

KIC 008894646

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})
008894646-01	OBS	2641.01	3.555574	132.753478	58.6	3.488	14.2	14.7	1.08	5839	0.98	616.39
008894646-02	OBS	No	0.541940	131.921263	6.7	5.446	8.0	4.8	1.08	5839	0.28	7570.62

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
008894646-01	OBS	PC	1.00	0	0	0	0	NO_COMMENT
008894646-02	OBS	FP	0.00	1	0	0	0	LPP_DV—CENT_FEW_DIFFS

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

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

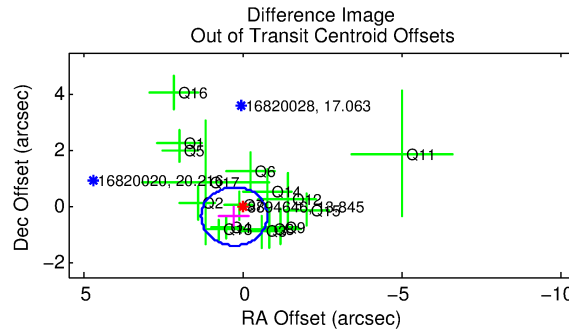
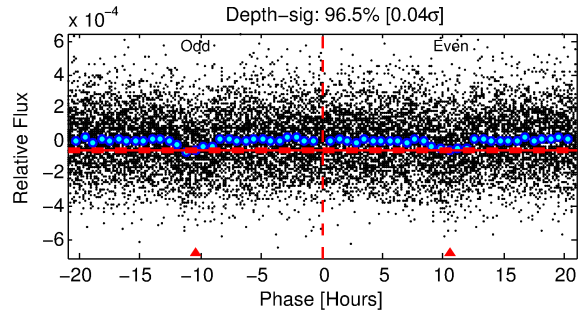
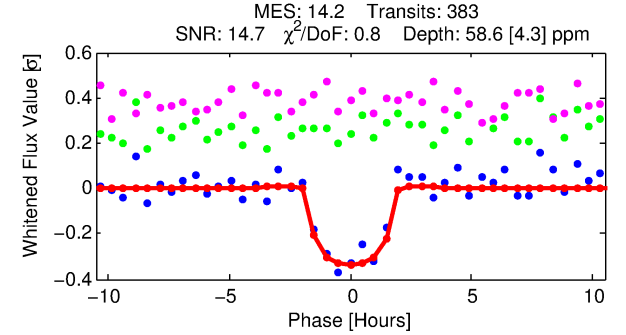
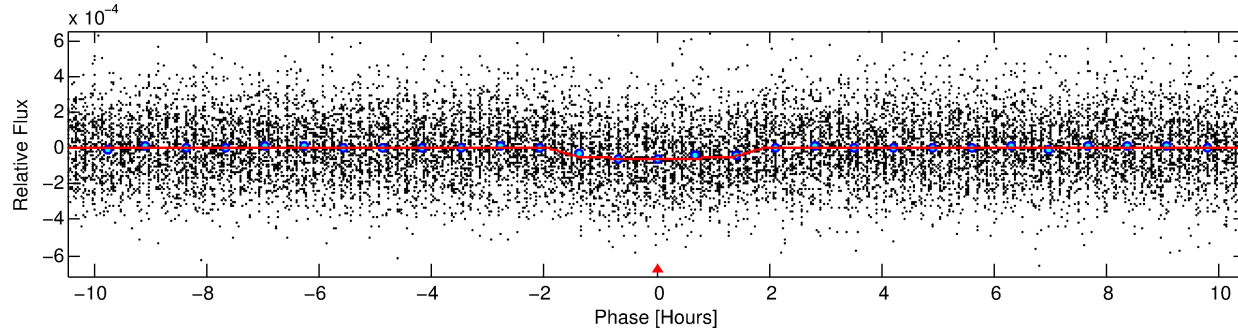
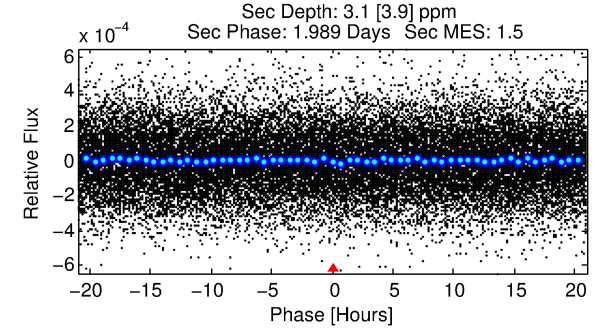
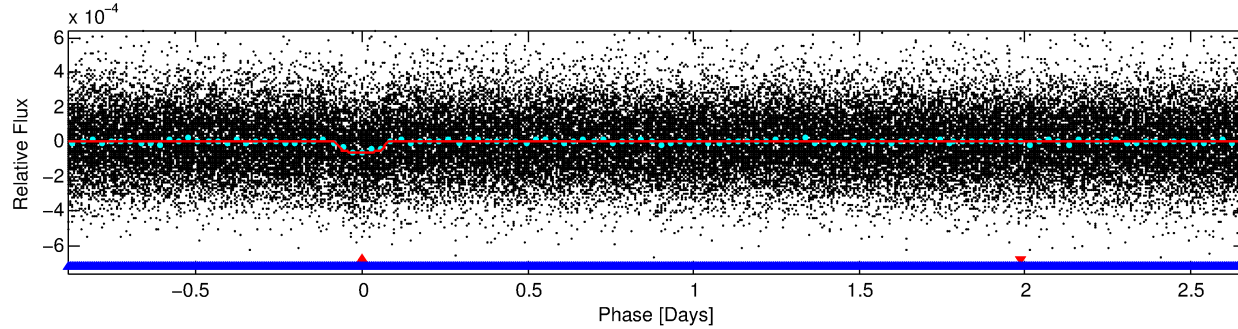
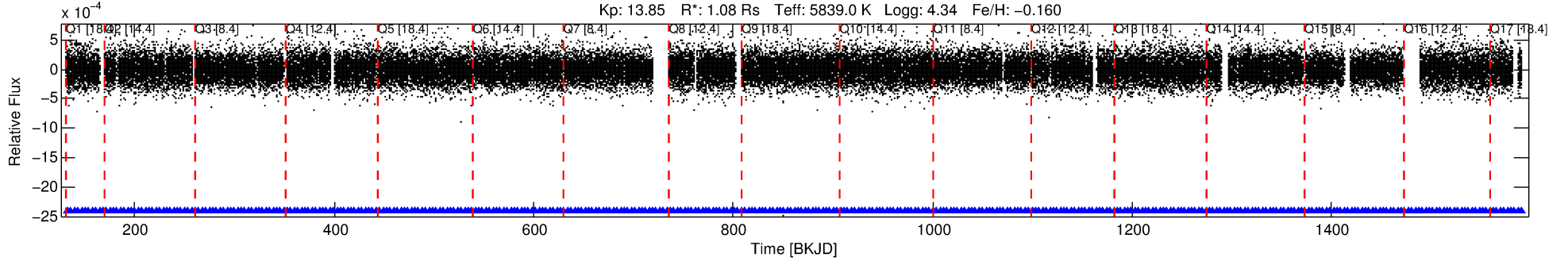
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 008894646-01

No Significant Match Found

DV One-Page Summary

KIC: 8894646 Candidate: 1 of 2 Period: 3.556 d
KOI: K02641.01 Corr: 0.957



DV Fit Results:

Period = 3.55557 [0.00002] d
Epoch = 132.7535 [0.0037] BKJD
Rp/R* = 0.0083 [0.0036]
a/R* = 3.69 [7.38]
b = 0.90 [0.47]
Seff = 616.39 [220.57]
Teff = 1271 [114] K
Rp = 0.98 [0.50] Re
a = 0.0445 [0.0103] AU
Ag = 3.50 [5.47] [0.46σ]
Teffp = 2686 [1028] K [1.37σ]

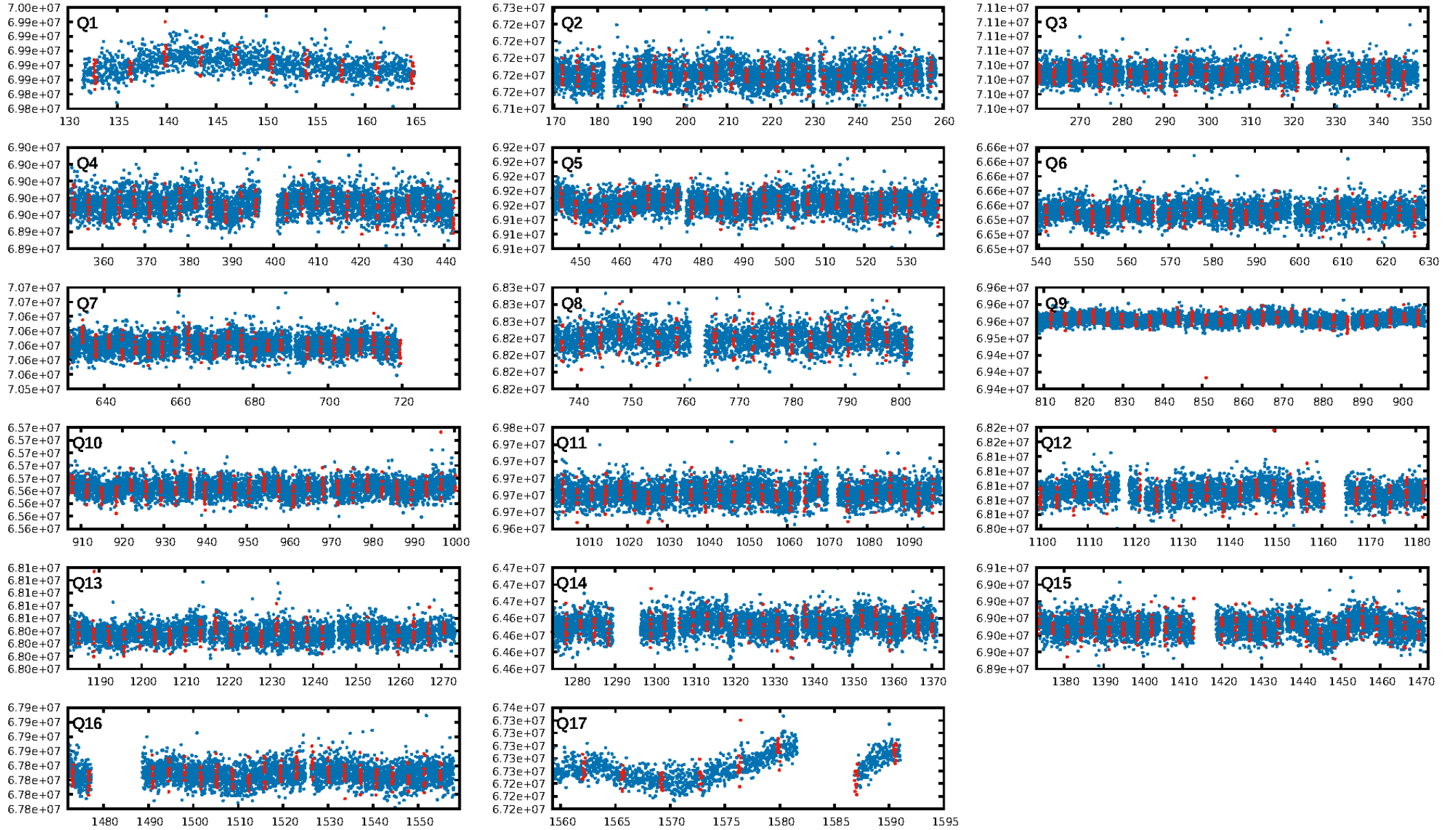
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [11.18σ]
LongPeriod-sig: N/A
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: N/A
RollingBand-fgt: 1.00 [365/365]
GhostDiagnostic-chr: 9.069
Centroid-sig: 18.0%
Centroid-so: 0.990 arcsec [1.16σ]
OotOffset-rm: 0.445 arcsec [1.28σ]
OotOffset-st: 3/4/4/5 [16]
KicOffset-rm: 0.491 arcsec [1.02σ]
KicOffset-st: 3/4/4/5 [16]
DiffImageQuality-fgm: 0.81 [13/16]
DiffImageOverlap-fno: 0.00 [0/17]

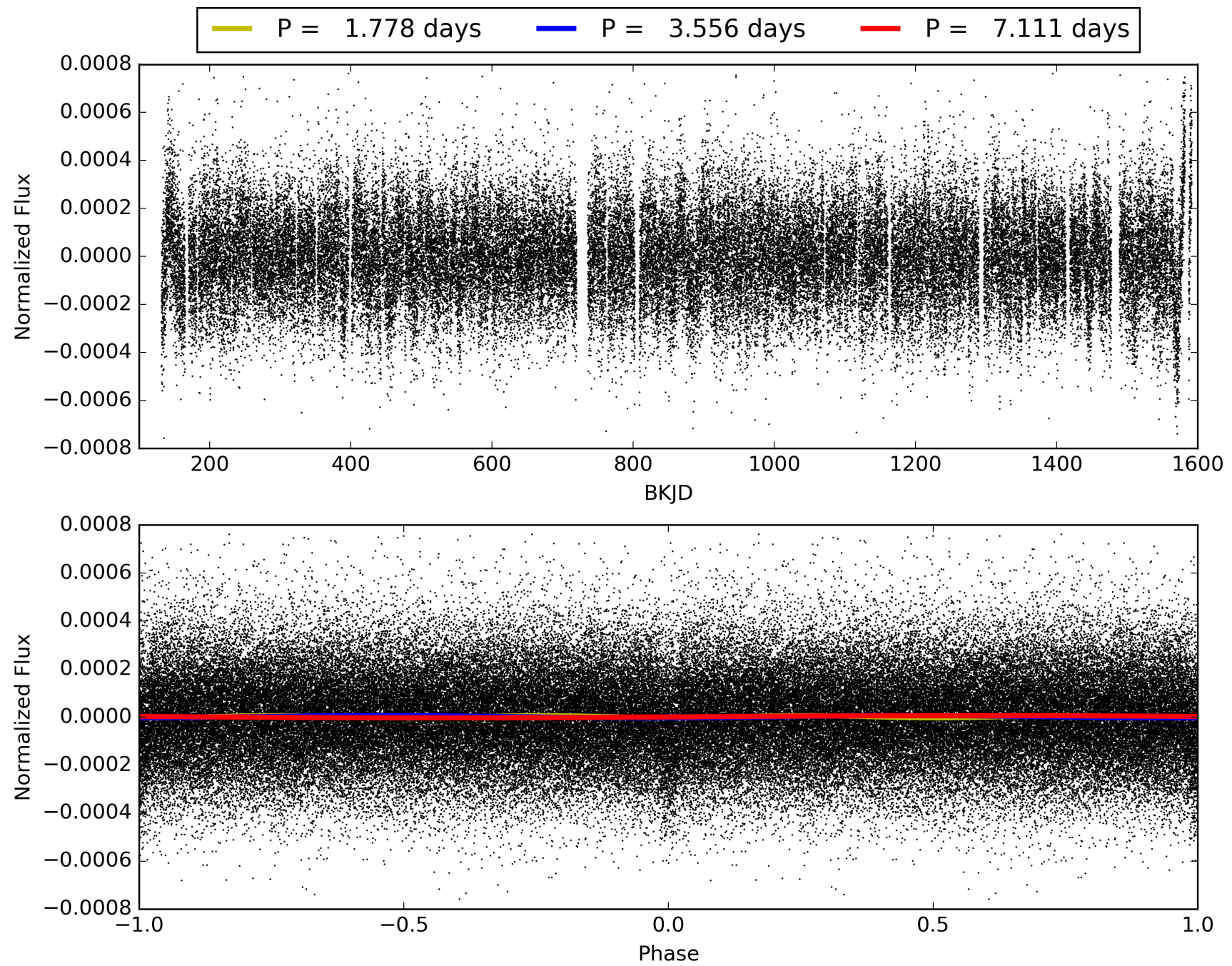
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This Data Validation Report Summary was produced in the Kepler Science Operations Center Pipeline at NASA Ames Research Center

