

KIC 004276892

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})
004276892-01	OBS	No	404.709095	266.793165	58.2	4.964	8.0	8.5	3.50	9202	3.07	35.80
004276892-02	OBS	No	6.429477	132.014563	7.7	16.611	8.5	8.5	3.50	9202	1.12	8963.70

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
004276892-01	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—ALL_TRANS_CHASES—CENT_SATURATED
004276892-02	OBS	FP	0.00	1	0	0	0	LPP_DV—MOD_NONUNIQ_DV—CENT_SATURATED

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

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

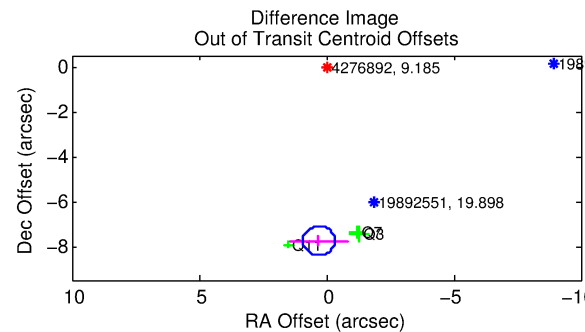
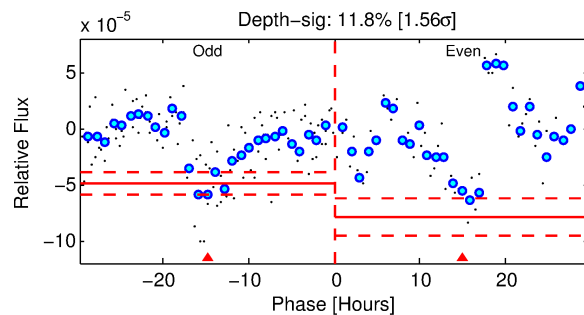
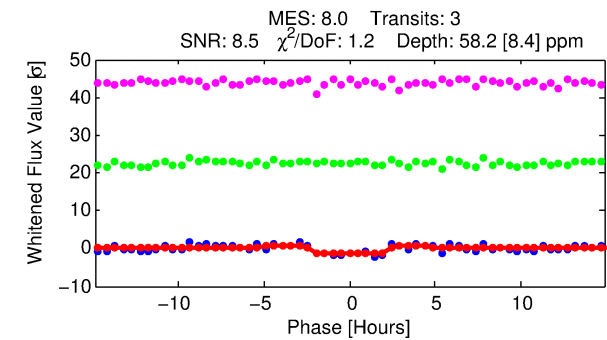
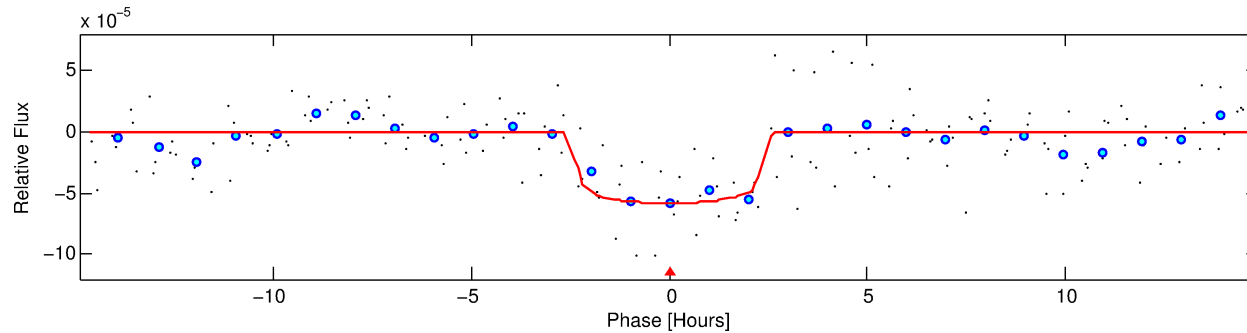
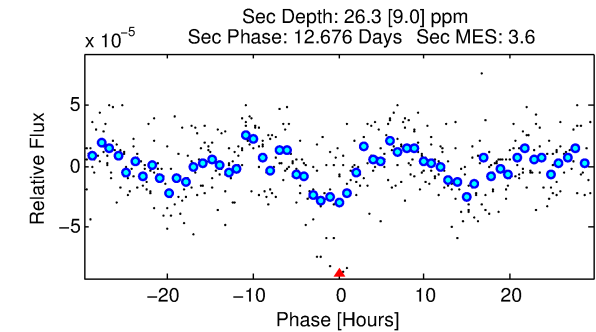
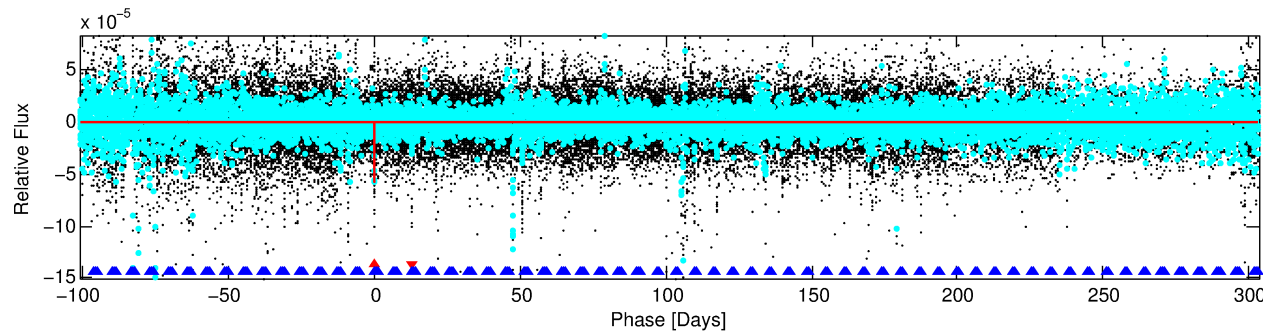
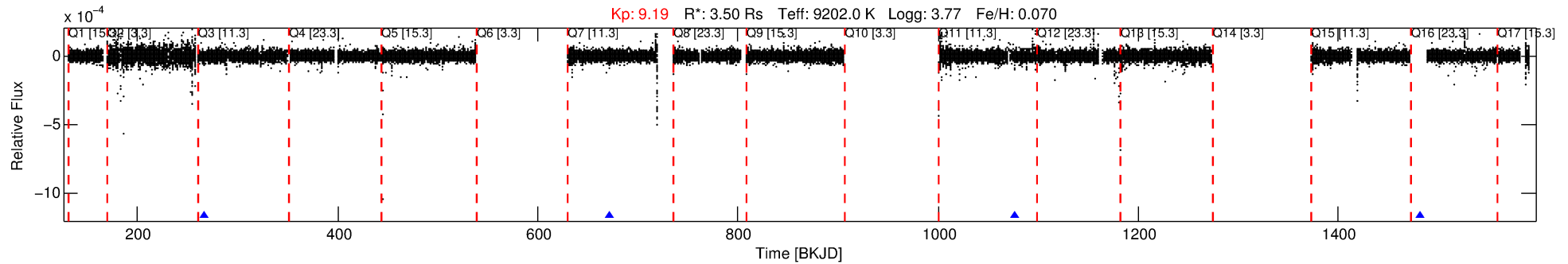
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 004276892-01

No Significant Match Found

DV One-Page Summary

KIC: 4276892 Candidate: 1 of 2 Period: 404.709 d



DV Fit Results:

Period = 404.70910 [0.00526] d
Epoch = 266.7932 [0.0059] BKJD
Rp/R* = 0.0081 [0.0025]
a/R* = 282.97 [618.37]
b = 0.90 [0.46]
Seff = 35.80 [26.59]
Teq = 624 [116] K
Rp = 3.07 [1.87] Re
a = 1.4806 [0.6936] AU
Ag = 3365.14 [3377.88] [1.00σ]
Teffp = 7345 [1347] K [4.97σ]

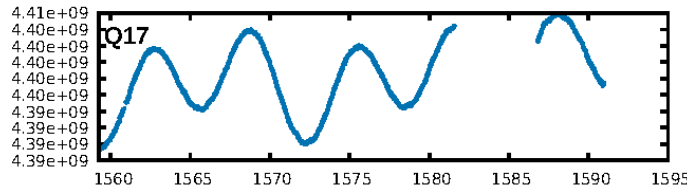
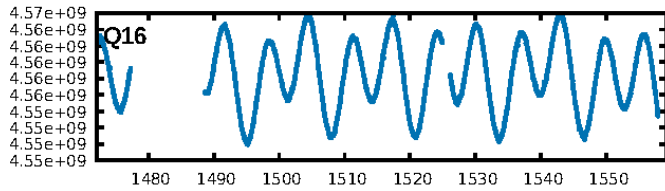
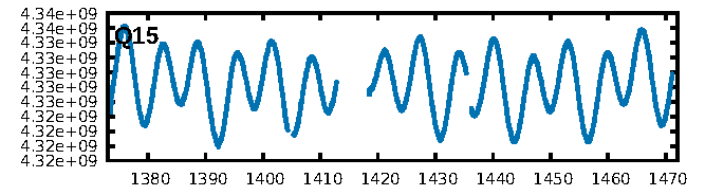
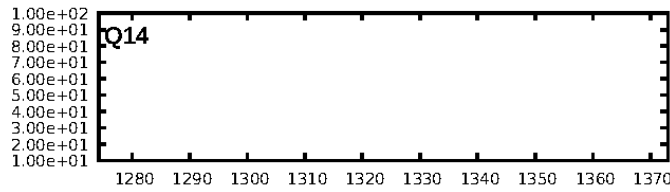
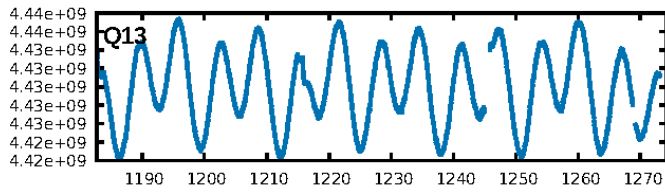
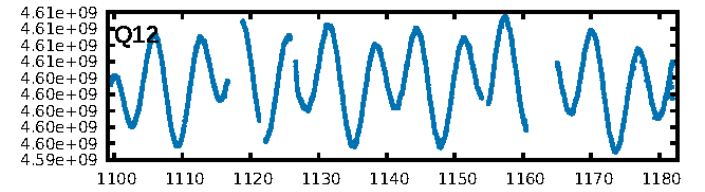
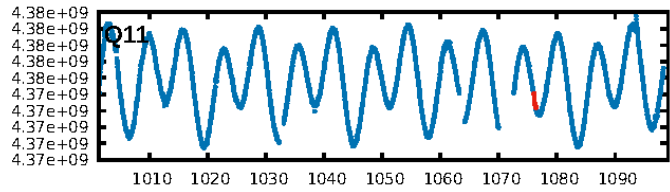
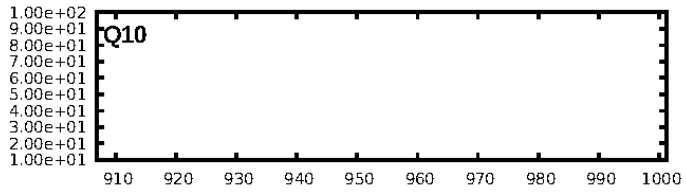
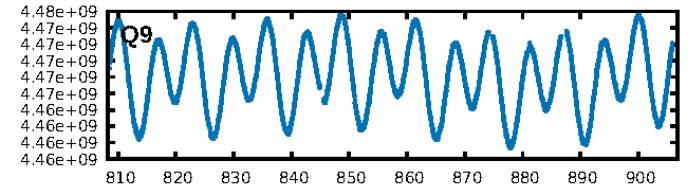
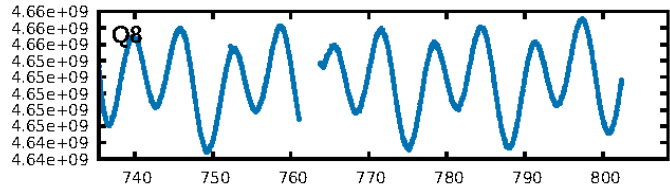
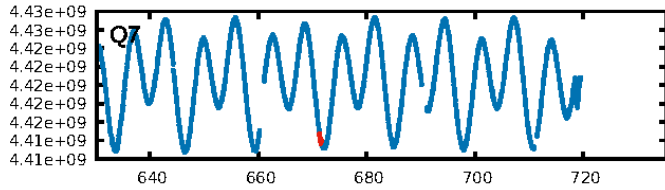
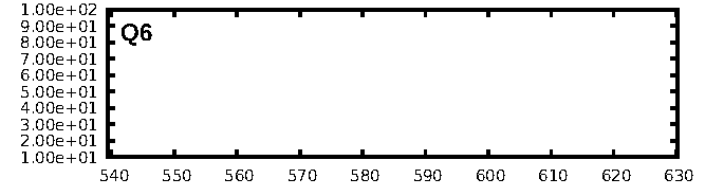
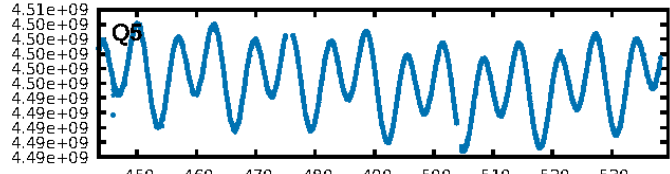
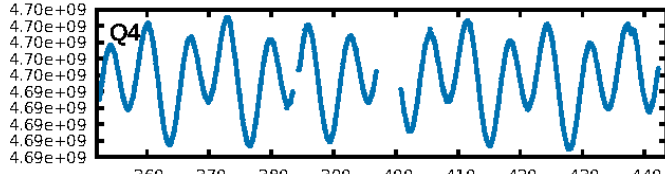
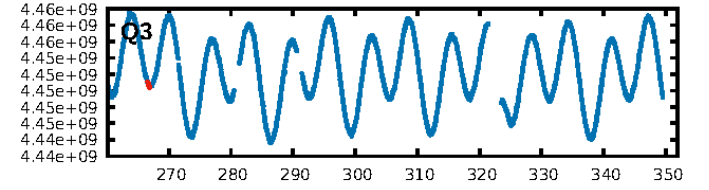
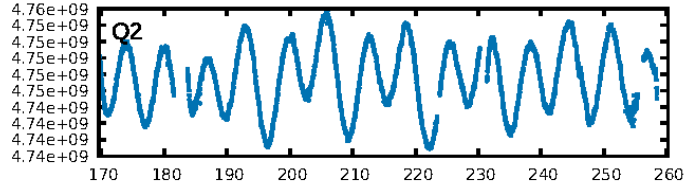
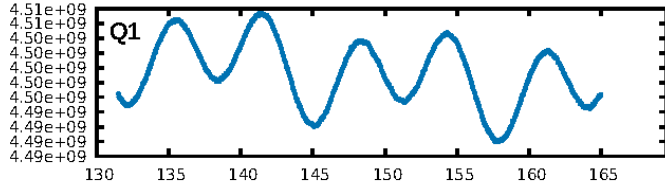
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [551.35σ]
LongPeriod-sig: N/A
ModelChiSquare2-sig: 8.1%
ModelChiSquareGof-sig: 73.9%
Bootstrap-pfa: 1.44e-06
RollingBand-fgt: 1.00 [3/3]
GhostDiagnostic-chr: N/A
Centroid-sig: 30.5%
Centroid-so: 4.467 arcsec [1.16σ]
OotOffset-rm: 7.762 arcsec [36.12σ]
KicOffset-rm: 8.403 arcsec [10.64σ]
OotOffset-st: 0/3/0/0 [3]
KicOffset-st: 0/3/0/0 [3]
DiffImageQuality-fgm: 0.00 [0/3]
DiffImageOverlap-fno: 0.33 [1/3]

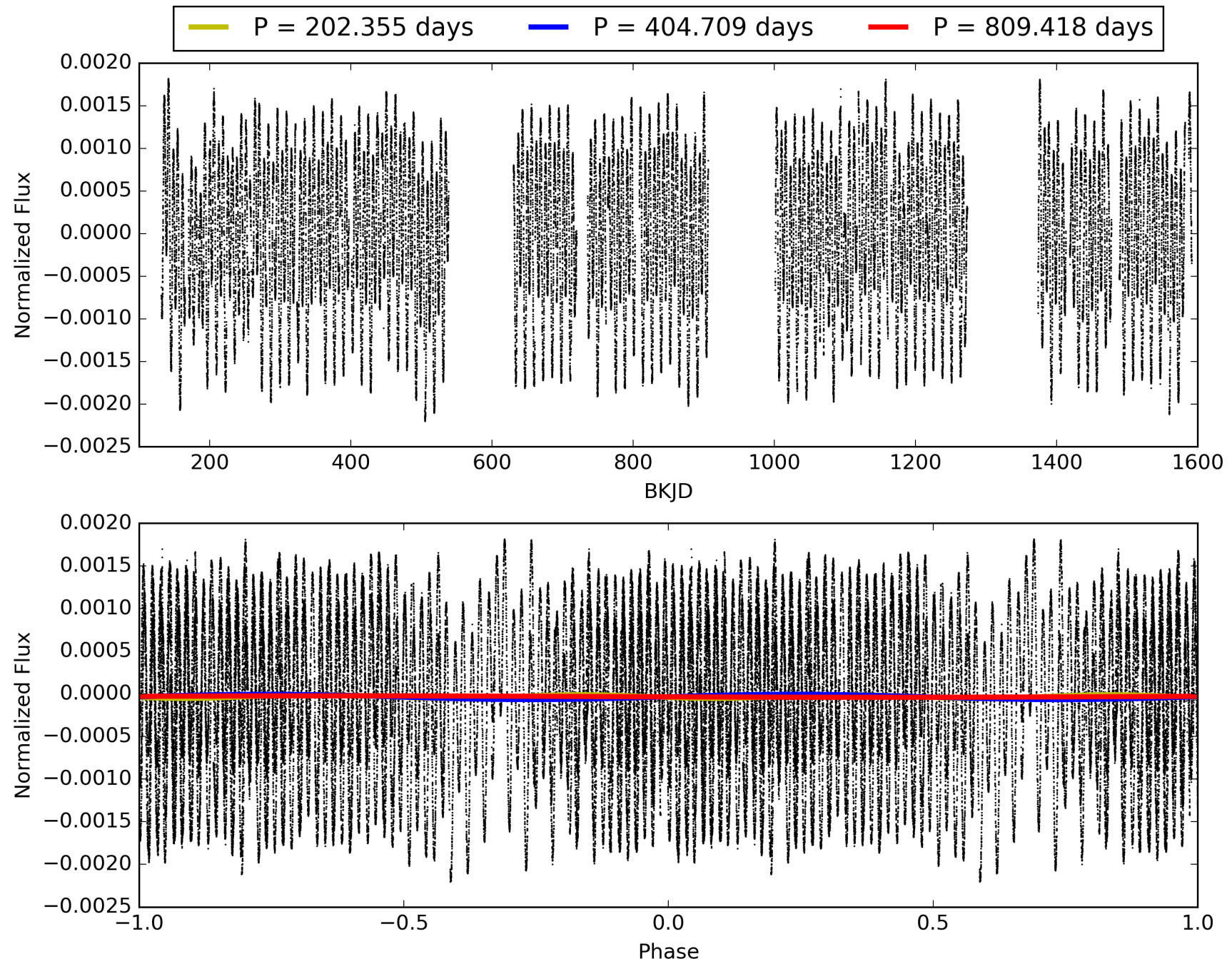
Software Revision: svn-ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 05:43:59 Z

