

KIC 006706982

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})
006706982-01	OBS	No	1.811520	131.700220	21.7	7.916	8.7	8.1	3.96	6409	1.85	18913.08
006706982-02	OBS	No	44.633285	165.231546	151.6	6.502	7.7	8.0	3.96	6409	5.53	263.80

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
006706982-01	OBS	FP	0.00	1	0	0	0	LPP_DV—MOD_NONUNIQ_ALT
006706982-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_SKYE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_ALT

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

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

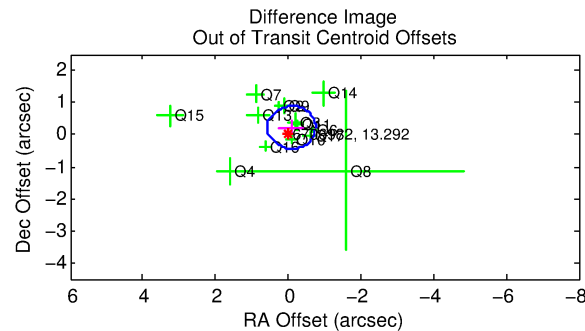
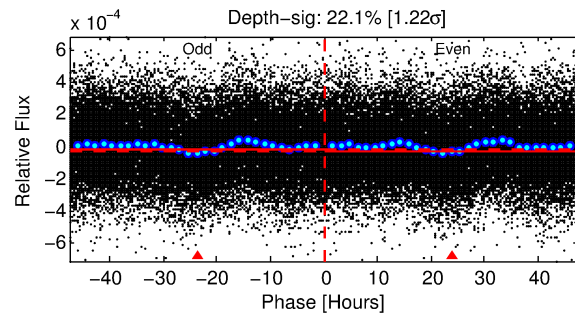
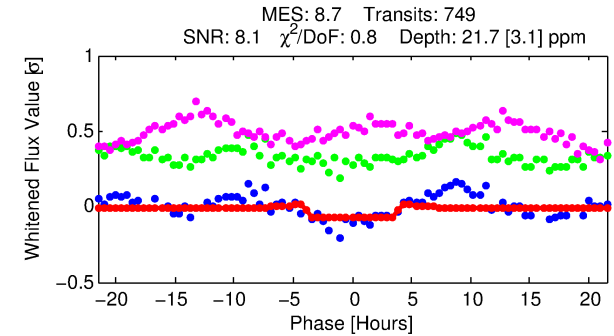
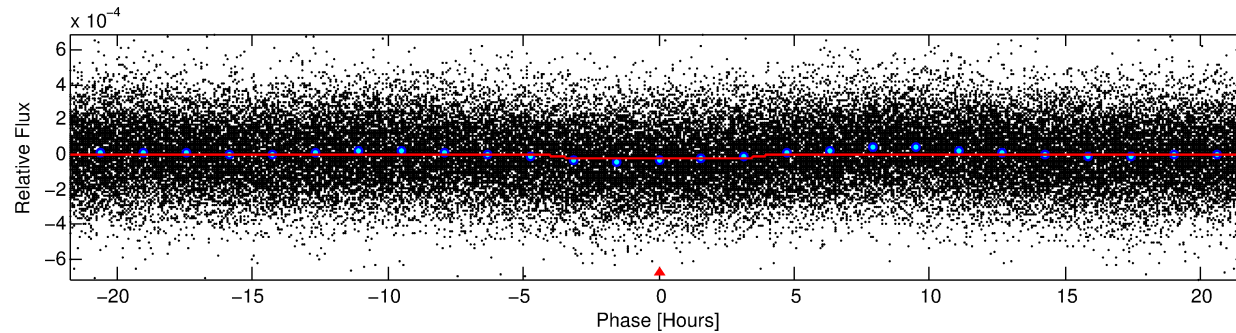
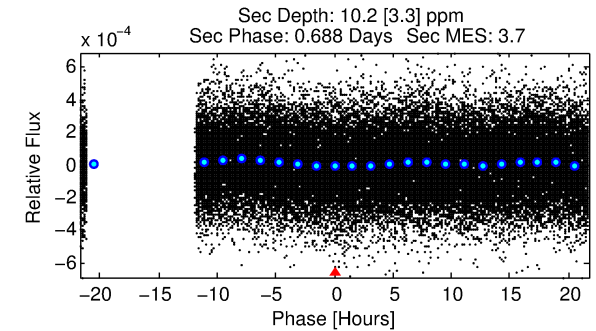
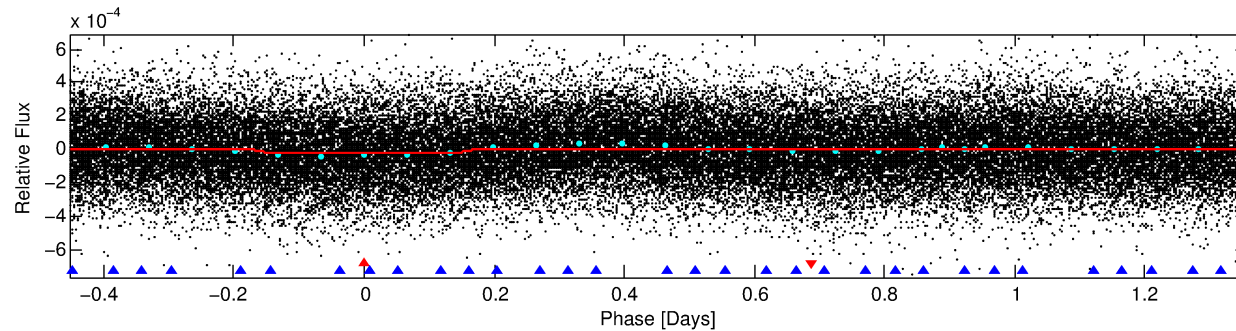
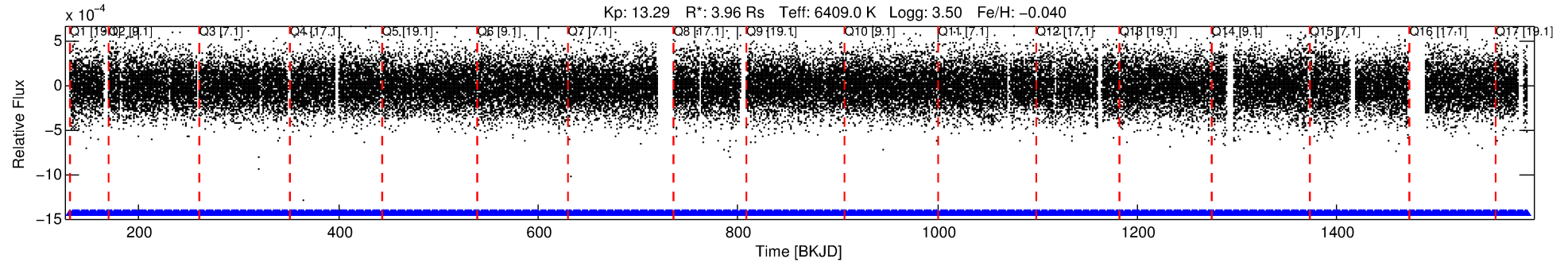
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 006706982-01

No Significant Match Found

DV One-Page Summary

KIC: 6706982 Candidate: 1 of 2 Period: 1.812 d



DV Fit Results:

Period = 1.81152 [0.00003] d
Epoch = 131.7002 [0.0068] BKJD
Rp/R* = 0.0043 [0.0045]
a/R* = 1.85 [7.05]
b = 0.10 [52.23]
Seff = 18913.08 [9101.23]
Teq = 2990 [360] K
Rp = 1.85 [2.02] Re
a = 0.0354 [0.0107] AU
Ag = 2.05 [4.44] [0.24σ]
Teffp = 5533 [2924] K [0.86σ]

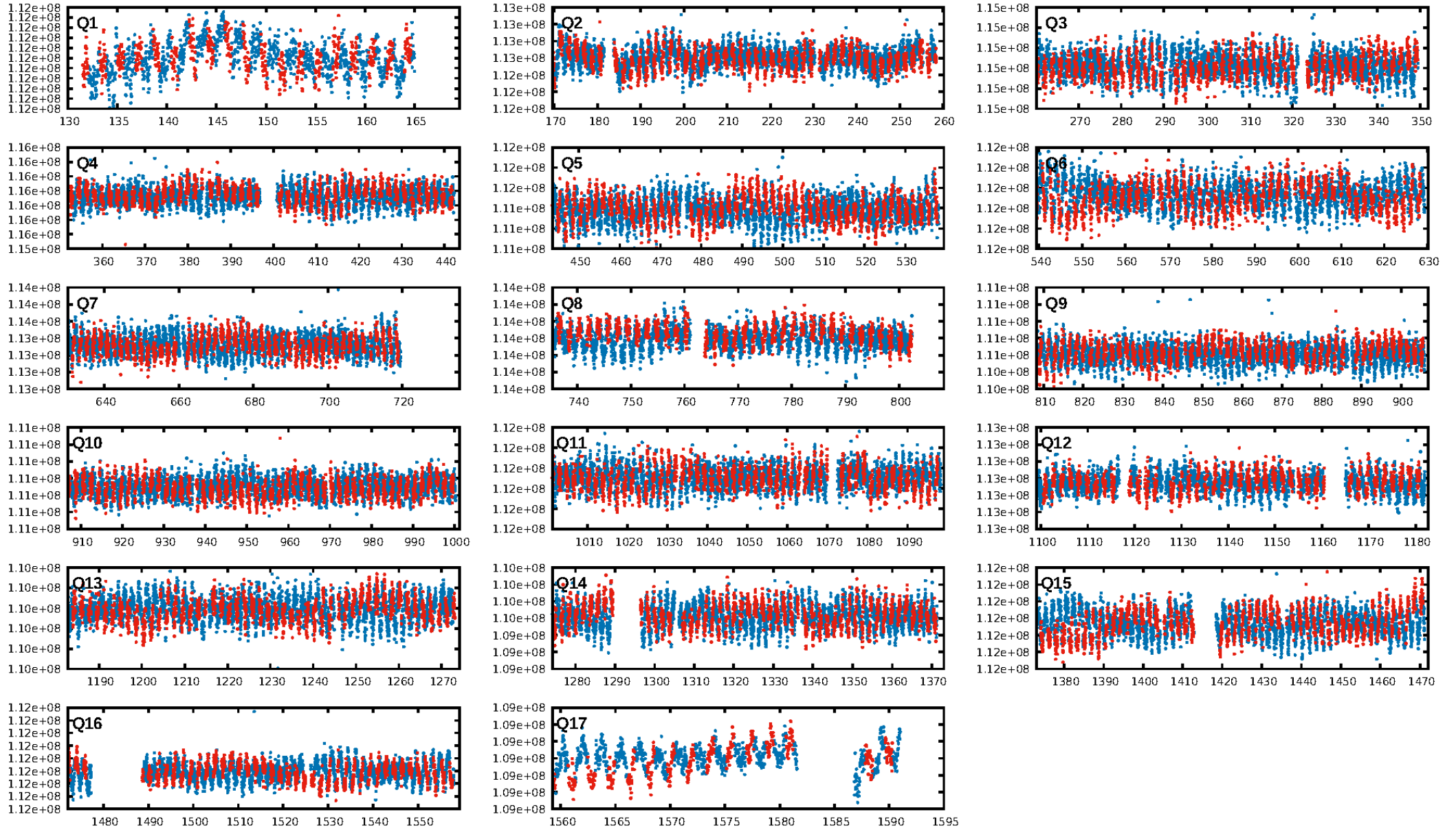
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: 100.0% [100.33σ]
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: 1.41e-14
RollingBand-fgt: 1.00 [715/715]
GhostDiagnostic-chr: 1.669
Centroid-sig: 1.7%
Centroid-so: 1.245 arcsec [1.57σ]
OotOffset-rm: 0.239 arcsec [1.09σ]
KicOffset-rm: 0.306 arcsec [1.48σ]
OotOffset-st: 4/4/3/3 [14]
KicOffset-st: 4/4/3/3 [14]
DiffImageQuality-fgm: 0.71 [10/14]
DiffImageOverlap-fno: 1.00 [17/17]

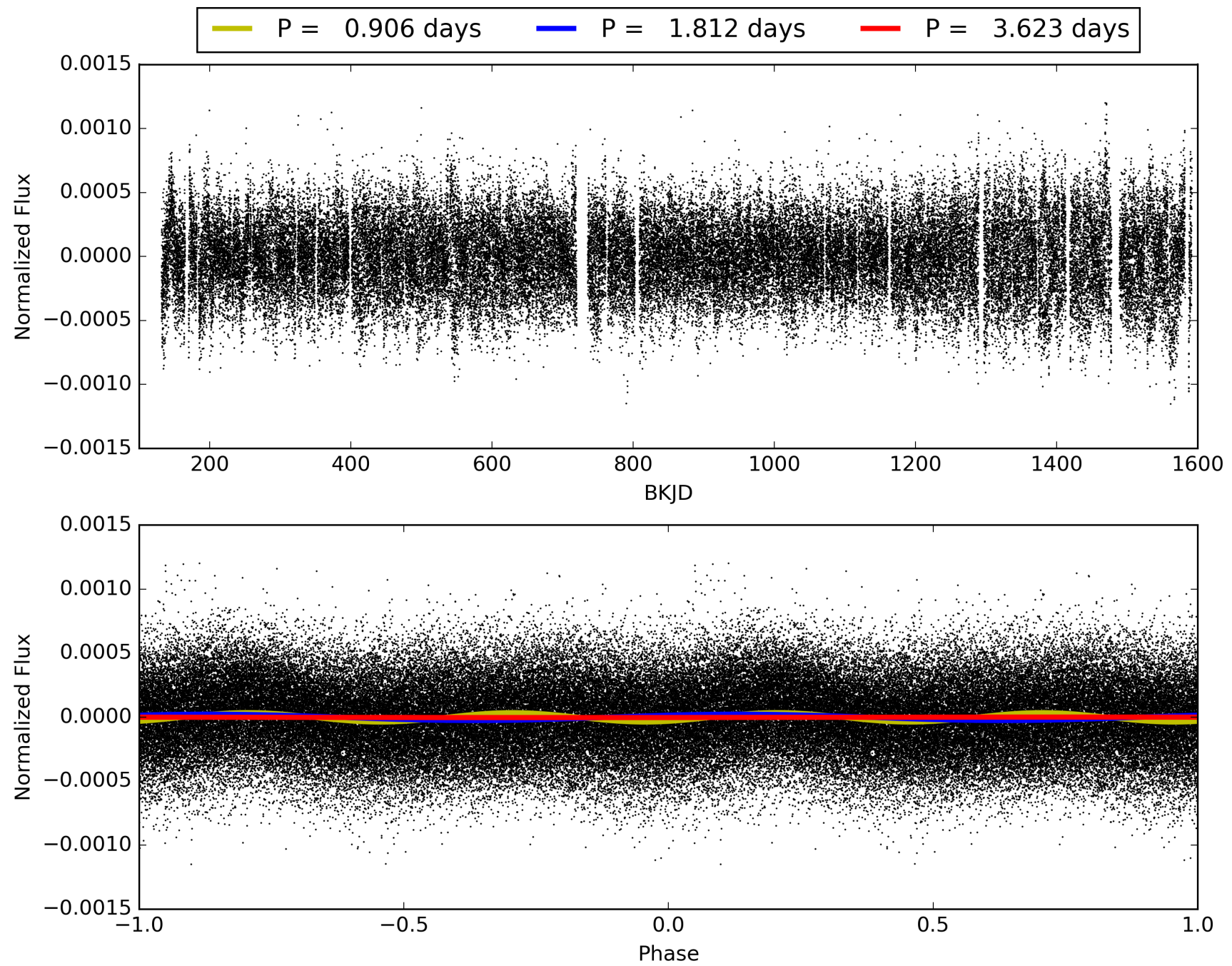
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 18:27:03 Z

