

KIC 004840675

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})
004840675-01	OBS	No	0.745542	132.223997	11.1	3.934	12.2	6.9	1.50	7307	0.52	17338.10
004840675-02	OBS	No	0.997077	132.108902	38.0	10.086	10.6	17.5	1.50	7307	0.95	11766.82

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
004840675-01	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—CENT_SATURATED
004840675-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_SKYE_ZUMA—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_ALT—CENT_SATURATED

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

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

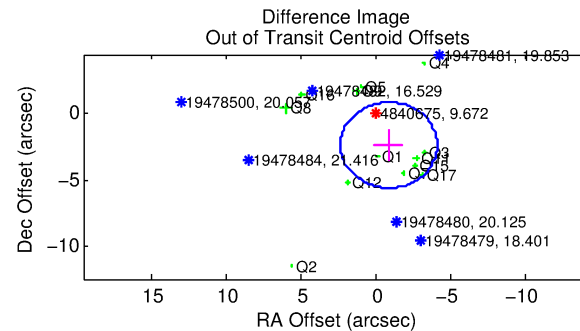
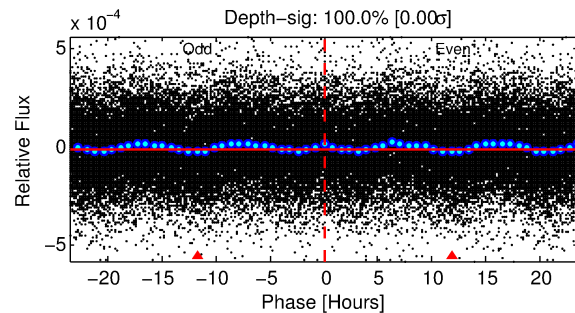
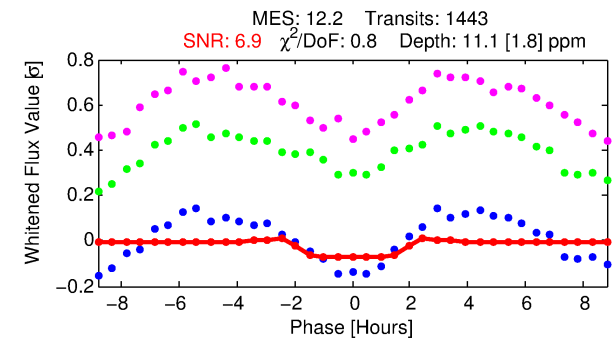
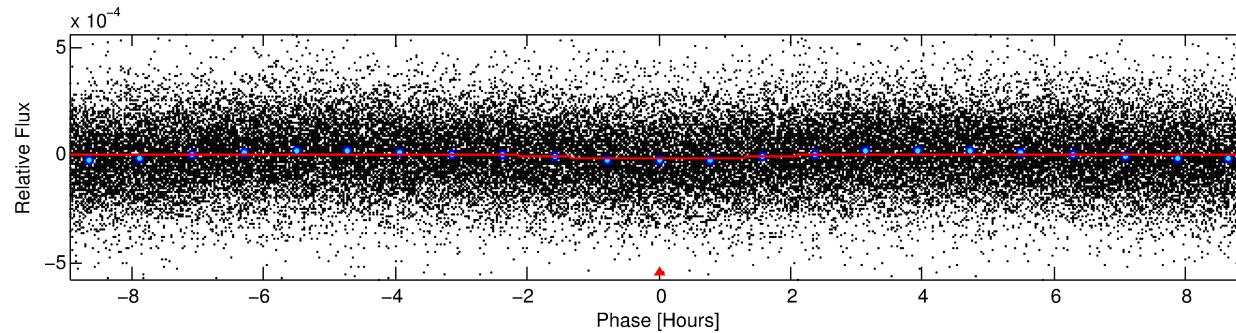
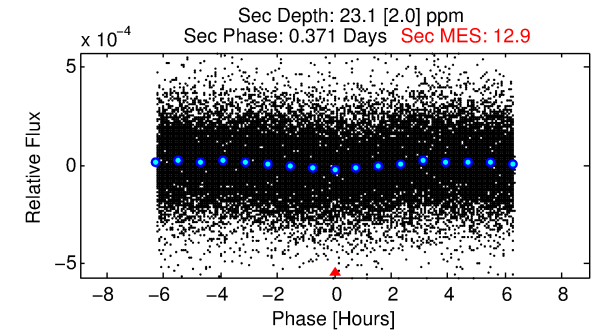
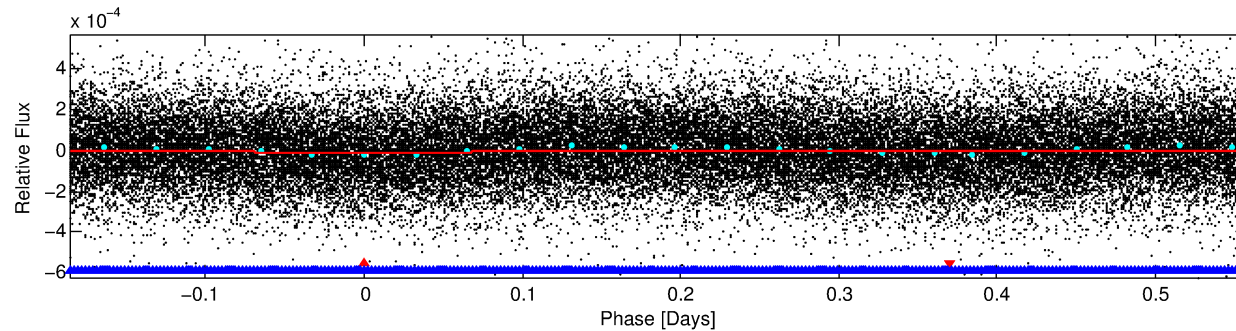
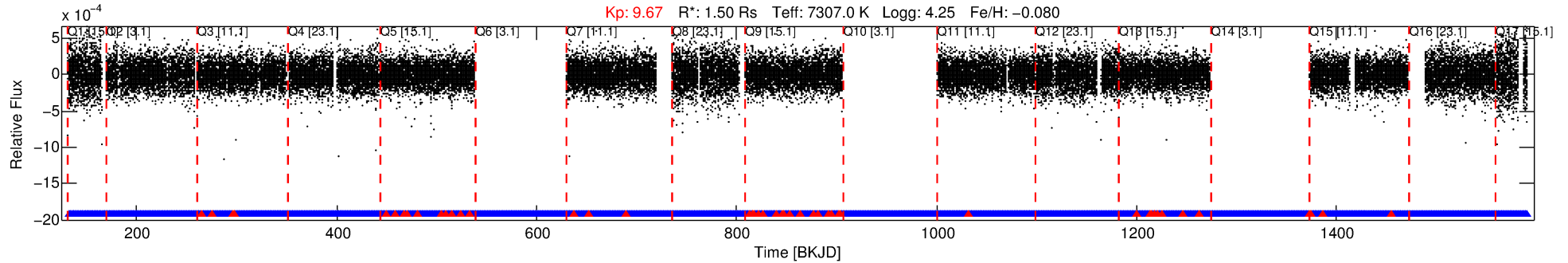
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 004840675-01

No Significant Match Found

DV One-Page Summary

KIC: 4840675 Candidate: 1 of 2 Period: 0.746 d



DV Fit Results:

Period = 0.74554 [0.00002] d
Epoch = 132.2240 [0.0060] BKJD
Rp/R* = 0.0032 [0.0013]
a/R* = 1.45 [1.93]
b = 0.50 [3.81]
Seff = 17338.10 [4607.73]
Teq = 2926 [194] K
Rp = 0.52 [0.25] Re
a = 0.0182 [0.0033] AU
Ag = 15.67 [13.92] [1.05σ]
Teffp = 9001 [1912] K [3.16σ]

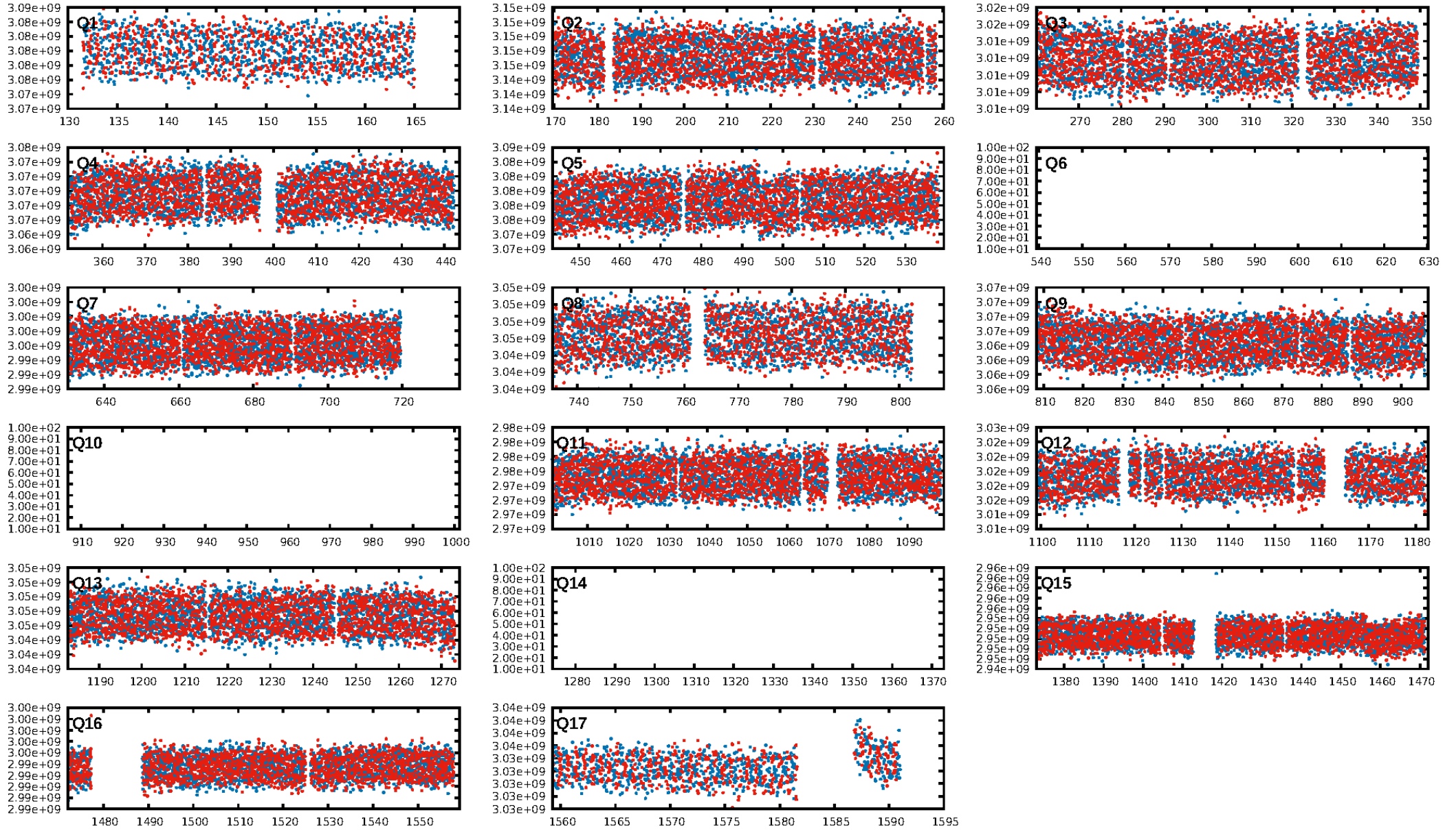
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: 42.3% [0.56σ]
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: N/A
RollingBand-fgt: 0.96 [1310/1360]
GhostDiagnostic-chr: N/A
Centroid-sig: 8.5%
Centroid-so: 1.786 arcsec [2.10σ]
OotOffset-rm: 2.544 arcsec [2.36σ]
OotOffset-st: 1/4/4/4 [13]
KicOffset-rm: 2.719 arcsec [2.72σ]
KicOffset-st: 1/4/4/4 [13]
DiffImageQuality-fgm: 0.08 [1/13]
DiffImageOverlap-fno: 0.00 [0/14]

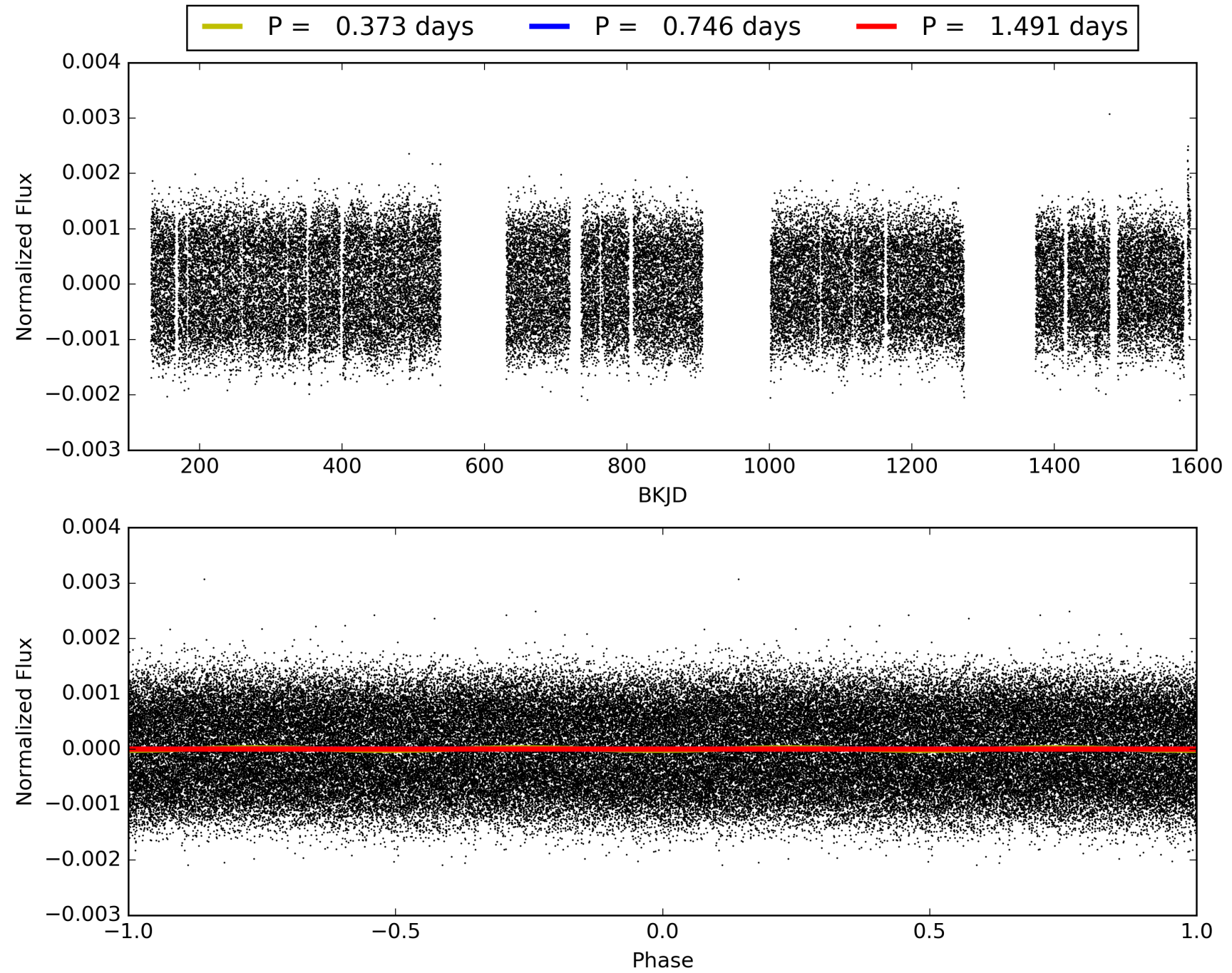
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 31-Jan-2016 14:32:48 Z