TCE 008894646-01, PDC Light Curves

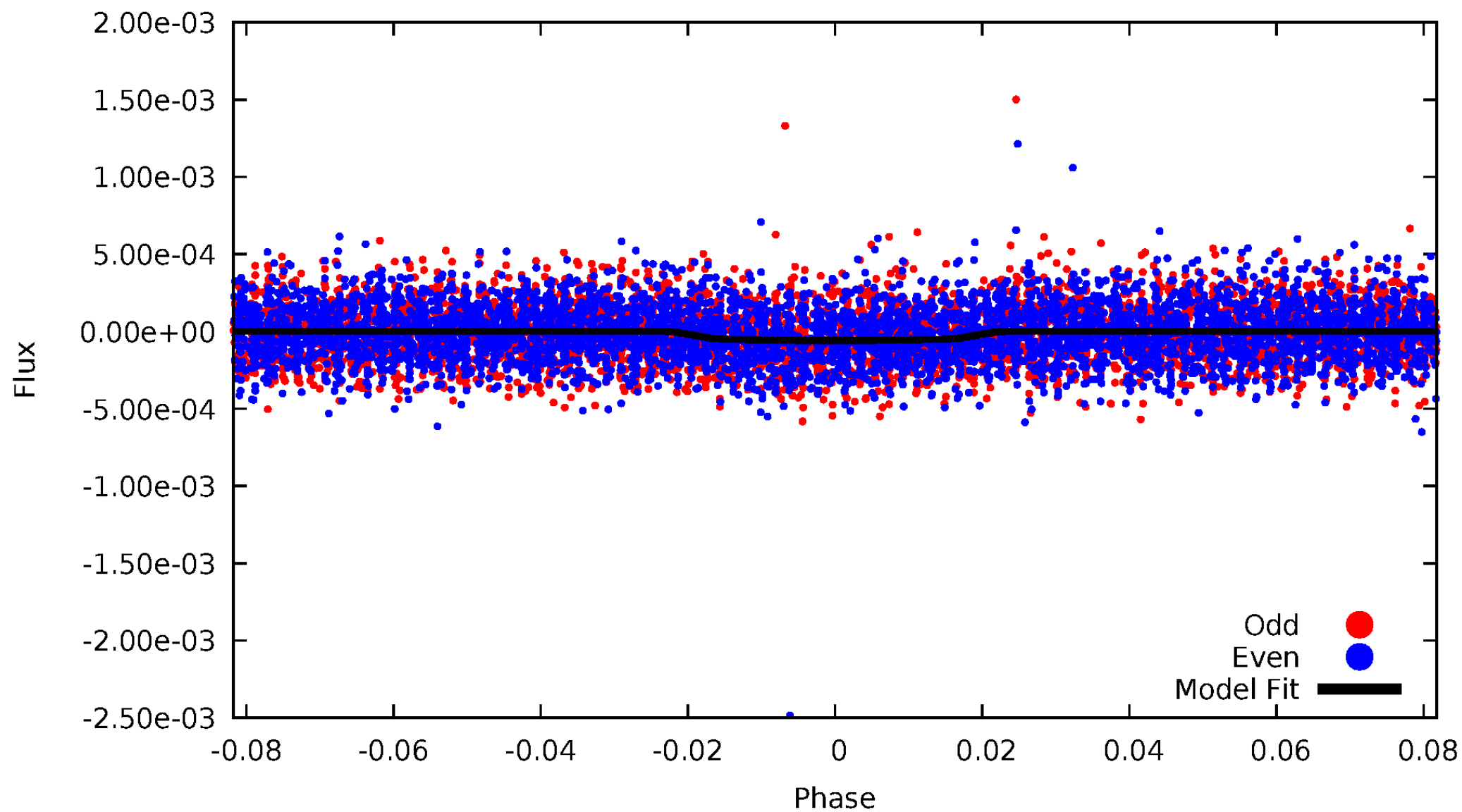


TCE 008894646-01



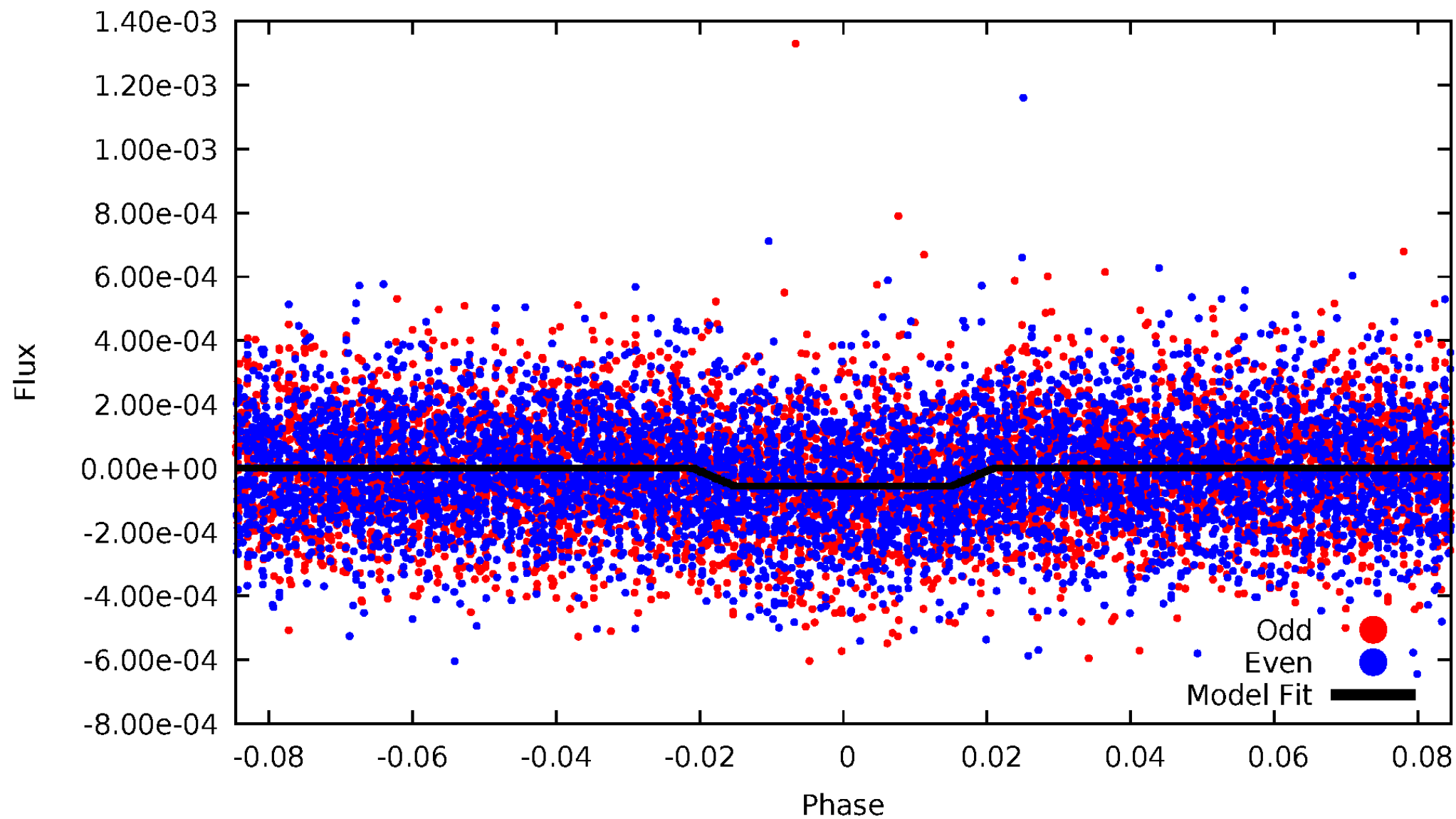
DV Odd/Even

TCE 008894646-01

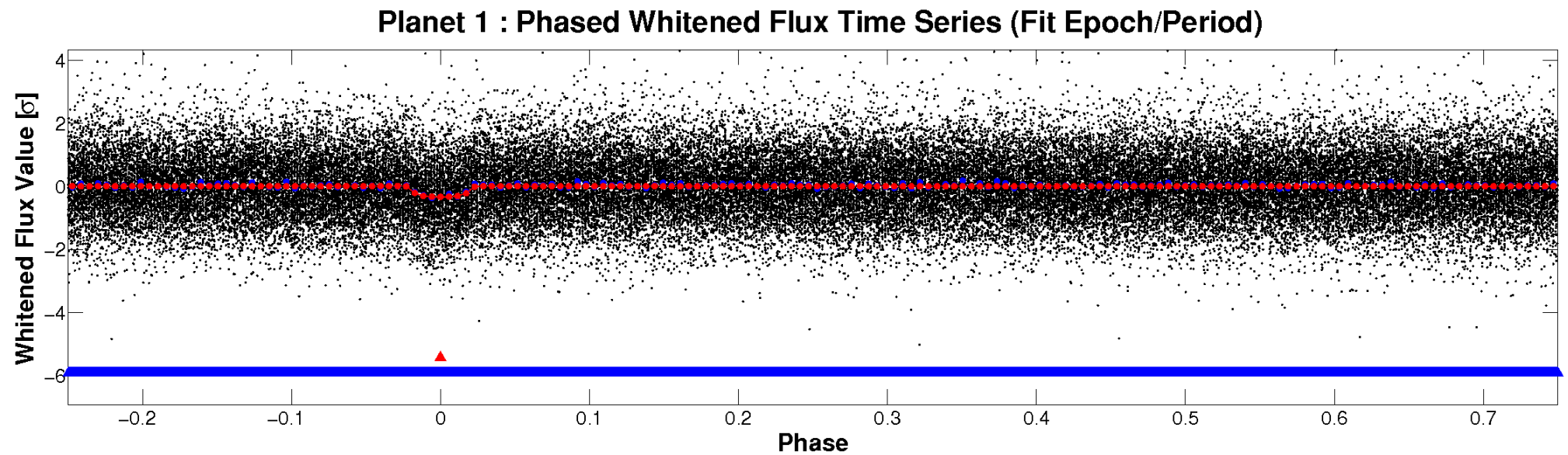
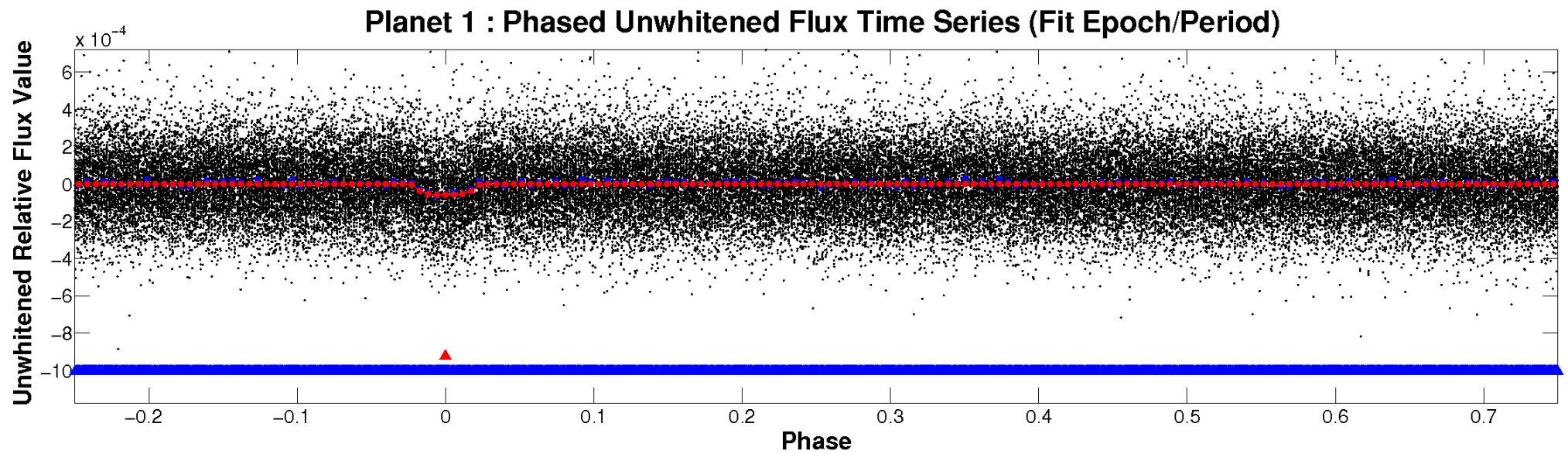


ALT Odd/Even

TCE 008894646-01

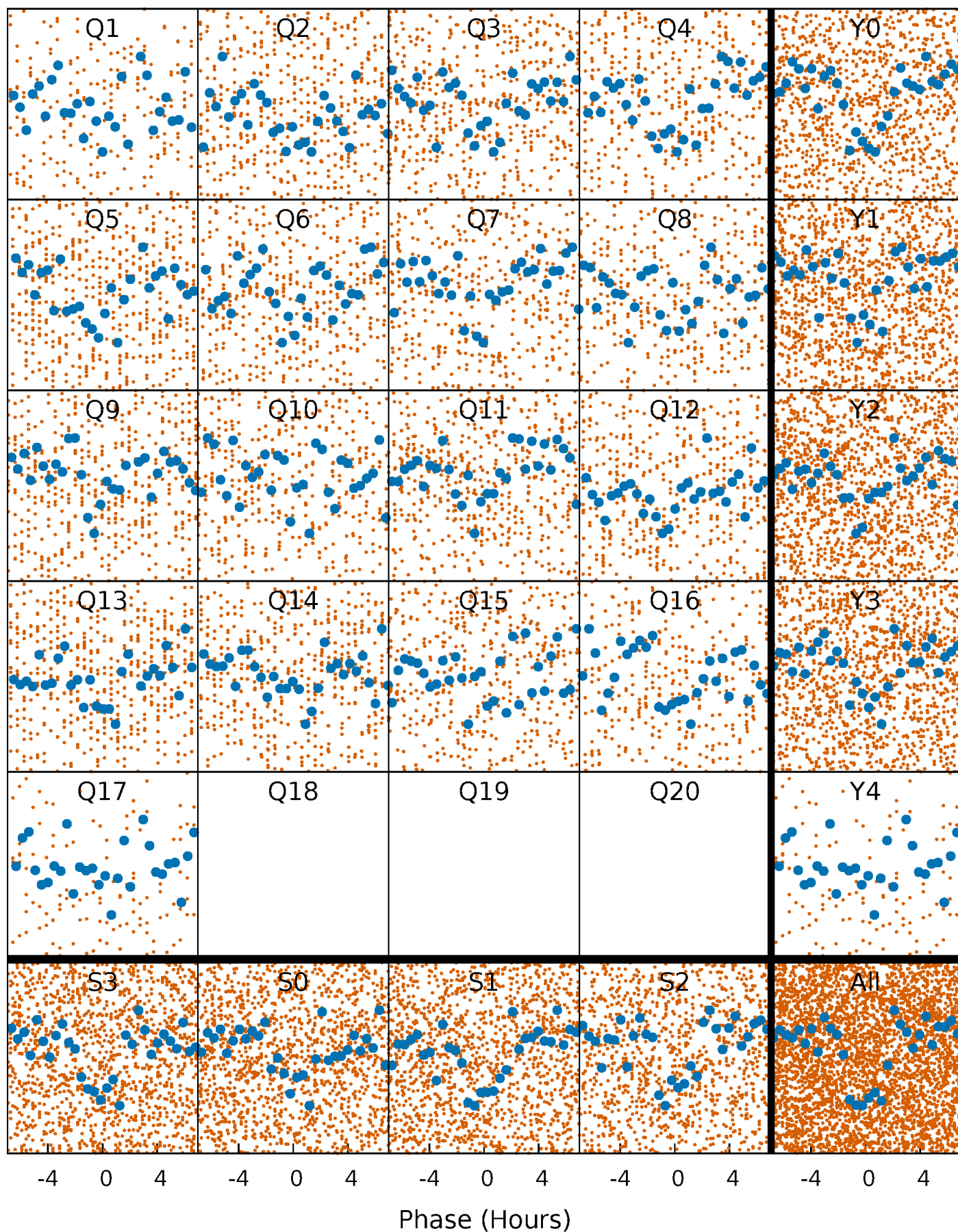


Non-Whitened Vs. Whitened Light Curve



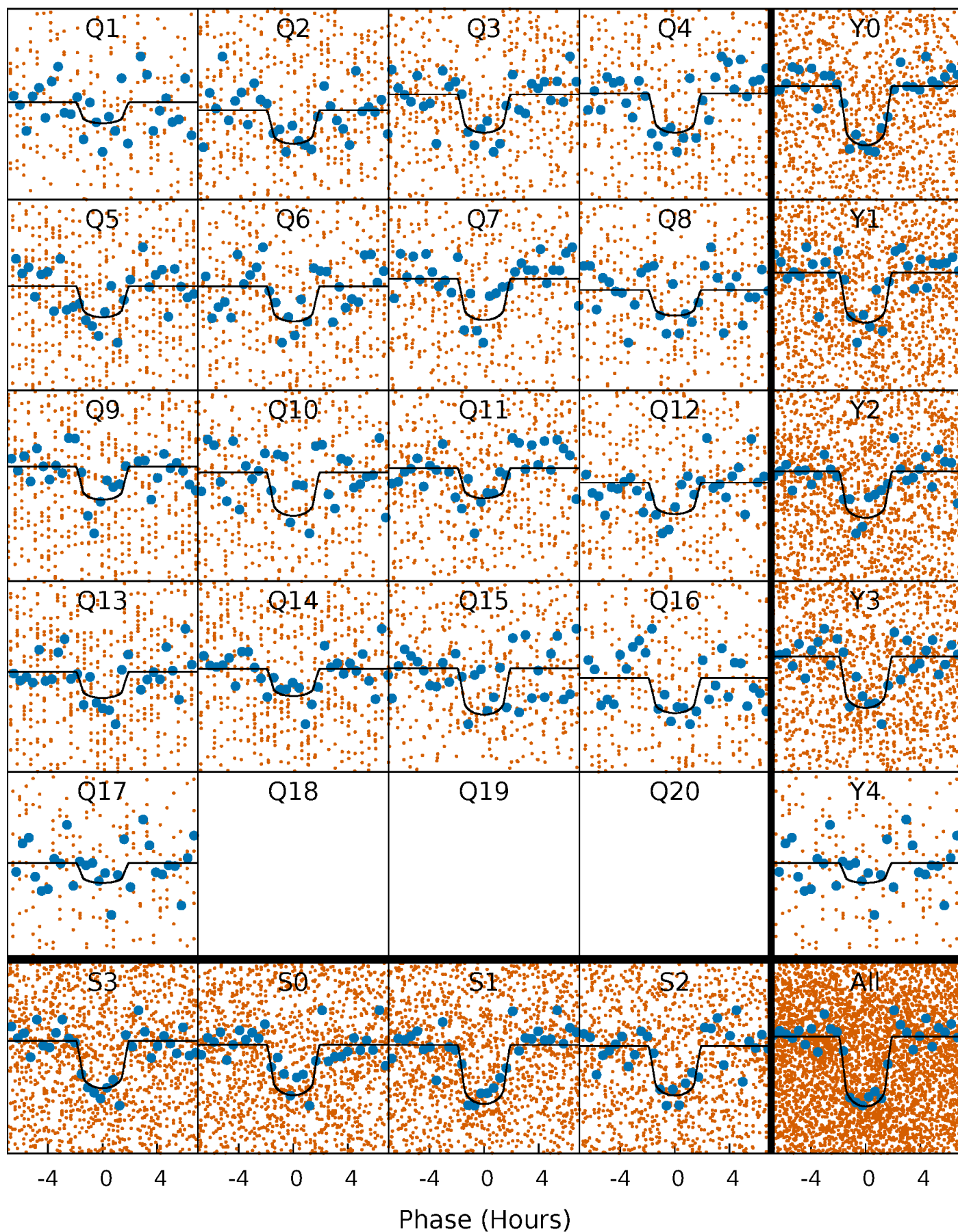
PDC Quarter-Phased Transit Curves

TCE 008894646-01 P= 3.555574 Days $T_0=132.753478$ (BKJD)



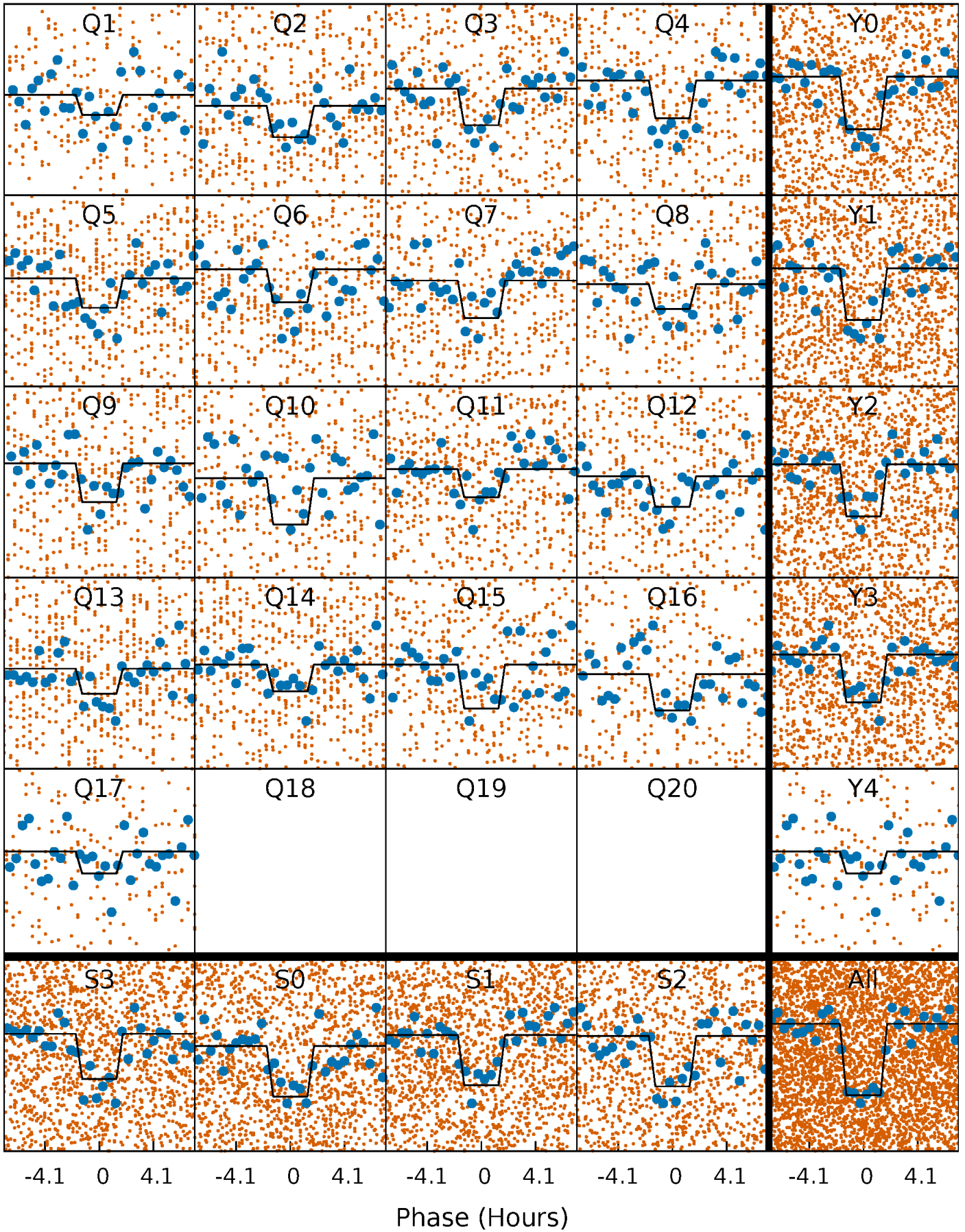
DV Quarter-Phased Transit Curves

TCE 008894646-01 P= 3.555574 Days $T_0=132.753478$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

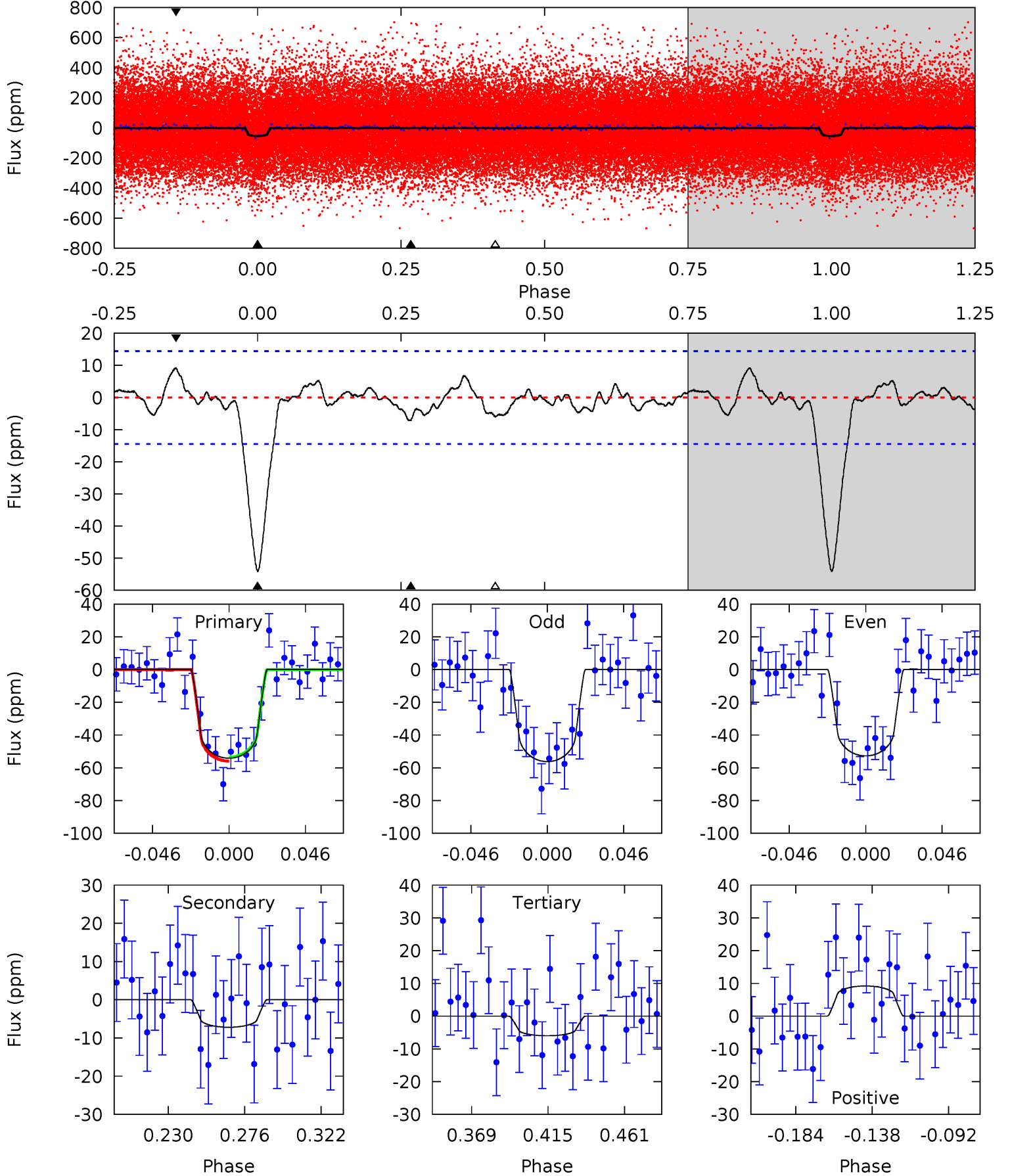
TCE 008894646-01 P= 3.555567 Days $T_0=132.754641$ (BKJD)



