

KIC 008843687

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})
008843687-01	OBS	No	3.699103	133.995220	43.3	11.378	10.1	8.1	0.99	6158	0.77	605.10
008843687-02	OBS	No	282.799963	297.692505	361.5	16.520	11.4	6.8	0.99	6158	2.21	1.86

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
008843687-01	OBS	FP	0.00	1	0	0	0	SWEET_NTL—LPP_DV—LPP_ALT
008843687-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL_SKYE—INCONSISTENT_TRANS—CENT_FEW_DIFFS

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

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

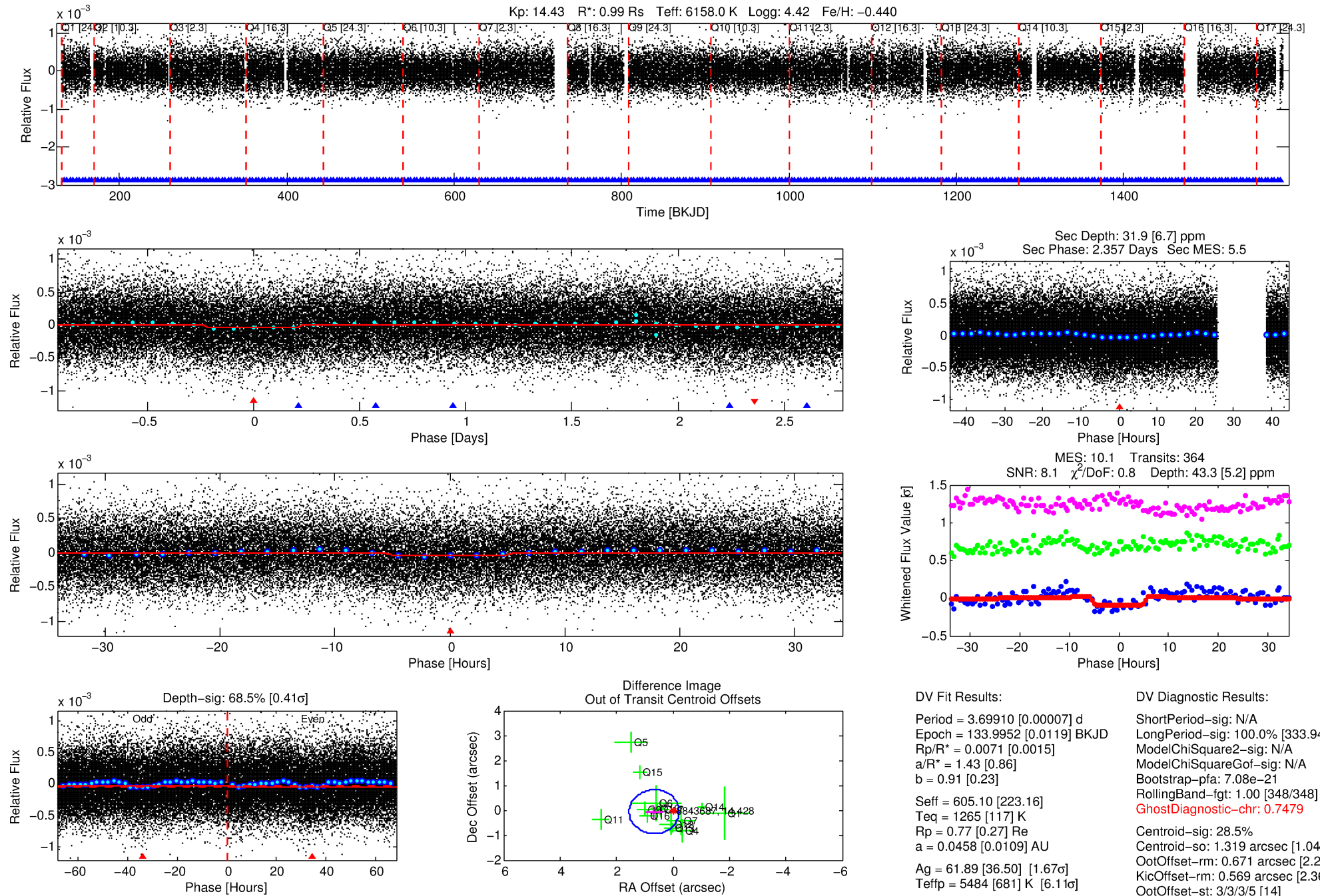
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 008843687-01

No Significant Match Found

DV One-Page Summary

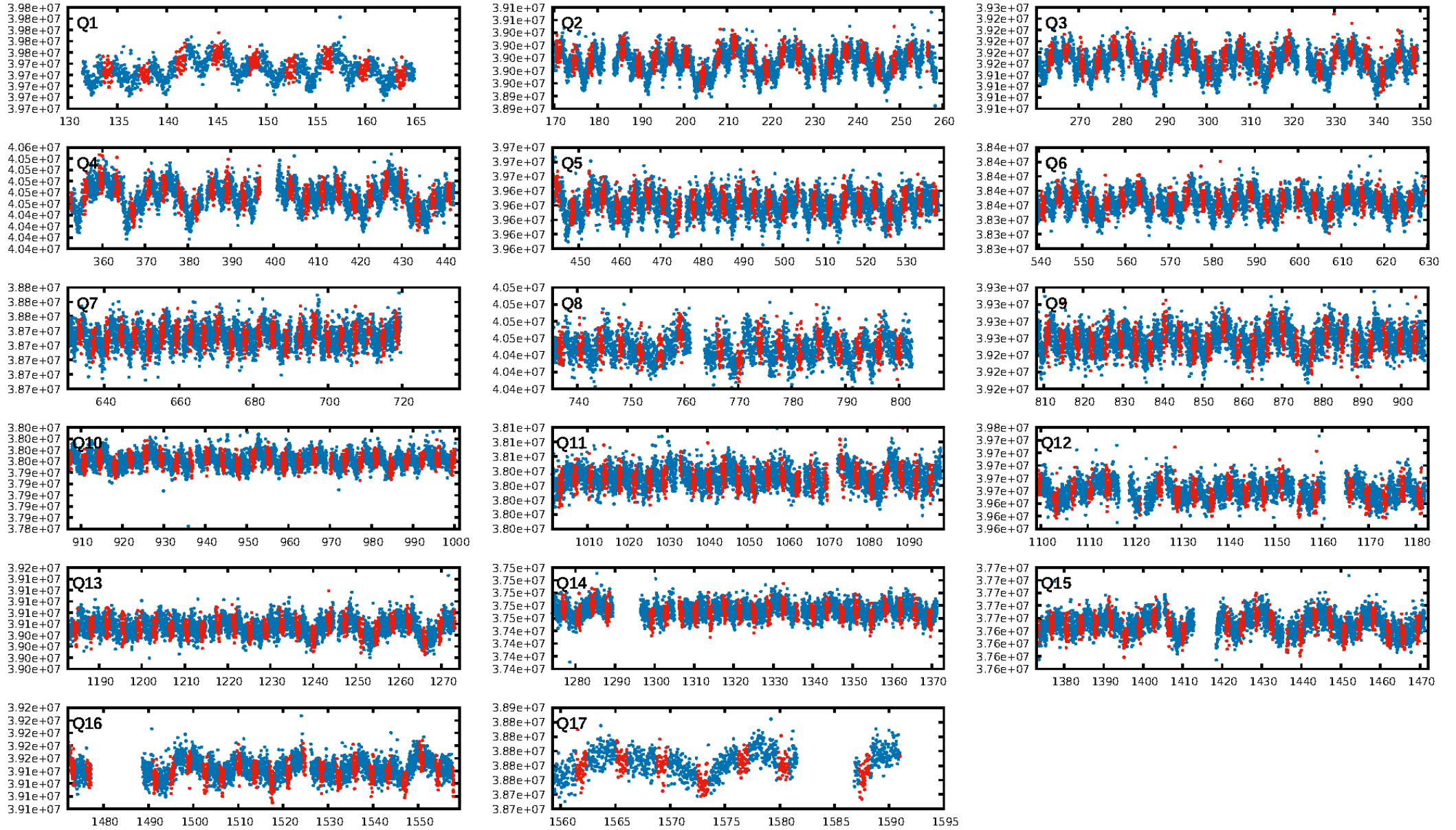
KIC: 8843687 Candidate: 1 of 2 Period: 3.699 d



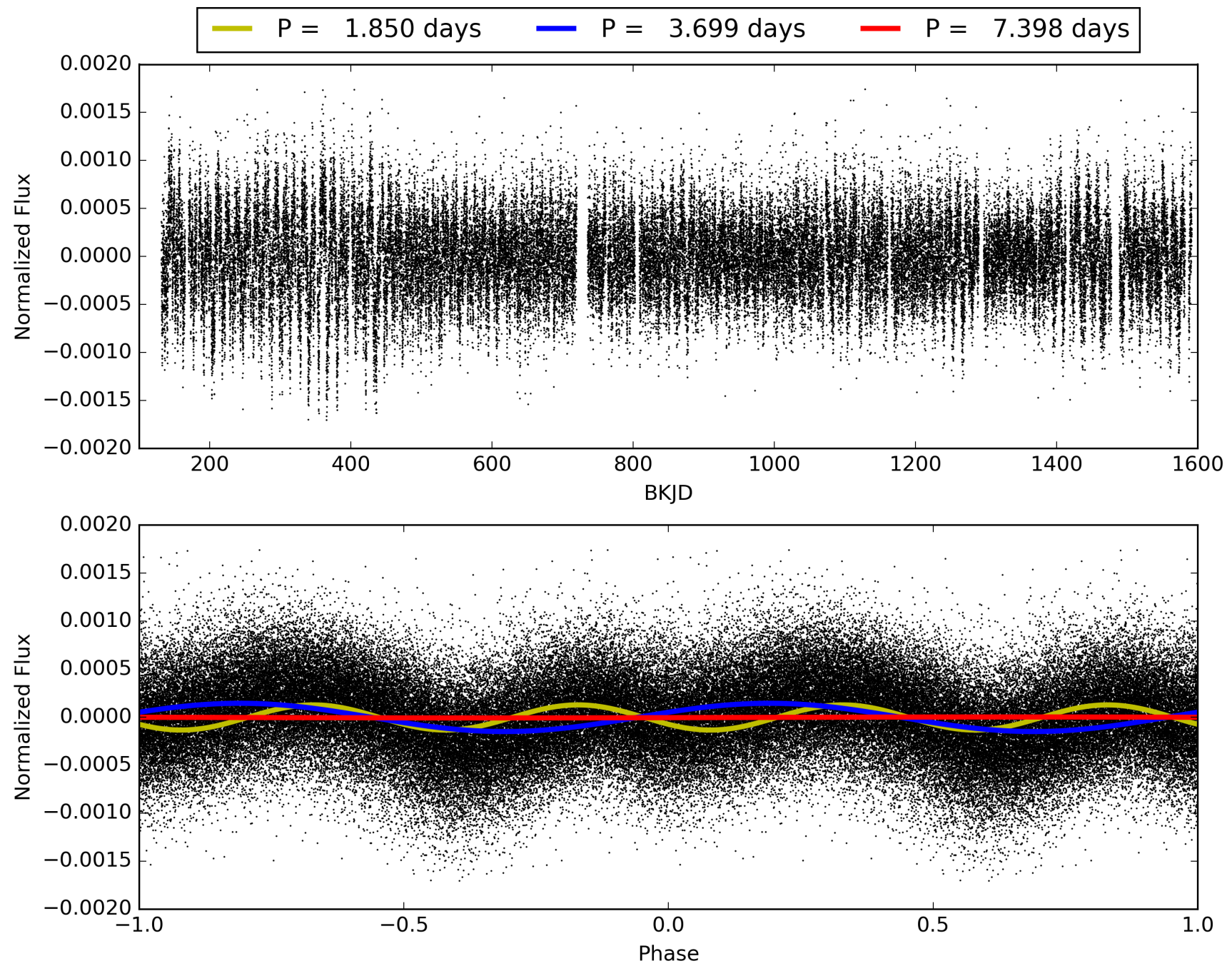
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 31-Jan-2016 07:35:11 Z