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

TCE 004840675-01, PDC Light Curves

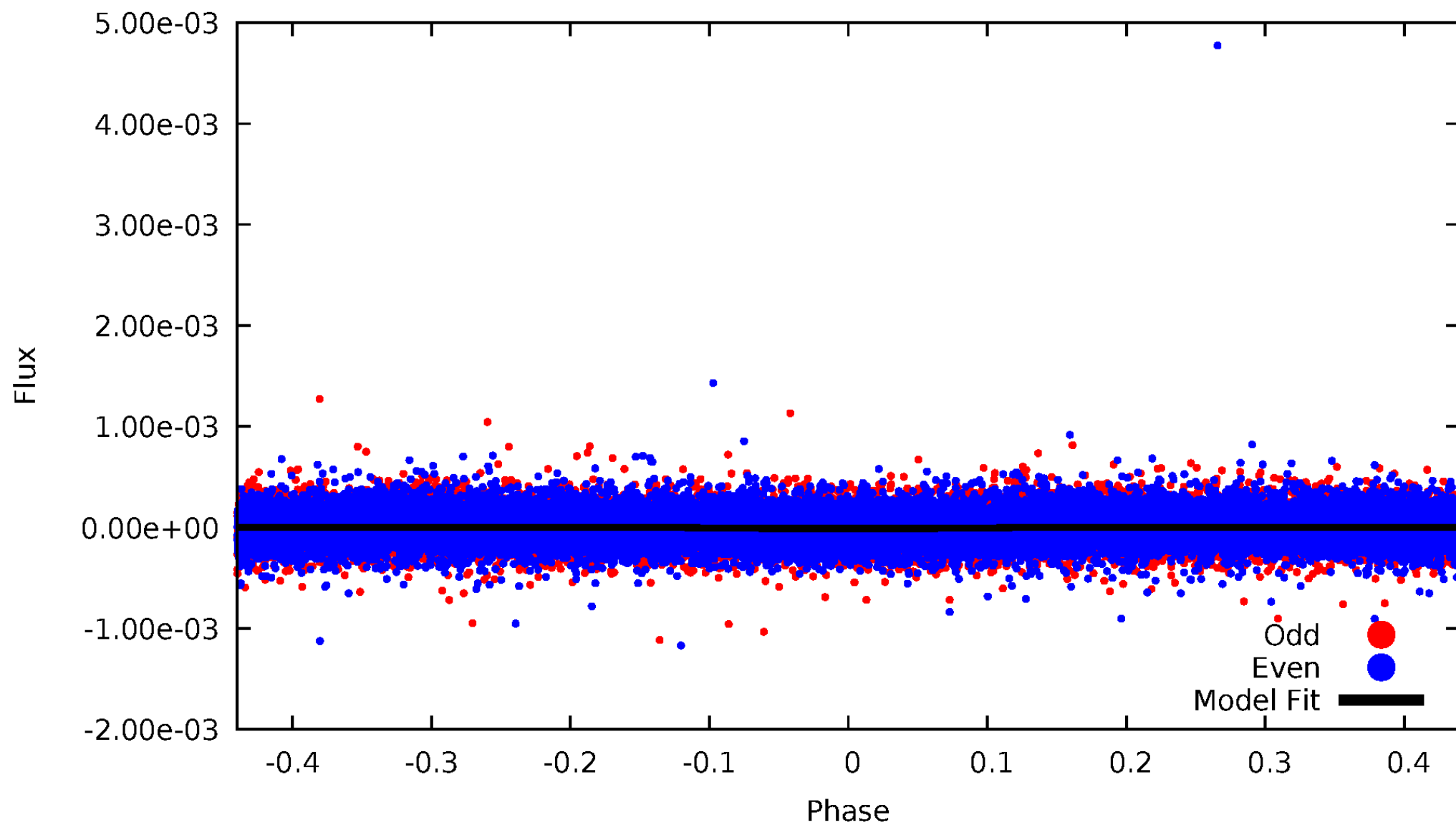


TCE 004840675-01



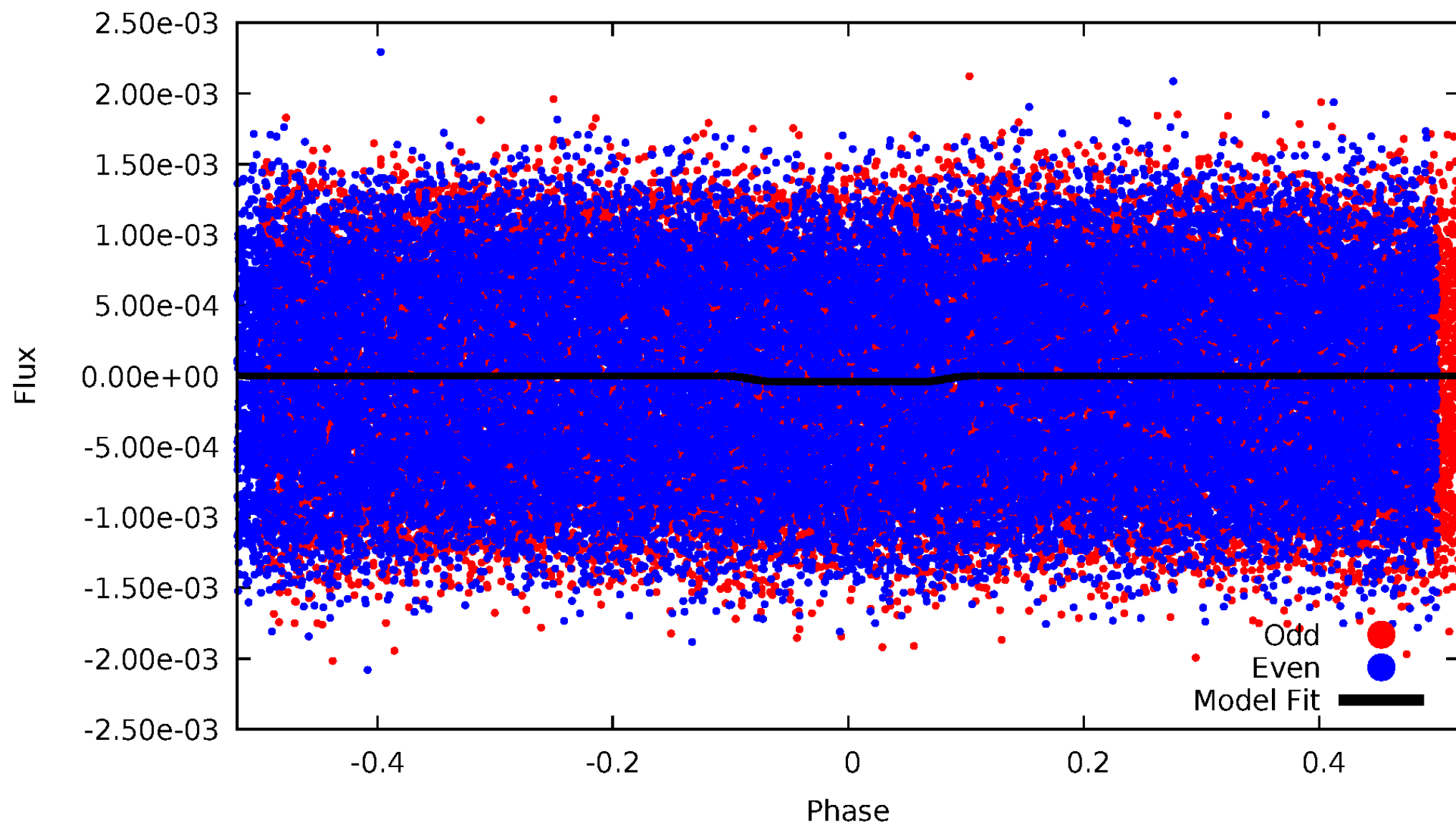
DV Odd/Even

TCE 004840675-01



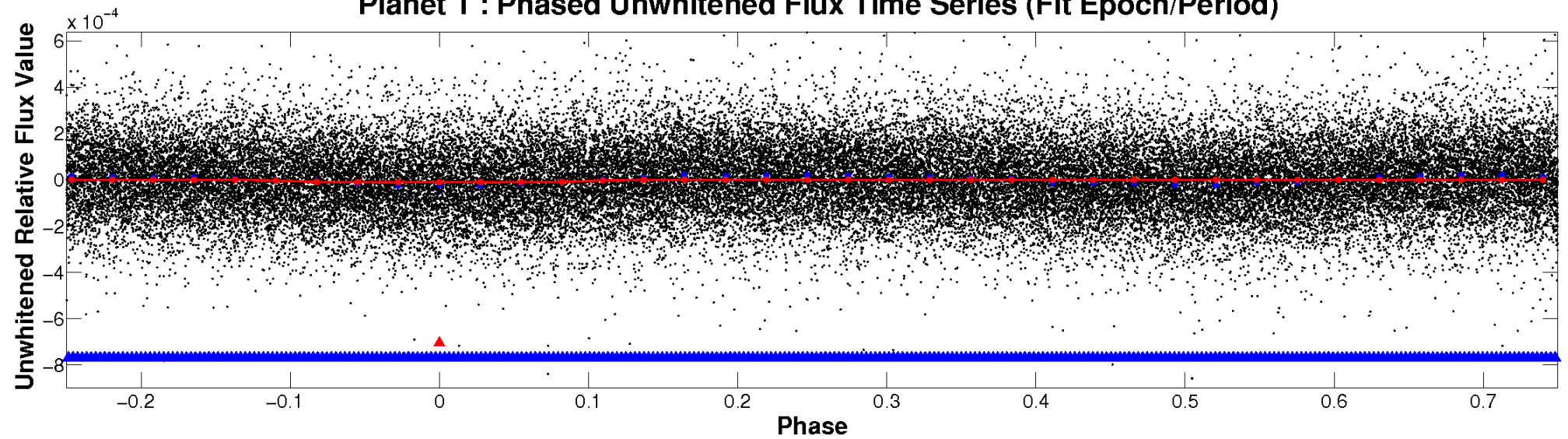
ALT Odd/Even

TCE 004840675-01

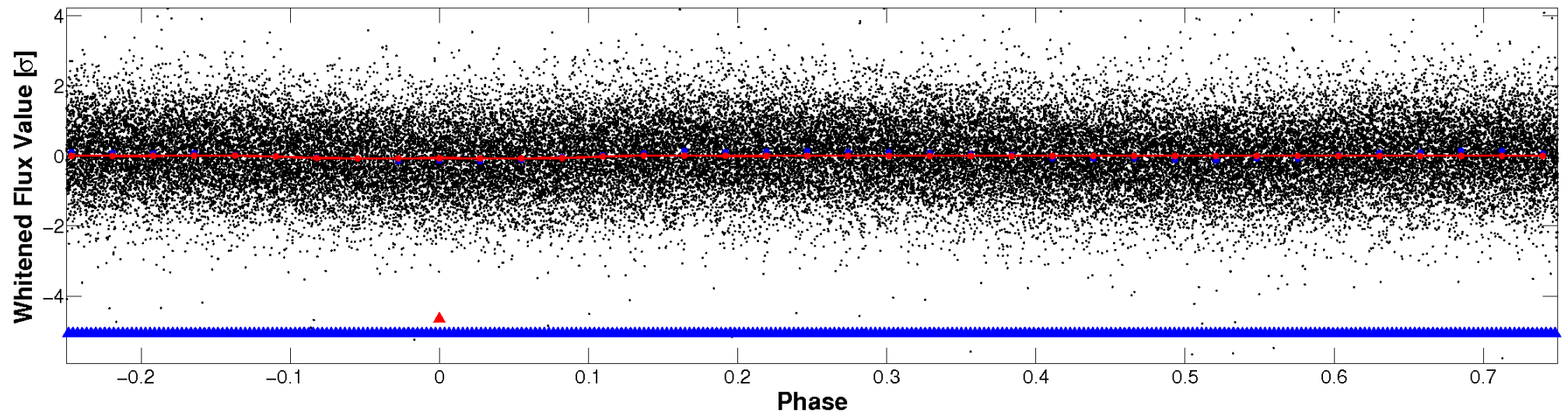


Non-Whitened Vs. Whitened Light Curve

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

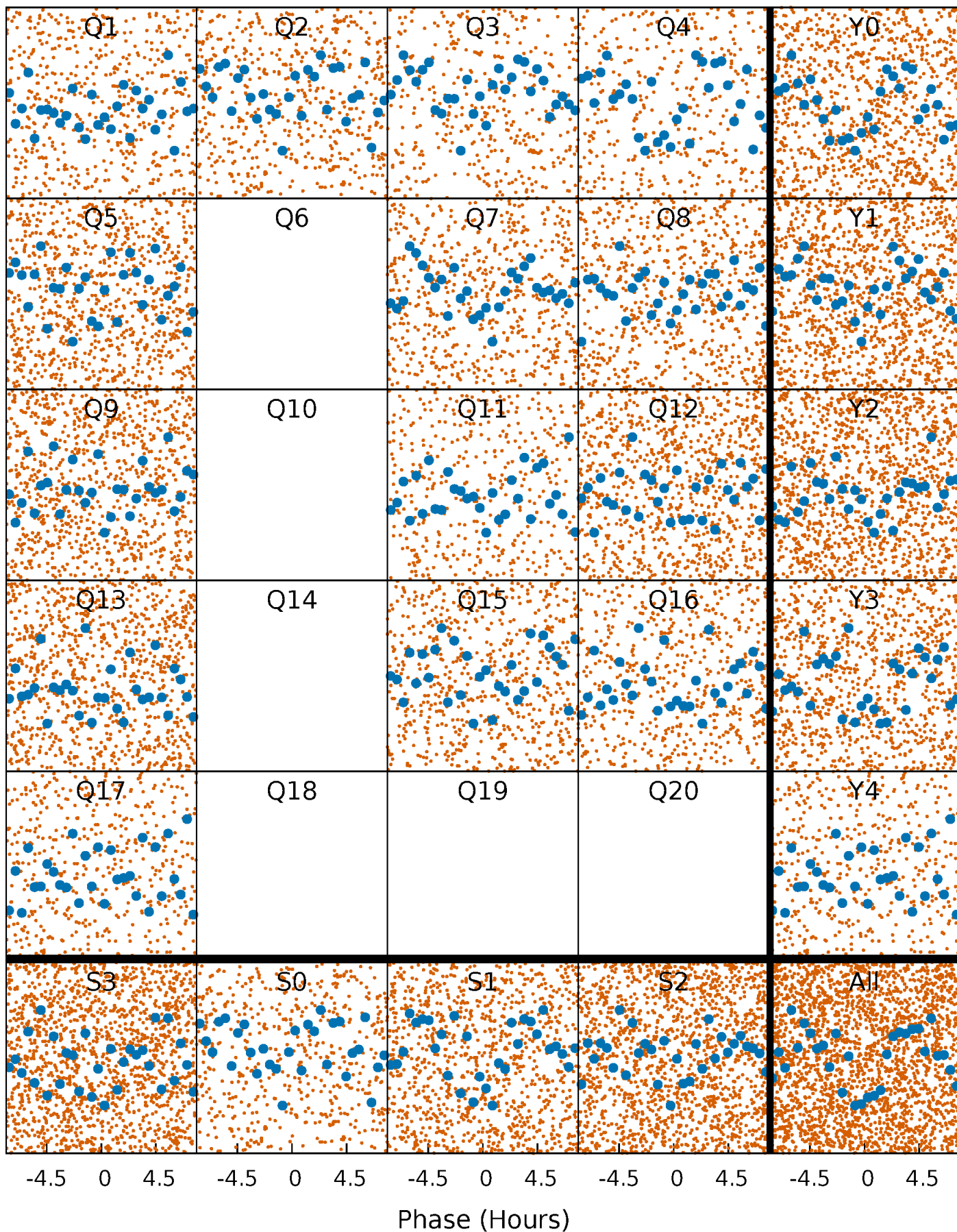


Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)



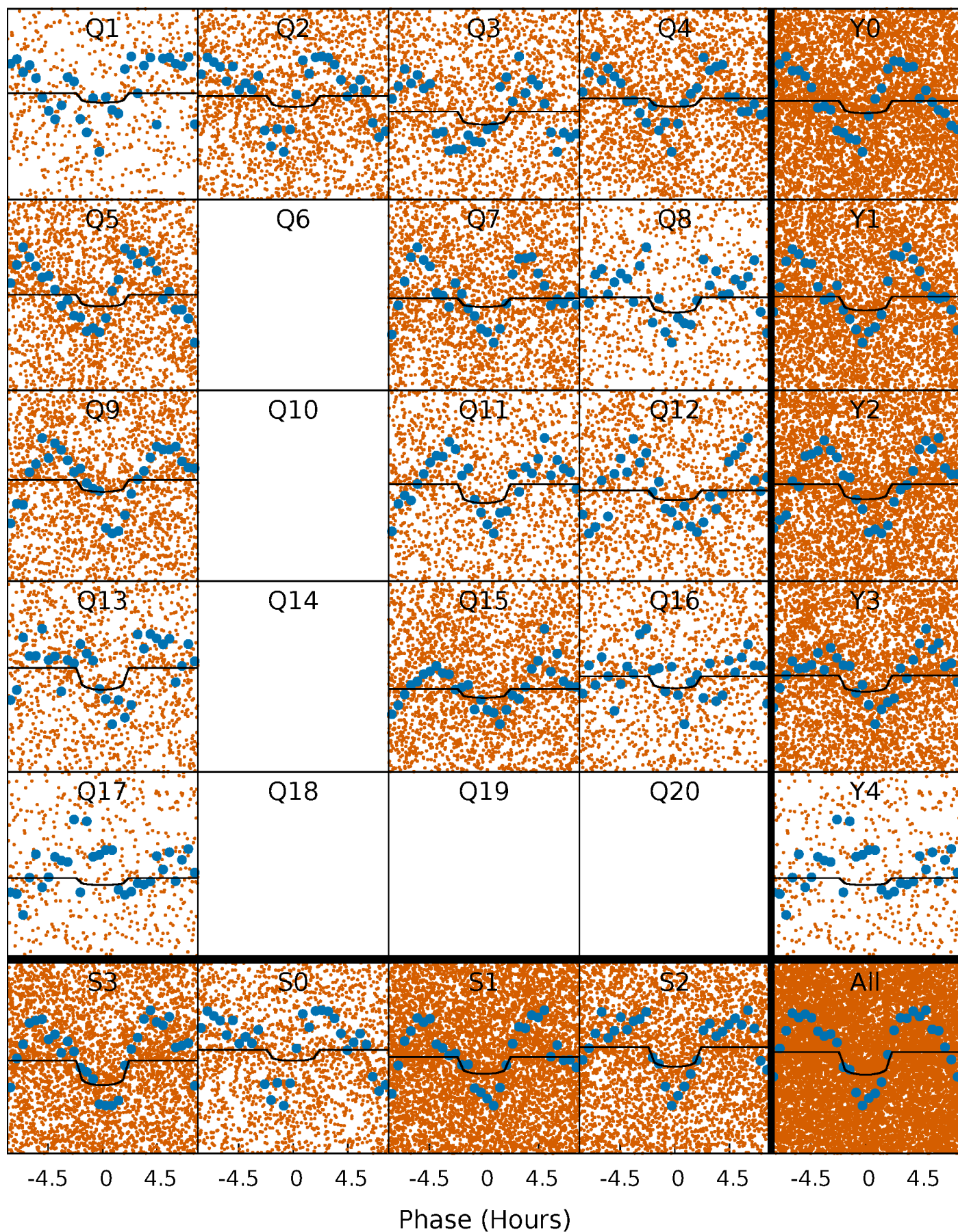
PDC Quarter-Phased Transit Curves

TCE 004840675-01 P= 0.745542 Days $T_0=132.223997$ (BKJD)



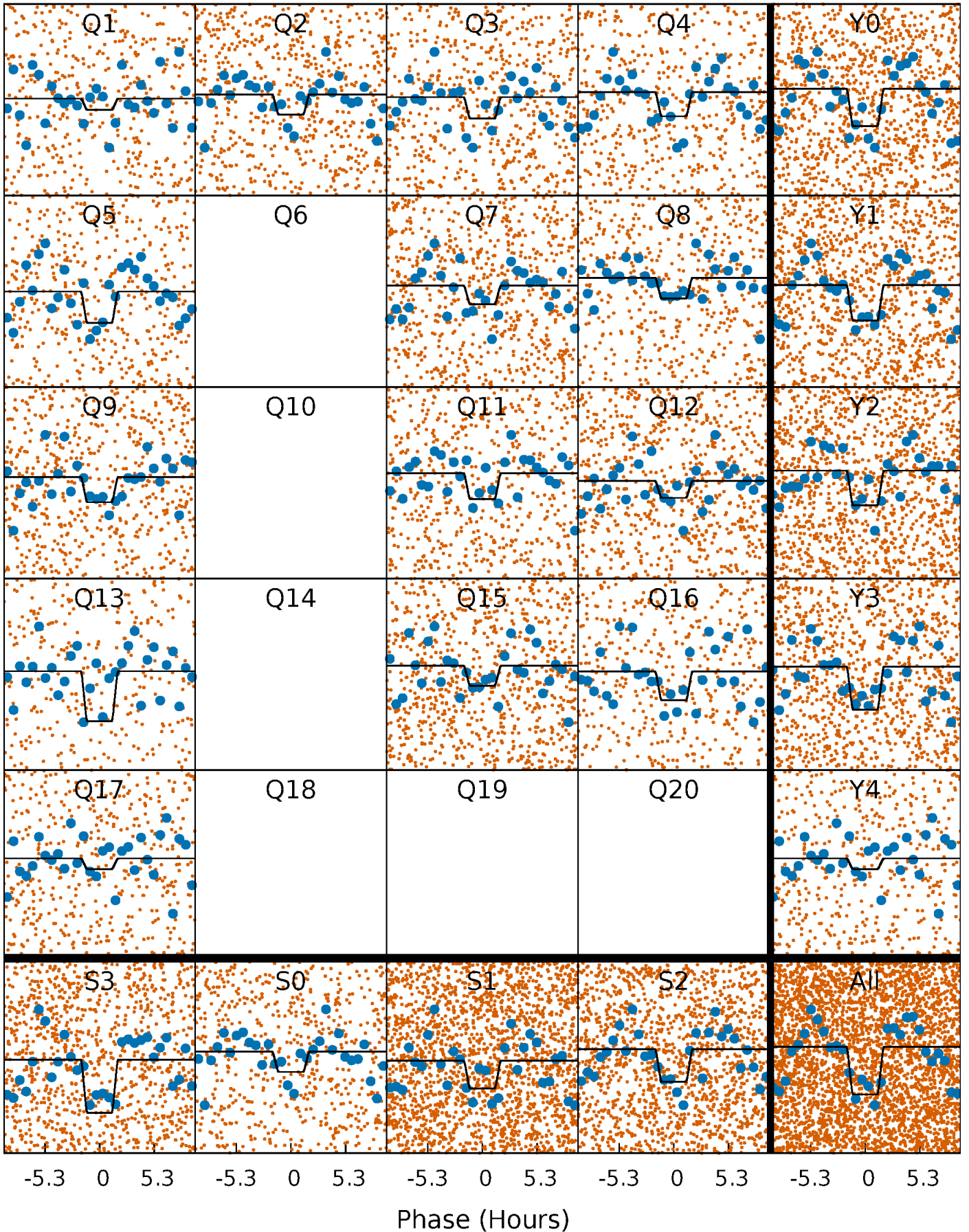
DV Quarter-Phased Transit Curves

TCE 004840675-01 P= 0.745542 Days $T_0=132.223997$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