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

TCE 006706982-01, PDC Light Curves

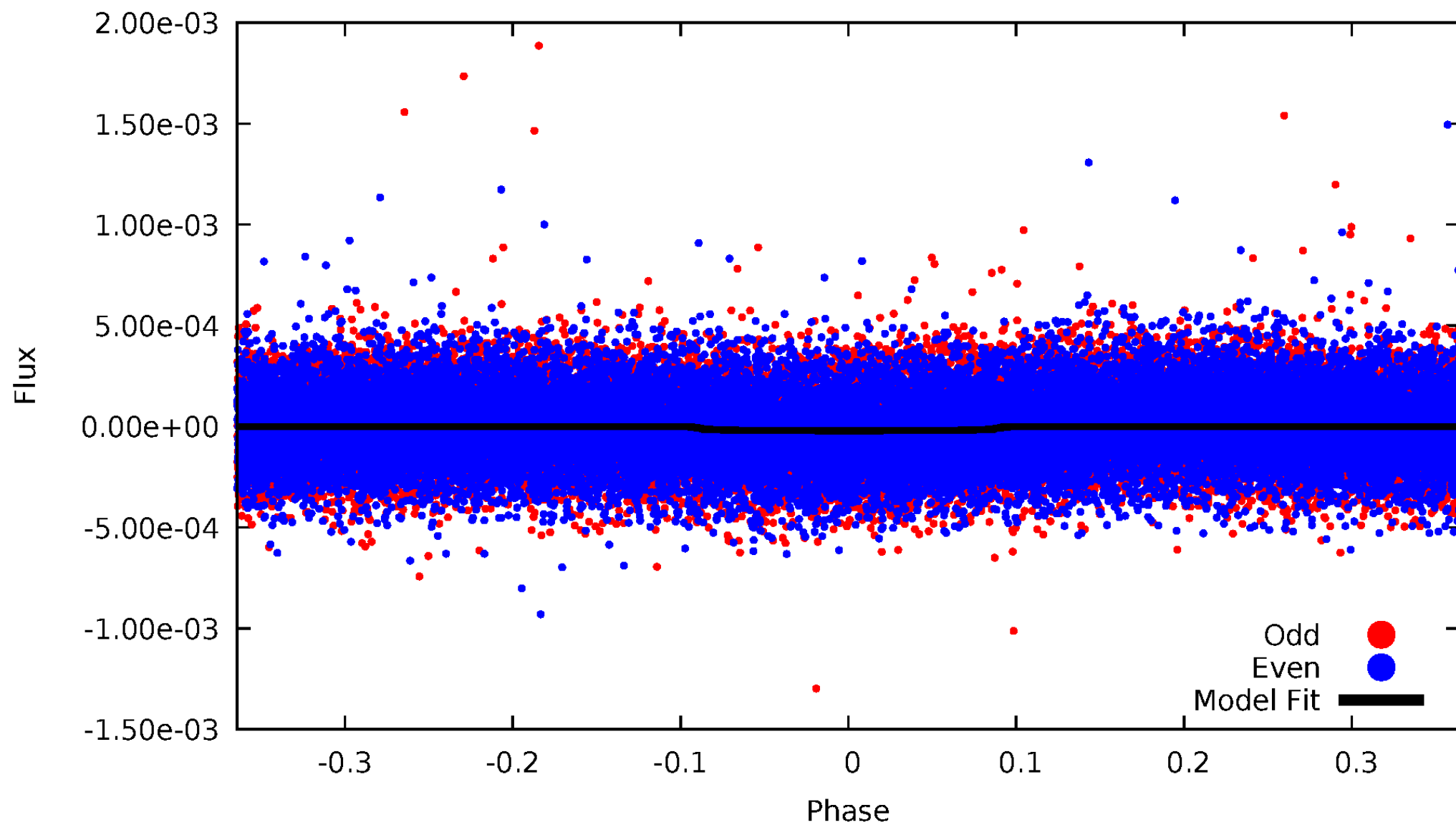


TCE 006706982-01



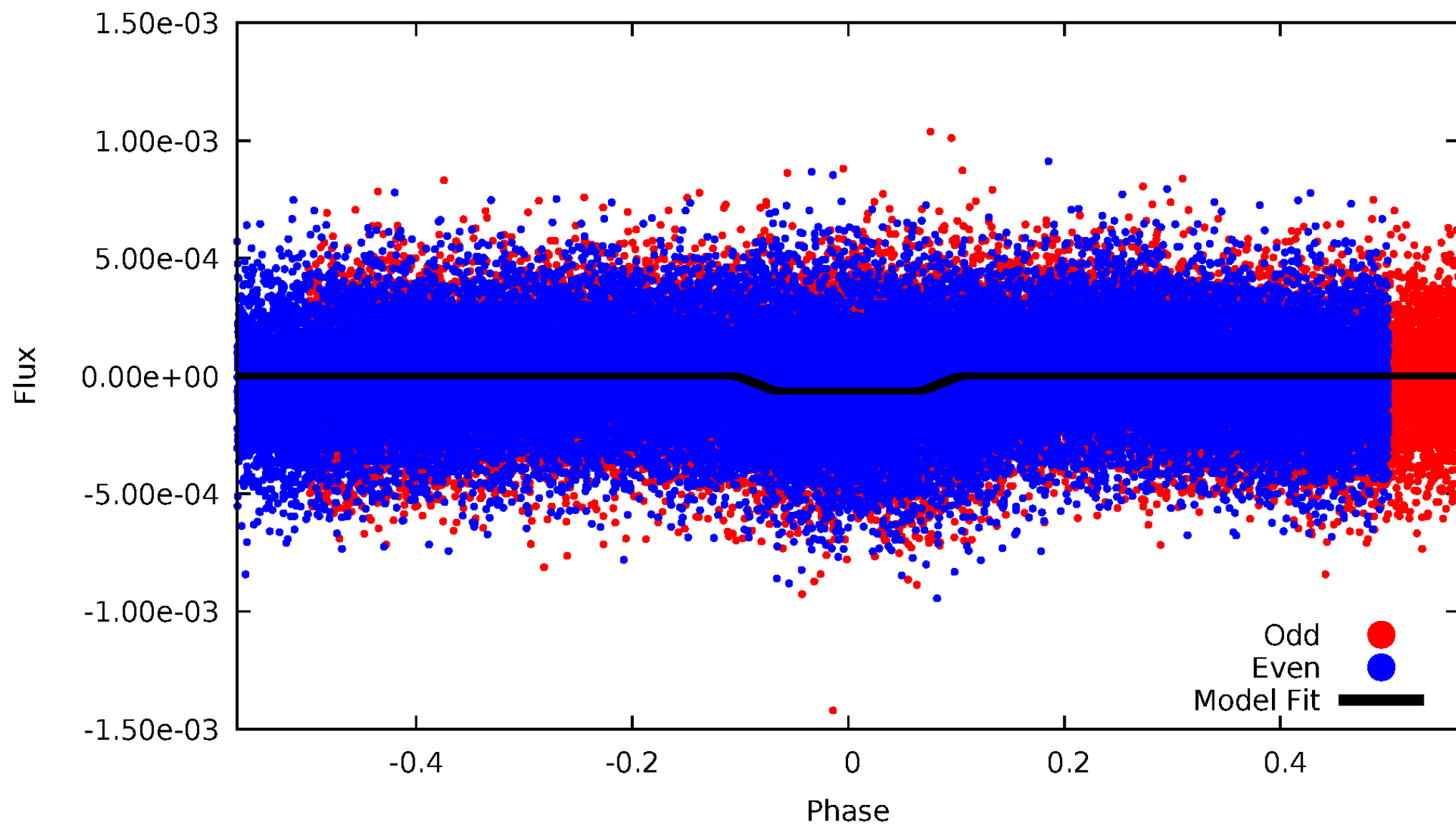
DV Odd/Even

TCE 006706982-01



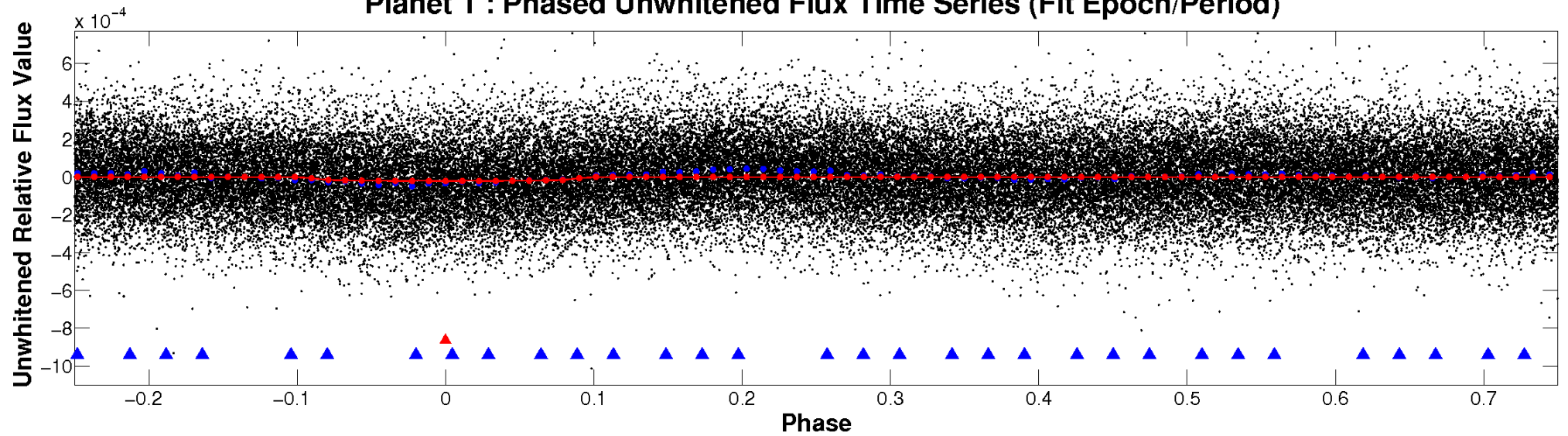
ALT Odd/Even

TCE 006706982-01

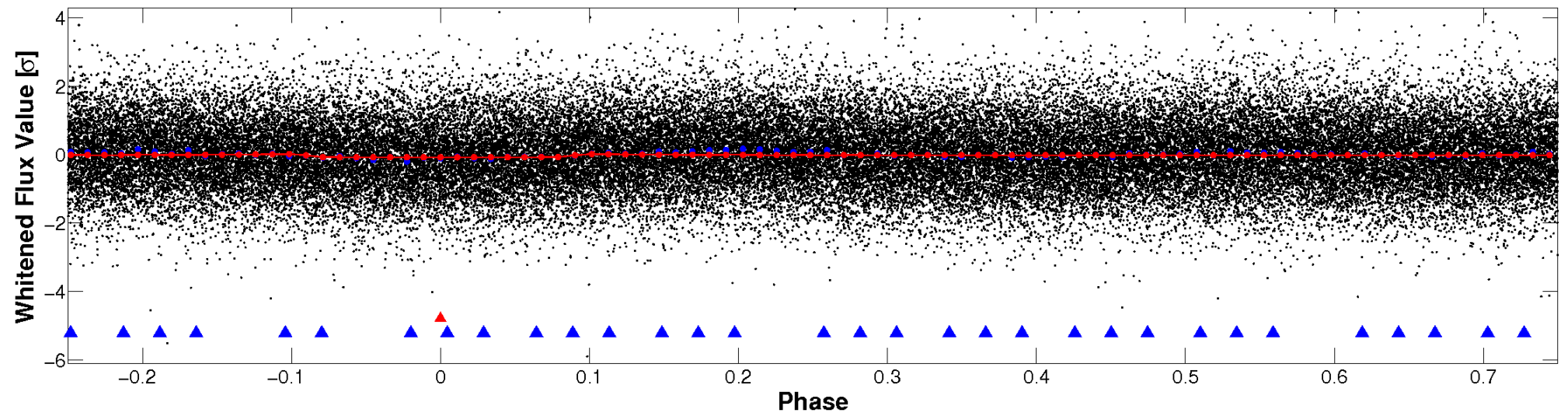


Non-Whitened Vs. Whitened Light Curve

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

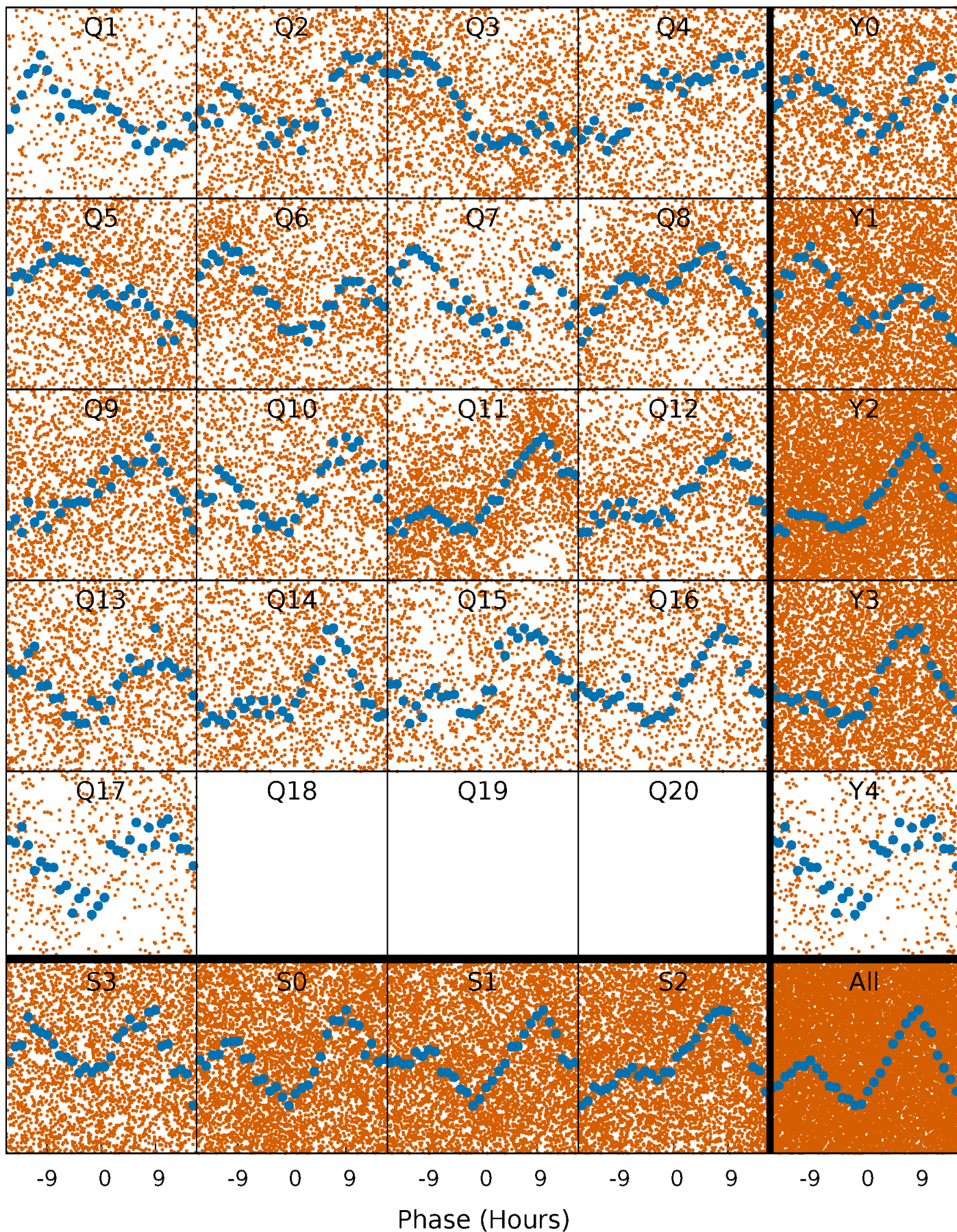


Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)



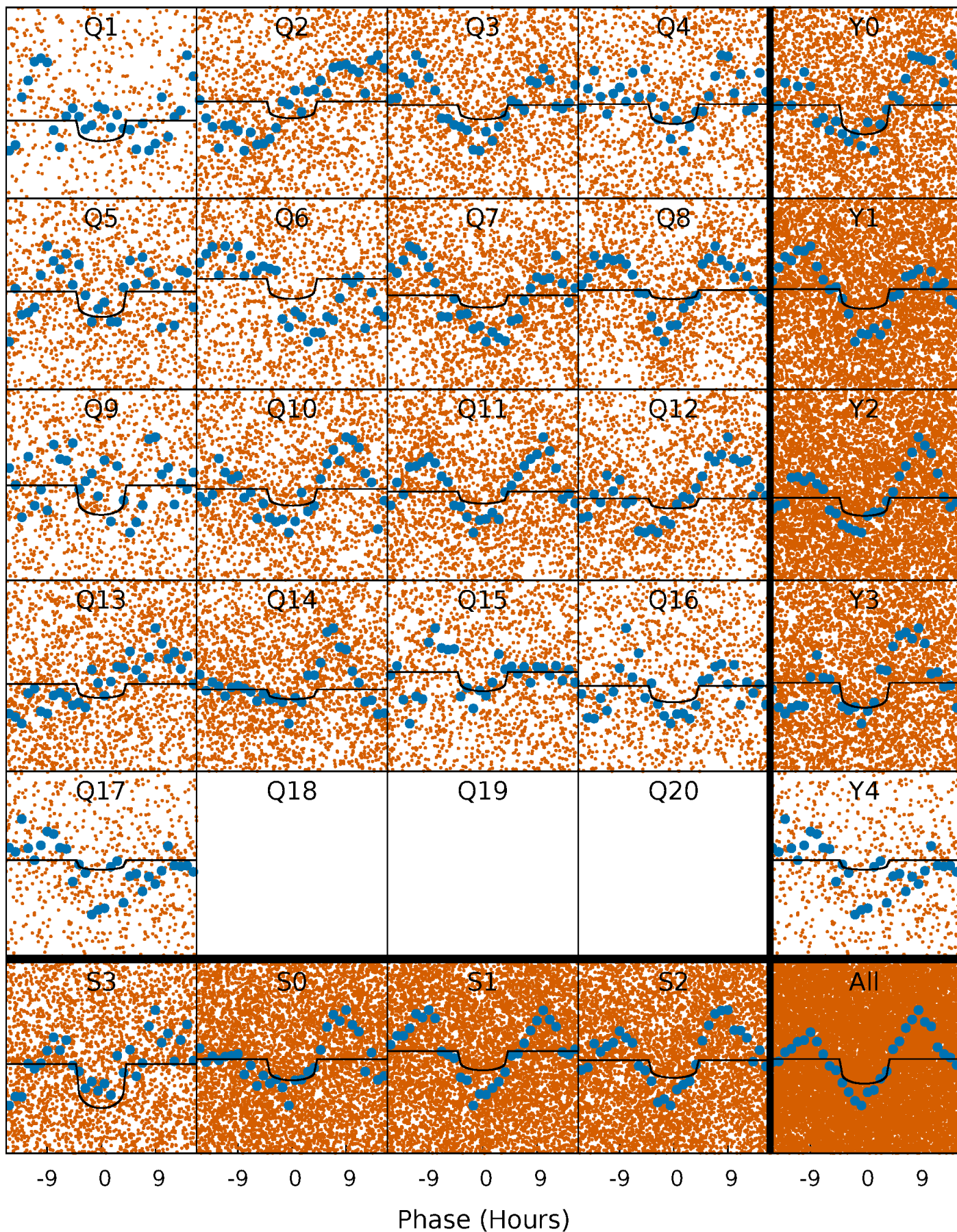
PDC Quarter-Phased Transit Curves

TCE 006706982-01 P= 1.811520 Days $T_0=131.700220$ (BKJD)



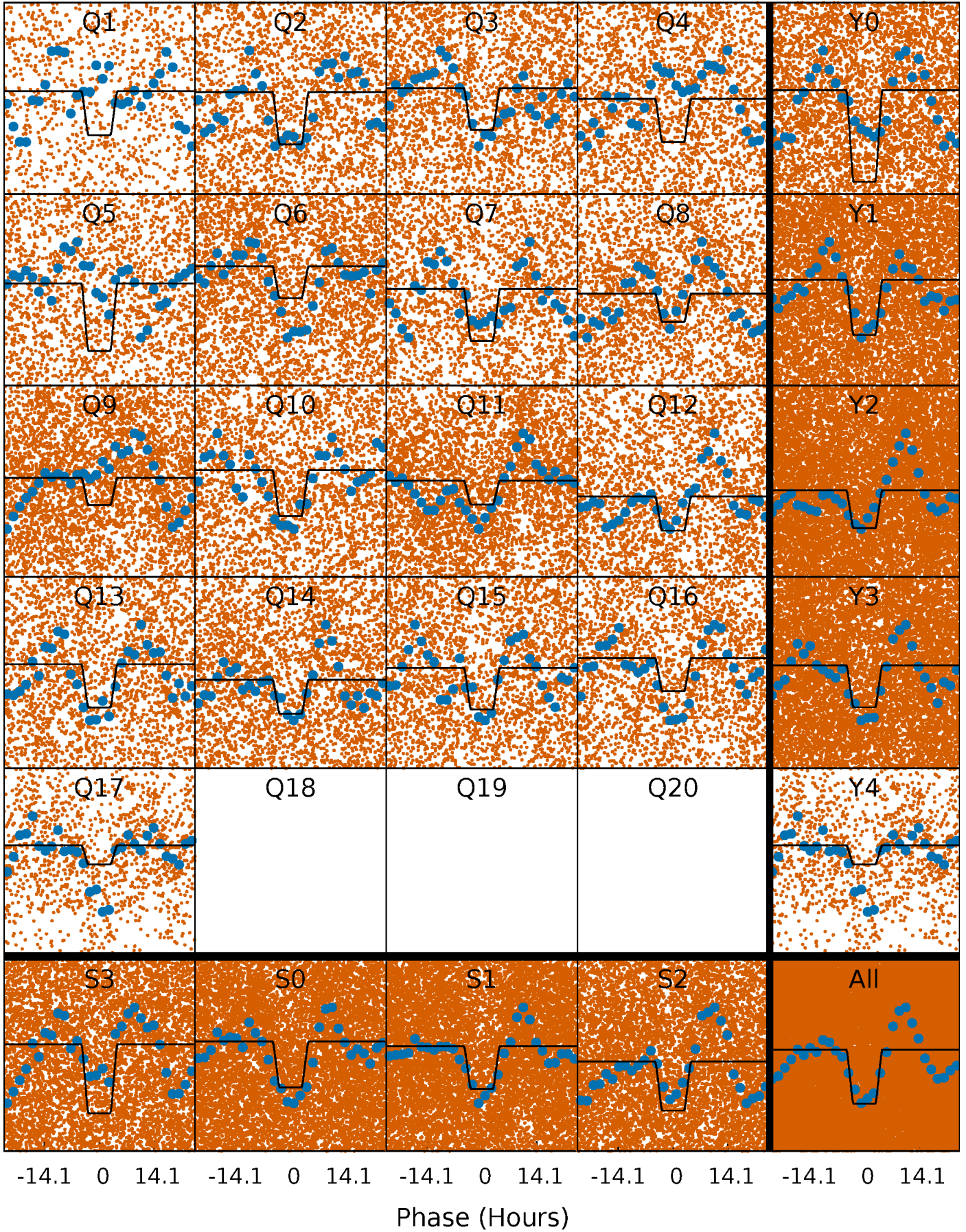
DV Quarter-Phased Transit Curves

TCE 006706982-01 P= 1.811520 Days $T_0=131.700220$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

