

KIC 008176169

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})
008176169-01	OBS	No	368.125029	235.520141	883.8	11.602	8.4	9.1	1.04	5659	3.16	1.05
008176169-02	OBS	No	368.660076	232.769808	1374.3	20.056	10.0	12.5	1.04	5659	4.79	1.05

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
008176169-01	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL_SKYE—LPP_DV—ALL_TRANS_CHASES—INCONSISTENT_TRANS—CENT_FEW_DIFFS
008176169-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL_SKYE—LPP_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.

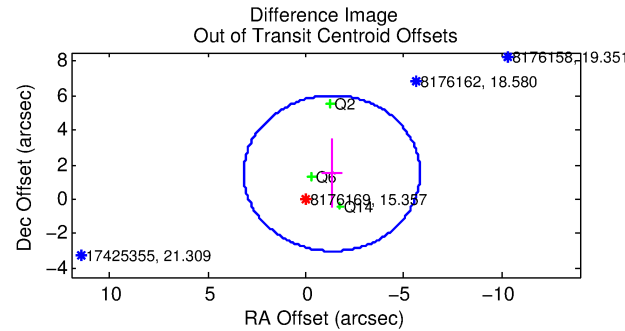
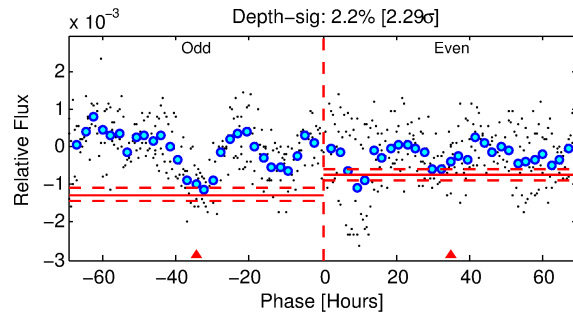
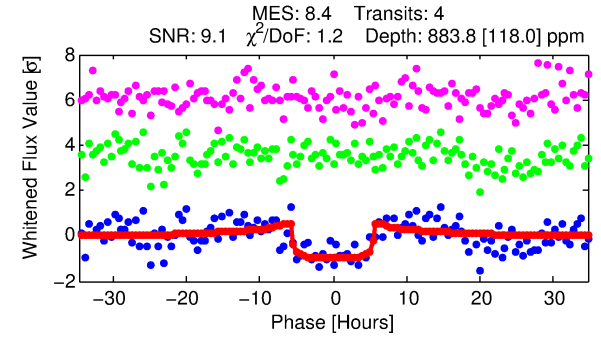
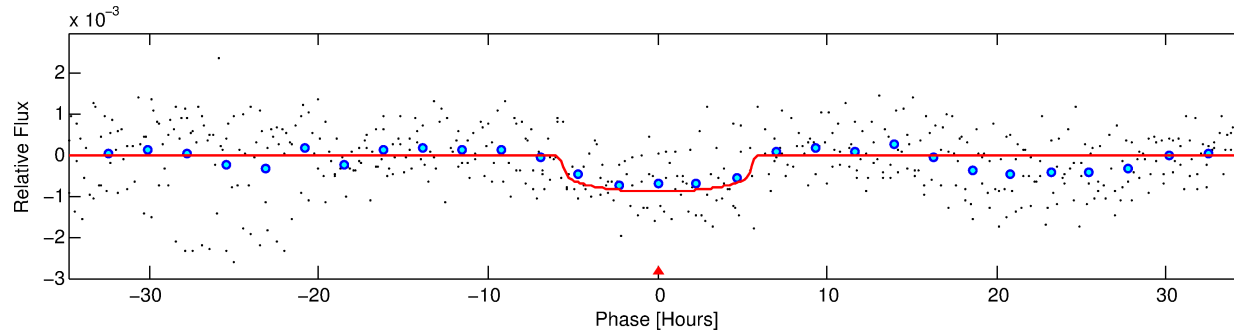
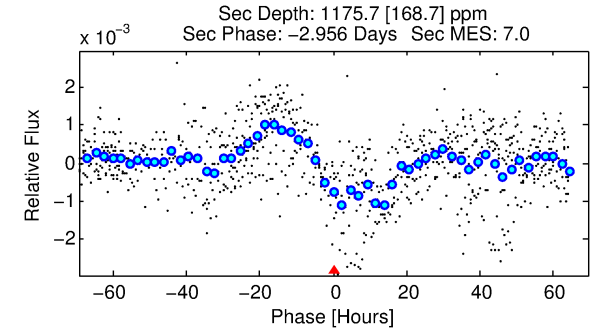
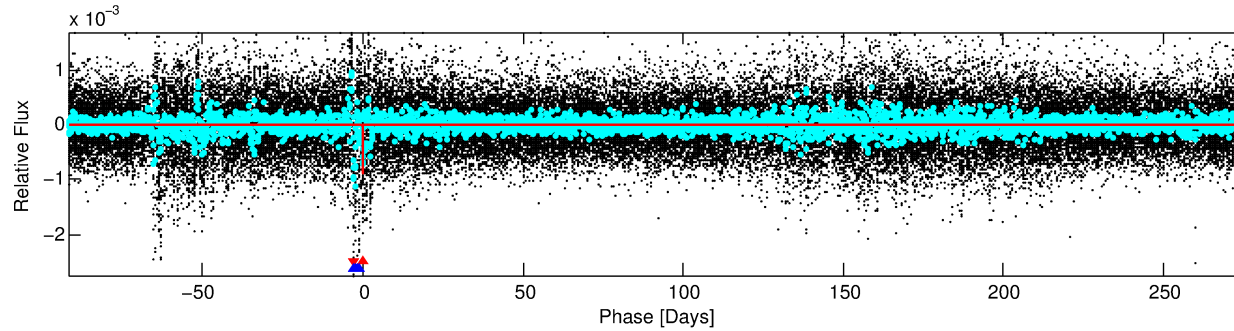
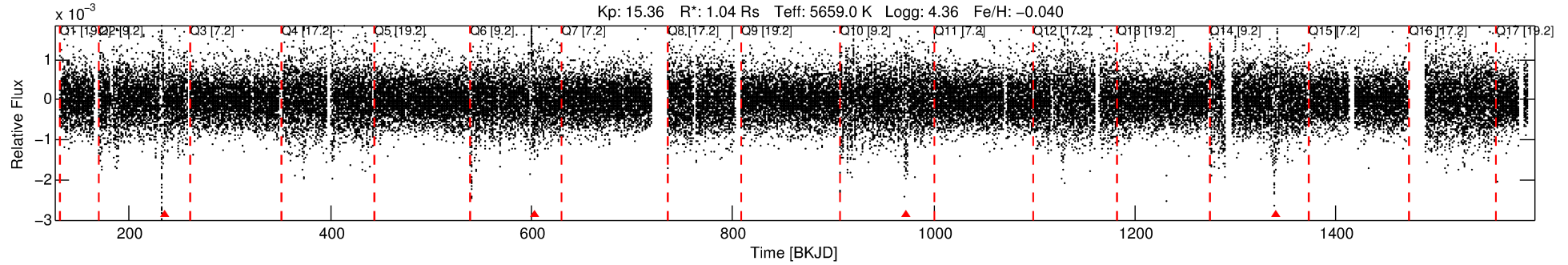
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 008176169-01

No Significant Match Found

DV One-Page Summary

KIC: 8176169 Candidate: 1 of 2 Period: 368.125 d



DV Fit Results:

Period = 368.12503 [0.00778] d
Epoch = 235.5201 [0.0137] BKJD
Rp/R* = 0.0278 [0.0144]
a/R* = 215.91 [466.73]
b = 0.51 [3.12]
Seff = 1.05 [0.38]
Teq = 258 [23] K
Rp = 3.16 [1.86] Re
a = 0.9735 [0.2285] AU
Ag = 61242.56 [67234.92] [0.91σ]
Teffp = 6279 [1648] K [3.65σ]

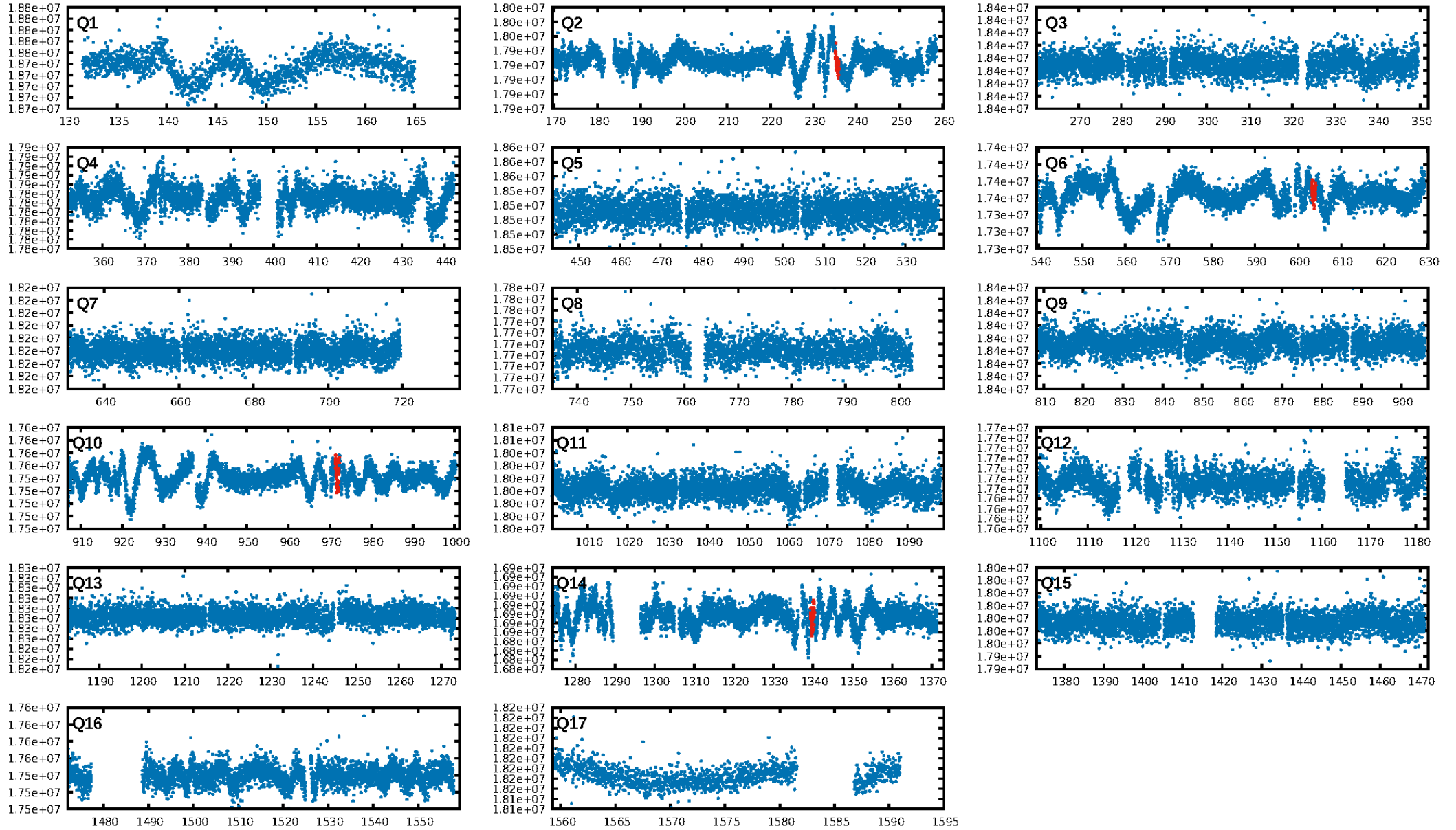
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: 42.1% [0.55σ]
ModelChiSquare2-sig: 2.8%
ModelChiSquareGof-sig: 93.4%
Bootstrap-pfa: 1.58e-09
RollingBand-fgt: 0.00 [0/4]
GhostDiagnostic-chr: 0.9545
Centroid-sig: N/A
Centroid-so: 4.714 arcsec [2.57σ]
OotOffset-rm: 1.999 arcsec [1.33σ]
KicOffset-rm: 2.132 arcsec [1.42σ]
OotOffset-st: 3/0/0/0 [3]
KicOffset-st: 3/0/0/0 [3]
DiffImageQuality-fgm: 0.00 [0/3]
DiffImageOverlap-fno: 0.67 [2/3]

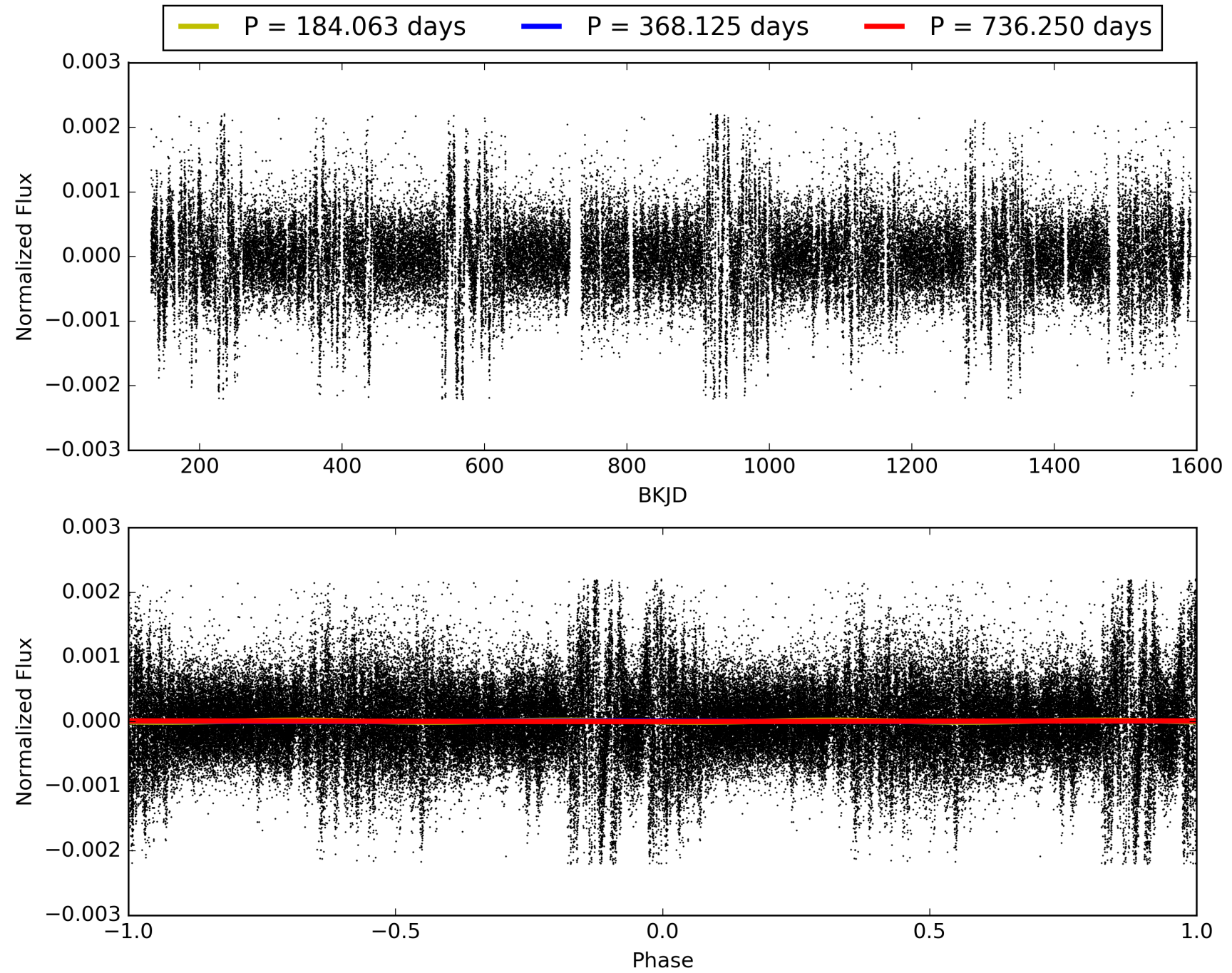
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 29-Jan-2016 06:21:45 Z

