

KIC 007022707

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})
007022707-01	OBS	No	0.623526	131.747725	139.2	0.823	12.8	18.4	1.05	6115	1.50	6474.93
007022707-02	OBS	No	0.623535	132.053839	170.5	0.686	13.0	20.8	1.05	6115	1.67	6474.80

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
007022707-01	OBS	FP	0.00	1	0	1	0	LPP_ALT—MOD_NONUNIQ_ALT—CENT_RESOLVED_OFFSET
007022707-02	OBS	FP	0.00	1	0	1	0	LPP_ALT—MOD_NONUNIQ_ALT—SAME_NTL_PERIOD—CENT_RESOLVED_OFFSET

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

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

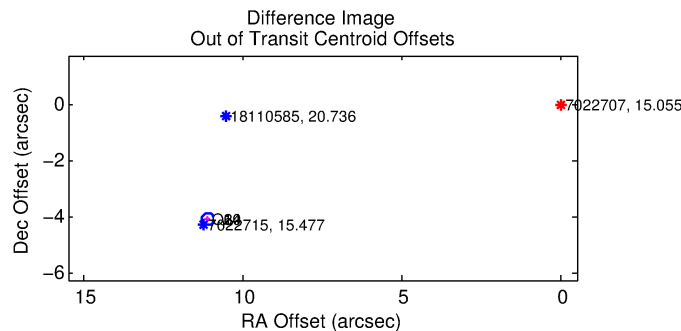
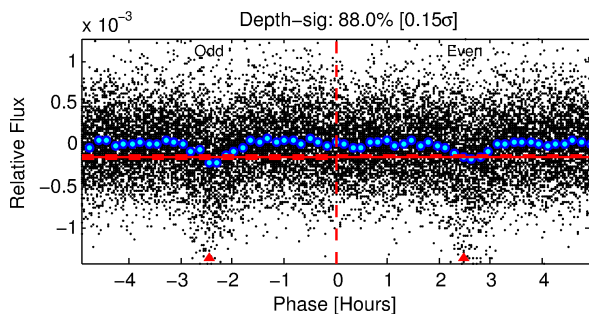
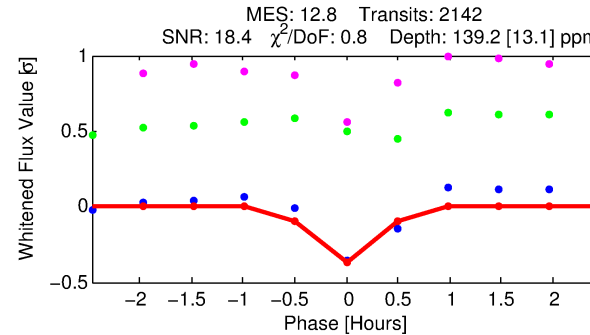
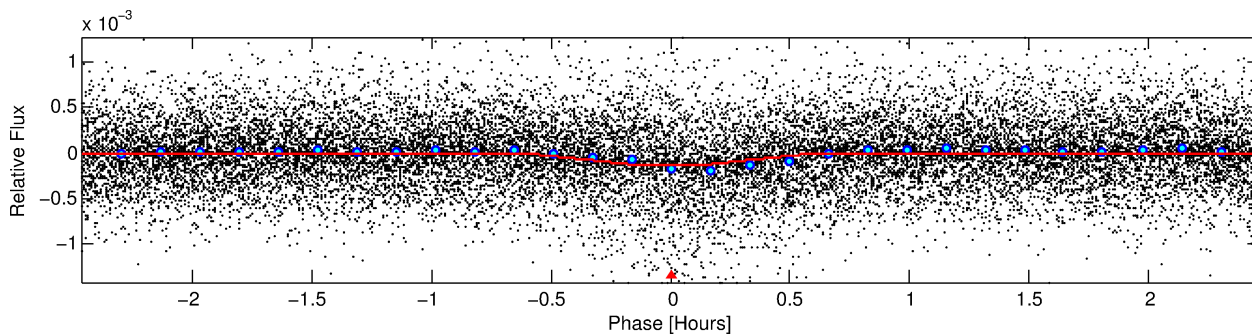
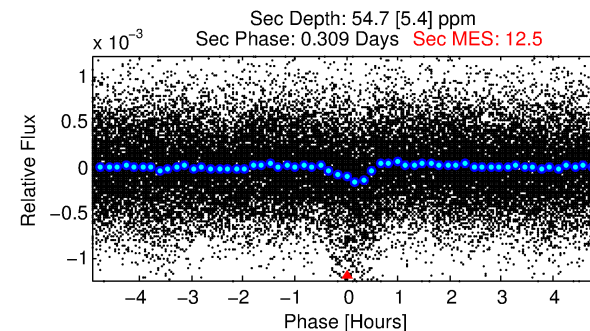
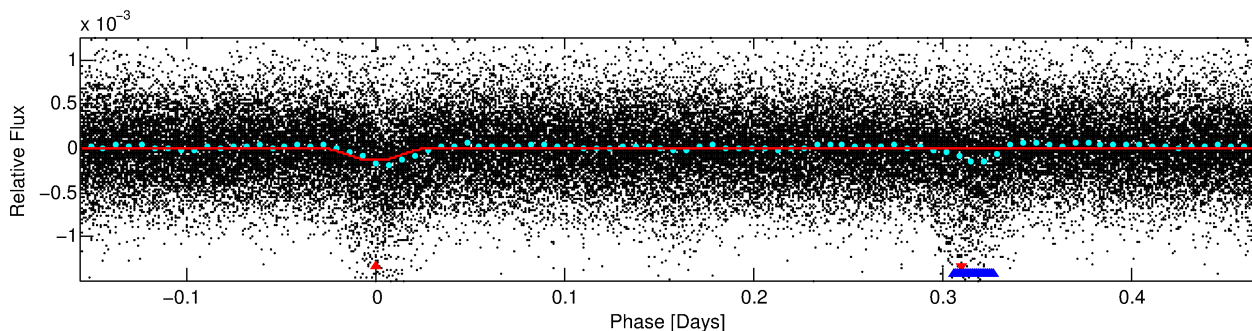
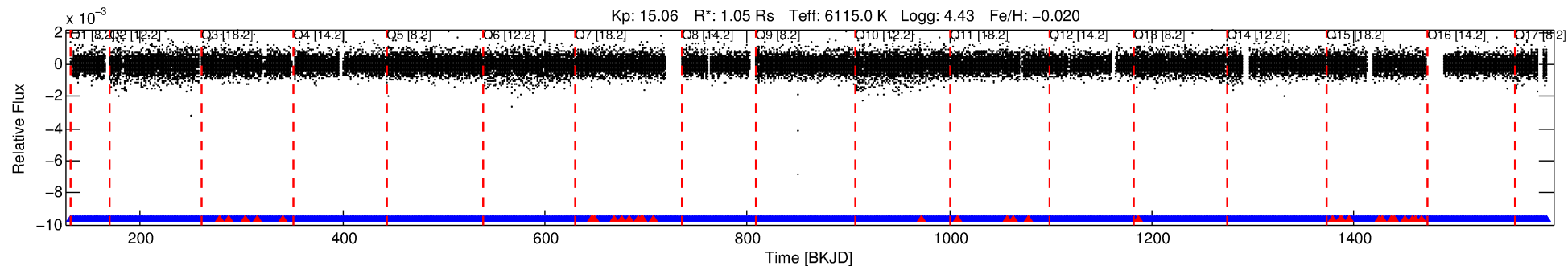
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 007022707-01

No Significant Match Found

DV One-Page Summary

KIC: 7022707 Candidate: 1 of 2 Period: 0.624 d



DV Fit Results:

Period = 0.62353 [0.00001] d
Epoch = 131.7477 [0.0008] BKJD
Rp/R* = 0.0130 [0.0043]
a/R* = 2.75 [4.08]
b = 0.91 [0.33]
Seff = 6474.92 [2761.01]
Teq = 2287 [244] K
Rp = 1.50 [0.71] Re
a = 0.0147 [0.0041] AU
Ag = 2.88 [2.24] [0.84σ]
Teff = 4606 [783] K [2.83σ]

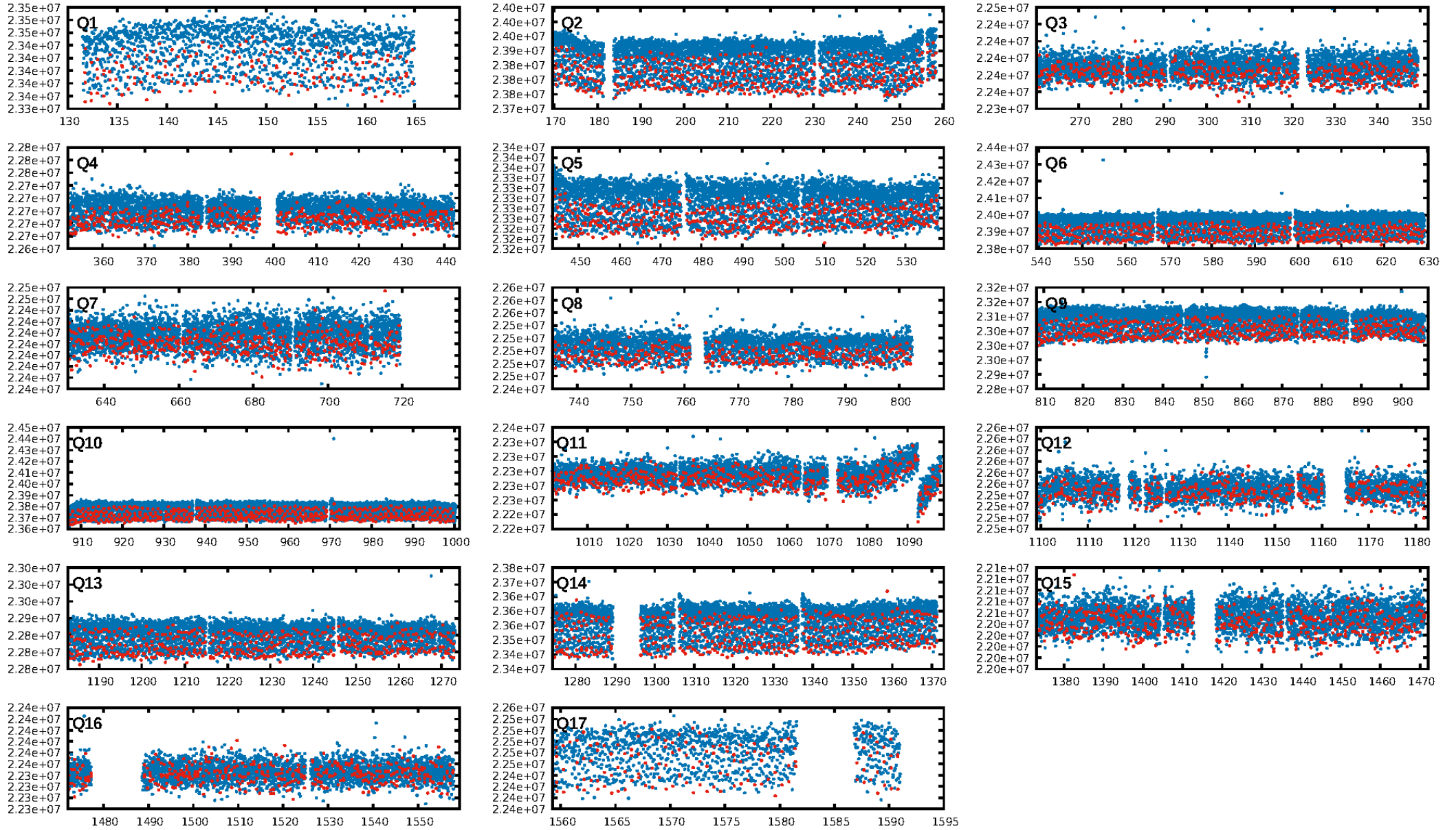
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: 0.0% [0.00σ]
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: 3.17e-40
RollingBand-fgt: 0.98 [2008/2045]
GhostDiagnostic-chr: N/A
Centroid-sig: N/A
Centroid-so: N/A
OotOffset-rm: 11.829 arcsec [176.31σ]
KicOffset-rm: 11.973 arcsec [176.06σ]
OotOffset-st: 4/0/0/0 [4]
KicOffset-st: 4/0/0/0 [4]
DiffImageQuality-fgm: 1.00 [4/4]
DiffImageOverlap-fno: 1.00 [17/17]

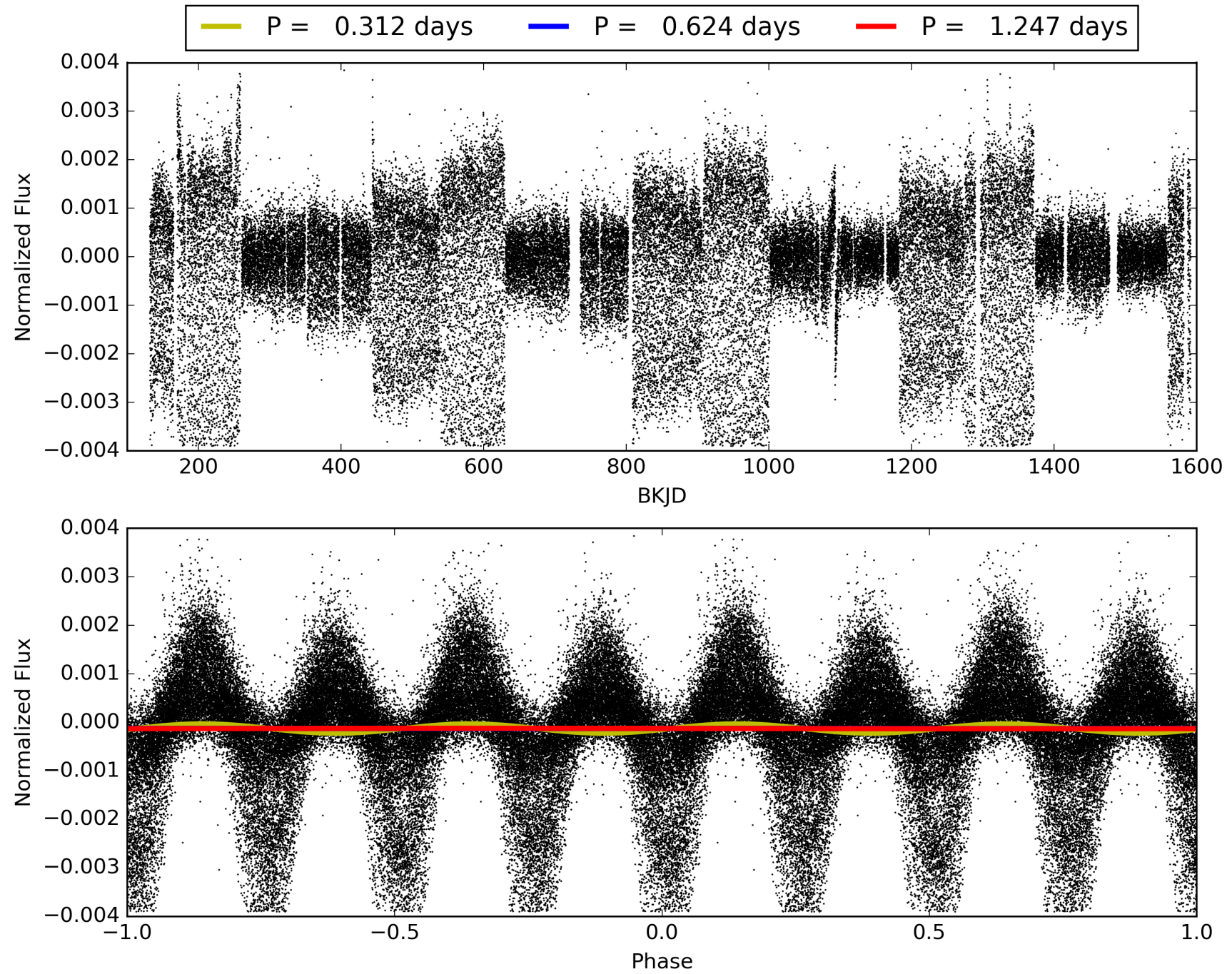
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 02-Feb-2016 04:36:10 Z

