

KIC 009718066

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})
009718066-01	OBS	2287.01	16.092227	142.518532	118.0	2.093	15.5	16.8	0.67	4657	0.92	15.18
009718066-02	OBS	2287.02	28.905845	158.829373	94.2	3.066	10.9	11.3	0.67	4657	0.78	6.95
009718066-03	OBS	No	41.013580	137.824609	92.5	0.564	8.4	4.5	0.67	4657	0.94	4.36

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
009718066-01	OBS	PC	0.20	0	0	0	0	CENT_KIC_POS
009718066-02	OBS	PC	0.08	0	0	0	0	CENT_KIC_POS
009718066-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_SKYE_ZUMA_TRACKER—LPP_DV—MOD_NONUNIQ_DV—MOD_TER_DV—CENT_KIC_POS

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

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

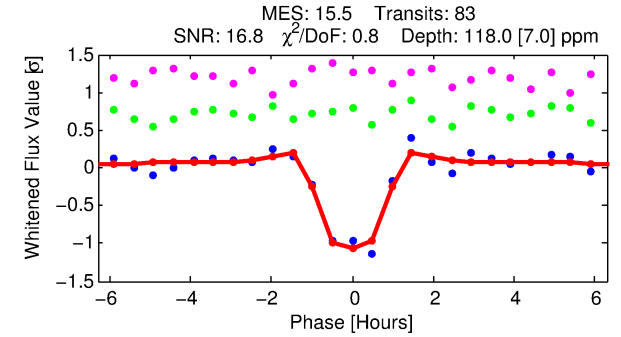
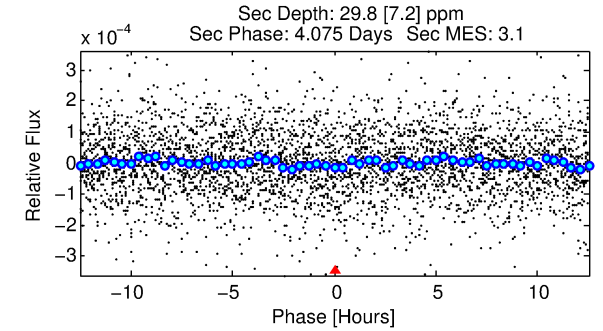
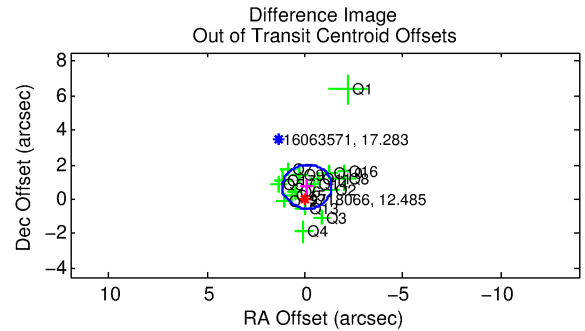
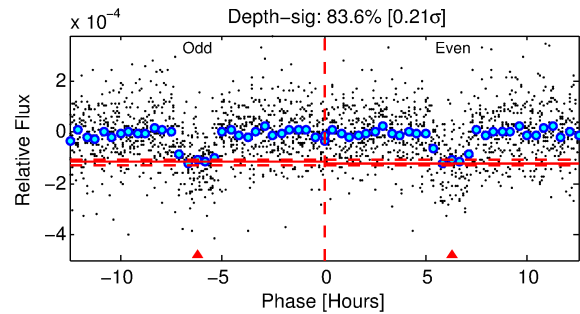
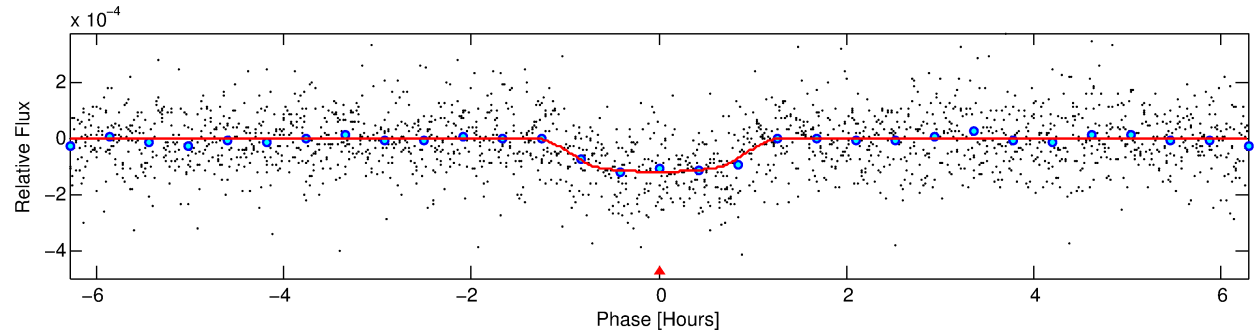
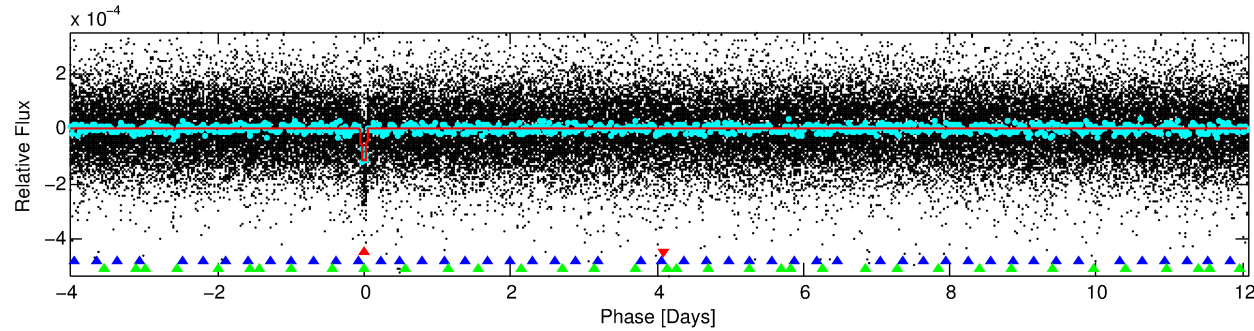
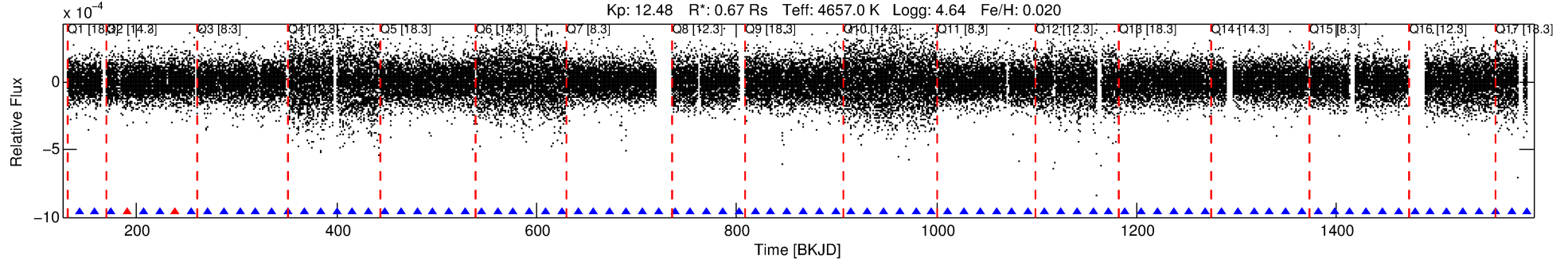
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 009718066-01

No Significant Match Found

DV One-Page Summary

KIC: 9718066 Candidate: 1 of 3 Period: 16.092 d
KOI: K02287.01 Name: Kepler-378b Corr: 0.965



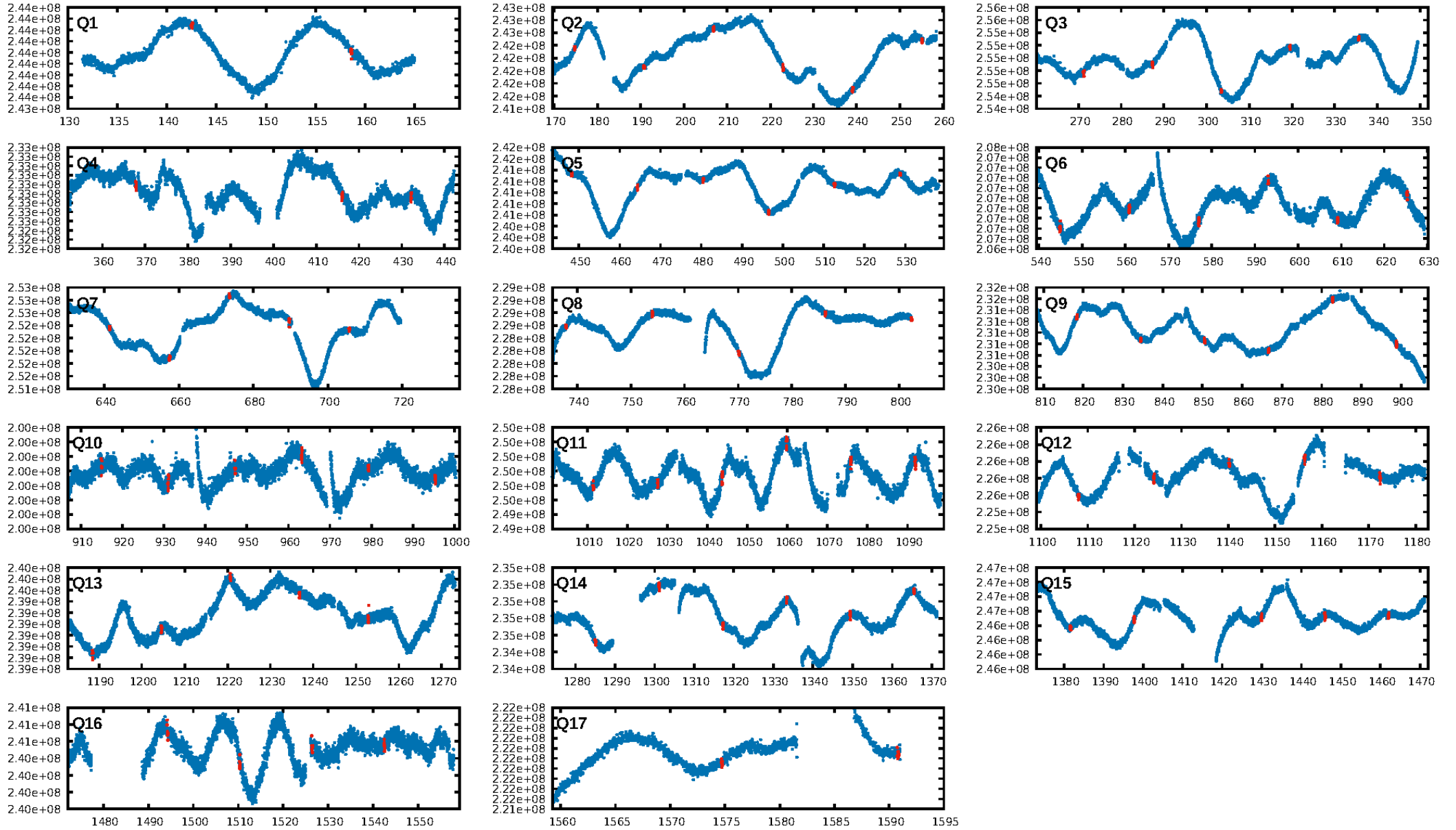
DV Fit Results:

Period = 16.09223 [0.00006] d
Epoch = 142.5185 [0.0028] BKJD
Rp/R* = 0.0125 [0.0057]
a/R* = 25.28 [45.18]
b = 0.92 [0.32]
Seff = 15.18 [1.85]
Teq = 503 [15] K
Rp = 0.92 [0.42] Re
a = 0.1116 [0.0074] AU
Ag = 243.48 [229.90] [1.05 σ]
Teffp = 3074 [725] K [3.55 σ]

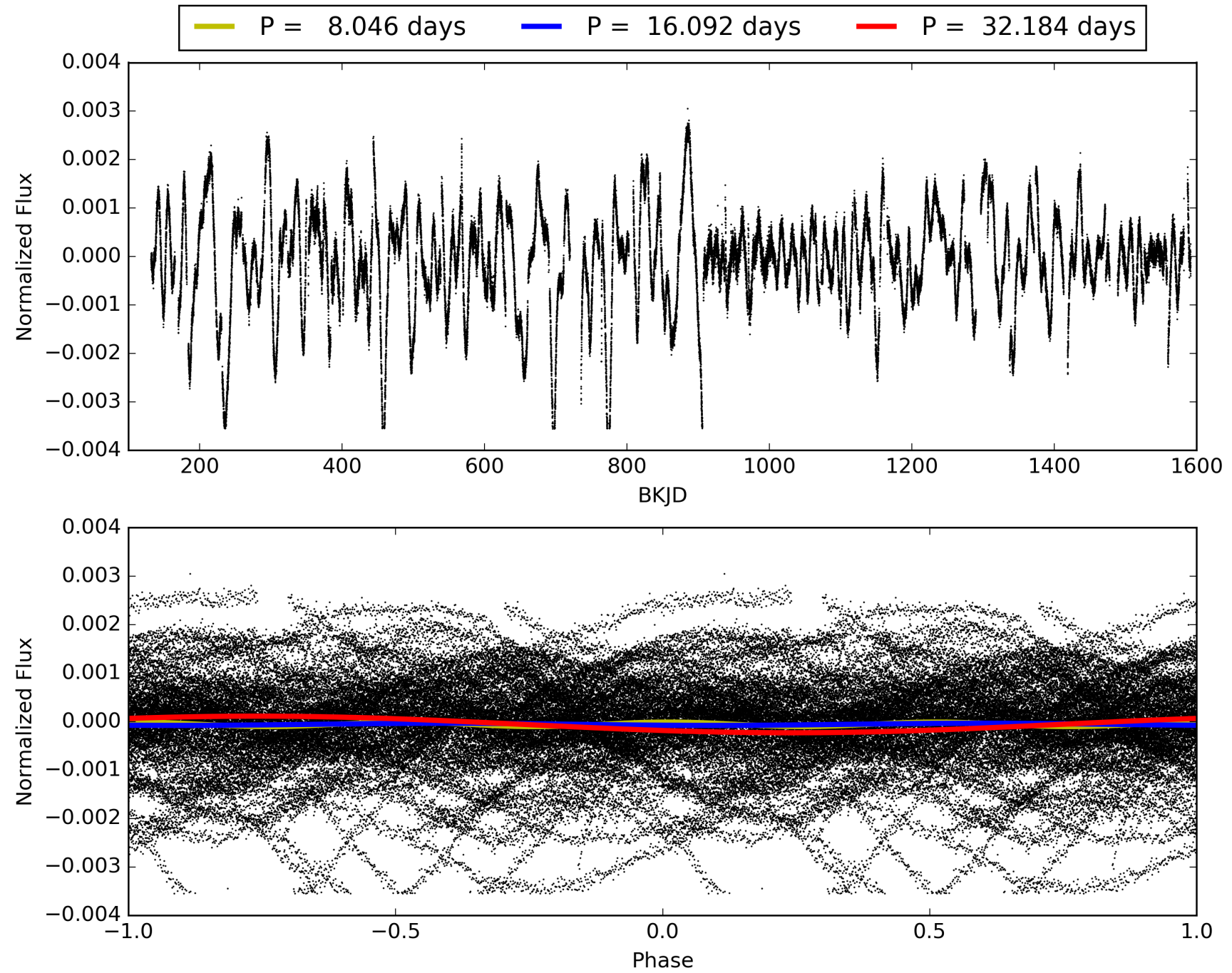
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: 100.0% [82.85 σ]
ModelChiSquare2-sig: 95.5%
ModelChiSquareGof-sig: 100.0%
Bootstrap-pfa: 2.00e-52
RollingBand-fgt: 0.97 [77/79]
GhostDiagnostic-chr: 2.045
Centroid-sig: 45.5%
Centroid-so: 1.116 arcsec [2.22 σ]
OotOffset-rm: 0.731 arcsec [1.74 σ]
OotOffset-st: 4/4/4/5 [17]
KicOffset-rm: 1.530 arcsec [4.44 σ]
KicOffset-st: 4/4/4/5 [17]
DiffImageQuality-fgm: 0.94 [16/17]
DiffImageOverlap-fno: 1.00 [17/17]

TCE 009718066-01, PDC Light Curves

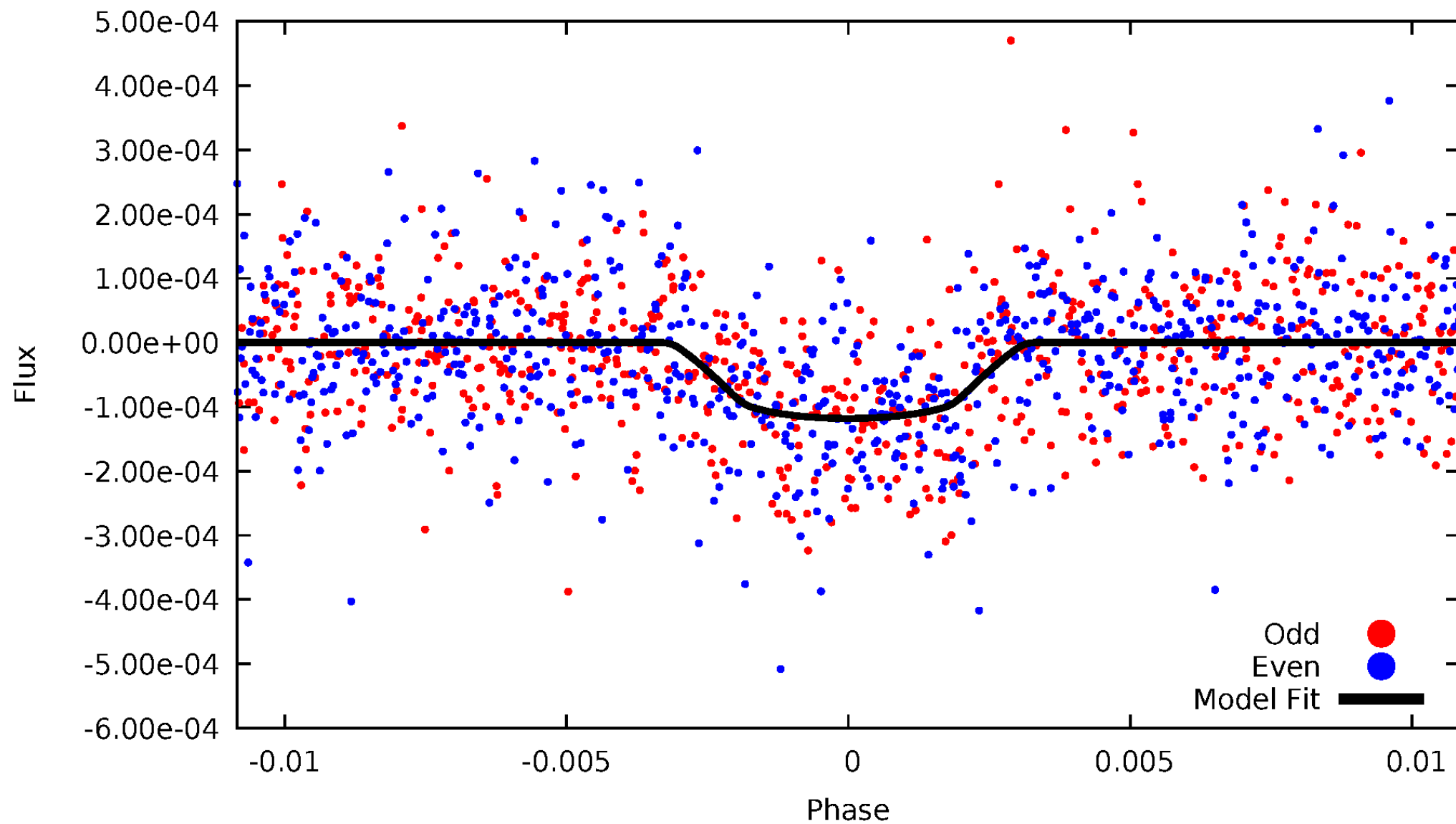


TCE 009718066-01



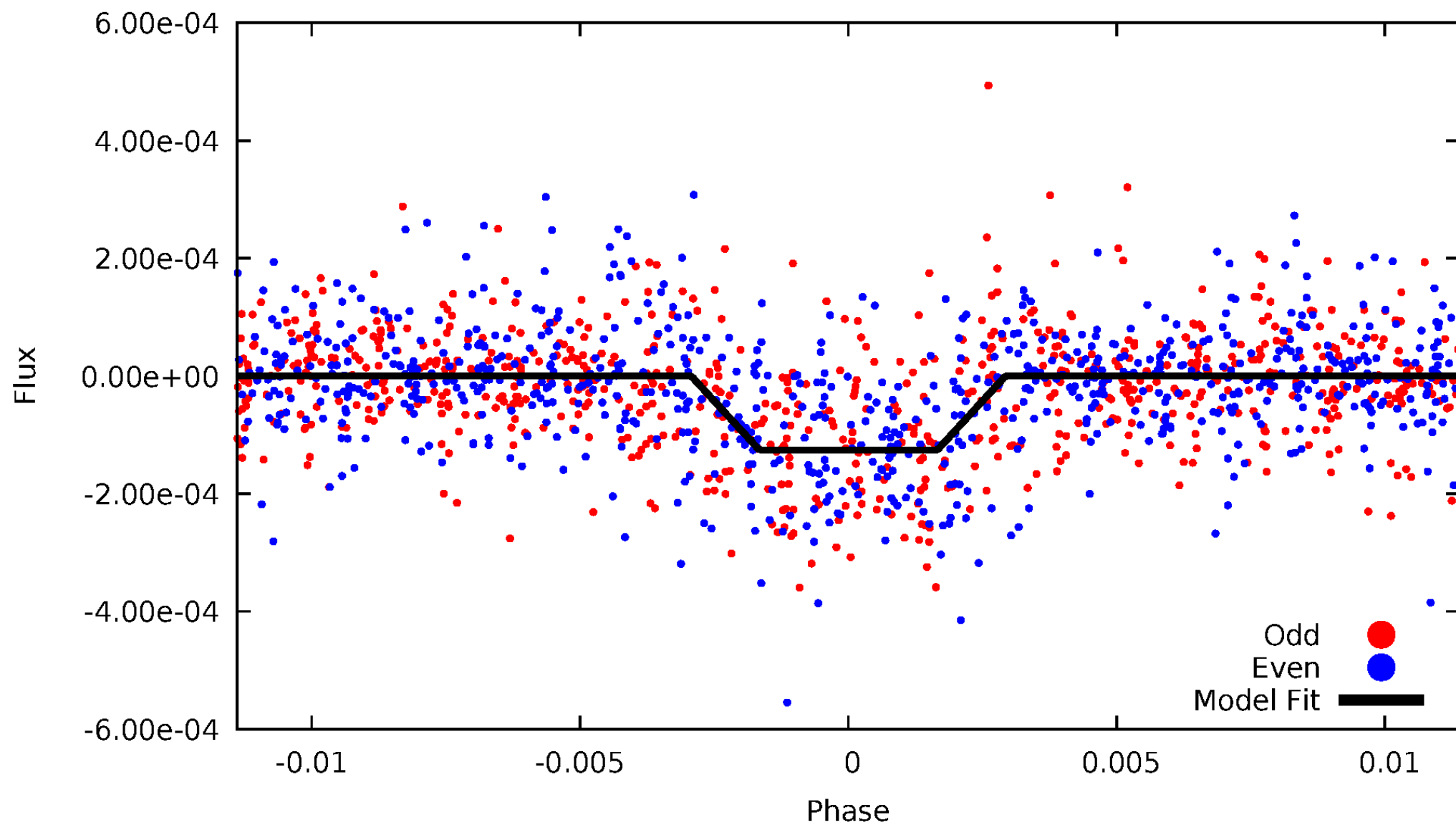
DV Odd/Even

TCE 009718066-01



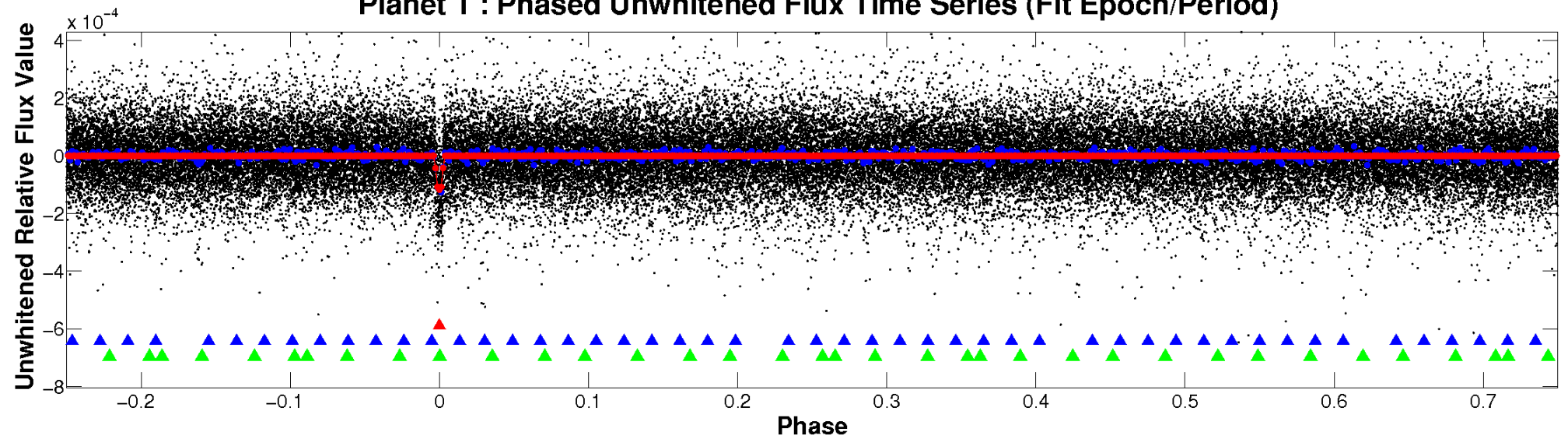
ALT Odd/Even

TCE 009718066-01

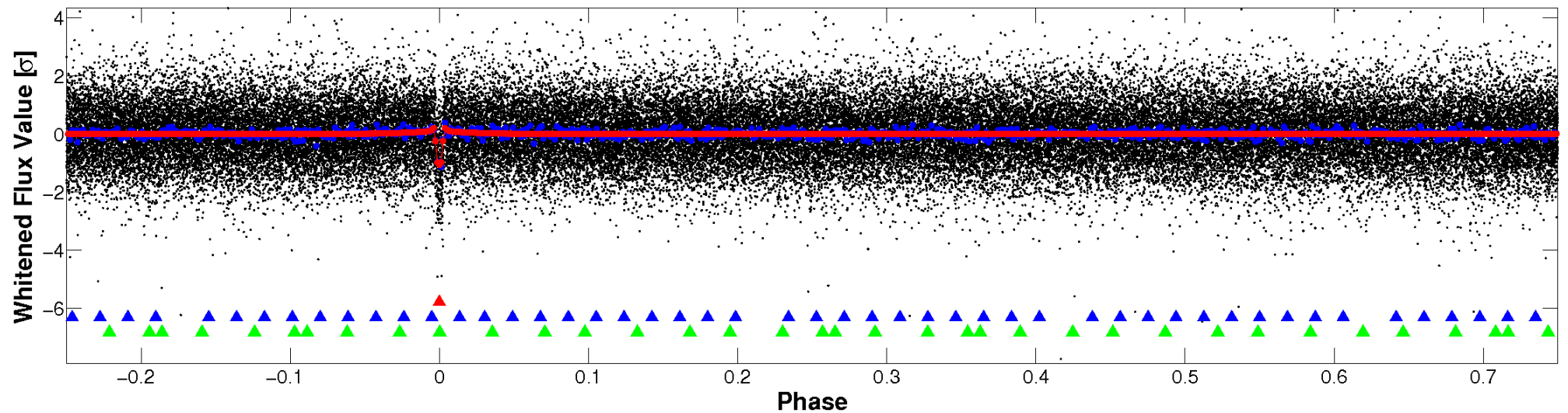


Non-Whitened Vs. Whitened Light Curve

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

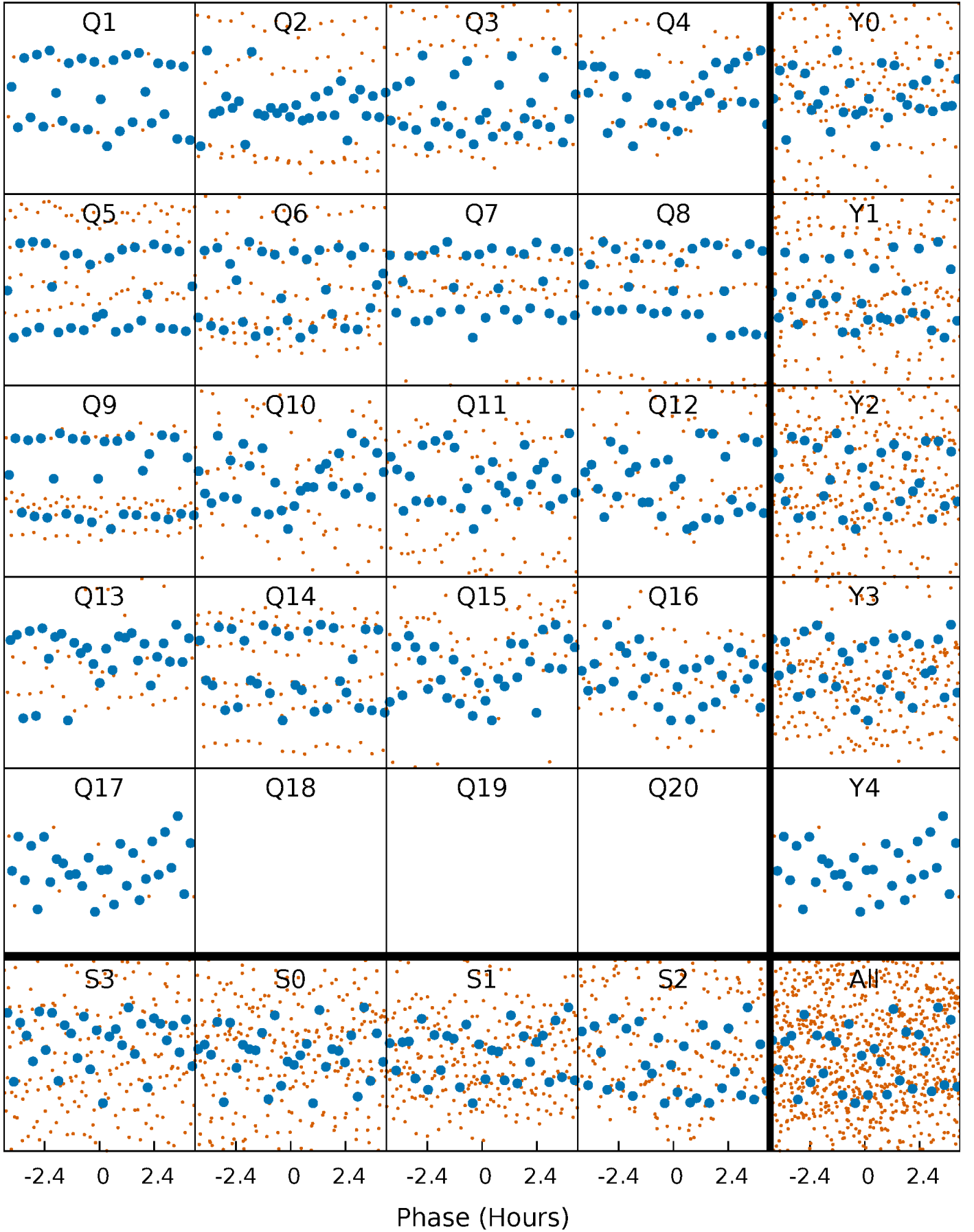


Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)



