

KIC 003660476

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})
003660476-01	OBS	No	4.066635	134.683104	24.8	14.926	7.2	5.7	1.47	6711	0.83	1514.04
003660476-02	OBS	No	699.450549	172.552326	365.8	14.363	10.2	8.1	1.47	6711	3.01	1.58

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
003660476-01	OBS	FP	0.00	1	0	0	0	LPP_DV—MOD_NONUNIQ_DV
003660476-02	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_RUBBLE_MARSHALL—ALL_TRANS_CHASES—INCONSISTENT_TRANS—CENT_FEW_DIFFS—HALO_GHOST

Notes: OBS = Observed. INJ = Injected. INV = Inverted. SCR = Scrambled.

N = Not Transit-Like. S = Stellar Eclipse. C = Centroid Offset. E = Ephemeris Match.

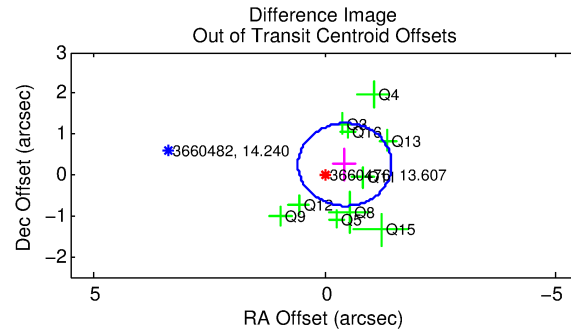
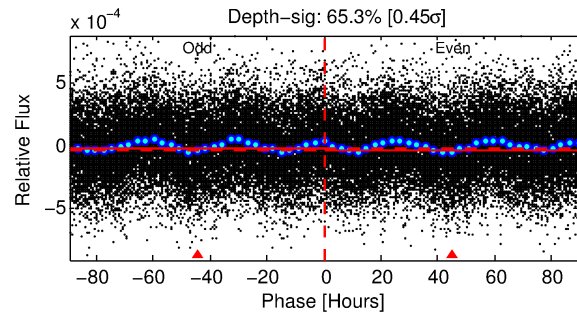
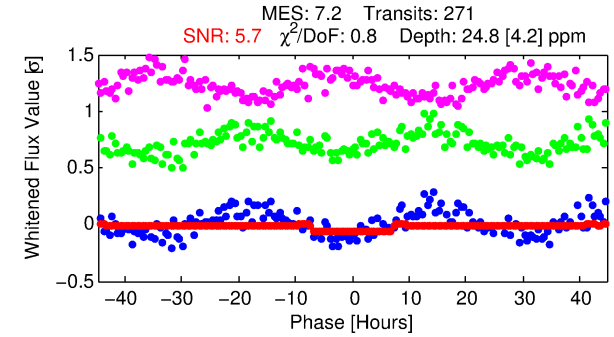
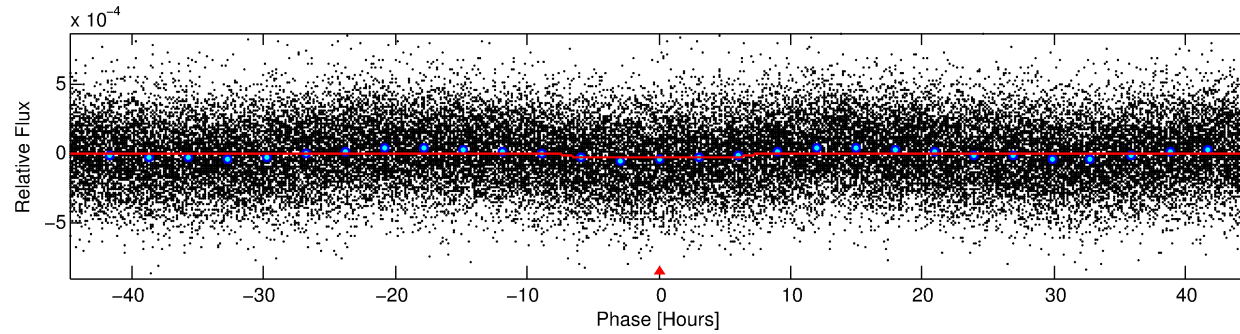
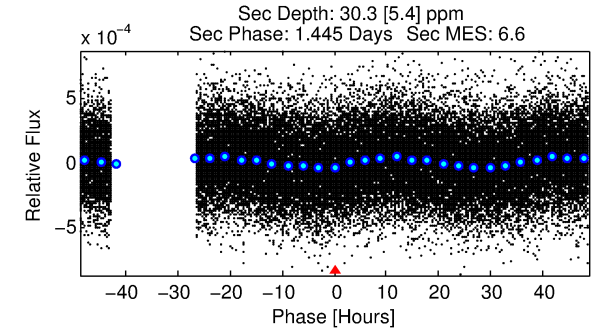
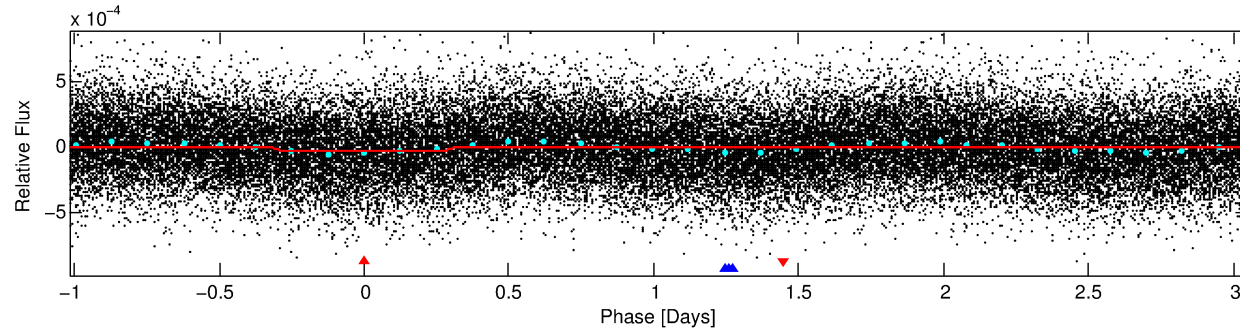
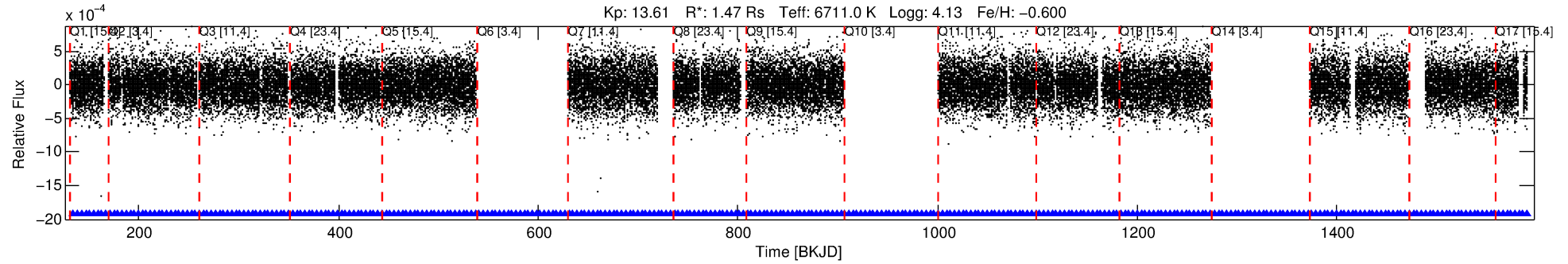
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 003660476-01

No Significant Match Found

DV One-Page Summary

KIC: 3660476 Candidate: 1 of 2 Period: 4.067 d



DV Fit Results:

Period = 4.06664 [0.00011] d
Epoch = 134.6831 [0.0169] BKJD
Rp/R* = 0.0052 [0.0014]
a/R* = 1.41 [1.12]
b = 0.86 [0.48]
Seff = 1514.04 [665.71]
Teq = 1591 [175] K
Rp = 0.83 [0.32] Re
a = 0.0510 [0.0131] AU
Ag = 62.47 [44.90] [1.37σ]
Teffp = 6914 [1042] K [5.04σ]

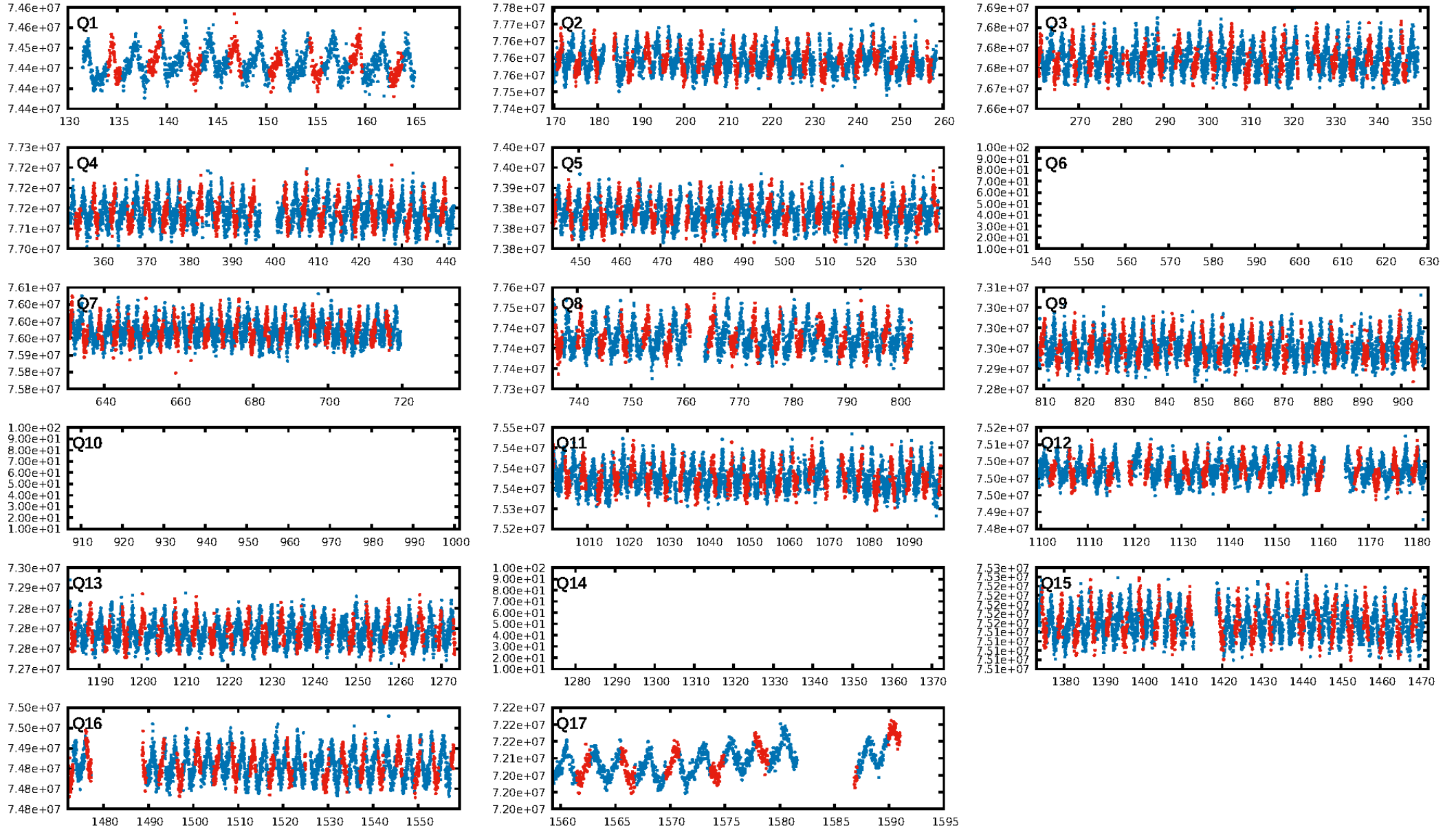
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: 100.0% [805.70σ]
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: 1.17e-11
RollingBand-fgt: 1.00 [257/257]
GhostDiagnostic-chr: 1.259
Centroid-sig: 0.0%
Centroid-so: 3.516 arcsec [2.13σ]
OotOffset-rm: 0.505 arcsec [1.50σ]
KicOffset-rm: 0.415 arcsec [1.06σ]
OotOffset-st: 0/3/4/3 [10]
KicOffset-st: 0/3/4/3 [10]
DiffImageQuality-fgm: 0.90 [9/10]
DiffImageOverlap-fno: 1.00 [14/14]

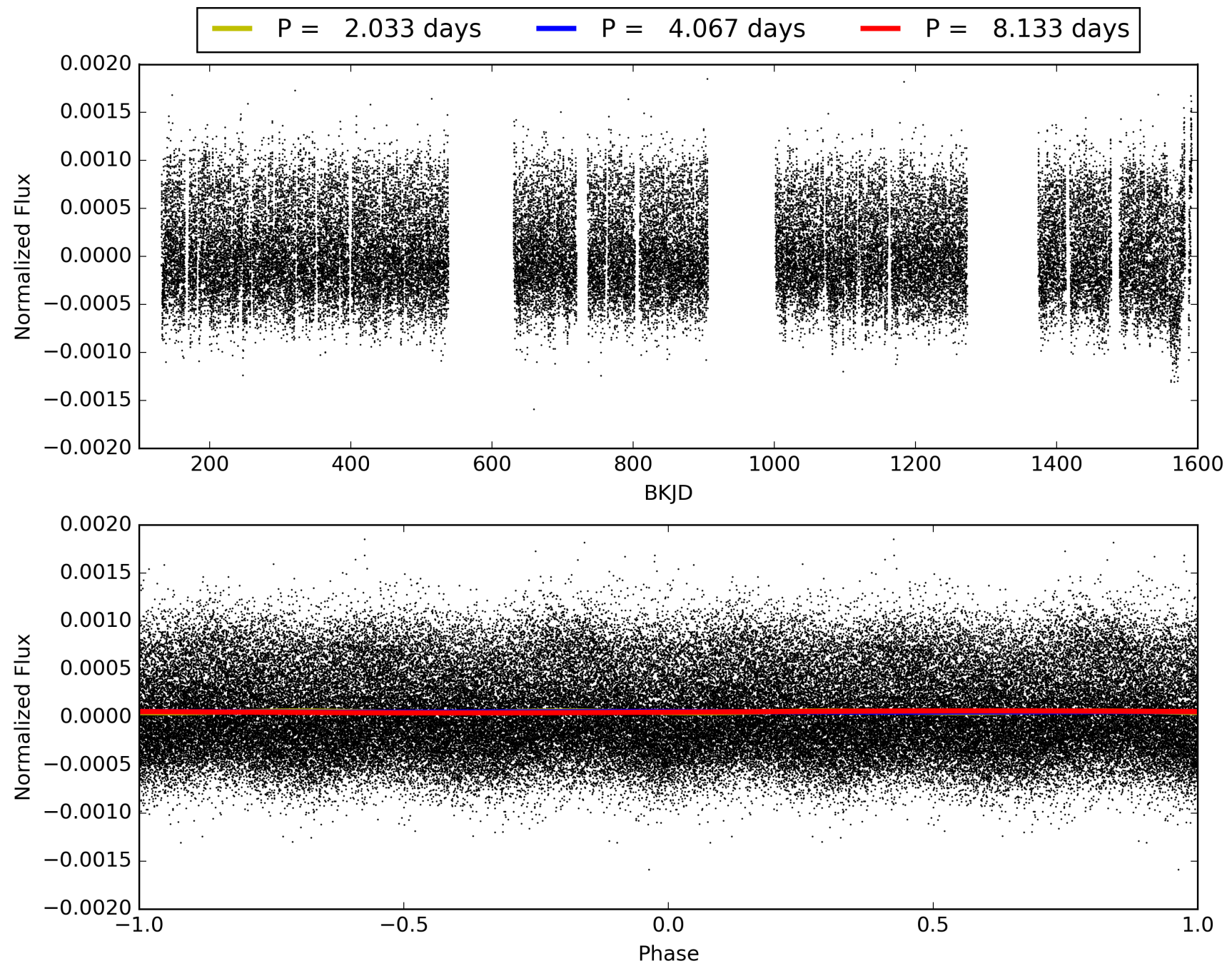
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 19:13:13 Z

