

KIC 009899416

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})
009899416-01	OBS	No	1.332549	132.055889	610348.3	4.500	10892.9	-1.0	3.57	8853	36.05	66597.44
009899416-02	OBS	No	1.332557	132.720369	2164.2	1.500	748.6	-1.0	3.57	8853	16.96	66596.90
009899416-04	OBS	No	131.296631	147.271414	610.7	2.500	75.5	-1.0	3.57	8853	8.99	146.34

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
009899416-01	OBS	FP	0.00	1	0	0	0	LPP_DV—CENT_SATURATED
009899416-02	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—SAME_NTL_PERIOD—CENT_SATURATED
009899416-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_CHASES—TRANS_GAPPED—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_SATURATED

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.

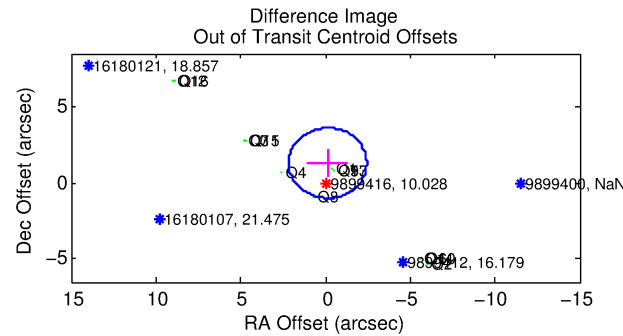
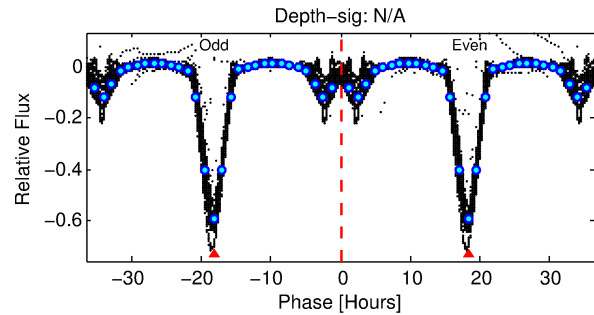
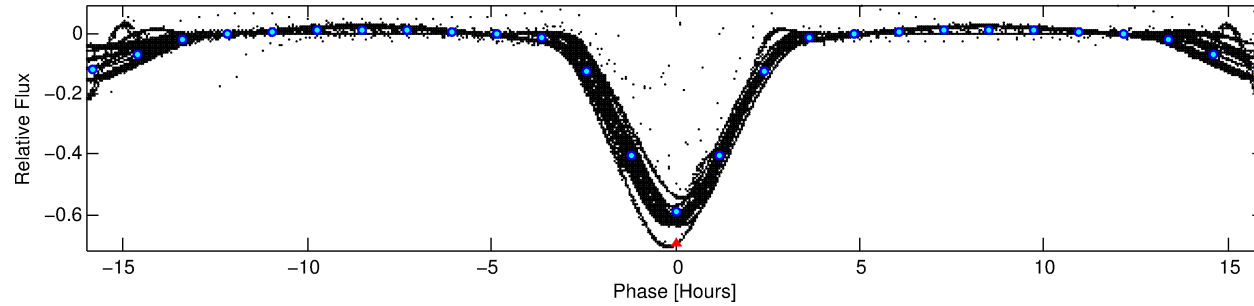
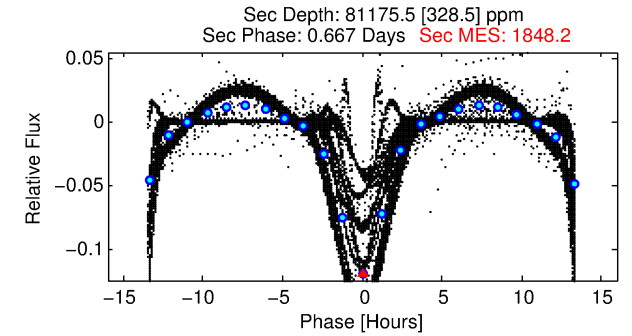
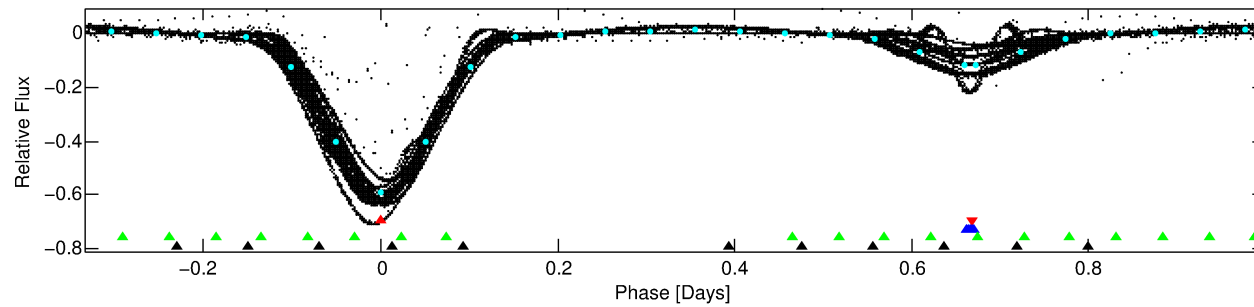
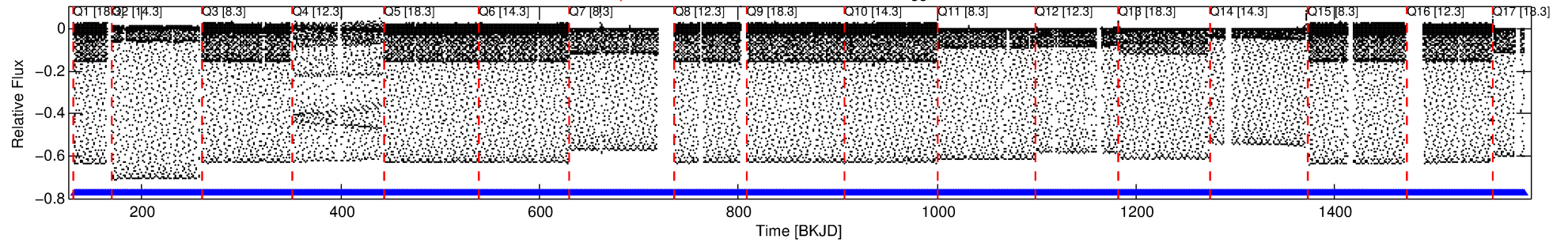
Ephemeris Match Information For 009899416-01

No Significant Match Found

DV One-Page Summary

KIC: 9899416 Candidate: 1 of 4 Period: 1.333 d

Kp: 10.03 R*: 3.57 Rs Teff: 8853.0 K Logg: 3.74 Fe/H: 0.070



TPS TCE Results:

Period = 1.33255 d
Epoch = 132.0559 BKJD

DV fit results are unavailable

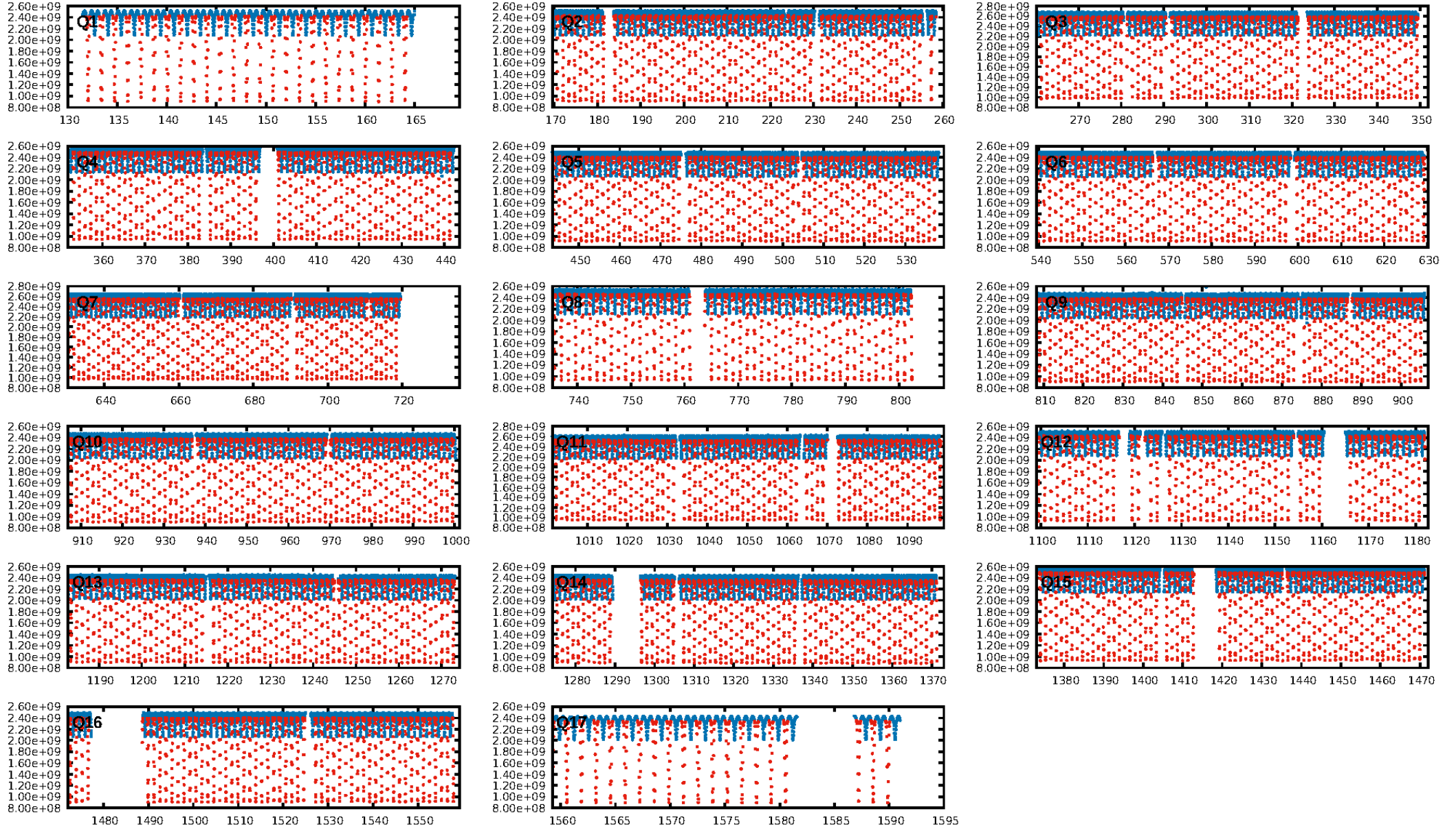
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: 0.0% [0.00σ]
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: N/A
RollingBand-fgt: 1.00 [966/966]
GhostDiagnostic-chr: N/A
Centroid-sig: N/A
Centroid-so: N/A
OotOffset-rm: 1.317 arcsec [1.72σ]
KicOffset-rm: 1.976 arcsec [1.39σ]
OotOffset-st: 4/4/4/5 [17]
KicOffset-st: 4/4/4/5 [17]
DiffImageQuality-fgm: 0.41 [7/17]
DiffImageOverlap-fno: 1.00 [17/17]

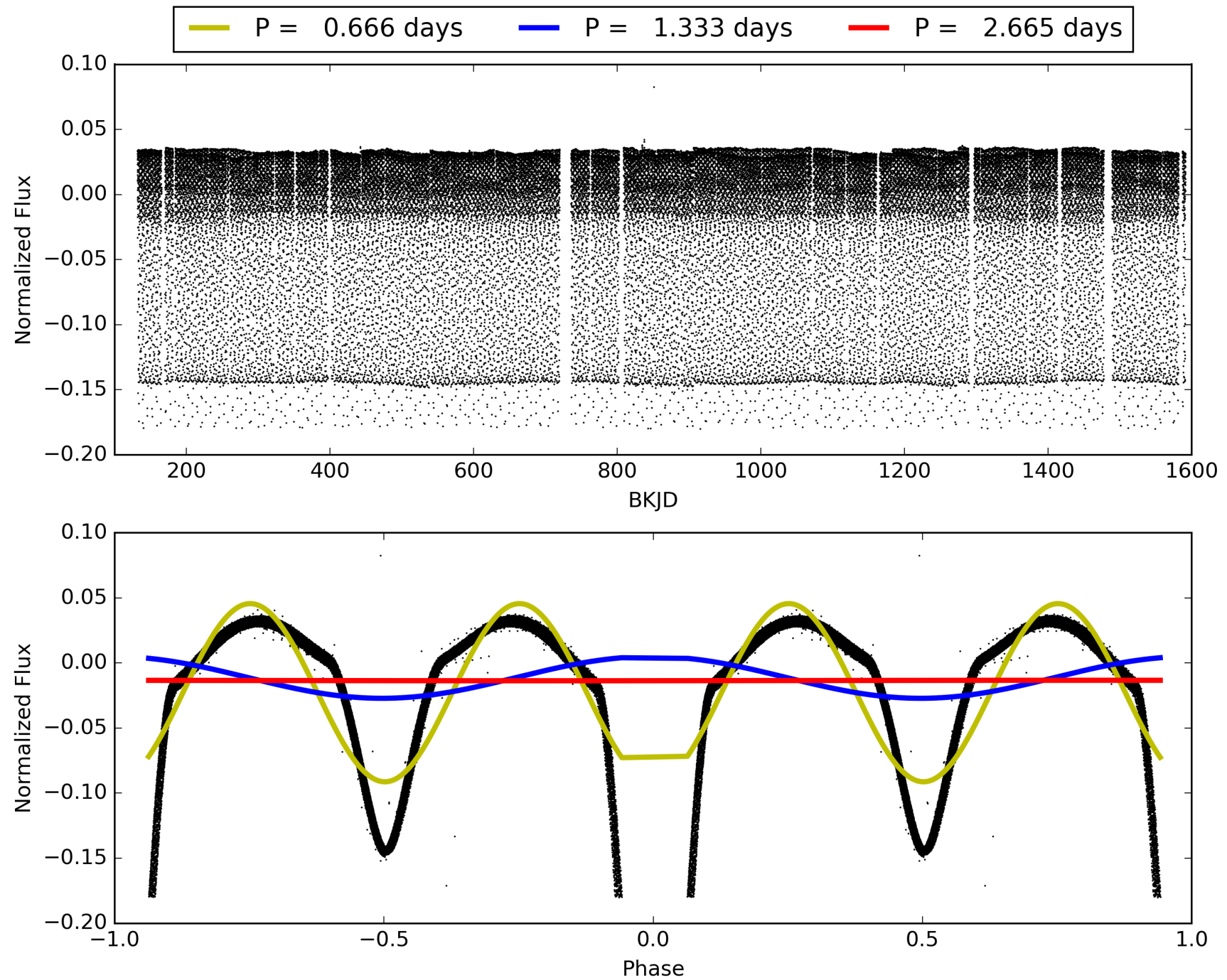
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 31-Jan-2016 02:27:42 Z

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

TCE 009899416-01, PDC Light Curves

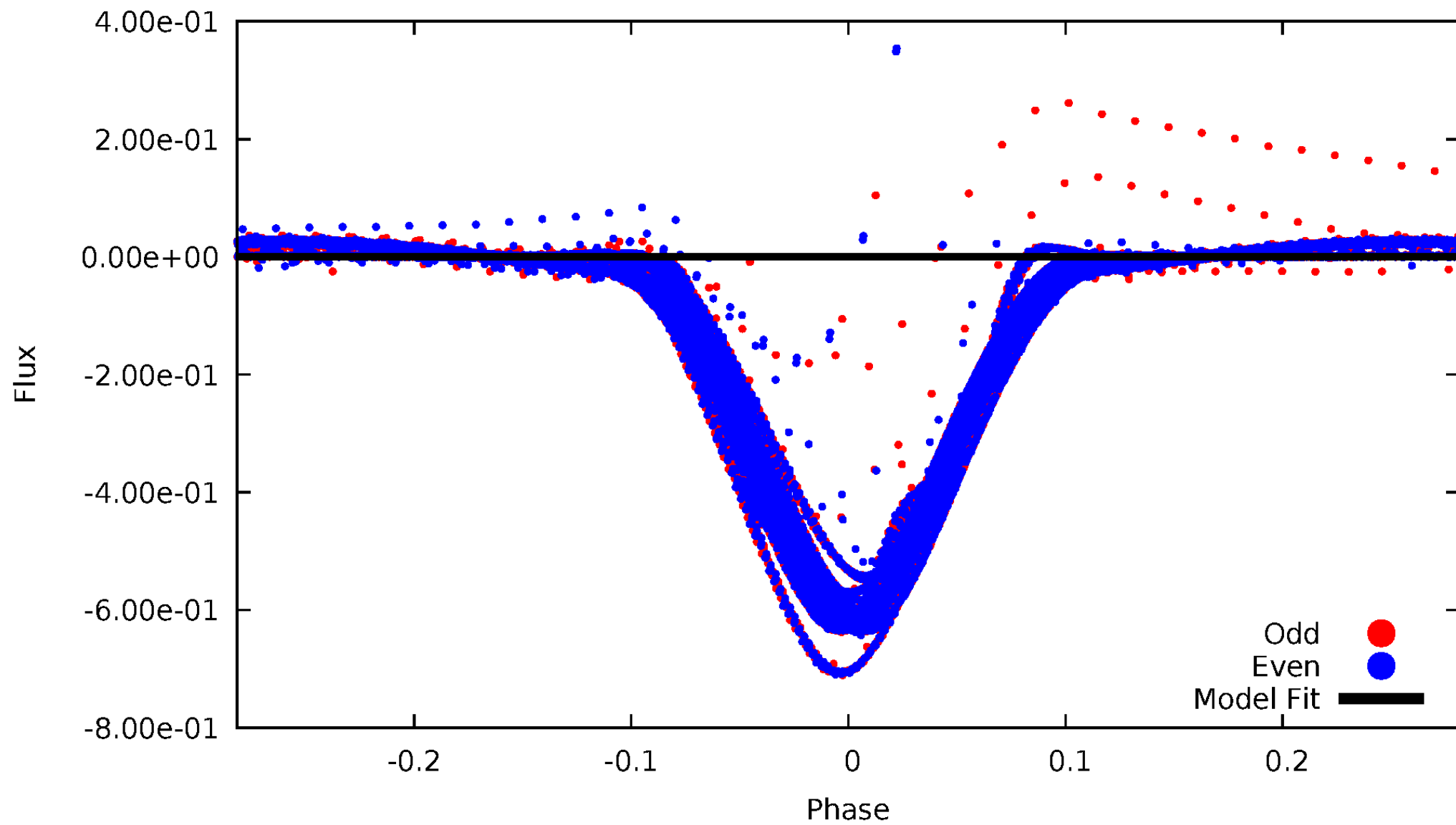


TCE 009899416-01



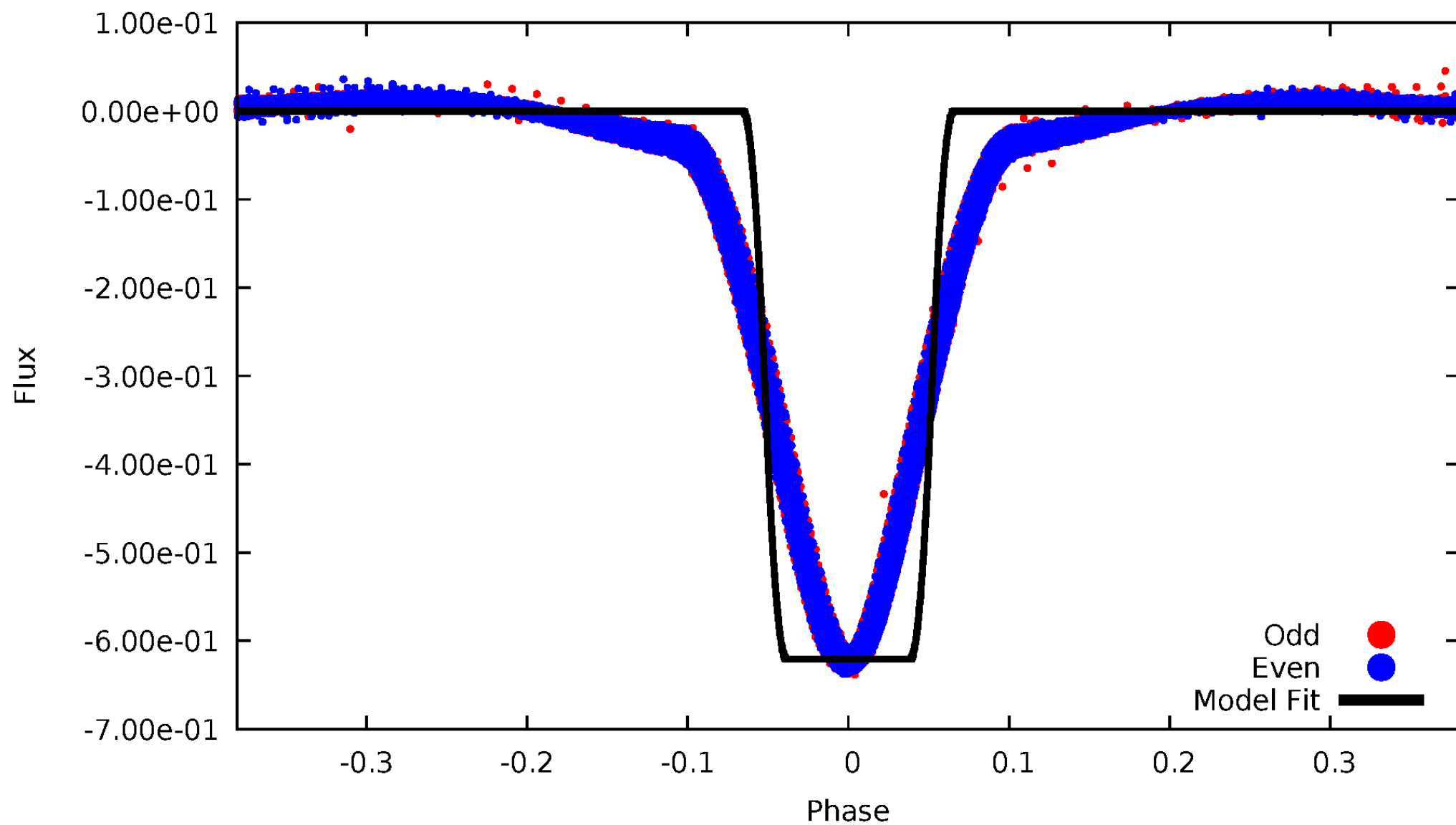
DV Odd/Even

TCE 009899416-01



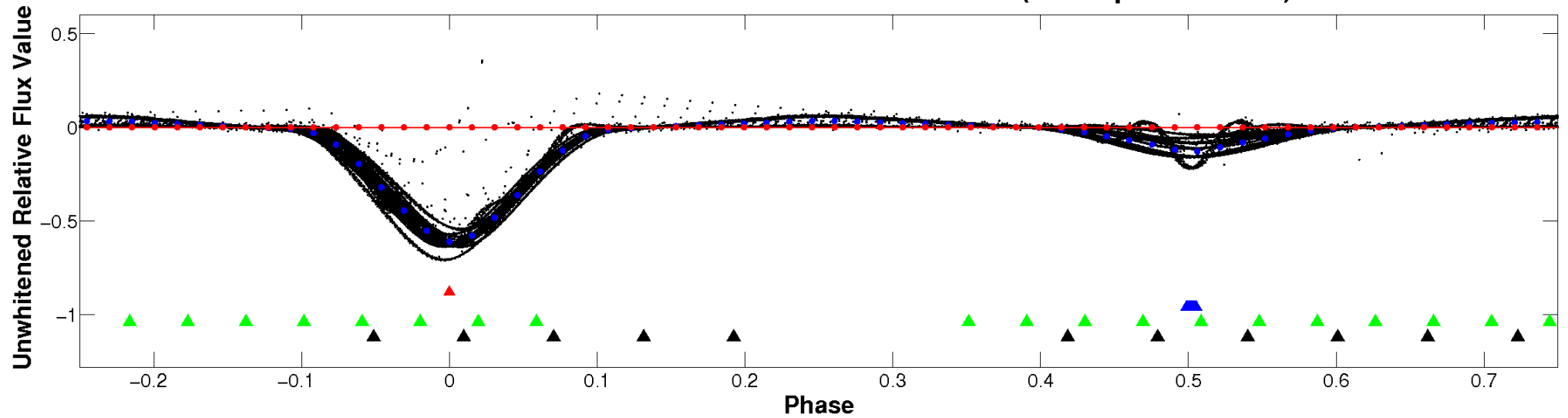
ALT Odd/Even

TCE 009899416-01



Non-Whitened Vs. Whitened Light Curve

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

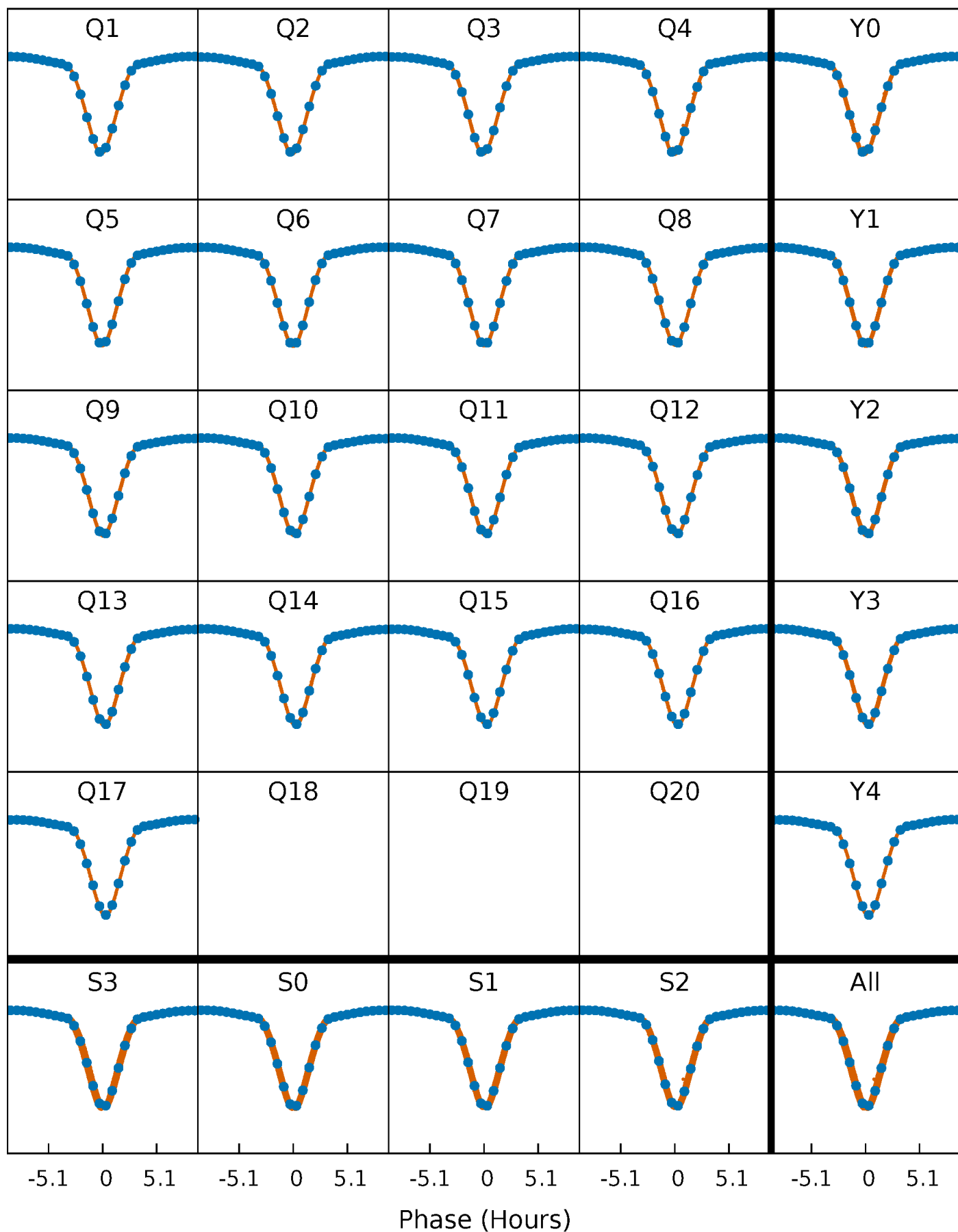


Planet 1 : Phased Whitened Flux Time Series (TPS Epoch/Period)



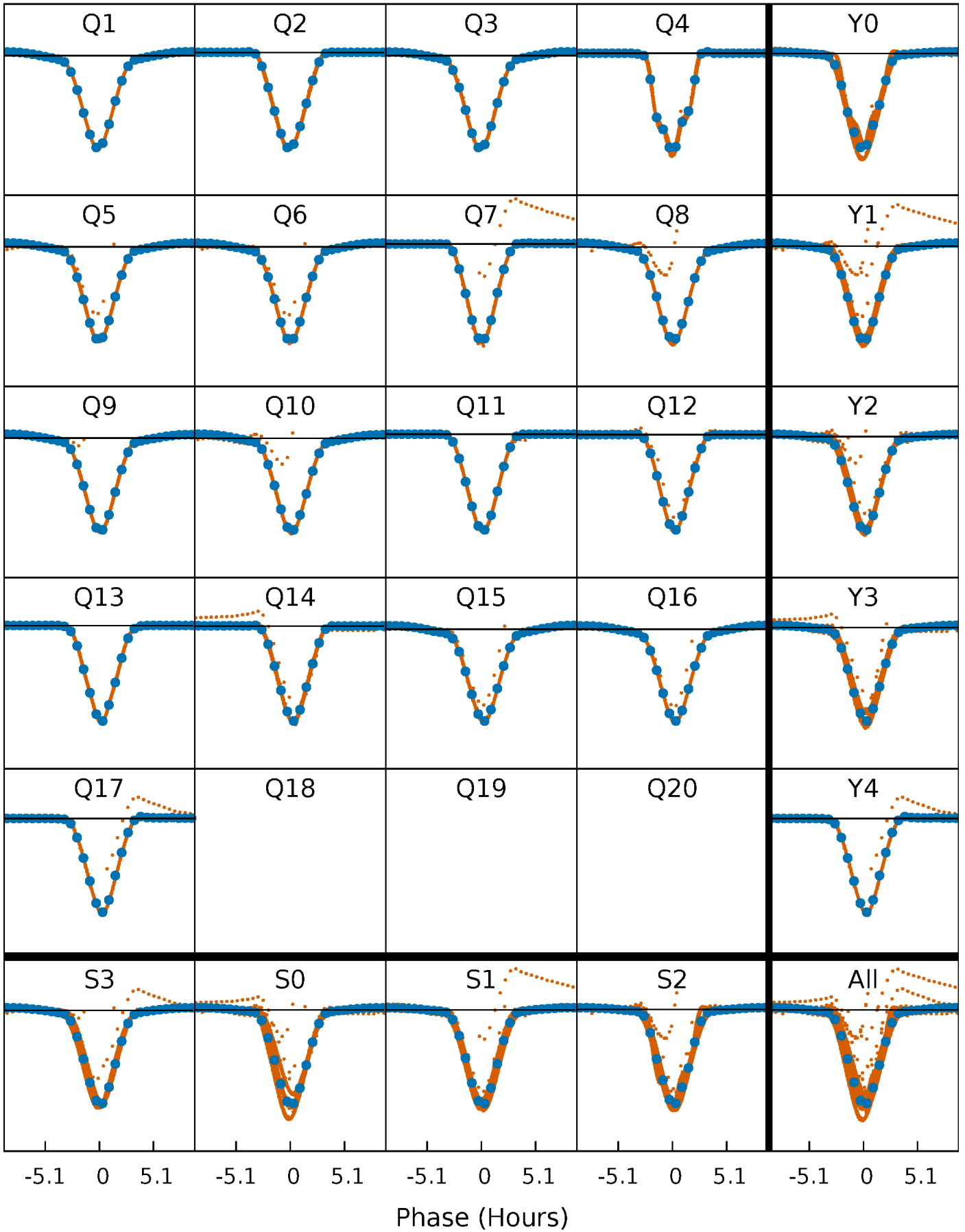
PDC Quarter-Phased Transit Curves

TCE 009899416-01 P= 1.332549 Days $T_0=132.055889$ (BKJD)



