

KIC 010006641

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})
010006641-01	OBS	4469.01	0.894165	131.515948	61.4	1.048	10.9	13.8	0.74	4982	0.71	1077.80
010006641-02	OBS	No	0.894183	131.949776	76.4	0.911	9.7	16.3	0.74	4982	0.64	1077.77

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
010006641-01	OBS	FP	0.00	0	1	0	0	MOD_SEC_DV—MOD_SEC_ALT—HAS_SEC_TCE
010006641-02	OBS	FP	0.00	1	1	0	0	IS_SEC_TCE

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

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

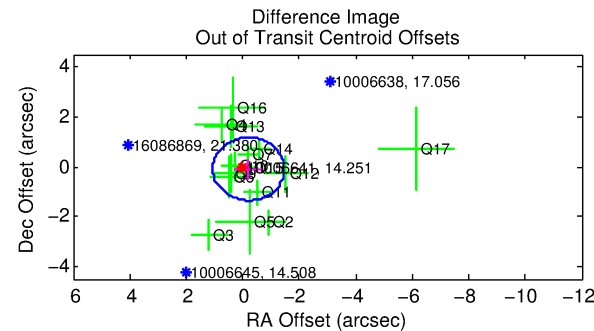
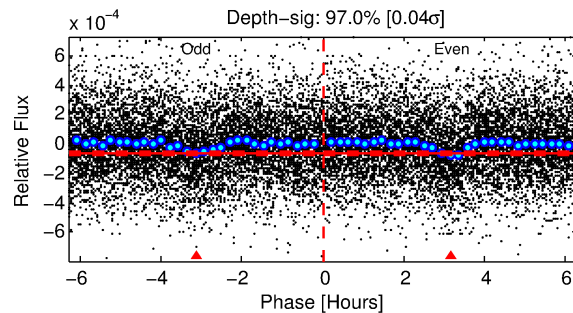
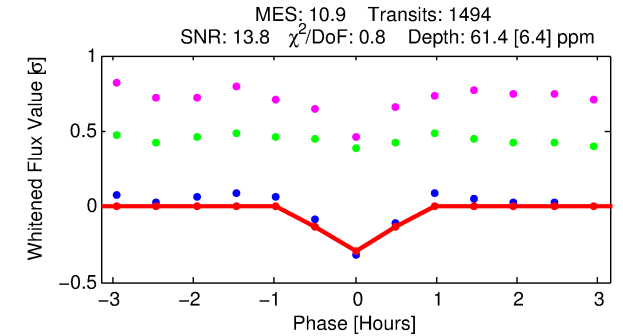
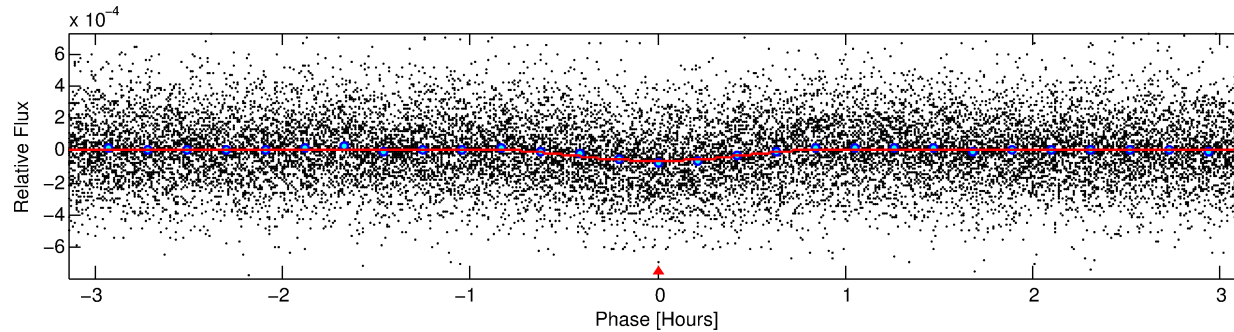
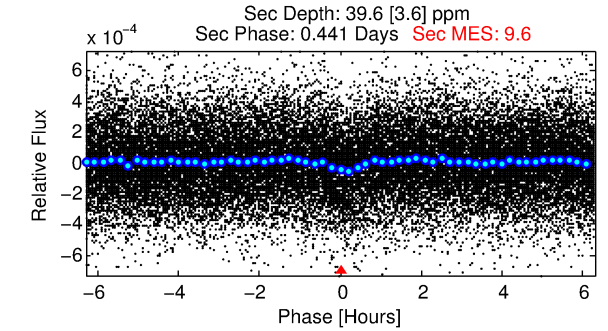
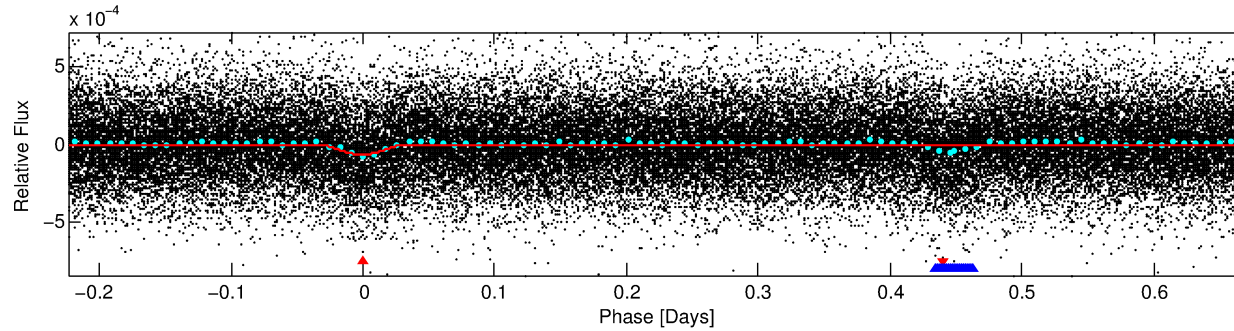
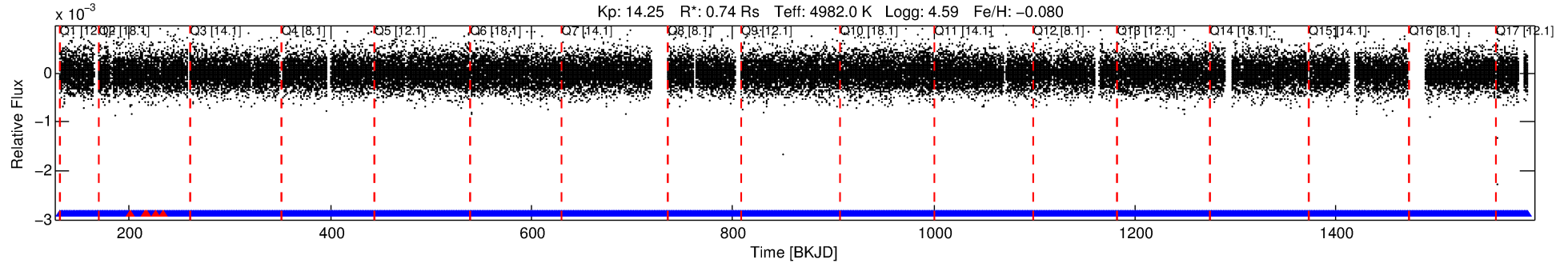
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 010006641-01

No Significant Match Found

DV One-Page Summary

KIC: 10006641 Candidate: 1 of 2 Period: 0.894 d
KOI: K04469.01 Corr: 0.906



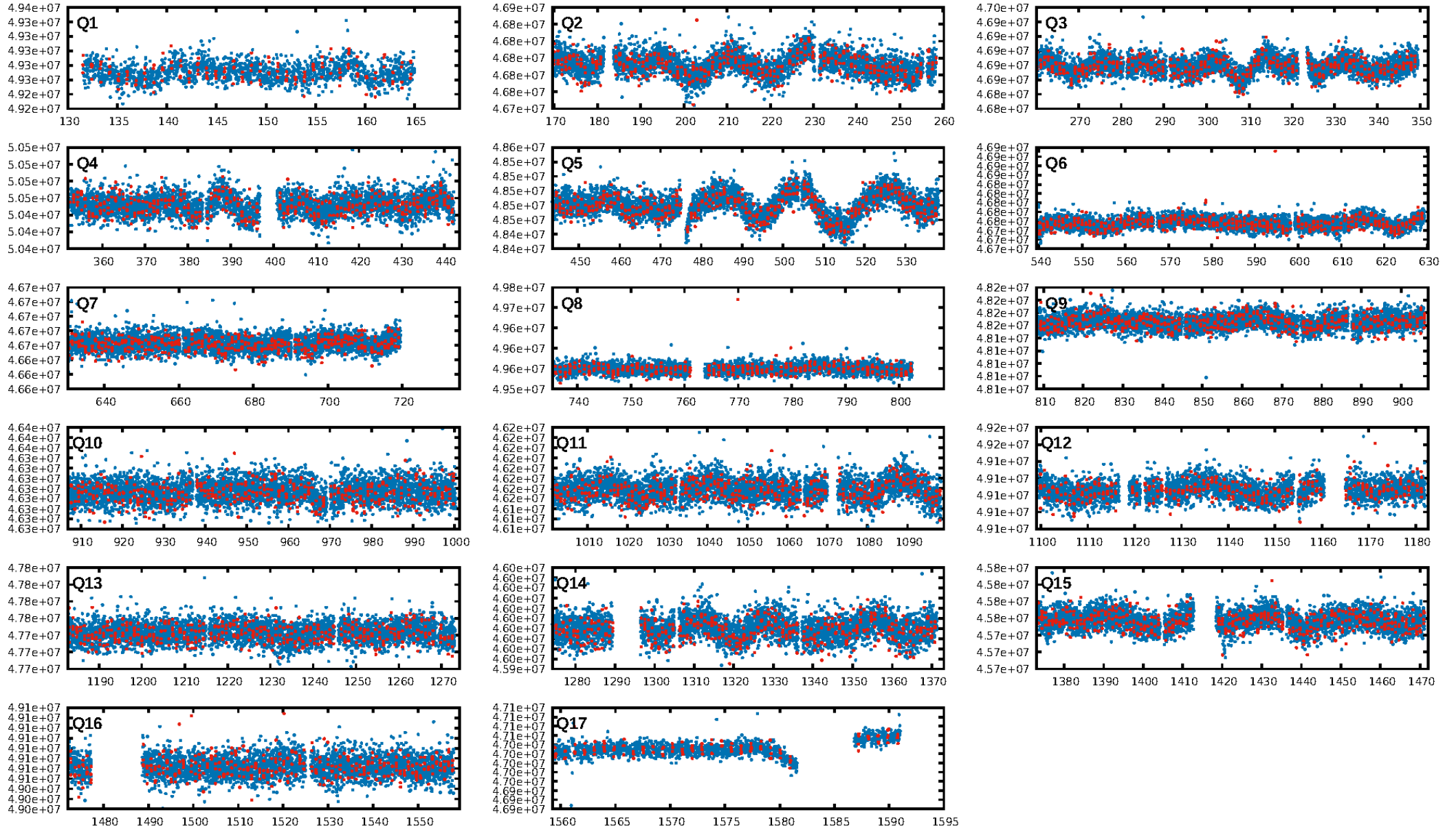
DV Fit Results:

Period = 0.89416 [0.00001] d
Epoch = 131.5159 [0.0013] BKJD
Rp/R* = 0.0088 [0.0036]
a/R* = 3.10 [4.46]
b = 0.90 [0.35]
Seff = 1077.80 [180.91]
Teq = 1461 [61] K
Rp = 0.71 [0.30] Re
a = 0.0167 [0.0014] AU
Ag = 12.00 [9.88] [1.11σ]
Teffp = 4205 [866] K [3.16σ]

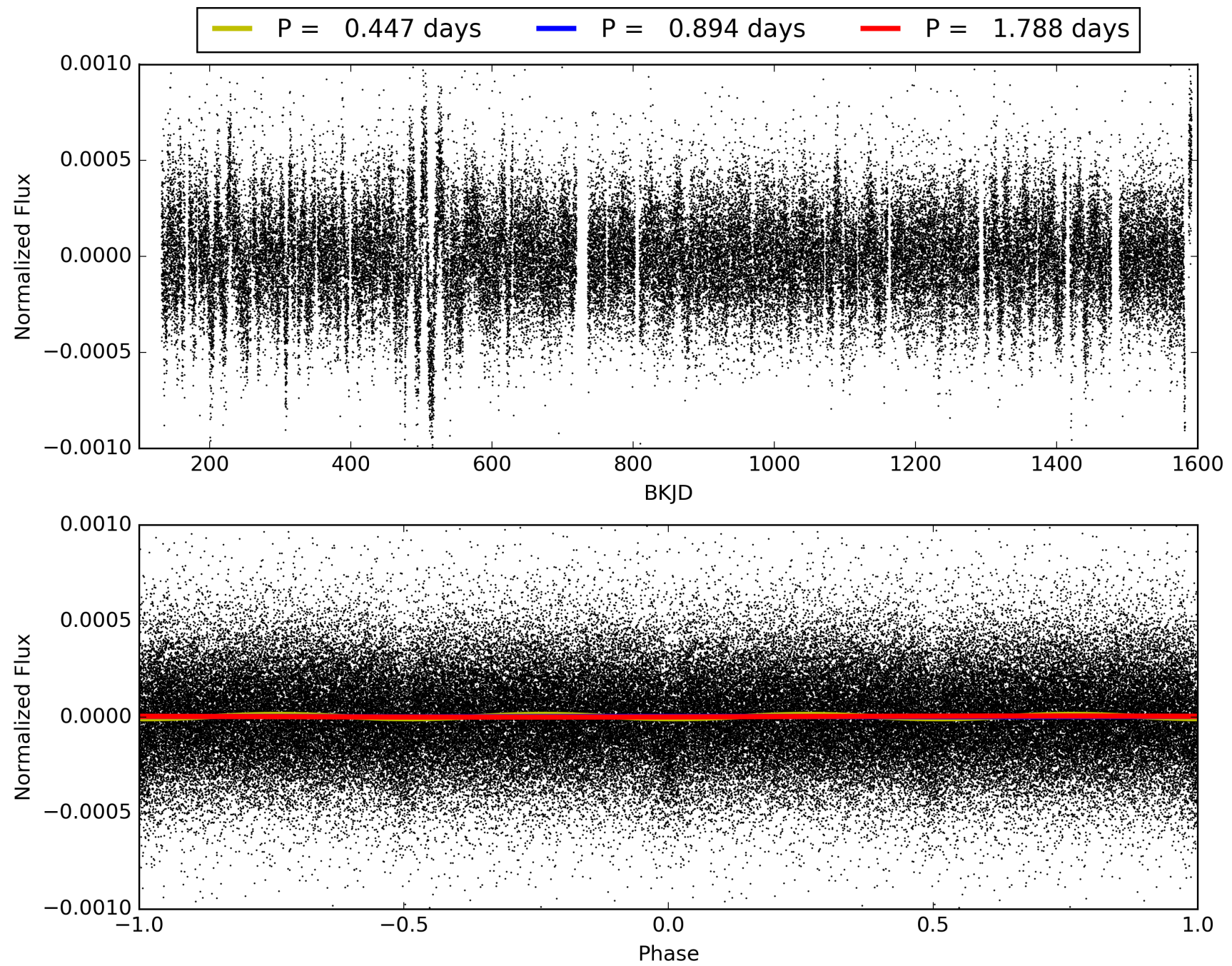
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: 0.0% [0.00σ]
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: 1.20e-30
RollingBand-fgt: 1.00 [1421/1426]
GhostDiagnostic-chr: 3.004
Centroid-sig: 11.1%
Centroid-so: 1.346 arcsec [1.70σ]
OotOffset-rm: 0.224 arcsec [0.53σ]
KicOffset-rm: 0.377 arcsec [0.83σ]
OotOffset-st: 4/4/3/4 [15]
KicOffset-st: 4/4/3/4 [15]
DiffImageQuality-fgm: 0.80 [12/15]
DiffImageOverlap-fno: 1.00 [17/17]