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

TCE 007022707-01, PDC Light Curves

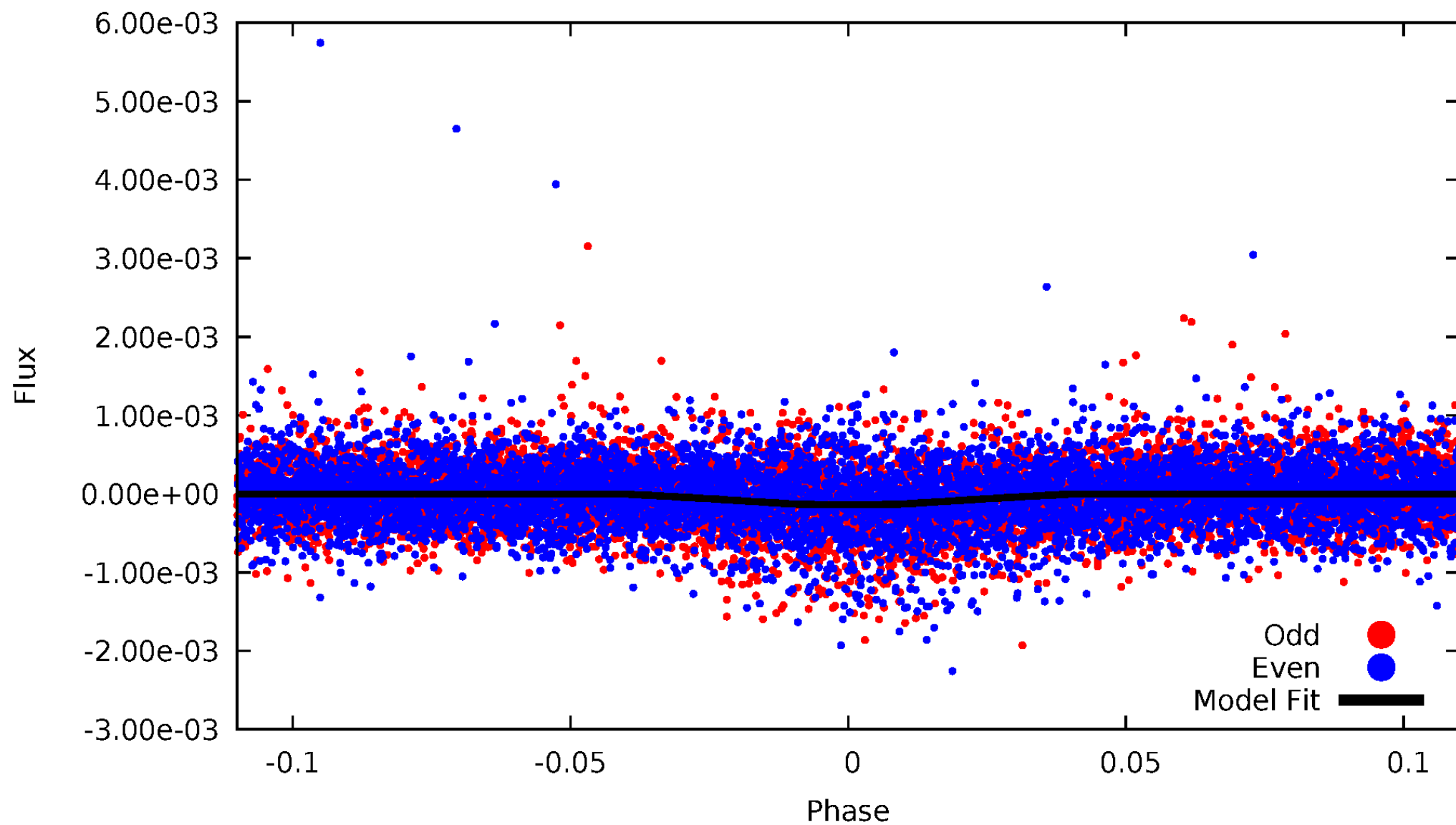


TCE 007022707-01



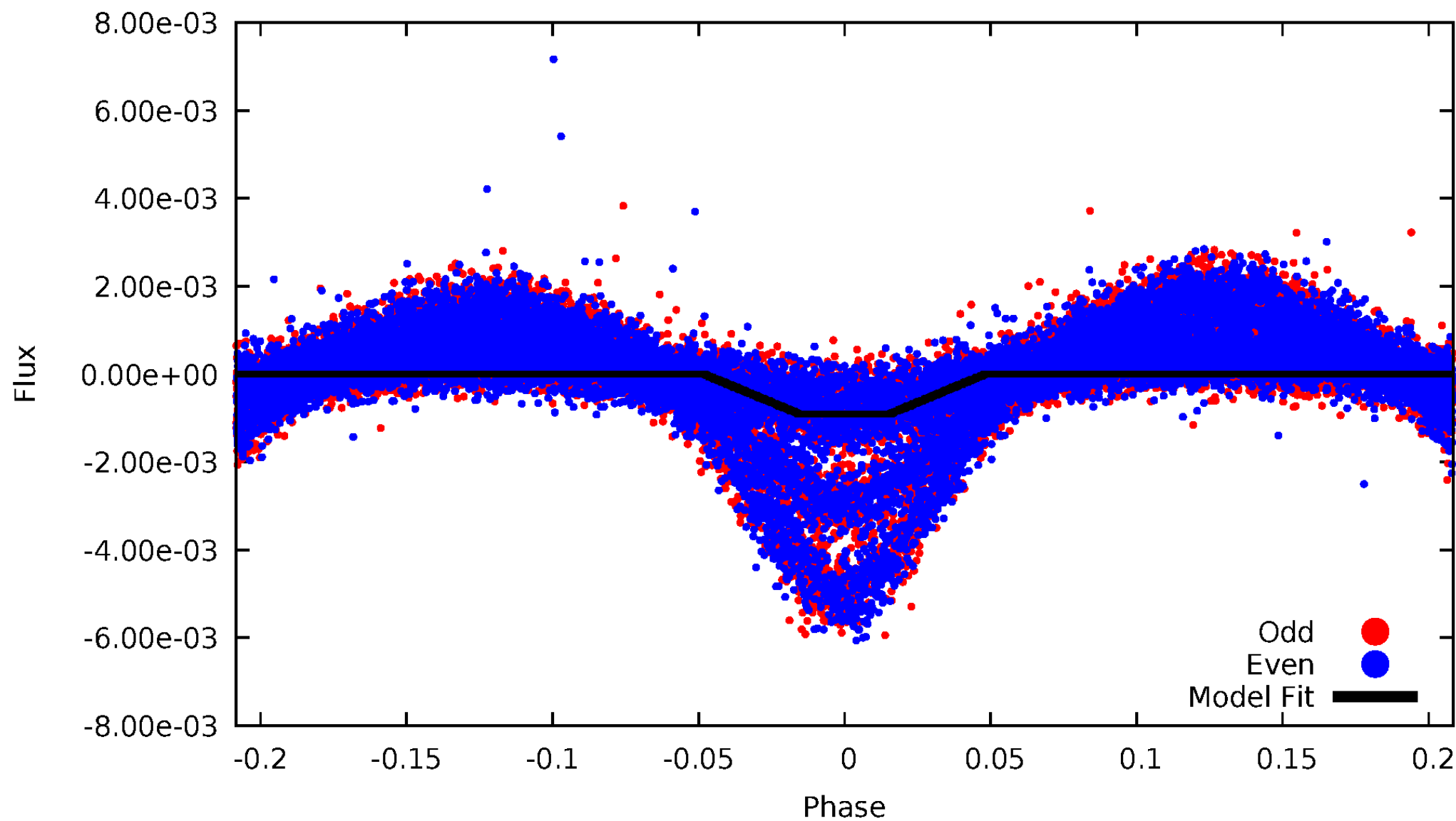
DV Odd/Even

TCE 007022707-01



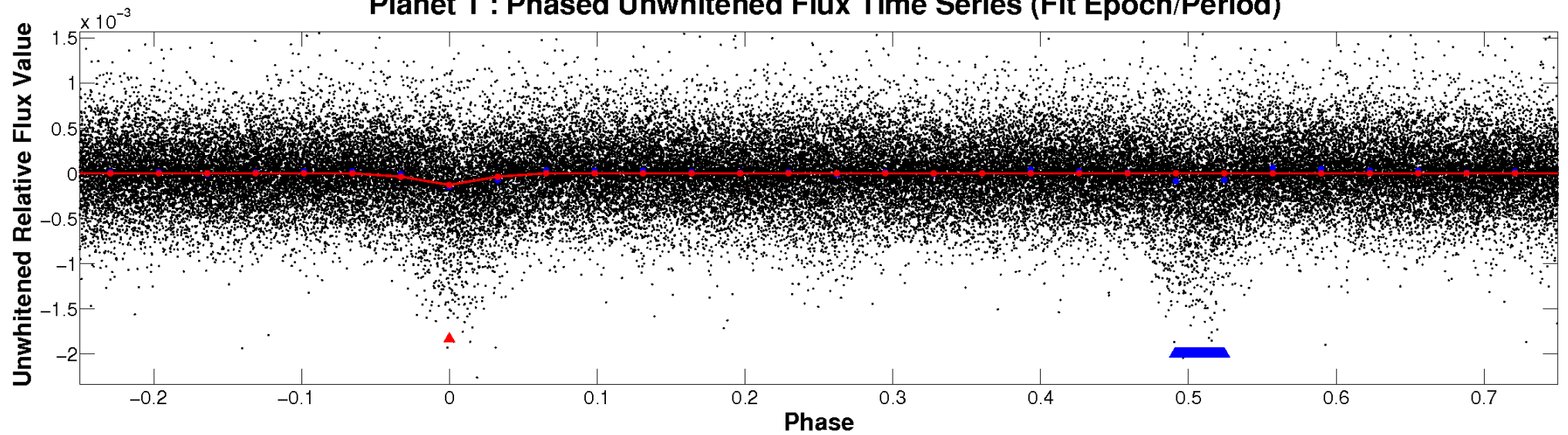
ALT Odd/Even

TCE 007022707-01

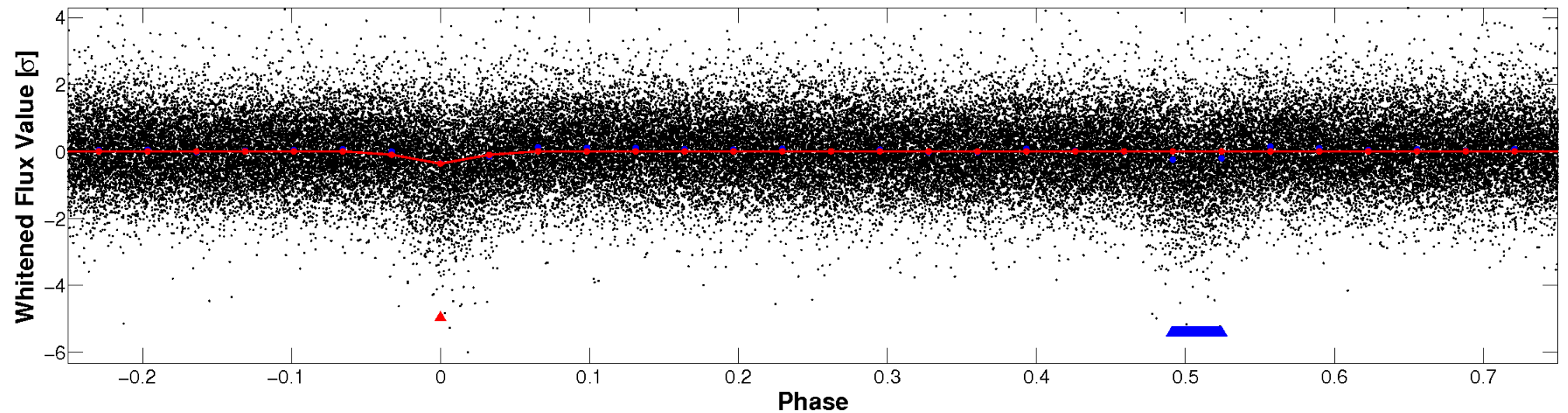


Non-Whitened Vs. Whitened Light Curve

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

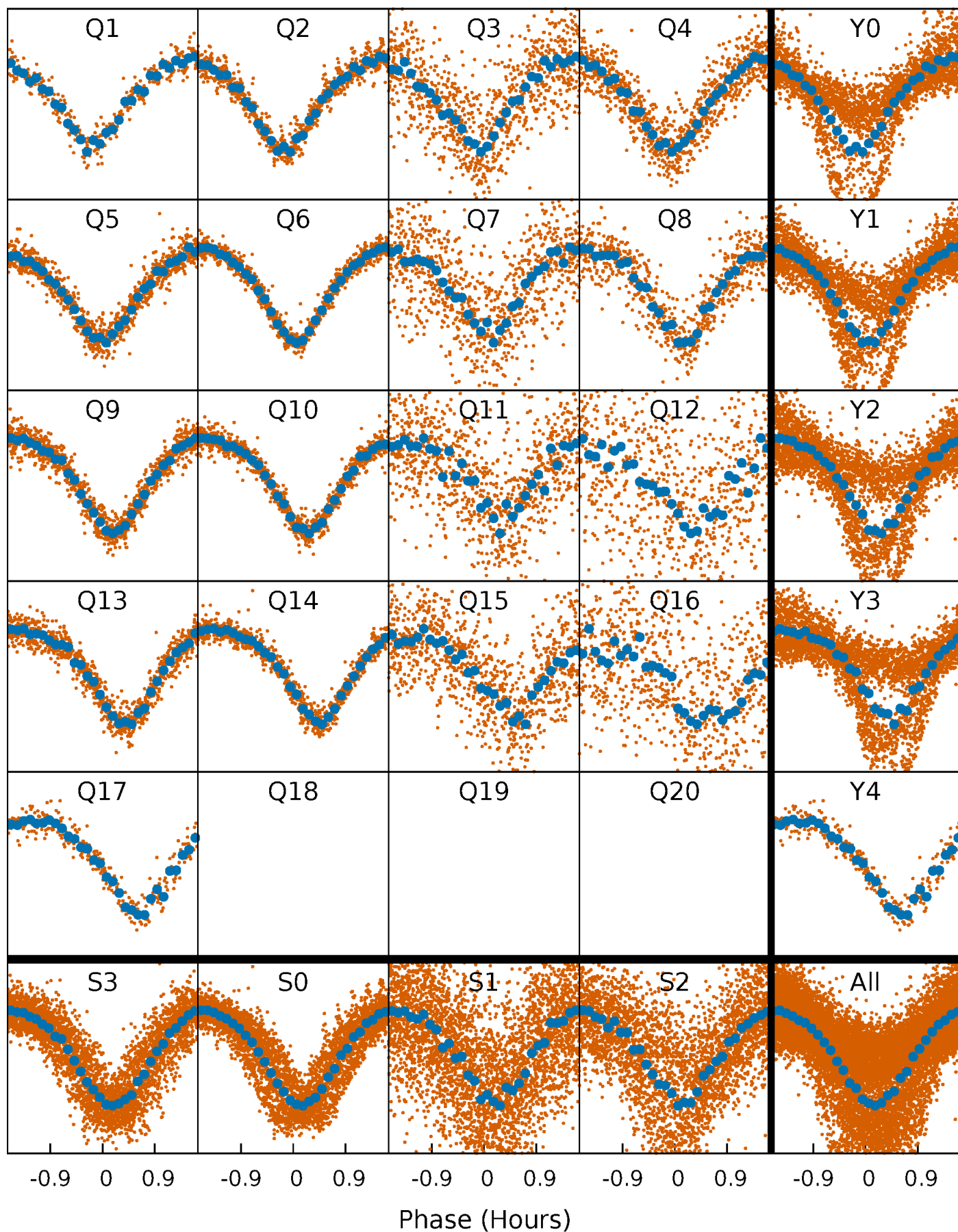


Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)



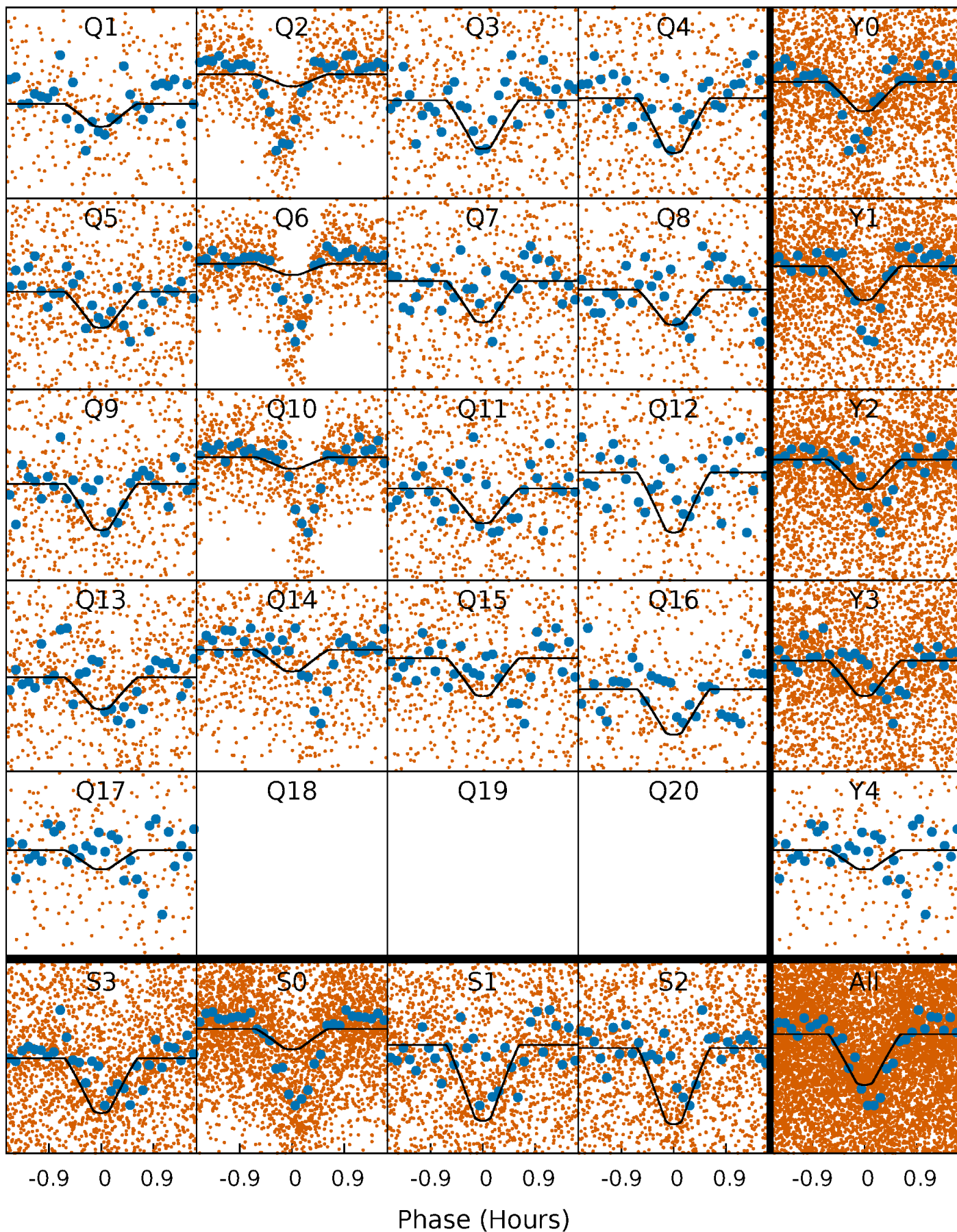
PDC Quarter-Phased Transit Curves

TCE 007022707-01 P= 0.623526 Days $T_0=131.747725$ (BKJD)



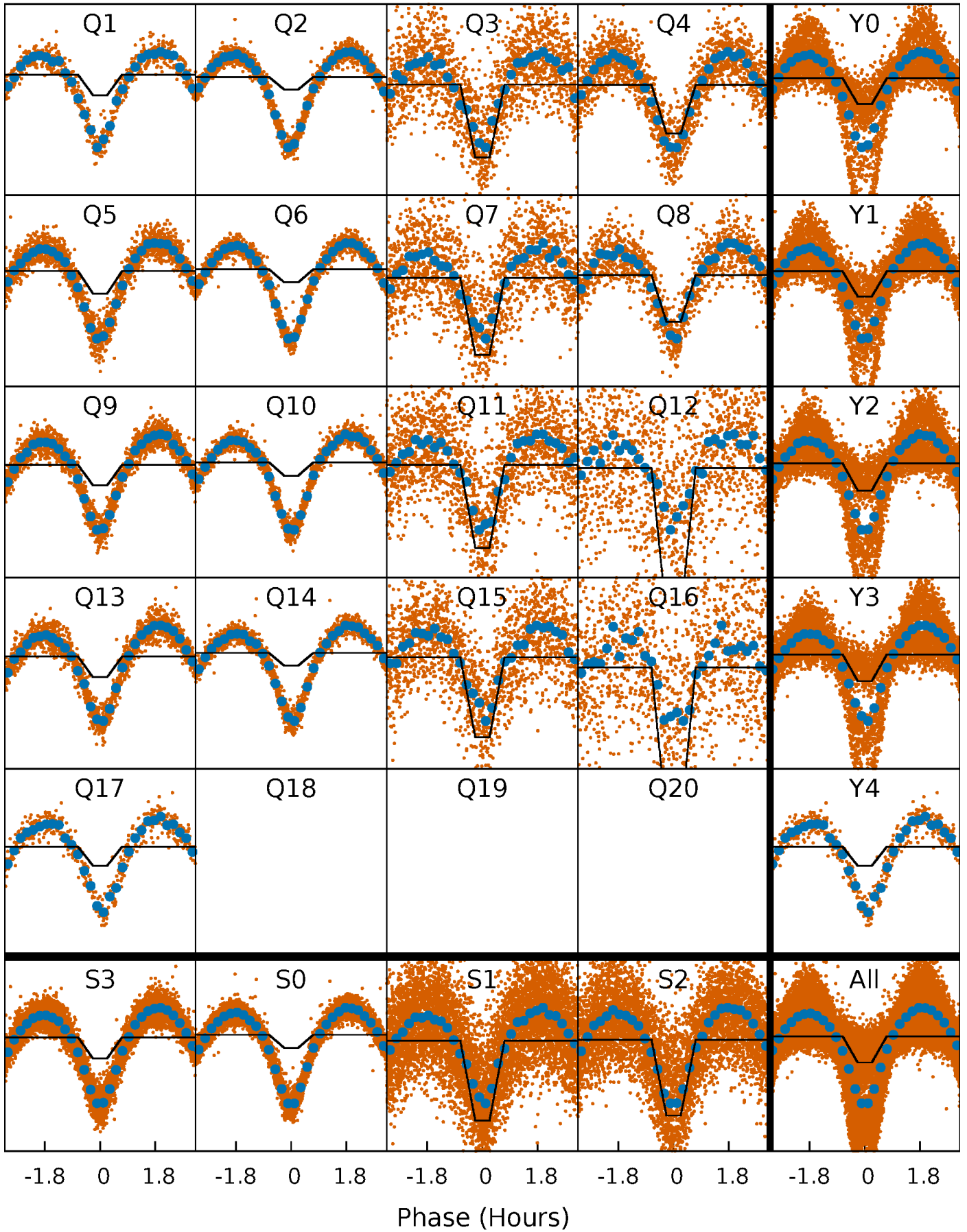
DV Quarter-Phased Transit Curves

TCE 007022707-01 P= 0.623526 Days $T_0=131.747725$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

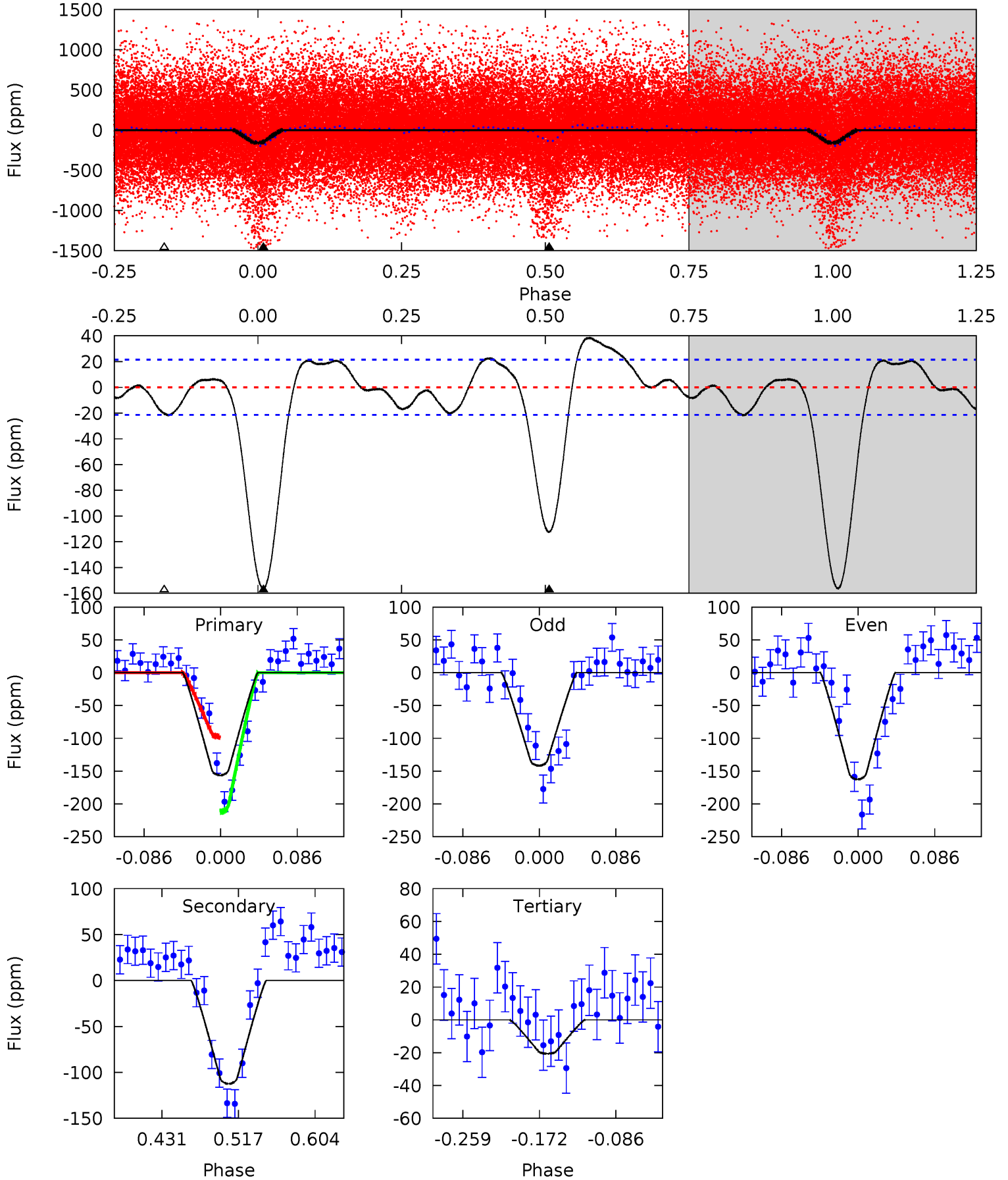
TCE 007022707-01 P= 0.623538 Days $T_0=131.741408$ (BKJD)



