

KIC 008841616

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})
008841616-01	OBS	7097.01	1.679588	131.558672	78532.1	3.500	4314.3	-1.0	0.55	4462	15.14	209.45
008841616-02	OBS	No	94.909803	154.209116	223211.5	2.000	3149.6	-1.0	0.55	4462	25.92	0.97

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
008841616-01	OBS	FP	0.00	0	1	0	0	SWEET_EB—MOD_SEC_ALT—CENT_NOFITS
008841616-02	OBS	FP	0.00	1	0	0	0	TRANS_GAPPED—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_ALT—MOD_TER_ALT—INCONSISTENT_TRANS—CENT_NOFITS

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 008841616-01

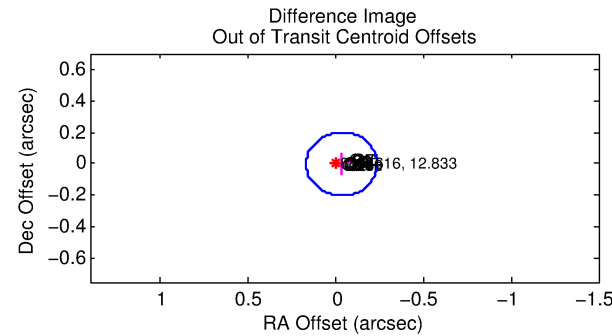
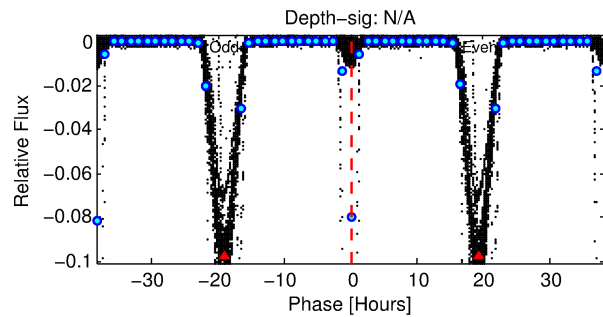
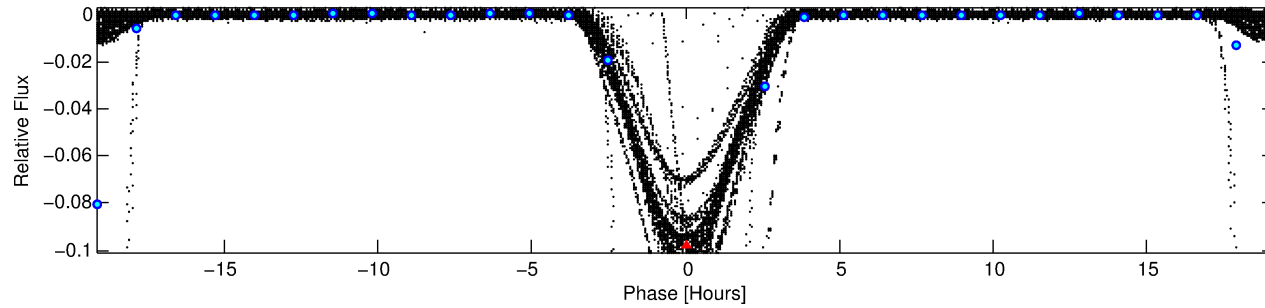
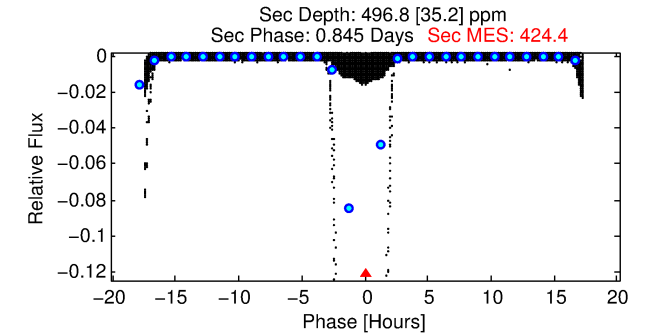
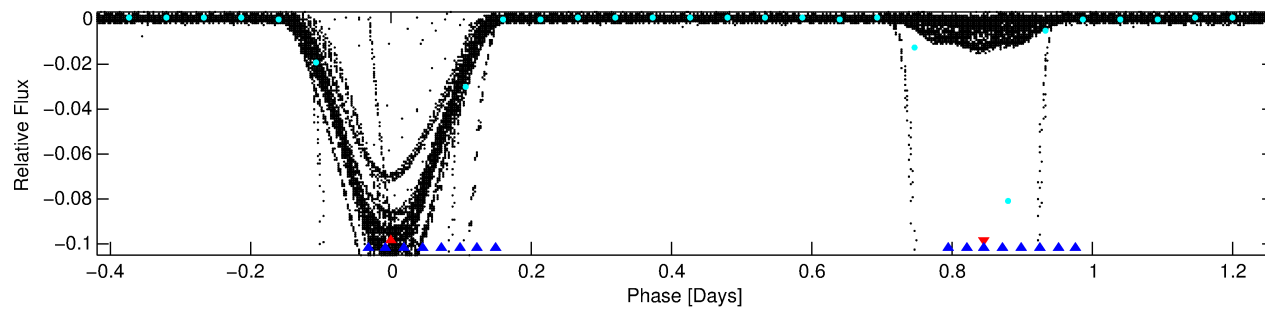
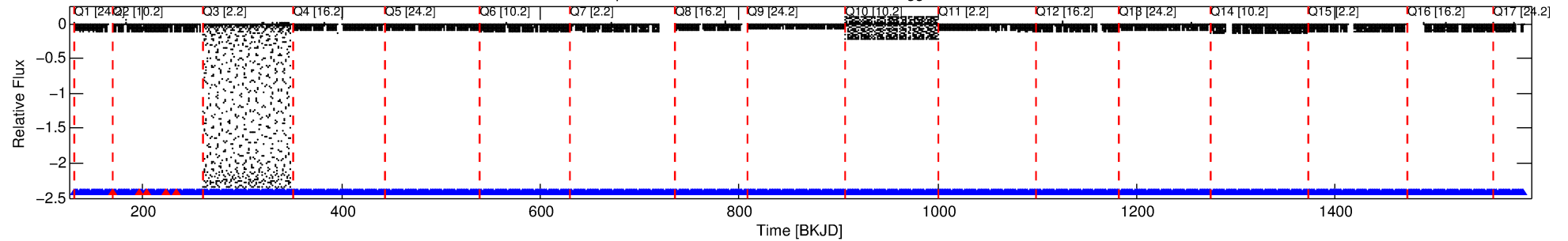
No Significant Match Found

DV One-Page Summary

KIC: 8841616 Candidate: 1 of 2 Period: 1.680 d

KOI: K07097 Corr: No Ephemeris Match

Kp: 12.83 R*: 0.55 Rs Teff: 4462.0 K Logg: 4.70 Fe/H: -0.760



TPS TCE Results:

Period = 1.67959 d
Epoch = 131.5587 BKJD

DV fit results are unavailable

DV Diagnostic Results:

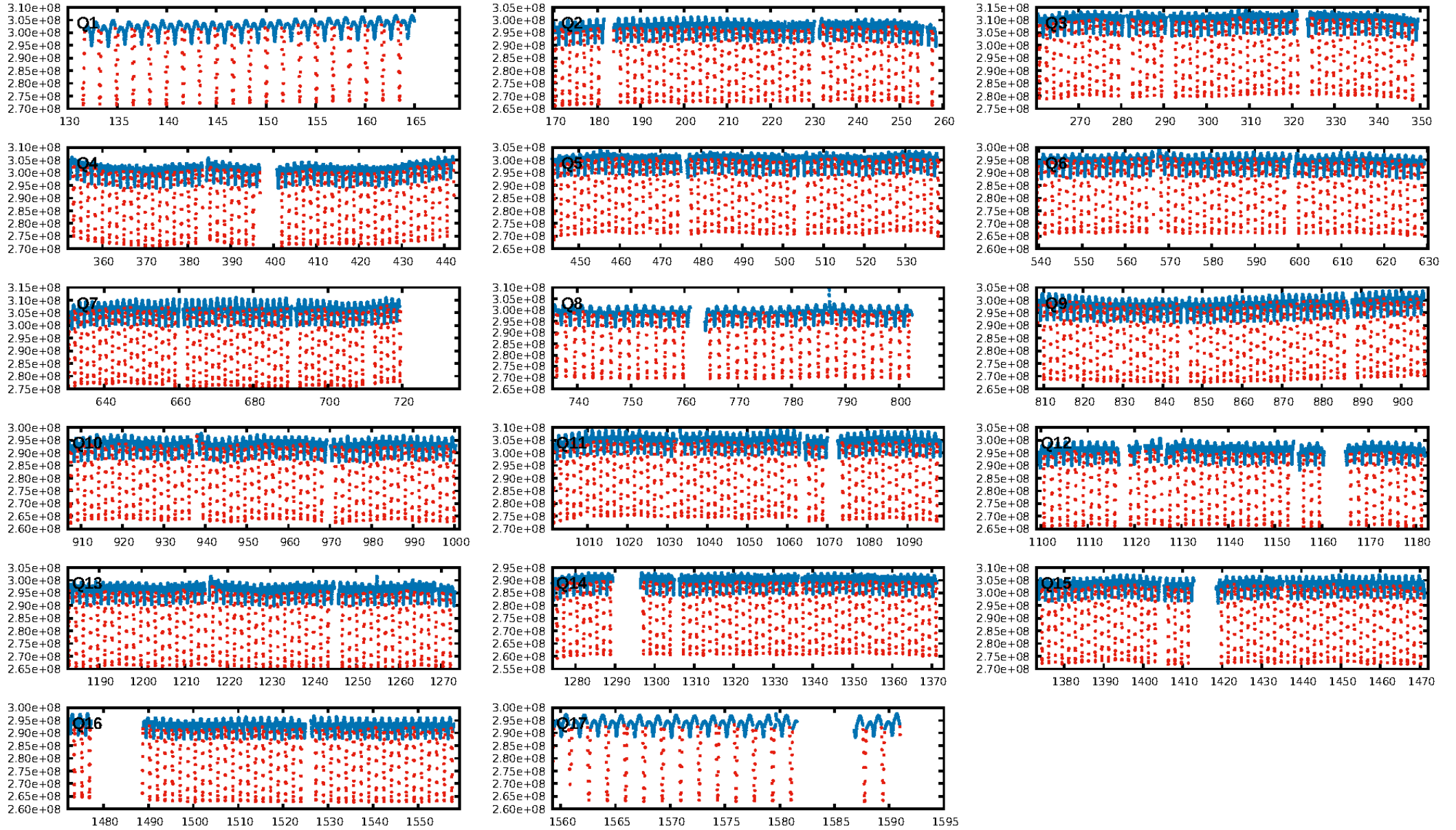
ShortPeriod-sig: N/A
LongPeriod-sig: 100.0% [555.06σ]
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: N/A
RollingBand-fgt: 0.99 [756/761]
GhostDiagnostic-chr: 1.327

Centroid-sig: N/A
Centroid-so: 0.133 arcsec [397.81σ]
OotOffset-rm: 0.034 arcsec [0.51σ]
KicOffset-rm: 0.104 arcsec [1.54σ]
OotOffset-st: 4/4/4/5 [17]
KicOffset-st: 4/4/4/5 [17]
DiffImageQuality-fgm: 1.00 [17/17]
DiffImageOverlap-fno: 1.00 [17/17]

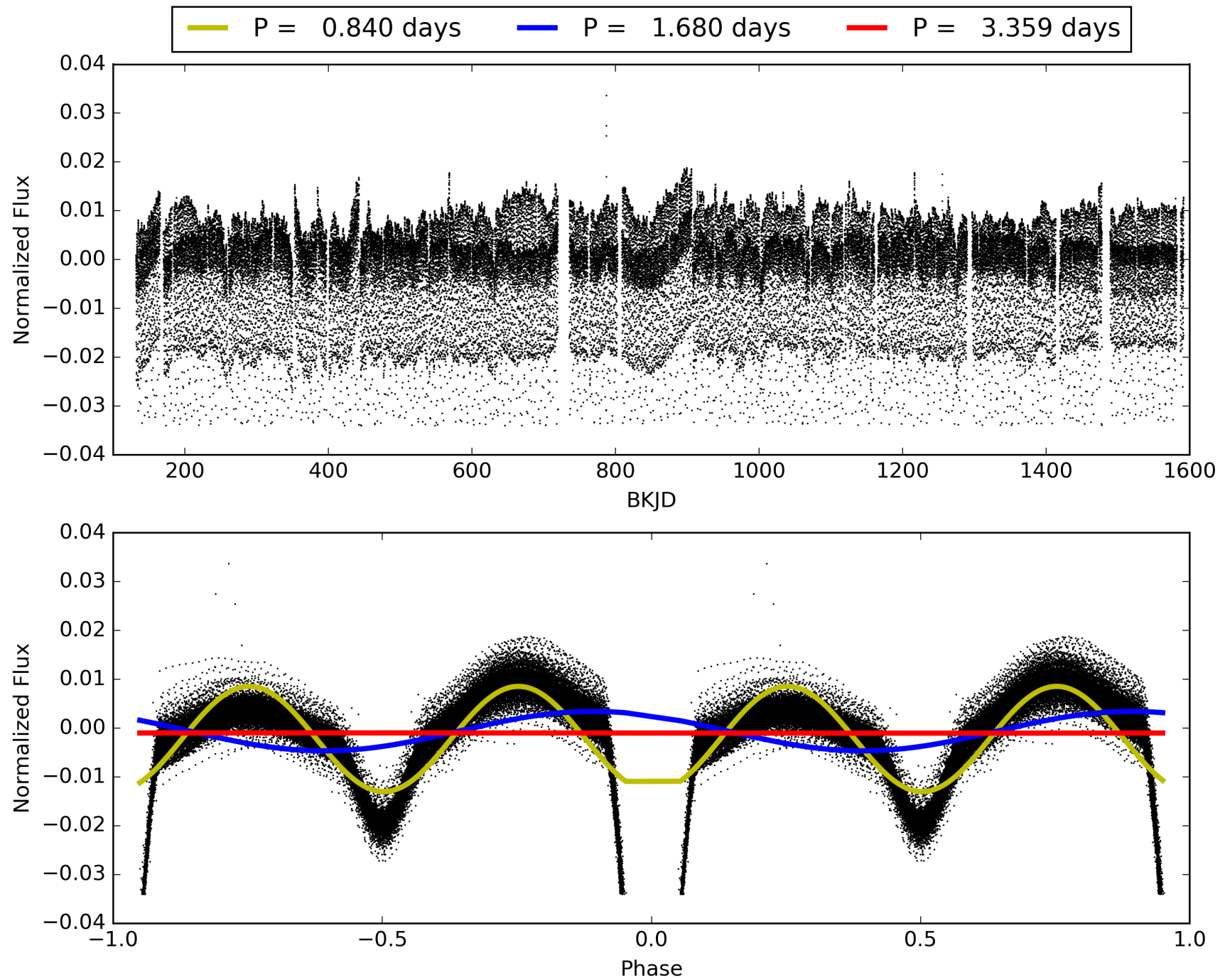
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 02-Feb-2016 00:50:19 Z

