

KIC 008651551

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})
008651551-01	OBS	3841.01	1.527496	132.257961	31990.3	5.396	1187.3	701.0	0.59	4273	17.02	225.70
008651551-02	OBS	No	3.054892	133.251252	990.8	6.000	8.4	-1.0	0.59	4273	1.81	89.57

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
008651551-01	OBS	FP	0.00	0	1	1	0	SWEET_EB—DEEP_V_SHAPED—HAS_SEC_TCE—SEASONAL_DEPTH_DV—SEASONAL_DEPTH_ALT—CENT_RESOLVED_OFFSET—HALO_GHOST
008651551-02	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—RESIDUAL_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.

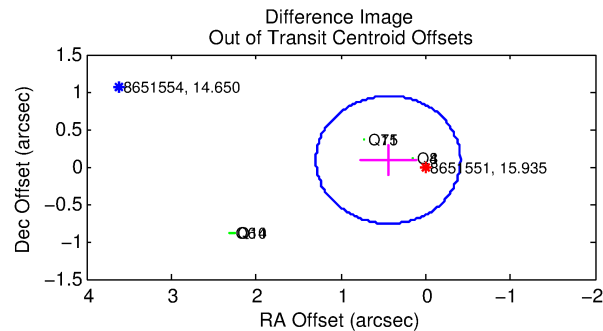
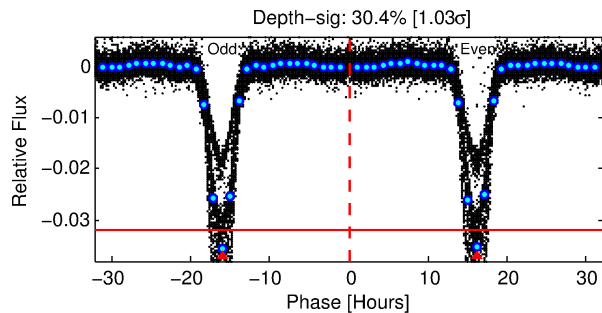
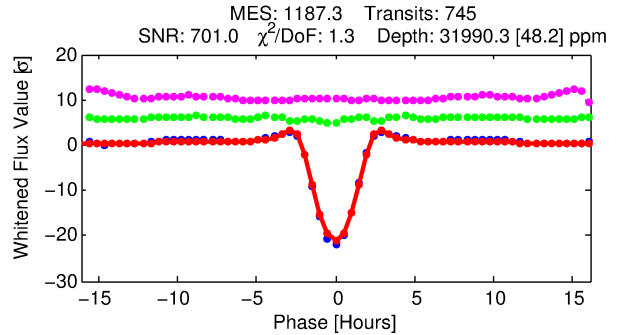
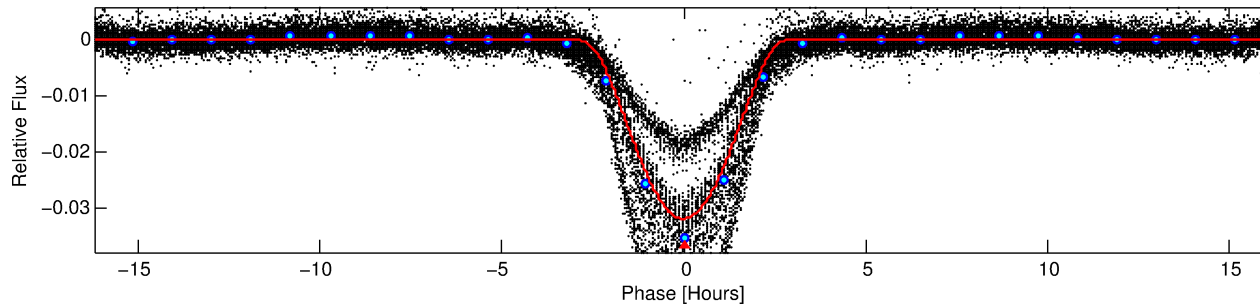
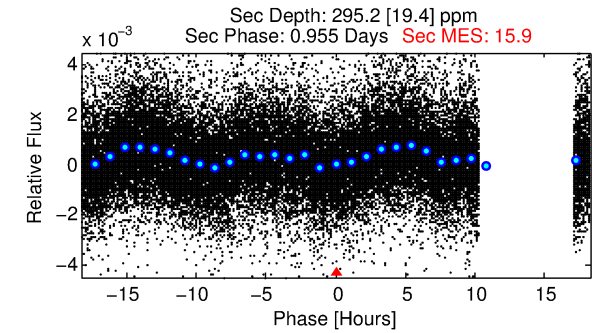
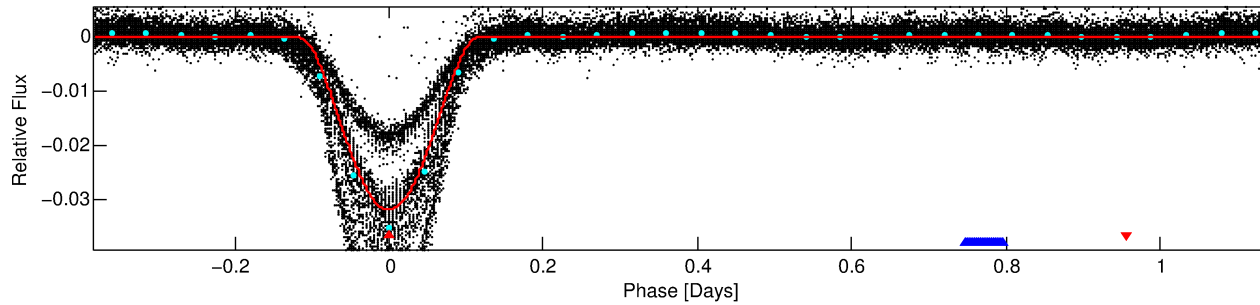
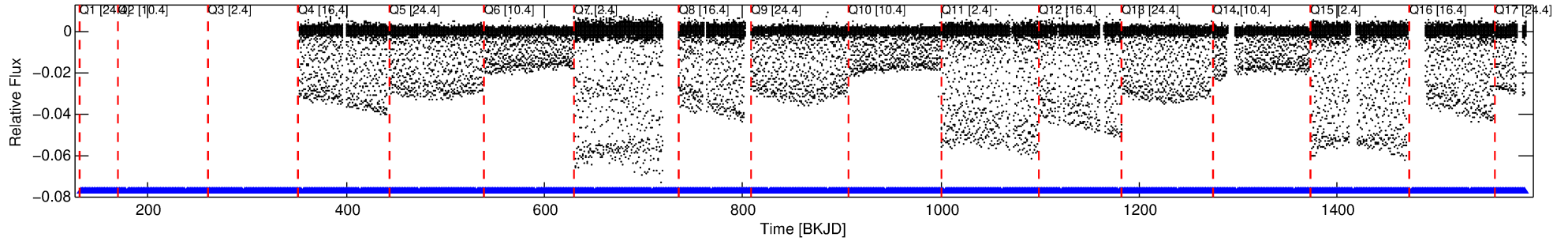
Ephemeris Match Information For 008651551-01

No Significant Match Found

DV One-Page Summary

KIC: 8651551 Candidate: 1 of 2 Period: 1.527 d
KOI: K03841.01 Corr: 0.852

Kp: 15.94 R*: 0.59 Rs Teff: 4273.0 K Logg: 4.65 Fe/H: -0.360



DV Fit Results:

Period = 1.52750 [0.00000] d
Epoch = 132.2580 [0.0001] BKJD
Rp/R* = 0.2622 [0.0112]
a/R* = 2.07 [0.00]
b = 0.96 [0.02]
Seff = 225.70 [43.46]
Teq = 988 [48] K
Rp = 17.02 [2.00] Re
a = 0.0216 [0.0019] AU
Ag = 0.26 [0.04] [-17.70σ]
Teffp = 1094 [51] K [1.51σ]

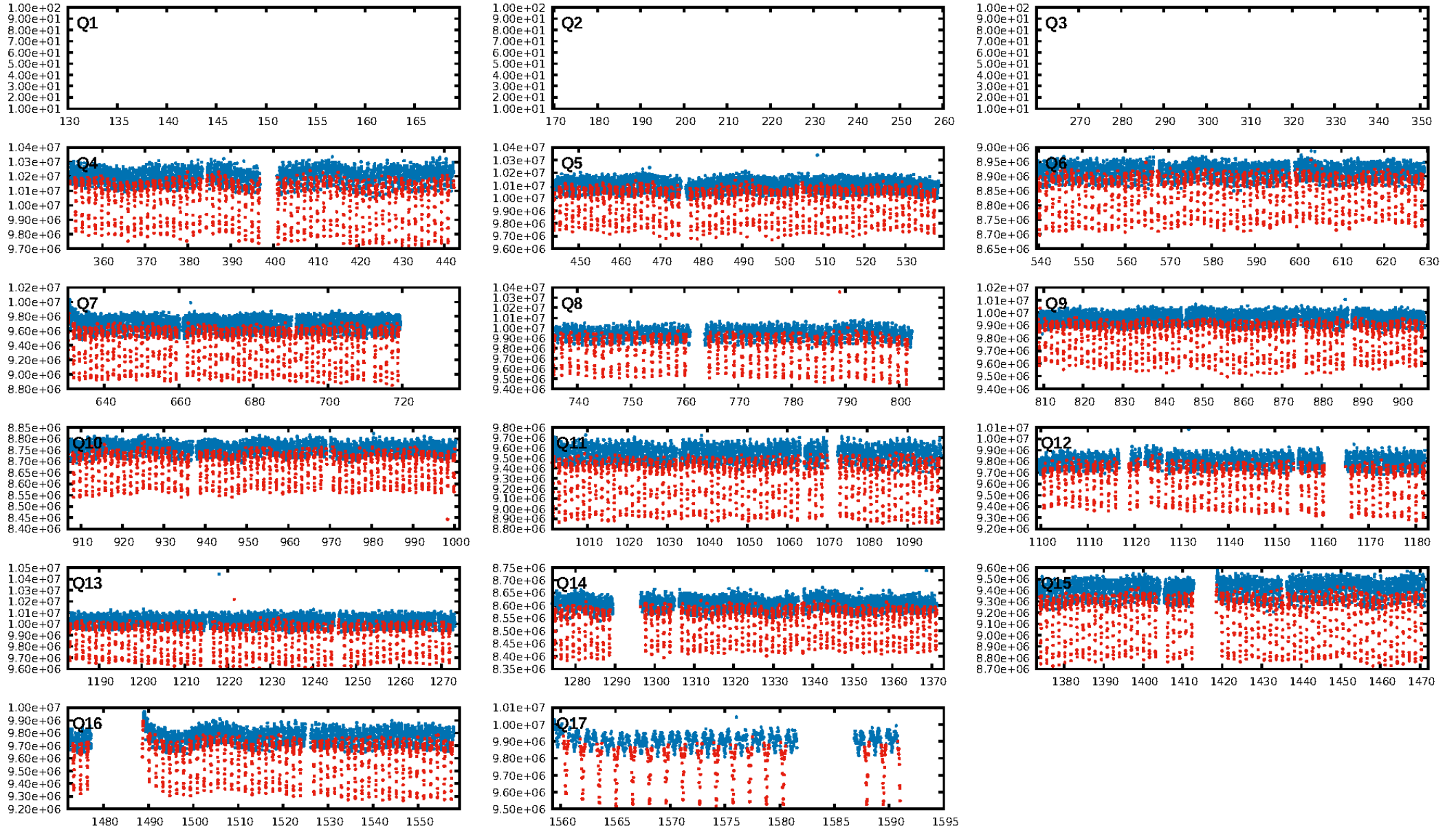
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: 100.0% [4.54σ]
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: N/A
RollingBand-fgt: 1.00 [728/728]
GhostDiagnostic-chr: -0.1604
Centroid-sig: N/A
Centroid-so: 4.827 arcsec [1035.37σ]
OotOffset-rm: 0.449 arcsec [1.58σ]
KicOffset-rm: 7.089 arcsec [11.15σ]
OotOffset-st: 3/3/2/0 [8]
KicOffset-st: 3/3/2/0 [8]
DiffImageQuality-fgm: 1.00 [8/8]
DiffImageOverlap-fno: 1.00 [14/14]

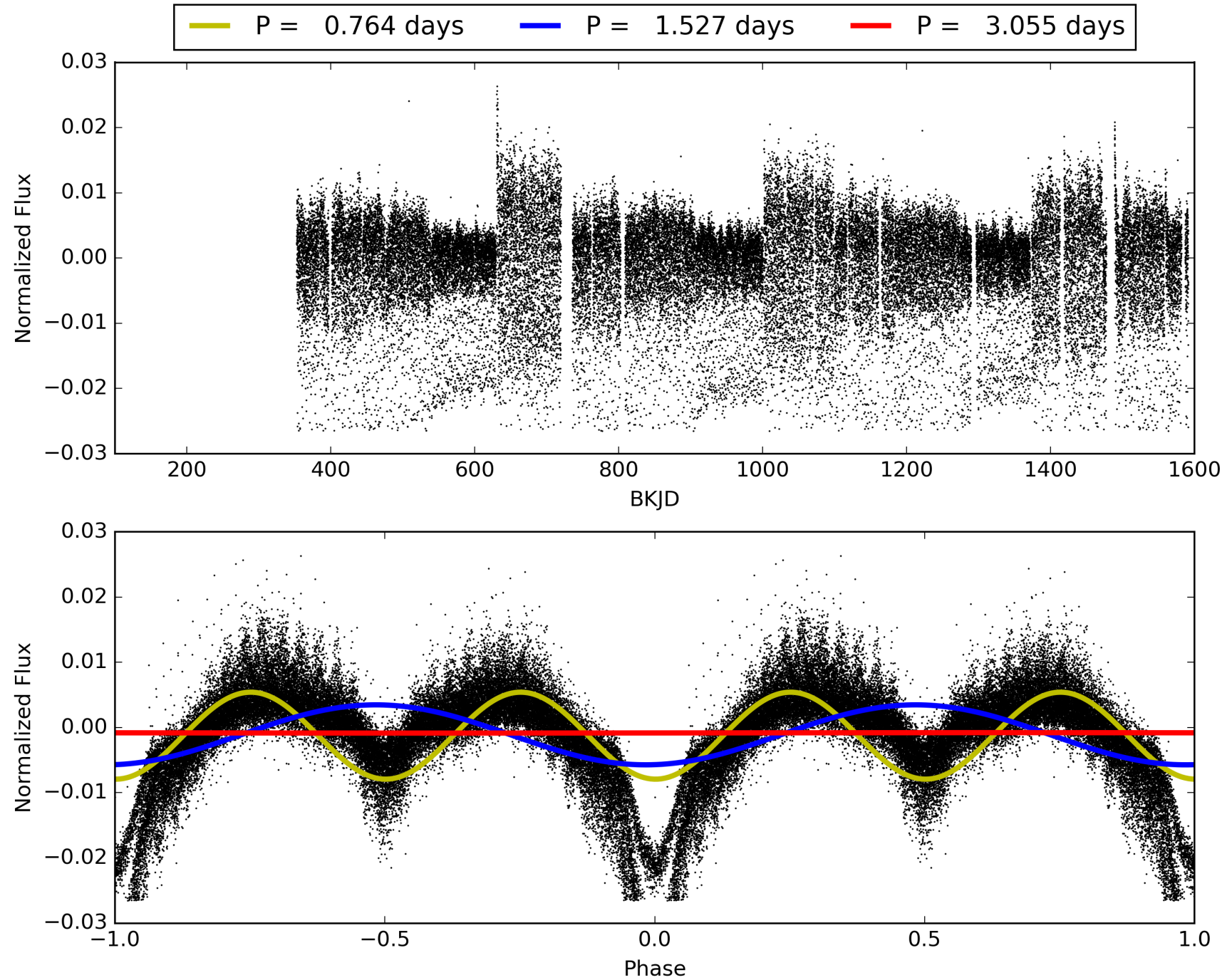
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 31-Jan-2016 07:04:00 Z

