

KIC 006120073

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})
006120073-01	OBS	No	262.029991	373.889604	639.1	19.150	7.9	7.5	0.78	5355	2.03	0.77
006120073-02	OBS	No	560.340268	303.447763	1478.2	20.954	8.0	8.9	0.78	5355	3.47	0.28

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
006120073-01	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_SKYE—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—INCONSISTENT_TRANS—CENT_FEW_DIFFS
006120073-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—LPP_DV—ALL_TRANS_CHASES—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.

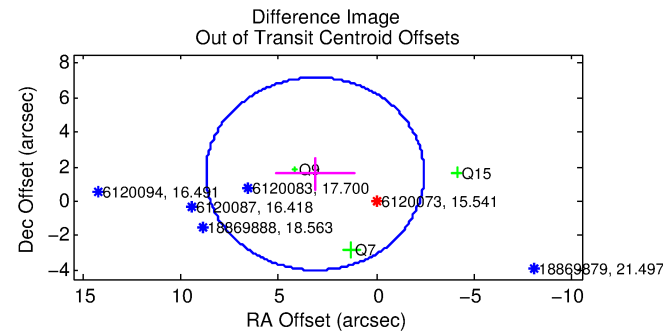
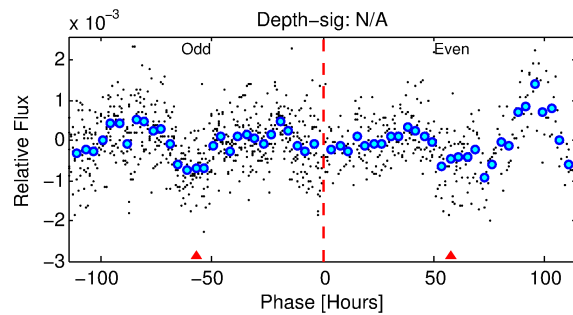
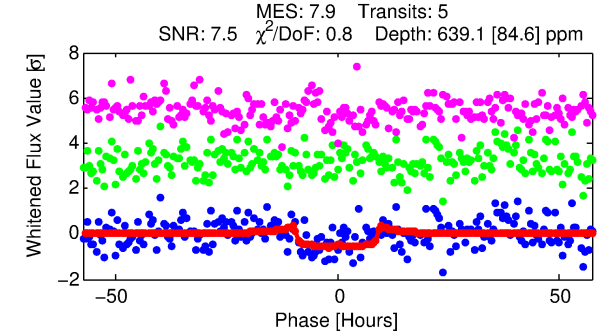
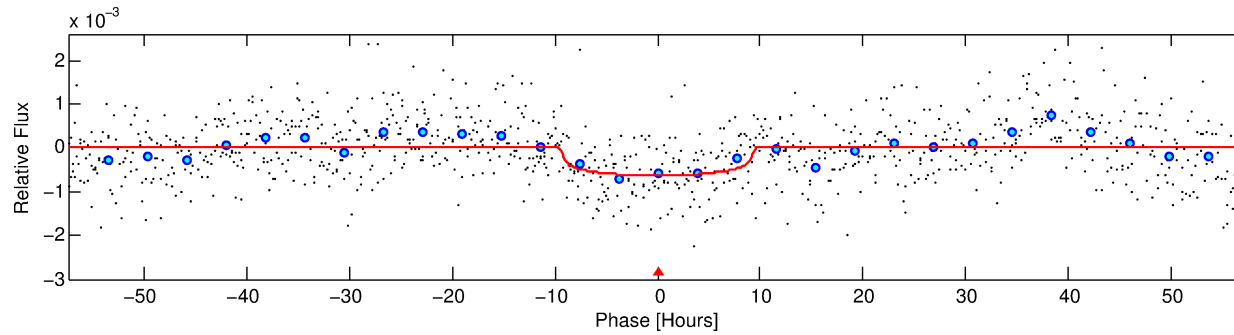
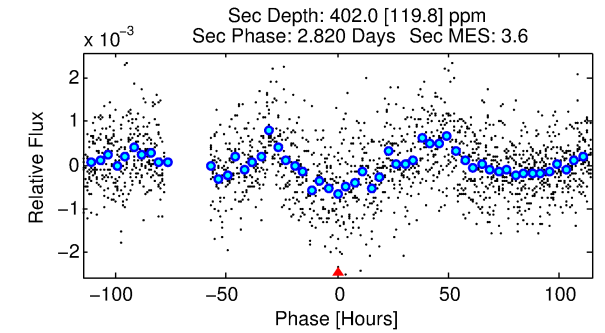
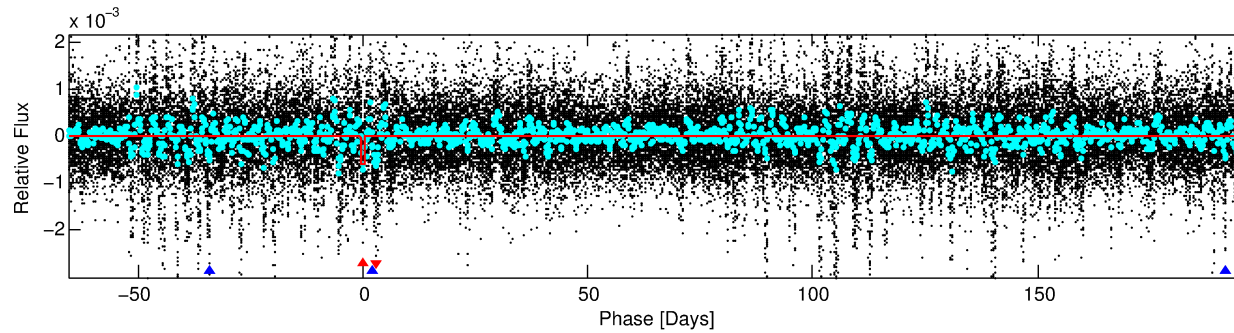
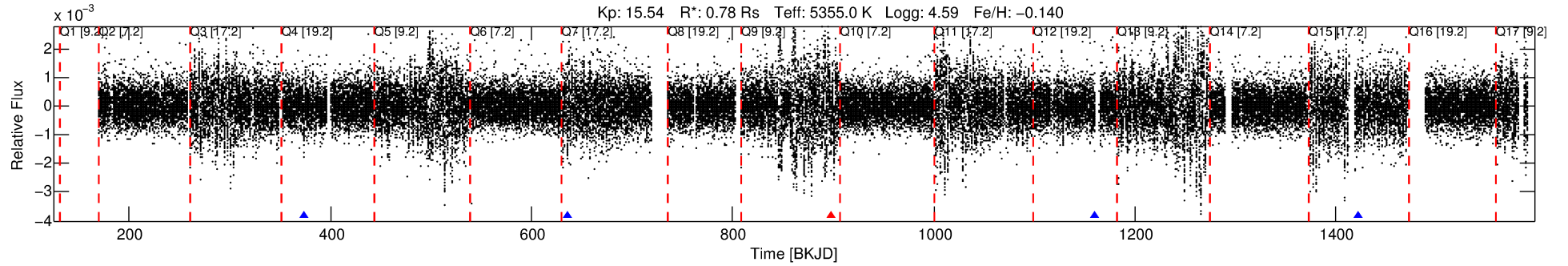
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 006120073-01

No Significant Match Found

DV One-Page Summary

KIC: 6120073 Candidate: 1 of 2 Period: 262.030 d



DV Fit Results:

Period = 262.02999 [0.00826] d
Epoch = 373.8896 [0.0199] BKJD
Rp/R* = 0.0240 [0.0081]
a/R* = 87.42 [113.05]
b = 0.59 [1.44]
Seff = 0.77 [0.20]
Teq = 239 [15] K
Rp = 2.03 [0.78] Re
a = 0.7600 [0.1168] AU
Ag = 31128.26 [24064.24] [1.29σ]
Teffp = 4899 [921] K [5.06σ]

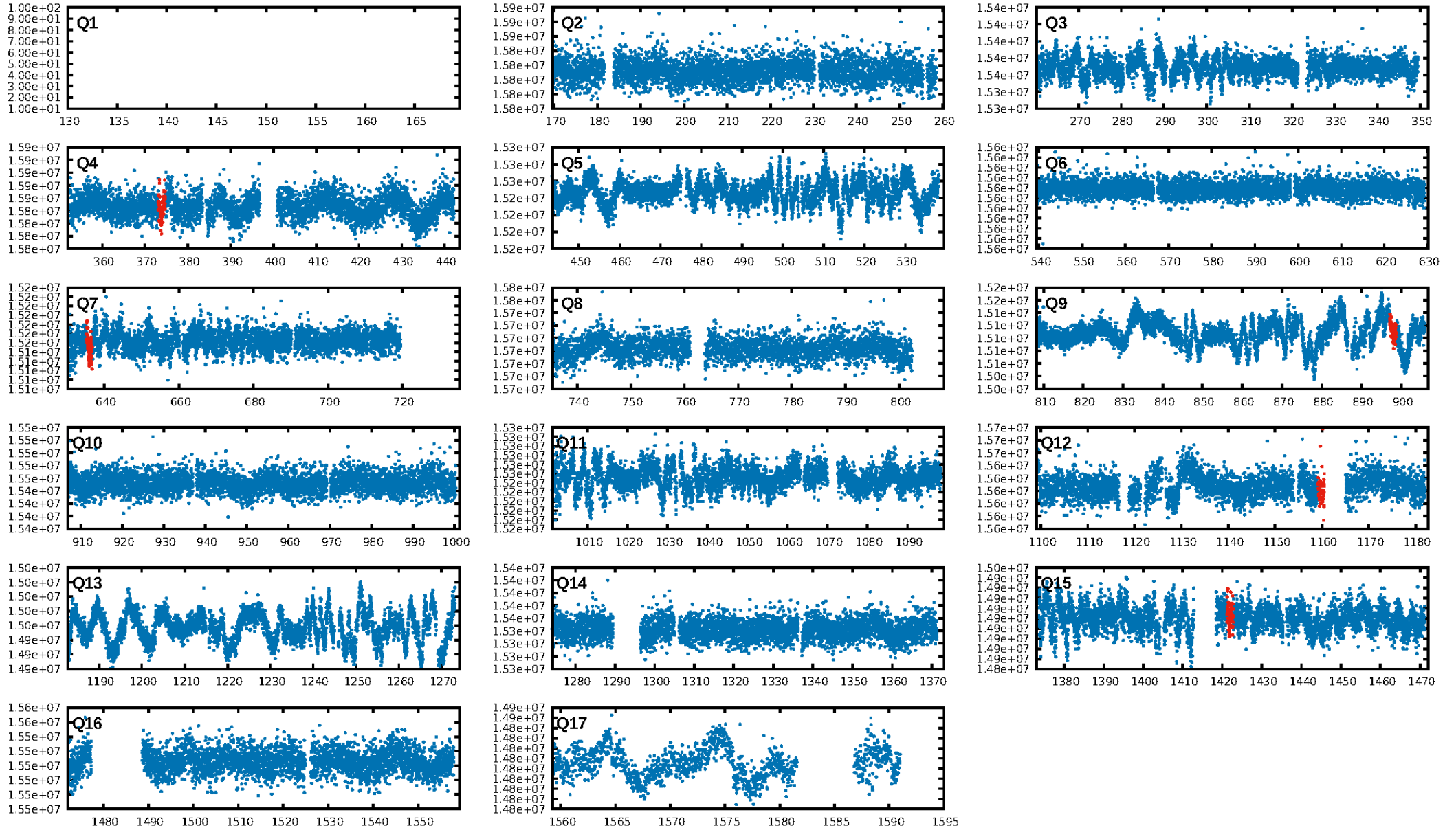
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: 100.0% [252.21σ]
ModelChiSquare2-sig: 12.2%
ModelChiSquareGof-sig: 100.0%
Bootstrap-pfa: 1.13e-09
RollingBand-fgt: 0.80 [4/5]
GhostDiagnostic-chr: 3.859
Centroid-sig: 37.5%
Centroid-so: 1.890 arcsec [0.75σ]
OotOffset-rm: 3.513 arcsec [1.89σ]
KicOffset-rm: 3.603 arcsec [1.94σ]
OotOffset-st: 0/2/0/1 [3]
KicOffset-st: 0/2/0/1 [3]
DiffImageQuality-fgm: 0.00 [0/3]
DiffImageOverlap-fno: 1.00 [3/3]

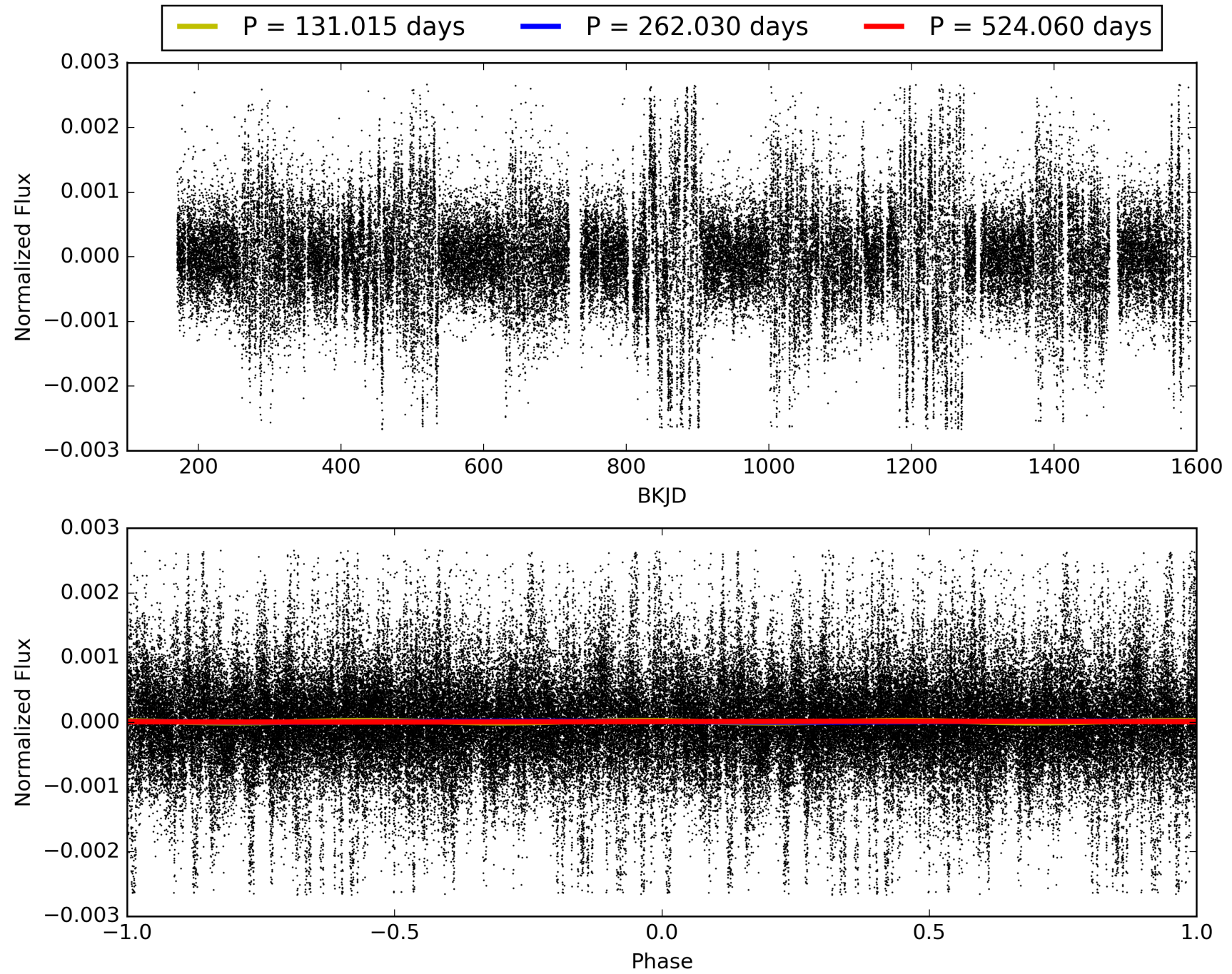
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 29-Jan-2016 20:59:20 Z