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

TCE 008176169-01, PDC Light Curves

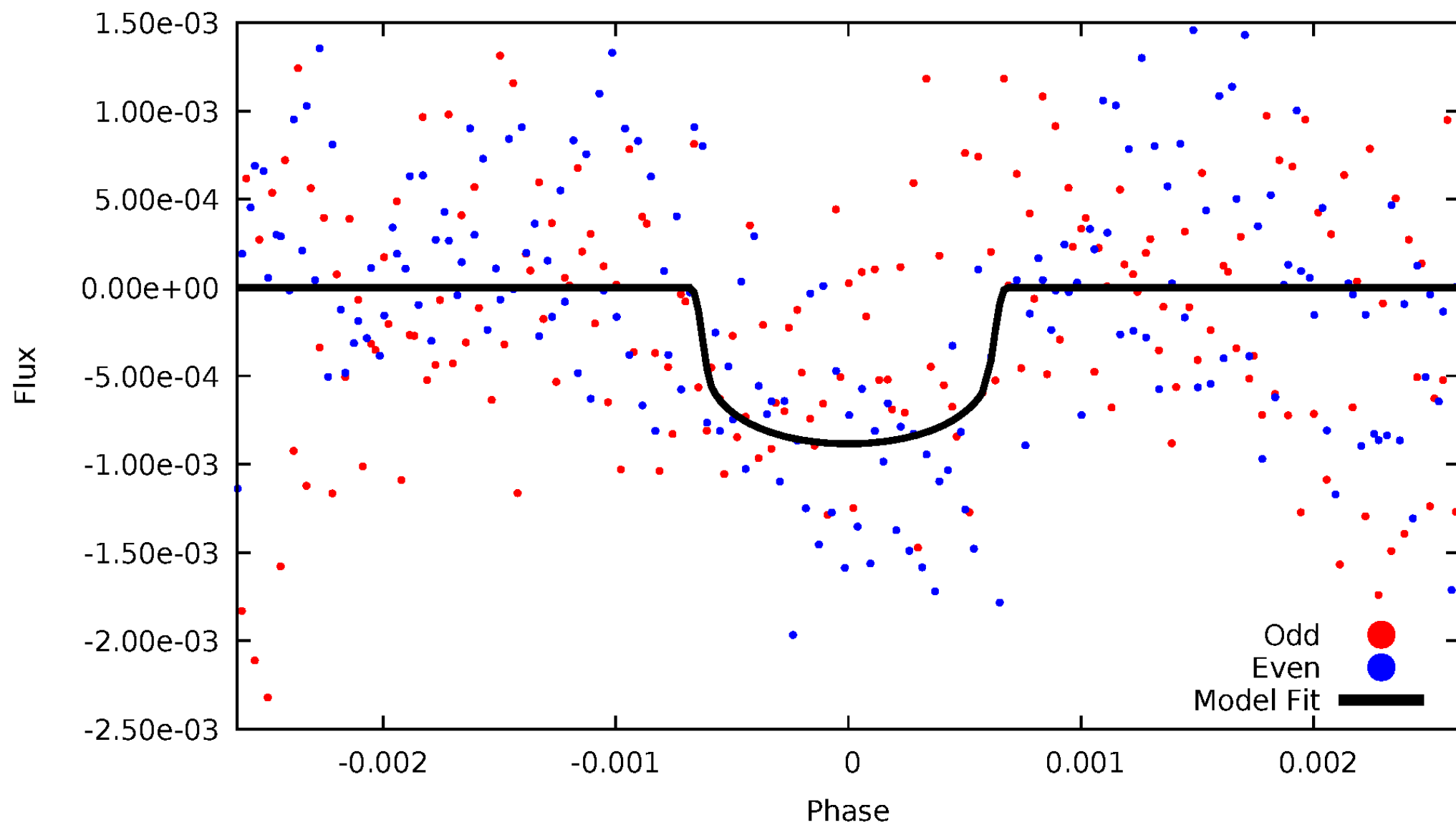


TCE 008176169-01



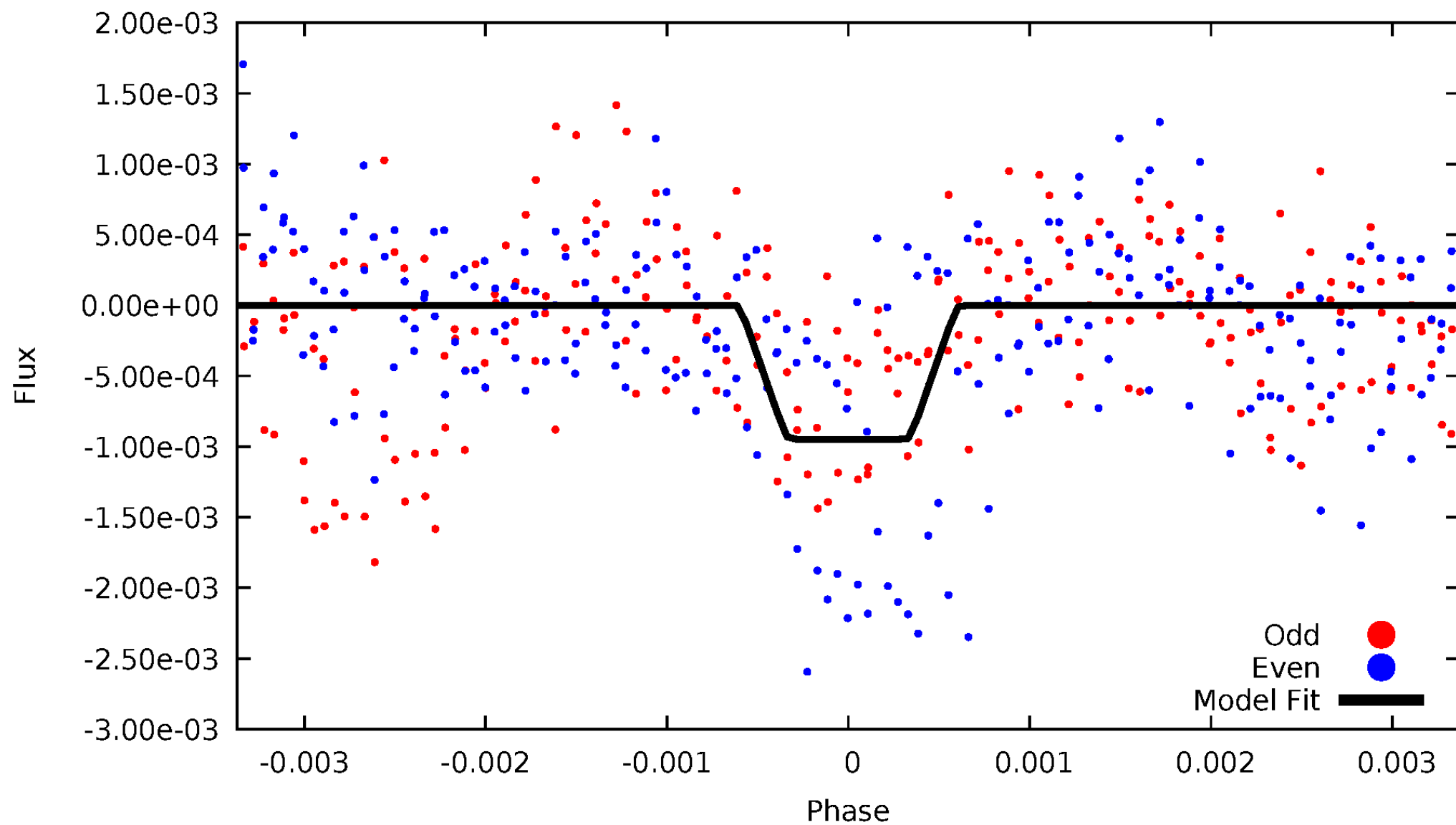
DV Odd/Even

TCE 008176169-01

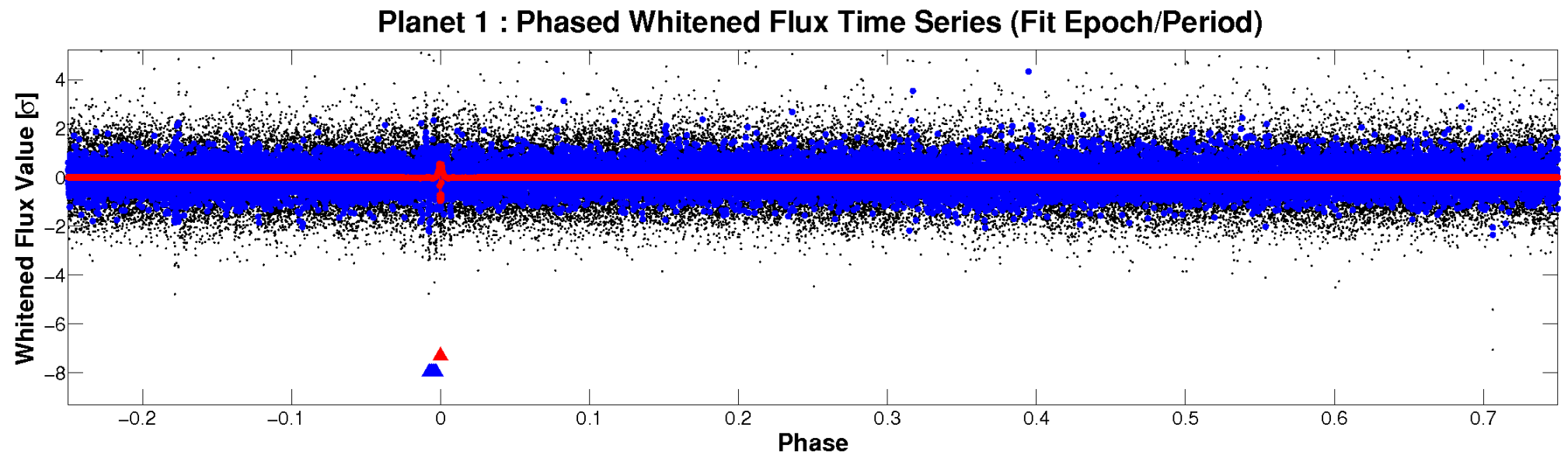
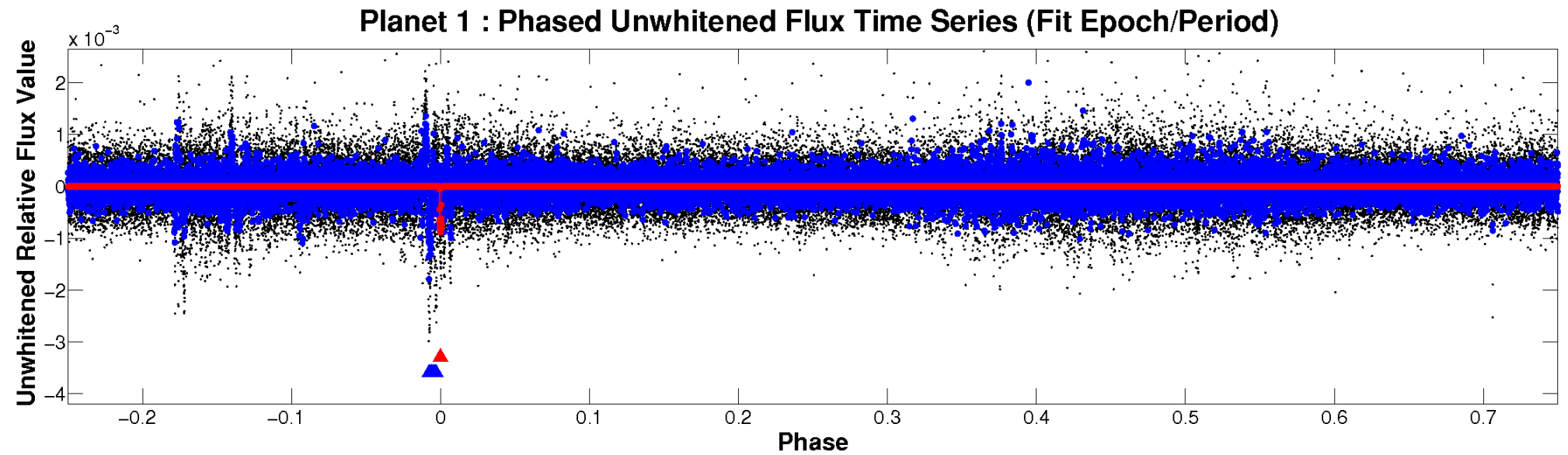


ALT Odd/Even

TCE 008176169-01

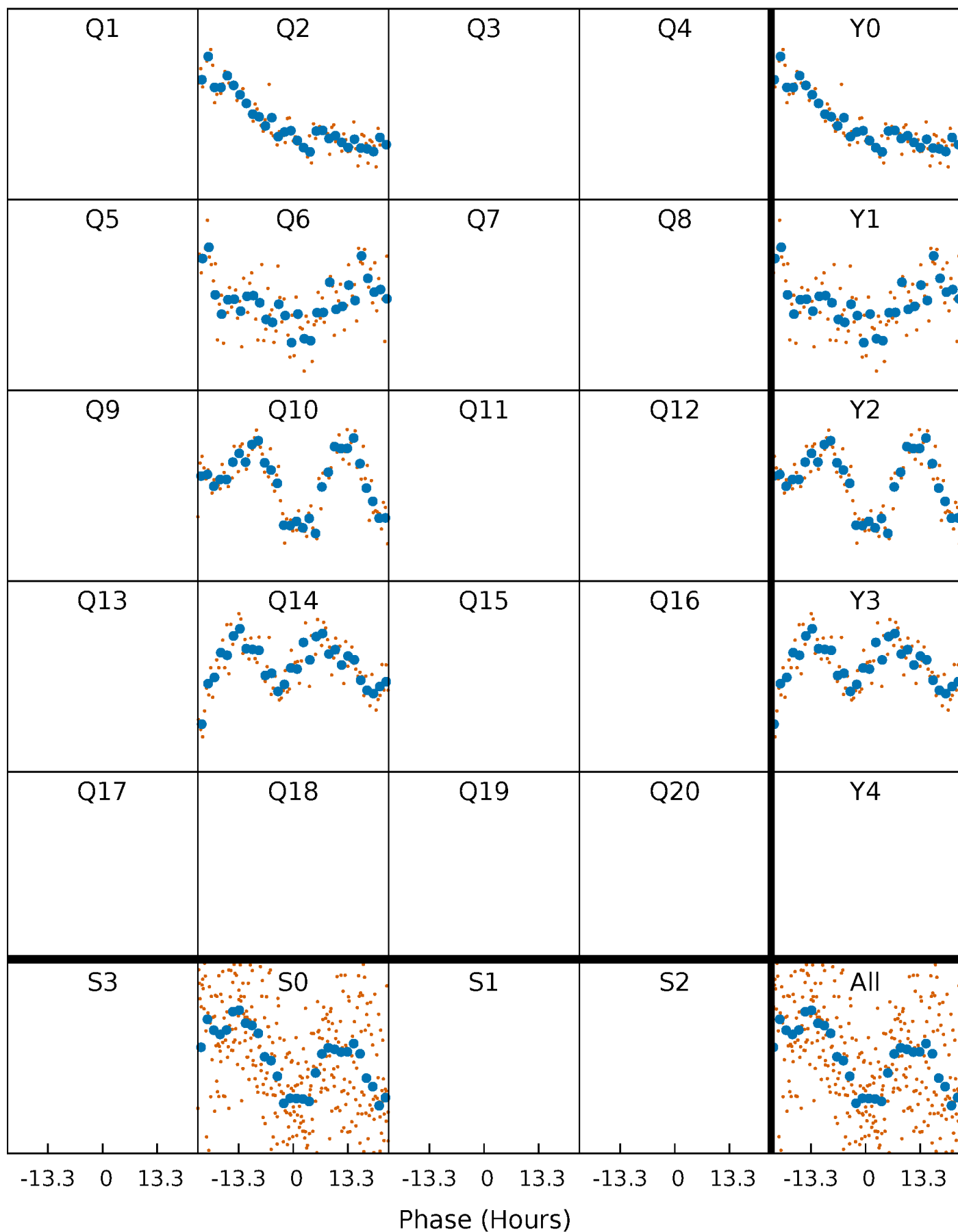


Non-Whitened Vs. Whitened Light Curve



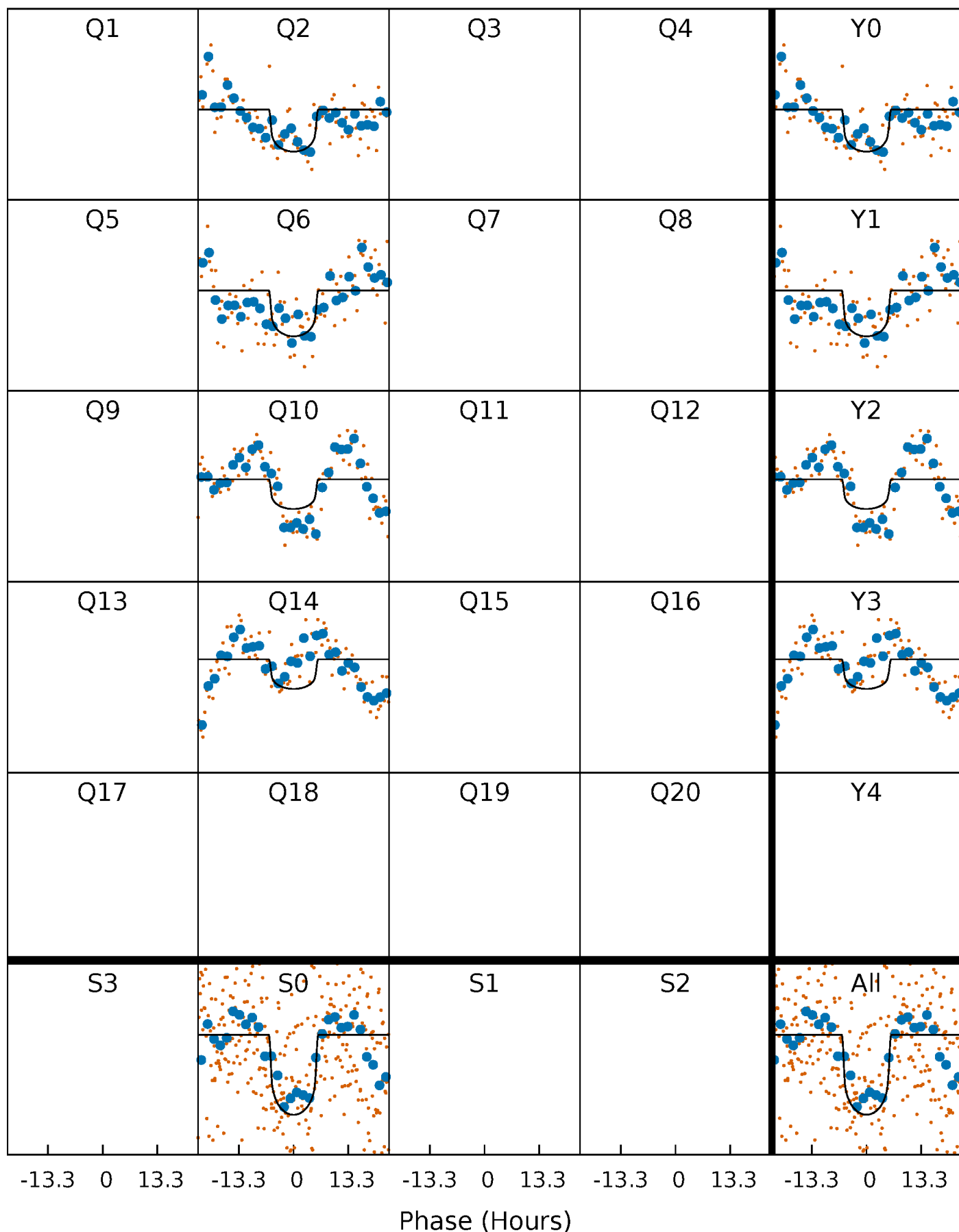
PDC Quarter-Phased Transit Curves

TCE 008176169-01 P=368.125028 Days $T_0=235.520141$ (BKJD)



