

KIC 008616873

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})
008616873-01	OBS	1251.01	1.152158	131.803042	9221.1	1.403	333.0	582.3	0.82	5693	9.40	1450.01
008616873-02	OBS	No	0.576080	131.798494	11412.8	1.500	588.0	-1.0	0.82	5693	8.69	3653.77

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
008616873-01	OBS	FP	0.00	0	1	0	0	MOD_SEC_DV—MOD_SEC_ALT—HAS_SEC_TCE
008616873-02	OBS	FP	0.00	1	1	0	0	IS_SEC_TCE—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 008616873-01

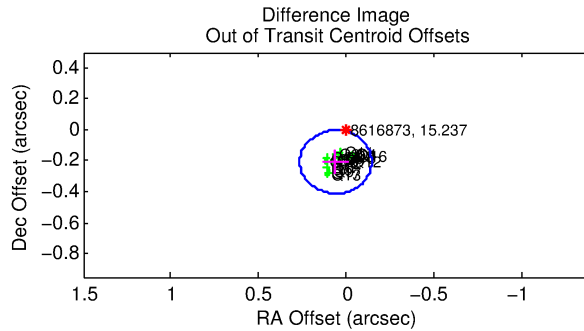
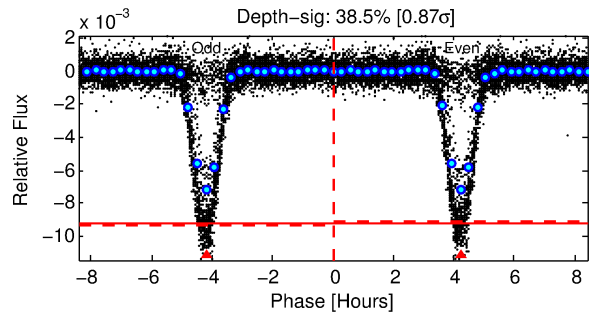
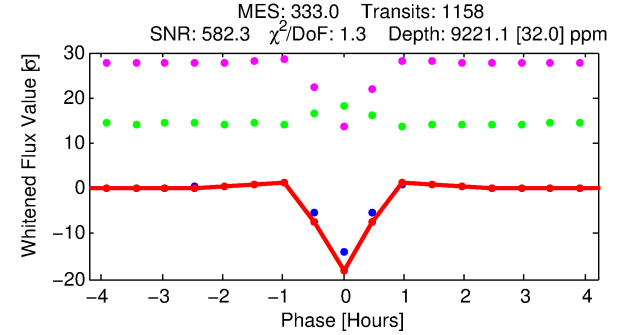
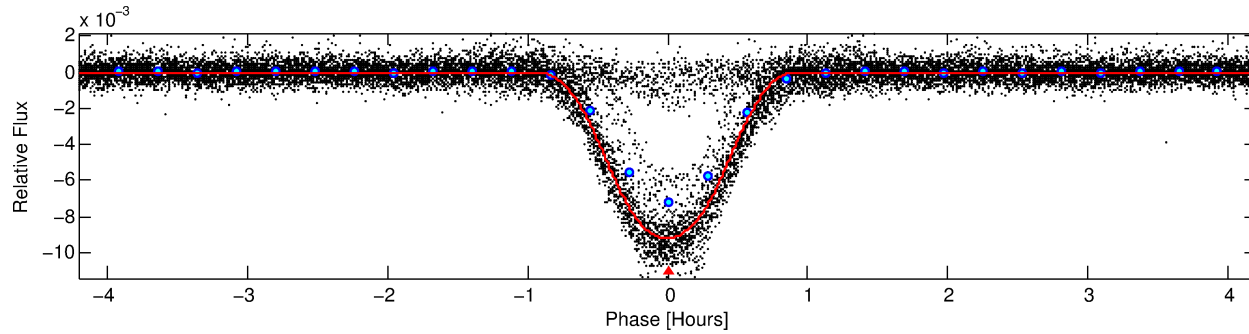
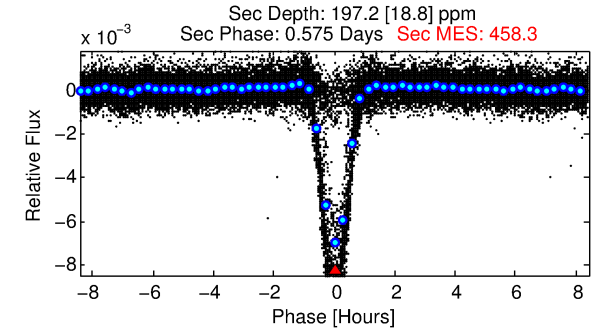
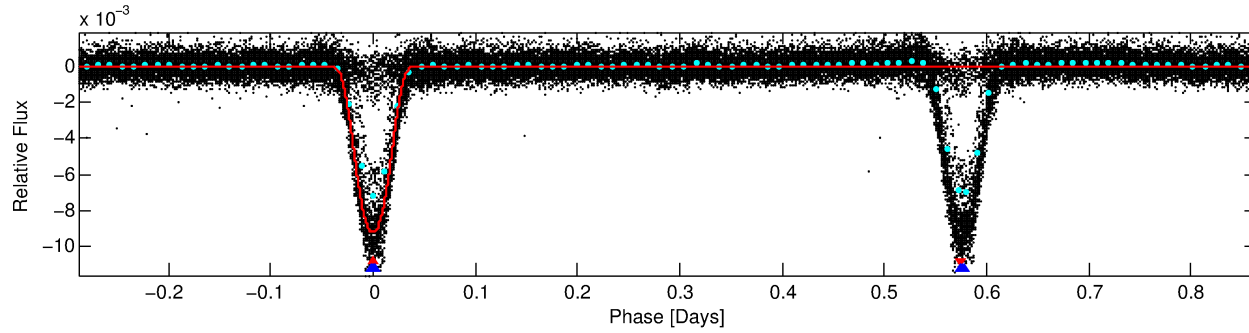
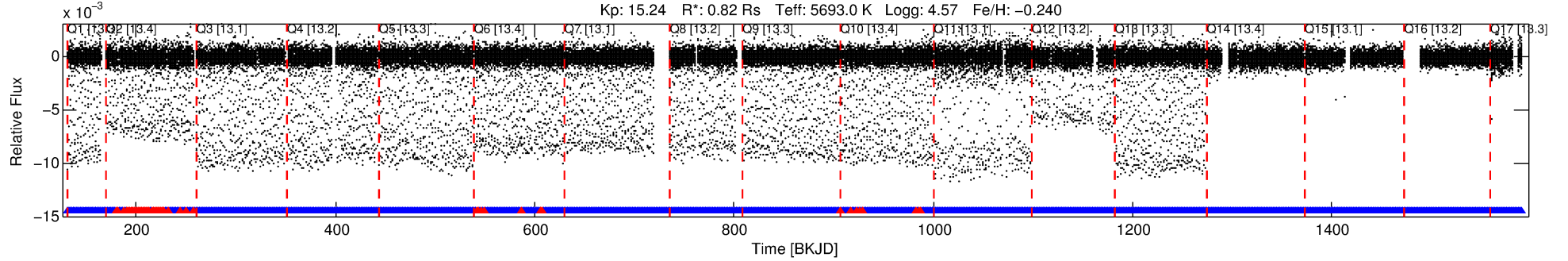
No Significant Match Found

DV One-Page Summary

KIC: 8616873 Candidate: 1 of 2 Period: 1.152 d

KOI: K01251 Corr: No Ephemeris Match

Kp: 15.24 R*: 0.82 Rs Teff: 5693.0 K Logg: 4.57 Fe/H: -0.240



DV Fit Results:

Period = 1.15216 [0.00000] d
Epoch = 131.8030 [0.0000] BKJD
Rp/R* = 0.1056 [0.0006]
a/R* = 4.27 [0.04]
b = 0.88 [0.00]
Seff = 1450.01 [478.57]
Teq = 1574 [130] K
Rp = 9.40 [2.37] Re
a = 0.0208 [0.0044] AU
Ag = 0.53 [0.17] [-2.74 sigma]
Teffp = 2076 [79] K [3.31 sigma]

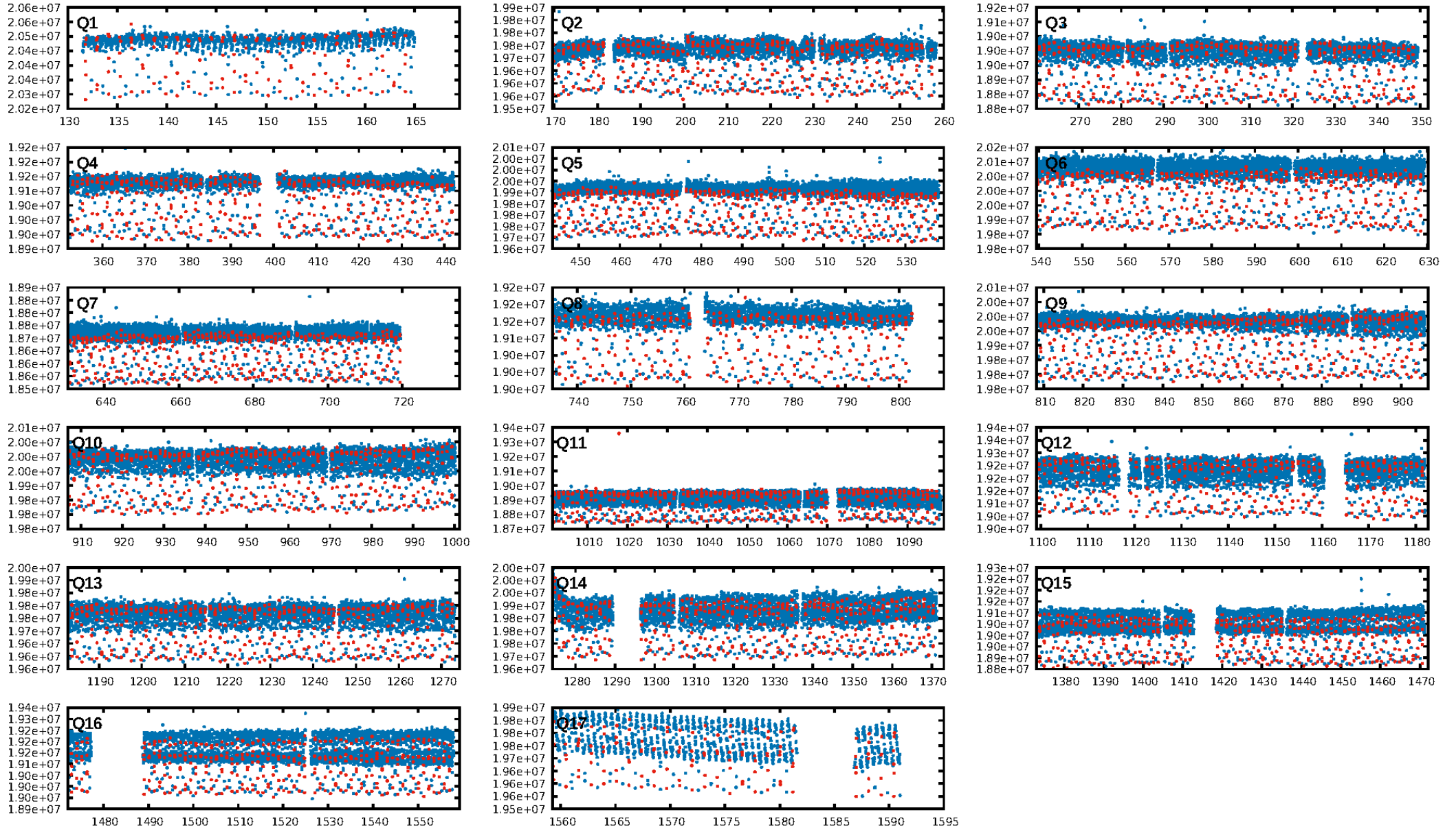
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [6.73 sigma]
LongPeriod-sig: N/A
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: N/A
RollingBand-fgt: 0.95 [1049/1105]
GhostDiagnostic-chr: 10.13
Centroid-sig: 0.0%
Centroid-so: 0.926 arcsec [45.52 sigma]
OotOffset-rm: 0.216 arcsec [3.17 sigma]
KicOffset-rm: 0.373 arcsec [5.45 sigma]
OotOffset-st: 4/4/4/5 [17]
KicOffset-st: 4/4/4/5 [17]
DiffImageQuality-fgm: 1.00 [17/17]
DiffImageOverlap-fno: 0.00 [0/17]

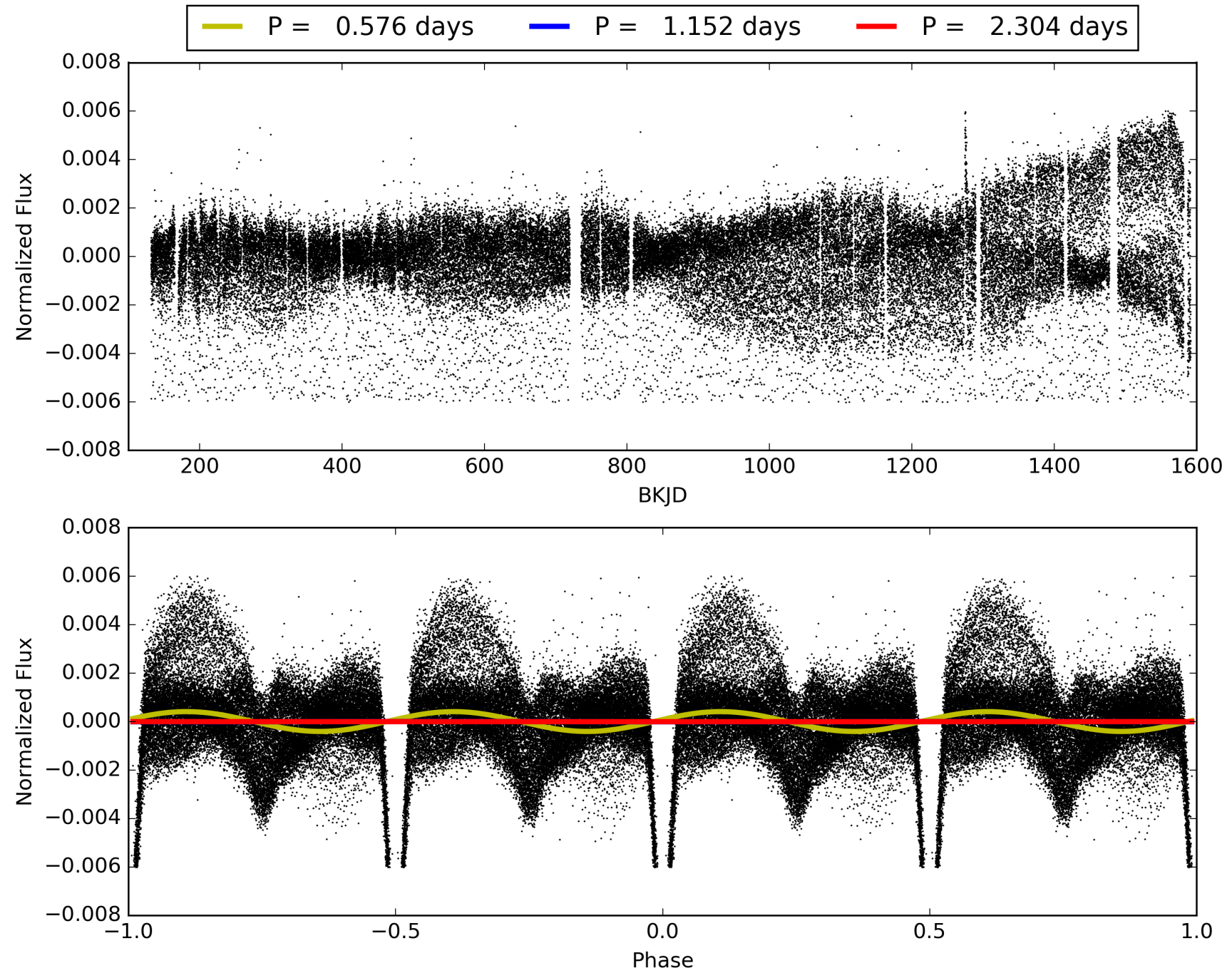
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 01-Feb-2016 00:10:30 Z