DV Model-Shift Uniqueness Test

007022707-01, P = 0.623526 Days, E = 131.124199 Days

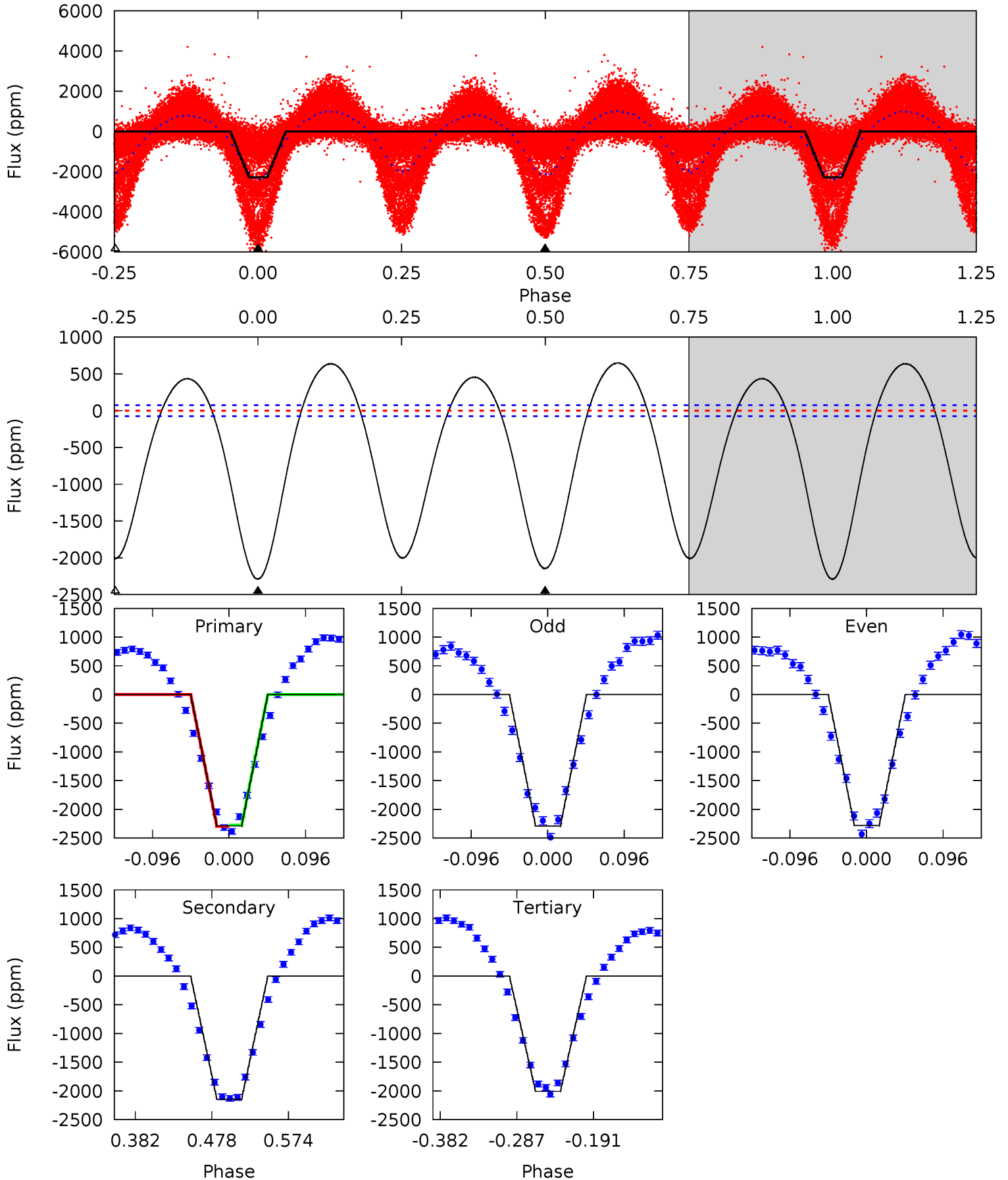
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
33.5	24.1	4.40	0	4.60	1.72	2.97	29.1	33.5	19.7	24.1	2.25	1.15	0.20	12.3



Alt Model-Shift Uniqueness Test

007022707-01, P = 0.623538 Days, E = 131.117870 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
140.3	131.5	123.1	0	4.57	1.67	55.4	17.2	140.3	8.32	131.5	0.36	1.03	0.22	0.75



Stellar Parameters For KIC 007022707

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	$M(M_{\odot})$	p_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	6115^{+171}_{-214}	$4.426^{+0.072}_{-0.217}$	$-0.020^{+0.250}_{-0.300}$	$1.054^{+0.358}_{-0.143}$	$1.077^{+0.151}_{-0.135}$	$1.296^{+0.402}_{-0.726}$
	+3%/-3%	+2%/-5%	+1250%/-1500%	+34%/-14%	+14%/-13%	+31%/-56%
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 007022707-01 / KOI

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	-112 ± 5	$1.55^{+0.57}_{-0.52}$	3263^{+251}_{-186}	5500^{+1177}_{-740}	$5.449^{+6.983}_{-2.564}$
Alt.	-2146 ± 16	$3.63^{+0.72}_{-0.65}$	3252^{+242}_{-184}	7669^{+799}_{-645}	19^{+8}_{-6}

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 $A_{obs} \gg 1.0$

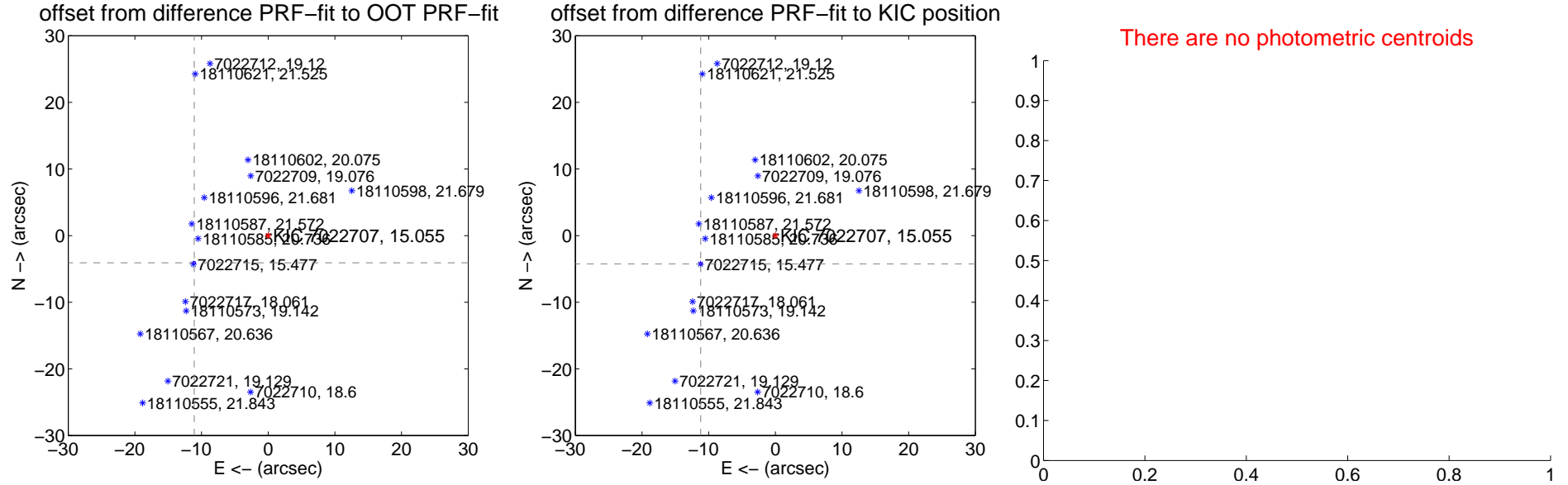
DV Centroid Data

Supplemental centroid analysis for 007022707-01. Kepler magnitude: 15.05. Transit SNR 18.38

There are 4 quarters with good PRF difference image offsets

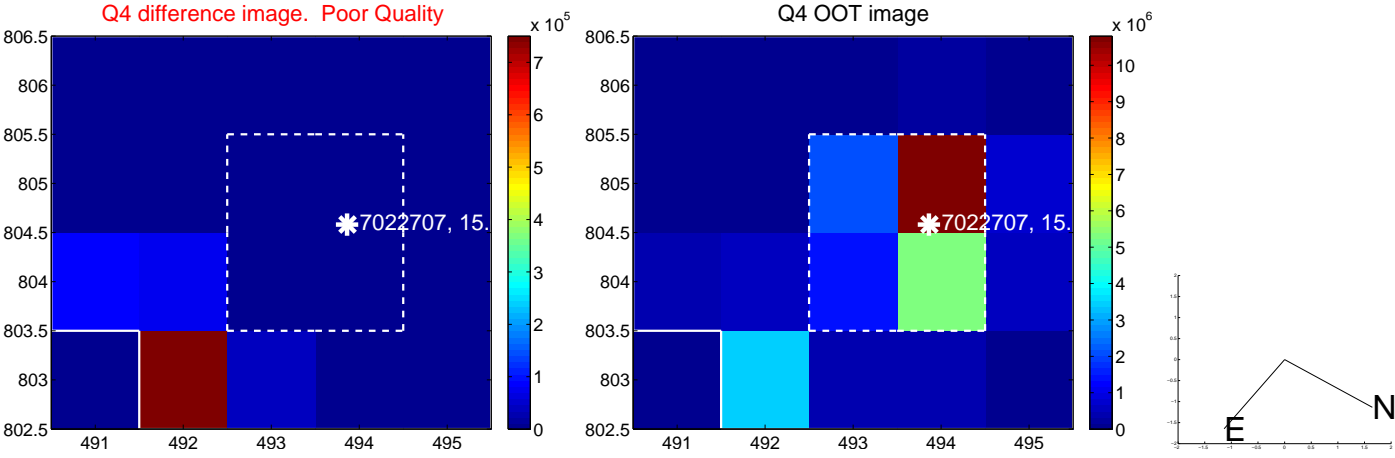
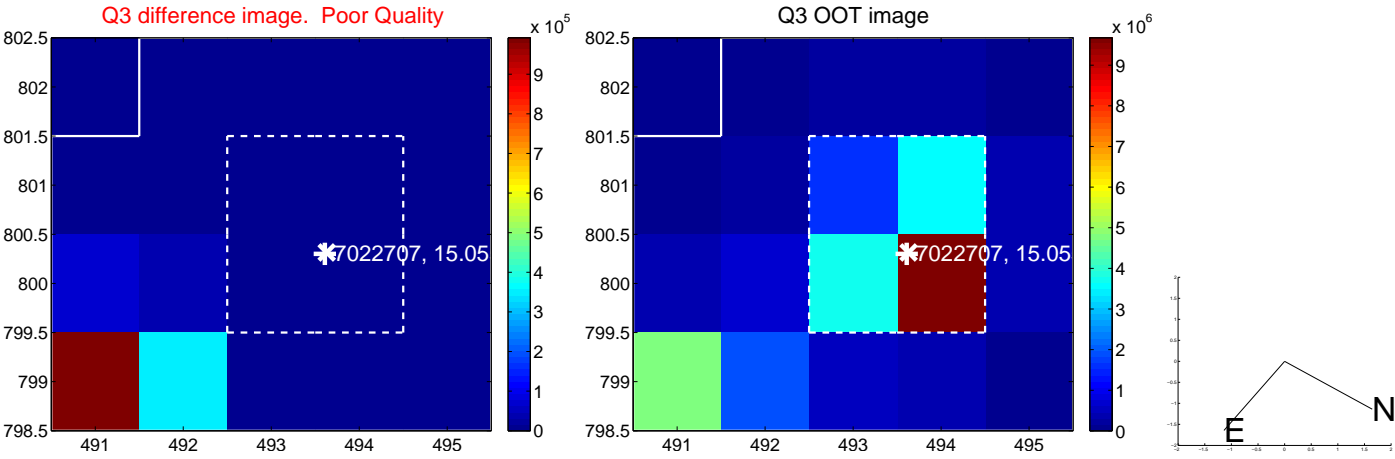
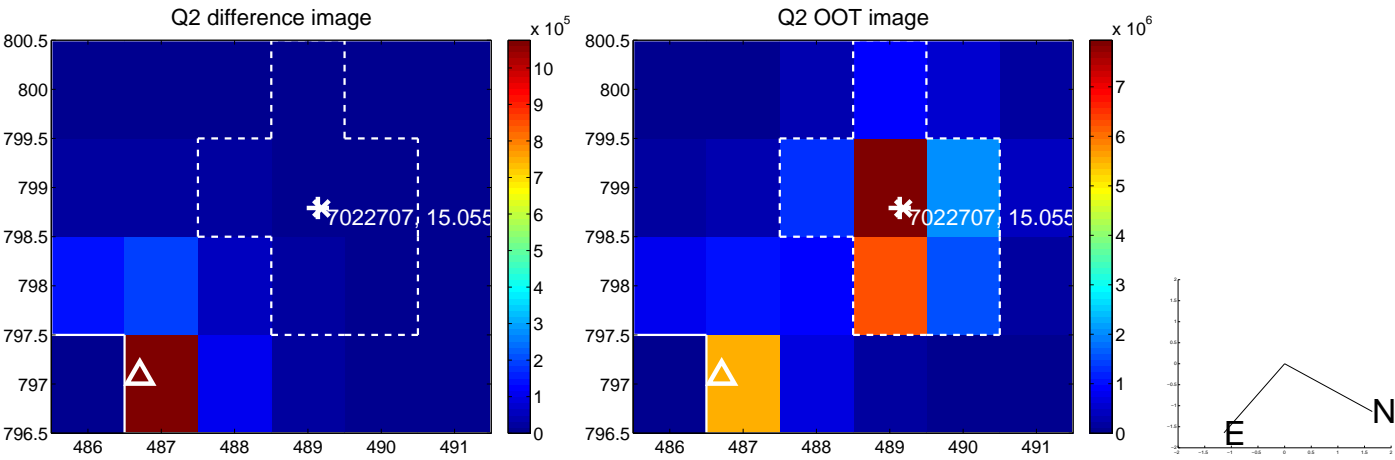
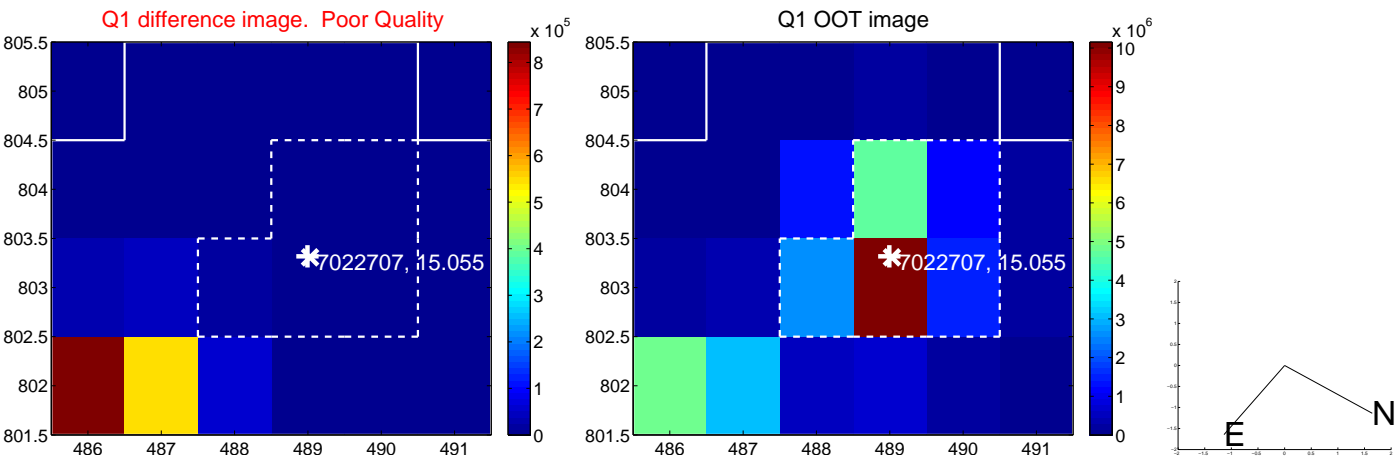
The direct PRF centroid is offset from the target star catalog position by about 0.21 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	11.829 \pm 0.067	176.31	11.102 \pm 0.067	-4.083 \pm 0.067
PRF-fit source offset from KIC position	11.973 \pm 0.068	176.06	11.196 \pm 0.068	-4.241 \pm 0.067
photometric centroid source offset	—	—	—	—

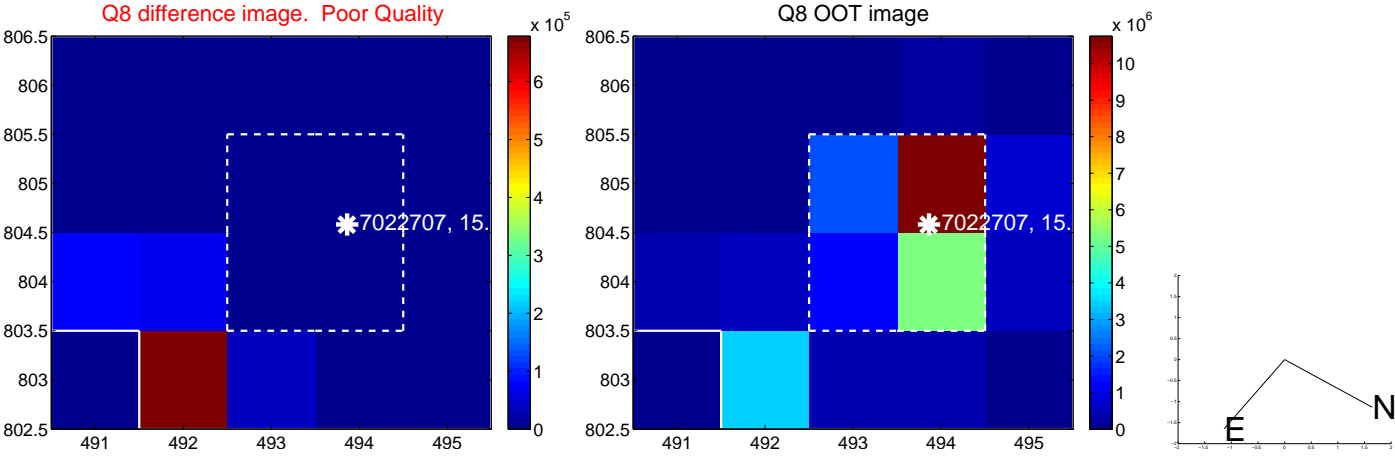
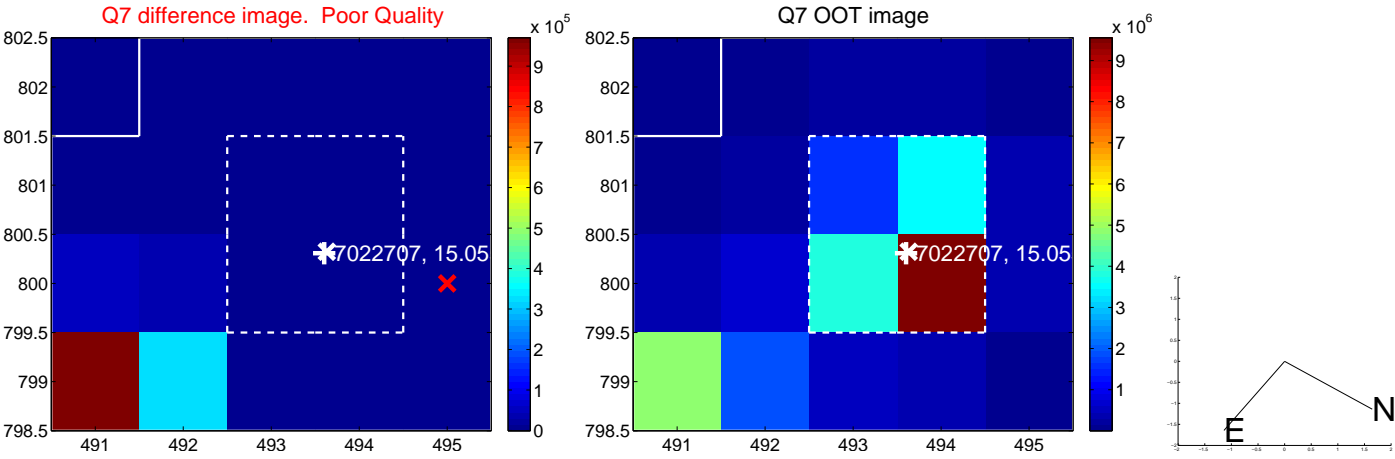
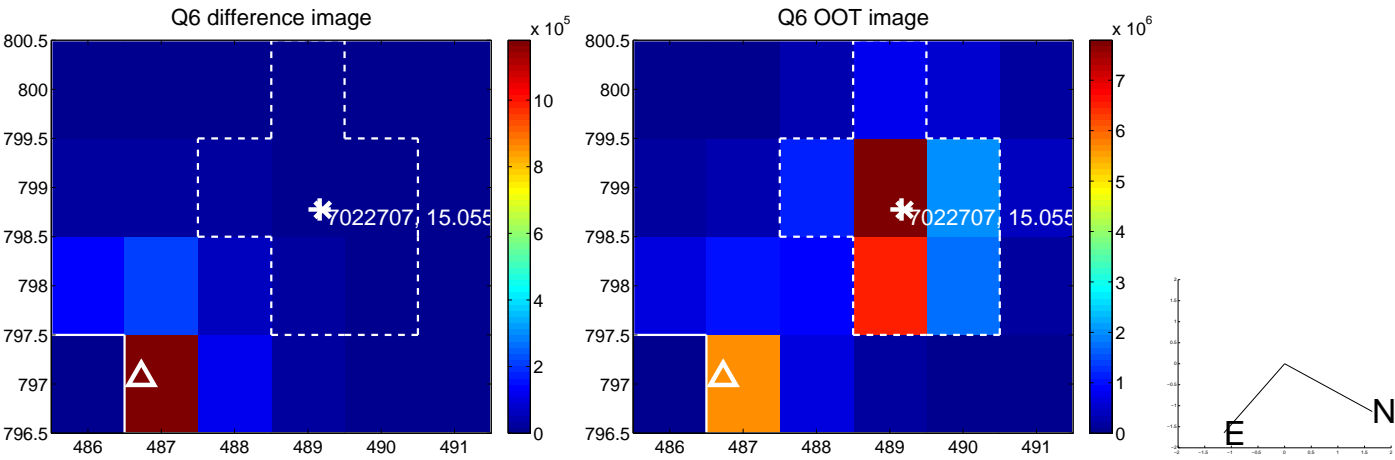
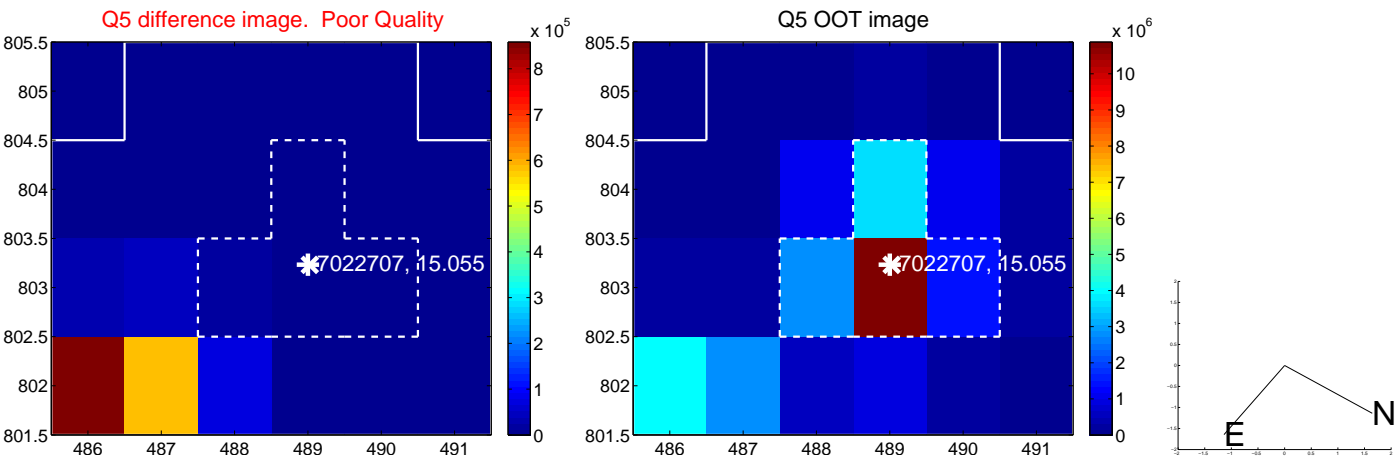