TCE 010006641-01, PDC Light Curves

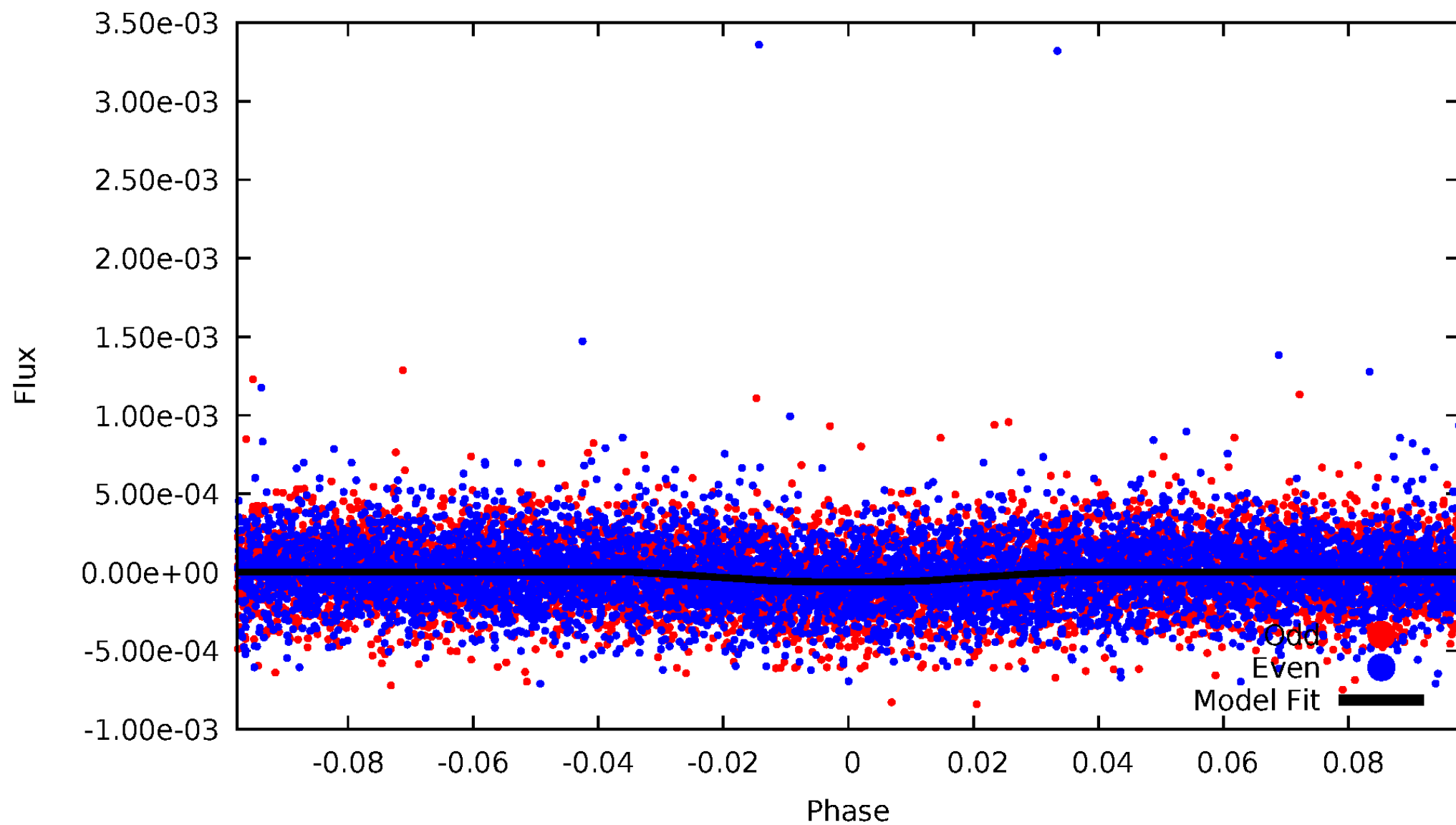


TCE 010006641-01



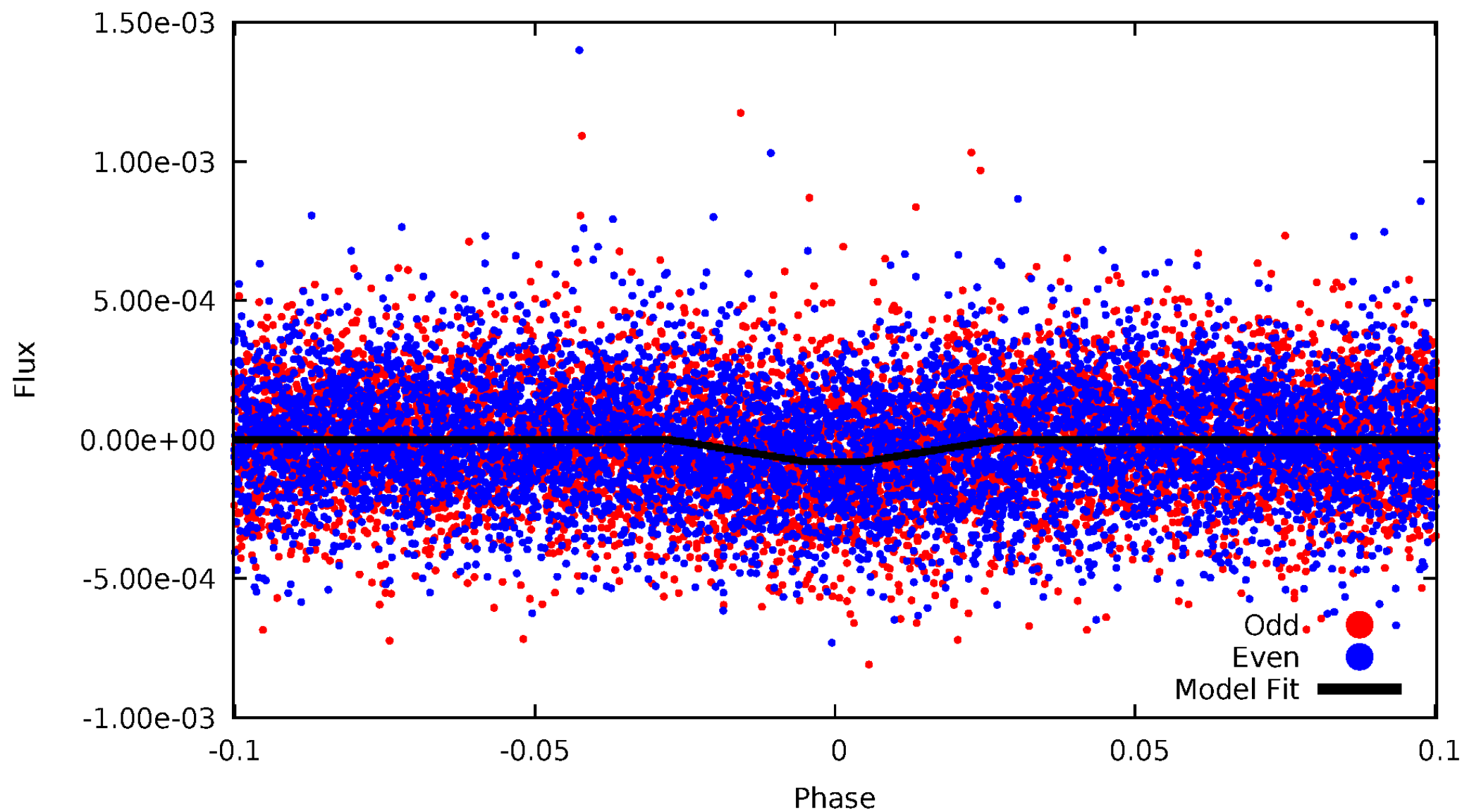
DV Odd/Even

TCE 010006641-01



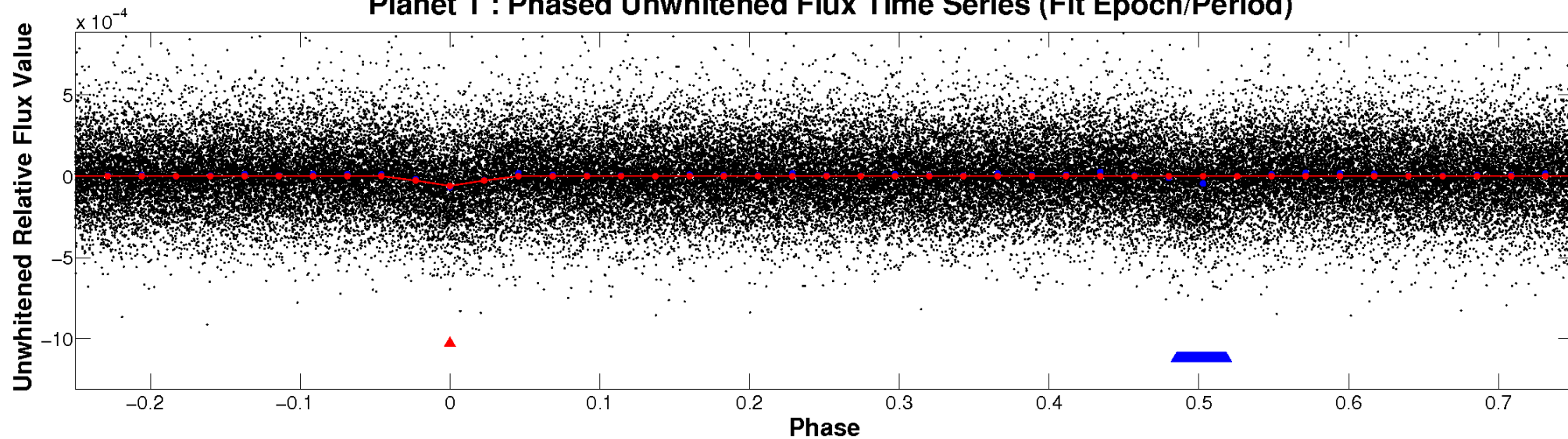
ALT Odd/Even

TCE 010006641-01

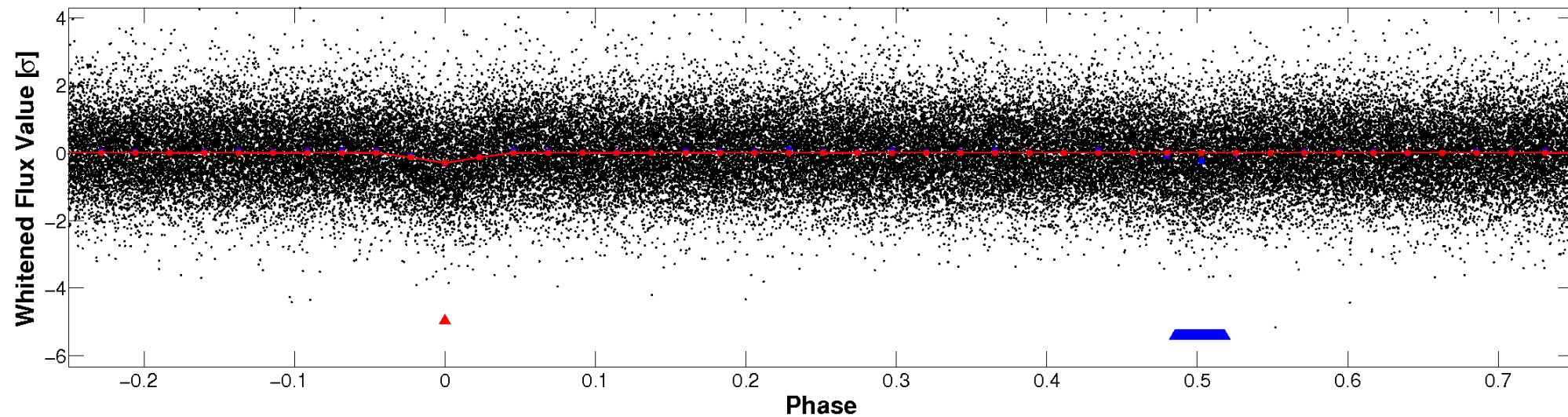


Non-Whitened Vs. Whitened Light Curve

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

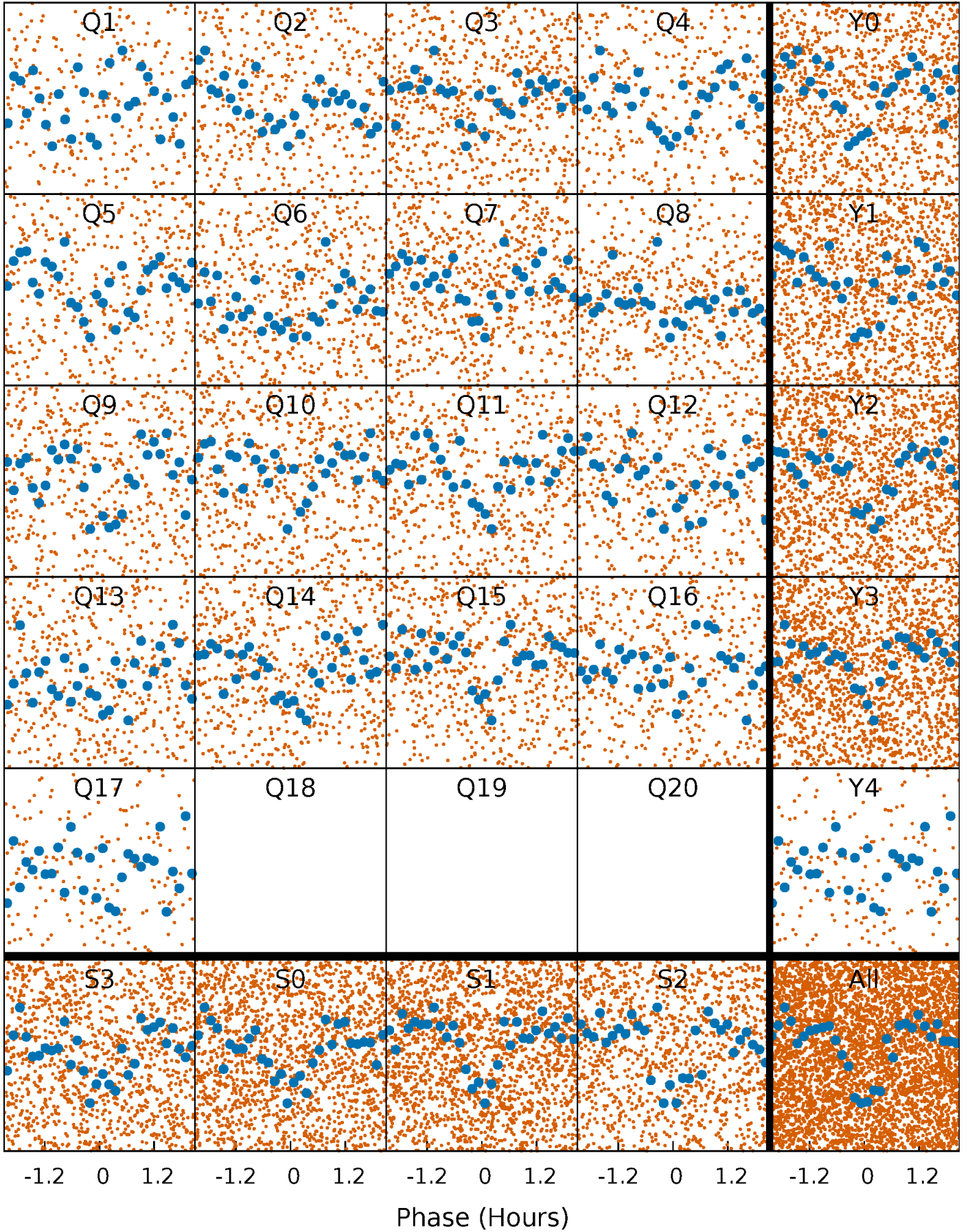


Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)



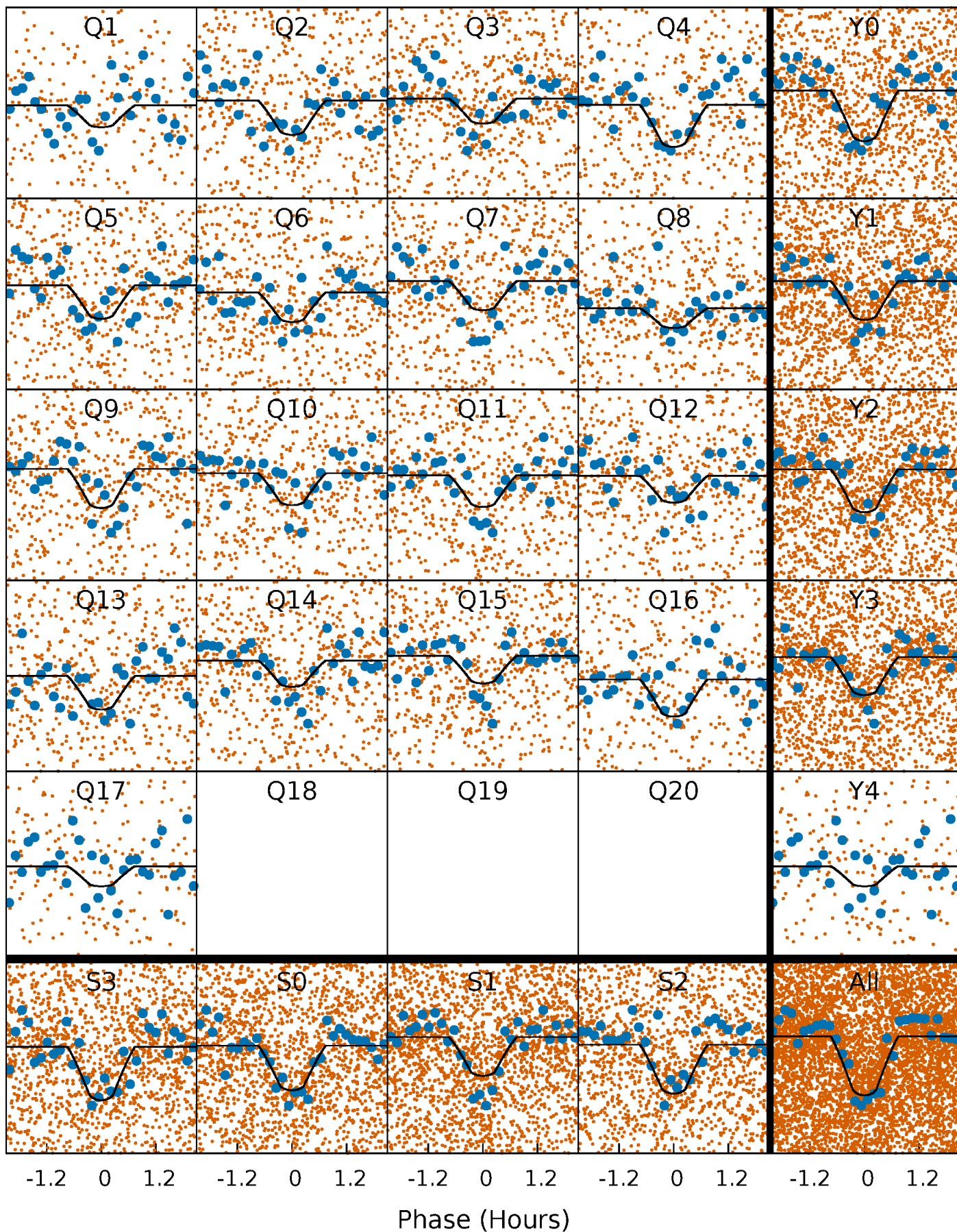
PDC Quarter-Phased Transit Curves

TCE 010006641-01 P= 0.894165 Days $T_0=131.515948$ (BKJD)



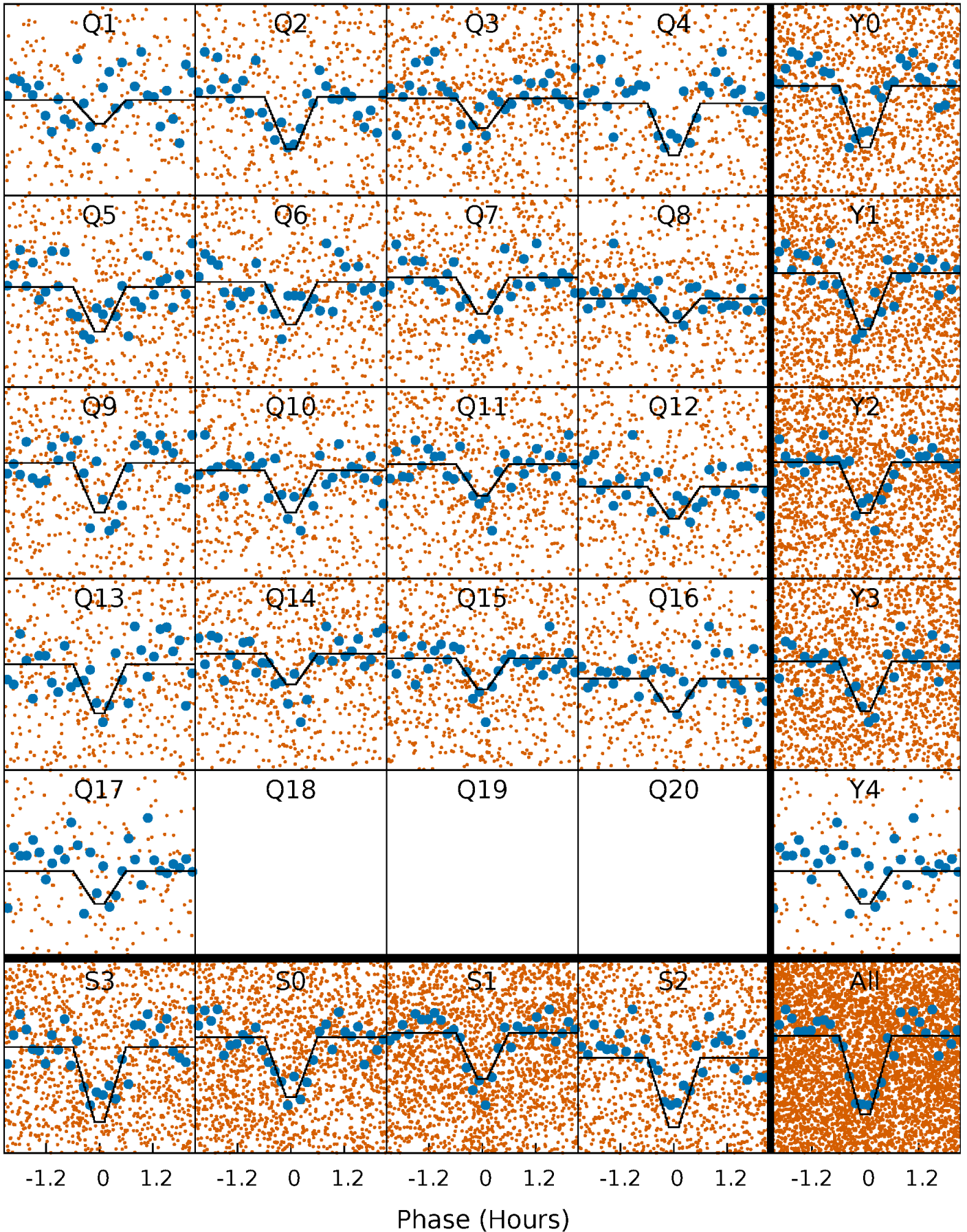
DV Quarter-Phased Transit Curves

TCE 010006641-01 P= 0.894165 Days $T_0=131.515948$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

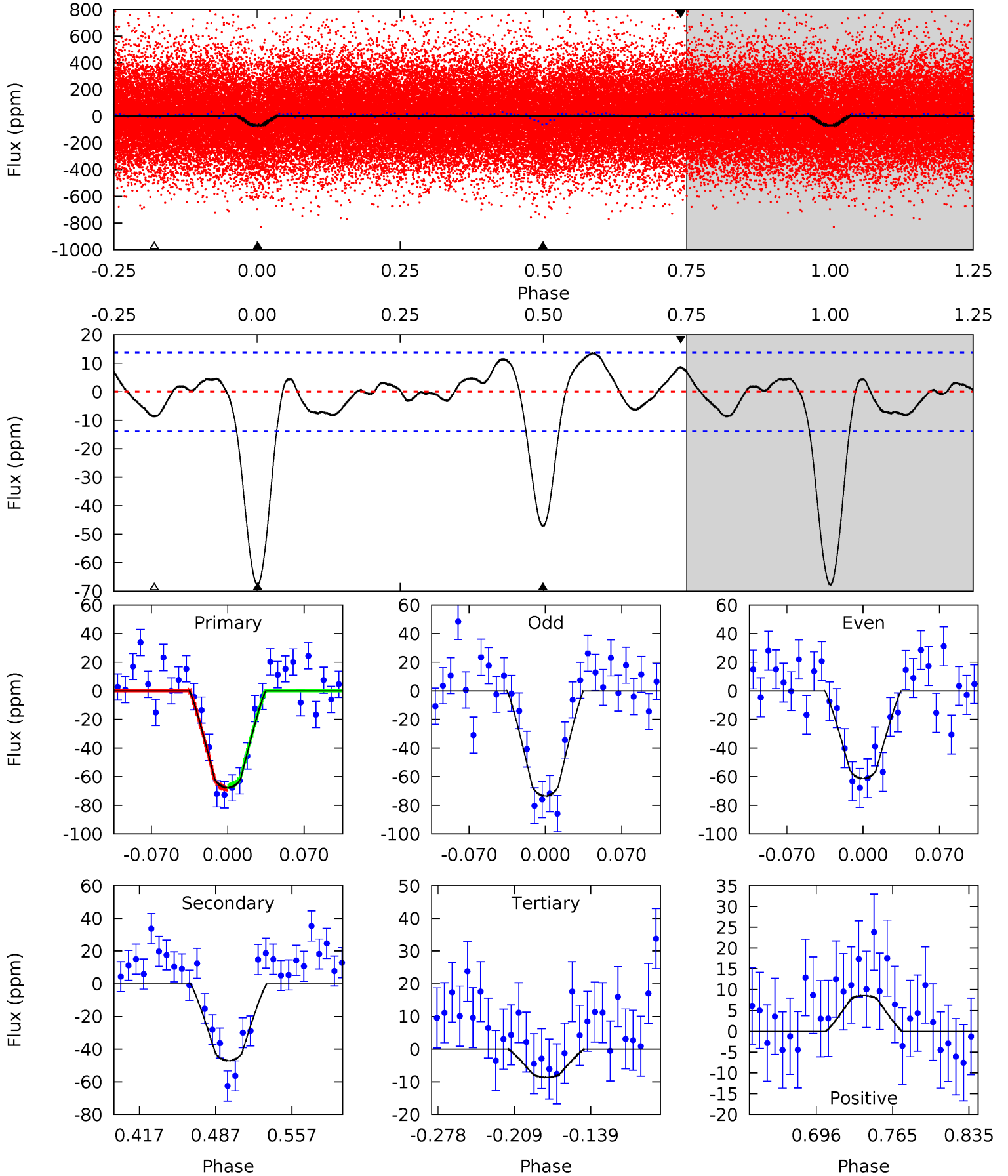
TCE 010006641-01 P= 0.894166 Days $T_0=131.515960$ (BKJD)



DV Model-Shift Uniqueness Test

010006641-01, P = 0.894165 Days, E = 130.621783 Days

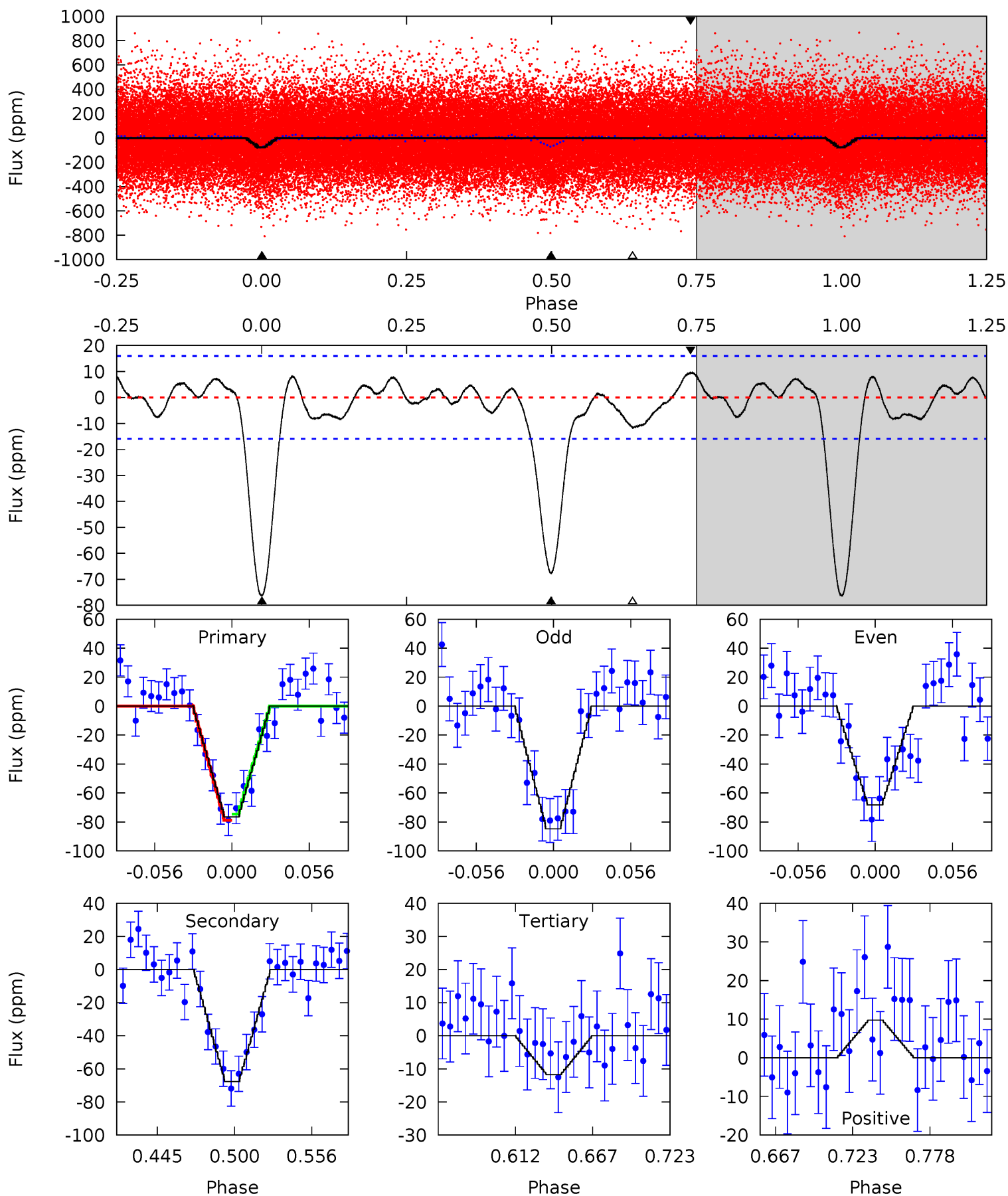
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
22.6	15.7	2.88	2.87	4.64	1.81	1.77	19.8	19.8	12.9	12.9	2.05	0.96	0.17	0.30