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

TCE 003660476-01, PDC Light Curves

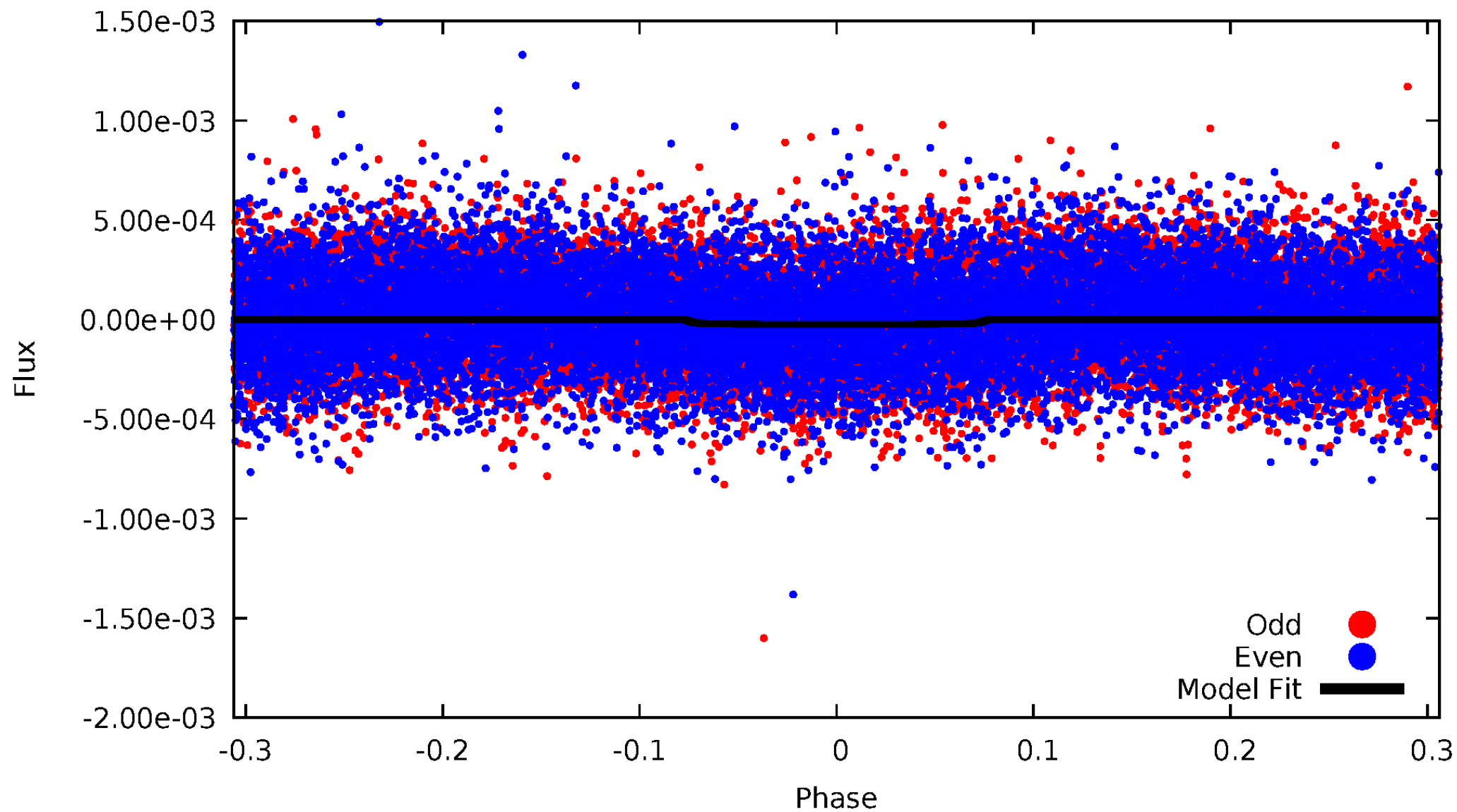


TCE 003660476-01



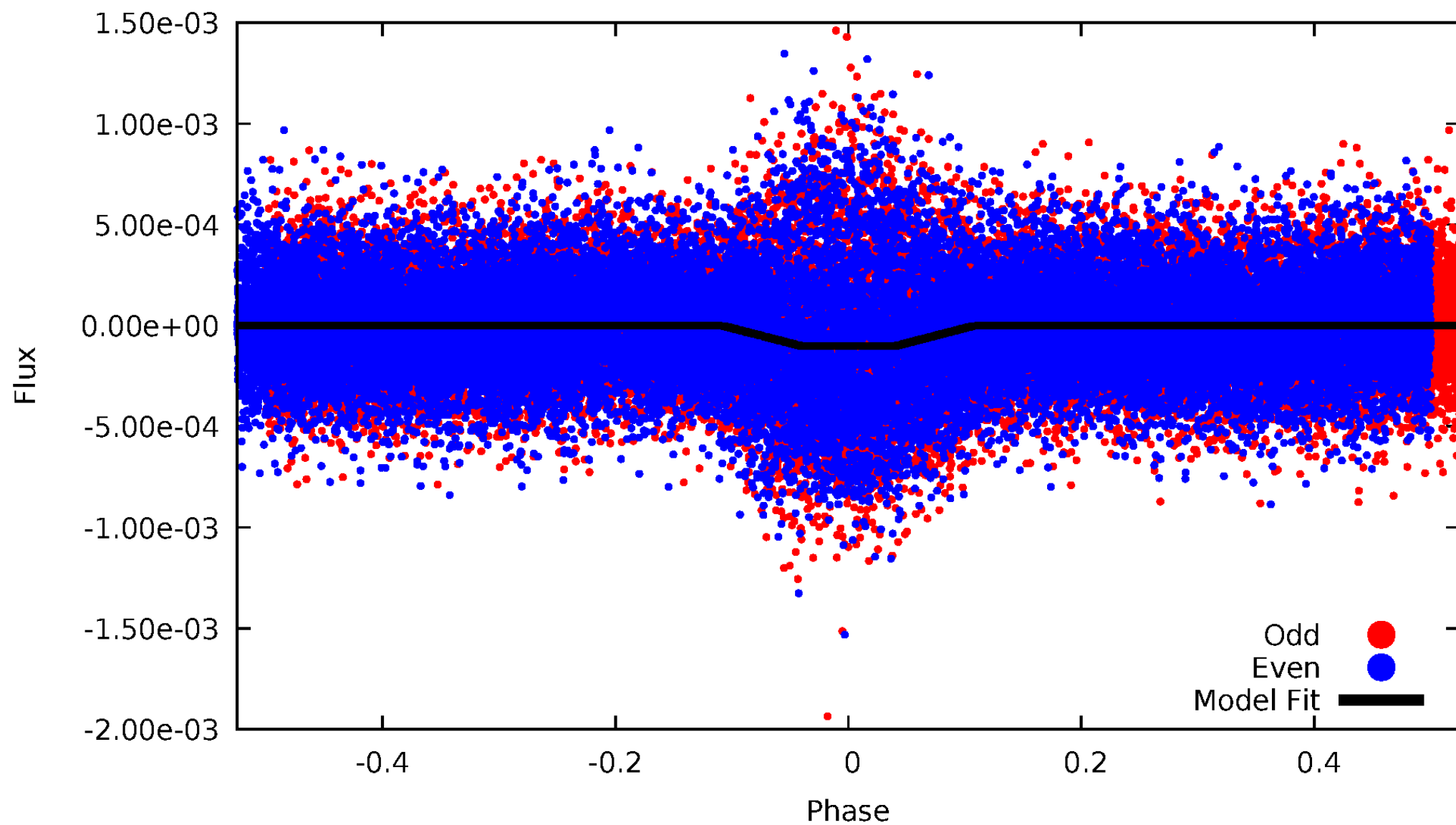
DV Odd/Even

TCE 003660476-01

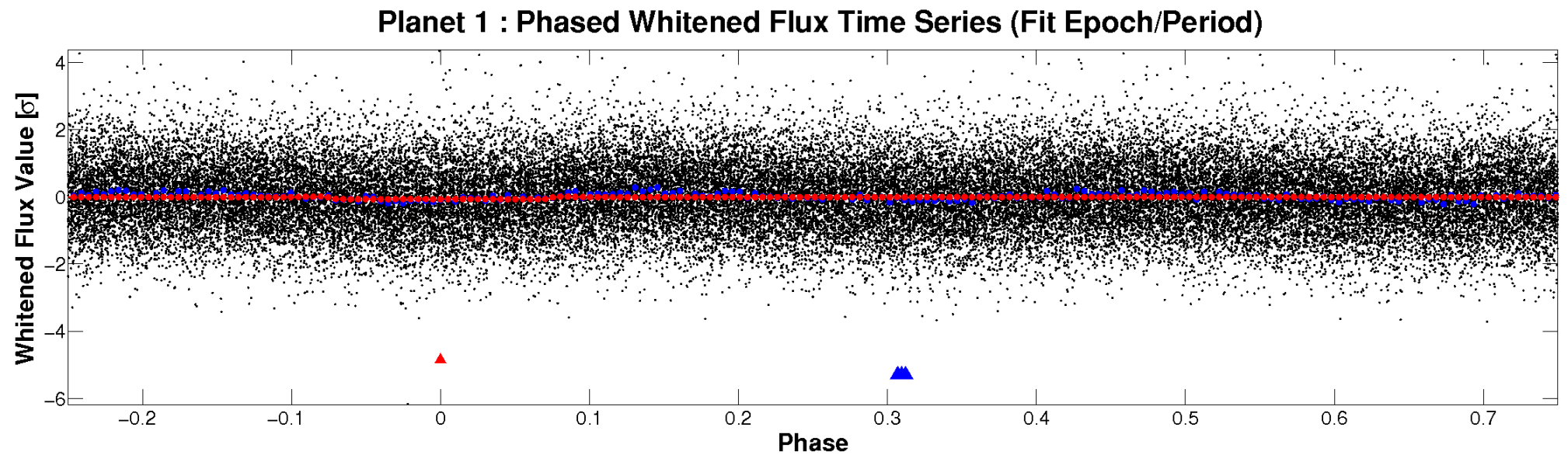
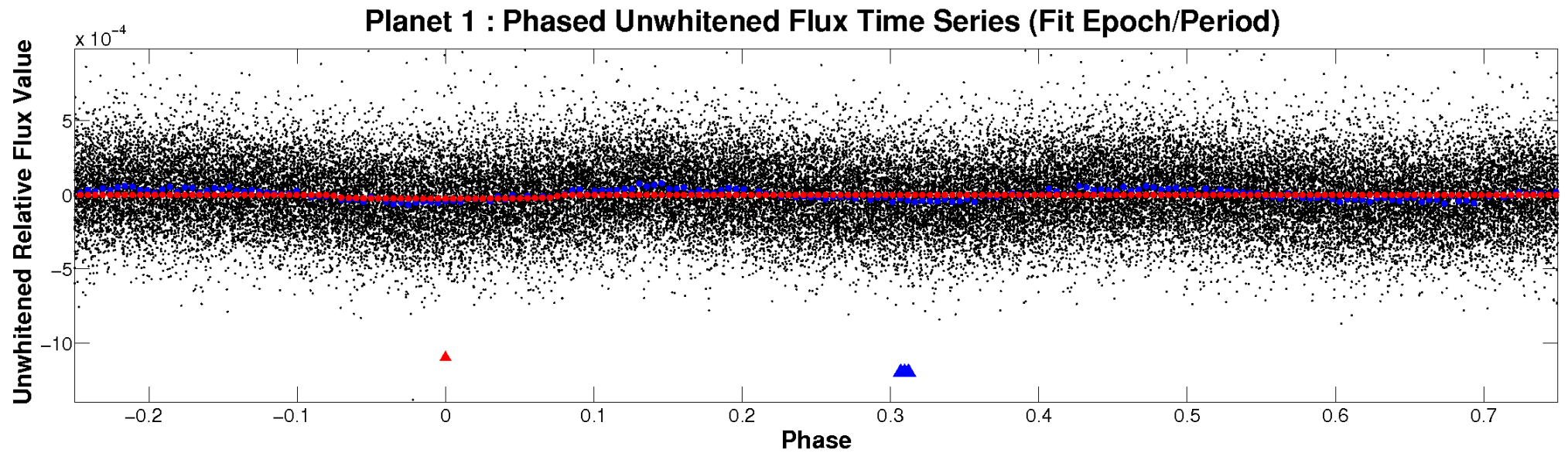


ALT Odd/Even

TCE 003660476-01

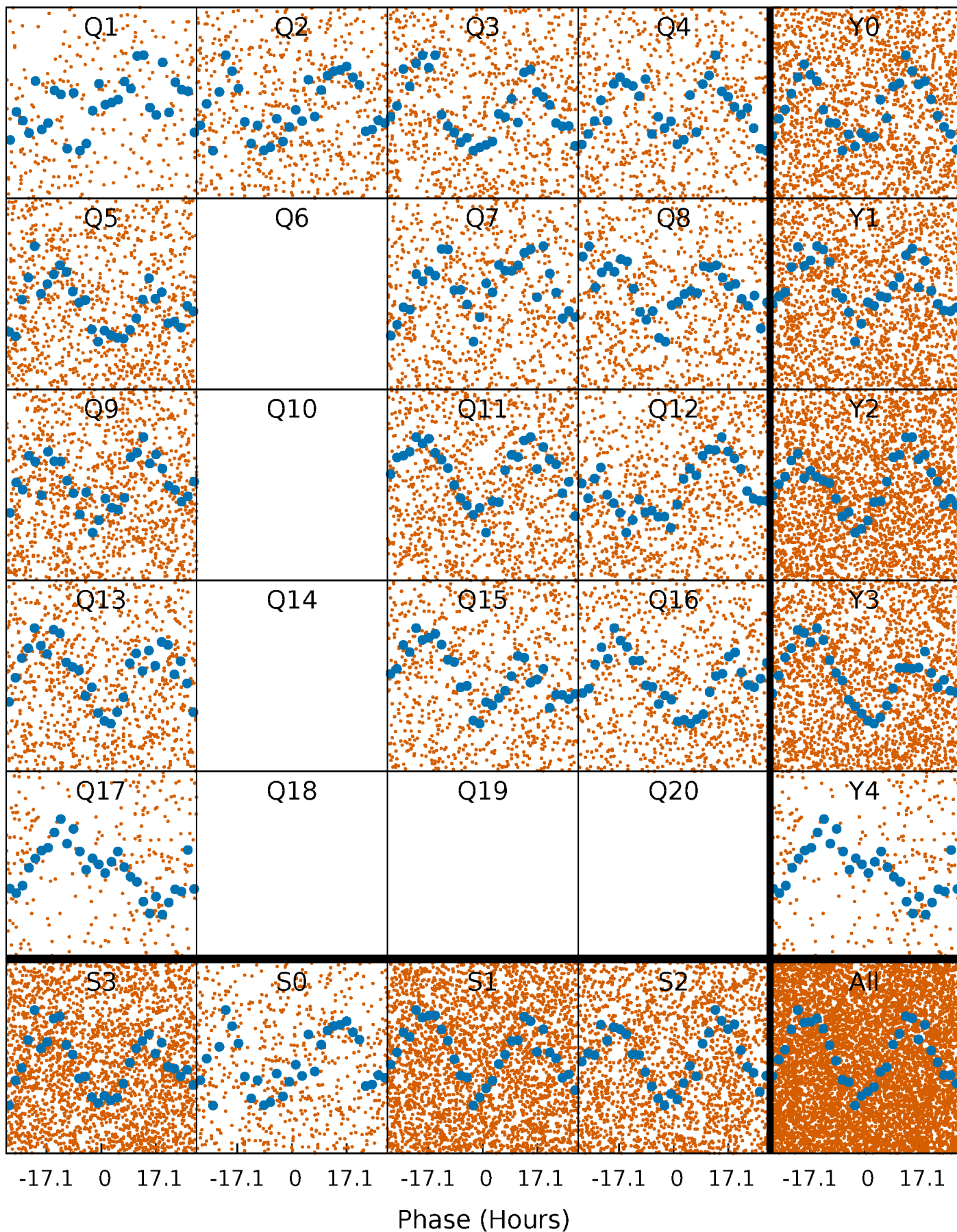


Non-Whitened Vs. Whitened Light Curve



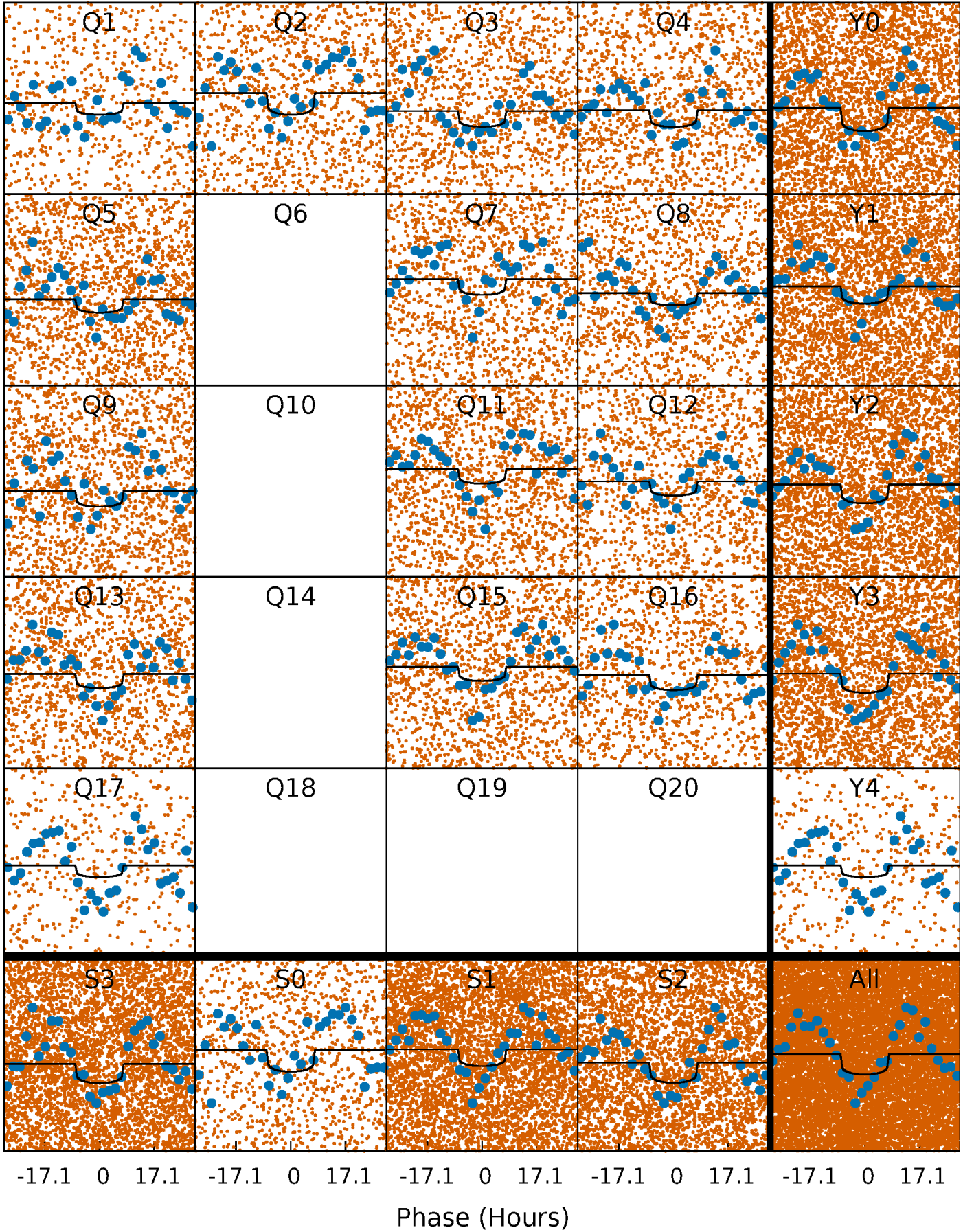
PDC Quarter-Phased Transit Curves

TCE 003660476-01 P= 4.066635 Days $T_0=134.683104$ (BKJD)