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

TCE 008841616-01, PDC Light Curves

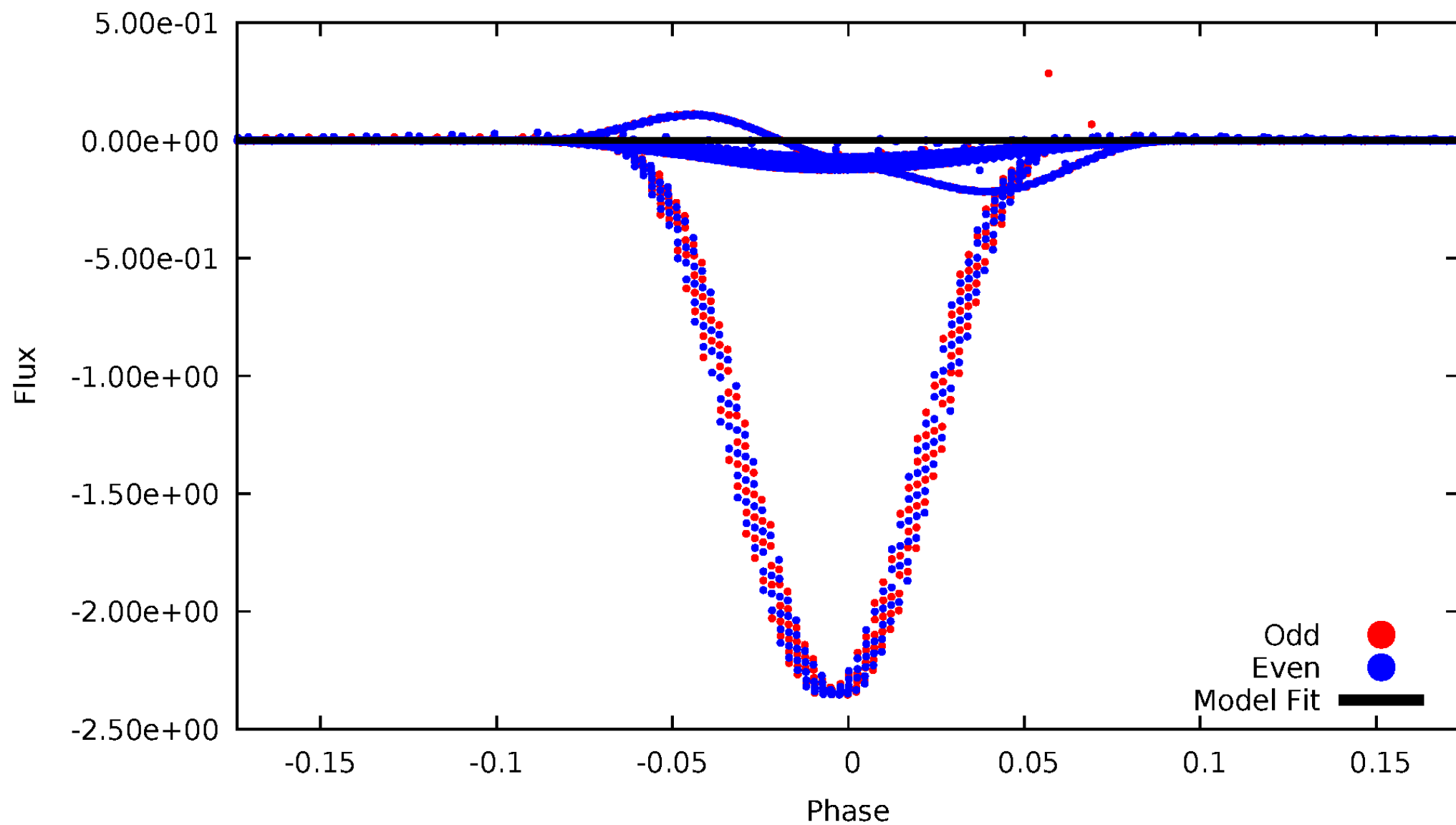


TCE 008841616-01



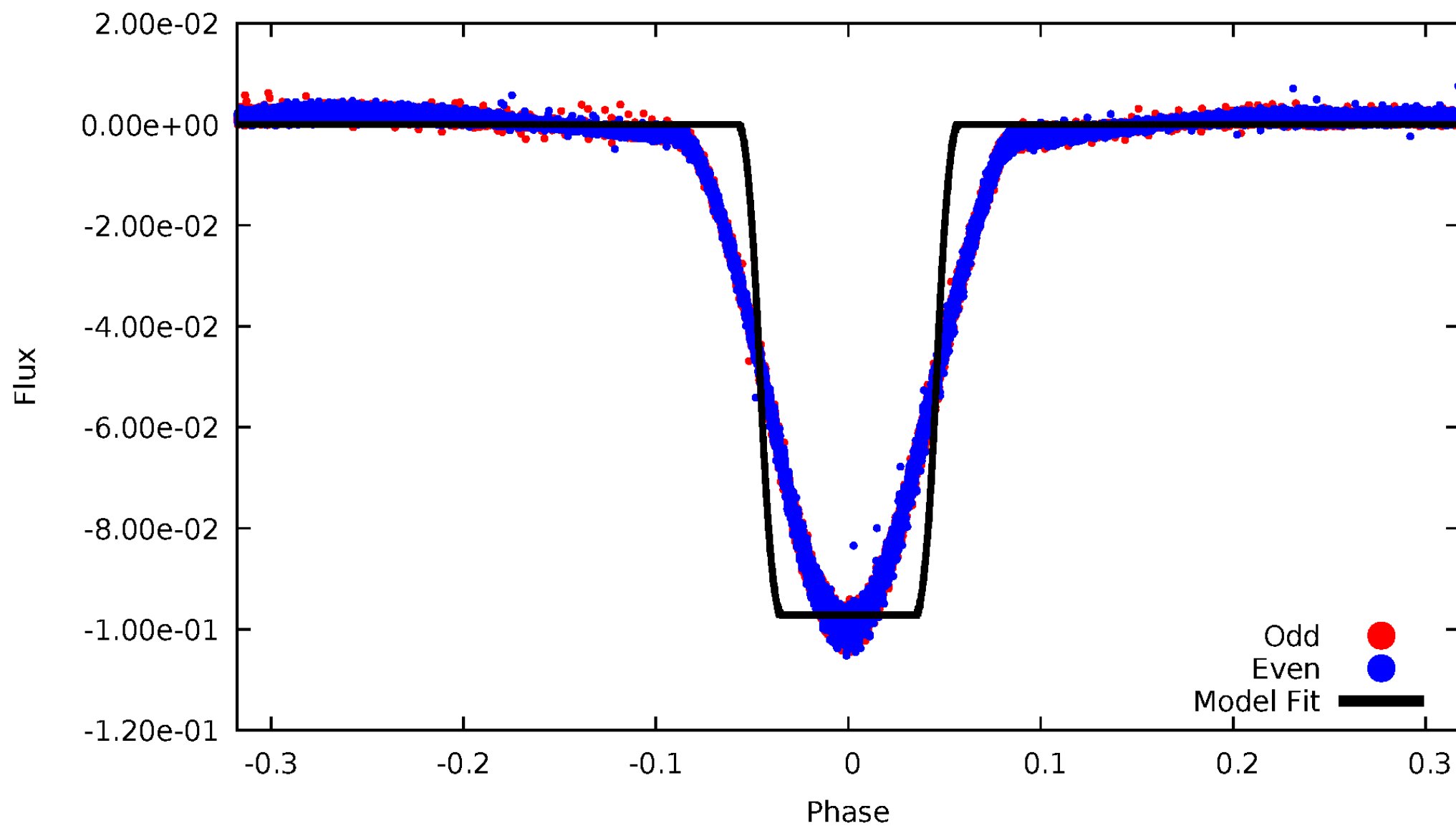
DV Odd/Even

TCE 008841616-01



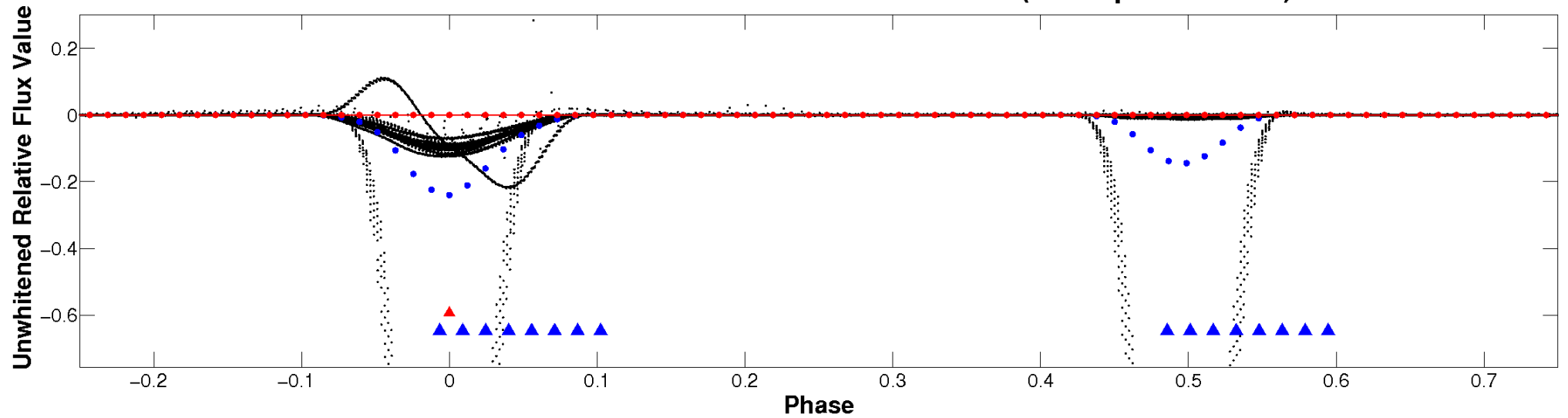
ALT Odd/Even

TCE 008841616-01



Non-Whitened Vs. Whitened Light Curve

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

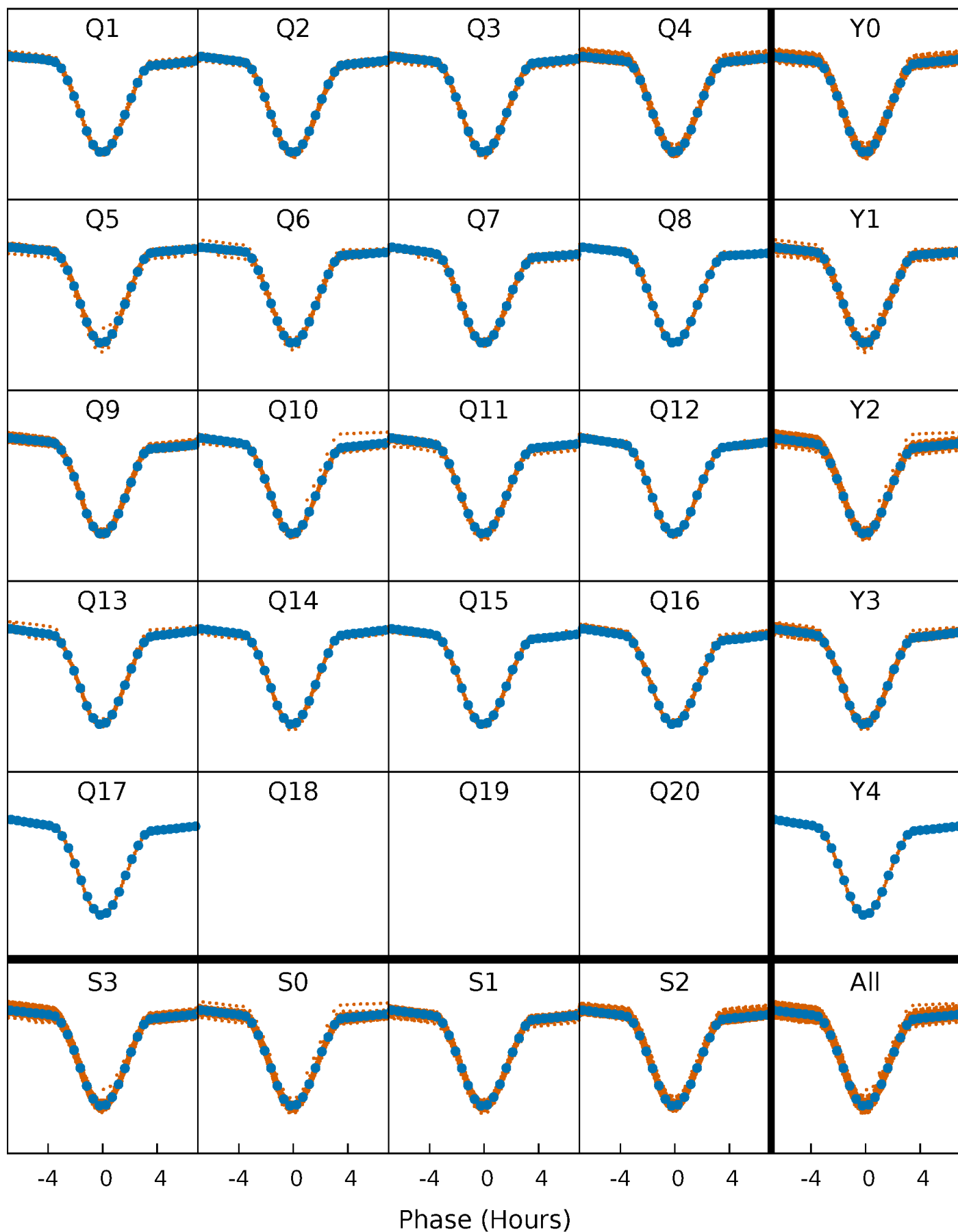


Planet 1 : Phased Whitened Flux Time Series (TPS Epoch/Period)



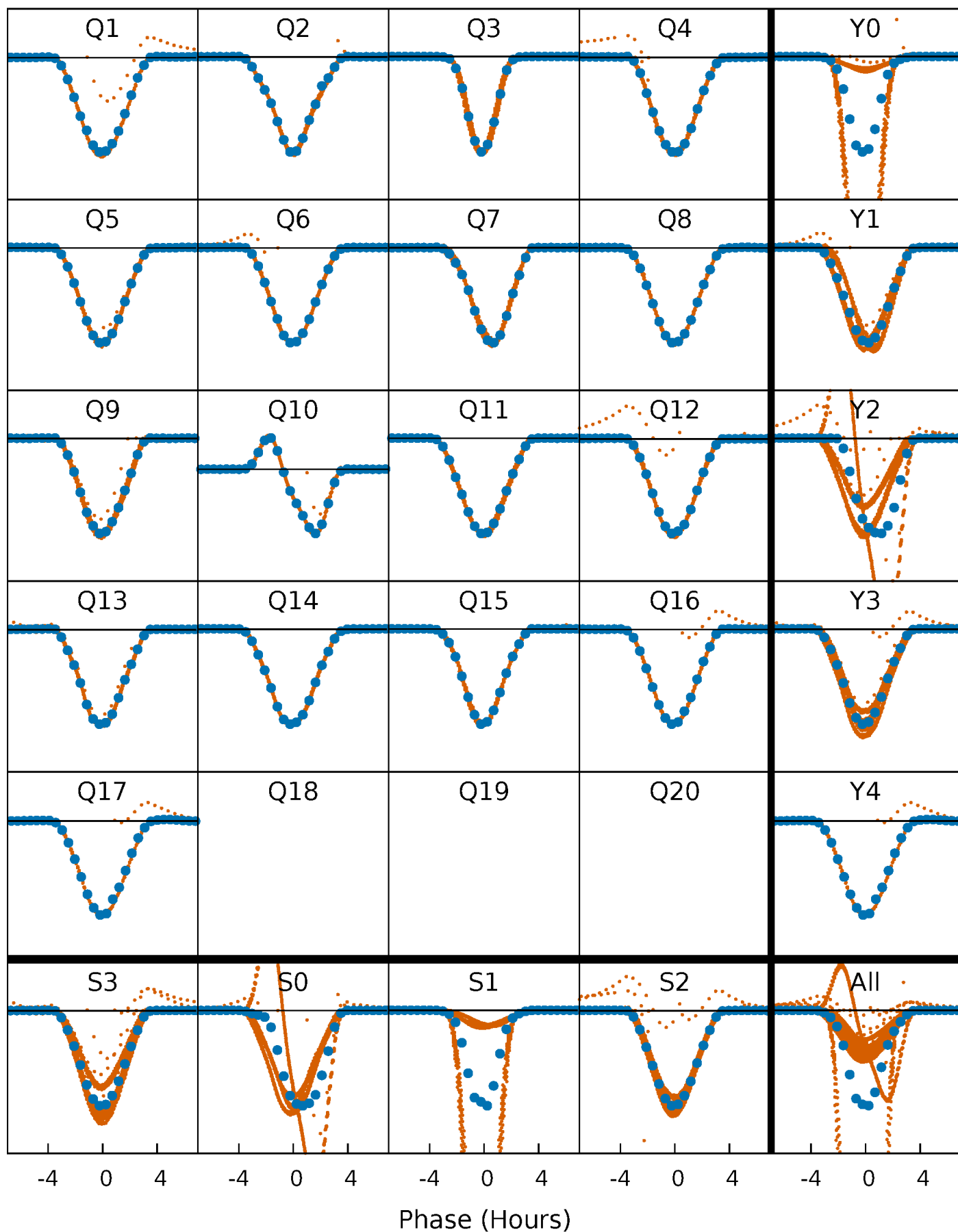
PDC Quarter-Phased Transit Curves

TCE 008841616-01 P= 1.679588 Days $T_0=131.558672$ (BKJD)