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

TCE 006120073-01, PDC Light Curves

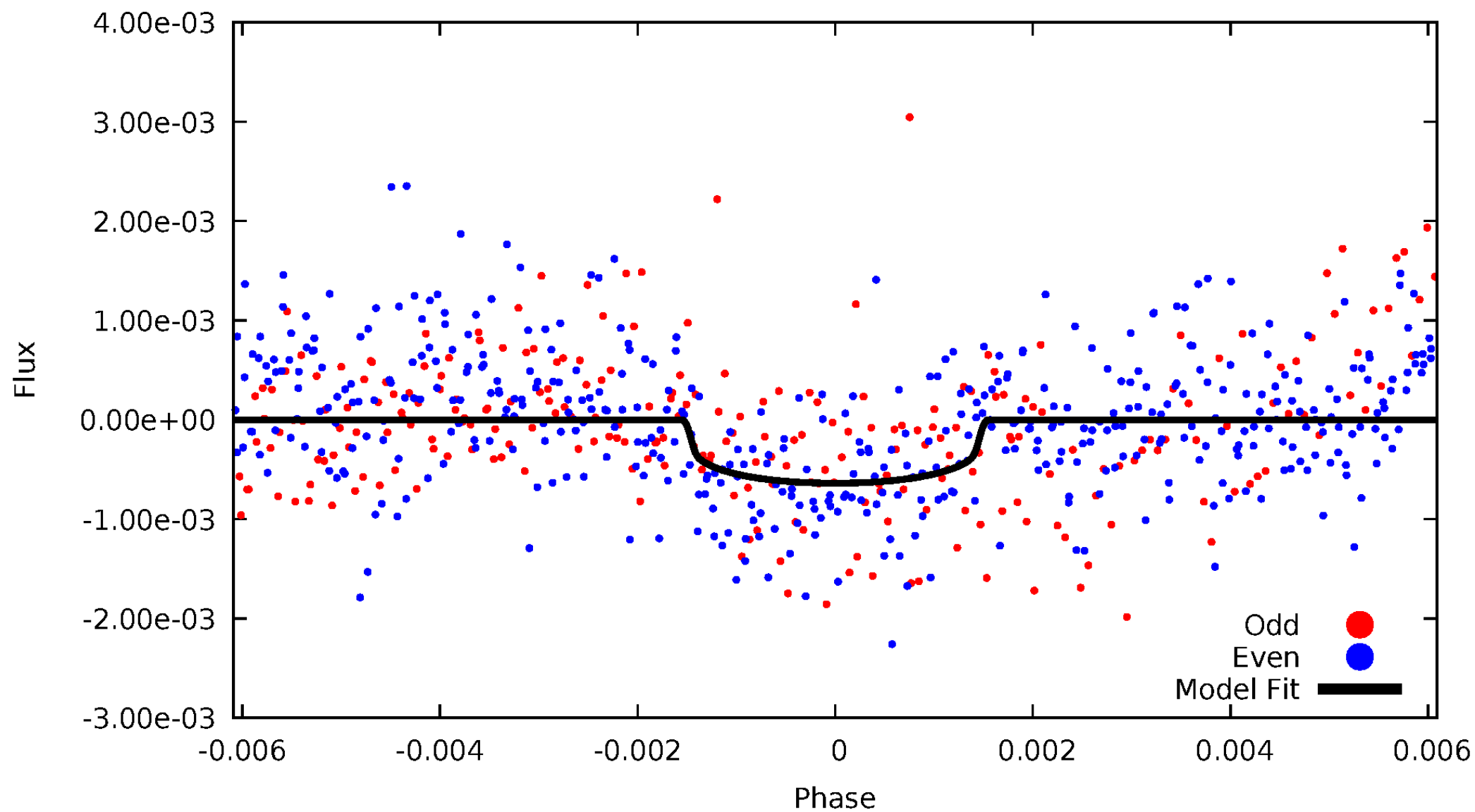


TCE 006120073-01



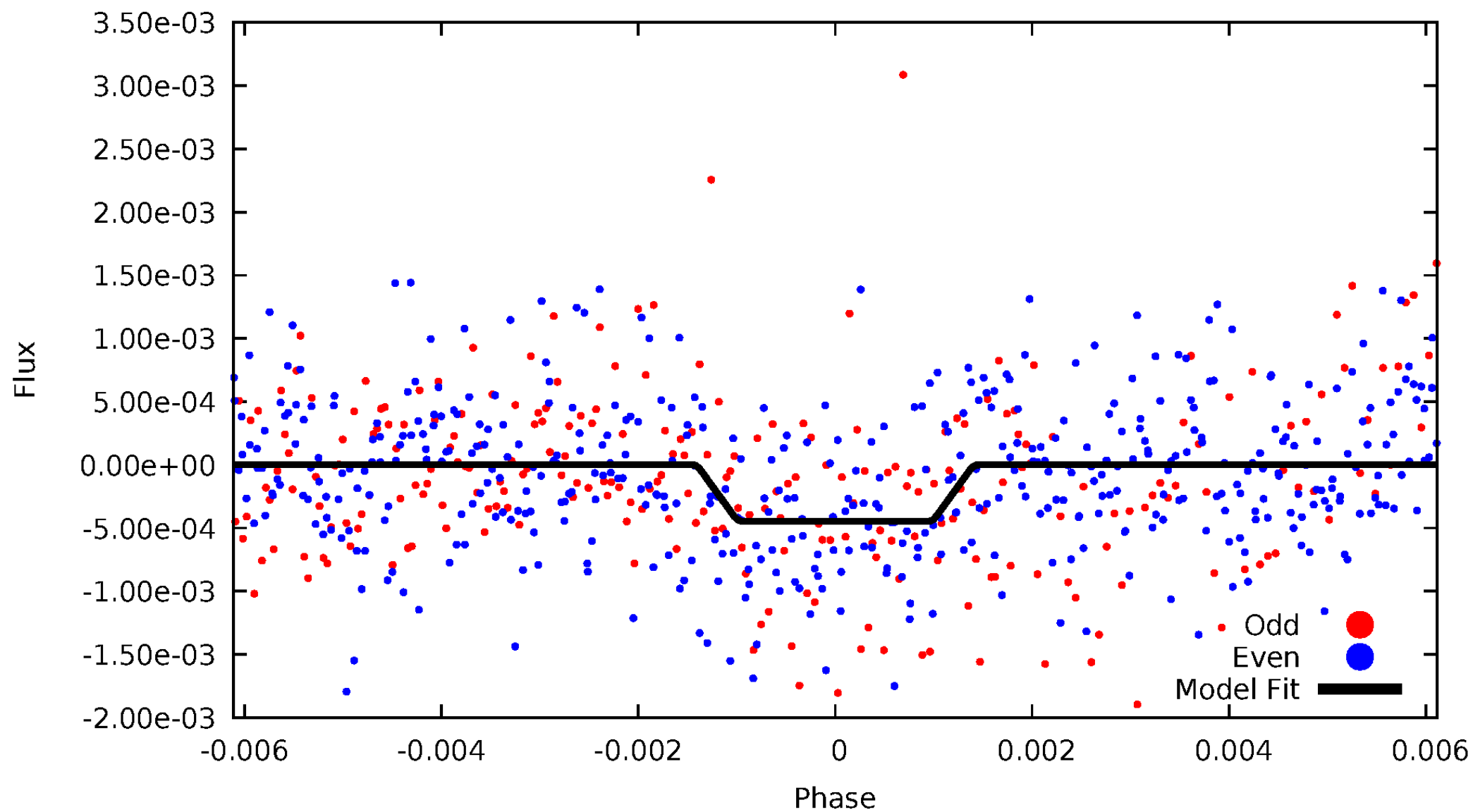
DV Odd/Even

TCE 006120073-01



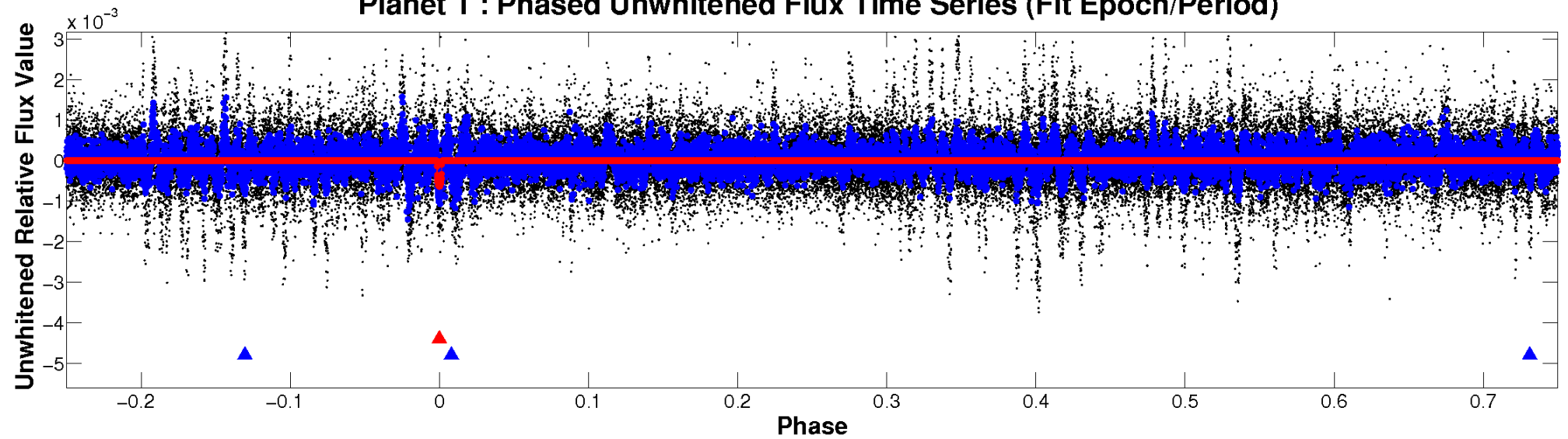
ALT Odd/Even

TCE 006120073-01

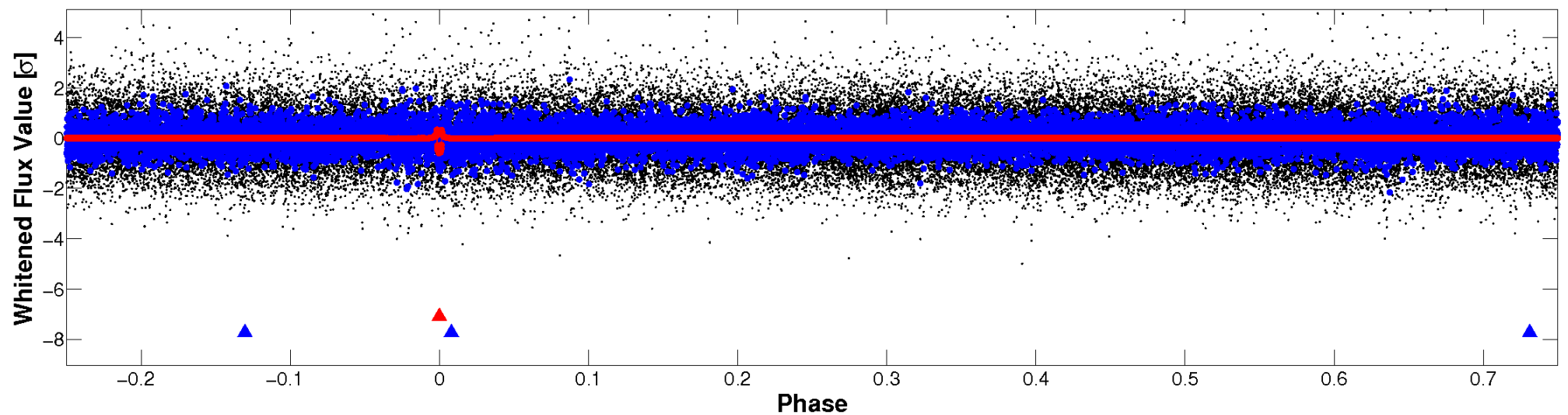


Non-Whitened Vs. Whitened Light Curve

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

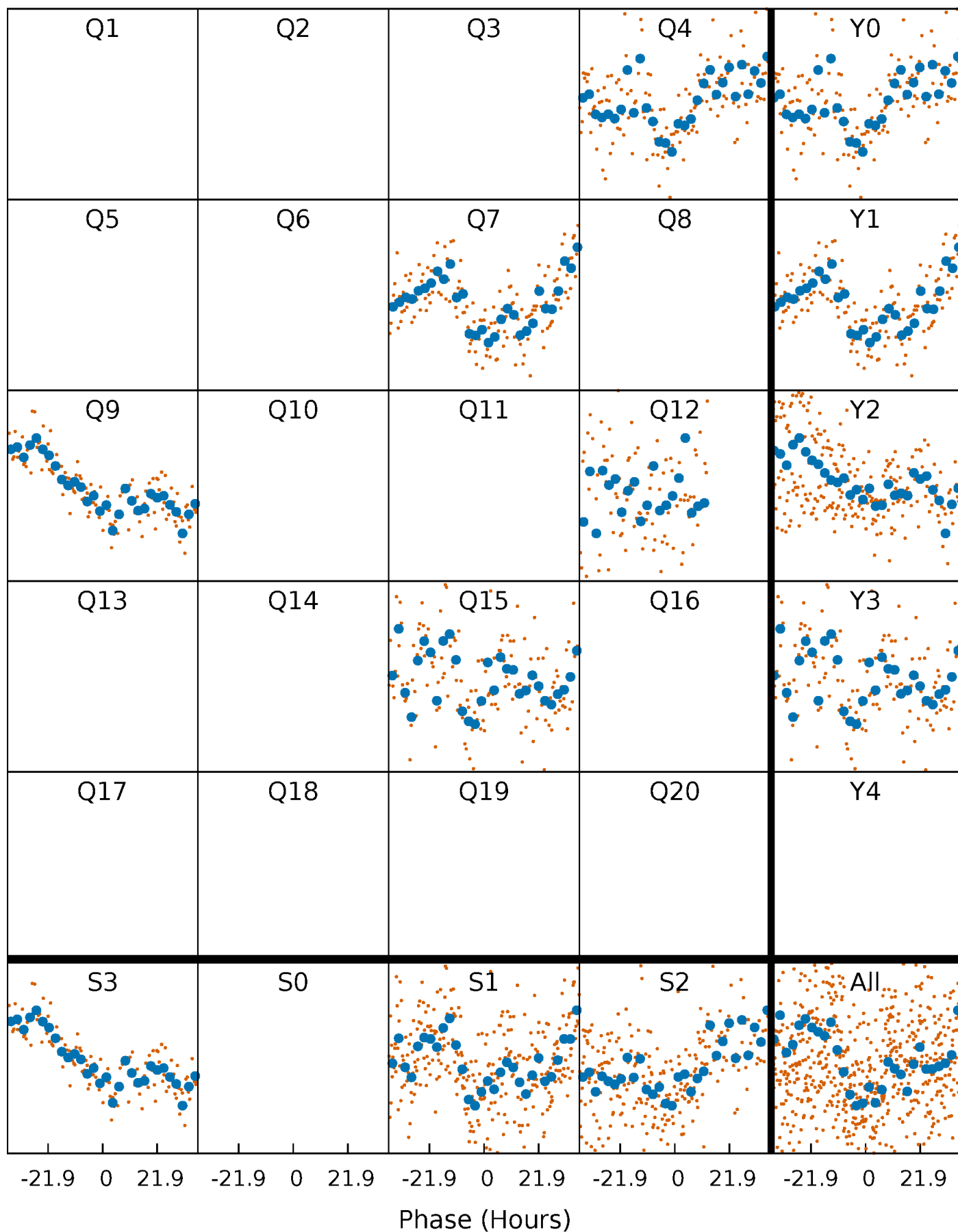


Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)