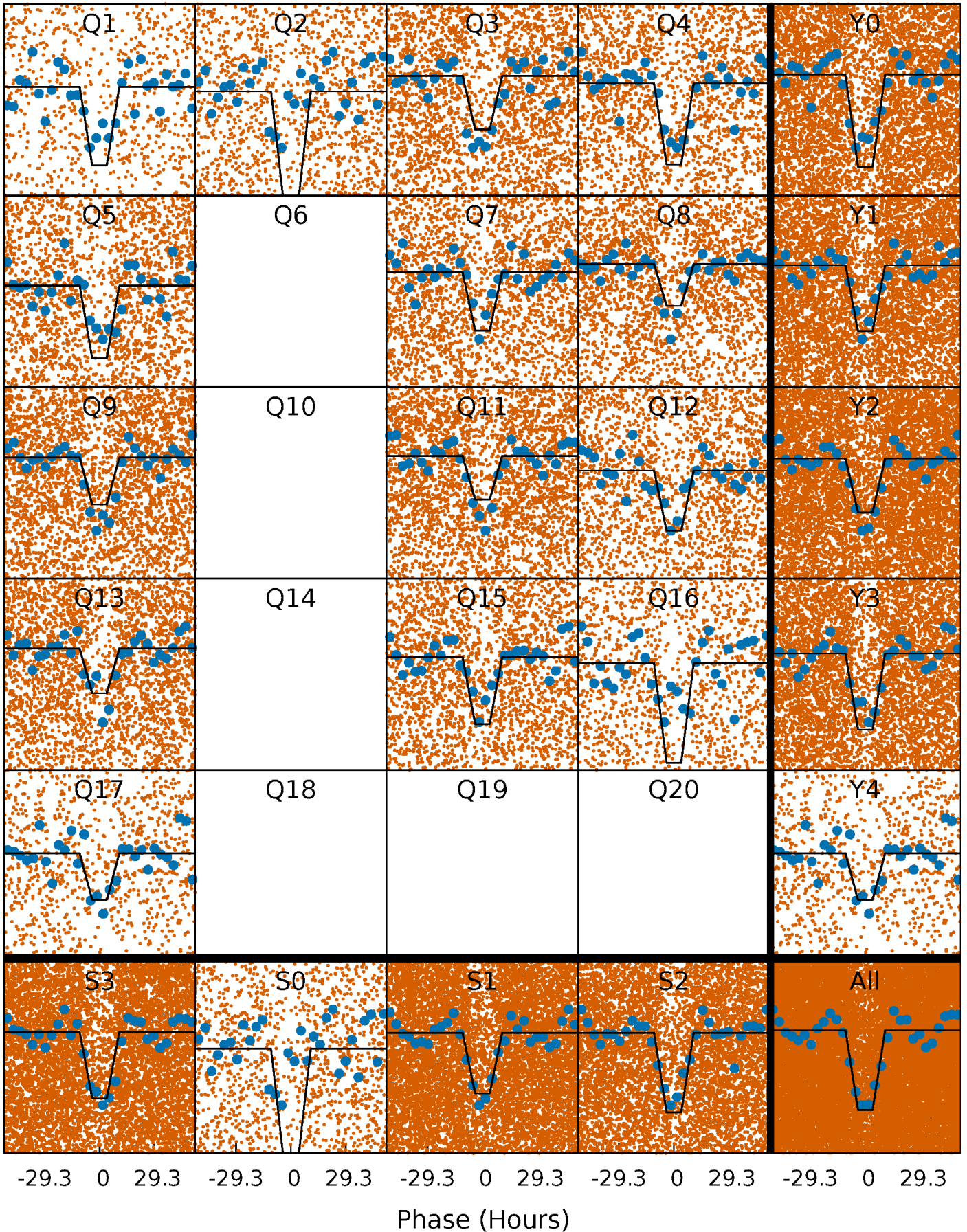
DV Quarter-Phased Transit Curves

TCE 003660476-01 P= 4.066635 Days $T_0=134.683104$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

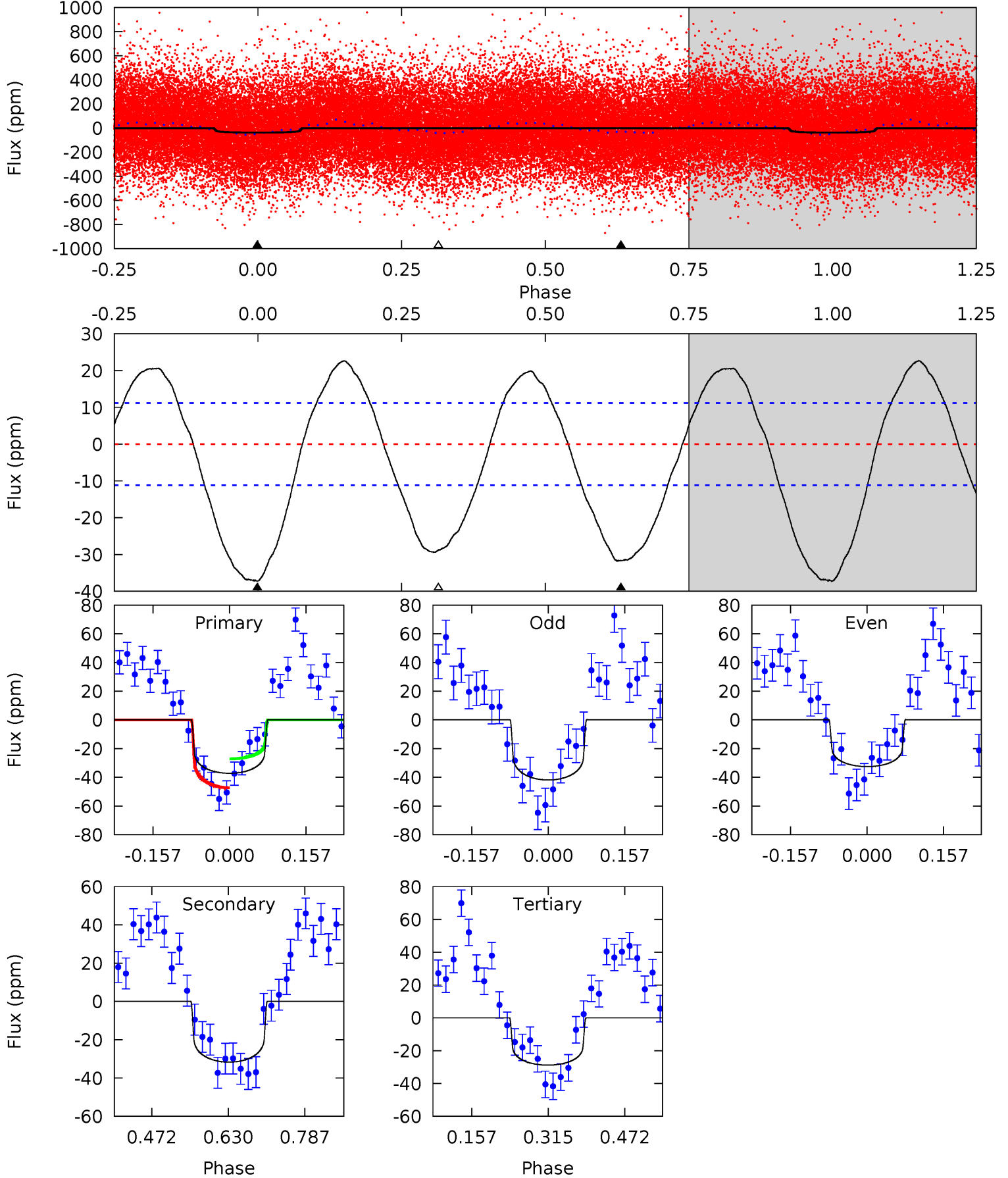
TCE 003660476-01 P= 4.066822 Days $T_0=134.581777$ (BKJD)



DV Model-Shift Uniqueness Test

003660476-01, P = 4.066635 Days, E = 130.616469 Days

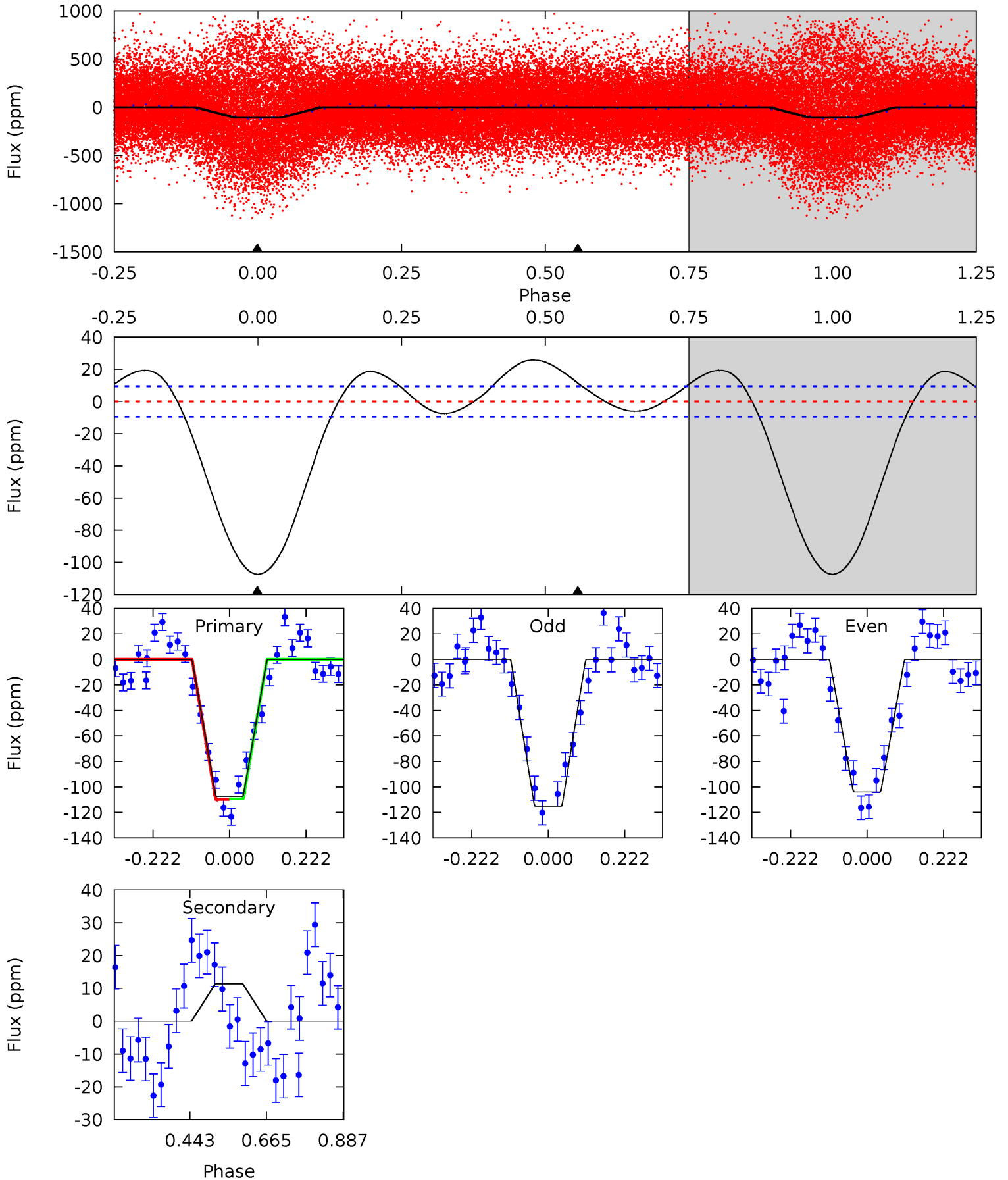
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
14.9	12.7	11.5	0	4.47	1.41	7.37	3.37	14.9	1.16	12.7	1.88	1.34	0.38	4.01



Alt Model-Shift Uniqueness Test

003660476-01, P = 4.066822 Days, E = 130.514955 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
49.6	-5.27	0	0	4.39	1.22	3.62	49.6	49.6	-5.27	-5.27	2.57	0.94	0.19	0.13



Stellar Parameters For KIC 003660476

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	$M(M_{\odot})$	p_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	6711^{+190}_{-238}	$4.131^{+0.246}_{-0.164}$	$-0.600^{+0.300}_{-0.300}$	$1.471^{+0.386}_{-0.386}$	$1.068^{+0.163}_{-0.134}$	$0.472^{+0.690}_{-0.211}$
	+3%/-4%	+6%/-4%	+50%/-50%	+26%/-26%	+15%/-13%	+146%/-45%
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 003660476-01 / KOI

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	-32 ± 2	$0.84^{+0.28}_{-0.26}$	2205^{+160}_{-179}	6956^{+1401}_{-905}	67^{+70}_{-31}
Alt.	11 ± 2	$1.62^{+0.33}_{-0.30}$	2202^{+166}_{-165}	-4169^{+241}_{-274}	$-6.239^{+2.009}_{-3.679}$

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 $A_{obs} \gg 1.0$

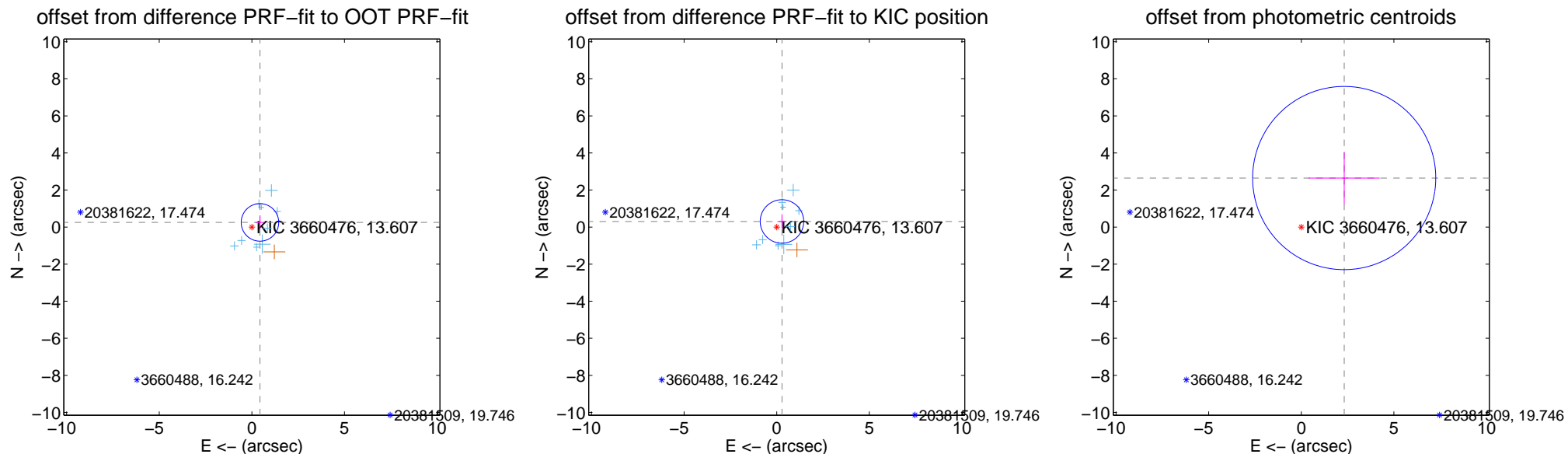
DV Centroid Data

Supplemental centroid analysis for 003660476-01. Kepler magnitude: 13.61. Transit SNR 5.72

There are 9 quarters with good PRF difference image offsets

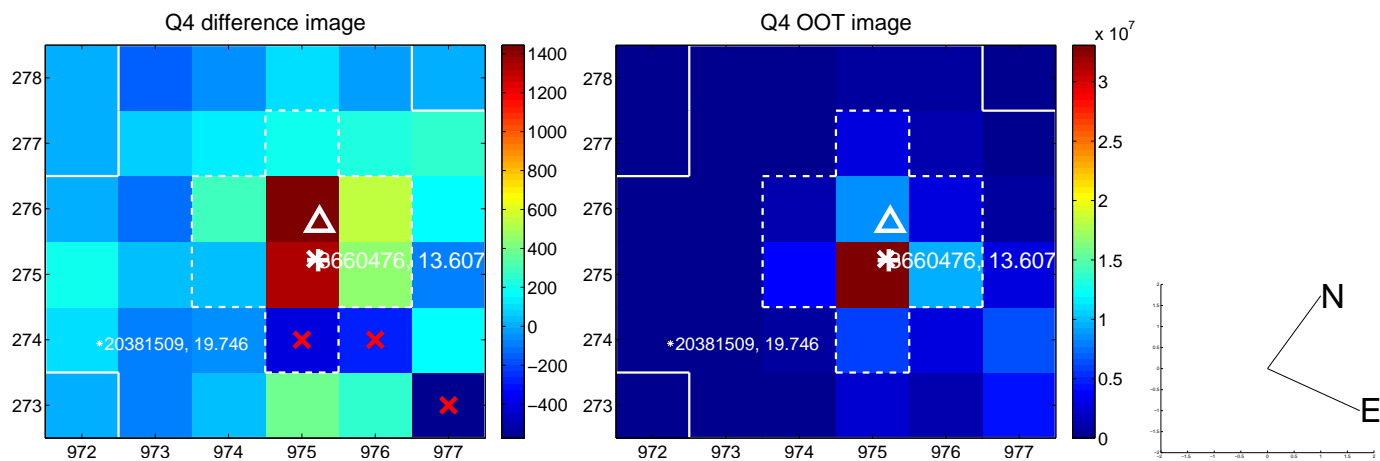
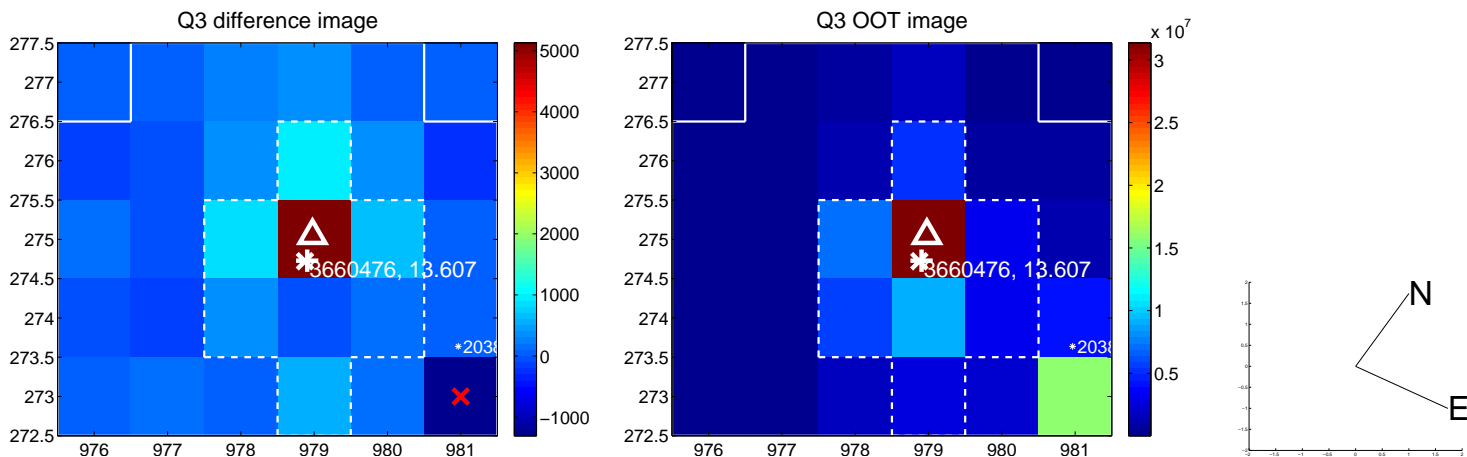
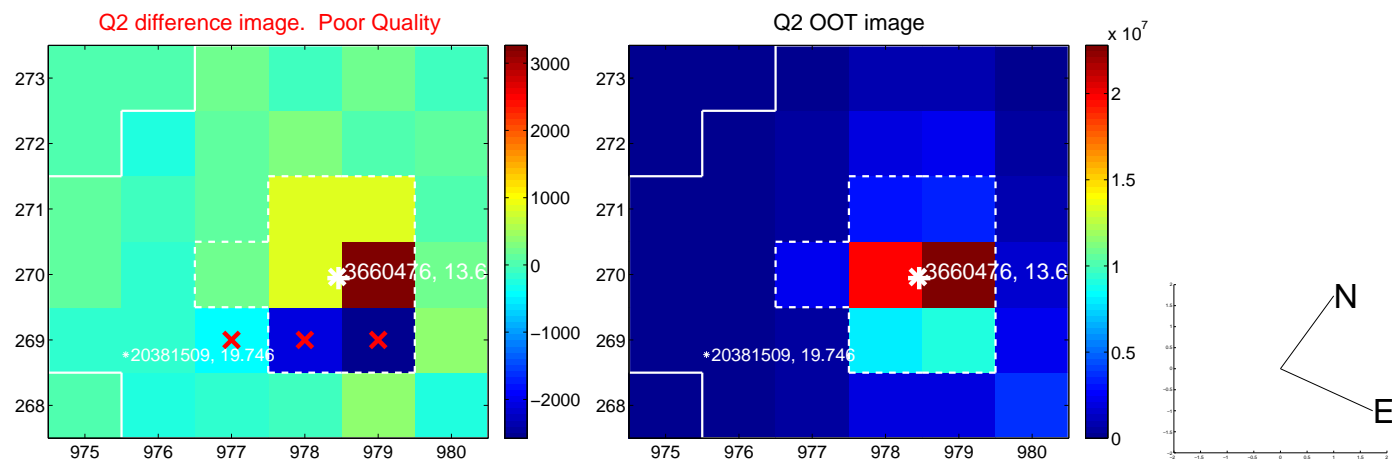
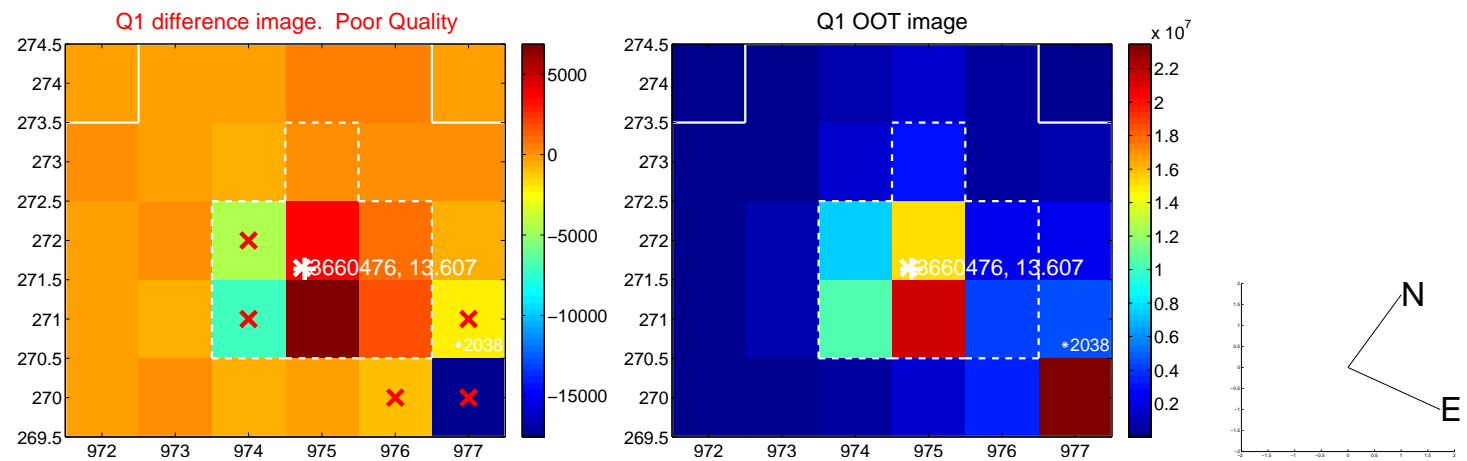
The direct PRF centroid is offset from the target star catalog position by about 0.17 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.505 ± 0.338	1.50	-0.437 ± 0.240	0.252 ± 0.382
PRF-fit source offset from KIC position	0.415 ± 0.391	1.06	-0.284 ± 0.248	0.302 ± 0.386
photometric centroid source offset	3.52 ± 1.65	2.13	-2.32 ± 1.92	2.65 ± 1.41

