

KIC 007107802

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})
007107802-01	OBS	2420.01	10.417282	137.456344	206.8	4.375	17.5	19.0	1.15	5557	1.98	135.51
007107802-02	OBS	2420.02	5.467526	133.424256	83.1	3.183	8.6	9.2	1.15	5557	1.19	320.07

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
007107802-01	OBS	PC	1.00	0	0	0	0	NO_COMMENT
007107802-02	OBS	PC	0.99	0	0	0	0	NO_COMMENT

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.

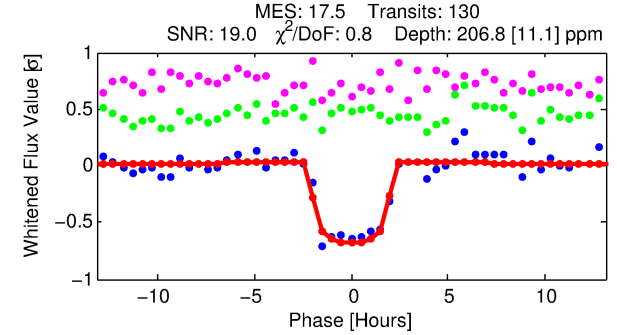
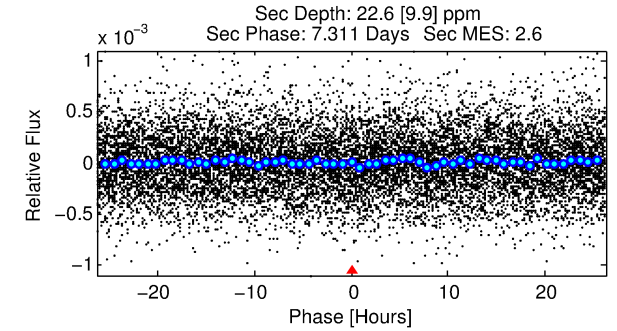
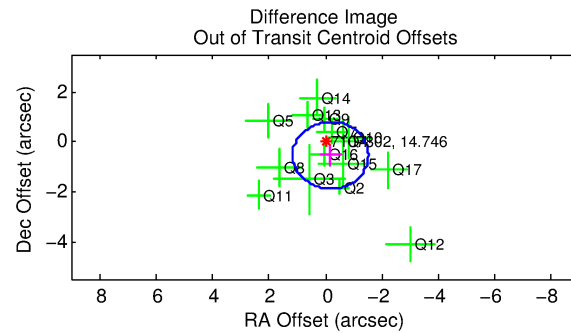
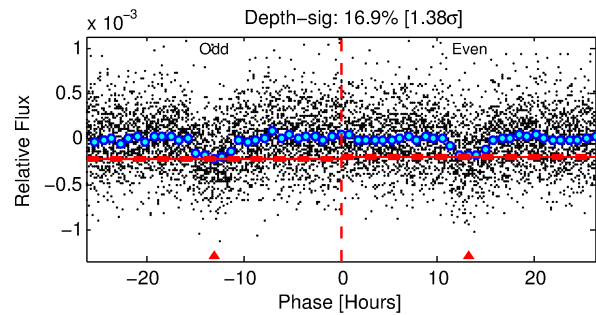
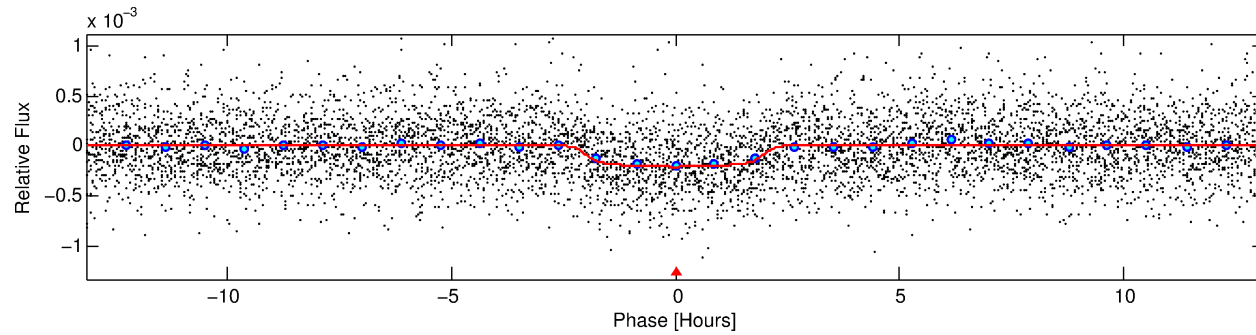
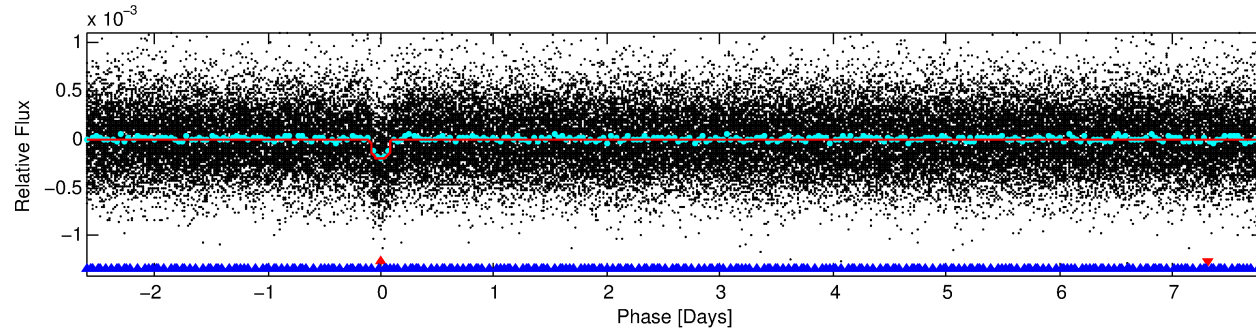
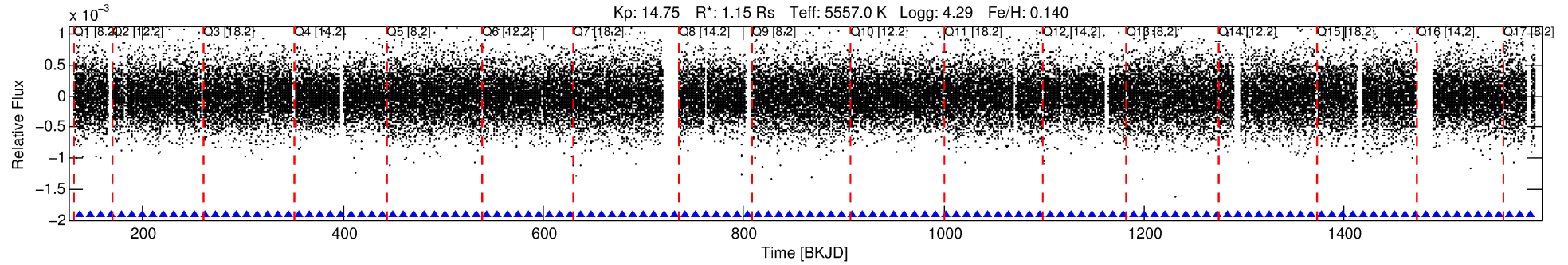
Ephemeris Match Information For 007107802-01

No Significant Match Found

DV One-Page Summary

KIC: 7107802 Candidate: 1 of 2 Period: 10.417 d

KOI: K02420.01 Corr: 0.978



DV Fit Results:

Period = 10.41728 [0.00006] d
Epoch = 137.4563 [0.0047] BKJD
Rp/R* = 0.0158 [0.0037]
a/R* = 8.68 [9.03]
b = 0.90 [0.23]
Seff = 135.51 [37.55]
Teq = 870 [60] K
Rp = 1.98 [0.57] Re
a = 0.0914 [0.0150] AU
Ag = 26.49 [18.51] [1.38 σ]
Teffp = 3051 [494] K [4.39 σ]

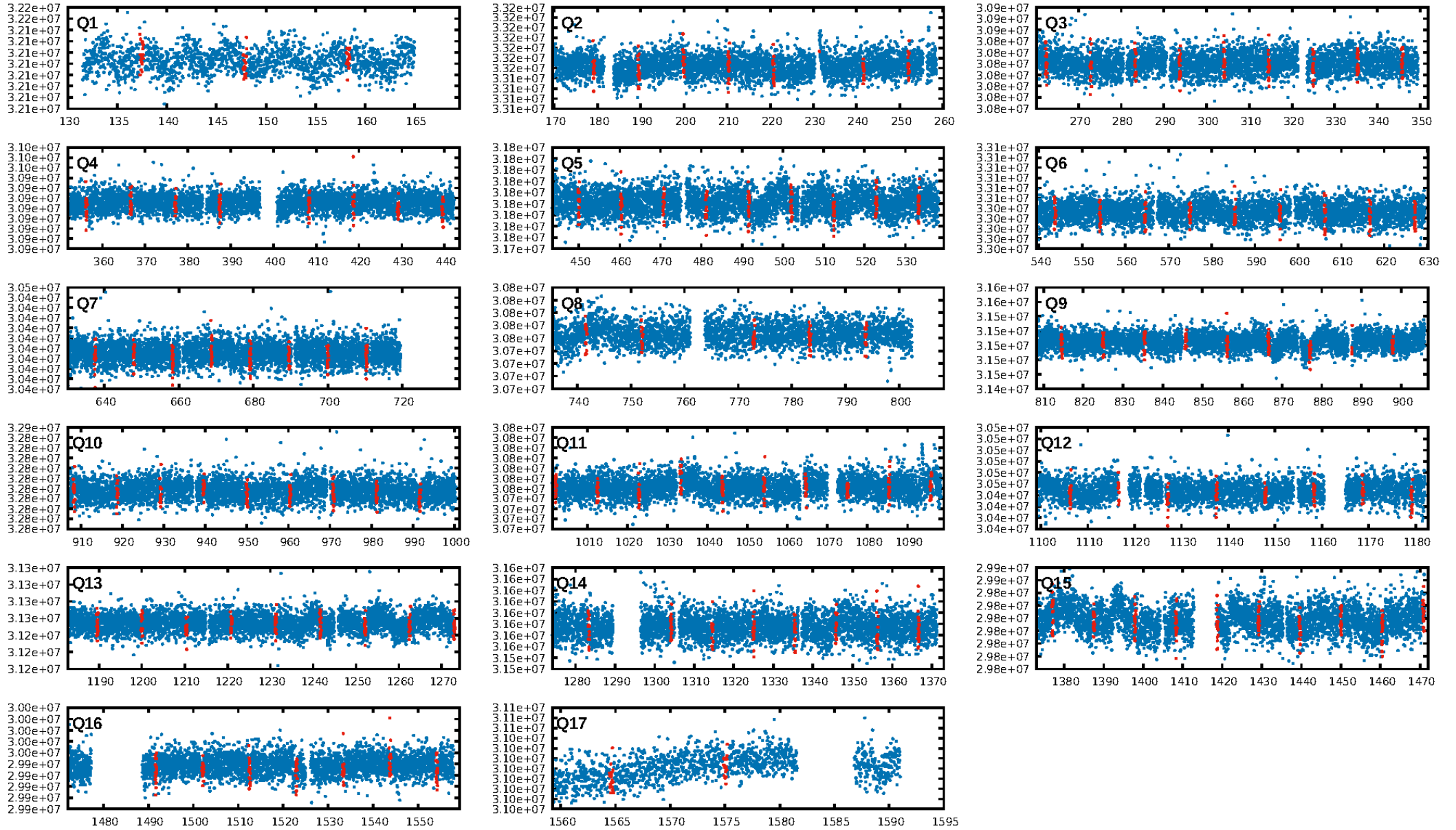
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [21.95 σ]
LongPeriod-sig: N/A
ModelChiSquare2-sig: 98.7%
ModelChiSquareGof-sig: 100.0%
Bootstrap-pfa: 4.04e-66
RollingBand-fgt: 1.00 [125/125]
GhostDiagnostic-chr: -8.098
Centroid-sig: 9.3%
Centroid-so: 1.213 arcsec [1.58 σ]
OotOffset-rm: 0.575 arcsec [1.29 σ]
KicOffset-rm: 0.539 arcsec [1.30 σ]
OotOffset-st: 3/4/4/4 [15]
KicOffset-st: 3/4/4/4 [15]
DiffImageQuality-fgm: 0.87 [13/15]
DiffImageOverlap-fno: 1.00 [17/17]

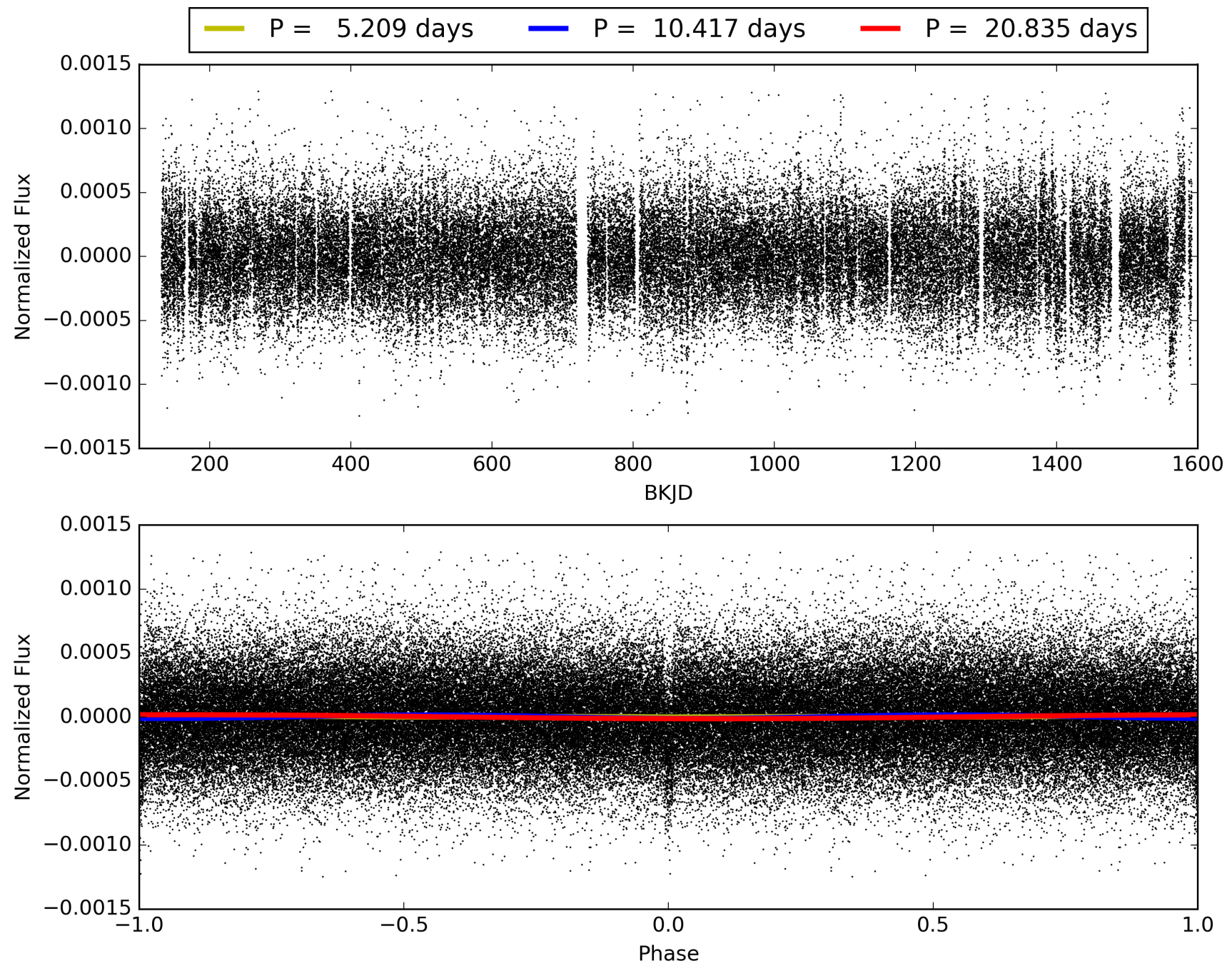
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This Data Validation Report Summary was produced in the Kepler Science Operations Center Pipeline at NASA Ames Research Center

