

KIC 006670373

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})
006670373-01	OBS	No	0.779327	131.819068	6.5	2.603	16.4	0.8	1.47	6620	0.42	12353.09
006670373-02	OBS	No	0.780967	131.798012	138.1	3.570	12.3	14.0	1.47	6620	1.74	12318.50

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
006670373-01	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_SKYE_ZUMA_TRACKER—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV
006670373-02	OBS	FP	0.00	1	0	0	0	SWEET_NTL—LPP_DV

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

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

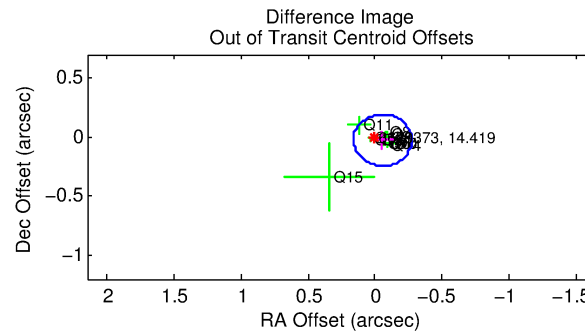
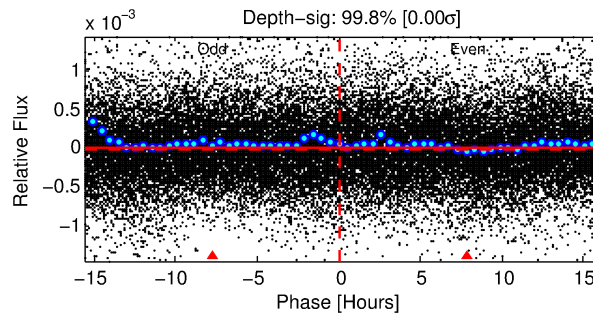
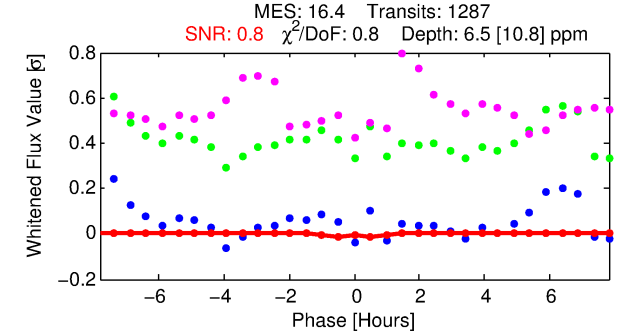
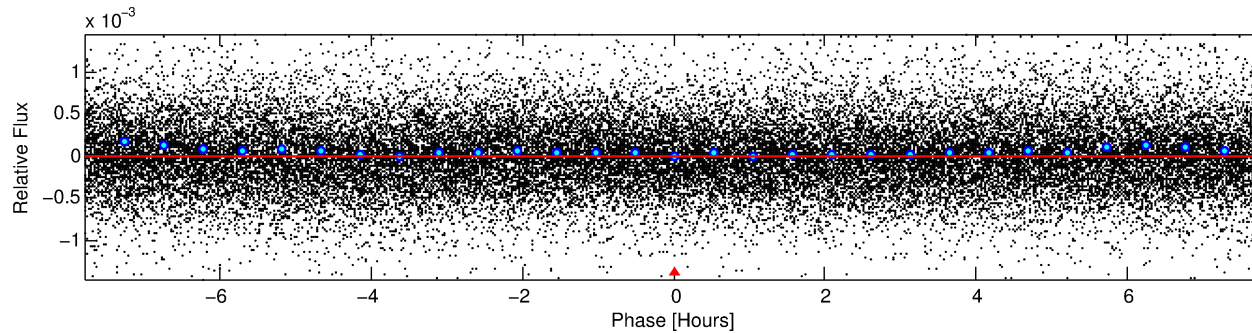
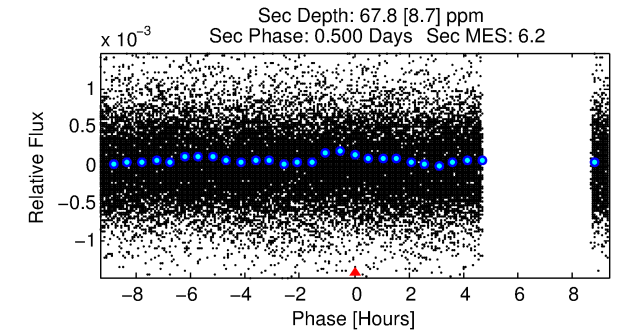
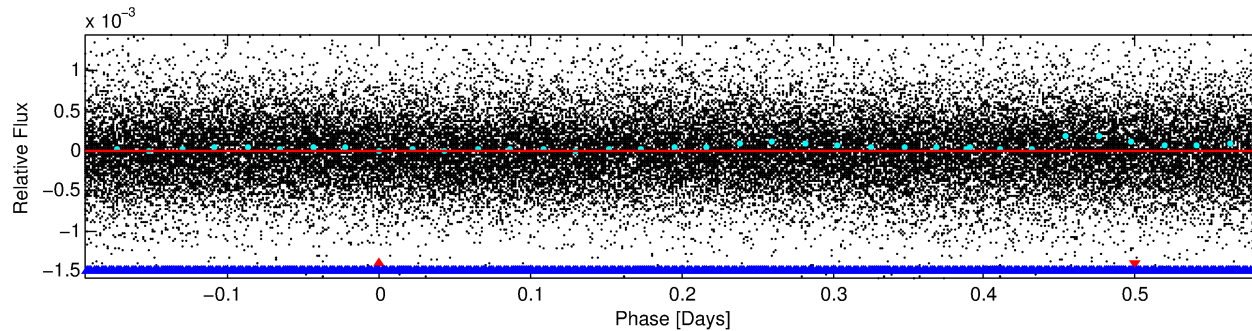
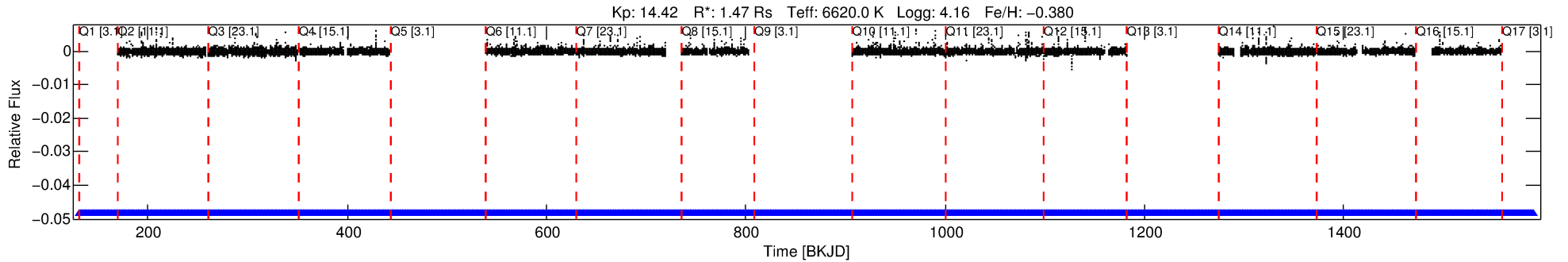
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 006670373-01

No Significant Match Found

DV One-Page Summary

KIC: 6670373 Candidate: 1 of 2 Period: 0.779 d



DV Fit Results:

Period = 0.77933 [0.00012] d
Epoch = 131.8191 [0.0237] BKJD
Rp/R* = 0.0026 [0.0028]
a/R* = 1.63 [4.13]
b = 0.80 [1.81]
Seff = 12353.09 [4839.17]
Teq = 2688 [263] K
Rp = 0.42 [0.47] Re
a = 0.0174 [0.0042] AU
Ag = 64.75 [143.03] [0.45σ]
Teffp = 11790 [6432] K [1.4σ]

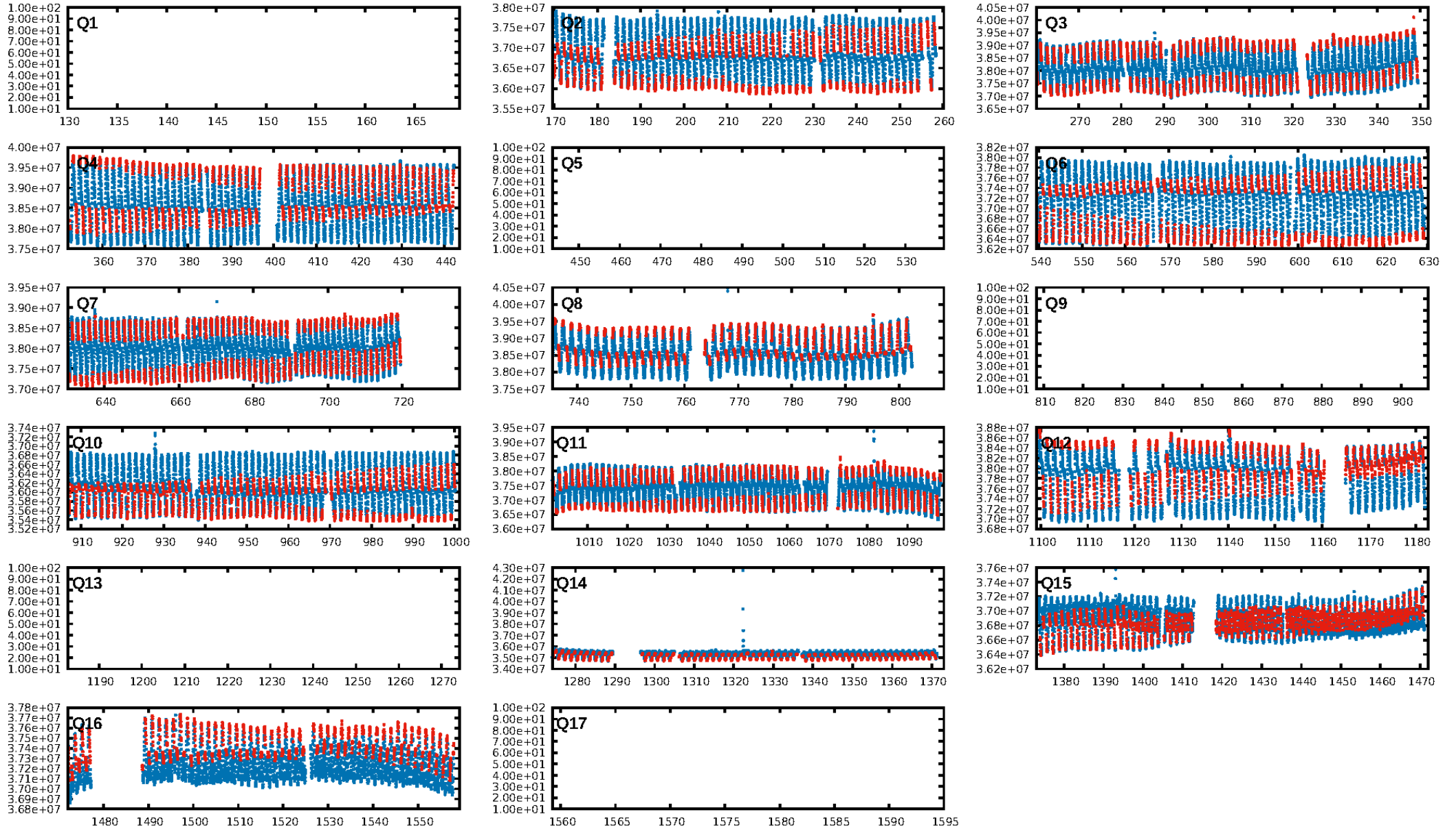
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: 0.7% [0.01σ]
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: 2.87e-40
RollingBand-fgt: 1.00 [1287/1287]
GhostDiagnostic-chr: -2.027
Centroid-sig: 2.1%
Centroid-so: 15.001 arcsec [1.85σ]
OotOffset-rm: 0.061 arcsec [0.84σ]
KicOffset-rm: 0.055 arcsec [0.71σ]
OotOffset-st: 4/4/4/0 [12]
KicOffset-st: 4/4/4/0 [12]
DiffImageQuality-fgm: 0.33 [4/12]
DiffImageOverlap-fno: 0.33 [4/12]

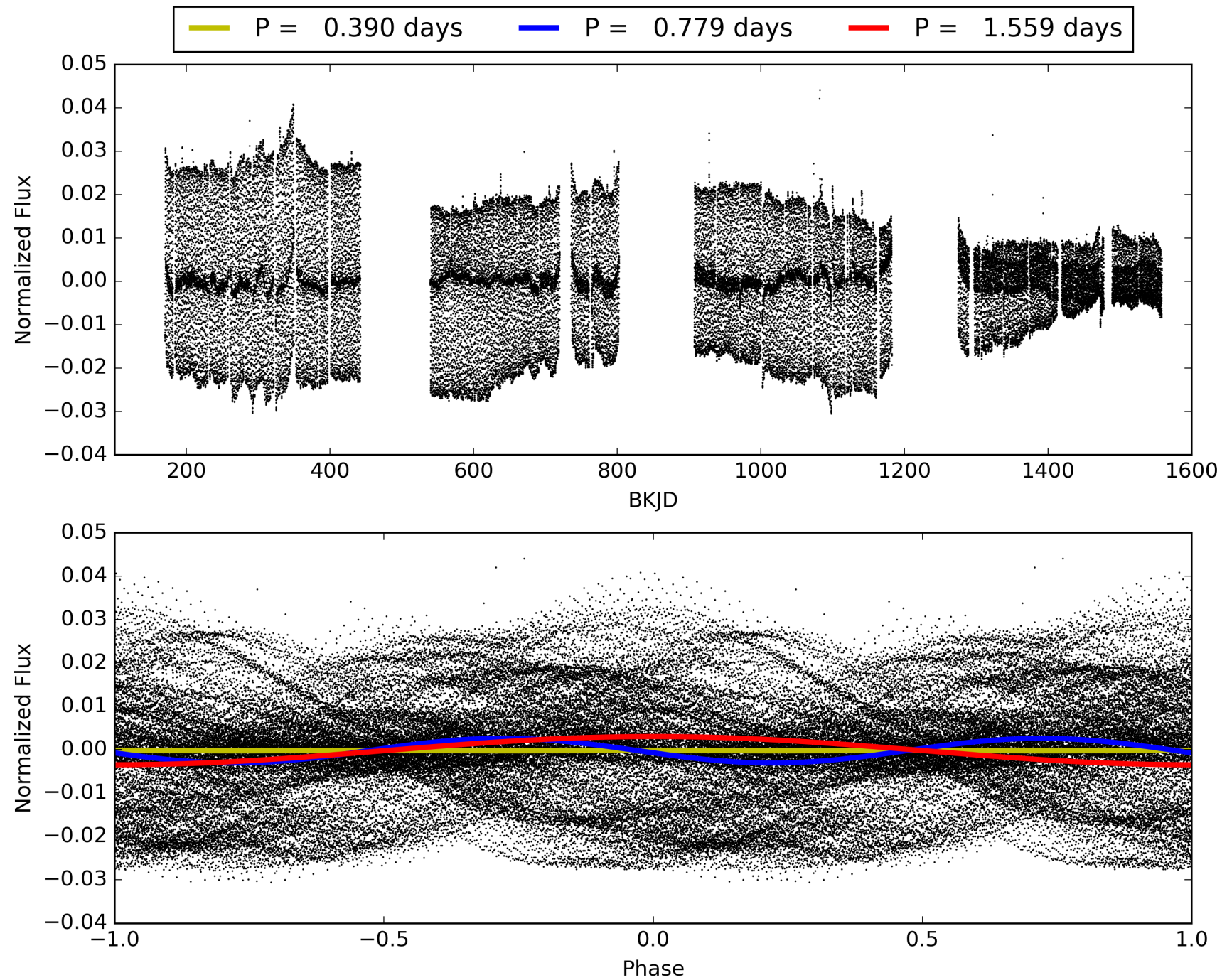
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 01-Feb-2016 17:28:45 Z