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

TCE 004276892-01, PDC Light Curves

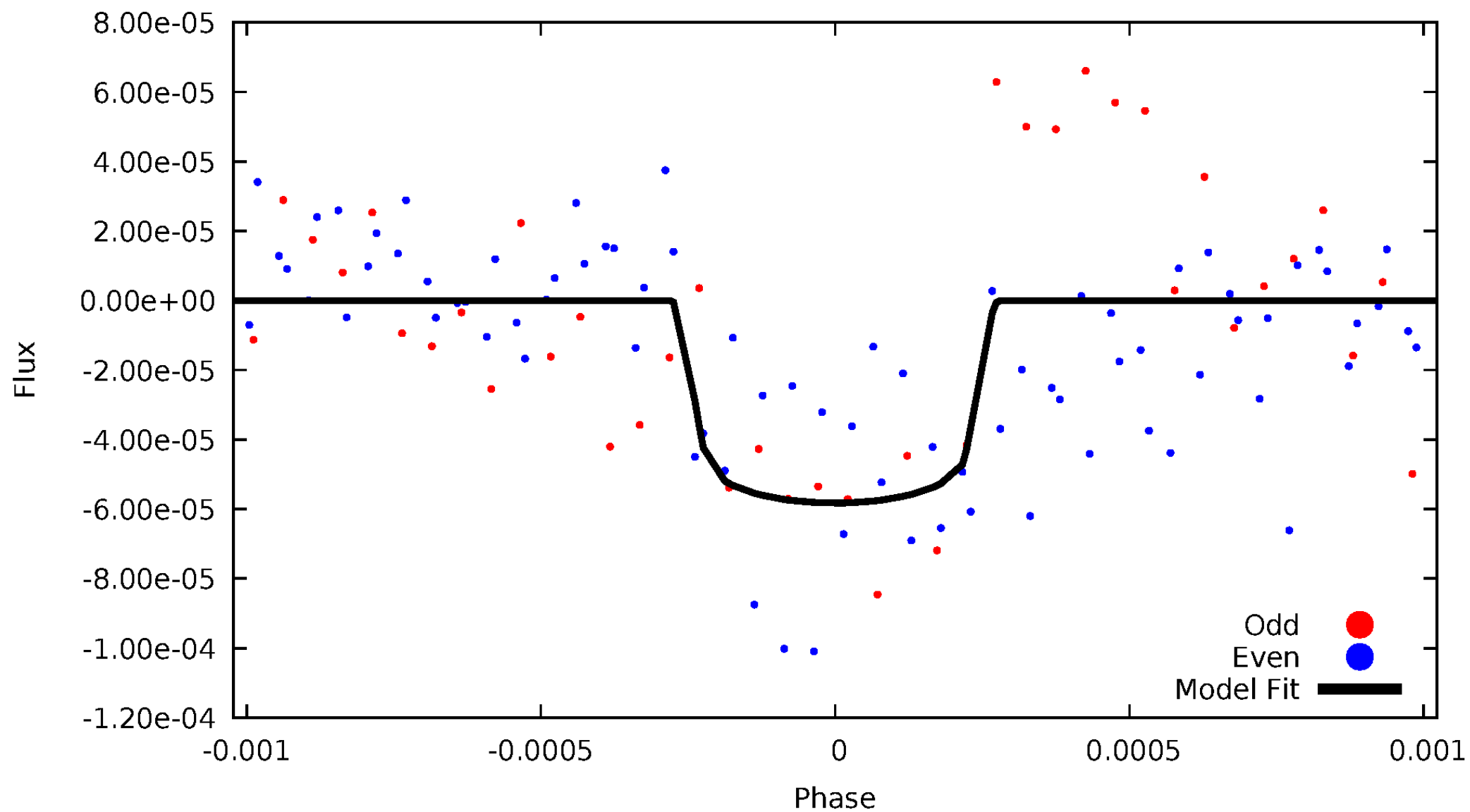


TCE 004276892-01



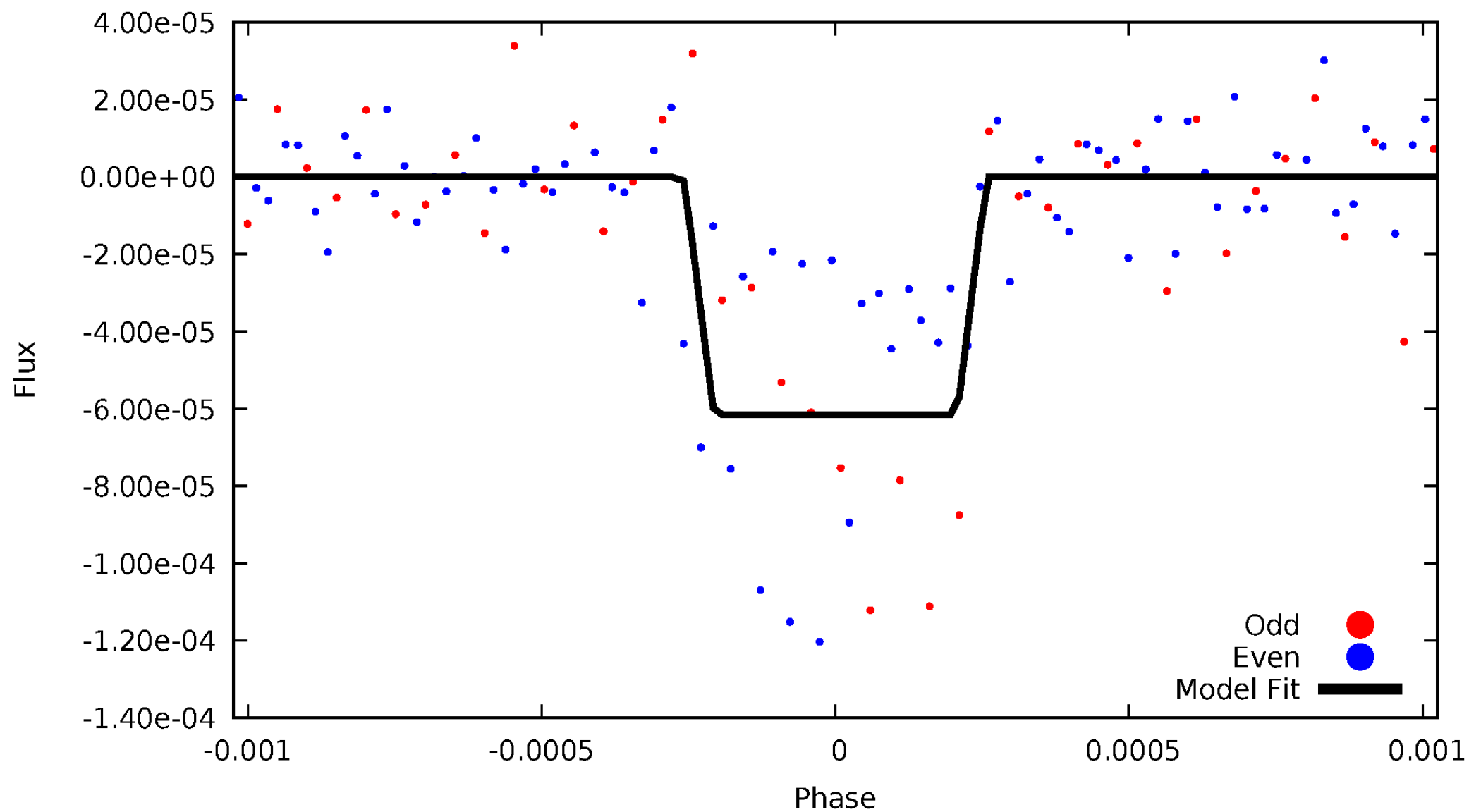
DV Odd/Even

TCE 004276892-01



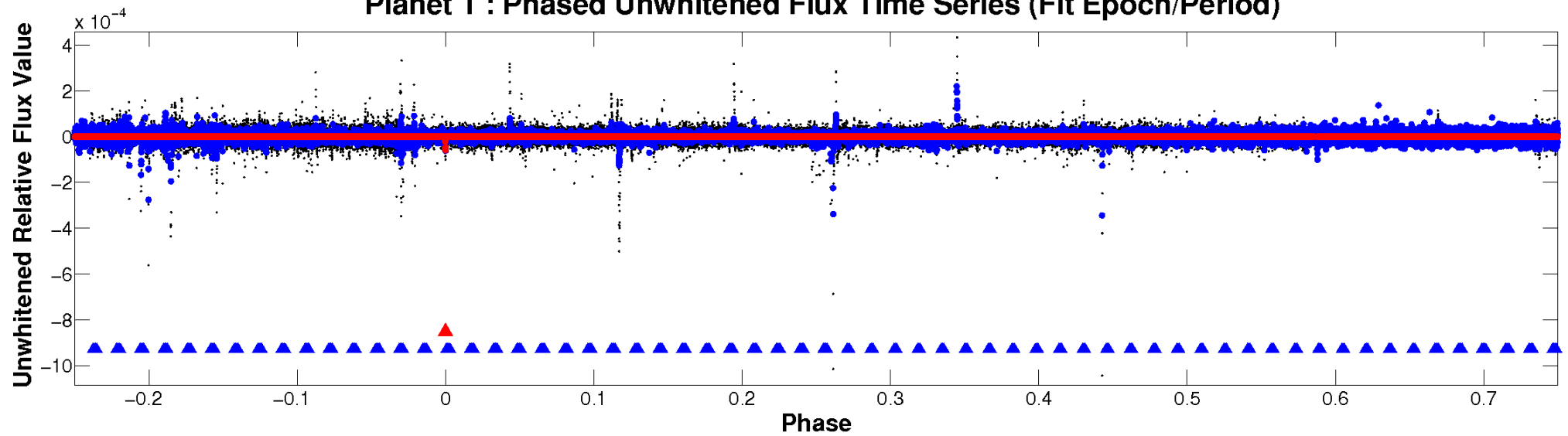
ALT Odd/Even

TCE 004276892-01

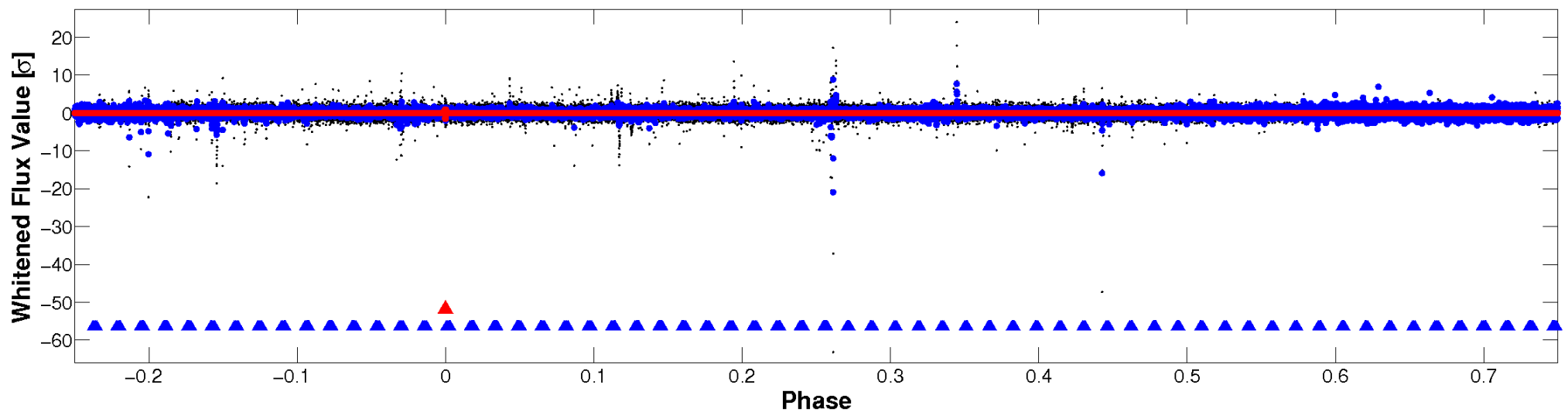


Non-Whitened Vs. Whitened Light Curve

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

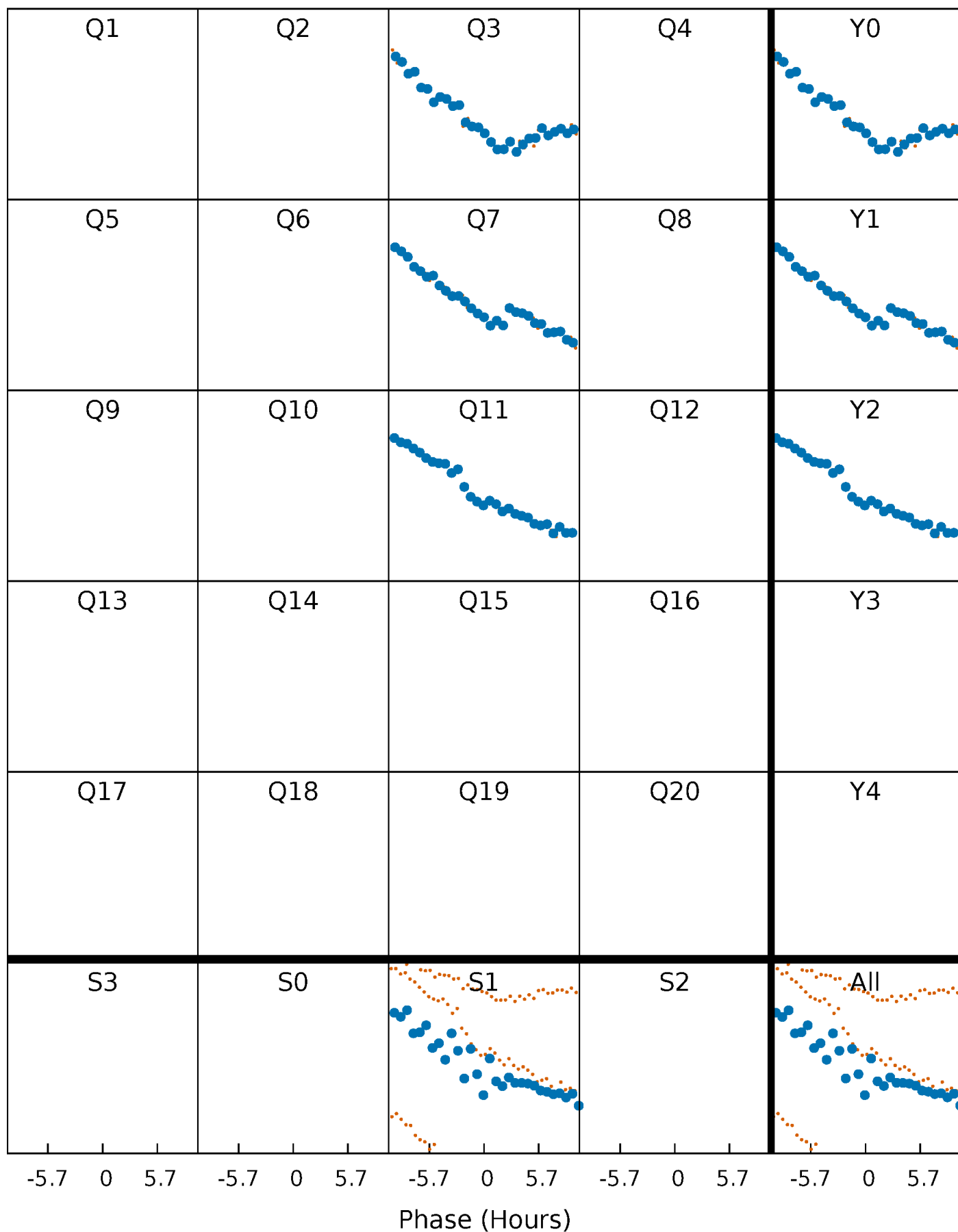


Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)



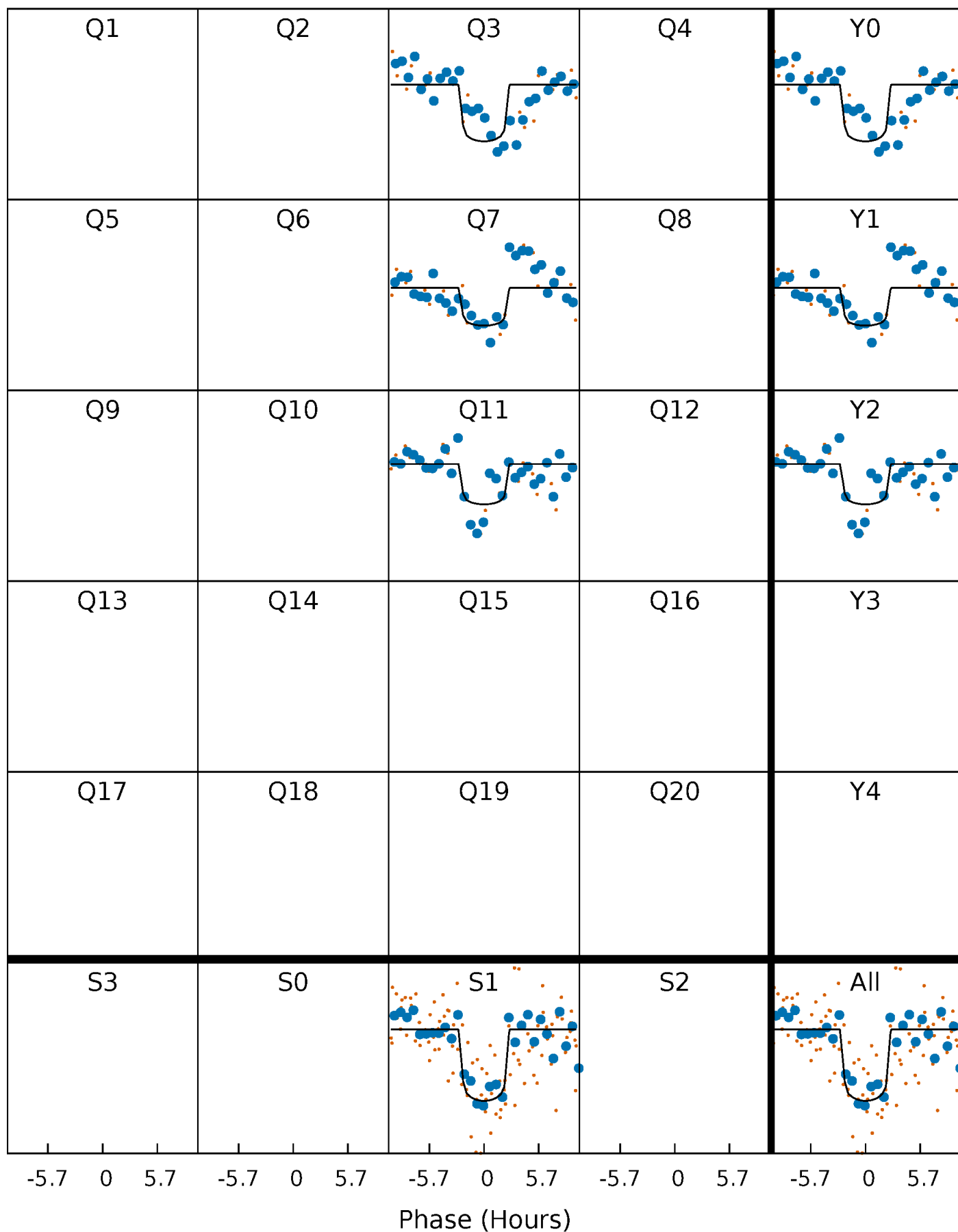
PDC Quarter-Phased Transit Curves

TCE 004276892-01 P=404.709095 Days $T_0=266.793165$ (BKJD)