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

TCE 008651551-01, PDC Light Curves

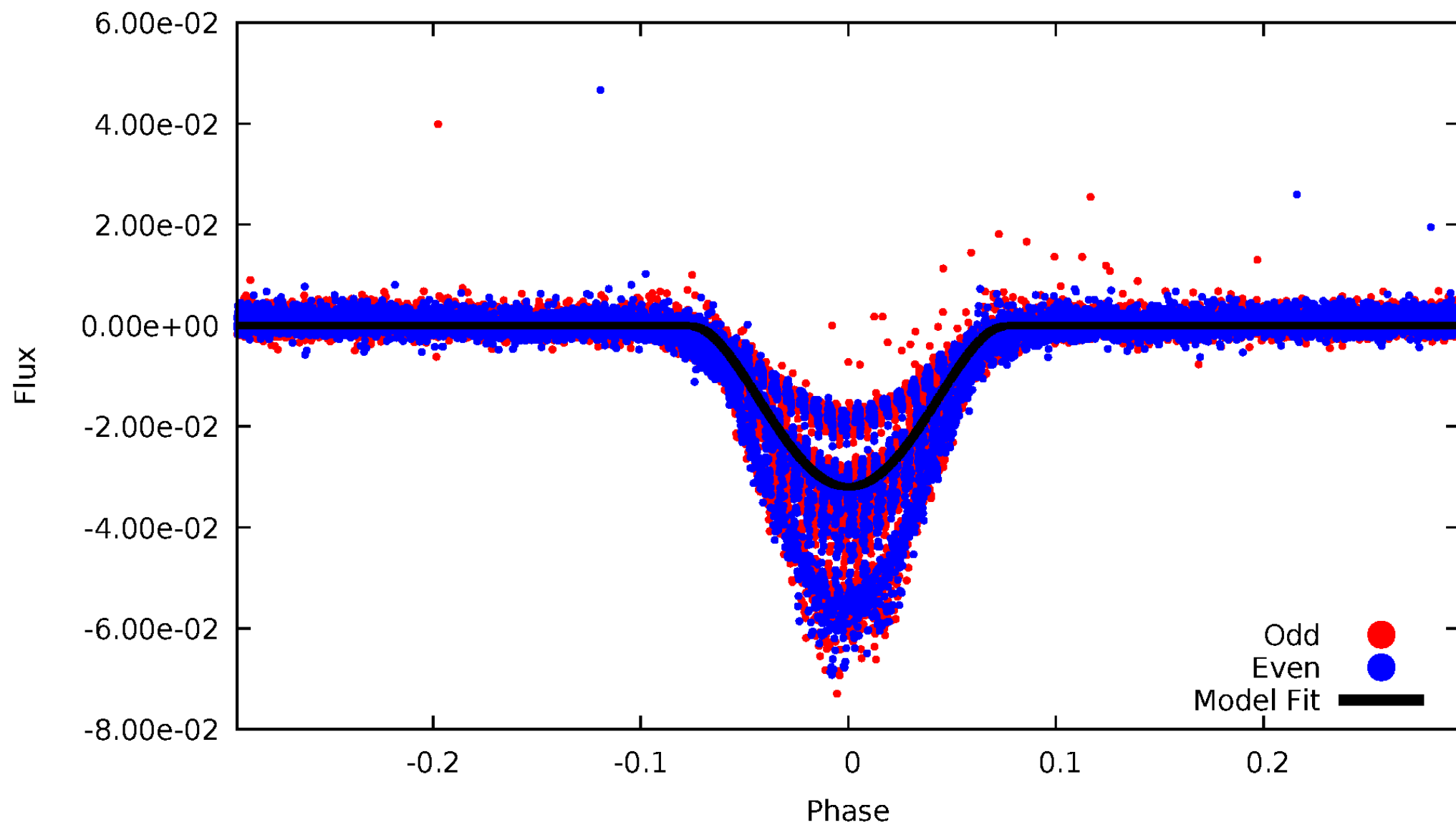


TCE 008651551-01



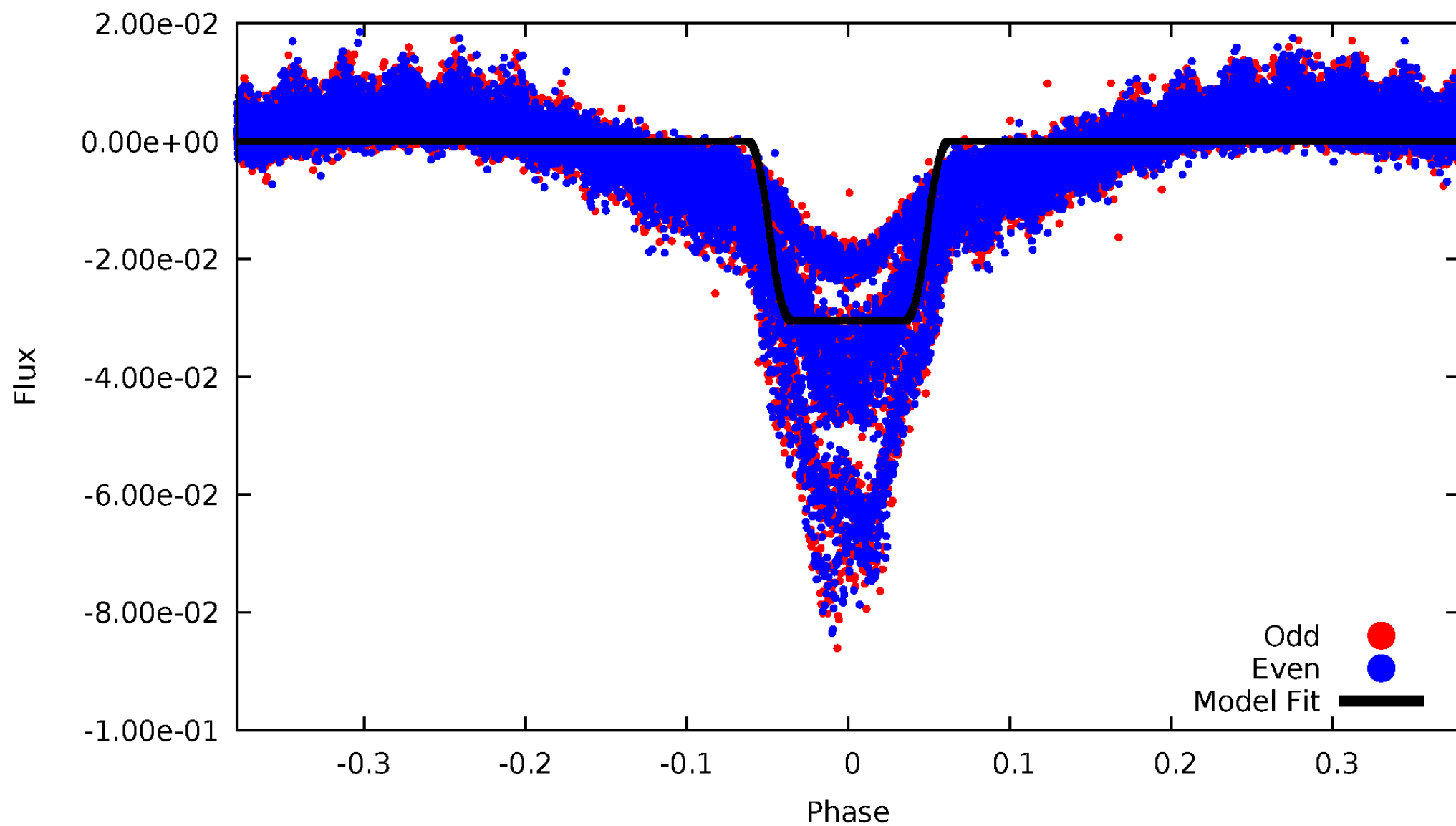
DV Odd/Even

TCE 008651551-01



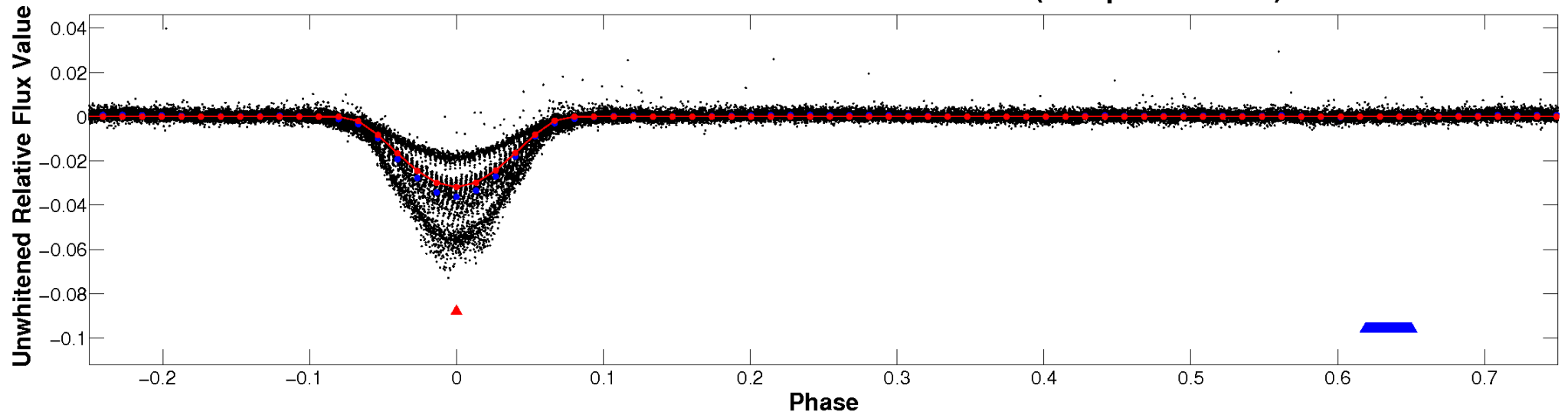
ALT Odd/Even

TCE 008651551-01

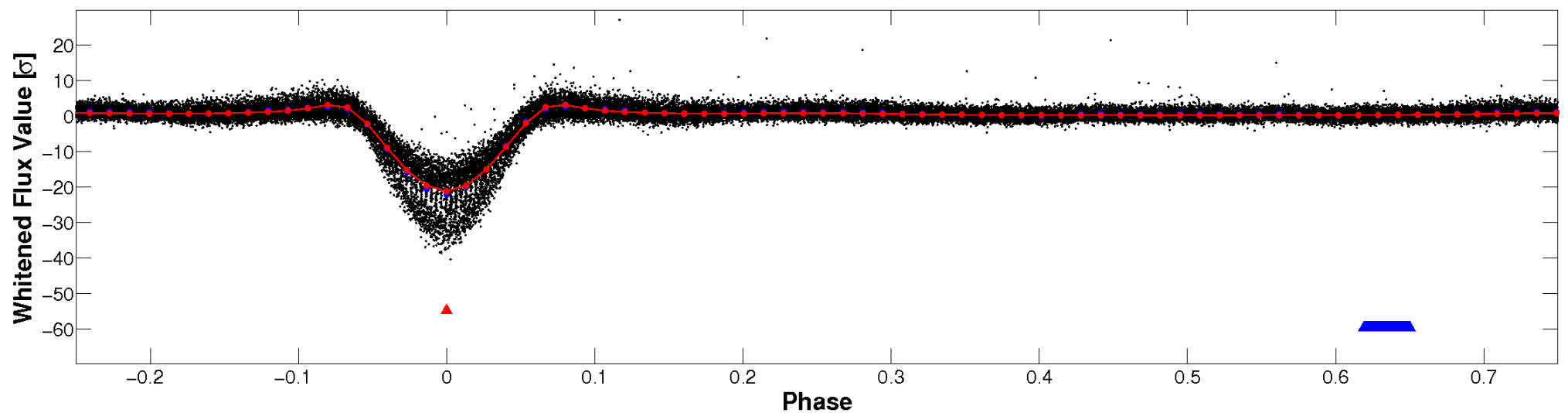


Non-Whitened Vs. Whitened Light Curve

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

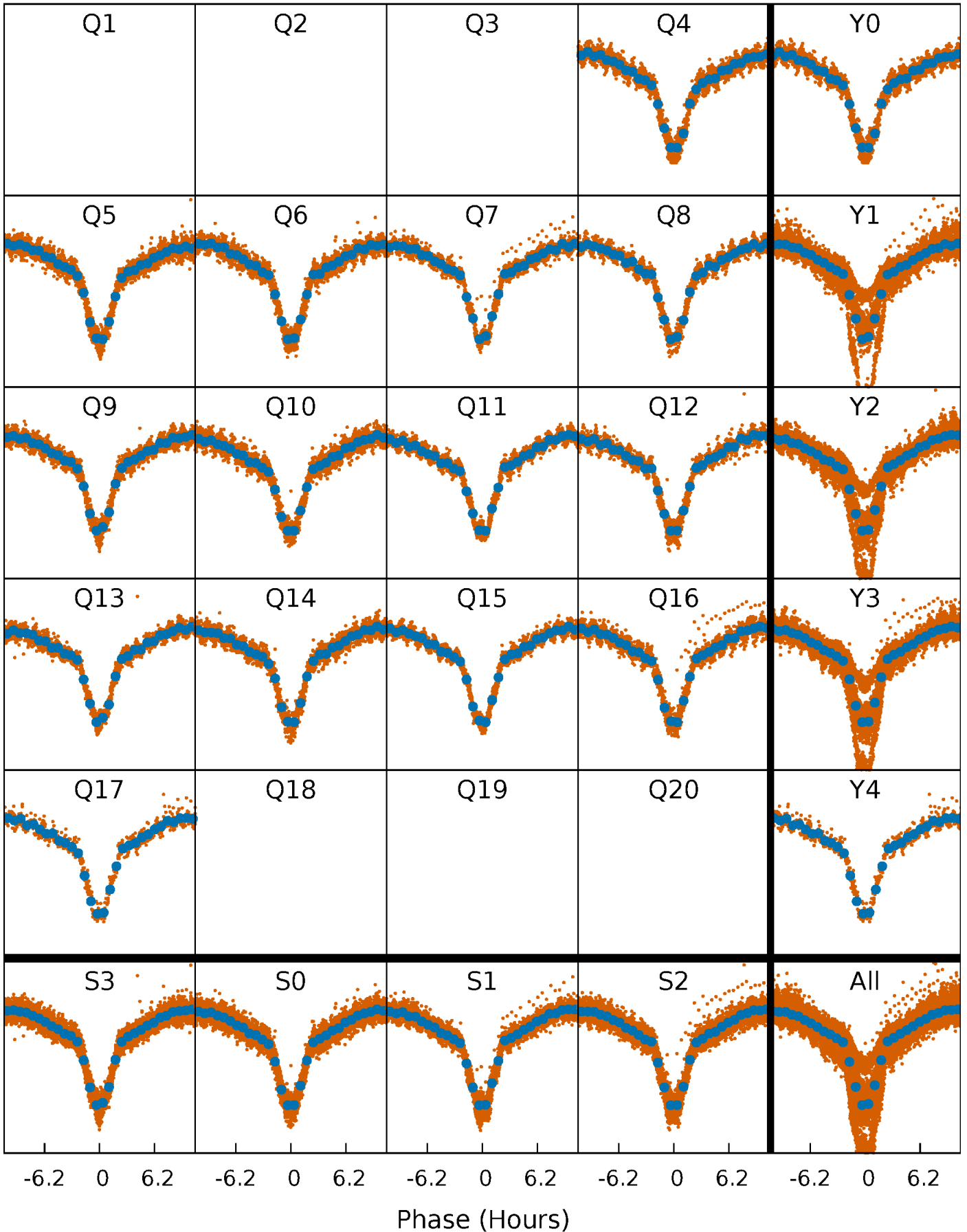


Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)



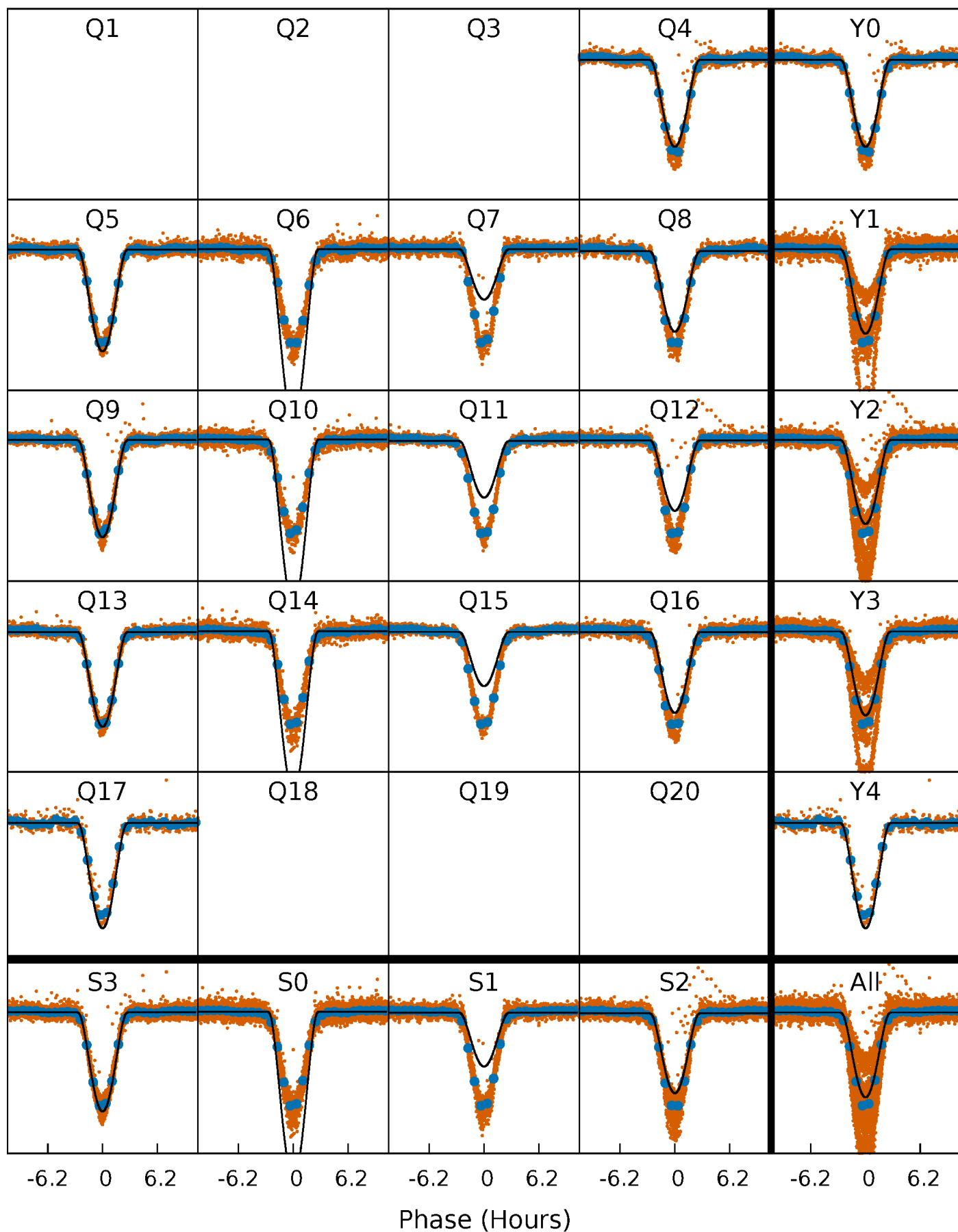
PDC Quarter-Phased Transit Curves

TCE 008651551-01 P= 1.527496 Days $T_0=132.257961$ (BKJD)



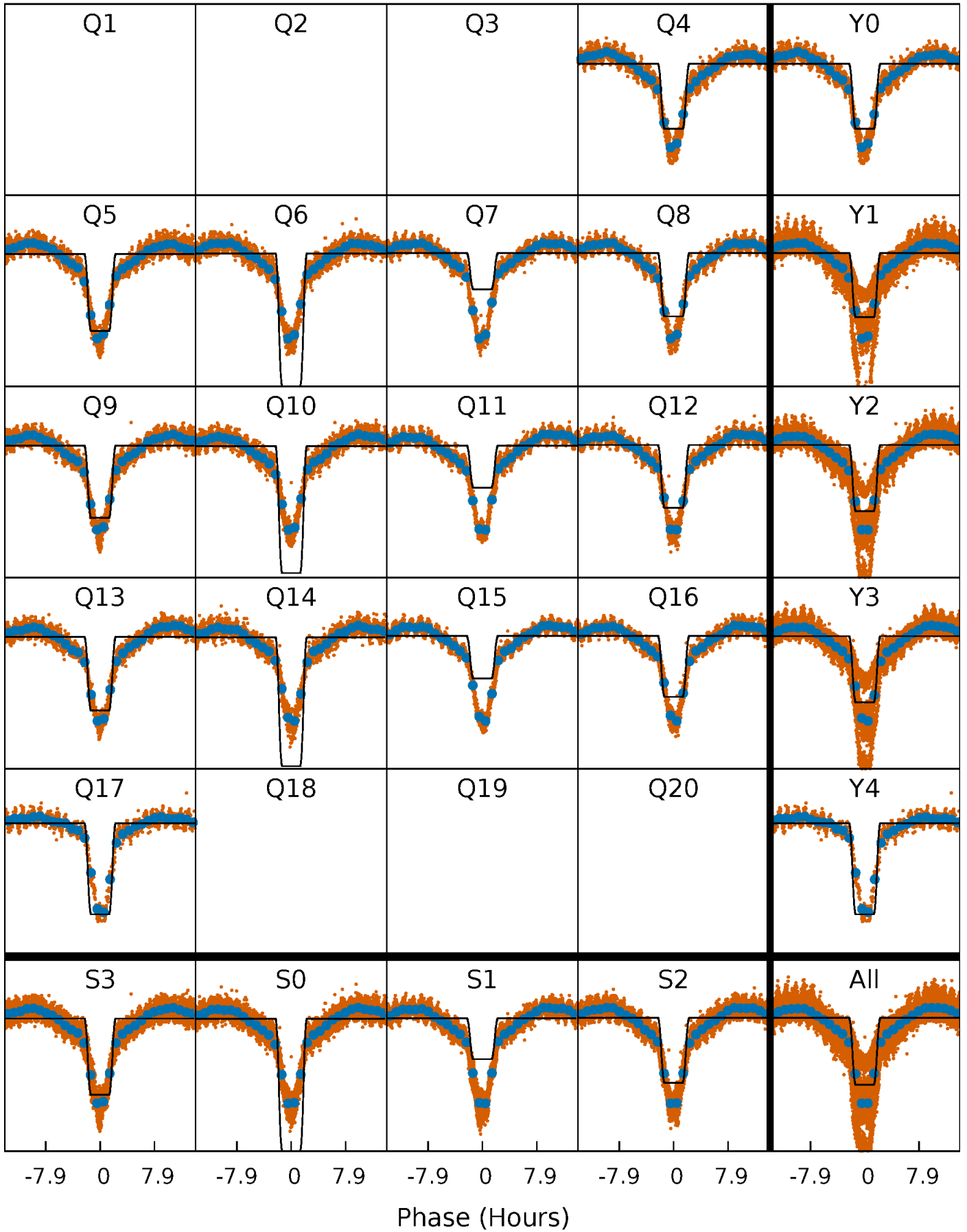
DV Quarter-Phased Transit Curves

TCE 008651551-01 P= 1.527496 Days $T_0=132.257961$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

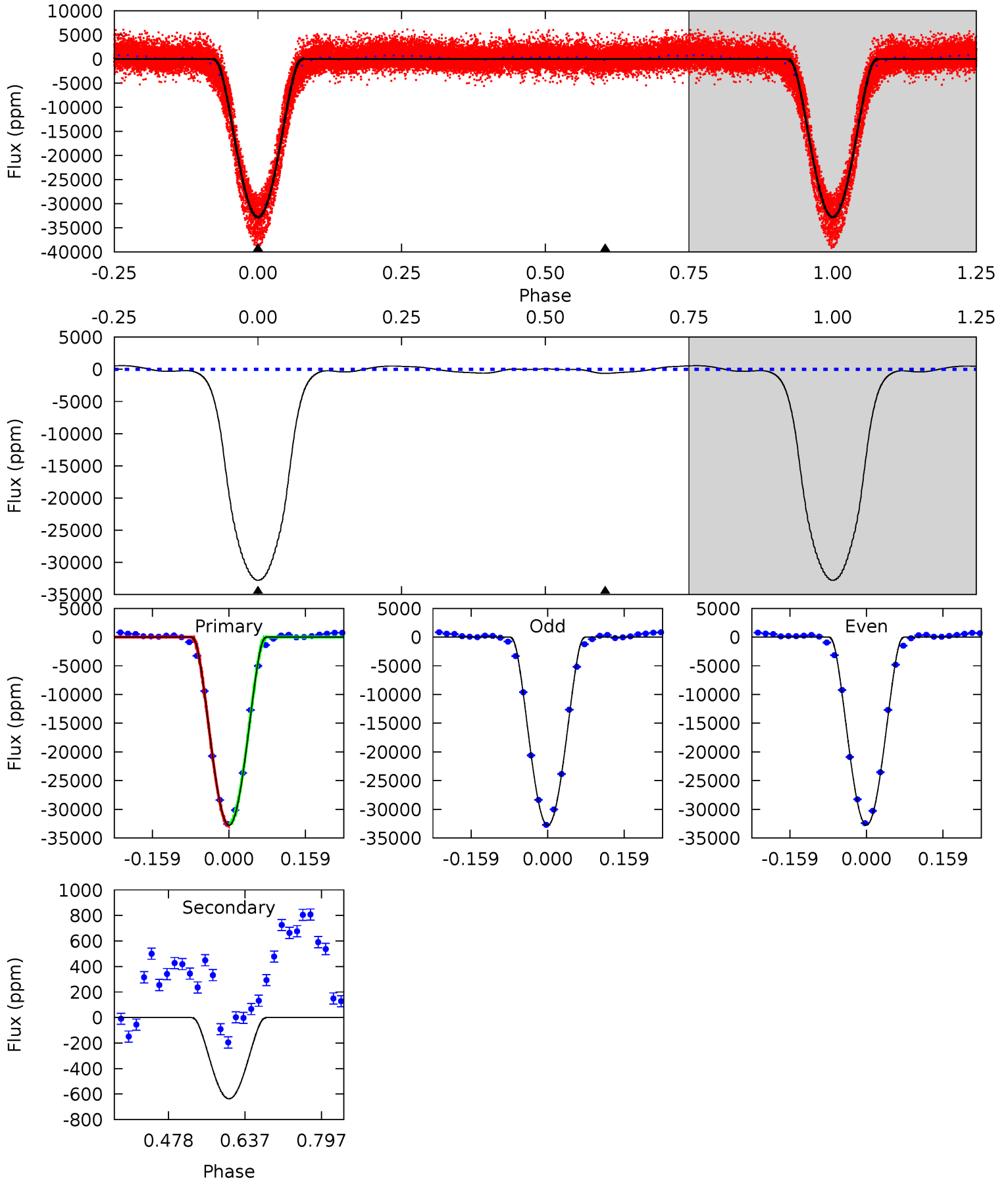
TCE 008651551-01 P= 1.527479 Days $T_0=132.266807$ (BKJD)