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

TCE 008843687-01, PDC Light Curves

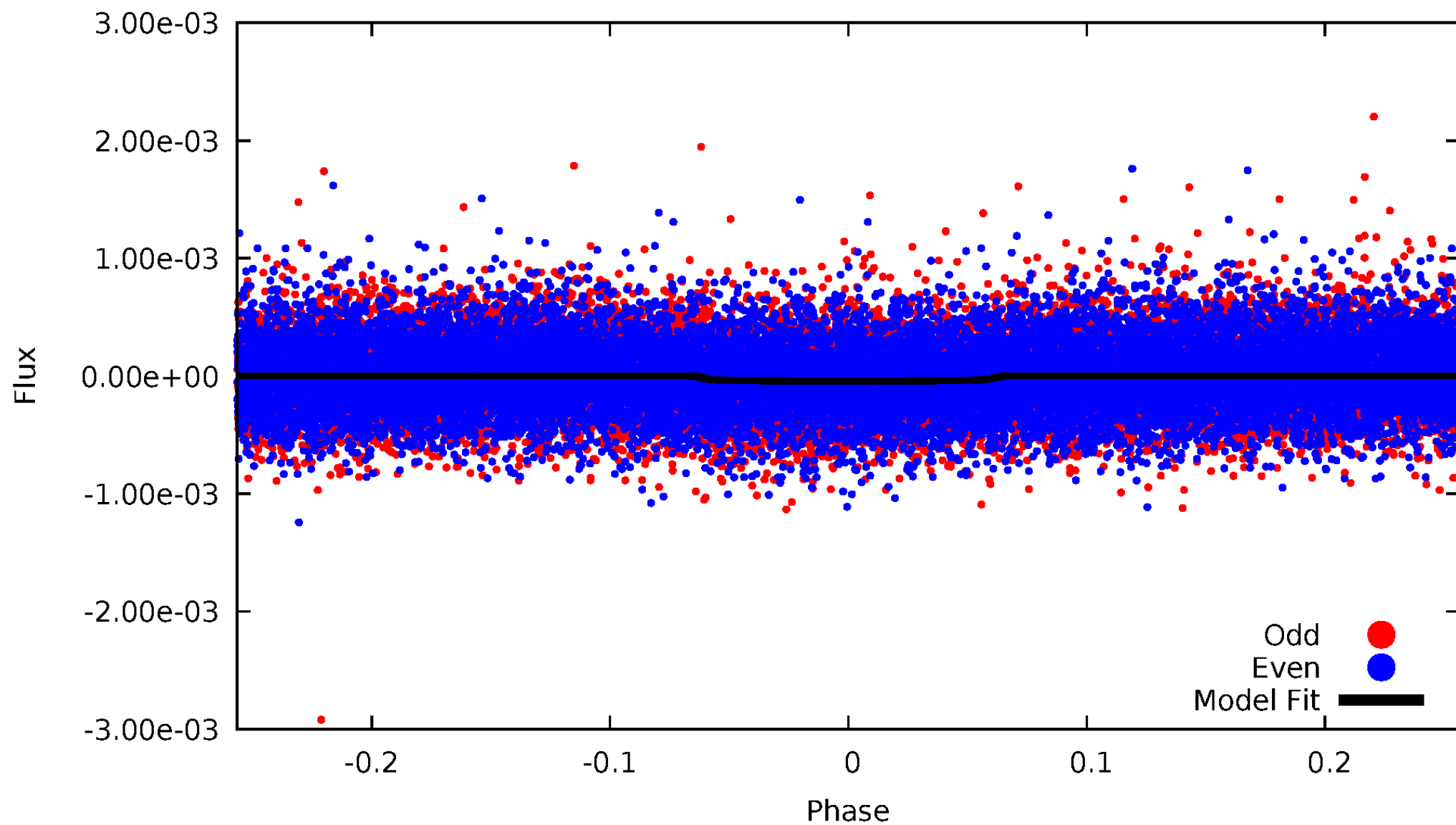


TCE 008843687-01



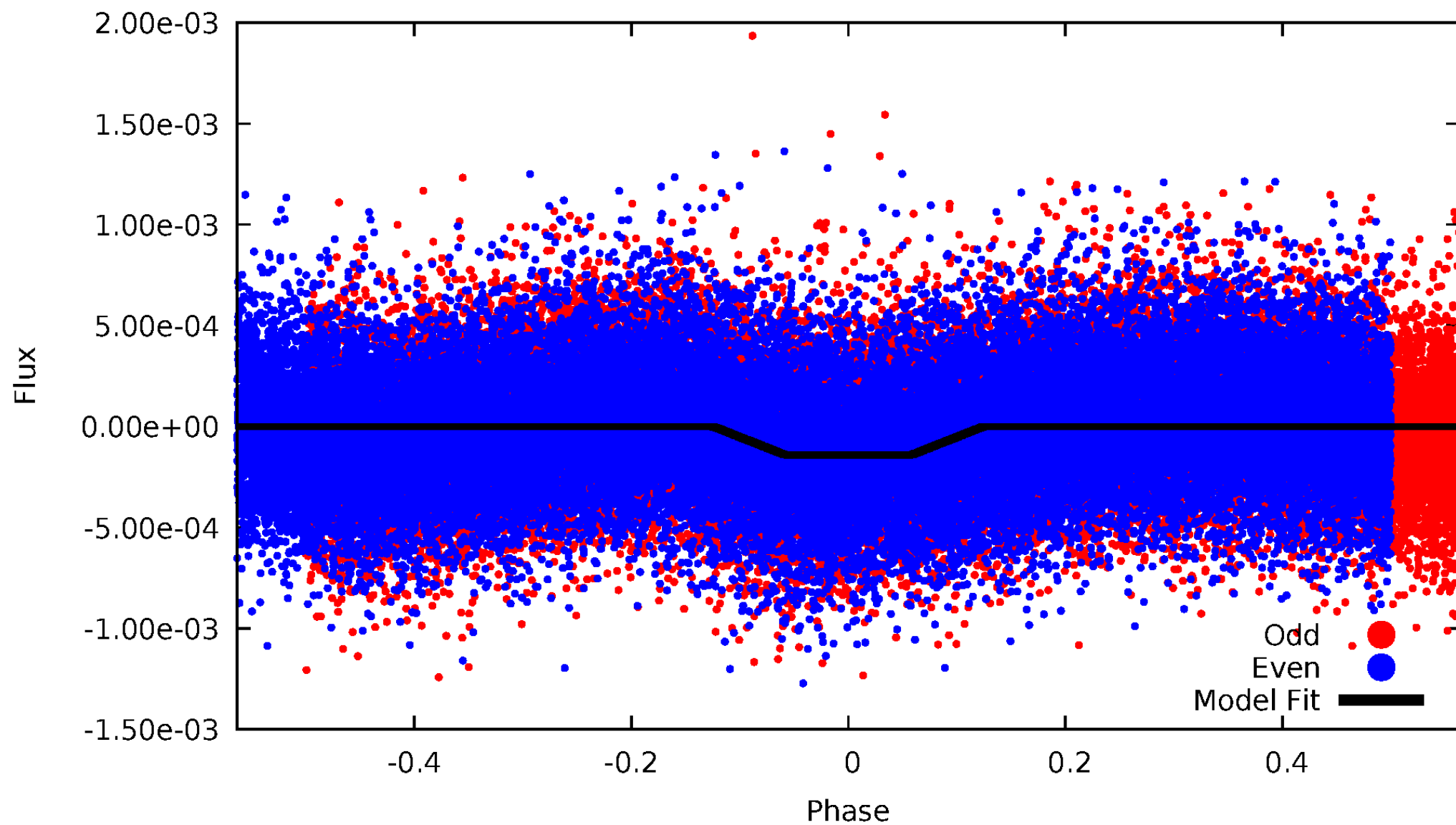
DV Odd/Even

TCE 008843687-01

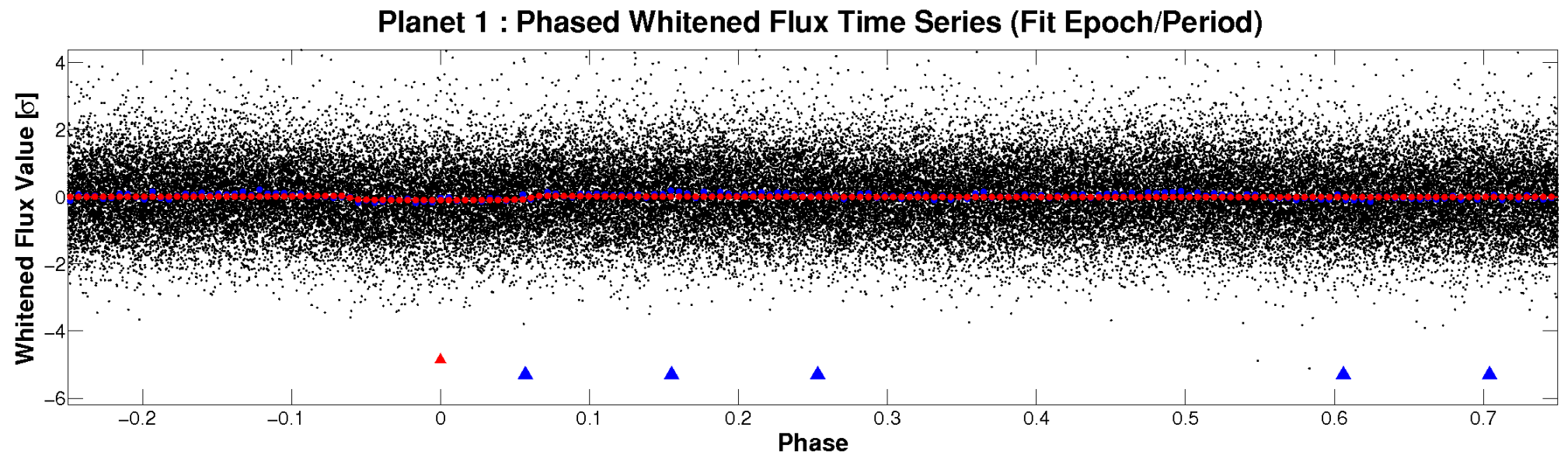
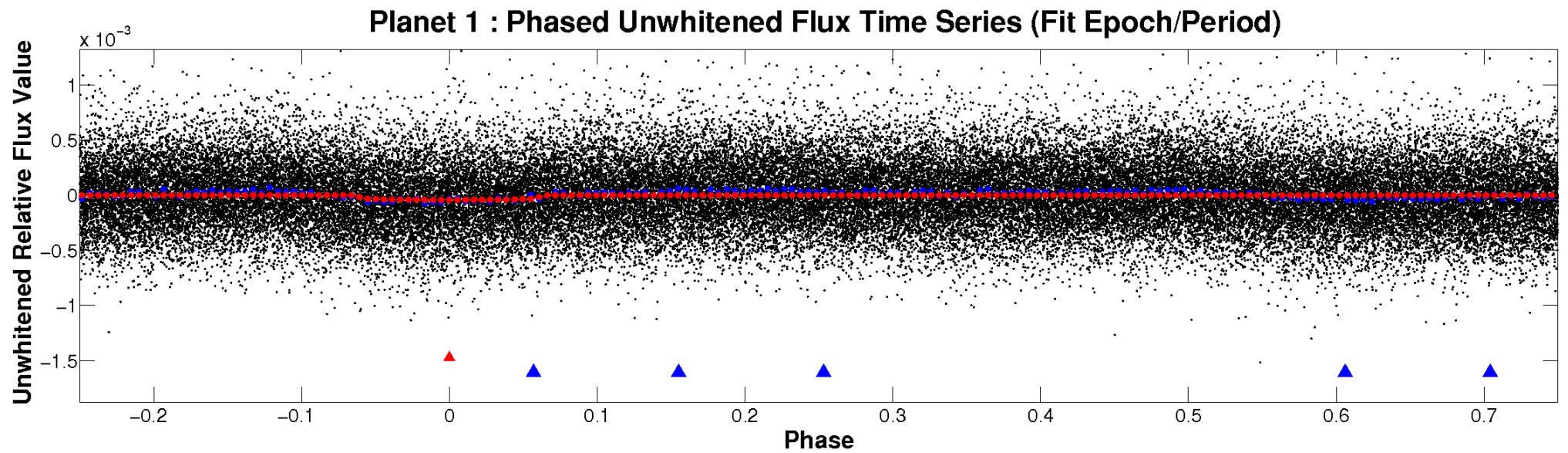


ALT Odd/Even

TCE 008843687-01

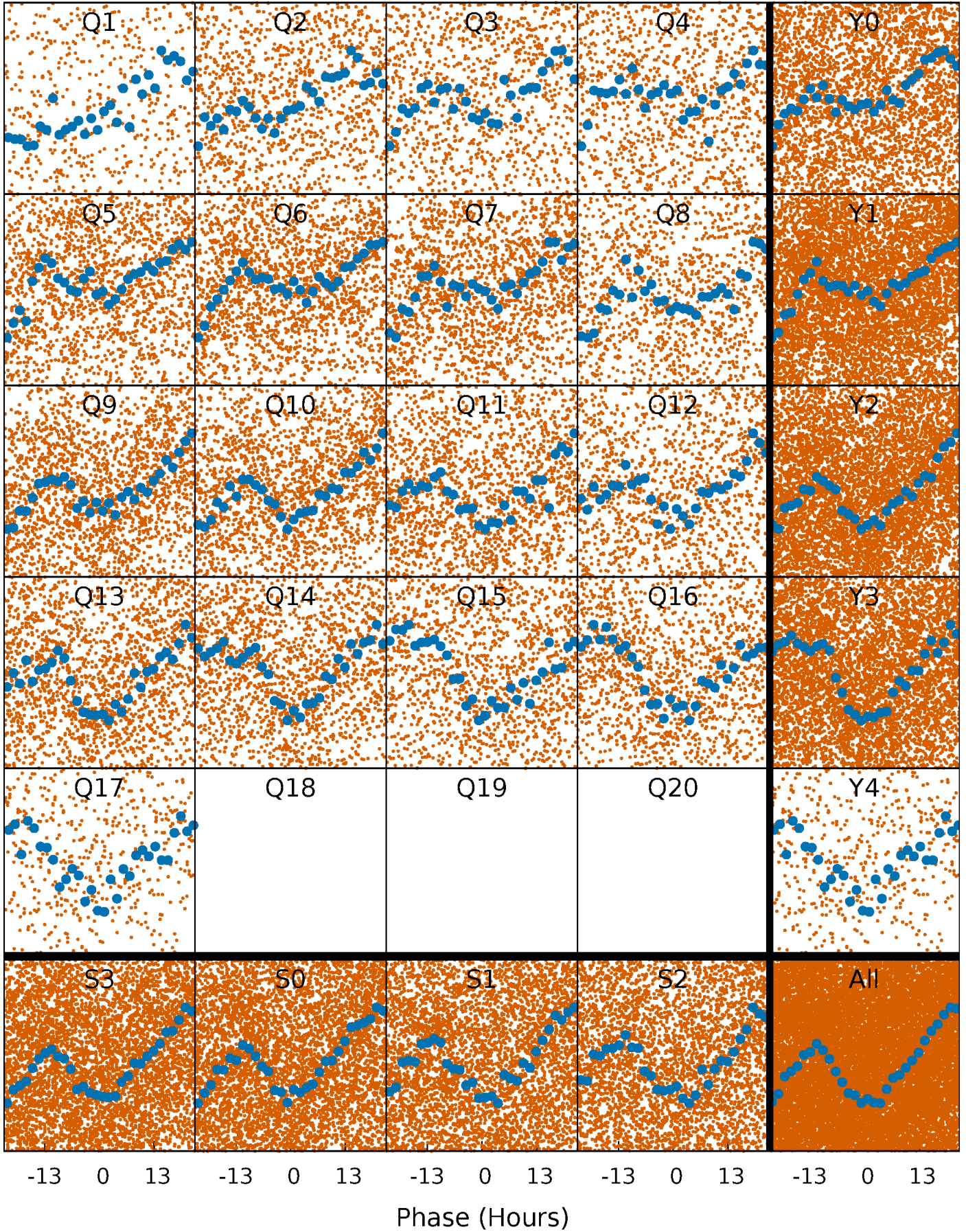


Non-Whitened Vs. Whitened Light Curve



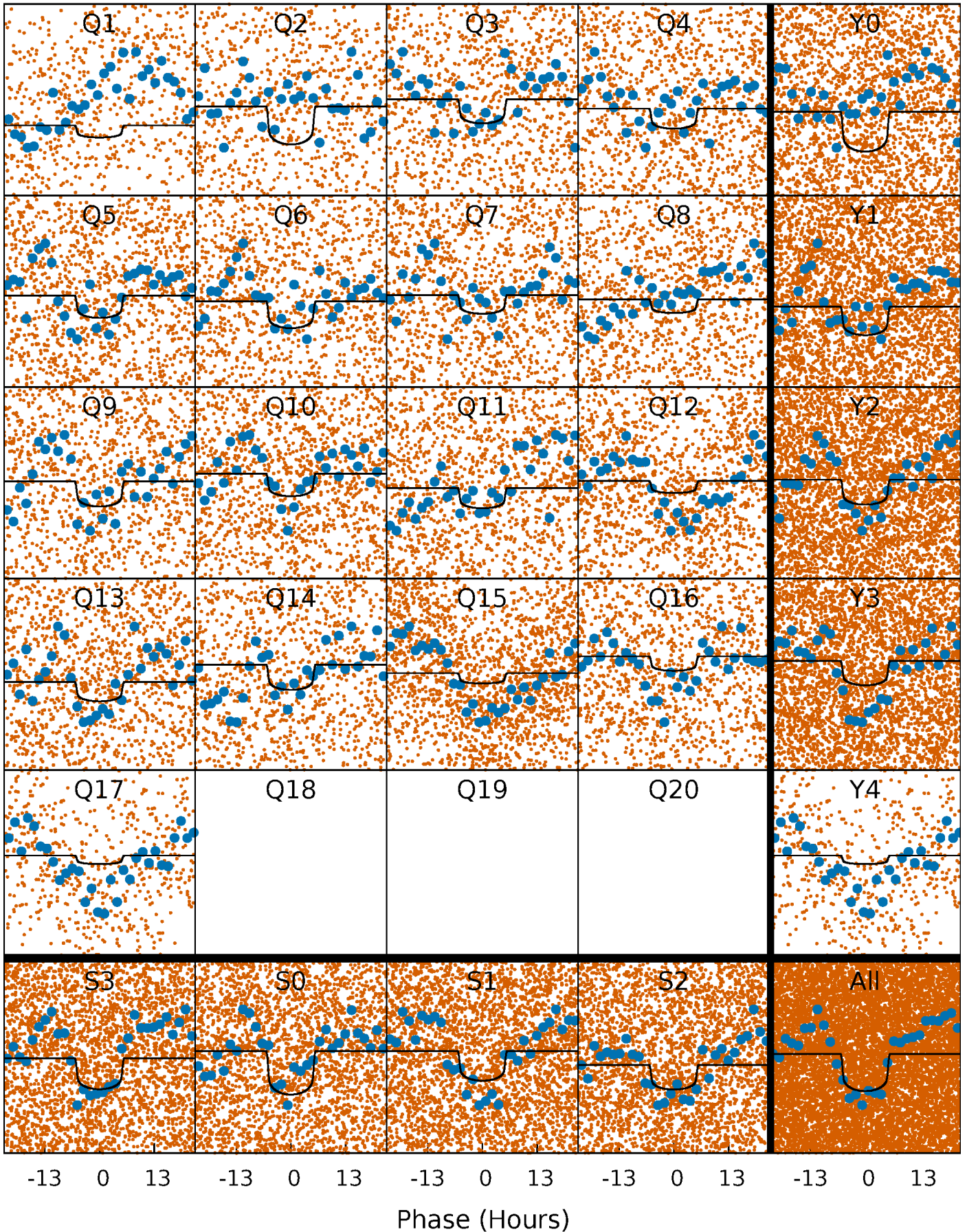
PDC Quarter-Phased Transit Curves

TCE 008843687-01 P= 3.699103 Days $T_0=133.995220$ (BKJD)



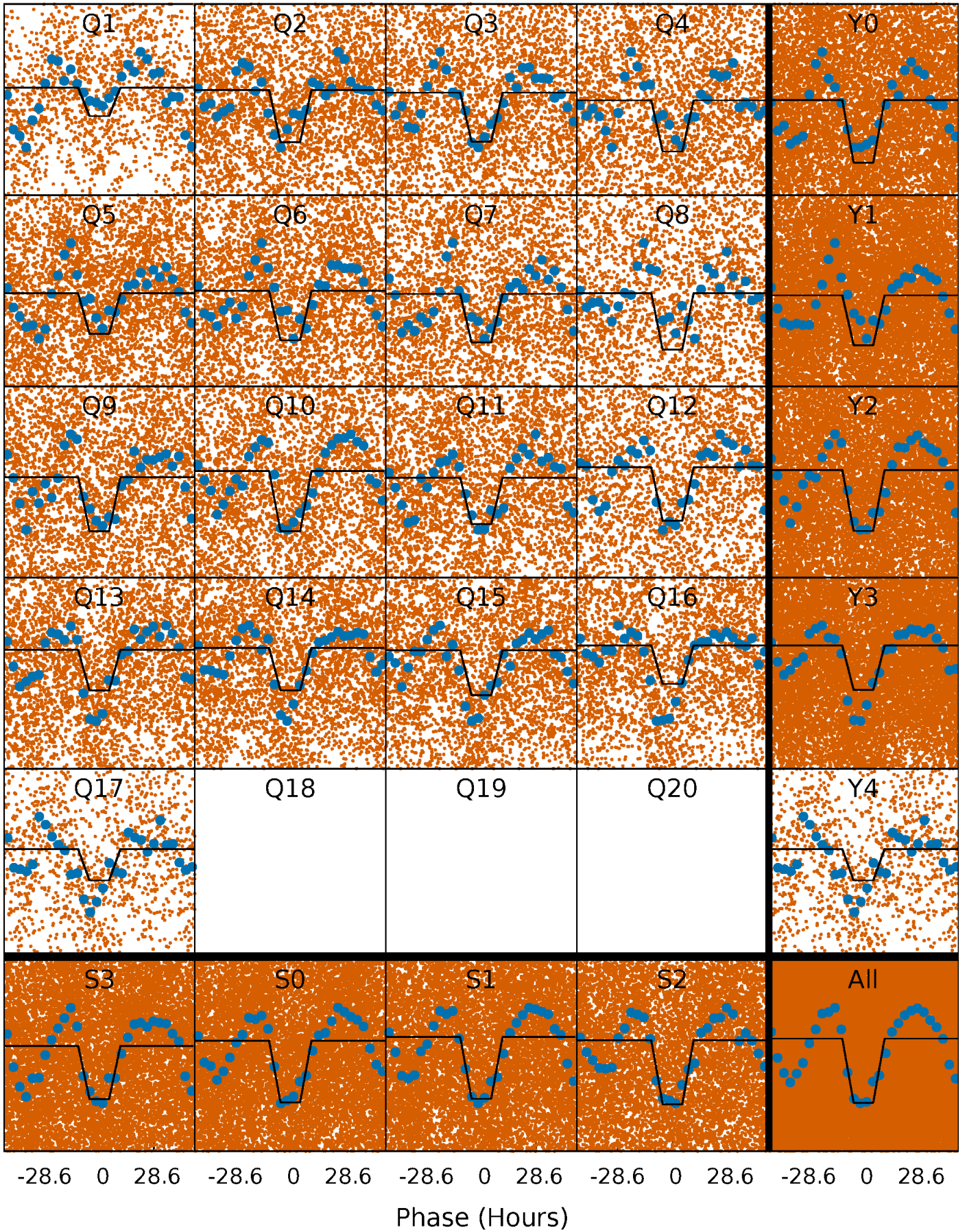
DV Quarter-Phased Transit Curves

TCE 008843687-01 P= 3.699103 Days $T_0=133.995220$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

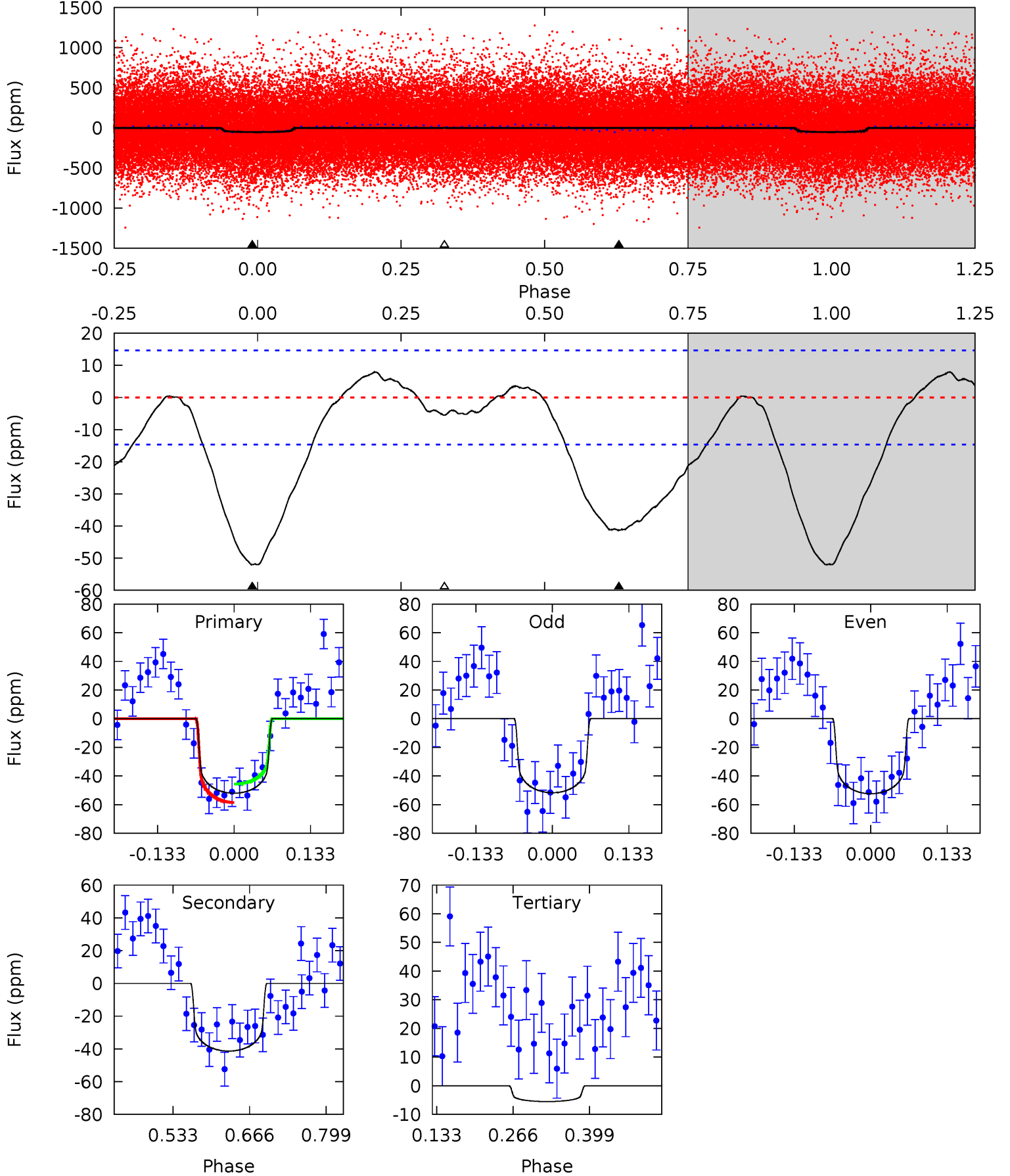
TCE 008843687-01 P= 3.699284 Days $T_0=134.084371$ (BKJD)