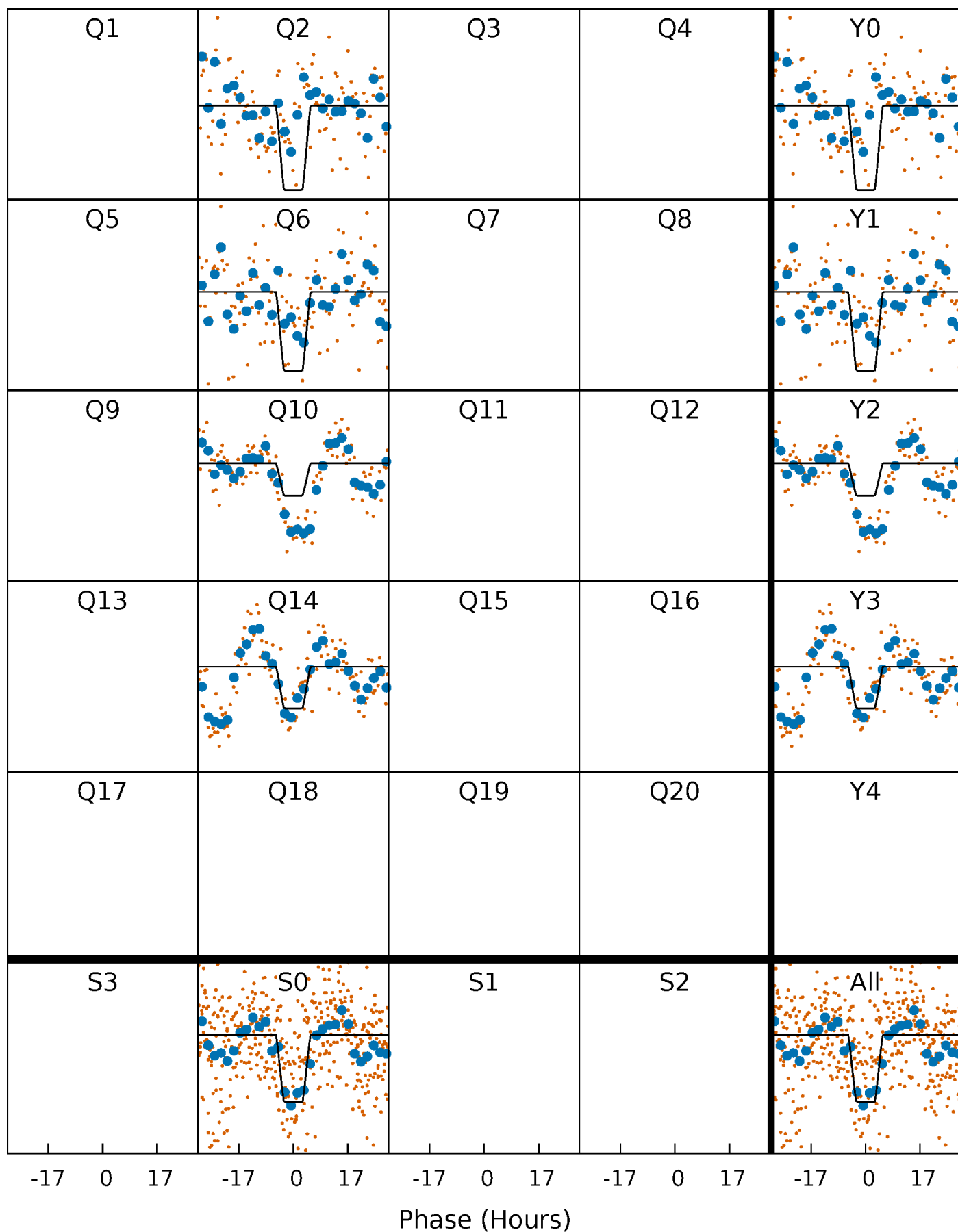
DV Quarter-Phased Transit Curves

TCE 008176169-01 P=368.125028 Days $T_0=235.520141$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

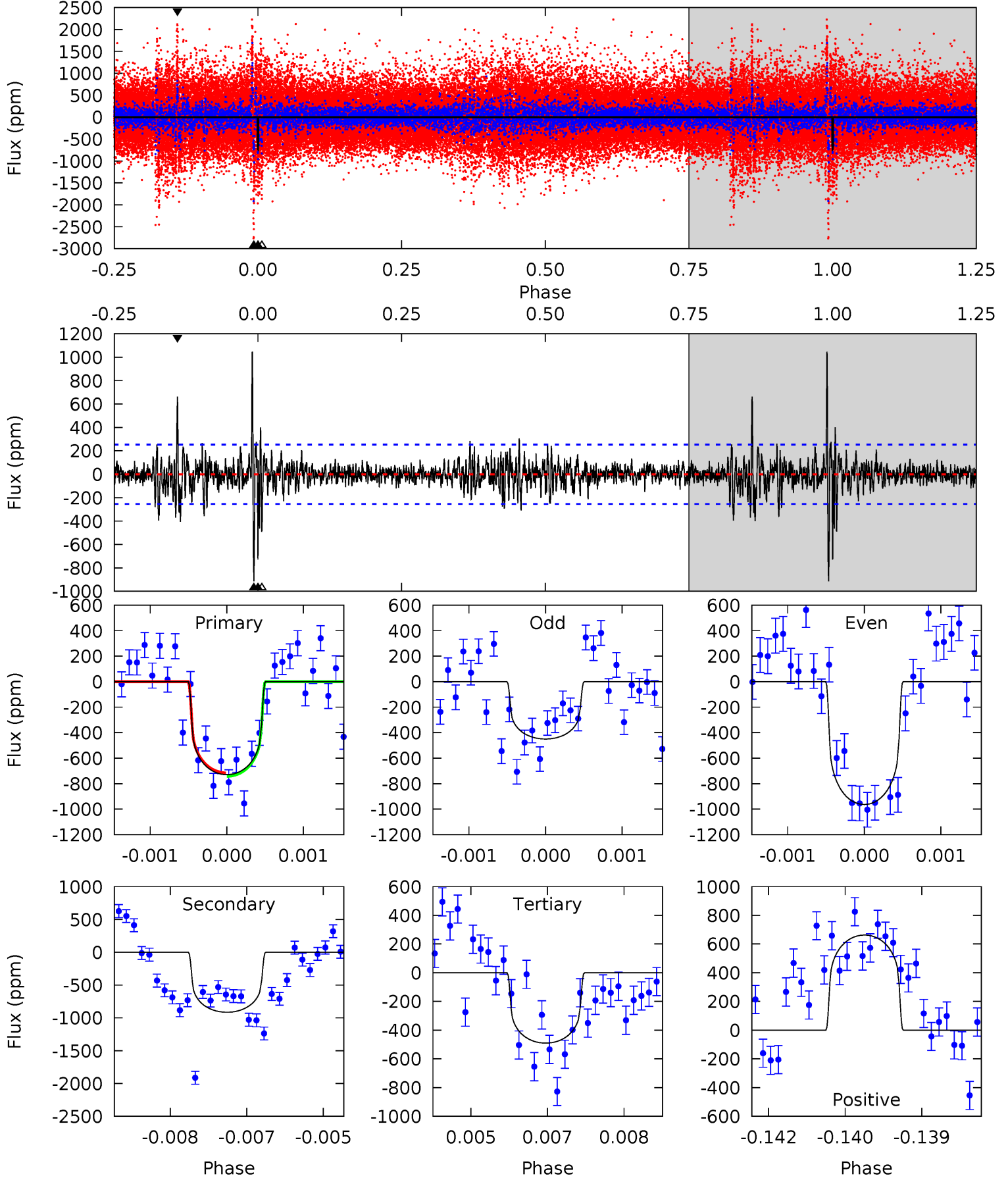
TCE 008176169-01 P=368.049283 Days $T_0=235.667207$ (BKJD)



DV Model-Shift Uniqueness Test

008176169-01, P = 368.125028 Days, E = 235.520141 Days

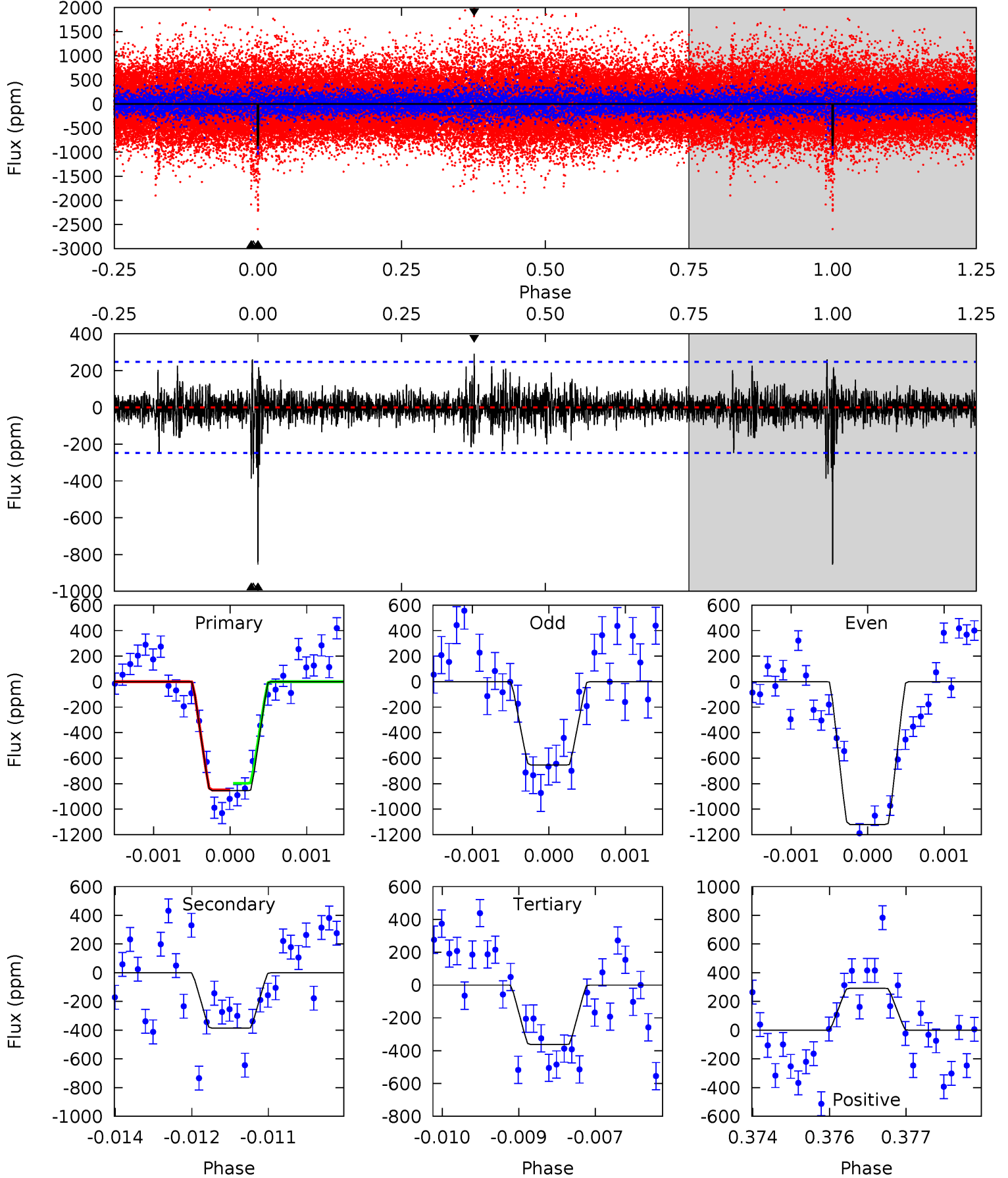
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
15.5	19.4	10.4	14.1	5.40	3.21	2.01	5.08	1.41	9.01	5.35	5.48	0.97	0.53	0.29



Alt Model-Shift Uniqueness Test

008176169-01, P = 368.049283 Days, E = 235.667207 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
18.7	8.44	7.92	6.37	5.41	3.23	1.20	10.8	12.3	0.52	2.07	5.18	1.33	0.25	0.57



Stellar Parameters For KIC 008176169

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	5659^{+169}_{-169}	$4.361^{+0.153}_{-0.187}$	$-0.040^{+0.300}_{-0.300}$	$1.041^{+0.290}_{-0.193}$	$0.907^{+0.123}_{-0.076}$	$1.134^{+0.824}_{-0.557}$
	+3%/-3%	+4%/-4%	+750%/-750%	+28%/-19%	+14%/-8%	+73%/-49%
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 008176169-01 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	-914 ± 47	$3.25^{+1.74}_{-1.53}$	363^{+27}_{-23}	5875^{+2405}_{-1016}	$45119^{+116759}_{-25881}$
Alt.	-386 ± 46	$3.54^{+1.80}_{-1.54}$	362^{+26}_{-22}	4660^{+1377}_{-658}	15758^{+35638}_{-8594}

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 $A_{obs} \gg 1.0$

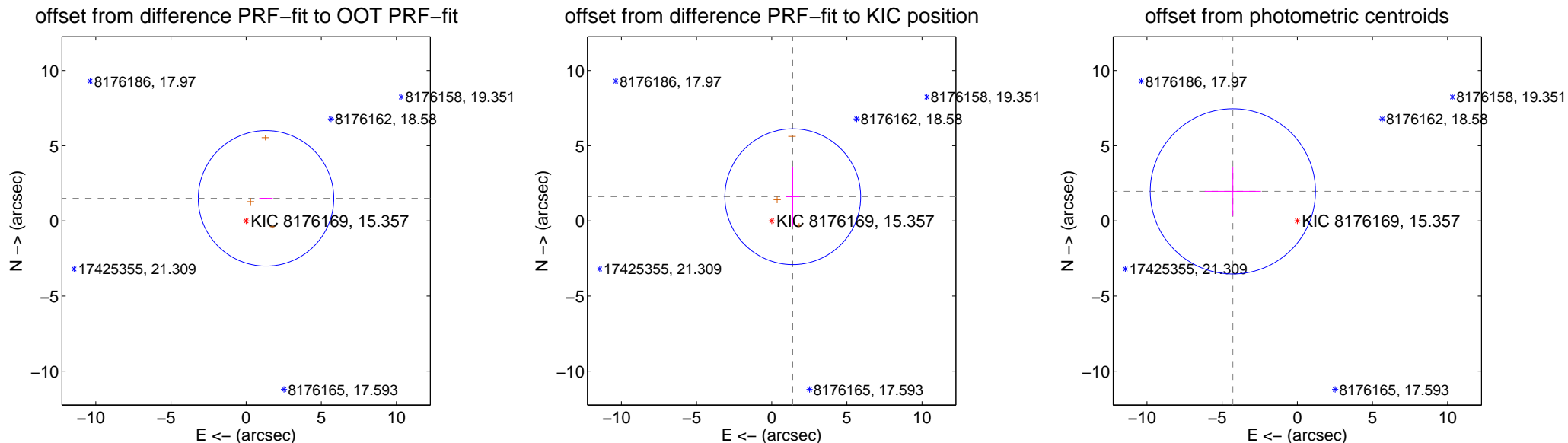
DV Centroid Data

Supplemental centroid analysis for 008176169-01. Kepler magnitude: 15.36. Transit SNR 9.08

There are 0 quarters with good PRF difference image offsets

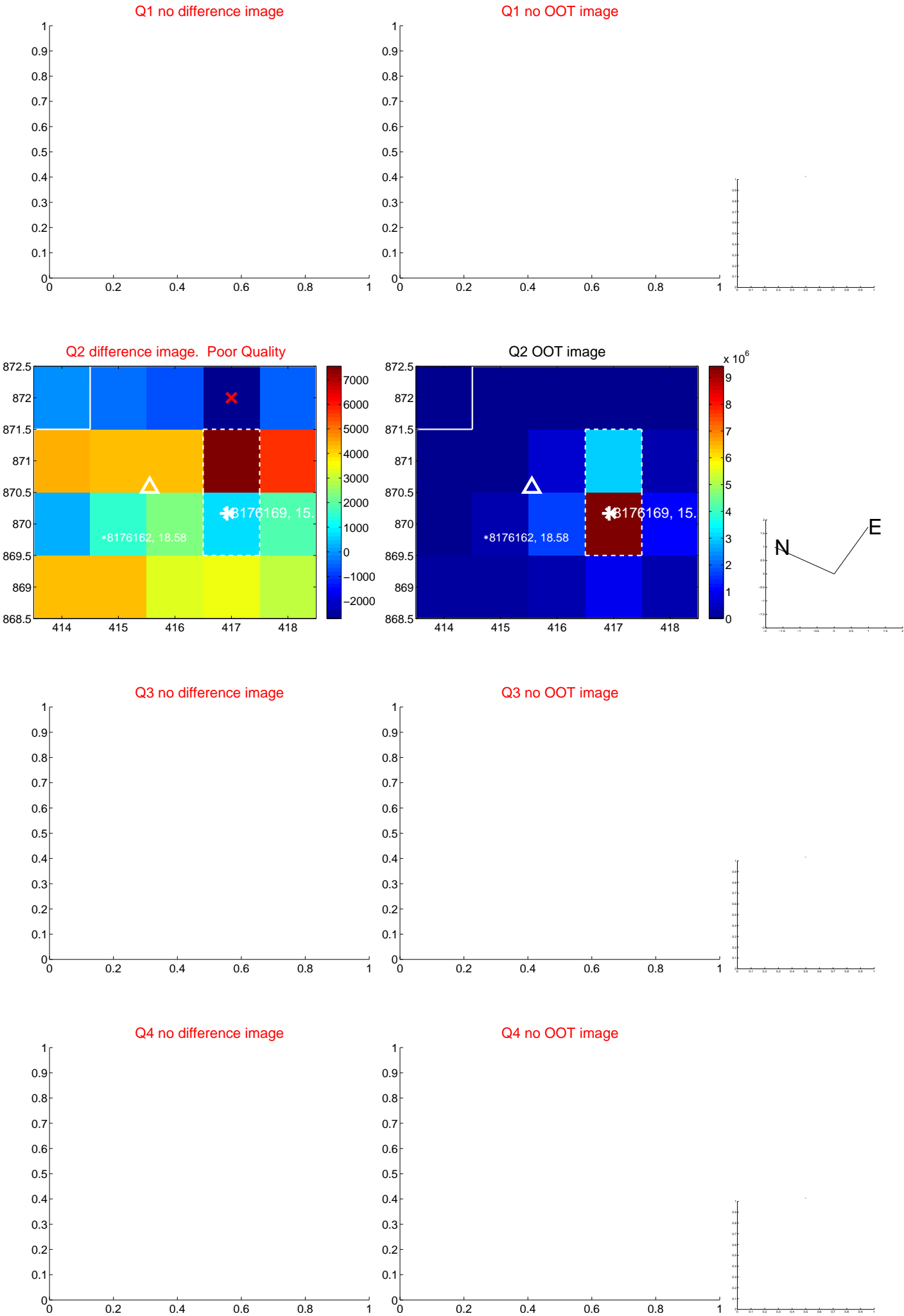
The direct PRF centroid is offset from the target star catalog position by about 0.14 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	1.999 ± 1.502	1.33	-1.324 ± 0.450	1.498 ± 1.965
PRF-fit source offset from KIC position	2.132 ± 1.506	1.42	-1.401 ± 0.455	1.607 ± 1.957
photometric centroid source offset	4.71 ± 1.83	2.57	4.29 ± 1.87	1.96 ± 1.63

