

KIC 007899020

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})
007899020-01	OBS	No	395.952381	340.677428	811.4	11.763	13.8	11.9	0.85	5858	2.55	0.71
007899020-02	OBS	No	598.649017	341.627265	482.3	23.395	8.5	7.7	0.85	5858	2.07	0.41

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
007899020-01	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_MARSHALL_SKYE—LPP_DV—INCONSISTENT_TRANS—CENT_FEW_DIFFS
007899020-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_SKYE—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.

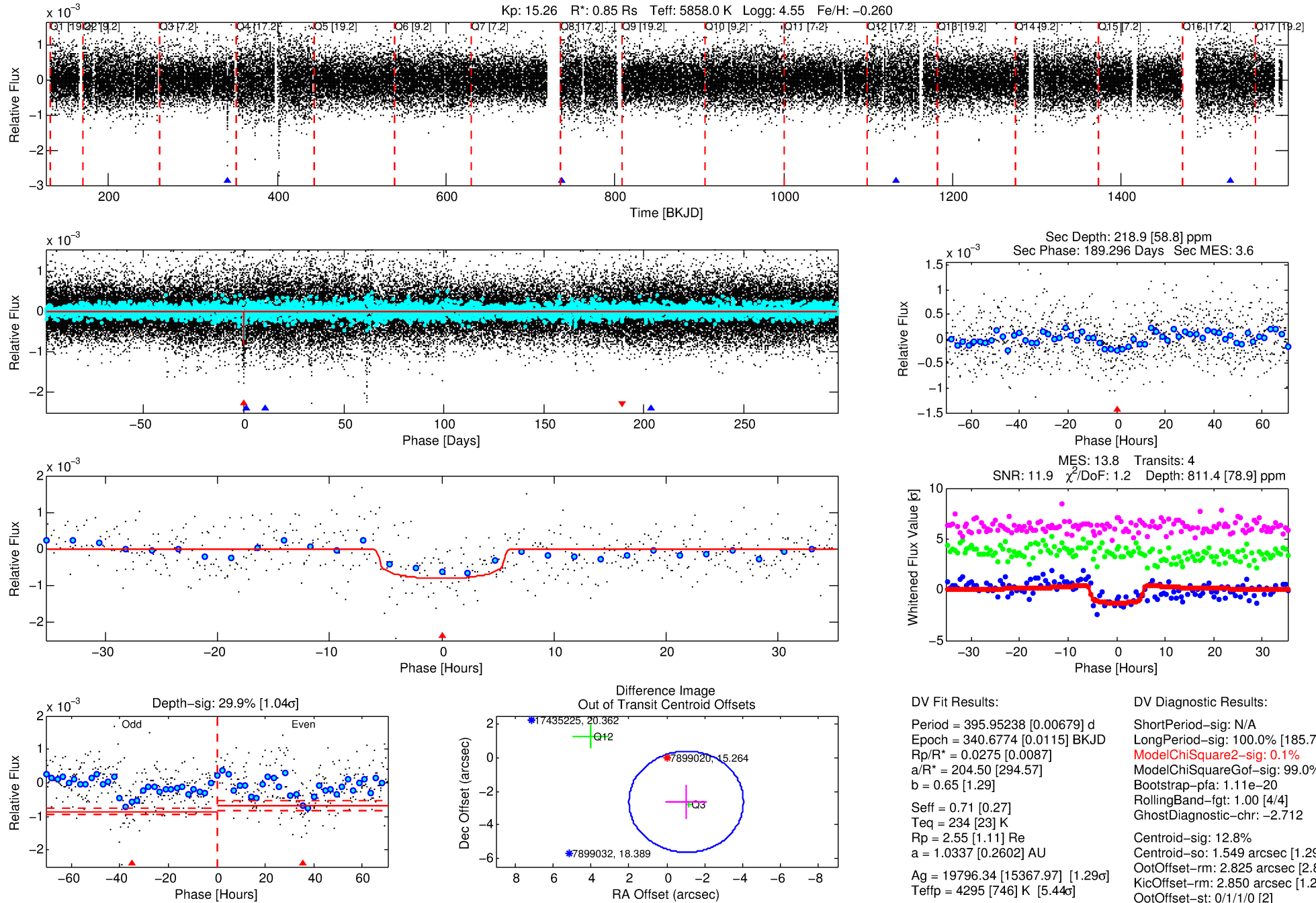
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 007899020-01

No Significant Match Found

DV One-Page Summary

KIC: 7899020 Candidate: 1 of 2 Period: 395.952 d



DV Fit Results:

Period = 395.95238 [0.00679] d
Epoch = 340.6774 [0.0115] BKJD
Rp/R* = 0.0275 [0.0087]
a/R* = 204.50 [294.57]
b = 0.65 [1.29]
Seff = 0.71 [0.27]
Teq = 234 [23] K
Rp = 2.55 [1.11] Re
a = 1.0337 [0.2602] AU
Ag = 19796.34 [15367.97] [1.29 σ]
Teffp = 4295 [746] K [5.44 σ]

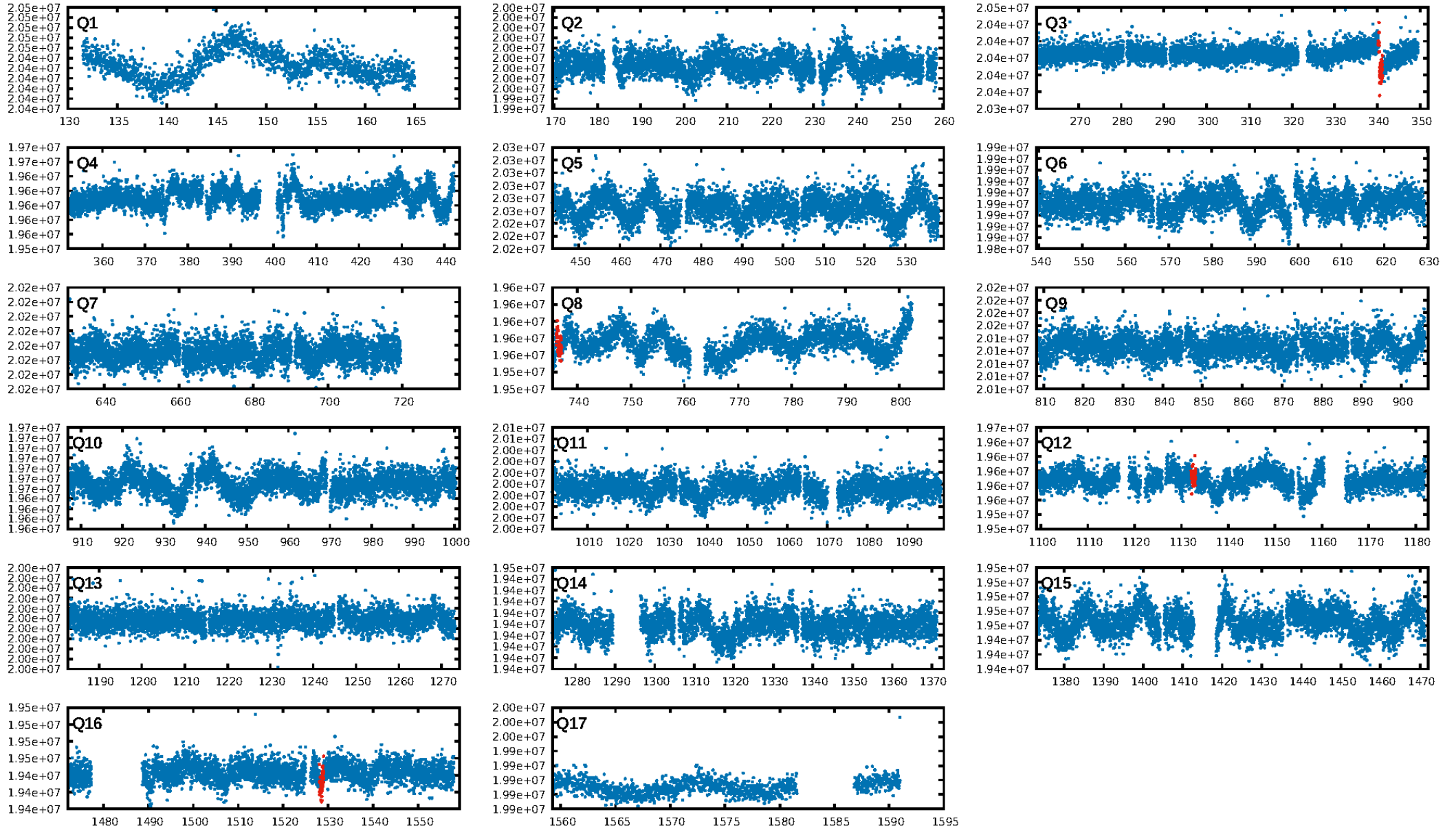
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: 100.0% [185.78 σ]
ModelChiSquare2-sig: 0.1%
ModelChiSquareGof-sig: 99.0%
Bootstrap-pfa: 1.11e-20
RollingBand-fgt: 1.00 [4/4]
GhostDiagnostic-chr: -2.712
Centroid-sig: 12.8%
Centroid-so: 1.549 arcsec [1.29 σ]
OotOffset-rm: 2.825 arcsec [2.81 σ]
OotOffset-st: 0/1/1/0 [2]
KicOffset-rm: 2.850 arcsec [1.22 σ]
KicOffset-st: 0/1/1/0 [2]
DiffImageQuality-fgm: 0.50 [1/2]
DiffImageOverlap-fno: 0.67 [2/3]

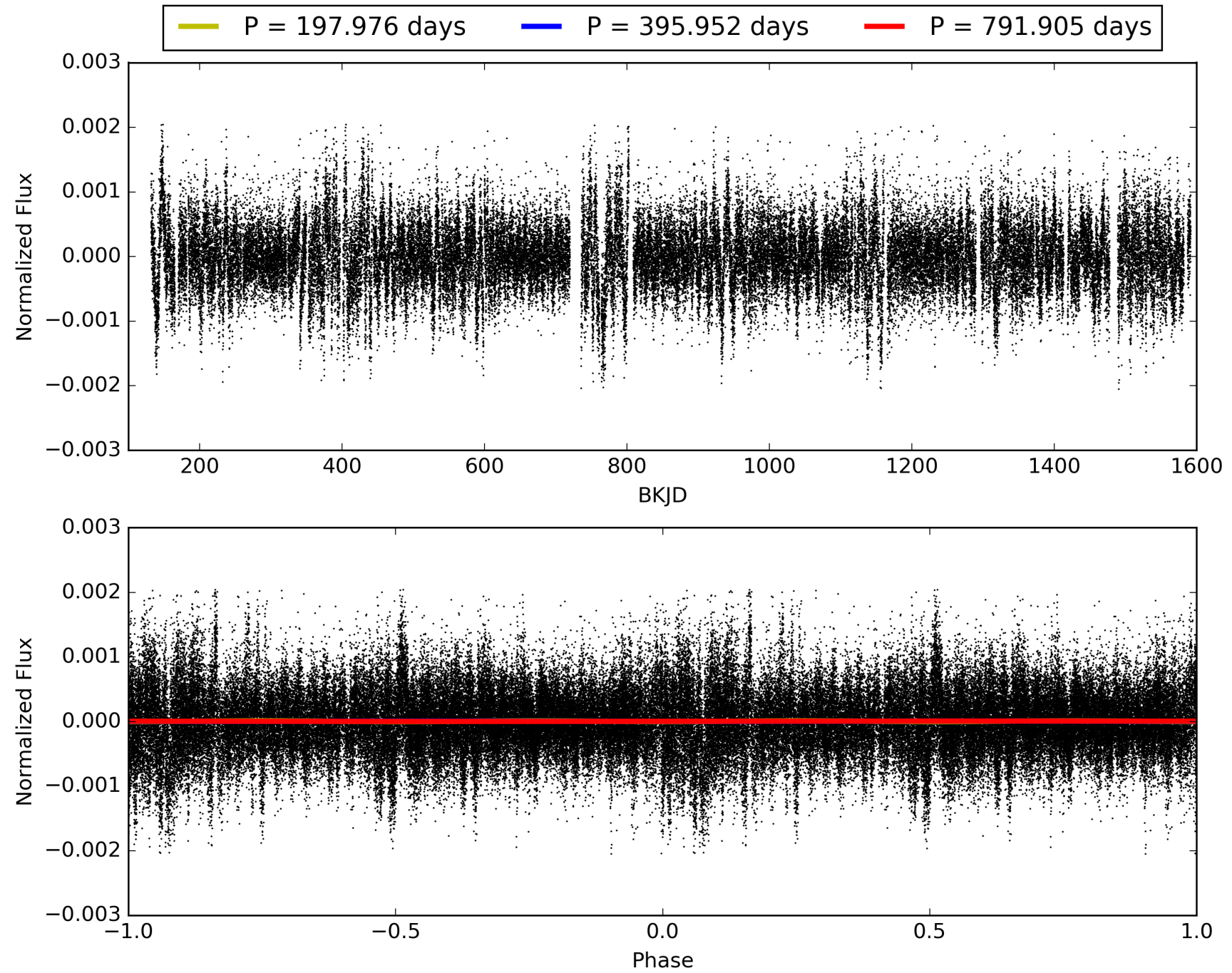
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 29-Jan-2016 05:00:03 Z