DV Model-Shift Uniqueness Test

008843687-01, P = 3.699103 Days, E = 130.296117 Days

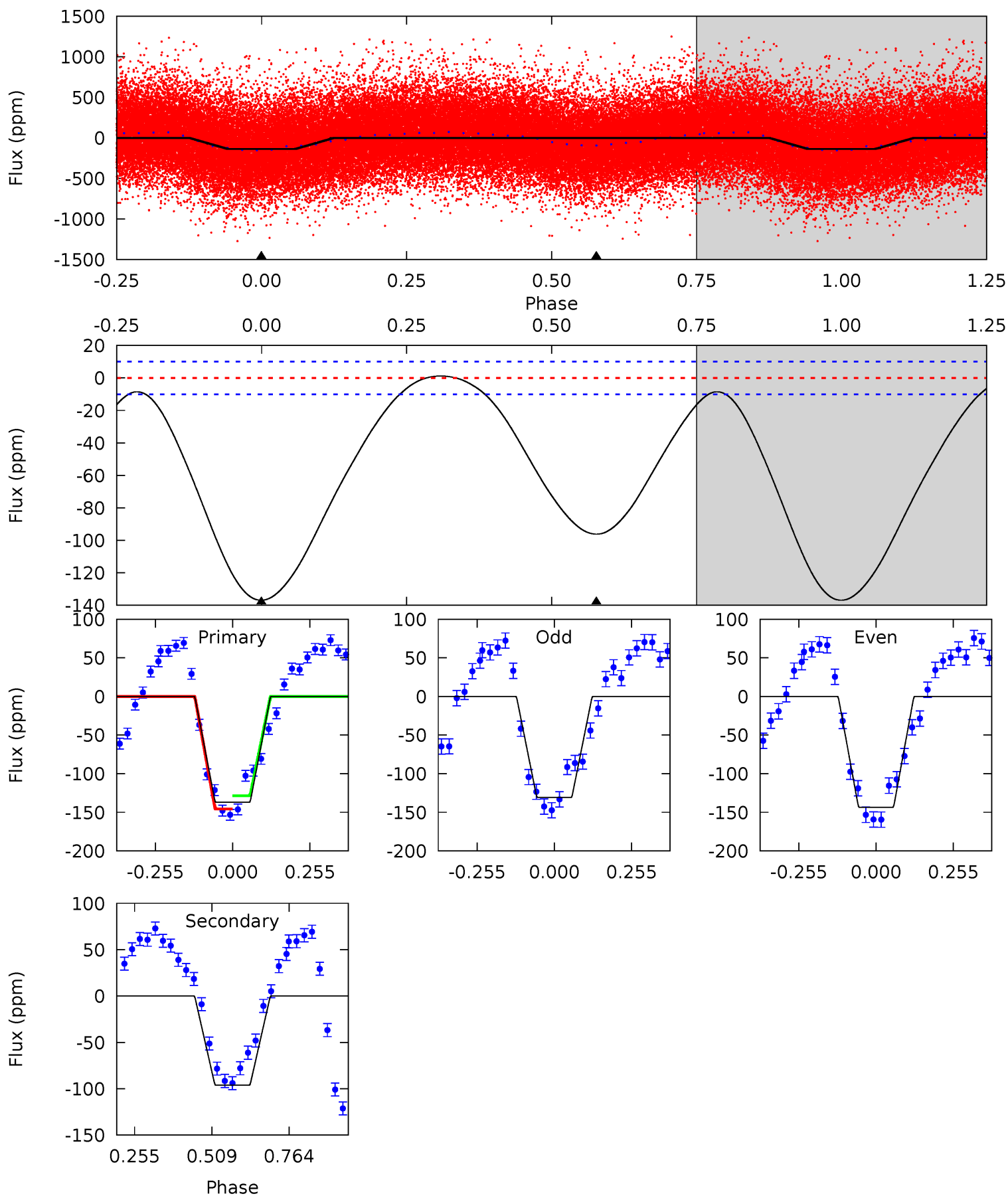
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
16.0	12.7	1.70	0	4.50	1.50	1.77	14.3	16.0	11.0	12.7	0.11	1.05	0.13	1.98



Alt Model-Shift Uniqueness Test

008843687-01, P = 3.699284 Days, E = 130.385087 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
59.5	41.8	0	0	4.36	1.14	1.40	59.5	59.5	41.8	41.8	2.78	1.10	0.01	3.66



Stellar Parameters For KIC 008843687

	$T_{\text{eff}} (K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R (R_{\odot})$	$M (M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	6158^{+185}_{-203}	$4.416^{+0.101}_{-0.188}$	$-0.440^{+0.300}_{-0.300}$	$0.993^{+0.280}_{-0.151}$	$0.937^{+0.127}_{-0.104}$	$1.346^{+0.623}_{-0.683}$
	+3%/-3%	+2%/-4%	+68%/-68%	+28%/-15%	+14%/-11%	+46%/-51%
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 008843687-01 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-41 ± 3	$0.80^{+0.19}_{-0.20}$	1785^{+119}_{-98}	5838^{+809}_{-542}	74^{+52}_{-27}
Alt.	-96 ± 2	$1.33^{+0.24}_{-0.21}$	1786^{+131}_{-97}	5614^{+408}_{-346}	63^{+24}_{-18}

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

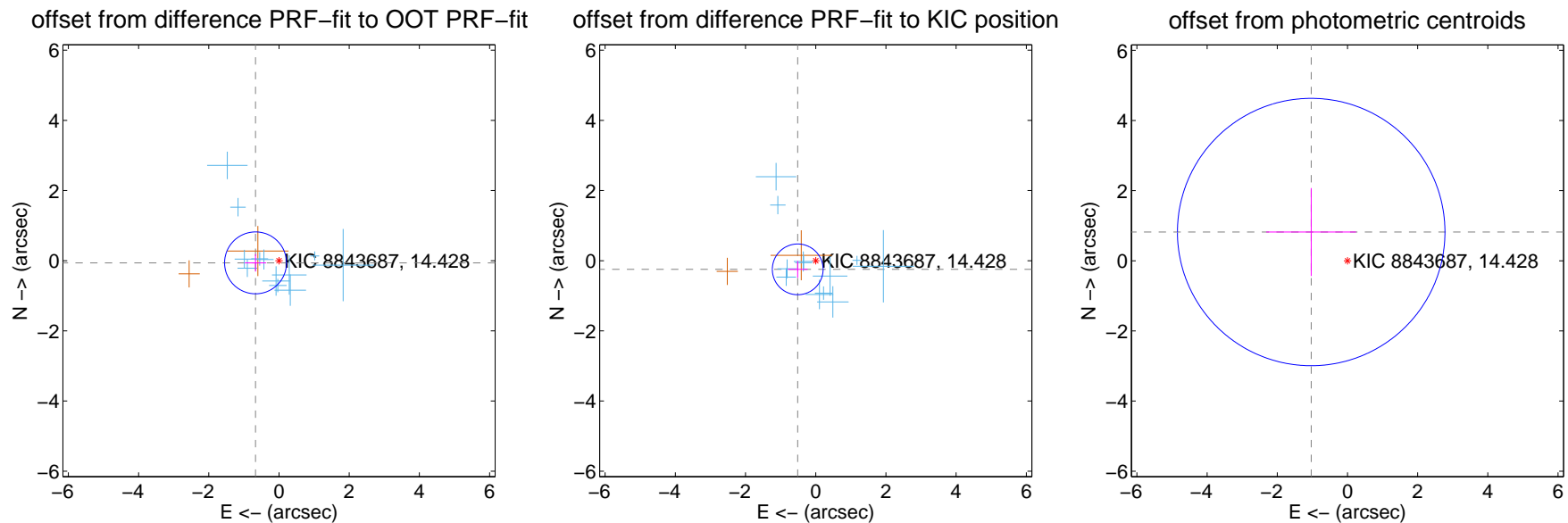
DV Centroid Data

Supplemental centroid analysis for 008843687-01. Kepler magnitude: 14.43. Transit SNR 8.12

There are 12 quarters with good PRF difference image offsets

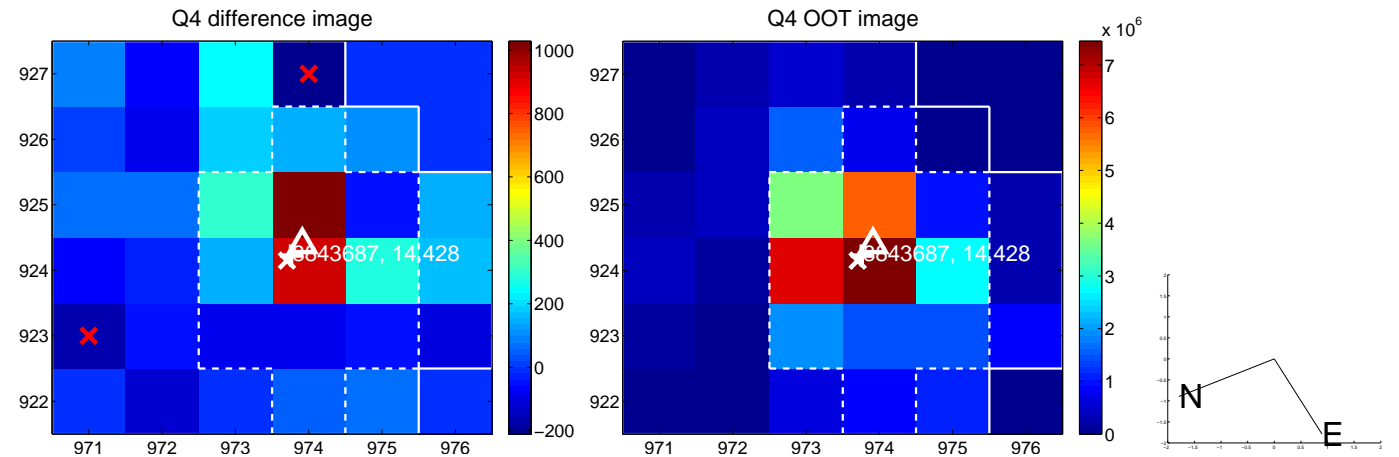
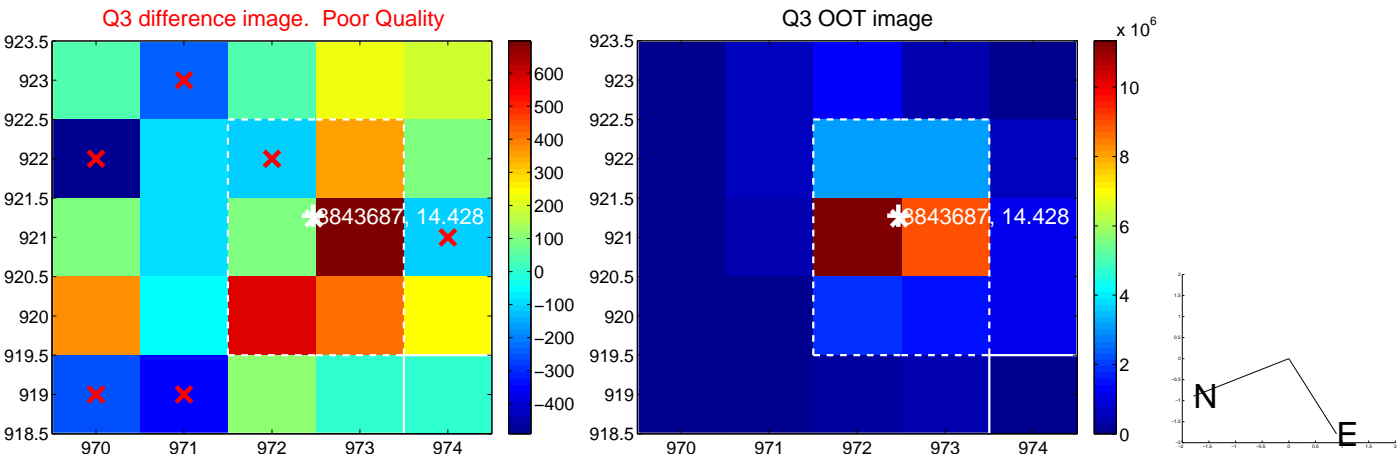
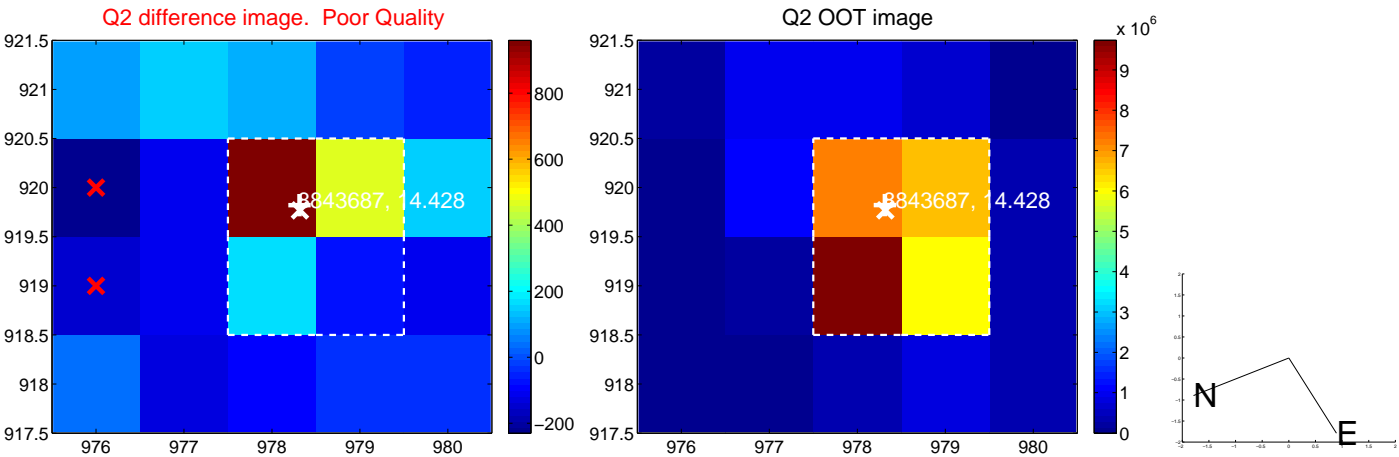
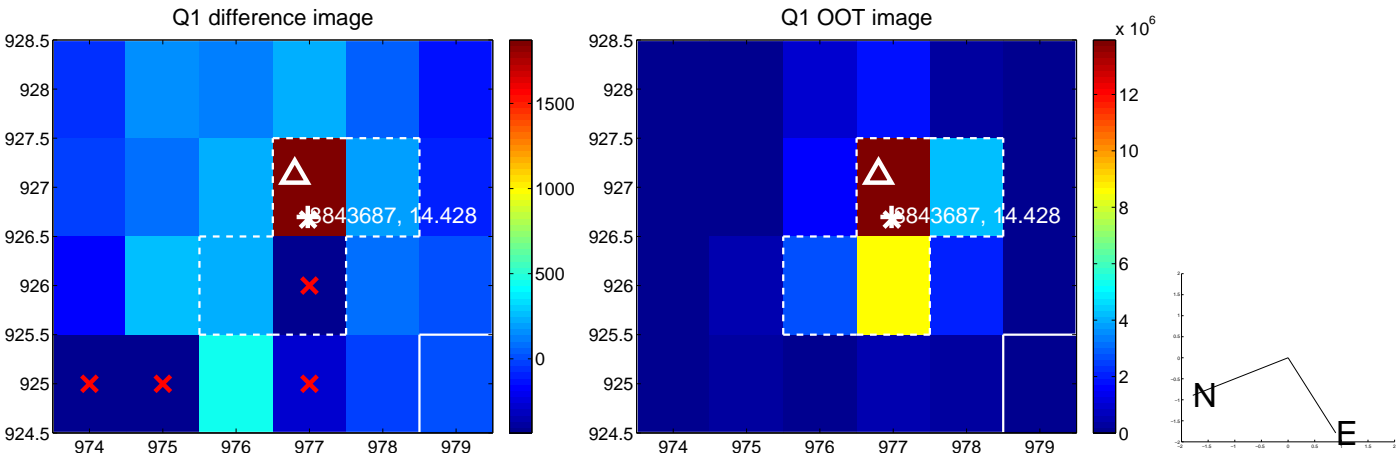
The direct PRF centroid is offset from the target star catalog position by about 0.09 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.671 ± 0.294	2.28	0.668 ± 0.302	-0.062 ± 0.250
PRF-fit source offset from KIC position	0.569 ± 0.241	2.36	0.513 ± 0.281	-0.247 ± 0.240
photometric centroid source offset	1.32 ± 1.27	1.04	1.03 ± 1.28	0.82 ± 1.26