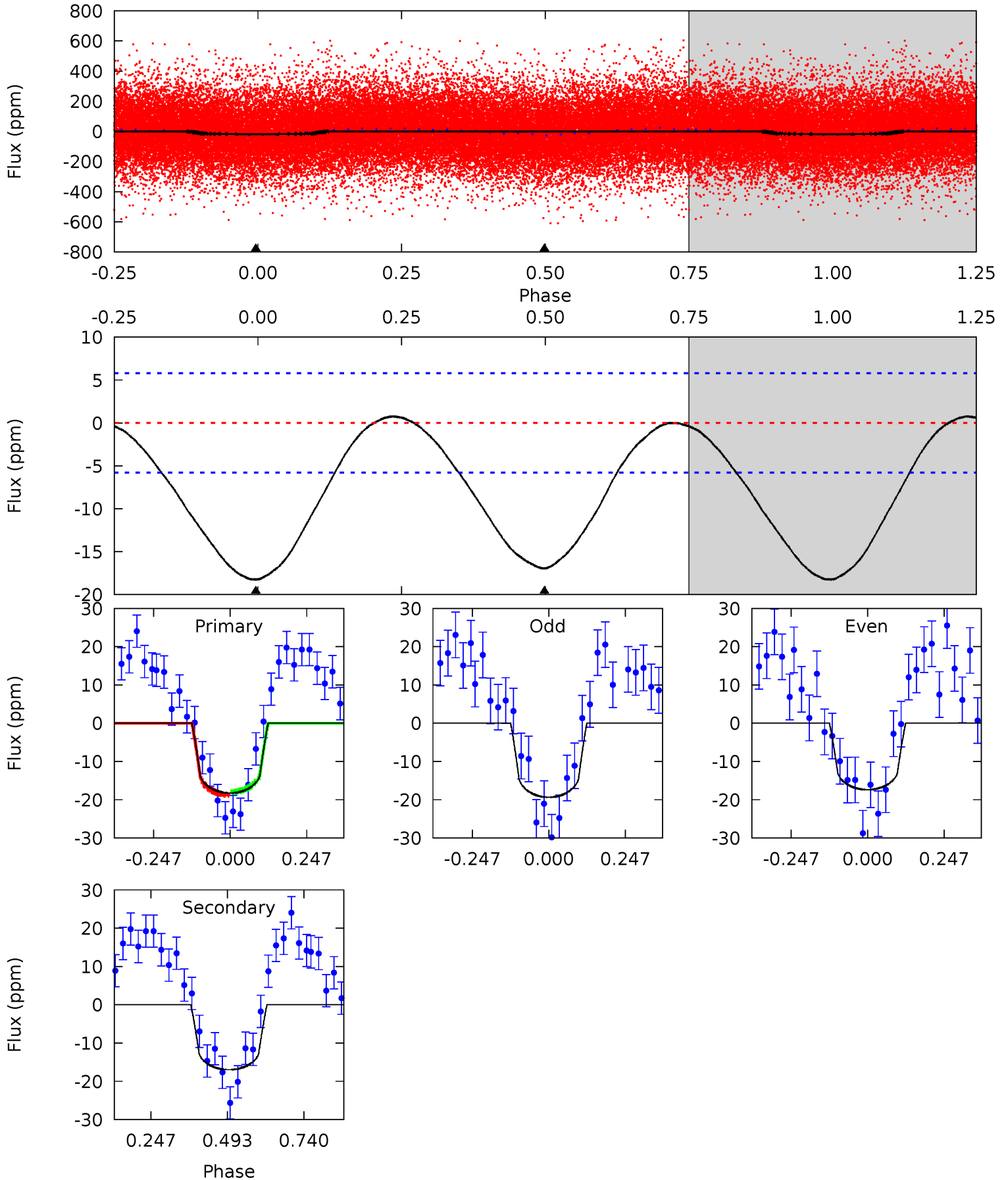
TCE 004840675-01 P= 0.745599 Days $T_0=132.173712$ (BKJD)



DV Model-Shift Uniqueness Test

004840675-01, P = 0.745542 Days, E = 131.478455 Days

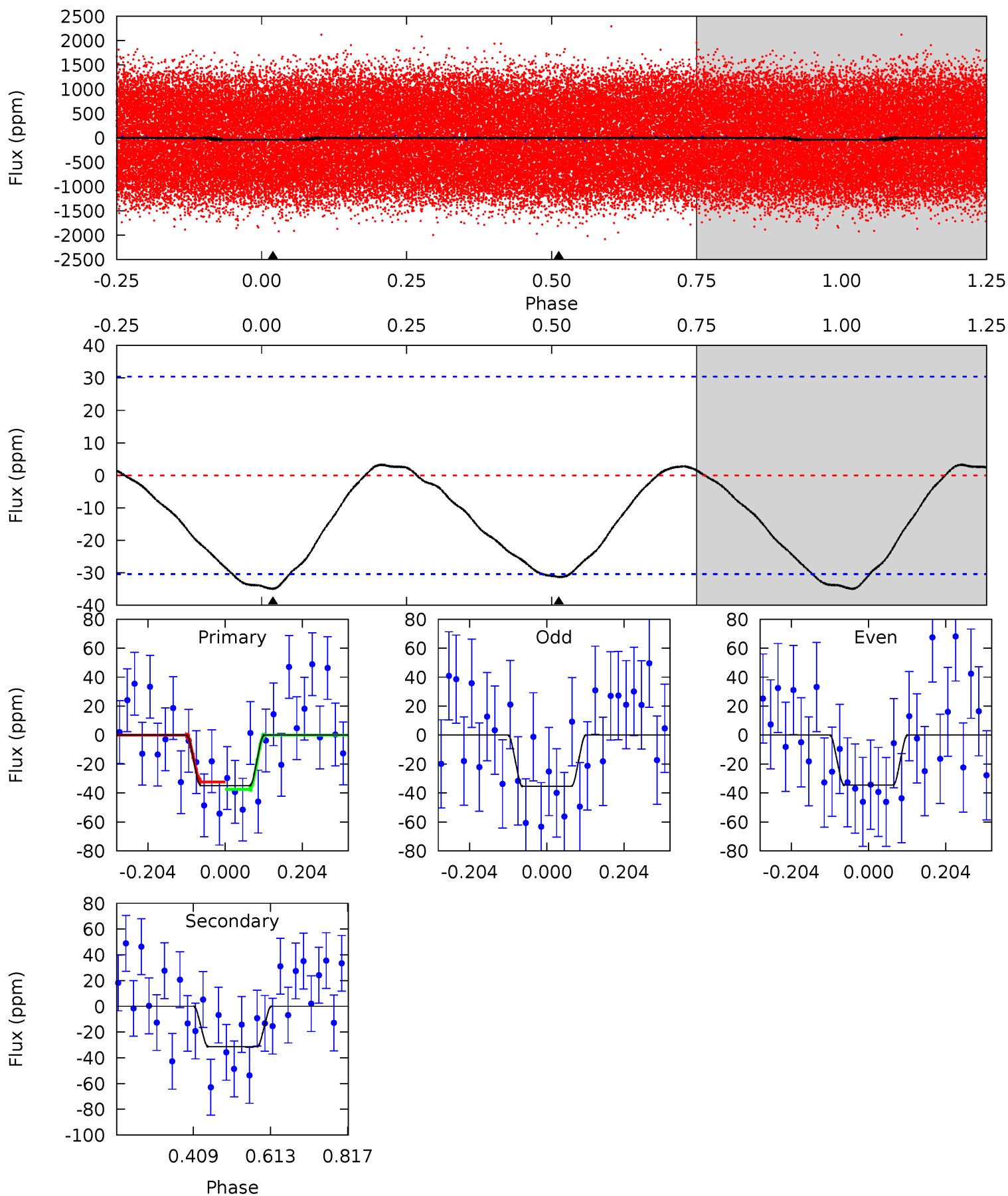
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
13.8	12.8	0	0	4.37	1.16	0.41	13.8	13.8	12.8	12.8	0.76	0.92	0.04	0.29



Alt Model-Shift Uniqueness Test

004840675-01, P = 0.745599 Days, E = 131.428113 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
5.08	4.55	0	0	4.41	1.27	0.39	5.08	5.08	4.55	4.55	0.05	0.87	0.09	0.37



Stellar Parameters For KIC 004840675

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (g \cdot \text{cm}^{-3})$
	7307^{+80}_{-80}	$4.247^{+0.047}_{-0.142}$	$-0.080^{+0.150}_{-0.150}$	$1.502^{+0.328}_{-0.109}$	$1.453^{+0.129}_{-0.082}$	$0.604^{+0.115}_{-0.247}$
	+1%/-1%	+1%/-3%	+188%/-188%	+22%/-7%	+9%/-6%	+19%/-41%
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 004840675-01 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	-17 ± 1	$0.53^{+0.23}_{-0.24}$	4124^{+210}_{-105}	8522^{+5006}_{-1746}	11^{+26}_{-6}
Alt.	-31 ± 7	$1.06^{+0.24}_{-0.24}$	4134^{+191}_{-111}	6686^{+1240}_{-777}	$4.931^{+3.833}_{-1.939}$

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 $A_{obs} \gg 1.0$

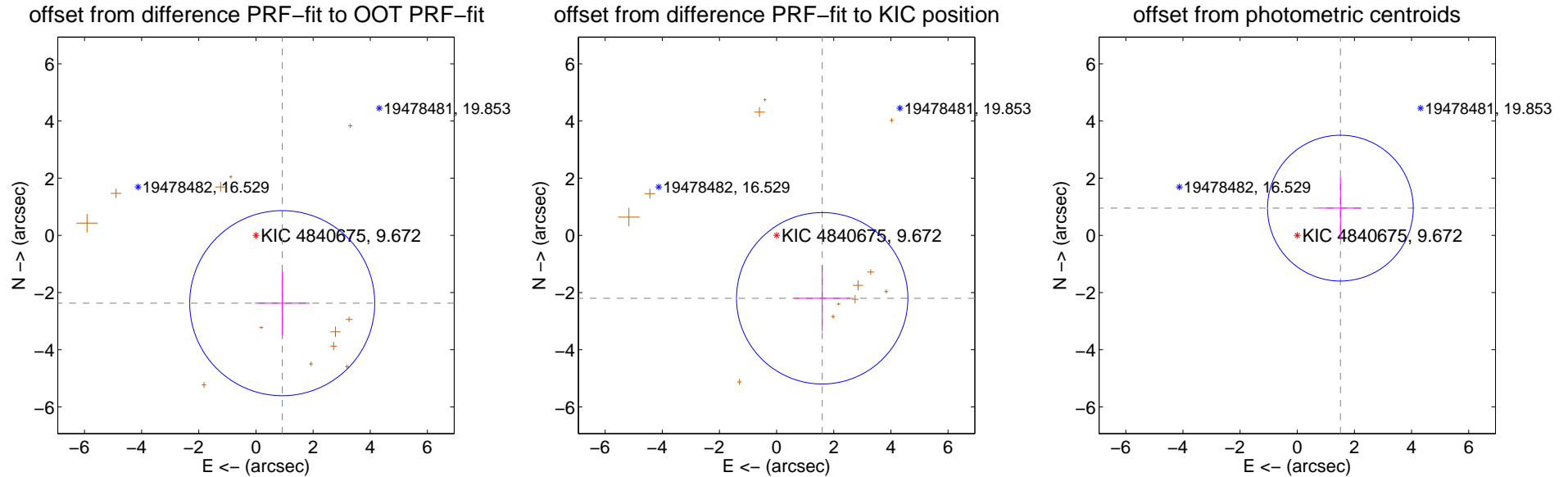
DV Centroid Data

Supplemental centroid analysis for 004840675-01. **Kepler magnitude: 9.67.** Transit SNR 6.93

There are 1 quarters with good PRF difference image offsets

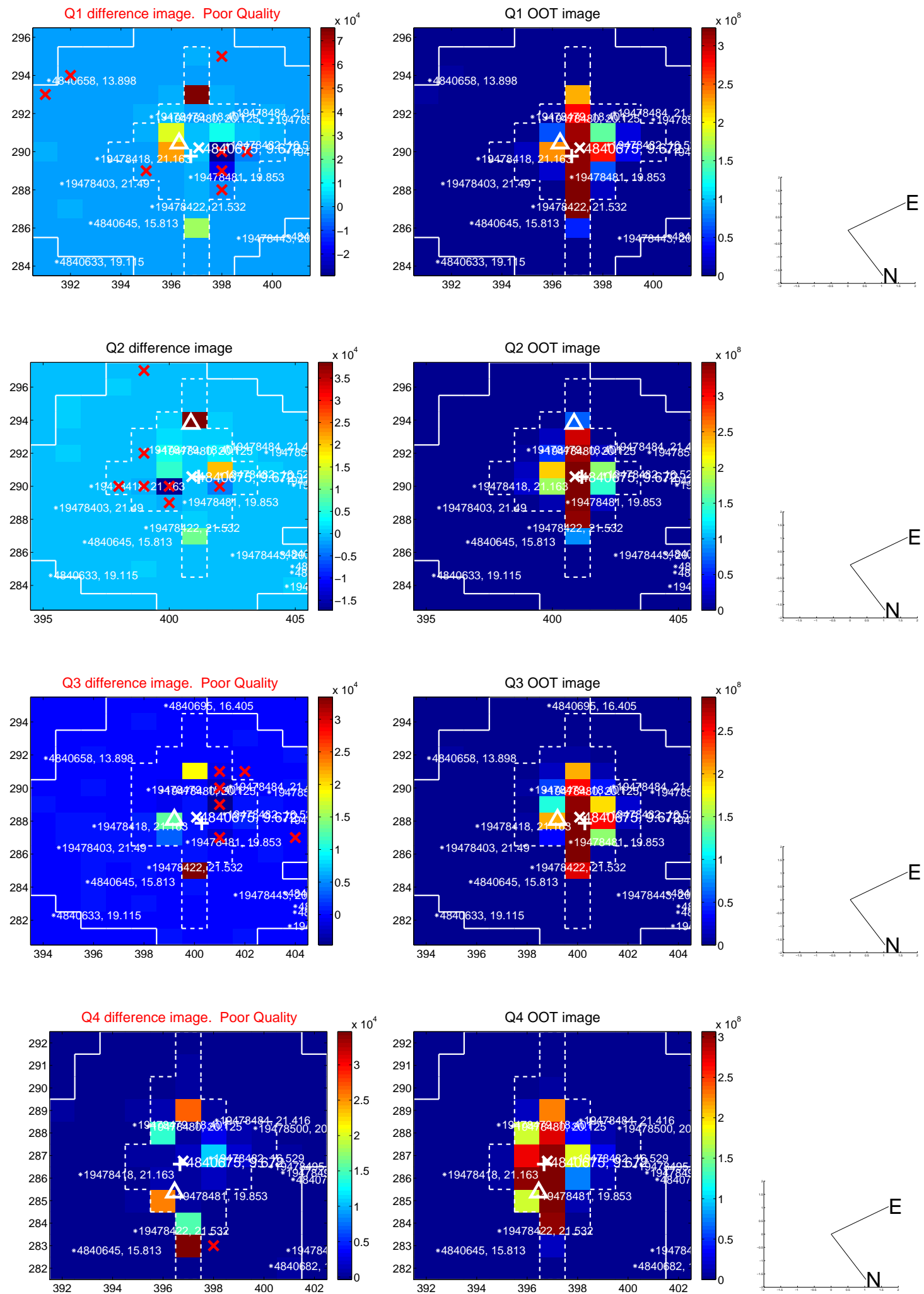
The OOT PRF centroid is offset from the target star catalog position by about 2.70 arcsec so the offset from difference PRF-fit to OOT-fit may be invalid.

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	2.544 ± 1.079	2.36	-0.919 ± 0.954	-2.372 ± 1.121
PRF-fit source offset from KIC position	2.719 ± 1.000	2.72	-1.596 ± 0.981	-2.202 ± 1.157
photometric centroid source offset	1.79 ± 0.85	2.10	-1.51 ± 0.74	0.95 ± 1.09

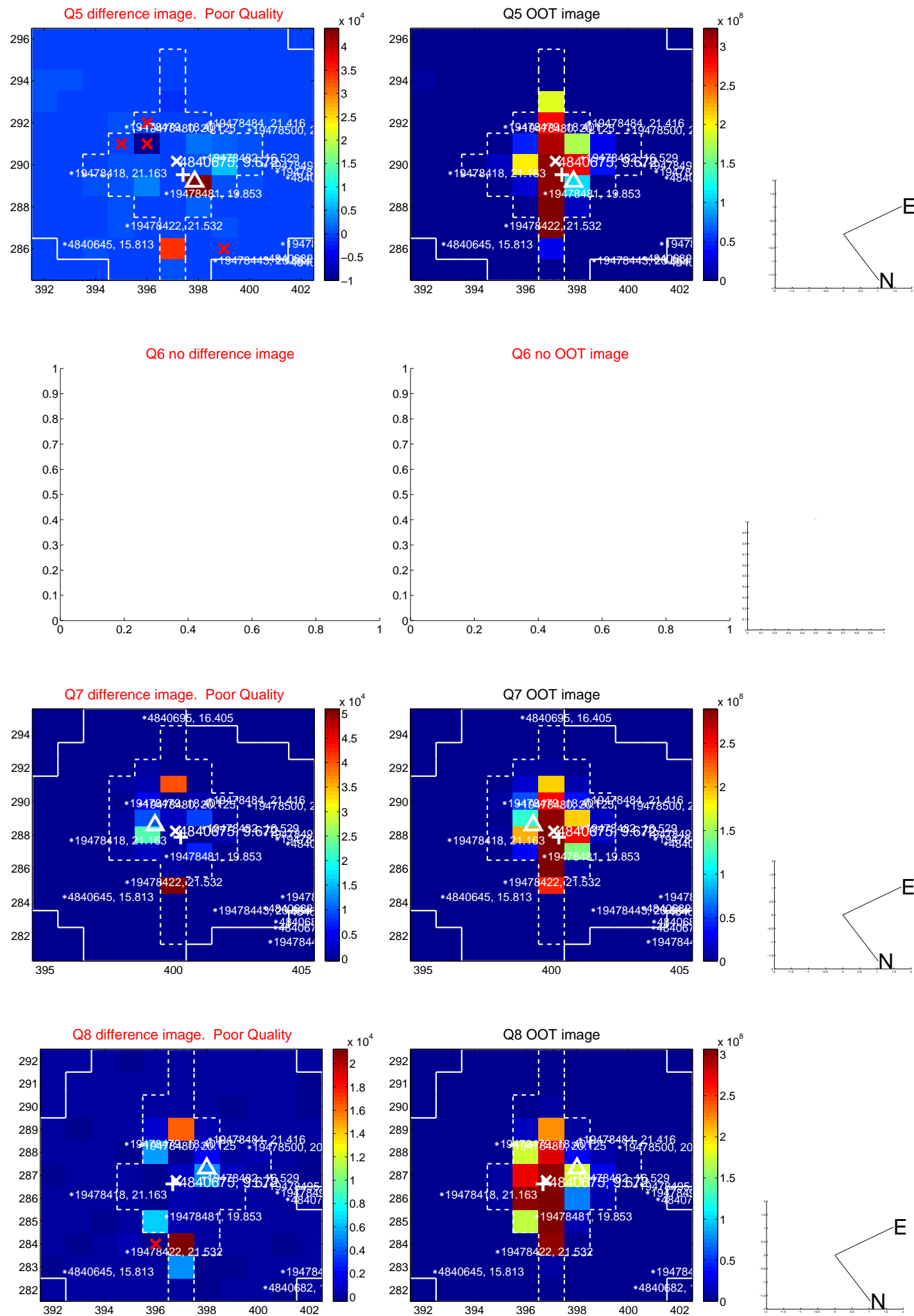


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ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