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

TCE 007899020-01, PDC Light Curves

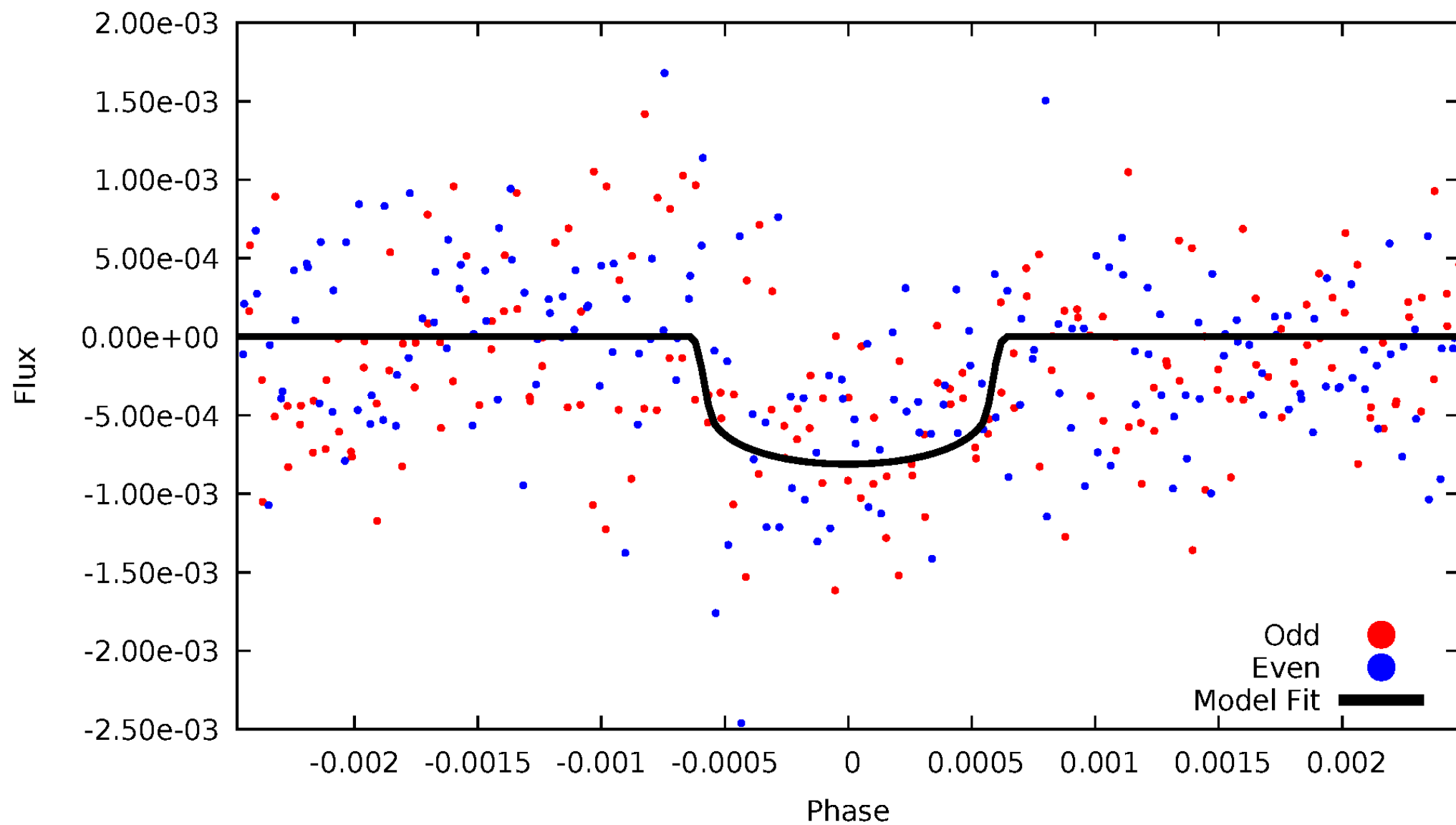


TCE 007899020-01



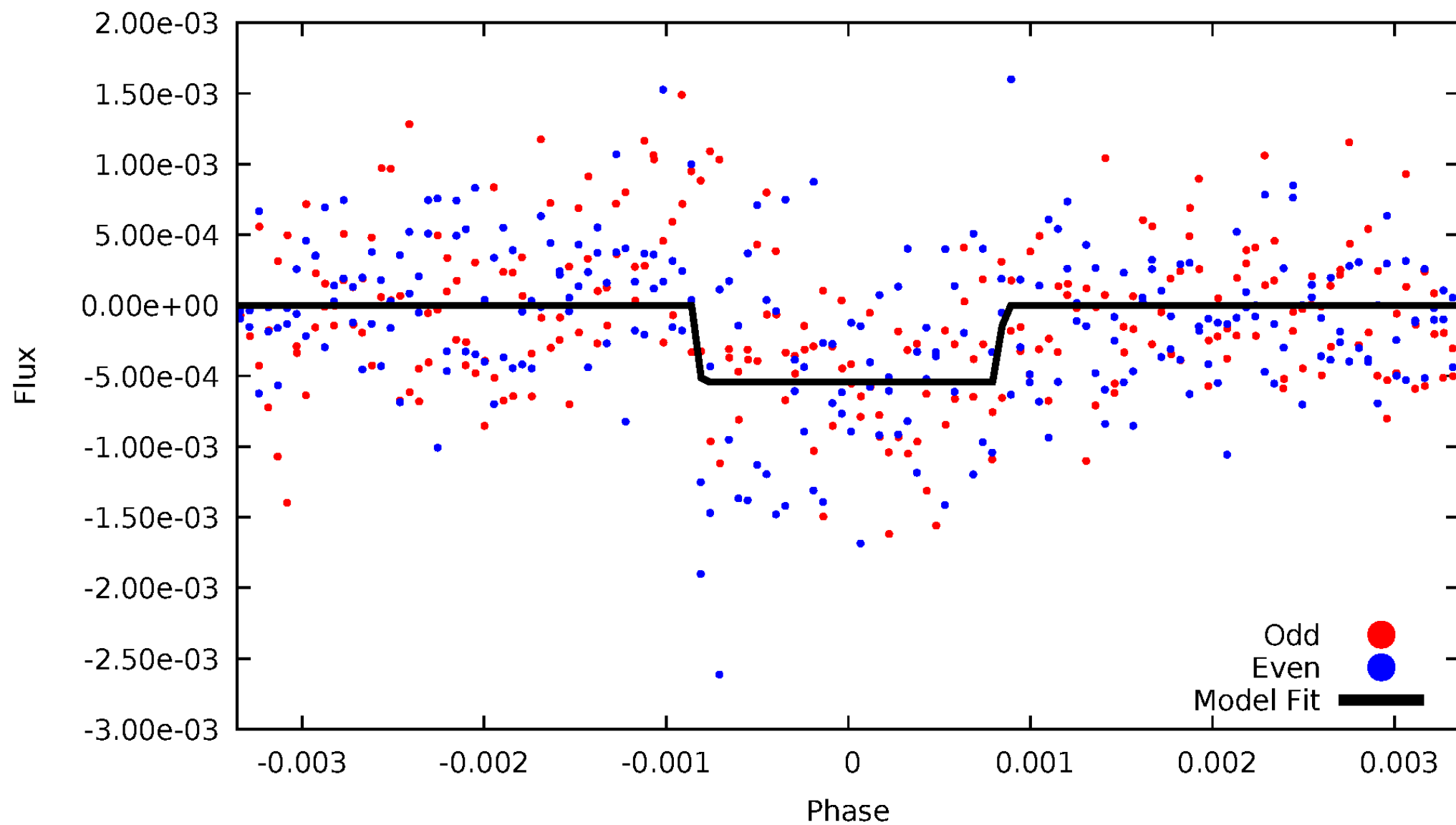
DV Odd/Even

TCE 007899020-01

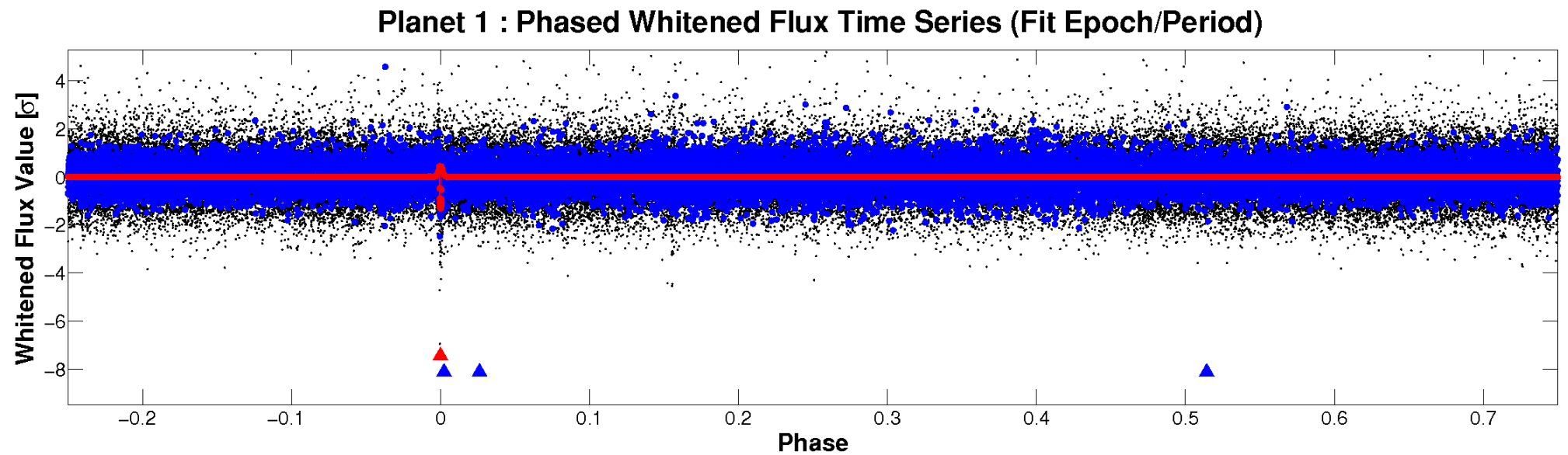
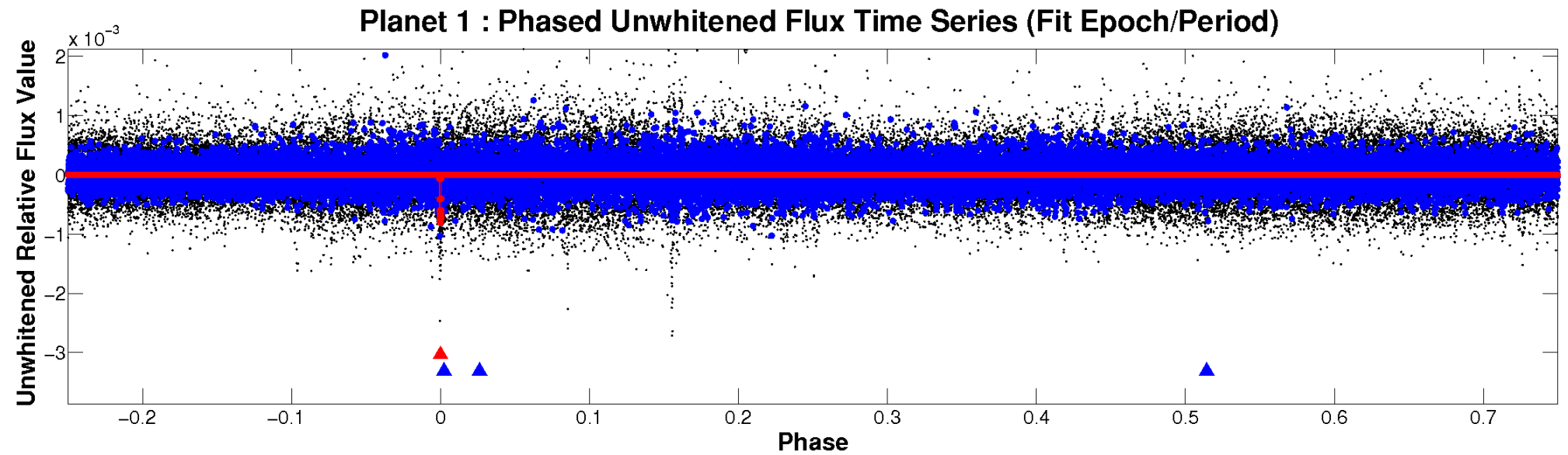


ALT Odd/Even

TCE 007899020-01



Non-Whitened Vs. Whitened Light Curve



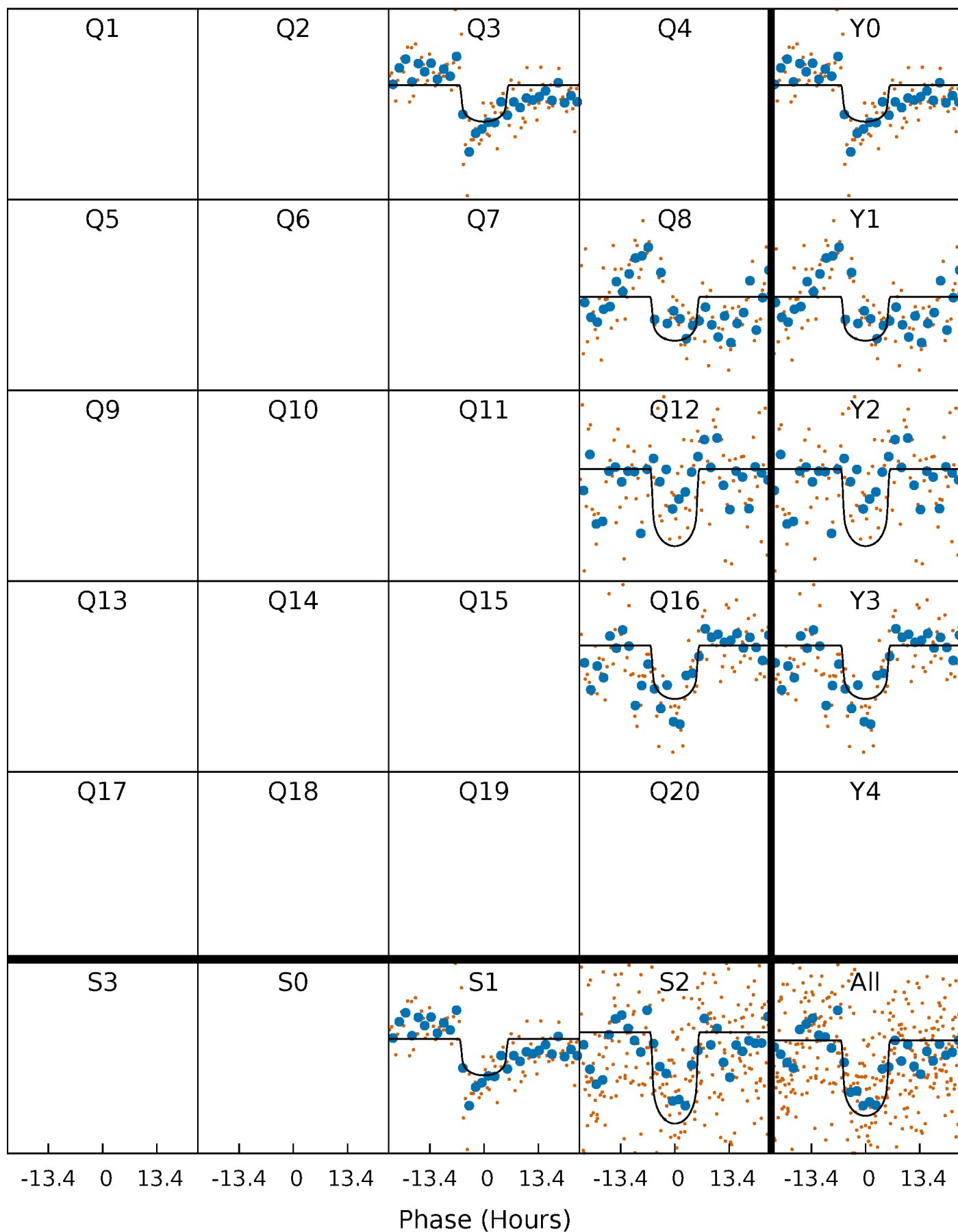
PDC Quarter-Phased Transit Curves

TCE 007899020-01 P=395.952381 Days $T_0=340.677428$ (BKJD)



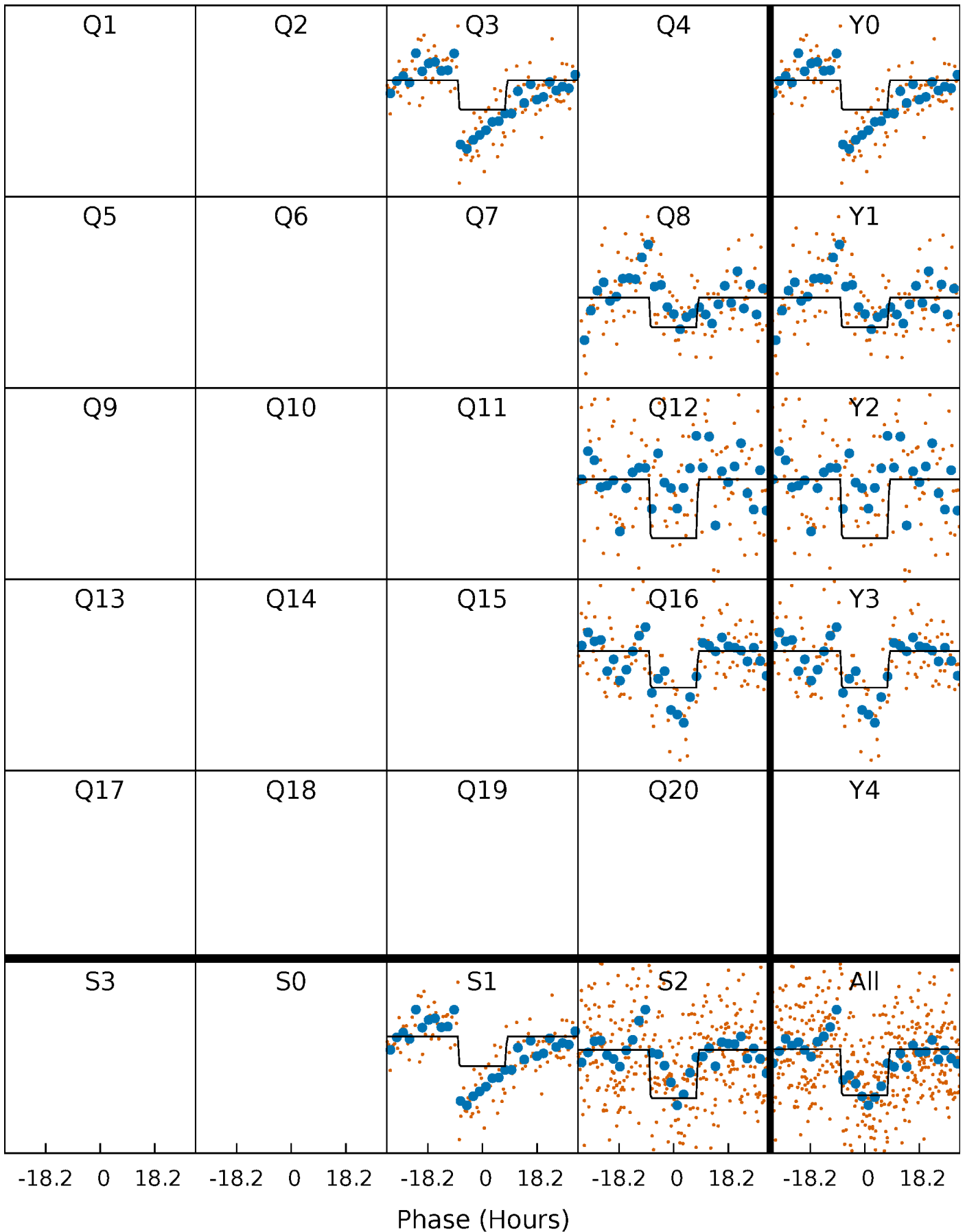
DV Quarter-Phased Transit Curves

TCE 007899020-01 P=395.952381 Days $T_0=340.677428$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