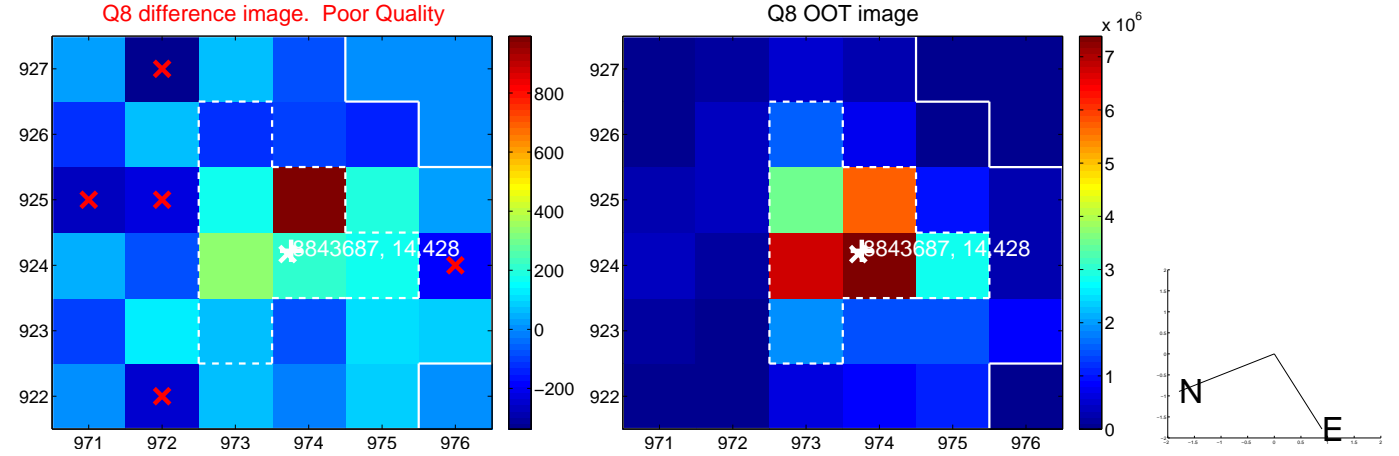
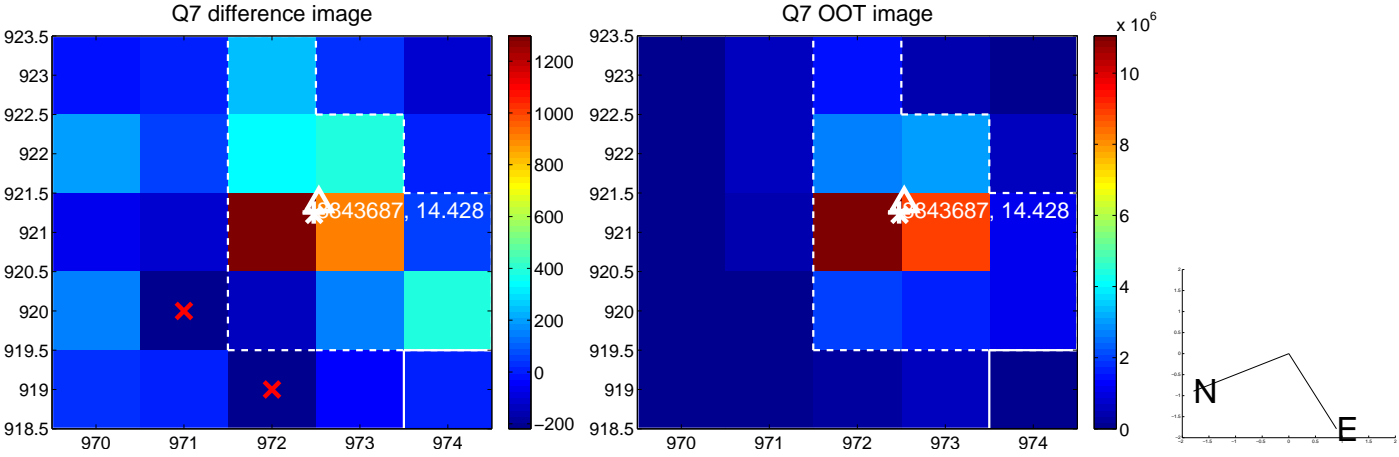
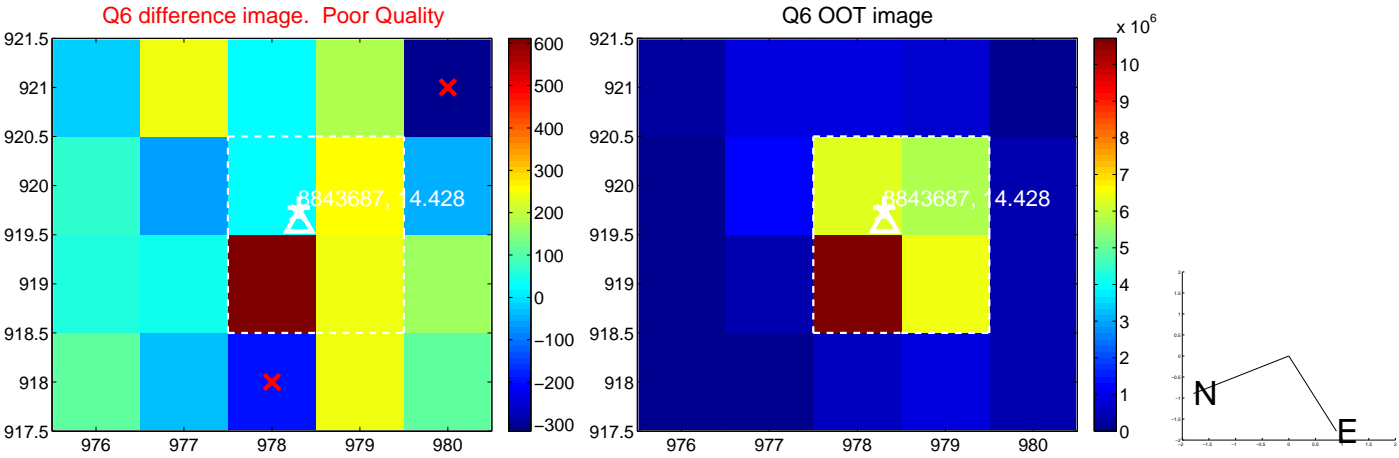
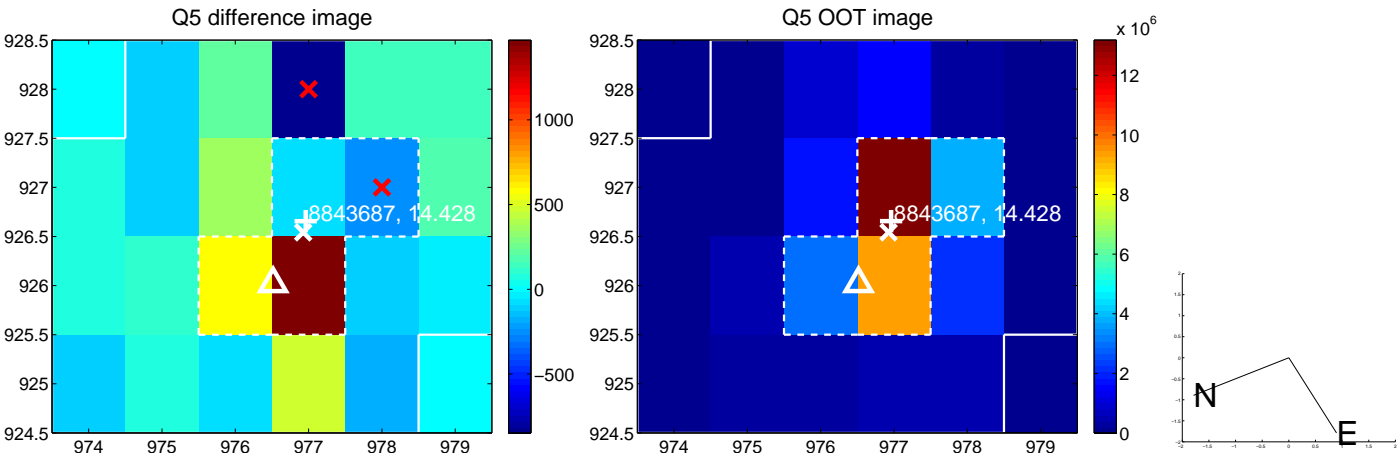


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

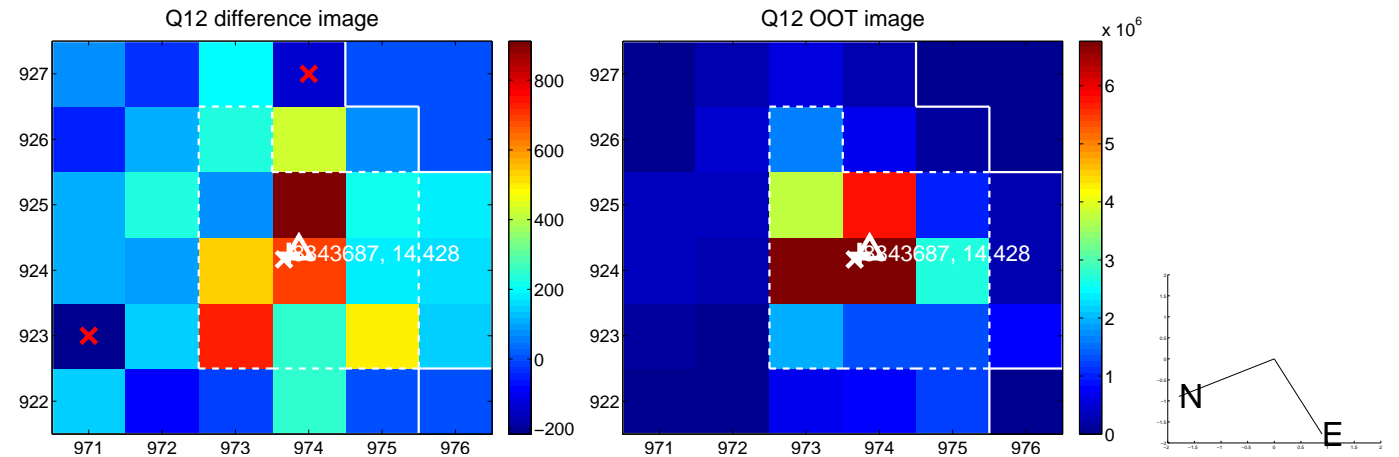
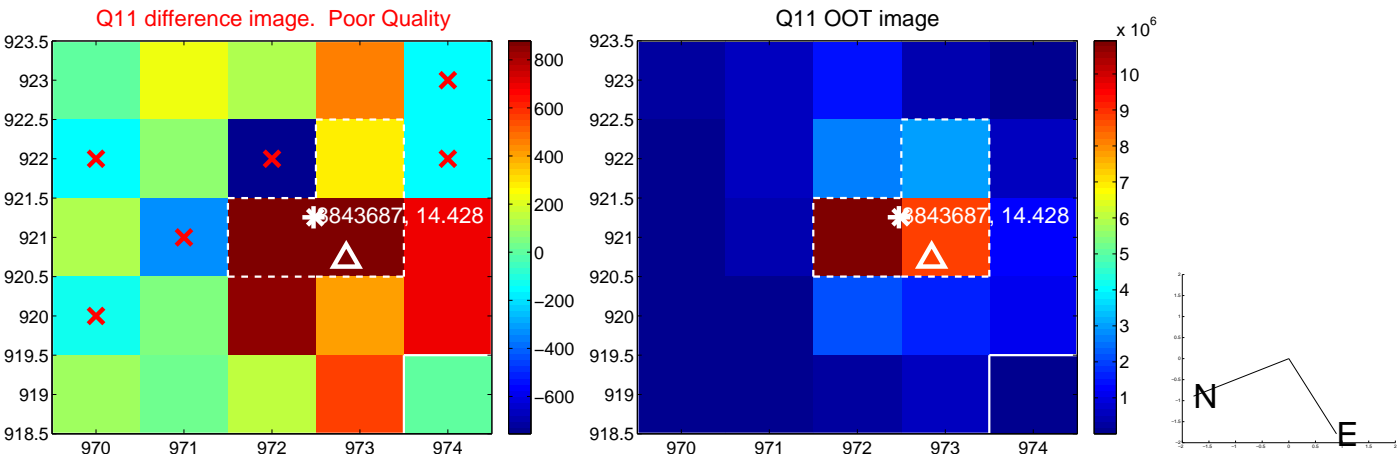
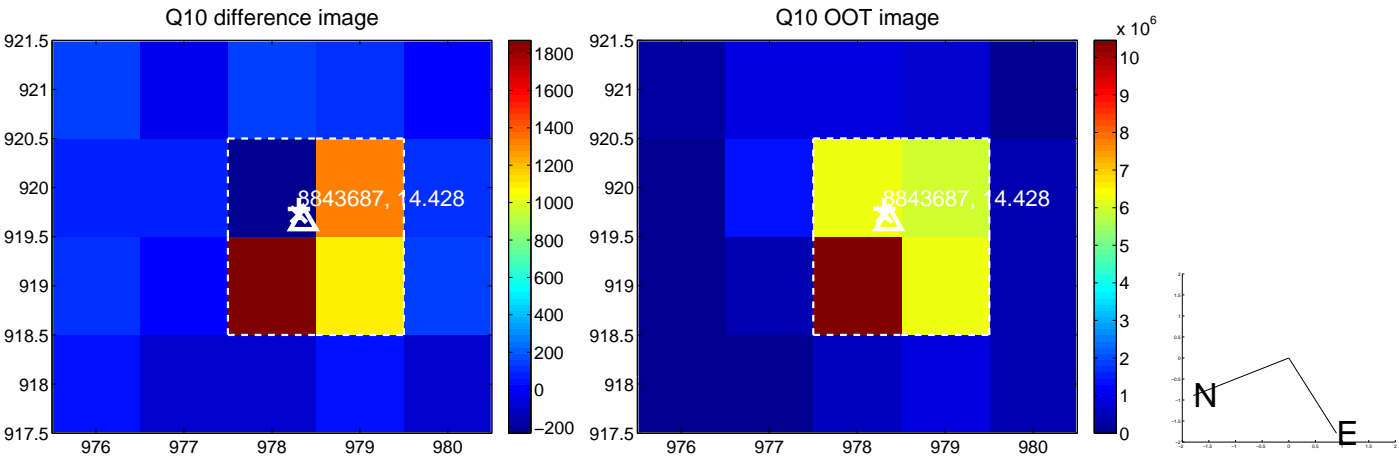
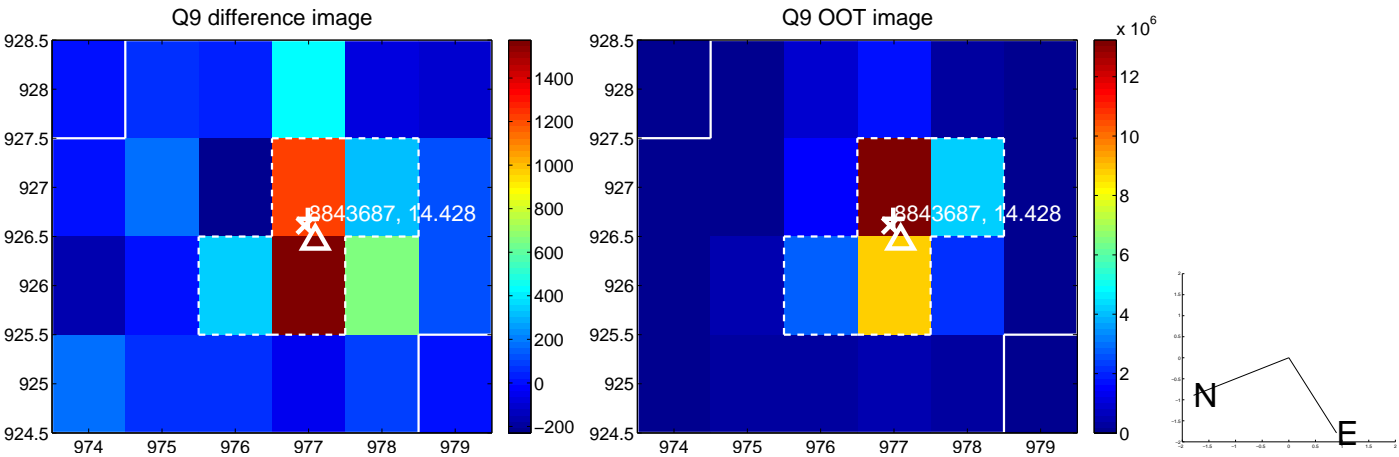
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



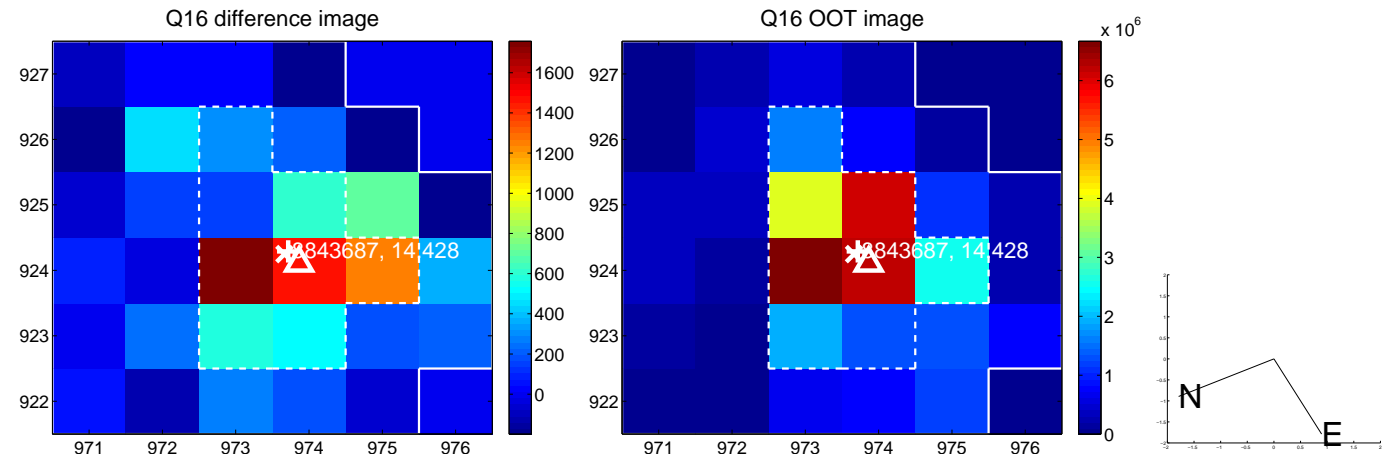
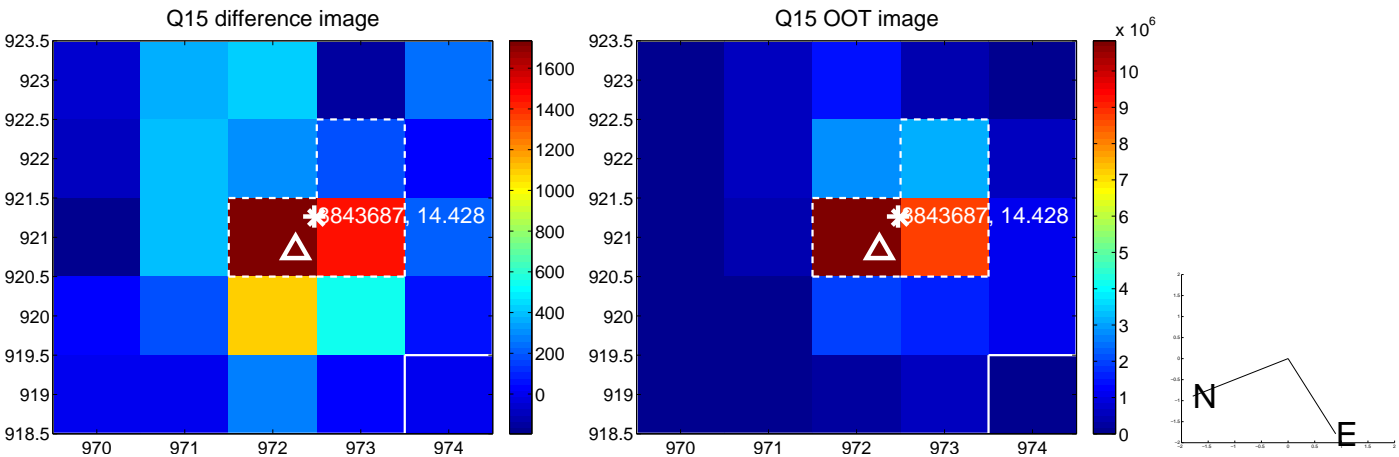
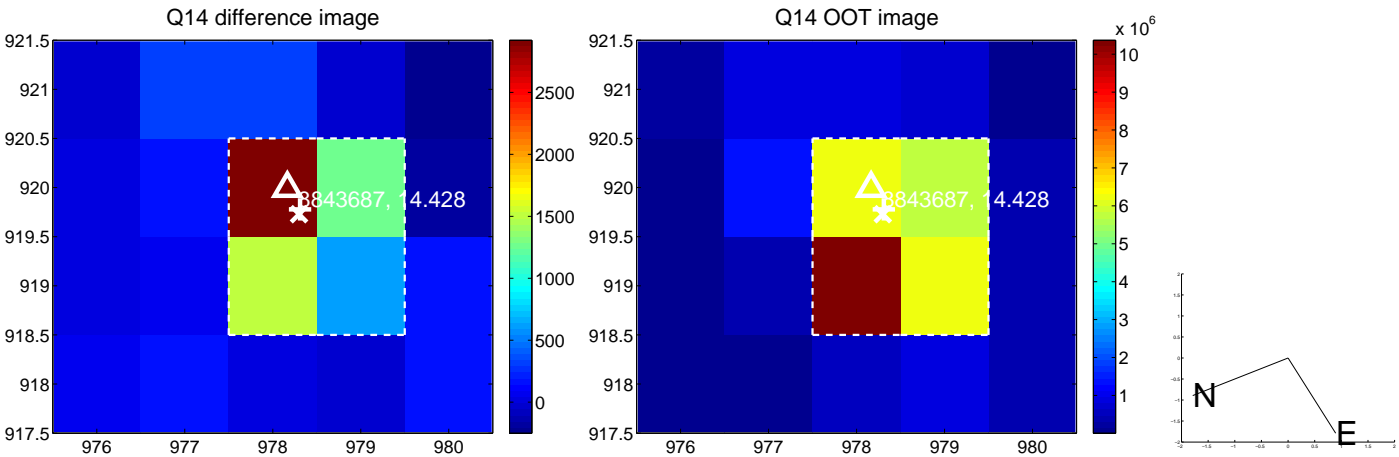
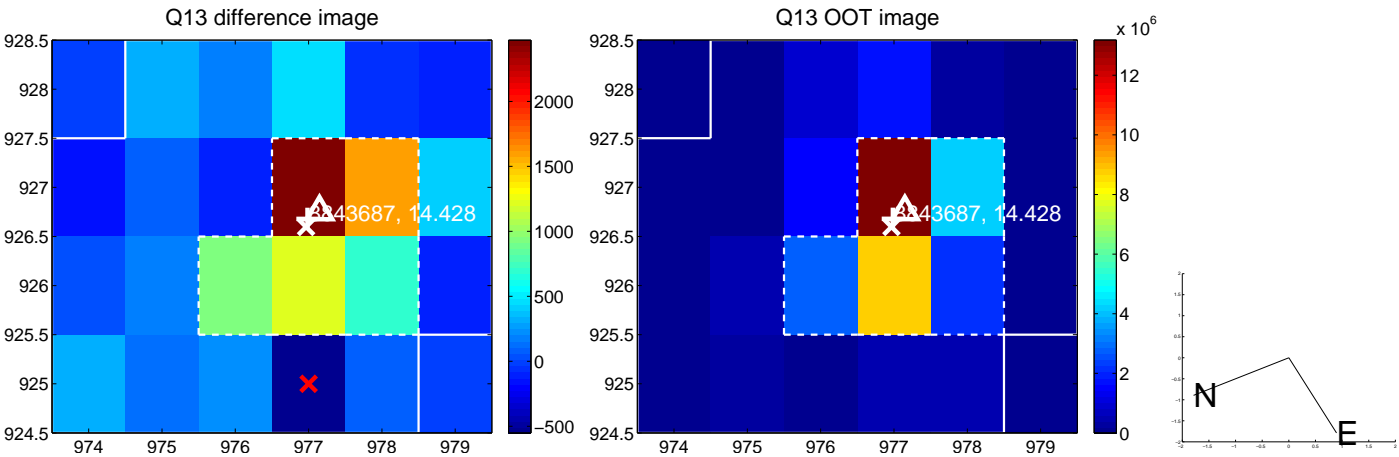
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