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

TCE 008616873-01, PDC Light Curves

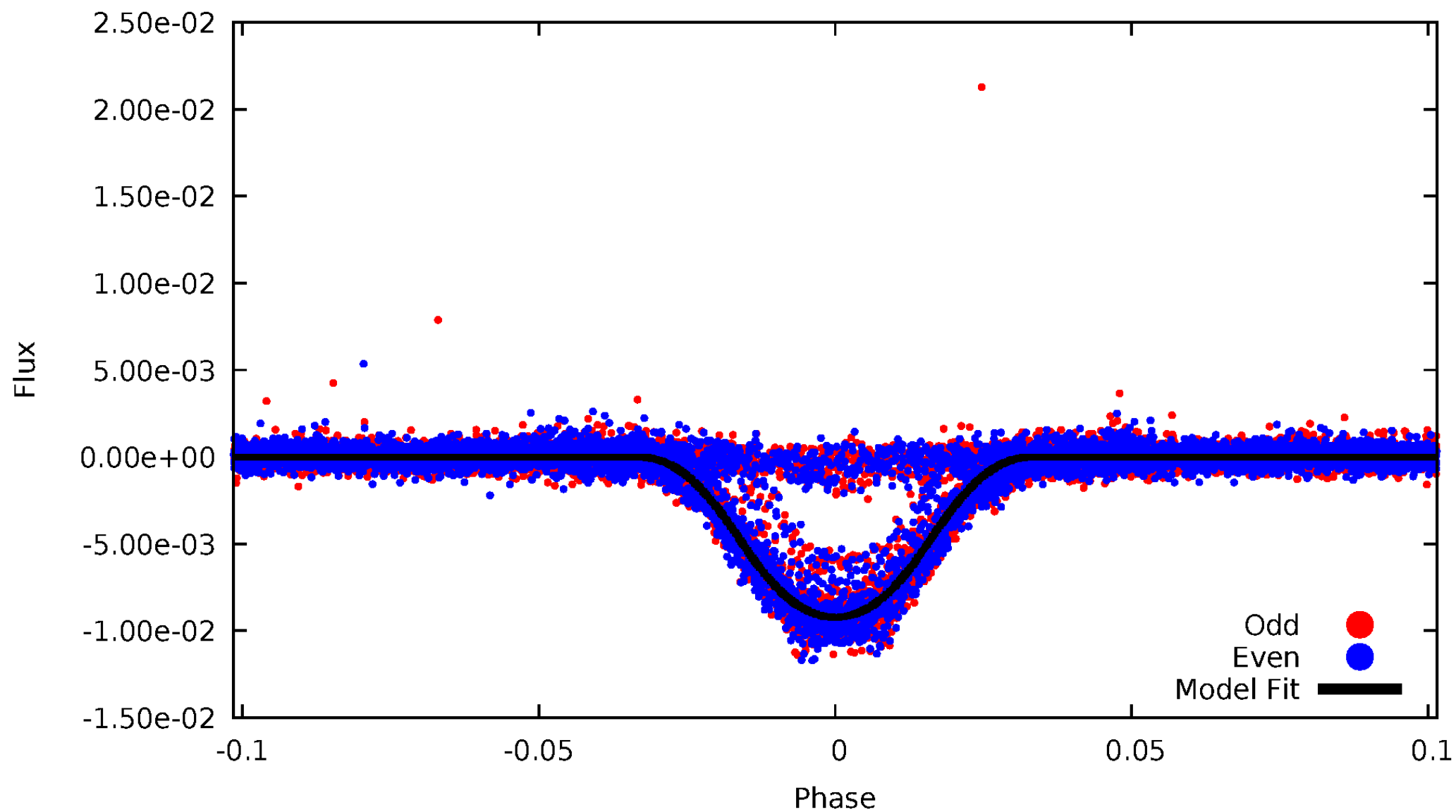


TCE 008616873-01



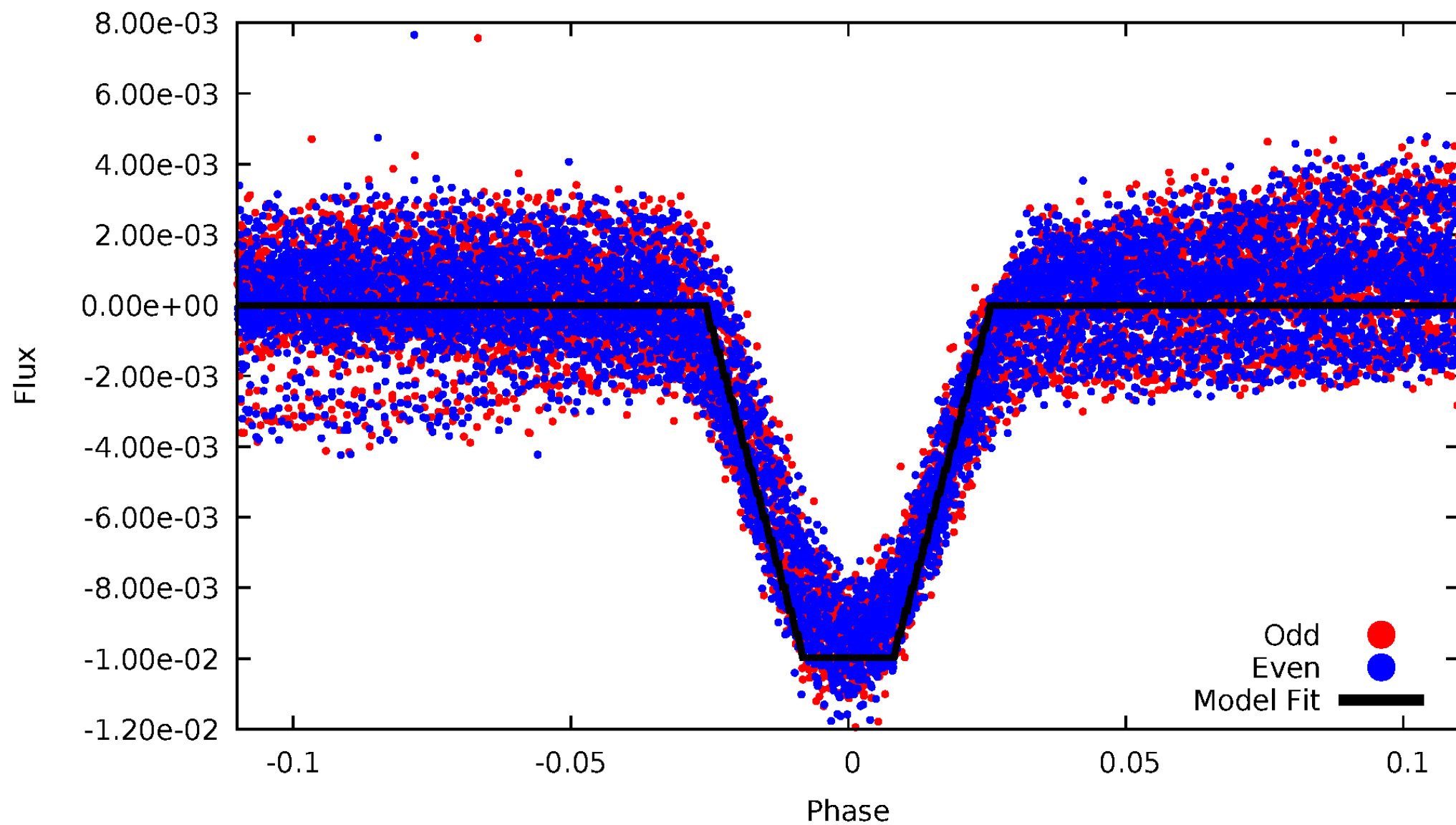
DV Odd/Even

TCE 008616873-01



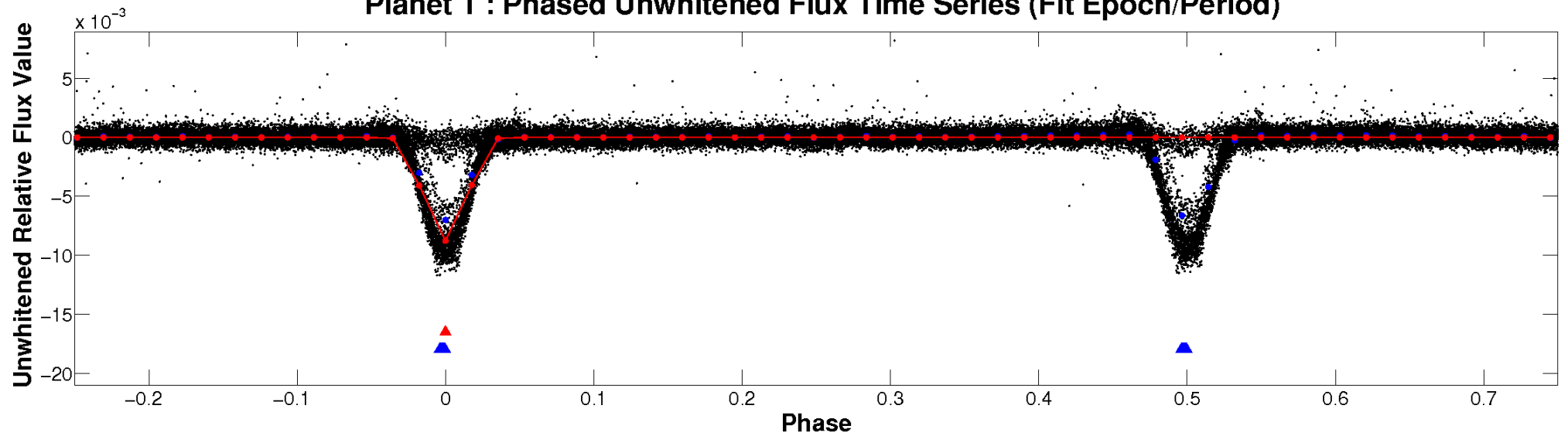
ALT Odd/Even

TCE 008616873-01

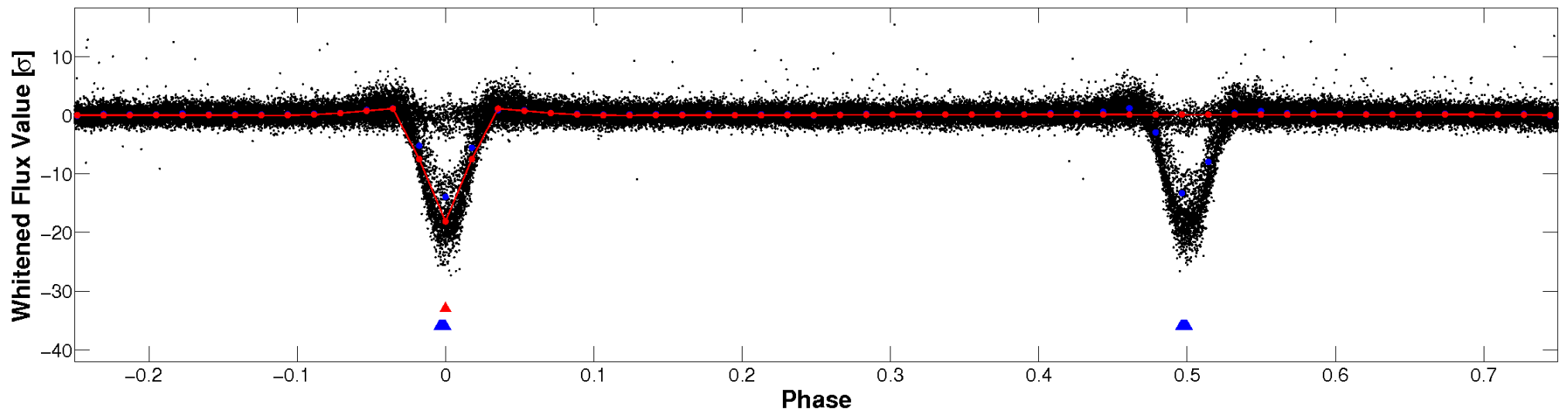


Non-Whitened Vs. Whitened Light Curve

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

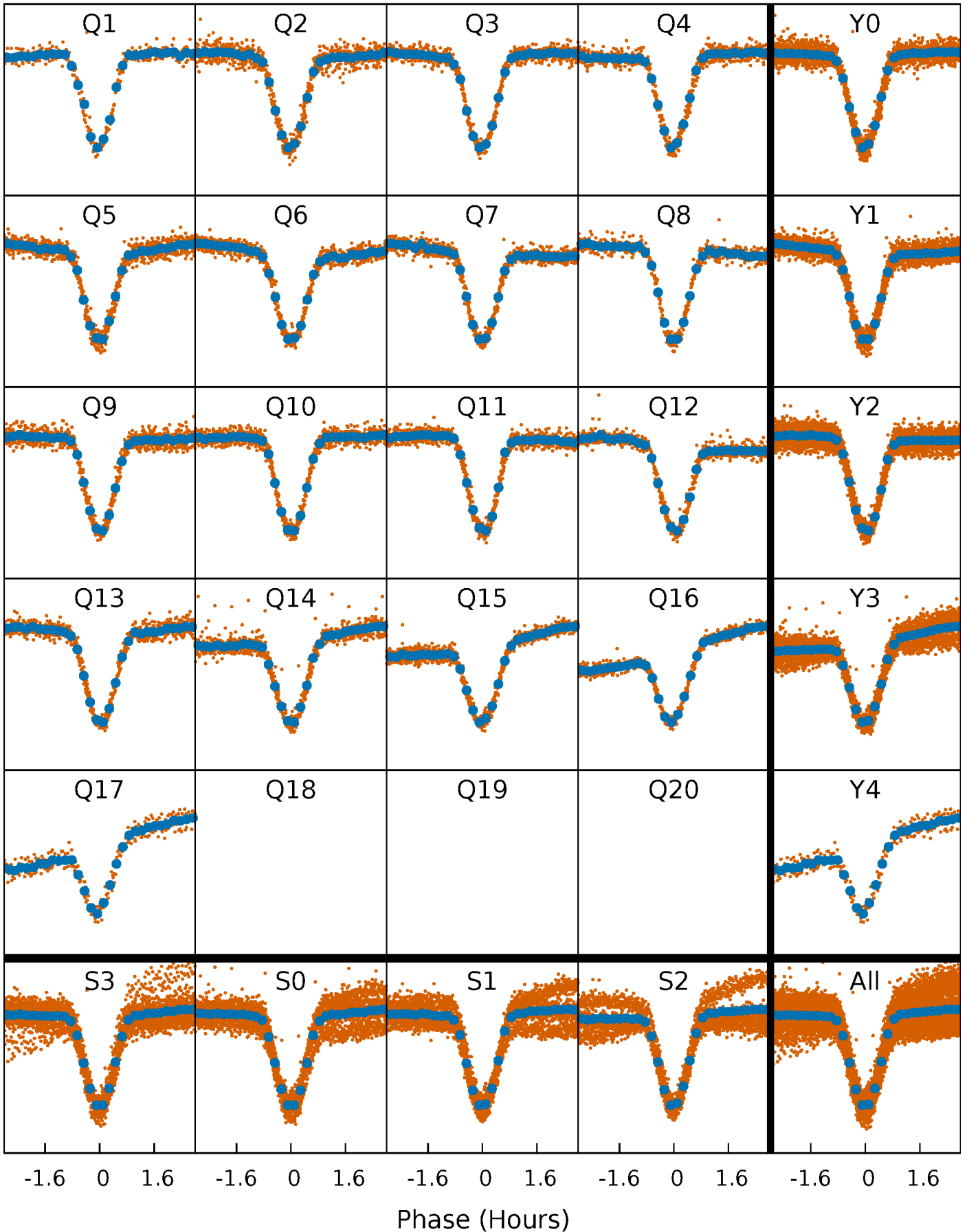


Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)



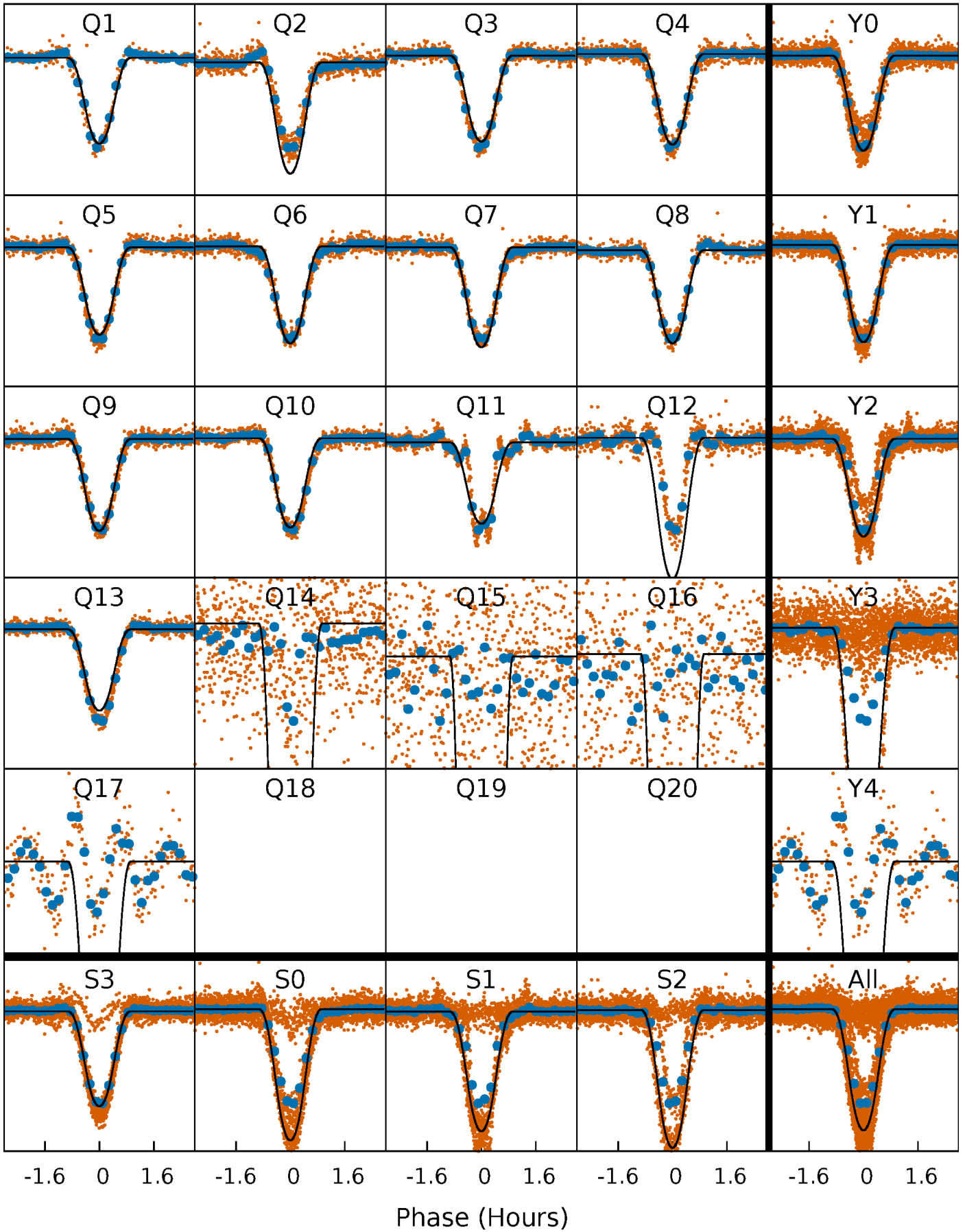
PDC Quarter-Phased Transit Curves

TCE 008616873-01 P= 1.152158 Days $T_0=131.803042$ (BKJD)



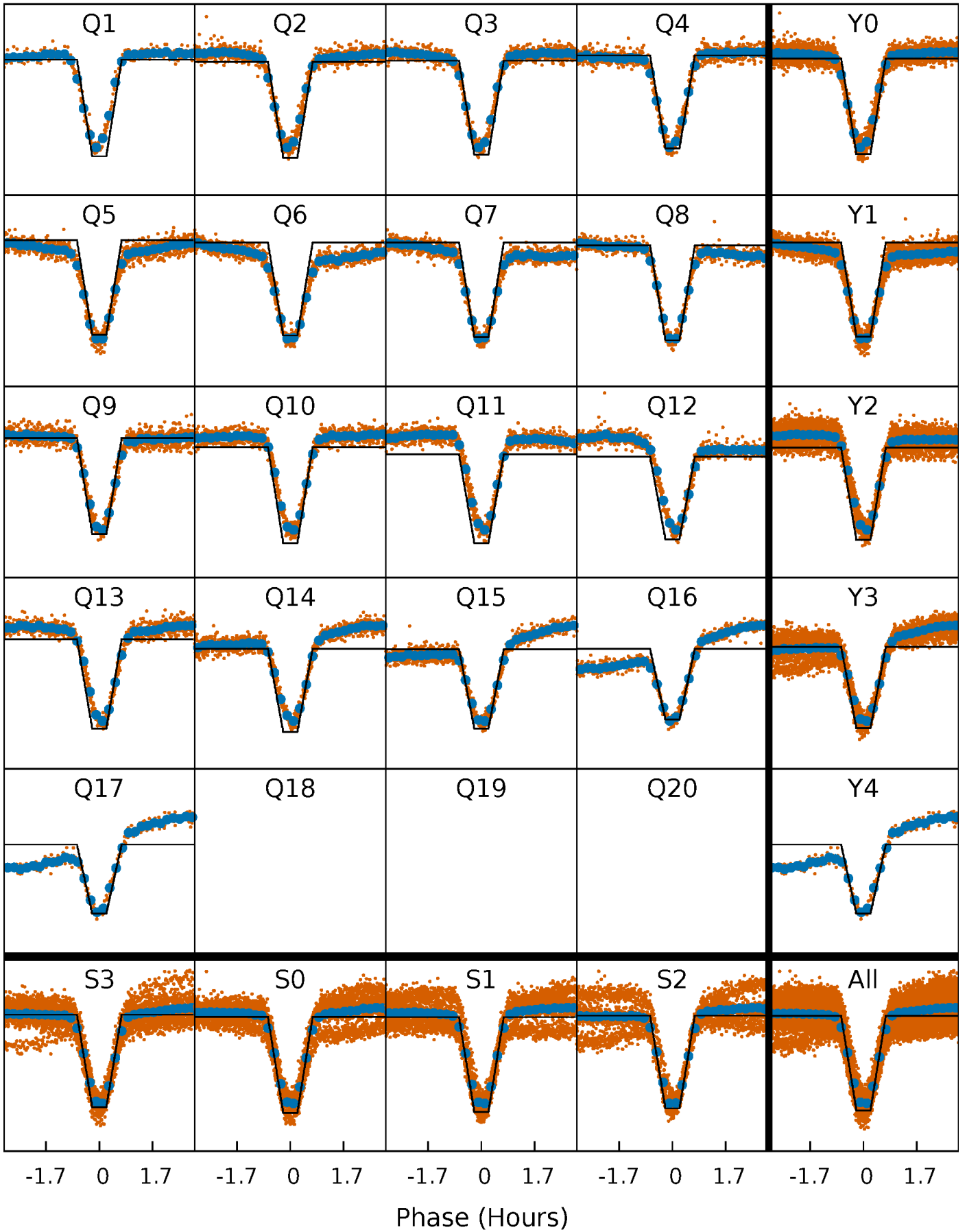
DV Quarter-Phased Transit Curves

TCE 008616873-01 P= 1.152158 Days $T_0=131.803042$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

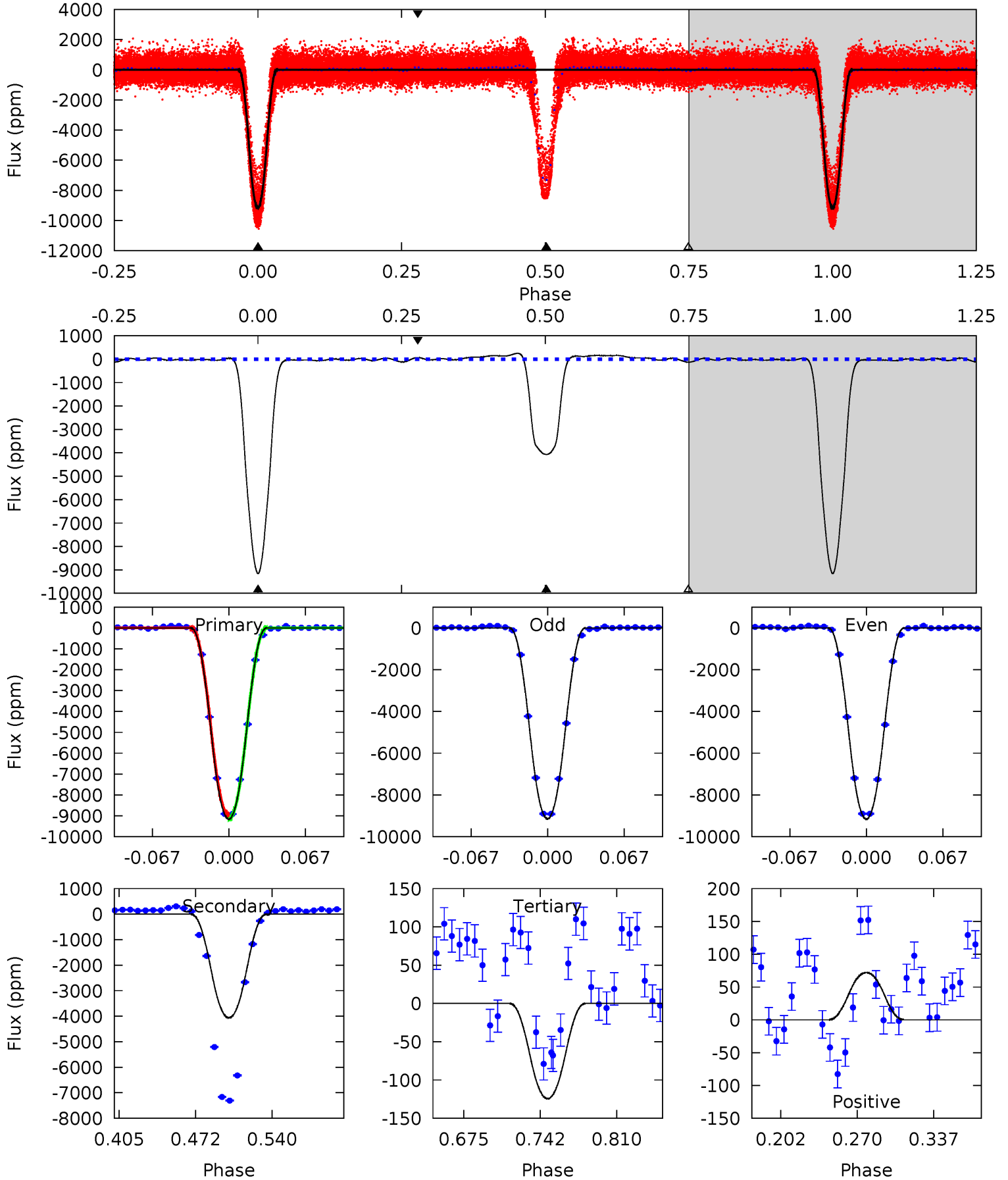
TCE 008616873-01 P= 1.152155 Days $T_0=131.804222$ (BKJD)