TCE 007107802-01, PDC Light Curves

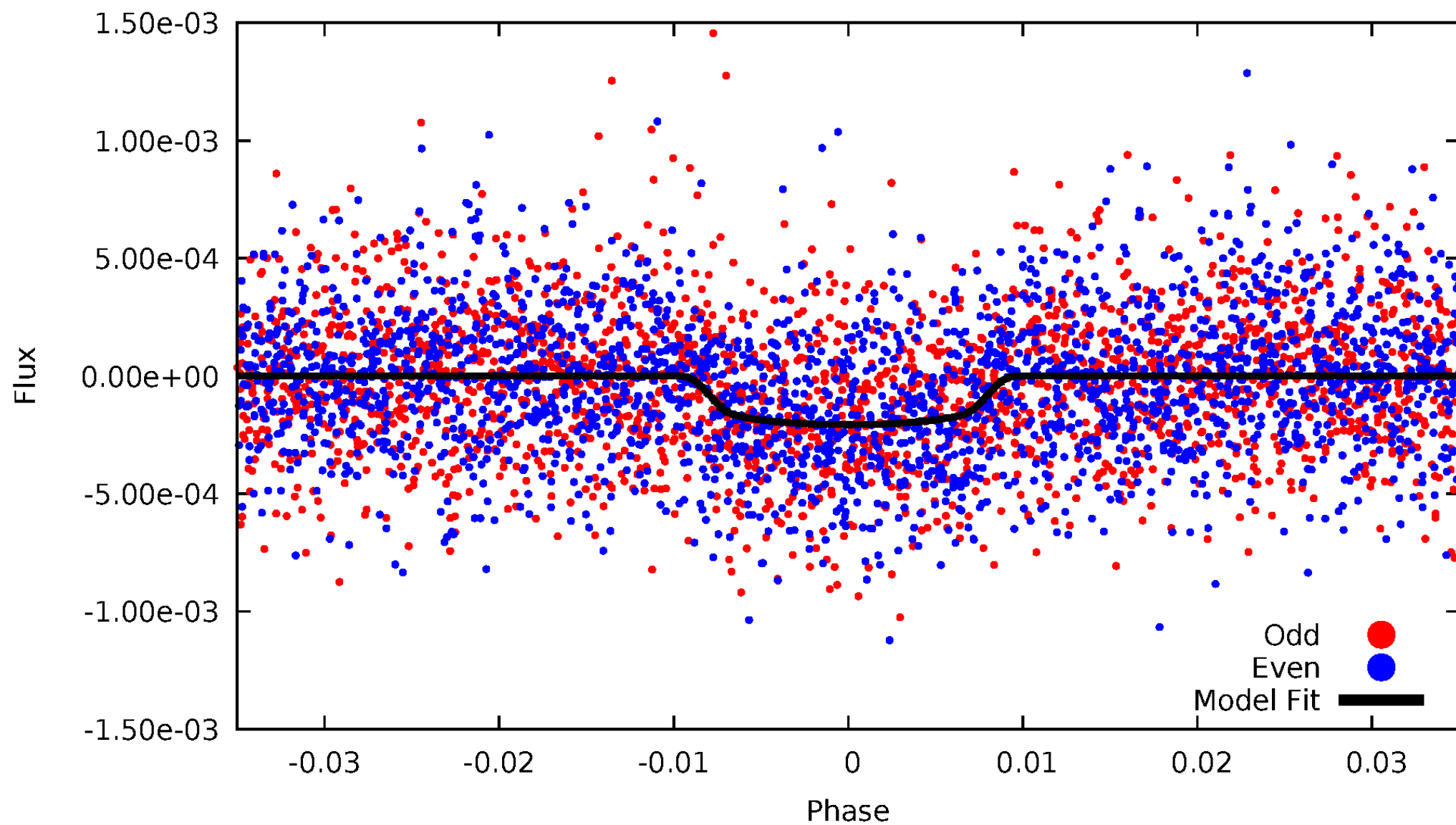


TCE 007107802-01



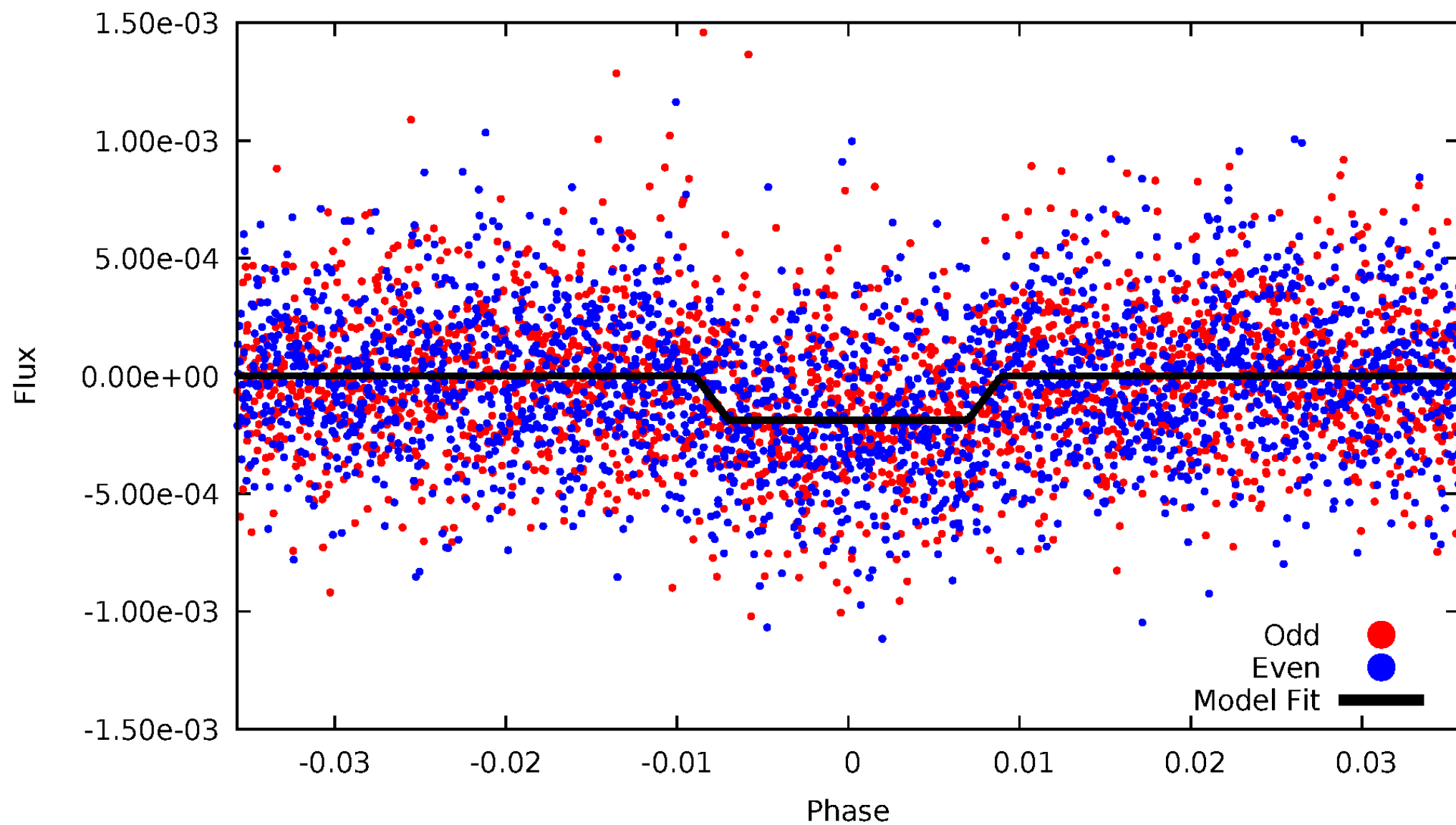
DV Odd/Even

TCE 007107802-01



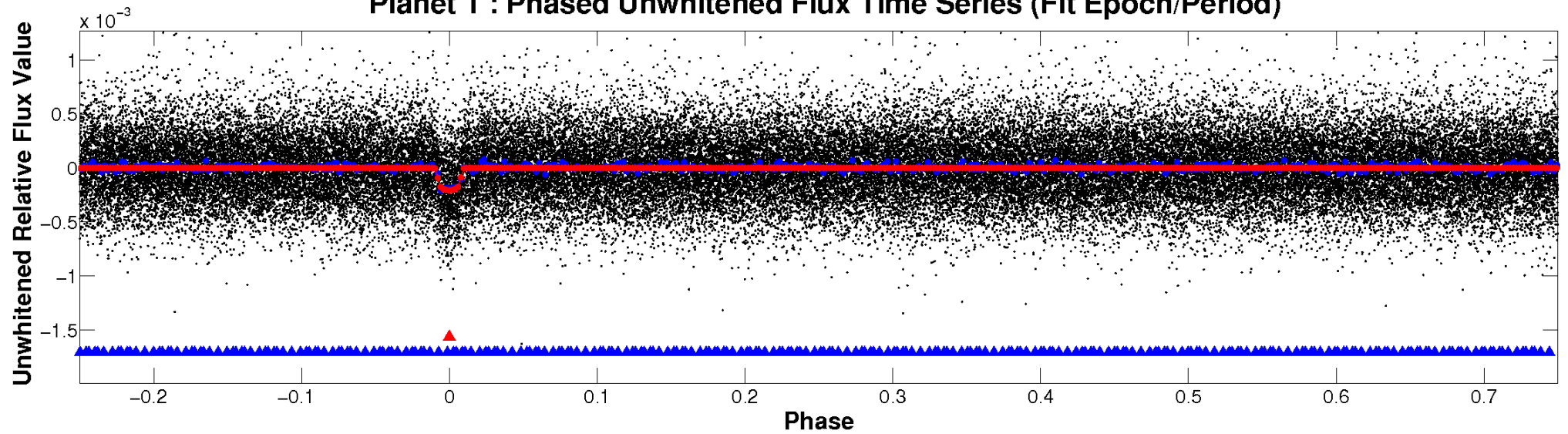
ALT Odd/Even

TCE 007107802-01

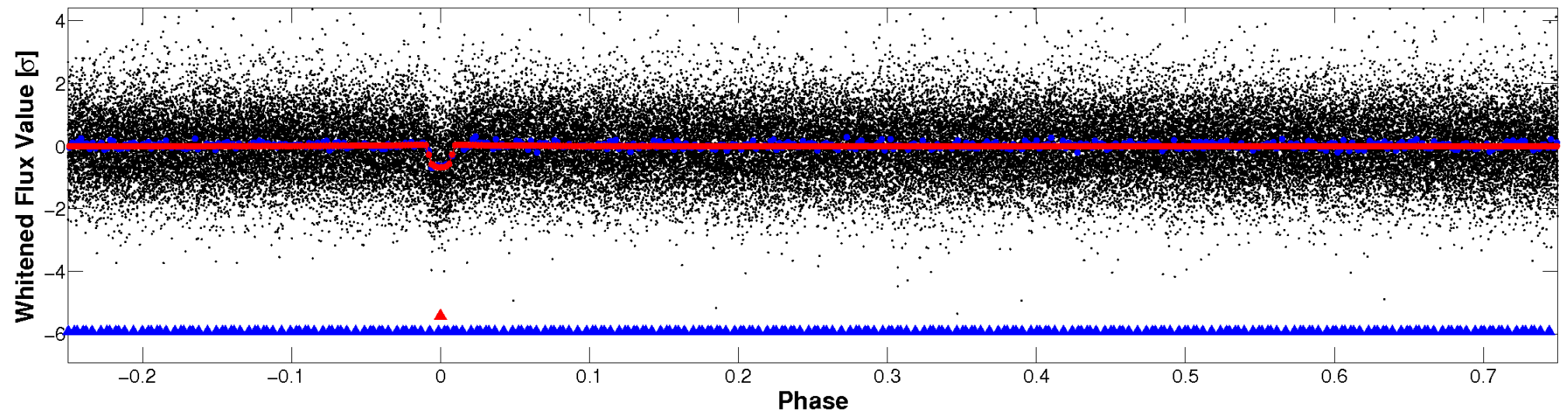


Non-Whitened Vs. Whitened Light Curve

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

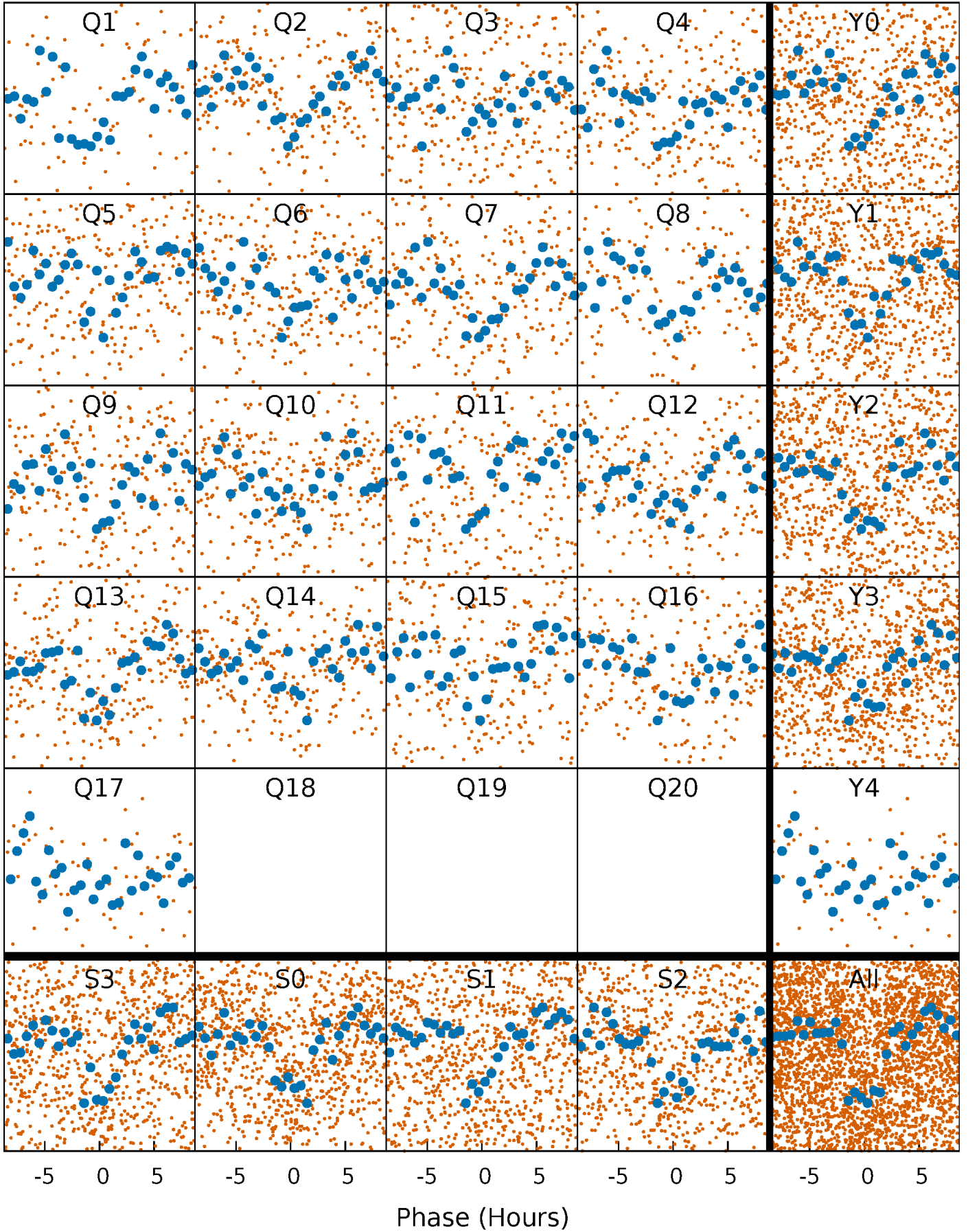


Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)



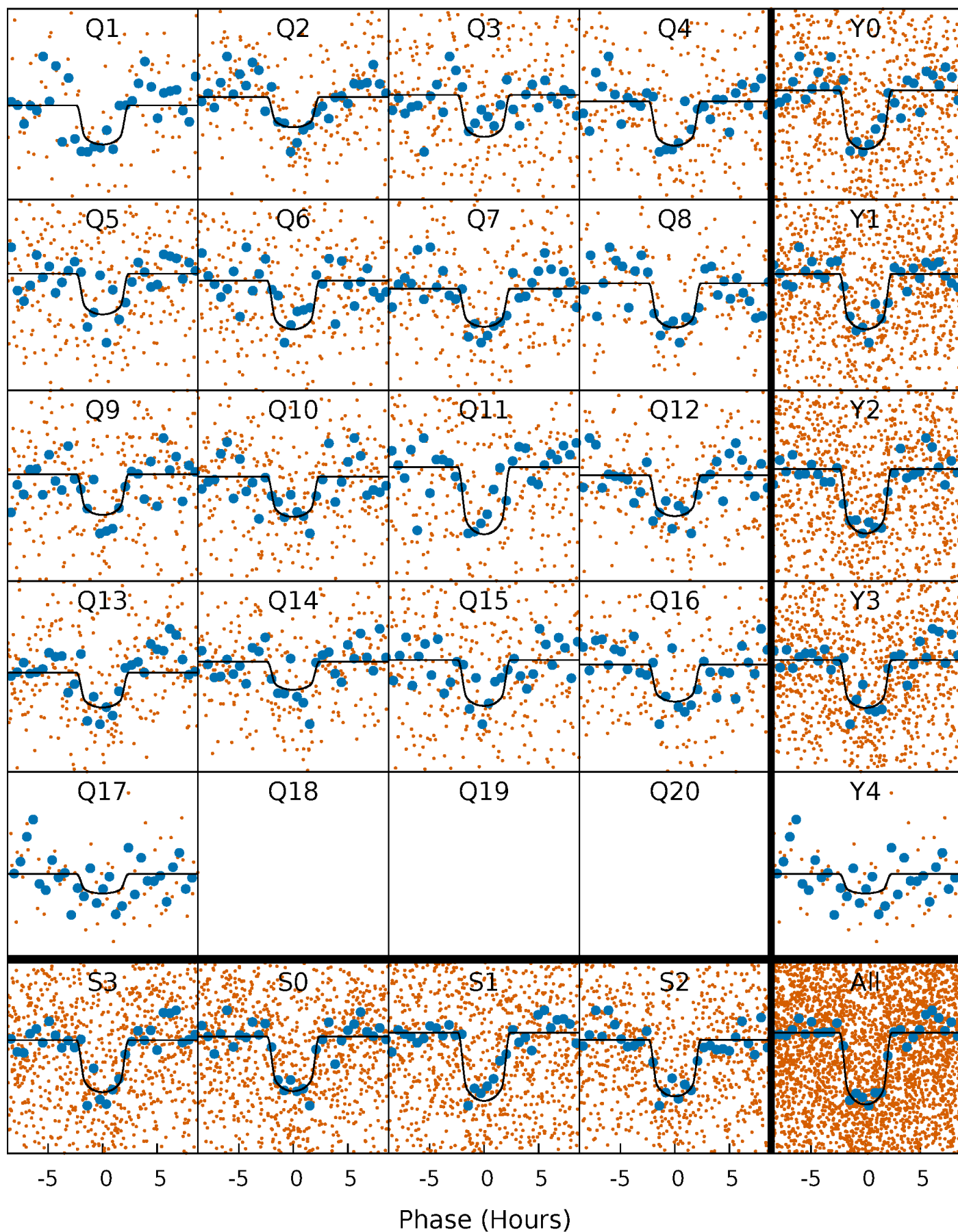
PDC Quarter-Phased Transit Curves

TCE 007107802-01 P= 10.417282 Days $T_0=137.456344$ (BKJD)



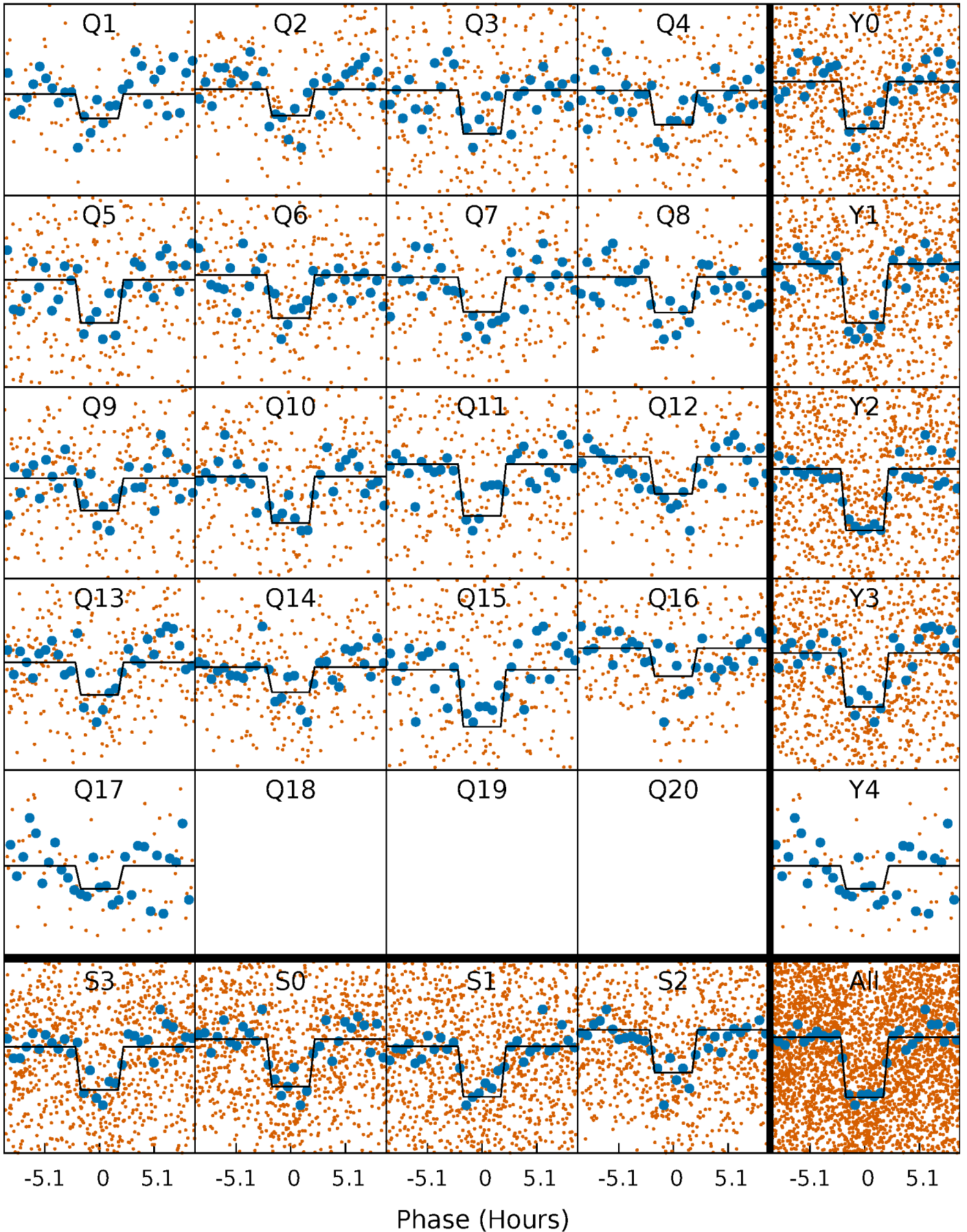
DV Quarter-Phased Transit Curves

TCE 007107802-01 P= 10.417282 Days $T_0=137.456344$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

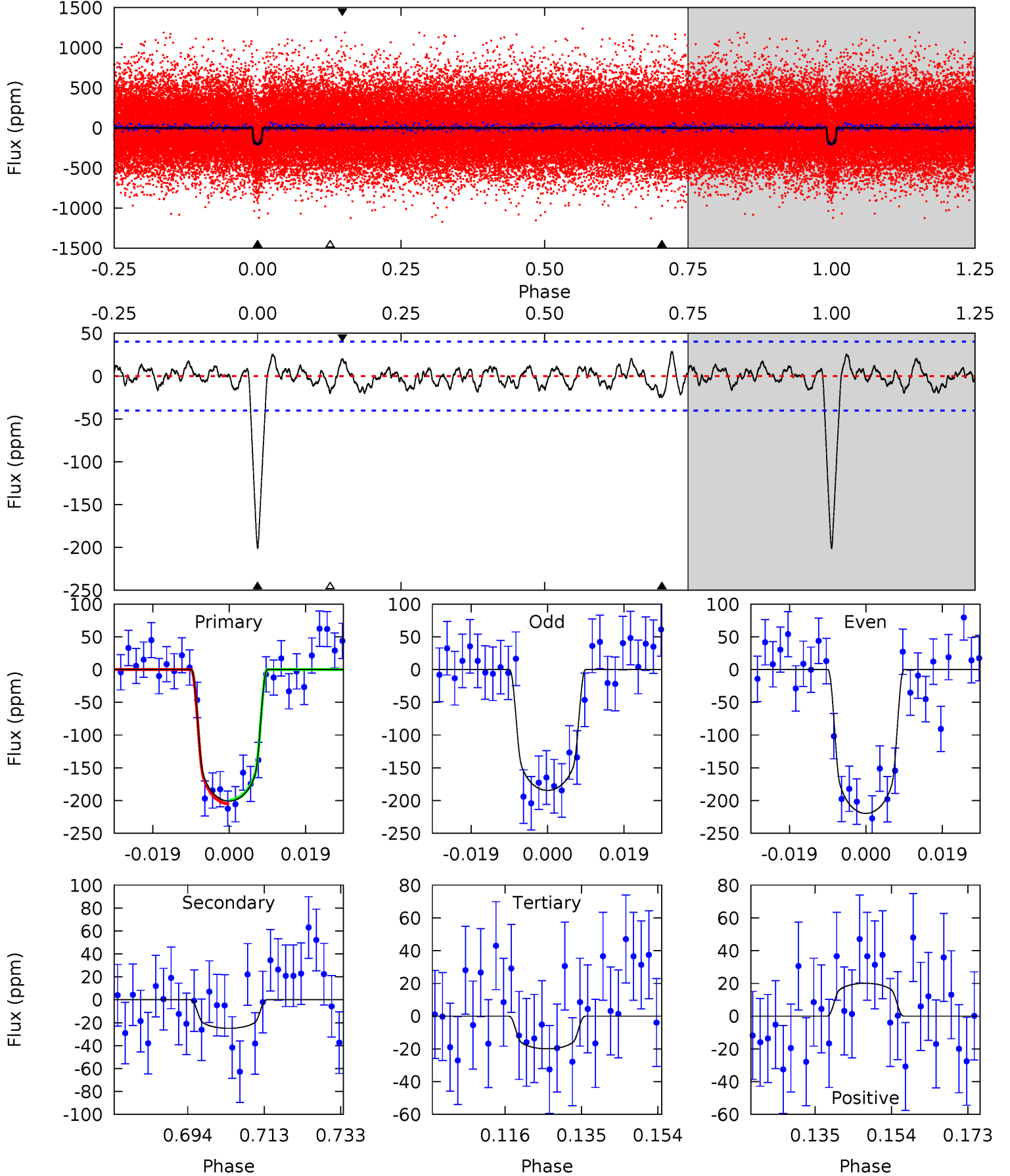
TCE 007107802-01 P= 10.417099 Days $T_0=137.468994$ (BKJD)



DV Model-Shift Uniqueness Test

007107802-01, $P = 10.417282$ Days, $E = 127.039062$ Days

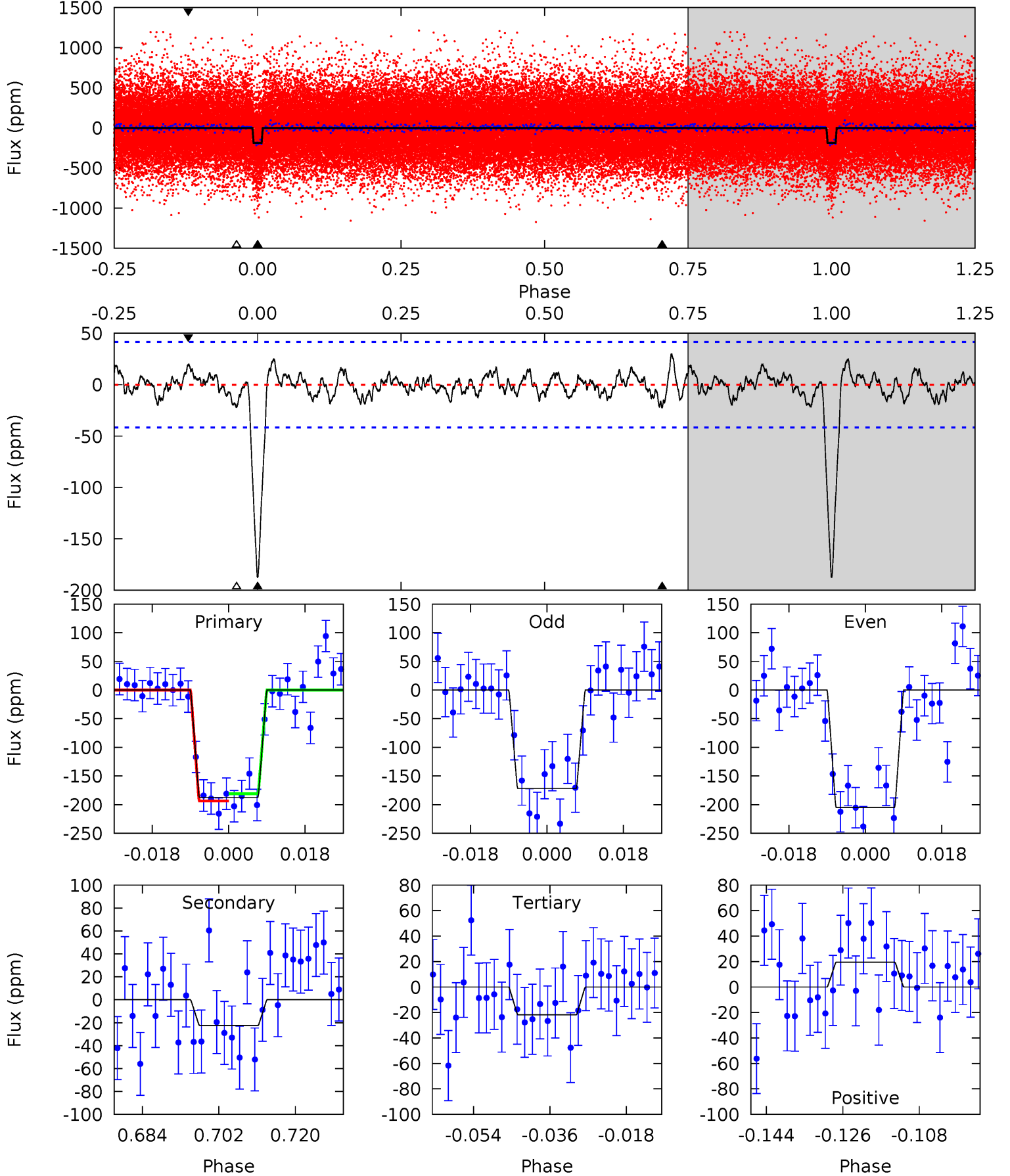
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
24.5	3.03	2.43	2.44	4.90	2.34	1.06	22.0	22.0	0.60	0.59	2.14	1.01	0.12	0.35