DV Model-Shift Uniqueness Test

008894646-01, P = 3.55574 Days, E = 129.197904 Days

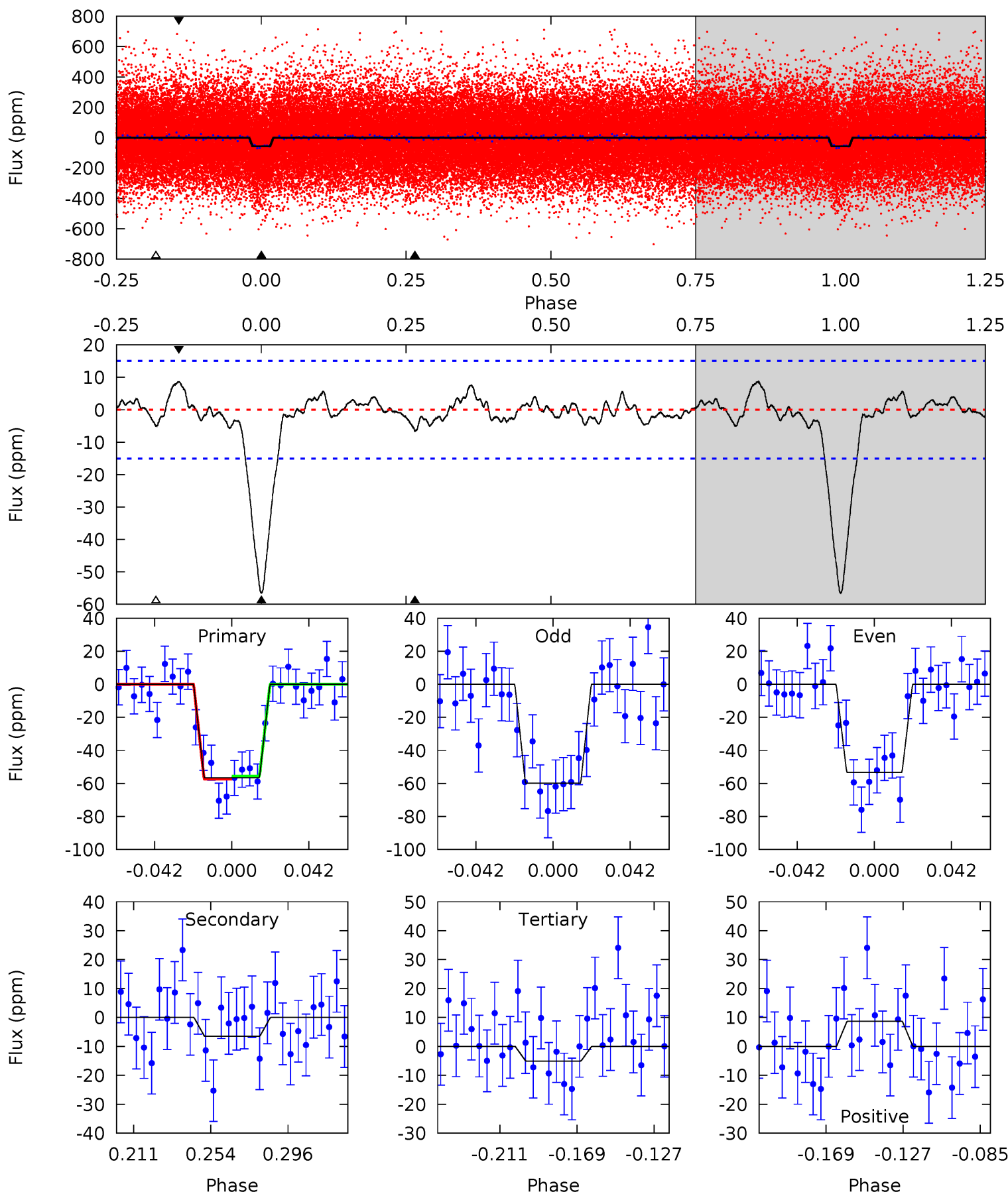
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
17.7	2.35	1.96	3.01	4.72	1.99	0.93	15.7	14.7	0.40	-0.66	0.57	0.95	0.15	0.39



Alt Model-Shift Uniqueness Test

008894646-01, P = 3.555567 Days, E = 129.199074 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
17.8	2.05	1.59	2.73	4.74	2.03	0.89	16.2	15.1	0.46	-0.68	1.03	0.91	0.13	0.29



Stellar Parameters For KIC 008894646

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	5839^{+147}_{-161}	$4.337^{+0.153}_{-0.187}$	$-0.160^{+0.300}_{-0.300}$	$1.082^{+0.297}_{-0.198}$	$0.926^{+0.132}_{-0.088}$	$1.031^{+0.766}_{-0.506}$
	+3%/-3%	+4%/-4%	+188%/-188%	+27%/-18%	+14%/-10%	+74%/-49%
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 008894646-01 / KOI 2641.01

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-7 ± 3	$0.97^{+0.46}_{-0.43}$	1781^{+132}_{-105}	3695^{+970}_{-513}	$7.958^{+19.668}_{-4.845}$
Alt.	-7 ± 3	$0.88^{+0.47}_{-0.40}$	1784^{+133}_{-111}	3728^{+1098}_{-590}	$8.455^{+24.297}_{-5.649}$

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

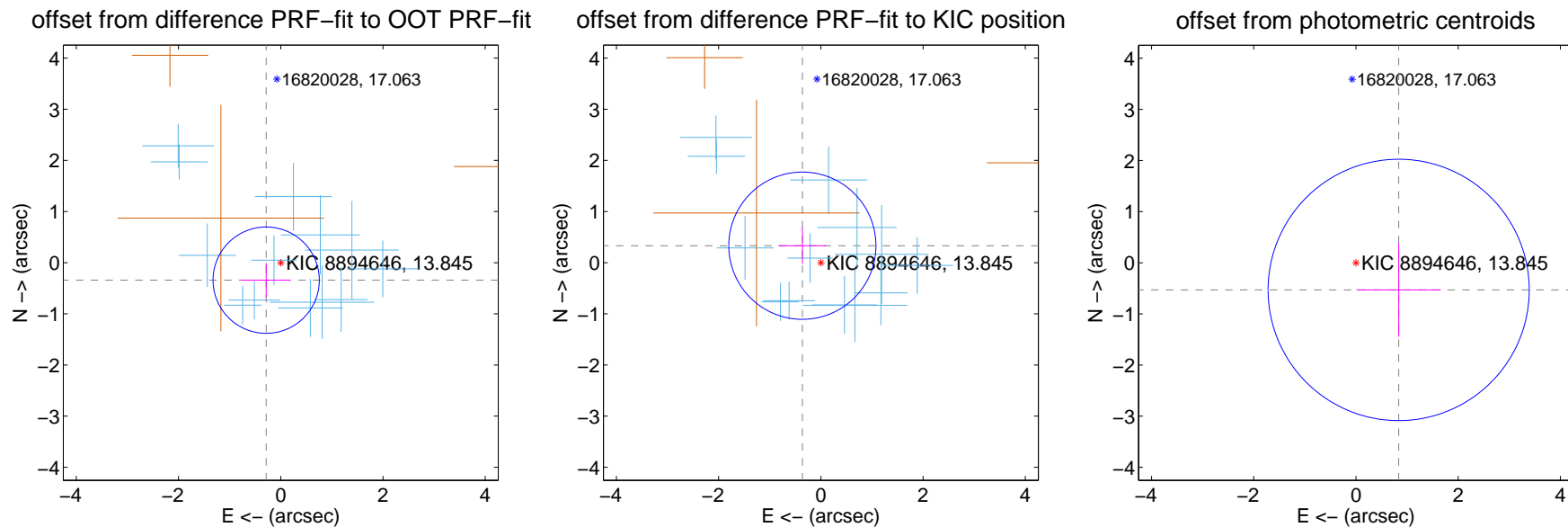
DV Centroid Data

Supplemental centroid analysis for 008894646-01. Kepler magnitude: 13.85. Transit SNR 14.67

There are 13 quarters with good PRF difference image offsets

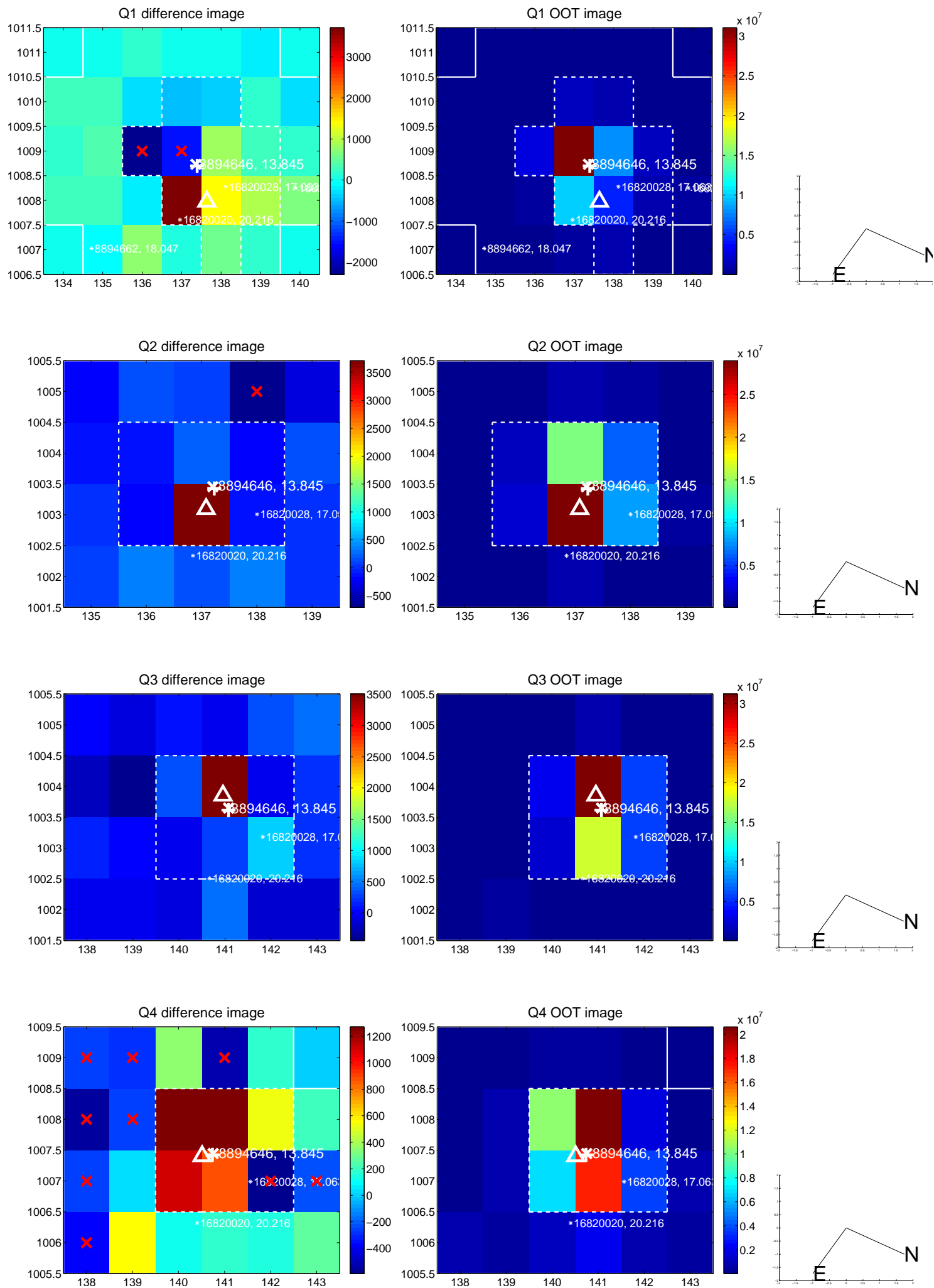
The direct PRF centroid is offset from the target star catalog position by about 0.13 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.445 ± 0.347	1.28	0.285 ± 0.485	-0.342 ± 0.337
PRF-fit source offset from KIC position	0.491 ± 0.480	1.02	0.362 ± 0.467	0.332 ± 0.358
photometric centroid source offset	0.99 ± 0.85	1.16	-0.84 ± 0.82	-0.53 ± 0.92

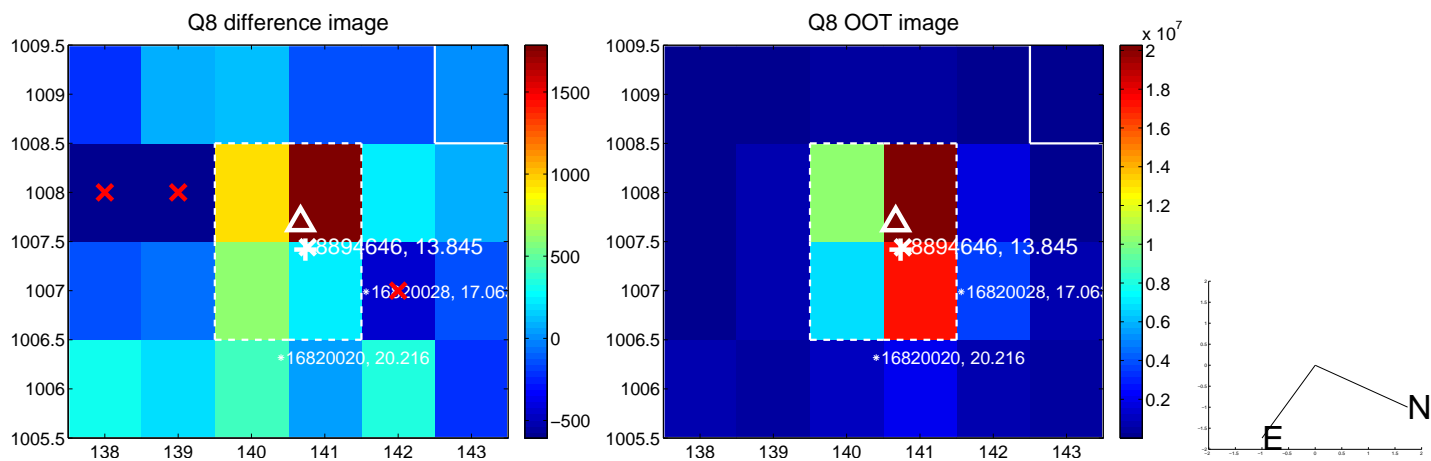
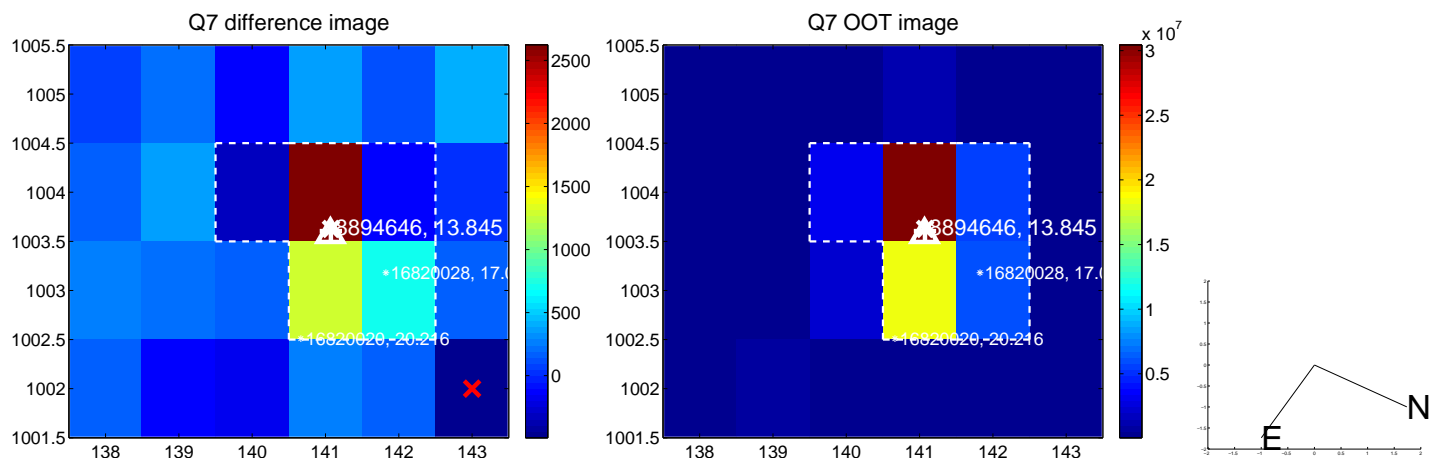
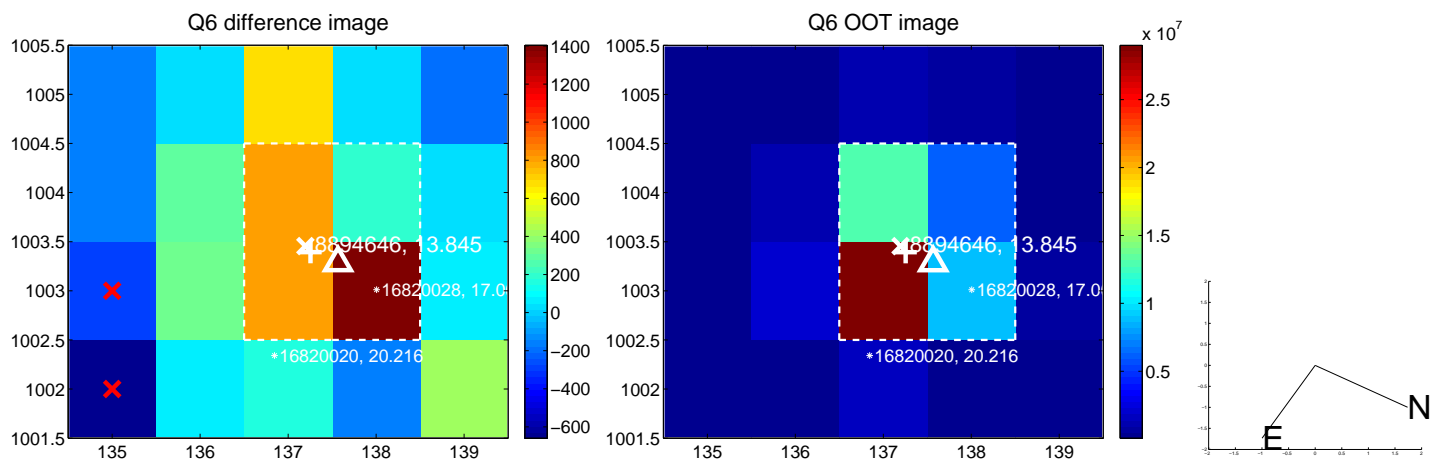
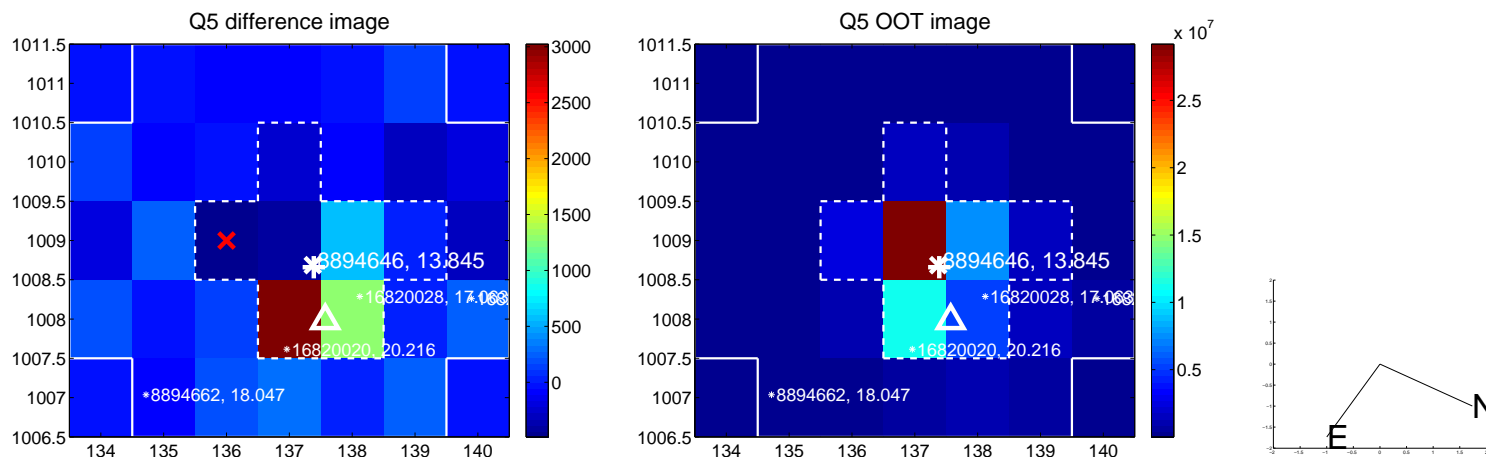