DV Model-Shift Uniqueness Test

008616873-01, P = 1.152158 Days, E = 130.650884 Days

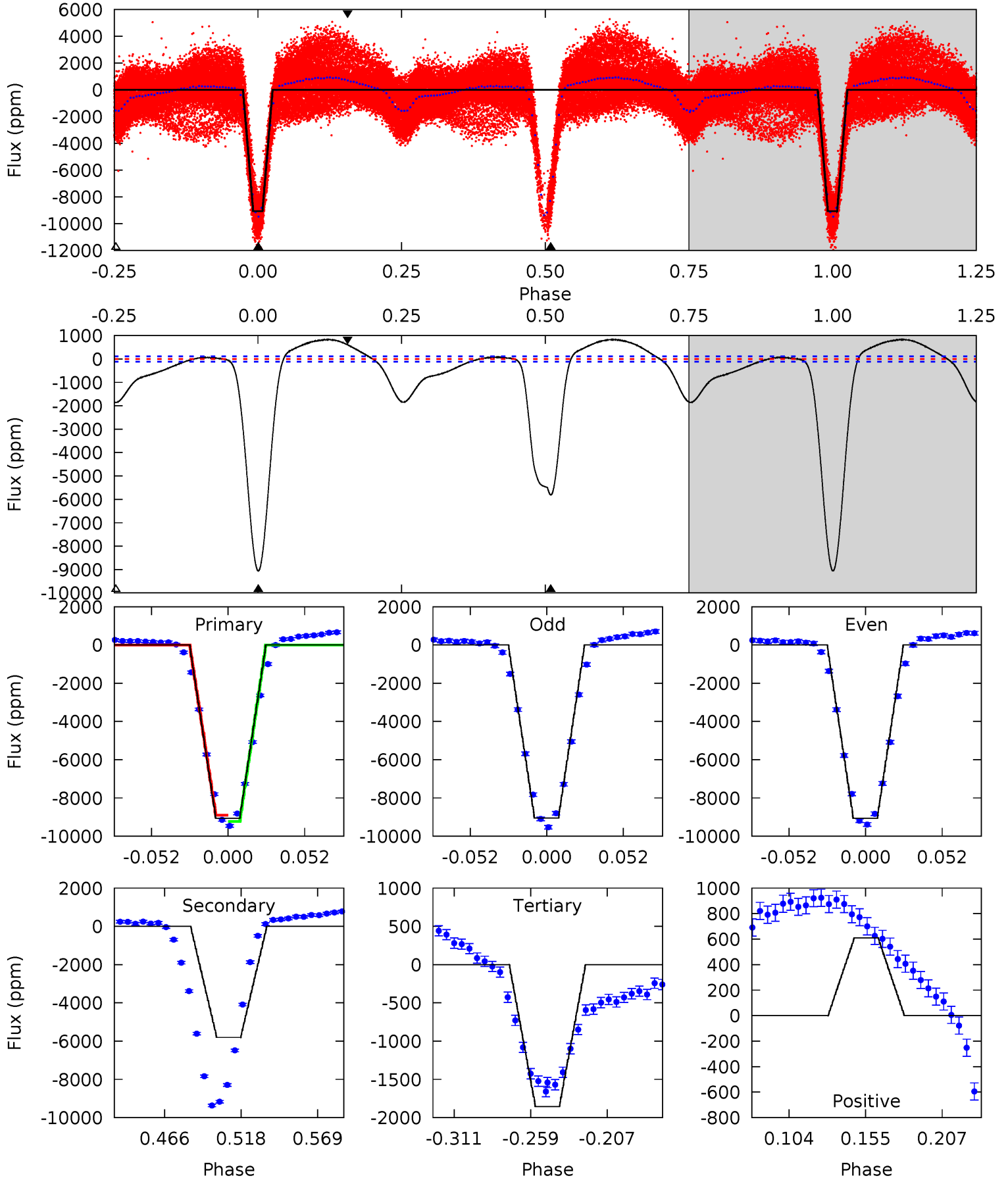
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
1193	529.5	16.2	9.39	4.65	1.83	9.12	1177	1183	513.3	520.1	1.15	0.80	0.03	0



Alt Model-Shift Uniqueness Test

008616873-01, P = 1.152155 Days, E = 130.652067 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
381.6	244.6	78.1	25.6	4.70	1.95	30.8	303.5	356.0	166.4	218.9	0.35	1.01	0.08	6.91



Stellar Parameters For KIC 008616873

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	M (M_{\odot})	p_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	5693^{+152}_{-169}	$4.570^{+0.042}_{-0.168}$	$-0.240^{+0.300}_{-0.300}$	$0.816^{+0.206}_{-0.069}$	$0.911^{+0.088}_{-0.107}$	$2.357^{+0.489}_{-1.065}$
	+3%/-3%	+1%/-4%	+125%/-125%	+25%/-8%	+10%/-12%	+21%/-45%
Source	PHO1	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 008616873-01 / KOI 1251.01

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	-4066 ± 8	$9.58^{+1.24}_{-0.57}$	2238^{+119}_{-93}	4554^{+102}_{-106}	10^{+1}_{-2}
Alt.	-5806 ± 24	$9.08^{+1.21}_{-0.54}$	2240^{+135}_{-93}	5032^{+123}_{-137}	17^{+2}_{-3}

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 $A_{obs} \gg 1.0$

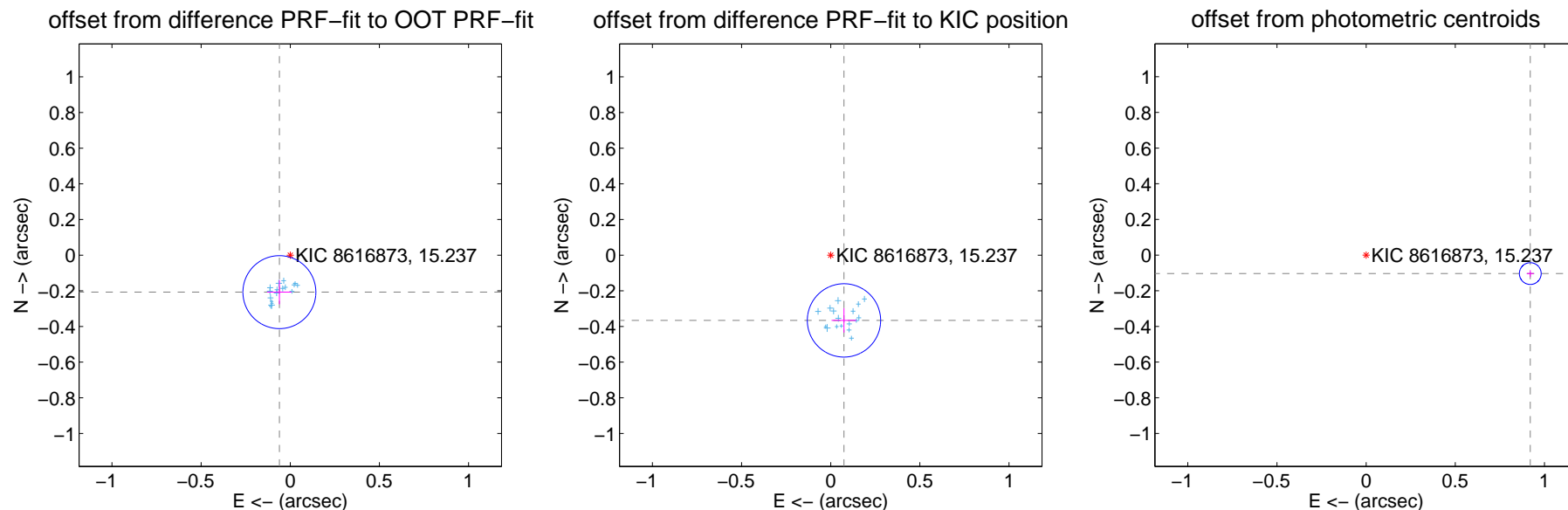
DV Centroid Data

Supplemental centroid analysis for 008616873-01. Kepler magnitude: 15.24. Transit SNR 582.26

There are 17 quarters with good PRF difference image offsets

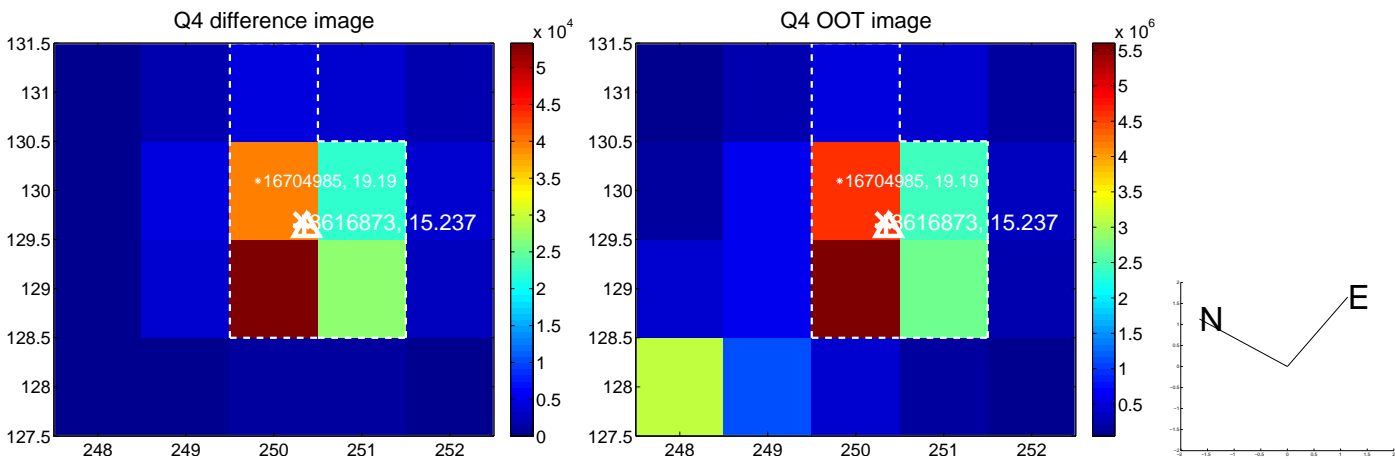
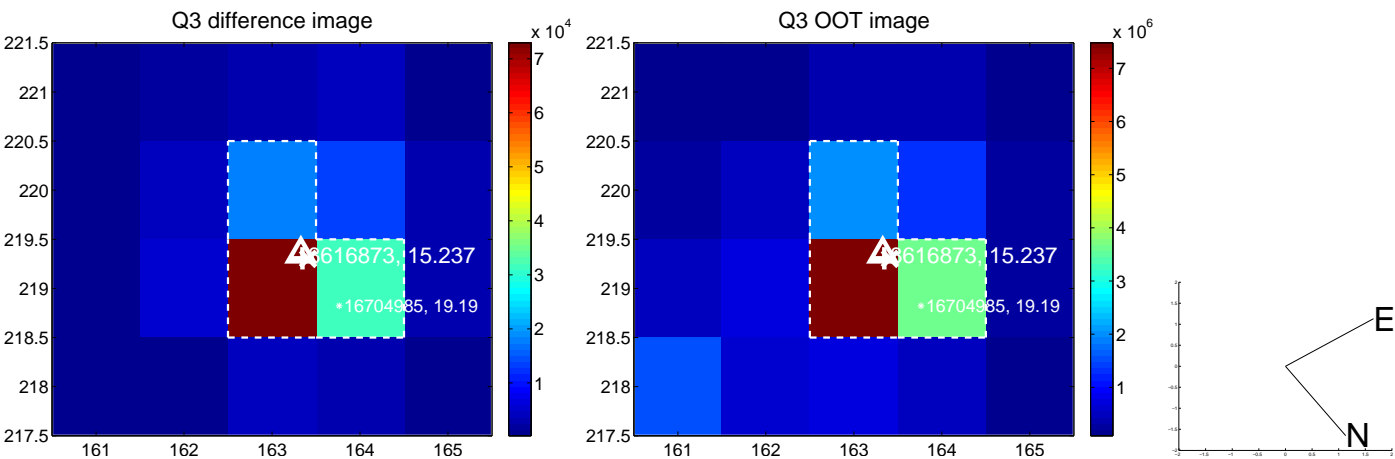
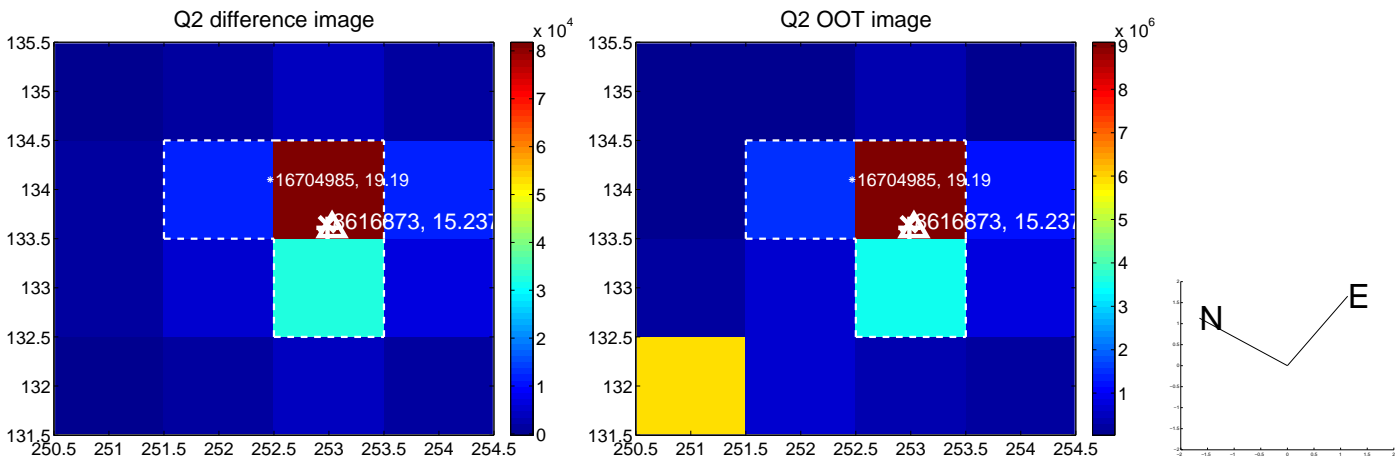
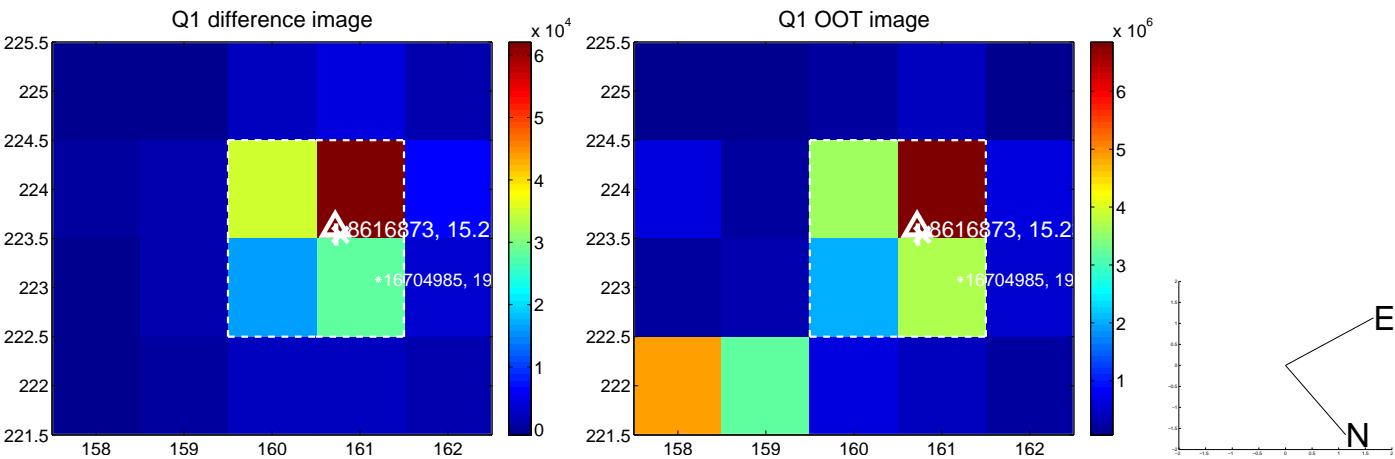
The direct PRF centroid is offset from the target star catalog position by about 0.15 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.216 ± 0.068	3.17	0.061 ± 0.068	-0.207 ± 0.068
PRF-fit source offset from KIC position	0.373 ± 0.069	5.45	-0.074 ± 0.070	-0.366 ± 0.069
photometric centroid source offset	0.93 ± 0.02	45.52	-0.92 ± 0.02	-0.10 ± 0.02

