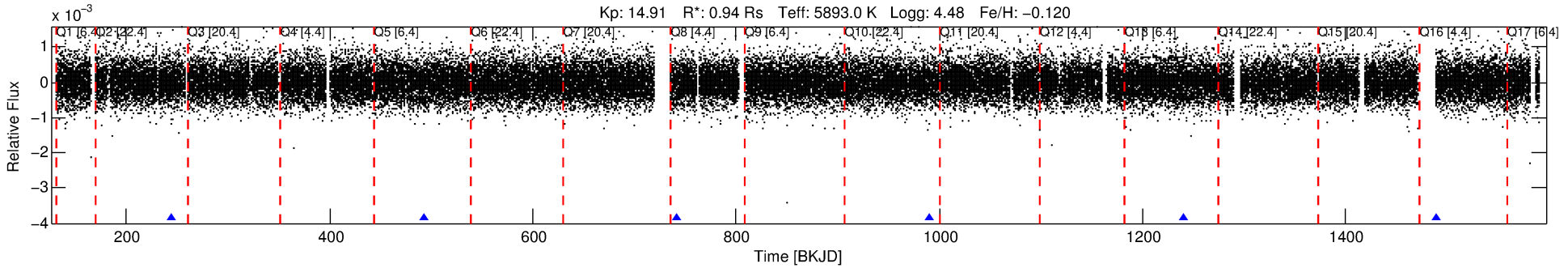
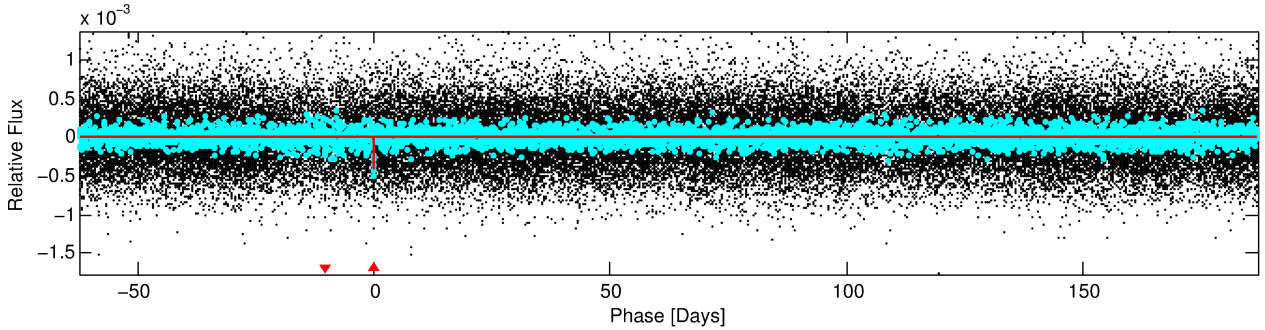
WARNING: THIS DATA IS SIMULATED, NOT OBSERVED

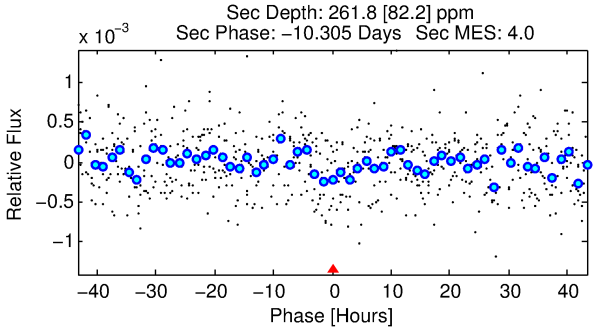
DV One-Page Summary

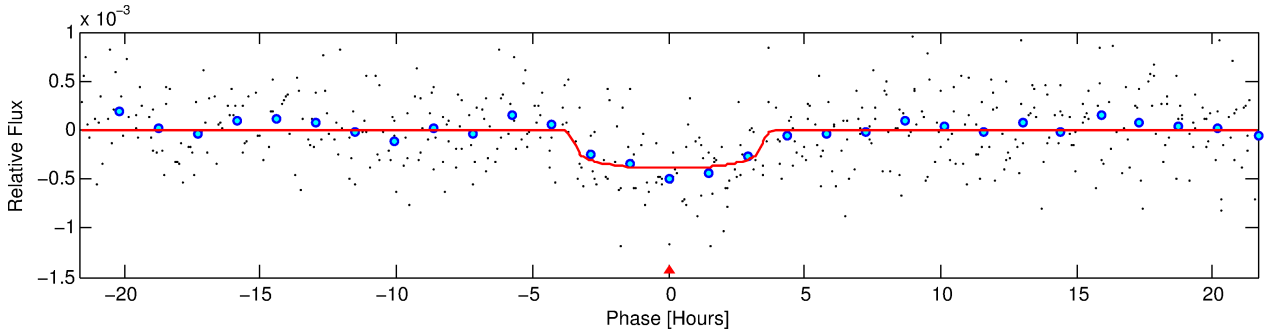
KIC: 10451172 Candidate: 1 of 1 Period: 249.080 d

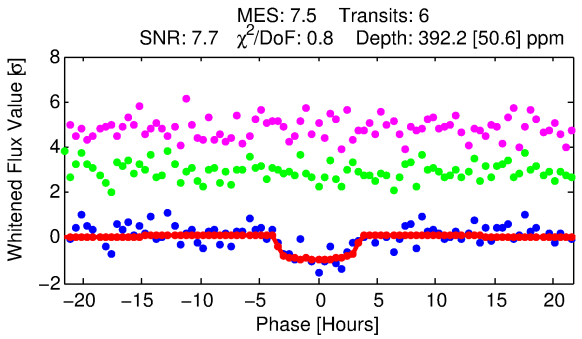
WARNING: THIS DATA IS SIMULATED, NOT OBSERVED

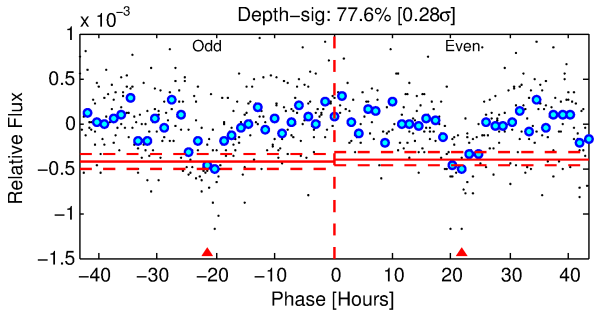


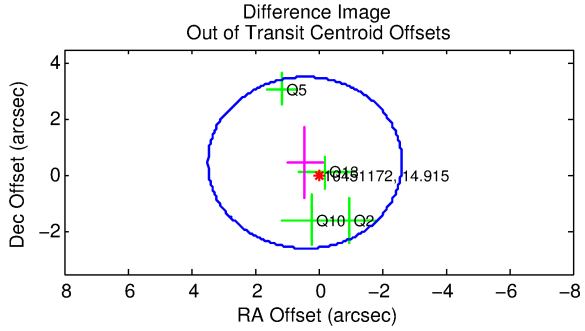












DV Fit Results:

Period = 249.07952 [0.00479] d
Epoch = 243.7113 [0.0132] BKJD
Rp/R* = 0.0191 [0.0212]
a/R* = 208.63 [1071.19]
b = 0.64 [4.76]

Seff = 1.61 [0.65]
Teq = 287 [29] K
Rp = 1.96 [2.26] Re
a = 0.7703 [0.2034] AU

Ag = 22245.70 [50650.46] [0.44σ]
Teffp = 5426 [3049] K [1.69σ]

DV Diagnostic Results:

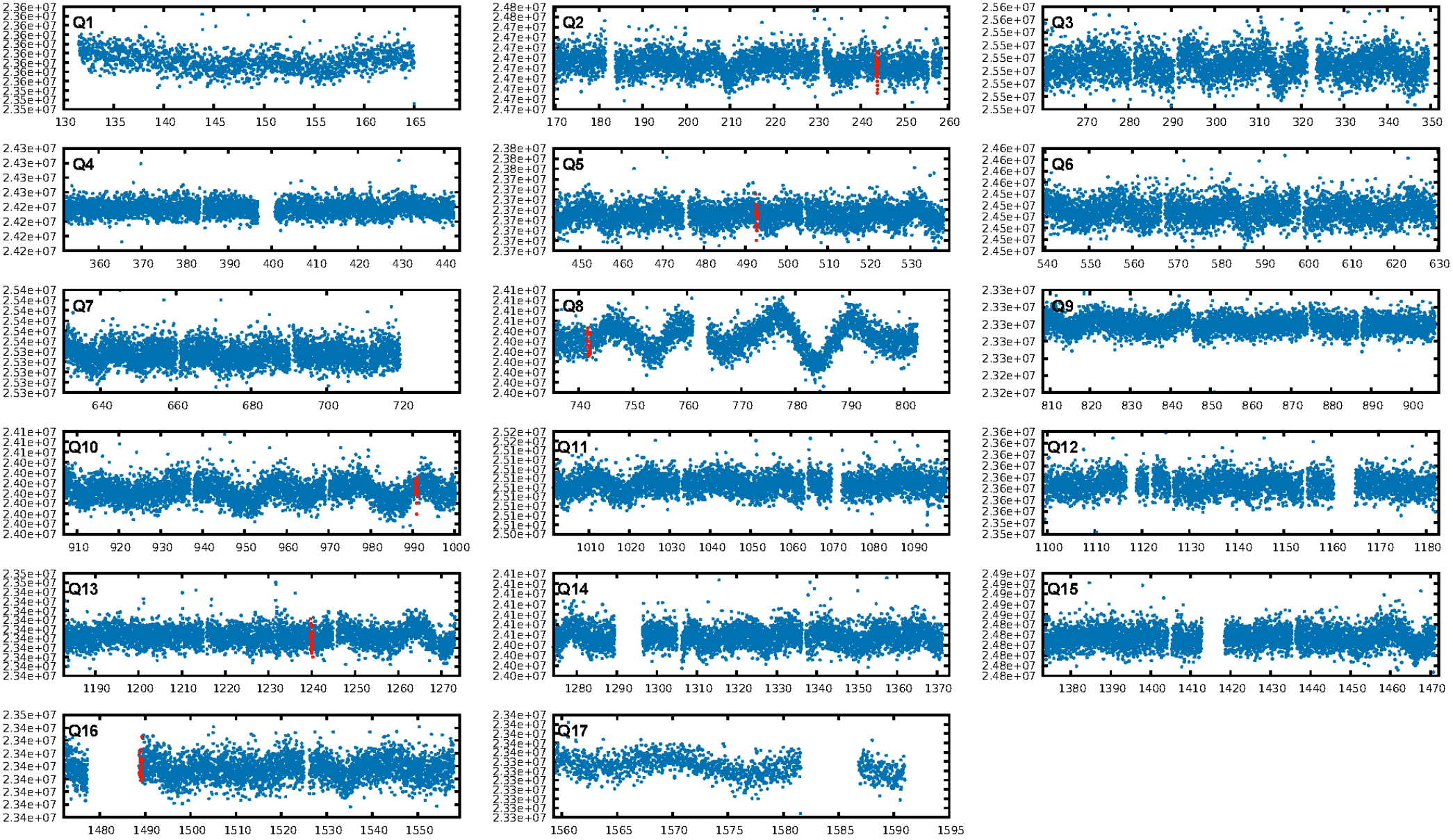
ShortPeriod−sig: N/A
LongPeriod−sig: N/A
ModelChiSquare2−sig: 93.1%
ModelChiSquareGof−sig: 100.0%
Bootstrap−pfa: 4.42e−13
RollingBand−fgt: 1.00 [6/6]
GhostDiagnostic−chr: 1.332