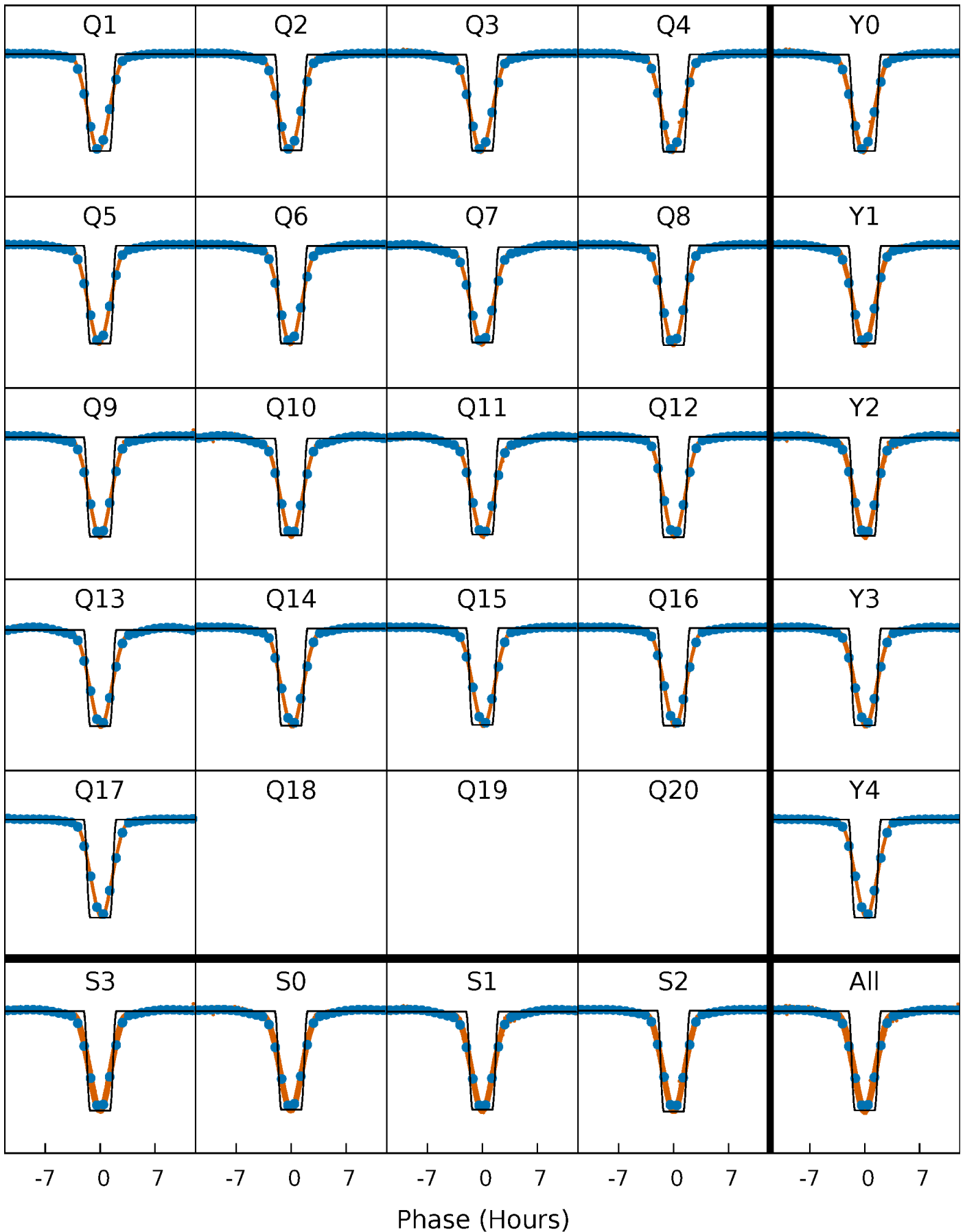
DV Quarter-Phased Transit Curves

TCE 009899416-01 P= 1.332549 Days $T_0=132.055889$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

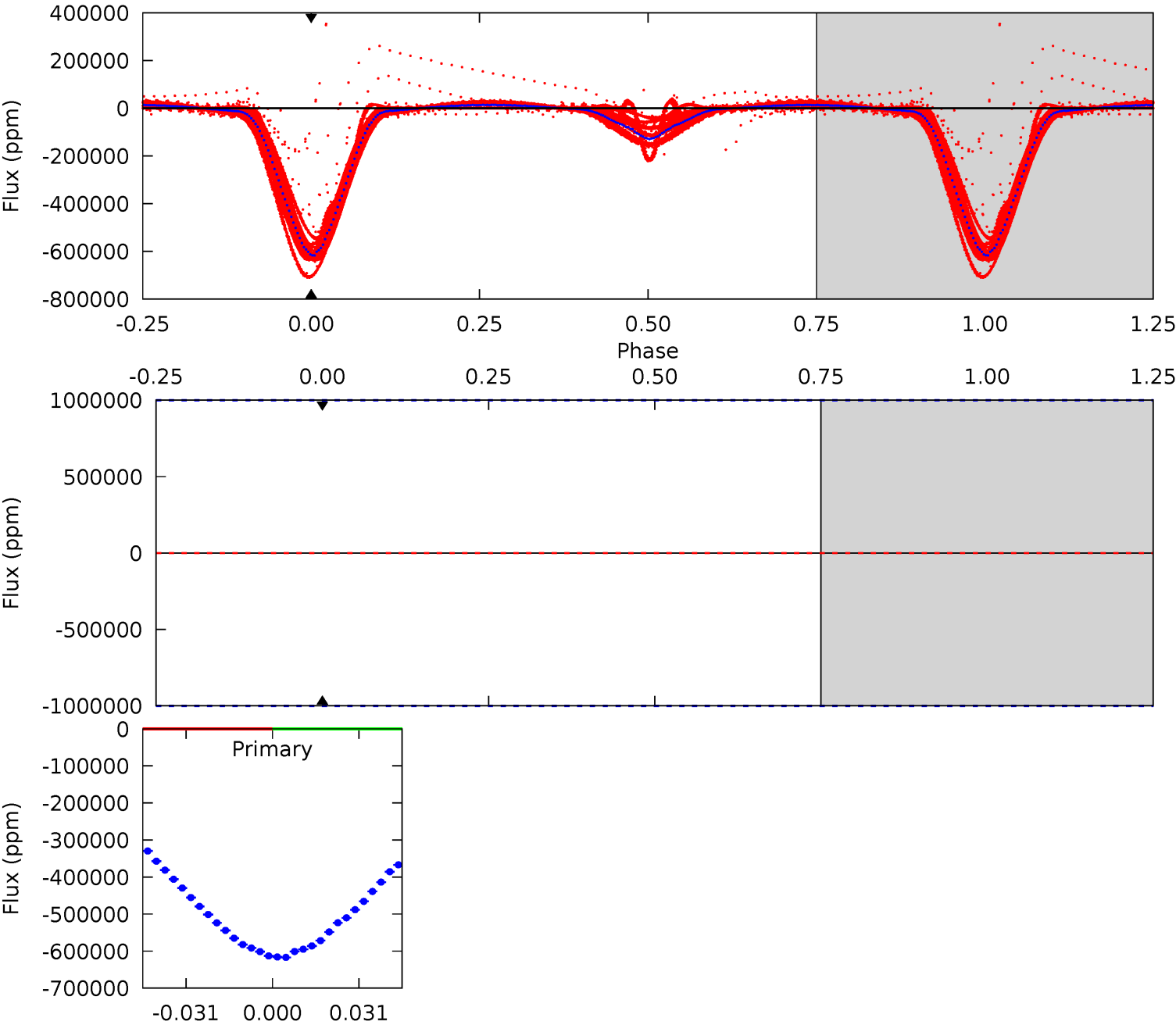
TCE 009899416-01 P= 1.332549 Days $T_0=132.059281$ (BKJD)



DV Model-Shift Uniqueness Test

009899416-01, P = 1.332549 Days, E = 130.723340 Days

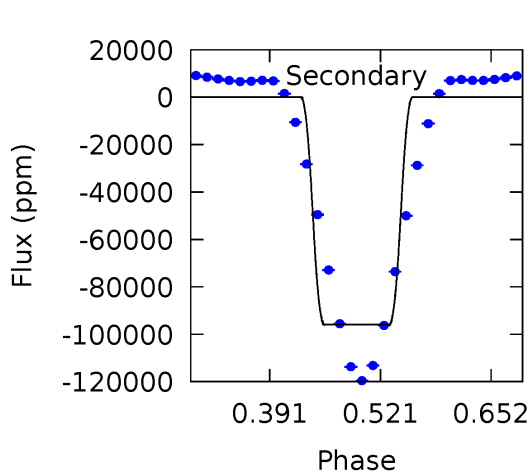
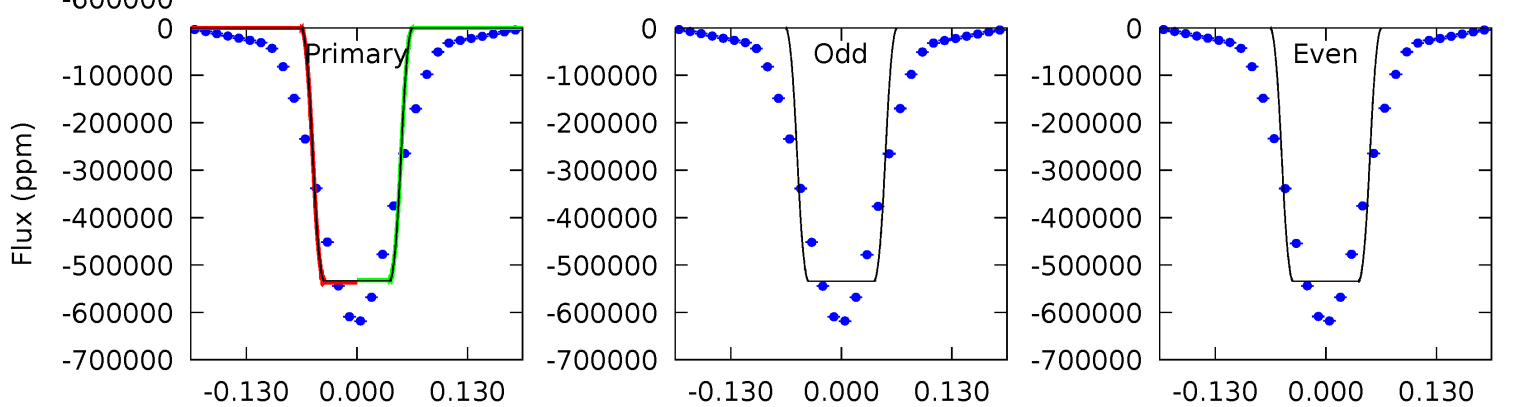
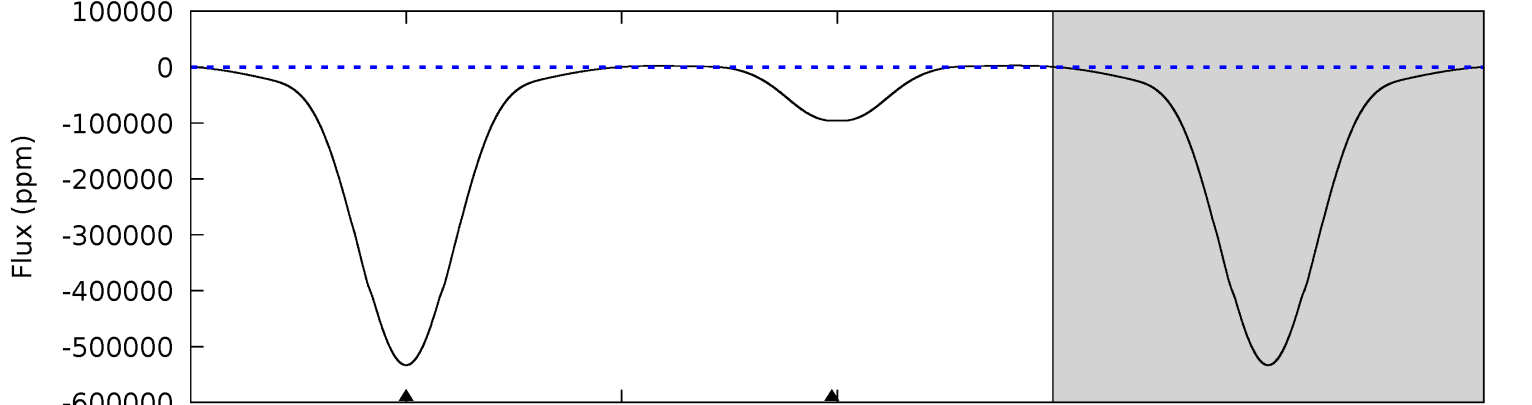
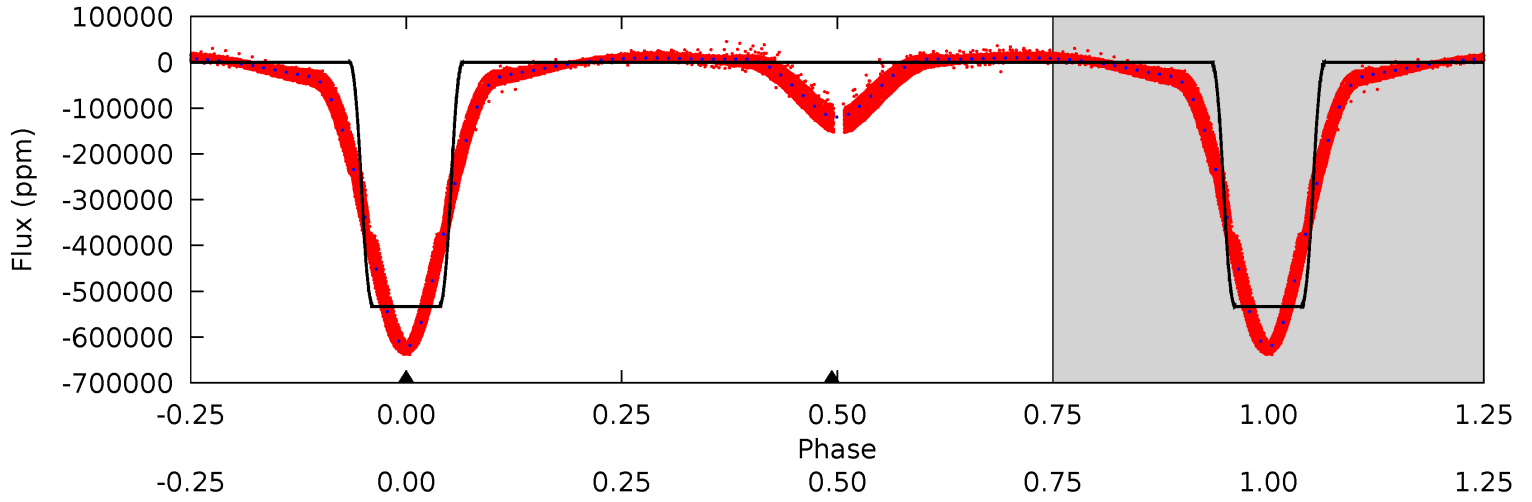
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
0	0	0	0	1.00	1.00	1.00	0	0	0	0	0	0	0	0



Alt Model-Shift Uniqueness Test

009899416-01, P = 1.332549 Days, E = 130.726732 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
4525	813.7	0	0	4.51	1.51	90.7	4525	4525	813.7	813.7	0.26	1.00	0.01	19.2



Stellar Parameters For KIC 009899416

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	8853^{+242}_{-450}	$3.742^{+0.420}_{-0.150}$	$0.070^{+0.200}_{-0.600}$	$3.570^{+0.994}_{-1.845}$	$2.564^{+0.318}_{-0.954}$	$0.079^{+0.369}_{-0.034}$
	+3%/-5%	+11%/-4%	+286%/-857%	+28%/-52%	+12%/-37%	+465%/-43%
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 009899416-01 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	0 ± 1000000	$38.55^{+37.25}_{-25.54}$	5510^{+523}_{-689}	-5486^{+34954}_{-25723}	$-0.452^{+65.071}_{-66.414}$
Alt.	-95883 ± 118	$284.36^{+69.55}_{-78.73}$	5514^{+516}_{-680}	4835^{+507}_{-508}	$0.762^{+0.477}_{-0.260}$

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

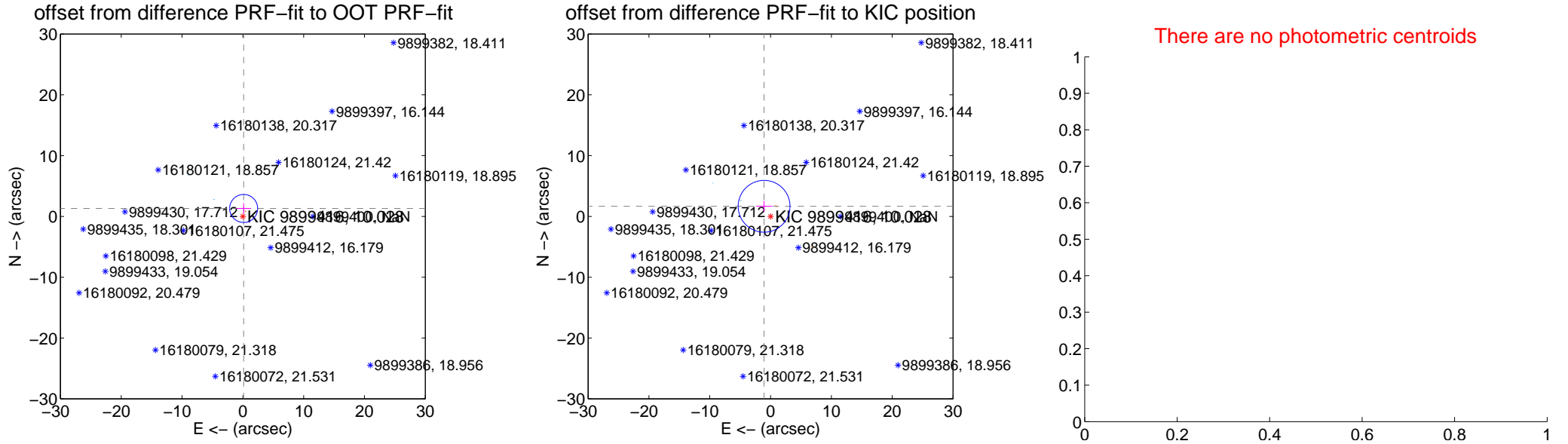
DV Centroid Data

Supplemental centroid analysis for 009899416-01. **Kepler magnitude: 10.03.** Transit SNR -1.00

There are 7 quarters with good PRF difference image offsets

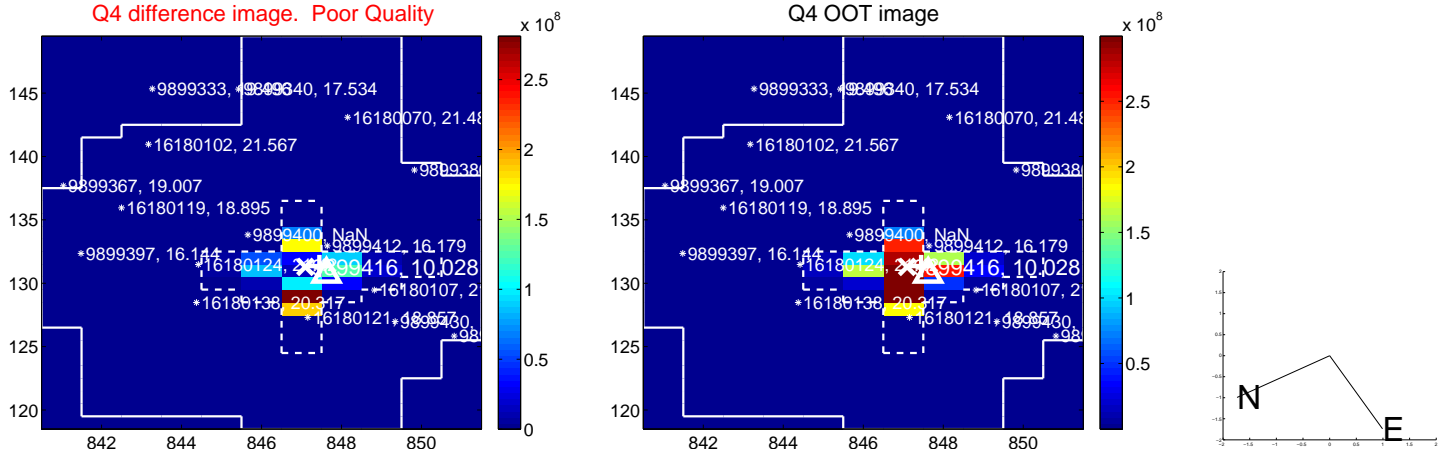
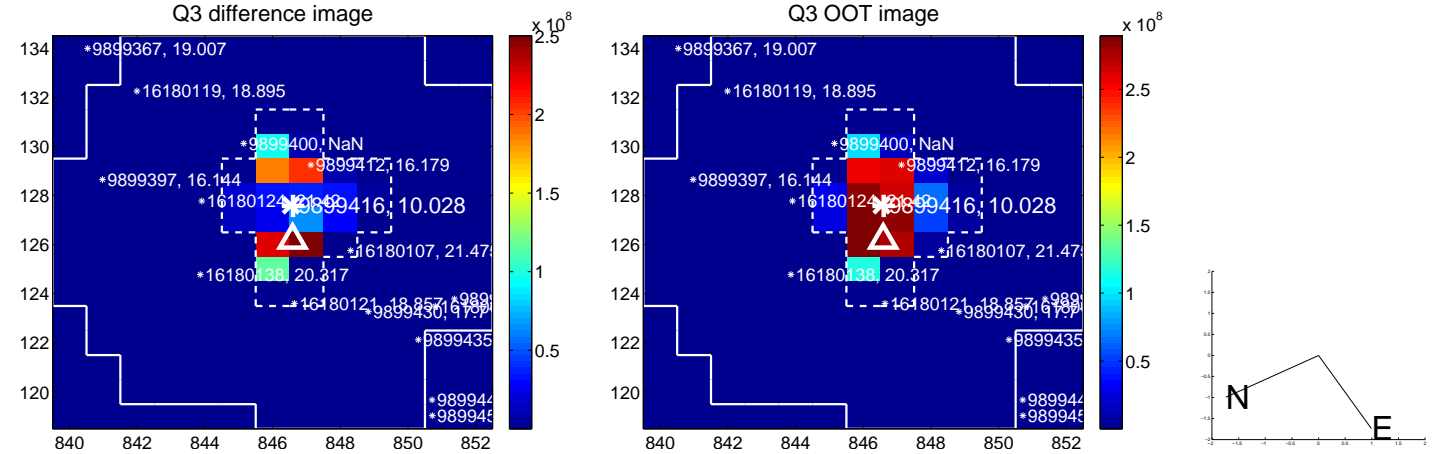
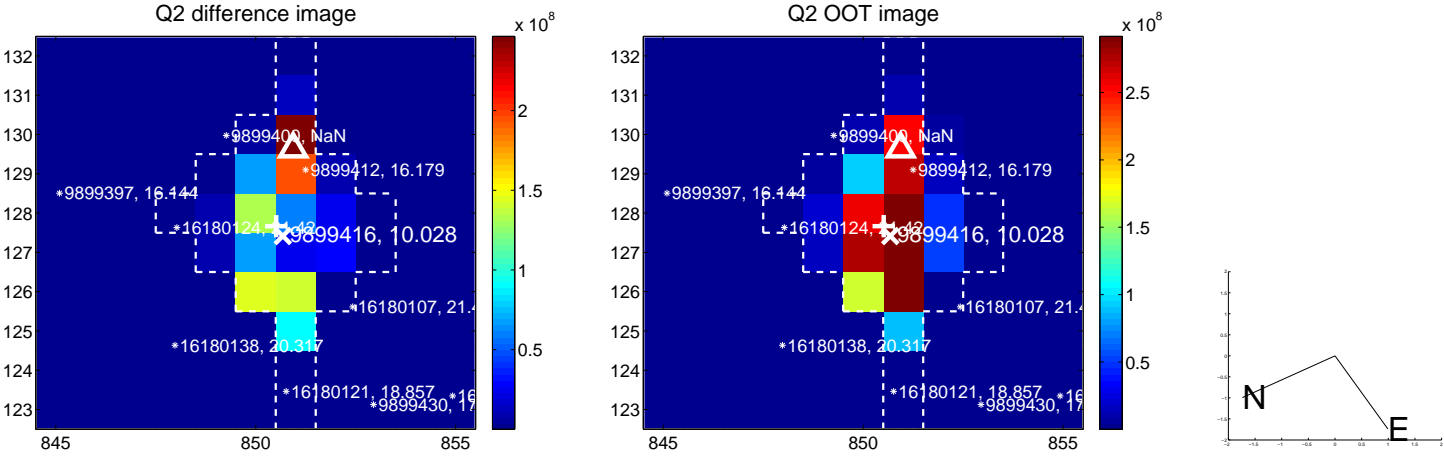
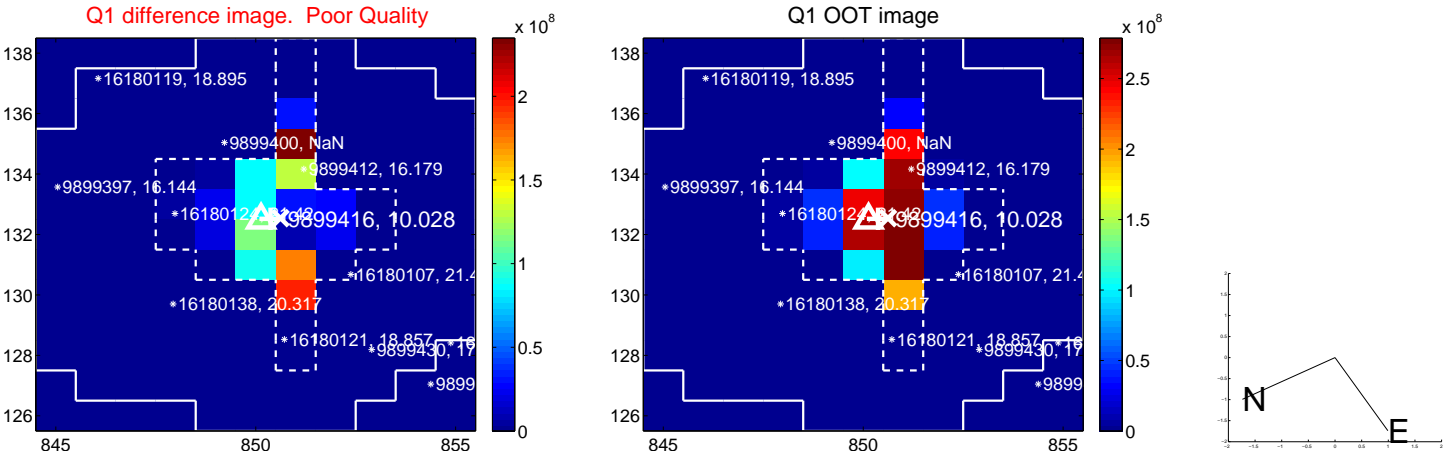
The direct PRF centroid is offset from the target star catalog position by about 0.98 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	1.317 ± 0.768	1.72	-0.130 ± 1.163	1.310 ± 0.882
PRF-fit source offset from KIC position	1.976 ± 1.420	1.39	1.066 ± 1.337	1.664 ± 0.881
photometric centroid source offset	—	—	—	—

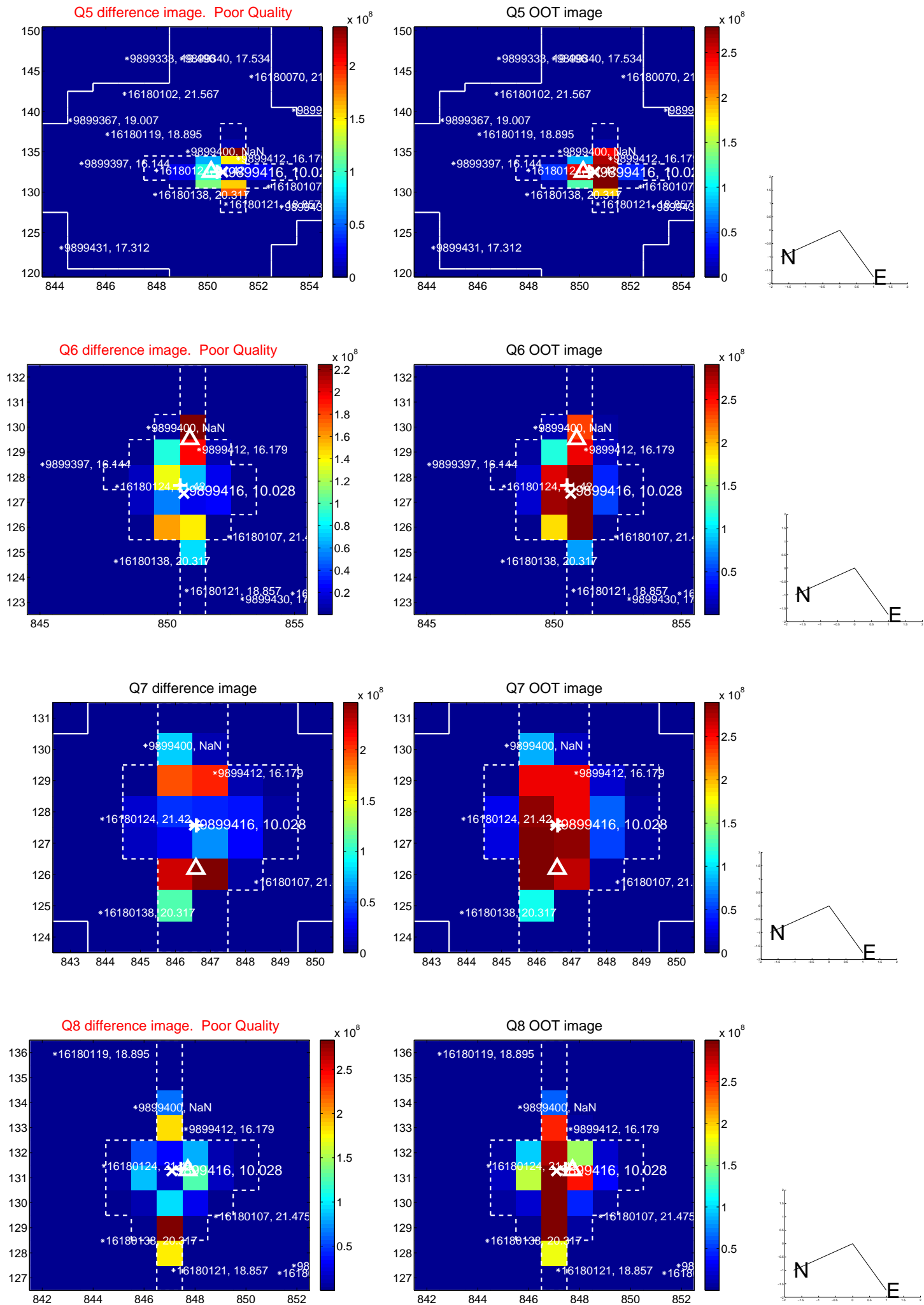


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets;** magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