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

TCE 006670373-01, PDC Light Curves

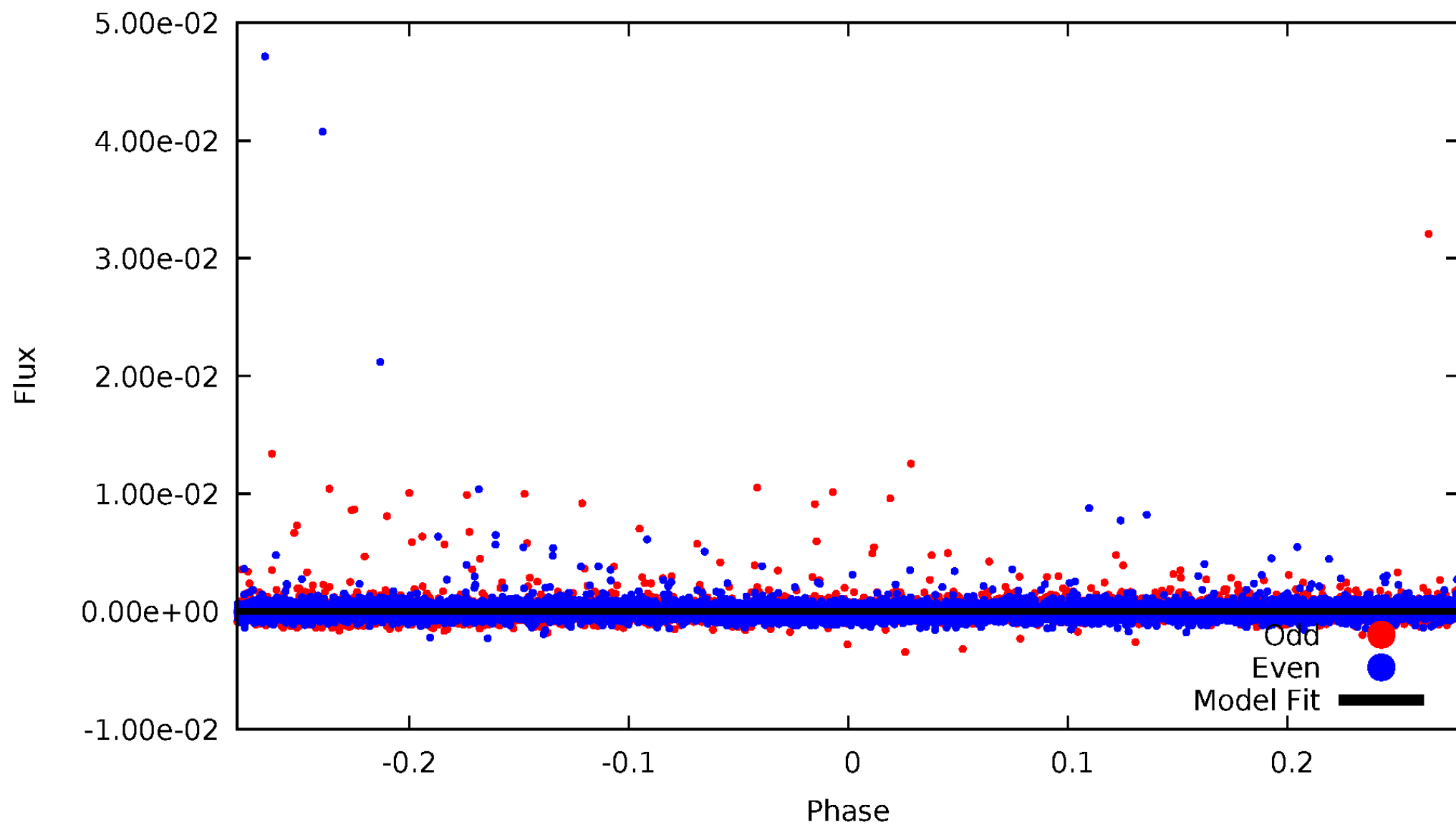


TCE 006670373-01



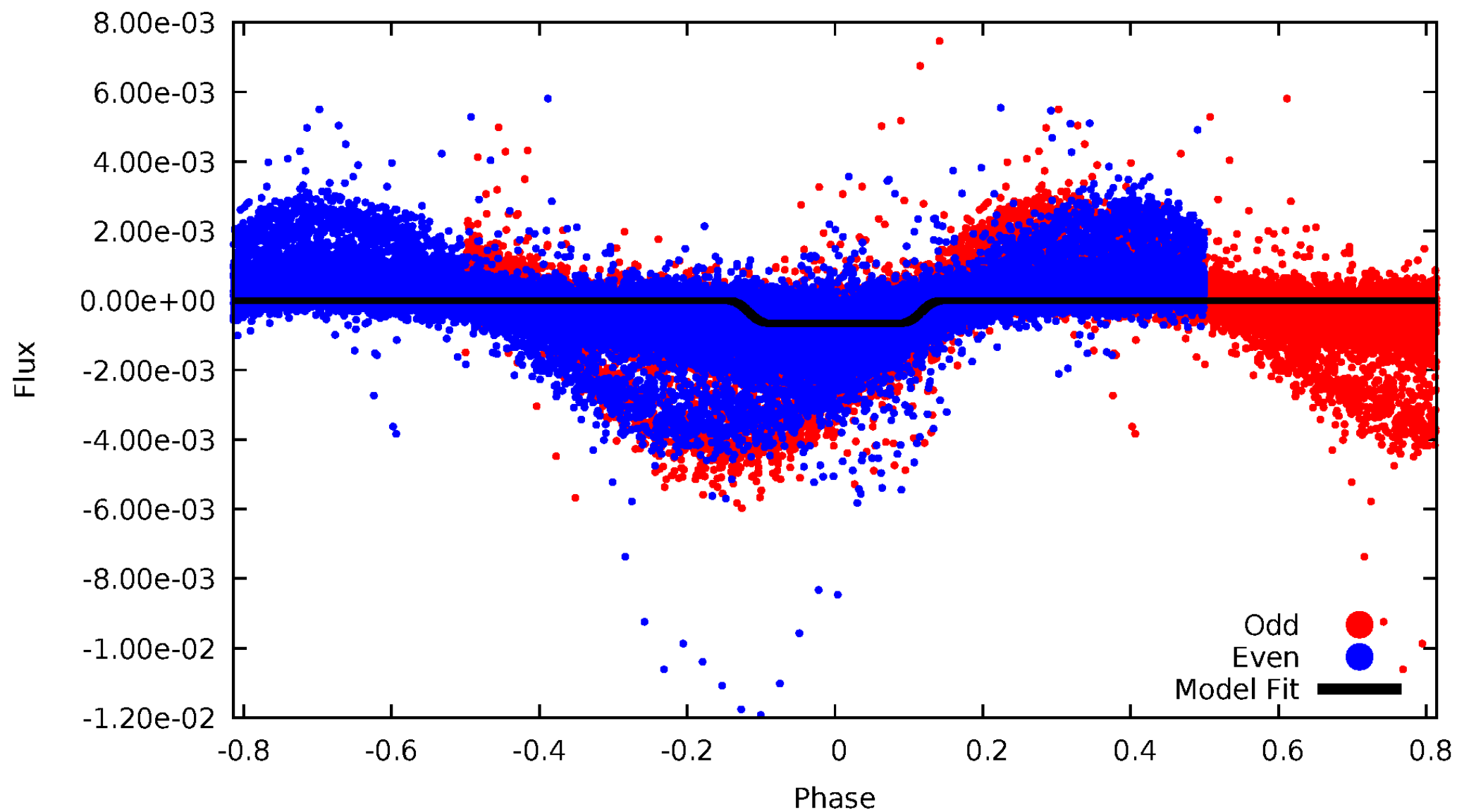
DV Odd/Even

TCE 006670373-01



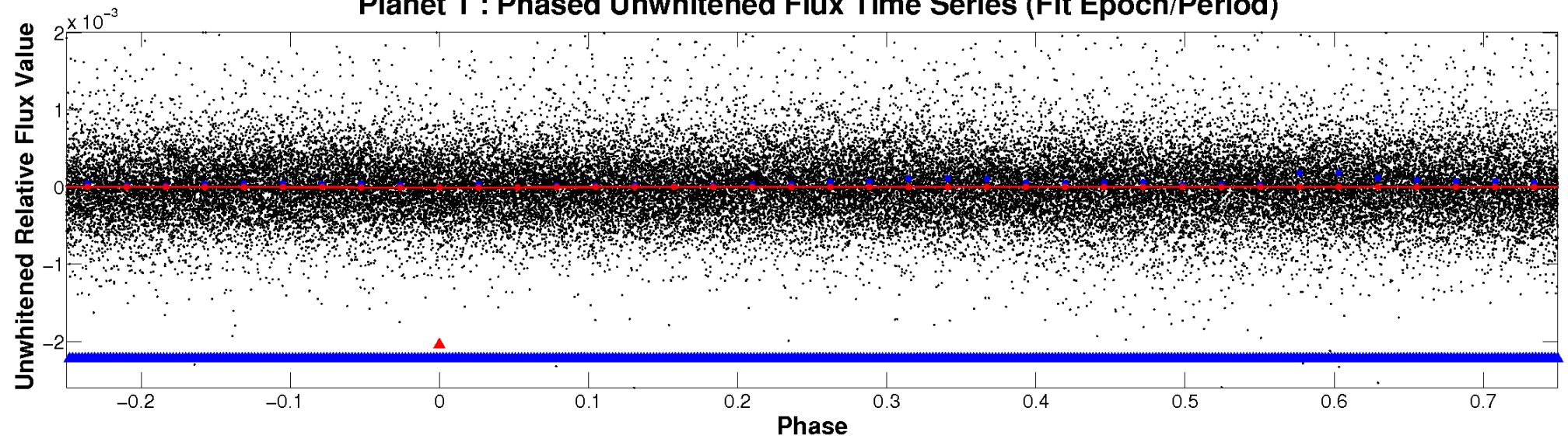
ALT Odd/Even

TCE 006670373-01

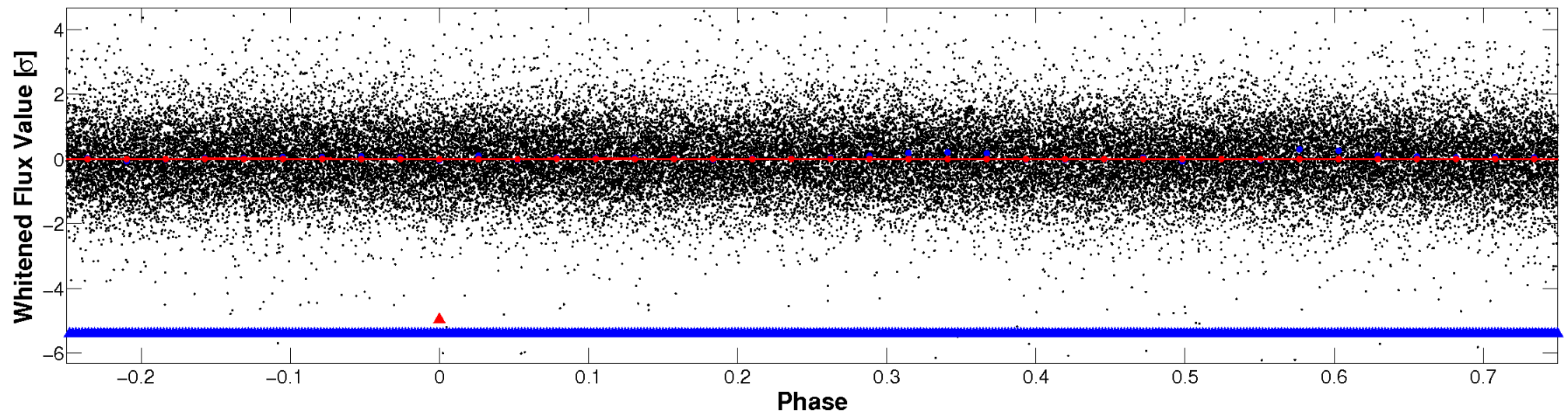


Non-Whitened Vs. Whitened Light Curve

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

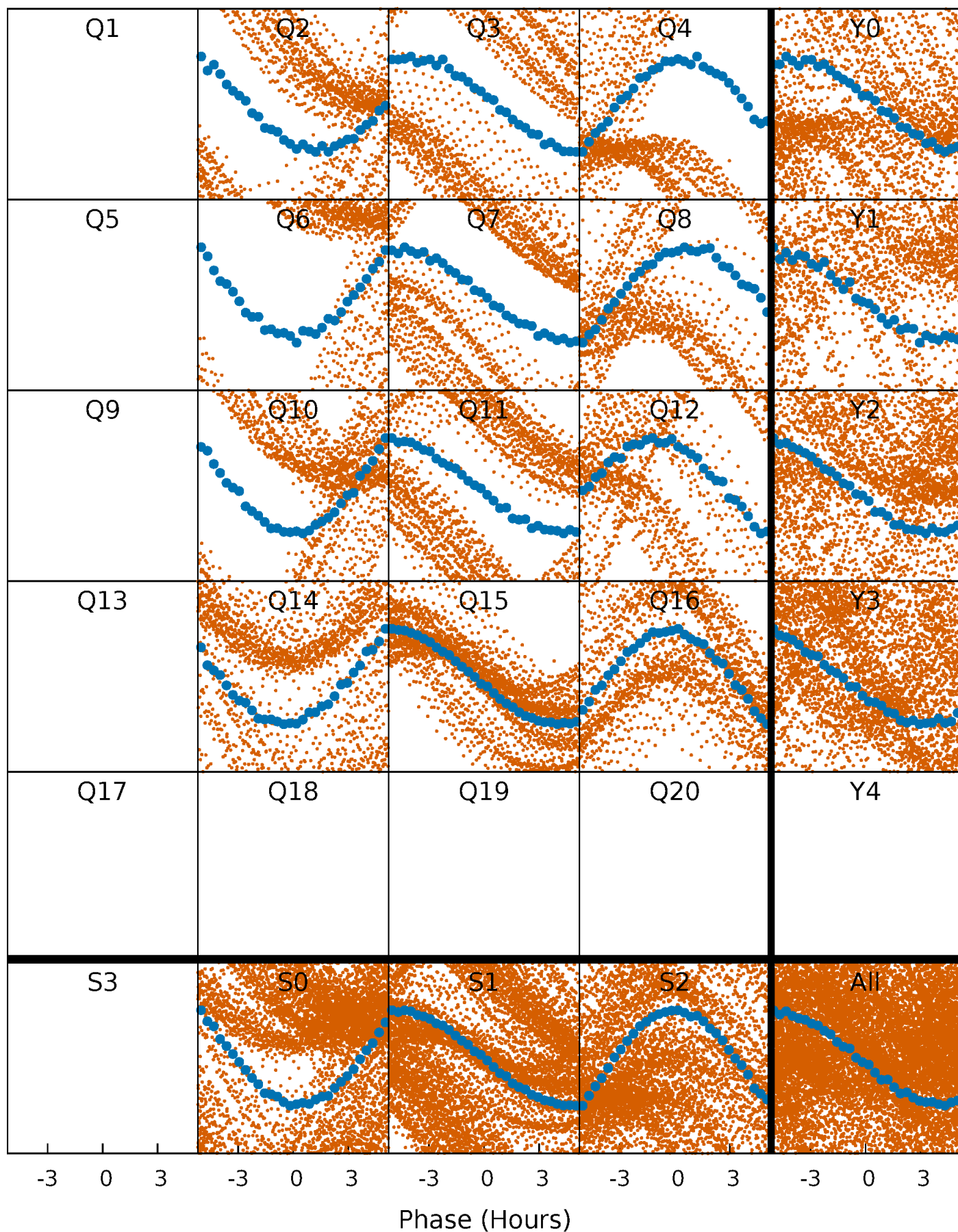


Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)



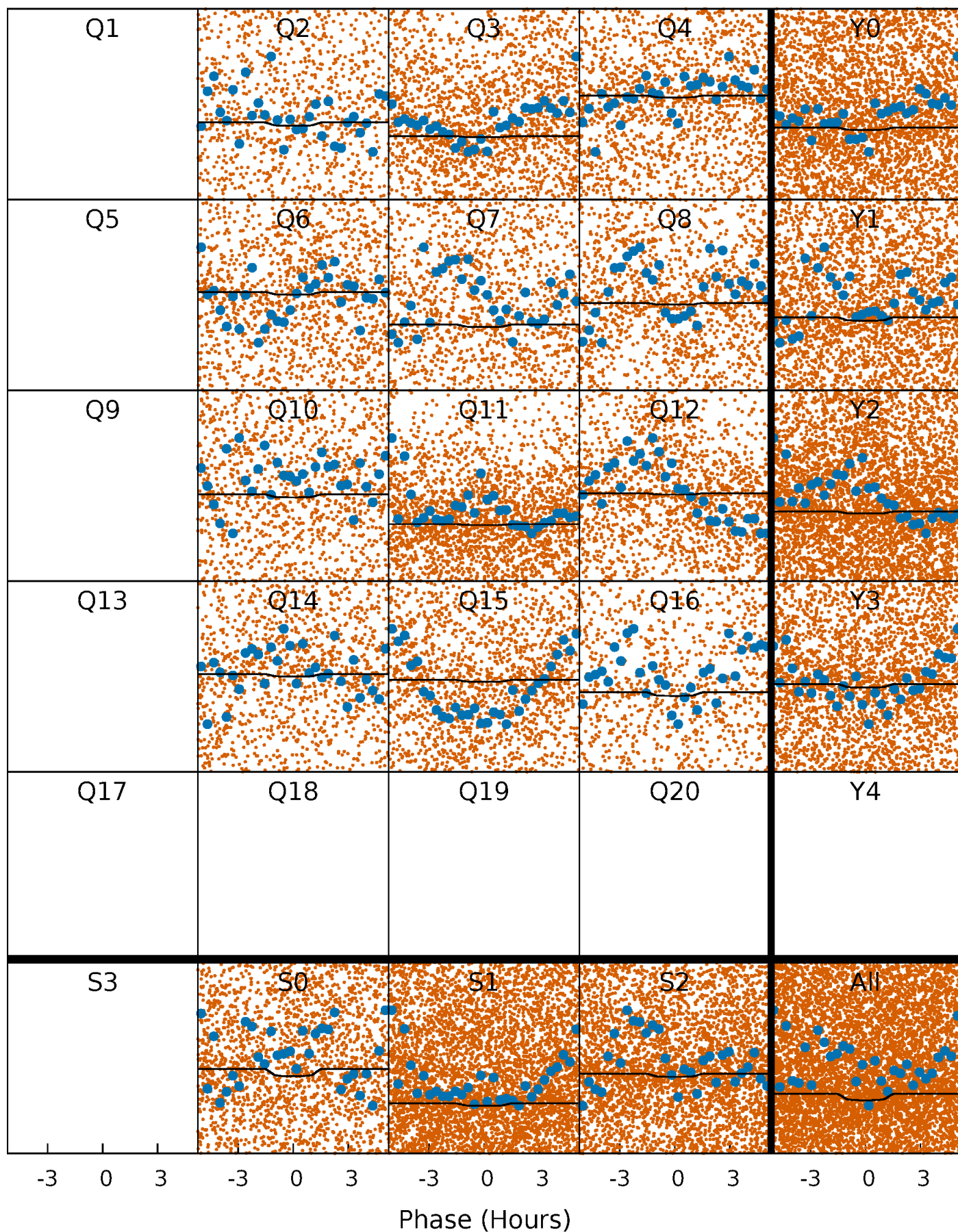
PDC Quarter-Phased Transit Curves

TCE 006670373-01 P= 0.779326 Days $T_0=131.819068$ (BKJD)