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets**; **Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

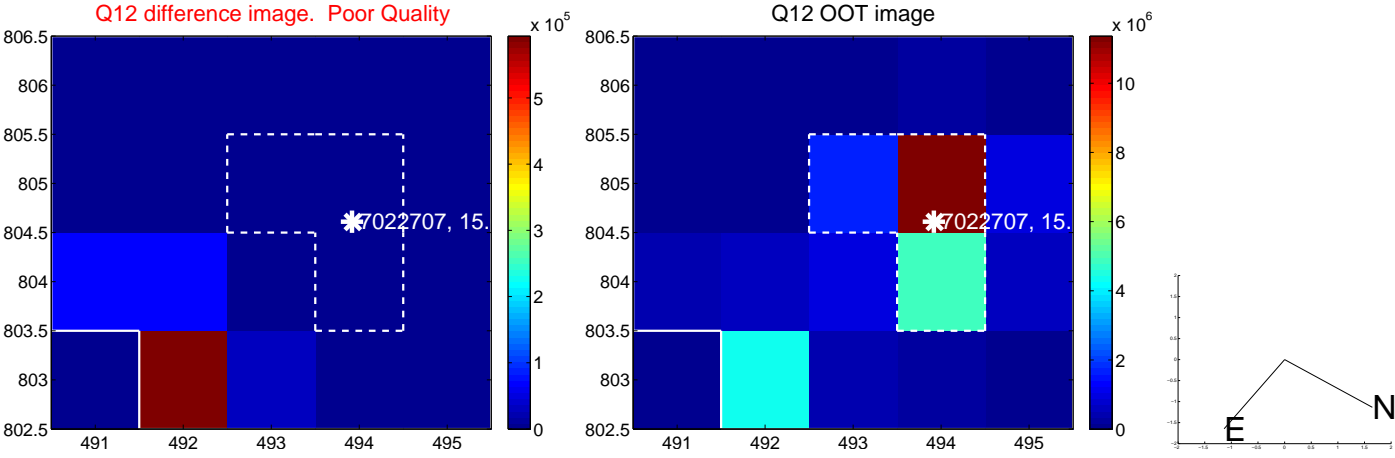
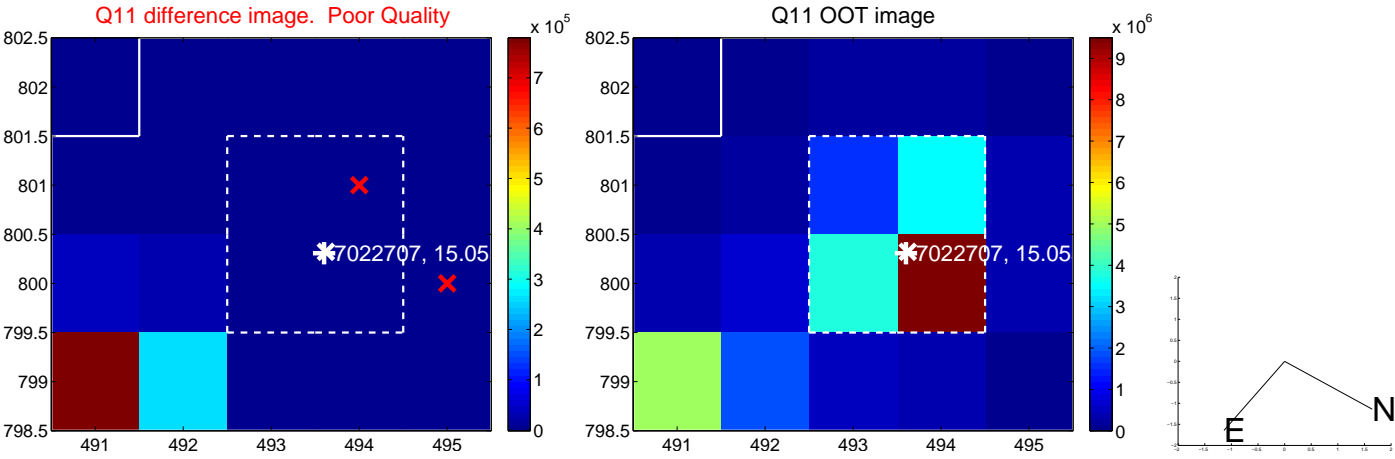
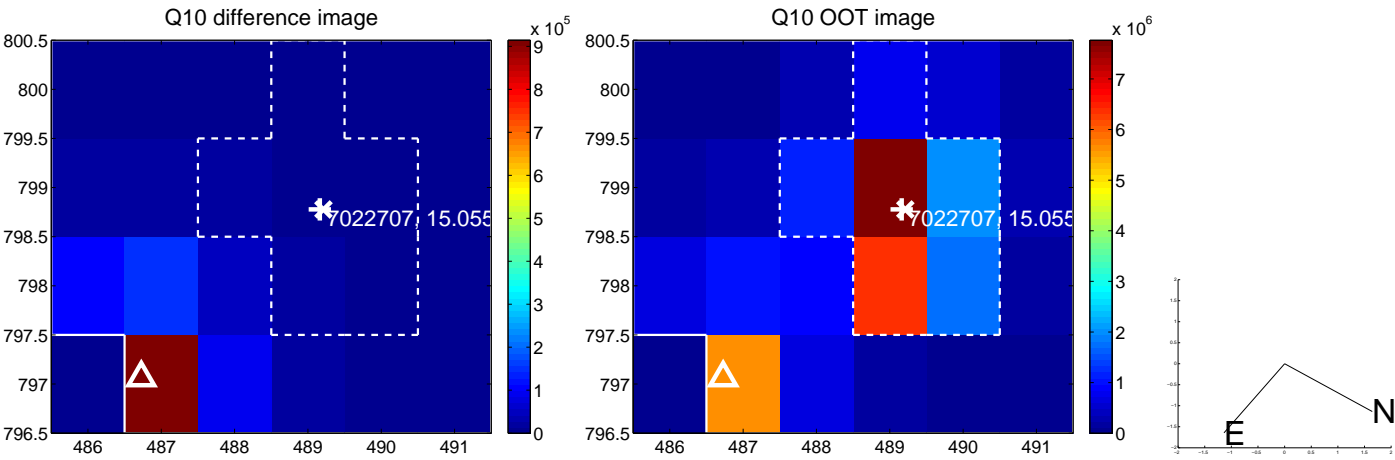
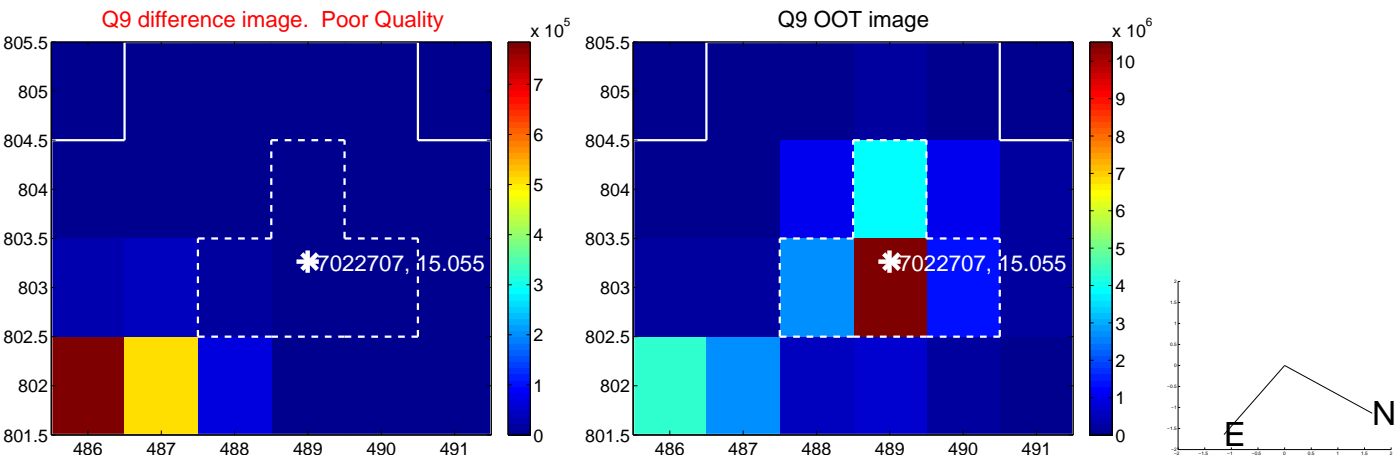
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



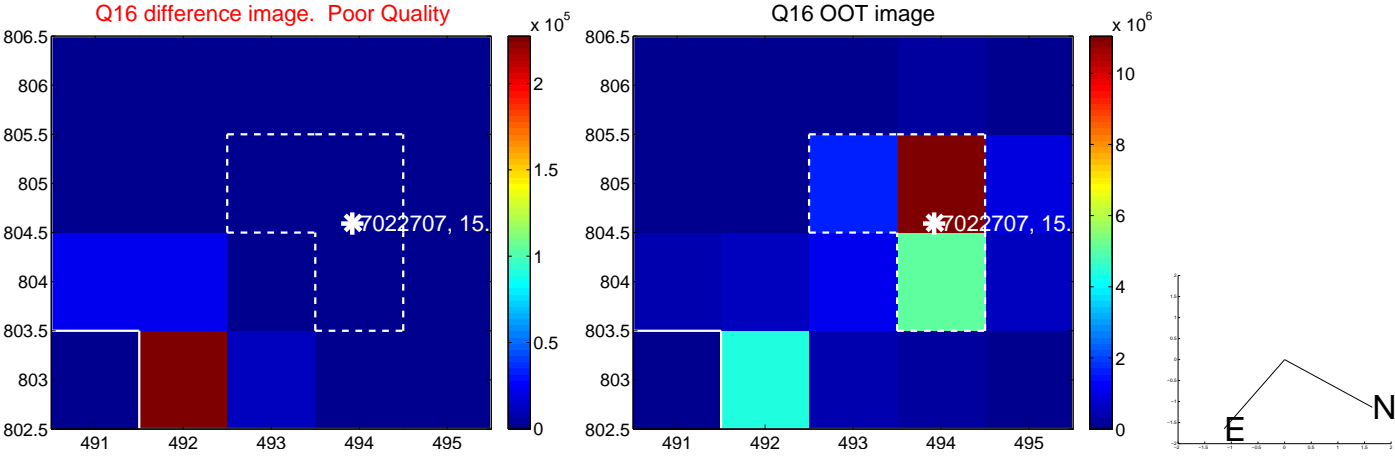
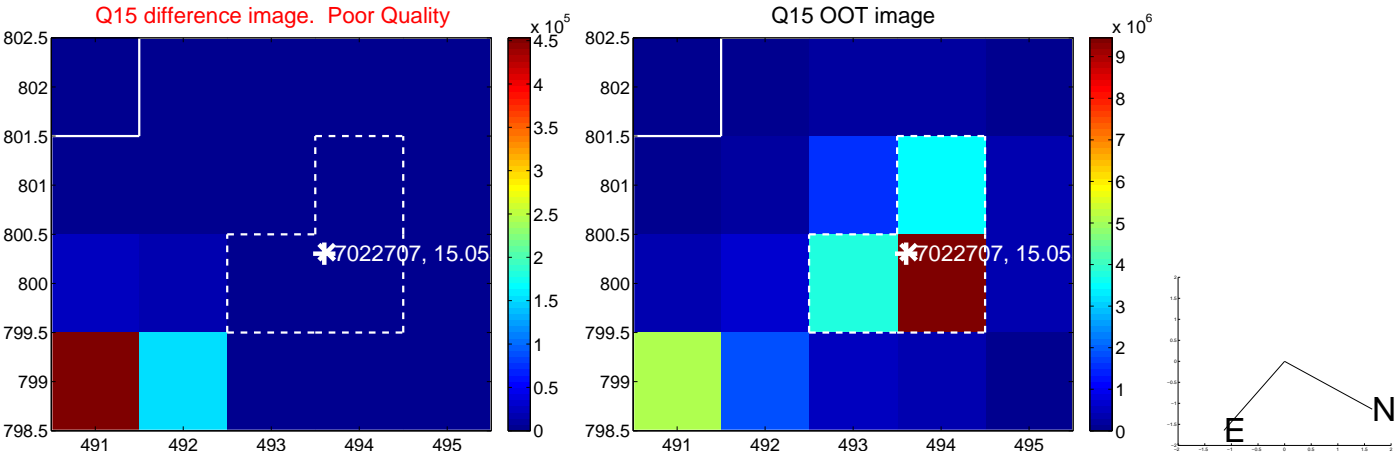
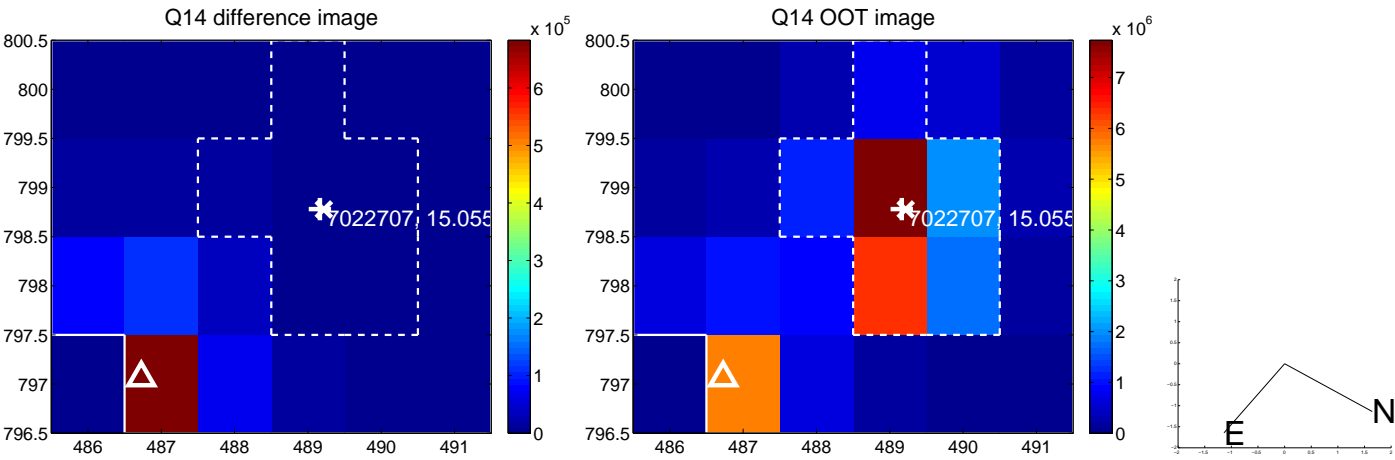
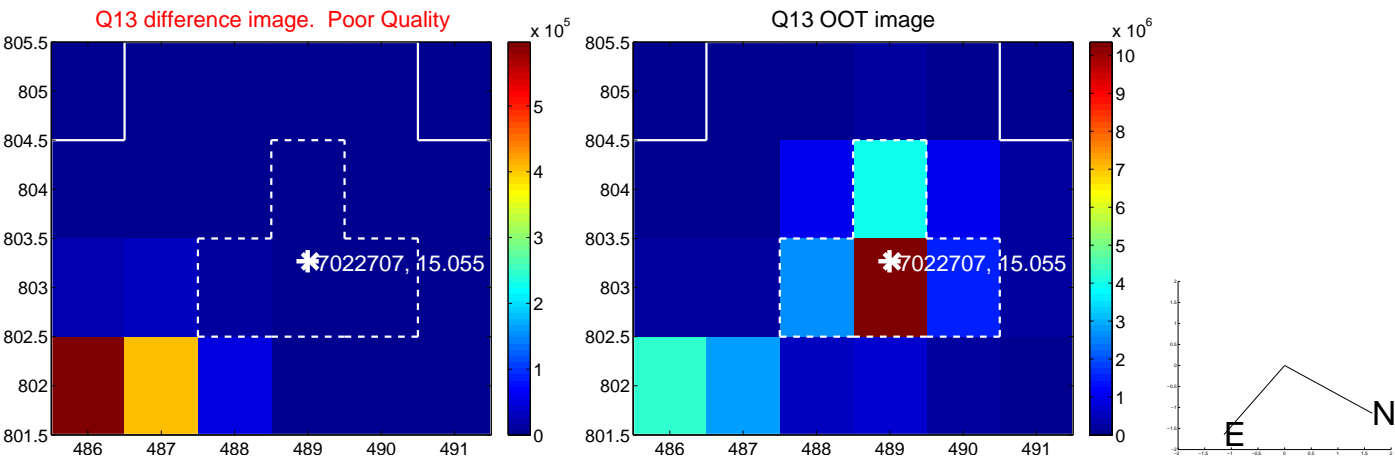
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



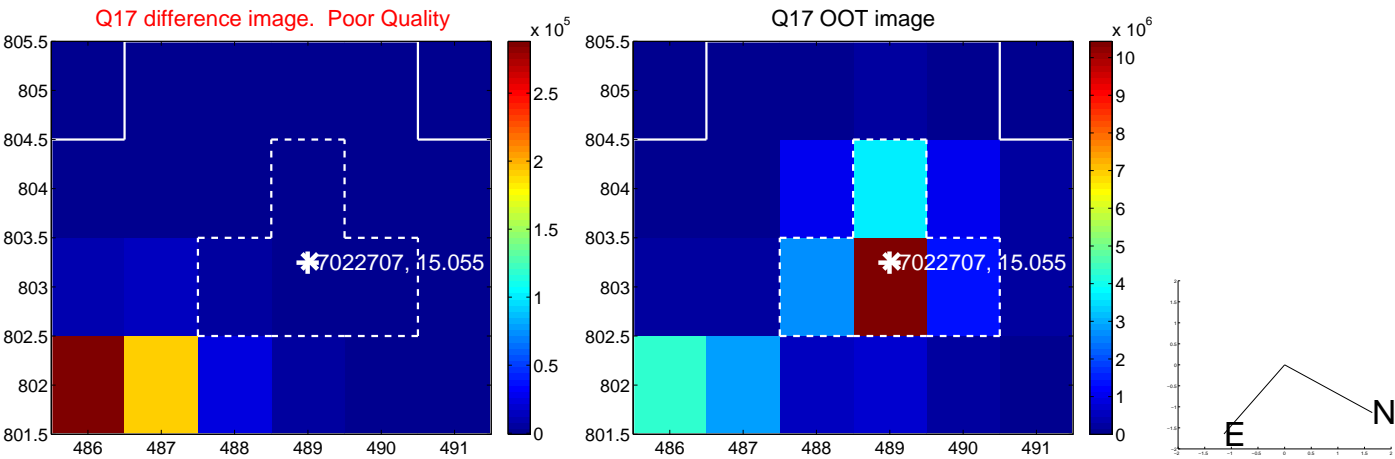
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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



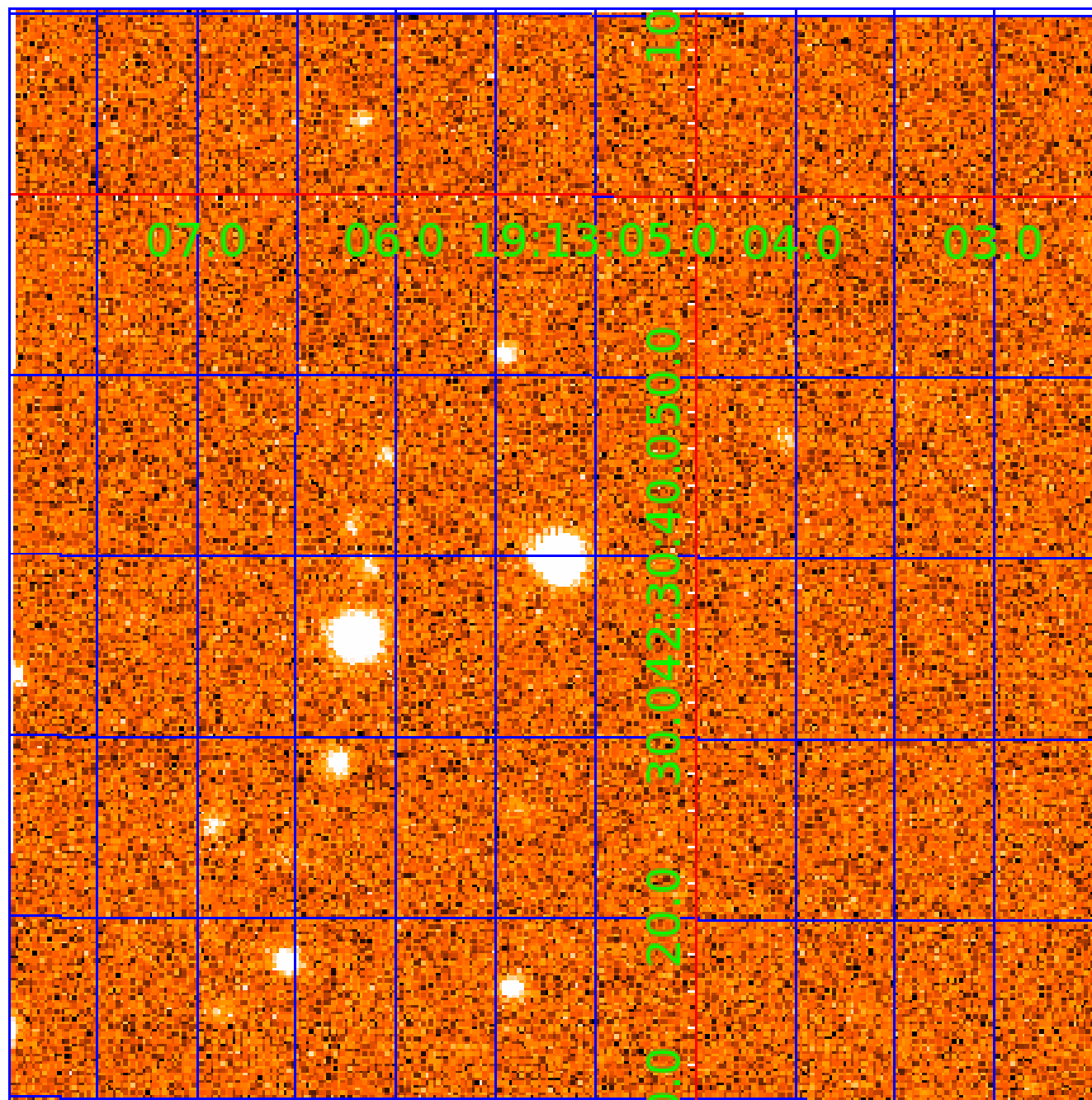
white ×: KIC target position; +: OOT centroid; △: difference centroid. red ✕: large negative pixel value.



folded centroid time series figure for this object.