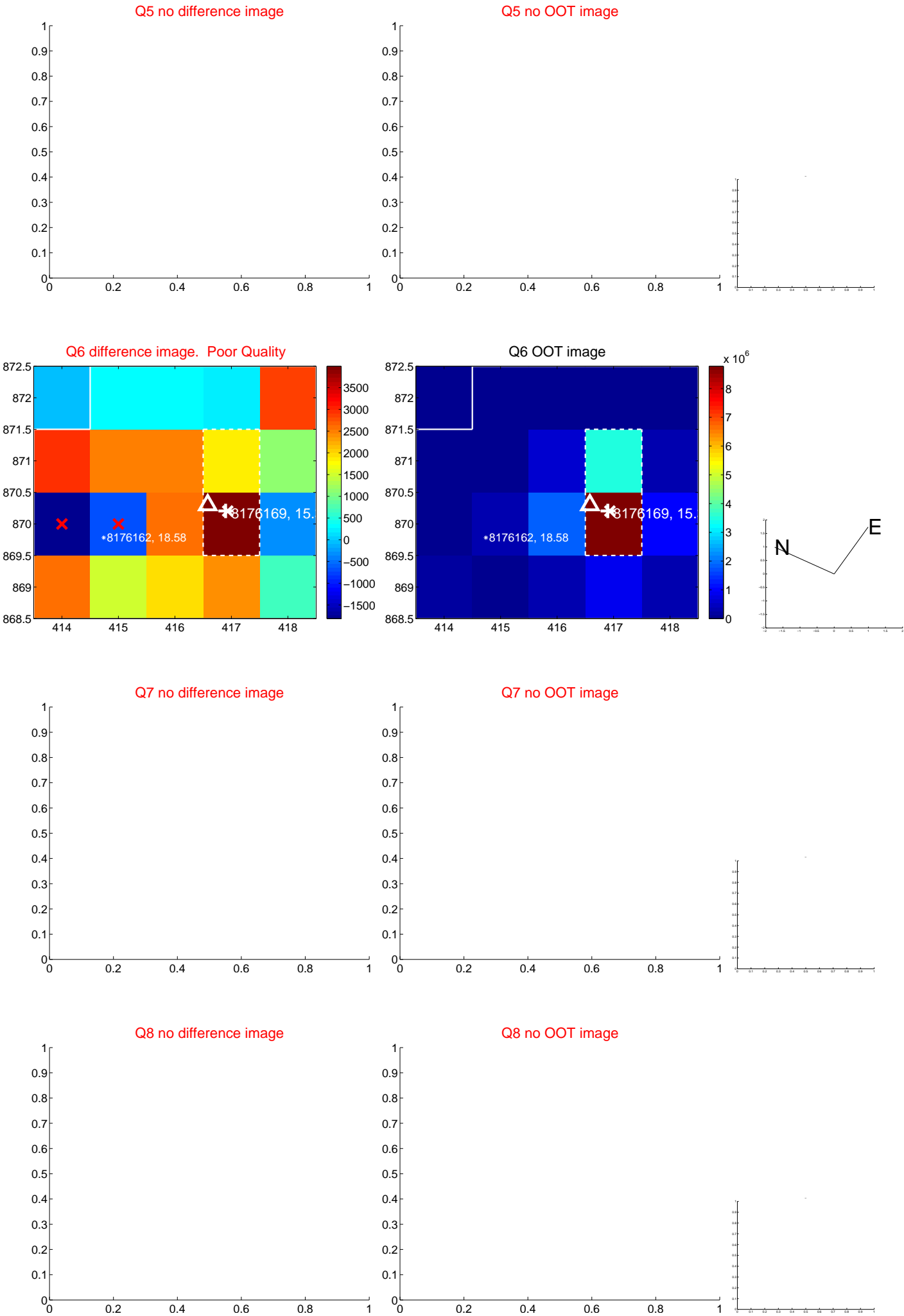


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ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



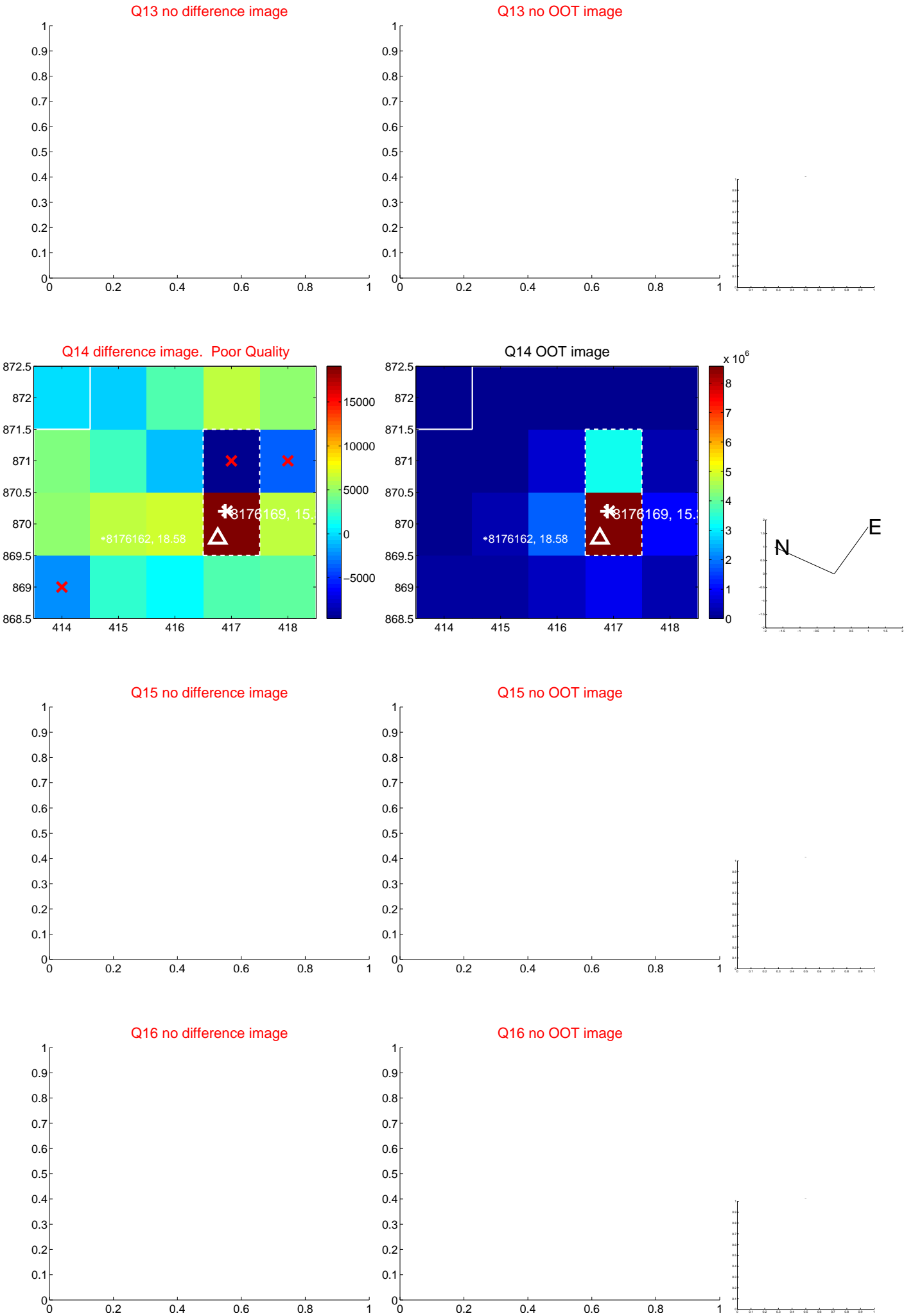
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



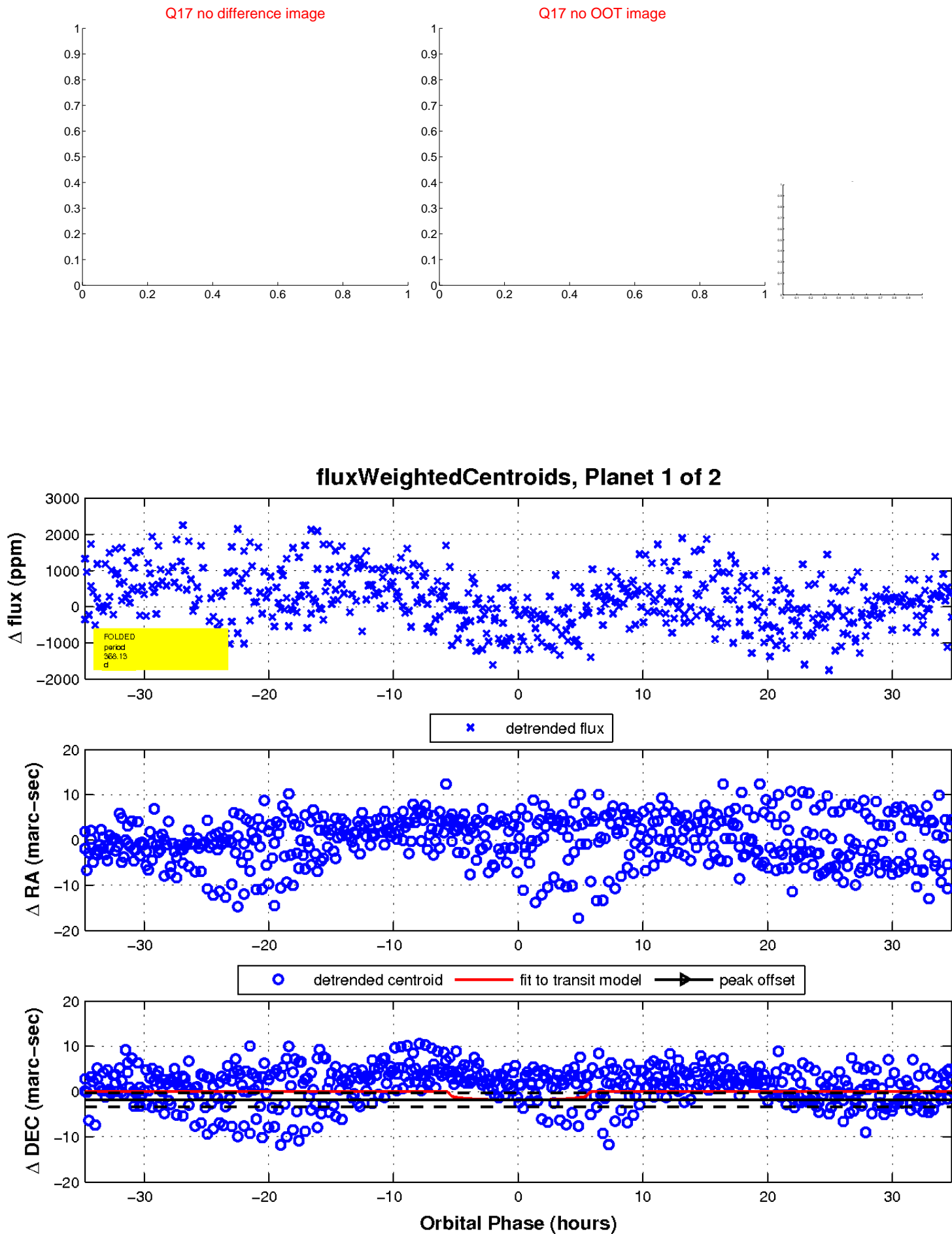
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

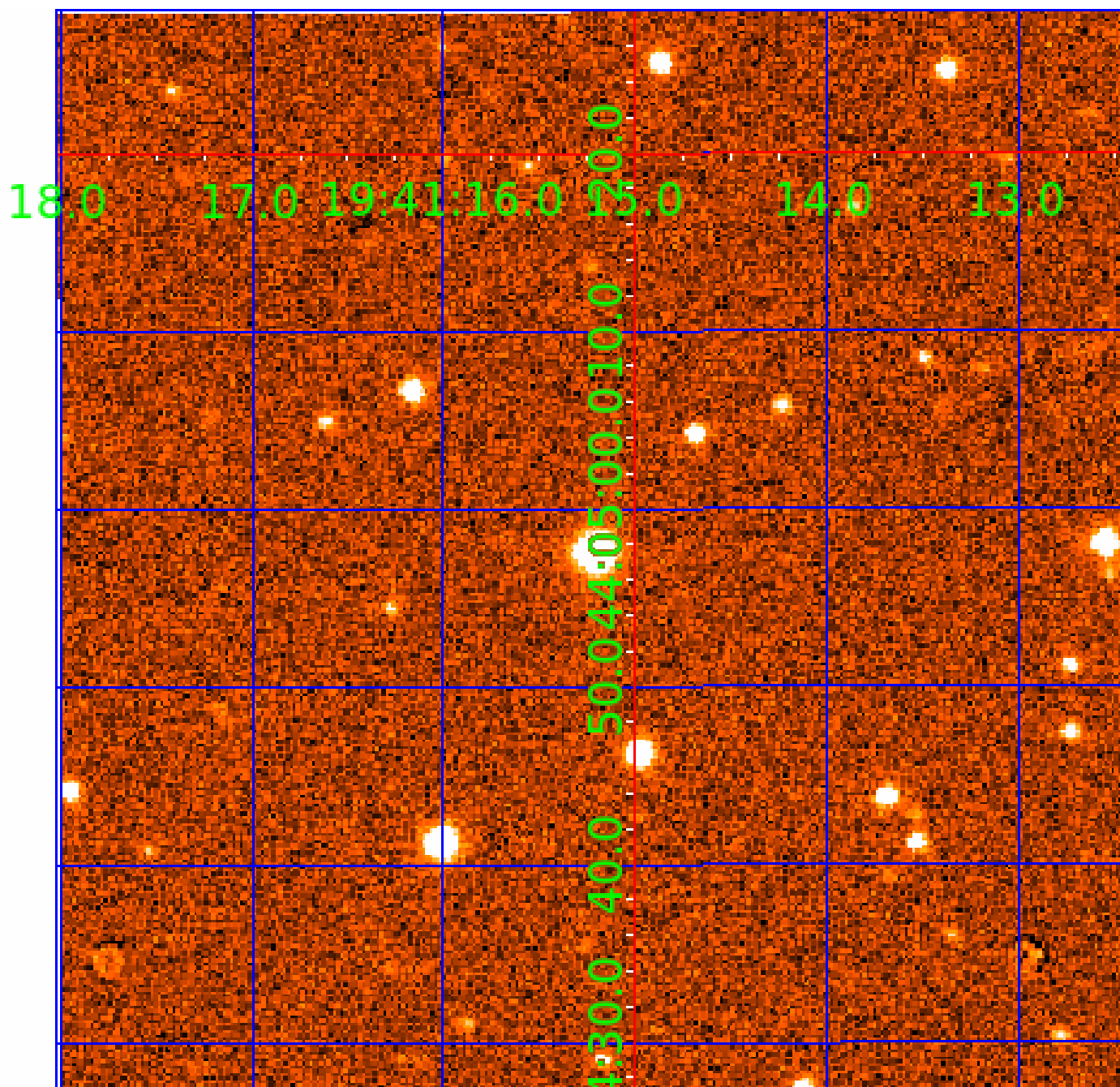


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 008176169

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})
008176169-01	OBS	No	368.125029	235.520141	883.8	11.602	8.4	9.1	1.04	5659	3.16	1.05
008176169-02	OBS	No	368.660076	232.769808	1374.3	20.056	10.0	12.5	1.04	5659	4.79	1.05

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
008176169-01	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL_SKYE—LPP_DV—ALL_TRANS_CHASES—INCONSISTENT_TRANS—CENT_FEW_DIFFS
008176169-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL_SKYE—LPP_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.