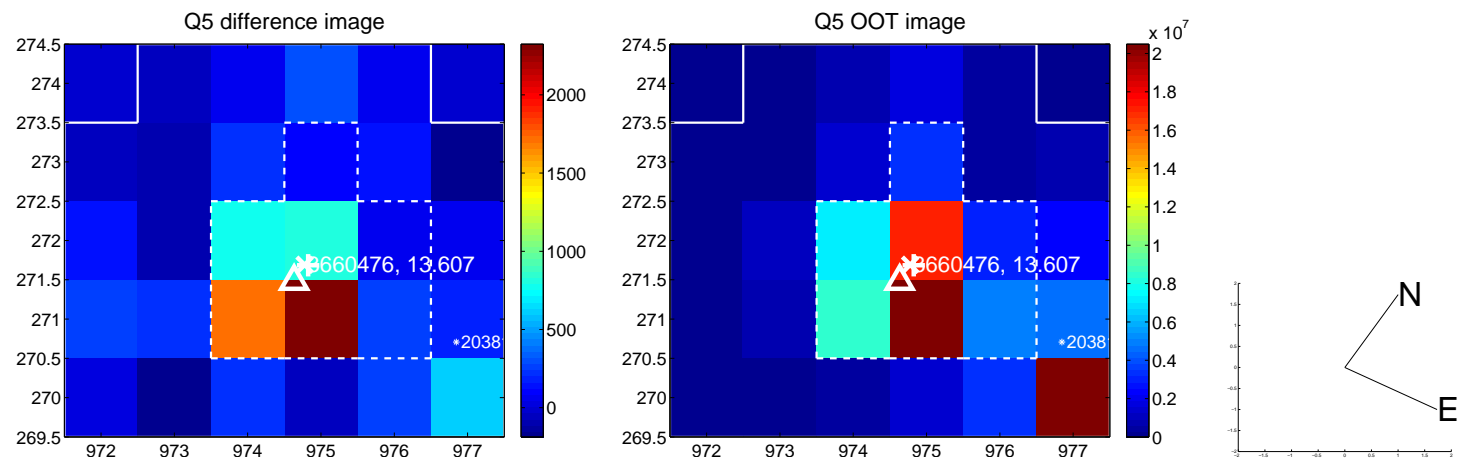


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ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

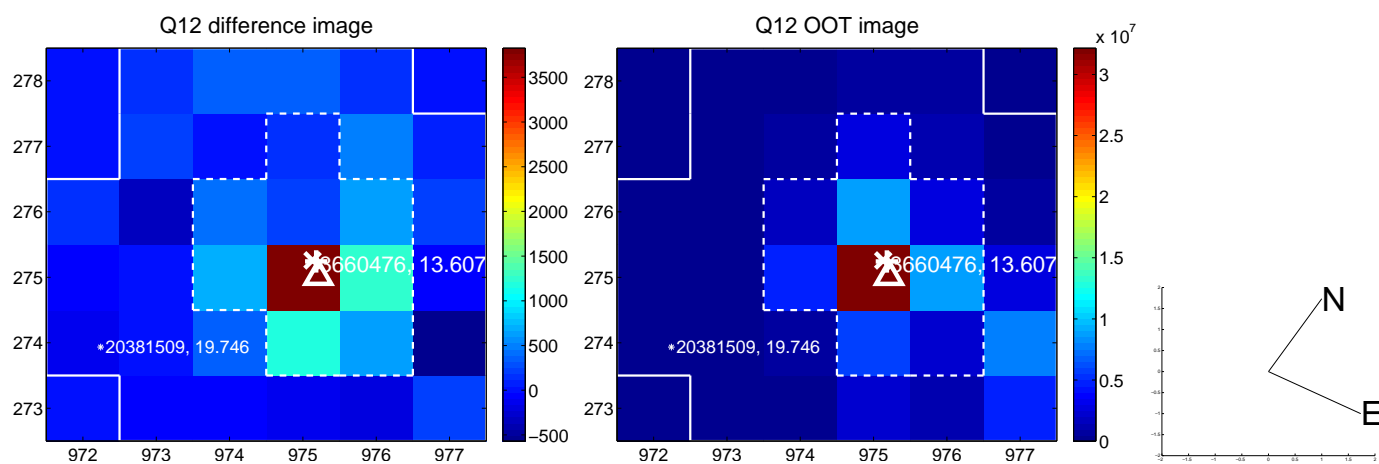
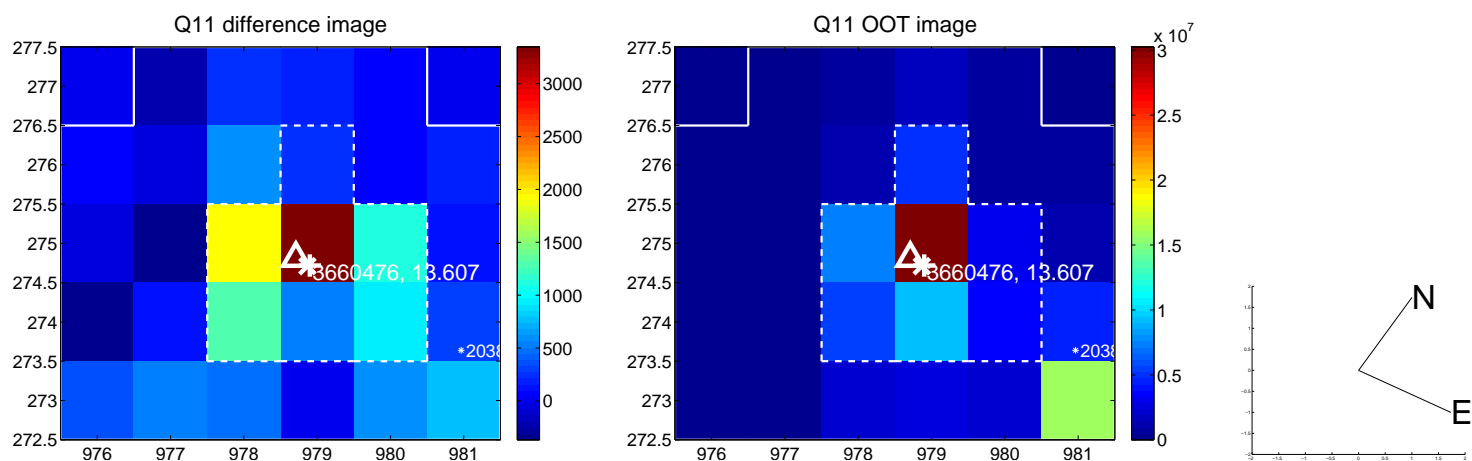
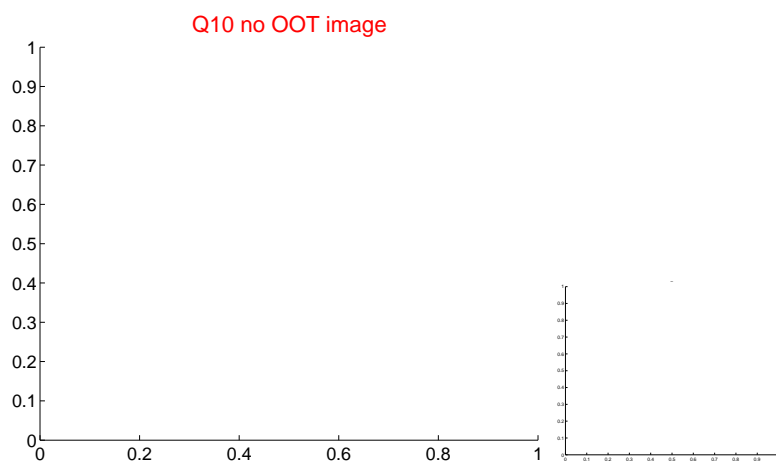
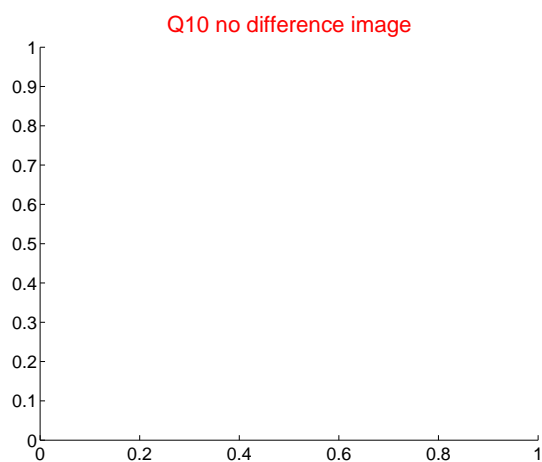
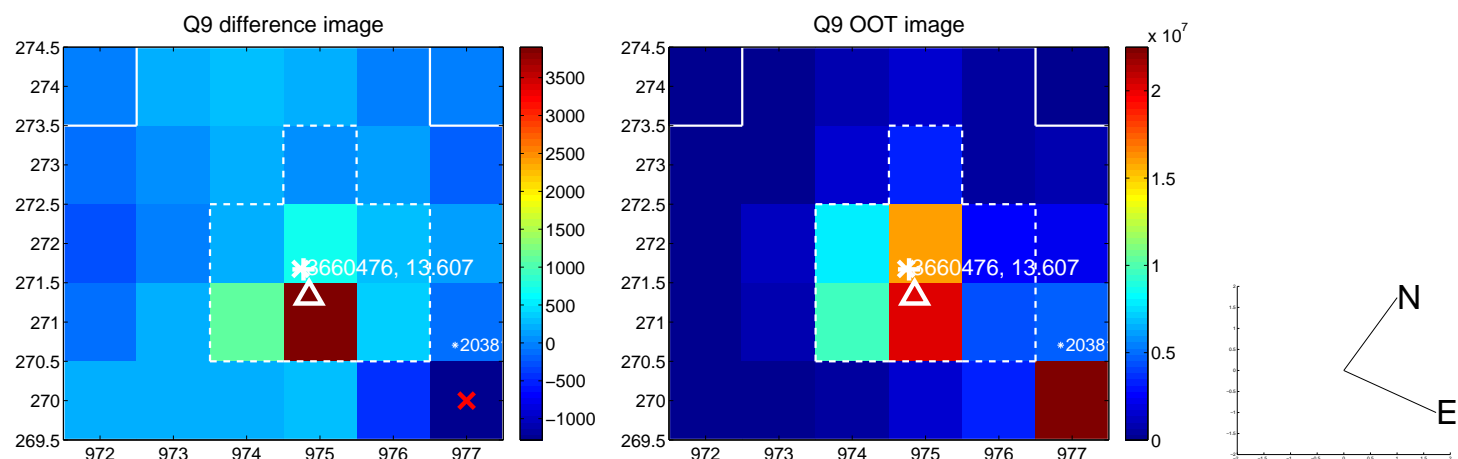
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



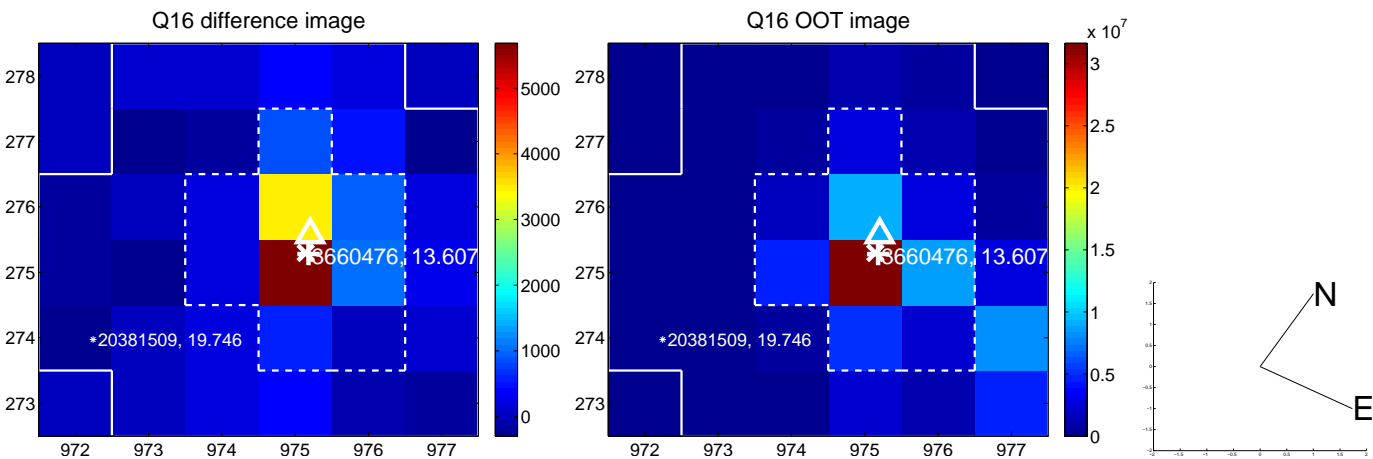
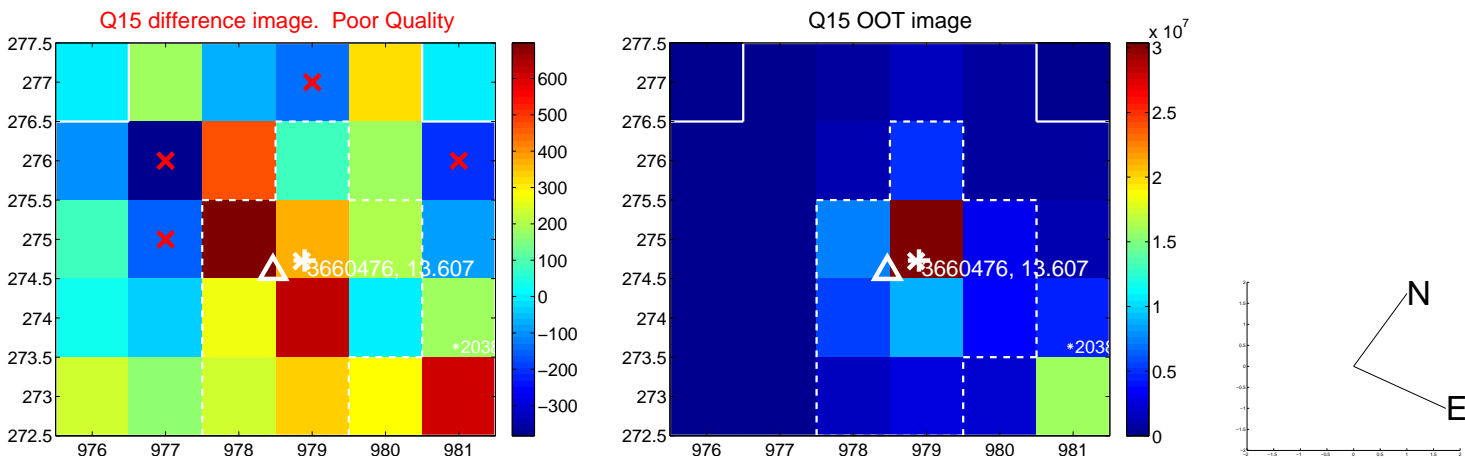
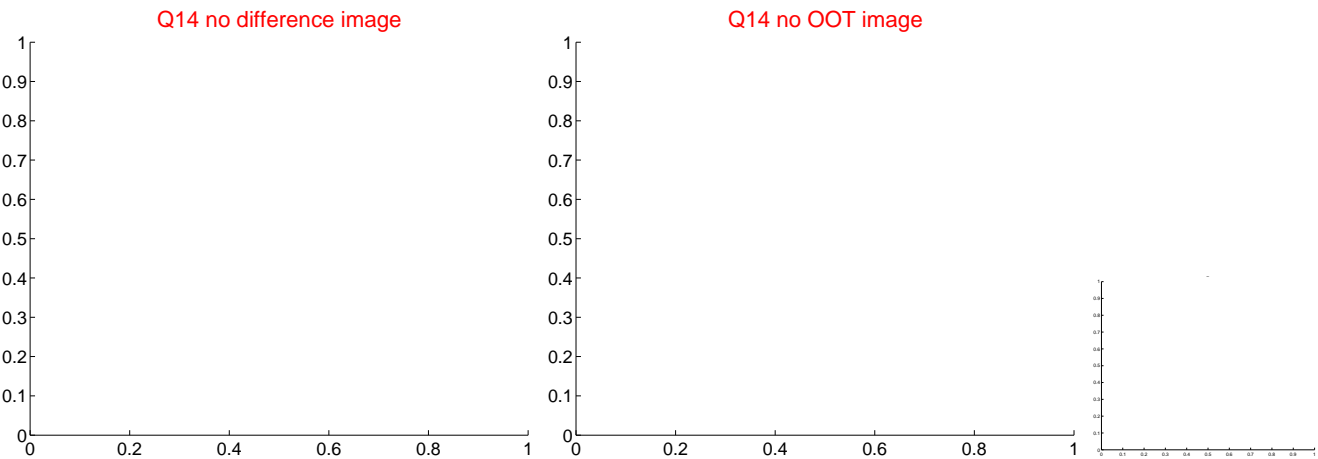
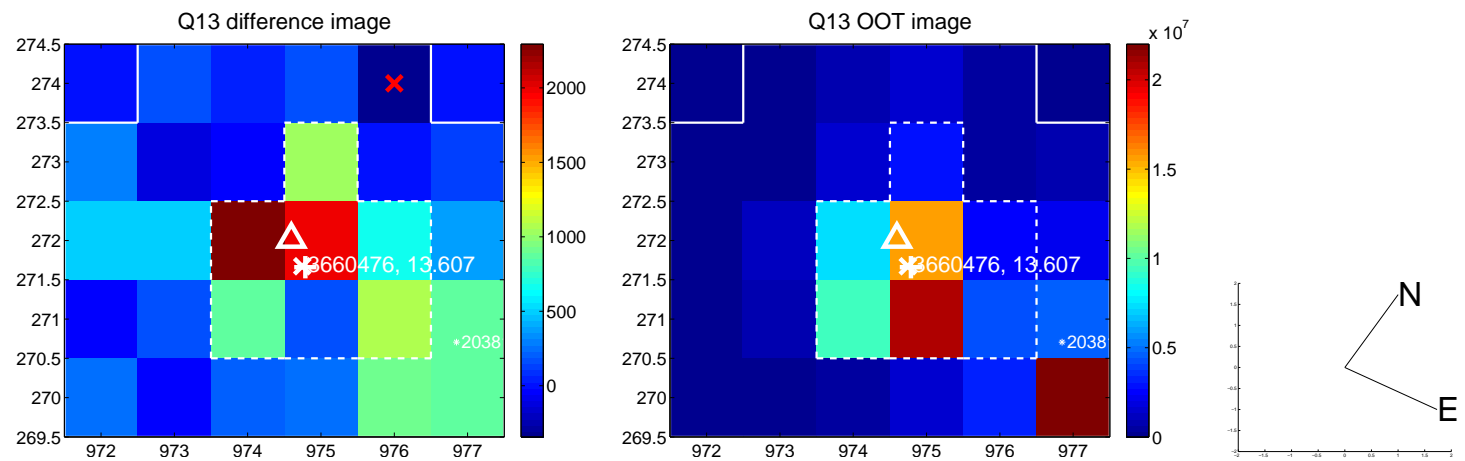
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



