

KIC 008397947

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})
008397947-01	OBS	4772.01	3.380812	133.945873	188.8	3.558	9.3	10.1	1.19	6072	1.98	815.24
008397947-02	OBS	4772.03	39.093657	147.661742	442.2	5.275	7.3	7.3	1.19	6072	2.78	31.18

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
008397947-01	OBS	PC	0.87	0	0	0	0	CENT_KIC_POS
008397947-02	OBS	FP	0.19	0	0	1	0	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.

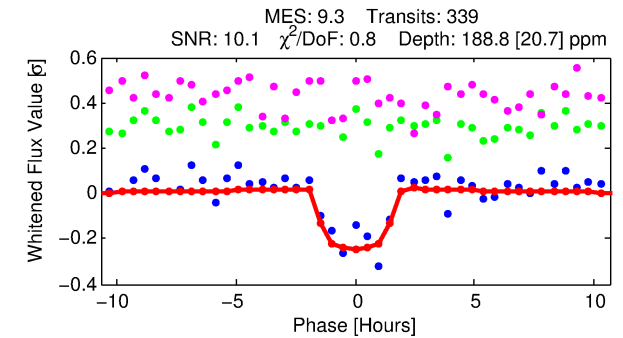
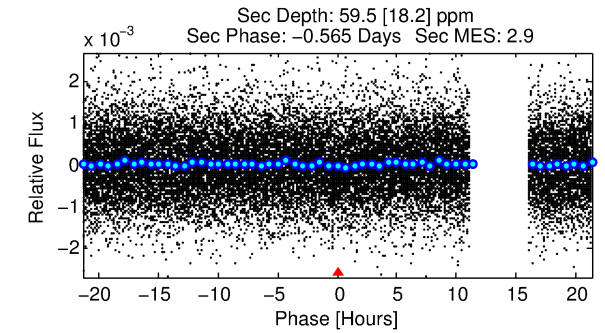
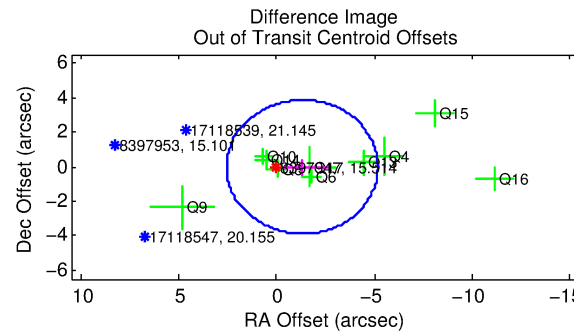
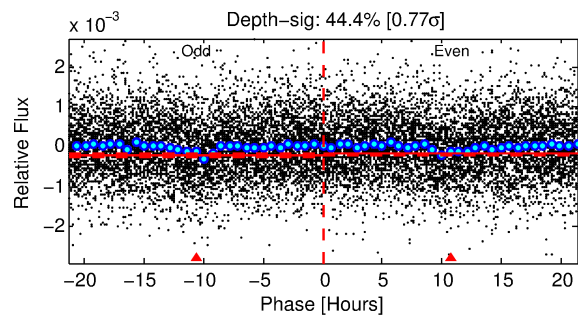
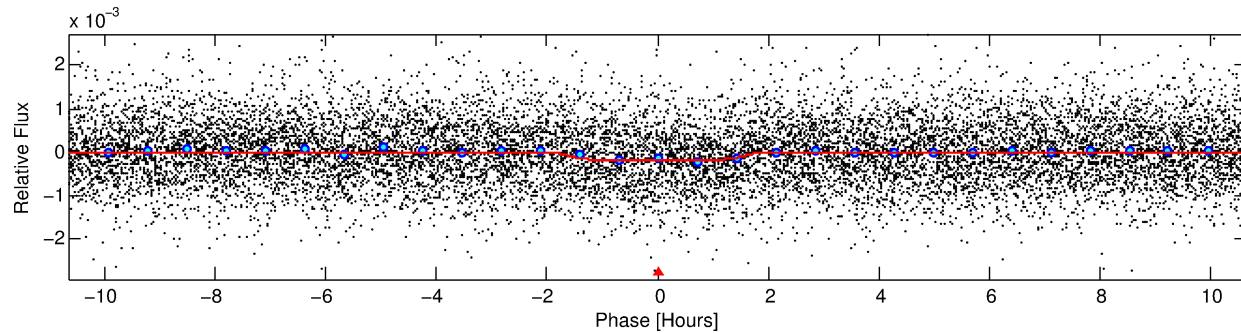
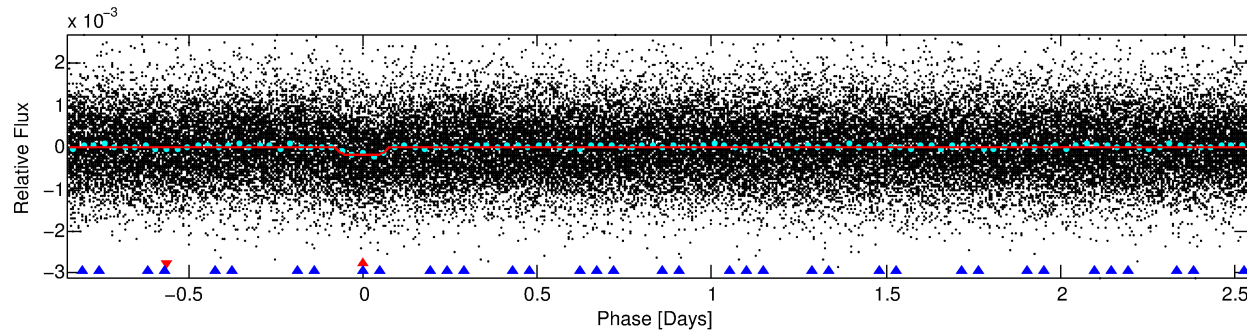
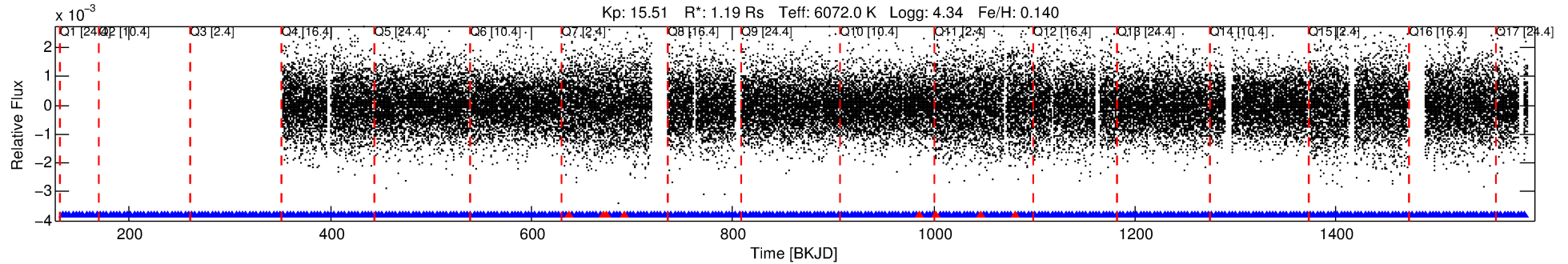
Ephemeris Match Information For 008397947-01

No Significant Match Found

DV One-Page Summary

KIC: 8397947 Candidate: 1 of 2 Period: 3.381 d

KOI: K04772.01 Corr: 0.961



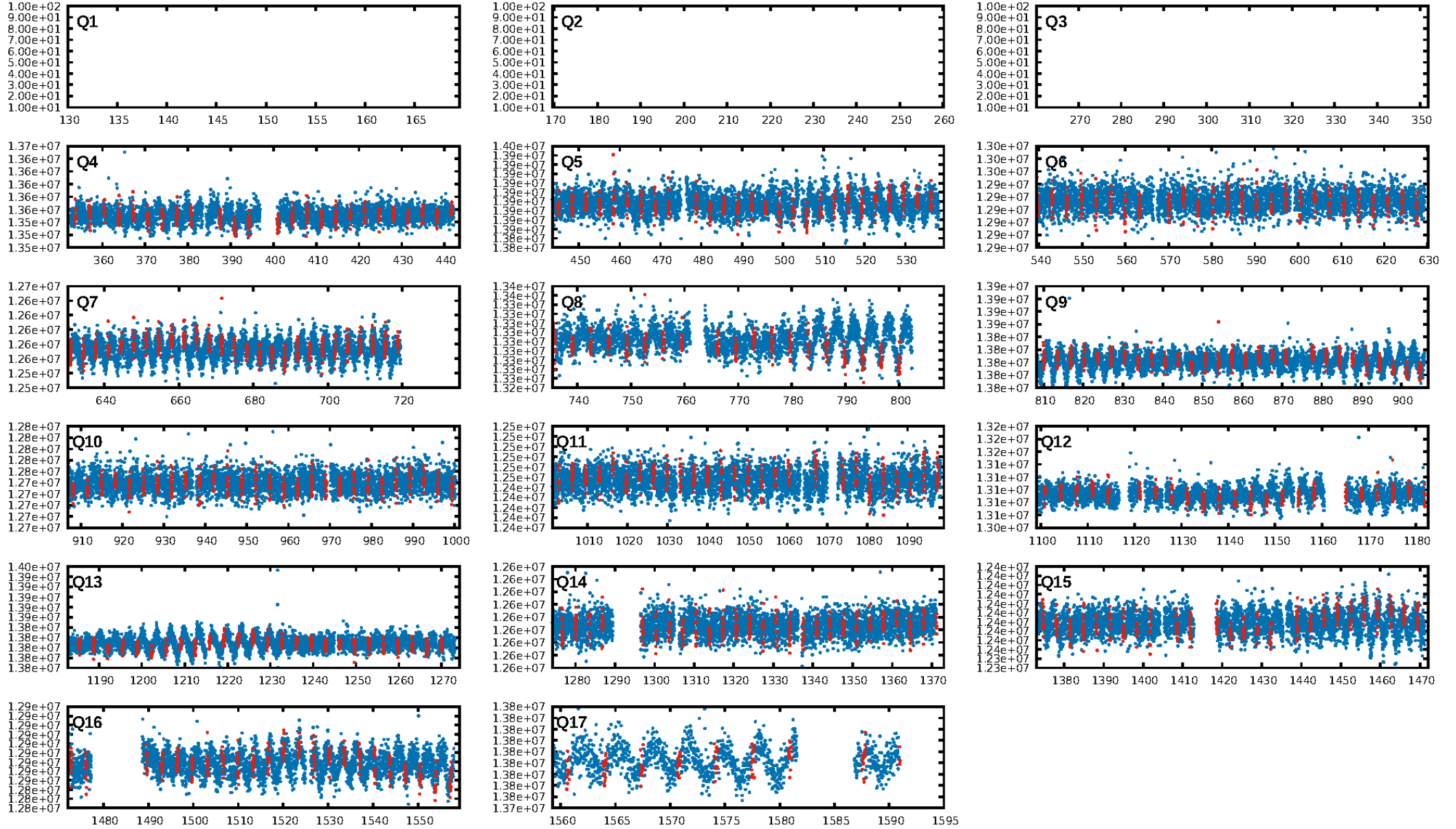
DV Fit Results:

Period = 3.38081 [0.00003] d
Epoch = 133.9459 [0.0054] BKJD
Rp/R* = 0.0152 [0.0047]
a/R* = 3.23 [4.61]
b = 0.92 [0.26]
Seff = 815.24 [175.96]
Teq = 1363 [74] K
Rp = 1.98 [0.70] Re
a = 0.0461 [0.0065] AU
Ag = 17.71 [12.80] [1.31 σ]
Teffp = 4322 [751] K [3.92 σ]

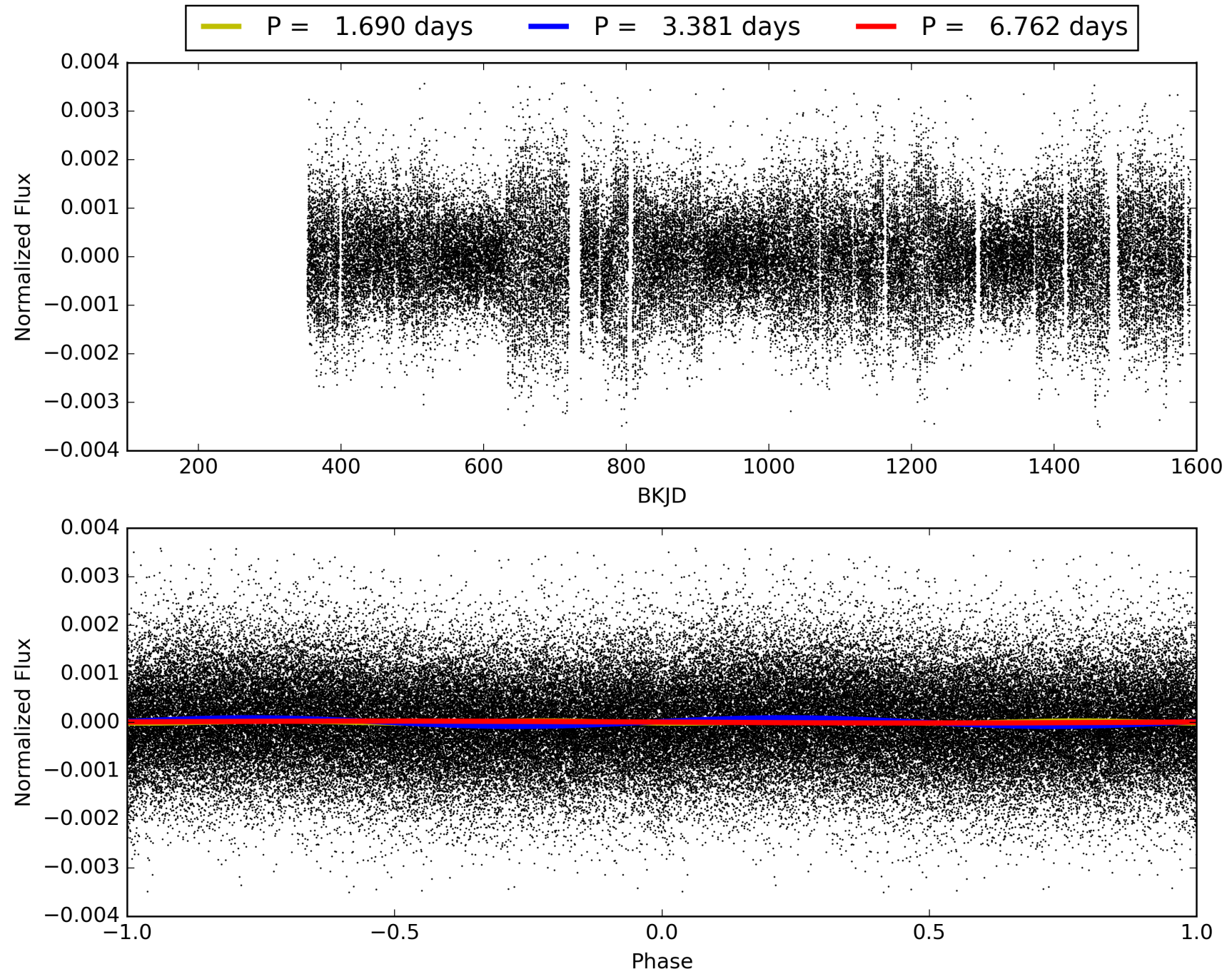
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: 100.0% [134.71 σ]
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: 7.19e-21
RollingBand-fgt: 0.98 [322/330]
GhostDiagnostic-chr: 0.8869
Centroid-sig: 2.0%
Centroid-so: 3.605 arcsec [3.54 σ]
OotOffset-rm: 1.308 arcsec [1.01 σ]
KicOffset-rm: 0.600 arcsec [1.11 σ]
OotOffset-st: 3/1/3/3 [10]
KicOffset-st: 3/1/3/3 [10]
DiffImageQuality-fgm: 0.40 [4/10]
DiffImageOverlap-fno: 1.00 [14/14]