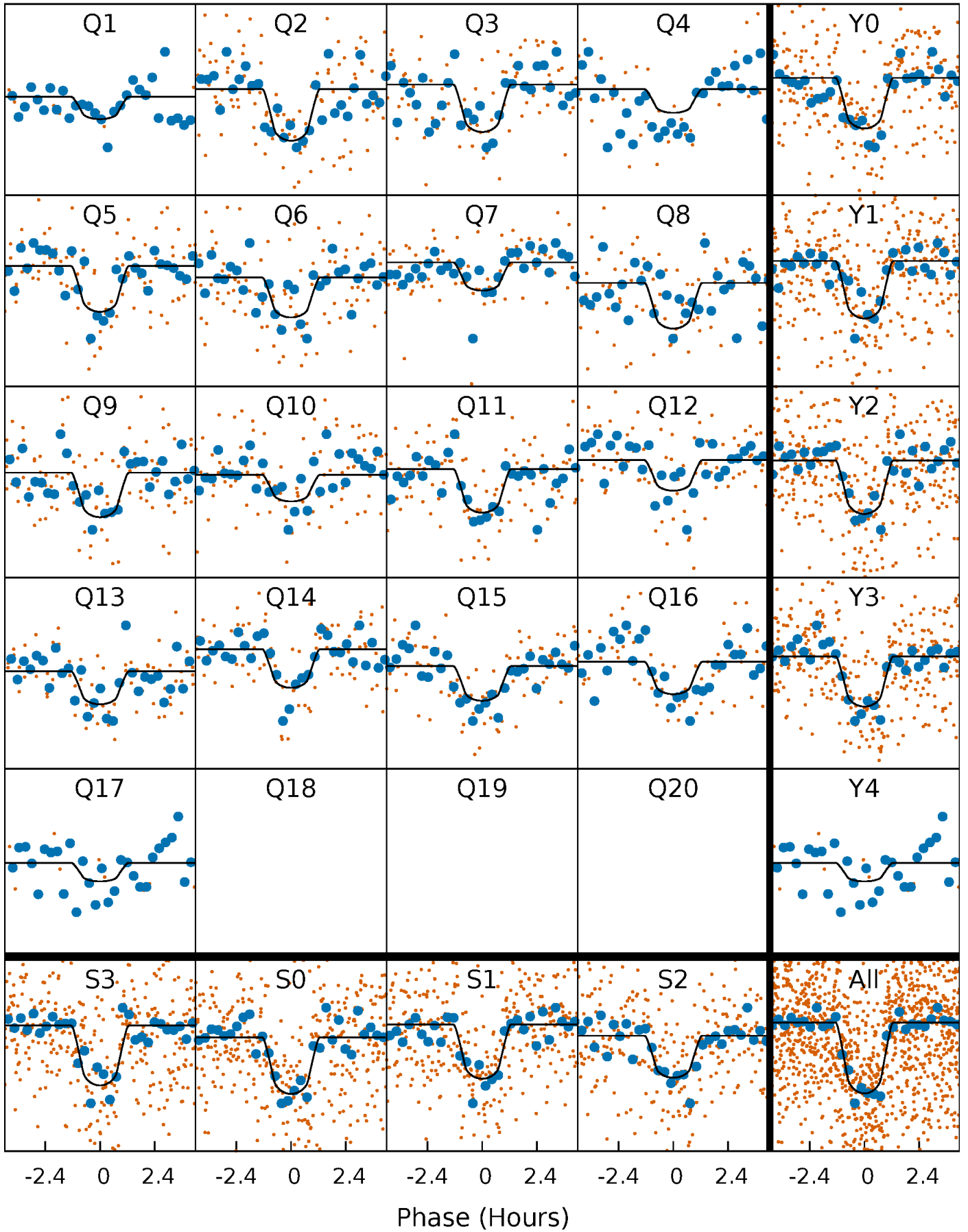
PDC Quarter-Phased Transit Curves

TCE 009718066-01 P= 16.092227 Days $T_0=142.518532$ (BKJD)



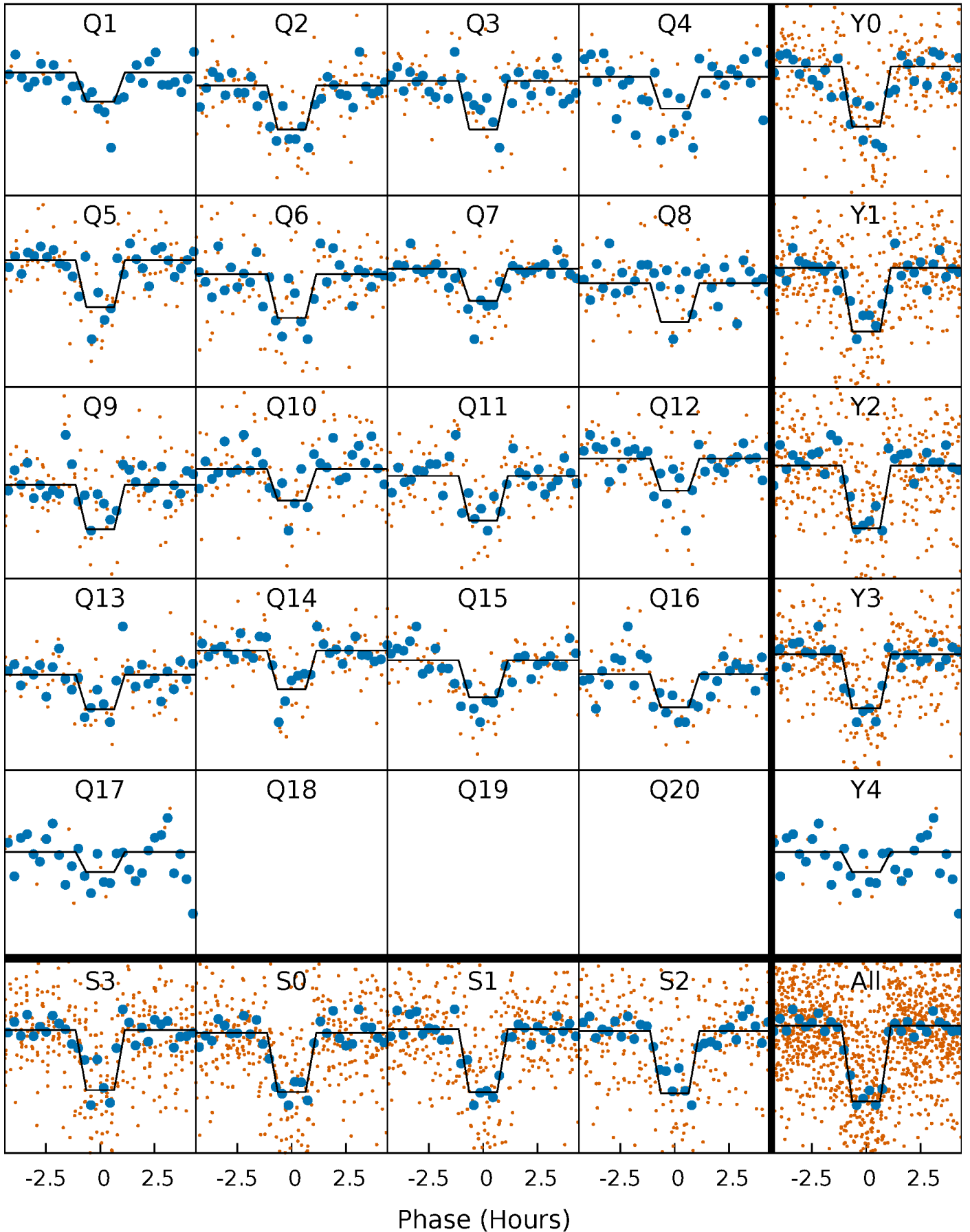
DV Quarter-Phased Transit Curves

TCE 009718066-01 P= 16.092227 Days $T_0=142.518532$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

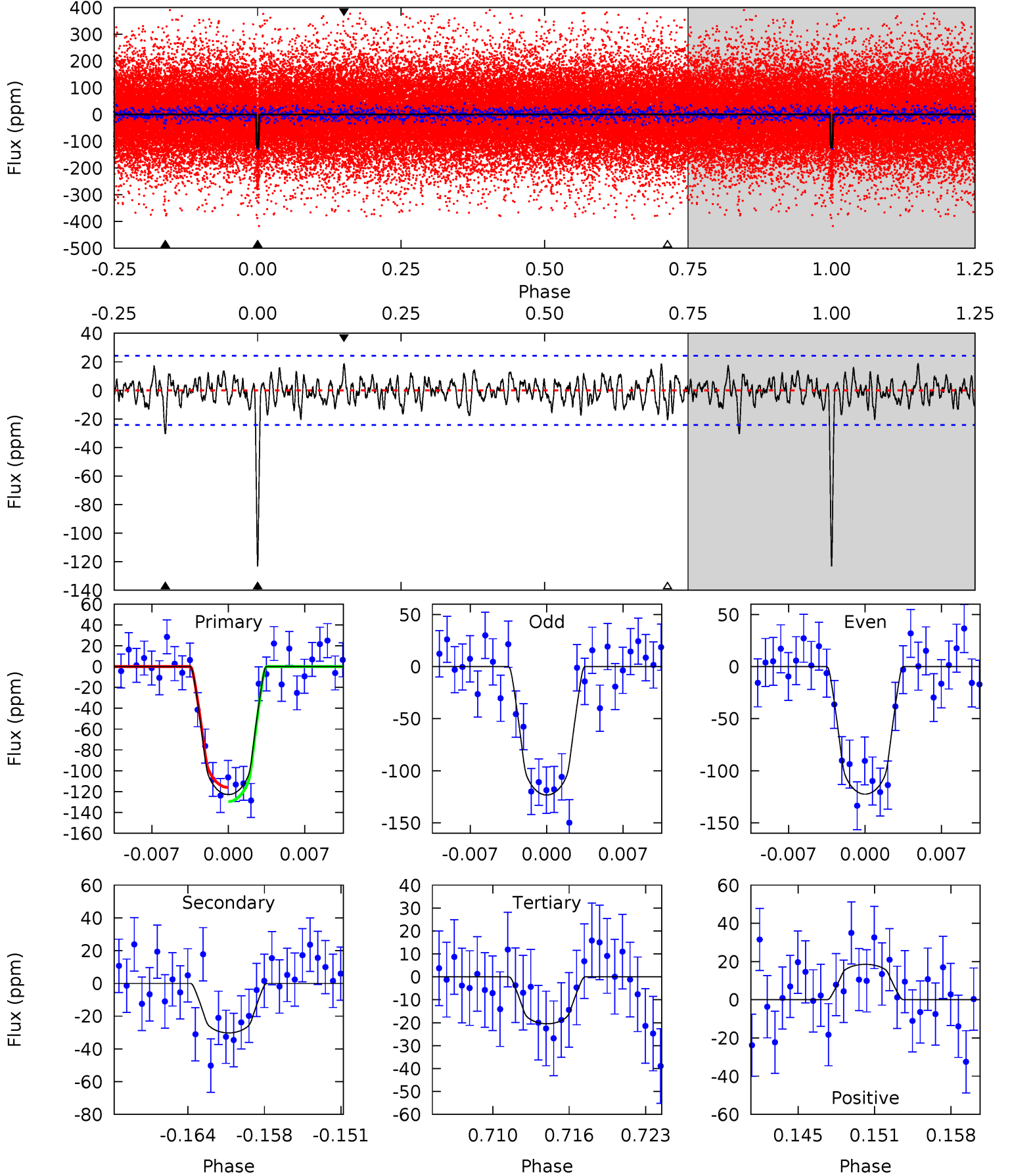
TCE 009718066-01 P= 16.092379 Days $T_0=142.512438$ (BKJD)



DV Model-Shift Uniqueness Test

009718066-01, $P = 16.092227$ Days, $E = 126.426305$ Days

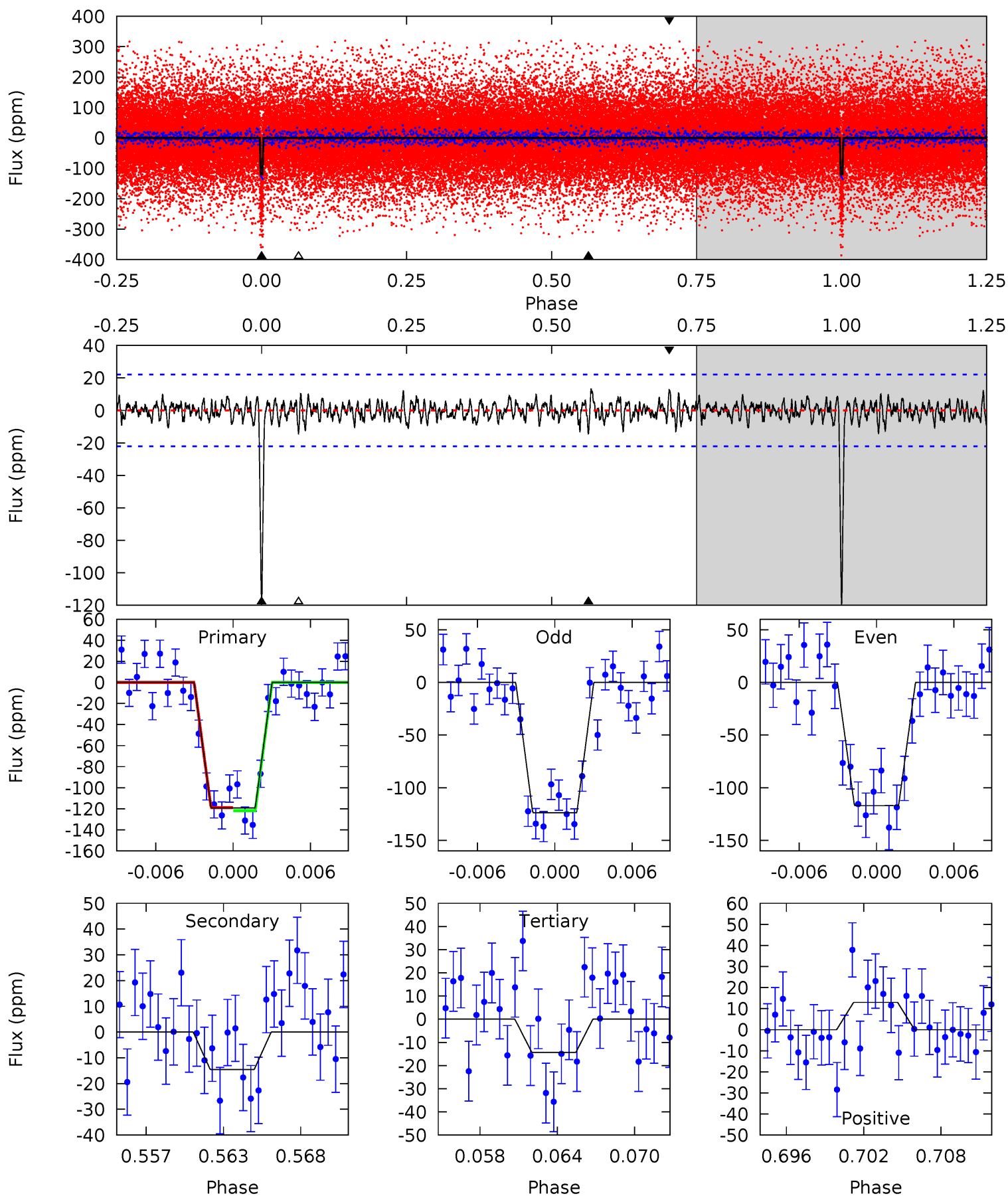
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
25.9	6.37	4.31	3.91	5.11	2.72	1.42	21.6	22.0	2.06	2.47	0.08	1.06	0.13	1.43



Alt Model-Shift Uniqueness Test

009718066-01, $P = 16.092379$ Days, $E = 126.420059$ Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
27.7	3.36	3.32	3.00	5.13	2.76	0.99	24.4	24.7	0.05	0.36	0.77	0.96	0.10	0.33



Stellar Parameters For KIC 009718066

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	4657^{+93}_{-93}	$4.641^{+0.012}_{-0.048}$	$0.020^{+0.150}_{-0.150}$	$0.670^{+0.055}_{-0.017}$	$0.748^{+0.031}_{-0.046}$	$3.505^{+0.149}_{-0.739}$
	+2%/-2%	+0%/-1%	+750%/-750%	+8%/-3%	+4%/-6%	+4%/-21%
Source	SPE58	SPE58	SPE58	DSEP		

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

Secondary Eclipse Parameters for KIC 009718066-01 / KOI 2287.01

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	-30 ± 5	$0.92^{+0.46}_{-0.39}$	710^{+18}_{-17}	3487^{+745}_{-405}	242^{+504}_{-136}
Alt.	-14 ± 4	$0.84^{+0.42}_{-0.36}$	710^{+17}_{-16}	3179^{+682}_{-374}	134^{+313}_{-80}

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 $A_{obs} \gg 1.0$

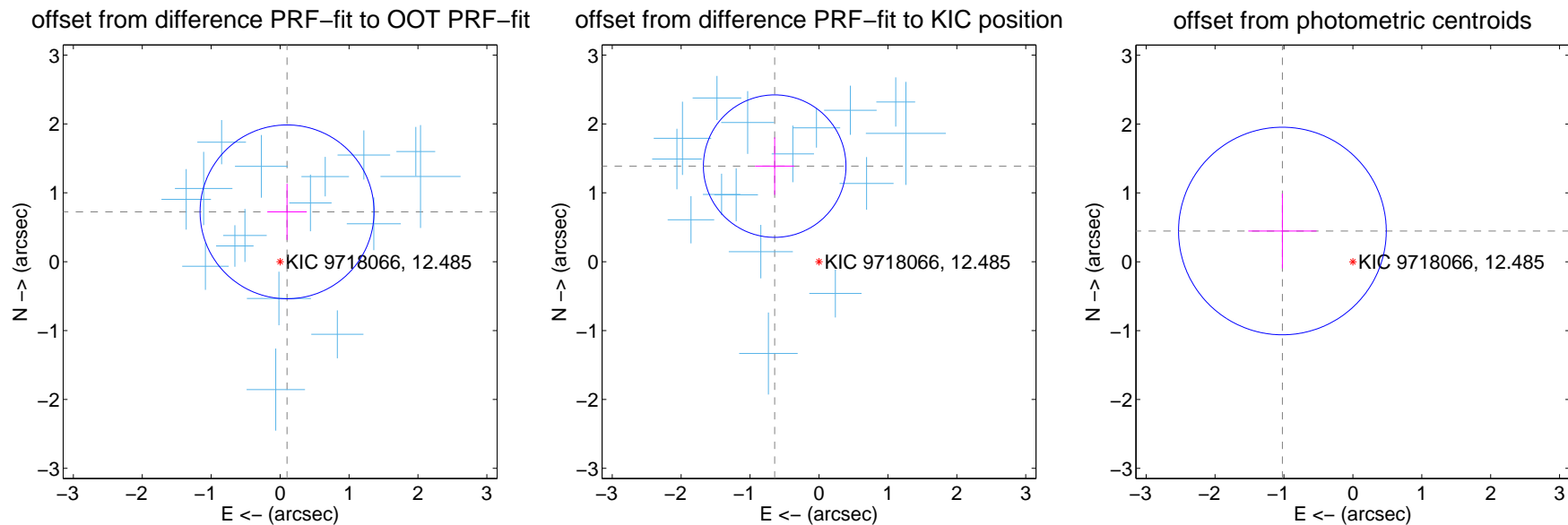
DV Centroid Data

Supplemental centroid analysis for 009718066-01. Kepler magnitude: 12.48. Transit SNR 16.83

There are 16 quarters with good PRF difference image offsets

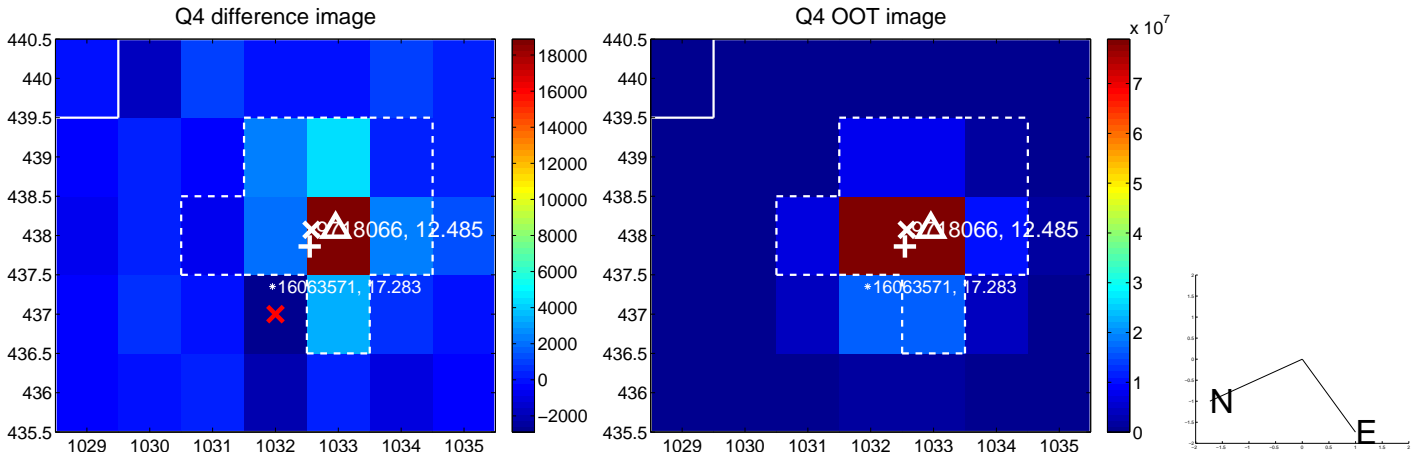
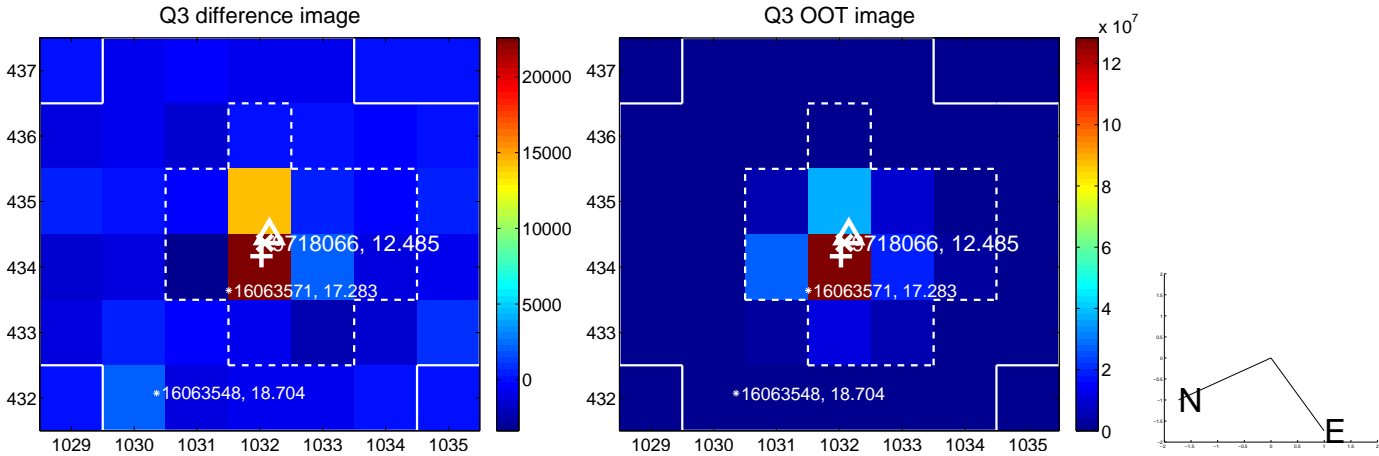
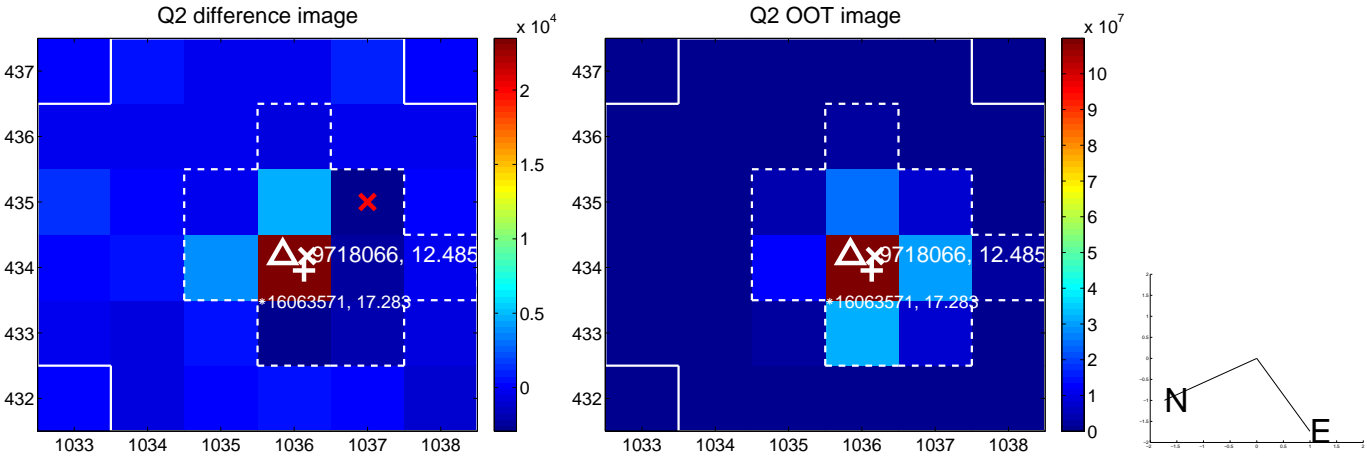
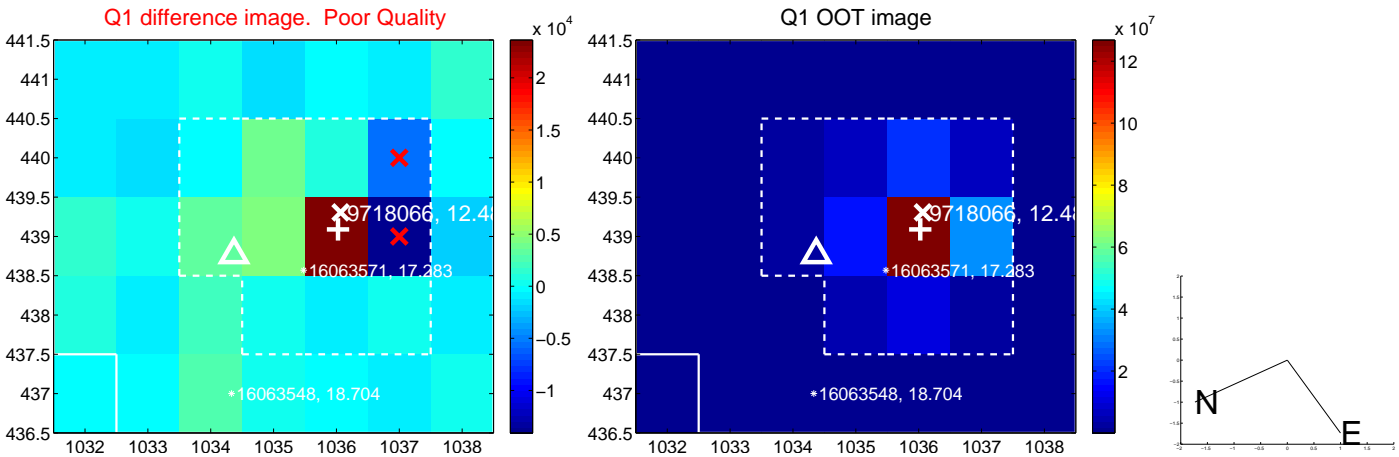
The direct PRF centroid is offset from the target star catalog position by about 1.14 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.731 ± 0.421	1.74	-0.101 ± 0.286	0.724 ± 0.407
PRF-fit source offset from KIC position	1.530 ± 0.345	4.44	0.643 ± 0.285	1.388 ± 0.417
photometric centroid source offset	1.12 ± 0.50	2.22	1.02 ± 0.49	0.45 ± 0.54

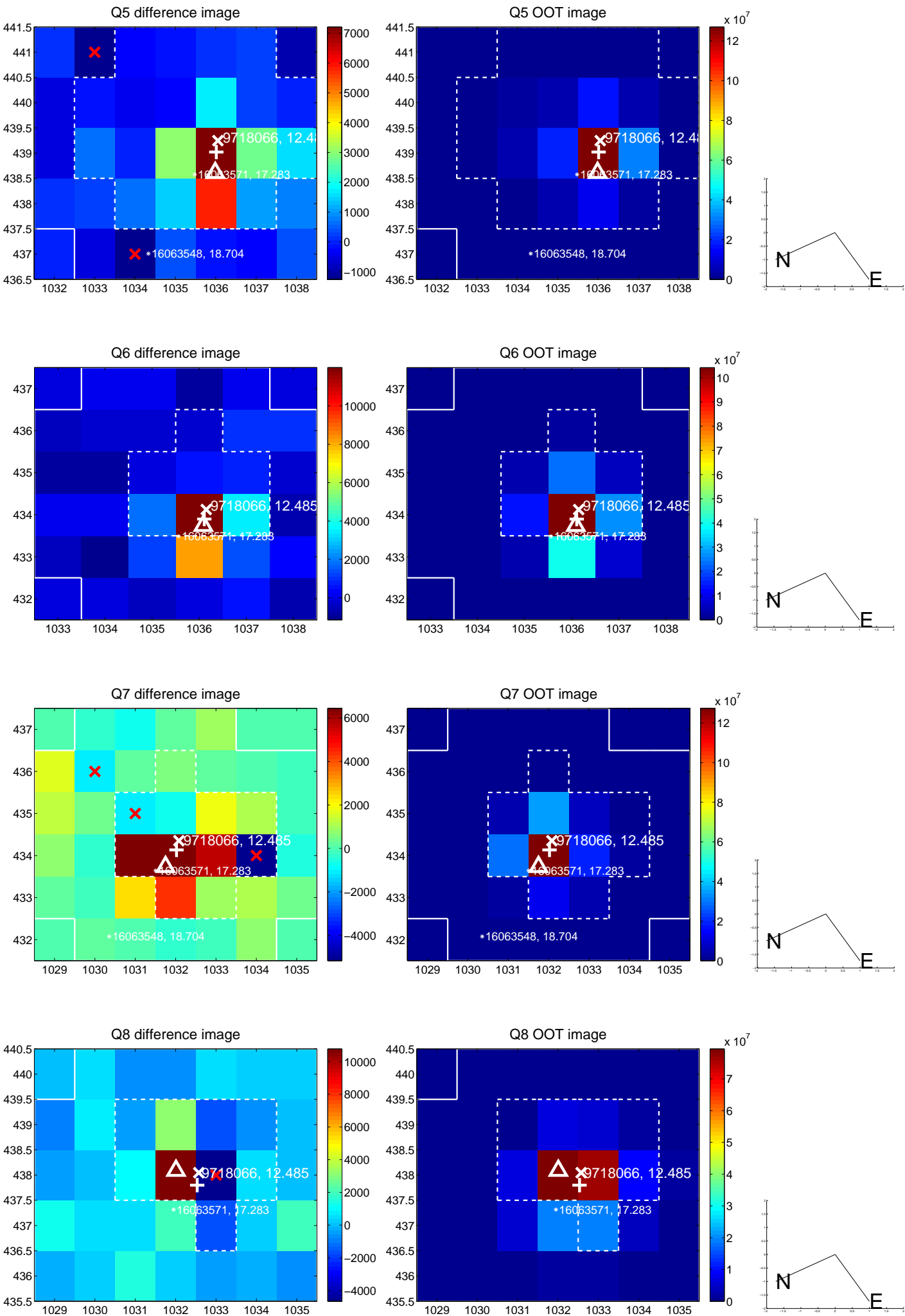


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ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

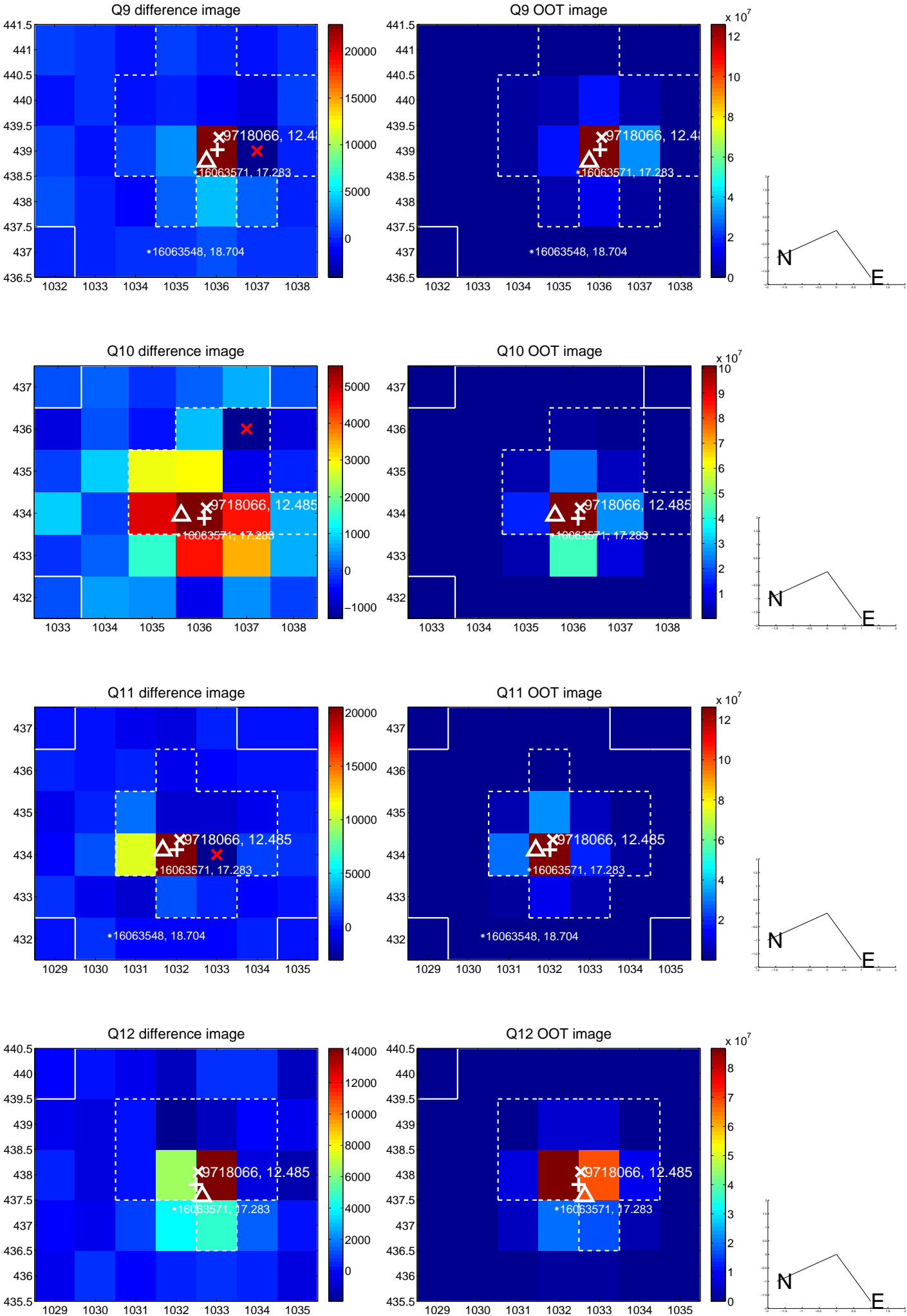
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