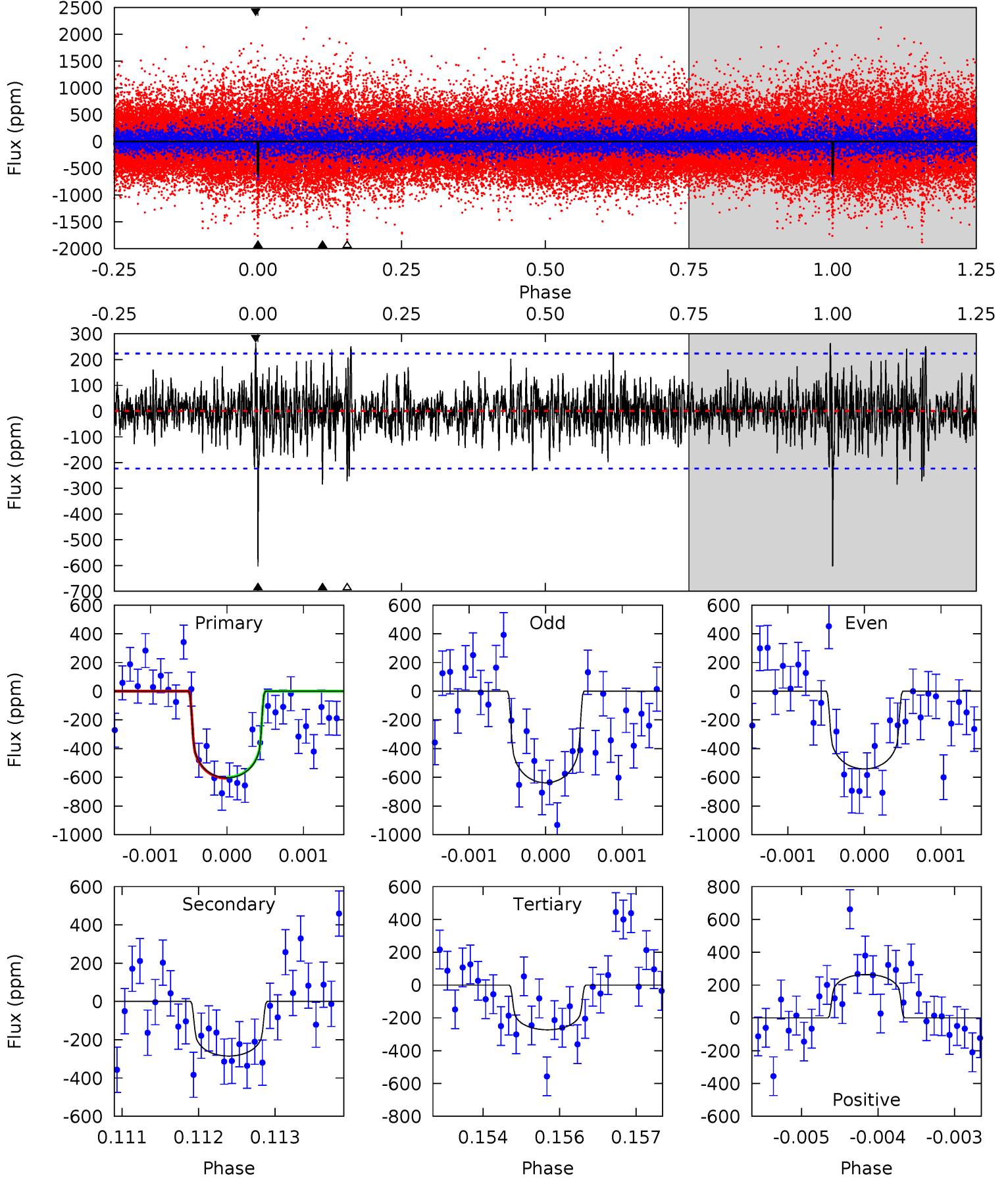
TCE 007899020-01 P=395.879791 Days $T_0=340.785371$ (BKJD)



DV Model-Shift Uniqueness Test

007899020-01, P = 395.952381 Days, E = 340.677428 Days

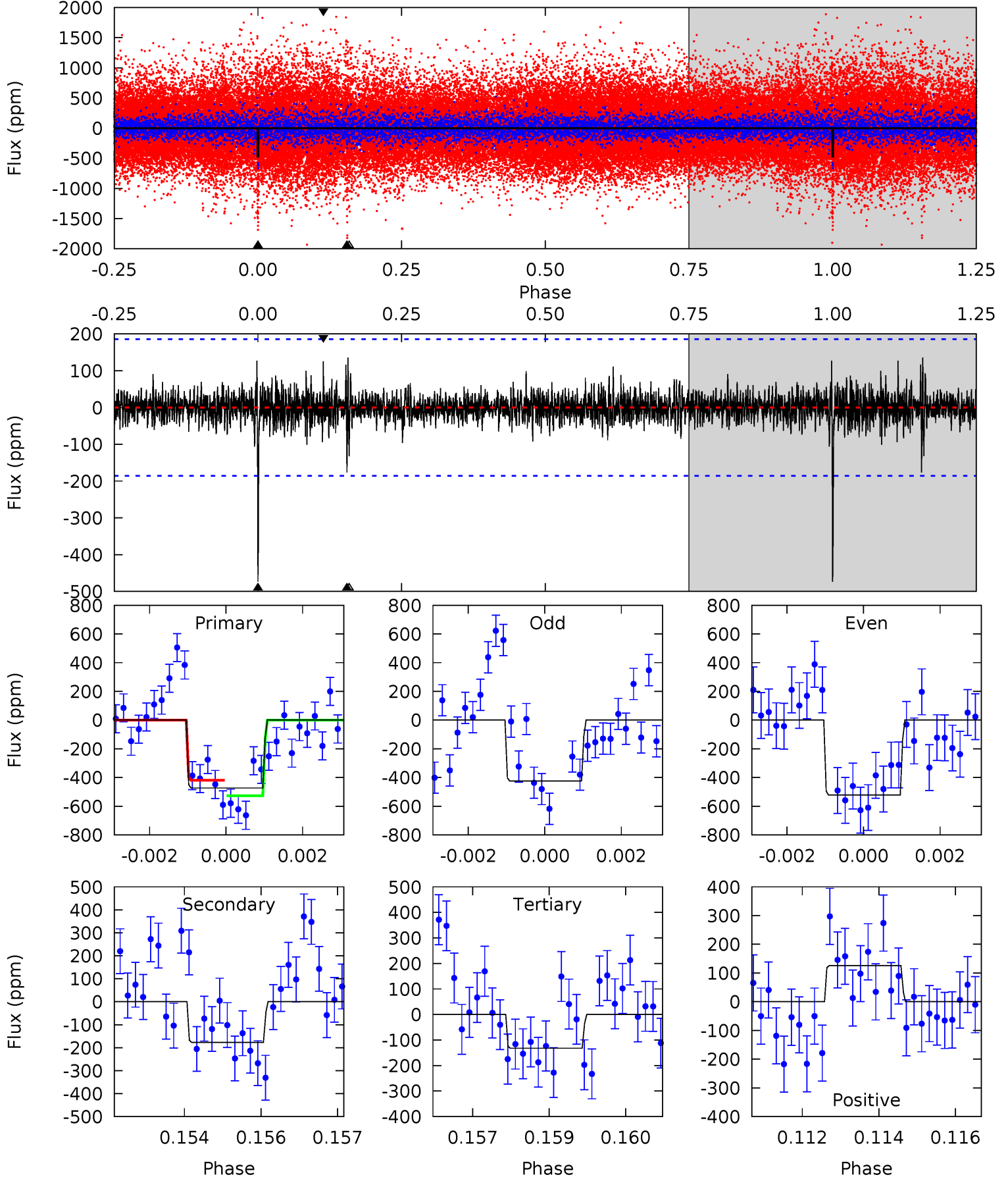
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
14.6	6.90	6.60	6.41	5.41	3.22	1.55	8.01	8.21	0.30	0.50	1.18	0.98	0.30	0.08



Alt Model-Shift Uniqueness Test

007899020-01, P = 395.879791 Days, E = 340.785371 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
13.7	5.10	3.81	3.63	5.36	3.15	0.76	9.85	10.0	1.28	1.47	1.41	1.15	0.22	1.55



Stellar Parameters For KIC 007899020

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	M (M_{\odot})	p_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	5858^{+157}_{-174}	$4.553^{+0.038}_{-0.200}$	$-0.260^{+0.300}_{-0.300}$	$0.849^{+0.254}_{-0.079}$	$0.940^{+0.110}_{-0.110}$	$2.167^{+0.445}_{-1.148}$
	+3%/-3%	+1%/-4%	+115%/-115%	+30%/-9%	+12%/-12%	+21%/-53%
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 007899020-01 / KOI

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	-285 ± 41	$2.77^{+0.89}_{-0.93}$	335^{+24}_{-15}	4672^{+827}_{-479}	21296^{+27552}_{-9259}
Alt.	-177 ± 35	$2.26^{+0.91}_{-0.82}$	335^{+23}_{-14}	4574^{+972}_{-531}	19448^{+29176}_{-9850}

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

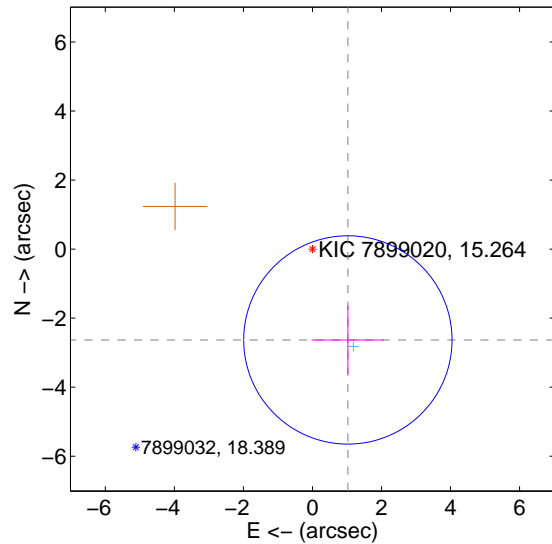
Supplemental centroid analysis for 007899020-01. Kepler magnitude: 15.26. Transit SNR 11.92

There are 1 quarters with good PRF difference image offsets

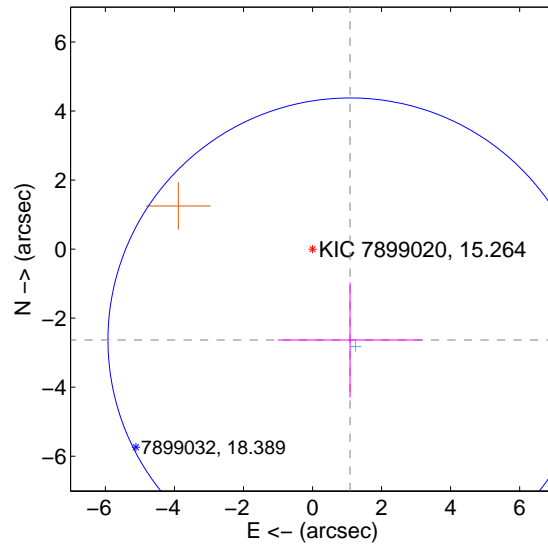
The direct PRF centroid is offset from the target star catalog position by about 0.09 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	2.825 ± 1.006	2.81	-1.026 ± 1.049	-2.632 ± 0.999
PRF-fit source offset from KIC position	2.850 ± 2.338	1.22	-1.087 ± 2.097	-2.634 ± 1.664
photometric centroid source offset	1.55 ± 1.20	1.29	-1.02 ± 1.10	-1.16 ± 1.28

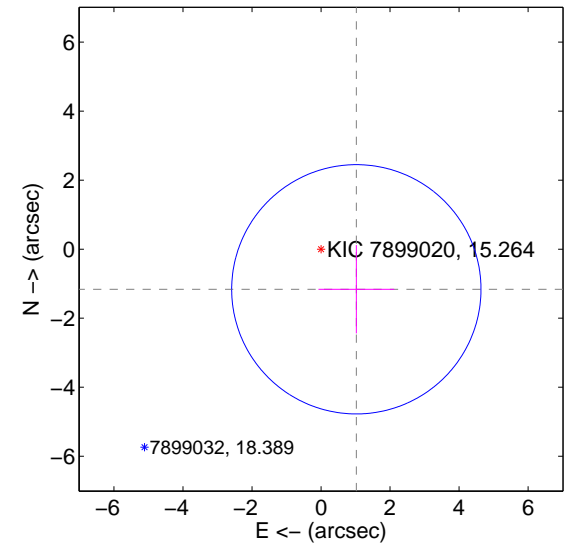
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position

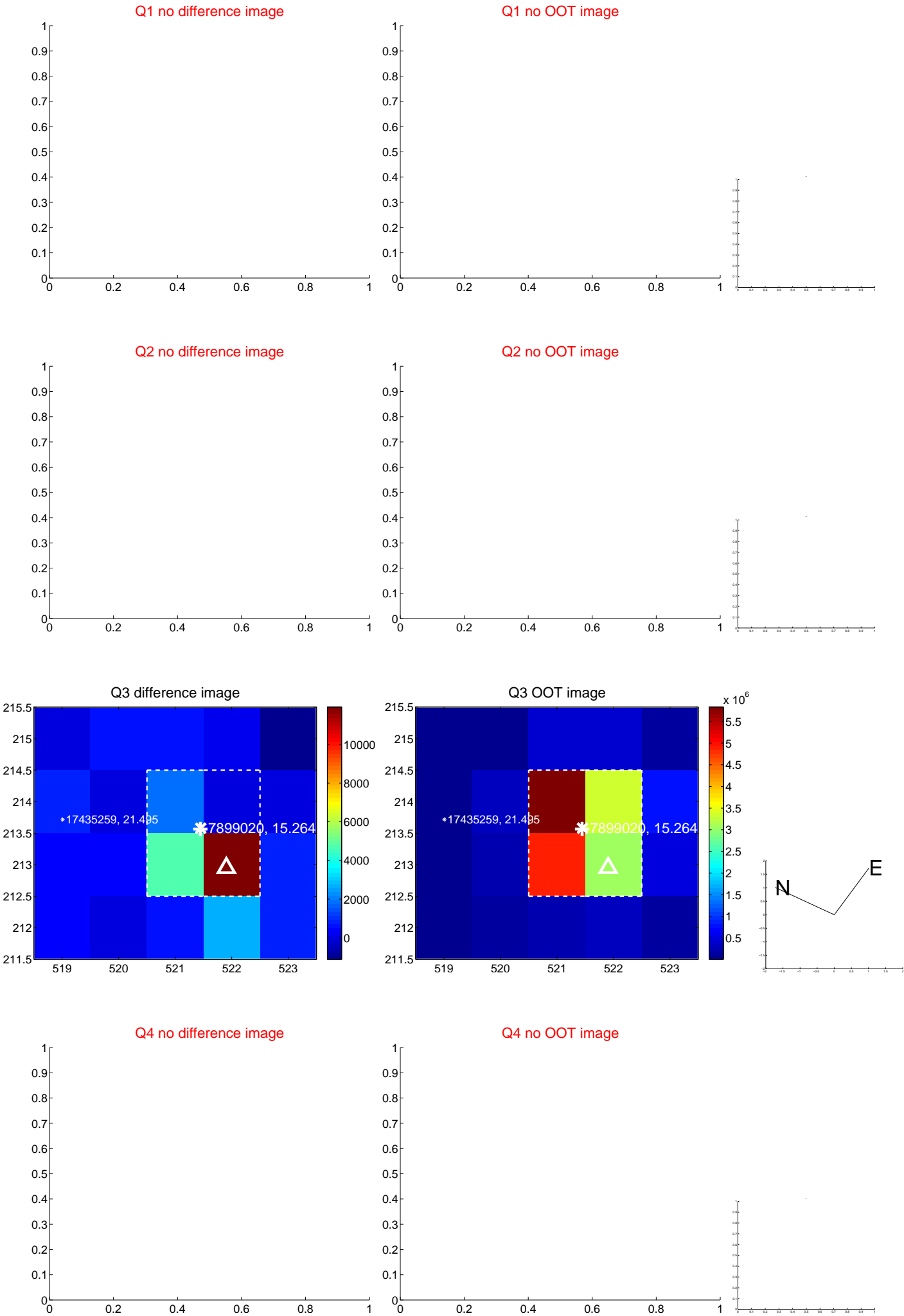


offset from photometric centroids



Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ . Red *: target star. Blue *: Other stars. Text next to a star gives its KIC ID and kepmag. KIC IDs > 15,000,000 are from the UKIRT catalog.