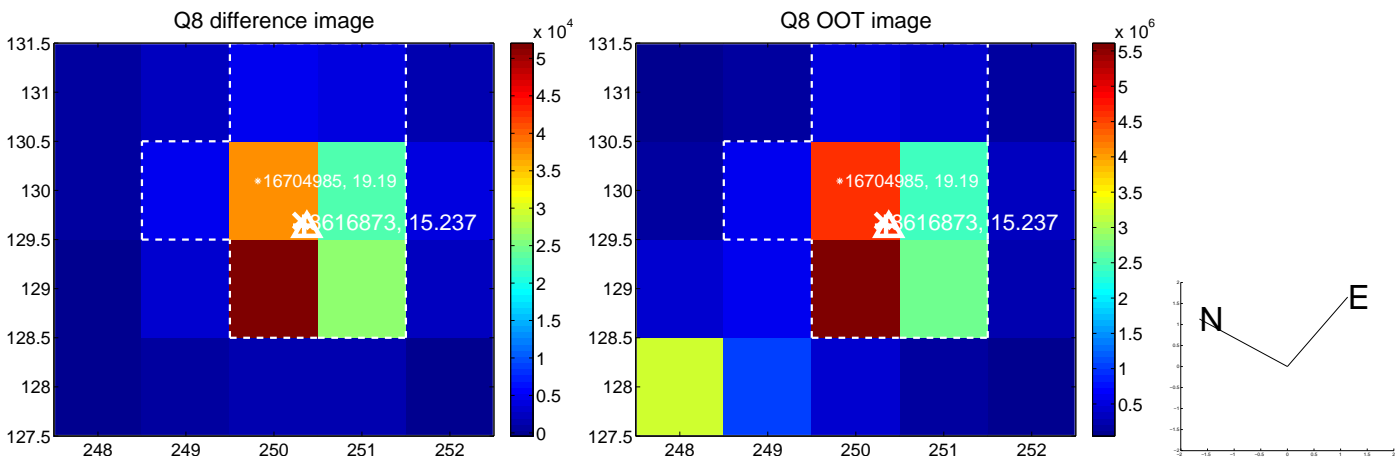
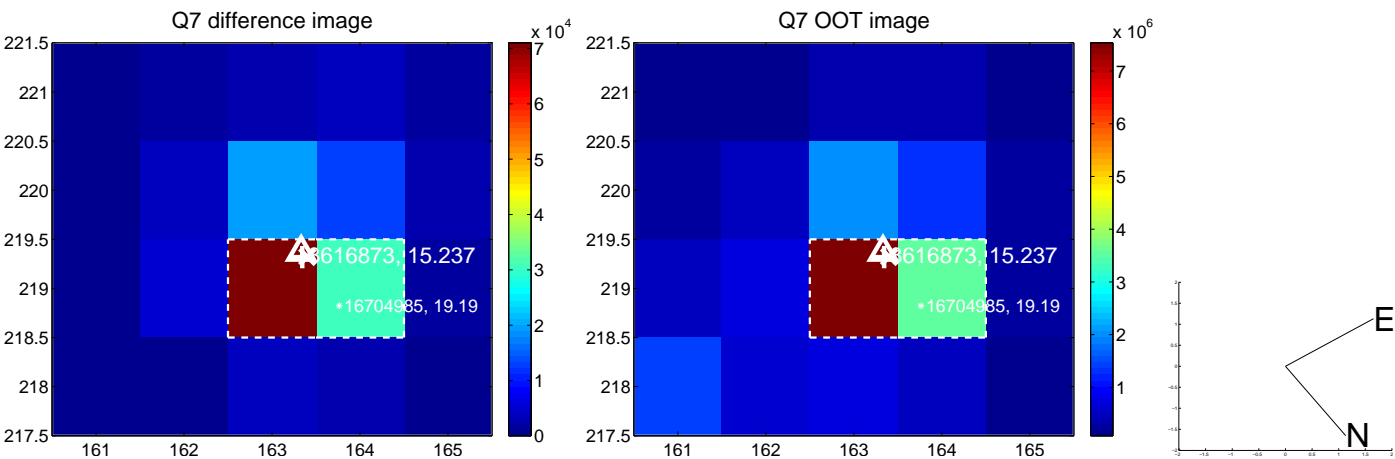
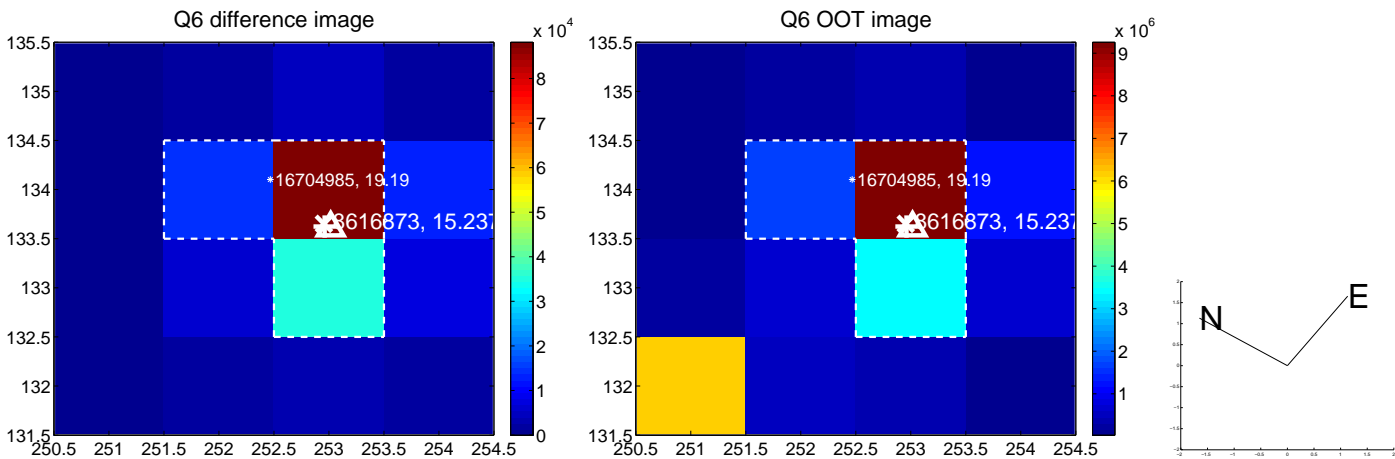
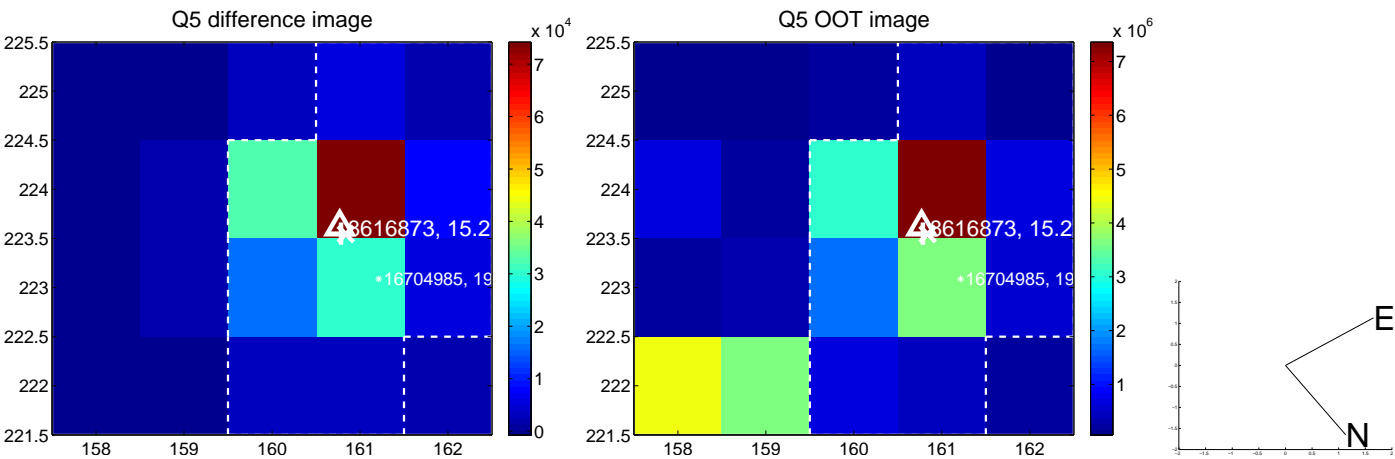


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets**; **Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

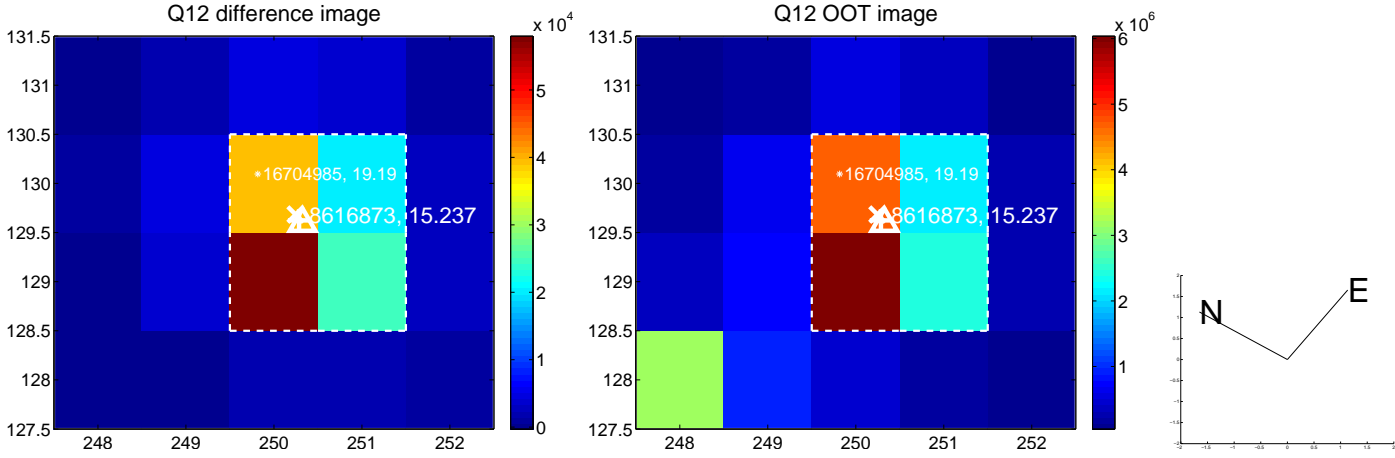
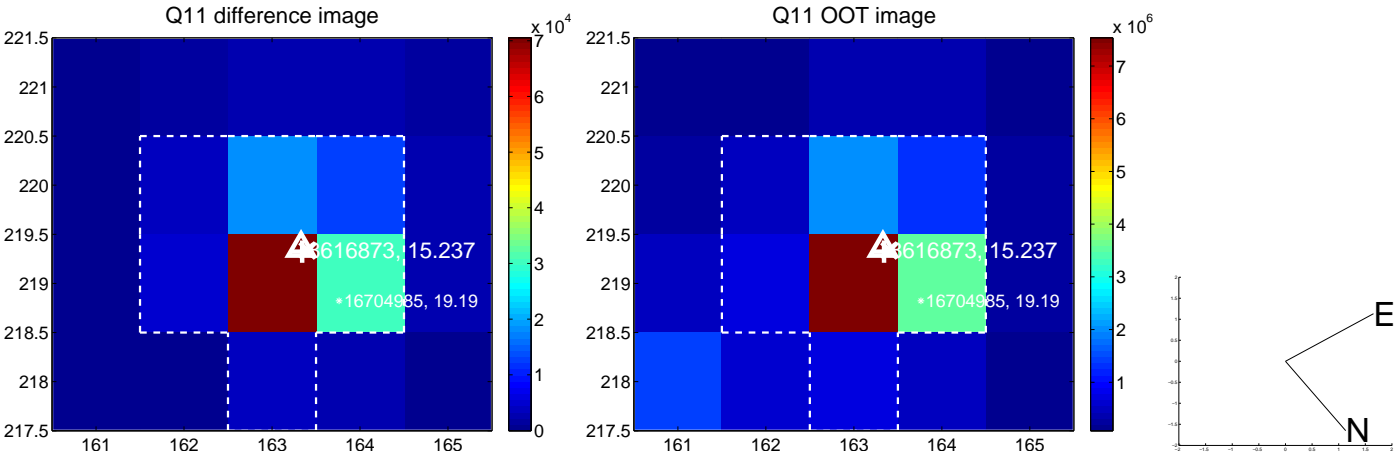
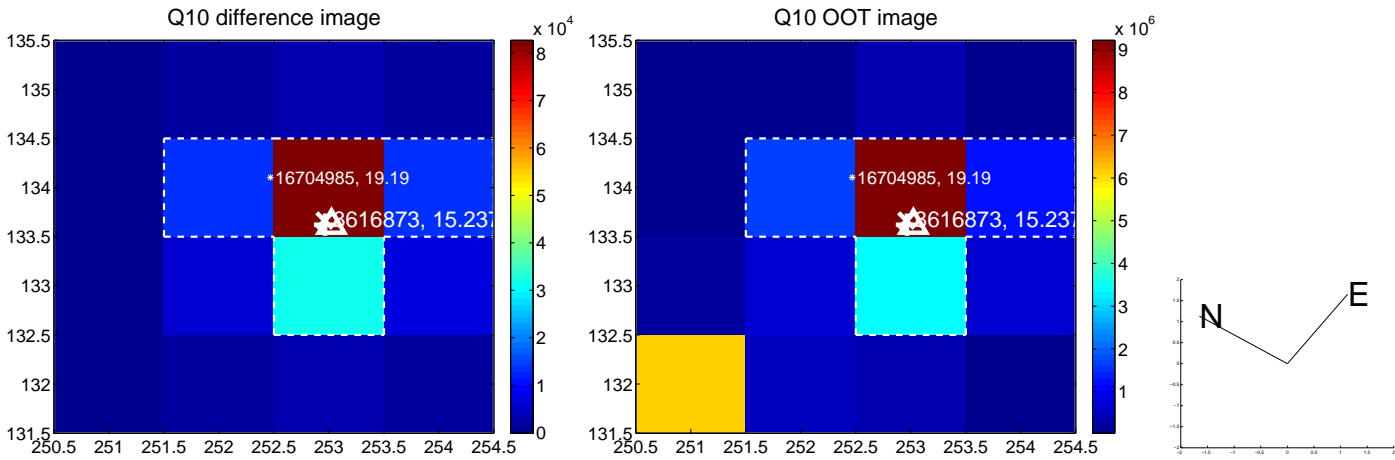
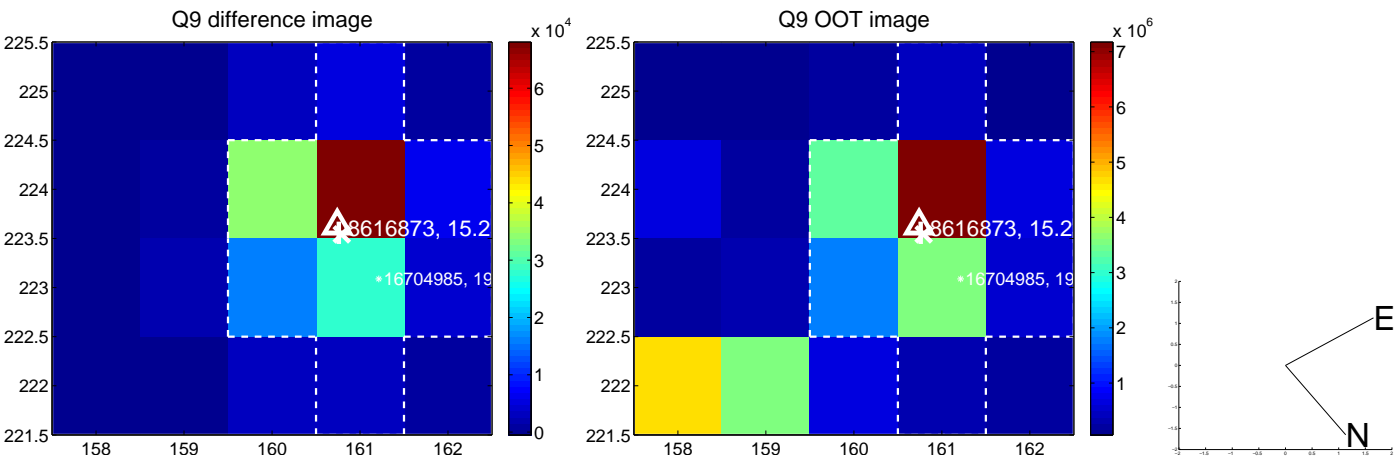
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



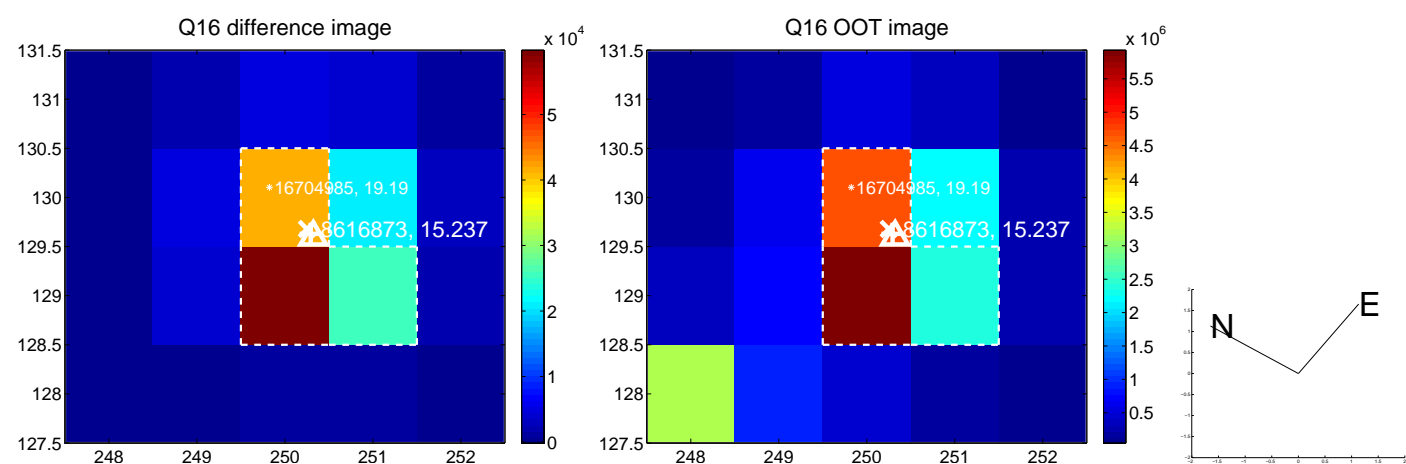
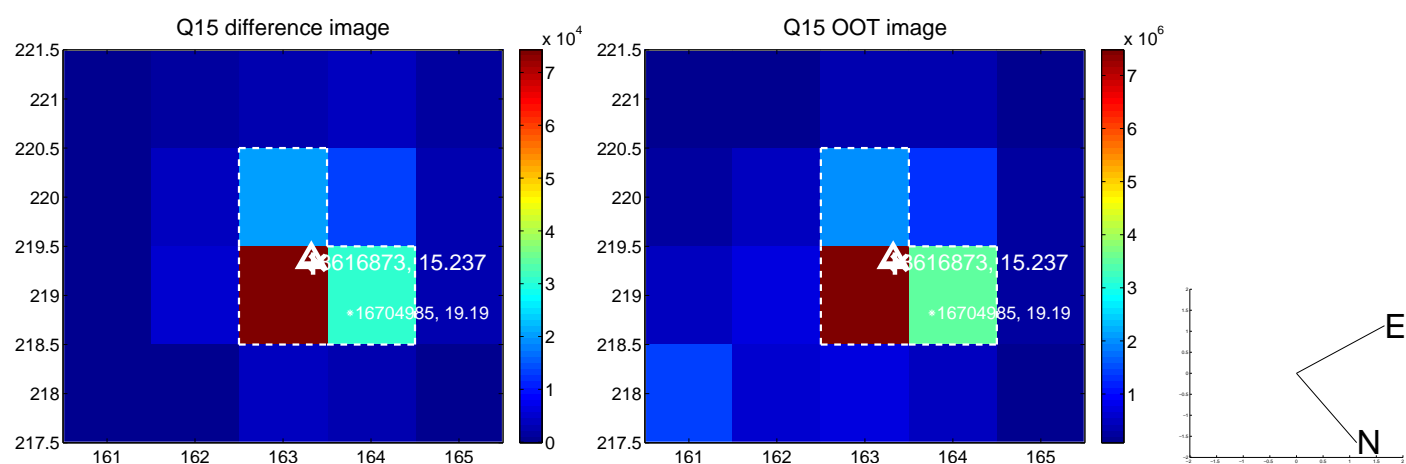
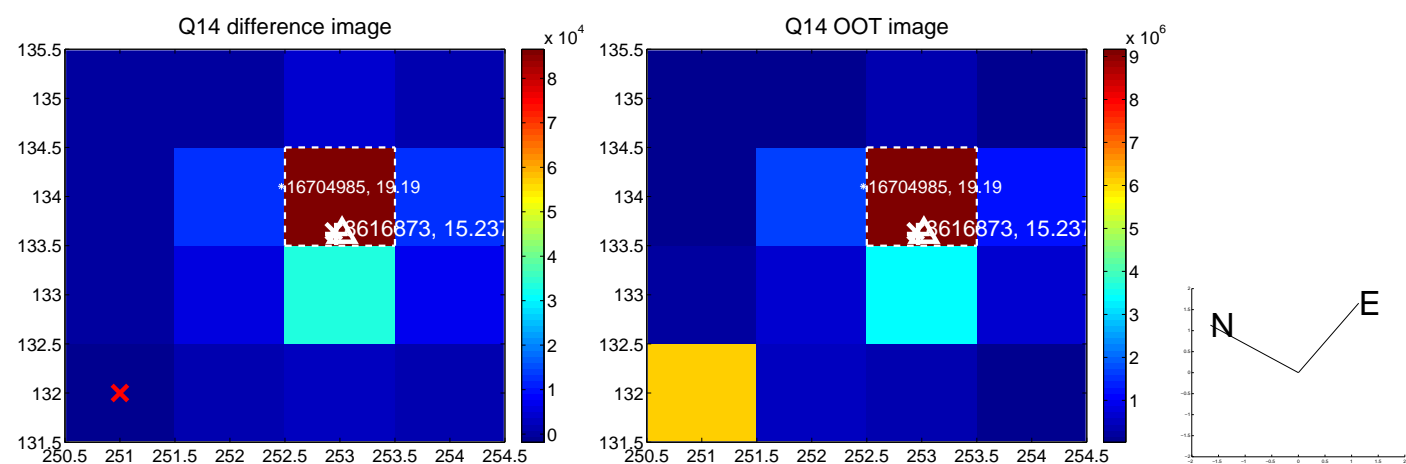
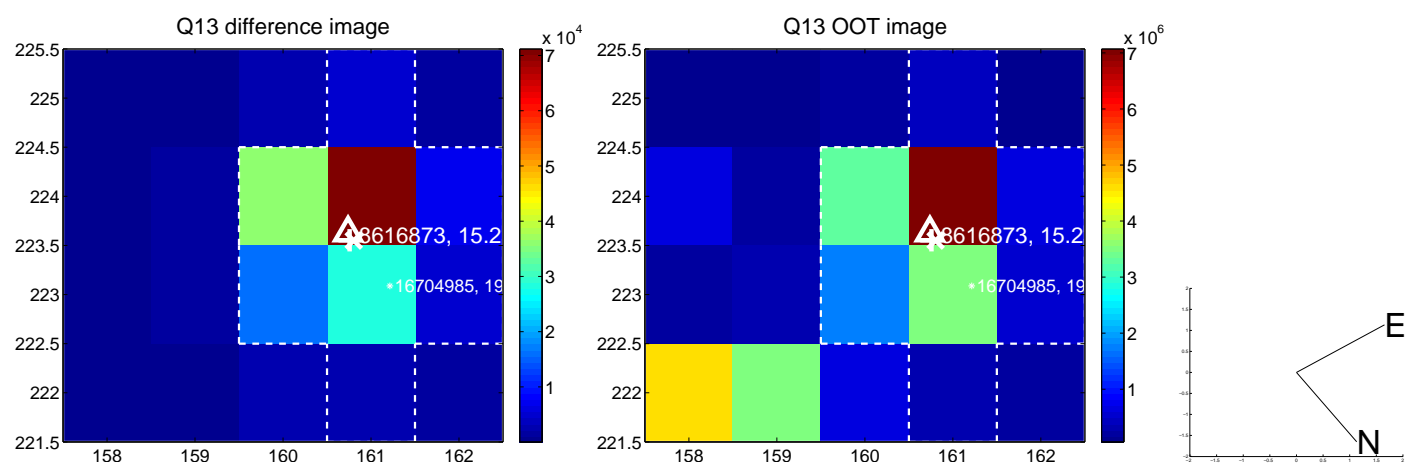
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