TCE 008397947-01, PDC Light Curves

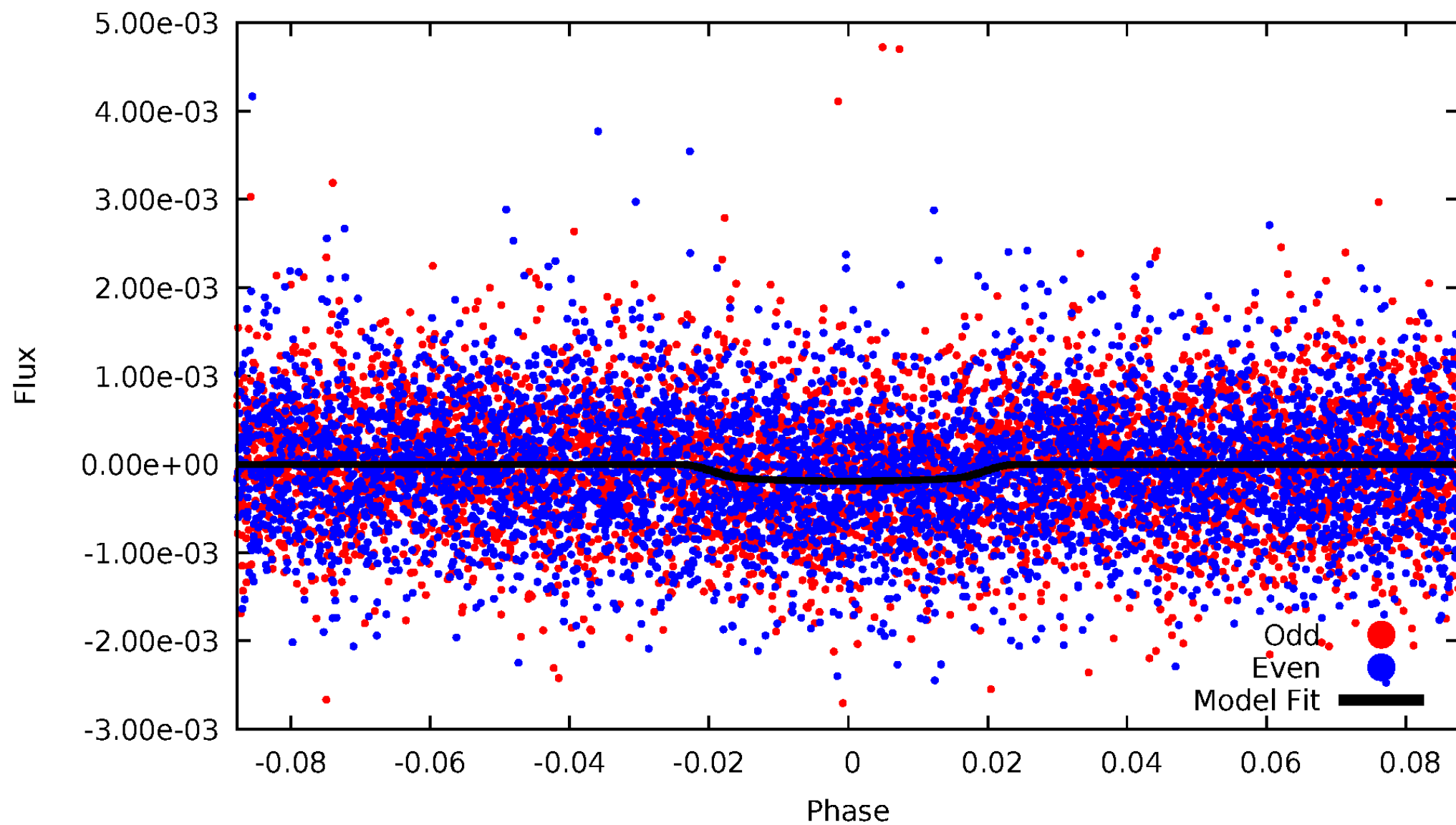


TCE 008397947-01



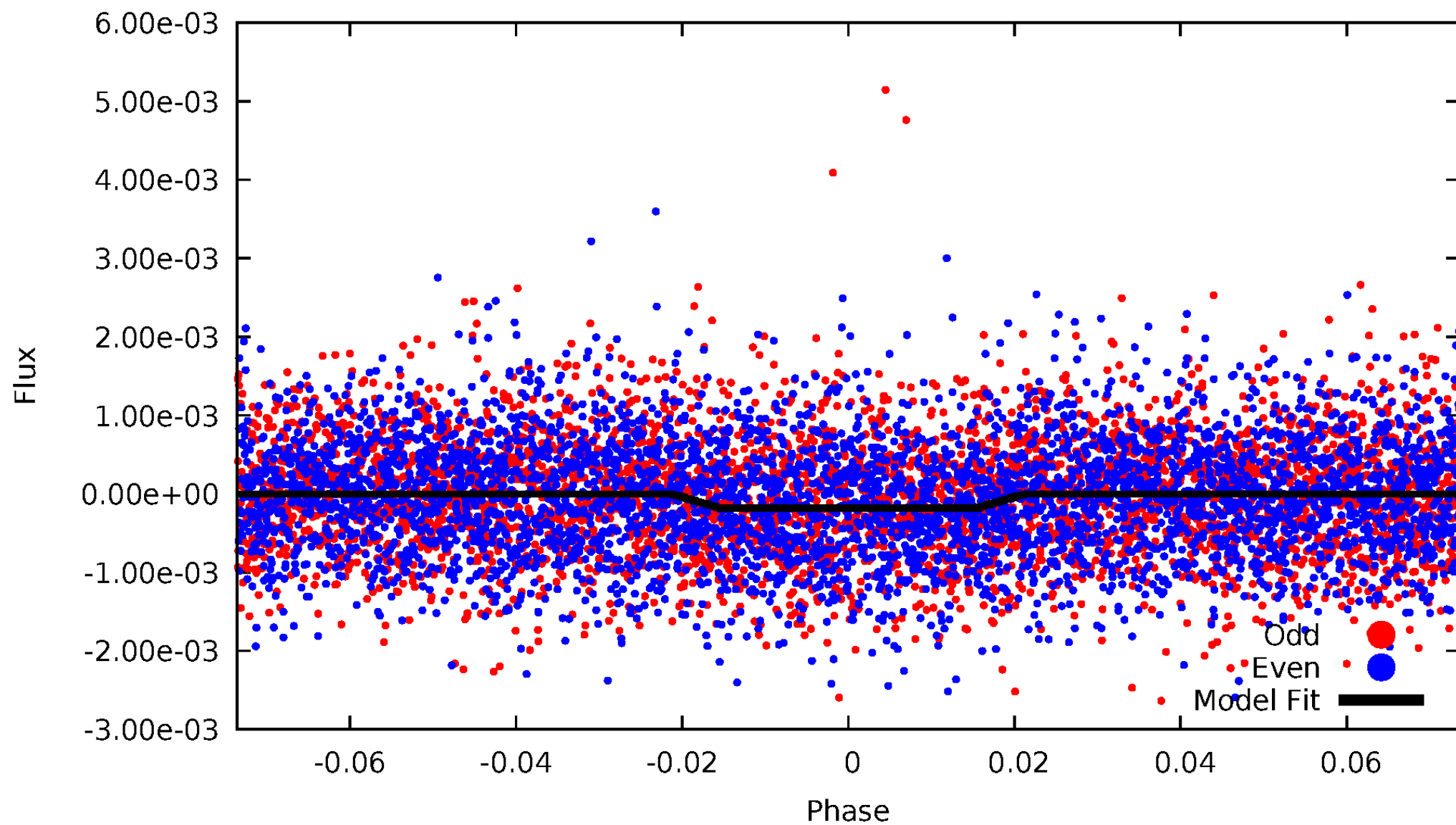
DV Odd/Even

TCE 008397947-01



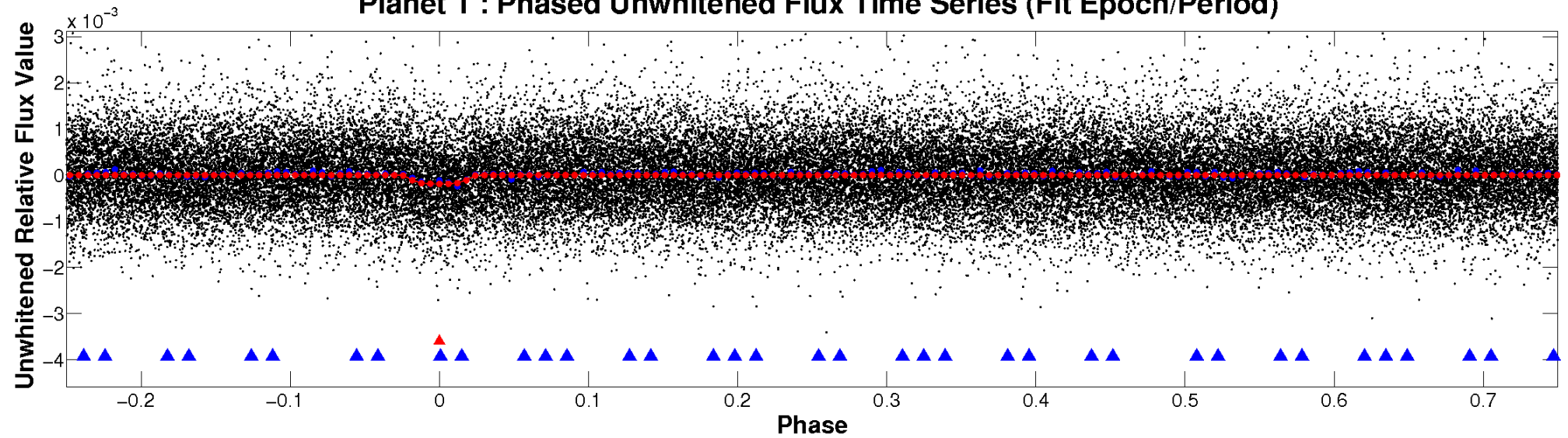
ALT Odd/Even

TCE 008397947-01

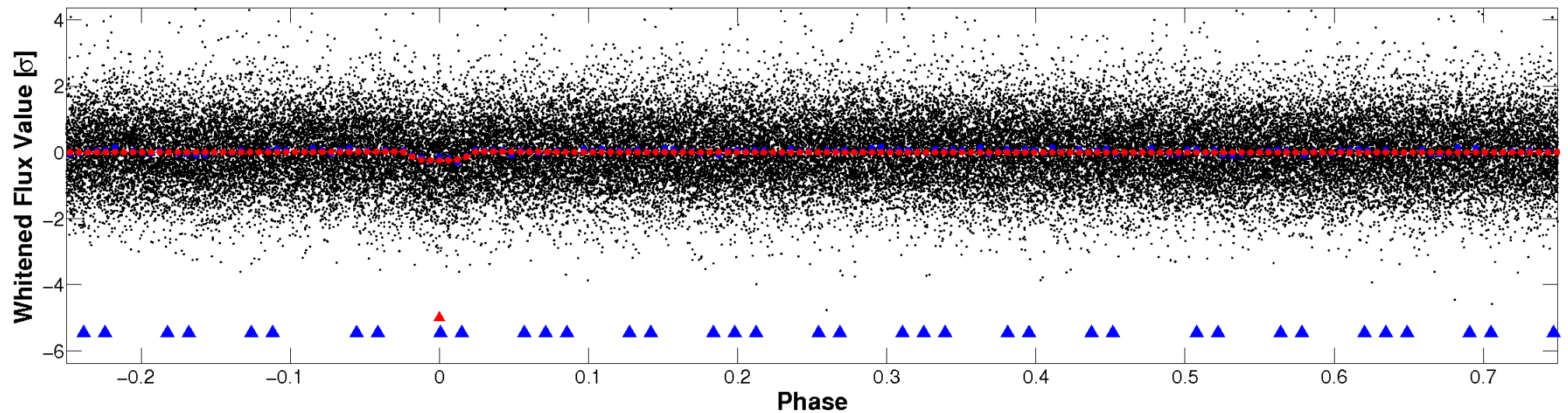


Non-Whitened Vs. Whitened Light Curve

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

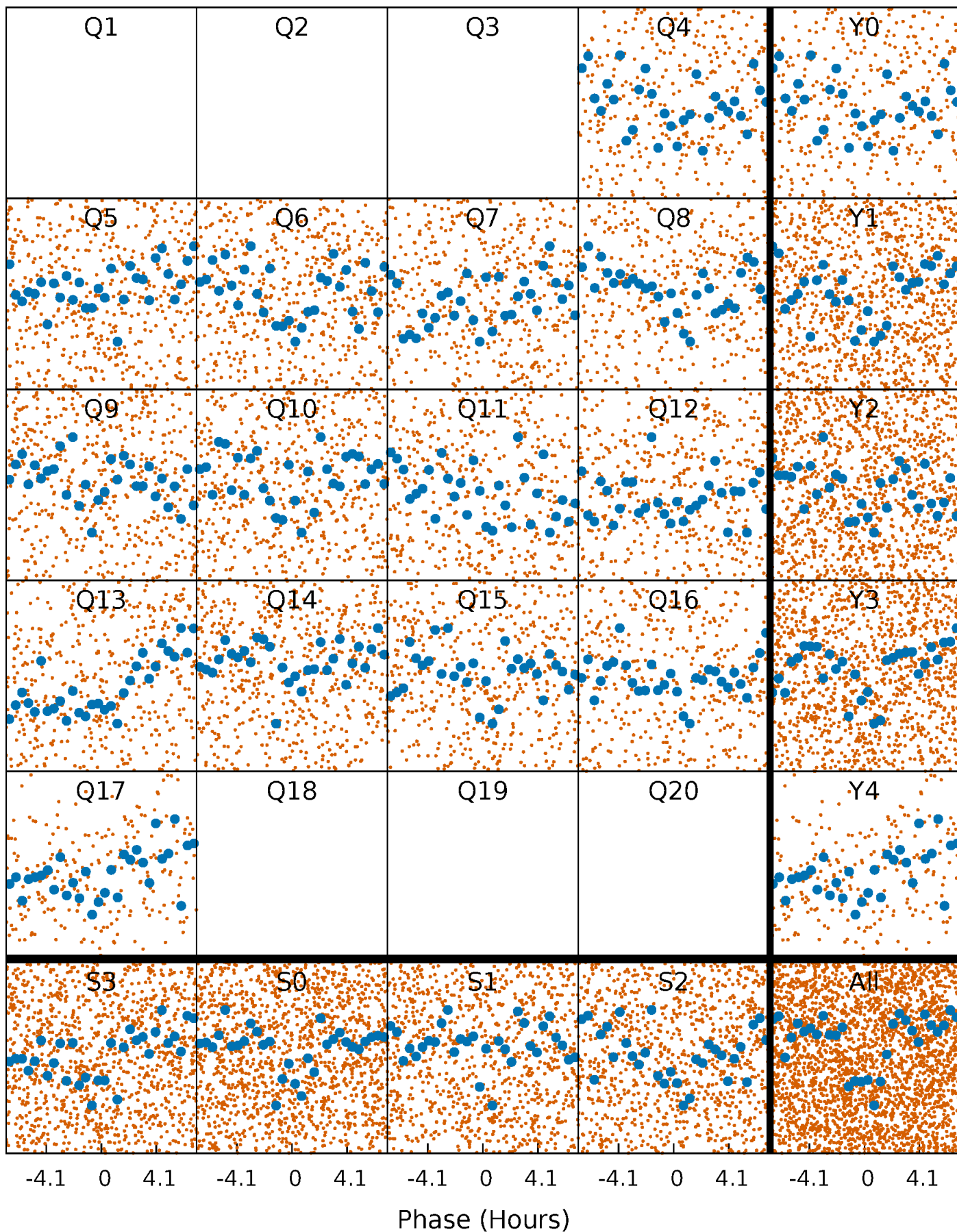


Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)



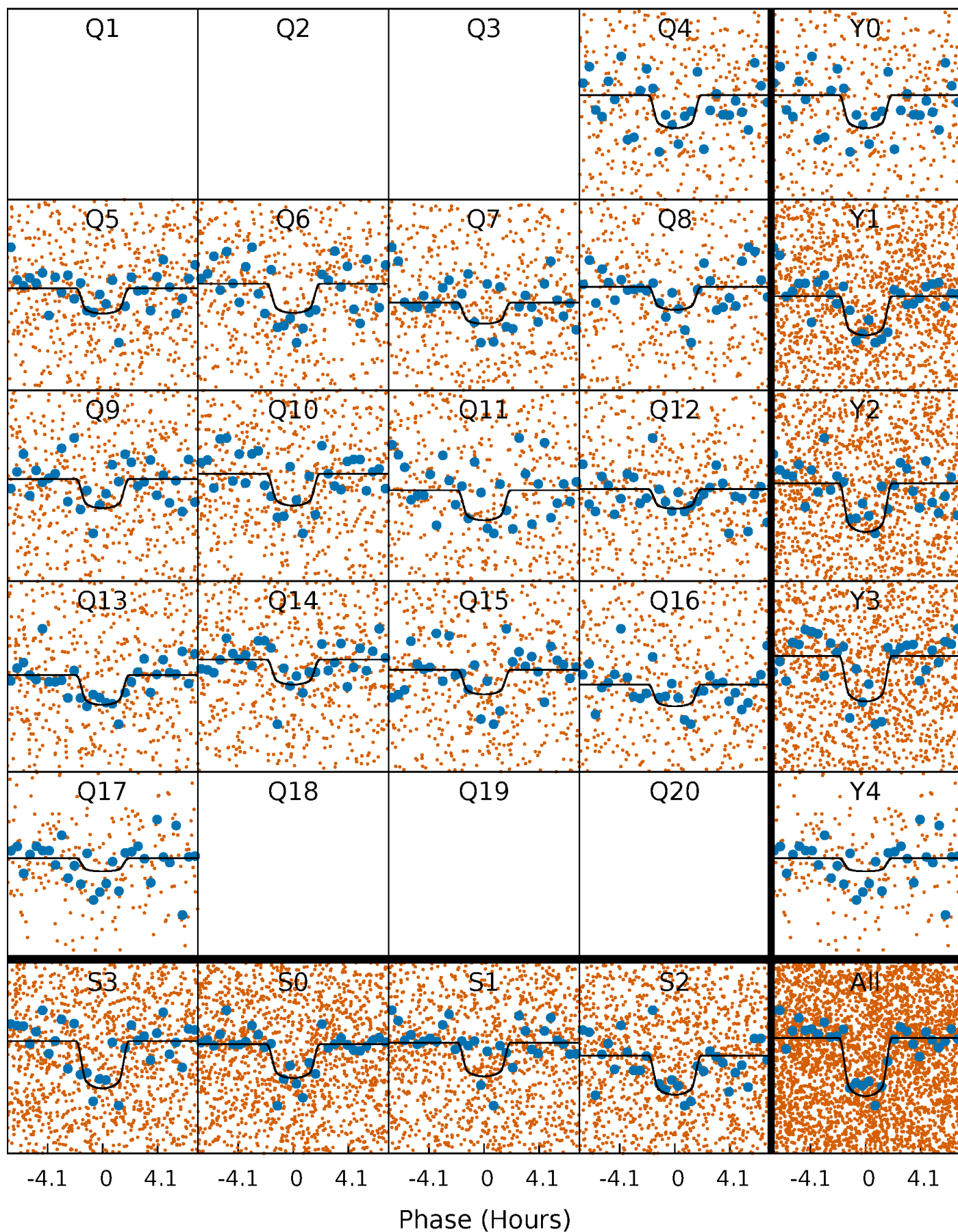
PDC Quarter-Phased Transit Curves

TCE 008397947-01 P= 3.380812 Days $T_0=133.945873$ (BKJD)



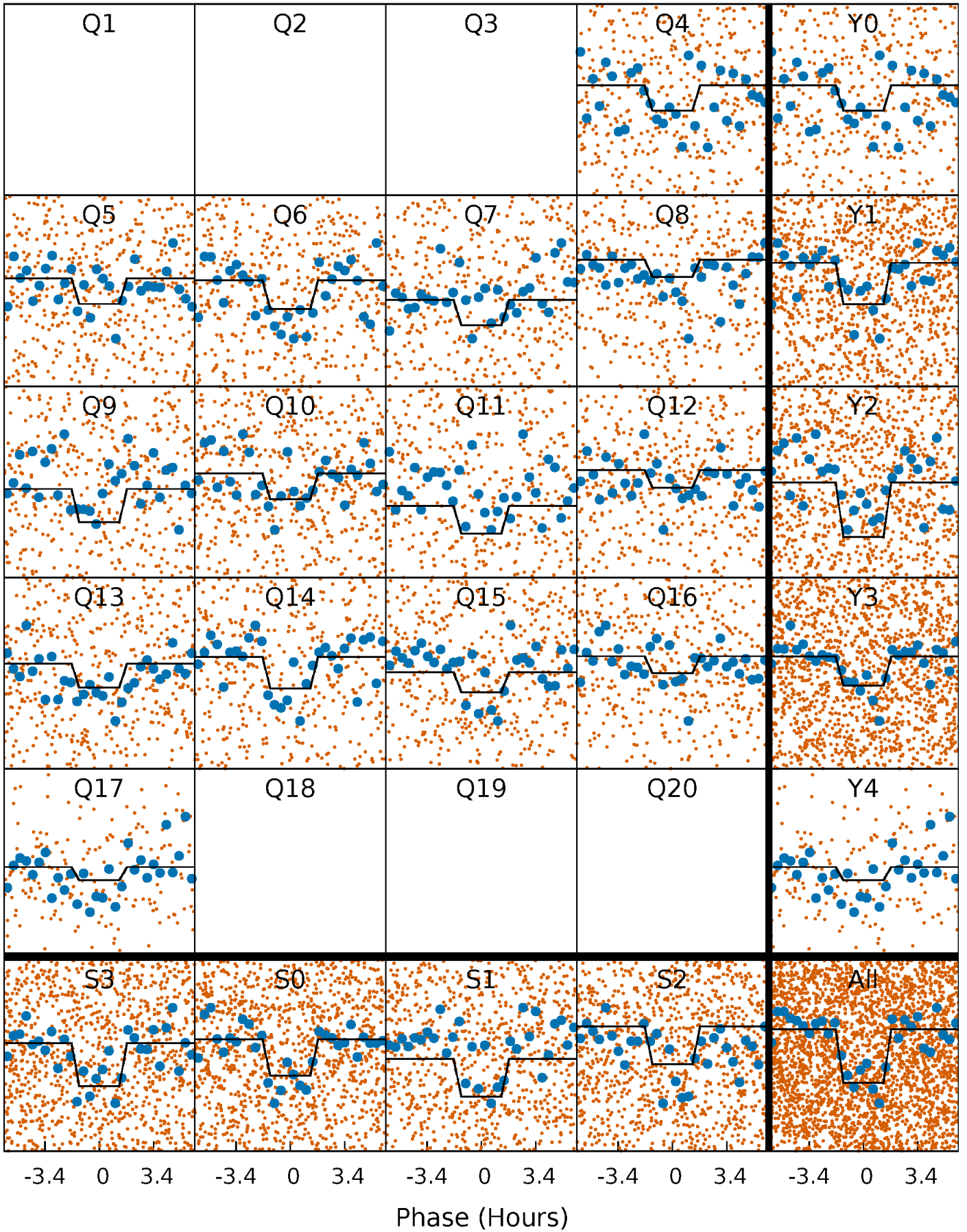
DV Quarter-Phased Transit Curves

TCE 008397947-01 P= 3.380812 Days $T_0=133.945873$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

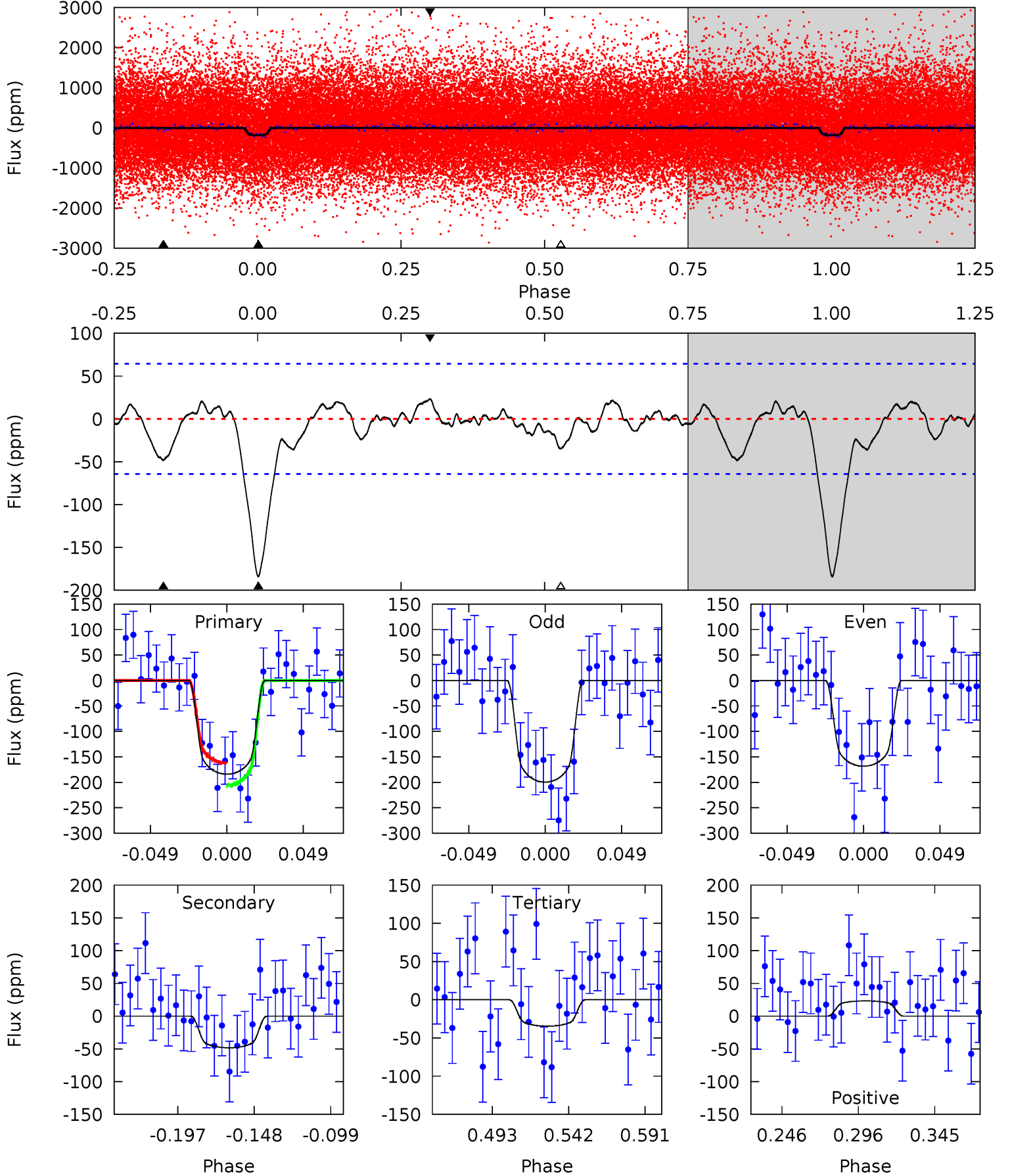
TCE 008397947-01 P= 3.380810 Days $T_0=133.947502$ (BKJD)