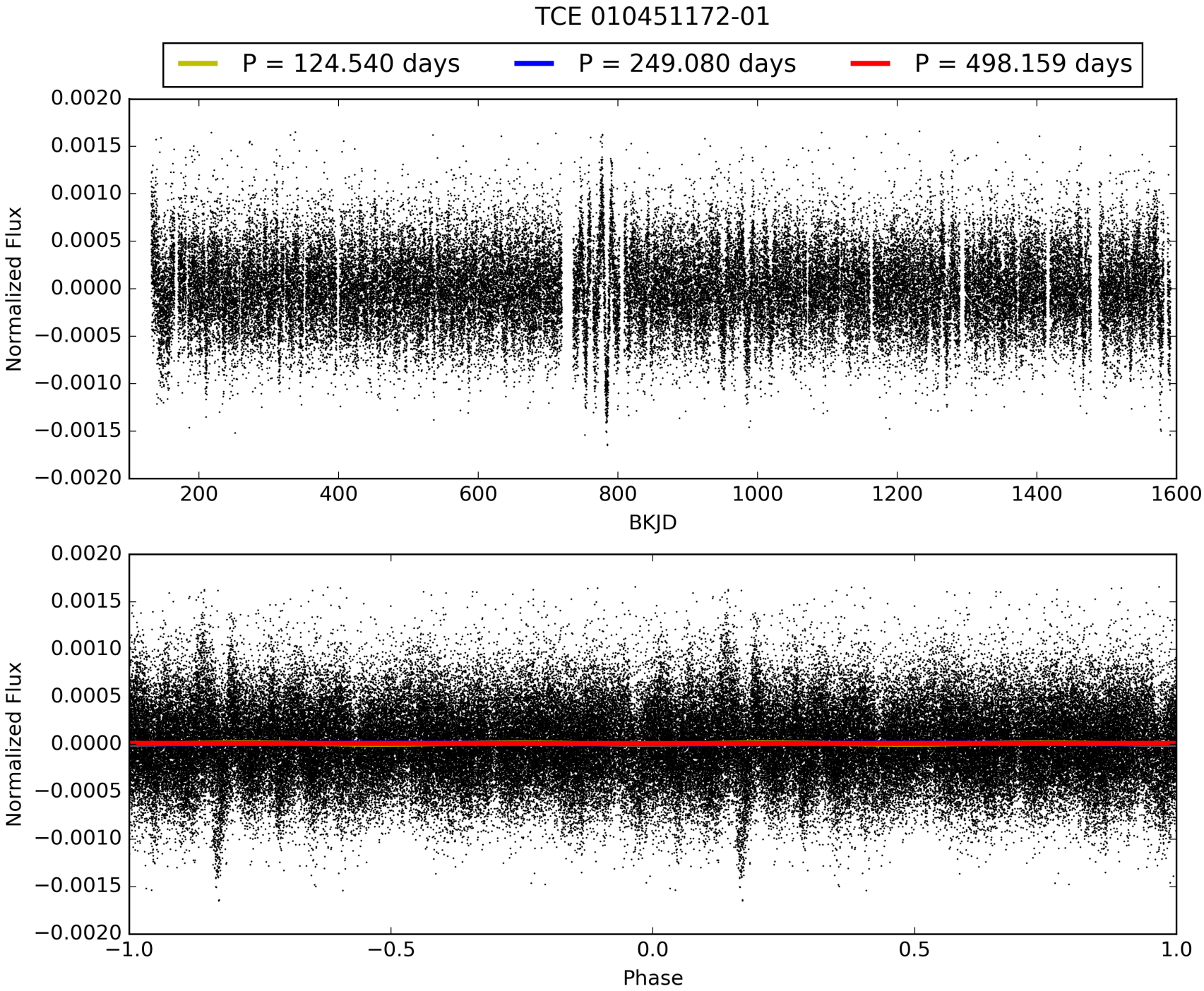
Centroid−sig: 94.5%
Centroid−so: 0.336 arcsec [0.19σ]
OotOffset−rm: 0.627 arcsec [0.62σ]
KicOffset−rm: 0.561 arcsec [0.43σ]
OotOffset−st: 2/0/0/2 [4]
KicOffset−st: 2/0/0/2 [4]
DiffImageQuality−fgm: 0.75 [3/4]
DiffImageOverlap−fno: 1.00 [5/5]

Software Revision: svn+ssh://murzim/repo/soc/branches/integ/ksop−2174@60968 −− Date Generated: 06−Feb−2016 05:03:15 Z