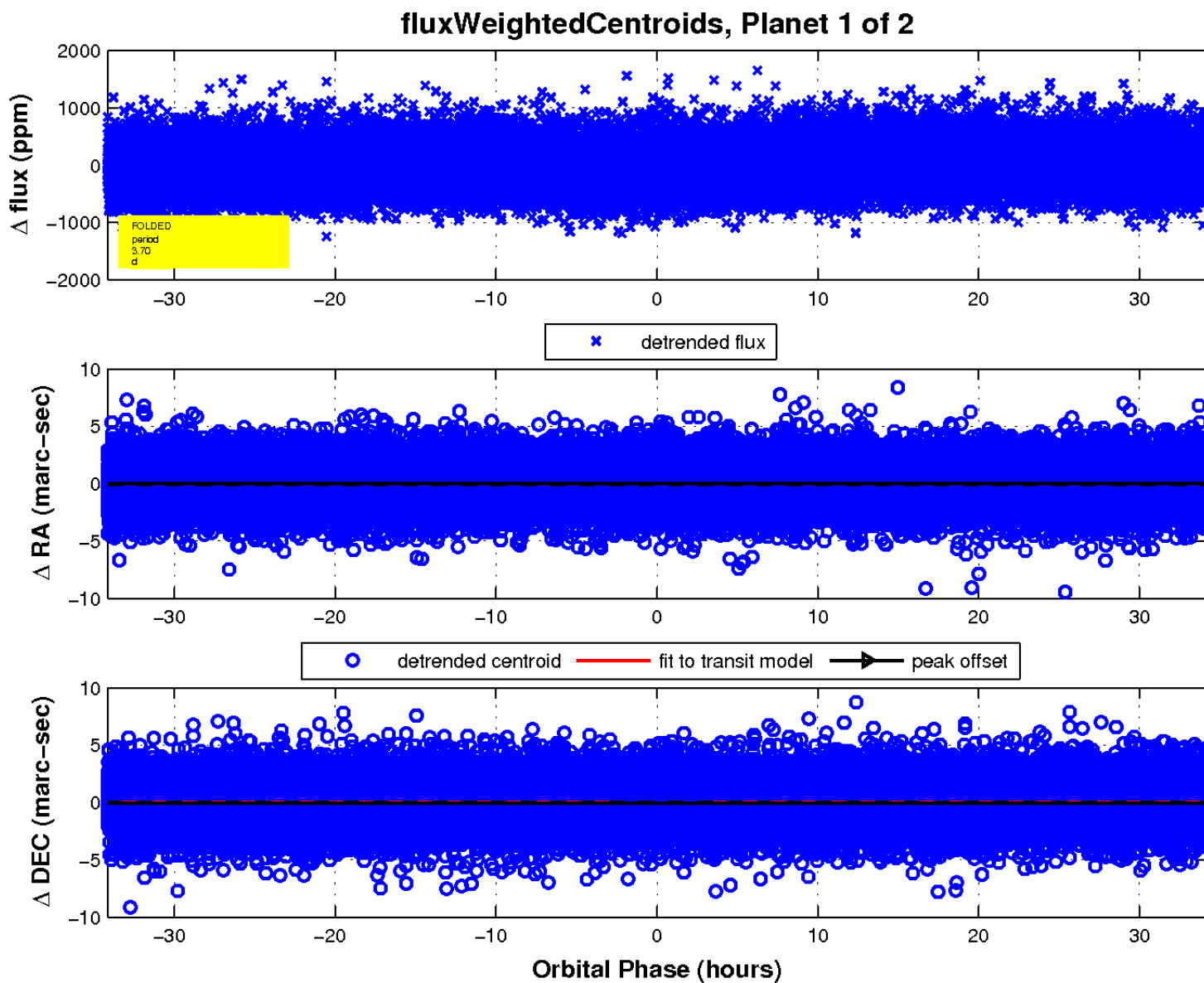
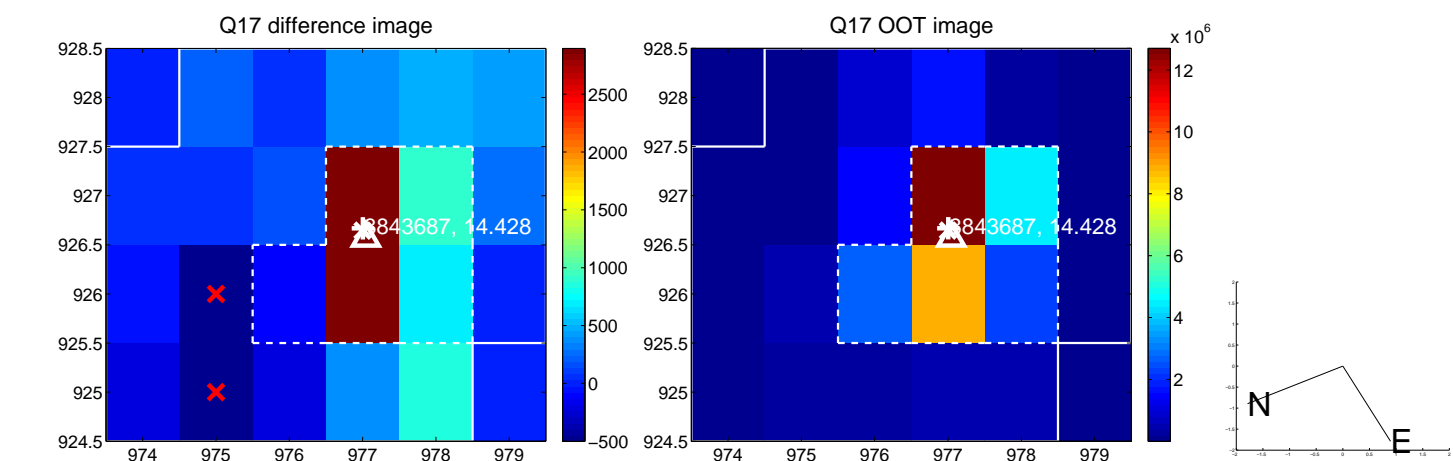
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

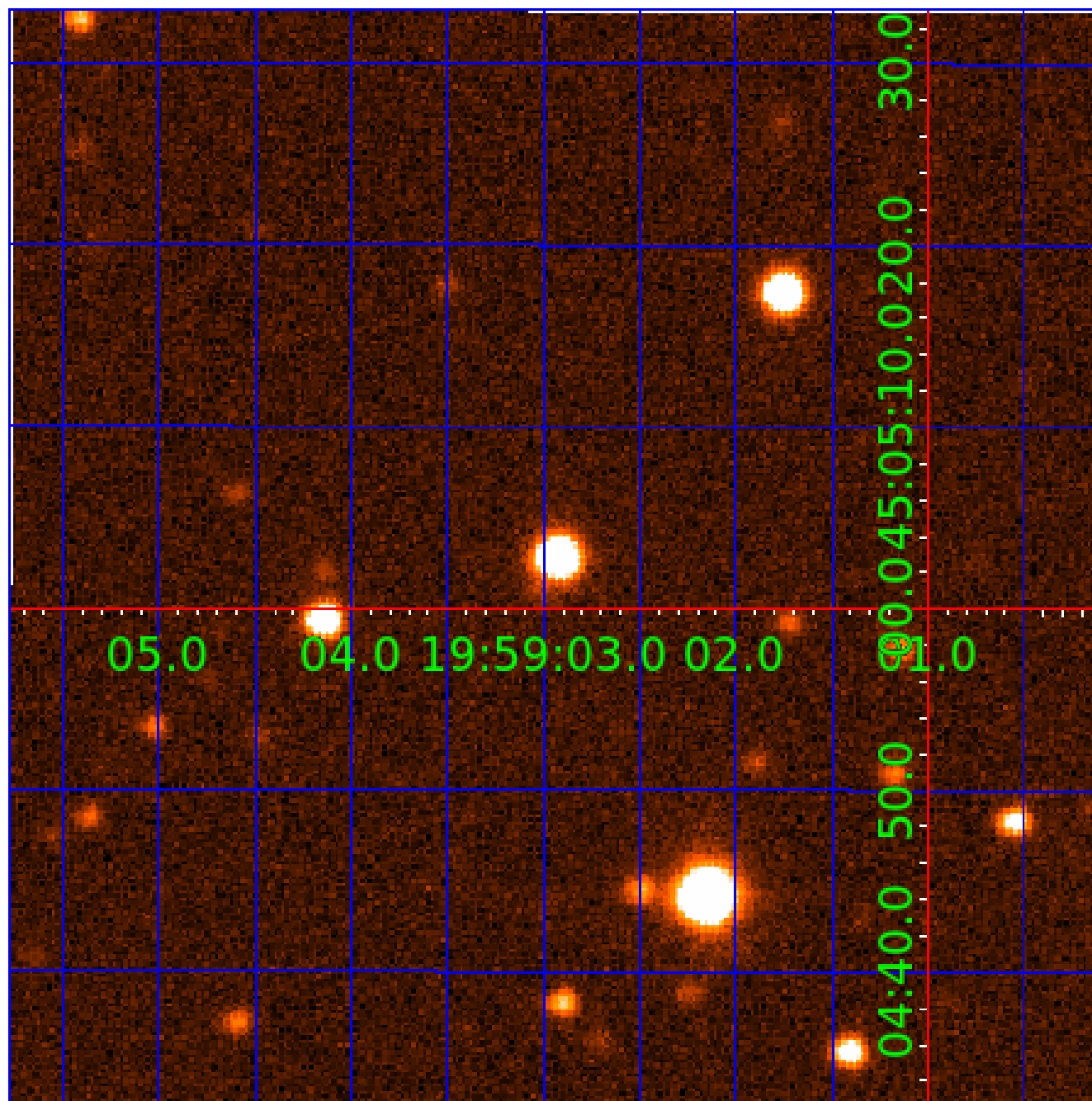


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 008843687

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})
008843687-01	OBS	No	3.699103	133.995220	43.3	11.378	10.1	8.1	0.99	6158	0.77	605.10
008843687-02	OBS	No	282.799963	297.692505	361.5	16.520	11.4	6.8	0.99	6158	2.21	1.86

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
008843687-01	OBS	FP	0.00	1	0	0	0	SWEET_NTL—LPP_DV—LPP_ALT
008843687-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL_SKYE—INCONSISTENT_TRANS—CENT_FEW_DIFFS

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

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

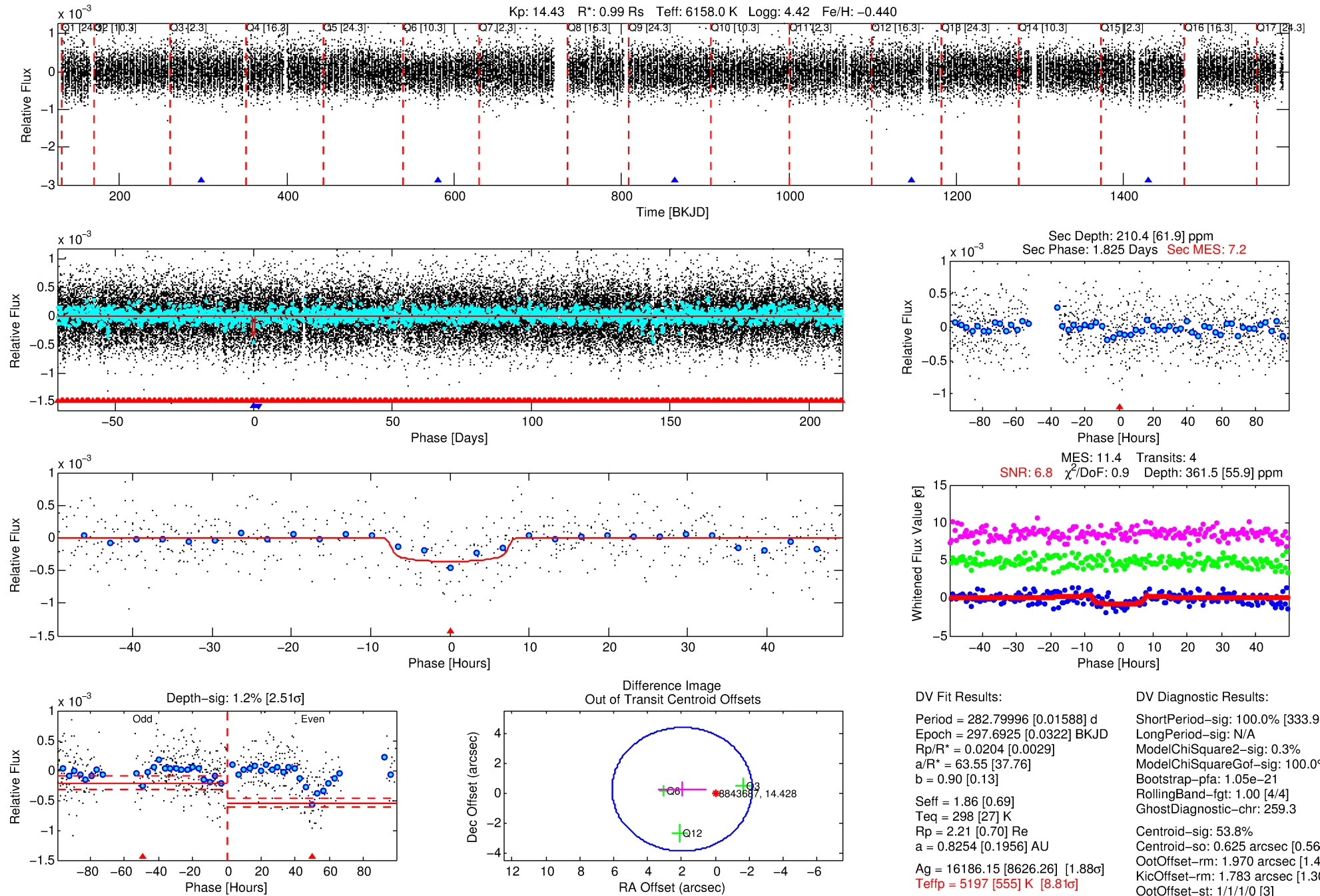
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 008843687-02

No Significant Match Found

DV One-Page Summary

KIC: 8843687 Candidate: 2 of 2 Period: 282.800 d



DV Fit Results:

Period = 282.79996 [0.01588] d
Epoch = 297.6925 [0.0322] BKJD
Rp/R* = 0.0204 [0.0029]
a/R* = 63.55 [37.76]
b = 0.90 [0.13]
Seff = 1.86 [0.69]
Teq = 298 [27] K
Rp = 2.21 [0.70] Re
a = 0.8254 [0.1956] AU
Ag = 16186.15 [8626.26] [1.88σ]
Teffp = 5197 [555] K [8.81σ]

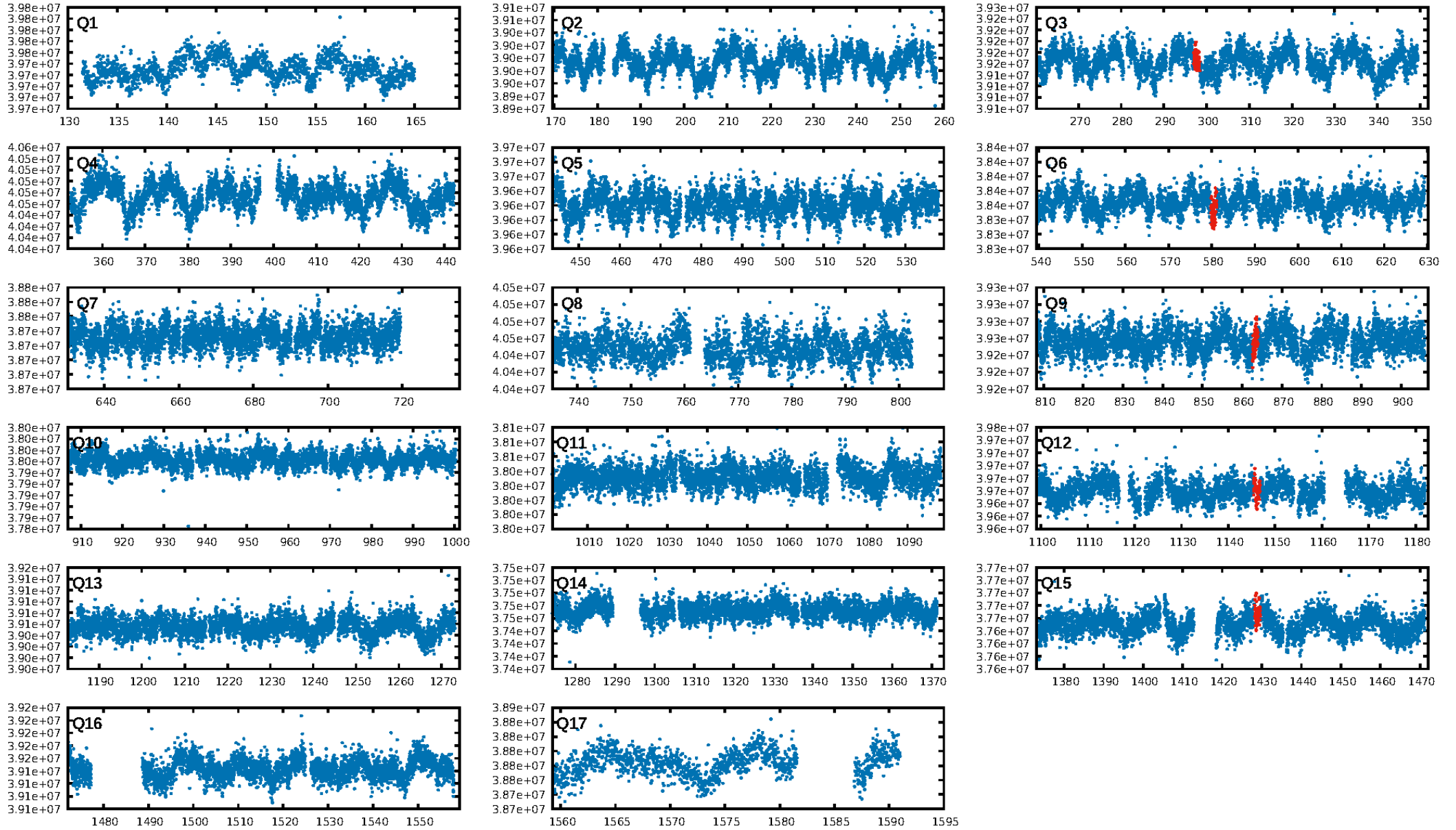
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [333.94σ]
LongPeriod-sig: N/A
ModelChiSquare2-sig: 0.3%
ModelChiSquareGof-sig: 100.0%
Bootstrap-pfa: 1.05e-21
RollingBand-fgt: 1.00 [4/4]
GhostDiagnostic-chr: 259.3
Centroid-sig: 53.8%
Centroid-so: 0.625 arcsec [0.56σ]
OotOffset-rm: 1.970 arcsec [1.43σ]
KicOffset-rm: 1.783 arcsec [1.30σ]
OotOffset-st: 1/1/1/0 [3]
KicOffset-st: 1/1/1/0 [3]
DiffImageQuality-fgm: 0.33 [1/3]
DiffImageOverlap-fno: 0.20 [1/5]