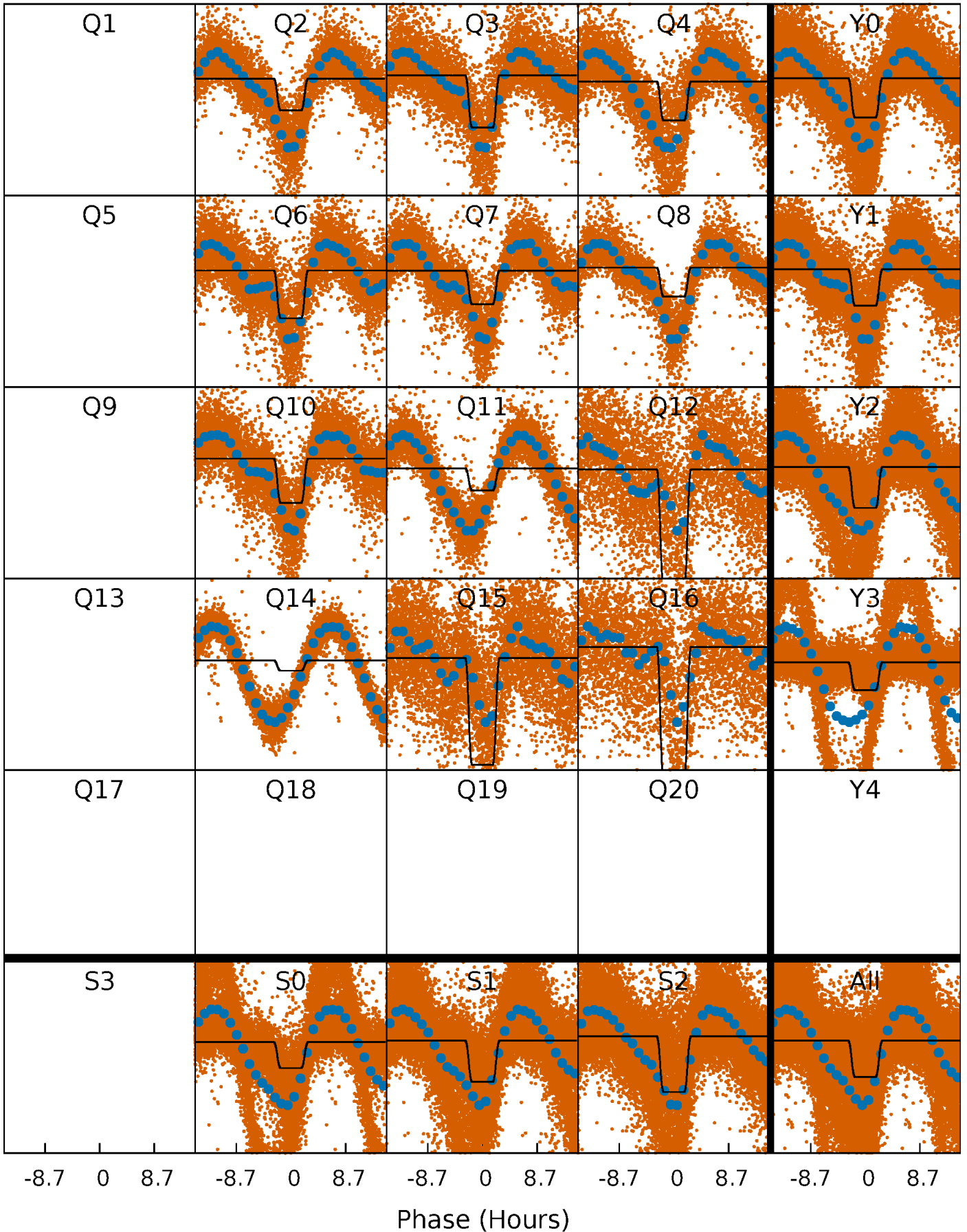
DV Quarter-Phased Transit Curves

TCE 006670373-01 P= 0.779326 Days $T_0=131.819068$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

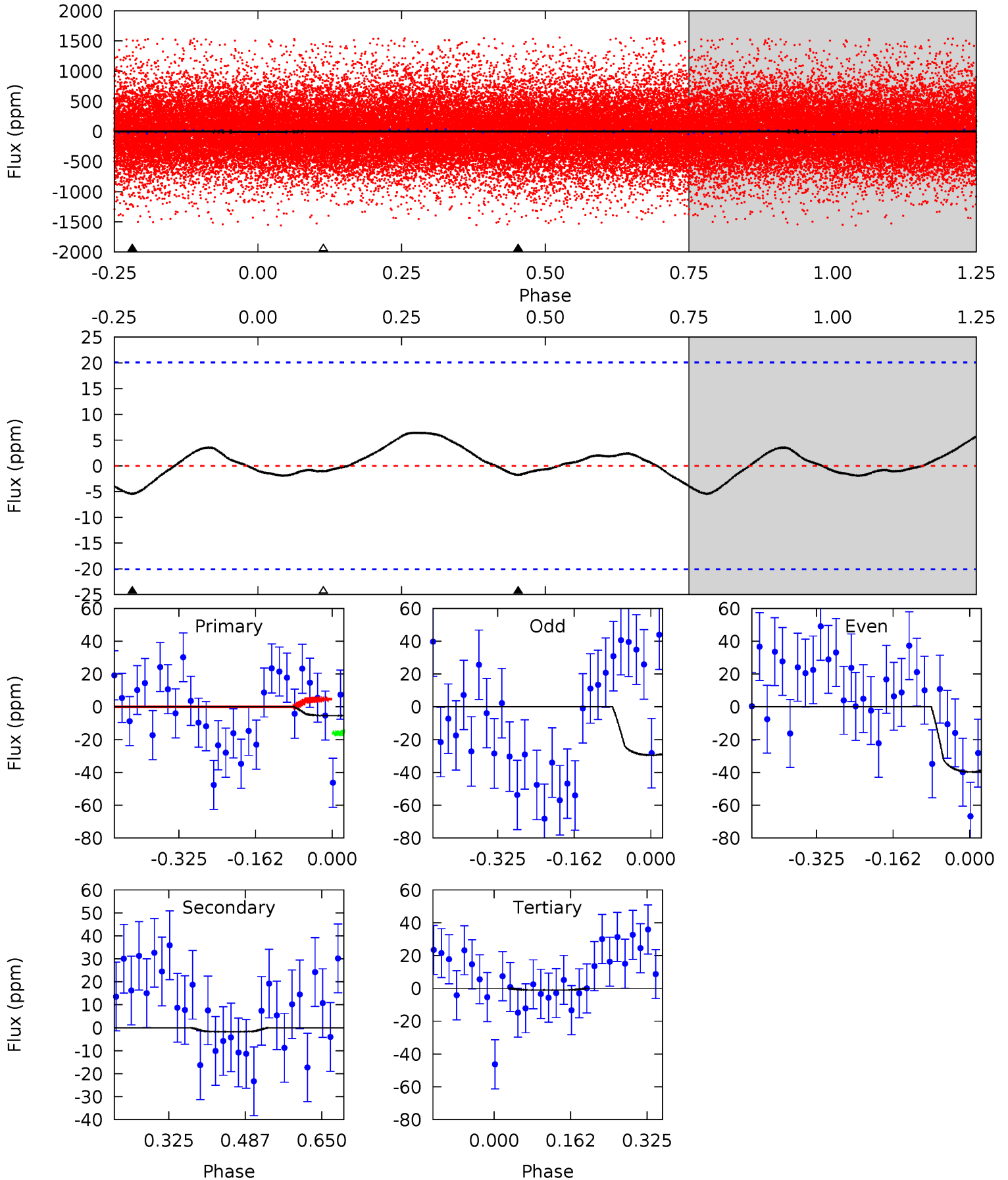
TCE 006670373-01 P= 0.780938 Days $T_0=131.798288$ (BKJD)



DV Model-Shift Uniqueness Test

006670373-01, P = 0.779326 Days, E = 131.819068 Days

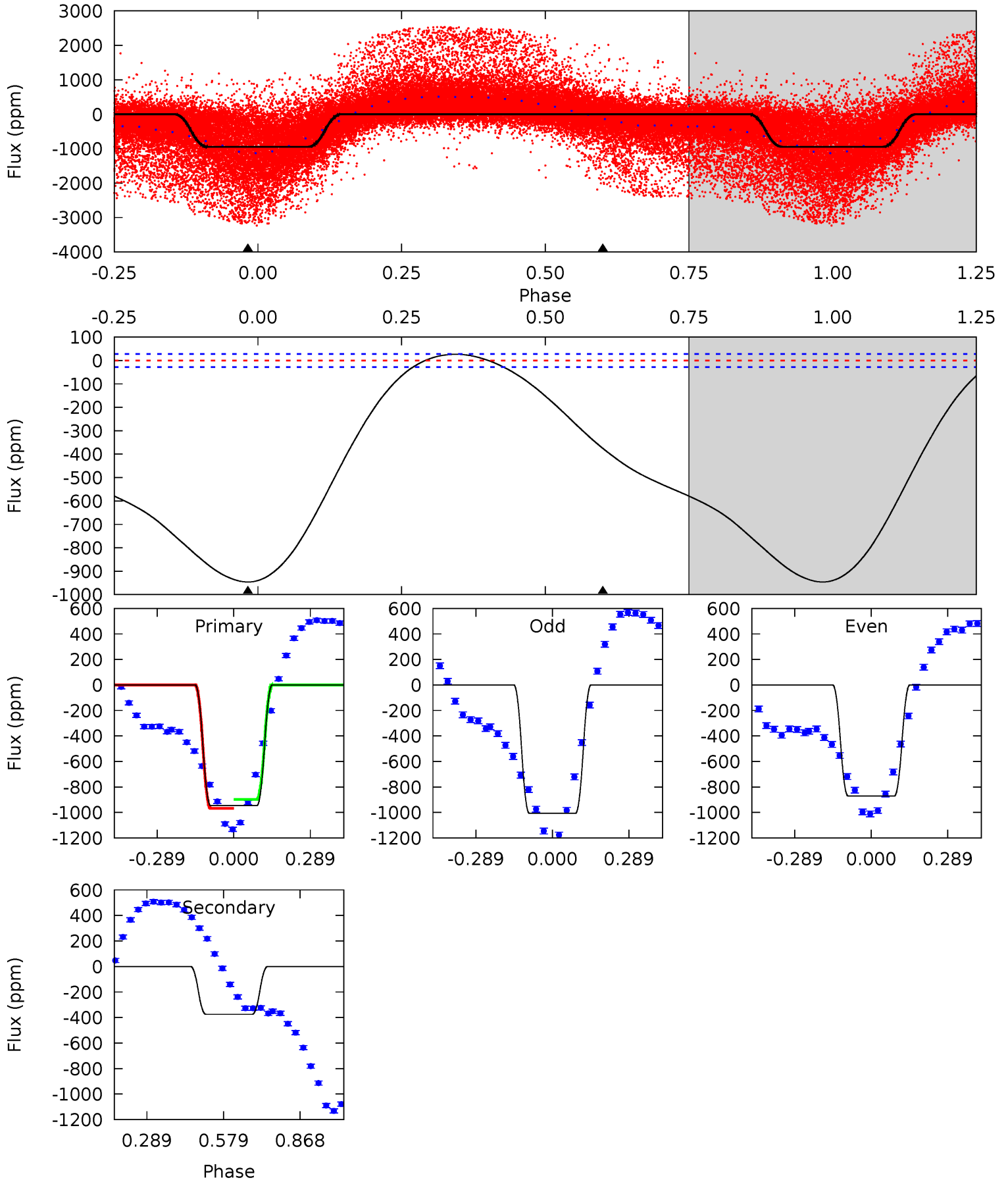
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
1.21	0.39	0.24	0	4.46	1.40	0.59	0.98	1.21	0.16	0.39	1.10	-2.77	0.54	1.25



Alt Model-Shift Uniqueness Test

006670373-01, P = 0.780938 Days, E = 131.798288 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
146.9	58.2	0	0	4.34	1.06	5.10	146.9	146.9	58.2	58.2	10.6	1.07	0.03	6.70



Stellar Parameters For KIC 006670373

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	M (M_{\odot})	ρ_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	6620^{+161}_{-222}	$4.163^{+0.209}_{-0.171}$	$-0.380^{+0.250}_{-0.300}$	$1.471^{+0.398}_{-0.398}$	$1.148^{+0.177}_{-0.159}$	$0.508^{+0.594}_{-0.239}$
	+2%/-3%	+5%/-4%	+66%/-79%	+27%/-27%	+15%/-14%	+117%/-47%
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 006670373-01 / KOI

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	-2 ± 4	$0.52^{+0.43}_{-0.33}$	3736^{+246}_{-290}	3685^{+3247}_{-8573}	$0.716^{+7.817}_{-2.280}$
Alt.	-375 ± 6	$4.11^{+0.79}_{-0.72}$	3742^{+280}_{-282}	5638^{+387}_{-344}	$3.775^{+1.529}_{-1.051}$

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

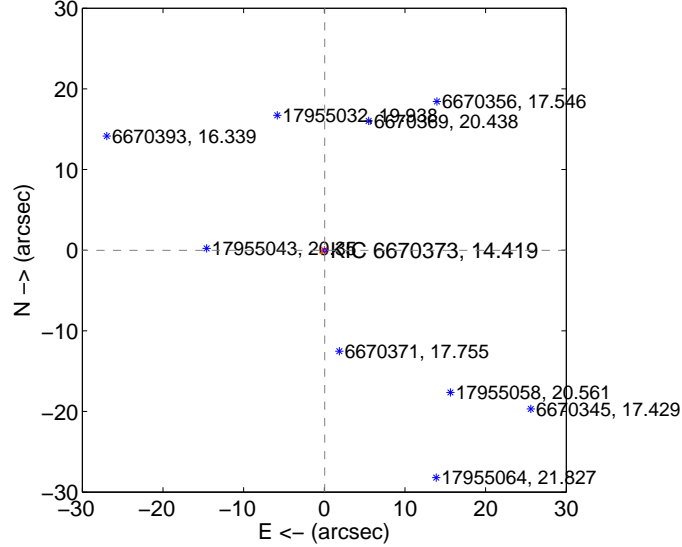
Supplemental centroid analysis for 006670373-01. Kepler magnitude: 14.42. Transit SNR 0.83

There are 4 quarters with good PRF difference image offsets

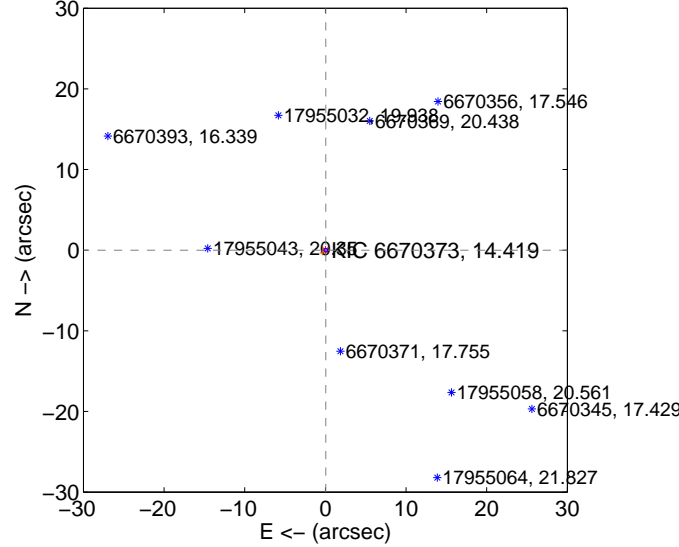
The direct PRF centroid is offset from the target star catalog position by about 0.05 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.061 ± 0.073	0.84	-0.055 ± 0.076	-0.025 ± 0.074
PRF-fit source offset from KIC position	0.055 ± 0.078	0.71	-0.055 ± 0.078	-0.004 ± 0.073
photometric centroid source offset	15.00 ± 8.12	1.85	-11.46 ± 7.68	-9.68 ± 8.71

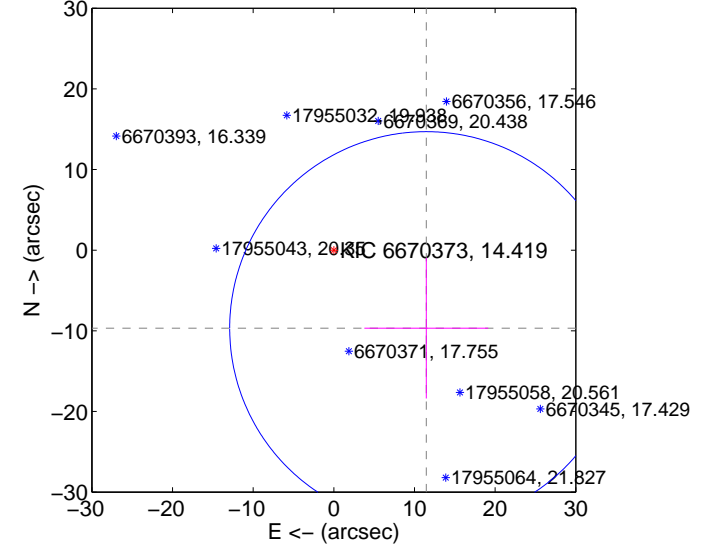
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position