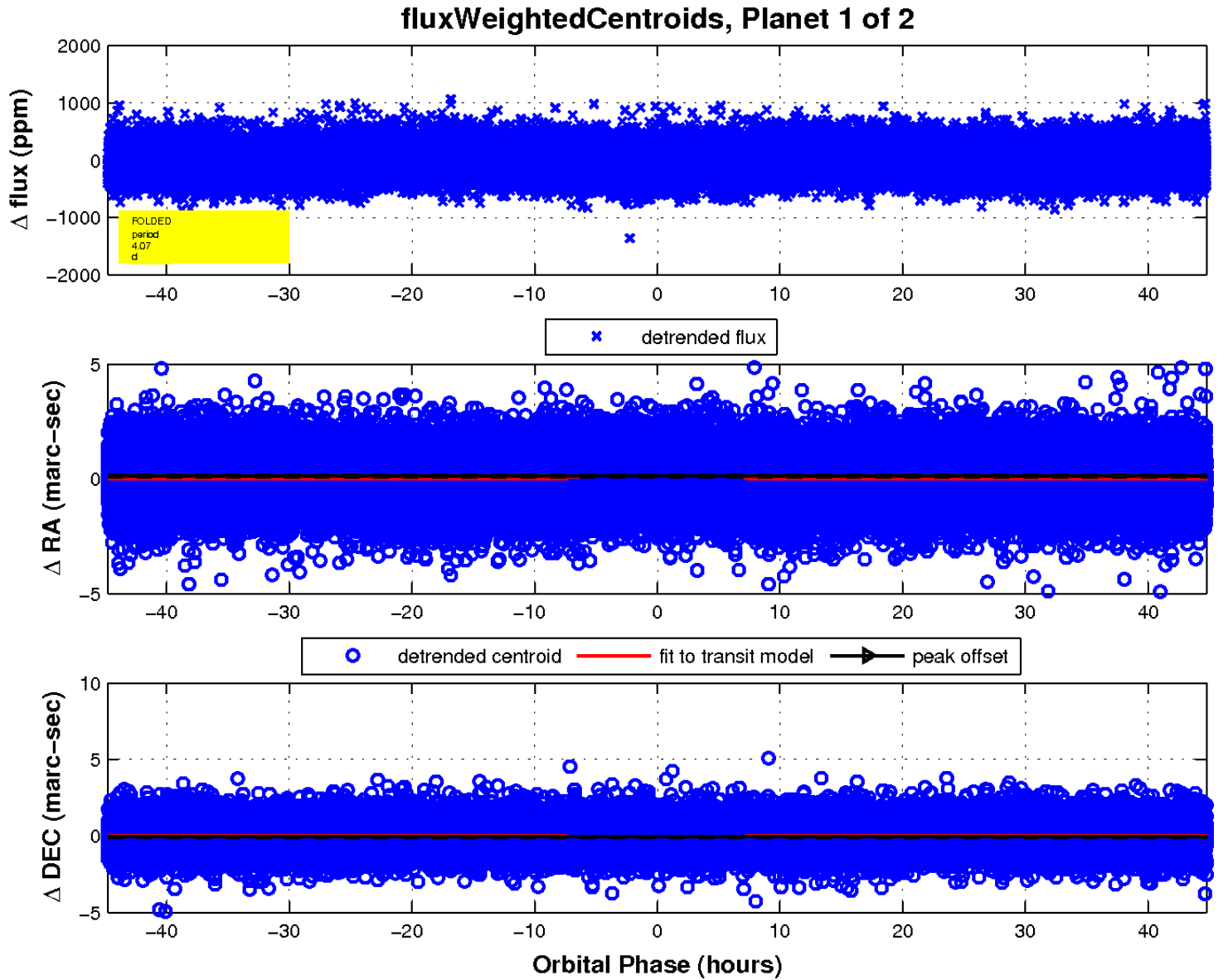
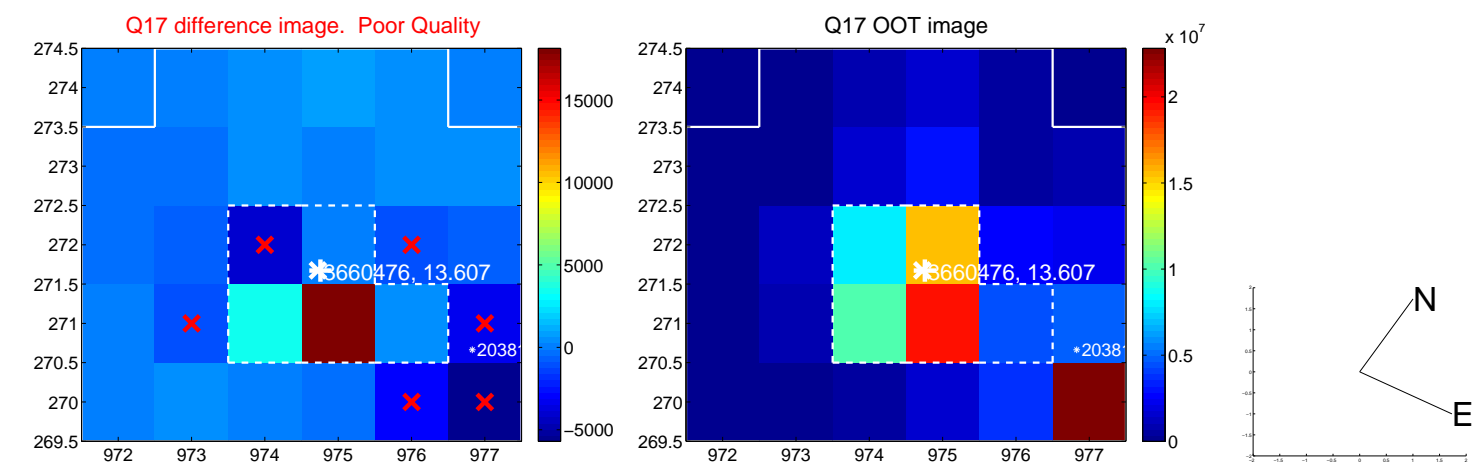
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

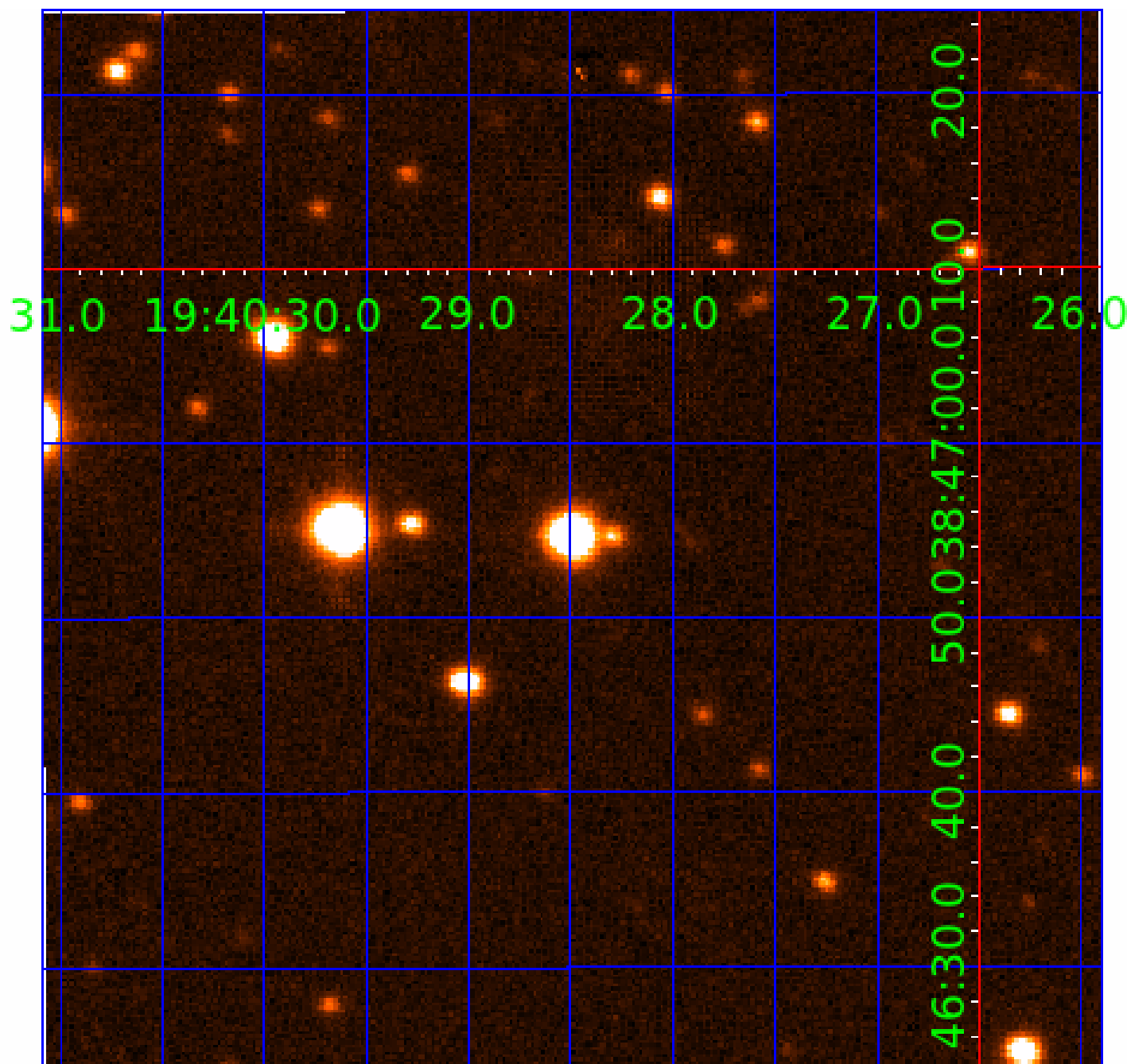


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 003660476

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})
003660476-01	OBS	No	4.066635	134.683104	24.8	14.926	7.2	5.7	1.47	6711	0.83	1514.04
003660476-02	OBS	No	699.450549	172.552326	365.8	14.363	10.2	8.1	1.47	6711	3.01	1.58

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
003660476-01	OBS	FP	0.00	1	0	0	0	LPP_DV—MOD_NONUNIQ_DV
003660476-02	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_RUBBLE_MARSHALL—ALL_TRANS_CHASES—INCONSISTENT_TRANS—CENT_FEW_DIFFS—HALO_GHOST

Notes: OBS = Observed. INJ = Injected. INV = Inverted. SCR = Scrambled.

N = Not Transit-Like. S = Stellar Eclipse. C = Centroid Offset. E = Ephemeris Match.

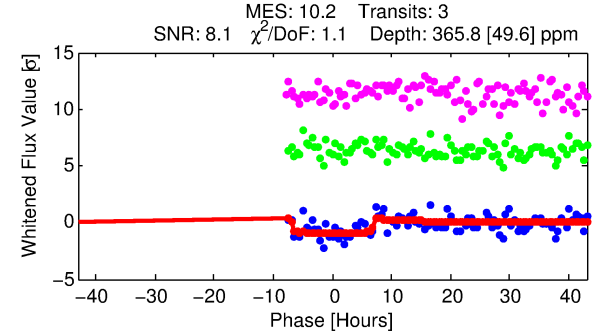
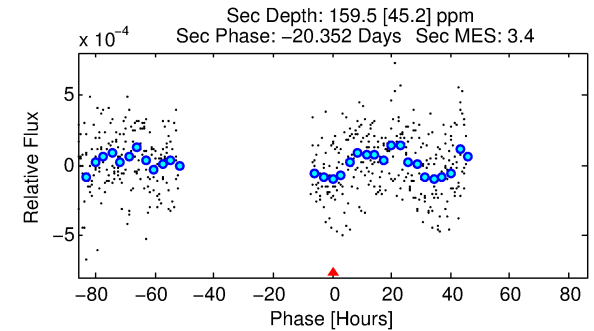
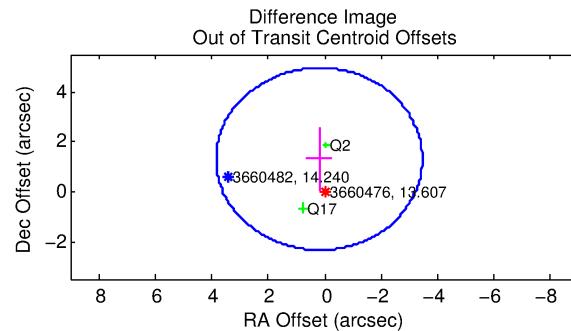
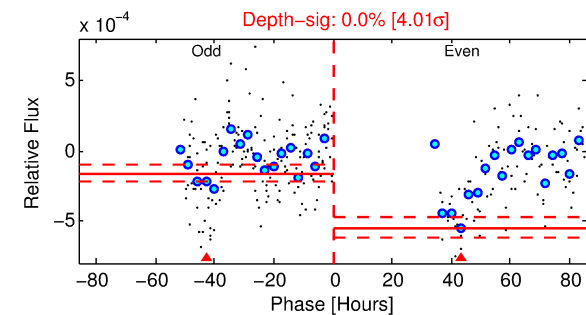
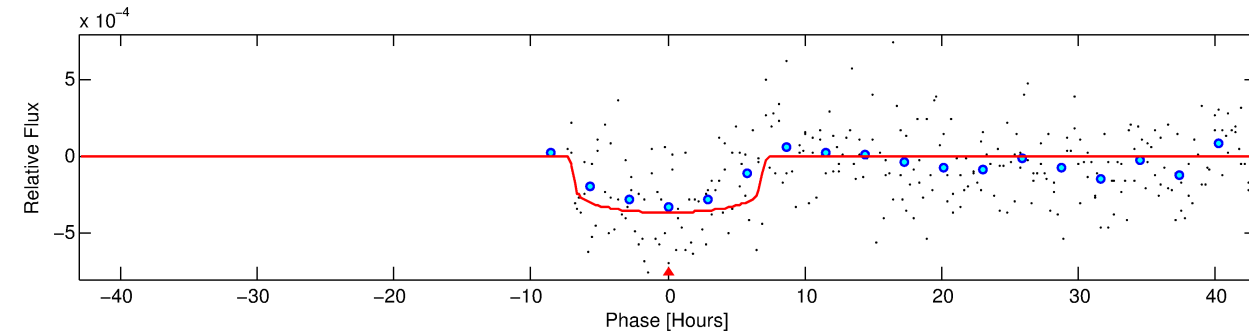
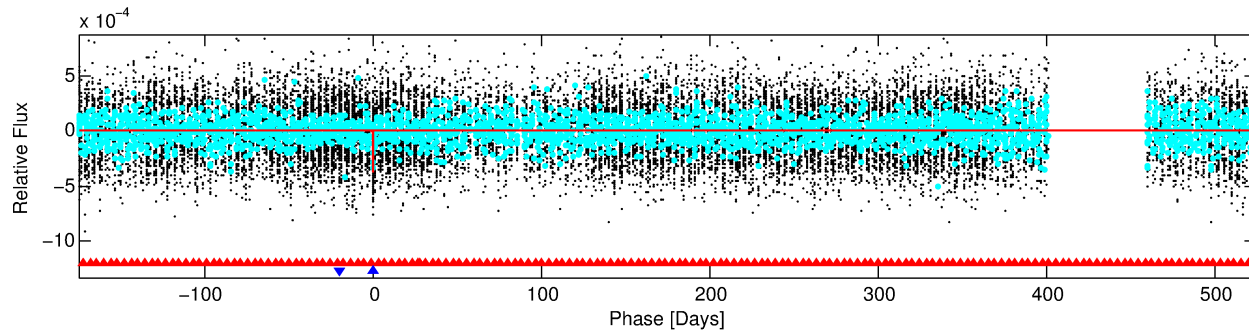
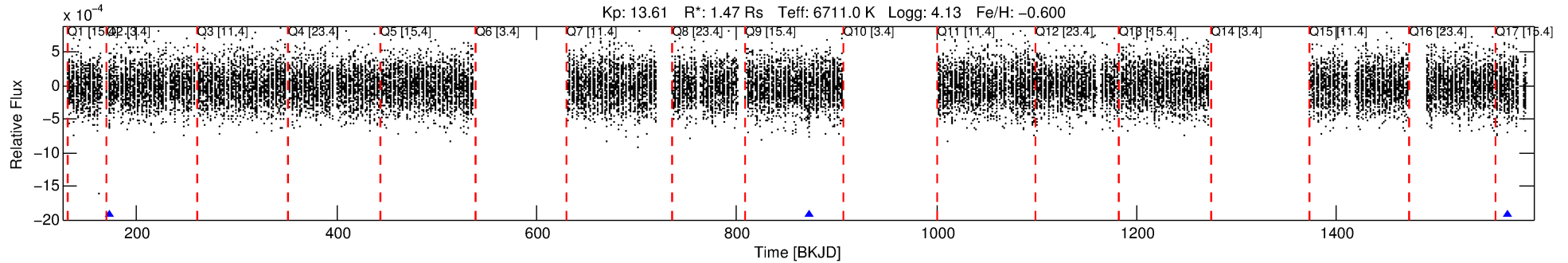
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 003660476-02

