

KIC 004281895

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})
004281895-01	OBS	6400.01	9.543585	137.773876	67552.3	3.718	10441.6	7085.1	1.78	5537	67.01	401.92
004281895-02	OBS	No	9.543587	140.728084	66031.2	3.723	10704.8	6753.4	1.78	5537	67.98	401.92

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
004281895-01	OBS	FP	0.00	0	1	0	0	MOD_SEC_DV—MOD_SEC_ALT—MOD_ODDEVEN_DV—MOD_ODDEVEN_ALT—DEEP_V_SHAPED—HAS_SEC_TCE
004281895-02	OBS	FP	0.00	1	1	0	0	IS_SEC_TCE

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

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

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

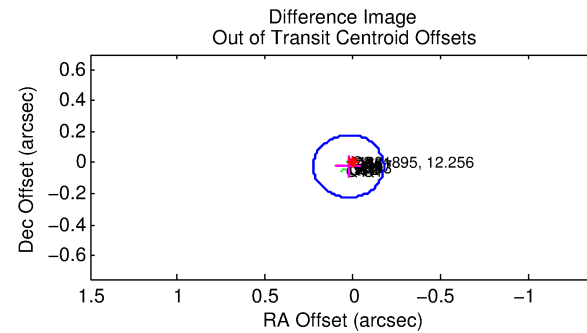
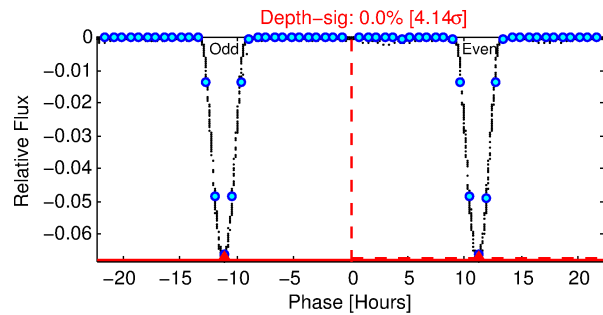
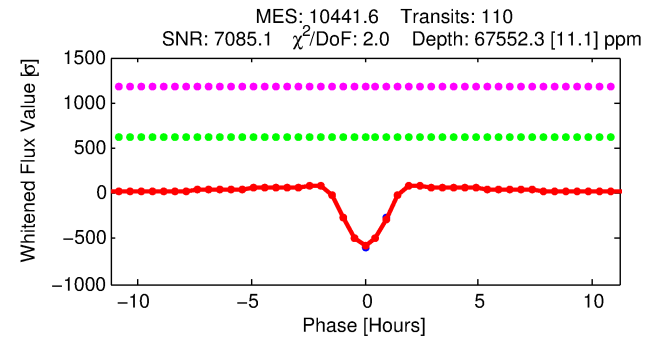
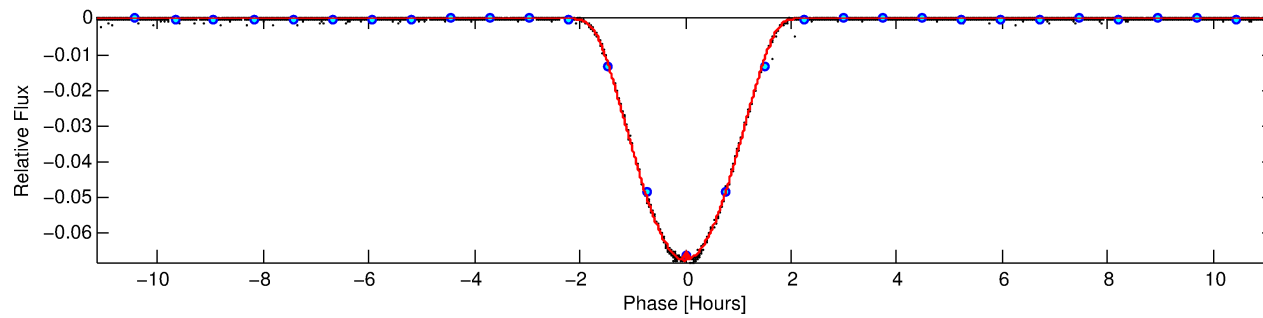
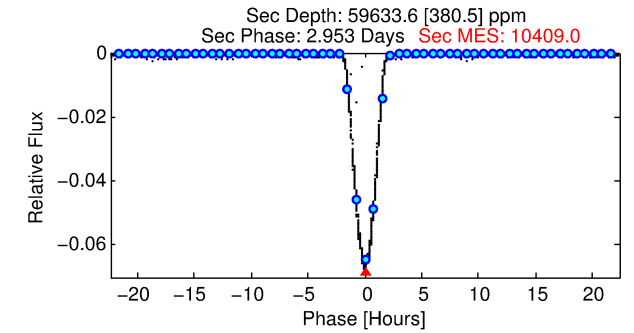
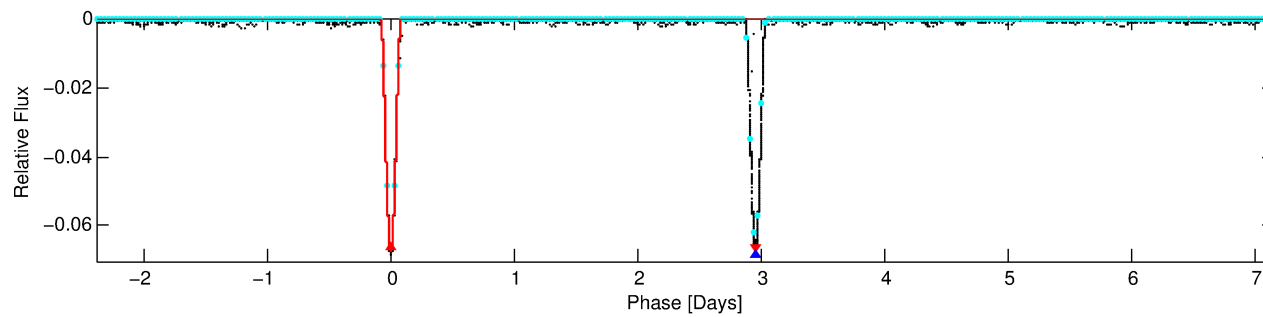
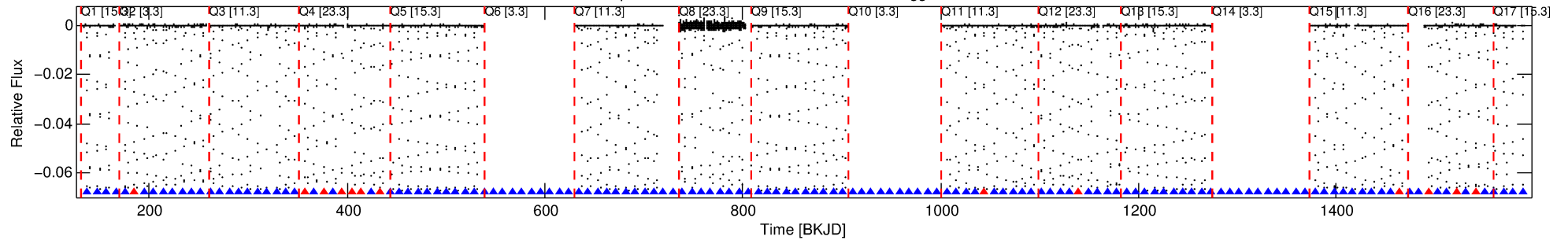
Ephemeris Match Information For 004281895-01

No Significant Match Found

DV One-Page Summary

KIC: 4281895 Candidate: 1 of 2 Period: 9.544 d
KOI: K06400.01 Corr: 1.000

Kp: 12.26 R*: 1.78 Rs Teff: 5537.0 K Logg: 3.84 Fe/H: -0.800



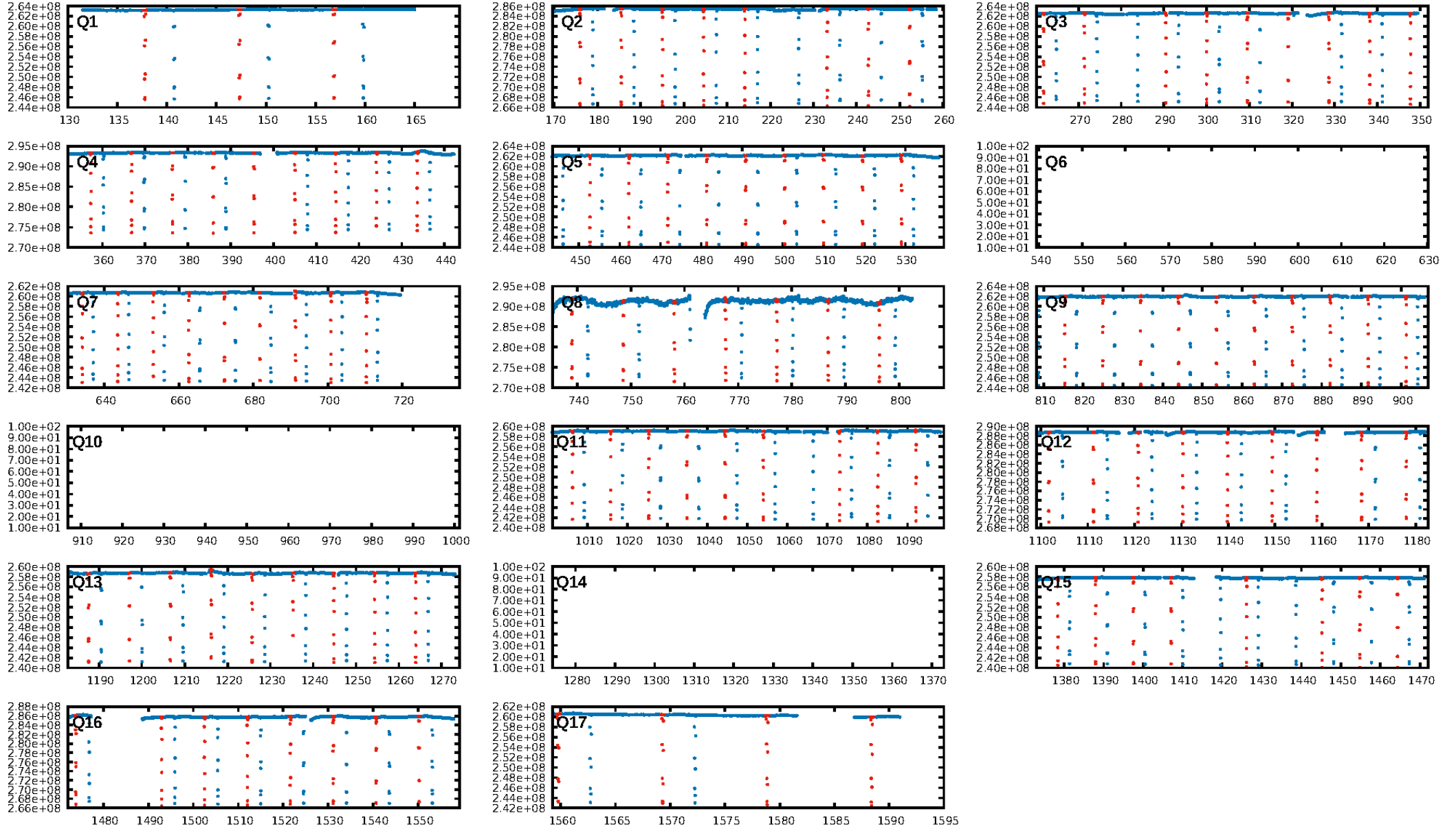
DV Fit Results:

Period = 9.54358 [0.00000] d
Epoch = 137.7739 [0.0000] BKJD
Rp/R* = 0.3440 [0.0026]
a/R* = 19.45 [0.01]
b = 0.91 [0.00]
Seff = 401.92 [466.35]
Teff = 1142 [331] K
Rp = 67.01 [40.36] Re
a = 0.0817 [0.0550] AU
Ag = 48.77 [56.23] [0.85σ]
Teffp = 4665 [155] K [9.64σ]

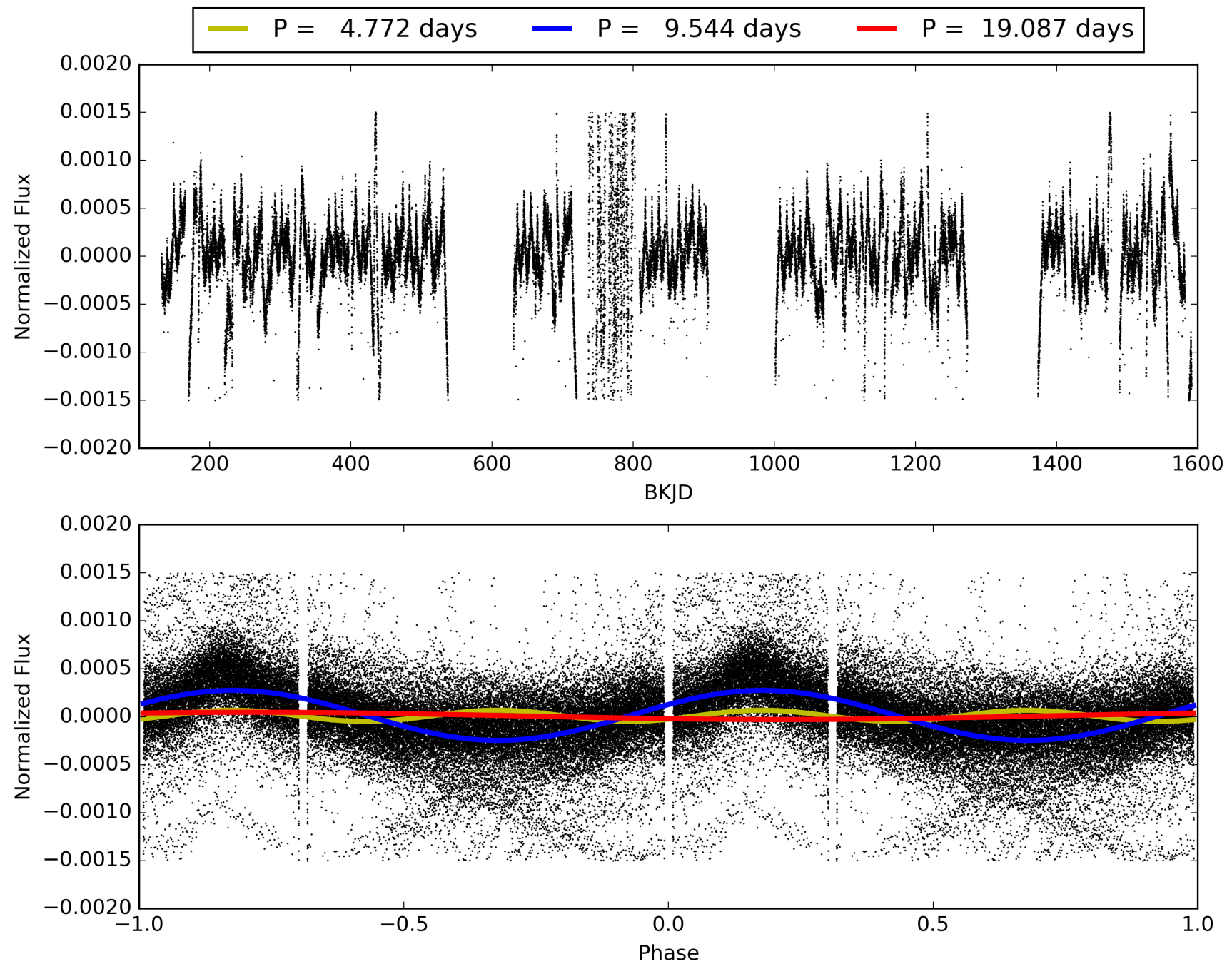
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: 0.0% [0.00σ]
ModelChiSquare2-sig: 0.0%
ModelChiSquareGof-sig: 0.0%
Bootstrap-pfa: N/A
RollingBand-fgt: 0.87 [90/103]
GhostDiagnostic-chr: 9.239
Centroid-sig: 0.0%
Centroid-so: 0.112 arcsec [104.52σ]
OotOffset-rm: 0.034 arcsec [0.51σ]
KicOffset-rm: 0.222 arcsec [3.22σ]
OotOffset-st: 1/4/4/5 [14]
KicOffset-st: 1/4/4/5 [14]
DiffImageQuality-fgm: 1.00 [14/14]
DiffImageOverlap-fno: 1.00 [14/14]