Alt Model-Shift Uniqueness Test

010006641-01, P = 0.894166 Days, E = 130.621794 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
22.5	19.9	3.46	2.87	4.69	1.91	1.46	19.1	19.6	16.5	17.1	2.41	0.98	0.11	0.63



Stellar Parameters For KIC 010006641

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	4982^{+151}_{-136}	$4.591^{+0.035}_{-0.060}$	$-0.080^{+0.300}_{-0.300}$	$0.736^{+0.078}_{-0.058}$	$0.771^{+0.071}_{-0.071}$	$2.724^{+0.495}_{-0.560}$
	+3%/-3%	+1%/-1%	+375%/-375%	+11%/-8%	+9%/-9%	+18%/-21%
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 010006641-01 / KOI 4469.01

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	-47 ± 3	$0.74^{+0.28}_{-0.30}$	2054^{+77}_{-61}	4463^{+1043}_{-531}	14^{+23}_{-7}
Alt.	-68 ± 3	$0.73^{+0.28}_{-0.30}$	2057^{+79}_{-70}	4787^{+1361}_{-589}	19^{+36}_{-9}

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 $A_{obs} \gg 1.0$

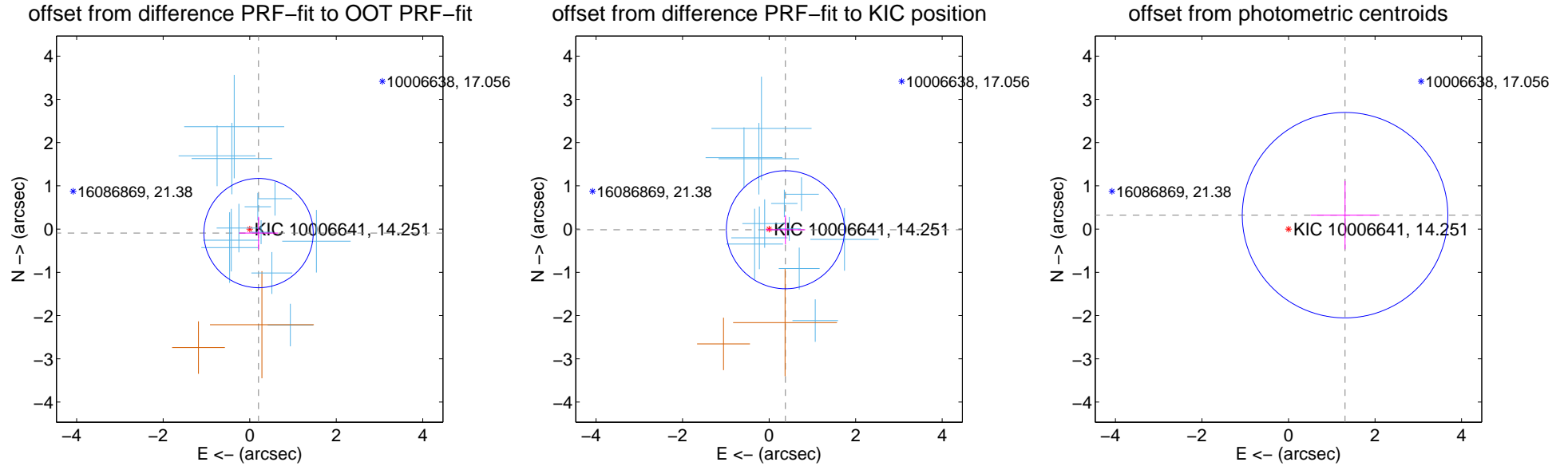
DV Centroid Data

Supplemental centroid analysis for 010006641-01. Kepler magnitude: 14.25. Transit SNR 13.82

There are 12 quarters with good PRF difference image offsets

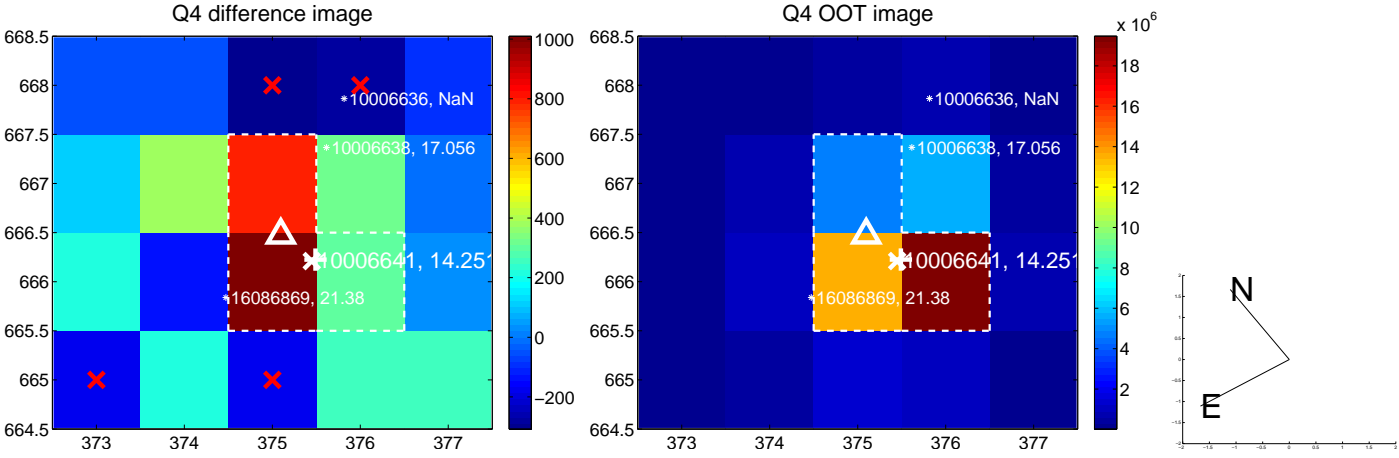
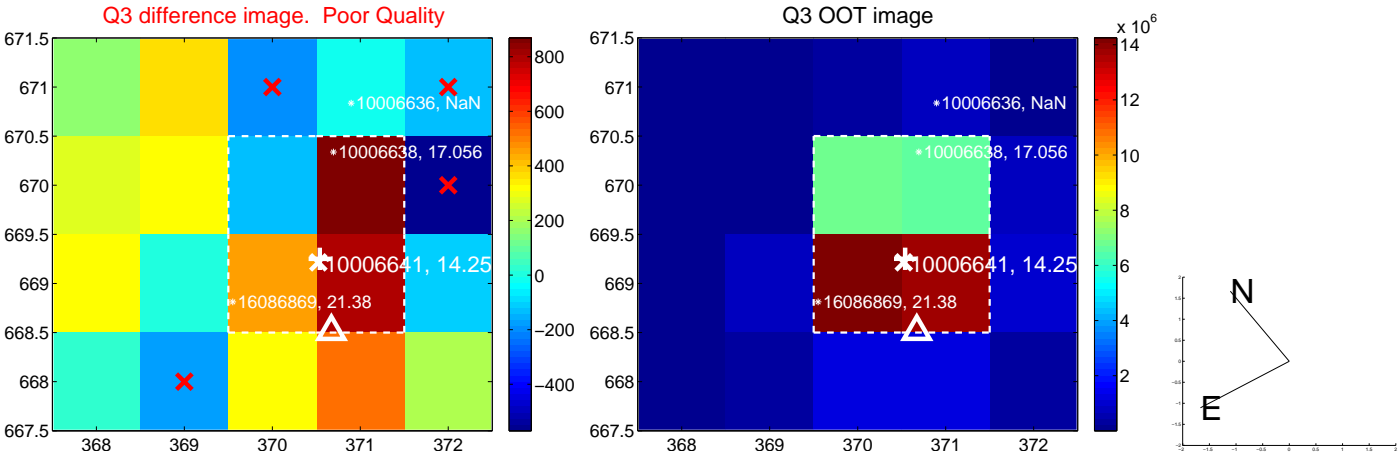
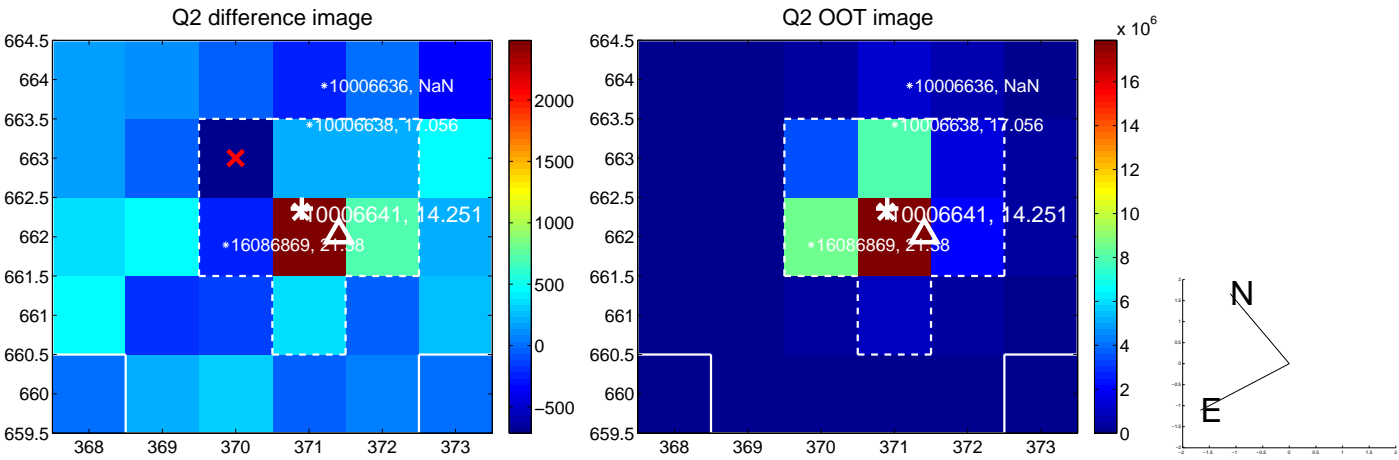
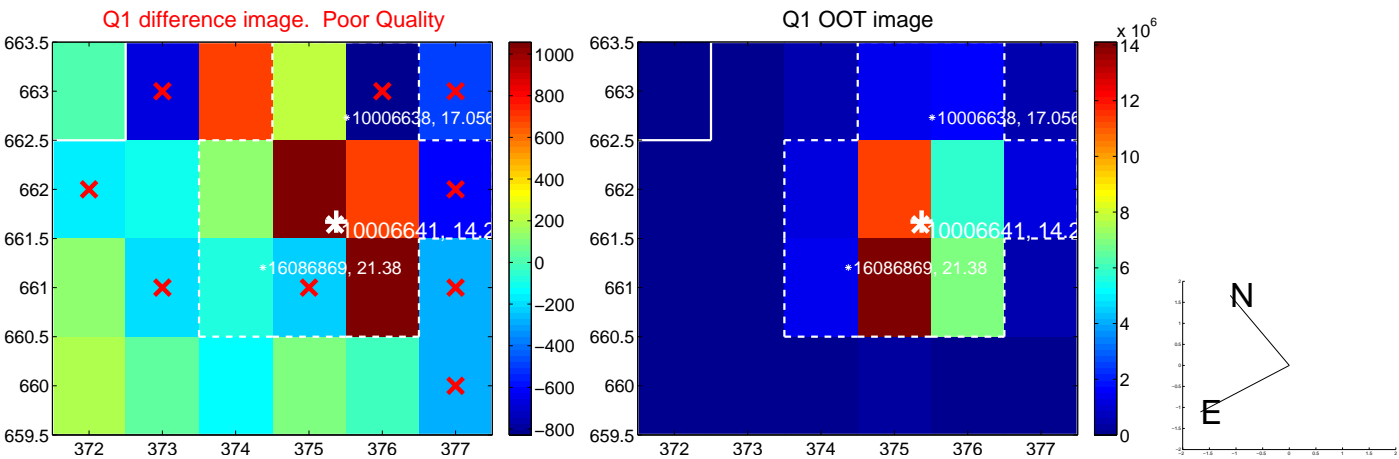
The direct PRF centroid is offset from the target star catalog position by about 0.20 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.224 ± 0.421	0.53	-0.204 ± 0.448	-0.092 ± 0.374
PRF-fit source offset from KIC position	0.377 ± 0.455	0.83	-0.376 ± 0.457	-0.015 ± 0.334
photometric centroid source offset	1.35 ± 0.79	1.70	-1.31 ± 0.79	0.32 ± 0.79

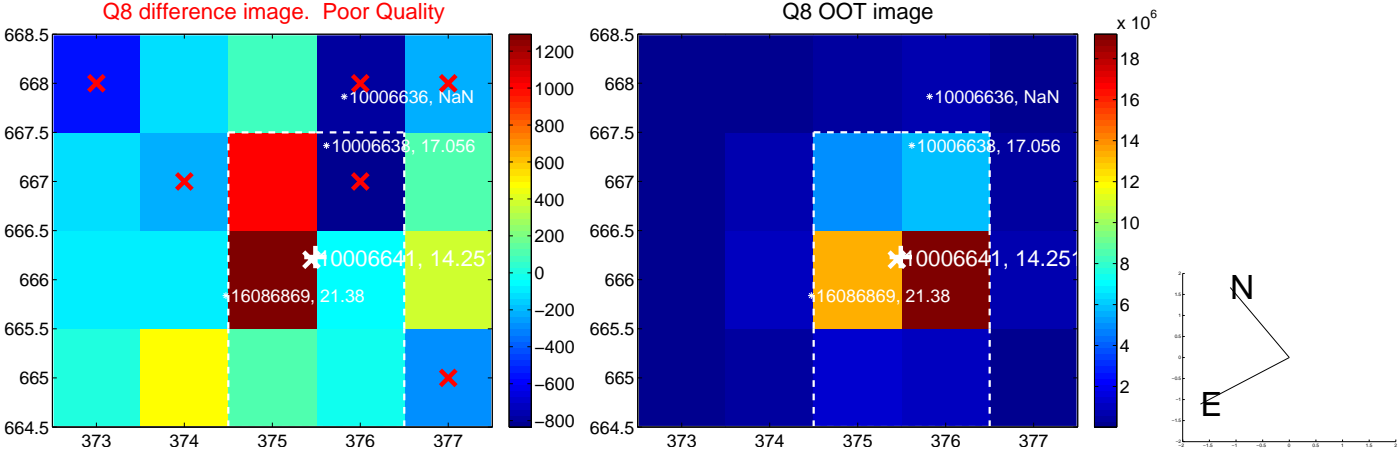
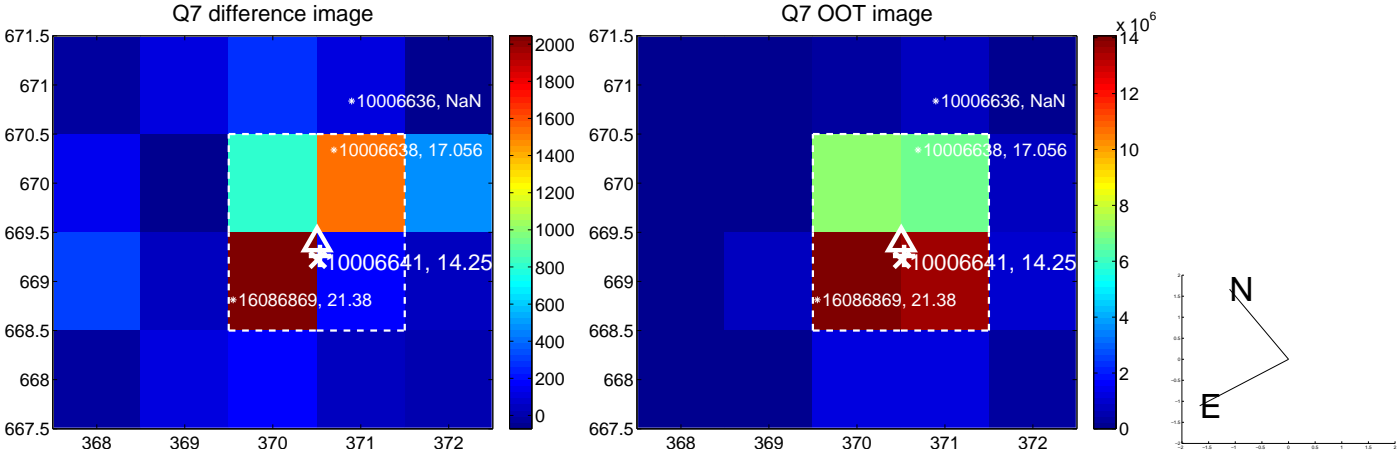
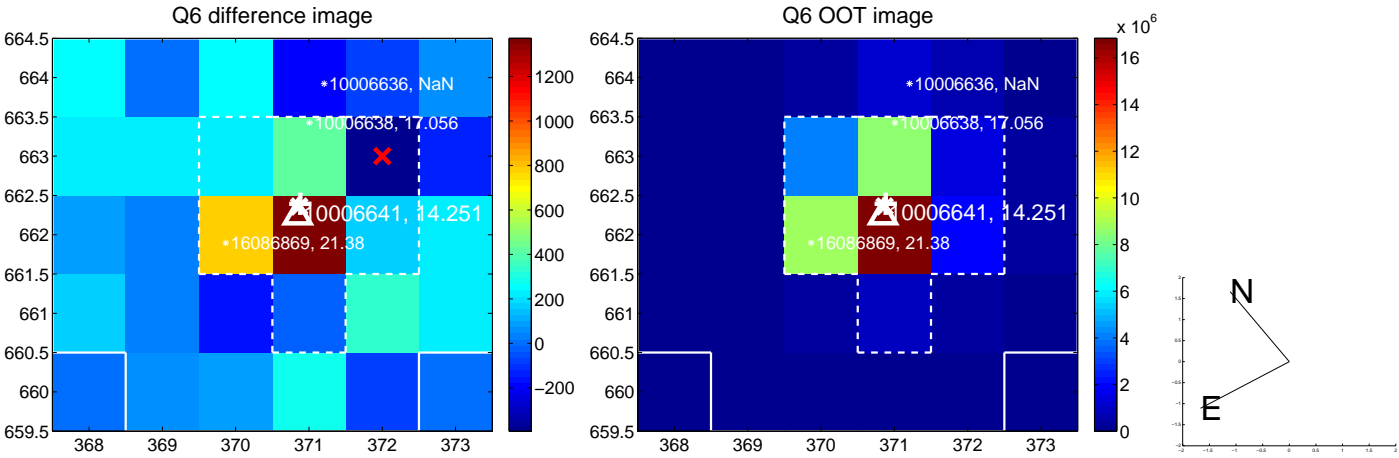
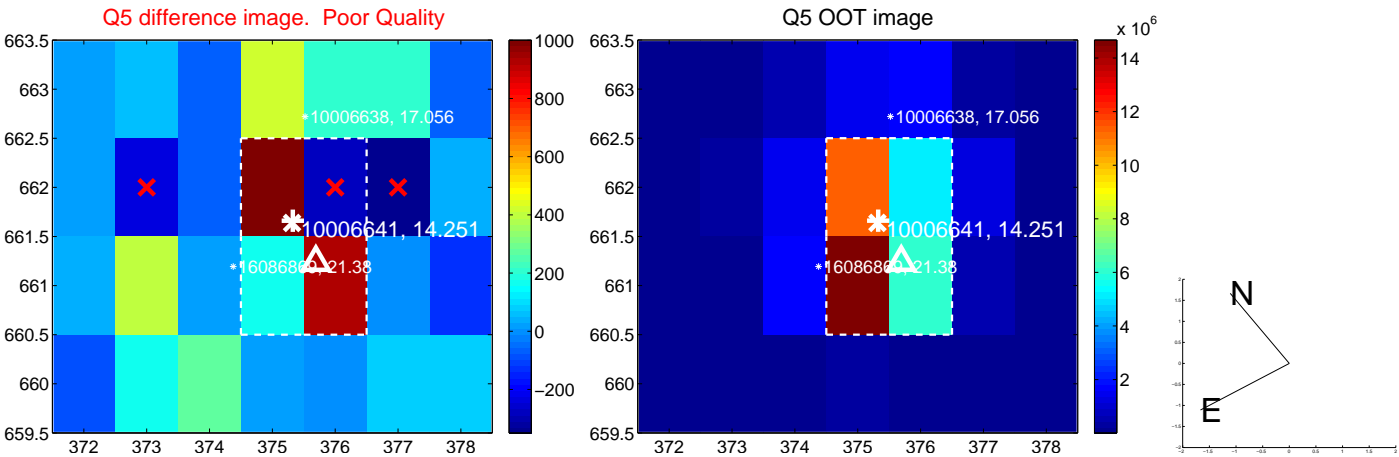