DV Model-Shift Uniqueness Test

008651551-01, P = 1.527496 Days, E = 132.257961 Days

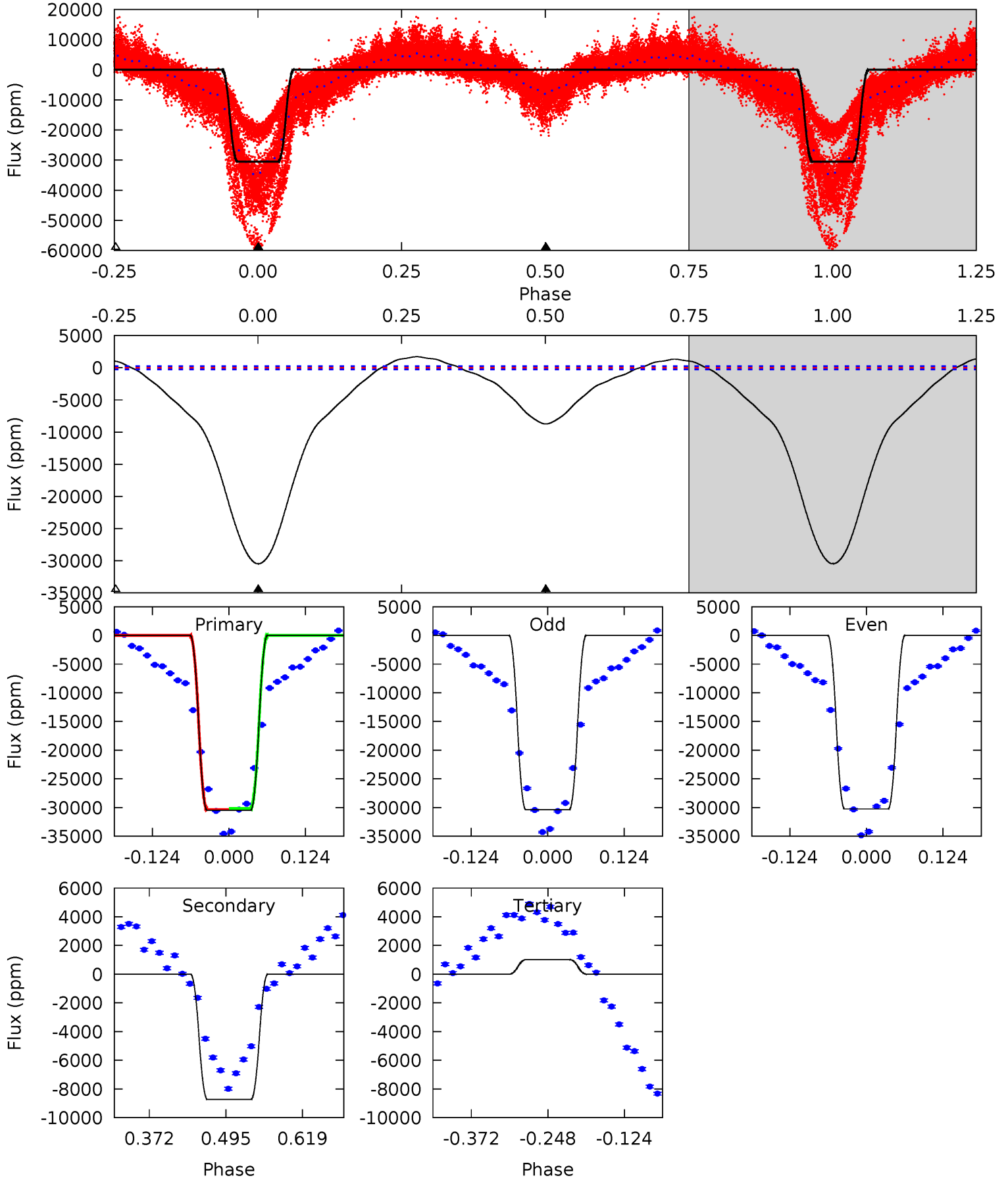
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
1808	35.1	0	0	4.47	1.41	20.5	1808	1808	35.1	35.1	1.12	1.10	0.02	0



Alt Model-Shift Uniqueness Test

008651551-01, P = 1.527479 Days, E = 132.266807 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
555.5	159.1	-18.5	0	4.52	1.54	42.7	574.0	555.5	177.7	159.1	1.15	1.07	0.05	1.66



Stellar Parameters For KIC 008651551

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	4273^{+149}_{-164}	$4.652^{+0.059}_{-0.027}$	$-0.360^{+0.300}_{-0.300}$	$0.595^{+0.049}_{-0.065}$	$0.581^{+0.069}_{-0.050}$	$3.876^{+1.035}_{-0.500}$
	+3%/-4%	+1%/-1%	+83%/-83%	+8%/-11%	+12%/-9%	+27%/-13%
Source	KIC0	KIC0	KIC0	DSEP		

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

Secondary Eclipse Parameters for KIC 008651551-01 / KOI 3841.01

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	-637 ± 18	$16.88^{+1.20}_{-1.11}$	1371^{+54}_{-59}	2039^{+60}_{-61}	$0.587^{+0.069}_{-0.065}$
Alt.	-8730 ± 55	$11.35^{+0.88}_{-0.96}$	1372^{+56}_{-61}	3444^{+125}_{-125}	18^{+3}_{-2}

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 $A_{obs} \gg 1.0$

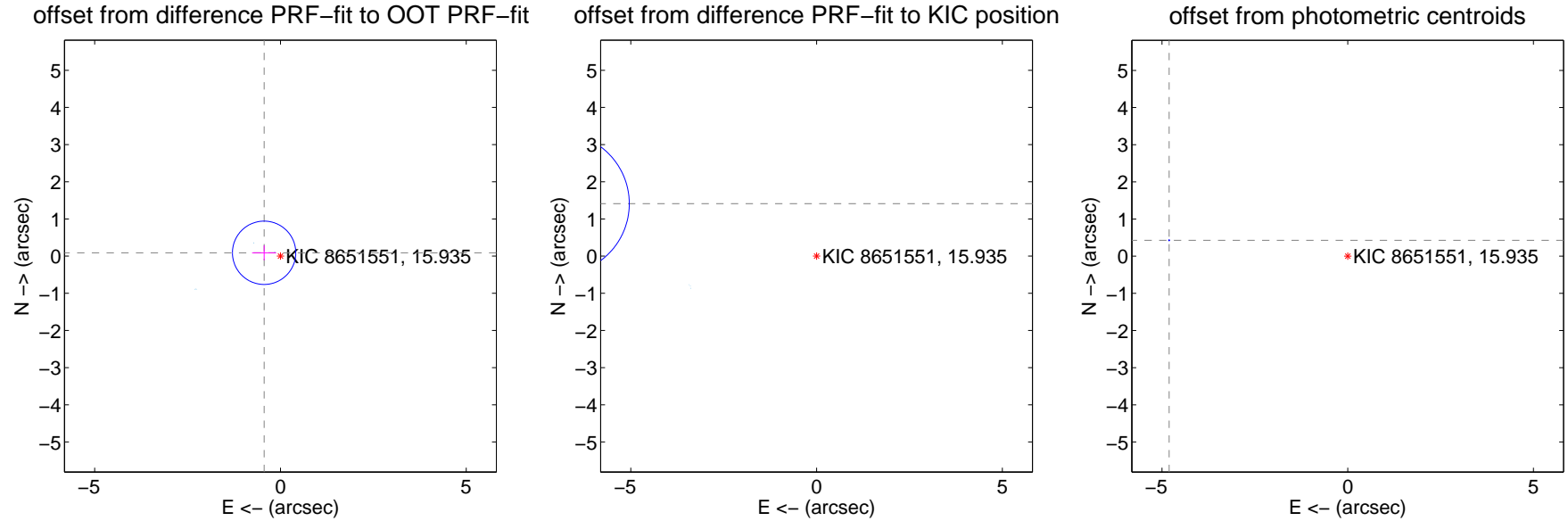
DV Centroid Data

Supplemental centroid analysis for 008651551-01. Kepler magnitude: 15.94. Transit SNR 701.03

There are 8 quarters with good PRF difference image offsets

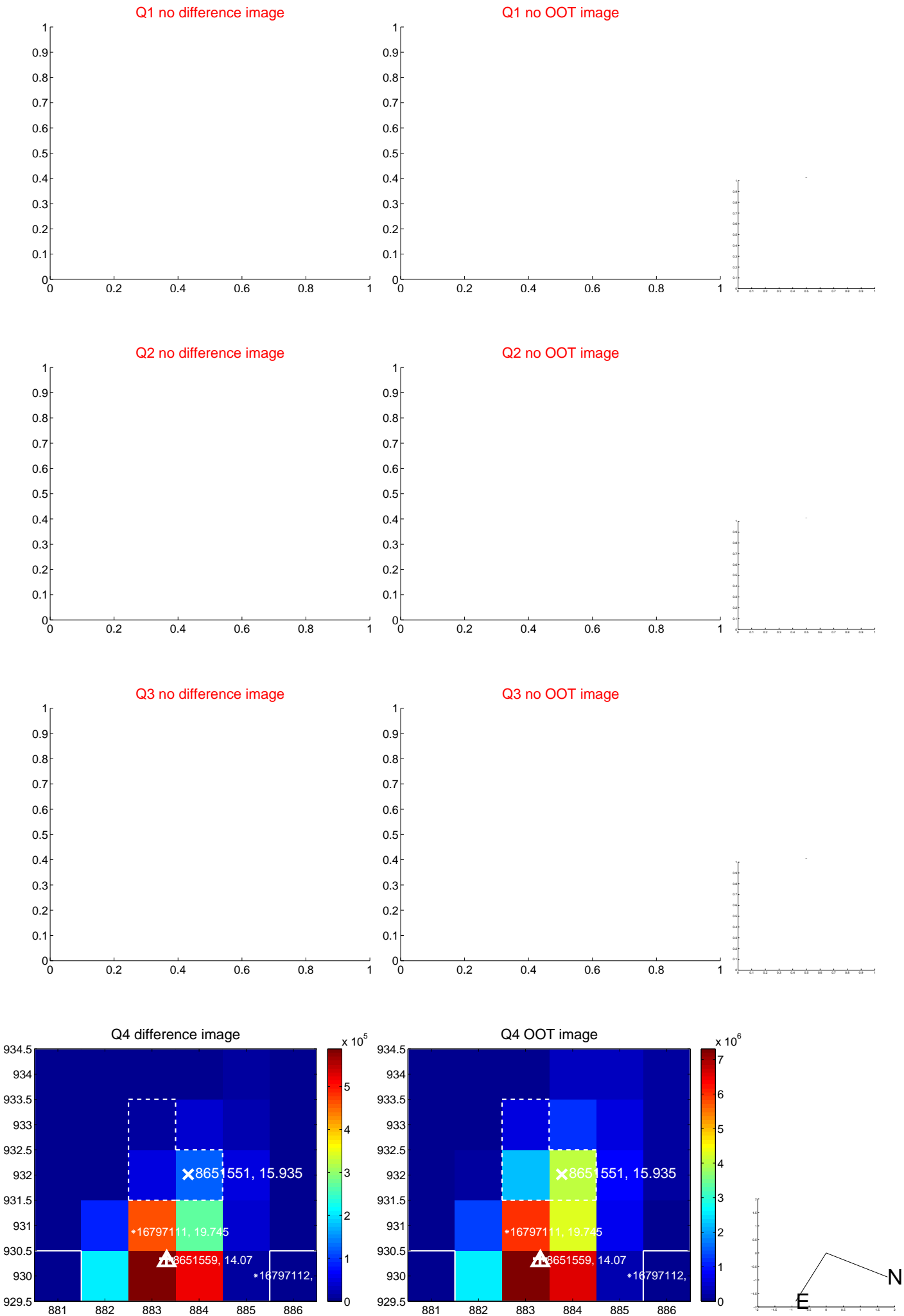
The OOT PRF centroid is offset from the target star catalog position by about 6.29 arcsec so the offset from difference PRF-fit to OOT-fit may be invalid.

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.449 ± 0.284	1.58	0.440 ± 0.324	0.090 ± 0.200
PRF-fit source offset from KIC position	7.089 ± 0.636	11.15	6.947 ± 0.576	1.411 ± 0.364
photometric centroid source offset	4.83 ± 0.00	1035.37	4.81 ± 0.00	0.43 ± 0.00

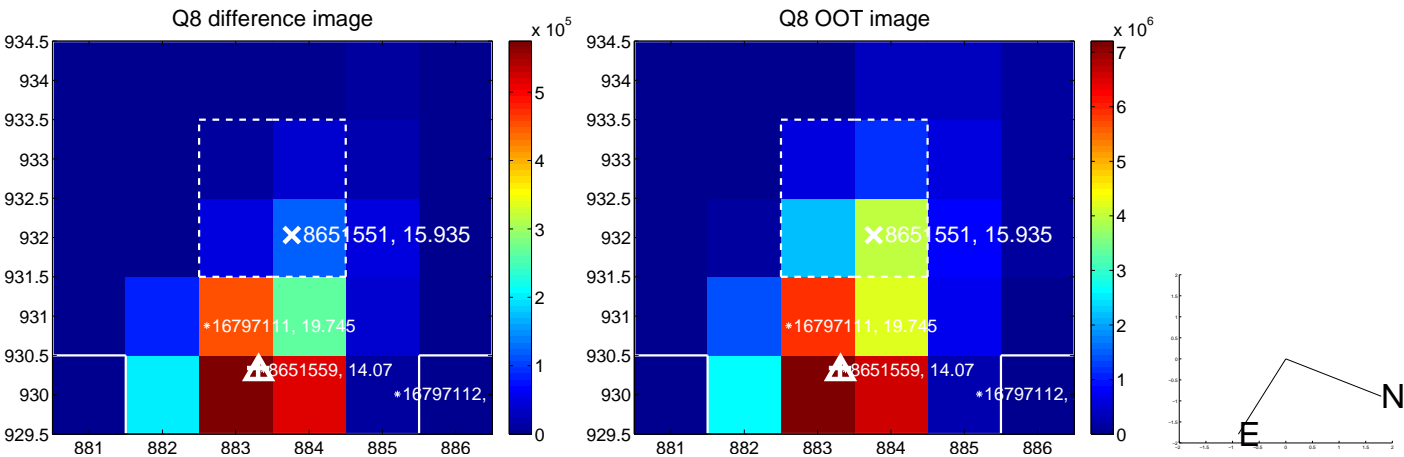
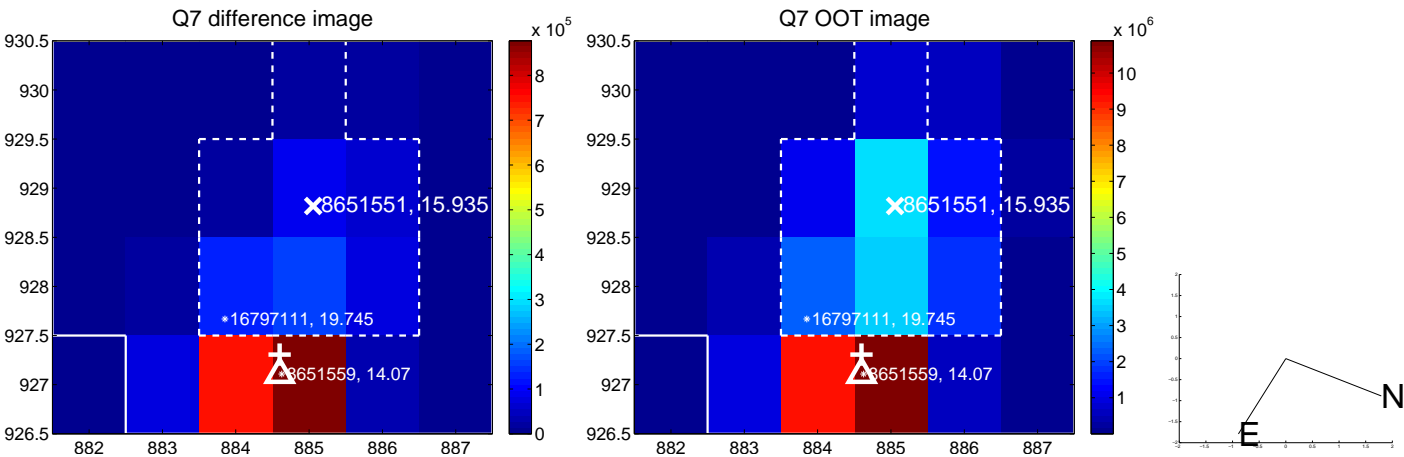
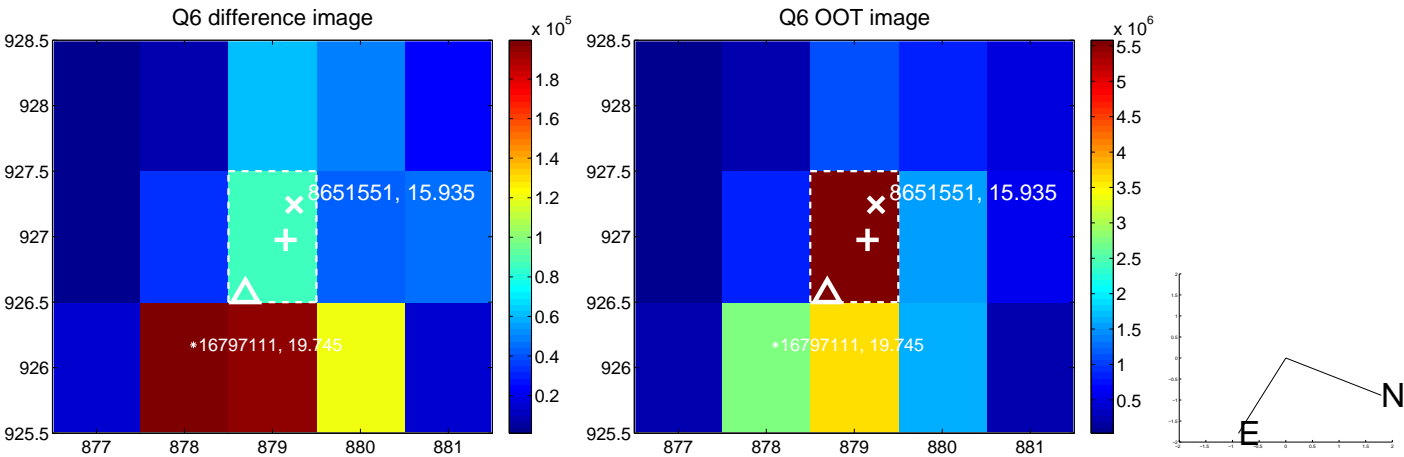
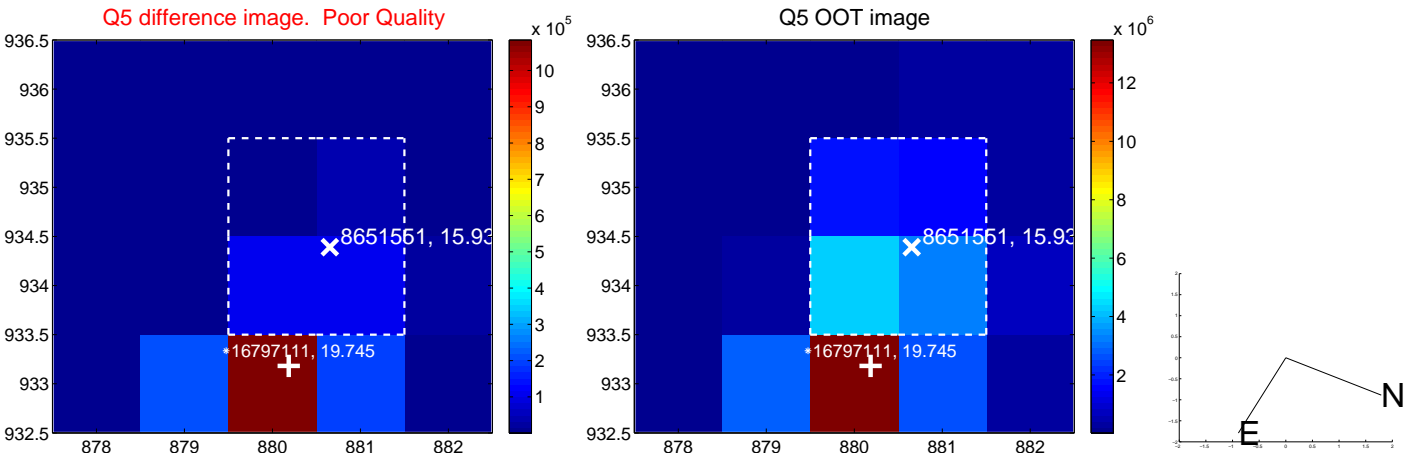


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ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