TCE 004281895-01, PDC Light Curves

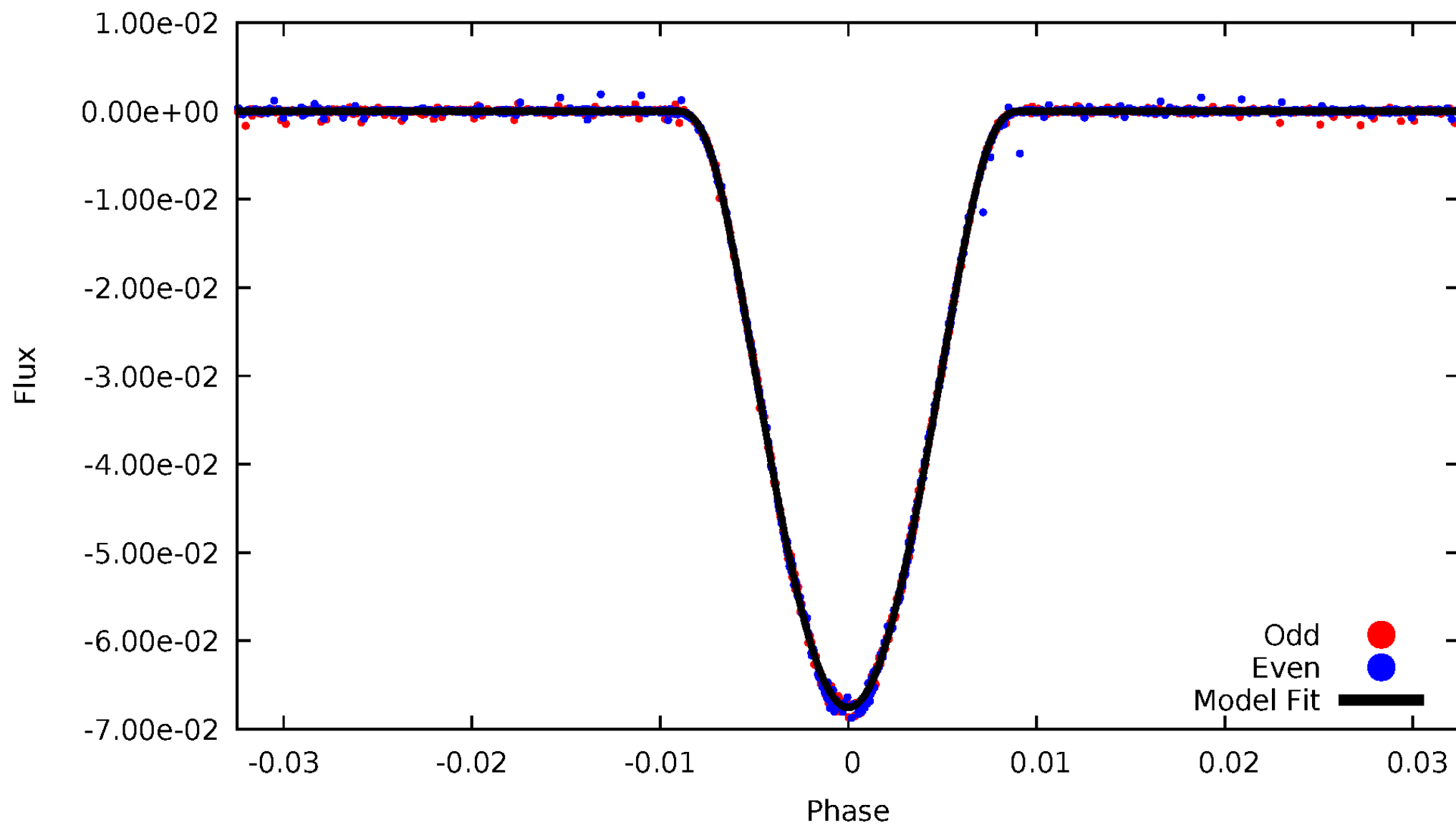


TCE 004281895-01



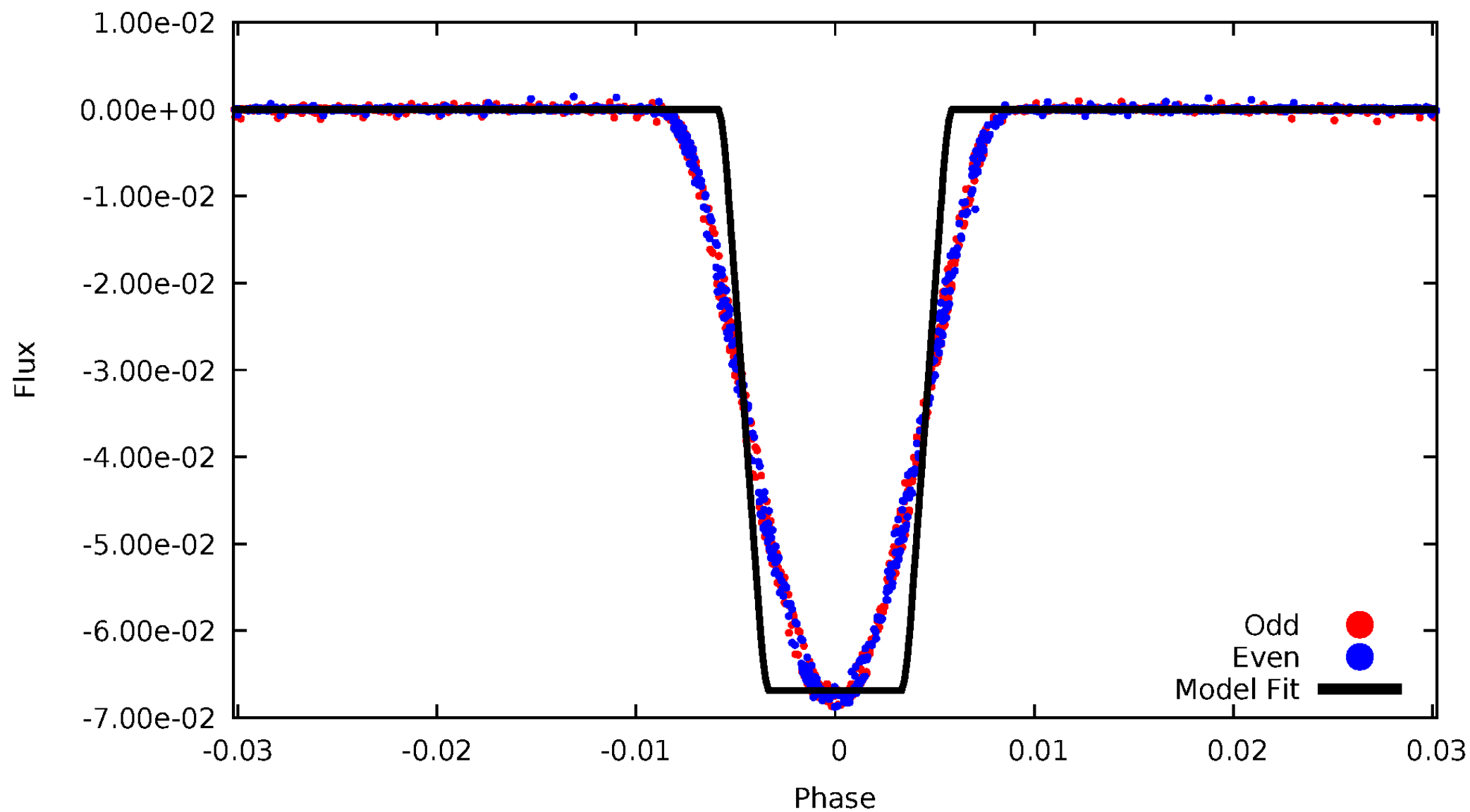
DV Odd/Even

TCE 004281895-01



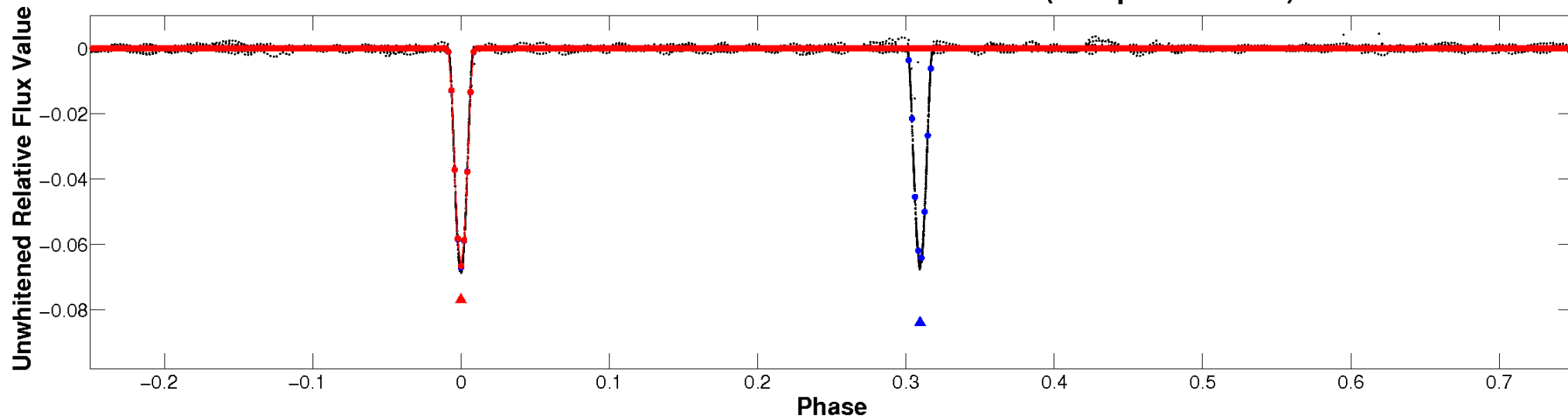
ALT Odd/Even

TCE 004281895-01

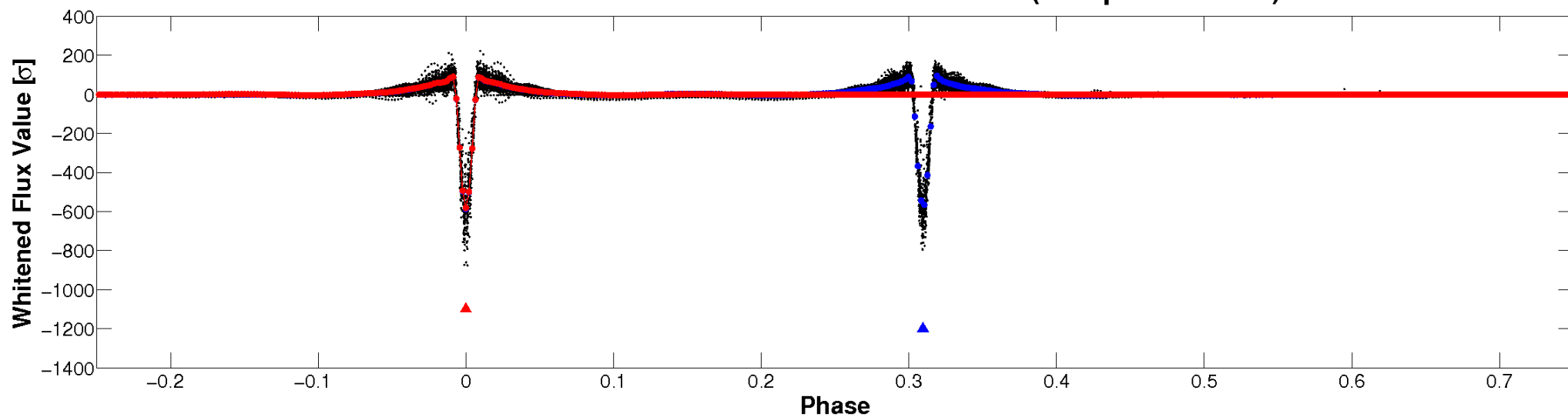


Non-Whitened Vs. Whitened Light Curve

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

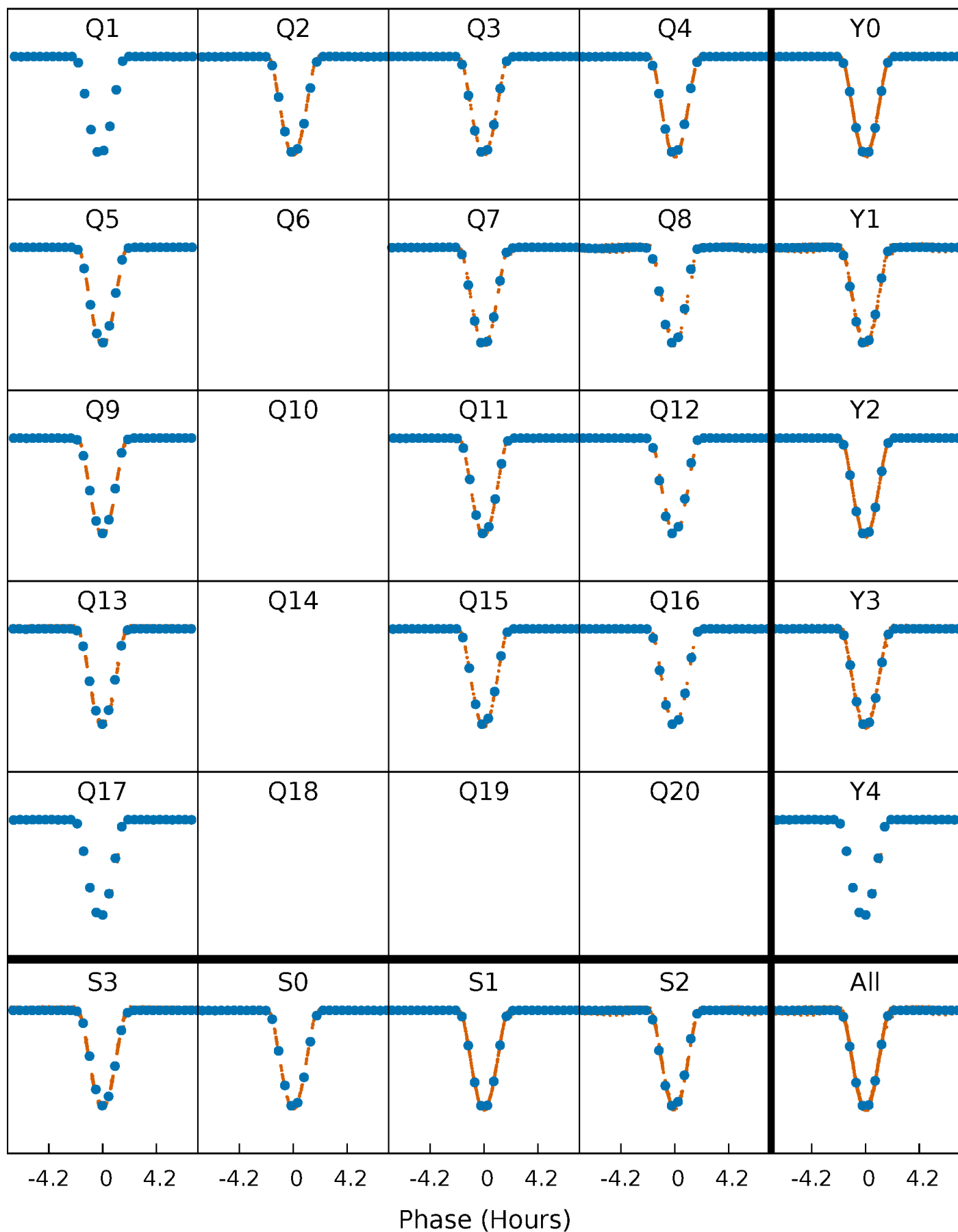


Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)



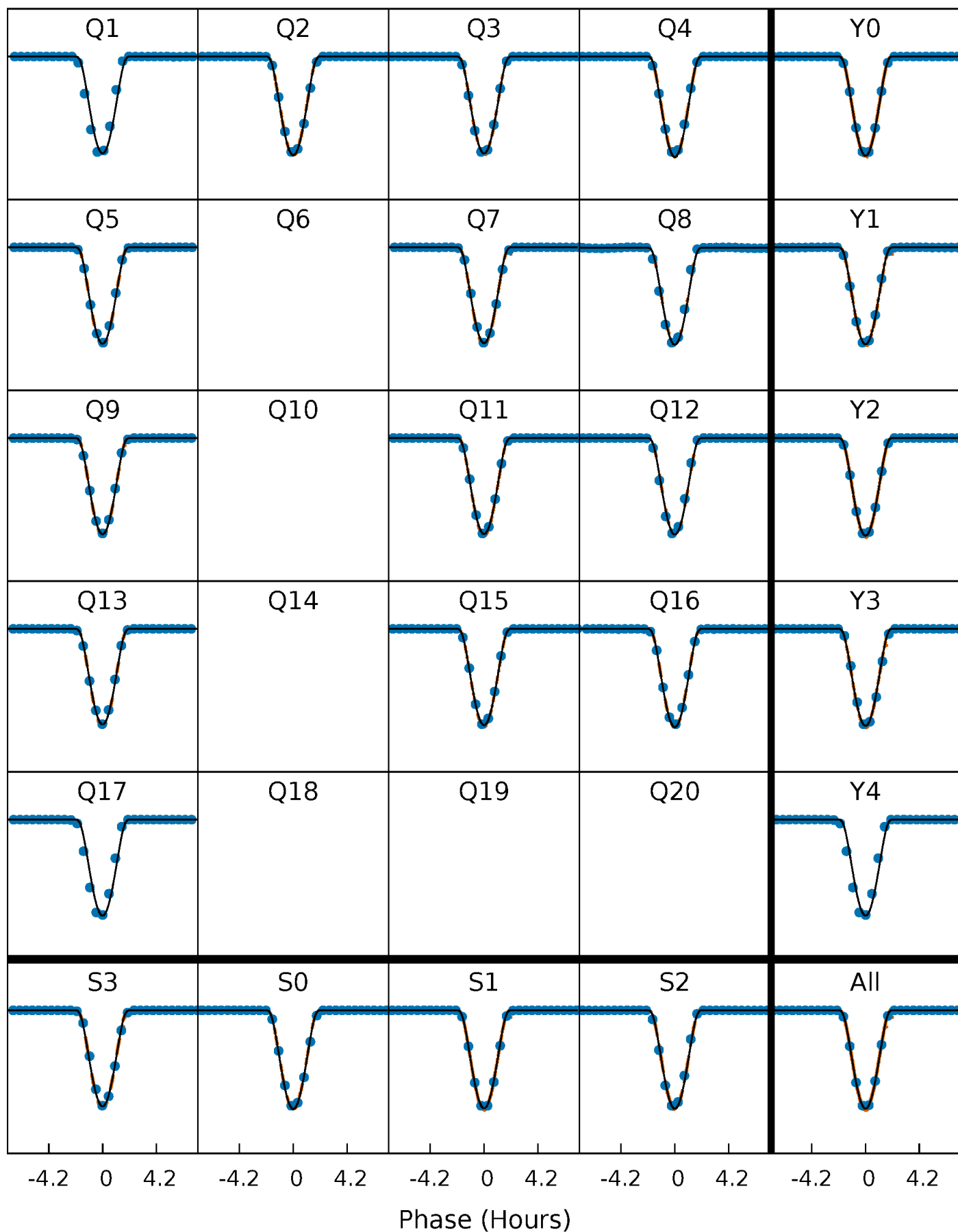
PDC Quarter-Phased Transit Curves

TCE 004281895-01 P= 9.543585 Days $T_0=137.773876$ (BKJD)



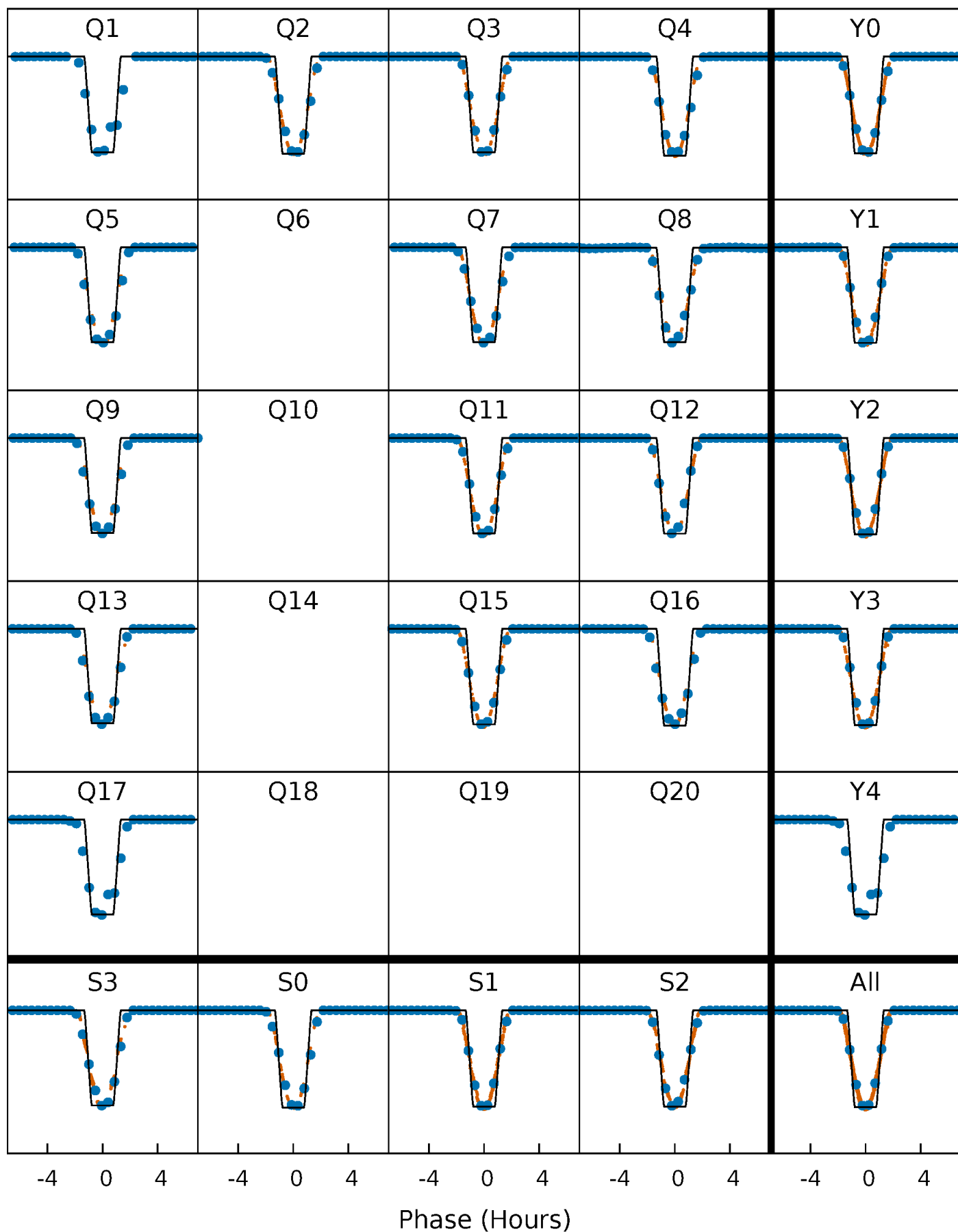
DV Quarter-Phased Transit Curves

TCE 004281895-01 P= 9.543585 Days $T_0=137.773876$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