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

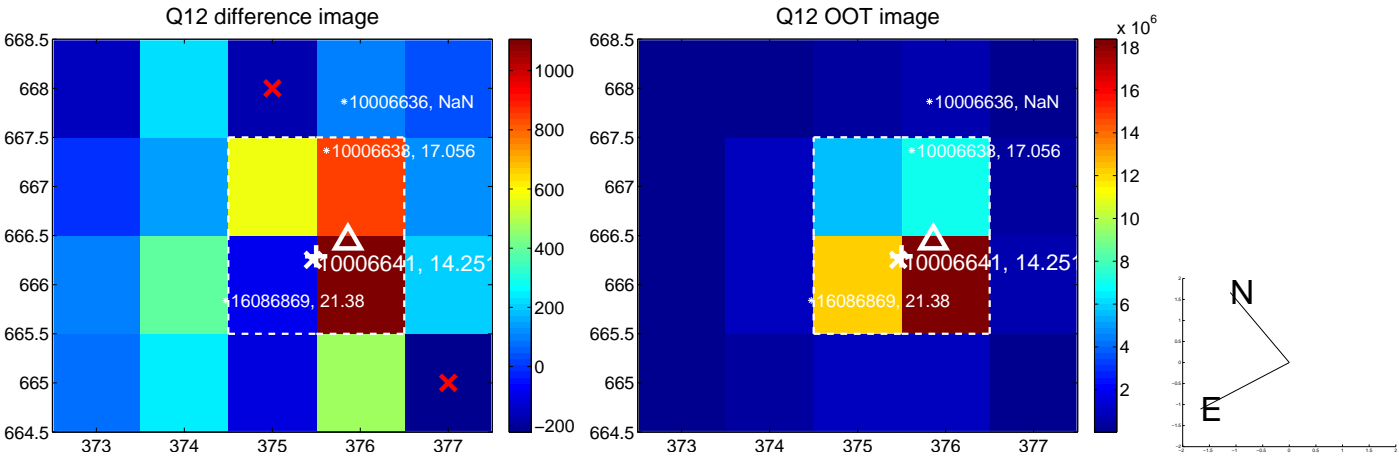
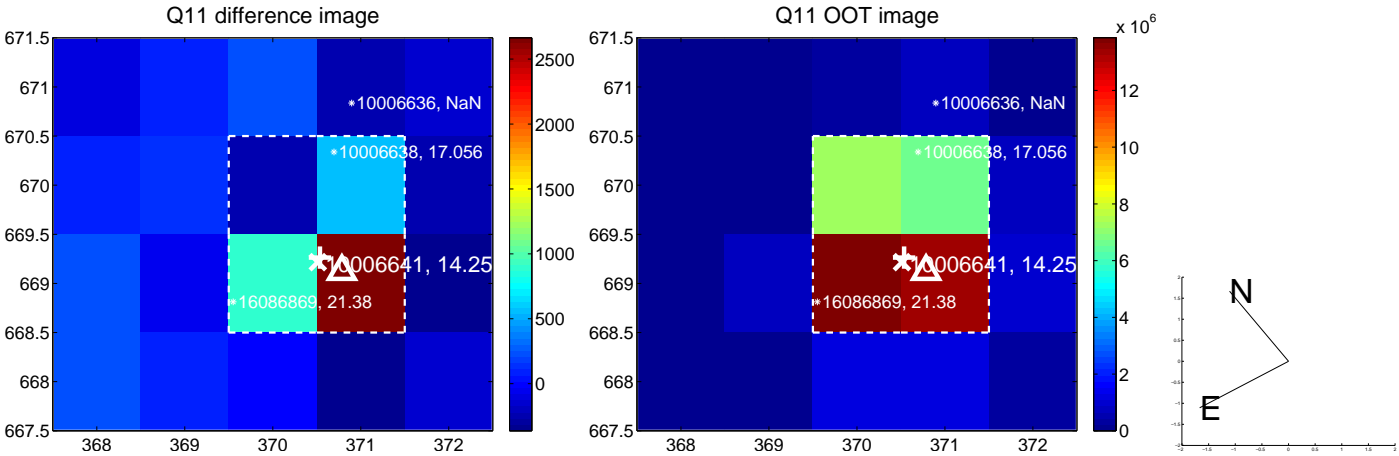
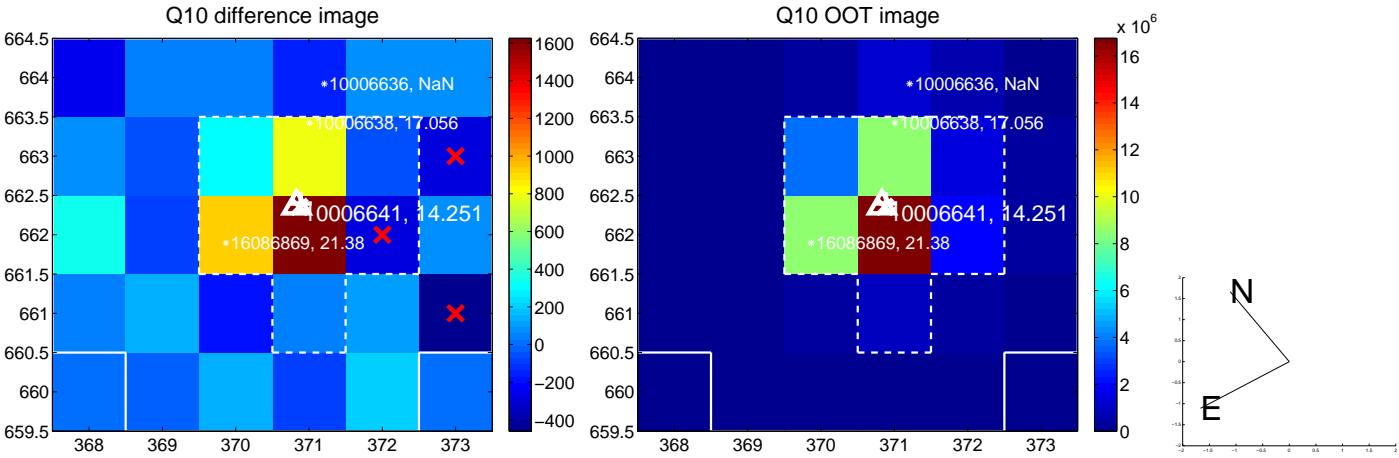
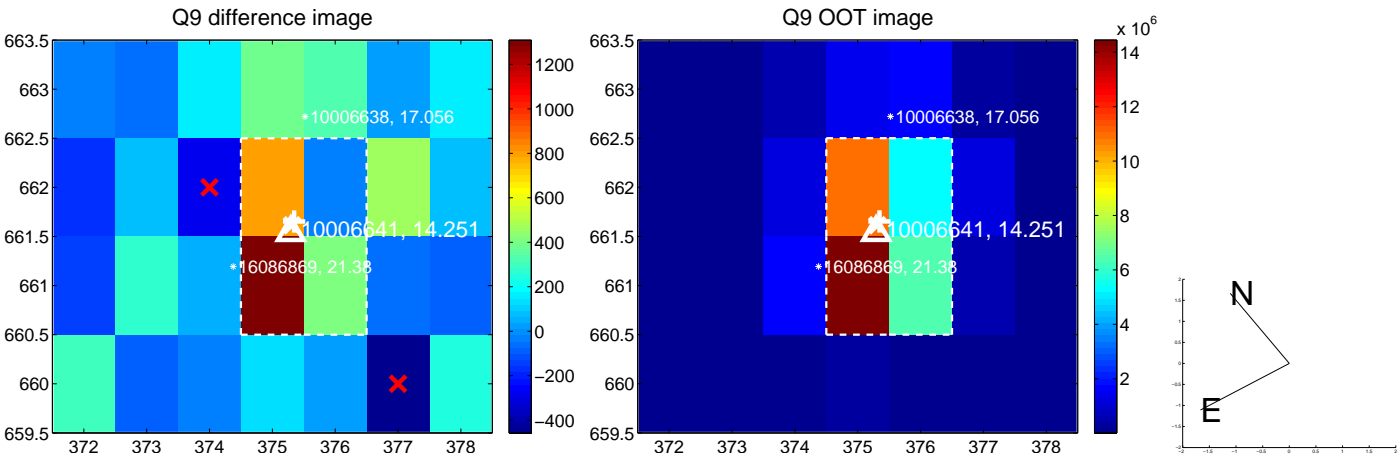
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



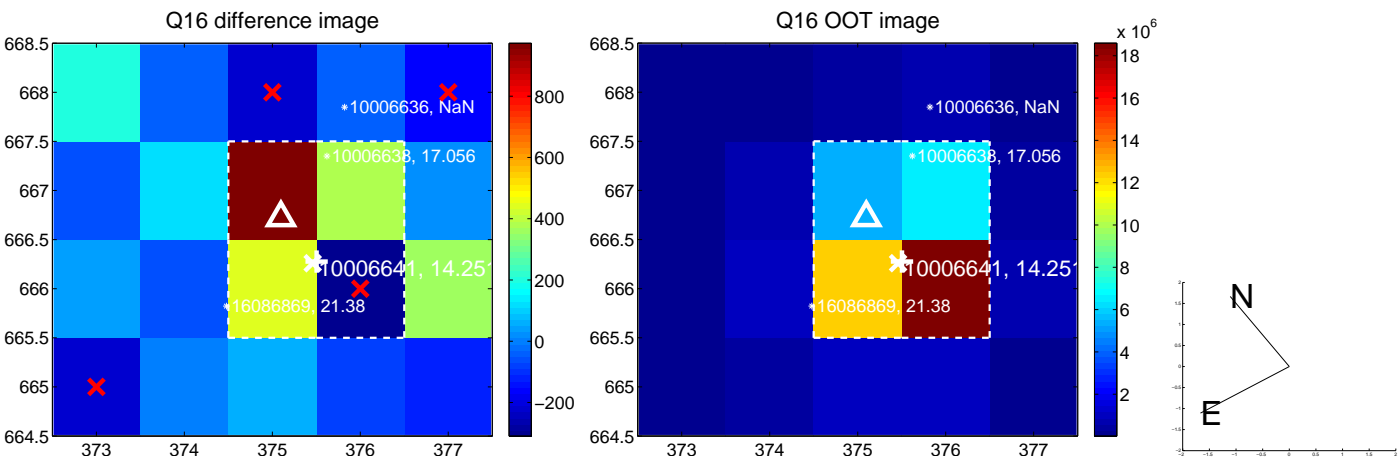
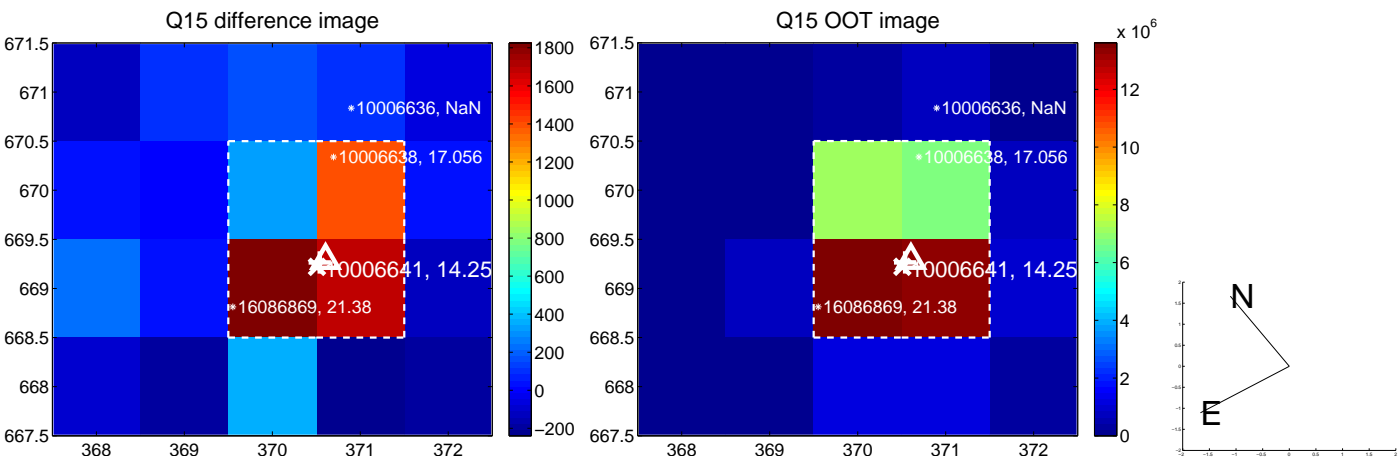
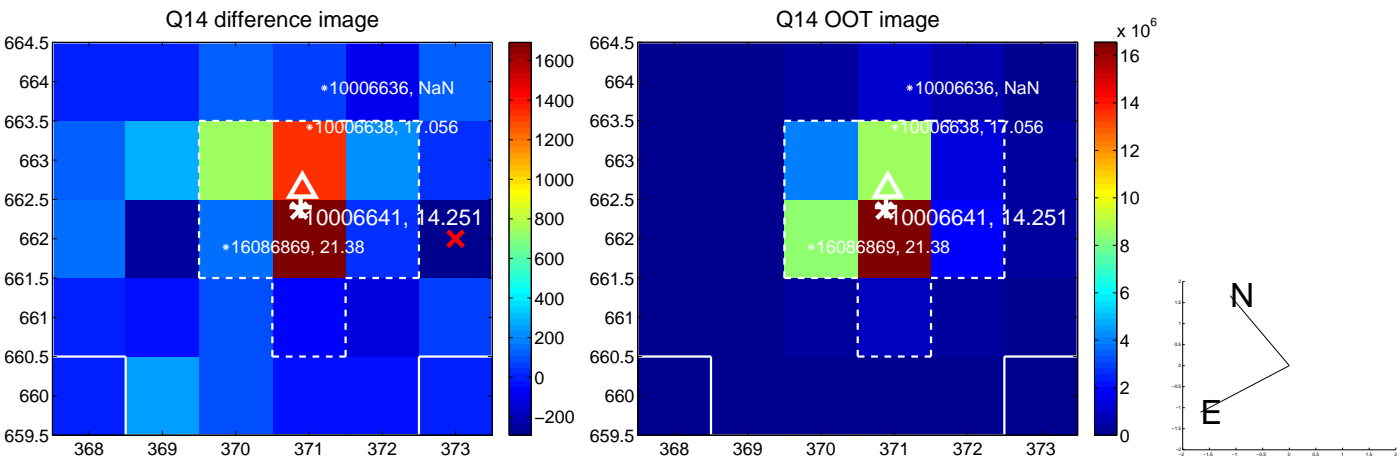
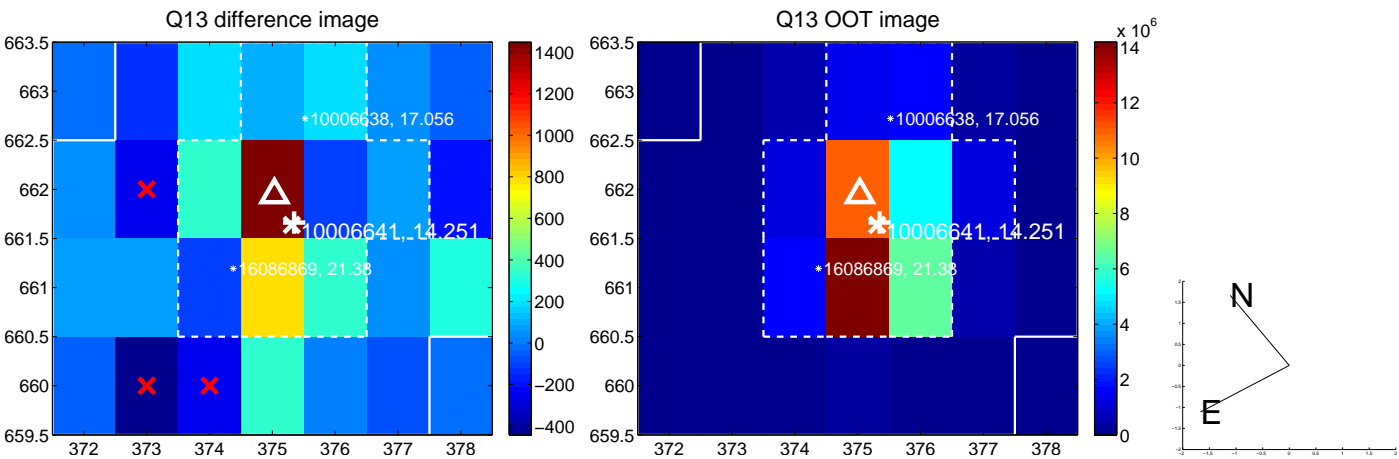
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



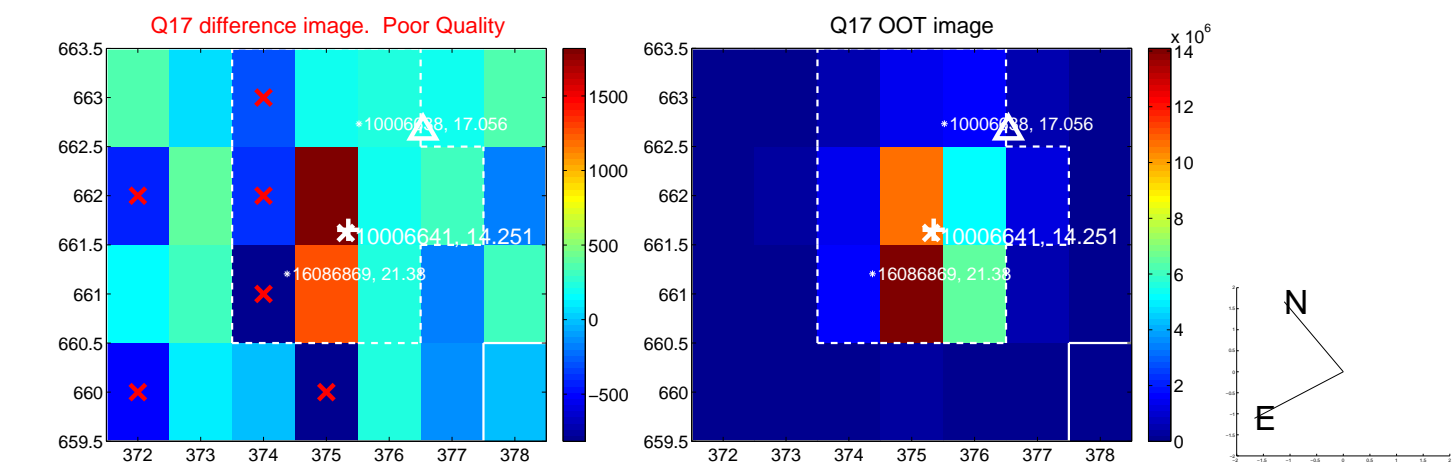
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



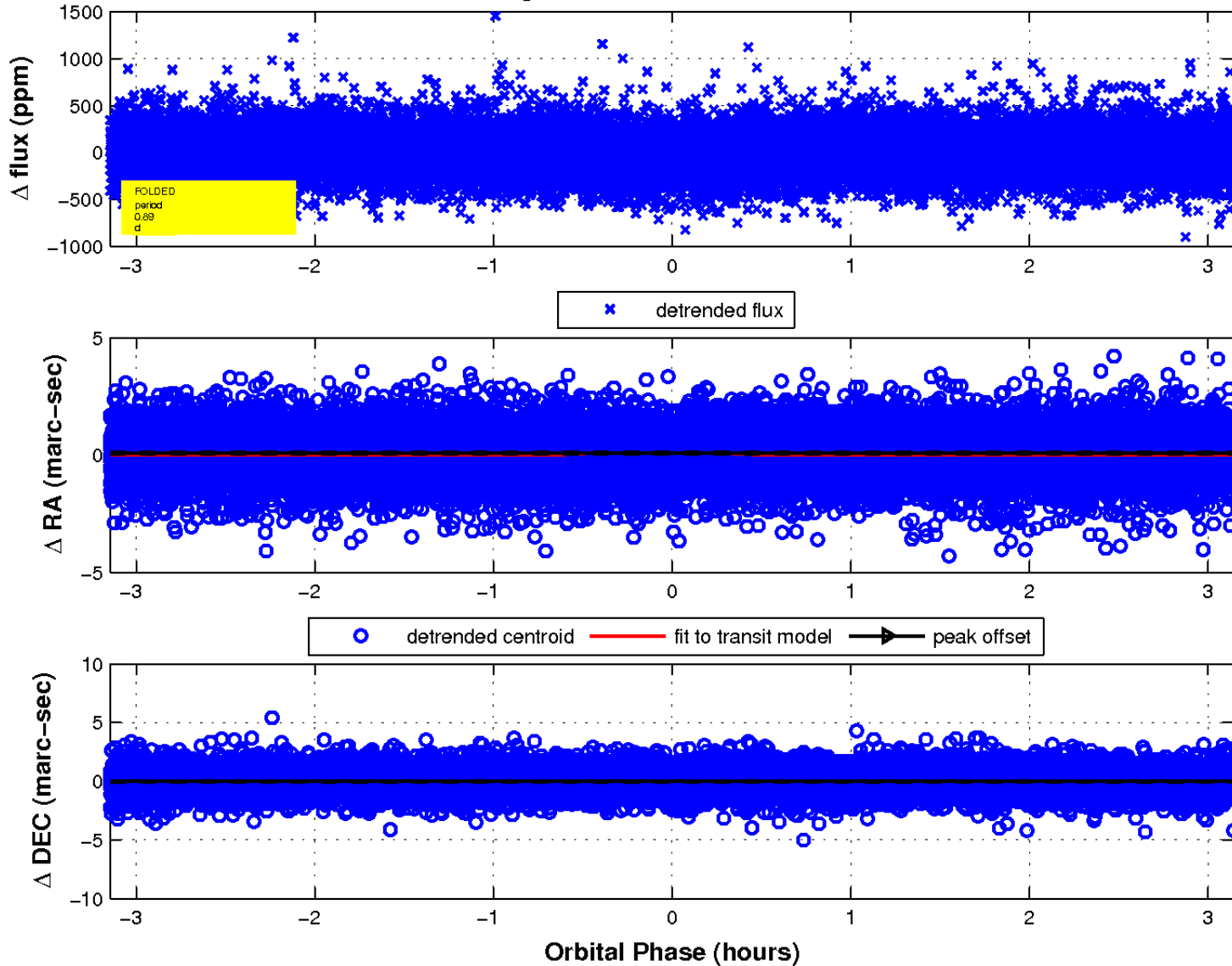
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

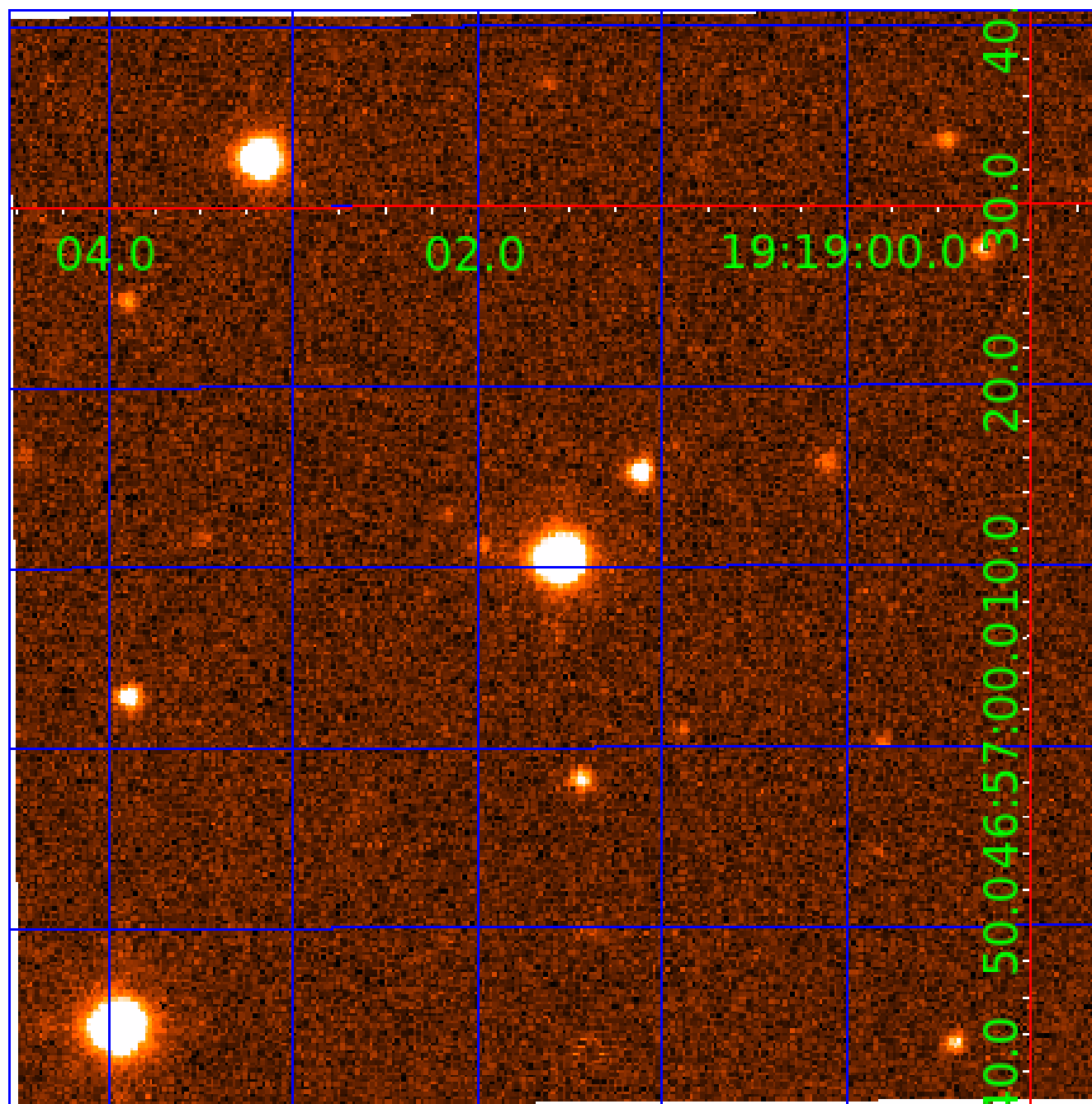


fluxWeightedCentroids, Planet 1 of 2



UKIRT Image

Declination



KIC 010006641

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})
010006641-01	OBS	4469.01	0.894165	131.515948	61.4	1.048	10.9	13.8	0.74	4982	0.71	1077.80
010006641-02	OBS	No	0.894183	131.949776	76.4	0.911	9.7	16.3	0.74	4982	0.64	1077.77

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
010006641-01	OBS	FP	0.00	0	1	0	0	MOD_SEC_DV—MOD_SEC_ALT—HAS_SEC_TCE
010006641-02	OBS	FP	0.00	1	1	0	0	IS_SEC_TCE

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.