No Significant Match Found

DV One-Page Summary

KIC: 3660476 Candidate: 2 of 2 Period: 699.451 d



DV Fit Results:

Period = 699.45055 [0.01274] d
Epoch = 172.5523 [0.0159] BKJD
Rp/R* = 0.0188 [0.0041]
a/R* = 276.45 [317.90]
b = 0.70 [0.85]
Seff = 1.58 [0.70]
Teq = 286 [31] K
Rp = 3.01 [1.03] Re
a = 1.5762 [0.4057] AU
Ag = 24049.85 [16027.30] [1.50 σ]
Teffp = 5507 [743] K [7.02 σ]

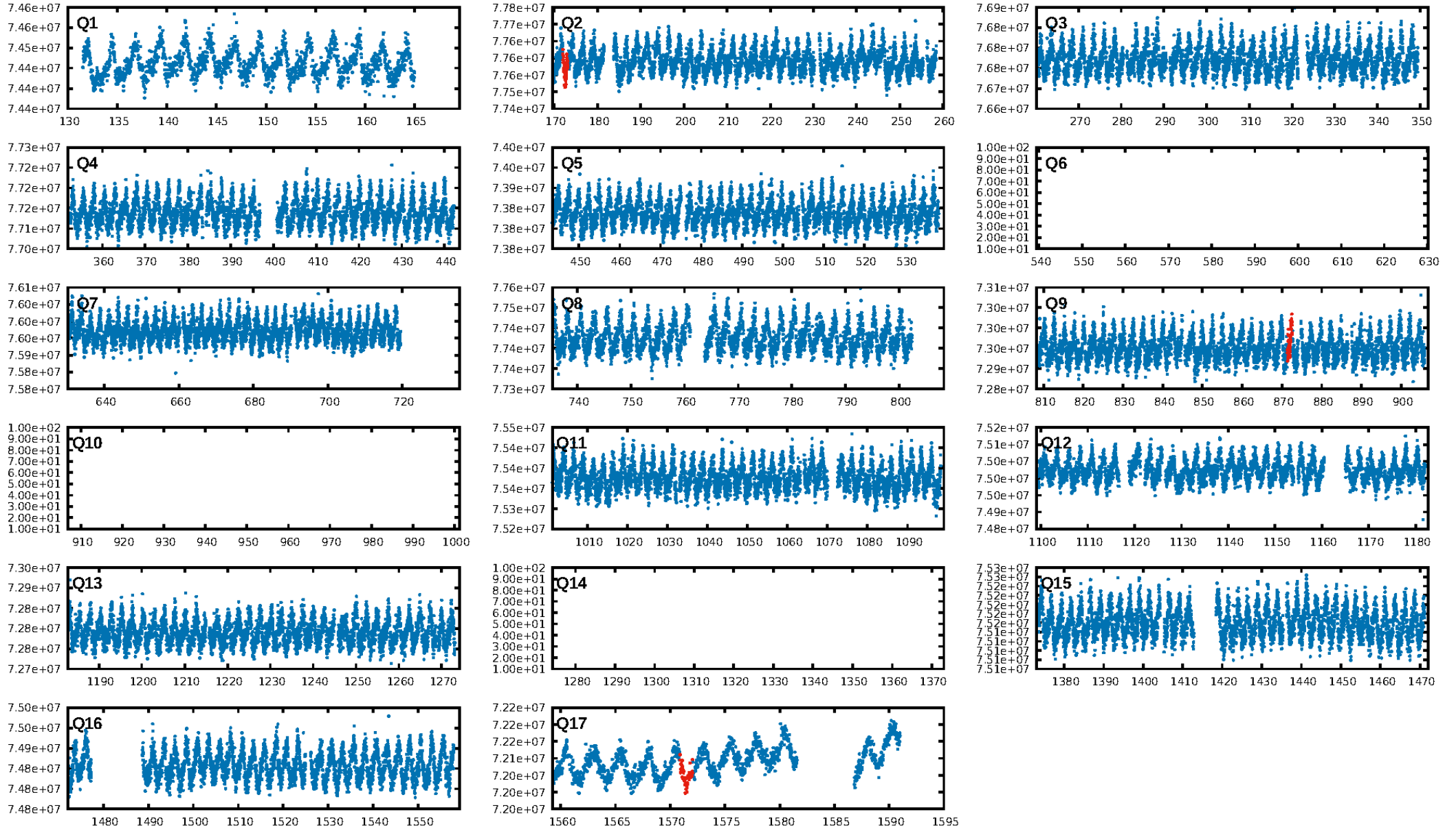
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [805.70 σ]
LongPeriod-sig: N/A
ModelChiSquare2-sig: 0.1%
ModelChiSquareGof-sig: 75.4%
Bootstrap-pfa: 6.73e-11
RollingBand-fgt: 1.00 [2/2]
GhostDiagnostic-chr: 0.1502
Centroid-sig: 0.1%
Centroid-so: 1.133 arcsec [1.24 σ]
OotOffset-rm: 1.321 arcsec [1.09 σ]
KicOffset-rm: 1.276 arcsec [1.16 σ]
OotOffset-st: 1/0/0/1 [2]
KicOffset-st: 1/0/0/1 [2]
DiffImageQuality-fgm: 1.00 [2/2]
DiffImageOverlap-fno: 0.00 [0/3]

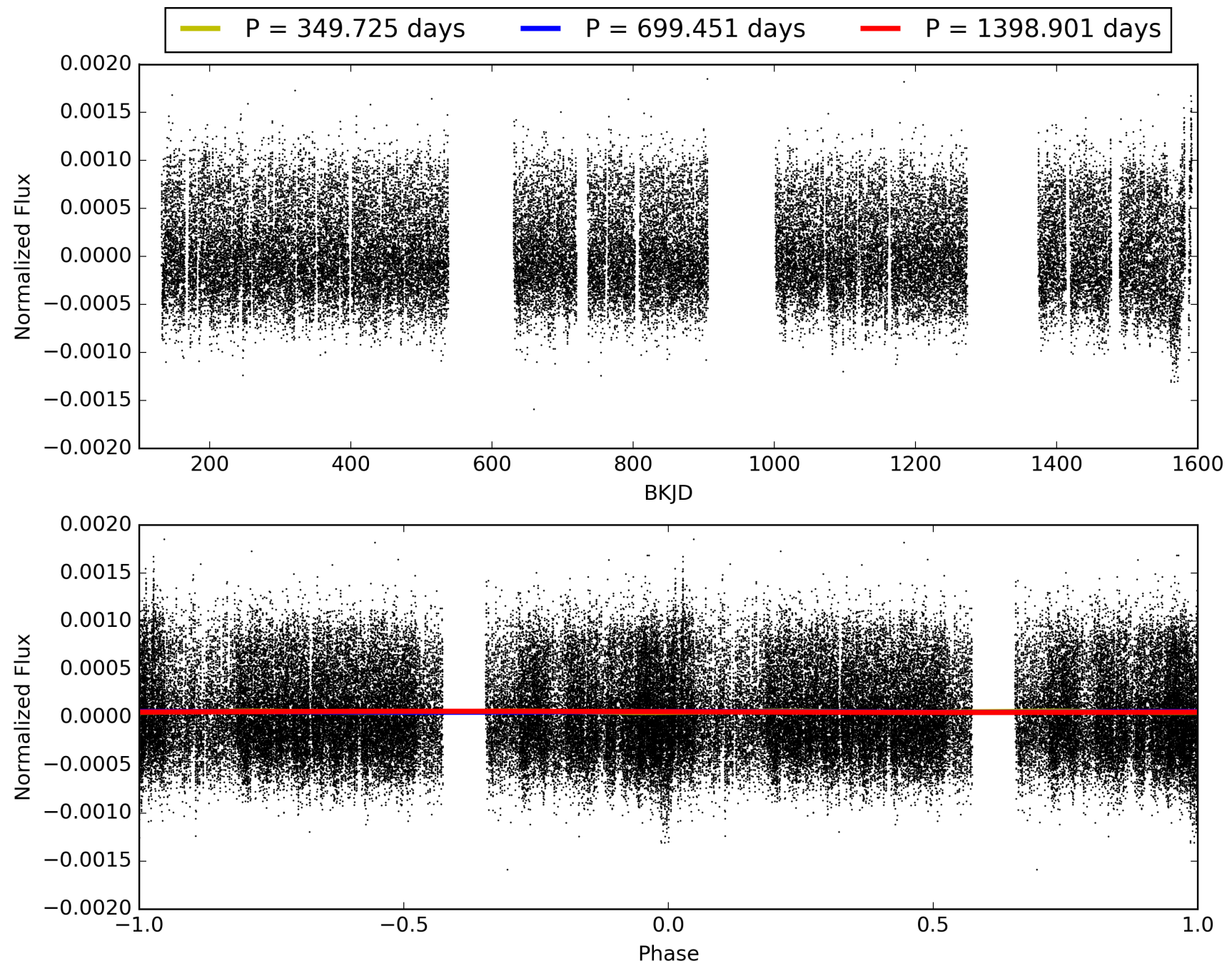
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 19:13:34 Z