UKIRT Image

Declination



KIC 007022707

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})
007022707-01	OBS	No	0.623526	131.747725	139.2	0.823	12.8	18.4	1.05	6115	1.50	6474.93
007022707-02	OBS	No	0.623535	132.053839	170.5	0.686	13.0	20.8	1.05	6115	1.67	6474.80

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
007022707-01	OBS	FP	0.00	1	0	1	0	LPP_ALT—MOD_NONUNIQ_ALT—CENT_RESOLVED_OFFSET
007022707-02	OBS	FP	0.00	1	0	1	0	LPP_ALT—MOD_NONUNIQ_ALT—SAME_NTL_PERIOD—CENT_RESOLVED_OFFSET

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

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

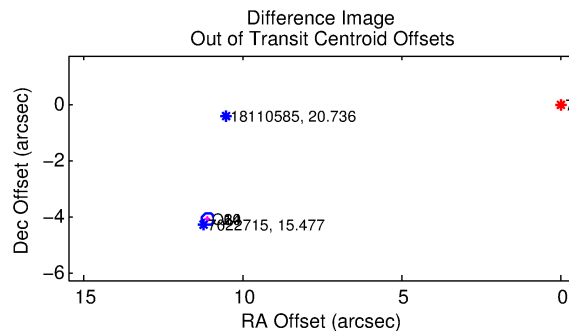
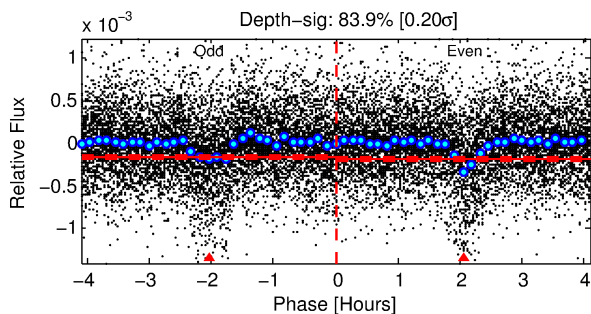
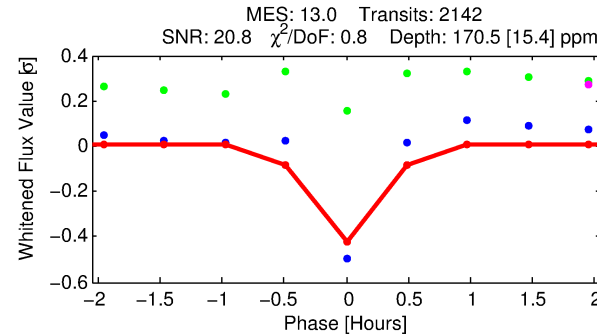
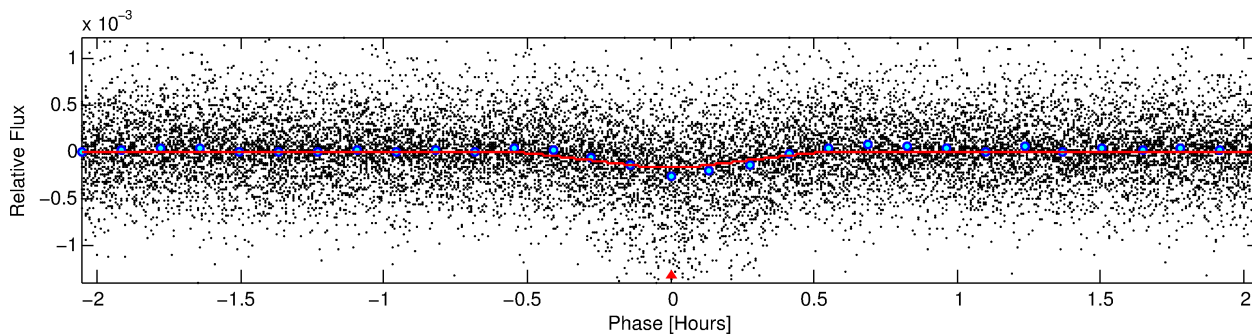
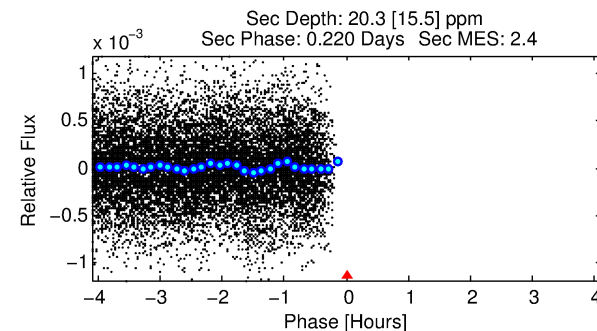
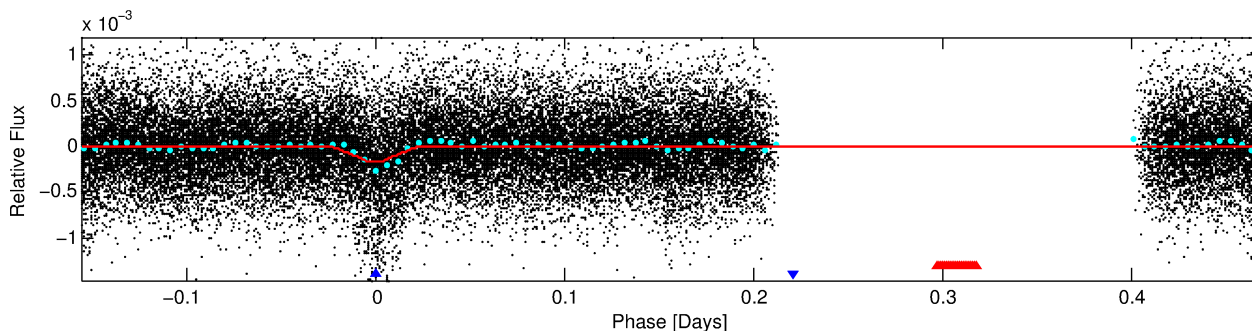
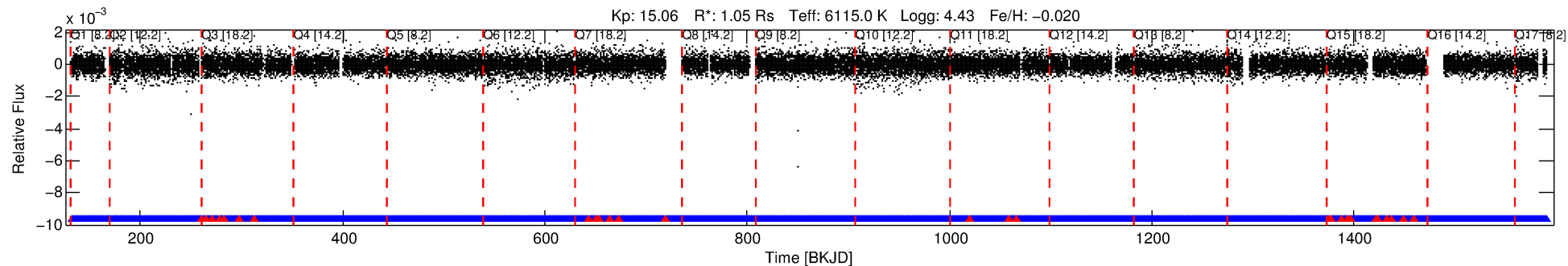
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 007022707-02

No Significant Match Found

DV One-Page Summary

KIC: 7022707 Candidate: 2 of 2 Period: 0.624 d



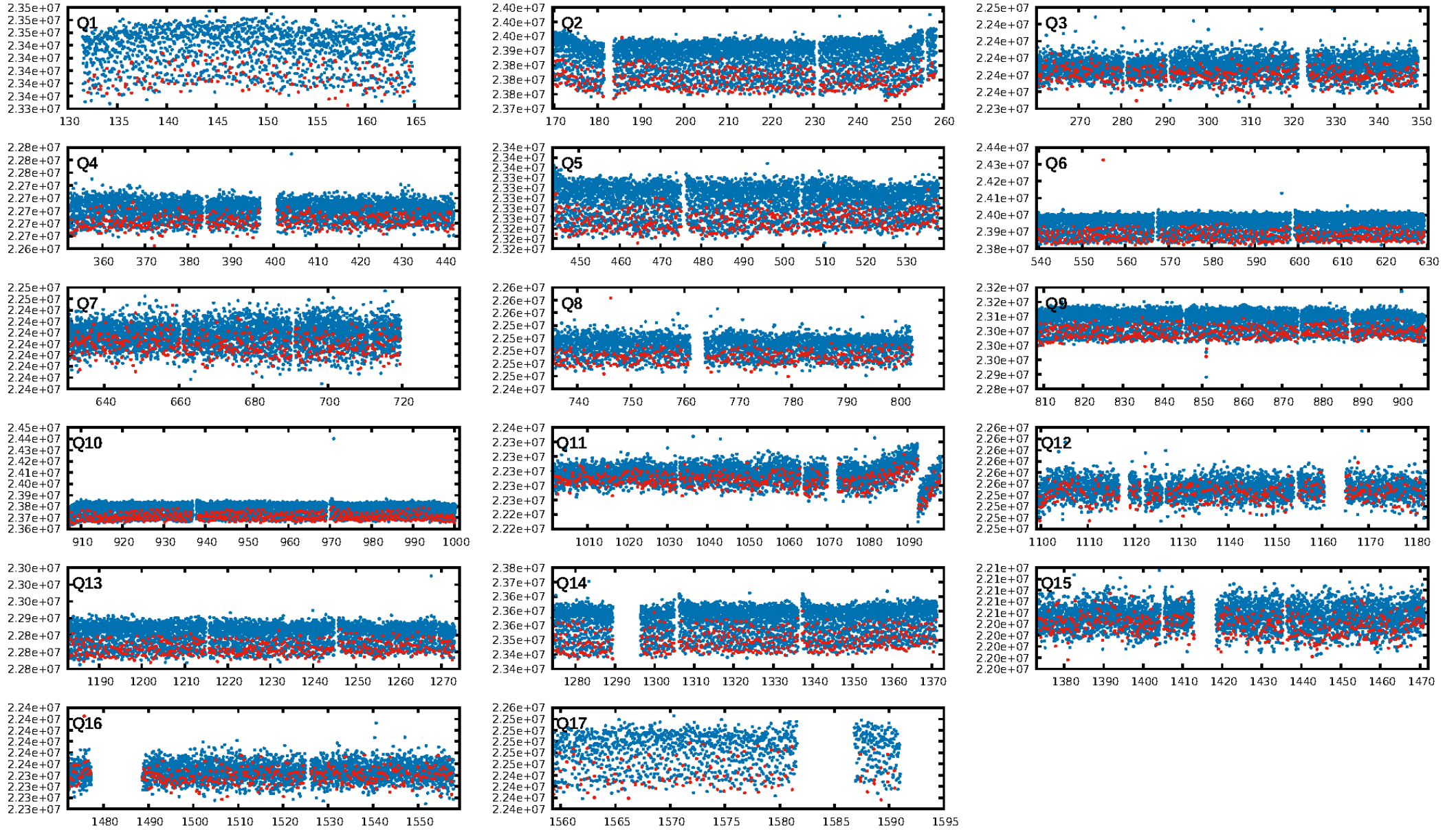
DV Fit Results:

Period = 0.62353 [0.00001] d
Epoch = 132.0538 [0.0007] BKJD
Rp/R* = 0.0145 [0.0032]
a/R* = 3.31 [3.32]
b = 0.91 [0.22]
Seff = 6474.80 [2760.96]
Teq = 2287 [244] K
Rp = 1.67 [0.67] Re
a = 0.0147 [0.0041] AU
Ag = 0.86 [0.84] [-0.16σ]
Teff = 3408 [761] K [1.40σ]

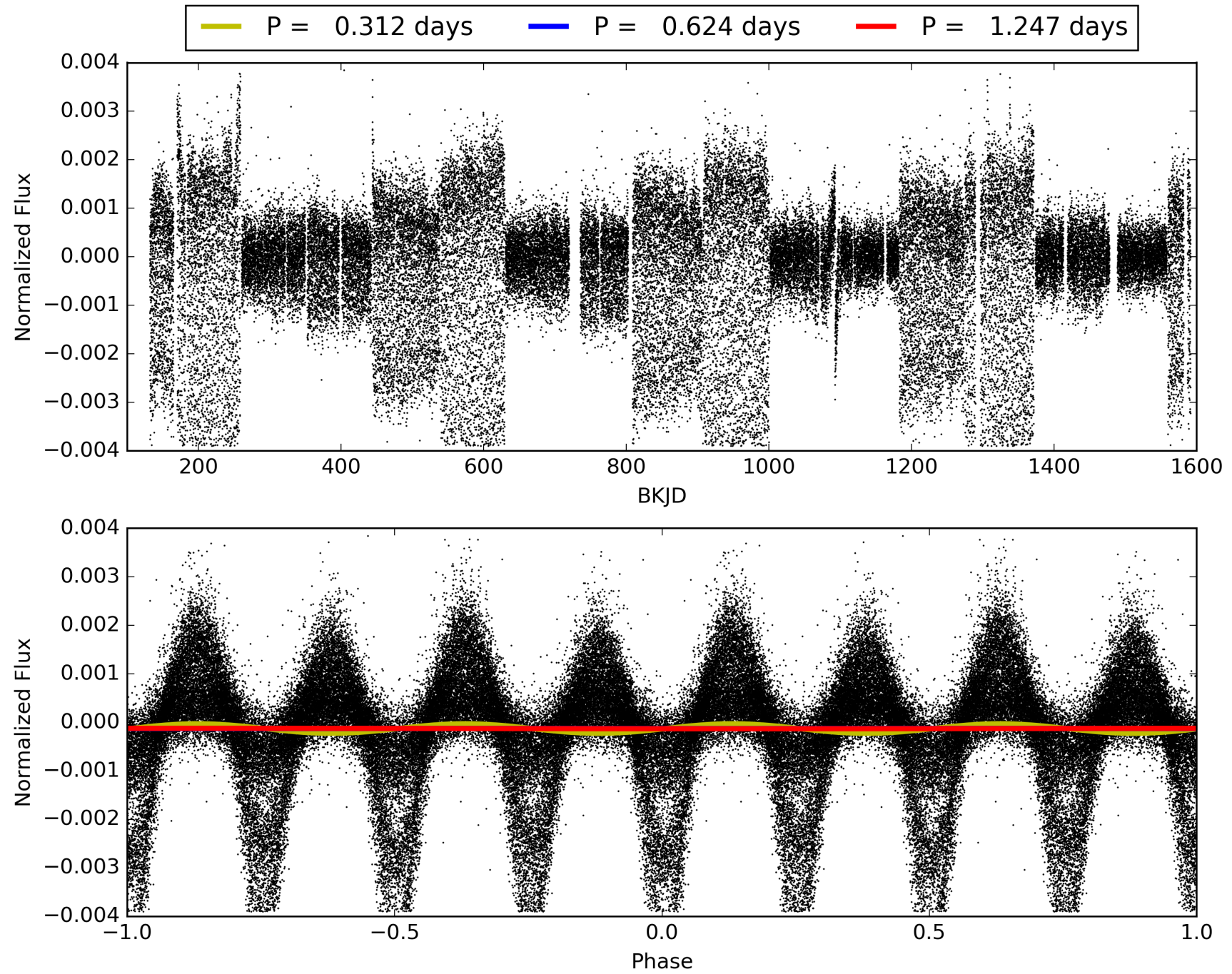
DV Diagnostic Results:

ShortPeriod-sig: 0.0% [0.00σ]
LongPeriod-sig: N/A
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: 1.73e-41
RollingBand-fgt: 0.98 [2016/2047]
GhostDiagnostic-chr: N/A
Centroid-sig: N/A
Centroid-so: N/A
OotOffset-rm: 11.831 arcsec [176.70σ]
KicOffset-rm: 11.978 arcsec [176.83σ]
OotOffset-st: 4/0/0/0 [4]
KicOffset-st: 4/0/0/0 [4]
DiffImageQuality-fgm: 1.00 [4/4]
DiffImageOverlap-fno: 1.00 [17/17]