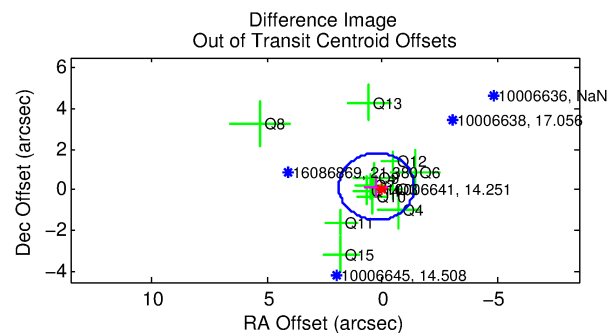
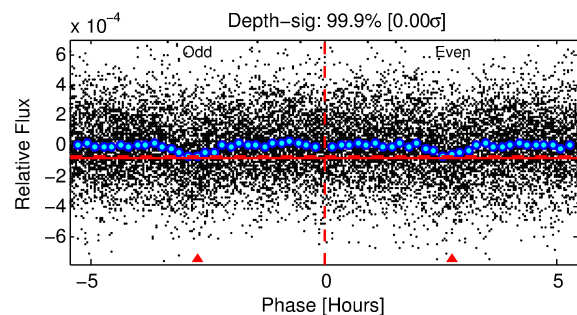
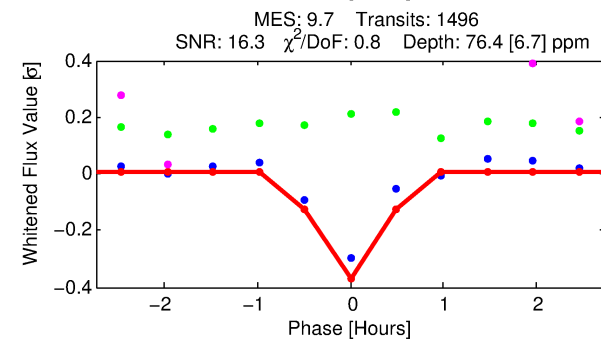
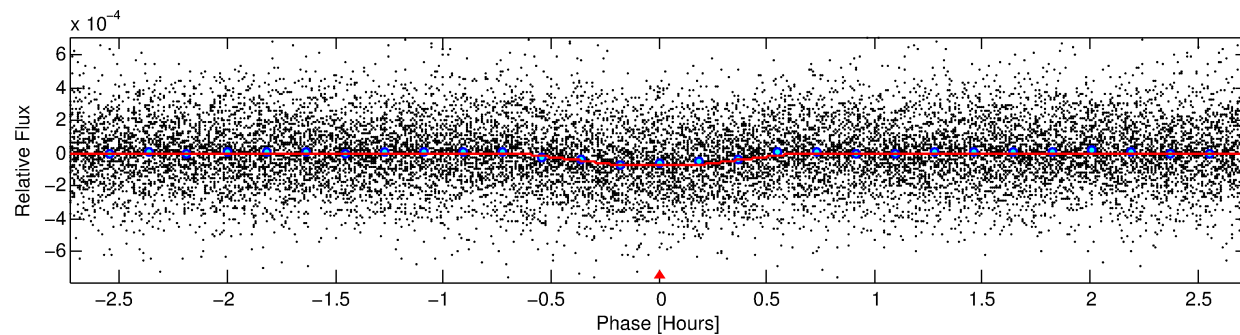
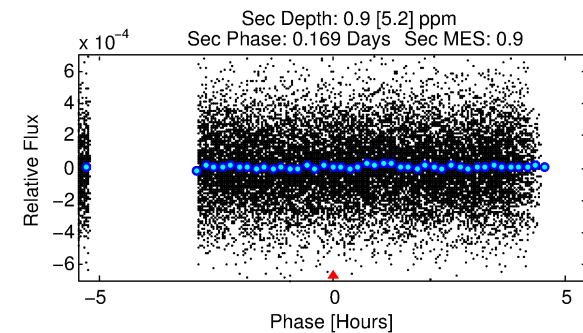
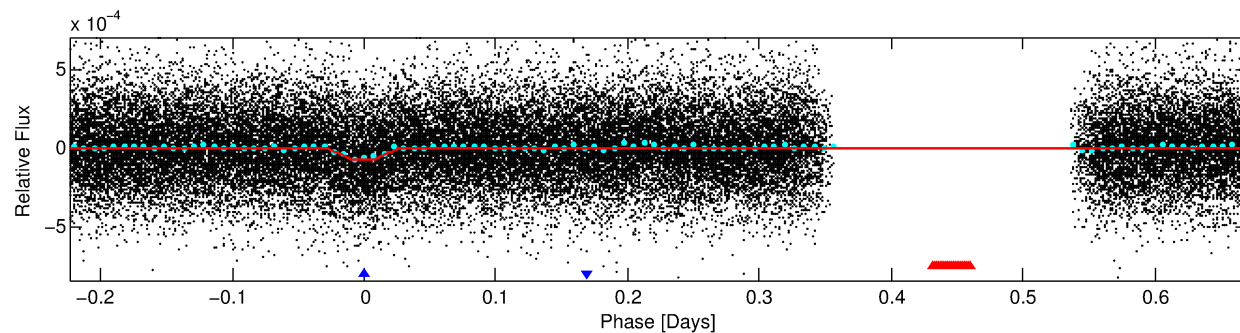
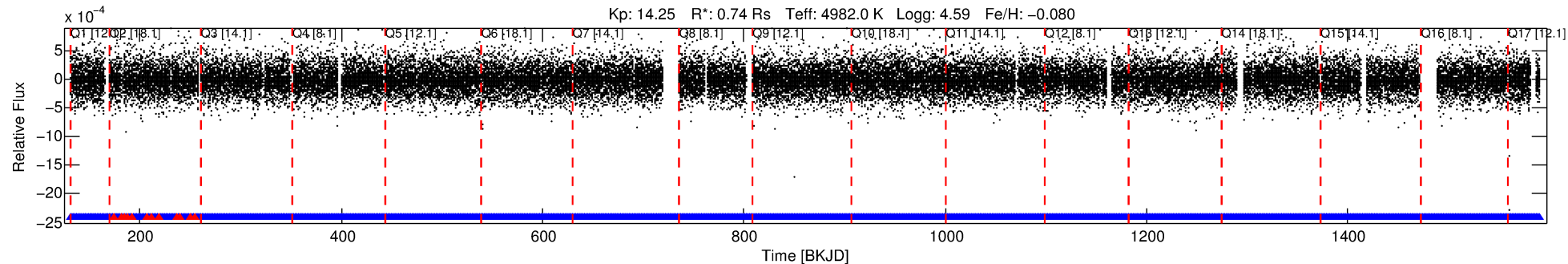
Ephemeris Match Information For 010006641-02

No Significant Match Found

DV One-Page Summary

KIC: 10006641 Candidate: 2 of 2 Period: 0.894 d
KOI: K04469 Corr: No Ephemeris Match

Kp: 14.25 R*: 0.74 Rs Teff: 4982.0 K Logg: 4.59 Fe/H: -0.080



DV Fit Results:

Period = 0.89418 [0.00001] d
Epoch = 131.9498 [0.0010] BKJD
Rp/R* = 0.0080 [0.0069]
a/R* = 7.23 [21.12]
b = 0.31 [8.88]
Seff = 1077.77 [180.90]
Teq = 1461 [61] K
Rp = 0.64 [0.56] Re
a = 0.0167 [0.0014] AU
Ag = 0.35 [2.04] [-0.32σ]
Teffp = 1741 [2517] K [0.11σ]

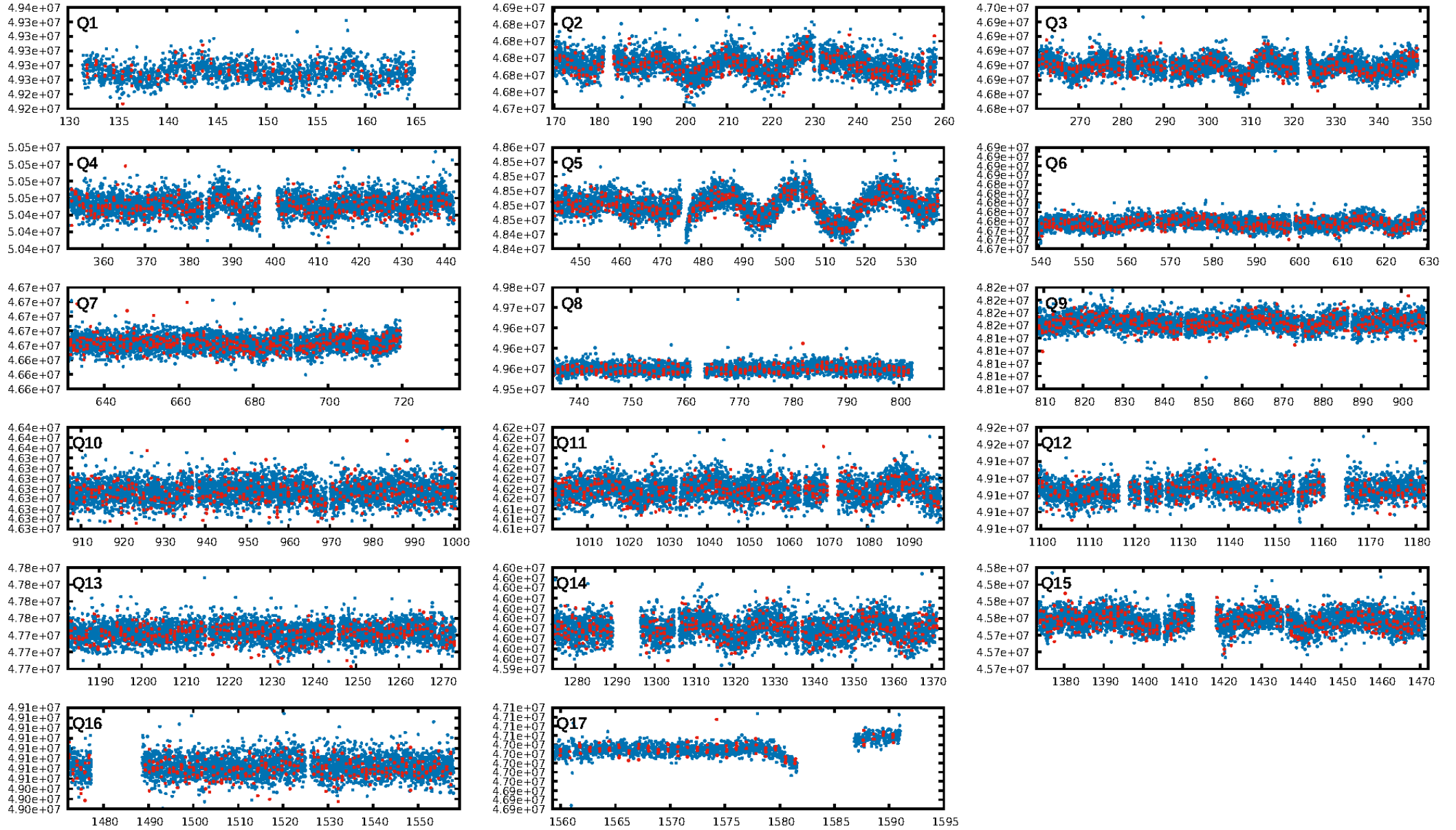
DV Diagnostic Results:

ShortPeriod-sig: 0.0% [0.00σ]
LongPeriod-sig: N/A
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: 3.41e-25
RollingBand-fgt: 0.99 [1418/1430]
GhostDiagnostic-chr: 6.012
Centroid-sig: 76.1%
Centroid-so: 0.486 arcsec [0.71σ]
OotOffset-rm: 0.307 arcsec [0.56σ]
OotOffset-st: 3/4/3/2 [12]
KicOffset-rm: 0.272 arcsec [0.50σ]
KicOffset-st: 3/4/3/2 [12]
DiffImageQuality-fgm: 0.75 [9/12]
DiffImageOverlap-fno: 1.00 [17/17]

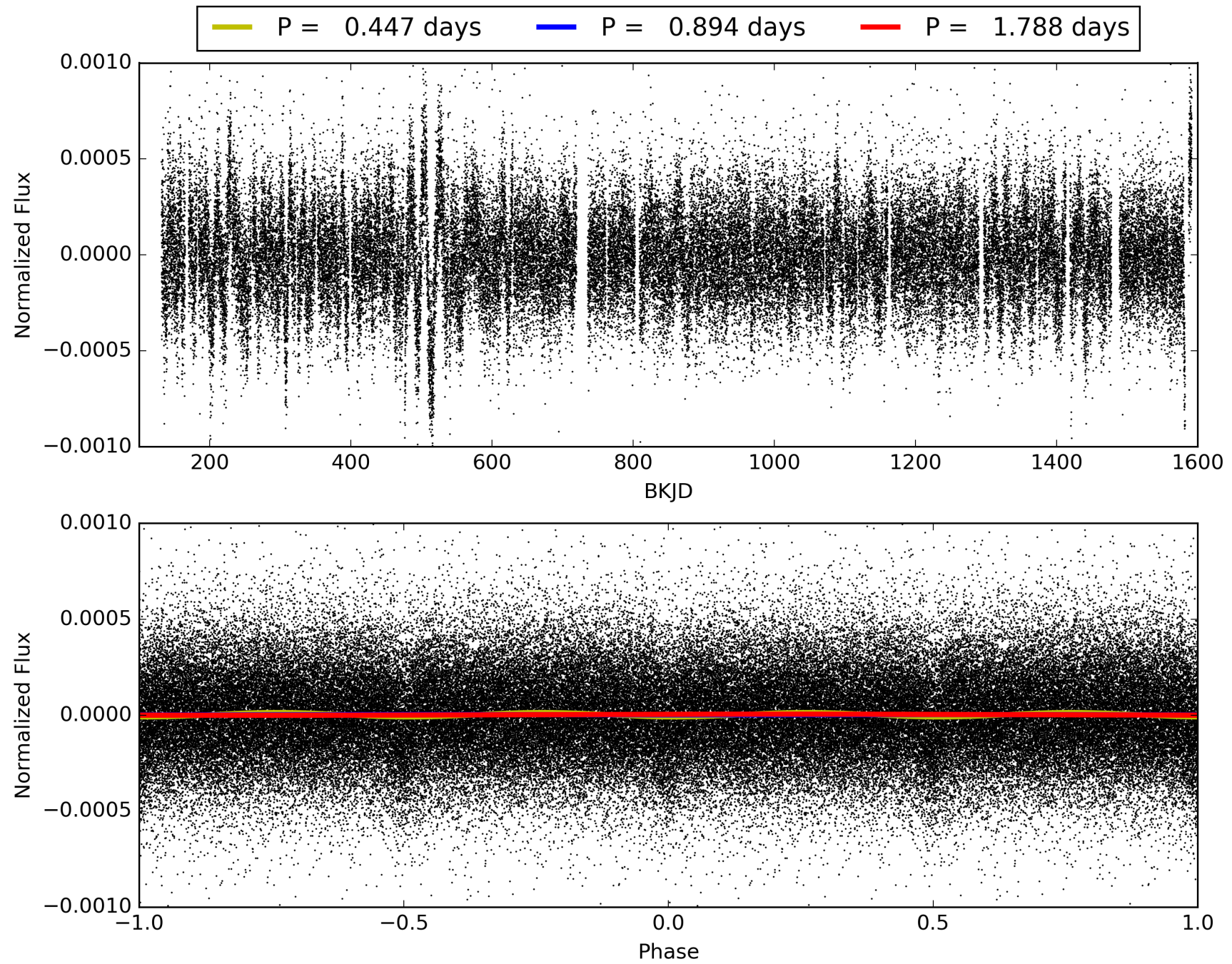
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 29-Jan-2016 06:25:07 Z