DV Model-Shift Uniqueness Test

008397947-01, P = 3.380812 Days, E = 133.945873 Days

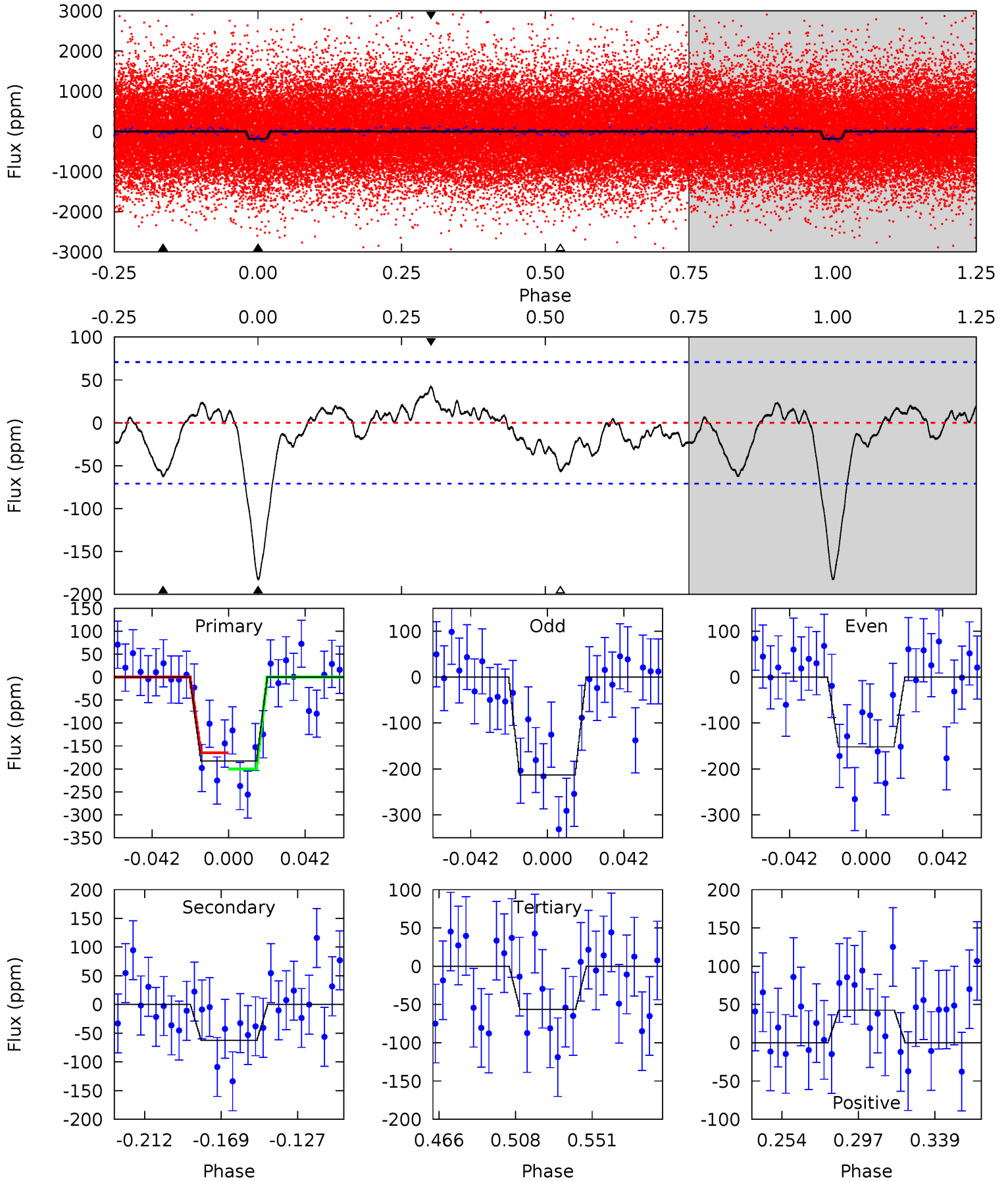
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
13.5	3.53	2.53	1.70	4.71	1.97	0.93	10.9	11.8	1.00	1.83	1.15	1.03	0.11	1.62



Alt Model-Shift Uniqueness Test

008397947-01, P = 3.380810 Days, E = 133.947502 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
12.2	4.19	3.77	2.85	4.74	2.03	1.29	8.45	9.37	0.43	1.35	2.05	0.88	0.19	1.19



Stellar Parameters For KIC 008397947

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	6072^{+78}_{-91}	$4.343^{+0.076}_{-0.114}$	$0.140^{+0.150}_{-0.150}$	$1.193^{+0.199}_{-0.123}$	$1.146^{+0.071}_{-0.079}$	$0.950^{+0.287}_{-0.331}$
	+1%/-1%	+2%/-3%	+107%/-107%	+17%/-10%	+6%/-7%	+30%/-35%
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 008397947-01 / KOI 4772.01

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	-48 ± 14	$2.01^{+0.64}_{-0.70}$	1909^{+81}_{-60}	4296^{+784}_{-472}	14^{+18}_{-6}
Alt.	-63 ± 15	$1.81^{+0.62}_{-0.62}$	1908^{+78}_{-65}	4711^{+1032}_{-527}	22^{+31}_{-10}

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

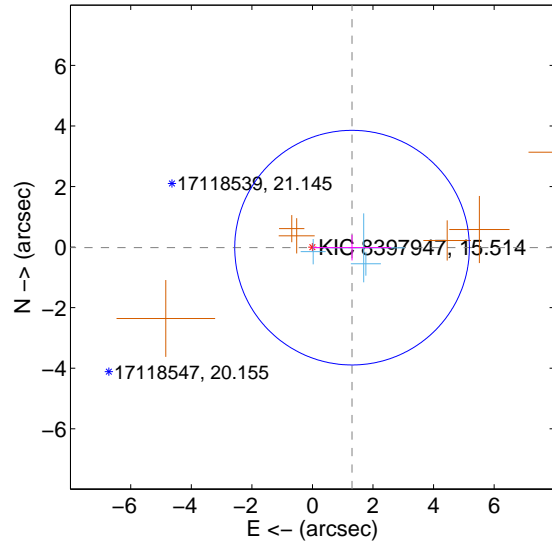
Supplemental centroid analysis for 008397947-01. Kepler magnitude: 15.51. Transit SNR 10.10

There are 4 quarters with good PRF difference image offsets

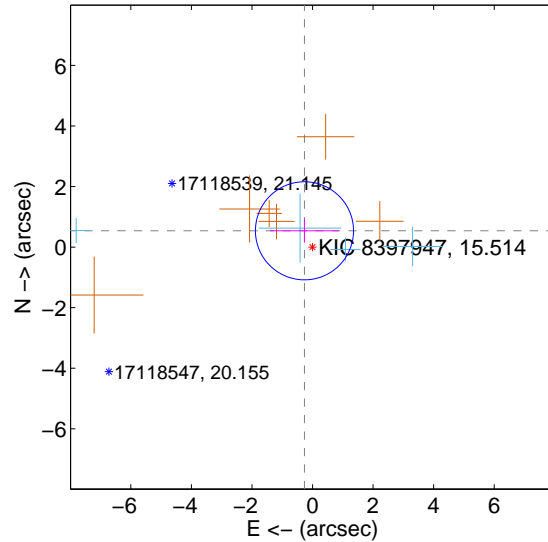
The OOT PRF centroid is offset from the target star catalog position by about 2.20 arcsec so the offset from difference PRF-fit to OOT-fit may be invalid.

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	1.308 ± 1.291	1.01	-1.308 ± 1.295	-0.018 ± 0.424
PRF-fit source offset from KIC position	0.600 ± 0.540	1.11	0.266 ± 1.135	0.538 ± 0.388
photometric centroid source offset	3.60 ± 1.02	3.54	3.44 ± 1.02	-1.08 ± 0.97

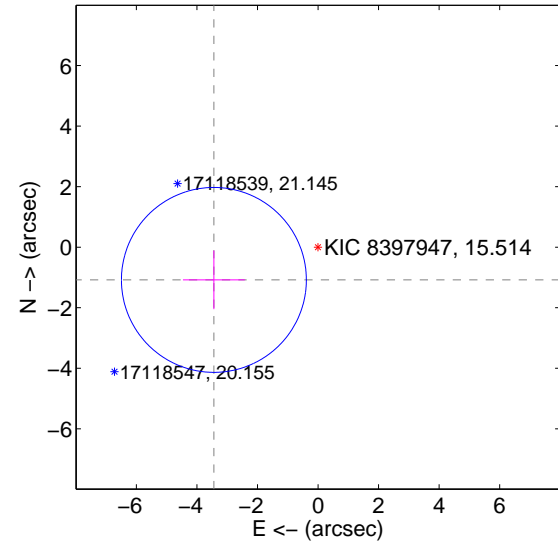
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position

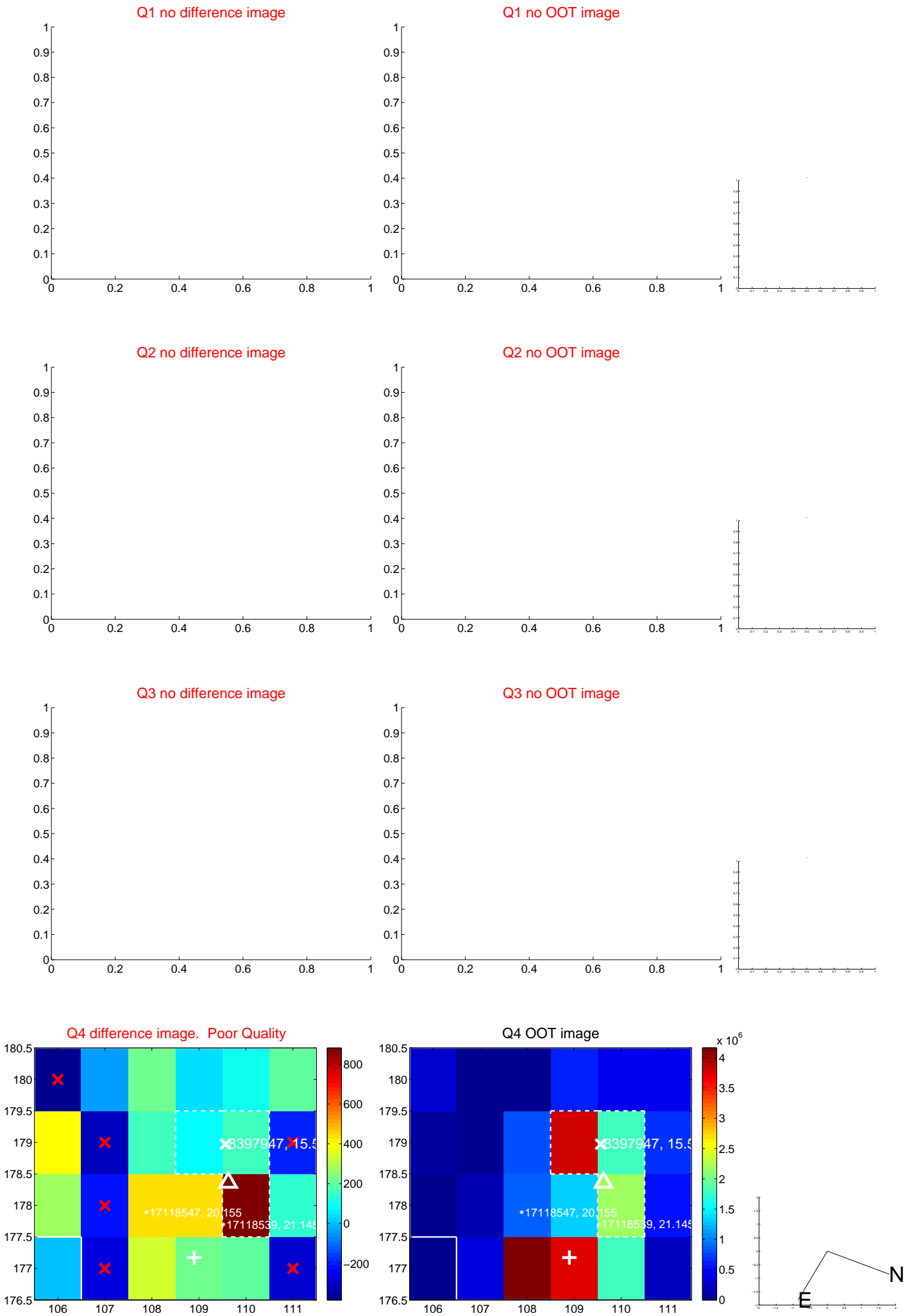


offset from photometric centroids

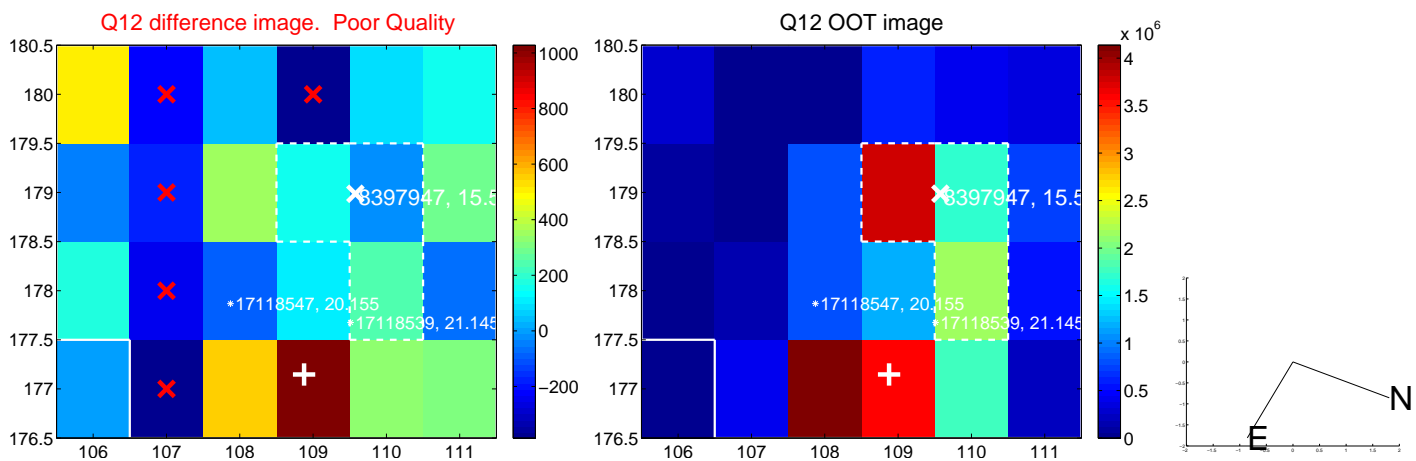
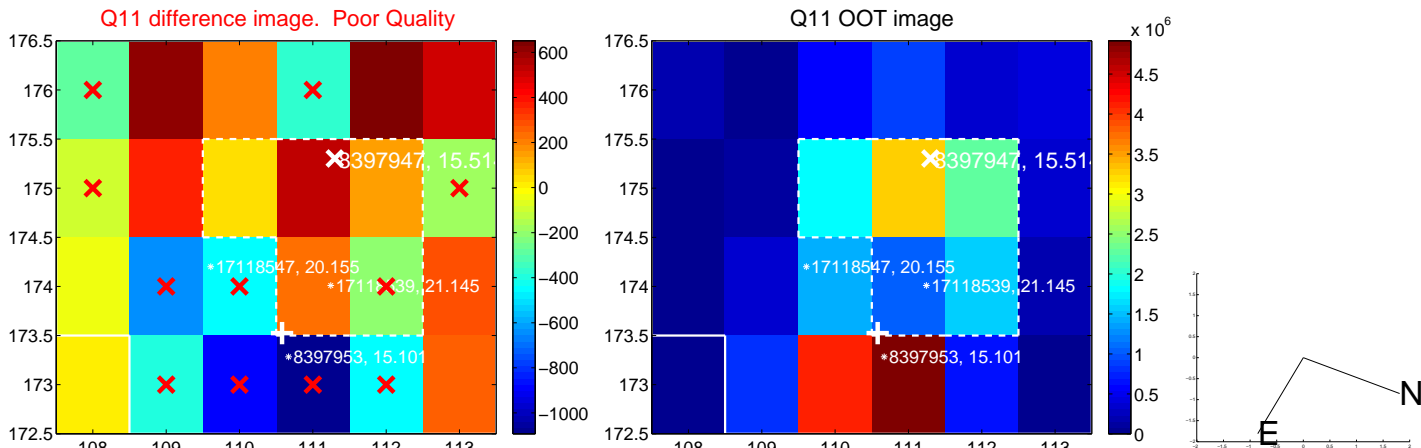
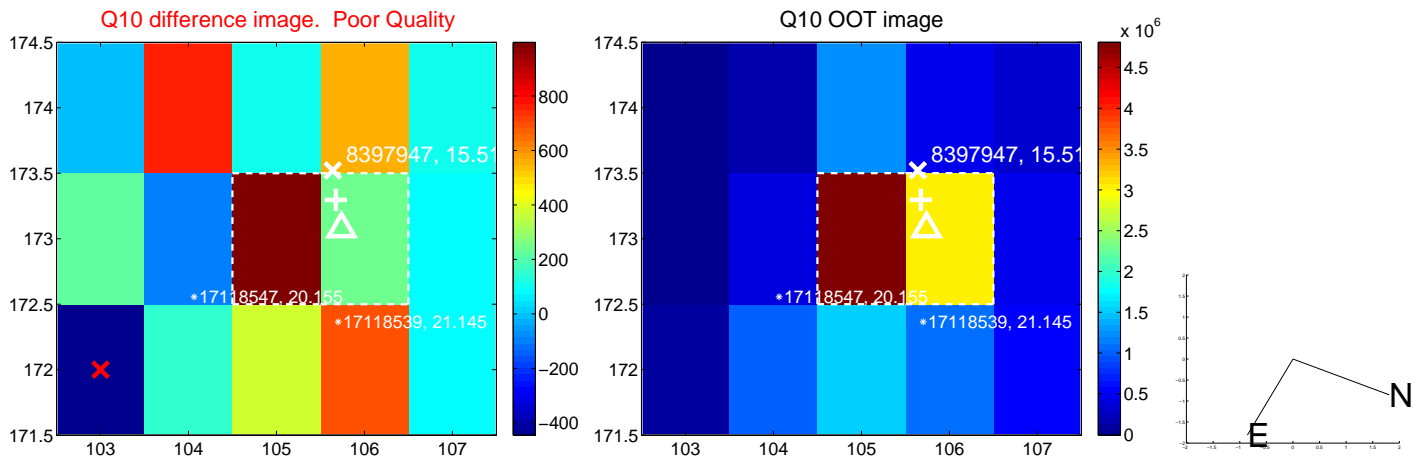
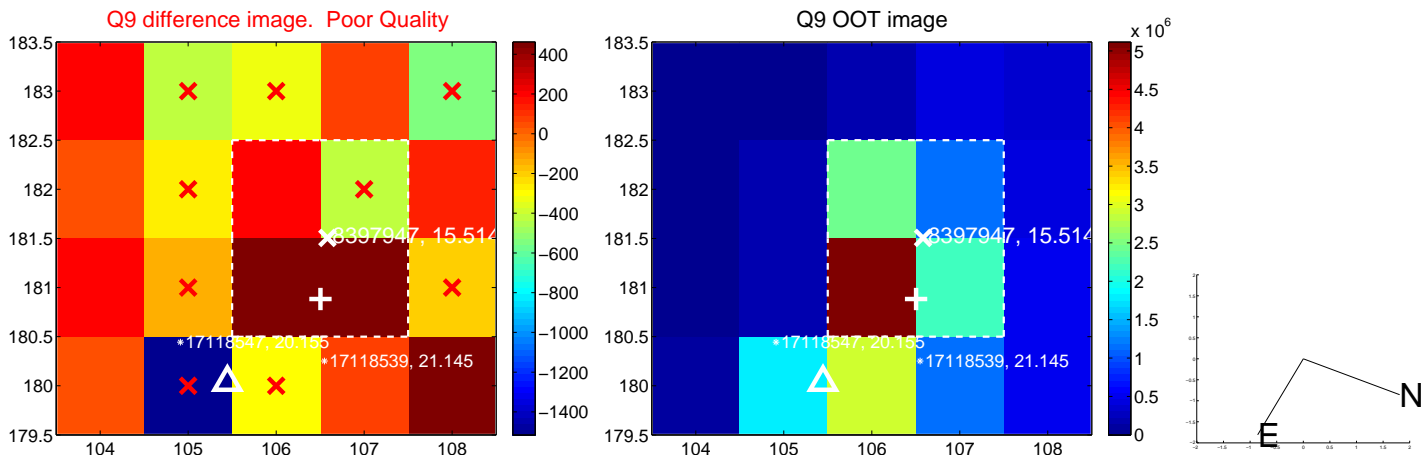