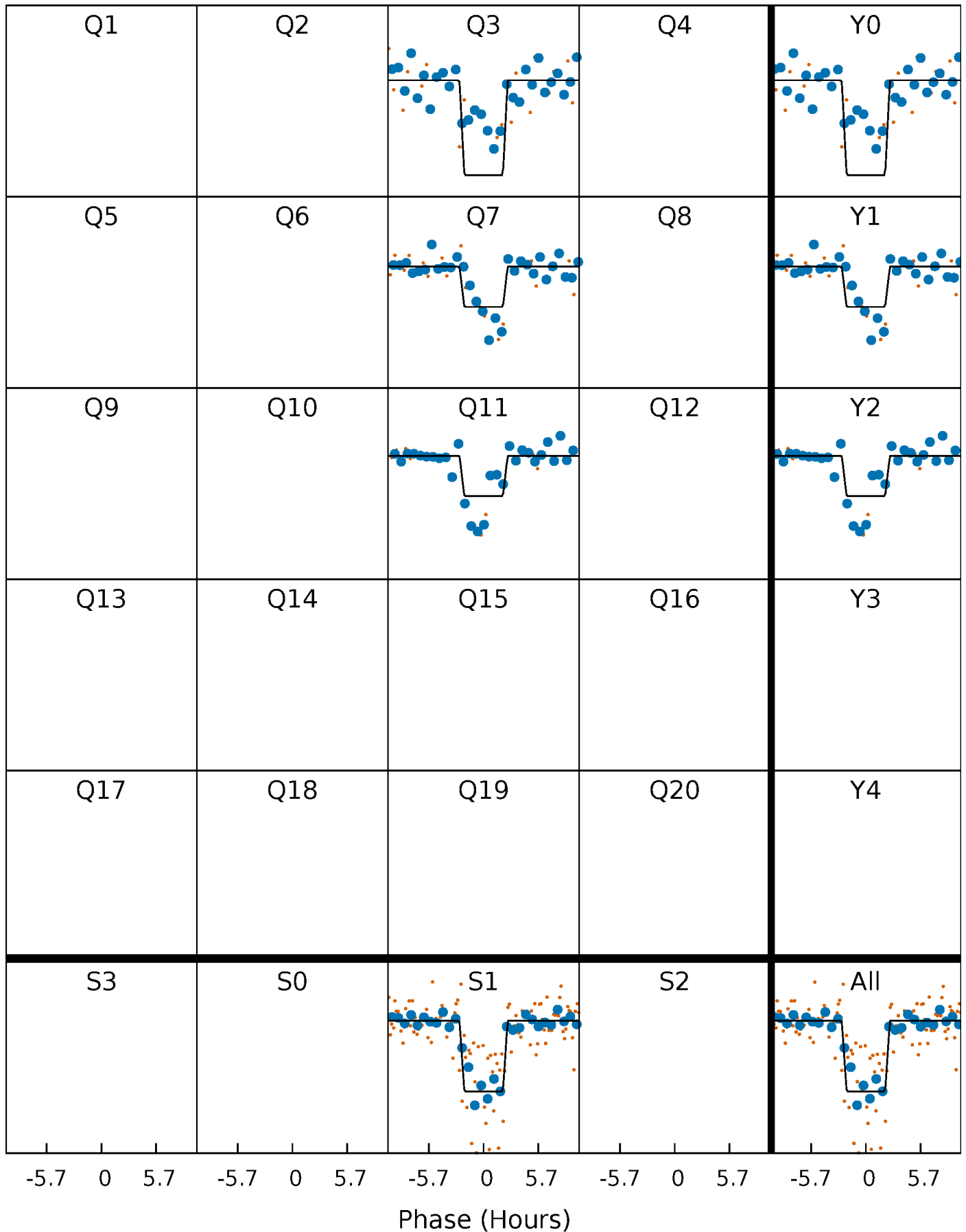
DV Quarter-Phased Transit Curves

TCE 004276892-01 P=404.709095 Days $T_0=266.793165$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

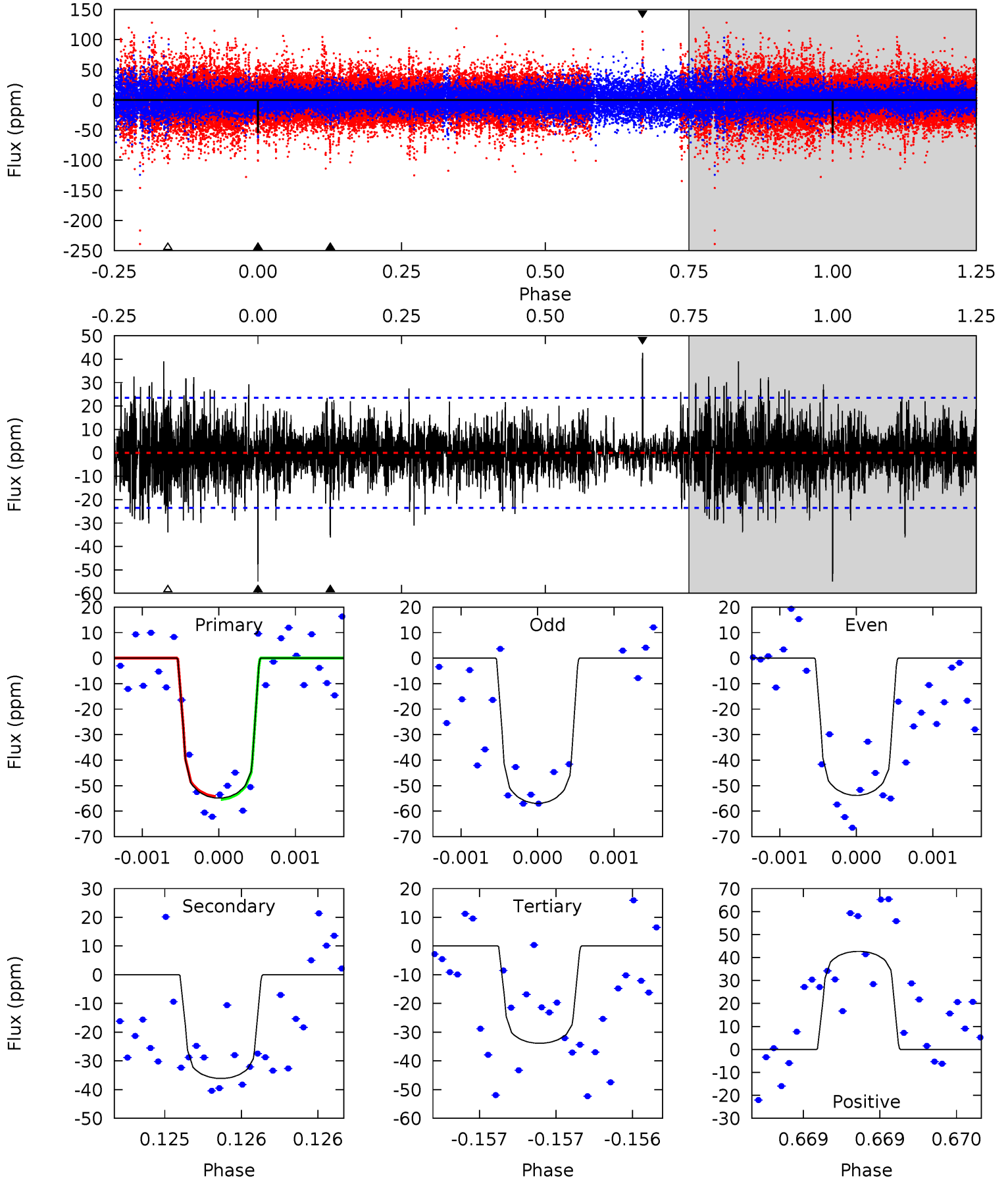
TCE 004276892-01 P=404.700278 Days $T_0=266.807020$ (BKJD)



DV Model-Shift Uniqueness Test

004276892-01, P = 404.709095 Days, E = 266.793165 Days

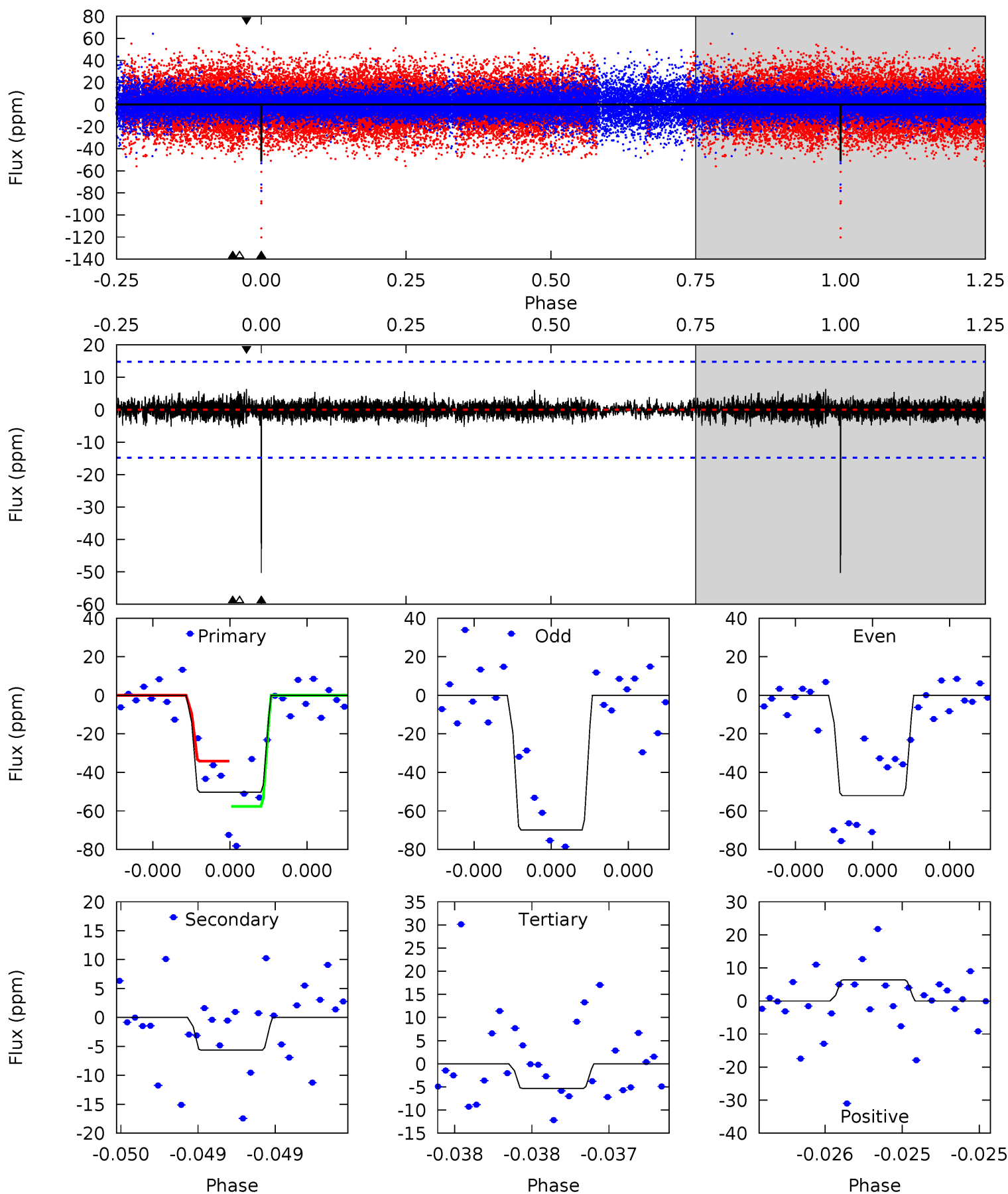
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
13.0	8.55	8.02	10.1	5.57	3.47	1.93	4.96	2.88	0.53	-1.55	0.34	0.96	0.44	0.13



Alt Model-Shift Uniqueness Test

004276892-01, P = 404.700278 Days, E = 266.807020 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
18.9	2.12	2.01	2.40	5.58	3.49	0.51	16.9	16.5	0.12	-0.28	3.40	0.83	0.11	4.28



Stellar Parameters For KIC 004276892

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	M (M_{\odot})	p_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	9202^{+251}_{-466}	$3.773^{+0.406}_{-0.145}$	$0.070^{+0.150}_{-0.750}$	$3.495^{+0.988}_{-1.834}$	$2.641^{+0.324}_{-0.972}$	$0.087^{+0.413}_{-0.039}$
	+3%/-5%	+11%/-4%	+214%/-1071%	+28%/-52%	+12%/-37%	+474%/-45%
Source	KIC0	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 004276892-01 / KOI

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	-36 ± 4	$2.76^{+1.20}_{-1.08}$	841^{+78}_{-110}	7640^{+2081}_{-1143}	5736^{+8726}_{-2948}
Alt.	-6 ± 3	$2.77^{+1.25}_{-1.05}$	848^{+75}_{-101}	4813^{+947}_{-717}	817^{+1242}_{-502}

T_{max} = Theoretical Maximum Planetary Temperature
 T_{obs} = Observed Planetary Temperature (Assuming $A=0.3$)
 A_{obs} = Observed Albedo (Assuming $T=0$)

If a secondary eclipse is present, the system is likely an EB if $T_{\text{obs}} \gg T_{\text{max}}$ AND $A_{\text{obs}} \gg 1.0$

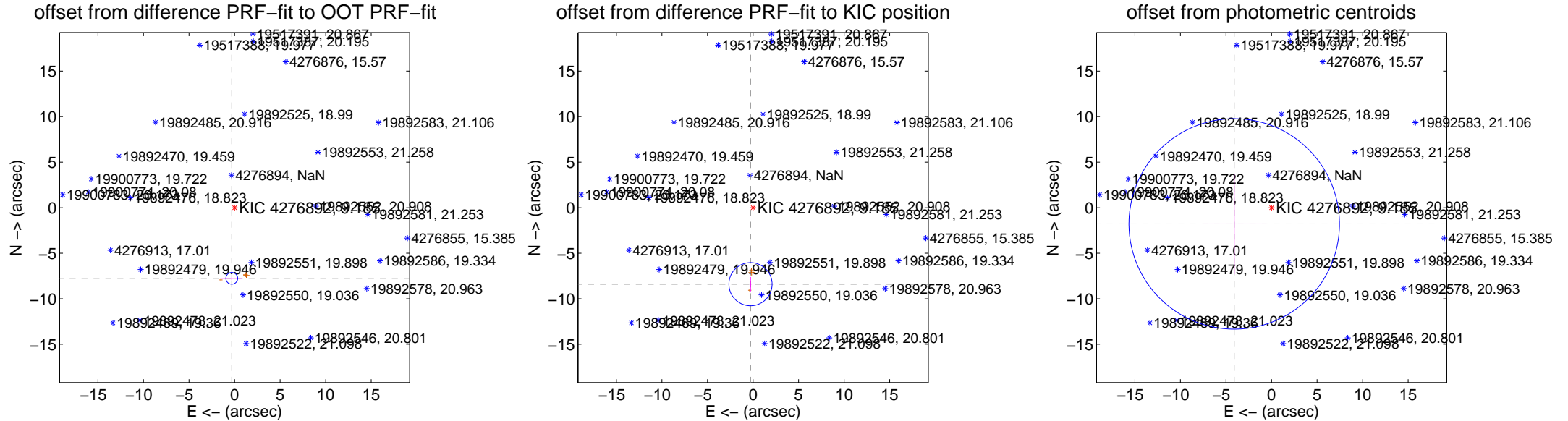
DV Centroid Data

Supplemental centroid analysis for 004276892-01. **Kepler magnitude: 9.19.** Transit SNR 8.49

There are 0 quarters with good PRF difference image offsets

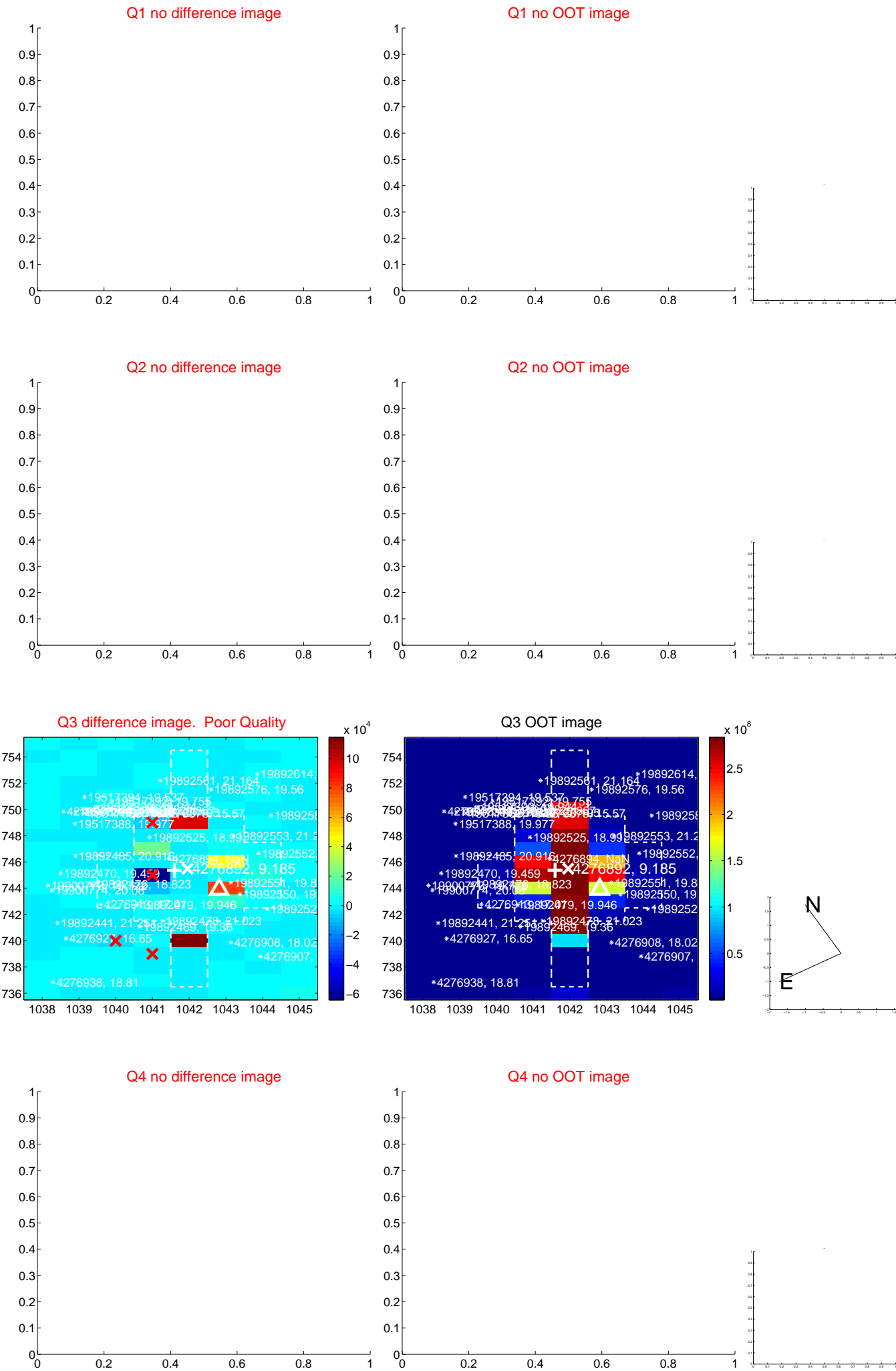
The direct PRF centroid is offset from the target star catalog position by about 1.61 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	7.762 ± 0.215	36.12	0.307 ± 1.126	-7.756 ± 0.210
PRF-fit source offset from KIC position	8.403 ± 0.790	10.64	0.280 ± 0.105	-8.399 ± 0.791
photometric centroid source offset	4.47 ± 3.85	1.16	4.10 ± 3.44	-1.78 ± 5.53

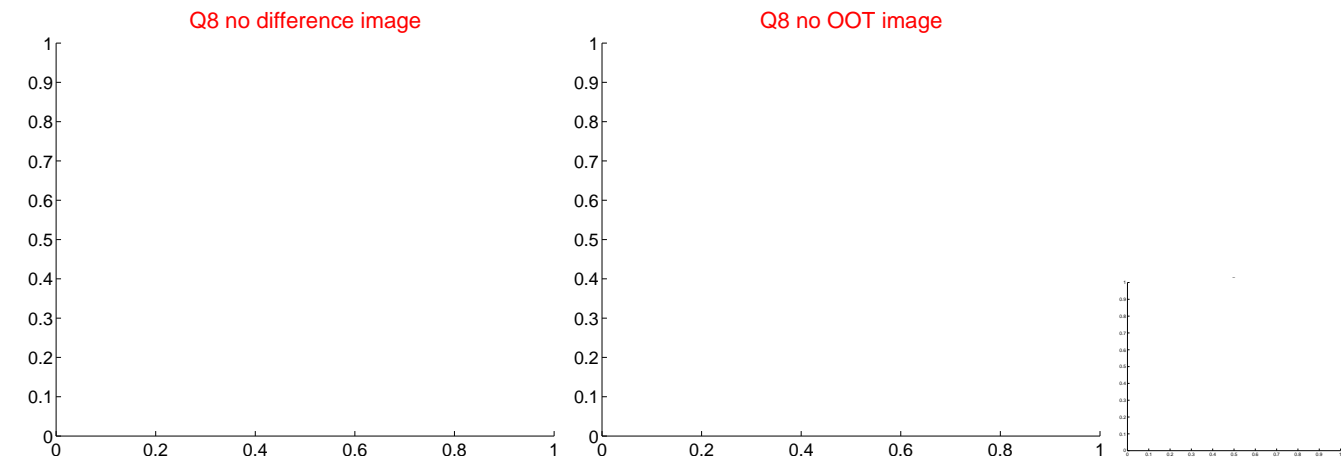
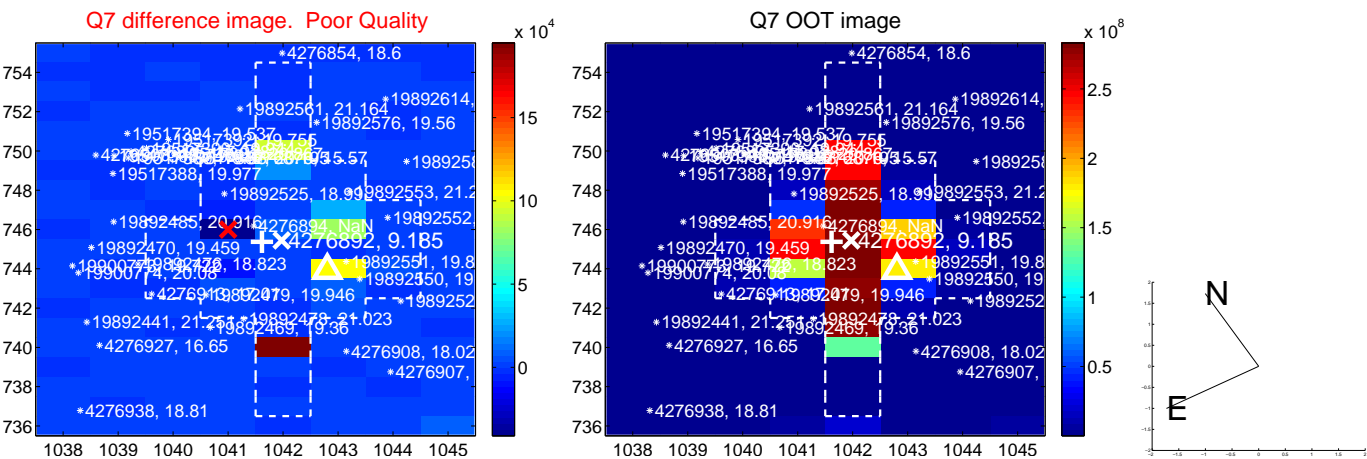