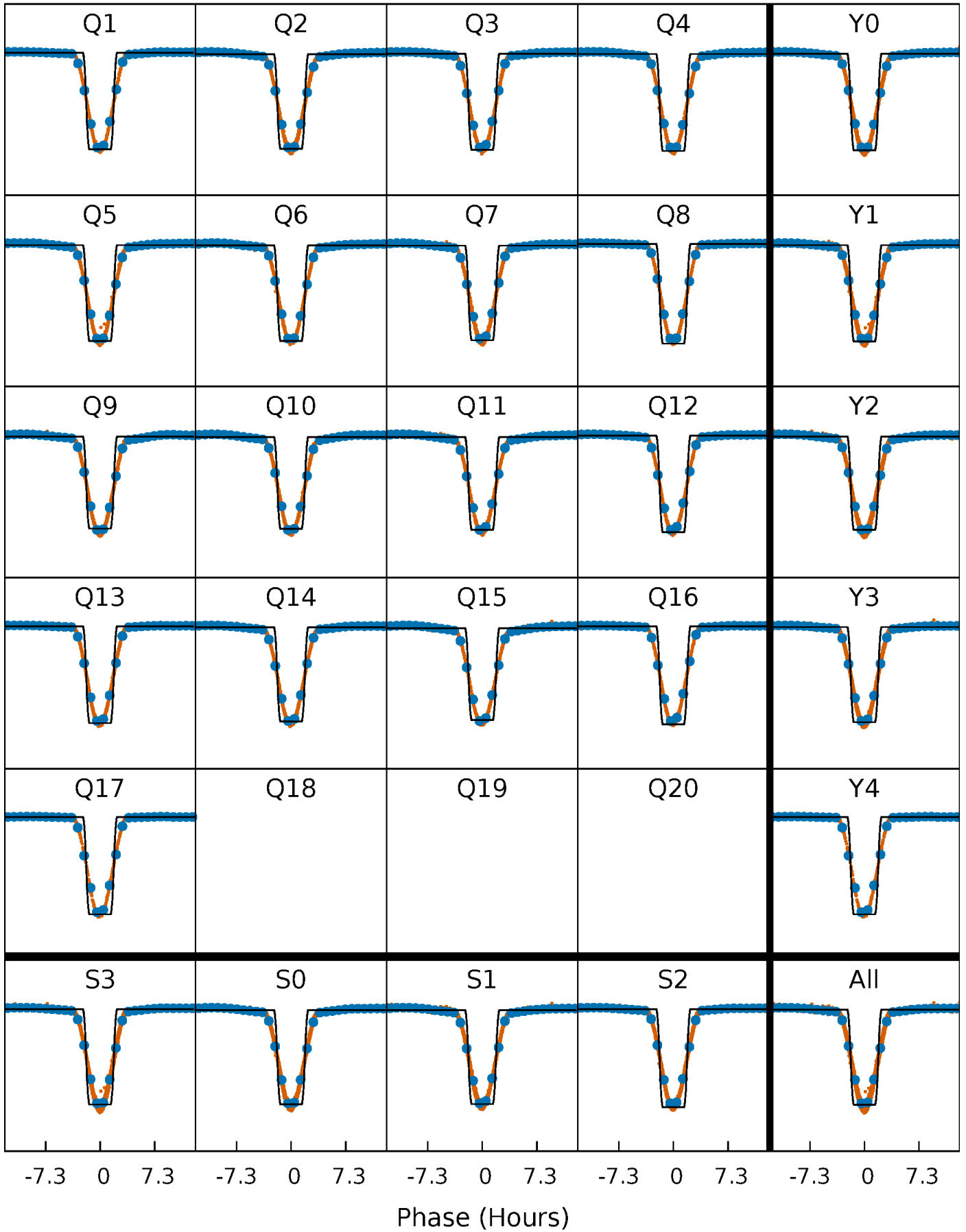
DV Quarter-Phased Transit Curves

TCE 008841616-01 P= 1.679588 Days $T_0=131.558672$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

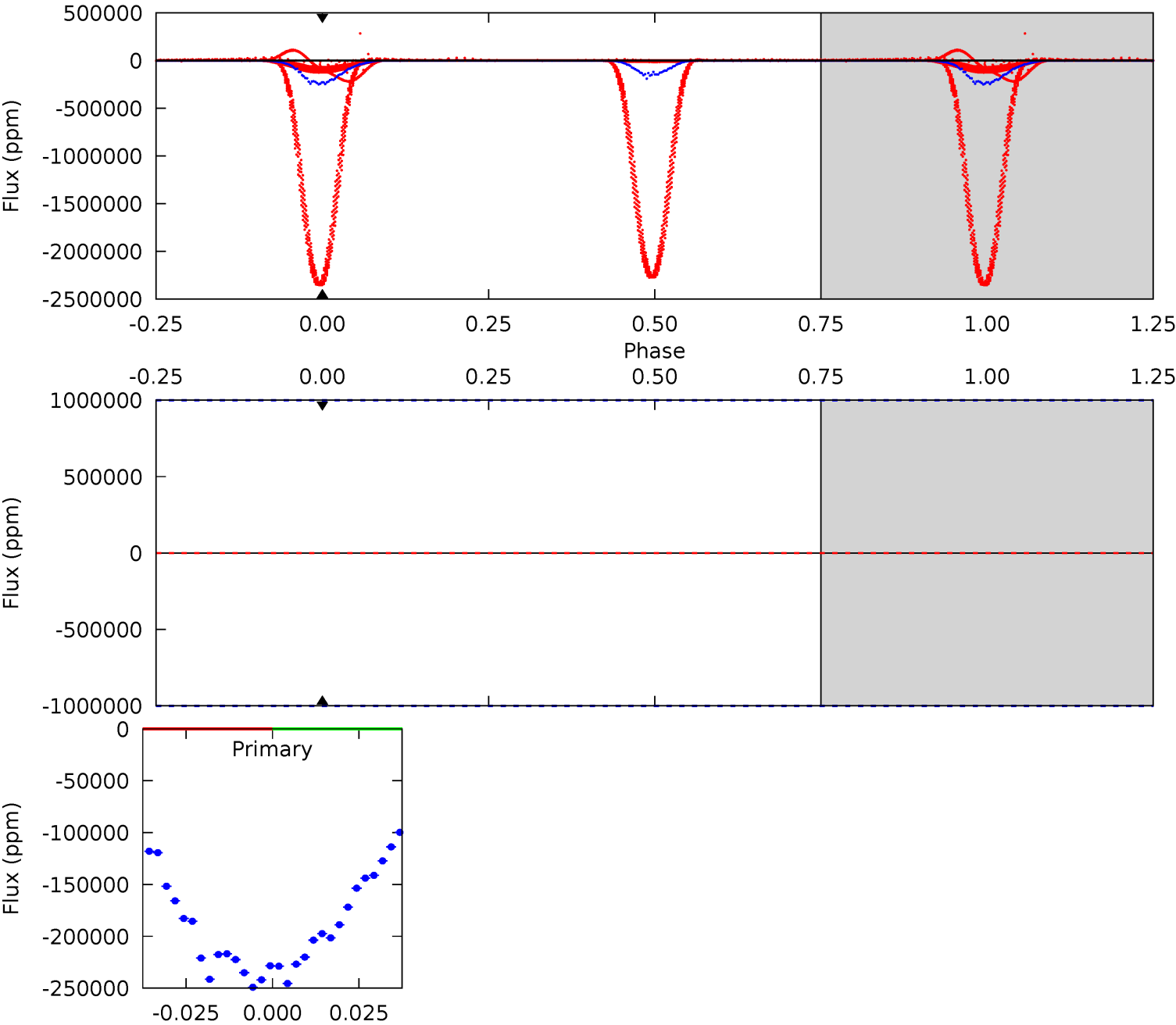
TCE 008841616-01 P= 1.679588 Days $T_0=131.557297$ (BKJD)



DV Model-Shift Uniqueness Test

008841616-01, P = 1.679588 Days, E = 129.879084 Days

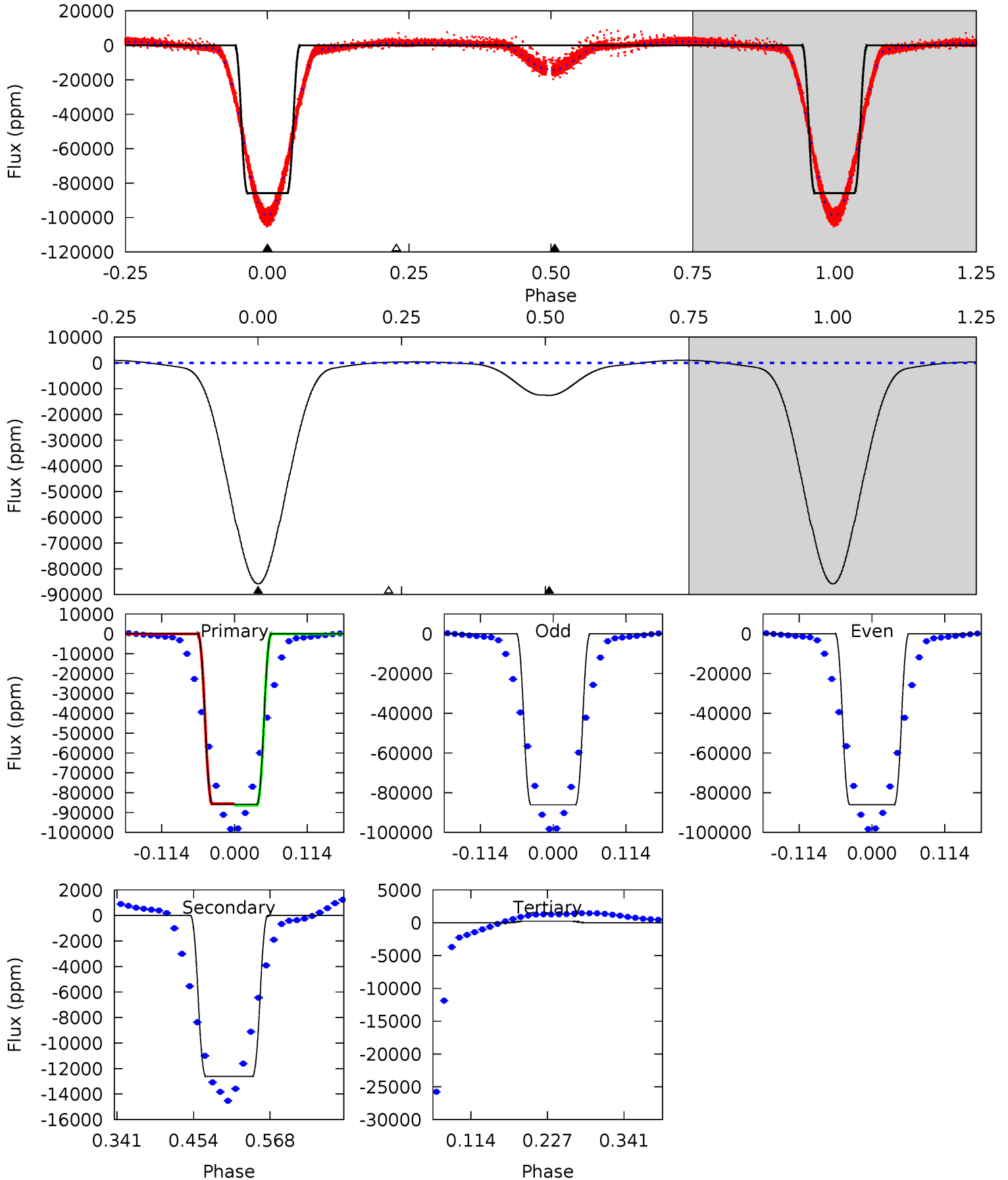
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
0	0	0	0	1.00	1.00	1.00	0	0	0	0	0	0	0	0



Alt Model-Shift Uniqueness Test

008841616-01, P = 1.679588 Days, E = 129.877709 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
5118	751.9	-14.1	0	4.54	1.58	57.4	5132	5118	766.0	751.9	3.21	1.00	0.01	23.2



Stellar Parameters For KIC 008841616

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	$M(M_{\odot})$	p_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	4462^{+156}_{-171}	$4.700^{+0.045}_{-0.036}$	$-0.760^{+0.300}_{-0.300}$	$0.554^{+0.049}_{-0.049}$	$0.561^{+0.049}_{-0.044}$	$4.646^{+0.980}_{-0.743}$
	+3%/-4%	+1%/-1%	+39%/-39%	+9%/-9%	+9%/-8%	+21%/-16%
Source	PHO54	PHO54	PHO54	DSEP		

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

Secondary Eclipse Parameters for KIC 008841616-01 / KOI 7097.01

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	0 ± 1000000	$15.14^{+5.91}_{-5.77}$	1353^{+54}_{-59}	2535^{+2668}_{-7420}	$2.691^{+169.570}_{-129.333}$
Alt.	-12610 ± 17	$18.50^{+6.36}_{-6.41}$	1352^{+52}_{-57}	3172^{+449}_{-284}	11^{+14}_{-5}

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 $A_{obs} \gg 1.0$

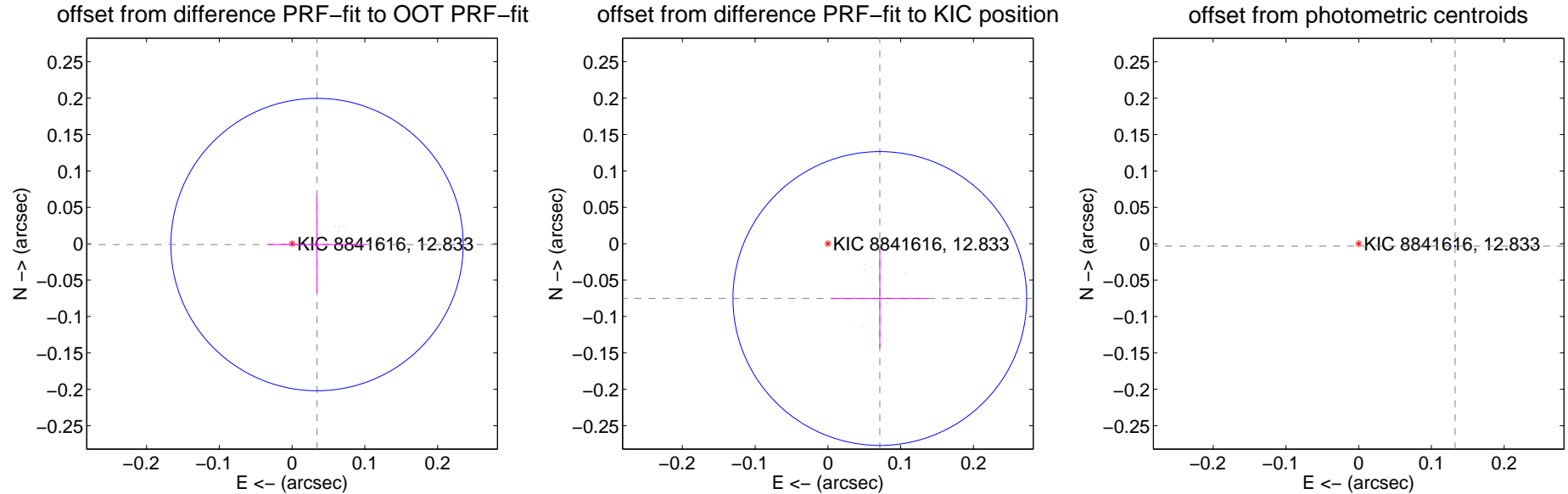
DV Centroid Data

Supplemental centroid analysis for 008841616-01. Kepler magnitude: 12.83. Transit SNR -1.00

There are 17 quarters with good PRF difference image offsets

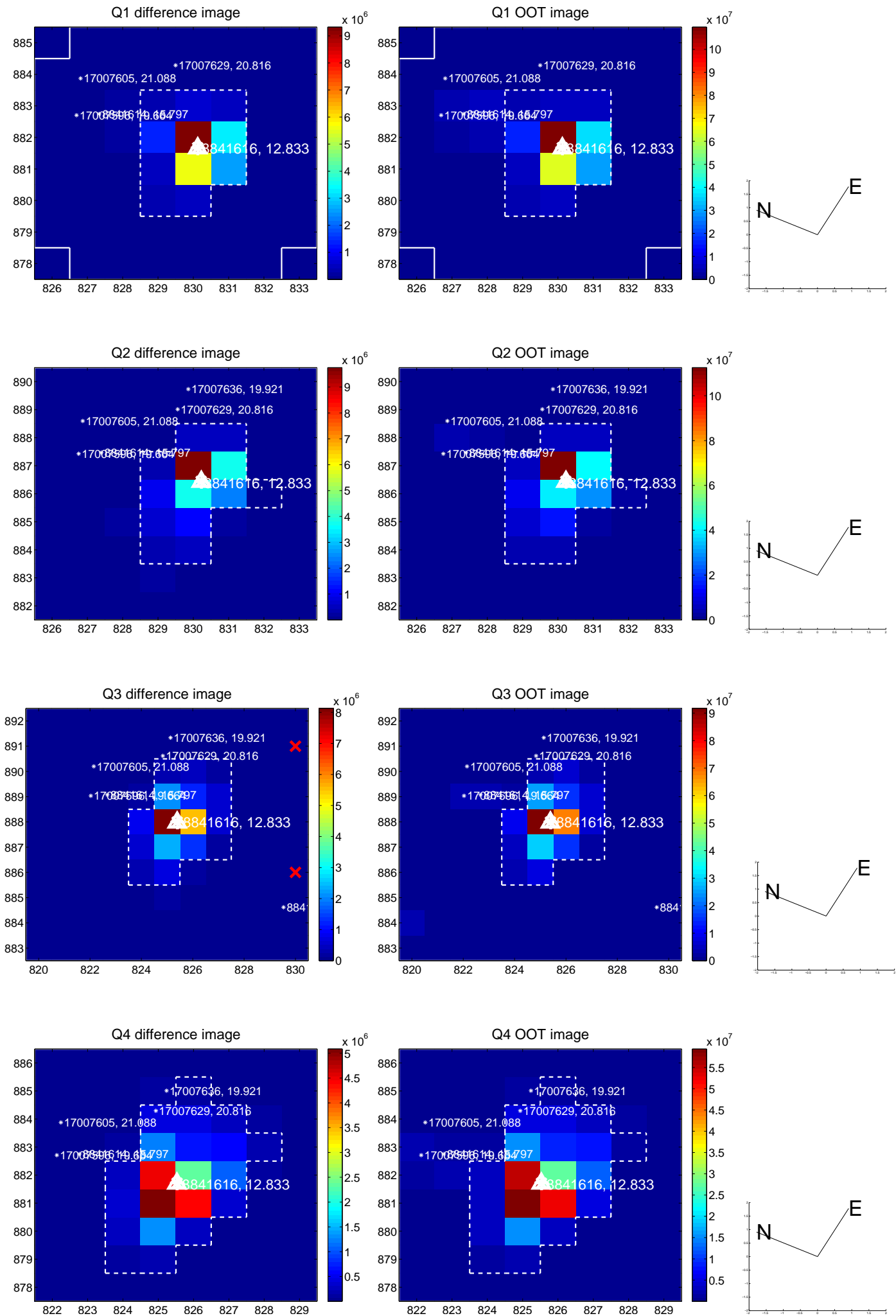
The direct PRF centroid is offset from the target star catalog position by about 0.09 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.034 ± 0.067	0.51	-0.034 ± 0.067	-0.001 ± 0.067
PRF-fit source offset from KIC position	0.104 ± 0.067	1.54	-0.071 ± 0.067	-0.075 ± 0.068
photometric centroid source offset	0.13 ± 0.00	397.81	-0.13 ± 0.00	-0.00 ± 0.00