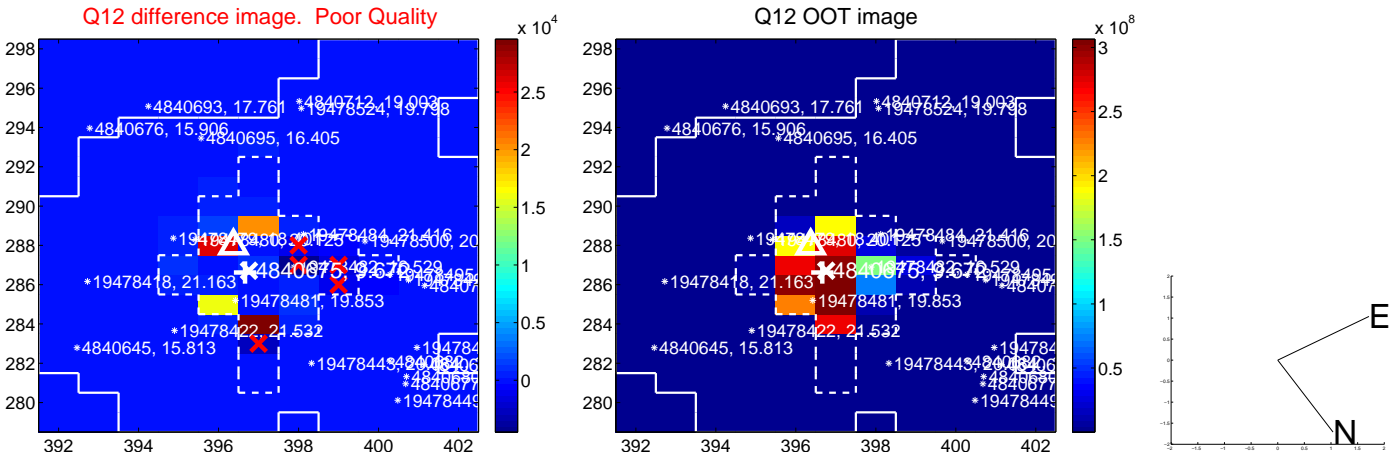
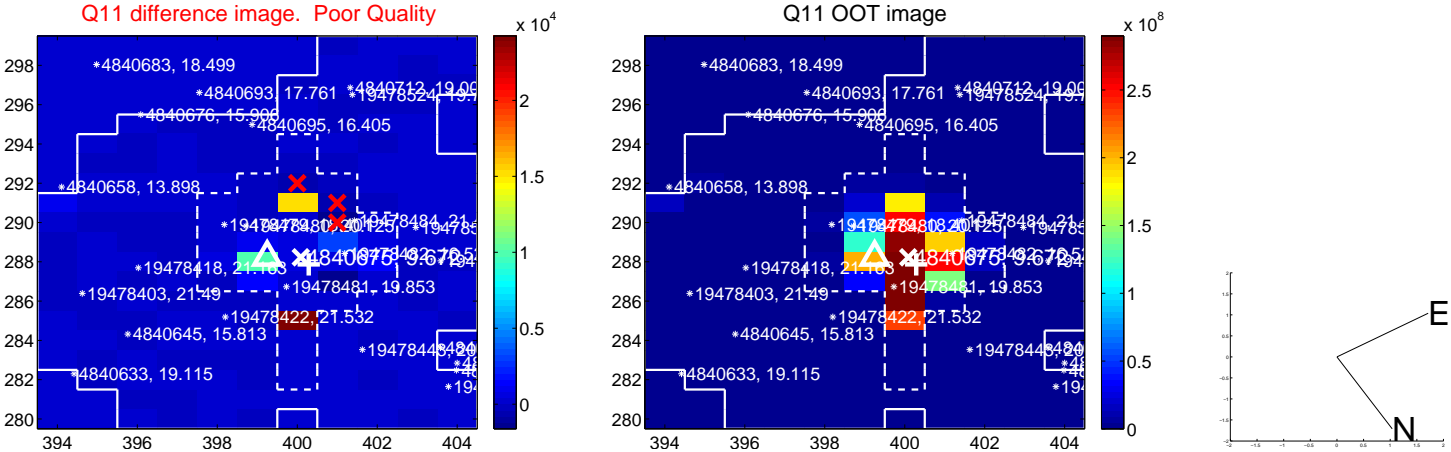
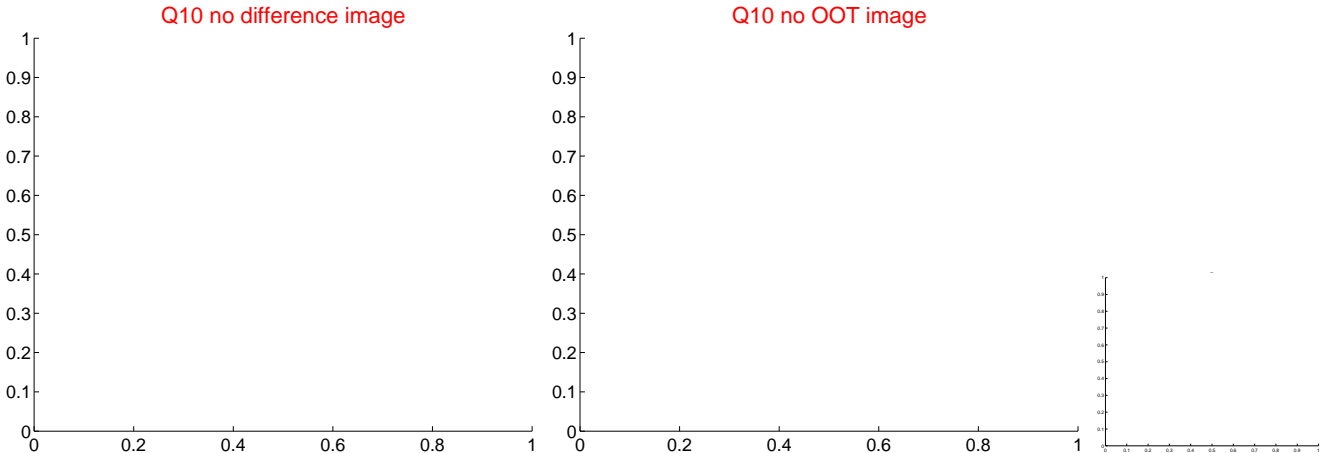
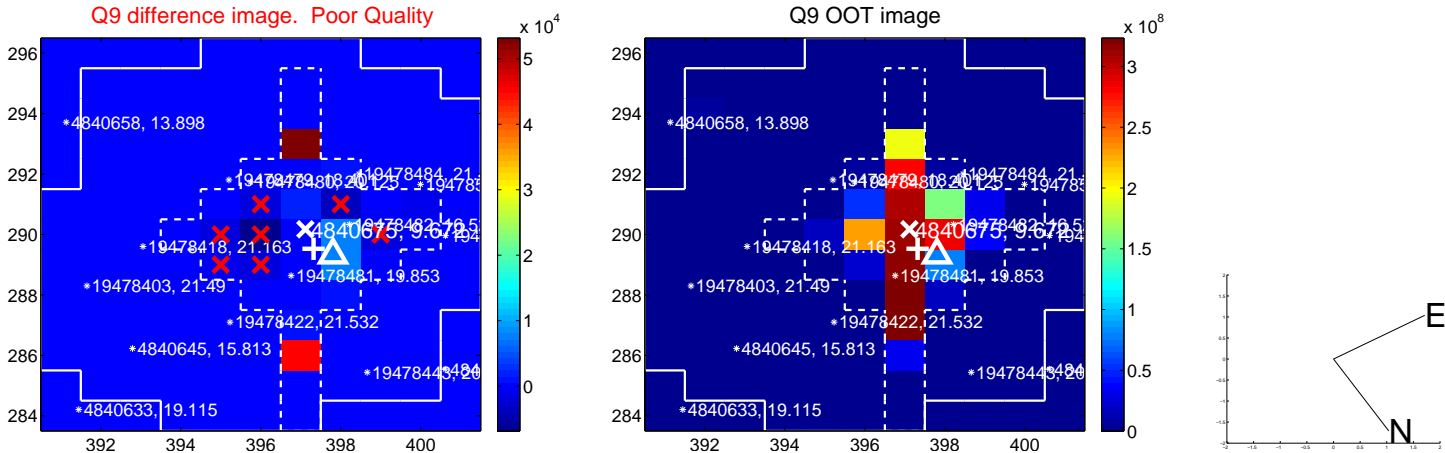
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



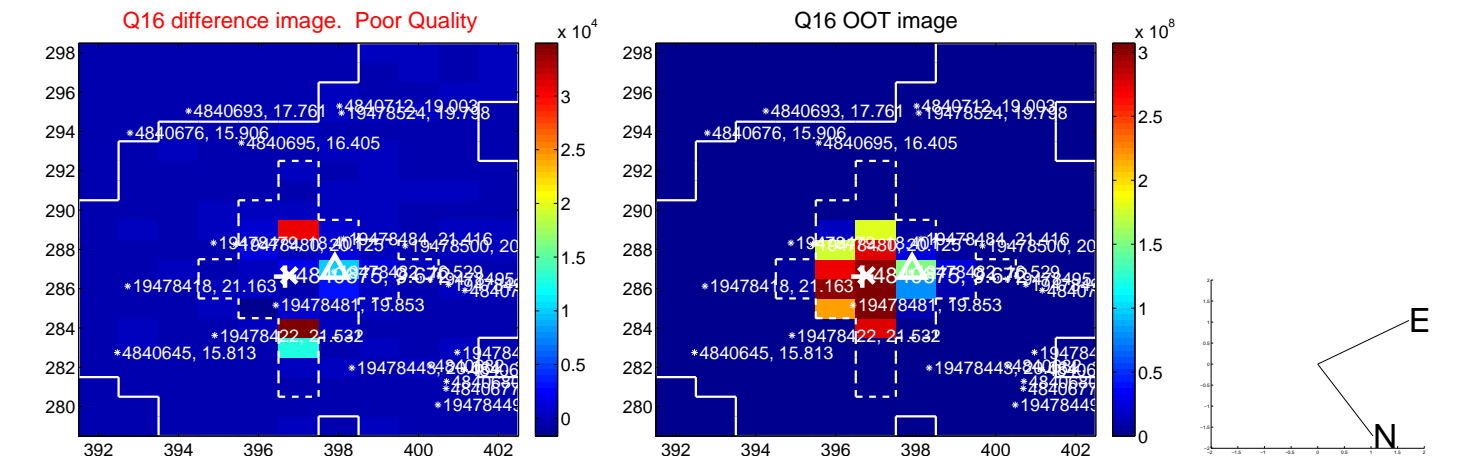
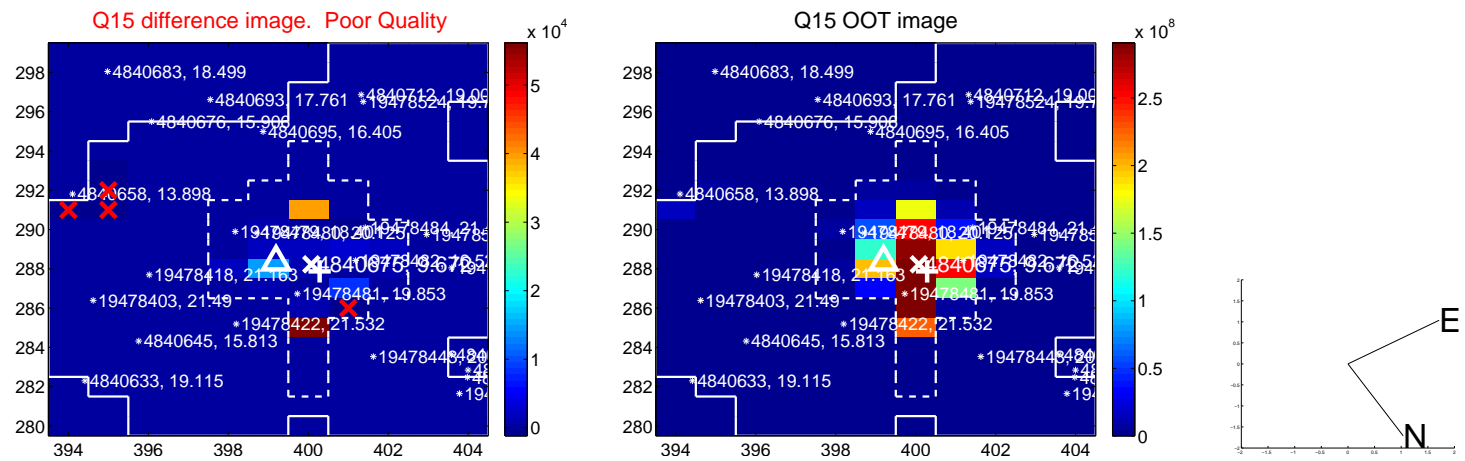
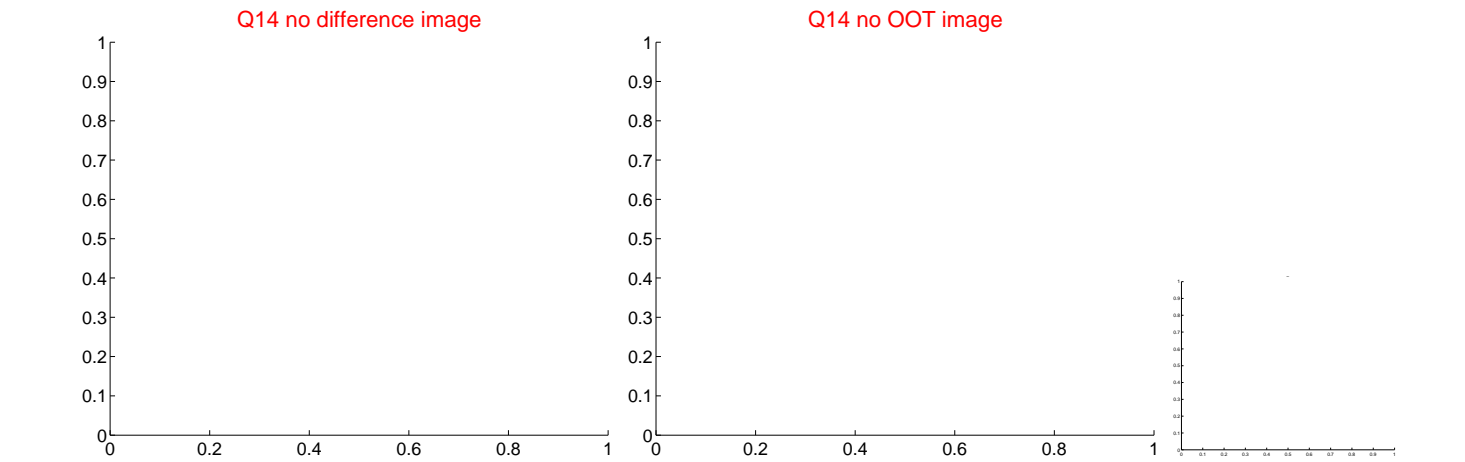
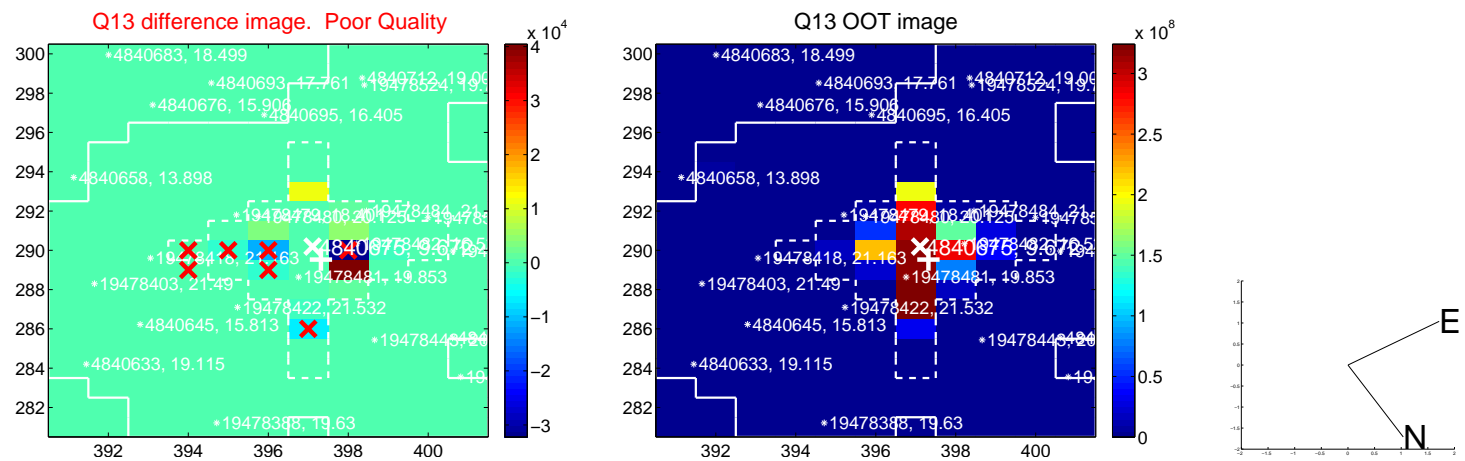
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



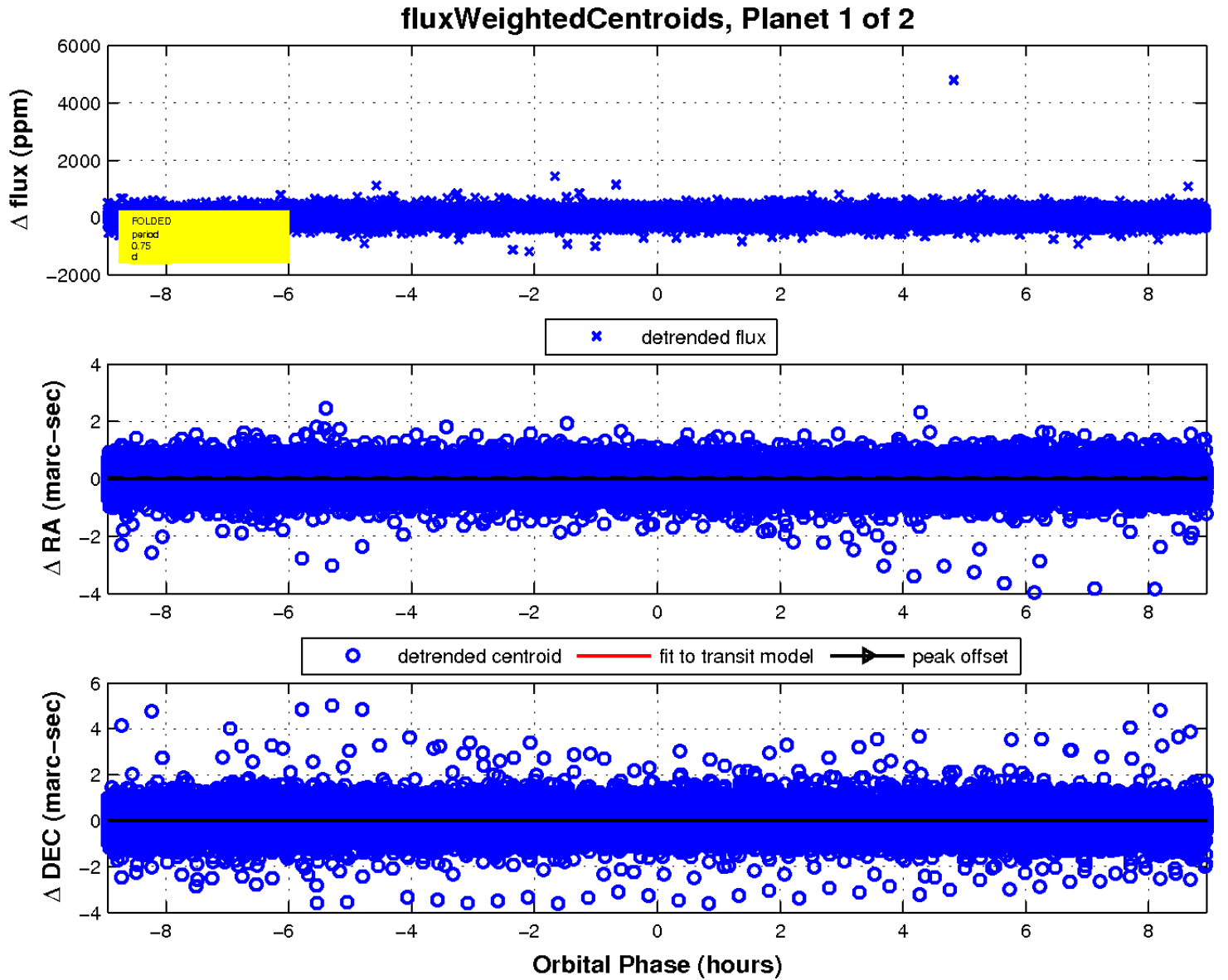
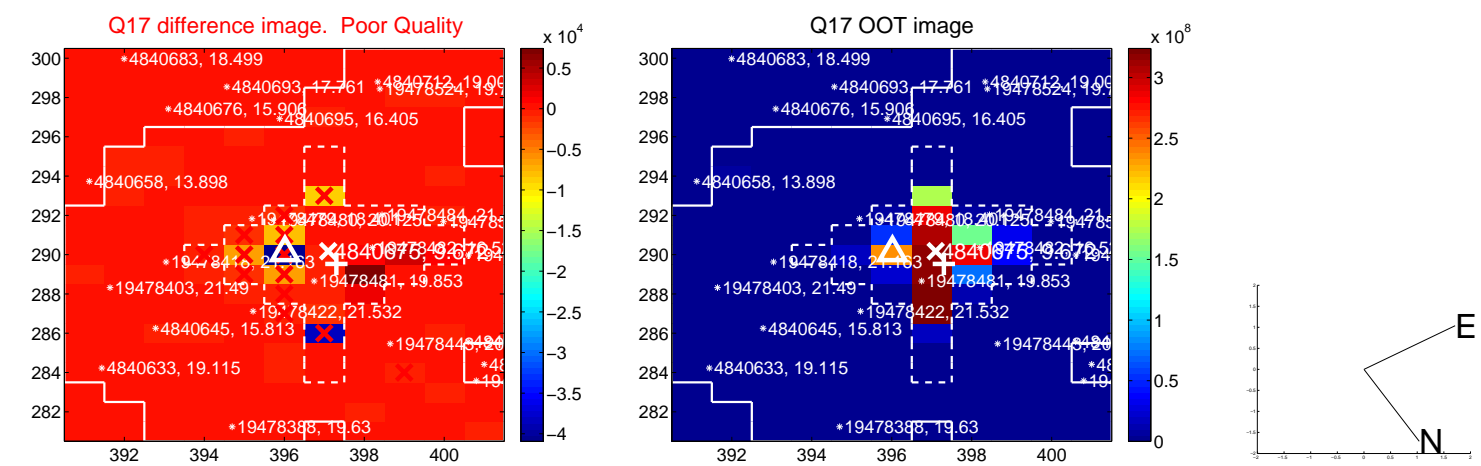
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