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

TCE 010006641-02, PDC Light Curves

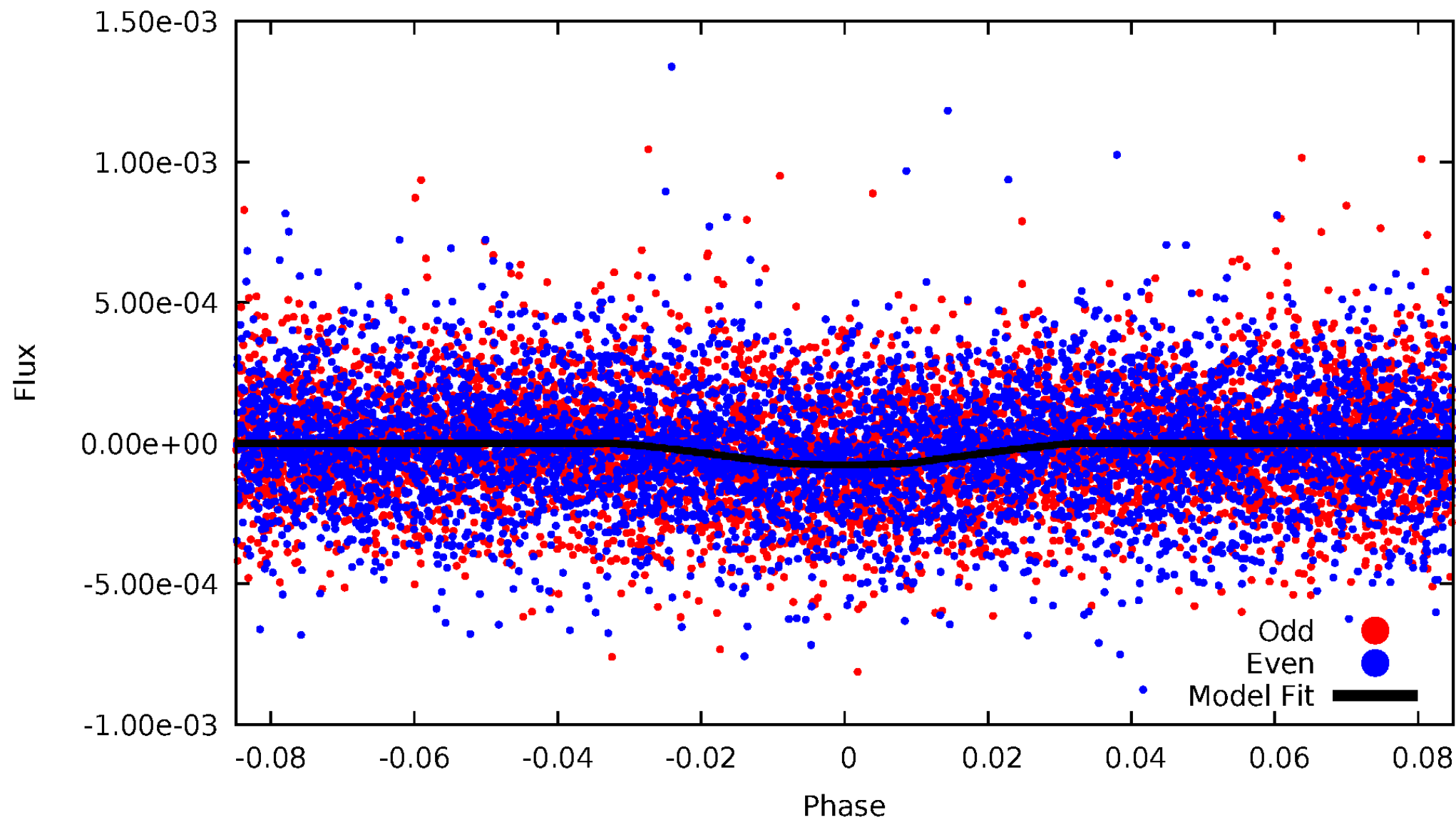


TCE 010006641-02



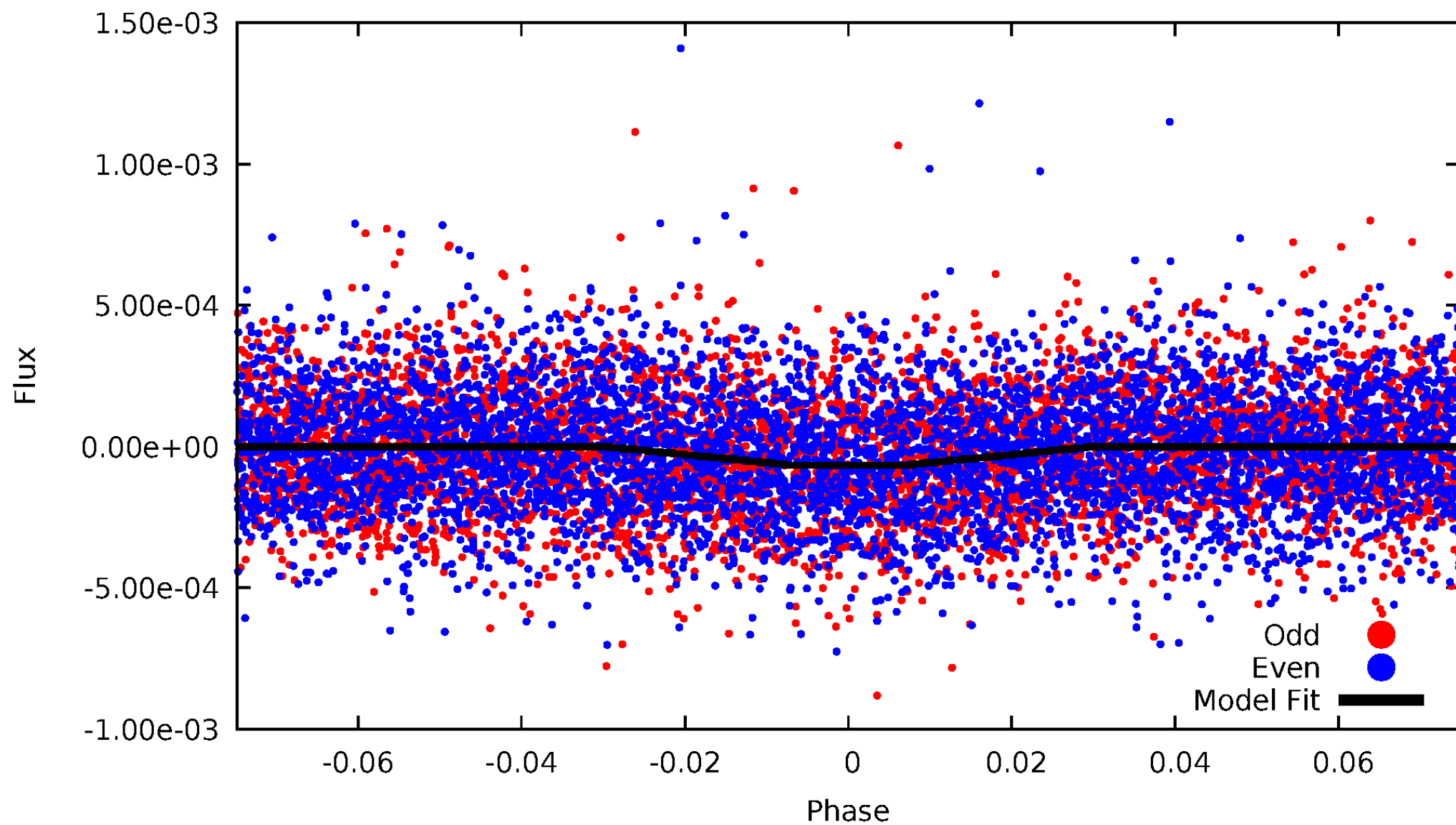
DV Odd/Even

TCE 010006641-02



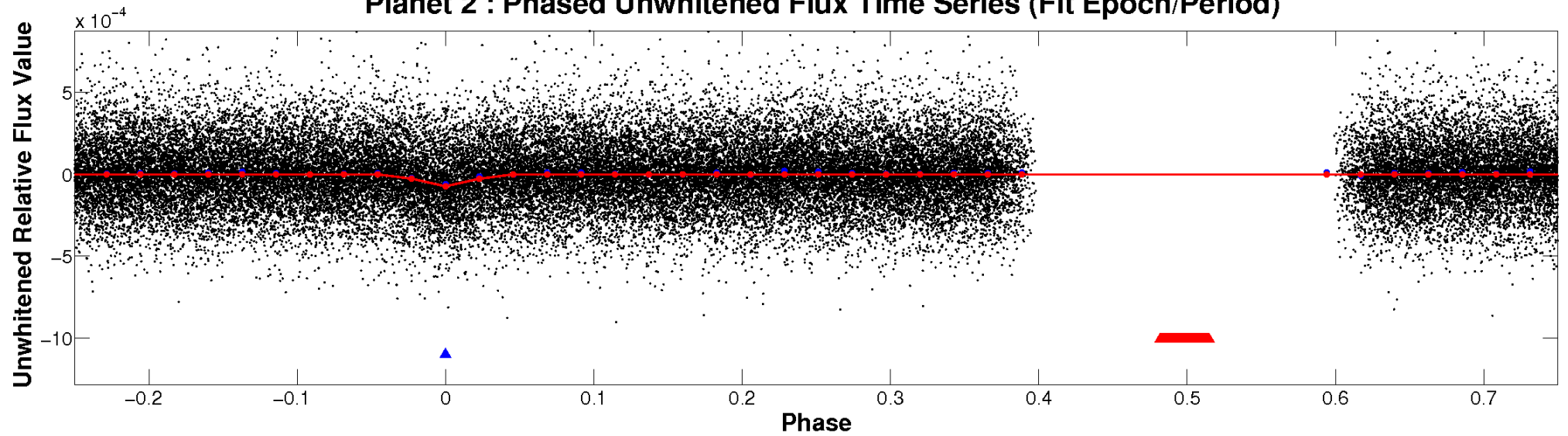
ALT Odd/Even

TCE 010006641-02

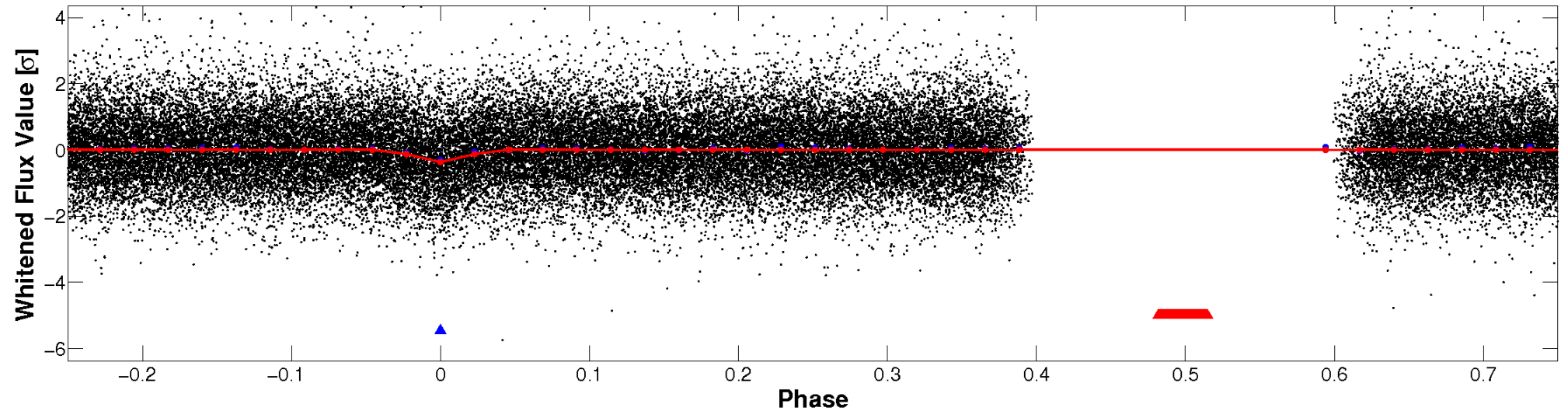


Non-Whitened Vs. Whitened Light Curve

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

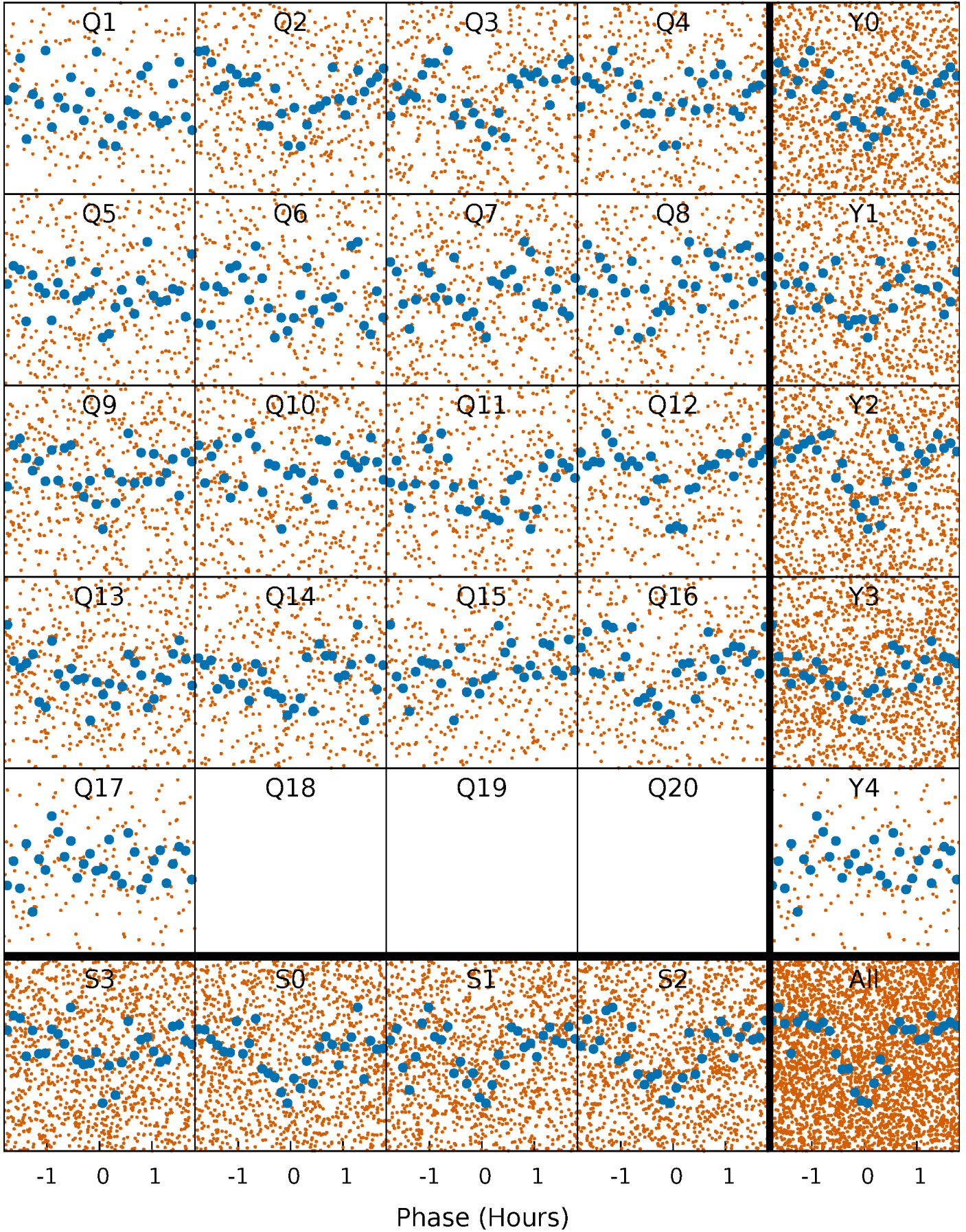


Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



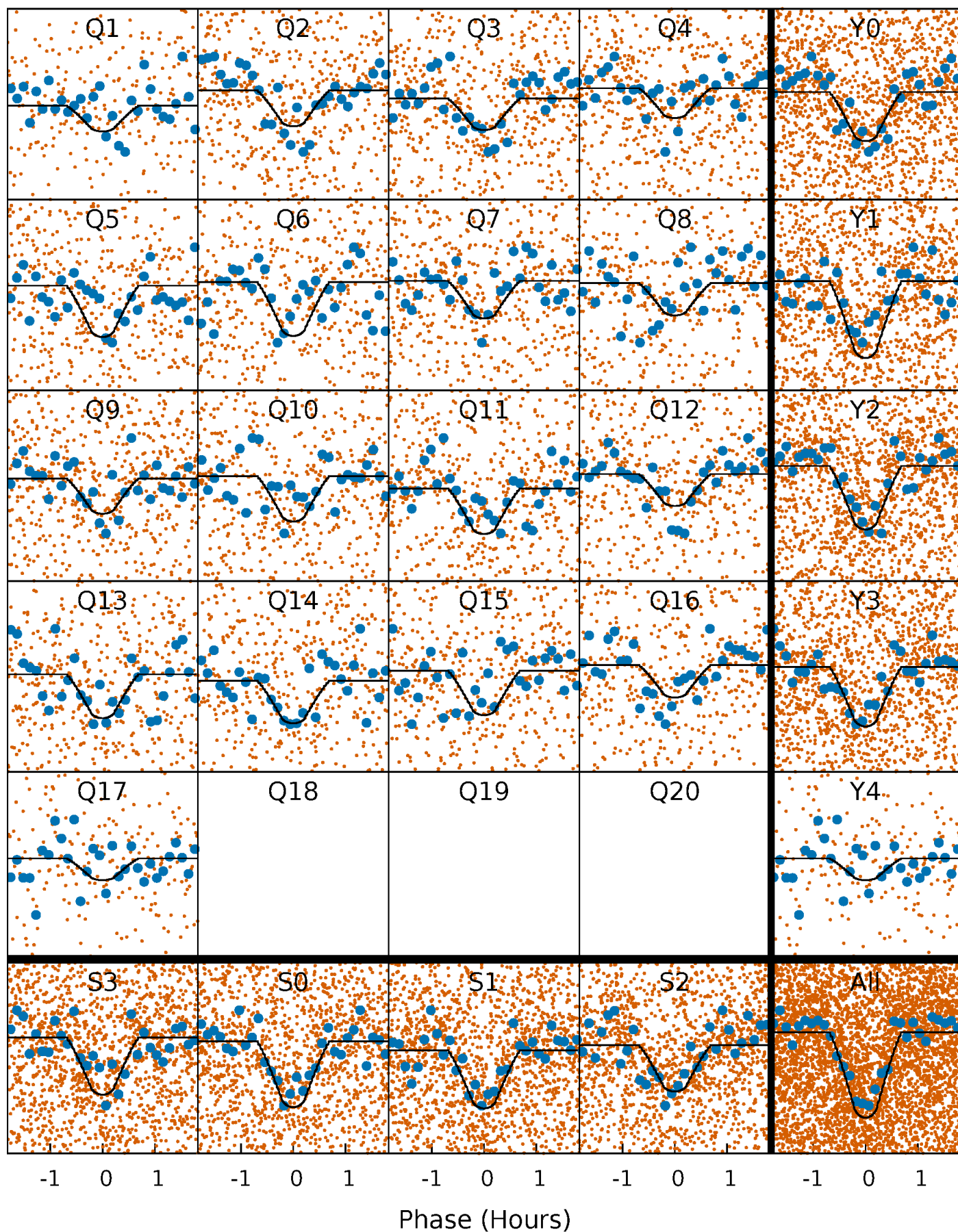
PDC Quarter-Phased Transit Curves

TCE 010006641-02 P= 0.894183 Days $T_0=131.949775$ (BKJD)



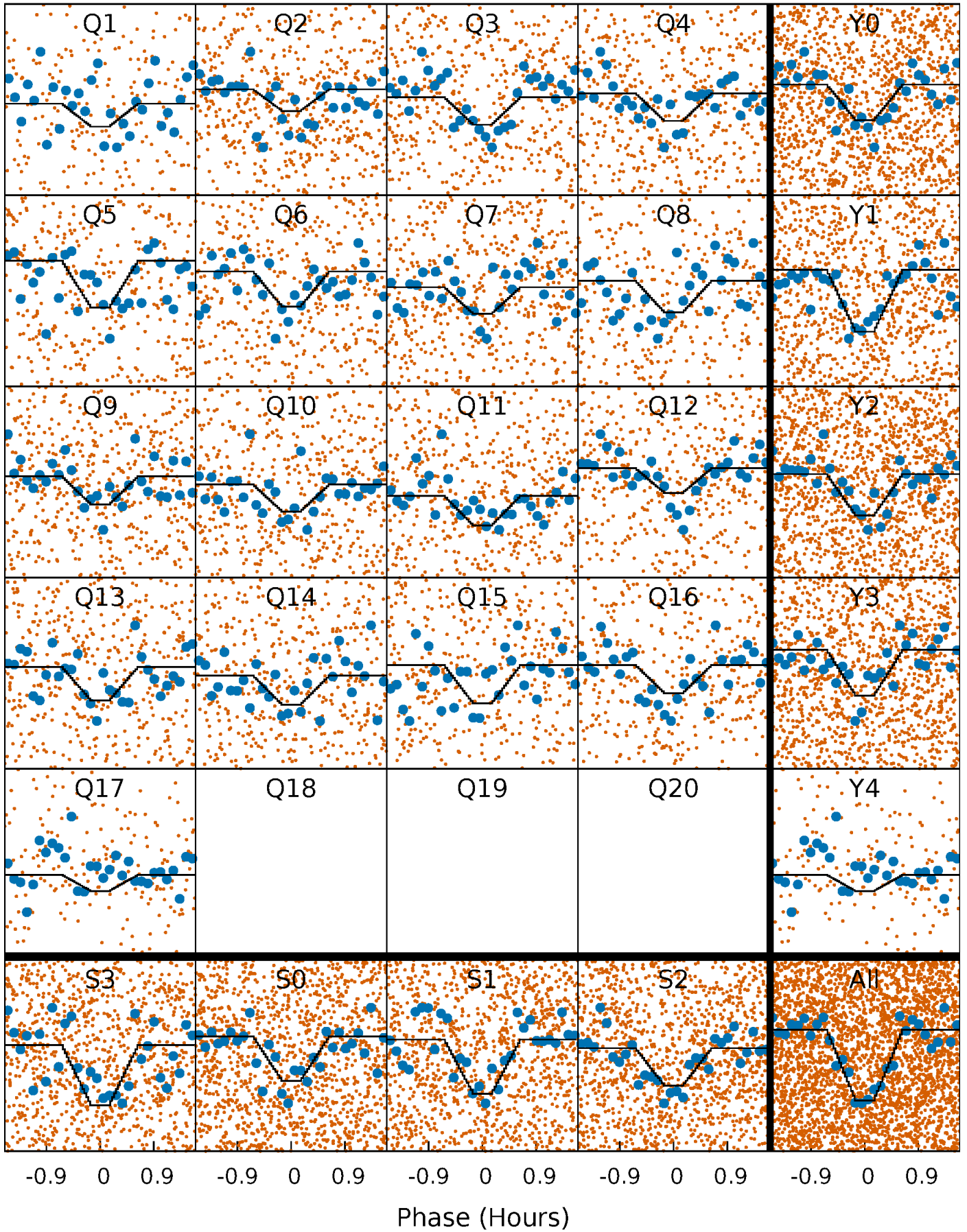
DV Quarter-Phased Transit Curves

TCE 010006641-02 P= 0.894183 Days $T_0=131.949775$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

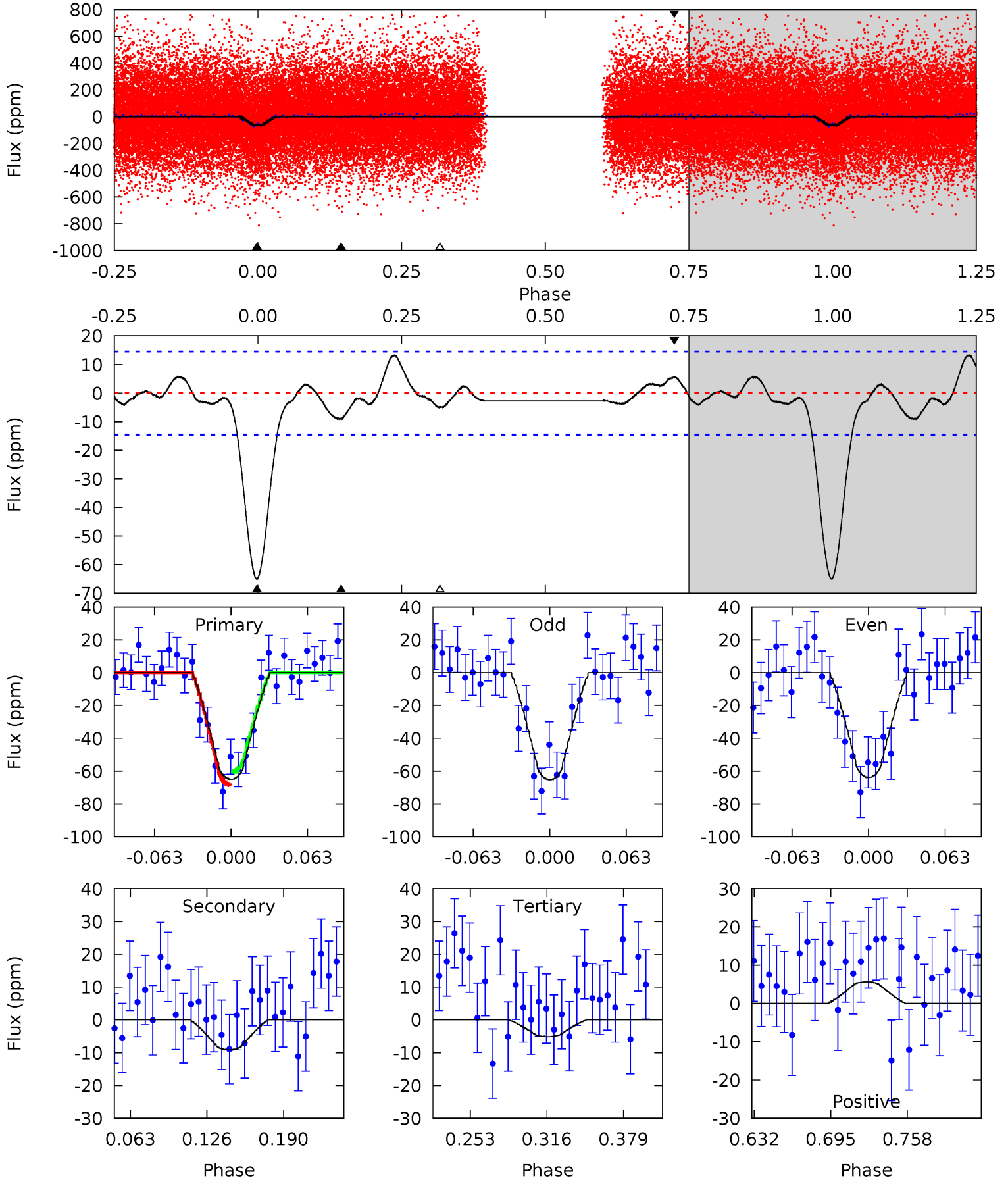
TCE 010006641-02 P= 0.894181 Days $T_0=131.949751$ (BKJD)