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets;** magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

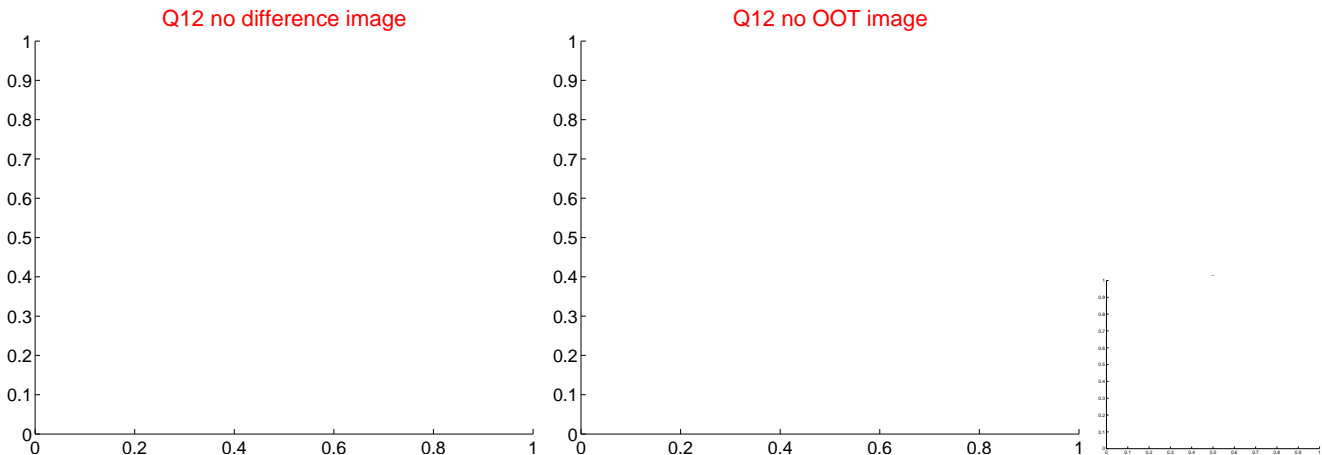
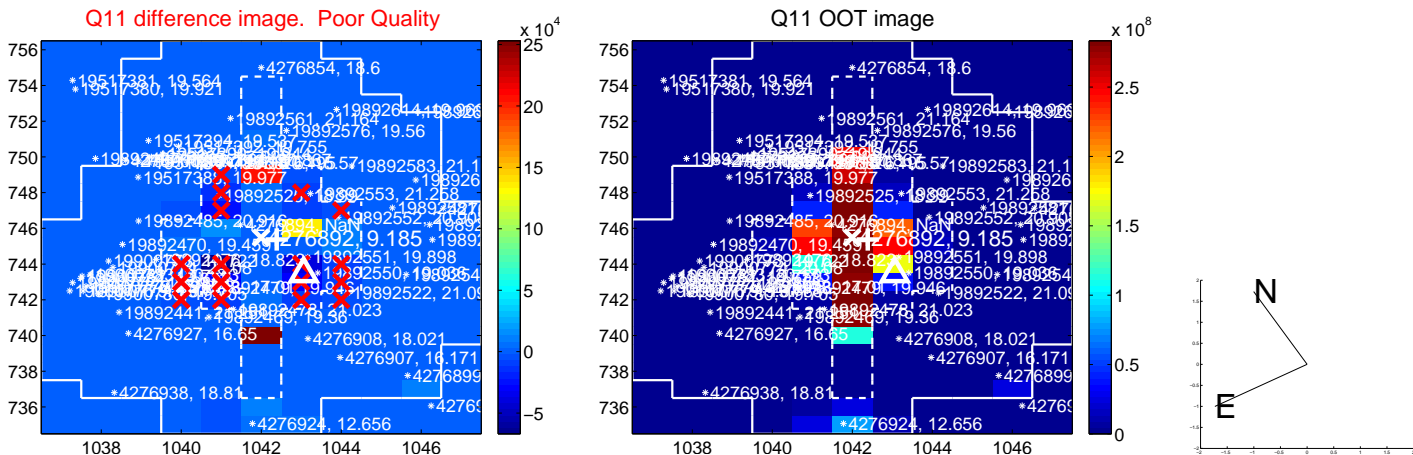
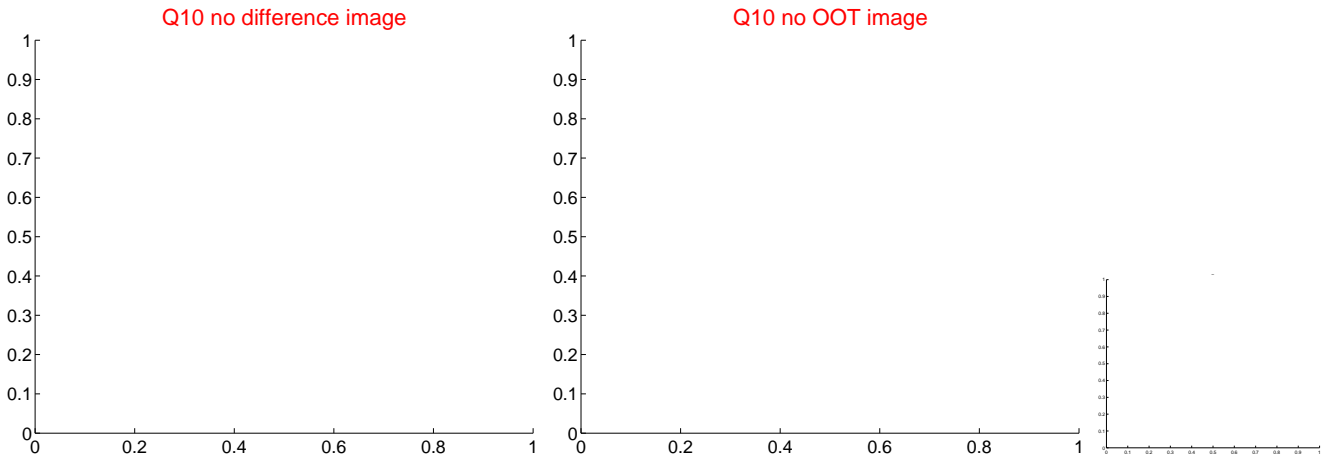
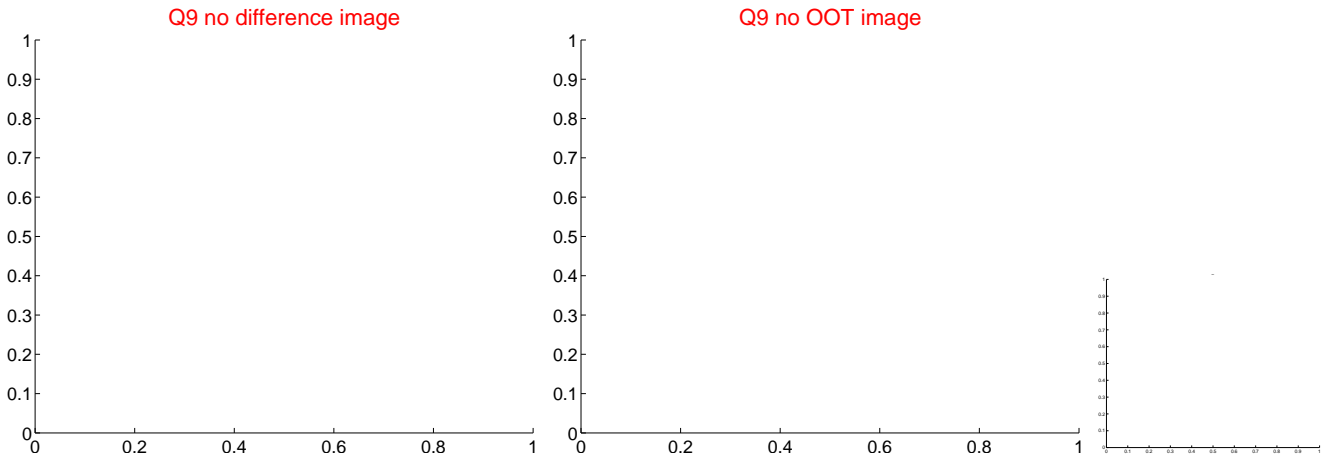
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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



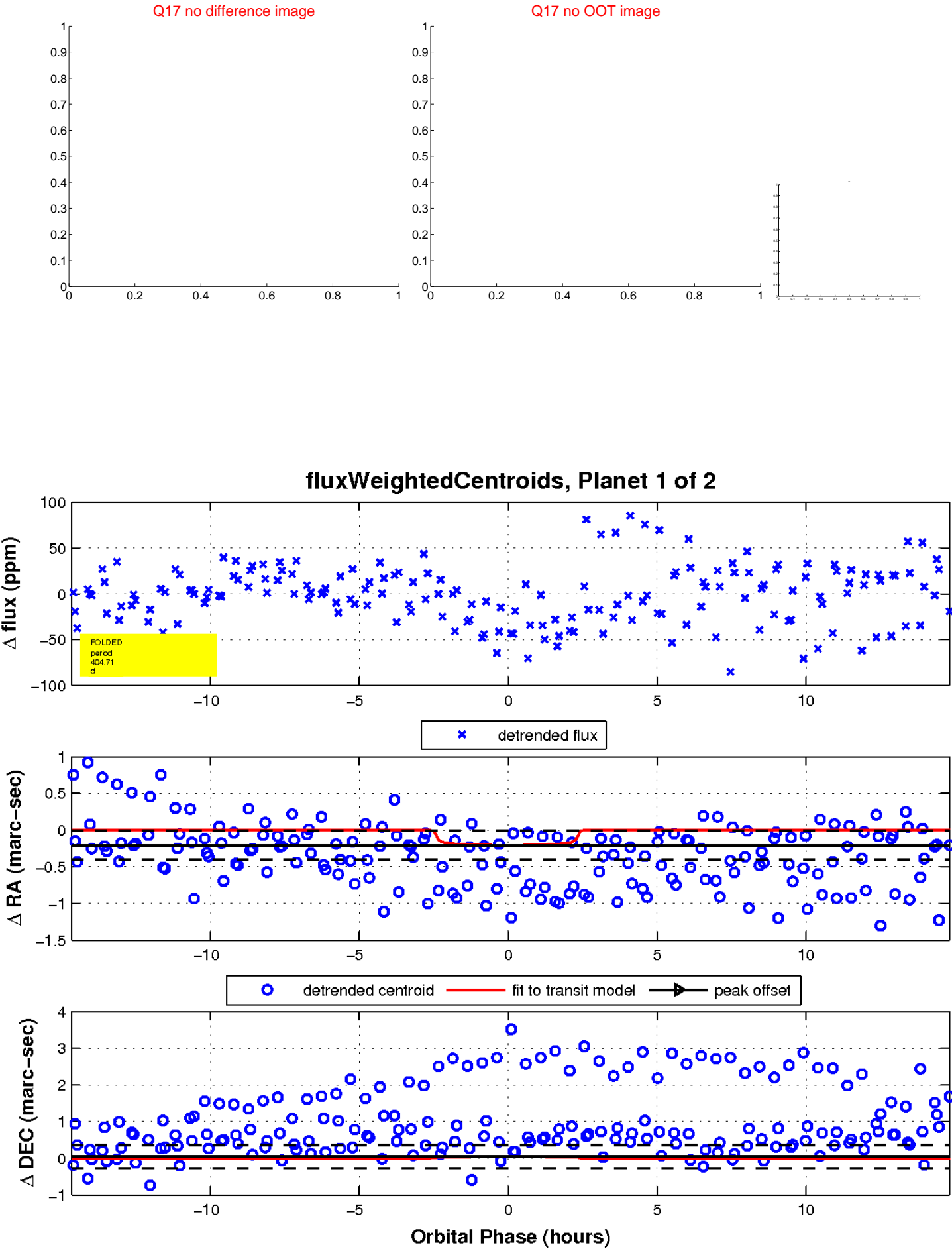
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



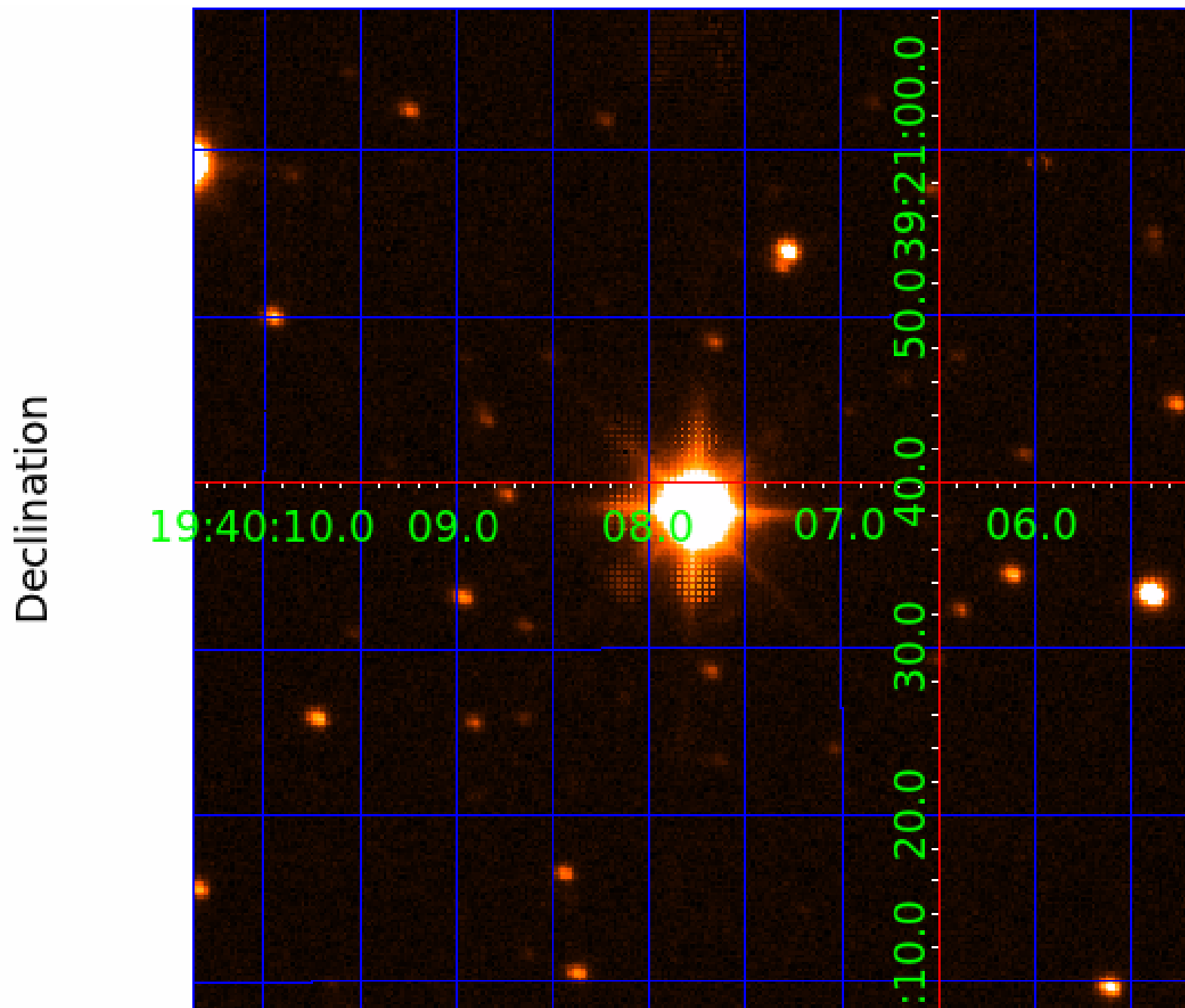
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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



UKIRT Image



KIC 004276892

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})
004276892-01	OBS	No	404.709095	266.793165	58.2	4.964	8.0	8.5	3.50	9202	3.07	35.80
004276892-02	OBS	No	6.429477	132.014563	7.7	16.611	8.5	8.5	3.50	9202	1.12	8963.70

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
004276892-01	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—ALL_TRANS_CHASES—CENT_SATURATED
004276892-02	OBS	FP	0.00	1	0	0	0	LPP_DV—MOD_NONUNIQ_DV—CENT_SATURATED