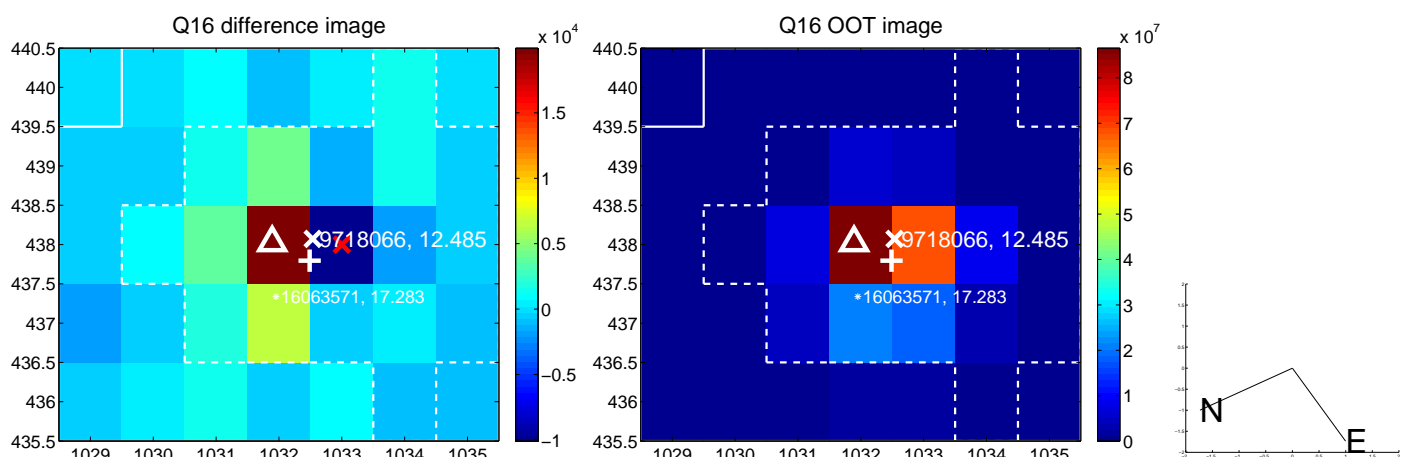
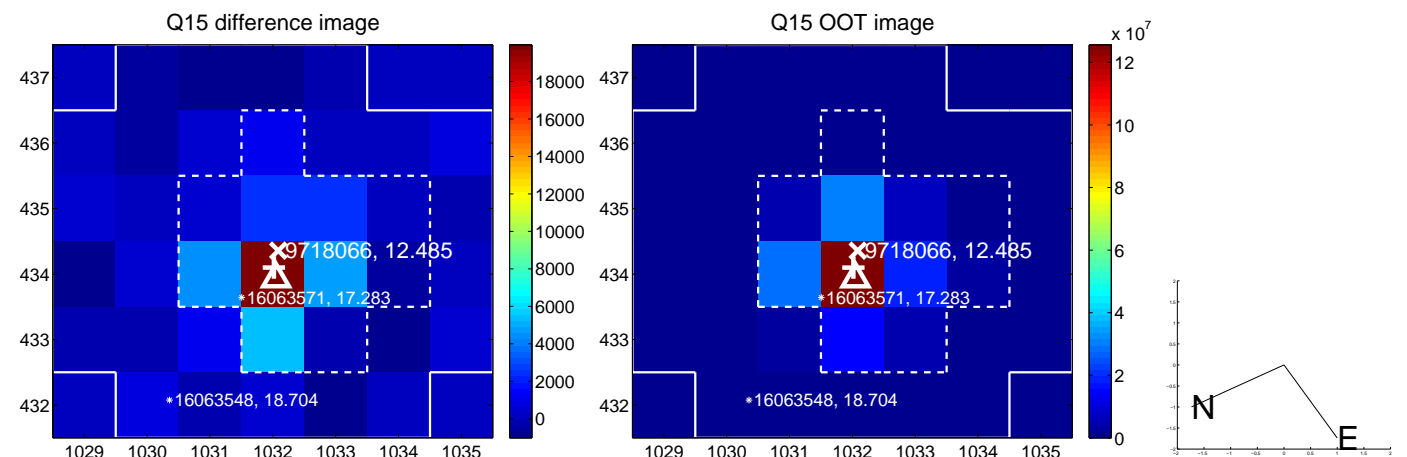
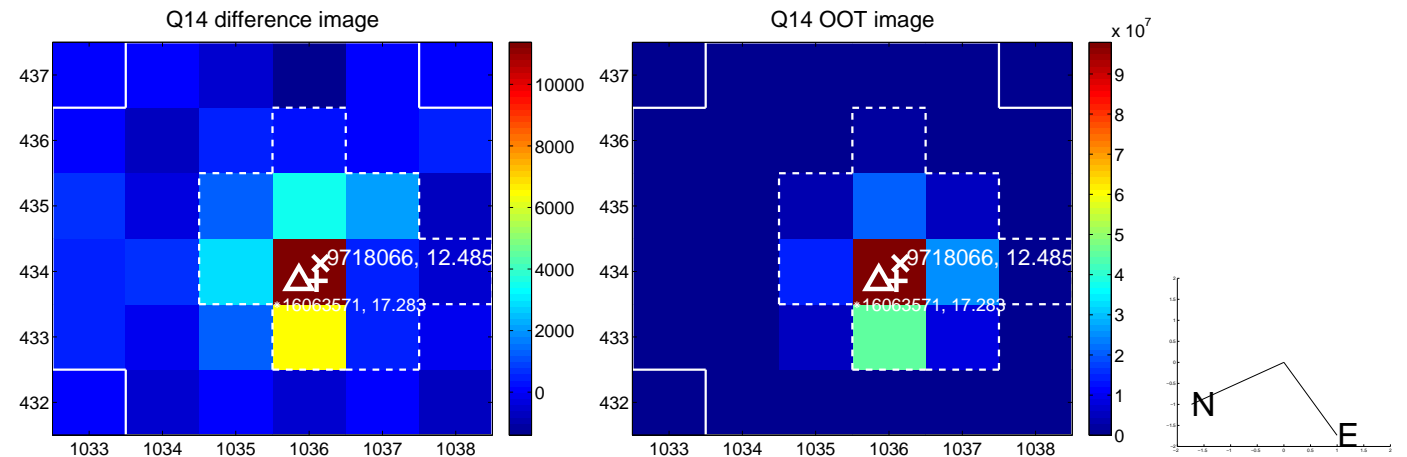
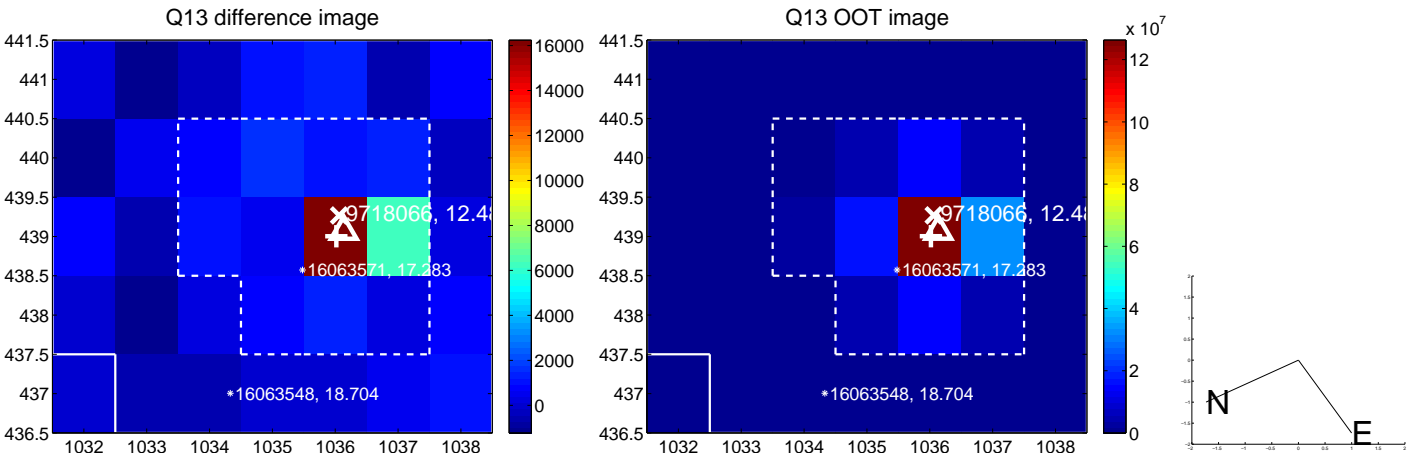
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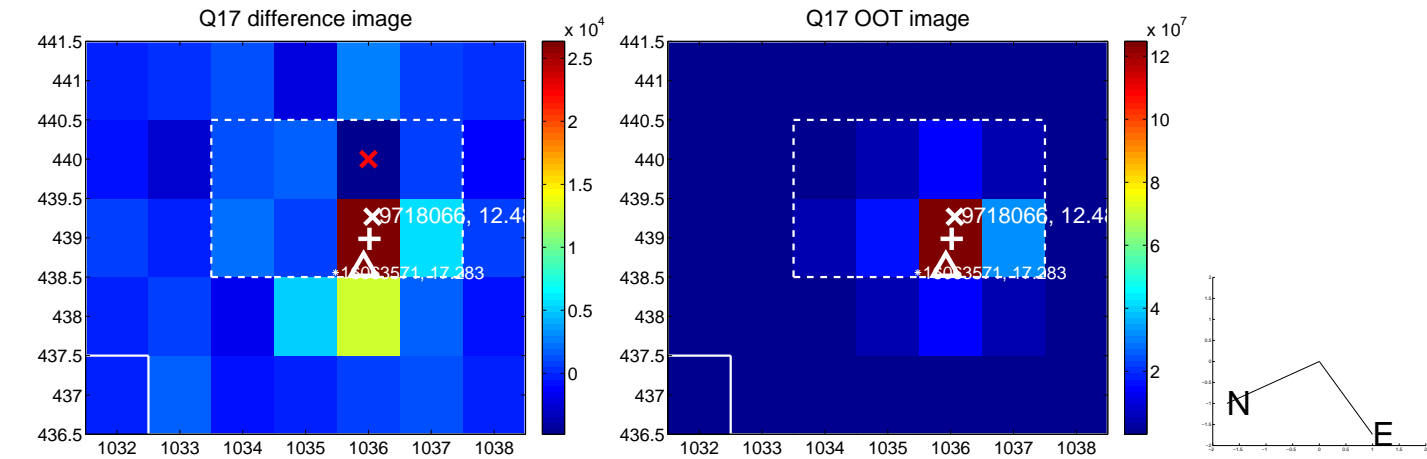
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



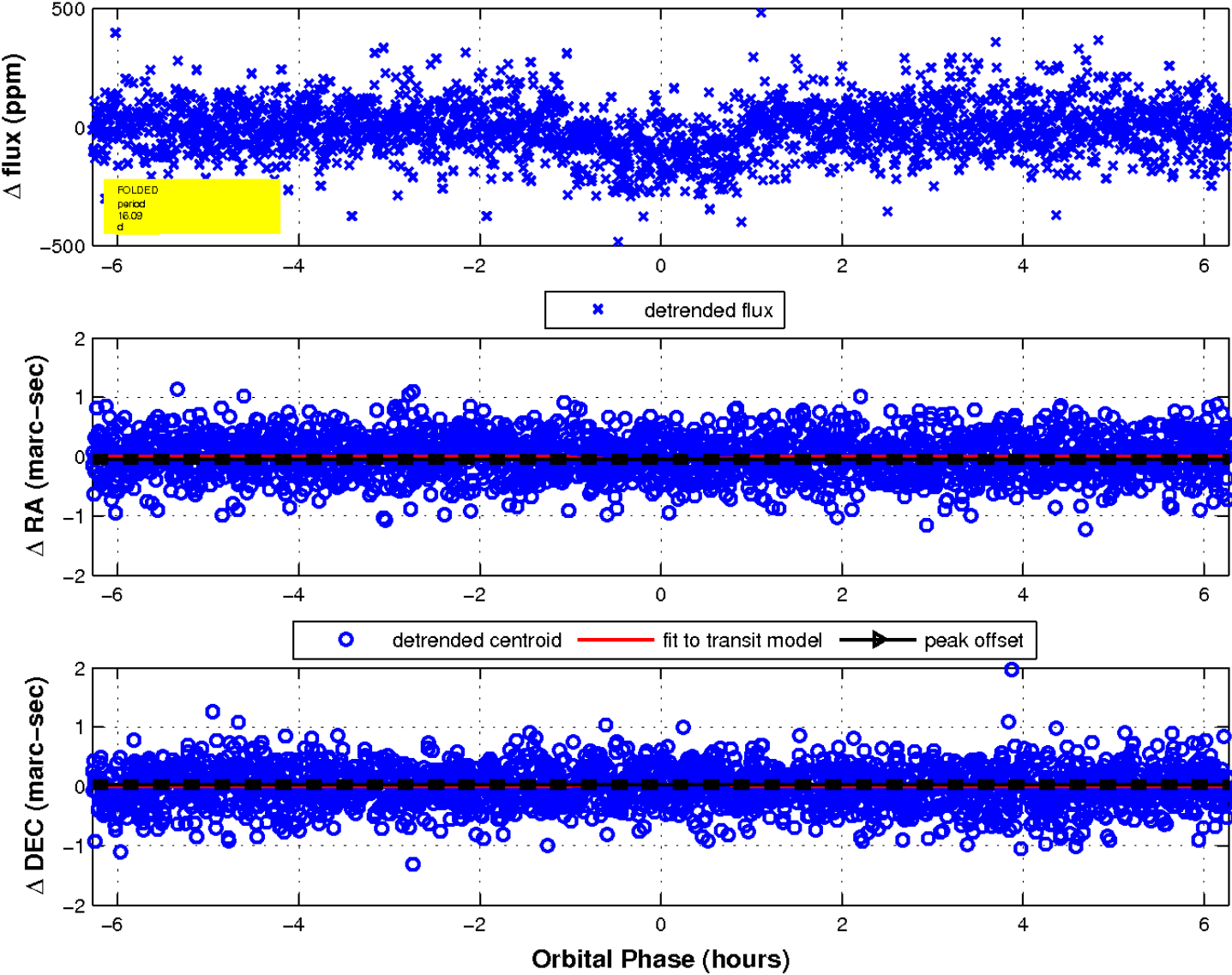
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

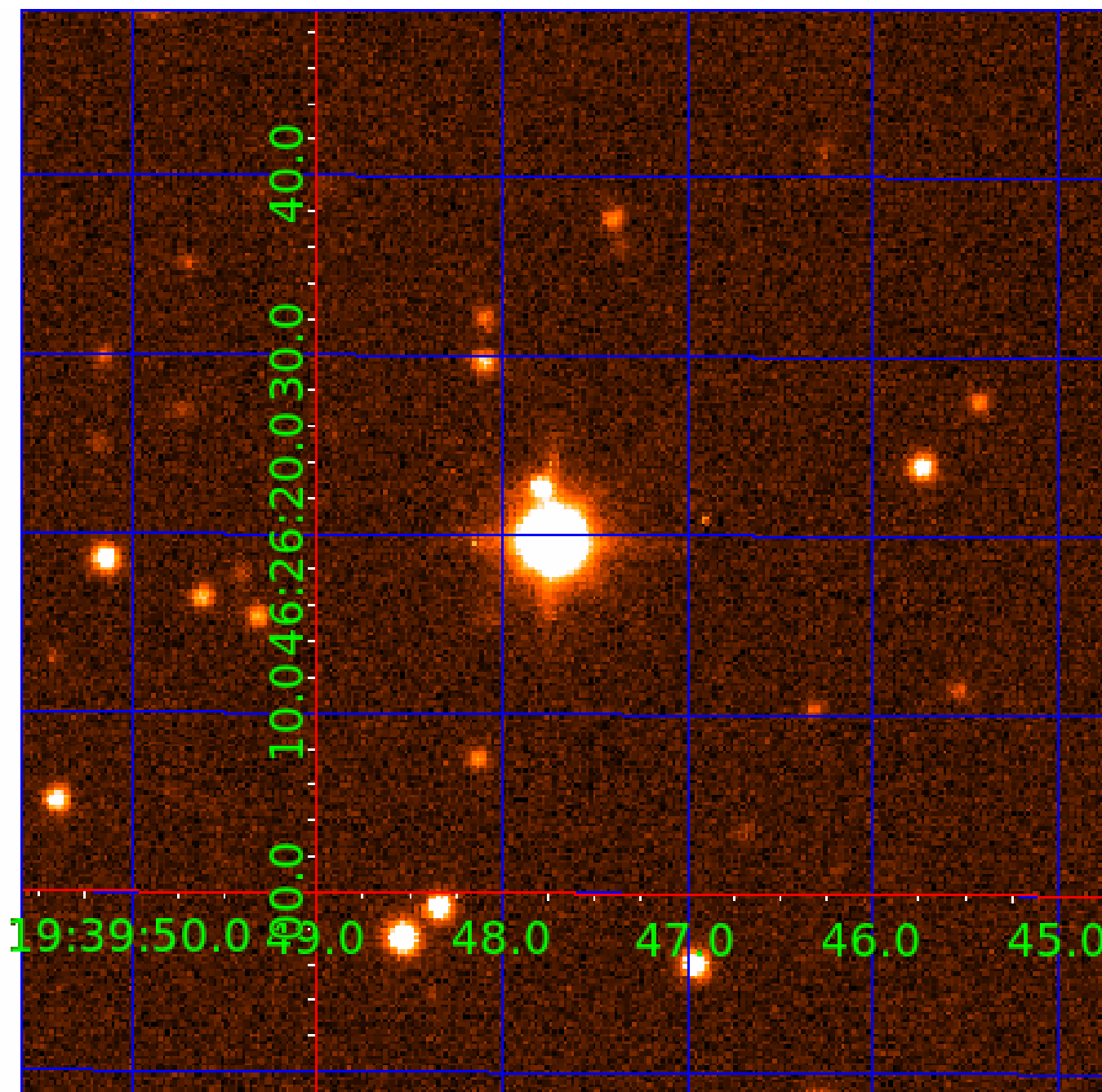


fluxWeightedCentroids, Planet 1 of 3



UKIRT Image

Declination



KIC 009718066

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})
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009718066-03	OBS	No	41.013580	137.824609	92.5	0.564	8.4	4.5	0.67	4657	0.94	4.36

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
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009718066-02	OBS	PC	0.08	0	0	0	0	CENT_KIC_POS
009718066-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_SKYE_ZUMA_TRACKER—LPP_DV—MOD_NONUNIQ_DV—MOD_TER_DV—CENT_KIC_POS

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

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

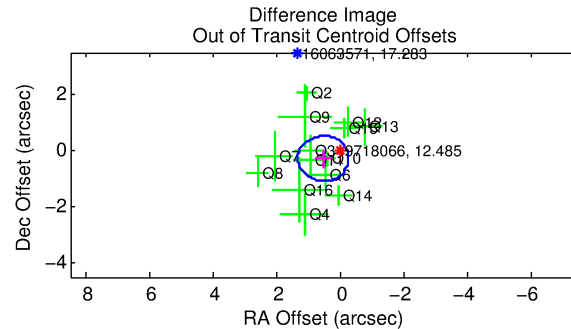
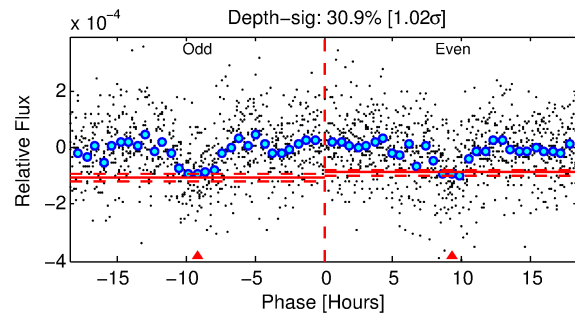
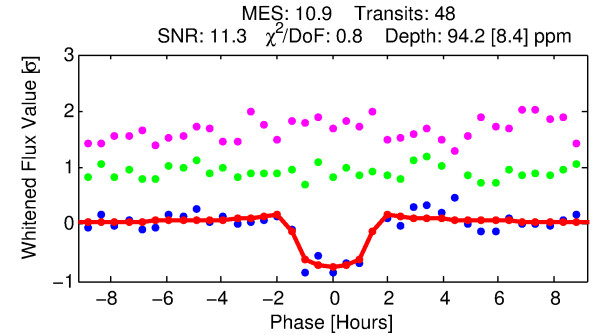
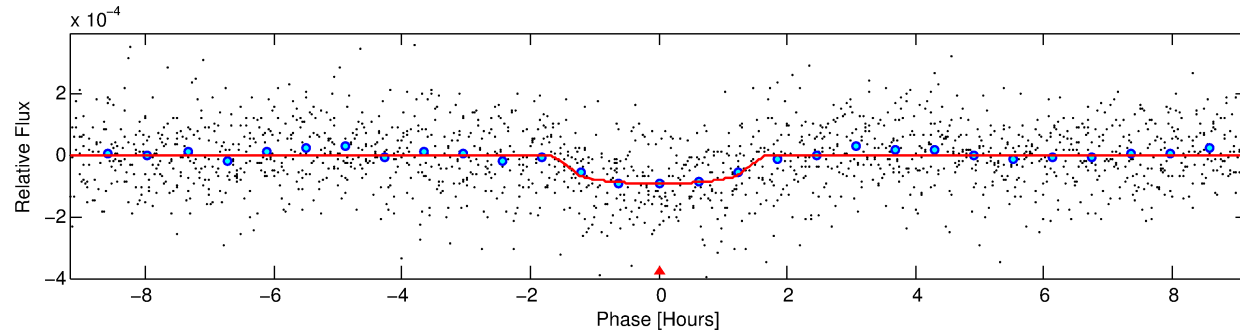
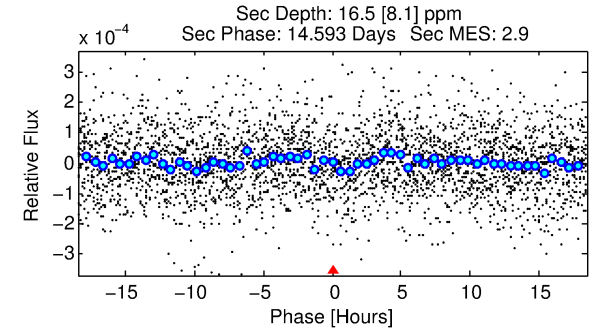
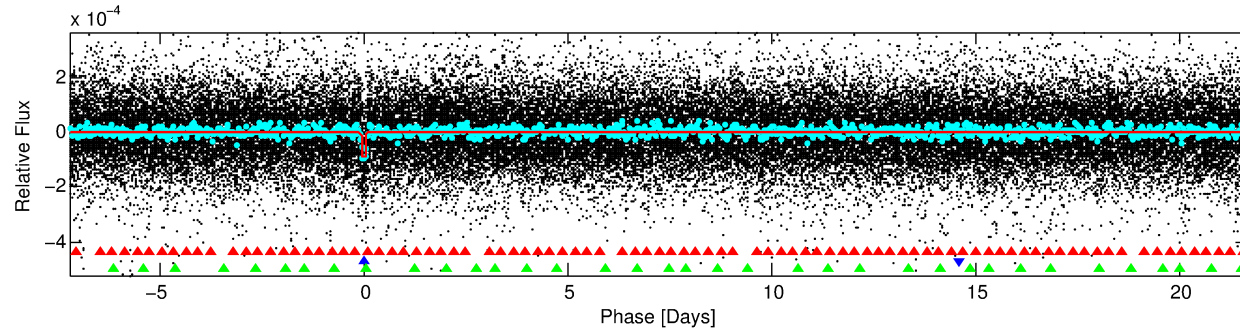
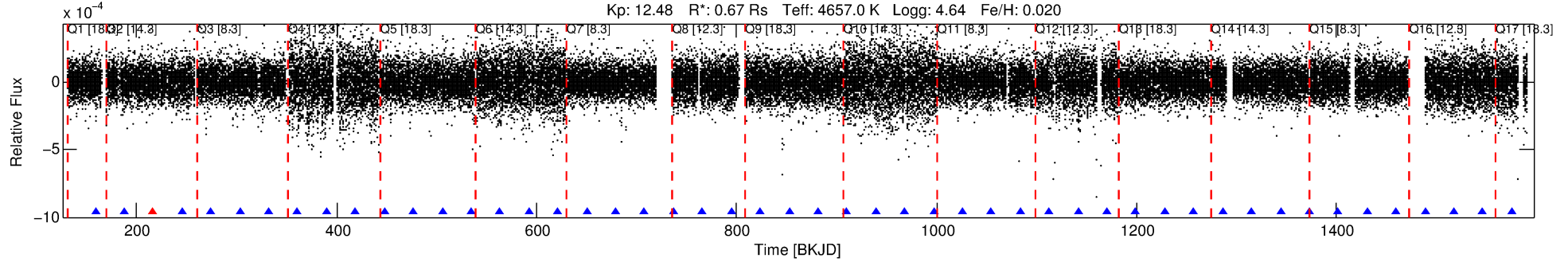
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 009718066-02

No Significant Match Found

DV One-Page Summary

KIC: 9718066 Candidate: 2 of 3 Period: 28.906 d
KOI: K02287.02 Name: Kepler-378c Corr: 0.979



DV Fit Results:

Period = 28.90584 [0.00020] d
Epoch = 158.8294 [0.0055] BKJD
Rp/R* = 0.0106 [0.0058]
a/R* = 36.65 [73.88]
b = 0.87 [0.56]
Seff = 6.95 [0.85]
T_{eq} = 414 [13] K
Rp = 0.78 [0.43] Re
a = 0.1650 [0.0109] AU
Ag = 410.87 [494.50] [0.83σ]
T_{effp} = 2882 [867] K [2.85σ]

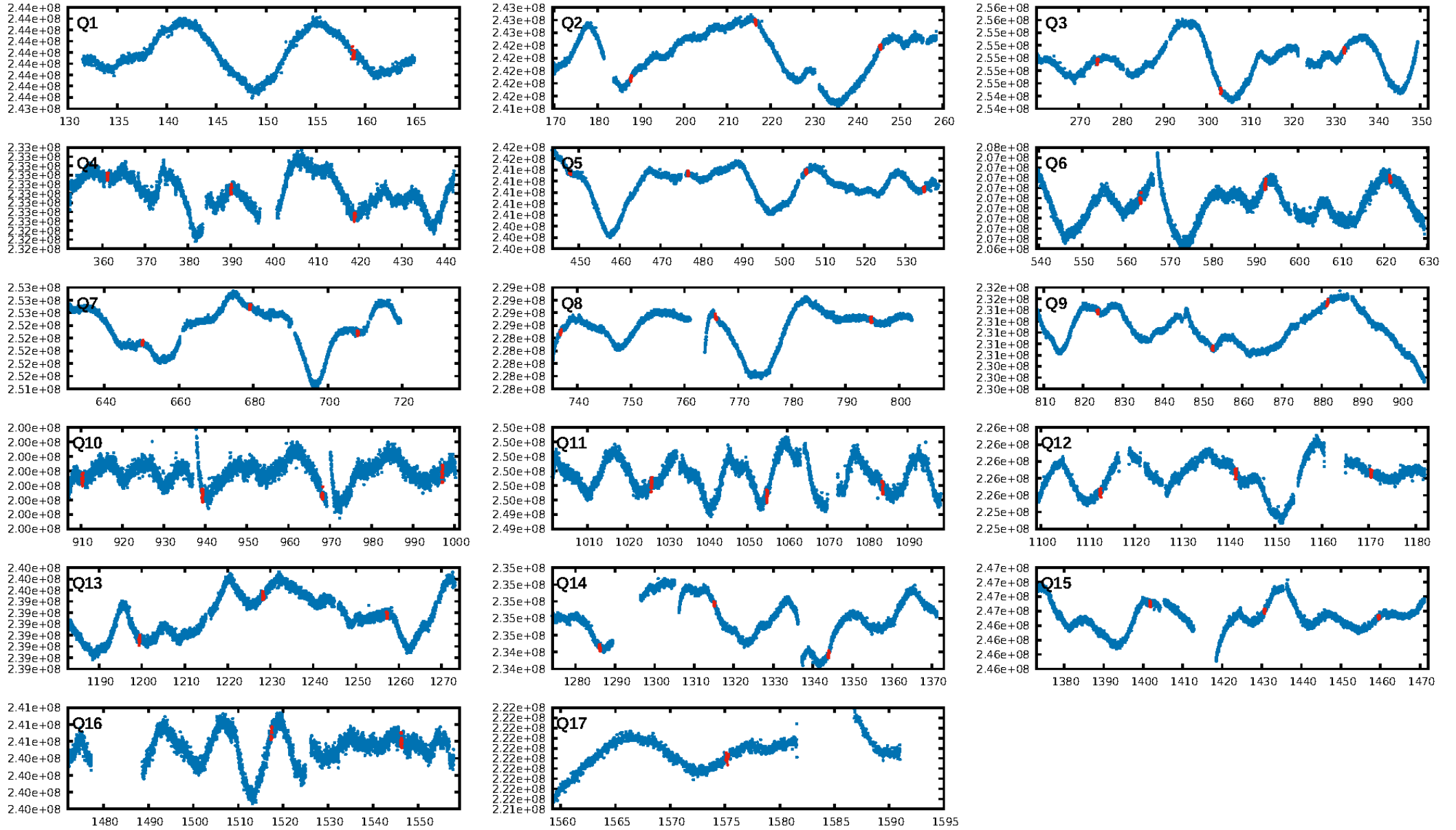
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [82.85σ]
LongPeriod-sig: 100.0% [93.22σ]
ModelChiSquare2-sig: 99.0%
ModelChiSquareGof-sig: 100.0%
Bootstrap-pfa: 4.80e-27
RollingBand-fgt: 0.98 [45/46]
GhostDiagnostic-chr: 4.046
Centroid-sig: 19.6%
Centroid-so: 0.193 arcsec [0.28σ]
OotOffset-rm: 0.614 arcsec [2.29σ]
KicOffset-rm: 1.330 arcsec [6.14σ]
OotOffset-st: 4/4/4/2 [14]
KicOffset-st: 4/4/4/2 [14]
DiffImageQuality-fgm: 1.00 [14/14]
DiffImageOverlap-fno: 0.94 [16/17]

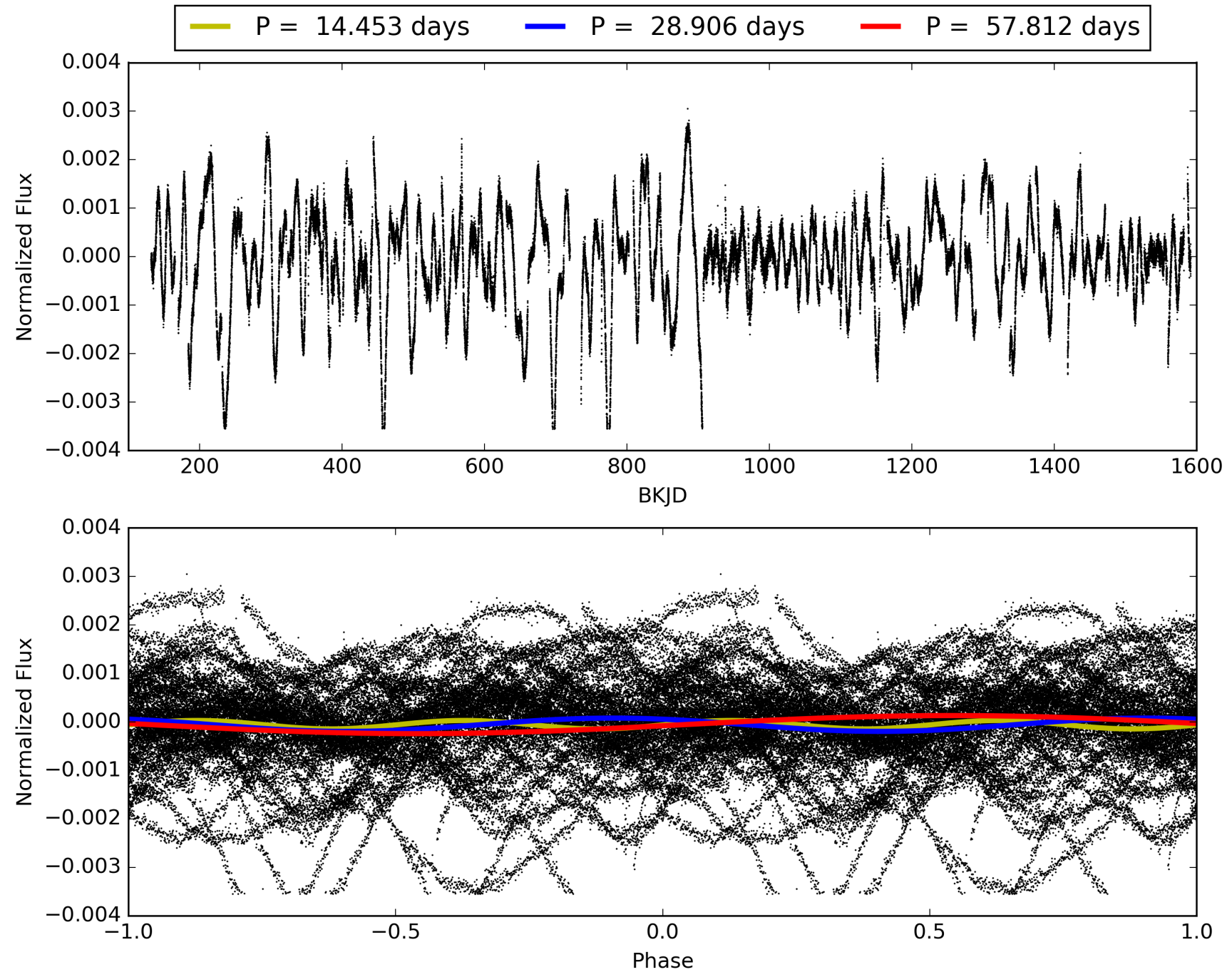
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 29-Jan-2016 21:47:45 Z