PDC Quarter-Phased Transit Curves

TCE 006120073-01 P=262.029991 Days $T_0=373.889604$ (BKJD)



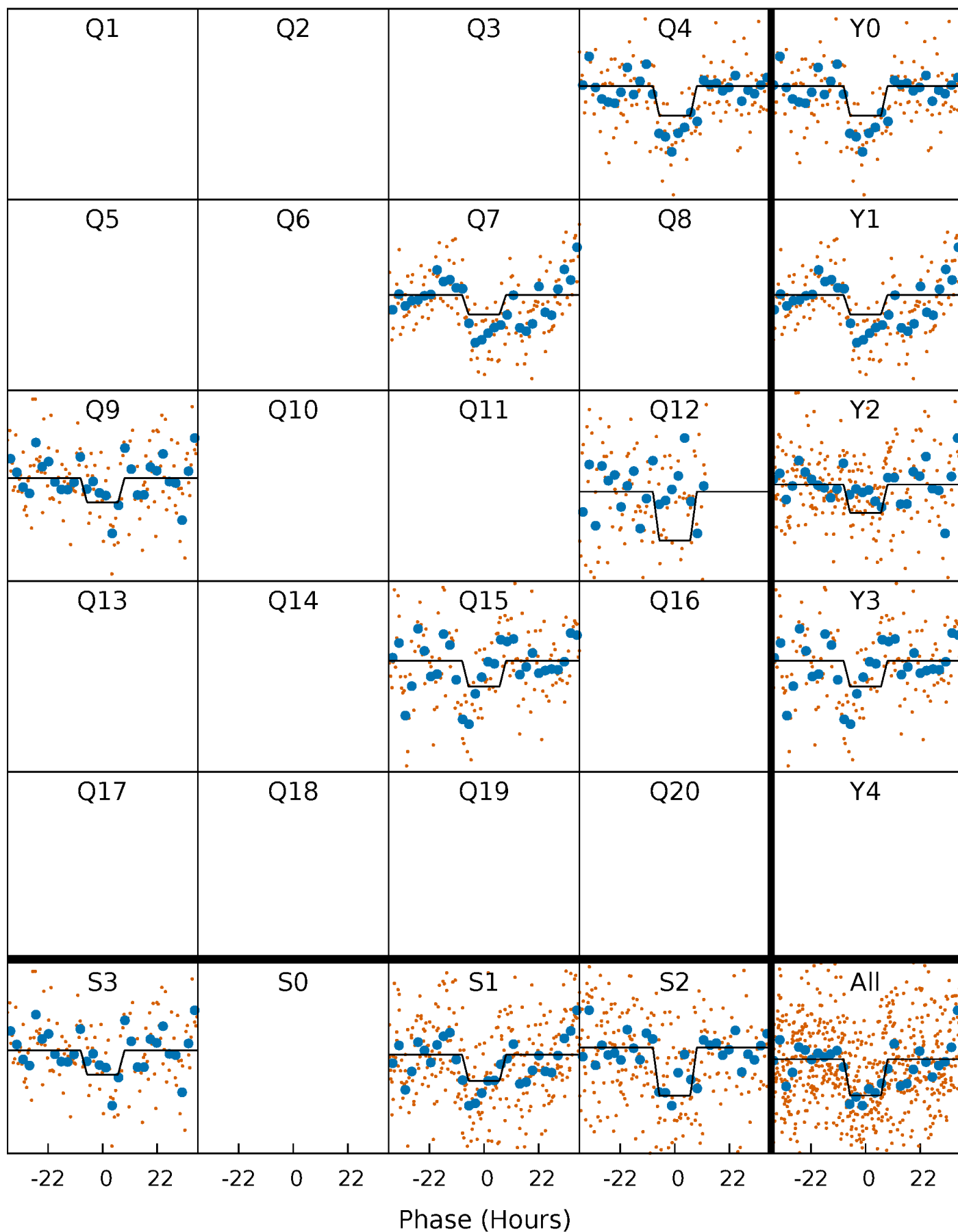
DV Quarter-Phased Transit Curves

TCE 006120073-01 P=262.029991 Days $T_0=373.889604$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

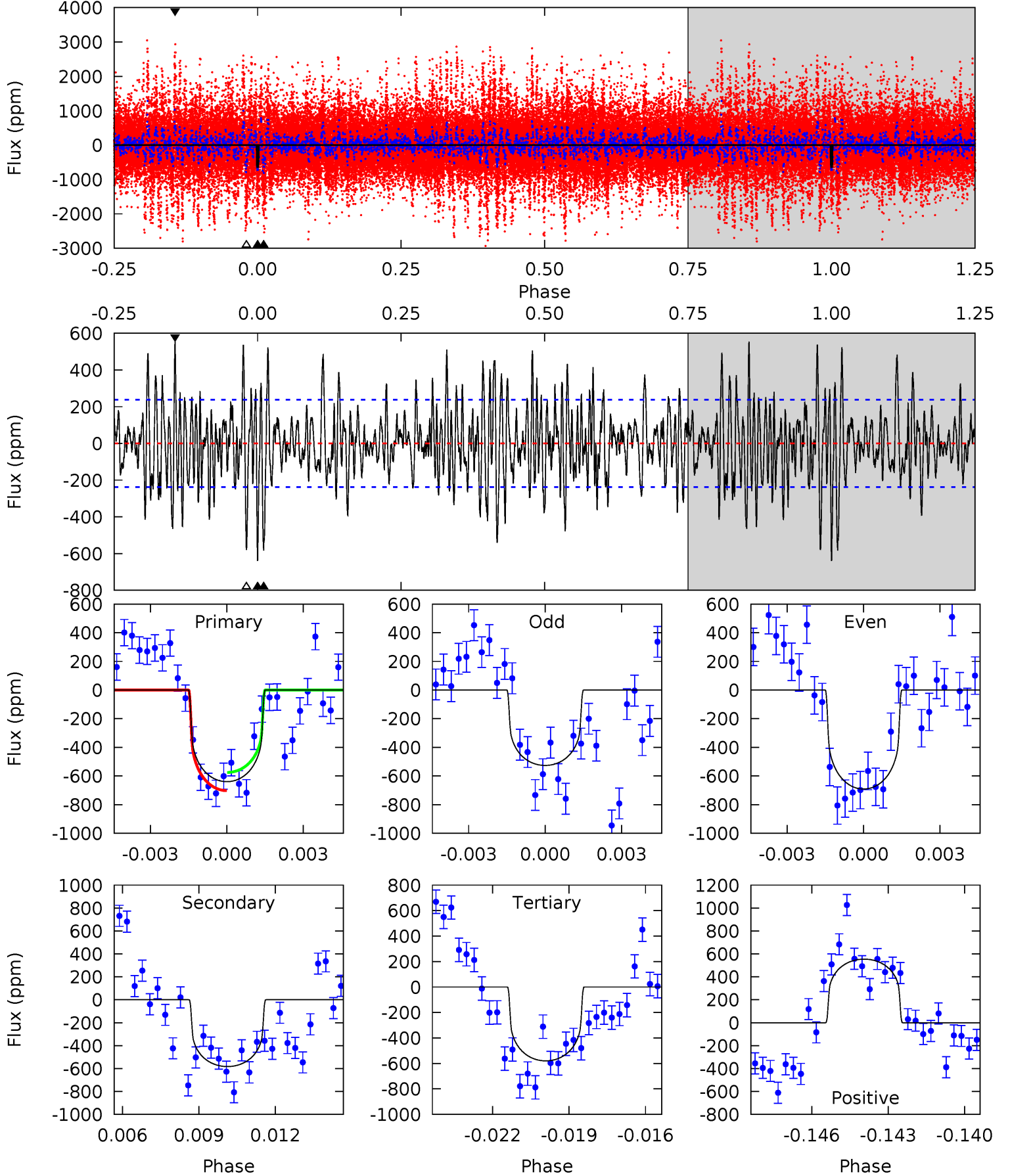
TCE 006120073-01 P=262.053596 Days $T_0=373.835863$ (BKJD)



DV Model-Shift Uniqueness Test

006120073-01, P = 262.029991 Days, E = 111.859613 Days

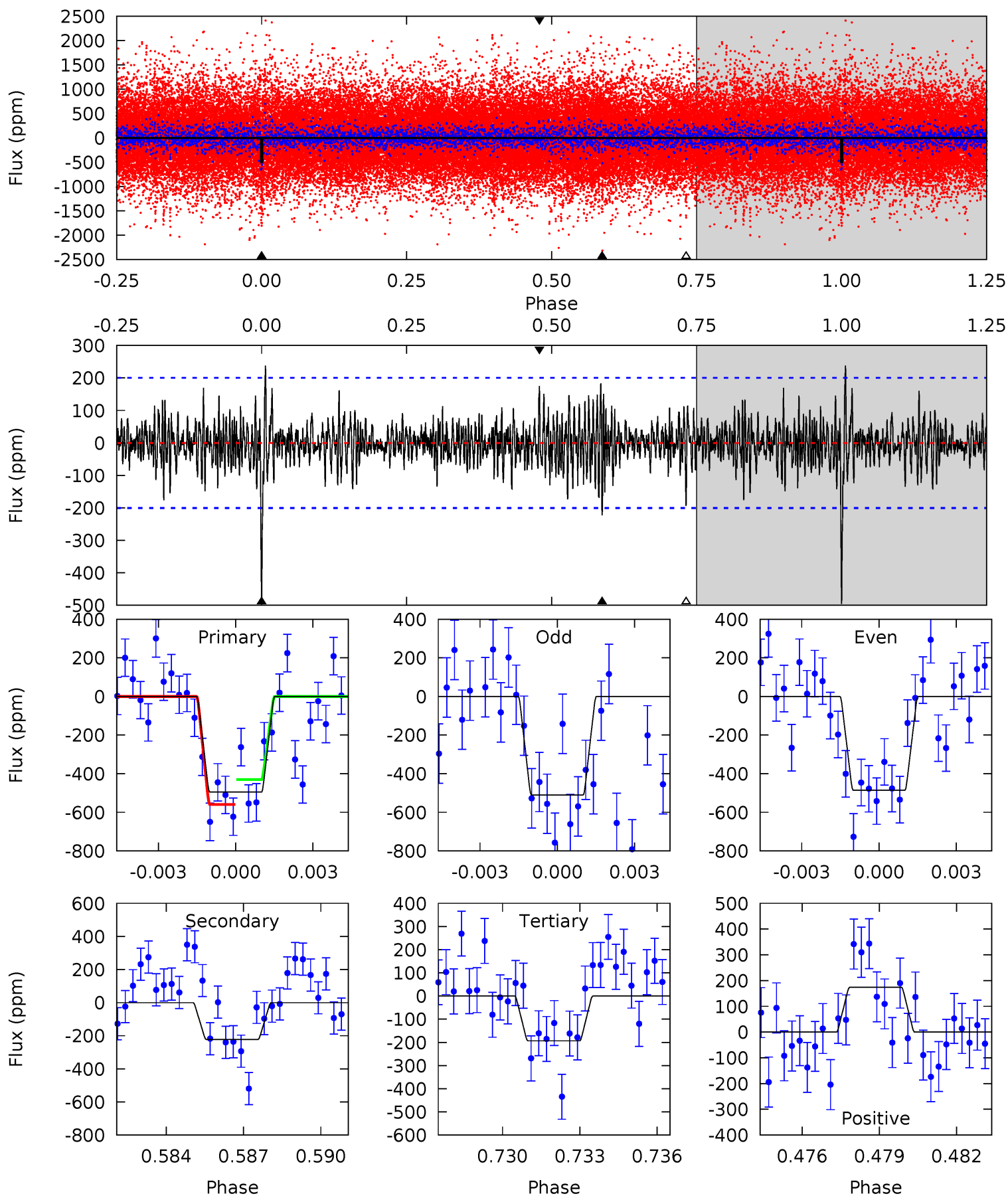
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
14.1	12.9	12.8	12.2	5.25	2.96	3.81	1.32	1.88	0.07	0.63	1.77	0.73	0.46	1.40



Alt Model-Shift Uniqueness Test

006120073-01, P = 262.053596 Days, E = 111.782267 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
13.0	5.83	5.08	4.56	5.26	2.98	1.36	7.92	8.44	0.75	1.27	0.32	1.11	0.32	1.69



Stellar Parameters For KIC 006120073

	$T_{\text{eff}} (K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R (R_{\odot})$	$M (M_{\odot})$	$\rho_{\star} (\text{g}\cdot\text{cm}^{-3})$
	5355^{+175}_{-143}	$4.590^{+0.030}_{-0.120}$	$-0.140^{+0.300}_{-0.300}$	$0.775^{+0.143}_{-0.061}$	$0.860^{+0.078}_{-0.096}$	$2.597^{+0.507}_{-0.883}$
	+3%/-3%	+1%/-3%	+214%/-214%	+18%/-8%	+9%/-11%	+20%/-34%
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 006120073-01 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-583 ± 45	$2.09^{+0.71}_{-0.70}$	339^{+16}_{-13}	5378^{+1151}_{-632}	41143^{+51773}_{-17715}
Alt.	-222 ± 38	$1.79^{+0.77}_{-0.66}$	340^{+16}_{-14}	4706^{+1102}_{-612}	21958^{+34881}_{-11545}

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

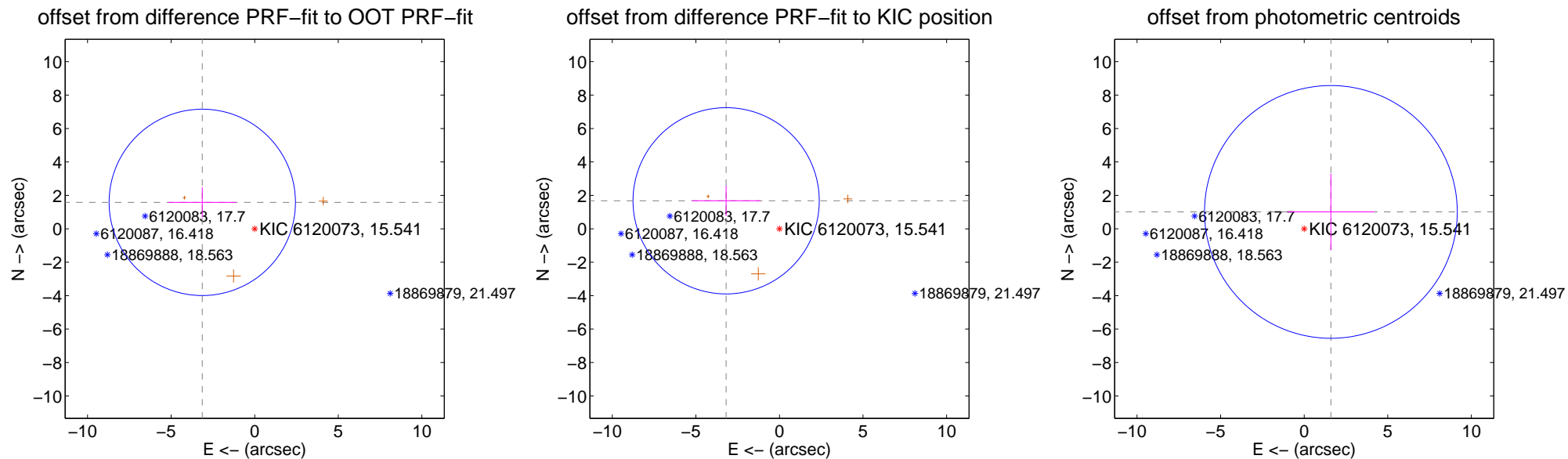
DV Centroid Data

Supplemental centroid analysis for 006120073-01. Kepler magnitude: 15.54. Transit SNR 7.49