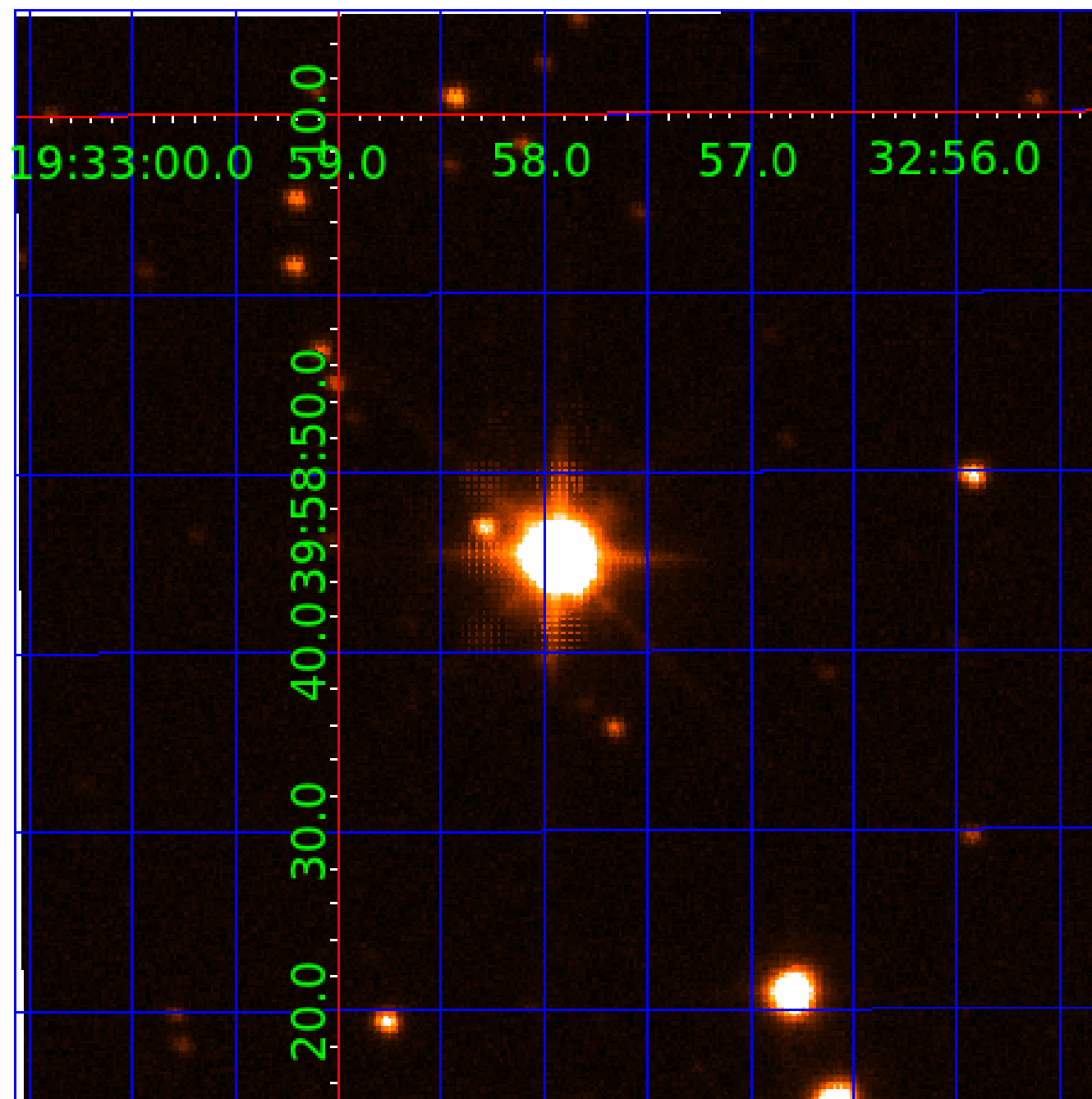


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 004840675

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})
004840675-01	OBS	No	0.745542	132.223997	11.1	3.934	12.2	6.9	1.50	7307	0.52	17338.10
004840675-02	OBS	No	0.997077	132.108902	38.0	10.086	10.6	17.5	1.50	7307	0.95	11766.82

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
004840675-01	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—CENT_SATURATED
004840675-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_SKYE_ZUMA—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_ALT—CENT_SATURATED

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

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

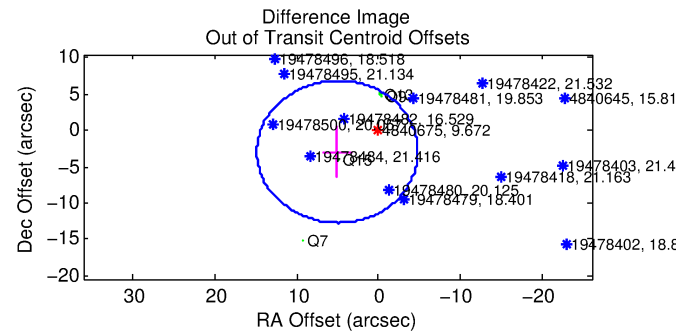
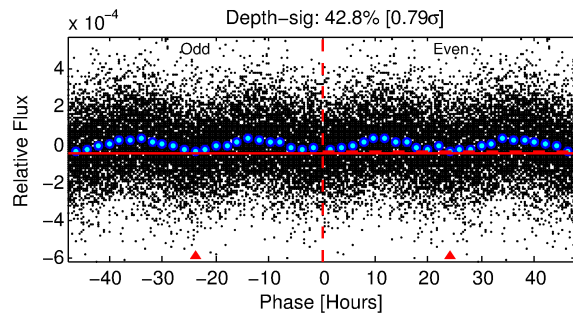
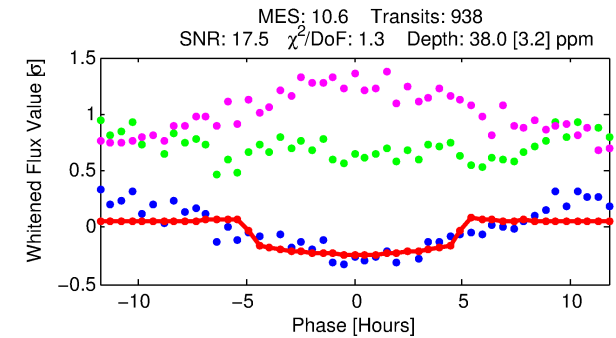
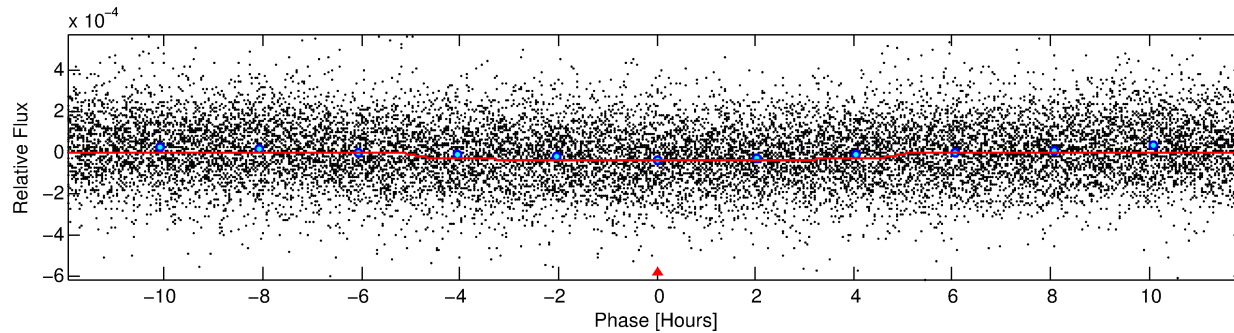
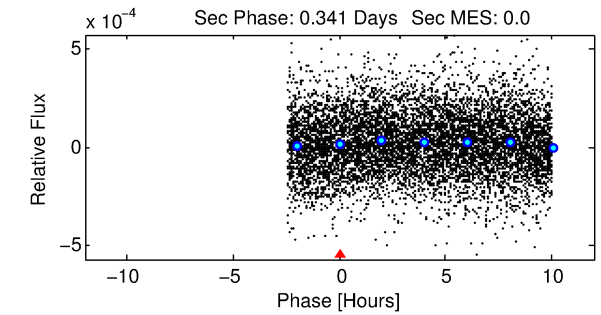
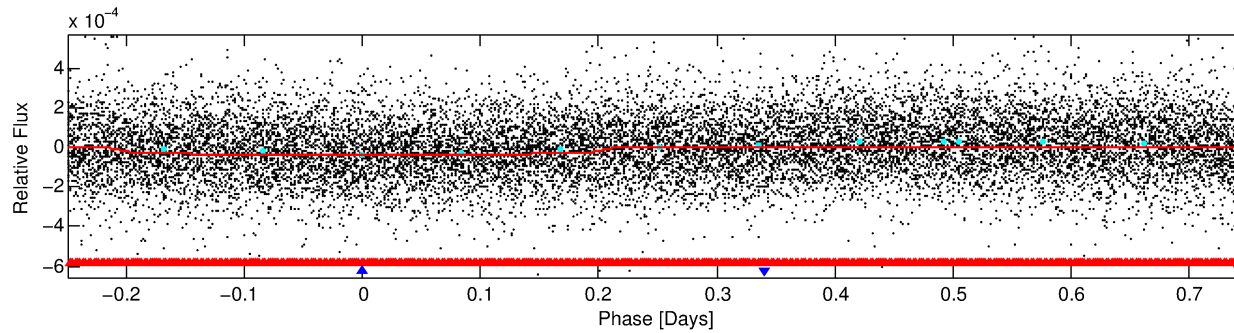
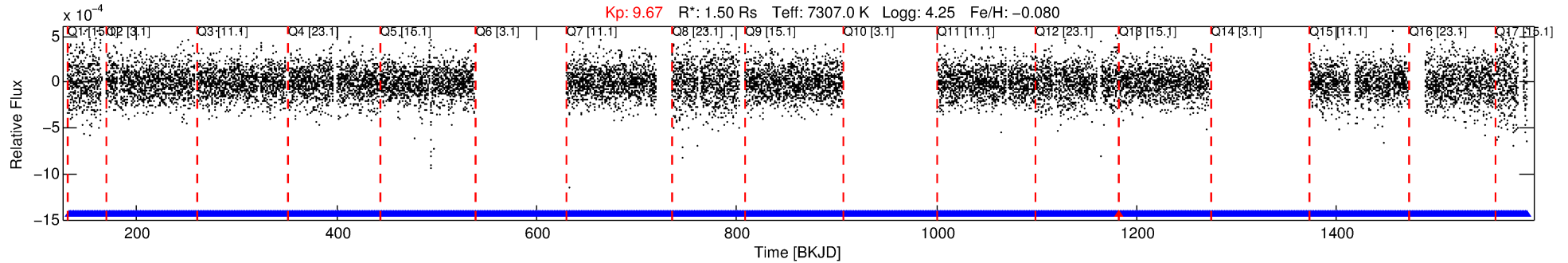
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 004840675-02

No Significant Match Found

DV One-Page Summary

KIC: 4840675 Candidate: 2 of 2 Period: 0.997 d



DV Fit Results:

Period = 0.99708 [0.00001] d
Epoch = 132.1089 [0.0055] BKJD
Rp/R* = 0.0058 [0.0038]
a/R* = 1.03 [0.24]
b = 0.41 [7.99]
Seff = 11766.82 [3127.12]
Teq = 2656 [176] K
Rp = 0.95 [0.65] Re
a = 0.0221 [0.0040] AU
Ag = N/A
Teffp = N/A

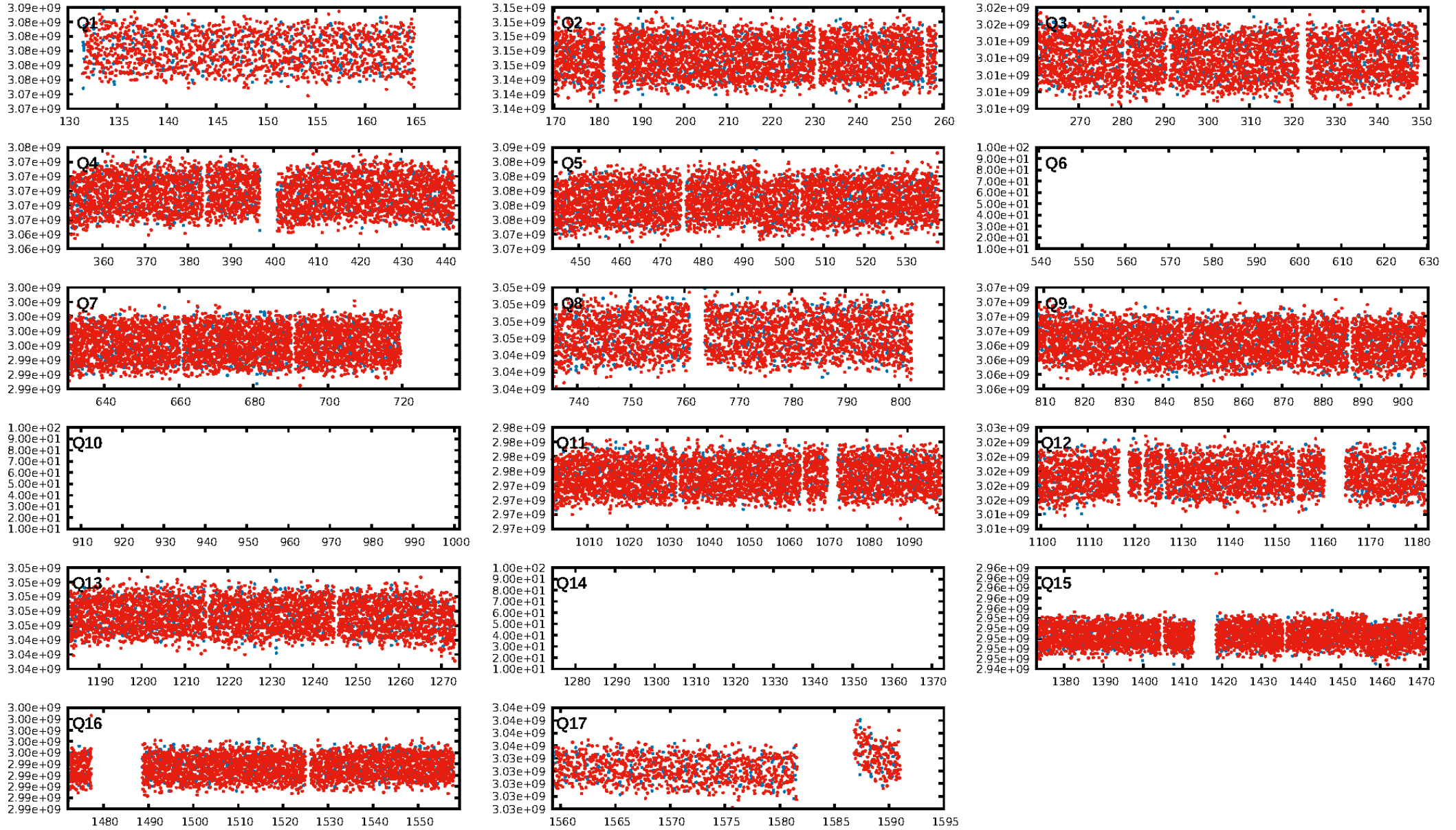
DV Diagnostic Results:

ShortPeriod-sig: 42.3% [0.56σ]
LongPeriod-sig: N/A
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: N/A
RollingBand-fgt: 1.00 [887/888]
GhostDiagnostic-chr: N/A
Centroid-sig: 0.0%
Centroid-so: 2.226 arcsec [8.83σ]
OotOffset-rm: 5.822 arcsec [1.78σ]
KicOffset-rm: 5.088 arcsec [1.56σ]
OotOffset-st: 0/2/0/2 [4]
KicOffset-st: 0/2/0/2 [4]
DiffImageQuality-fgm: 0.00 [0/4]
DiffImageOverlap-fno: 0.00 [0/14]

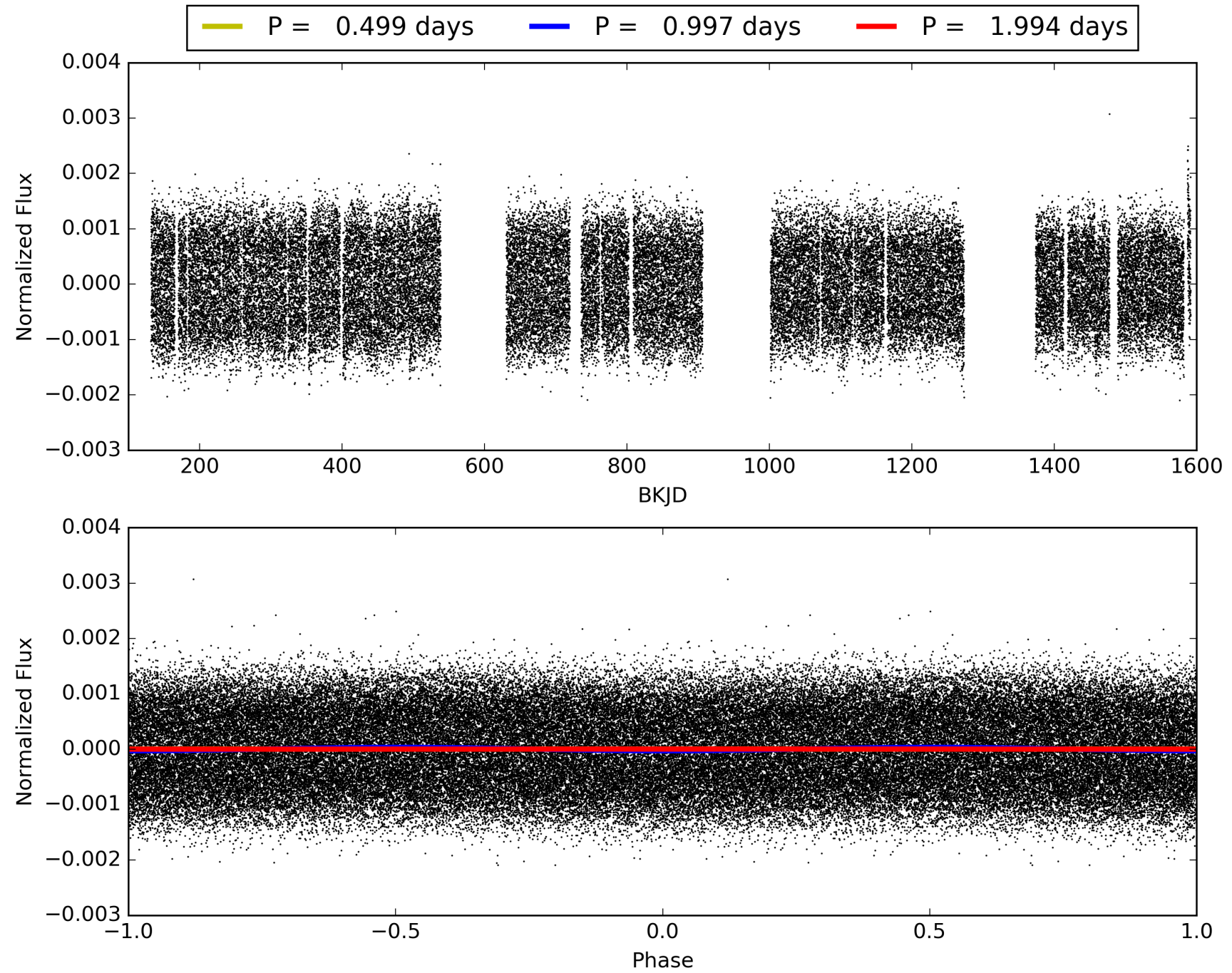
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 31-Jan-2016 14:33:15 Z