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

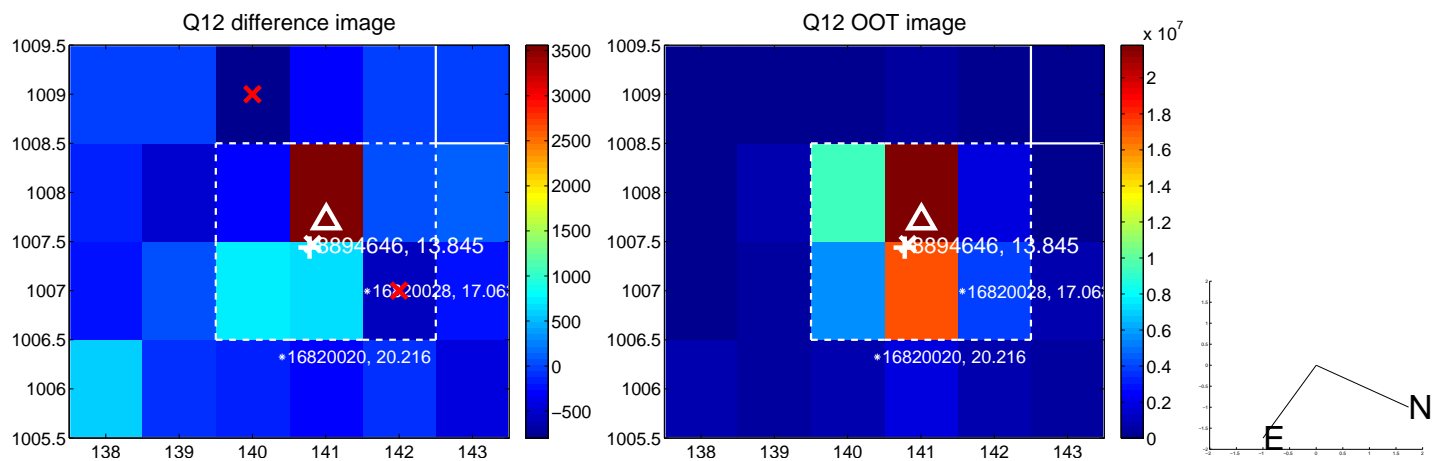
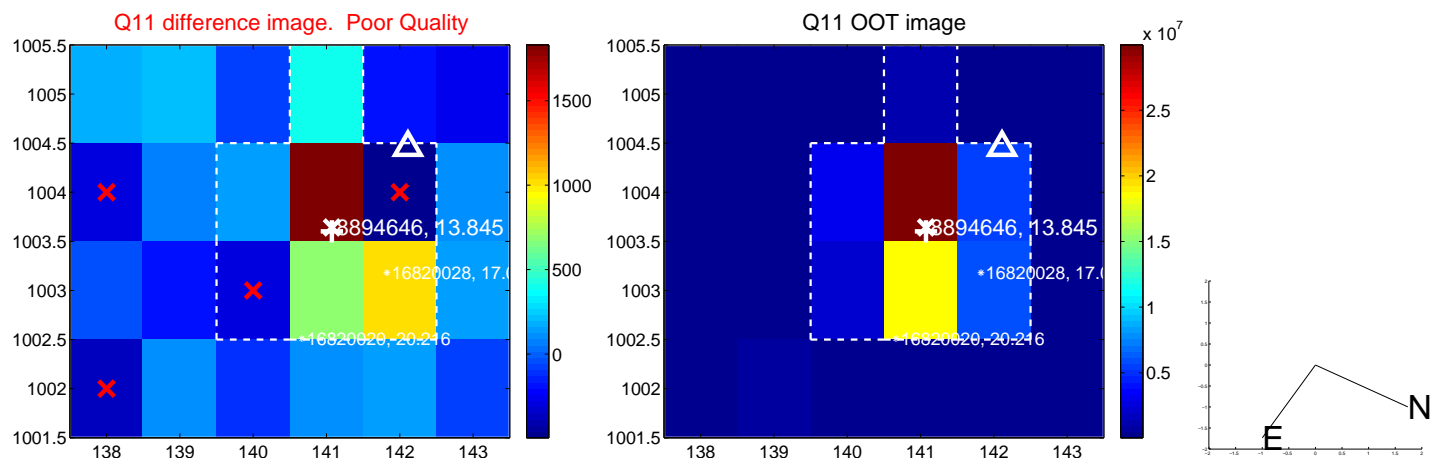
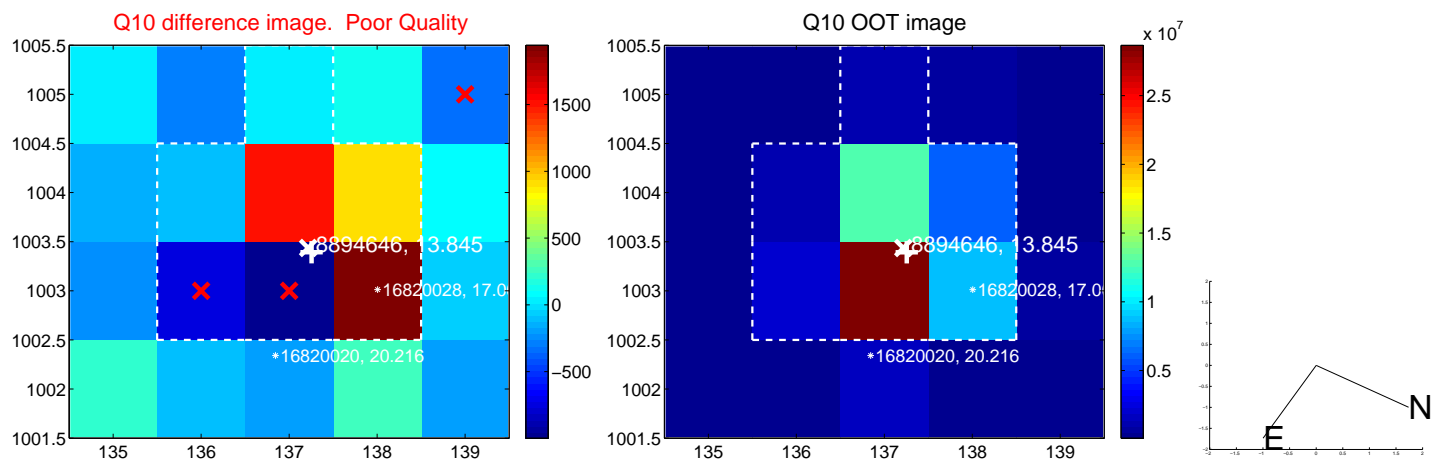
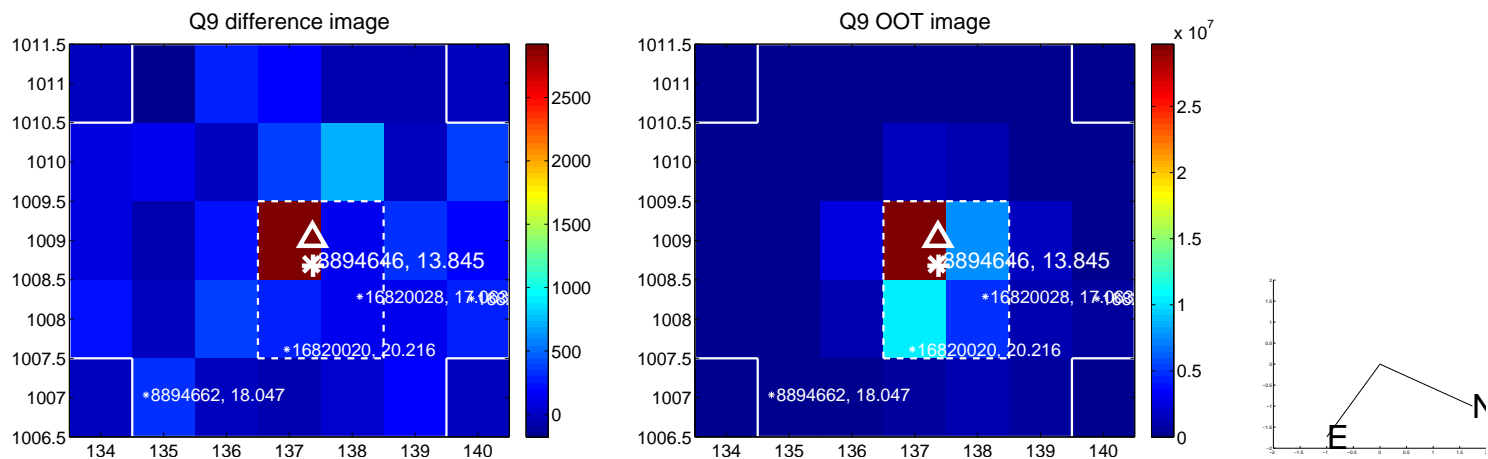
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



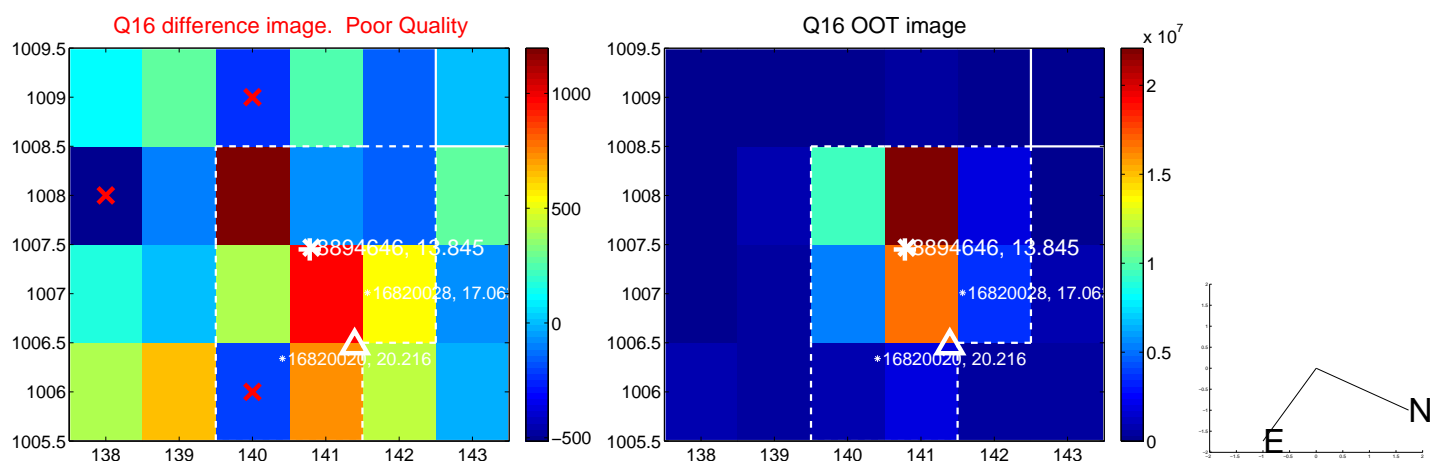
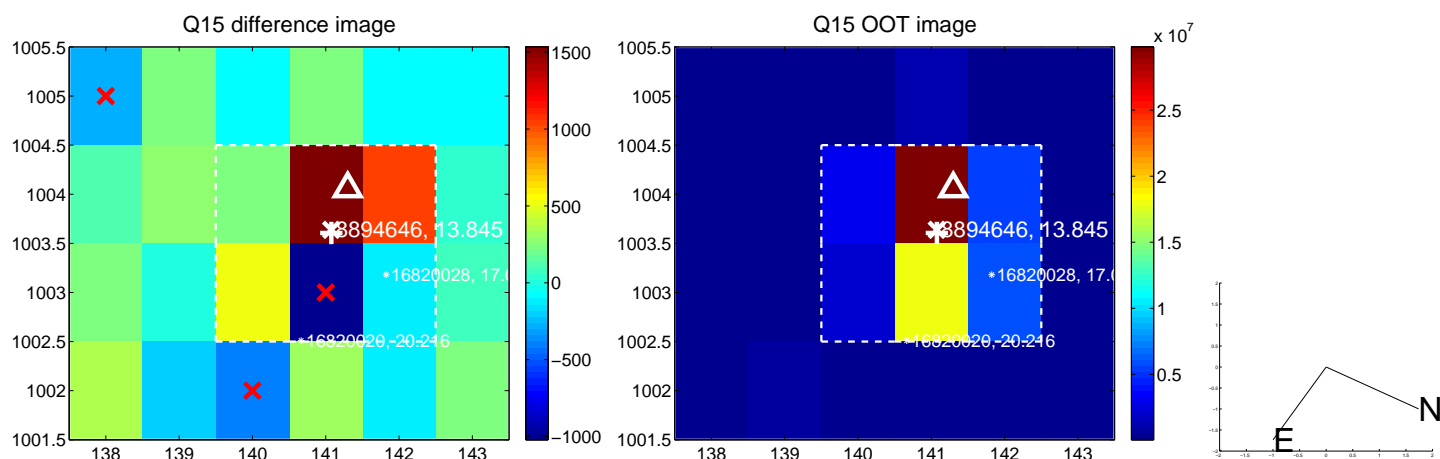
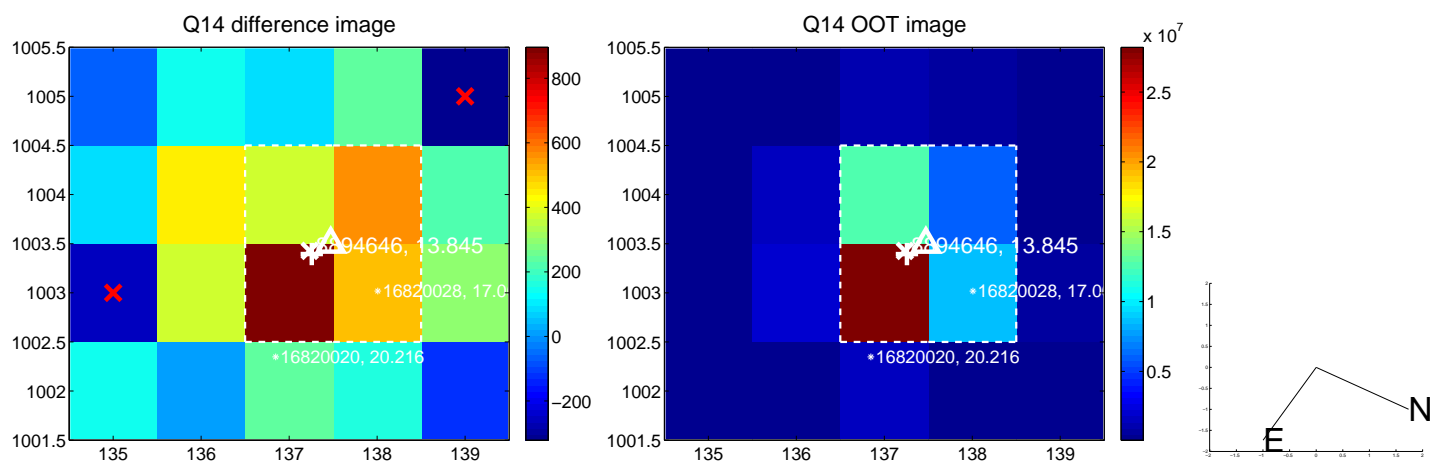
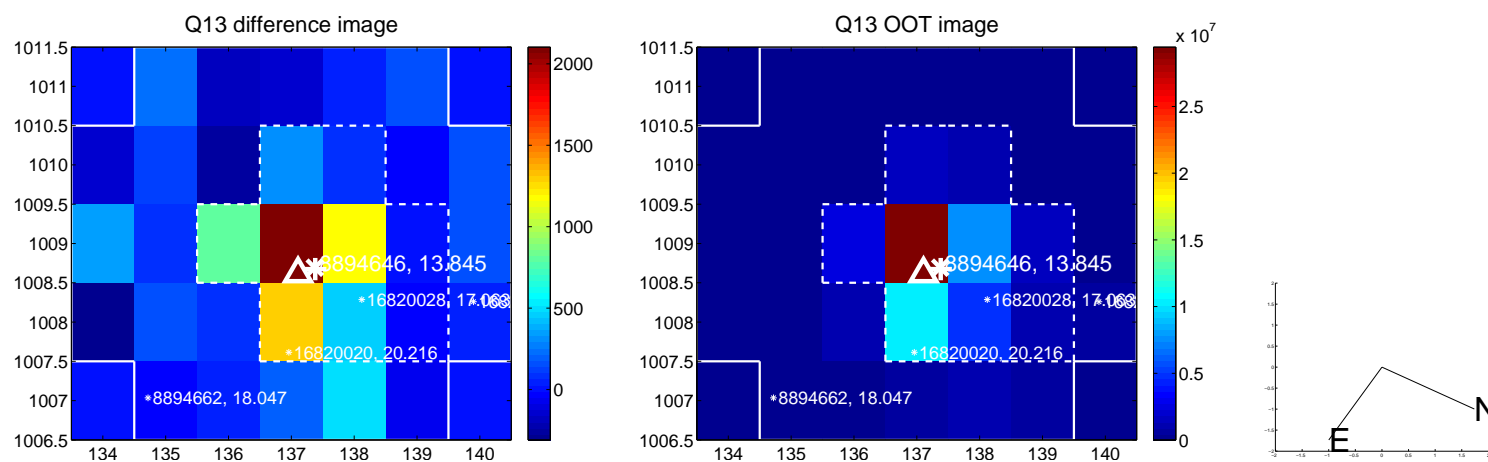
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

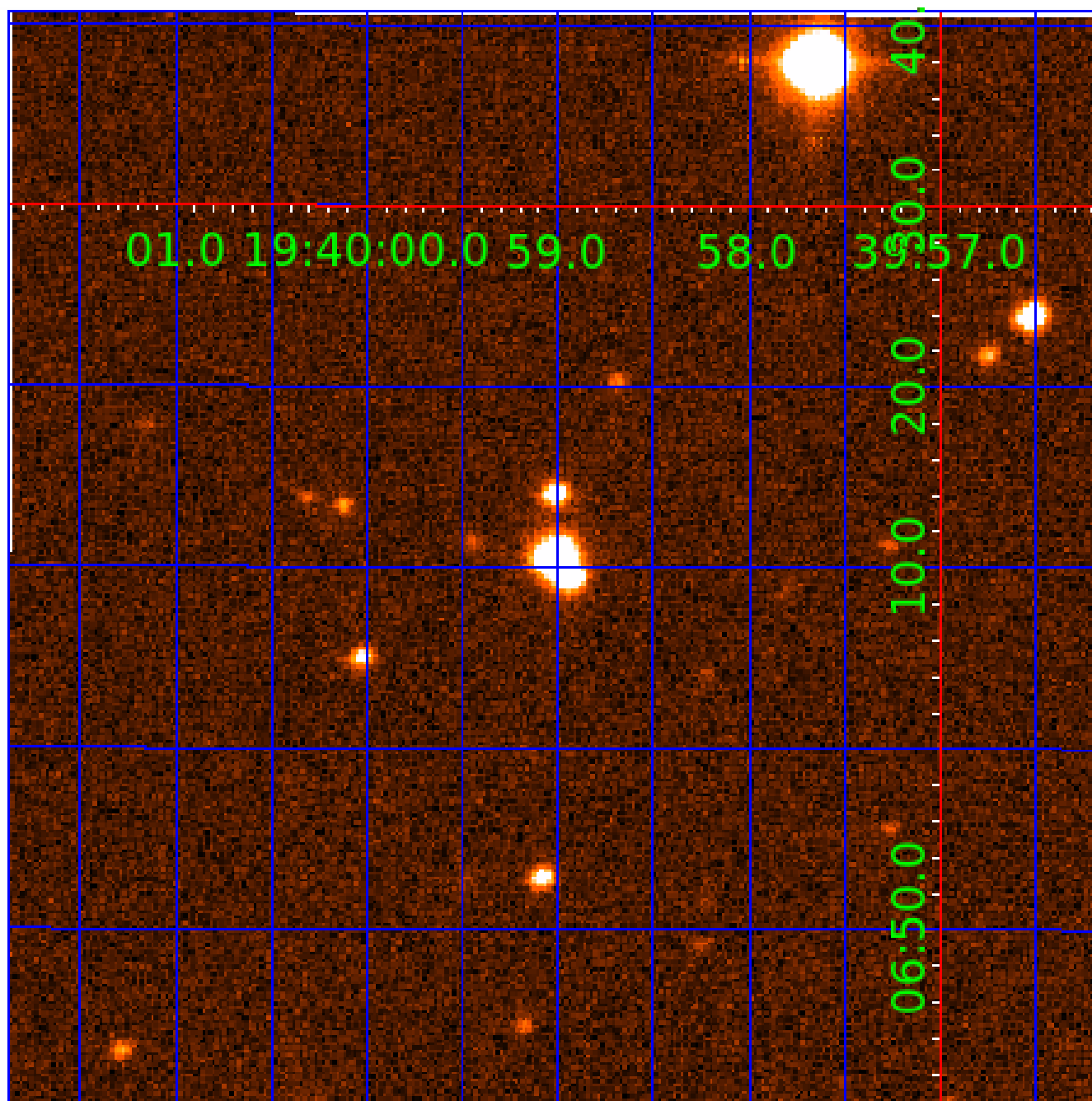


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 008894646

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})
008894646-01	OBS	2641.01	3.555574	132.753478	58.6	3.488	14.2	14.7	1.08	5839	0.98	616.39
008894646-02	OBS	No	0.541940	131.921263	6.7	5.446	8.0	4.8	1.08	5839	0.28	7570.62

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
008894646-01	OBS	PC	1.00	0	0	0	0	NO_COMMENT
008894646-02	OBS	FP	0.00	1	0	0	0	LPP_DV—CENT_FEW_DIFFS

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

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

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

Ephemeris Match Information For 008894646-02

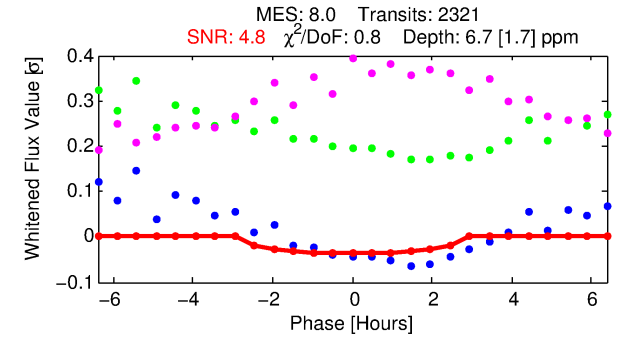
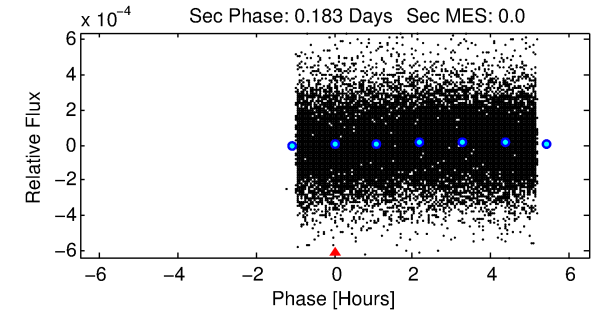
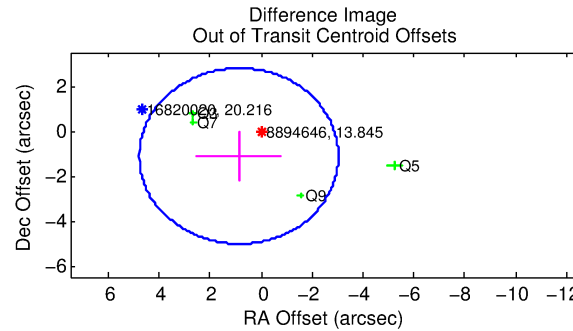
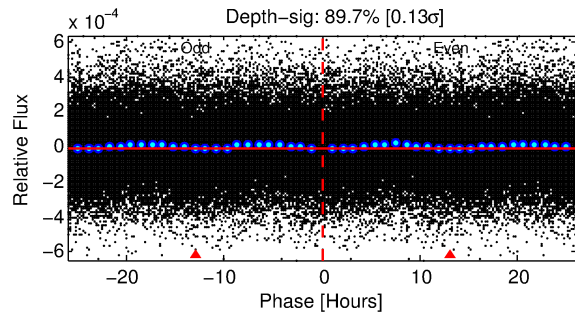
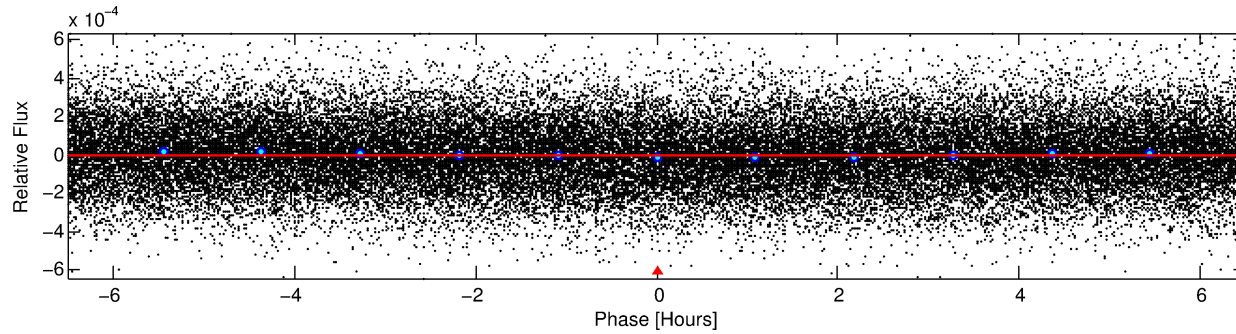
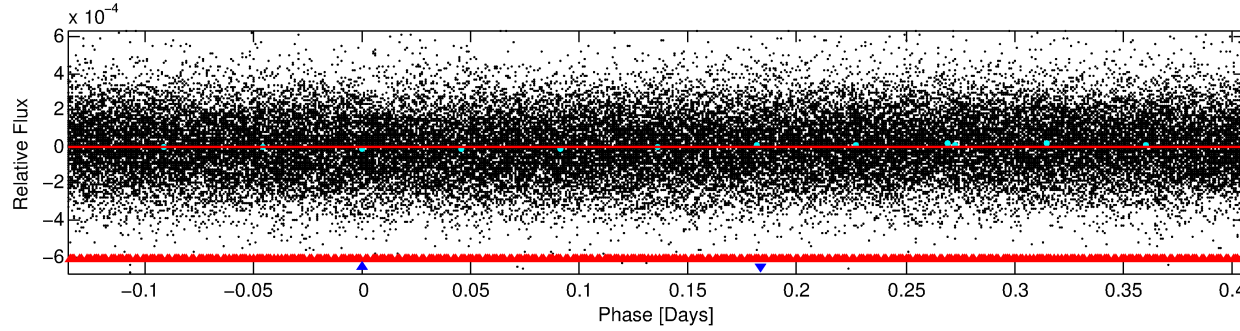
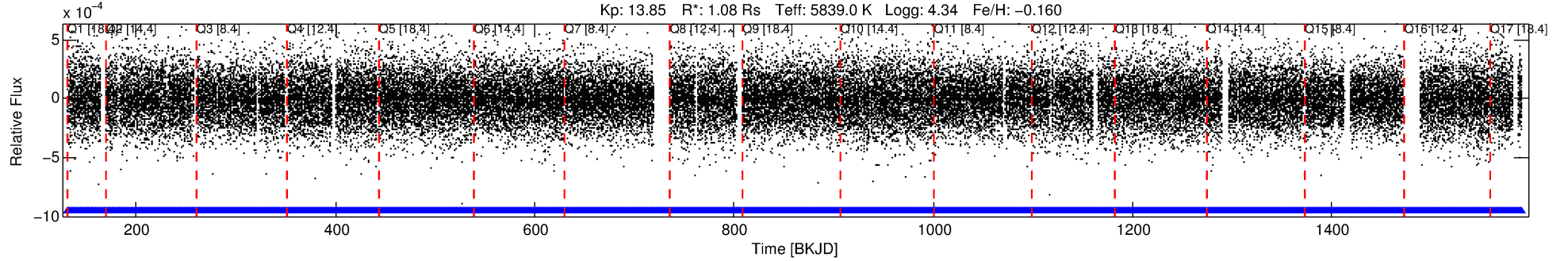
No Significant Match Found