Alt Model-Shift Uniqueness Test

007107802-01, $P = 10.417099$ Days, $E = 127.051895$ Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
22.1	2.65	2.57	2.31	4.91	2.37	1.01	19.6	19.8	0.09	0.35	1.94	1.05	0.14	0.76



Stellar Parameters For KIC 007107802

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	5557^{+83}_{-75}	$4.288^{+0.162}_{-0.108}$	$0.140^{+0.150}_{-0.150}$	$1.151^{+0.166}_{-0.184}$	$0.936^{+0.069}_{-0.046}$	$0.866^{+0.631}_{-0.264}$
	+1%/-1%	+4%/-3%	+107%/-107%	+14%/-16%	+7%/-5%	+73%/-30%
Source	SPE90	SPE90	SPE90	DSEP		

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

Secondary Eclipse Parameters for KIC 007107802-01 / KOI 2420.01

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	-25 ± 8	$1.95^{+0.52}_{-0.49}$	1209^{+60}_{-58}	3545^{+376}_{-297}	29^{+26}_{-13}
Alt.	-22 ± 8	$1.68^{+0.50}_{-0.50}$	1207^{+56}_{-62}	3653^{+556}_{-367}	36^{+44}_{-18}

T_{max} = Theoretical Maximum Planetary Temperature

T_{obs} = Observed Planetary Temperature (Assuming $A=0.3$)

A_{obs} = Observed Albedo (Assuming $T=0$)

If a secondary eclipse is present, the system is likely an EB if $T_{obs} \gg T_{max}$ AND $A_{obs} \gg 1.0$

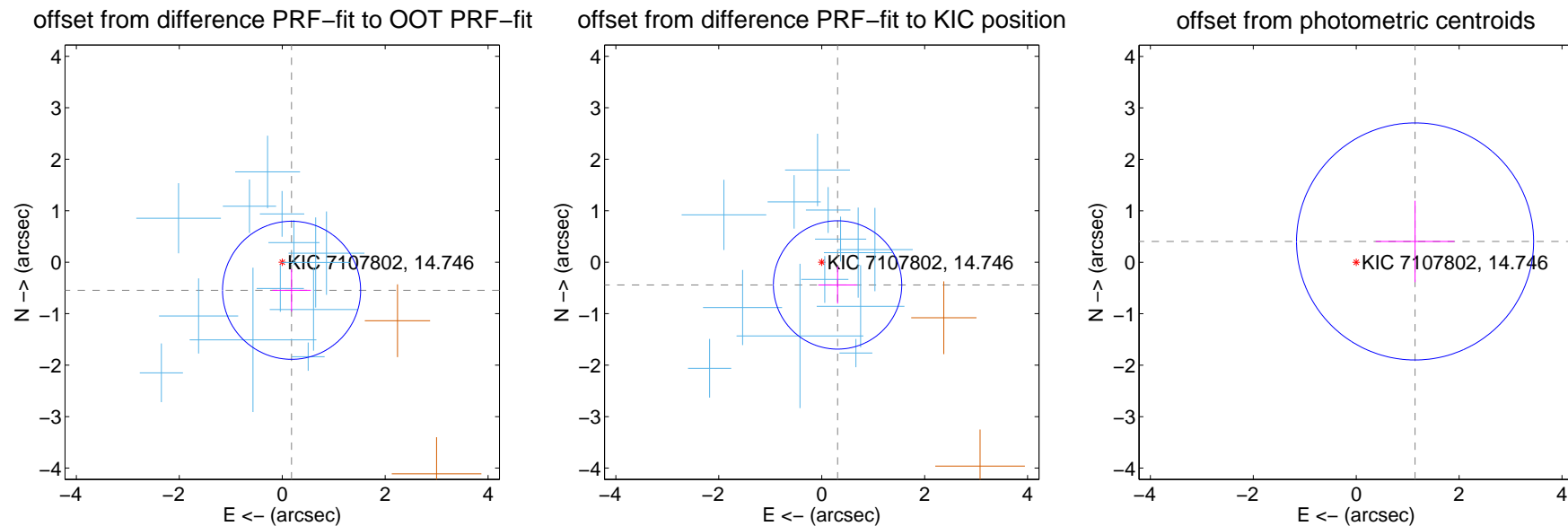
DV Centroid Data

Supplemental centroid analysis for 007107802-01. Kepler magnitude: 14.75. Transit SNR 19.03

There are 13 quarters with good PRF difference image offsets

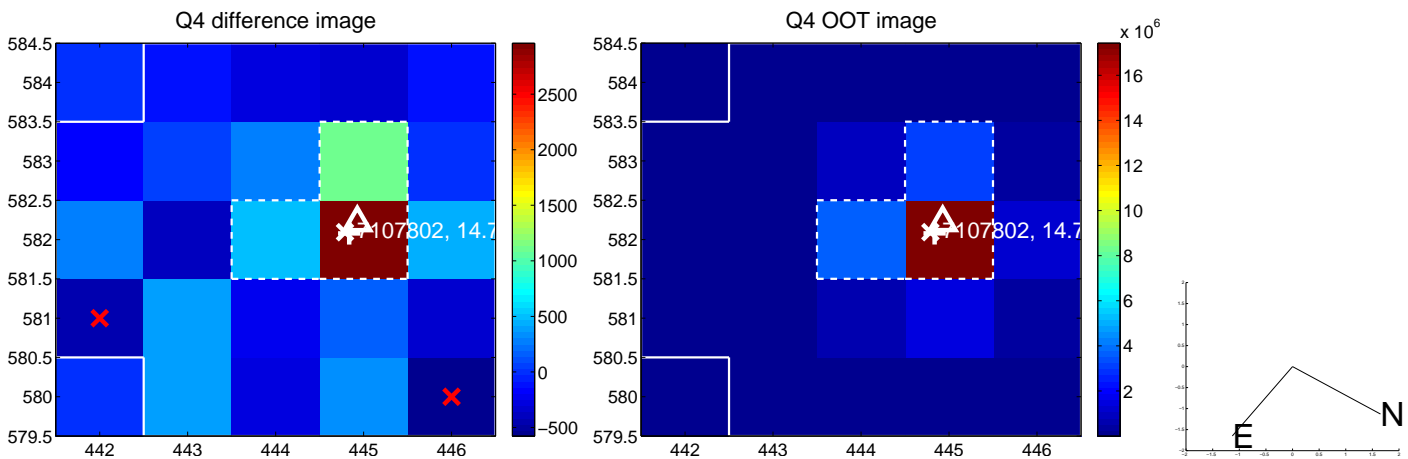
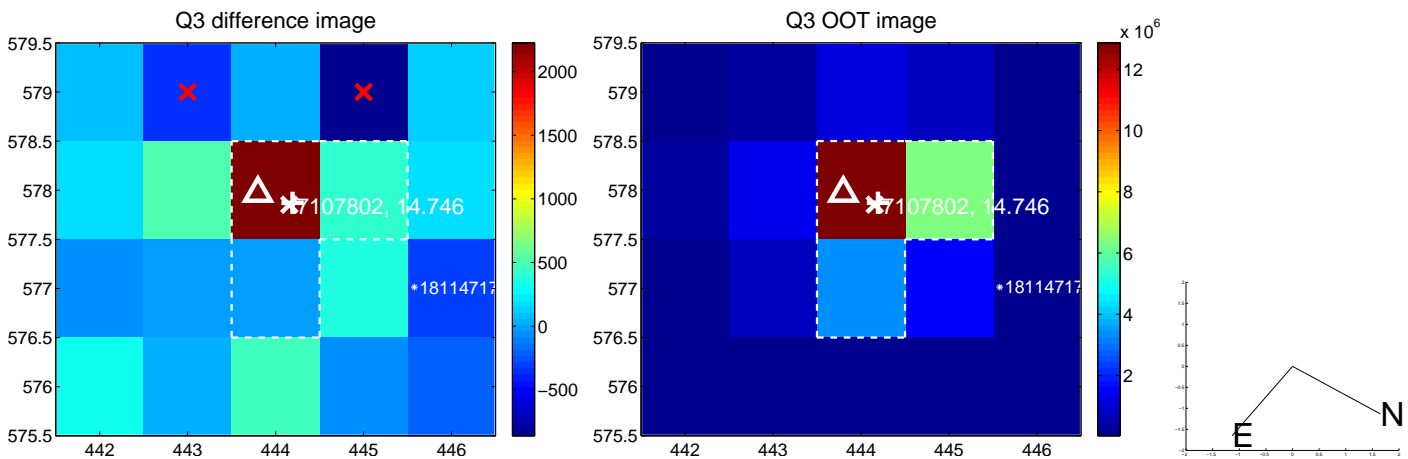
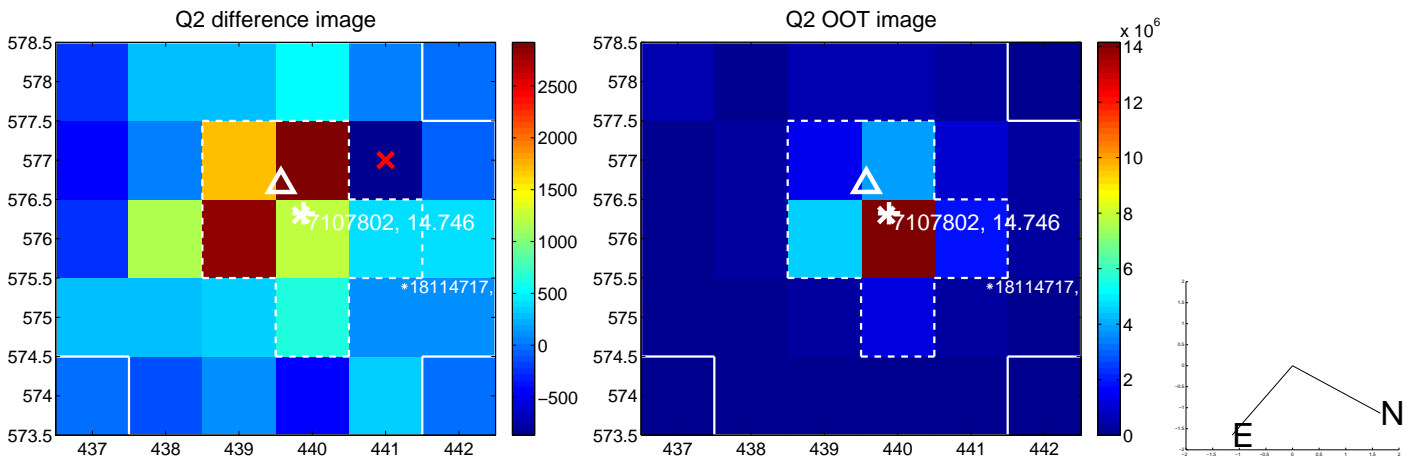
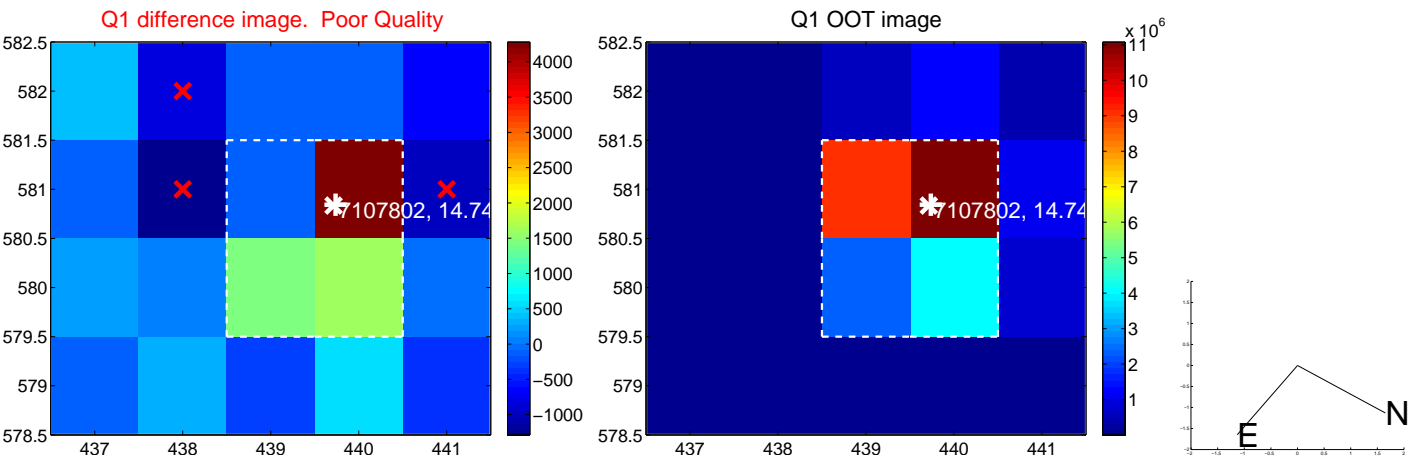
The direct PRF centroid is offset from the target star catalog position by about 0.15 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.575 ± 0.447	1.29	-0.182 ± 0.375	-0.546 ± 0.413
PRF-fit source offset from KIC position	0.539 ± 0.416	1.30	-0.308 ± 0.375	-0.442 ± 0.362
photometric centroid source offset	1.21 ± 0.77	1.58	-1.14 ± 0.76	0.40 ± 0.79

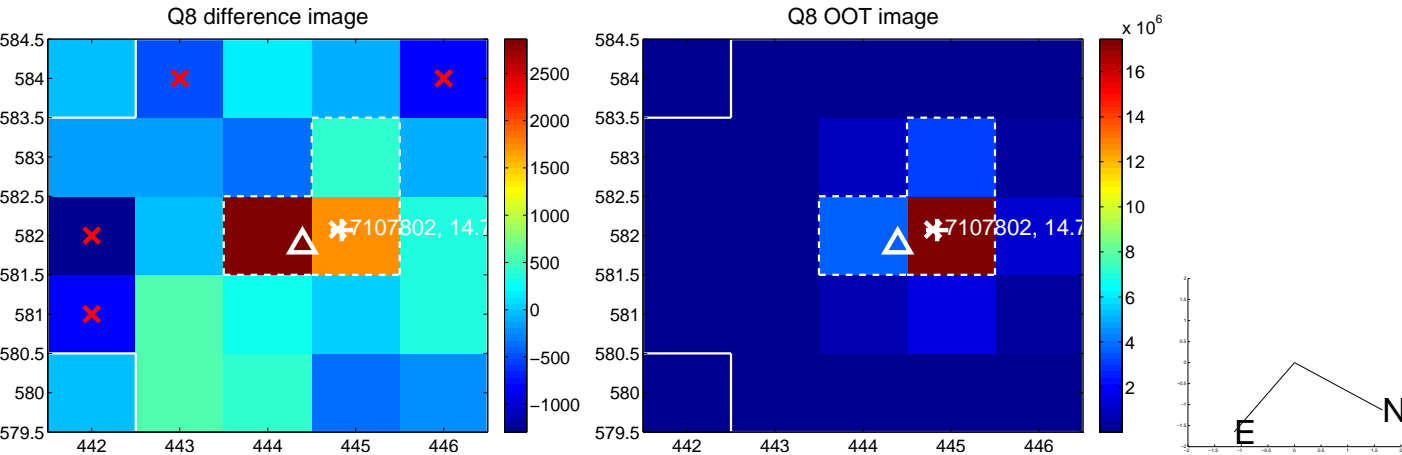
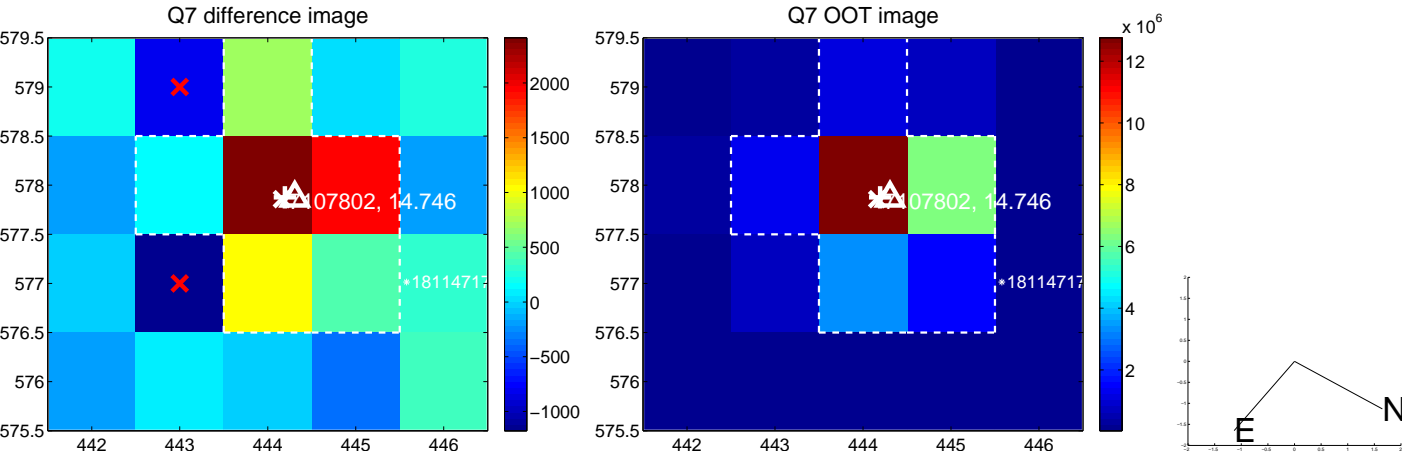
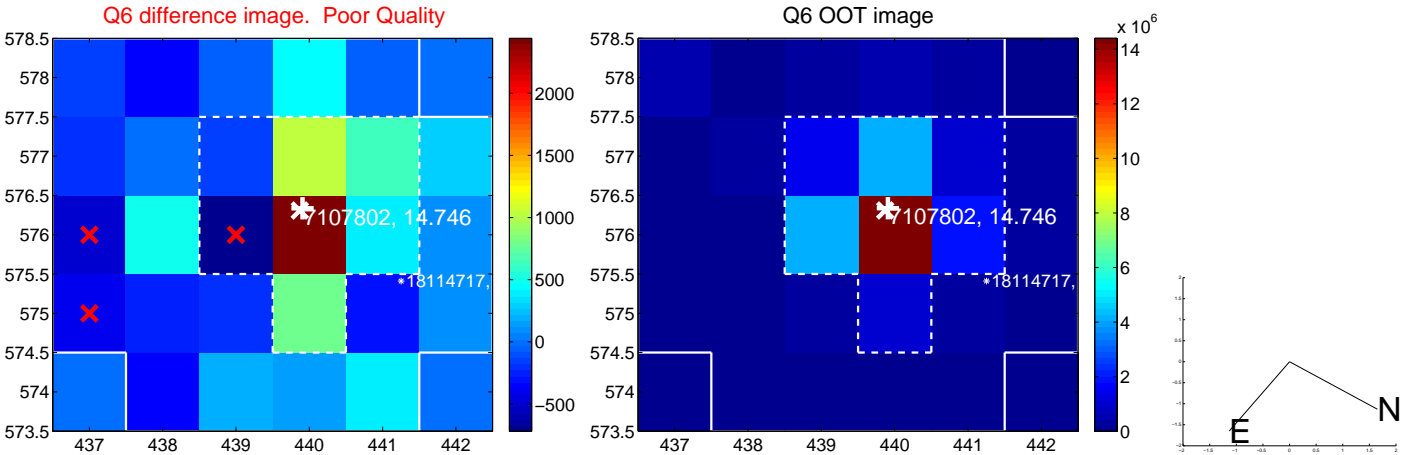
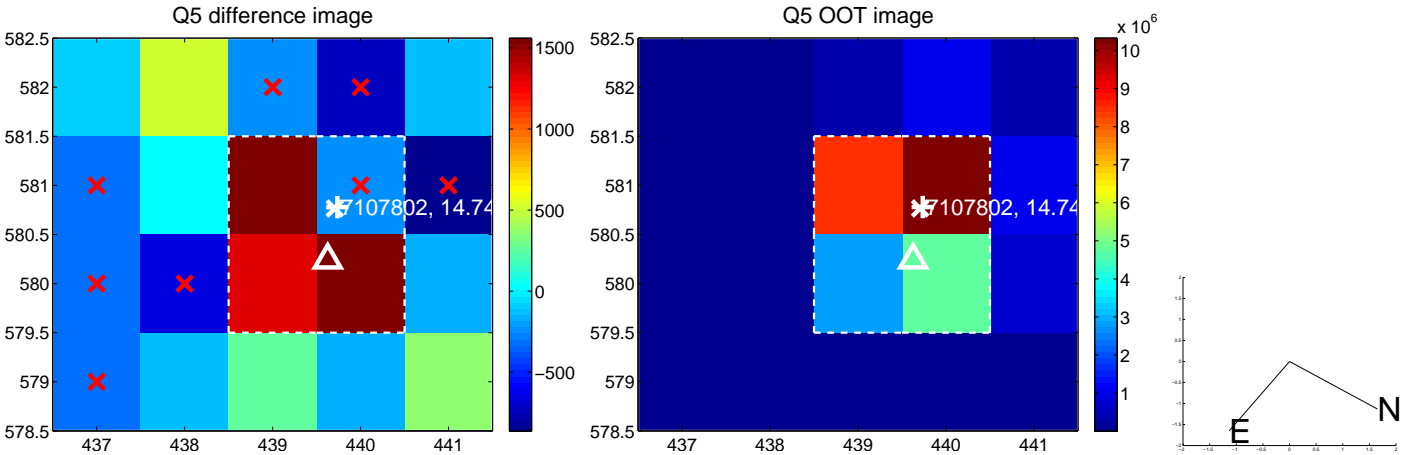