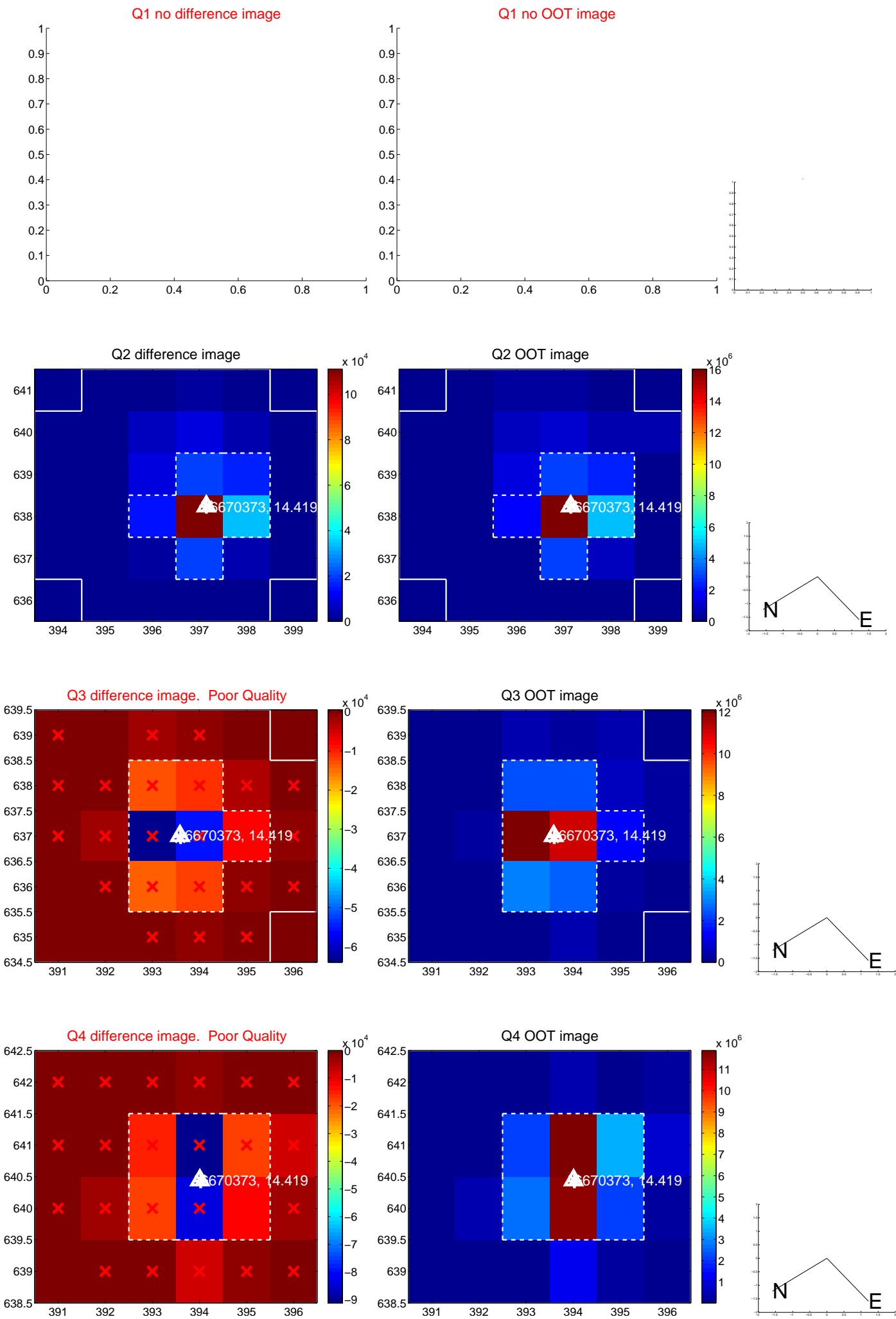


offset from photometric centroids

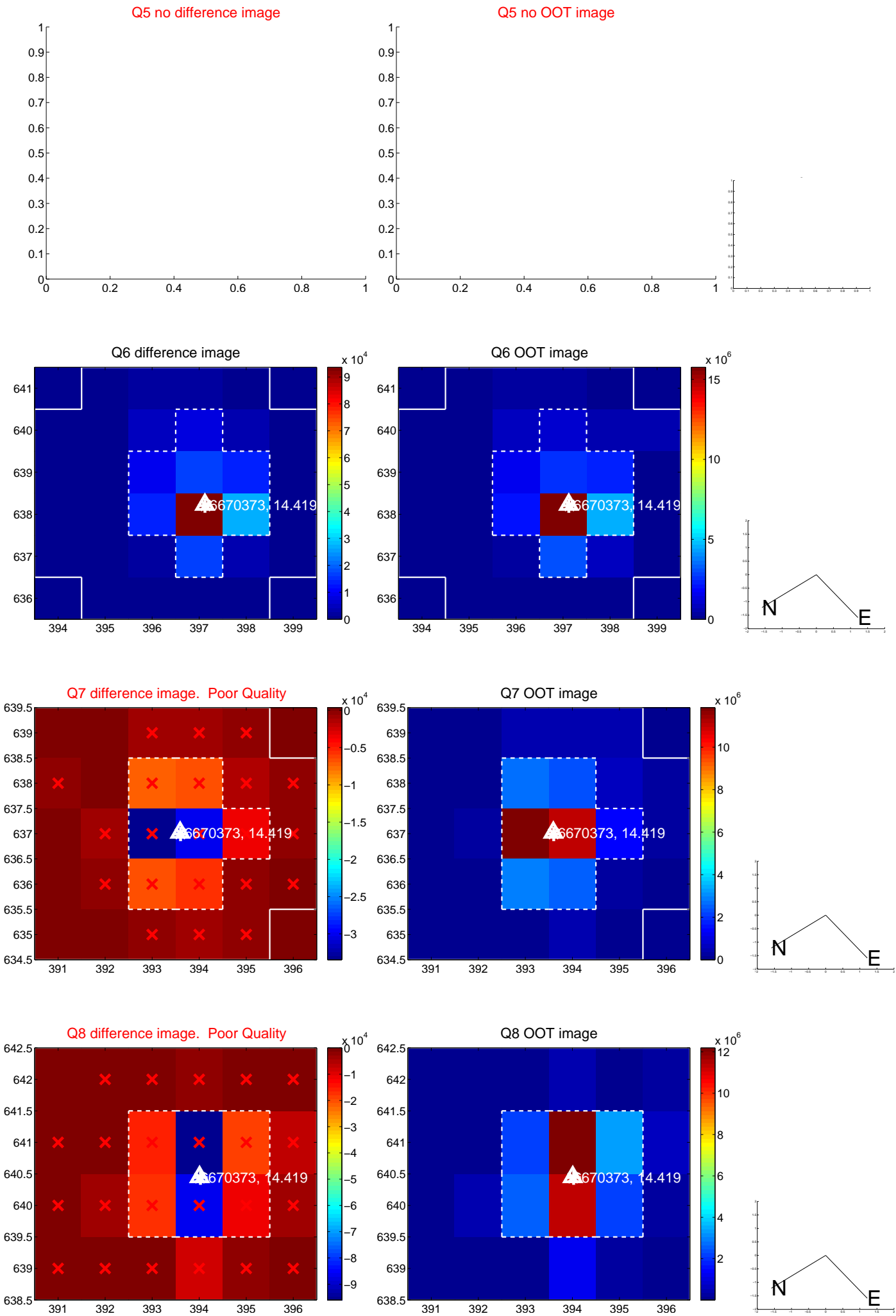


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses:** good quarterly centroid offsets; **Vermillion crosses:** bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

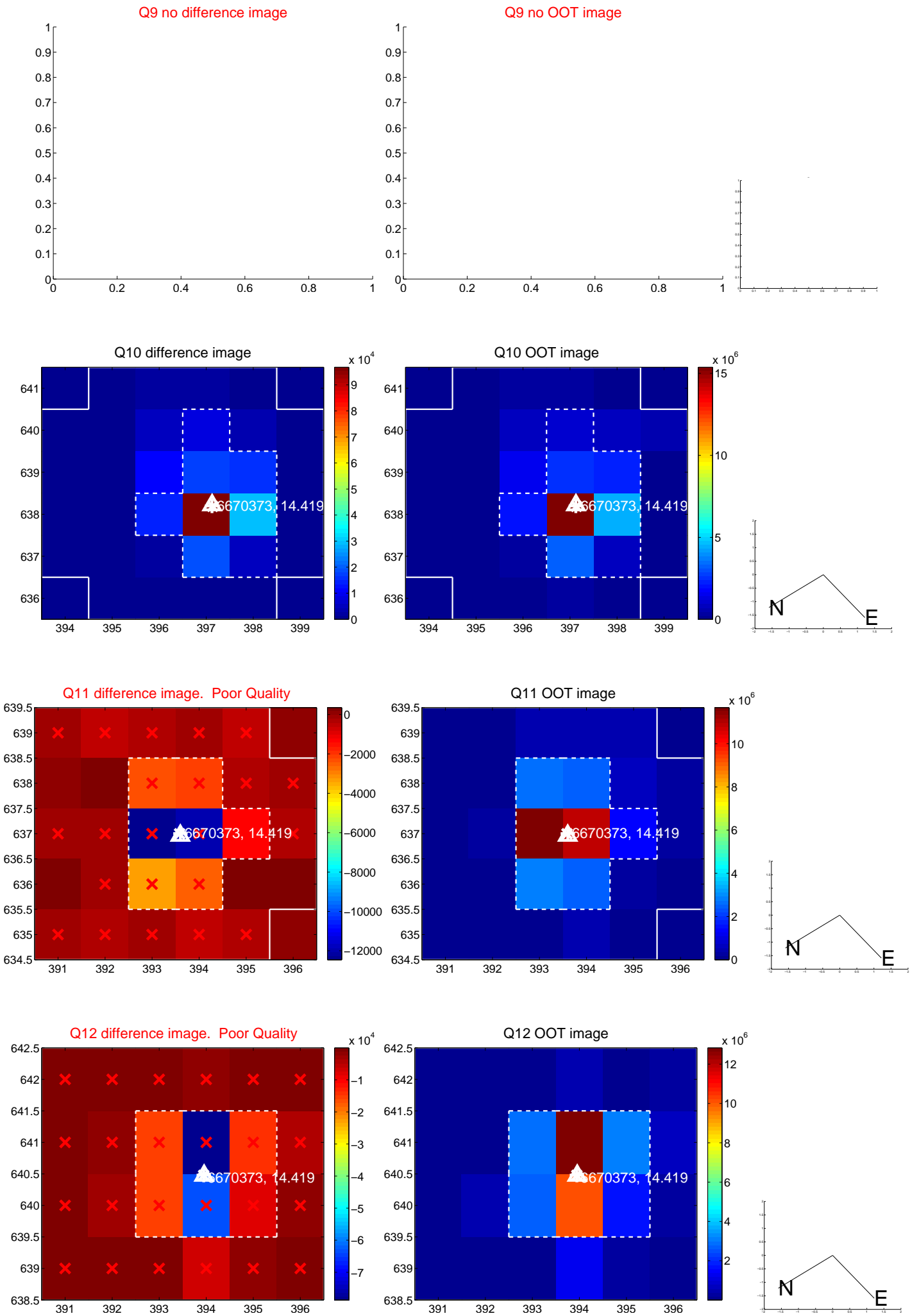
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



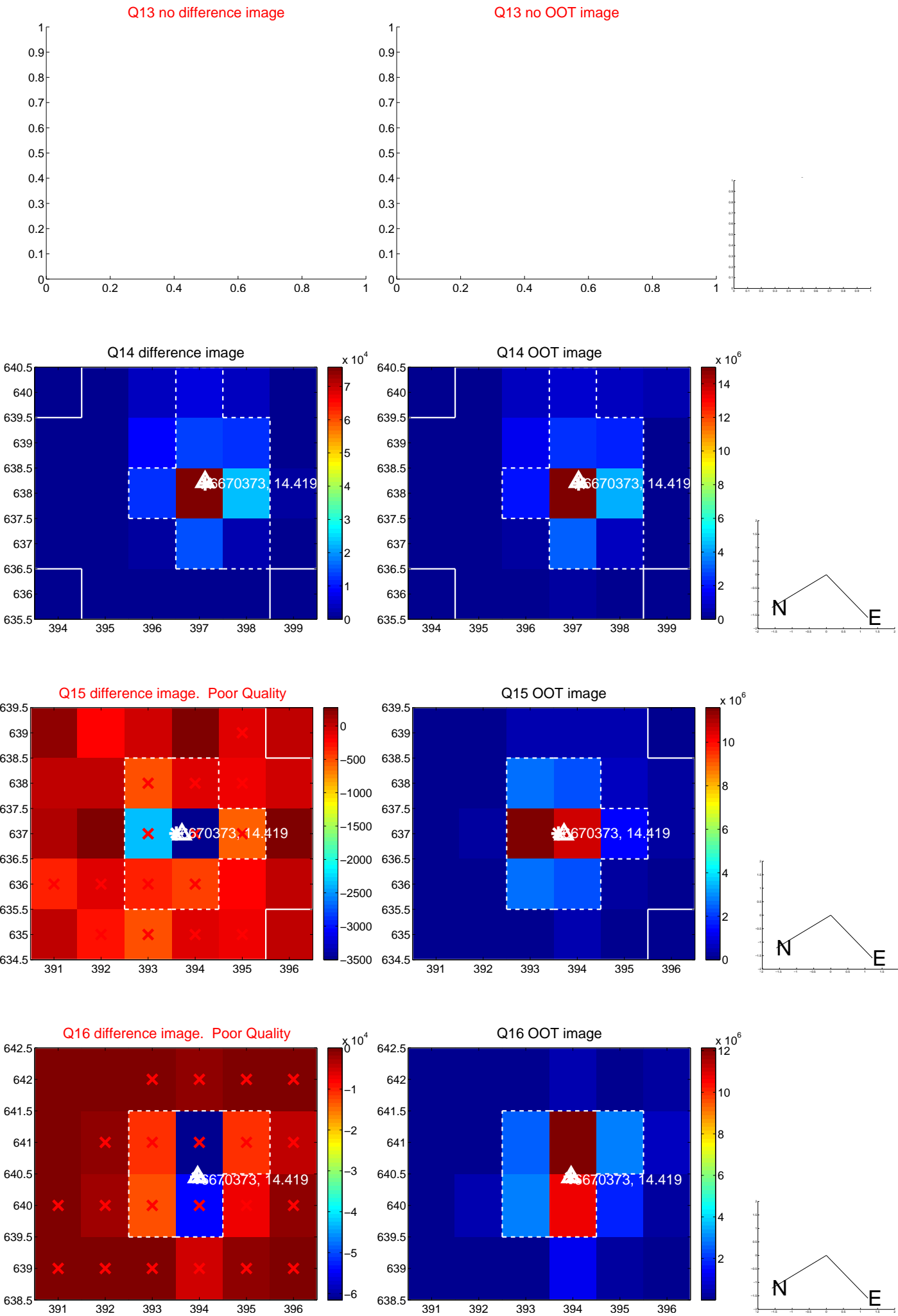
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



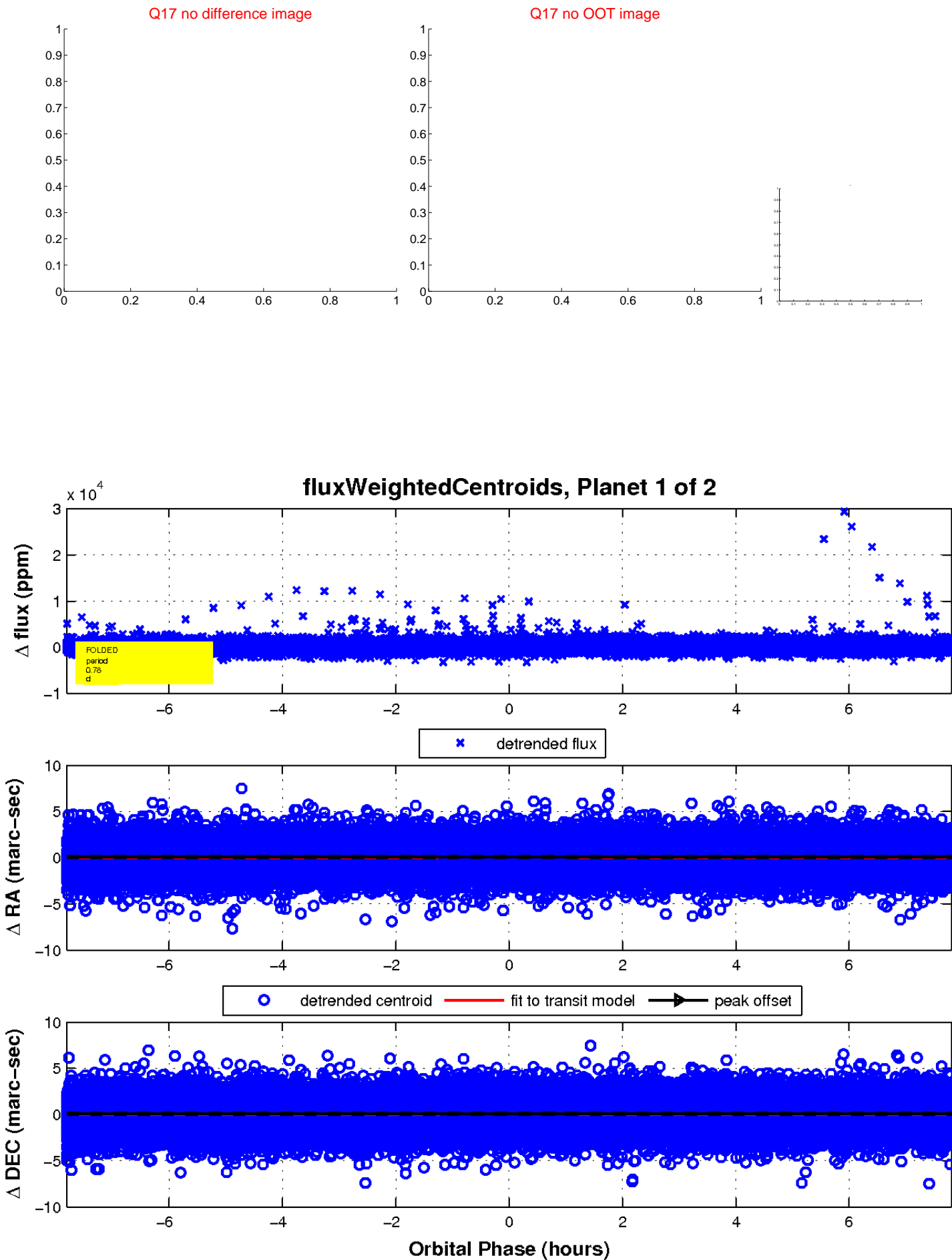
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

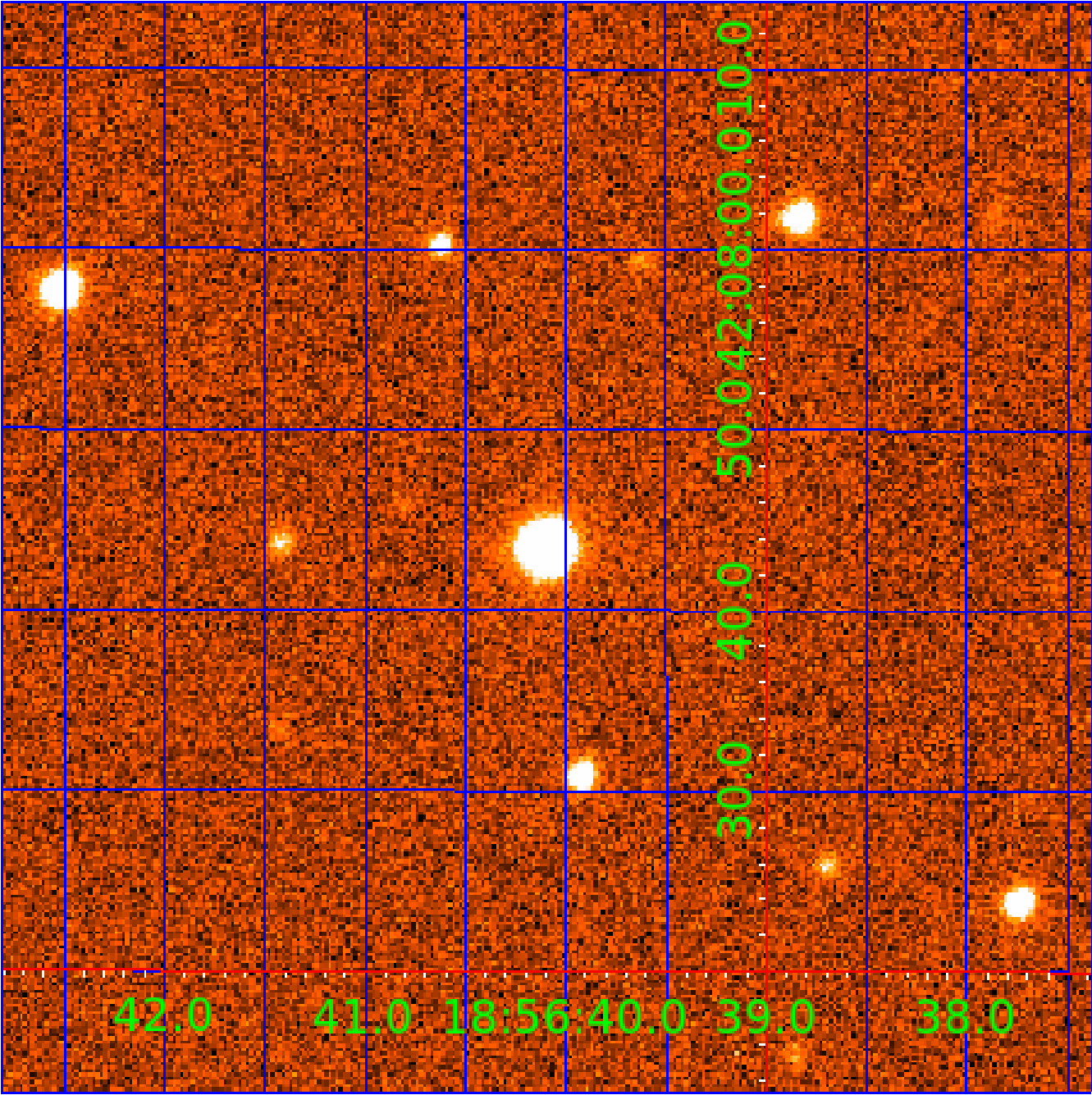


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 006670373

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})
006670373-01	OBS	No	0.779327	131.819068	6.5	2.603	16.4	0.8	1.47	6620	0.42	12353.09
006670373-02	OBS	No	0.780967	131.798012	138.1	3.570	12.3	14.0	1.47	6620	1.74	12318.50