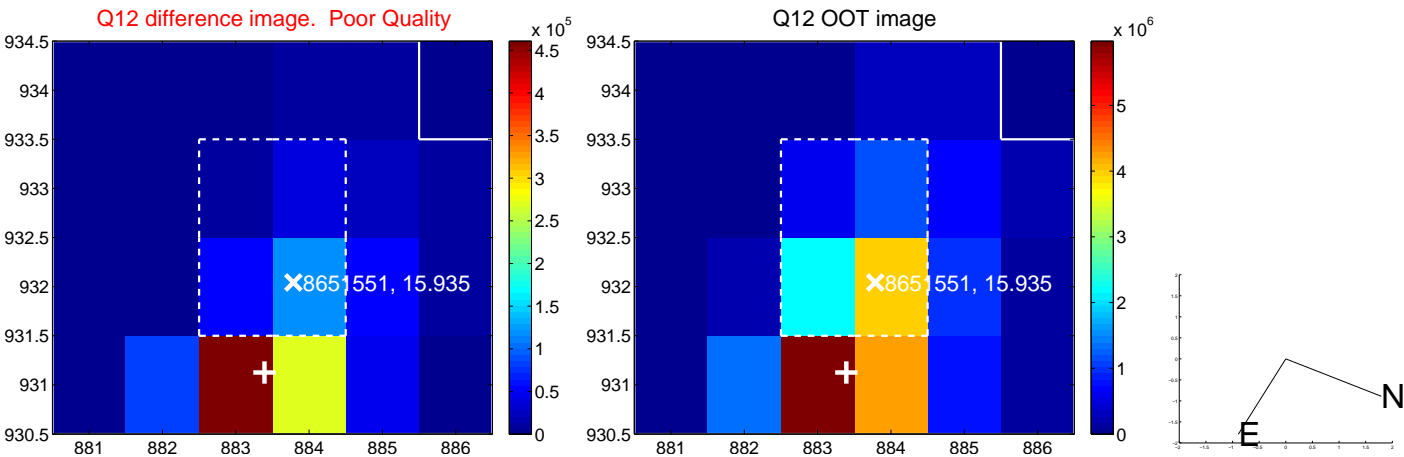
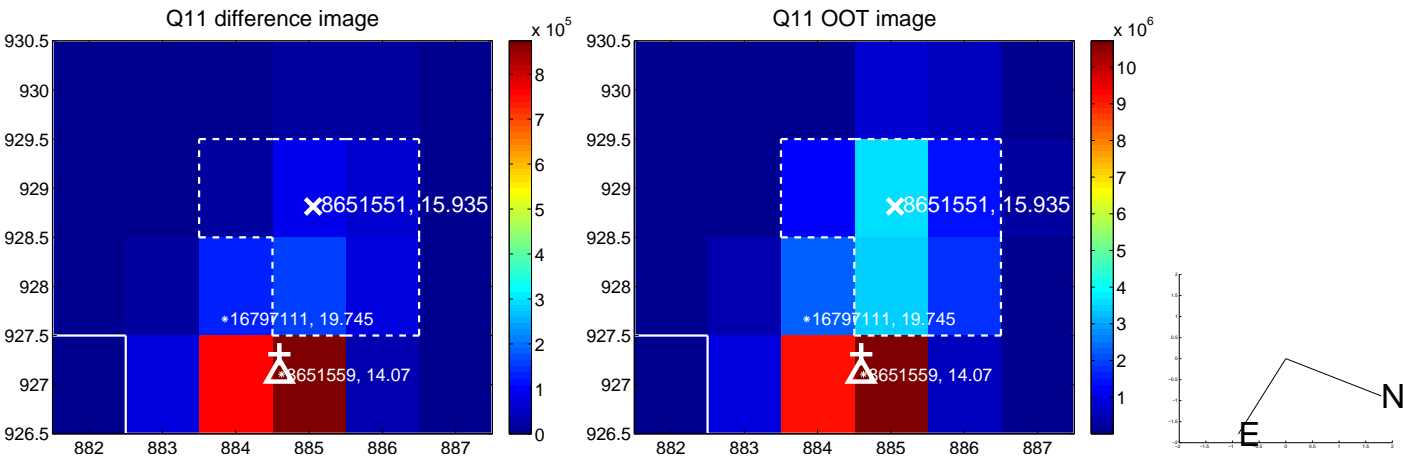
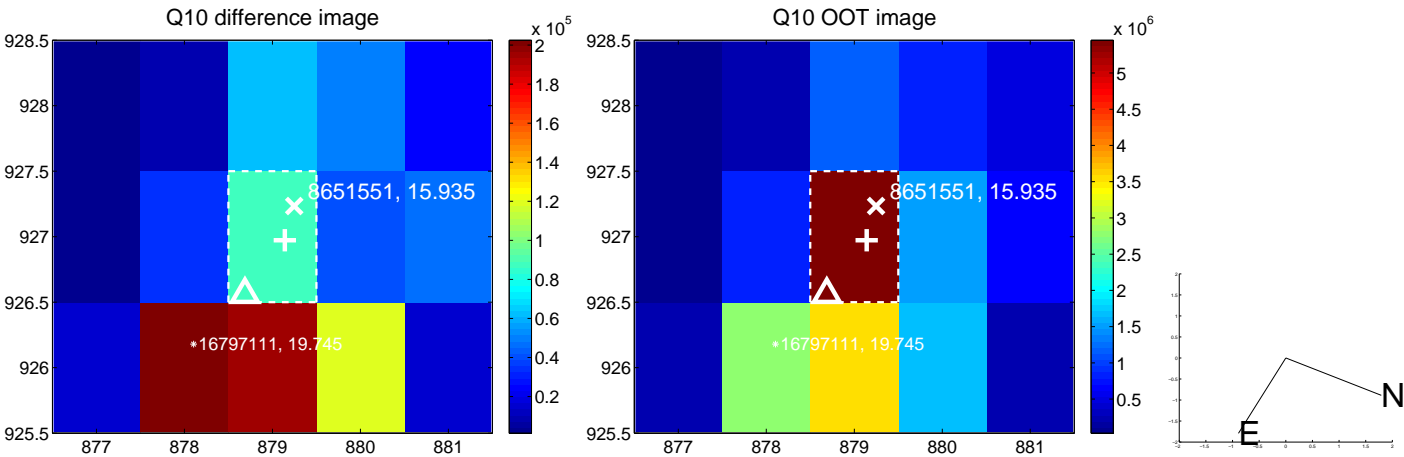
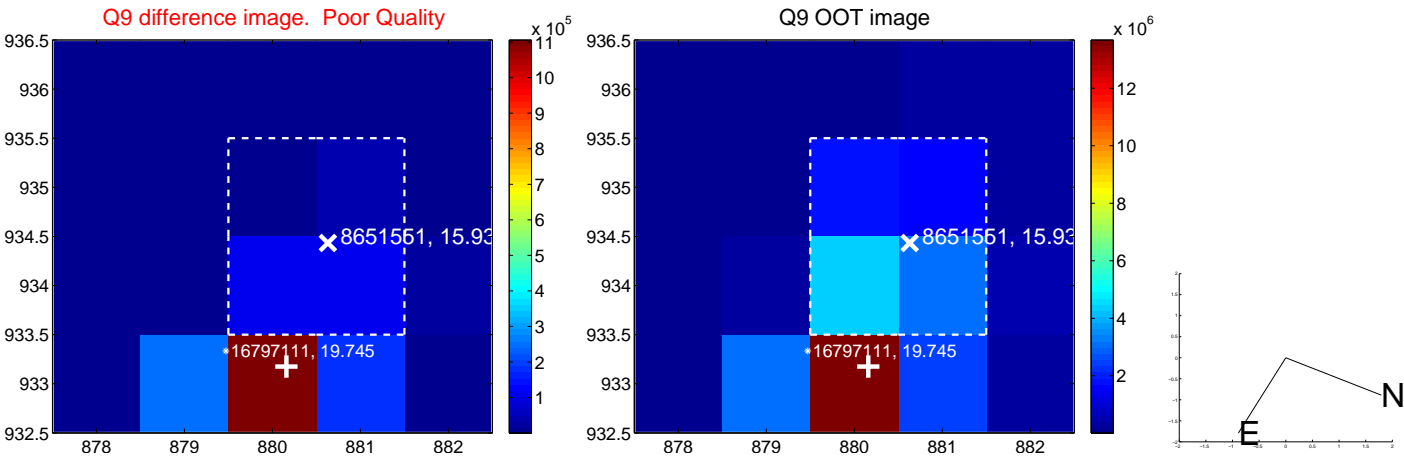
white ×: KIC target position; +: OOT centroid; △: difference centroid. red ✕: large negative pixel value.



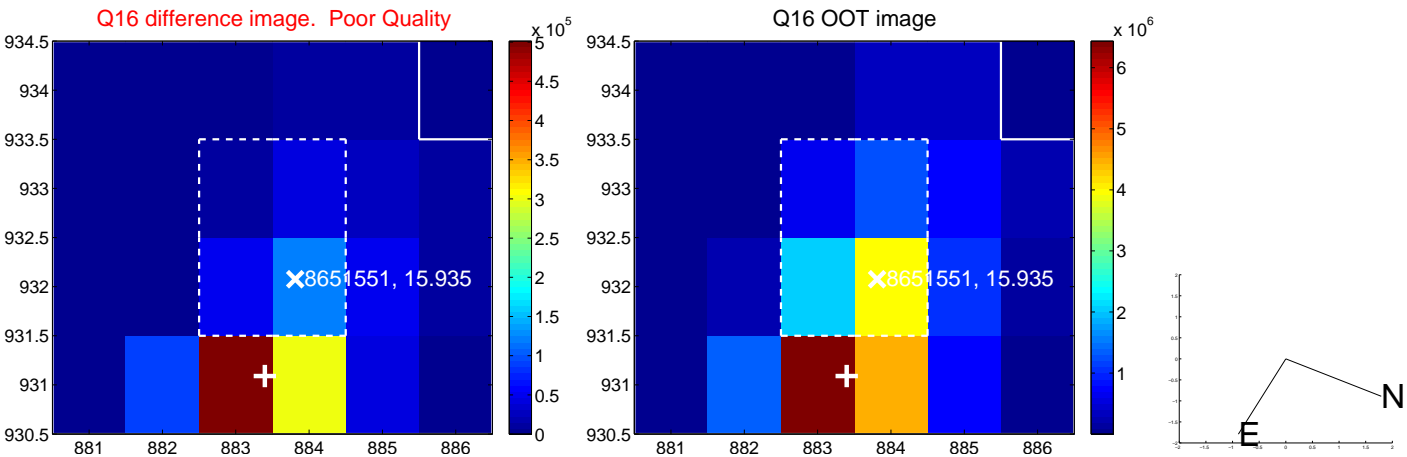
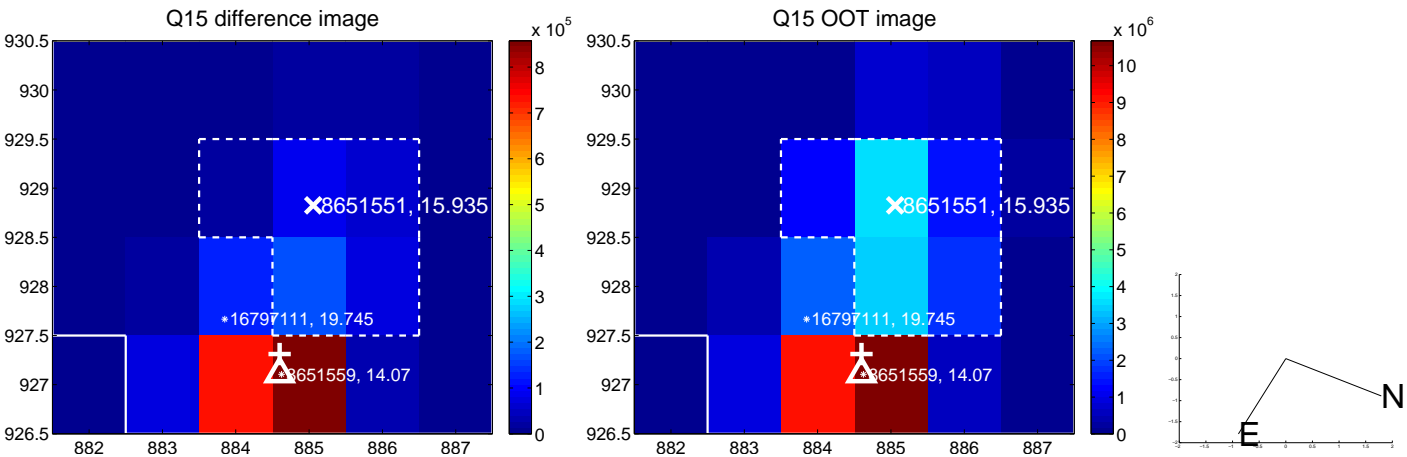
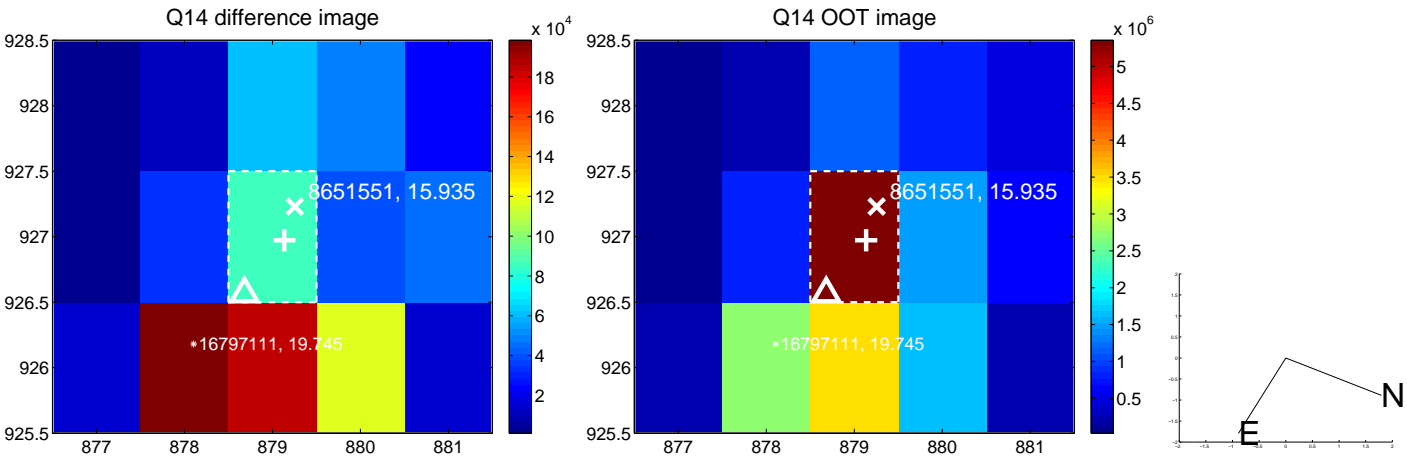
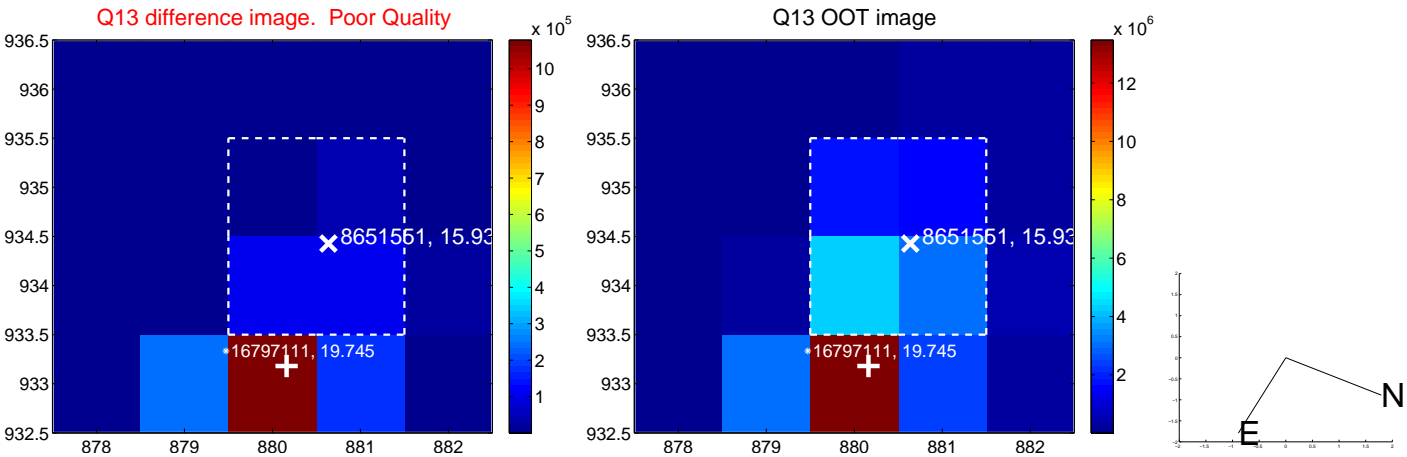
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



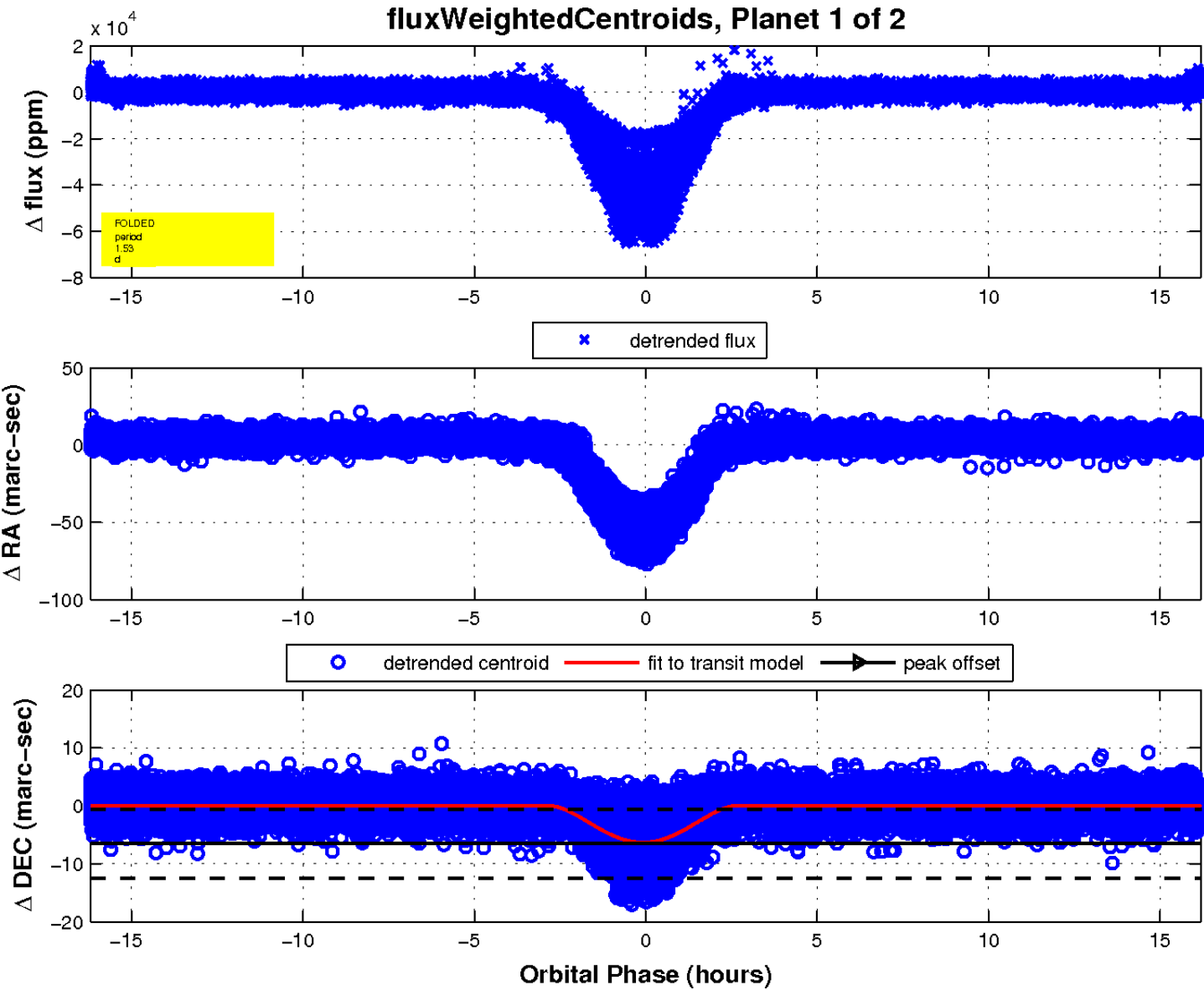
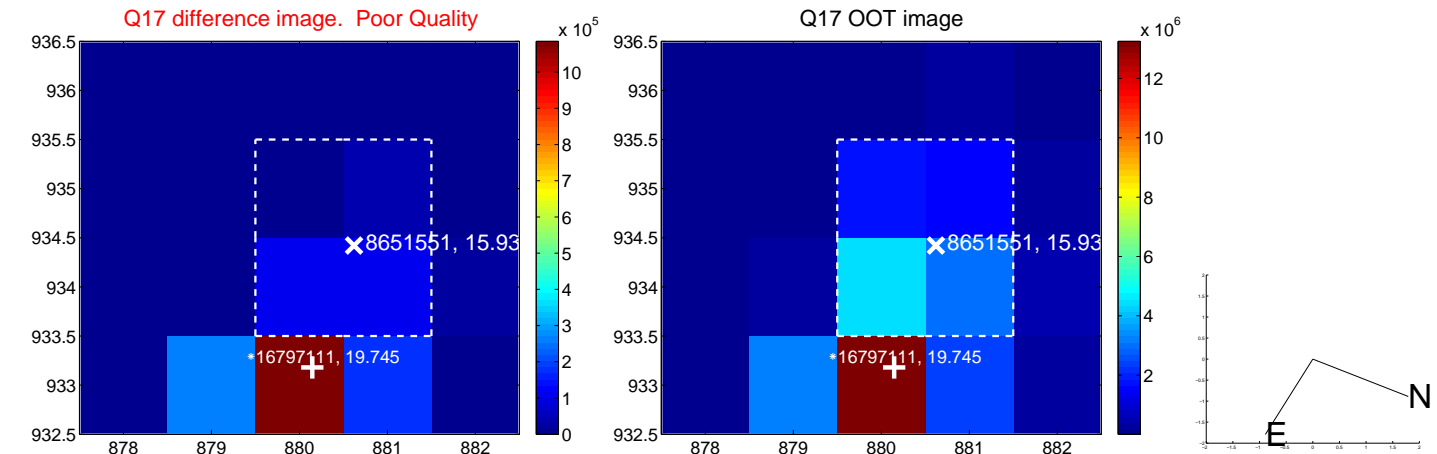
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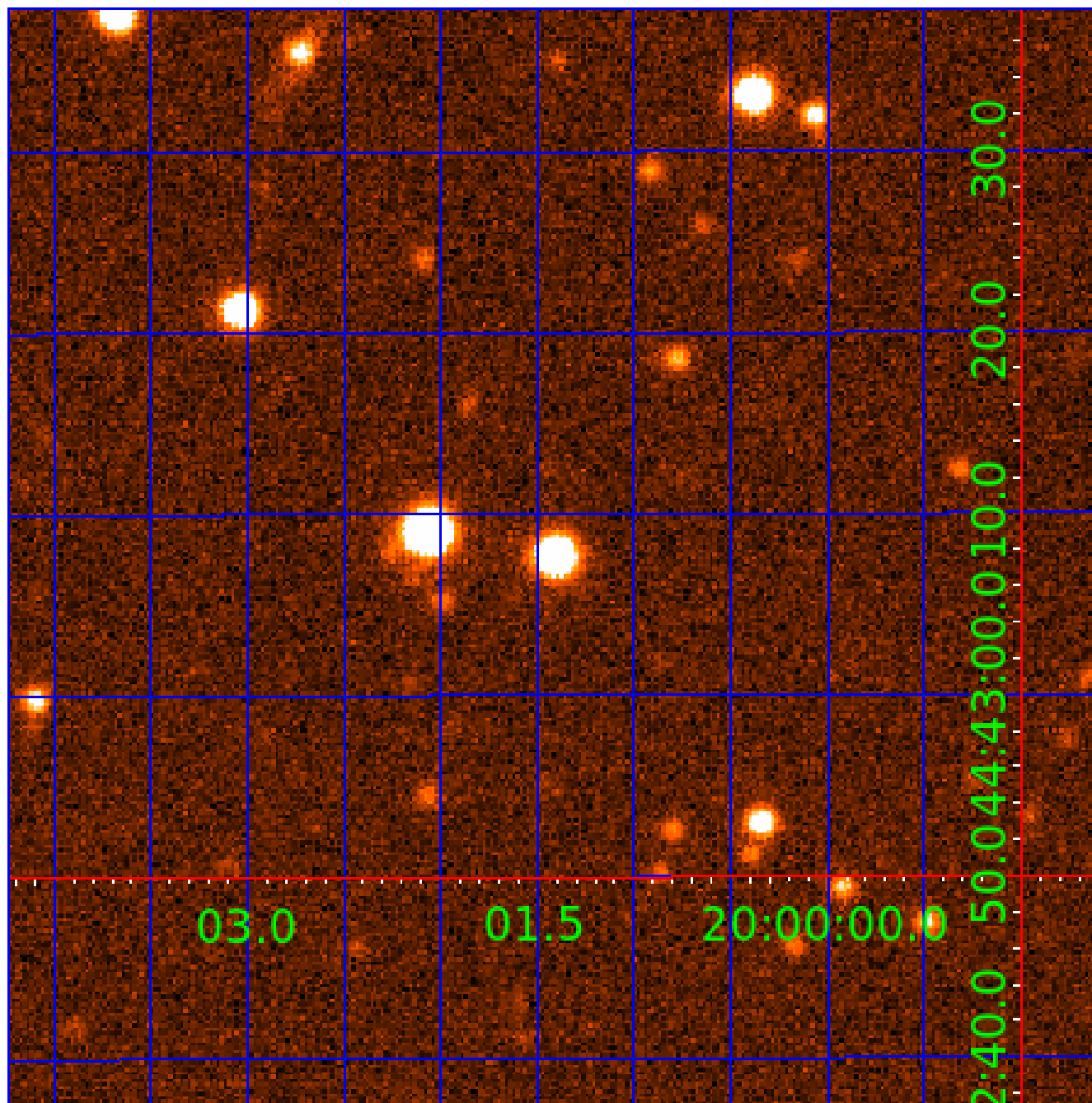