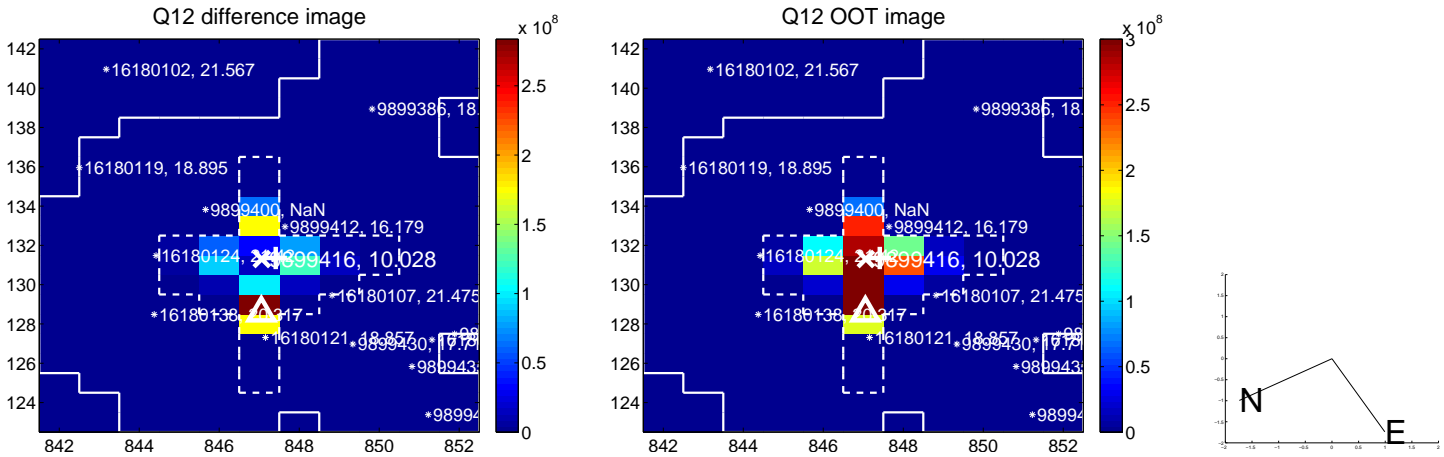
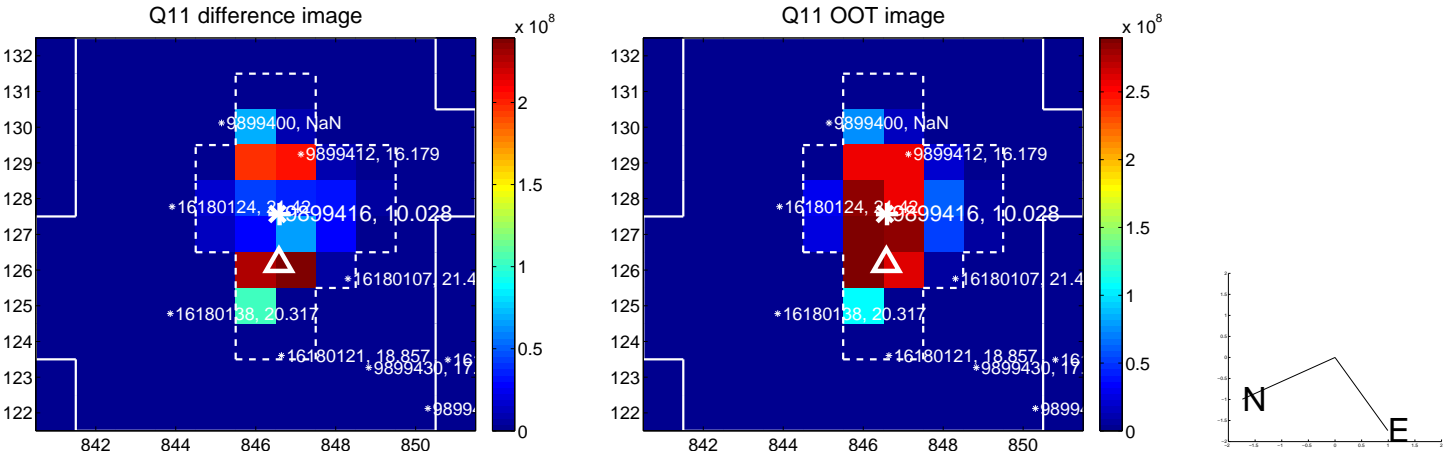
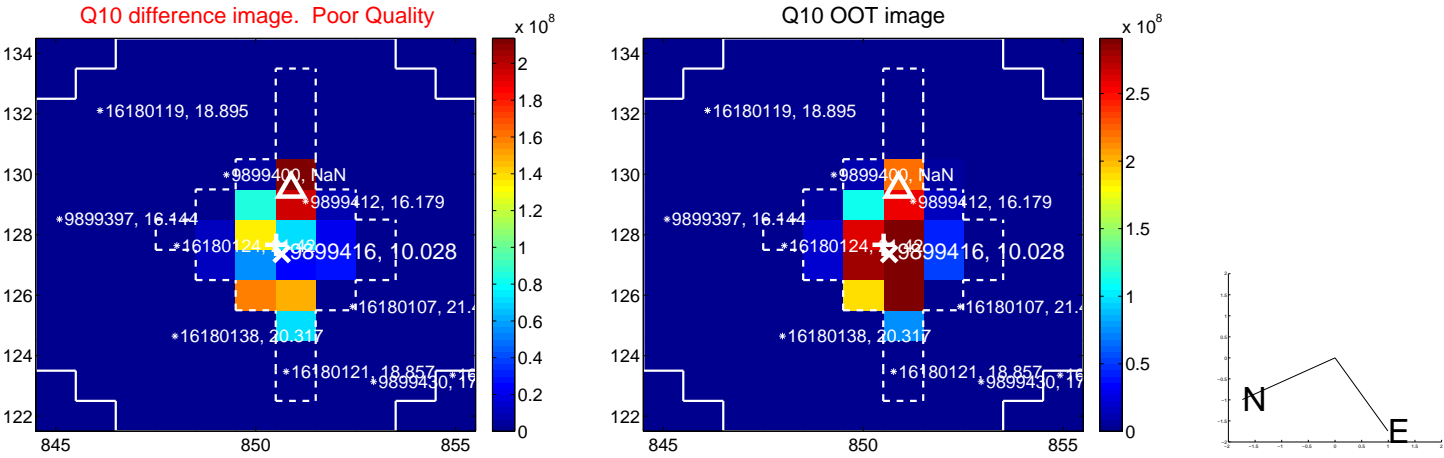
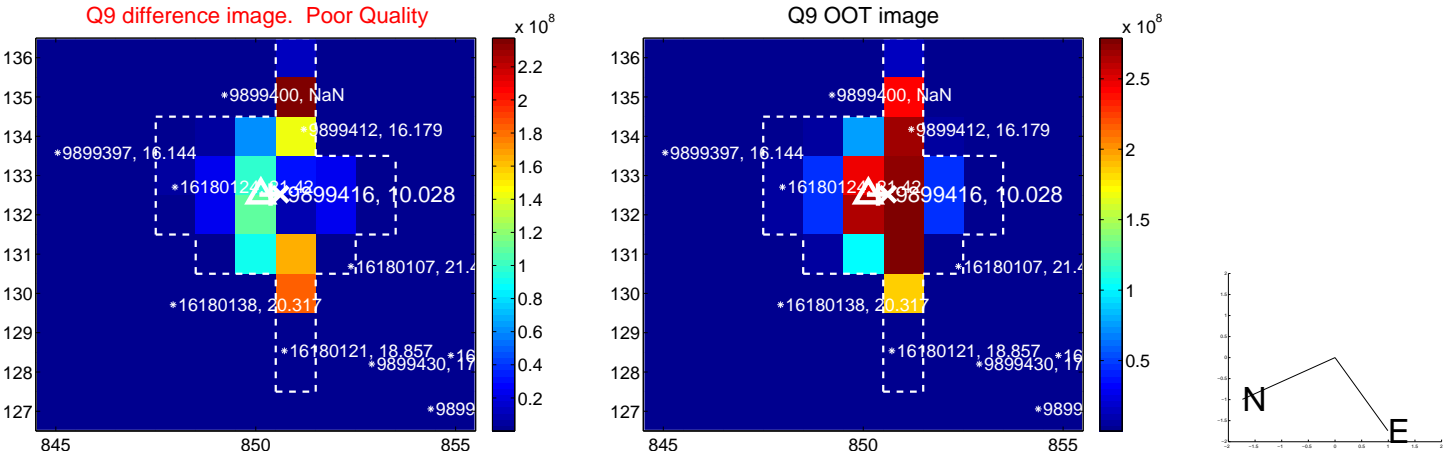
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



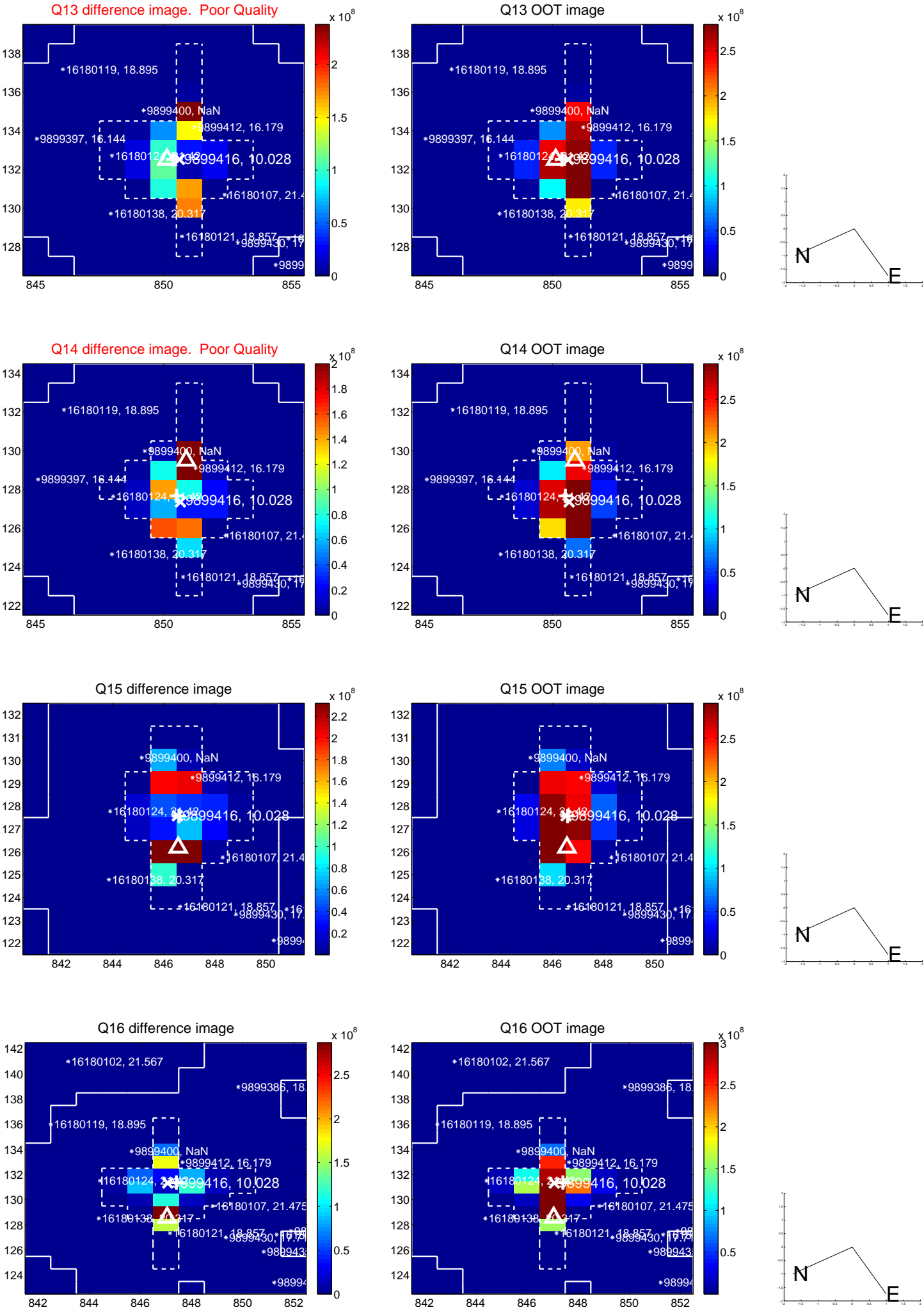
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



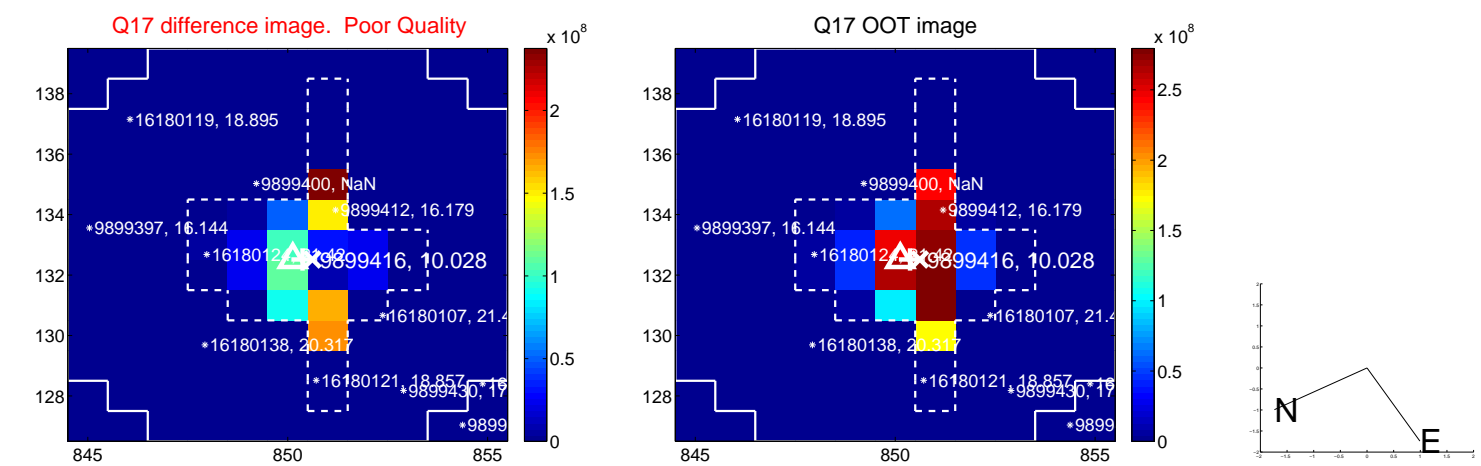
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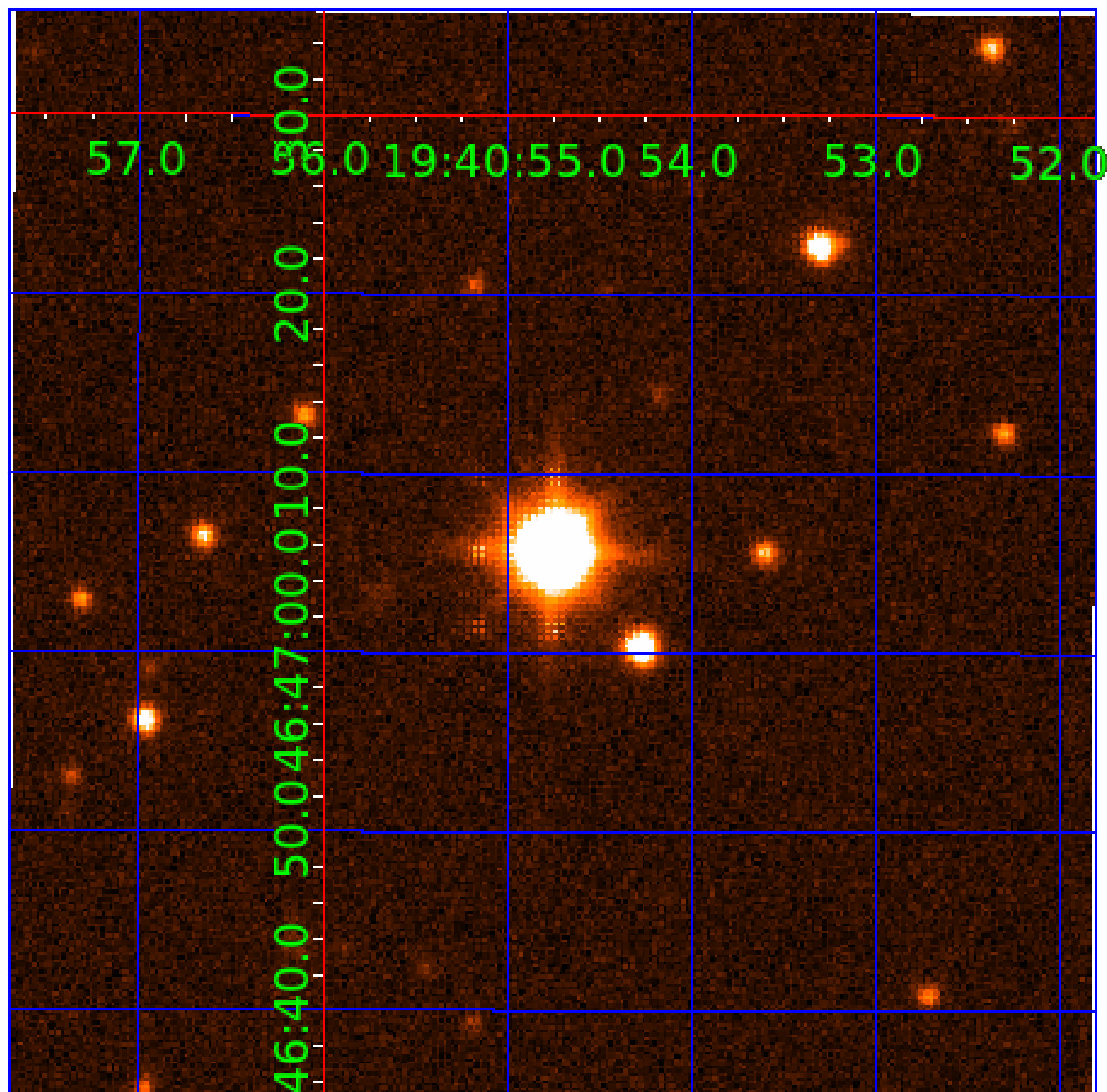
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



folded centroid time series figure for this object.

UKIRT Image

Declination



KIC 009899416

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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Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
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009899416-02	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—SAME_NTL_PERIOD—CENT_SATURATED
009899416-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_CHASES—TRANS_GAPPED—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_SATURATED

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.

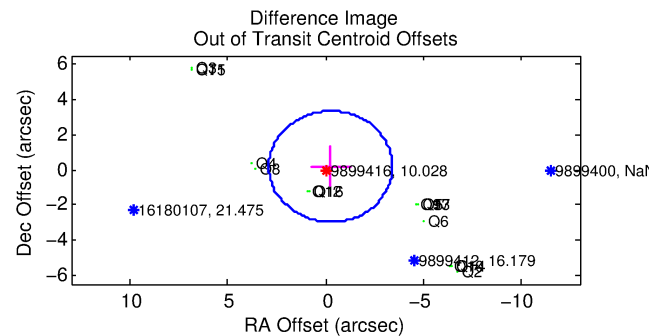
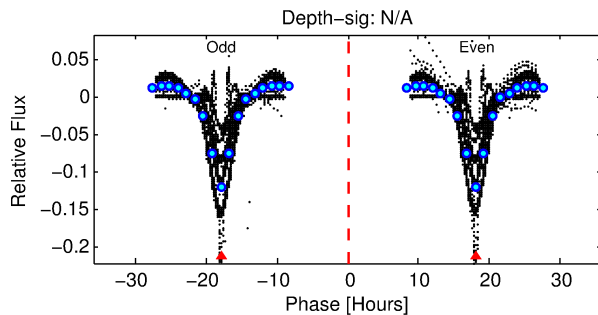
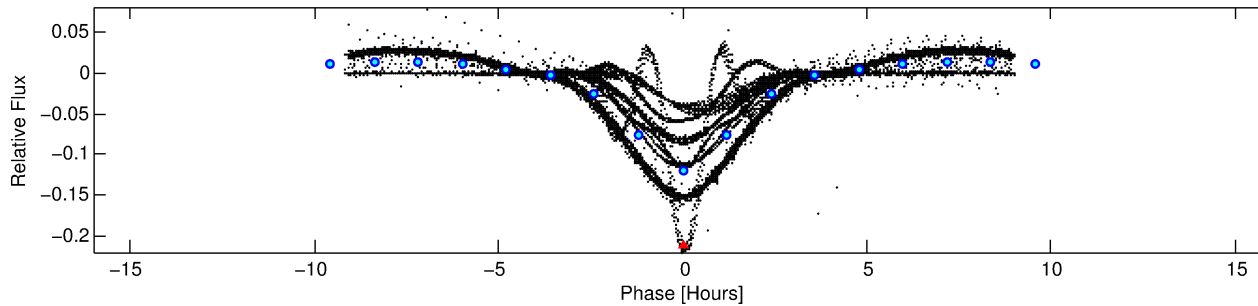
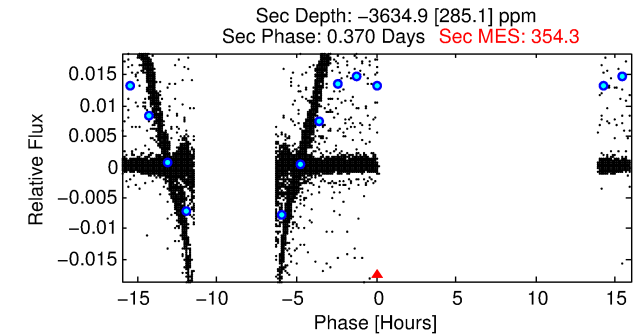
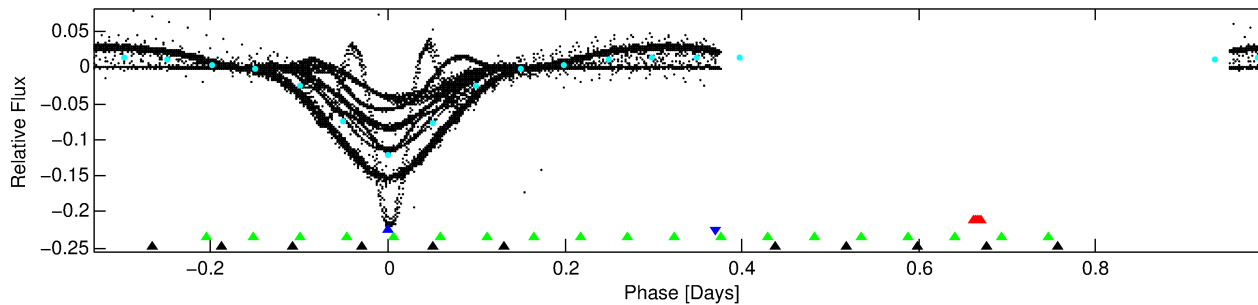
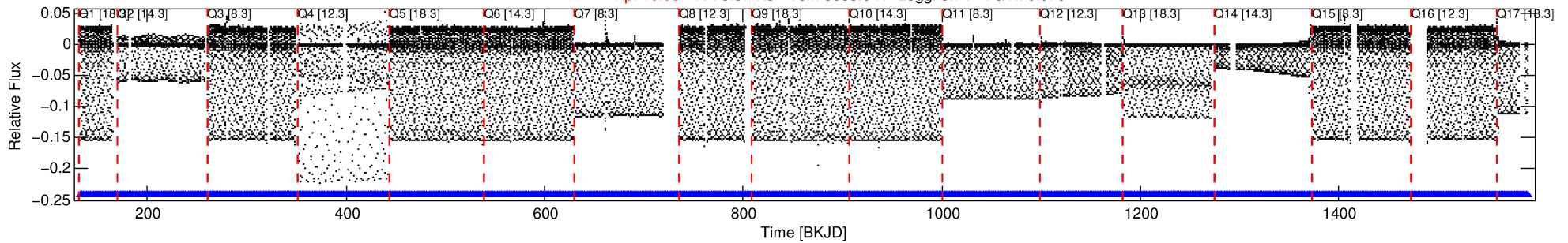
Ephemeris Match Information For 009899416-02

No Significant Match Found

DV One-Page Summary

KIC: 9899416 Candidate: 2 of 4 Period: 1.333 d

Kp: 10.03 R*: 3.57 Rs Teff: 8853.0 K Logg: 3.74 Fe/H: 0.070



TPS TCE Results:

Period = 1.33256 d
Epoch = 132.7204 BKJD

DV fit results are unavailable

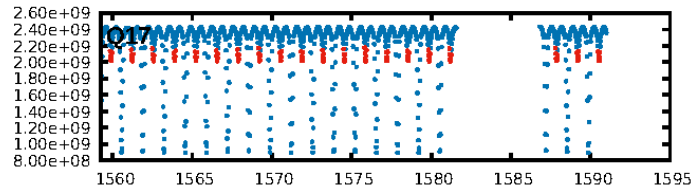
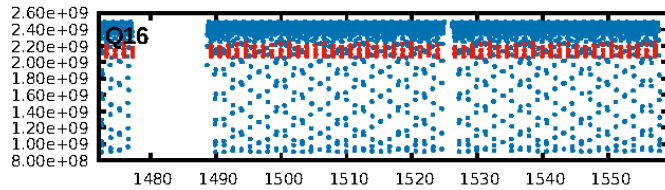
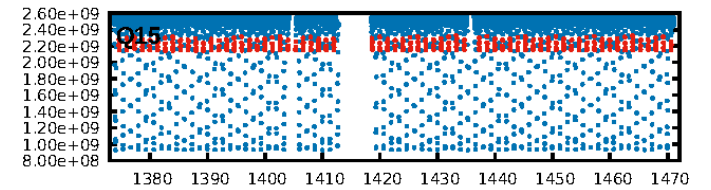
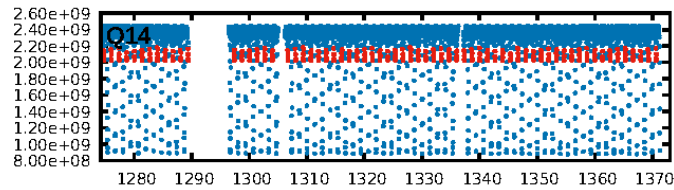
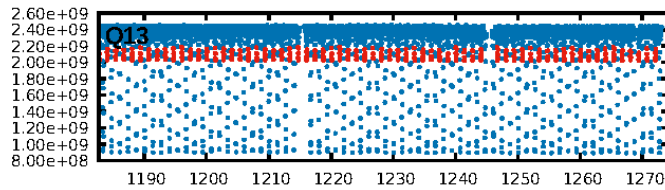
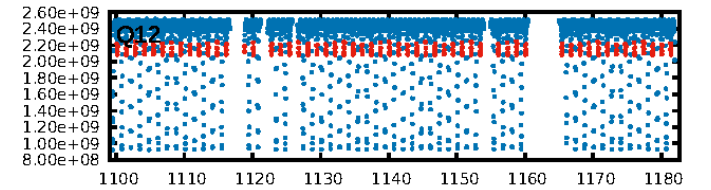
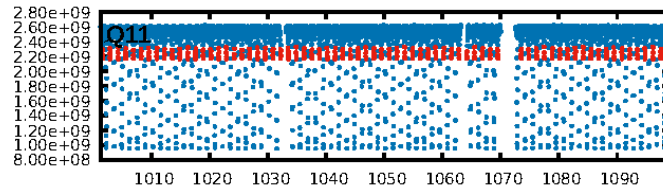
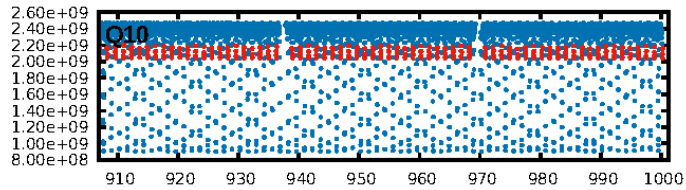
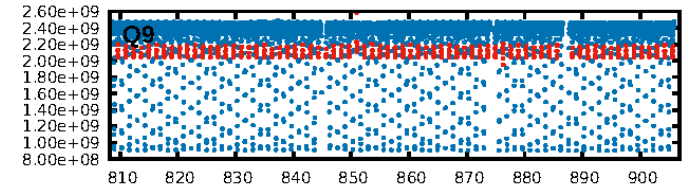
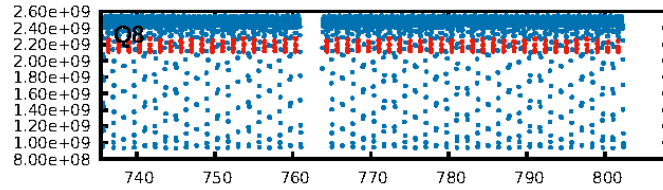
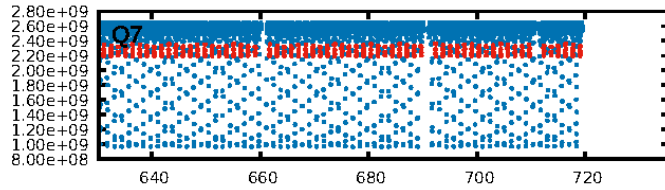
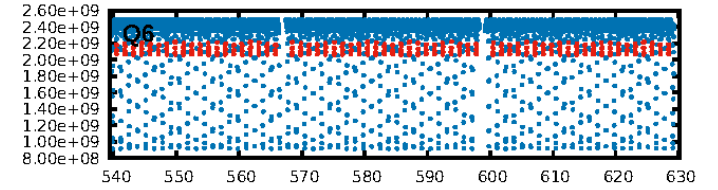
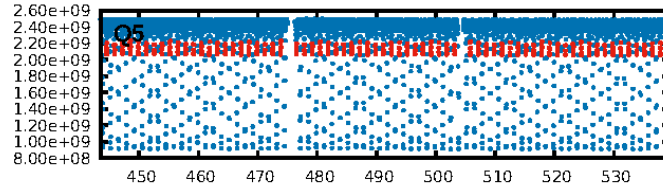
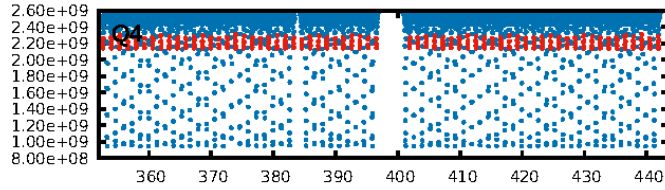
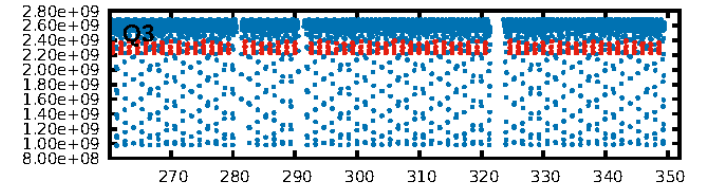
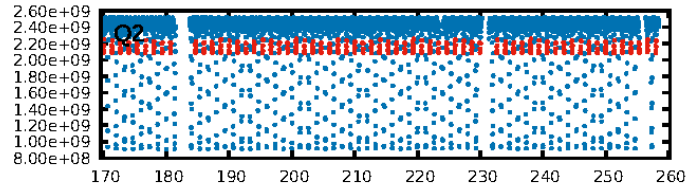
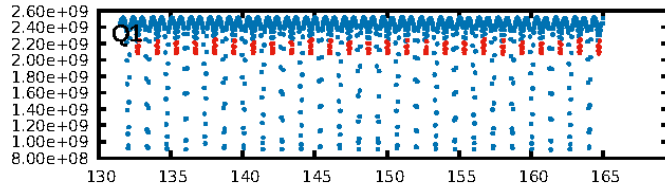
DV Diagnostic Results:

ShortPeriod-sig: 0.0% [0.00σ]
LongPeriod-sig: 100.0% [15.65σ]
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: N/A
RollingBand-fgt: 1.00 [957/957]
GhostDiagnostic-chr: N/A
Centroid-sig: N/A
Centroid-so: N/A
OotOffset-rm: 0.316 arcsec [0.30σ]
KicOffset-rm: 2.051 arcsec [2.03σ]
OotOffset-st: 4/4/4/5 [17]
KicOffset-st: 4/4/4/5 [17]
DiffImageQuality-fgm: 0.06 [1/17]
DiffImageOverlap-fno: 1.00 [17/17]

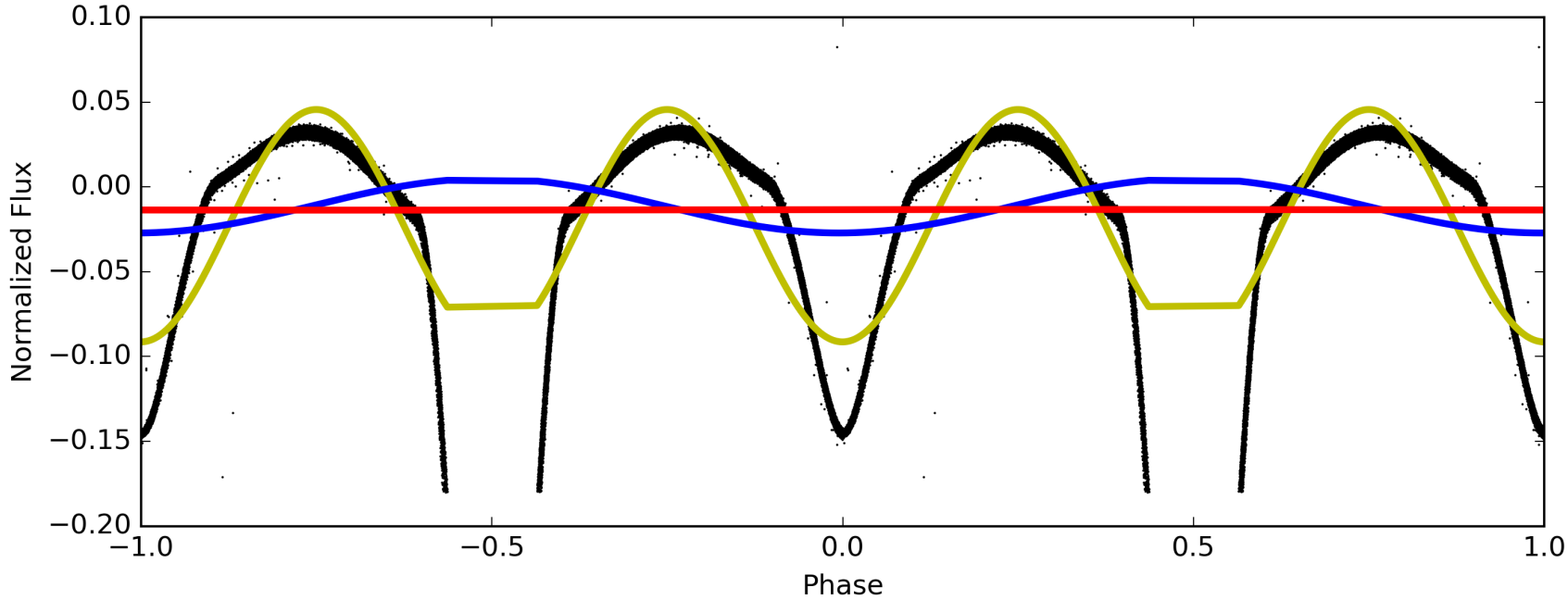
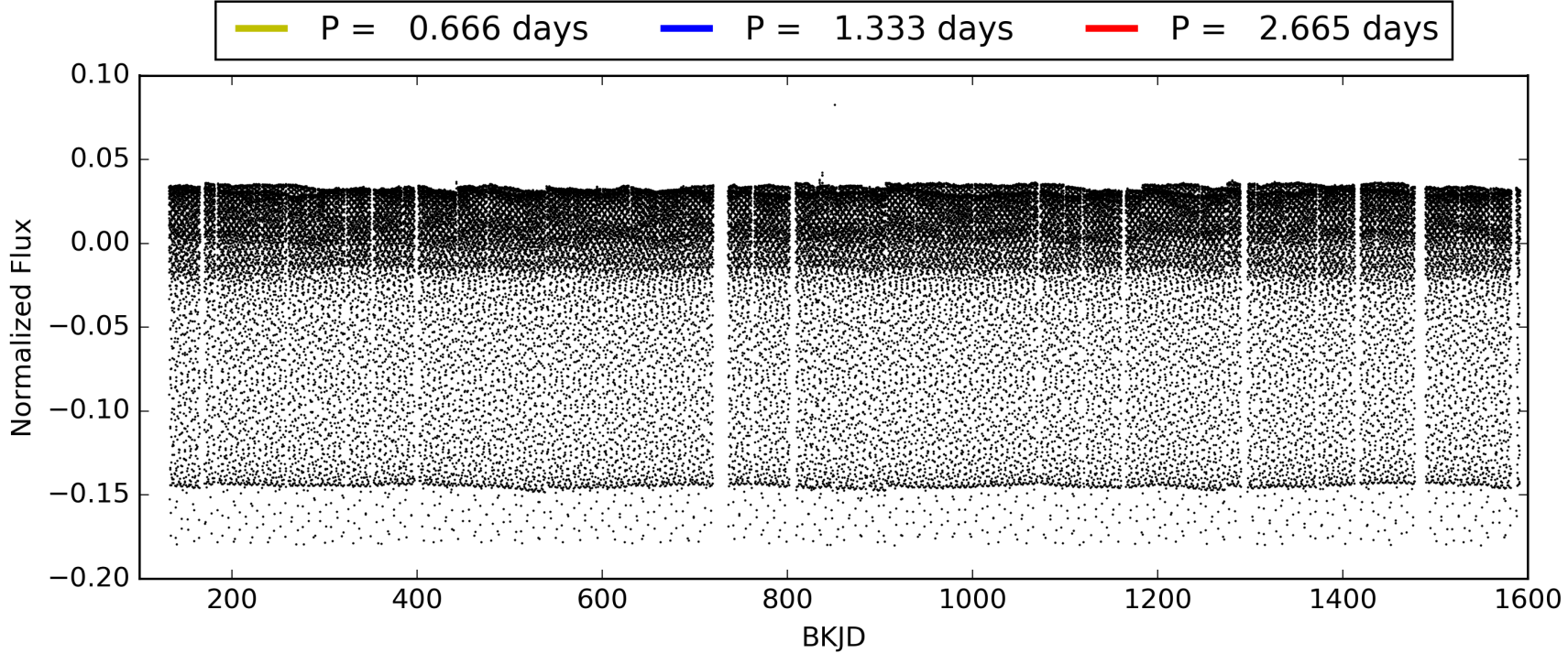
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This Data Validation Report Summary was produced in the Kepler Science Operations Center Pipeline at NASA Ames Research Center

TCE 009899416-02, PDC Light Curves

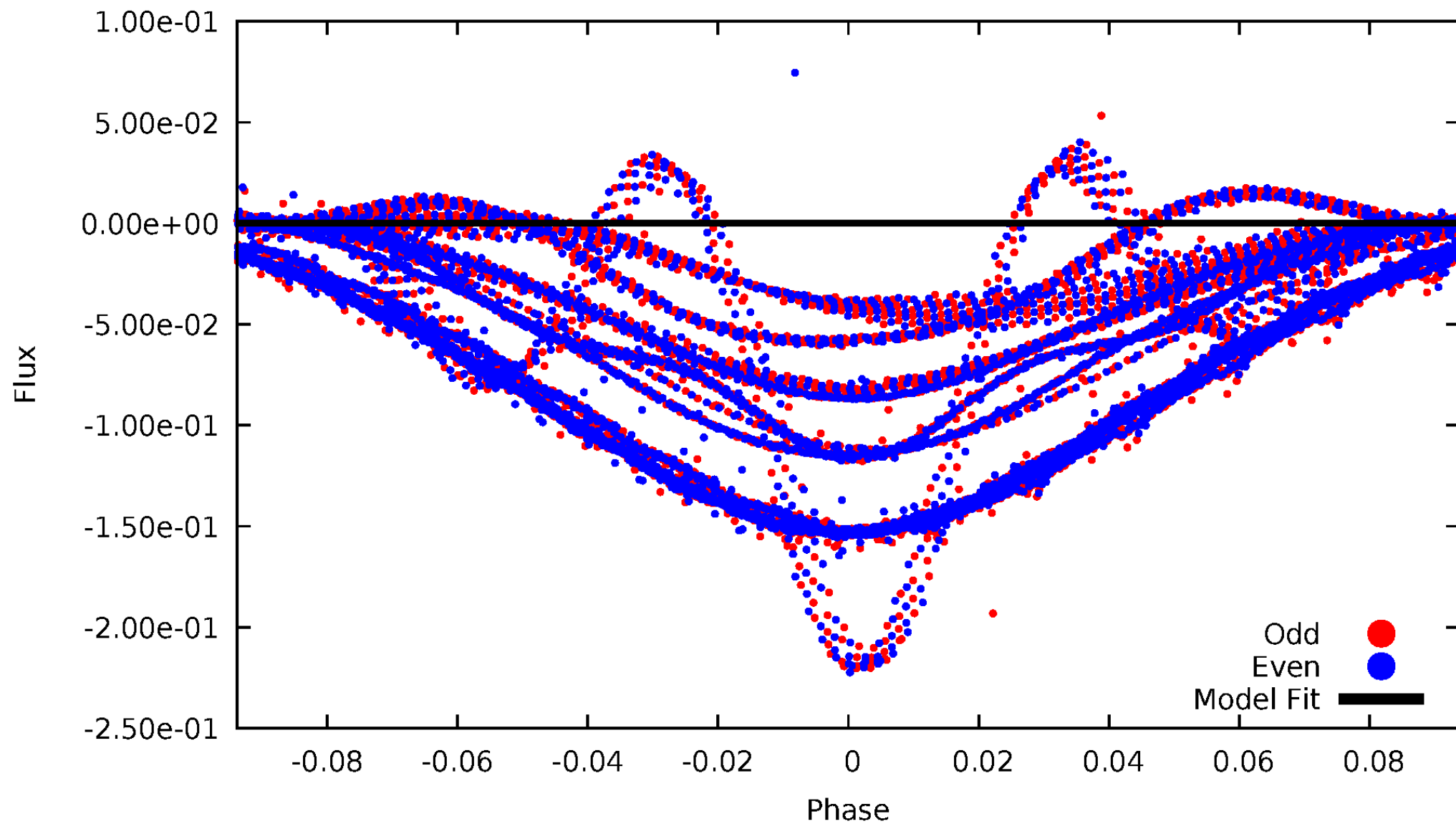


TCE 009899416-02



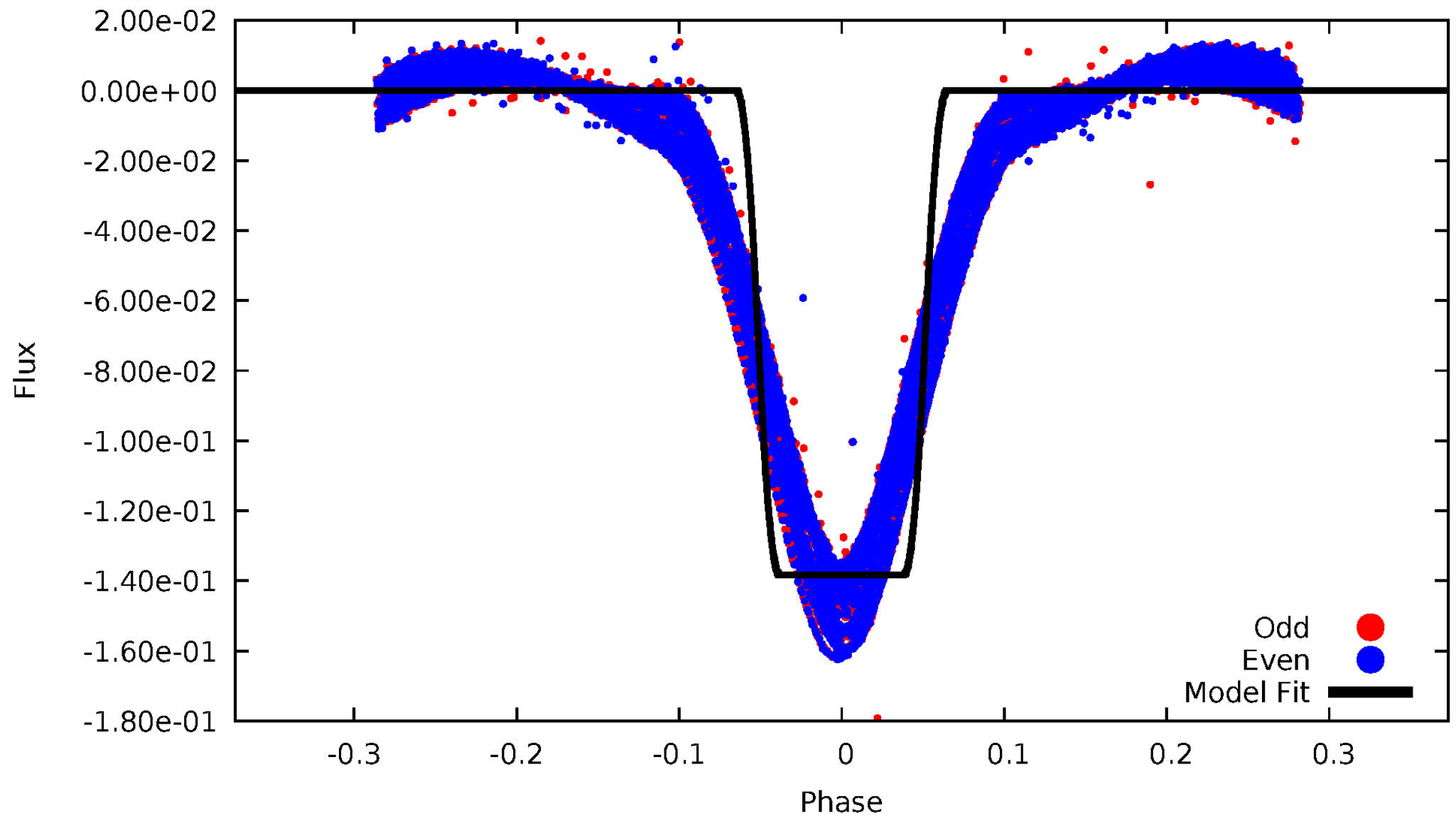
DV Odd/Even

TCE 009899416-02



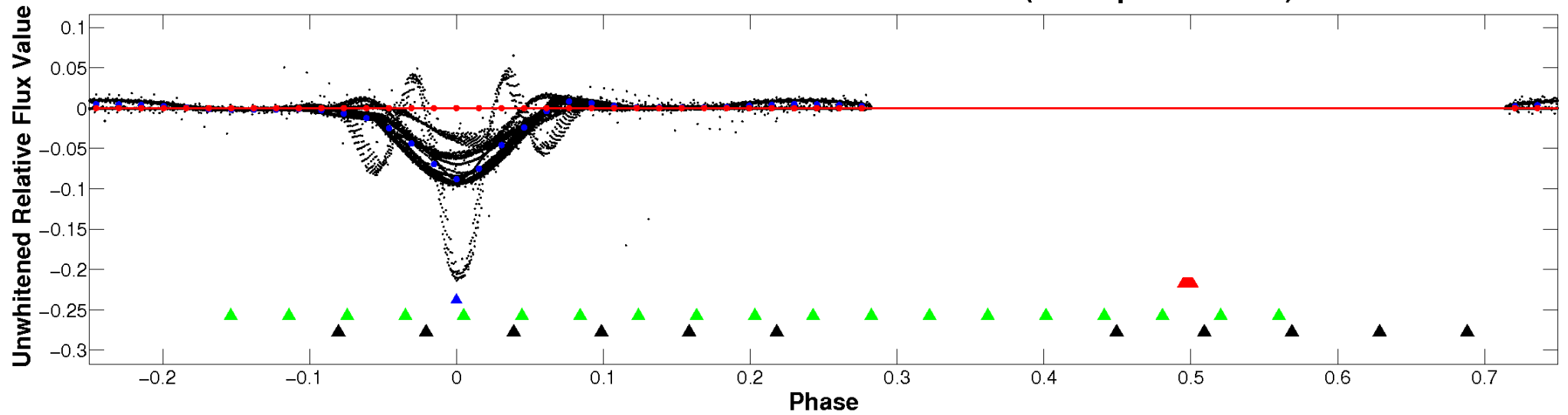
ALT Odd/Even

TCE 009899416-02

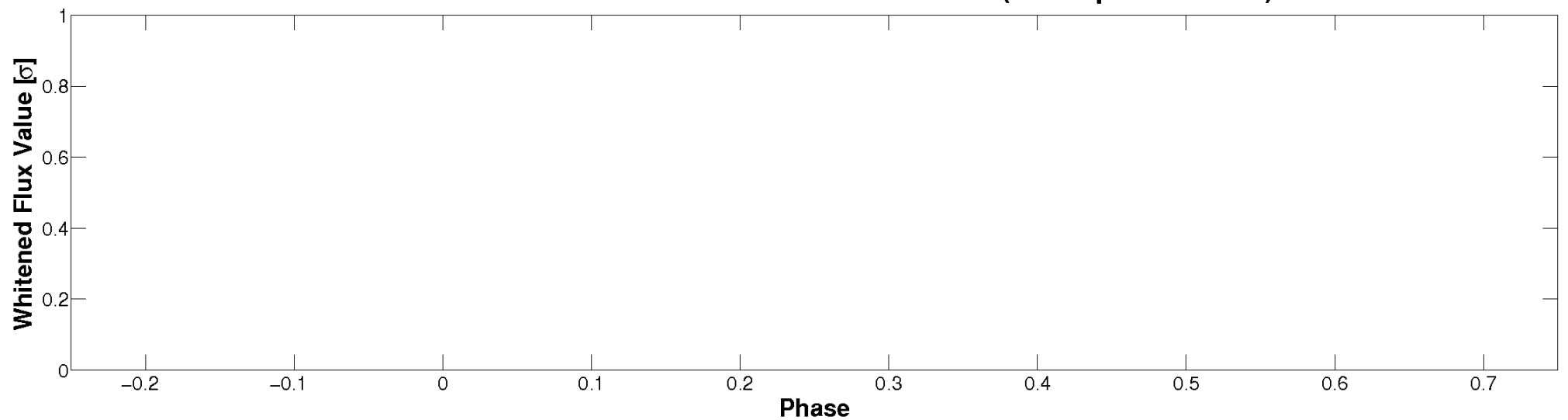


Non-Whitened Vs. Whitened Light Curve

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

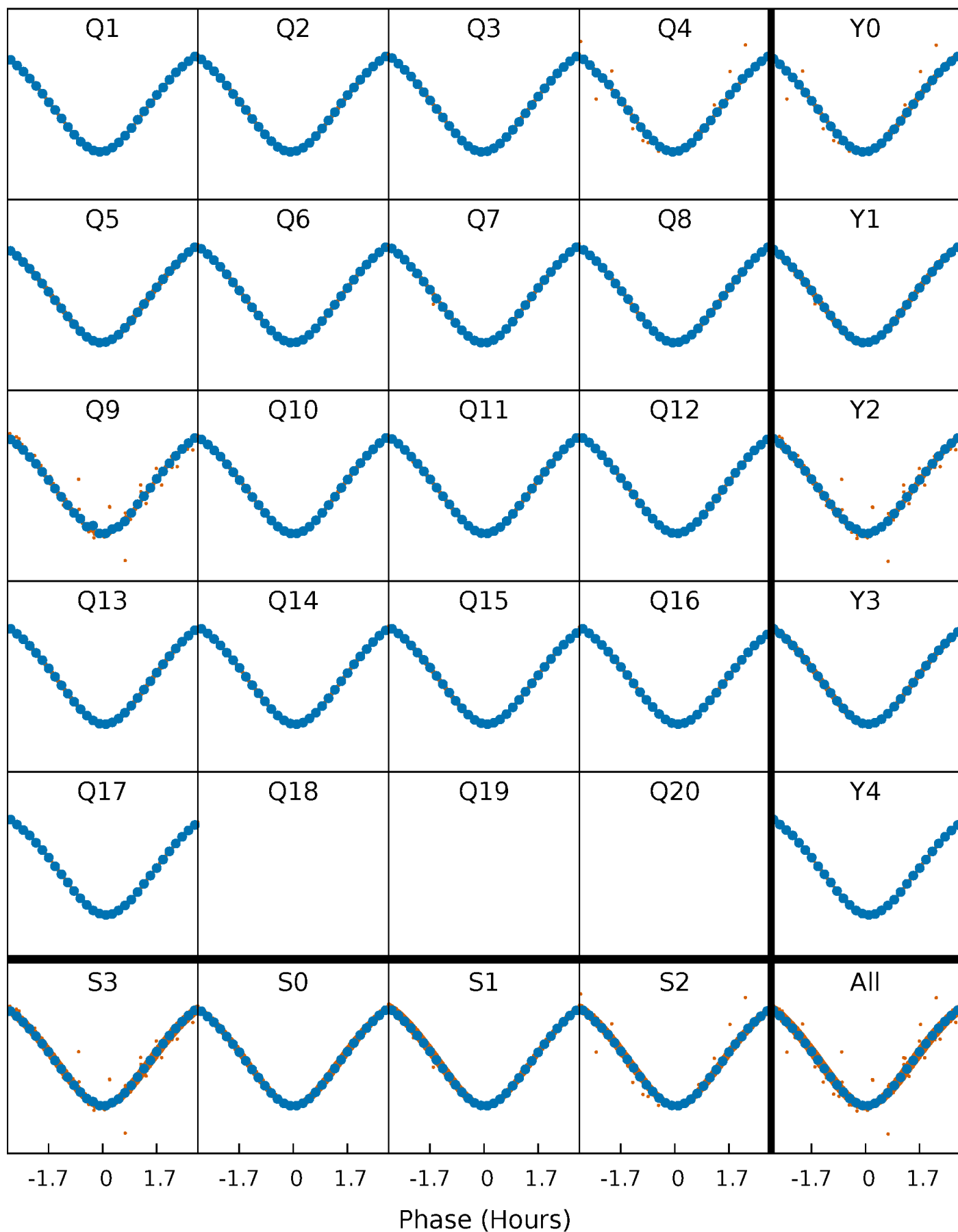


Planet 2 : Phased Whitened Flux Time Series (TPS Epoch/Period)



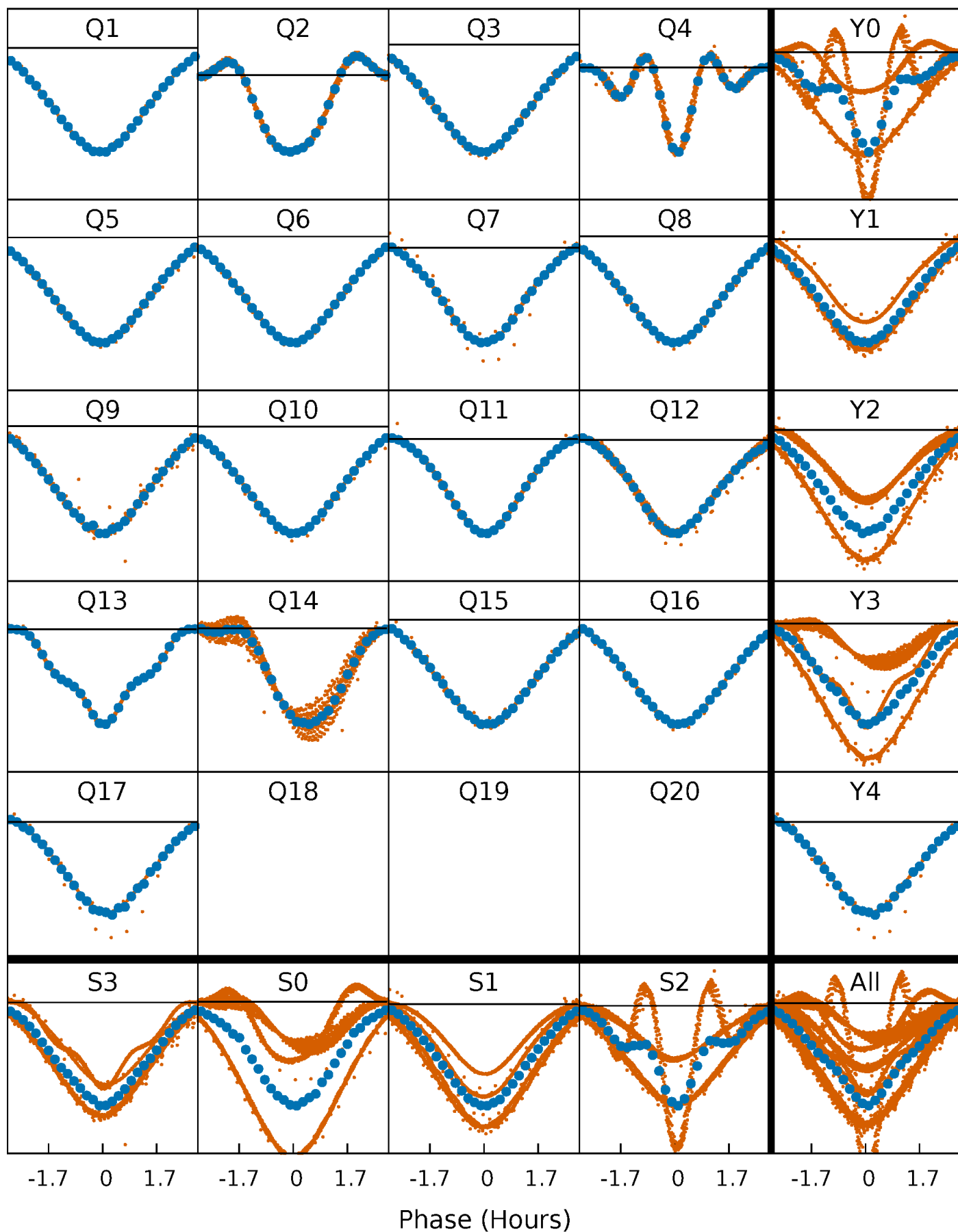
PDC Quarter-Phased Transit Curves

TCE 009899416-02 P= 1.332557 Days $T_0=132.720369$ (BKJD)



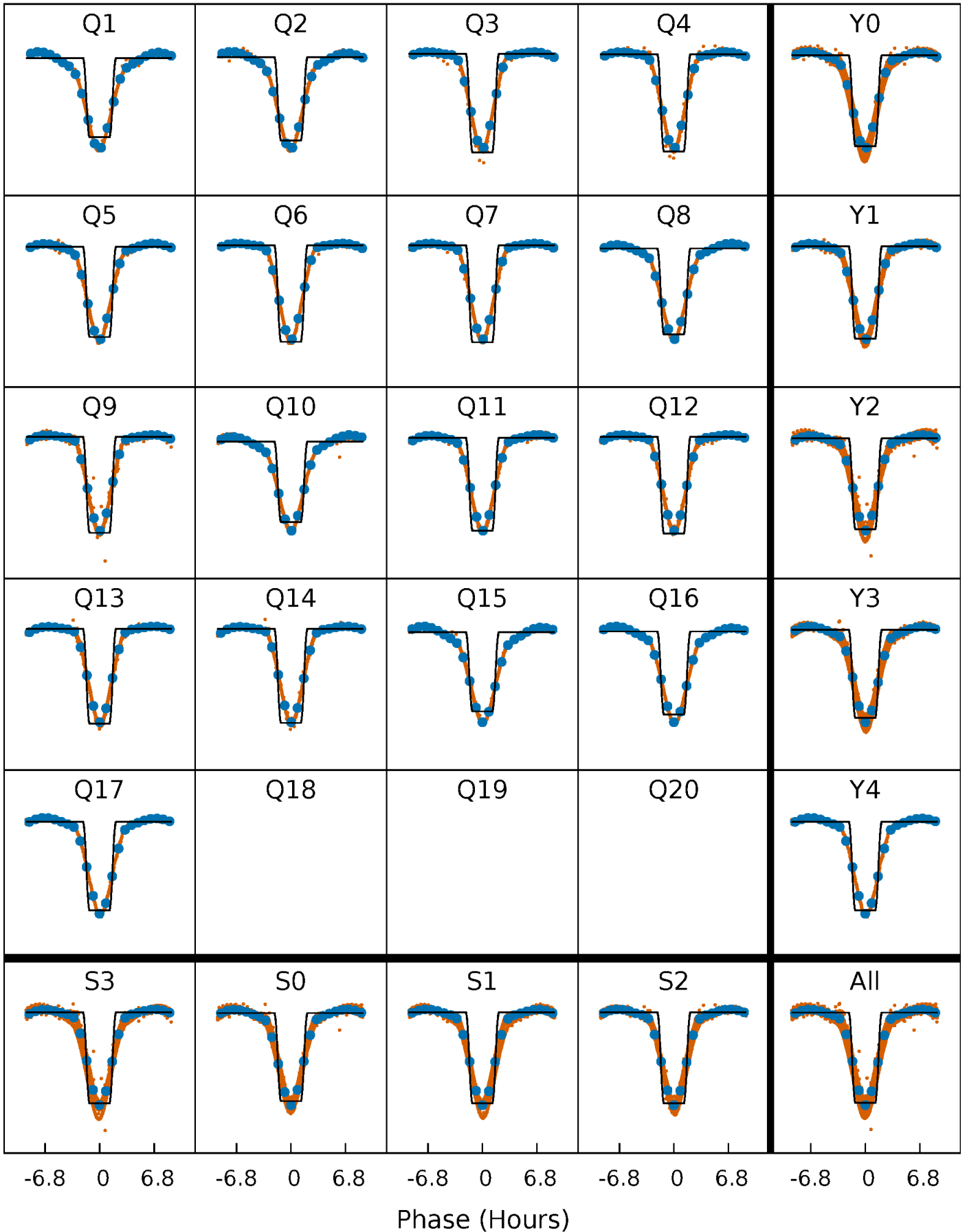
DV Quarter-Phased Transit Curves

TCE 009899416-02 P= 1.332557 Days $T_0=132.720369$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