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

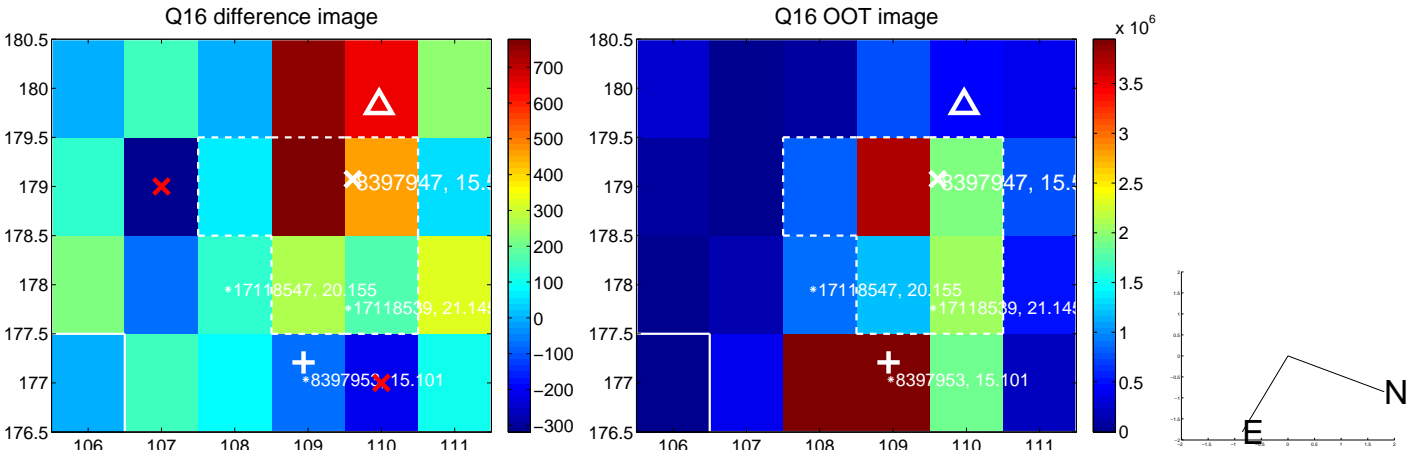
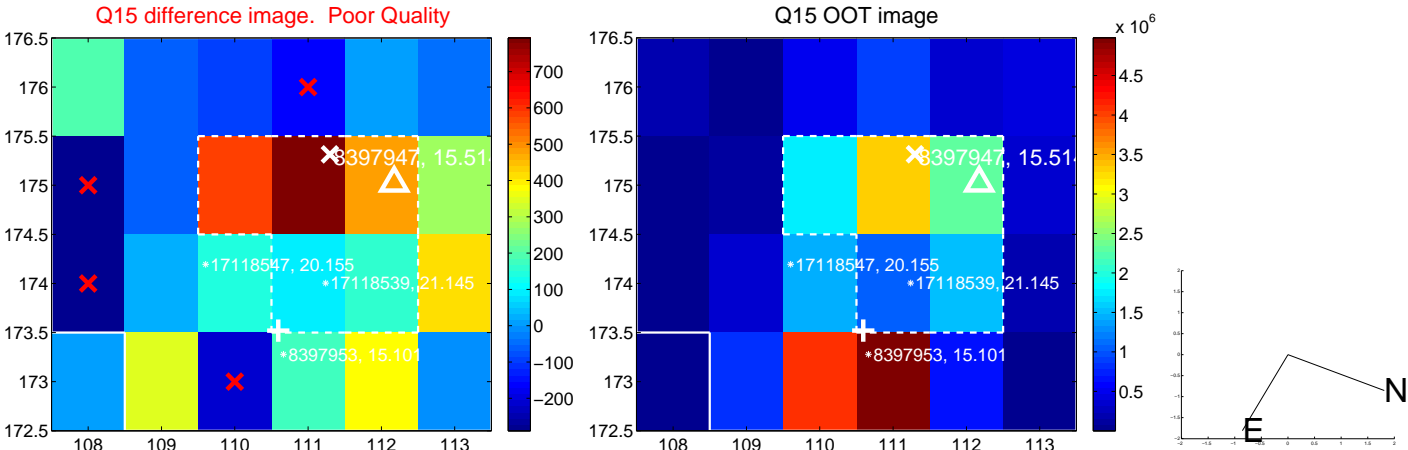
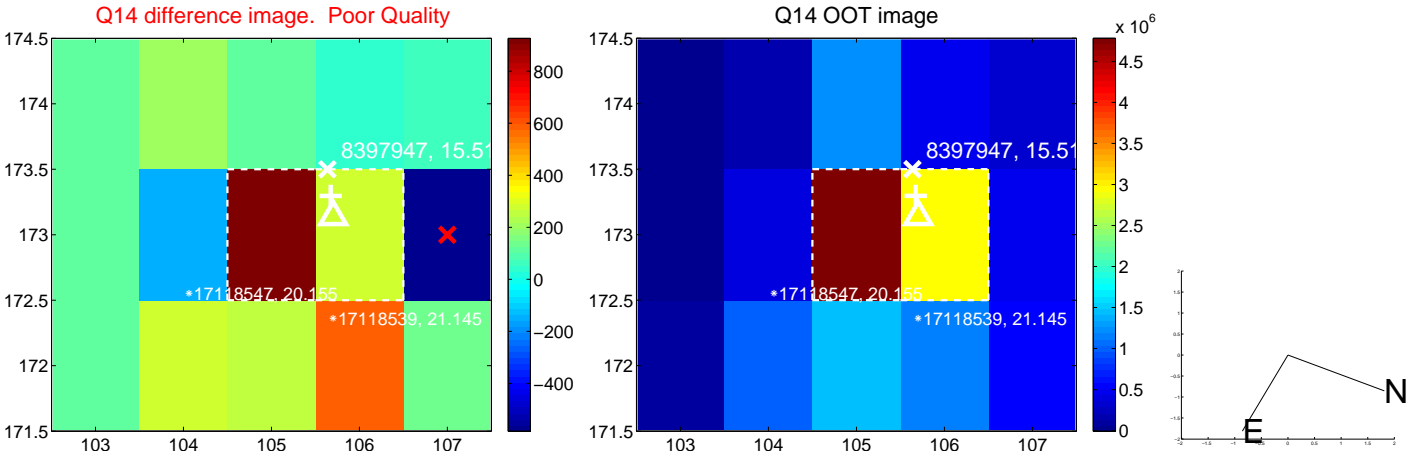
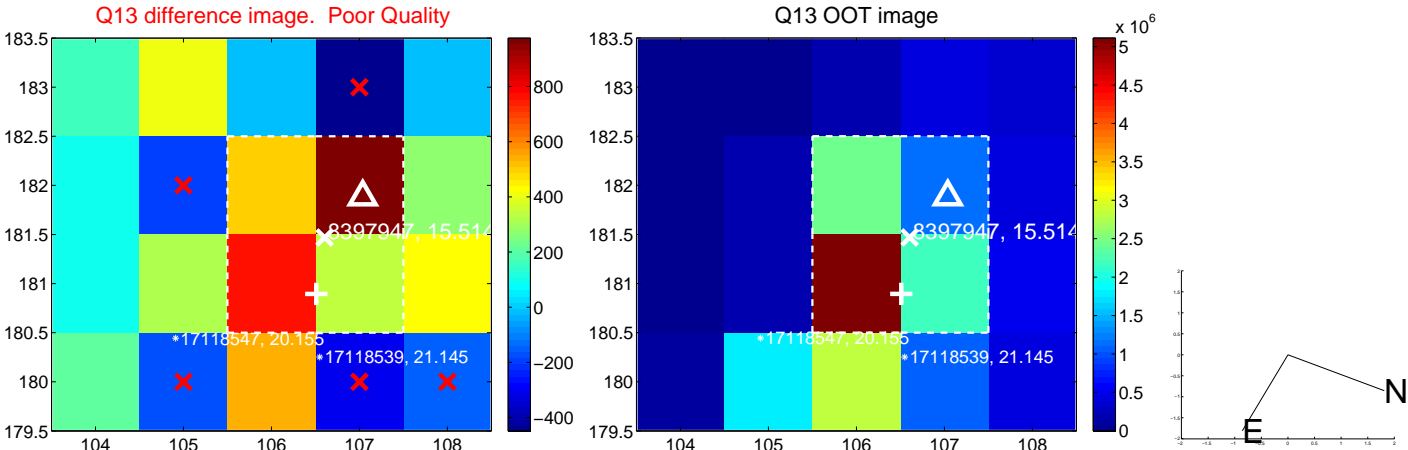
white ×: KIC target position; +: OOT centroid; △: difference centroid. red ✕: large negative pixel value.



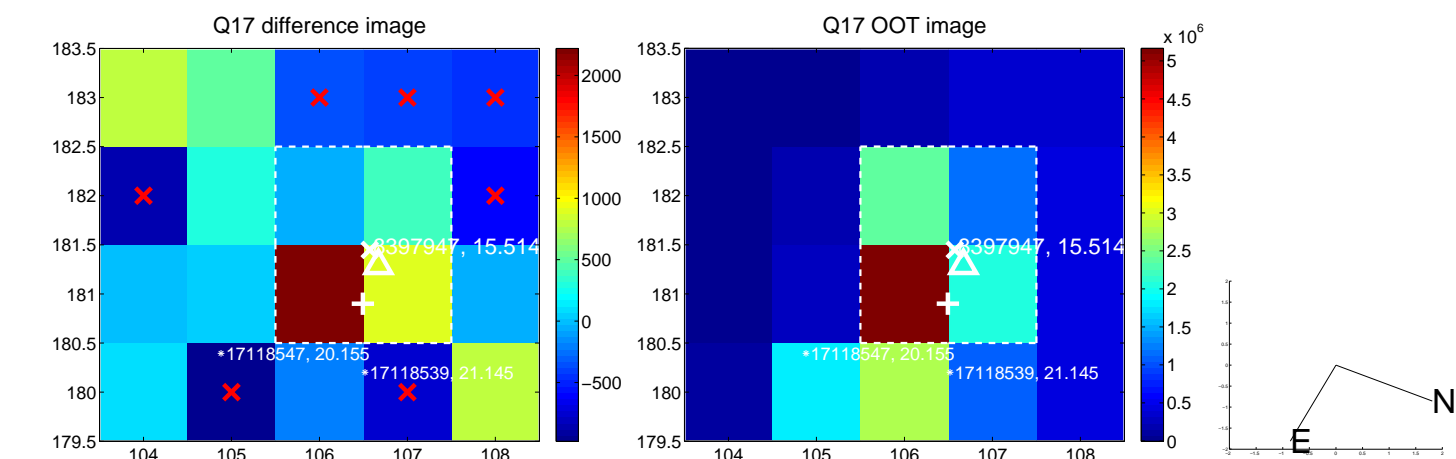
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



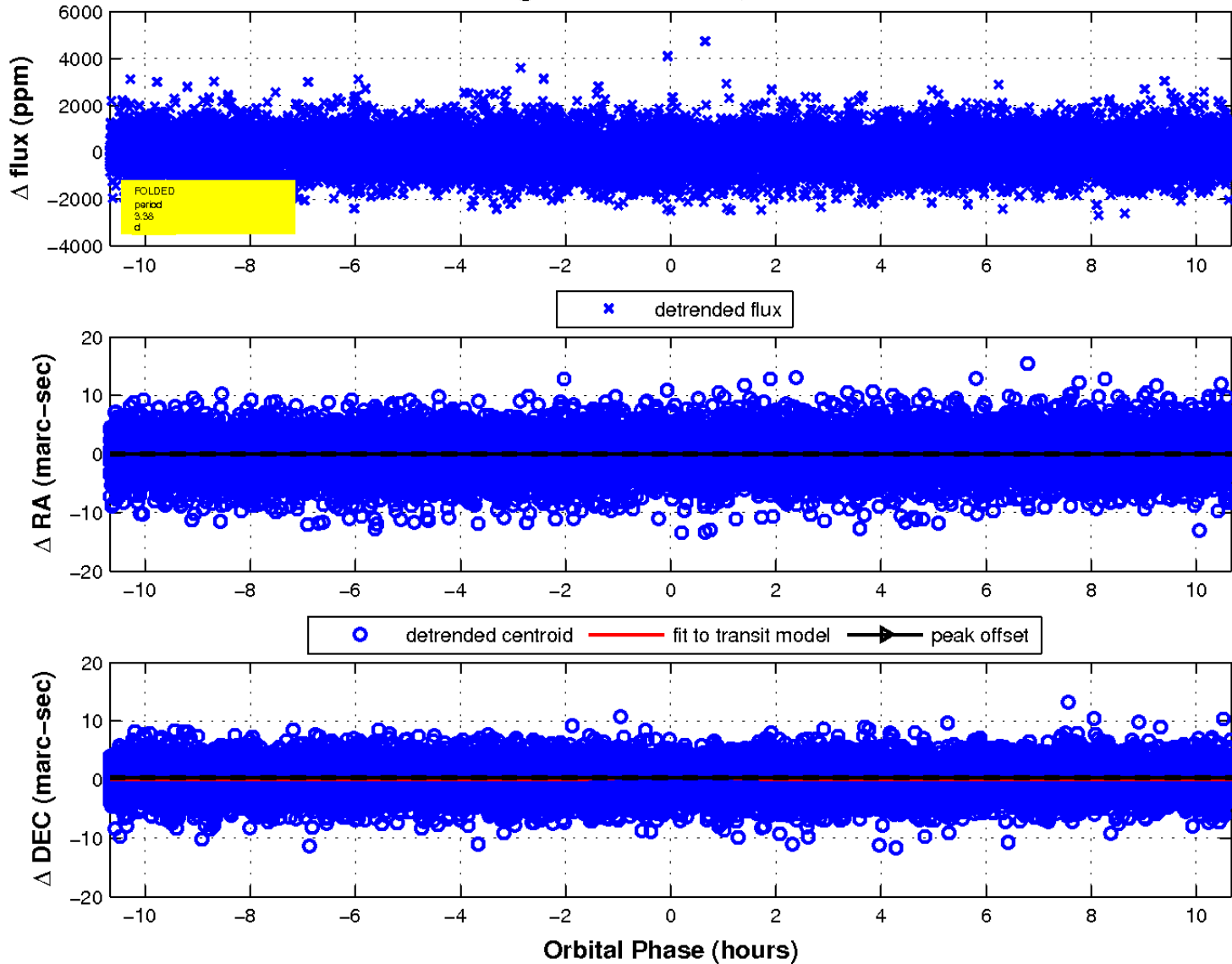
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

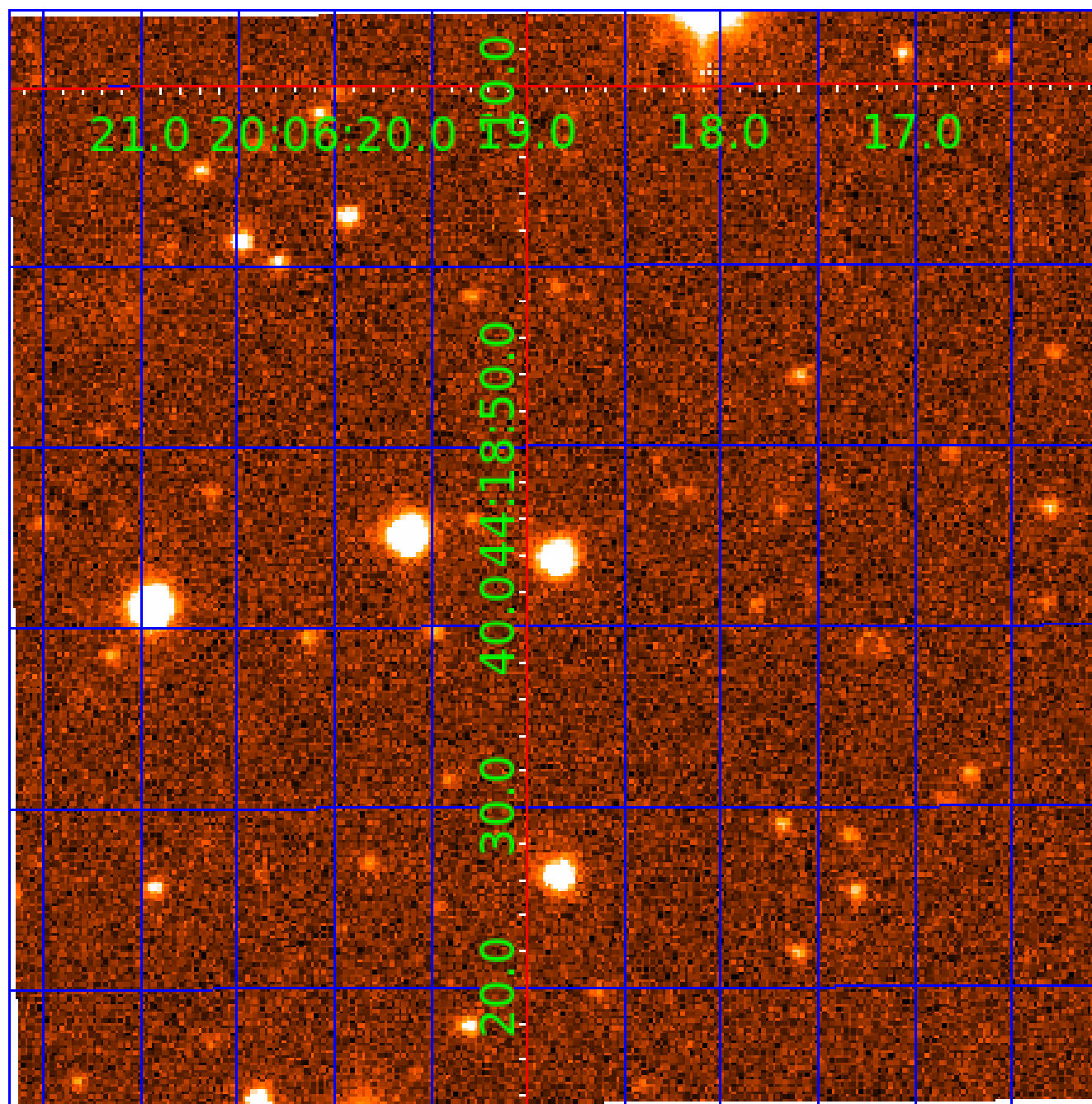


fluxWeightedCentroids, Planet 1 of 2



UKIRT Image

Declination



KIC 008397947

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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008397947-02	OBS	4772.03	39.093657	147.661742	442.2	5.275	7.3	7.3	1.19	6072	2.78	31.18

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
008397947-01	OBS	PC	0.87	0	0	0	0	CENT_KIC_POS
008397947-02	OBS	FP	0.19	0	0	1	0	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 008397947-02