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
006670373-01	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_SKYE_ZUMA_TRACKER—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV
006670373-02	OBS	FP	0.00	1	0	0	0	SWEET_NTL—LPP_DV

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

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

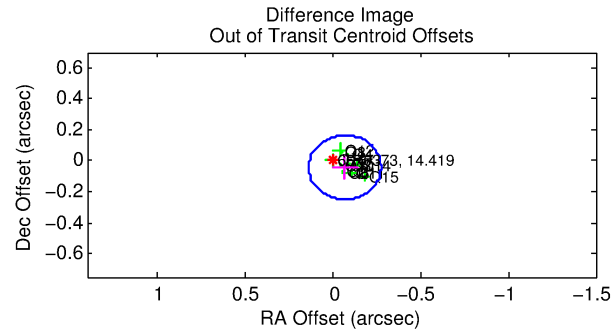
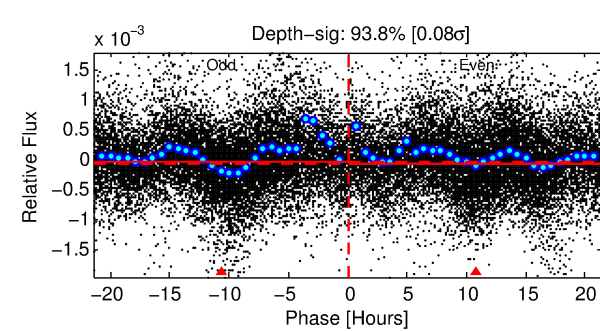
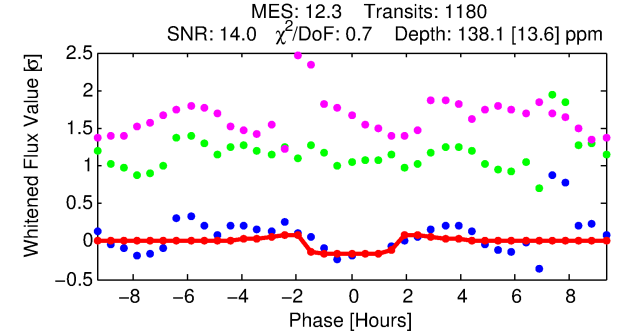
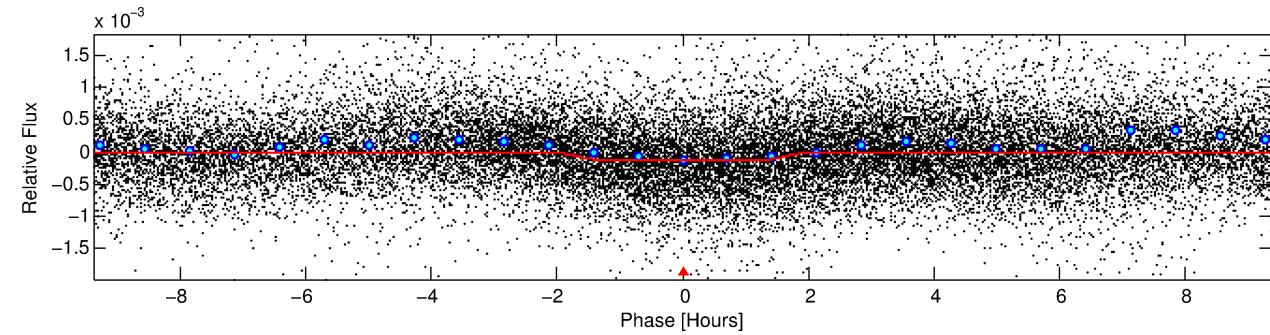
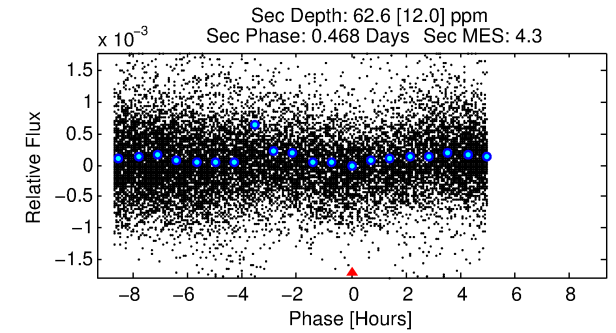
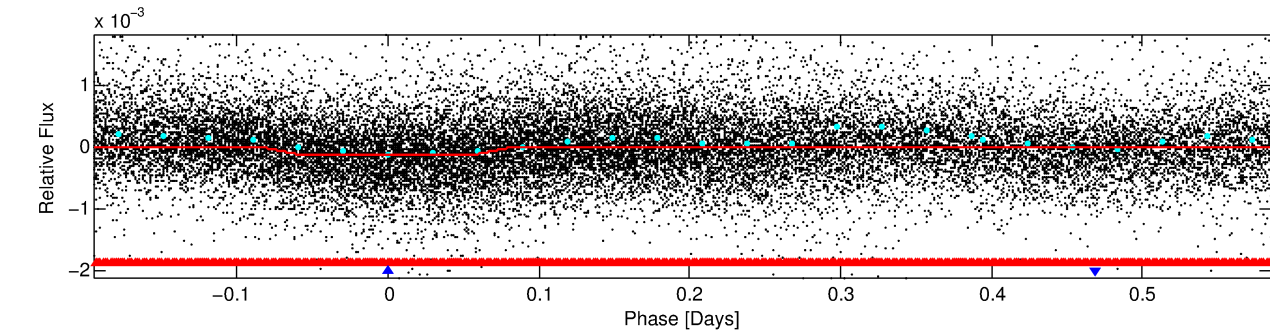
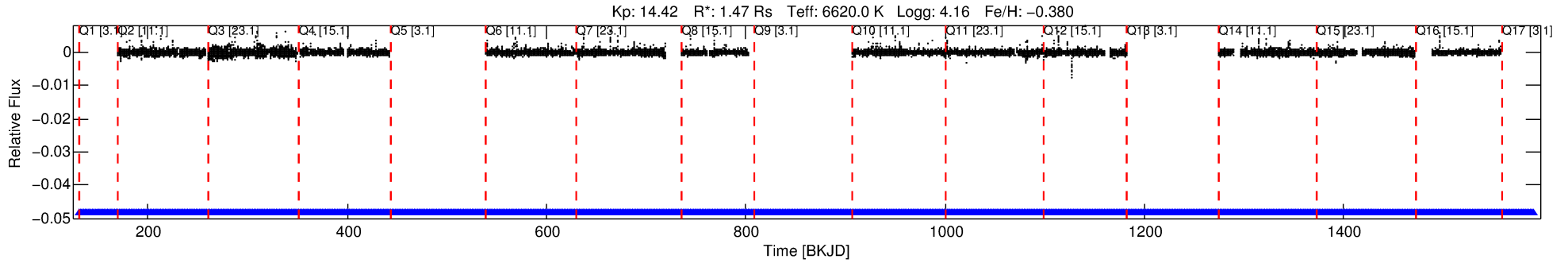
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 006670373-02

No Significant Match Found

DV One-Page Summary

KIC: 6670373 Candidate: 2 of 2 Period: 0.781 d



DV Fit Results:

Period = 0.78097 [0.00001] d
Epoch = 131.7980 [0.0016] BKJD
Rp/R* = 0.0108 [0.0042]
a/R* = 1.79 [2.56]
b = 0.00 [1901.33]
Seff = 12318.50 [4825.62]
Teff = 2686 [263] K
Rp = 1.74 [0.82] Re
a = 0.0174 [0.0042] AU
Ag = 3.44 [2.99] [0.81σ]
Teffp = 5655 [1133] K [2.55σ]

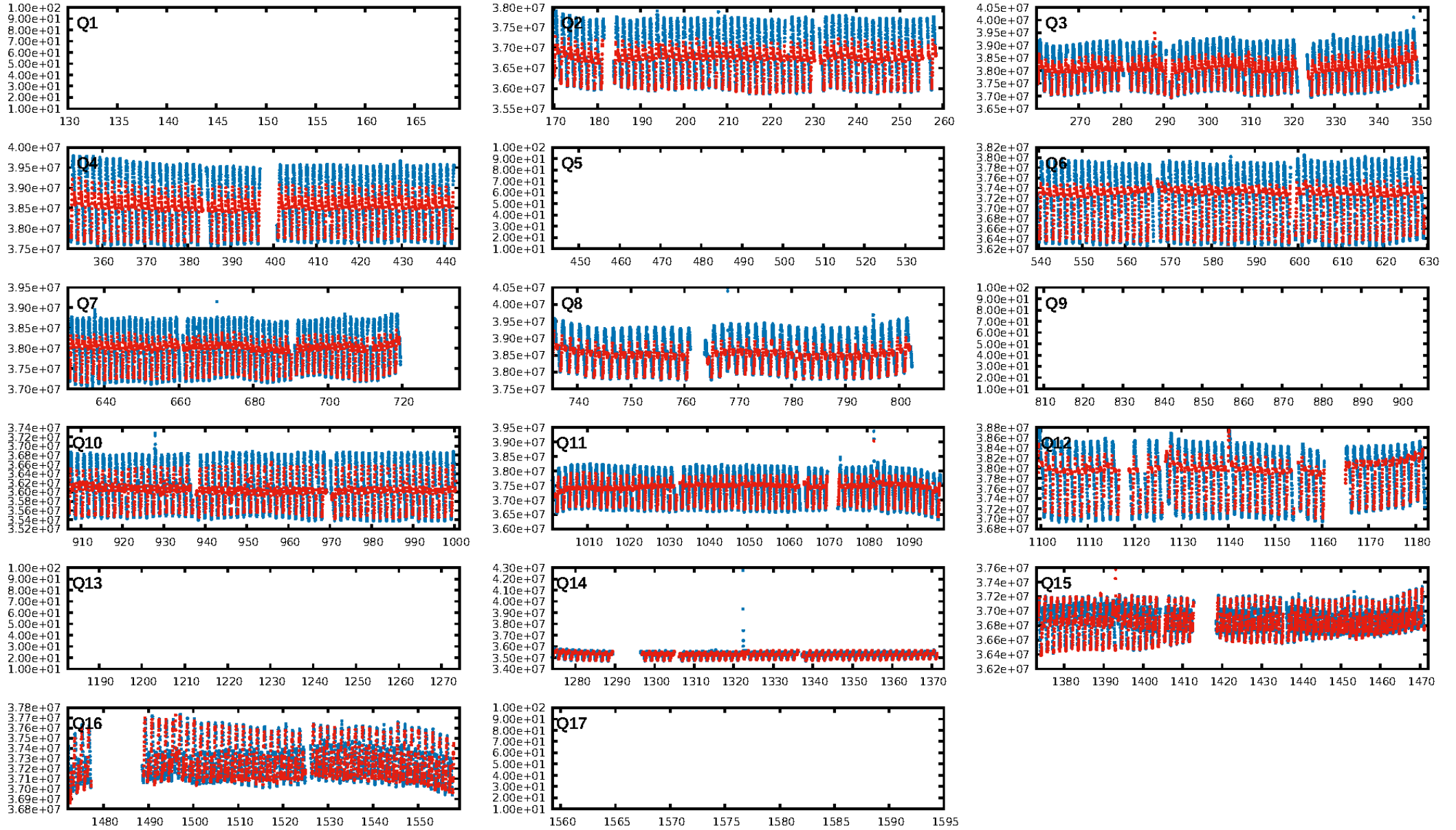
DV Diagnostic Results:

ShortPeriod-sig: 0.7% [0.01σ]
LongPeriod-sig: N/A
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: 1.62e-23
RollingBand-fgt: 1.00 [1180/1180]
GhostDiagnostic-chr: 1.034
Centroid-sig: 79.5%
Centroid-so: 0.073 arcsec [0.20σ]
OotOffset-rm: 0.080 arcsec [1.17σ]
KicOffset-rm: 0.053 arcsec [0.79σ]
OotOffset-st: 4/4/4/0 [12]
KicOffset-st: 4/4/4/0 [12]
DiffImageQuality-fgm: 1.00 [12/12]
DiffImageOverlap-fno: 0.00 [0/12]

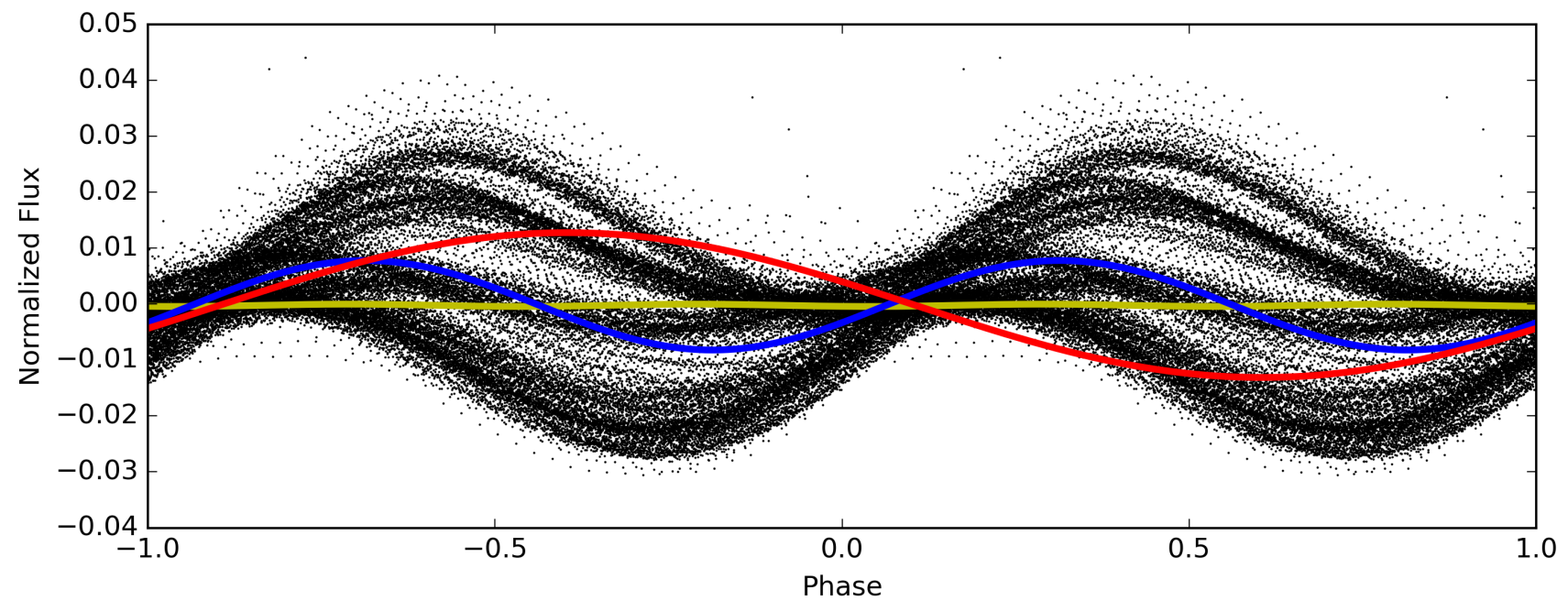
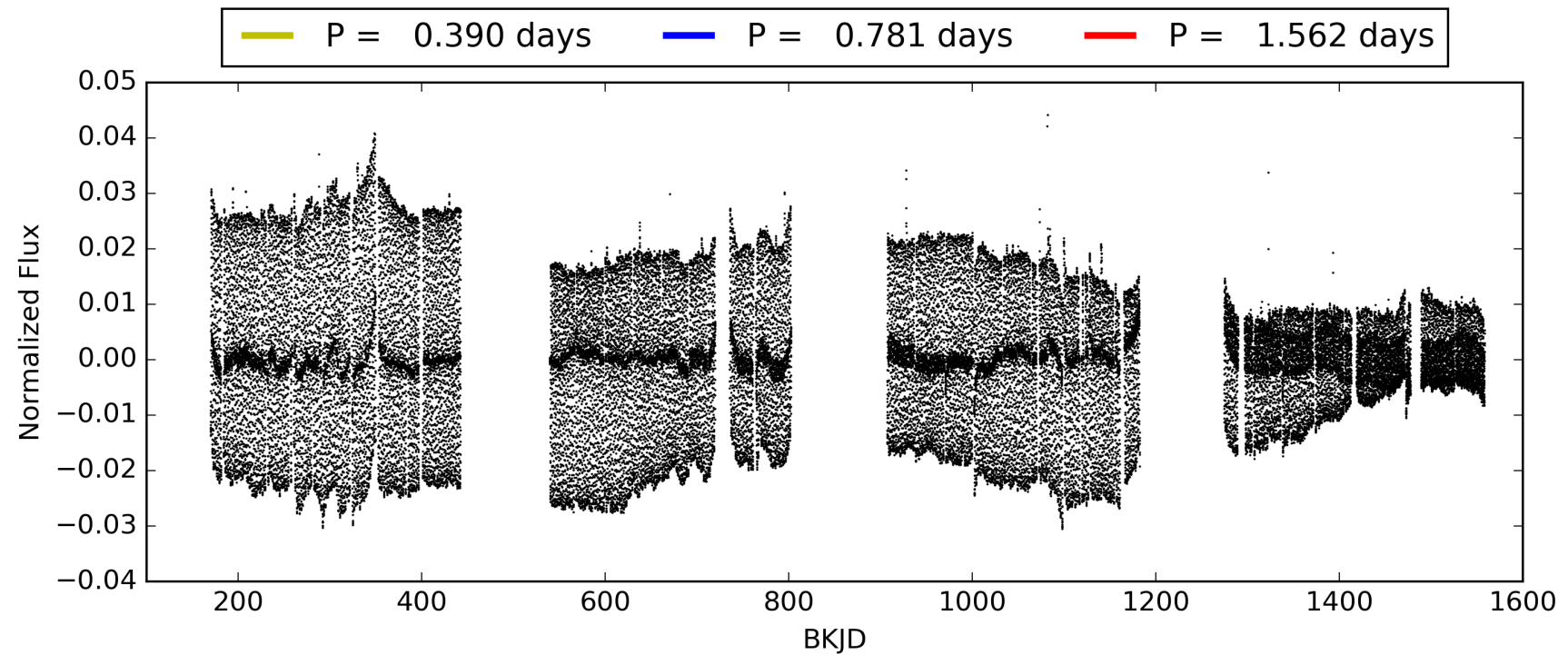
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 01-Feb-2016 17:28:55 Z