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

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

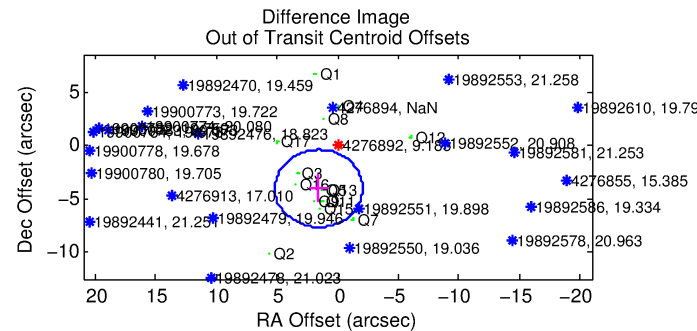
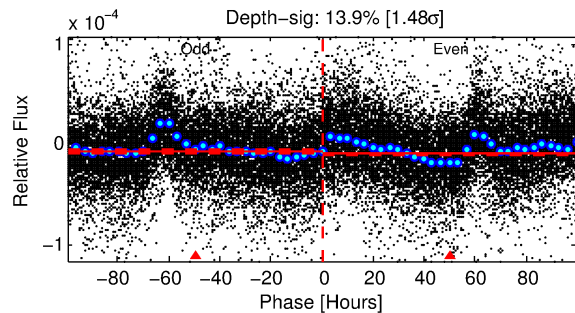
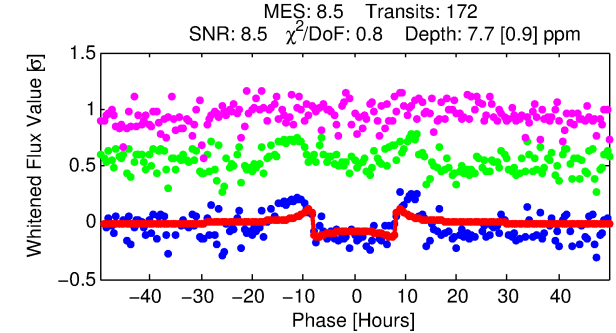
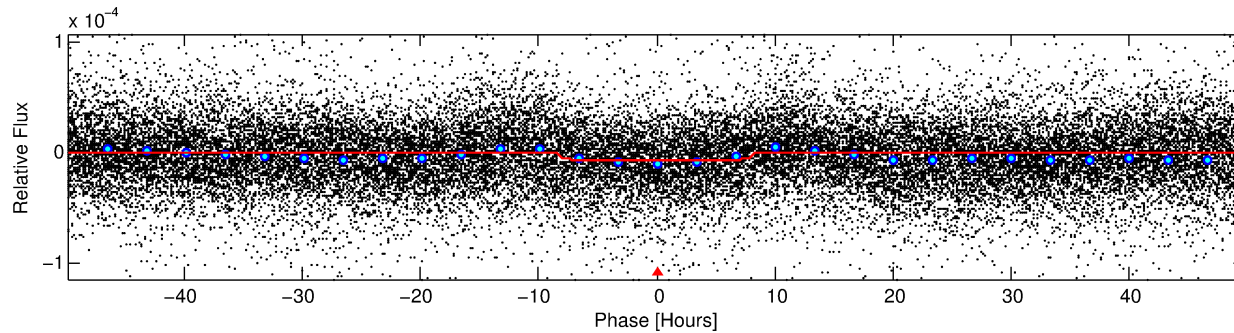
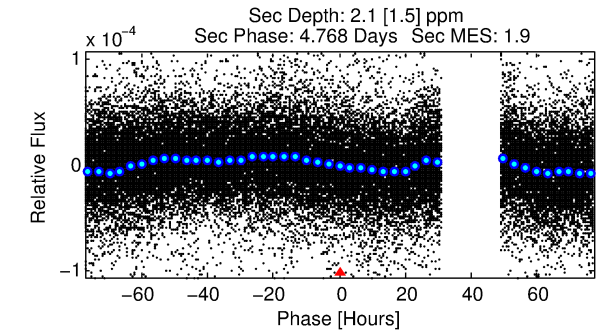
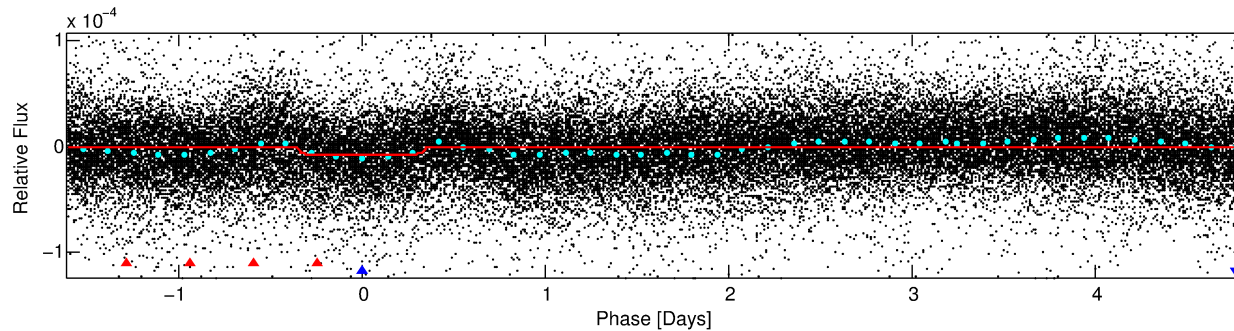
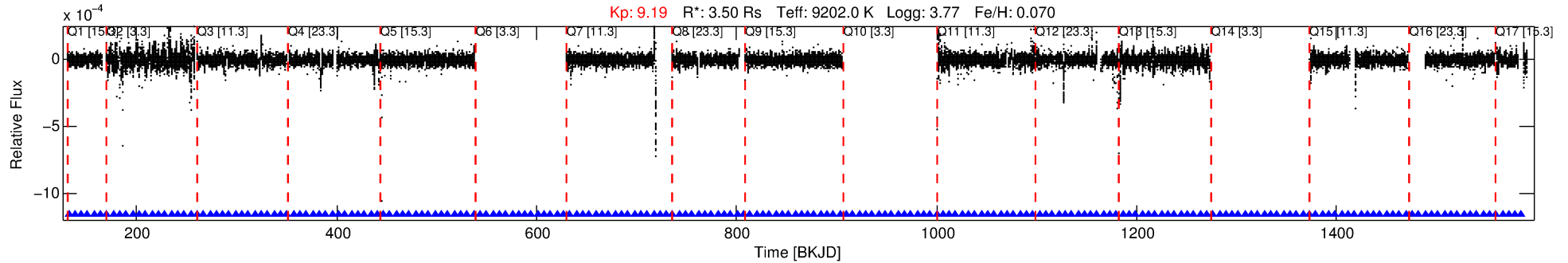
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 004276892-02

No Significant Match Found

DV One-Page Summary

KIC: 4276892 Candidate: 2 of 2 Period: 6.429 d



DV Fit Results:

Period = 6.42948 [0.00006] d
Epoch = 132.0146 [0.0065] BKJD
Rp/R* = 0.0029 [0.0002]
a/R* = 1.61 [0.31]
b = 0.90 [0.07]
Seff = 8963.70 [6658.74]
Teq = 2481 [461] K
Rp = 1.12 [0.59] Re
a = 0.0936 [0.0438] AU
Ag = 8.01 [8.34] [0.84 sigma]
Teffp = 6454 [1262] K [2.96 sigma]

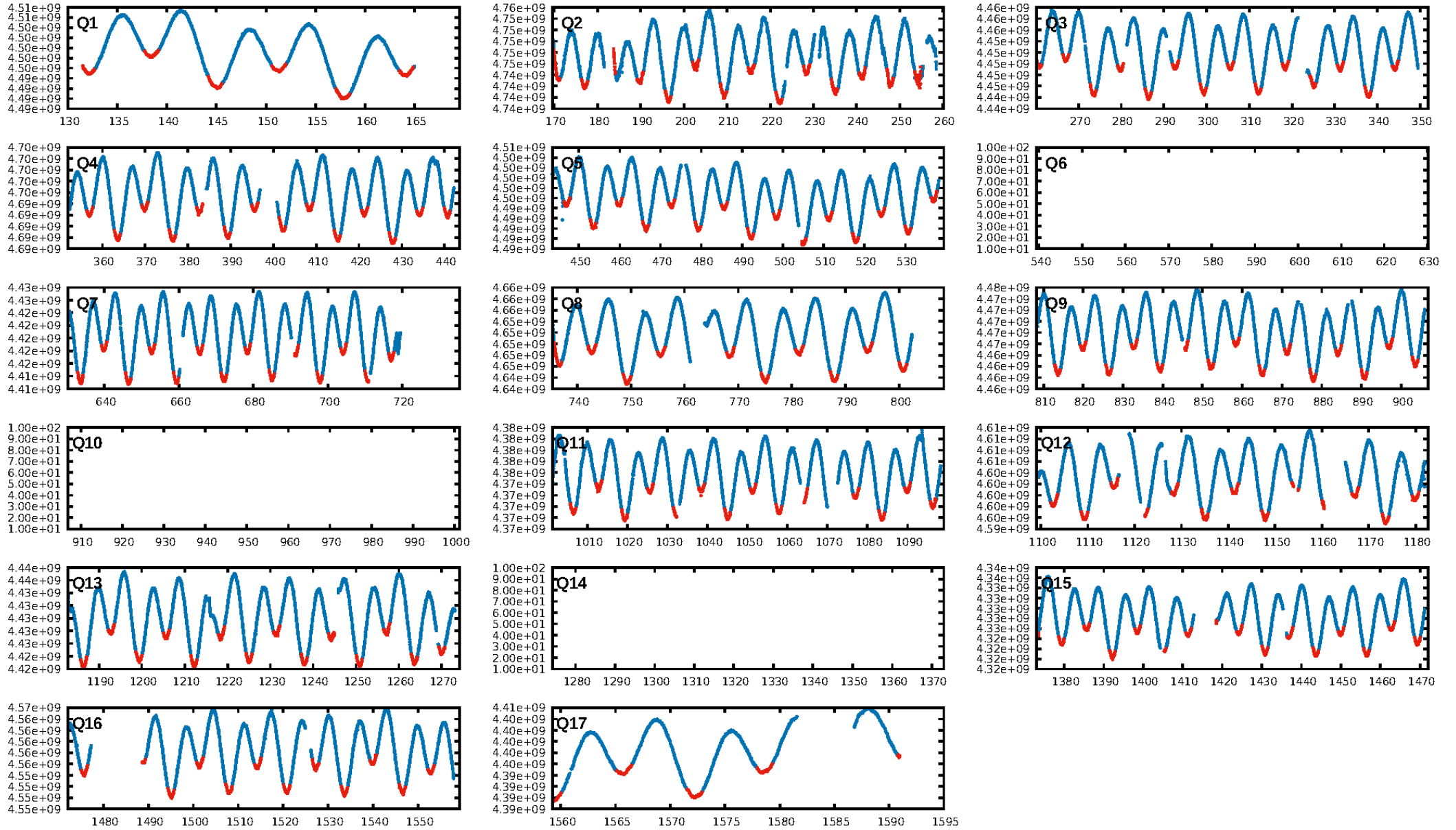
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: 100.0% [551.35 sigma]
ModelChiSquare2-sig: 100.0%
ModelChiSquareGof-sig: 100.0%
Bootstrap-pfa: 1.84e-11
RollingBand-fgt: 1.00 [162/162]
GhostDiagnostic-chr: N/A
Centroid-sig: 58.7%
Centroid-so: 3.194 arcsec [0.72 sigma]
OotOffset-rm: 4.331 arcsec [3.60 sigma]
KicOffset-rm: 5.803 arcsec [5.11 sigma]
OotOffset-st: 1/4/4/5 [14]
KicOffset-st: 1/4/4/5 [14]
DiffImageQuality-fgm: 0.00 [0/14]
DiffImageOverlap-fno: 1.00 [14/14]

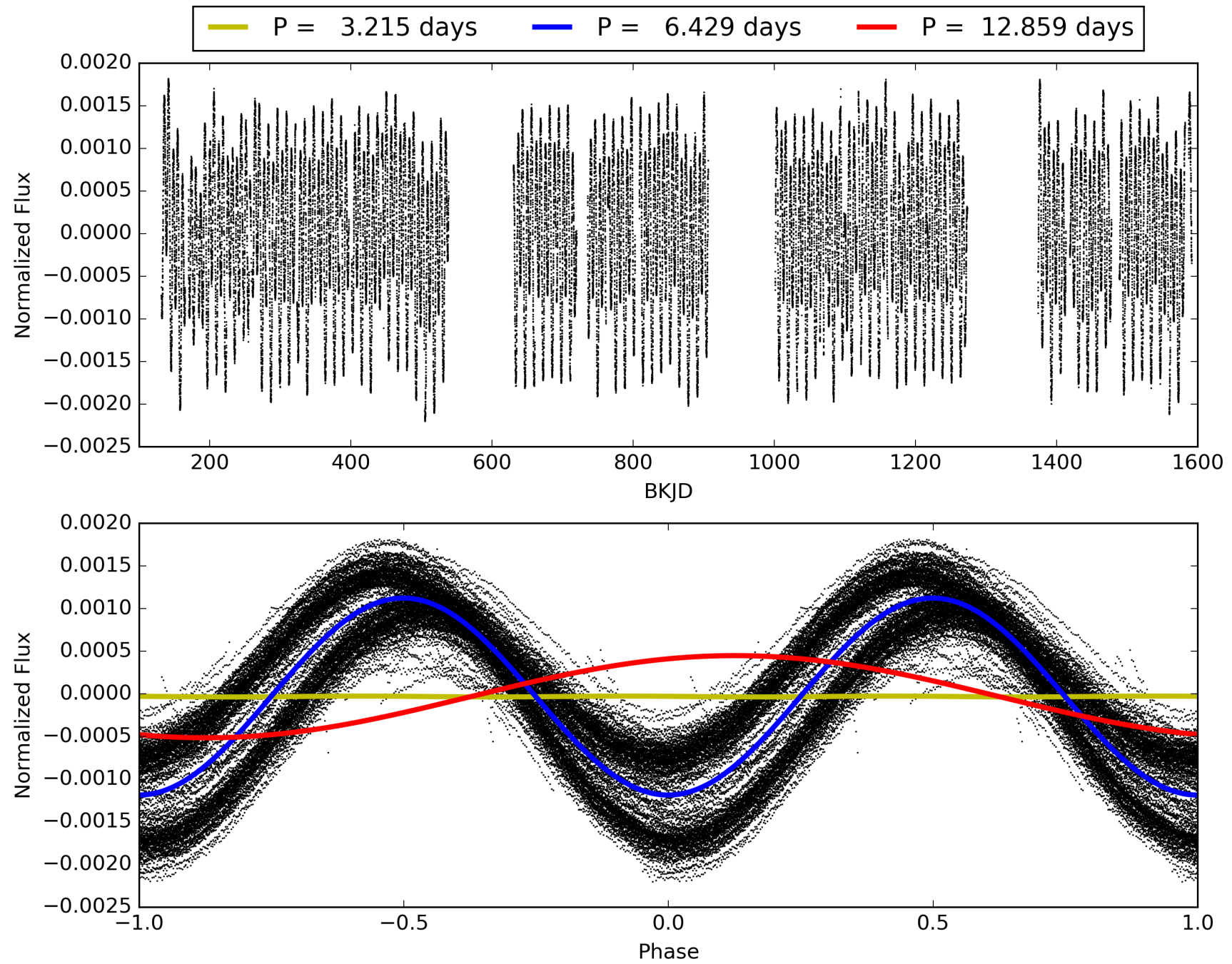
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 05:44:06 Z