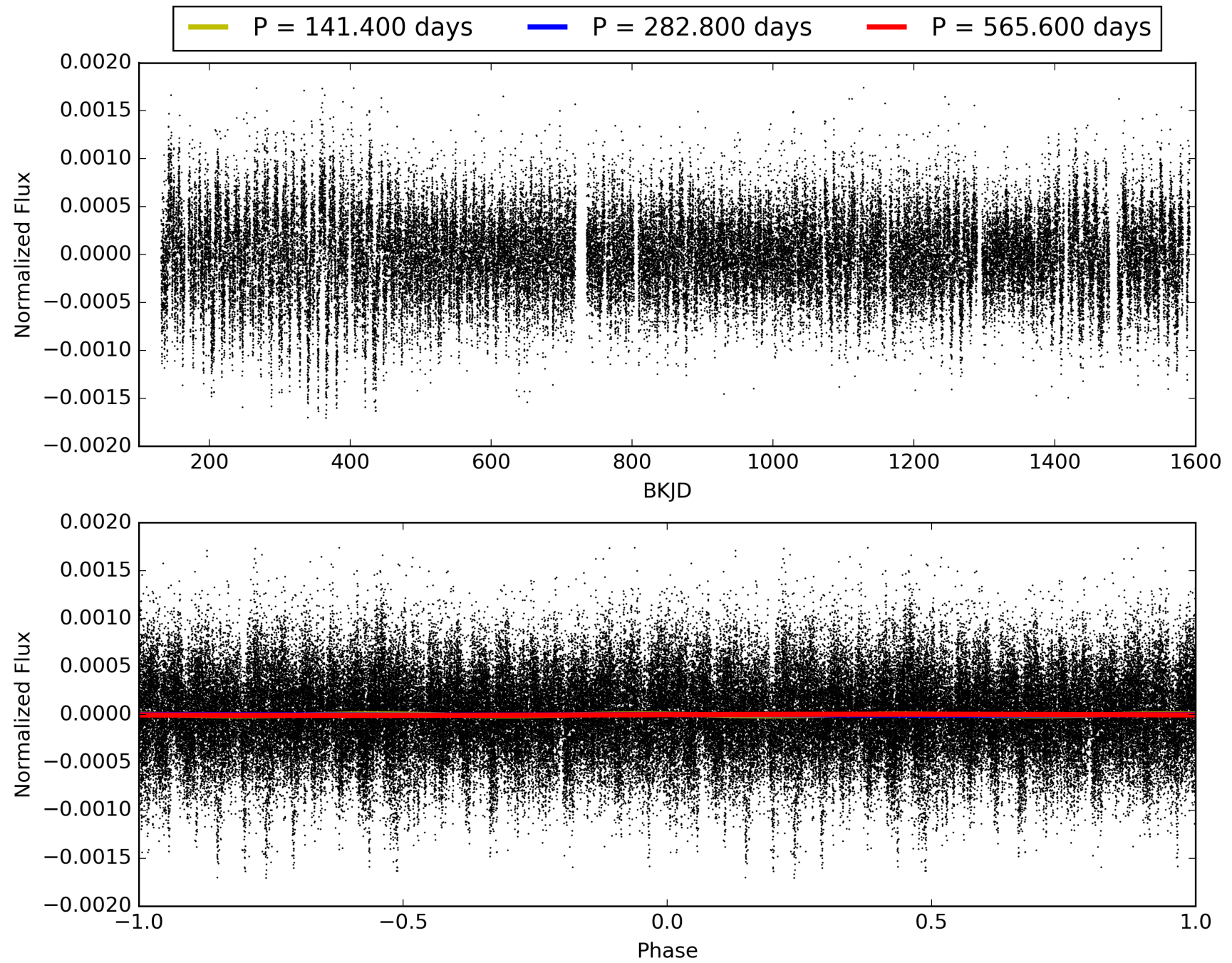
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 31-Jan-2016 07:35:22 Z