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

TCE 009718066-02, PDC Light Curves

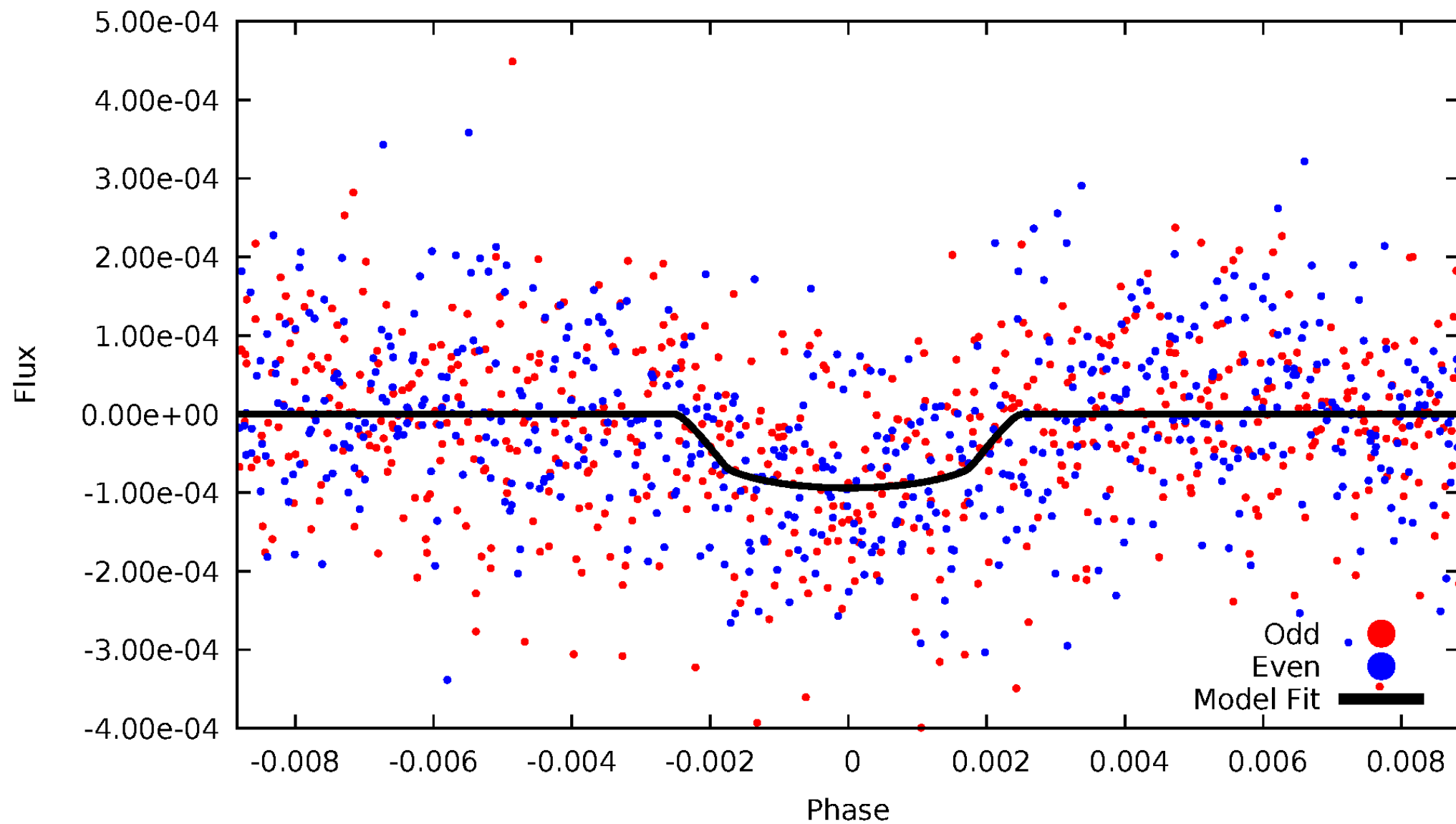


TCE 009718066-02



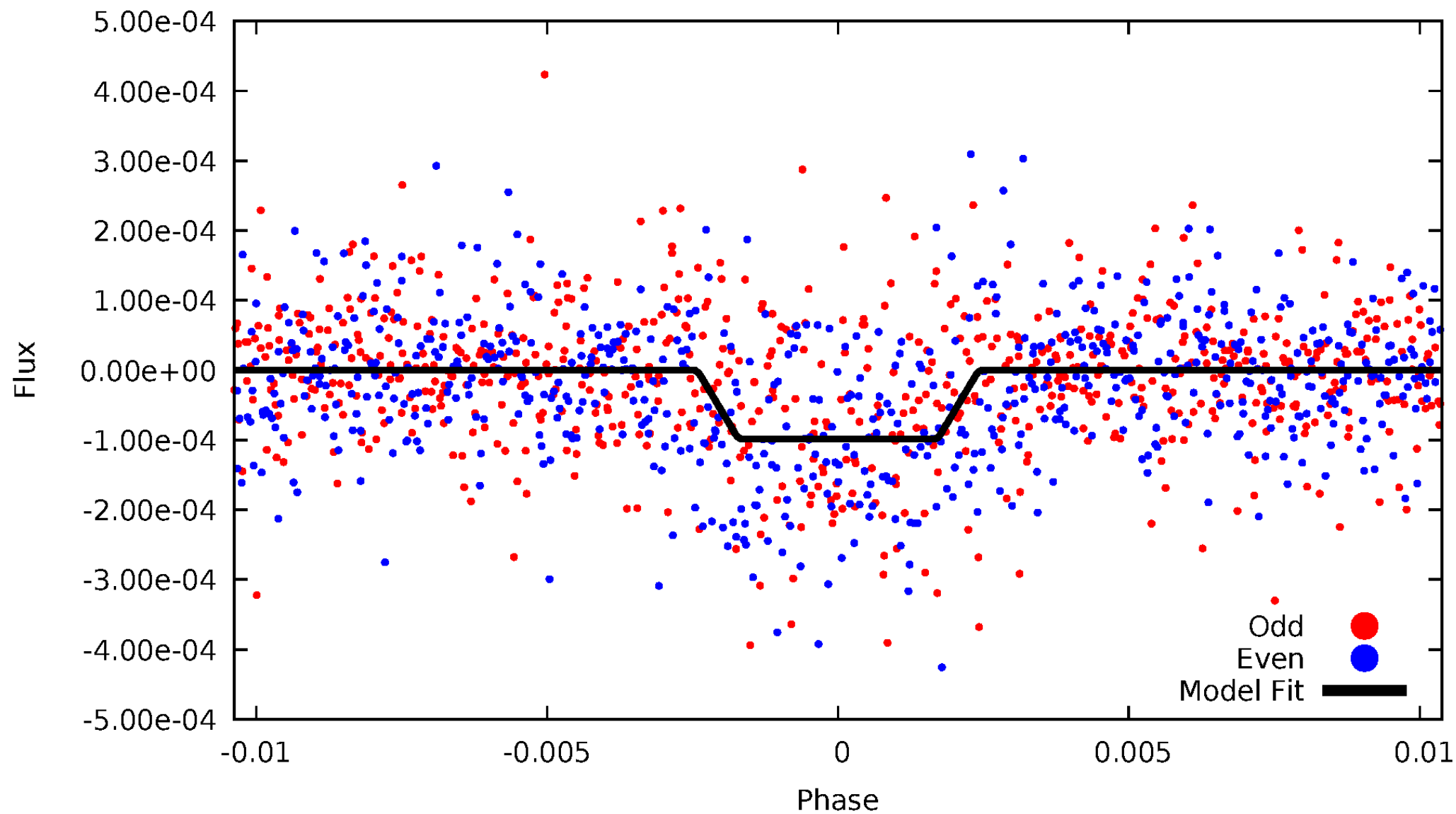
DV Odd/Even

TCE 009718066-02



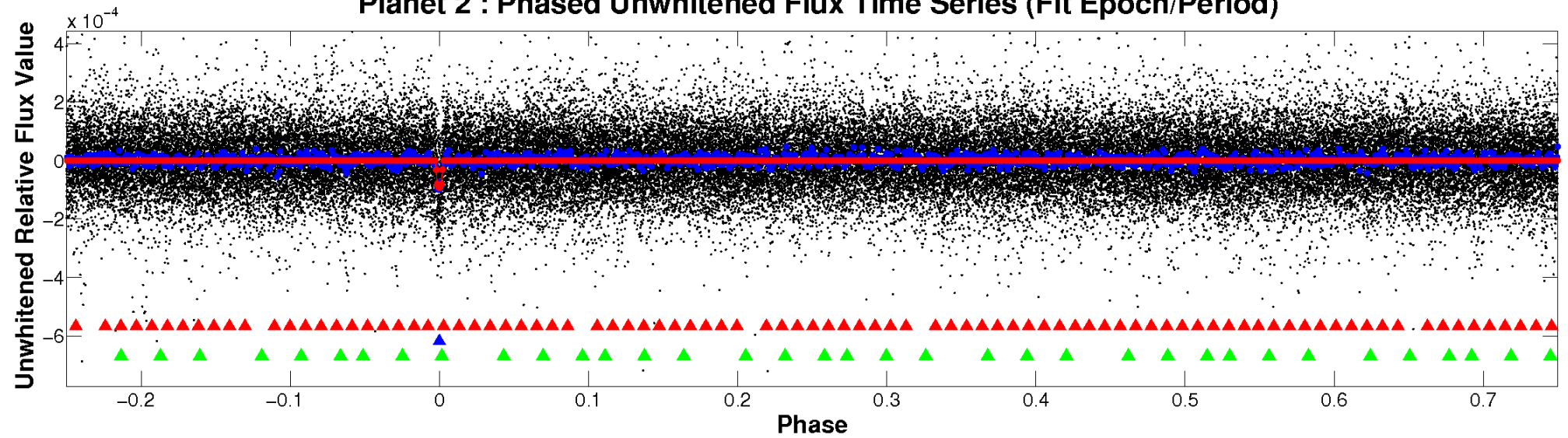
ALT Odd/Even

TCE 009718066-02

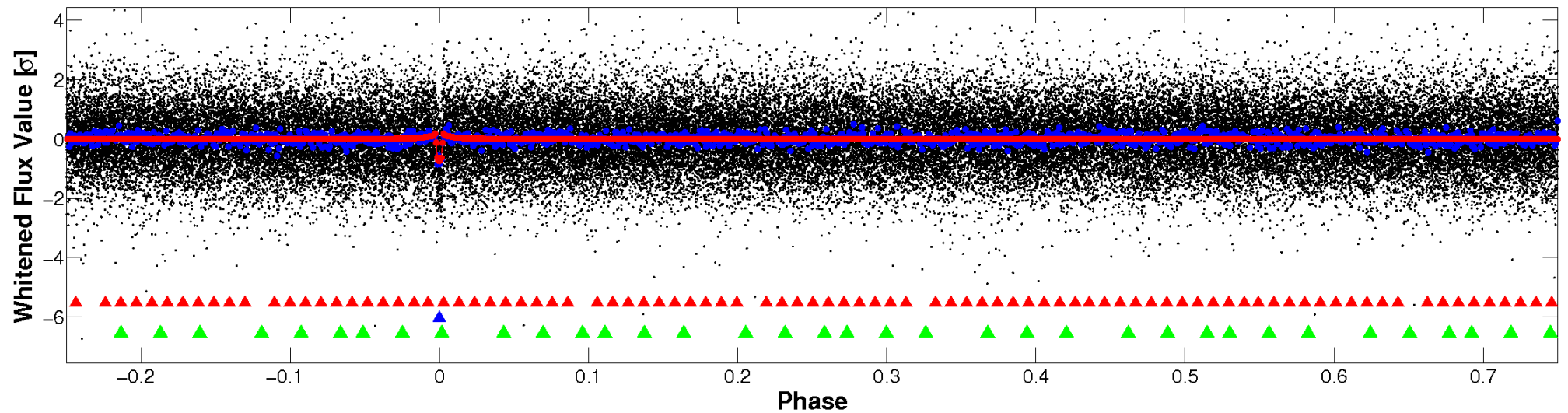


Non-Whitened Vs. Whitened Light Curve

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

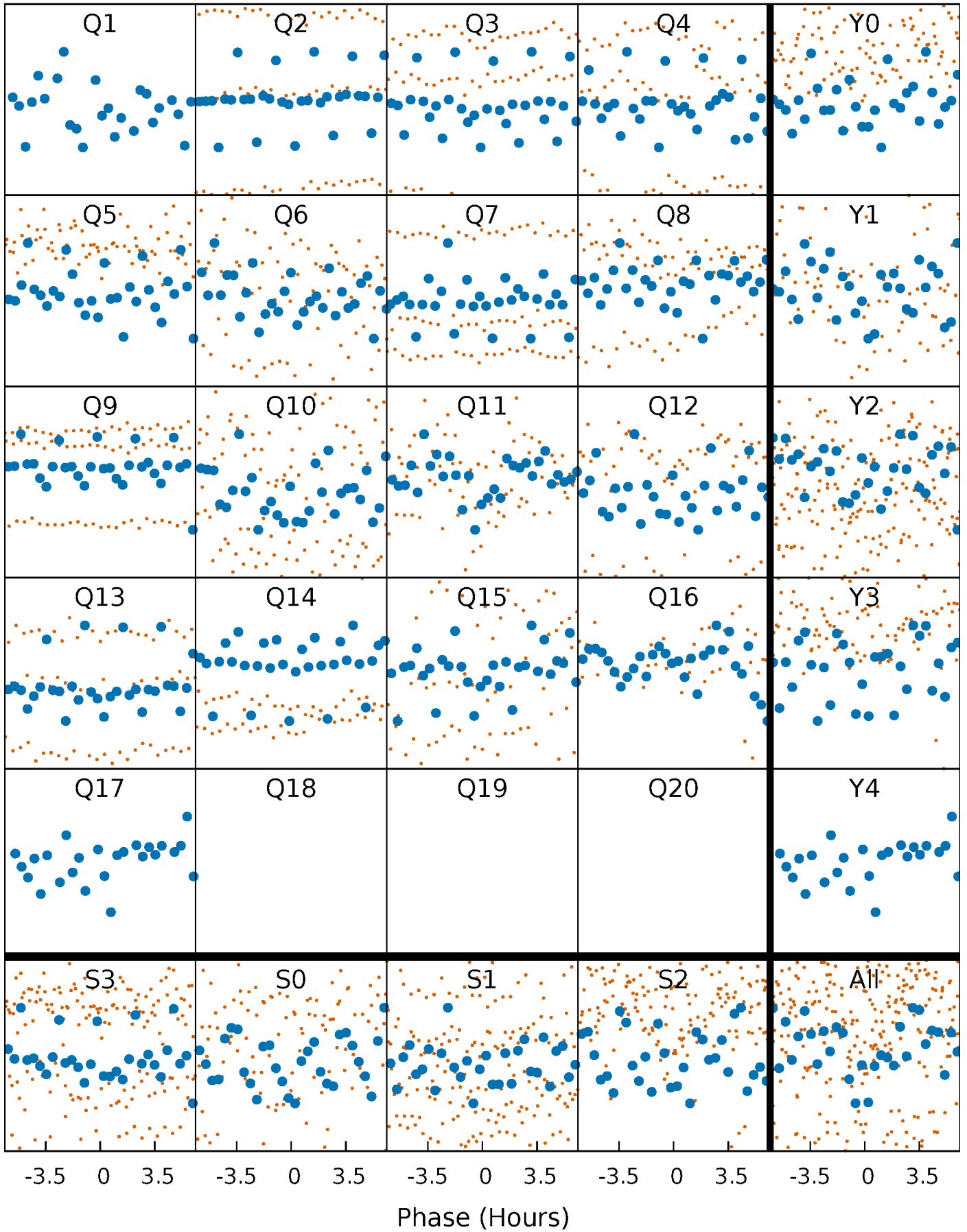


Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



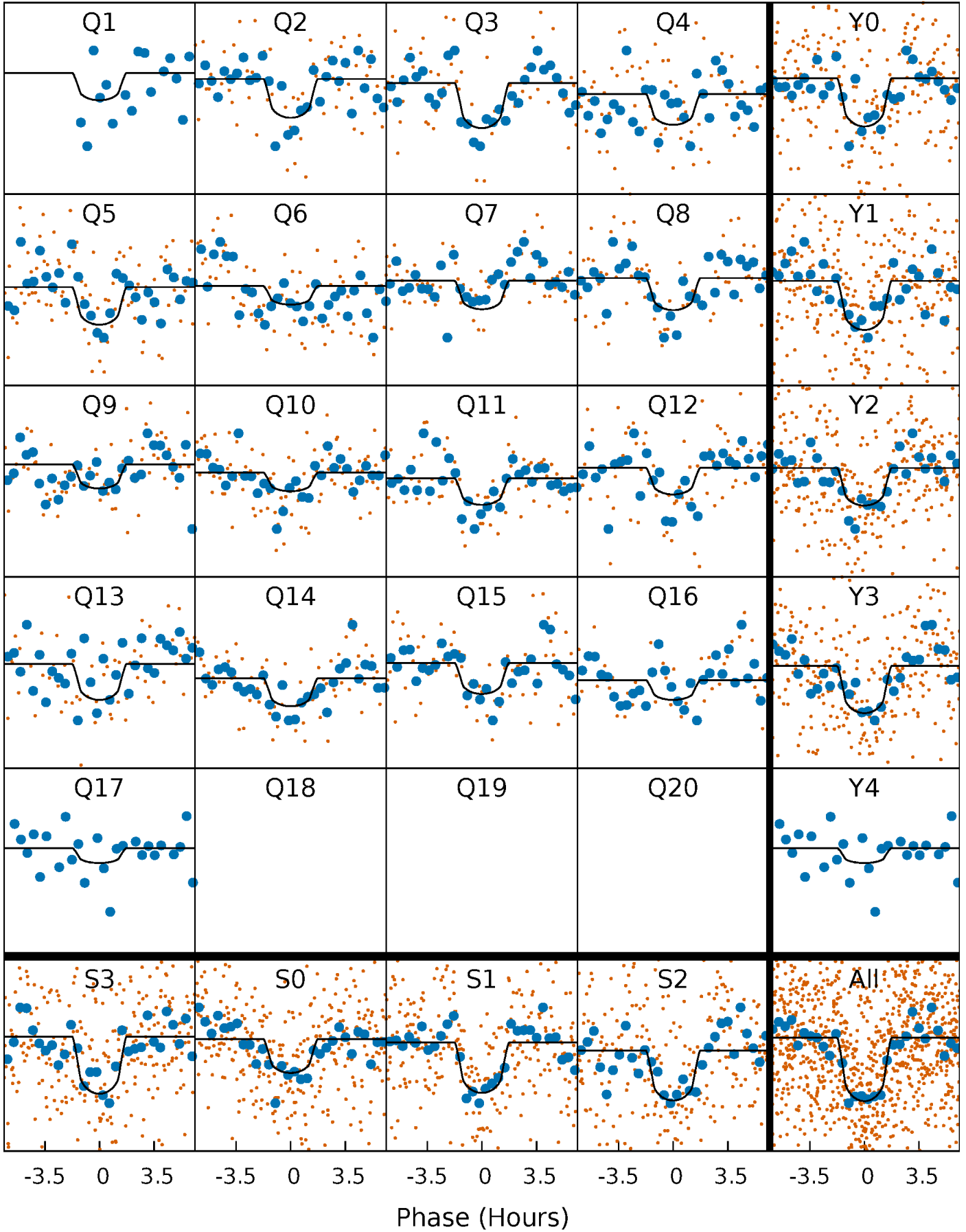
PDC Quarter-Phased Transit Curves

TCE 009718066-02 P= 28.905845 Days $T_0=158.829373$ (BKJD)



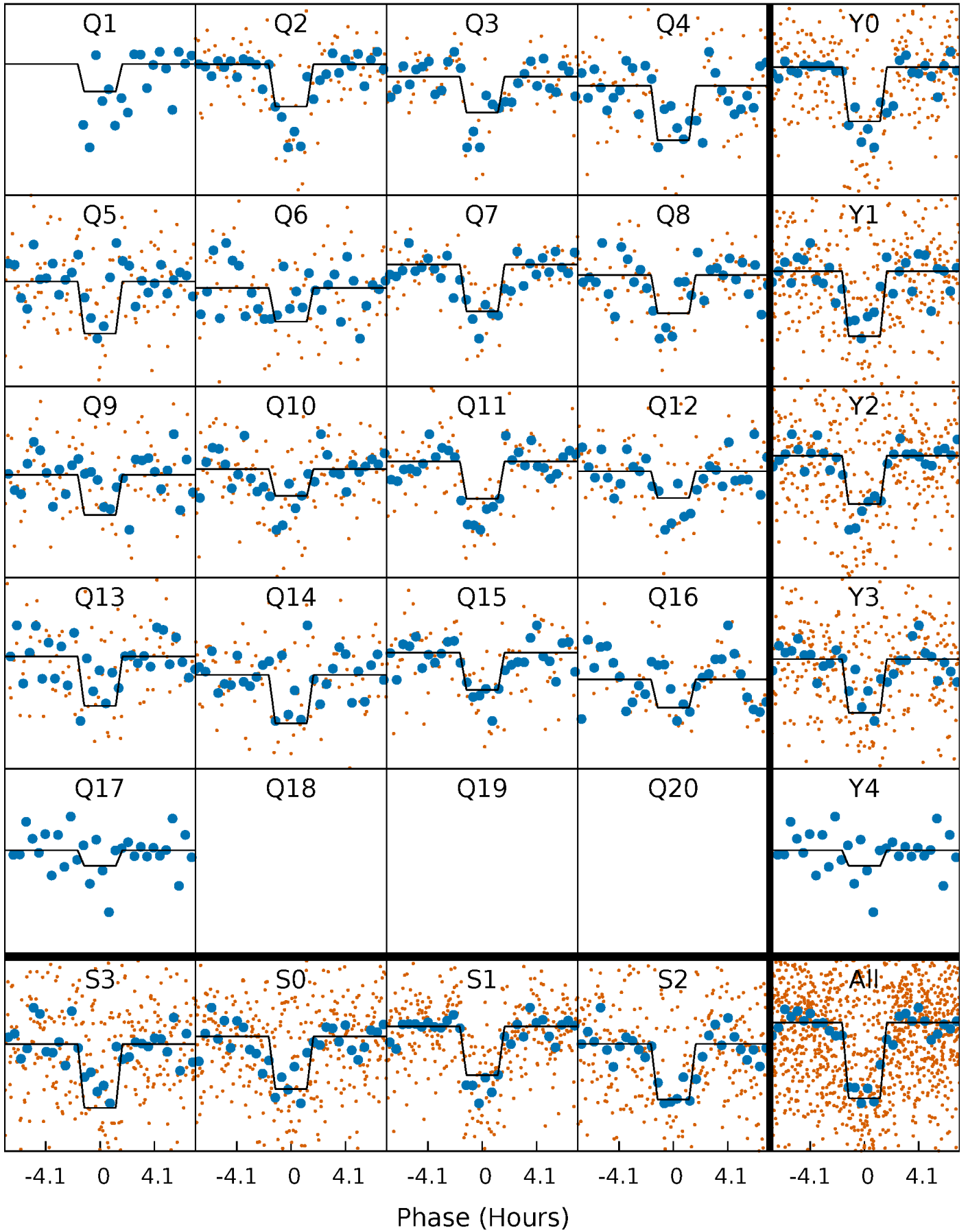
DV Quarter-Phased Transit Curves

TCE 009718066-02 P= 28.905845 Days $T_0=158.829373$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

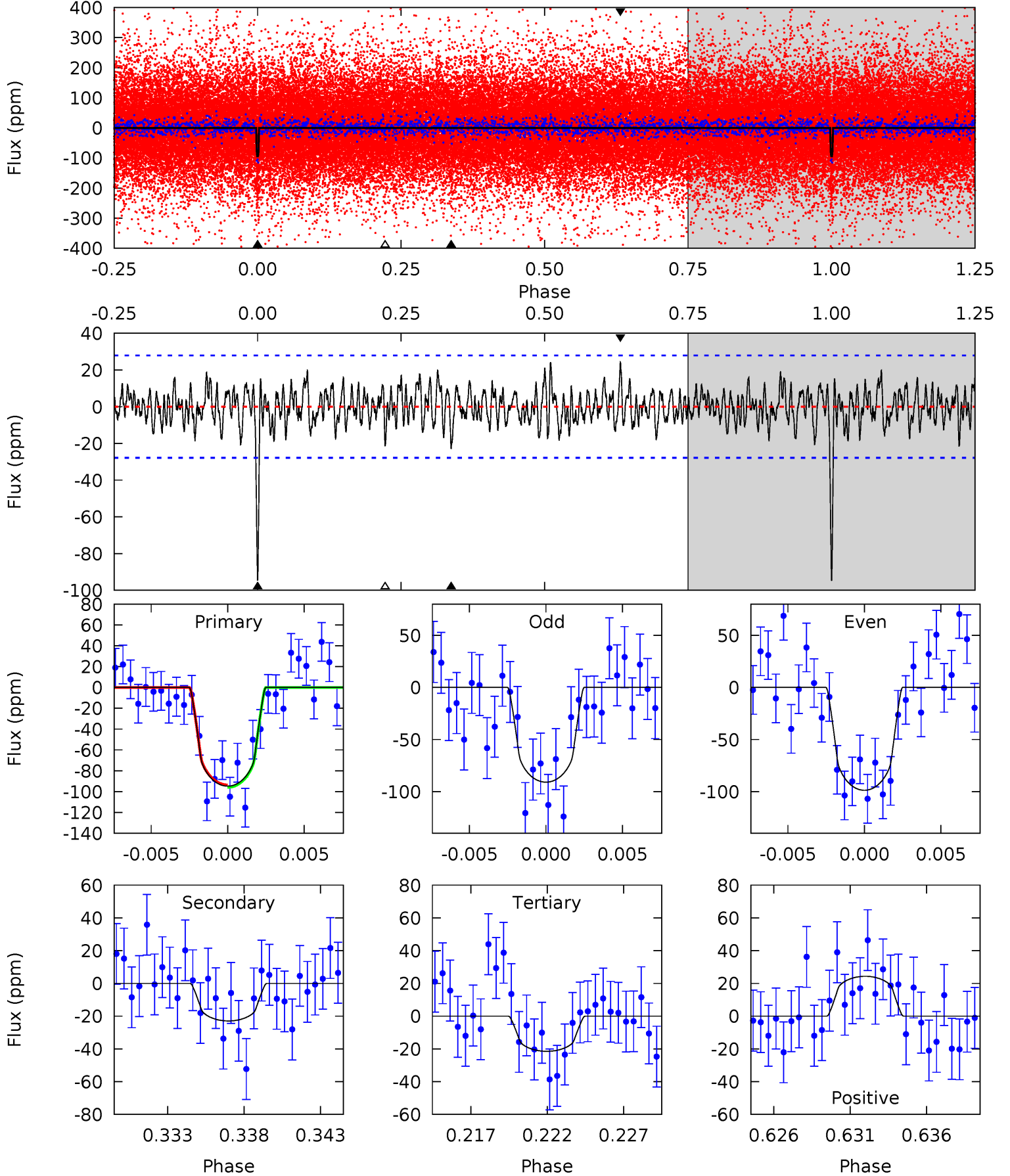
TCE 009718066-02 P= 28.905869 Days $T_0=158.834097$ (BKJD)



DV Model-Shift Uniqueness Test

009718066-02, P = 28.905845 Days, E = 129.923528 Days

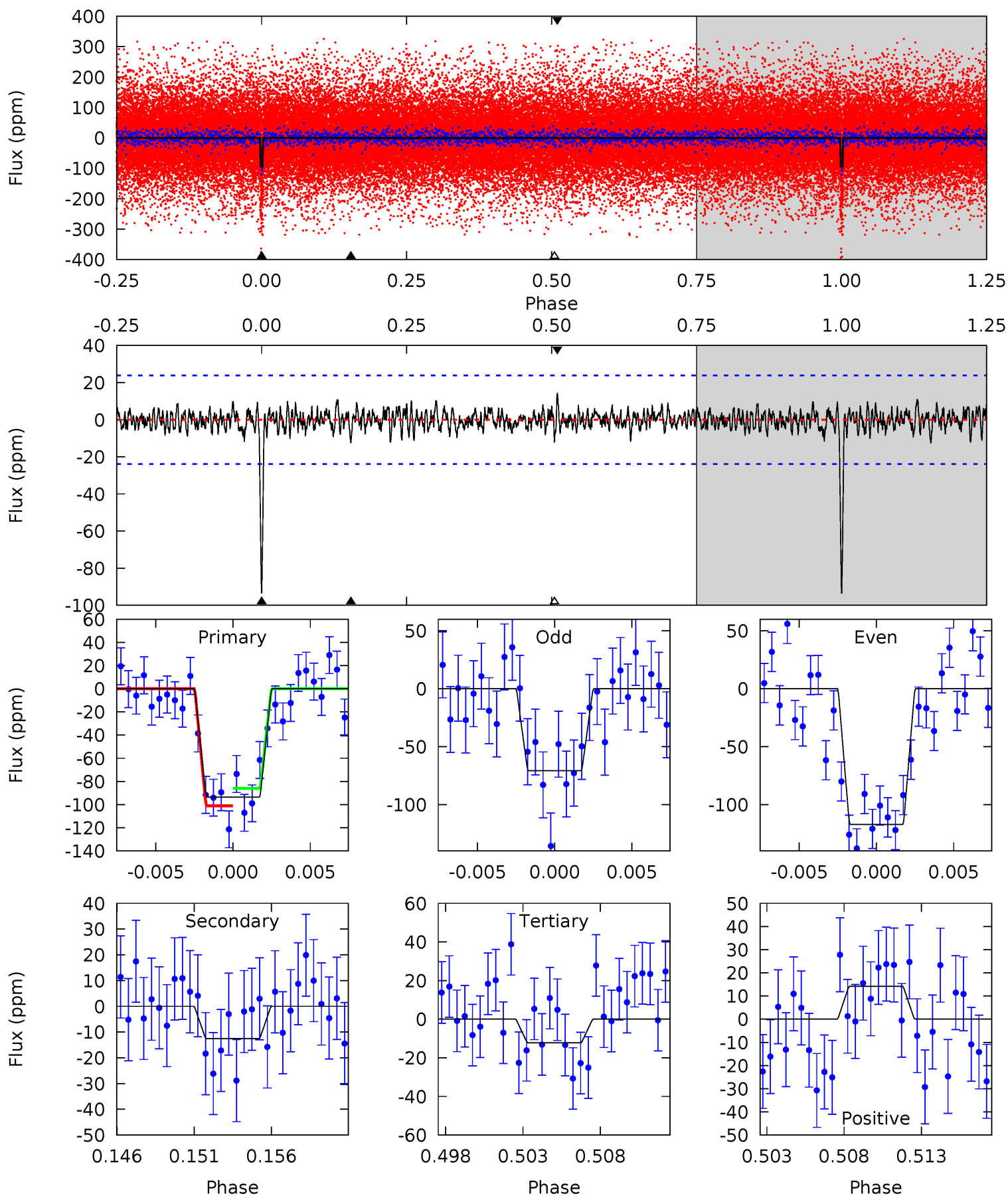
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
17.5	4.24	3.97	4.49	5.16	2.80	1.45	13.5	13.0	0.27	-0.25	0.72	1.01	0.20	0.21



Alt Model-Shift Uniqueness Test

009718066-02, $P = 28.905869$ Days, $E = 129.928228$ Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
20.2	2.71	2.65	3.07	5.16	2.81	0.84	17.6	17.1	0.06	-0.37	4.99	0.92	0.13	1.62



Stellar Parameters For KIC 009718066

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	4657^{+93}_{-93}	$4.641^{+0.012}_{-0.048}$	$0.020^{+0.150}_{-0.150}$	$0.670^{+0.055}_{-0.017}$	$0.748^{+0.031}_{-0.046}$	$3.505^{+0.149}_{-0.739}$
	+2%/-2%	+0%/-1%	+750%/-750%	+8%/-3%	+4%/-6%	+4%/-21%
Source	SPE58	SPE58	SPE58	DSEP		