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

TCE 010451172-01, PDC Light Curves

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P = 124.540 days
P = 249.080 days
P = 498.159 days
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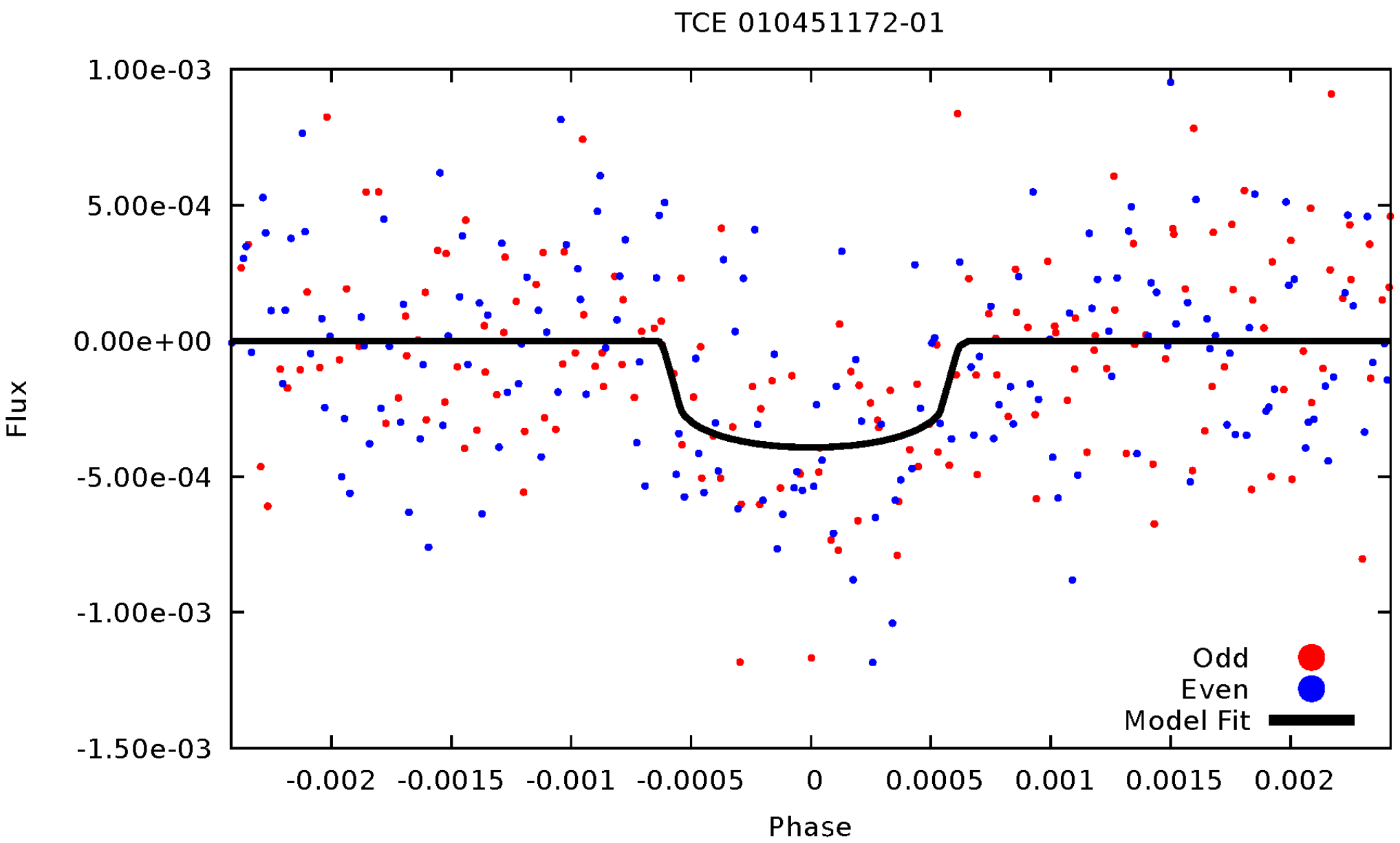
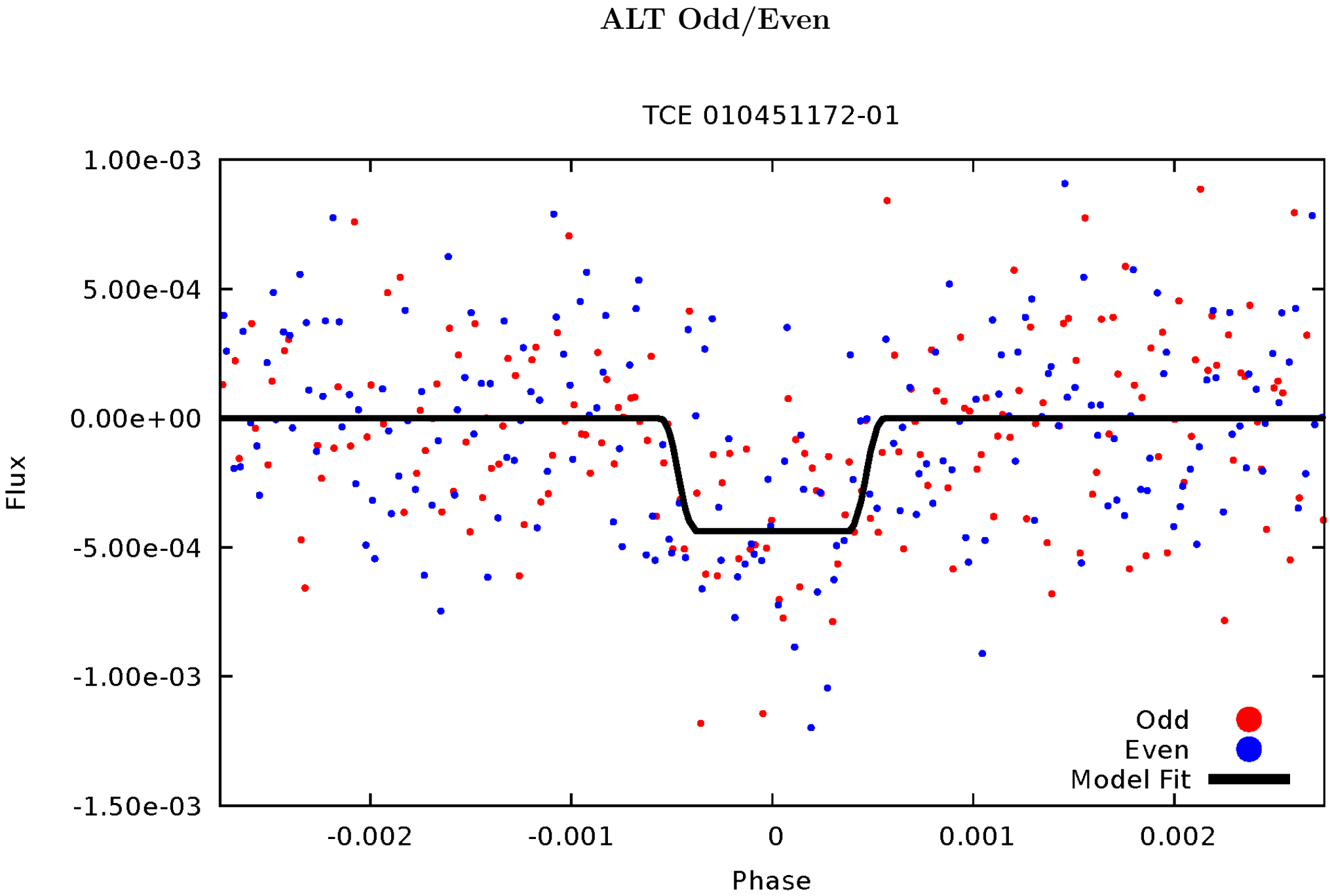
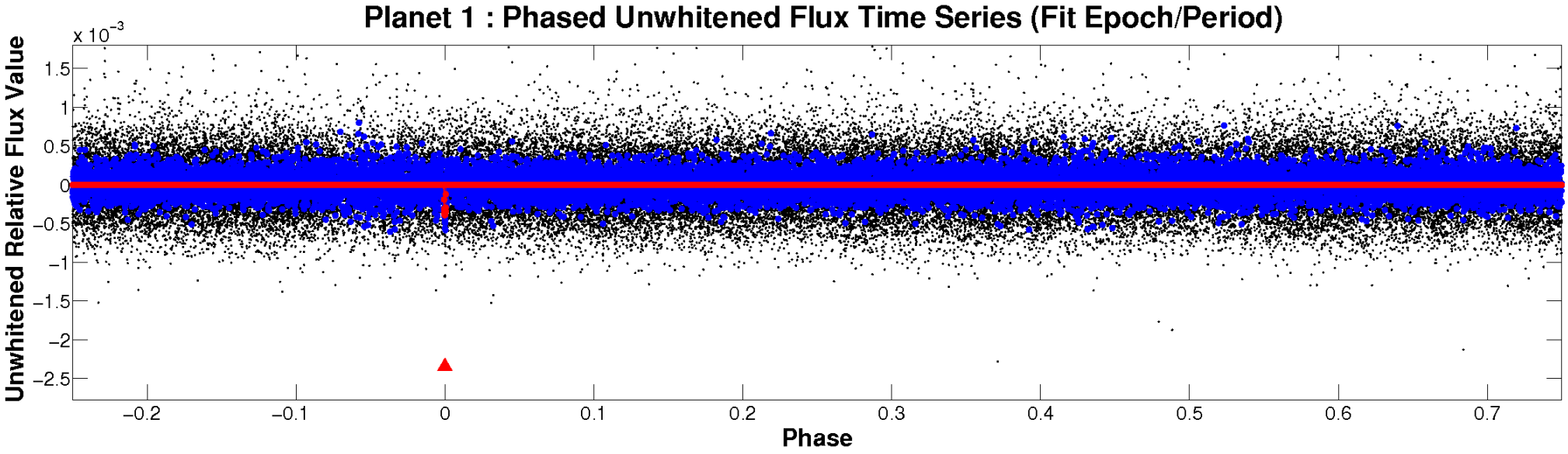
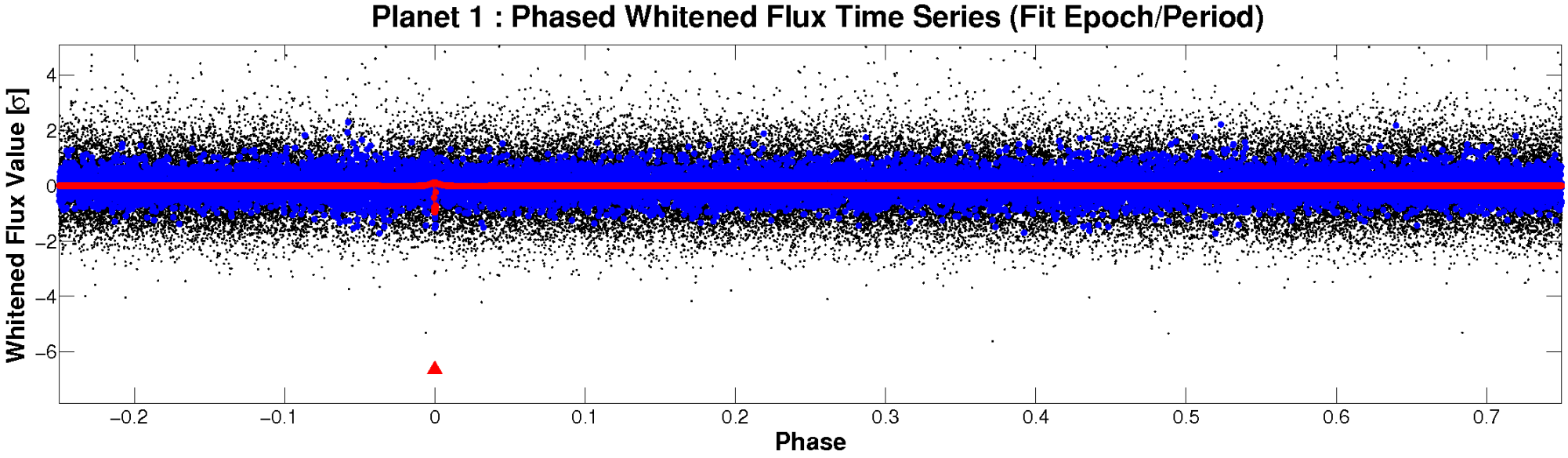
0.0015
0.0010
0.0005
0.0000
−0.0005
−0.0010
−0.0015
−0.0020
200
400
600
800
1000
1200
1400
1600
BKJD
Normalized Flux
−1.0
−0.5
0.0
0.5
1.0
Phase


DV Odd/Even
TCE 010451172-01
1.00e-03
5.00e-04
0.00e+00
-5.00e-04
-1.00e-03
-1.50e-03
Flux
-0.002
-0.0015
-0.001
-0.0005
0
0.0005
0.001
0.0015
0.002
Phase
Odd
Even
Model Fit


ALT Odd/Even
TCE 010451172-01
1.00e-03
5.00e-04
0.00e+00
-5.00e-04
-1.00e-03
-1.50e-03
Flux
-0.002
-0.001
0
0.001
0.002
Phase
Odd
Even
Model Fit