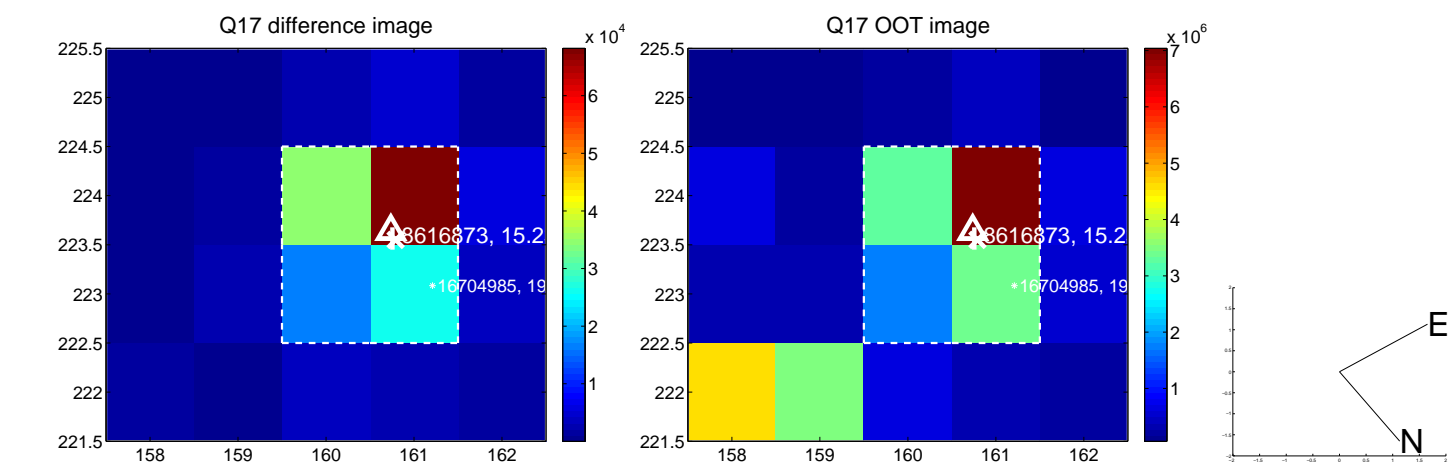
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



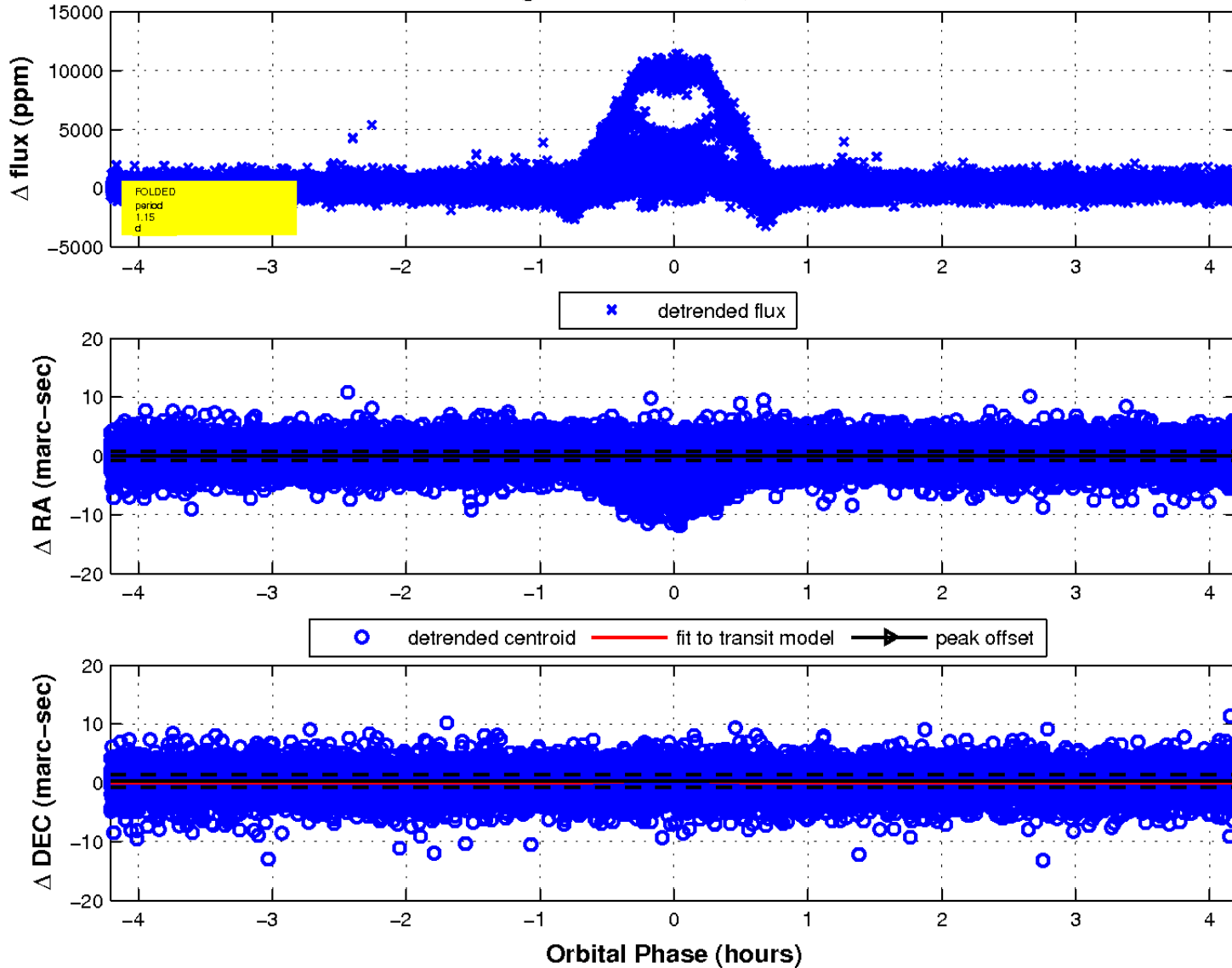
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

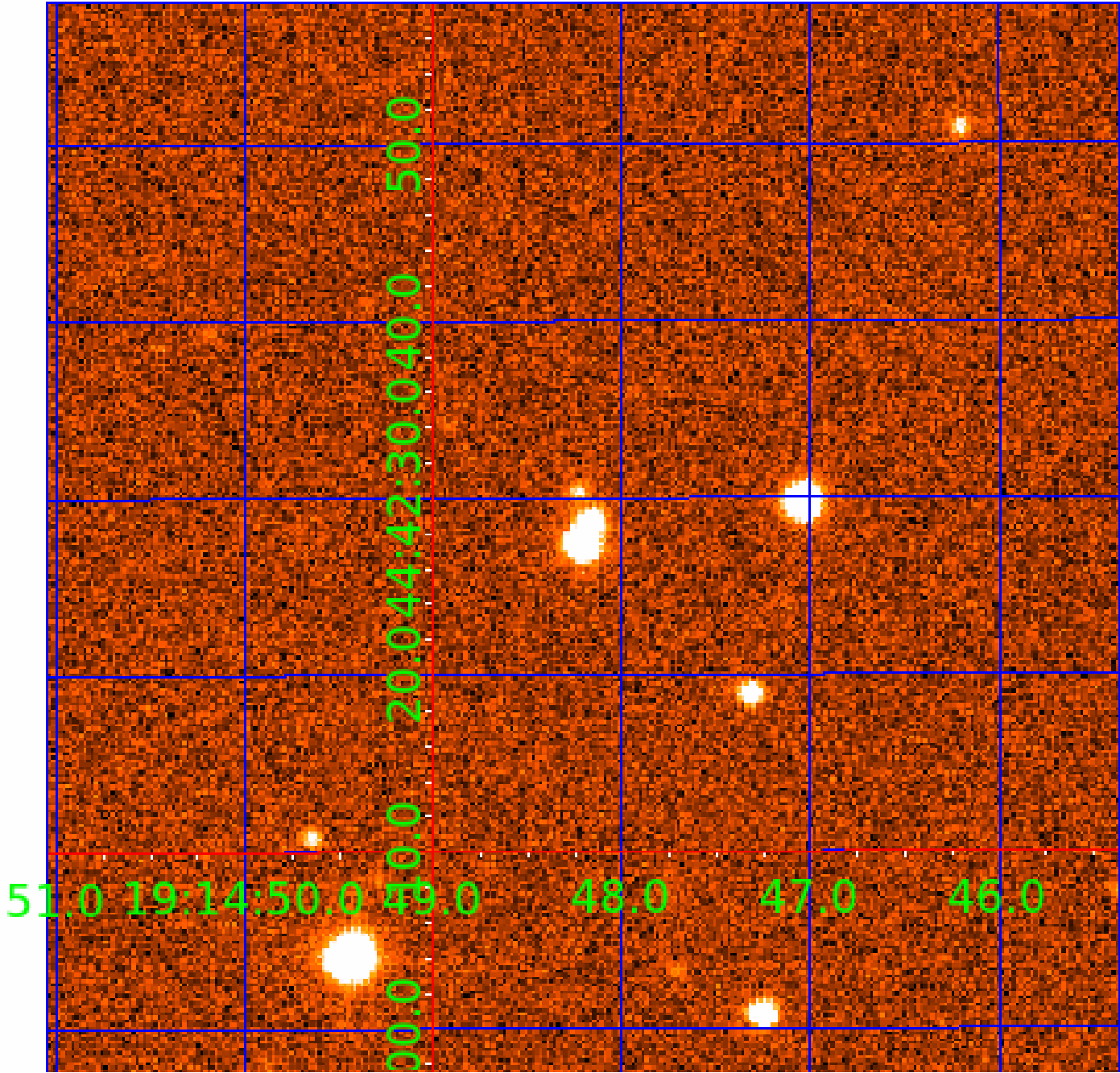


fluxWeightedCentroids, Planet 1 of 2



UKIRT Image

Declination



KIC 008616873

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})
008616873-01	OBS	1251.01	1.152158	131.803042	9221.1	1.403	333.0	582.3	0.82	5693	9.40	1450.01
008616873-02	OBS	No	0.576080	131.798494	11412.8	1.500	588.0	-1.0	0.82	5693	8.69	3653.77

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
008616873-01	OBS	FP	0.00	0	1	0	0	MOD_SEC_DV—MOD_SEC_ALT—HAS_SEC_TCE
008616873-02	OBS	FP	0.00	1	1	0	0	IS_SEC_TCE—CENT_NOFITS

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

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

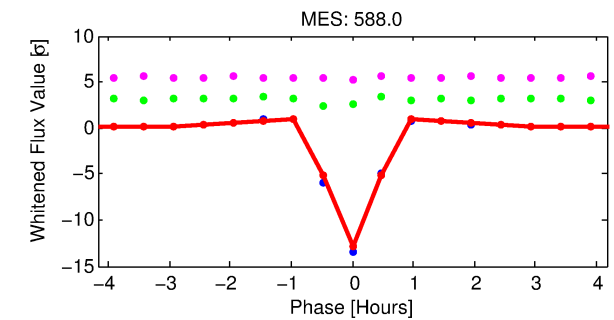
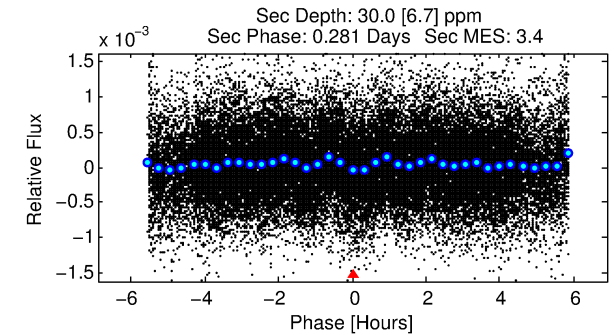
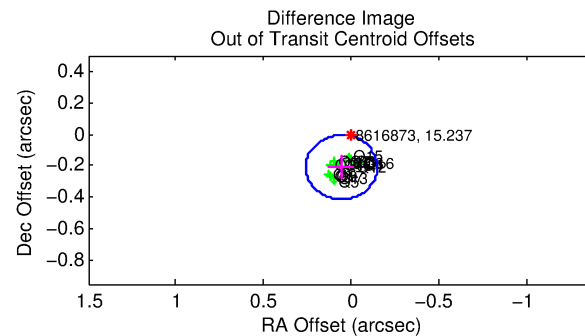
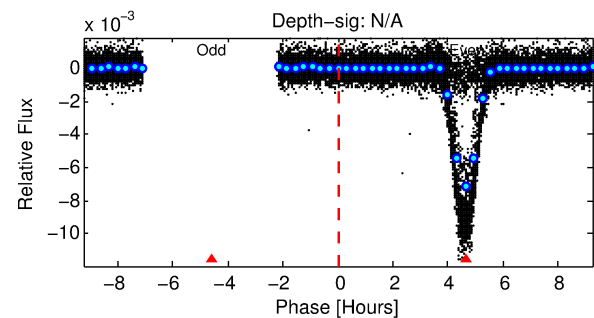
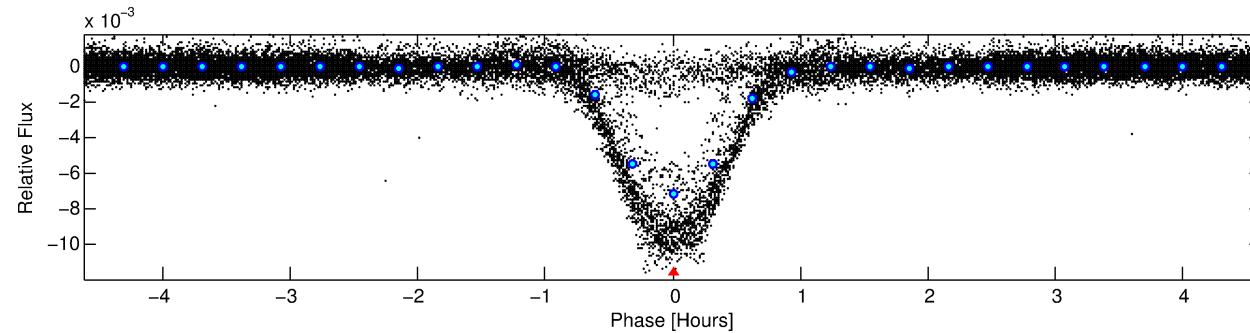
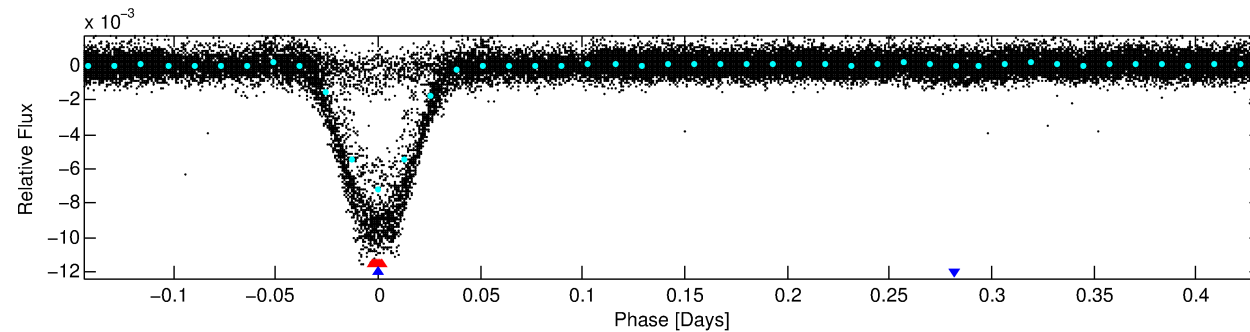
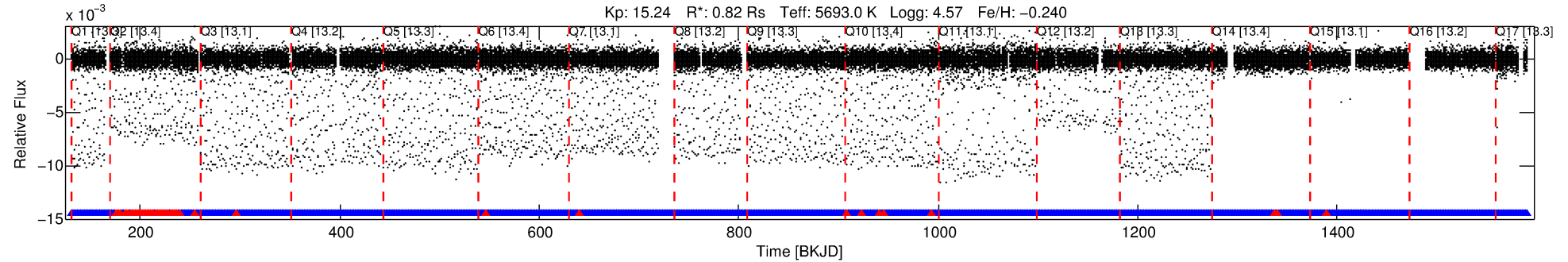
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 008616873-02

No Significant Match Found

DV One-Page Summary

KIC: 8616873 Candidate: 2 of 2 Period: 0.576 d
KOI: K01251.01 Corr: 0.950



TPS TCE Results:

Period = 0.57608 d
Epoch = 131.7985 BKJD

DV fit results are unavailable

DV Diagnostic Results:

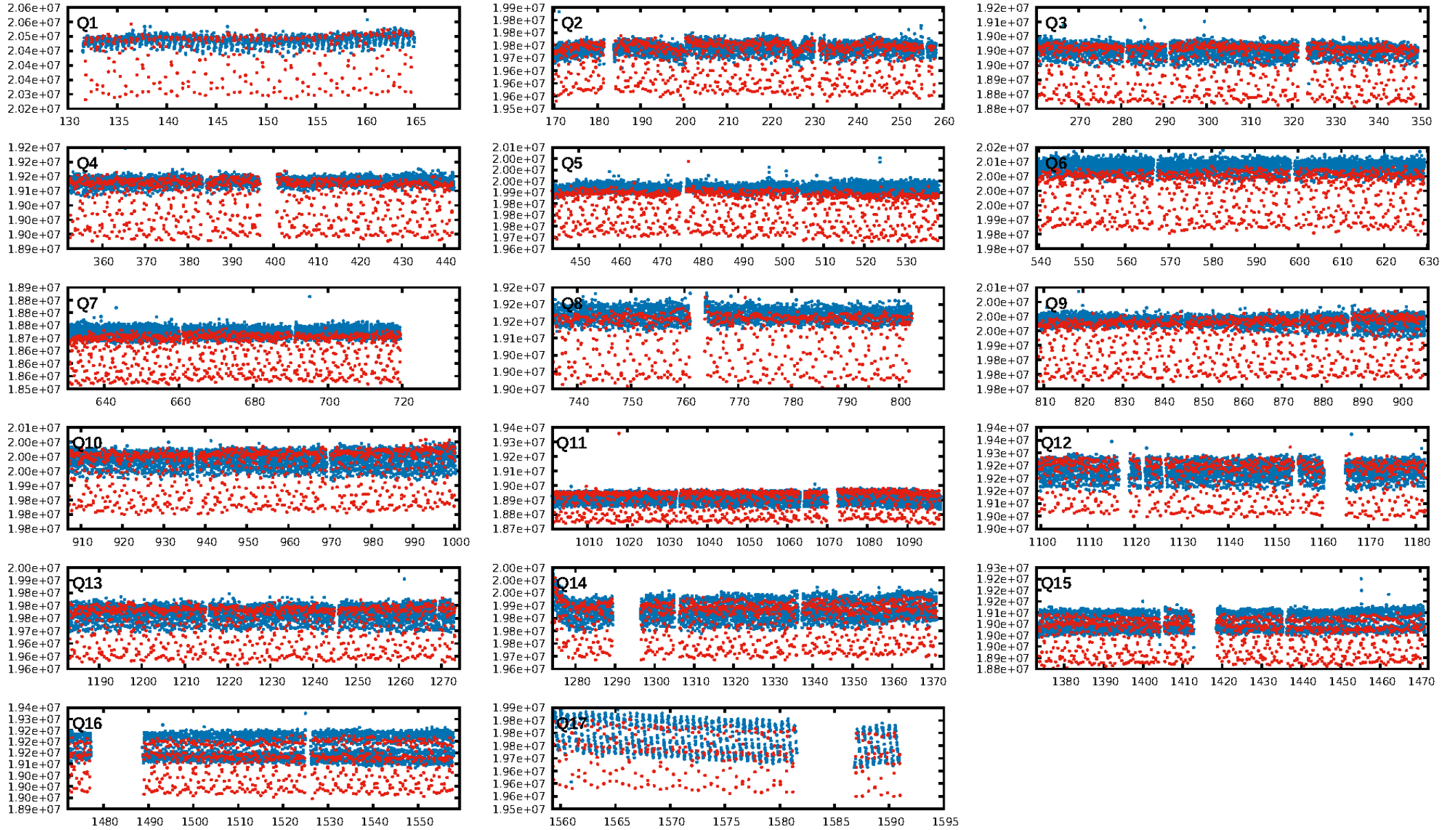
ShortPeriod-sig: N/A
LongPeriod-sig: 100.0% [6.73σ]
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: N/A
RollingBand-fgt: 0.95 [1050/1108]
GhostDiagnostic-chr: 13.34