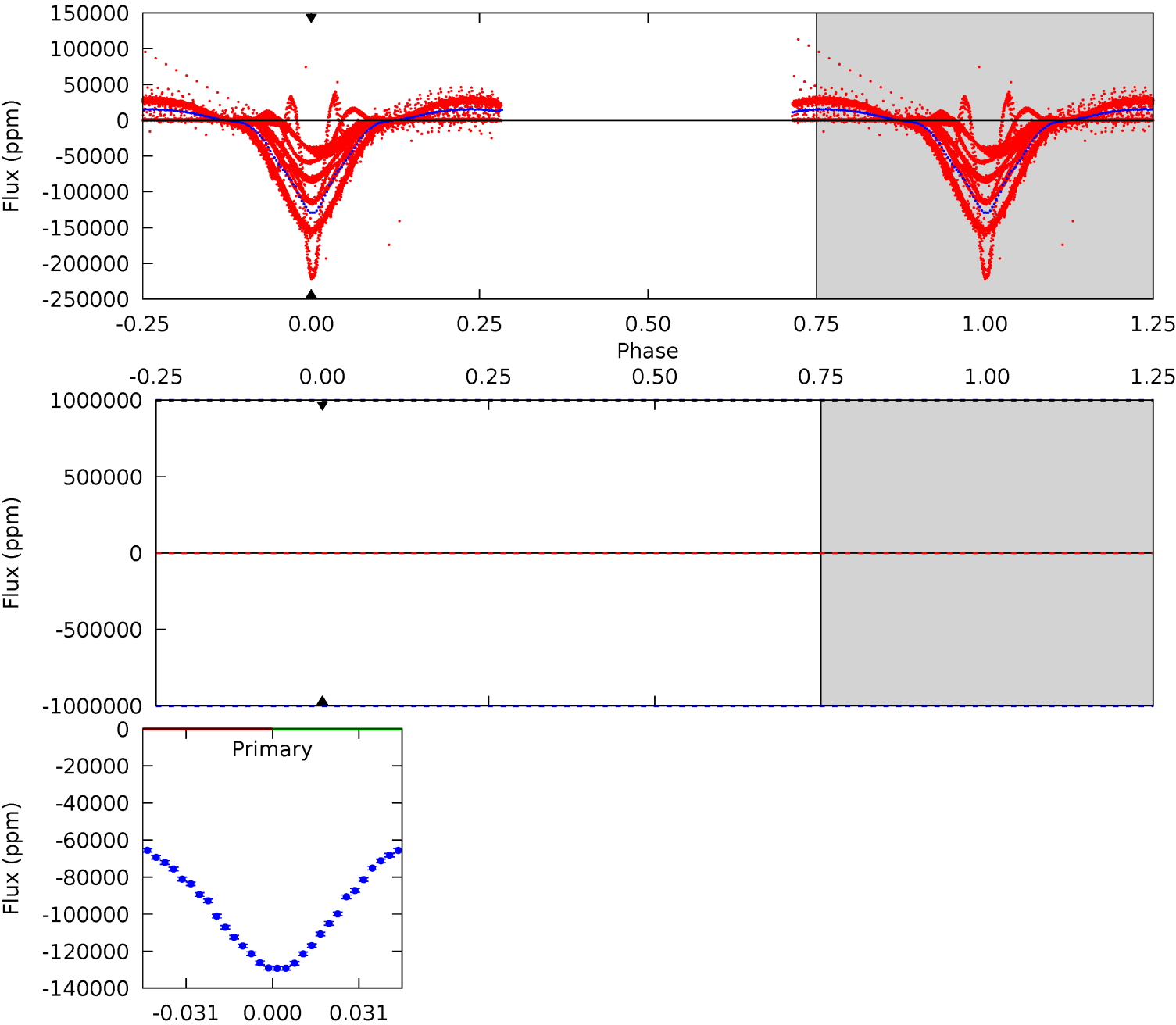
TCE 009899416-02 P= 1.332557 Days $T_0=132.720713$ (BKJD)



DV Model-Shift Uniqueness Test

009899416-02, P = 1.332557 Days, E = 131.387812 Days

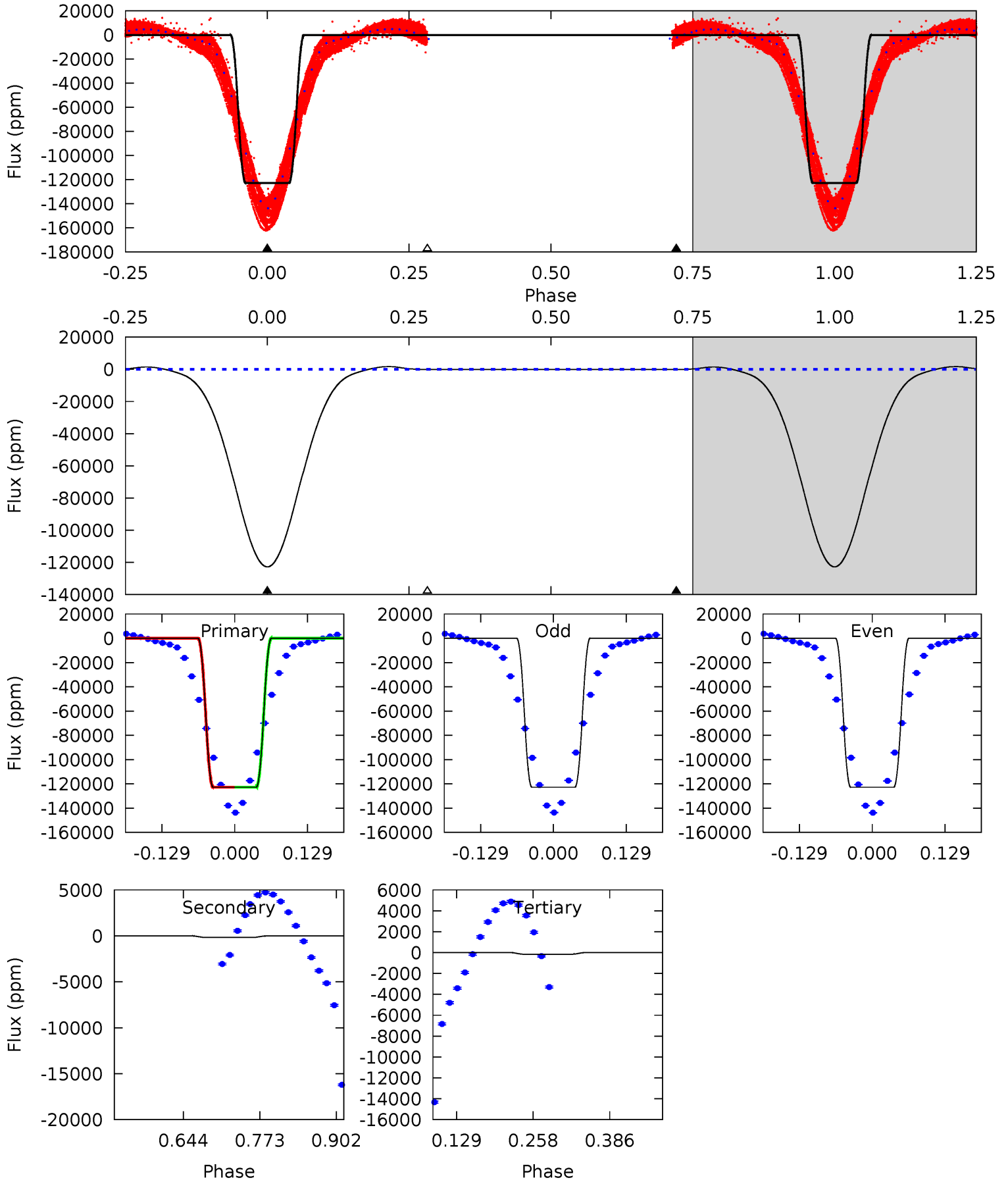
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
0	0	0	0	1.00	1.00	1.00	0	0	0	0	0	0	0	0



Alt Model-Shift Uniqueness Test

009899416-02, P = 1.332557 Days, E = 131.388156 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
2706	3.84	3.62	0	4.51	1.52	58.2	2702	2706	0.22	3.84	0.25	1.04	0.01	1.97



Stellar Parameters For KIC 009899416

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	$M(M_{\odot})$	p_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	8853^{+242}_{-450}	$3.742^{+0.420}_{-0.150}$	$0.070^{+0.200}_{-0.600}$	$3.570^{+0.994}_{-1.845}$	$2.564^{+0.318}_{-0.954}$	$0.079^{+0.369}_{-0.034}$
	+3%/-5%	+11%/-4%	+286%/-857%	+28%/-52%	+12%/-37%	+465%/-43%
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 009899416-02 / KOI

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	0 ± 1000000	$31.06^{+31.94}_{-19.41}$	5547^{+543}_{-690}	6295^{+45288}_{-42273}	$1.460^{+125.739}_{-78.707}$
Alt.	-174 ± 45	$133.16^{+52.24}_{-44.66}$	5573^{+469}_{-656}	-4517^{+412}_{-288}	$0.005^{+0.007}_{-0.003}$

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 $A_{obs} \gg 1.0$

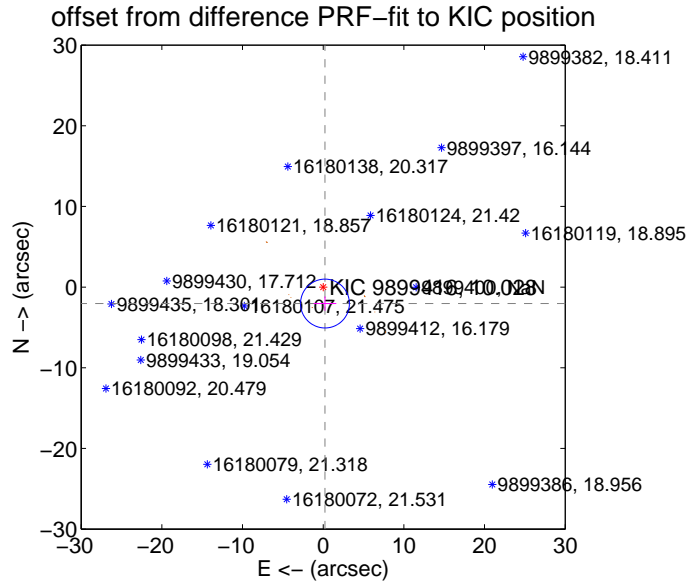
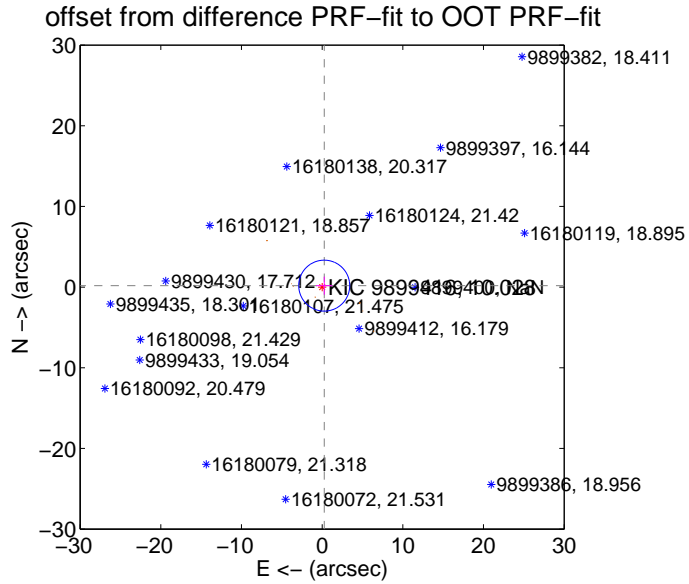
DV Centroid Data

Supplemental centroid analysis for 009899416-02. **Kepler magnitude: 10.03.** Transit SNR -1.00

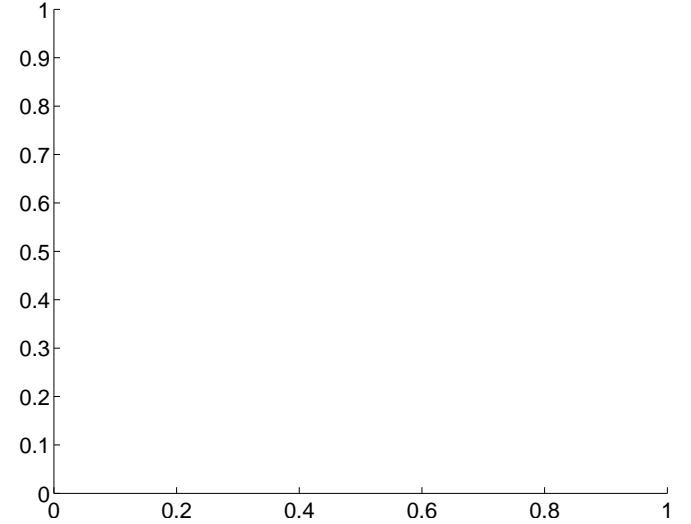
There are 1 quarters with good PRF difference image offsets

The direct PRF centroid is offset from the target star catalog position by about 0.98 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.316 ± 1.053	0.30	-0.259 ± 1.016	0.180 ± 1.125
PRF-fit source offset from KIC position	2.051 ± 1.009	2.03	-0.223 ± 1.404	-2.039 ± 0.884
photometric centroid source offset	—	—	—	—

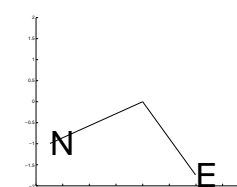
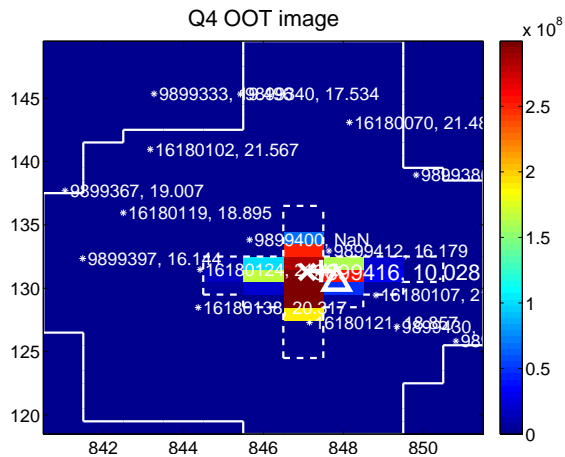
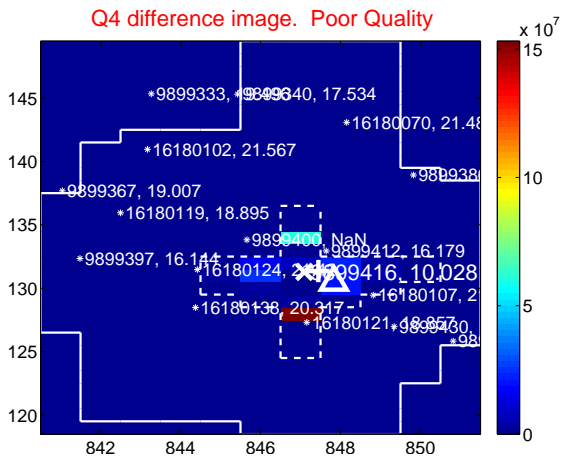
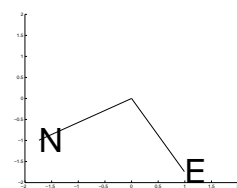
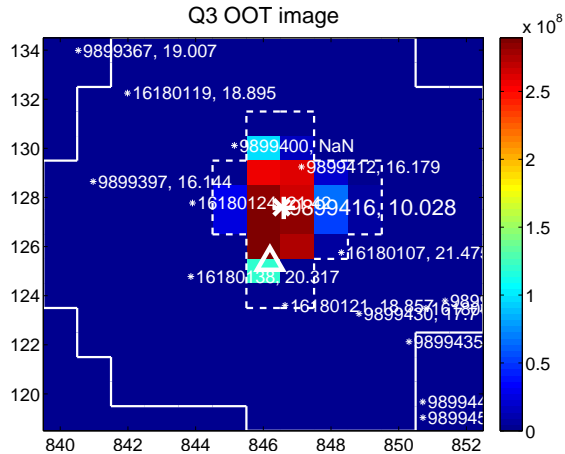
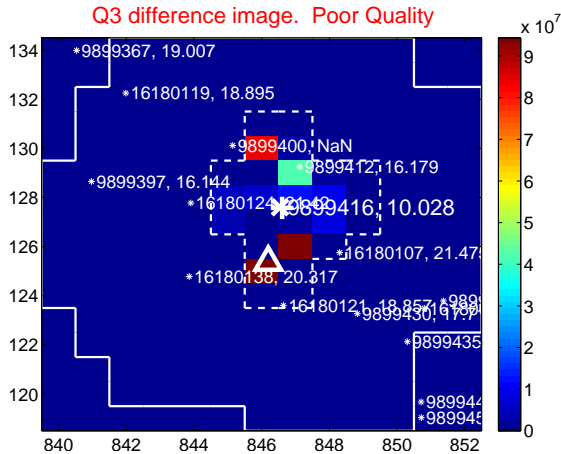
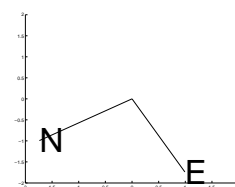
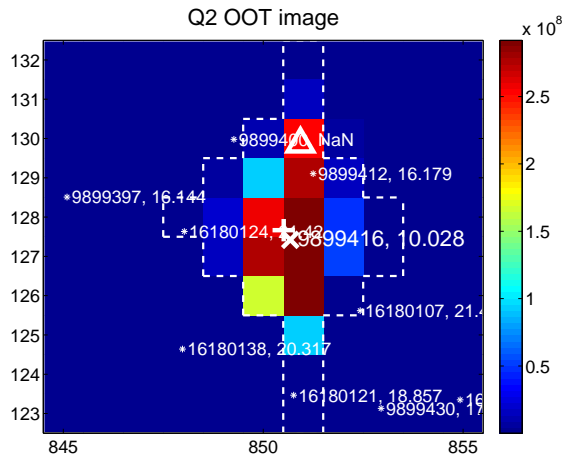
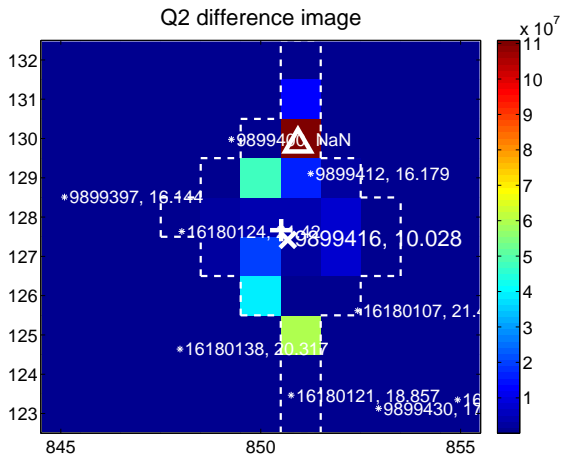
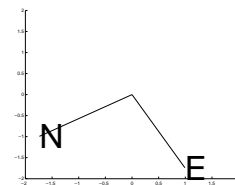
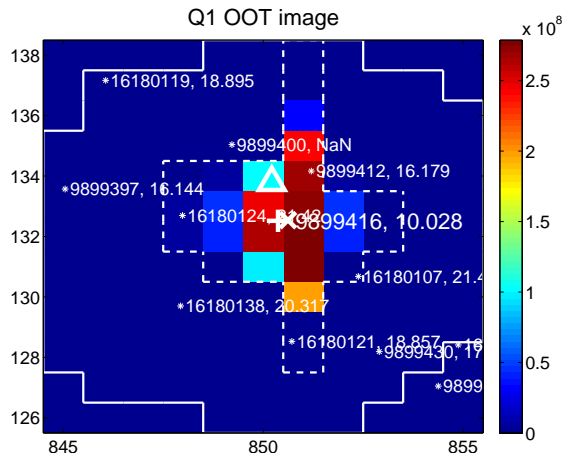
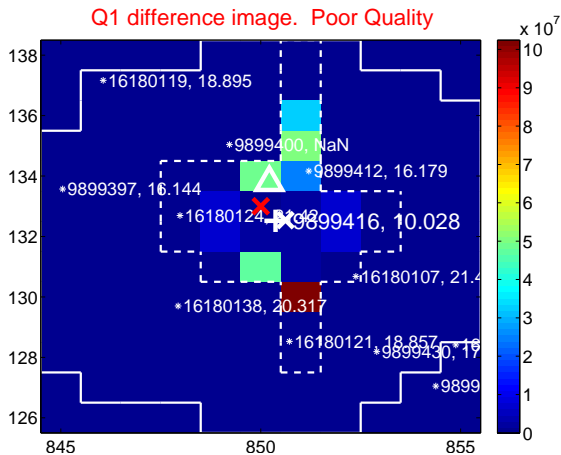


There are no photometric centroids

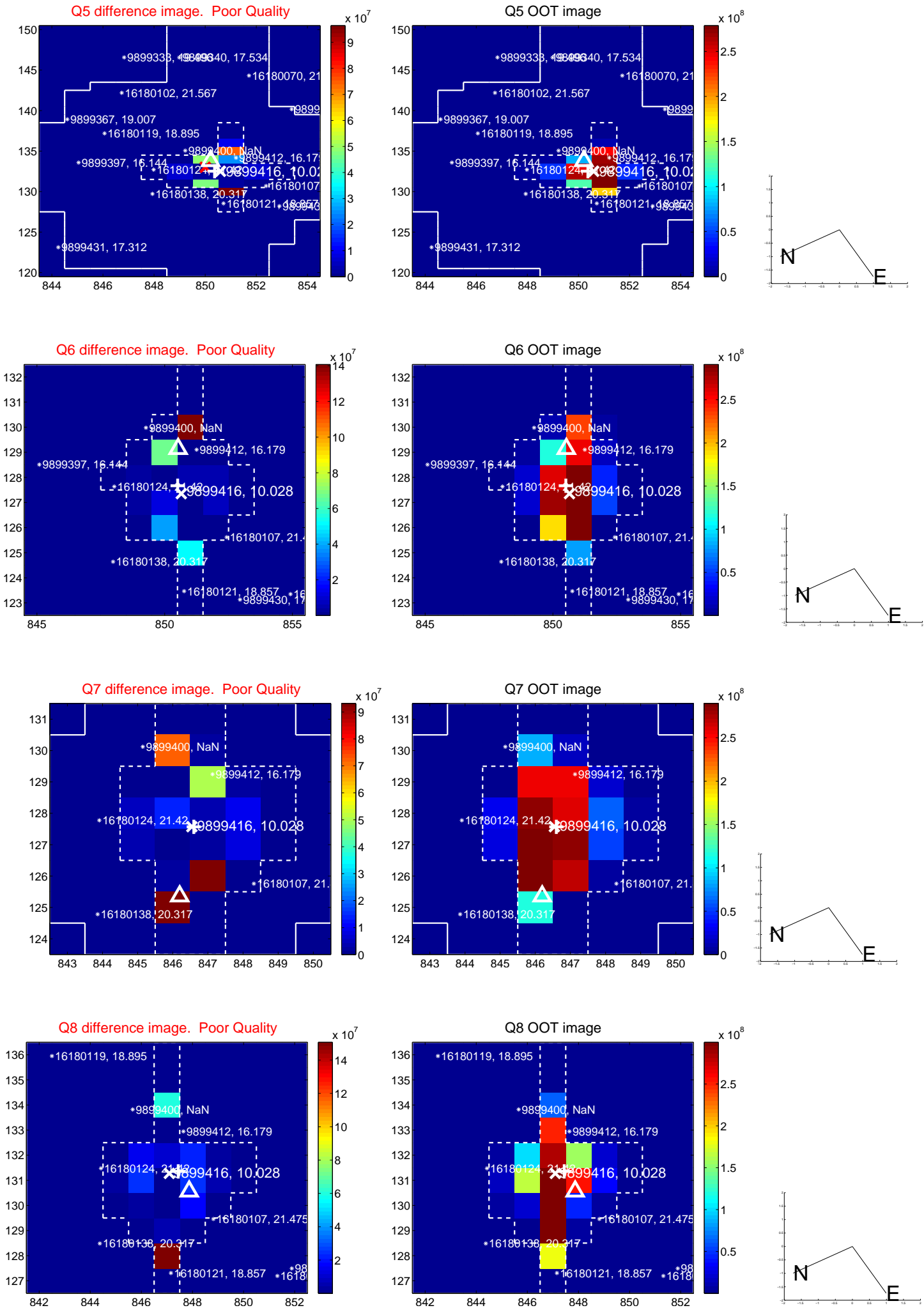


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets;** magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

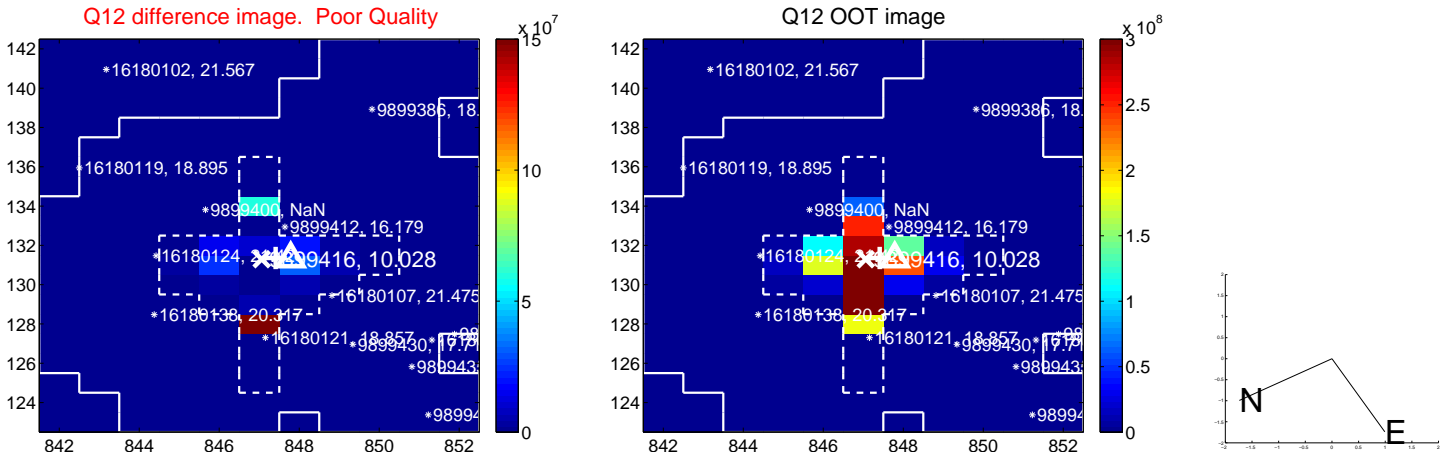
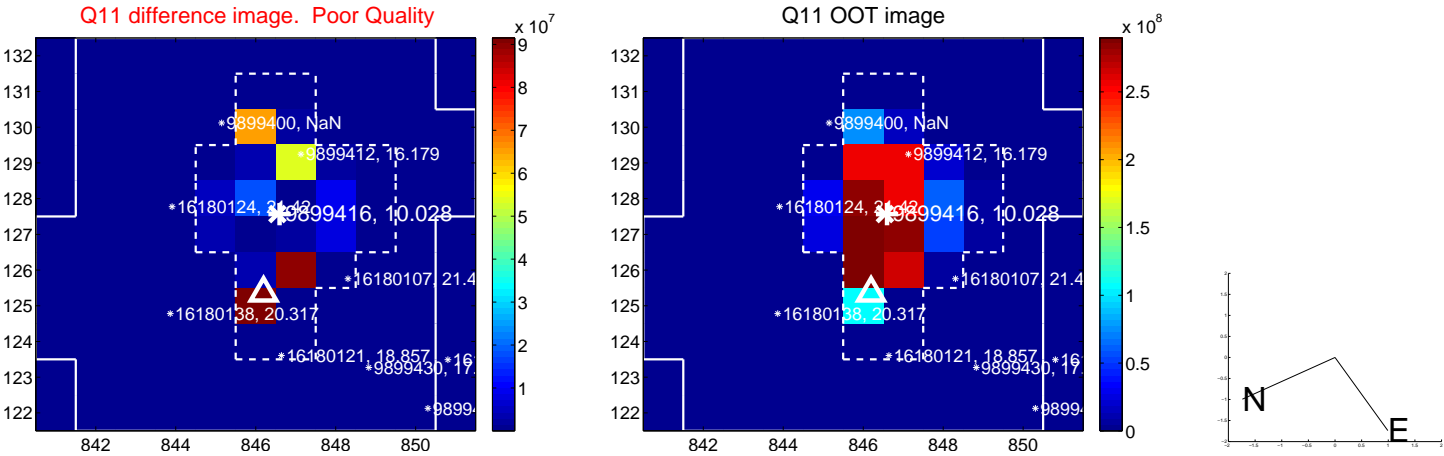
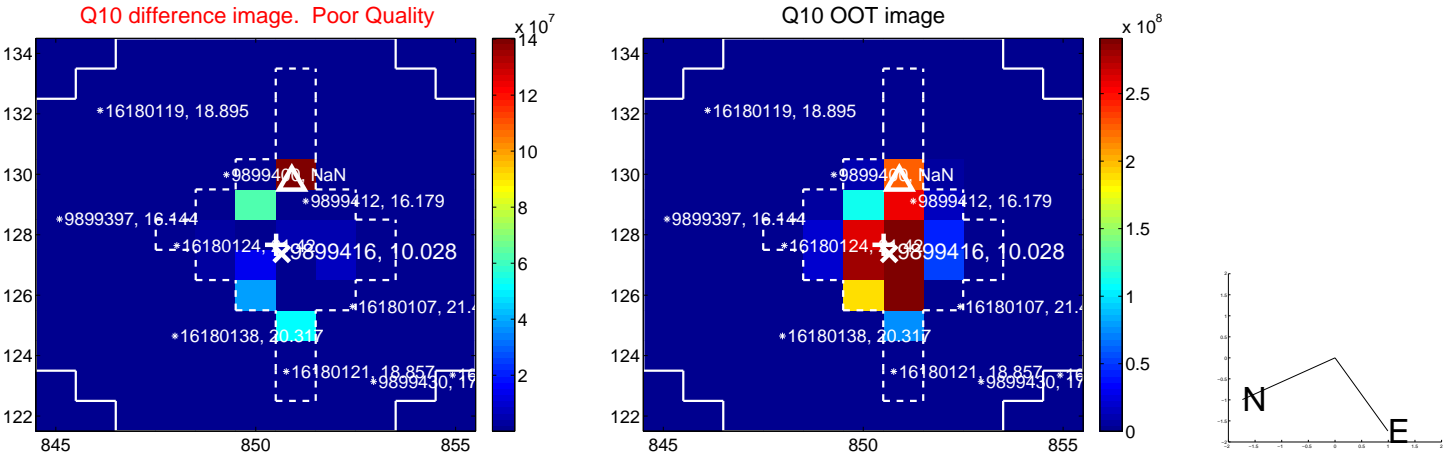
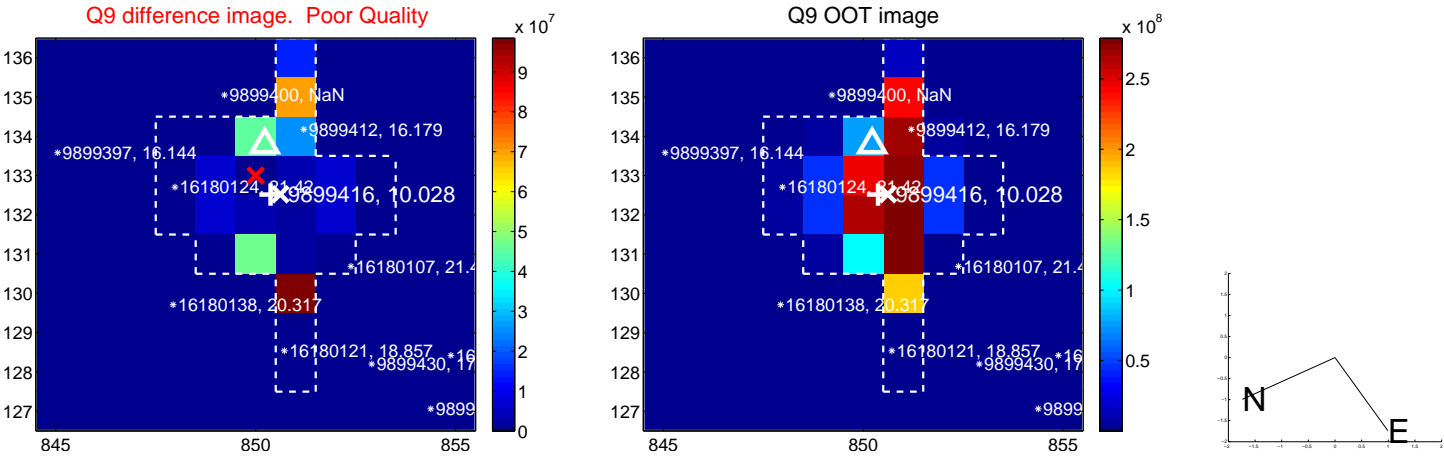
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