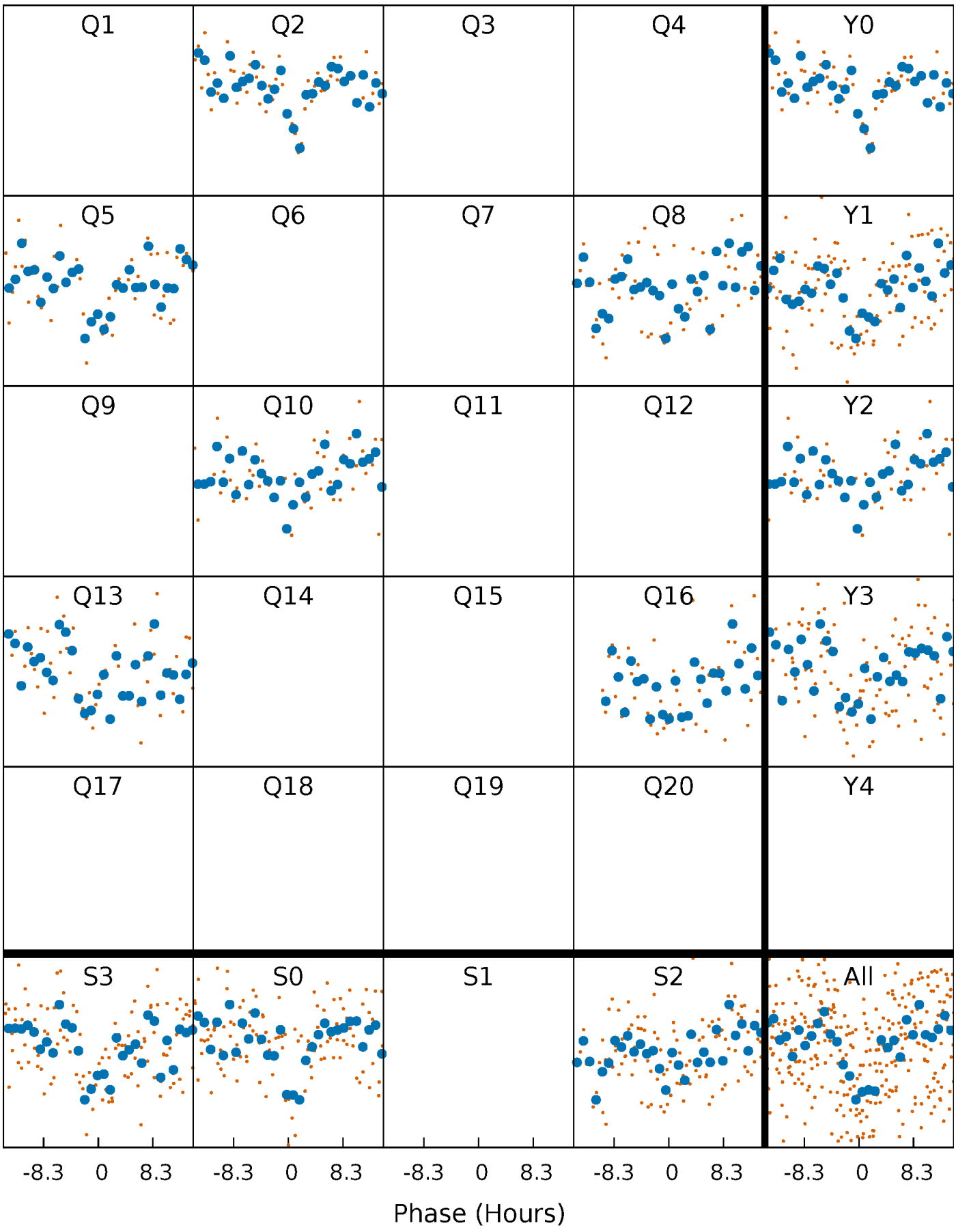
Non-Whitened Vs. Whitened Light Curve





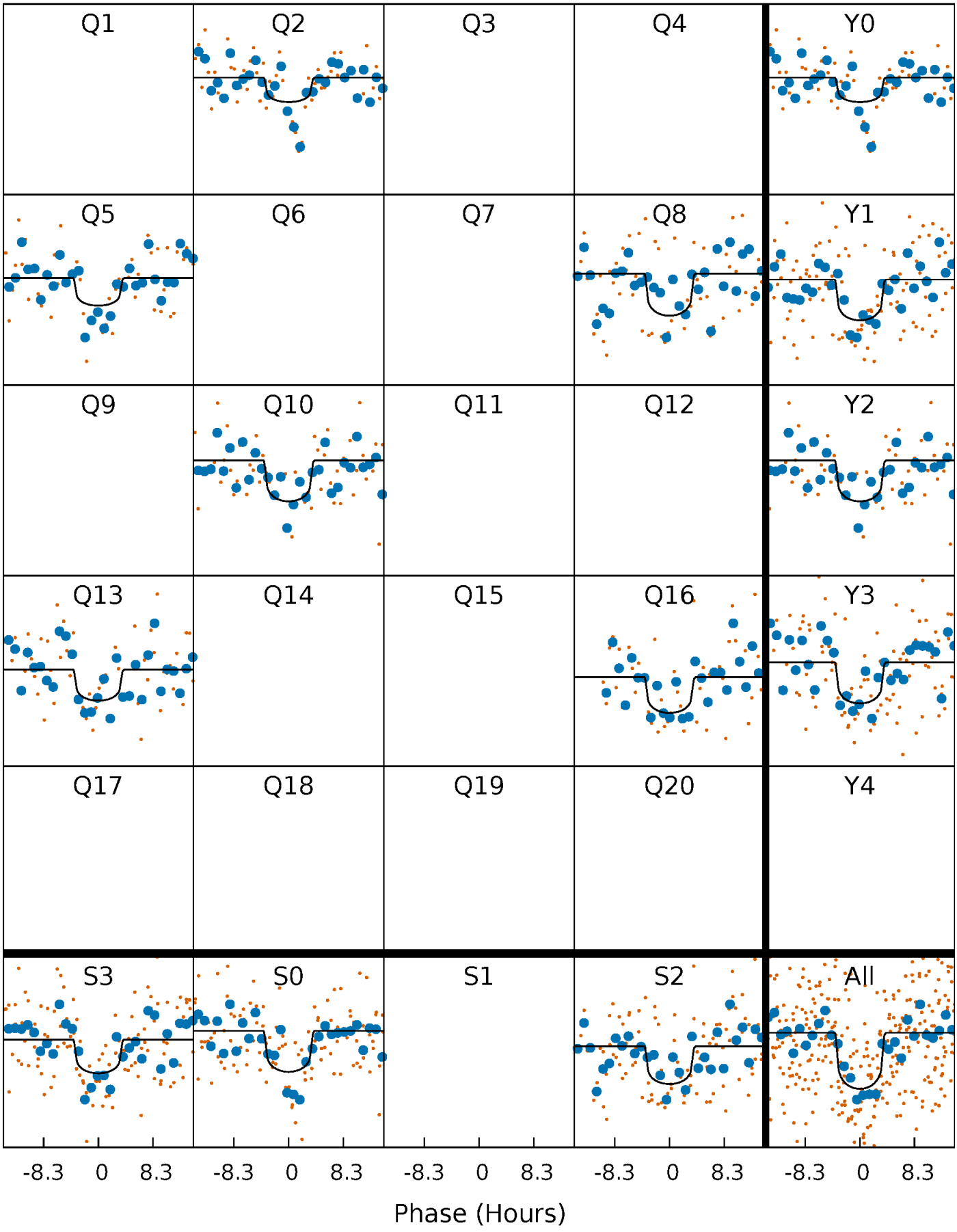
PDC Quarter-Phased Transit Curves

TCE 010451172-01 P=249.079518 Days T_0=243.711304 (BKJD)



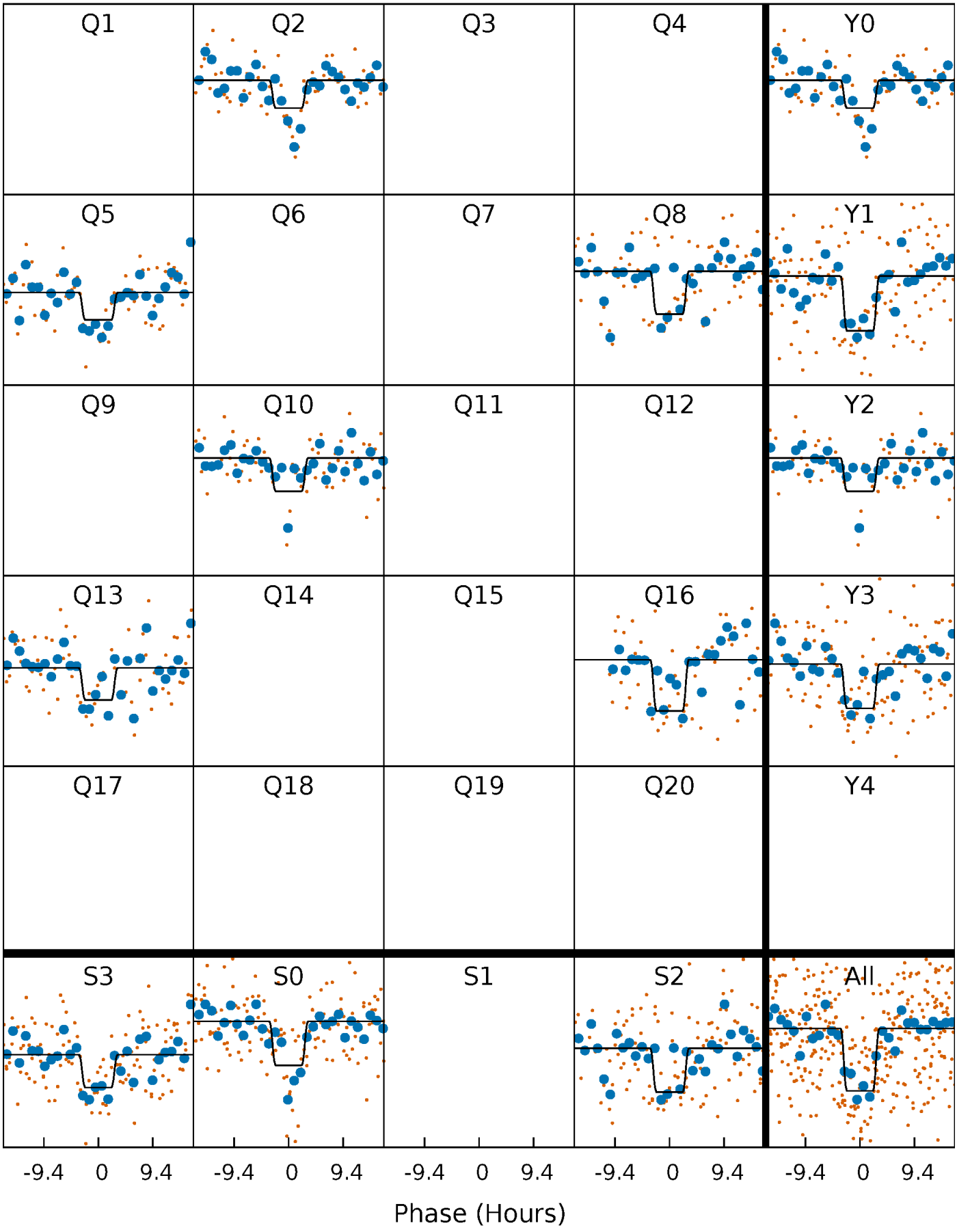
DV Quarter-Phased Transit Curves

TCE 010451172-01 P=249.079518 Days T_0=243.711304 (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

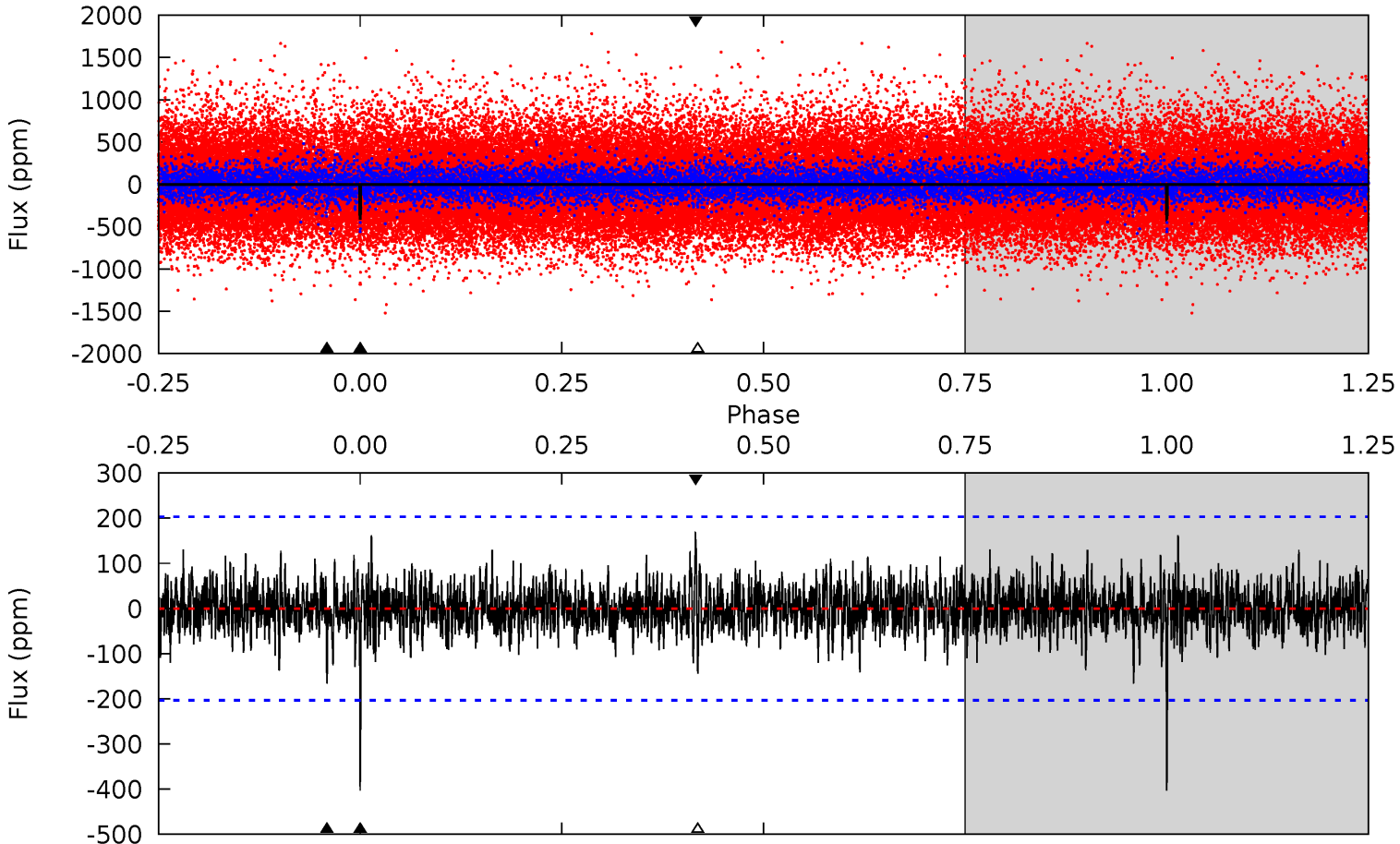
TCE 010451172-01 P=249.078285 Days T_0=243.727431 (BKJD)