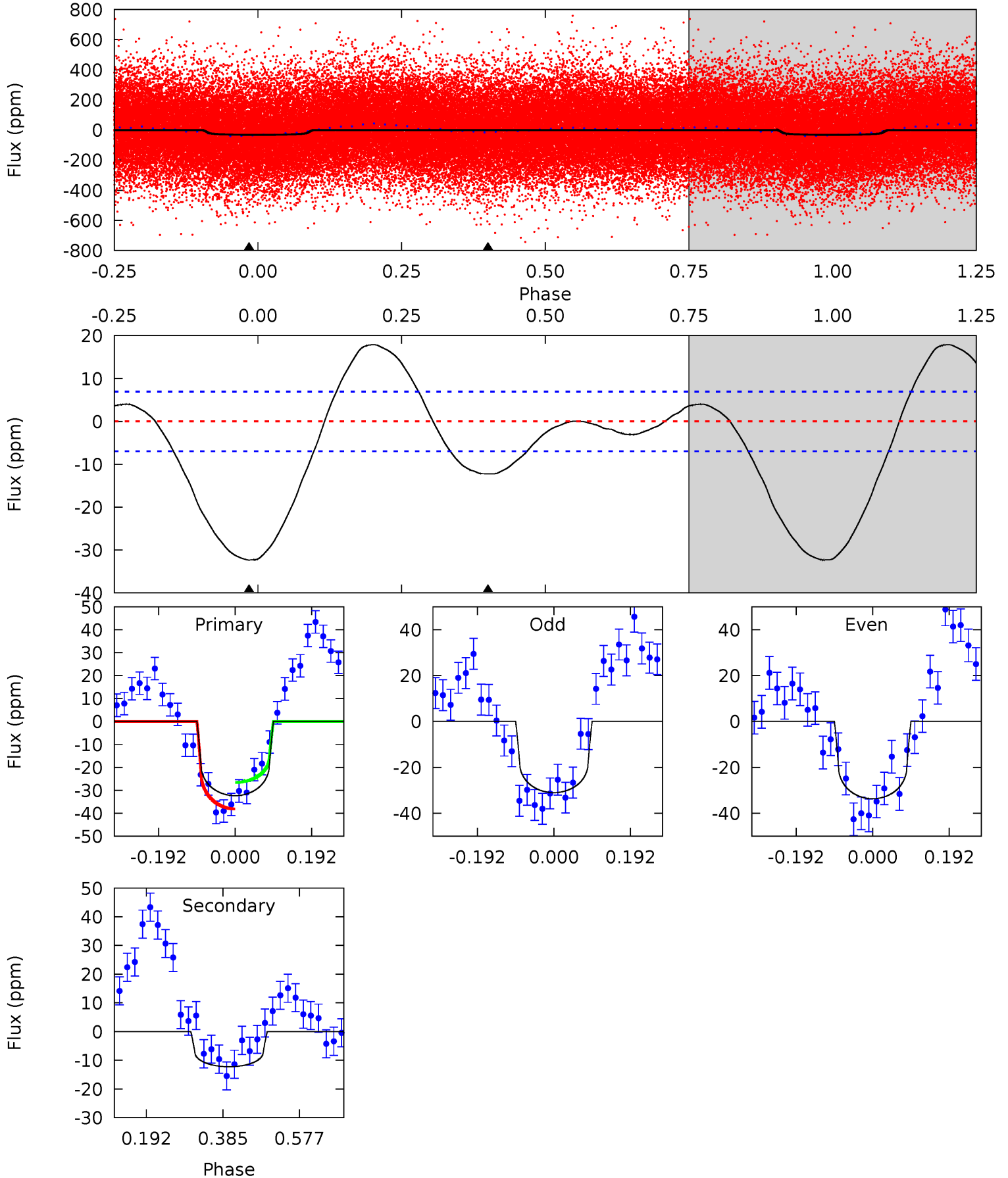
TCE 006706982-01 P= 1.811385 Days $T_0=131.708809$ (BKJD)



DV Model-Shift Uniqueness Test

006706982-01, P = 1.811520 Days, E = 129.888700 Days

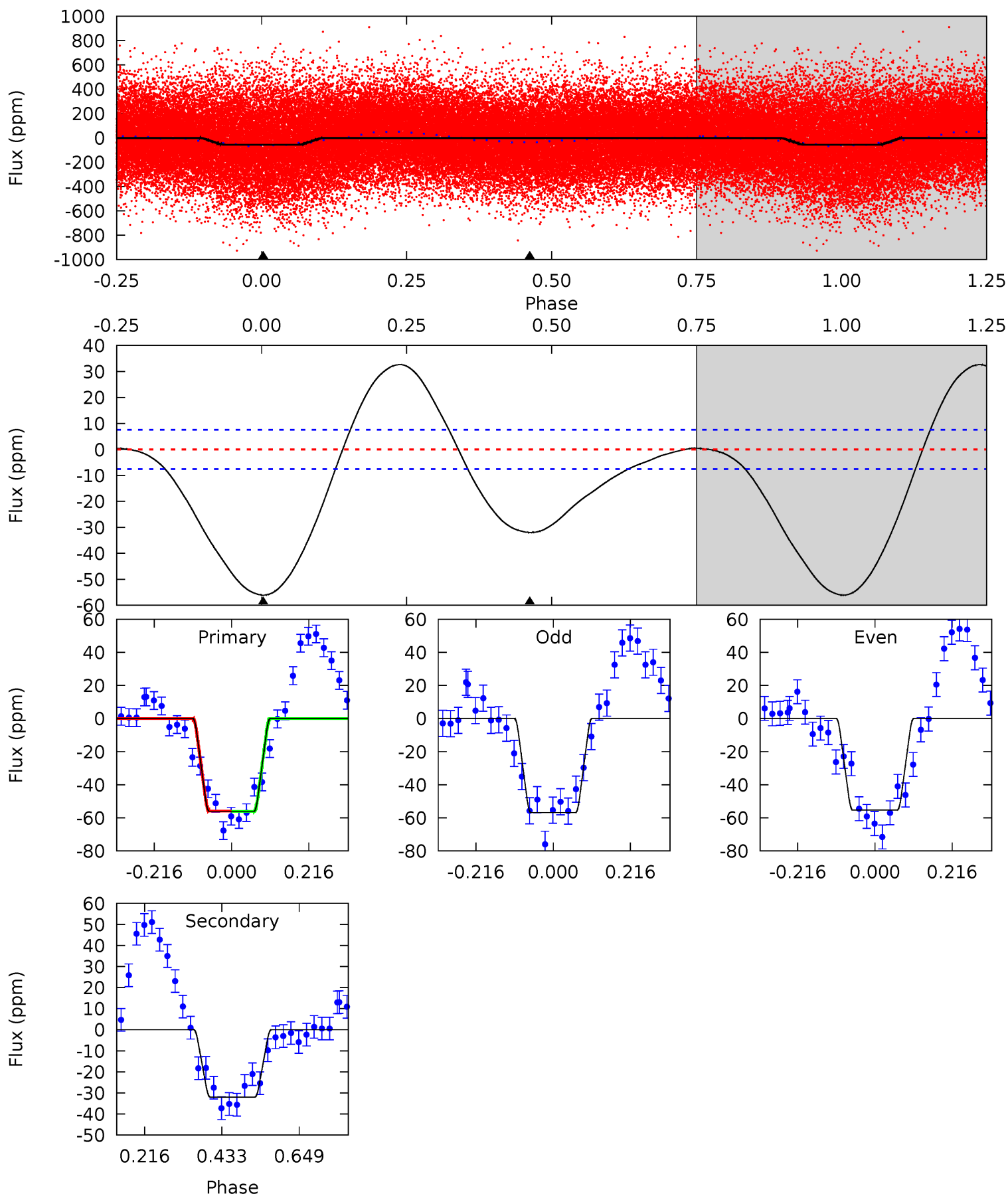
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
20.6	7.80	0	0	4.43	1.30	4.14	20.6	20.6	7.80	7.80	0.85	1.05	0.36	3.63



Alt Model-Shift Uniqueness Test

006706982-01, P = 1.811385 Days, E = 129.897424 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	18.6	0	0	4.40	1.24	7.72	32.6	32.6	18.6	18.6	0.46	1.06	0.37	0.06



Stellar Parameters For KIC 006706982

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	6409^{+76}_{-83}	$3.498^{+0.278}_{-0.093}$	$-0.040^{+0.200}_{-0.100}$	$3.955^{+0.550}_{-1.283}$	$1.795^{+0.102}_{-0.256}$	$0.041^{+0.078}_{-0.011}$
	+1%/-1%	+8%/-3%	+500%/-250%	+14%/-32%	+6%/-14%	+191%/-28%
Source	SPE68	SPE68	SPE68	DSEP		

KIC = Kepler Input Catalog; PHO = Photometry; SPE = Spectroscopy; AST = Asteroseismology
 TRA = Transits; DESP = Dartmouth Models; MULT = Multiple Models

Secondary Eclipse Parameters for KIC 006706982-01 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	-12 ± 2	$2.10^{+1.76}_{-1.29}$	4128^{+194}_{-326}	5114^{+3703}_{-1450}	$1.863^{+10.598}_{-1.308}$
Alt.	-32 ± 2	$3.31^{+1.95}_{-1.78}$	4130^{+204}_{-310}	5229^{+2513}_{-1133}	$1.970^{+7.100}_{-1.183}$

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

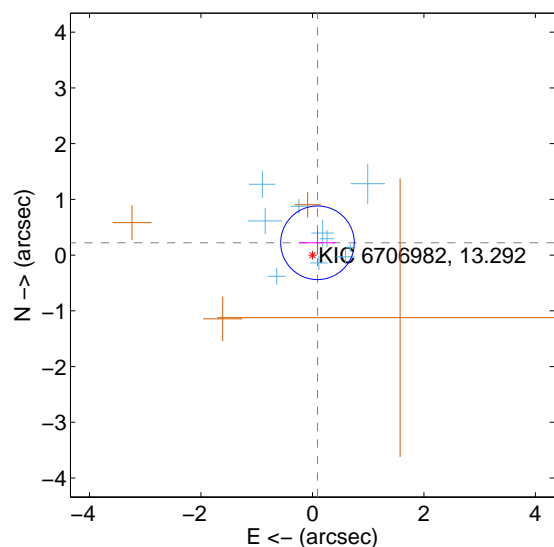
Supplemental centroid analysis for 006706982-01. Kepler magnitude: 13.29. Transit SNR 8.12

There are 10 quarters with good PRF difference image offsets

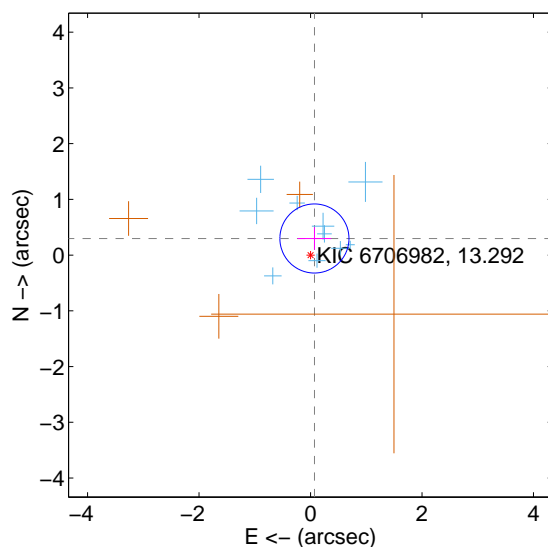
The direct PRF centroid is offset from the target star catalog position by about 0.16 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.239 ± 0.220	1.09	-0.091 ± 0.327	0.221 ± 0.212
PRF-fit source offset from KIC position	0.306 ± 0.207	1.48	-0.070 ± 0.300	0.298 ± 0.203
photometric centroid source offset	1.24 ± 0.79	1.57	1.05 ± 0.76	-0.67 ± 0.87

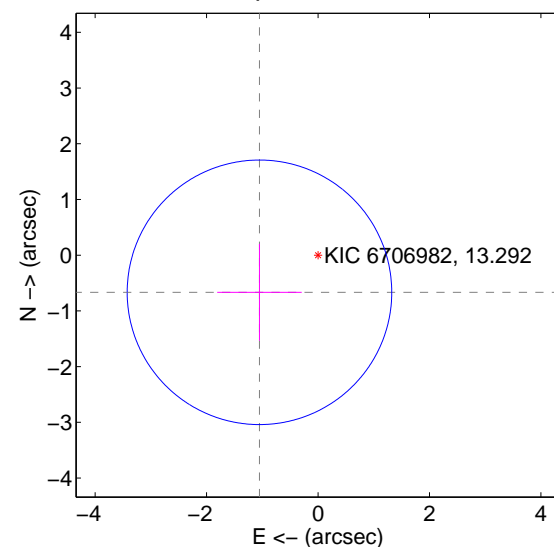
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position

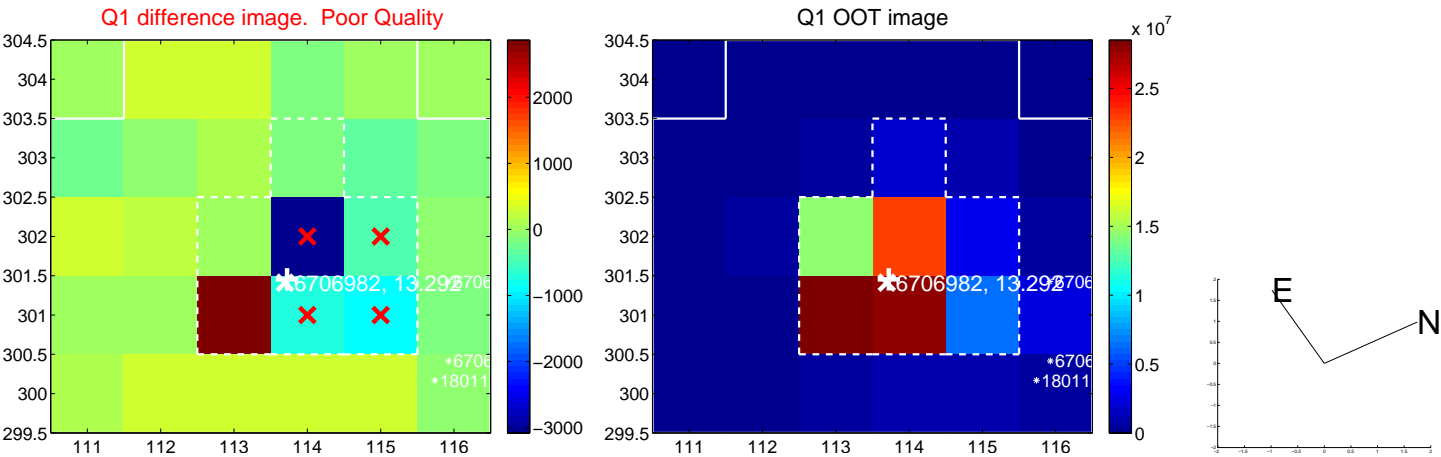


offset from photometric centroids

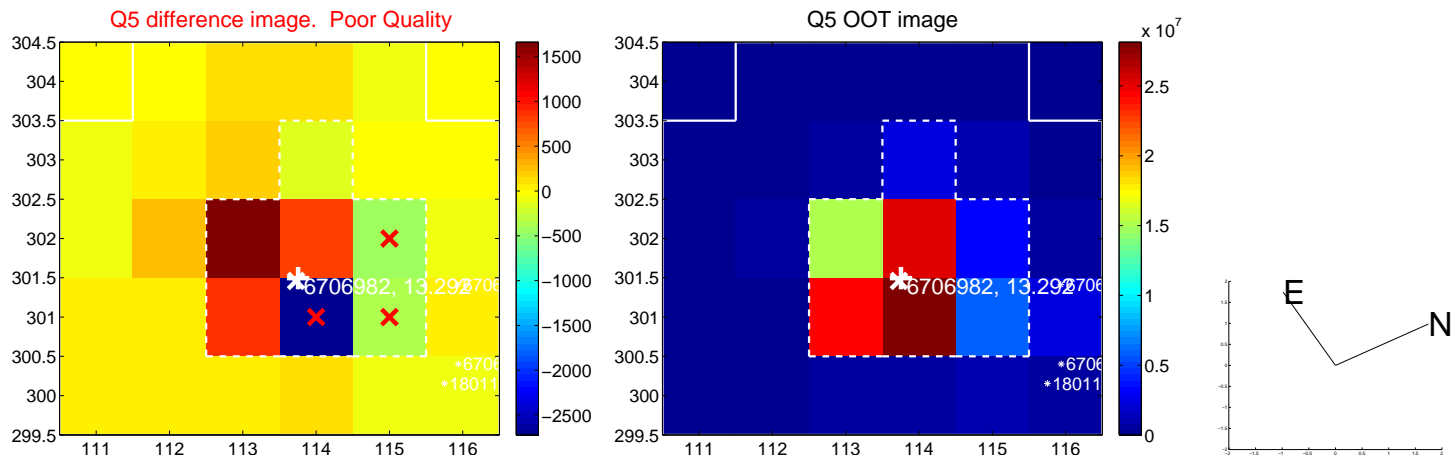


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses:** good quarterly centroid offsets; **Vermillion crosses:** bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