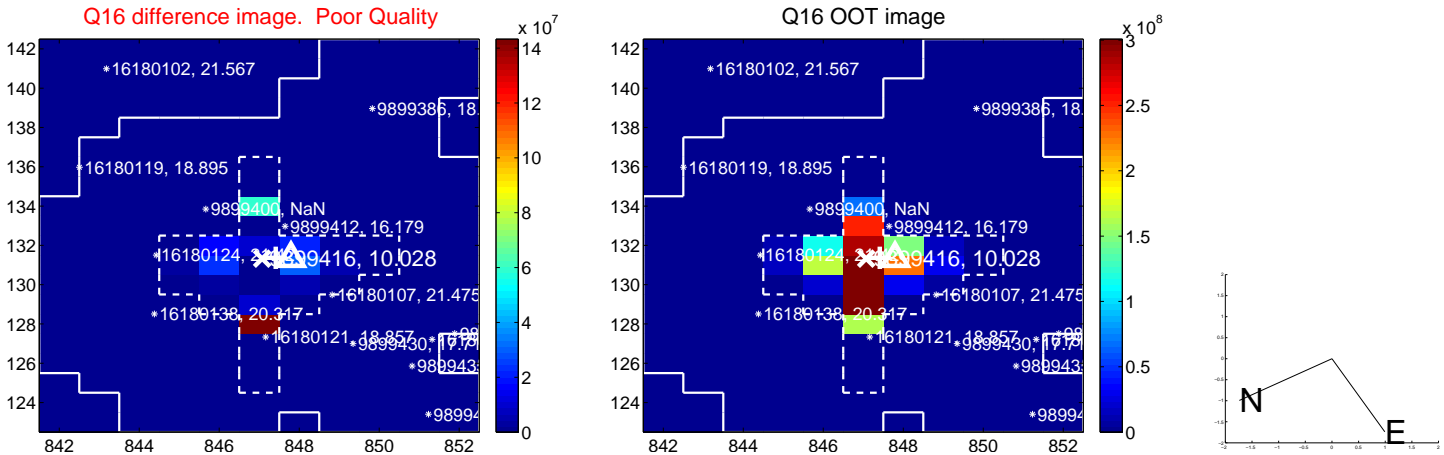
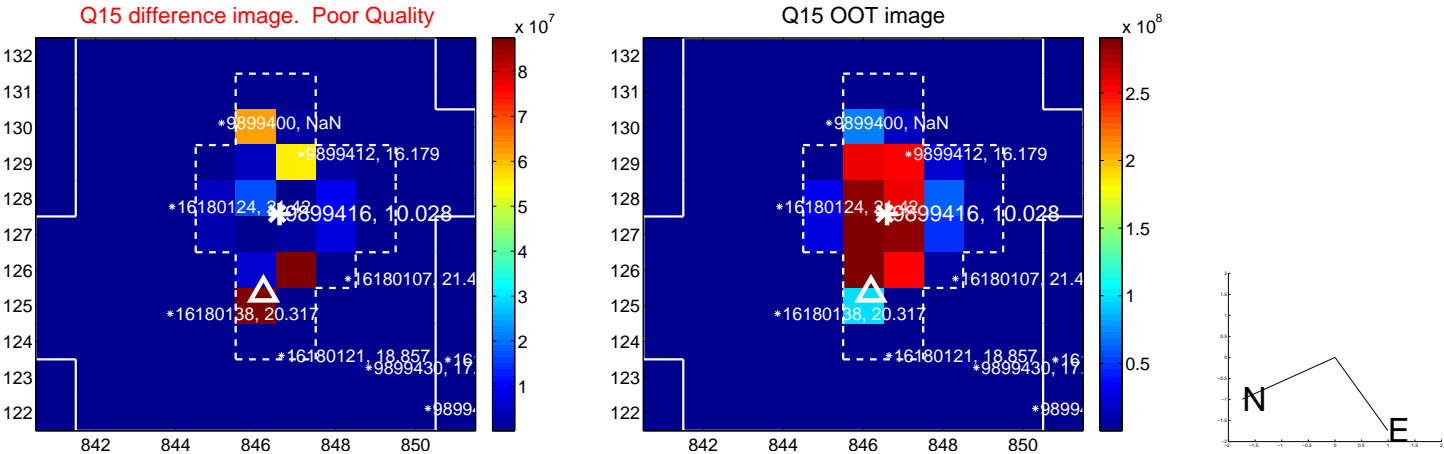
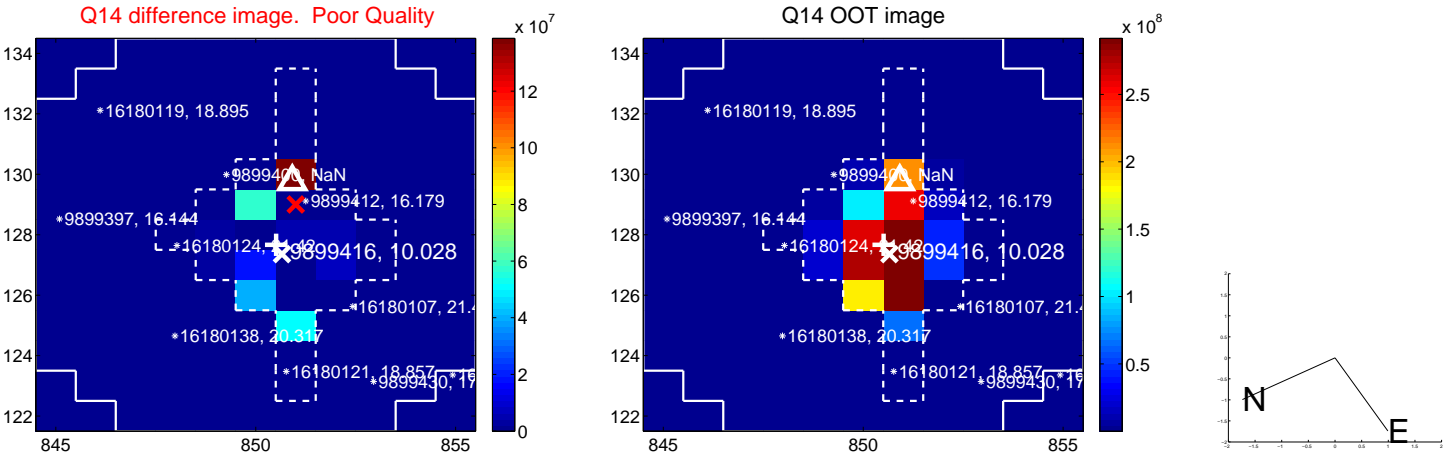
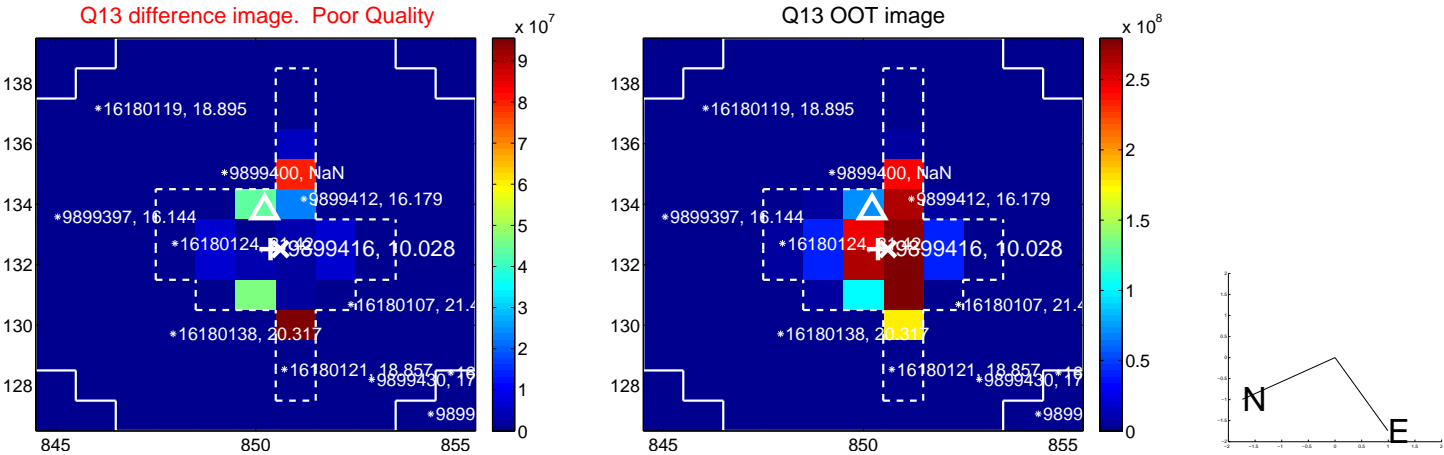
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



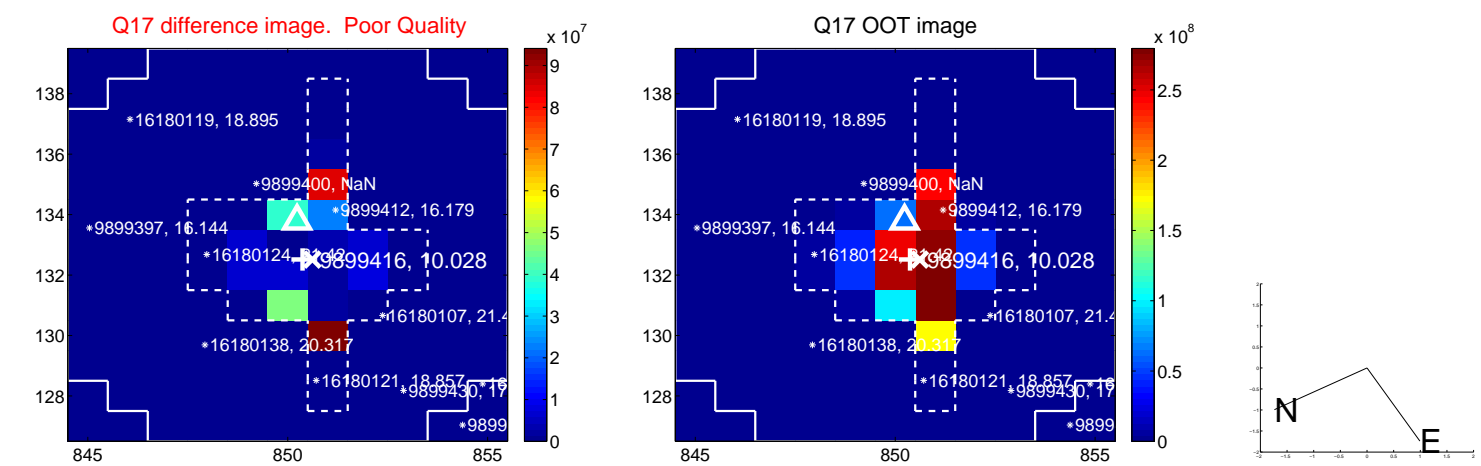
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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



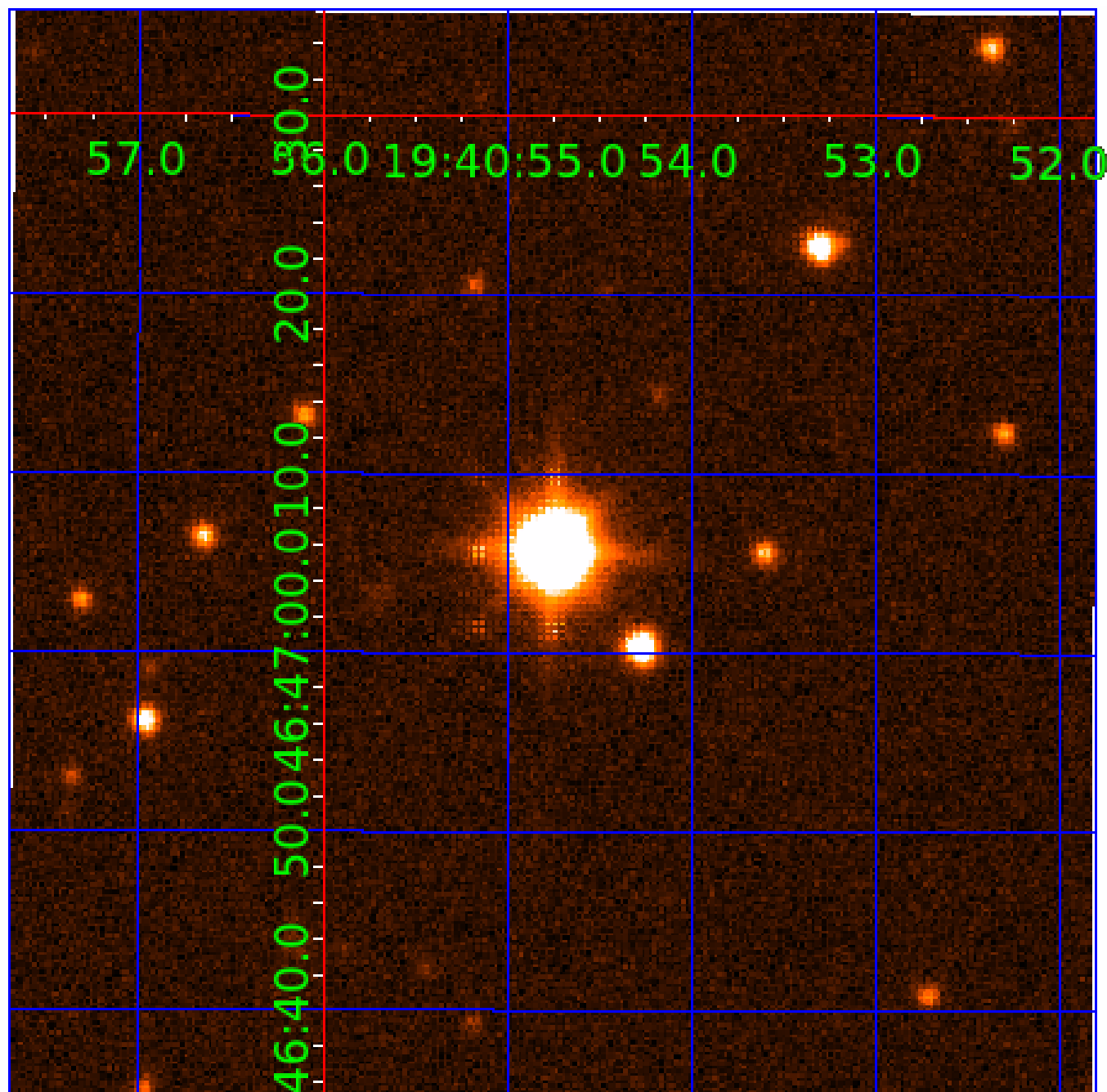
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



folded centroid time series figure for this object.

UKIRT Image

Declination



KIC 009899416

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})
009899416-01	OBS	No	1.332549	132.055889	610348.3	4.500	10892.9	-1.0	3.57	8853	36.05	66597.44
009899416-02	OBS	No	1.332557	132.720369	2164.2	1.500	748.6	-1.0	3.57	8853	16.96	66596.90
009899416-04	OBS	No	131.296631	147.271414	610.7	2.500	75.5	-1.0	3.57	8853	8.99	146.34

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
009899416-01	OBS	FP	0.00	1	0	0	0	LPP_DV—CENT_SATURATED
009899416-02	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—SAME_NTL_PERIOD—CENT_SATURATED
009899416-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_CHASES—TRANS_GAPPED—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_SATURATED

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.

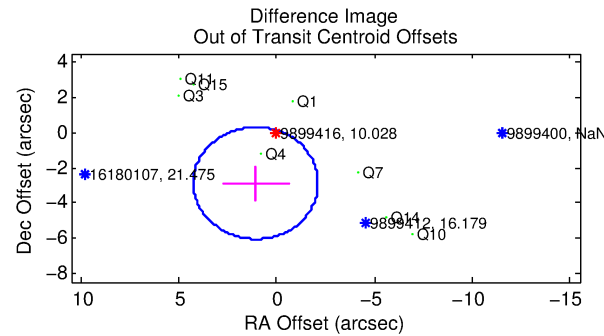
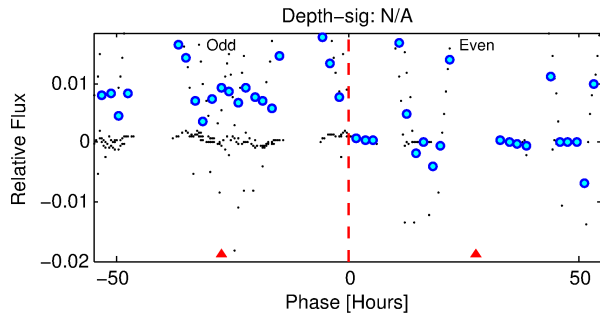
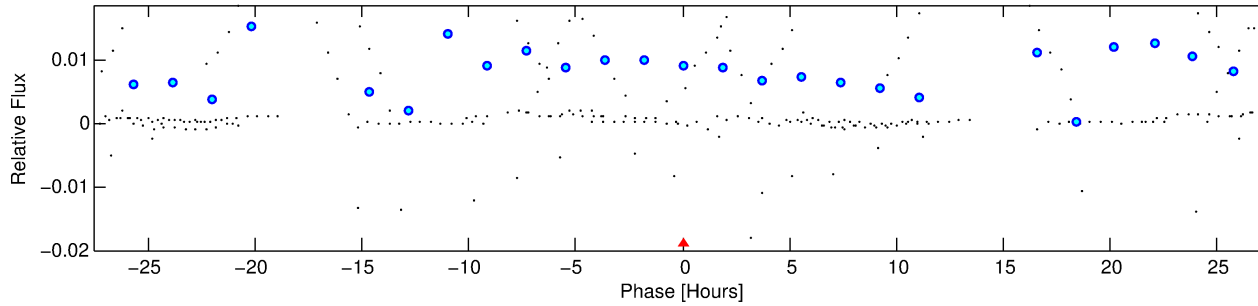
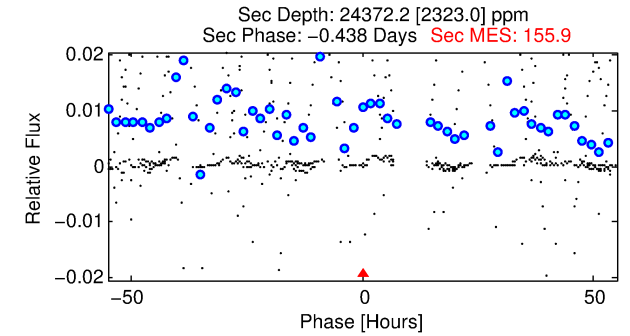
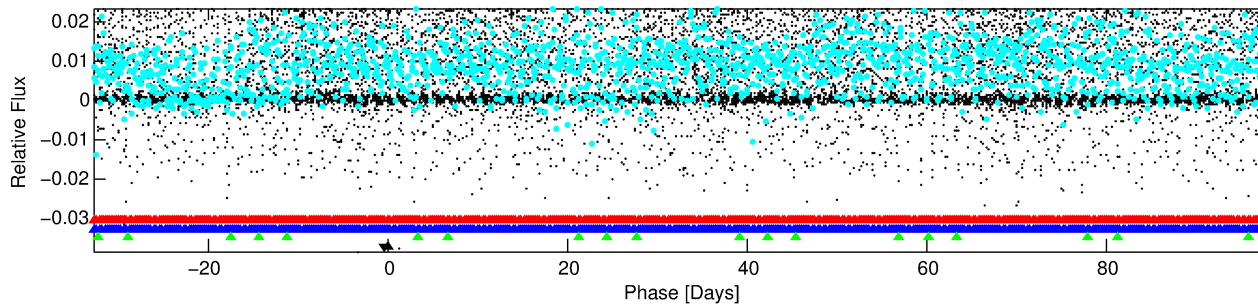
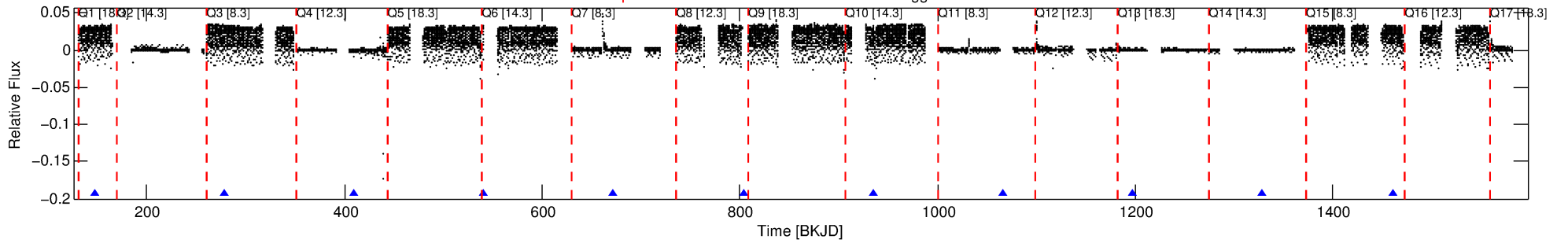
Ephemeris Match Information For 009899416-04

No Significant Match Found

DV One-Page Summary

KIC: 9899416 Candidate: 4 of 4 Period: 131.297 d

Kp: 10.03 R*: 3.57 Rs Teff: 8853.0 K Logg: 3.74 Fe/H: 0.070



TPS TCE Results:

Period = 131.29663 d
Epoch = 147.2714 BKJD

DV fit results are unavailable

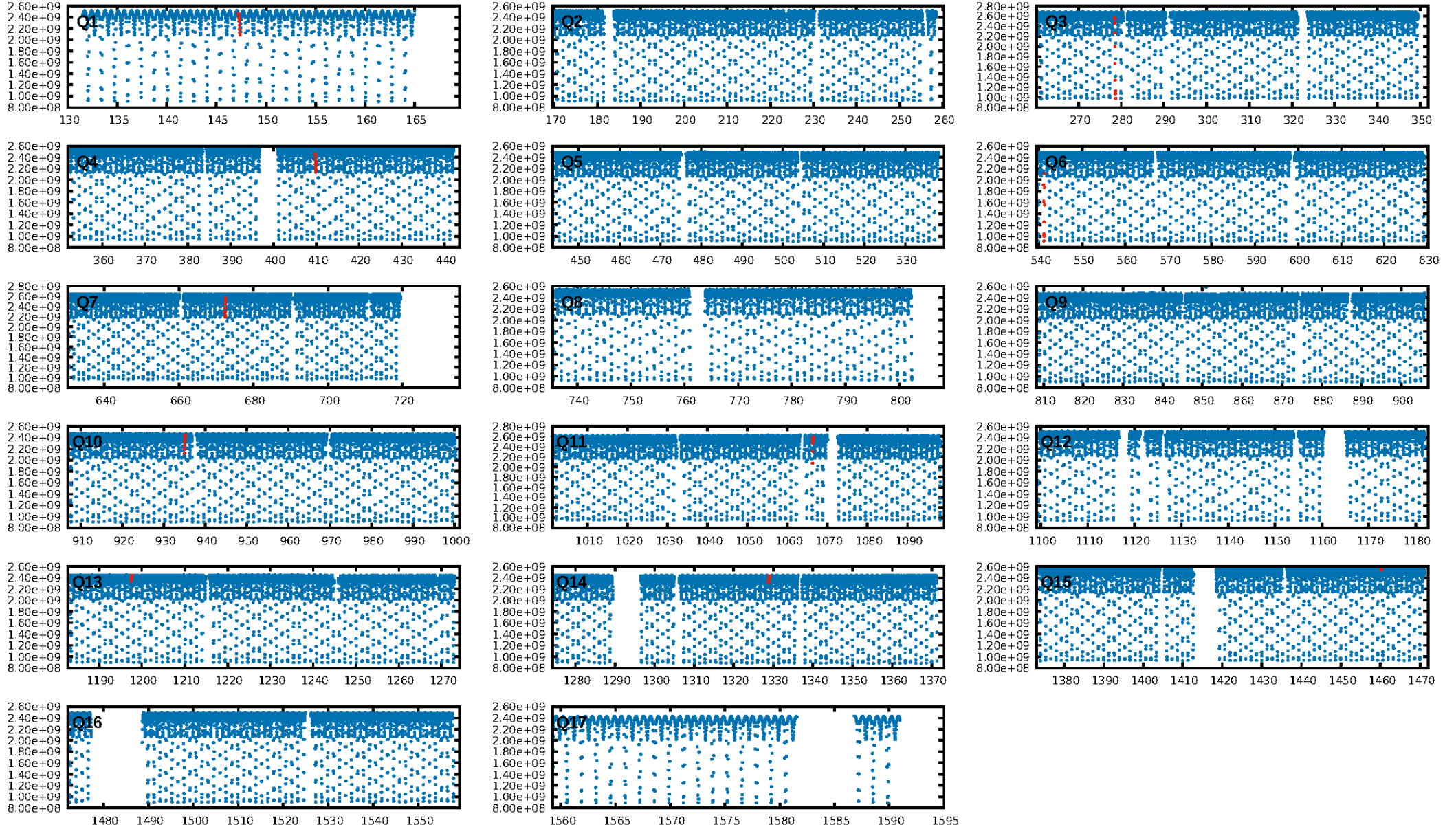
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [12.12σ]
LongPeriod-sig: N/A
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: N/A
RollingBand-fgt: 1.00 [6/6]
GhostDiagnostic-chr: N/A
Centroid-sig: N/A
Centroid-so: N/A
OotOffset-rm: 3.066 arcsec [2.88σ]
KicOffset-rm: 5.780 arcsec [2.78σ]
OotOffset-st: 2/4/1/1 [8]
KicOffset-st: 2/4/1/1 [8]
DiffImageQuality-fgm: 0.12 [1/8]
DiffImageOverlap-fno: 0.00 [0/8]

