	2.30



Stellar Parameters For KIC 012835007

	$T_{\text{eff}}(K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	4884^{+144}_{-159}	$4.717^{+0.045}_{-0.024}$	$-1.520^{+0.300}_{-0.250}$	$0.538^{+0.024}_{-0.032}$	$0.549^{+0.033}_{-0.019}$	$4.971^{+0.889}_{-0.421}$
	+3%/-3%	+1%/-1%	+20%/-16%	+4%/-6%	+6%/-3%	+18%/-8%
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 012835007-01 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	-383 ± 287	$4.60^{+5.18}_{-3.14}$	247^{+8}_{-9}	2949^{+1298}_{-675}	4959^{+46519}_{-4306}
Alt.	-2290 ± 570	$5.62^{+5.04}_{-3.96}$	247^{+8}_{-8}	3747^{+2307}_{-686}	$25646^{+249637}_{-18915}$

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 $A_{obs} \gg 1.0$

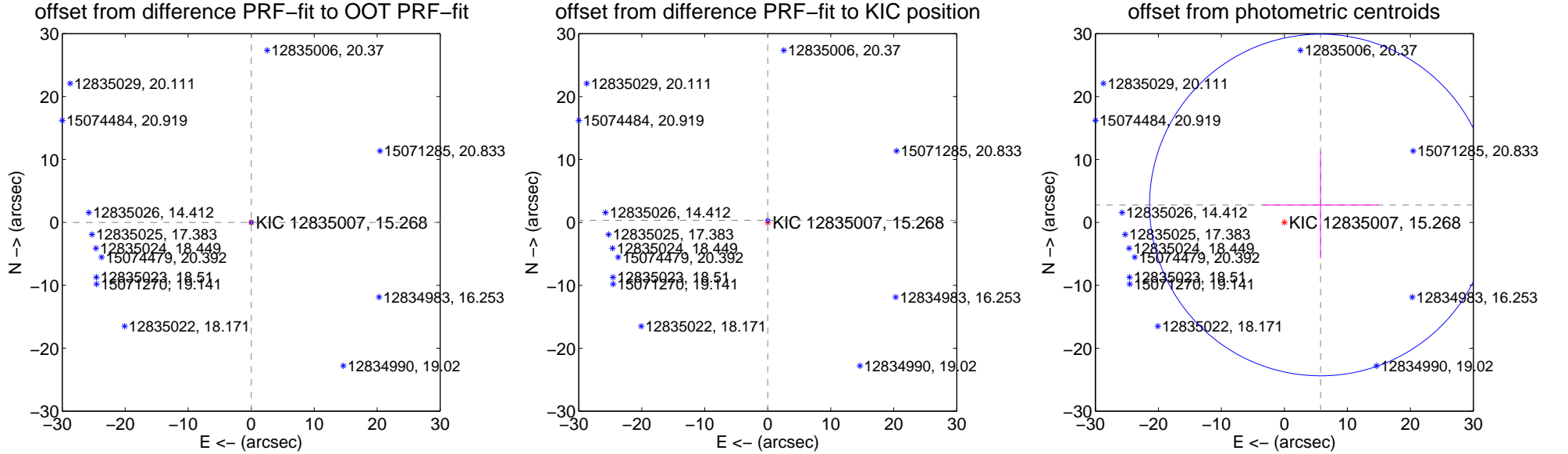
DV Centroid Data

Supplemental centroid analysis for 012835007-01. Kepler magnitude: 15.27. Transit SNR 0.53

There are 3 quarters with good PRF difference image offsets

The direct PRF centroid is offset from the target star catalog position by about 0.44 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.026 ± 0.091	0.29	-0.026 ± 0.091	-0.001 ± 0.092
PRF-fit source offset from KIC position	0.333 ± 0.092	3.62	0.004 ± 0.091	0.333 ± 0.092
photometric centroid source offset	6.37 ± 9.05	0.70	-5.74 ± 9.18	2.76 ± 8.47

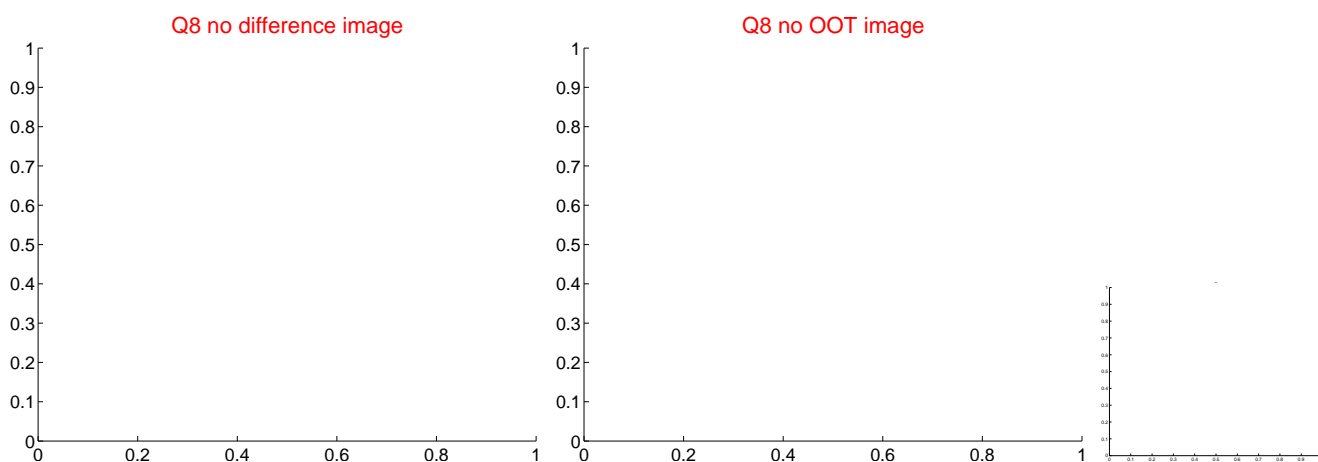
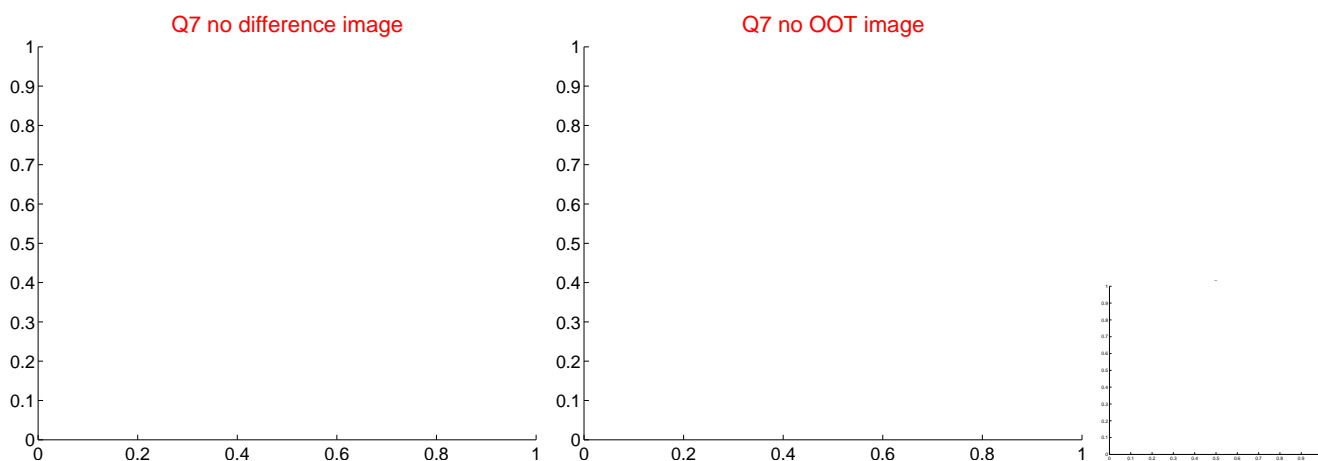
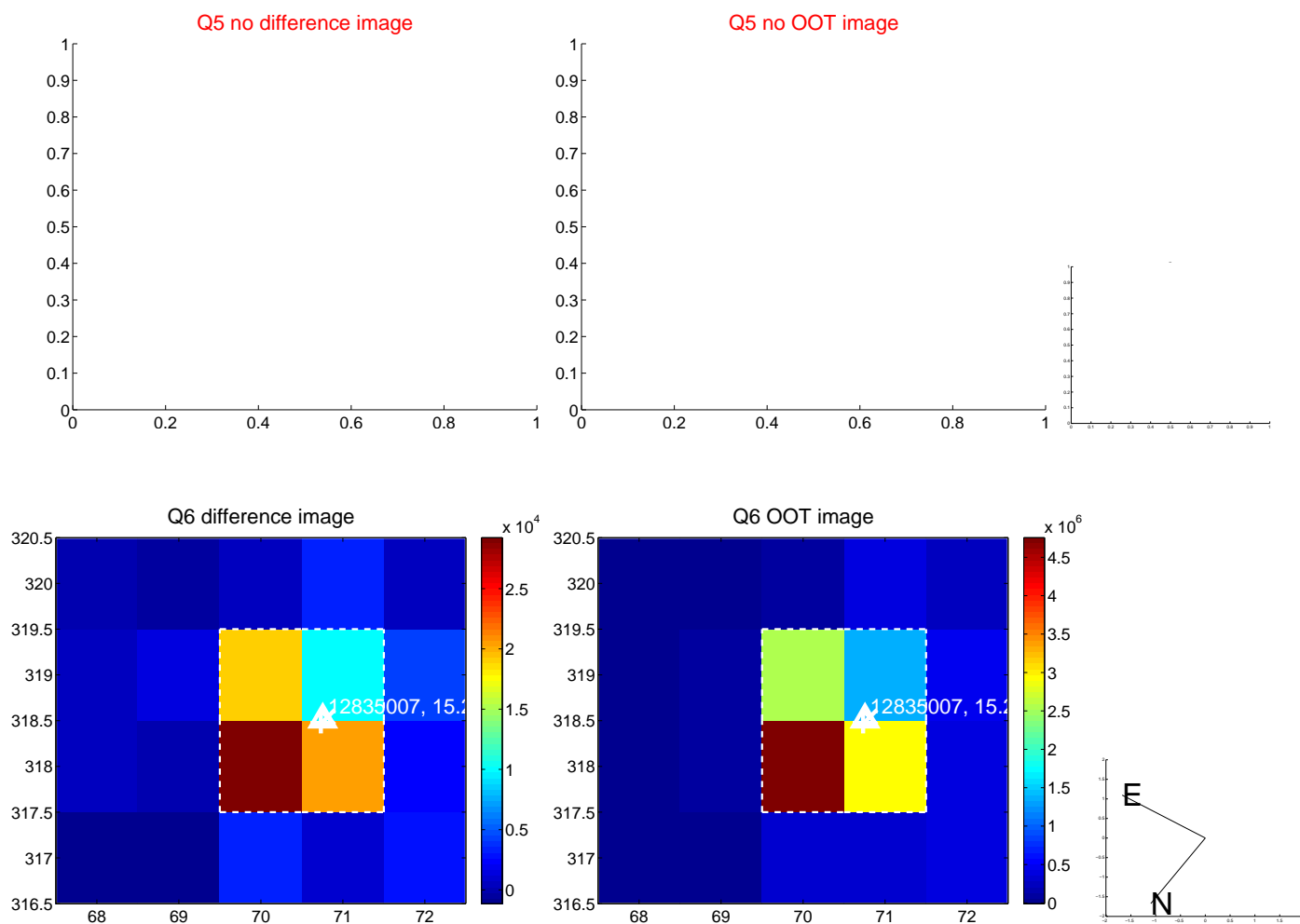