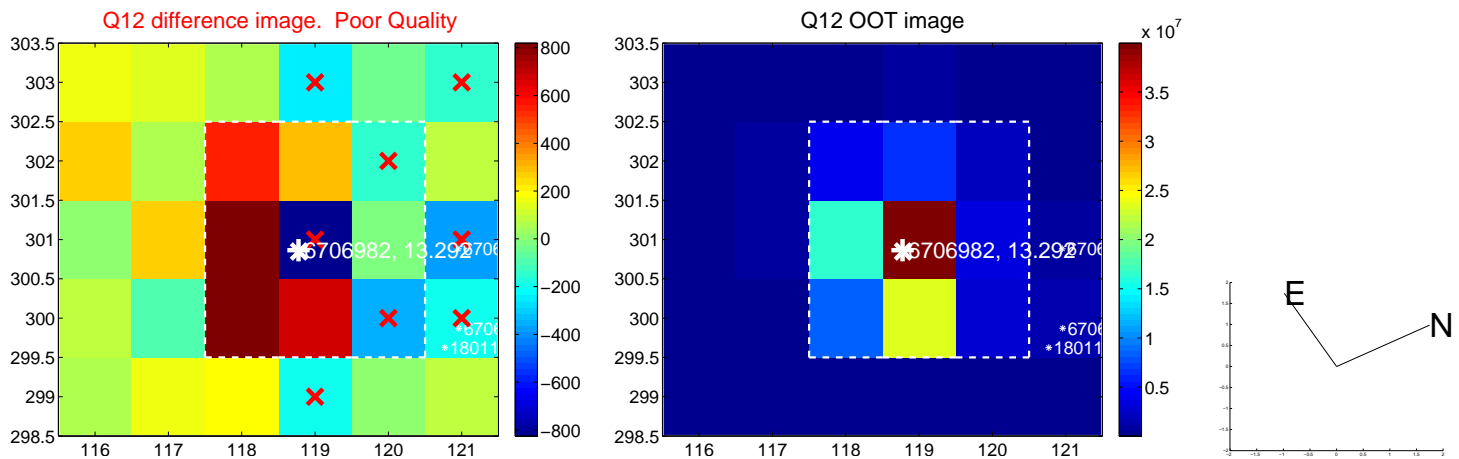
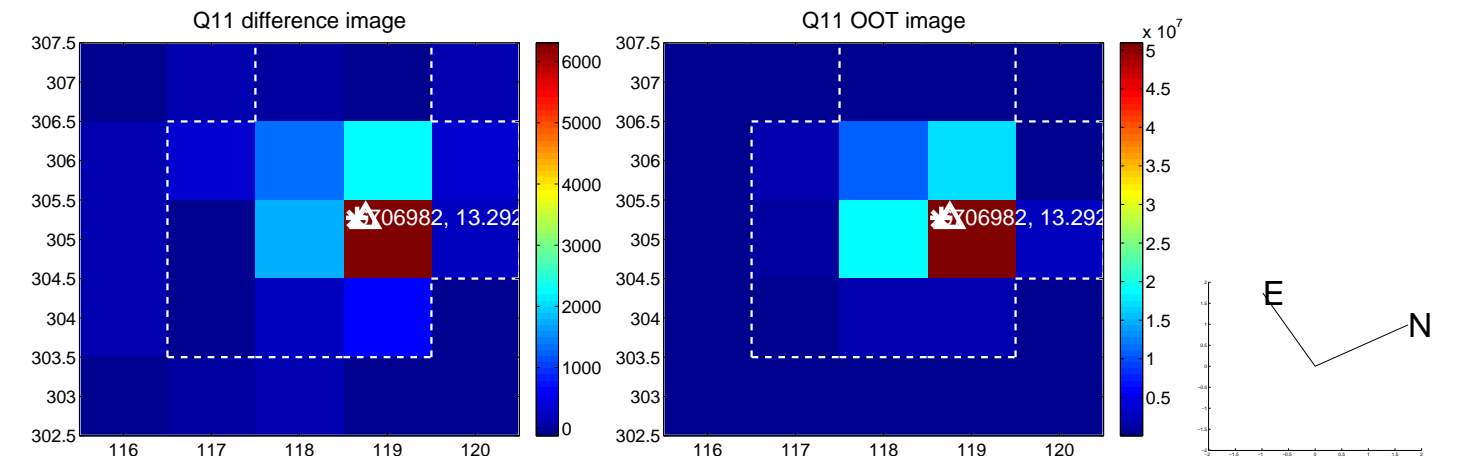
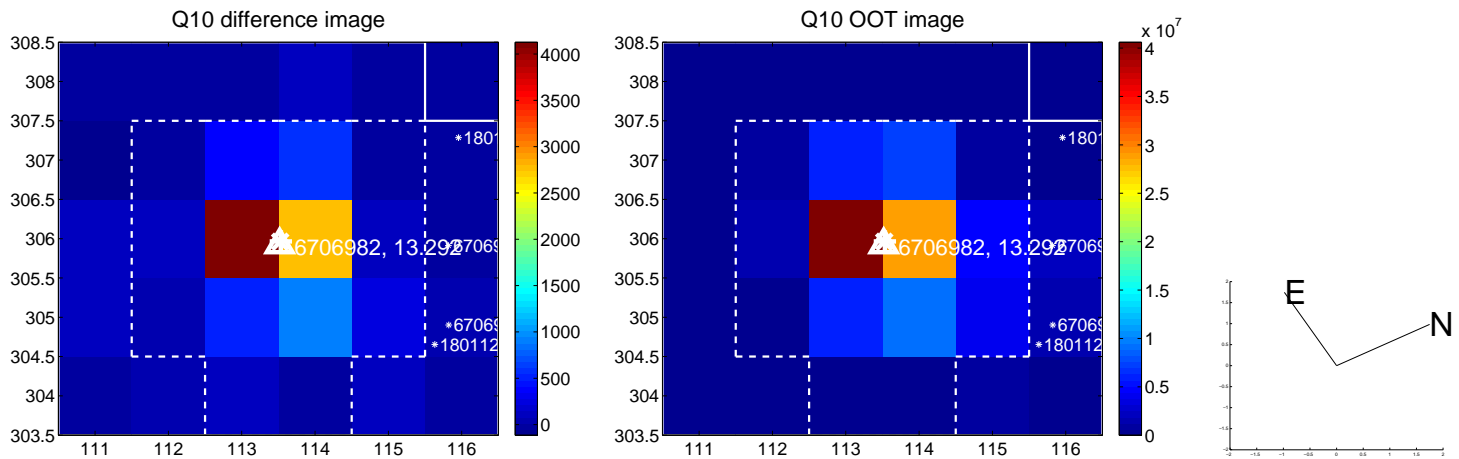
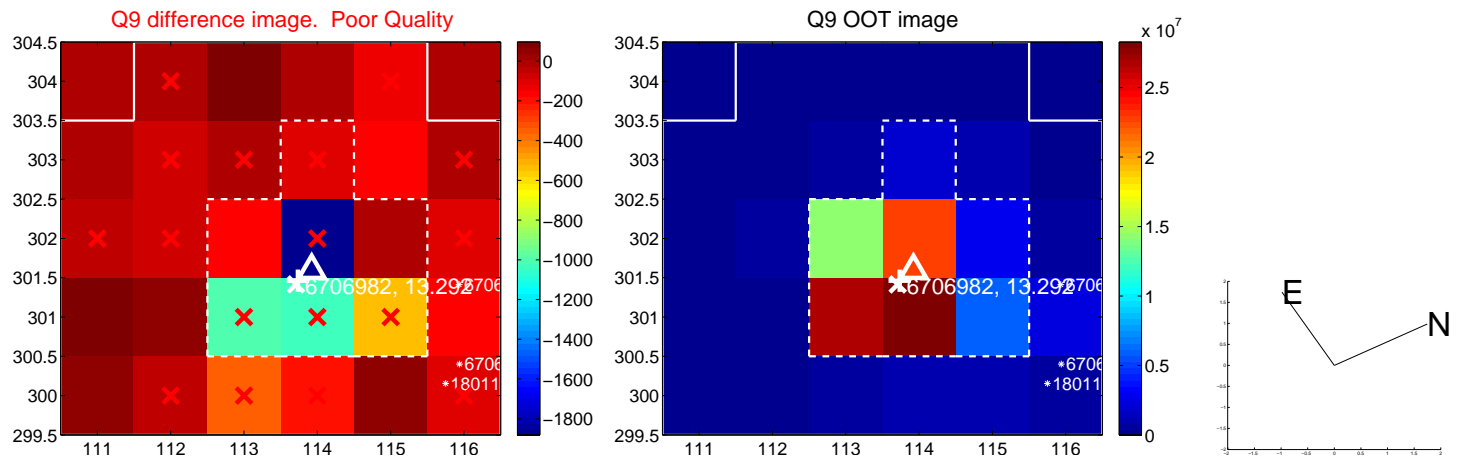
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



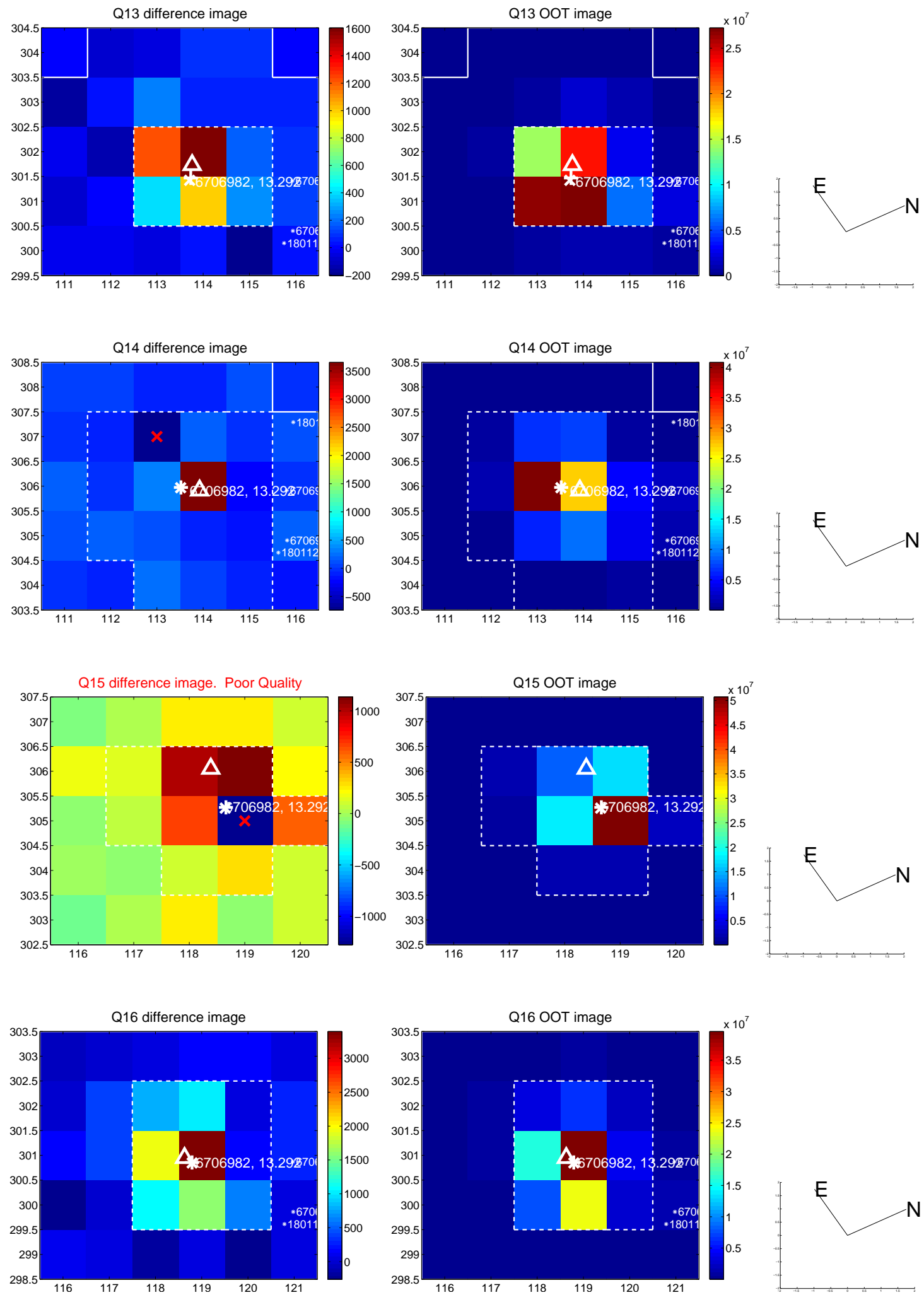
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



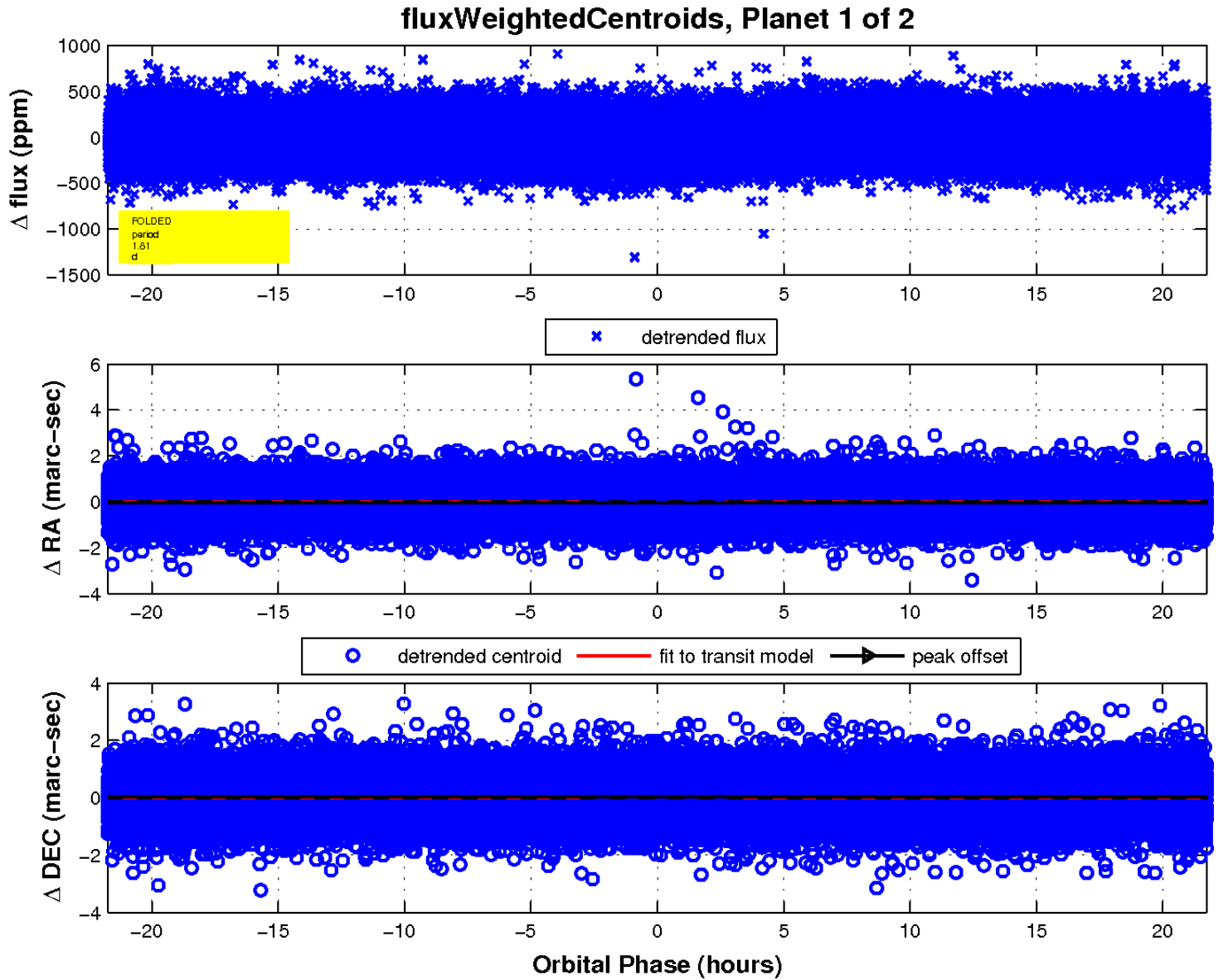
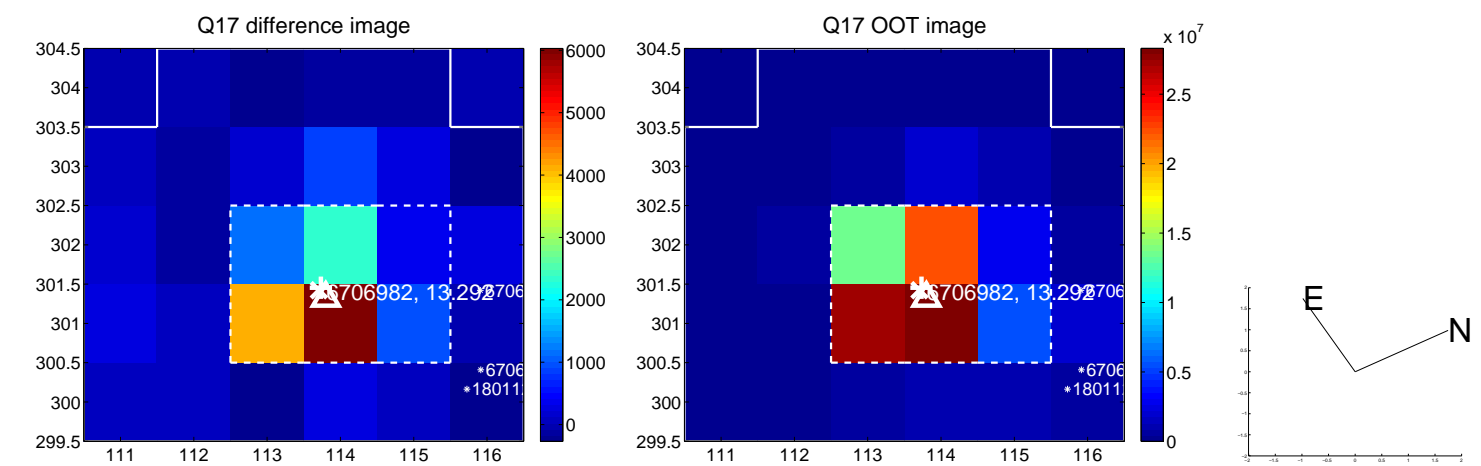
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