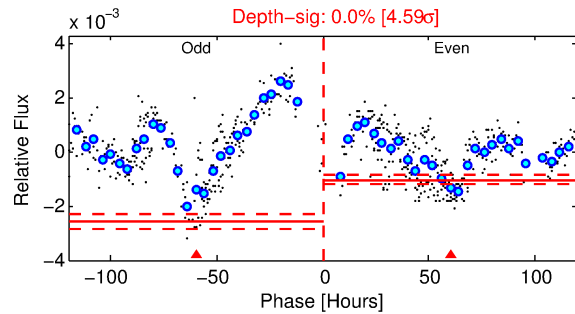
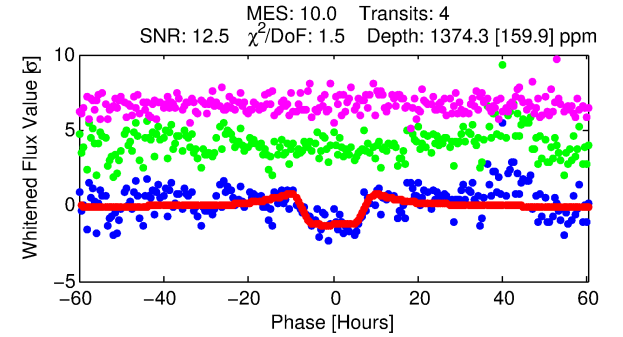
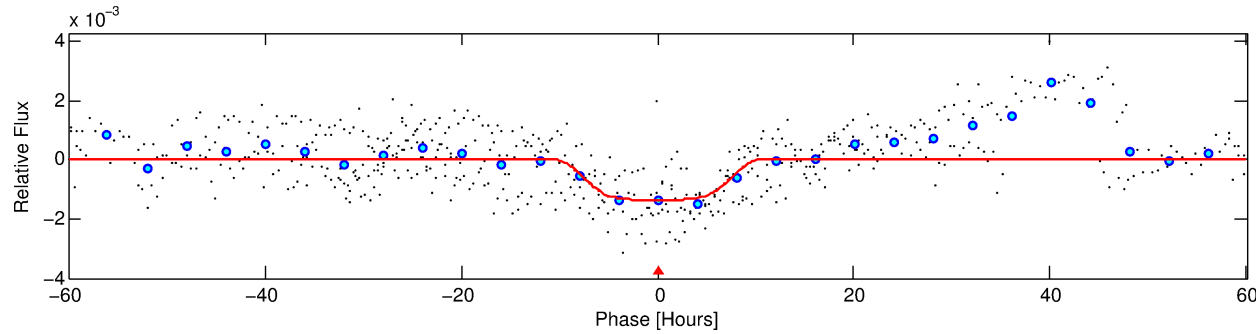
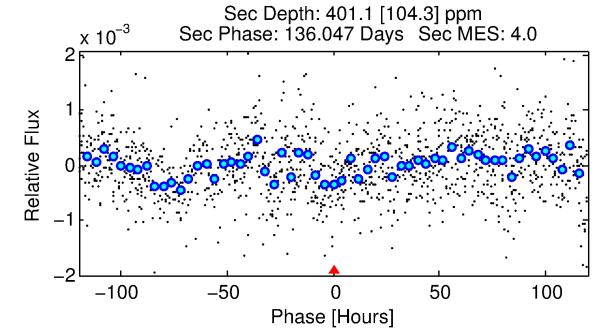
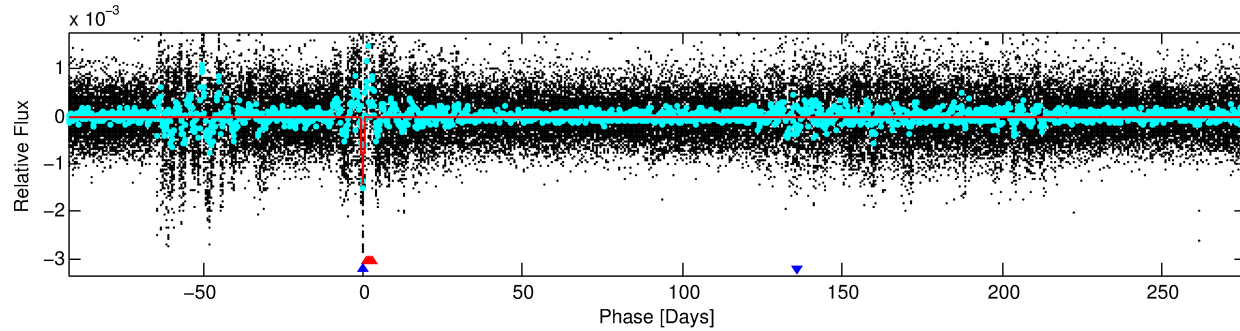
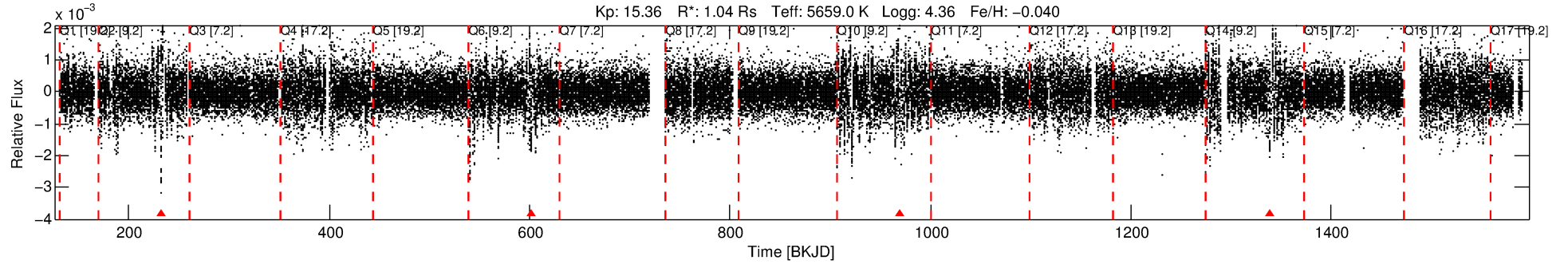
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 008176169-02

No Significant Match Found

DV One-Page Summary

KIC: 8176169 Candidate: 2 of 2 Period: 368.660 d



DV Fit Results:

Period = 368.66008 [0.01361] d
Epoch = 232.7698 [0.0249] BKJD
Rp/R* = 0.0422 [0.0032]
a/R* = 65.43 [10.08]
b = 0.93 [0.02]
Seff = 1.05 [0.38]
Teq = 258 [23] K
Rp = 4.79 [1.38] Re
a = 0.9744 [0.2287] AU
Ag = 9119.29 [4149.76] [2.20σ]
Teffp = 3899 [315] K [11.53σ]

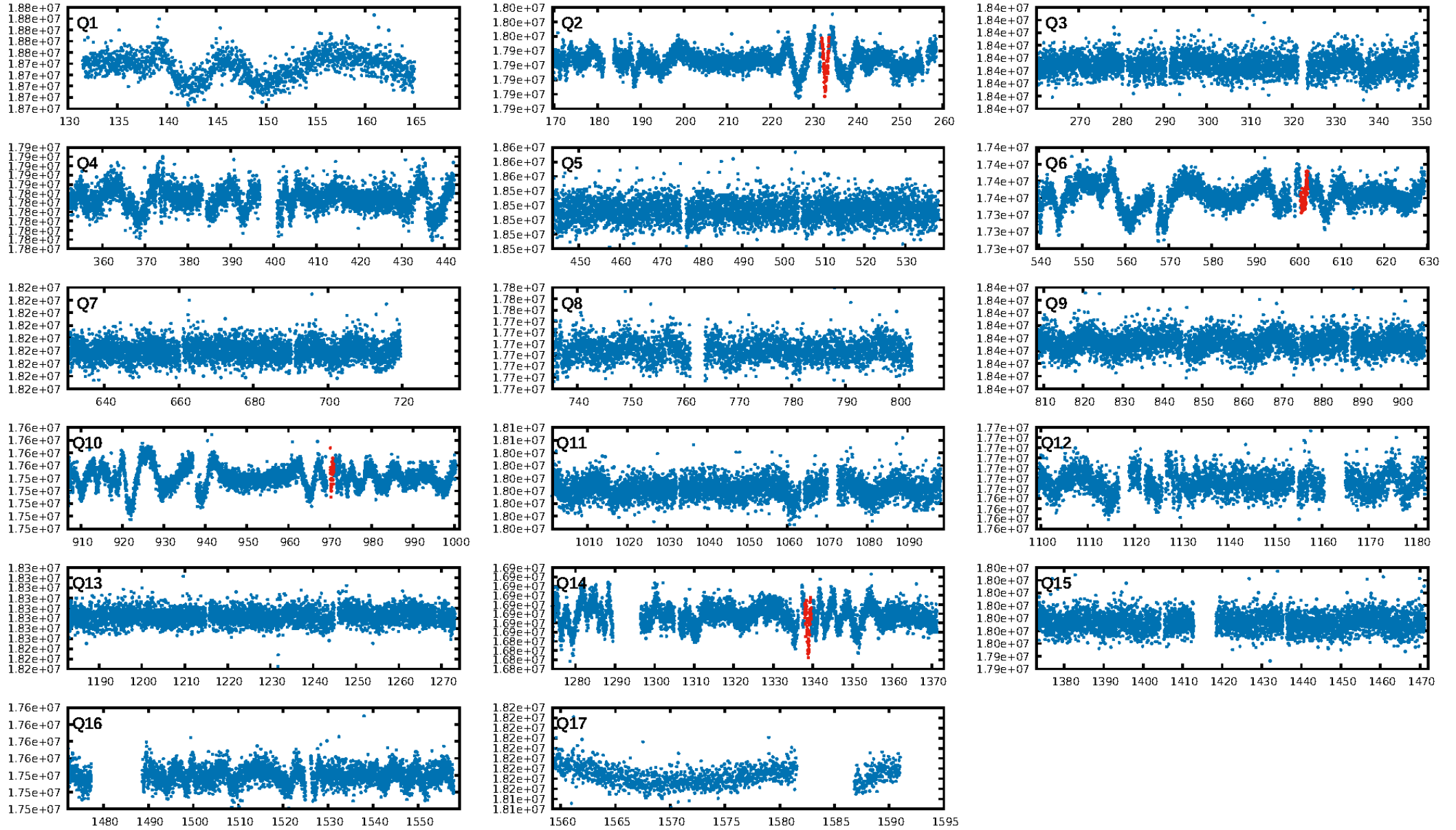
DV Diagnostic Results:

ShortPeriod-sig: 42.1% [0.55σ]
LongPeriod-sig: N/A
ModelChiSquare2-sig: 0.1%
ModelChiSquareGof-sig: 85.5%
Bootstrap-pfa: 2.48e-11
RollingBand-fgt: 0.00 [0/4]
GhostDiagnostic-chr: 0.5644
Centroid-sig: N/A
Centroid-so: 1.512 arcsec [1.15σ]
OotOffset-rm: N/A
KicOffset-rm: N/A
OotOffset-st: 0/0/0/0 [0]
KicOffset-st: 0/0/0/0 [0]
DiffImageQuality-fgm: N/A
DiffImageOverlap-fno: N/A

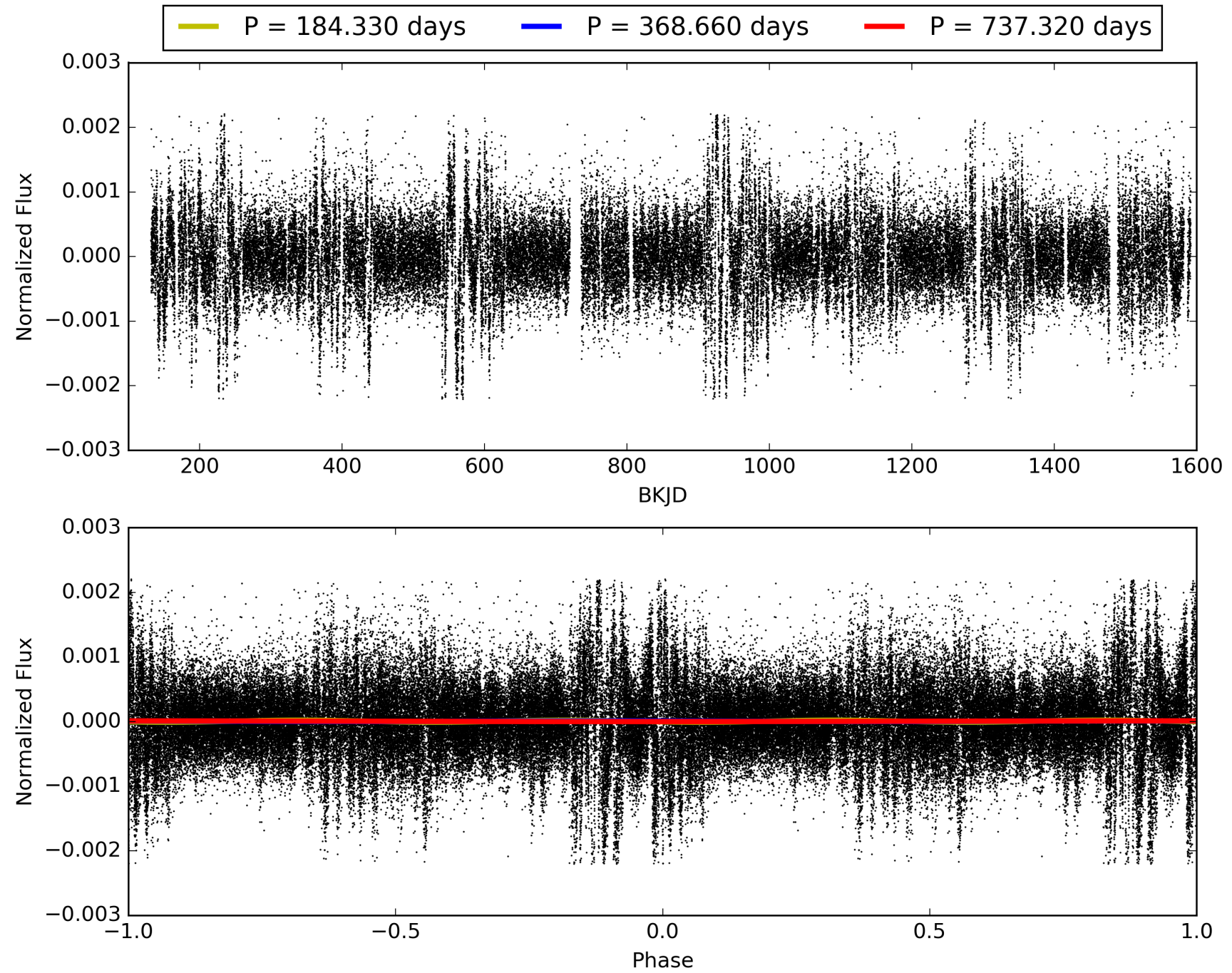
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 29-Jan-2016 06:21:53 Z