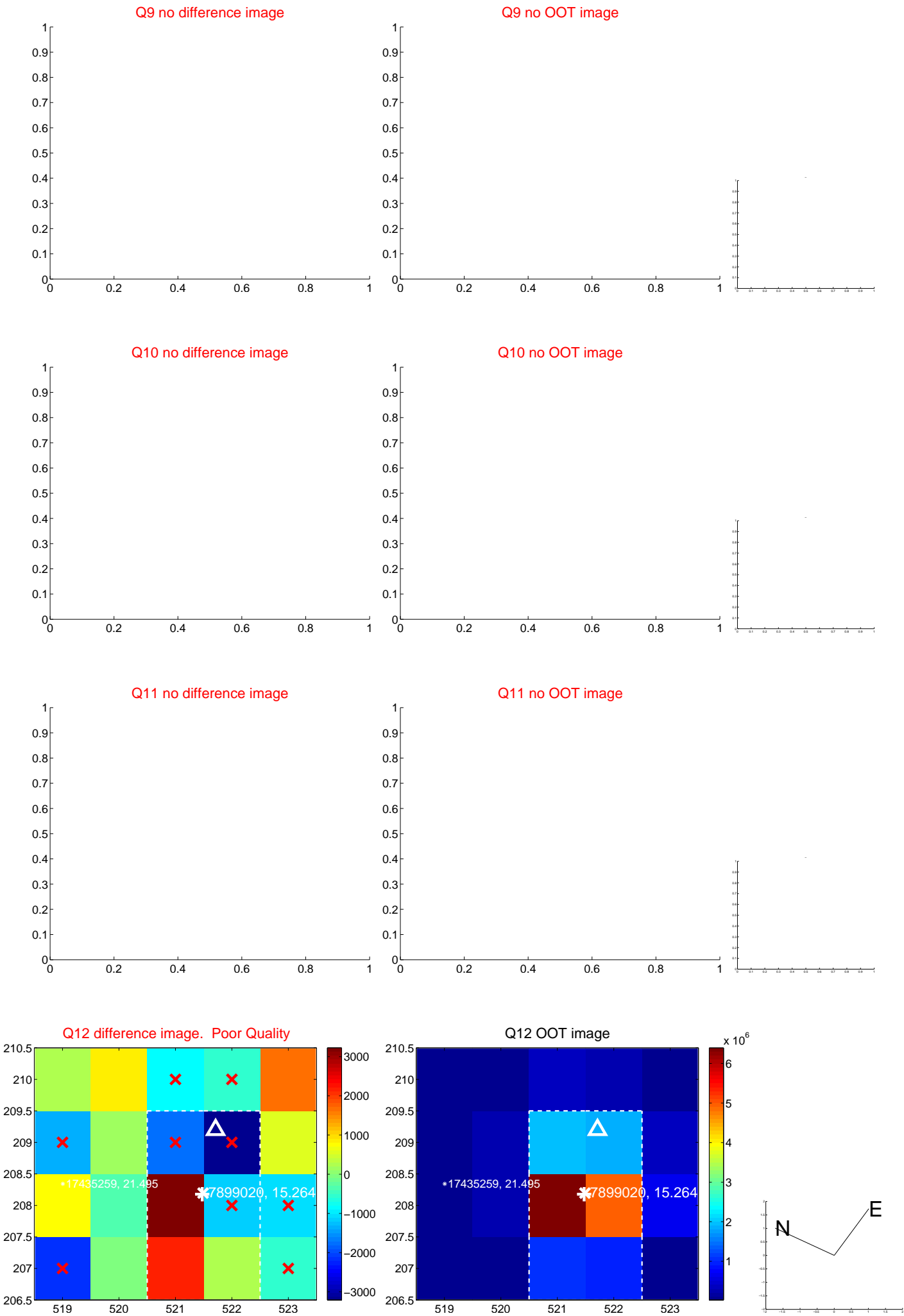
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



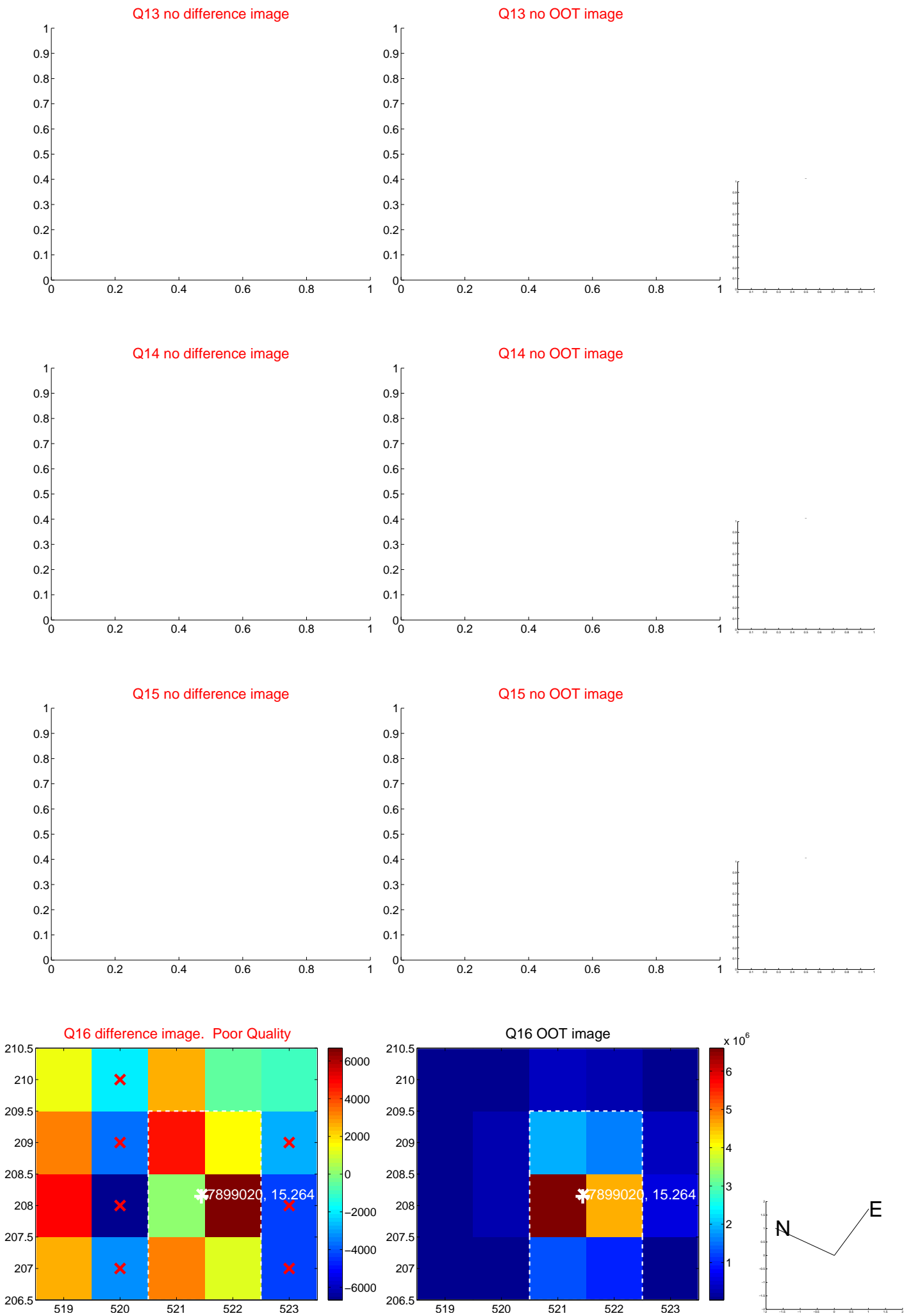
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



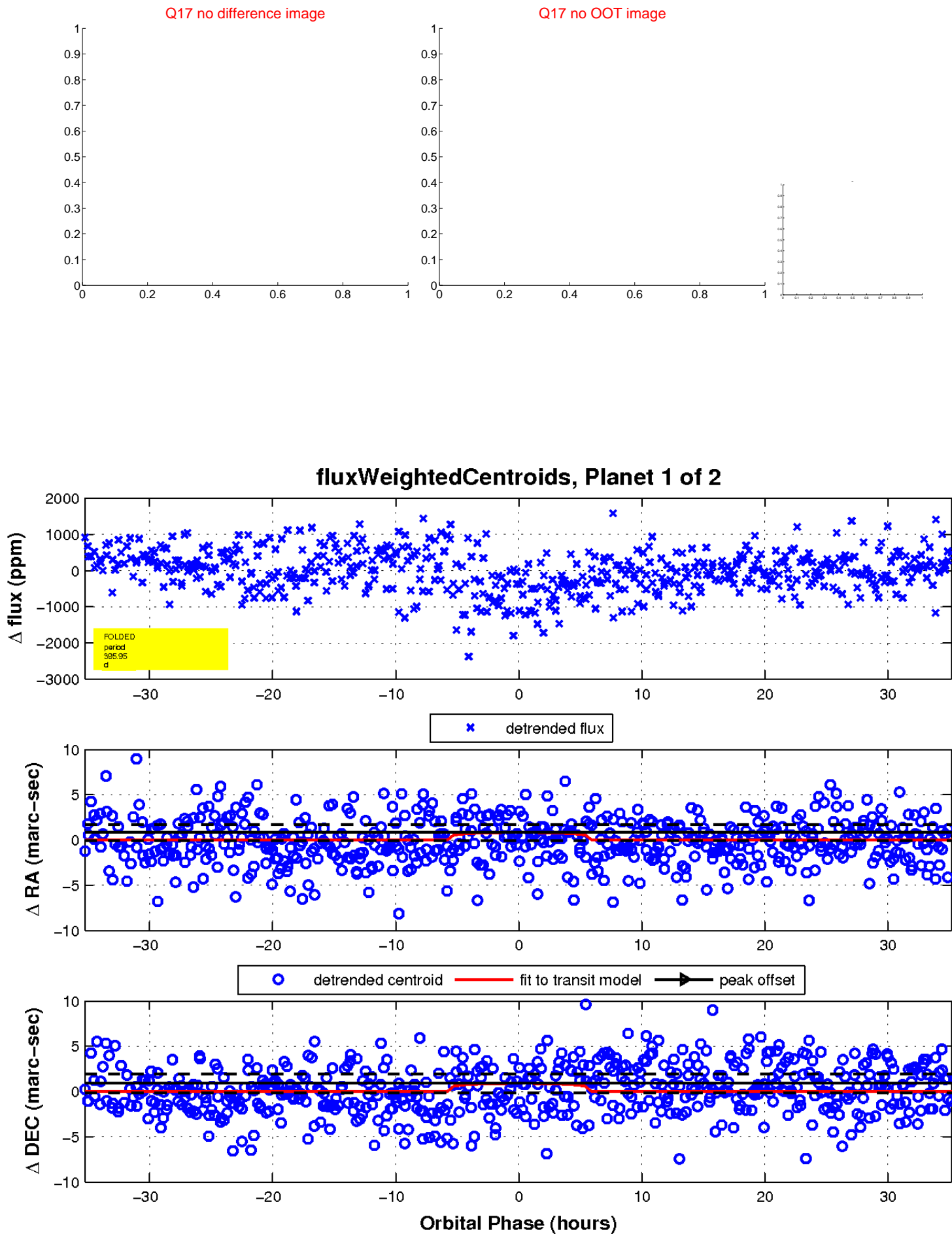
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

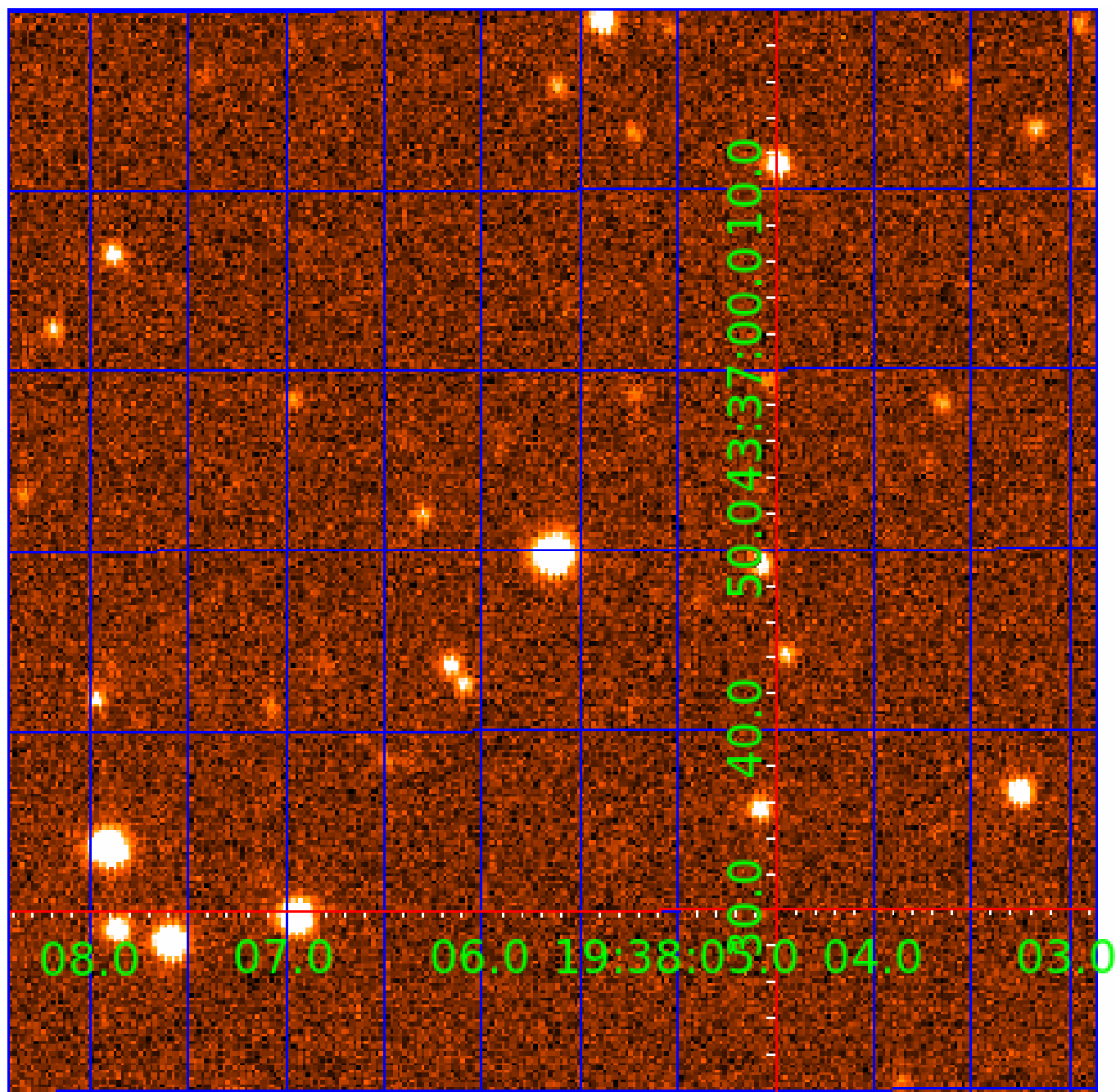


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 007899020

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})
007899020-01	OBS	No	395.952381	340.677428	811.4	11.763	13.8	11.9	0.85	5858	2.55	0.71
007899020-02	OBS	No	598.649017	341.627265	482.3	23.395	8.5	7.7	0.85	5858	2.07	0.41

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
007899020-01	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_MARSHALL_SKYE—LPP_DV—INCONSISTENT_TRANS—CENT_FEW_DIFFS
007899020-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_SKYE—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.