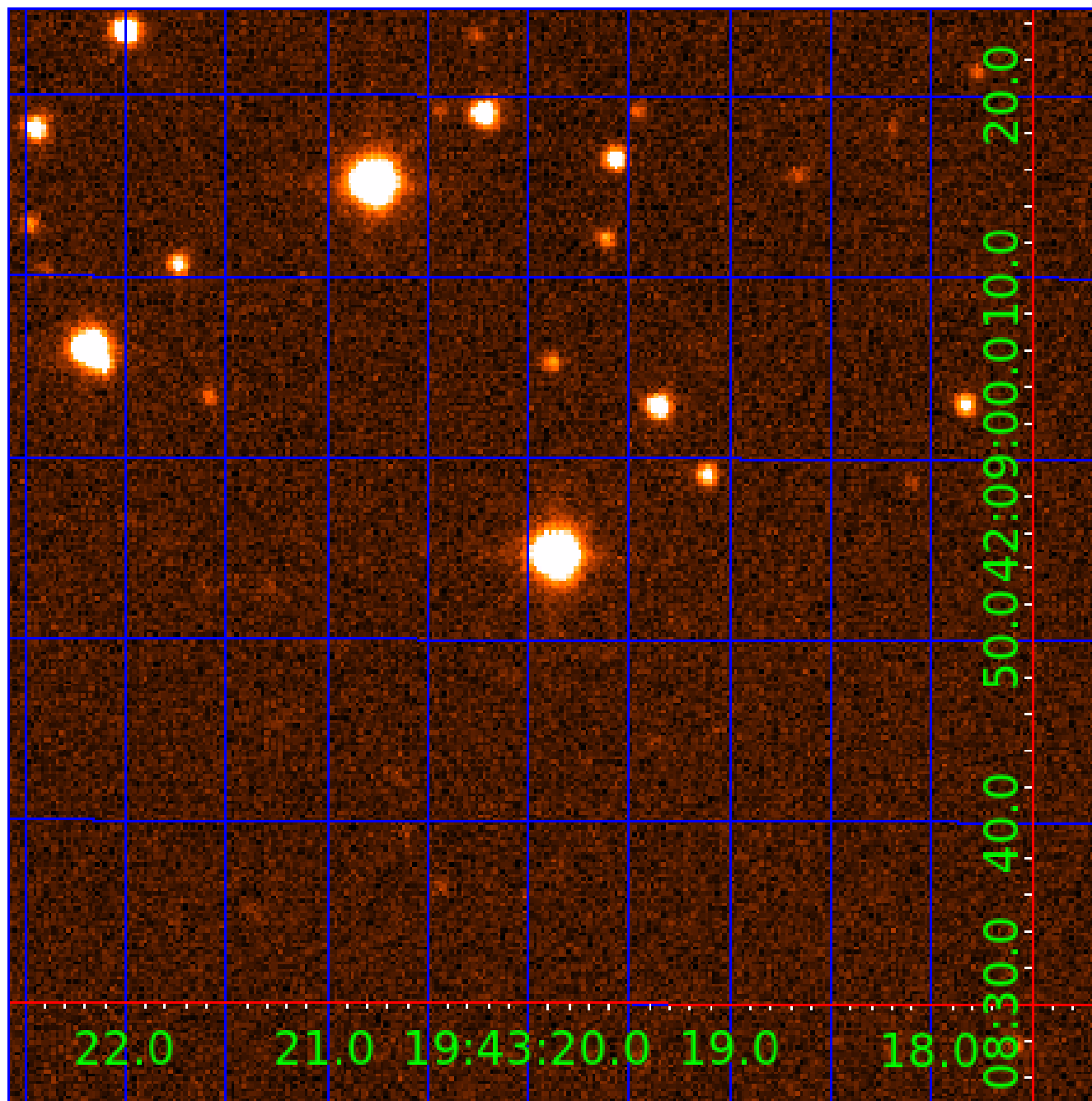


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 006706982

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})
006706982-01	OBS	No	1.811520	131.700220	21.7	7.916	8.7	8.1	3.96	6409	1.85	18913.08
006706982-02	OBS	No	44.633285	165.231546	151.6	6.502	7.7	8.0	3.96	6409	5.53	263.80

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
006706982-01	OBS	FP	0.00	1	0	0	0	LPP_DV—MOD_NONUNIQ_ALT
006706982-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_SKYE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_ALT

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

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

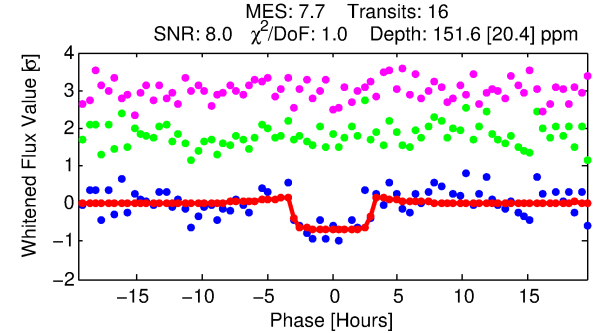
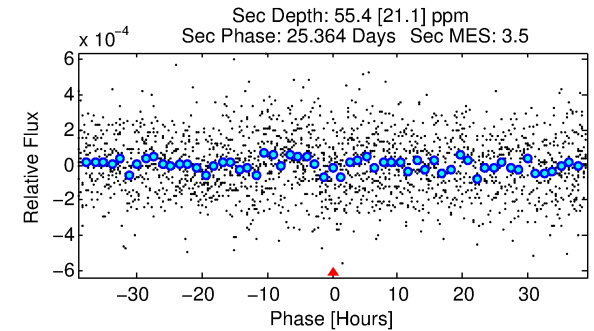
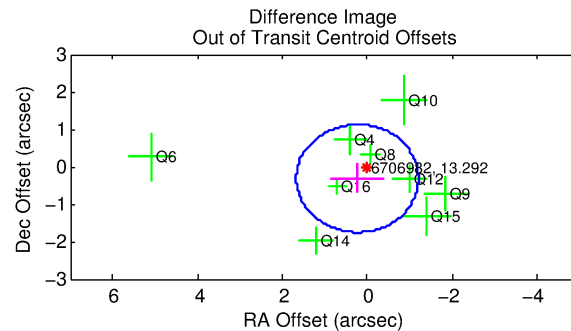
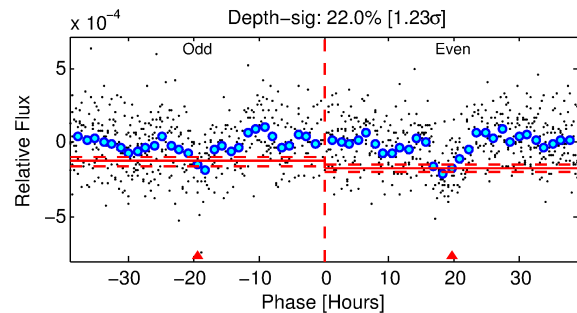
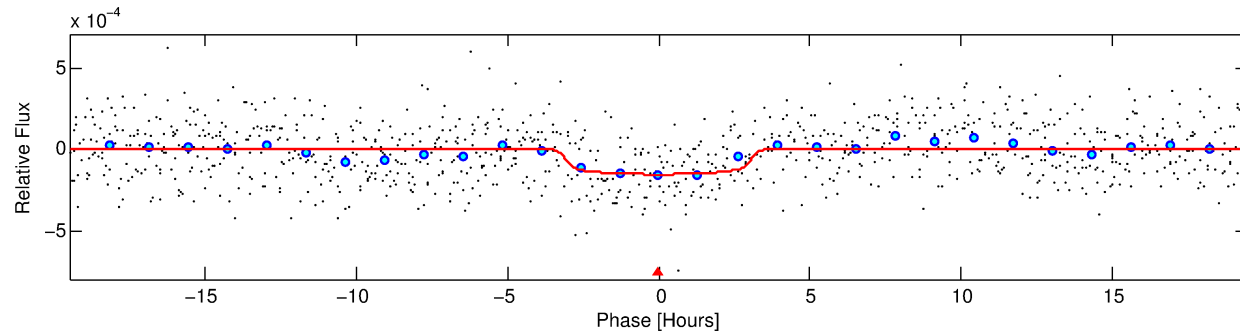
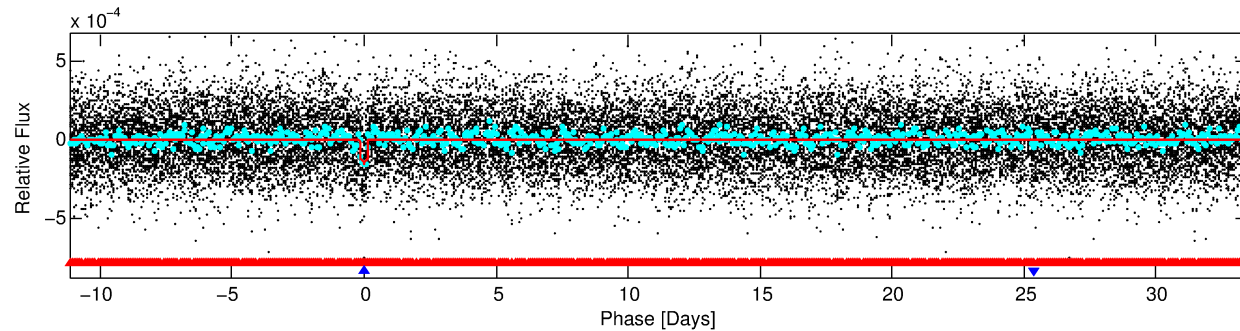
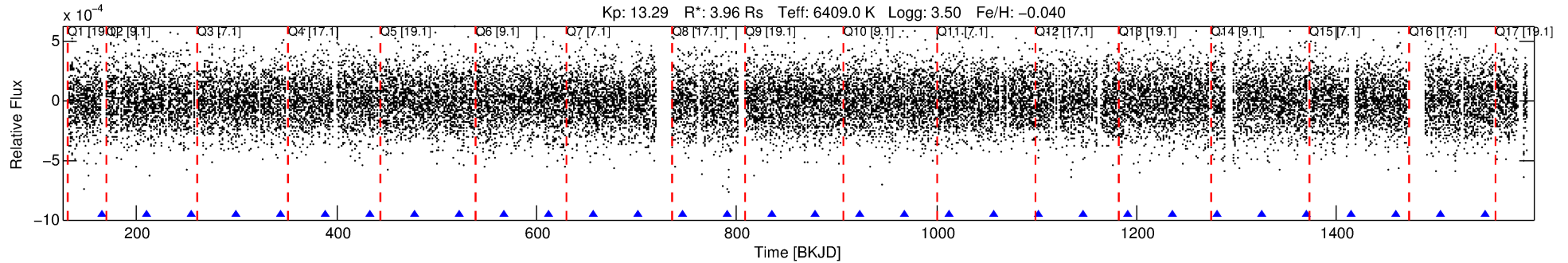
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 006706982-02

No Significant Match Found

DV One-Page Summary

KIC: 6706982 Candidate: 2 of 2 Period: 44.633 d



DV Fit Results:

Period = 44.63329 [0.00083] d
Epoch = 165.2315 [0.0148] BKJD
Rp/R* = 0.0128 [0.0048]
a/R* = 28.19 [57.86]
b = 0.86 [0.63]
Seff = 263.80 [126.94]
Teq = 1028 [124] K
Rp = 5.53 [2.75] Re
a = 0.2994 [0.0910] AU
Ag = 89.14 [86.53] [1.02 σ]
Teffp = 4882 [1033] K [3.71 σ]

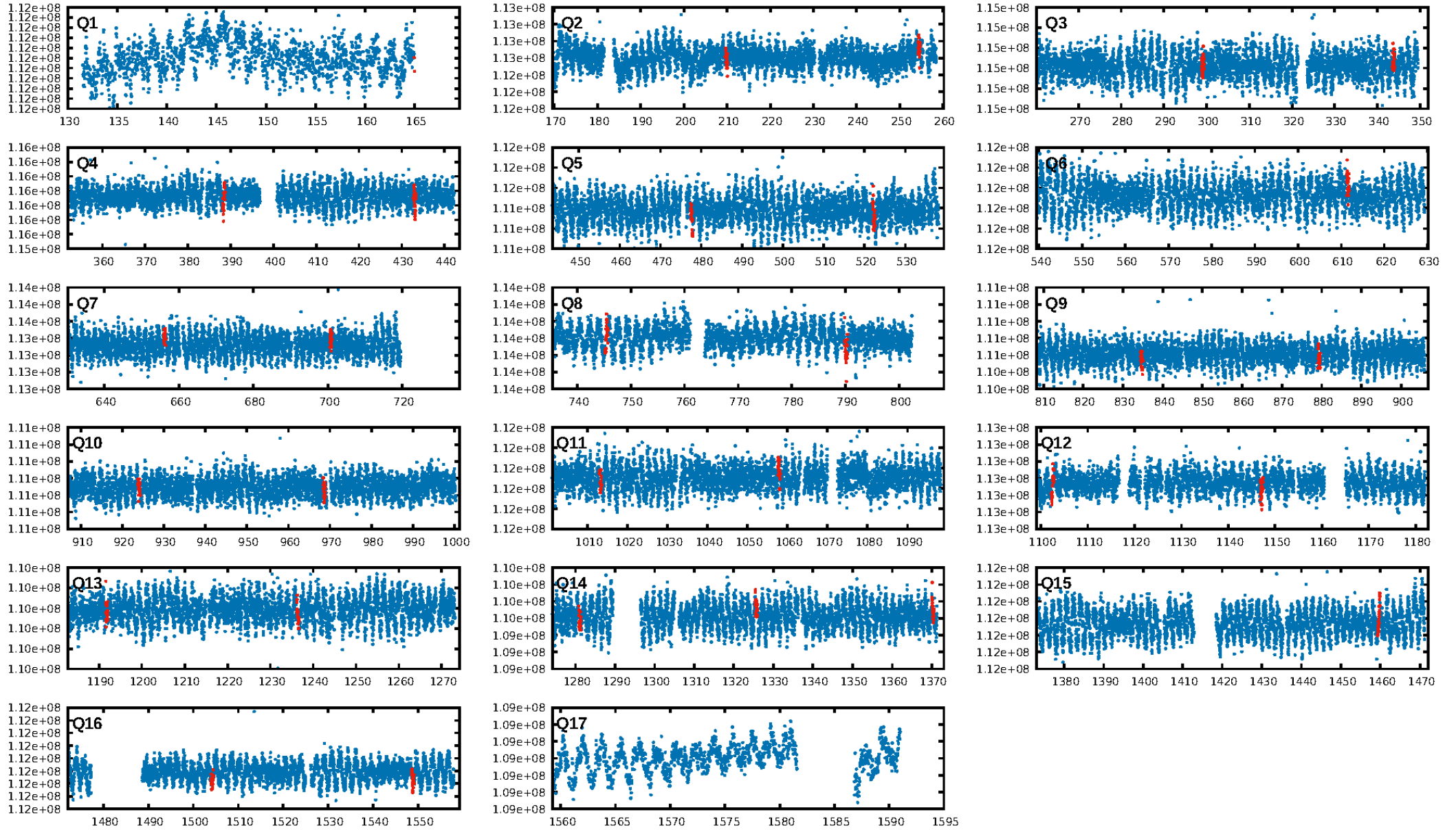
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [100.33 σ]
LongPeriod-sig: N/A
ModelChiSquare2-sig: 81.8%
ModelChiSquareGof-sig: 100.0%
Bootstrap-pfa: 1.80e-10
RollingBand-fgt: 1.00 [16/16]
GhostDiagnostic-chr: 3.565
Centroid-sig: 21.9%
Centroid-so: 0.511 arcsec [0.73 σ]
OotOffset-rm: 0.389 arcsec [0.81 σ]
OotOffset-st: 3/1/4/1 [9]
KicOffset-rm: 0.377 arcsec [0.78 σ]
KicOffset-st: 3/1/4/1 [9]
DiffImageQuality-fgm: 0.78 [7/9]
DiffImageOverlap-fno: 0.33 [5/15]

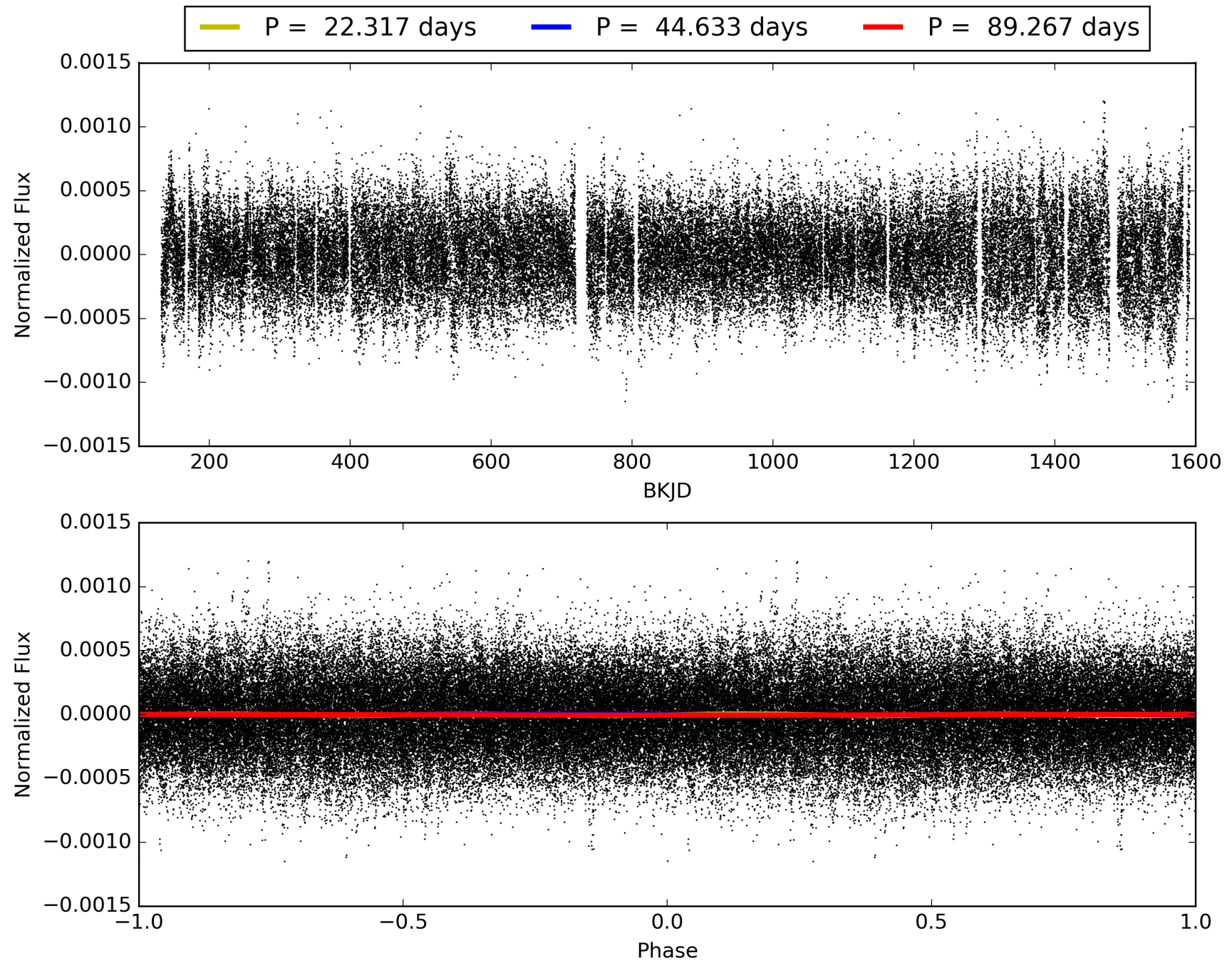
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 18:27:13 Z