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 008651551

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})
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008651551-02	OBS	No	3.054892	133.251252	990.8	6.000	8.4	-1.0	0.59	4273	1.81	89.57

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
008651551-01	OBS	FP	0.00	0	1	1	0	SWEET_EB—DEEP_V_SHAPED—HAS_SEC_TCE—SEASONAL_DEPTH_DV—SEASONAL_DEPTH_ALT—CENT_RESOLVED_OFFSET—HALO_GHOST
008651551-02	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—RESIDUAL_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 008651551-02

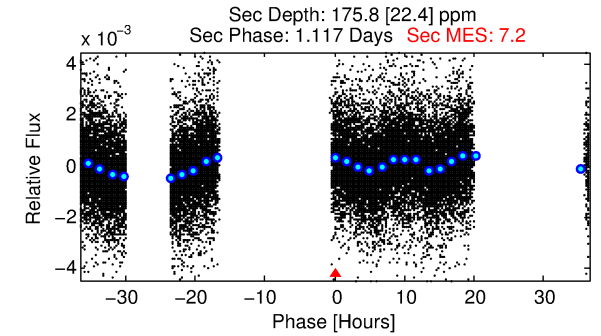
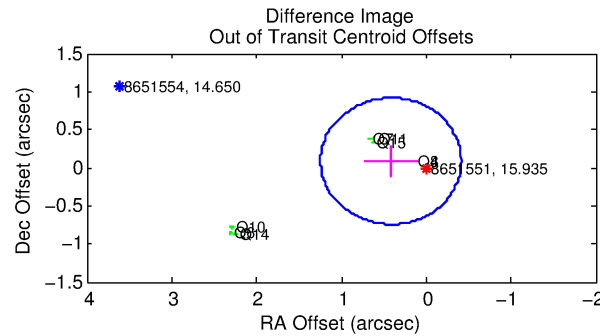
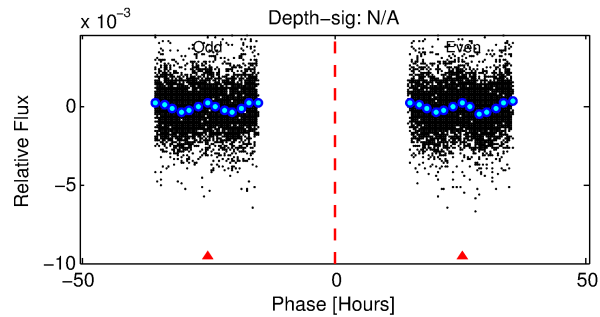
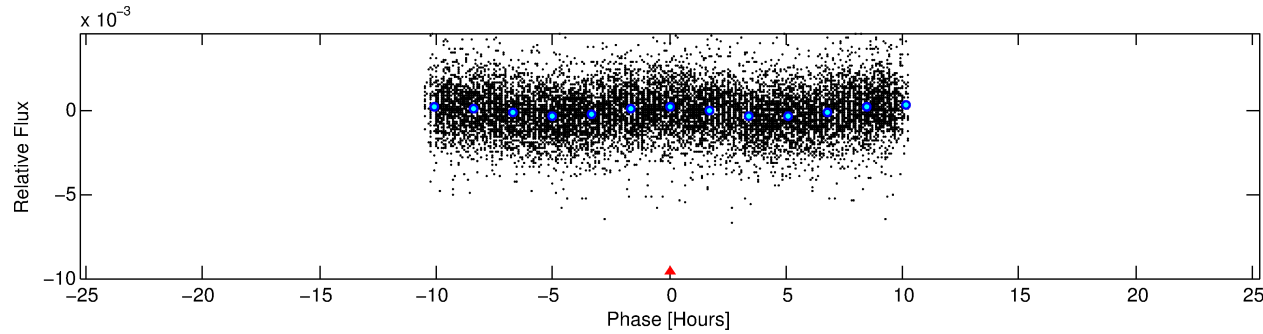
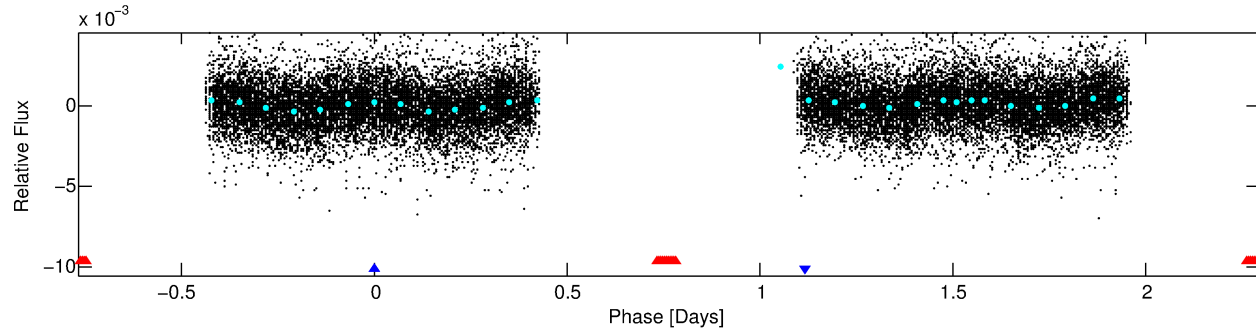
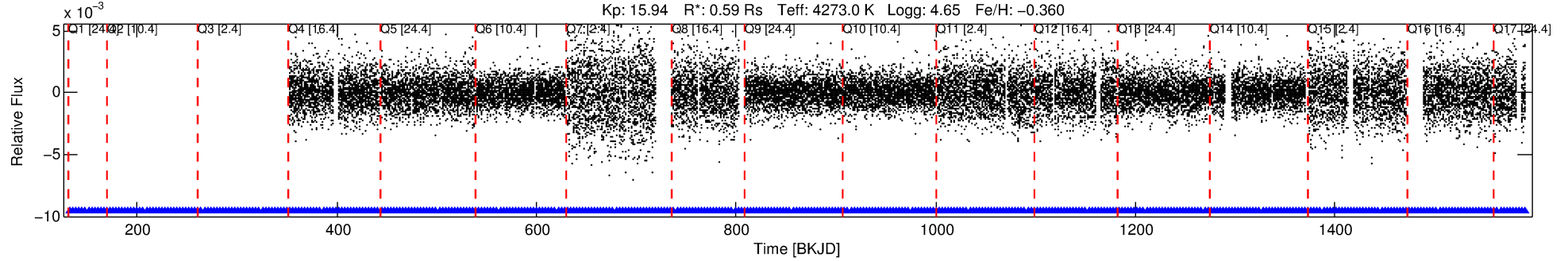
No Significant Match Found

DV One-Page Summary

KIC: 8651551 Candidate: 2 of 2 Period: 3.055 d

KOI: K03841 Corr: No Ephemeris Match

Kp: 15.94 R*: 0.59 Rs Teff: 4273.0 K Logg: 4.65 Fe/H: -0.360



TPS TCE Results:

Period = 3.05489 d
Epoch = 133.2513 BKJD

DV fit results are unavailable

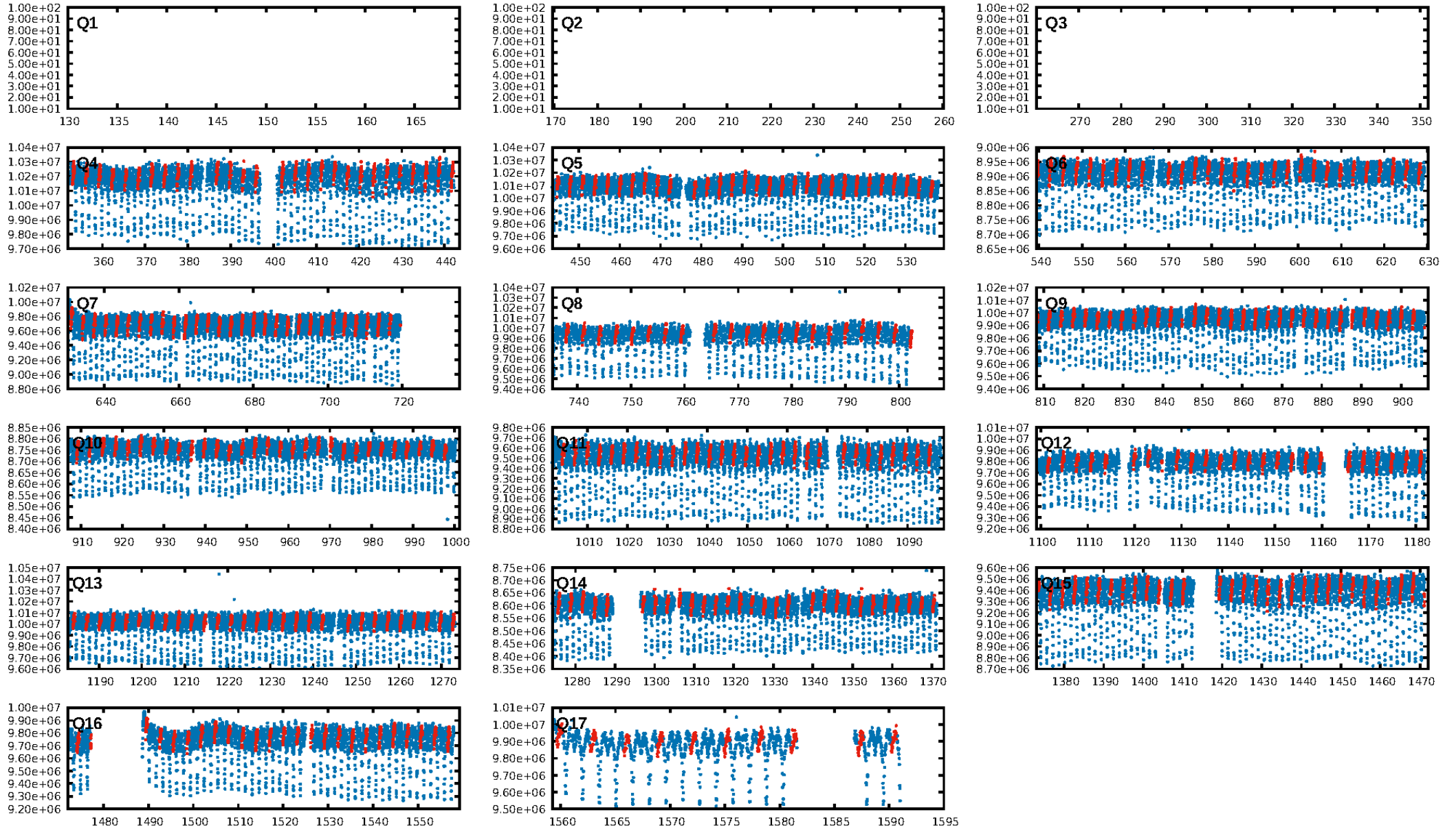
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [4.54 σ]
LongPeriod-sig: N/A
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: N/A
RollingBand-fgt: 1.00 [371/371]
GhostDiagnostic-chr: -0.7577
Centroid-sig: N/A
Centroid-so: 3.118 arcsec [141.88 σ]
OotOffset-rm: 0.426 arcsec [1.54 σ]
KicOffset-rm: 7.068 arcsec [11.23 σ]
OotOffset-st: 3/3/2/0 [8]
KicOffset-st: 3/3/2/0 [8]
DiffImageQuality-fgm: 1.00 [8/8]
DiffImageOverlap-fno: 0.00 [0/14]

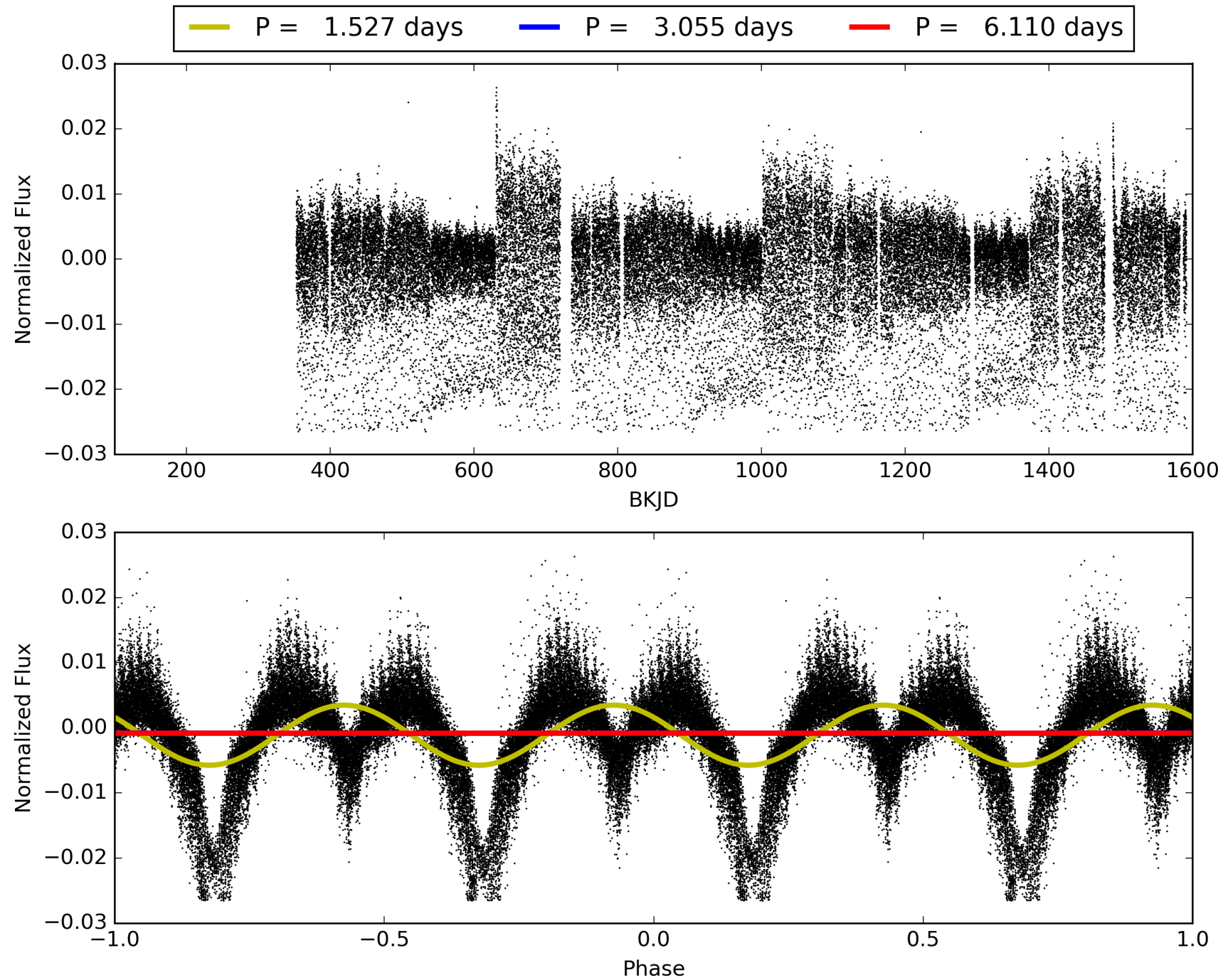
Software Revision: svn-ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 31-Jan-2016 07:04:10 Z

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TCE 008651551-02, PDC Light Curves