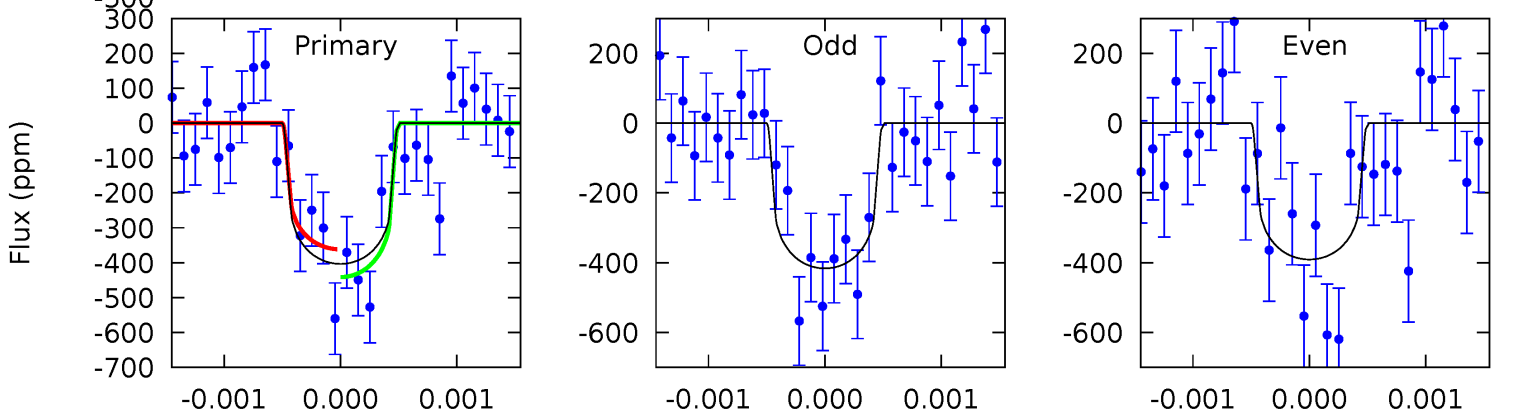


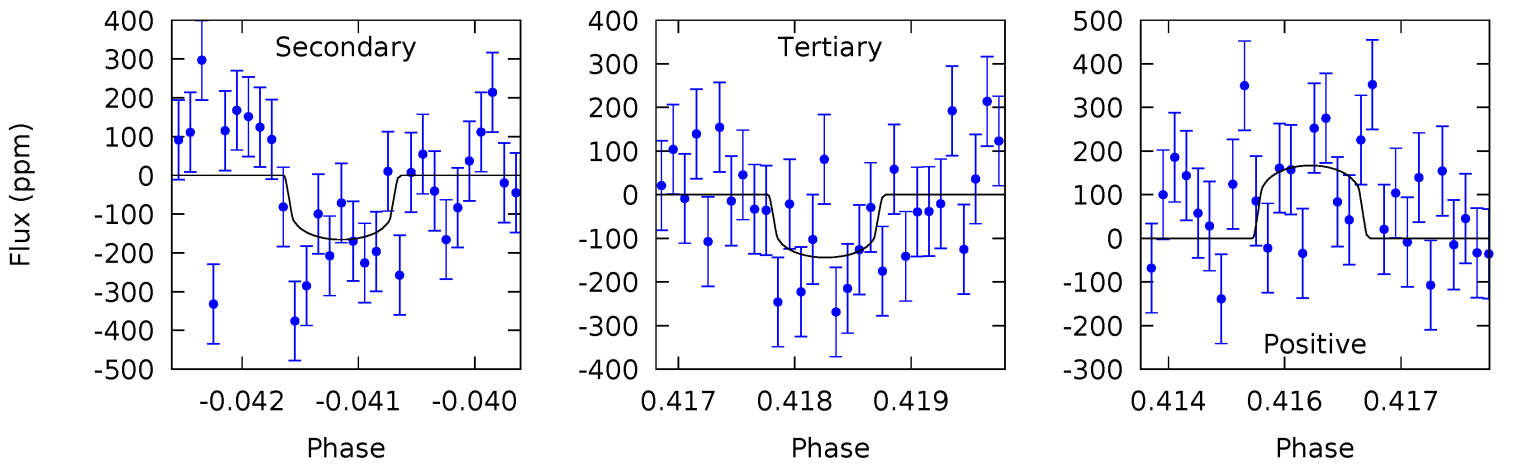
DV Model-Shift Uniqueness Test

010451172-01, P = 249.079518 Days, E = 243.711304 Days

Pri	Sec	Ter	Pos	FA_1	FA_2	F_{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
10.7	4.41	3.82	4.44	5.41	3.22	1.08	6.90	6.29	0.58	-0.03	0.34	1.05	0.29	1.06