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

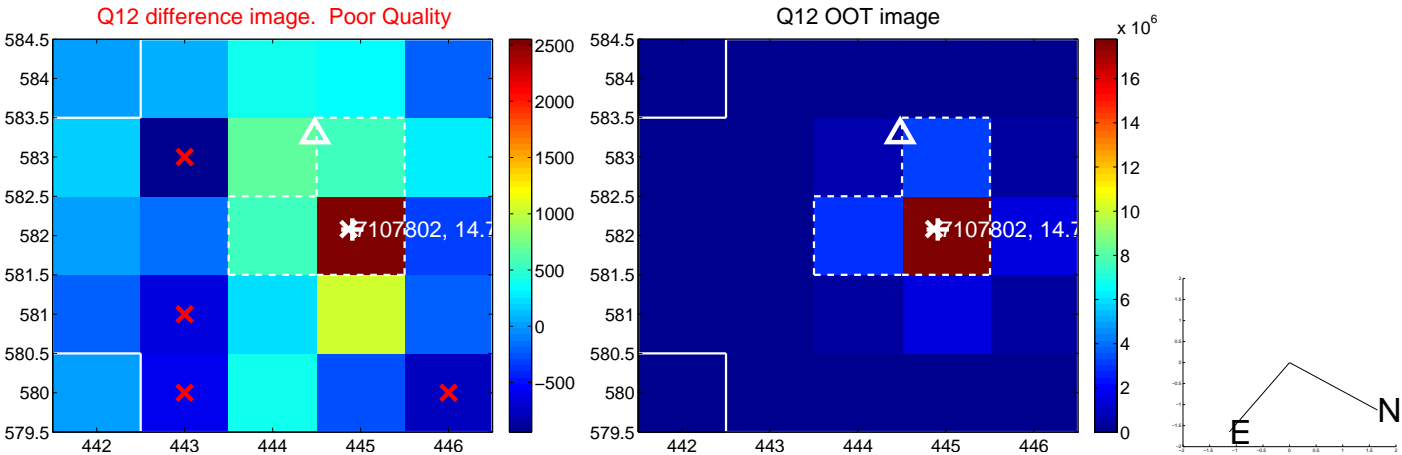
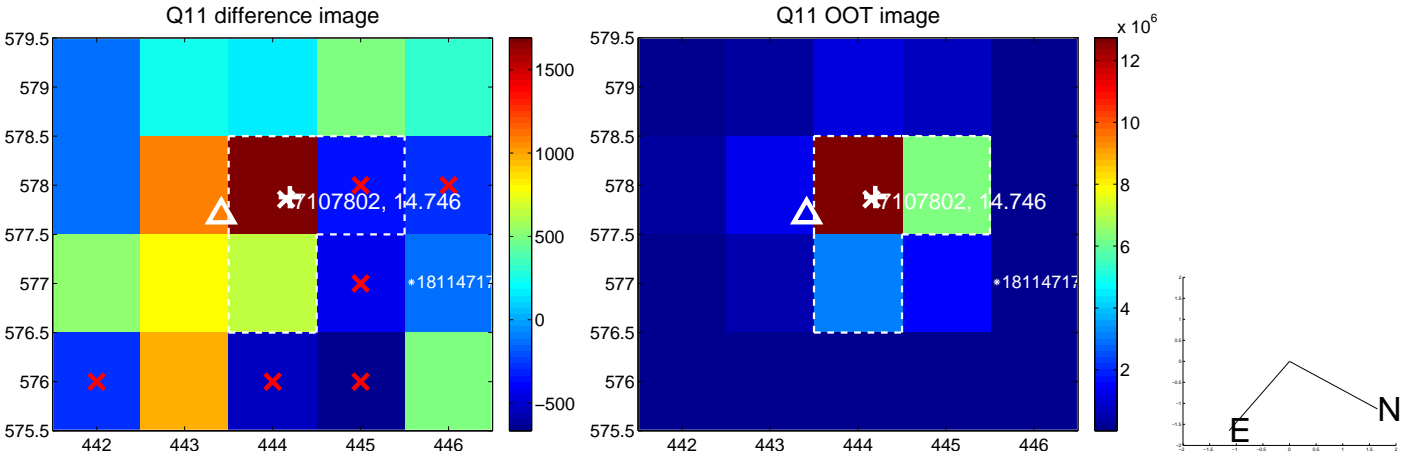
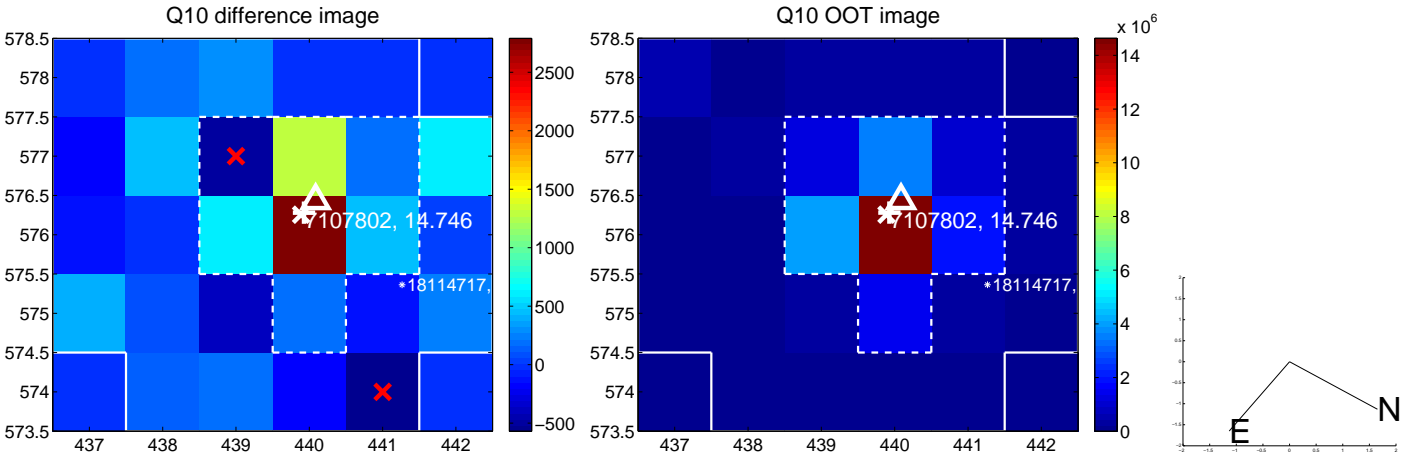
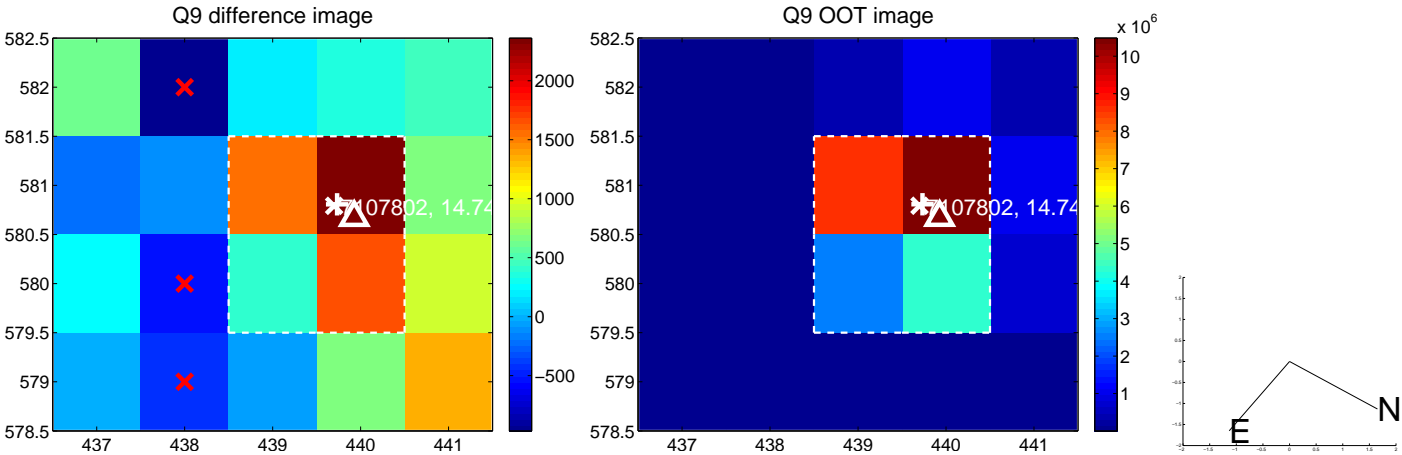
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



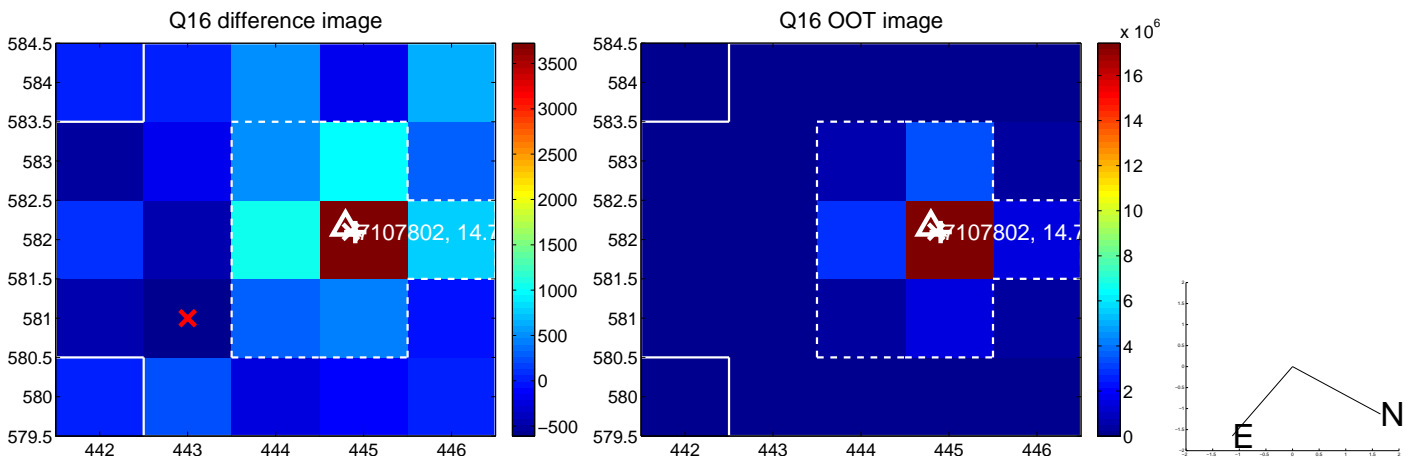
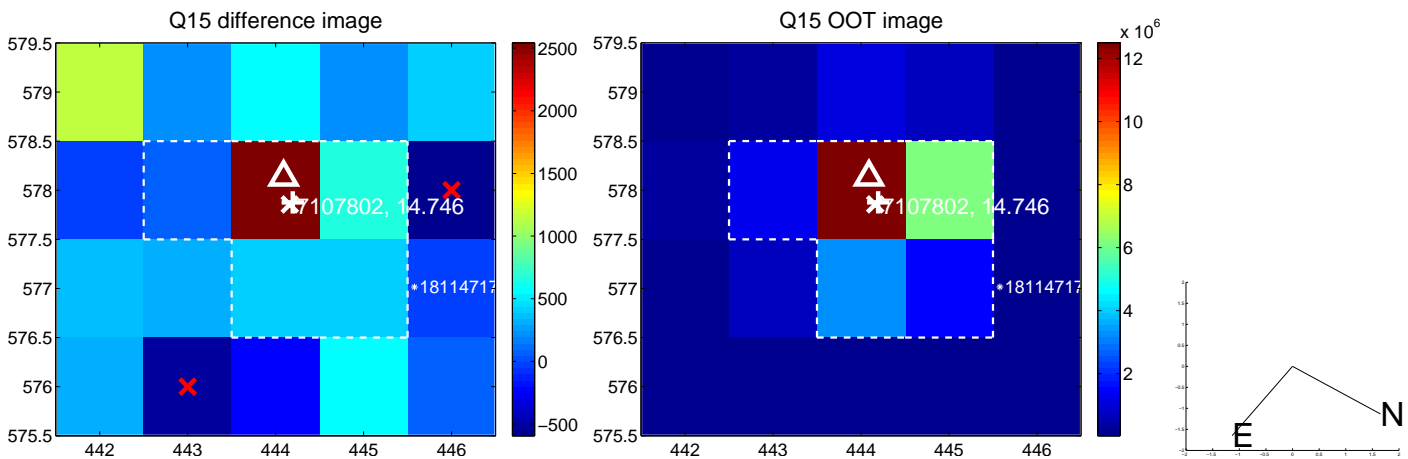
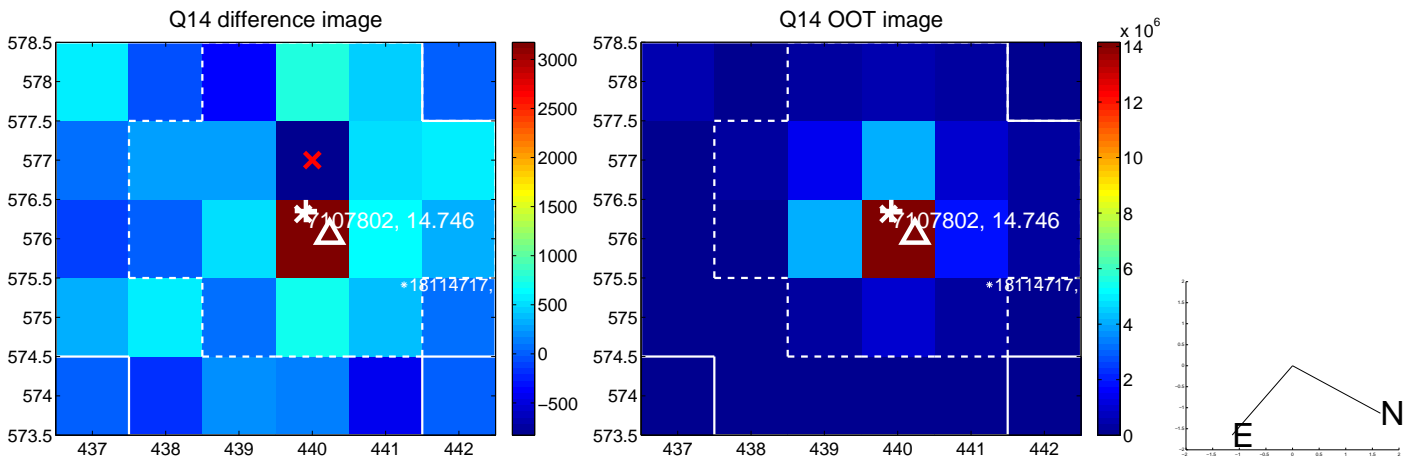
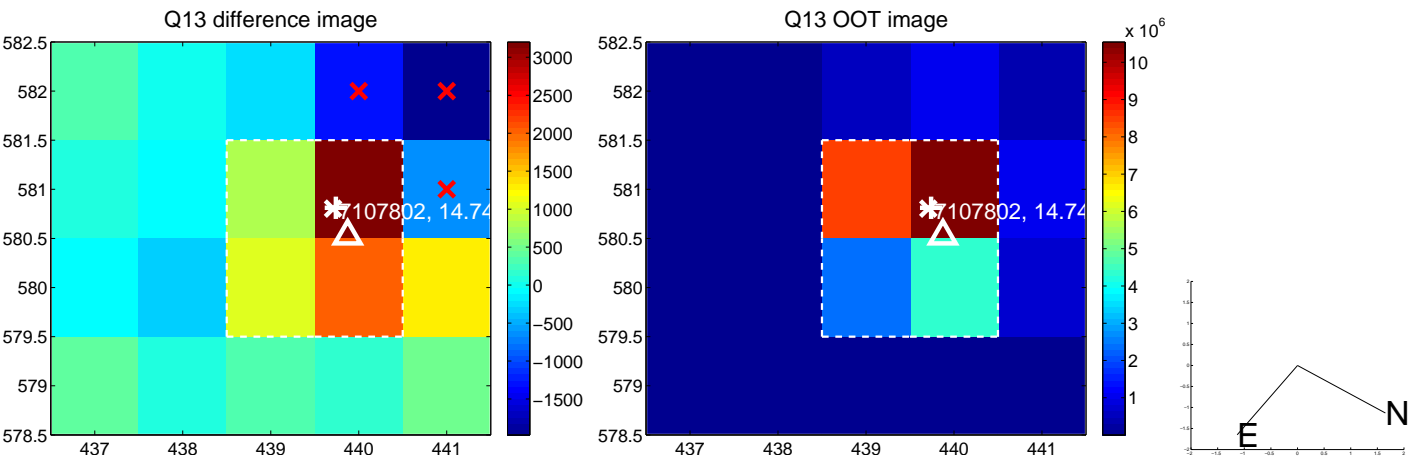
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



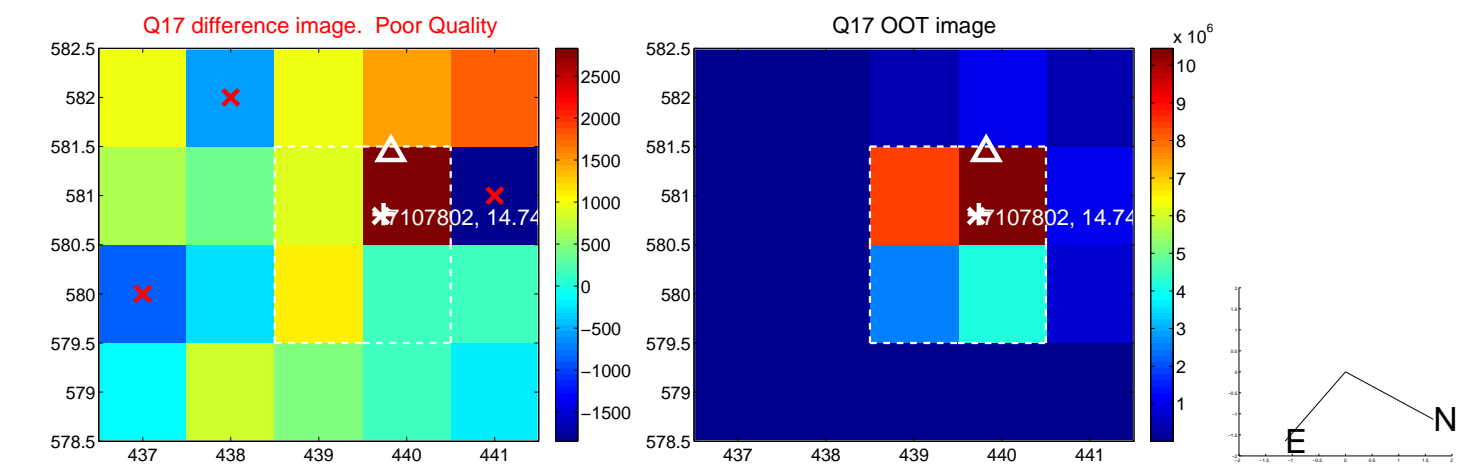
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



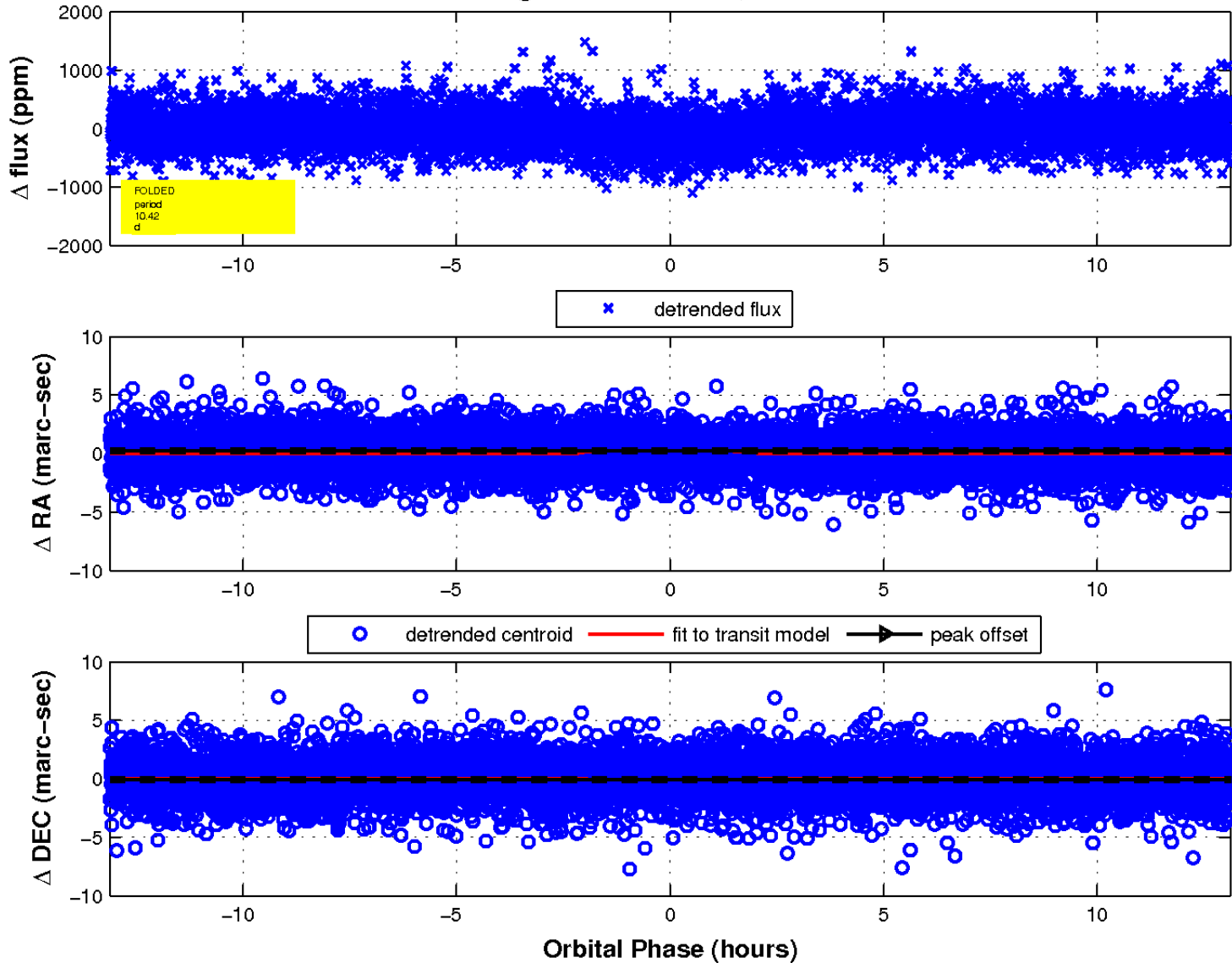
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

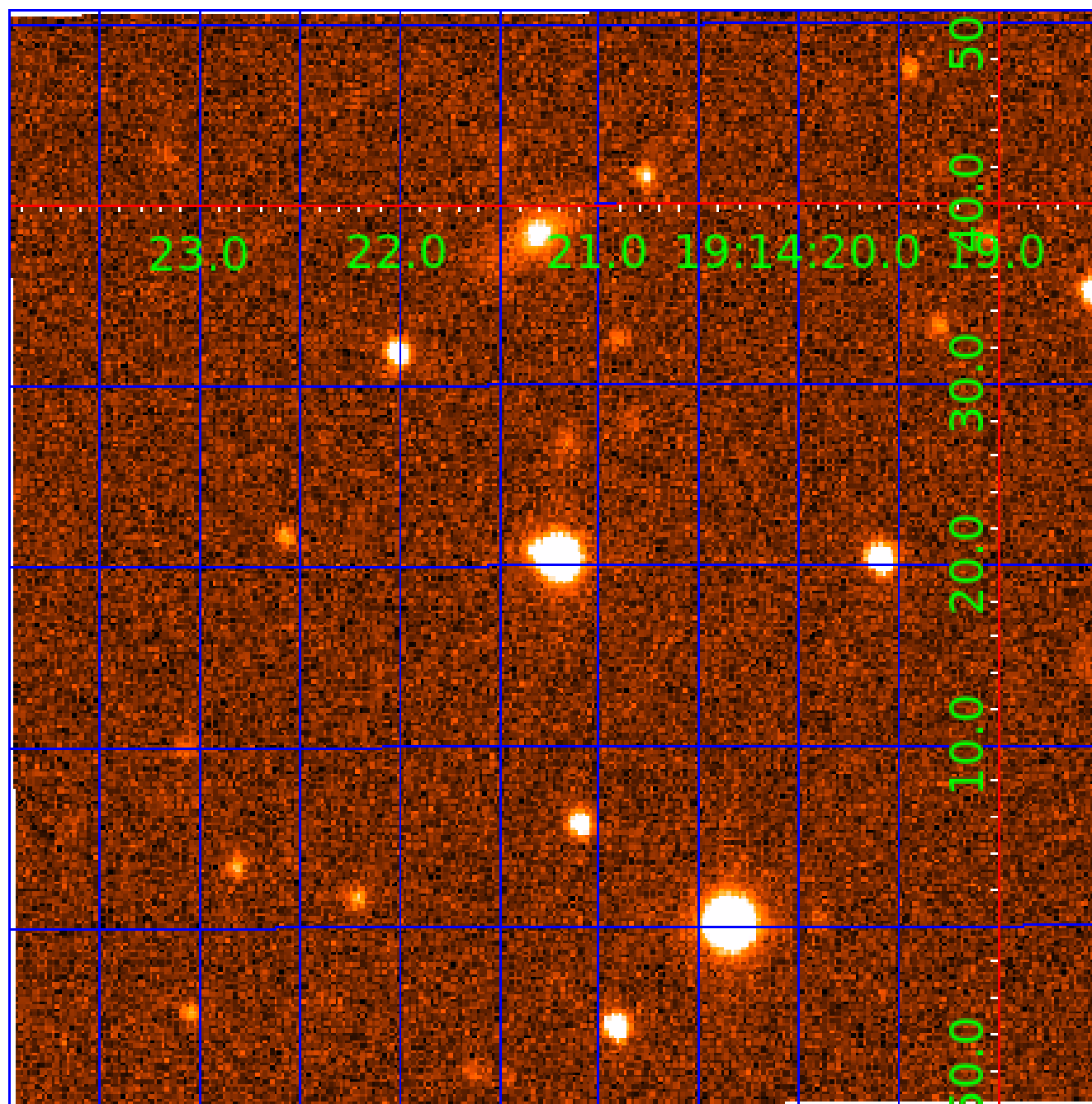


fluxWeightedCentroids, Planet 1 of 2



UKIRT Image

Declination



KIC 007107802

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})
007107802-01	OBS	2420.01	10.417282	137.456344	206.8	4.375	17.5	19.0	1.15	5557	1.98	135.51
007107802-02	OBS	2420.02	5.467526	133.424256	83.1	3.183	8.6	9.2	1.15	5557	1.19	320.07

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
007107802-01	OBS	PC	1.00	0	0	0	0	NO_COMMENT
007107802-02	OBS	PC	0.99	0	0	0	0	NO_COMMENT

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.