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

TCE 004276892-02, PDC Light Curves

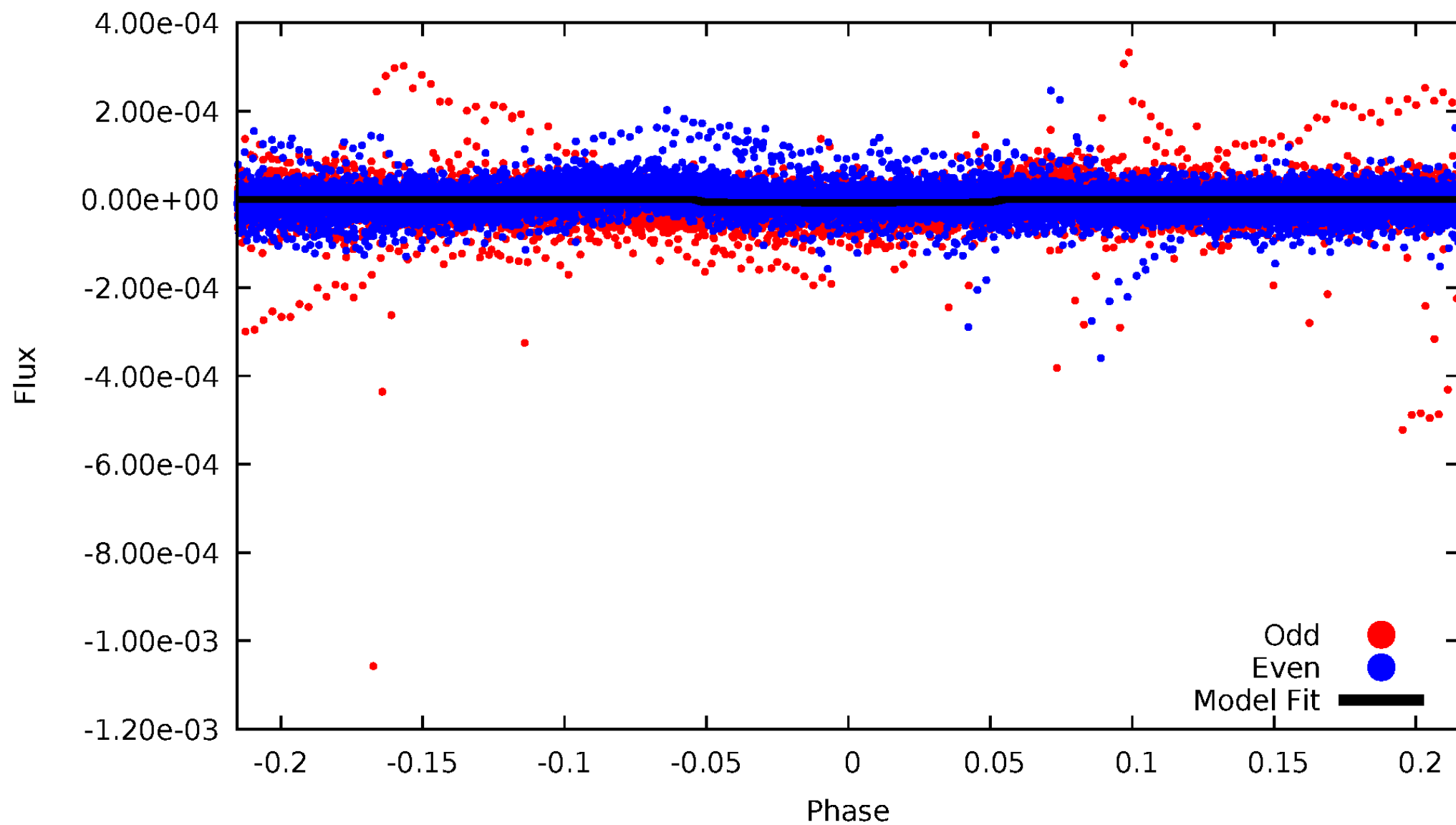


TCE 004276892-02



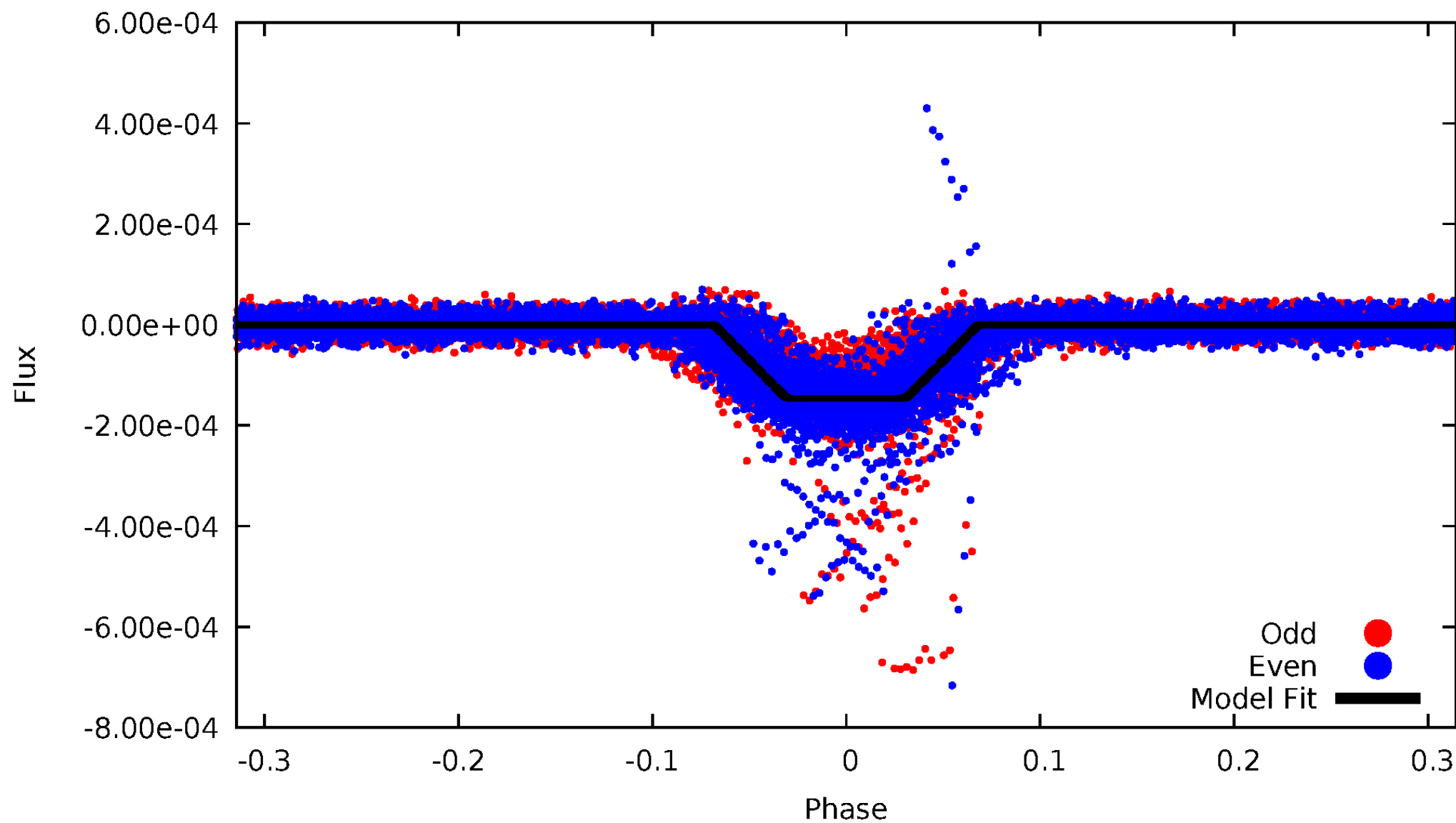
DV Odd/Even

TCE 004276892-02



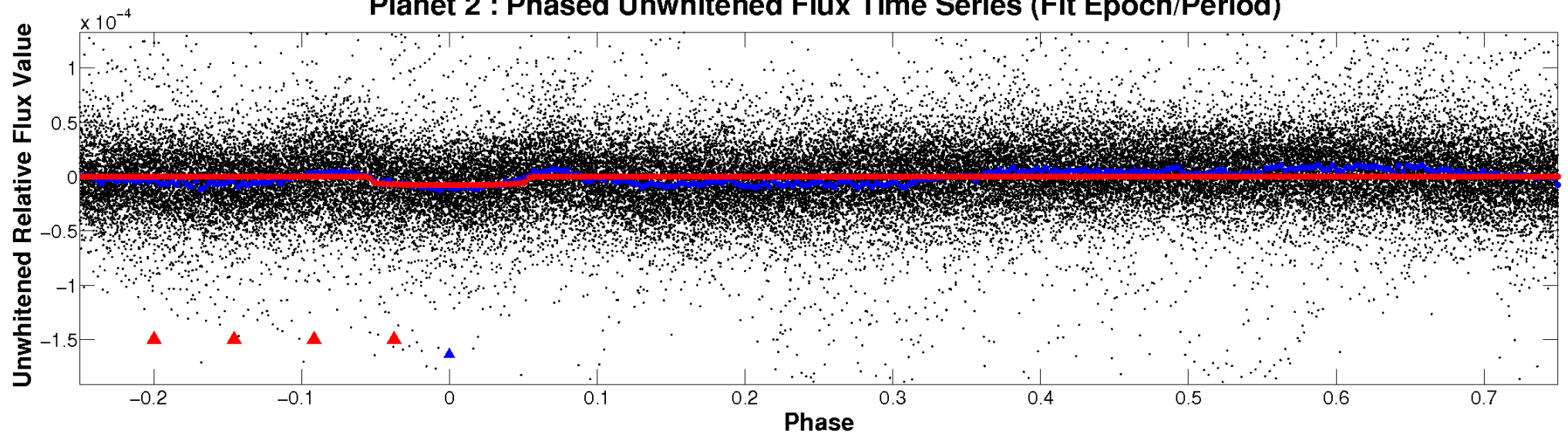
ALT Odd/Even

TCE 004276892-02

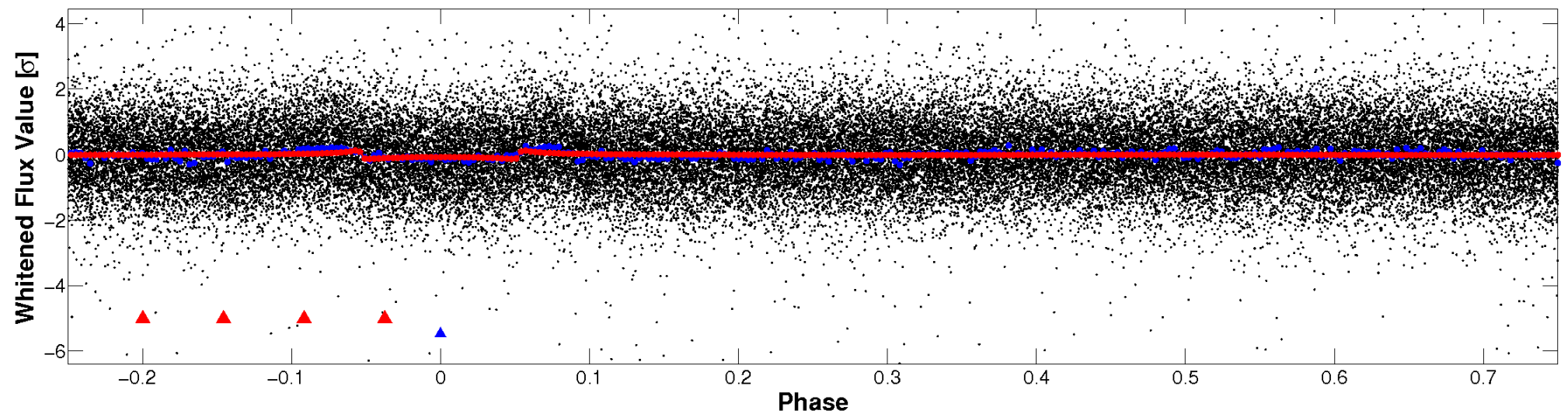


Non-Whitened Vs. Whitened Light Curve

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

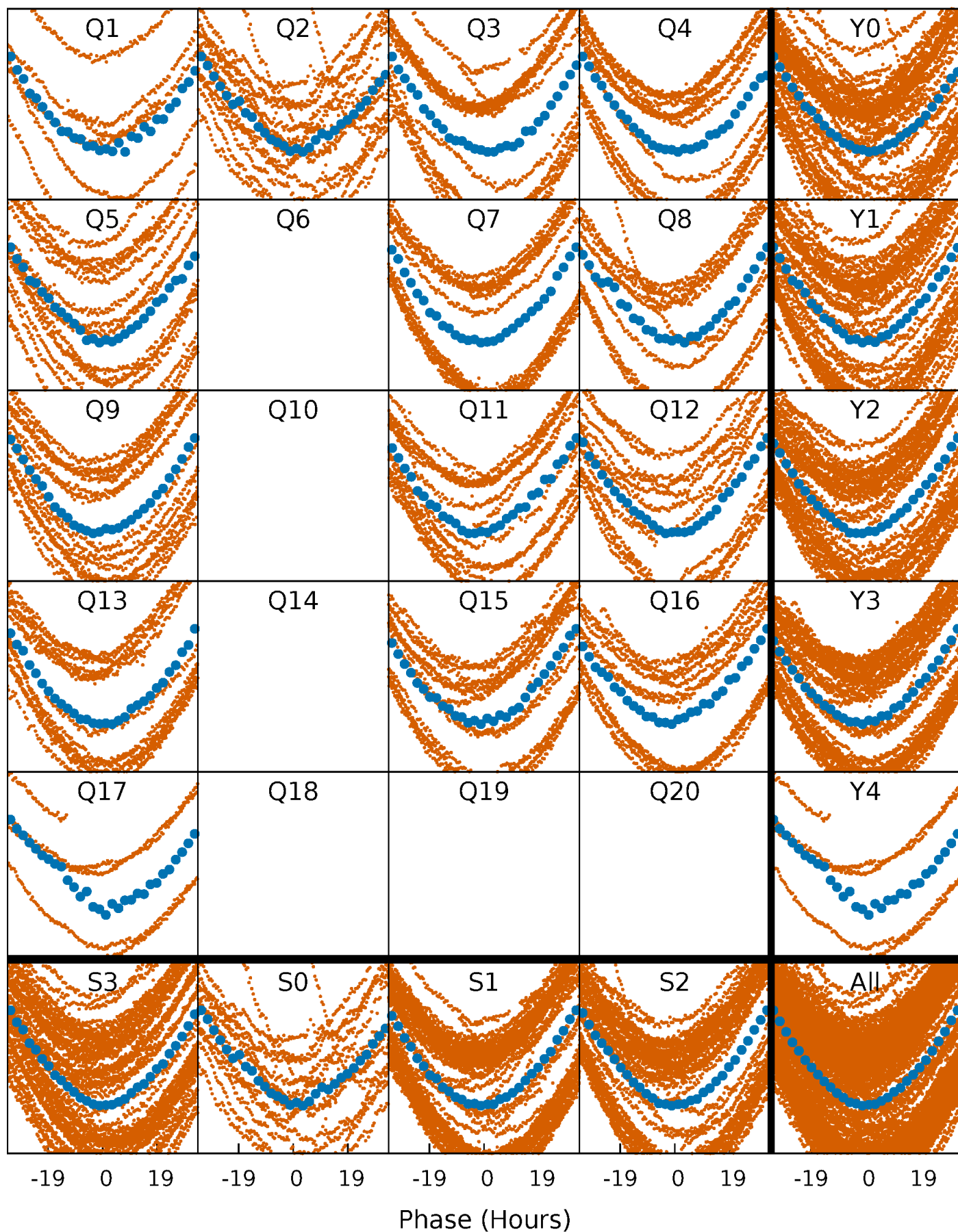


Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



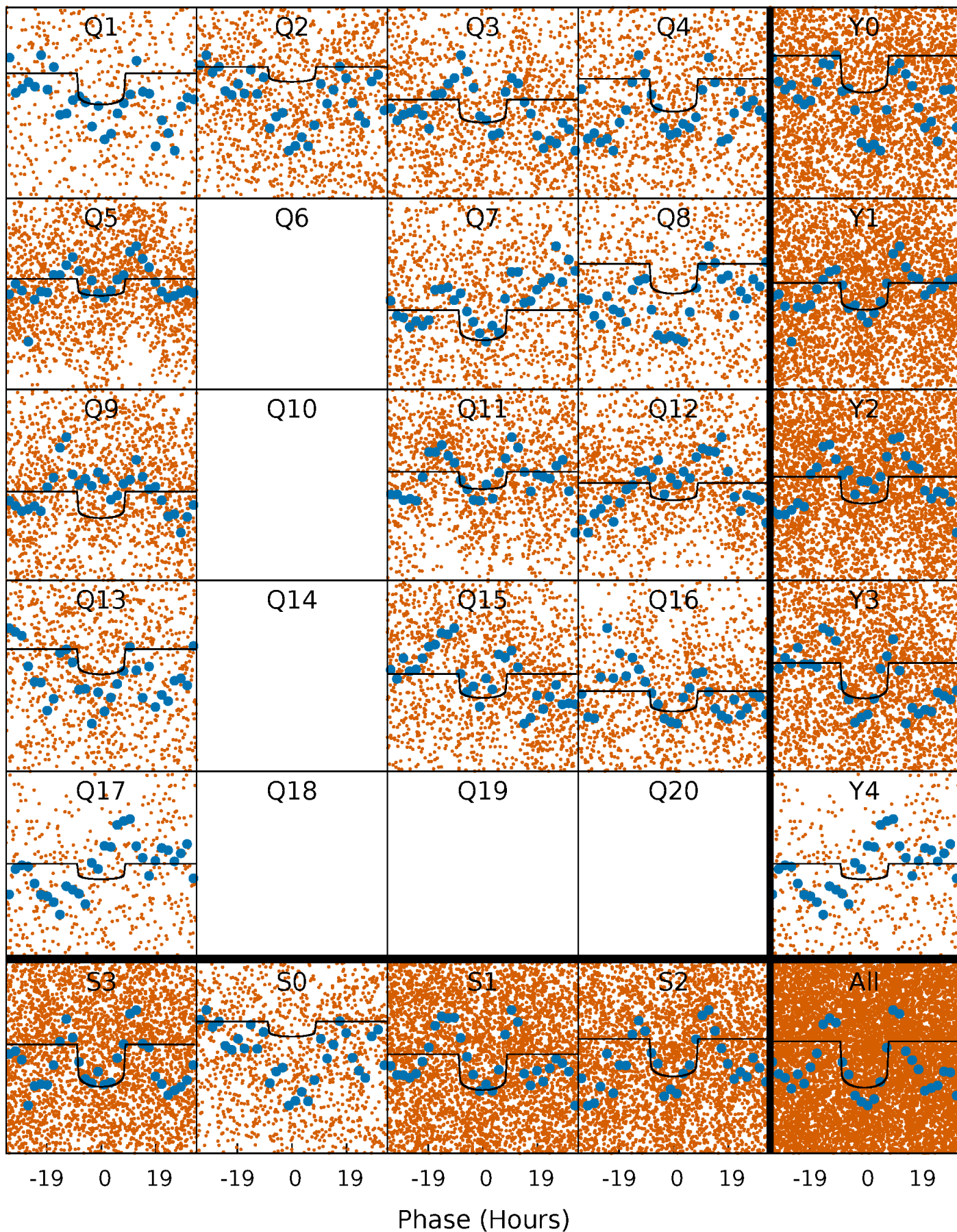
PDC Quarter-Phased Transit Curves

TCE 004276892-02 P= 6.429477 Days $T_0=132.014563$ (BKJD)



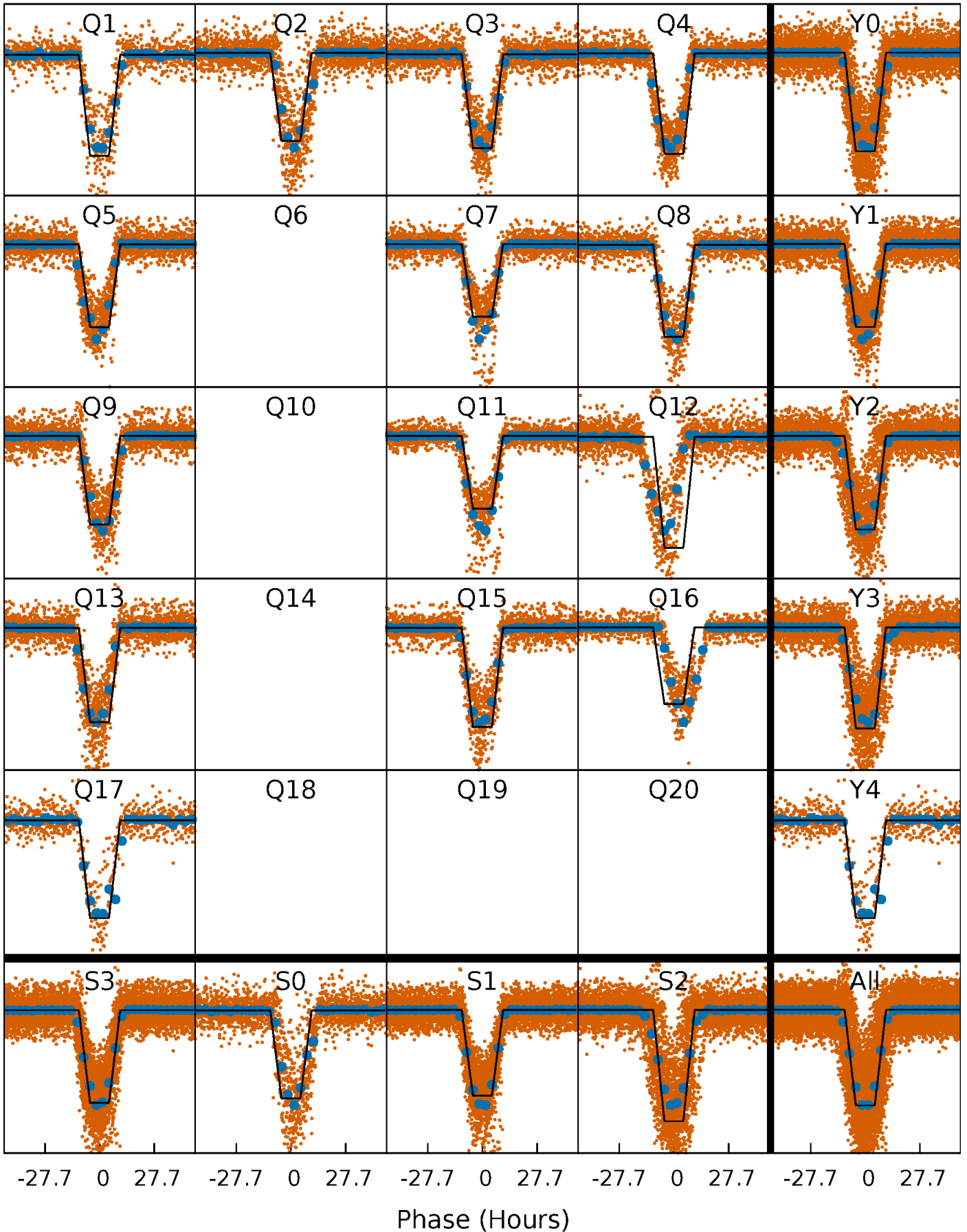
DV Quarter-Phased Transit Curves

TCE 004276892-02 P= 6.429477 Days $T_0=132.014563$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

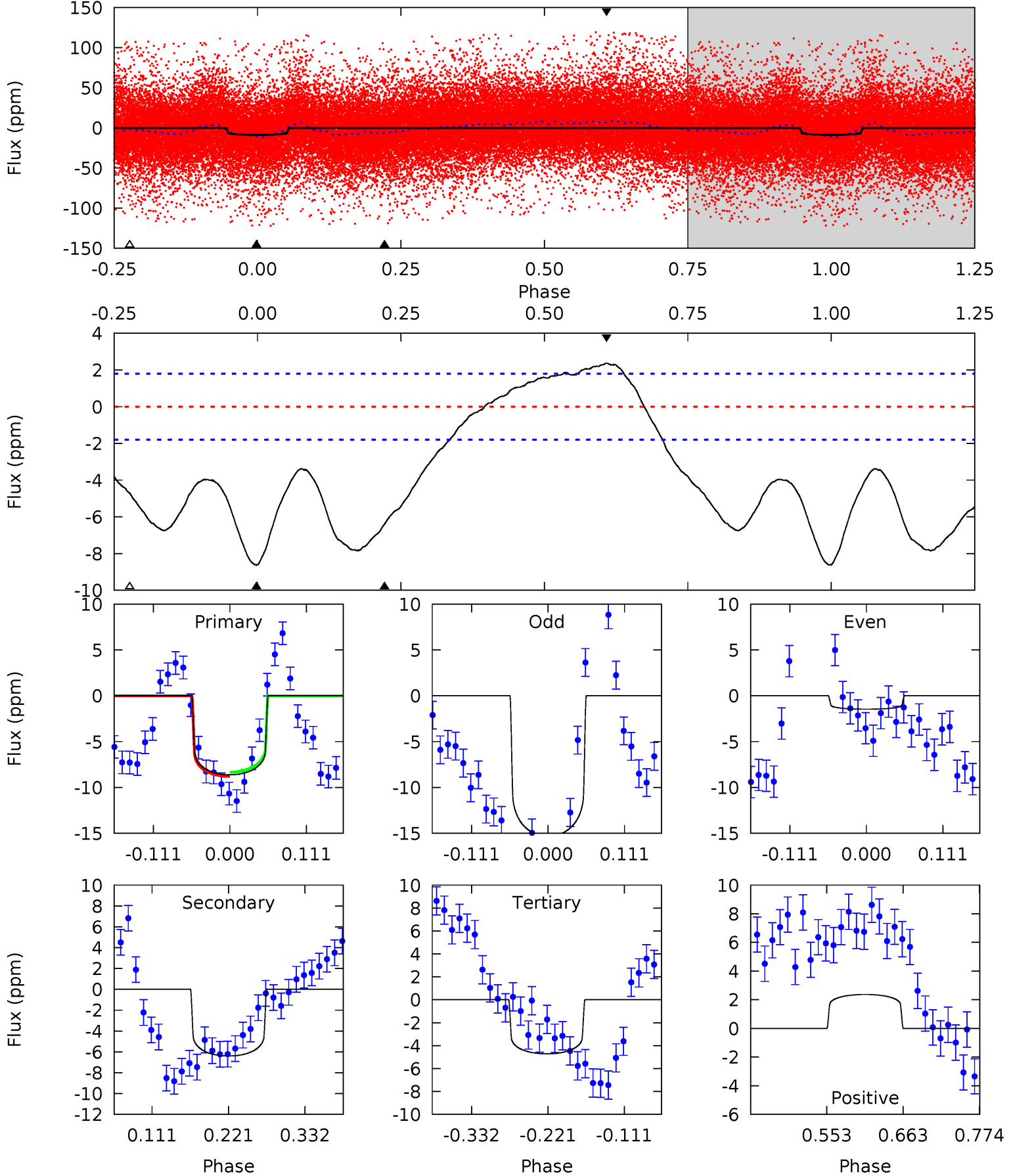
TCE 004276892-02 P= 6.428531 Days $T_0=132.149438$ (BKJD)