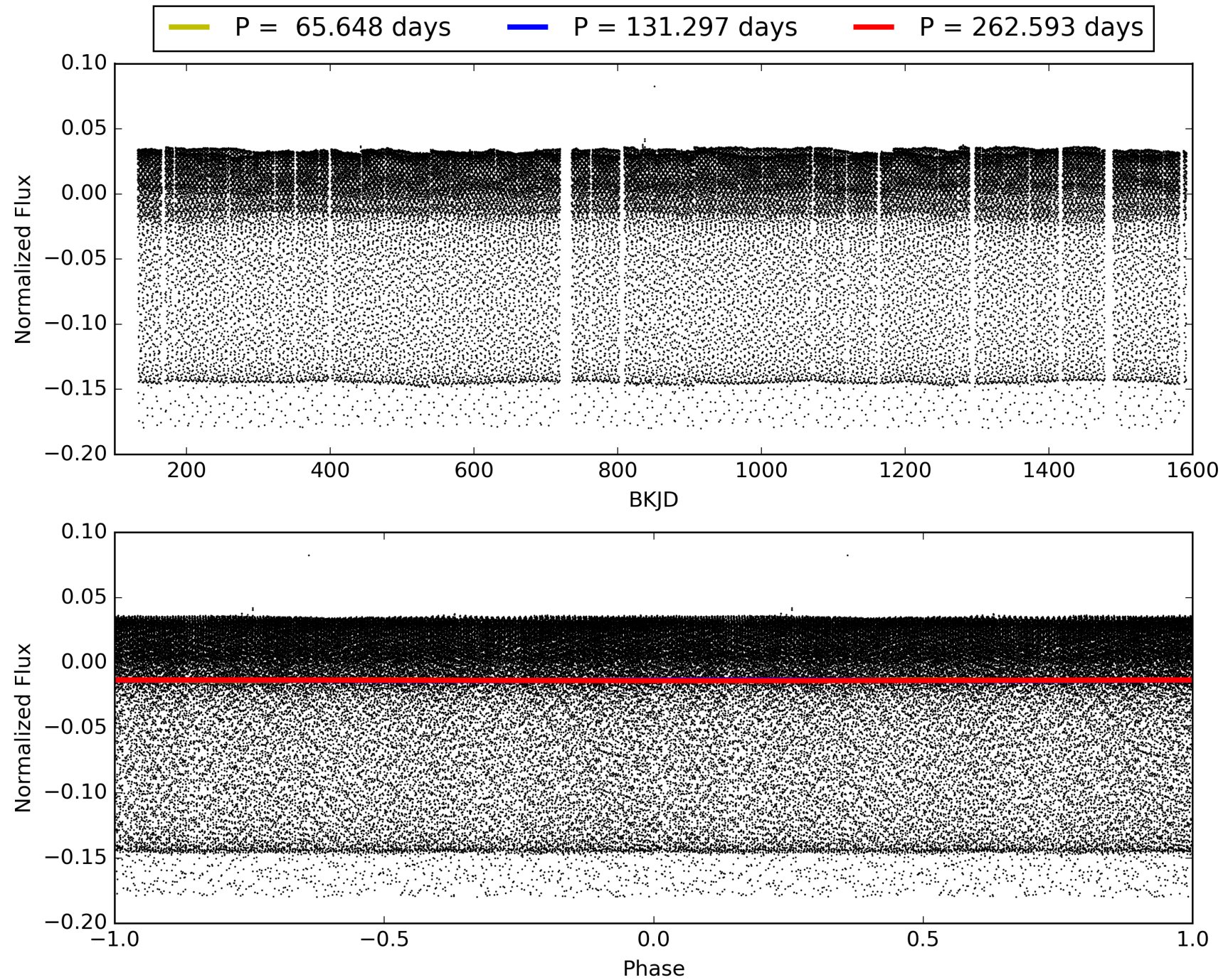
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 31-Jan-2016 02:28:07 Z

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

TCE 009899416-04, PDC Light Curves

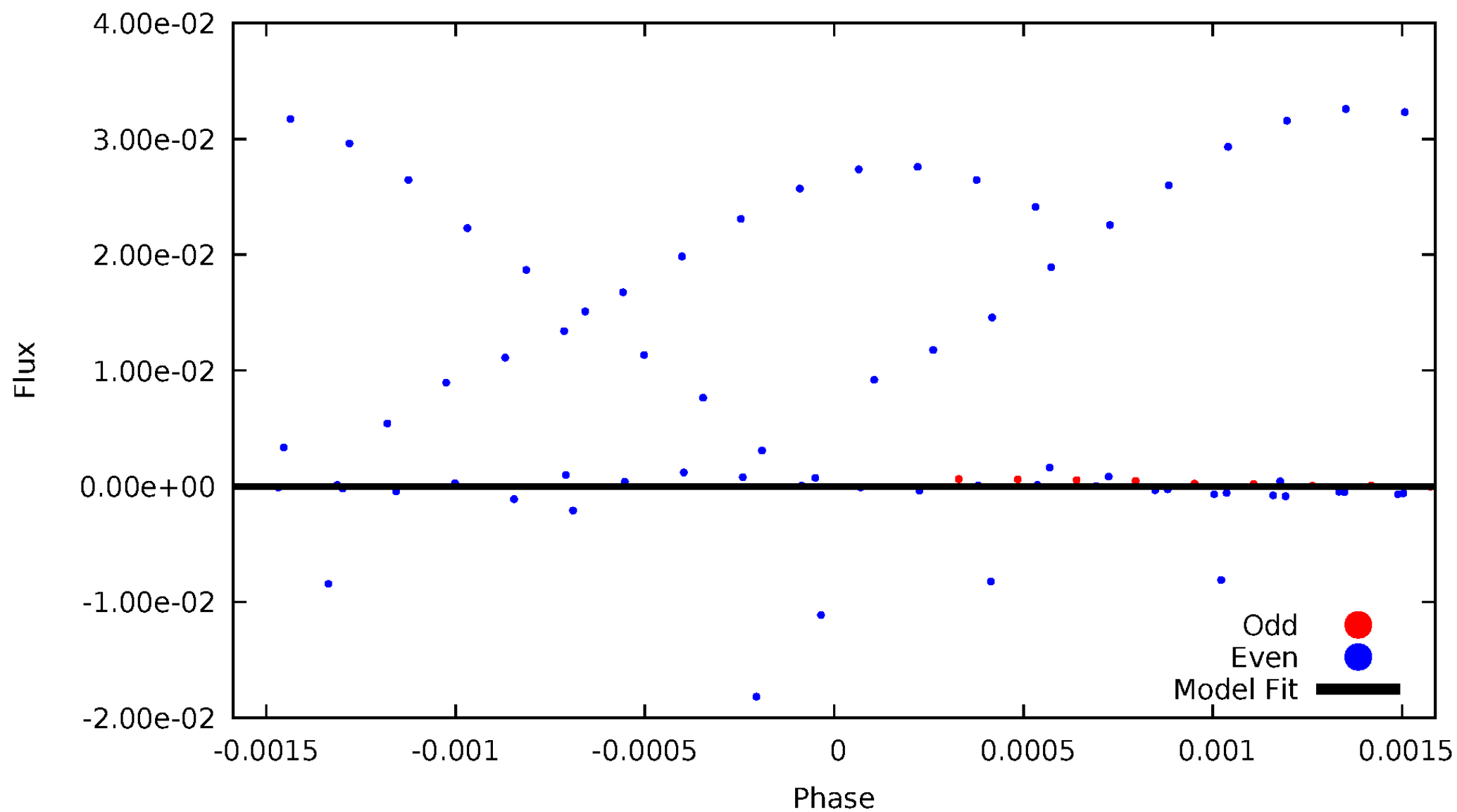


TCE 009899416-04



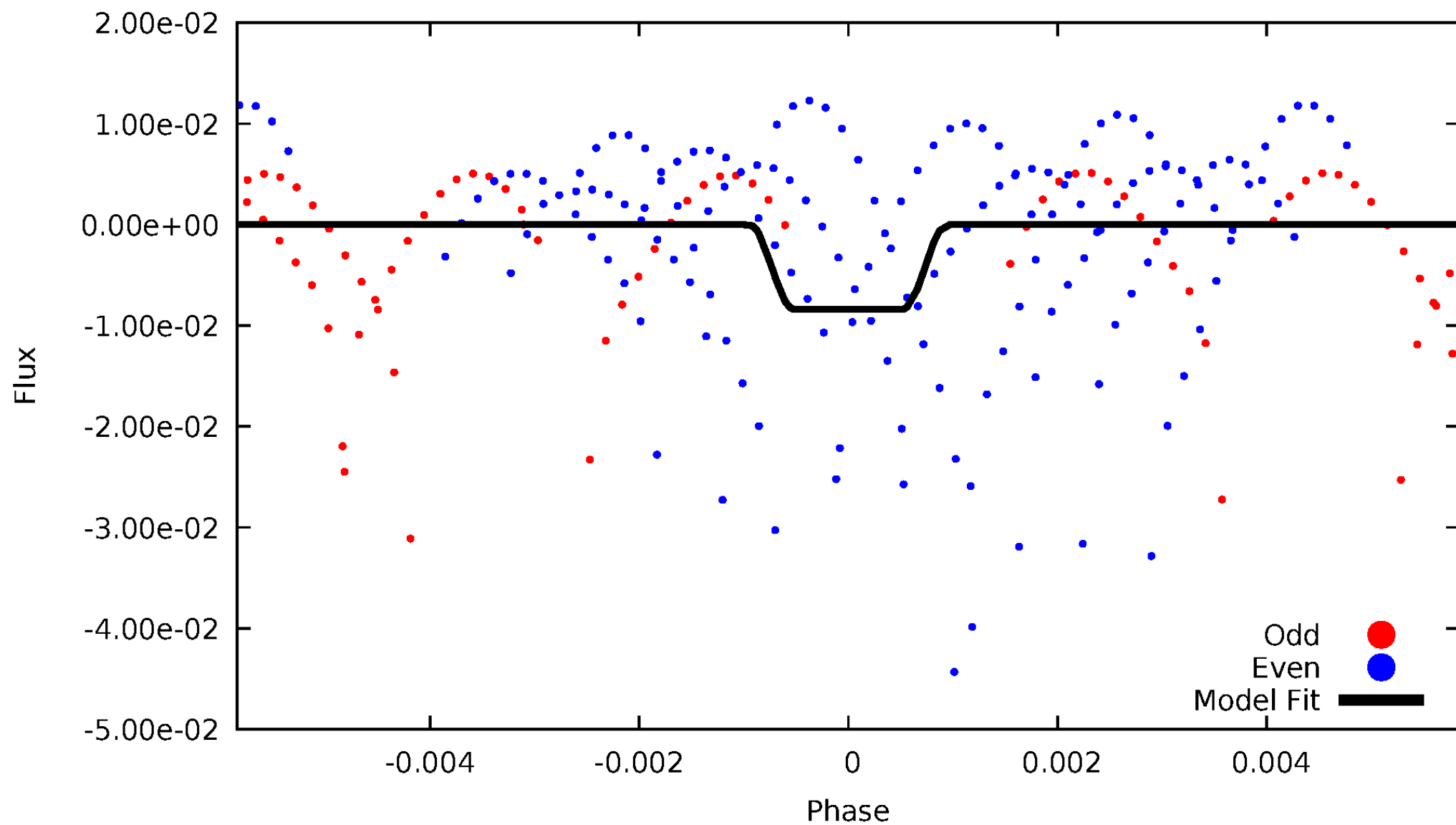
DV Odd/Even

TCE 009899416-04



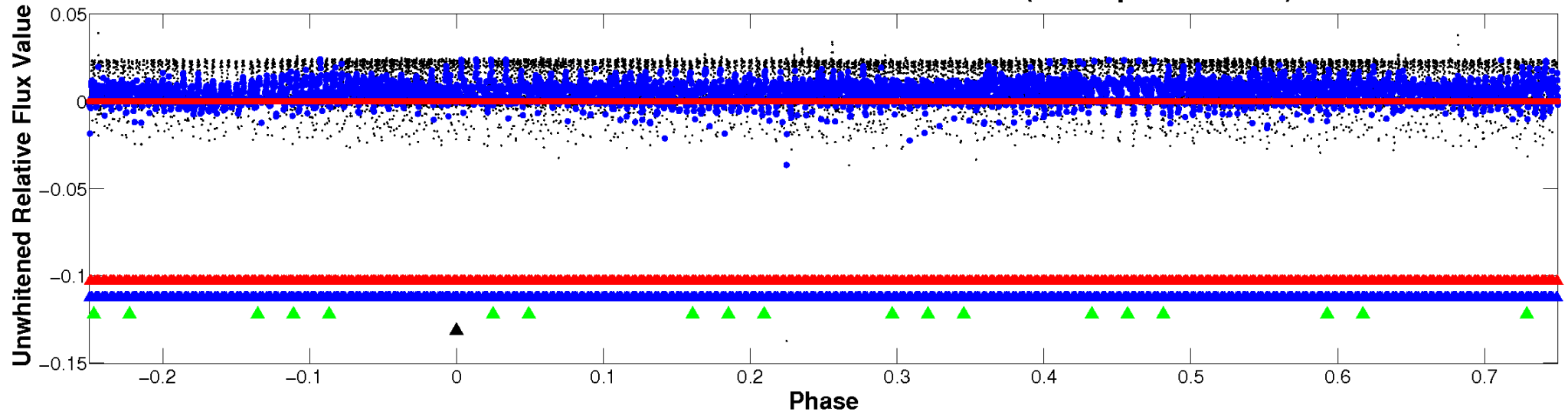
ALT Odd/Even

TCE 009899416-04

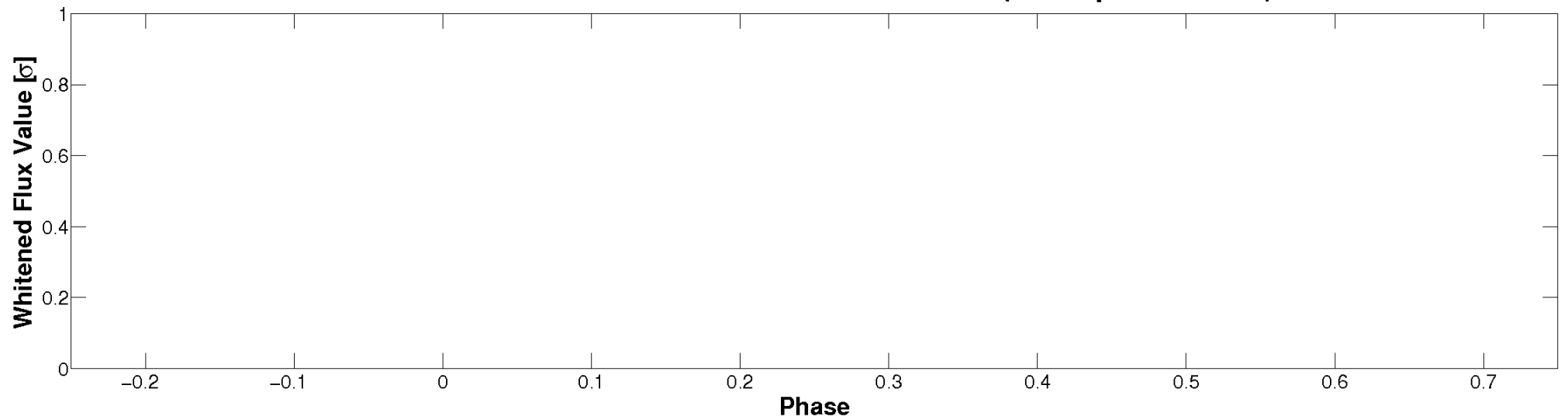


Non-Whitened Vs. Whitened Light Curve

Planet 4 : Phased Unwhitened Flux Time Series (TPS Epoch/Period)

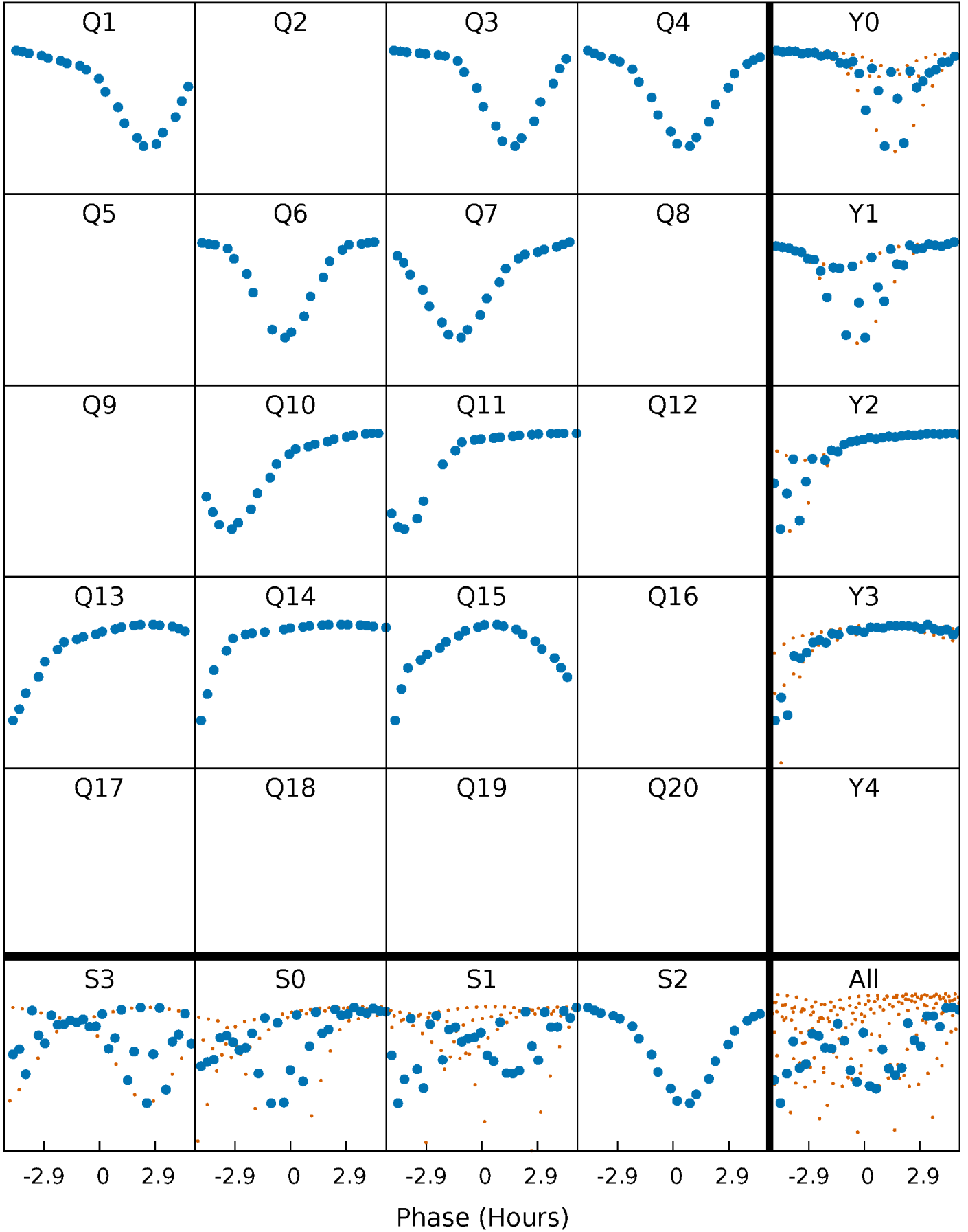


Planet 4 : Phased Whitened Flux Time Series (TPS Epoch/Period)



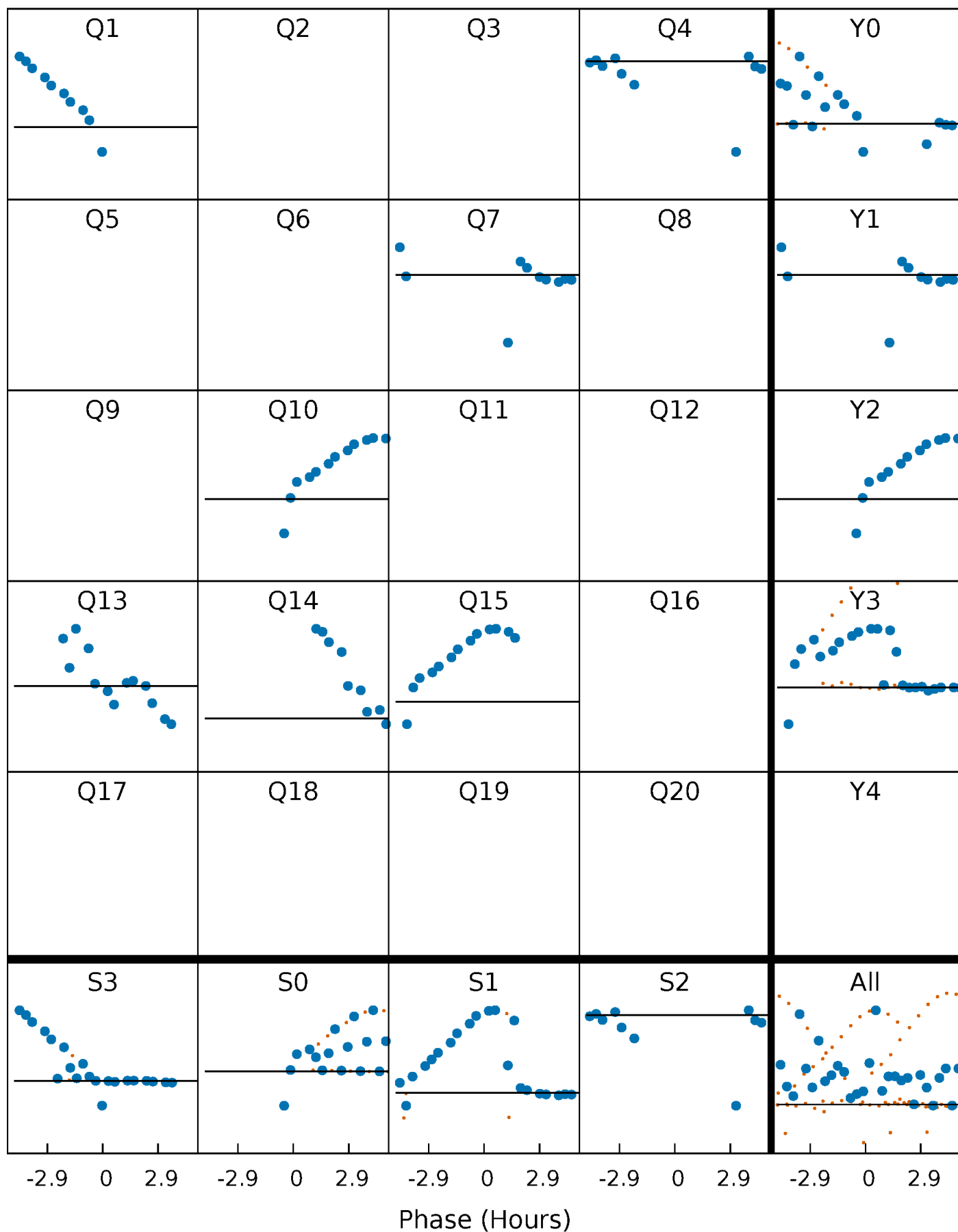
PDC Quarter-Phased Transit Curves

TCE 009899416-04 P=131.296631 Days $T_0=147.271414$ (BKJD)



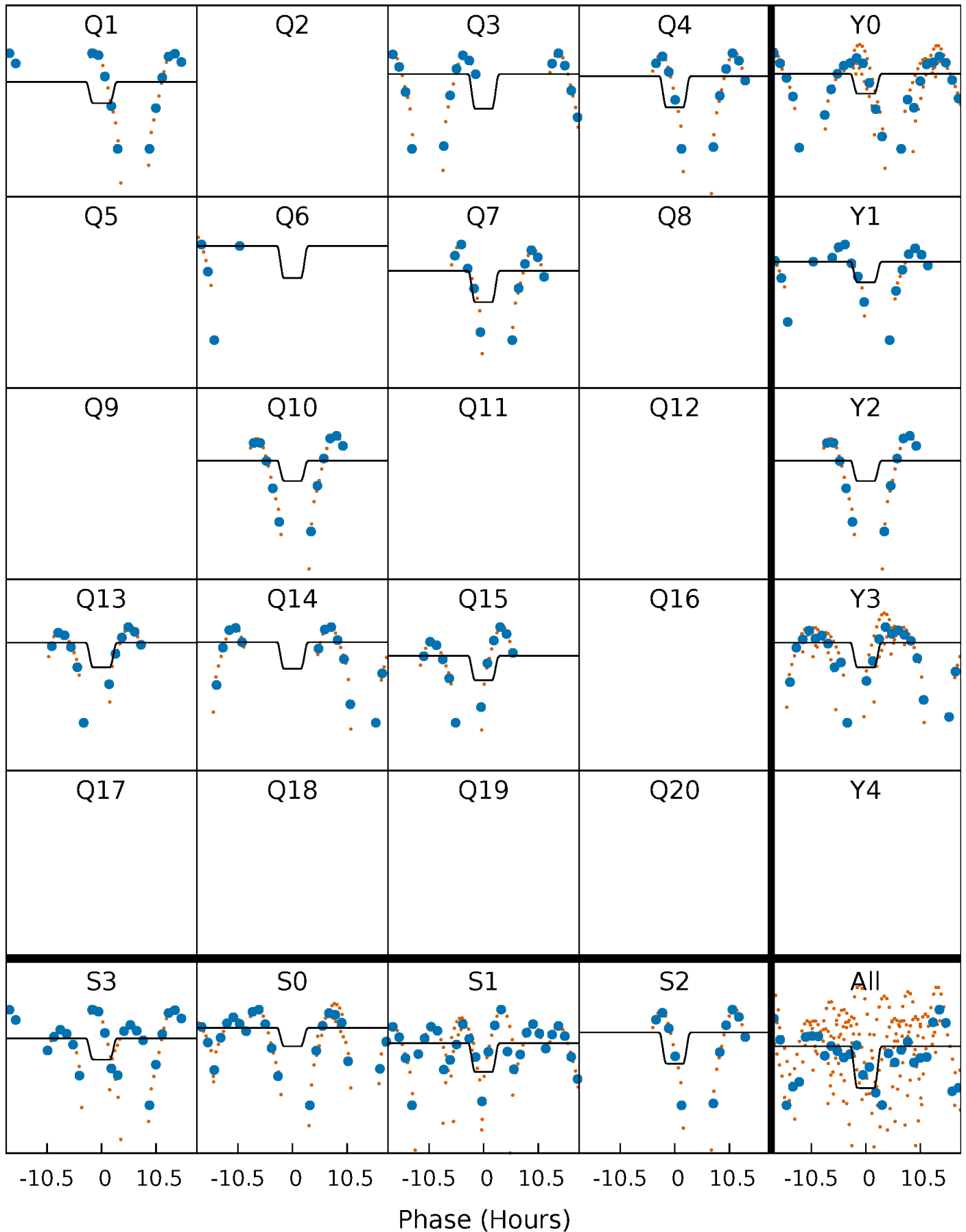
DV Quarter-Phased Transit Curves

TCE 009899416-04 P=131.296631 Days $T_0=147.271414$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

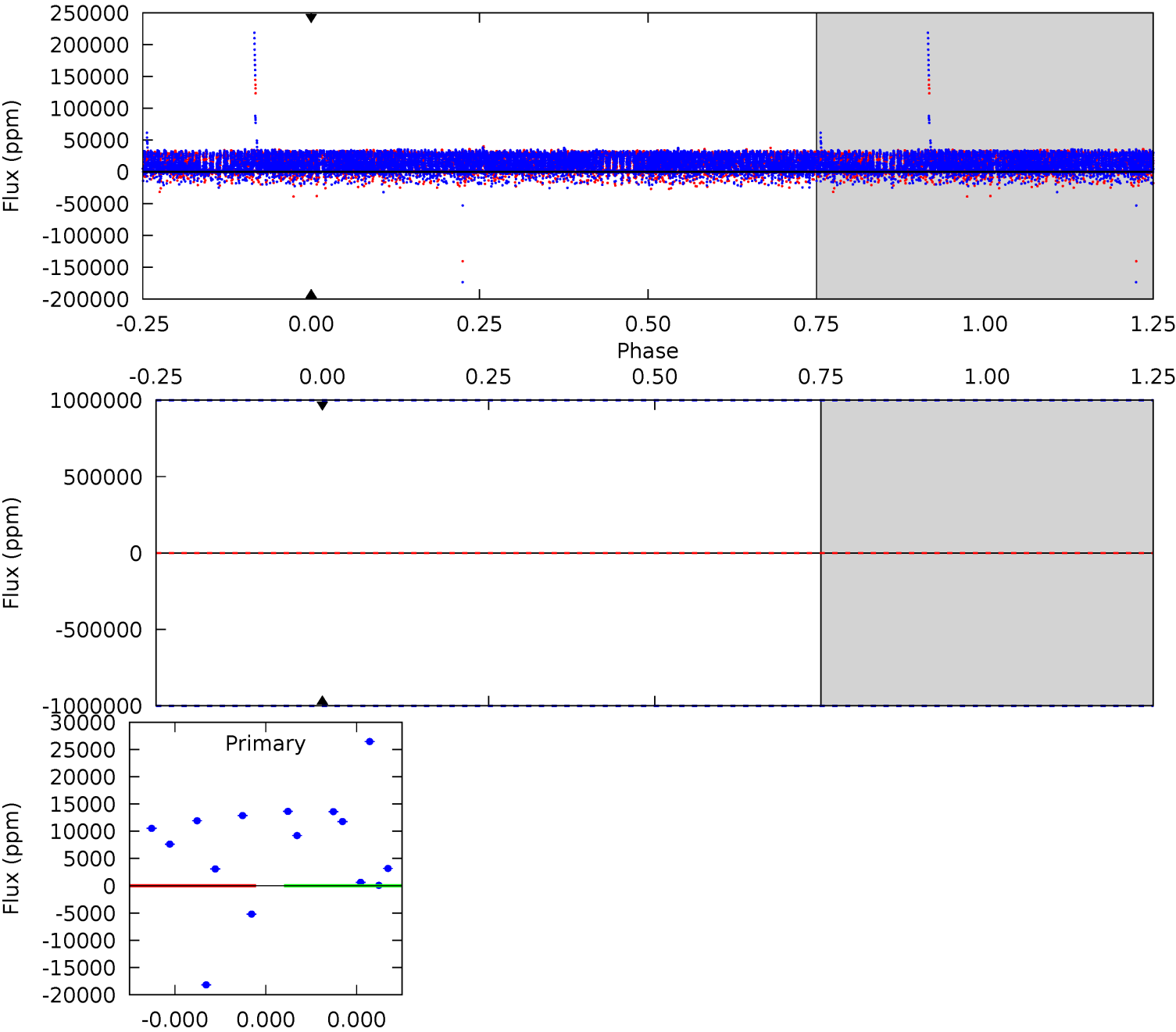
TCE 009899416-04 P=131.296631 Days $T_0=147.111454$ (BKJD)