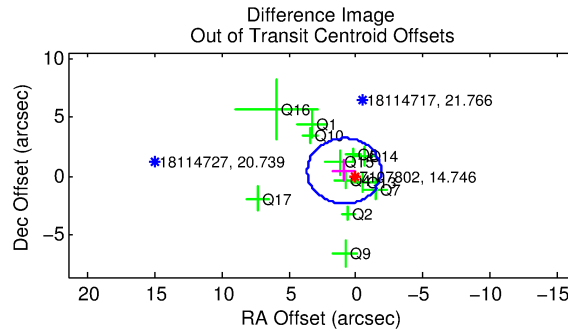
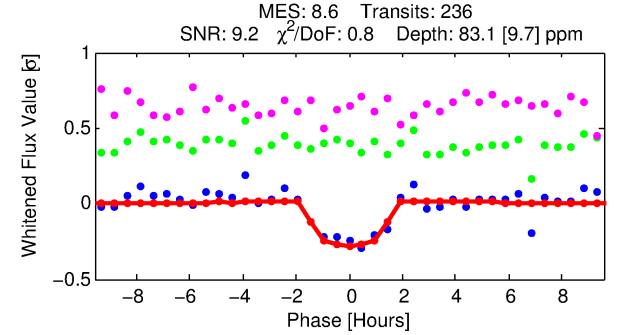
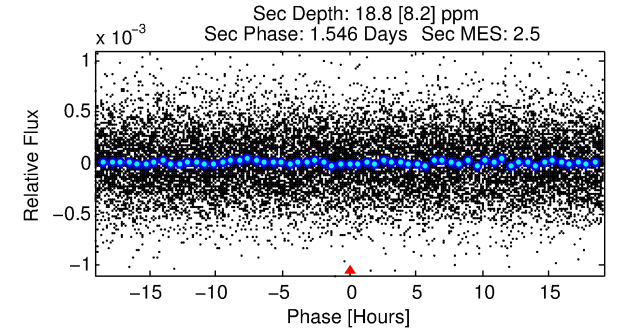
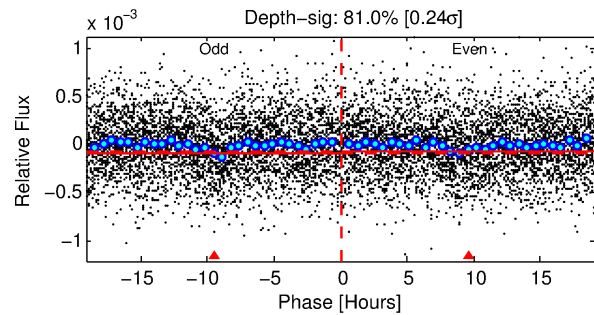
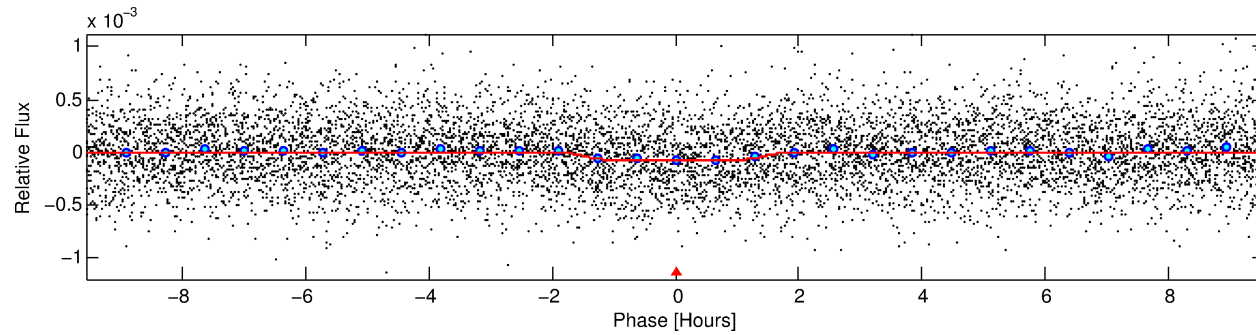
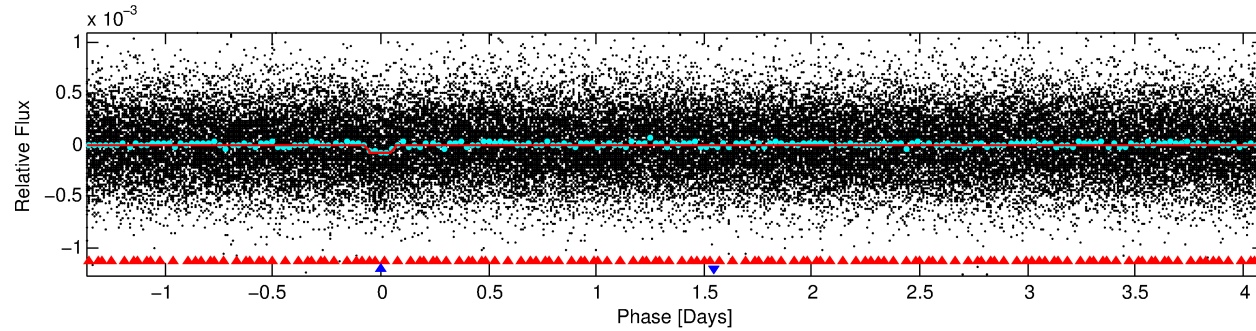
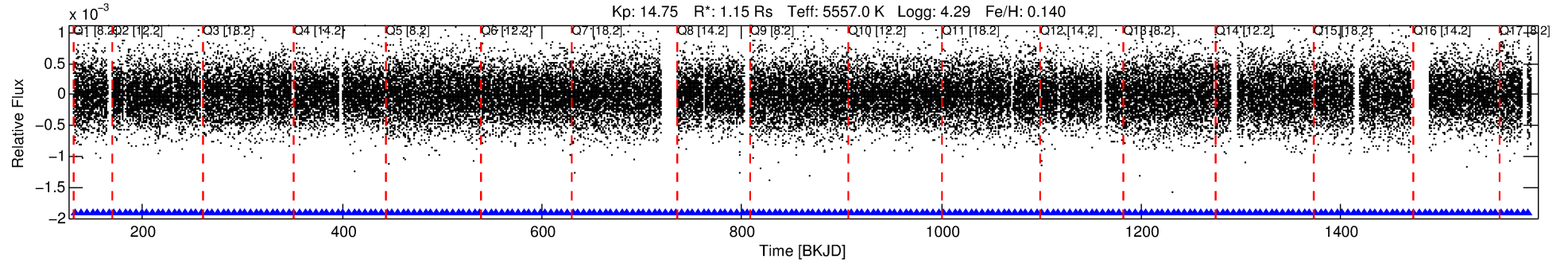
Ephemeris Match Information For 007107802-02

No Significant Match Found

DV One-Page Summary

KIC: 7107802 Candidate: 2 of 2 Period: 5.468 d

KOI: K02420.02 Corr: 0.970



DV Fit Results:

Period = 5.46753 [0.00005] d
Epoch = 133.4243 [0.0067] BKJD
Rp/R* = 0.0095 [0.0078]
a/R* = 7.49 [25.84]
b = 0.84 [1.30]
Seff = 320.07 [88.68]
Teff = 1079 [75] K
Rp = 1.19 [1.00] Re
a = 0.0595 [0.0097] AU
Ag = 25.73 [44.42] [0.56 σ]
Teffp = 3756 [1602] K [1.67 σ]

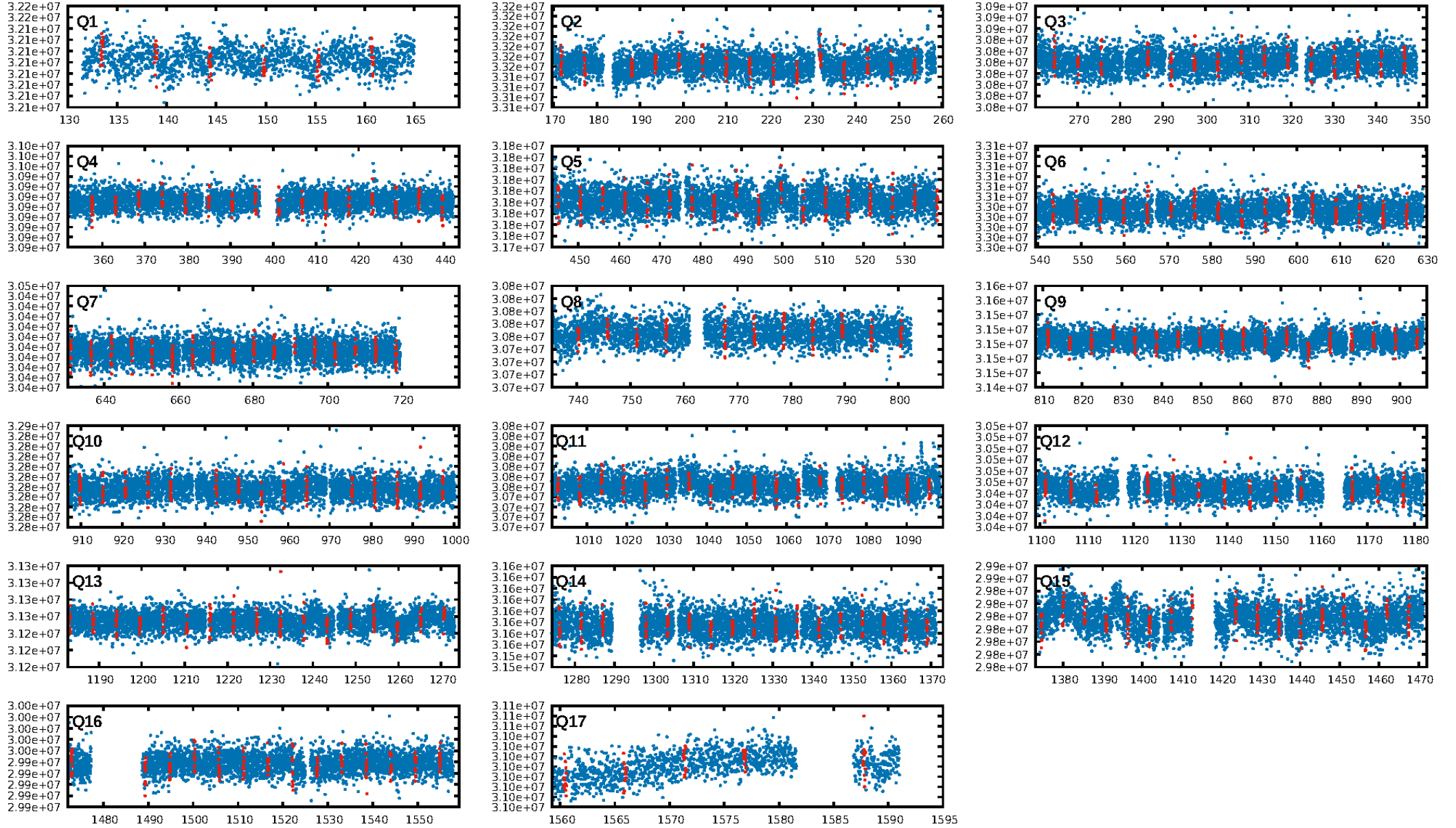
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: 100.0% [21.95 σ]
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: 4.06e-18
RollingBand-fgt: 1.00 [225/225]
GhostDiagnostic-chr: -25.48
Centroid-sig: 1.9%
Centroid-so: 2.397 arcsec [1.48 σ]
OotOffset-rm: 0.998 arcsec [1.08 σ]
KicOffset-rm: 0.939 arcsec [0.93 σ]
OotOffset-st: 3/2/3/4 [12]
KicOffset-st: 3/2/3/4 [12]
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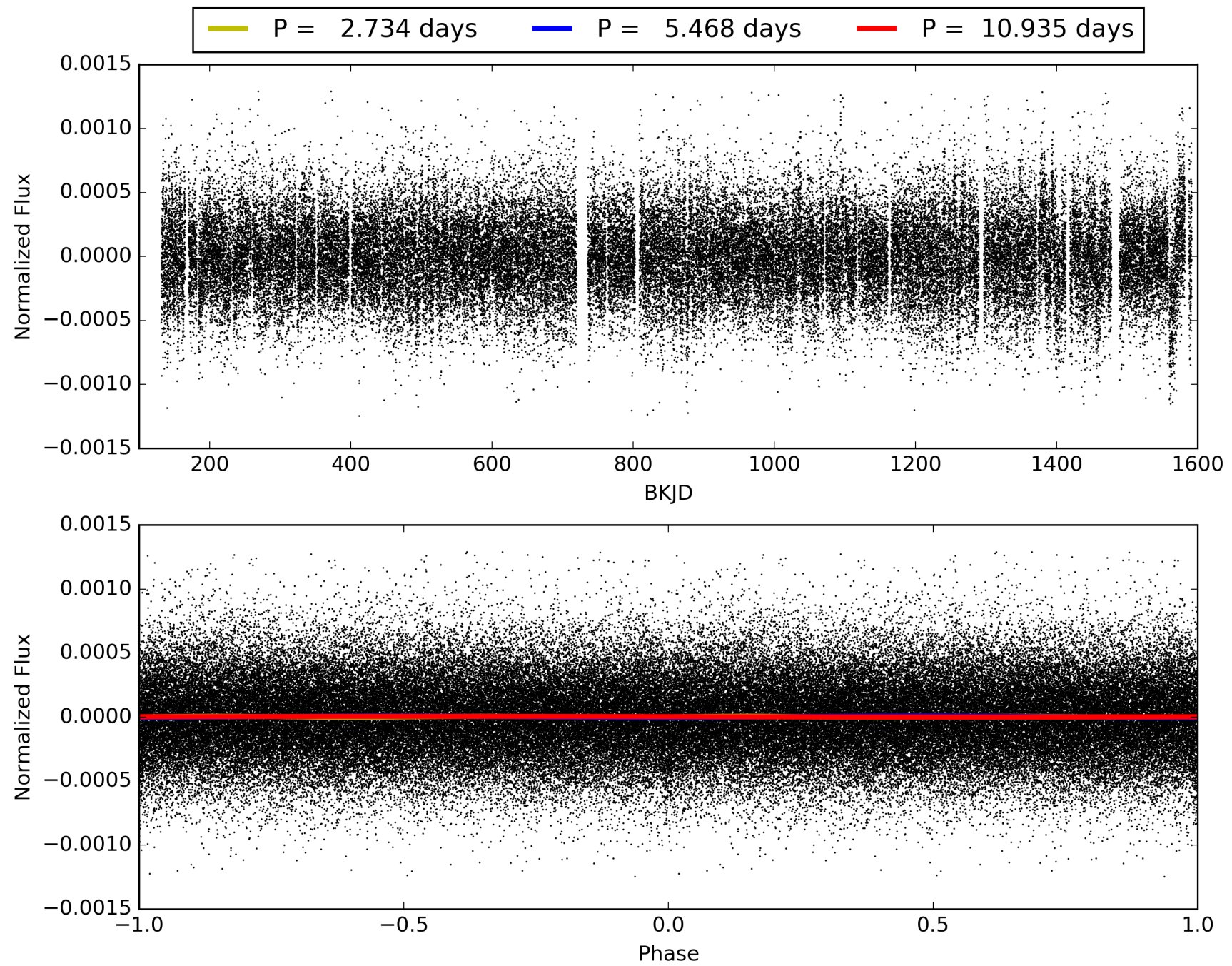
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 31-Jan-2016 19:10:40 Z