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

Secondary Eclipse Parameters for KIC 009718066-02 / KOI 2287.02

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	-23 ± 5	$0.83^{+0.40}_{-0.42}$	584^{+15}_{-13}	3452^{+996}_{-414}	505^{+1563}_{-293}
Alt.	-13 ± 5	$0.77^{+0.42}_{-0.40}$	584^{+15}_{-14}	3203^{+984}_{-400}	300^{+1172}_{-179}

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 $A_{obs} \gg 1.0$

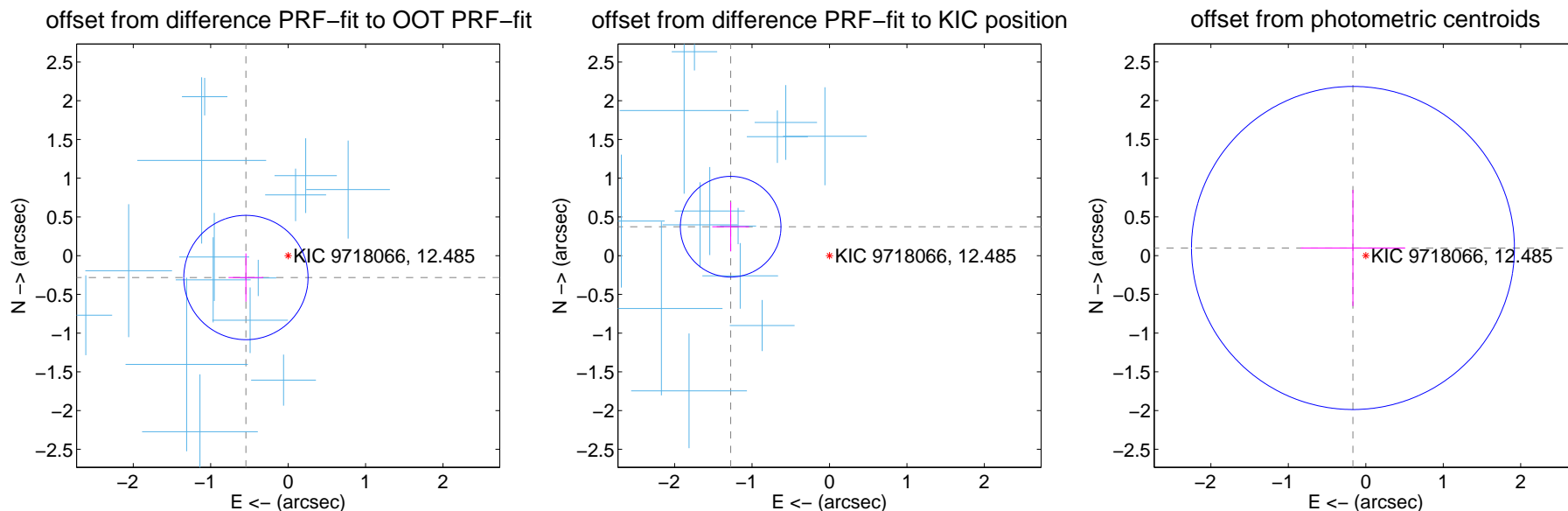
DV Centroid Data

Supplemental centroid analysis for 009718066-02. Kepler magnitude: 12.48. Transit SNR 11.25

There are 14 quarters with good PRF difference image offsets

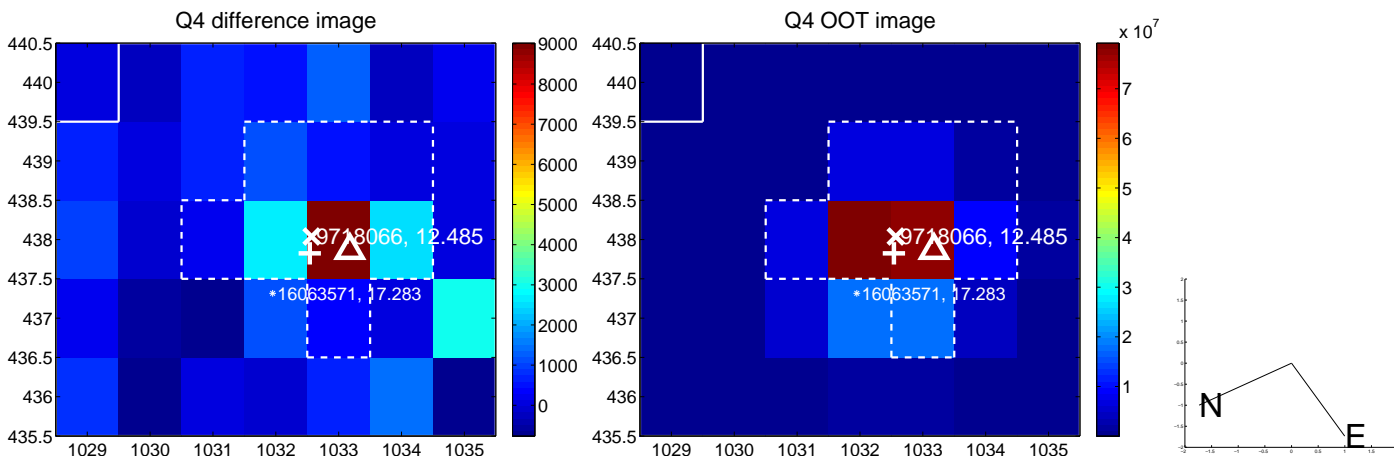
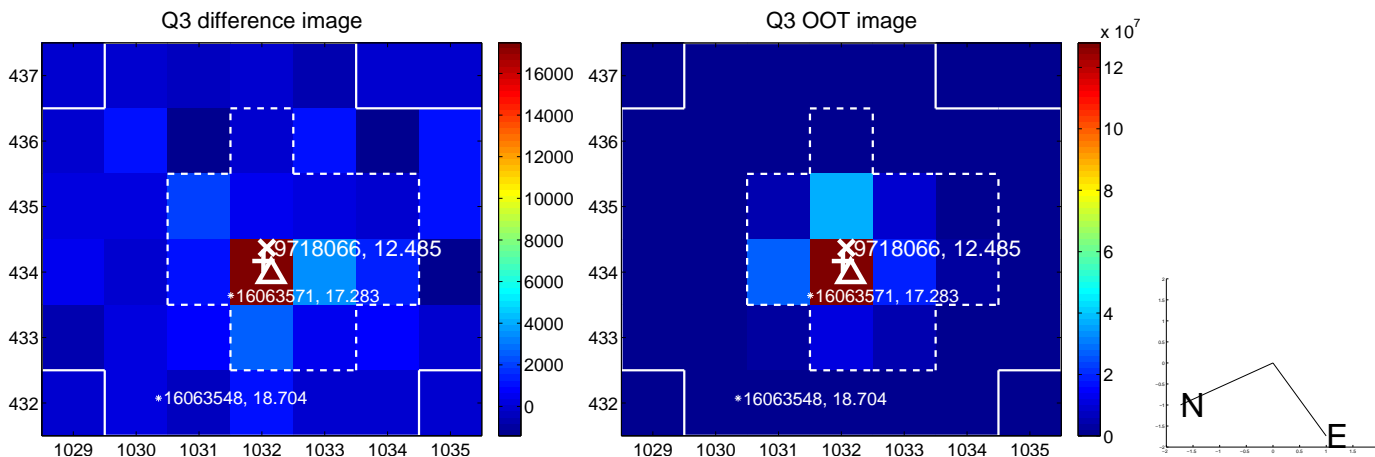
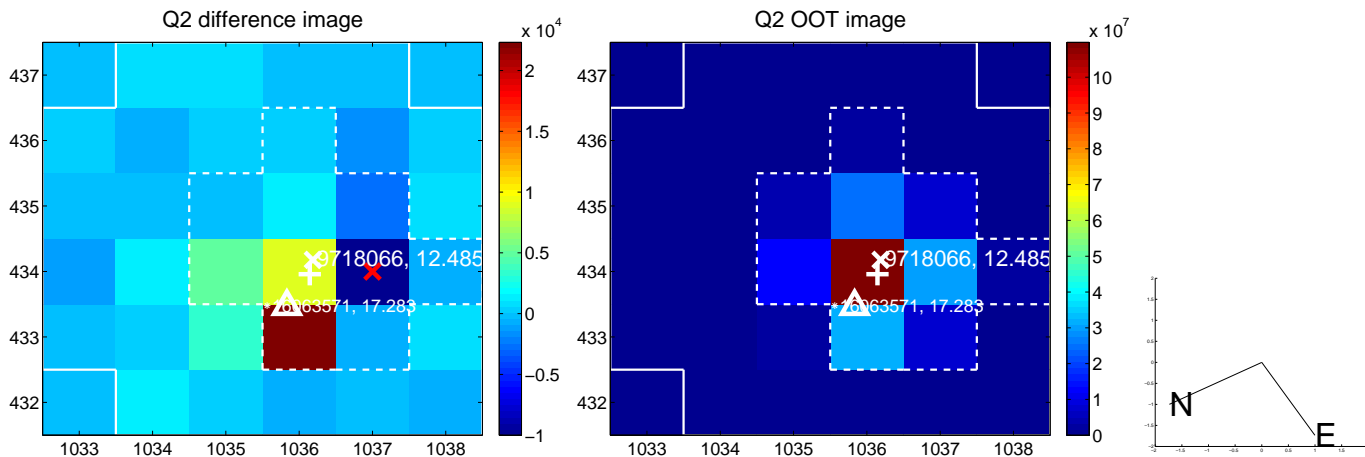
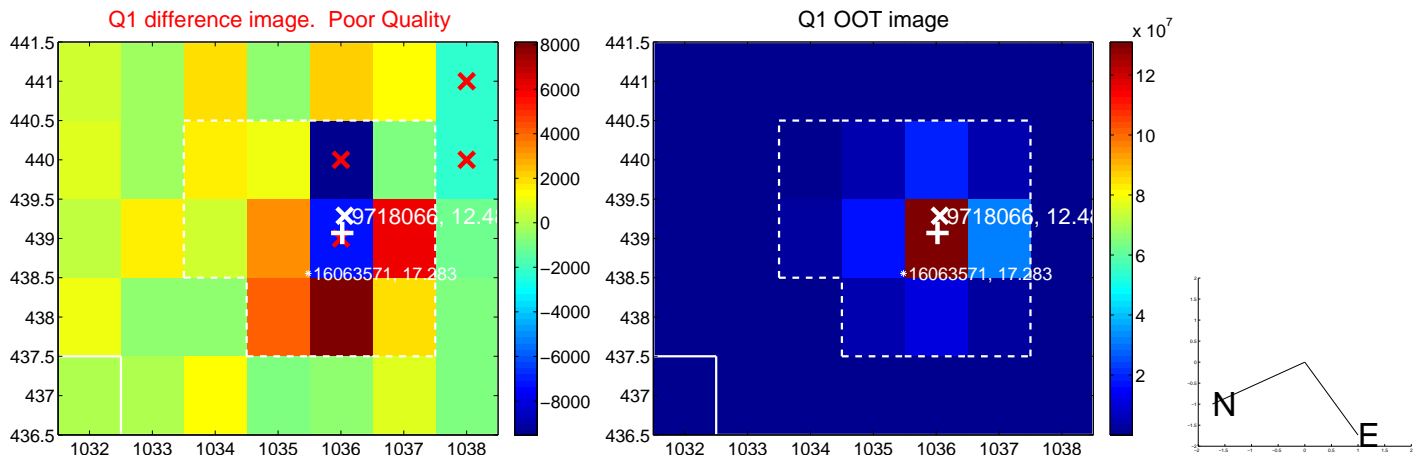
The direct PRF centroid is offset from the target star catalog position by about 1.12 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.614 ± 0.268	2.29	0.545 ± 0.226	-0.282 ± 0.311
PRF-fit source offset from KIC position	1.330 ± 0.217	6.14	1.277 ± 0.238	0.374 ± 0.318
photometric centroid source offset	0.19 ± 0.70	0.28	0.17 ± 0.68	0.10 ± 0.75

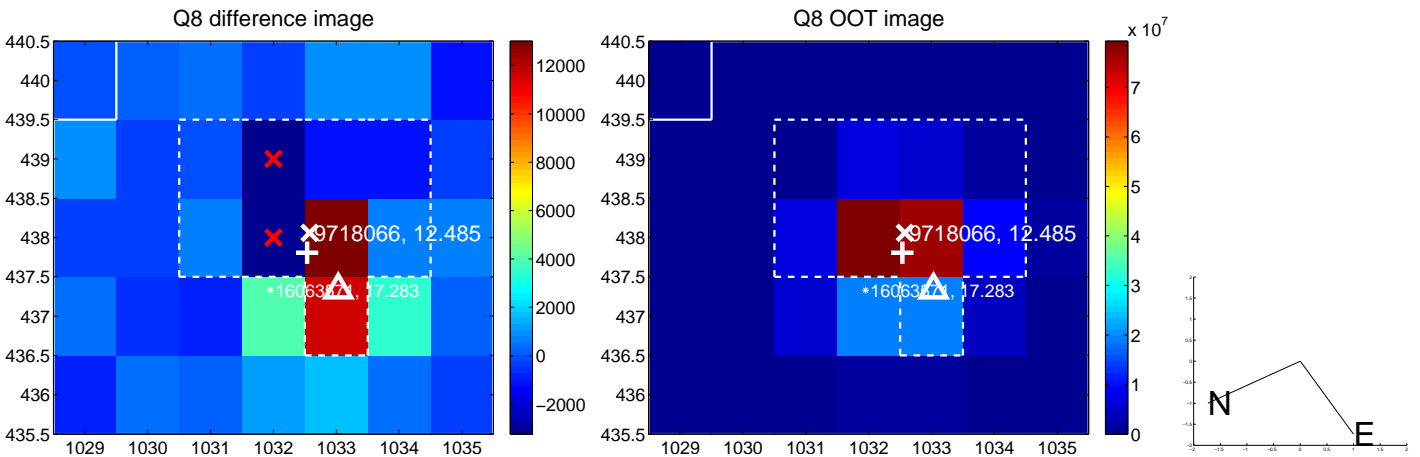
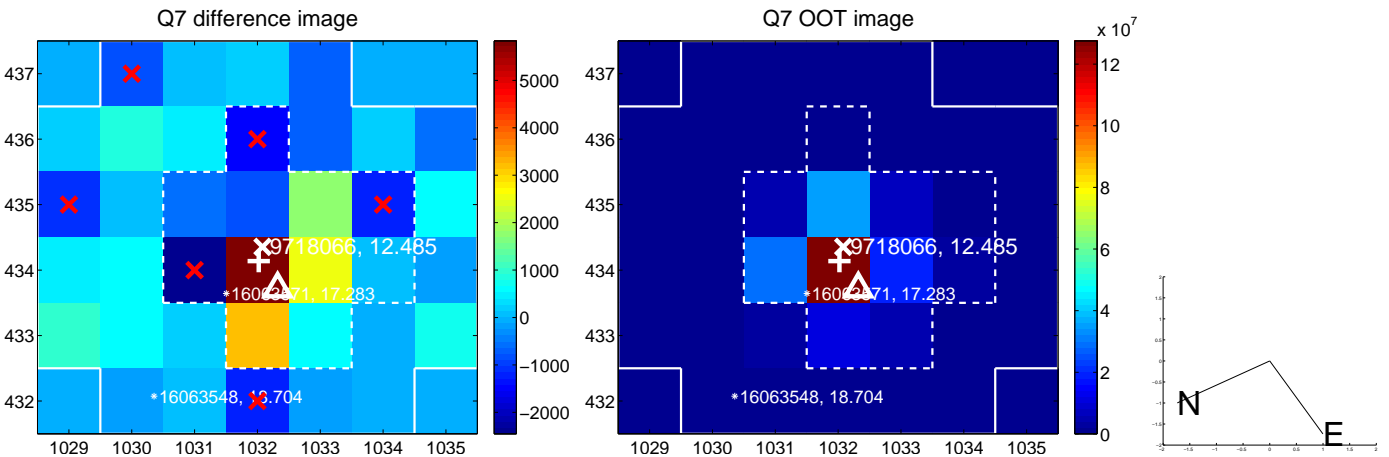
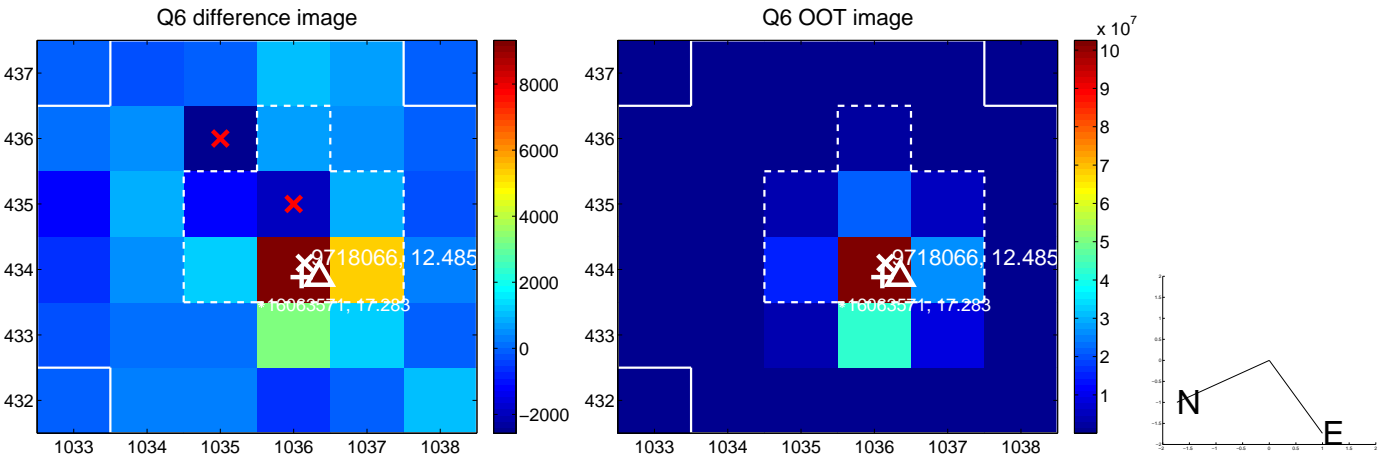
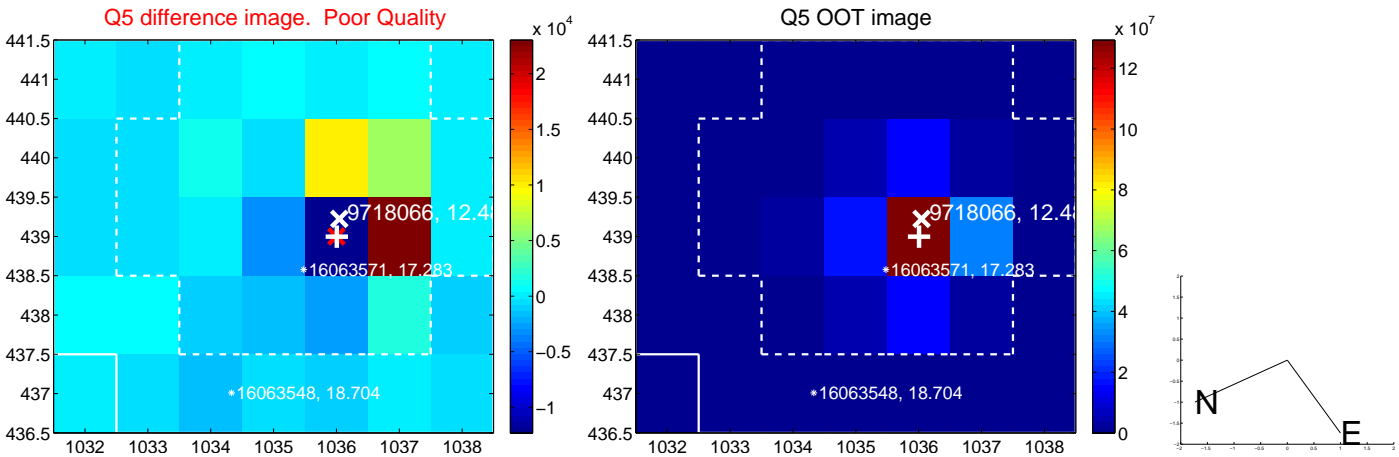


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

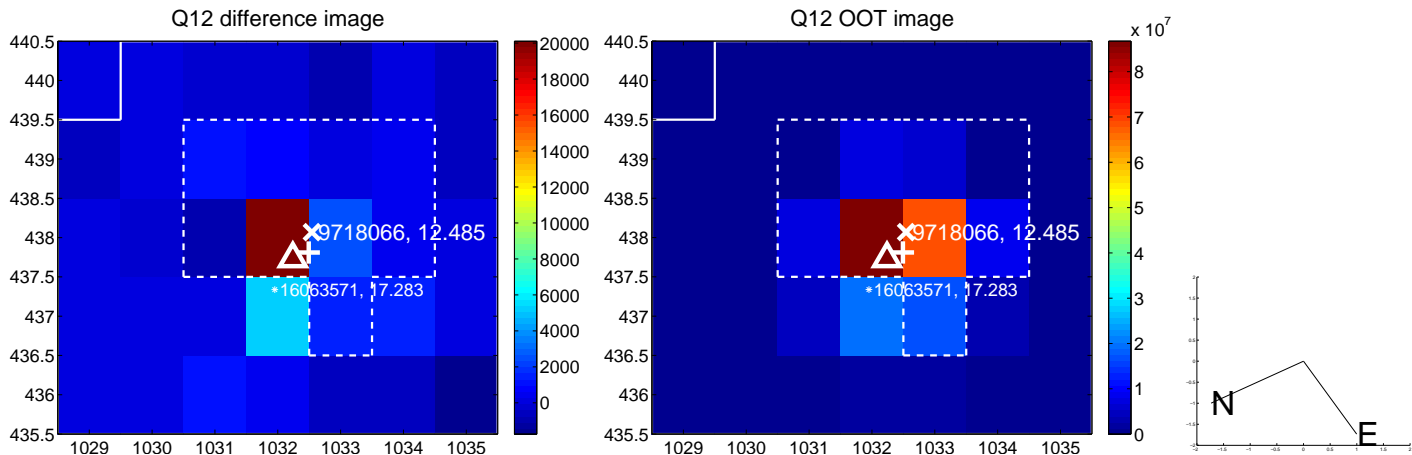
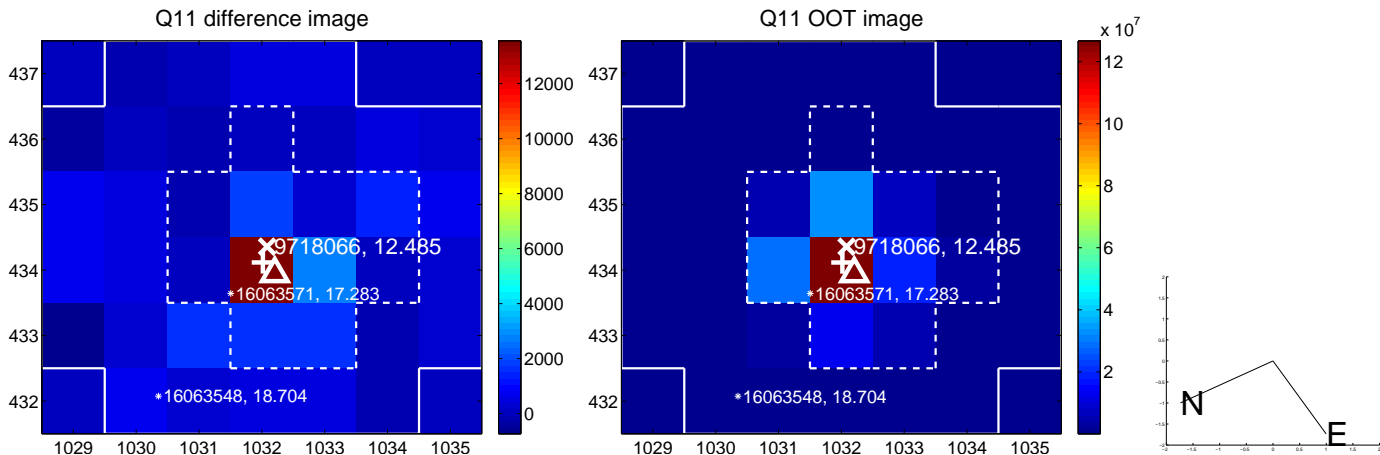
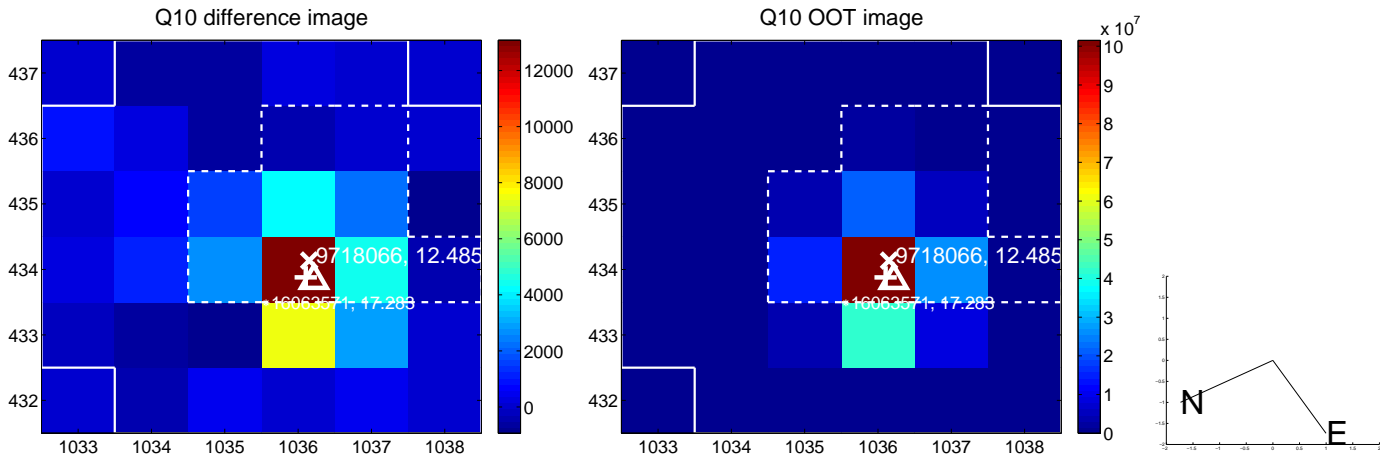
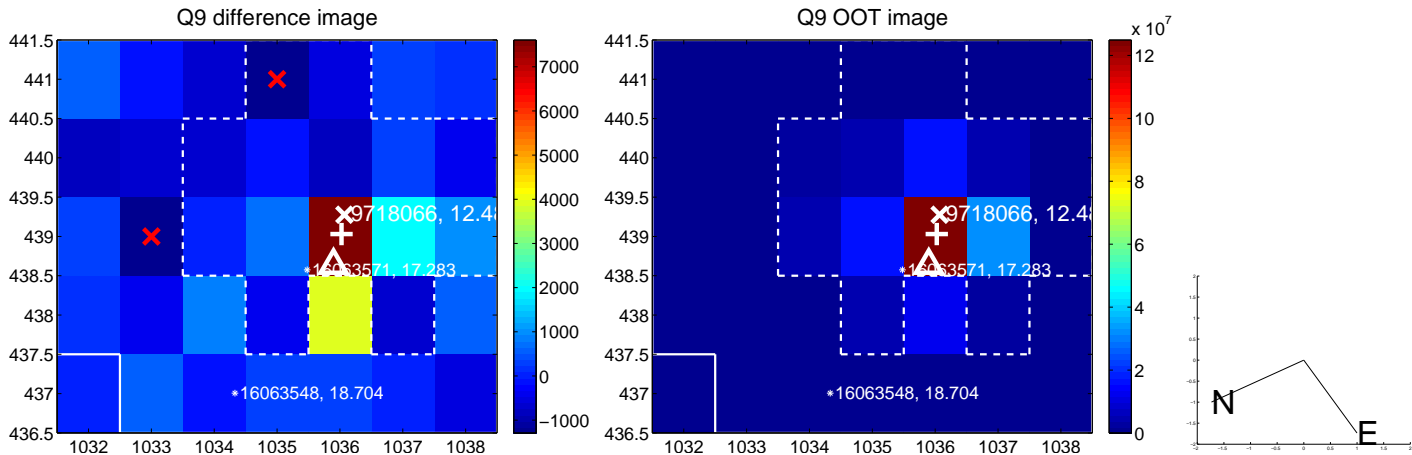
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



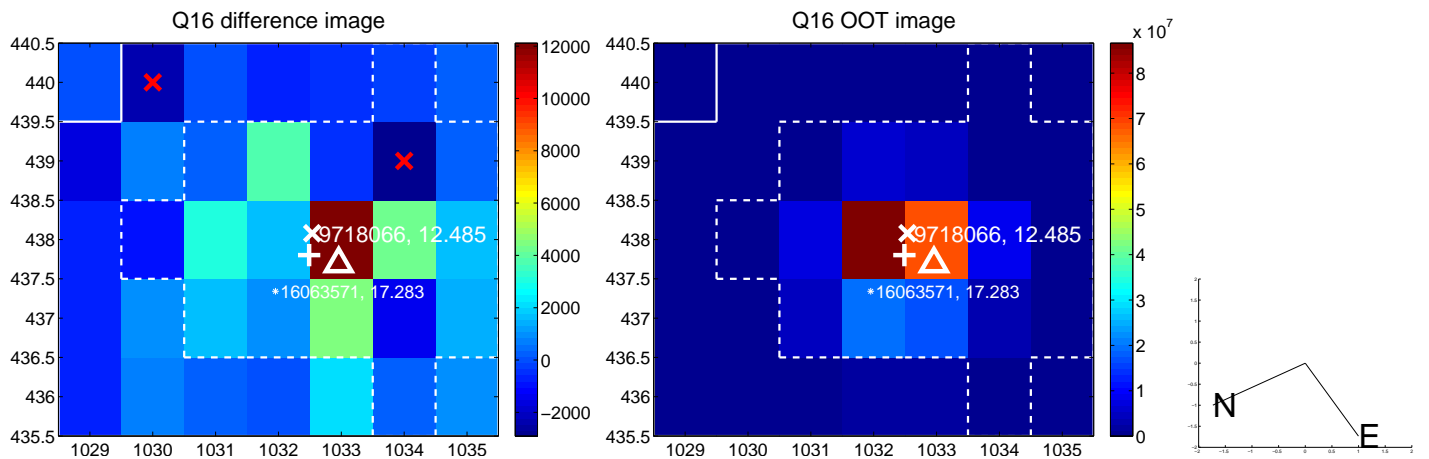
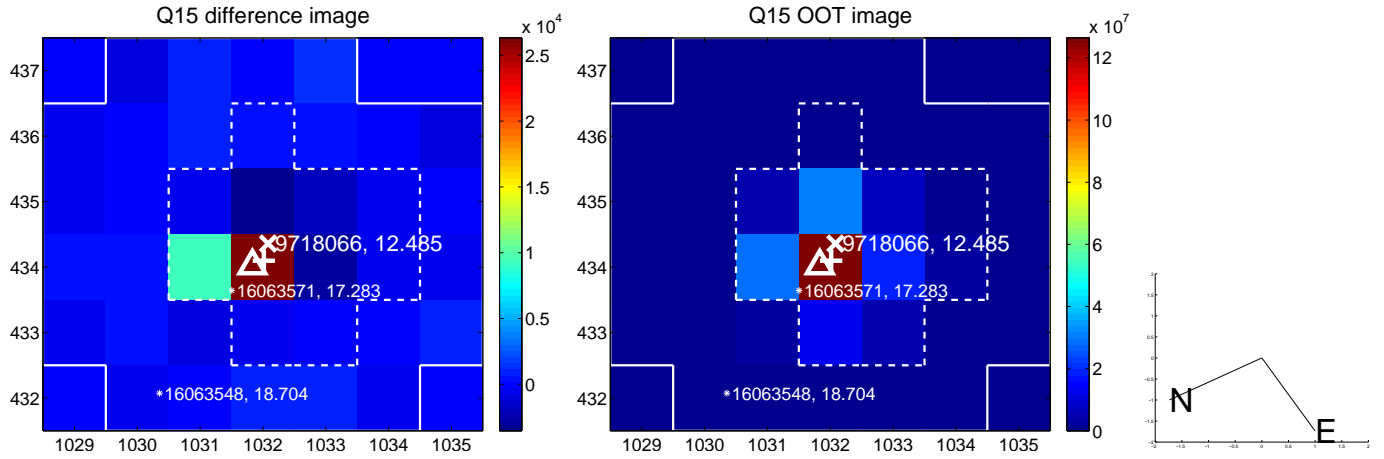
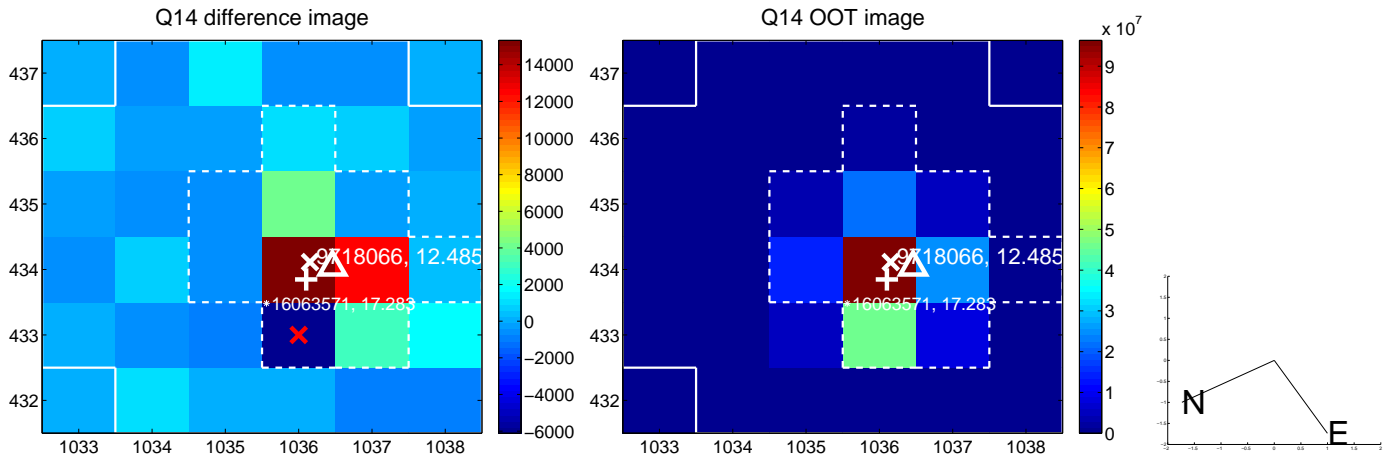
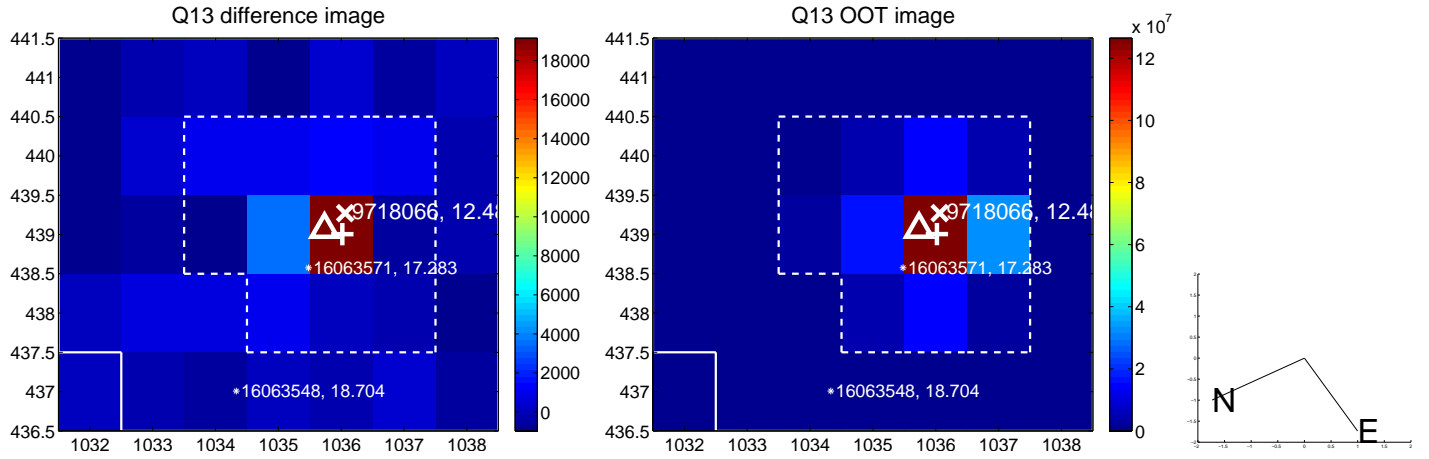
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