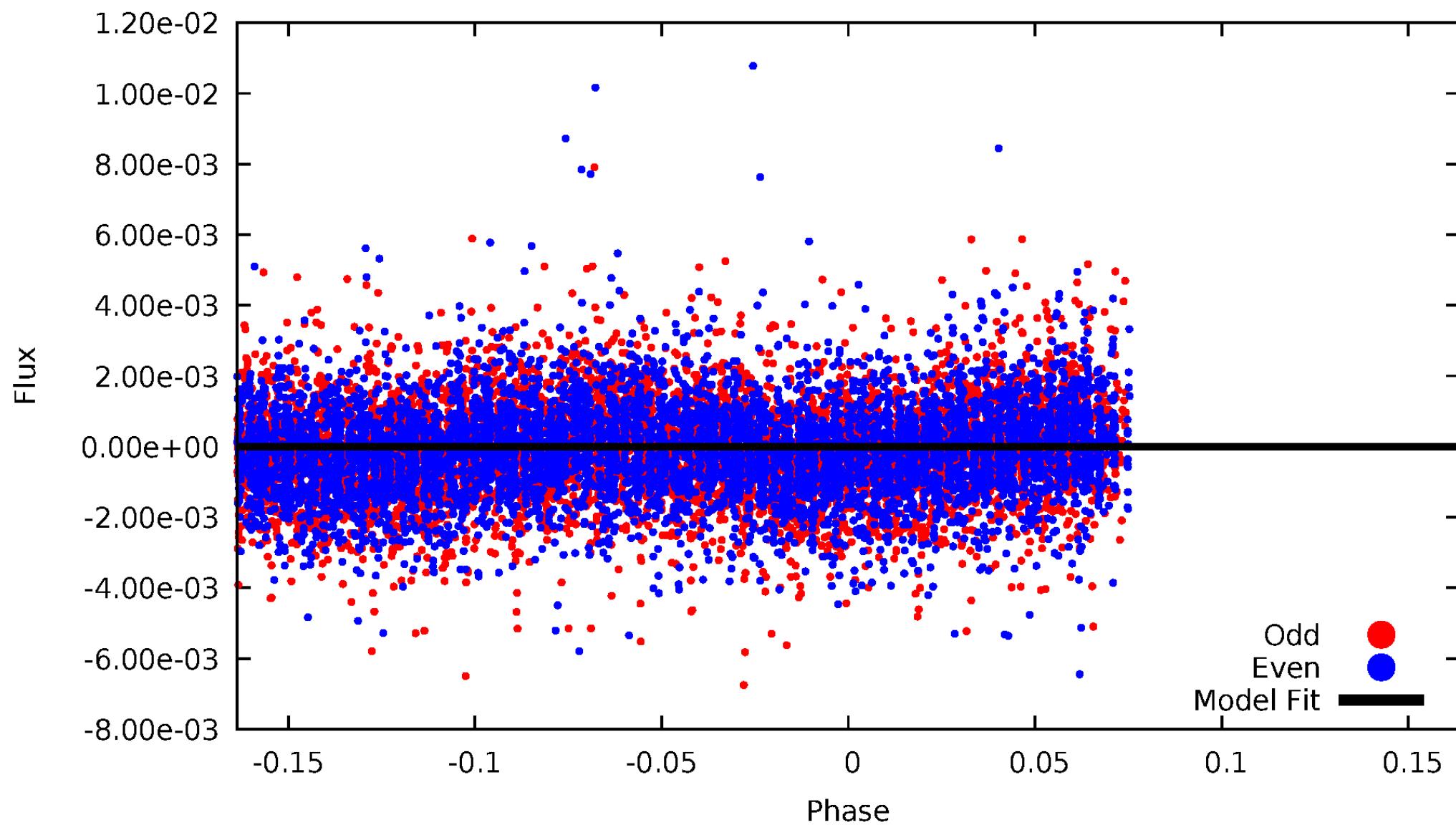


TCE 008651551-02



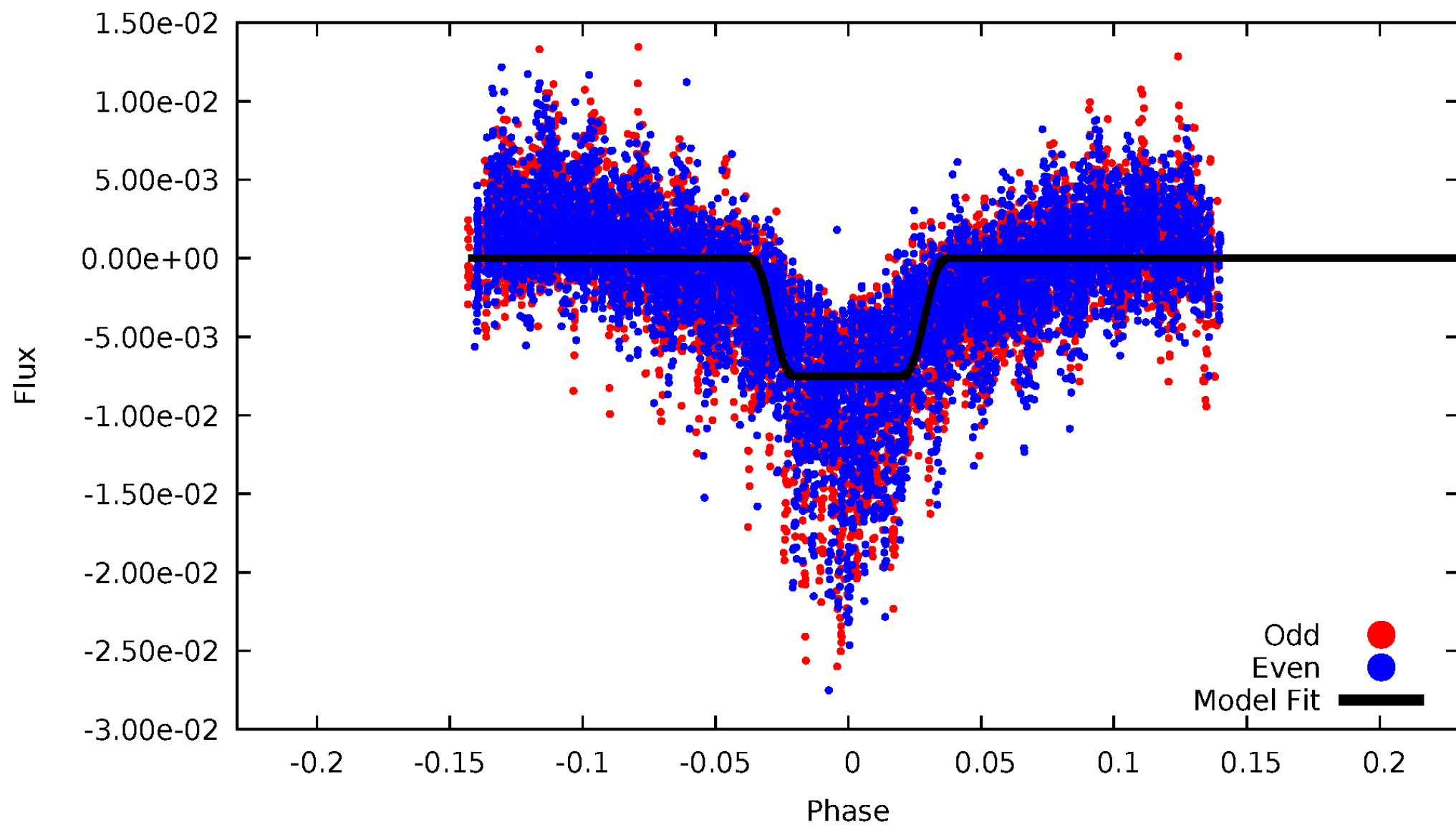
DV Odd/Even

TCE 008651551-02



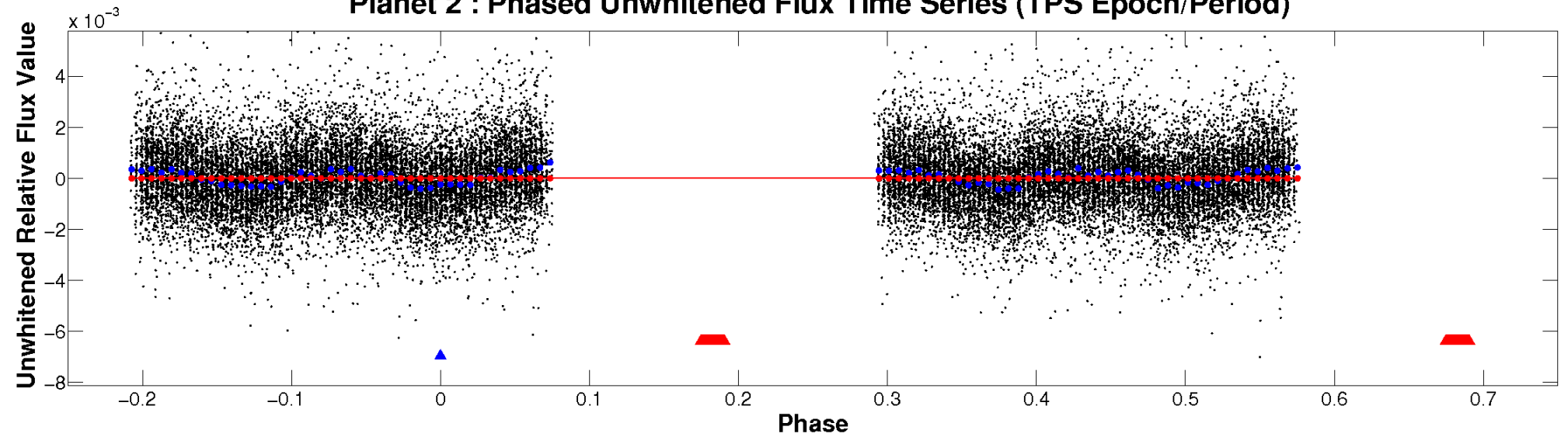
ALT Odd/Even

TCE 008651551-02

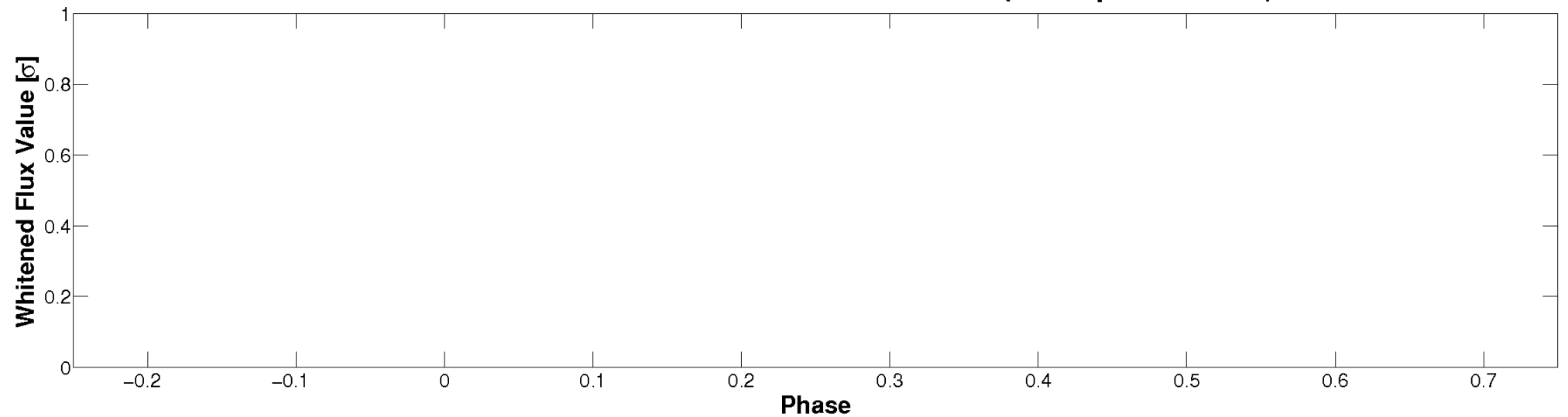


Non-Whitened Vs. Whitened Light Curve

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

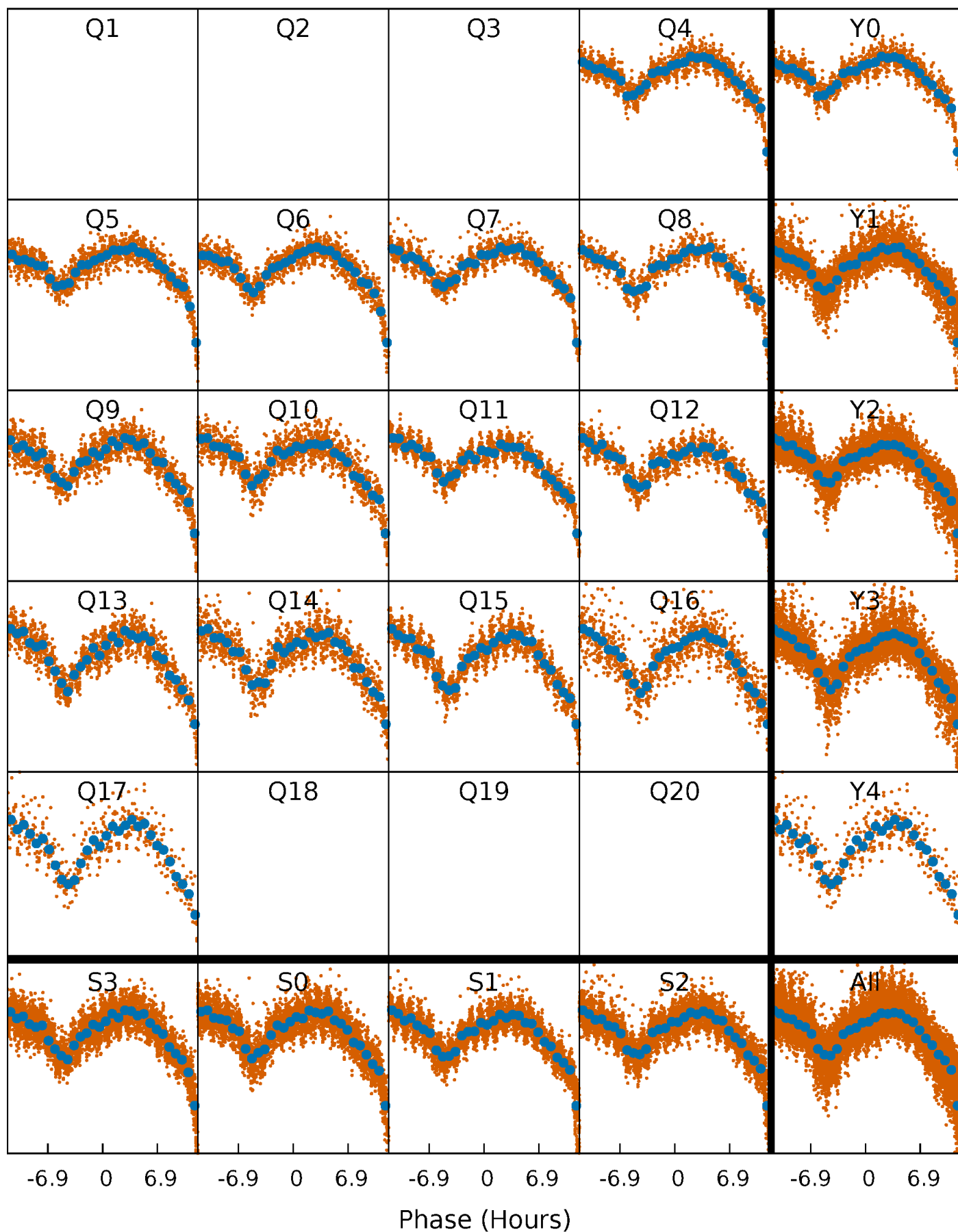


Planet 2 : Phased Whitened Flux Time Series (TPS Epoch/Period)



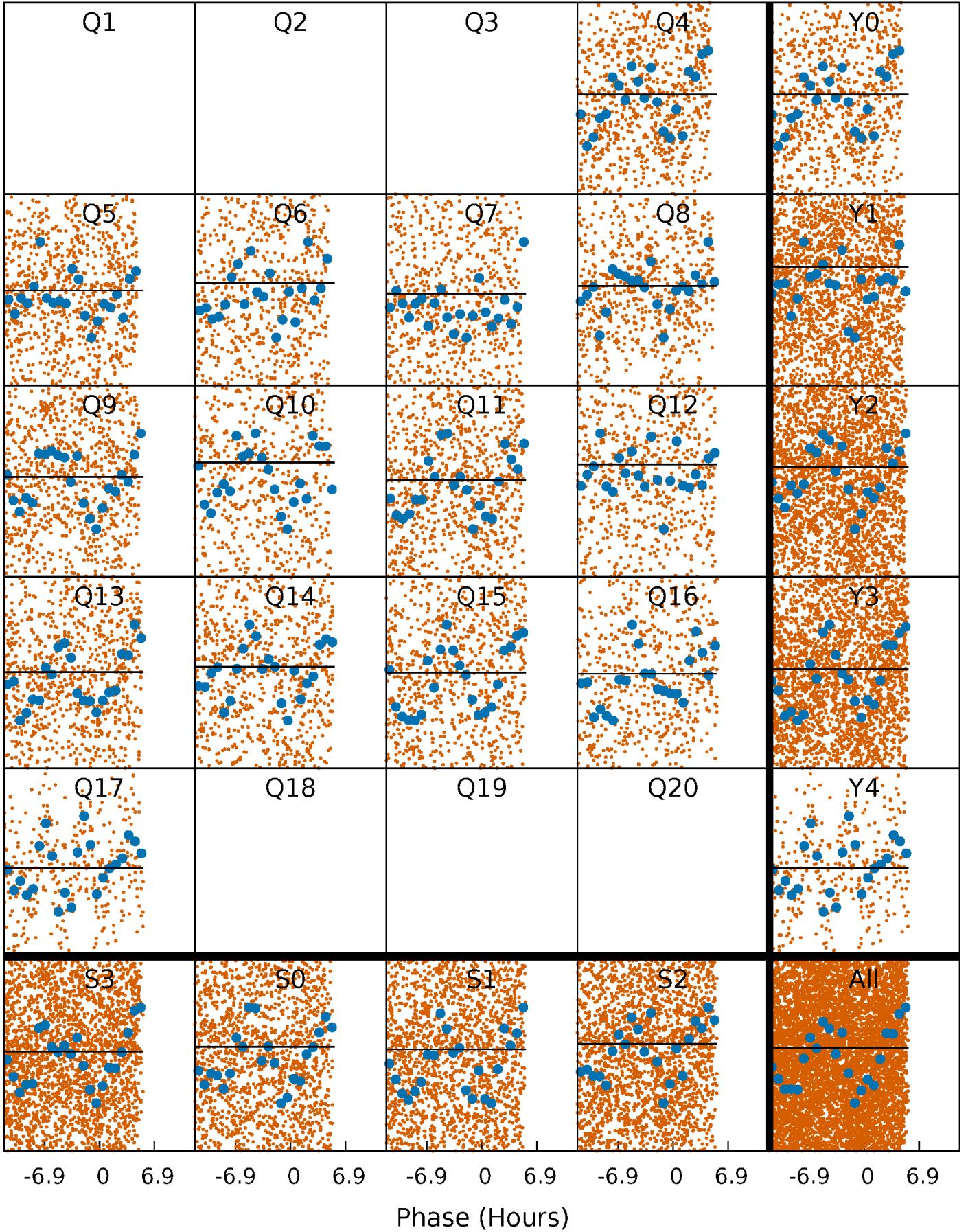
PDC Quarter-Phased Transit Curves

TCE 008651551-02 P= 3.054892 Days $T_0=133.251252$ (BKJD)



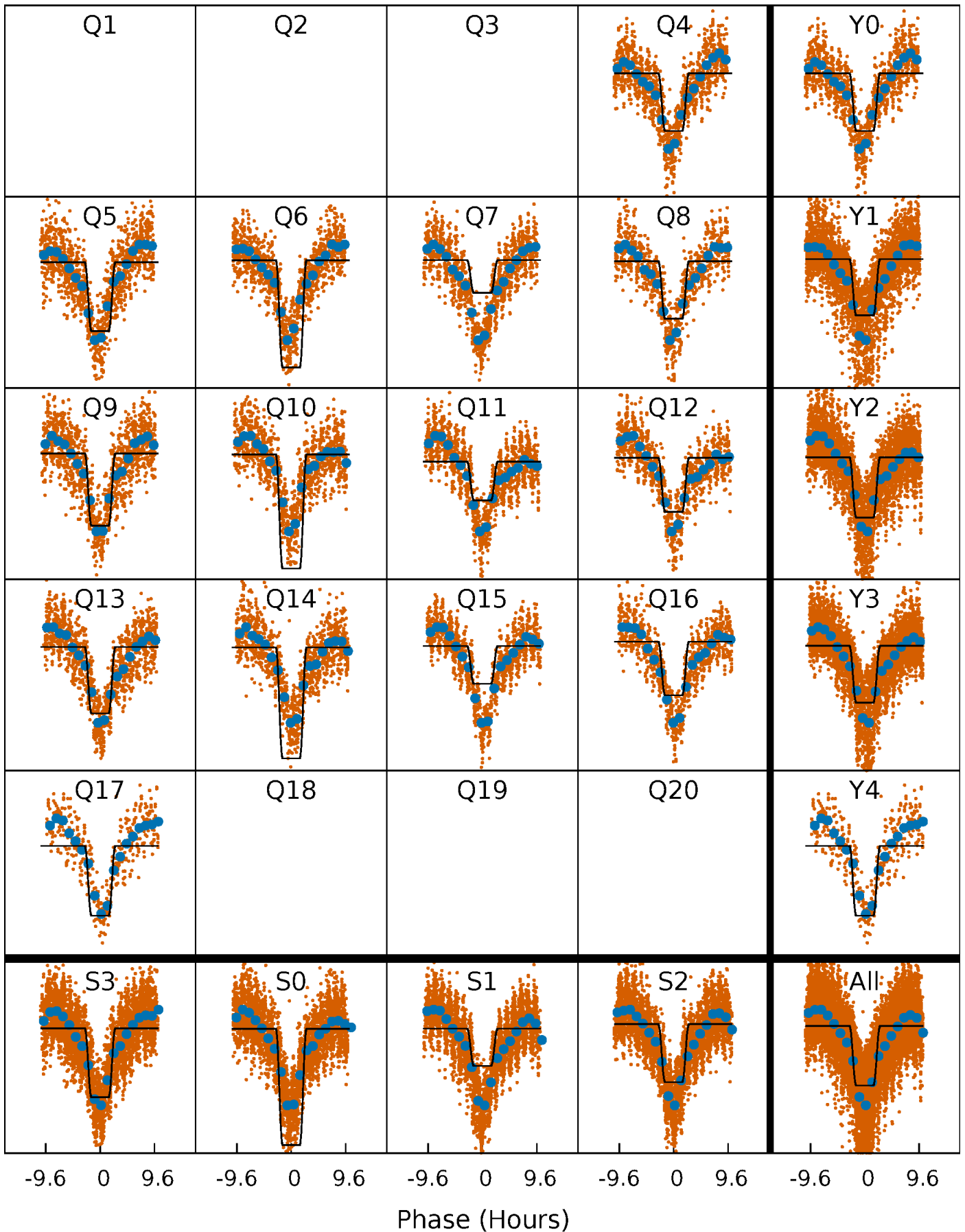
DV Quarter-Phased Transit Curves

TCE 008651551-02 P= 3.054892 Days $T_0=133.251252$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

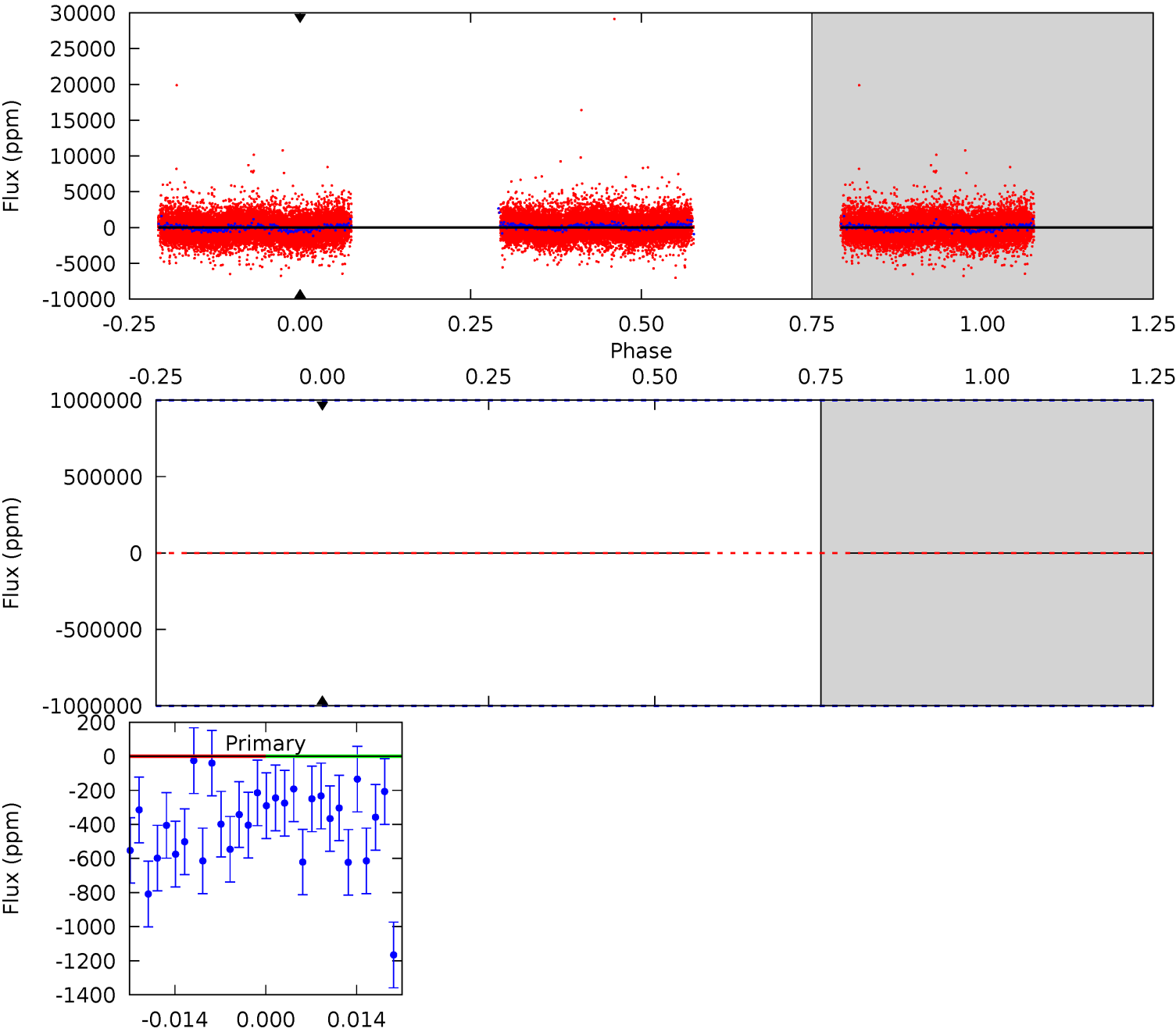
TCE 008651551-02 P= 3.054892 Days $T_0=133.053426$ (BKJD)