DV Model-Shift Uniqueness Test

009899416-04, P = 131.296631 Days, E = 15.974783 Days

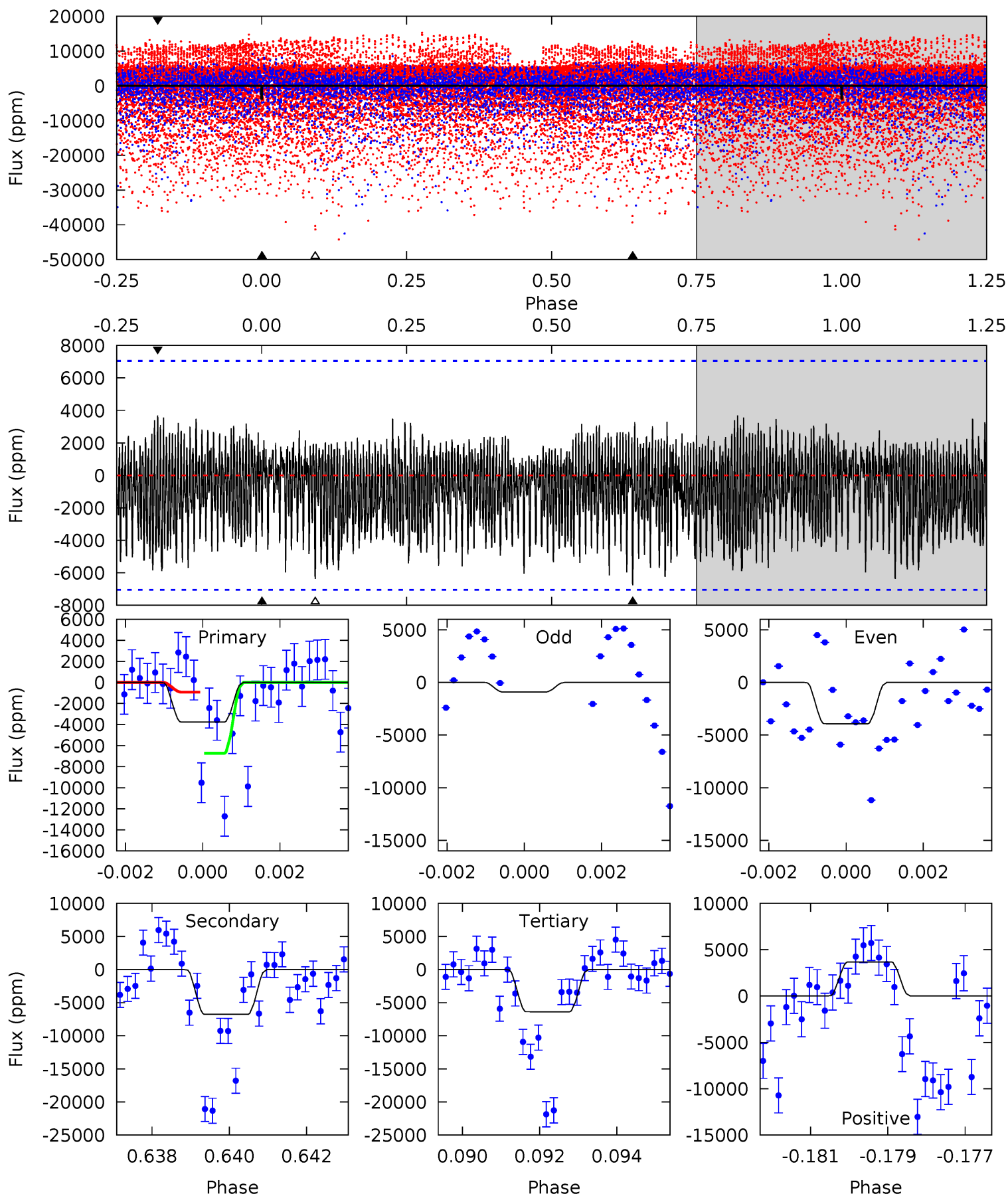
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
0	0	0	0	1.00	1.00	1.00	0	0	0	0	0	0	0	0



Alt Model-Shift Uniqueness Test

009899416-04, $P = 131.296631$ Days, $E = 15.814823$ Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
2.85	5.13	4.83	2.79	5.34	3.11	1.48	-1.98	0.06	0.30	2.35	0.53	2.09	0.35	2.24



Stellar Parameters For KIC 009899416

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	$M(M_{\odot})$	p_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	8853^{+242}_{-450}	$3.742^{+0.420}_{-0.150}$	$0.070^{+0.200}_{-0.600}$	$3.570^{+0.994}_{-1.845}$	$2.564^{+0.318}_{-0.954}$	$0.079^{+0.369}_{-0.034}$
	+3%/-5%	+11%/-4%	+286%/-857%	+28%/-52%	+12%/-37%	+465%/-43%
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 009899416-04 / KOI

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	0 ± 1000000	$26.91^{+31.74}_{-19.49}$	1204^{+107}_{-151}	-4578^{+59070}_{-47962}	$-229.866^{+61524.010}_{-57564.909}$
Alt.	-6772 ± 1320	$39.58^{+37.90}_{-24.73}$	1203^{+107}_{-153}	7158^{+7450}_{-1928}	1090^{+6678}_{-803}

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

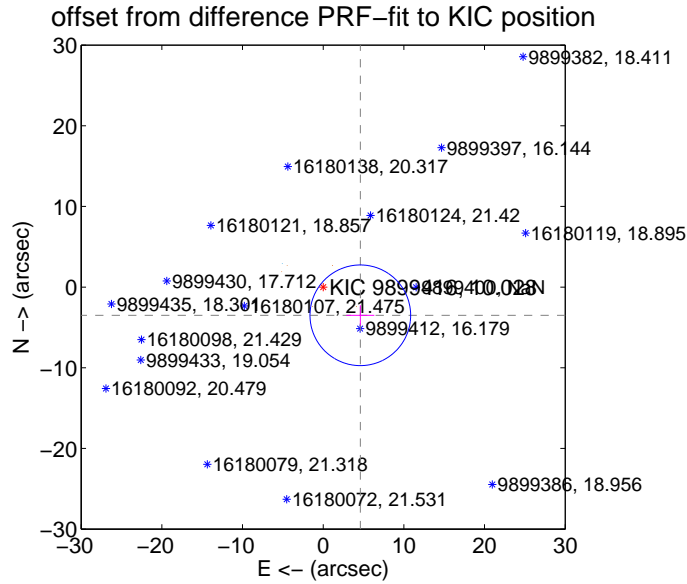
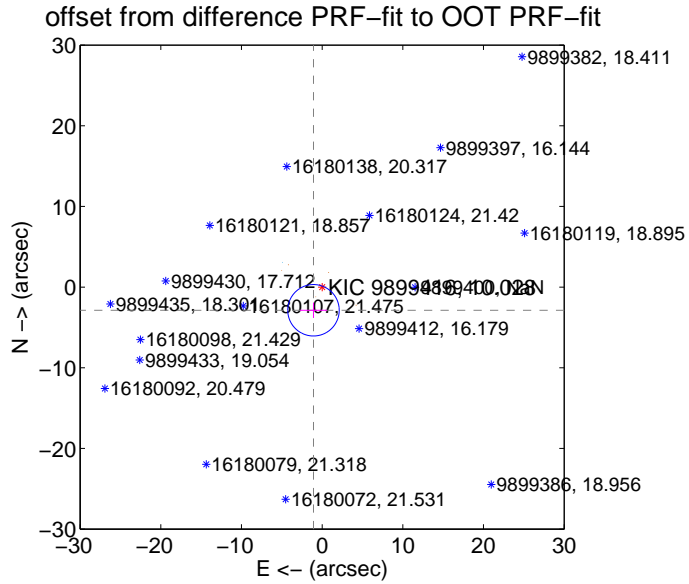
DV Centroid Data

Supplemental centroid analysis for 009899416-04. **Kepler magnitude: 10.03.** Transit SNR -1.00

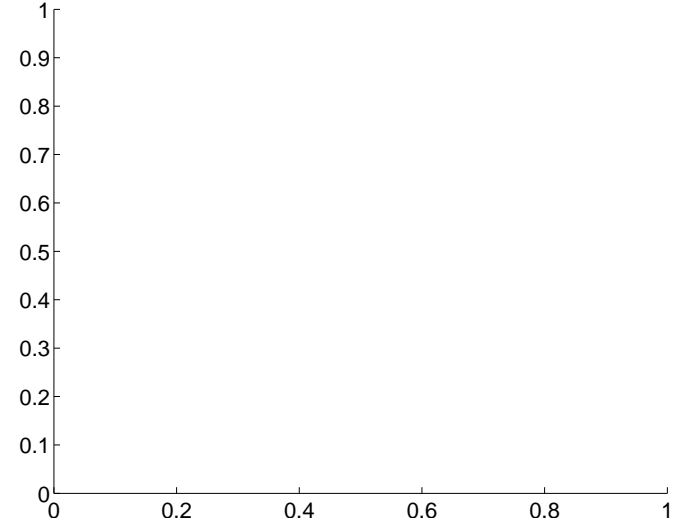
There are 1 quarters with good PRF difference image offsets

The direct PRF centroid is offset from the target star catalog position by about 0.29 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	3.066 ± 1.063	2.88	1.073 ± 1.673	-2.872 ± 0.947
PRF-fit source offset from KIC position	5.780 ± 2.080	2.78	-4.604 ± 1.740	-3.495 ± 1.242
photometric centroid source offset	—	—	—	—

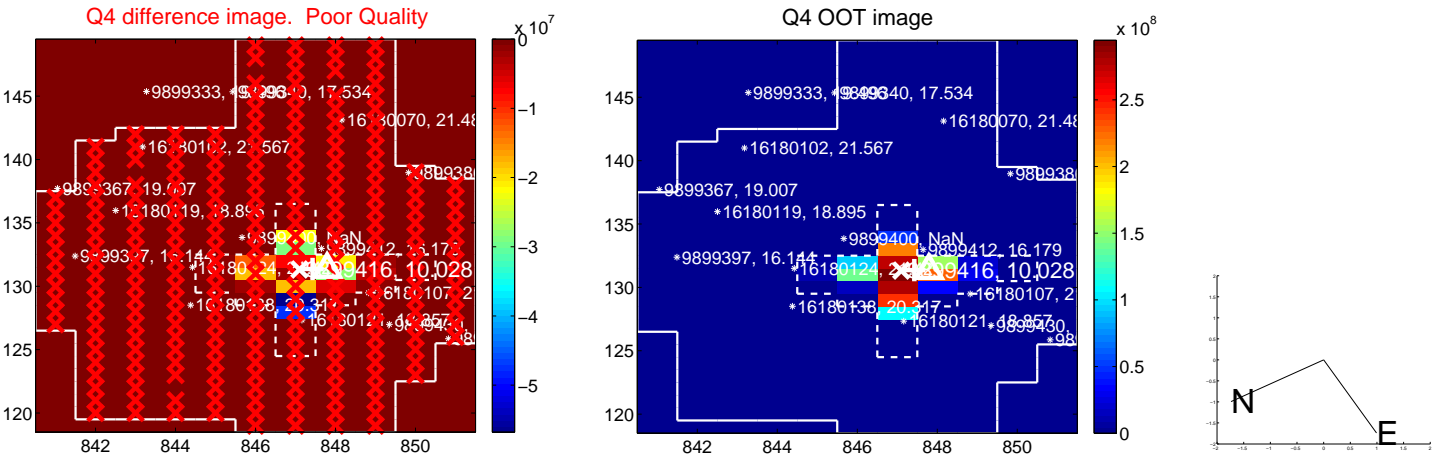
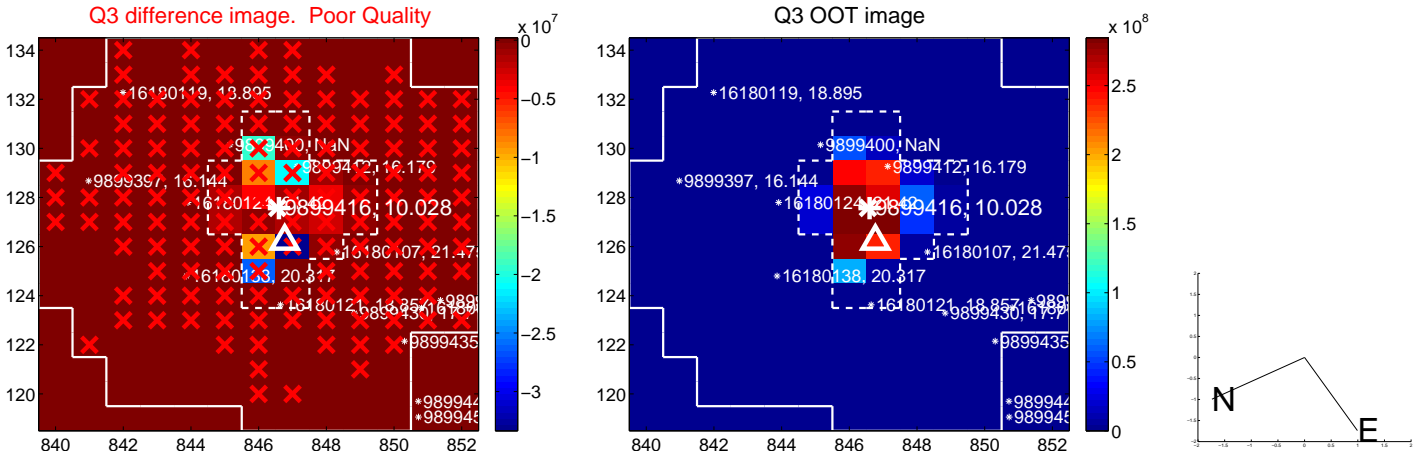
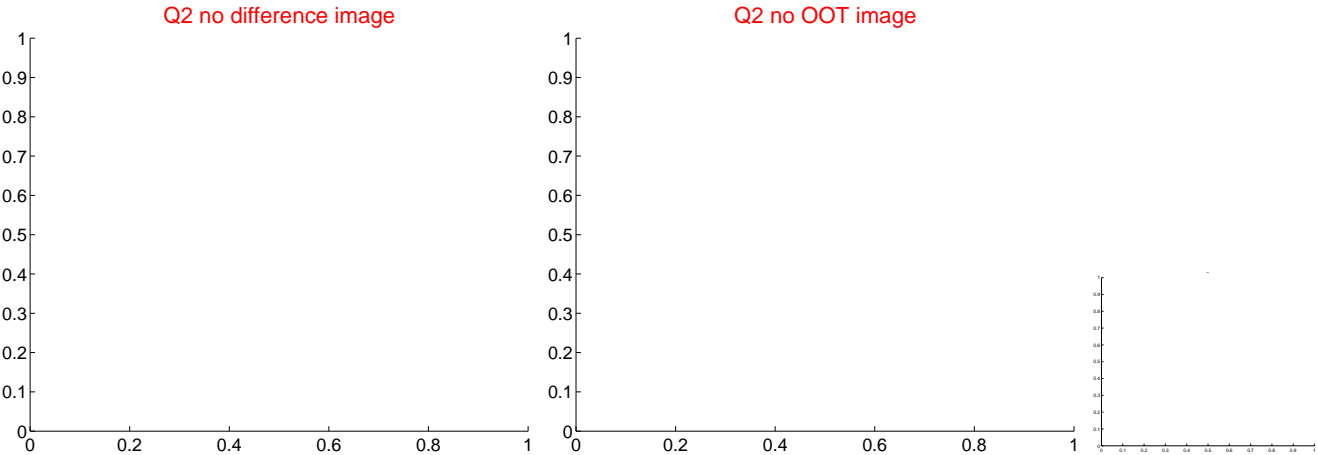
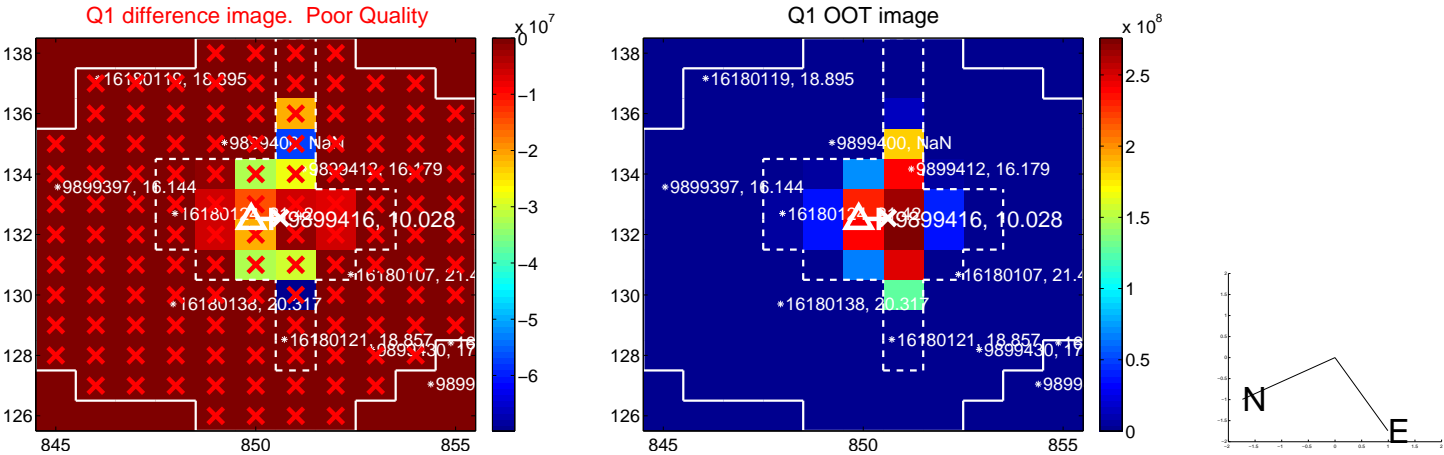


There are no photometric centroids

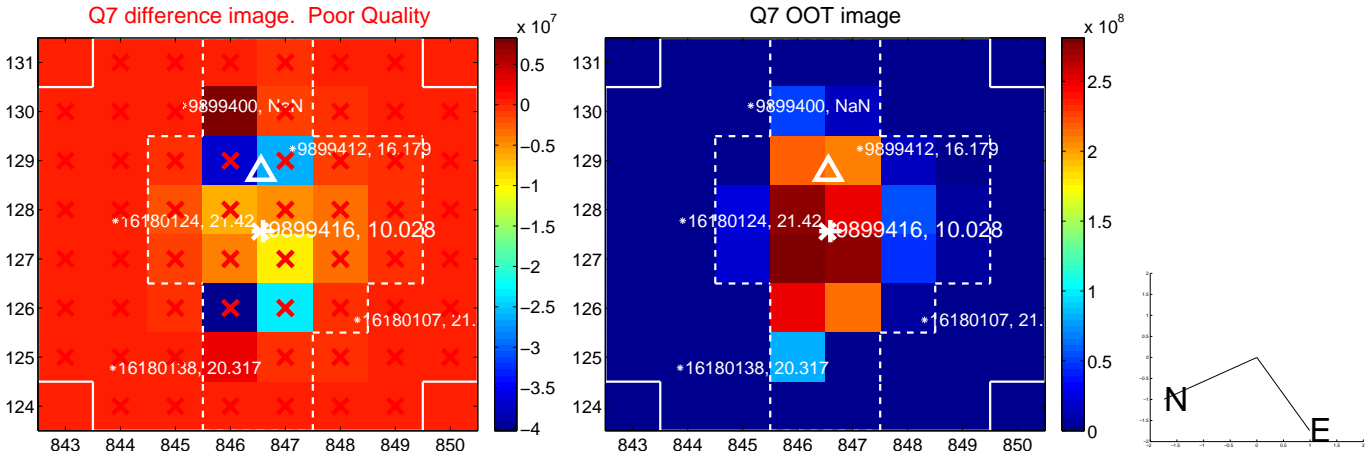


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets;** magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

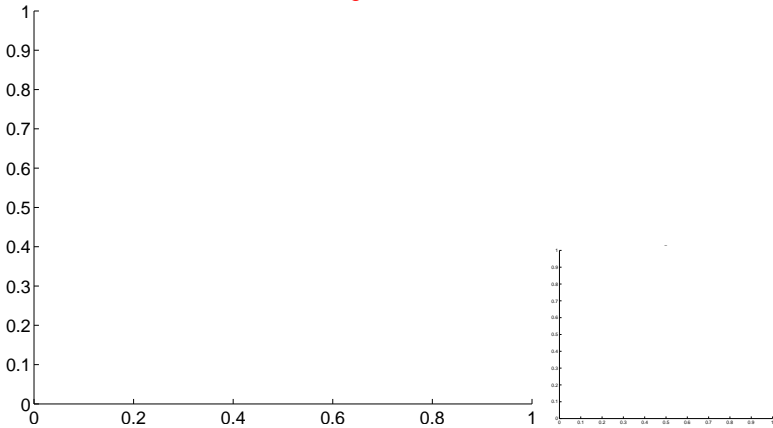


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.

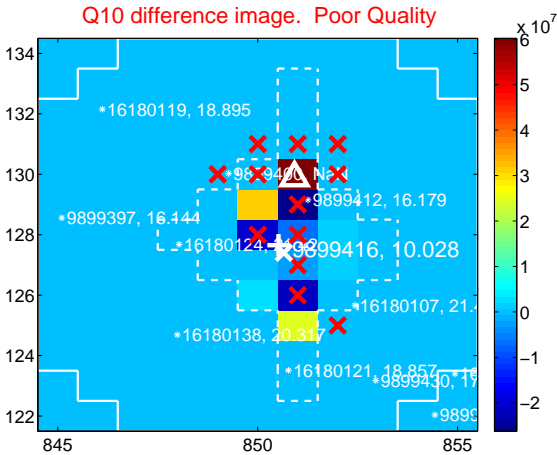
Q9 no difference image



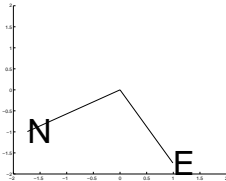
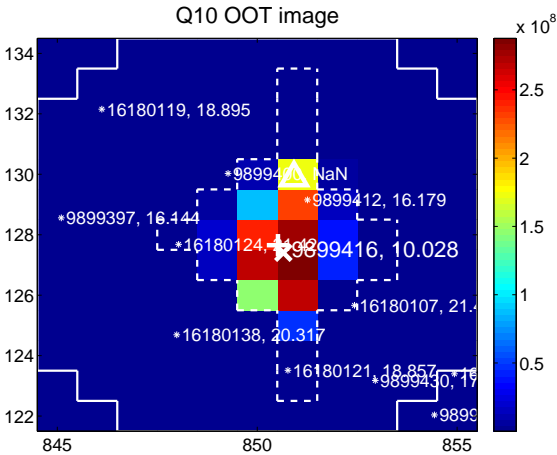
Q9 no OOT image



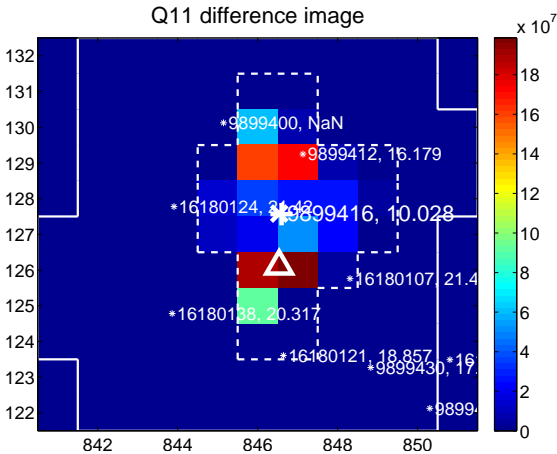
Q10 difference image. Poor Quality



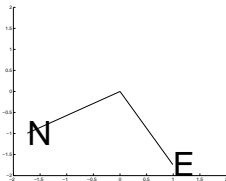
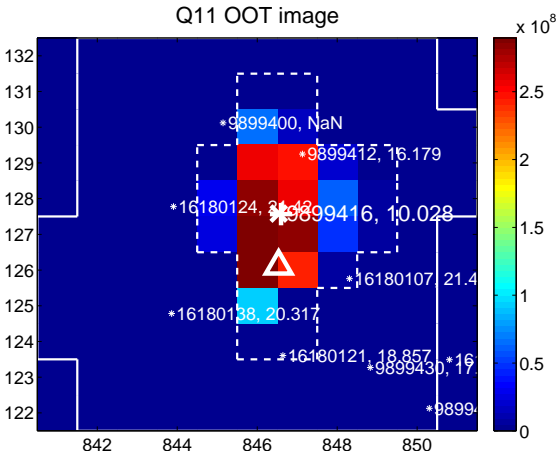
Q10 OOT image



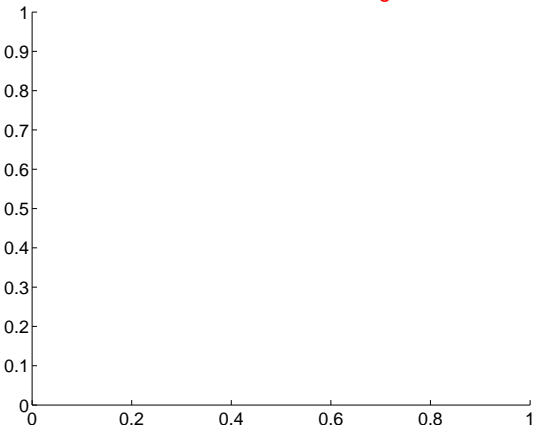
Q11 difference image



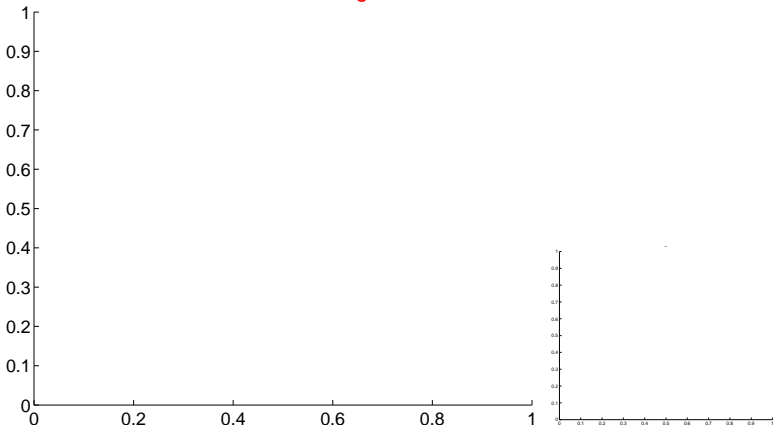
Q11 OOT image



Q12 no difference image



Q12 no OOT image



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

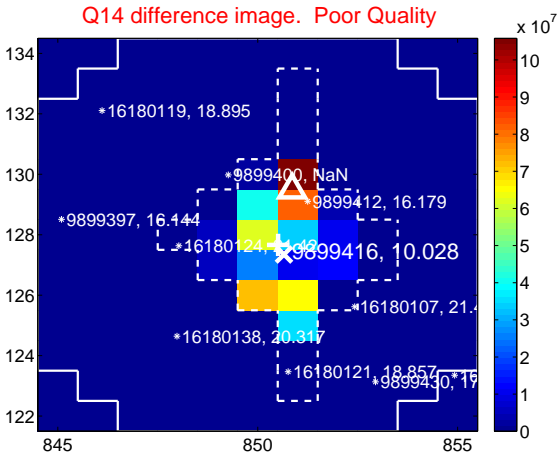
Q13 no difference image



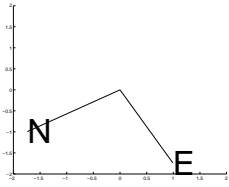
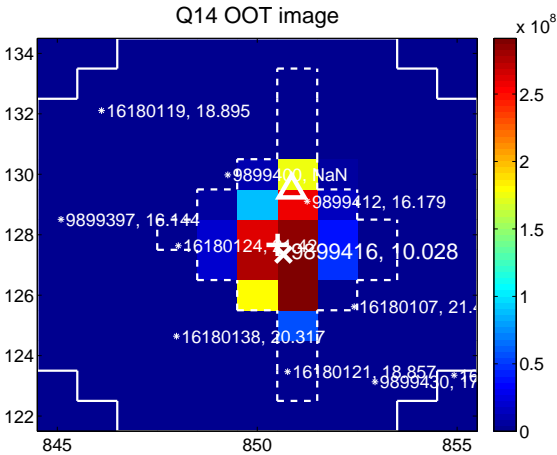
Q13 no OOT image



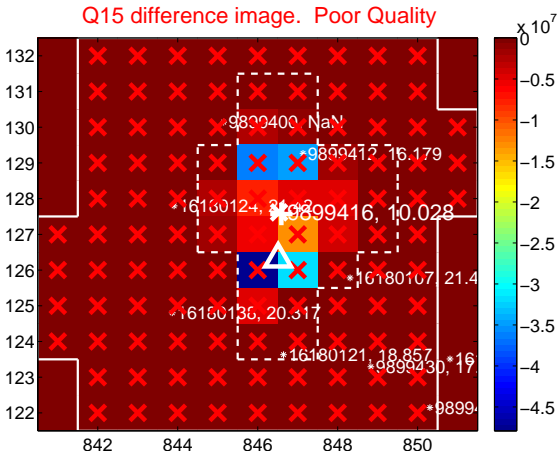
Q14 difference image. Poor Quality



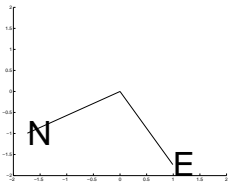
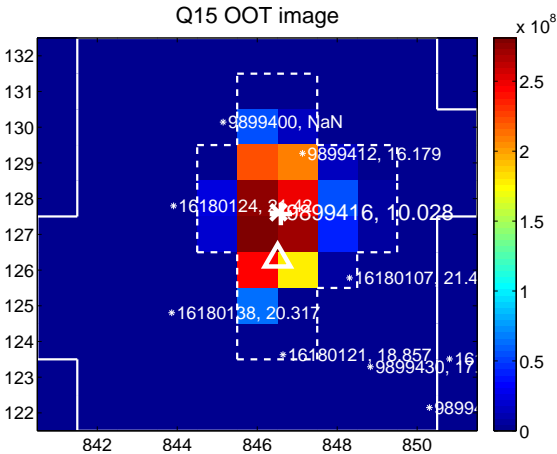
Q14 OOT image



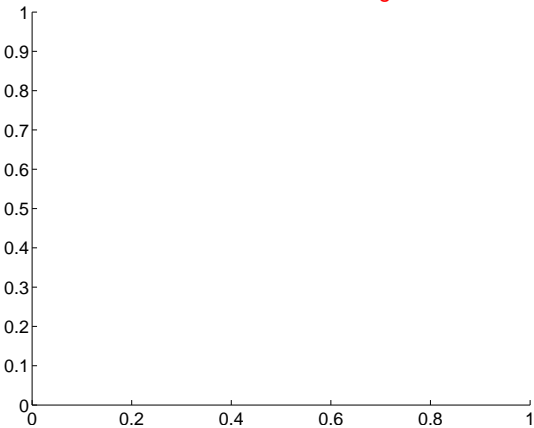
Q15 difference image. Poor Quality



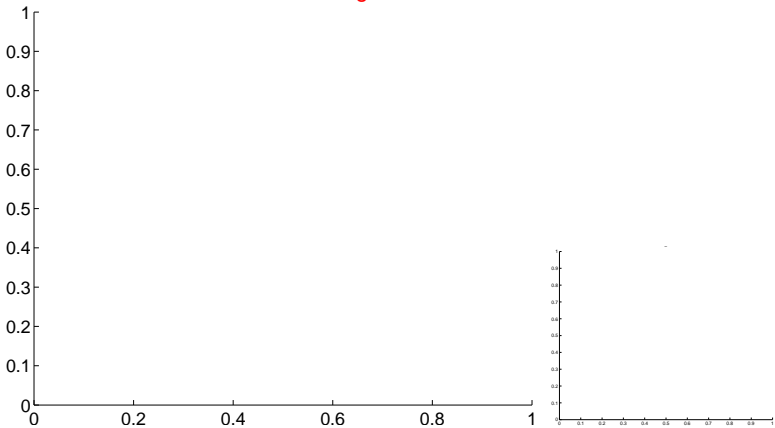
Q15 OOT image



Q16 no difference image



Q16 no OOT image



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



folded centroid time series figure for this object.

UKIRT Image

Declination