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

TCE 003660476-02, PDC Light Curves

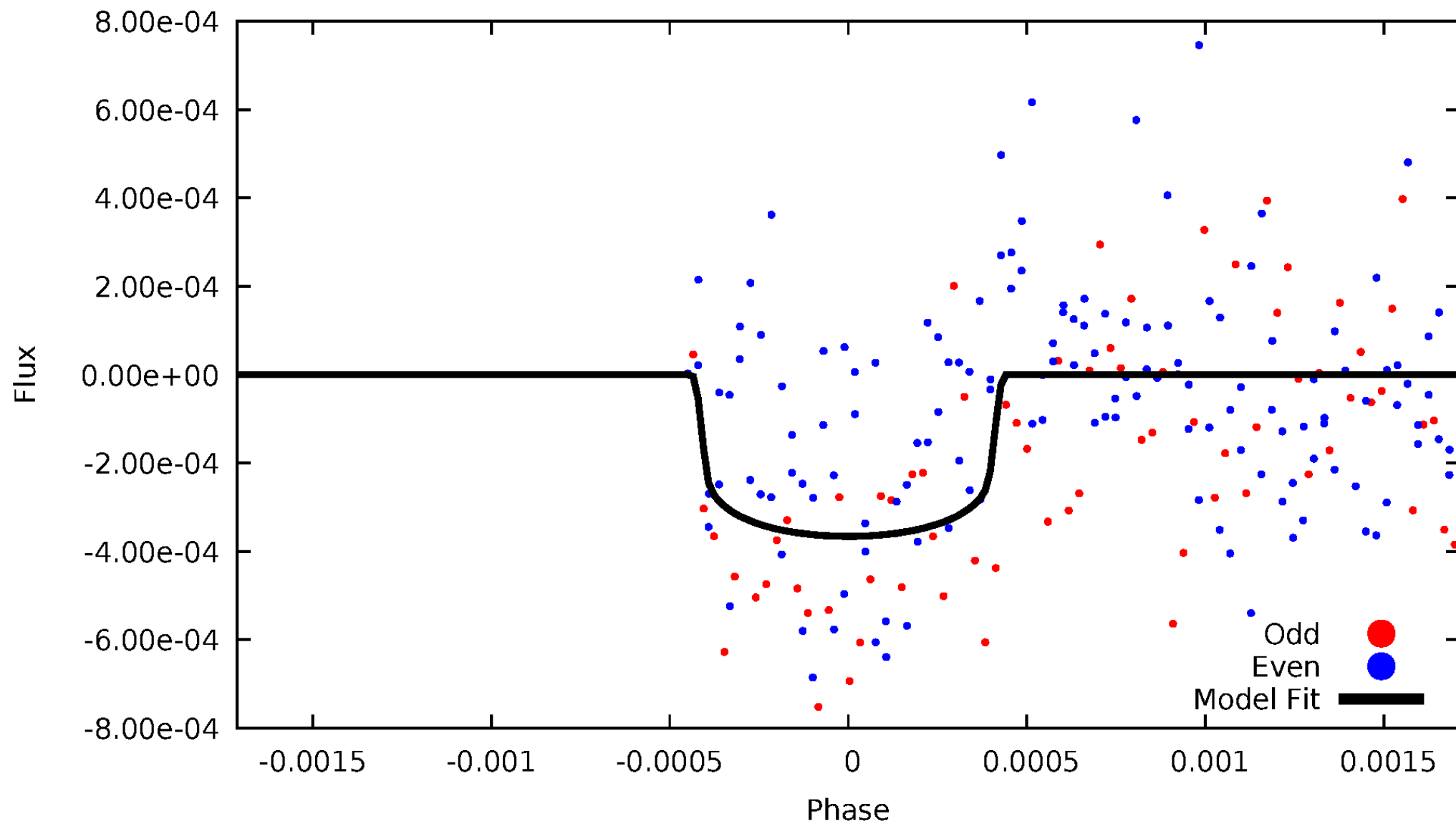


TCE 003660476-02



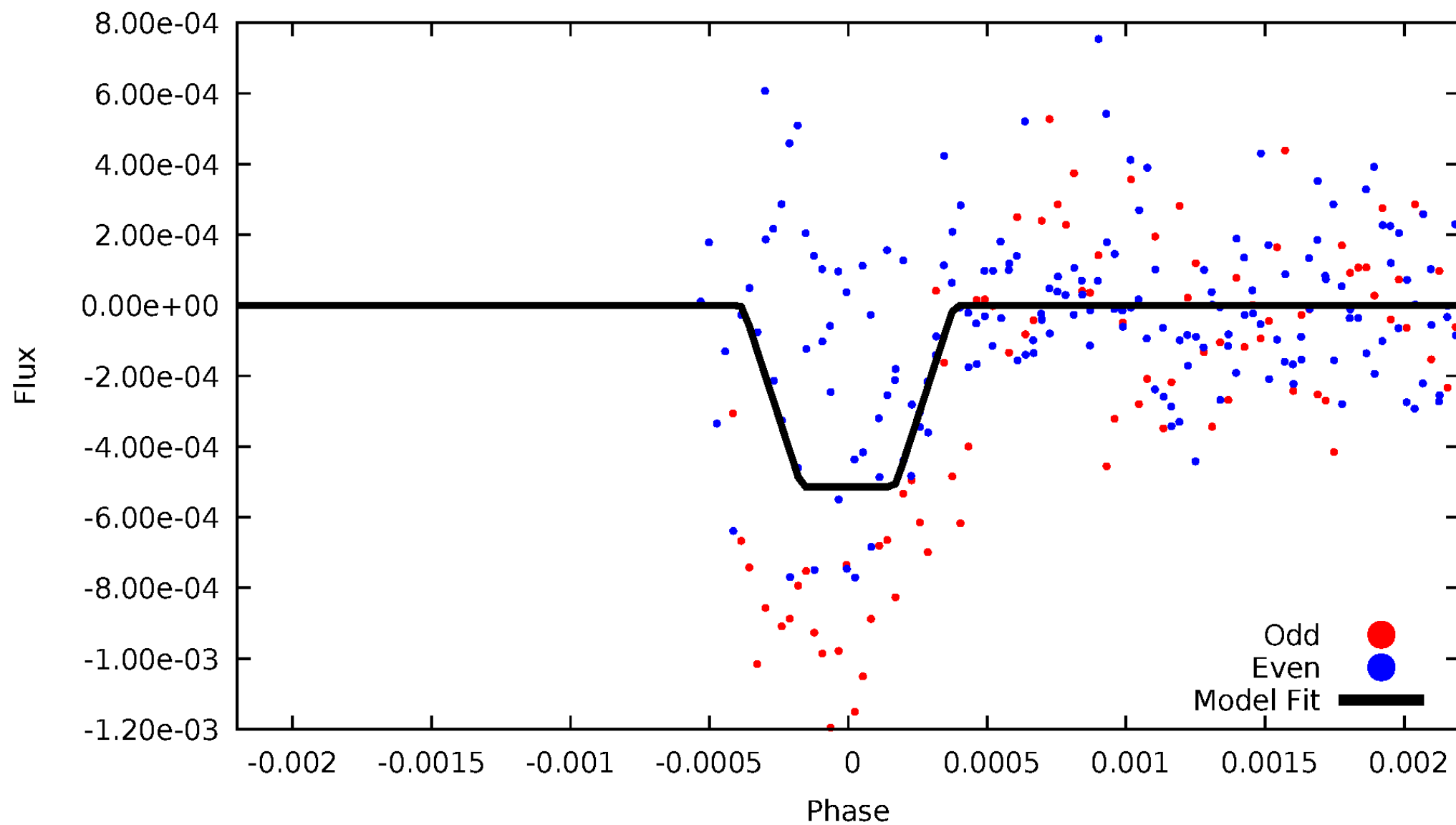
DV Odd/Even

TCE 003660476-02



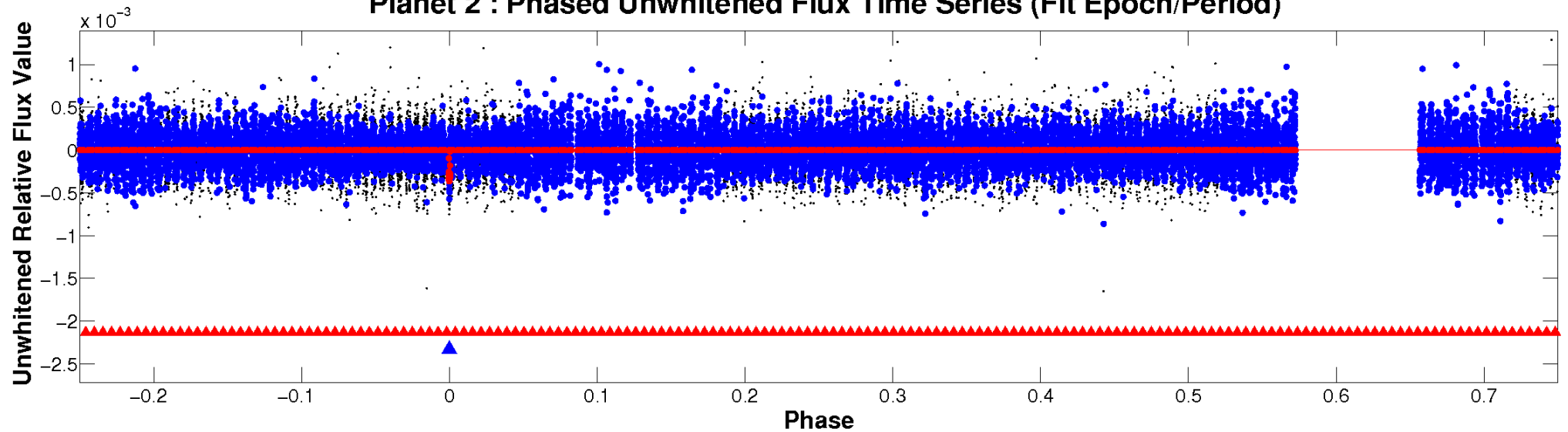
ALT Odd/Even

TCE 003660476-02

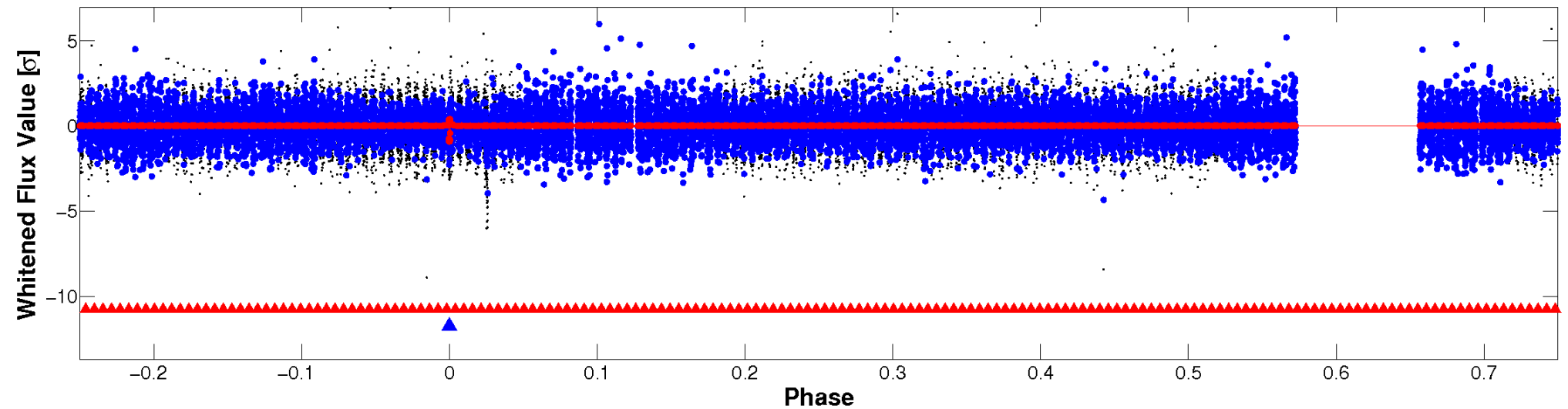


Non-Whitened Vs. Whitened Light Curve

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

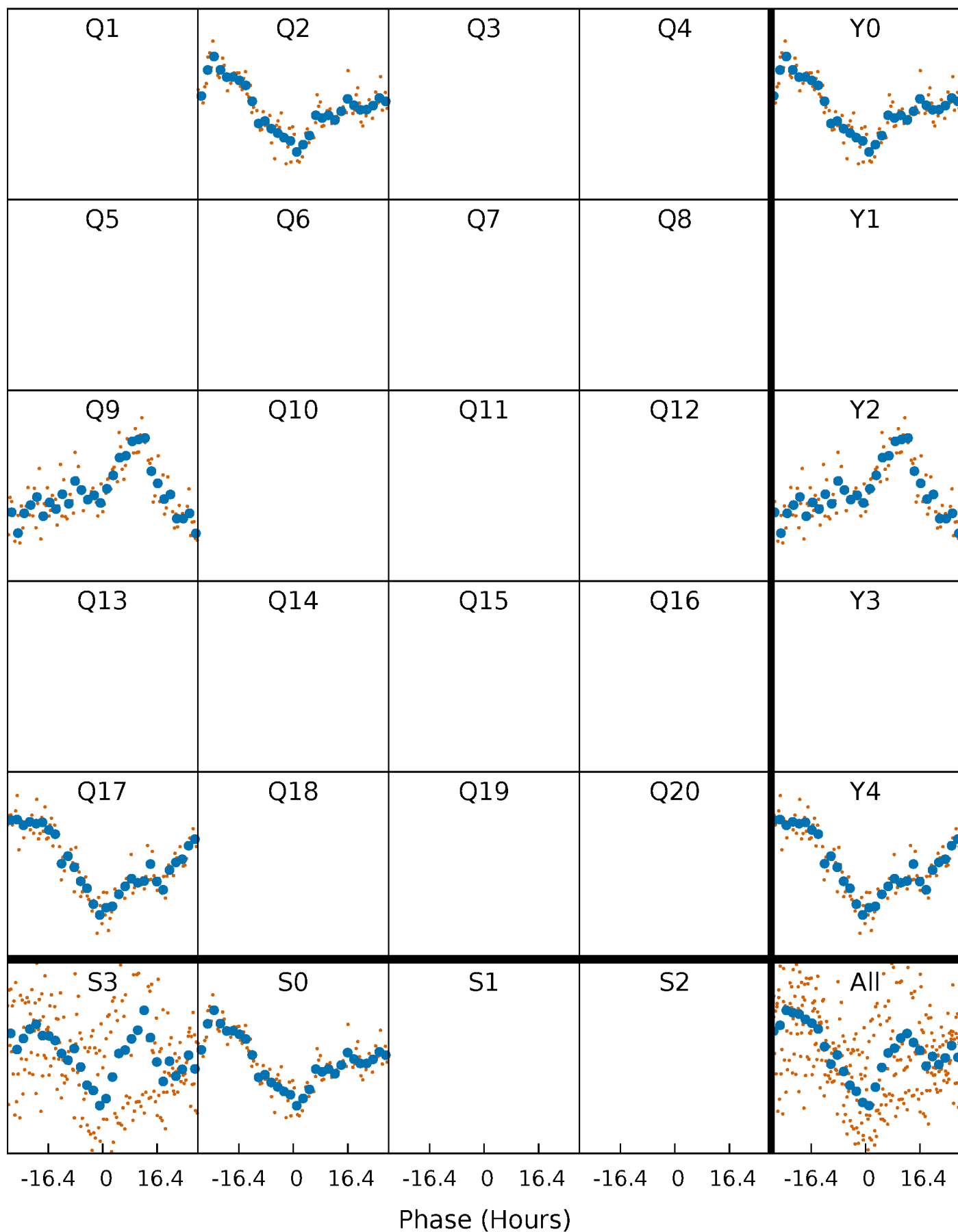


Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



PDC Quarter-Phased Transit Curves

TCE 003660476-02 P=699.450549 Days $T_0=172.552326$ (BKJD)



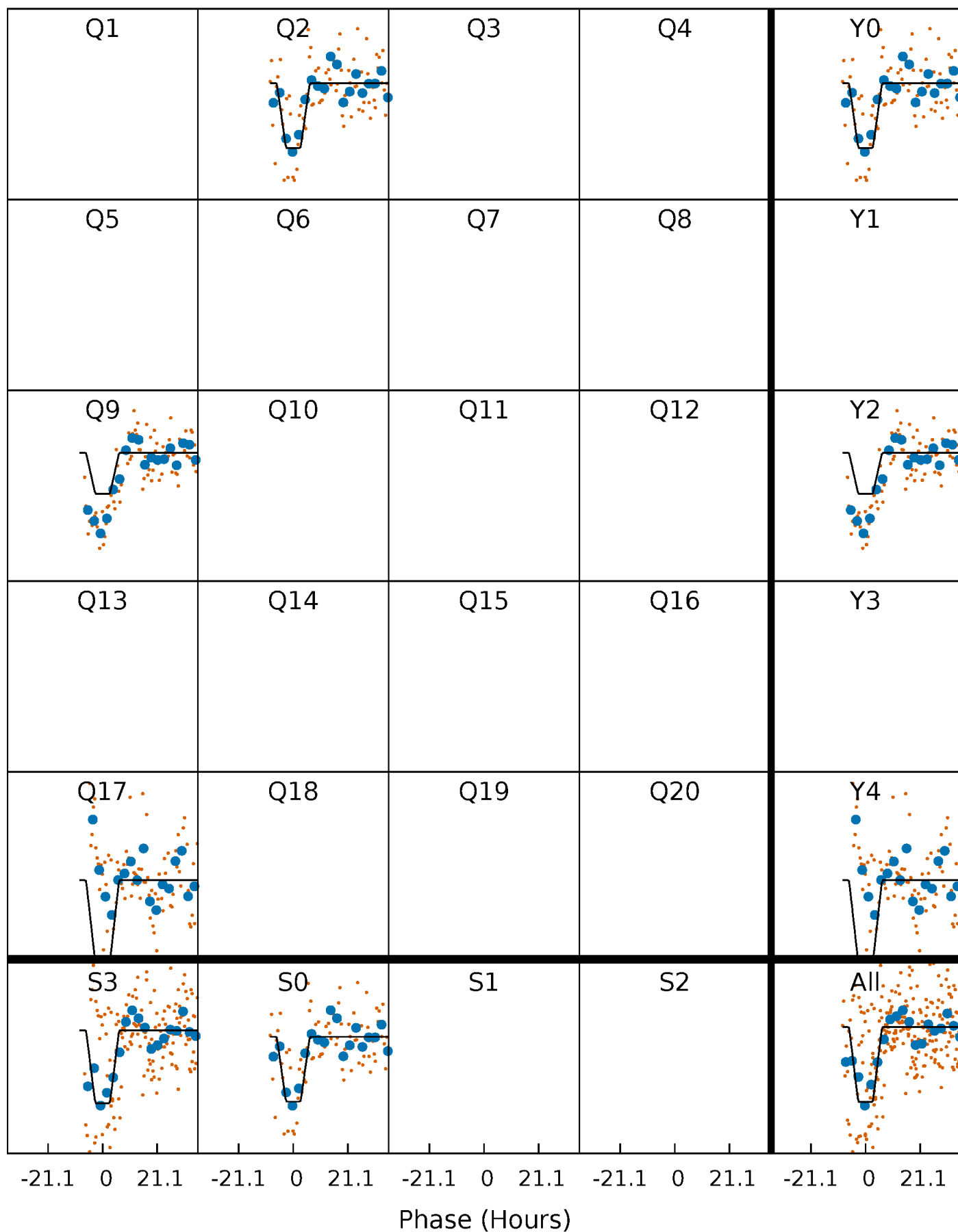
DV Quarter-Phased Transit Curves

TCE 003660476-02 $P=699.450549$ Days $T_0=172.552326$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

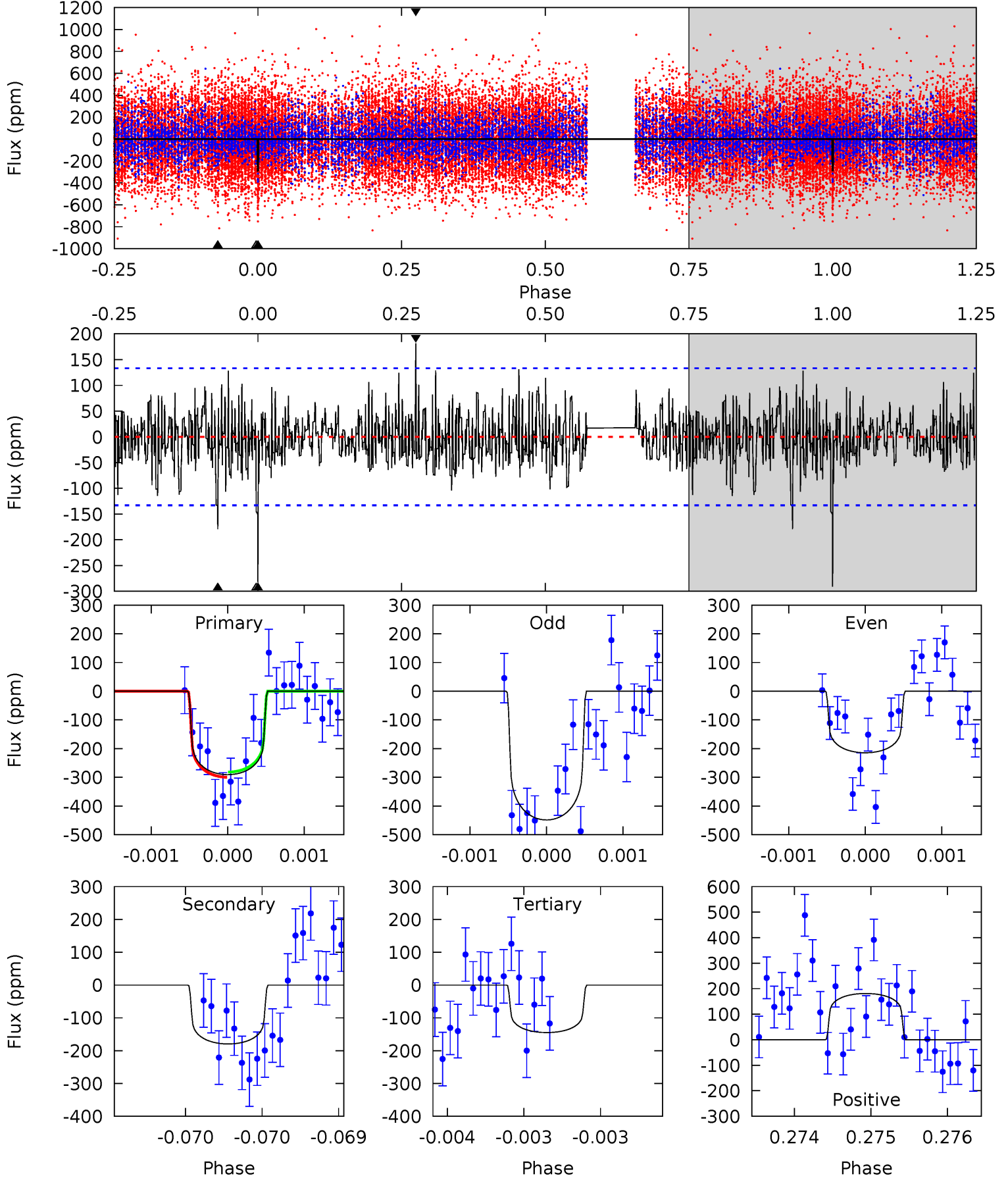
TCE 003660476-02 P=699.379458 Days $T_0=172.609678$ (BKJD)



DV Model-Shift Uniqueness Test

003660476-02, P = 699.450549 Days, E = 172.552326 Days

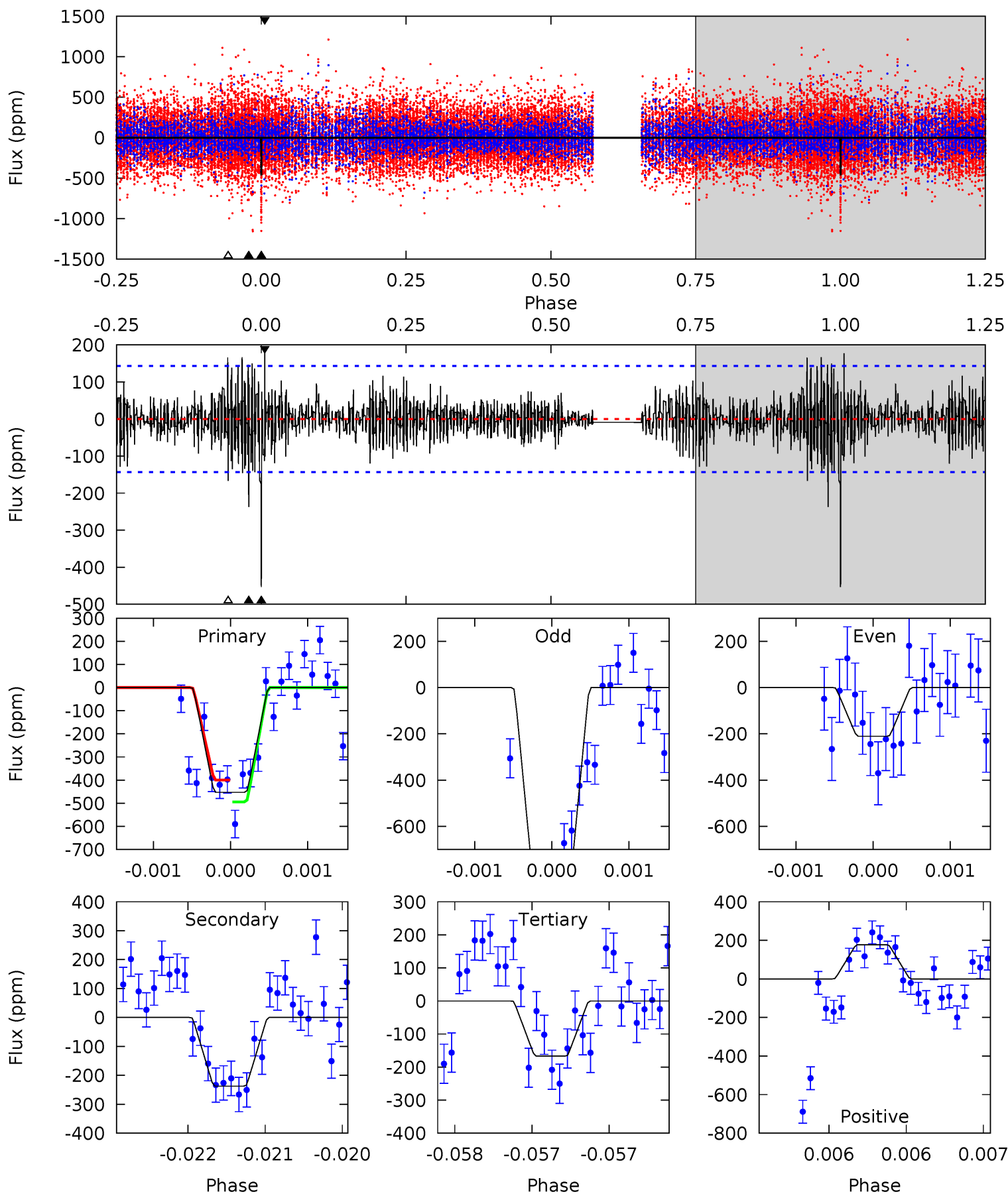
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
12.0	7.39	5.97	7.47	5.48	3.34	1.60	6.01	4.51	1.43	-0.07	4.51	1.28	0.38	0.37