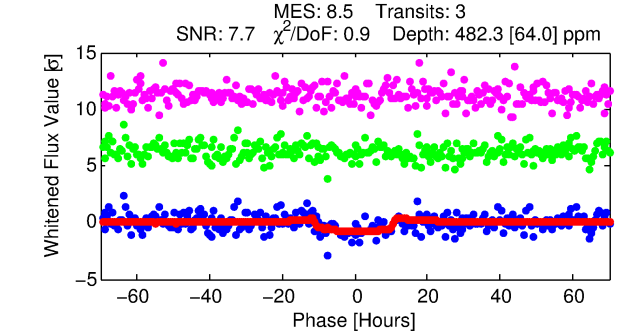
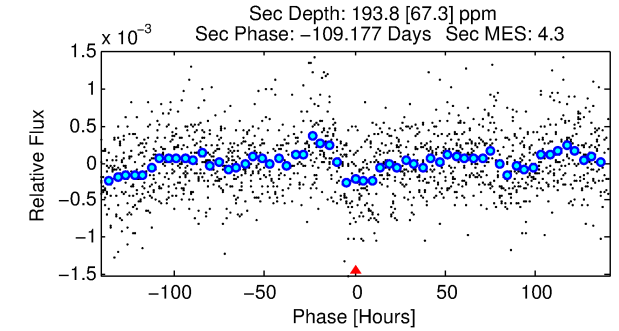
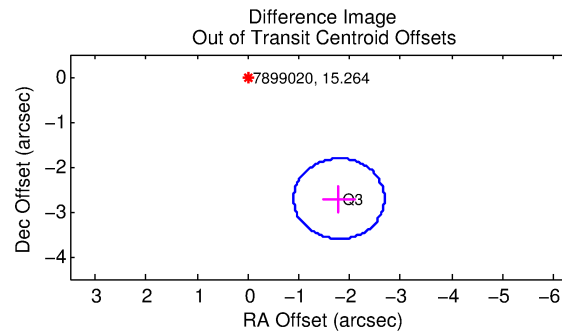
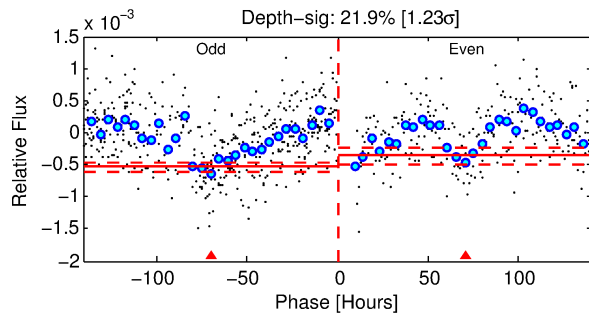
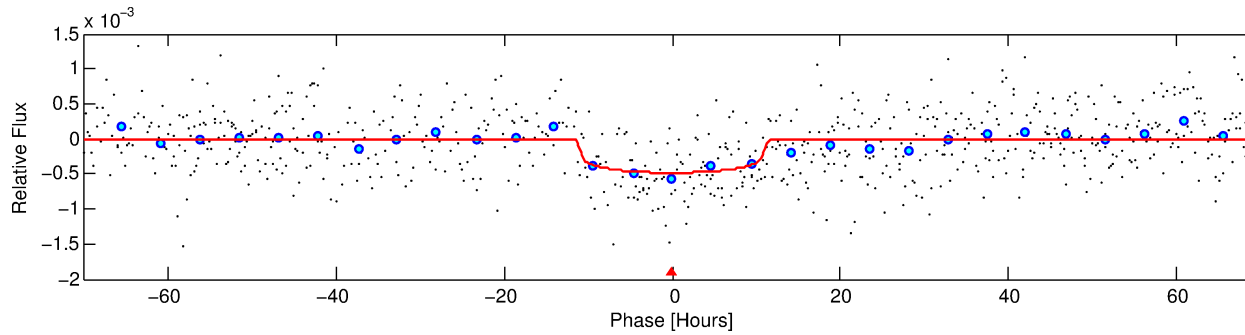
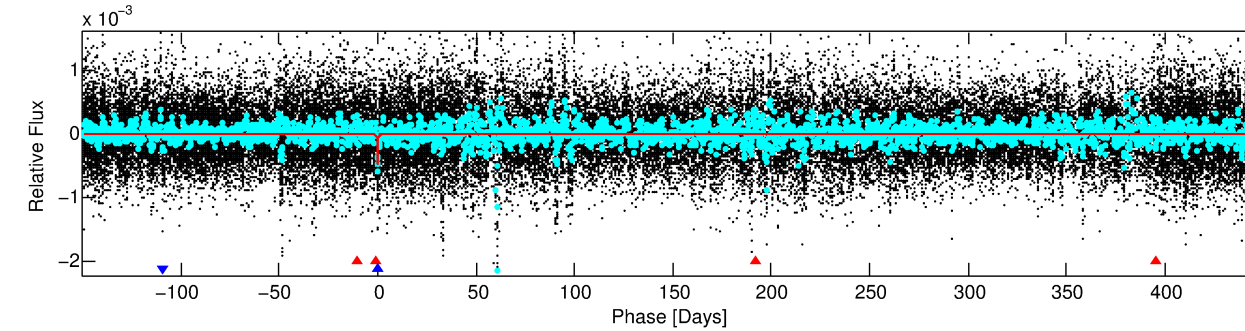
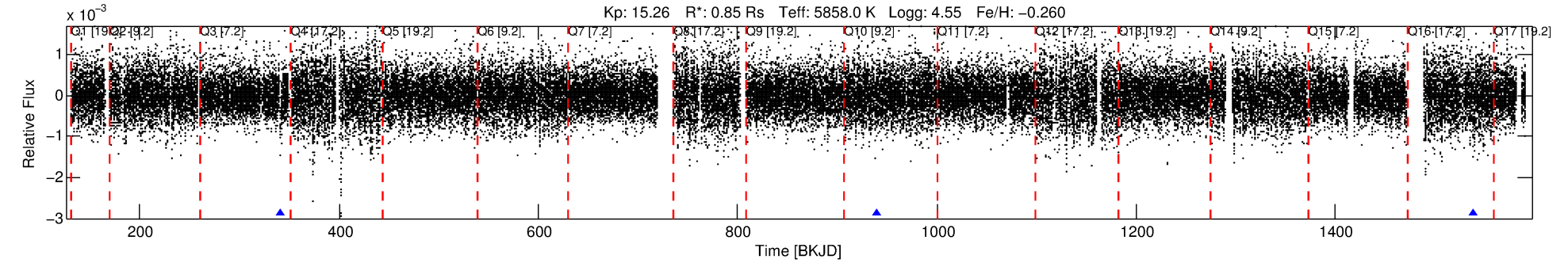
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 007899020-02

No Significant Match Found

DV One-Page Summary

KIC: 7899020 Candidate: 2 of 2 Period: 598.649 d



DV Fit Results:

Period = 598.64902 [0.02774] d
Epoch = 341.6273 [0.0369] BKJD
Rp/R* = 0.0223 [0.0043]
a/R* = 124.16 [104.58]
b = 0.80 [0.38]
Seff = 0.41 [0.16]
Teq = 204 [20] K
Rp = 2.07 [0.74] Re
a = 1.3617 [0.3427] AU
Ag = 46306.85 [29391.72] [1.58σ]
Teffp = 4628 [615] K [7.18σ]

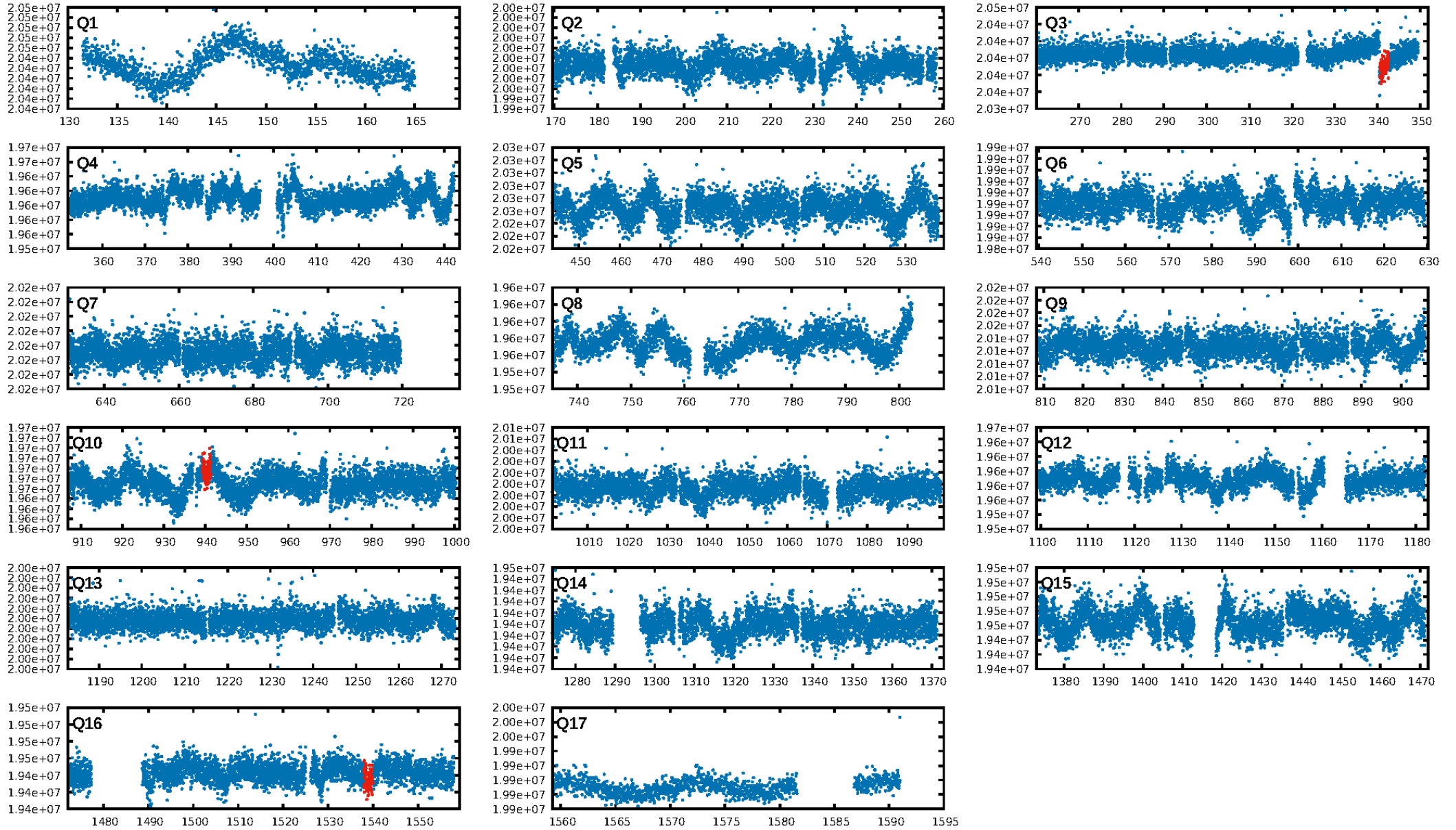
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [185.78σ]
LongPeriod-sig: N/A
ModelChiSquare2-sig: 21.4%
ModelChiSquareGof-sig: 100.0%
Bootstrap-pfa: 8.10e-10
RollingBand-fgt: 1.00 [3/3]
GhostDiagnostic-chr: 1.482
Centroid-sig: 24.1%
Centroid-so: 1.823 arcsec [1.09σ]
OotOffset-rm: 3.249 arcsec [10.93σ]
KicOffset-rm: 3.284 arcsec [11.03σ]
OotOffset-st: 0/1/0/0 [1]
KicOffset-st: 0/1/0/0 [1]
DiffImageQuality-fgm: 1.00 [1/1]
DiffImageOverlap-fno: 0.50 [1/2]

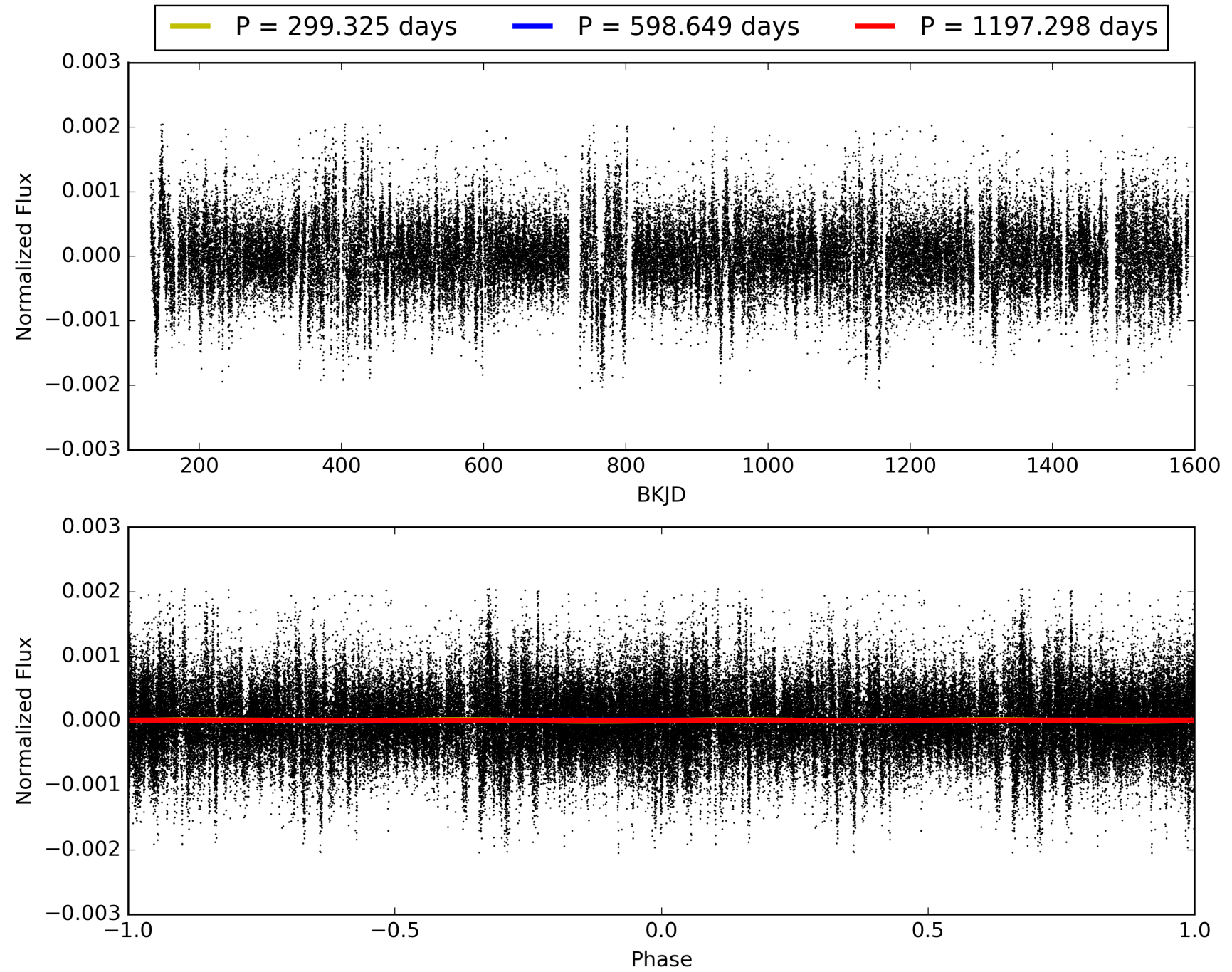
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 29-Jan-2016 05:00:12 Z