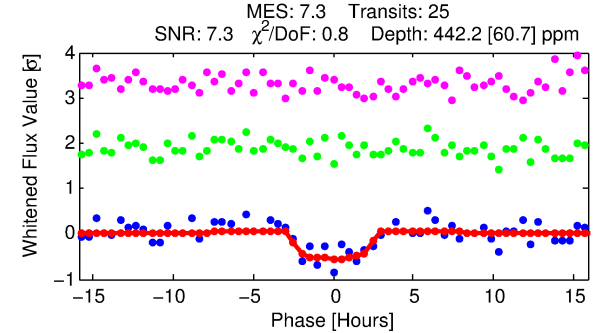
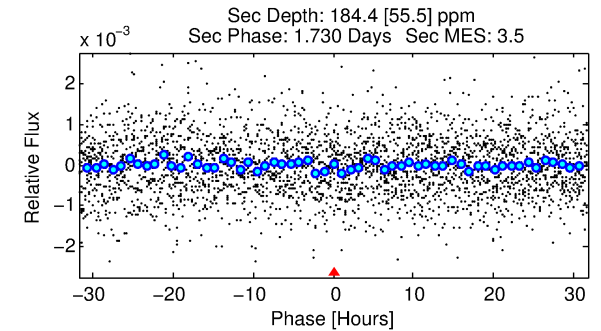
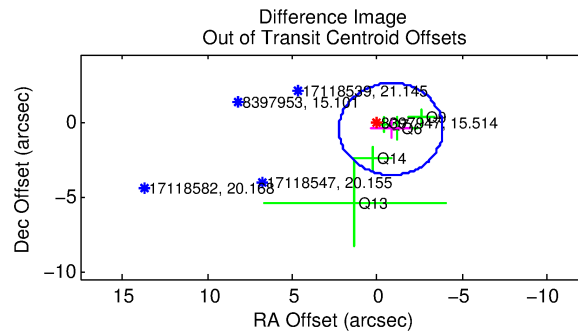
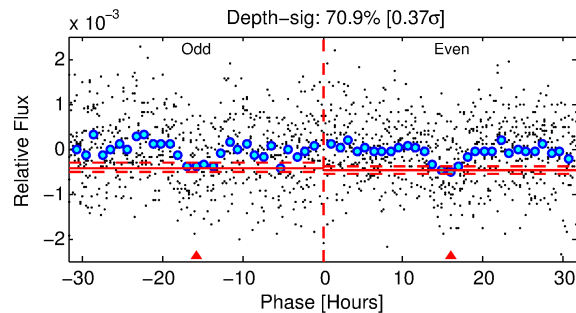
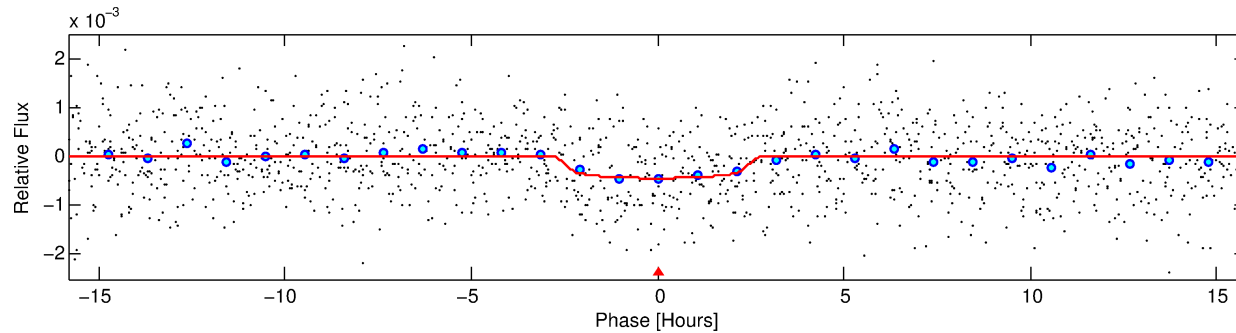
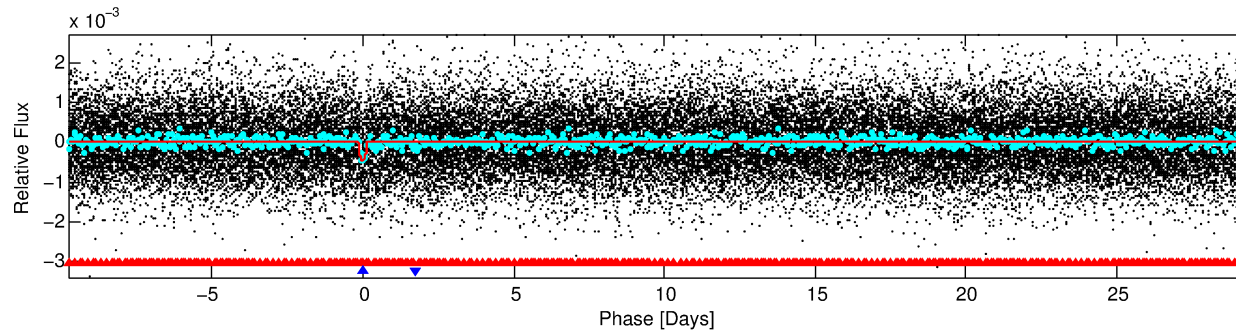
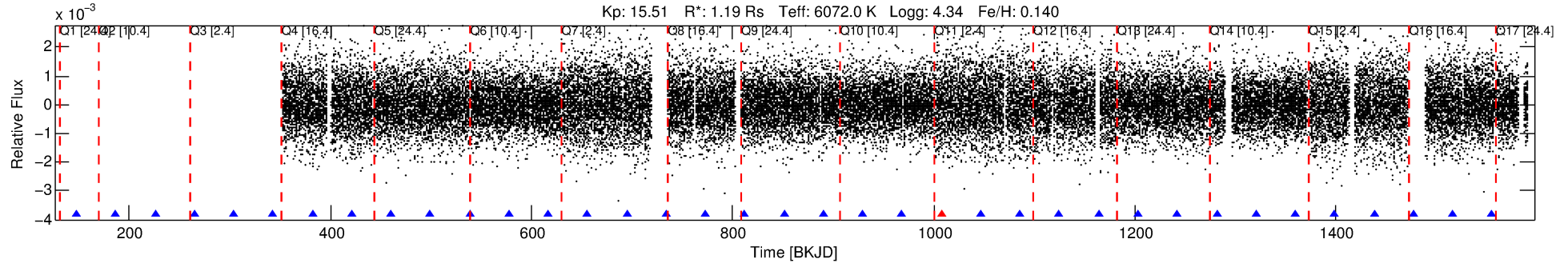
No Significant Match Found

DV One-Page Summary

KIC: 8397947 Candidate: 2 of 2 Period: 39.094 d

KOI: K04772 Corr: No Ephemeris Match

Kp: 15.51 R*: 1.19 Rs Teff: 6072.0 K Logg: 4.34 Fe/H: 0.140



DV Fit Results:

Period = 39.09366 [0.00083] d
Epoch = 147.6617 [0.0186] BKJD
Rp/R* = 0.0214 [0.0154]
a/R* = 35.85 [124.03]
b = 0.80 [1.56]
Seff = 31.18 [6.73]
Teq = 603 [33] K
Rp = 2.78 [2.06] Re
a = 0.2358 [0.0334] AU
Ag = 728.97 [1086.28] [0.67σ]
Teffp = 4841 [1787] K [2.37σ]

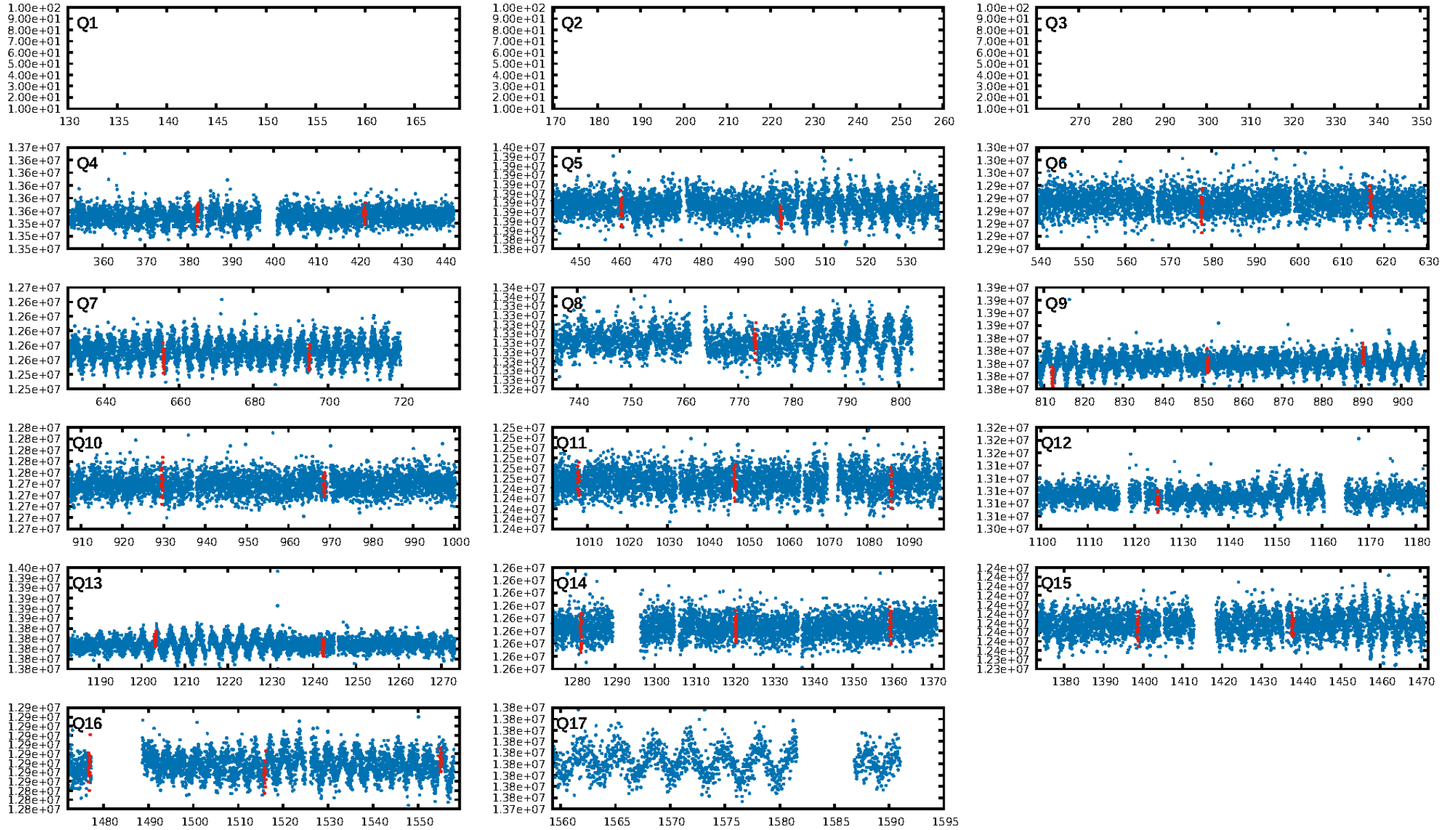
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [134.71σ]
LongPeriod-sig: N/A
ModelChiSquare2-sig: 84.6%
ModelChiSquareGof-sig: 100.0%
Bootstrap-pfa: 4.46e-13
RollingBand-fgt: 0.96 [24/25]
GhostDiagnostic-chr: 7.44
Centroid-sig: 0.1%
Centroid-so: 1.891 arcsec [1.52σ]
OotOffset-rm: 0.958 arcsec [0.94σ]
KicOffset-rm: 0.038 arcsec [0.03σ]
OotOffset-st: 2/1/0/2 [5]
KicOffset-st: 2/1/0/2 [5]
DiffImageQuality-fgm: 0.40 [2/5]
DiffImageOverlap-fno: 0.77 [10/13]

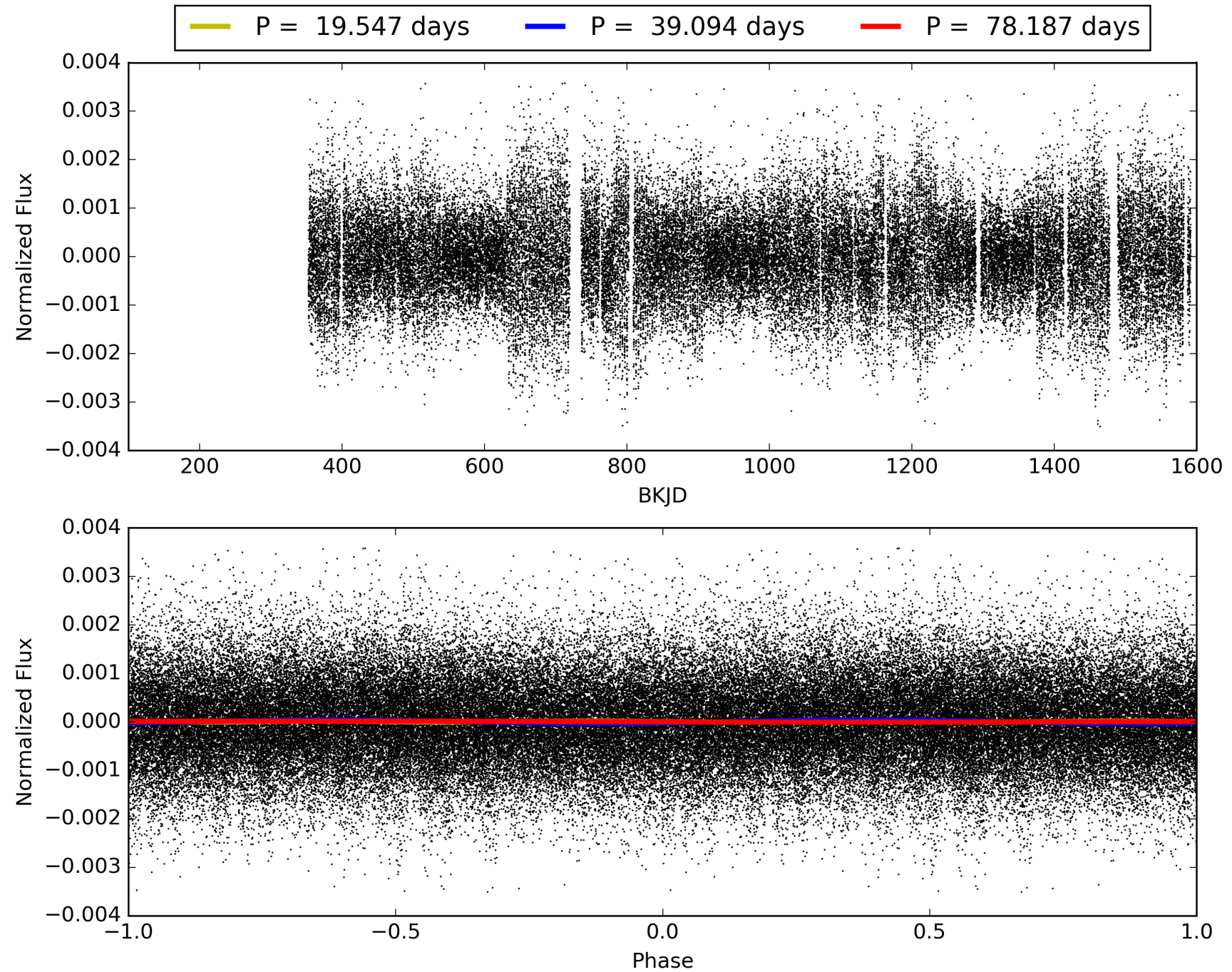
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 02:19:48 Z