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

TCE 004840675-02, PDC Light Curves

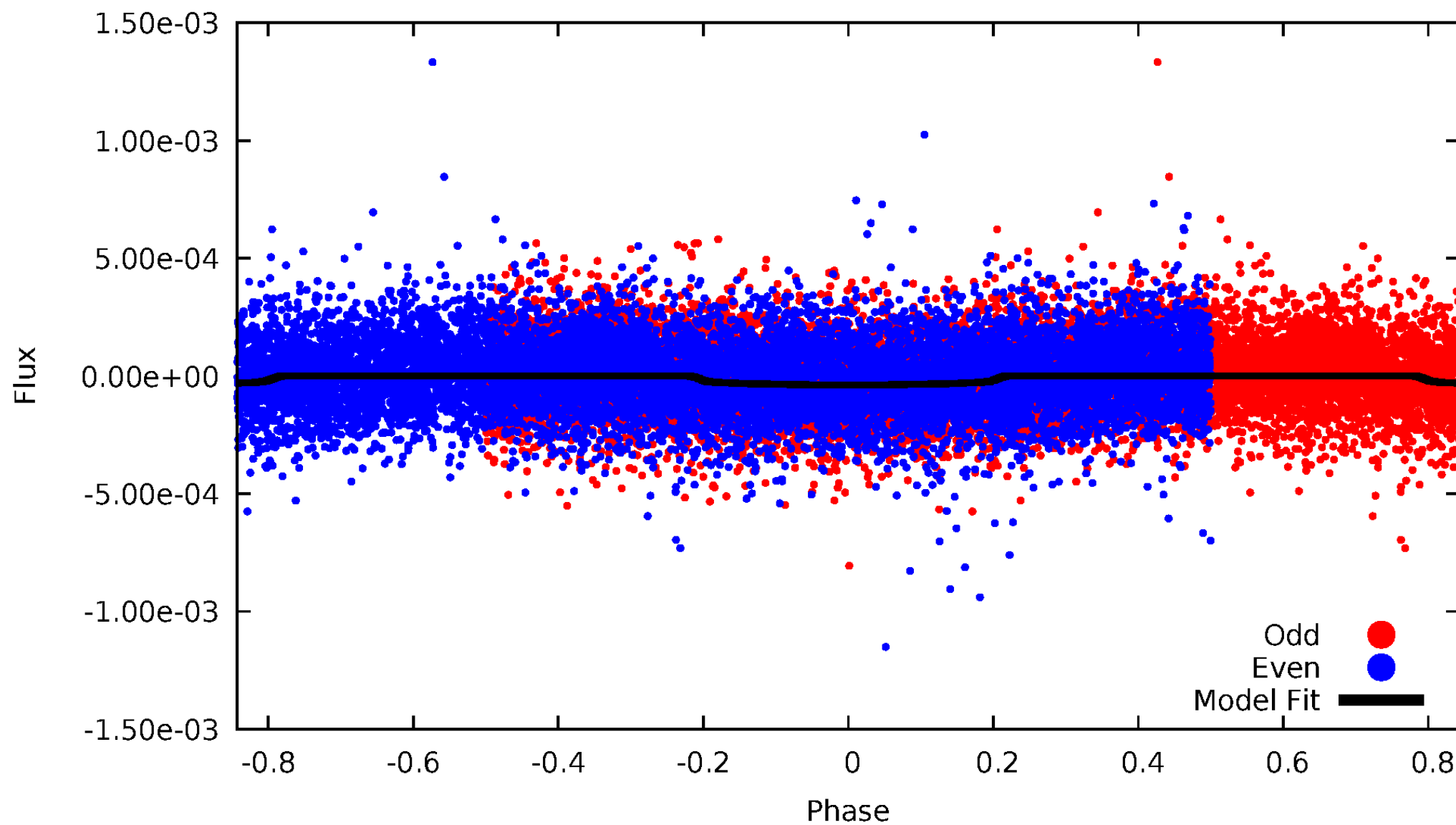


TCE 004840675-02



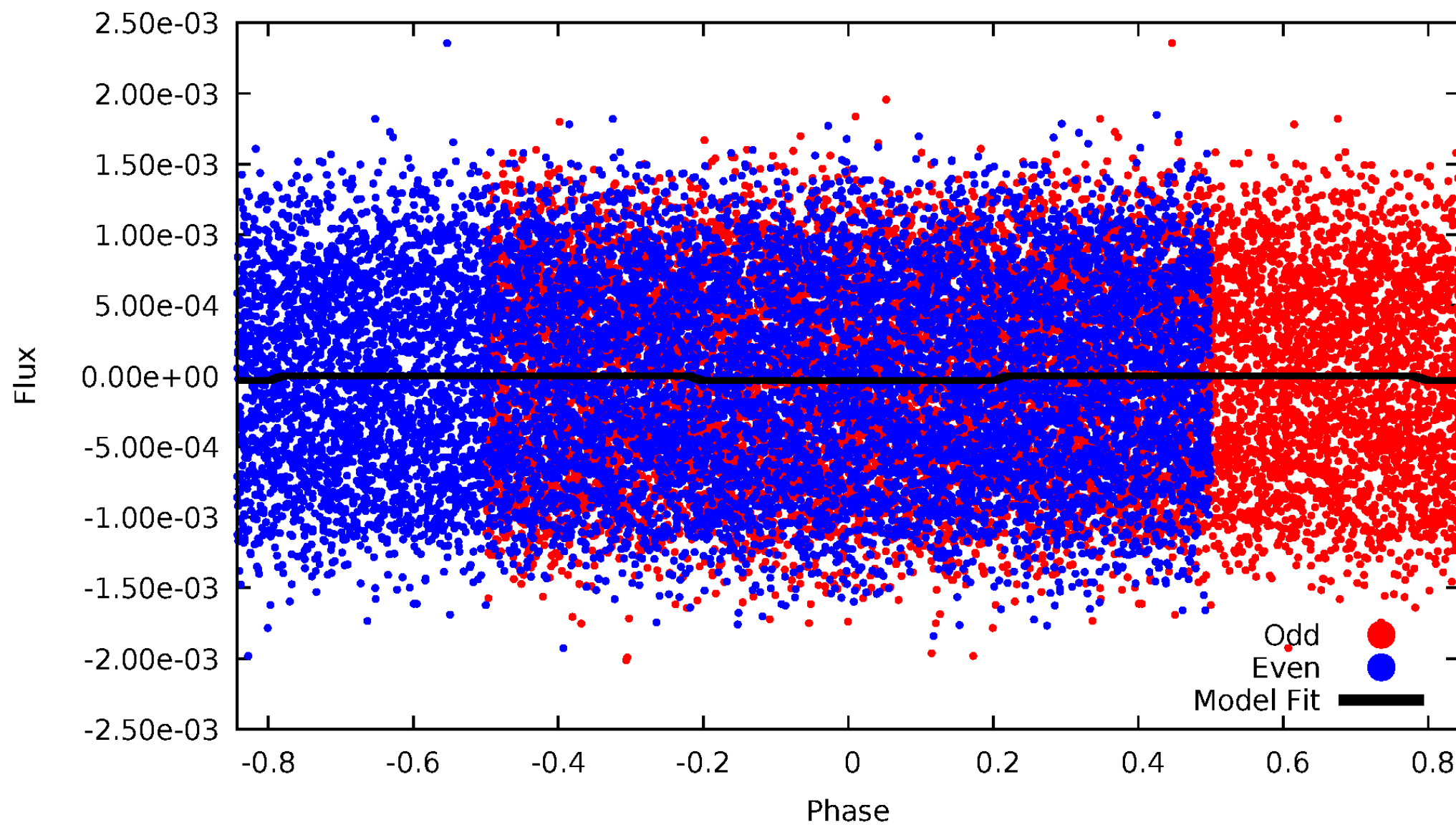
DV Odd/Even

TCE 004840675-02



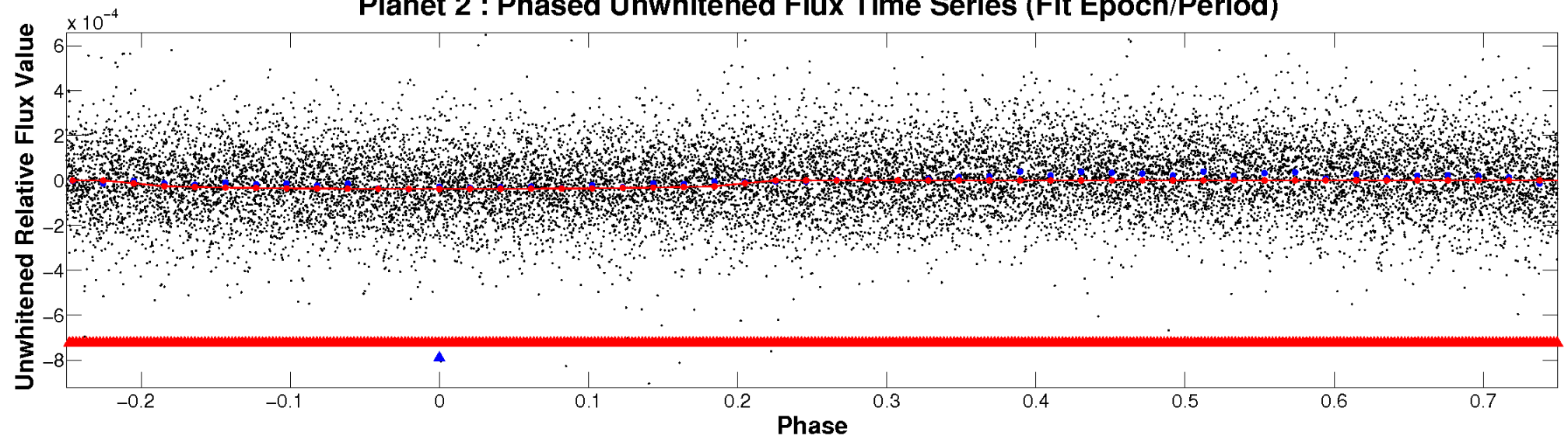
ALT Odd/Even

TCE 004840675-02

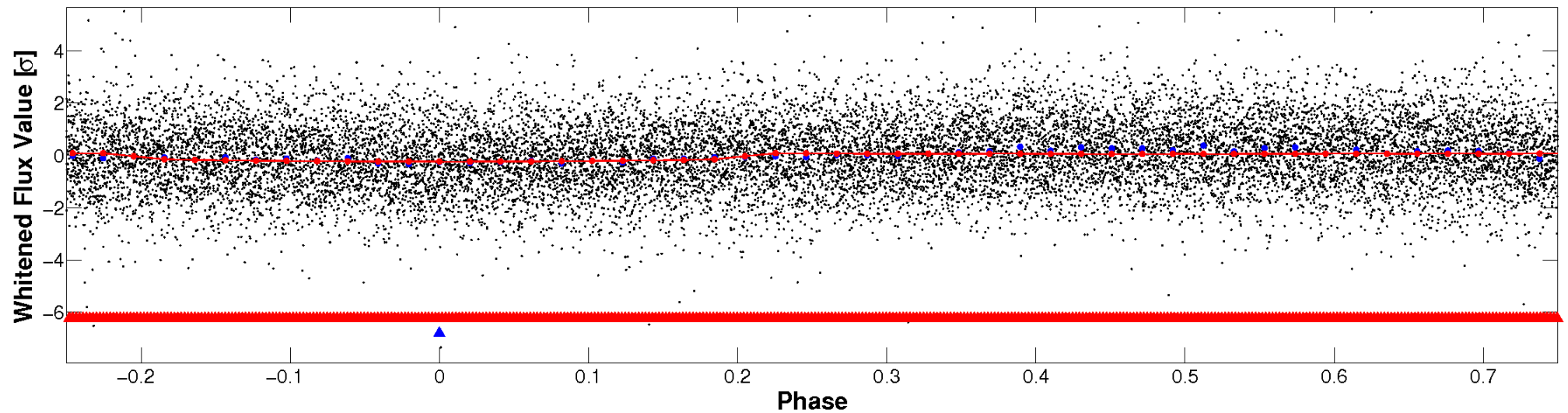


Non-Whitened Vs. Whitened Light Curve

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

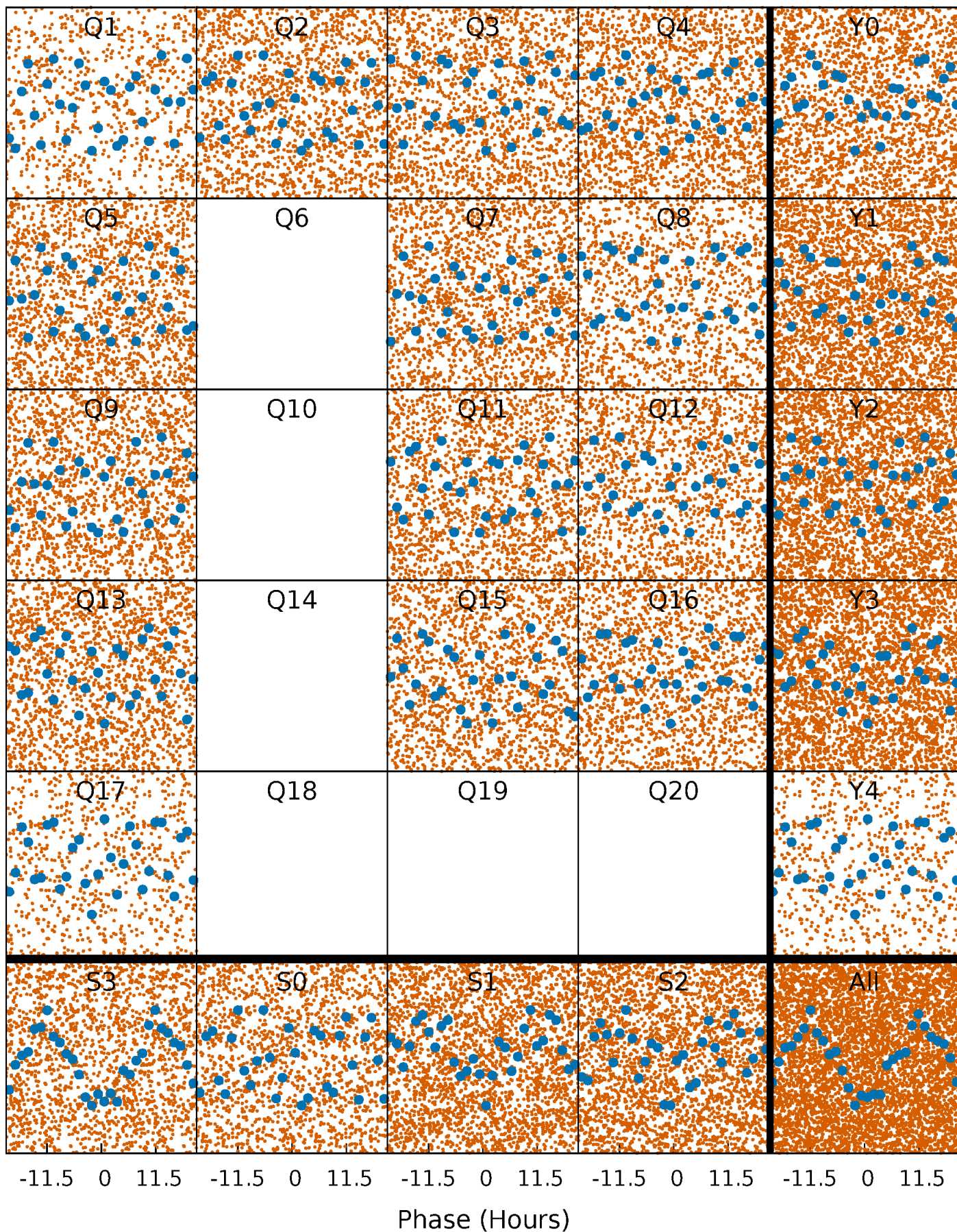


Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



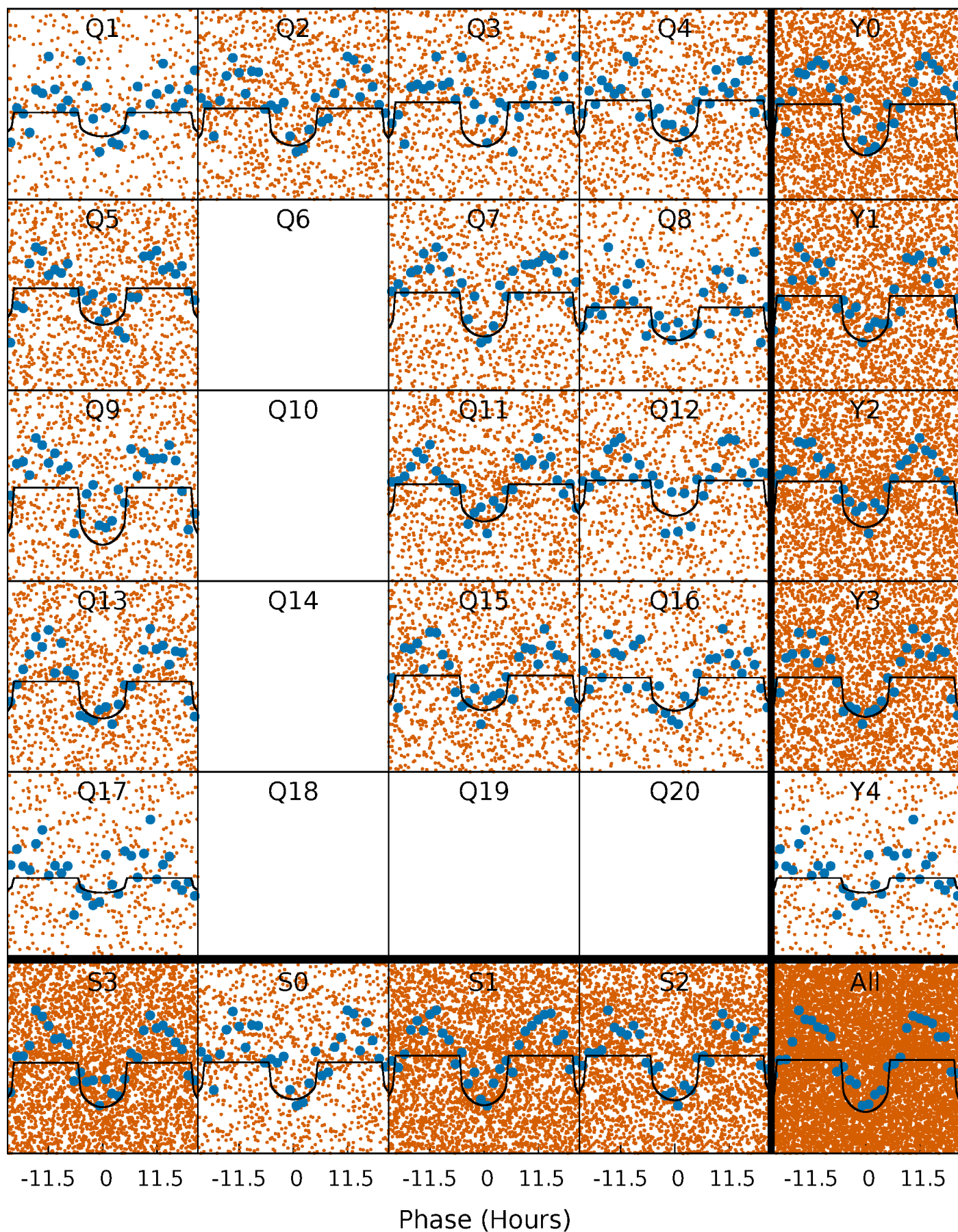
PDC Quarter-Phased Transit Curves

TCE 004840675-02 P= 0.997077 Days $T_0=132.108902$ (BKJD)