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

TCE 007899020-02, PDC Light Curves

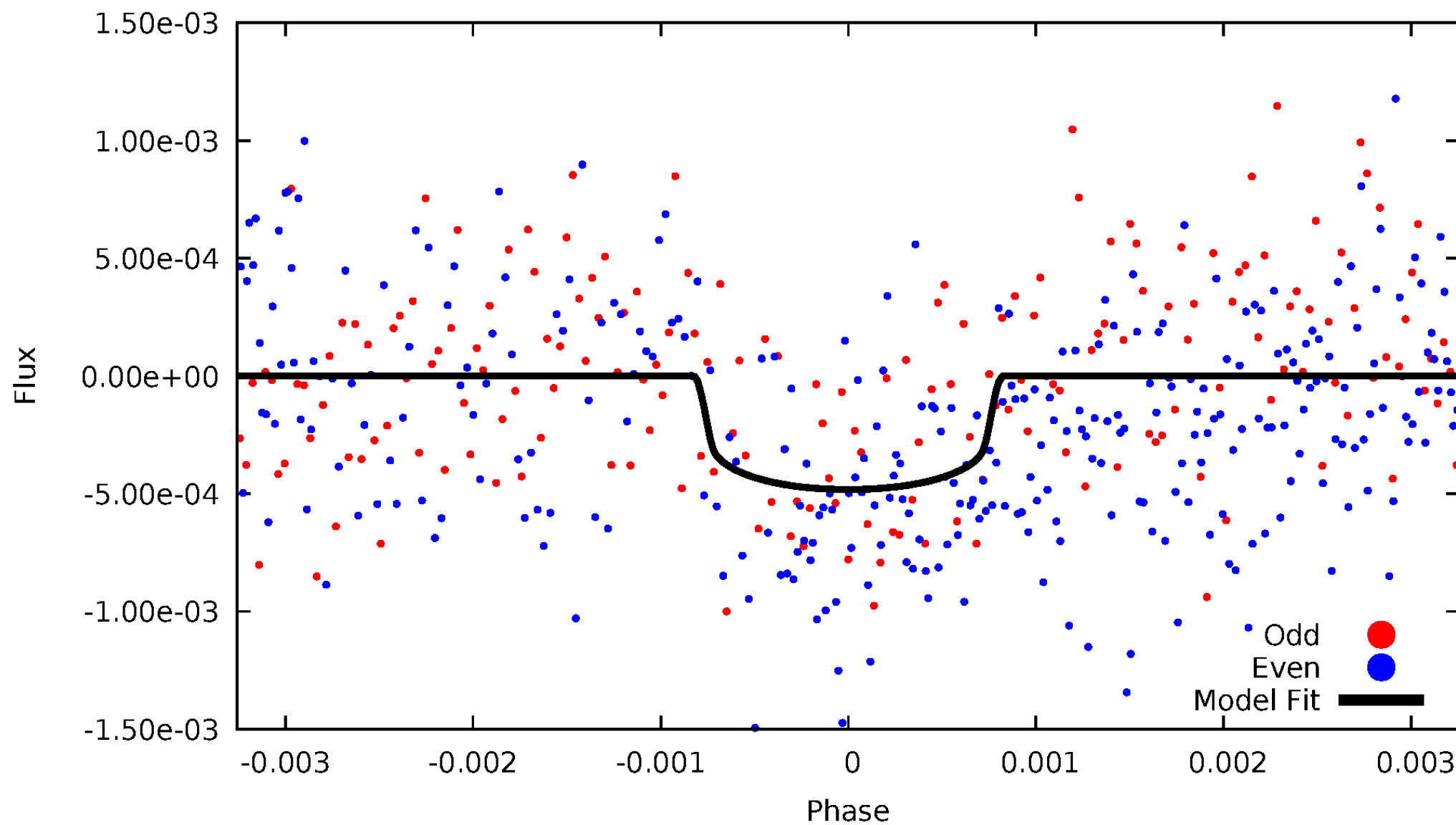


TCE 007899020-02



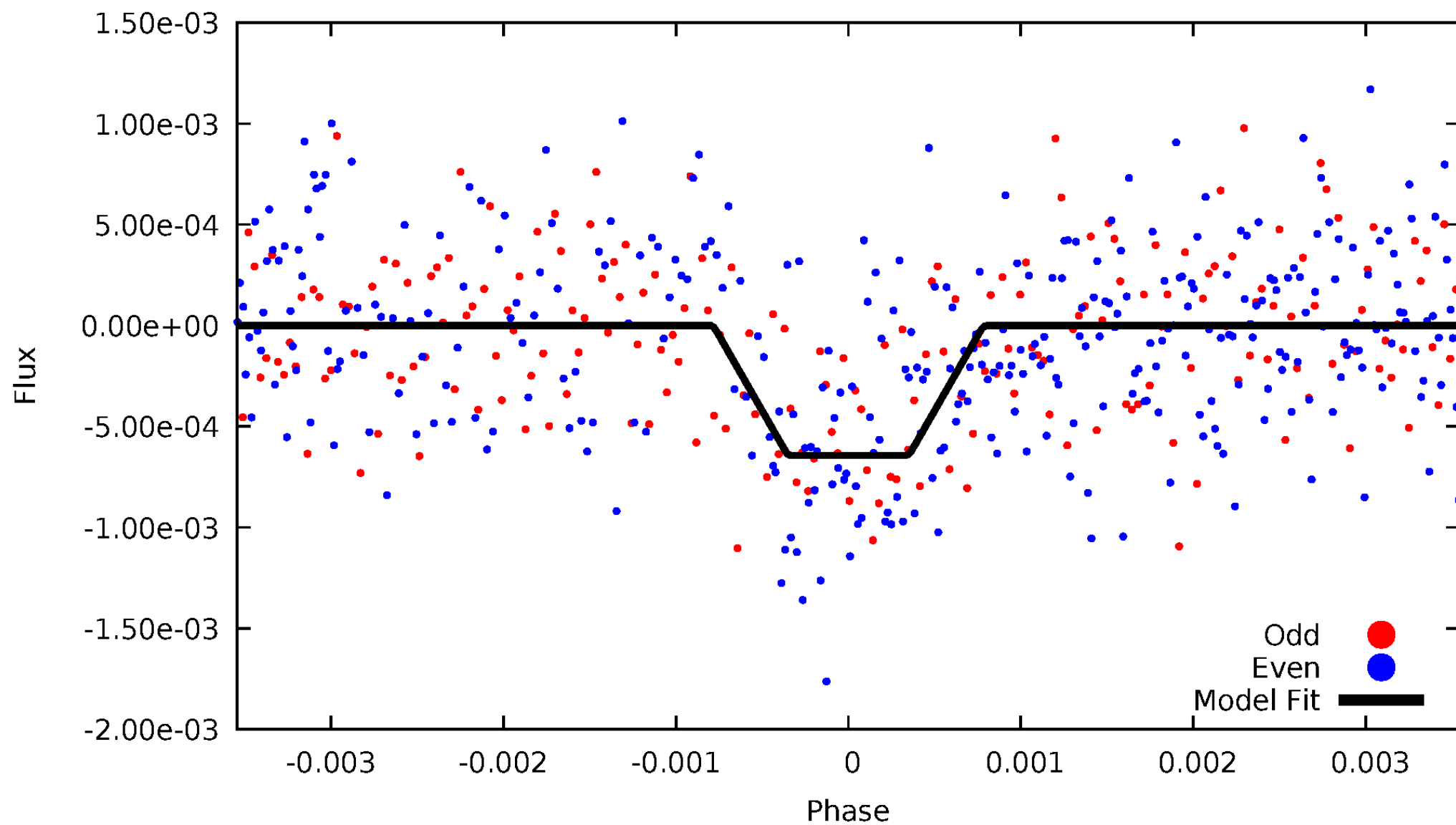
DV Odd/Even

TCE 007899020-02



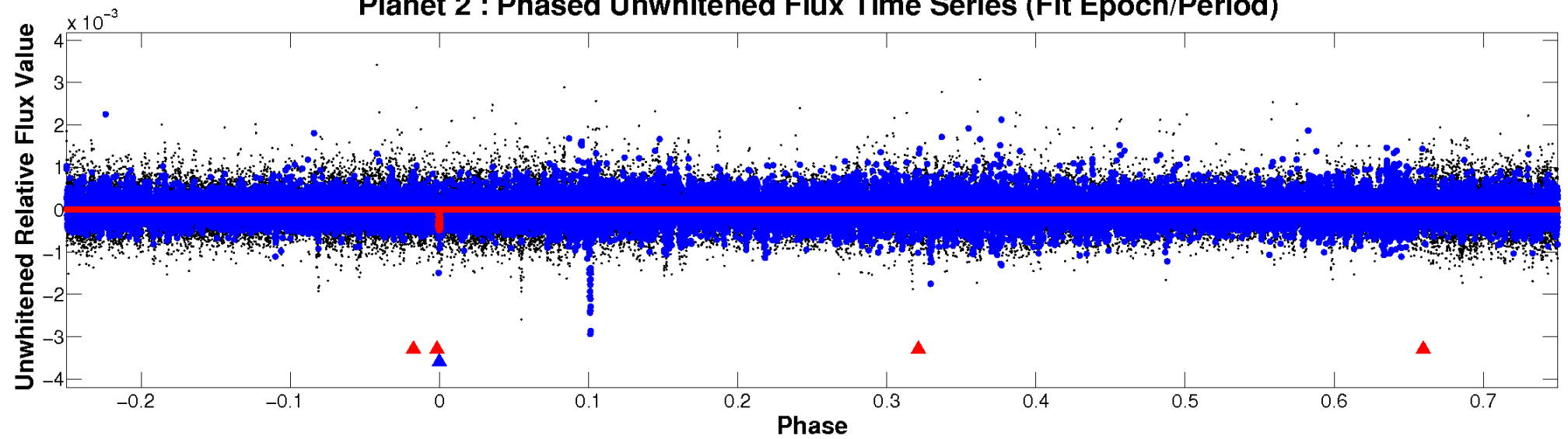
ALT Odd/Even

TCE 007899020-02

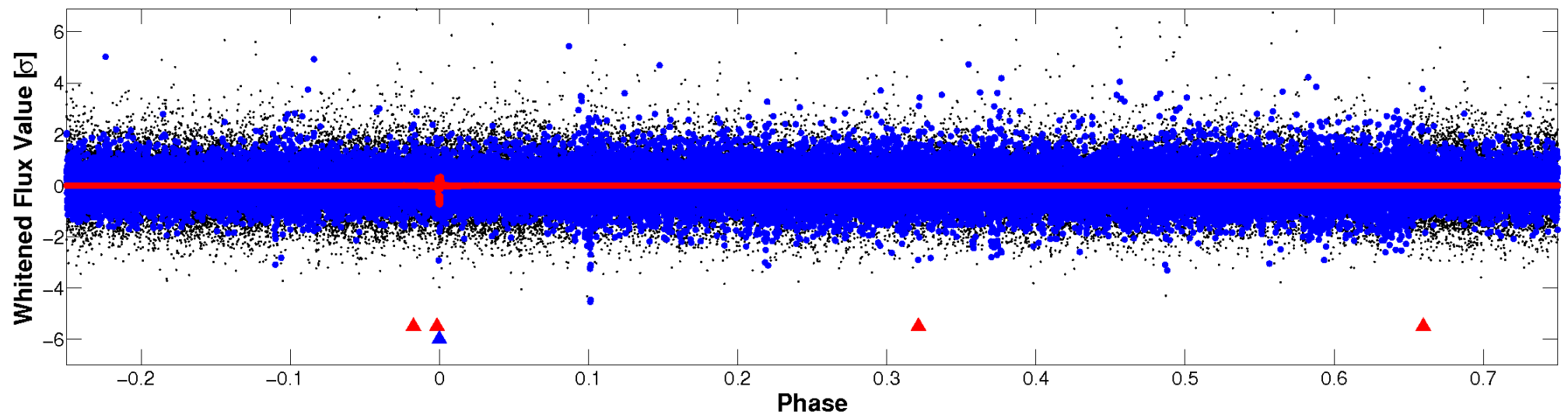


Non-Whitened Vs. Whitened Light Curve

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



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



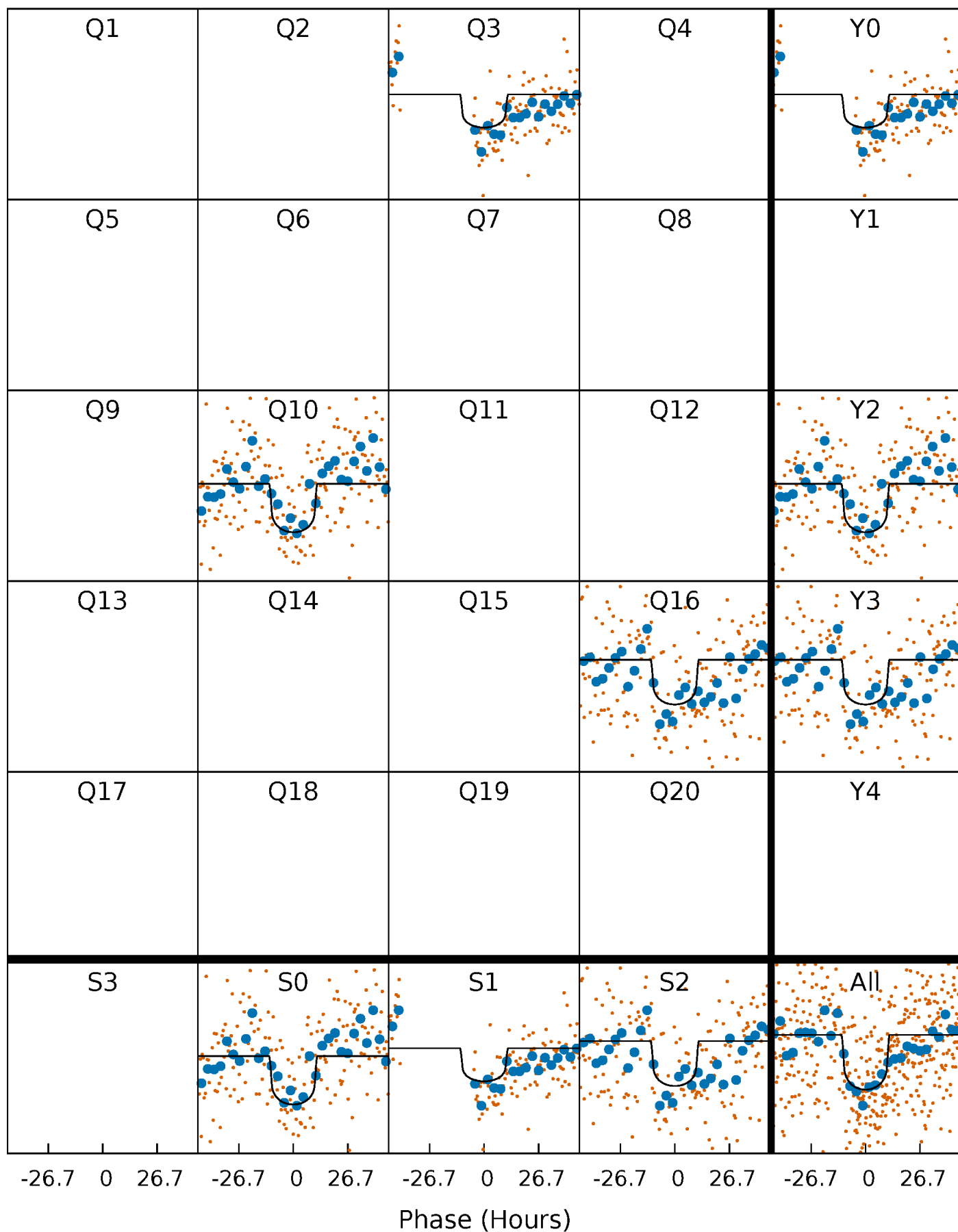
PDC Quarter-Phased Transit Curves

TCE 007899020-02 P=598.649017 Days $T_0=341.627265$ (BKJD)



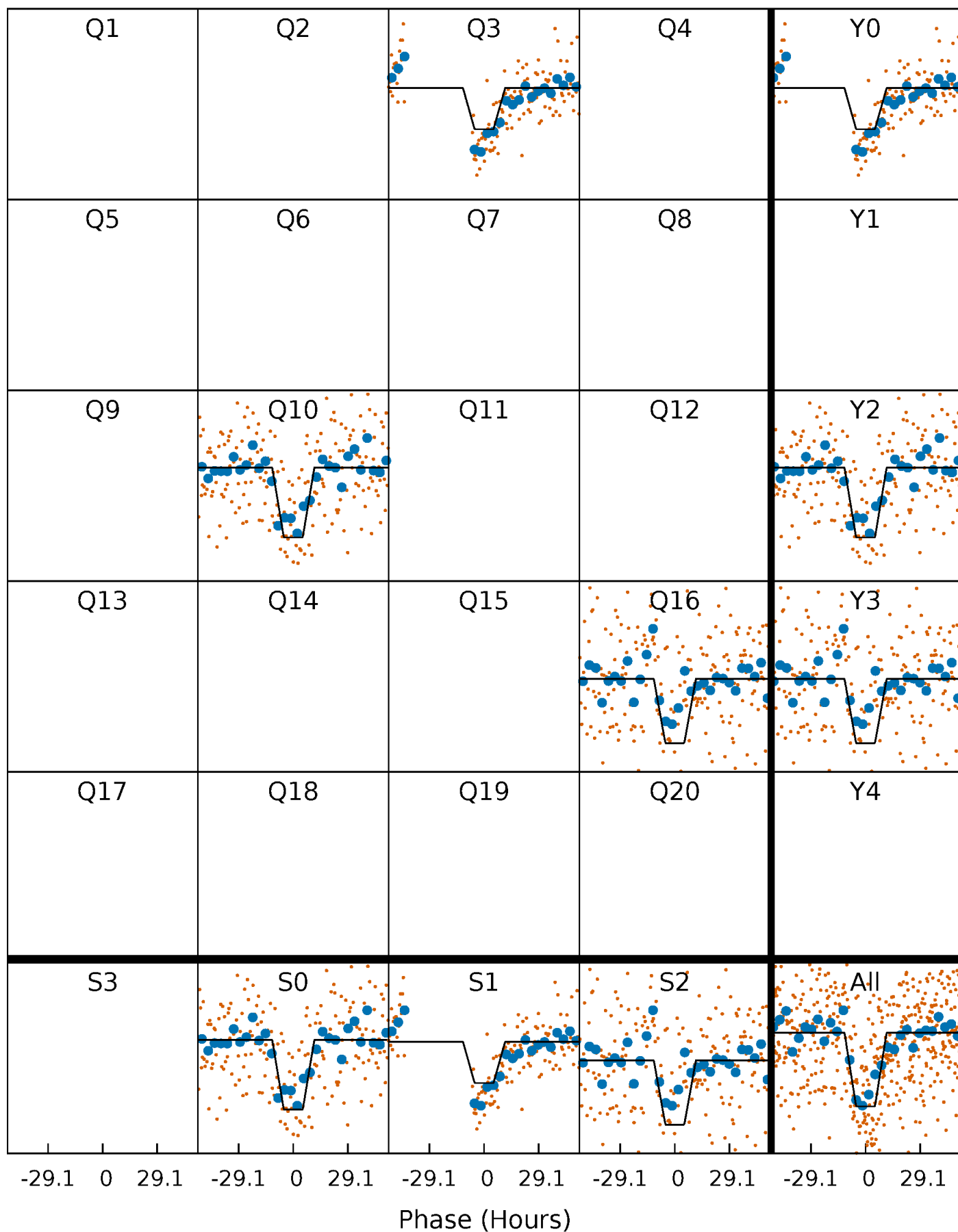
DV Quarter-Phased Transit Curves

TCE 007899020-02 P=598.649017 Days $T_0=341.627265$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