There are 0 quarters with good PRF difference image offsets

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

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	3.513 ± 1.858	1.89	3.137 ± 2.030	1.582 ± 0.905
PRF-fit source offset from KIC position	3.603 ± 1.857	1.94	3.189 ± 2.044	1.675 ± 0.904
photometric centroid source offset	1.89 ± 2.52	0.75	-1.60 ± 2.61	1.01 ± 2.29

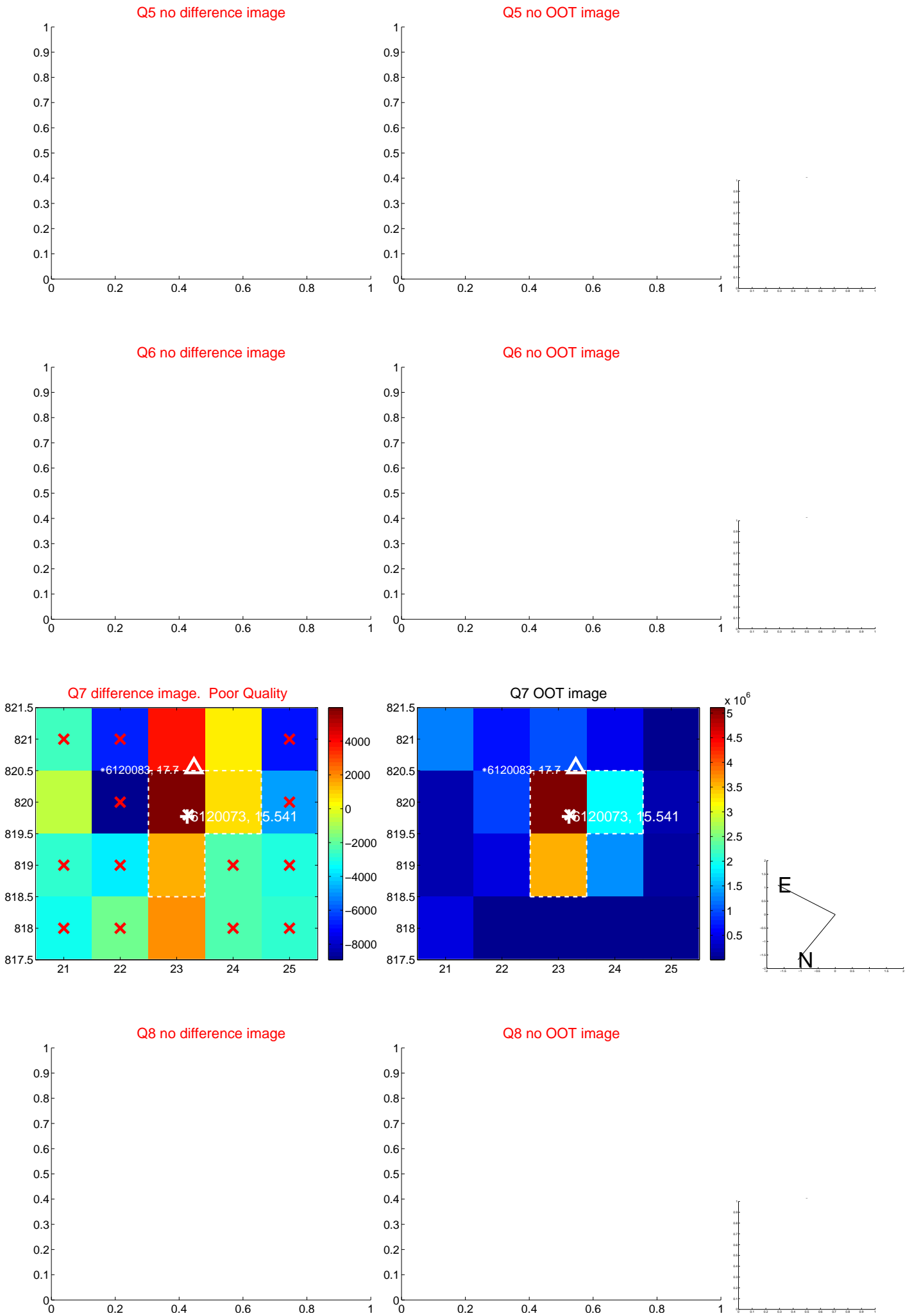


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ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

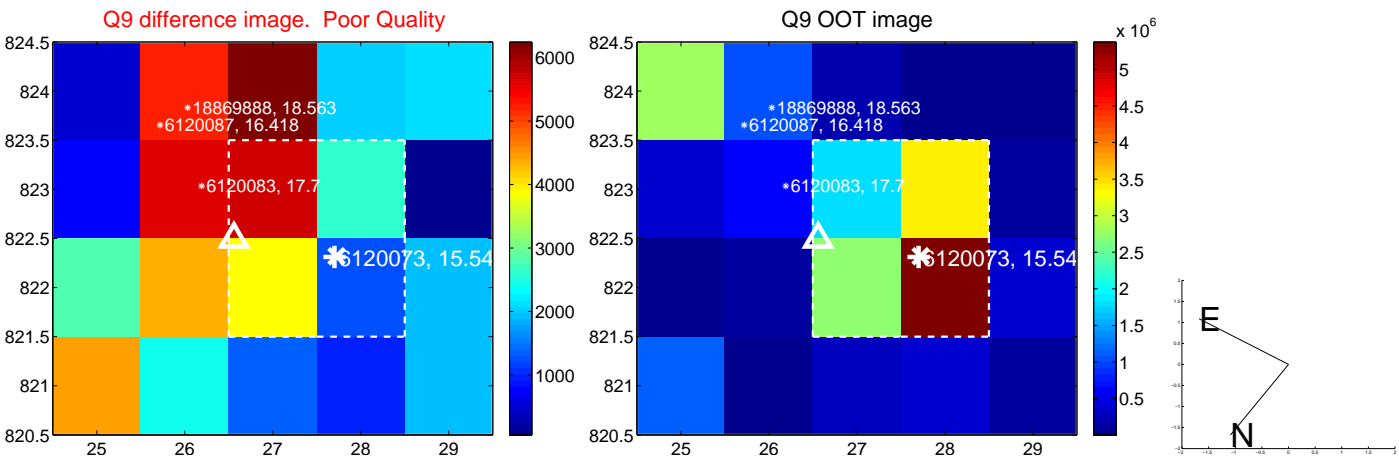
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



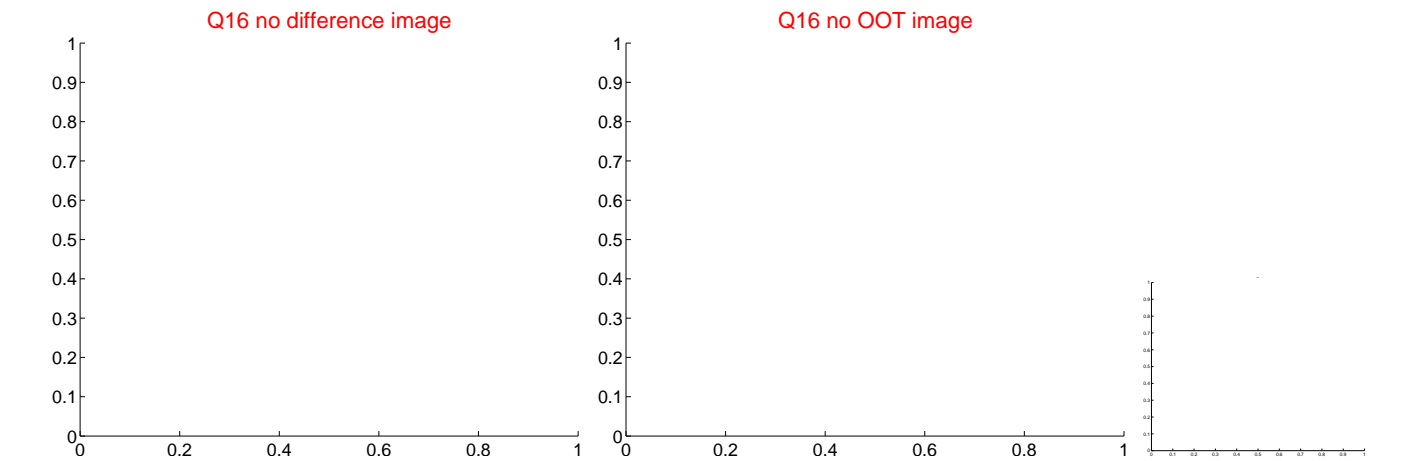
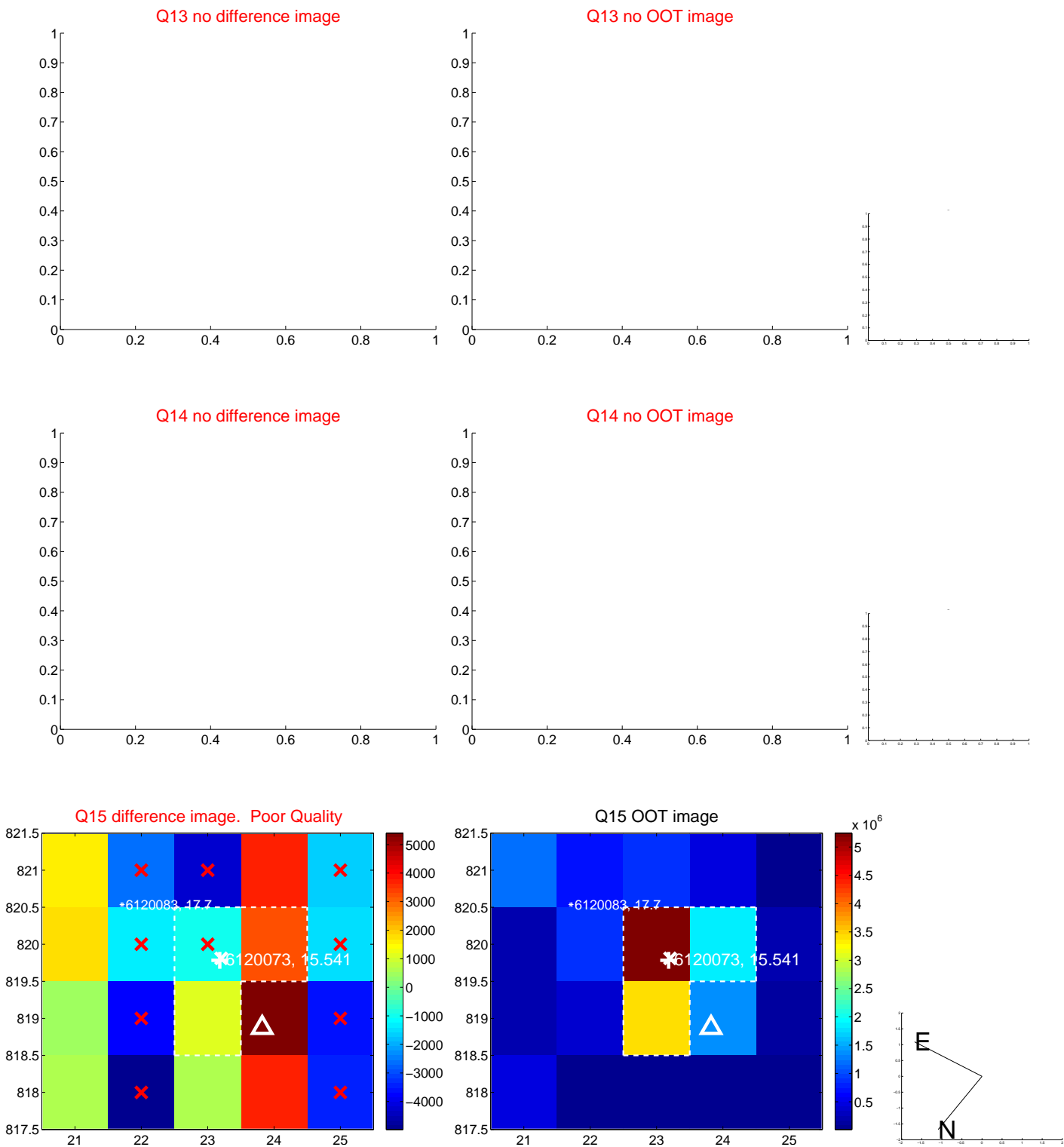
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



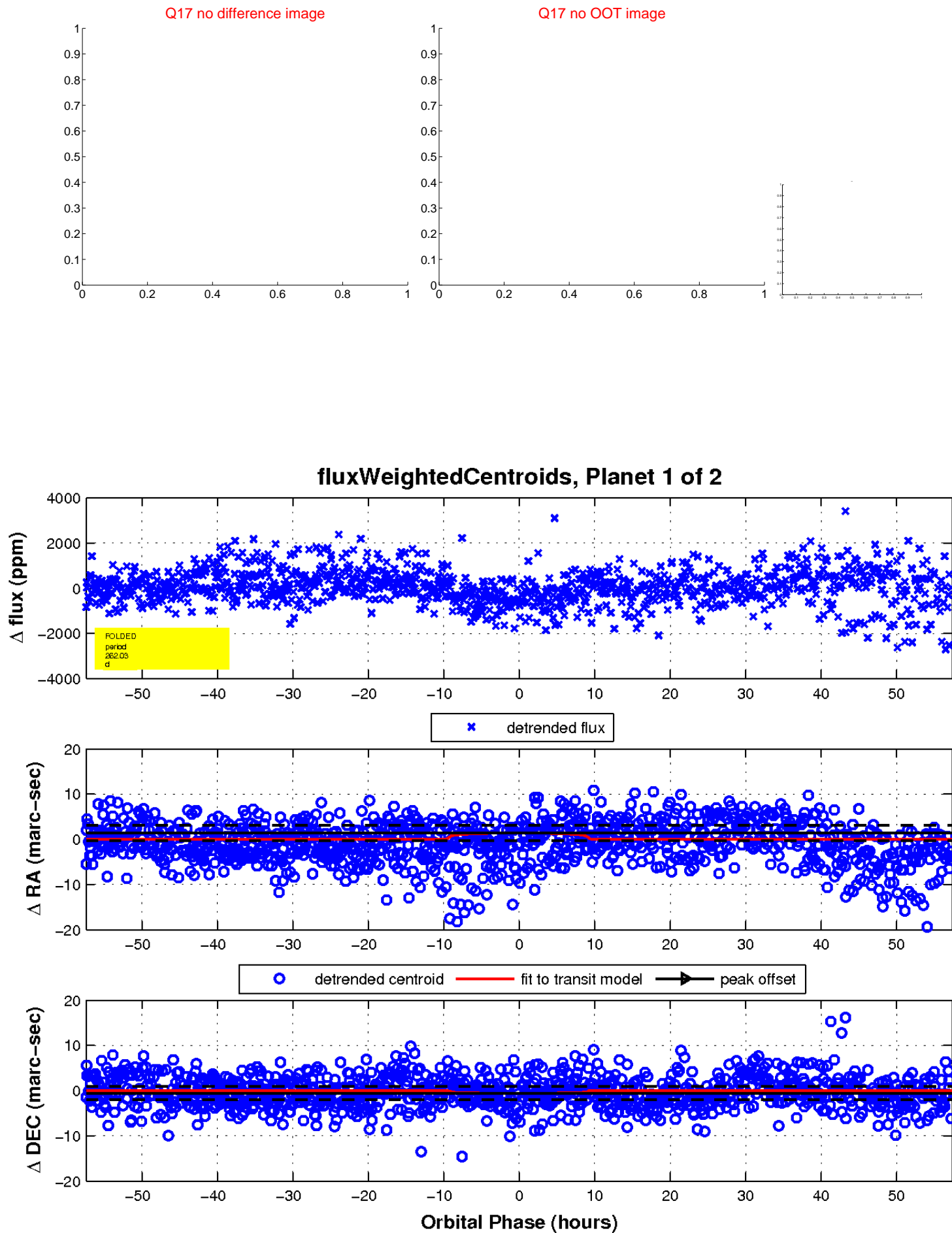
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