TCE 007022707-02, PDC Light Curves

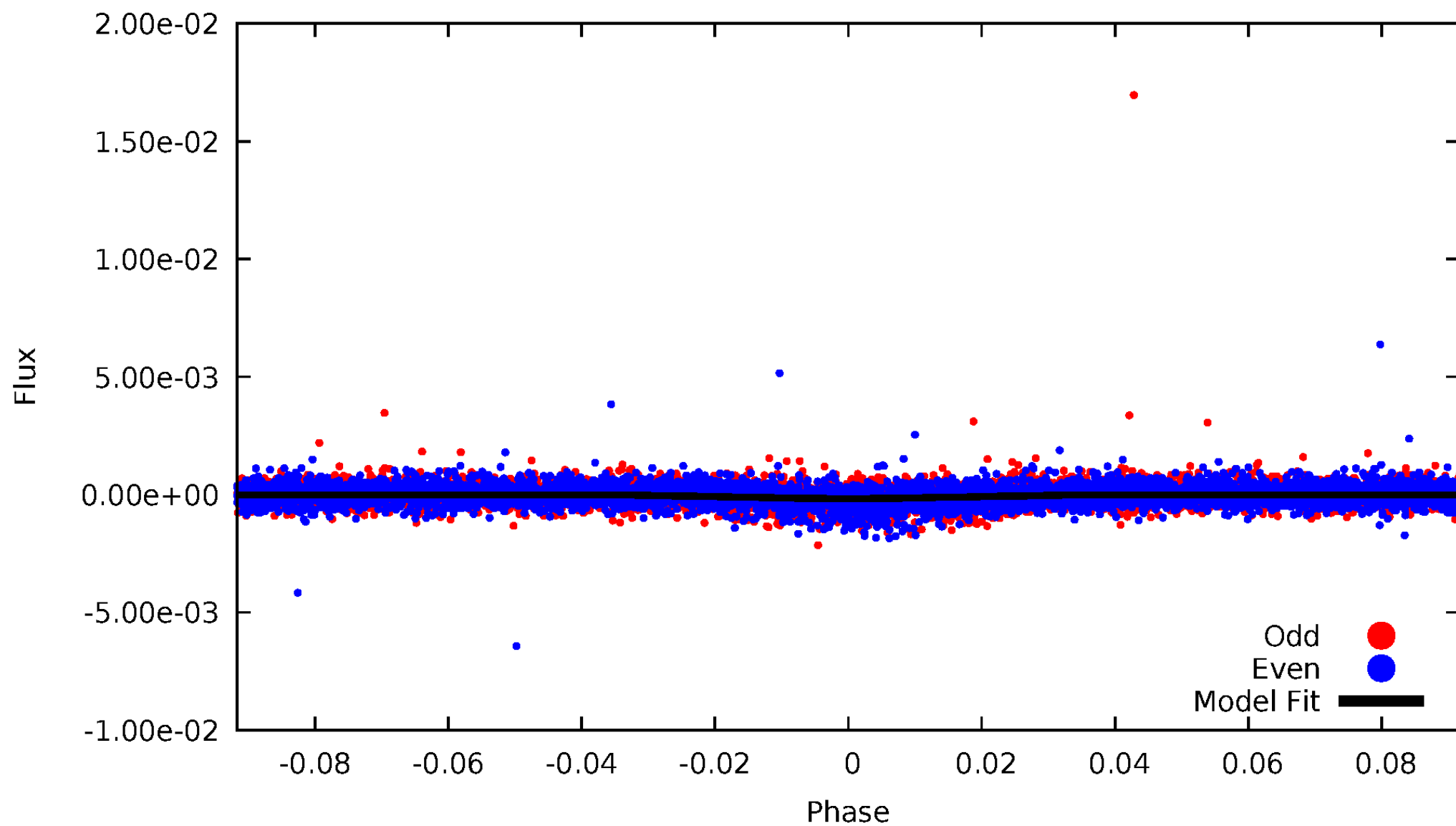


TCE 007022707-02



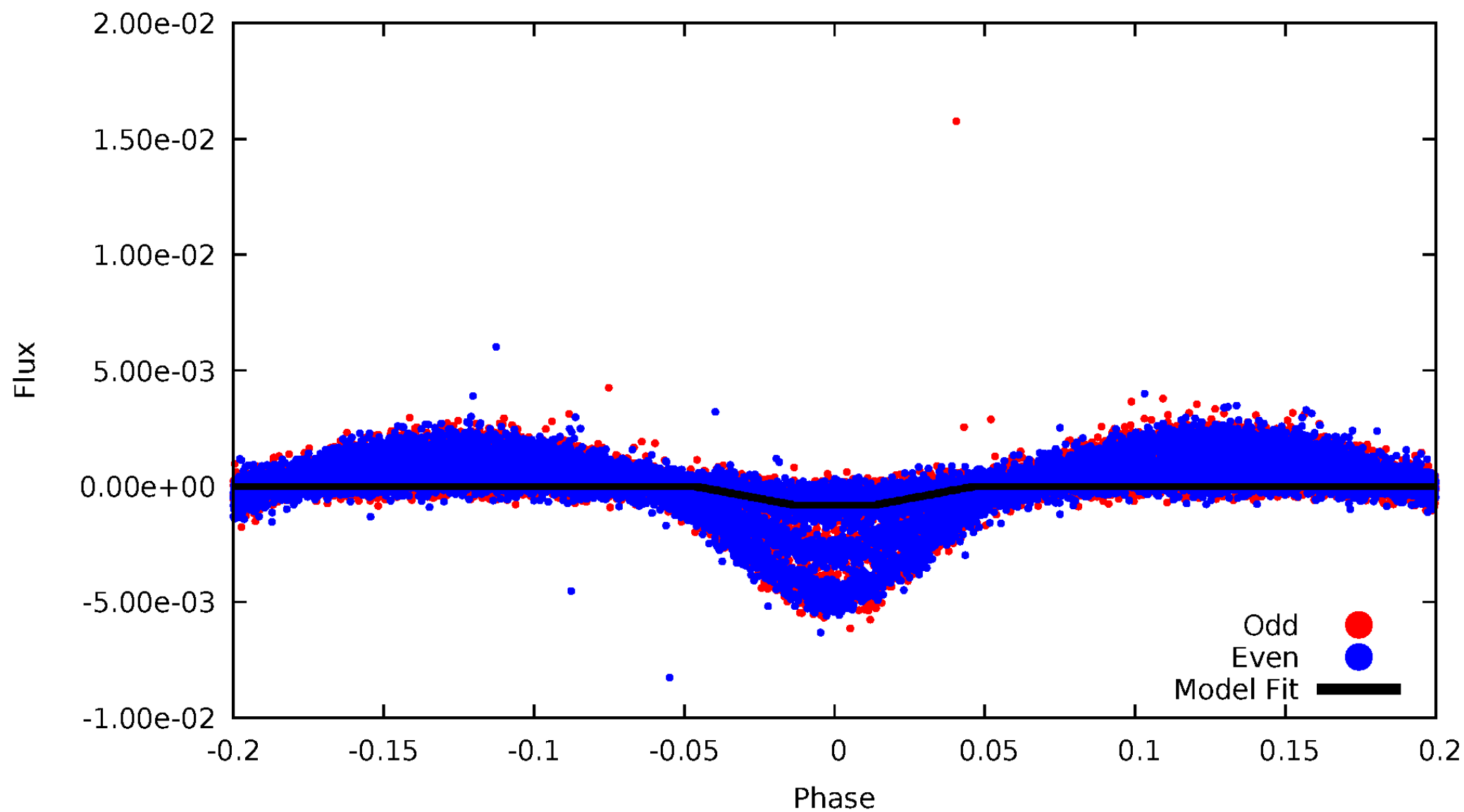
DV Odd/Even

TCE 007022707-02



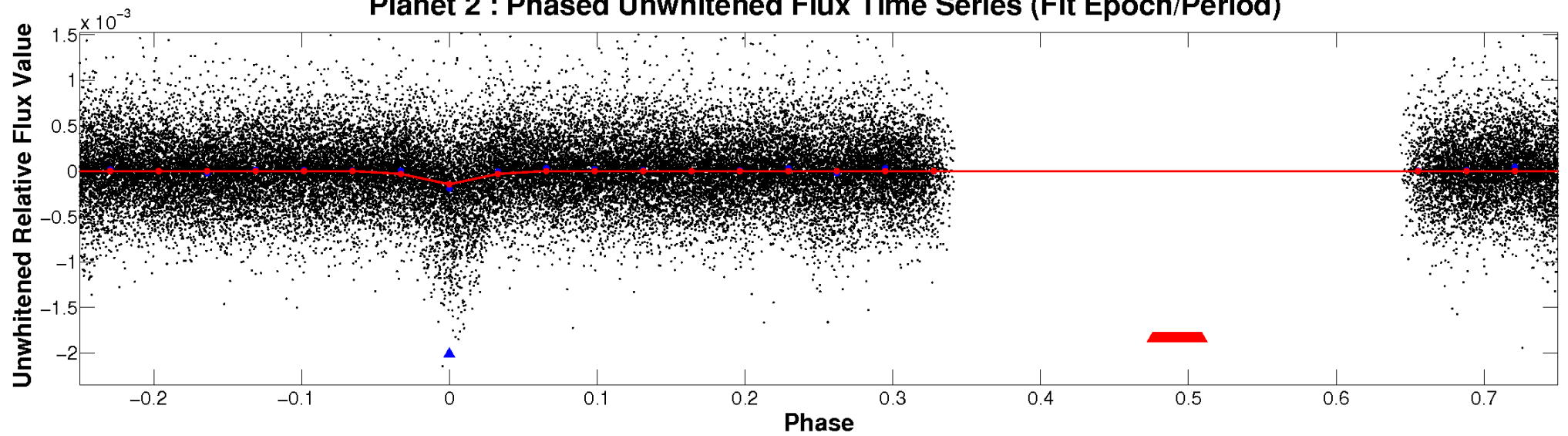
ALT Odd/Even

TCE 007022707-02

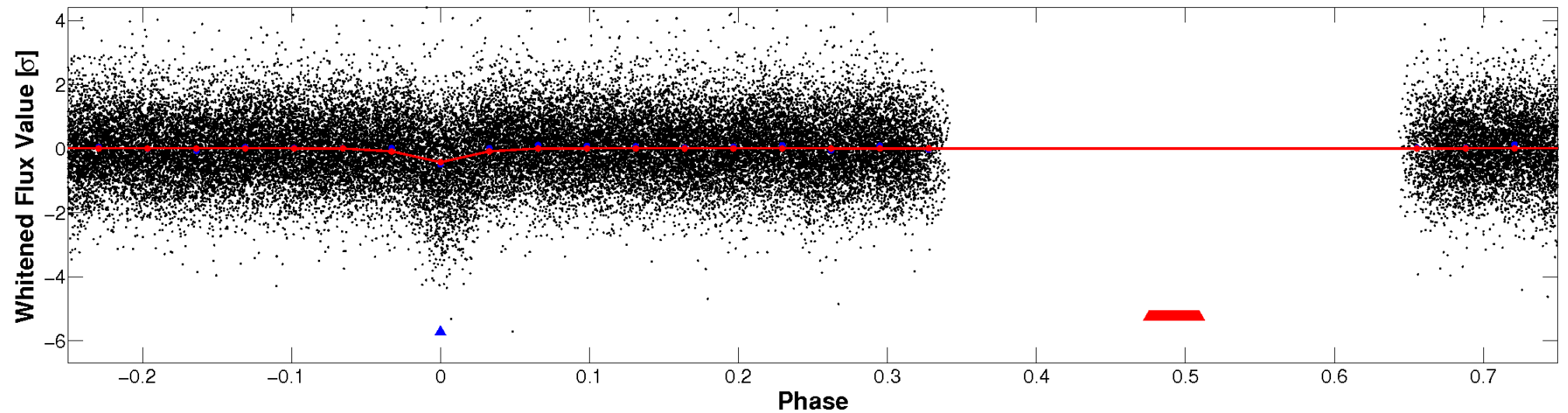


Non-Whitened Vs. Whitened Light Curve

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

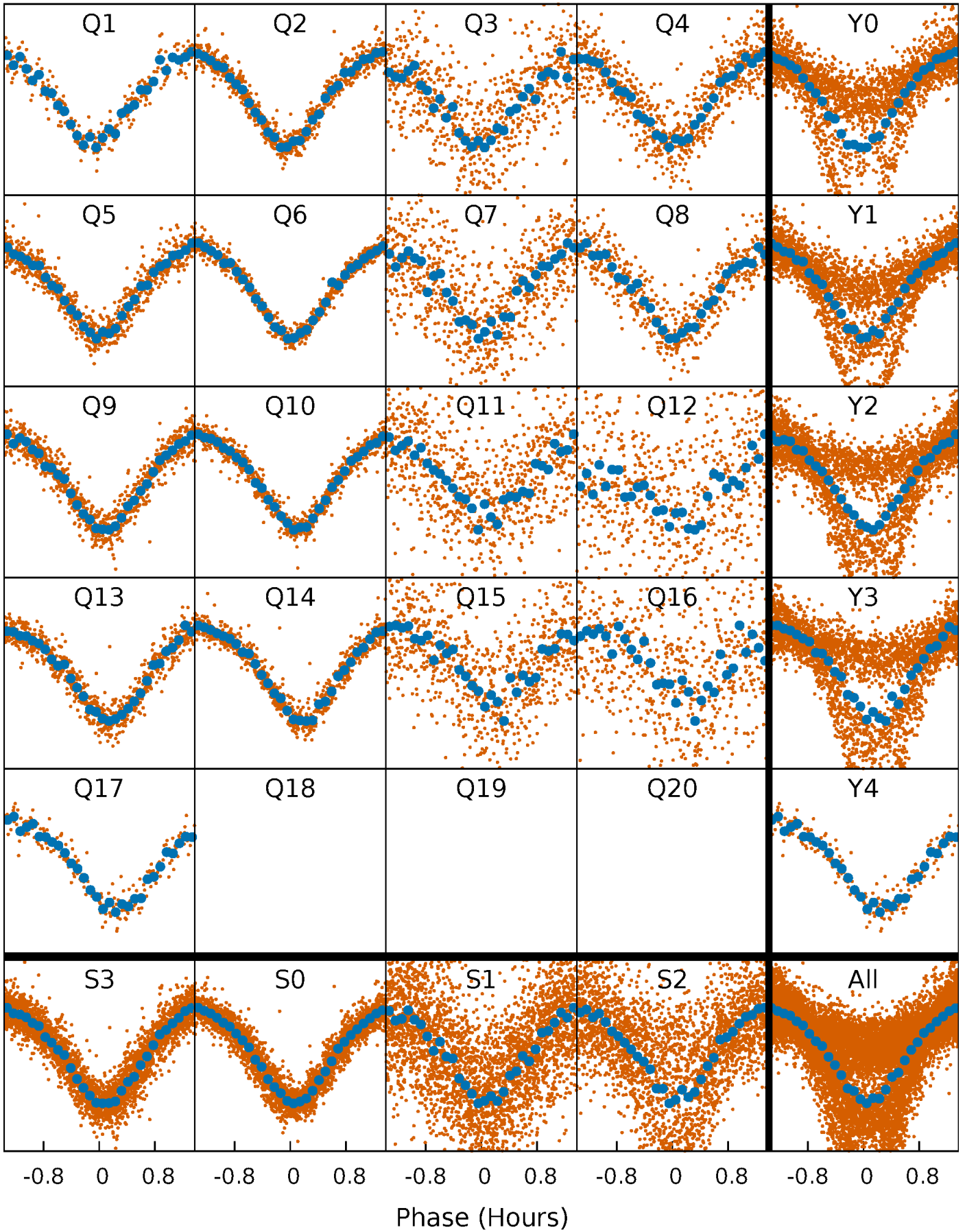


Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



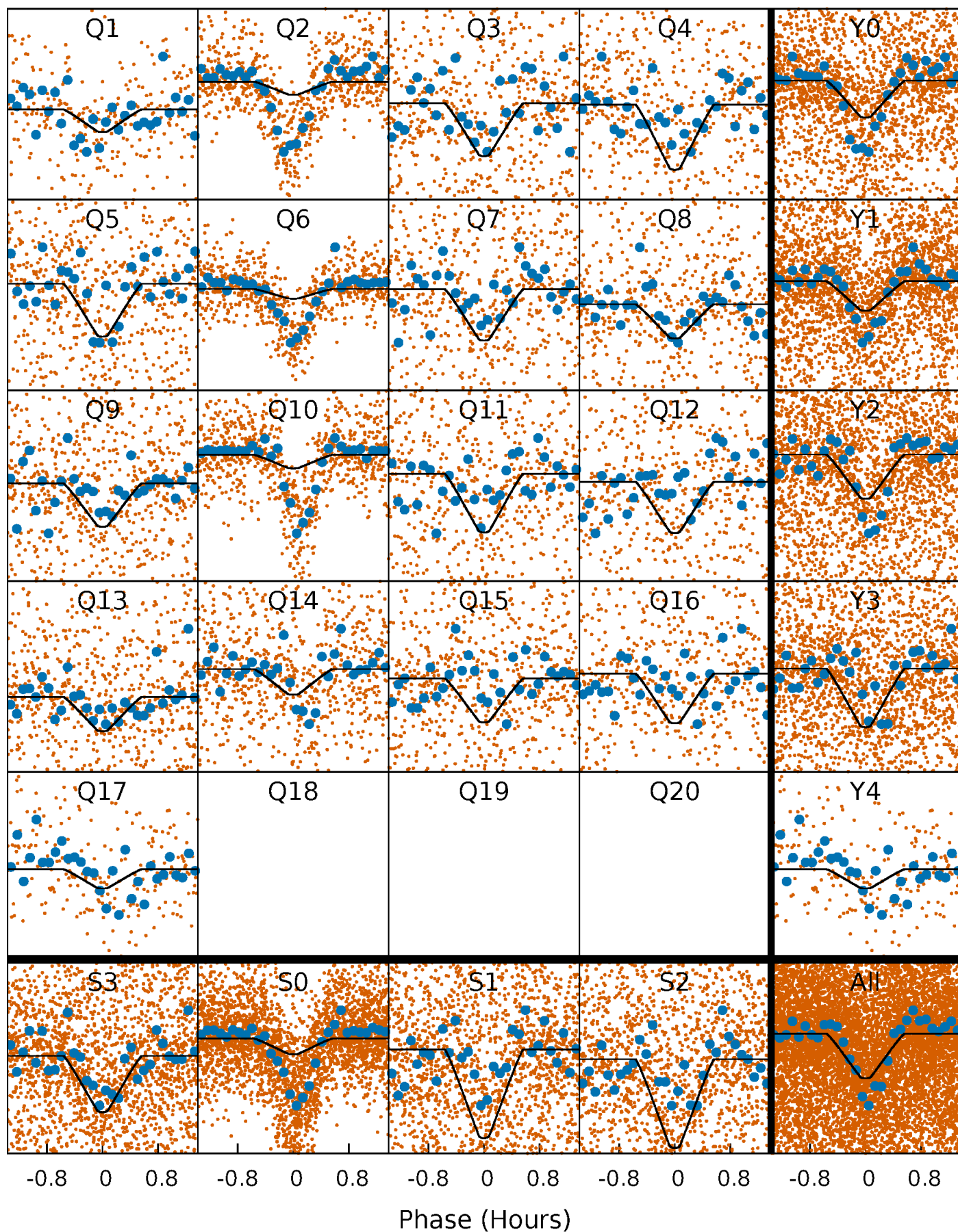
PDC Quarter-Phased Transit Curves

TCE 007022707-02 P= 0.623535 Days $T_0=132.053839$ (BKJD)



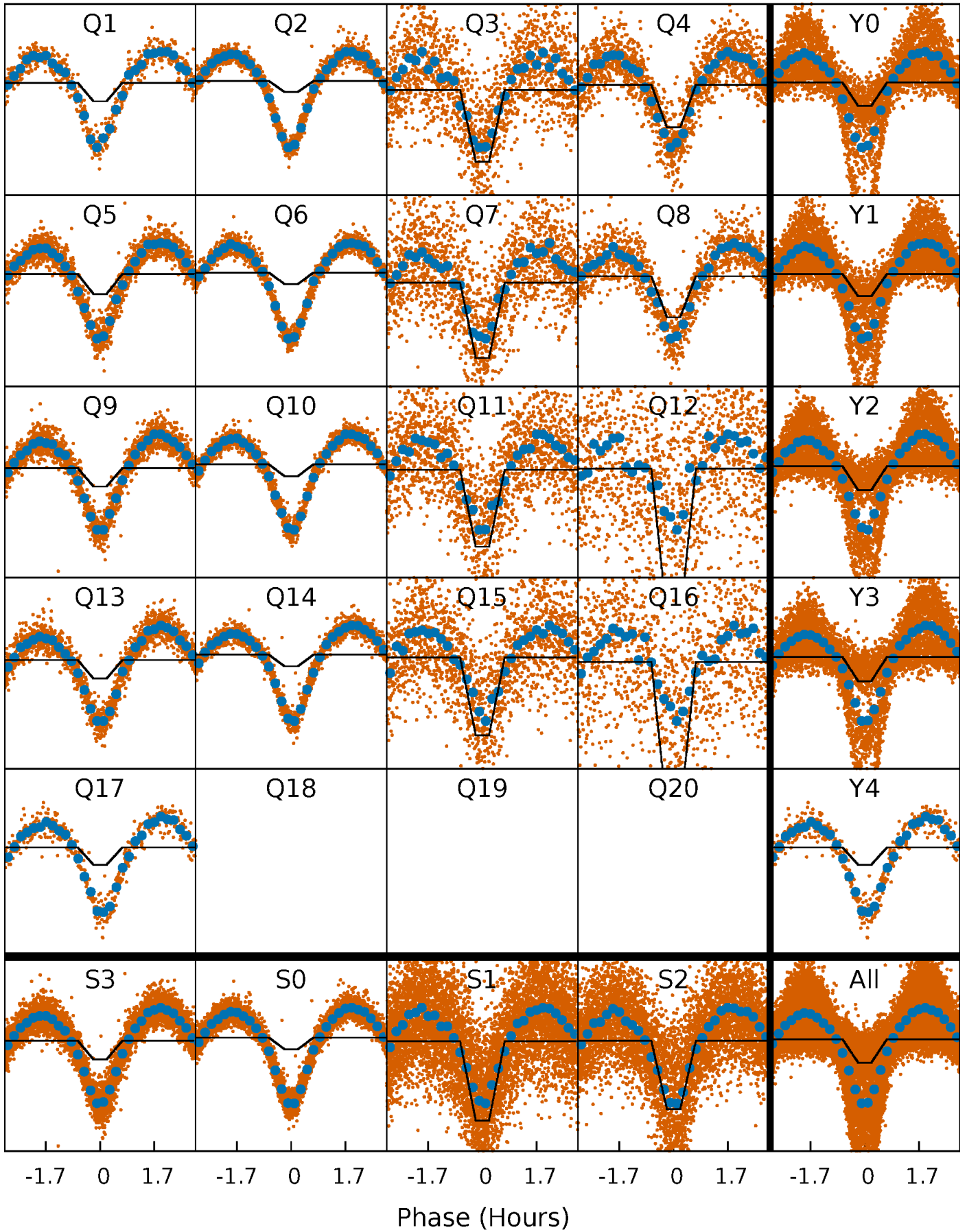
DV Quarter-Phased Transit Curves

TCE 007022707-02 P= 0.623535 Days $T_0=132.053839$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

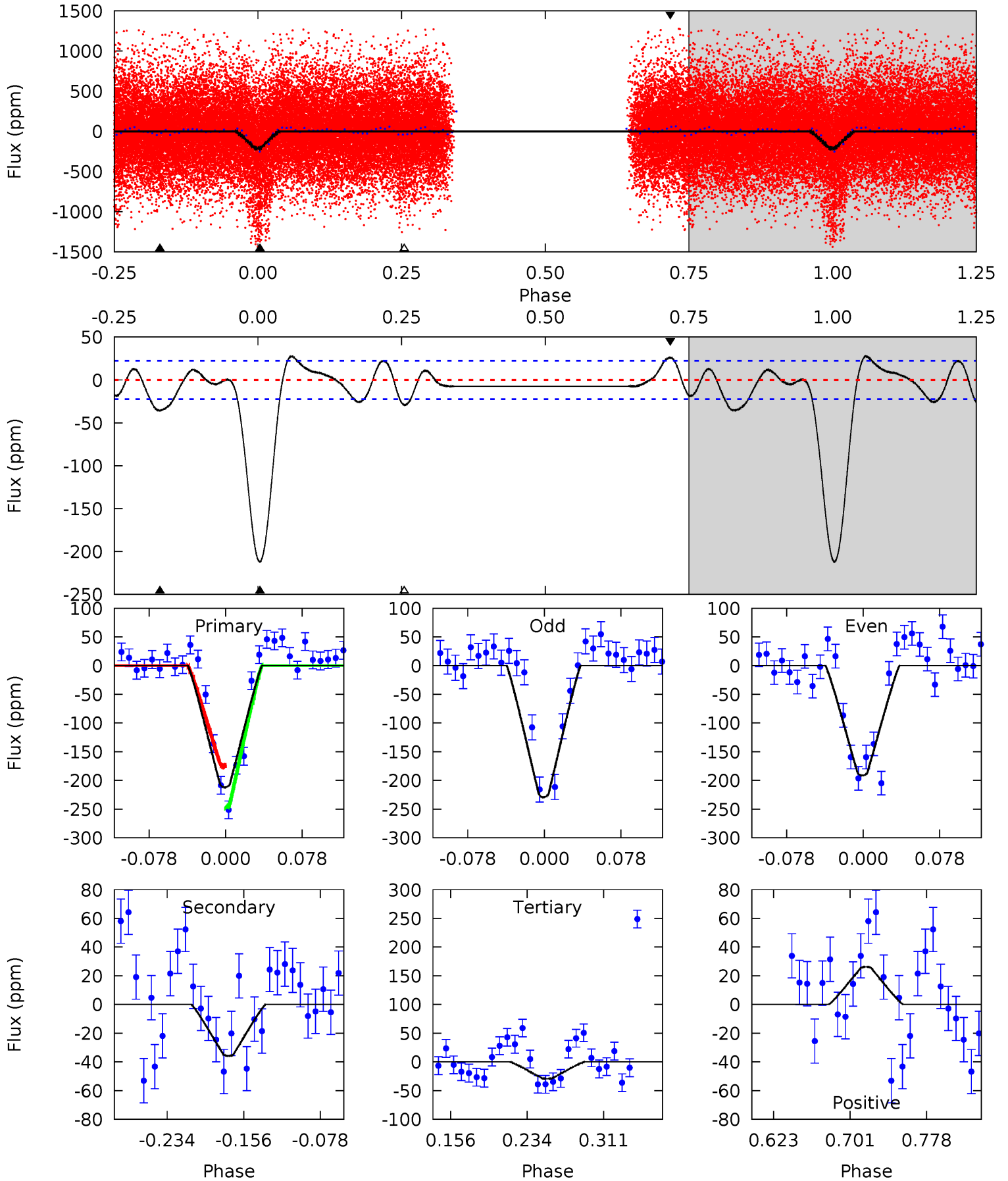
TCE 007022707-02 P= 0.623538 Days $T_0=132.052954$ (BKJD)