DV One-Page Summary

KIC: 8894646 Candidate: 2 of 2 Period: 0.542 d

KOI: K02641 Corr: No Ephemeris Match

Kp: 13.85 R*: 1.08 Rs Teff: 5839.0 K Logg: 4.34 Fe/H: -0.160



DV Fit Results:

Period = 0.54194 [0.00002] d
Epoch = 131.9213 [0.0128] BKJD
Rp/R* = 0.0024 [0.0055]
a/R* = 1.04 [0.73]
b = 0.03 [371.31]
Seff = 7570.62 [2709.10]
Teq = 2379 [213] K
Rp = 0.28 [0.66] Re
a = 0.0127 [0.0030] AU
Ag = N/A
Teffp = N/A

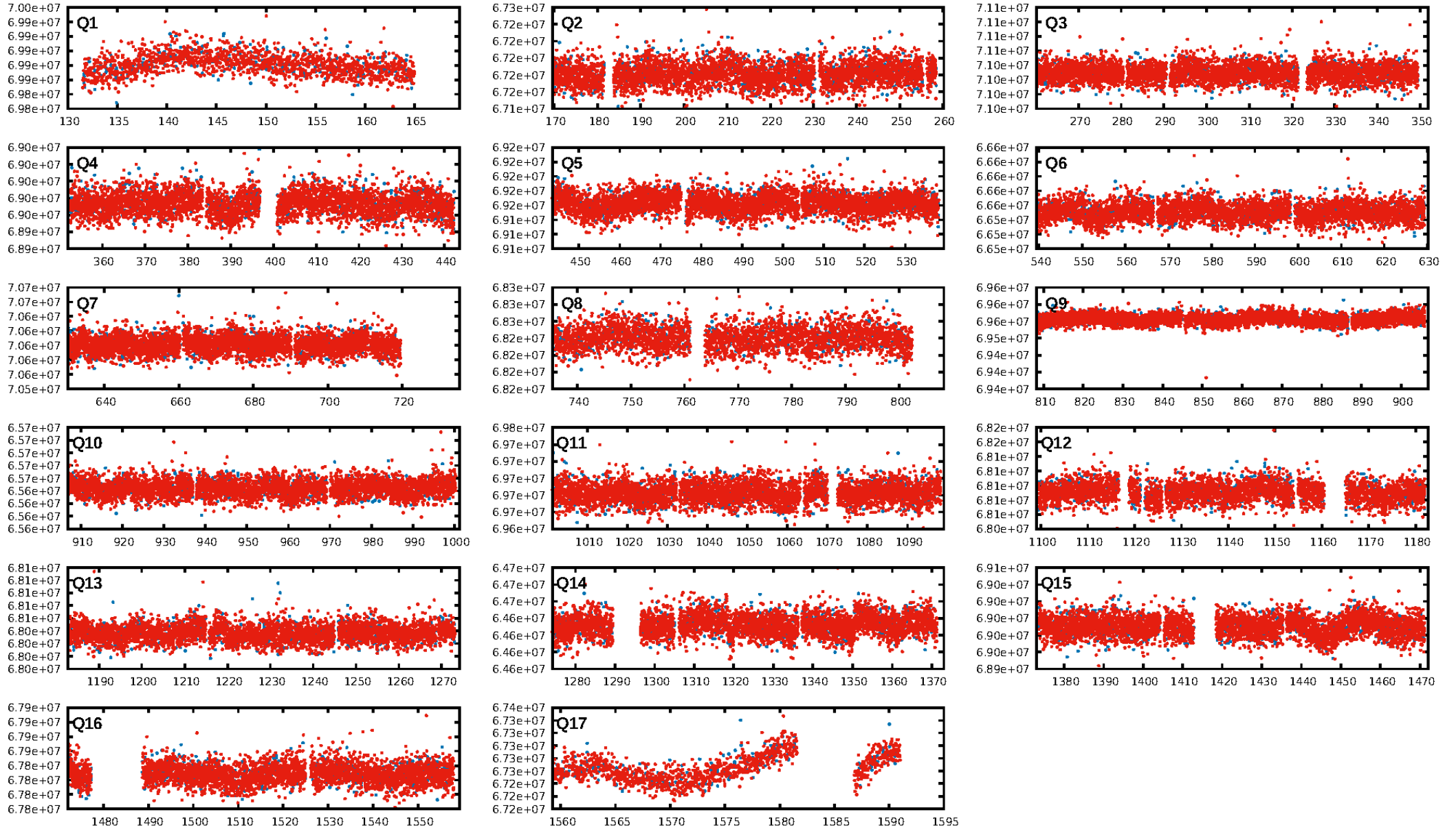
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: 100.0% [11.18σ]
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: N/A
RollingBand-fgt: 1.00 [2216/2216]
GhostDiagnostic-chr: 0.4214
Centroid-sig: 0.0%
Centroid-so: 10.948 arcsec [4.27σ]
OotOffset-rm: 1.421 arcsec [1.09σ]
KicOffset-rm: 1.395 arcsec [1.03σ]
OotOffset-st: 0/2/0/2 [4]
KicOffset-st: 0/2/0/2 [4]
DiffImageQuality-fgm: 0.50 [2/4]
DiffImageOverlap-fno: 1.00 [17/17]

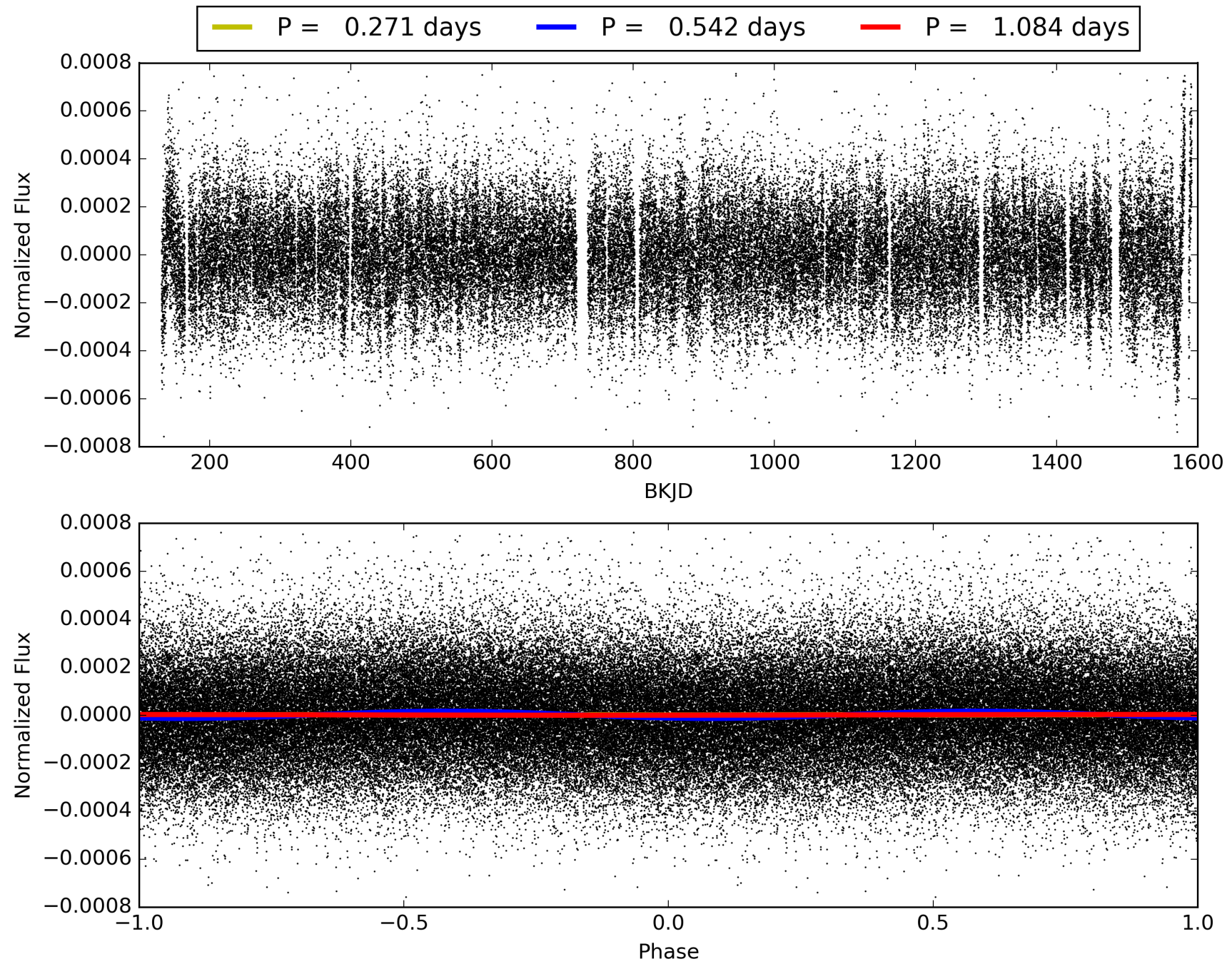
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 31-Jan-2016 13:38:46 Z