DV Model-Shift Uniqueness Test

010006641-02, P = 0.894183 Days, E = 131.055592 Days

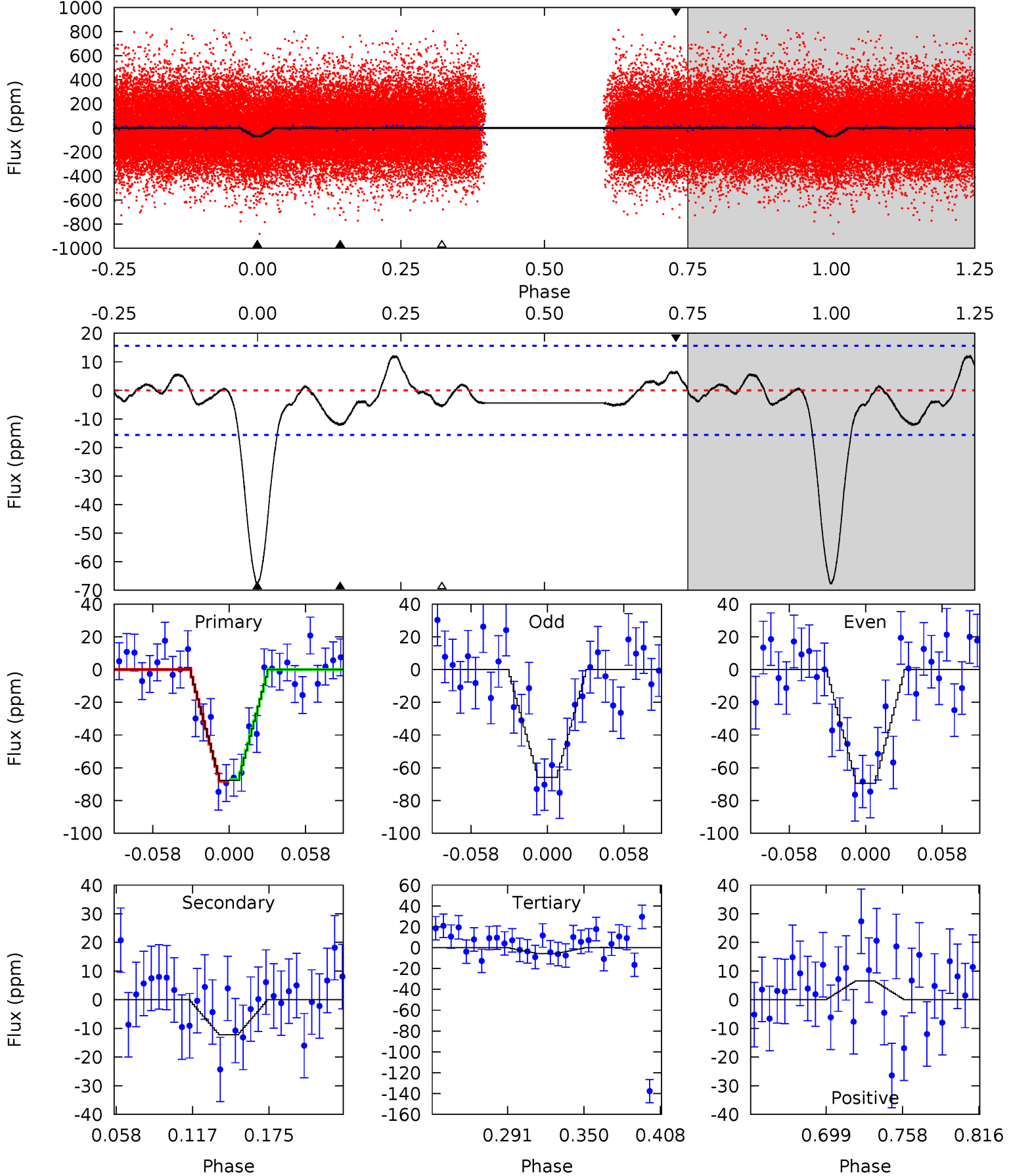
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
20.8	2.93	1.64	1.81	4.66	1.86	1.27	19.2	19.0	1.29	1.11	0.22	0.99	0.17	1.25



Alt Model-Shift Uniqueness Test

010006641-02, P = 0.894181 Days, E = 131.055570 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
20.3	3.66	1.70	1.98	4.68	1.89	1.17	18.6	18.3	1.96	1.68	0.55	0.98	0.15	0.17



Stellar Parameters For KIC 010006641

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (g \cdot \text{cm}^{-3})$
	4982^{+151}_{-136}	$4.591^{+0.035}_{-0.060}$	$-0.080^{+0.300}_{-0.300}$	$0.736^{+0.078}_{-0.058}$	$0.771^{+0.071}_{-0.071}$	$2.724^{+0.495}_{-0.560}$
	+3%/-3%	+1%/-1%	+375%/-375%	+11%/-8%	+9%/-9%	+18%/-21%
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 010006641-02 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	-9 ± 3	$0.74^{+0.54}_{-0.45}$	2051^{+75}_{-68}	3273^{+1229}_{-649}	$2.487^{+12.603}_{-1.757}$
Alt.	-12 ± 3	$0.75^{+0.56}_{-0.39}$	2055^{+73}_{-71}	3400^{+1127}_{-612}	$3.140^{+11.348}_{-2.155}$

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 $A_{obs} \gg 1.0$

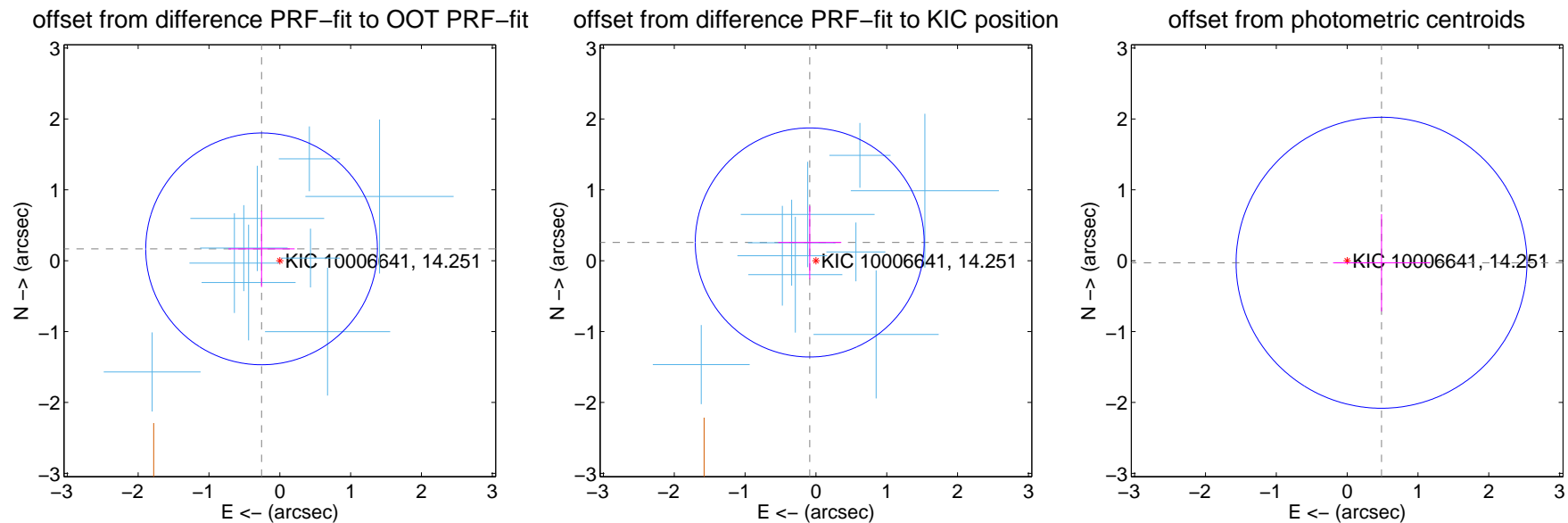
DV Centroid Data

Supplemental centroid analysis for 010006641-02. Kepler magnitude: 14.25. Transit SNR 16.31

There are 9 quarters with good PRF difference image offsets

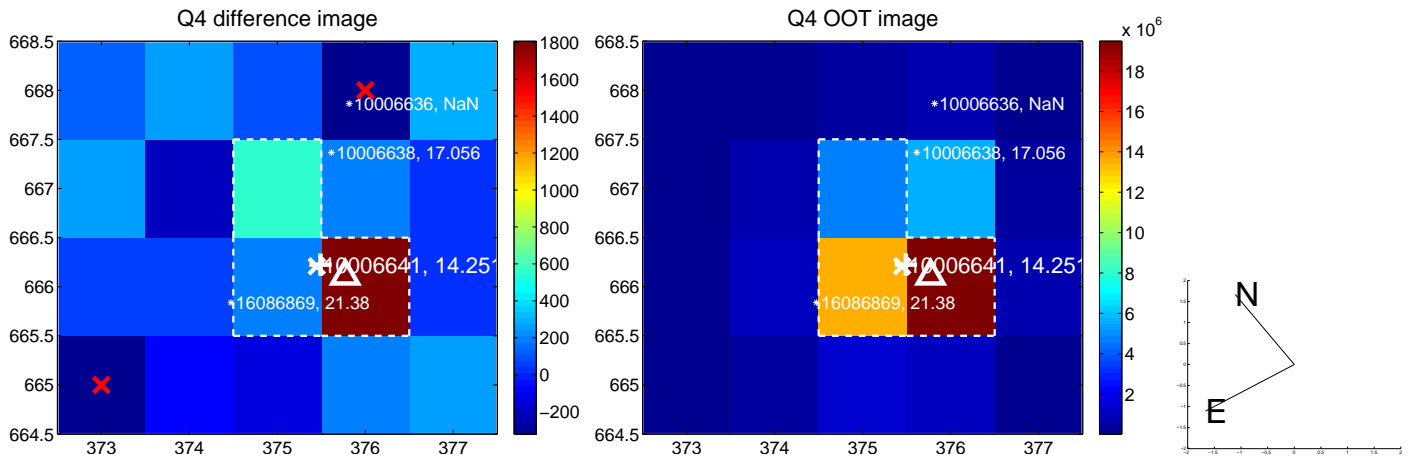
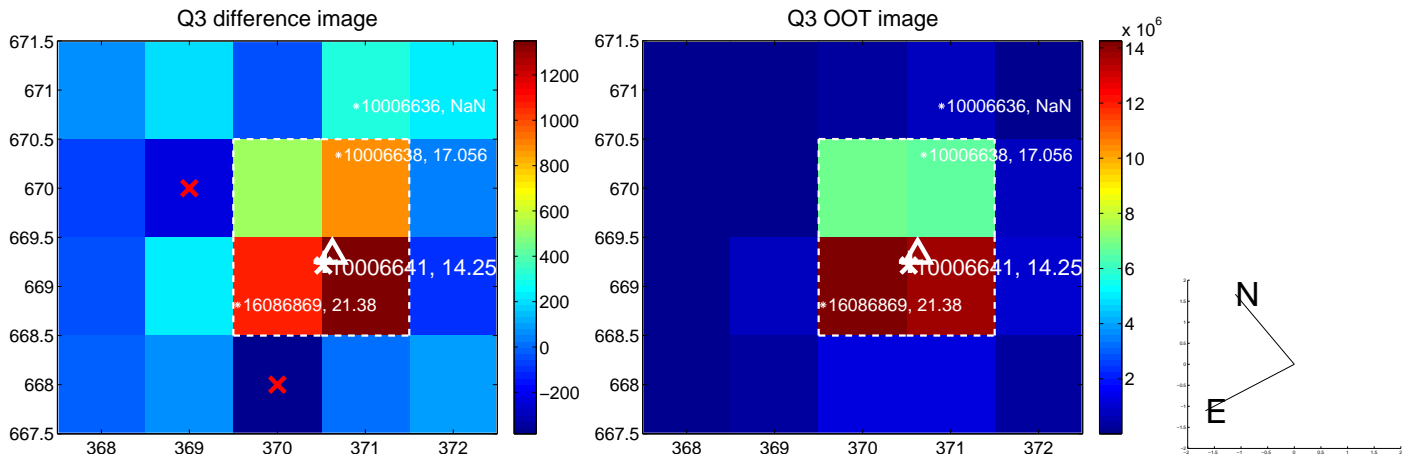
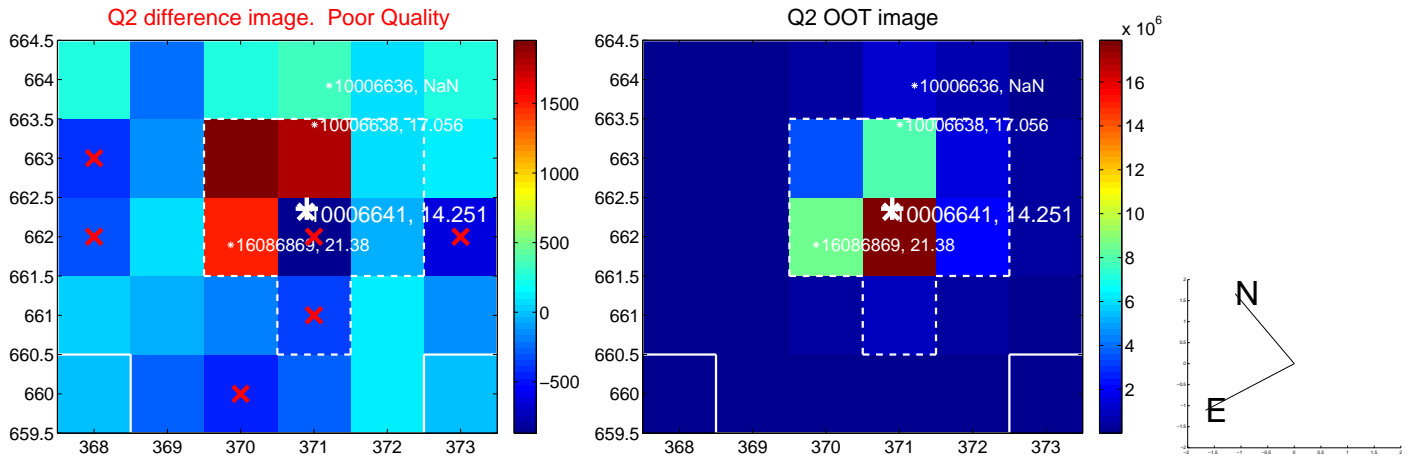
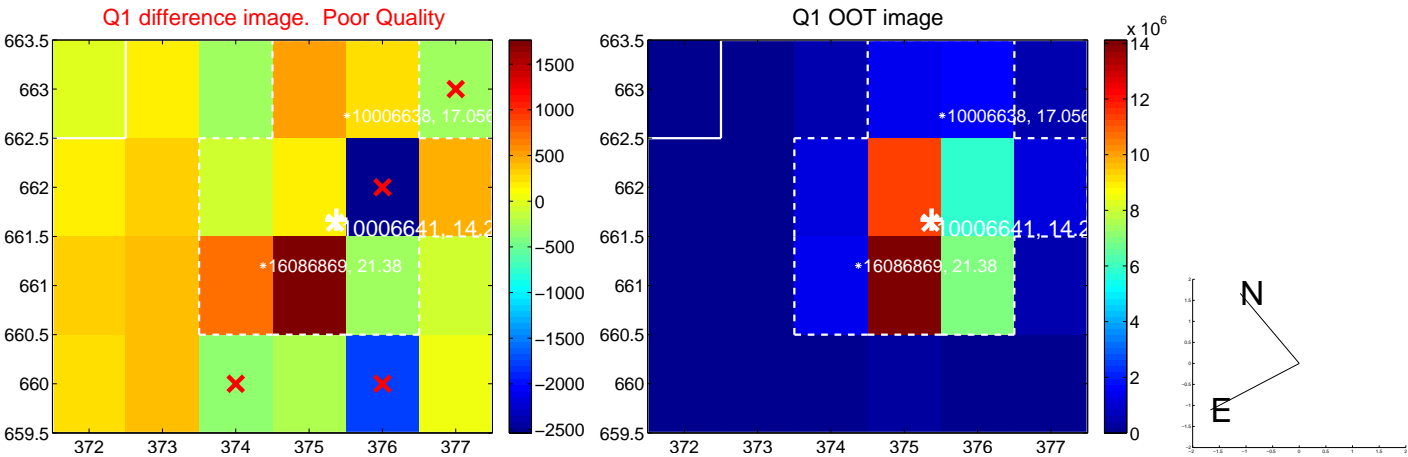
The direct PRF centroid is offset from the target star catalog position by about 0.22 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.307 ± 0.545	0.56	0.257 ± 0.467	0.167 ± 0.538
PRF-fit source offset from KIC position	0.272 ± 0.539	0.50	0.087 ± 0.445	0.257 ± 0.515
photometric centroid source offset	0.49 ± 0.68	0.71	-0.49 ± 0.68	-0.03 ± 0.69

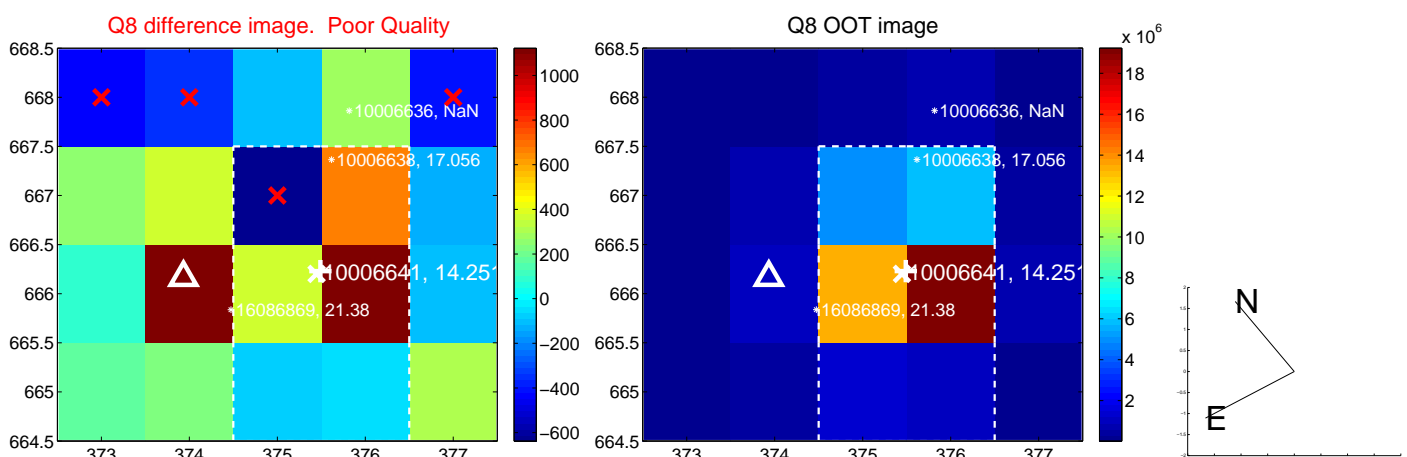
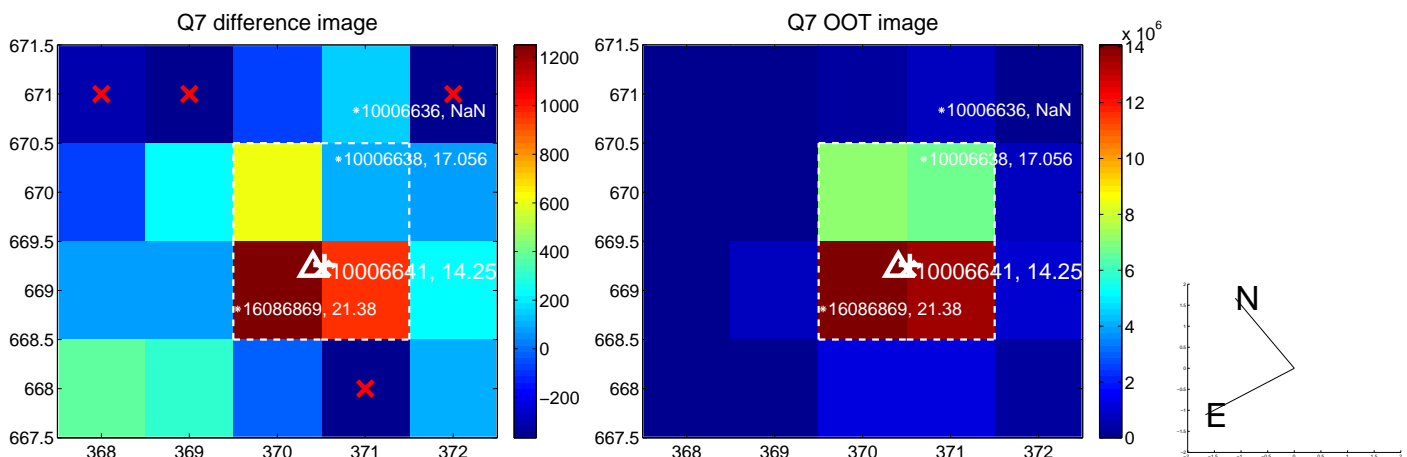
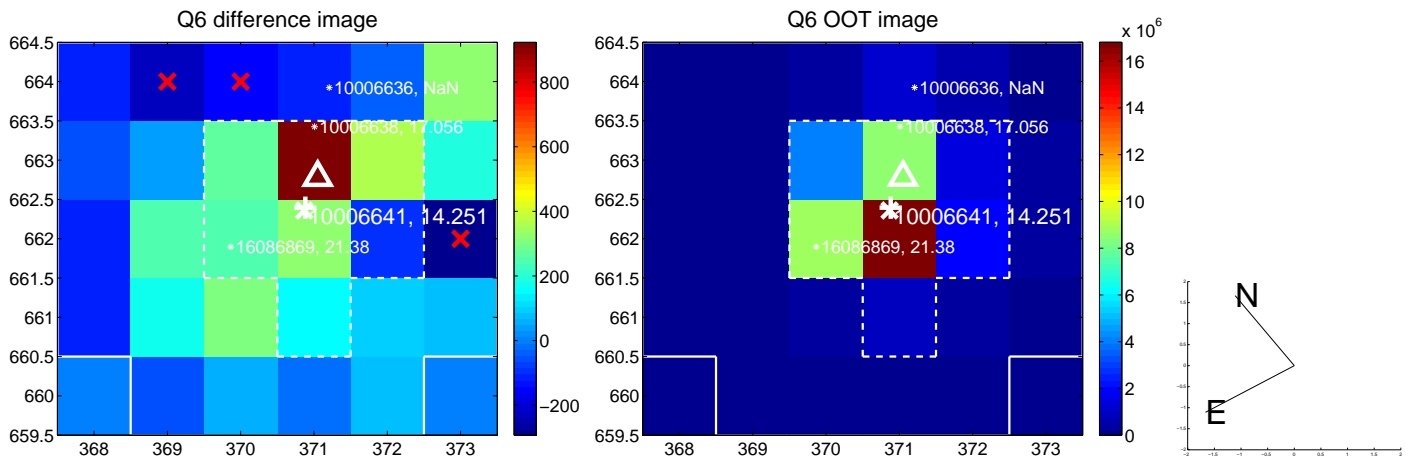
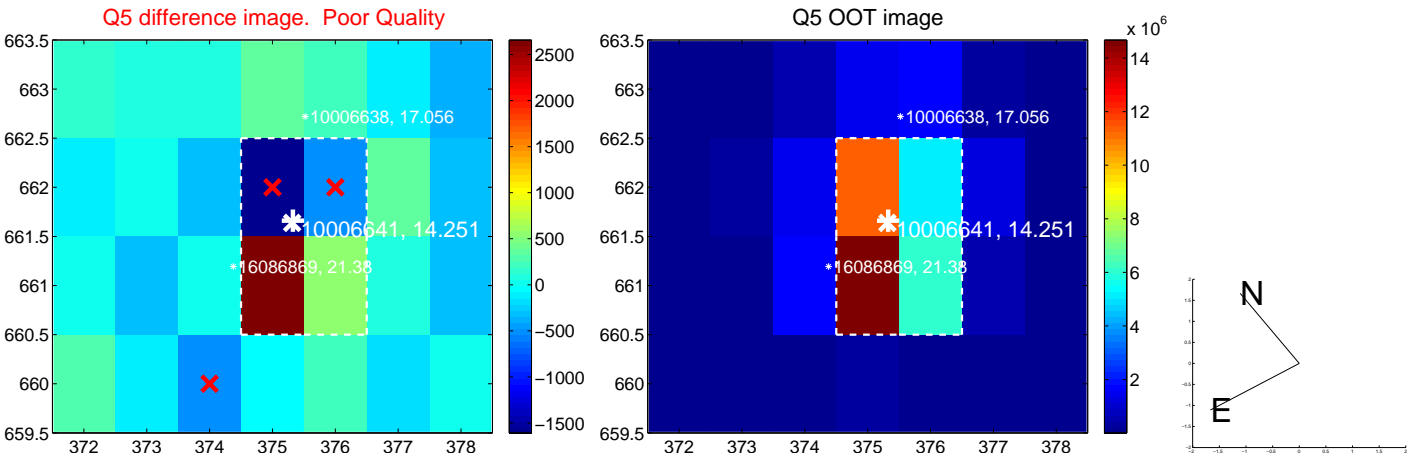