Centroid-sig: 0.0%
Centroid-so: 0.837 arcsec [67.77σ]
OotOffset-rm: 0.216 arcsec [3.18σ]
KicOffset-rm: 0.381 arcsec [5.52σ]
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]

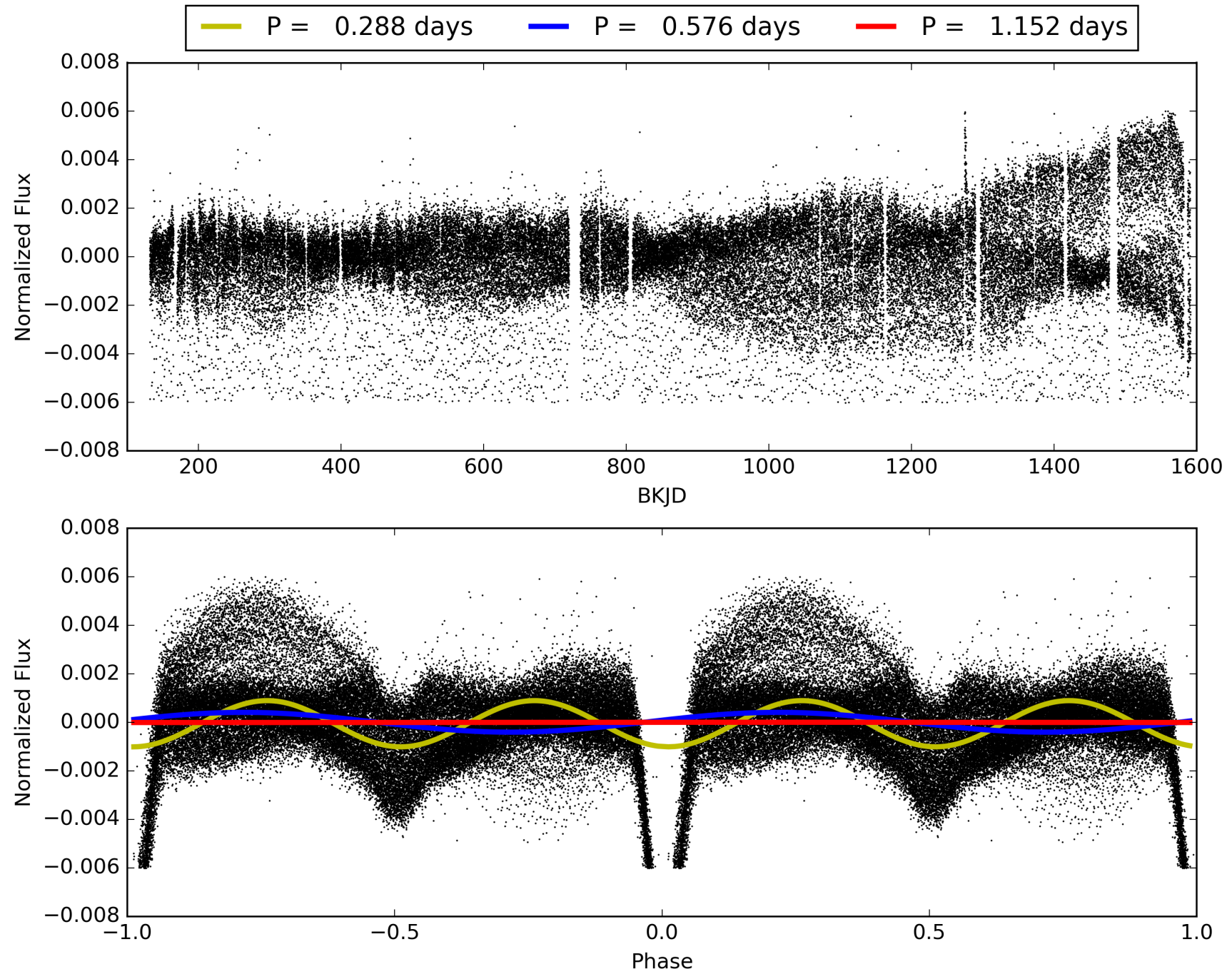
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 01-Feb-2016 00:10:39 Z

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

TCE 008616873-02, PDC Light Curves

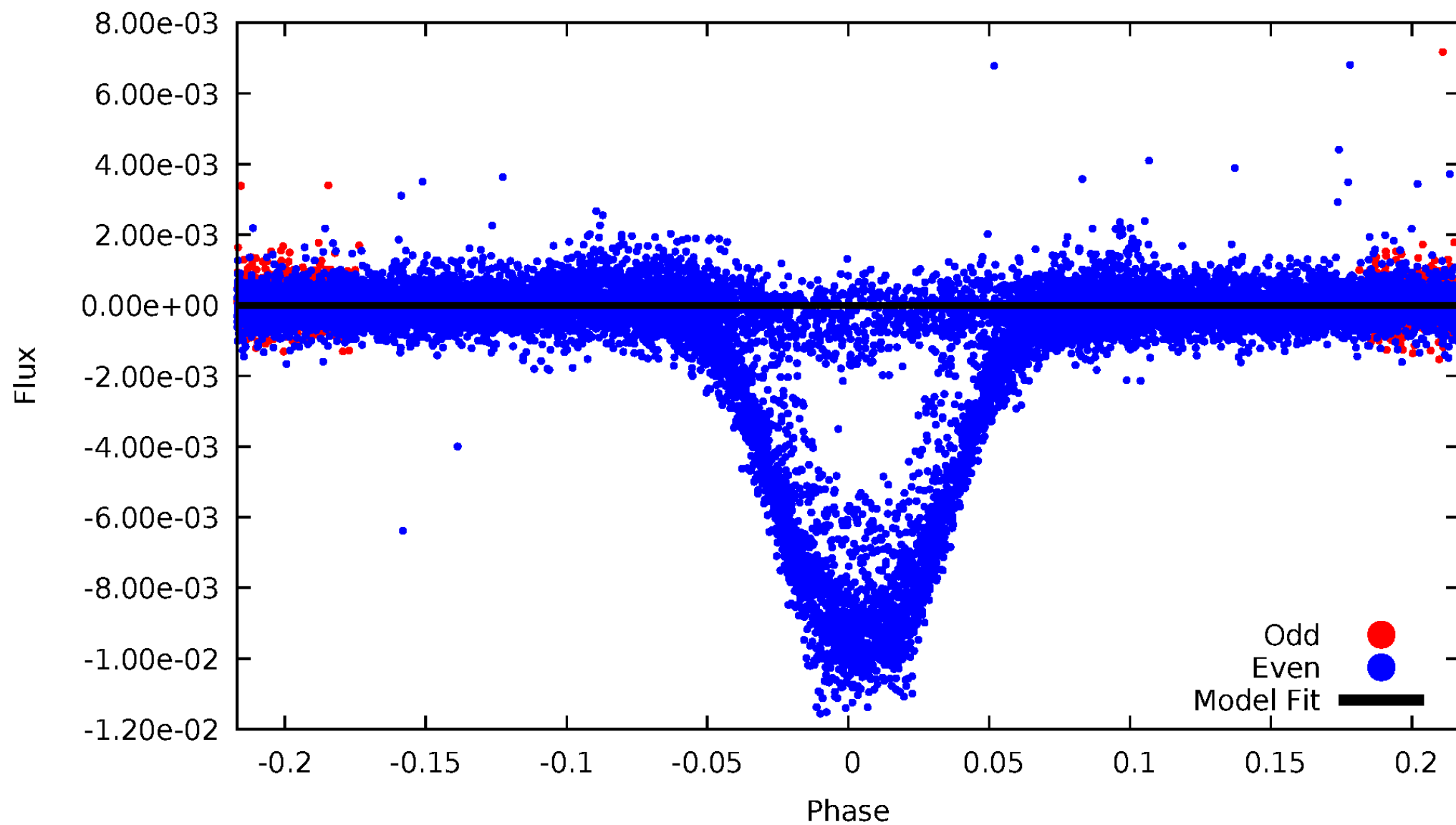


TCE 008616873-02



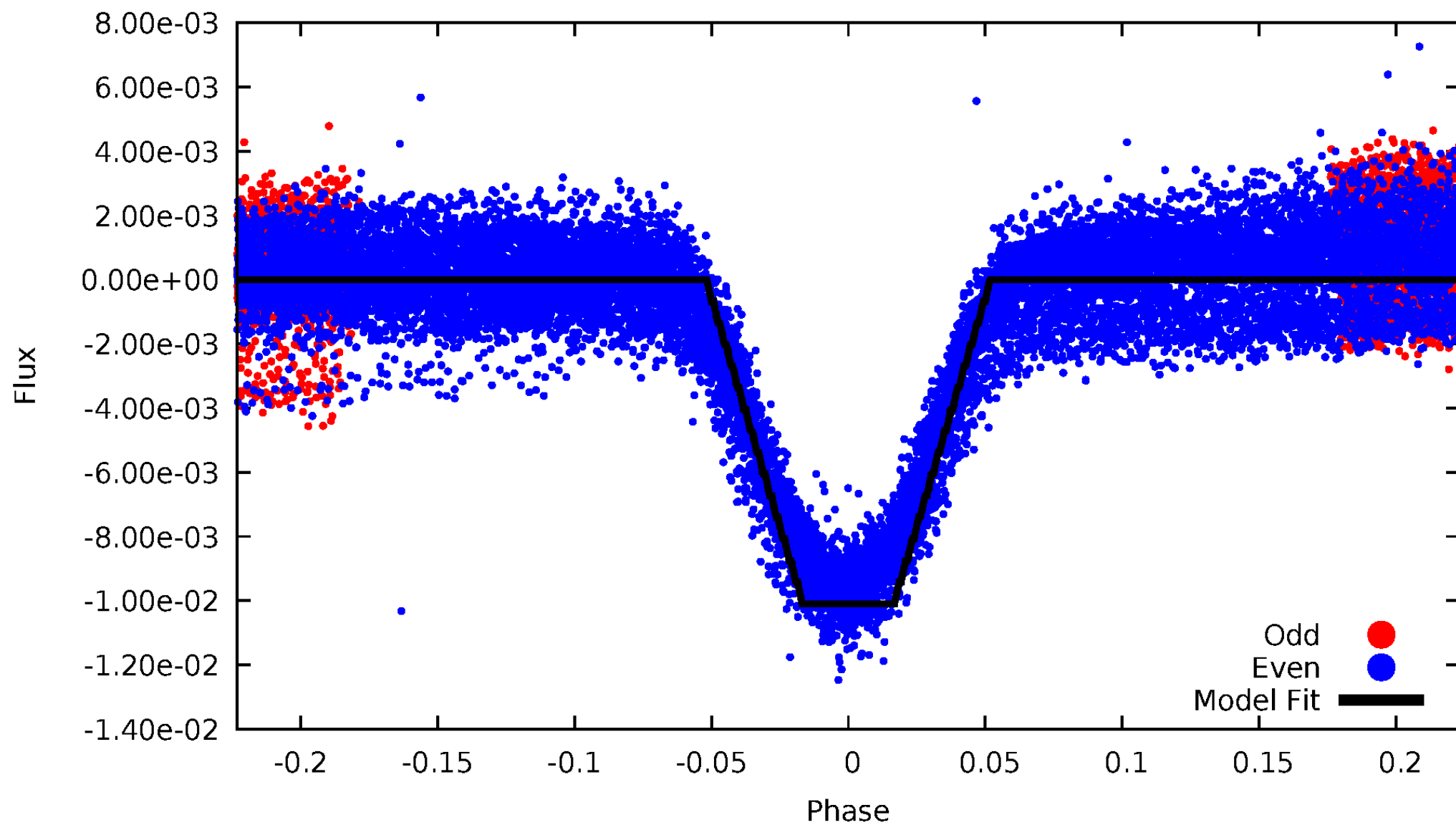
DV Odd/Even

TCE 008616873-02



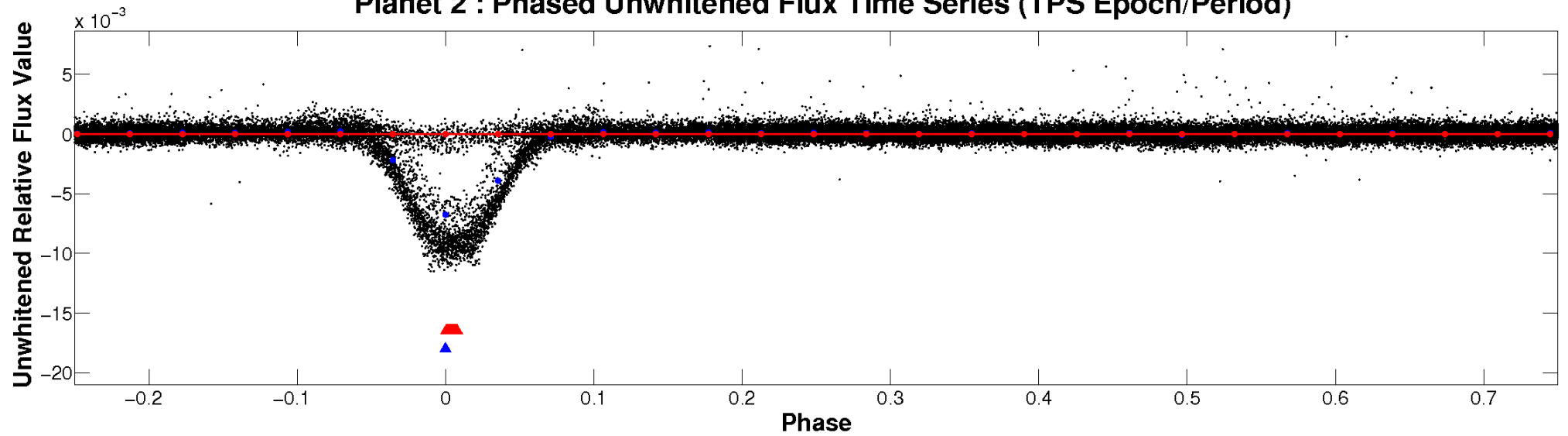
ALT Odd/Even

TCE 008616873-02

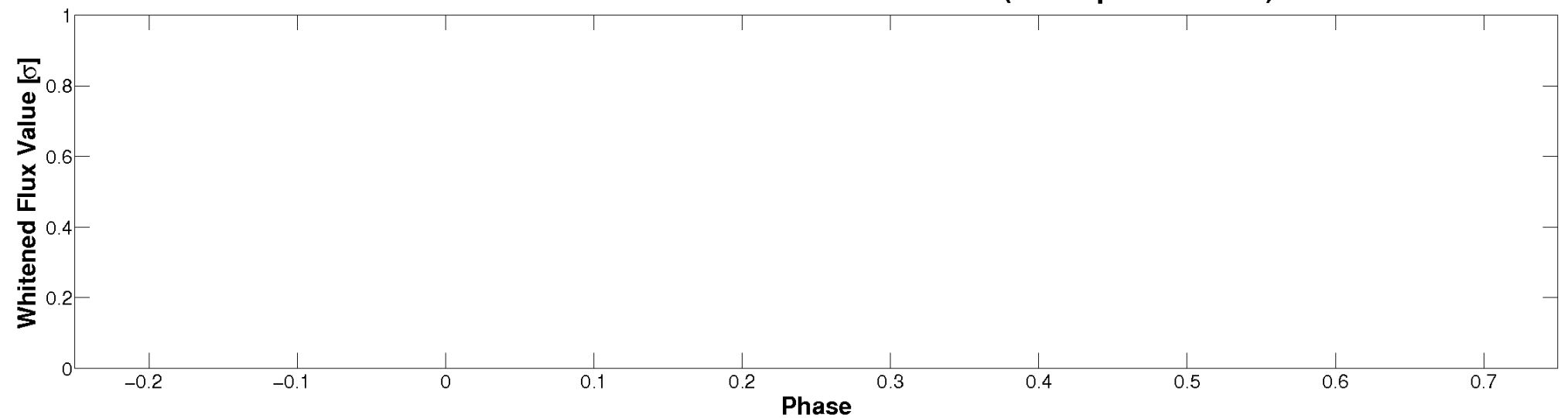


Non-Whitened Vs. Whitened Light Curve

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

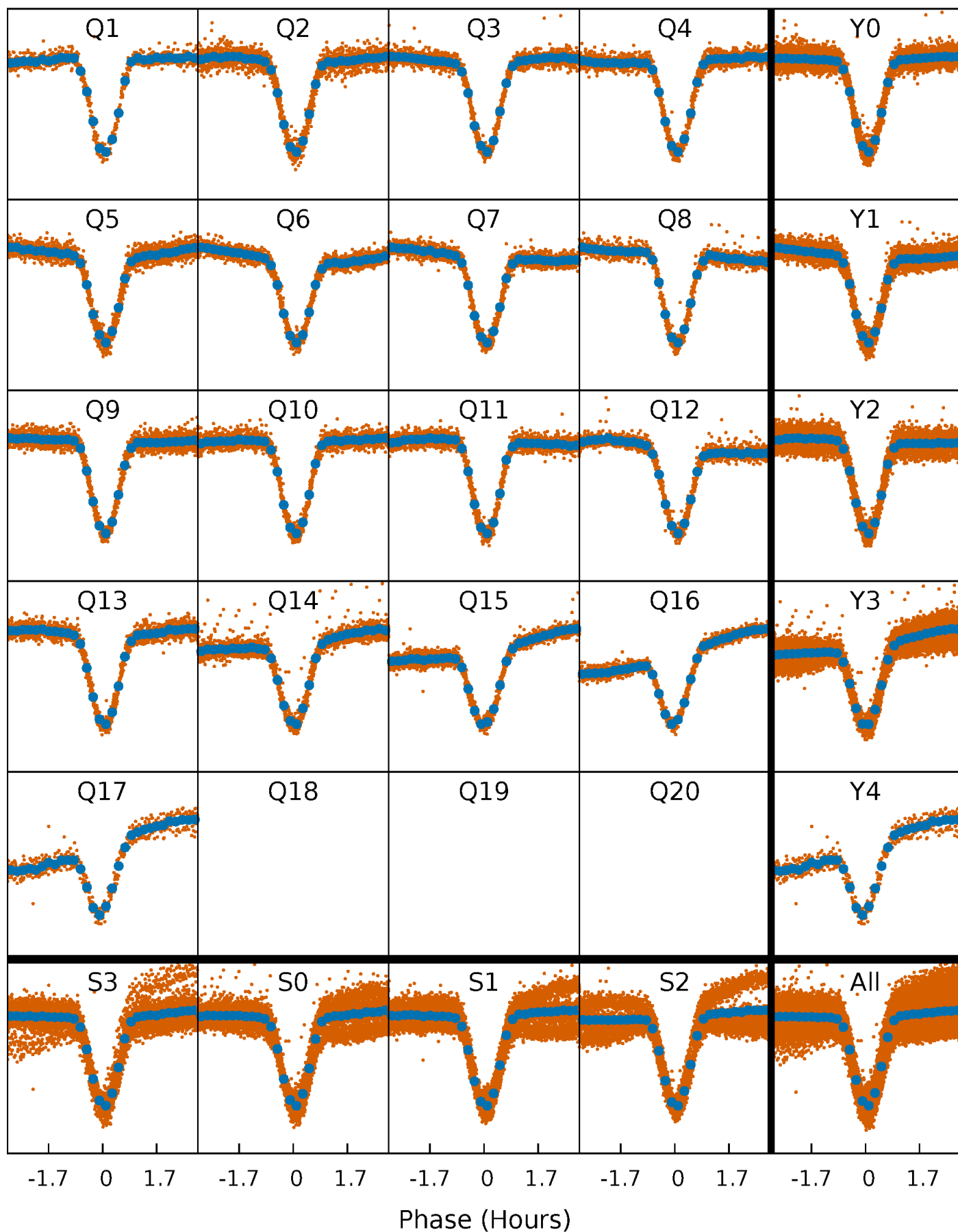


Planet 2 : Phased Whitened Flux Time Series (TPS Epoch/Period)