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

TCE 008894646-02, PDC Light Curves

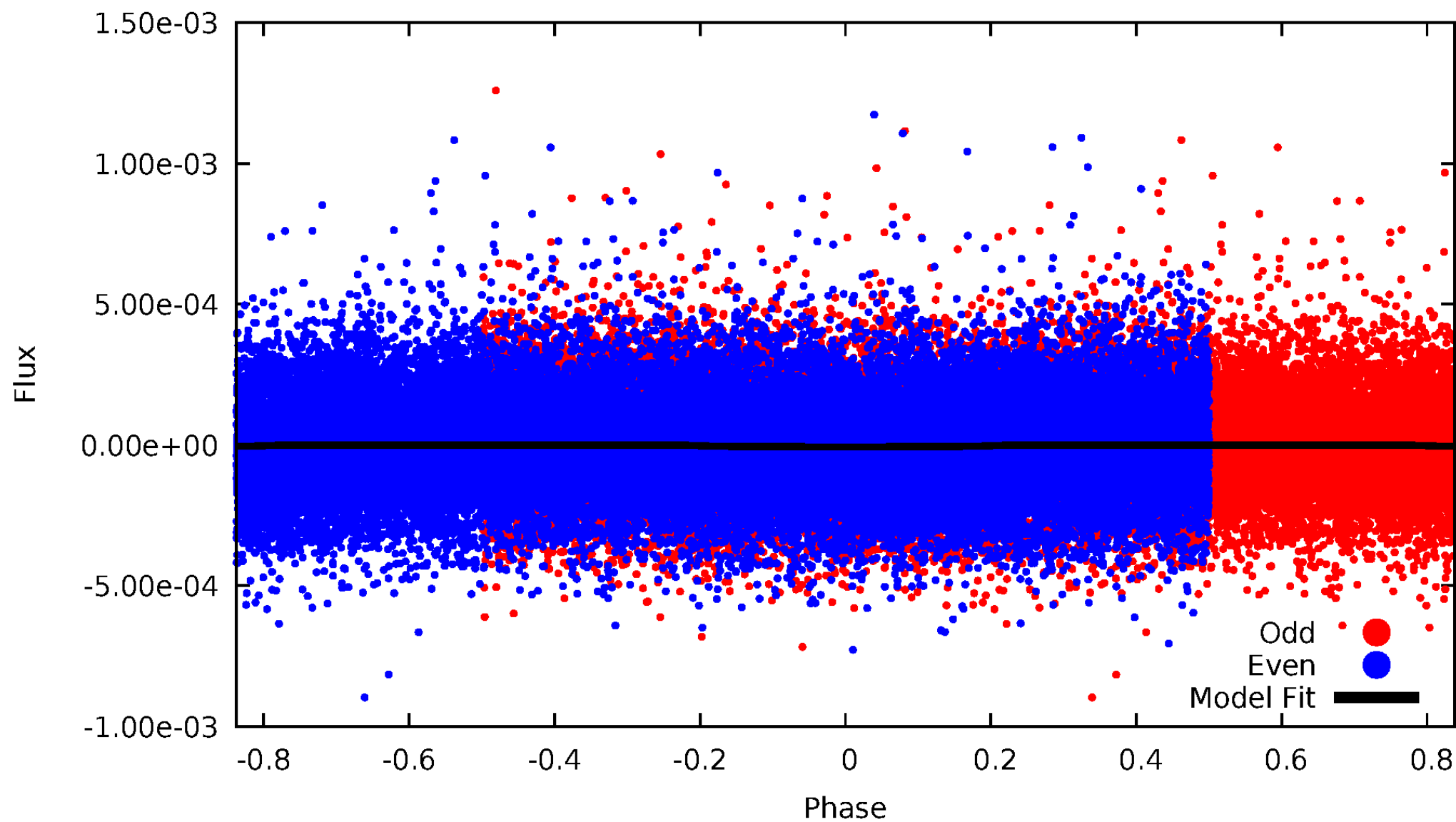


TCE 008894646-02



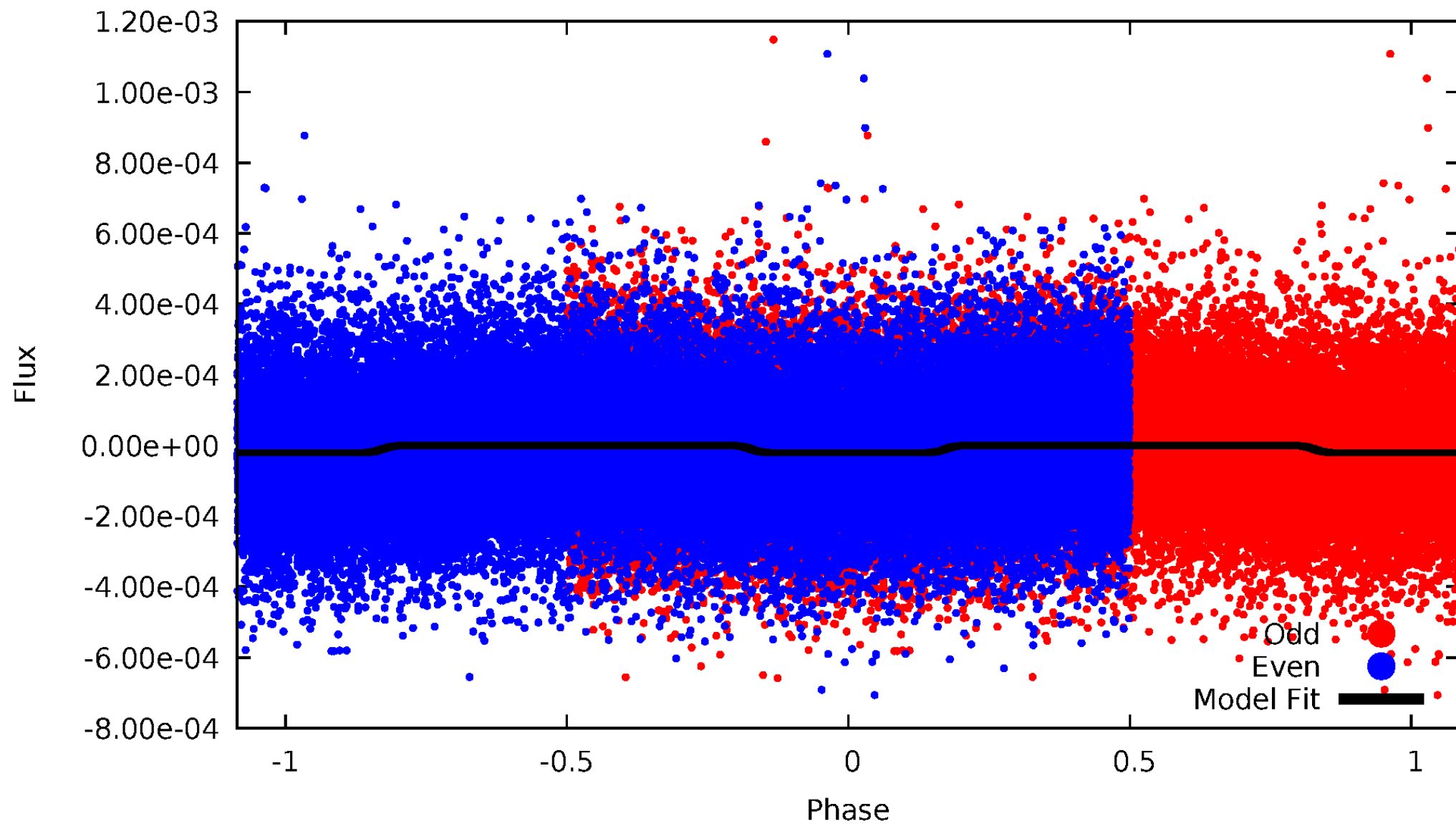
DV Odd/Even

TCE 008894646-02



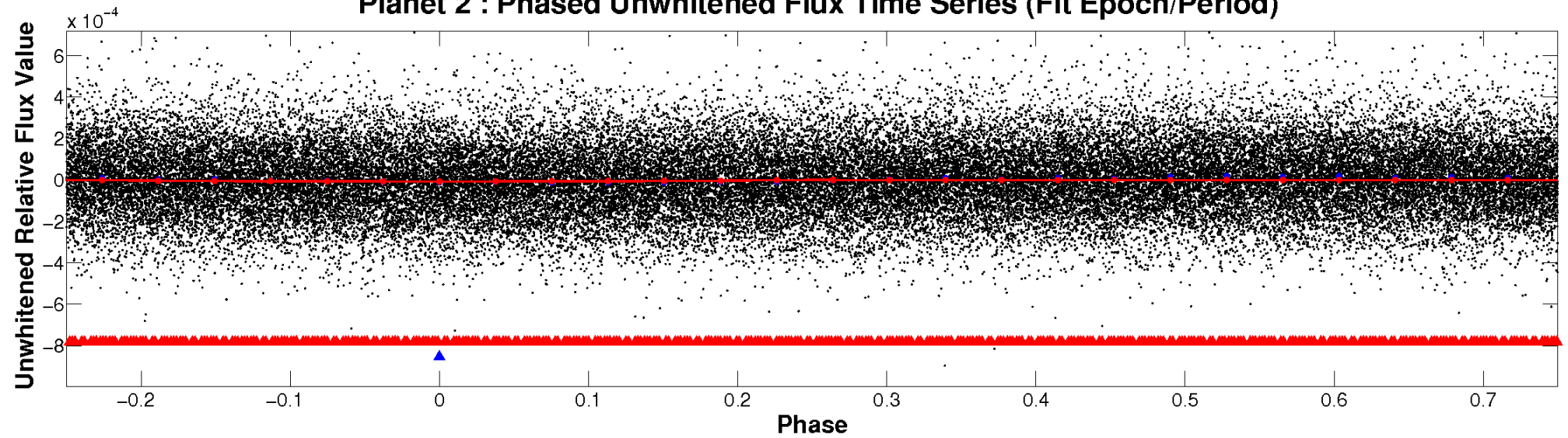
ALT Odd/Even

TCE 008894646-02

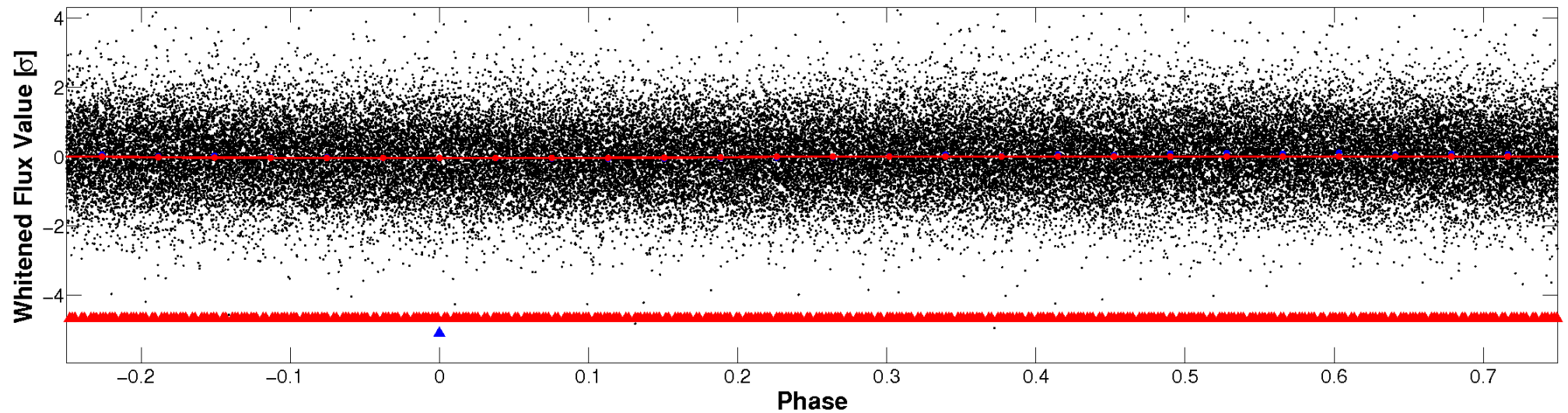


Non-Whitened Vs. Whitened Light Curve

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

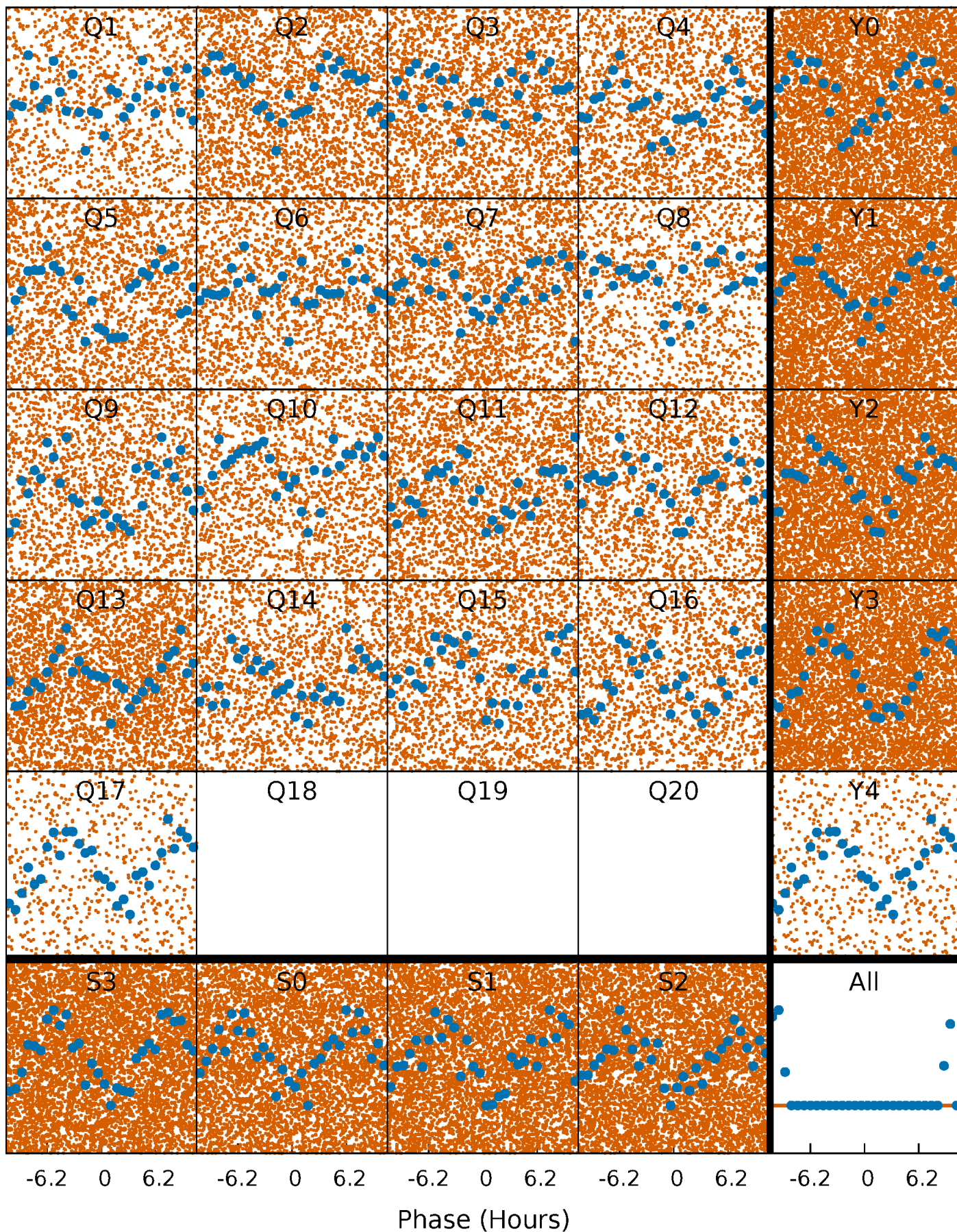


Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



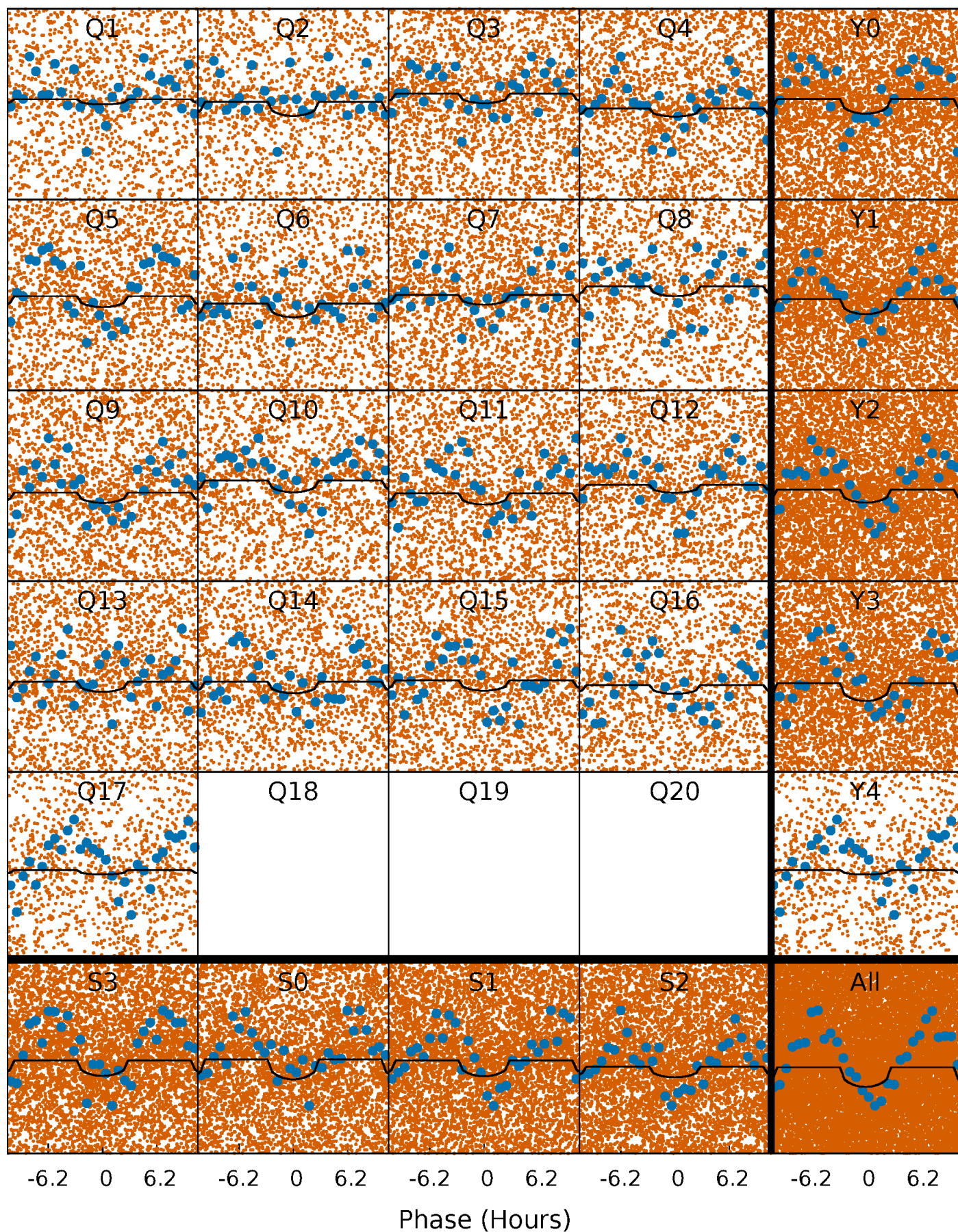
PDC Quarter-Phased Transit Curves

TCE 008894646-02 P= 0.541940 Days $T_0=131.921263$ (BKJD)



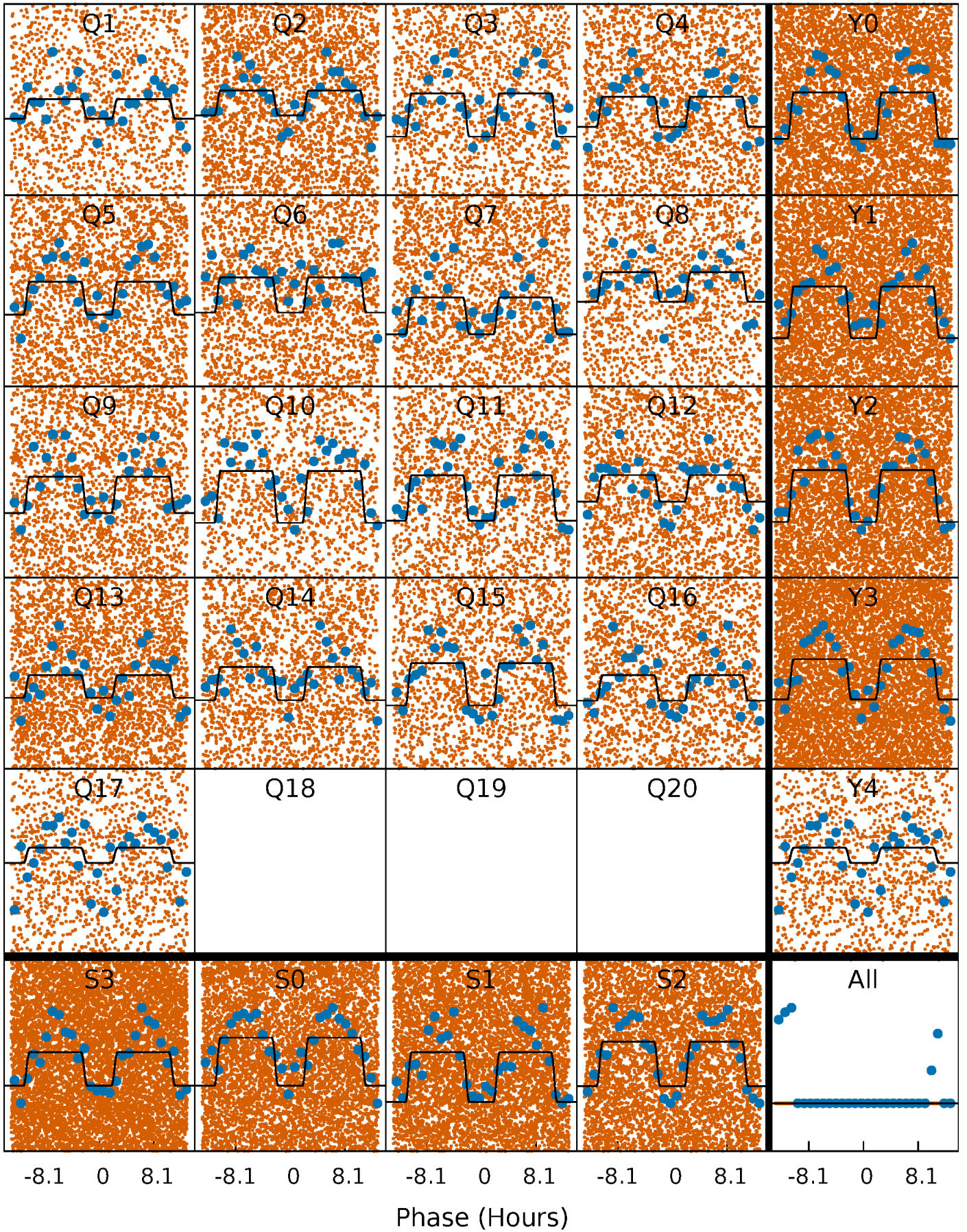
DV Quarter-Phased Transit Curves

TCE 008894646-02 P= 0.541940 Days $T_0=131.921263$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

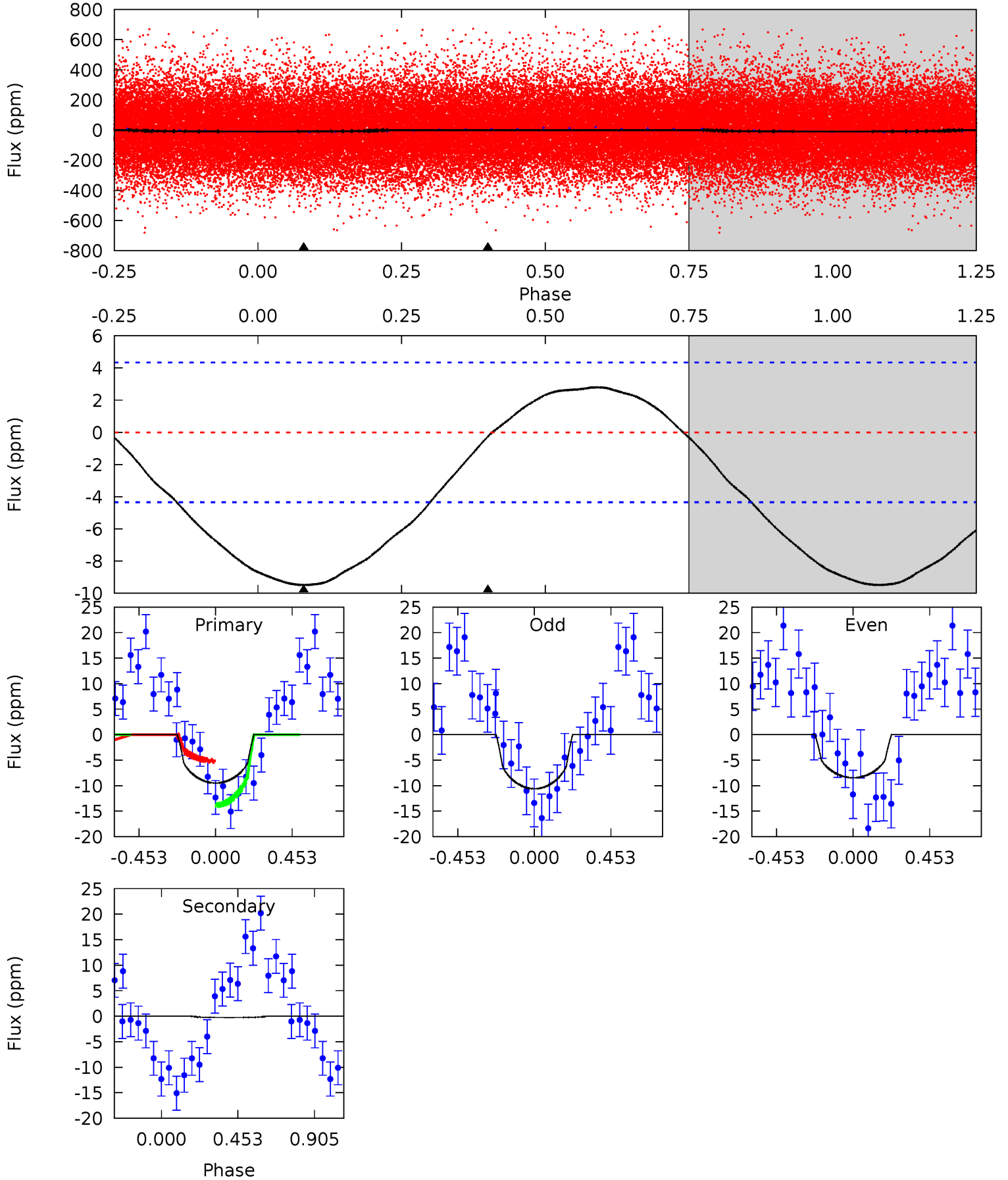
TCE 008894646-02 P= 0.542006 Days $T_0=131.866567$ (BKJD)



DV Model-Shift Uniqueness Test

008894646-02, P = 0.541940 Days, E = 131.379323 Days

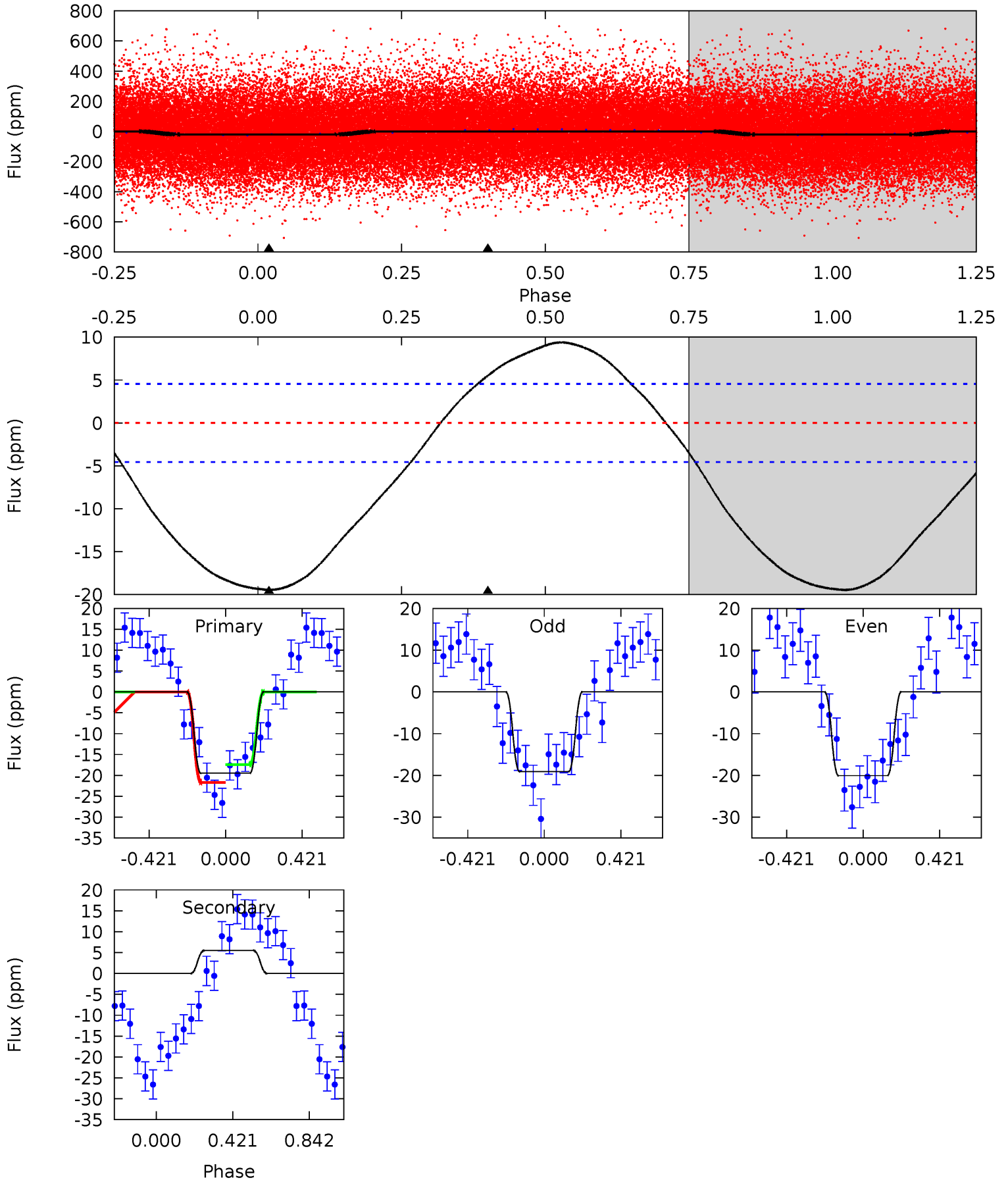
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
9.25	0.26	0	0	4.24	0.75	0.96	9.25	9.25	0.26	0.26	1.05	1.02	0.23	4.18



Alt Model-Shift Uniqueness Test

008894646-02, P = 0.542006 Days, E = 131.324561 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
18.2	-5.13	0	0	4.25	0.80	2.27	18.2	18.2	-5.13	-5.13	0.43	1.00	0.33	2.00



Stellar Parameters For KIC 008894646

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	5839^{+147}_{-161}	$4.337^{+0.153}_{-0.187}$	$-0.160^{+0.300}_{-0.300}$	$1.082^{+0.297}_{-0.198}$	$0.926^{+0.132}_{-0.088}$	$1.031^{+0.766}_{-0.506}$
	+3%/-3%	+4%/-4%	+188%/-188%	+27%/-18%	+14%/-10%	+74%/-49%
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 008894646-02 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	-0 ± 1	$0.54^{+0.53}_{-0.39}$	3334^{+248}_{-201}	-3197^{+7053}_{-518}	$0.043^{+1.109}_{-0.323}$
Alt.	6 ± 1	$0.73^{+0.65}_{-0.48}$	3330^{+255}_{-208}	-4155^{+528}_{-2036}	$-0.888^{+0.626}_{-6.571}$