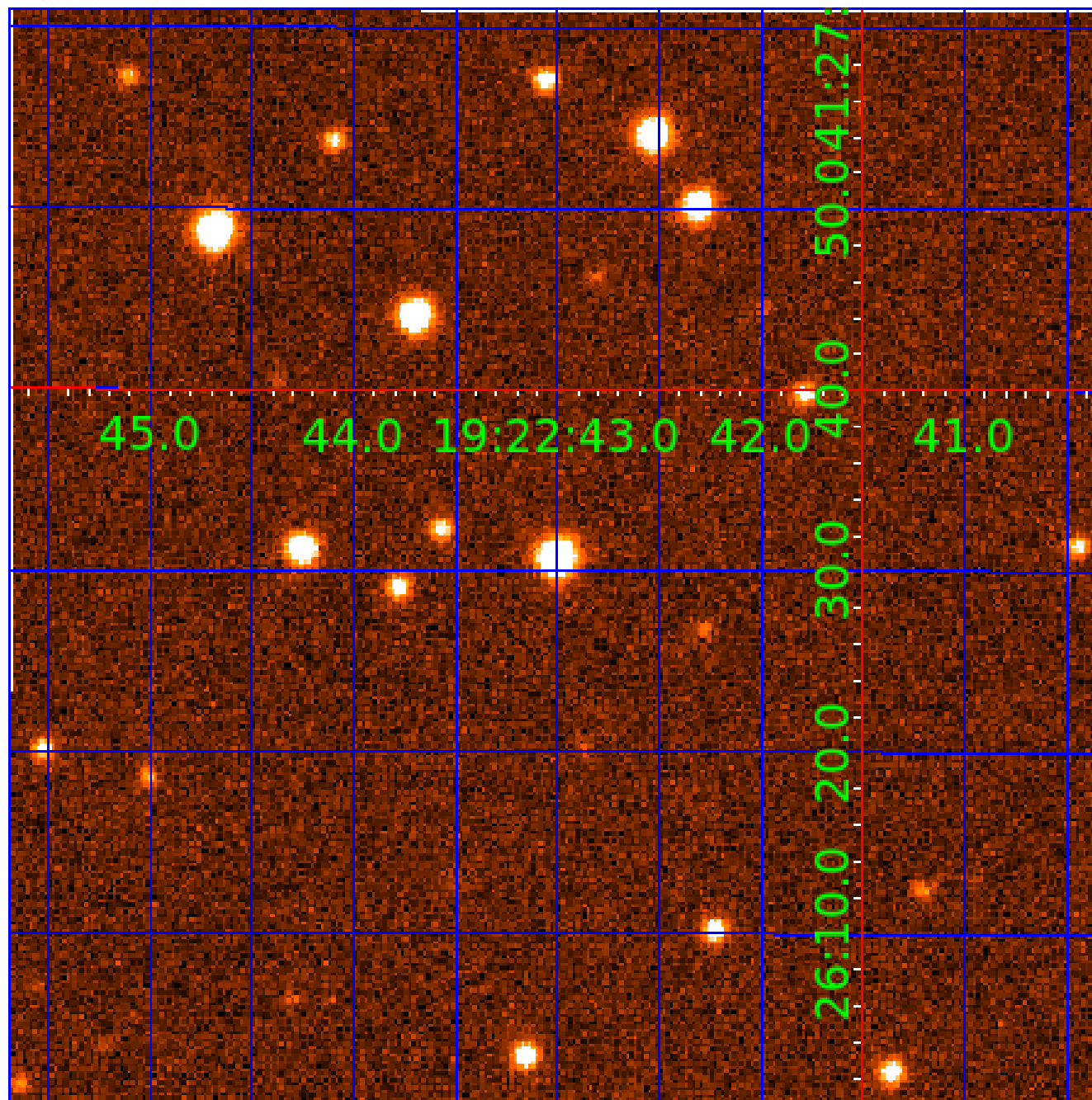


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 006120073

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})
006120073-01	OBS	No	262.029991	373.889604	639.1	19.150	7.9	7.5	0.78	5355	2.03	0.77
006120073-02	OBS	No	560.340268	303.447763	1478.2	20.954	8.0	8.9	0.78	5355	3.47	0.28

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
006120073-01	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_SKYE—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—INCONSISTENT_TRANS—CENT_FEW_DIFFS
006120073-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—LPP_DV—ALL_TRANS_CHASES—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.

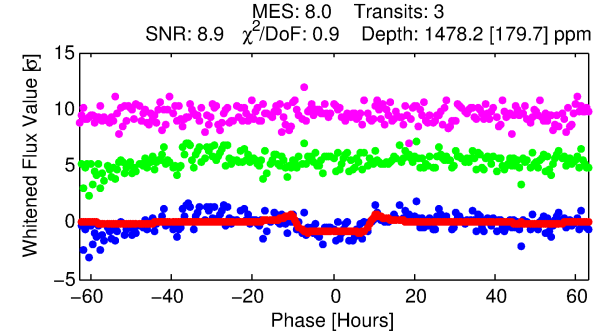
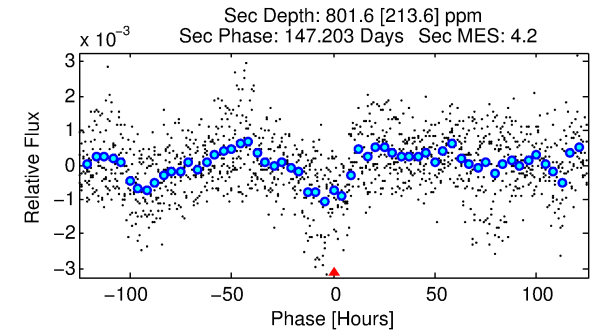
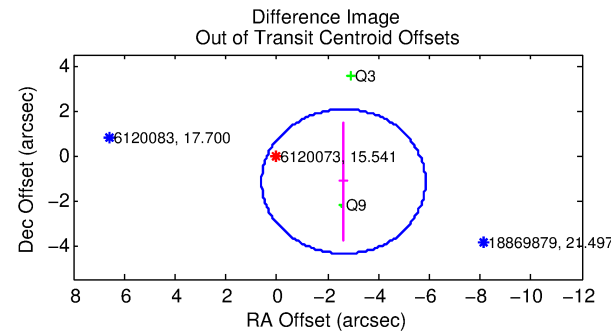
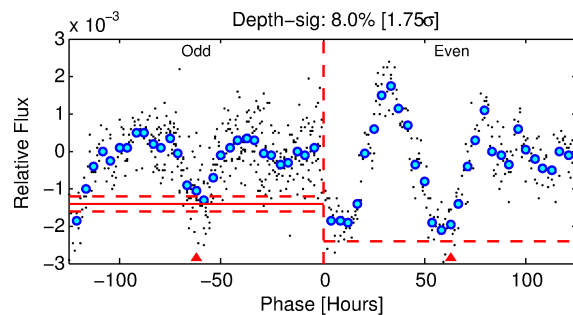
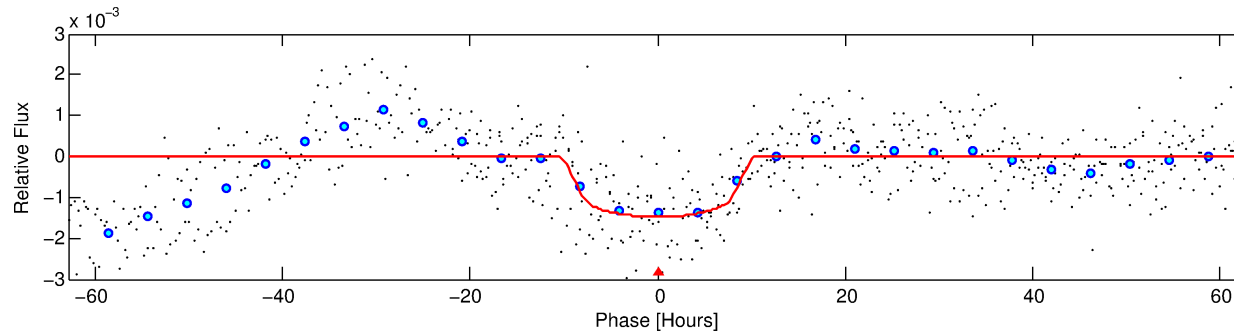
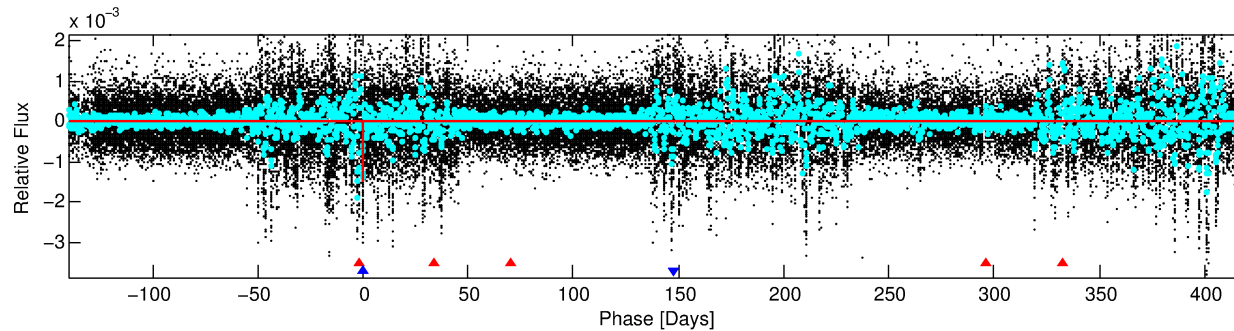
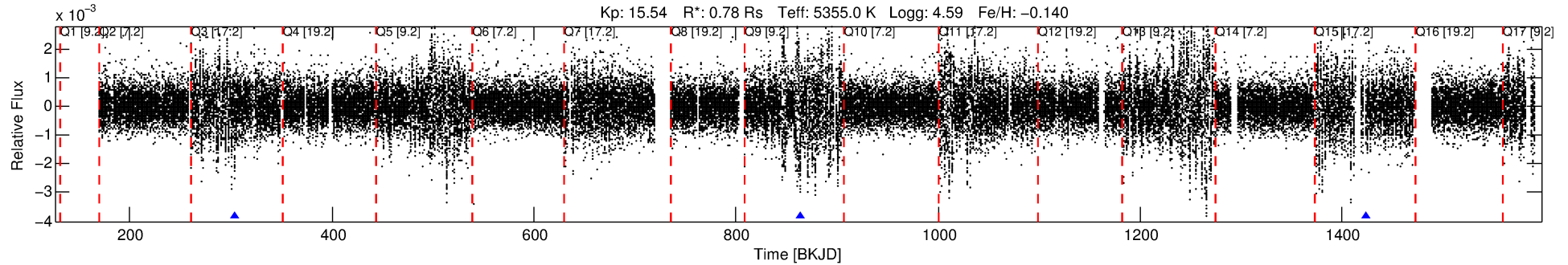
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 006120073-02

No Significant Match Found

DV One-Page Summary

KIC: 6120073 Candidate: 2 of 2 Period: 560.340 d



DV Fit Results:

Period = 560.34027 [0.01609] d
Epoch = 303.4478 [0.0209] BKJD
Rp/R* = 0.0410 [0.0035]
a/R* = 118.33 [25.47]
b = 0.86 [0.06]
Seff = 0.28 [0.07]
Teq = 185 [12] K
Rp = 3.47 [0.71] Re
a = 1.2614 [0.1938] AU
Ag = 58364.01 [22595.41] [2.58 σ]
Teffp = 4450 [382] K [11.16 σ]

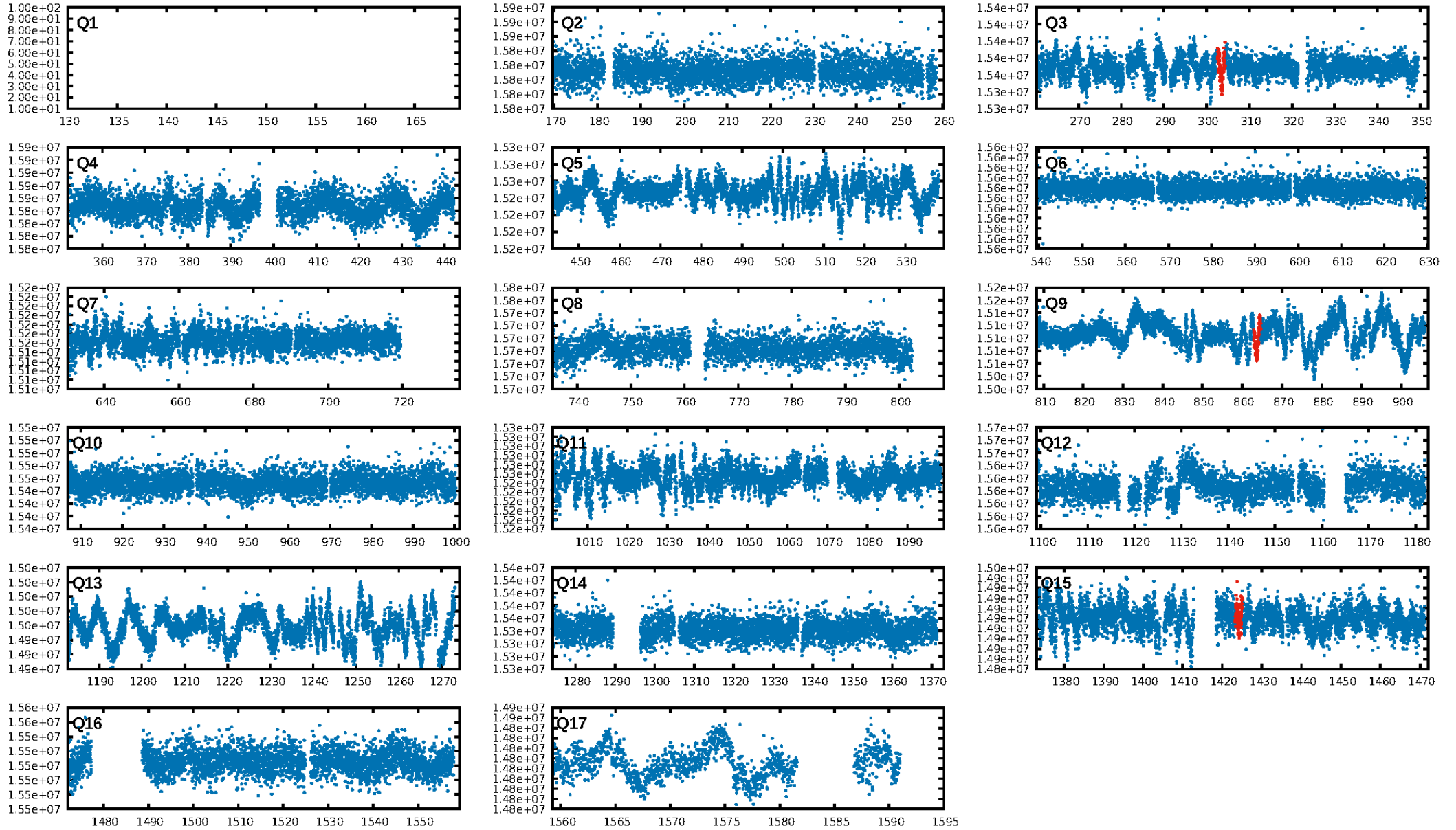
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [252.21 σ]
LongPeriod-sig: N/A
ModelChiSquare2-sig: 76.7%
ModelChiSquareGof-sig: 99.9%
Bootstrap-pfa: 1.21e-08
RollingBand-fgt: 1.00 [3/3]
GhostDiagnostic-chr: -0.5417
Centroid-sig: 31.5%
Centroid-so: 1.879 arcsec [0.91 σ]
OotOffset-rm: 2.876 arcsec [2.68 σ]
KicOffset-rm: 2.799 arcsec [2.74 σ]
OotOffset-st: 0/1/0/1 [2]
KicOffset-st: 0/1/0/1 [2]
DiffImageQuality-fgm: 0.00 [0/2]
DiffImageOverlap-fno: 1.00 [3/3]