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

TCE 008176169-02, PDC Light Curves

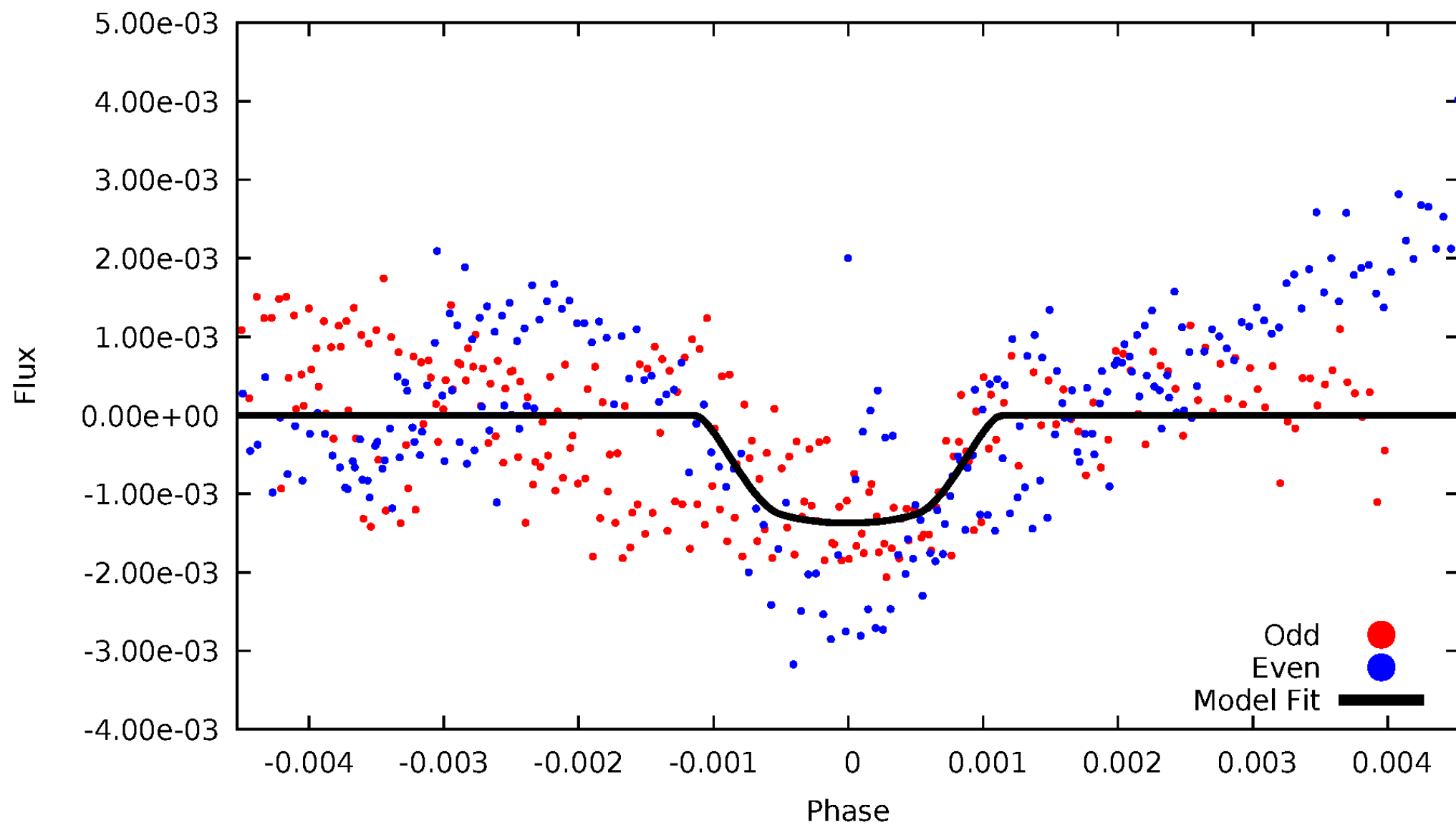


TCE 008176169-02



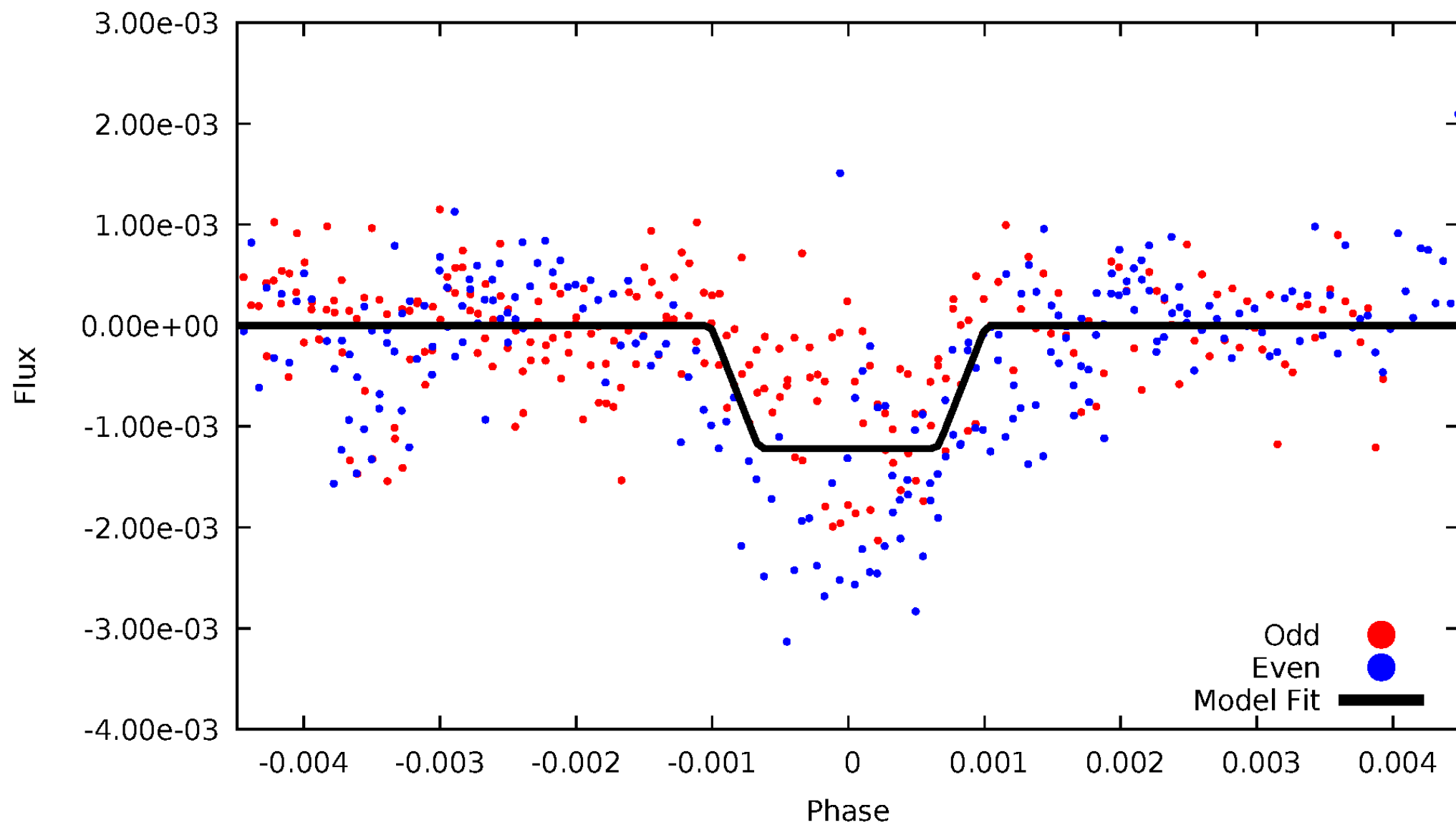
DV Odd/Even

TCE 008176169-02



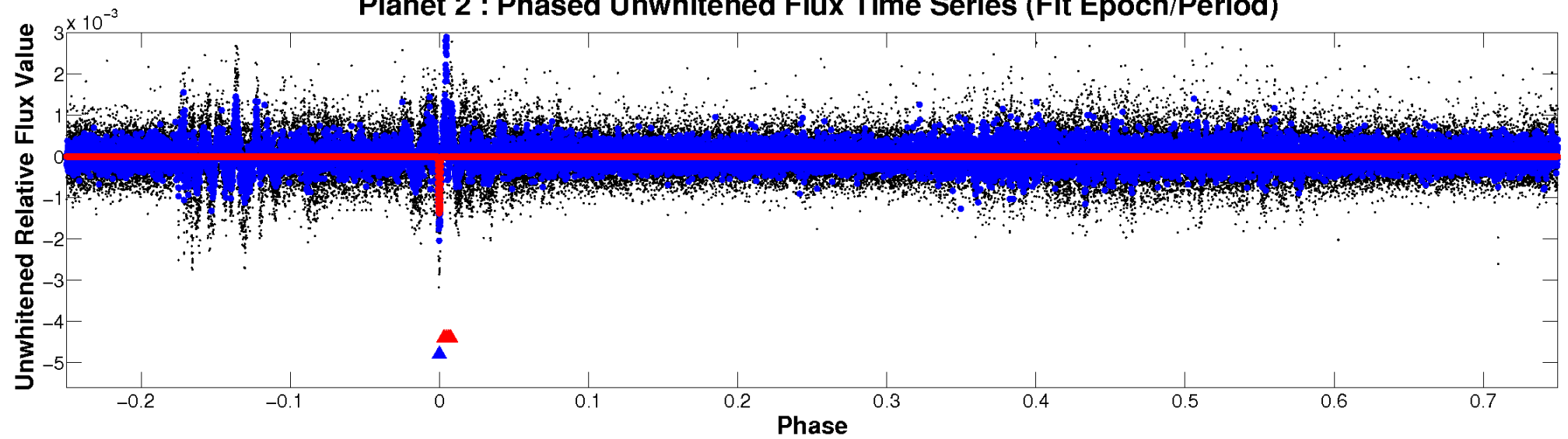
ALT Odd/Even

TCE 008176169-02

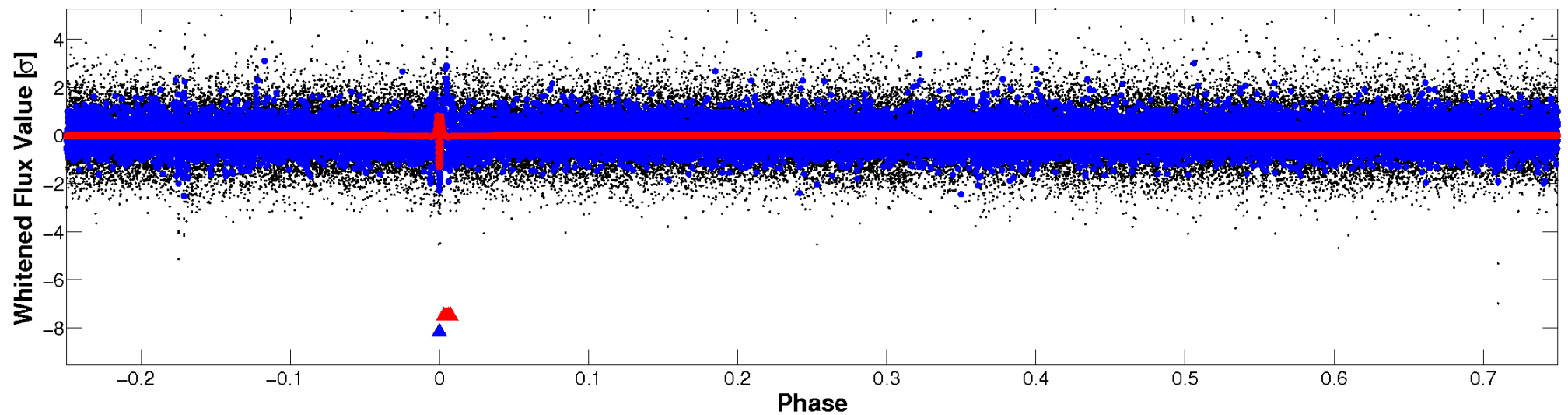


Non-Whitened Vs. Whitened Light Curve

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



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



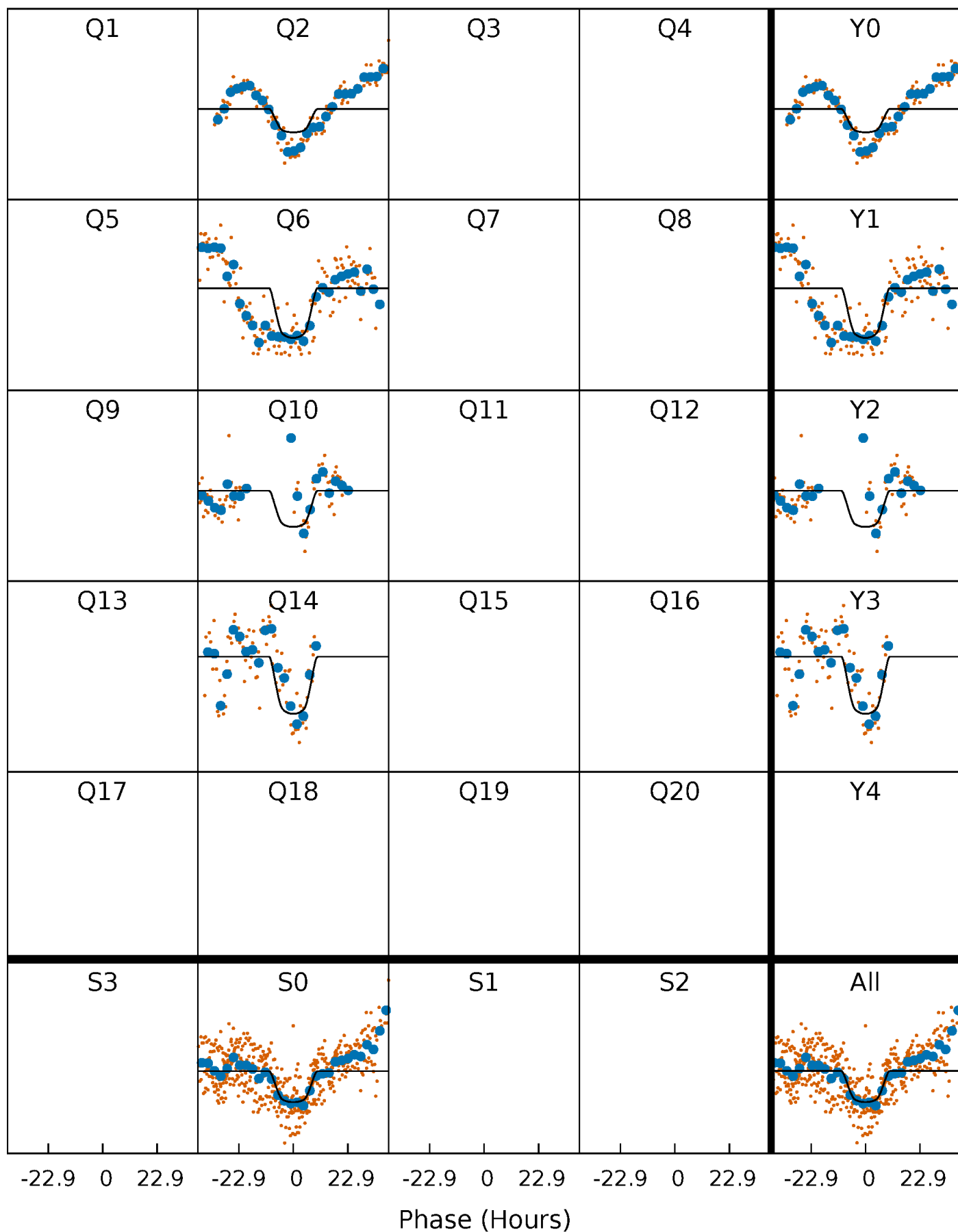
PDC Quarter-Phased Transit Curves

TCE 008176169-02 P=368.660076 Days $T_0=232.769808$ (BKJD)



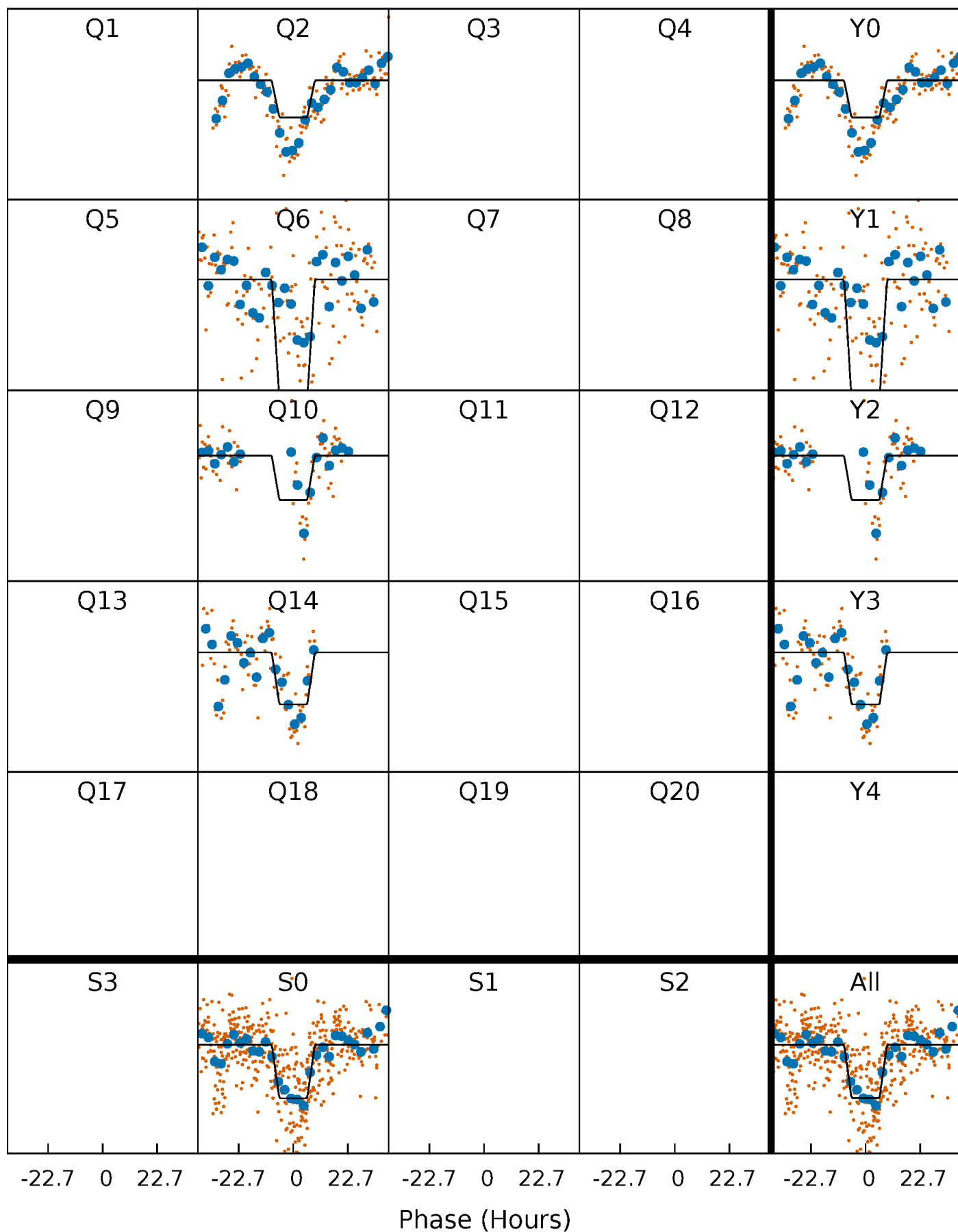
DV Quarter-Phased Transit Curves

TCE 008176169-02 P=368.660076 Days $T_0=232.769808$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