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

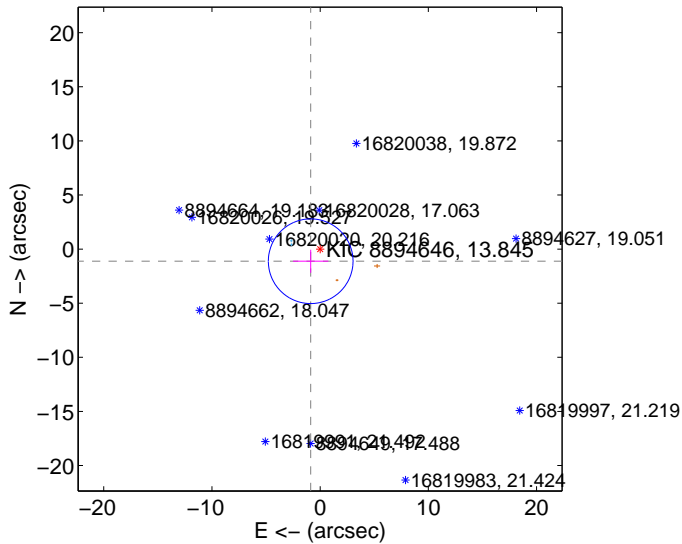
Supplemental centroid analysis for 008894646-02. Kepler magnitude: 13.85. Transit SNR 4.84

There are 2 quarters with good PRF difference image offsets

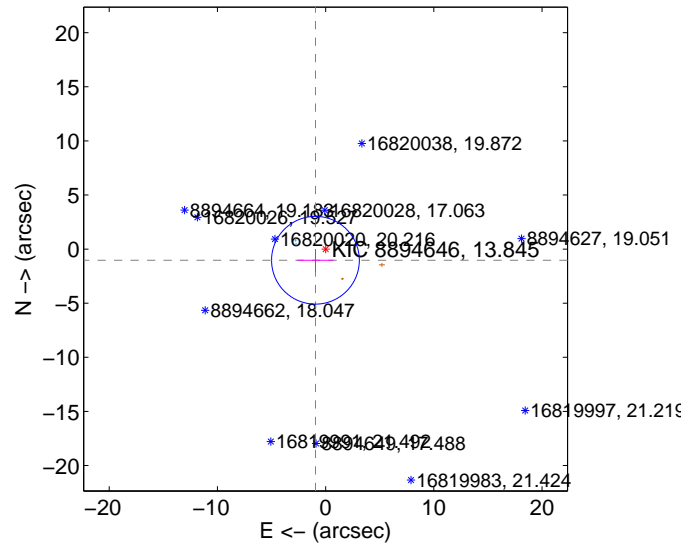
The direct PRF centroid is offset from the target star catalog position by about 0.13 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	1.421 ± 1.304	1.09	0.874 ± 1.628	-1.121 ± 1.060
PRF-fit source offset from KIC position	1.395 ± 1.351	1.03	0.941 ± 1.652	-1.031 ± 1.036
photometric centroid source offset	10.95 ± 2.56	4.27	-7.08 ± 2.38	8.35 ± 2.69

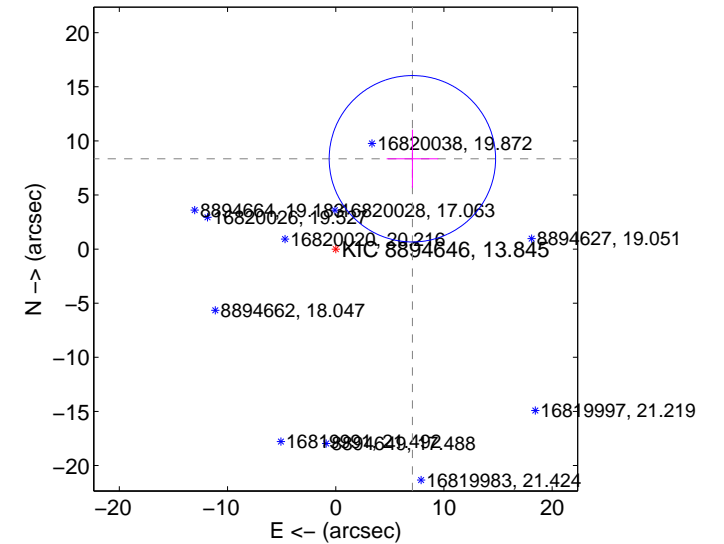
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position

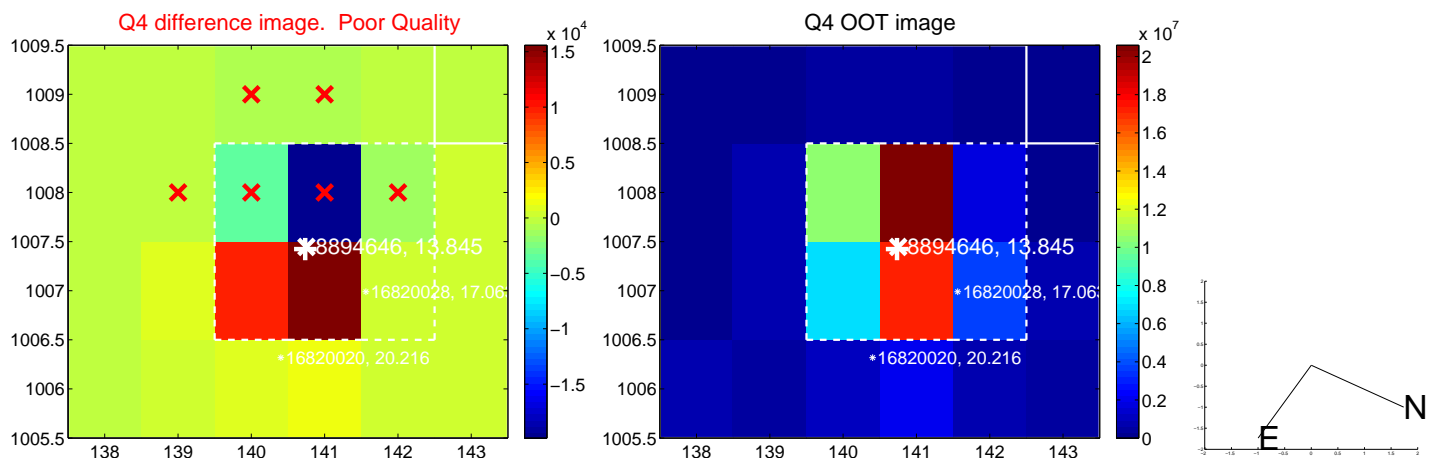
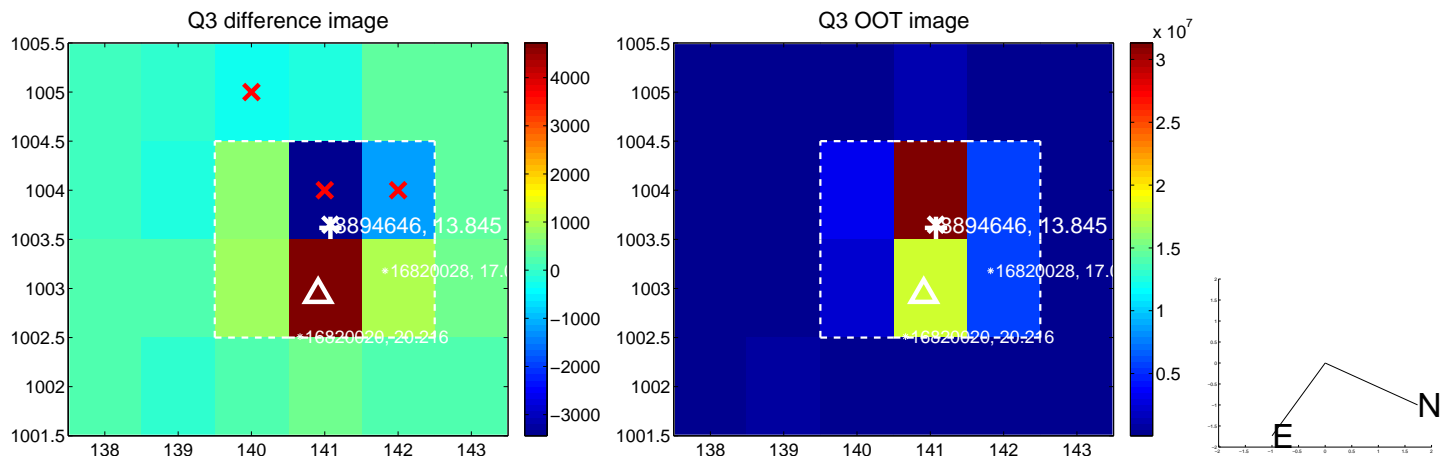
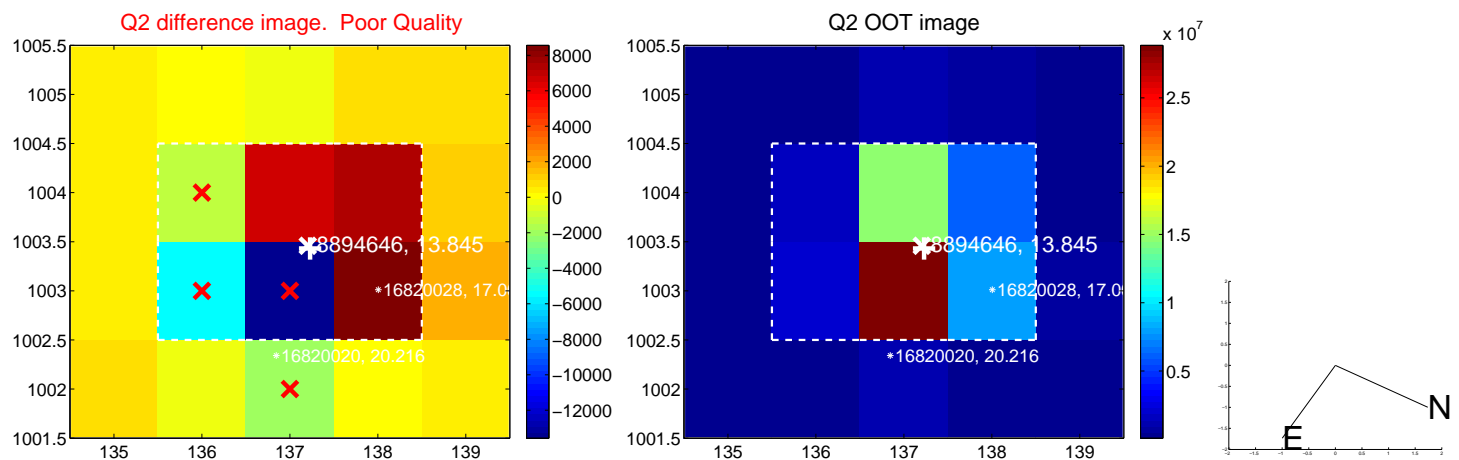
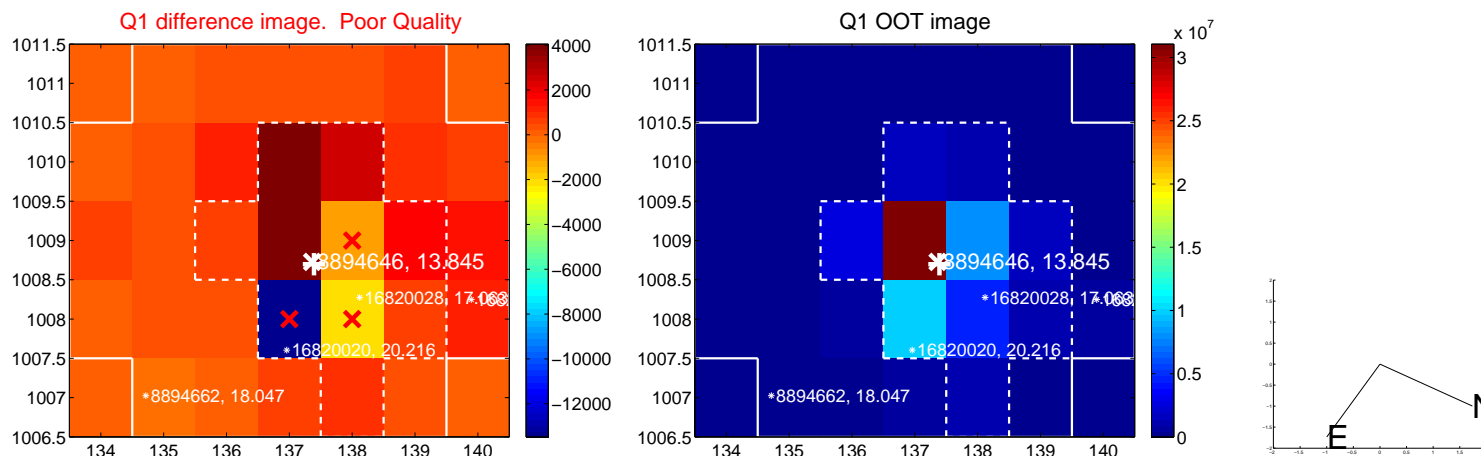


offset from photometric centroids

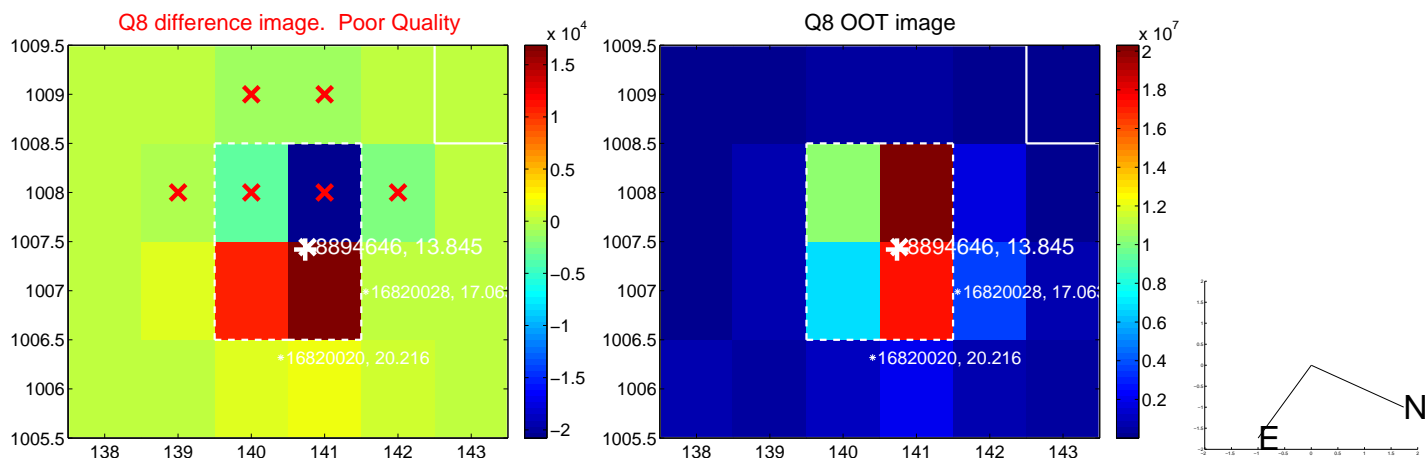
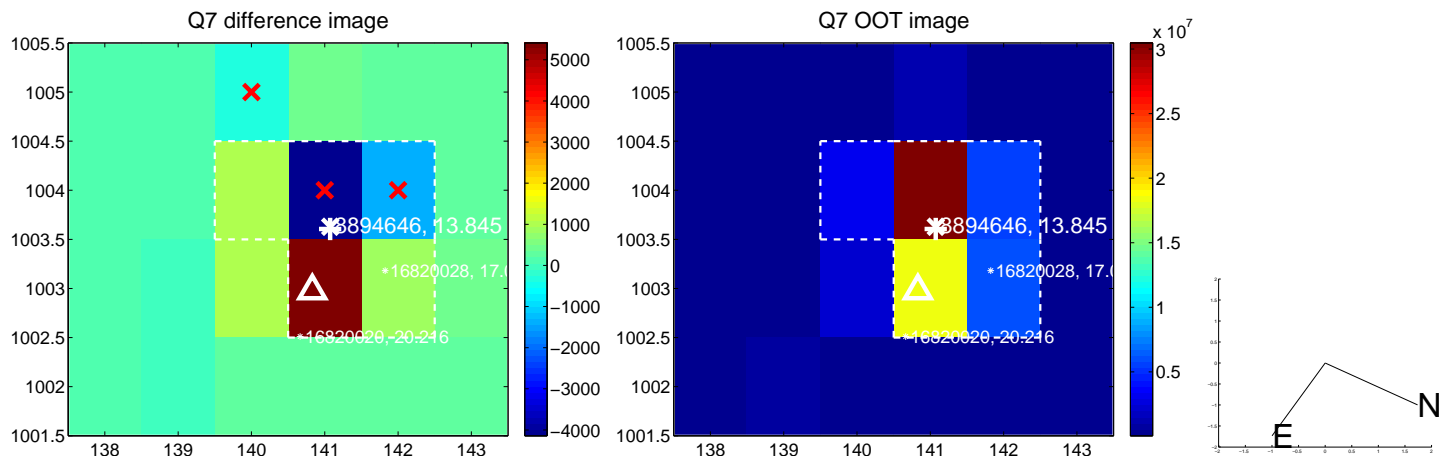
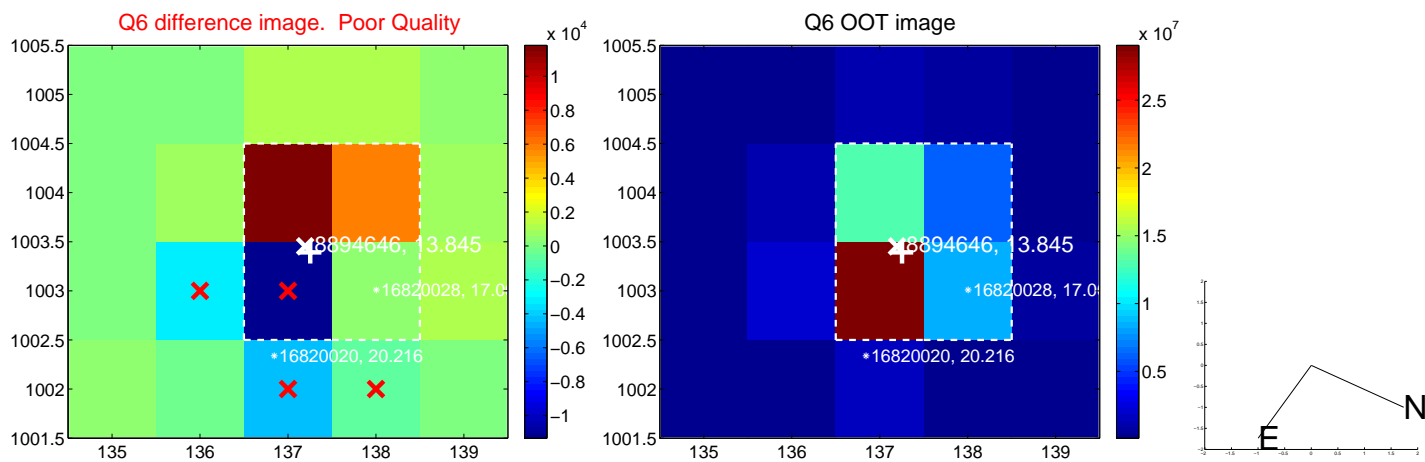
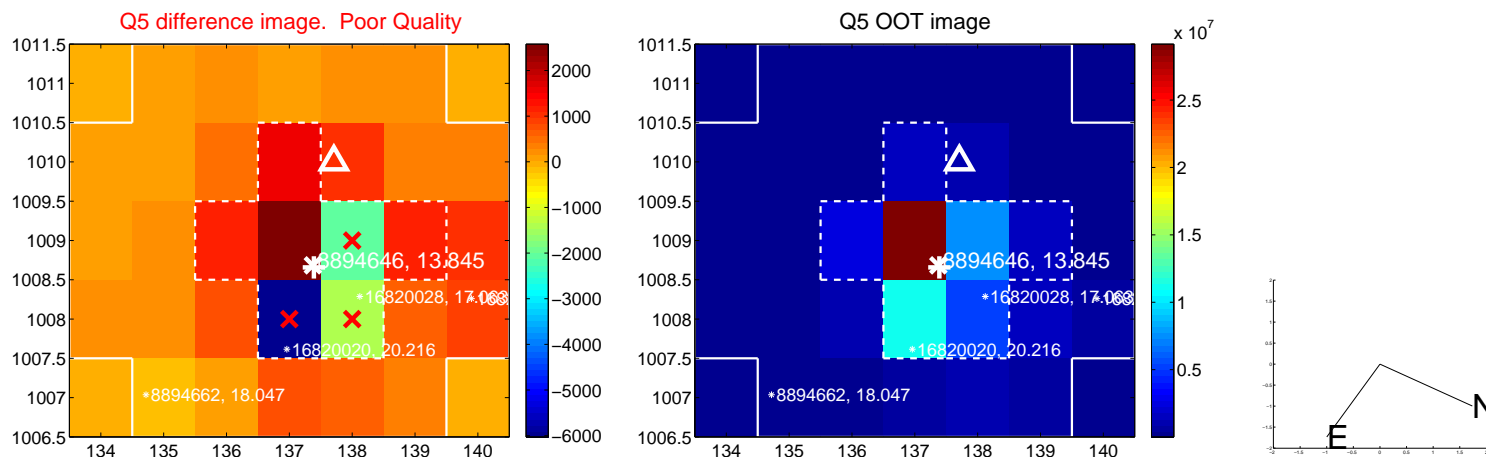


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ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