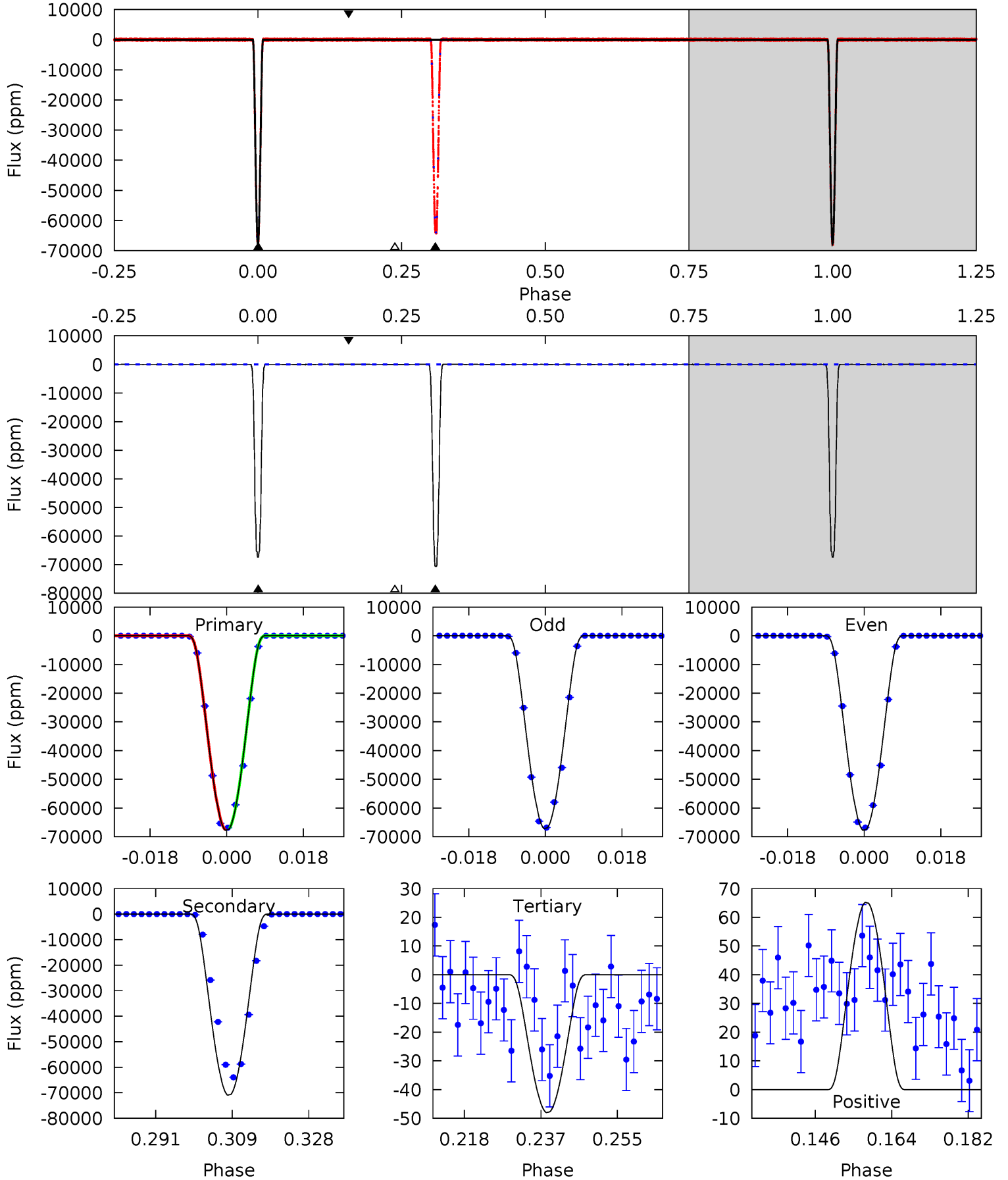
TCE 004281895-01 P= 9.543613 Days $T_0=137.771861$ (BKJD)



DV Model-Shift Uniqueness Test

004281895-01, P = 9.543585 Days, E = 128.230291 Days

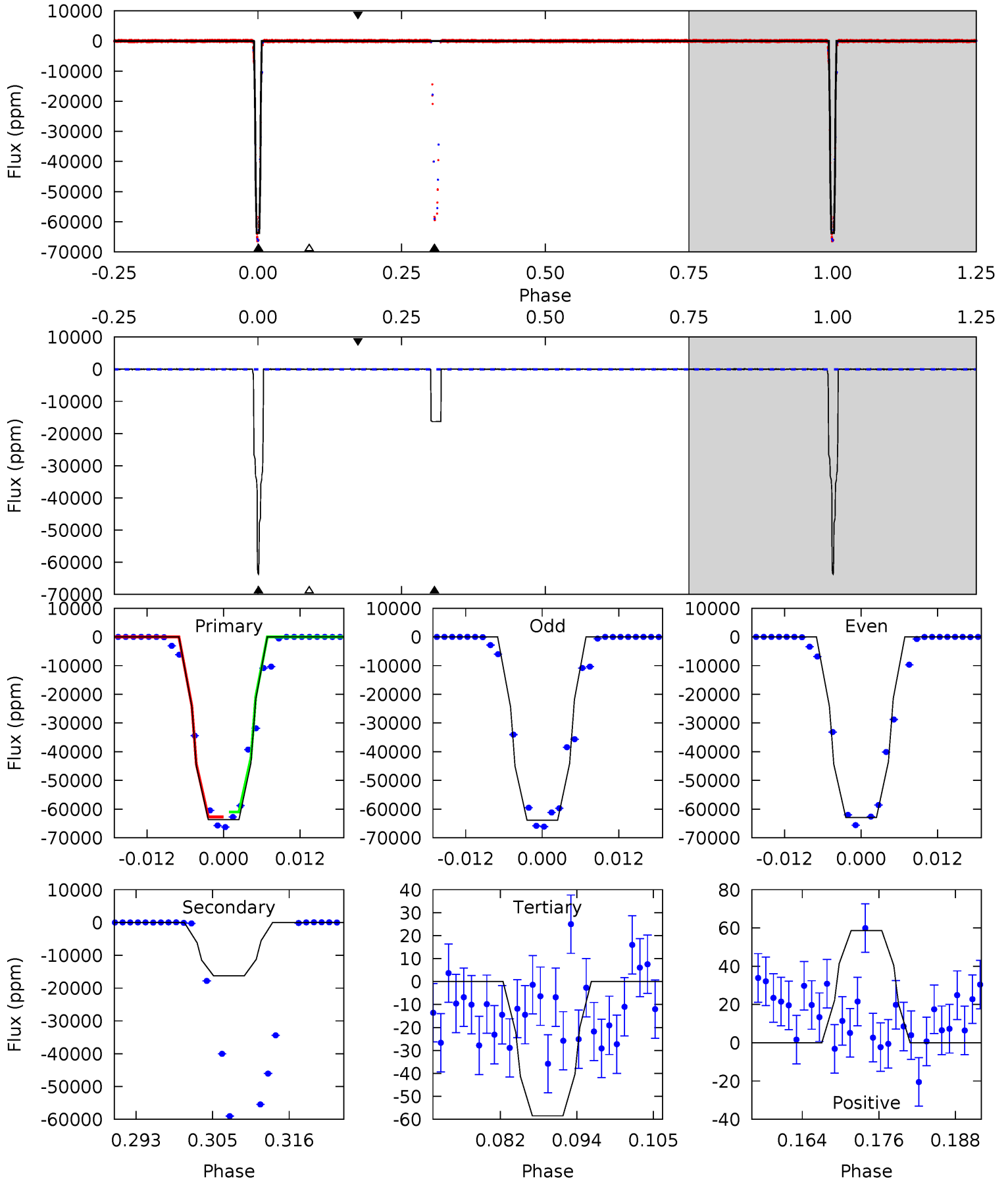
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
16048	16797	11.4	15.4	4.91	2.36	4.56	16036	16032	16786	16782	67.2	1.00	0.00	0



Alt Model-Shift Uniqueness Test

004281895-01, P = 9.543613 Days, E = 128.228248 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
4871	1245	4.47	4.49	5.00	2.52	1.33	4867	4867	1241	1241	36.6	1.00	0.00	5.85



Stellar Parameters For KIC 004281895

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	$M(M_{\odot})$	p_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	5537^{+182}_{-132}	$3.837^{+0.704}_{-0.176}$	$-0.800^{+0.350}_{-0.250}$	$1.785^{+0.537}_{-1.075}$	$0.798^{+0.116}_{-0.095}$	$0.198^{+2.143}_{-0.087}$
	+3%/-2%	+18%/-5%	+44%/-31%	+30%/-60%	+15%/-12%	+1084%/-44%
Source	PHO1	FLK73	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 004281895-01 / KOI 6400.01

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	-70590 ± 4	$63.82^{+13.21}_{-19.69}$	1553^{+157}_{-254}	5012^{+163}_{-114}	69^{+74}_{-21}
Alt.	-16279 ± 13	$49.02^{+9.35}_{-15.47}$	1569^{+145}_{-271}	4148^{+109}_{-80}	26^{+29}_{-7}

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 $A_{\text{obs}} \gg 1.0$

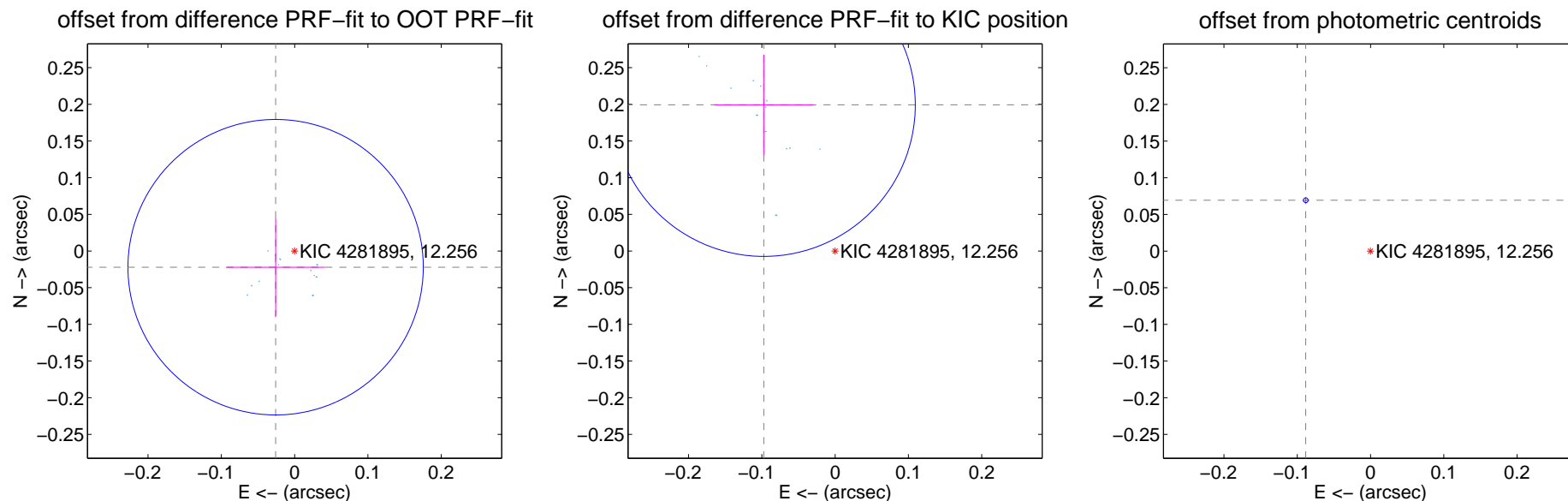
DV Centroid Data

Supplemental centroid analysis for 004281895-01. Kepler magnitude: 12.26. Transit SNR 7085.10

There are 14 quarters with good PRF difference image offsets

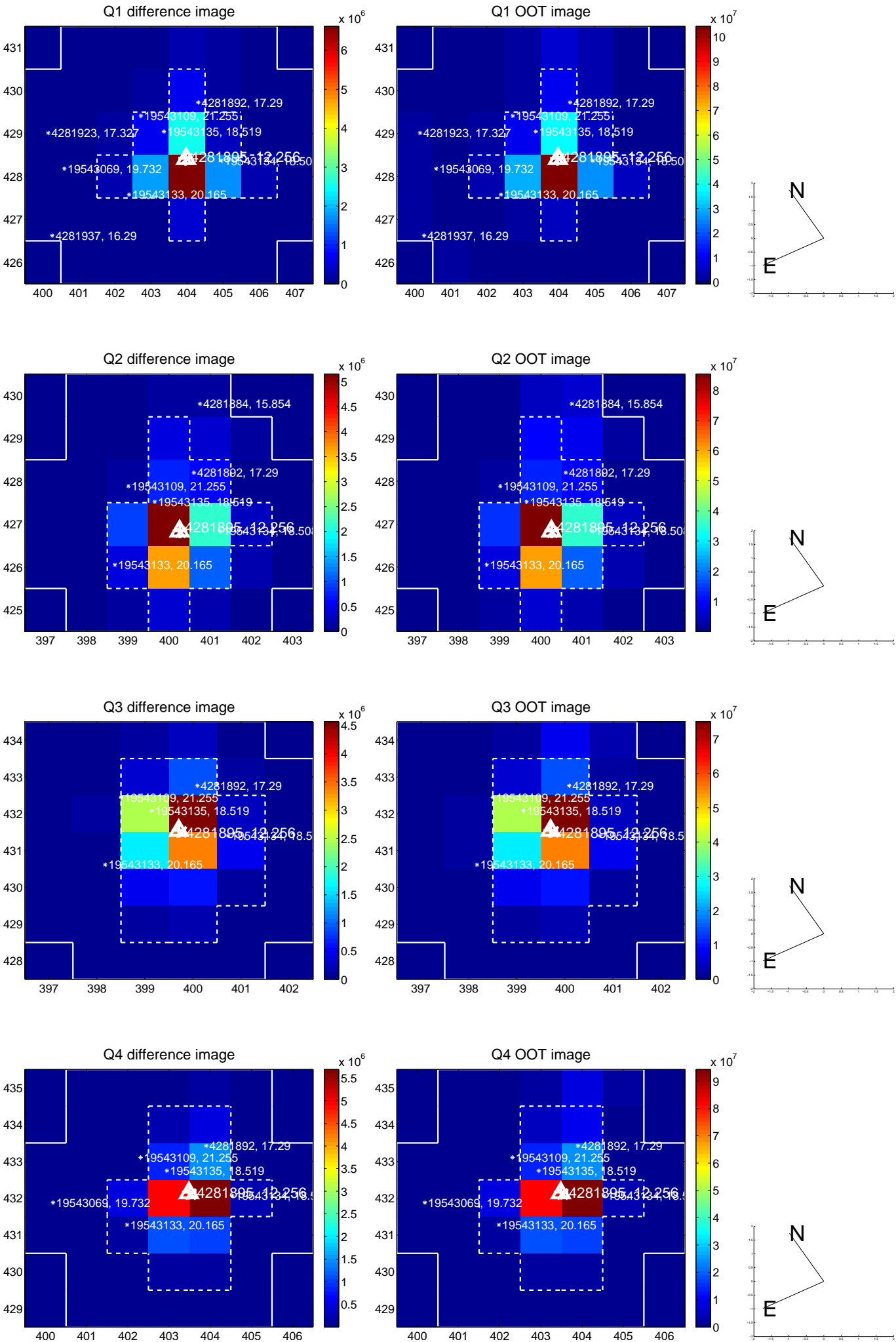
The direct PRF centroid is offset from the target star catalog position by about 0.25 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.034 ± 0.067	0.51	0.026 ± 0.067	-0.022 ± 0.067
PRF-fit source offset from KIC position	0.222 ± 0.069	3.22	0.097 ± 0.068	0.199 ± 0.068
photometric centroid source offset	0.11 ± 0.00	104.52	0.09 ± 0.00	0.07 ± 0.00

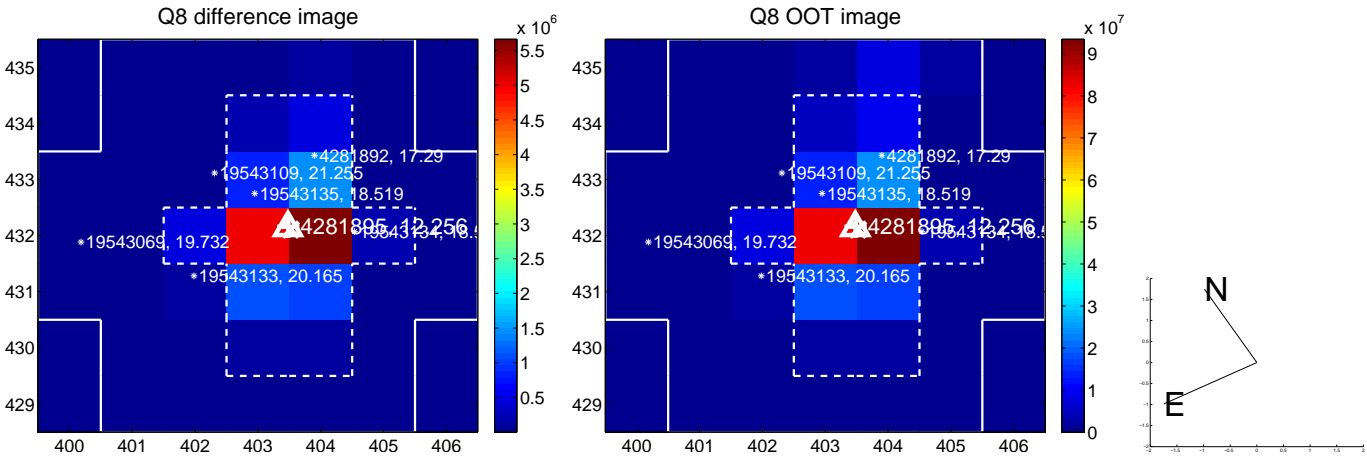
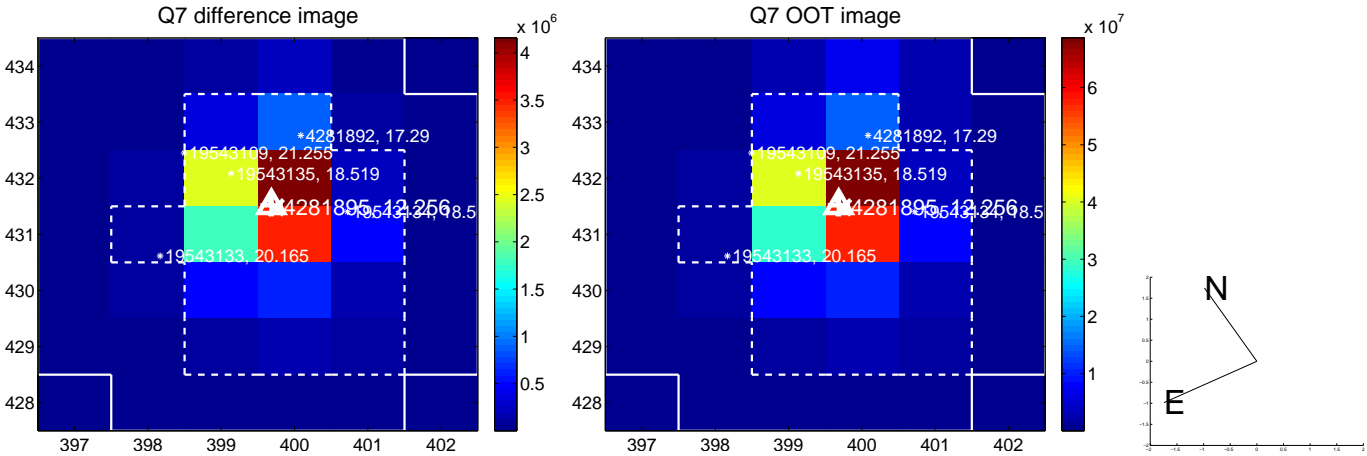
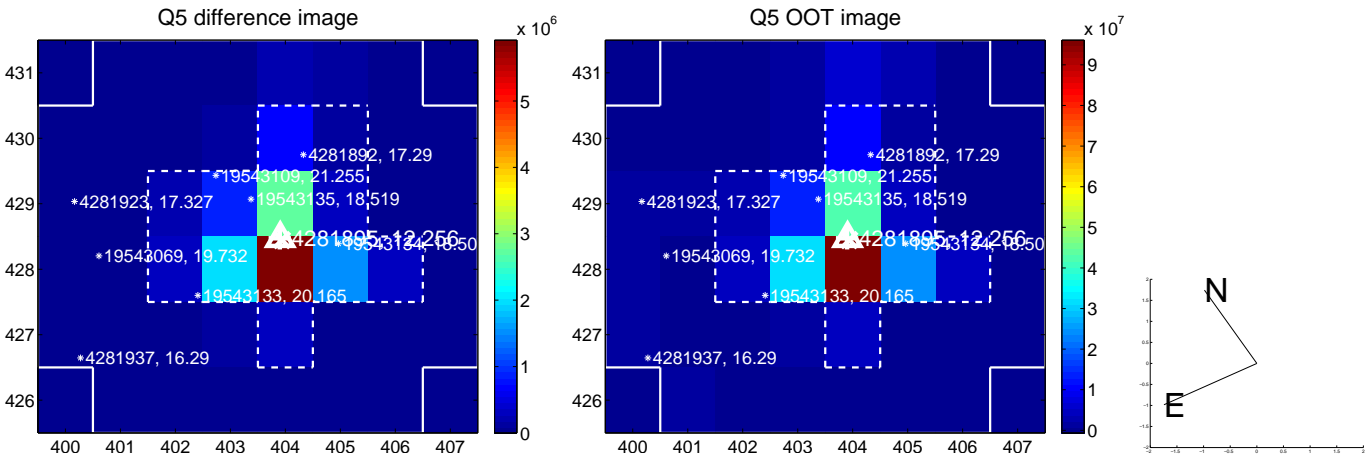


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses:** good quarterly centroid offsets; **Vermillion crosses:** bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