Alt Model-Shift Uniqueness Test

003660476-02, P = 699.379458 Days, E = 172.609678 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
17.4	9.11	6.41	6.79	5.49	3.36	1.59	11.0	10.6	2.70	2.32	13.3	0.99	0.28	1.79



Stellar Parameters For KIC 003660476

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	M (M_{\odot})	p_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	6711^{+190}_{-238}	$4.131^{+0.246}_{-0.164}$	$-0.600^{+0.300}_{-0.300}$	$1.471^{+0.386}_{-0.386}$	$1.068^{+0.163}_{-0.134}$	$0.472^{+0.690}_{-0.211}$
	+3%/-4%	+6%/-4%	+50%/-50%	+26%/-26%	+15%/-13%	+146%/-45%
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 003660476-02 / KOI

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	-180 ± 24	$2.93^{+0.84}_{-0.70}$	396^{+32}_{-31}	5674^{+740}_{-543}	28646^{+21977}_{-11561}
Alt.	-237 ± 26	$3.61^{+0.92}_{-0.85}$	397^{+30}_{-29}	5521^{+612}_{-435}	24864^{+17572}_{-8821}

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 $A_{obs} \gg 1.0$

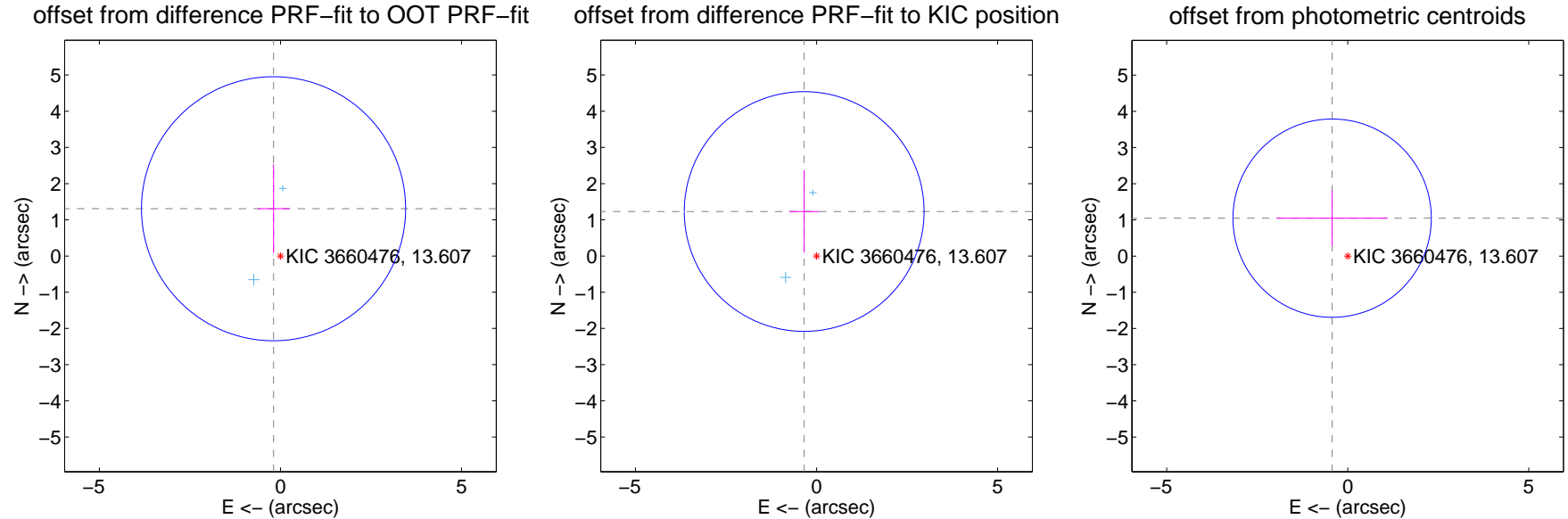
DV Centroid Data

Supplemental centroid analysis for 003660476-02. Kepler magnitude: 13.61. Transit SNR 8.11

There are 2 quarters with good PRF difference image offsets

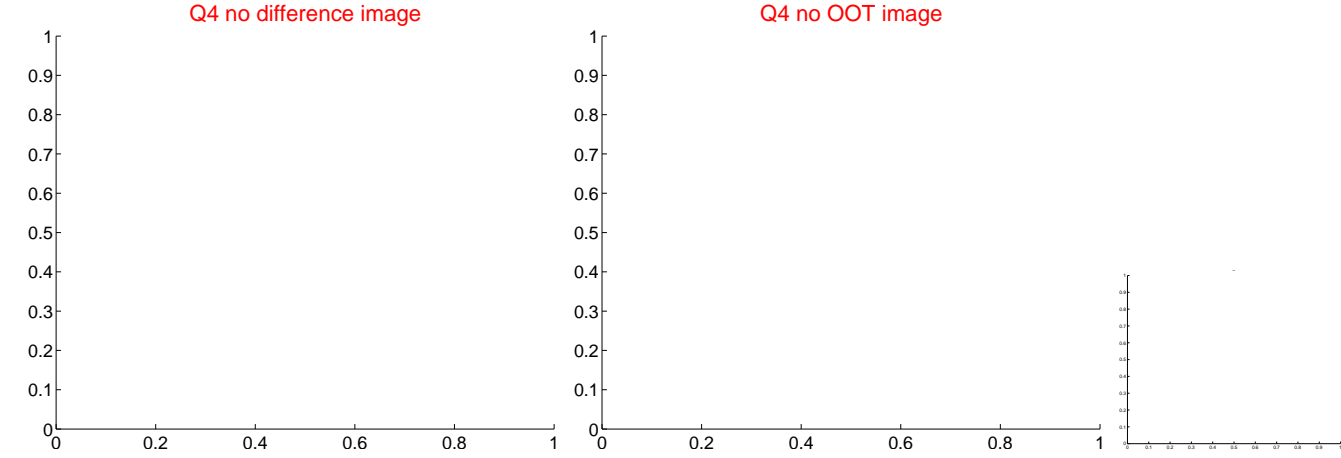
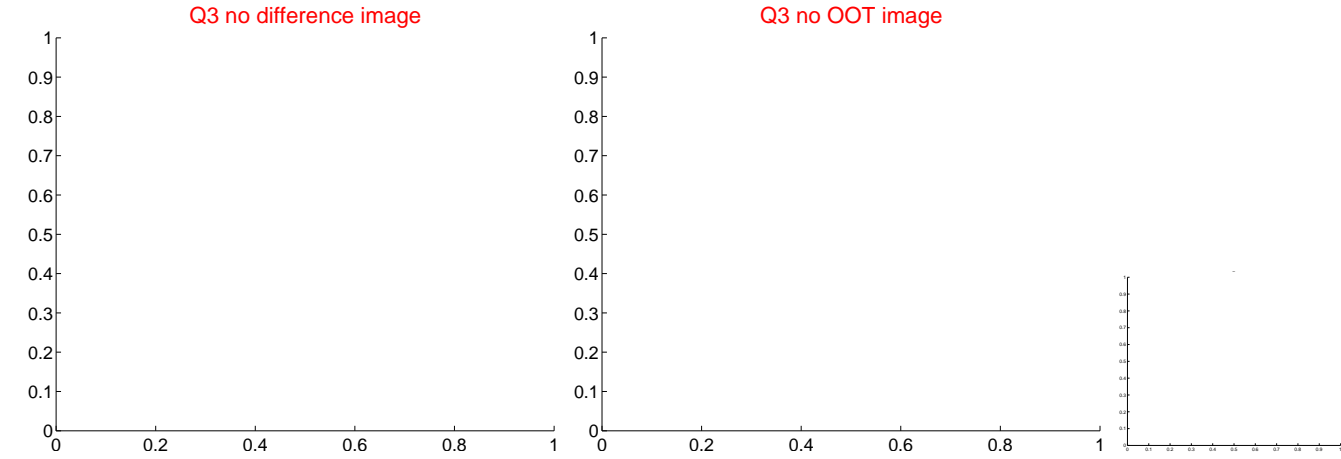
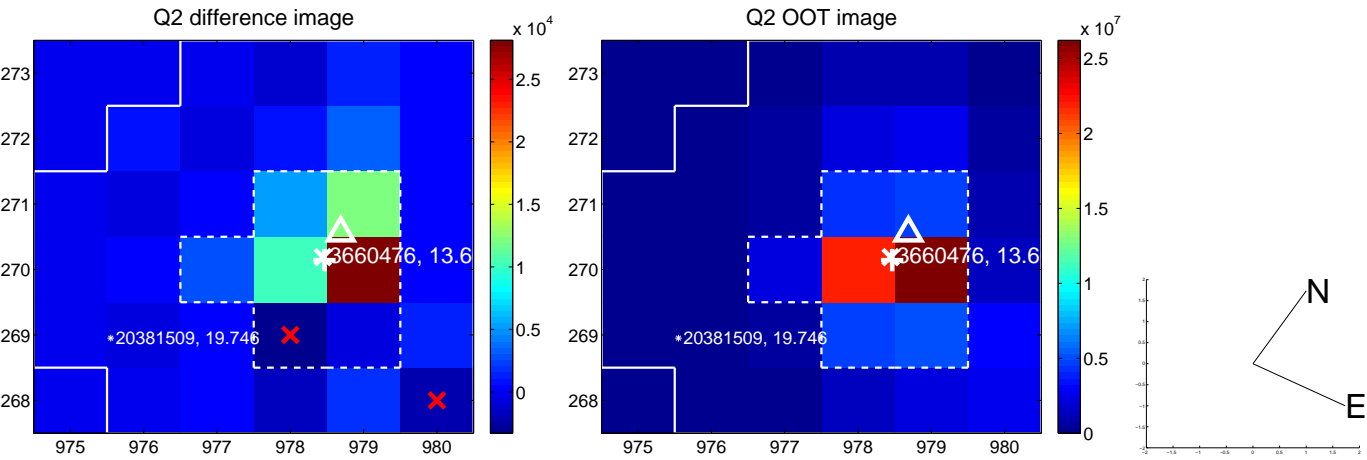
The direct PRF centroid is offset from the target star catalog position by about 0.14 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	1.321 ± 1.216	1.09	0.191 ± 0.438	1.307 ± 1.227
PRF-fit source offset from KIC position	1.276 ± 1.104	1.16	0.342 ± 0.415	1.229 ± 1.140
photometric centroid source offset	1.13 ± 0.91	1.24	0.43 ± 1.53	1.05 ± 0.76



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.

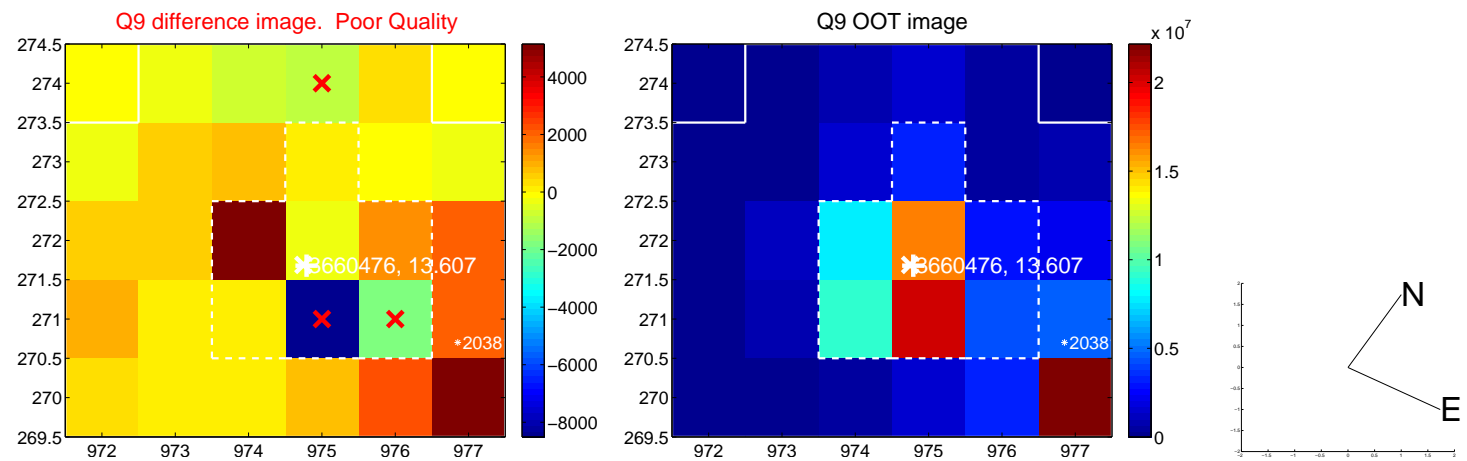
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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



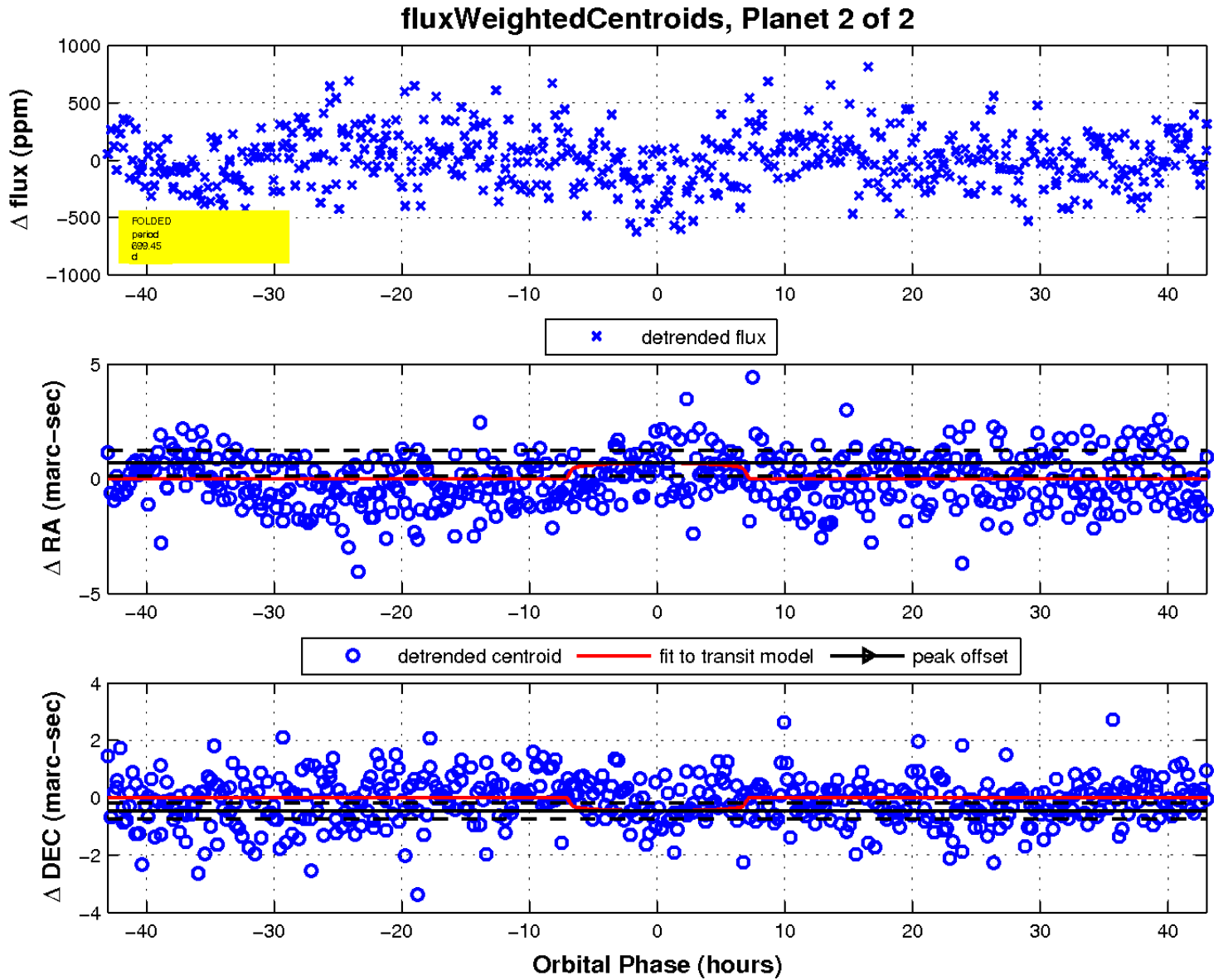
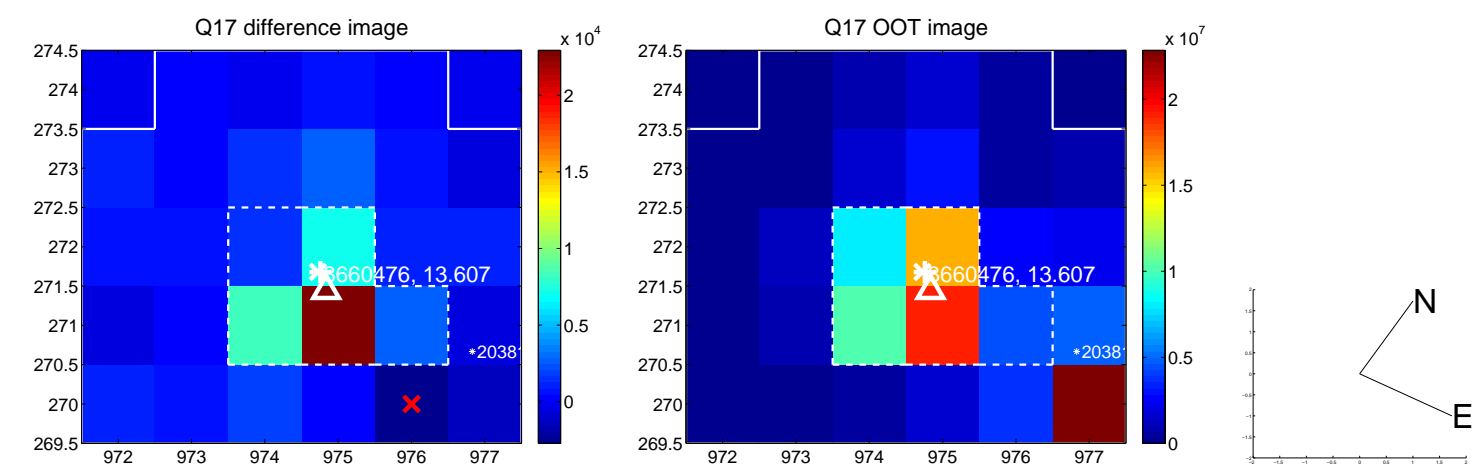
white ×: KIC target position; +: OOT centroid; △: difference centroid. red ×: large negative pixel value.



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