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ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

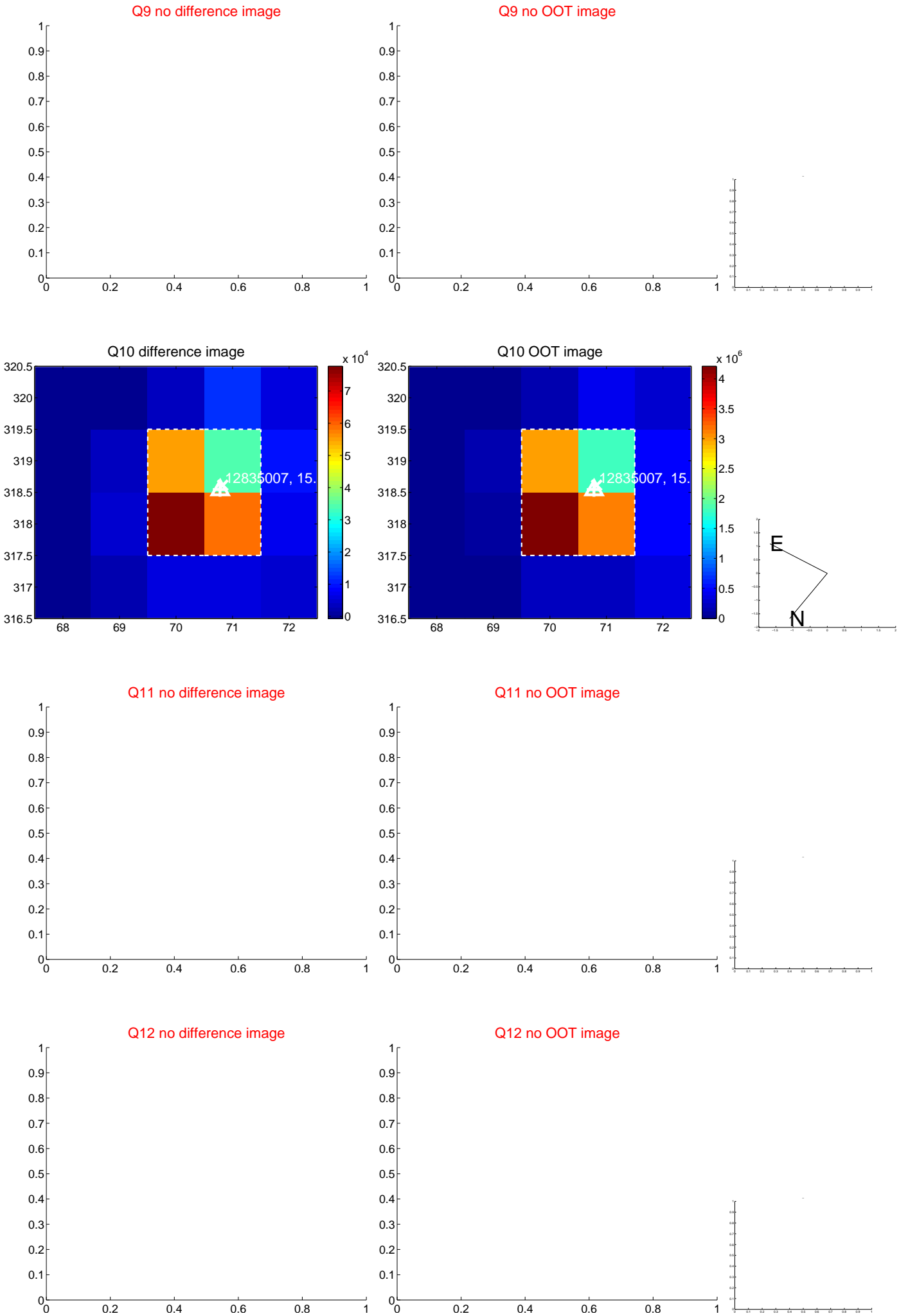
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



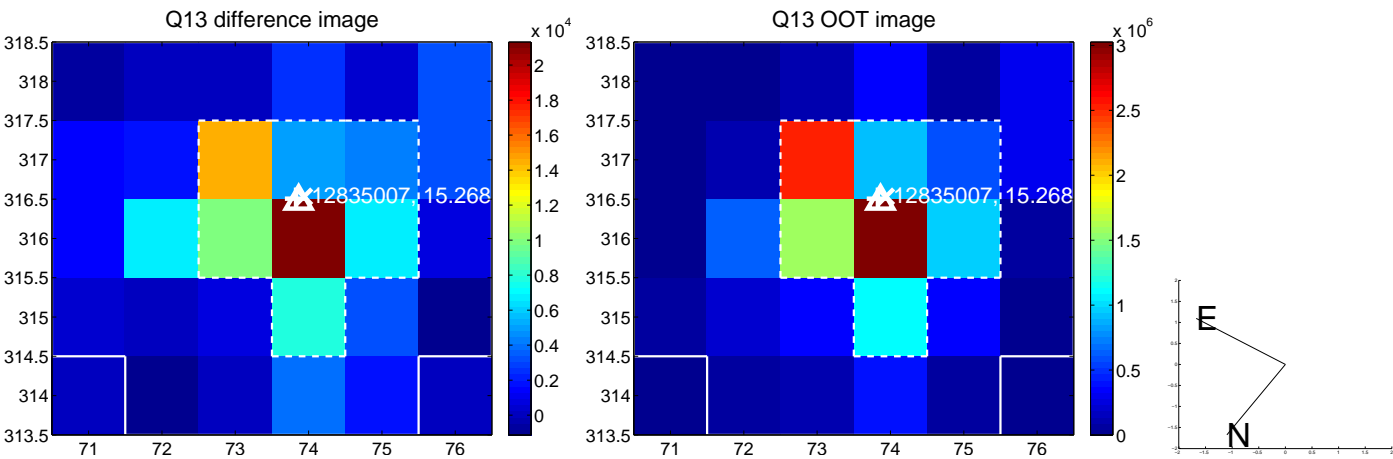
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value



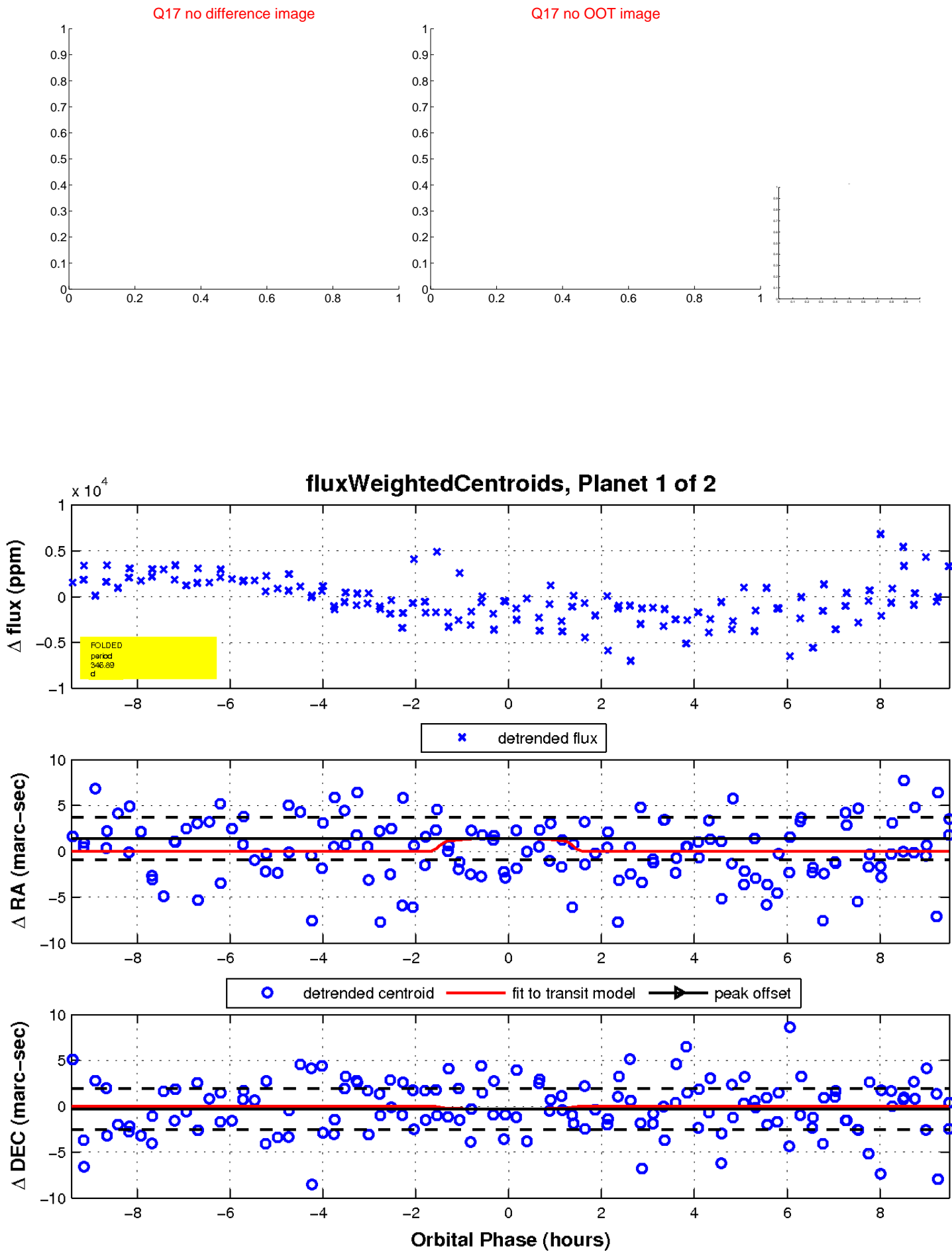
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