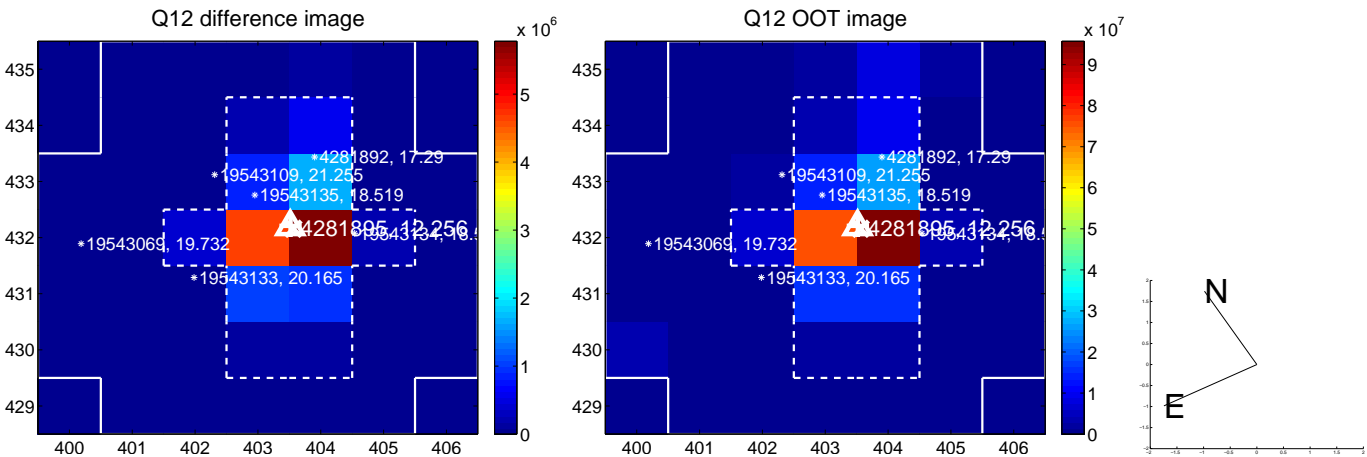
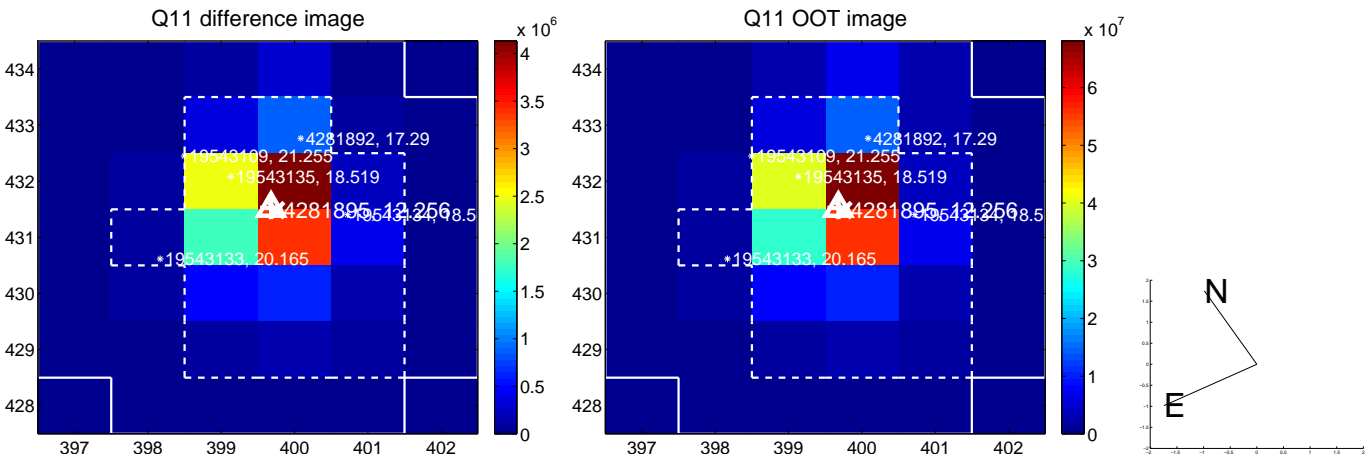
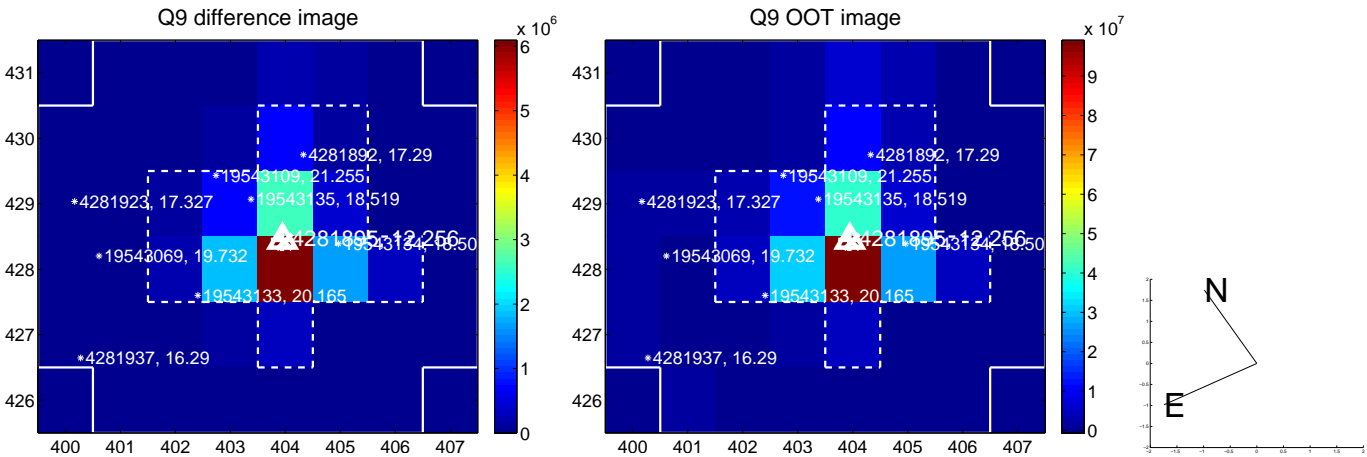
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



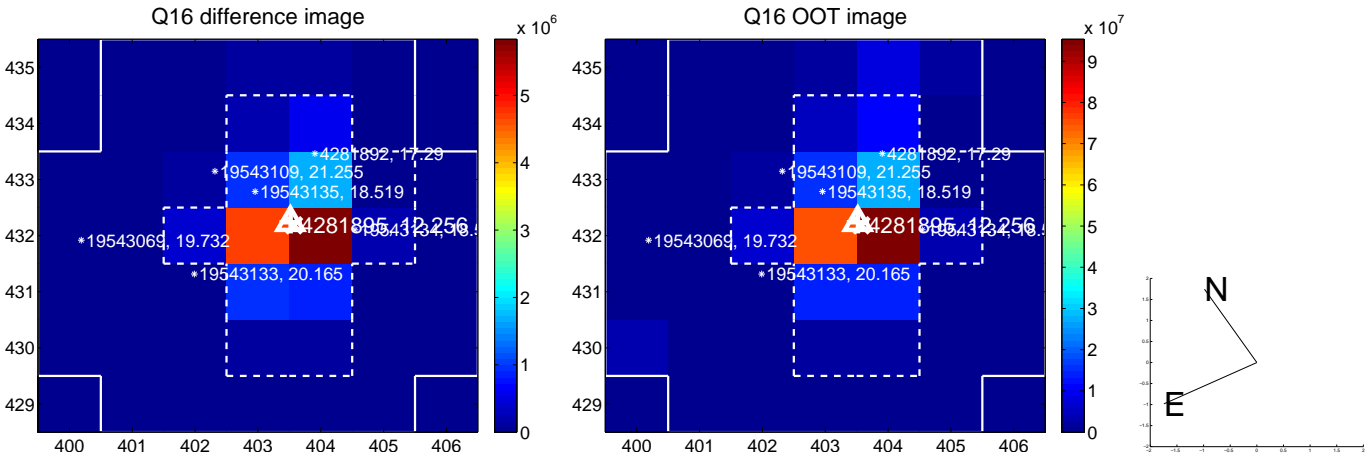
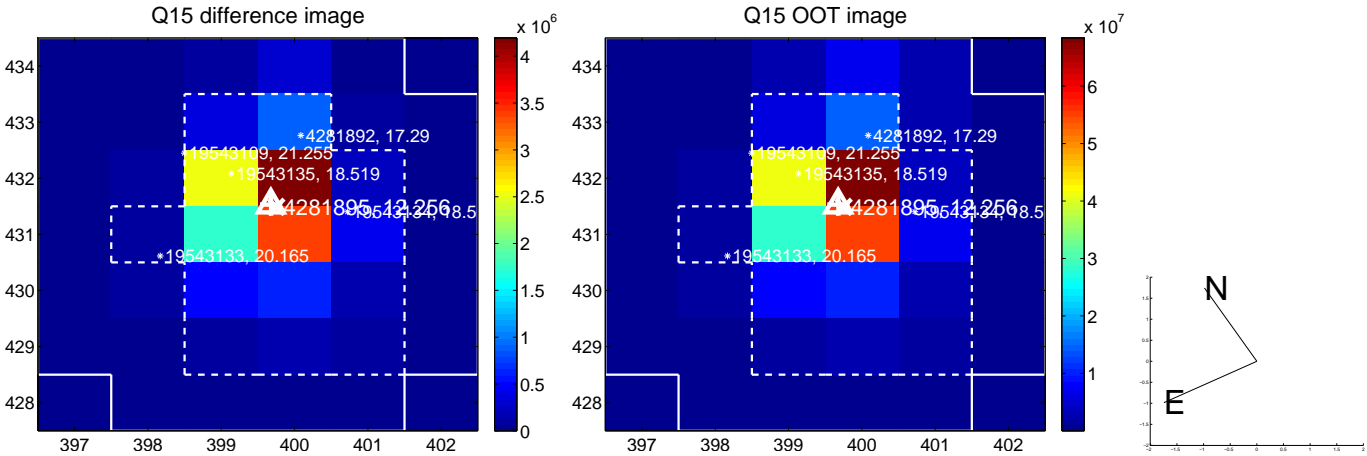
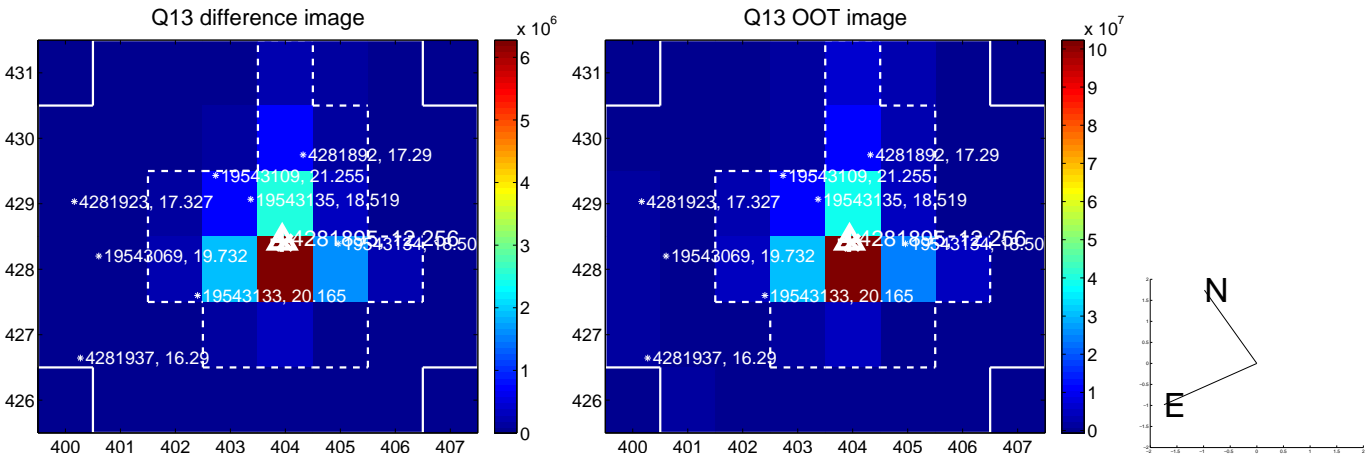
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



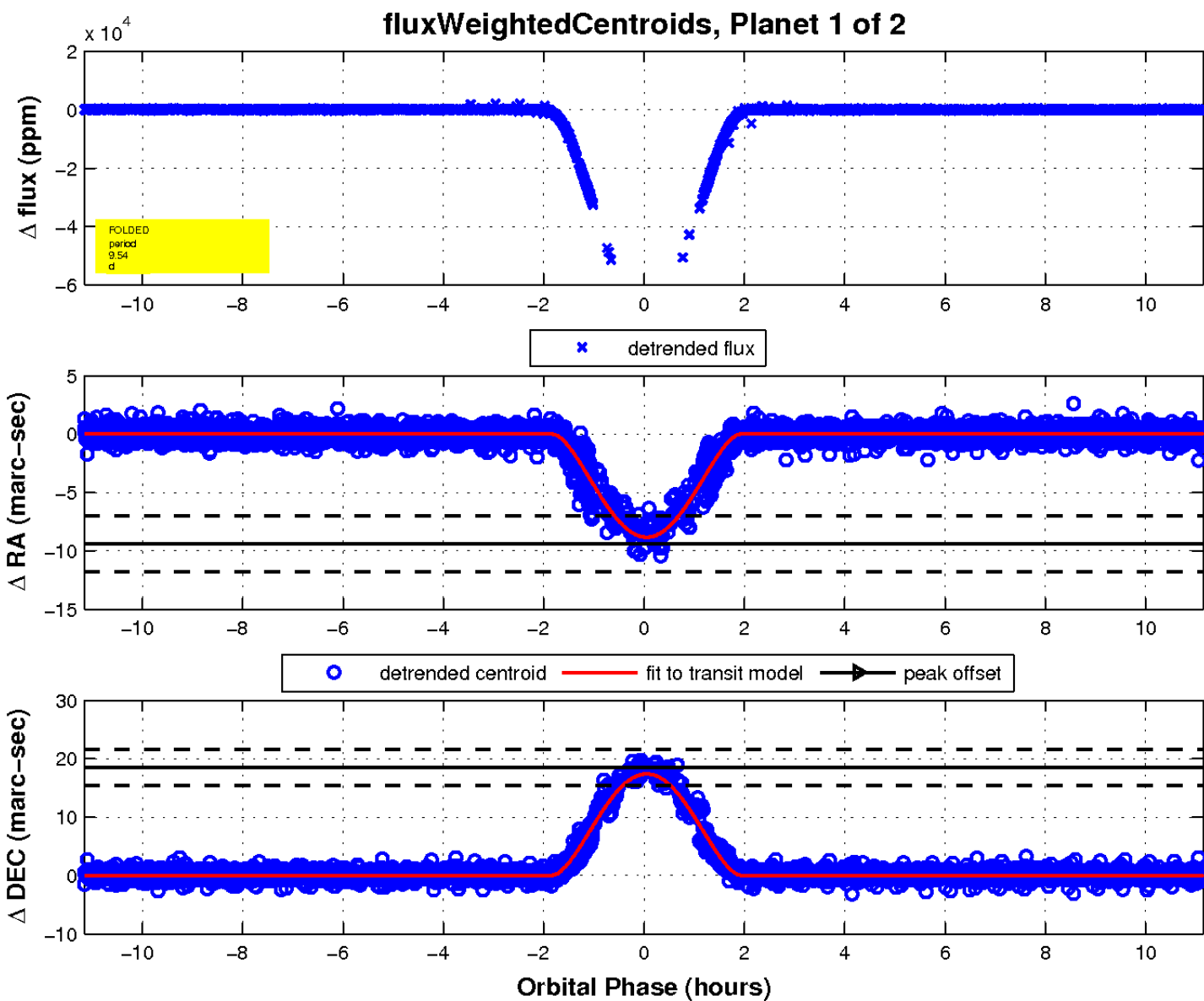
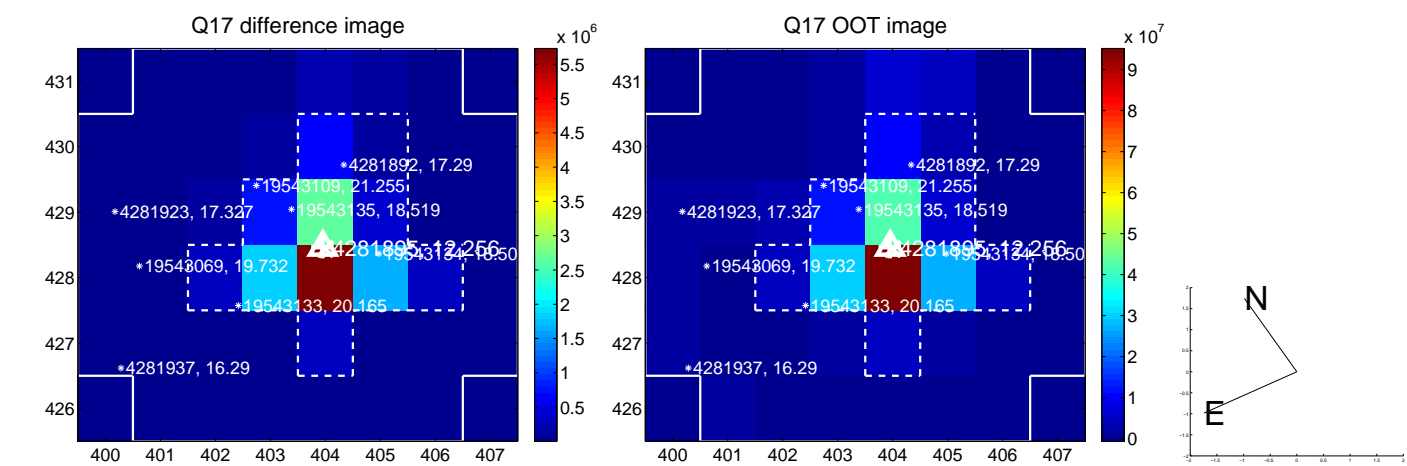
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



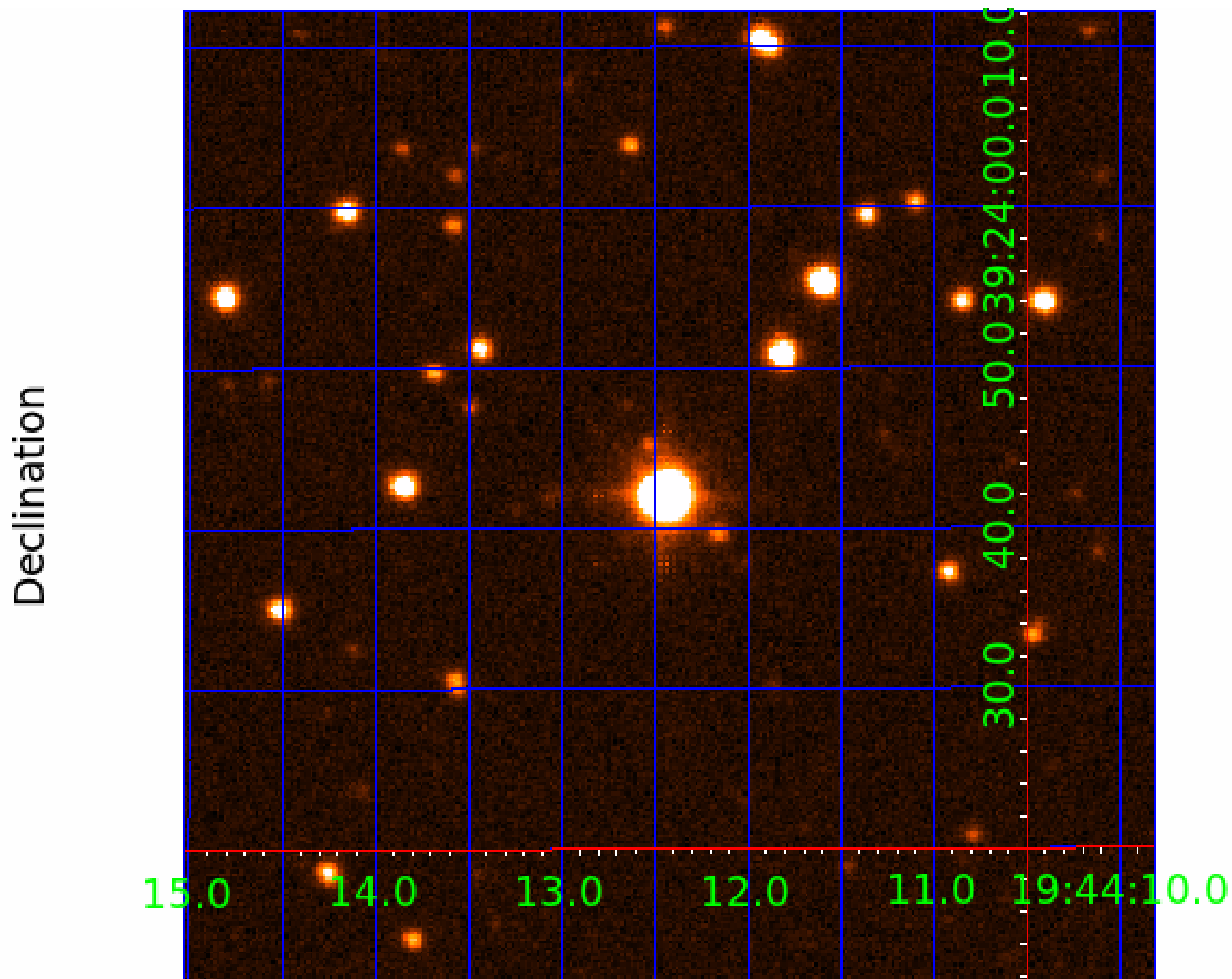
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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