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses:** good quarterly centroid offsets; **Vermillion crosses:** bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

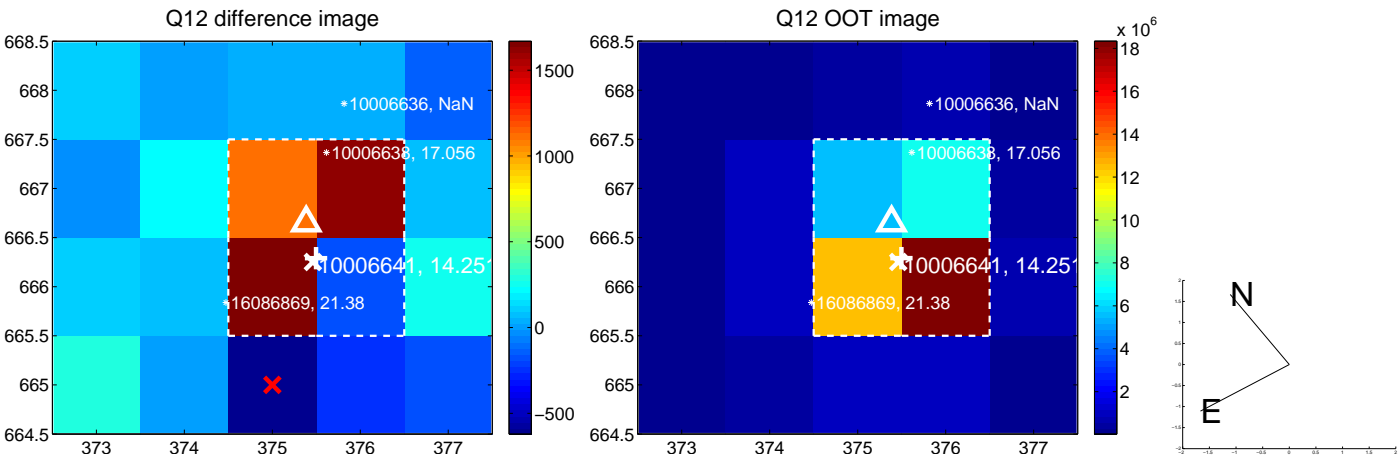
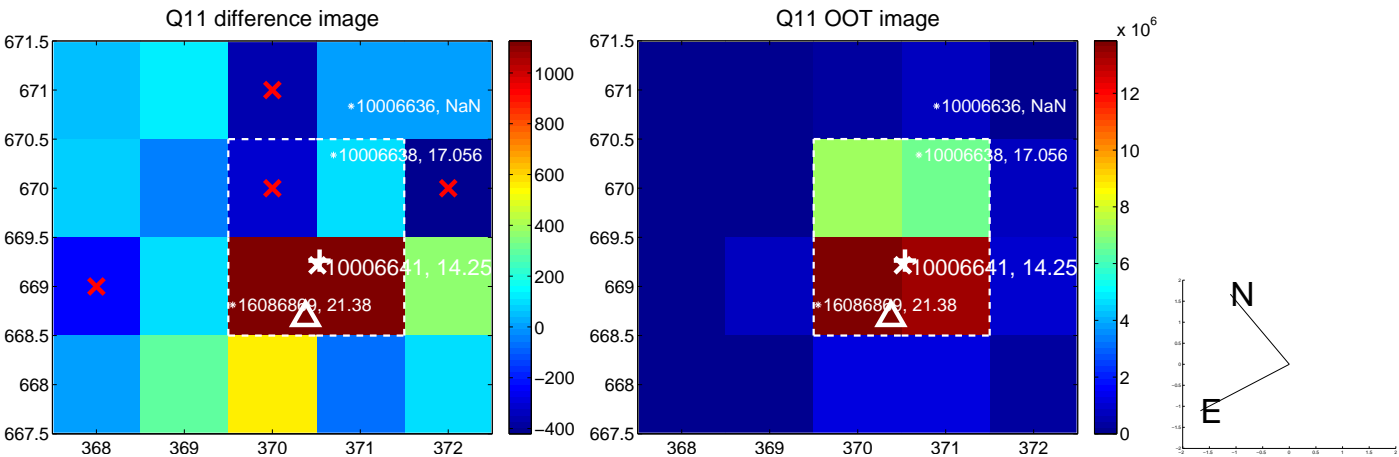
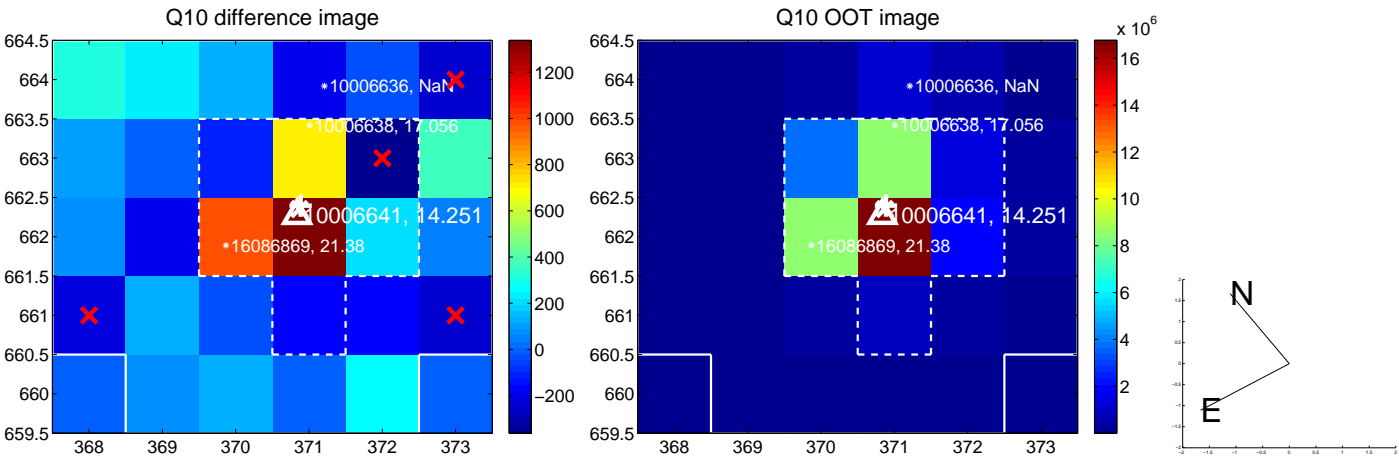
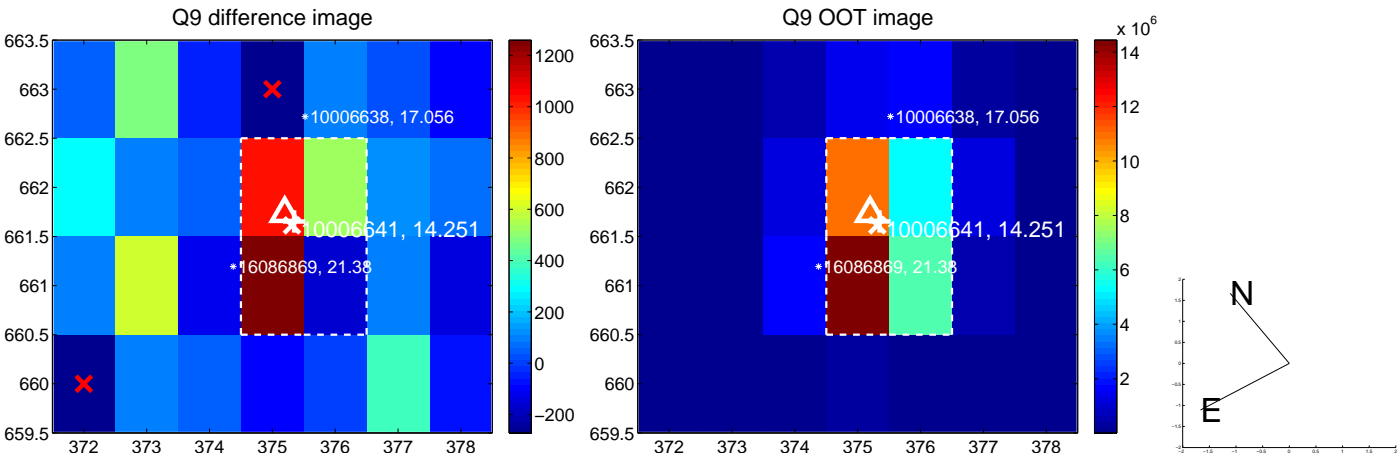
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



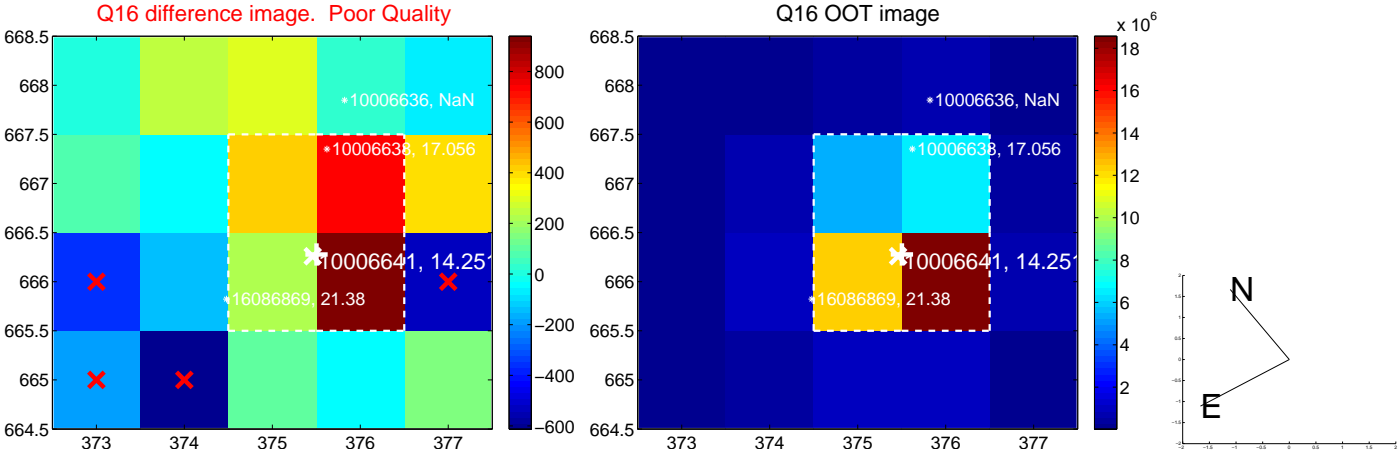
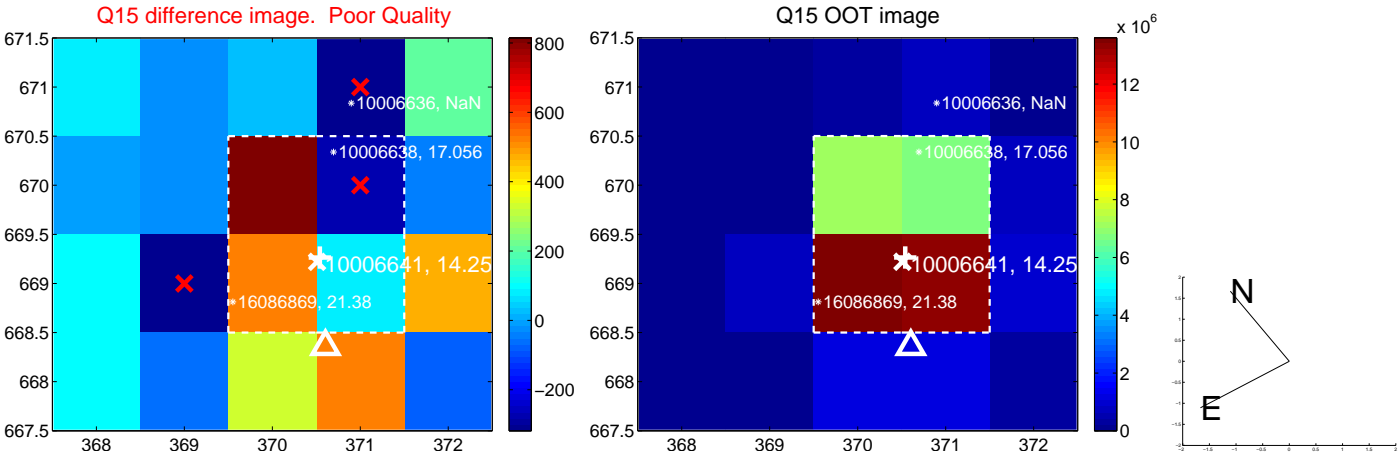
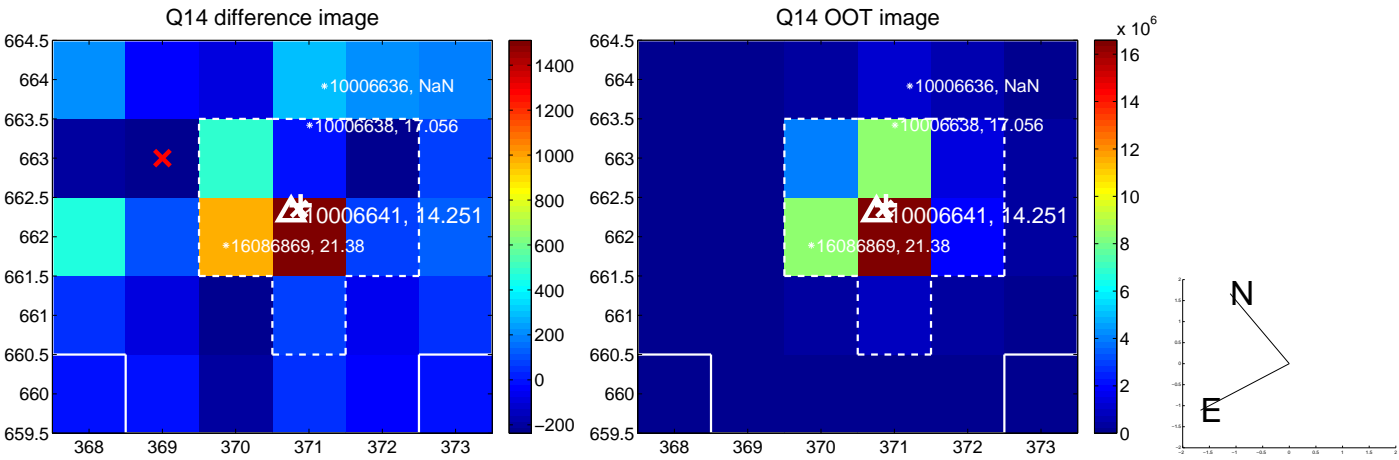
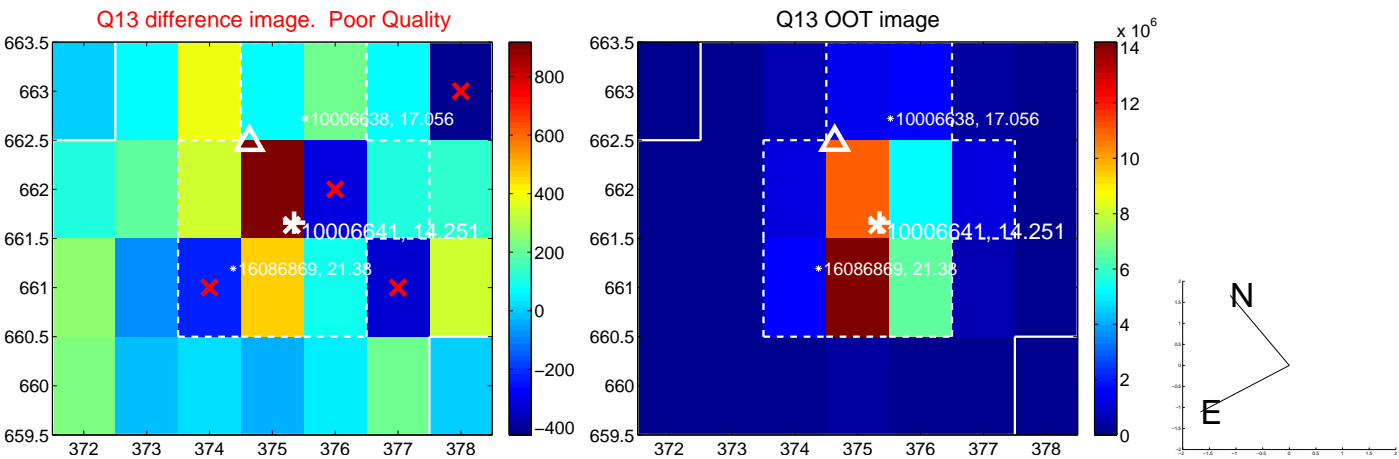
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



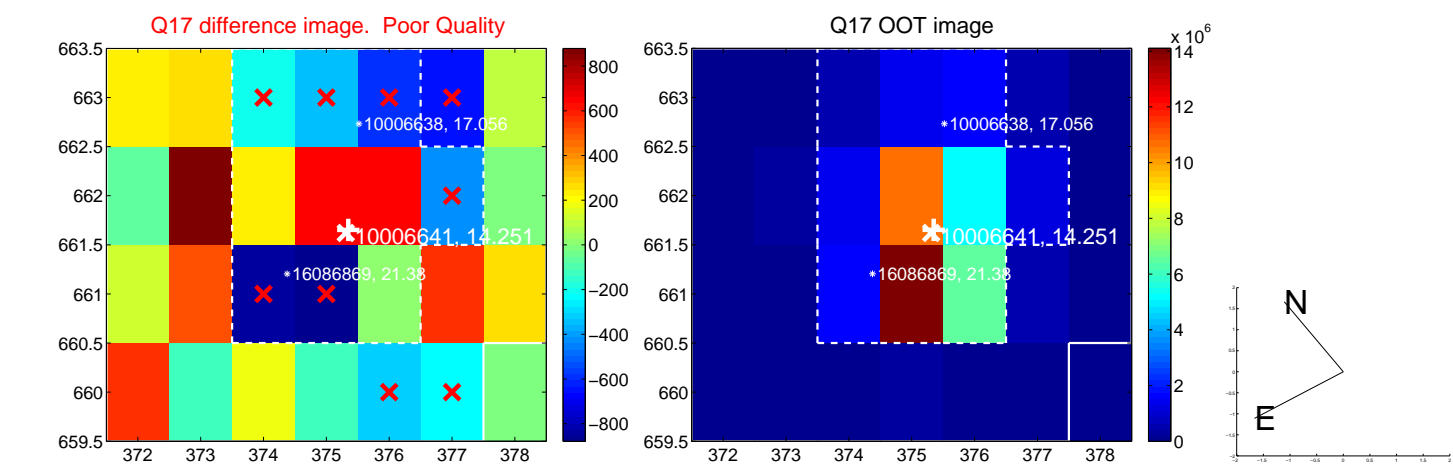
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



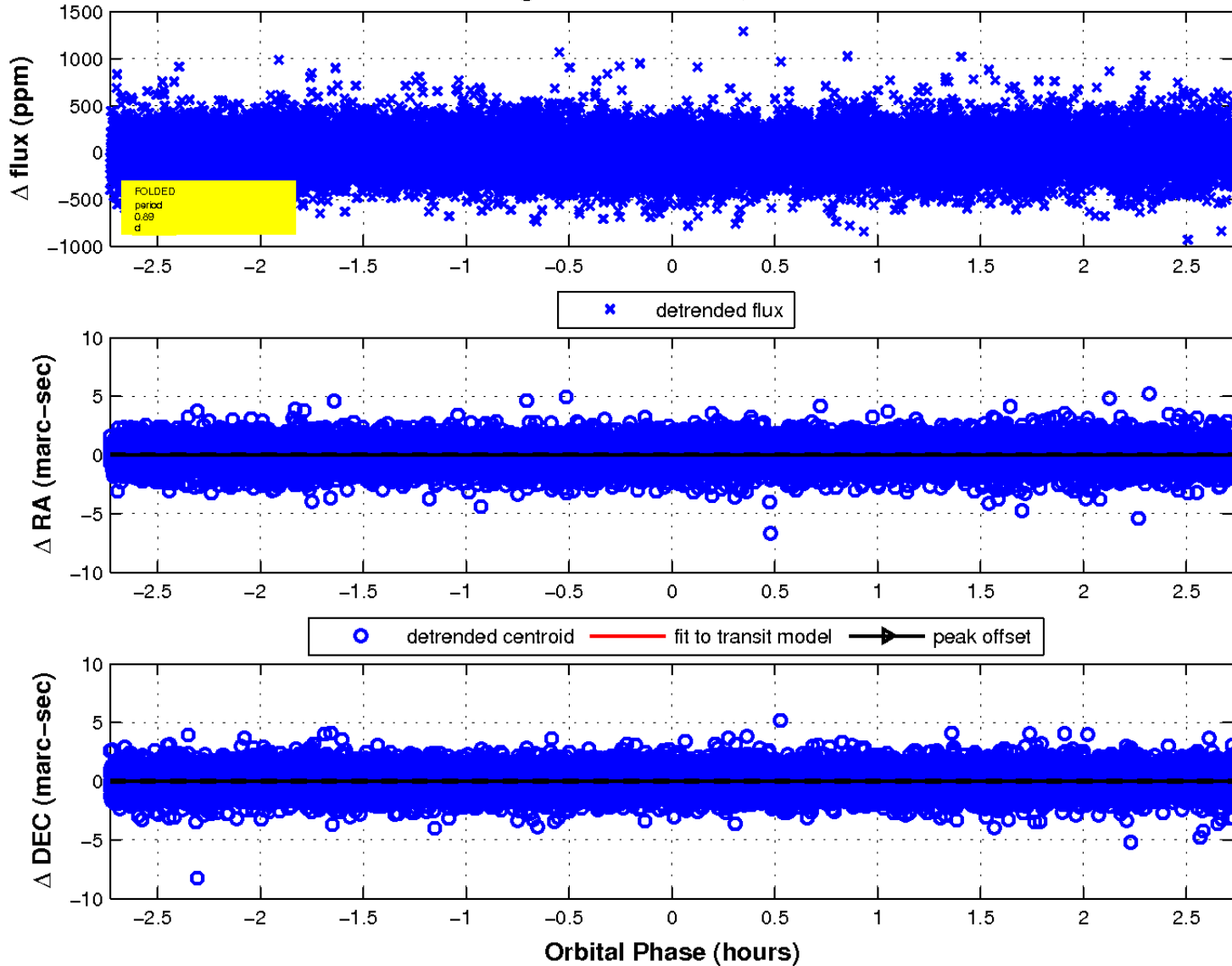
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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



fluxWeightedCentroids, Planet 2 of 2



UKIRT Image

Declination