DV Model-Shift Uniqueness Test

007022707-02, P = 0.623535 Days, E = 131.430304 Days

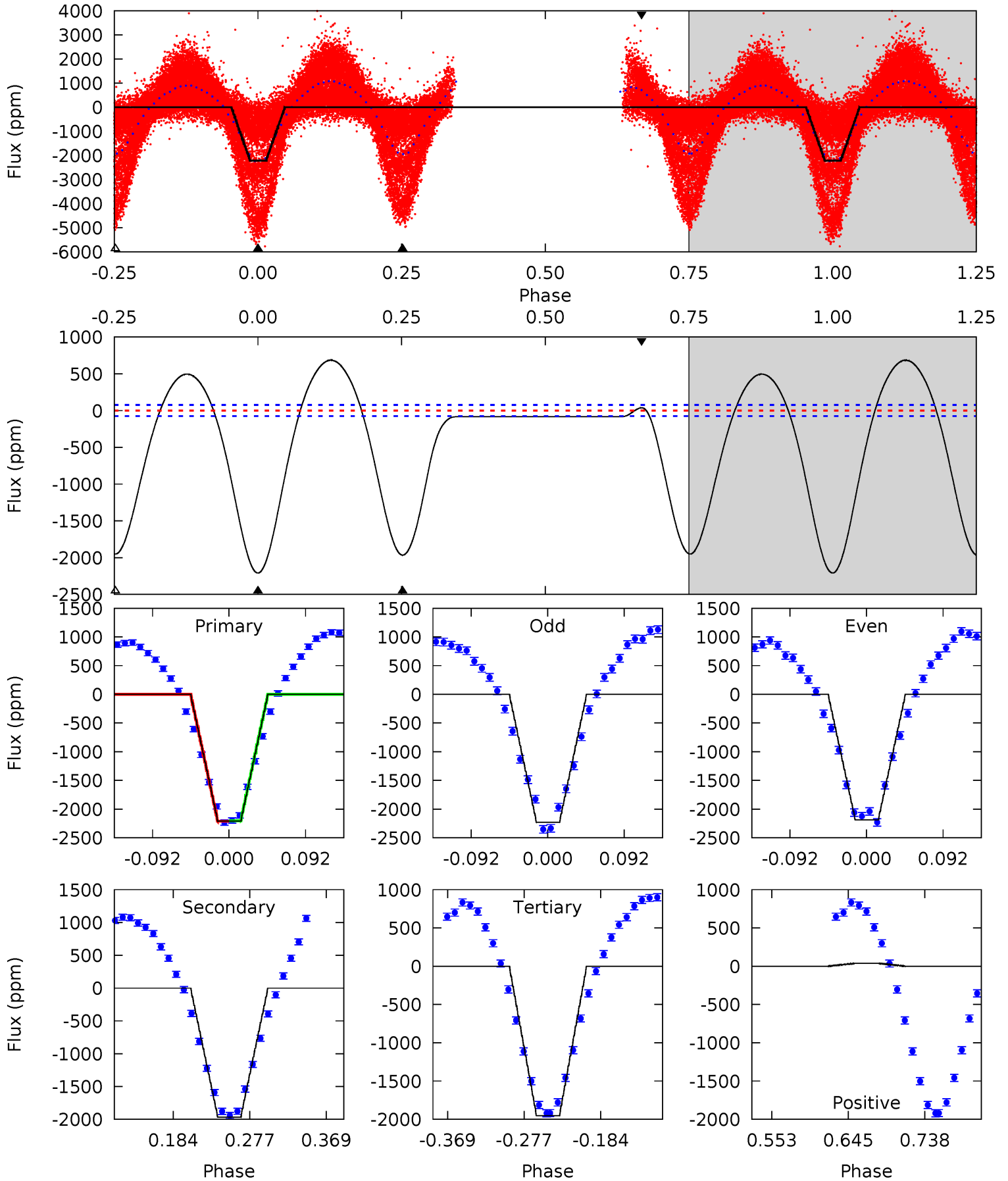
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
43.9	7.41	6.06	5.44	4.62	1.76	2.92	37.8	38.4	1.34	1.97	3.90	1.19	0.12	7.41



Alt Model-Shift Uniqueness Test

007022707-02, P = 0.623538 Days, E = 131.429416 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
133.3	118.6	117.7	2.31	4.58	1.68	53.1	15.6	131.0	0.87	116.3	1.32	1.07	0.24	0.26



Stellar Parameters For KIC 007022707

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	6115^{+171}_{-214}	$4.426^{+0.072}_{-0.217}$	$-0.020^{+0.250}_{-0.300}$	$1.054^{+0.358}_{-0.143}$	$1.077^{+0.151}_{-0.135}$	$1.296^{+0.402}_{-0.726}$
	+3%/-3%	+2%/-5%	+1250%/-1500%	+34%/-14%	+14%/-13%	+31%/-56%
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 007022707-02 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	-36 ± 5	$1.73^{+0.46}_{-0.42}$	3244^{+240}_{-160}	4010^{+488}_{-397}	$1.417^{+1.004}_{-0.580}$
Alt.	-1965 ± 17	$3.40^{+0.66}_{-0.49}$	3242^{+248}_{-165}	7740^{+659}_{-548}	20^{+7}_{-6}

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 $A_{obs} \gg 1.0$

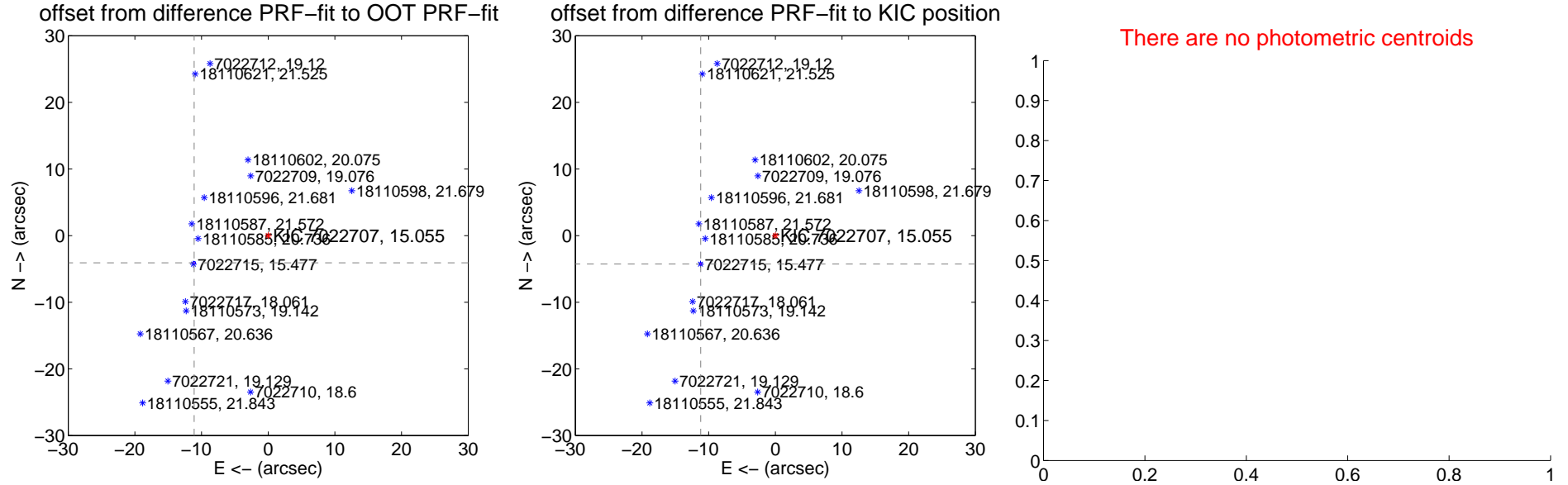
DV Centroid Data

Supplemental centroid analysis for 007022707-02. Kepler magnitude: 15.05. Transit SNR 20.78

There are 4 quarters with good PRF difference image offsets

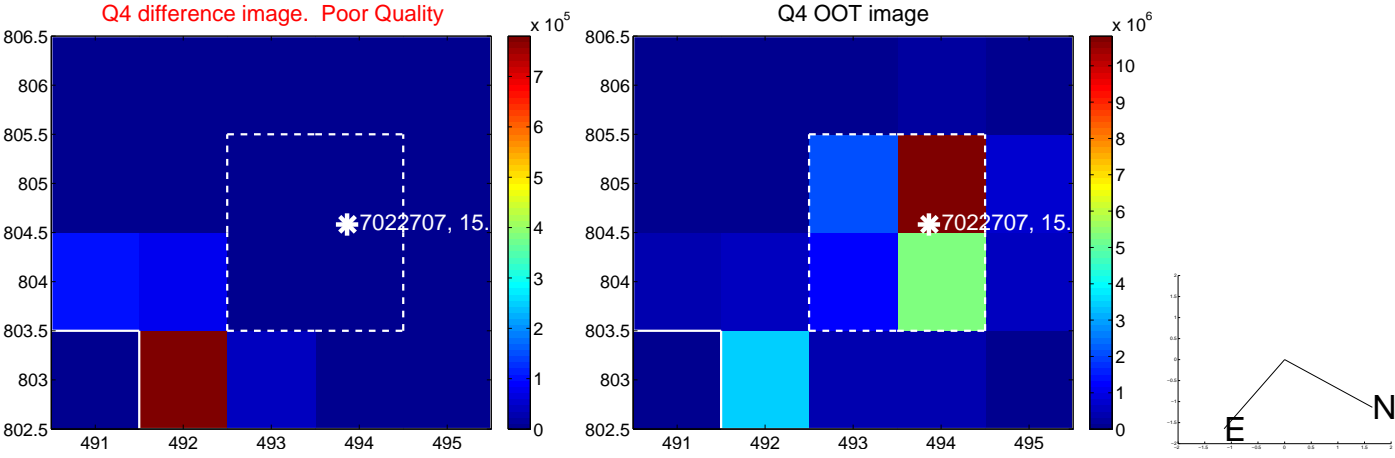
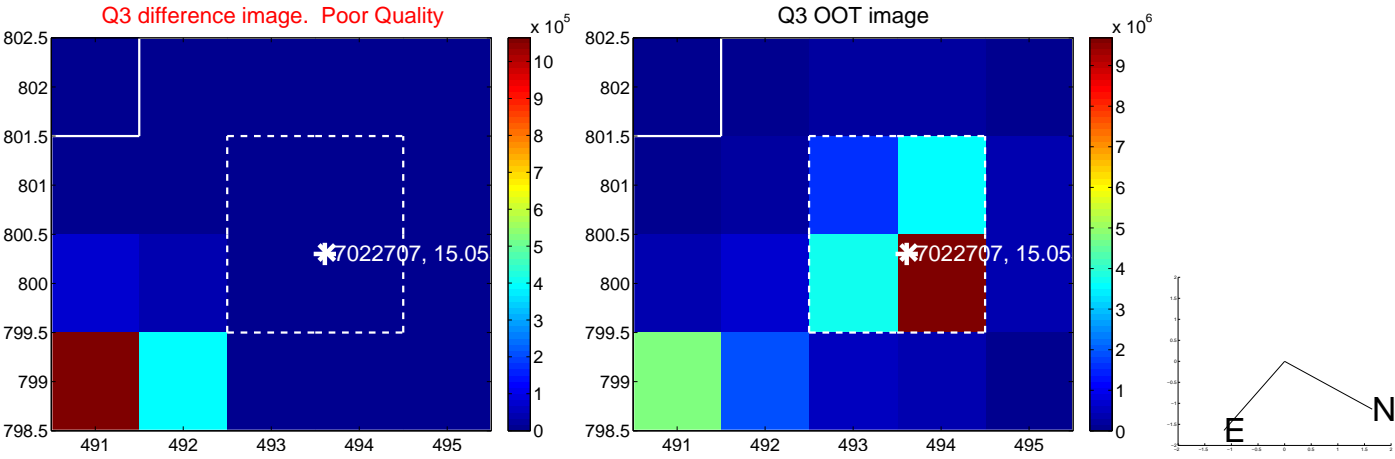
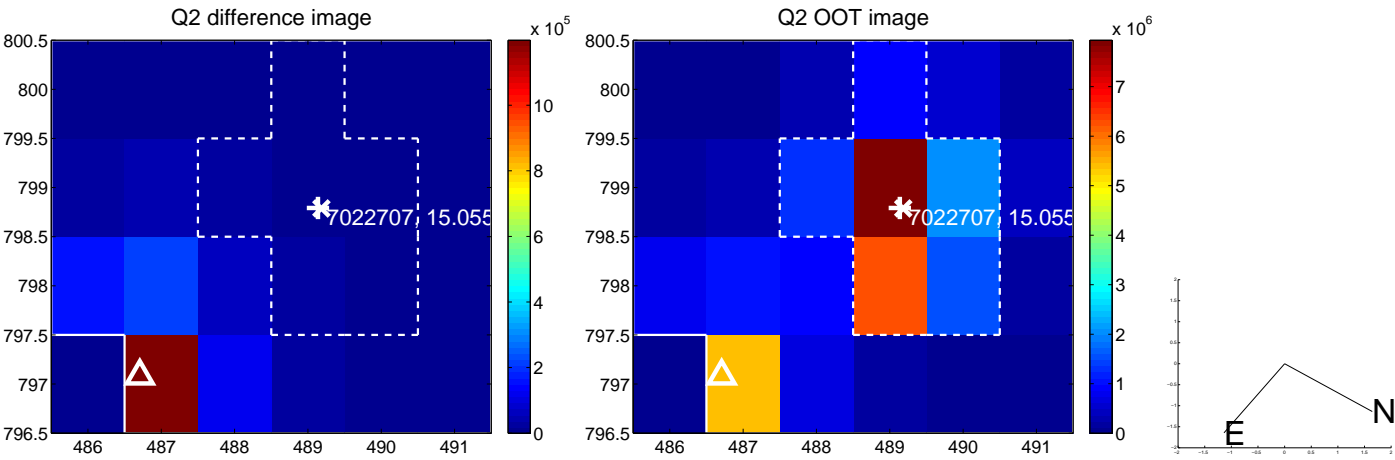
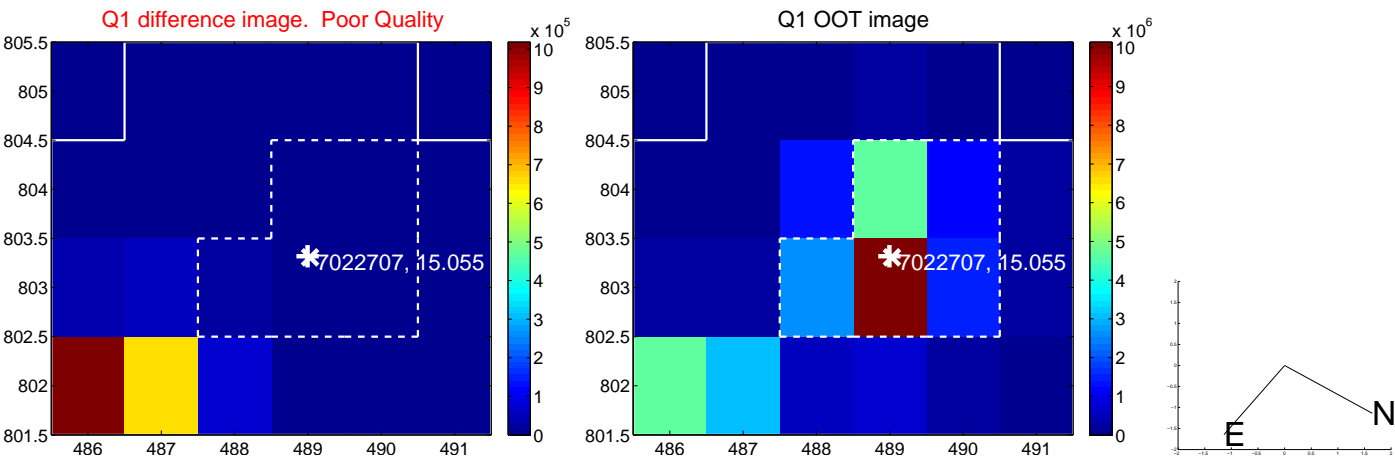
The direct PRF centroid is offset from the target star catalog position by about 0.21 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	11.831 \pm 0.067	176.70	11.103 \pm 0.067	-4.087 \pm 0.067
PRF-fit source offset from KIC position	11.978 \pm 0.068	176.83	11.199 \pm 0.068	-4.249 \pm 0.068
photometric centroid source offset	—	—	—	—

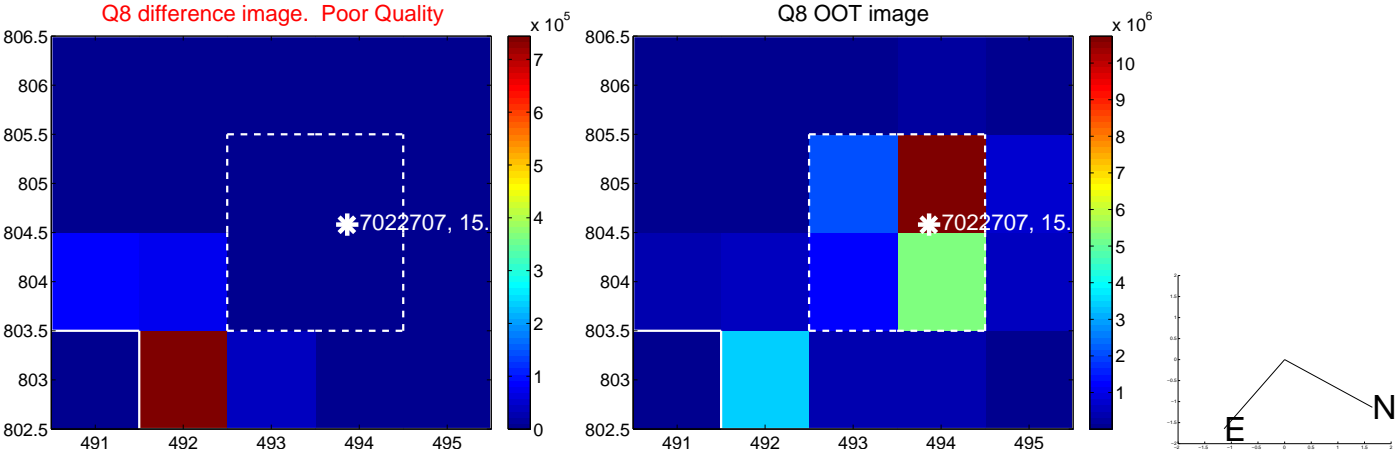
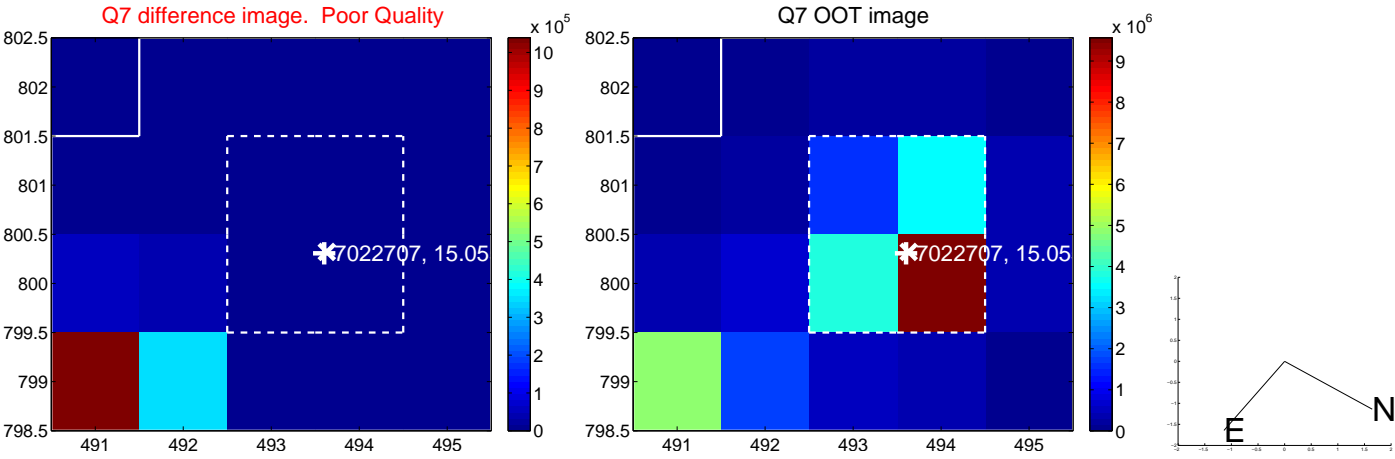
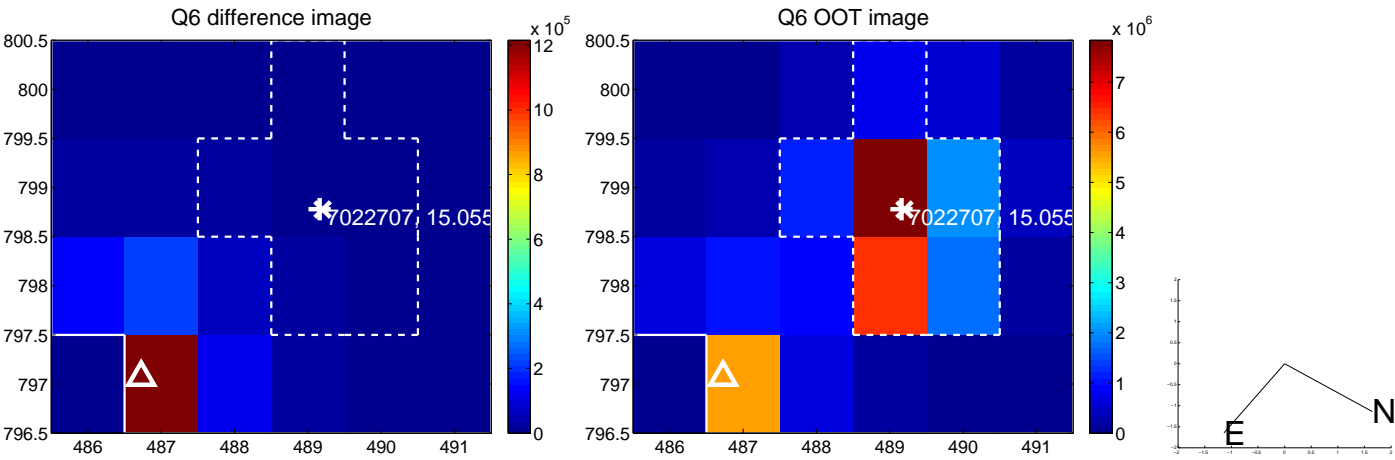
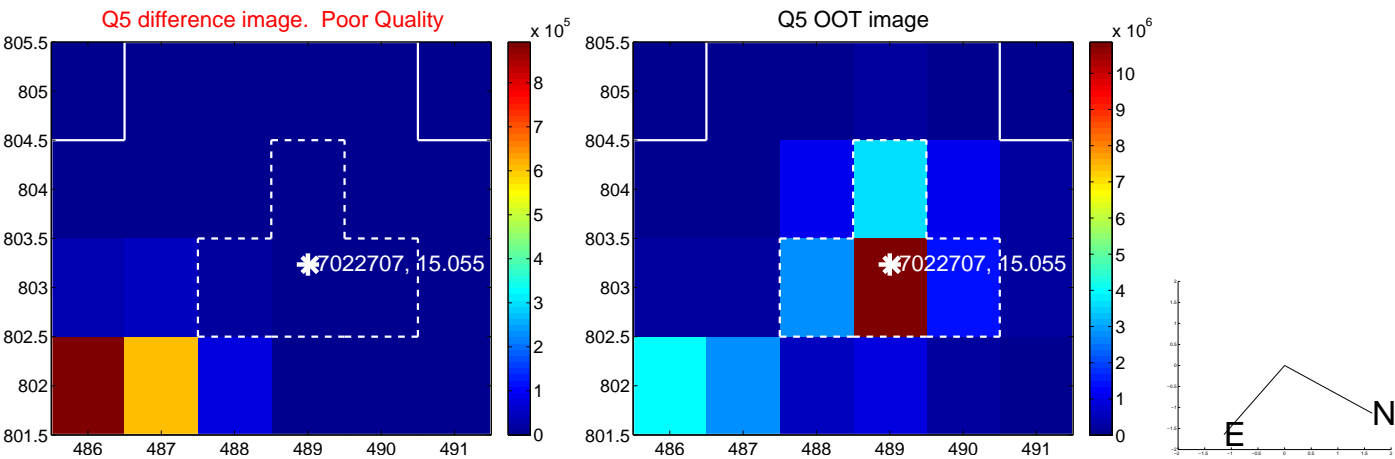