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

TCE 006706982-02, PDC Light Curves

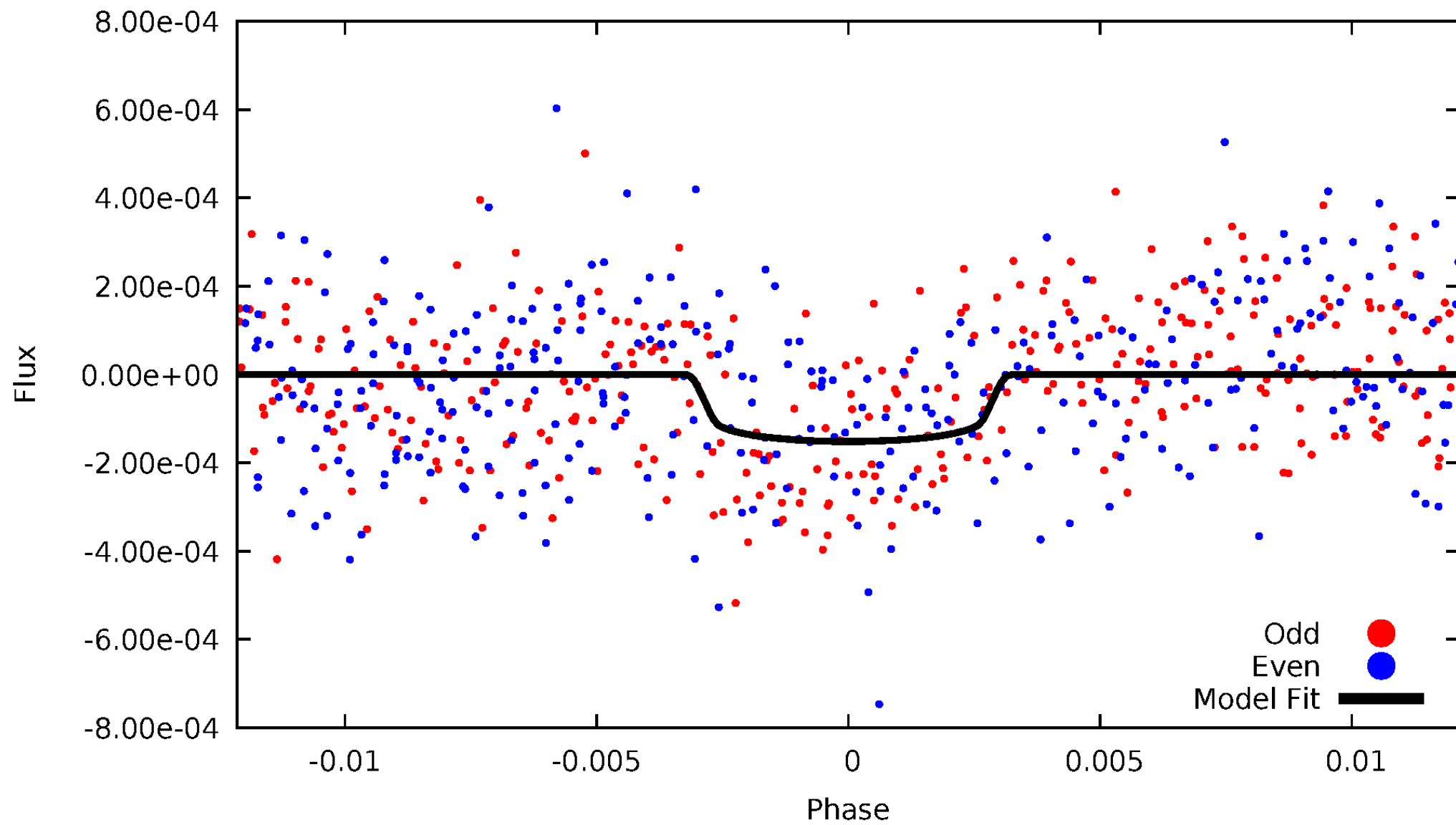


TCE 006706982-02



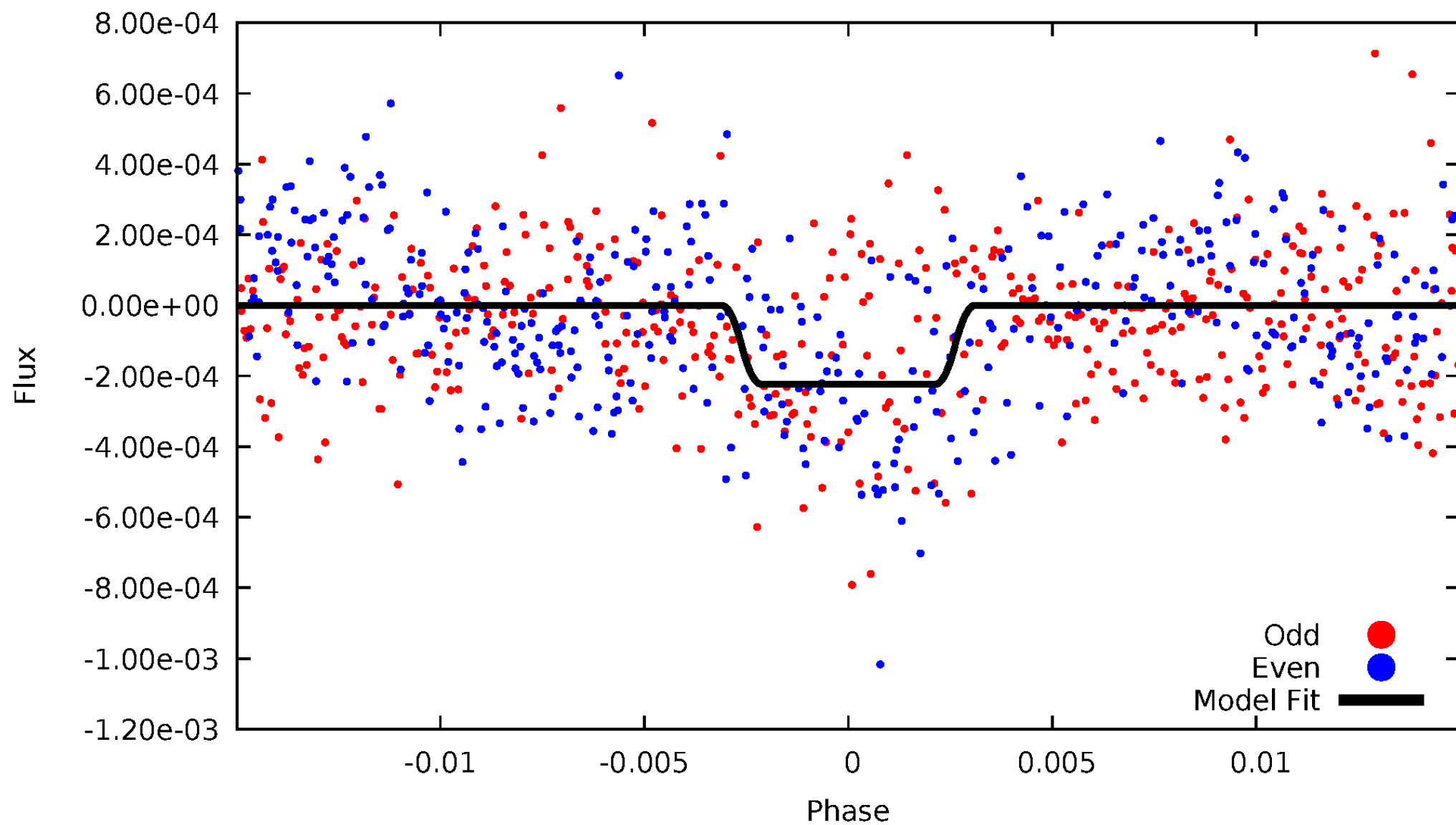
DV Odd/Even

TCE 006706982-02



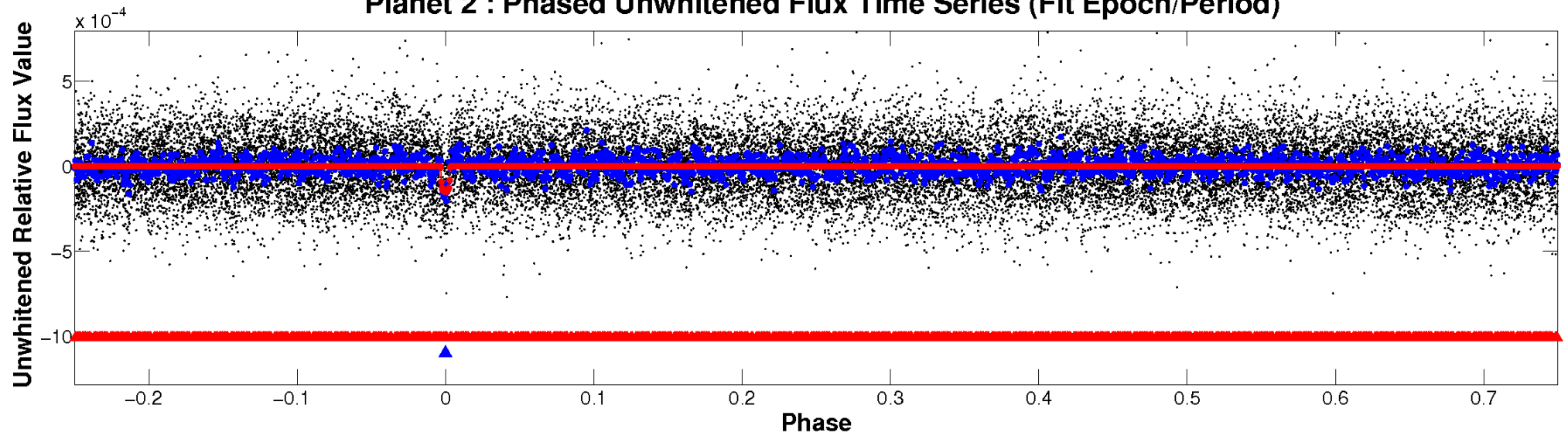
ALT Odd/Even

TCE 006706982-02

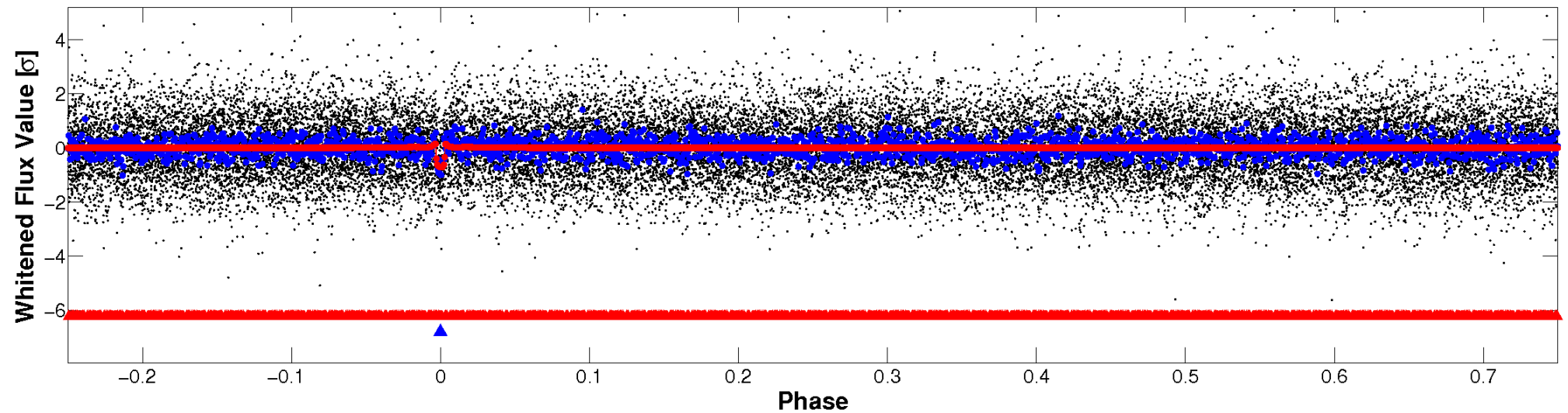


Non-Whitened Vs. Whitened Light Curve

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

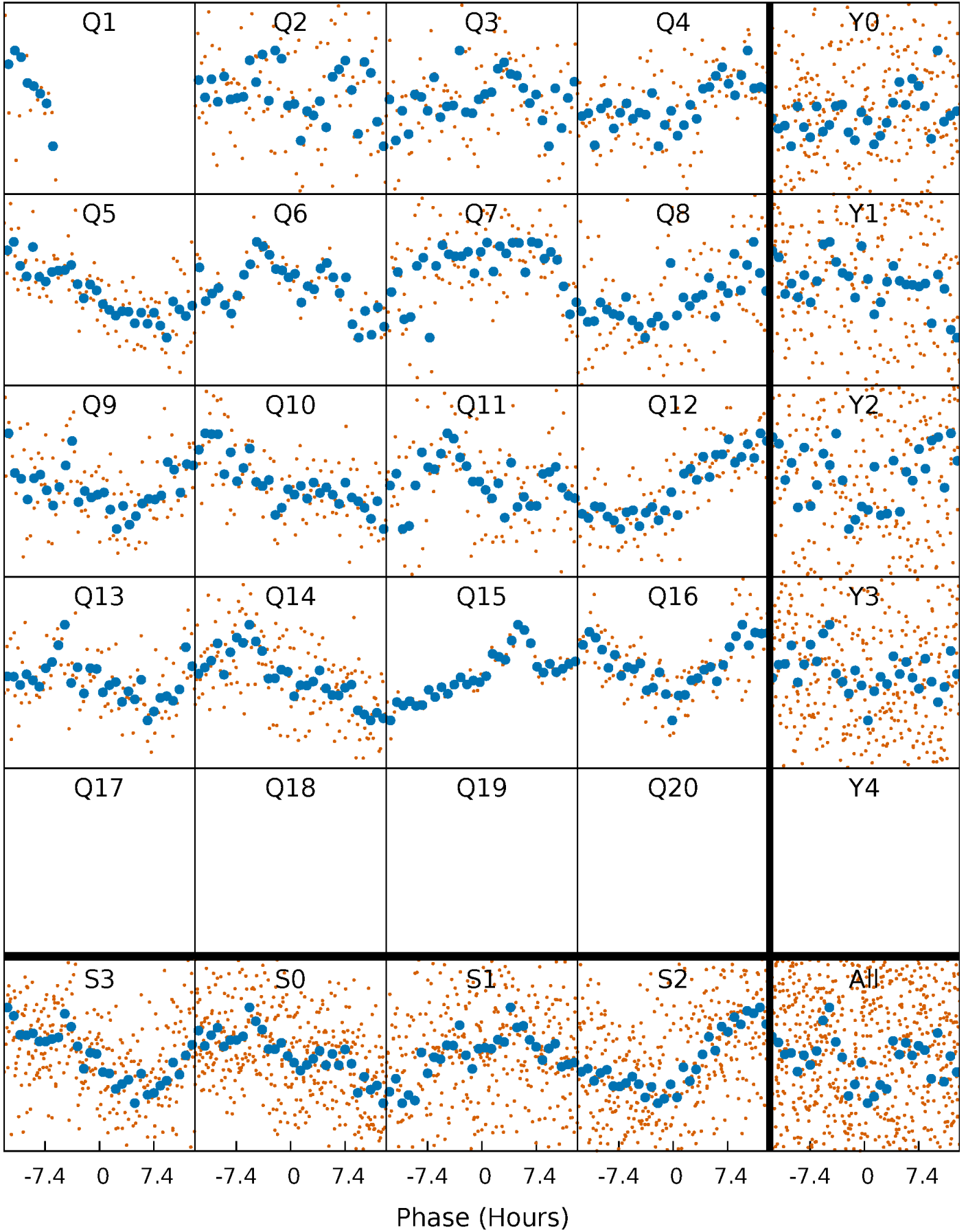


Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



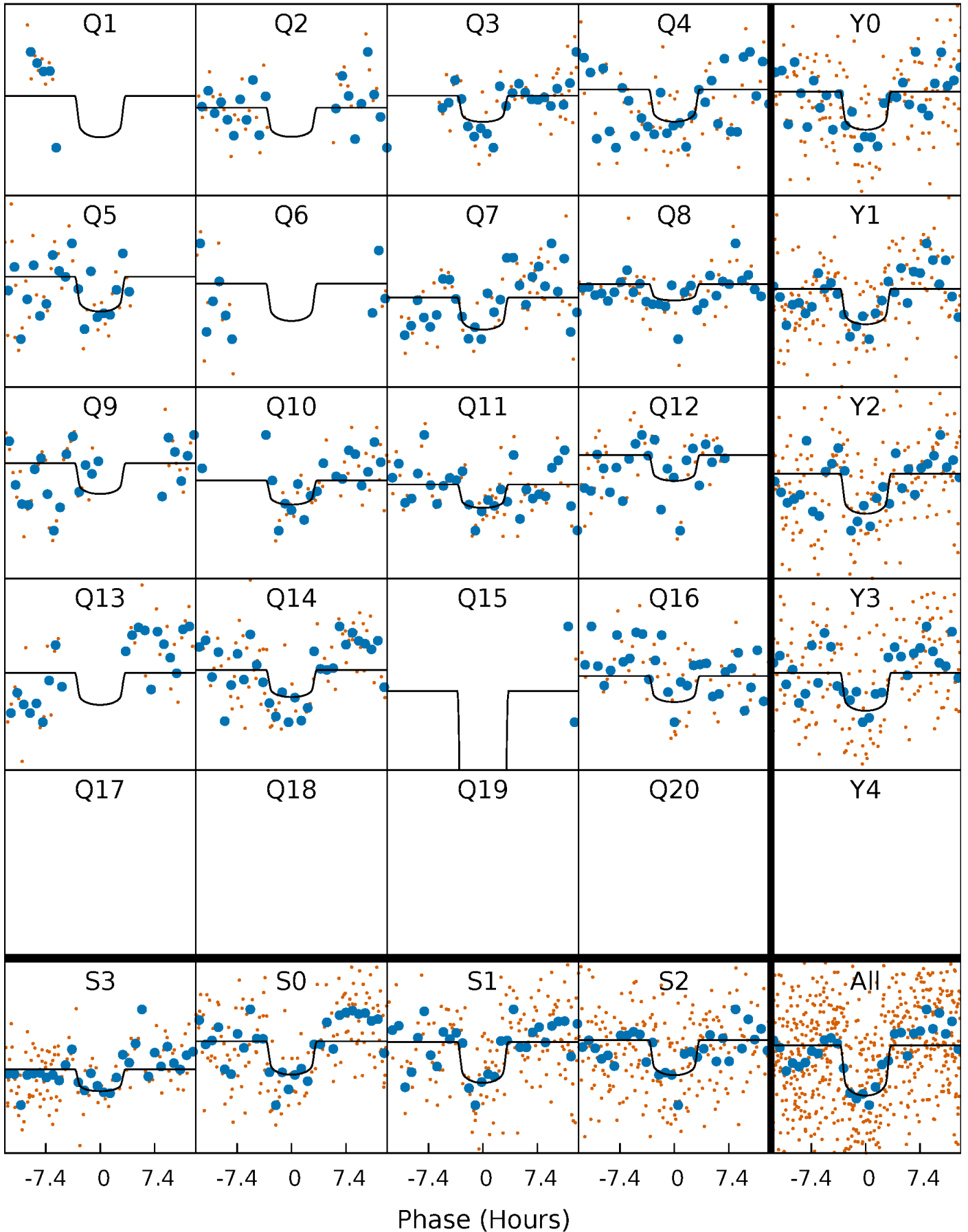
PDC Quarter-Phased Transit Curves

TCE 006706982-02 P= 44.633285 Days $T_0=165.231546$ (BKJD)