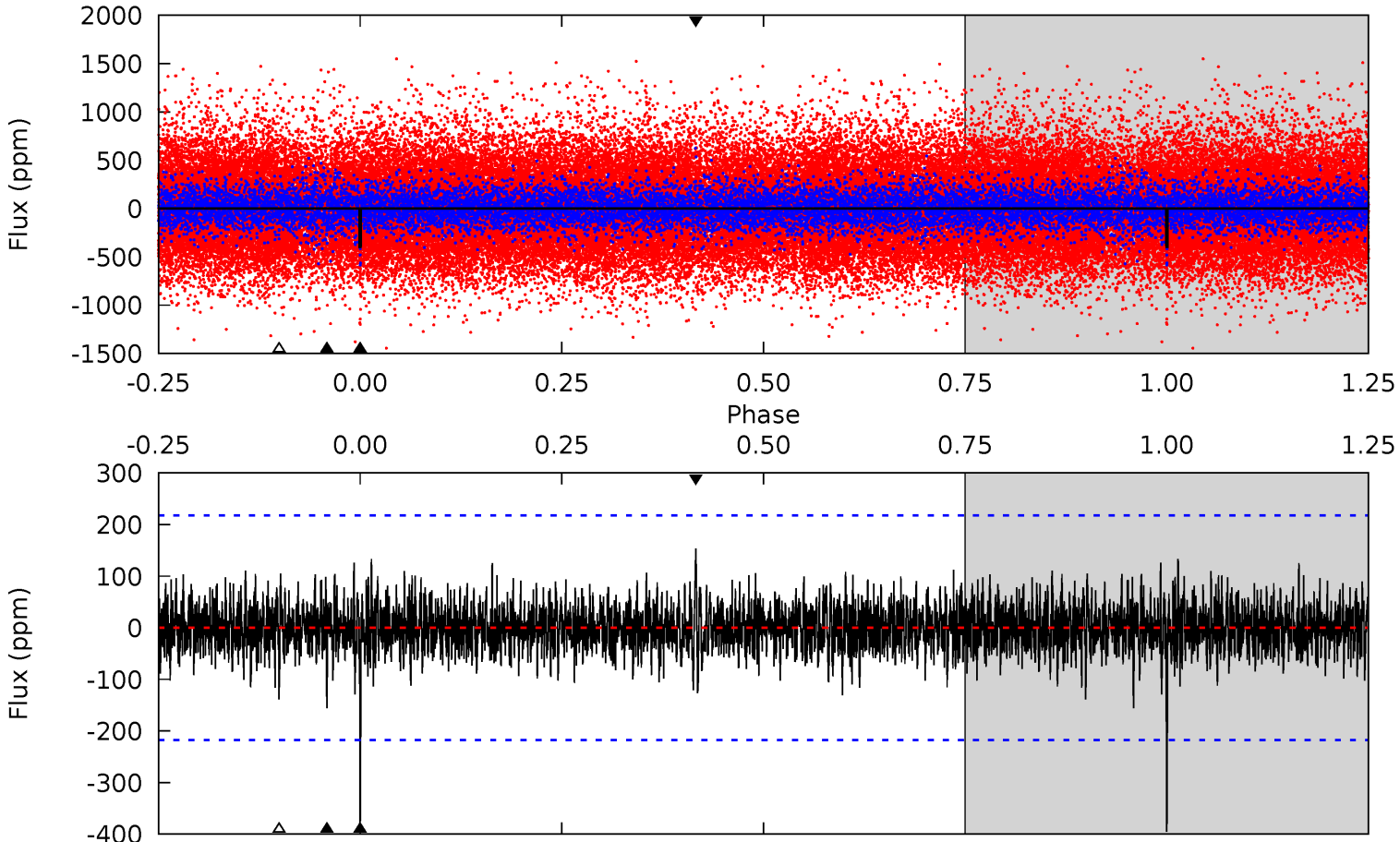


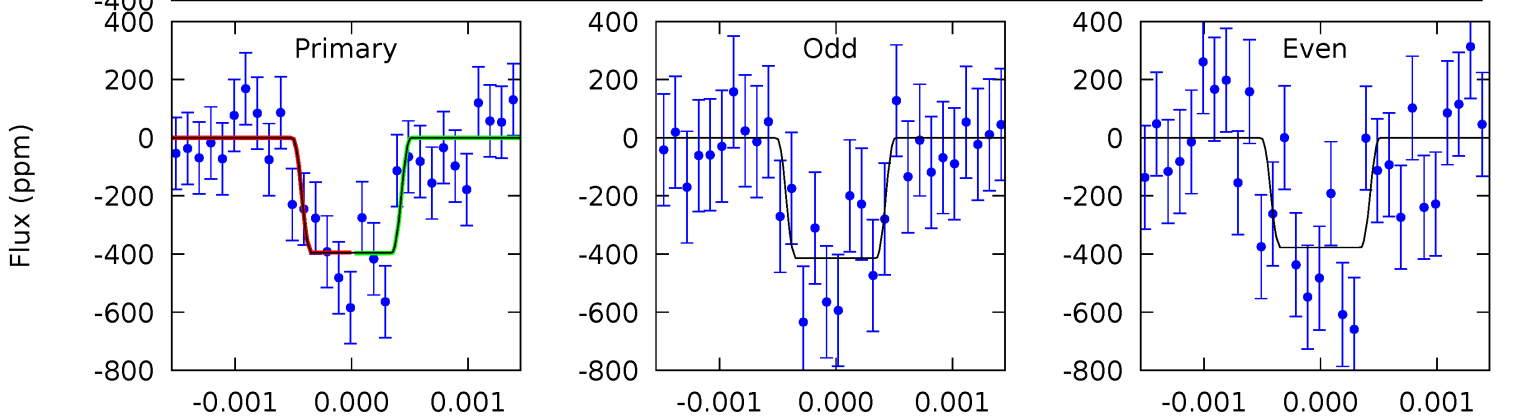


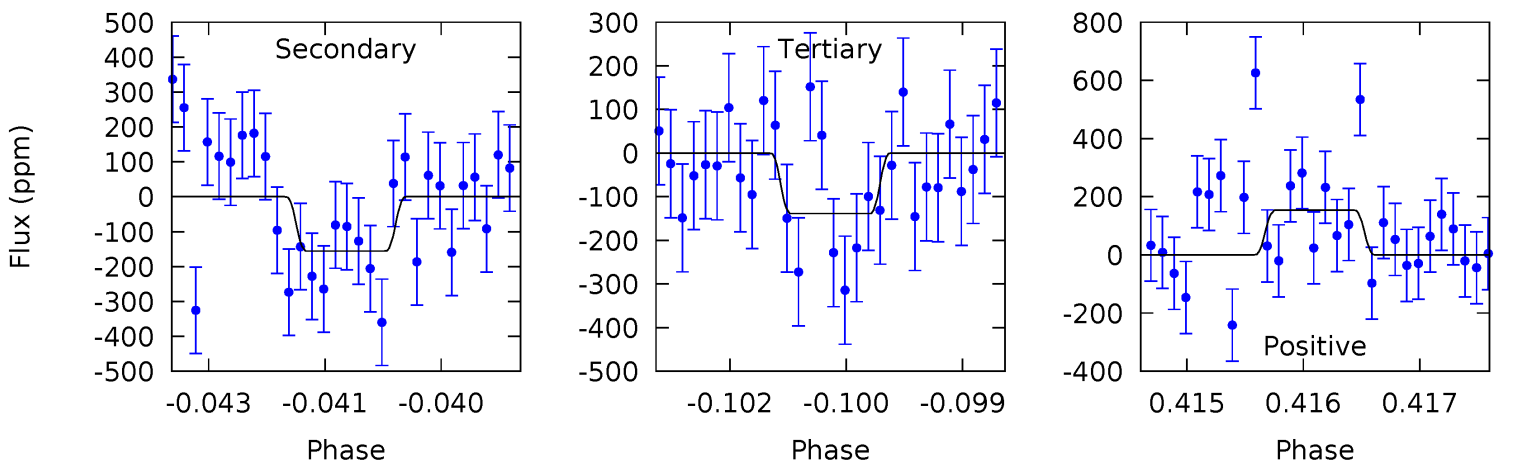
Alt Model-Shift Uniqueness Test

010451172-01, P = 249.078285 Days, E = 243.727431 Days

Pri	Sec	Ter	Pos	FA_1	FA_2	F_{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
9.88	3.88	3.46	3.83	5.44	3.27	0.95	6.41	6.04	0.42	0.05	0.46	1.08	0.28	0.03







Stellar Parameters For KIC 010451172

	$T_{\rm eff}(K)$	$\log(g)$	[Fe/H]	R ($R_\odot$)	$M(M_\odot)$	$p_\star$ (g·cm^{-3})
	5893^{+158}_{-176}	$4.483^{+0.065}_{-0.208}$	$-0.120^{+0.300}_{-0.300}$	$0.941^{+0.297}_{-0.099}$	$0.981^{+0.128}_{-0.117}$	$1.660^{+0.469}_{-0.875}$
	+3%/-3%	+1%/-5%	+250%/-250%	+32%/-11%	+13%/-12%	+28%/-53%
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 010451172-01 / KOI

Detrend	Depth (ppm)	R_p ($R_\oplus$)	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	-166±38	$2.43^{+2.16}_{-1.47}$	408^{+29}_{-19}	4564^{+2642}_{-922}	8855^{+51833}_{-6437}
Alt.	-156±40	$2.79^{+1.89}_{-1.71}$	407^{+30}_{-20}	4296^{+2188}_{-736}	6551^{+37038}_{-4365}

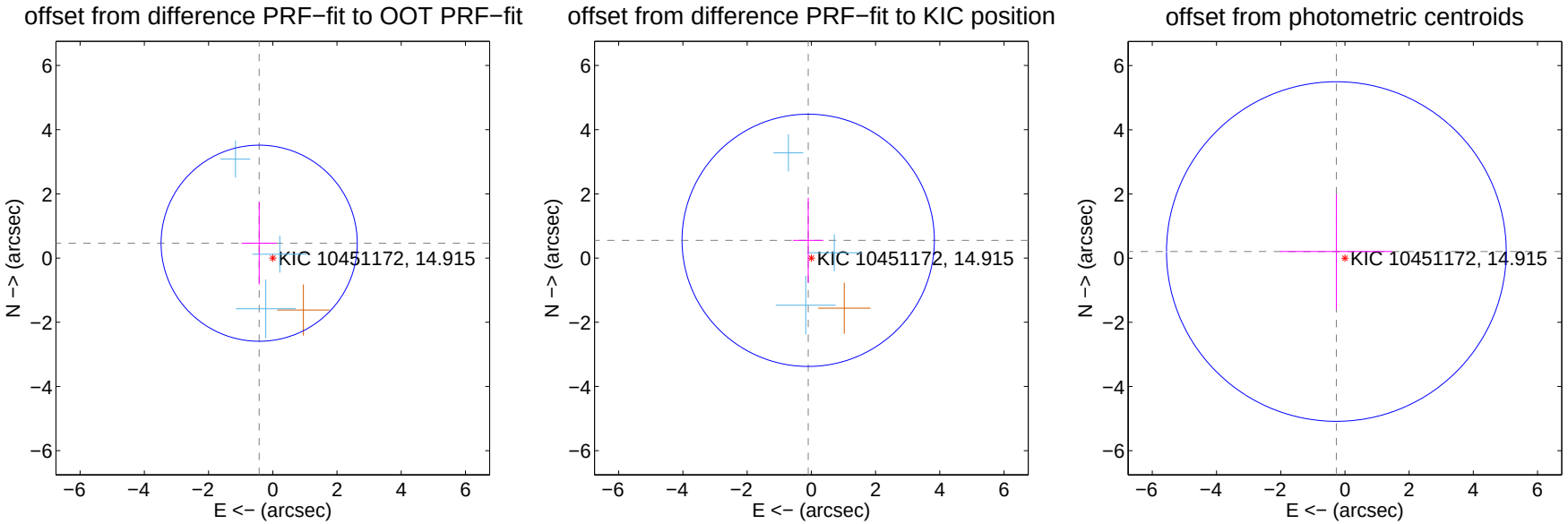
T_{max} = Theoretical Maximum Planetary Temperature
T_{obs} = Observed Planetary Temperature (Assuming A=0.3)
A_{obs} = Observed Albedo (Assuming T=0)

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

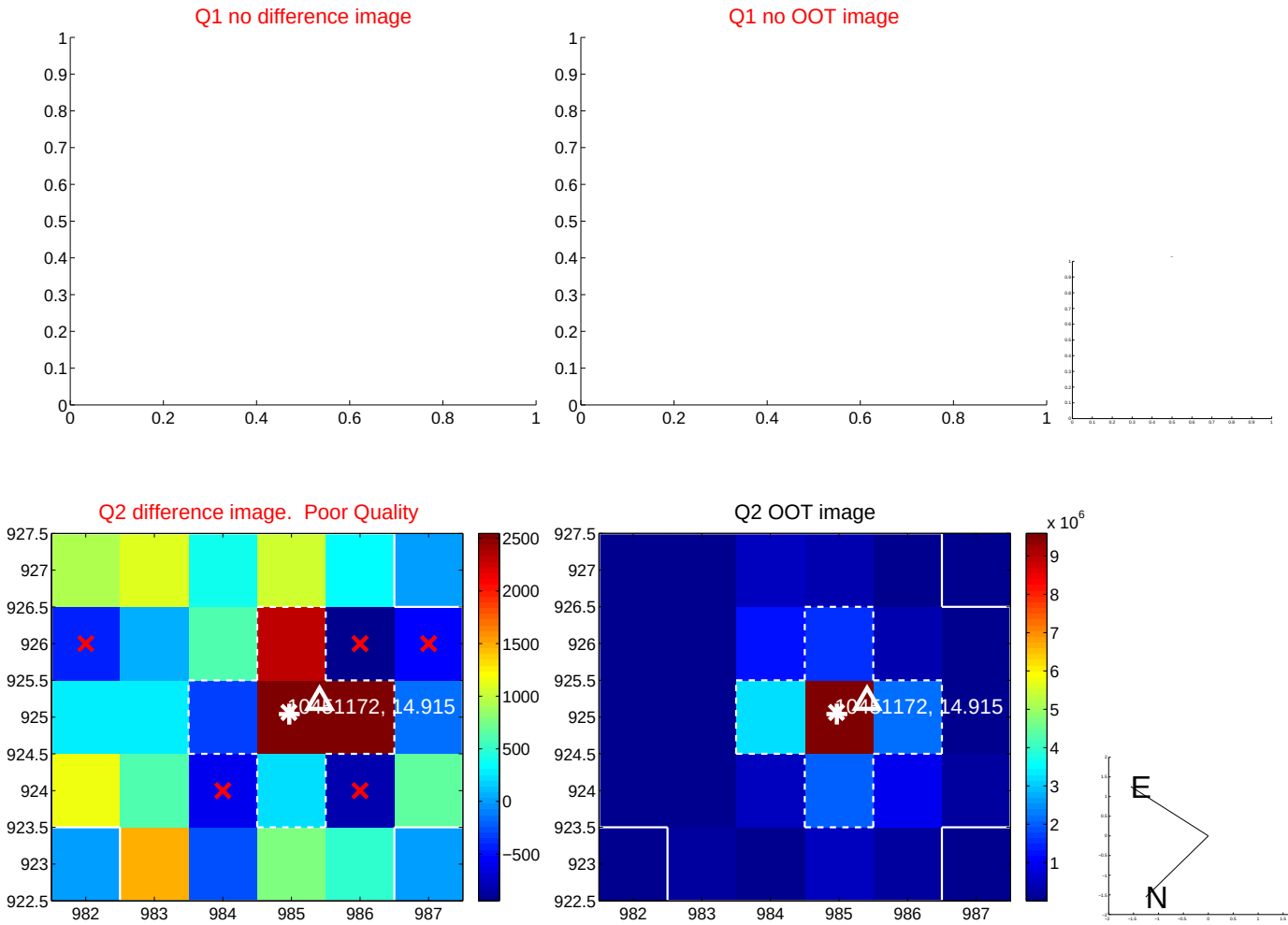
Supplemental centroid analysis for 010451172-01. Kepler magnitude: 14.91. Transit SNR 7.74
There are 3 quarters with good PRF difference image offsets
The direct PRF centroid is offset from the target star catalog position by about 0.50 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.627 $\pm$ 1.018	0.62	0.423 $\pm$ 0.550	0.462 $\pm$ 1.285
PRF-fit source offset from KIC position	0.561 $\pm$ 1.309	0.43	0.098 $\pm$ 0.474	0.552 $\pm$ 1.327
photometric centroid source offset	0.34 $\pm$ 1.76	0.19	0.27 $\pm$ 1.75	0.21 $\pm$ 1.79