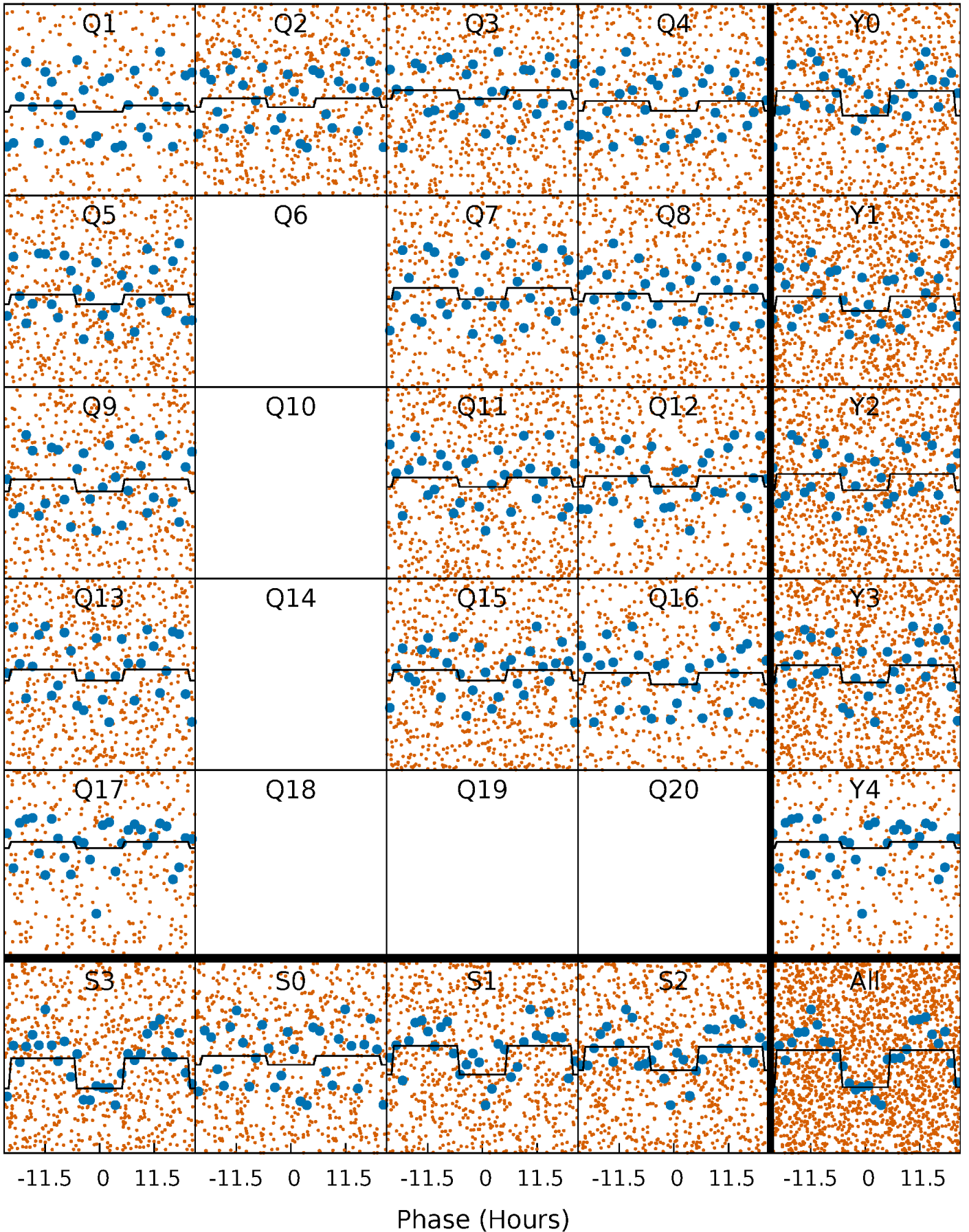
DV Quarter-Phased Transit Curves

TCE 004840675-02 $P = 0.997077$ Days $T_0 = 132.108902$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

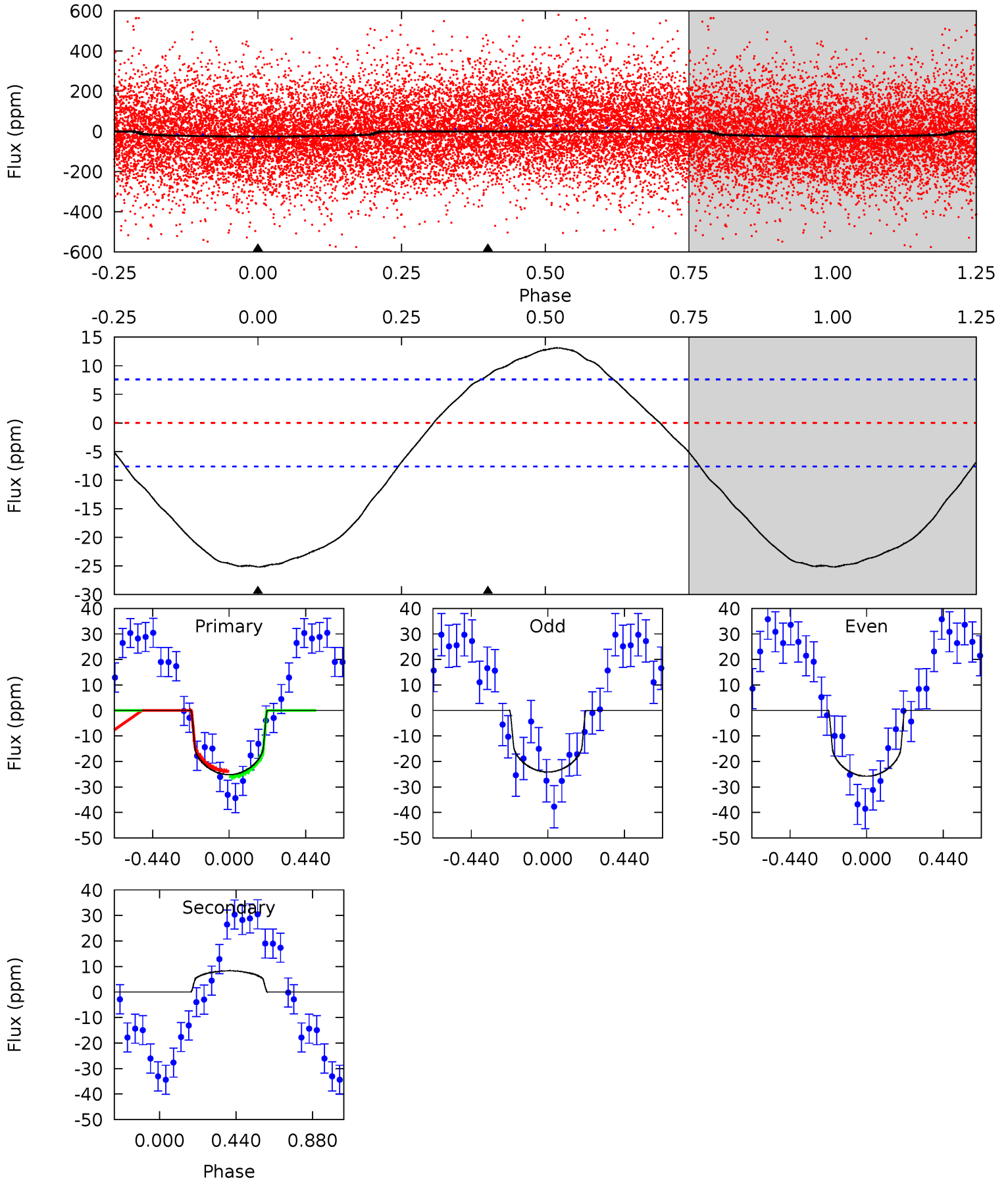
TCE 004840675-02 P= 0.997072 Days $T_0=132.107792$ (BKJD)



DV Model-Shift Uniqueness Test

004840675-02, P = 0.997077 Days, E = 131.111825 Days

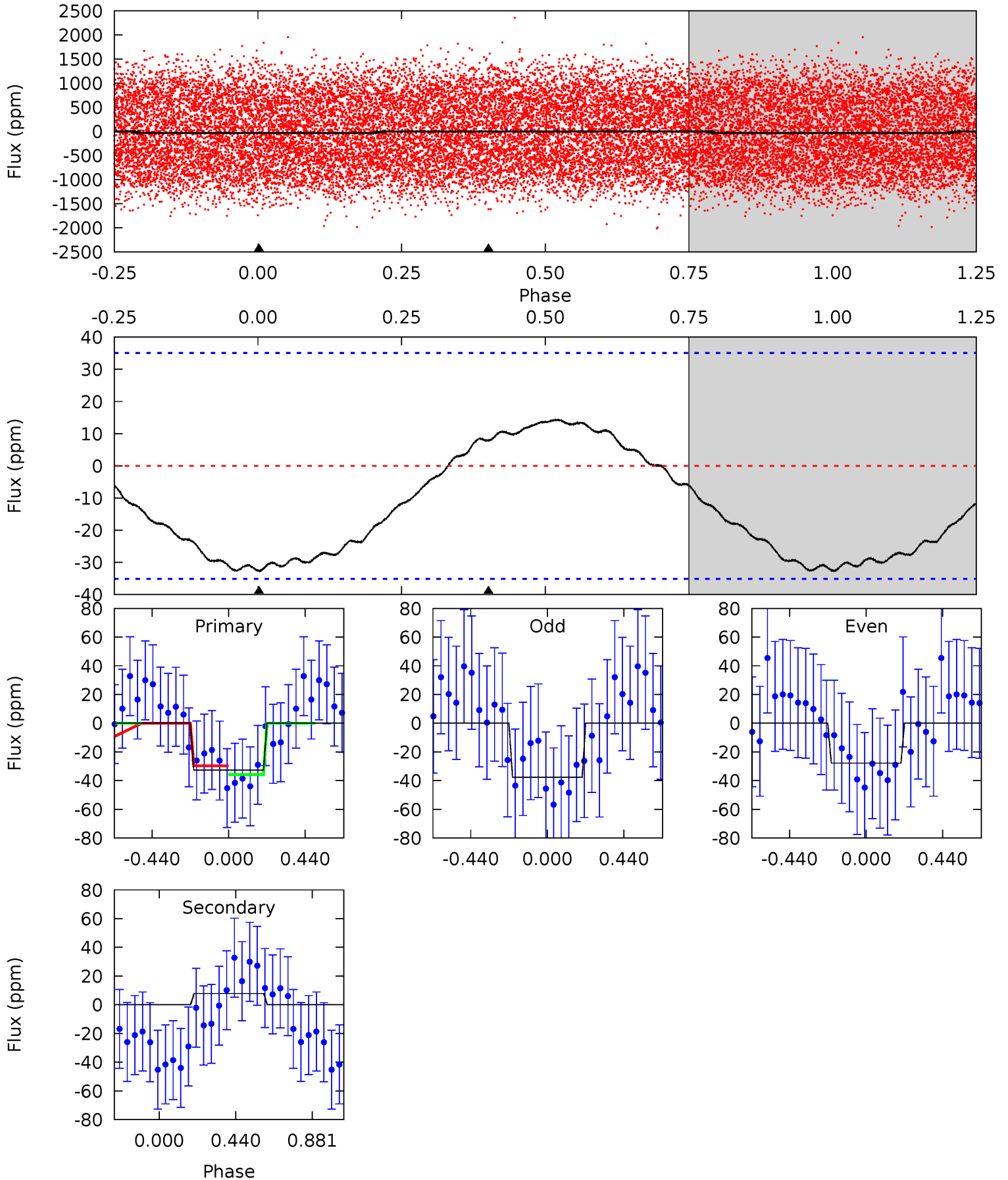
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
14.0	-4.62	0	0	4.24	0.77	1.62	14.0	14.0	-4.62	-4.62	0.46	0.64	0.34	0.61



Alt Model-Shift Uniqueness Test

004840675-02, P = 0.997072 Days, E = 131.110720 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
3.96	-0.95	0	0	4.24	0.77	0.45	3.96	3.96	-0.95	-0.95	0.60	1.10	0.31	0.37



Stellar Parameters For KIC 004840675

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (g \cdot \text{cm}^{-3})$
	7307^{+80}_{-80}	$4.247^{+0.047}_{-0.142}$	$-0.080^{+0.150}_{-0.150}$	$1.502^{+0.328}_{-0.109}$	$1.453^{+0.129}_{-0.082}$	$0.604^{+0.115}_{-0.247}$
	+1%/-1%	+1%/-3%	+188%/-188%	+22%/-7%	+9%/-6%	+19%/-41%
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 004840675-02 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	8 ± 2	$1.04^{+0.61}_{-0.58}$	3750^{+192}_{-108}	-5148^{+723}_{-2361}	$-1.997^{+1.216}_{-7.611}$
Alt.	8 ± 8	$1.05^{+0.64}_{-0.57}$	3744^{+185}_{-101}	-4930^{+1530}_{-2250}	$-1.582^{+1.640}_{-7.375}$

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

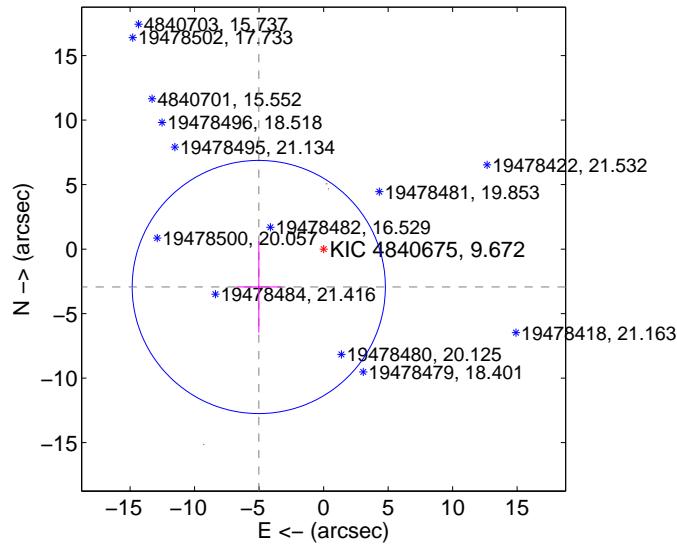
Supplemental centroid analysis for 004840675-02. **Kepler magnitude: 9.67.** Transit SNR 17.48

There are 0 quarters with good PRF difference image offsets

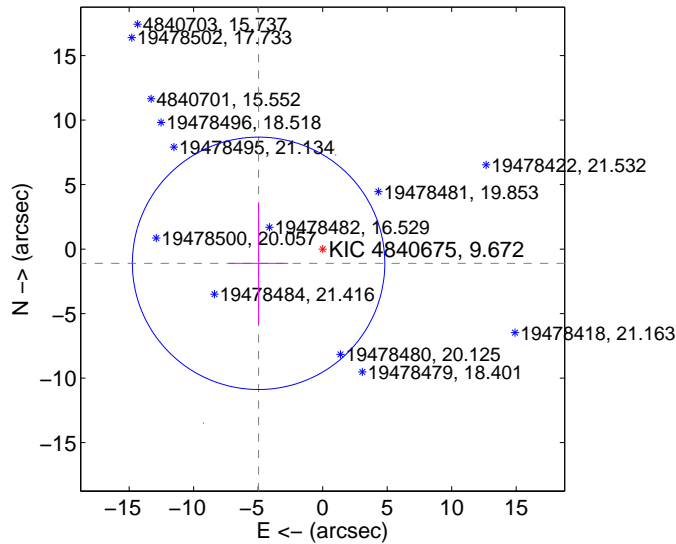
The direct PRF centroid is offset from the target star catalog position by about 1.64 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	5.822 ± 3.271	1.78	5.026 ± 1.718	-2.938 ± 3.548
PRF-fit source offset from KIC position	5.088 ± 3.261	1.56	4.967 ± 2.299	-1.102 ± 4.707
photometric centroid source offset	2.23 ± 0.25	8.83	-1.29 ± 0.19	1.82 ± 0.28

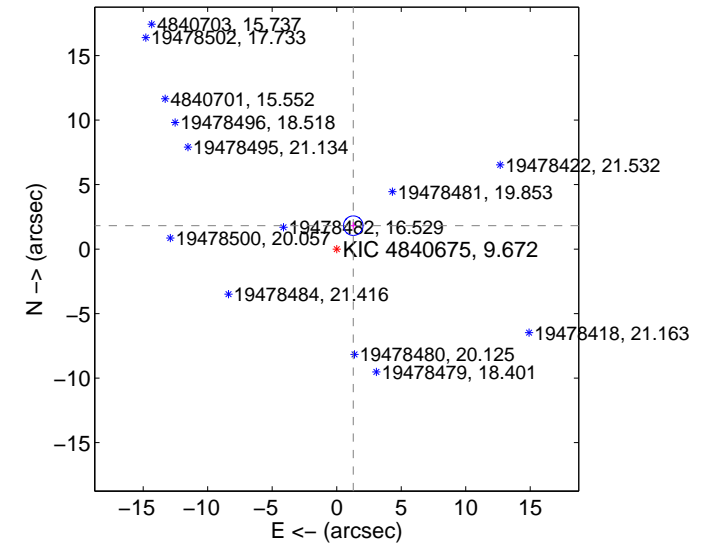
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position