DV Model-Shift Uniqueness Test

004276892-02, P = 6.429477 Days, E = 125.585086 Days

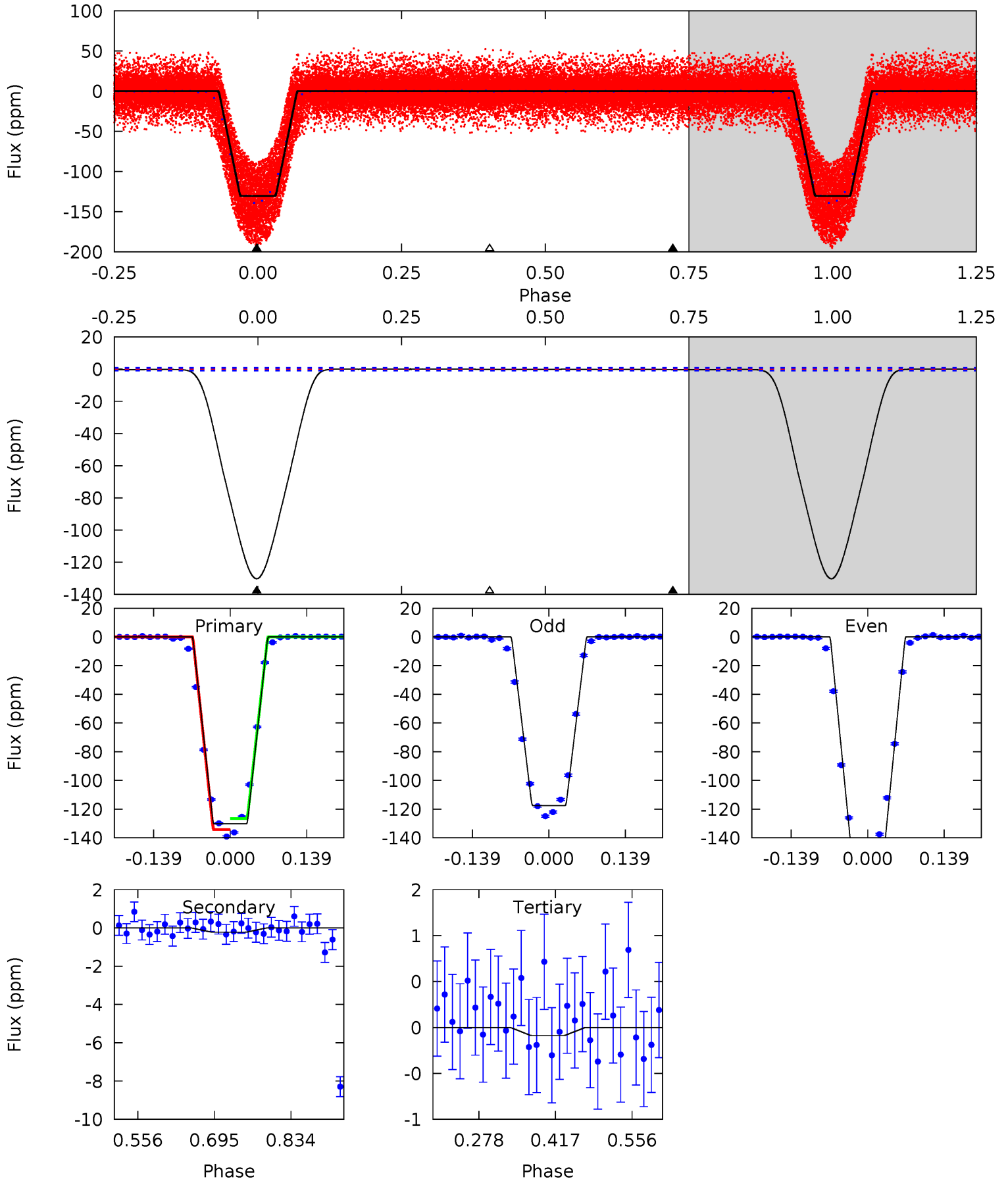
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
21.8	16.2	11.9	6.00	4.54	1.60	7.56	9.89	15.8	4.26	10.2	17.8	1.34	0.22	0.57



Alt Model-Shift Uniqueness Test

004276892-02, P = 6.428531 Days, E = 125.720907 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
733.2	1.25	0.49	0	4.50	1.48	0.37	732.7	733.2	0.76	1.25	75.3	1.14	0.00	21.2



Stellar Parameters For KIC 004276892

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	9202^{+251}_{-466}	$3.773^{+0.406}_{-0.145}$	$0.070^{+0.150}_{-0.750}$	$3.495^{+0.988}_{-1.834}$	$2.641^{+0.324}_{-0.972}$	$0.087^{+0.413}_{-0.039}$
	+3%/-5%	+11%/-4%	+214%/-1071%	+28%/-52%	+12%/-37%	+474%/-45%
Source	KIC0	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 004276892-02 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	-6 ± 0	$1.08^{+0.21}_{-0.27}$	3380^{+276}_{-409}	8244^{+535}_{-487}	27^{+18}_{-8}
Alt.	-0 ± 0	$4.50^{+0.70}_{-1.19}$	3384^{+291}_{-416}	-3118^{+293}_{-193}	$0.054^{+0.061}_{-0.043}$

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 $A_{obs} \gg 1.0$

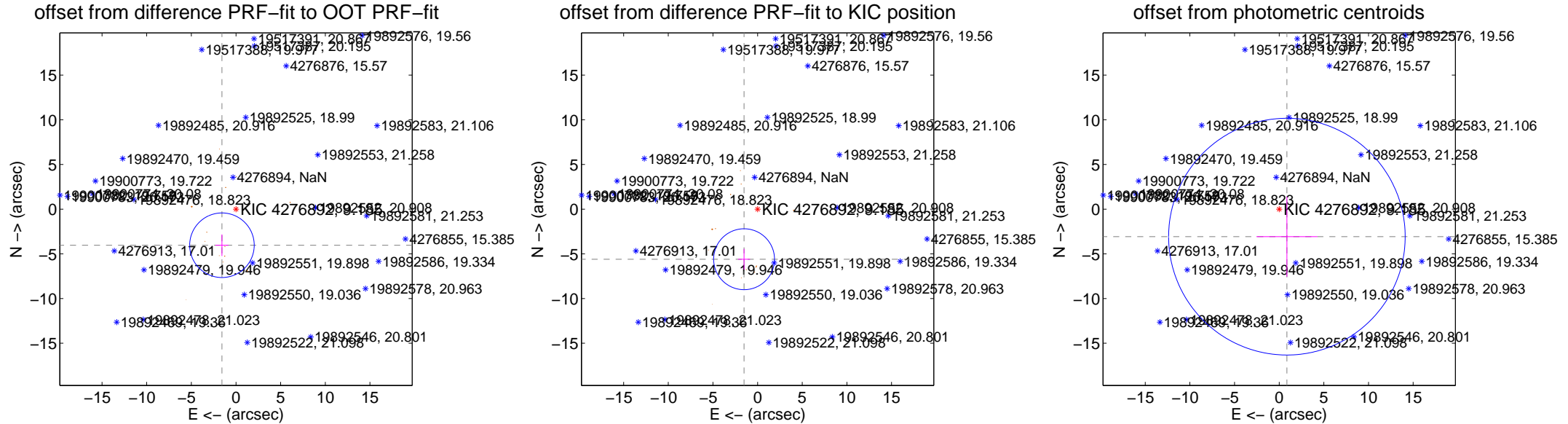
DV Centroid Data

Supplemental centroid analysis for 004276892-02. **Kepler magnitude: 9.19.** Transit SNR 8.50

There are 0 quarters with good PRF difference image offsets

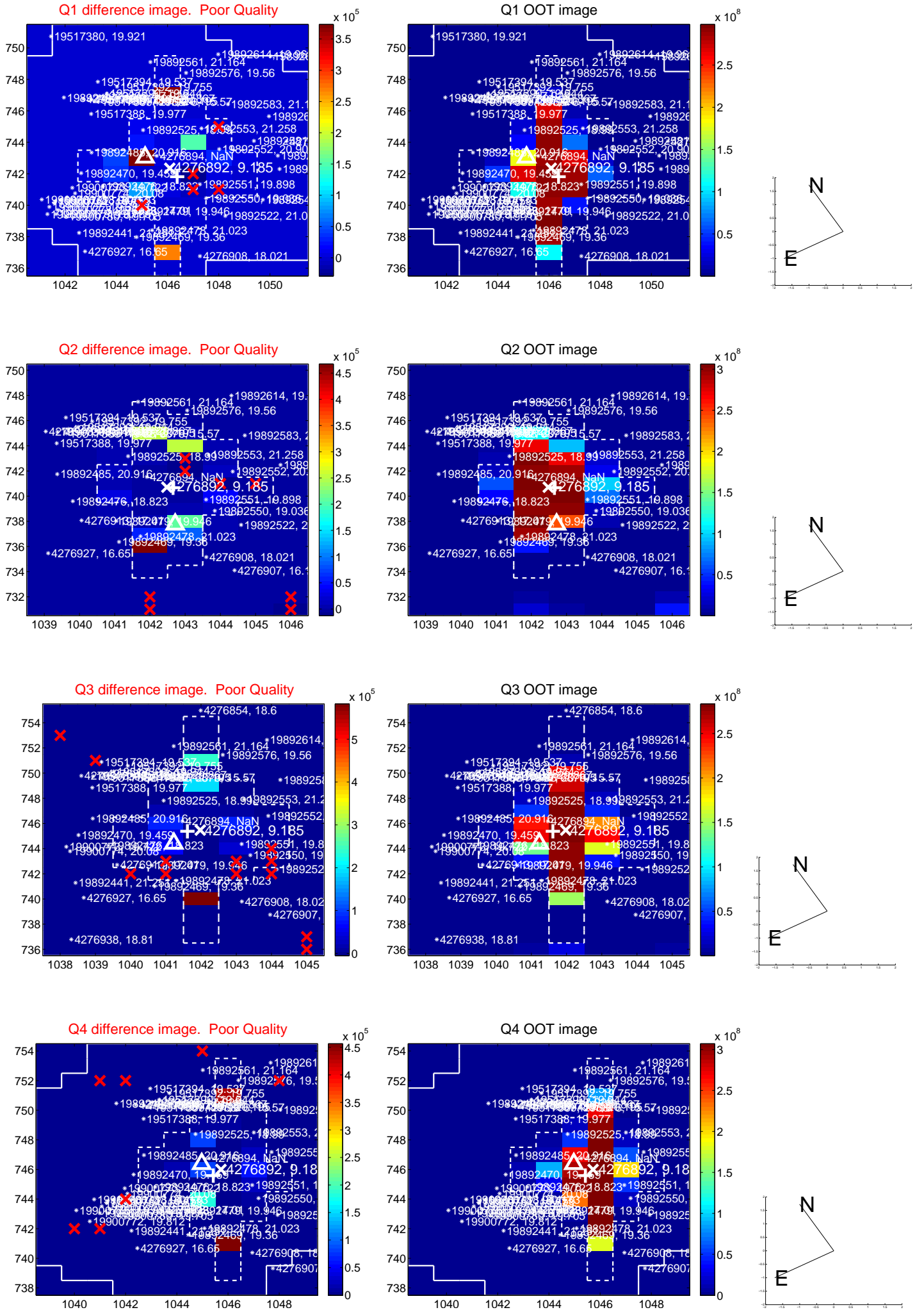
The OOT PRF centroid is offset from the target star catalog position by about 2.53 arcsec so the offset from difference PRF-fit to OOT-fit may be invalid.

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	4.331 \pm 1.204	3.60	1.573 \pm 0.727	-4.036 \pm 1.209
PRF-fit source offset from KIC position	5.803 \pm 1.136	5.11	1.514 \pm 0.669	-5.602 \pm 1.149
photometric centroid source offset	3.19 \pm 4.41	0.72	-0.86 \pm 3.42	-3.08 \pm 4.48

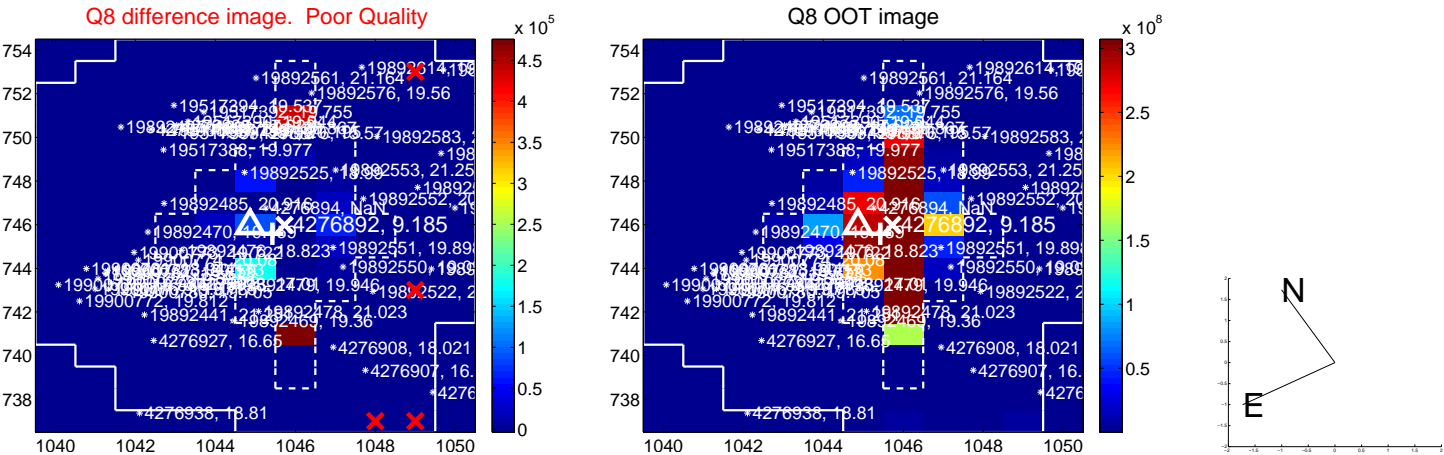
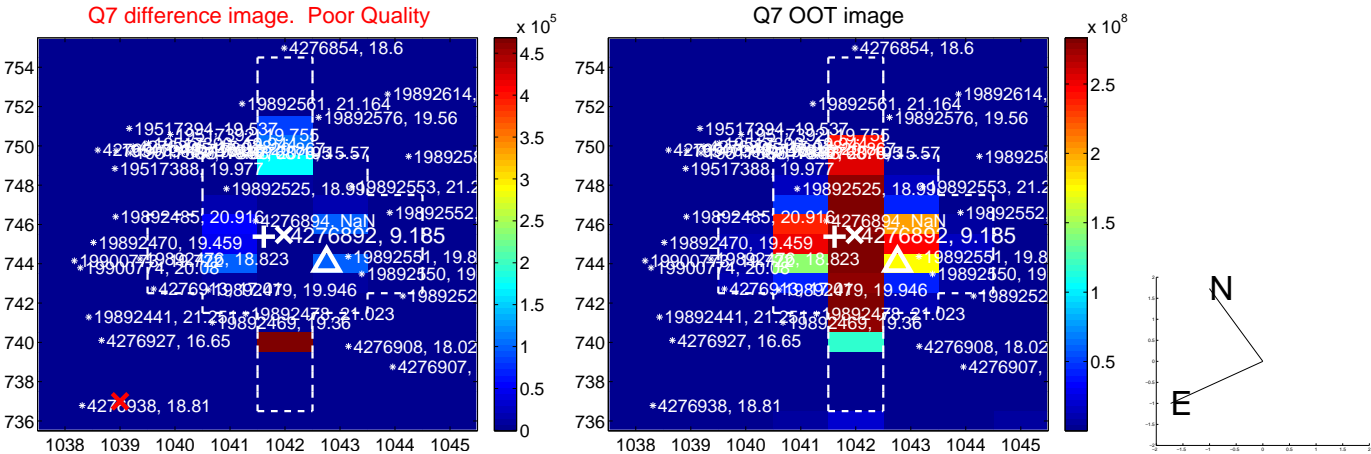
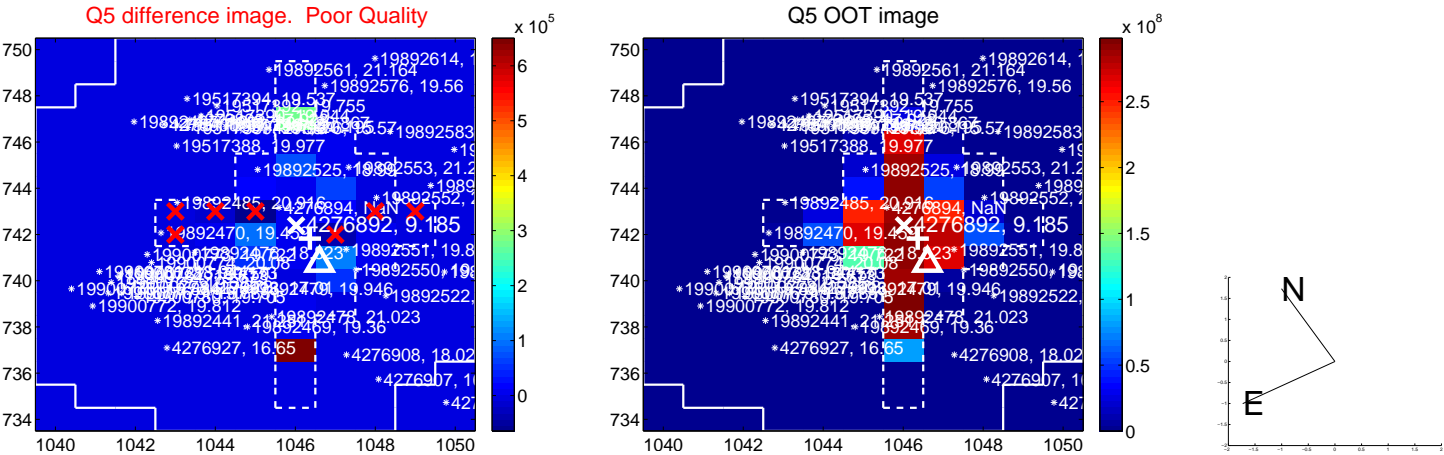


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets;** magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