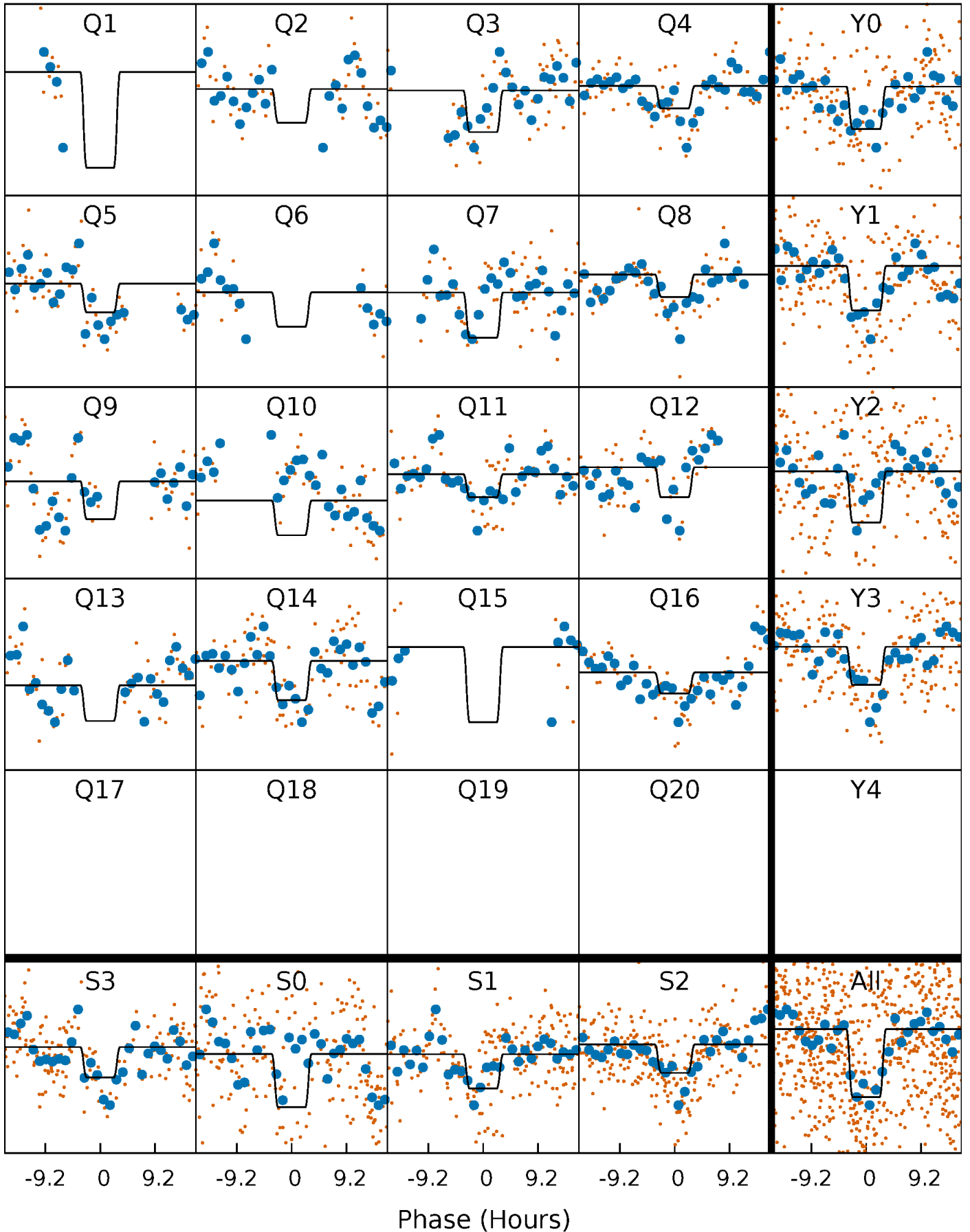
DV Quarter-Phased Transit Curves

TCE 006706982-02 P= 44.633285 Days $T_0=165.231546$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

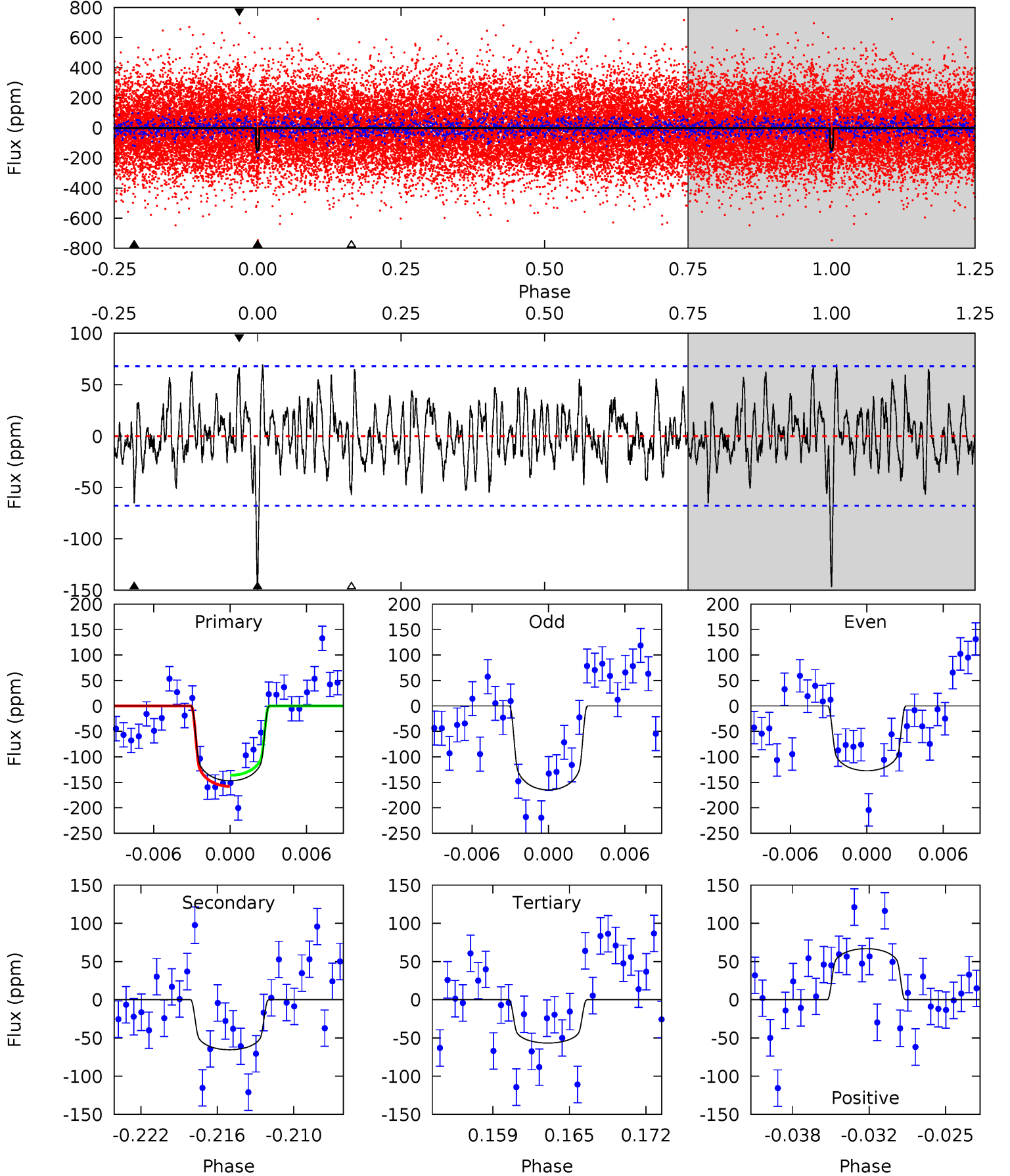
TCE 006706982-02 P= 44.632421 Days $T_0=165.235959$ (BKJD)



DV Model-Shift Uniqueness Test

006706982-02, P = 44.633285 Days, E = 120.598261 Days

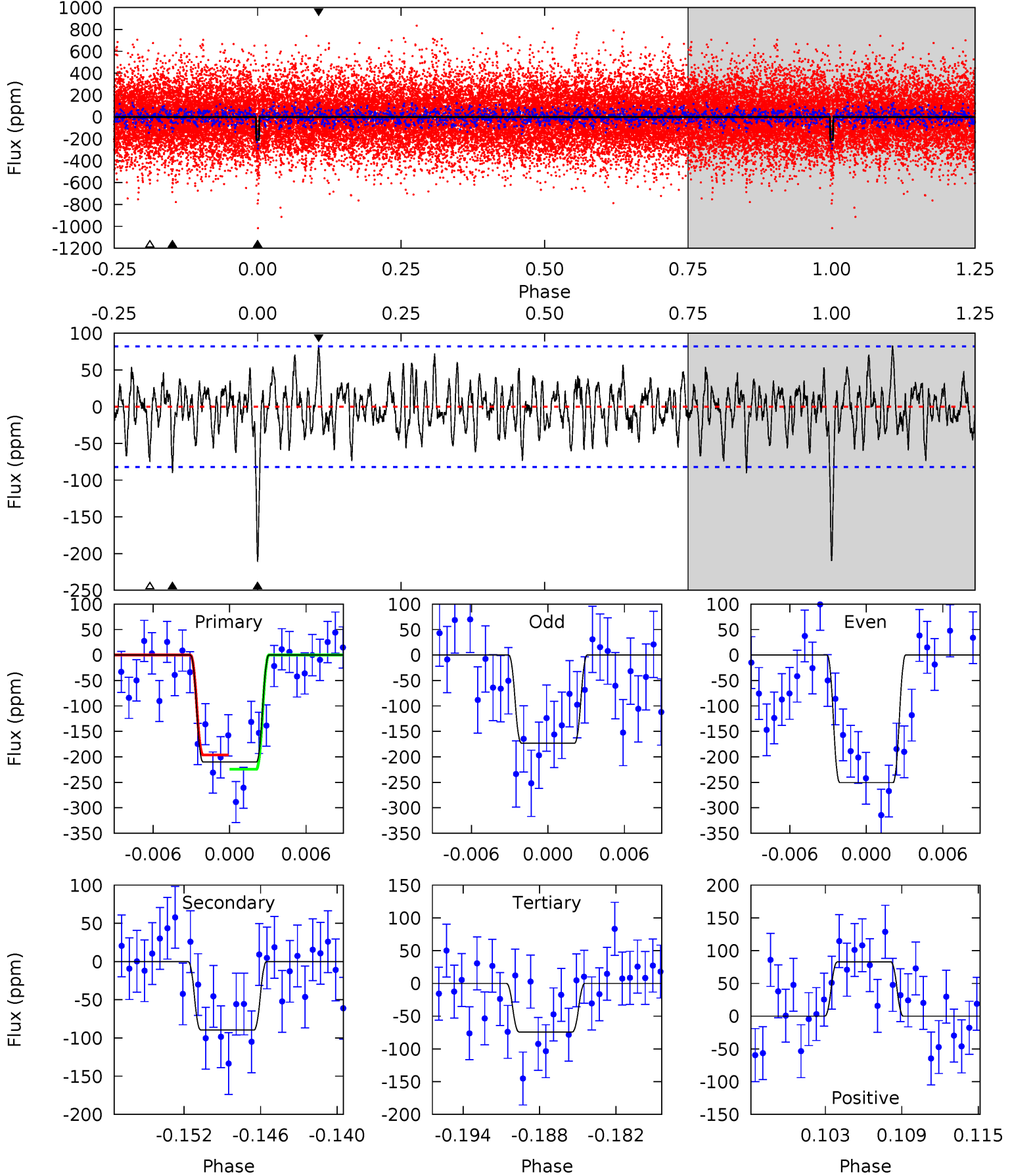
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
11.1	4.93	4.27	5.04	5.11	2.73	1.69	6.80	6.04	0.66	-0.11	1.42	0.96	0.32	0.82



Alt Model-Shift Uniqueness Test

006706982-02, P = 44.632421 Days, E = 120.603538 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
13.1	5.59	4.62	5.17	5.12	2.74	1.61	8.49	7.95	0.96	0.42	2.42	0.96	0.28	0.88



Stellar Parameters For KIC 006706982

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	6409^{+76}_{-83}	$3.498^{+0.278}_{-0.093}$	$-0.040^{+0.200}_{-0.100}$	$3.955^{+0.550}_{-1.283}$	$1.795^{+0.102}_{-0.256}$	$0.041^{+0.078}_{-0.011}$
	+1%/-1%	+8%/-3%	+500%/-250%	+14%/-32%	+6%/-14%	+191%/-28%
Source	SPE68	SPE68	SPE68	DSEP		

KIC = Kepler Input Catalog; PHO = Photometry; SPE = Spectroscopy; AST = Asteroseismology
 TRA = Transits; DESP = Dartmouth Models; MULT = Multiple Models

Secondary Eclipse Parameters for KIC 006706982-02 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	-65 ± 13	$5.32^{+2.39}_{-1.94}$	1428^{+61}_{-125}	5090^{+1206}_{-656}	111^{+160}_{-59}
Alt.	-90 ± 16	$6.05^{+2.30}_{-2.04}$	1425^{+58}_{-127}	5127^{+1070}_{-587}	116^{+152}_{-55}

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

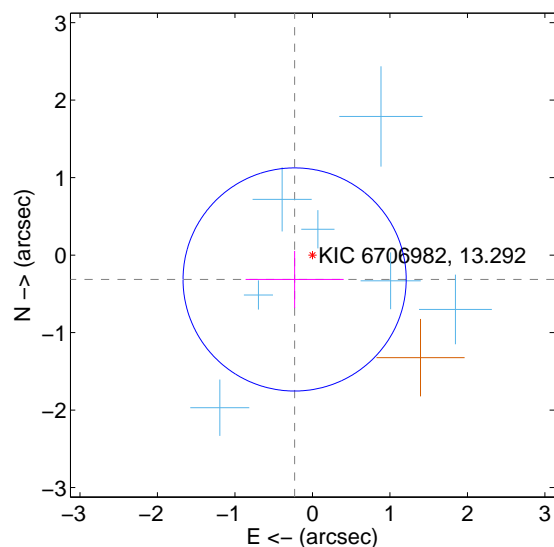
Supplemental centroid analysis for 006706982-02. Kepler magnitude: 13.29. Transit SNR 8.04

There are 7 quarters with good PRF difference image offsets

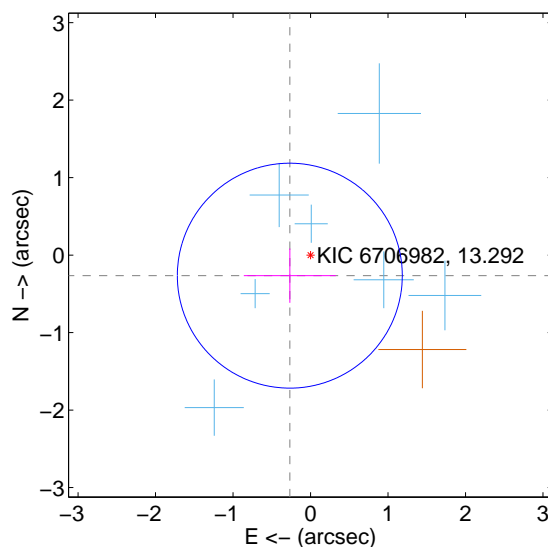
The direct PRF centroid is offset from the target star catalog position by about 0.03 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.389 ± 0.480	0.81	0.230 ± 0.632	-0.314 ± 0.369
PRF-fit source offset from KIC position	0.377 ± 0.484	0.78	0.267 ± 0.594	-0.266 ± 0.350
photometric centroid source offset	0.51 ± 0.70	0.73	-0.19 ± 0.62	-0.47 ± 0.71

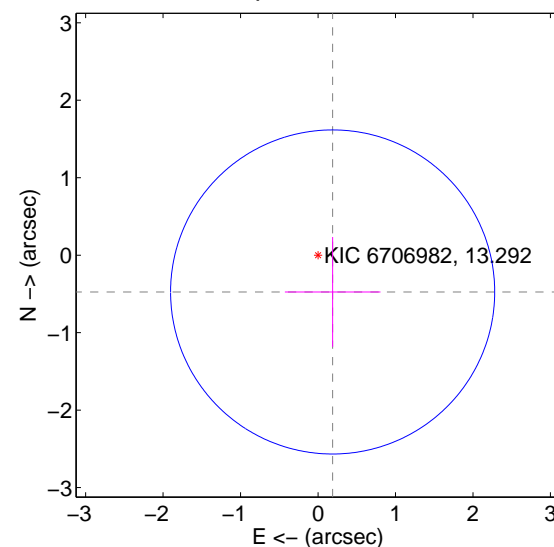
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position