UKIRT Image



KIC 004281895

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})
004281895-01	OBS	6400.01	9.543585	137.773876	67552.3	3.718	10441.6	7085.1	1.78	5537	67.01	401.92
004281895-02	OBS	No	9.543587	140.728084	66031.2	3.723	10704.8	6753.4	1.78	5537	67.98	401.92

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
004281895-01	OBS	FP	0.00	0	1	0	0	MOD_SEC_DV—MOD_SEC_ALT—MOD_ODDEVEN_DV—MOD_ODDEVEN_ALT—DEEP_V_SHAPED—HAS_SEC_TCE
004281895-02	OBS	FP	0.00	1	1	0	0	IS_SEC_TCE

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

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

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

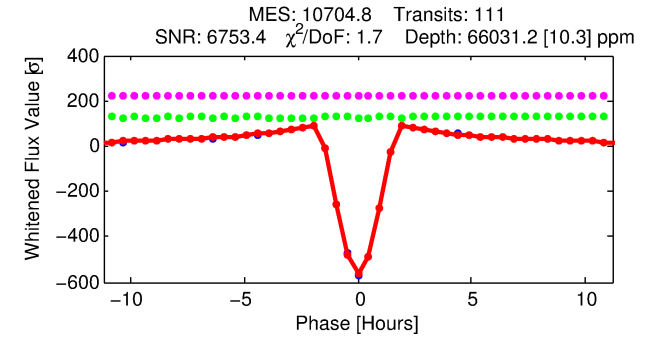
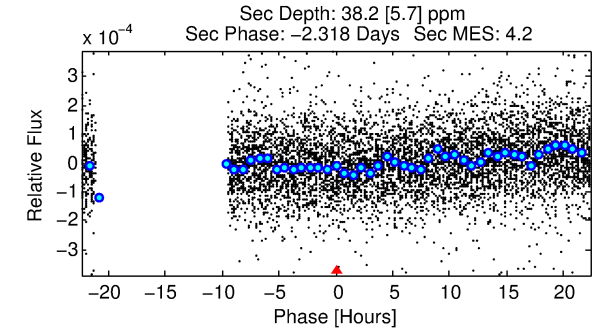
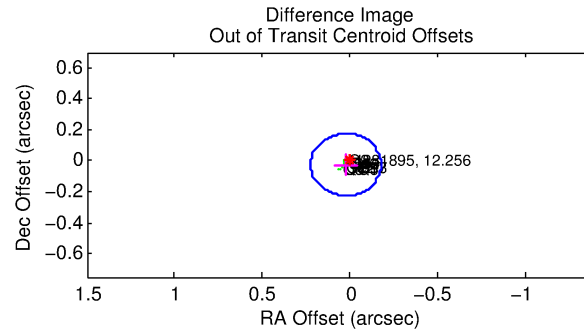
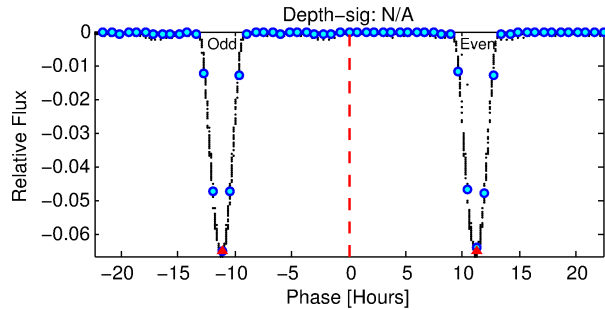
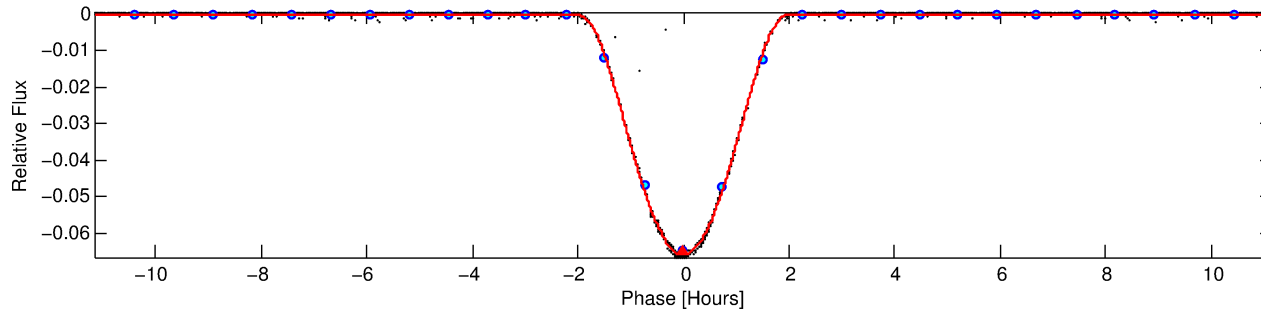
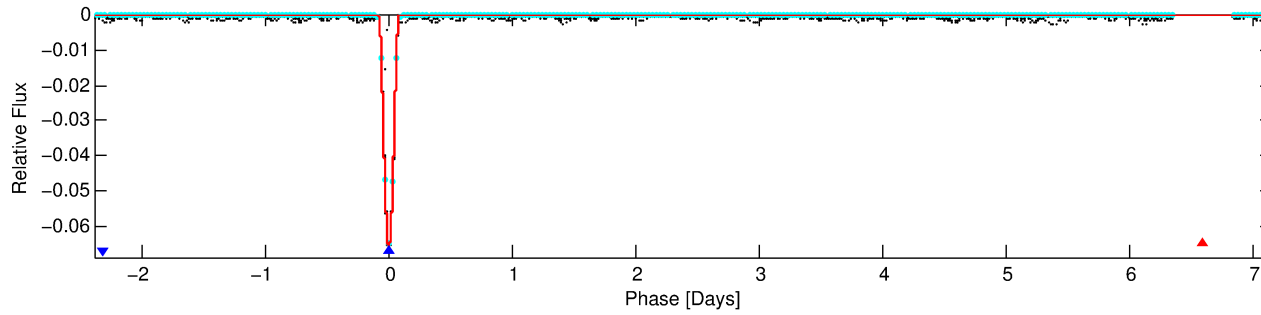
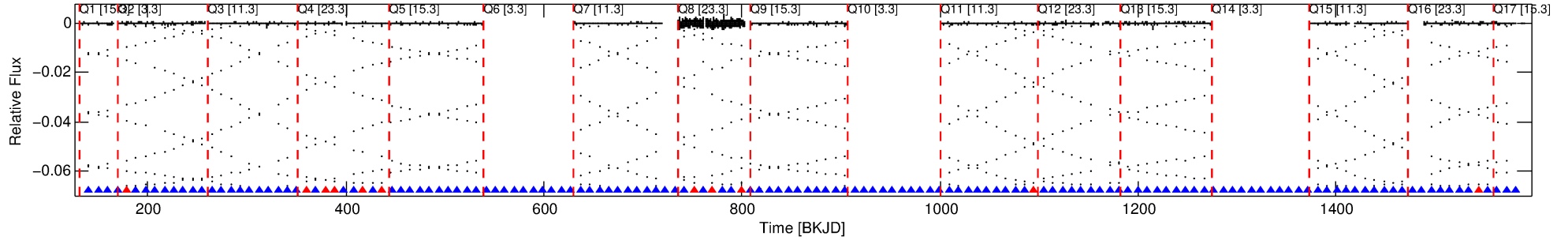
Ephemeris Match Information For 004281895-02

No Significant Match Found

DV One-Page Summary

KIC: 4281895 Candidate: 2 of 2 Period: 9.544 d
KOI: K06400 Corr: No Ephemeris Match

Kp: 12.26 R*: 1.78 Rs Teff: 5537.0 K Logg: 3.84 Fe/H: -0.800



DV Fit Results:

Period = 9.54359 [0.00000] d
Epoch = 140.7281 [0.0000] BKJD
Rp/R* = 0.3490 [0.0029]
a/R* = 19.31 [0.01]
b = 0.92 [0.00]
Seff = 401.92 [466.35]
Teff = 1142 [331] K
Rp = 67.98 [40.94] Re
a = 0.0817 [0.0550] AU
Ag = 0.03 [0.04] [-27.50σ]
Teffp = 737 [37] K [-1.22σ]

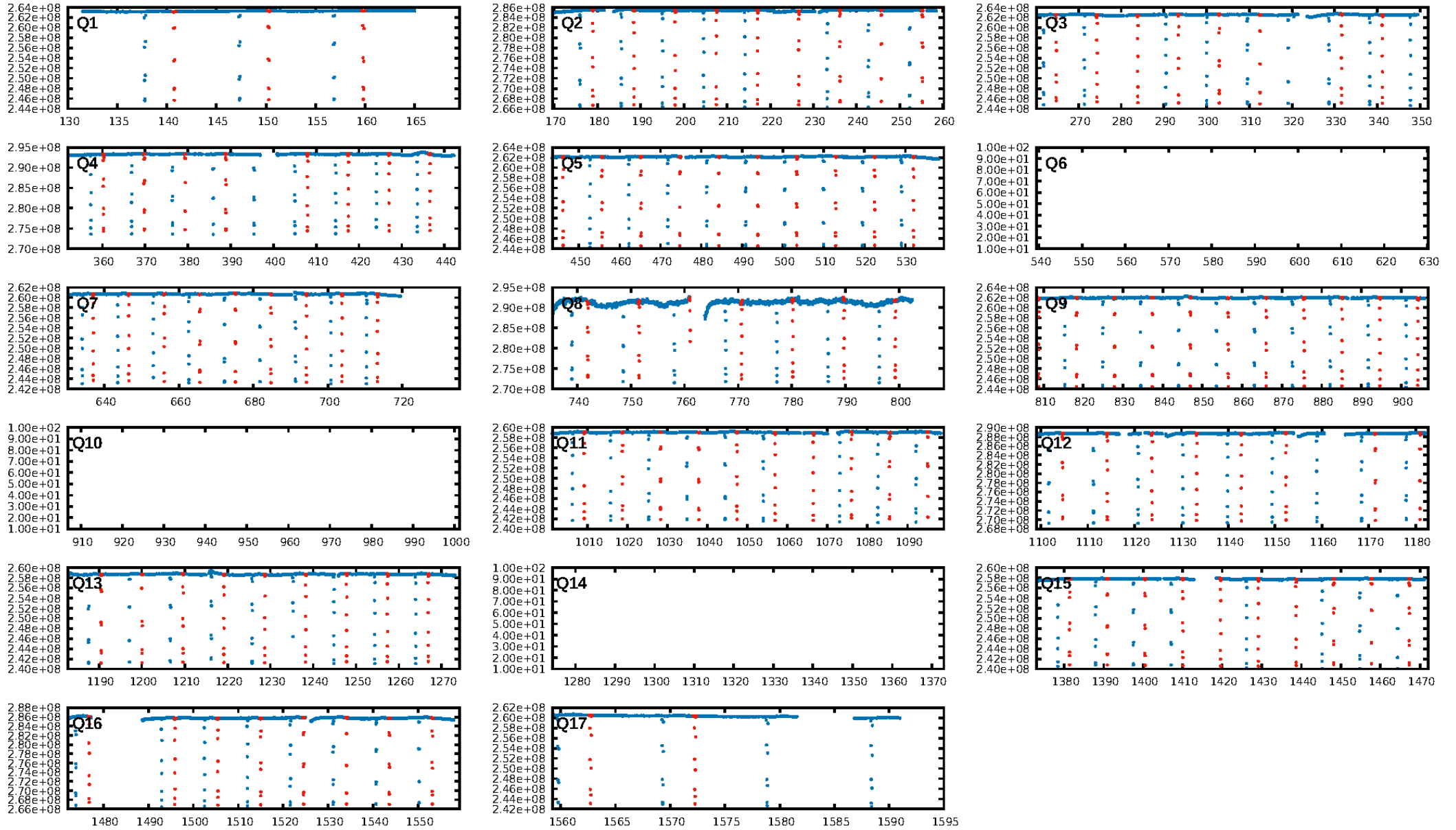
DV Diagnostic Results:

ShortPeriod-sig: 0.0% [0.00σ]
LongPeriod-sig: N/A
ModelChiSquare2-sig: 0.0%
ModelChiSquareGof-sig: 0.0%
Bootstrap-pfa: N/A
RollingBand-fgt: 0.90 [95/106]
GhostDiagnostic-chr: 10.02
Centroid-sig: 0.0%
Centroid-so: 0.116 arcsec [106.40σ]
OotOffset-rm: 0.035 arcsec [0.52σ]
KicOffset-rm: 0.229 arcsec [3.29σ]
OotOffset-st: 1/4/4/5 [14]
KicOffset-st: 1/4/4/5 [14]
DiffImageQuality-fgm: 1.00 [14/14]
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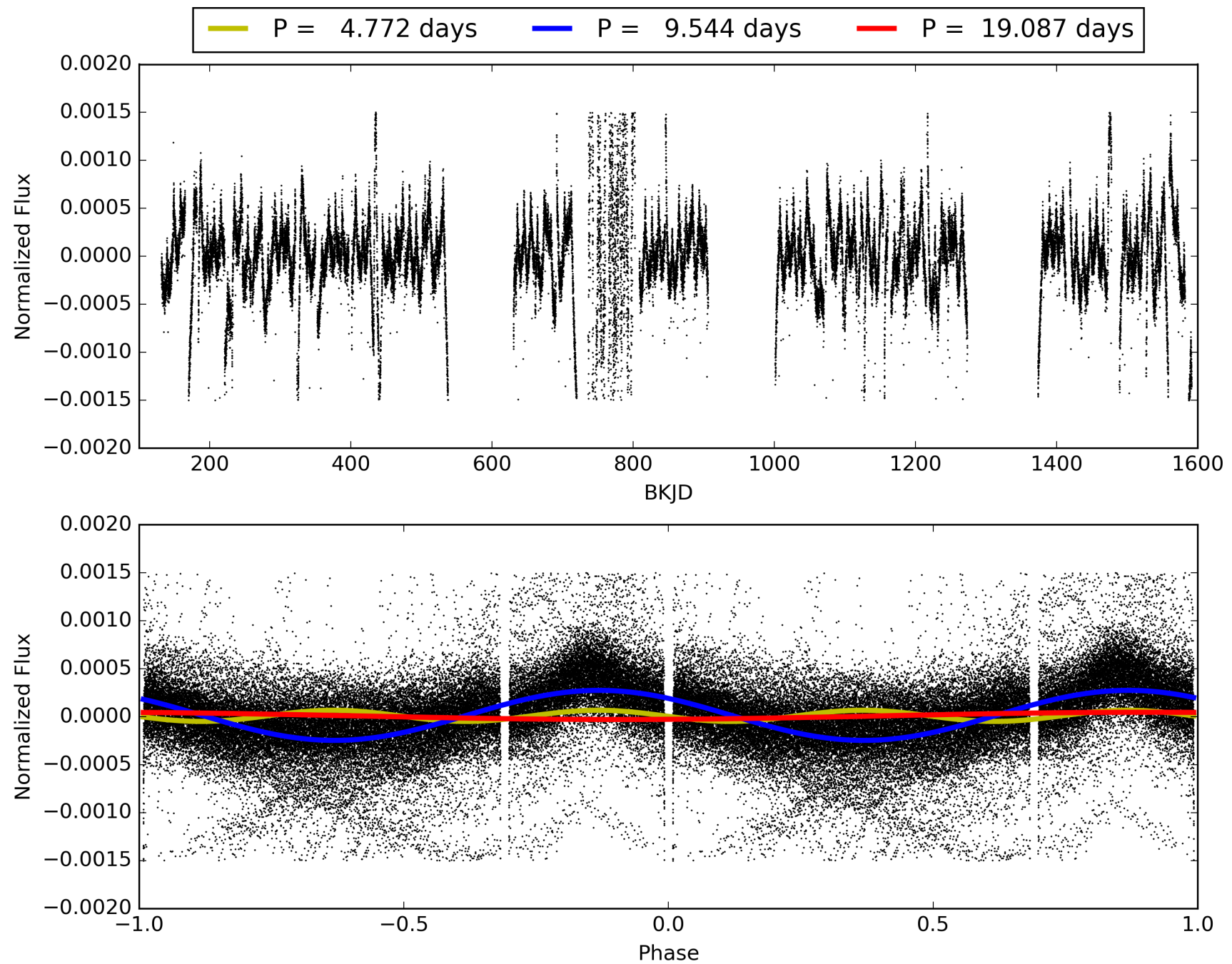
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This Data Validation Report Summary was produced in the Kepler Science Operations Center Pipeline at NASA Ames Research Center