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

TCE 008843687-02, PDC Light Curves

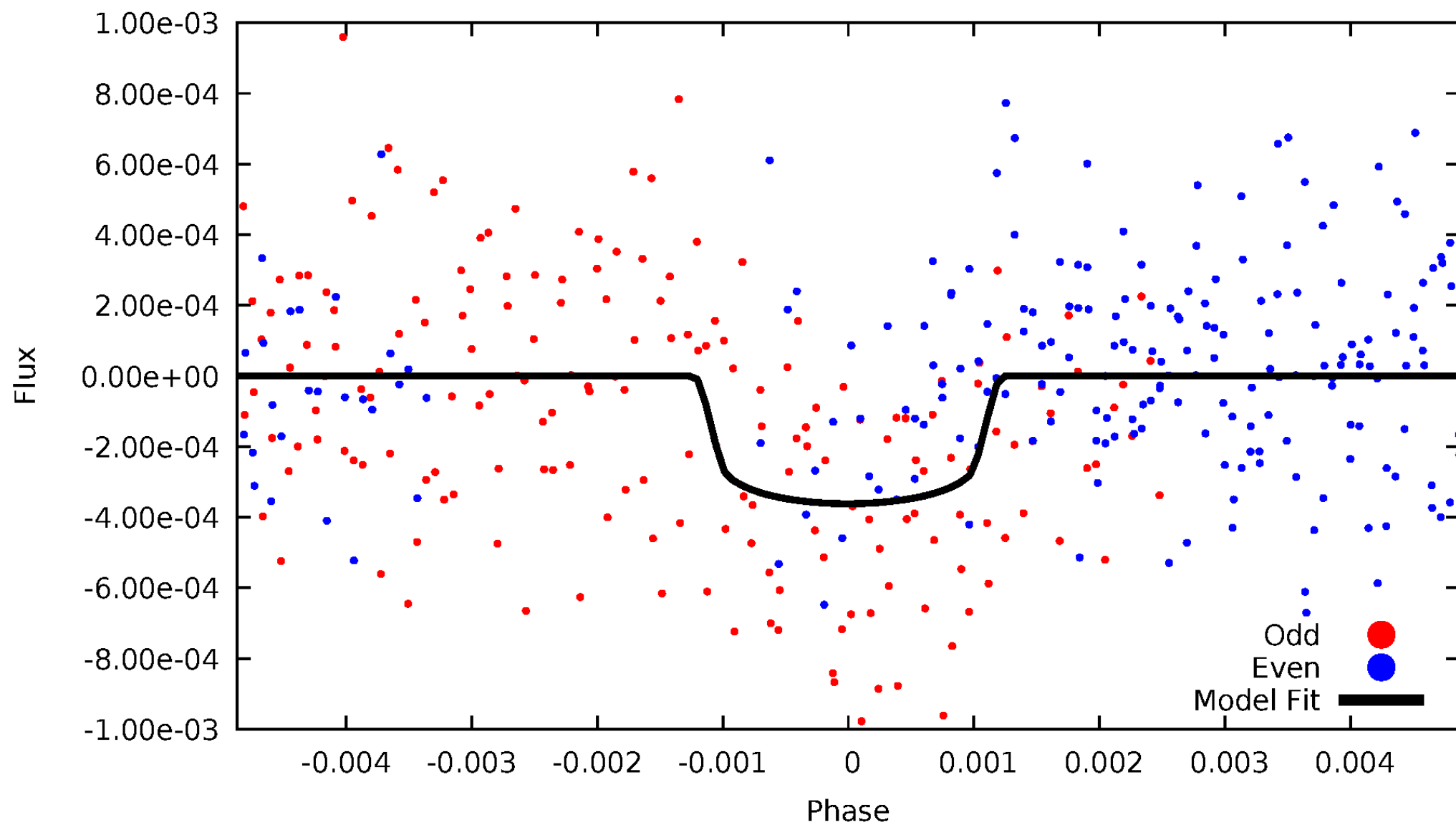


TCE 008843687-02



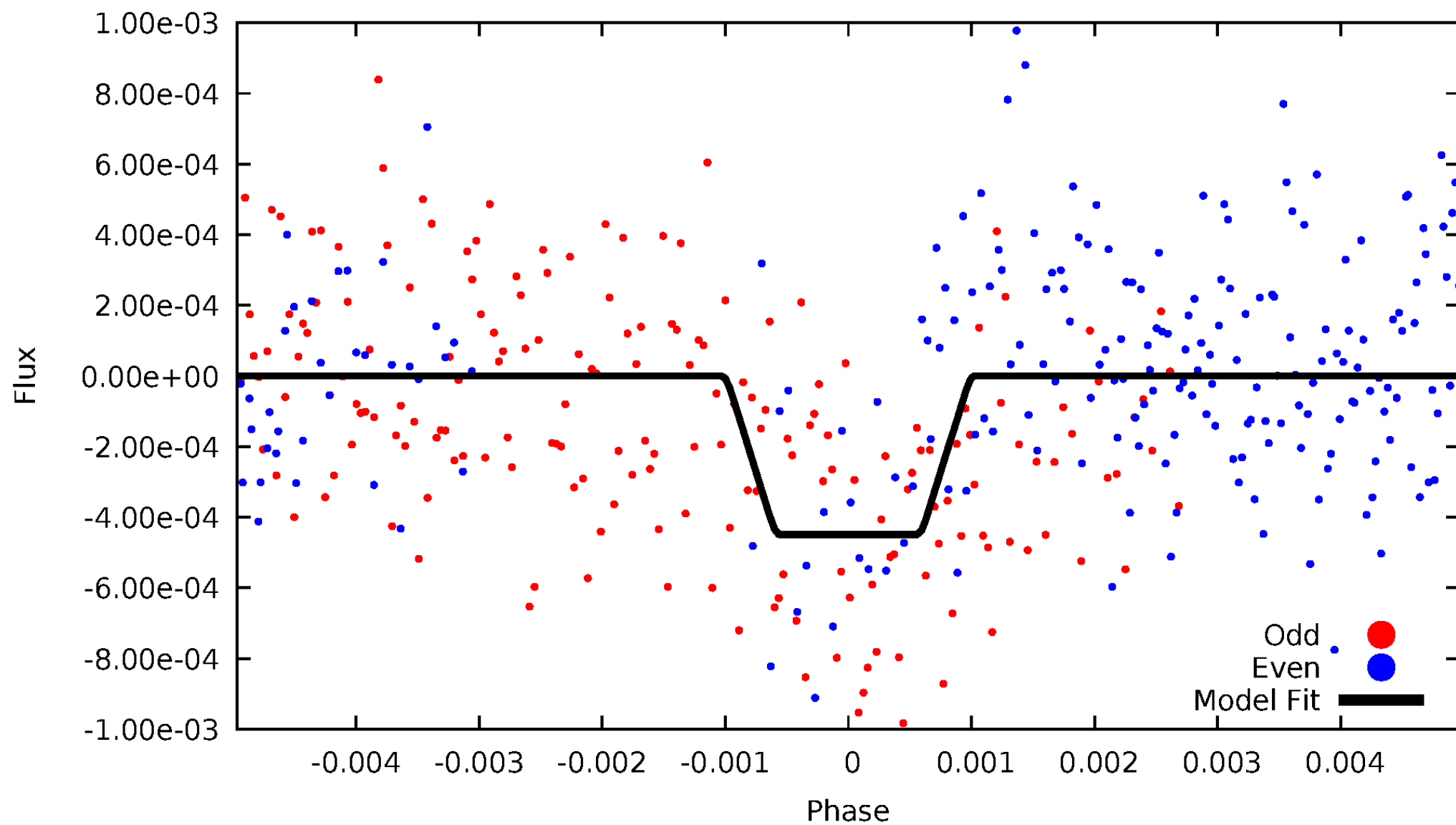
DV Odd/Even

TCE 008843687-02



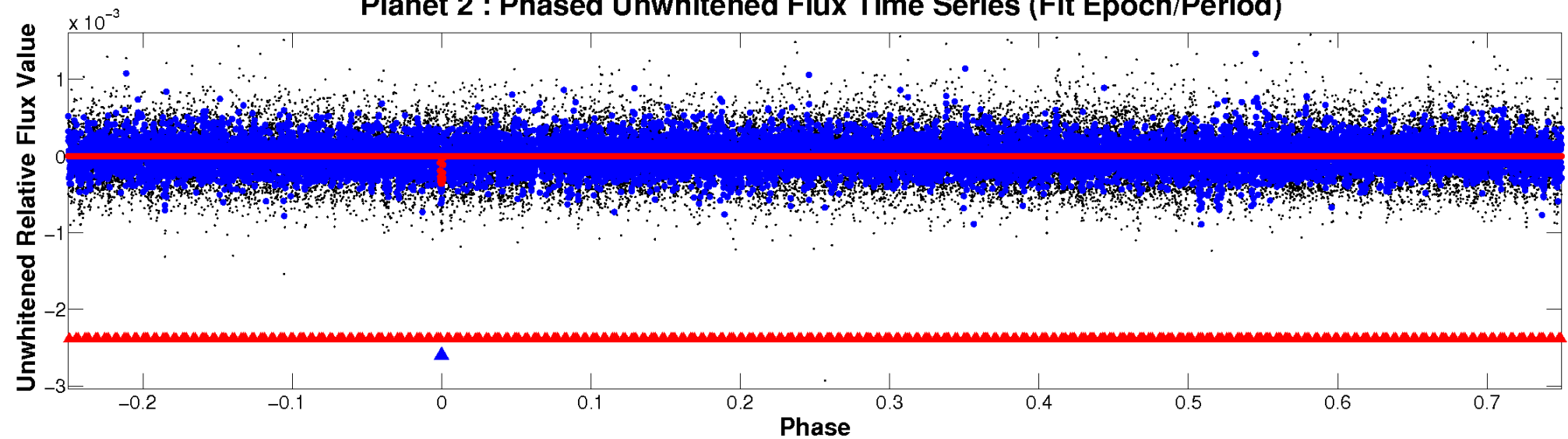
ALT Odd/Even

TCE 008843687-02

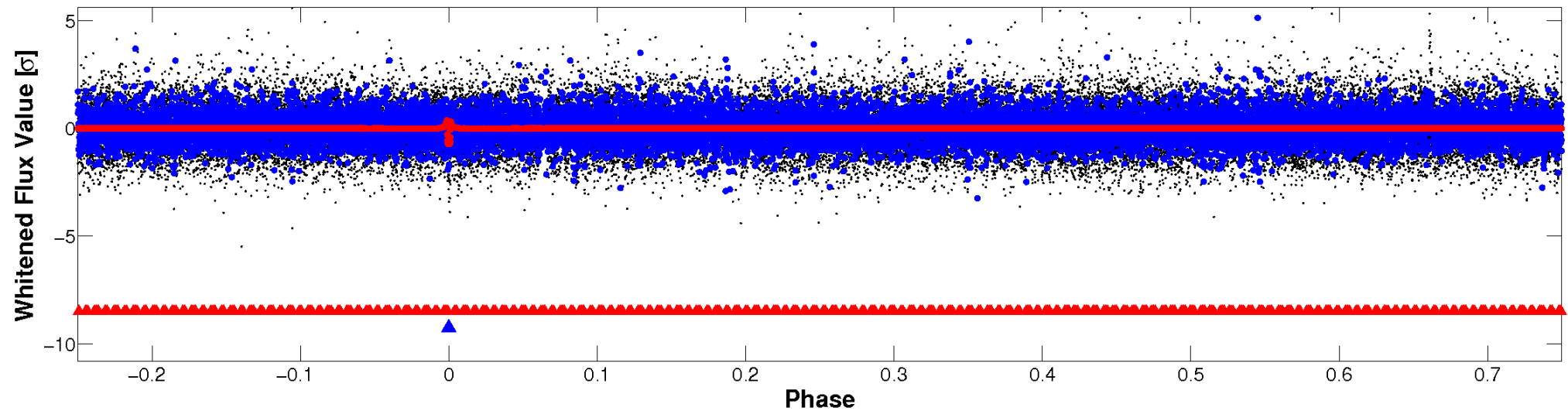


Non-Whitened Vs. Whitened Light Curve

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

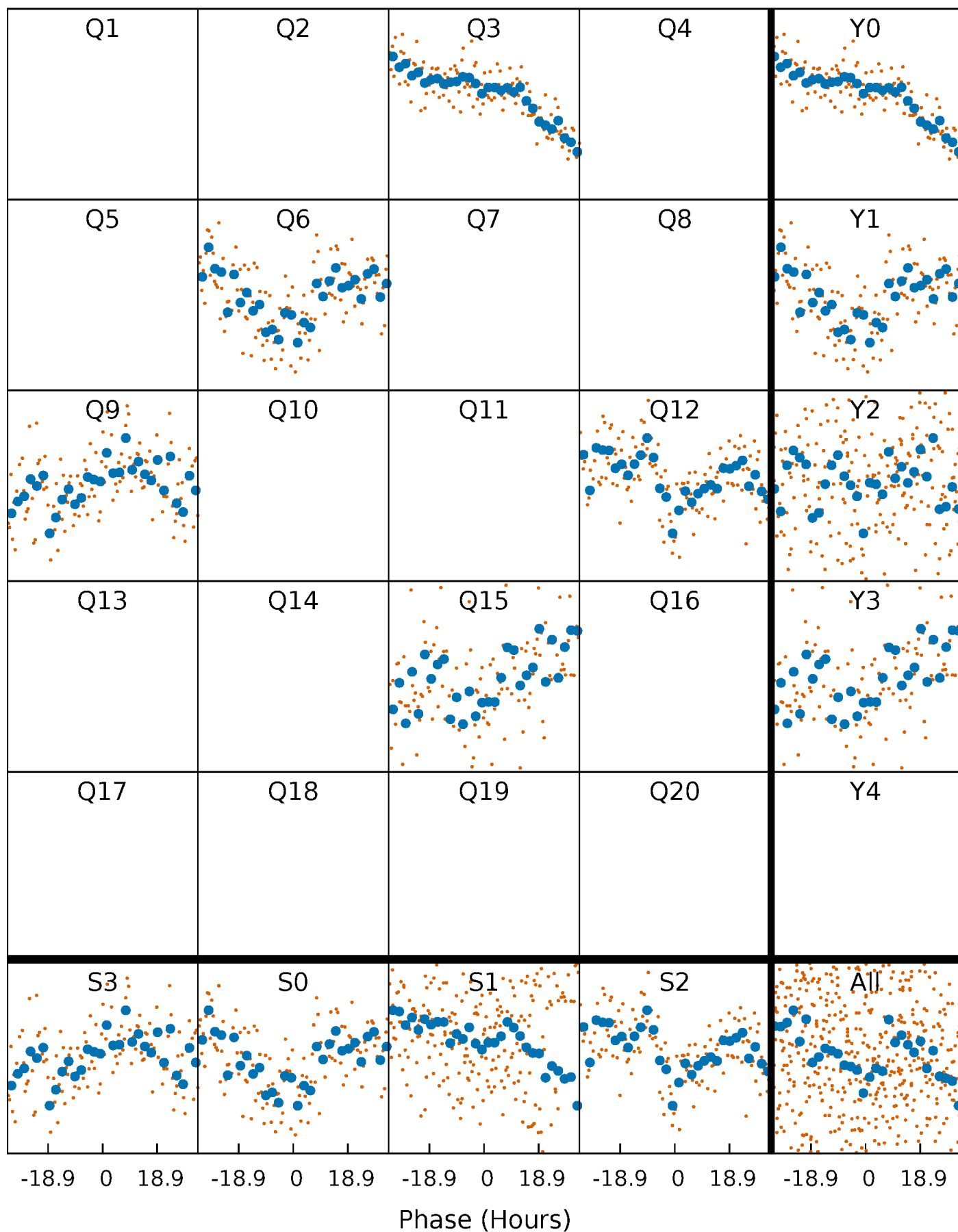


Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



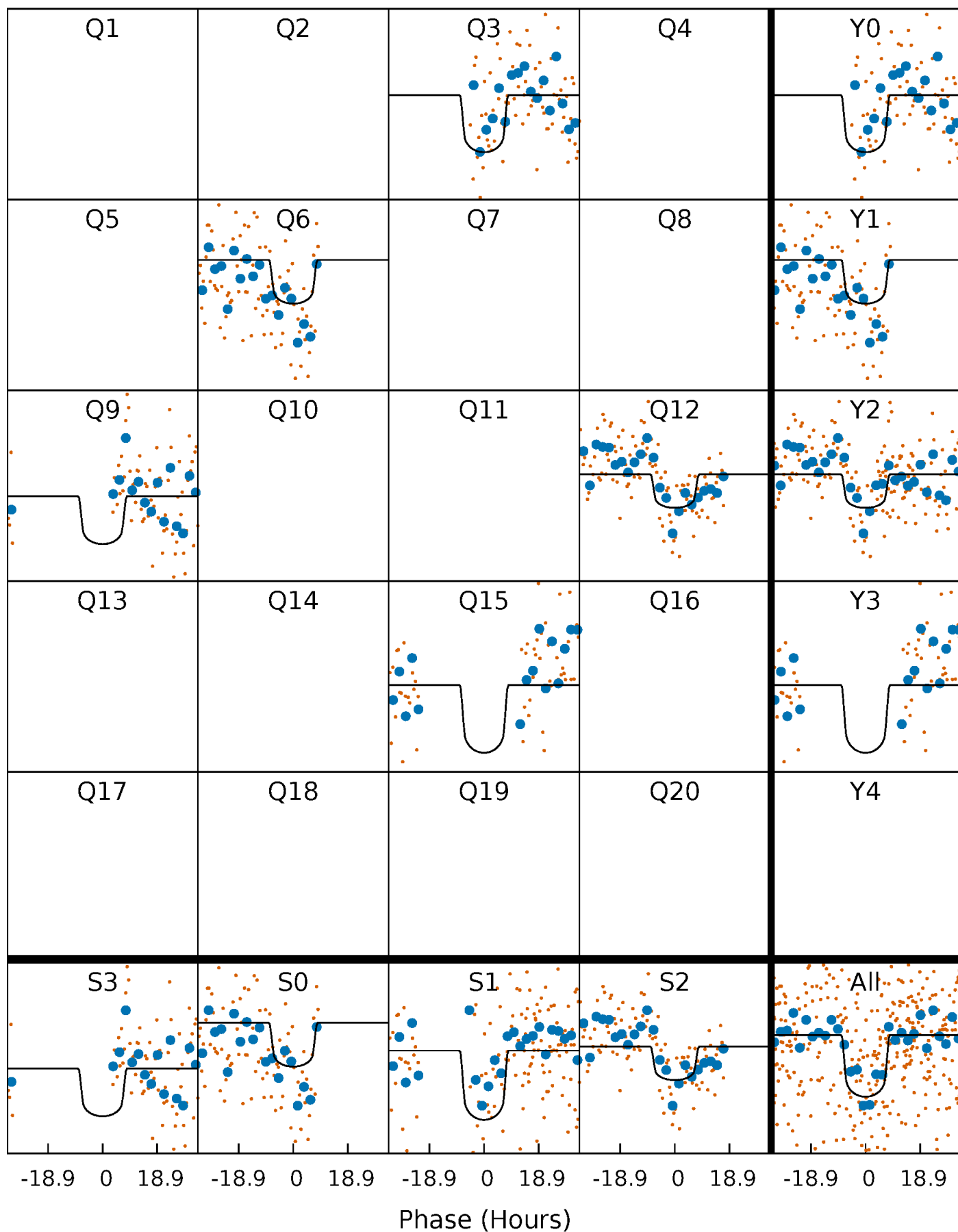
PDC Quarter-Phased Transit Curves

TCE 008843687-02 $P=282.799963$ Days $T_0=297.692505$ (BKJD)



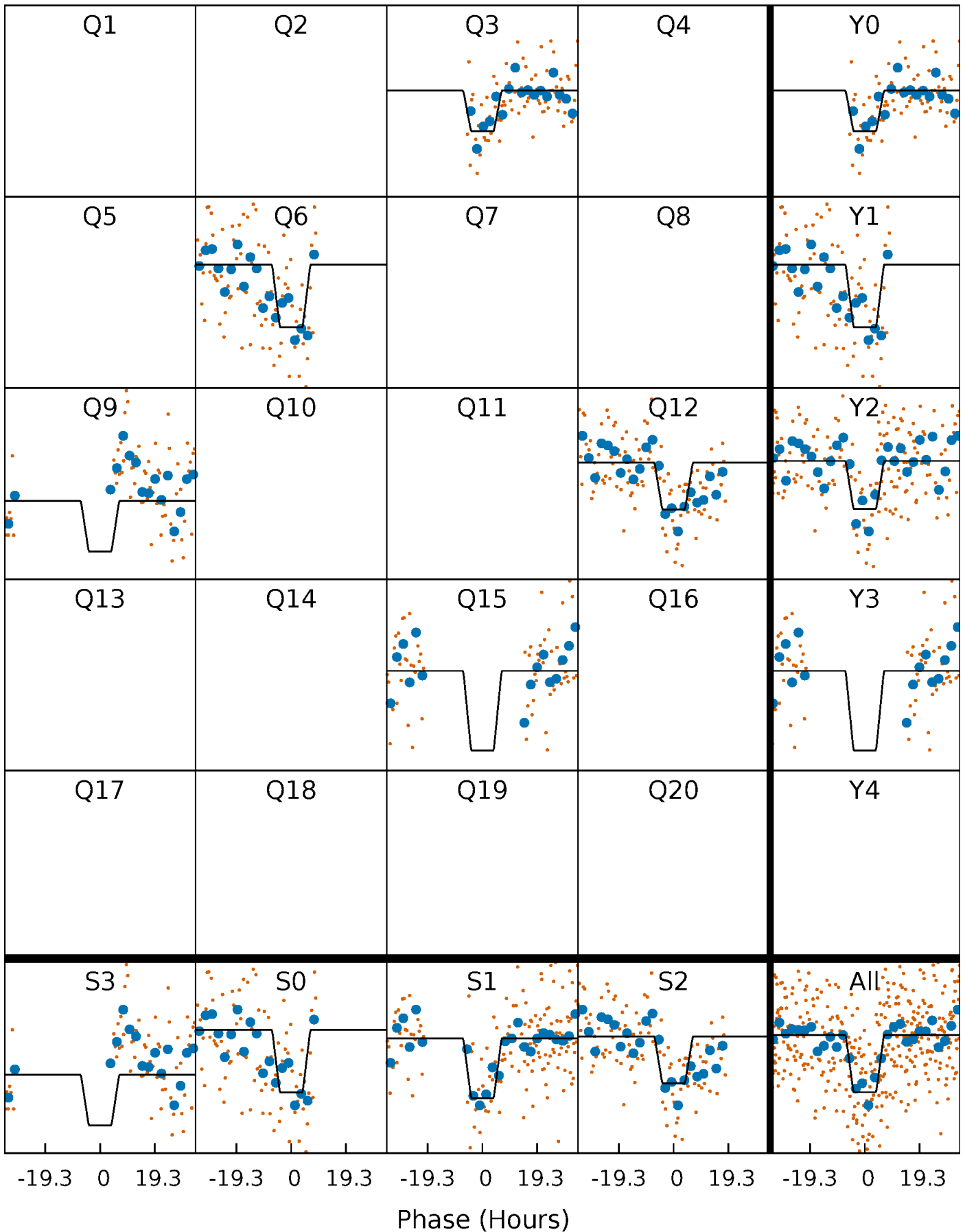
DV Quarter-Phased Transit Curves

TCE 008843687-02 $P=282.799963$ Days $T_0=297.692505$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

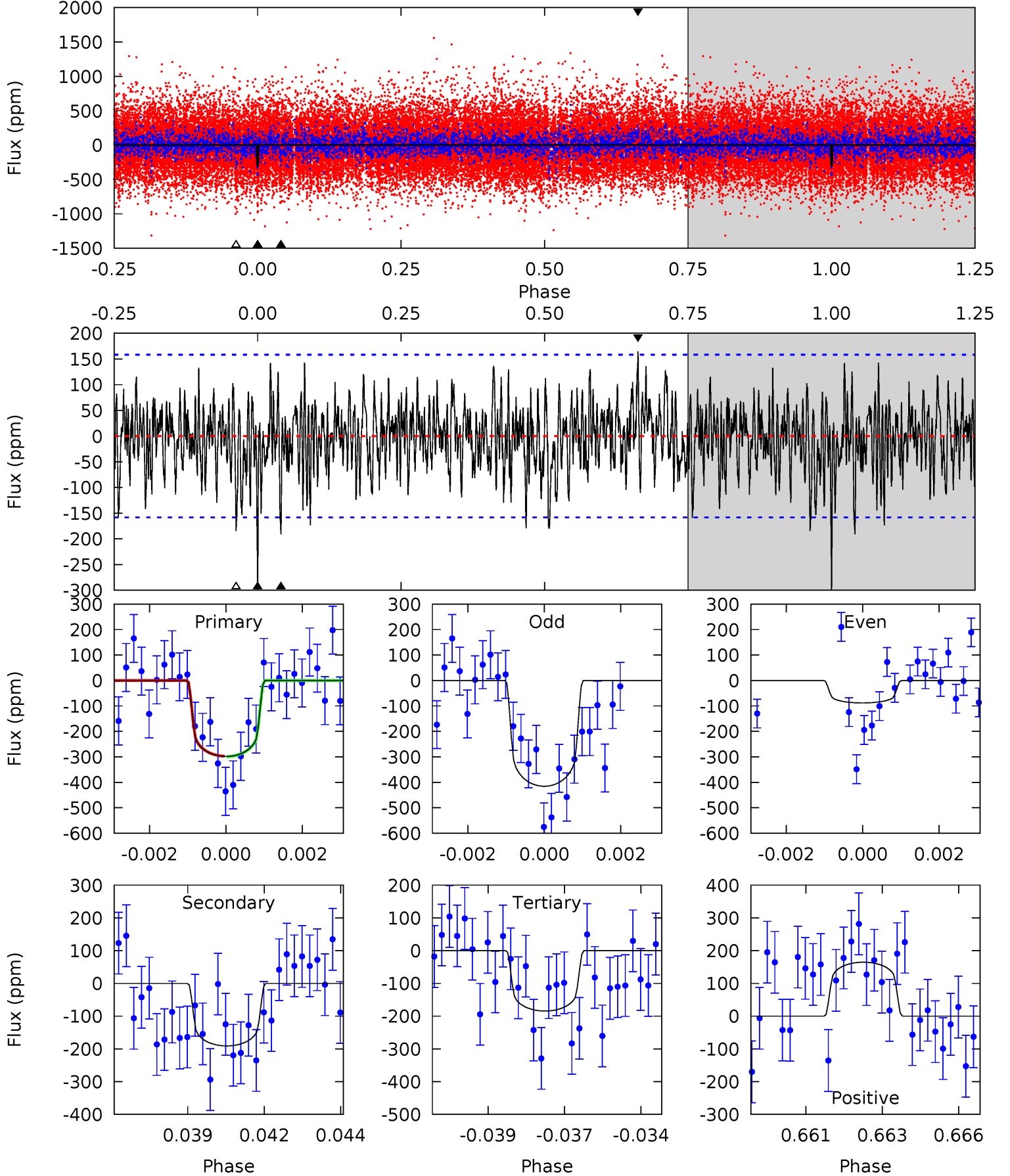
TCE 008843687-02 $P=282.773226$ Days $T_0=297.714269$ (BKJD)



DV Model-Shift Uniqueness Test

008843687-02, P = 282.799963 Days, E = 14.892542 Days

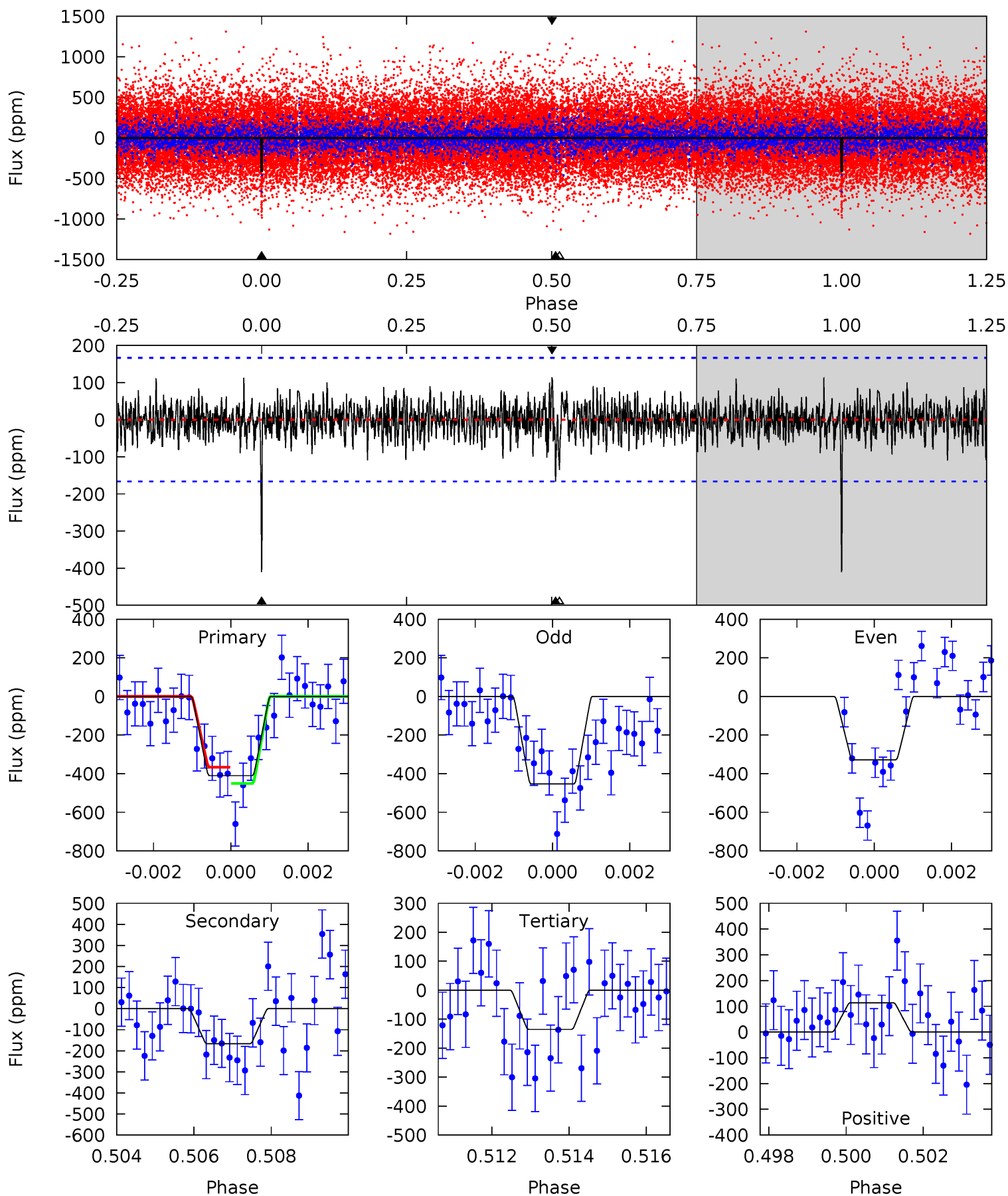
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
9.97	6.38	6.16	5.50	5.29	3.03	1.82	3.80	4.46	0.22	0.88	5.25	0.93	0.36	0.03



Alt Model-Shift Uniqueness Test

008843687-02, P = 282.773226 Days, E = 14.941043 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
13.1	5.34	4.33	3.65	5.33	3.09	1.09	8.79	9.48	1.01	1.69	1.95	0.57	0.22	1.34



Stellar Parameters For KIC 008843687

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	6158^{+185}_{-203}	$4.416^{+0.101}_{-0.188}$	$-0.440^{+0.300}_{-0.300}$	$0.993^{+0.280}_{-0.151}$	$0.937^{+0.127}_{-0.104}$	$1.346^{+0.623}_{-0.683}$
	+3%/-3%	+2%/-4%	+68%/-68%	+28%/-15%	+14%/-11%	+46%/-51%
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 008843687-02 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	-191 ± 30	$2.26^{+0.44}_{-0.40}$	421^{+30}_{-23}	5119^{+435}_{-363}	13599^{+7226}_{-4265}
Alt.	-167 ± 31	$2.34^{+0.49}_{-0.38}$	421^{+31}_{-23}	4916^{+385}_{-341}	11154^{+5457}_{-3728}