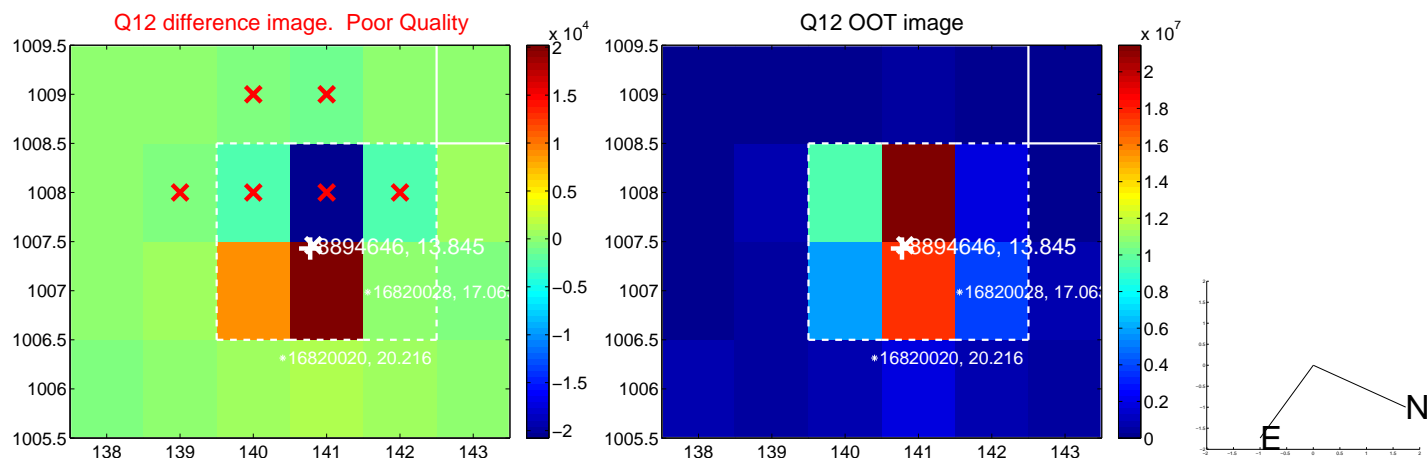
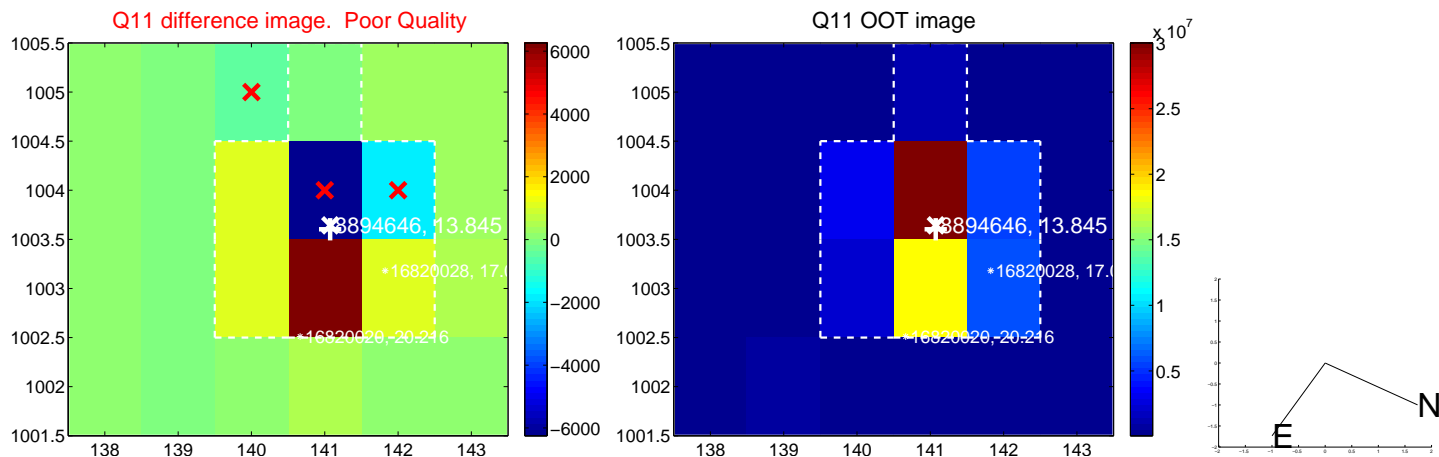
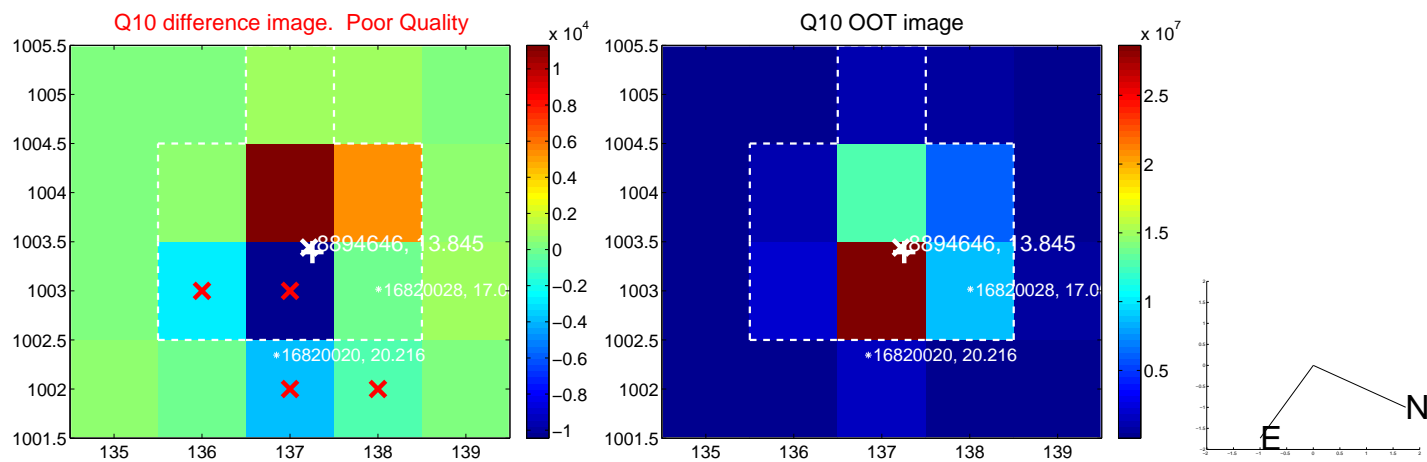
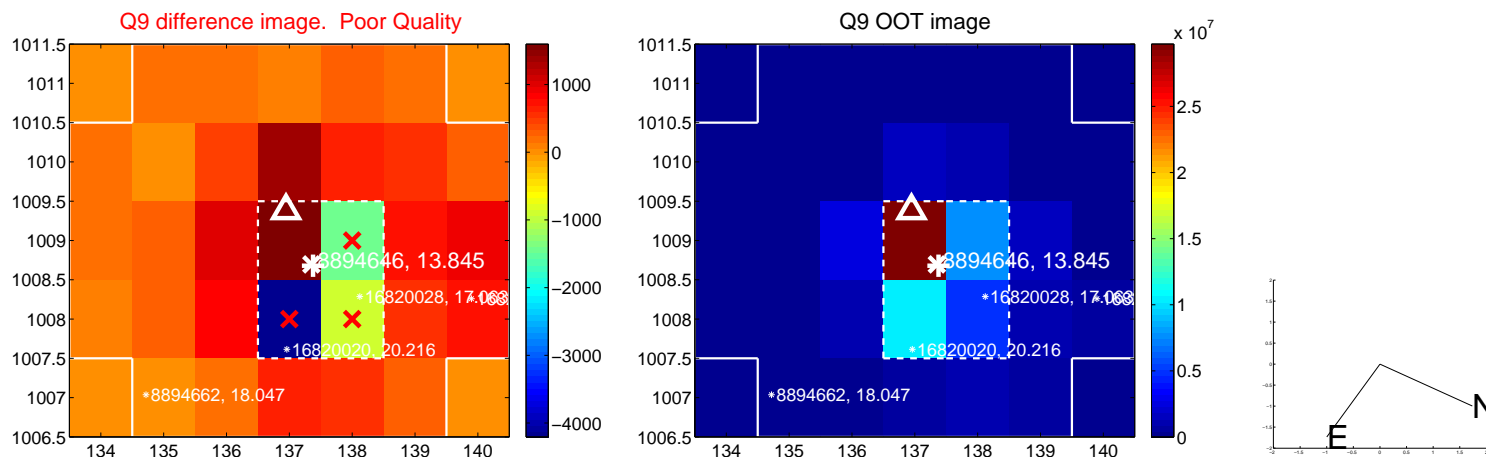
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



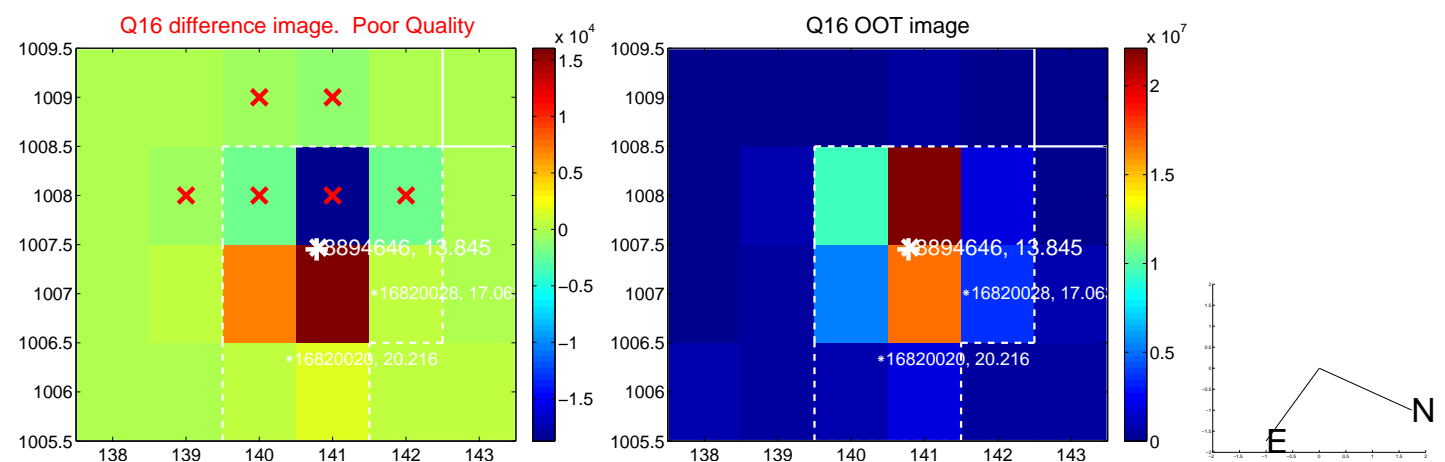
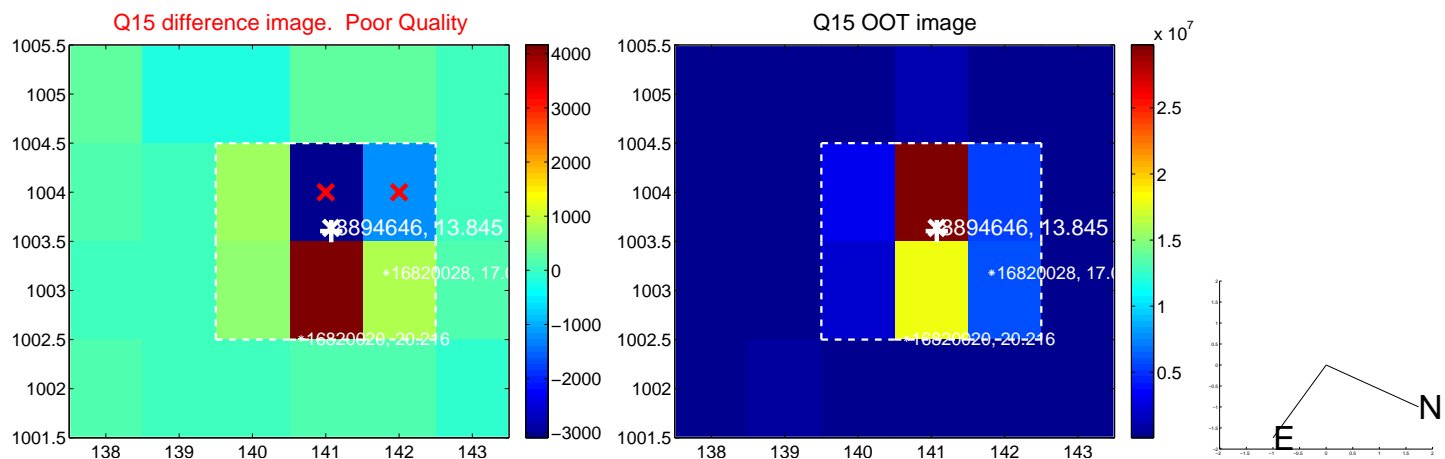
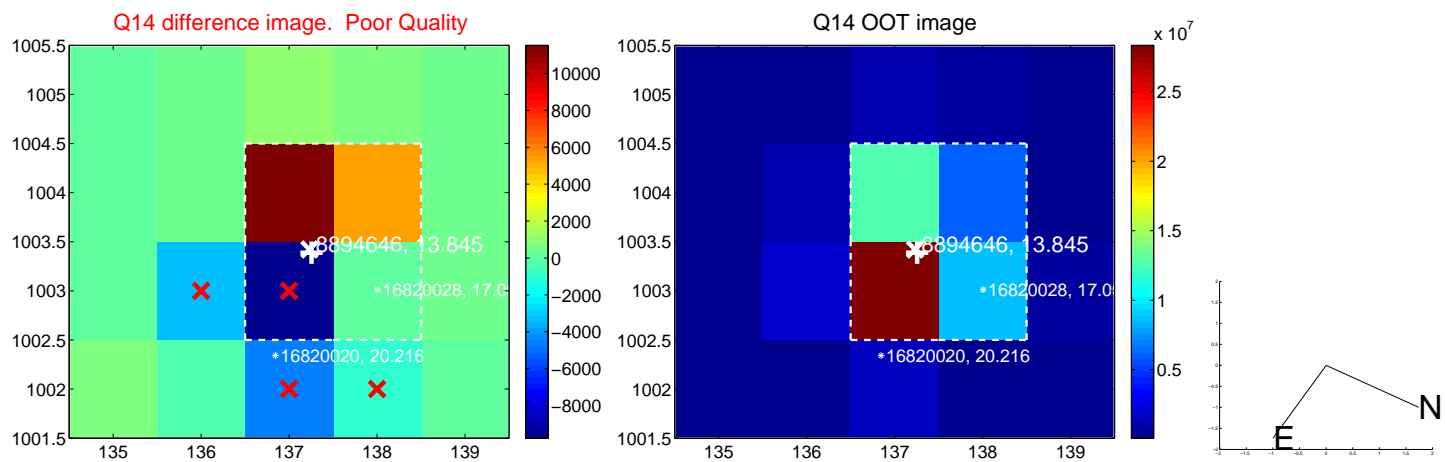
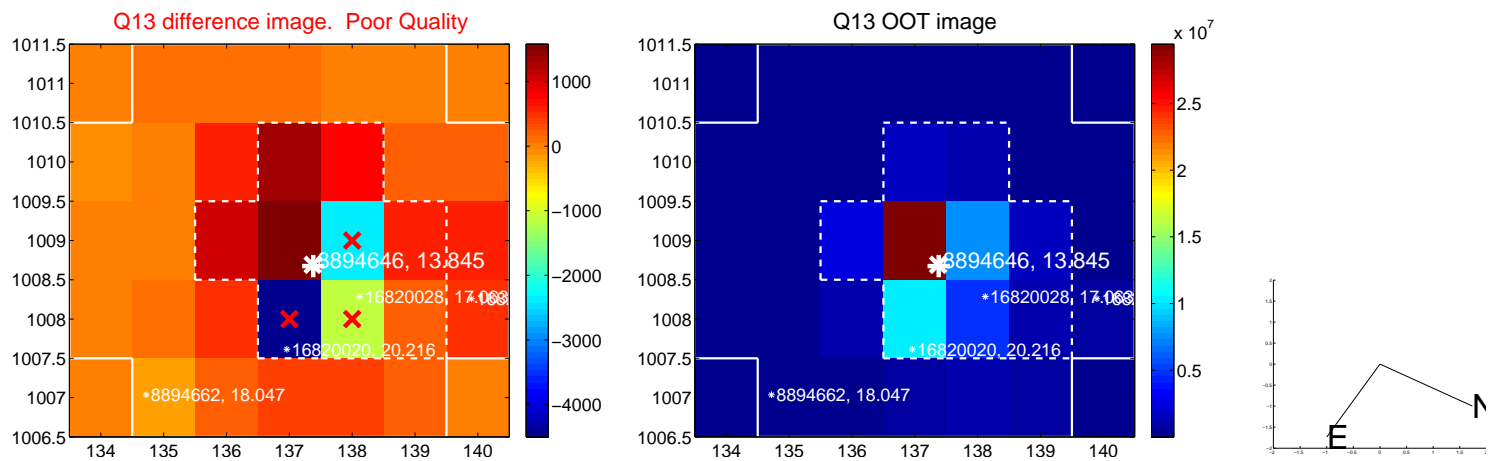
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



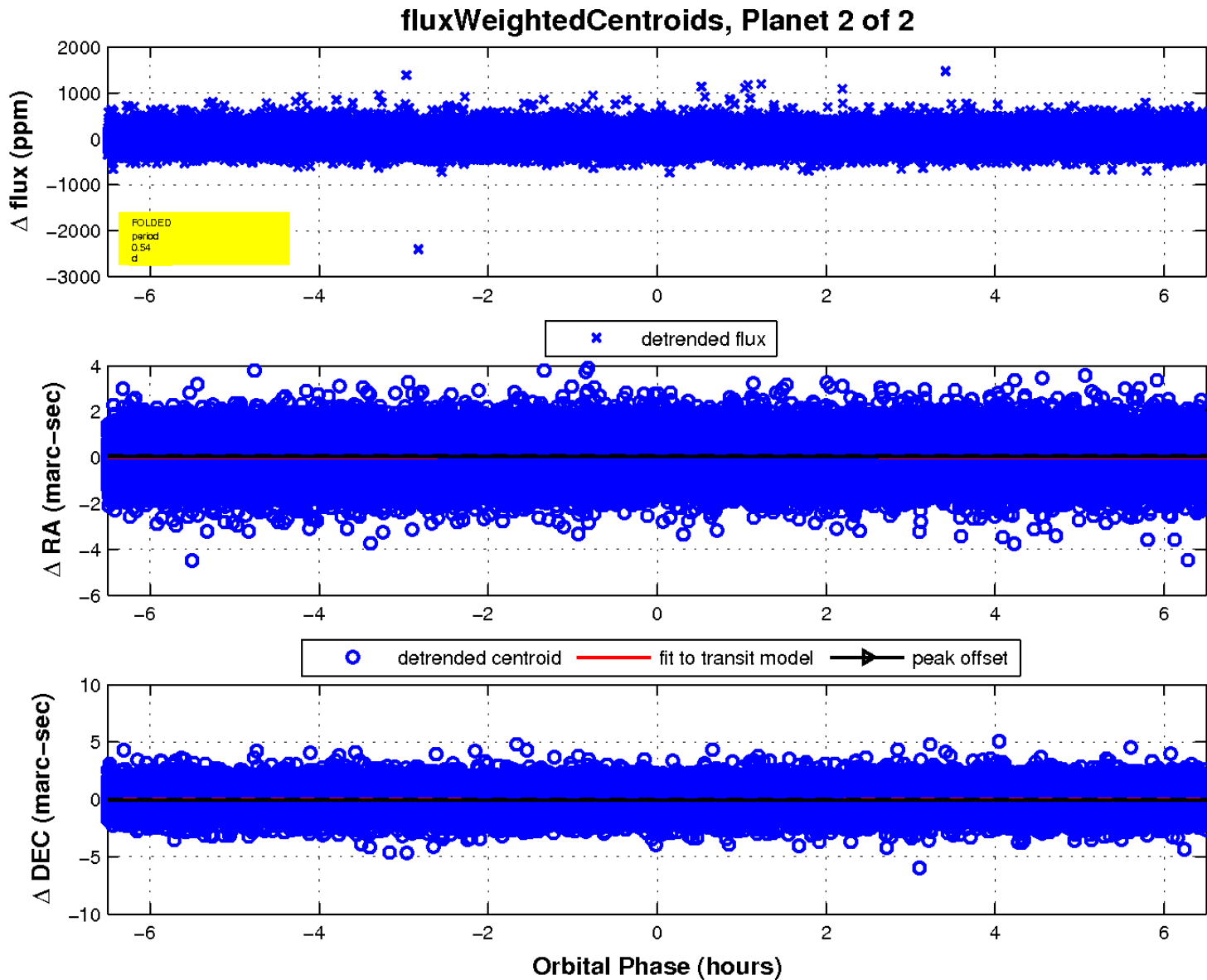
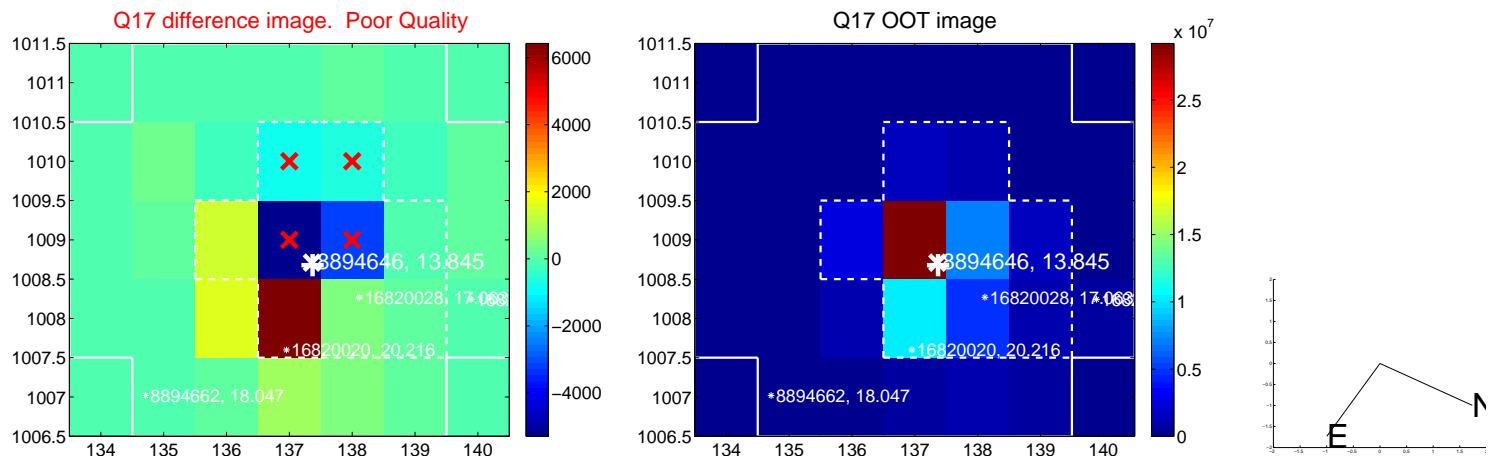
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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UKIRT Image

Declination