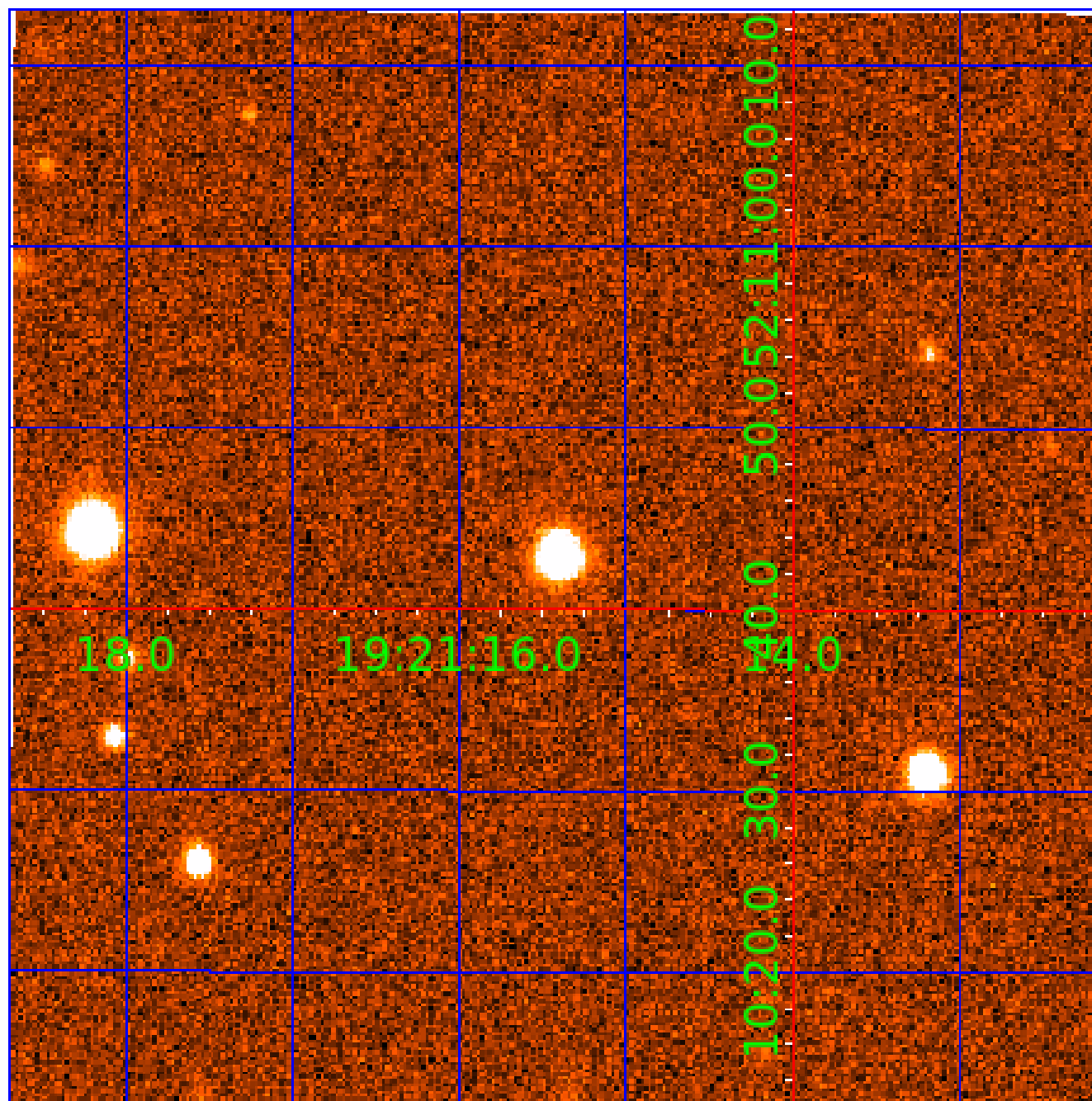


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 012835007

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})
012835007-01	OBS	No	346.890239	224.038779	249.6	3.168	10.7	0.5	0.54	4884	1.00	0.23
012835007-02	OBS	No	457.229892	578.458284	3431.5	3.452	13.0	6.8	0.54	4884	3.15	0.16

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
012835007-01	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_CHASES_MARSHALL_TRACKER—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV— MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_KIC_POS—HALO_GHOST
012835007-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT— MOD_TER_ALT—MOD_POS_ALT—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.

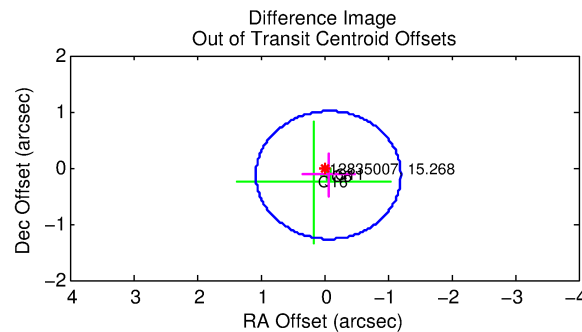
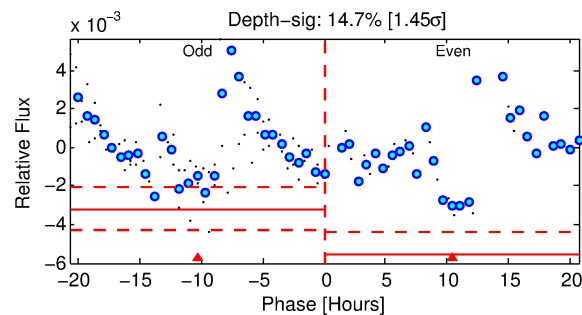
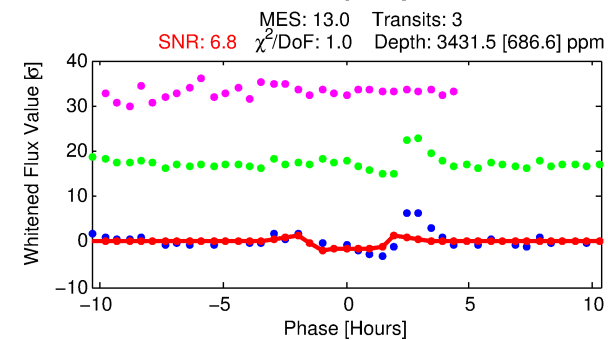
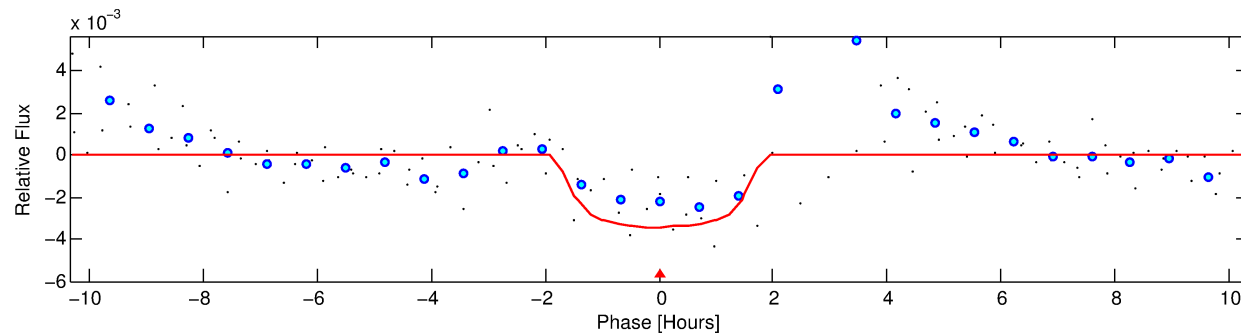
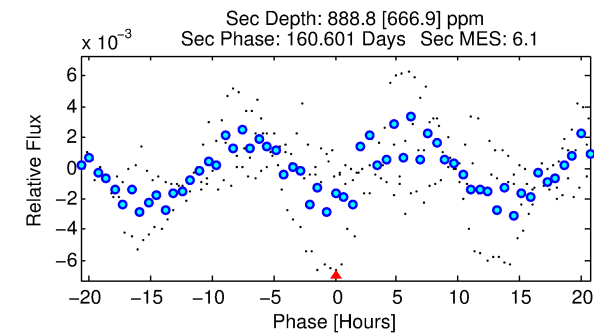
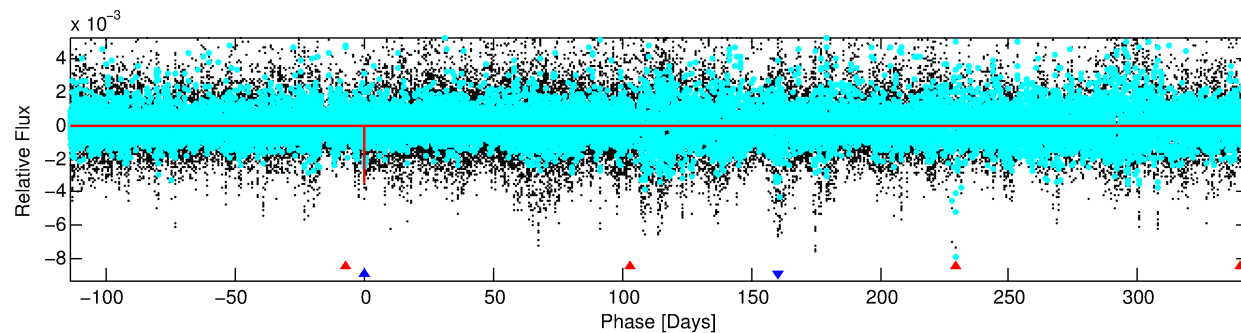
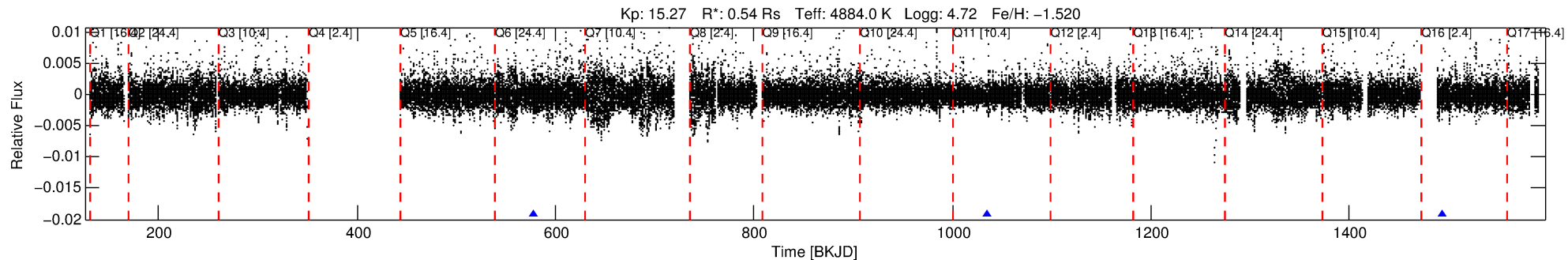
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 012835007-02

No Significant Match Found

DV One-Page Summary

KIC: 12835007 Candidate: 2 of 2 Period: 457.230 d



DV Fit Results:

Period = 457.22989 [0.00586] d
Epoch = 578.4583 [0.0077] BKJD
Rp/R* = 0.0536 [0.1403]
a/R* = 1038.74 [12164.73]
b = 0.24 [46.69]
Seff = 0.16 [0.02]
Teq = 162 [6] K
Rp = 3.15 [8.24] Re
a = 0.9520 [0.0501] AU
Ag = 44772.24 [236801.93] [0.19σ]
Teff = 3643 [4818] K [0.72σ]