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

TCE 006670373-02, PDC Light Curves

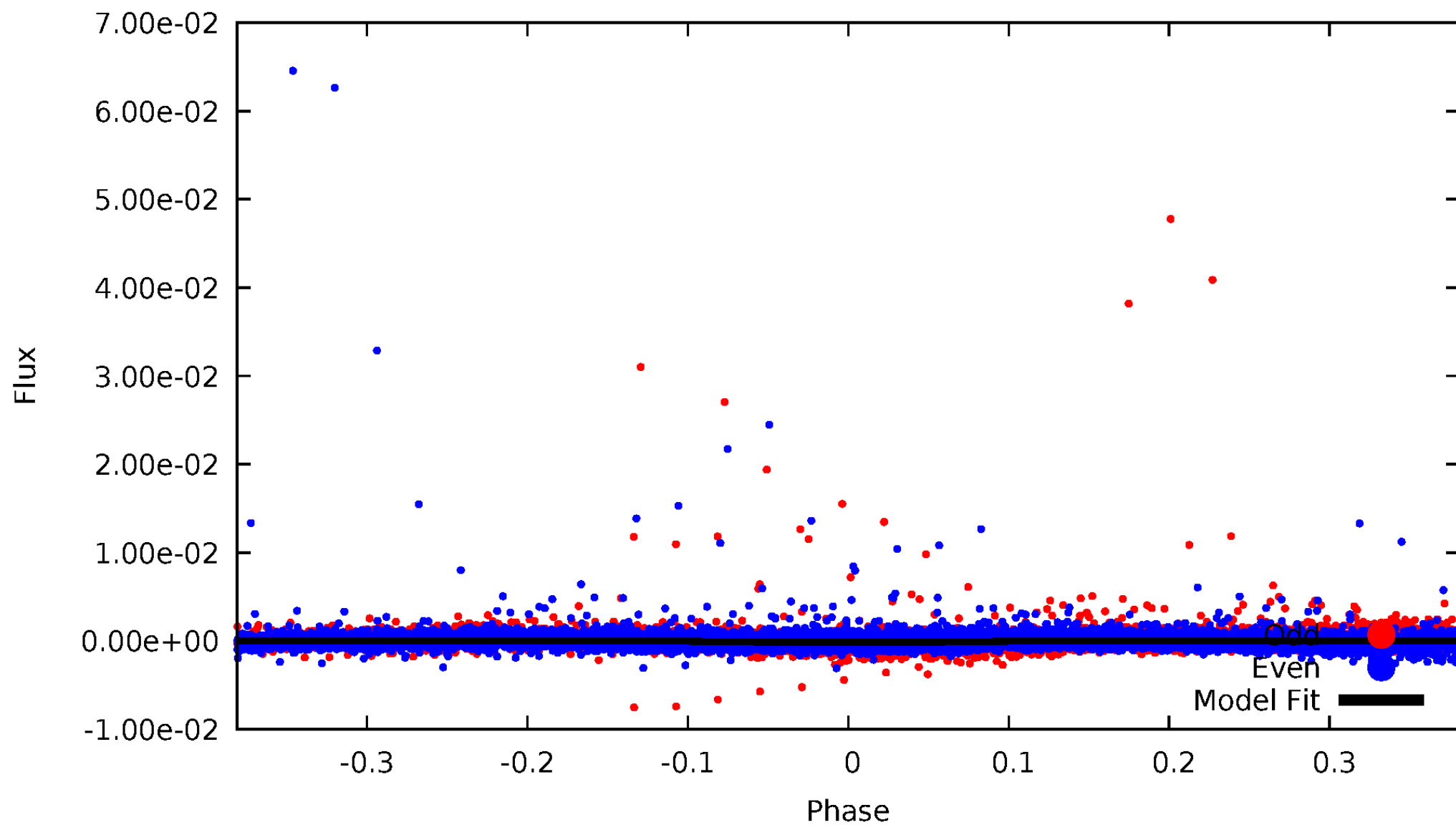


TCE 006670373-02



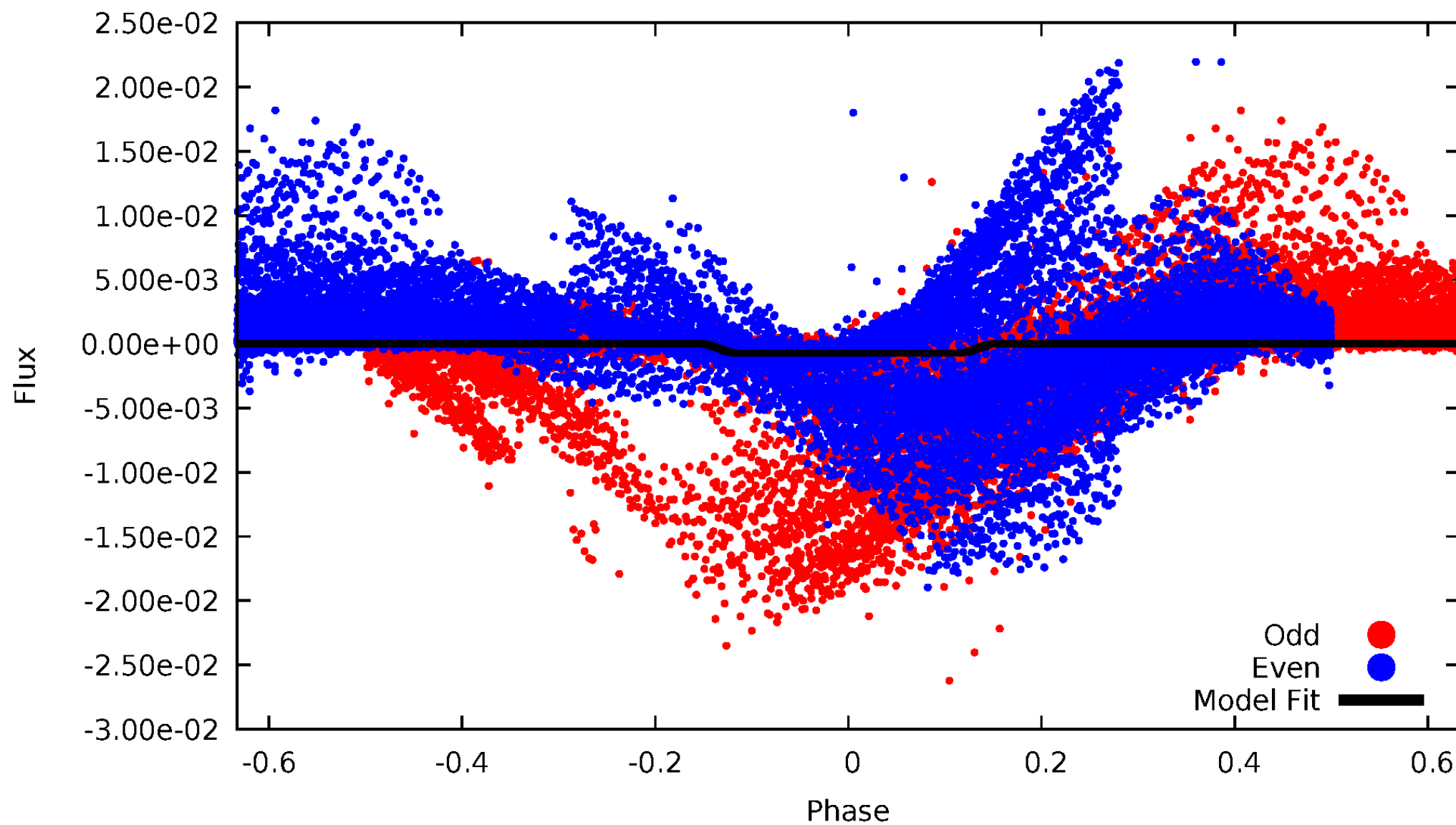
DV Odd/Even

TCE 006670373-02



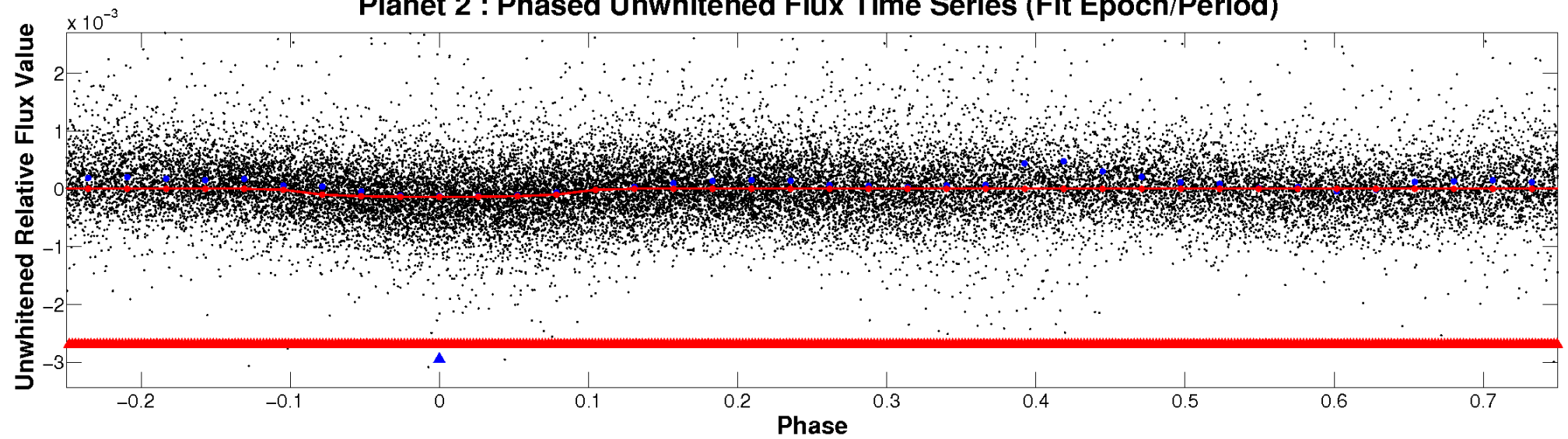
ALT Odd/Even

TCE 006670373-02

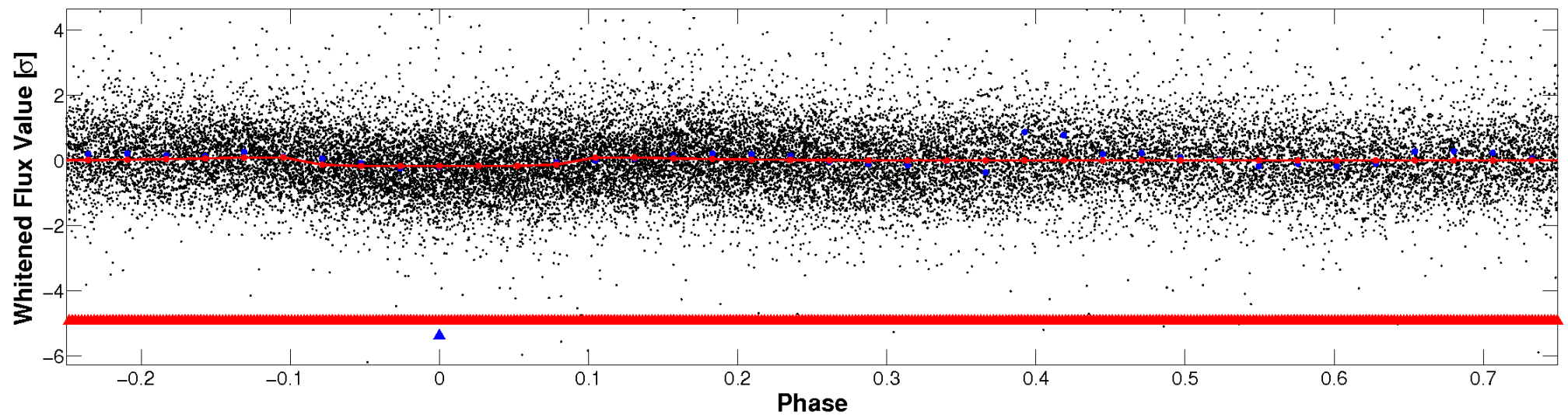


Non-Whitened Vs. Whitened Light Curve

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

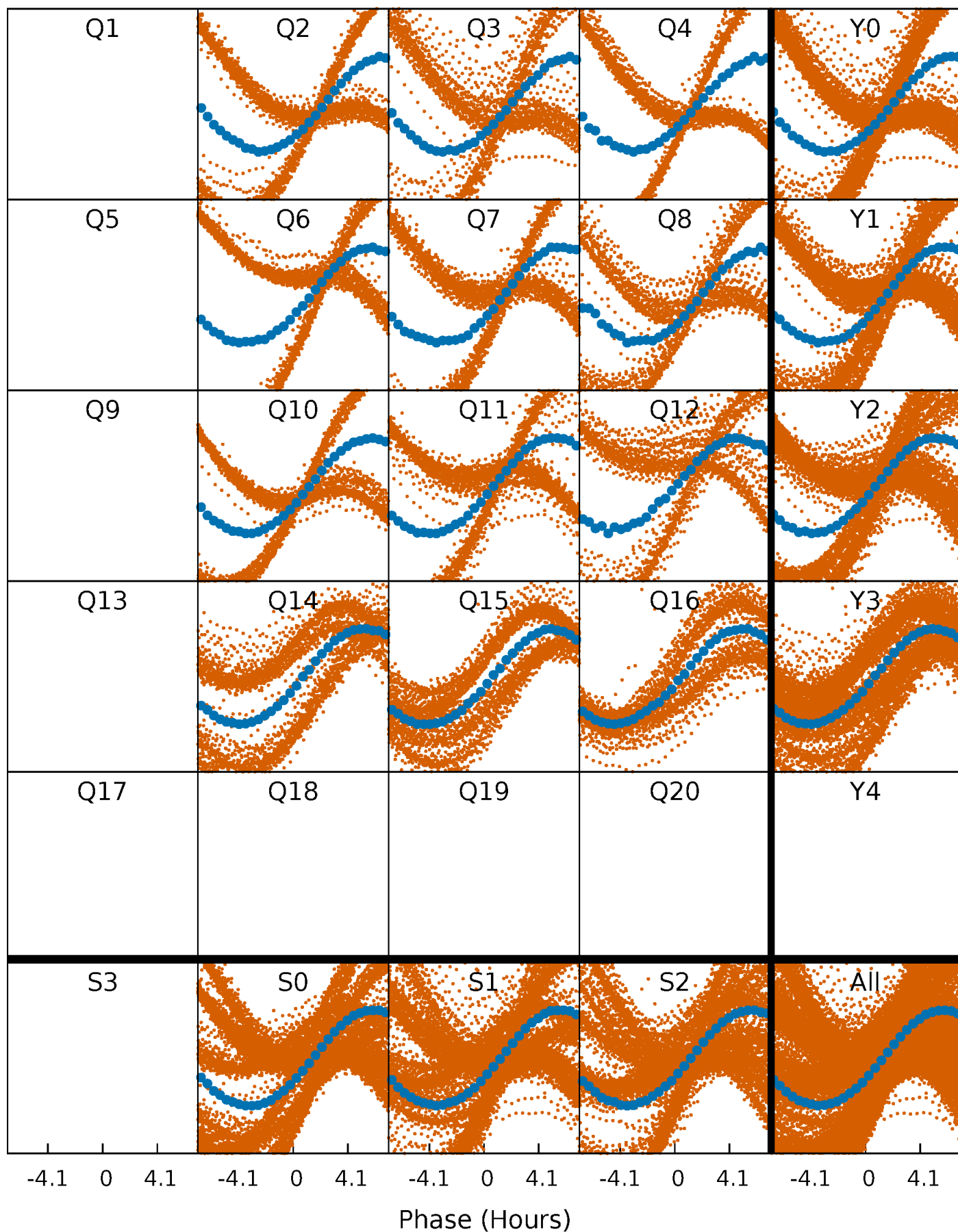


Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



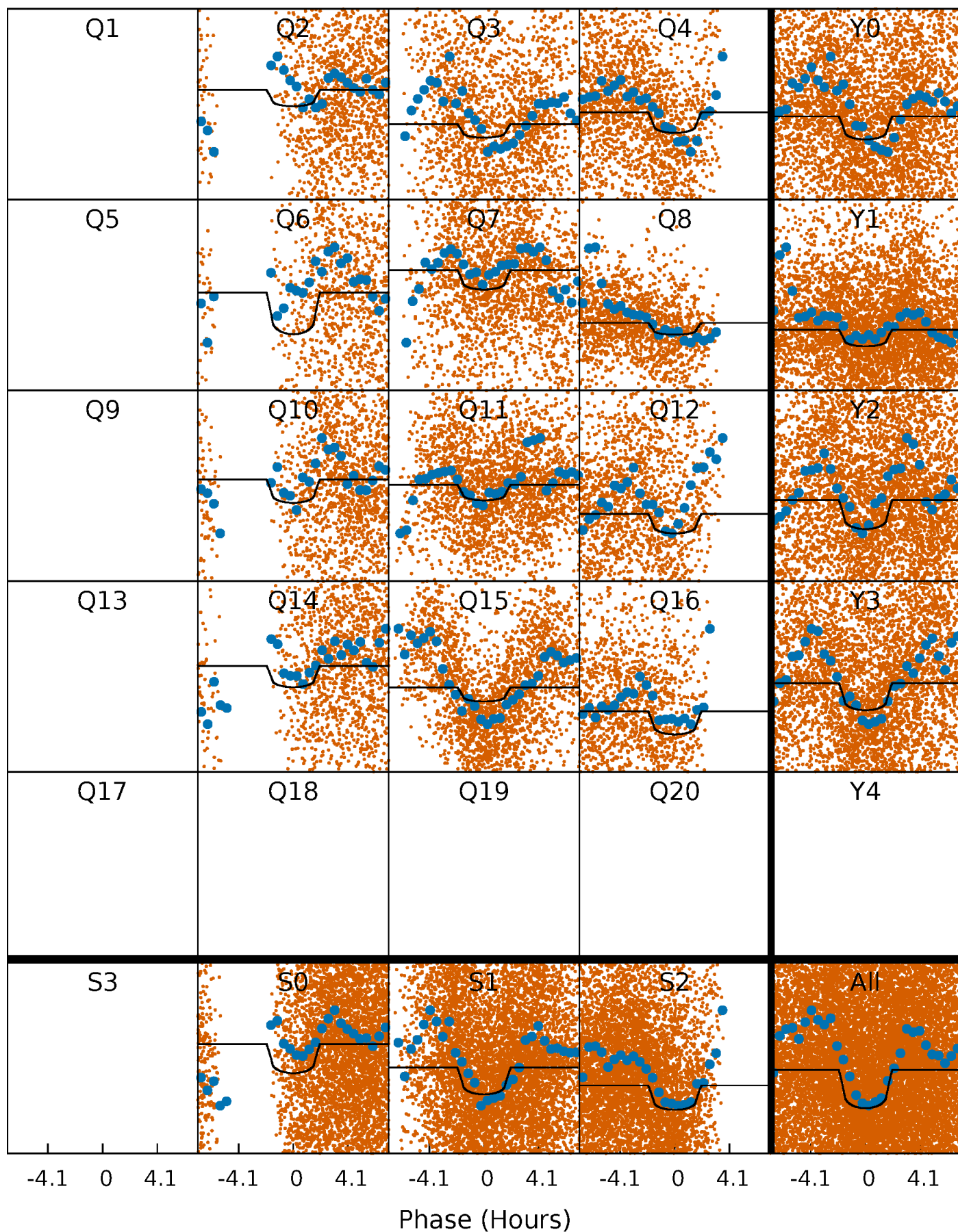
PDC Quarter-Phased Transit Curves

TCE 006670373-02 P= 0.780967 Days $T_0=131.798012$ (BKJD)