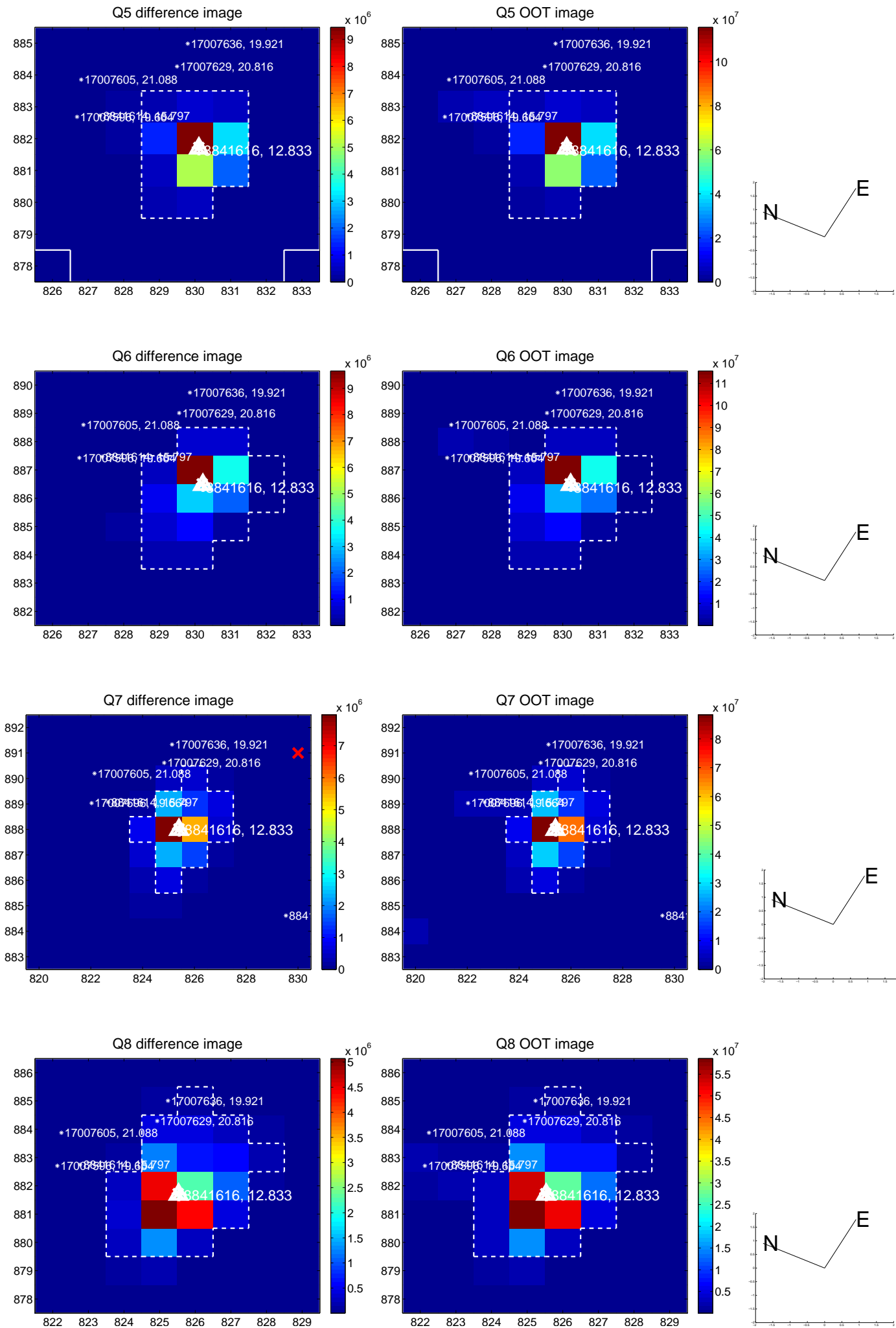


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ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

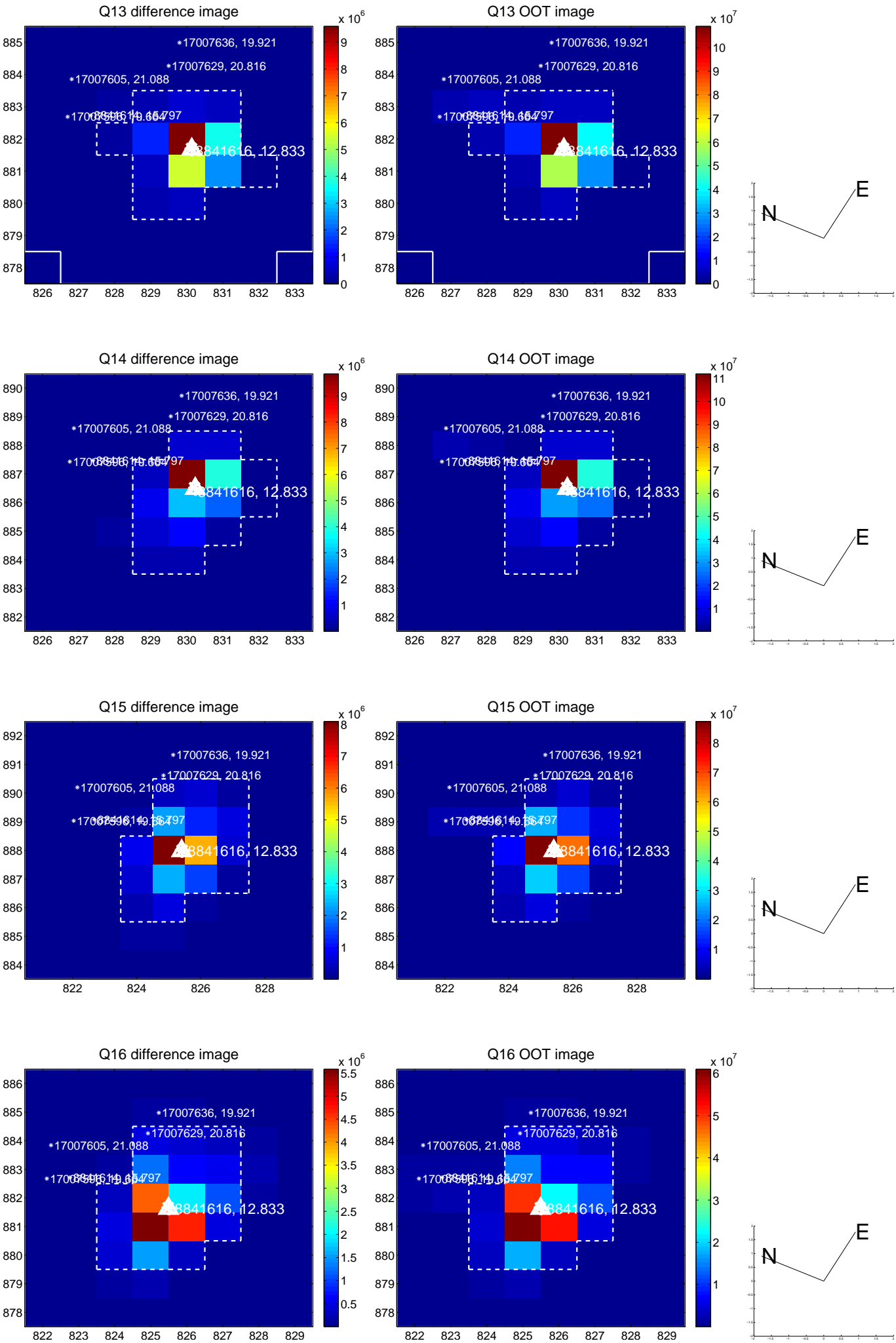
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



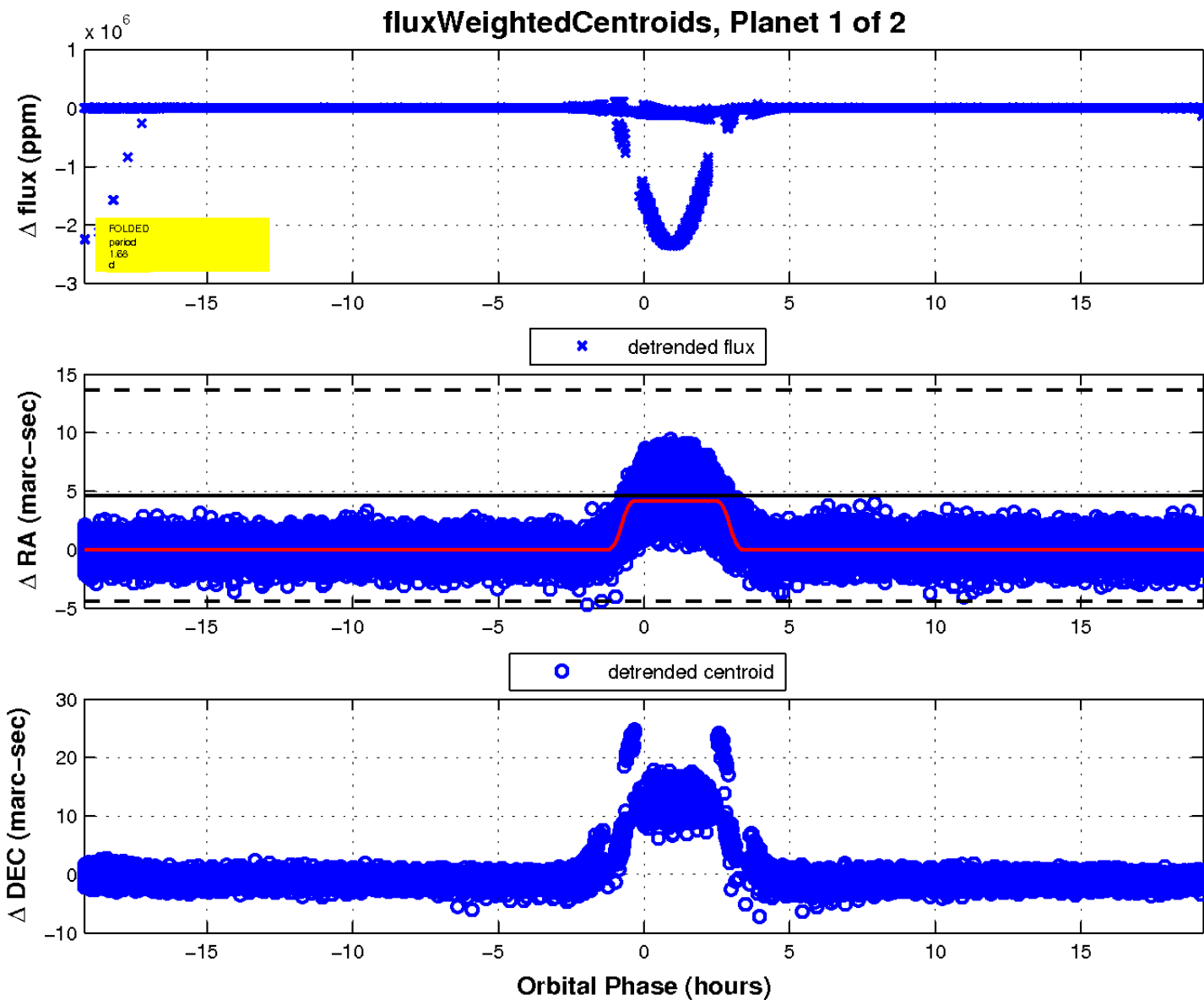
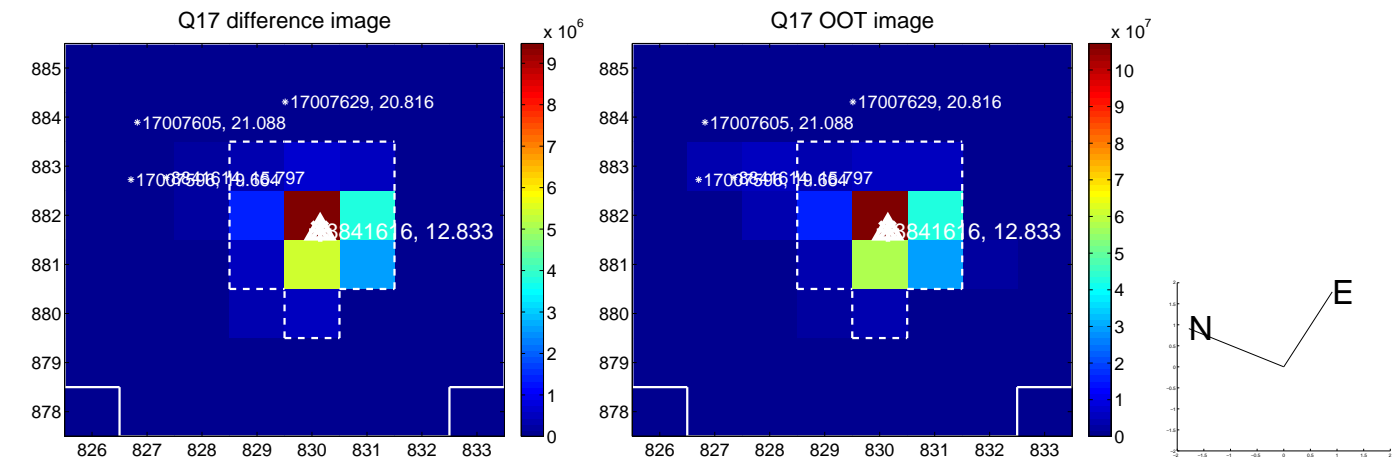
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

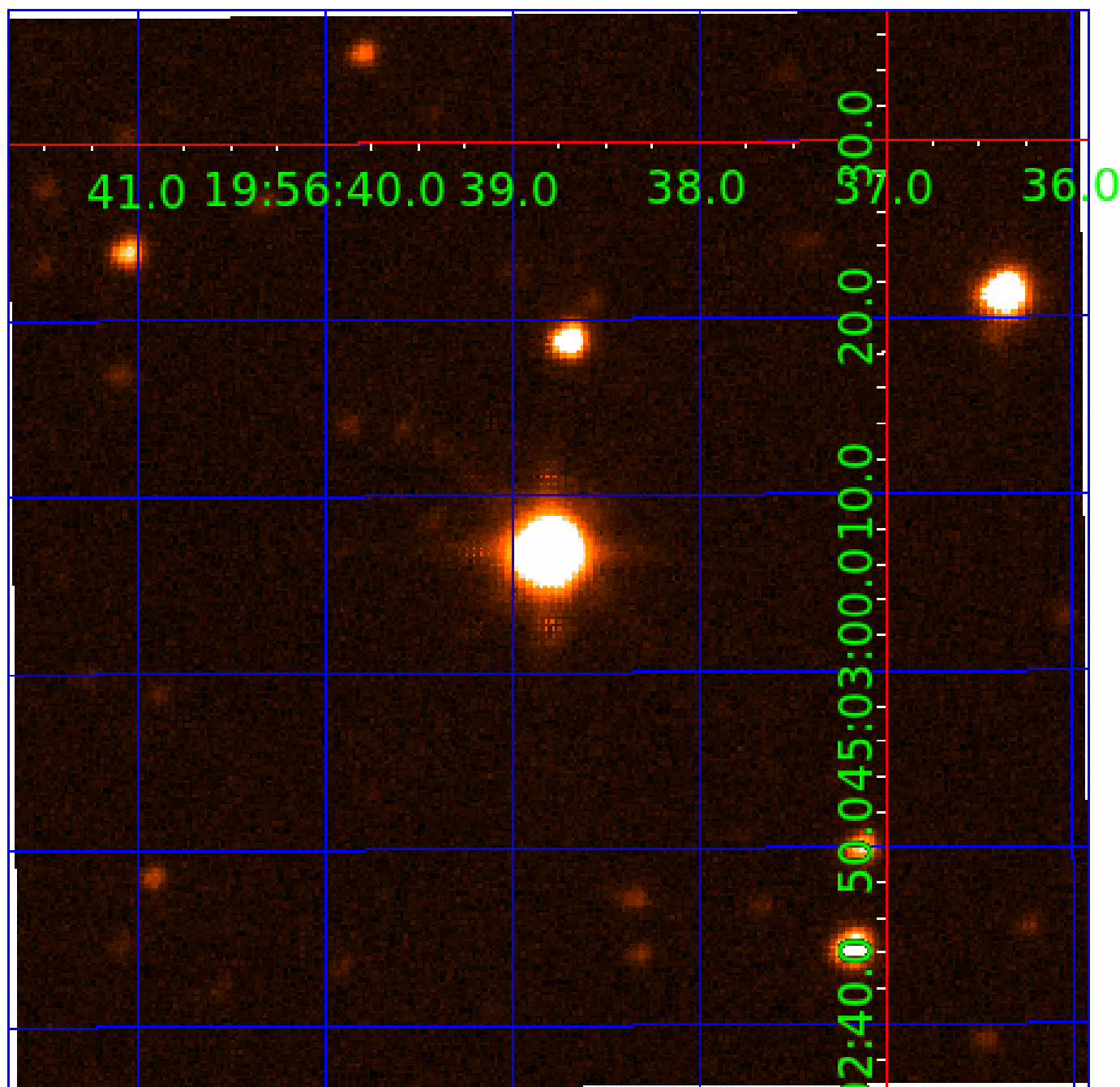


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 008841616

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})
008841616-01	OBS	7097.01	1.679588	131.558672	78532.1	3.500	4314.3	-1.0	0.55	4462	15.14	209.45
008841616-02	OBS	No	94.909803	154.209116	223211.5	2.000	3149.6	-1.0	0.55	4462	25.92	0.97