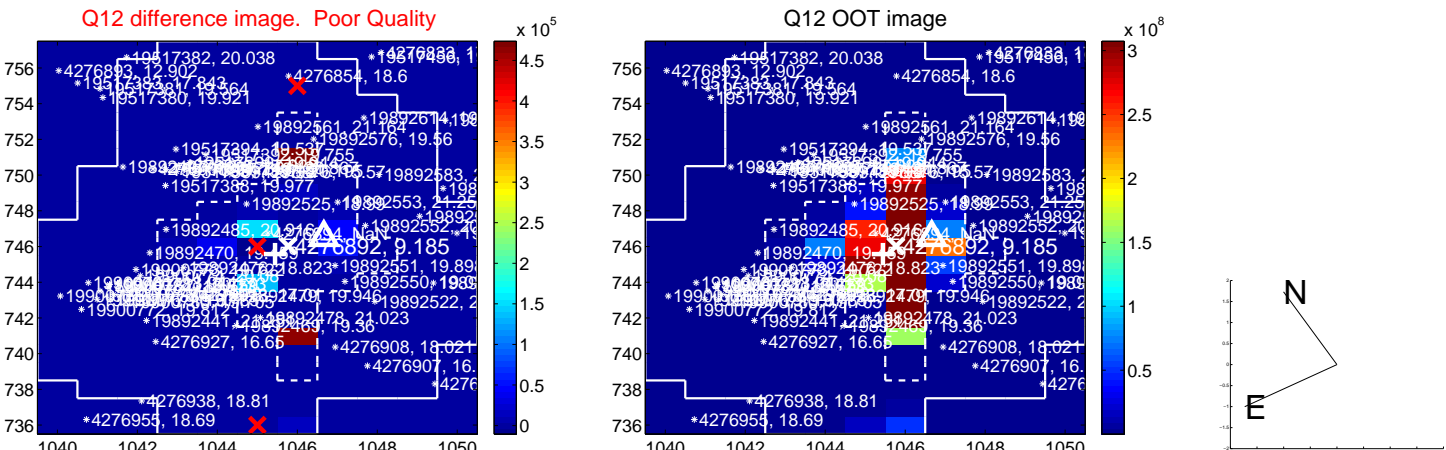
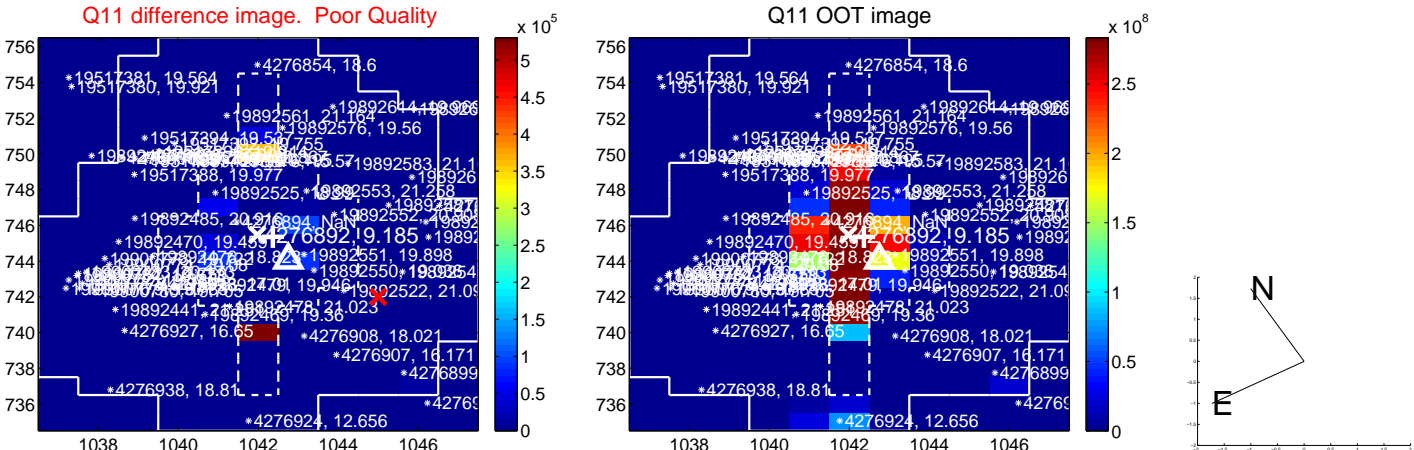
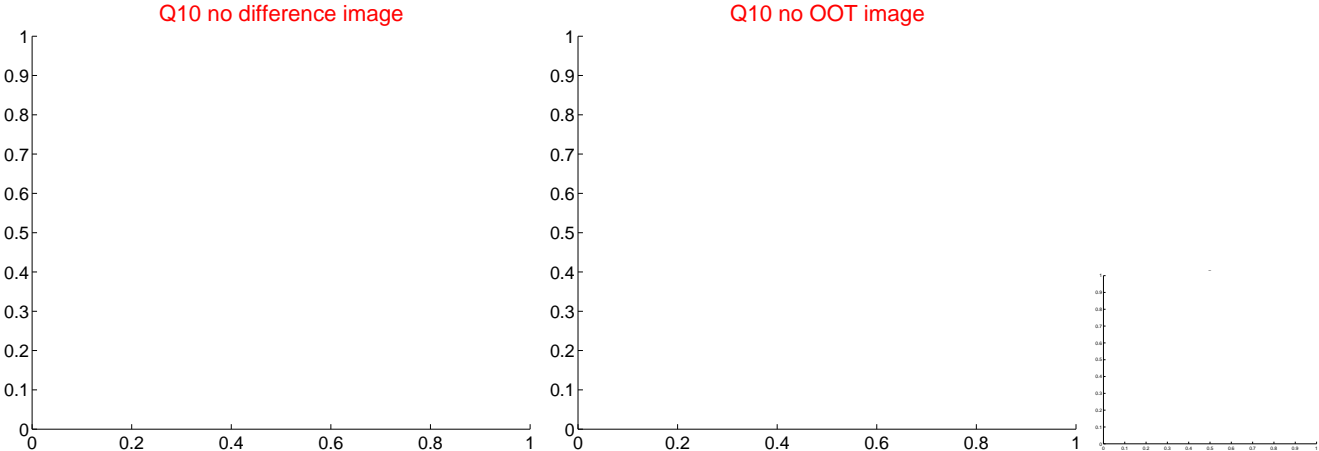
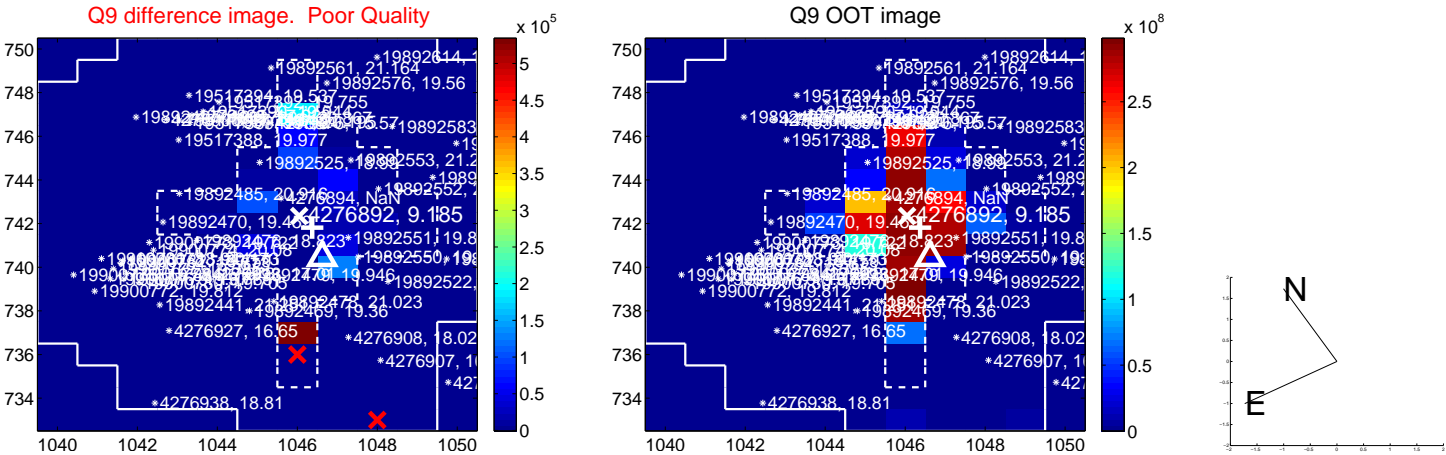
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



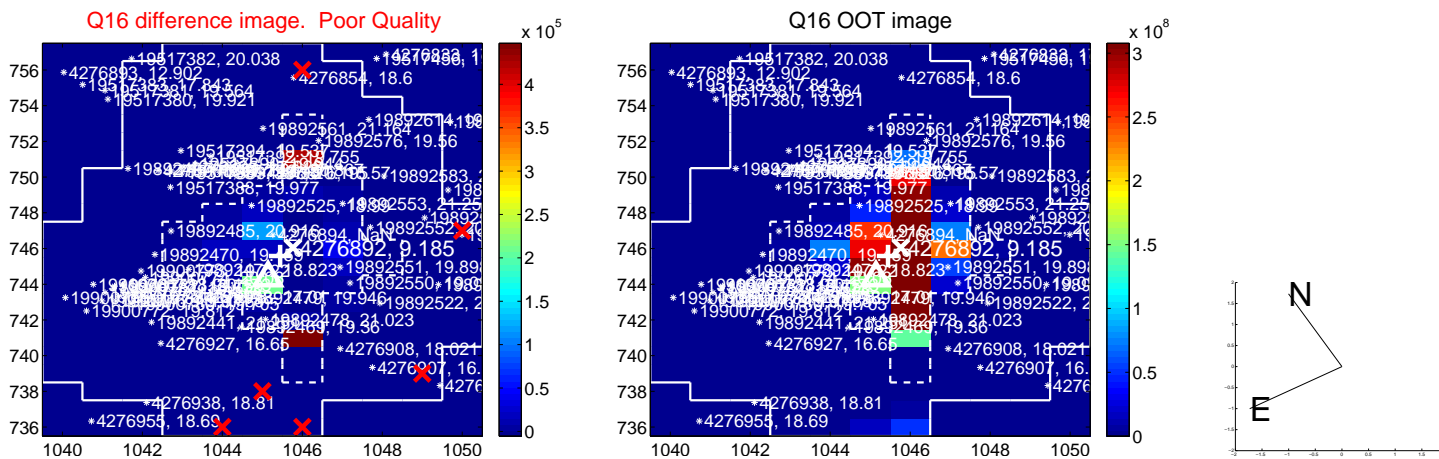
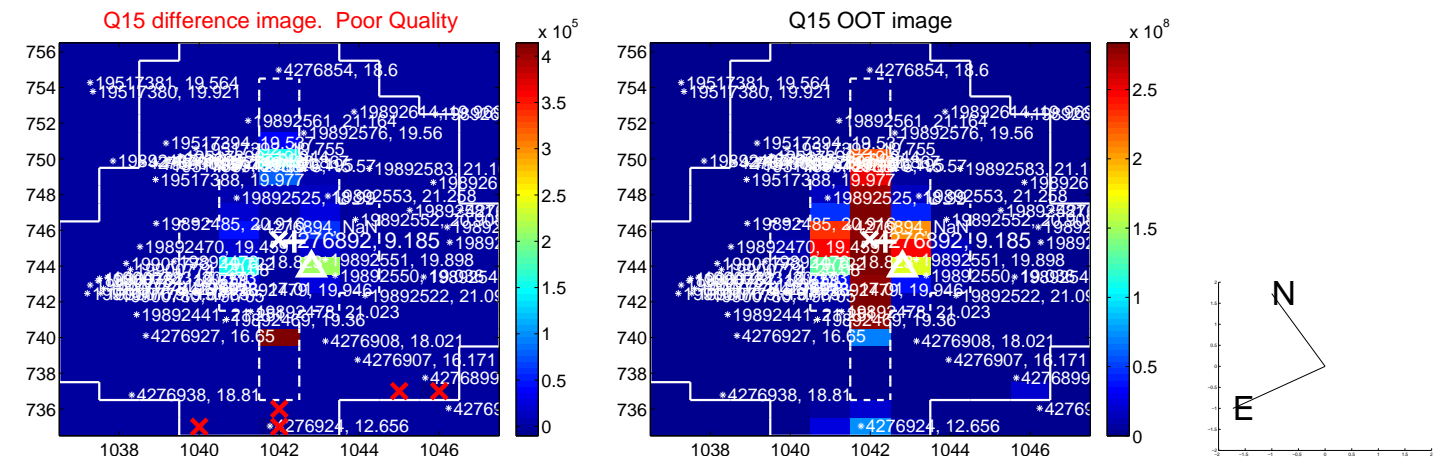
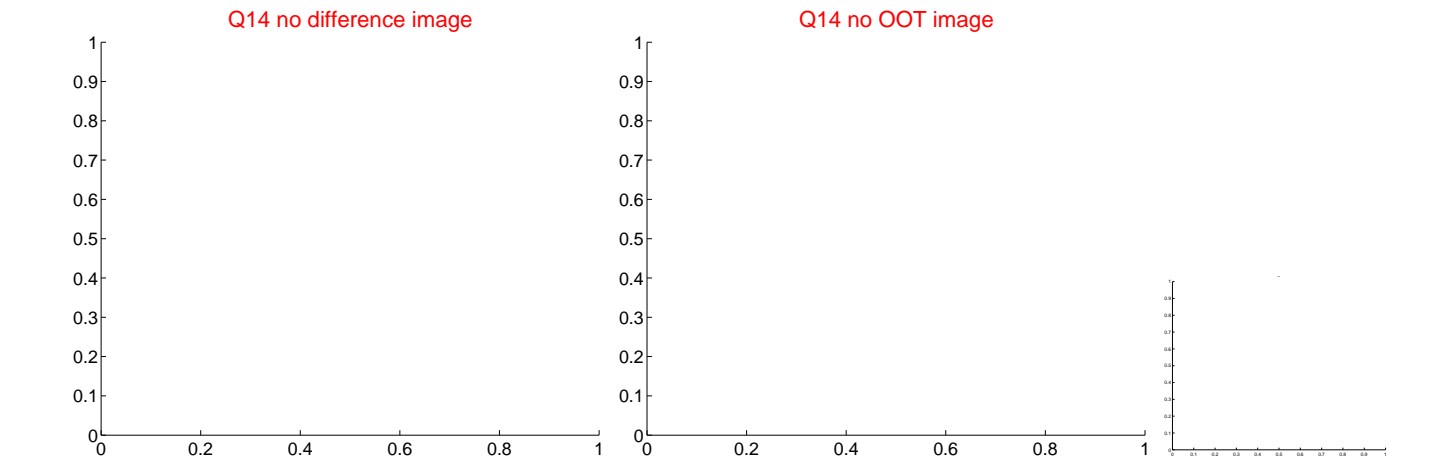
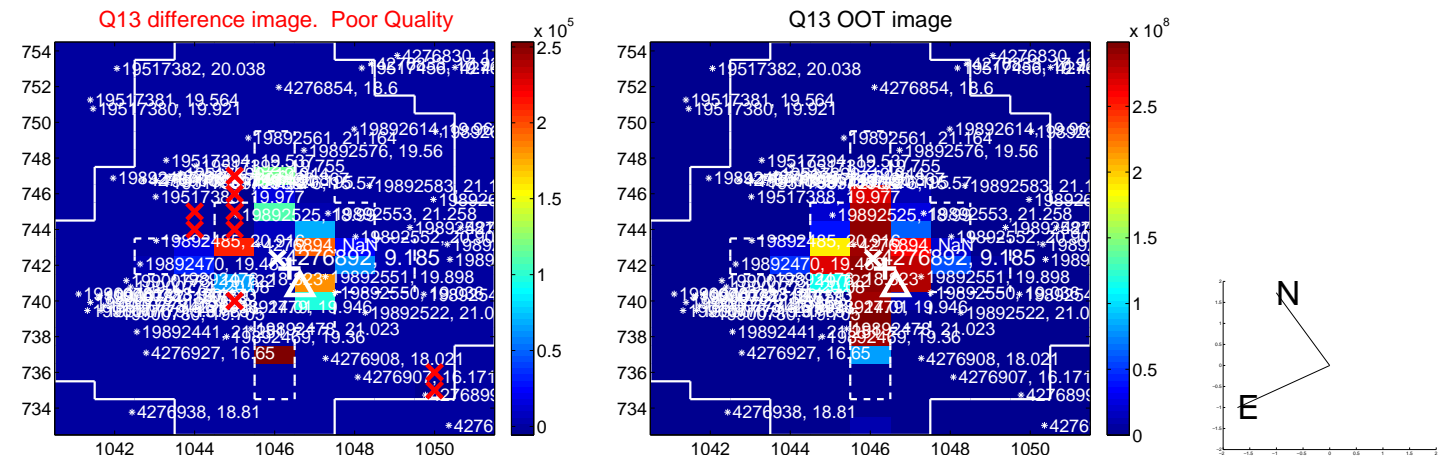
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



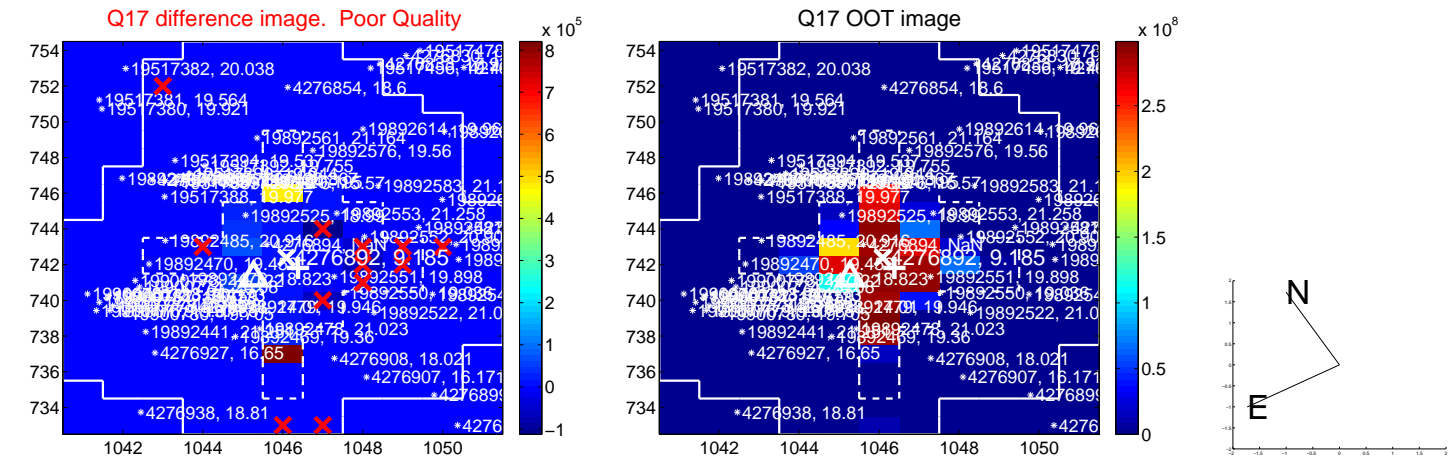
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



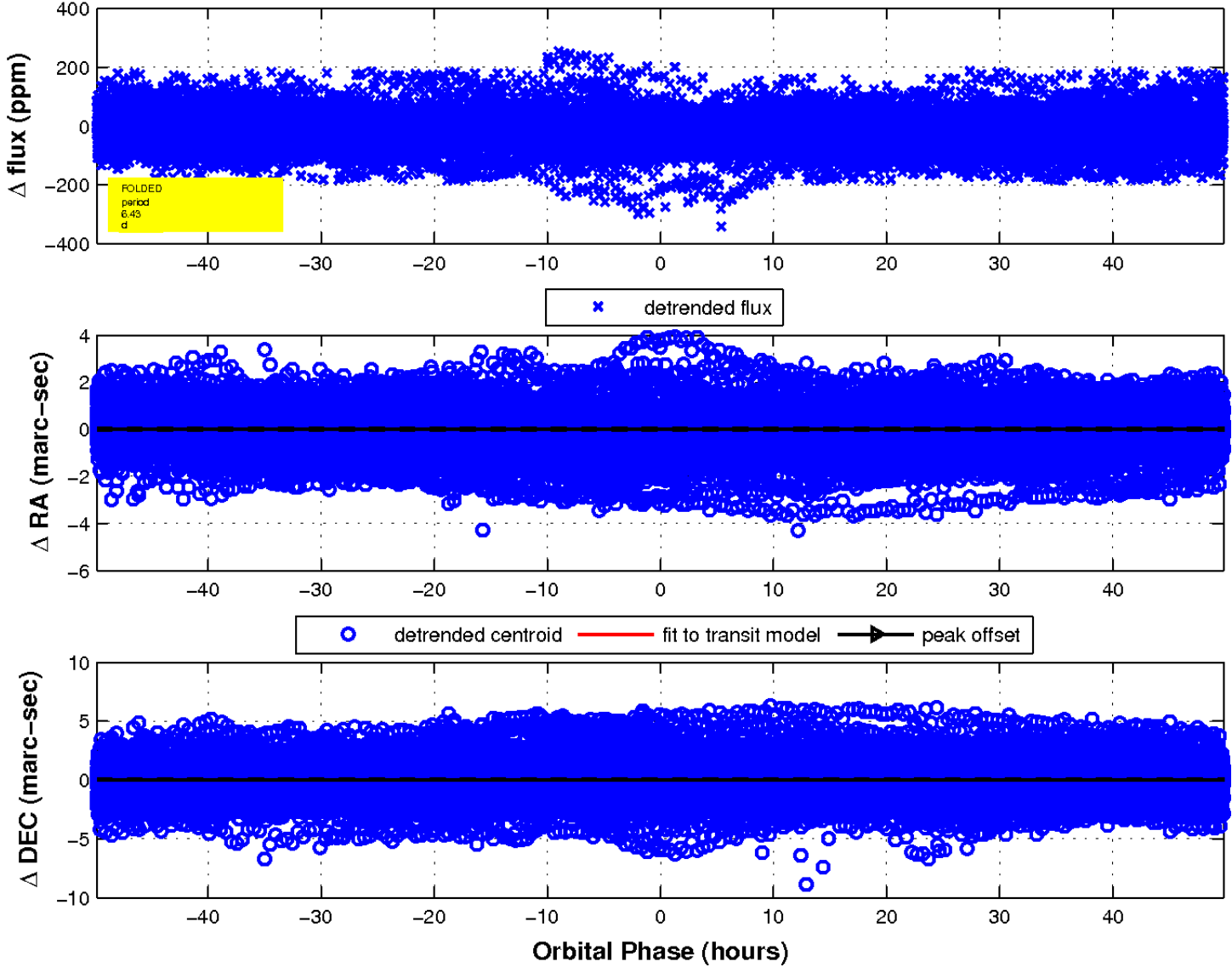
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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



fluxWeightedCentroids, Planet 2 of 2



UKIRT Image