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



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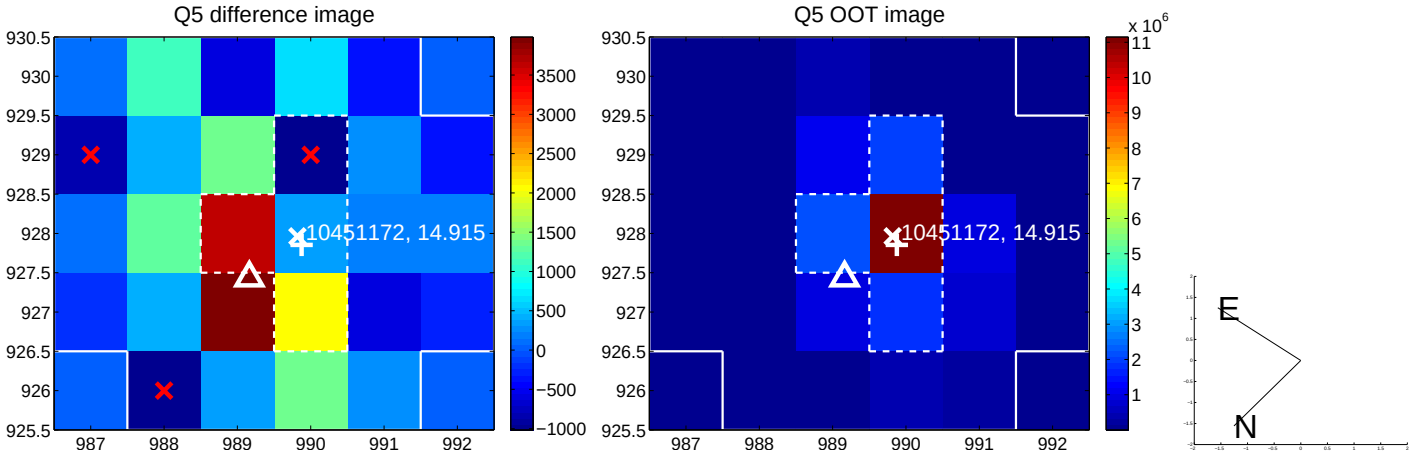
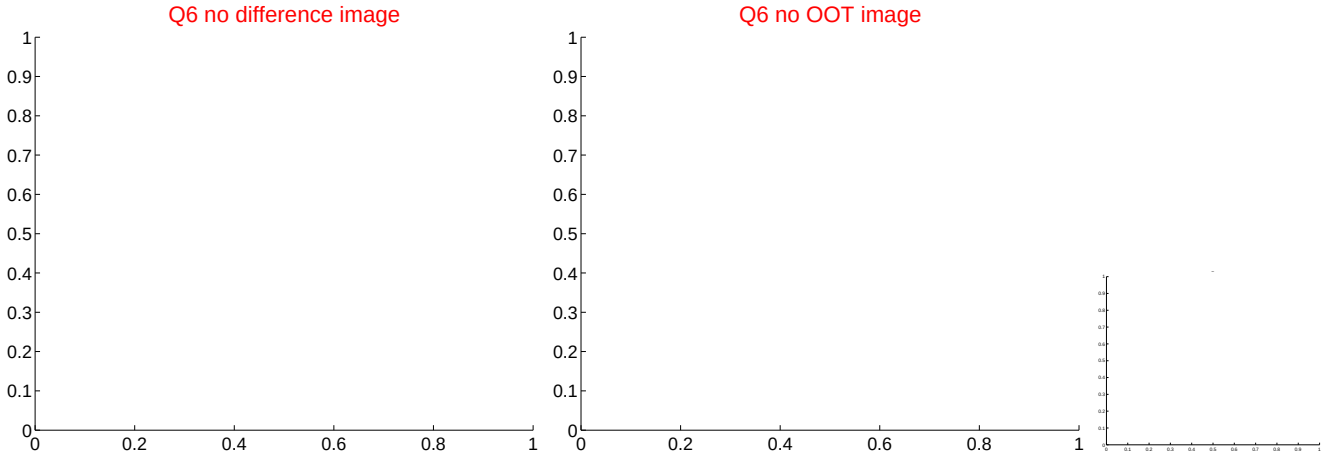
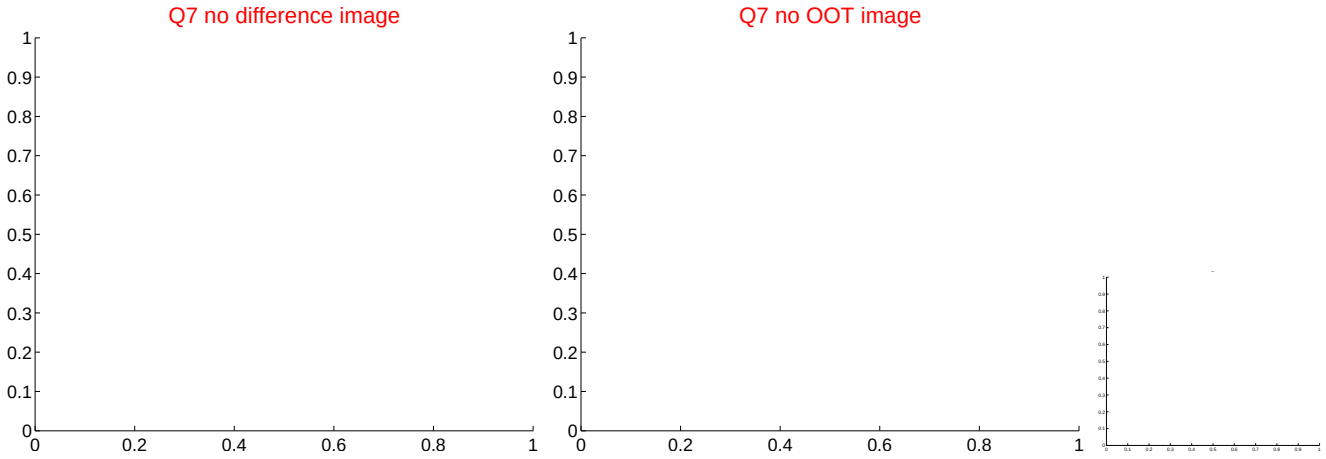
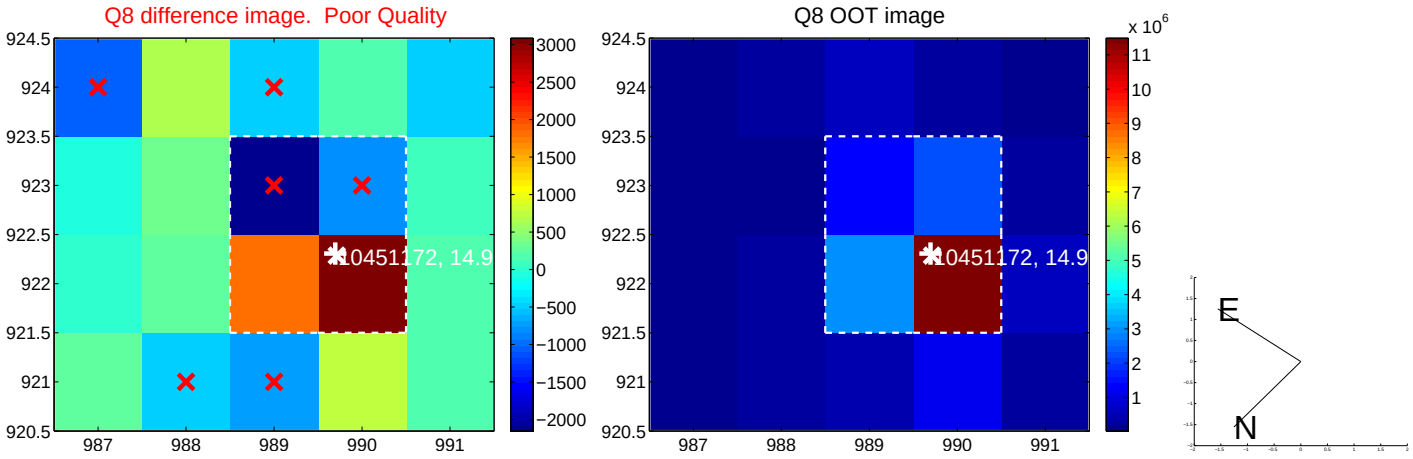
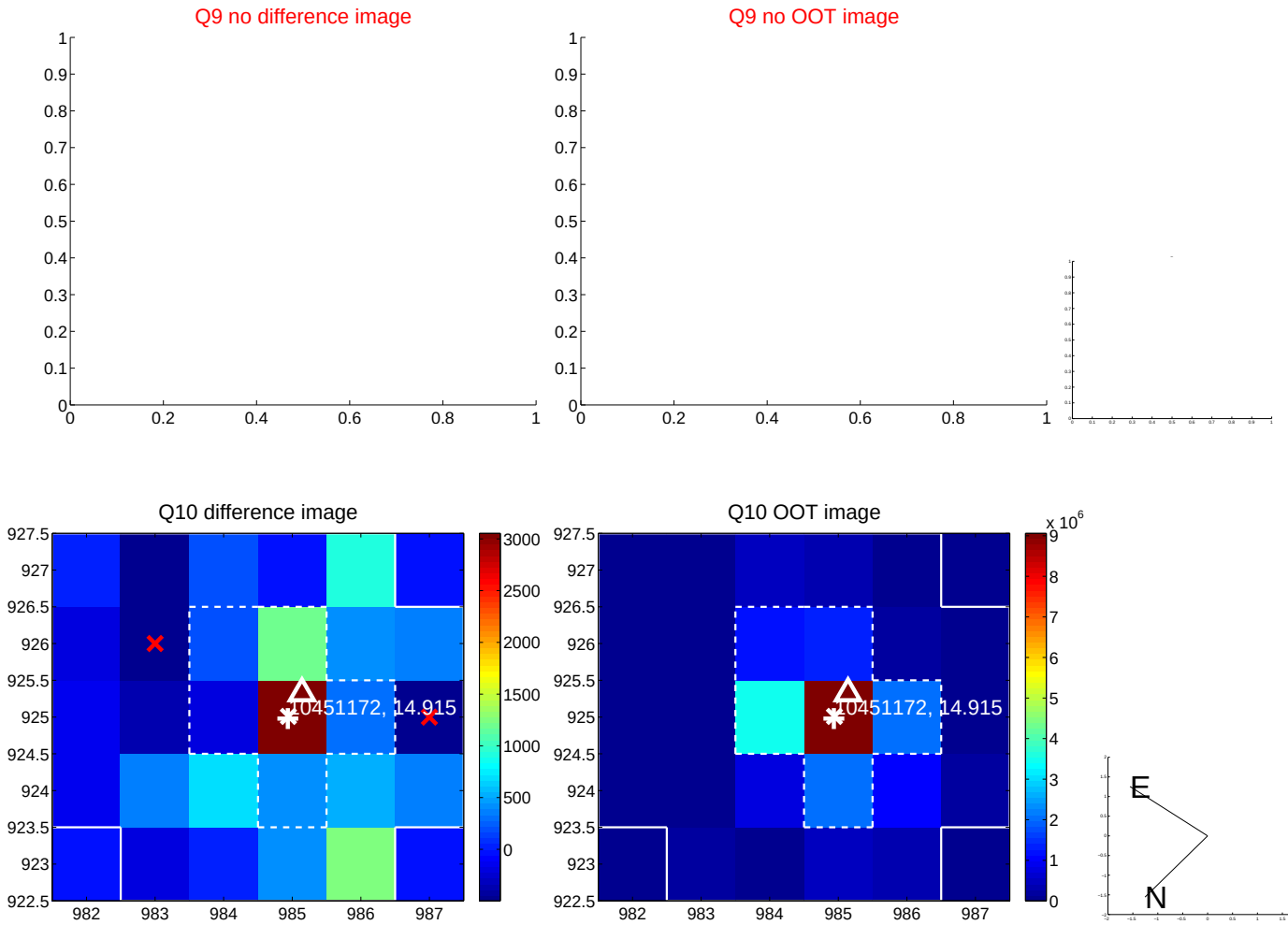