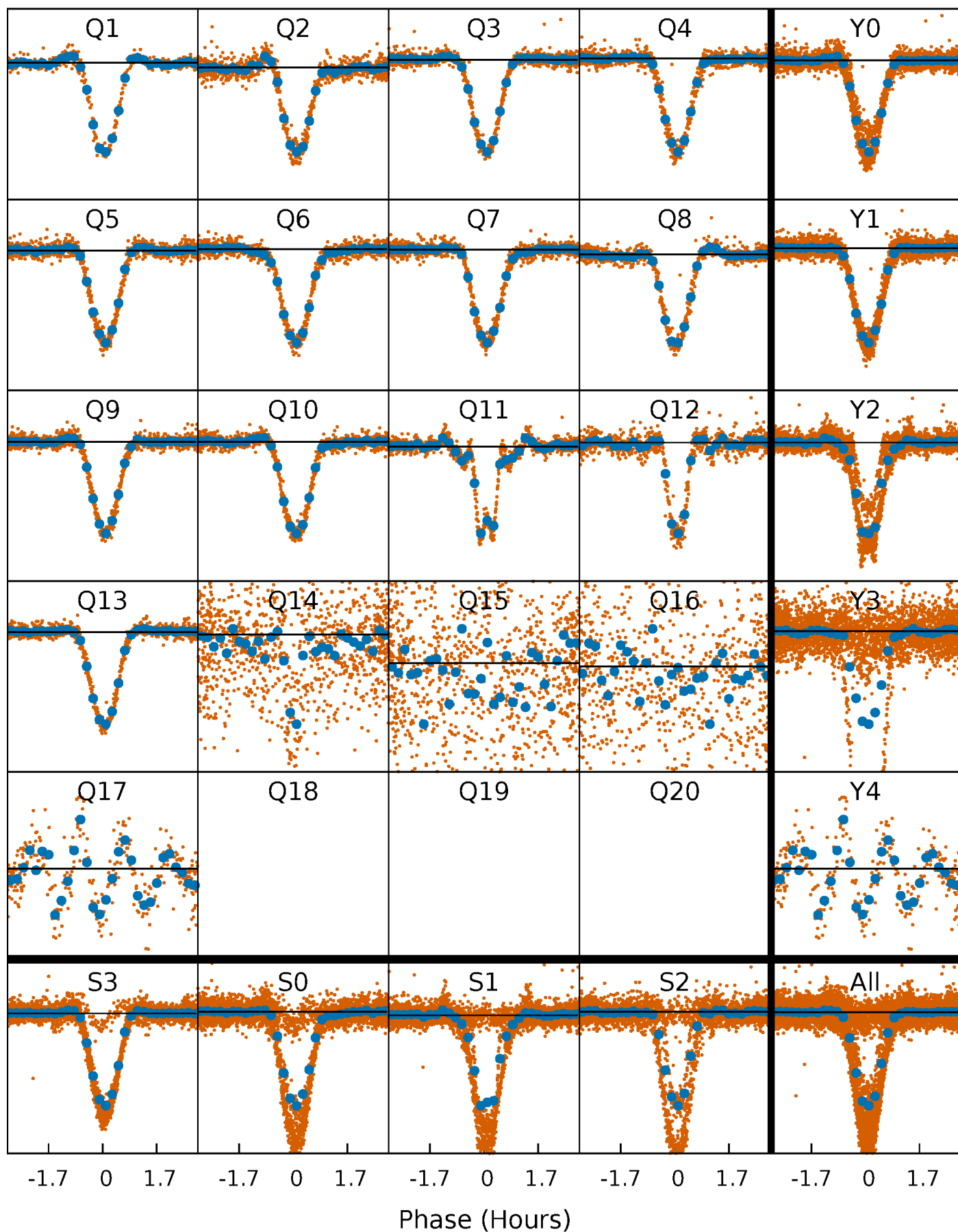
PDC Quarter-Phased Transit Curves

TCE 008616873-02 P= 0.576080 Days $T_0=131.798494$ (BKJD)



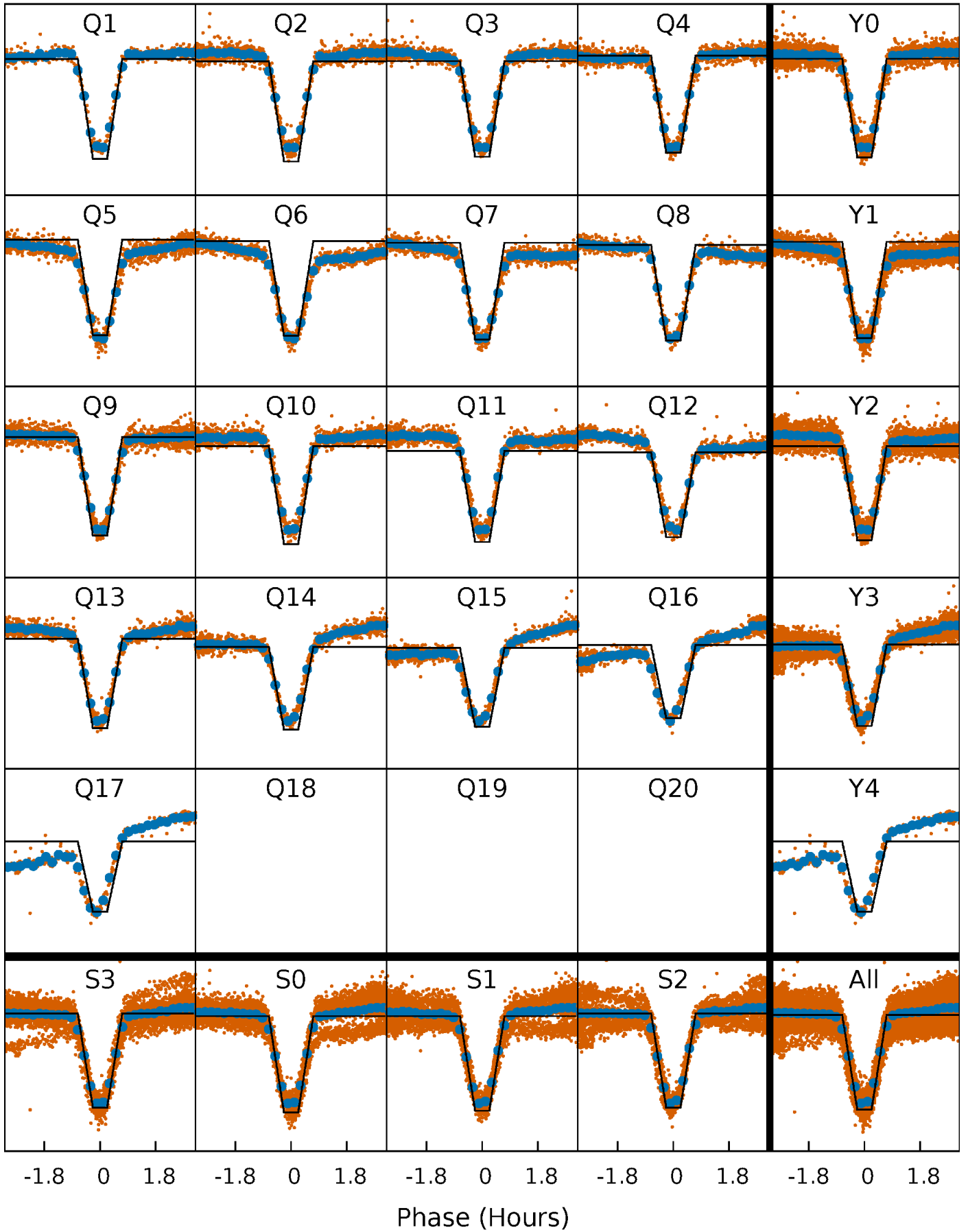
DV Quarter-Phased Transit Curves

TCE 008616873-02 P= 0.576080 Days $T_0=131.798494$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

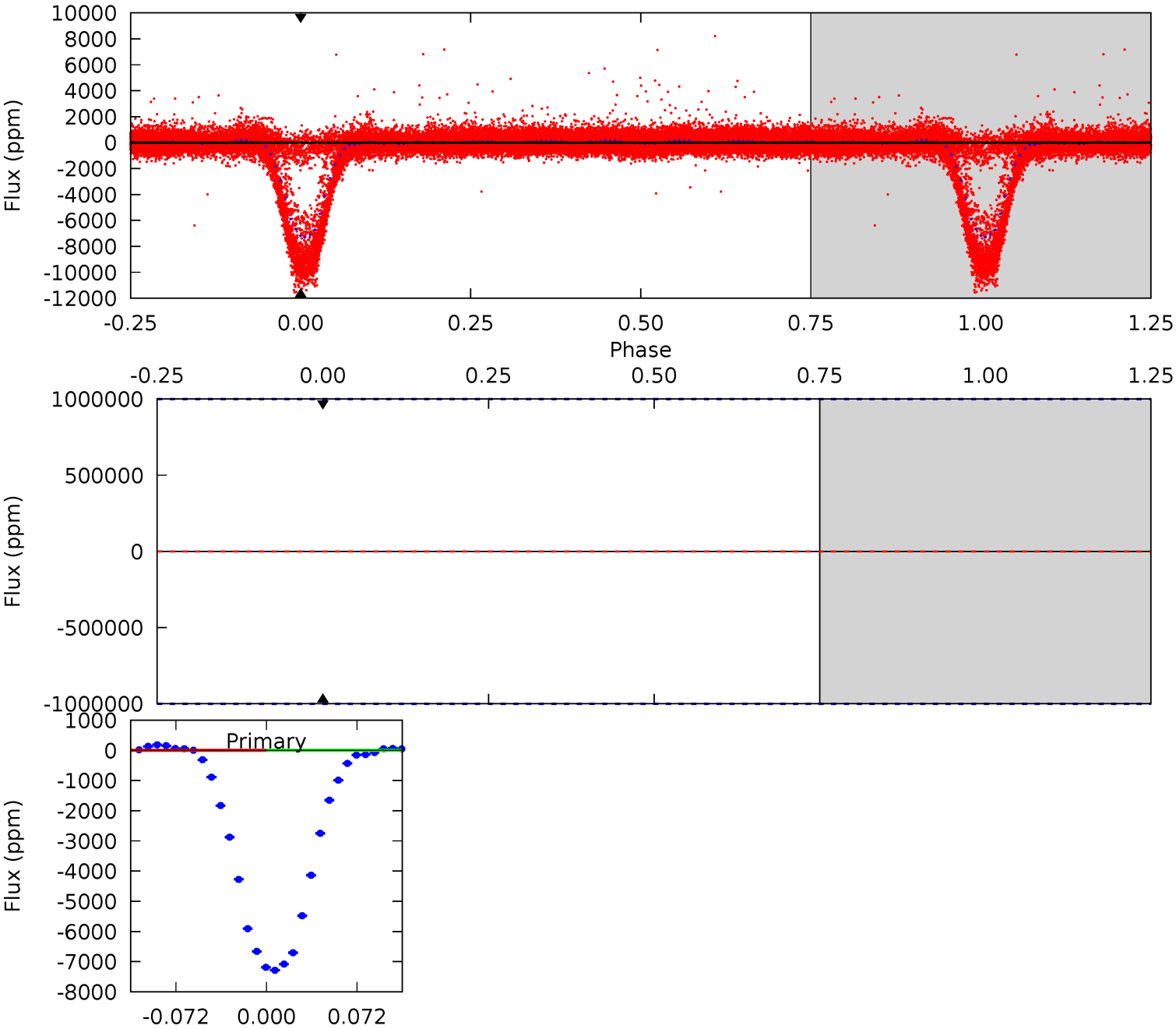
TCE 008616873-02 P= 0.576080 Days $T_0=131.801405$ (BKJD)



DV Model-Shift Uniqueness Test

008616873-02, P = 0.576080 Days, E = 131.222414 Days

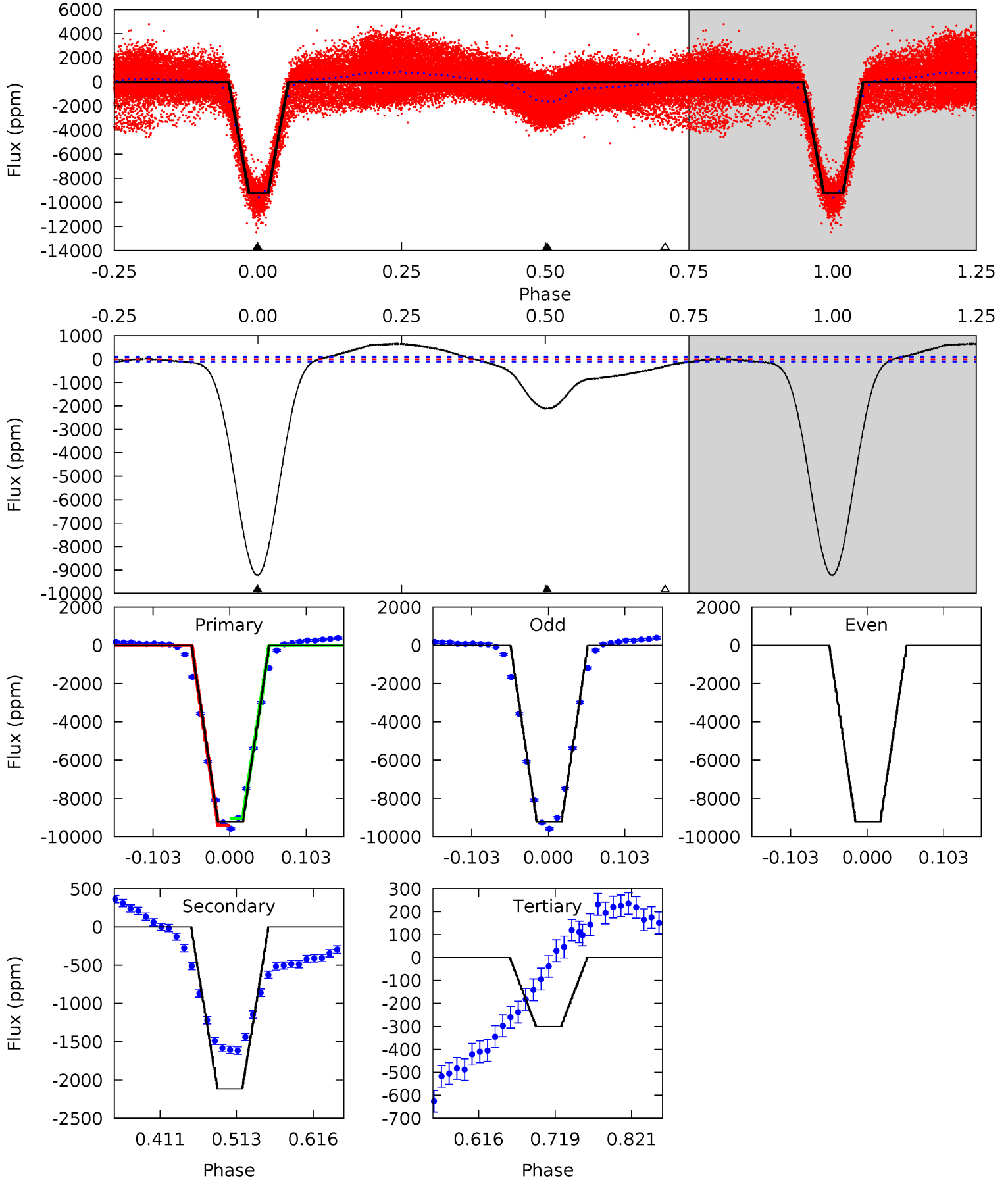
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
0	0	0	0	1.00	1.00	1.00	0	0	0	0	0	0	0	0



Alt Model-Shift Uniqueness Test

008616873-02, P = 0.576080 Days, E = 131.225325 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
440.0	100.8	14.4	0	4.56	1.63	19.8	425.6	440.0	86.4	100.8	0	1.01	0.07	8.14



Stellar Parameters For KIC 008616873

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	M (M_{\odot})	p_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	5693^{+152}_{-169}	$4.570^{+0.042}_{-0.168}$	$-0.240^{+0.300}_{-0.300}$	$0.816^{+0.206}_{-0.069}$	$0.911^{+0.088}_{-0.107}$	$2.357^{+0.489}_{-1.065}$
	+3%/-3%	+1%/-4%	+125%/-125%	+25%/-8%	+10%/-12%	+21%/-45%
Source	PHO1	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 008616873-02 / KOI

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	0 ± 1000000	$10.92^{+9.15}_{-6.89}$	2822^{+148}_{-120}	4119^{+8895}_{-15954}	$2.460^{+145.763}_{-116.567}$
Alt.	-2113 ± 21	$10.70^{+8.81}_{-6.65}$	2810^{+163}_{-118}	3781^{+2064}_{-910}	$1.709^{+10.452}_{-1.190}$

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 $A_{obs} \gg 1.0$

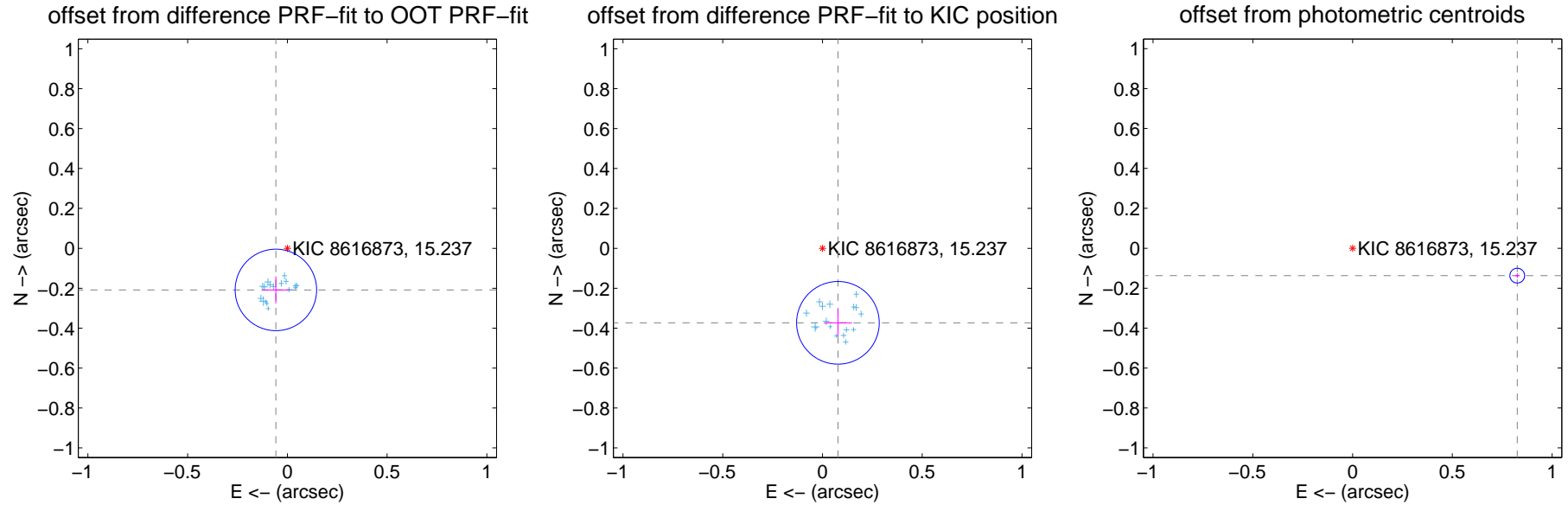
DV Centroid Data

Supplemental centroid analysis for 008616873-02. Kepler magnitude: 15.24. Transit SNR -1.00