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

TCE 008397947-02, PDC Light Curves

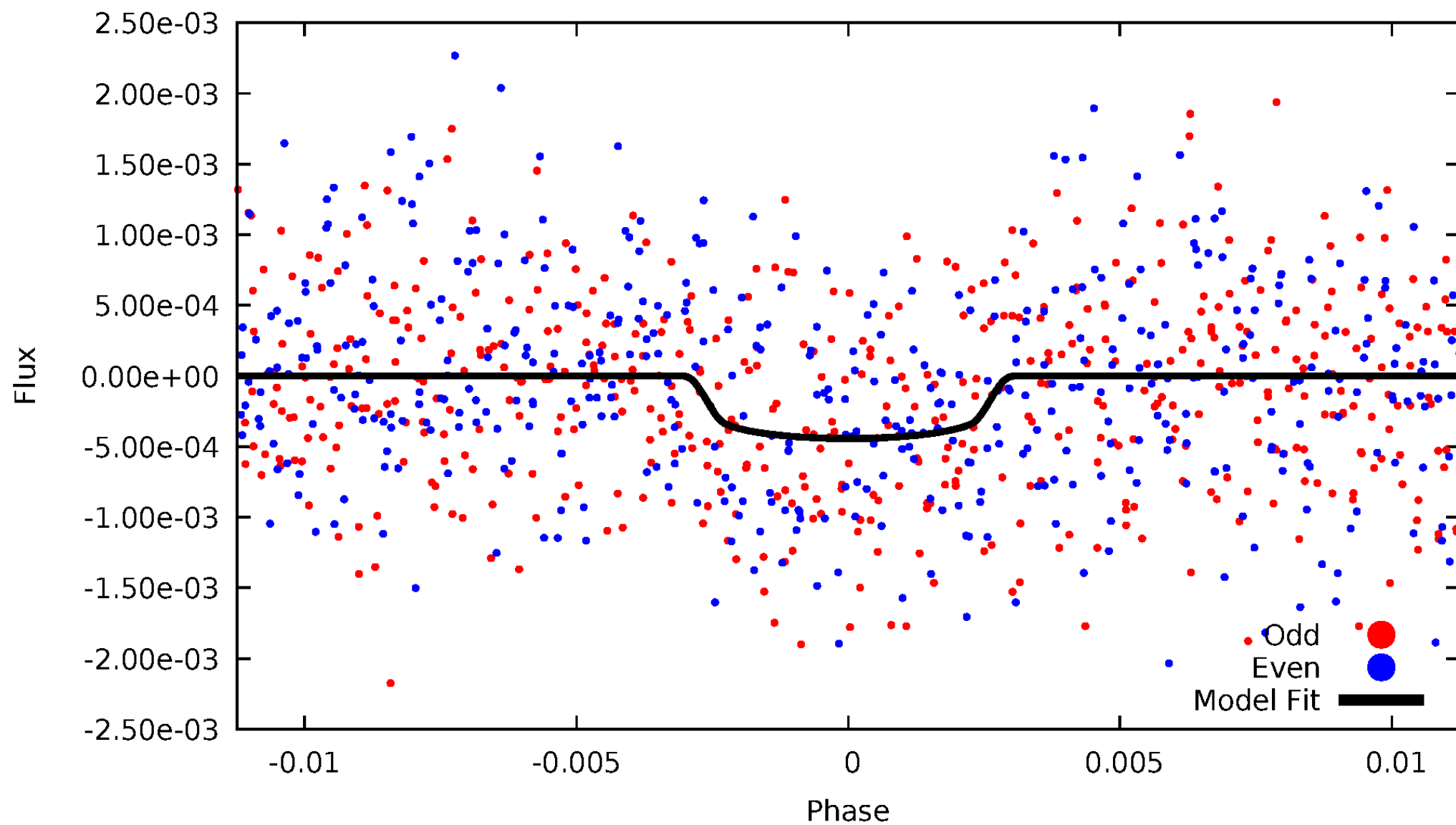


TCE 008397947-02



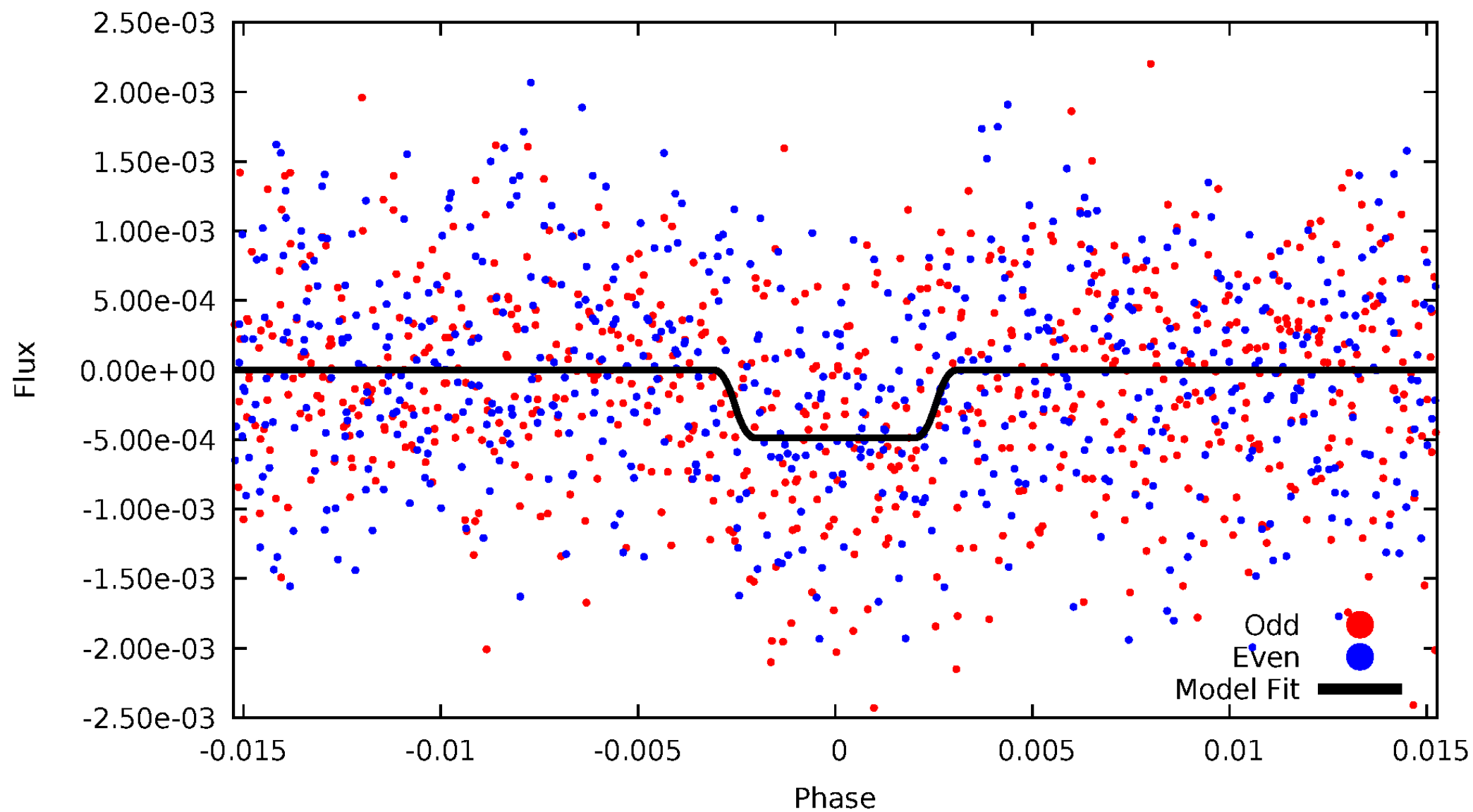
DV Odd/Even

TCE 008397947-02



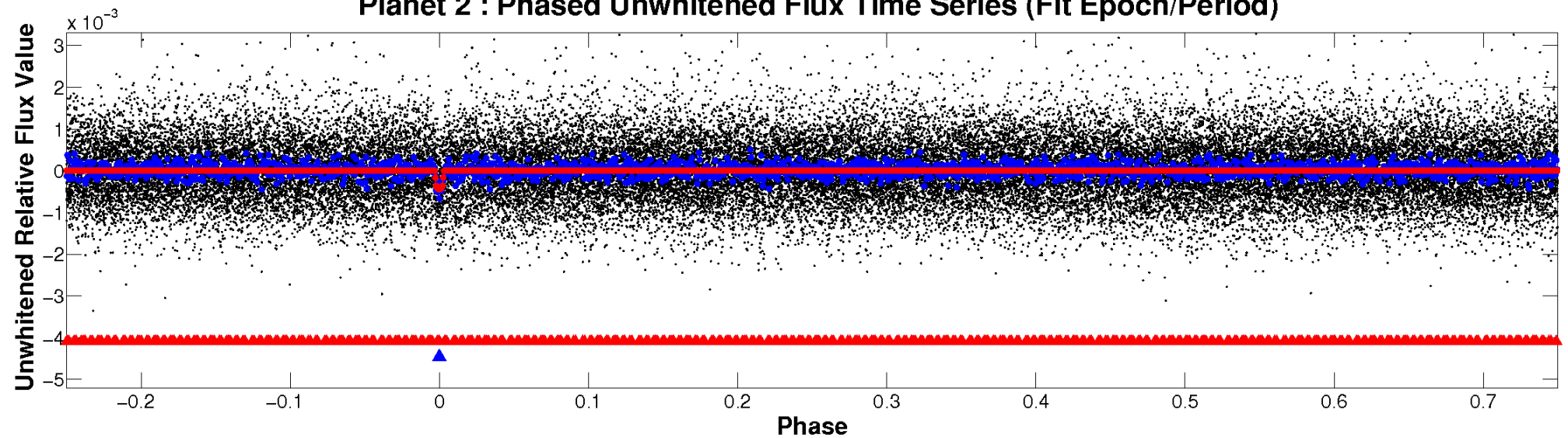
ALT Odd/Even

TCE 008397947-02

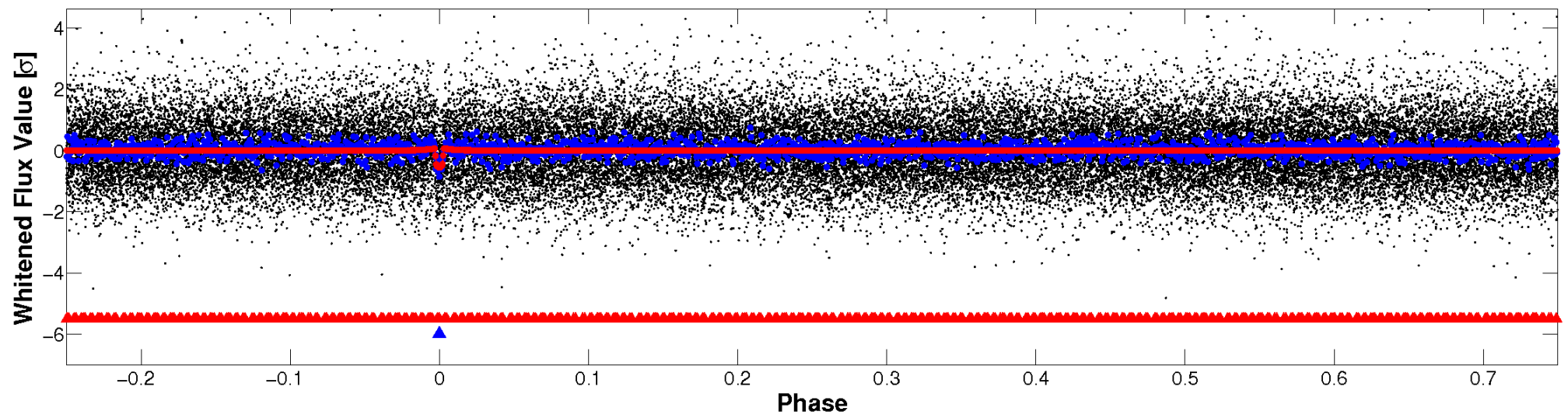


Non-Whitened Vs. Whitened Light Curve

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

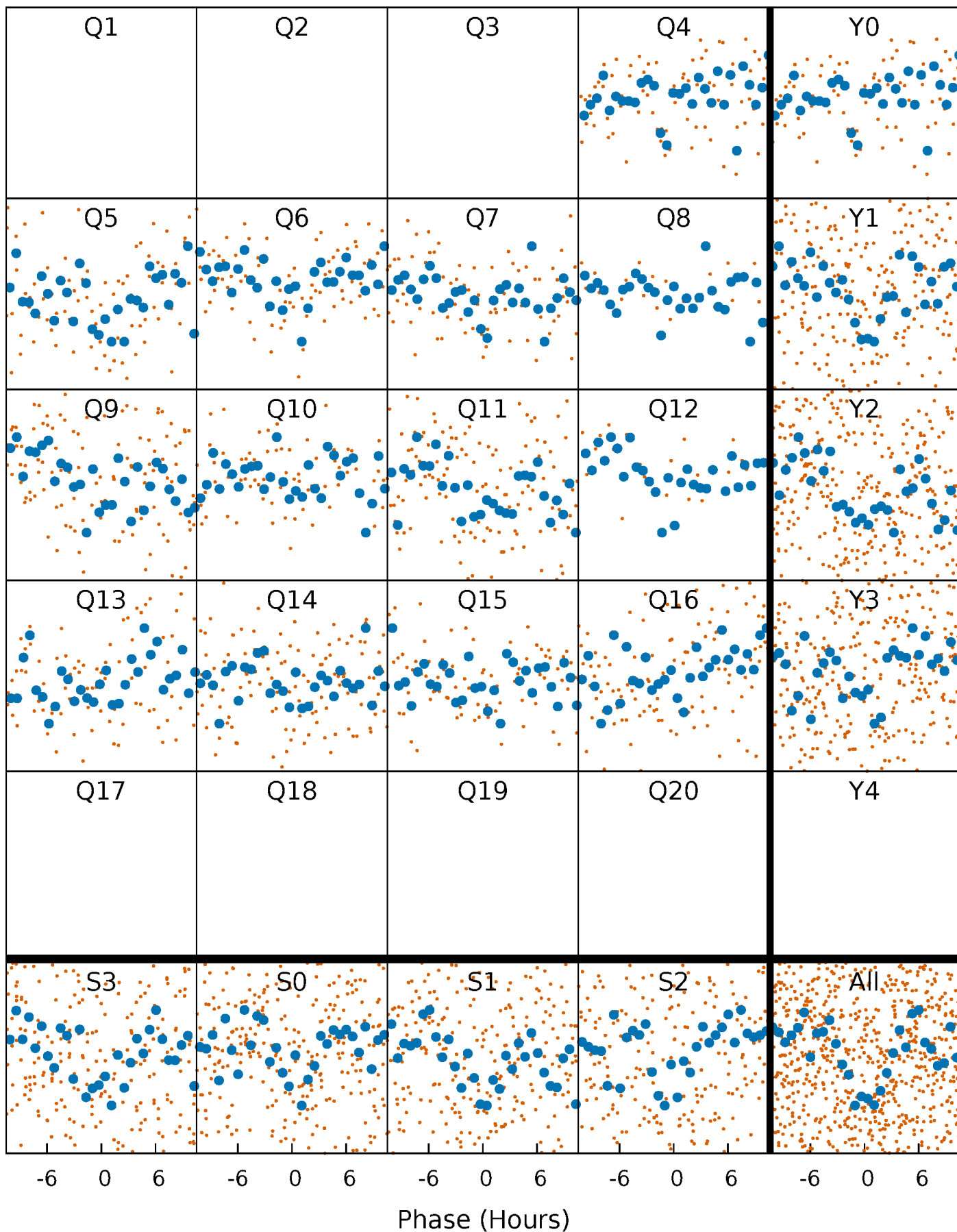


Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



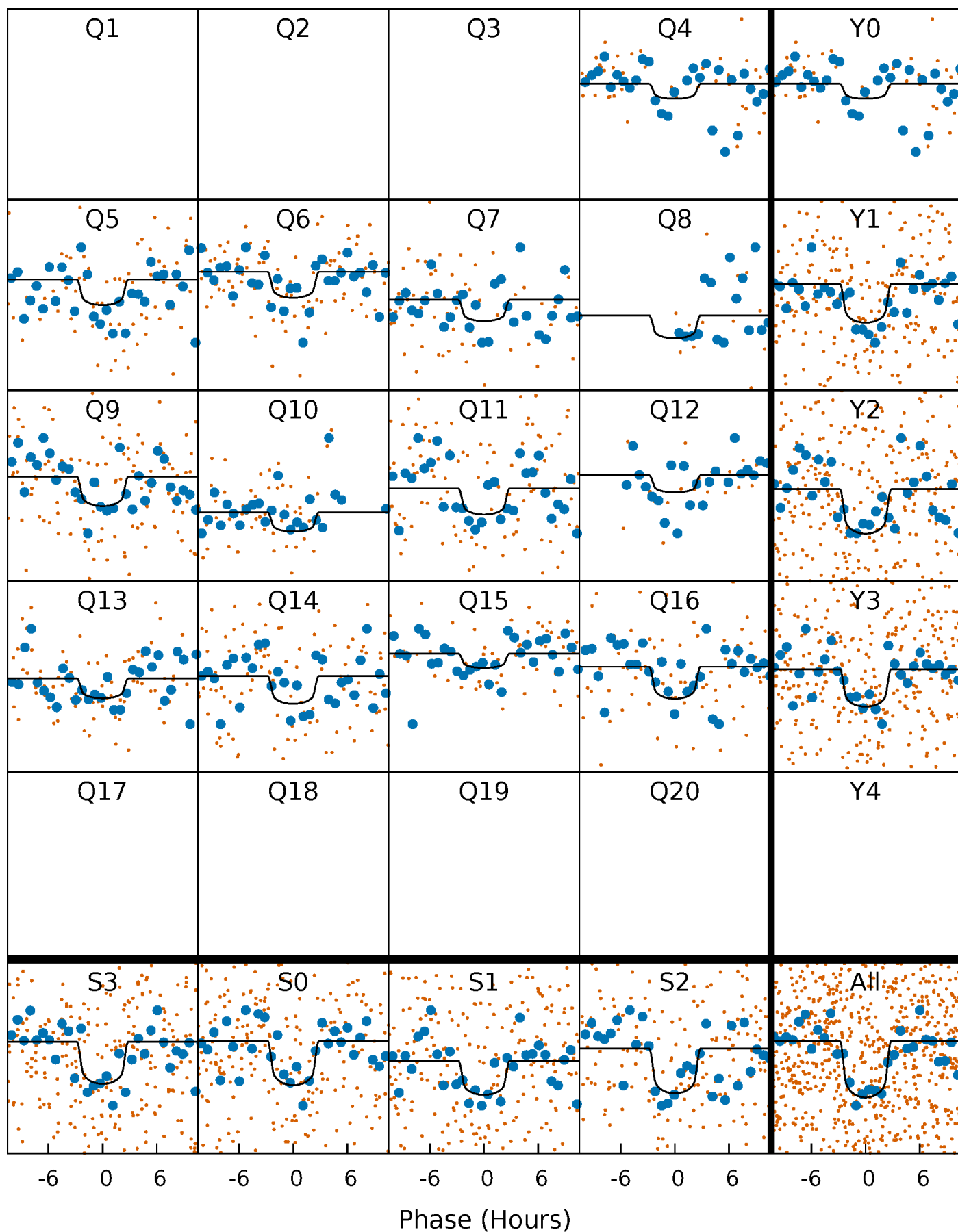
PDC Quarter-Phased Transit Curves

TCE 008397947-02 $P = 39.093657$ Days $T_0 = 147.661742$ (BKJD)



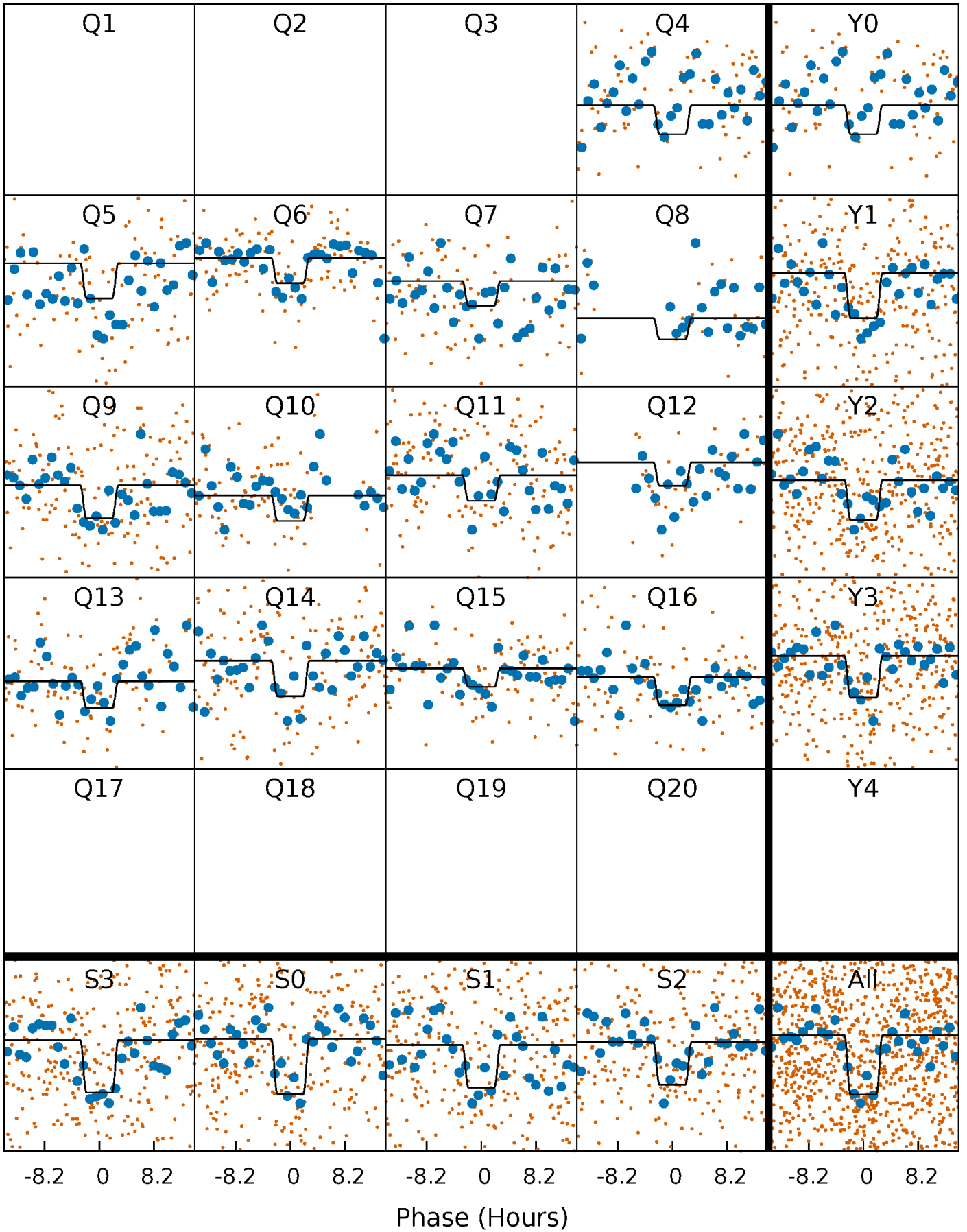
DV Quarter-Phased Transit Curves

TCE 008397947-02 P= 39.093657 Days $T_0=147.661742$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

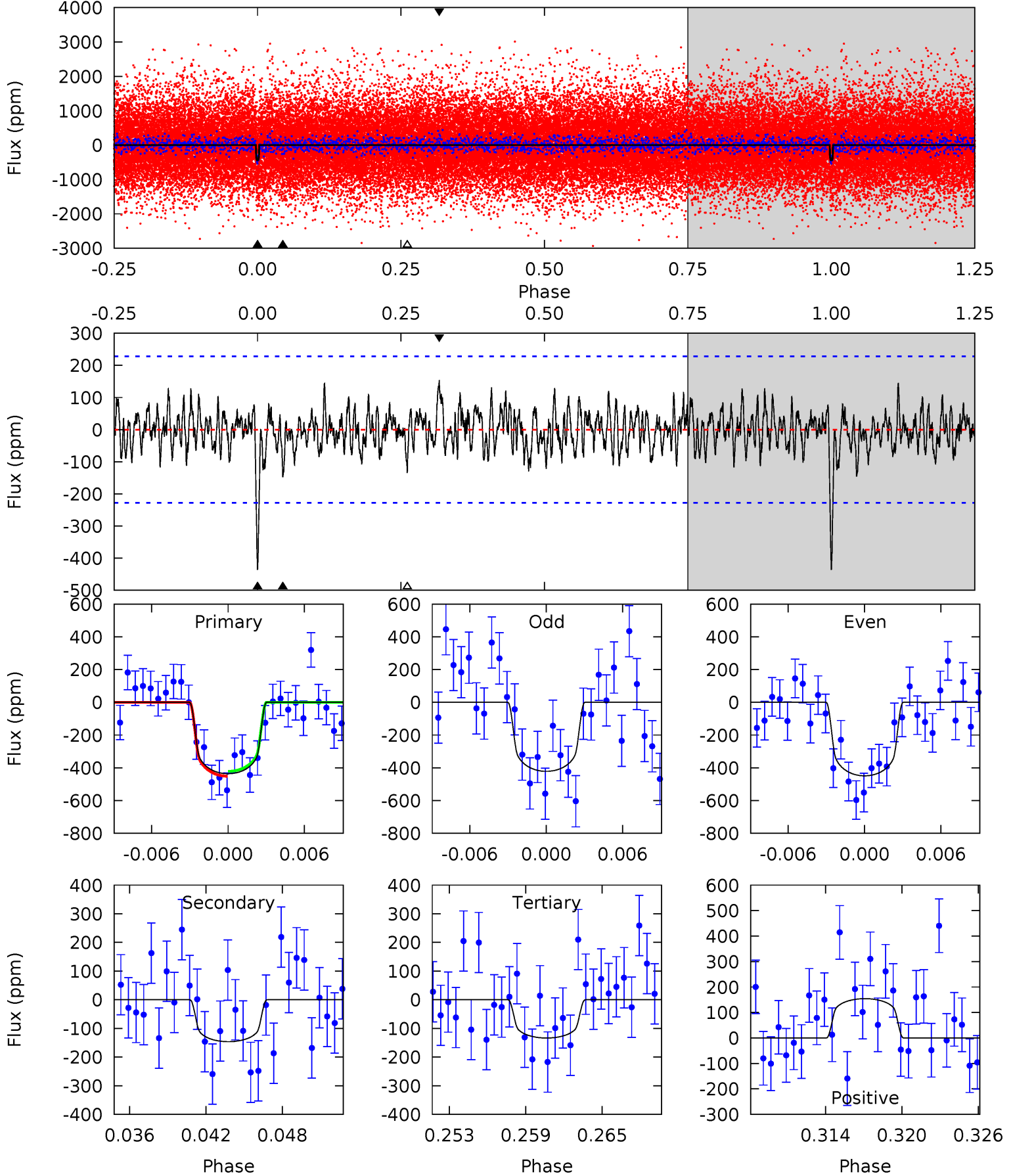
TCE 008397947-02 P= 39.094459 Days $T_0=147.651454$ (BKJD)



DV Model-Shift Uniqueness Test

008397947-02, $P = 39.093657$ Days, $E = 147.661742$ Days

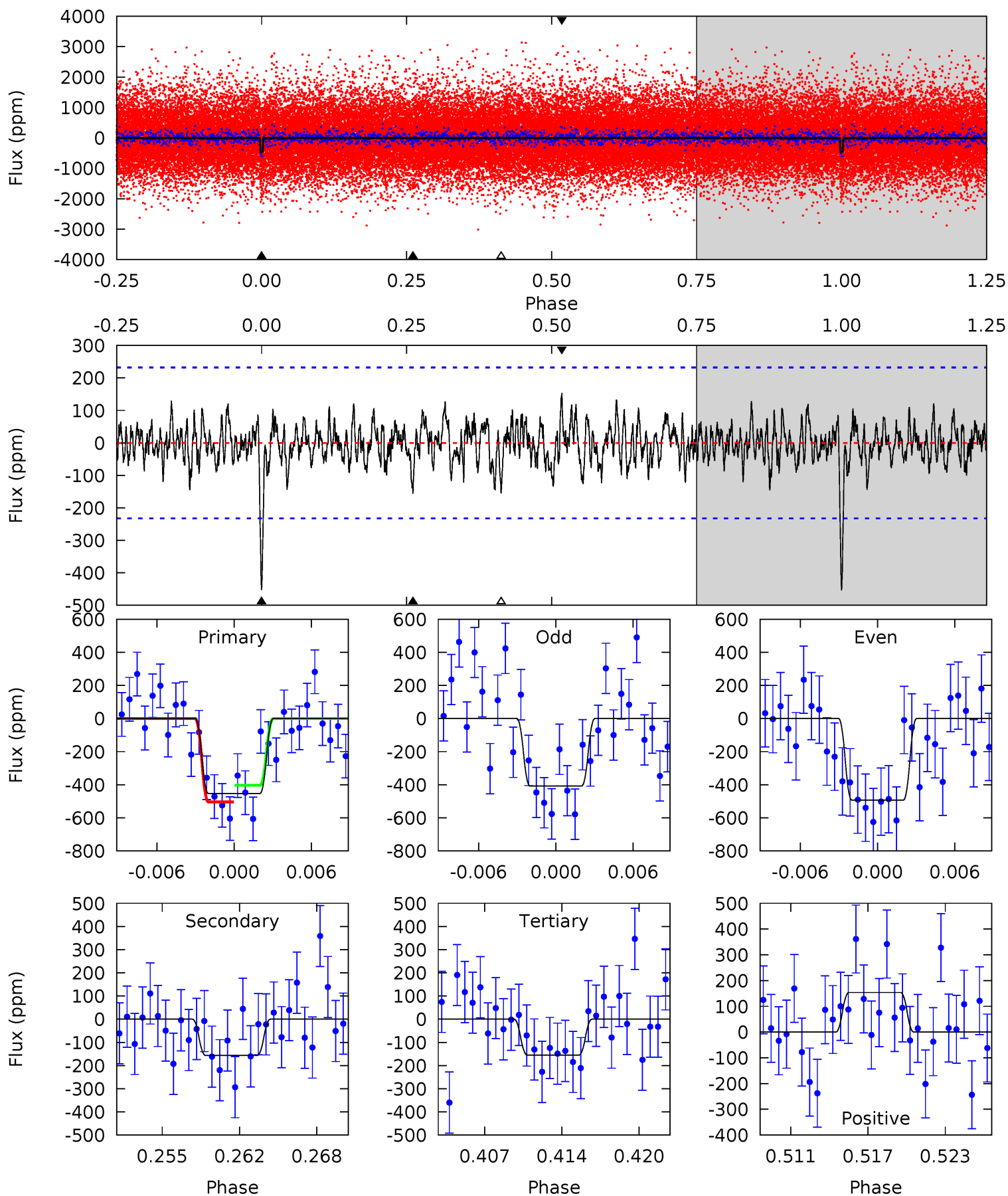
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
9.80	3.28	3.00	3.46	5.12	2.75	1.13	6.80	6.34	0.29	-0.18	0.31	0.99	0.26	0.34