TCE 004281895-02, PDC Light Curves

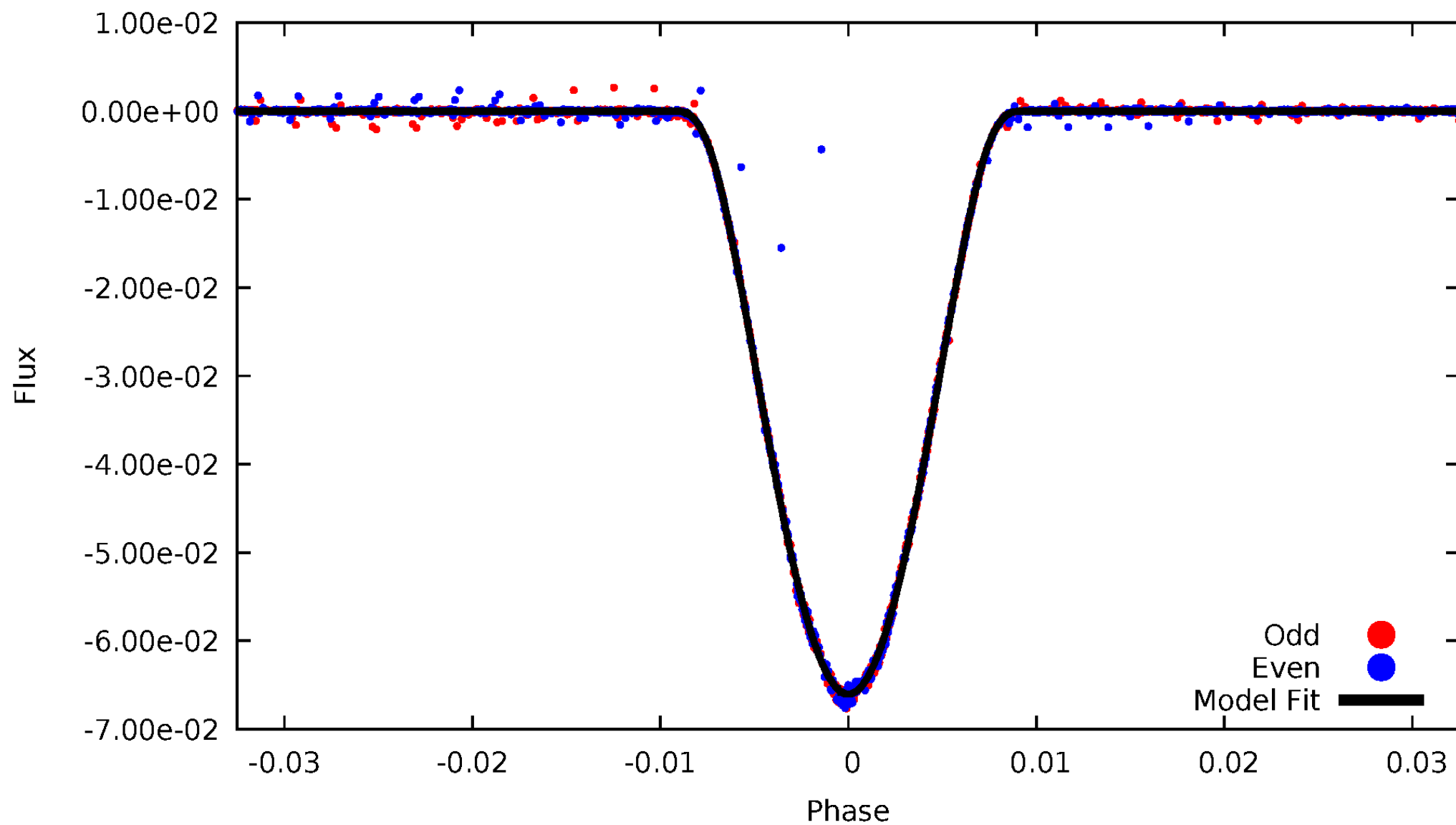


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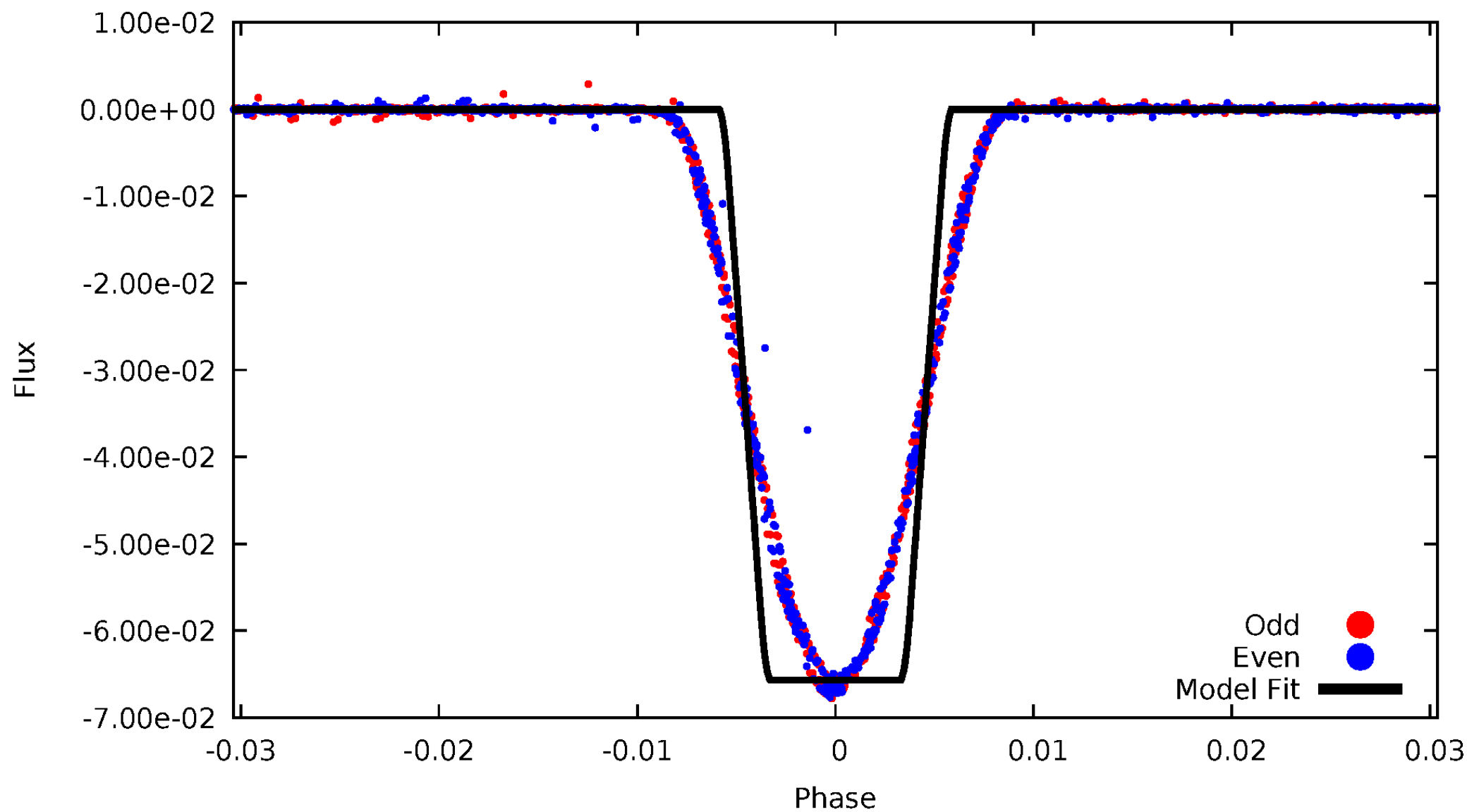
DV Odd/Even

TCE 004281895-02



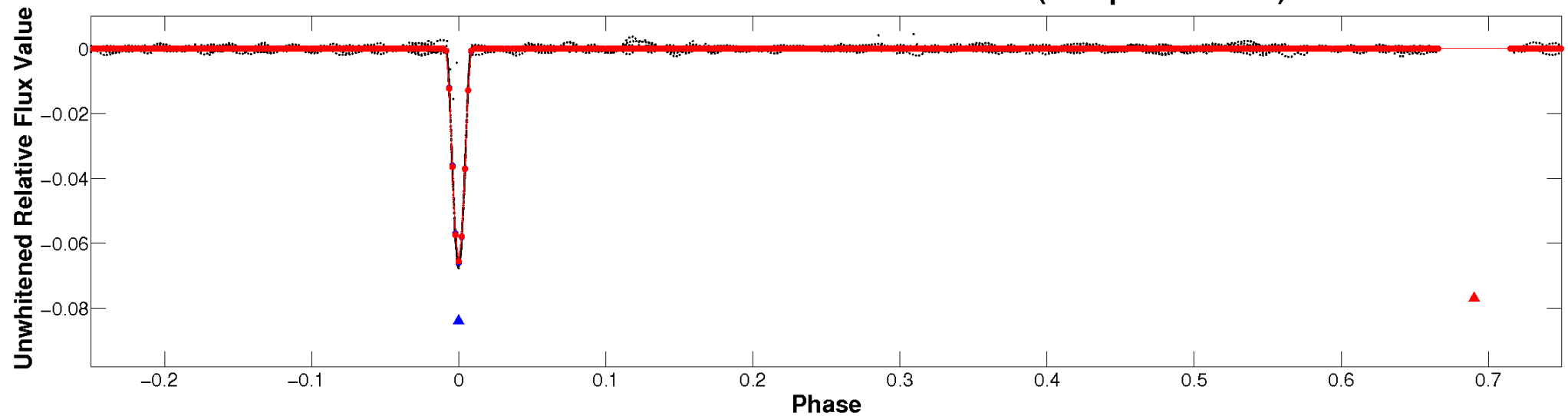
ALT Odd/Even

TCE 004281895-02

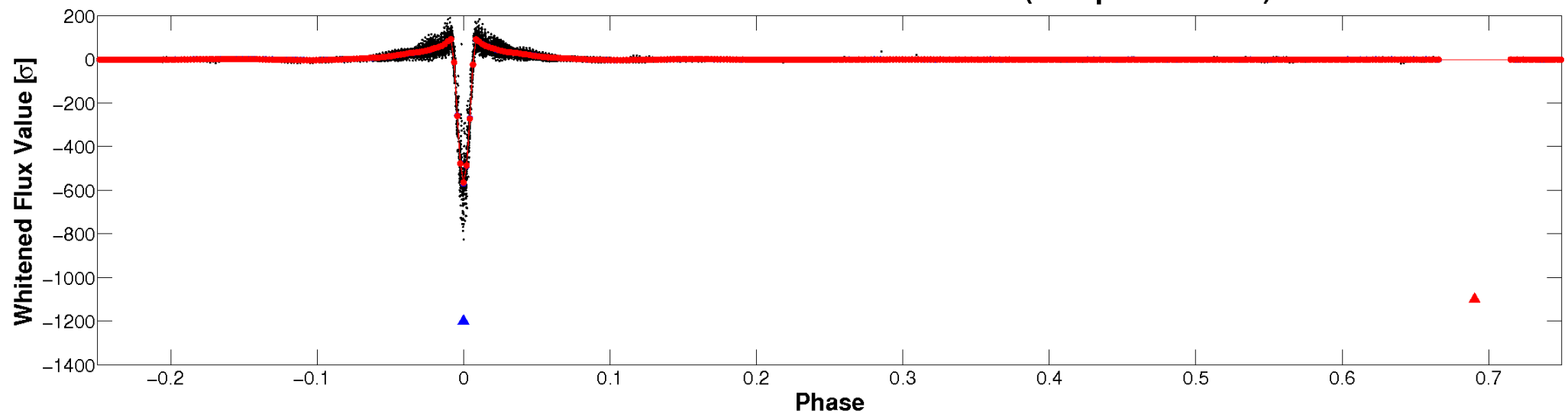


Non-Whitened Vs. Whitened Light Curve

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

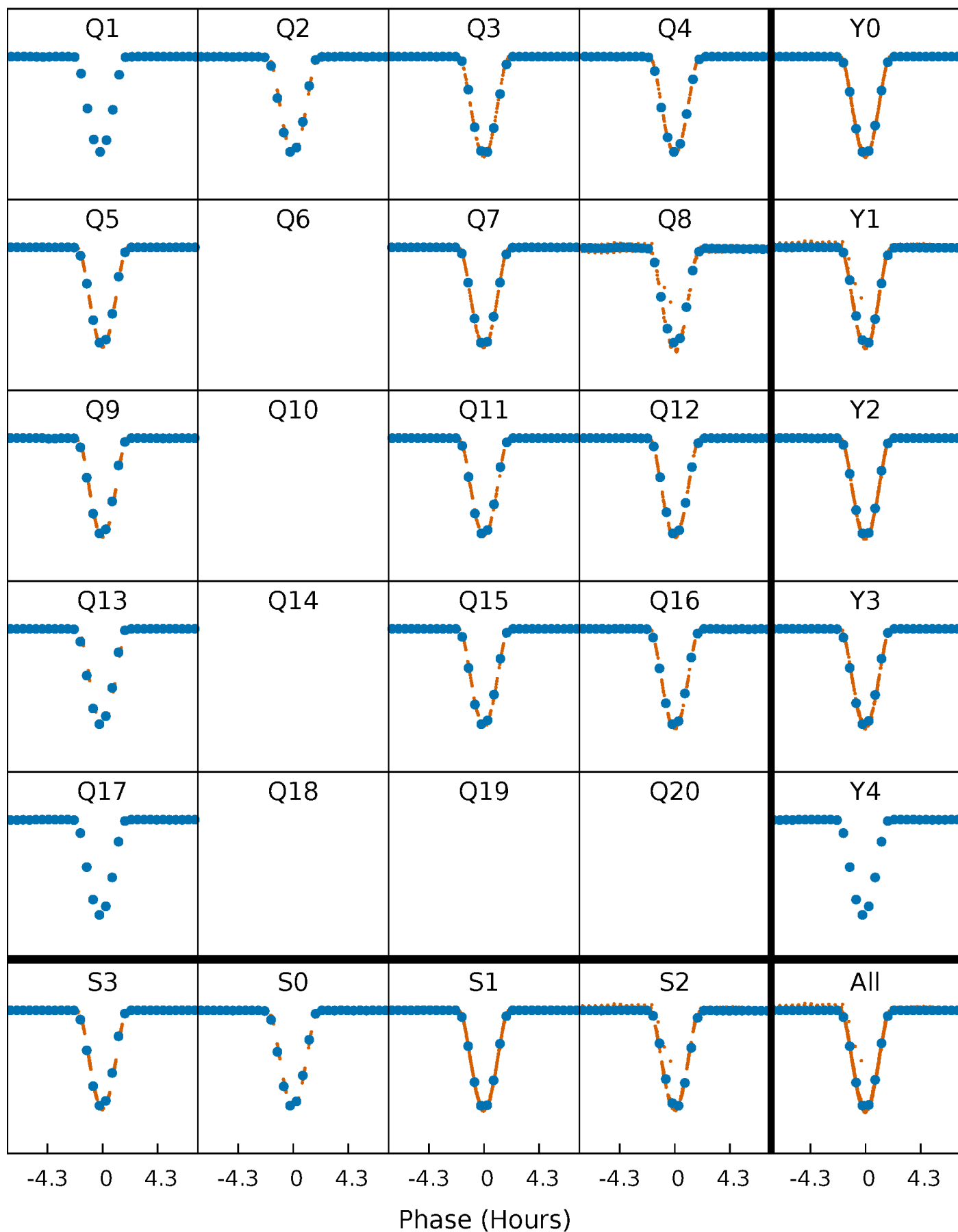


Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



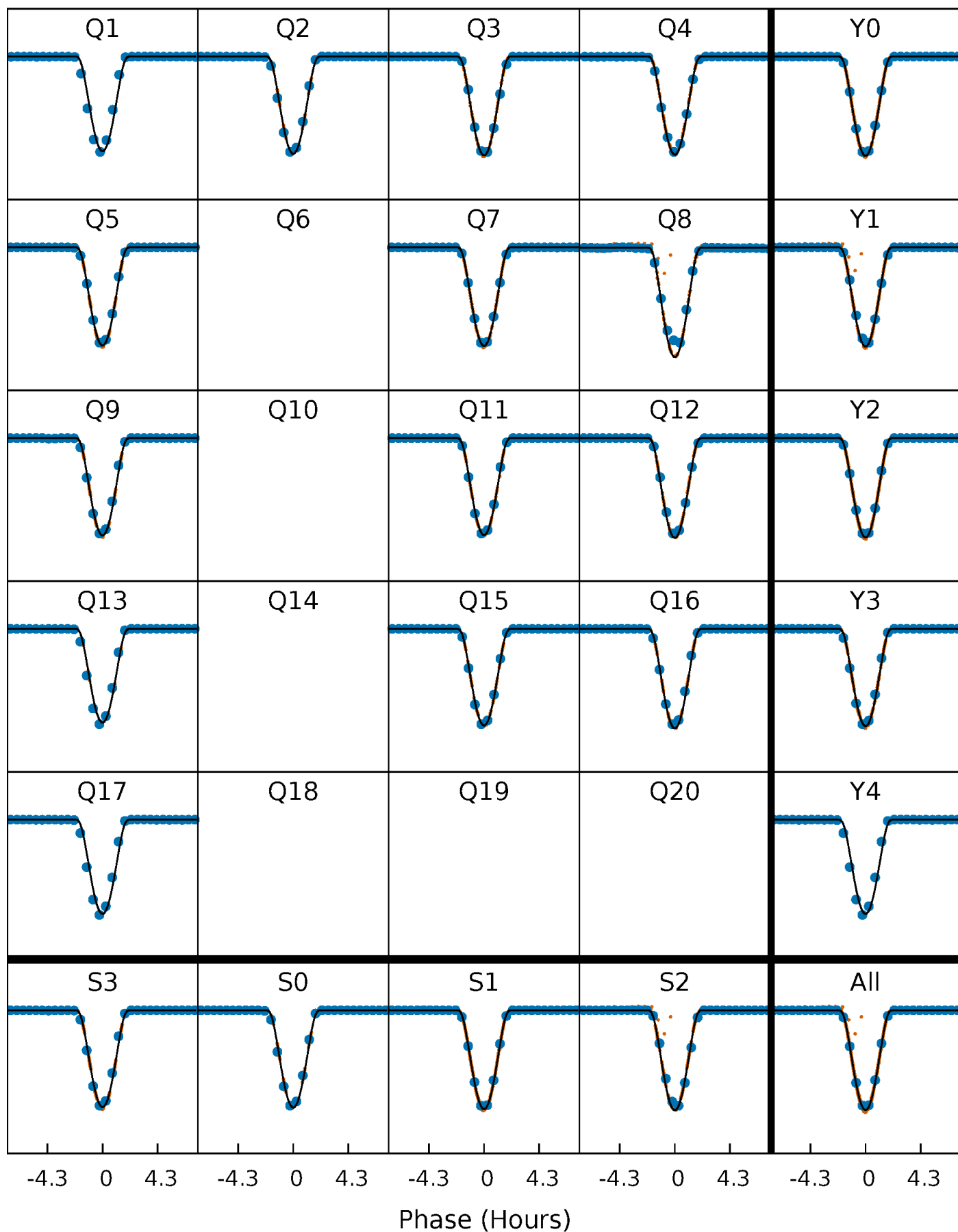
PDC Quarter-Phased Transit Curves

TCE 004281895-02 P= 9.543587 Days $T_0=140.728084$ (BKJD)



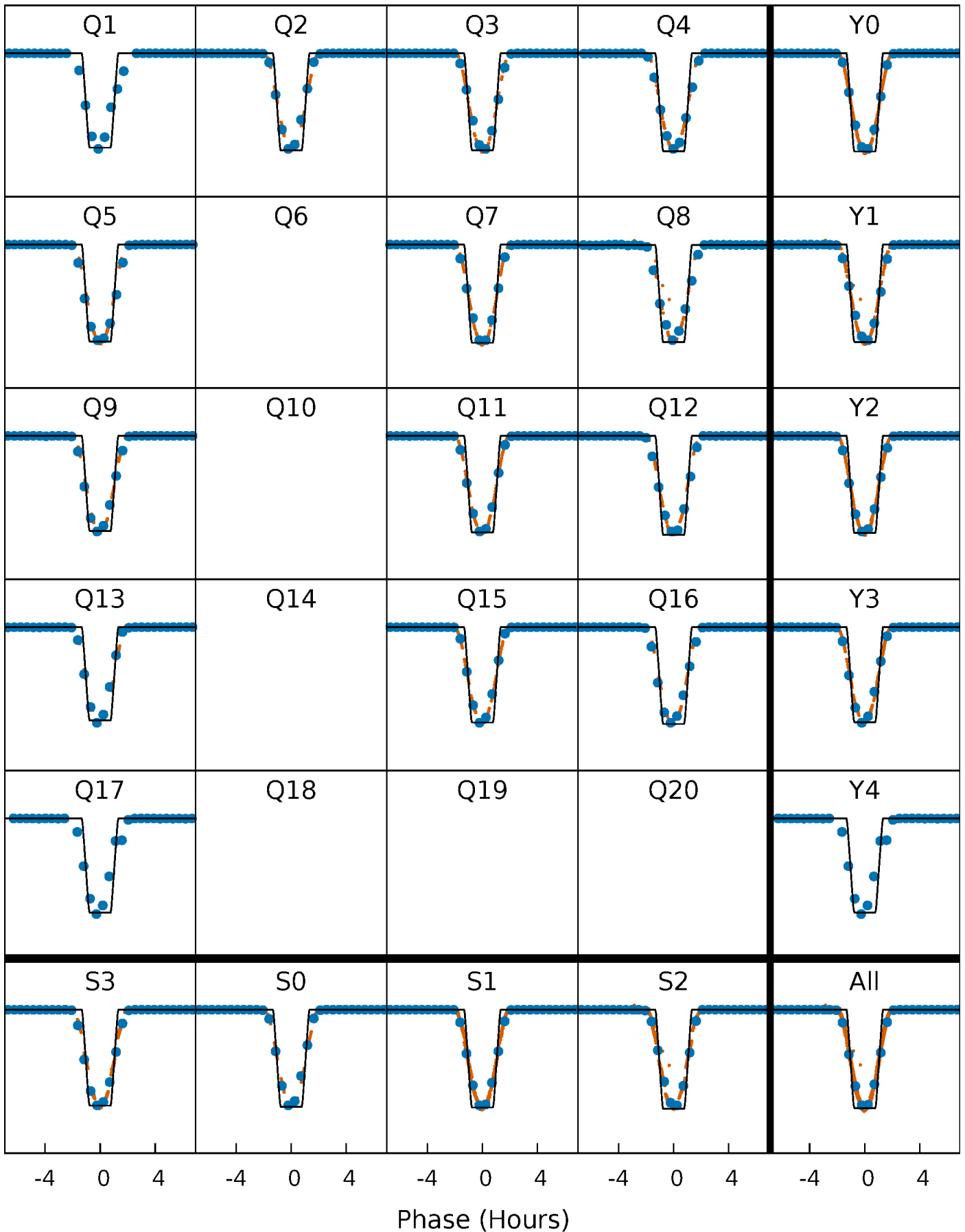
DV Quarter-Phased Transit Curves

TCE 004281895-02 P= 9.543587 Days $T_0=140.728084$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