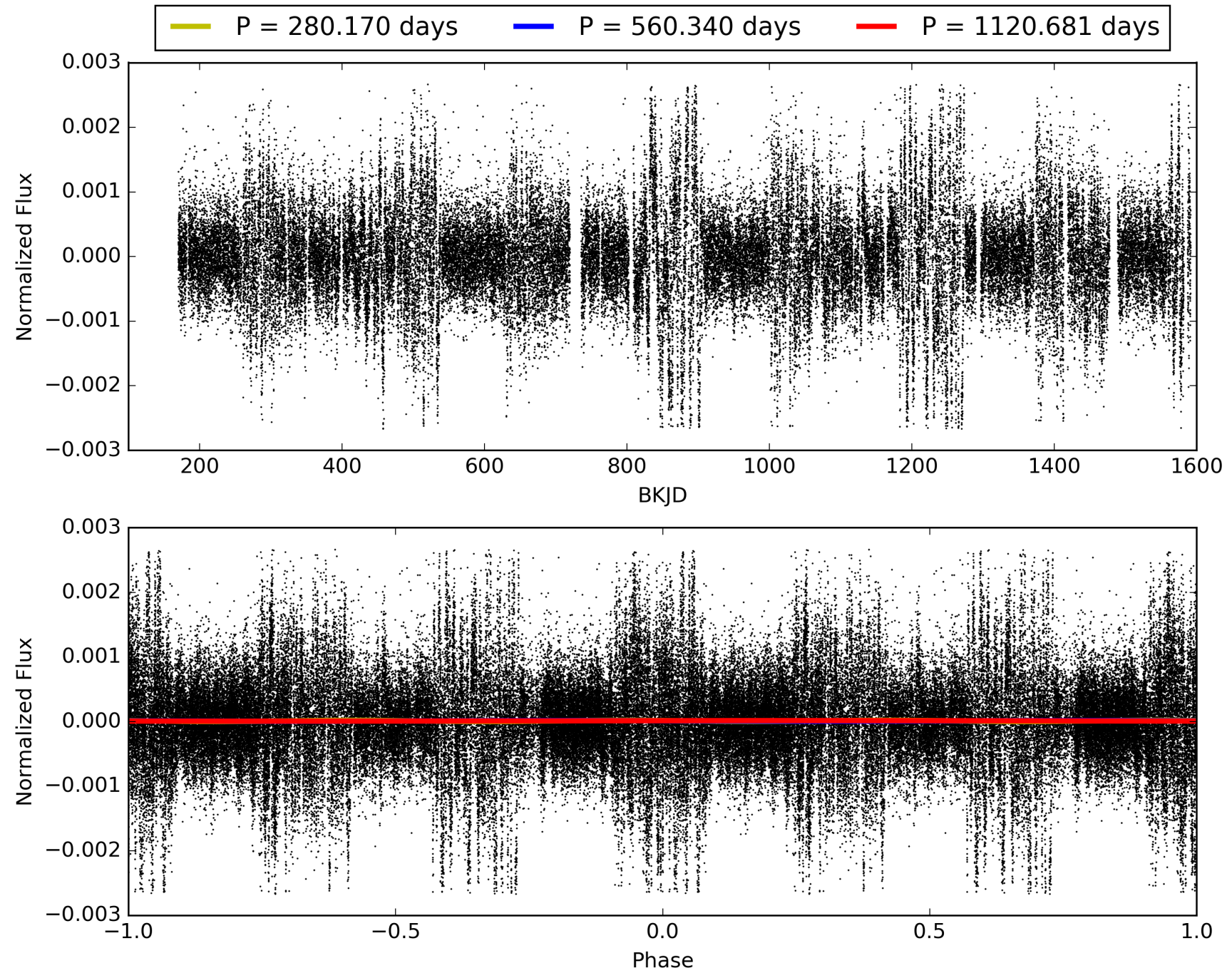
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 29-Jan-2016 20:59:29 Z

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

TCE 006120073-02, PDC Light Curves

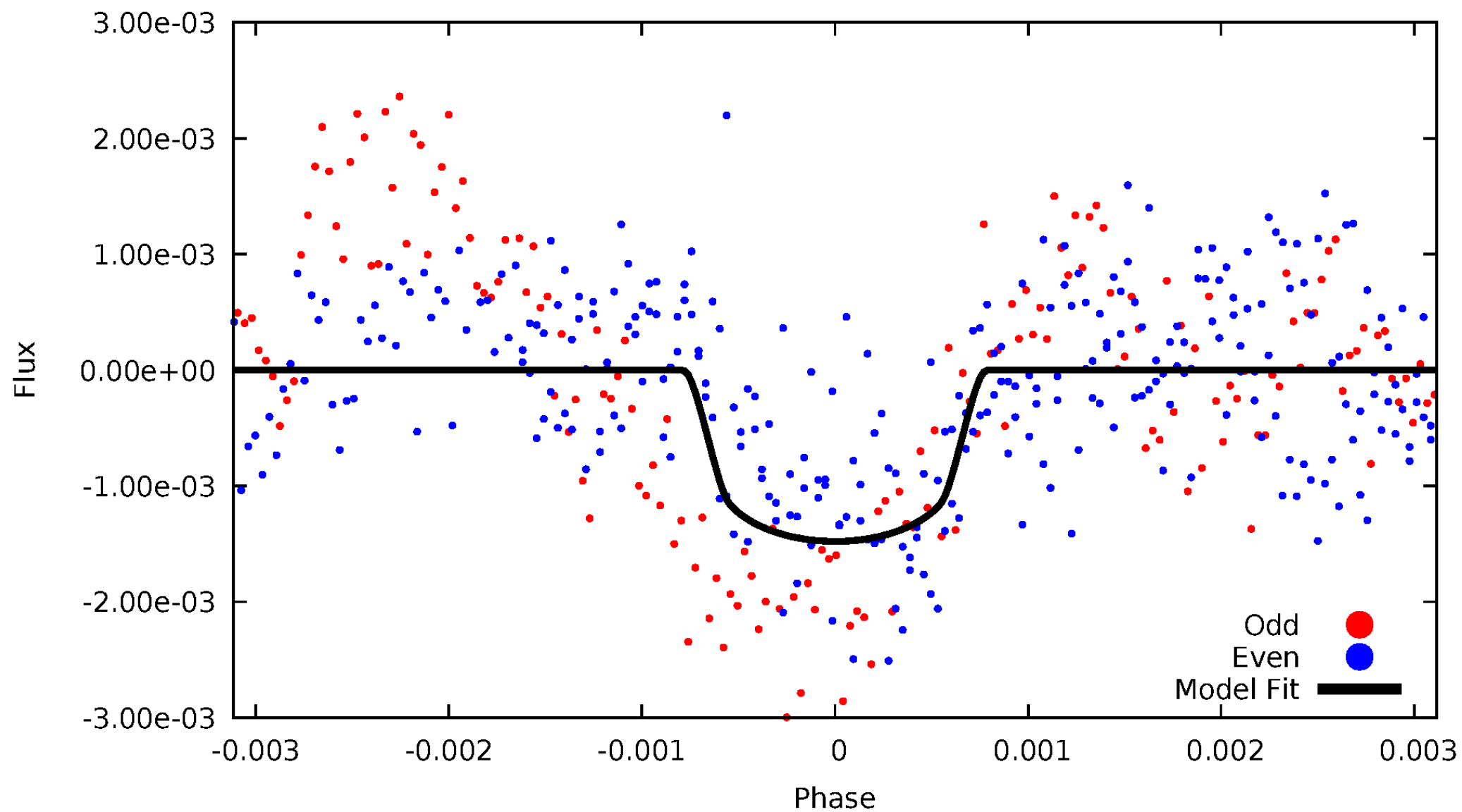


TCE 006120073-02



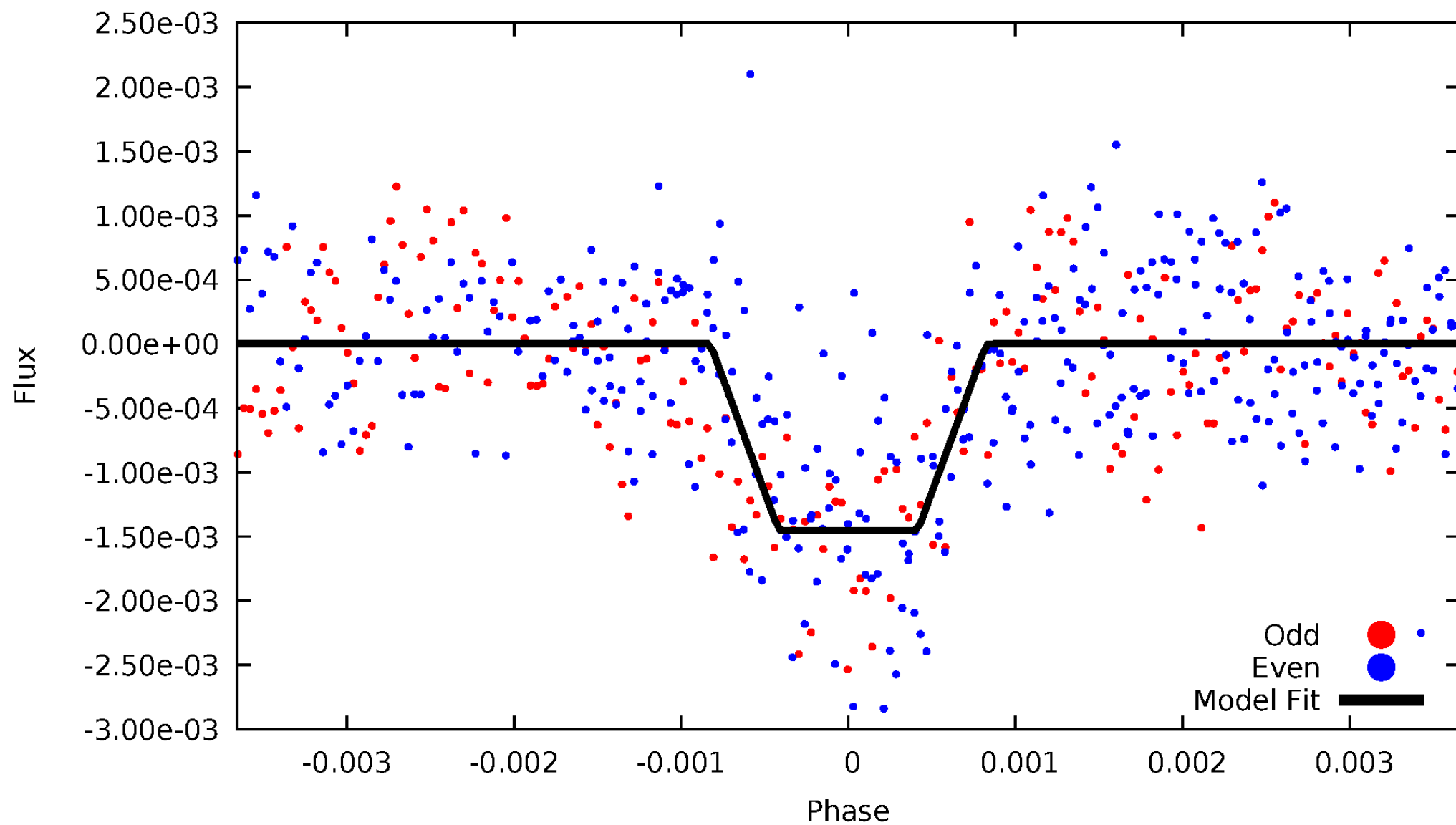
DV Odd/Even

TCE 006120073-02



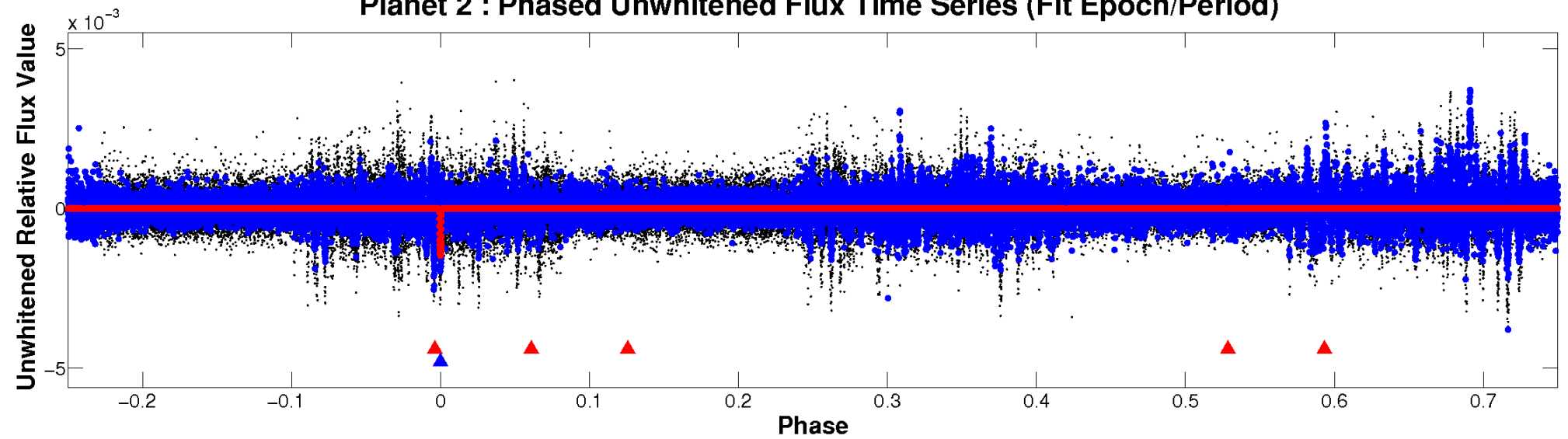
ALT Odd/Even

TCE 006120073-02

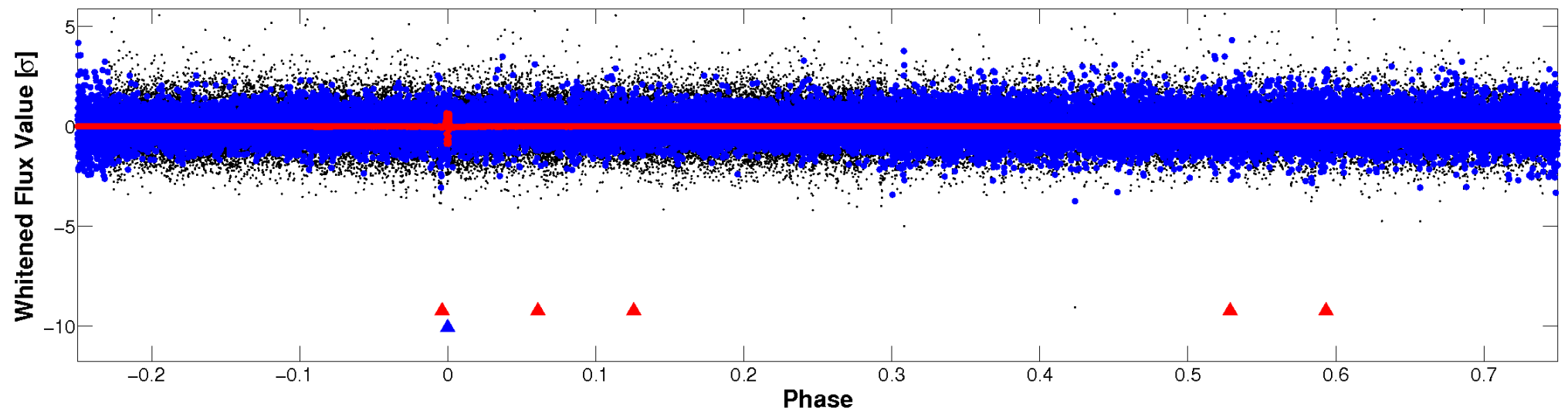


Non-Whitened Vs. Whitened Light Curve

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 006120073-02 P=560.340268 Days $T_0=303.447763$ (BKJD)