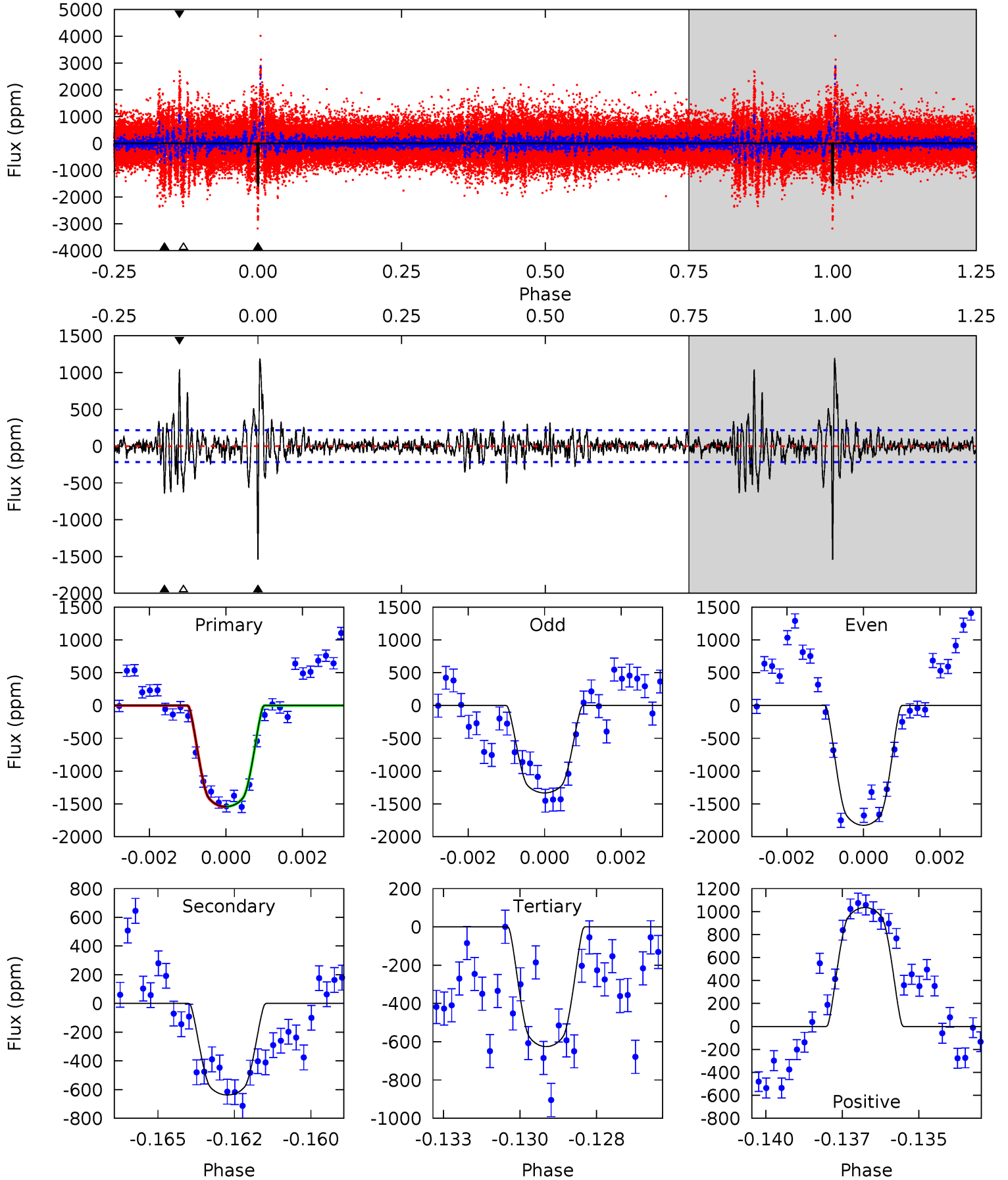
TCE 008176169-02 P=368.662289 Days $T_0=232.786692$ (BKJD)



DV Model-Shift Uniqueness Test

008176169-02, $P = 368.660076$ Days, $E = 232.769808$ Days

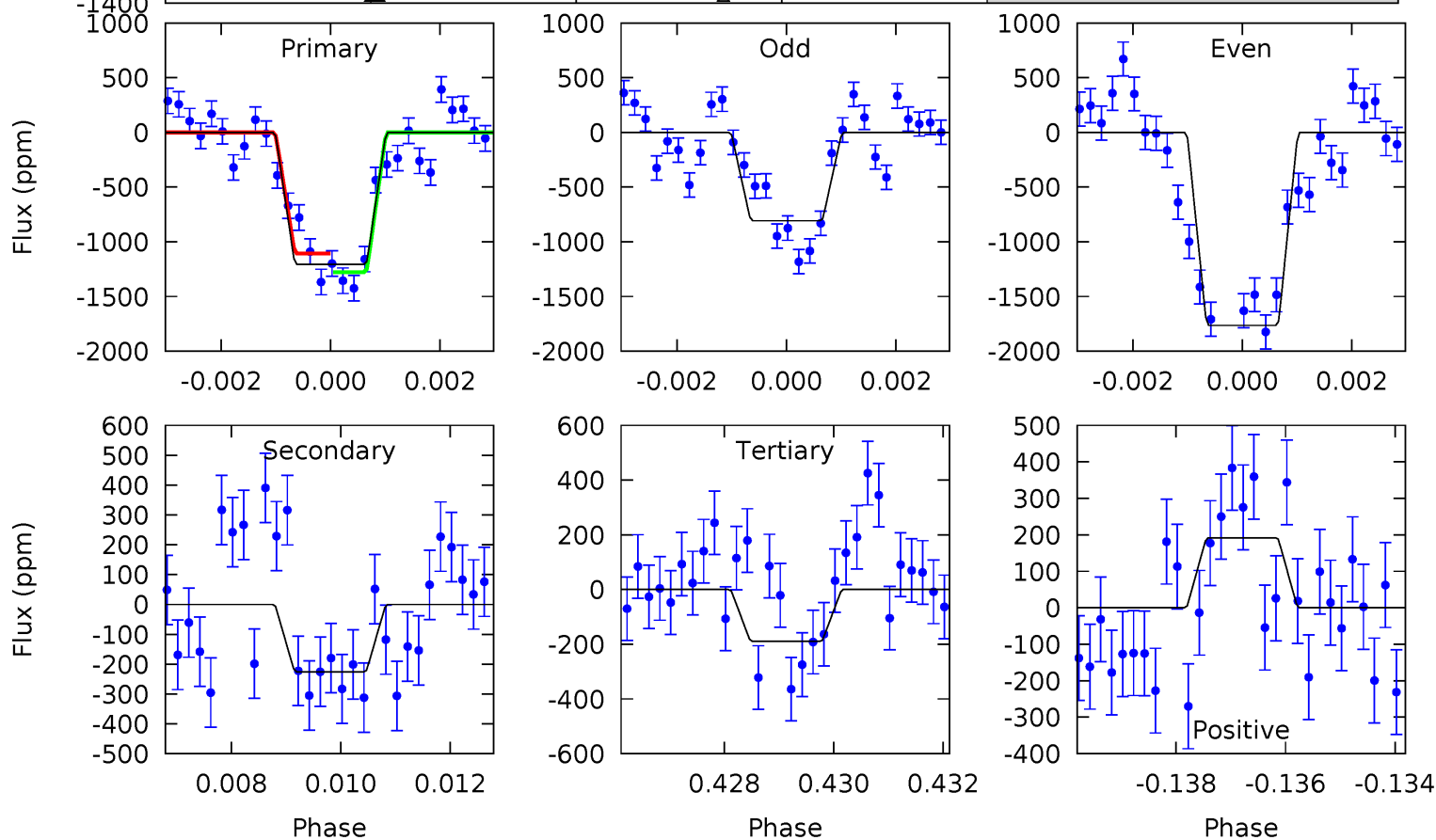
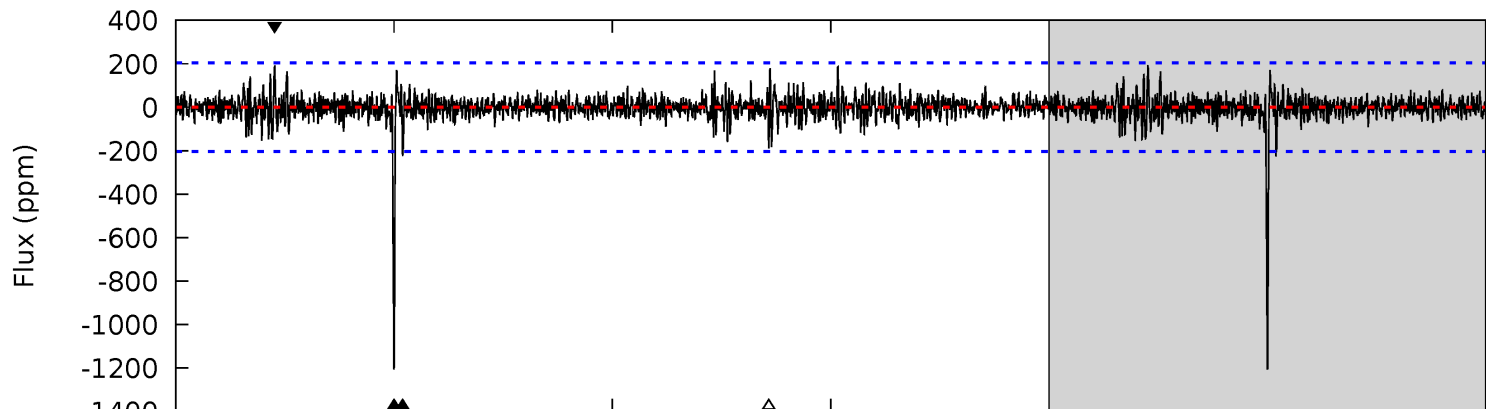
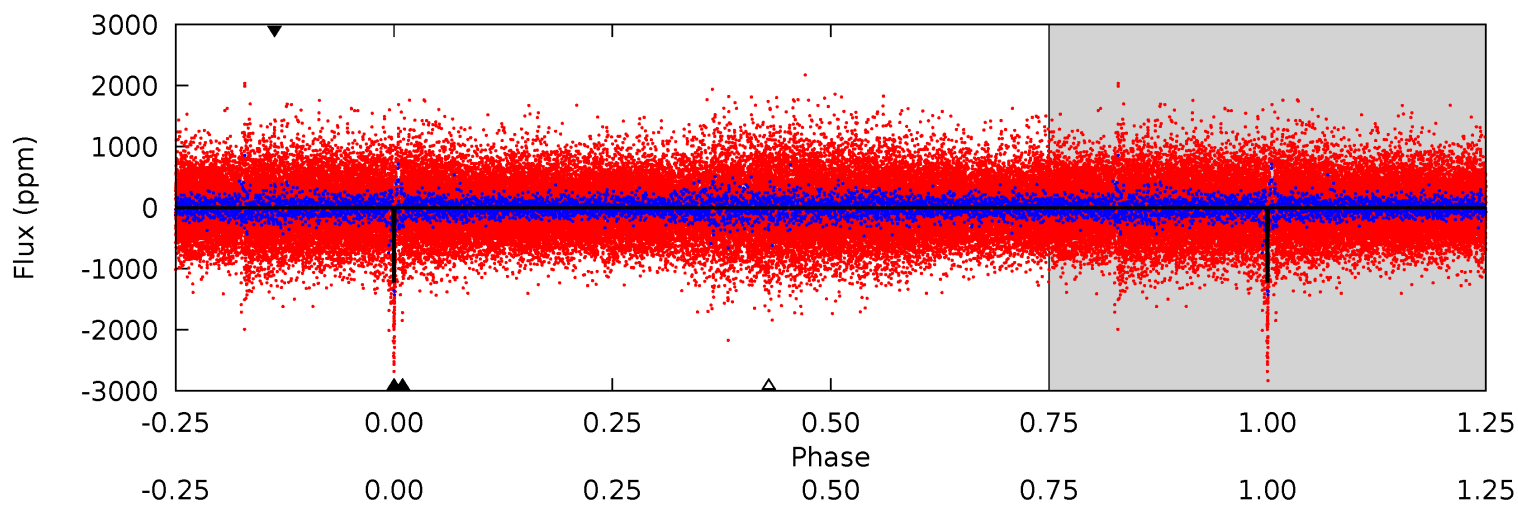
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
37.8	15.6	15.3	25.4	5.30	3.05	3.46	22.5	12.4	0.29	-9.75	5.99	1.06	0.44	0



Alt Model-Shift Uniqueness Test

008176169-02, $P = 368.662289$ Days, $E = 232.786692$ Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
31.5	5.88	4.94	5.00	5.33	3.09	1.03	26.5	26.4	0.94	0.88	12.5	0.98	0.14	2.19



Stellar Parameters For KIC 008176169

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	5659^{+169}_{-169}	$4.361^{+0.153}_{-0.187}$	$-0.040^{+0.300}_{-0.300}$	$1.041^{+0.290}_{-0.193}$	$0.907^{+0.123}_{-0.076}$	$1.134^{+0.824}_{-0.557}$
	+3%/-3%	+4%/-4%	+750%/-750%	+28%/-19%	+14%/-8%	+73%/-49%
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 008176169-02 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	-637 ± 41	$4.84^{+0.80}_{-0.64}$	361^{+29}_{-22}	4539^{+187}_{-178}	14230^{+4642}_{-3738}
Alt.	-225 ± 38	$4.00^{+0.74}_{-0.62}$	361^{+29}_{-22}	4013^{+205}_{-205}	7313^{+3183}_{-2362}

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

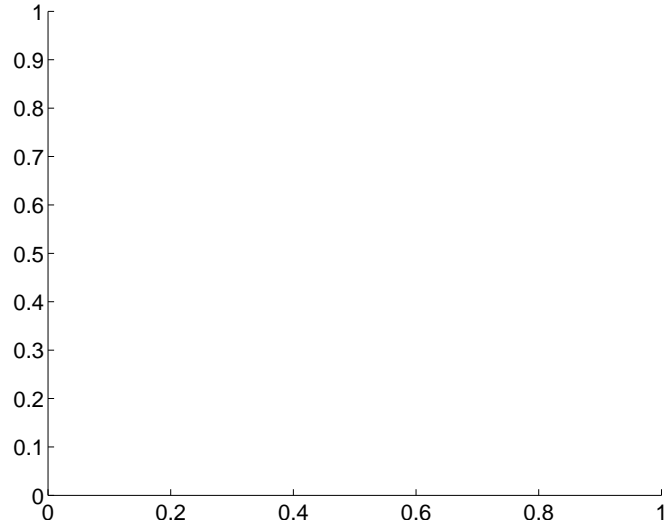
Supplemental centroid analysis for 008176169-02. Kepler magnitude: 15.36. Transit SNR 12.52

There are 0 quarters with good PRF difference image offsets

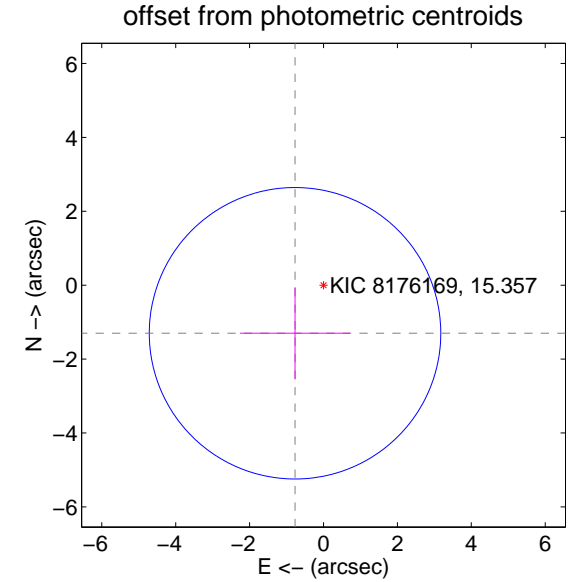
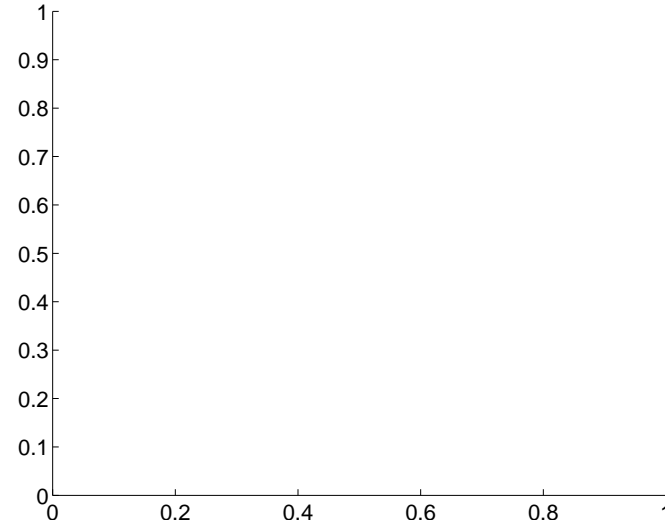
The direct PRF centroid is offset from the target star catalog position by about NaN arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	—	—	—	—
PRF-fit source offset from KIC position	—	—	—	—
photometric centroid source offset	1.51 ± 1.31	1.15	0.77 ± 1.49	-1.30 ± 1.25