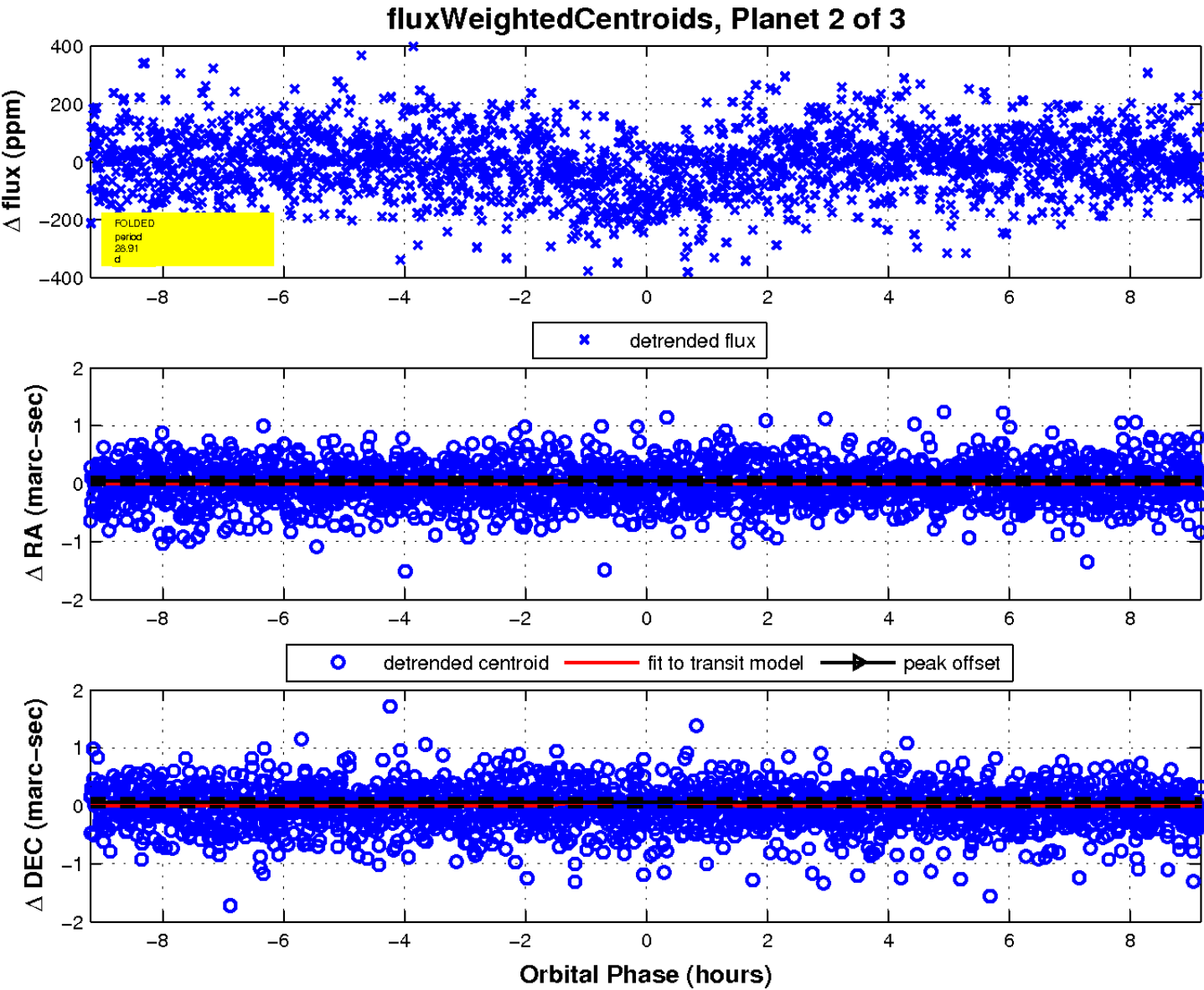
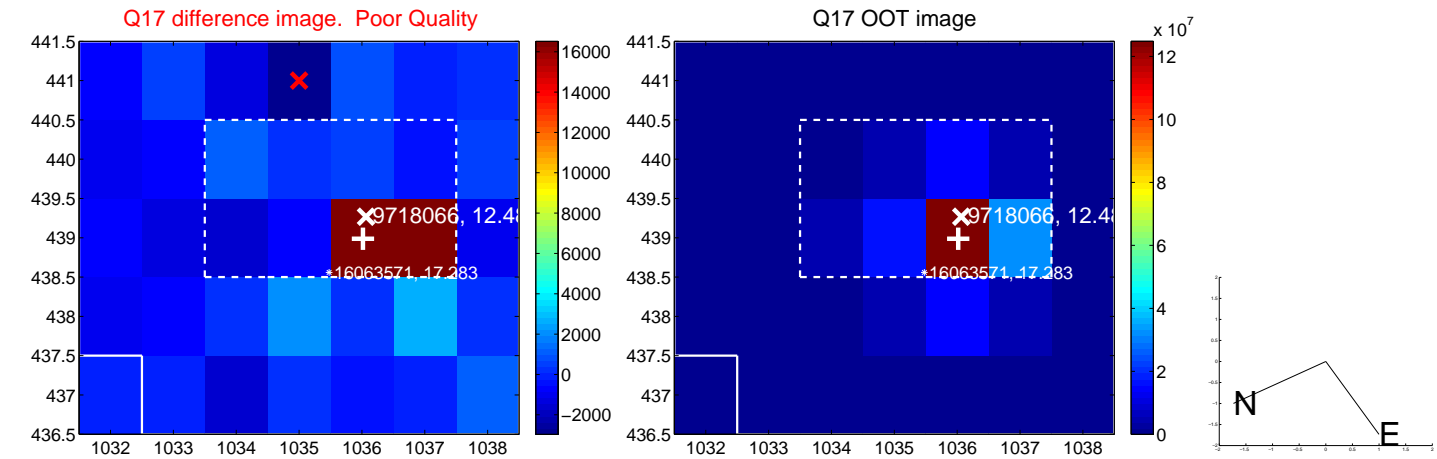
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



white \times : KIC target position; $+$: OOT centroid; Δ : 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



KIC 009718066

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})
009718066-01	OBS	2287.01	16.092227	142.518532	118.0	2.093	15.5	16.8	0.67	4657	0.92	15.18
009718066-02	OBS	2287.02	28.905845	158.829373	94.2	3.066	10.9	11.3	0.67	4657	0.78	6.95
009718066-03	OBS	No	41.013580	137.824609	92.5	0.564	8.4	4.5	0.67	4657	0.94	4.36

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
009718066-01	OBS	PC	0.20	0	0	0	0	CENT_KIC_POS
009718066-02	OBS	PC	0.08	0	0	0	0	CENT_KIC_POS
009718066-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_SKYE_ZUMA_TRACKER—LPP_DV—MOD_NONUNIQ_DV—MOD_TER_DV—CENT_KIC_POS

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

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

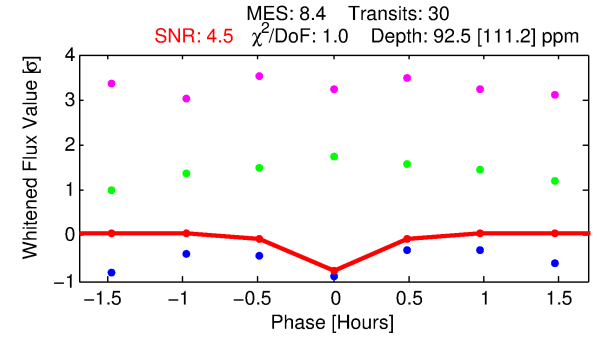
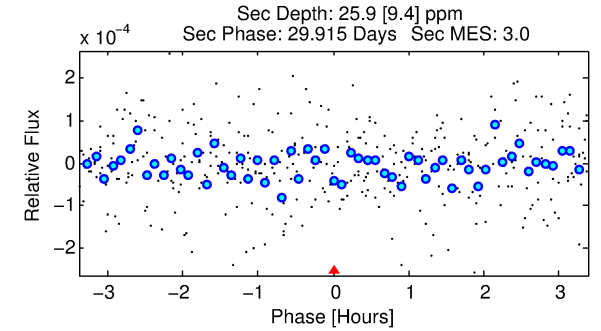
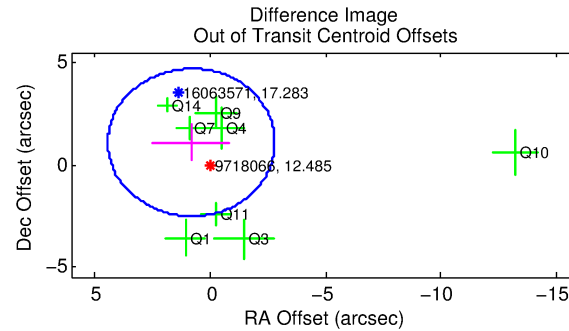
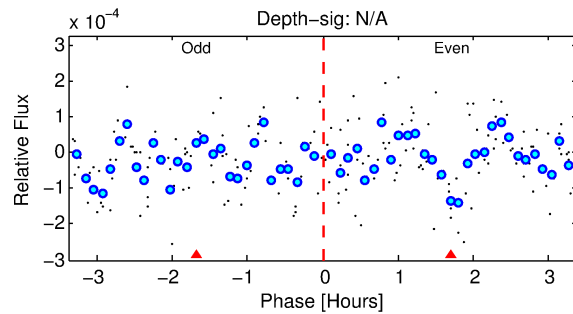
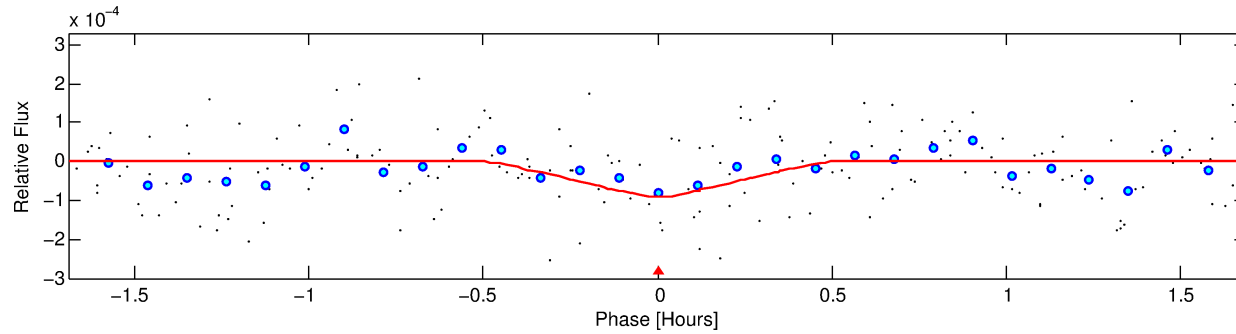
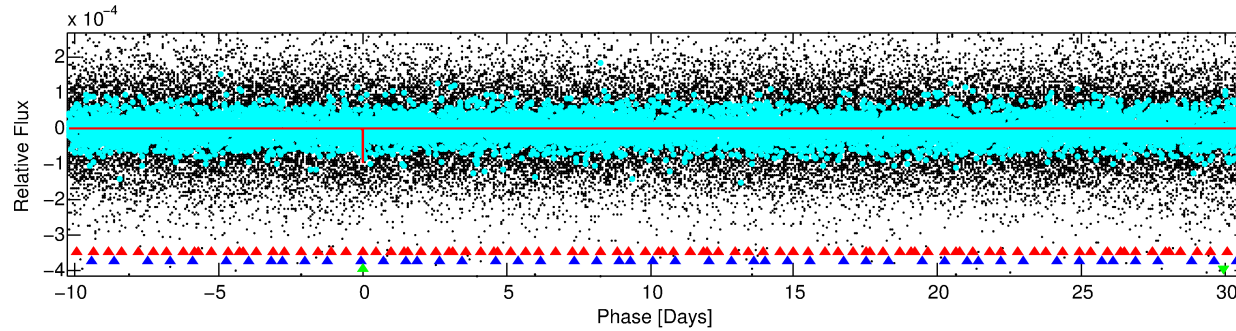
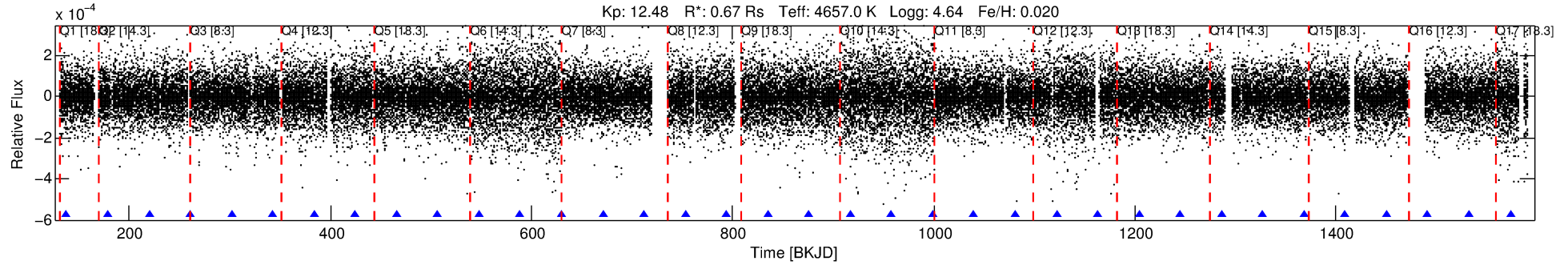
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 009718066-03

No Significant Match Found

DV One-Page Summary

KIC: 9718066 Candidate: 3 of 3 Period: 41.014 d
KOI: K02287 Name: Kepler-378 Corr: No Ephemeris Match



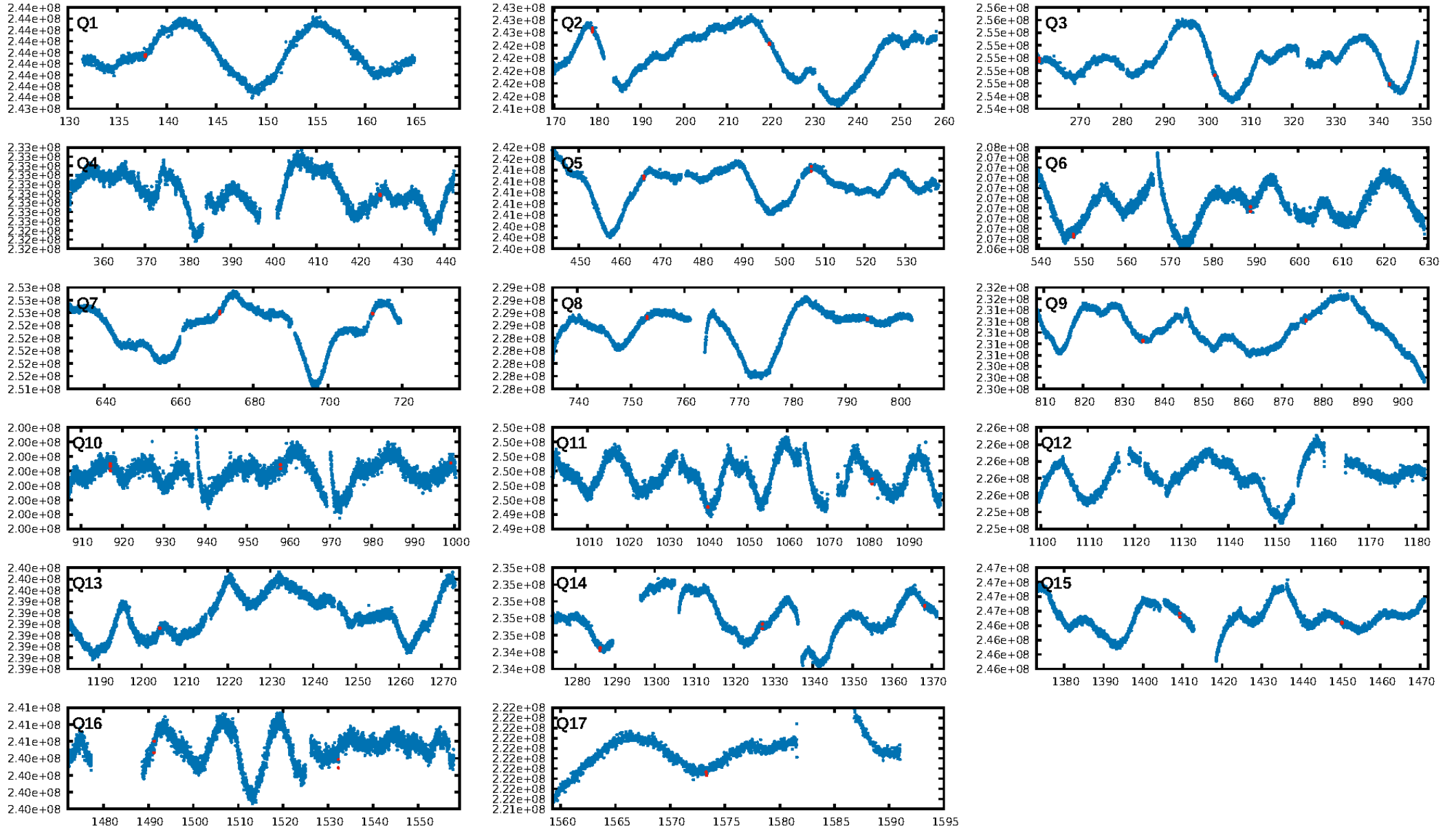
DV Fit Results:

Period = 41.01358 [0.00024] d
Epoch = 137.8246 [0.0051] BKJD
Rp/R* = 0.0128 [0.0170]
a/R* = 179.37 [951.55]
b = 0.96 [0.46]
Seff = 4.36 [0.53]
Teq = 368 [11] K
Rp = 0.93 [1.25] Re
a = 0.2083 [0.0137] AU
Ag = 706.31 [1899.56] [0.37σ]
Teffp = 2937 [1974] K [1.30σ]

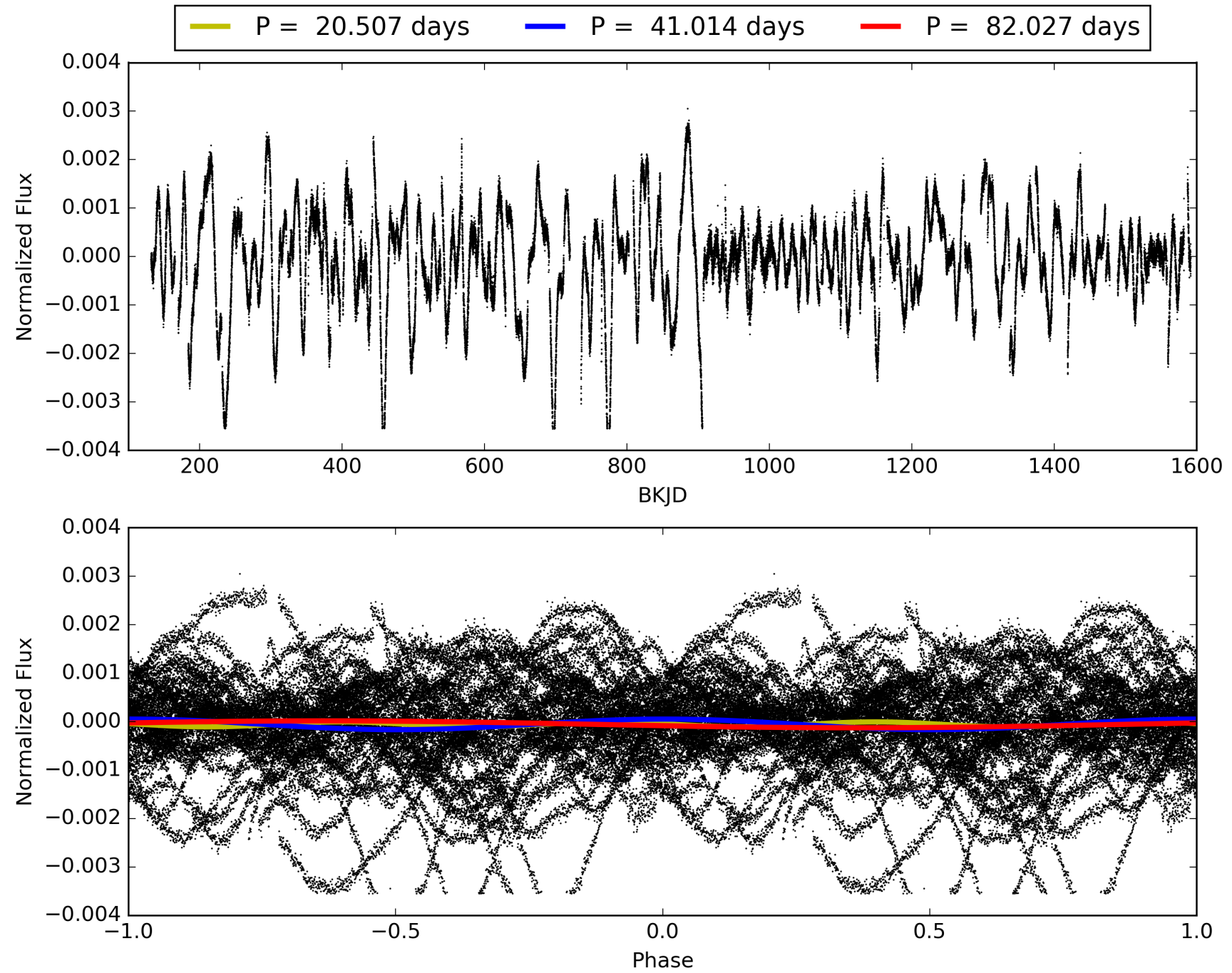
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [93.22σ]
LongPeriod-sig: N/A
ModelChiSquare2-sig: 83.3%
ModelChiSquareGof-sig: 96.6%
Bootstrap-pfa: 1.16e-16
RollingBand-fgt: 1.00 [28/28]
GhostDiagnostic-chr: 12.72
Centroid-sig: 22.5%
Centroid-so: 3.796 arcsec [1.82σ]
OotOffset-rm: 1.349 arcsec [1.12σ]
KicOffset-rm: 1.985 arcsec [1.81σ]
OotOffset-st: 2/3/1/2 [8]
KicOffset-st: 2/3/1/2 [8]
DiffImageQuality-fgm: 0.25 [2/8]
DiffImageOverlap-fno: 1.00 [12/12]

TCE 009718066-03, PDC Light Curves

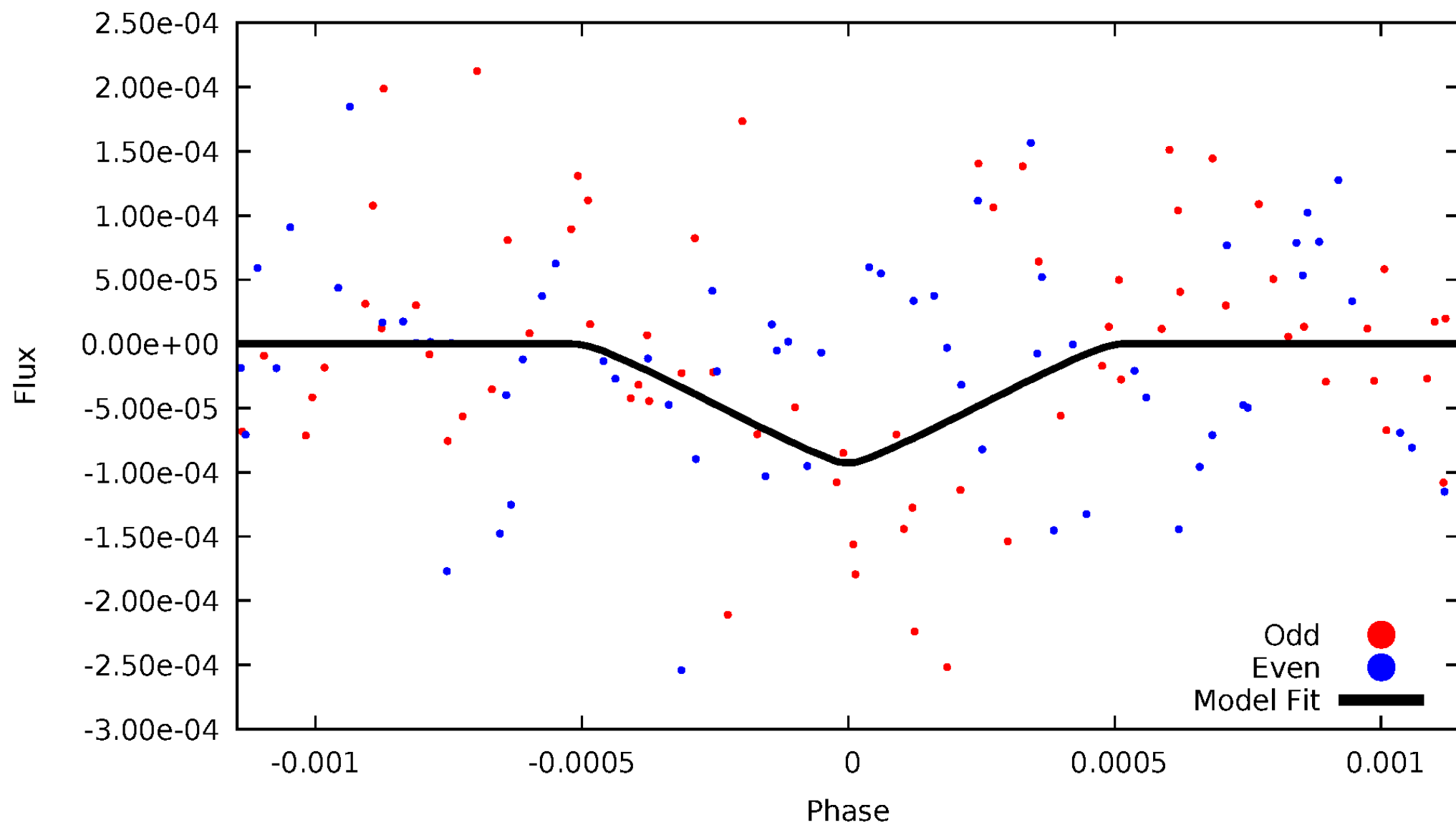


TCE 009718066-03



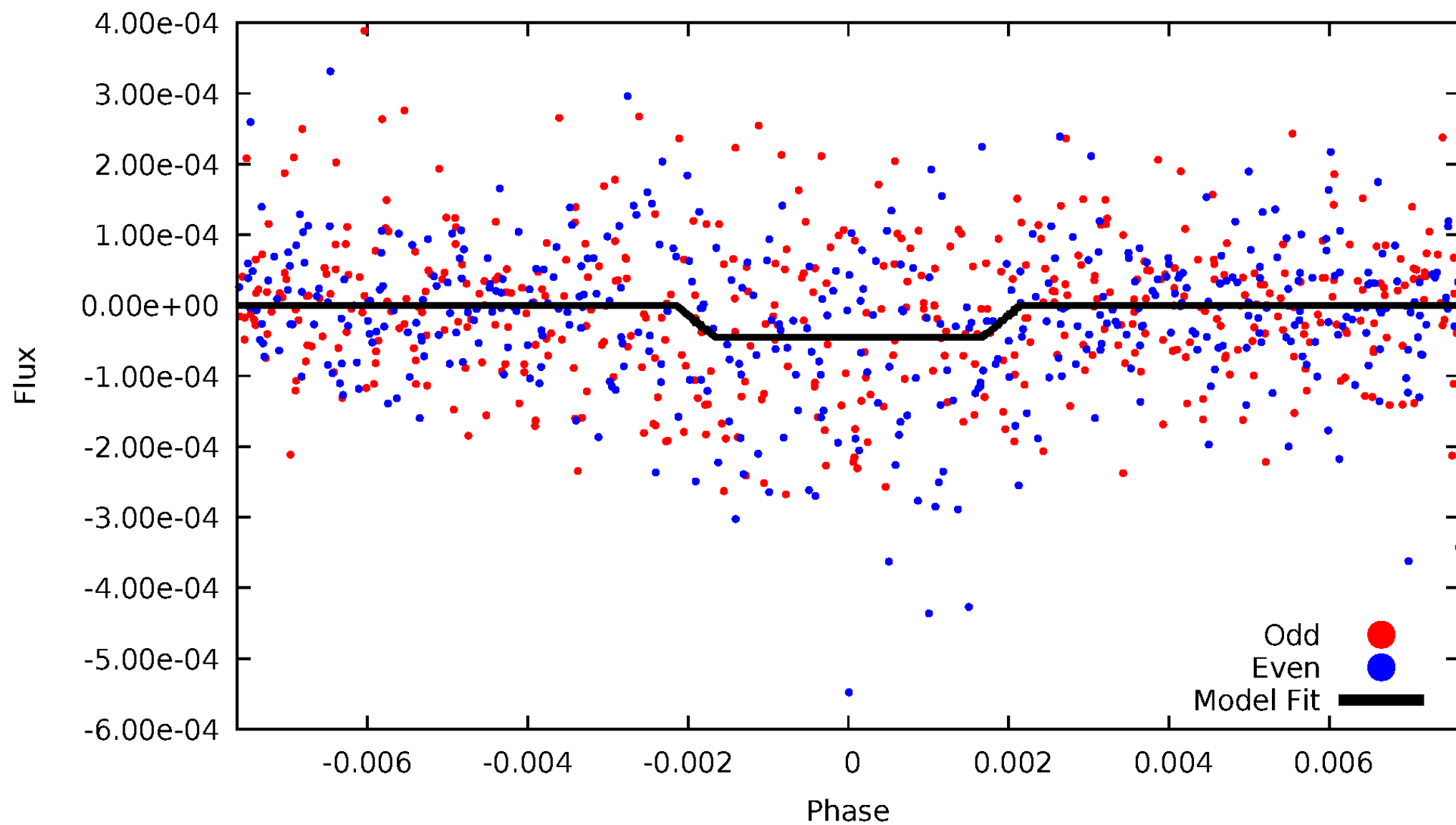
DV Odd/Even

TCE 009718066-03

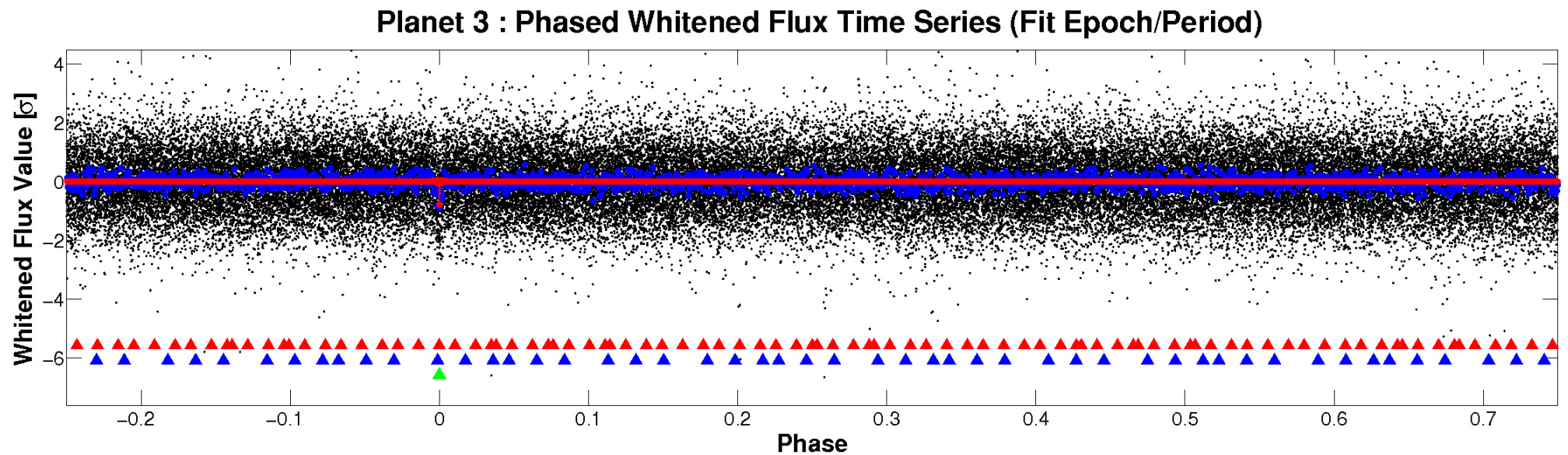
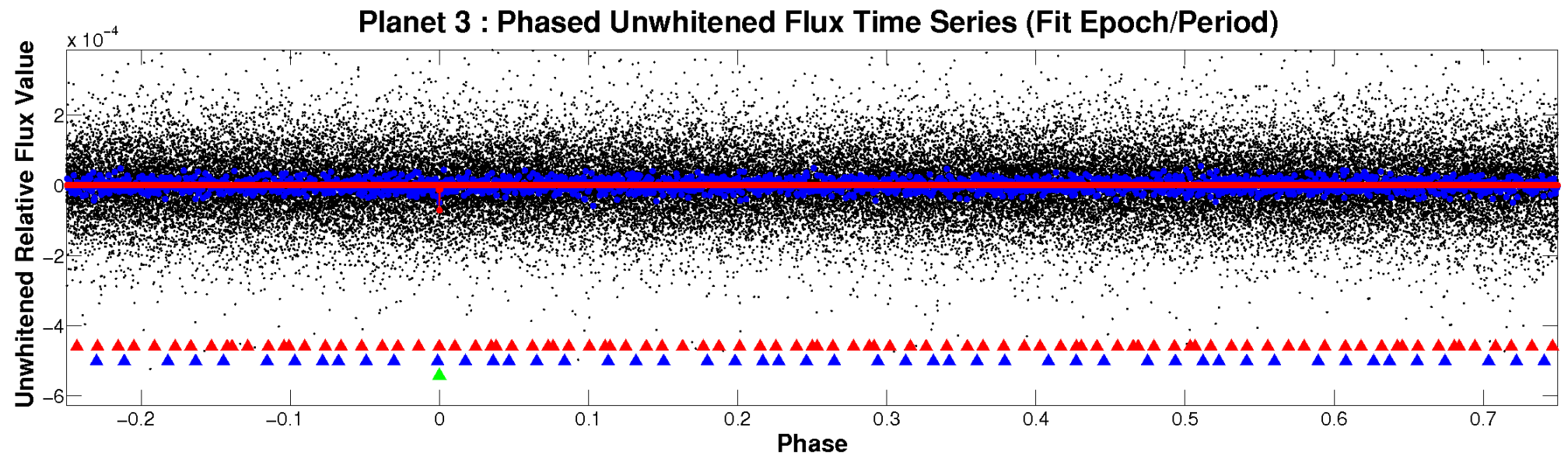