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
008841616-01	OBS	FP	0.00	0	1	0	0	SWEET_EB—MOD_SEC_ALT—CENT_NOFITS
008841616-02	OBS	FP	0.00	1	0	0	0	TRANS_GAPPED—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_ALT—MOD_TER_ALT—INCONSISTENT_TRANS—CENT_NOFITS

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 008841616-02

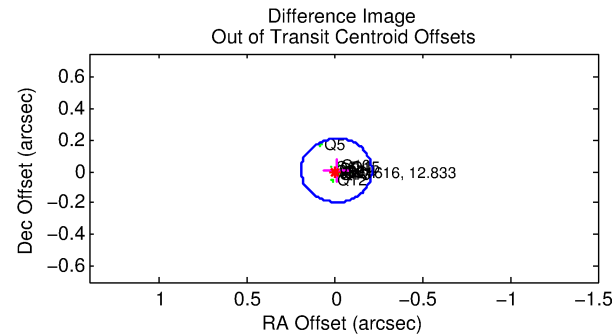
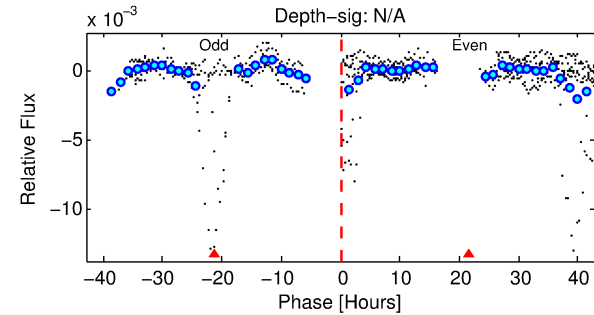
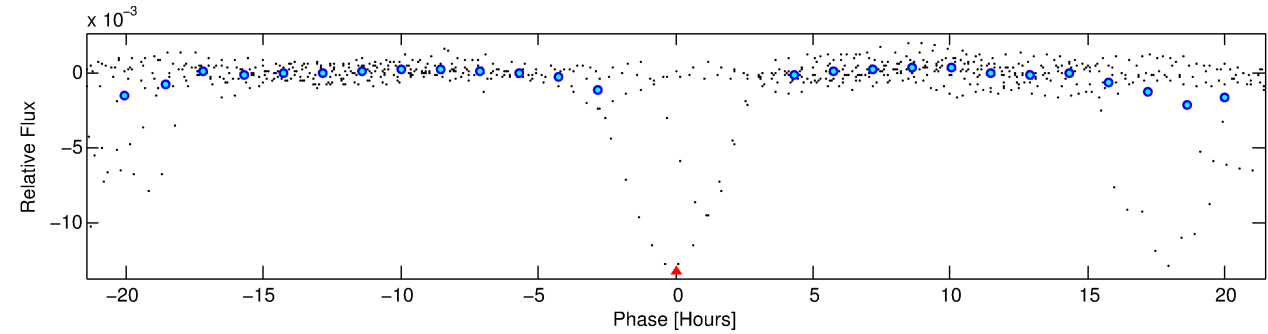
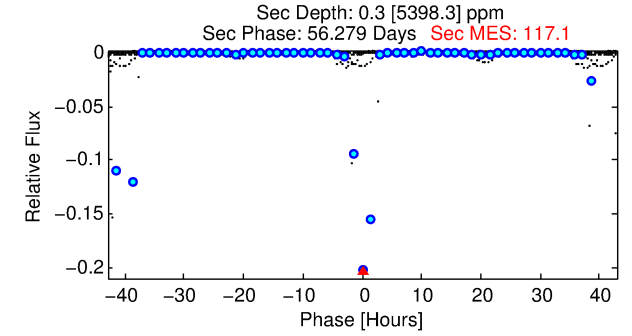
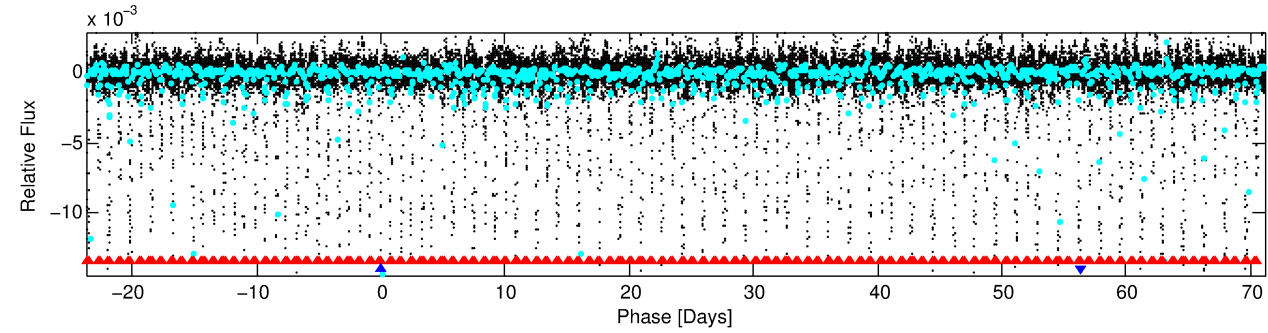
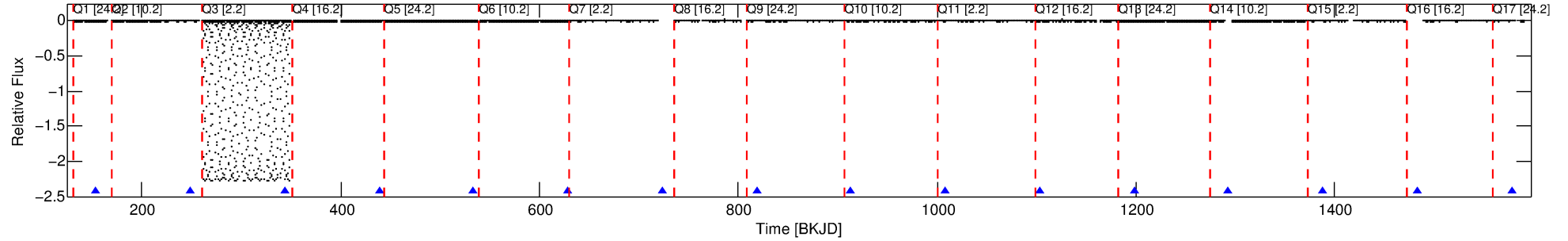
No Significant Match Found

DV One-Page Summary

KIC: 8841616 Candidate: 2 of 2 Period: 94.910 d

KOI: K07097 Corr: No Ephemeris Match

Kp: 12.83 R*: 0.55 Rs Teff: 4462.0 K Logg: 4.70 Fe/H: -0.760



TPS TCE Results:

Period = 94.90980 d
Epoch = 154.2091 BKJD

DV fit results are unavailable

DV Diagnostic Results:

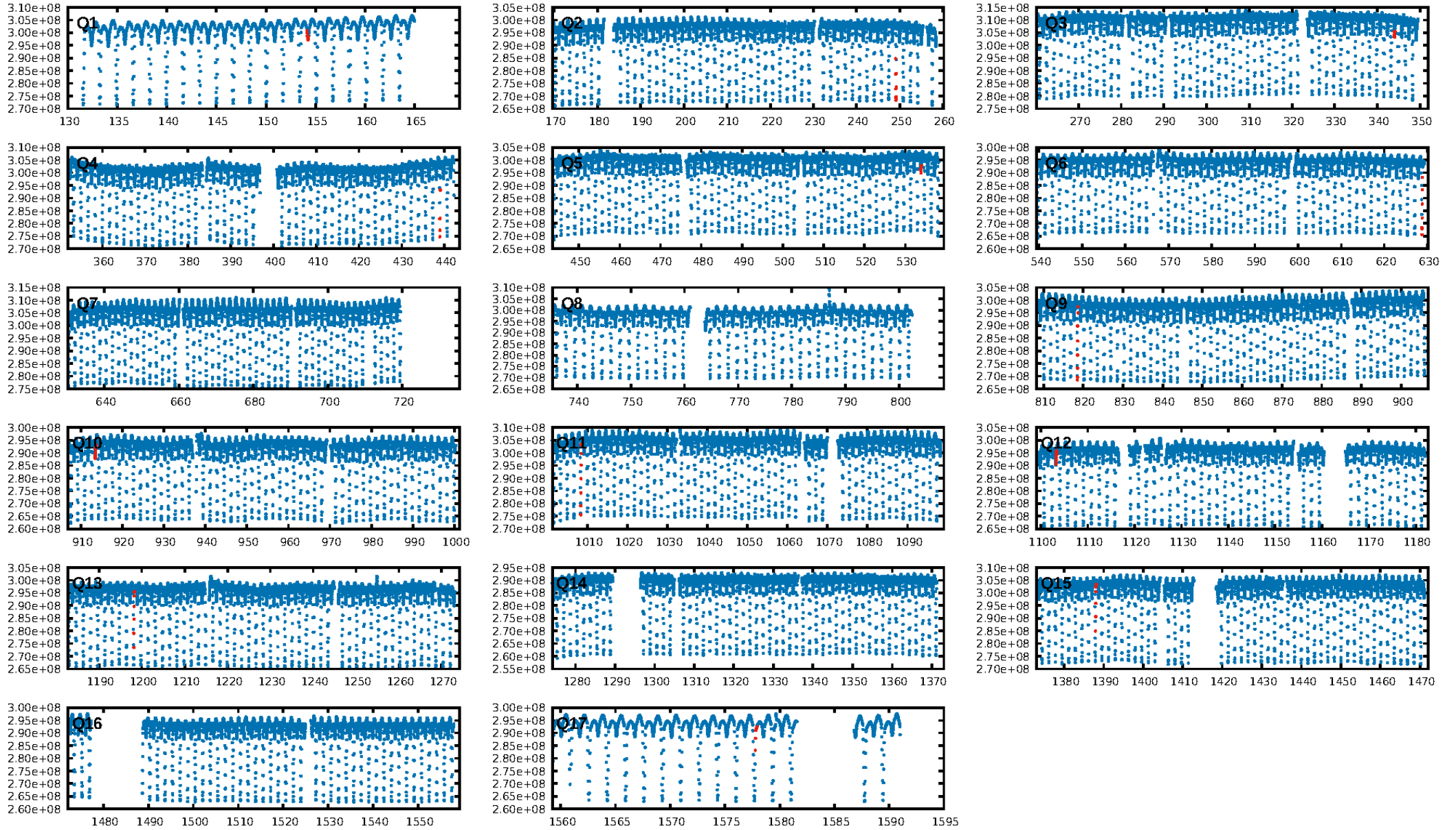
ShortPeriod-sig: 100.0% [555.06σ]
LongPeriod-sig: N/A
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: N/A
RollingBand-fgt: 1.00 [6/6]
GhostDiagnostic-chr: 4.762

Centroid-sig: N/A
Centroid-so: 0.159 arcsec [8.66σ]
OotOffset-rm: 0.013 arcsec [0.19σ]
KicOffset-rm: 0.062 arcsec [0.88σ]
OotOffset-st: 3/2/2/5 [12]
KicOffset-st: 3/2/2/5 [12]
DiffImageQuality-fgm: 1.00 [12/12]
DiffImageOverlap-fno: 0.42 [5/12]

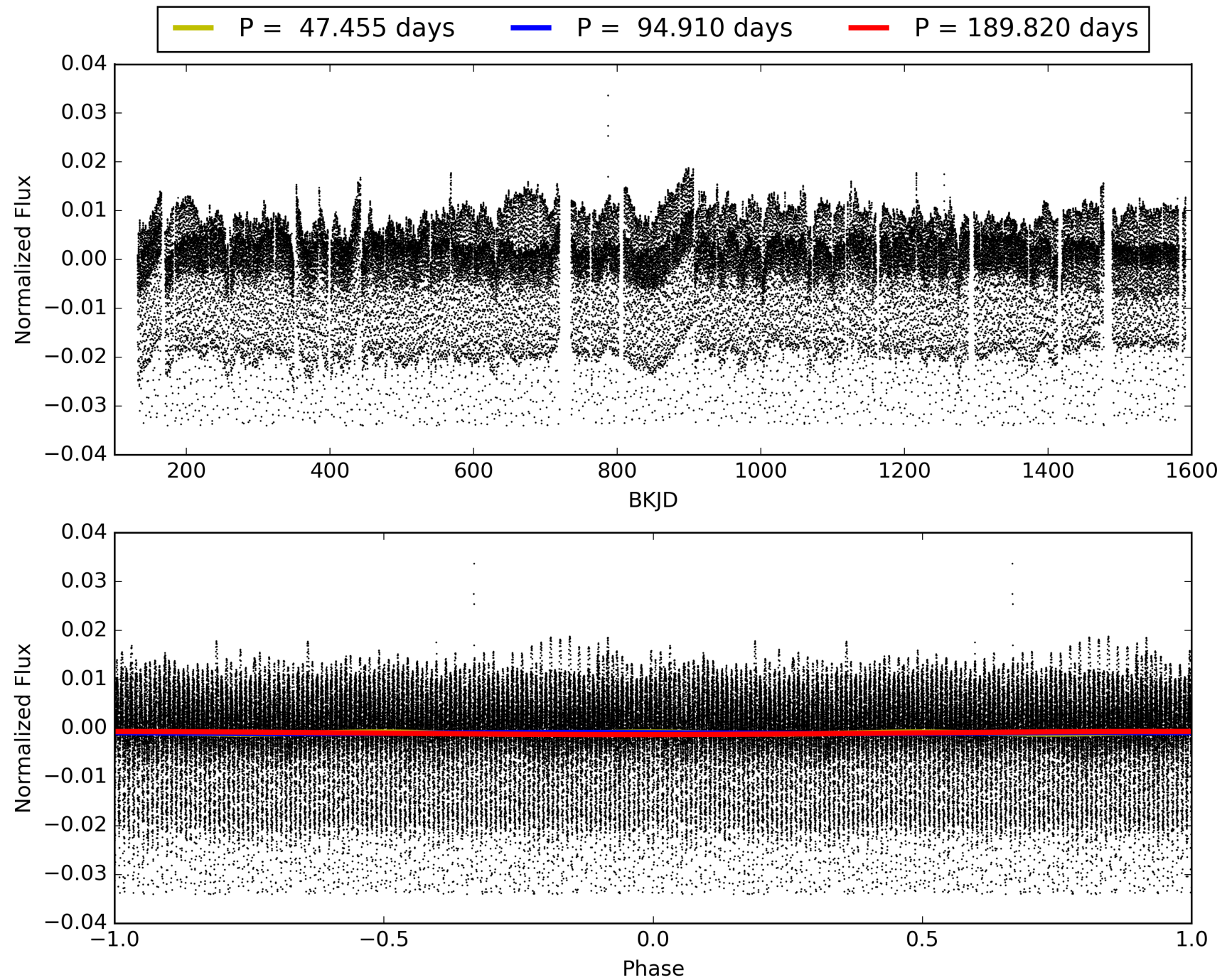
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 02-Feb-2016 00:50:27 Z