Alt Model-Shift Uniqueness Test

008397947-02, P = 39.094459 Days, E = 147.651454 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
9.98	3.45	3.42	3.39	5.12	2.74	1.13	6.57	6.59	0.03	0.06	0.94	0.91	0.25	1.11



Stellar Parameters For KIC 008397947

	$T_{\text{eff}} (K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M (M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	6072^{+78}_{-91}	$4.343^{+0.076}_{-0.114}$	$0.140^{+0.150}_{-0.150}$	$1.193^{+0.199}_{-0.123}$	$1.146^{+0.071}_{-0.079}$	$0.950^{+0.287}_{-0.331}$
	+1%/-1%	+2%/-3%	+107%/-107%	+17%/-10%	+6%/-7%	+30%/-35%
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 008397947-02 / KOI 4772.03

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-146 ± 45	$3.01^{+1.95}_{-1.64}$	845^{+35}_{-30}	4555^{+1937}_{-804}	474^{+1811}_{-304}
Alt.	-156 ± 45	$3.06^{+1.99}_{-1.70}$	843^{+36}_{-27}	4600^{+2047}_{-797}	506^{+2050}_{-330}

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

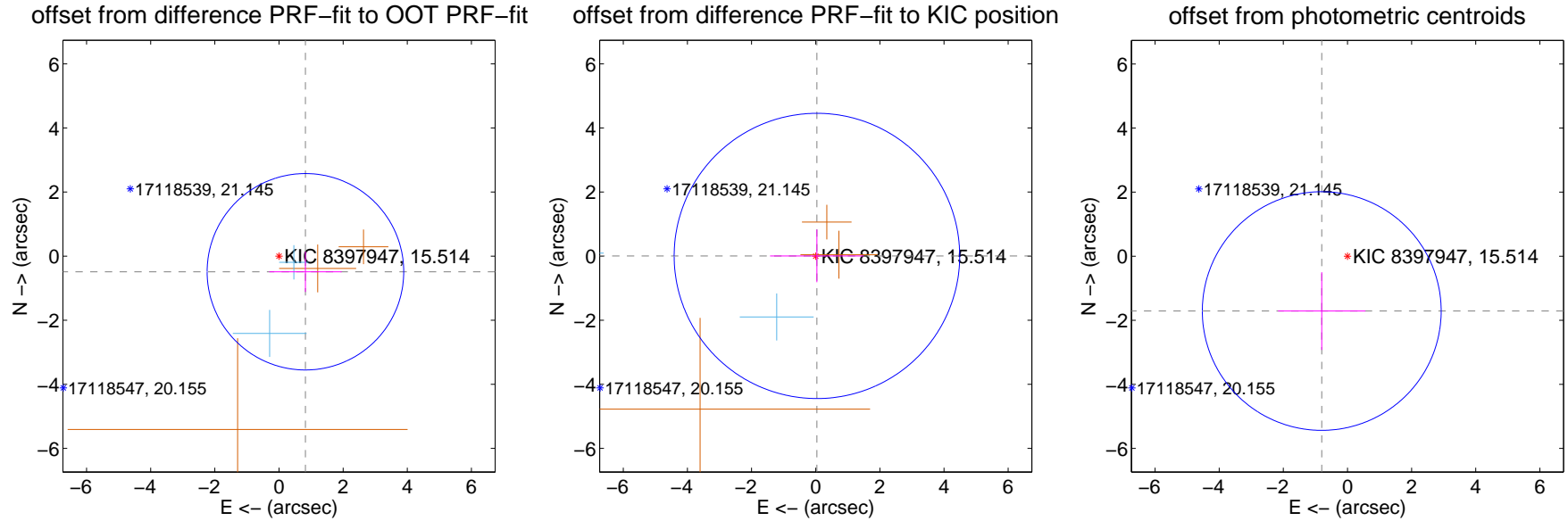
DV Centroid Data

Supplemental centroid analysis for 008397947-02. Kepler magnitude: 15.51. Transit SNR 7.31

There are 2 quarters with good PRF difference image offsets

The direct PRF centroid is offset from the target star catalog position by about 1.06 arcsec

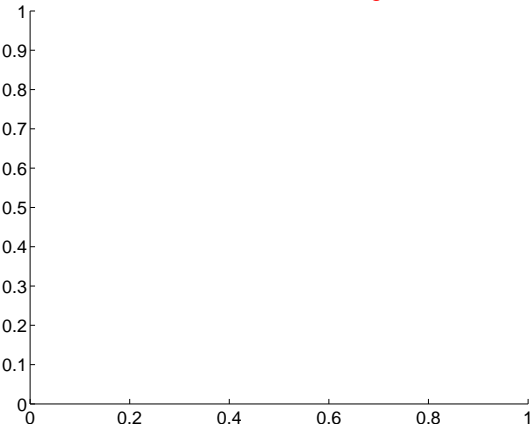
	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.958 ± 1.022	0.94	-0.824 ± 1.127	-0.488 ± 0.629
PRF-fit source offset from KIC position	0.038 ± 1.484	0.03	-0.037 ± 1.460	0.006 ± 0.820
photometric centroid source offset	1.89 ± 1.24	1.52	0.80 ± 1.36	-1.71 ± 1.21



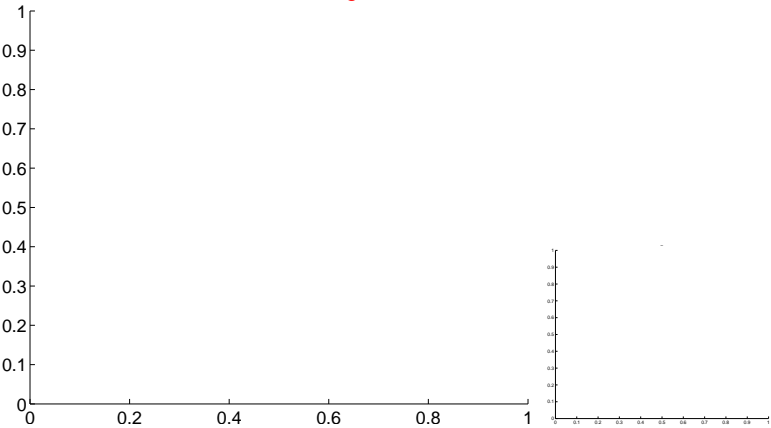
Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ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

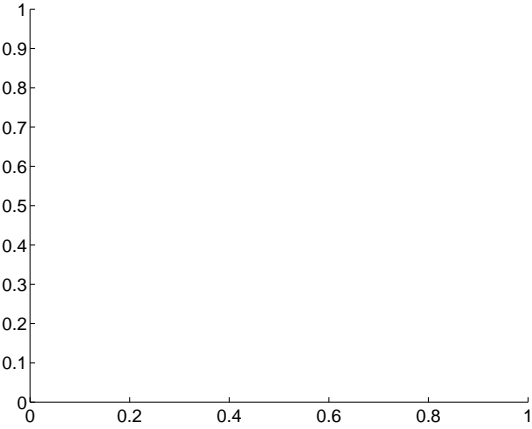
Q1 no difference image



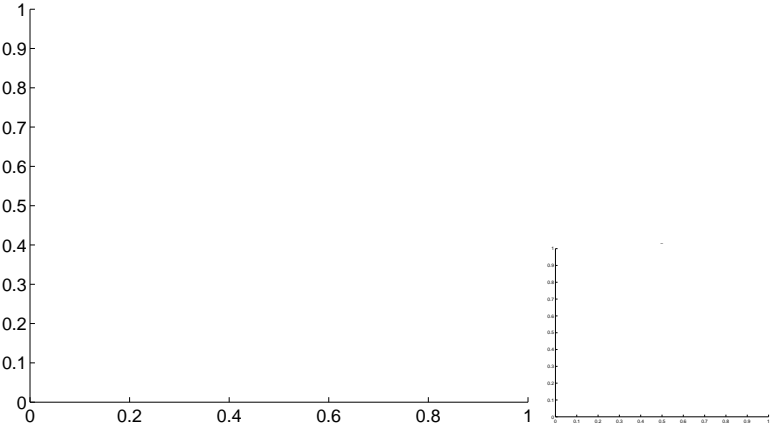
Q1 no OOT image



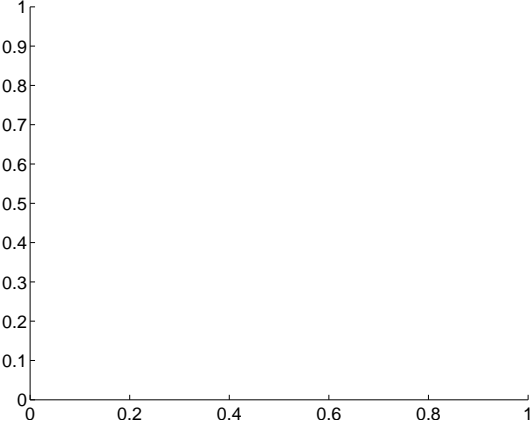
Q2 no difference image



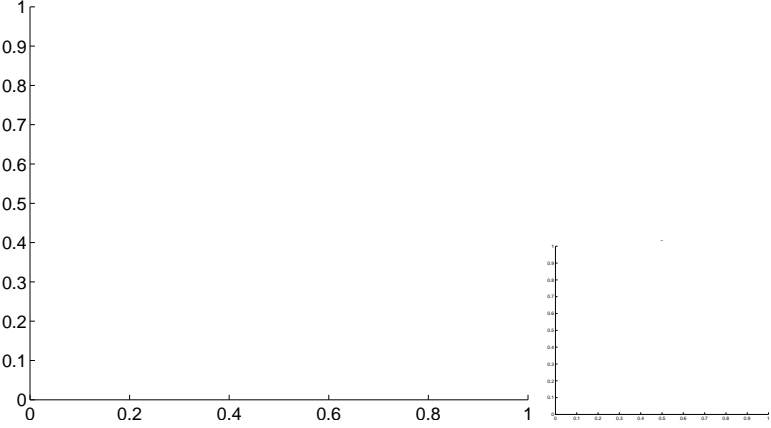
Q2 no OOT image



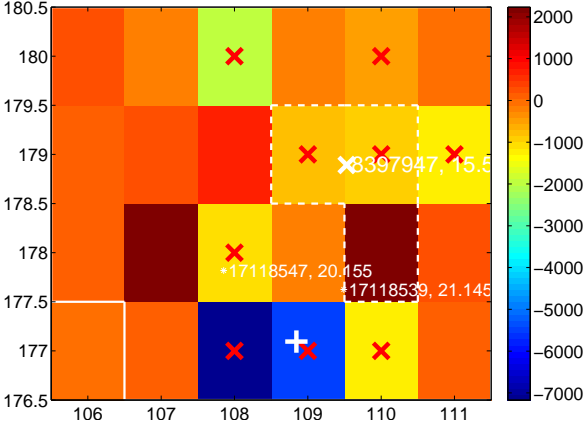
Q3 no difference image



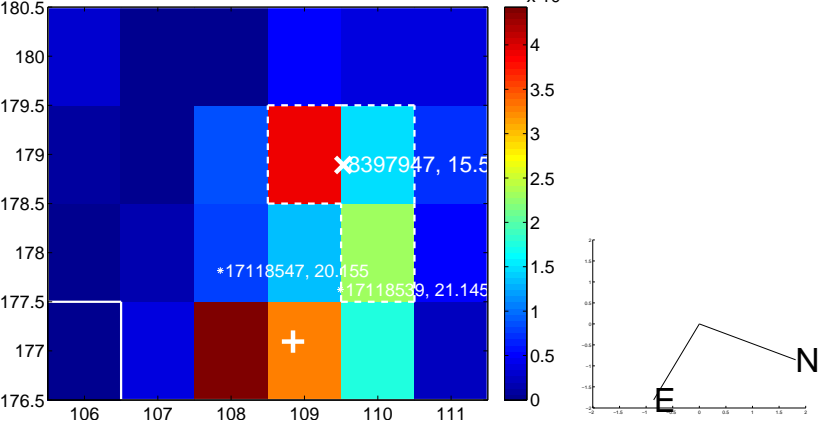
Q3 no OOT image



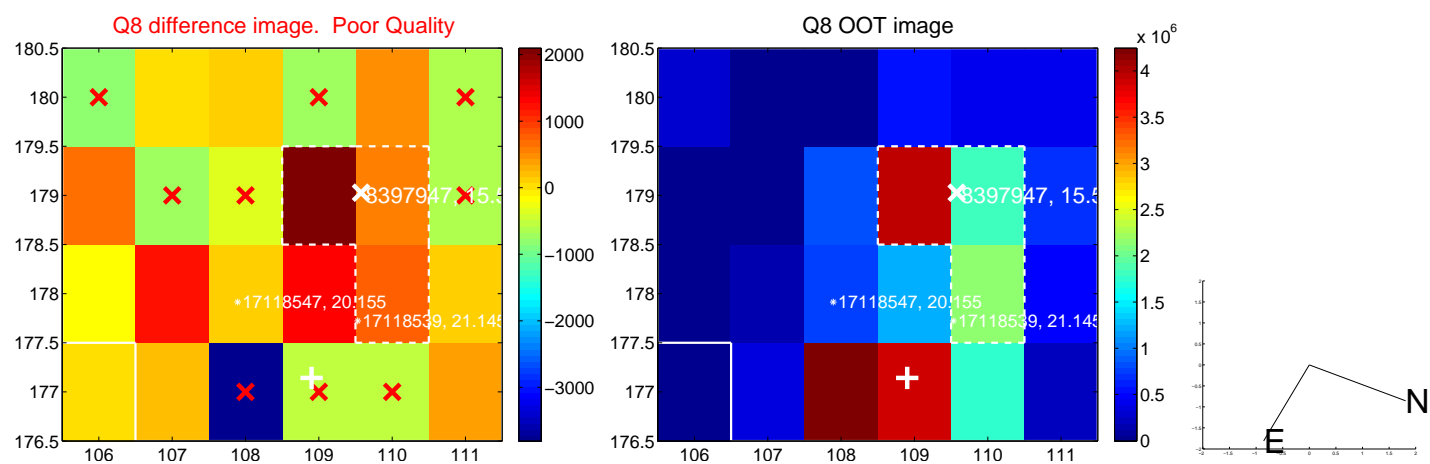
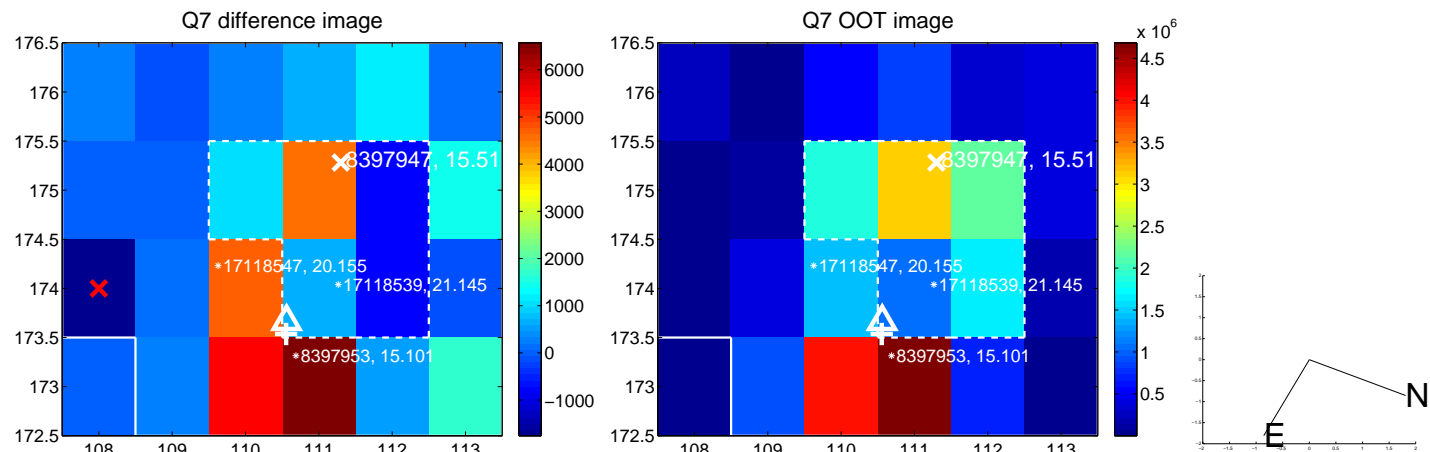
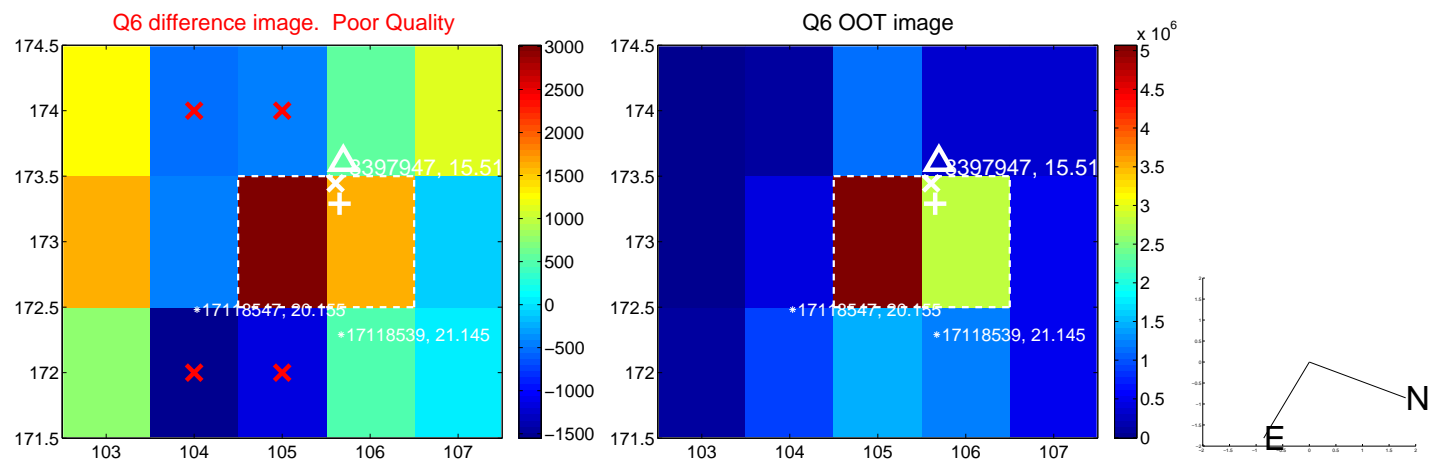
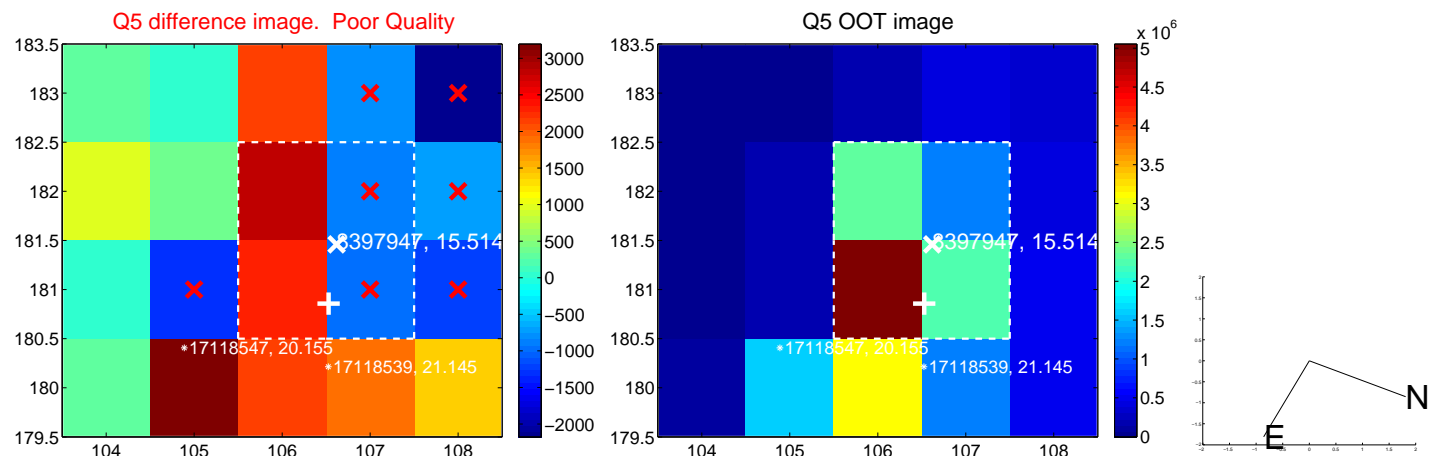
Q4 difference image. Poor Quality