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

TCE 007107802-02, PDC Light Curves

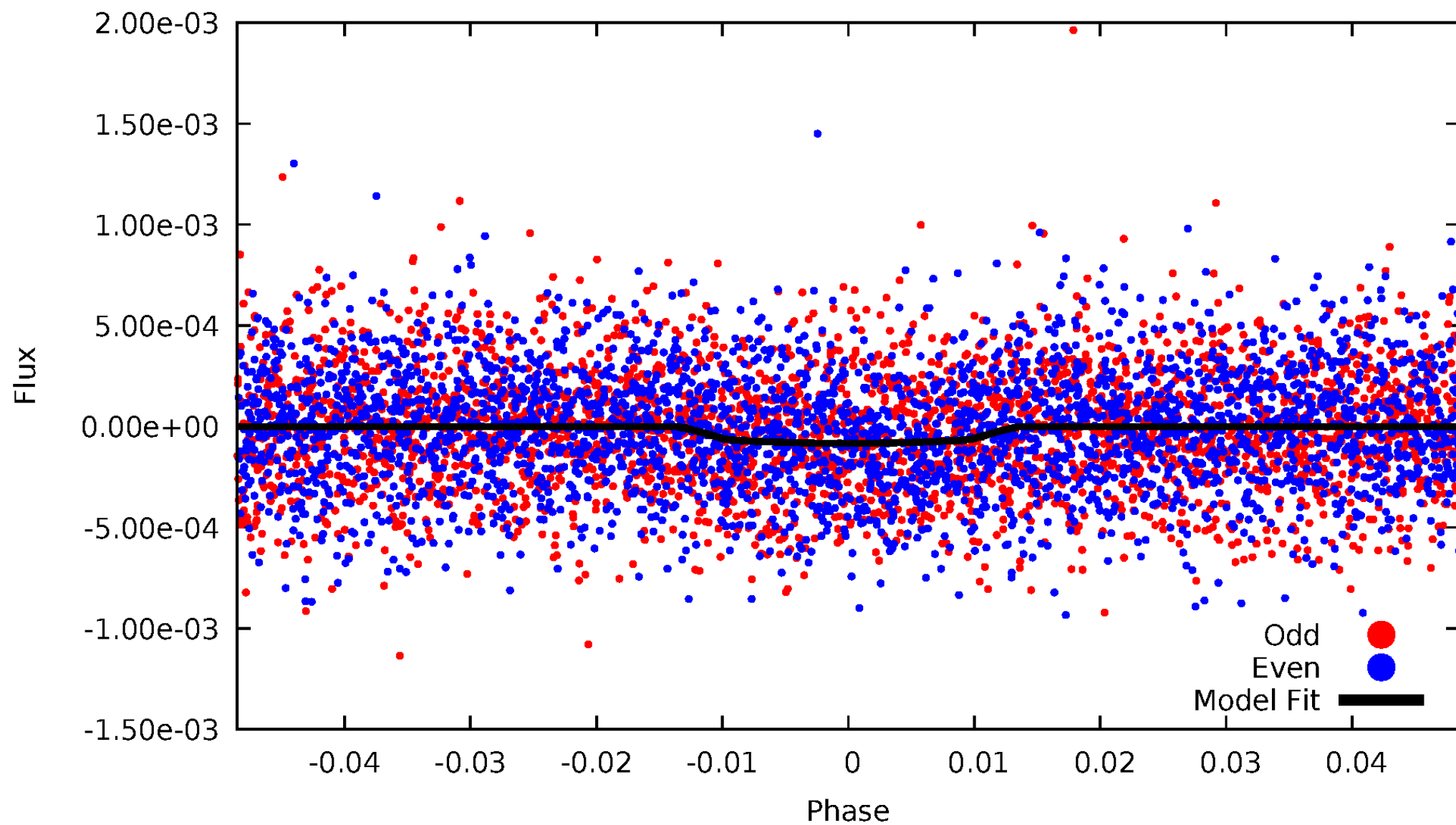


TCE 007107802-02



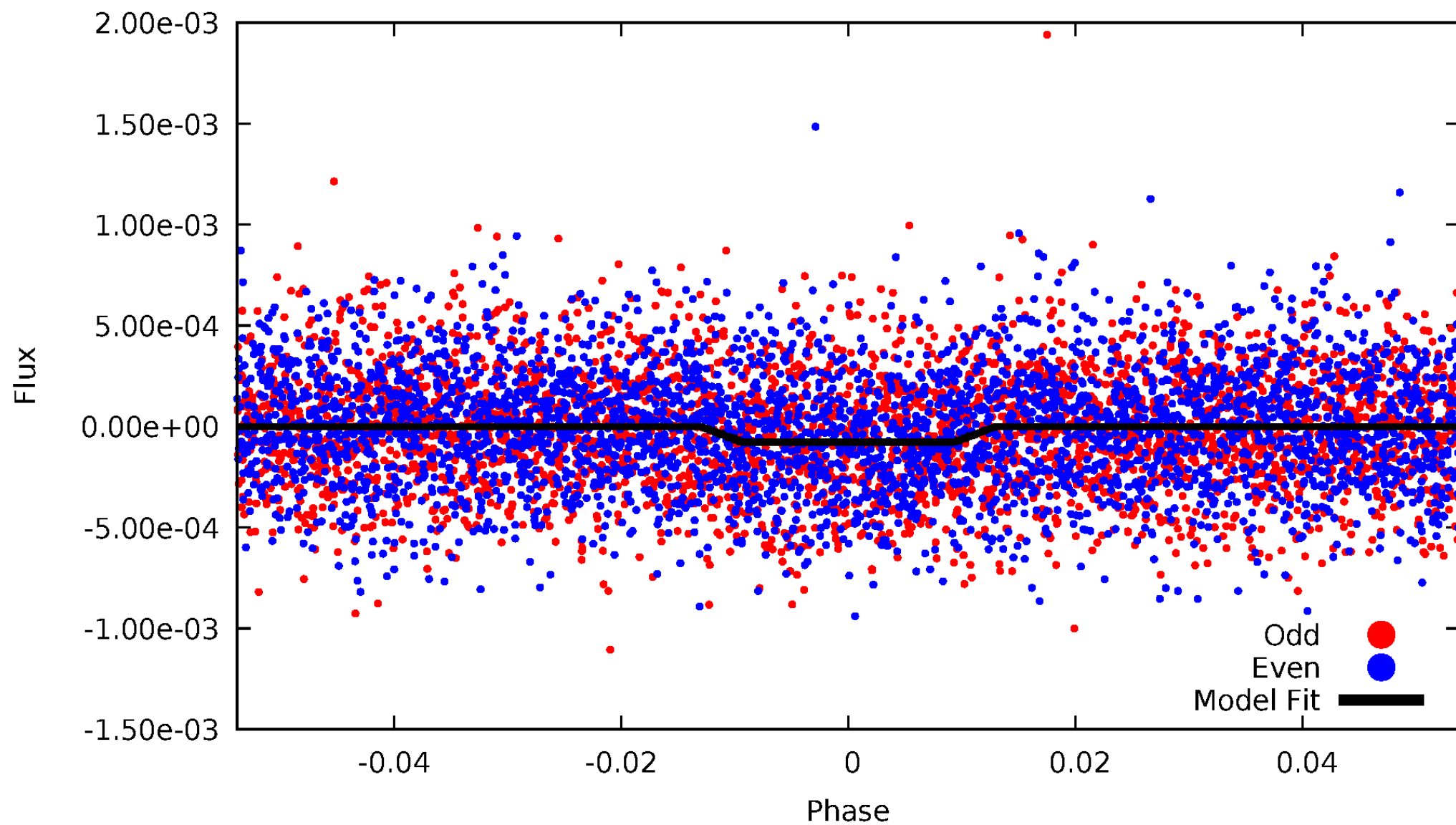
DV Odd/Even

TCE 007107802-02



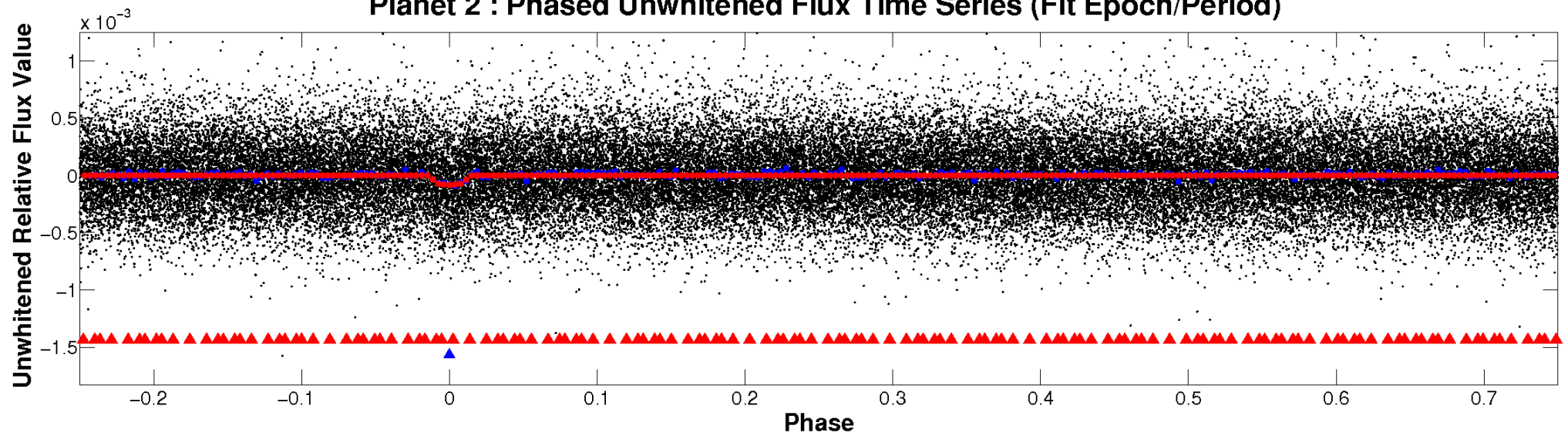
ALT Odd/Even

TCE 007107802-02

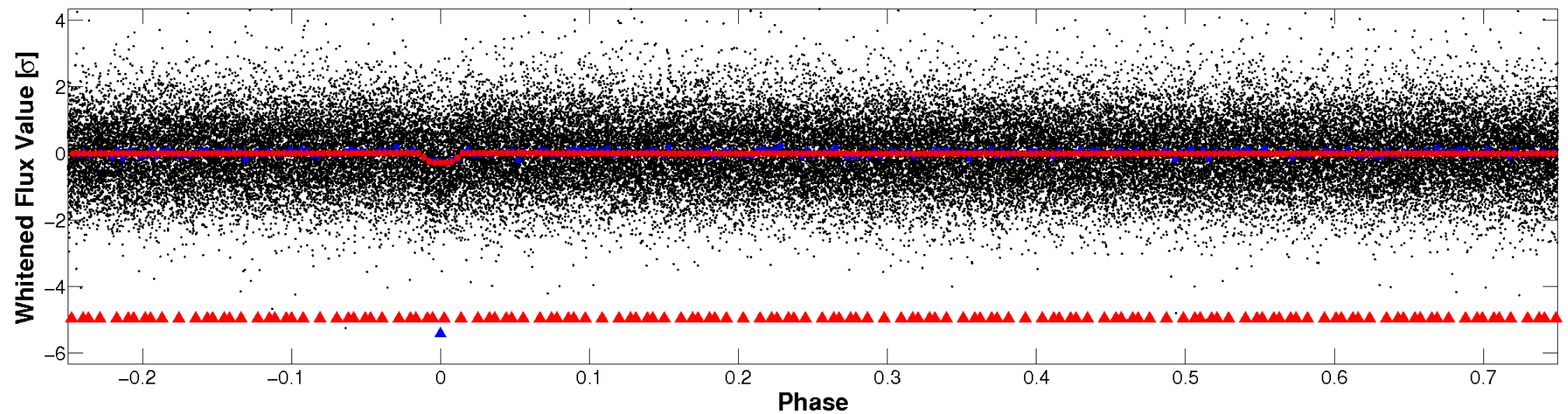


Non-Whitened Vs. Whitened Light Curve

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

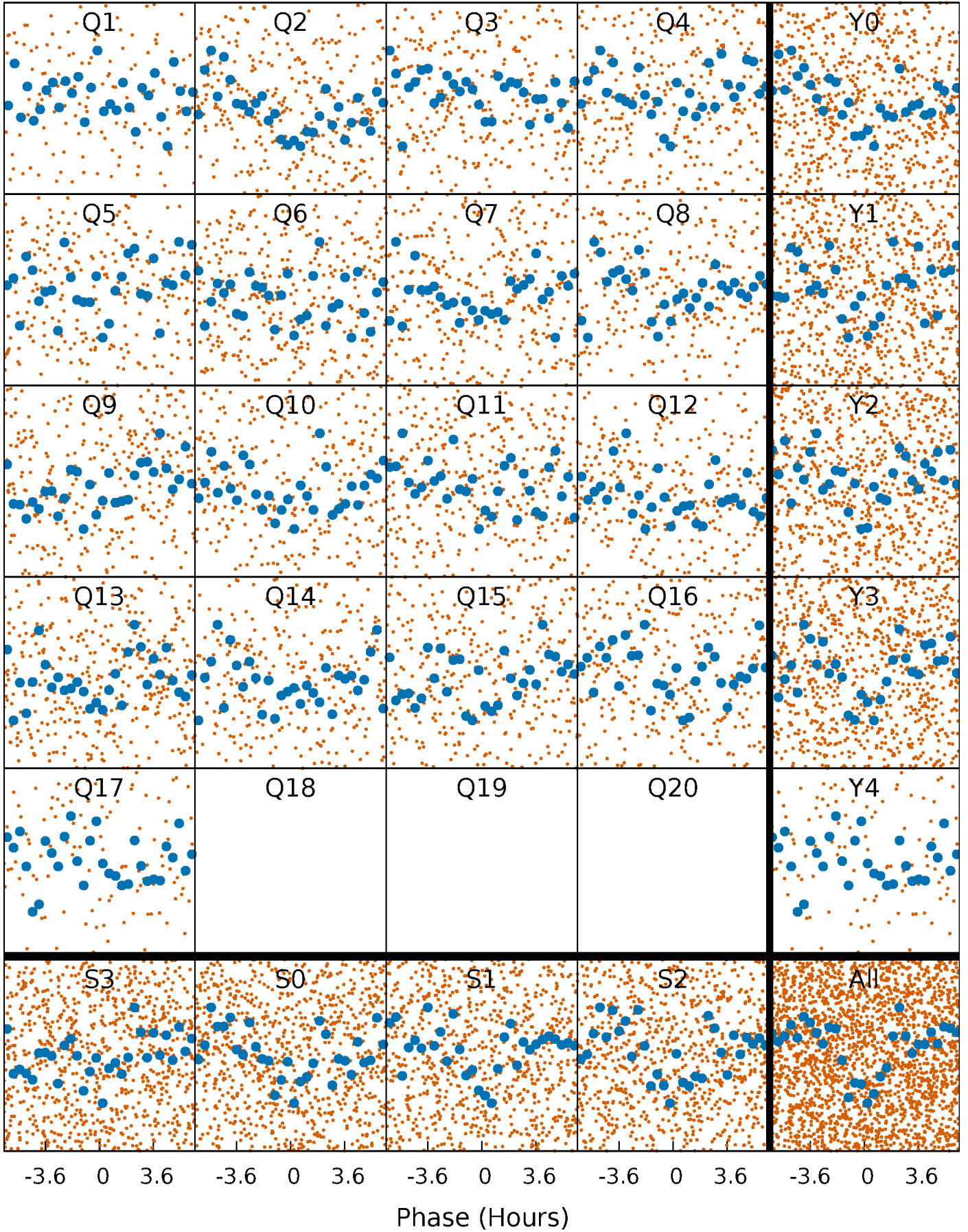


Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



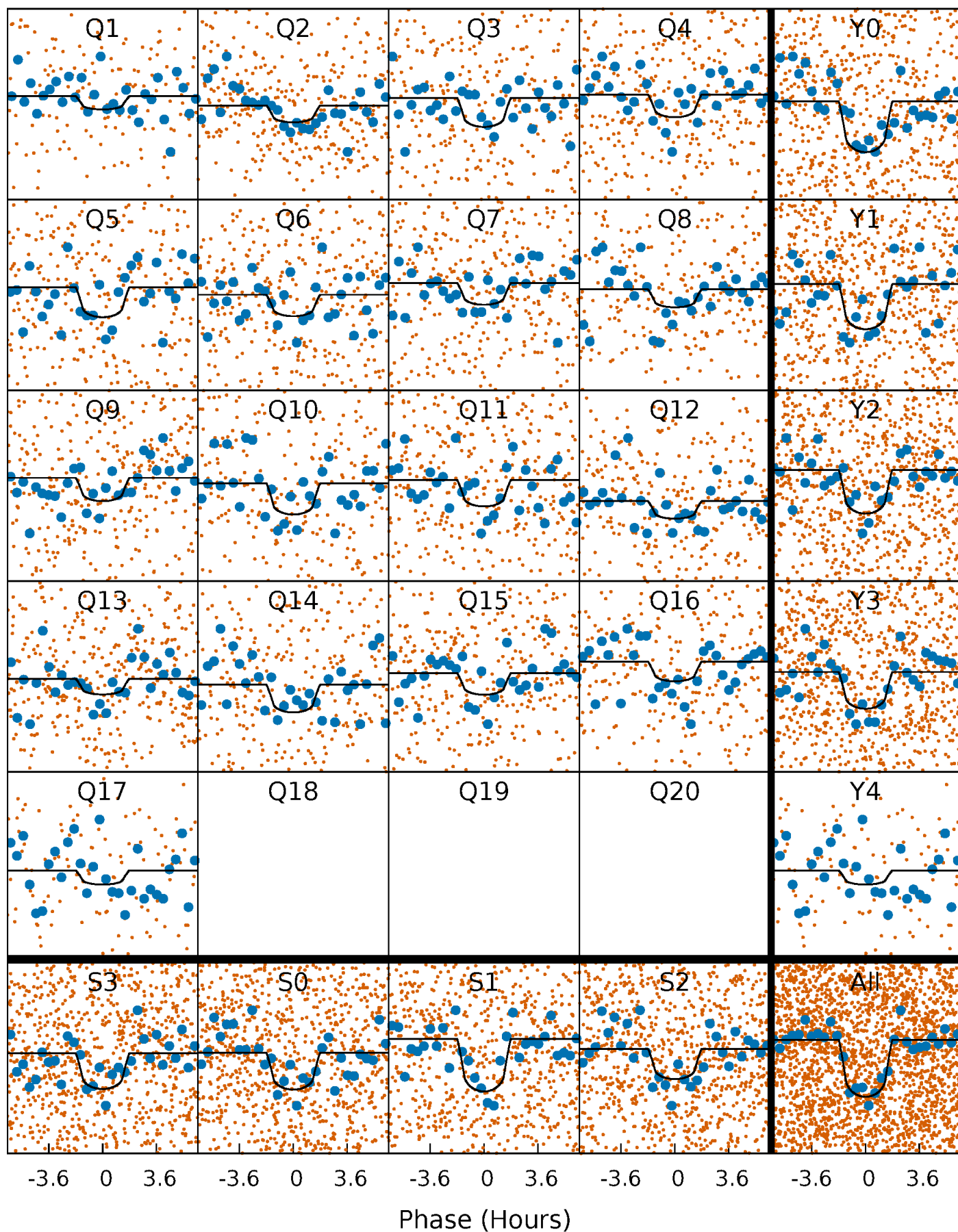
PDC Quarter-Phased Transit Curves

TCE 007107802-02 P= 5.467526 Days $T_0=133.424256$ (BKJD)



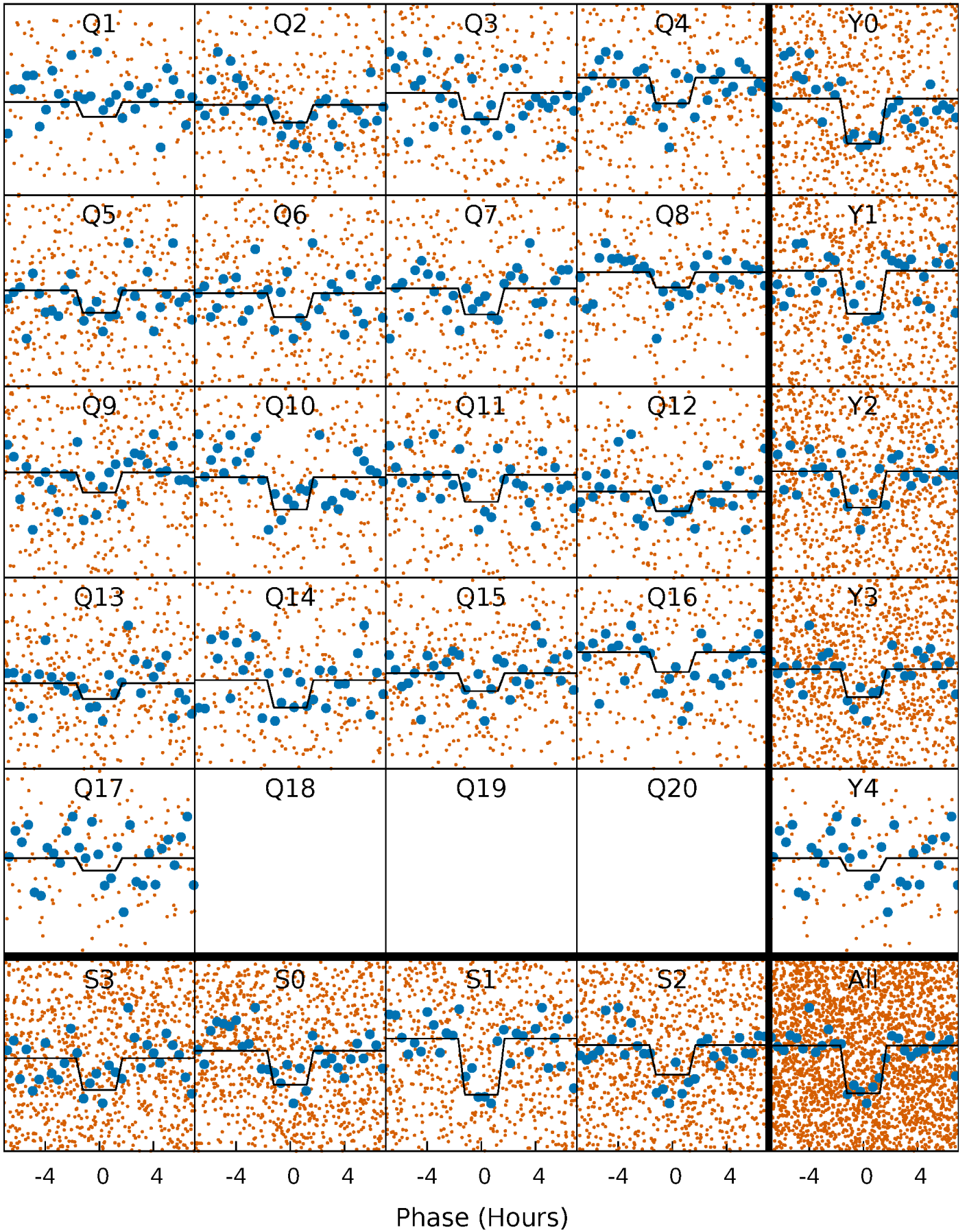
DV Quarter-Phased Transit Curves

TCE 007107802-02 P= 5.467526 Days $T_0=133.424256$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

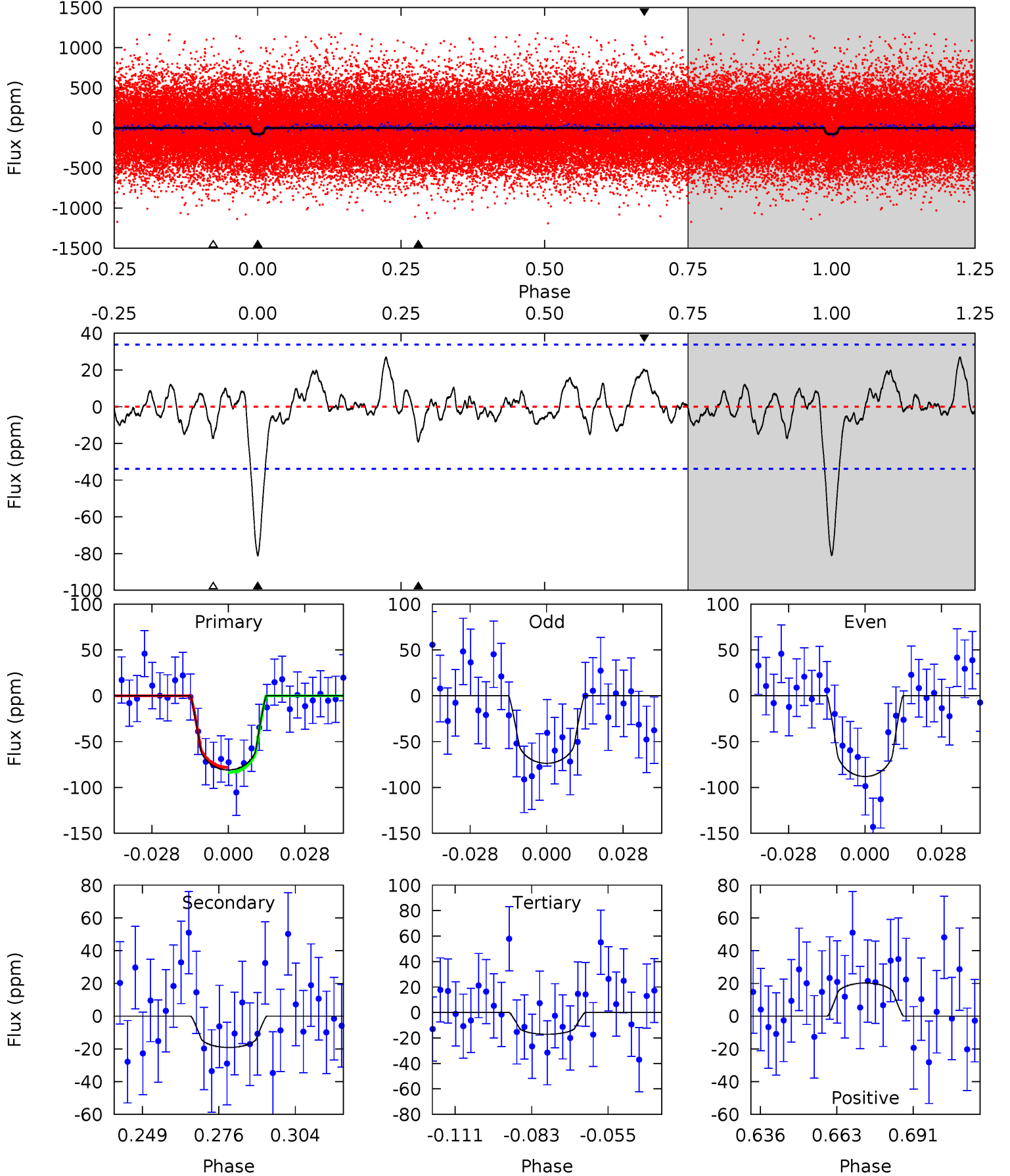
TCE 007107802-02 P= 5.467534 Days $T_0=133.424692$ (BKJD)