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

TCE 008841616-02, PDC Light Curves

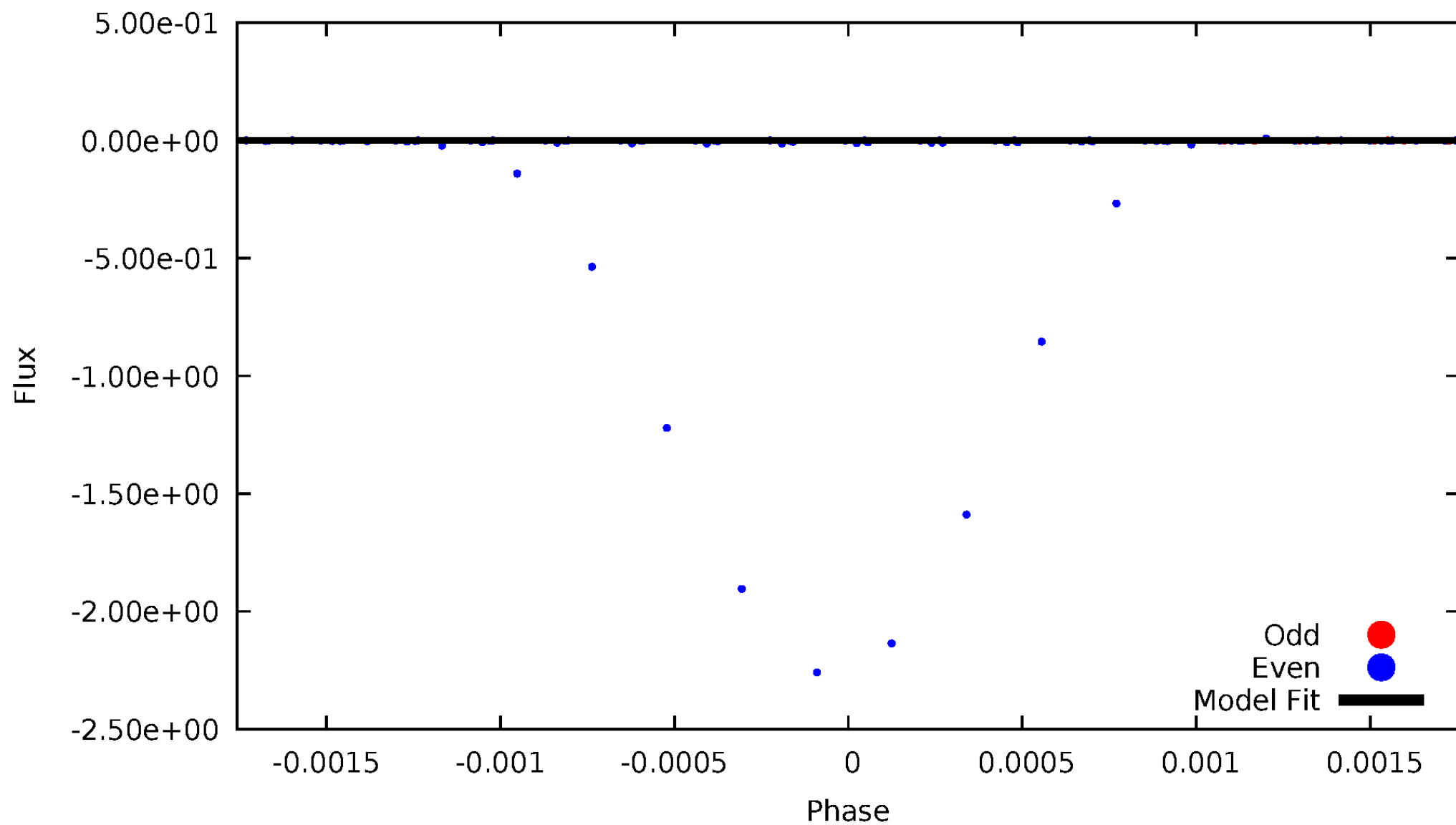


TCE 008841616-02



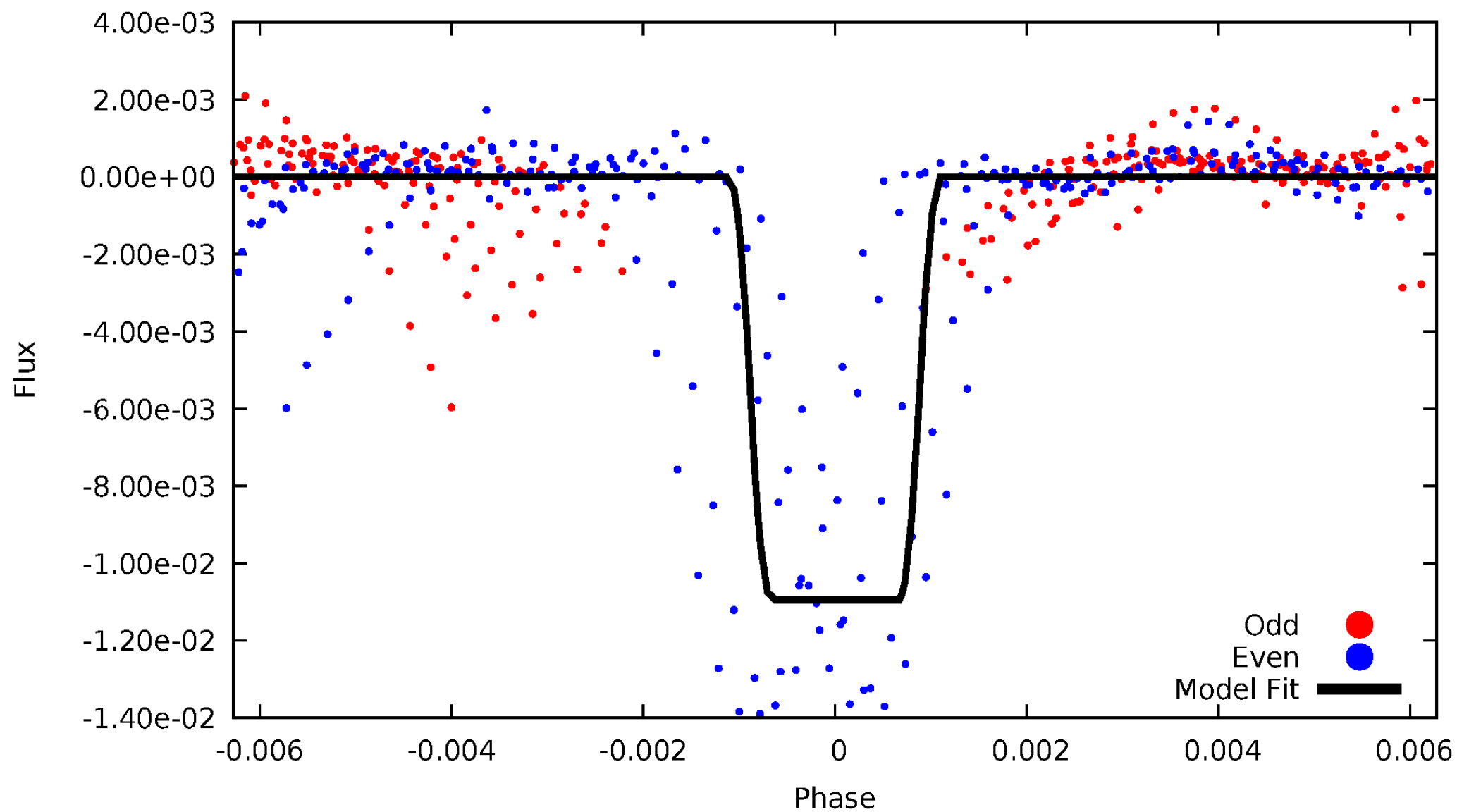
DV Odd/Even

TCE 008841616-02



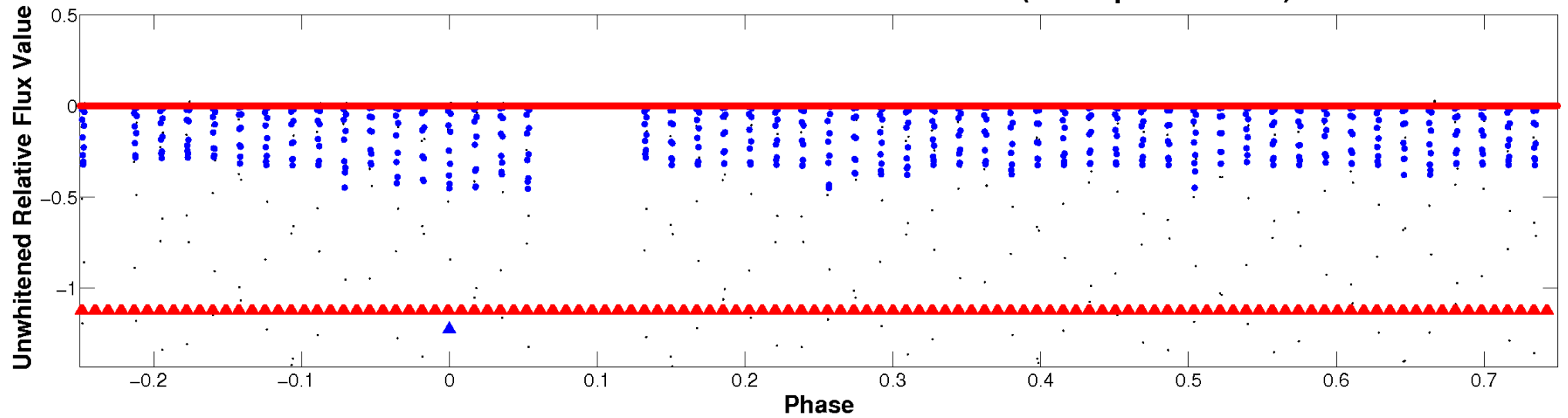
ALT Odd/Even

TCE 008841616-02



Non-Whitened Vs. Whitened Light Curve

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

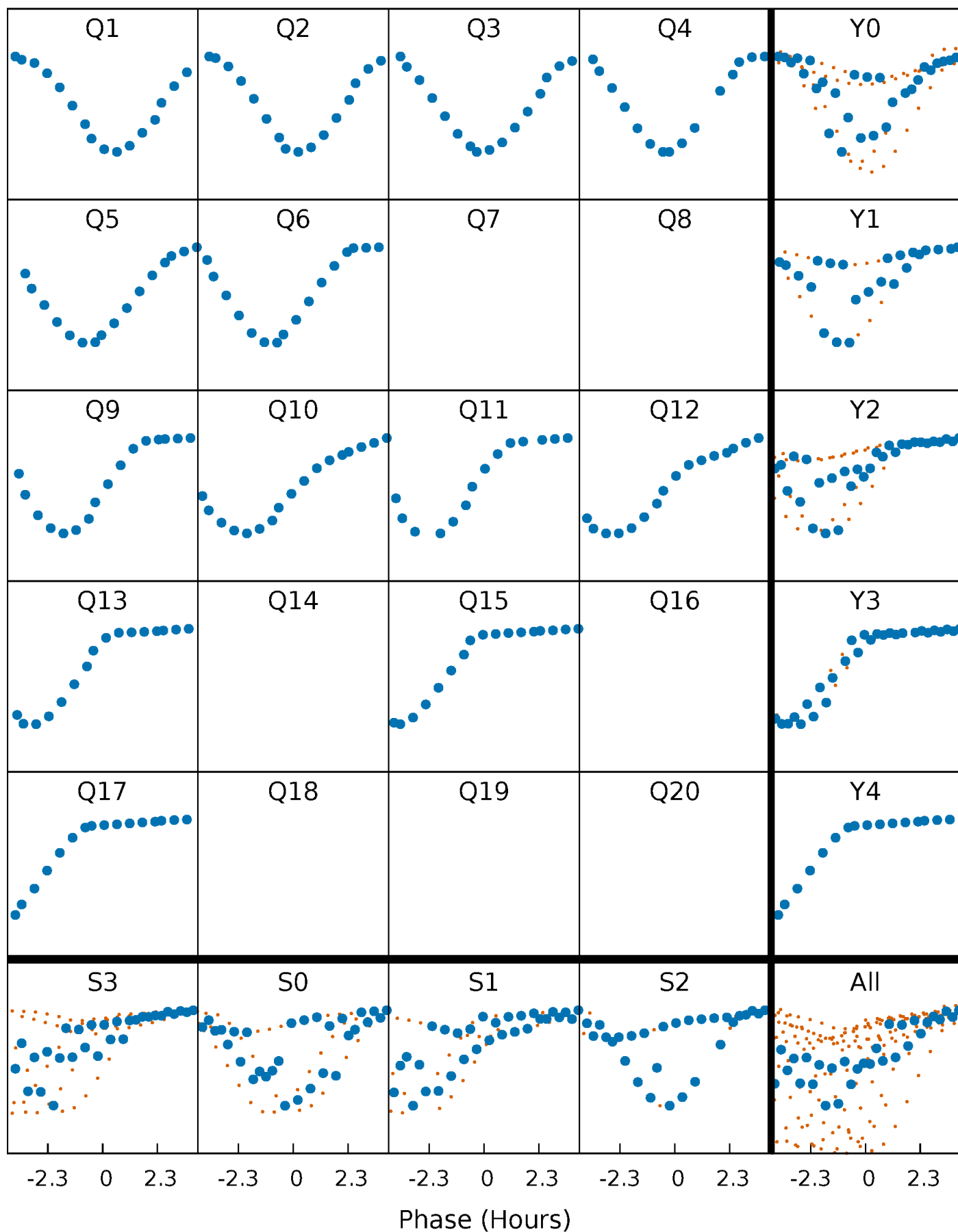


Planet 2 : Phased Whitened Flux Time Series (TPS Epoch/Period)



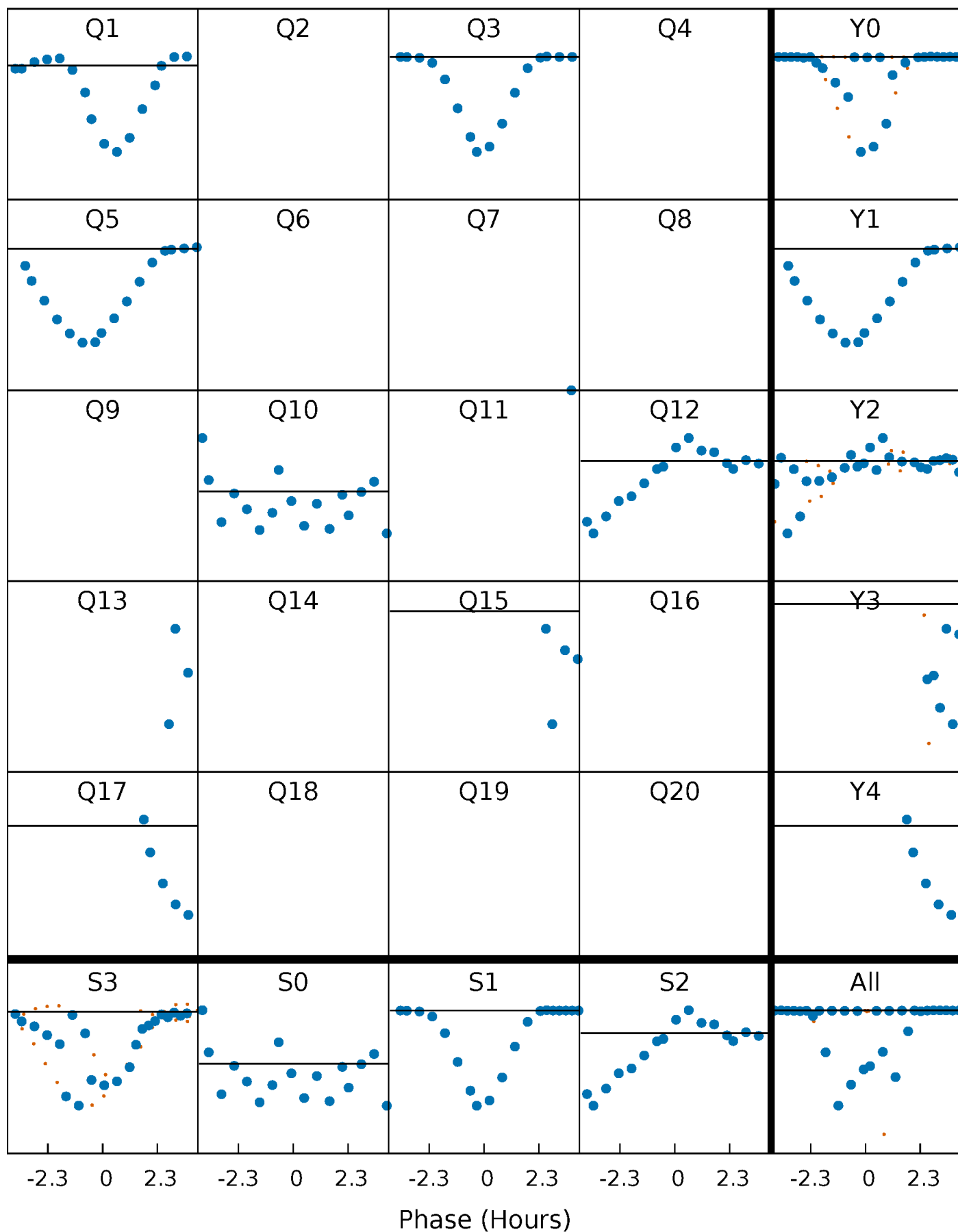
PDC Quarter-Phased Transit Curves

TCE 008841616-02 P= 94.909803 Days $T_0=154.209116$ (BKJD)