ALT Odd/Even

TCE 009718066-03

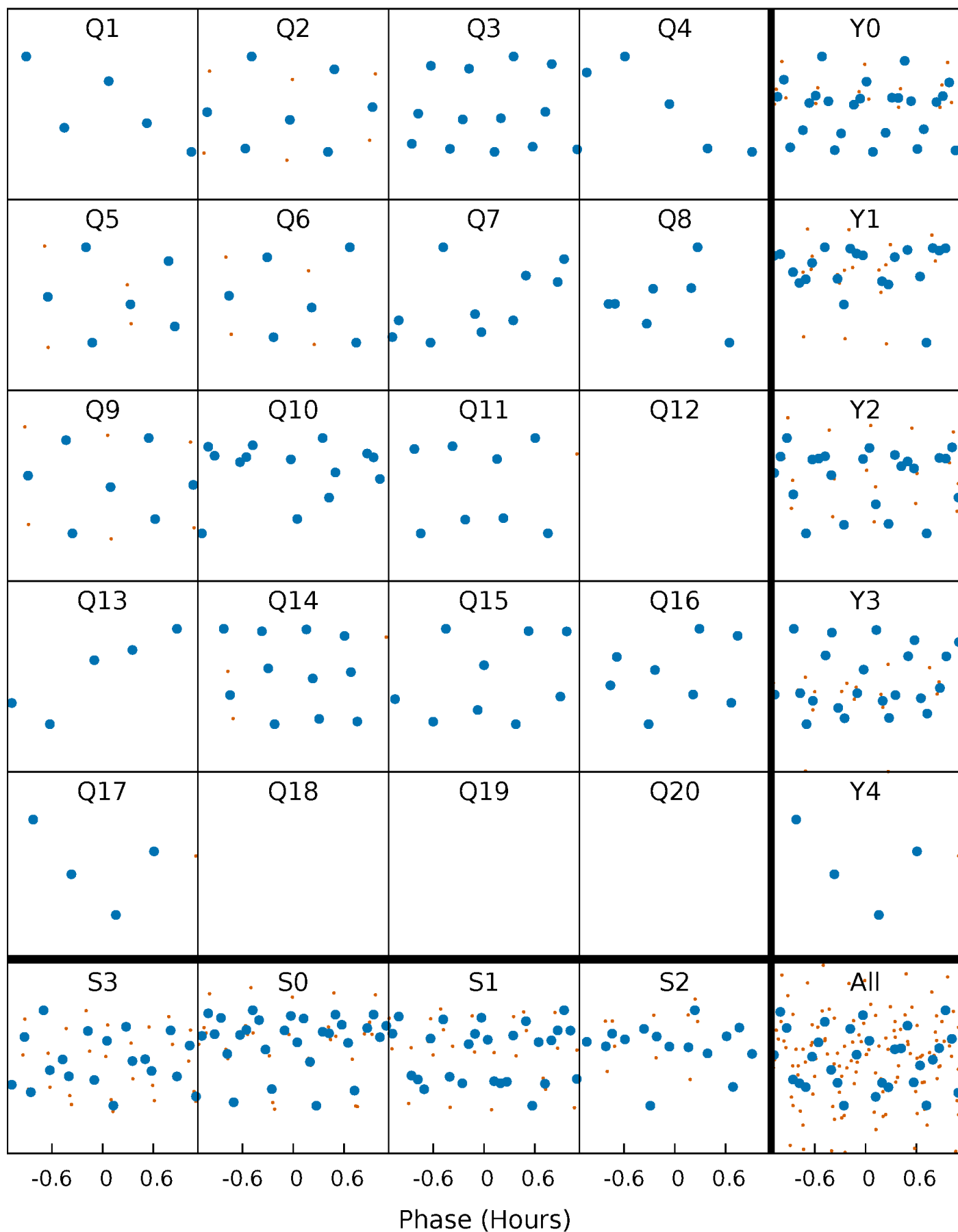


Non-Whitened Vs. Whitened Light Curve



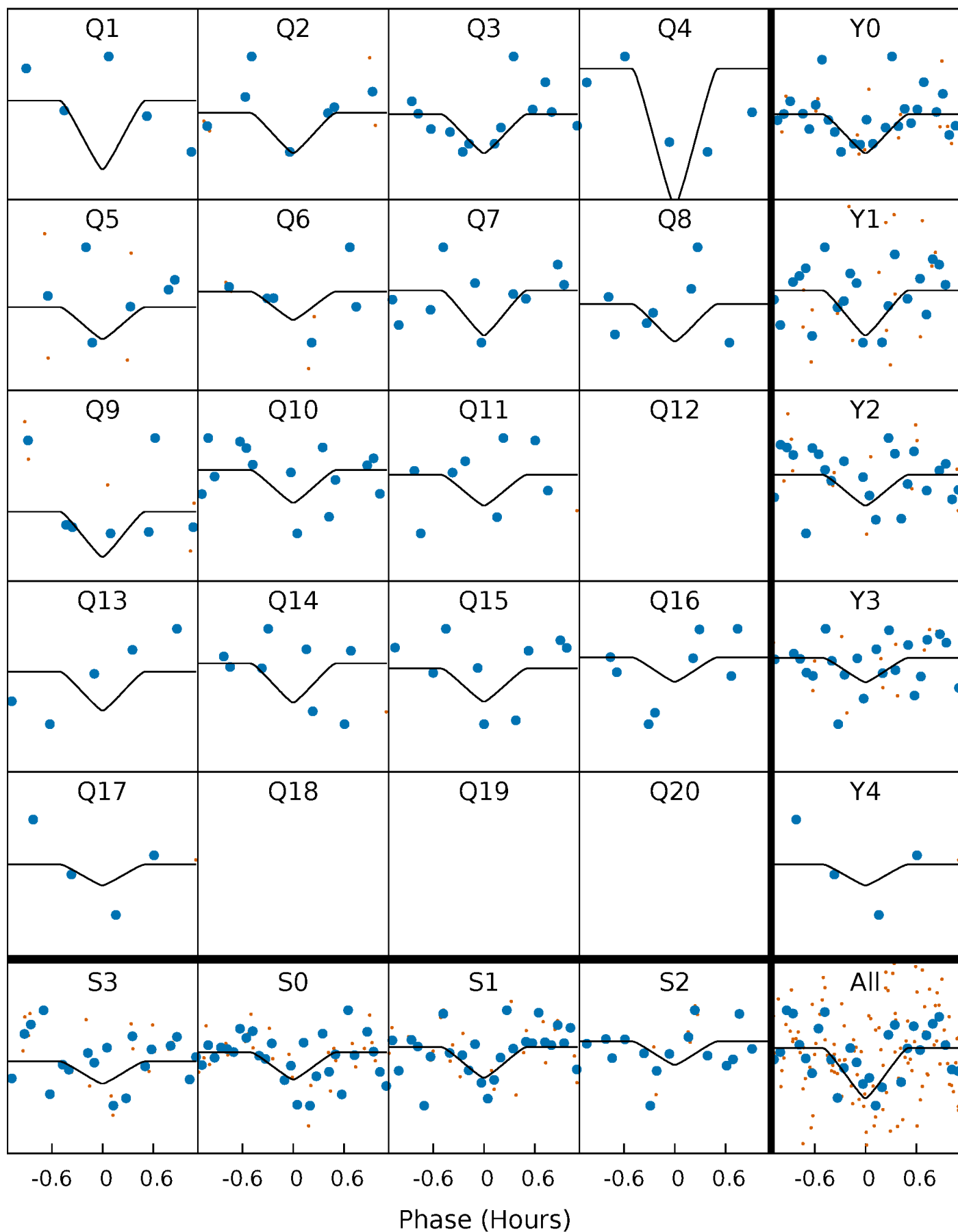
PDC Quarter-Phased Transit Curves

TCE 009718066-03 P= 41.013580 Days $T_0=137.824609$ (BKJD)



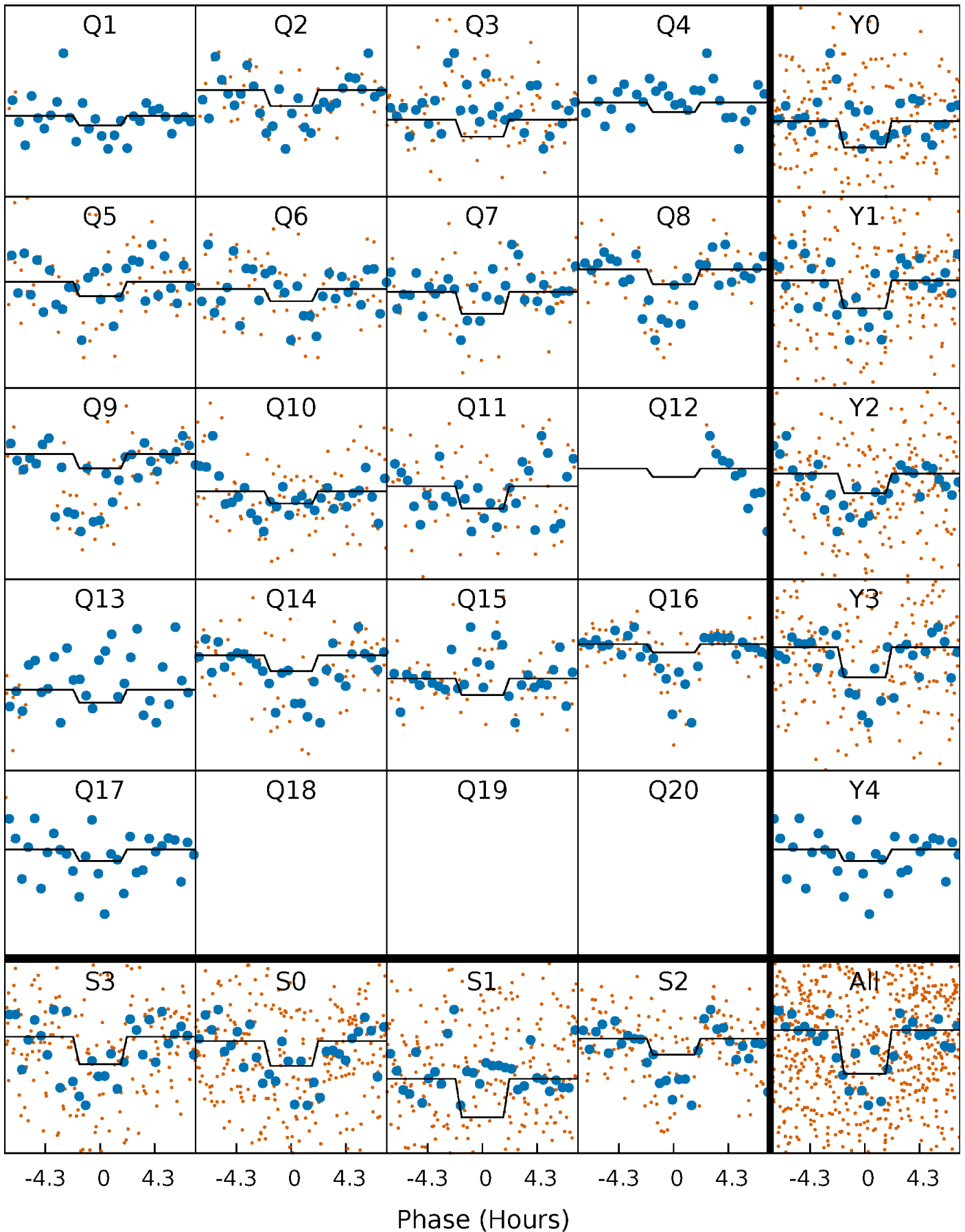
DV Quarter-Phased Transit Curves

TCE 009718066-03 P= 41.013580 Days $T_0=137.824609$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

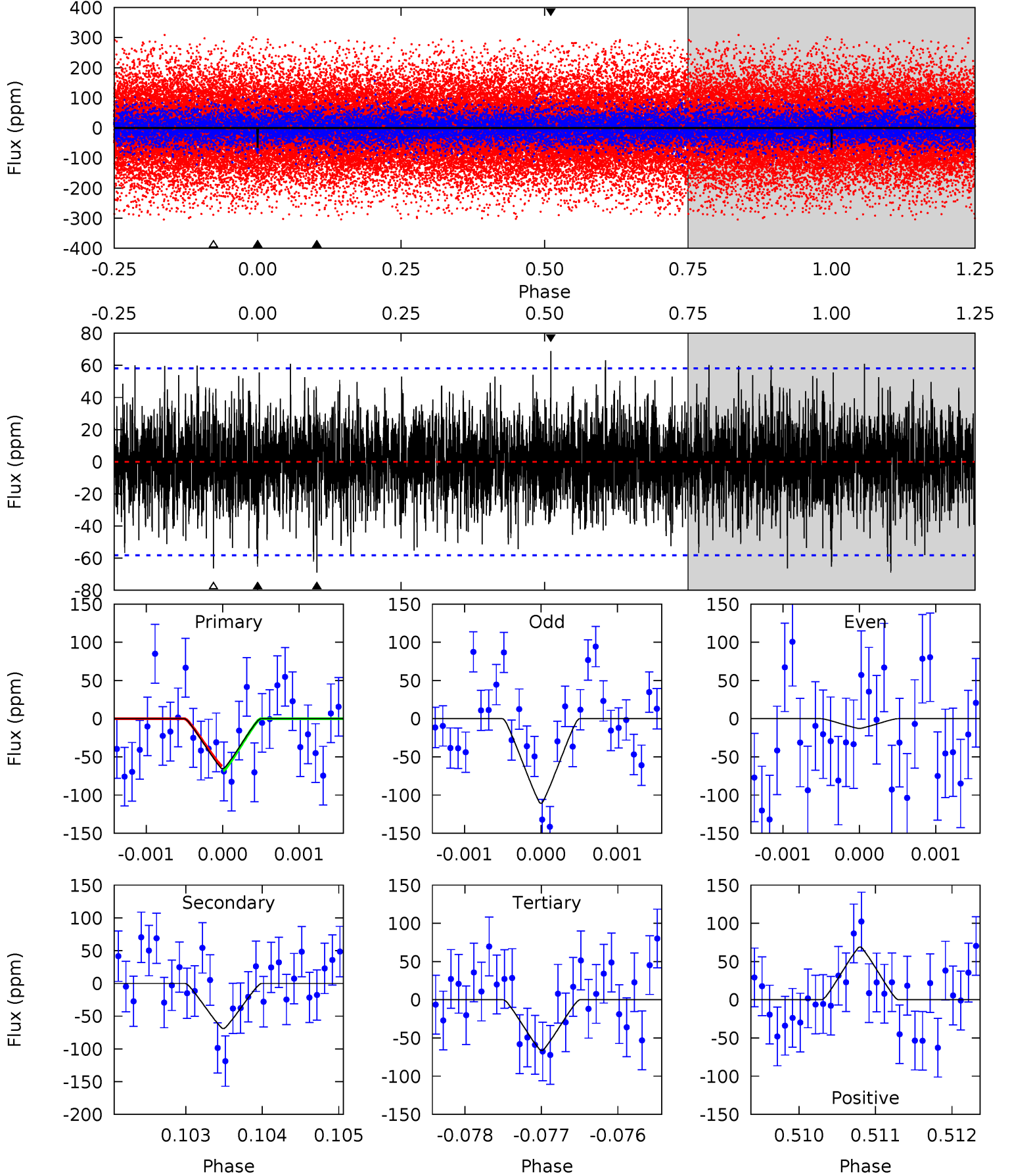
TCE 009718066-03 $P = 41.012828$ Days $T_0 = 137.836985$ (BKJD)



DV Model-Shift Uniqueness Test

009718066-03, P = 41.013580 Days, E = 96.811029 Days

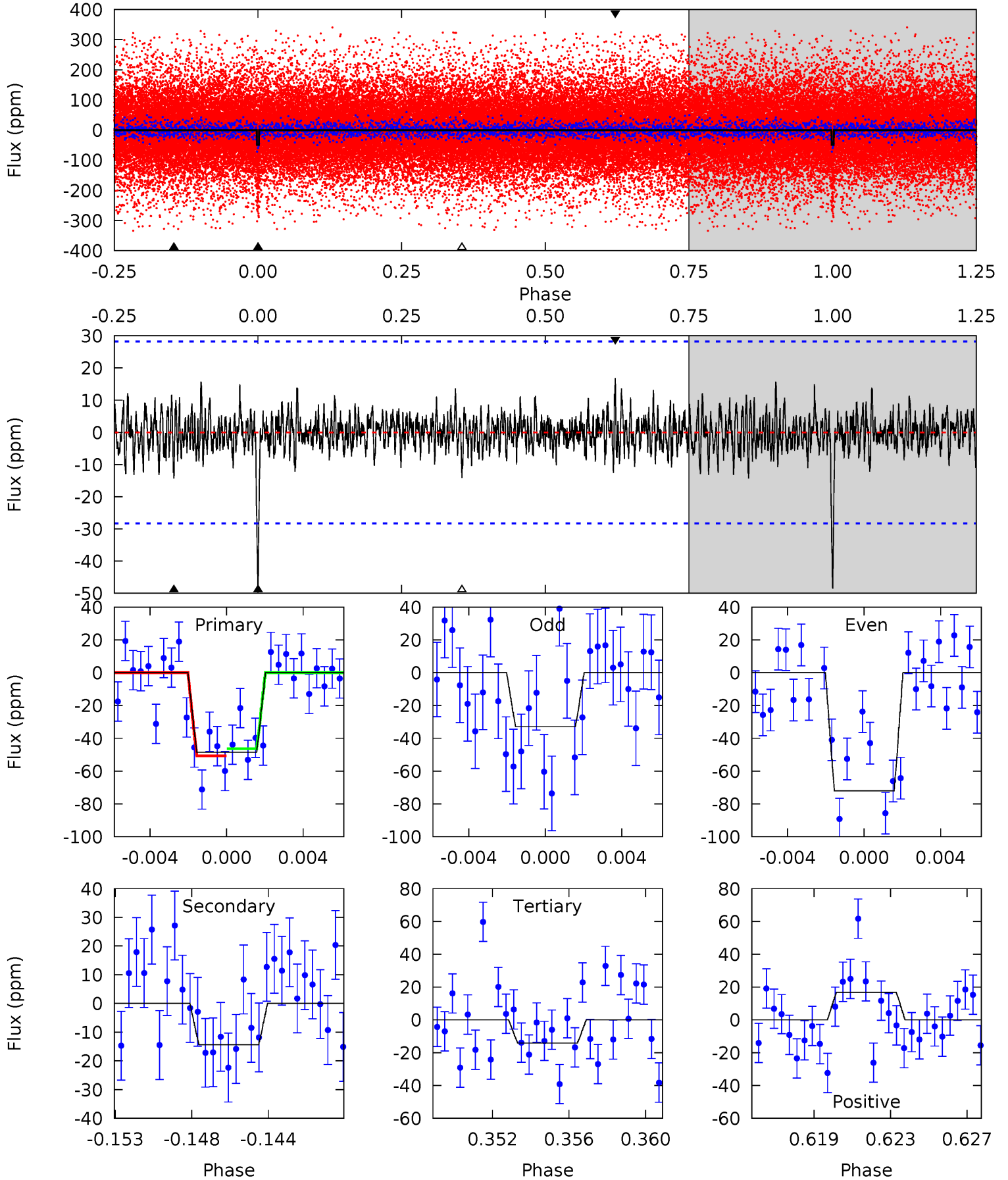
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
6.11	6.45	6.22	6.45	5.45	3.28	1.69	-0.10	-0.34	0.23	-0.01	4.60	0.89	0.50	0.29



Alt Model-Shift Uniqueness Test

009718066-03, P = 41.012828 Days, E = 96.824157 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
8.91	2.63	2.60	3.09	5.19	2.86	0.81	6.31	5.82	0.04	-0.46	3.60	1.18	0.26	0.40



Stellar Parameters For KIC 009718066

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	4657^{+93}_{-93}	$4.641^{+0.012}_{-0.048}$	$0.020^{+0.150}_{-0.150}$	$0.670^{+0.055}_{-0.017}$	$0.748^{+0.031}_{-0.046}$	$3.505^{+0.149}_{-0.739}$
	+2%/-2%	+0%/-1%	+750%/-750%	+8%/-3%	+4%/-6%	+4%/-21%
Source	SPE58	SPE58	SPE58	DSEP		

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

Secondary Eclipse Parameters for KIC 009718066-03 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	-69 ± 11	$1.33^{+1.11}_{-0.87}$	519^{+13}_{-11}	3553^{+1675}_{-604}	953^{+6465}_{-681}
Alt.	-14 ± 5	$1.09^{+1.09}_{-0.71}$	520^{+12}_{-12}	2968^{+1250}_{-539}	281^{+2219}_{-220}

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 $A_{obs} \gg 1.0$

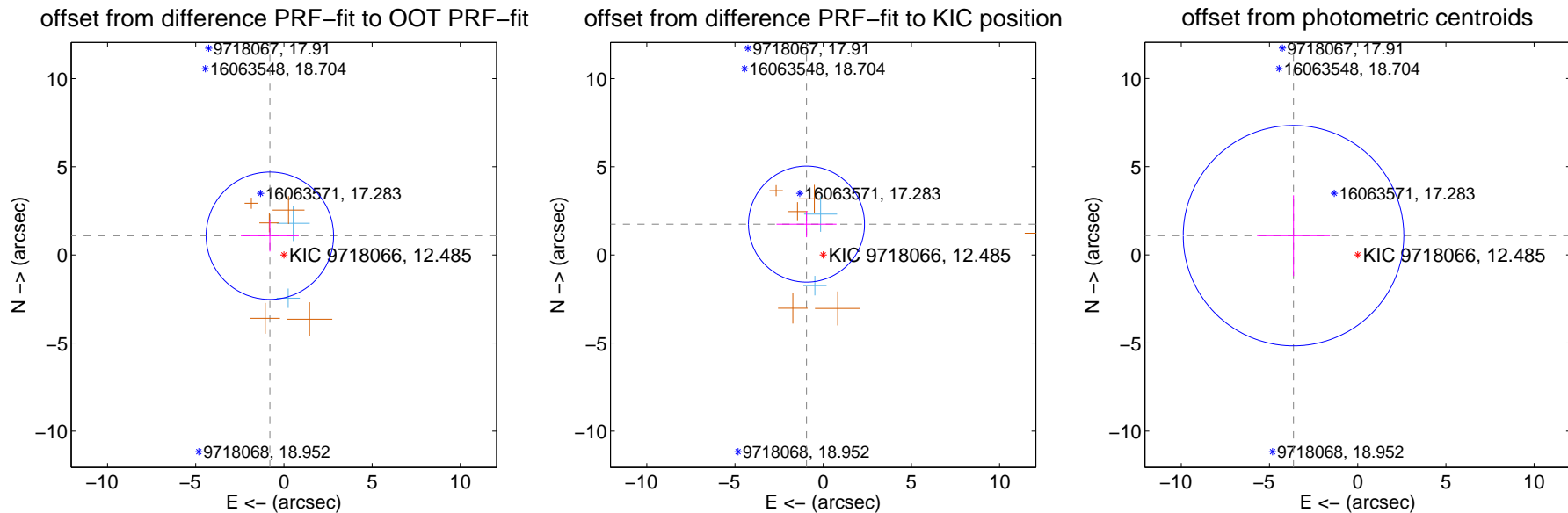
DV Centroid Data

Supplemental centroid analysis for 009718066-03. Kepler magnitude: 12.48. Transit SNR 4.51

There are 2 quarters with good PRF difference image offsets

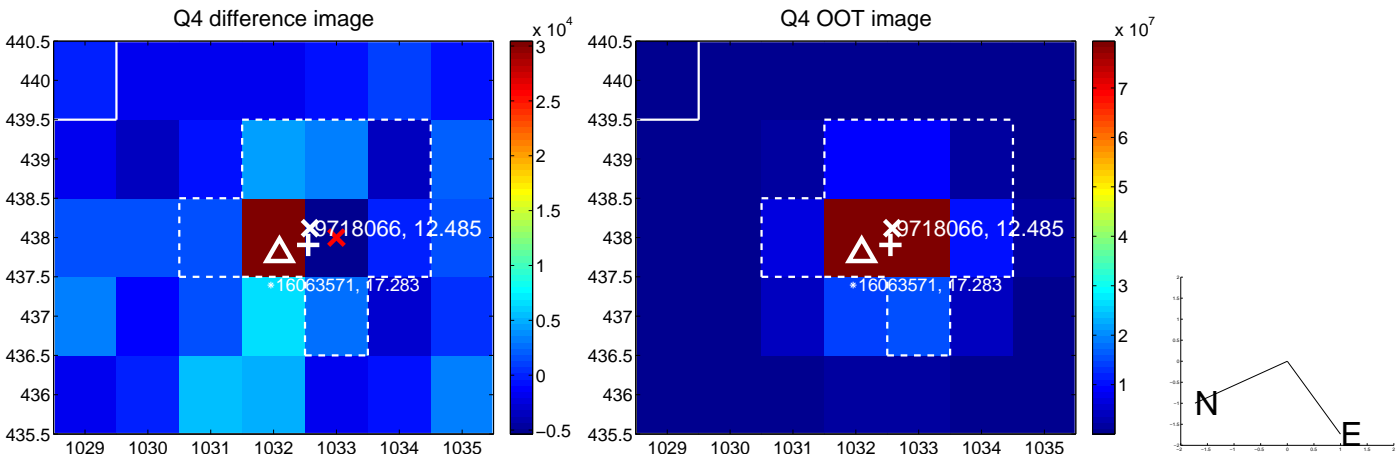
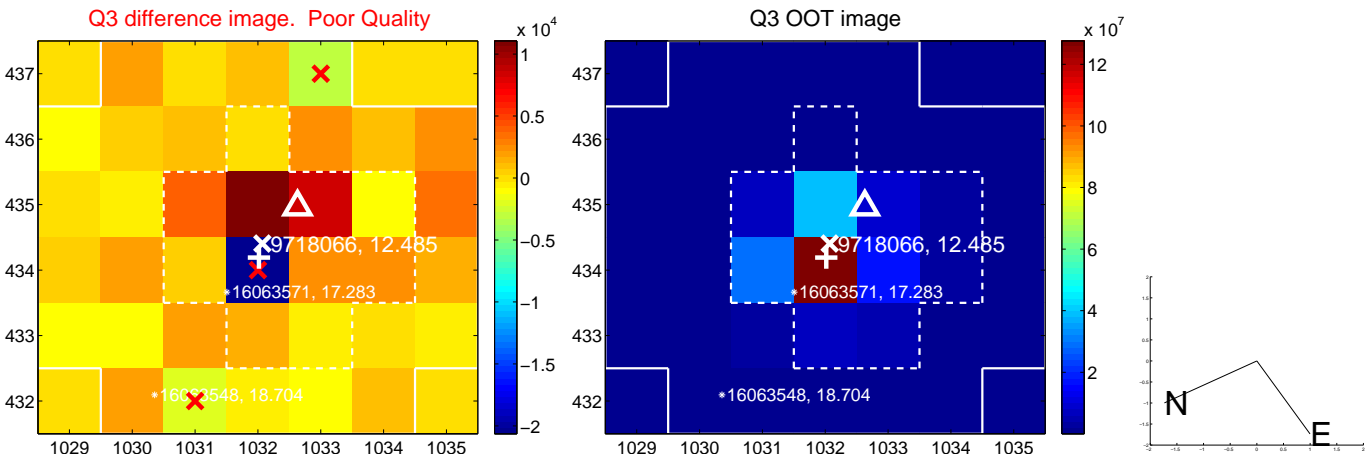
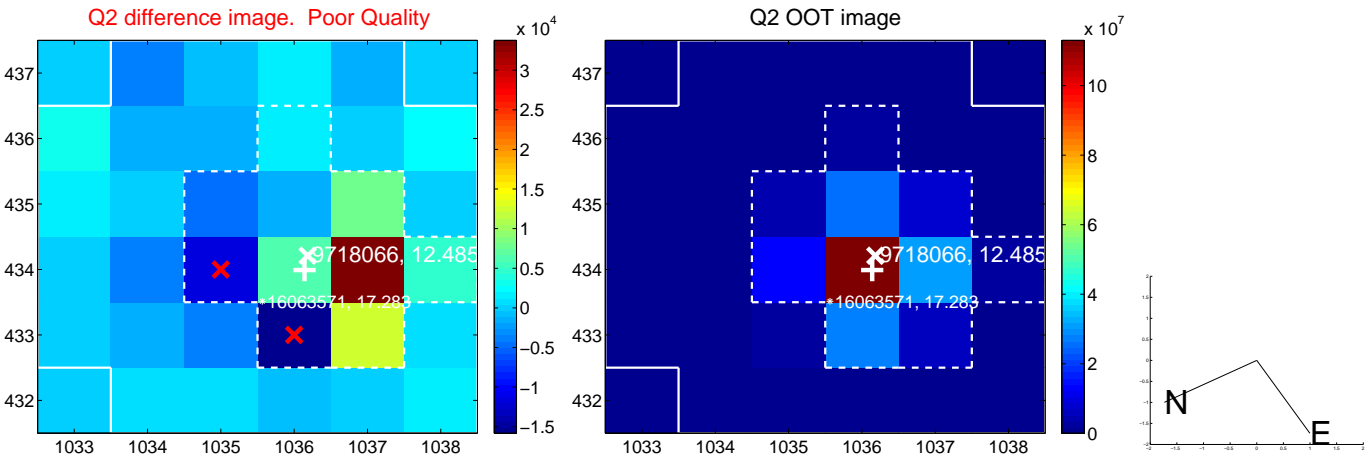
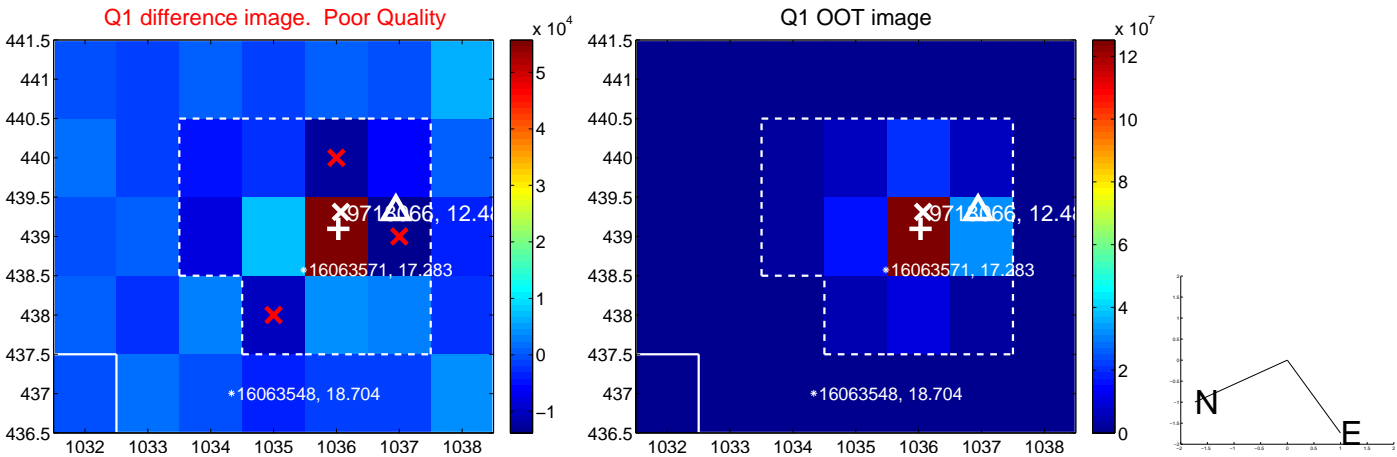
The direct PRF centroid is offset from the target star catalog position by about 1.09 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	1.349 ± 1.204	1.12	0.798 ± 1.643	1.087 ± 0.897
PRF-fit source offset from KIC position	1.985 ± 1.097	1.81	0.946 ± 1.702	1.746 ± 0.743
photometric centroid source offset	3.80 ± 2.08	1.82	3.64 ± 2.06	1.09 ± 2.29