DV Model-Shift Uniqueness Test

007107802-02, P = 5.467526 Days, E = 127.956730 Days

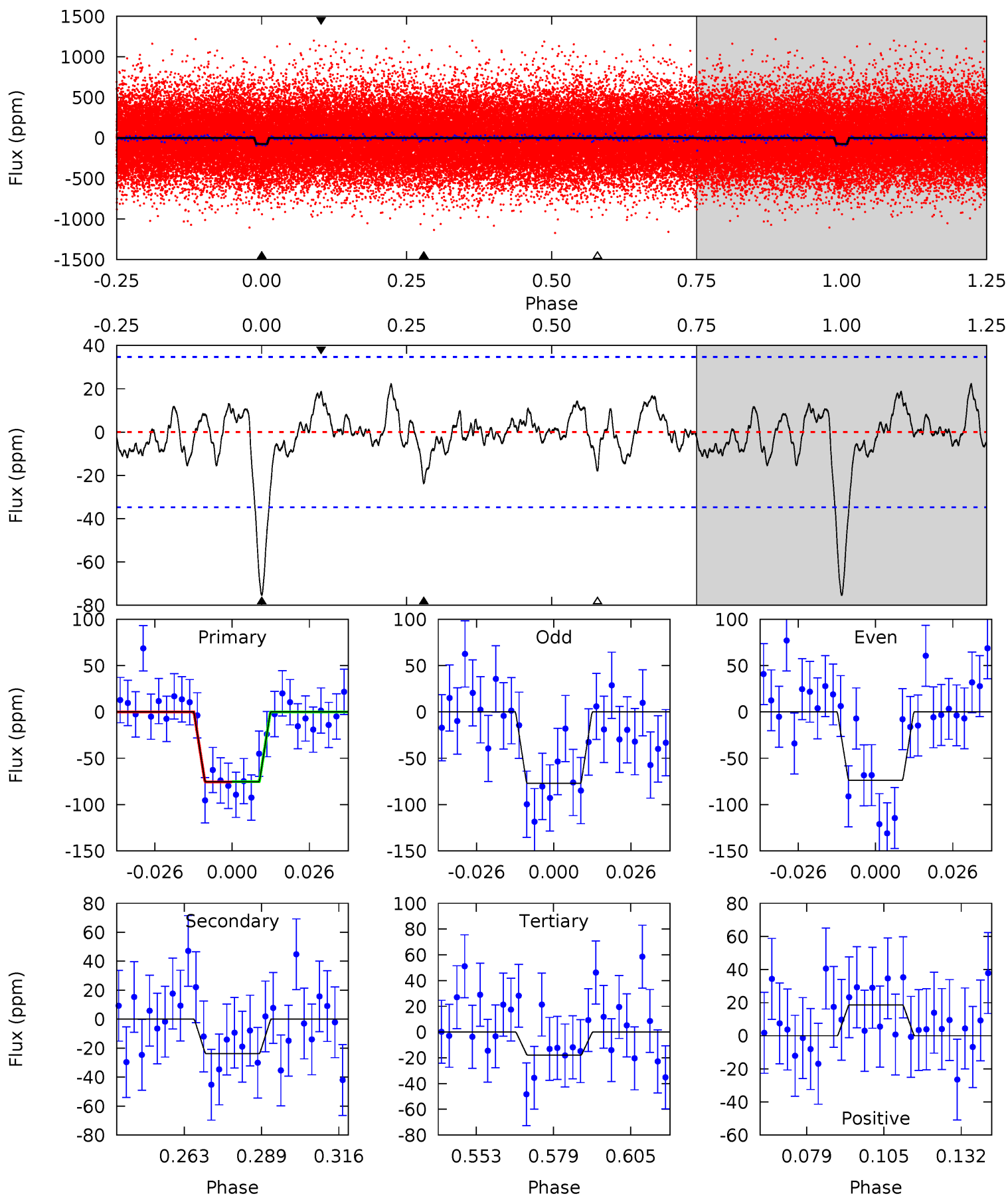
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
11.5	2.73	2.44	2.89	4.83	2.20	1.11	9.11	8.66	0.29	-0.16	1.03	1.02	0.25	0.38



Alt Model-Shift Uniqueness Test

007107802-02, P = 5.467534 Days, E = 127.957158 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
10.5	3.30	2.49	2.59	4.84	2.22	1.03	8.01	7.92	0.82	0.72	0.23	1.00	0.23	0.02



Stellar Parameters For KIC 007107802

	$T_{\text{eff}} (K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M (M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	5557^{+83}_{-75}	$4.288^{+0.162}_{-0.108}$	$0.140^{+0.150}_{-0.150}$	$1.151^{+0.166}_{-0.184}$	$0.936^{+0.069}_{-0.046}$	$0.866^{+0.631}_{-0.264}$
	+1%/-1%	+4%/-3%	+107%/-107%	+14%/-16%	+7%/-5%	+73%/-30%
Source	SPE90	SPE90	SPE90	DSEP		

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

Secondary Eclipse Parameters for KIC 007107802-02 / KOI 2420.02

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-19 ± 7	$1.29^{+0.99}_{-0.77}$	1503^{+62}_{-75}	3855^{+1750}_{-652}	21^{+108}_{-14}
Alt.	-24 ± 7	$1.31^{+0.90}_{-0.75}$	1503^{+69}_{-74}	4013^{+1796}_{-670}	26^{+128}_{-17}

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

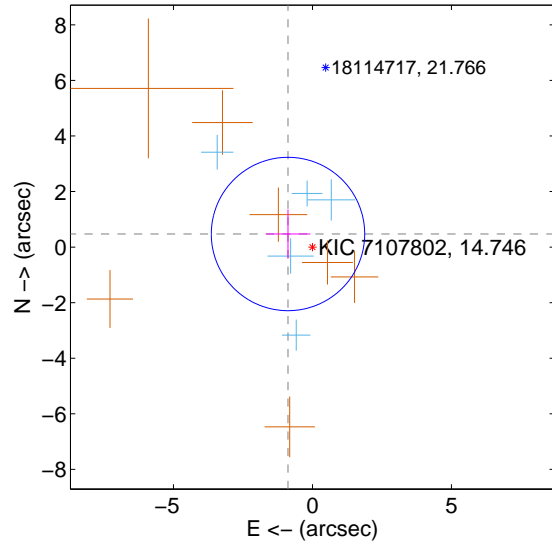
Supplemental centroid analysis for 007107802-02. Kepler magnitude: 14.75. Transit SNR 9.18

There are 5 quarters with good PRF difference image offsets

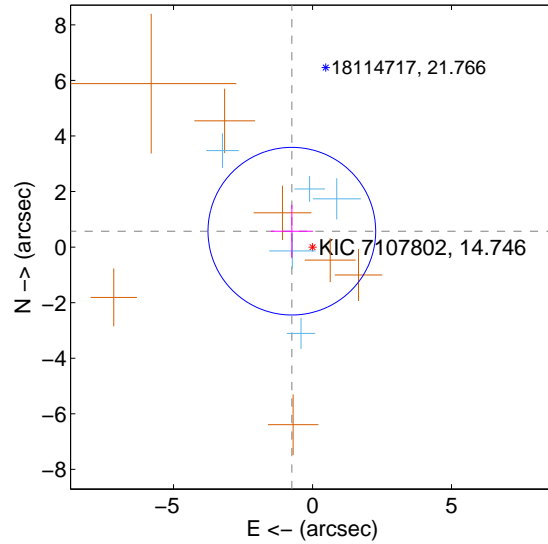
The direct PRF centroid is offset from the target star catalog position by about 0.15 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.998 ± 0.920	1.08	0.880 ± 0.802	0.471 ± 0.883
PRF-fit source offset from KIC position	0.939 ± 1.006	0.93	0.744 ± 0.757	0.573 ± 0.948
photometric centroid source offset	2.40 ± 1.62	1.48	1.16 ± 1.58	-2.09 ± 1.63

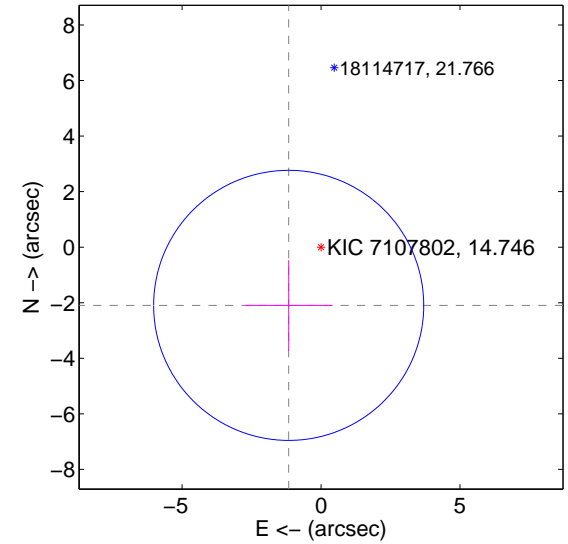
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position

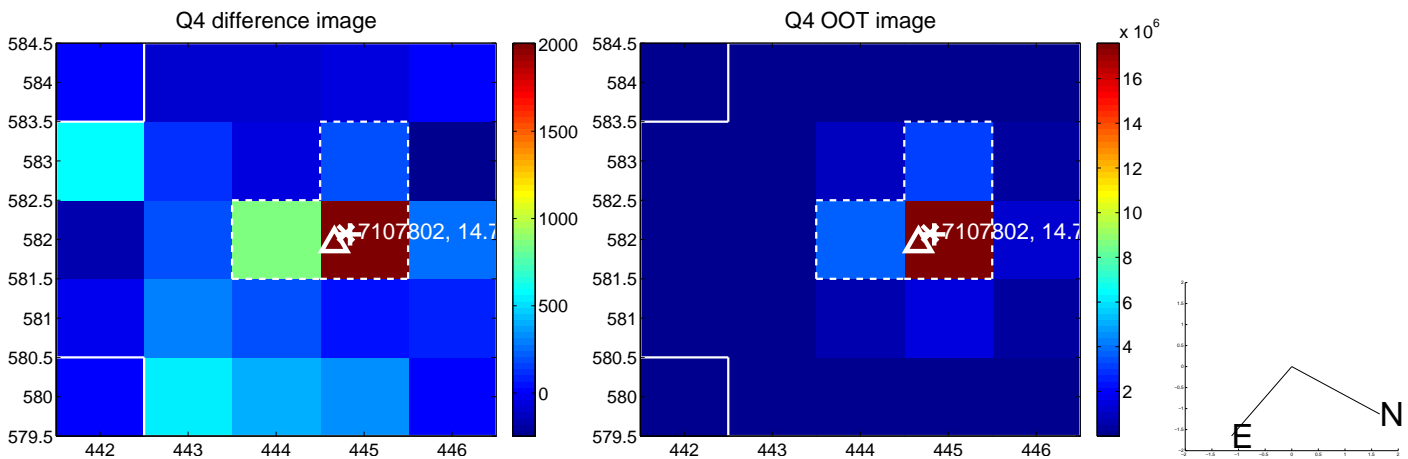
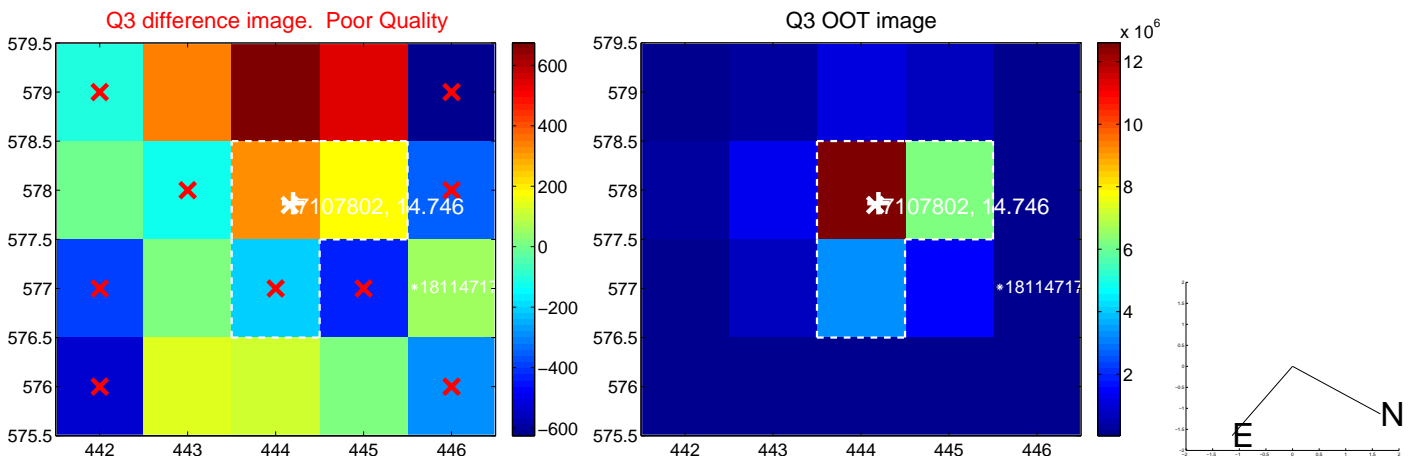
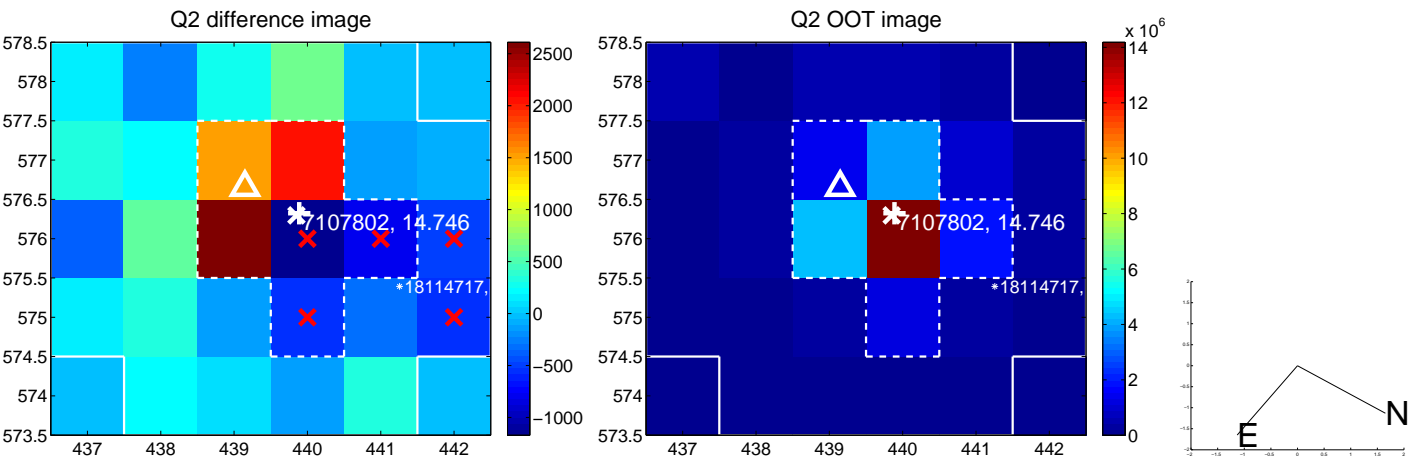
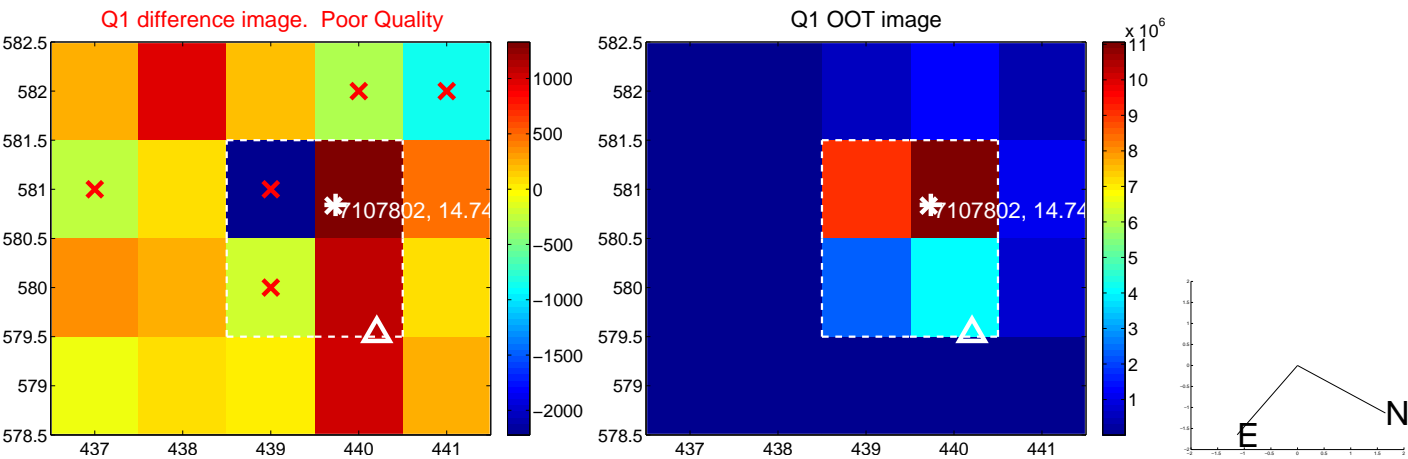


offset from photometric centroids

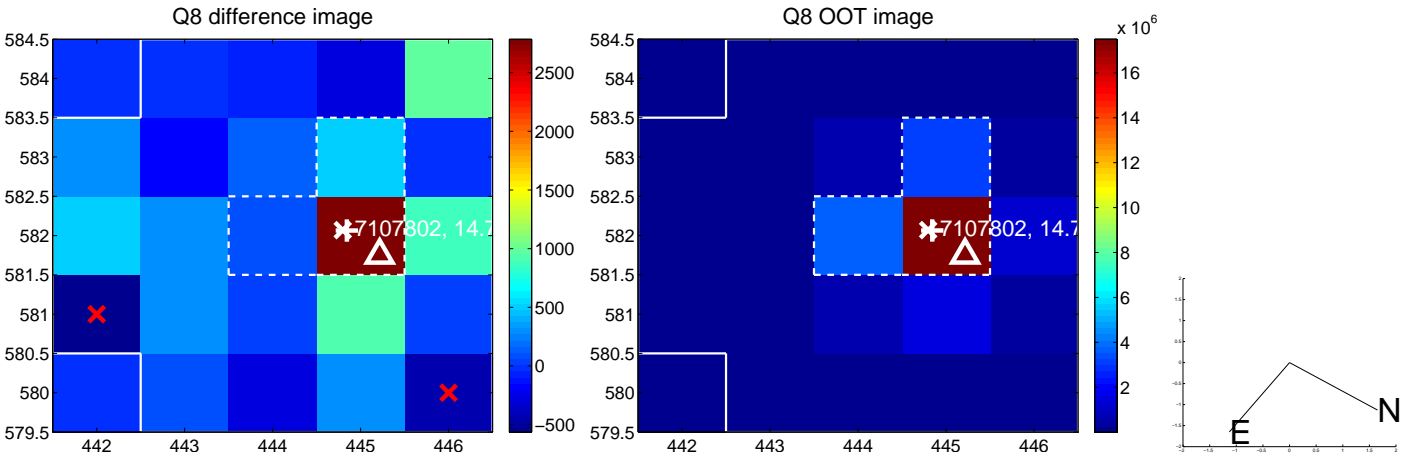
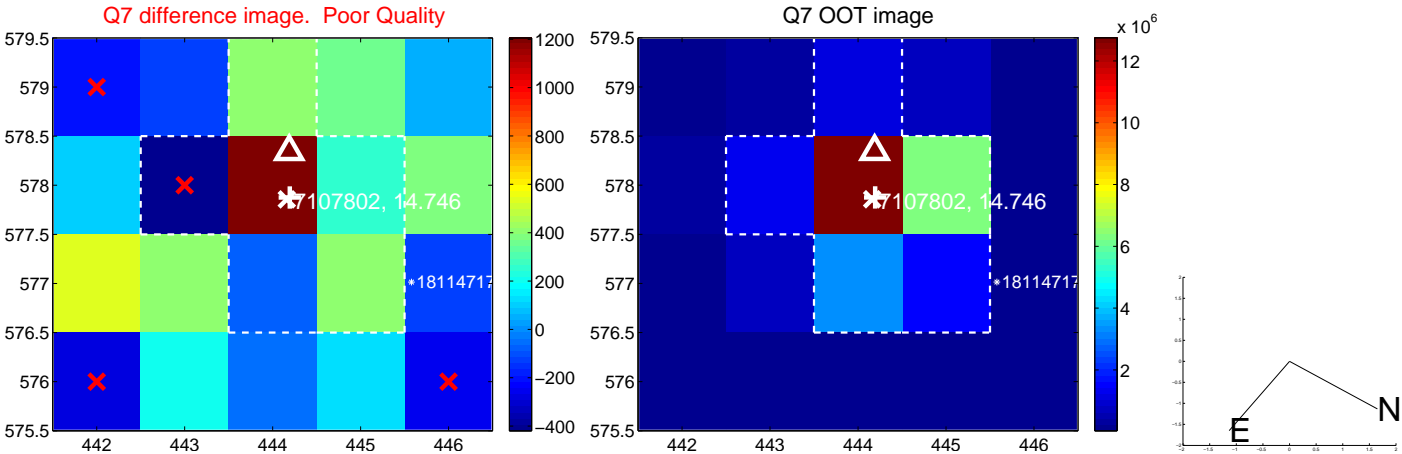
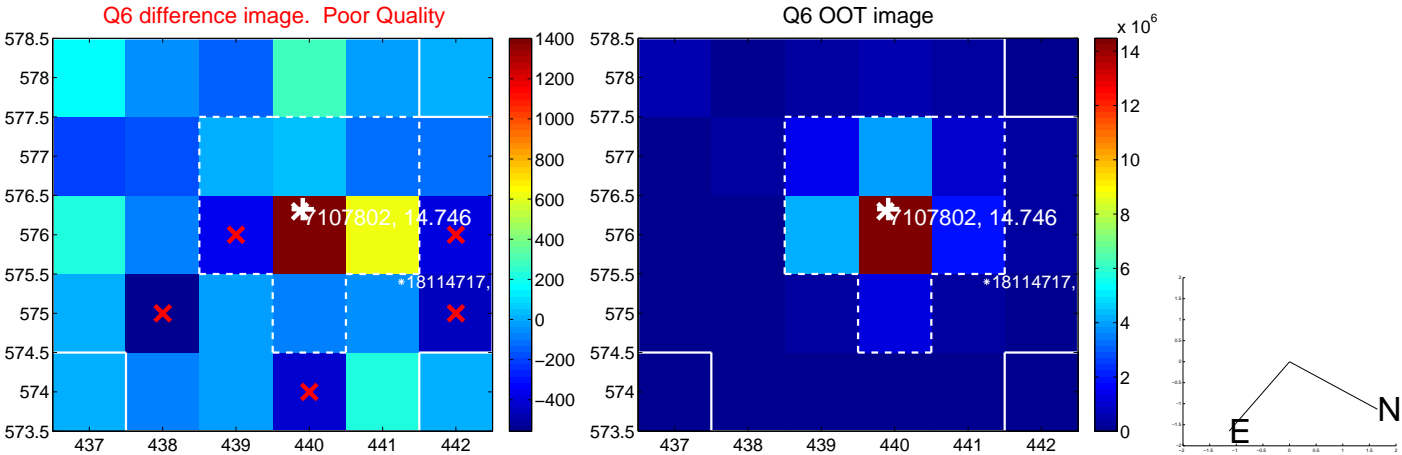
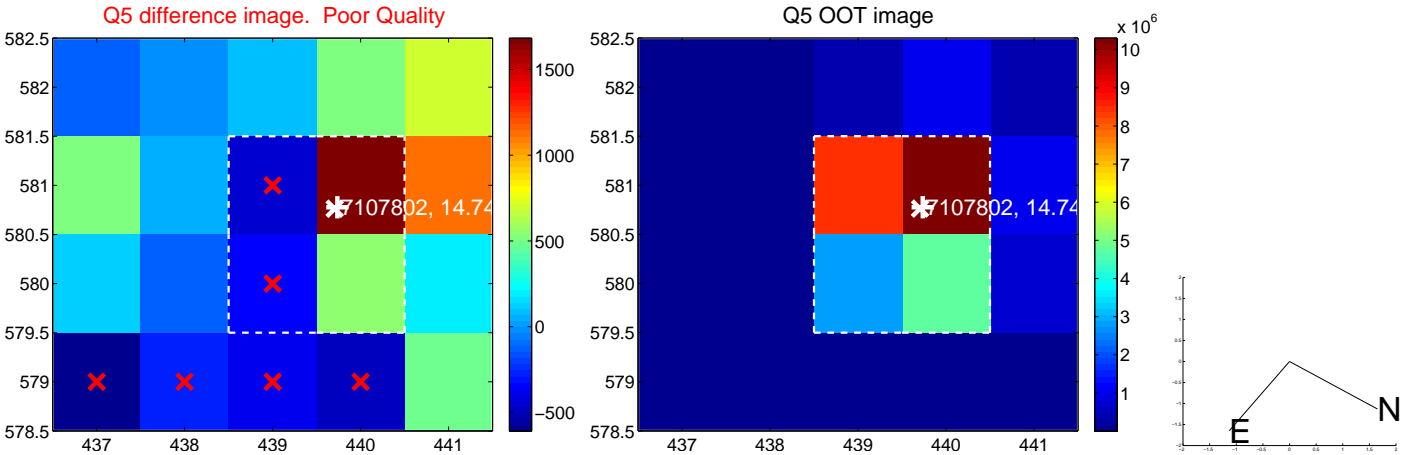