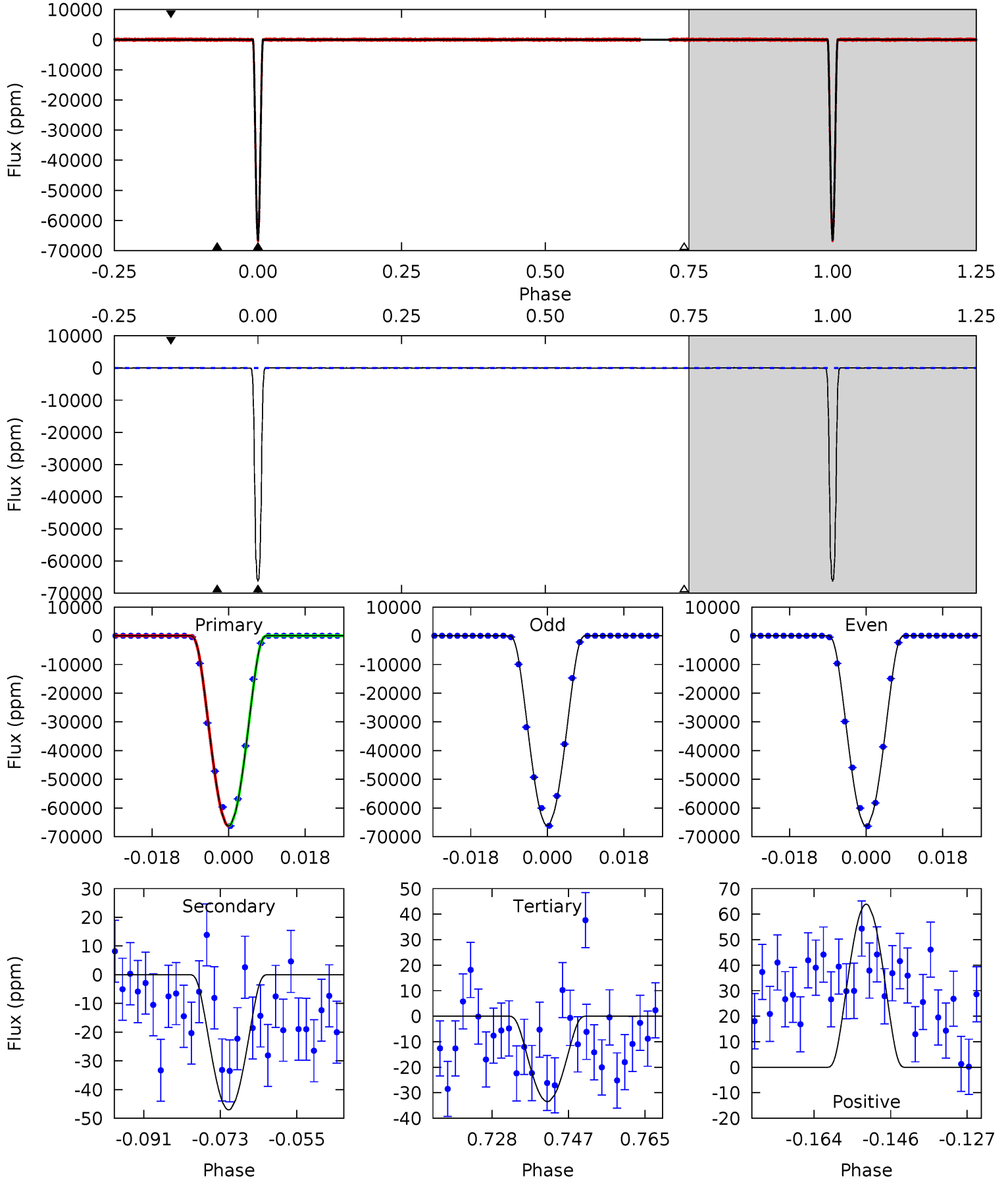
TCE 004281895-02 P= 9.543613 Days $T_0=140.726195$ (BKJD)



DV Model-Shift Uniqueness Test

004281895-02, P = 9.543587 Days, E = 131.184497 Days

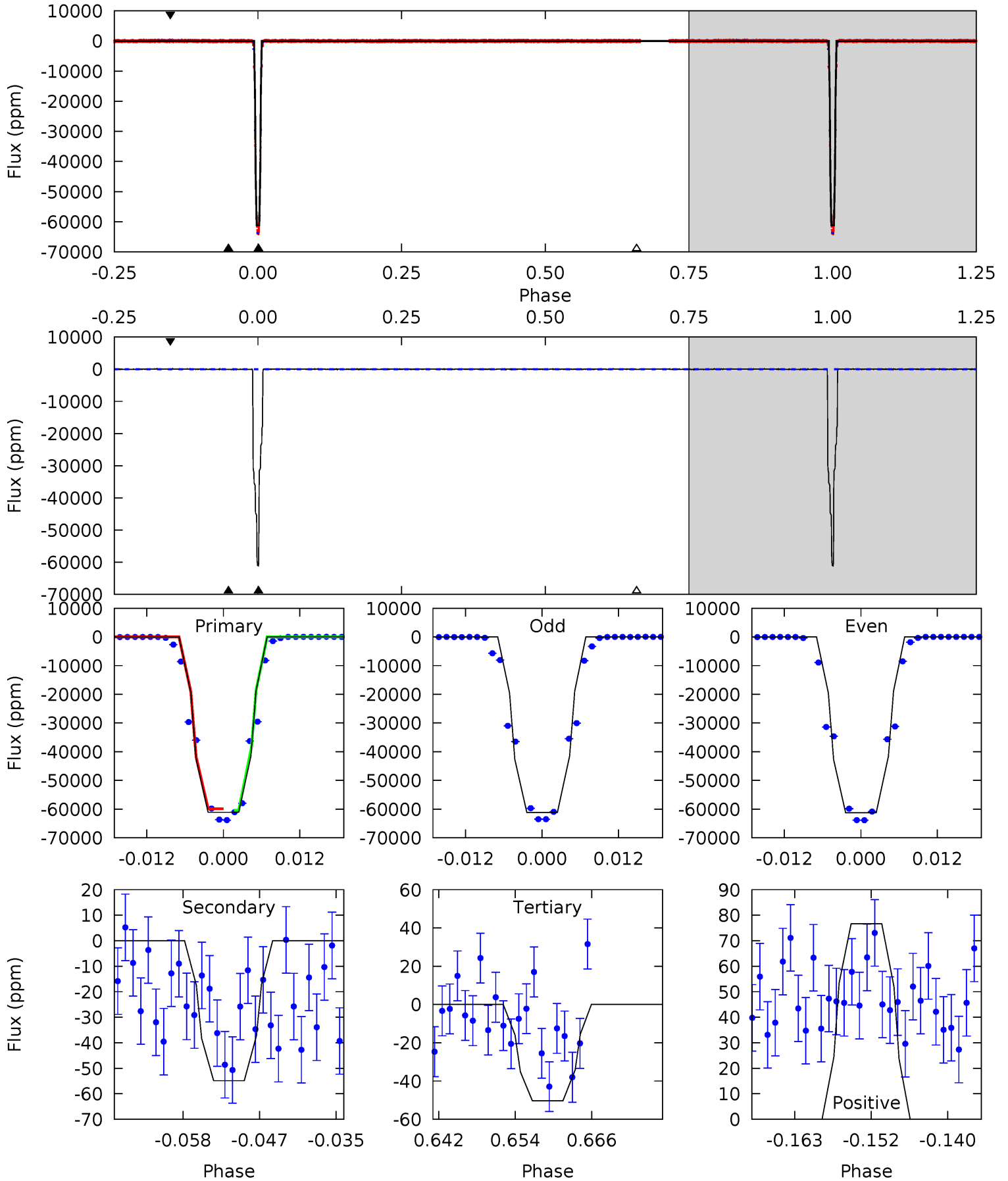
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
16324	11.6	8.24	15.7	4.91	2.36	4.04	16316	16308	3.35	-4.15	20.6	0.99	0.00	0



Alt Model-Shift Uniqueness Test

004281895-02, P = 9.543613 Days, E = 131.182582 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
5688	5.11	4.68	7.13	5.00	2.52	1.82	5684	5681	0.42	-2.03	6.00	0.99	0.00	0



Stellar Parameters For KIC 004281895

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	$M(M_{\odot})$	p_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	5537^{+182}_{-132}	$3.837^{+0.704}_{-0.176}$	$-0.800^{+0.350}_{-0.250}$	$1.785^{+0.537}_{-1.075}$	$0.798^{+0.116}_{-0.095}$	$0.198^{+2.143}_{-0.087}$
	+3%/-2%	+18%/-5%	+44%/-31%	+30%/-60%	+15%/-12%	+1084%/-44%
Source	PHO1	FLK73	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 004281895-02 / KOI

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	-47 ± 4	$67.51^{+10.61}_{-20.86}$	1576^{+146}_{-250}	-2195^{+190}_{-101}	$0.039^{+0.039}_{-0.011}$
Alt.	-55 ± 11	$48.96^{+8.73}_{-14.68}$	1561^{+160}_{-239}	-2142^{+244}_{-119}	$0.088^{+0.081}_{-0.031}$

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 $A_{obs} \gg 1.0$

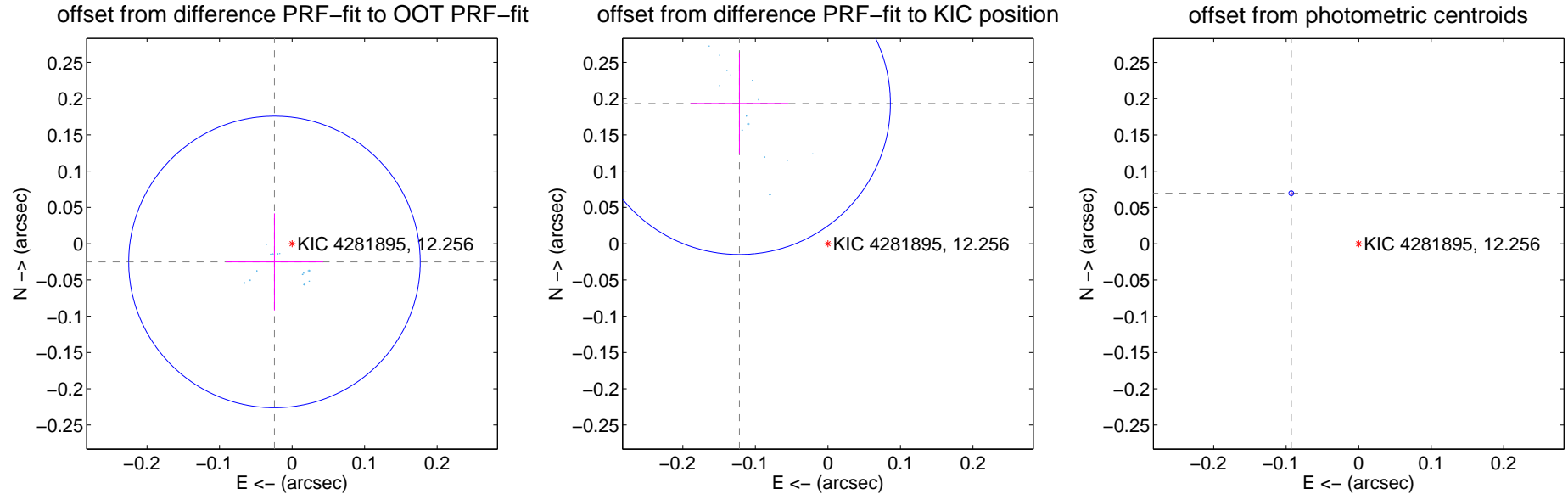
DV Centroid Data

Supplemental centroid analysis for 004281895-02. Kepler magnitude: 12.26. Transit SNR 6753.41

There are 14 quarters with good PRF difference image offsets

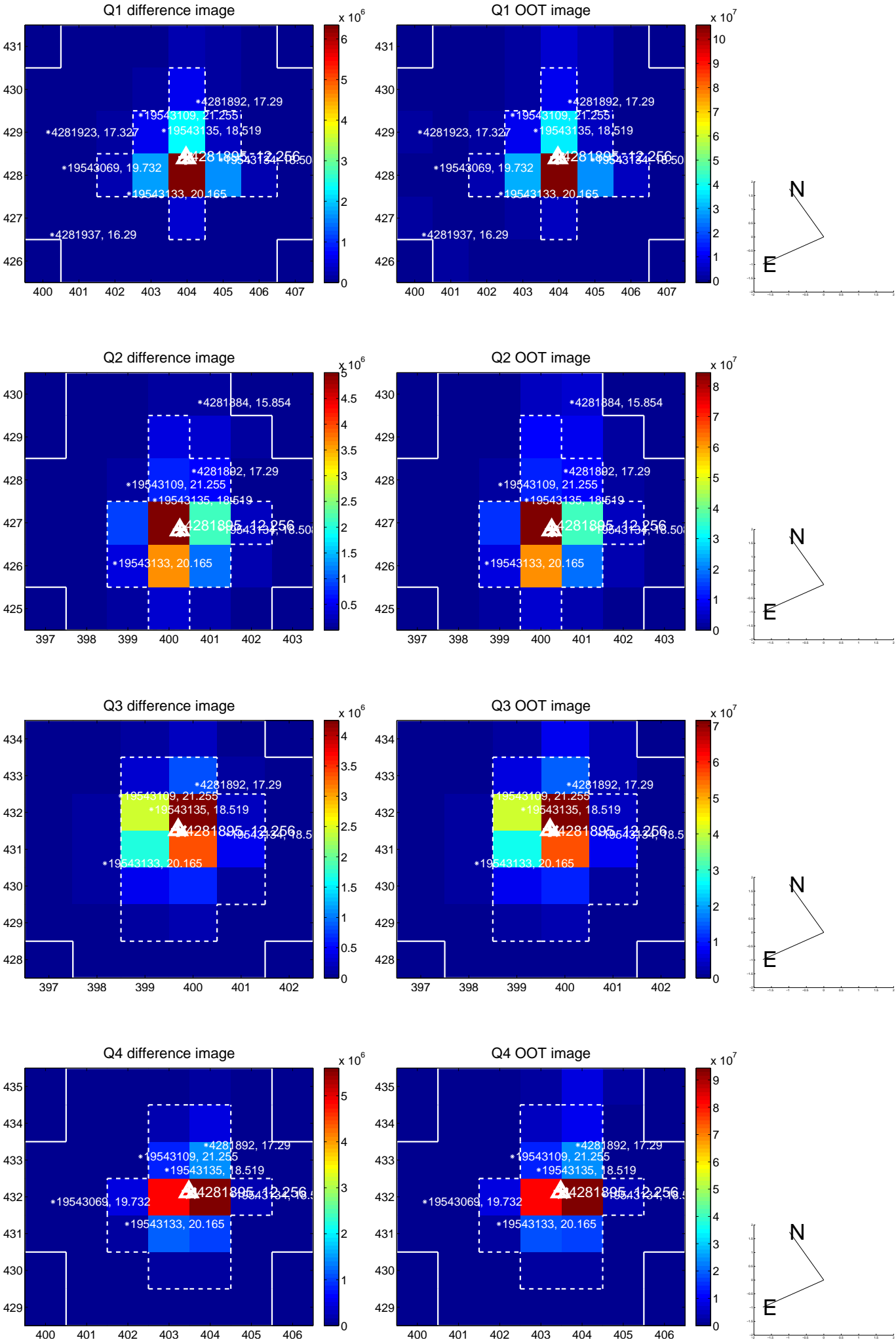
The direct PRF centroid is offset from the target star catalog position by about 0.24 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.035 ± 0.067	0.52	0.024 ± 0.067	-0.025 ± 0.067
PRF-fit source offset from KIC position	0.229 ± 0.069	3.29	0.122 ± 0.067	0.193 ± 0.069
photometric centroid source offset	0.12 ± 0.00	106.40	0.09 ± 0.00	0.07 ± 0.00

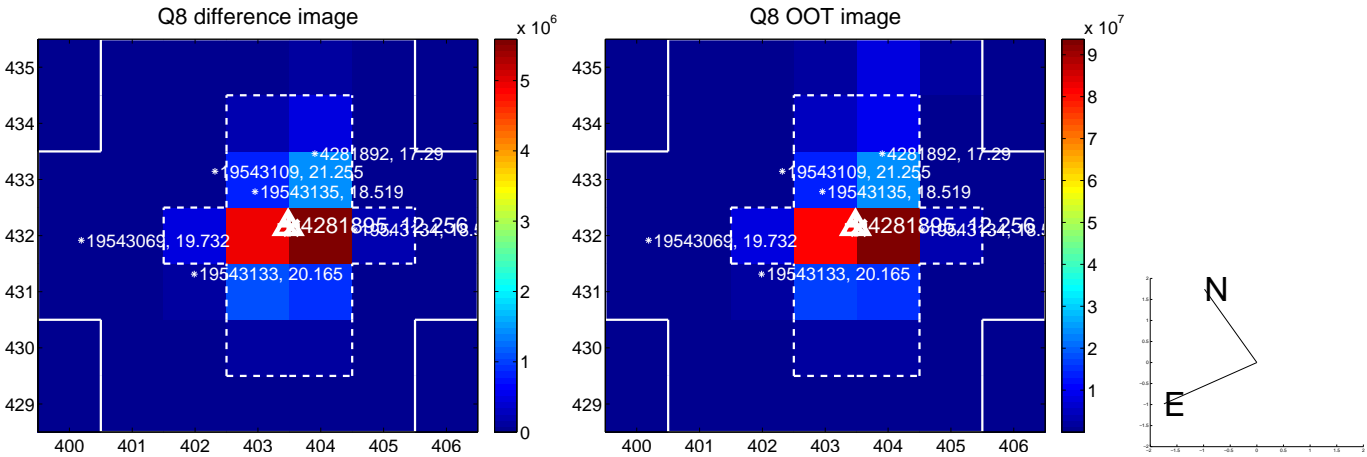
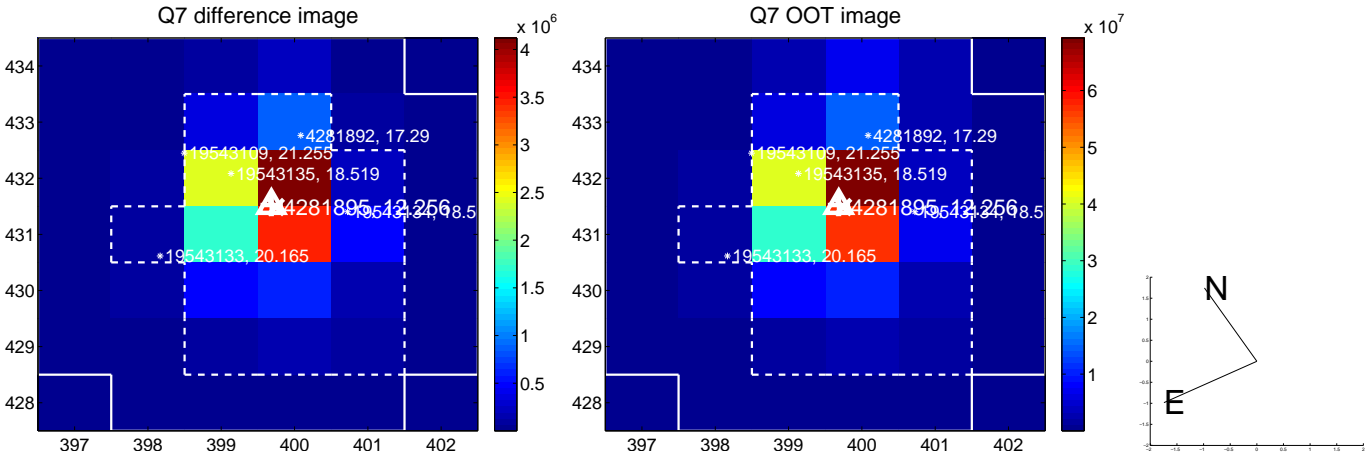
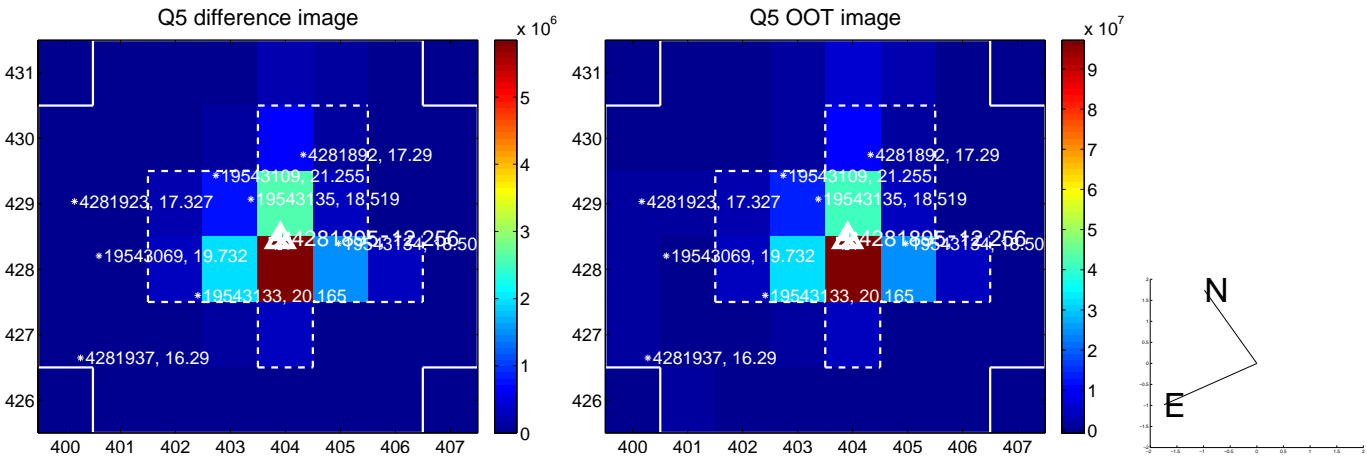