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 $A_{obs} \gg 1.0$

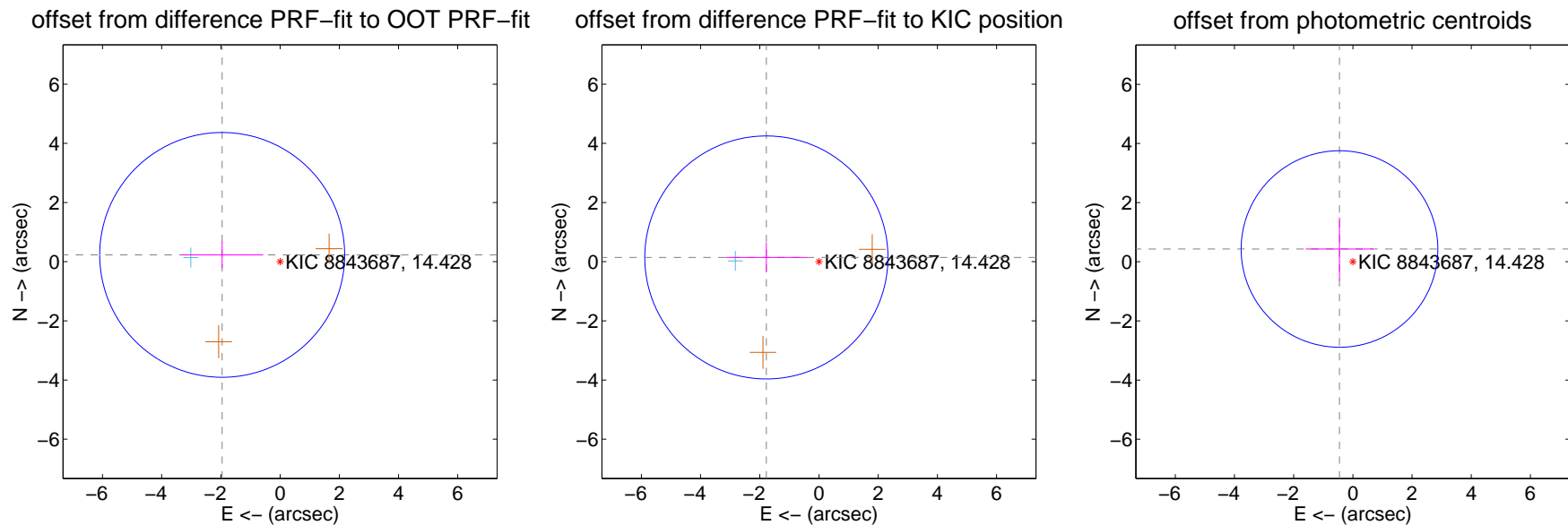
DV Centroid Data

Supplemental centroid analysis for 008843687-02. Kepler magnitude: 14.43. Transit SNR 6.75

There are 1 quarters with good PRF difference image offsets

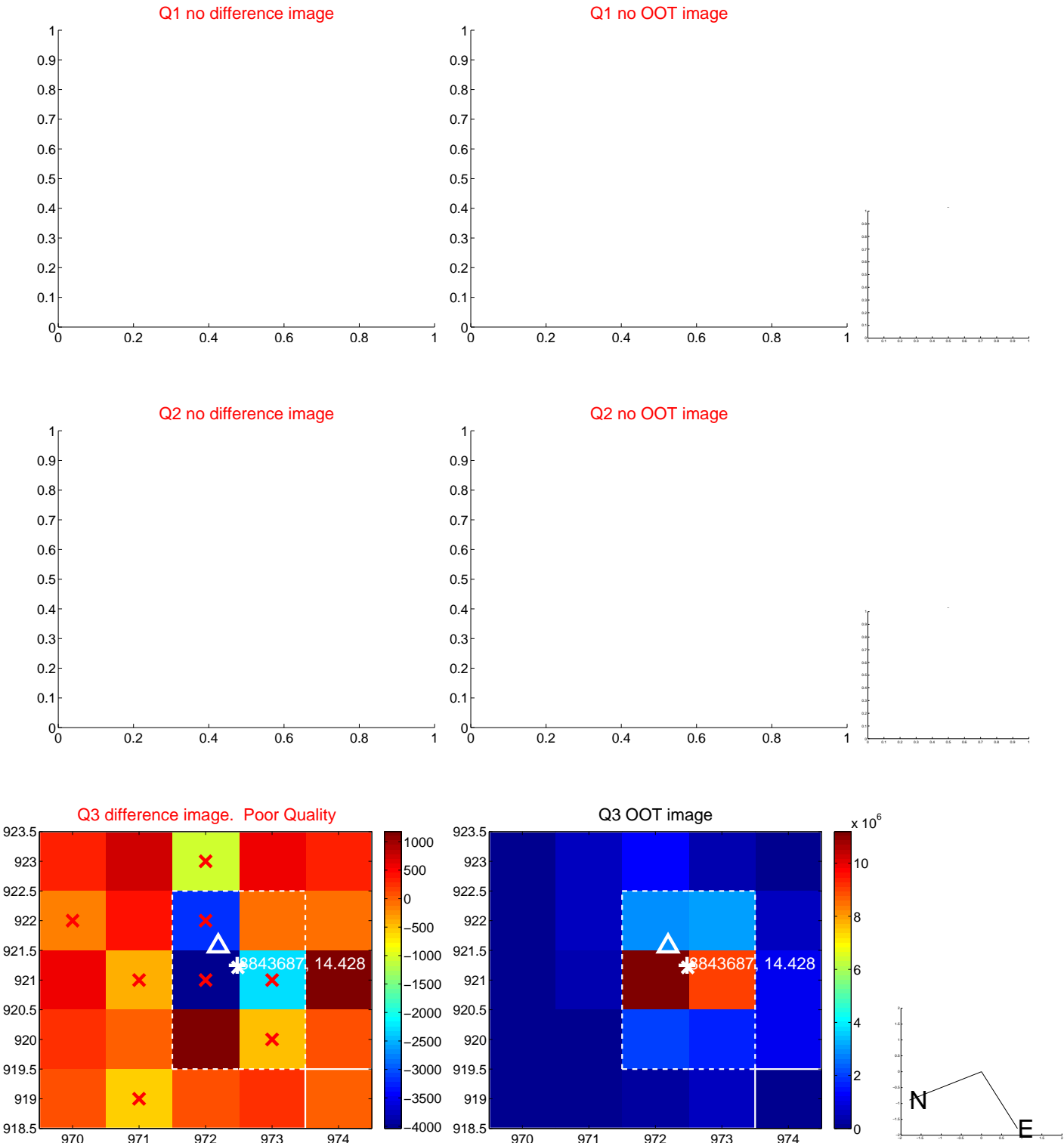
The direct PRF centroid is offset from the target star catalog position by about 0.40 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	1.970 ± 1.379	1.43	1.957 ± 1.387	0.230 ± 0.451
PRF-fit source offset from KIC position	1.783 ± 1.369	1.30	1.777 ± 1.373	0.144 ± 0.504
photometric centroid source offset	0.62 ± 1.11	0.56	0.45 ± 1.14	0.43 ± 1.07



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 ×: KIC target position; +: OOT centroid; △: difference centroid. red ✕: large negative pixel value.

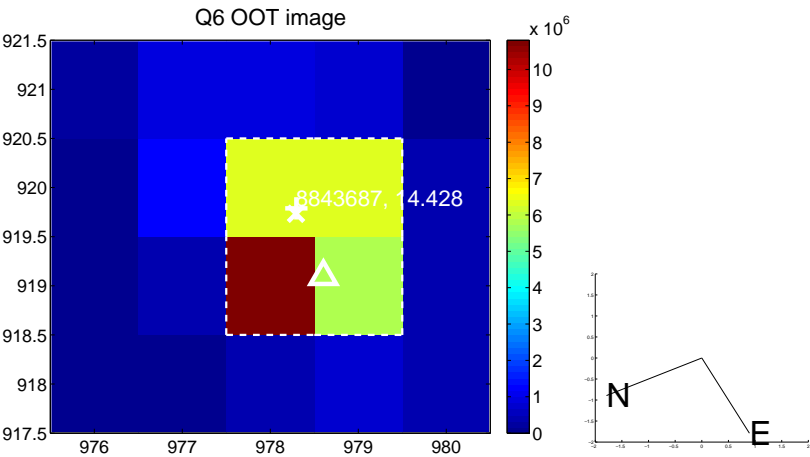
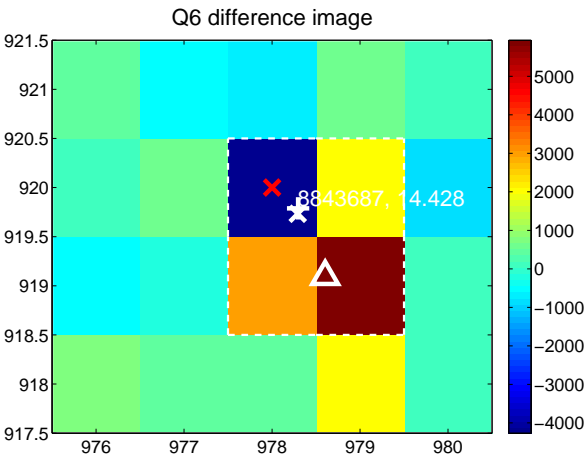


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.

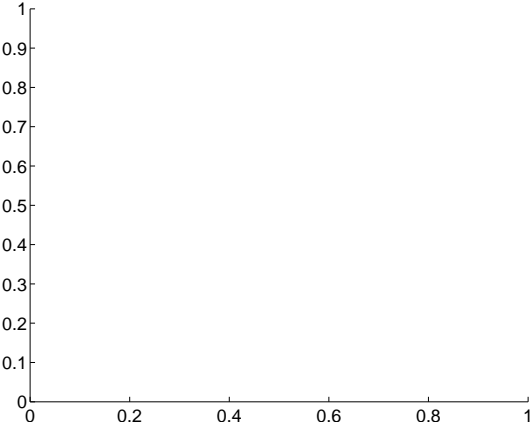
Q5 no difference image



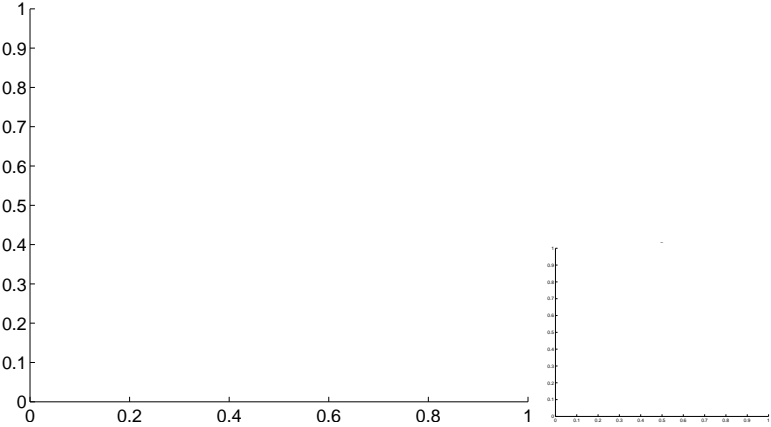
Q5 no OOT image



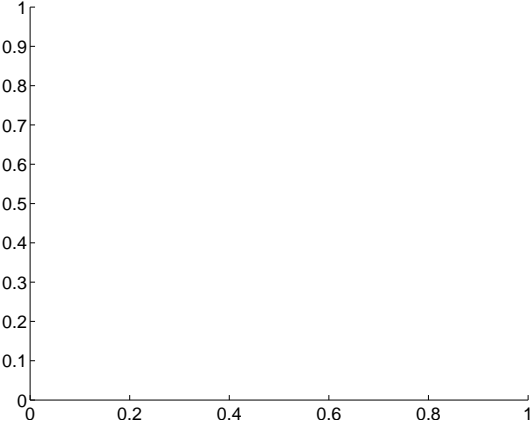
Q7 no difference image



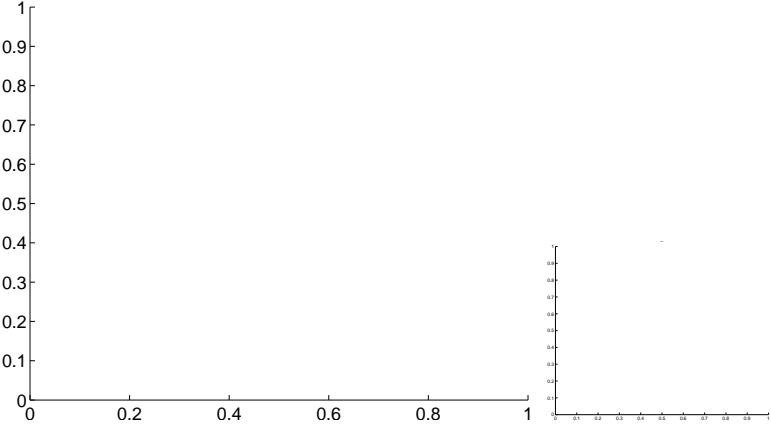
Q7 no OOT image



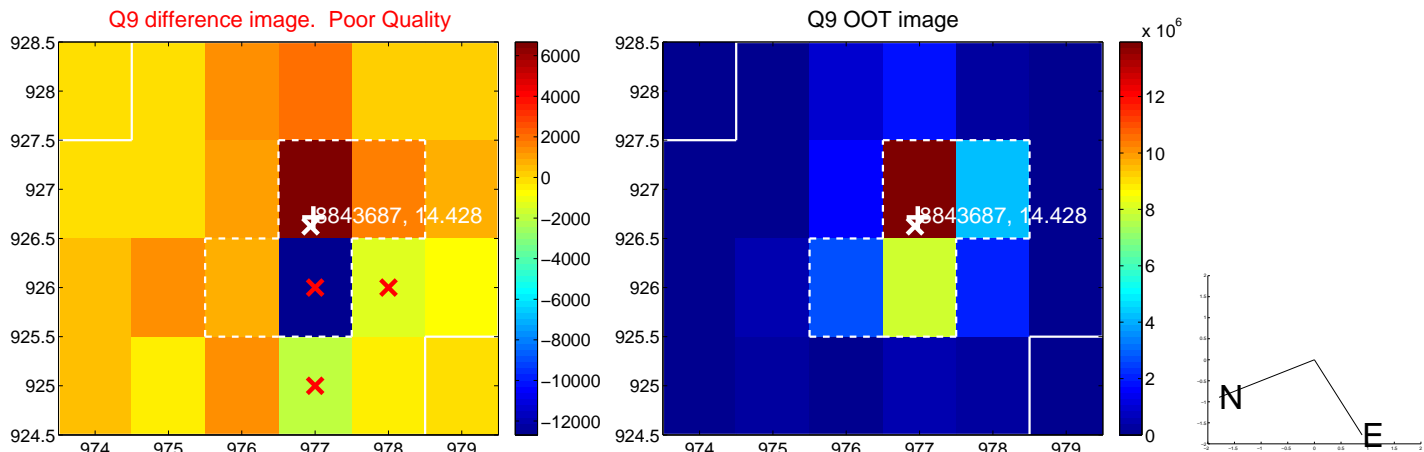
Q8 no difference image



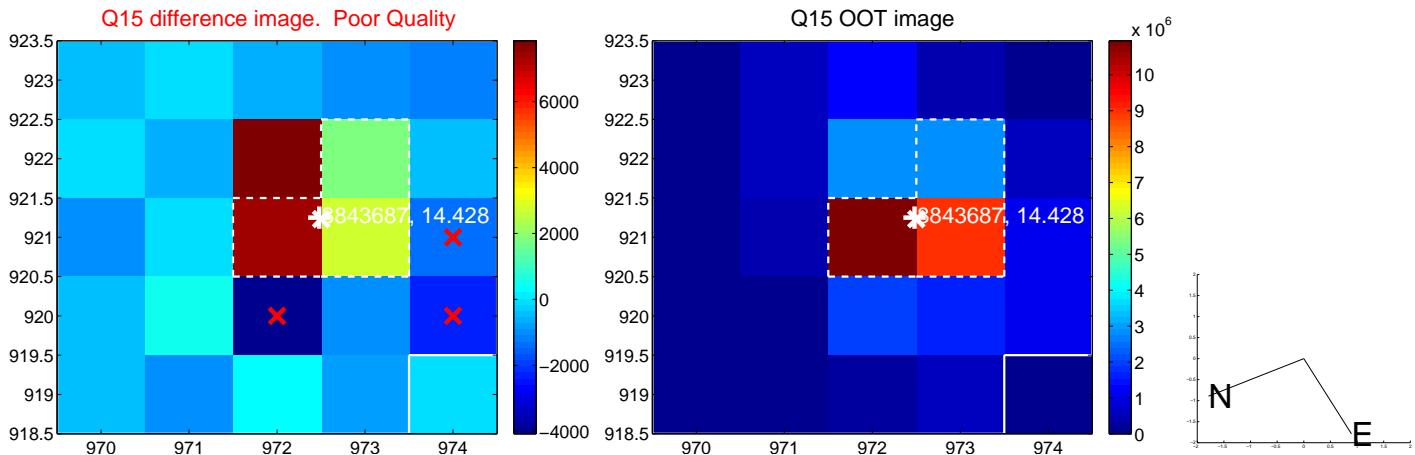
Q8 no OOT image



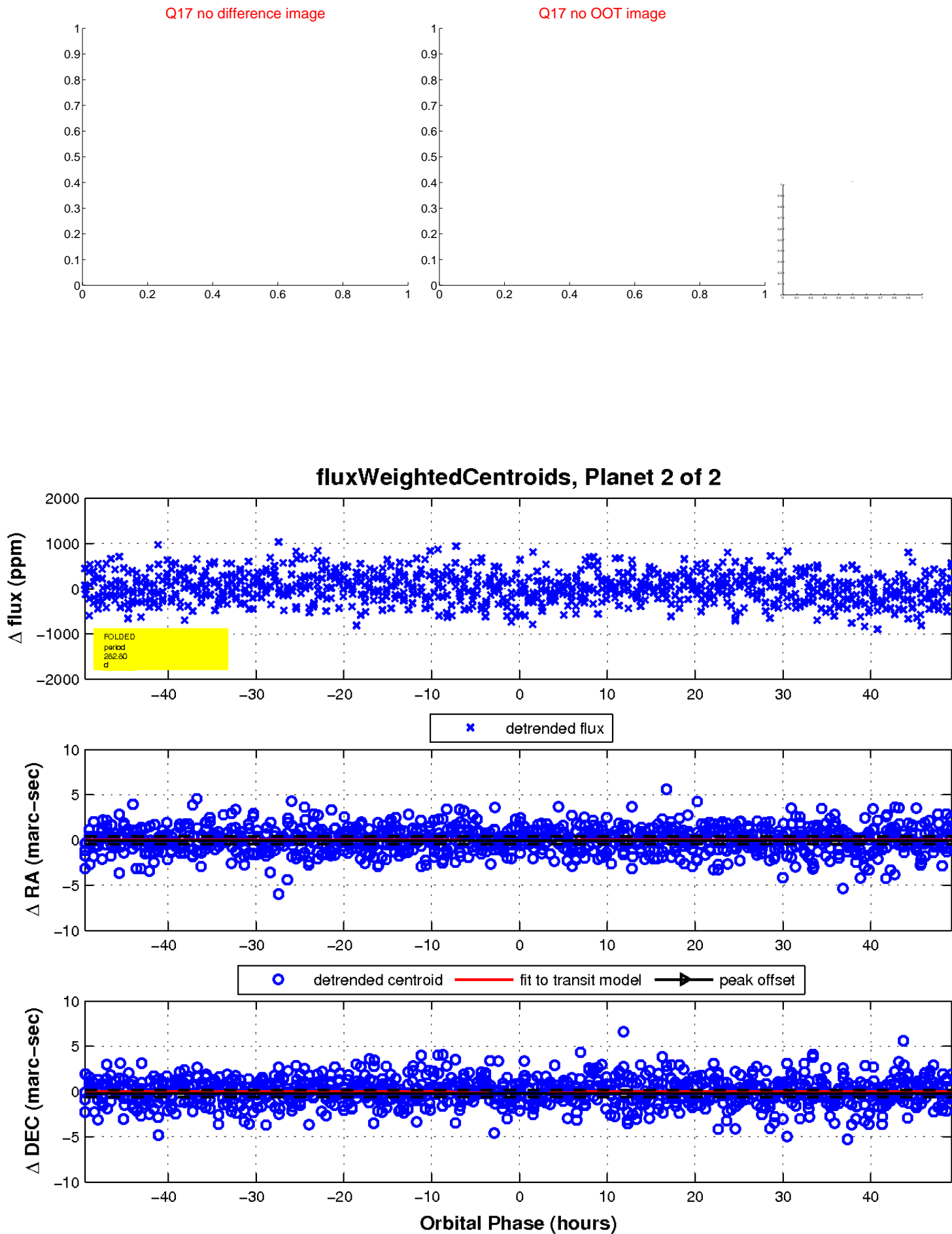
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