There are 17 quarters with good PRF difference image offsets

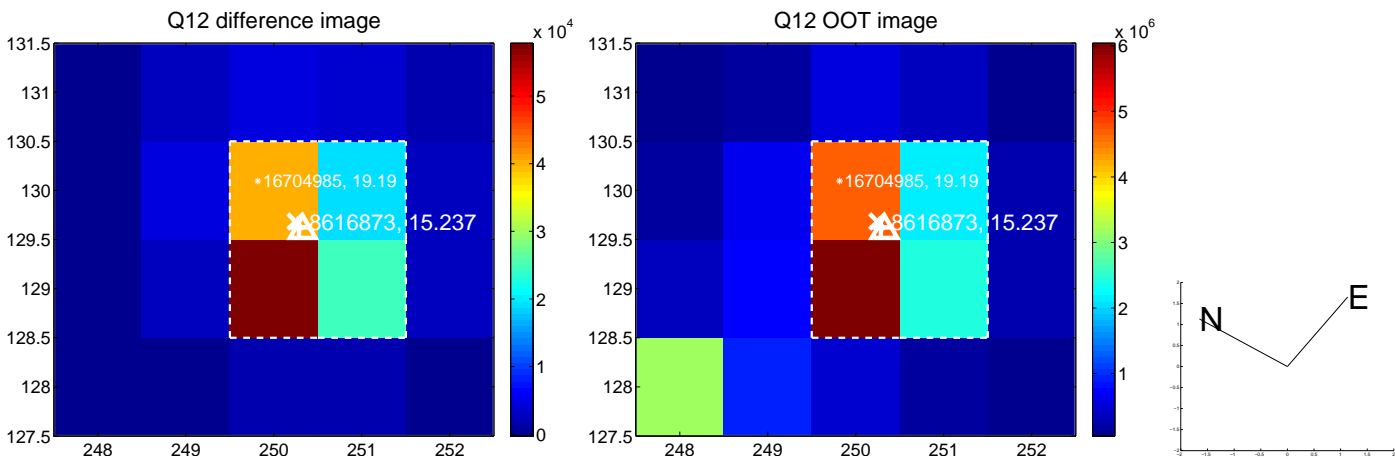
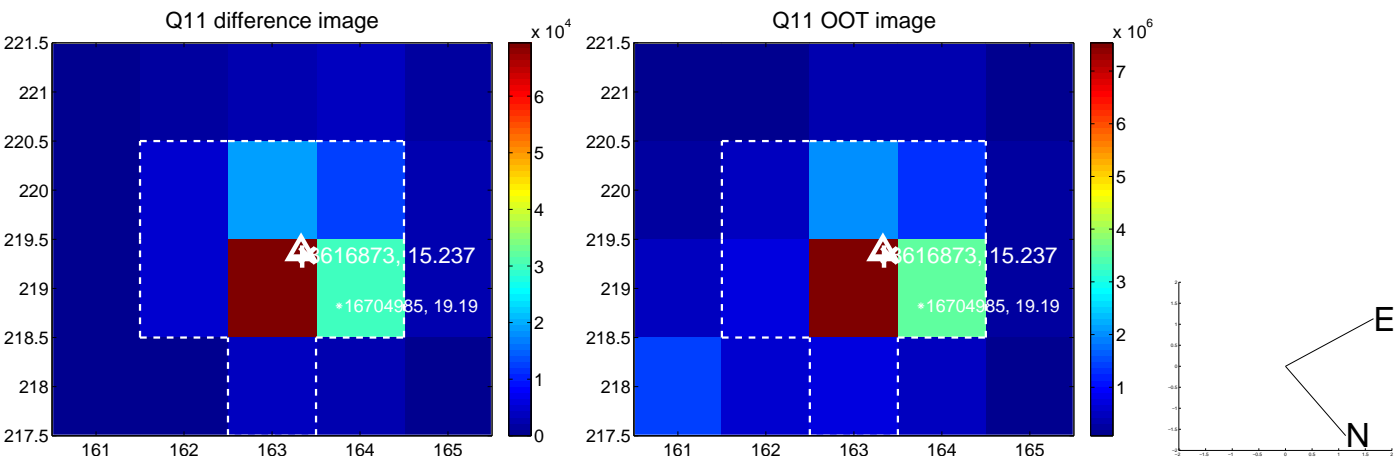
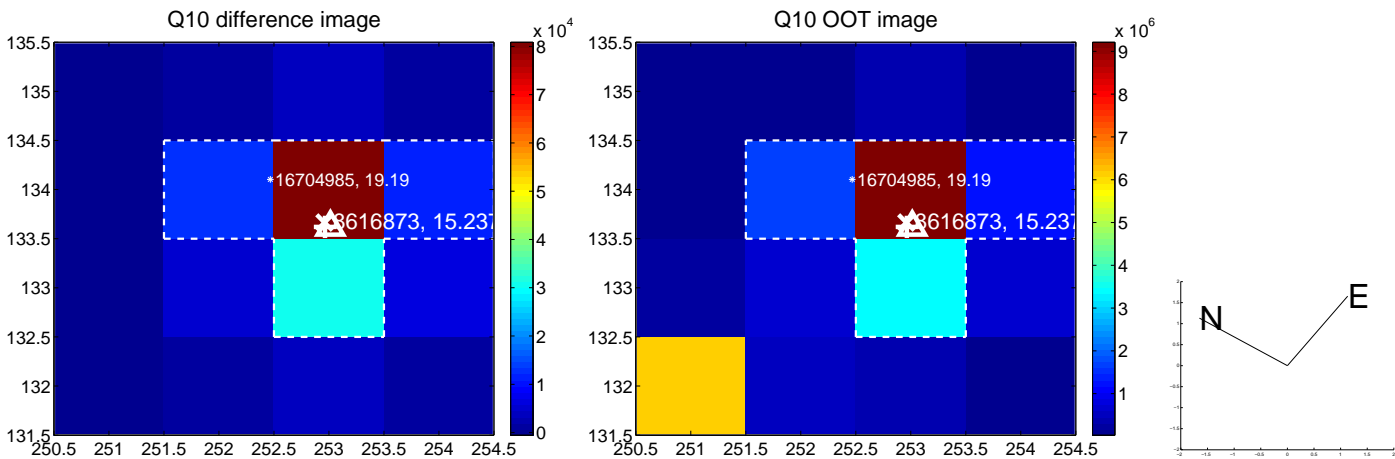
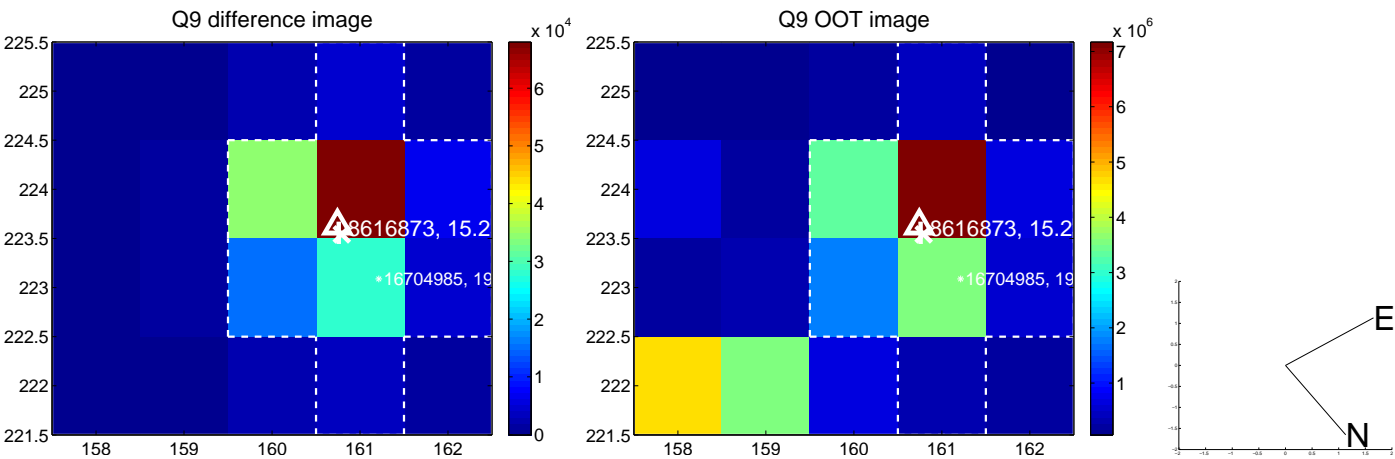
The direct PRF centroid is offset from the target star catalog position by about 0.15 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.216 ± 0.068	3.18	0.058 ± 0.068	-0.208 ± 0.068
PRF-fit source offset from KIC position	0.381 ± 0.069	5.52	-0.077 ± 0.070	-0.373 ± 0.069
photometric centroid source offset	0.84 ± 0.01	67.77	-0.83 ± 0.01	-0.14 ± 0.01

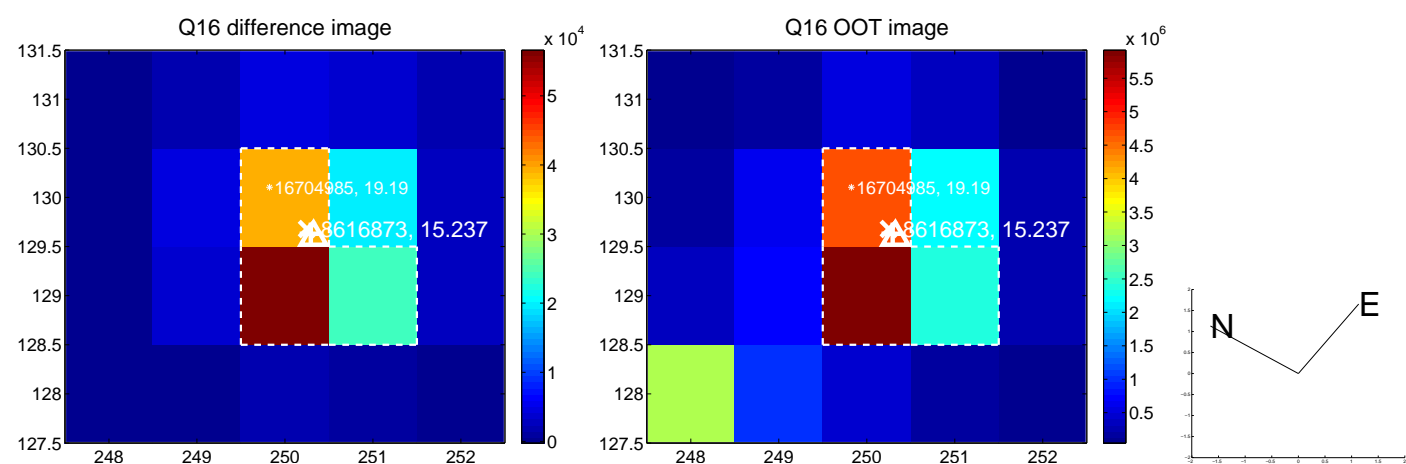
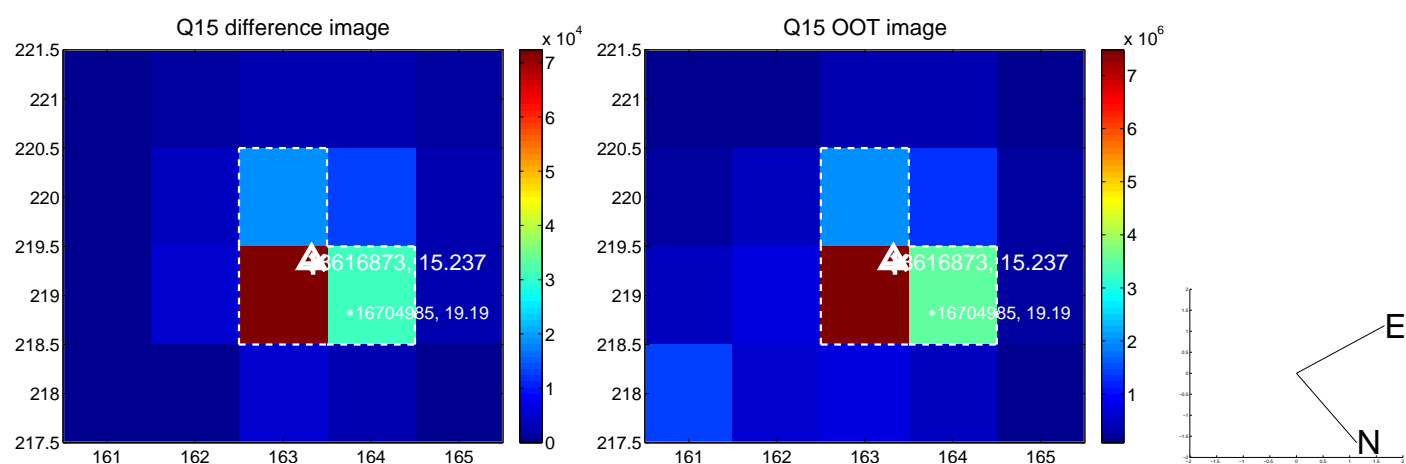
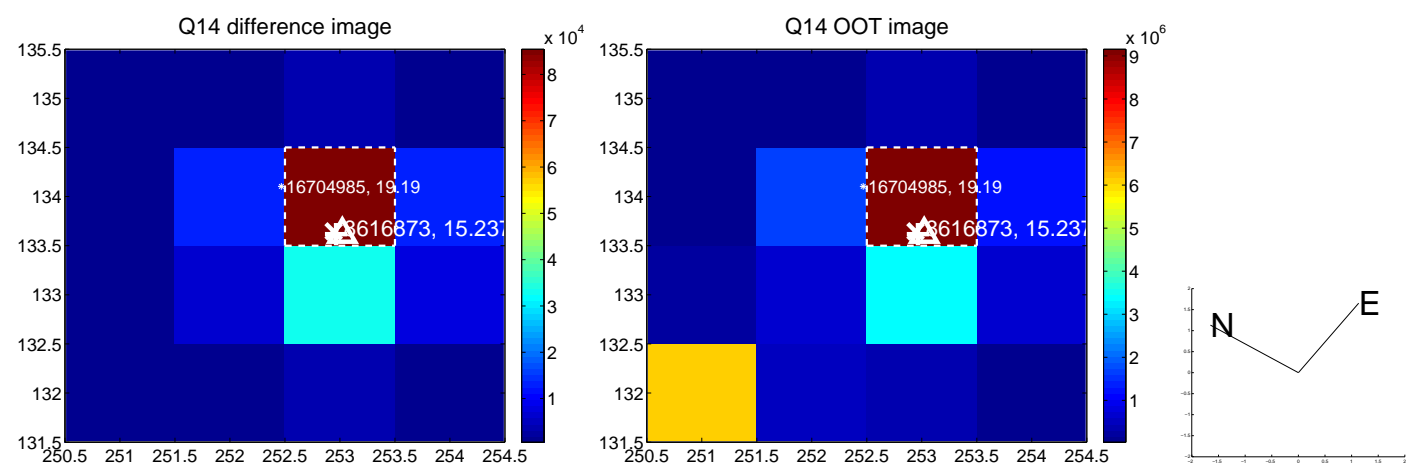
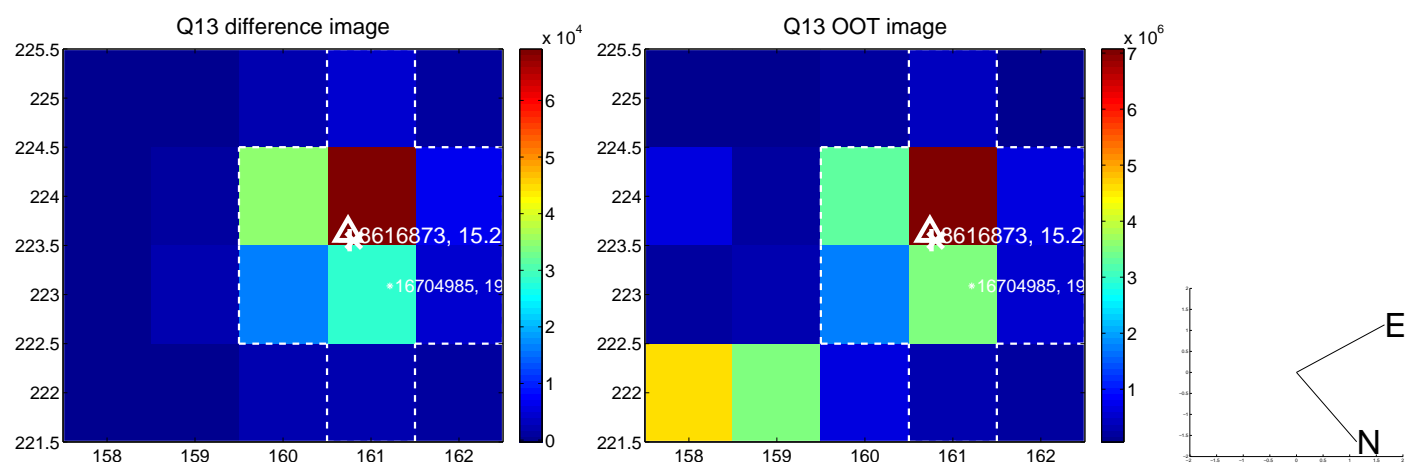


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses:** good quarterly centroid offsets; **Vermillion crosses:** bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

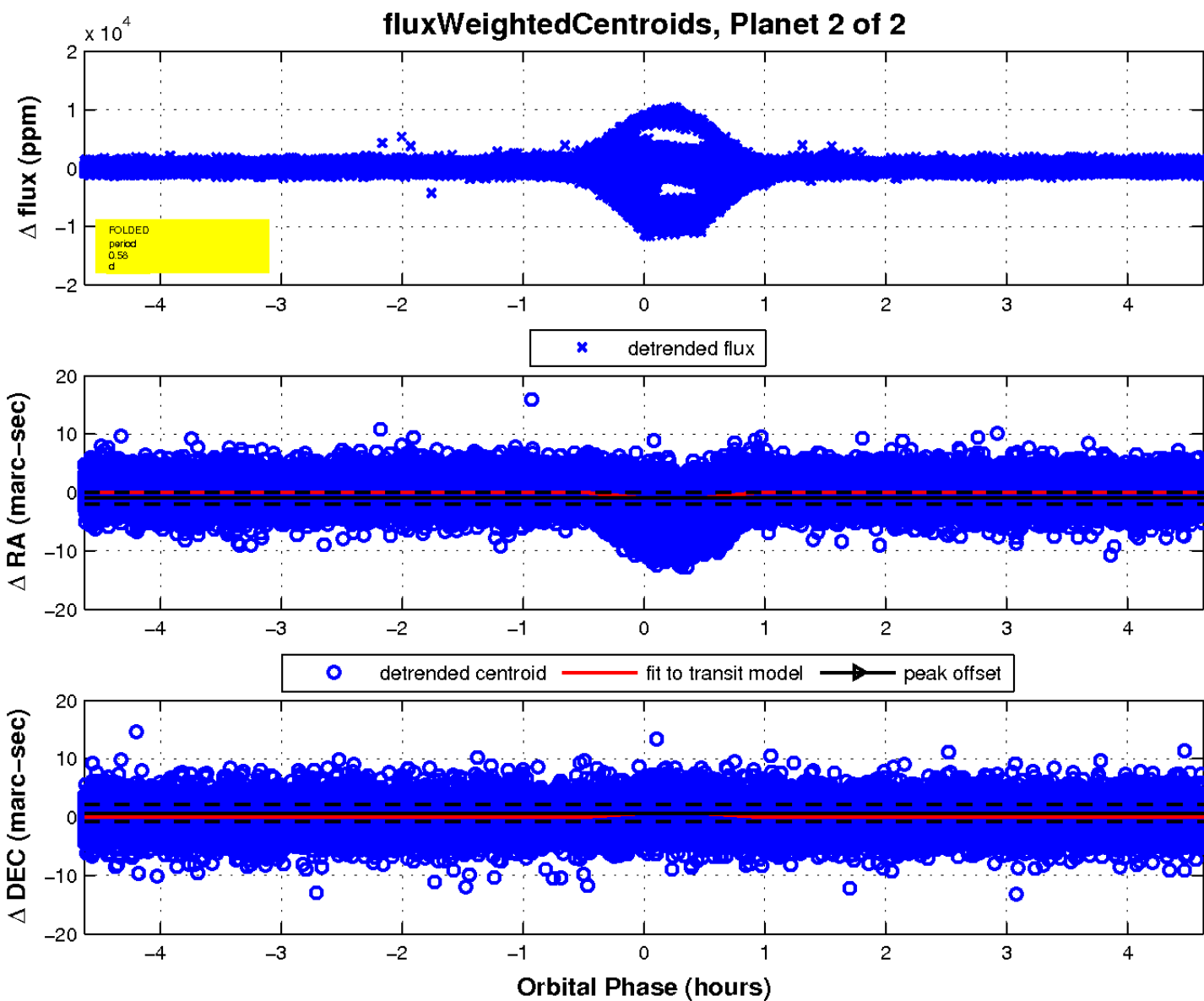
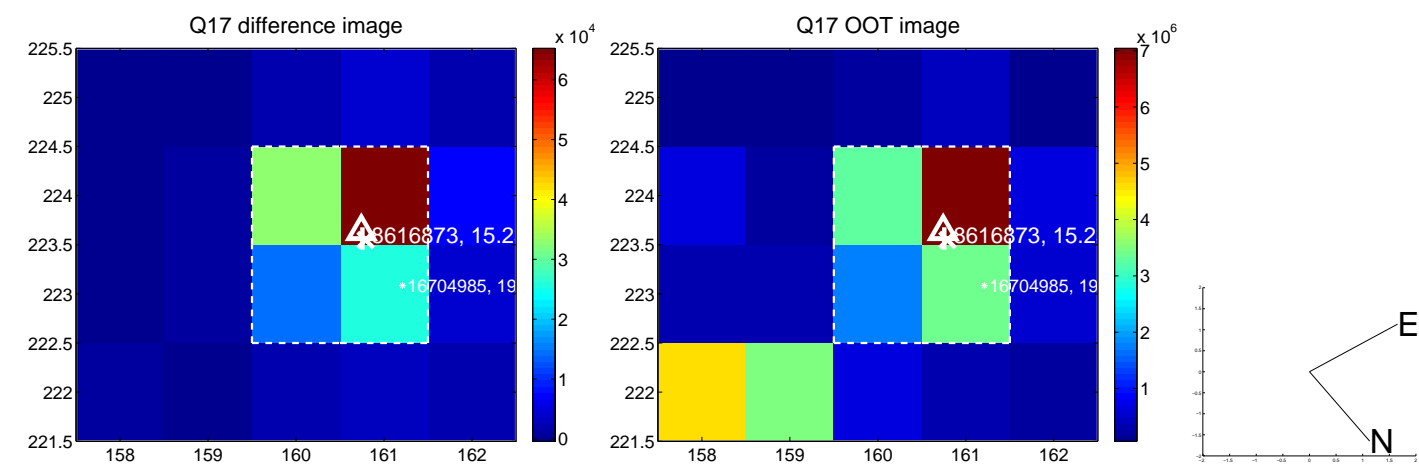
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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.



UKIRT Image

Declination