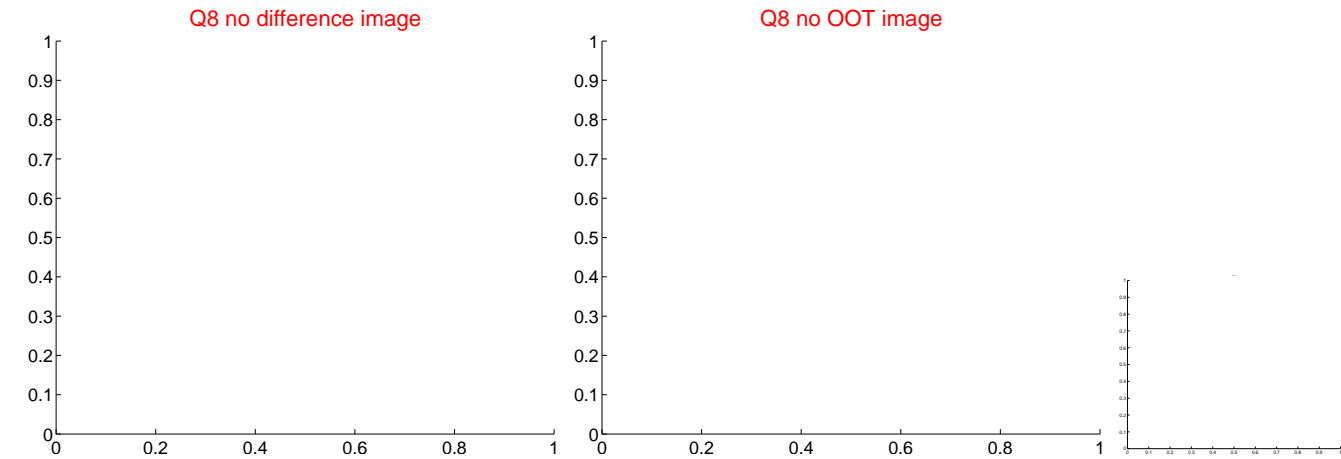
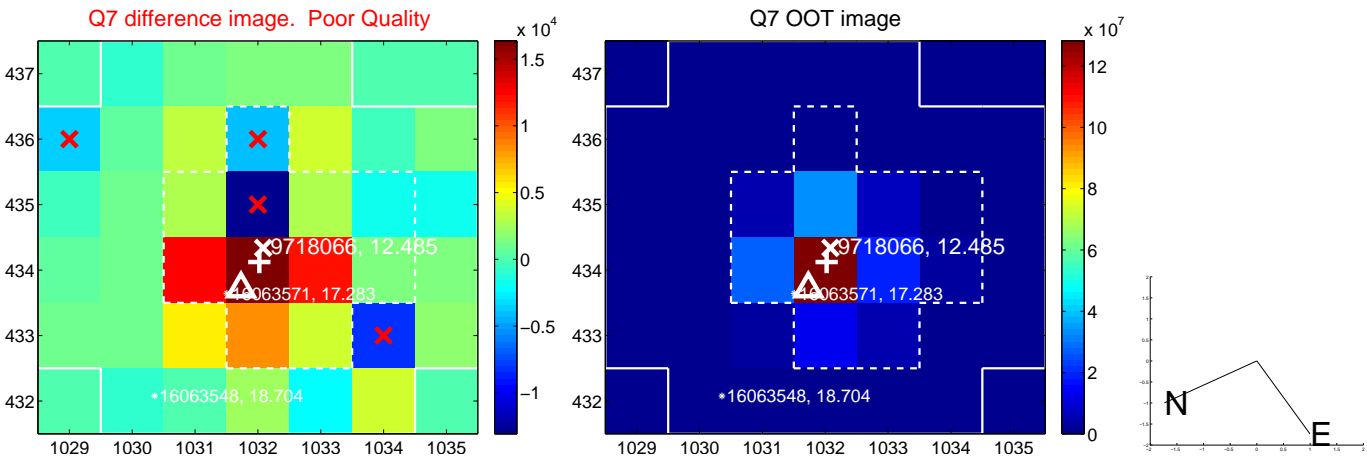
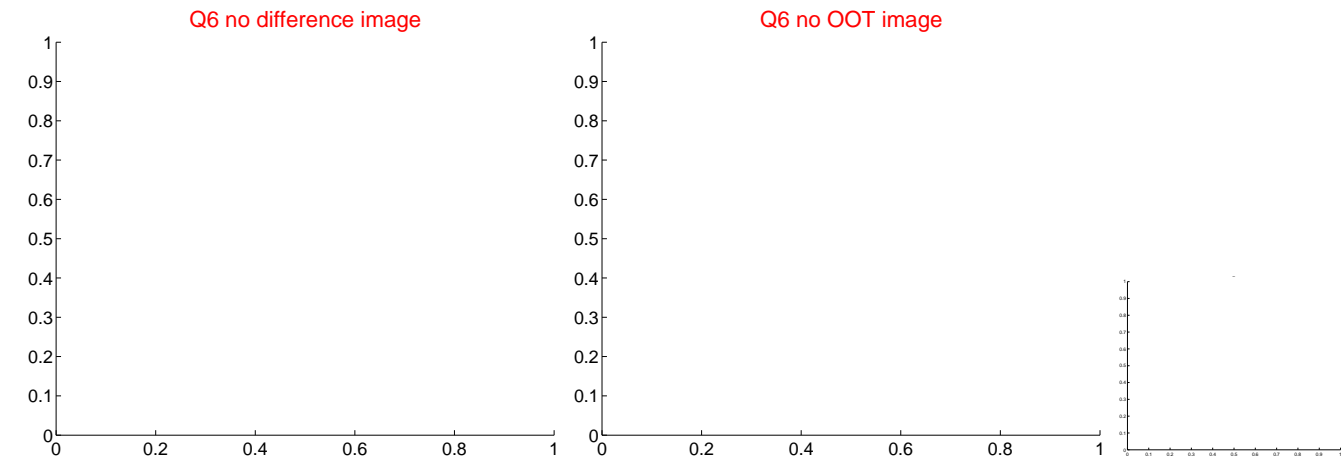
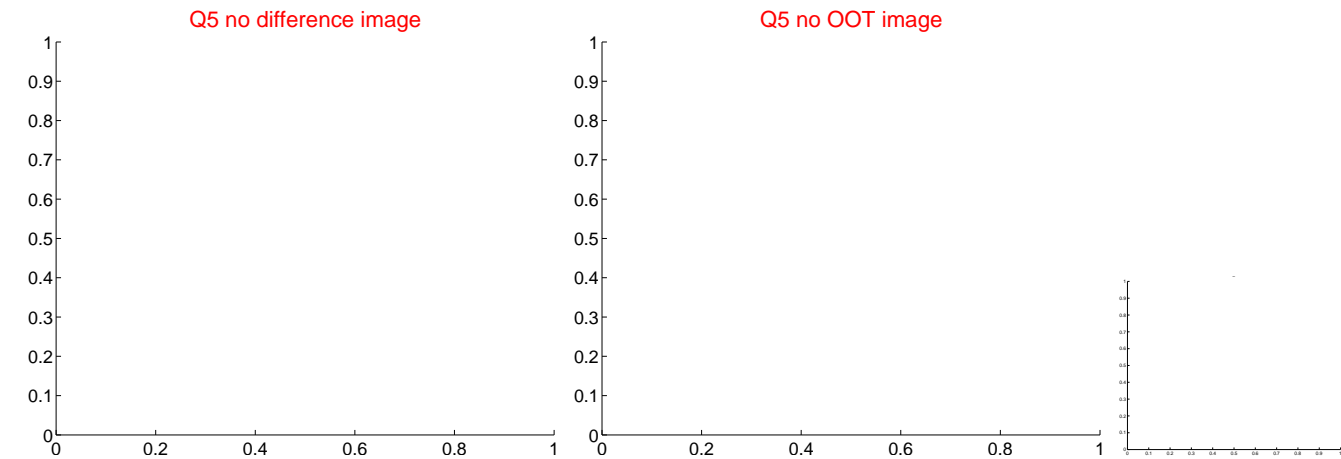


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ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

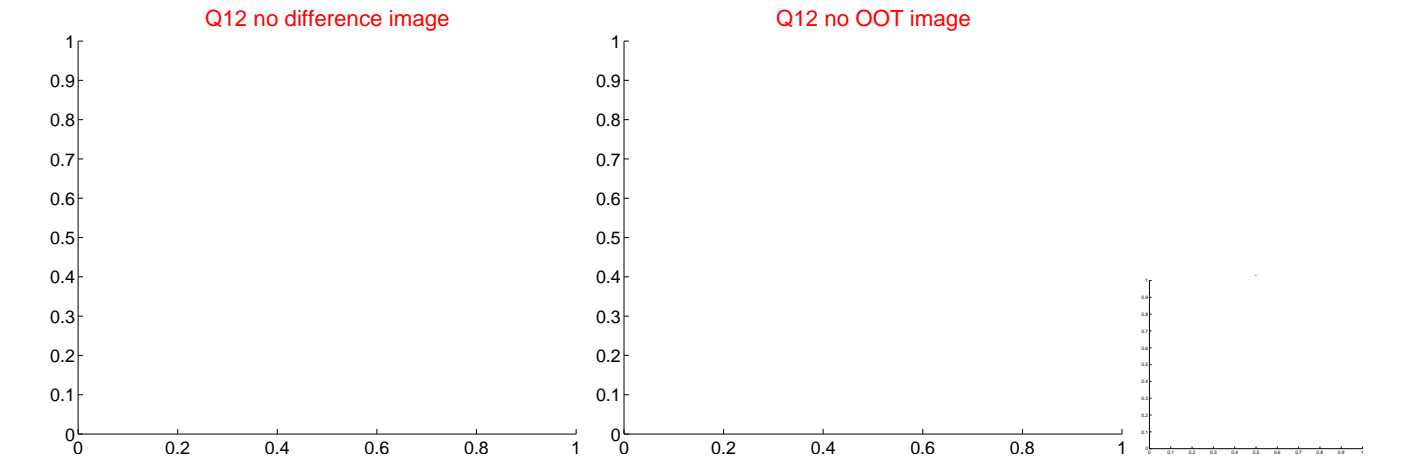
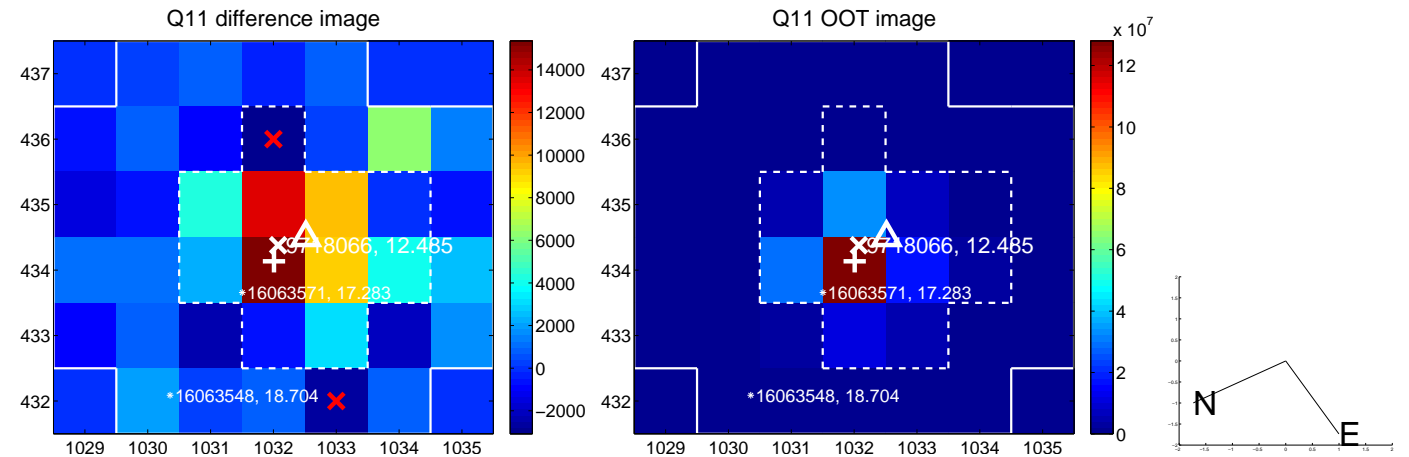
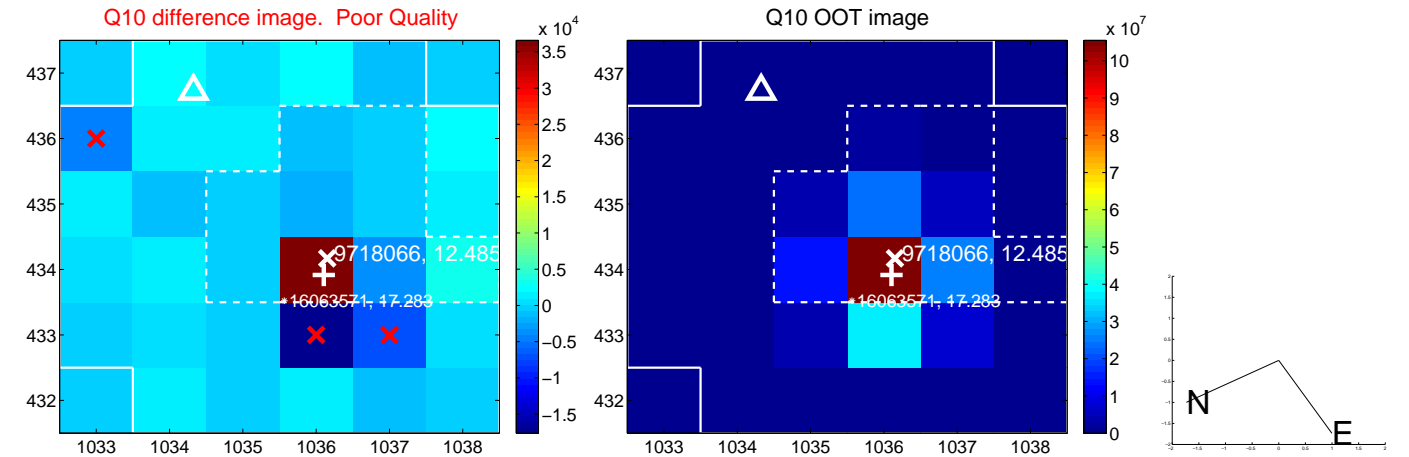
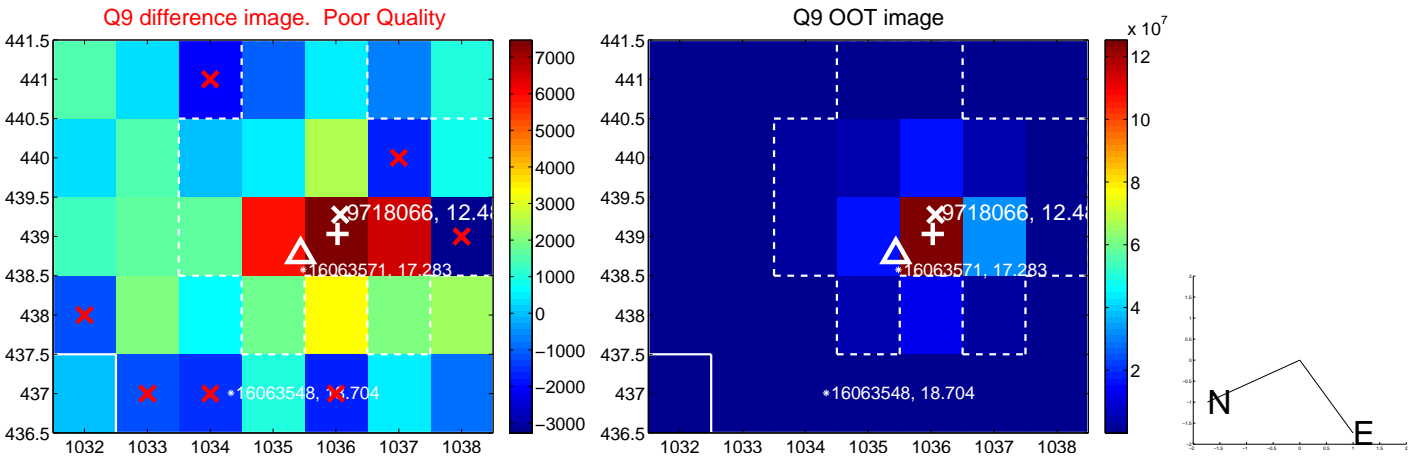
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



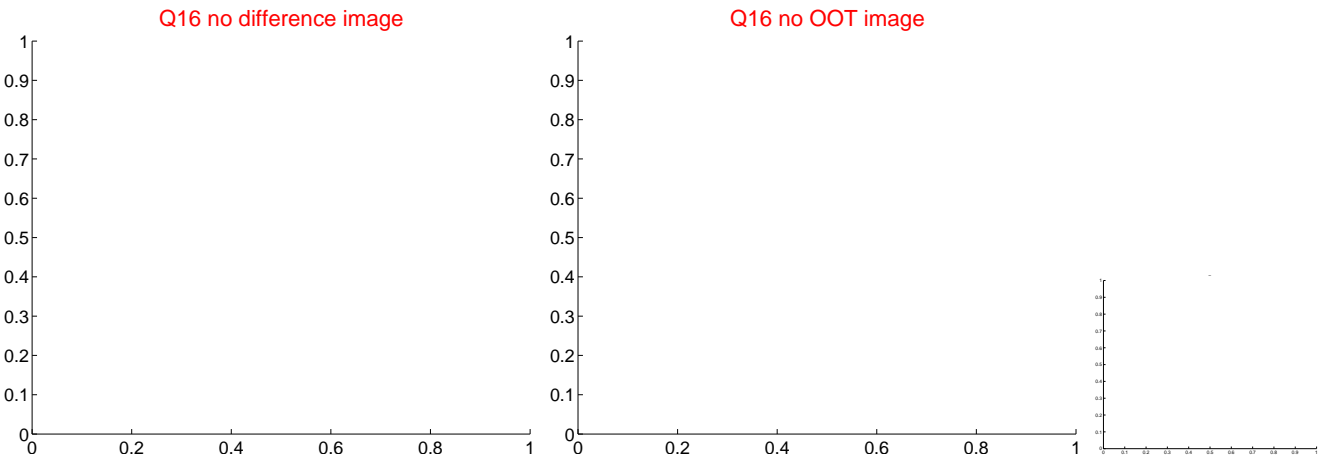
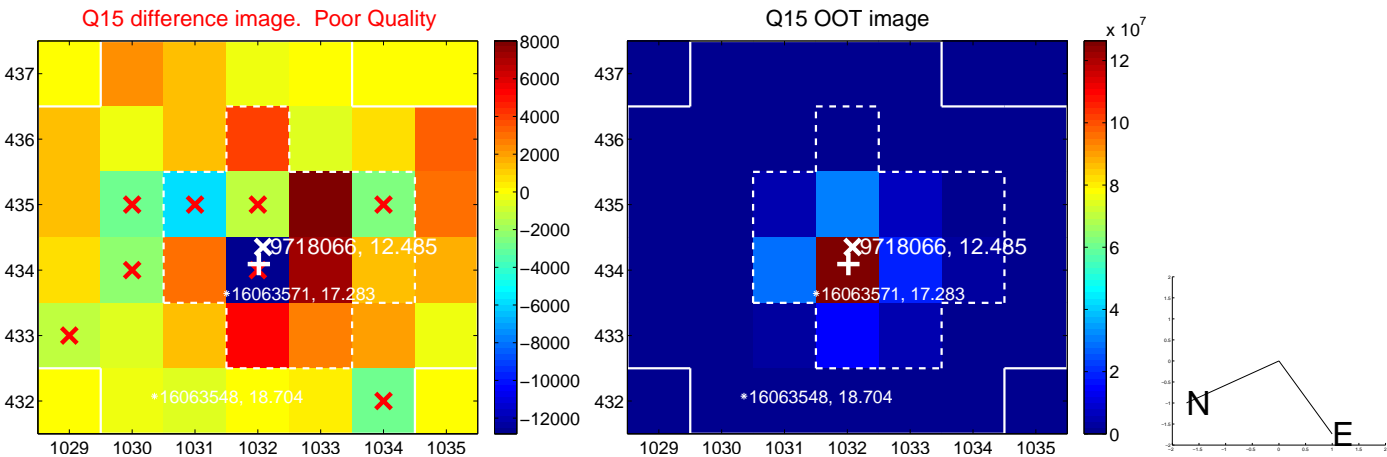
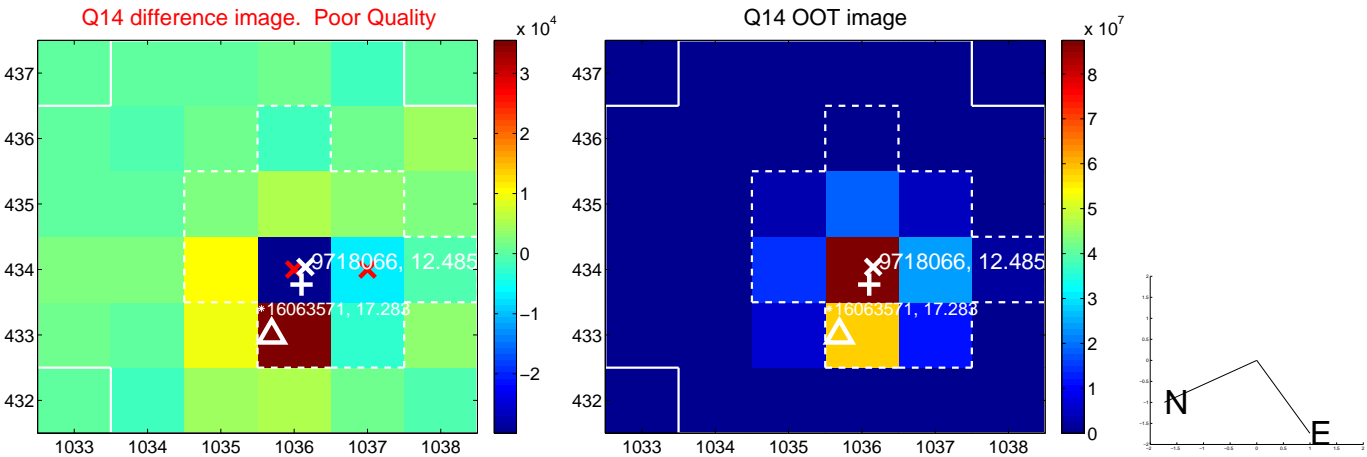
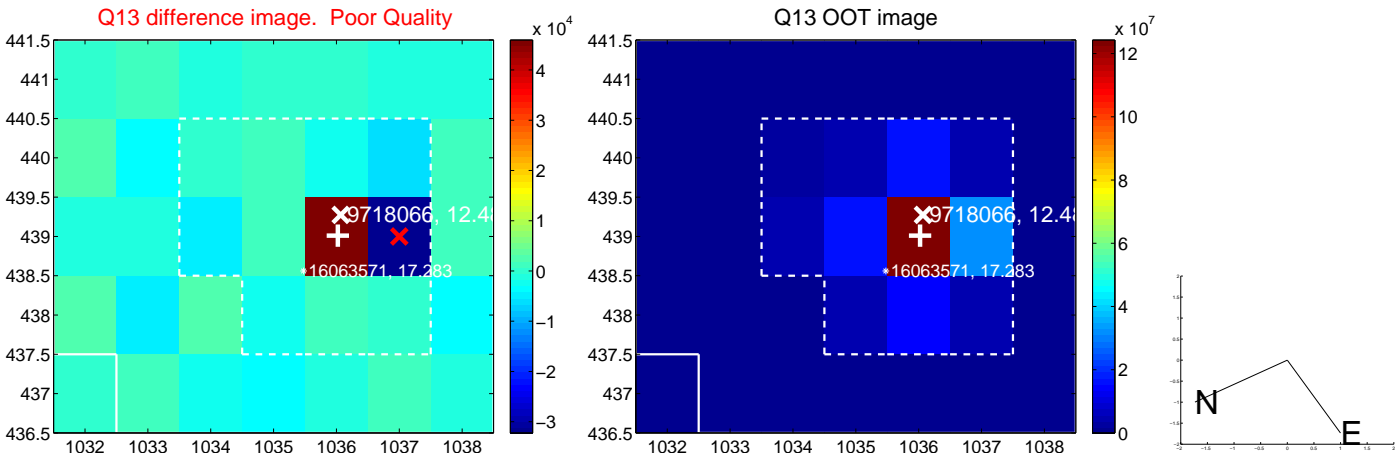
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



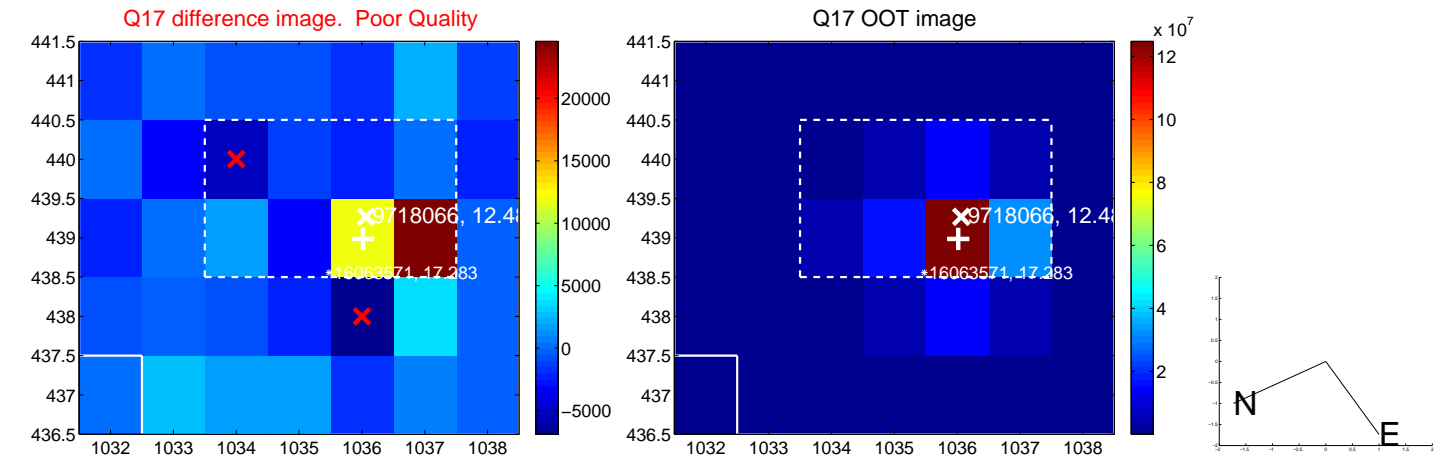
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



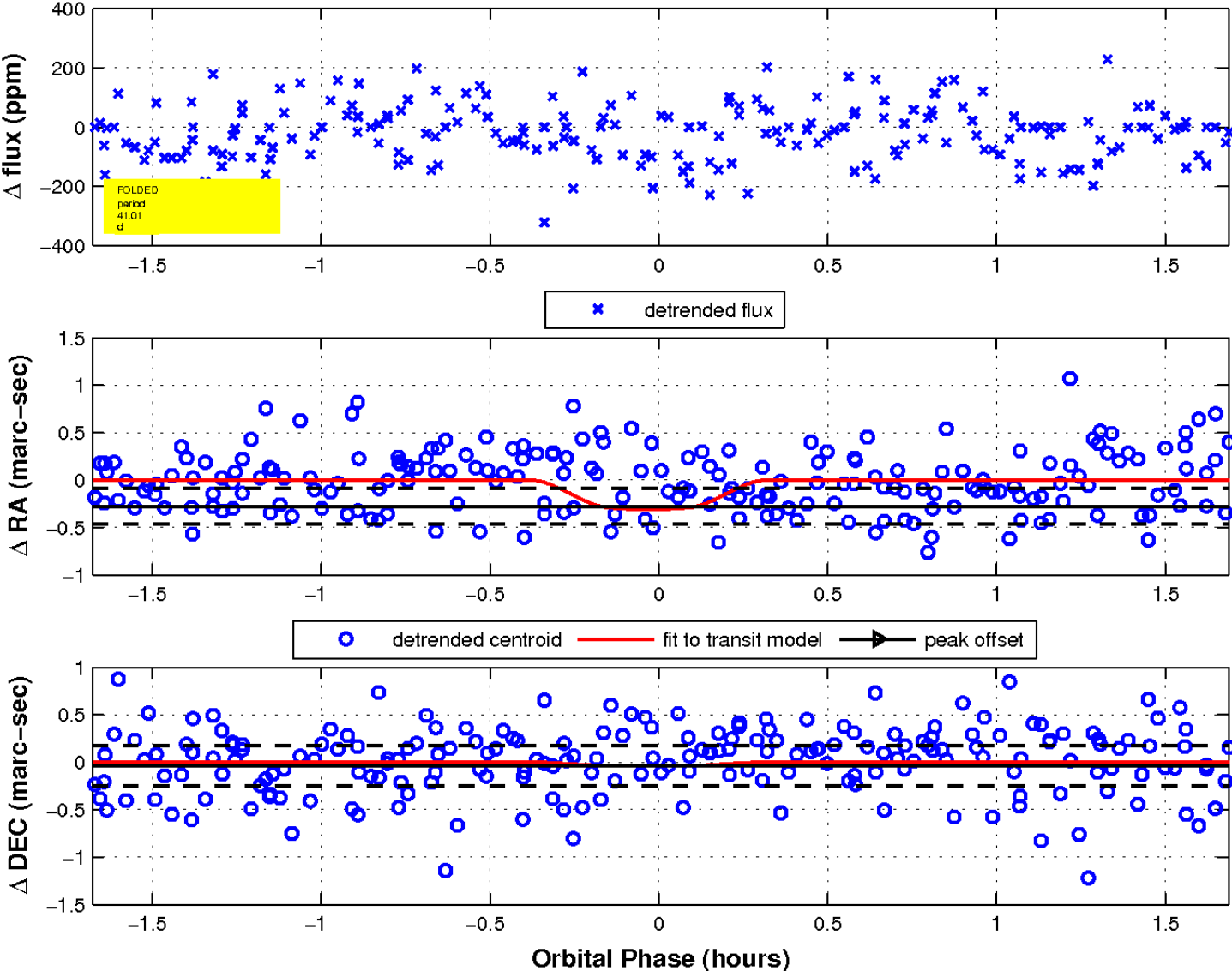
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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



fluxWeightedCentroids, Planet 3 of 3



UKIRT Image