There is no PRF-fit offset from OOT-fit

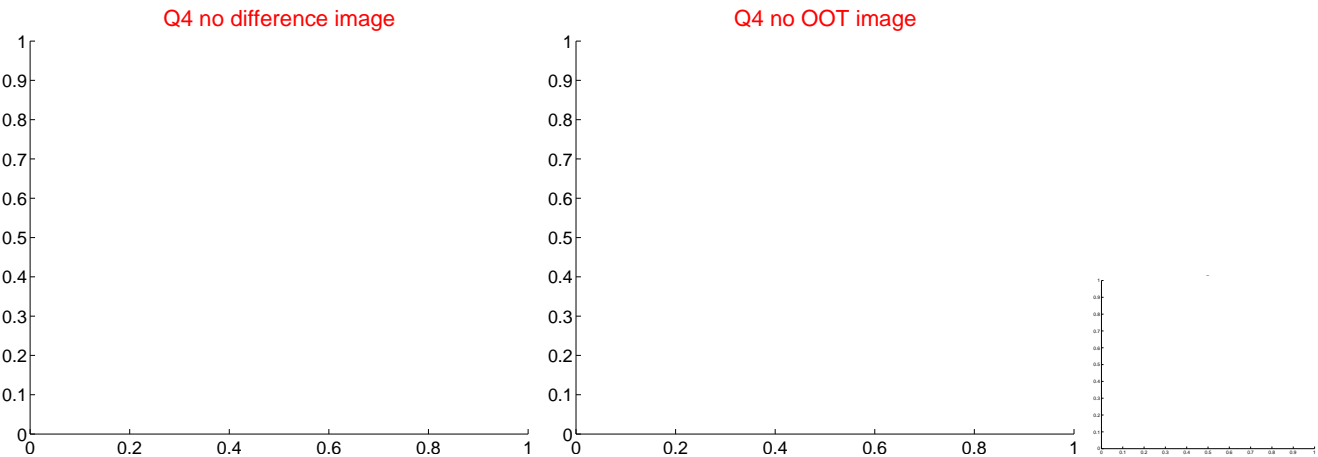
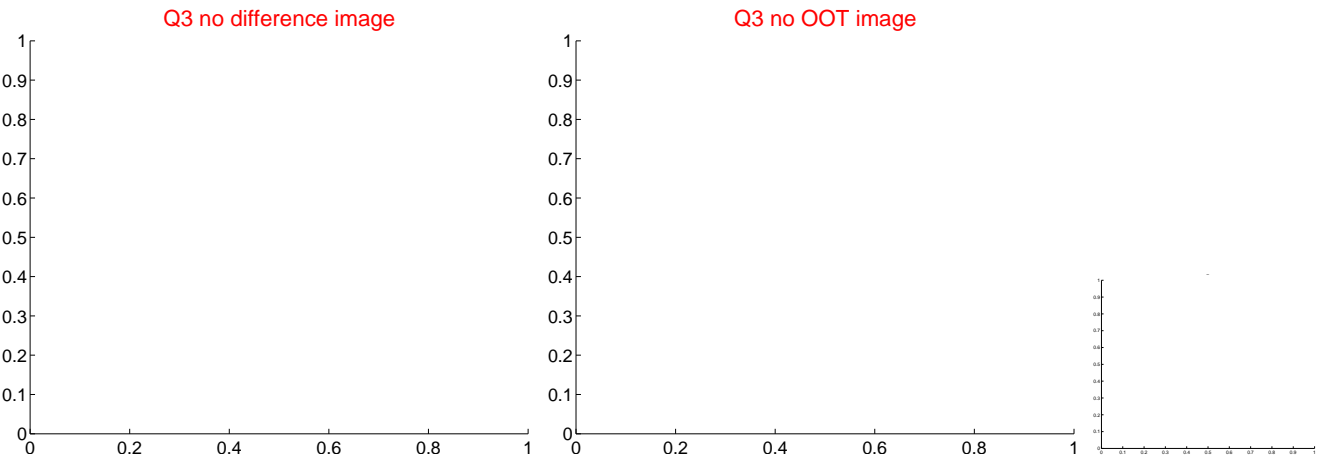
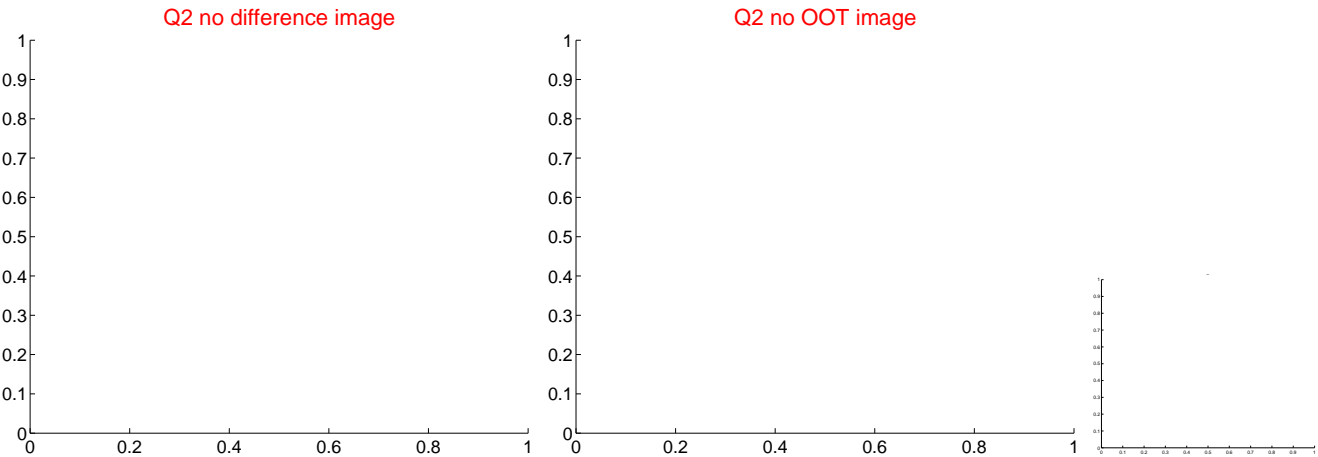
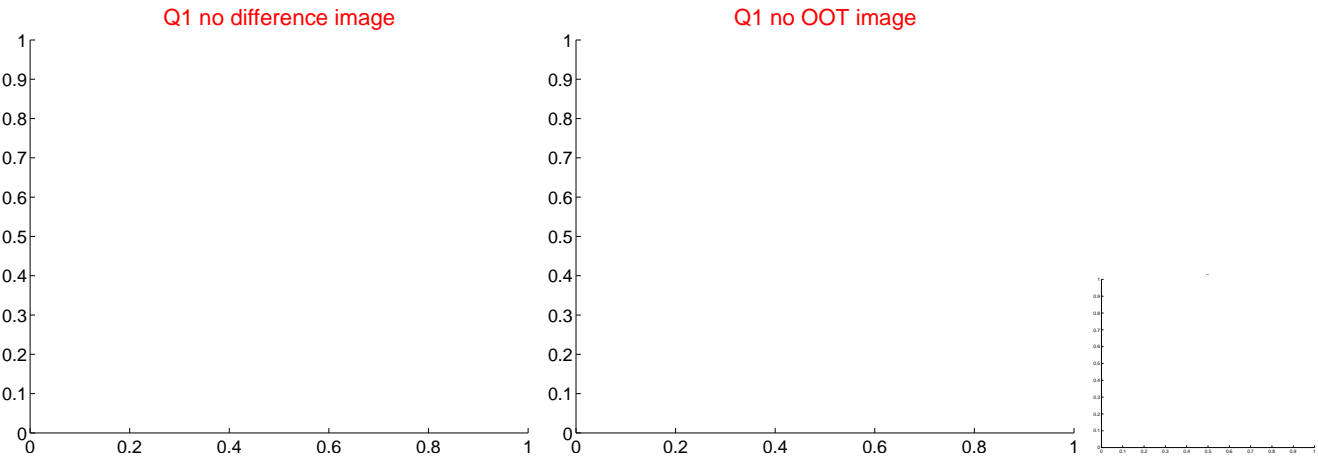


There is no PRF-fit offset from KIC

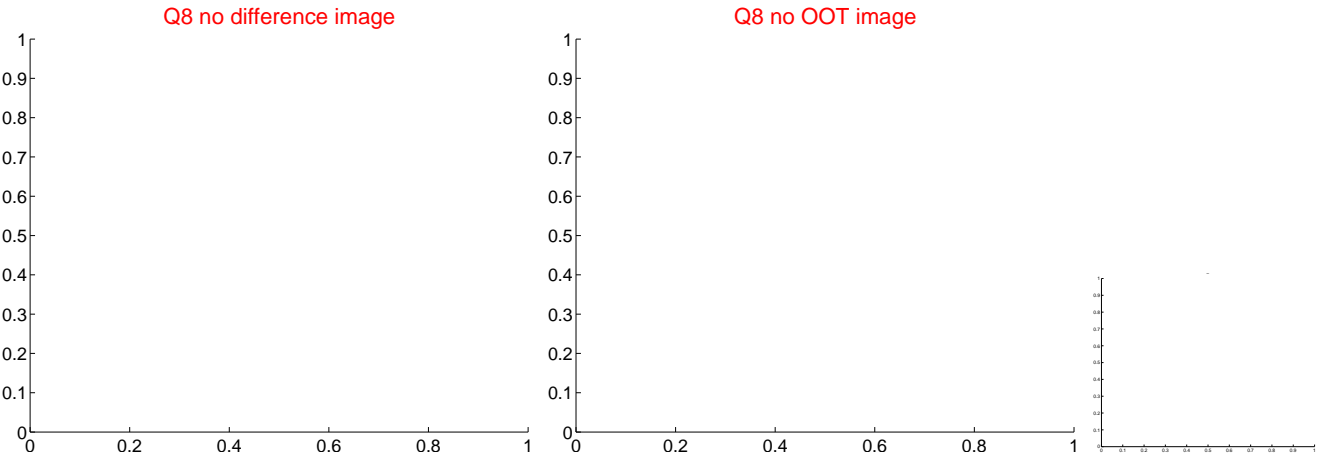
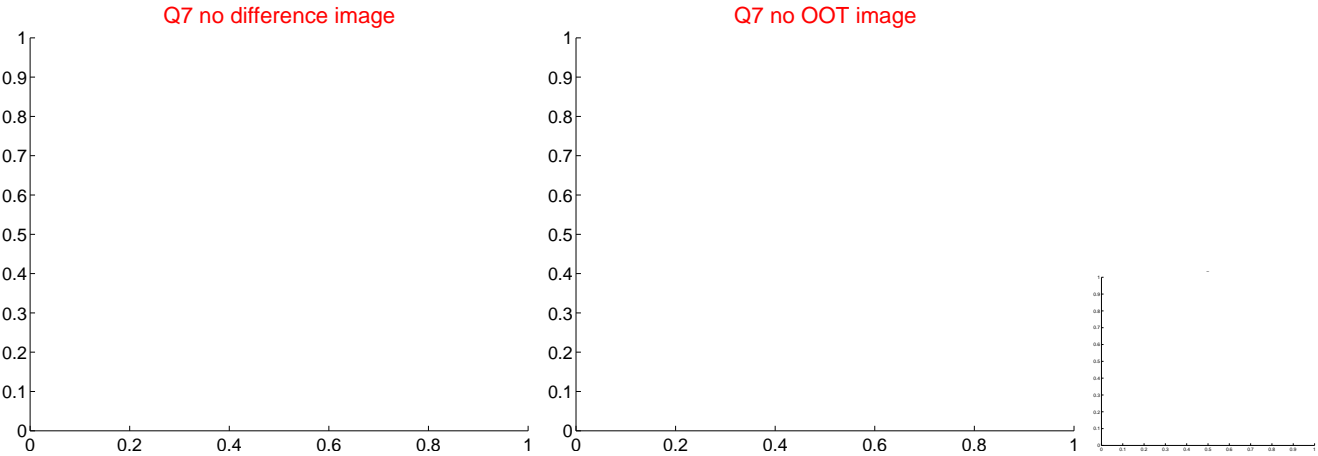
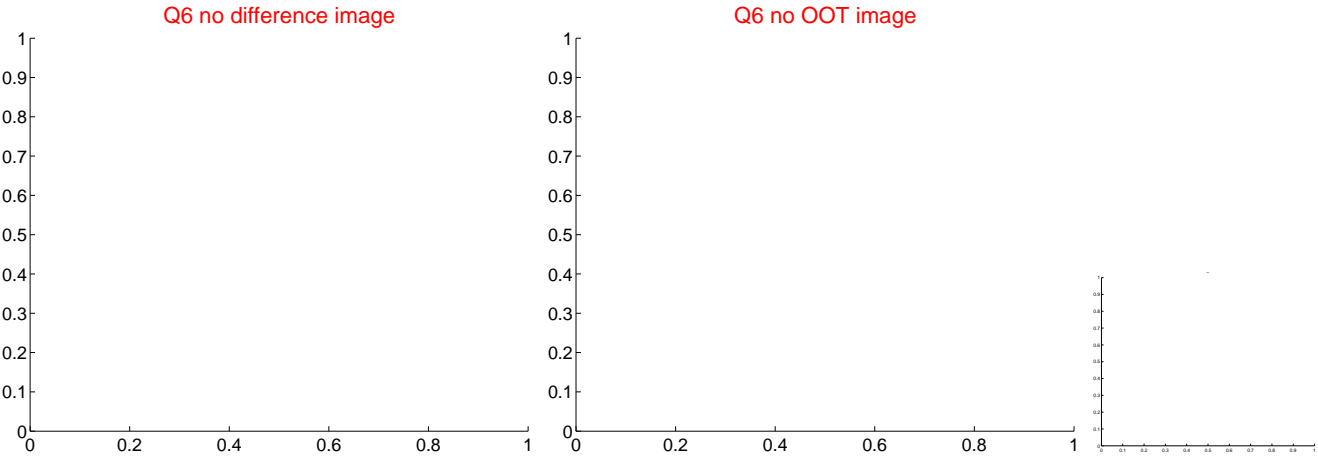
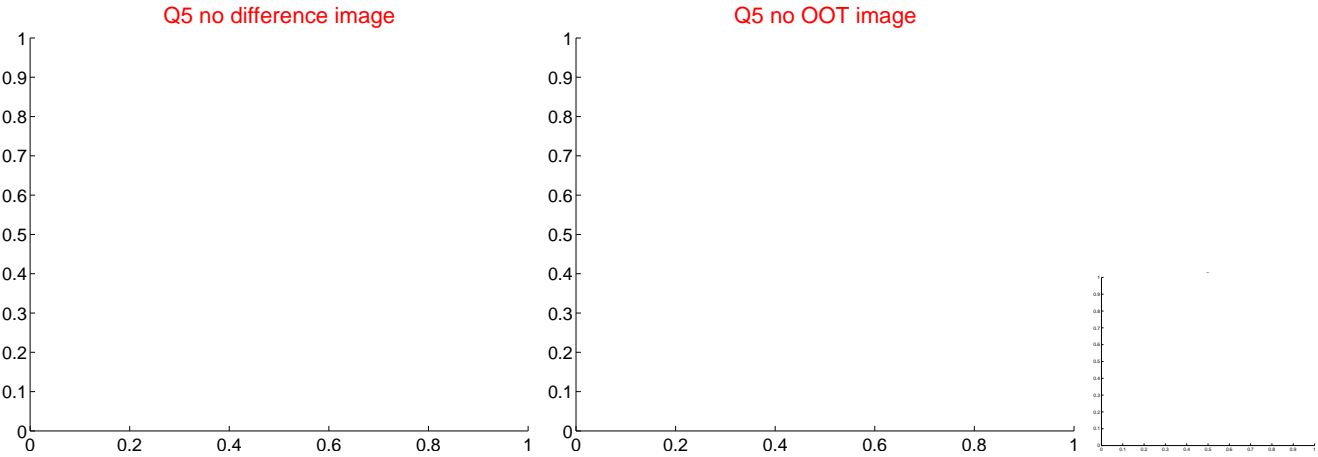


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ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



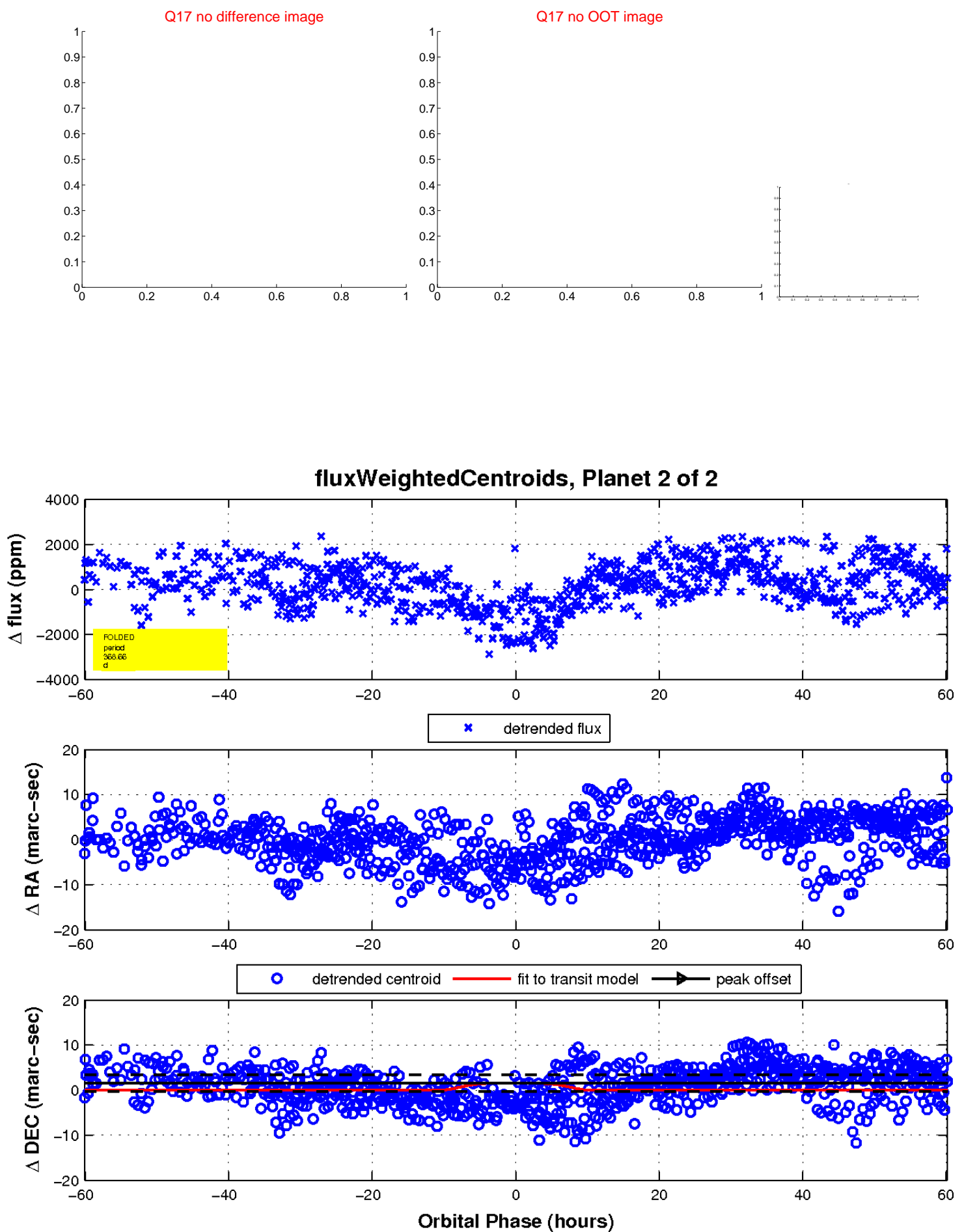
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