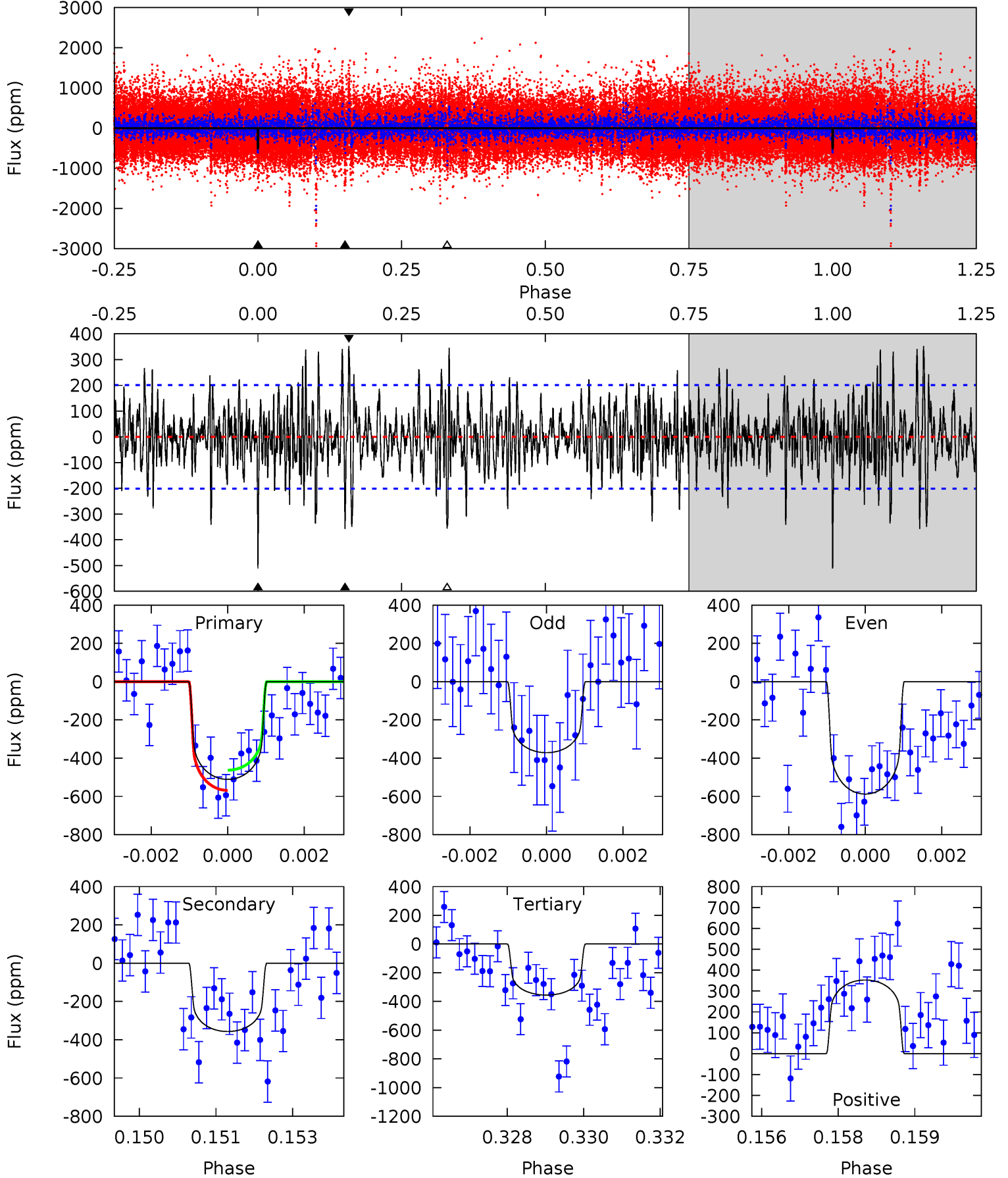
TCE 007899020-02 P=598.587518 Days $T_0=341.684945$ (BKJD)



DV Model-Shift Uniqueness Test

007899020-02, P = 598.649017 Days, E = 341.627265 Days

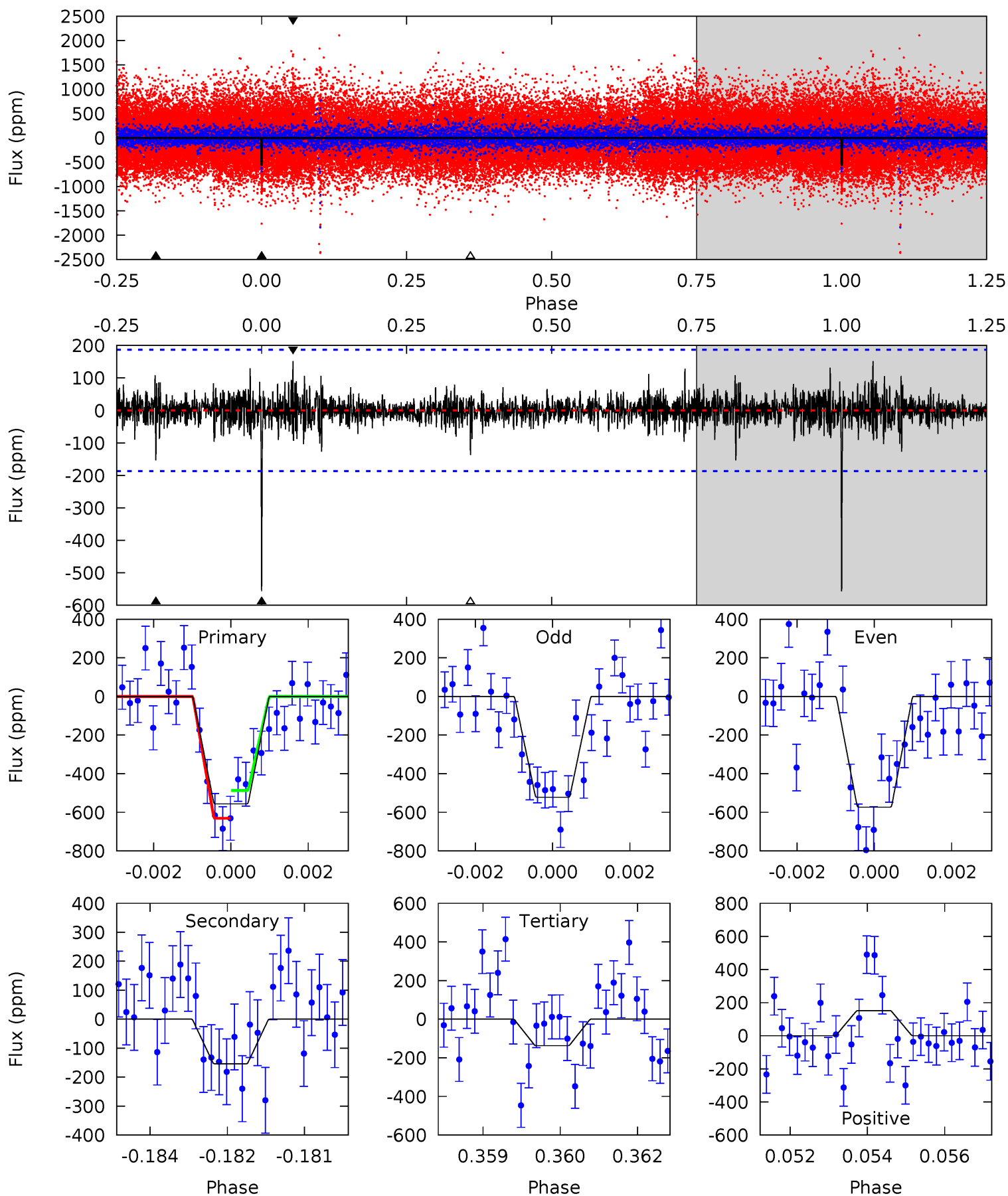
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
13.6	9.52	9.48	9.40	5.36	3.15	2.56	4.14	4.22	0.04	0.12	2.80	0.93	0.41	1.40



Alt Model-Shift Uniqueness Test

007899020-02, P = 598.587518 Days, E = 341.684945 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
16.0	4.41	3.94	4.37	5.37	3.16	0.83	12.0	11.6	0.47	0.05	0.71	1.08	0.21	2.05



Stellar Parameters For KIC 007899020

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	M (M_{\odot})	p_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	5858^{+157}_{-174}	$4.553^{+0.038}_{-0.200}$	$-0.260^{+0.300}_{-0.300}$	$0.849^{+0.254}_{-0.079}$	$0.940^{+0.110}_{-0.110}$	$2.167^{+0.445}_{-1.148}$
	+3%/-3%	+1%/-4%	+115%/-115%	+30%/-9%	+12%/-12%	+21%/-53%
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 007899020-02 / KOI

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	-357 ± 38	$2.17^{+0.53}_{-0.45}$	293^{+20}_{-13}	5413^{+613}_{-411}	77143^{+42832}_{-27239}
Alt.	-154 ± 35	$2.48^{+0.52}_{-0.47}$	293^{+19}_{-13}	4308^{+415}_{-314}	24367^{+14731}_{-8697}

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

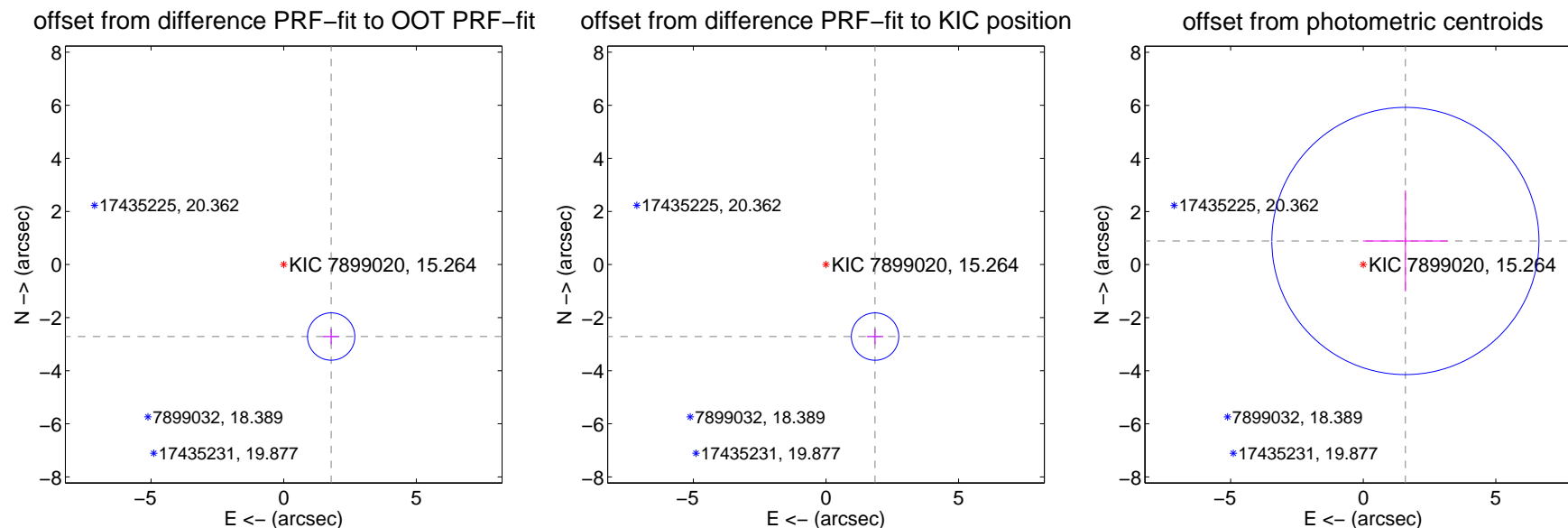
DV Centroid Data

Supplemental centroid analysis for 007899020-02. Kepler magnitude: 15.26. Transit SNR 7.67

There are 1 quarters with good PRF difference image offsets

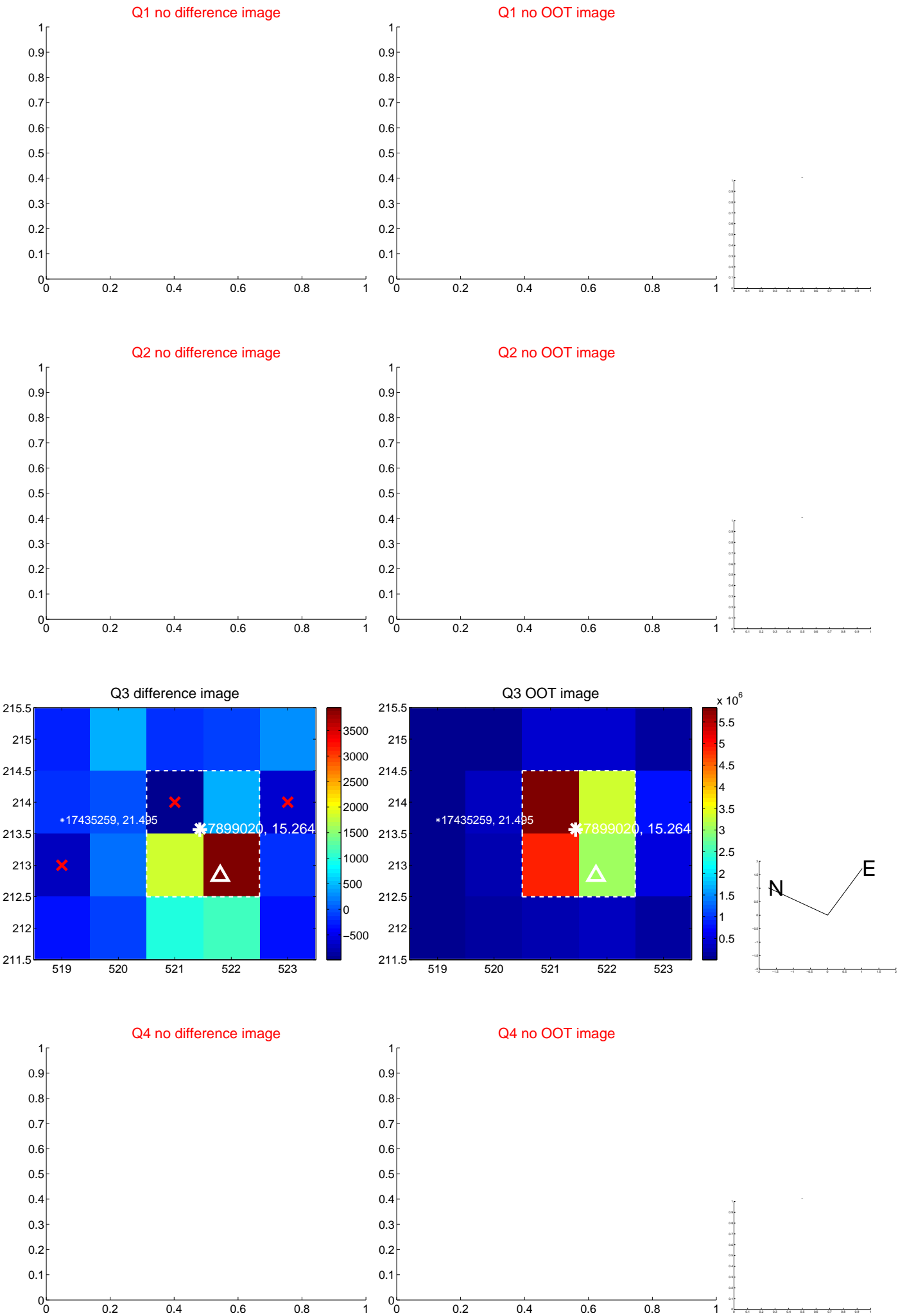
The direct PRF centroid is offset from the target star catalog position by about 0.06 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	3.249 ± 0.297	10.93	-1.790 ± 0.308	-2.712 ± 0.292
PRF-fit source offset from KIC position	3.284 ± 0.298	11.03	-1.850 ± 0.308	-2.714 ± 0.292
photometric centroid source offset	1.82 ± 1.68	1.09	-1.59 ± 1.60	0.89 ± 1.91