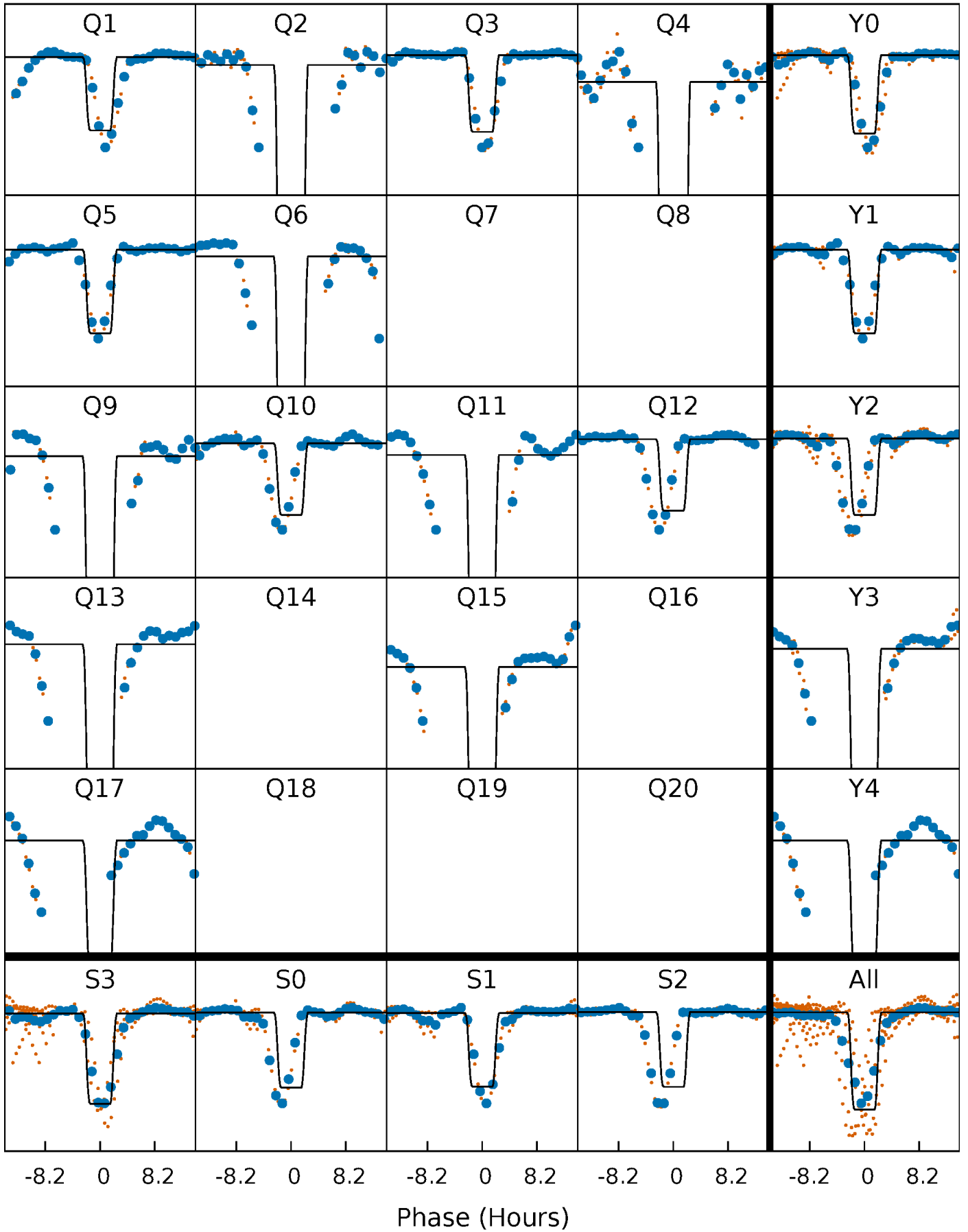
DV Quarter-Phased Transit Curves

TCE 008841616-02 P= 94.909803 Days $T_0=154.209116$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

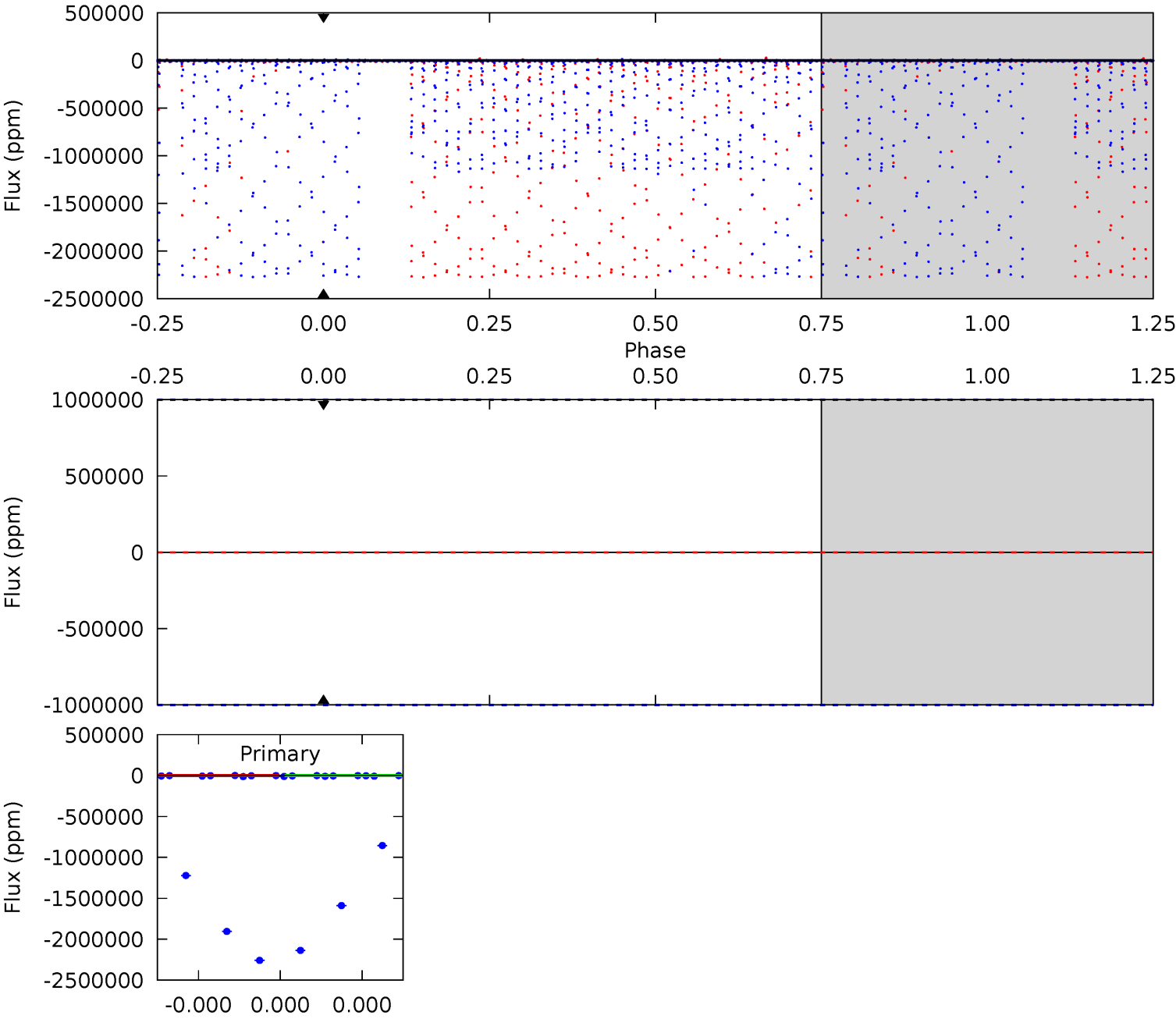
TCE 008841616-02 P= 94.909803 Days $T_0=154.185661$ (BKJD)



DV Model-Shift Uniqueness Test

008841616-02, P = 94.909803 Days, E = 59.299313 Days

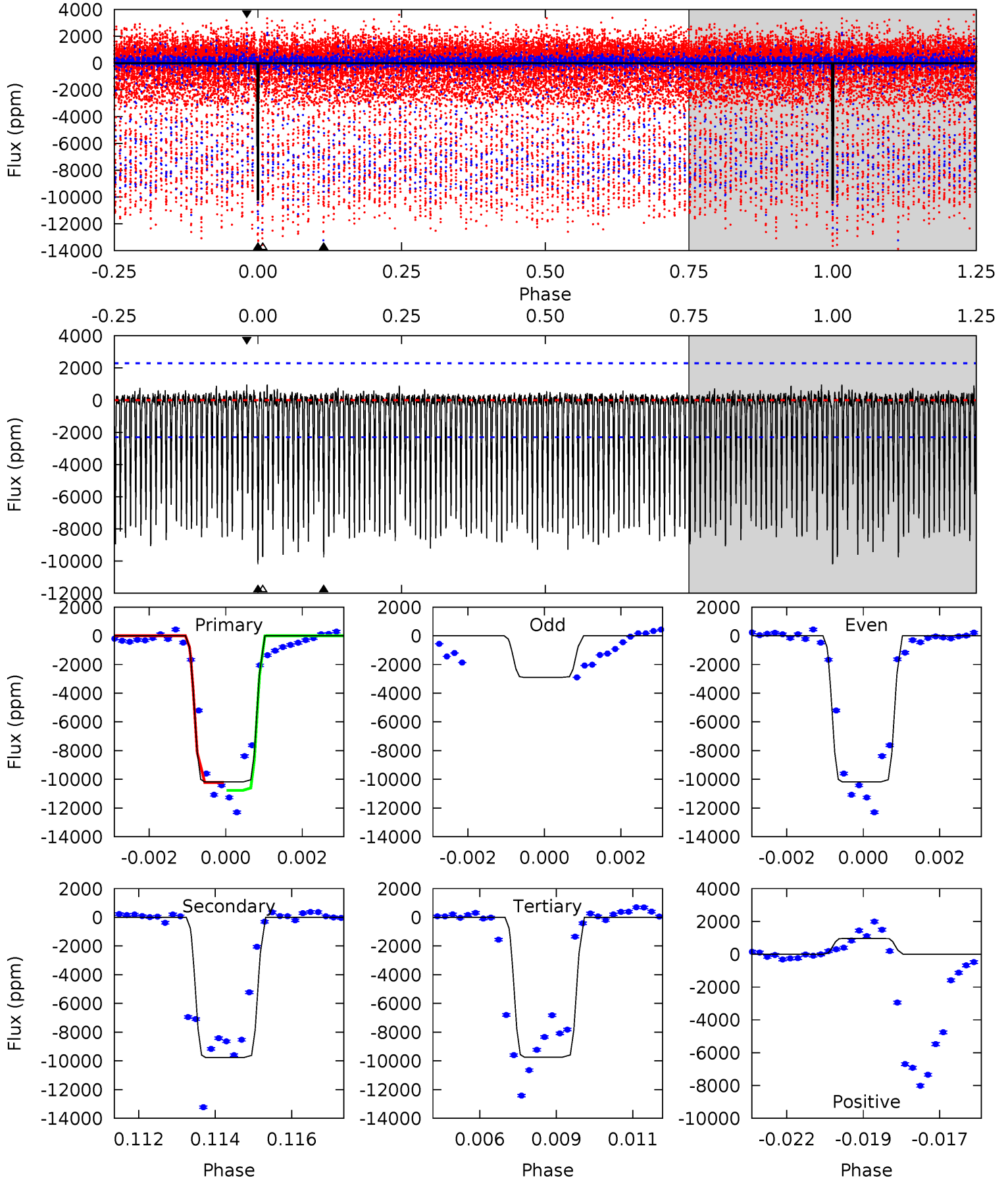
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
0	0	0	0	1.00	1.00	1.00	0	0	0	0	0	0	0	0



Alt Model-Shift Uniqueness Test

008841616-02, P = 94.909803 Days, E = 59.275858 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
23.5	22.6	22.5	2.23	5.31	3.07	4.30	1.04	21.3	0.07	20.3	3.02	0.95	0.09	0.61



Stellar Parameters For KIC 008841616

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	$M(M_{\odot})$	p_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	4462^{+156}_{-171}	$4.700^{+0.045}_{-0.036}$	$-0.760^{+0.300}_{-0.300}$	$0.554^{+0.049}_{-0.049}$	$0.561^{+0.049}_{-0.044}$	$4.646^{+0.980}_{-0.743}$
	+3%/-4%	+1%/-1%	+39%/-39%	+9%/-9%	+9%/-8%	+21%/-16%
Source	PHO54	PHO54	PHO54	DSEP		

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

Secondary Eclipse Parameters for KIC 008841616-02 / KOI

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	0 ± 1000000	$25.39^{+6.67}_{-6.04}$	351^{+15}_{-13}	2196^{+1928}_{-6136}	136^{+10799}_{-8696}
Alt.	-9765 ± 433	$7.43^{+5.52}_{-4.61}$	352^{+14}_{-14}	4136^{+2133}_{-744}	11268^{+64093}_{-7534}

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

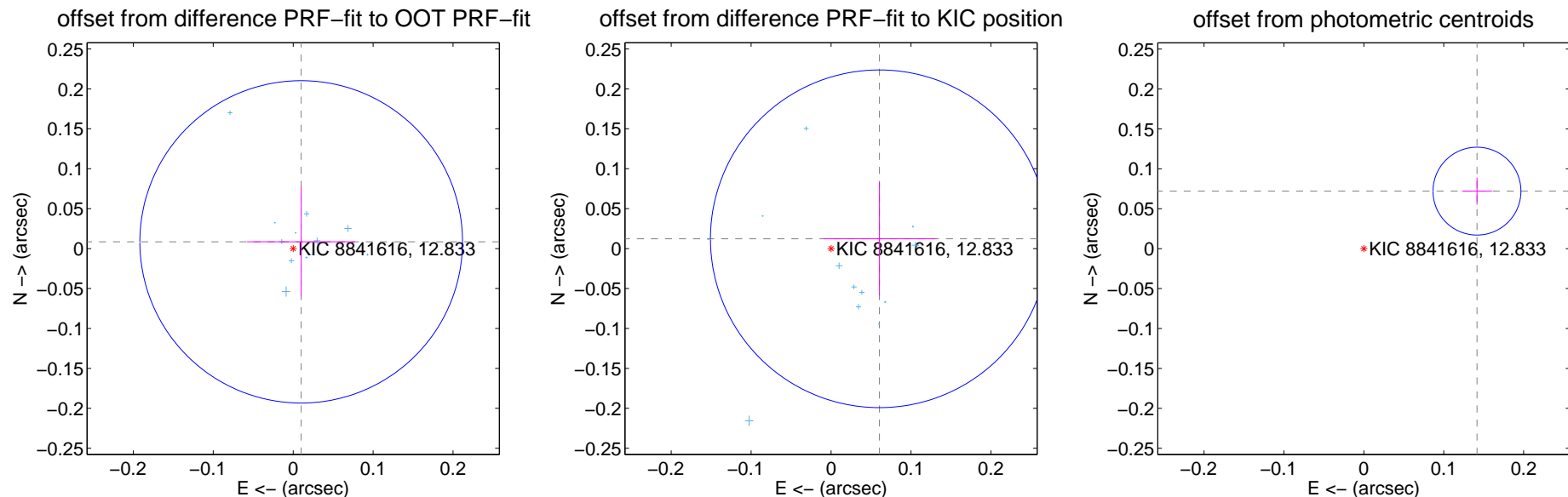
DV Centroid Data

Supplemental centroid analysis for 008841616-02. Kepler magnitude: 12.83. Transit SNR -1.00

There are 12 quarters with good PRF difference image offsets

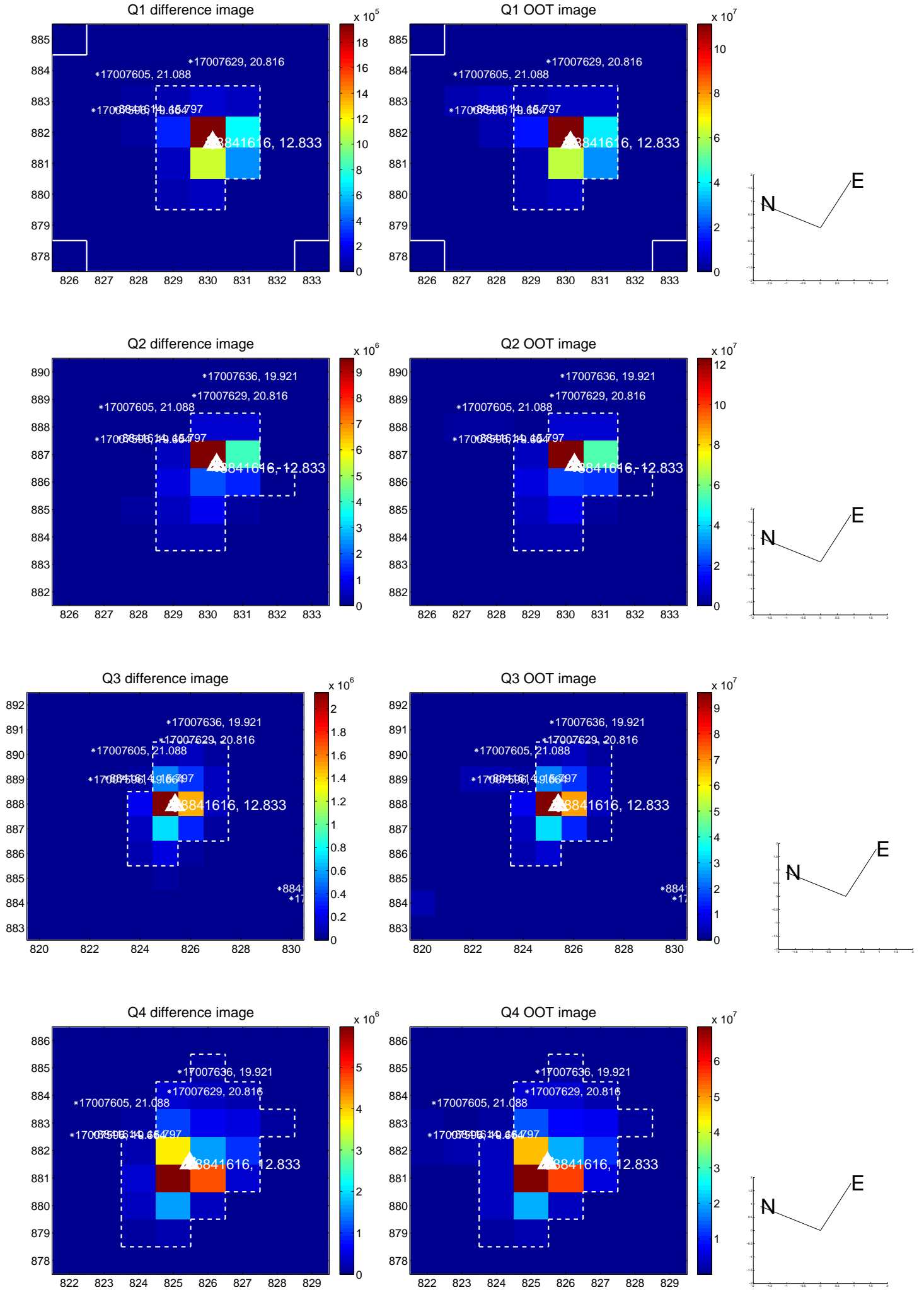
The direct PRF centroid is offset from the target star catalog position by about 0.08 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.013 ± 0.067	0.19	-0.010 ± 0.068	0.008 ± 0.068
PRF-fit source offset from KIC position	0.062 ± 0.070	0.88	-0.061 ± 0.070	0.012 ± 0.071
photometric centroid source offset	0.16 ± 0.02	8.66	-0.14 ± 0.02	0.07 ± 0.02