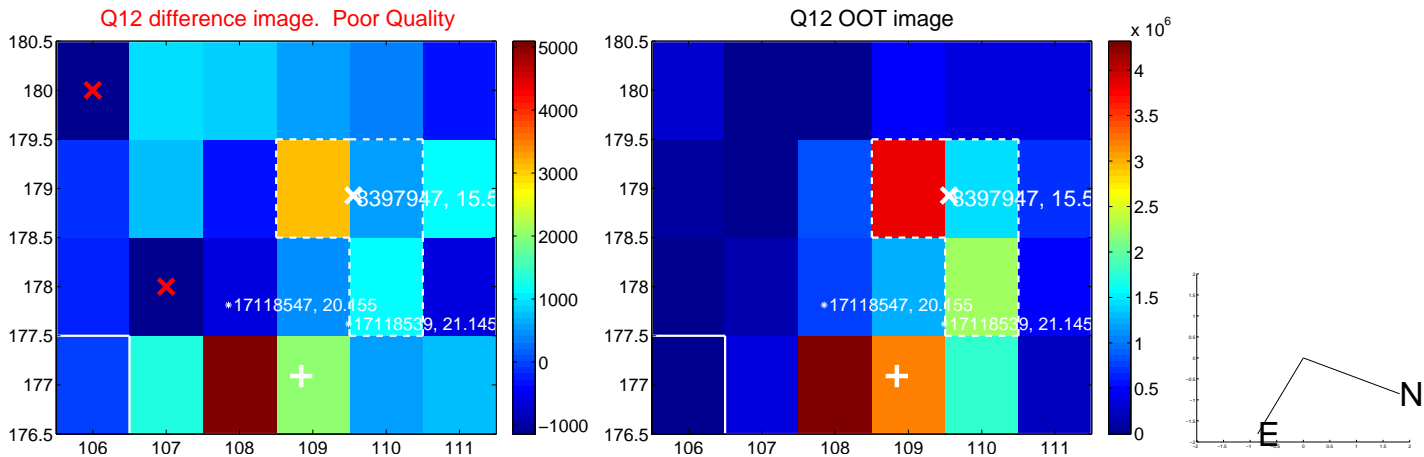
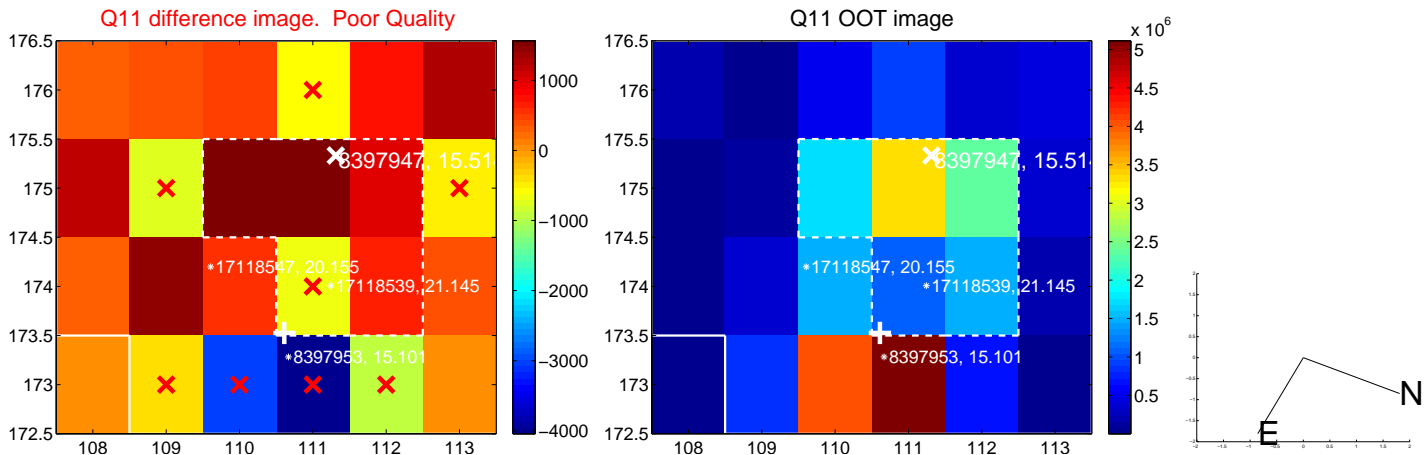
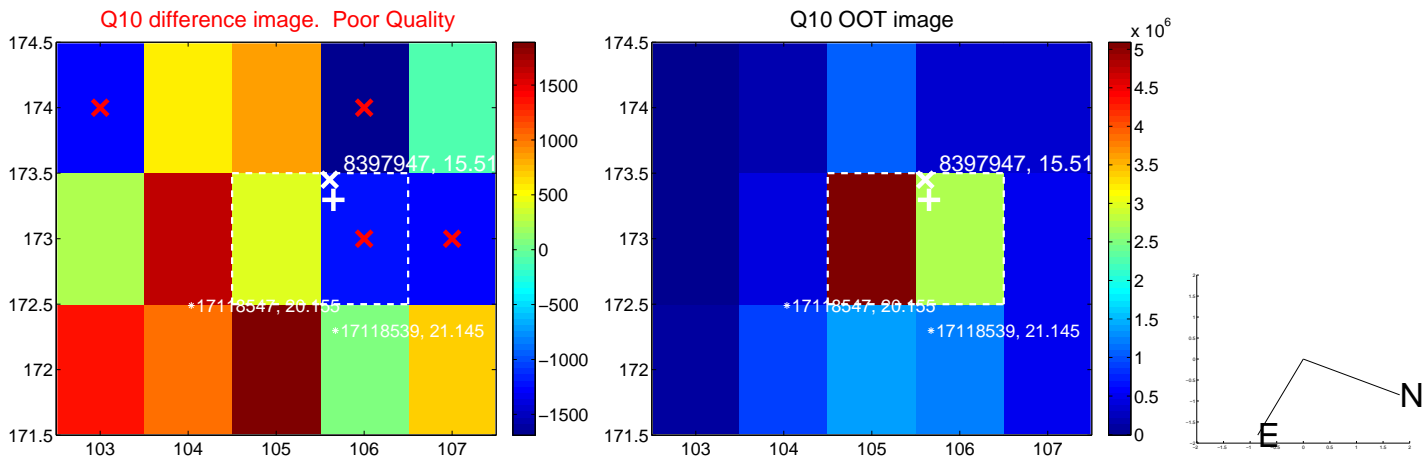
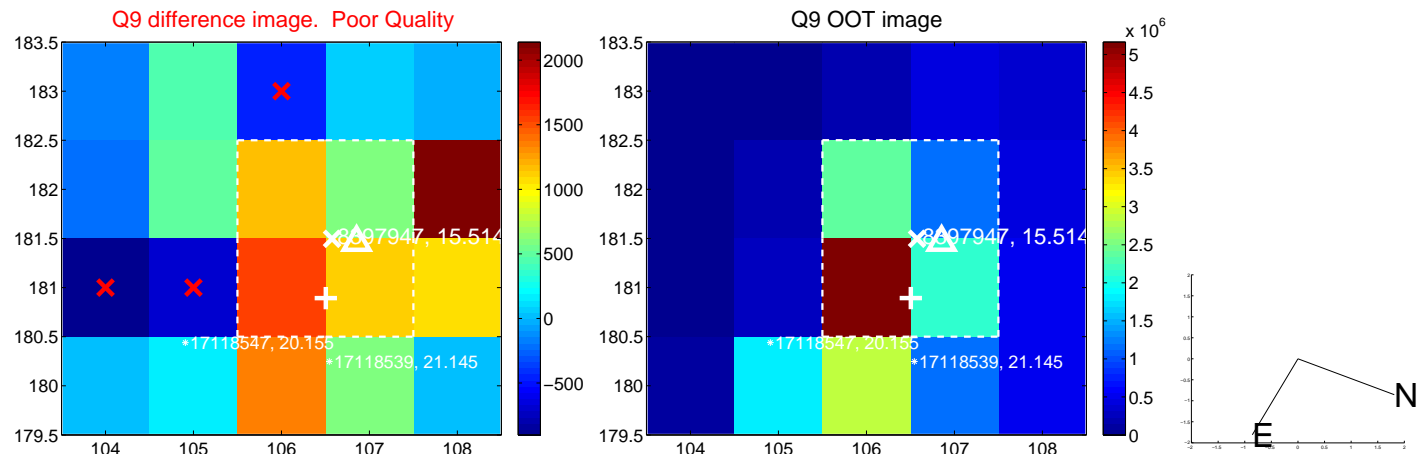
Q4 OOT image



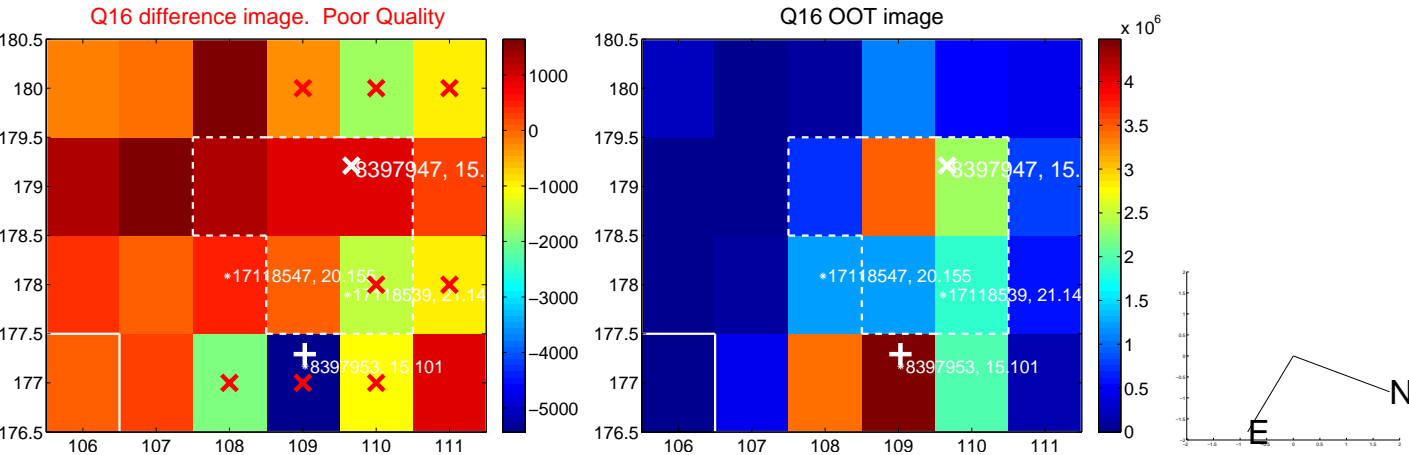
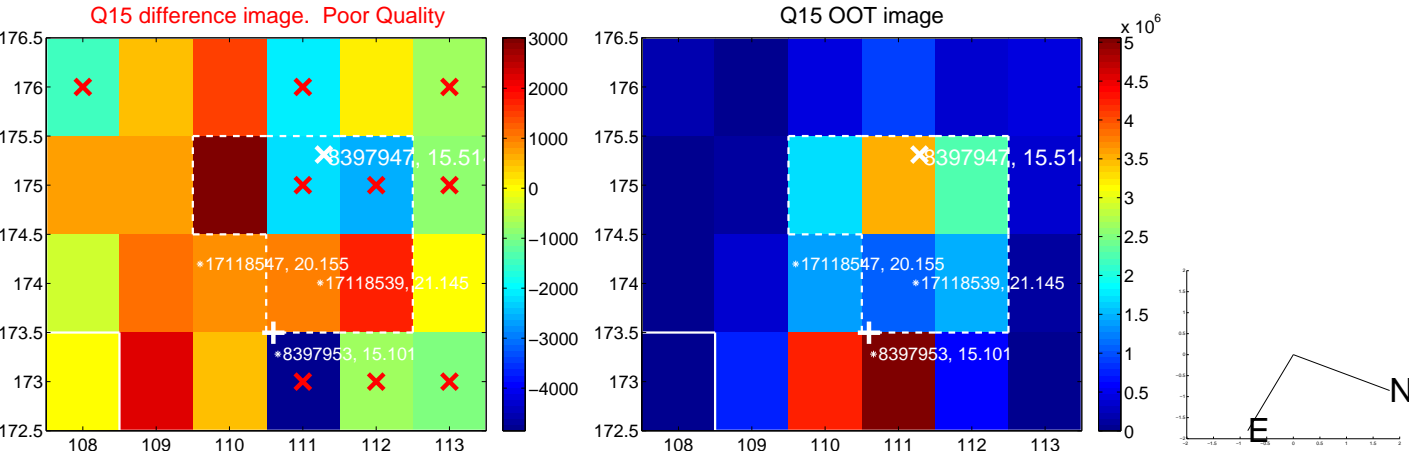
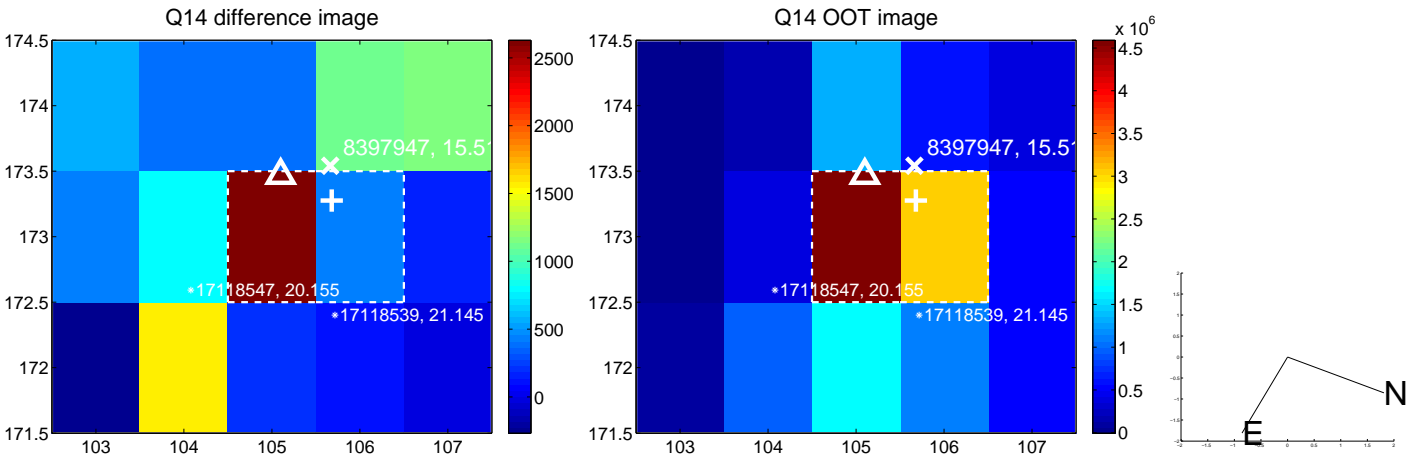
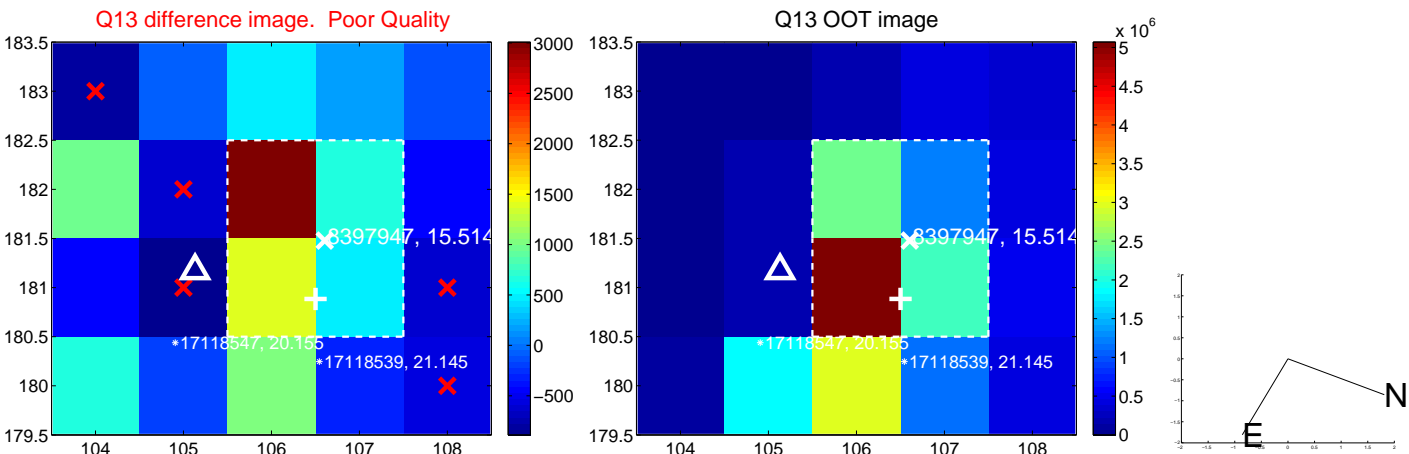
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



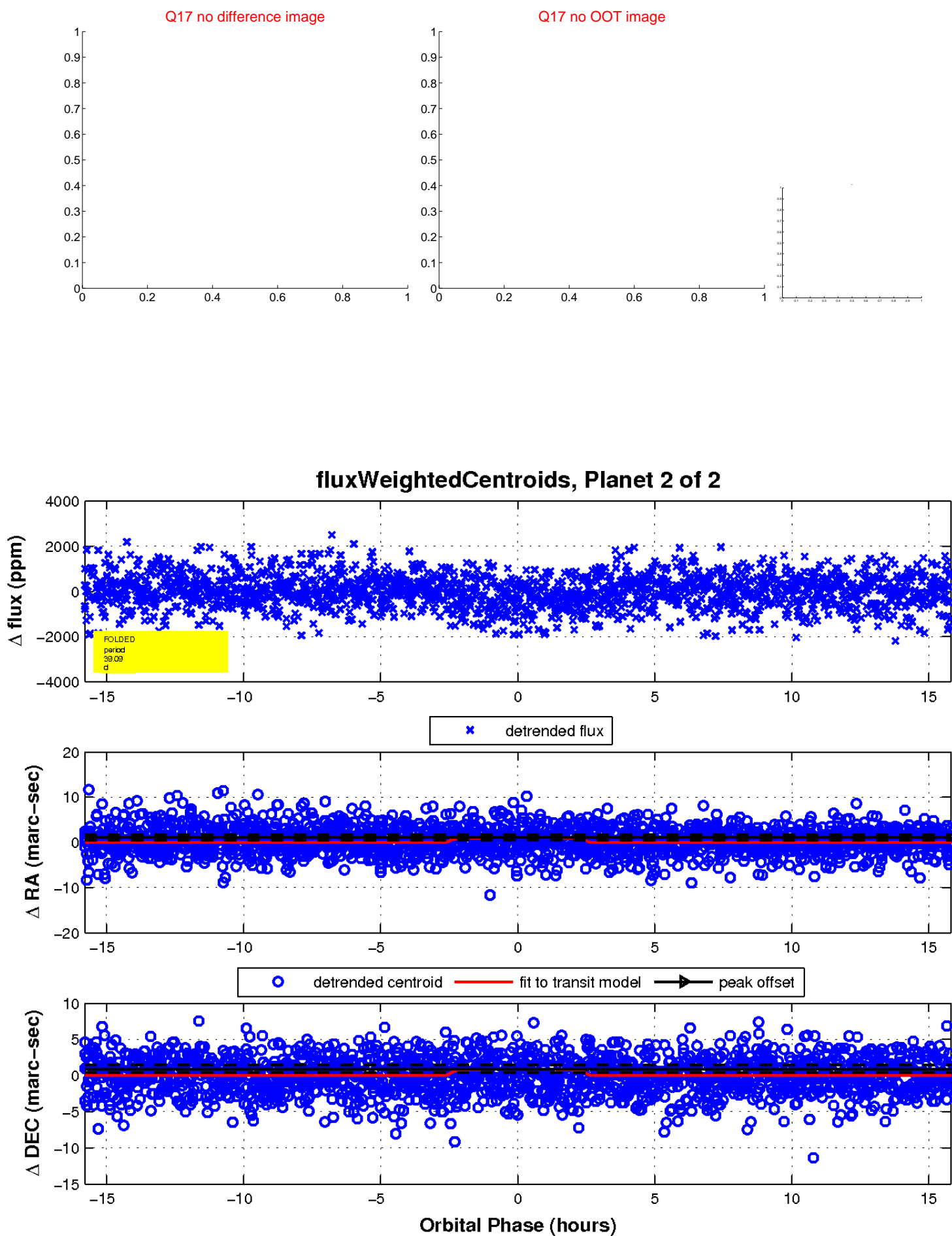
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