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets**; **Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

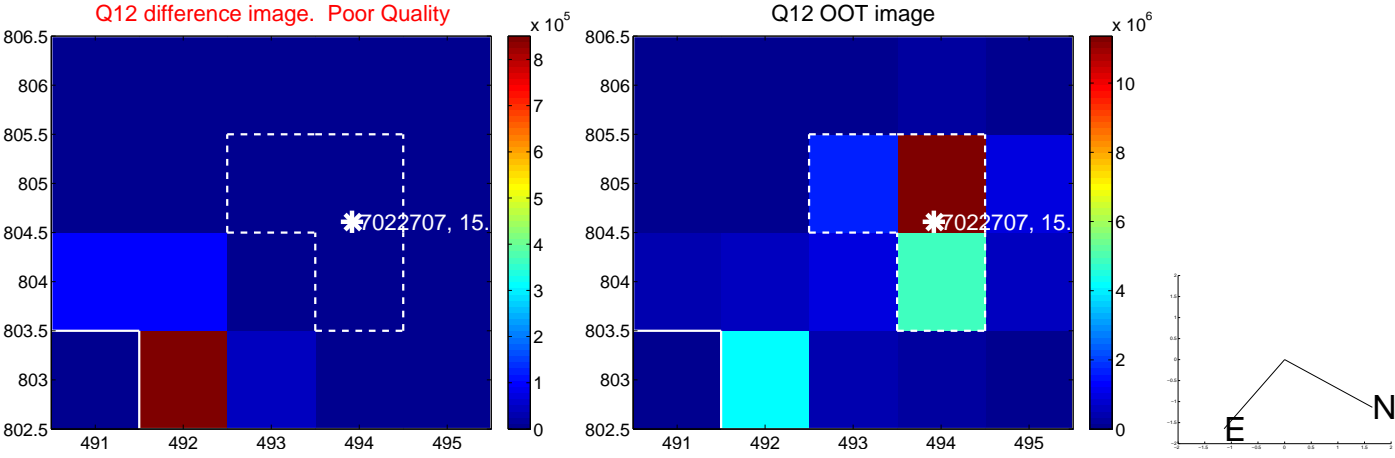
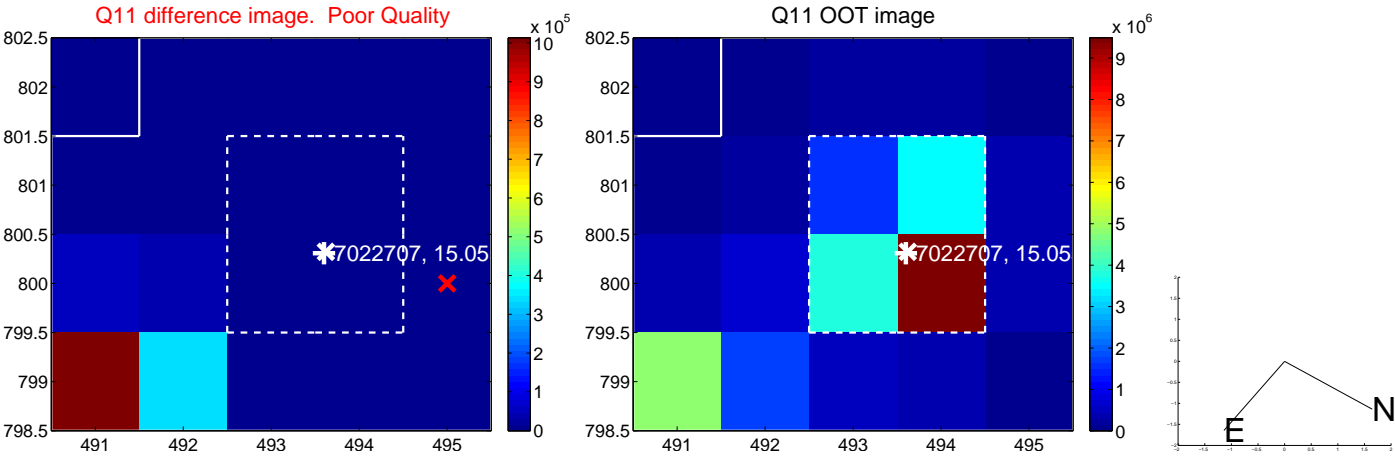
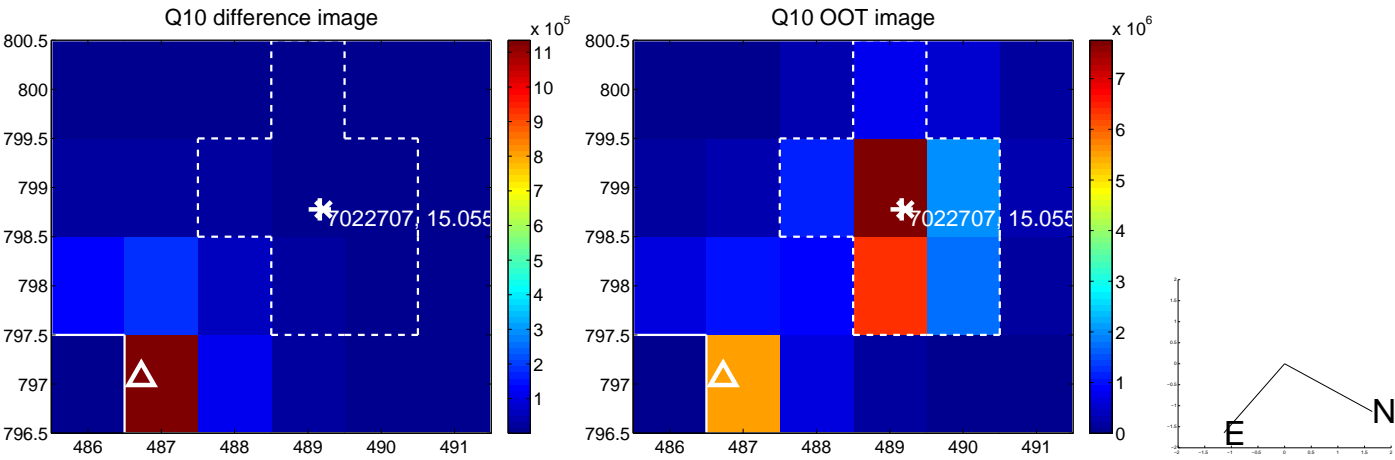
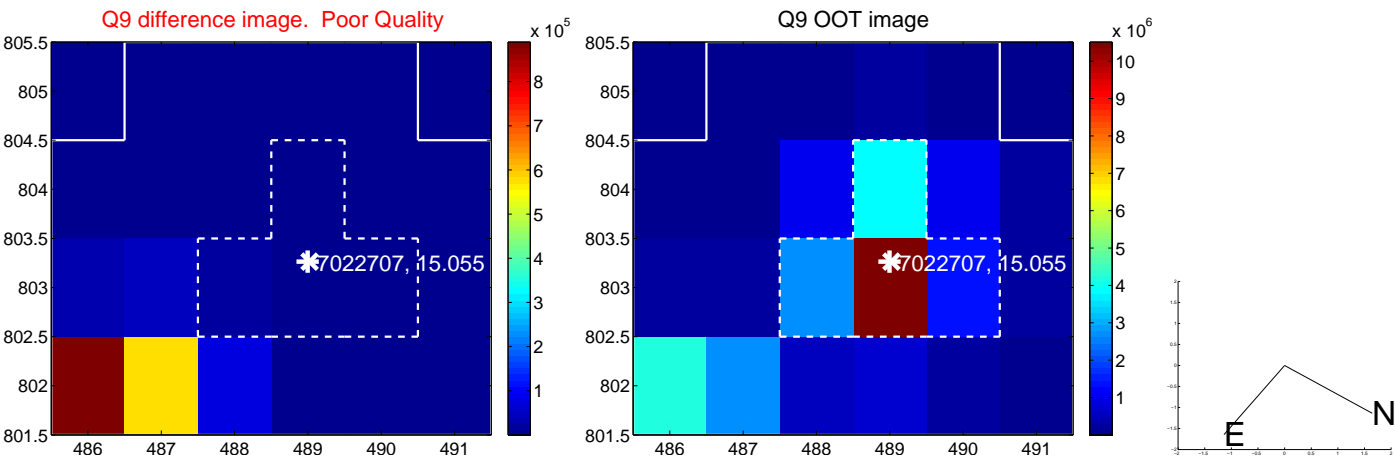
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



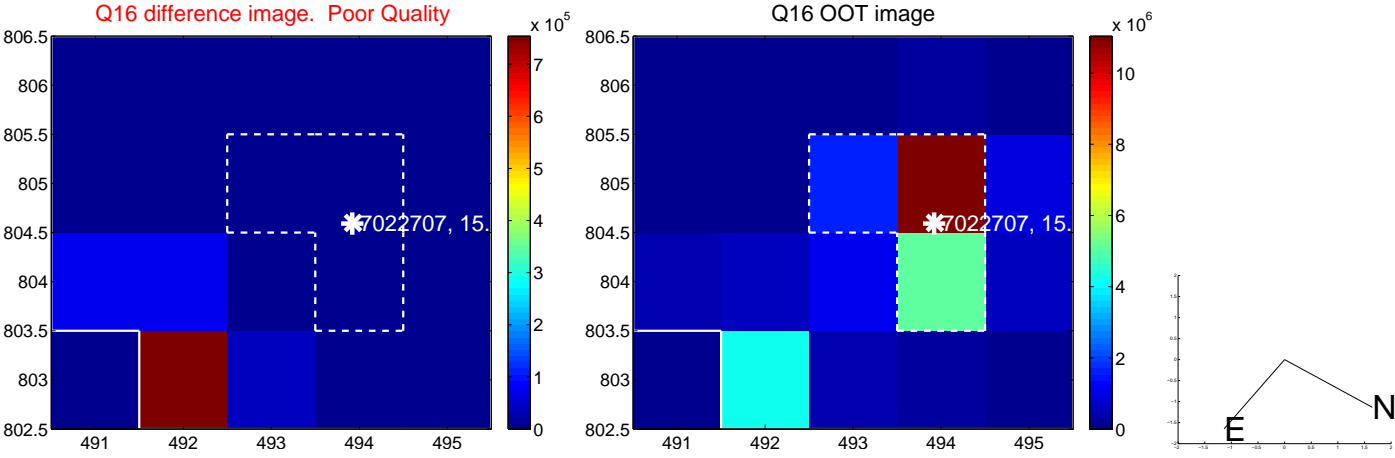
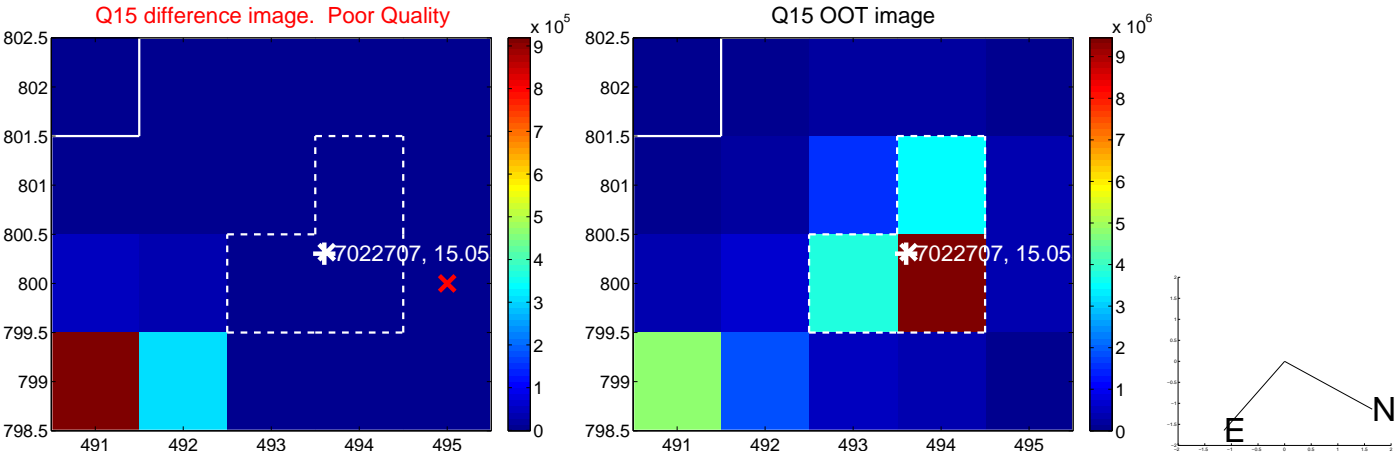
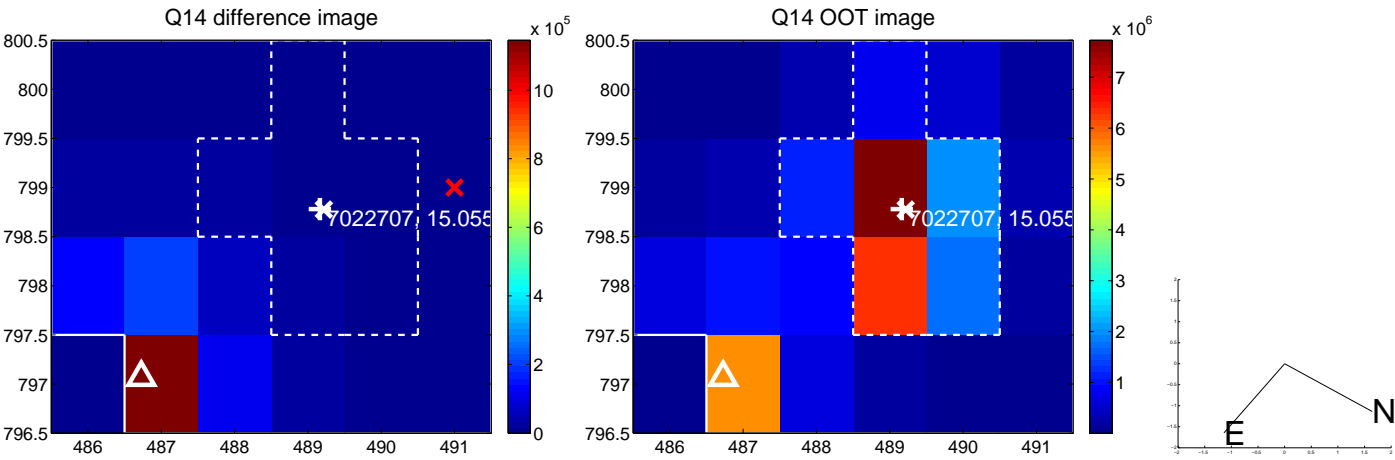
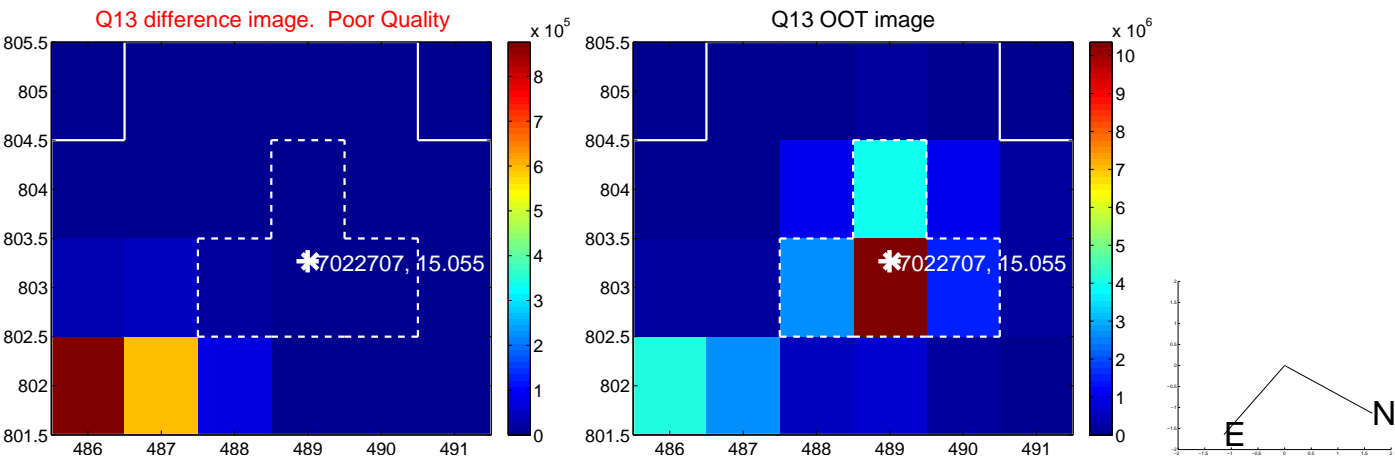
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



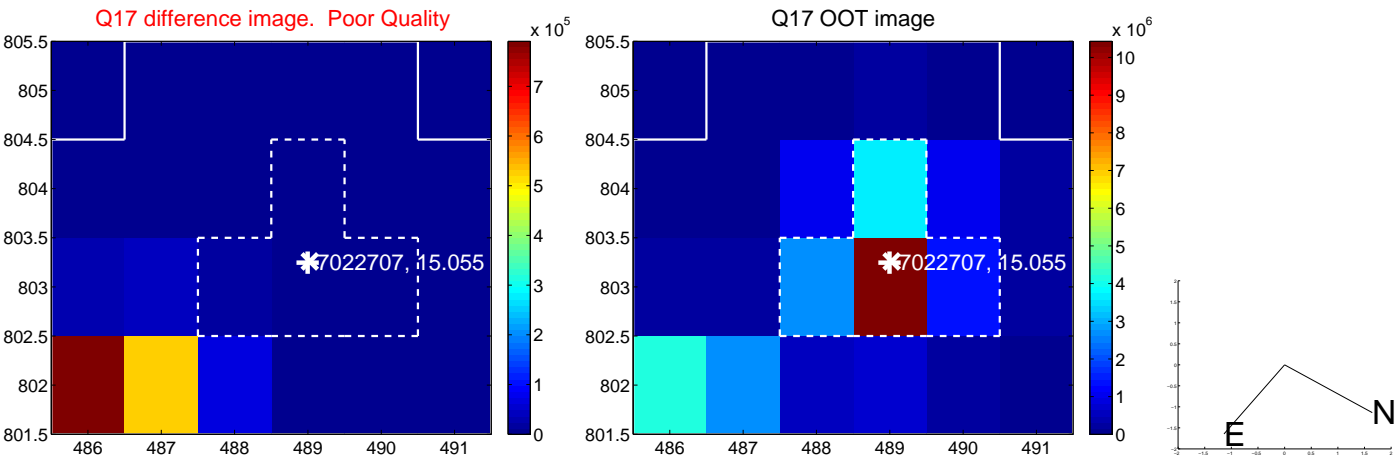
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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



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



folded centroid time series figure for this object.

UKIRT Image

Declination