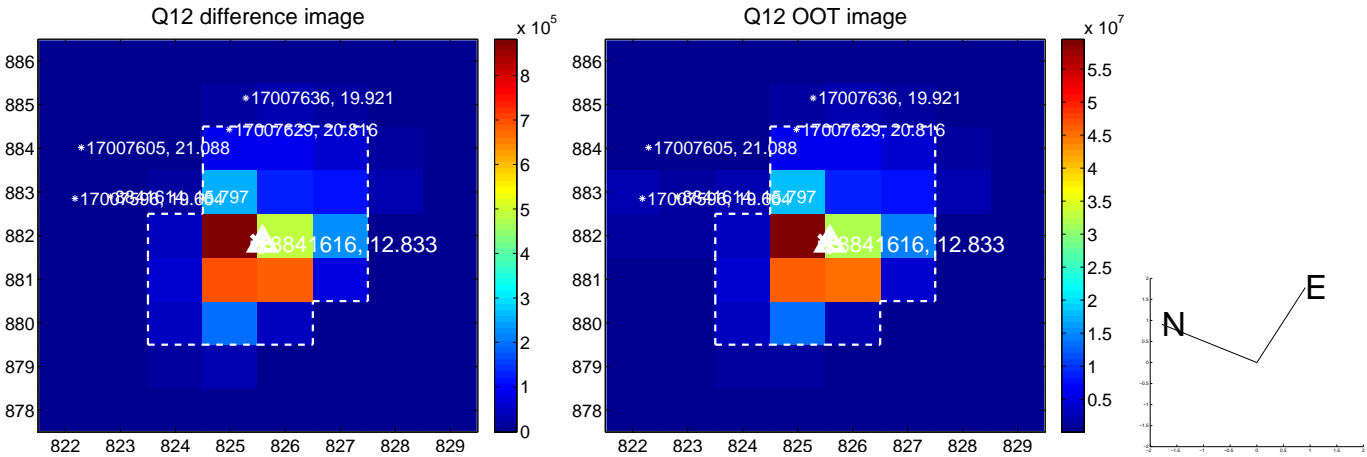
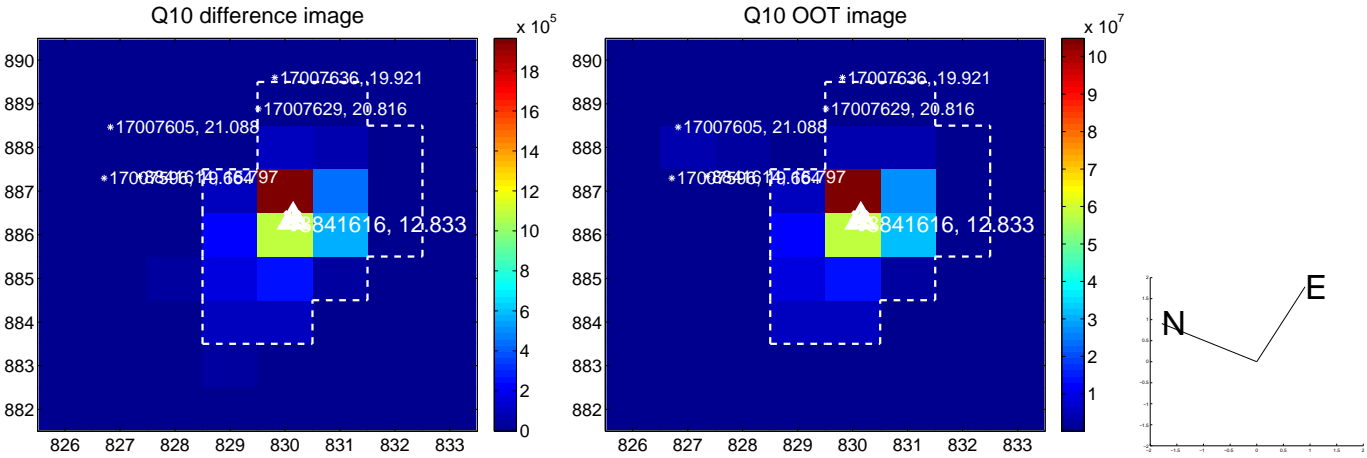
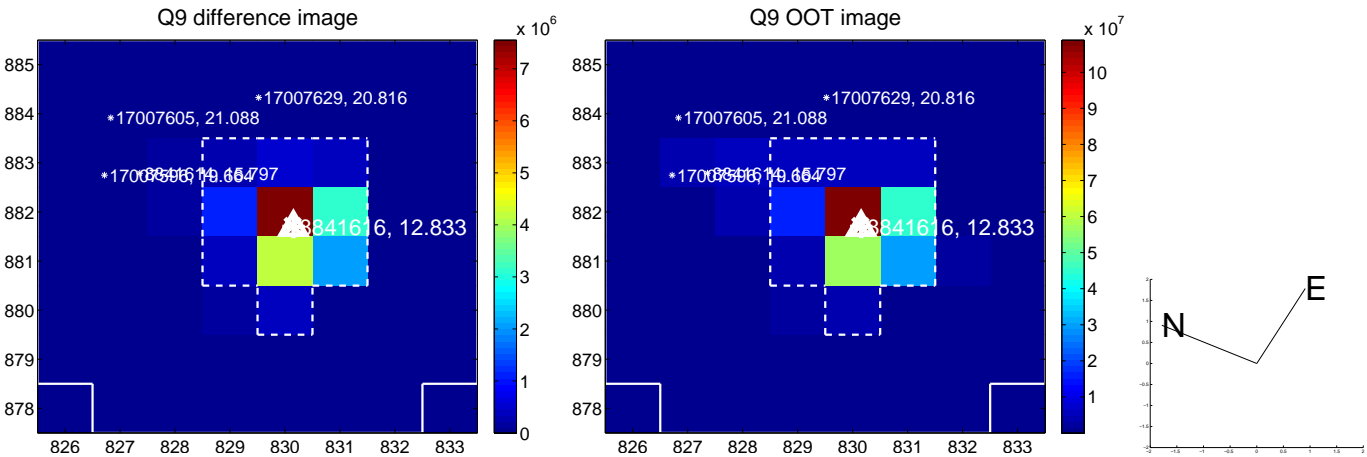


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ . Red *: target star. Blue *: Other stars. Text next to a star gives its KIC ID and kepmag. KIC IDs > 15,000,000 are from the UKIRT catalog.

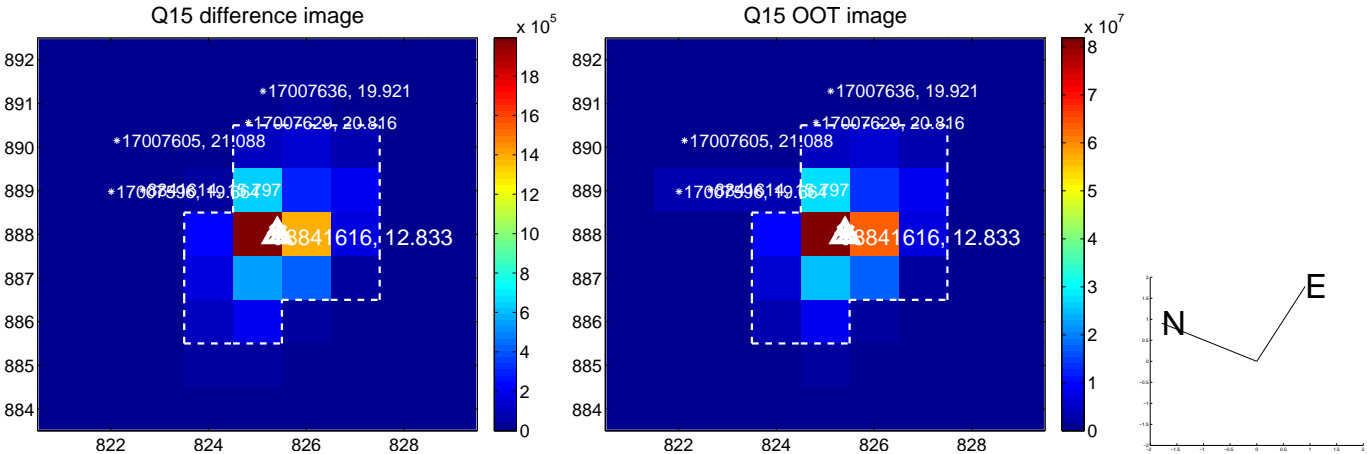
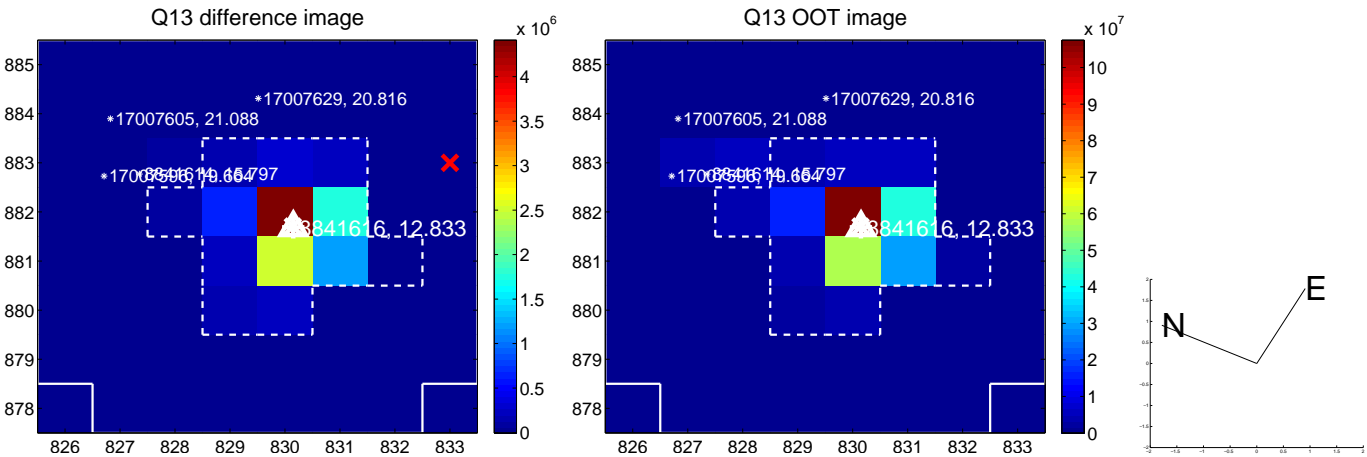
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



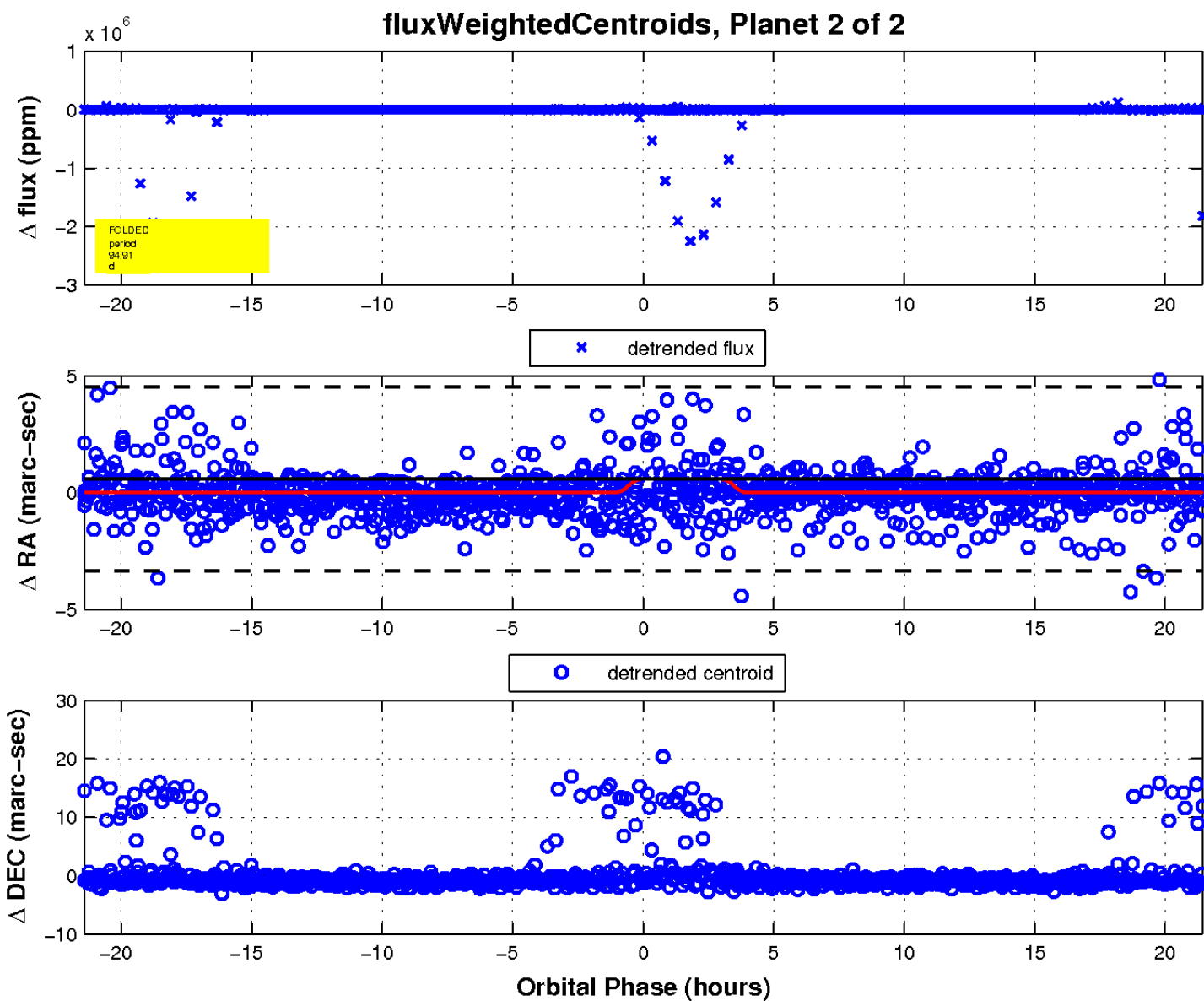
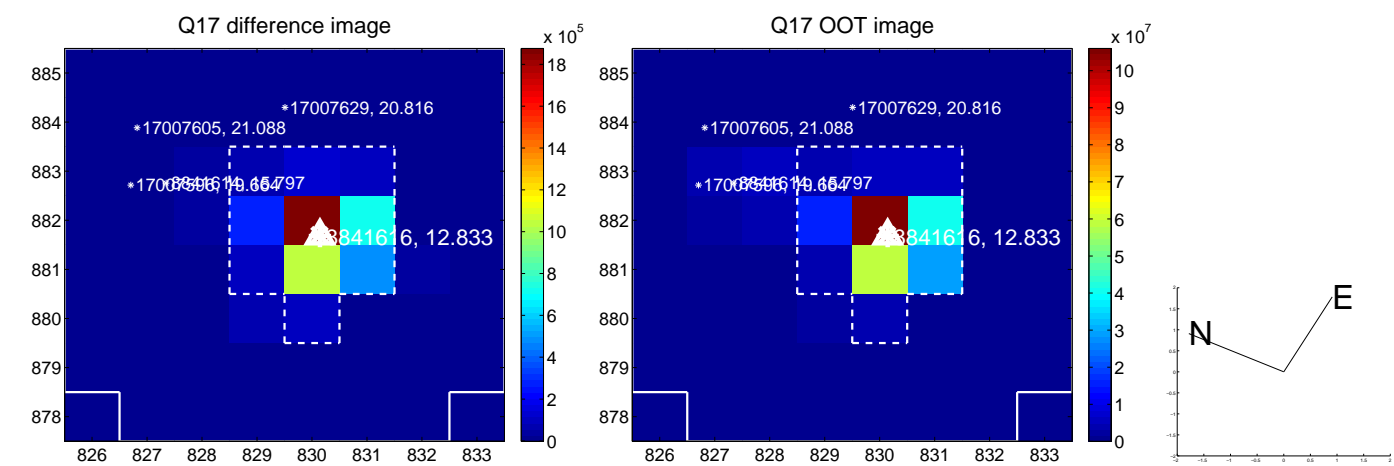
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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



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



UKIRT Image

Declination