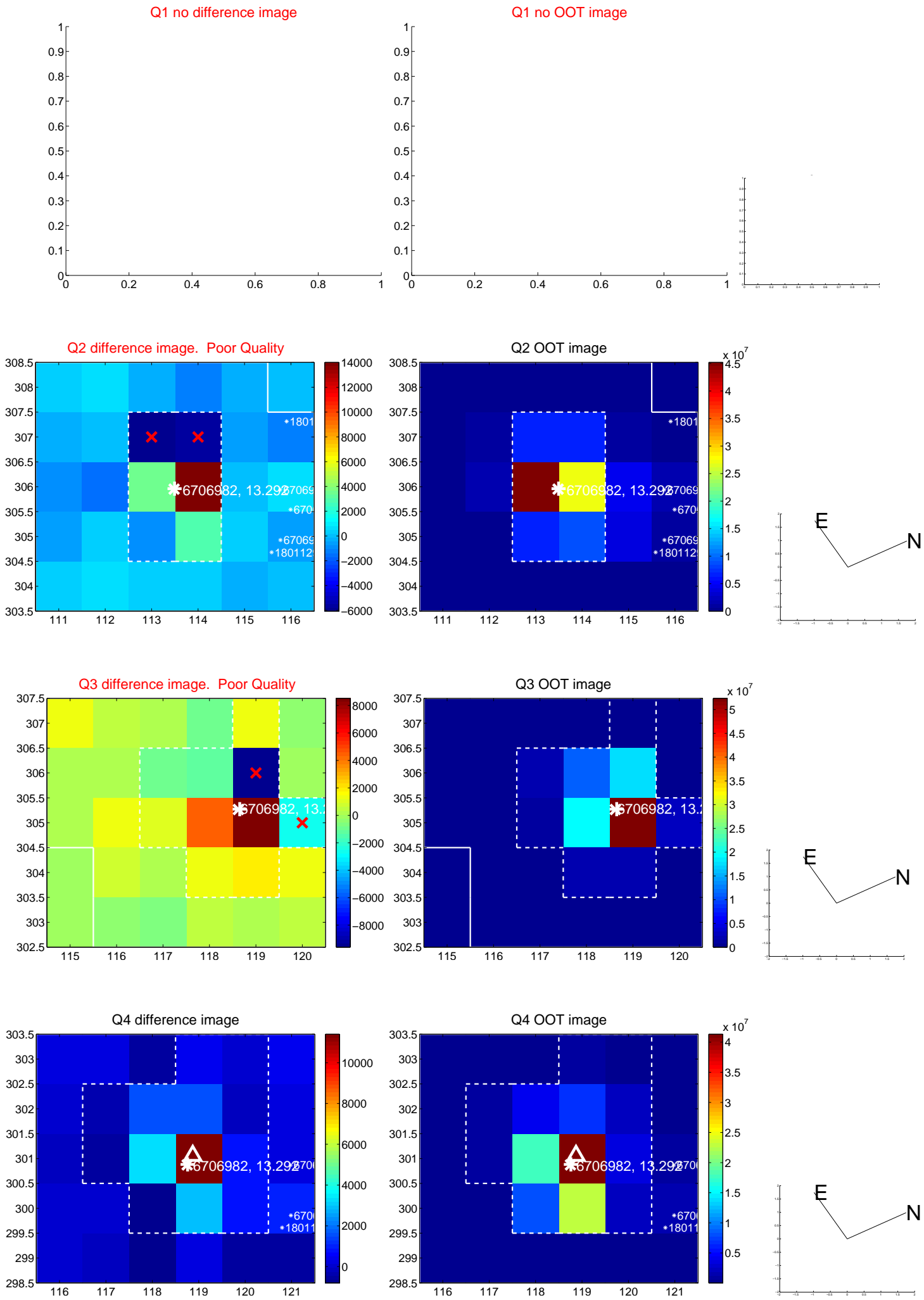


offset from photometric centroids

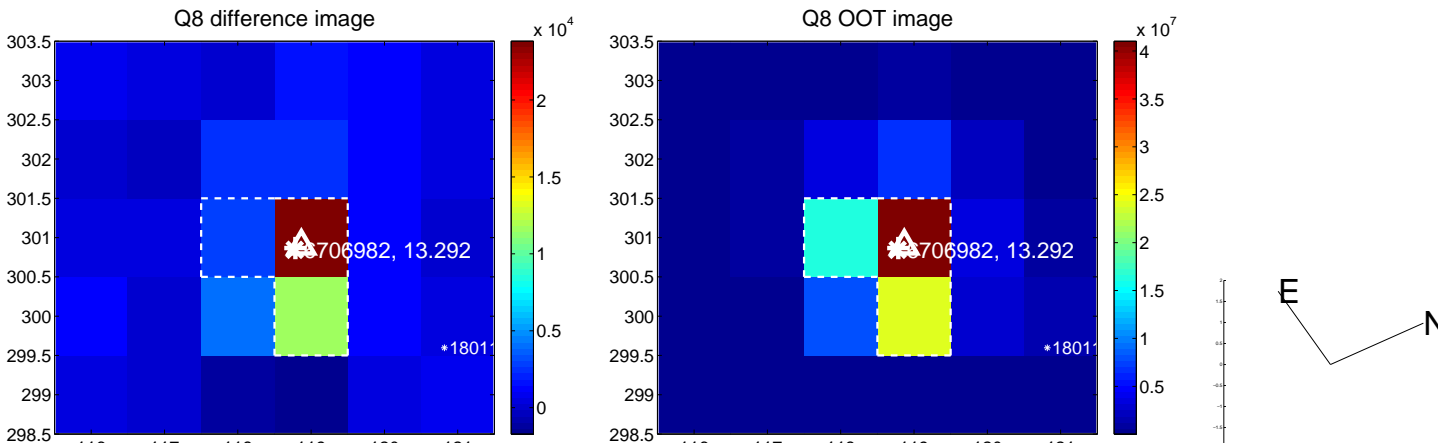
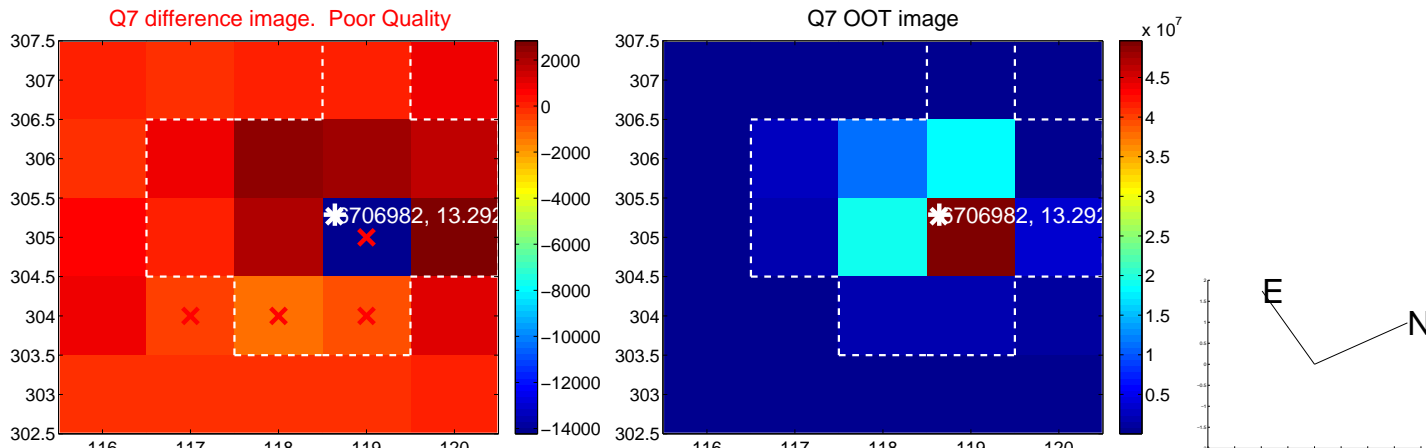
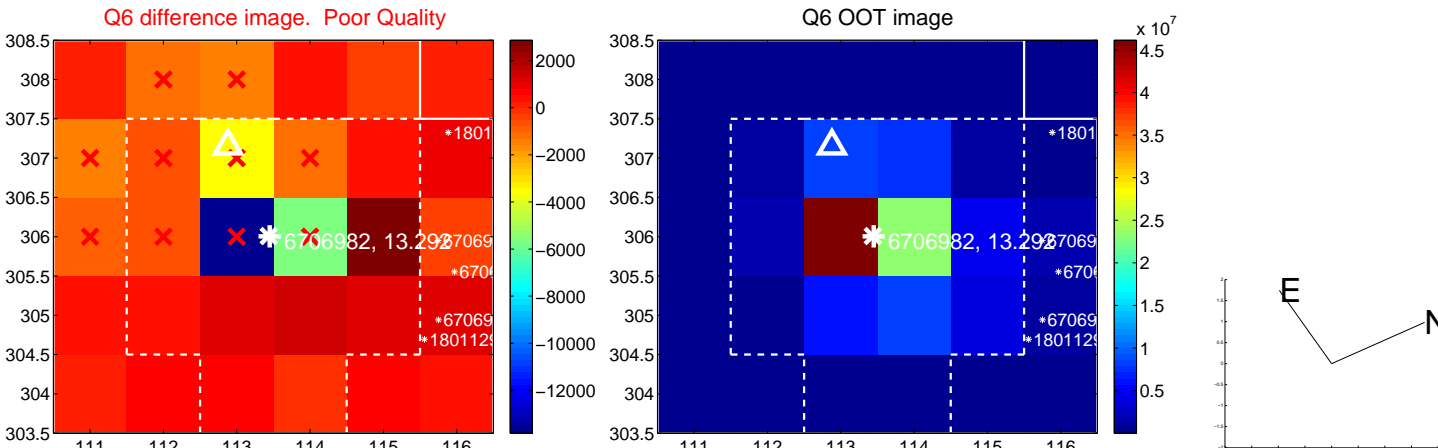
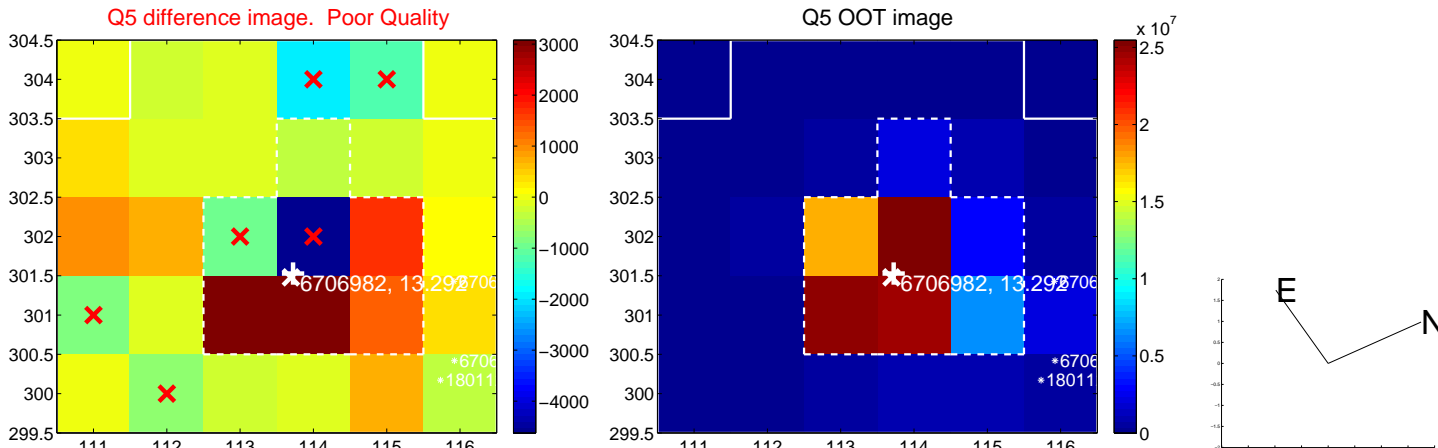


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

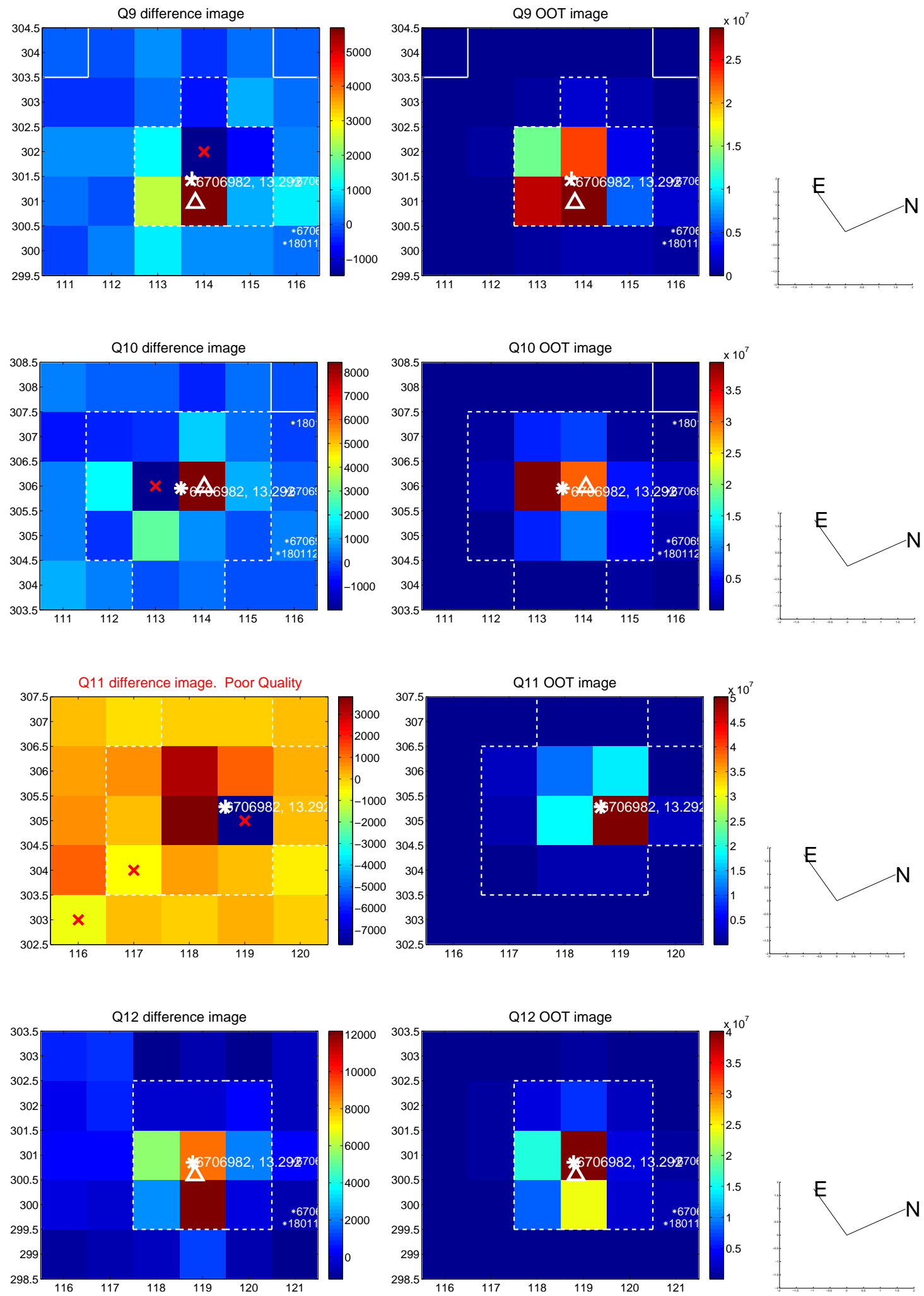
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



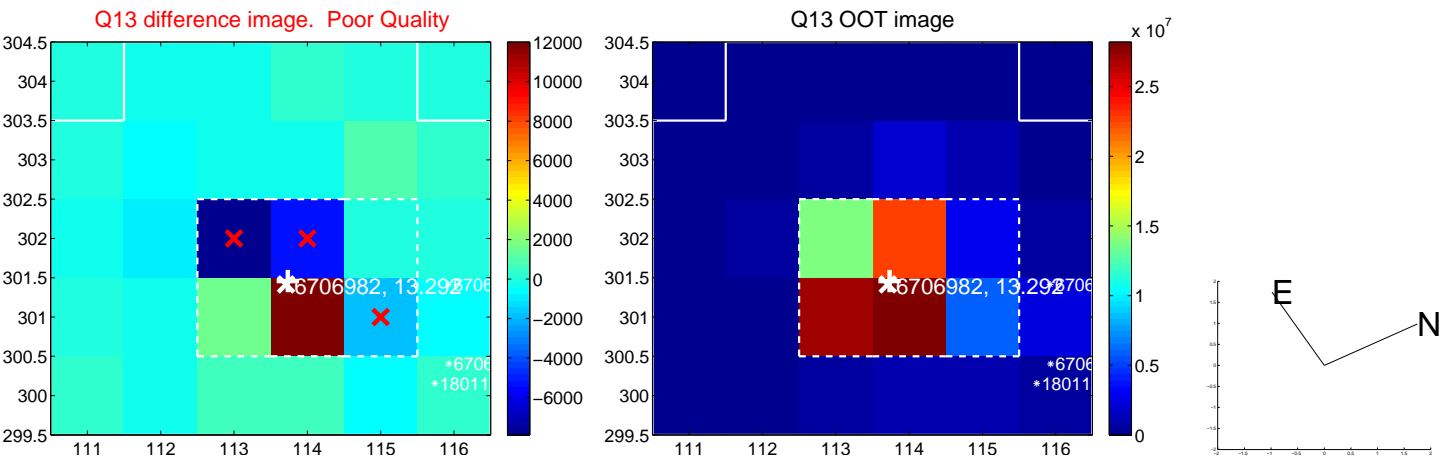
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



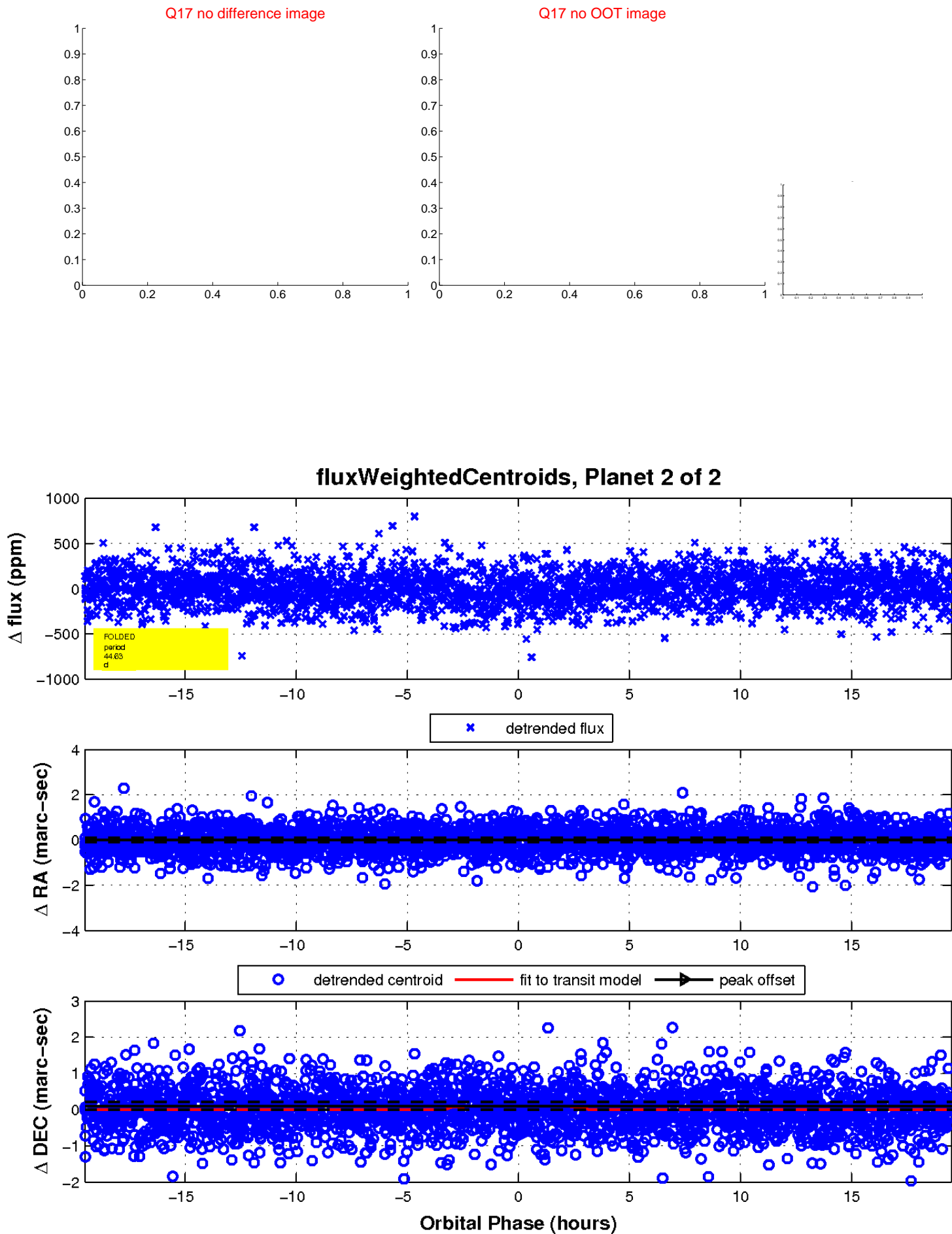
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