DV Model-Shift Uniqueness Test

008651551-02, P = 3.054892 Days, E = 133.251252 Days

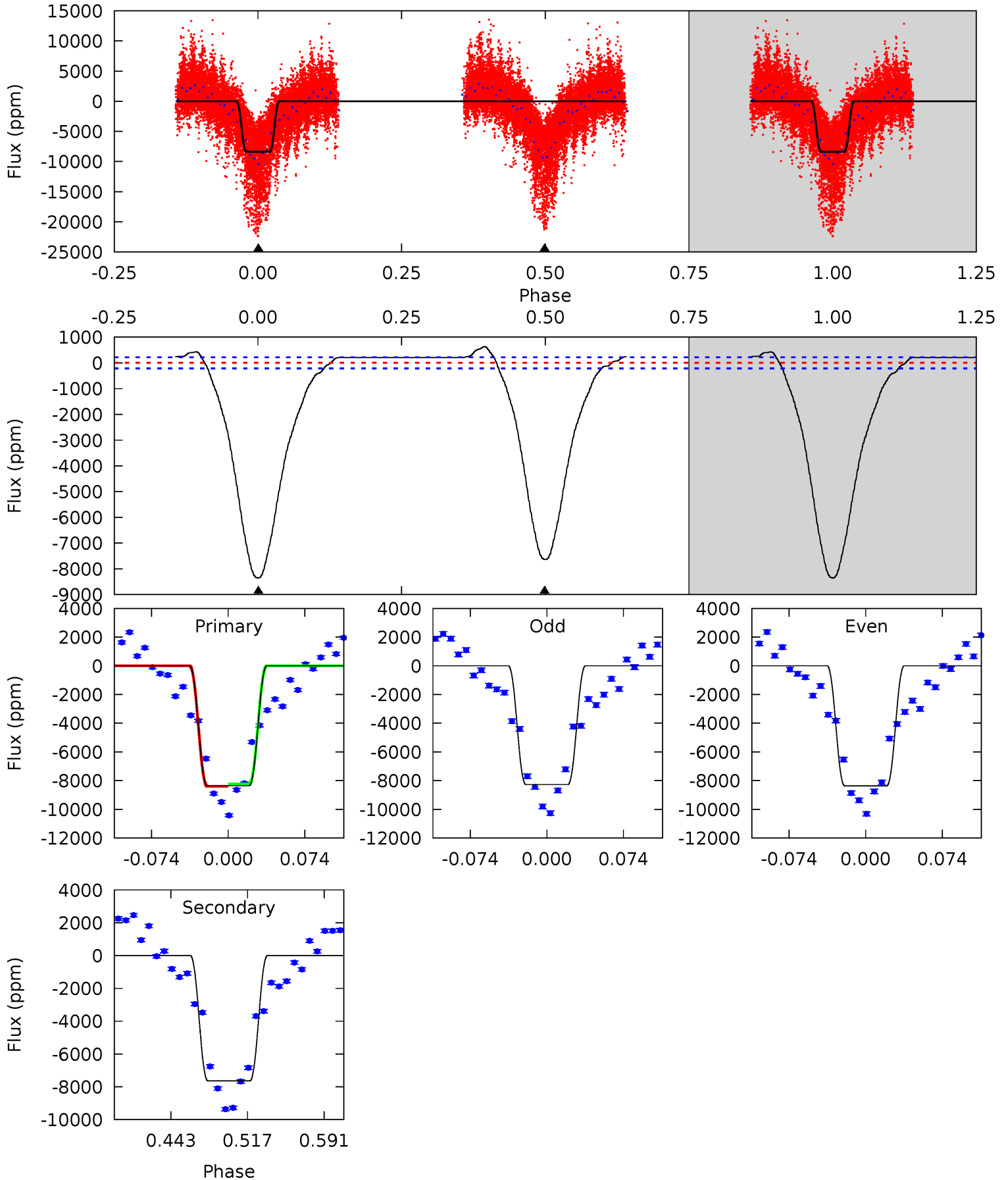
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
0	0	0	0	1.00	1.00	1.00	0	0	0	0	0	0	0	0



Alt Model-Shift Uniqueness Test

008651551-02, P = 3.054892 Days, E = 133.053426 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
177.3	161.9	0	0	4.63	1.79	11.0	177.3	177.3	161.9	161.9	1.00	1.08	0.07	0



Stellar Parameters For KIC 008651551

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	$M(M_{\odot})$	p_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	4273^{+149}_{-164}	$4.652^{+0.059}_{-0.027}$	$-0.360^{+0.300}_{-0.300}$	$0.595^{+0.049}_{-0.065}$	$0.581^{+0.069}_{-0.050}$	$3.876^{+1.035}_{-0.500}$
	+3%/-4%	+1%/-1%	+83%/-83%	+8%/-11%	+12%/-9%	+27%/-13%
Source	KIC0	KIC0	KIC0	DSEP		

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

Secondary Eclipse Parameters for KIC 008651551-02 / KOI

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	0 ± 1000000	$5.08^{+4.89}_{-3.50}$	1090^{+42}_{-48}	4226^{+7582}_{-13260}	147^{+6112}_{-3214}
Alt.	-7635 ± 47	$6.87^{+5.74}_{-4.52}$	1088^{+45}_{-47}	3964^{+2191}_{-709}	108^{+810}_{-76}

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 $A_{obs} \gg 1.0$

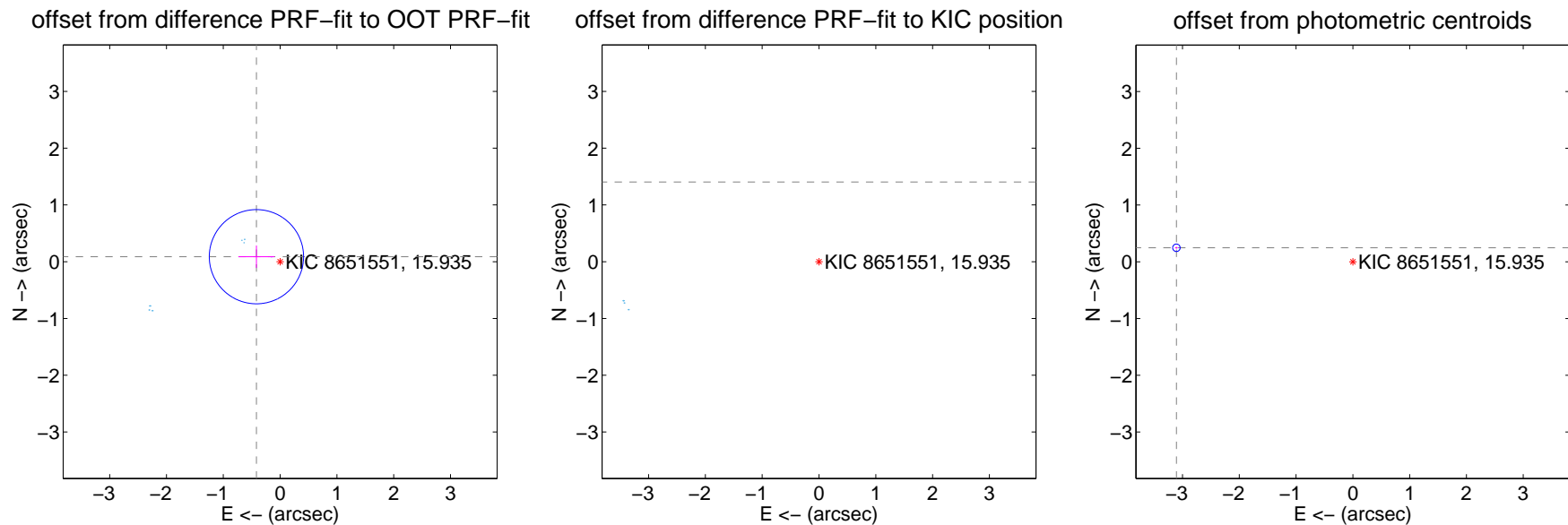
DV Centroid Data

Supplemental centroid analysis for 008651551-02. Kepler magnitude: 15.94. Transit SNR -1.00

There are 8 quarters with good PRF difference image offsets

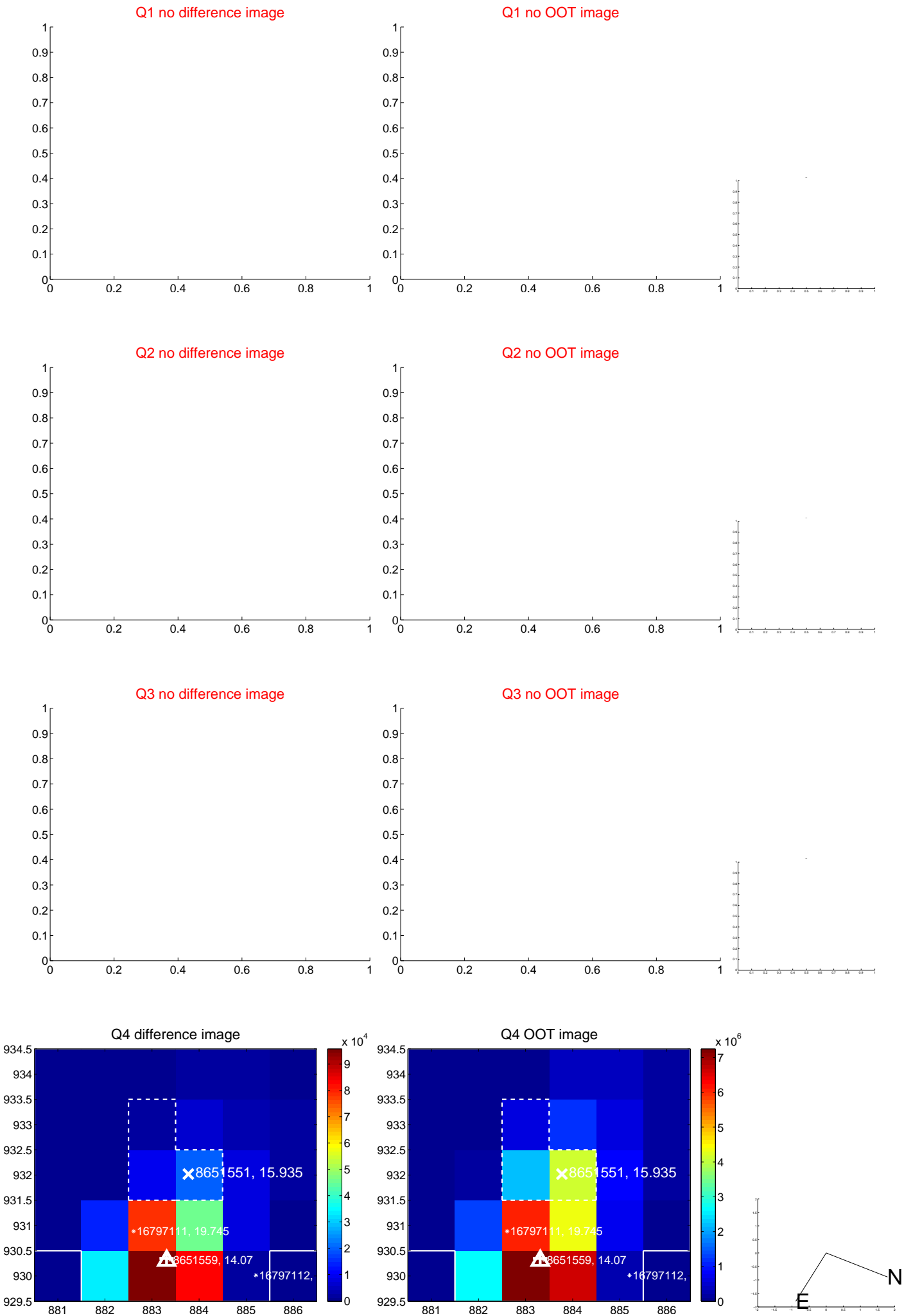
The OOT PRF centroid is offset from the target star catalog position by about 6.29 arcsec so the offset from difference PRF-fit to OOT-fit may be invalid.

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.426 ± 0.277	1.54	0.417 ± 0.317	0.088 ± 0.197
PRF-fit source offset from KIC position	7.068 ± 0.629	11.23	6.927 ± 0.571	1.405 ± 0.359
photometric centroid source offset	3.12 ± 0.02	141.88	3.11 ± 0.02	0.25 ± 0.02

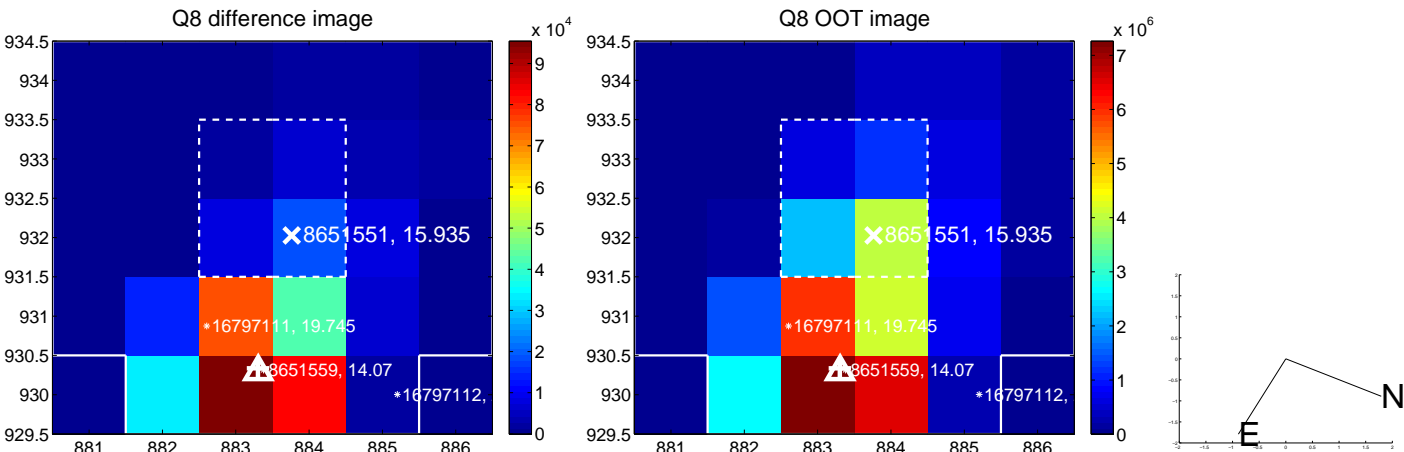
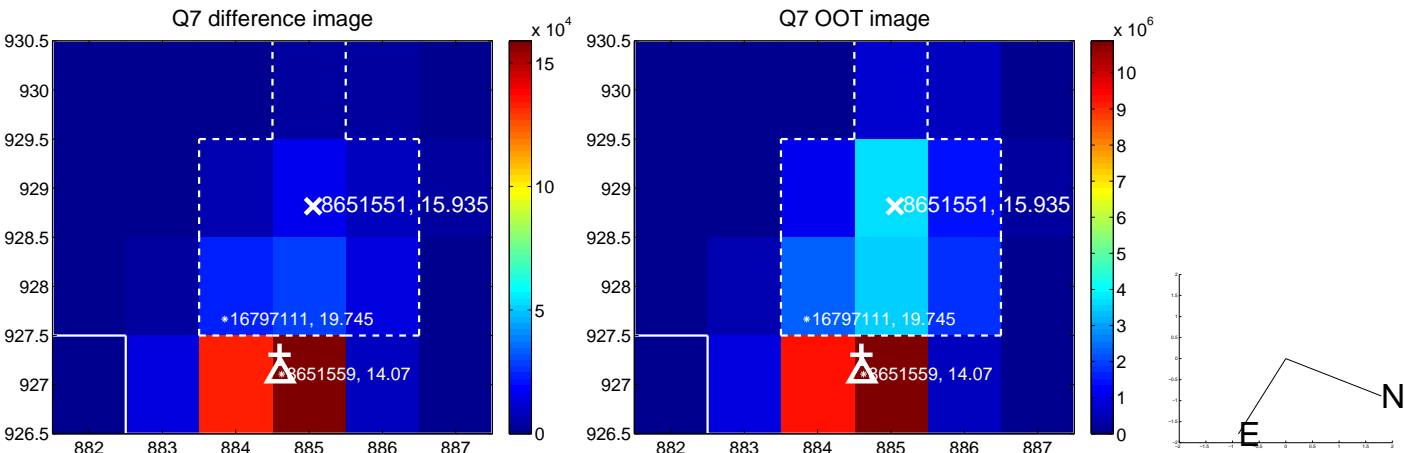
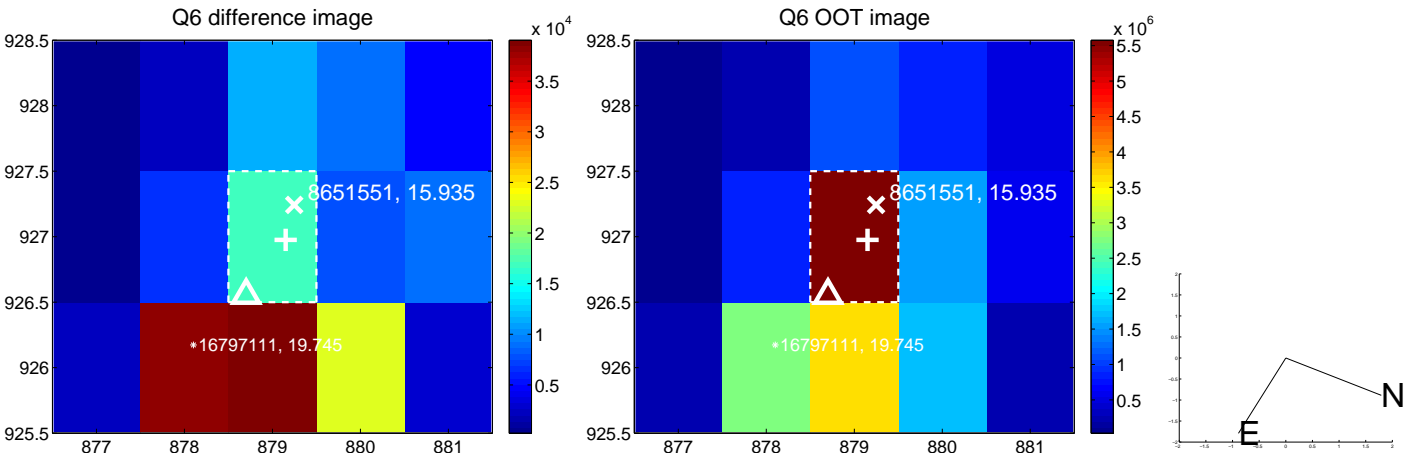
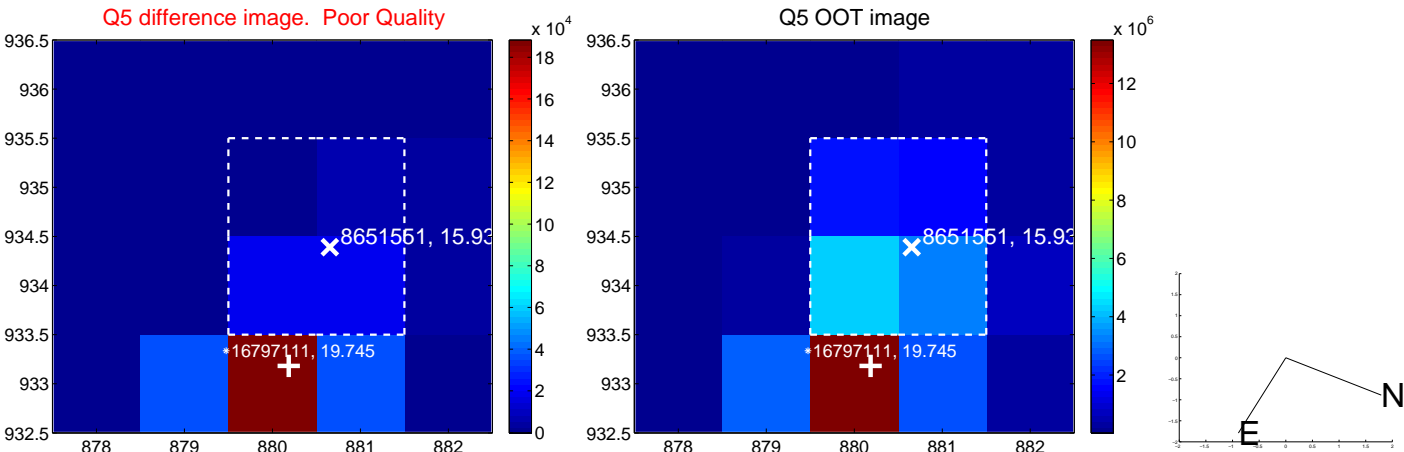


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ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