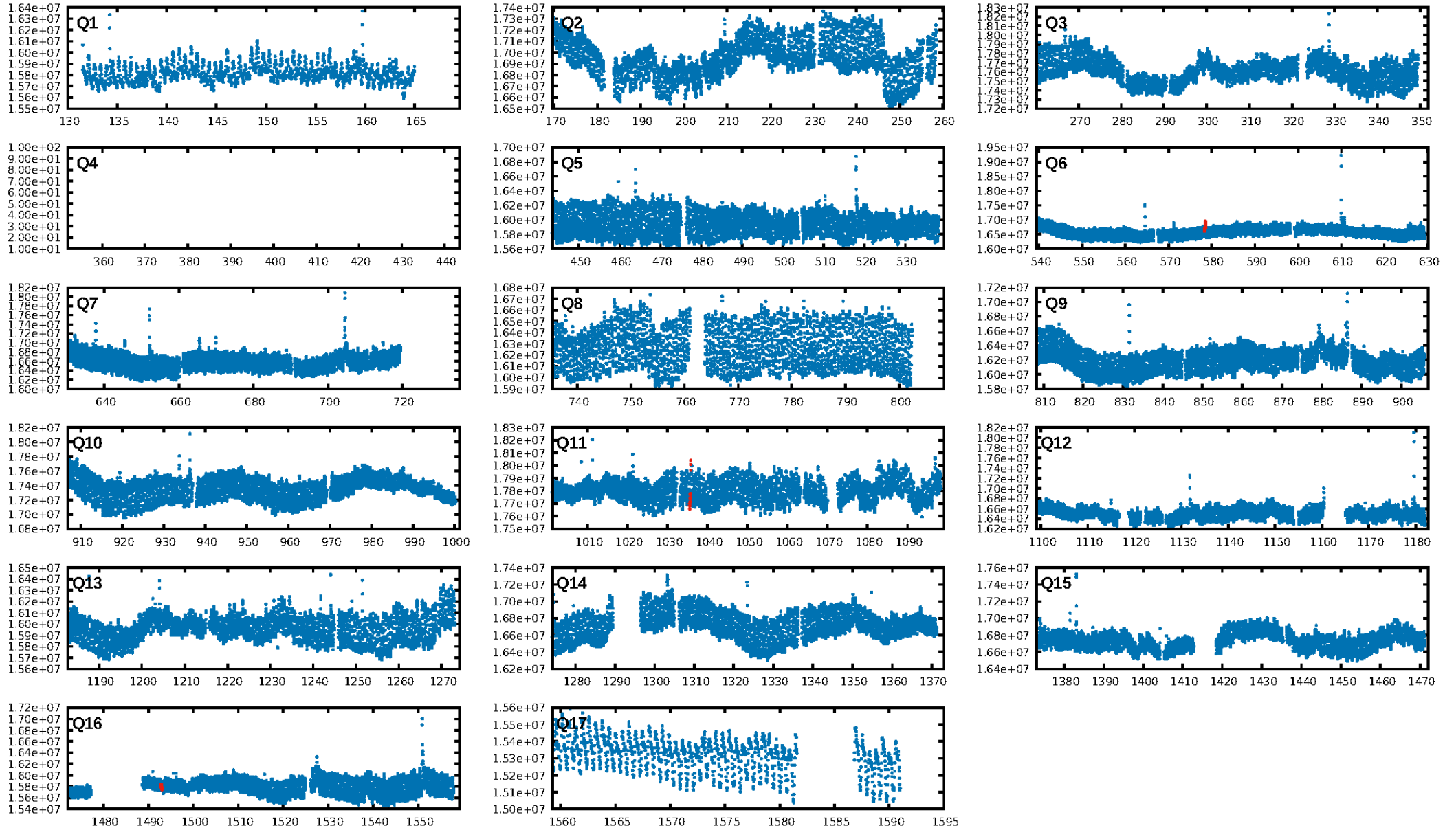
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [565.27σ]
LongPeriod-sig: N/A
ModelChiSquare2-sig: 9.9%
ModelChiSquareGof-sig: 80.6%
Bootstrap-pfa: 4.97e-10
RollingBand-fgt: 1.00 [3/3]
GhostDiagnostic-chr: 1.212
Centroid-sig: 87.1%
Centroid-so: 1.471 arcsec [2.34σ]
OotOffset-rm: 0.149 arcsec [0.39σ]
KicOffset-rm: 0.194 arcsec [0.52σ]
OotOffset-st: 1/1/1/0 [3]
KicOffset-st: 1/1/1/0 [3]
DiffImageQuality-fgm: 0.33 [1/3]
DiffImageOverlap-fno: 1.00 [3/3]

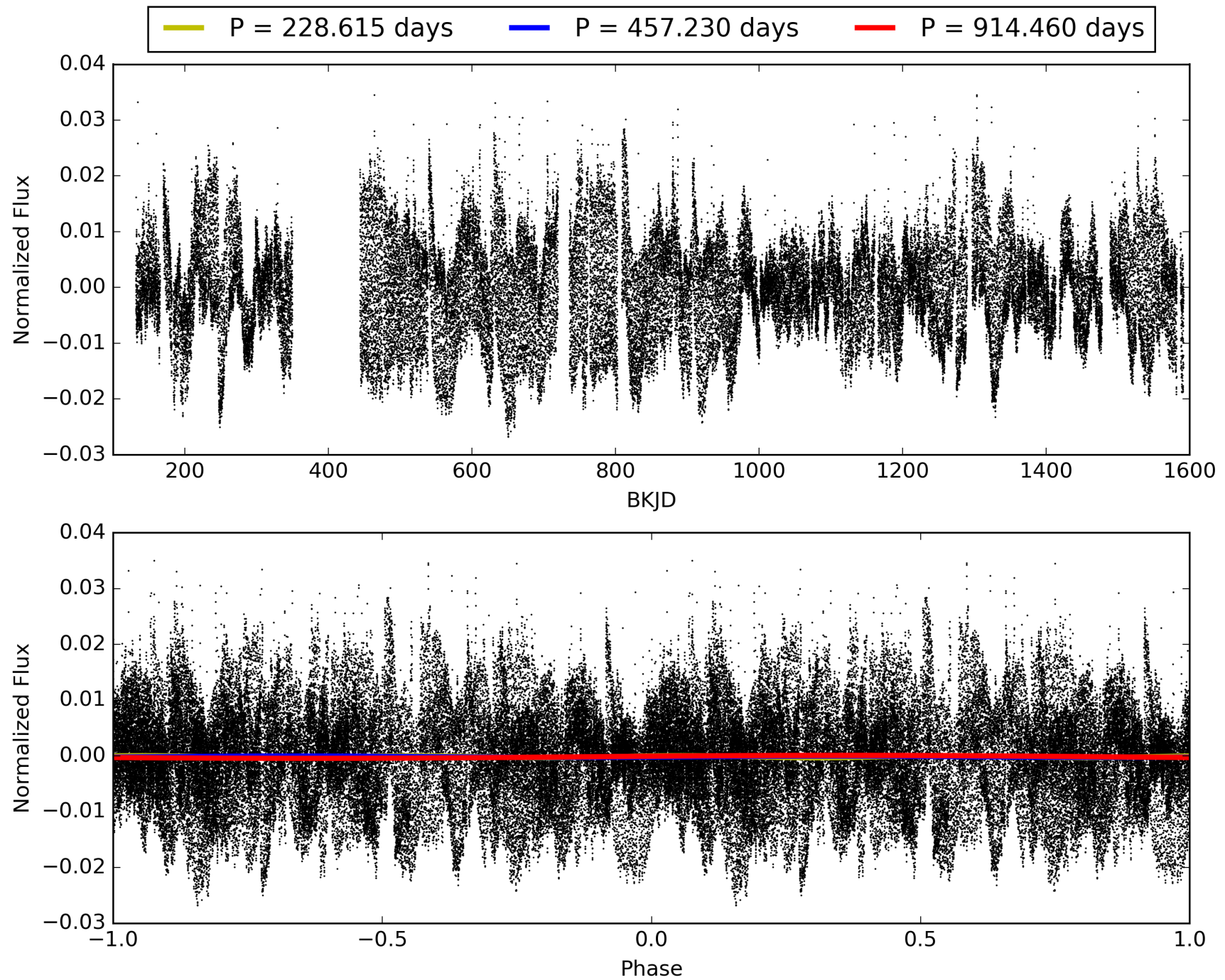
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 29-Jan-2016 09:11:39 Z