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ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

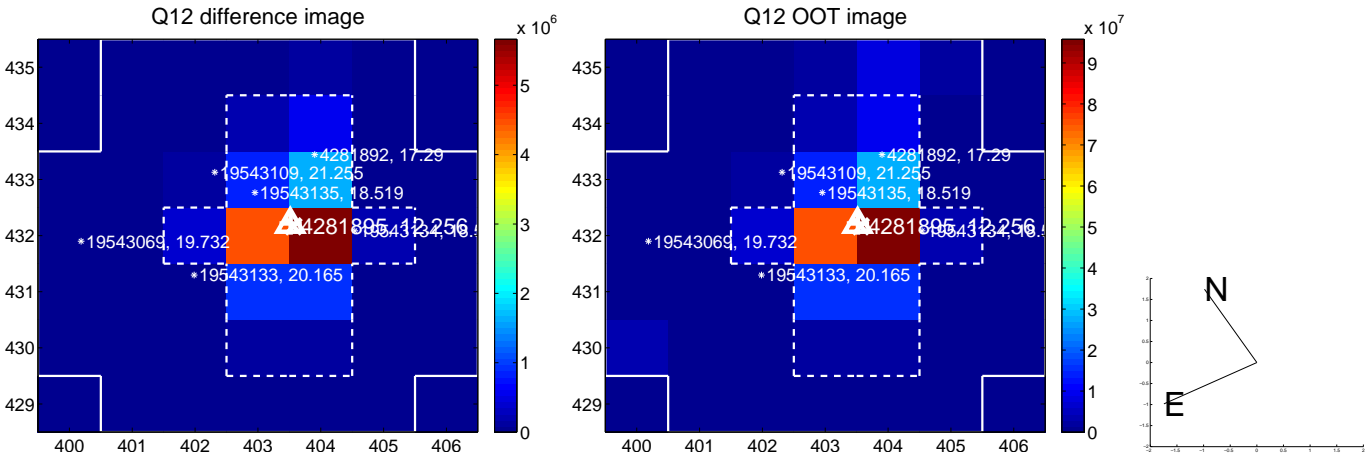
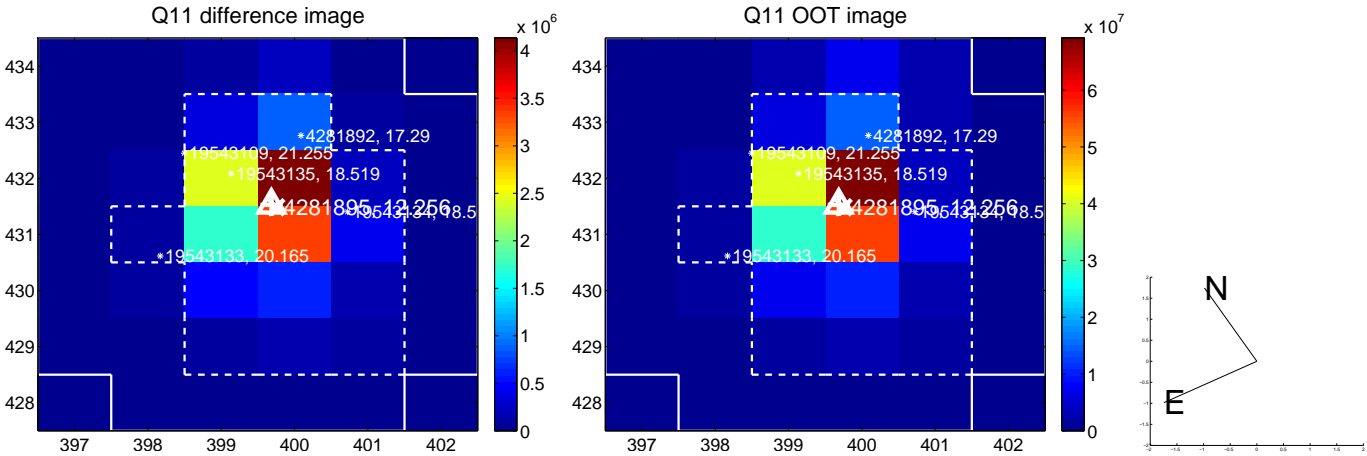
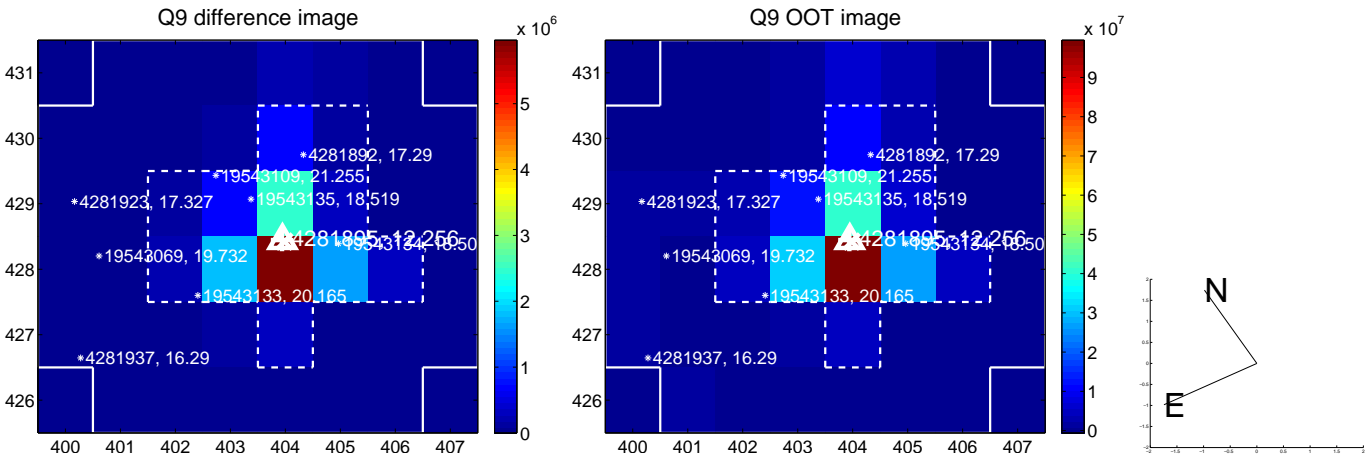
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



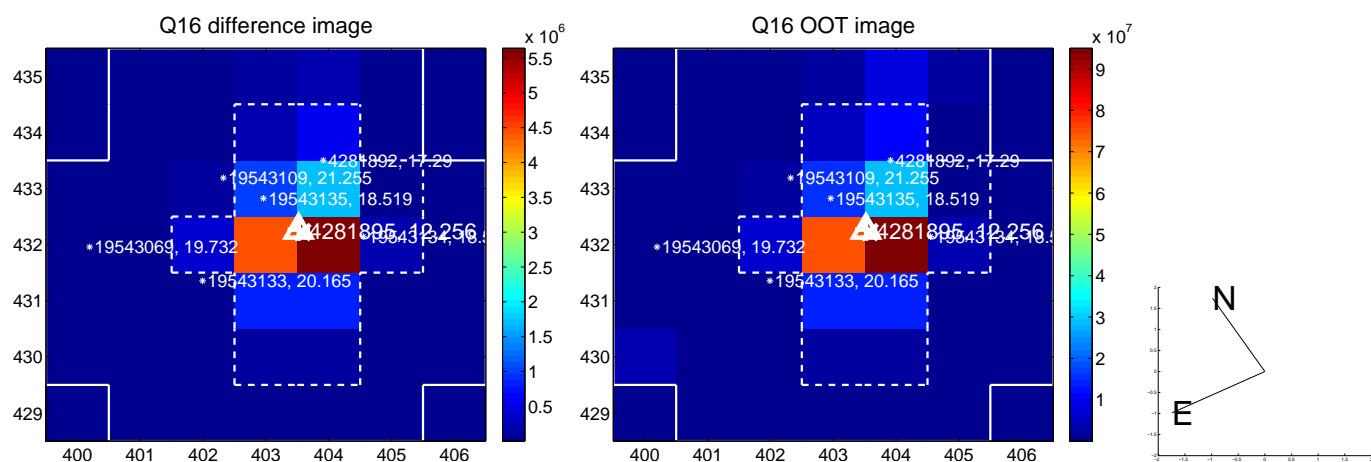
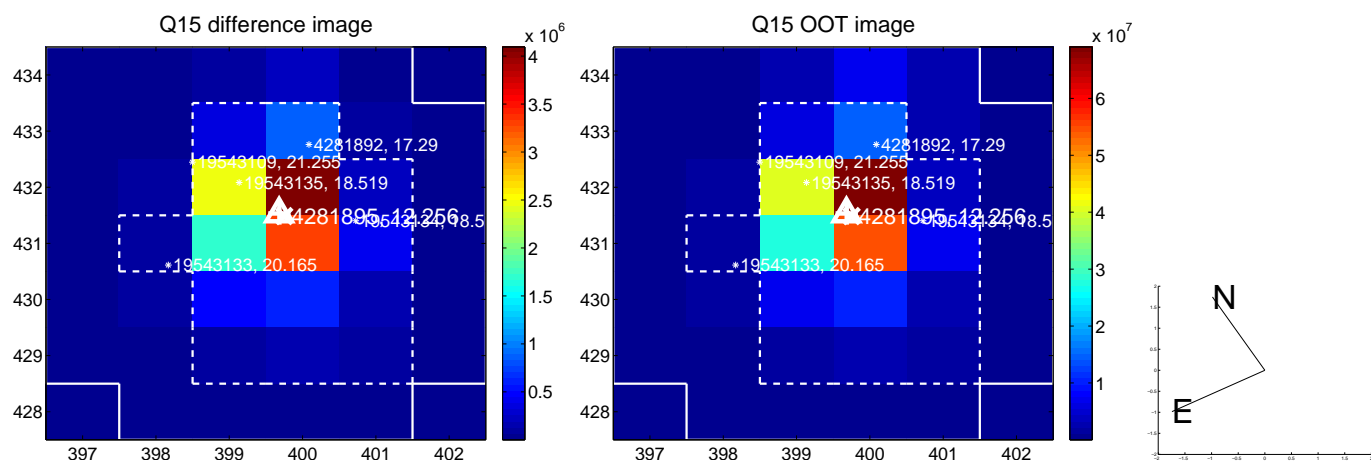
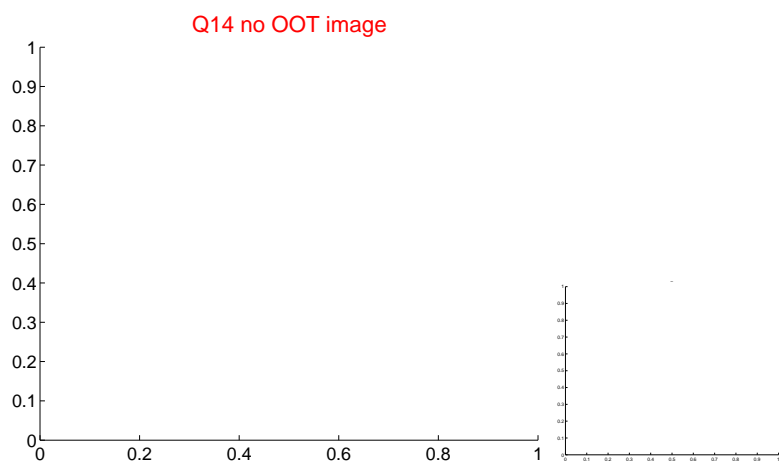
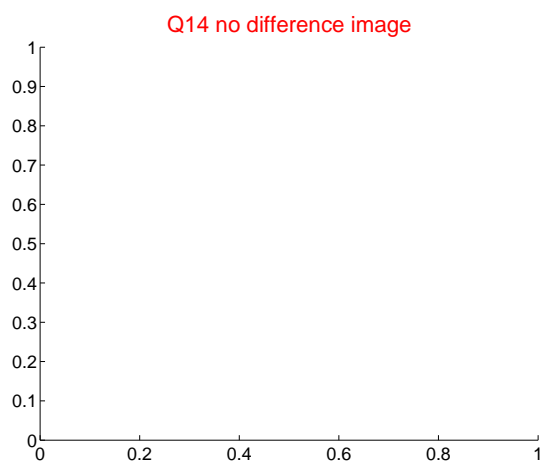
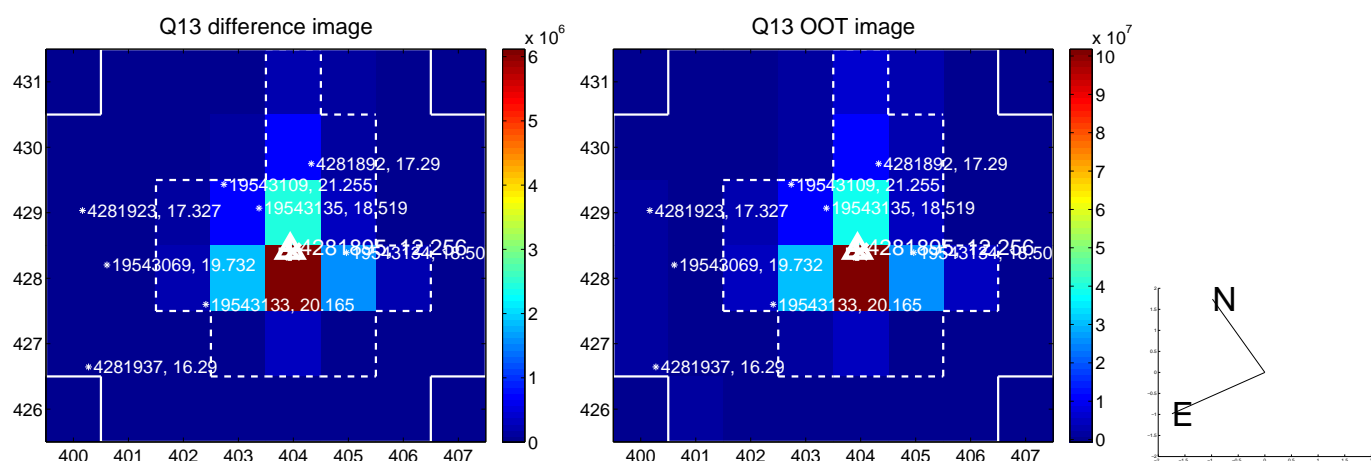
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



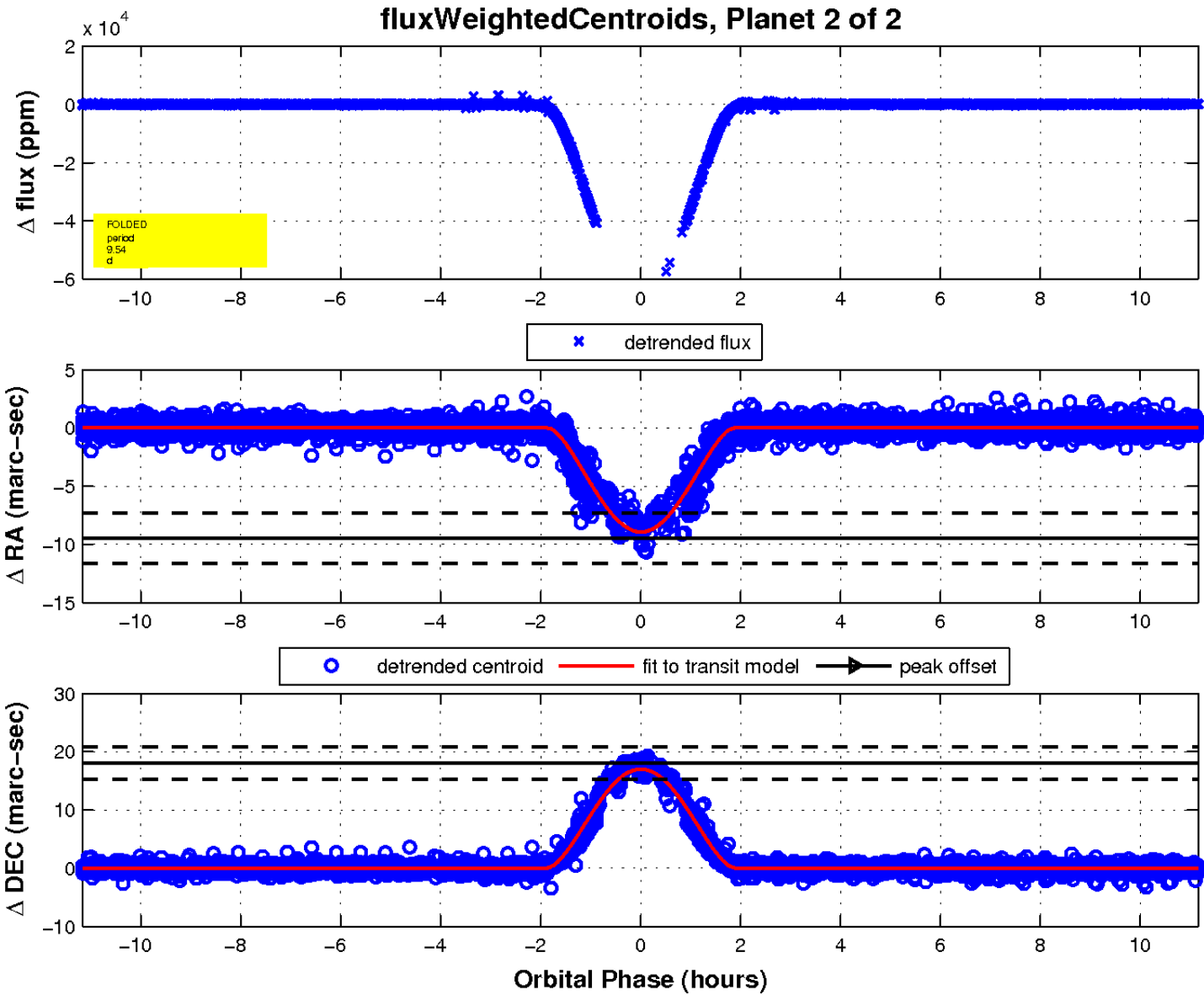
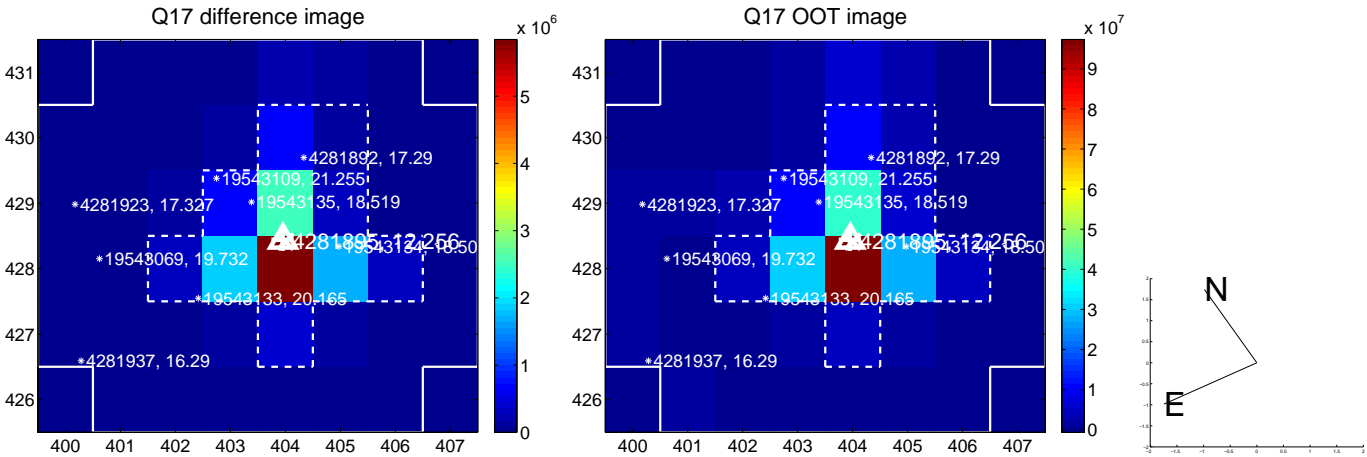
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UKIRT Image