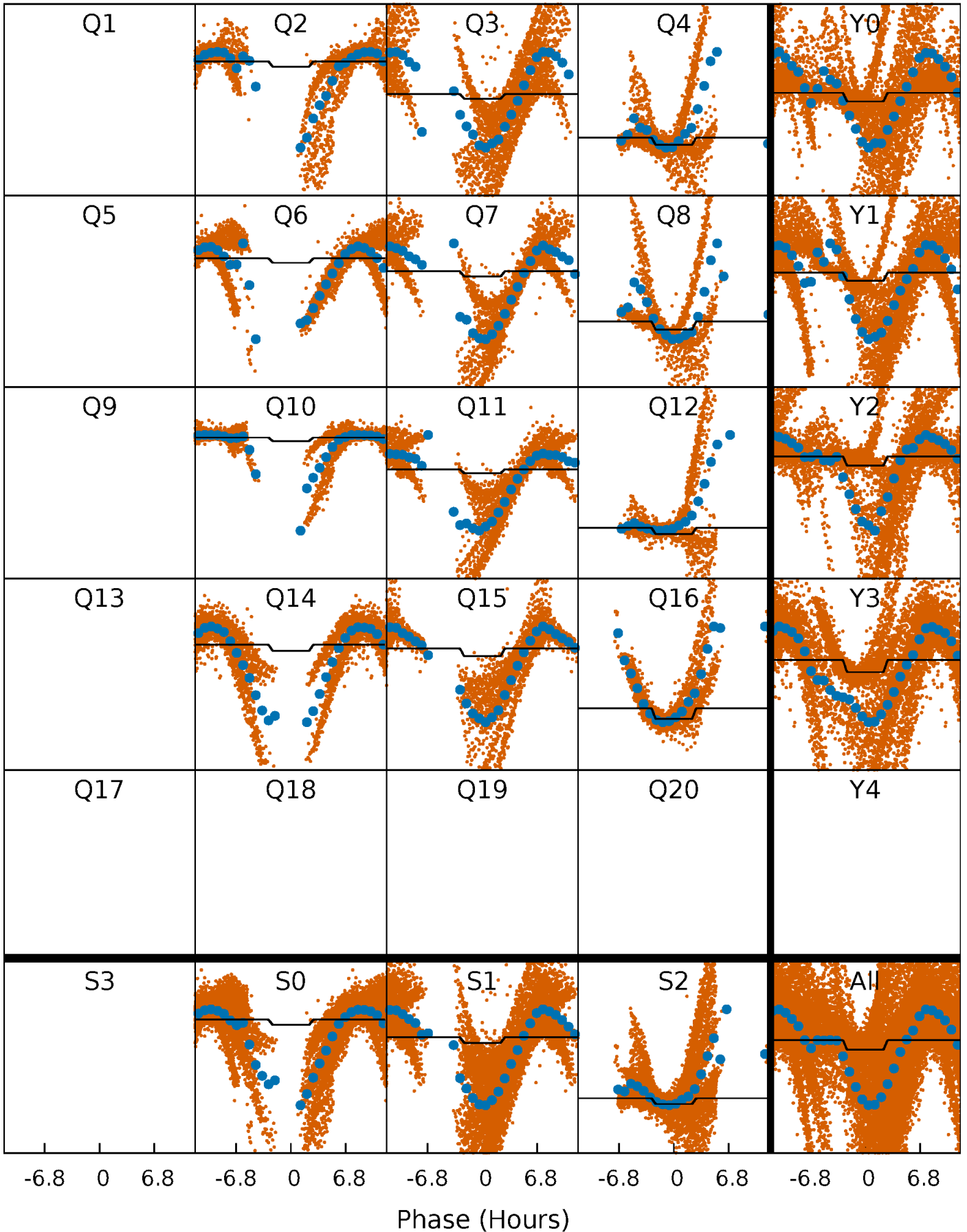
DV Quarter-Phased Transit Curves

TCE 006670373-02 P= 0.780967 Days $T_0=131.798012$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

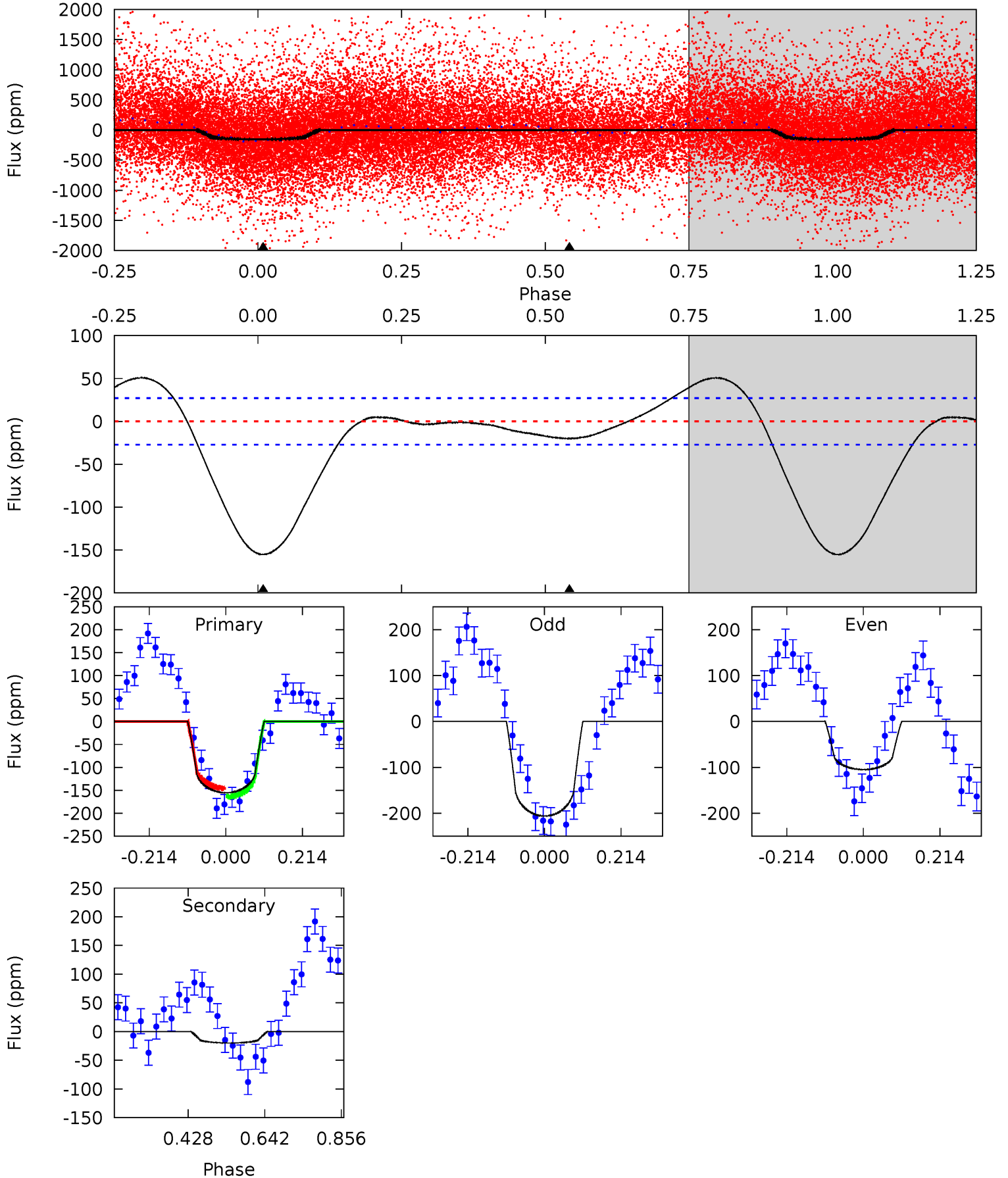
TCE 006670373-02 $P = 0.780938$ Days $T_0 = 131.698824$ (BKJD)



DV Model-Shift Uniqueness Test

006670373-02, P = 0.780967 Days, E = 131.798012 Days

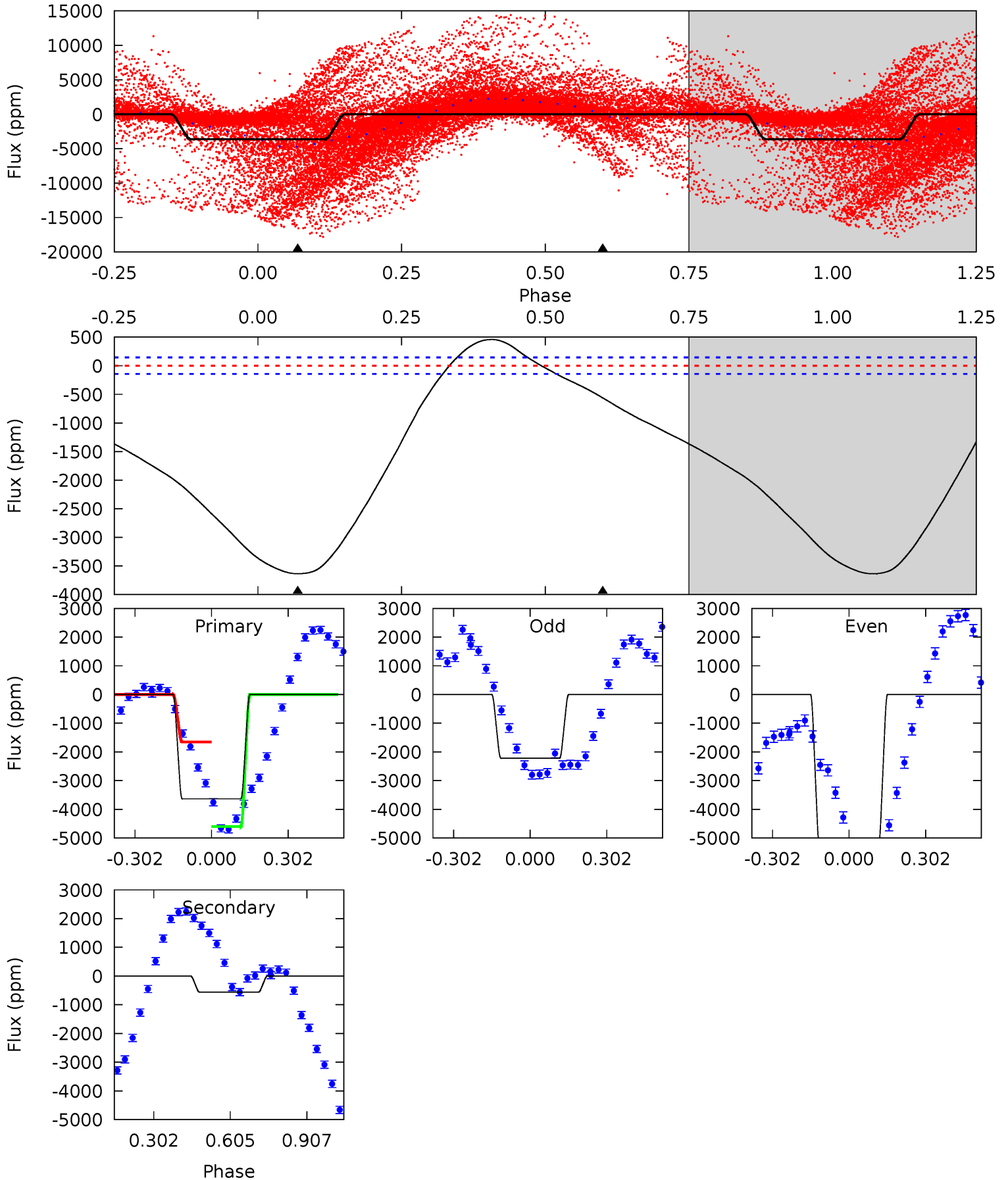
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
25.1	3.23	0	0	4.40	1.24	3.27	25.1	25.1	3.23	3.23	8.48	0.63	0.25	1.49



Alt Model-Shift Uniqueness Test

006670373-02, P = 0.780938 Days, E = 131.698824 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
108.4	16.8	0	0	4.33	1.03	14.8	108.4	108.4	16.8	16.8	48.1	1.37	0.11	35.6



Stellar Parameters For KIC 006670373

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	$M(M_{\odot})$	p_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	6620^{+161}_{-222}	$4.163^{+0.209}_{-0.171}$	$-0.380^{+0.250}_{-0.300}$	$1.471^{+0.398}_{-0.398}$	$1.148^{+0.177}_{-0.159}$	$0.508^{+0.594}_{-0.239}$
	+2%/-3%	+5%/-4%	+66%/-79%	+27%/-27%	+15%/-14%	+117%/-47%
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 006670373-02 / KOI

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	-20 ± 6	$1.81^{+0.70}_{-0.78}$	3754^{+264}_{-282}	4063^{+1286}_{-806}	$0.997^{+2.145}_{-0.519}$
Alt.	-562 ± 34	$4.24^{+0.97}_{-0.79}$	3737^{+292}_{-269}	6147^{+626}_{-481}	$5.288^{+2.562}_{-1.705}$

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 $A_{obs} \gg 1.0$

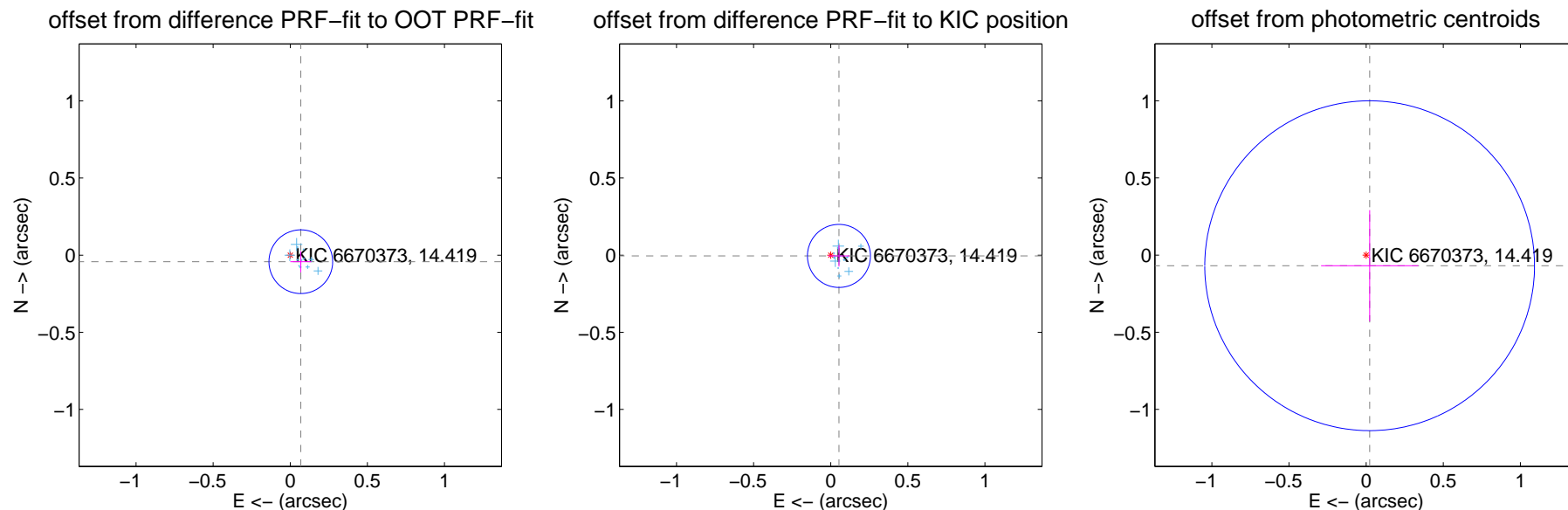
DV Centroid Data

Supplemental centroid analysis for 006670373-02. Kepler magnitude: 14.42. Transit SNR 14.05