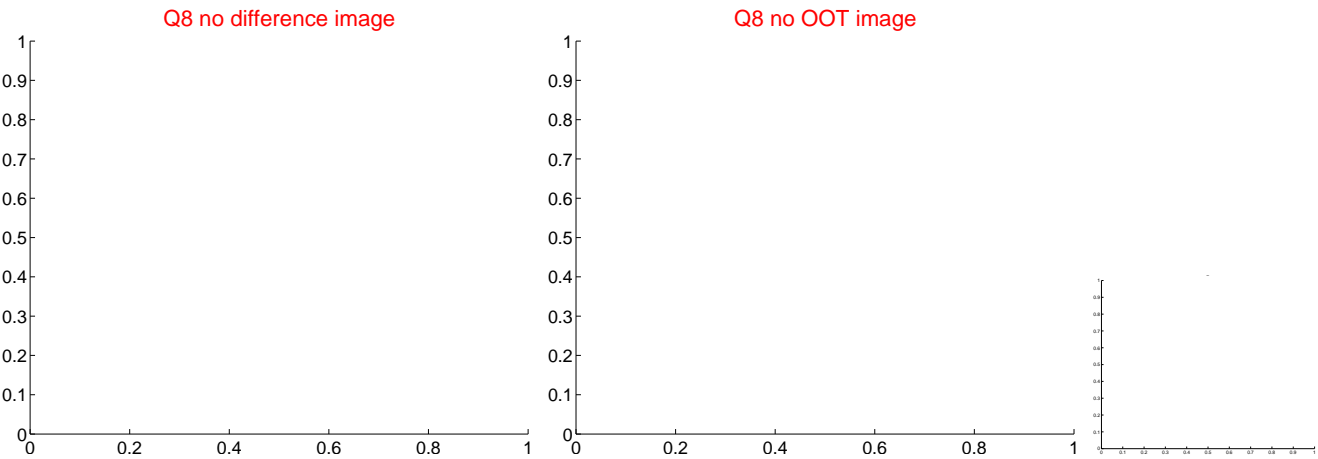
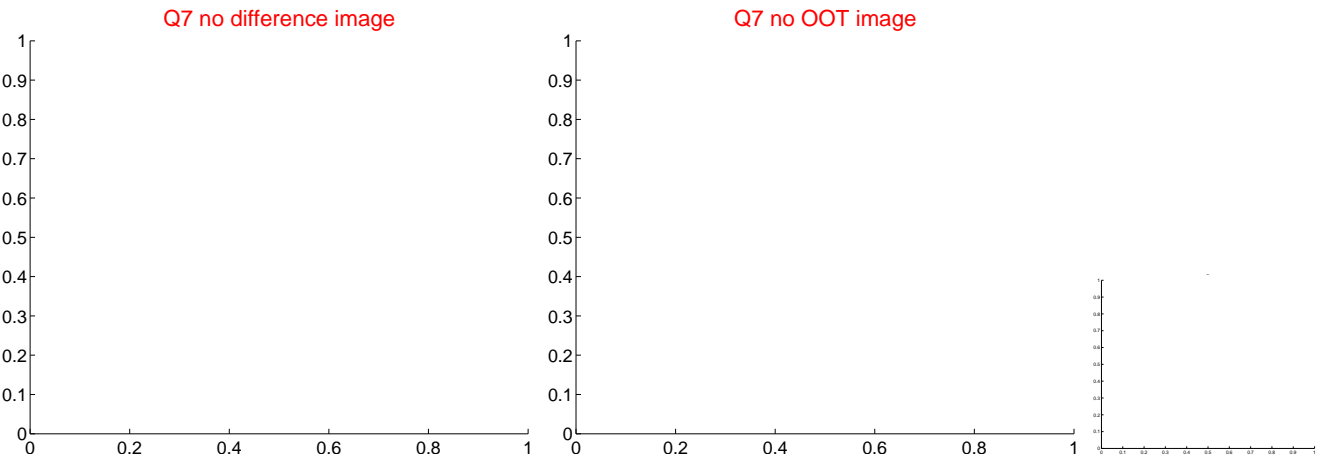
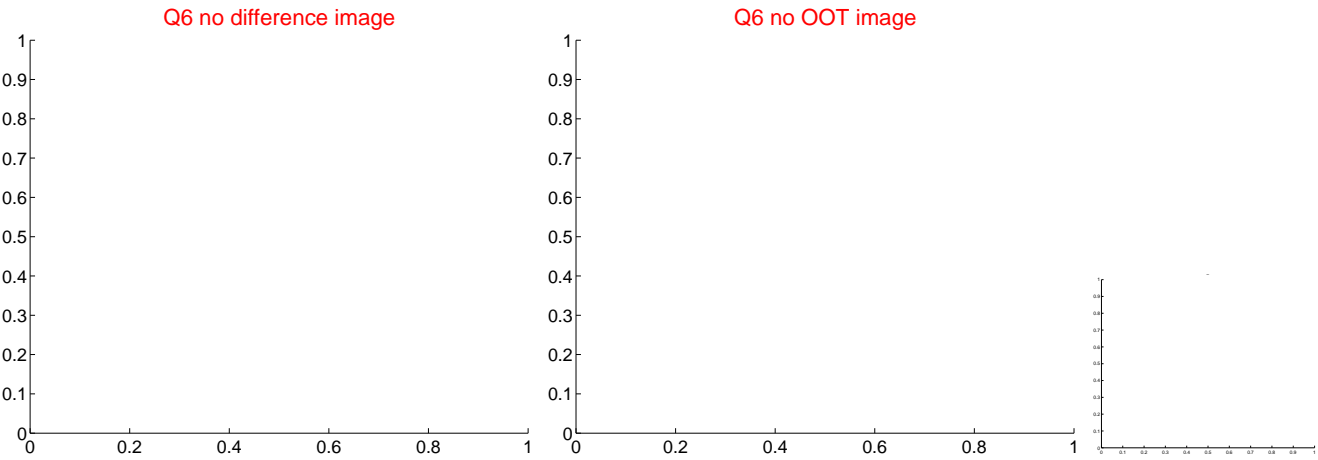
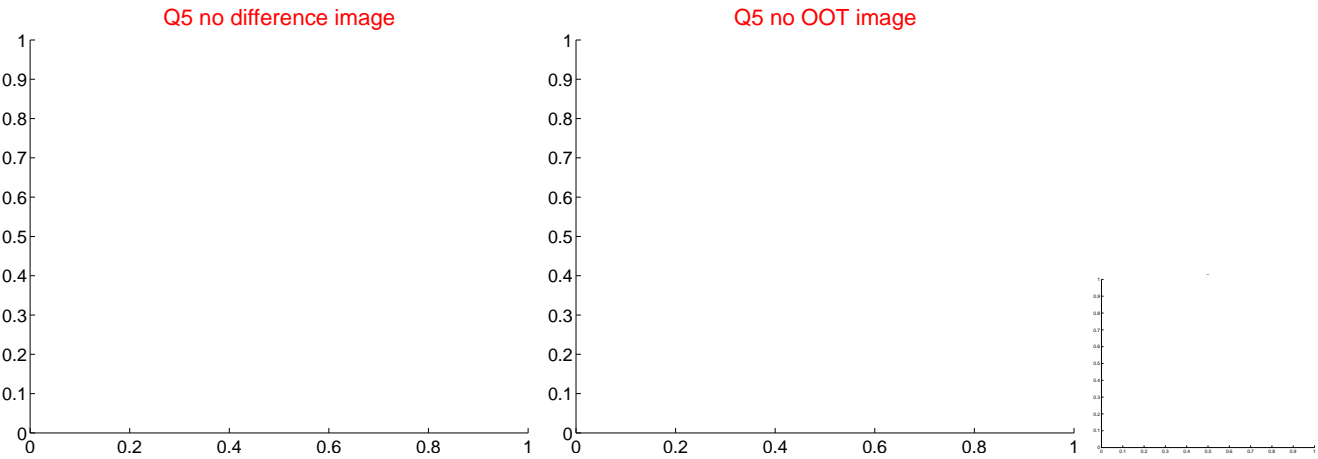


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ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



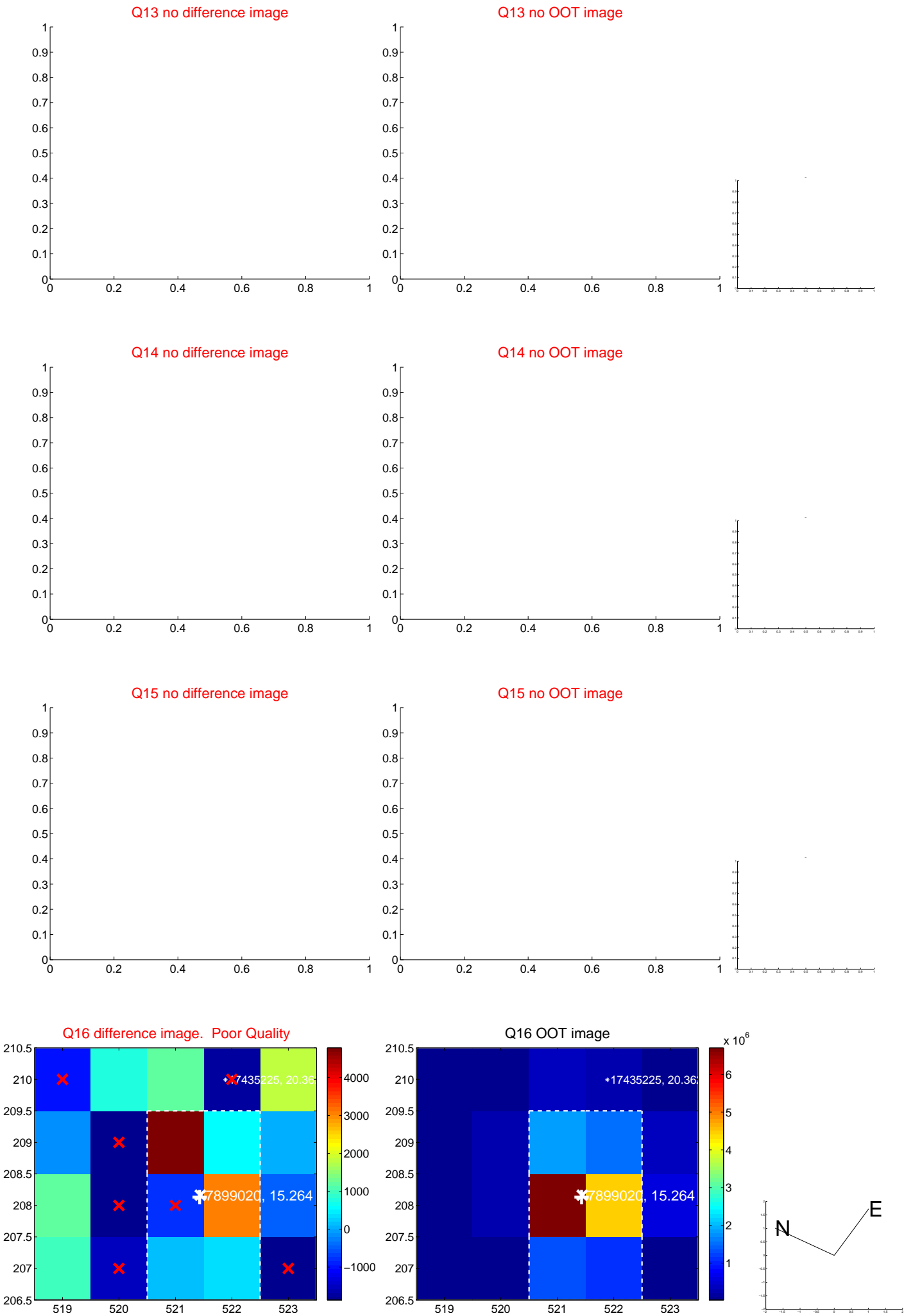
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



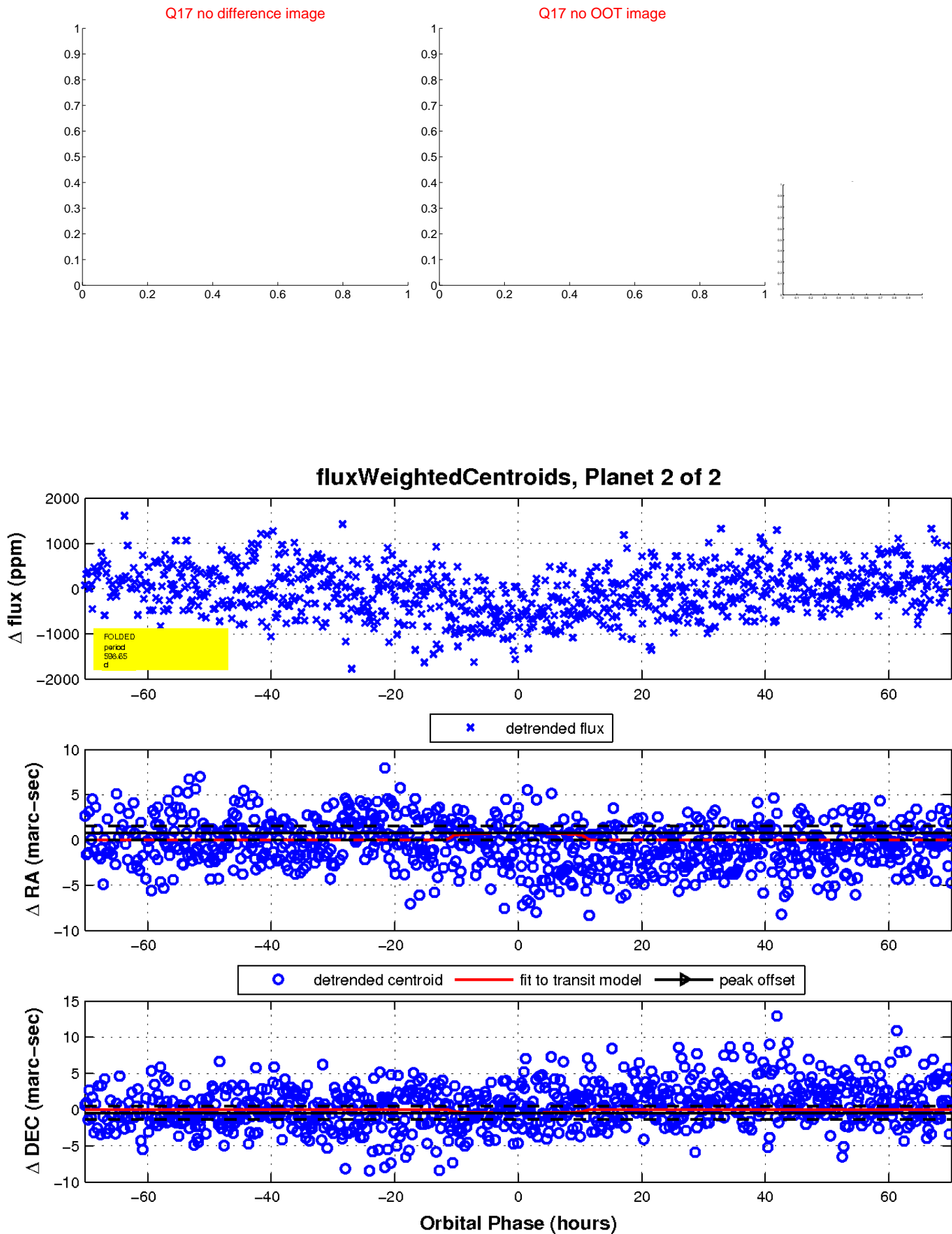
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