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

TCE 012835007-02, PDC Light Curves

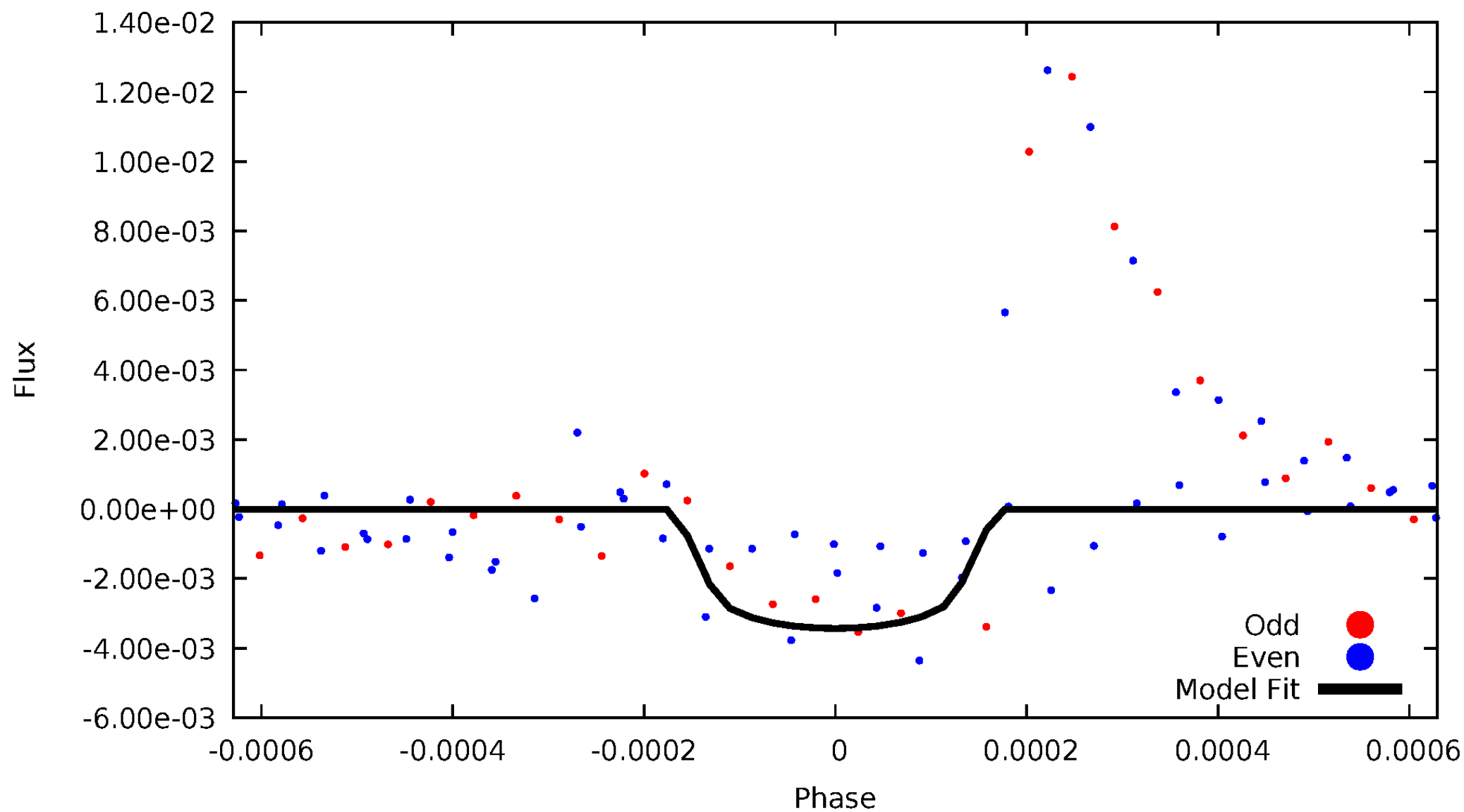


TCE 012835007-02



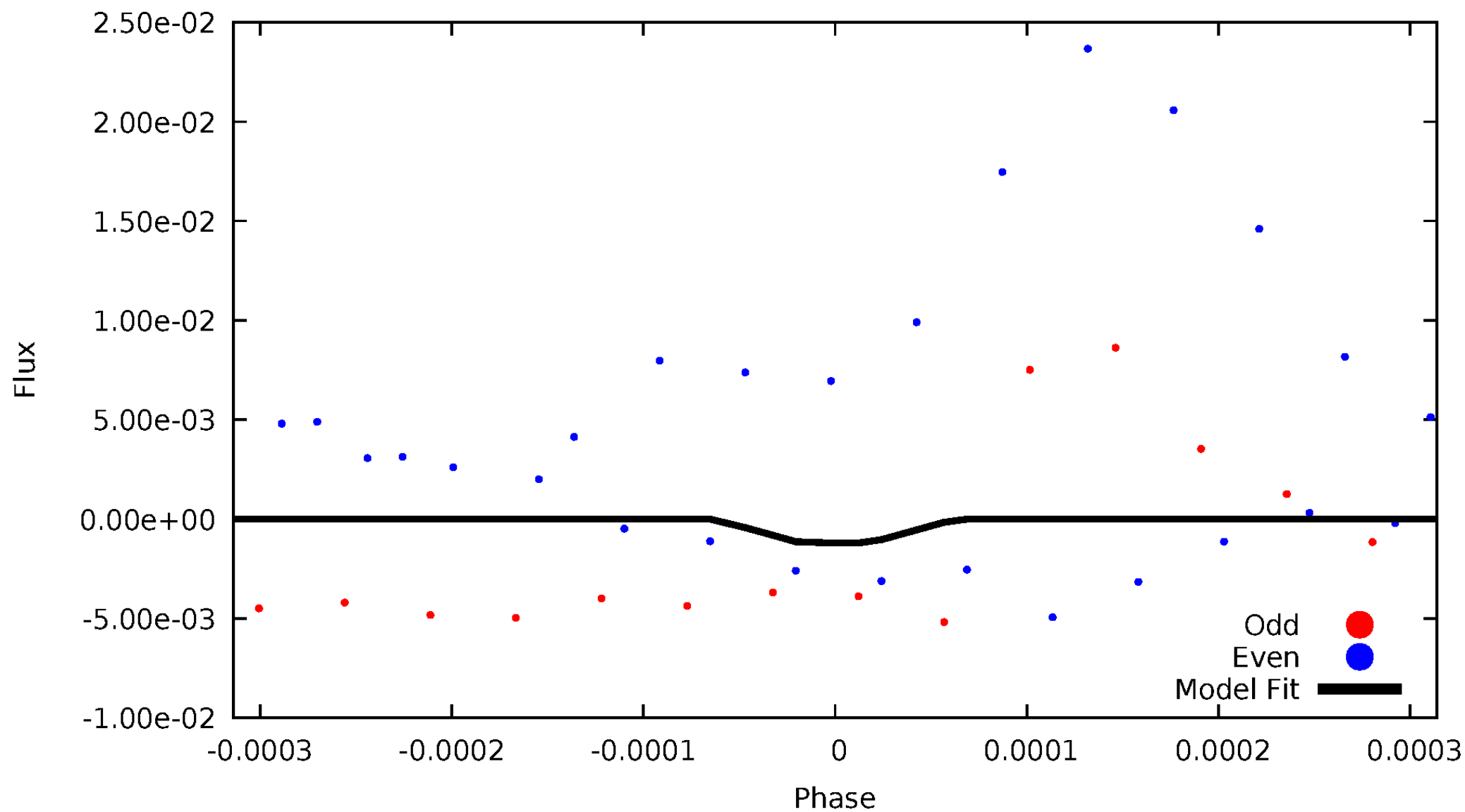
DV Odd/Even

TCE 012835007-02



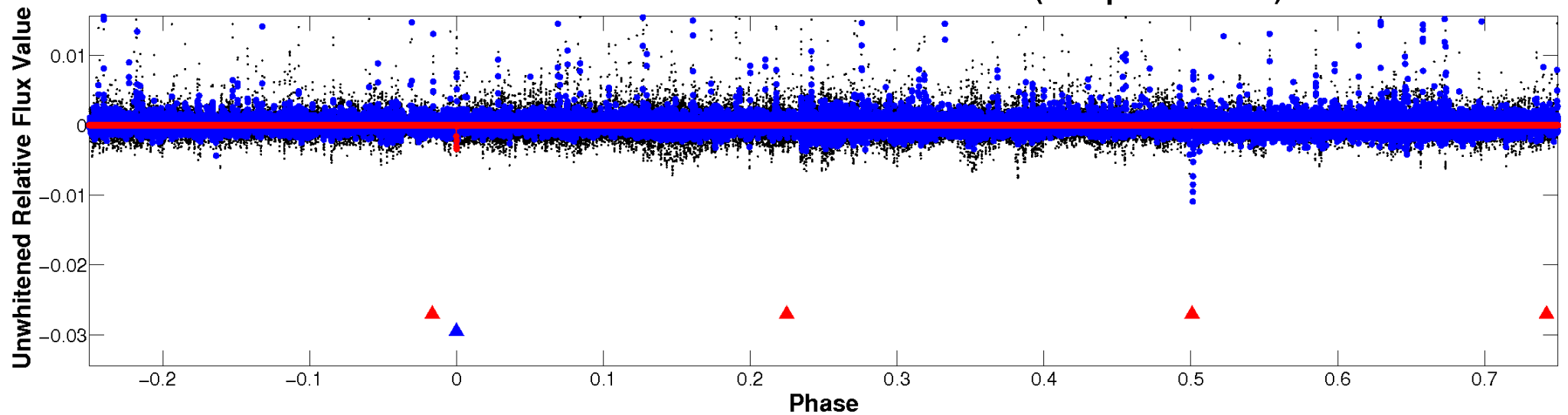
ALT Odd/Even

TCE 012835007-02

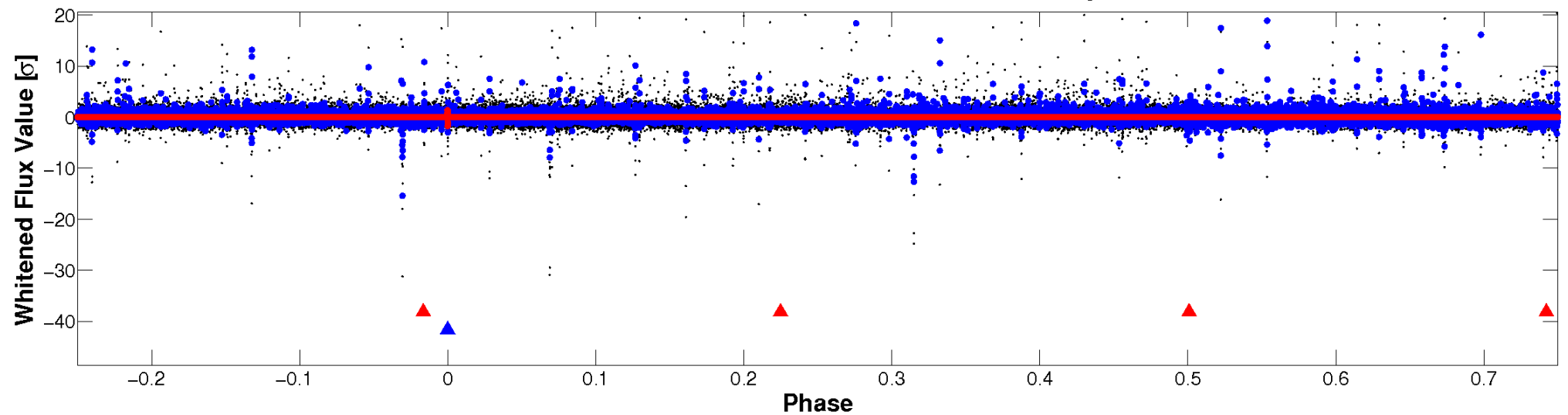


Non-Whitened Vs. Whitened Light Curve

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

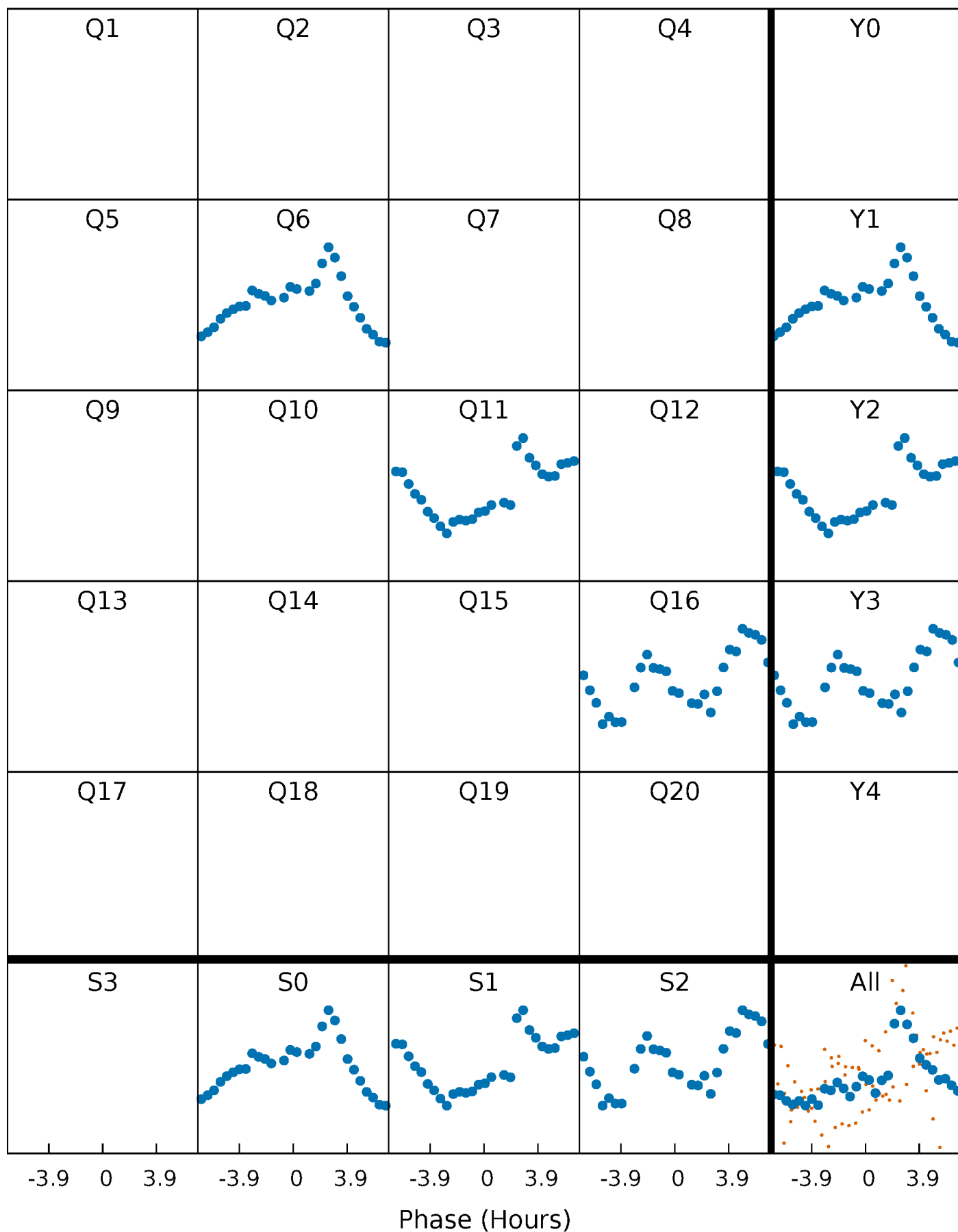


Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



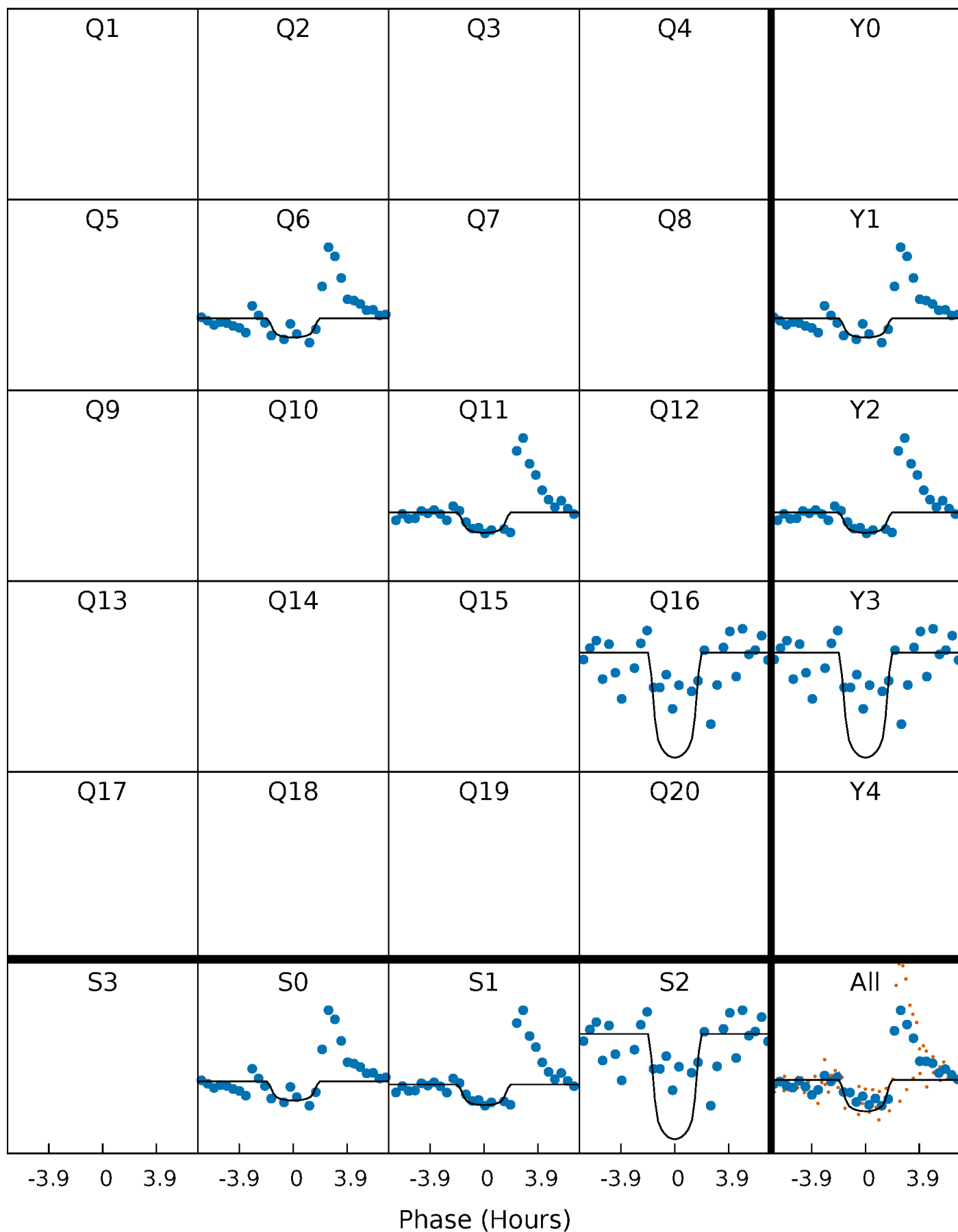
PDC Quarter-Phased Transit Curves

TCE 012835007-02 $P=457.229892$ Days $T_0=578.458284$ (BKJD)



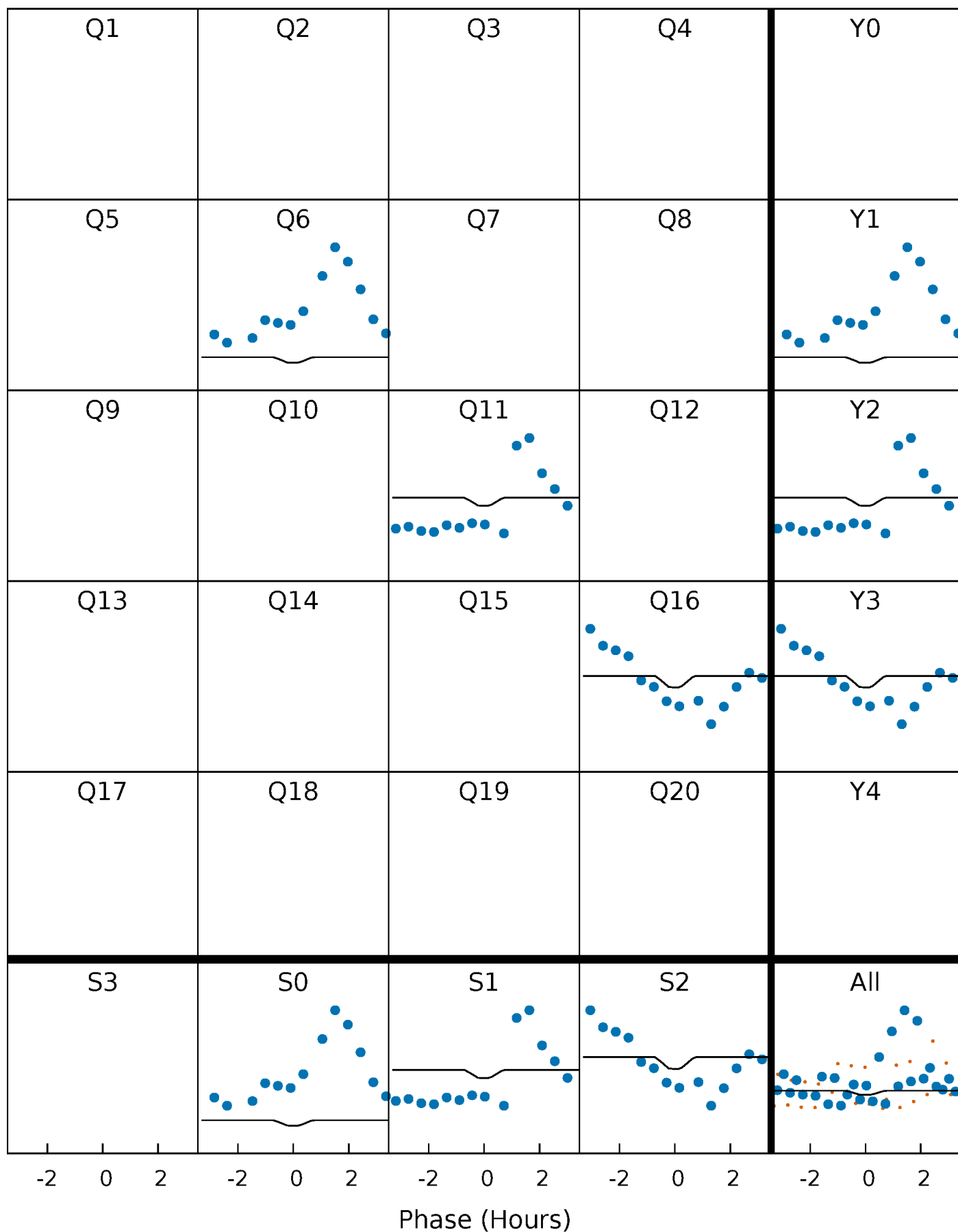
DV Quarter-Phased Transit Curves

TCE 012835007-02 $P=457.229892$ Days $T_0=578.458284$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

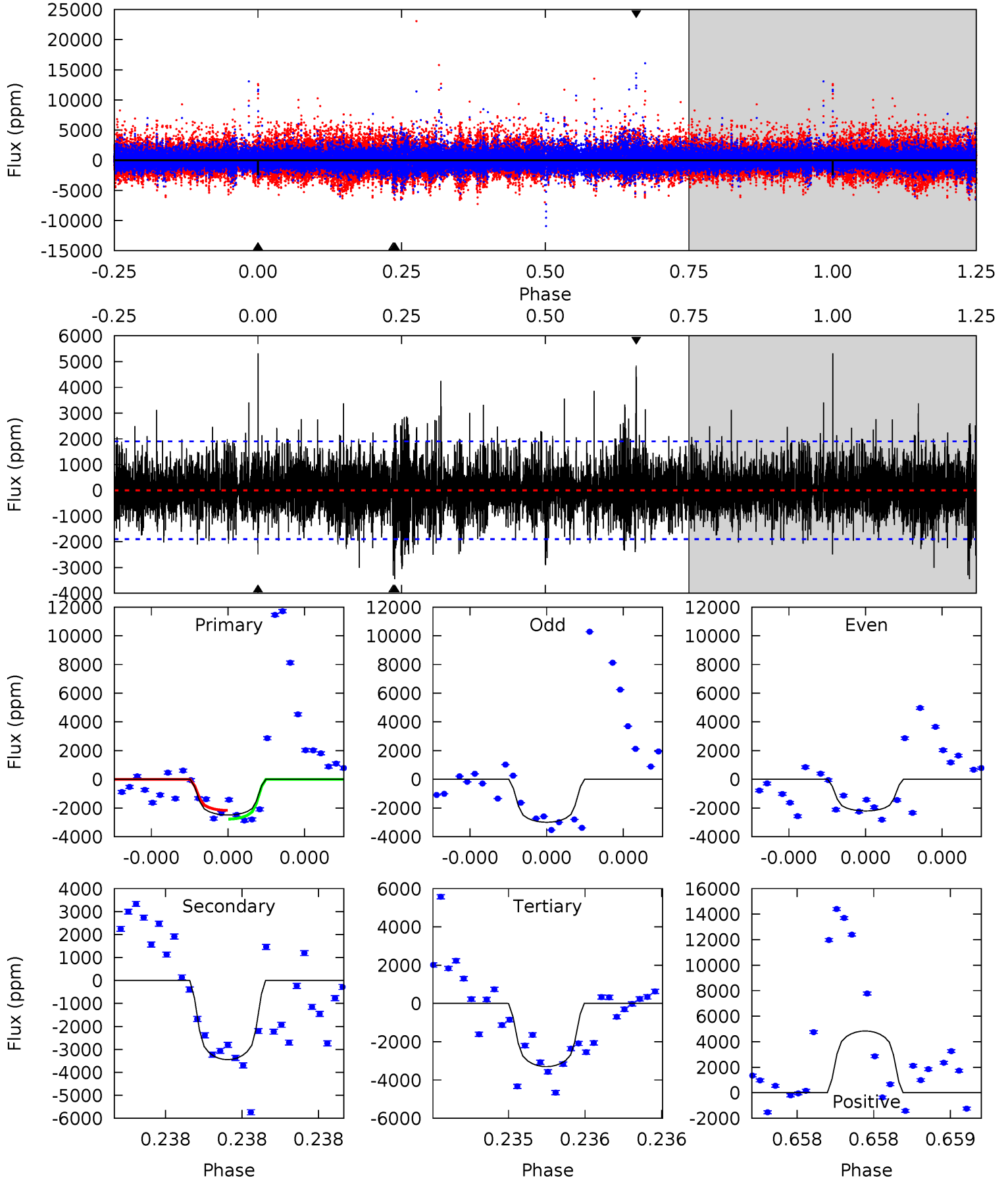
TCE 012835007-02 $P=457.234961$ Days $T_0=578.499434$ (BKJD)