There are 12 quarters with good PRF difference image offsets

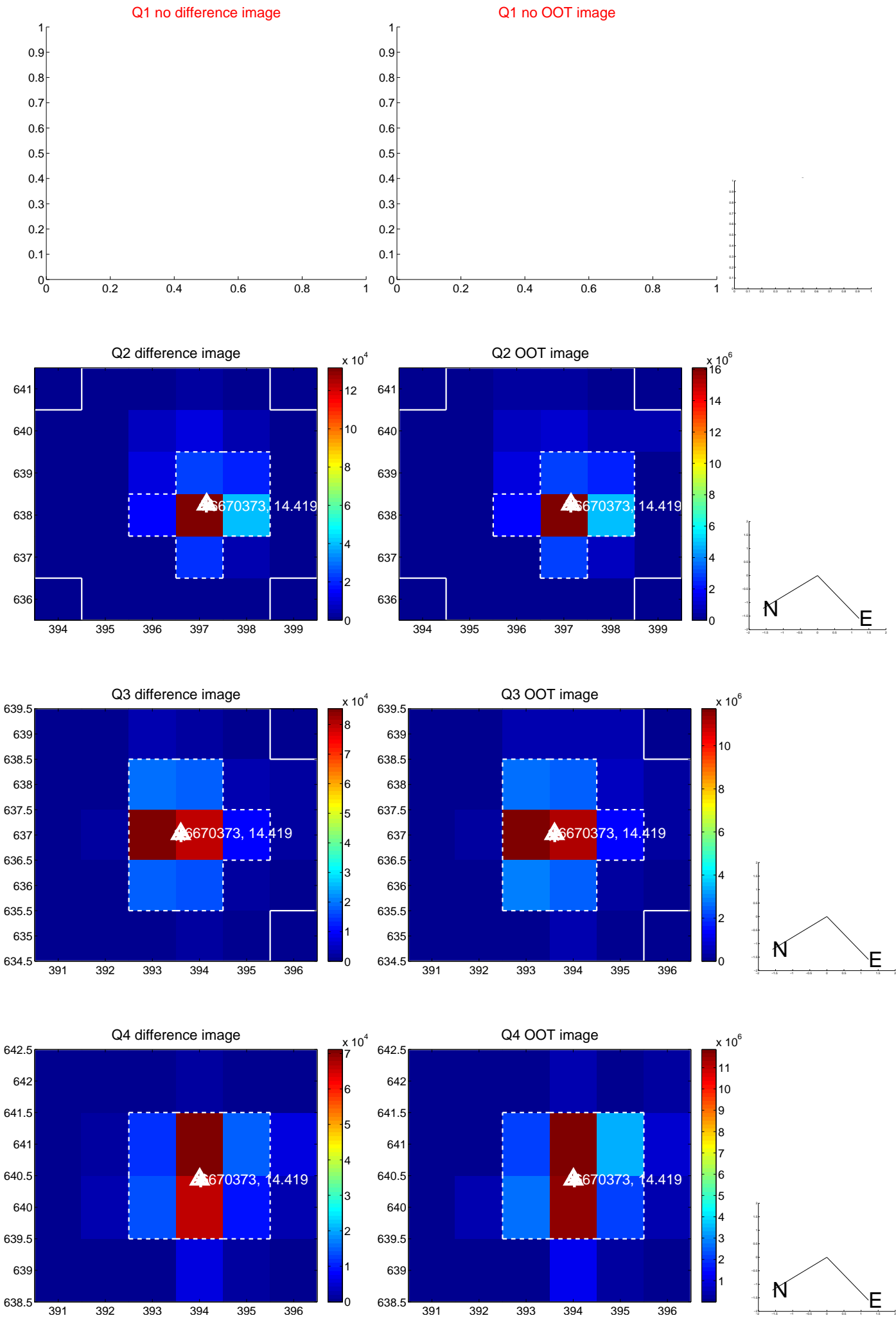
The direct PRF centroid is offset from the target star catalog position by about 0.05 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.080 ± 0.069	1.17	-0.068 ± 0.068	-0.042 ± 0.069
PRF-fit source offset from KIC position	0.053 ± 0.068	0.79	-0.053 ± 0.068	-0.005 ± 0.069
photometric centroid source offset	0.07 ± 0.36	0.20	-0.02 ± 0.31	-0.07 ± 0.36

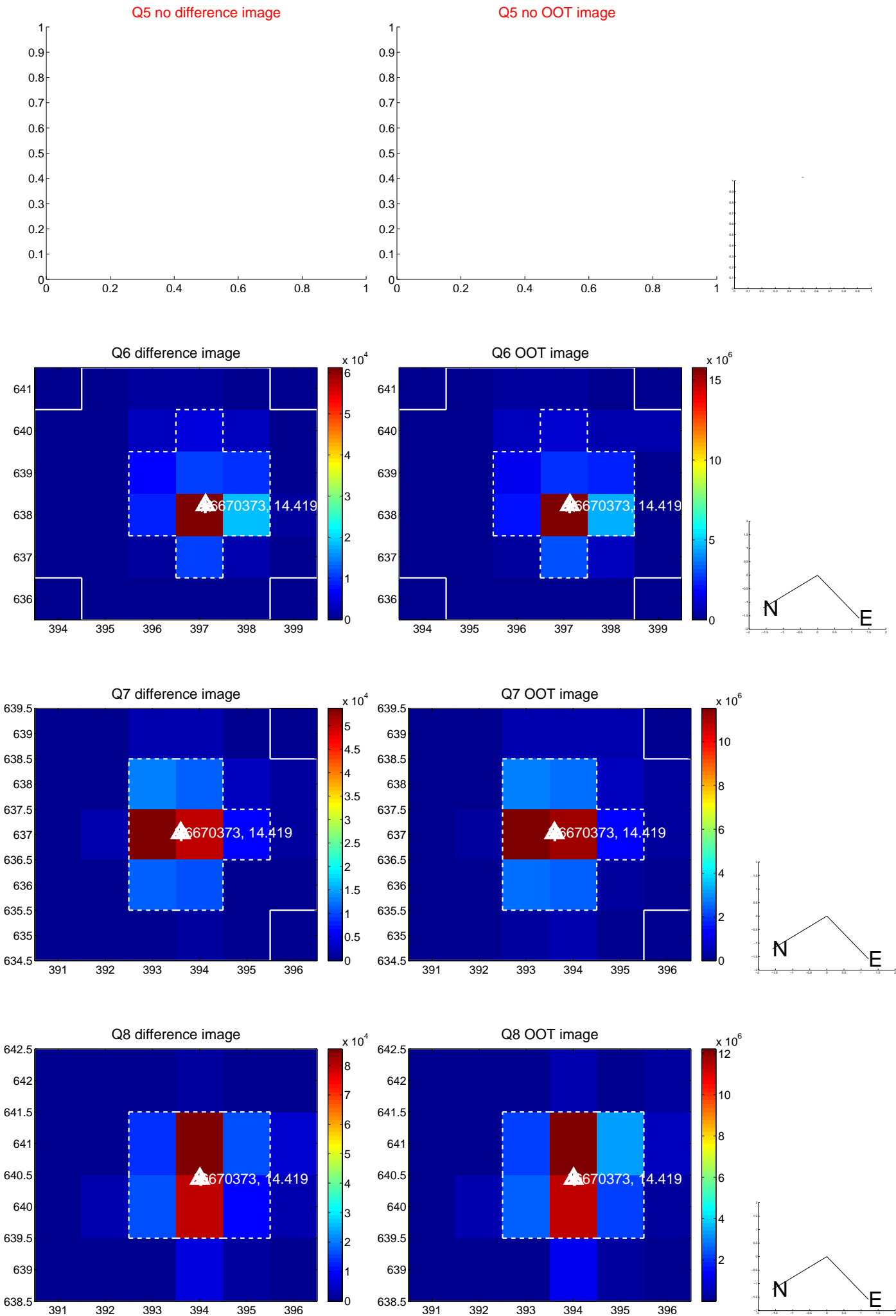


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets**; **Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

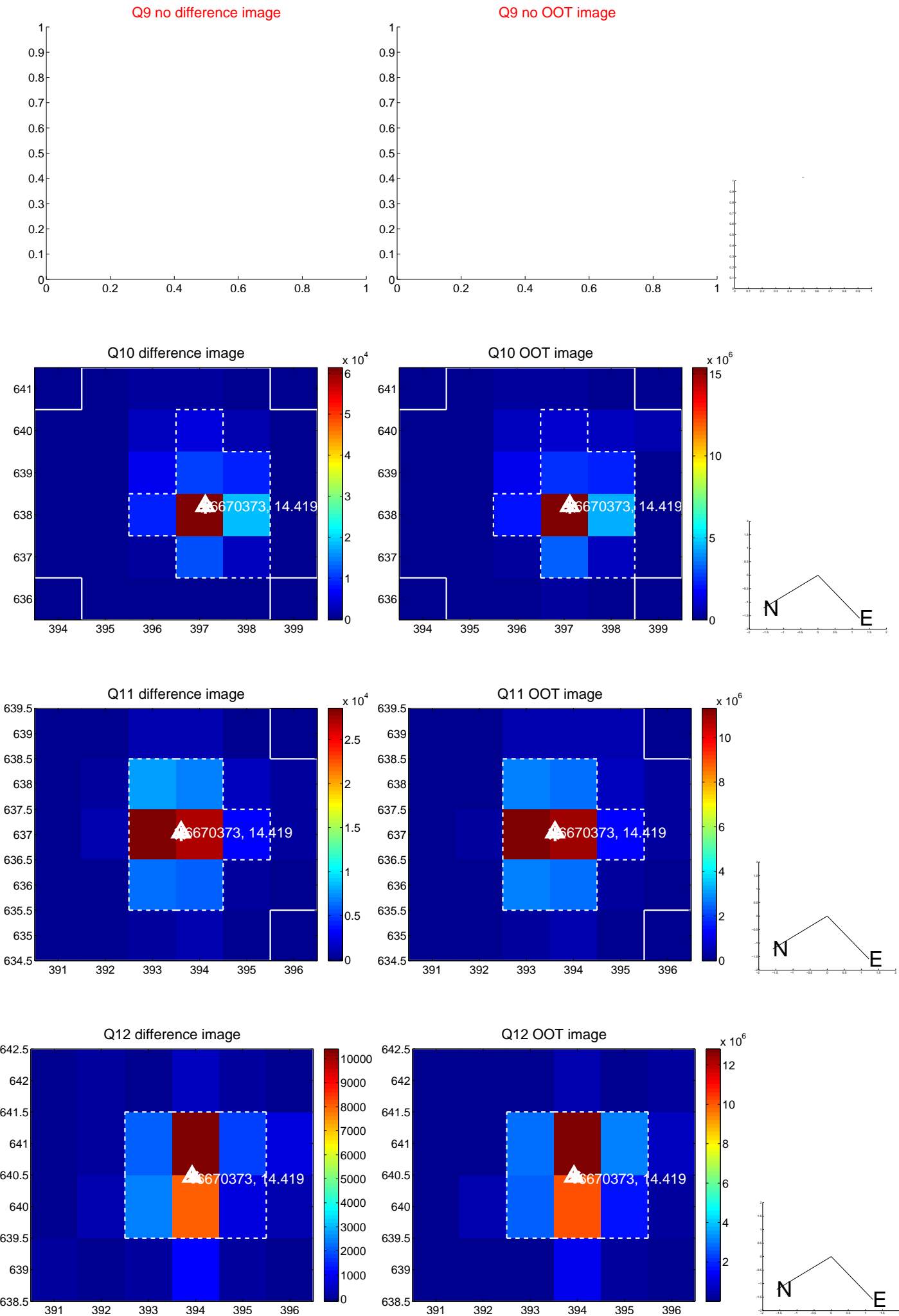
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



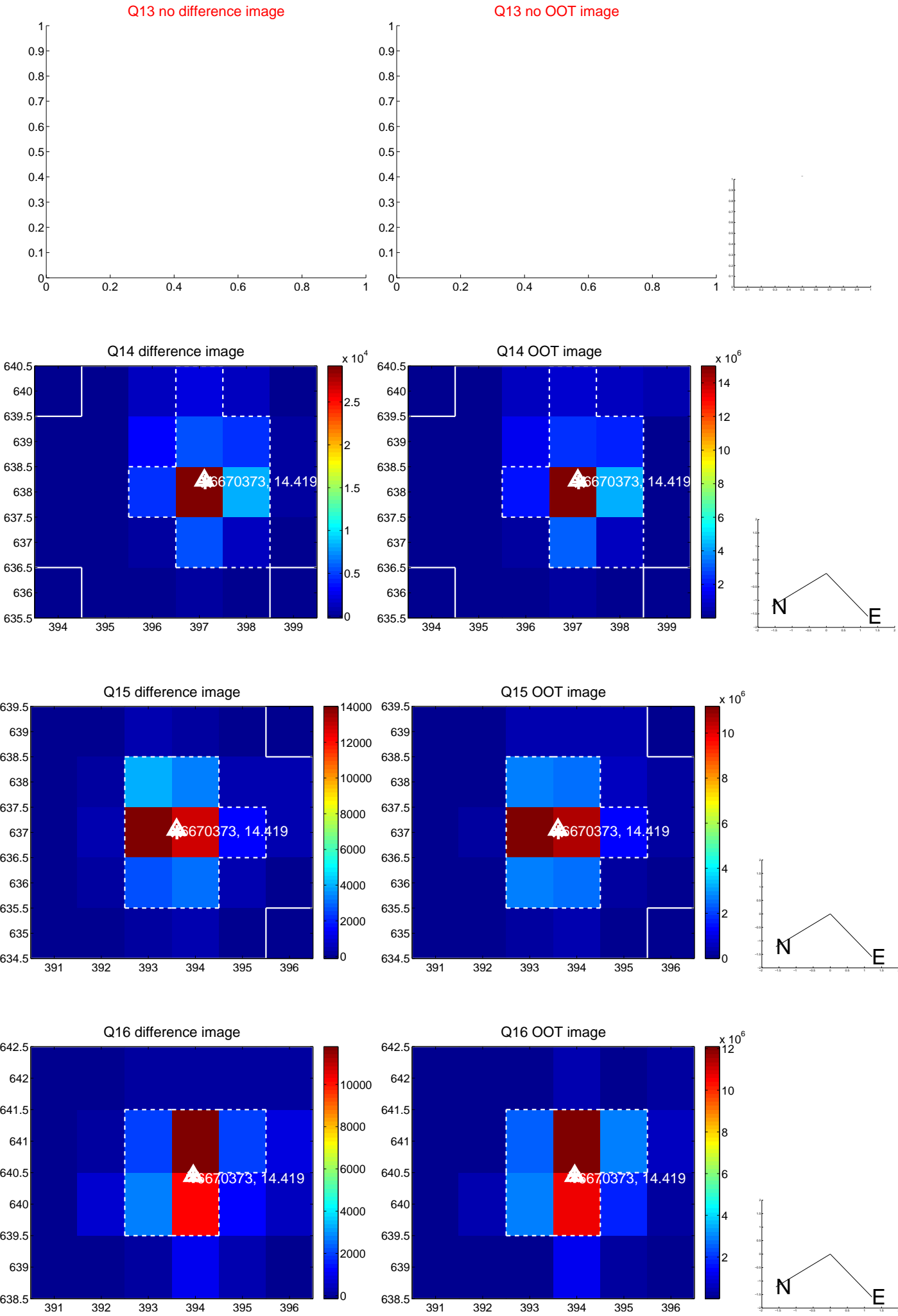
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



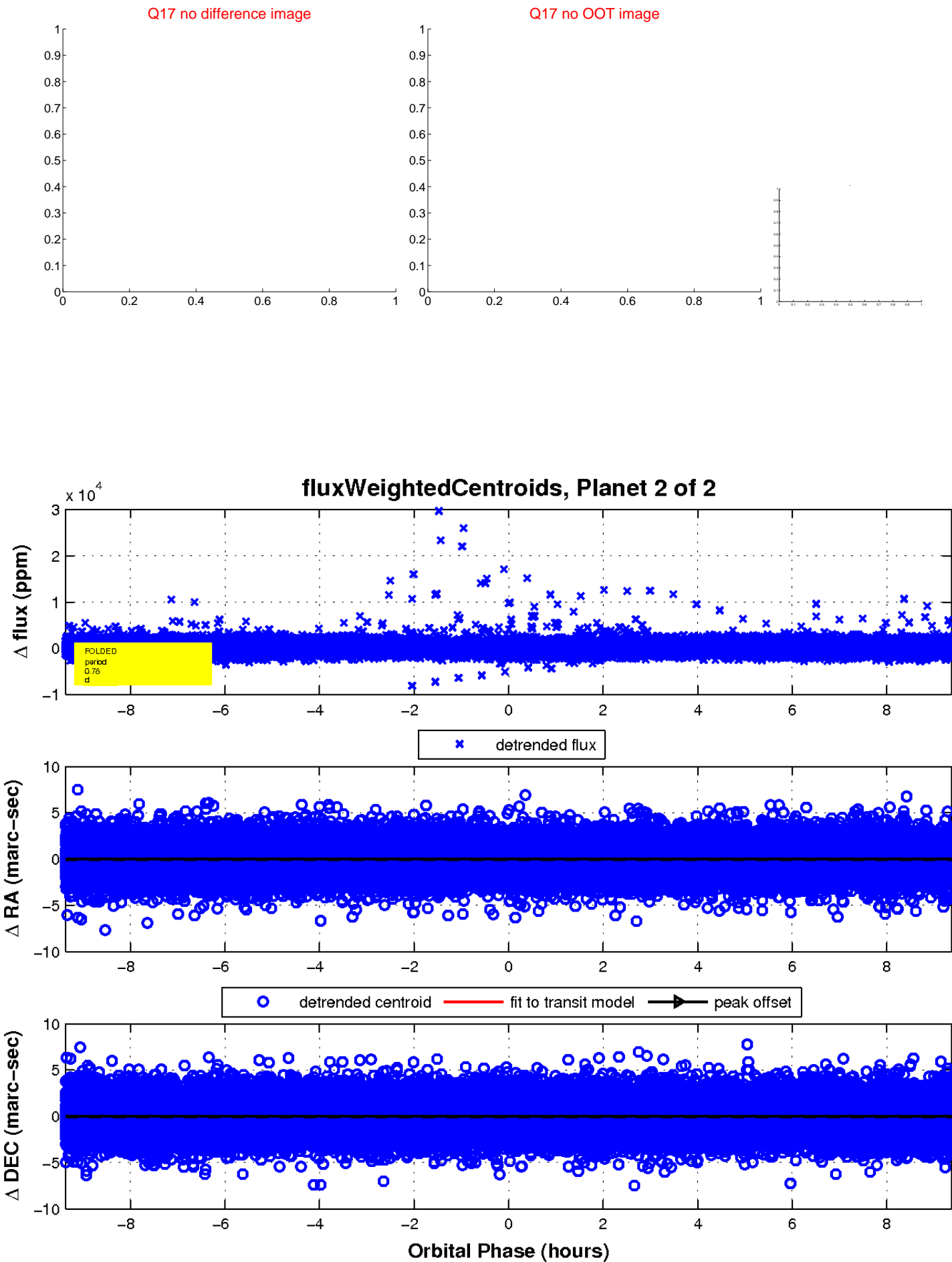
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