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets**; **Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

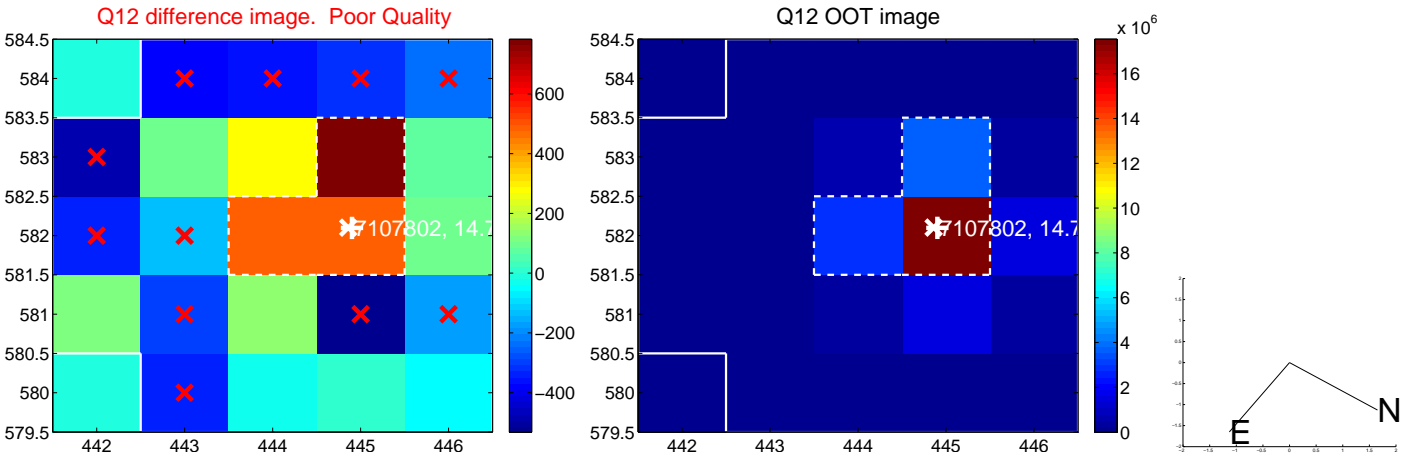
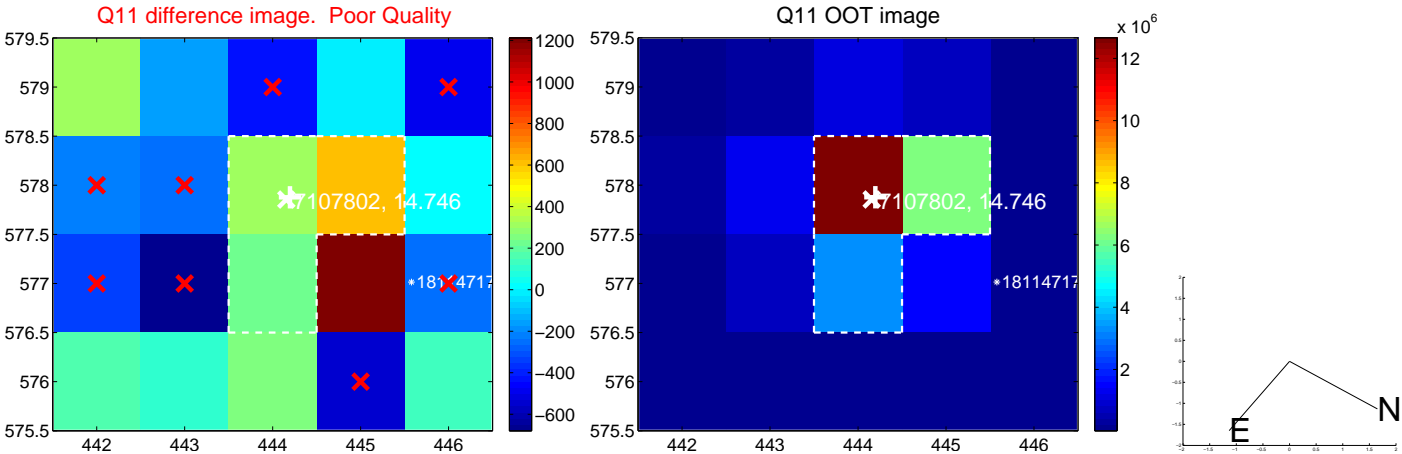
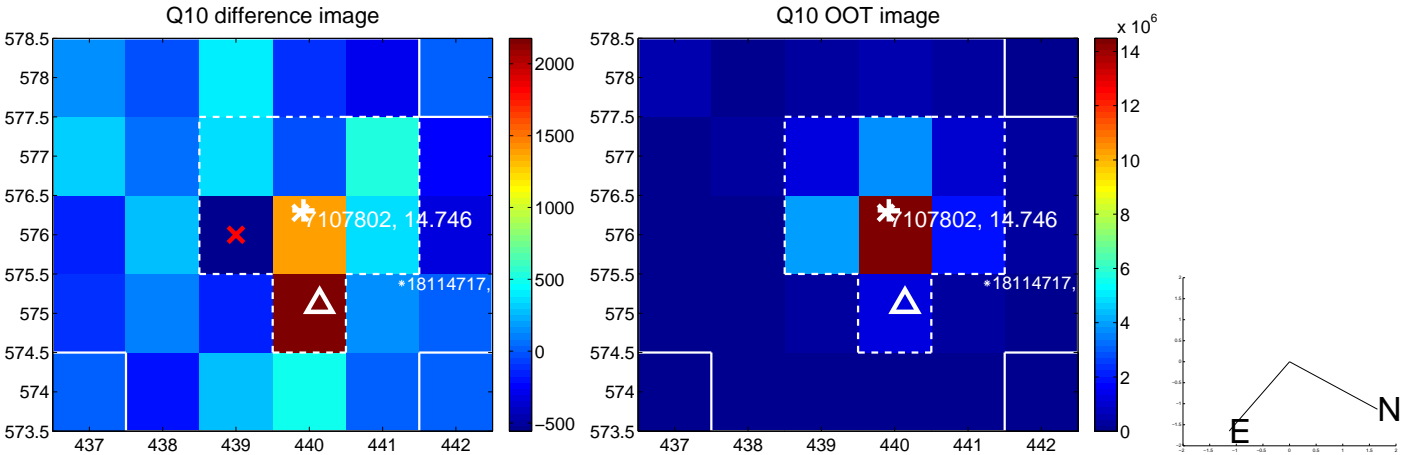
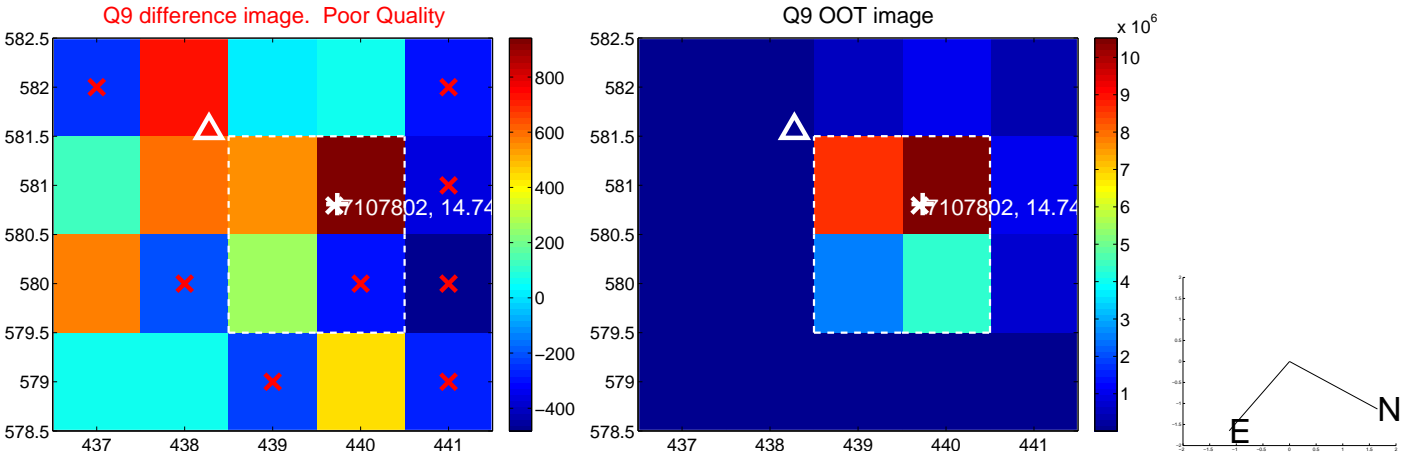
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



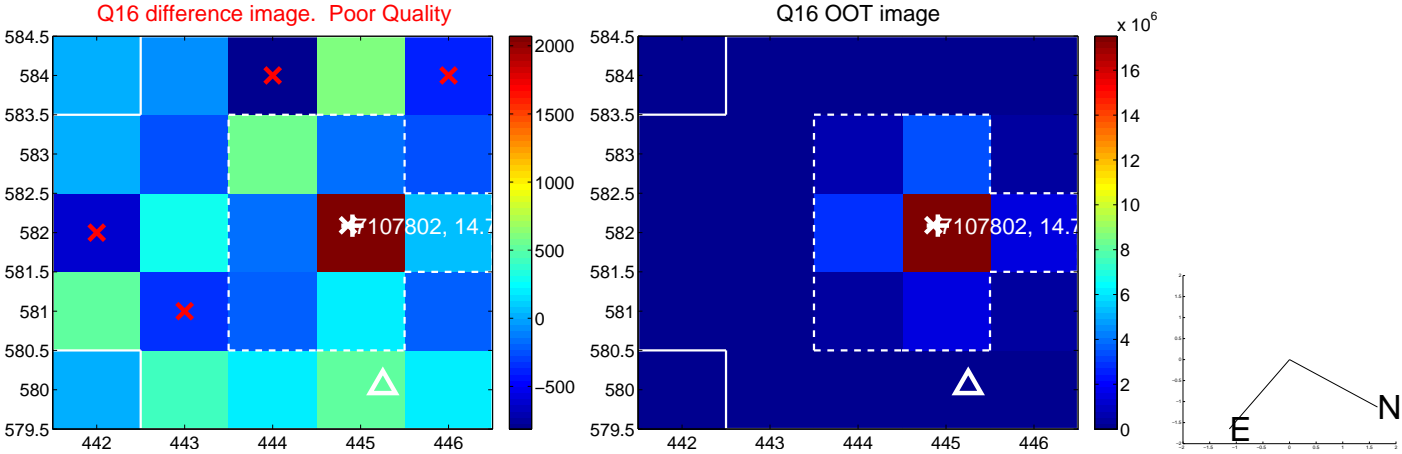
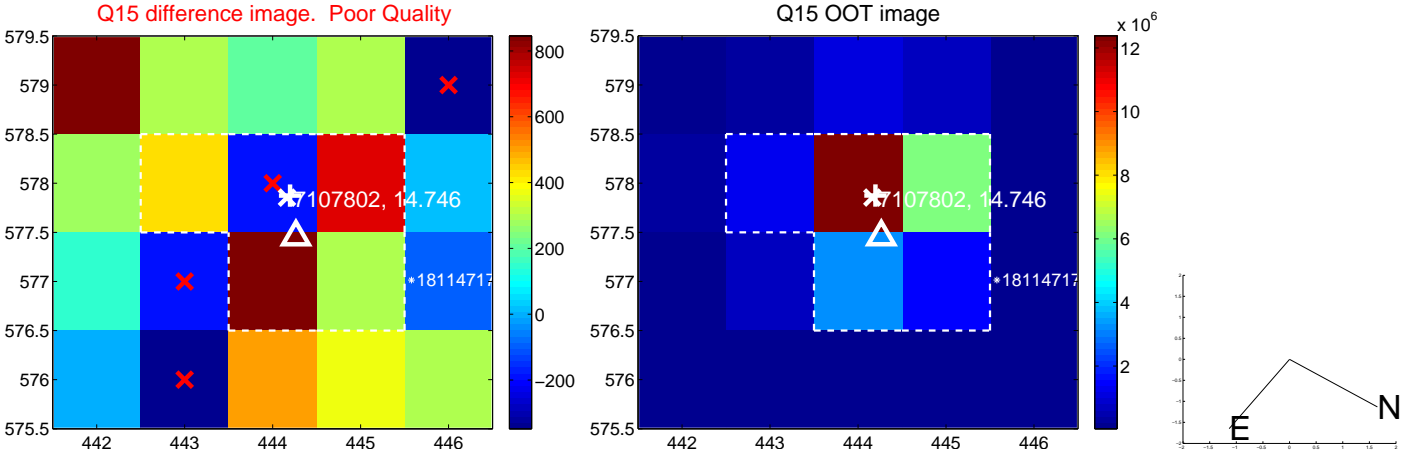
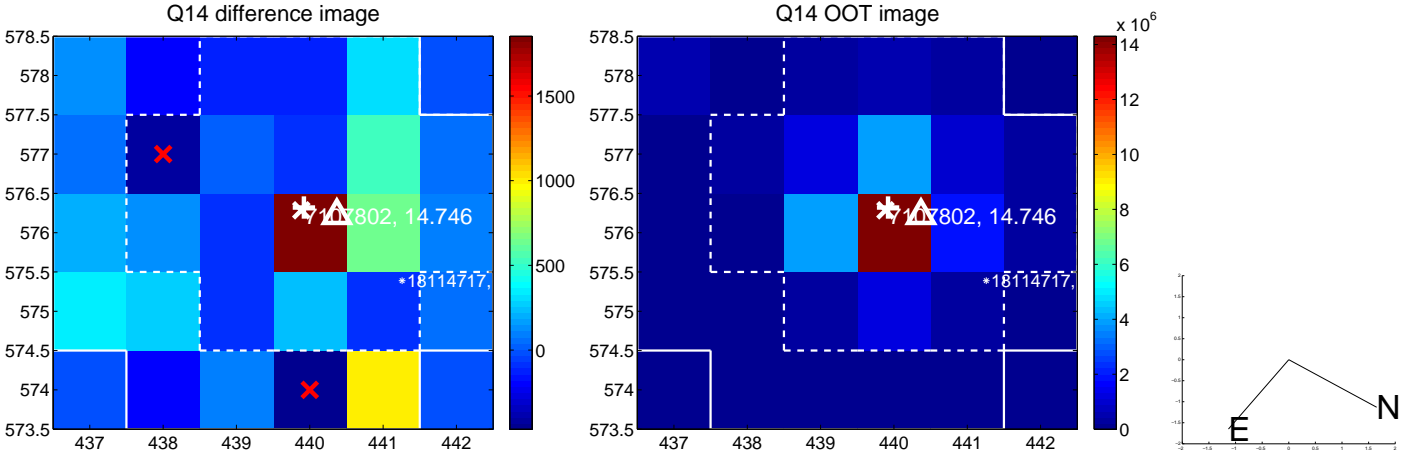
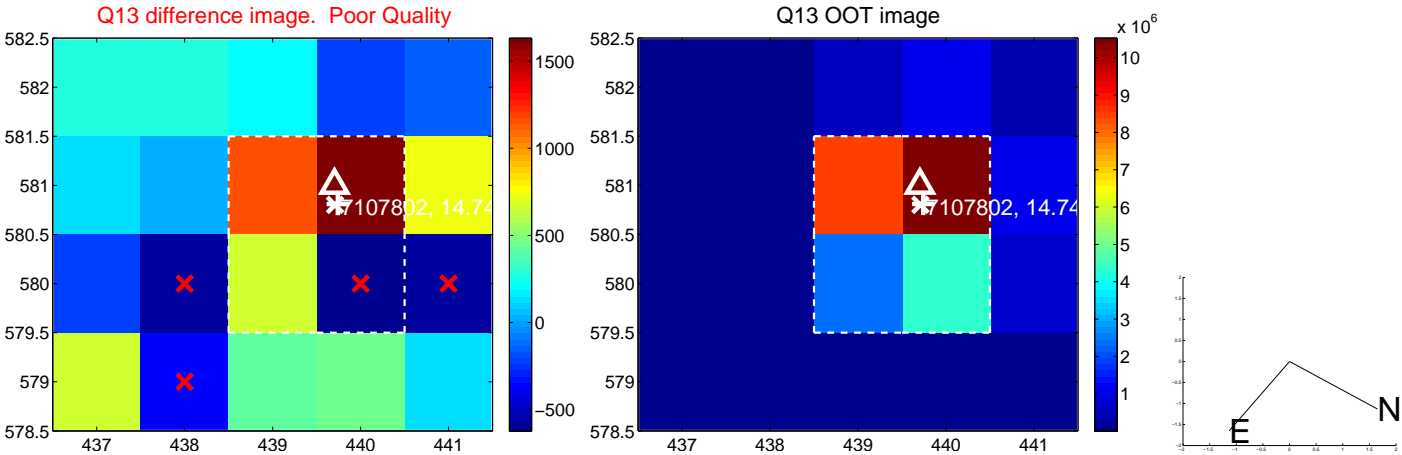
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



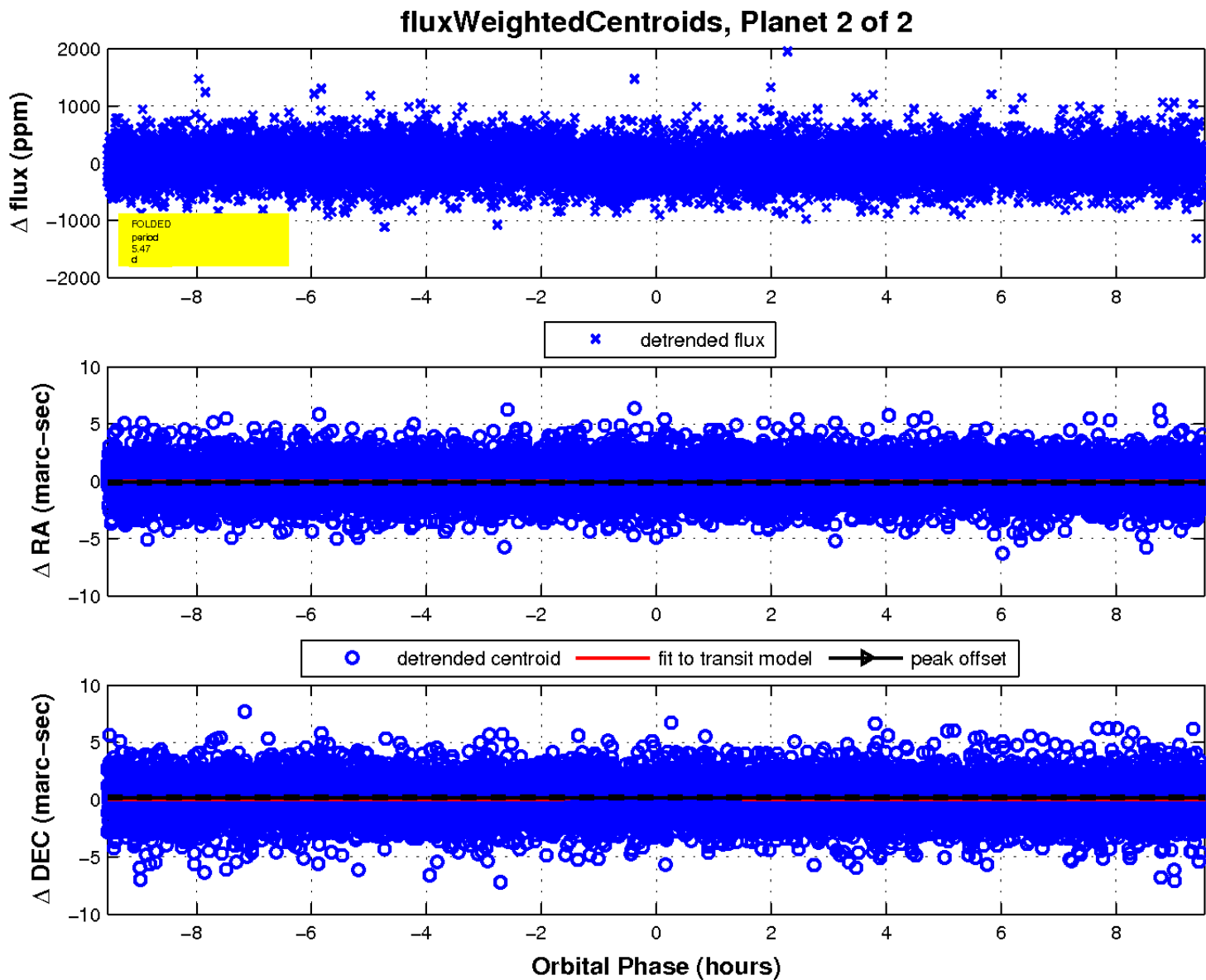
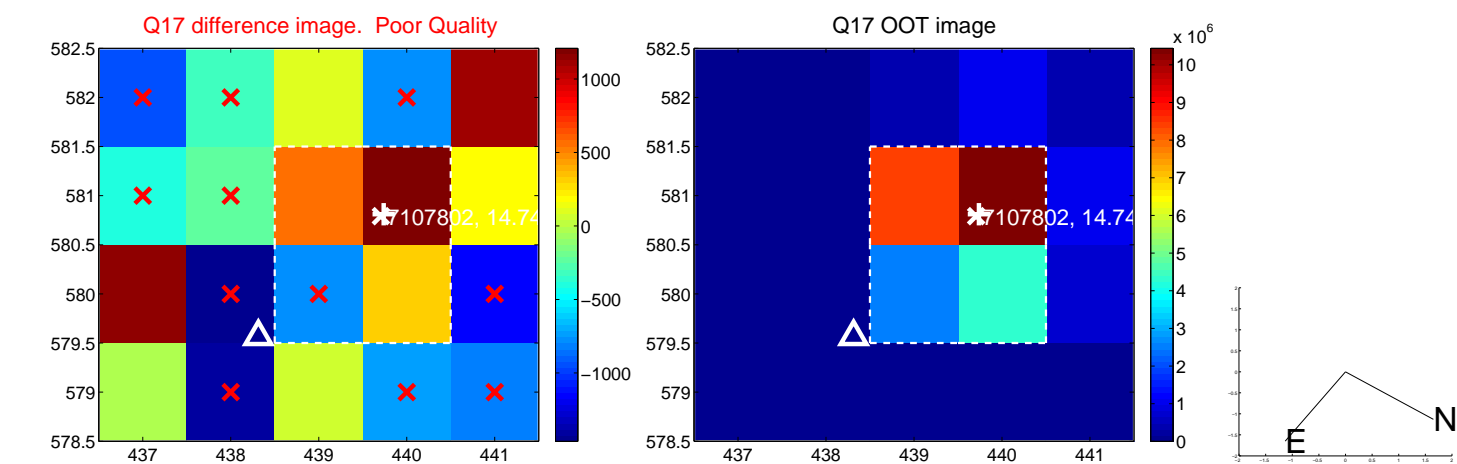
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