DV Model-Shift Uniqueness Test

012835007-02, P = 457.229892 Days, E = 121.228392 Days

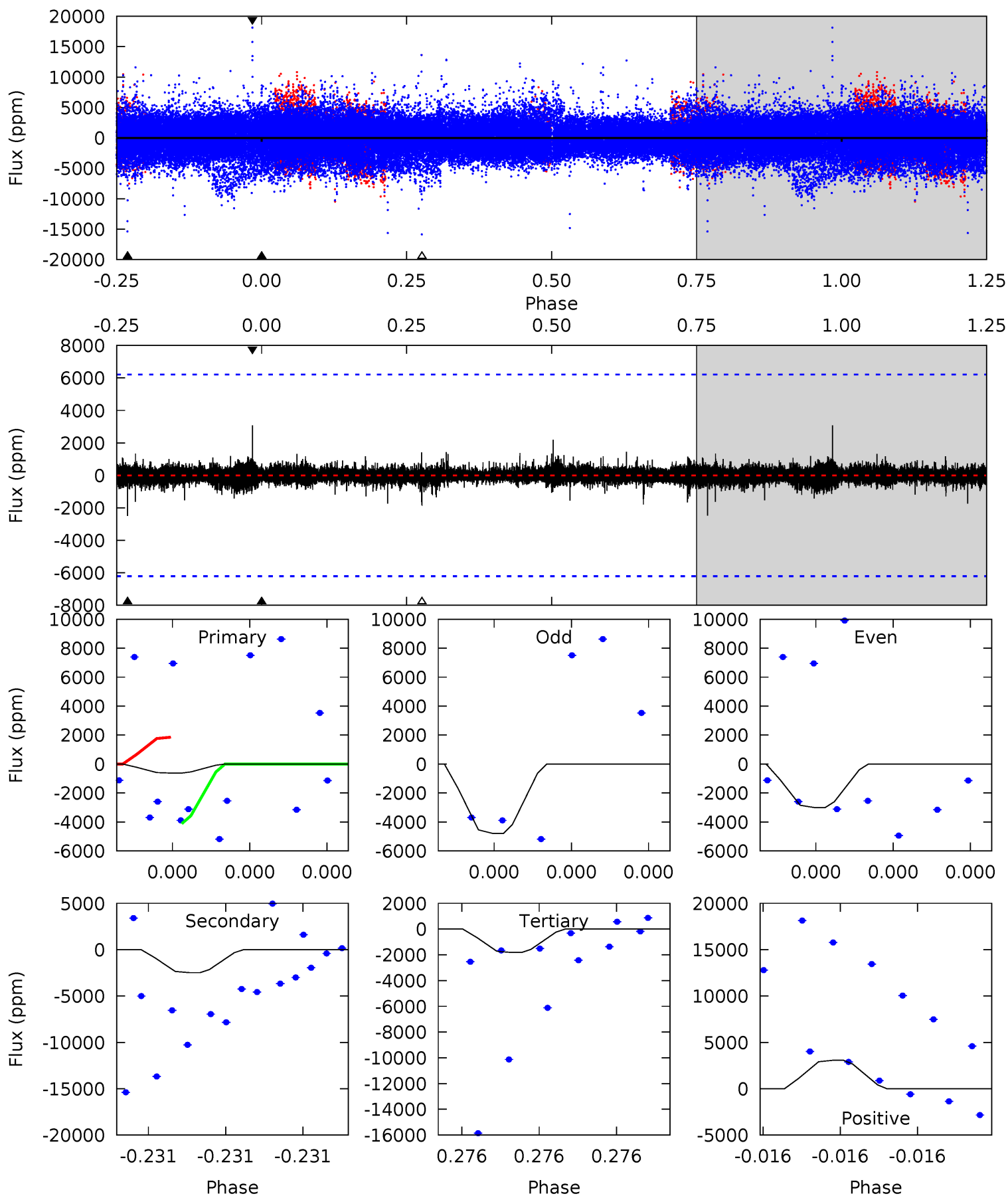
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
7.37	10.2	9.78	14.3	5.63	3.57	2.36	-2.40	-6.97	0.44	-4.14	1.01	0.84	0.61	0.91



Alt Model-Shift Uniqueness Test

012835007-02, P = 457.234961 Days, E = 121.264473 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
0.59	2.33	1.71	2.89	5.85	3.89	0.28	-1.12	-2.30	0.63	-0.55	0.88	-0.28	0.55	1.06



Stellar Parameters For KIC 012835007

	$T_{\text{eff}}(K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	4884^{+144}_{-159}	$4.717^{+0.045}_{-0.024}$	$-1.520^{+0.300}_{-0.250}$	$0.538^{+0.024}_{-0.032}$	$0.549^{+0.033}_{-0.019}$	$4.971^{+0.889}_{-0.421}$
	+3%/-3%	+1%/-1%	+20%/-16%	+4%/-6%	+6%/-3%	+18%/-8%
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 012835007-02 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	-3447 ± 338	$6.96^{+6.28}_{-4.65}$	225^{+7}_{-8}	3761^{+2024}_{-673}	$35836^{+282232}_{-25533}$
Alt.	-2481 ± 1063	$6.42^{+6.67}_{-4.55}$	226^{+8}_{-8}	3605^{+2258}_{-723}	$29118^{+307894}_{-22968}$

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

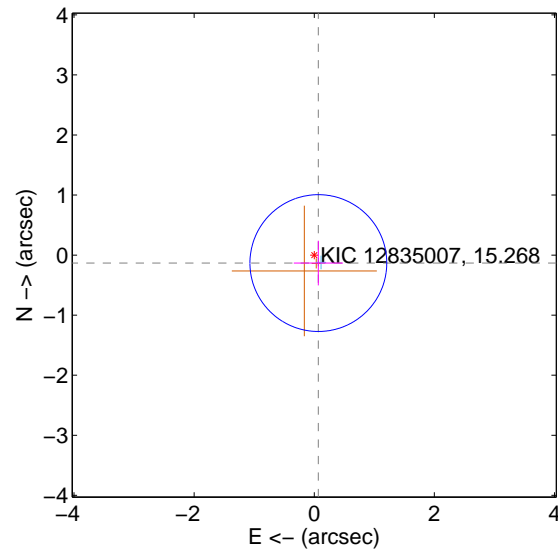
Supplemental centroid analysis for 012835007-02. Kepler magnitude: 15.27. Transit SNR 6.85

There are 1 quarters with good PRF difference image offsets

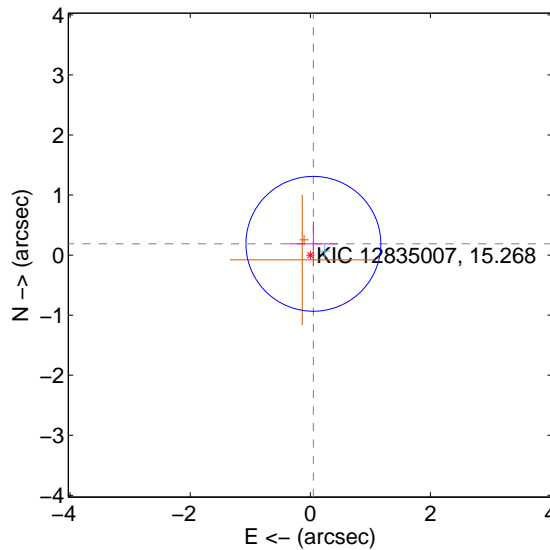
The direct PRF centroid is offset from the target star catalog position by about 0.19 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.149 ± 0.380	0.39	-0.068 ± 0.409	-0.133 ± 0.371
PRF-fit source offset from KIC position	0.194 ± 0.374	0.52	-0.051 ± 0.409	0.188 ± 0.371
photometric centroid source offset	1.47 ± 0.63	2.34	0.19 ± 0.70	1.46 ± 0.63

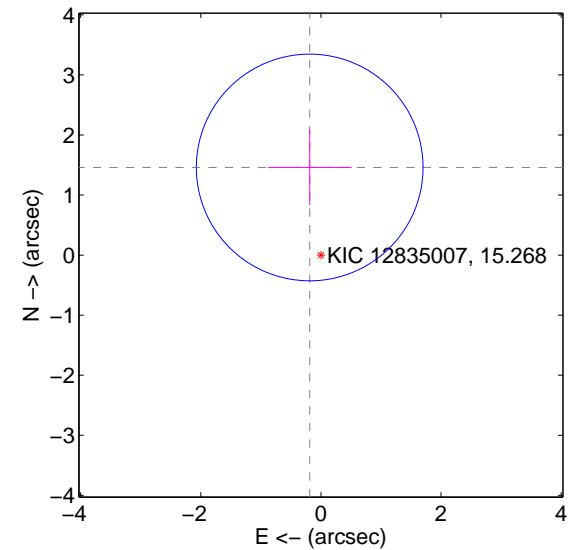
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position