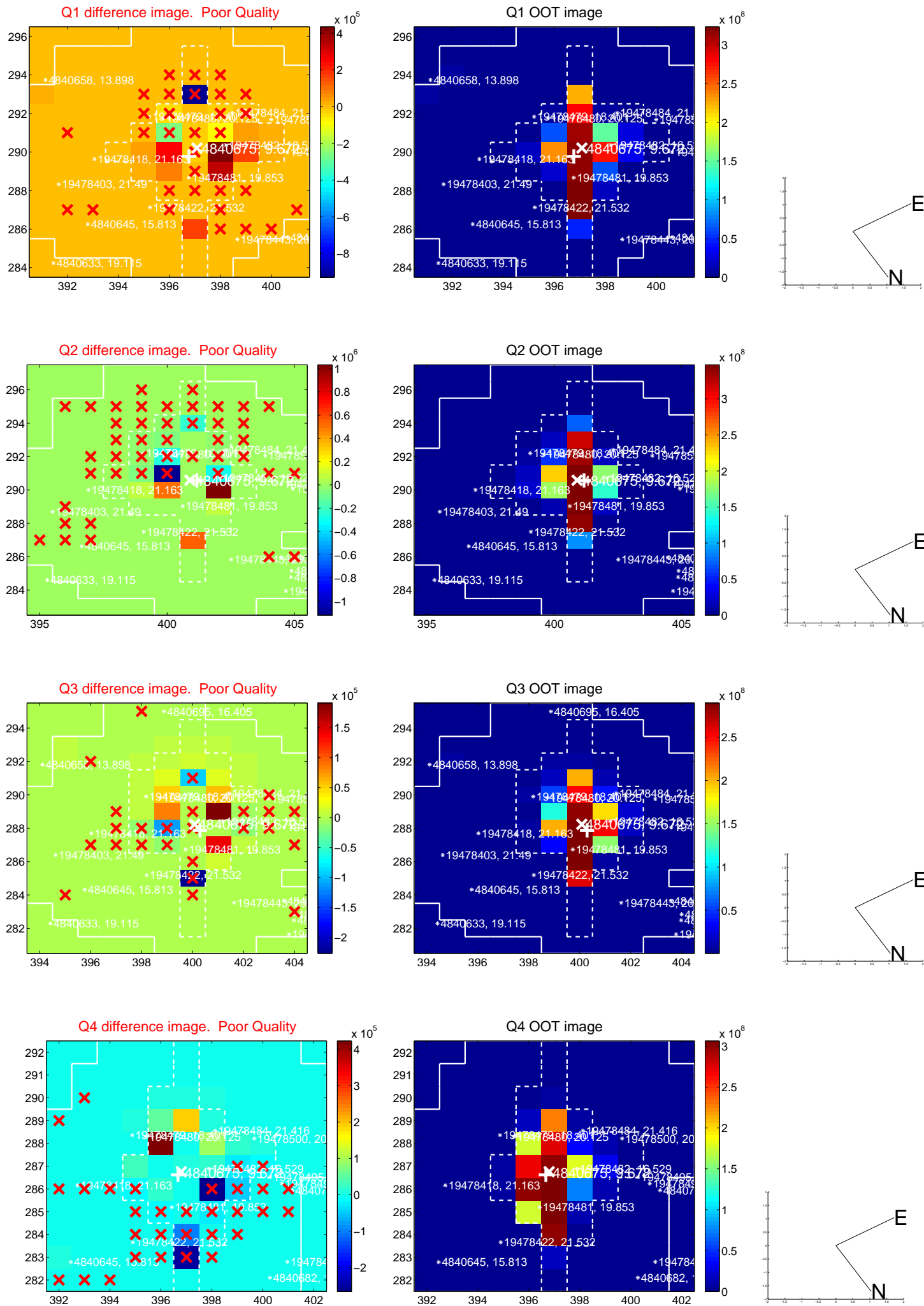


offset from photometric centroids

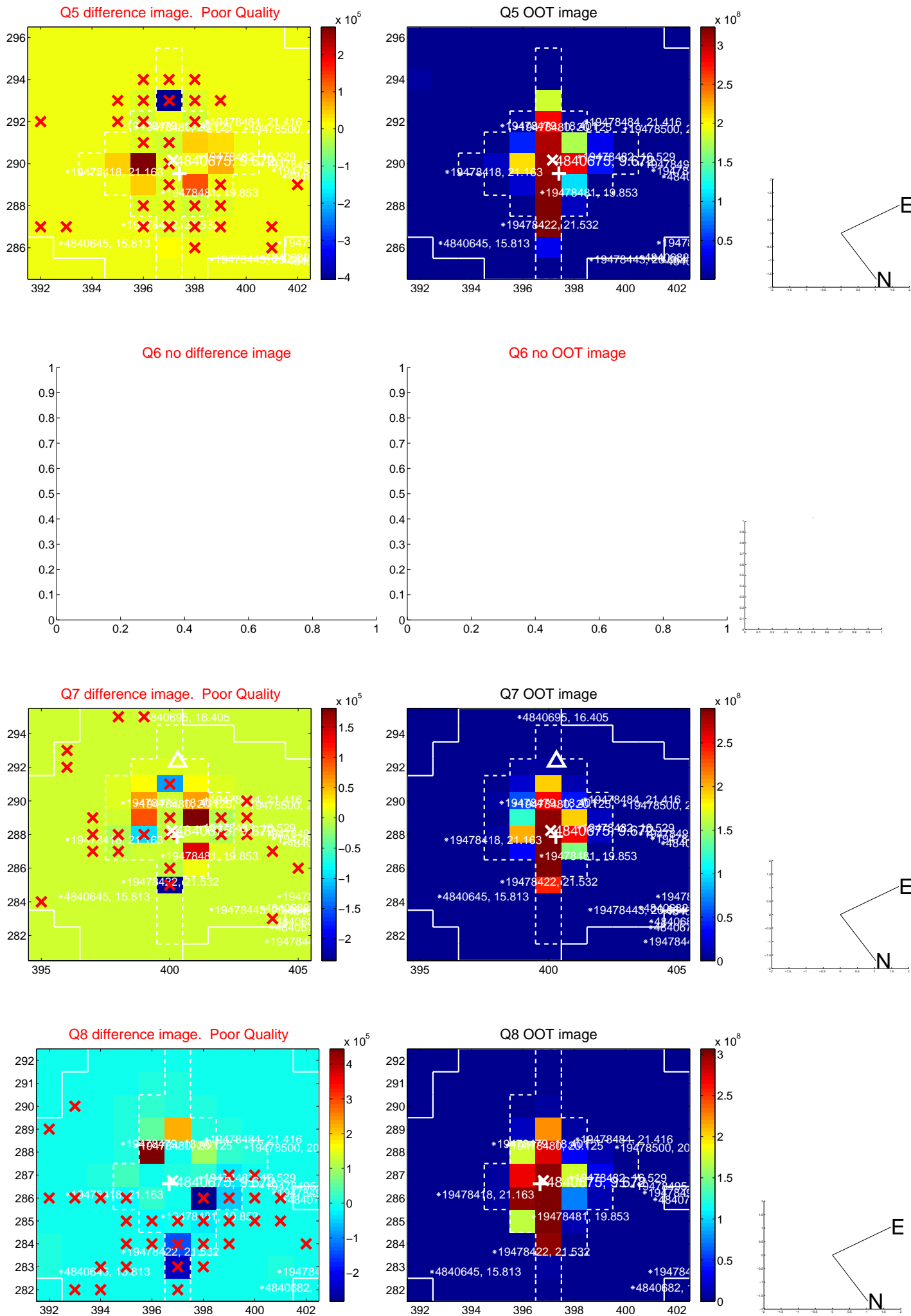


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets;** magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

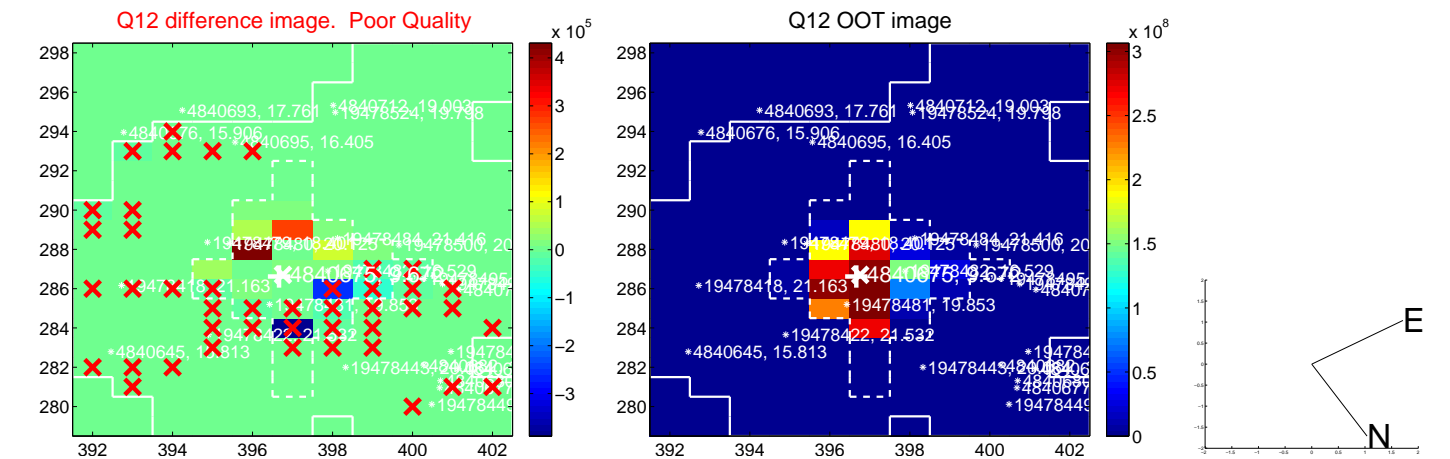
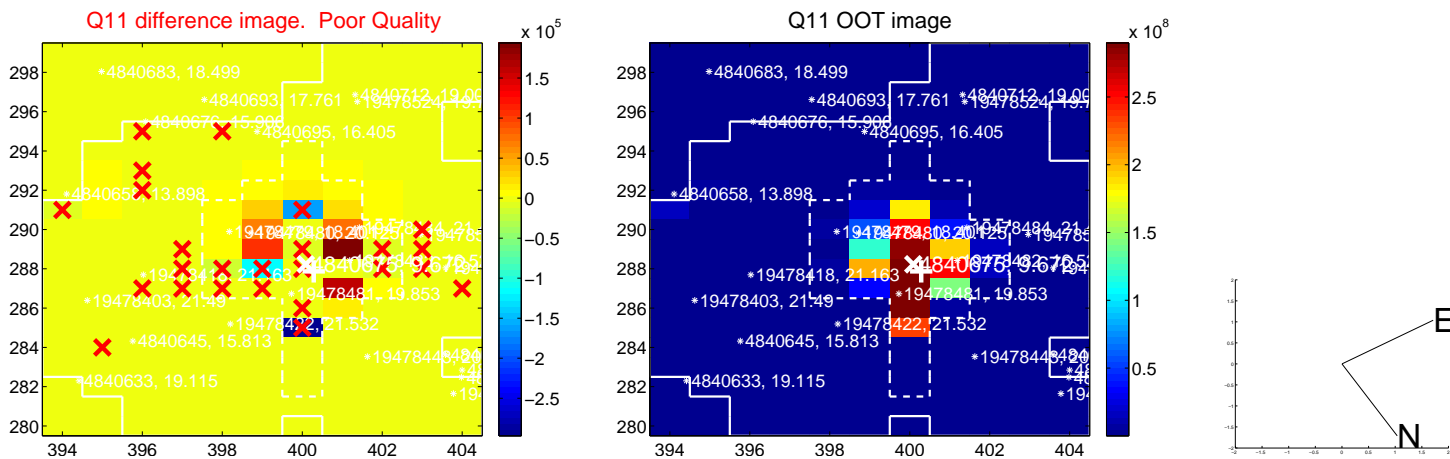
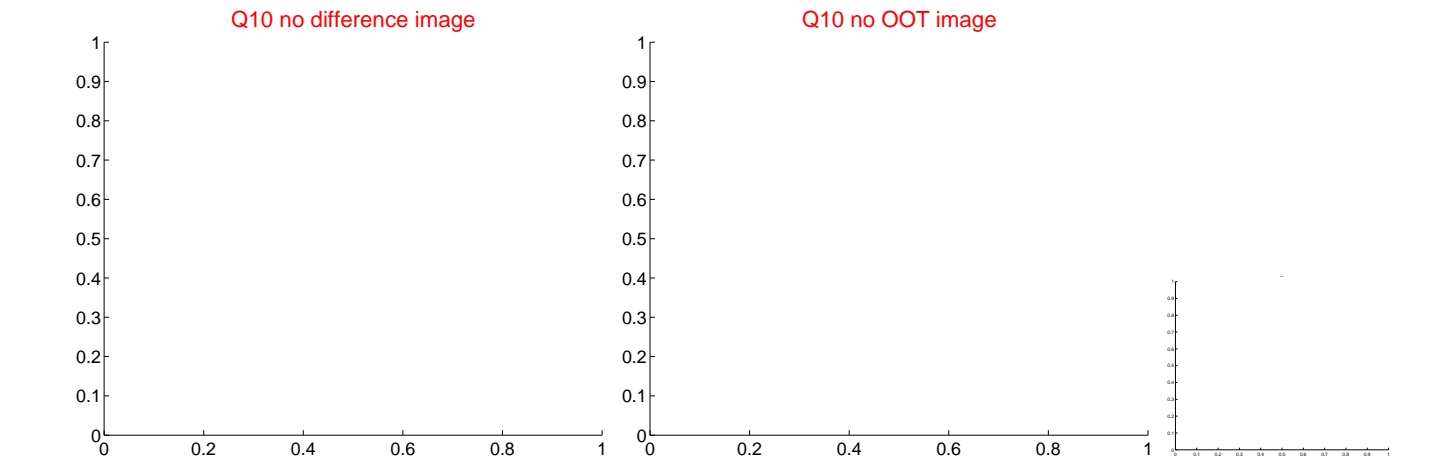
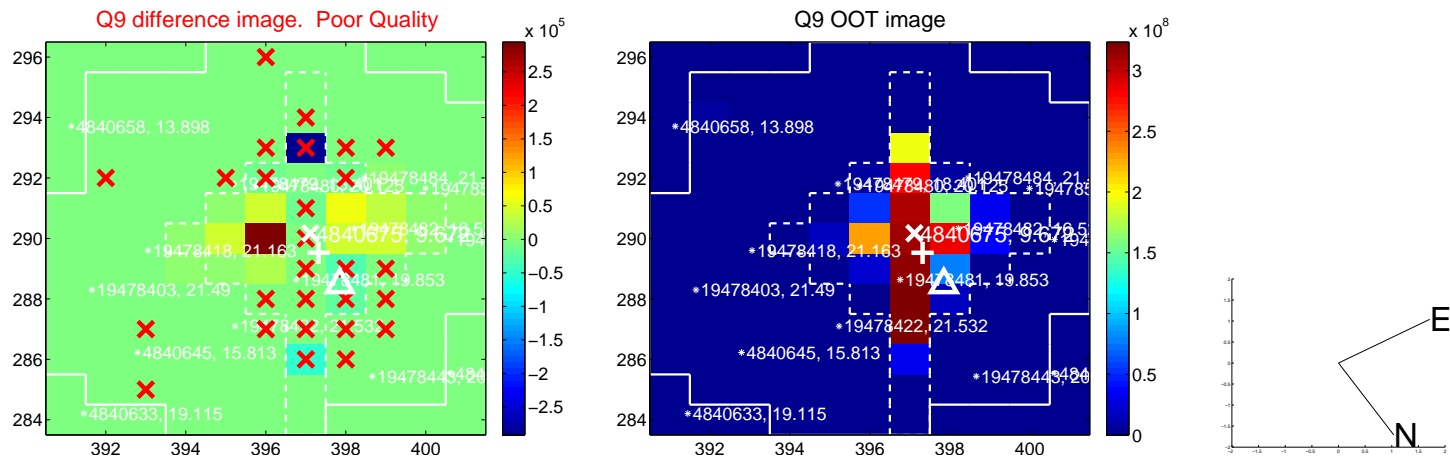
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



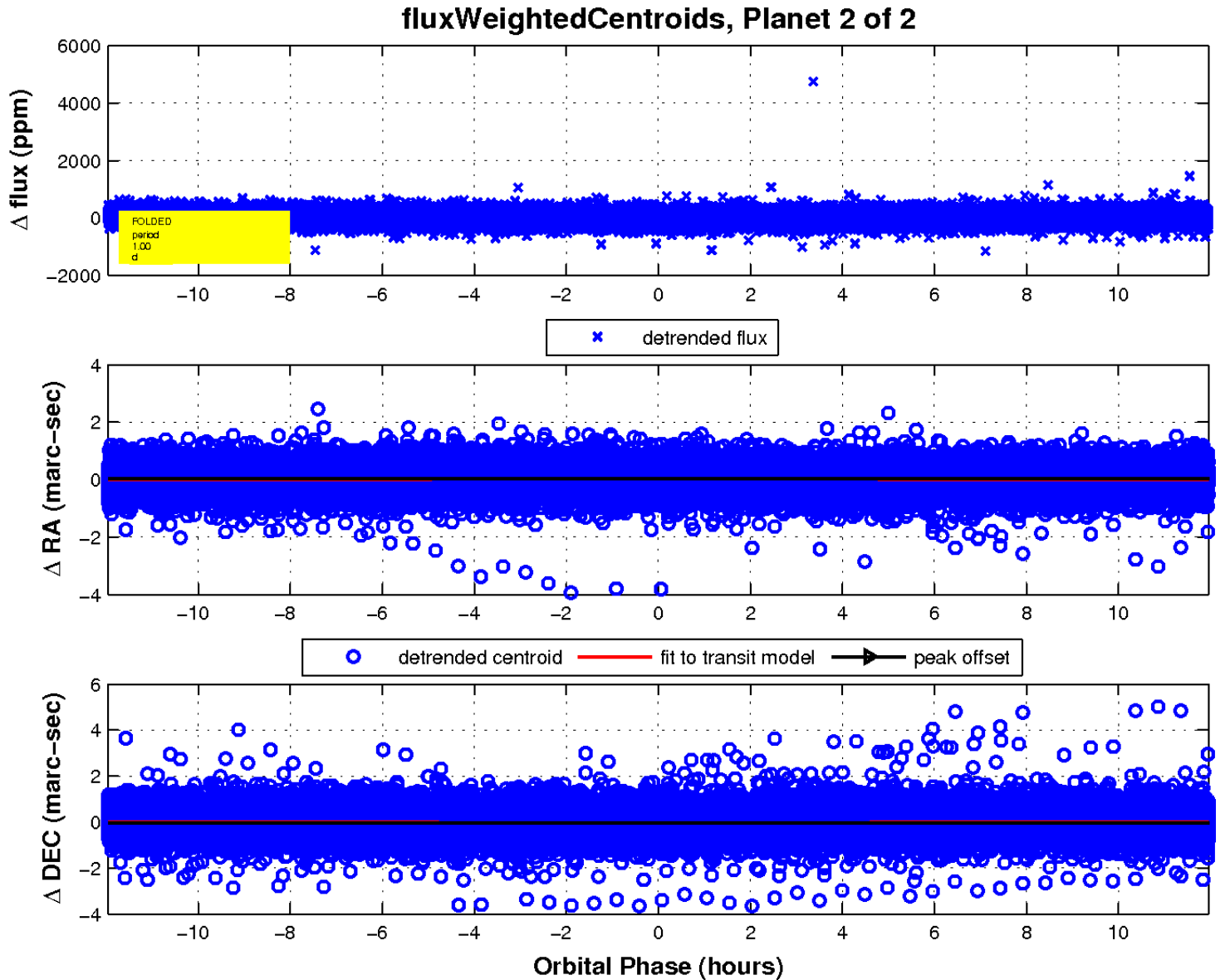
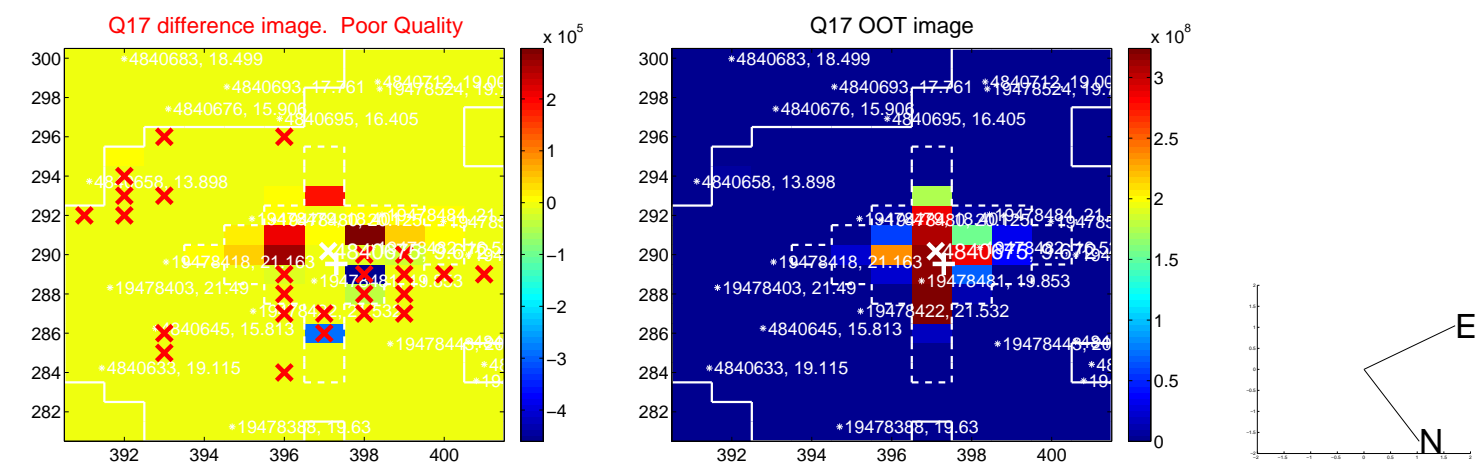
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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



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



UKIRT Image

Declination