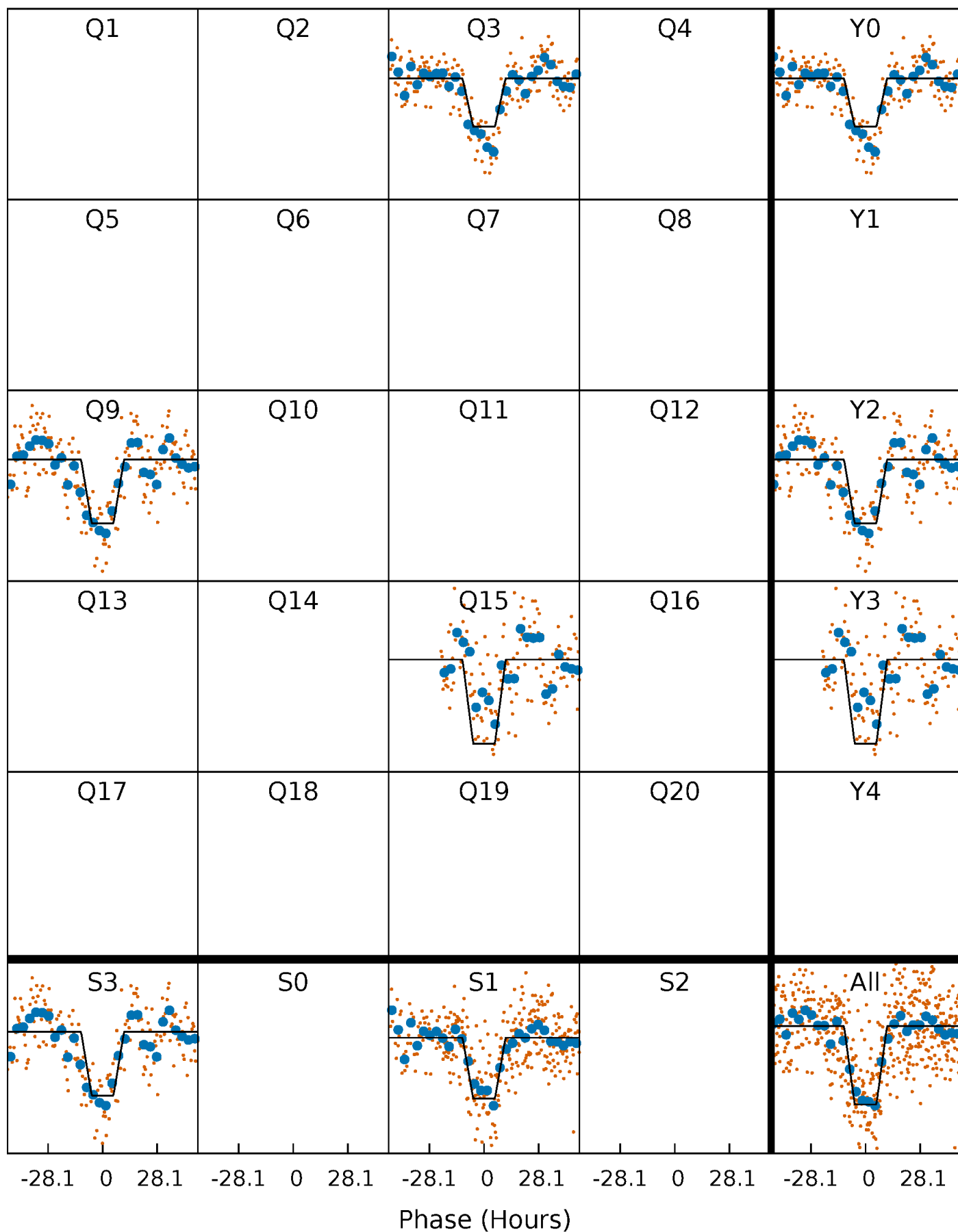
DV Quarter-Phased Transit Curves

TCE 006120073-02 $P=560.340268$ Days $T_0=303.447763$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

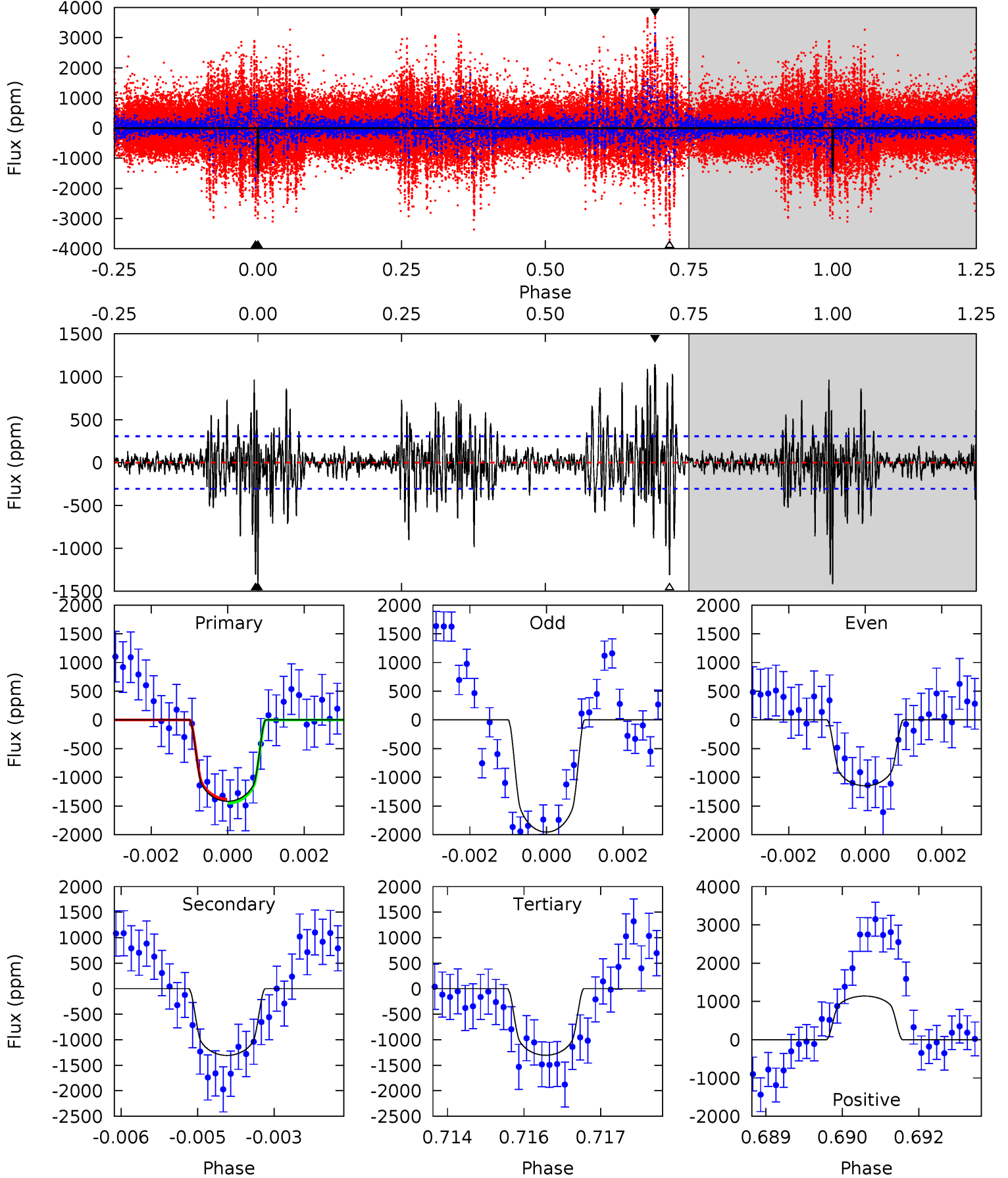
TCE 006120073-02 P=560.329082 Days $T_0=303.484207$ (BKJD)



DV Model-Shift Uniqueness Test

006120073-02, P = 560.340268 Days, E = 303.447763 Days

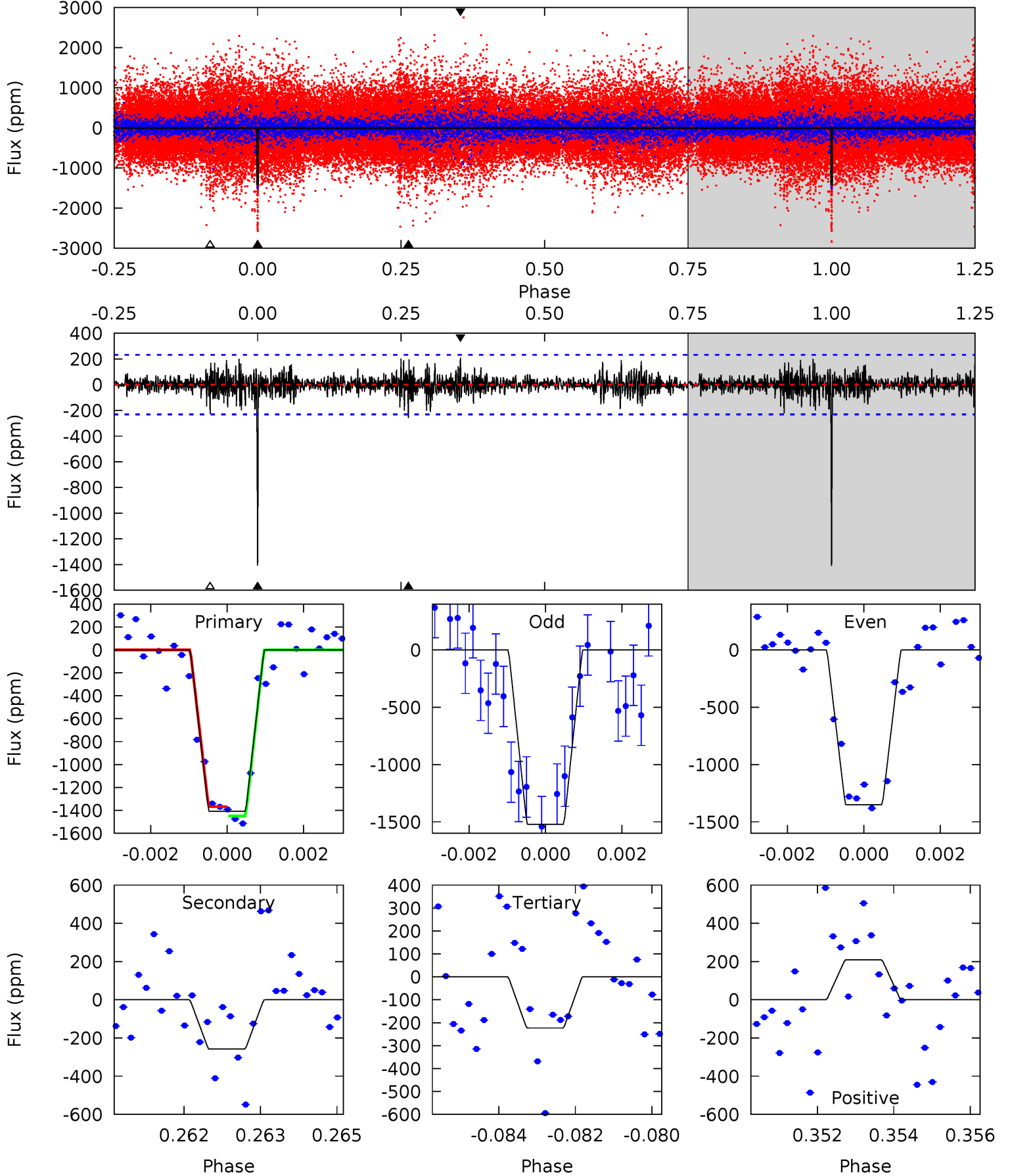
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
24.9	23.0	22.9	20.1	5.37	3.16	4.12	2.01	4.87	0.06	2.93	6.76	0.89	0.45	0.62



Alt Model-Shift Uniqueness Test

006120073-02, P = 560.329082 Days, E = 303.484207 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
32.6	5.95	5.16	4.83	5.36	3.14	1.16	27.4	27.7	0.80	1.13	1.87	0.91	0.13	0.94



Stellar Parameters For KIC 006120073

	$T_{\text{eff}} (K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R (R_{\odot})$	$M (M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	5355^{+175}_{-143}	$4.590^{+0.030}_{-0.120}$	$-0.140^{+0.300}_{-0.300}$	$0.775^{+0.143}_{-0.061}$	$0.860^{+0.078}_{-0.096}$	$2.597^{+0.507}_{-0.883}$
	+3%/-3%	+1%/-3%	+214%/-214%	+18%/-8%	+9%/-11%	+20%/-34%
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 006120073-02 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-1307 ± 57	$3.56^{+0.46}_{-0.38}$	263^{+13}_{-11}	5065^{+271}_{-209}	88855^{+21846}_{-17772}
Alt.	-257 ± 43	$3.32^{+0.41}_{-0.37}$	263^{+13}_{-10}	3817^{+211}_{-175}	19906^{+6617}_{-5061}

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

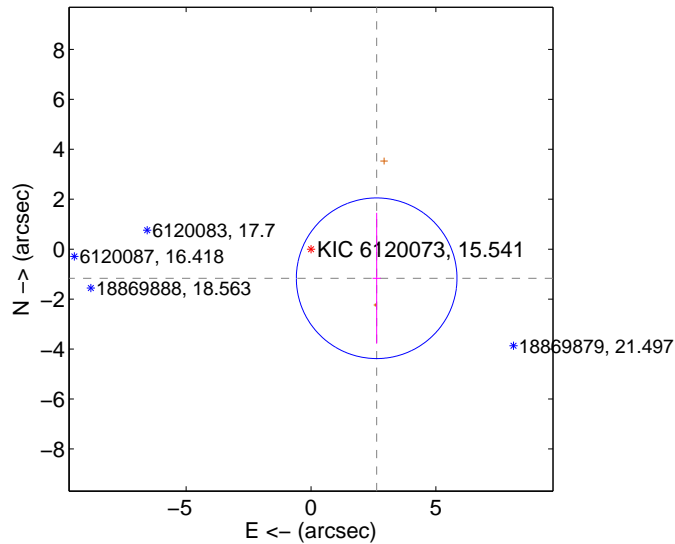
Supplemental centroid analysis for 006120073-02. Kepler magnitude: 15.54. Transit SNR 8.86