offset from photometric centroids

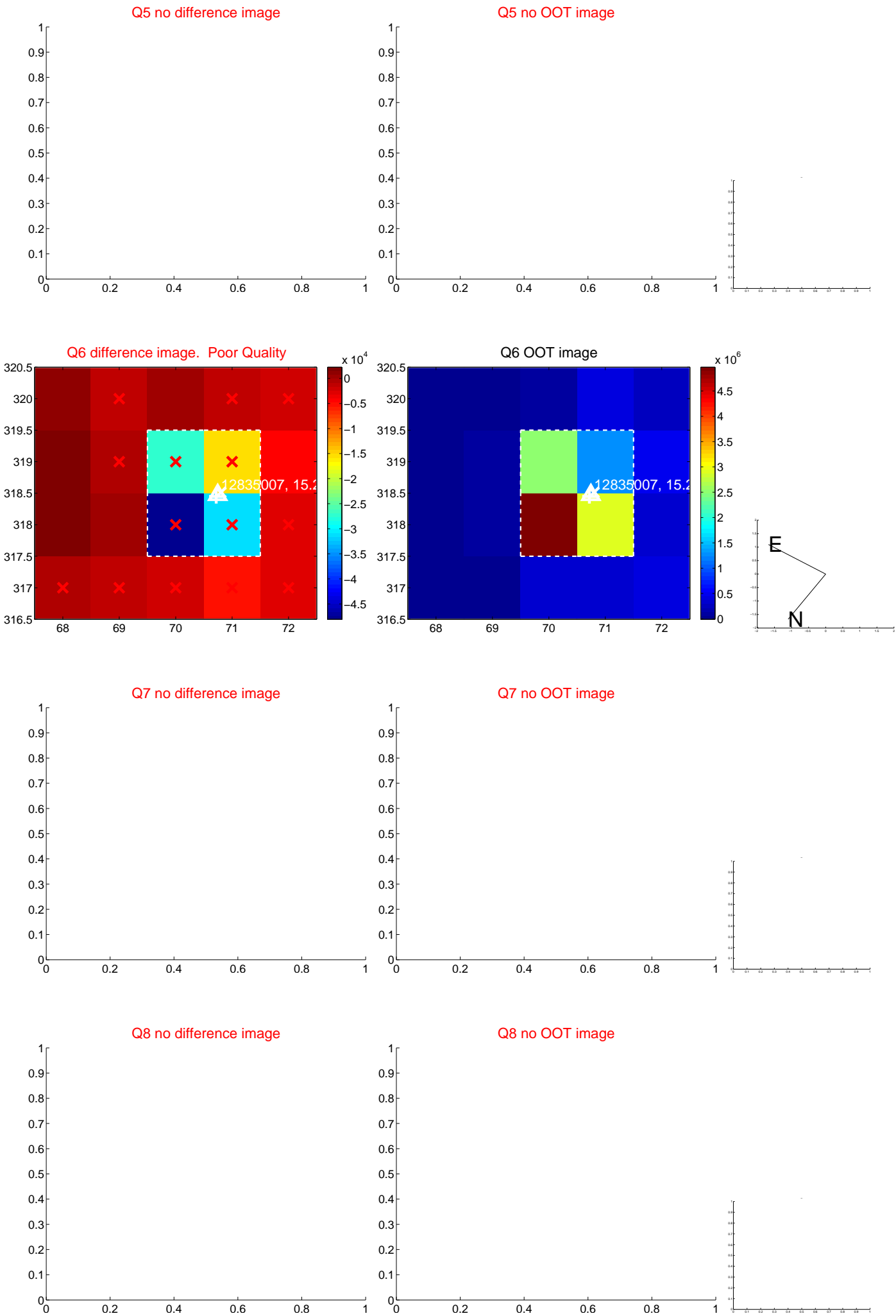


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ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

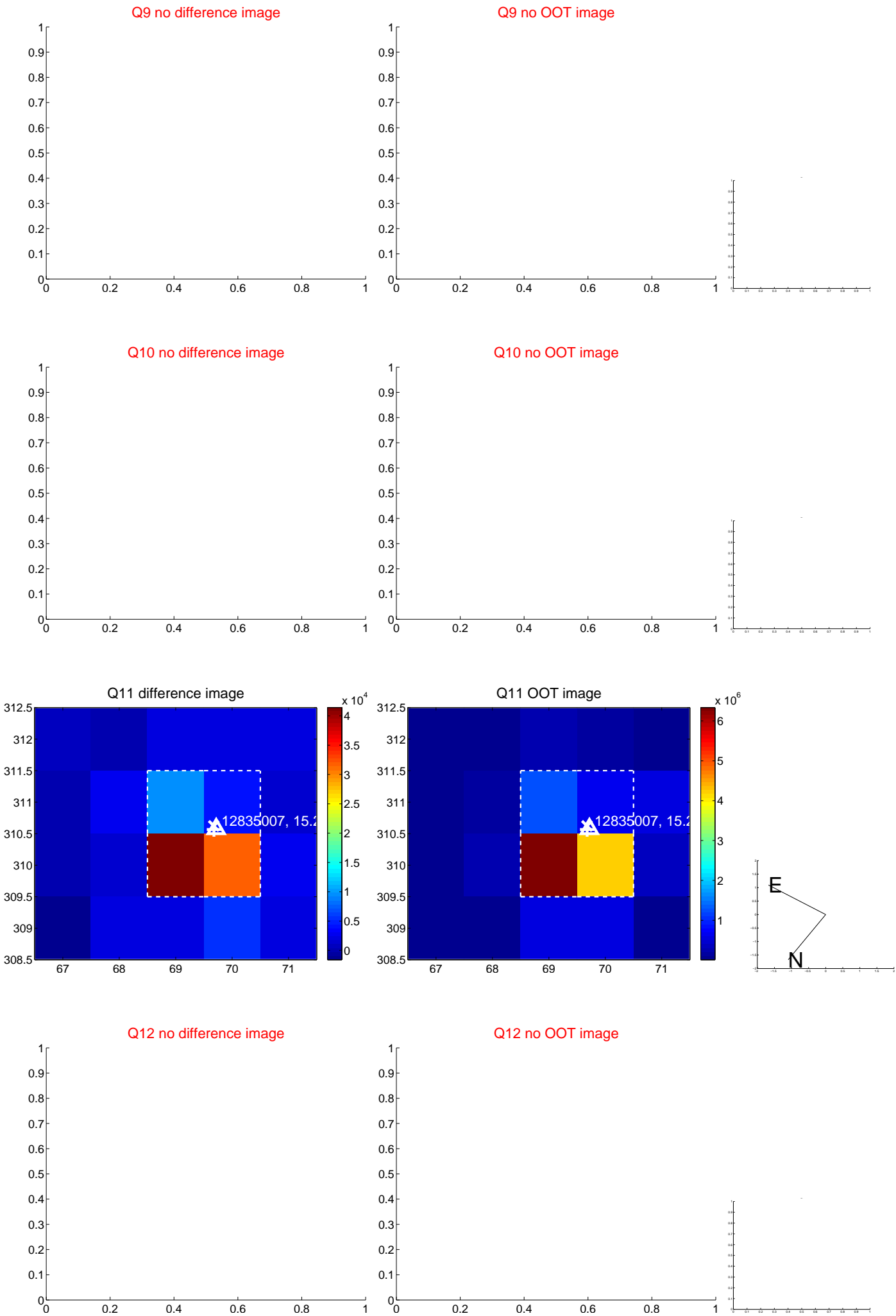
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



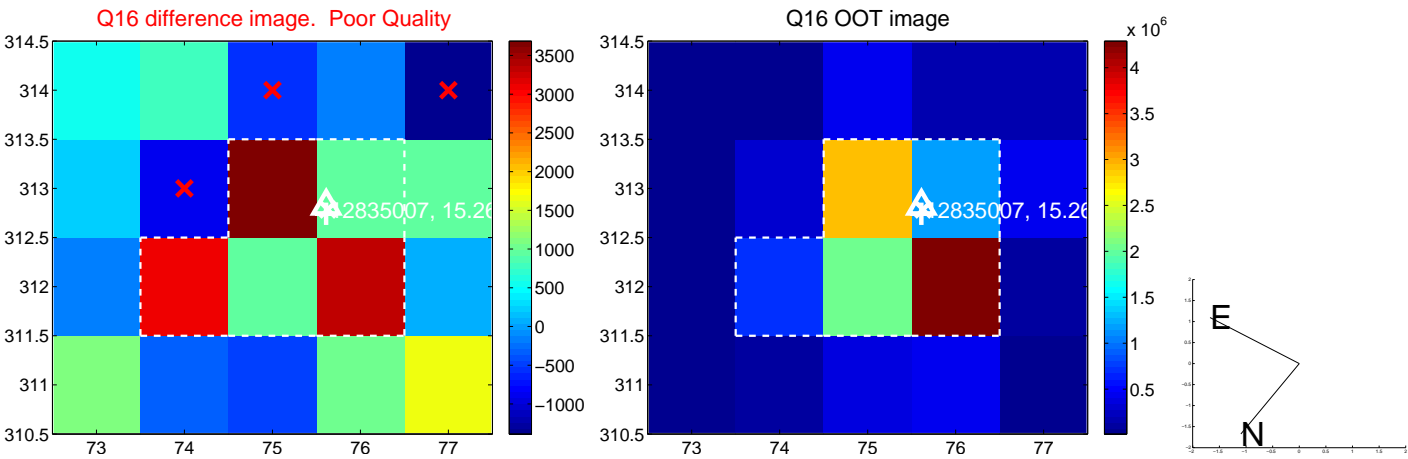
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



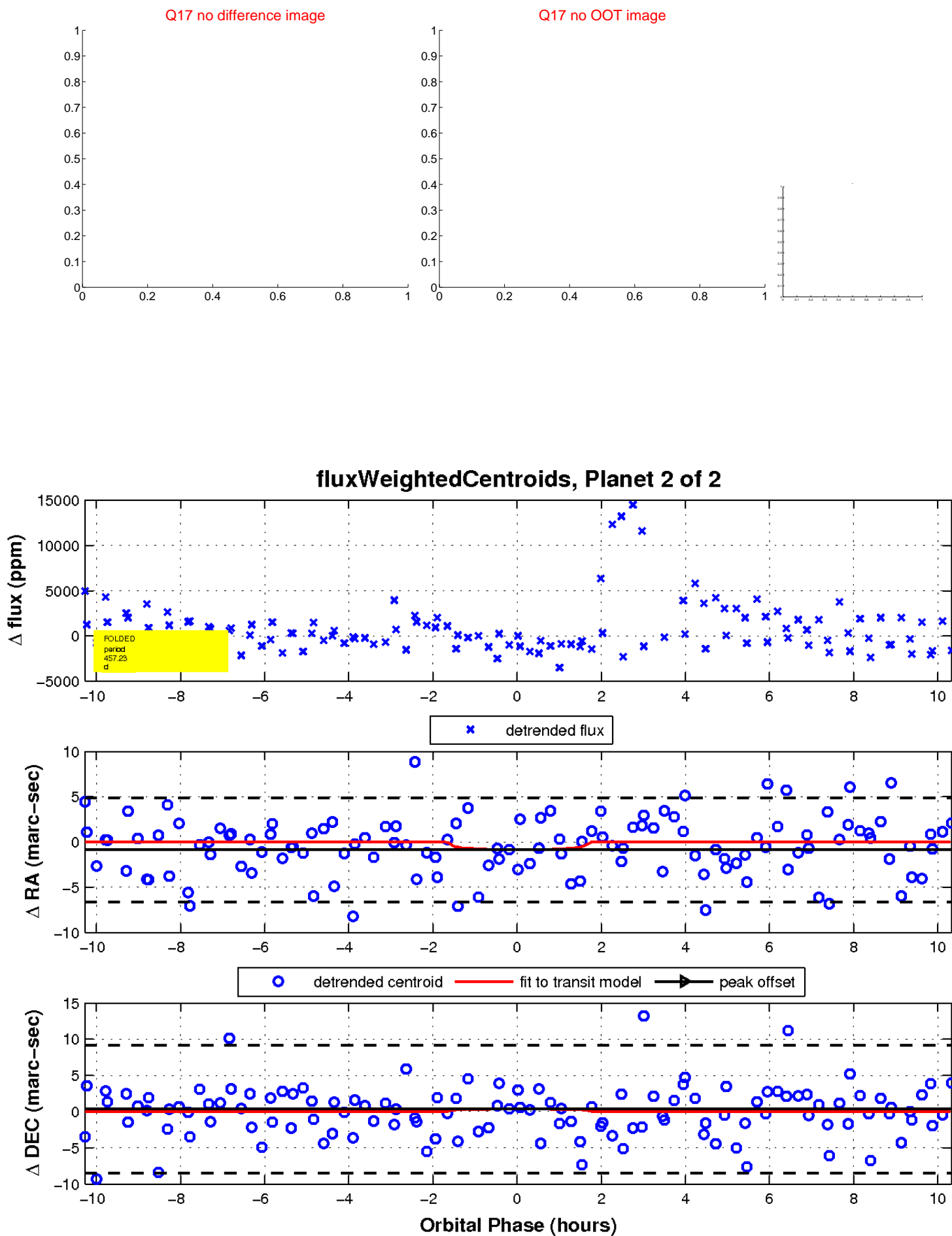
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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UKIRT Image

Declination