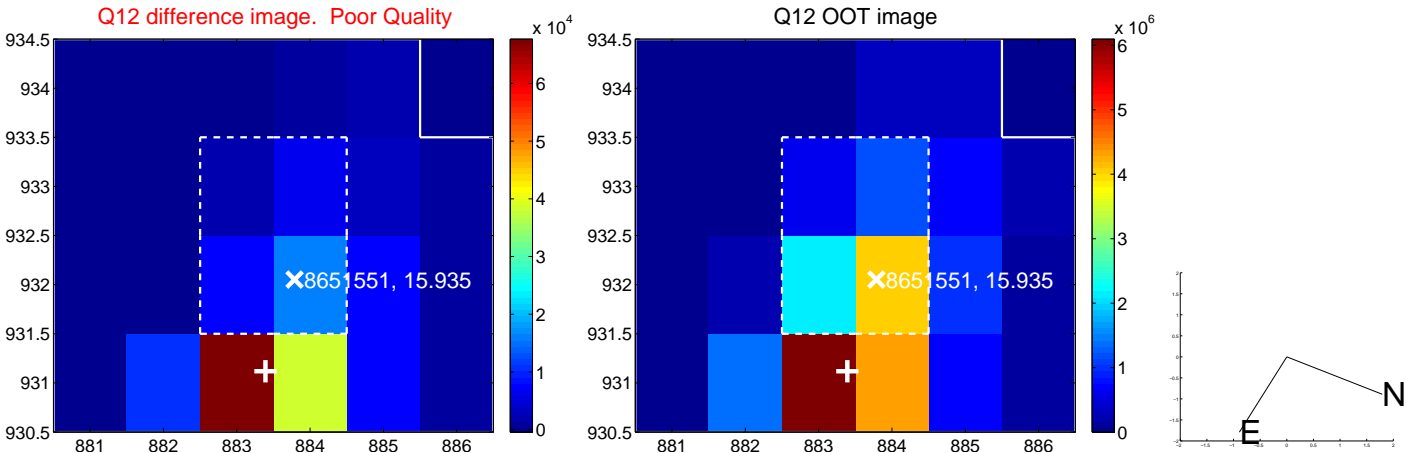
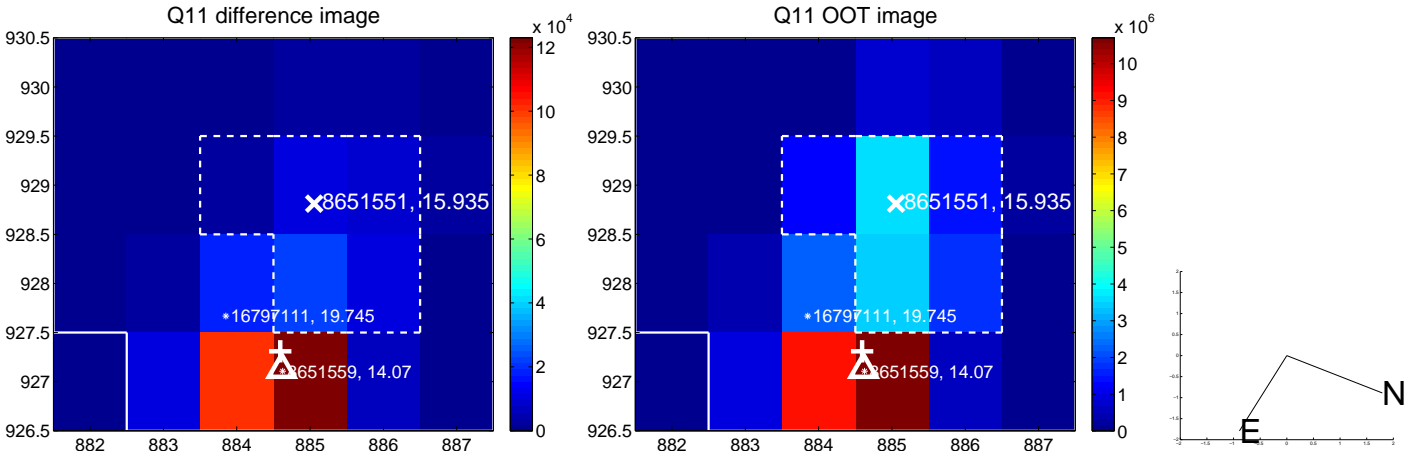
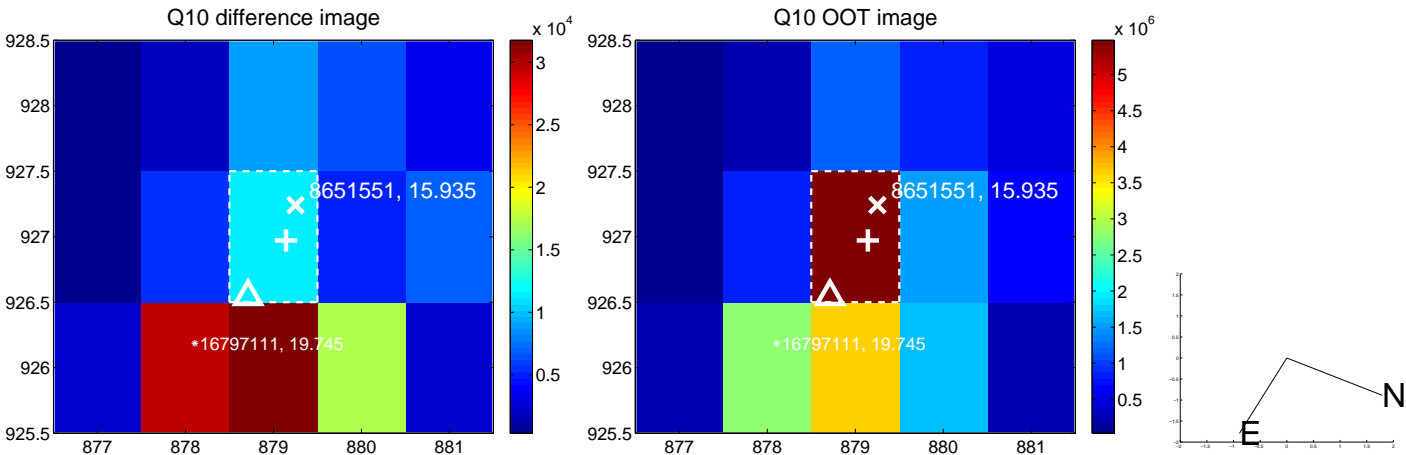
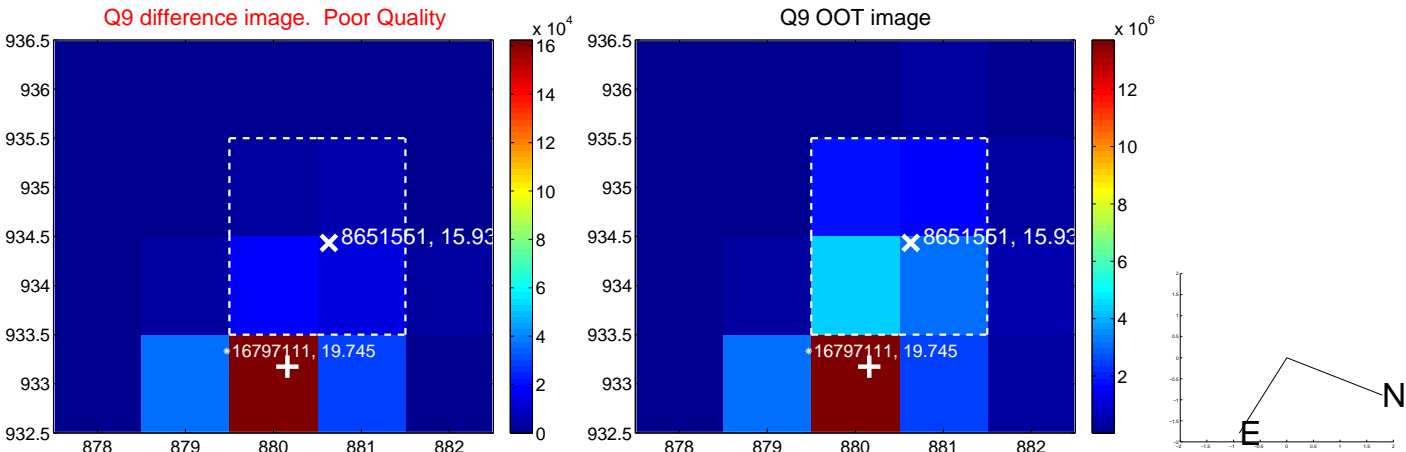
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



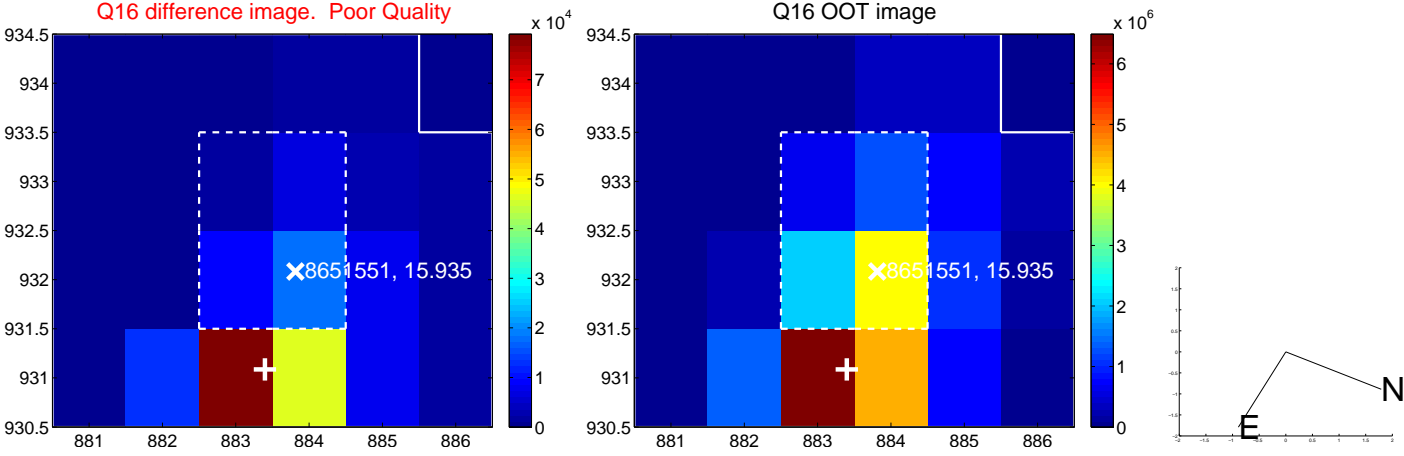
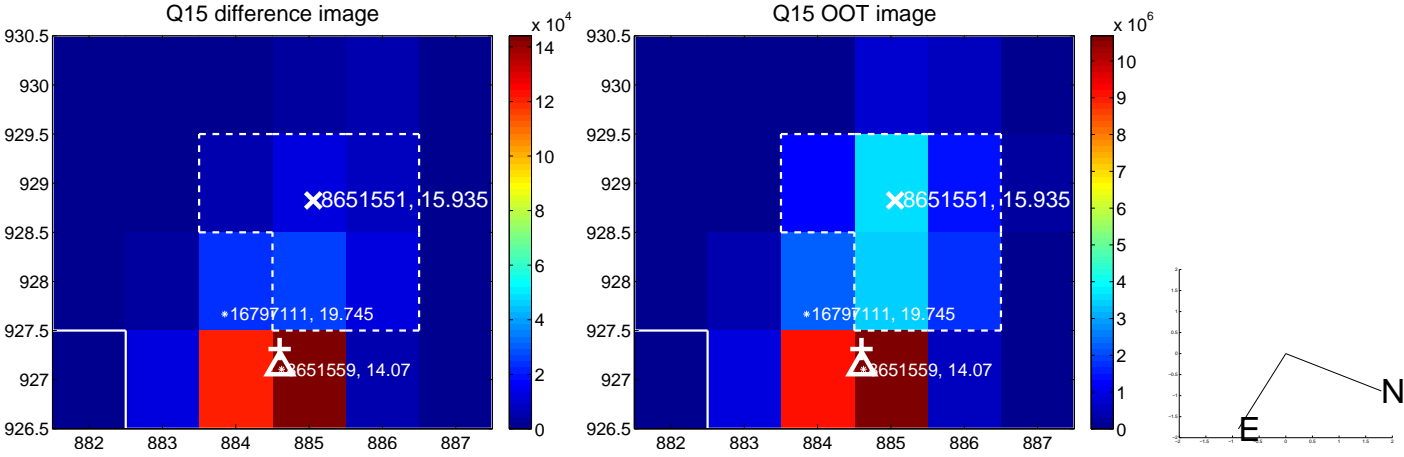
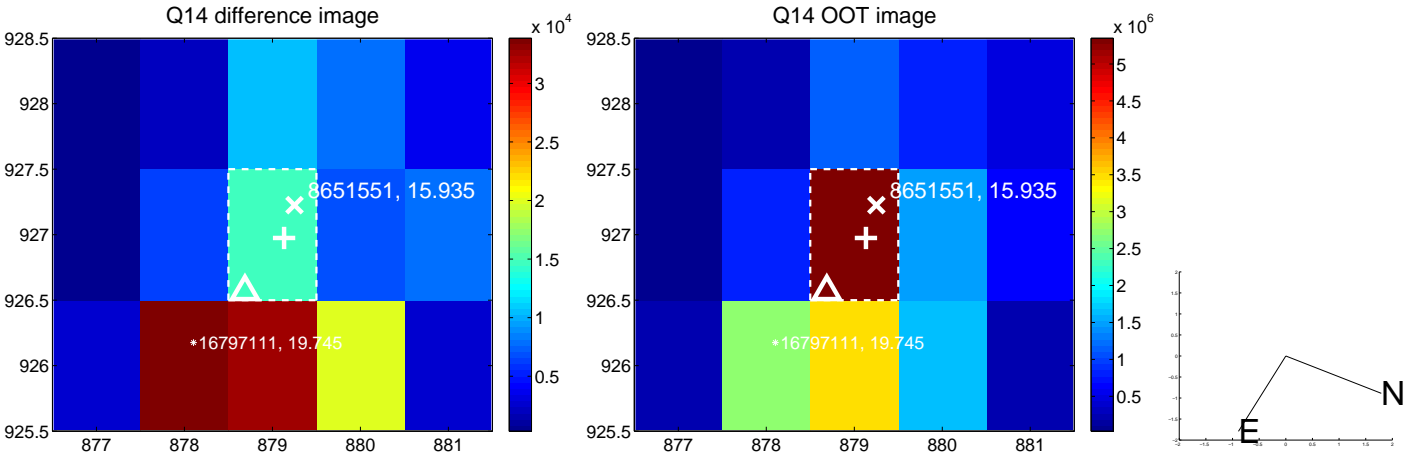
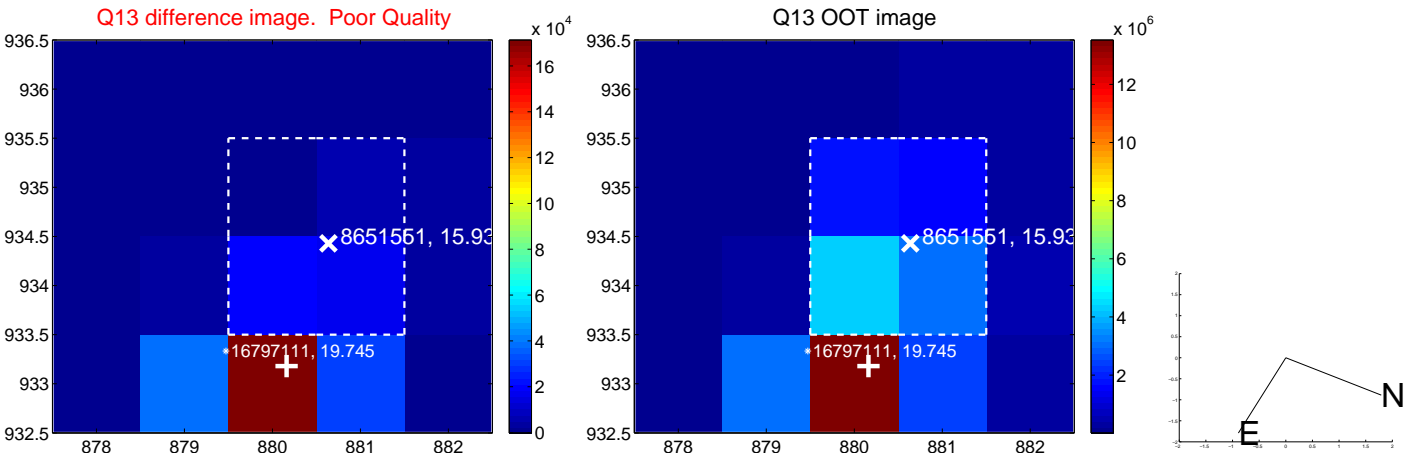
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



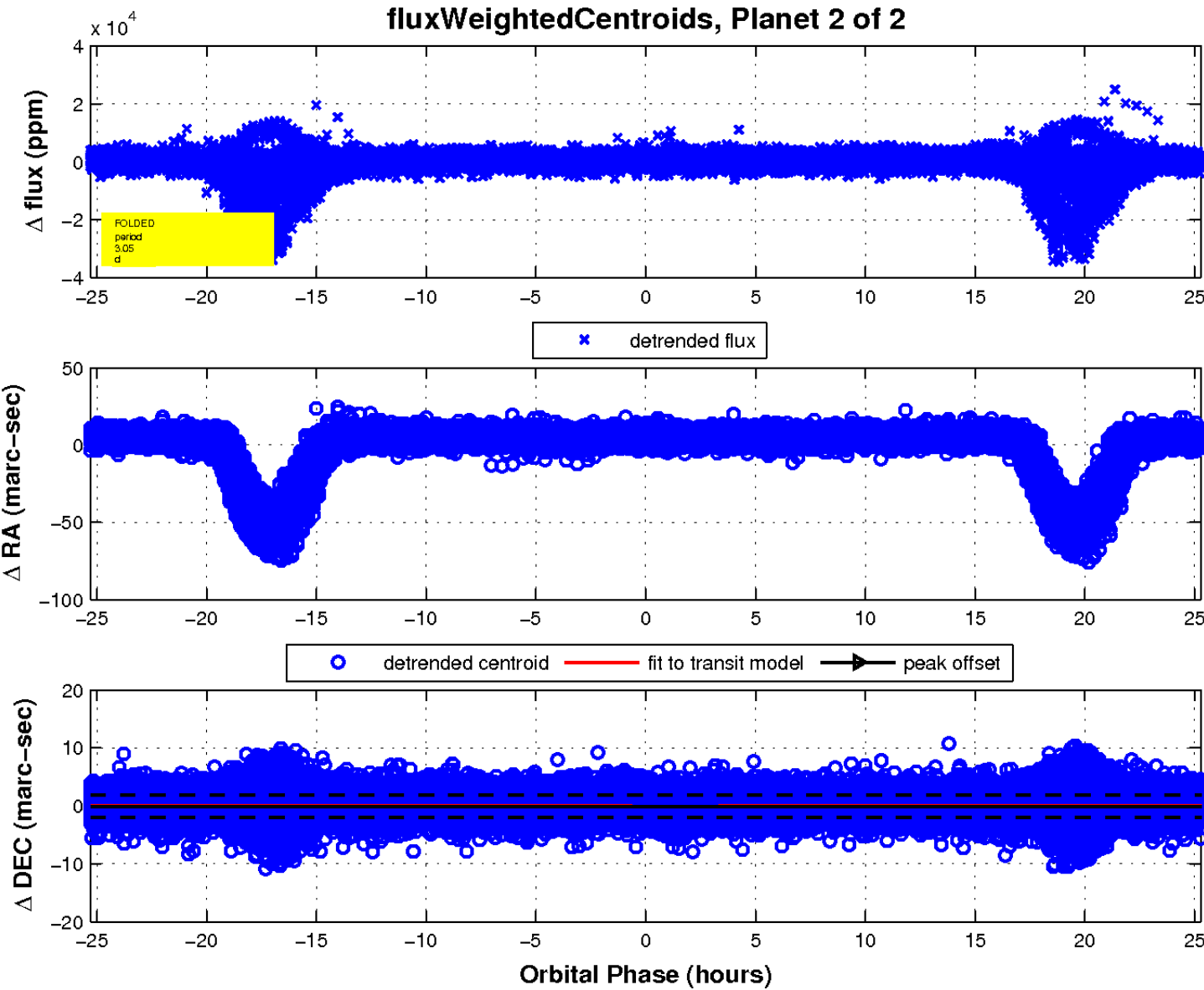
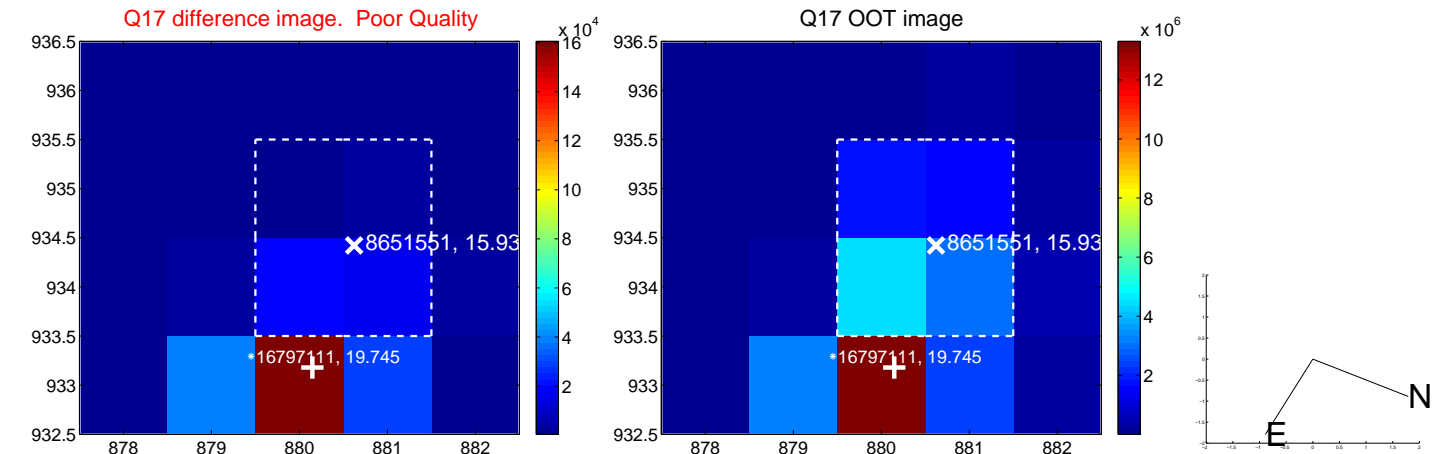
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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



UKIRT Image

Declination