There are 0 quarters with good PRF difference image offsets

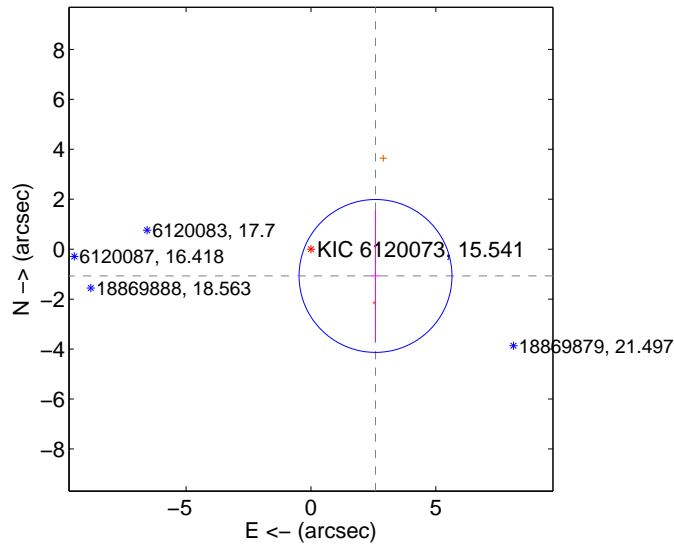
The direct PRF centroid is offset from the target star catalog position by about 0.10 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	2.876 ± 1.072	2.68	-2.629 ± 0.165	-1.165 ± 2.620
PRF-fit source offset from KIC position	2.799 ± 1.020	2.74	-2.586 ± 0.170	-1.072 ± 2.631
photometric centroid source offset	1.88 ± 2.06	0.91	-1.76 ± 2.09	0.67 ± 1.88

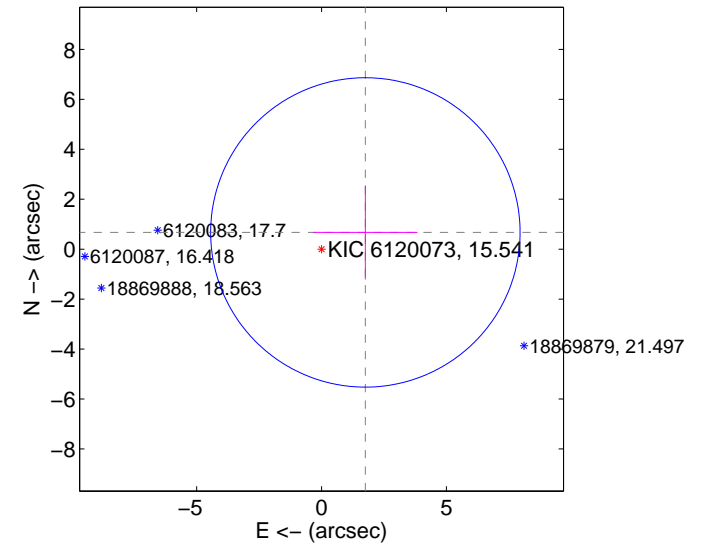
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position

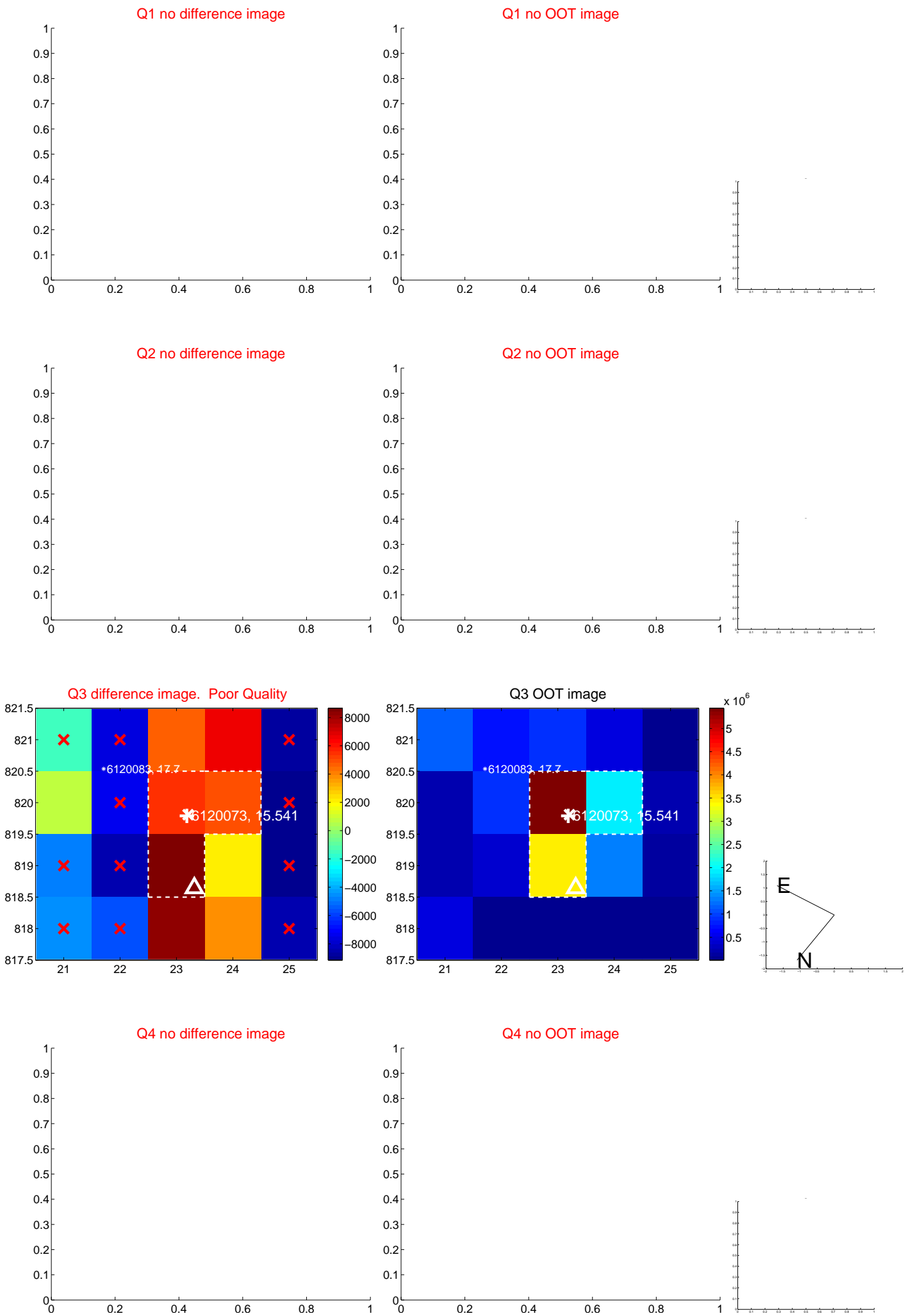


offset from photometric centroids



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.

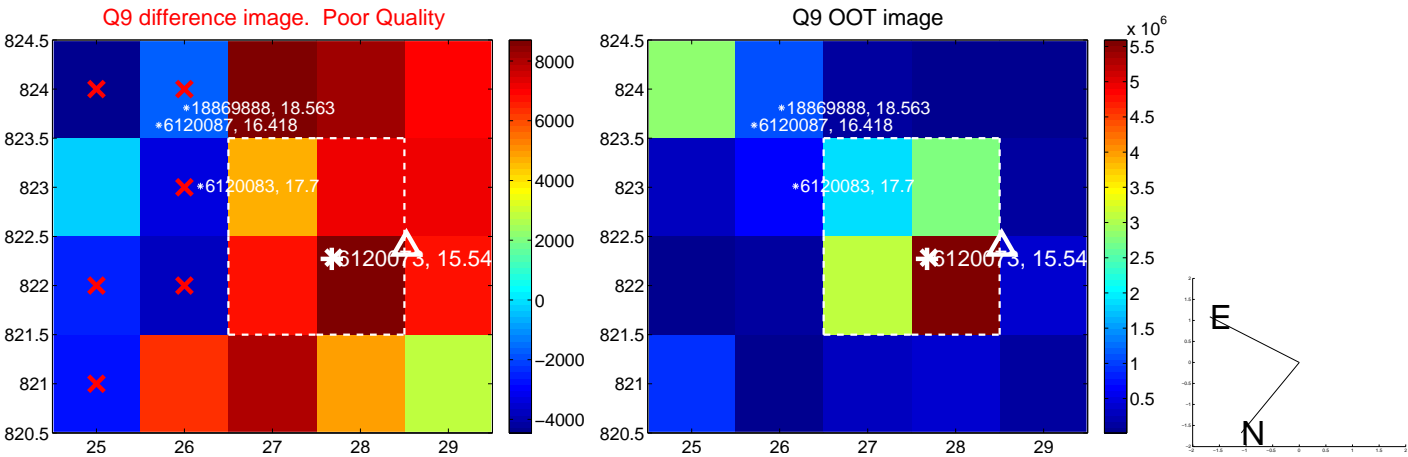
white ×: KIC target position; +: OOT centroid; △: difference centroid. red ×: large negative pixel value.



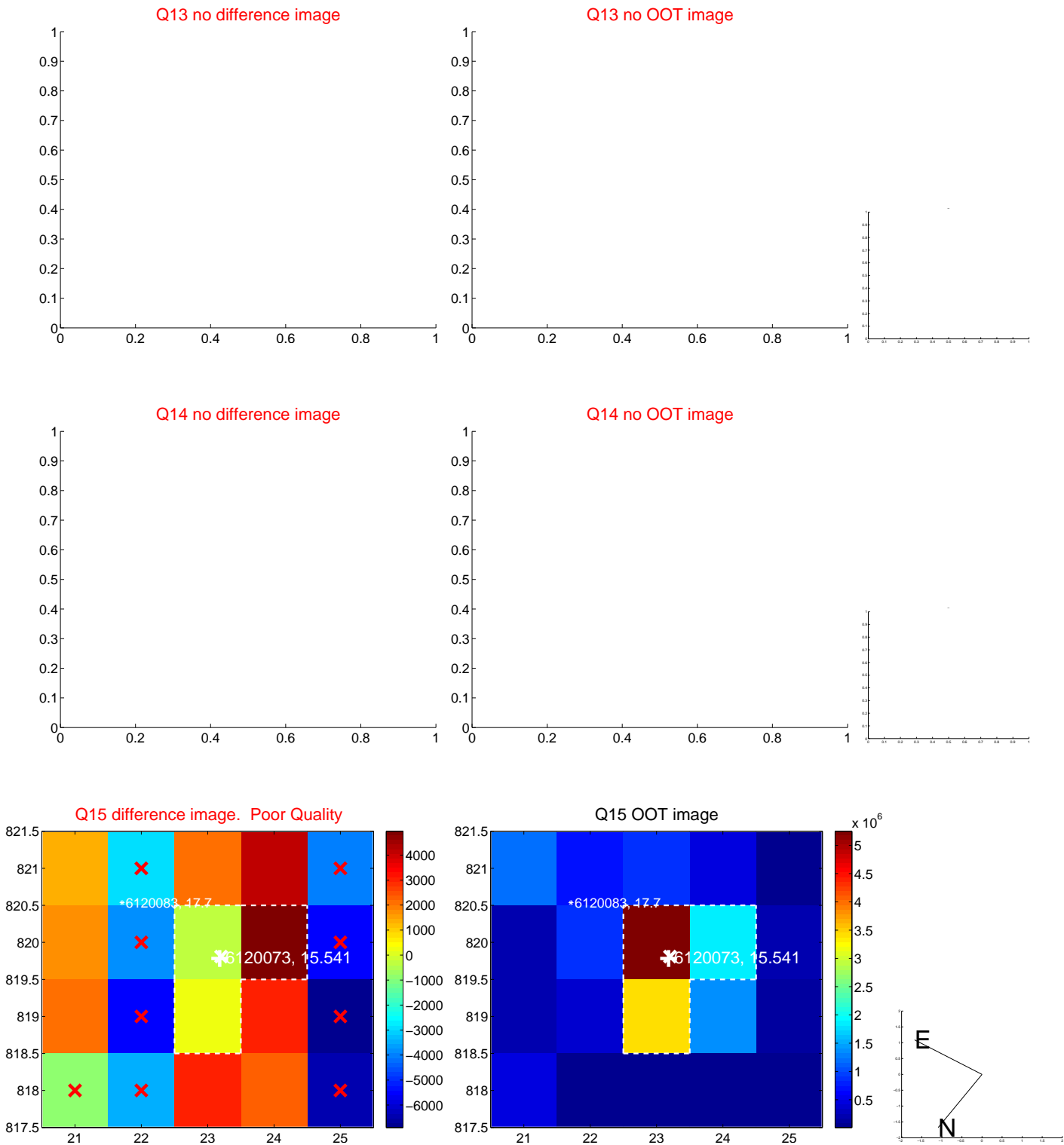
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



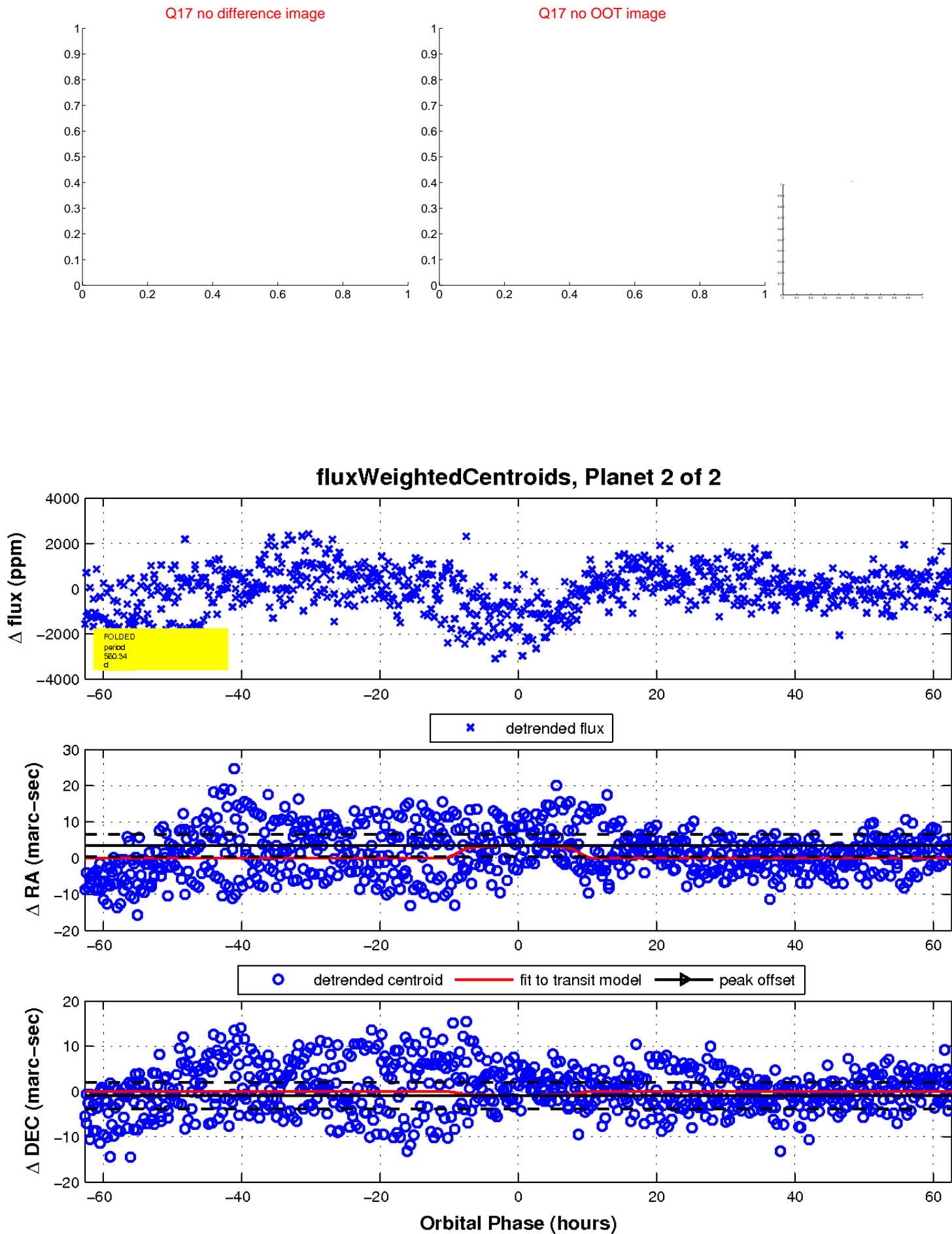
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