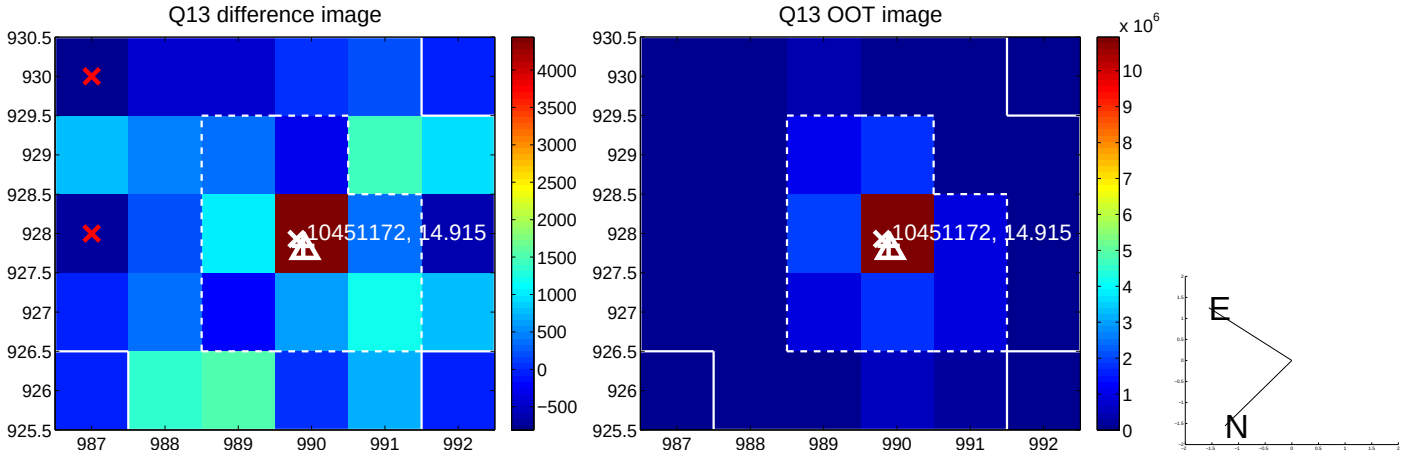


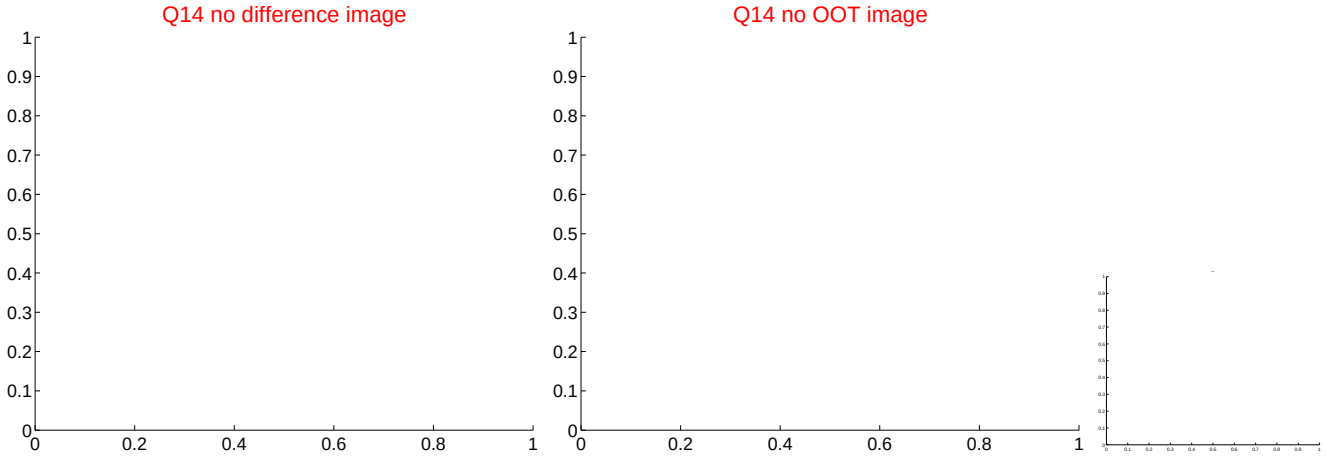


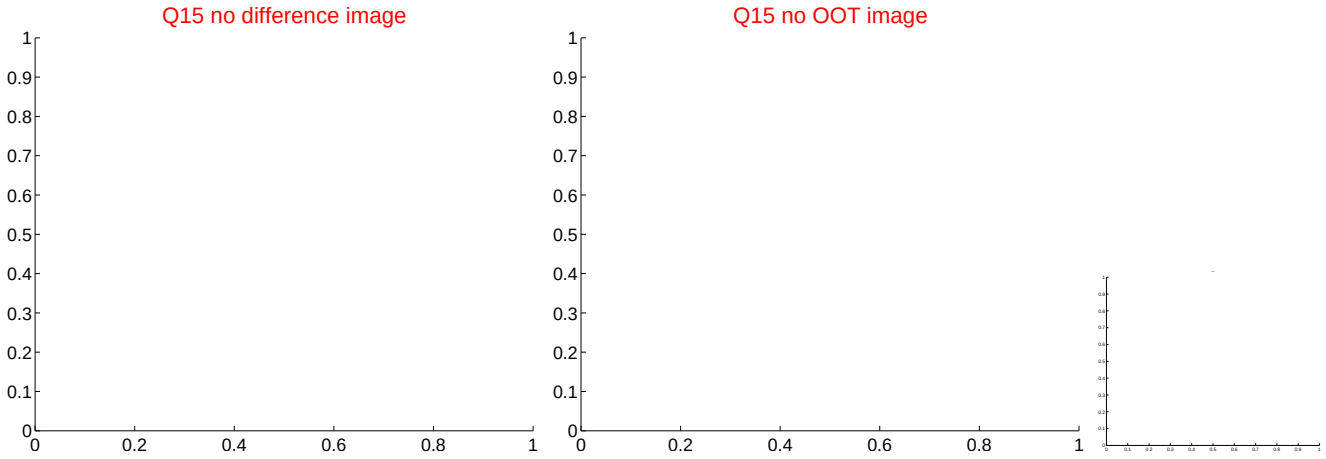
white ×: KIC target position; +: OOT centroid; △: difference centroid. red ×: large negative pixel value.

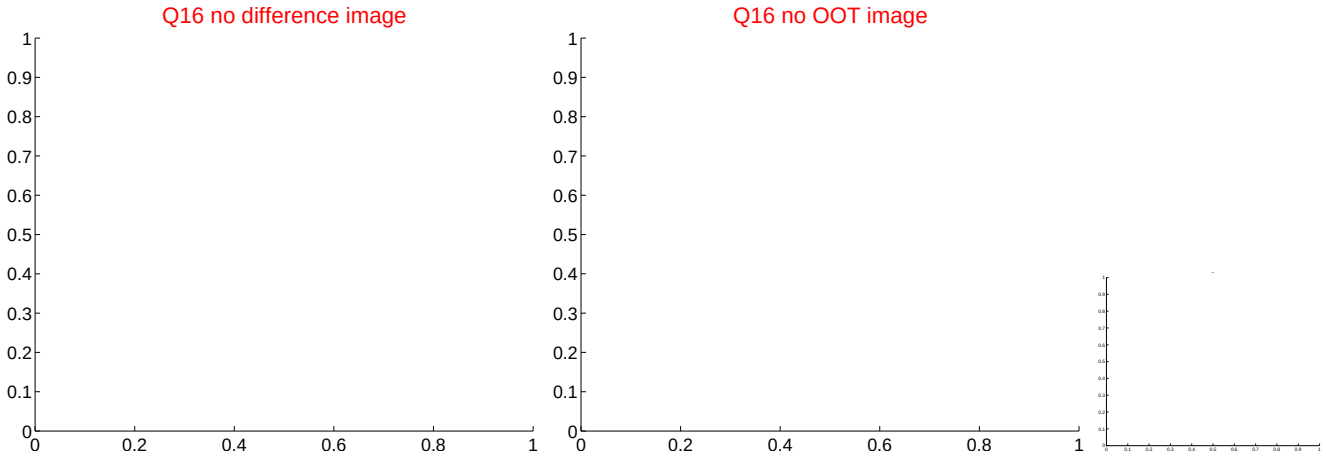


white ×: KIC target position; +: OOT centroid; △: difference centroid. red ×: large negative pixel value.

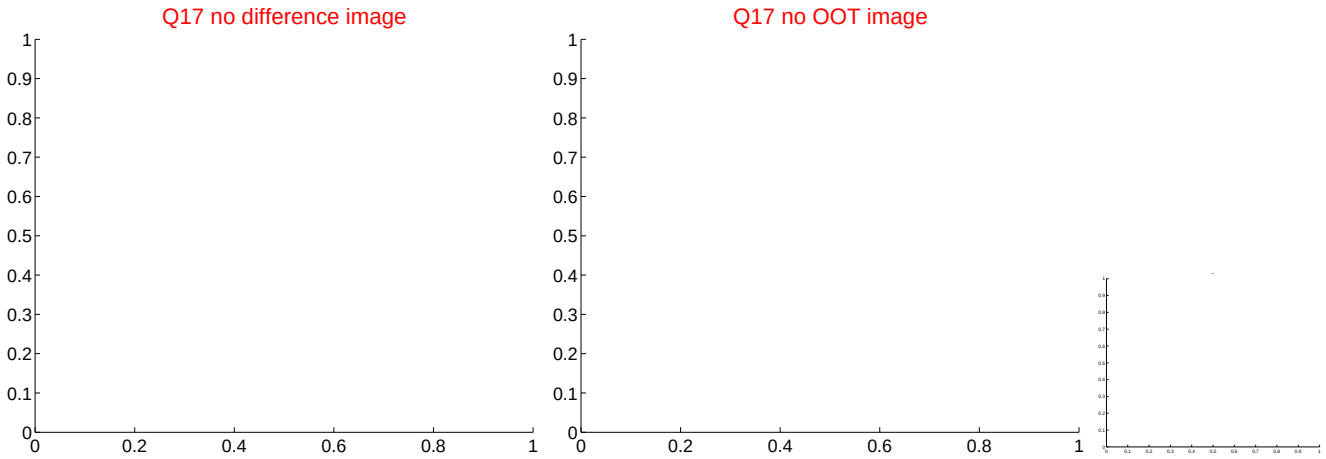


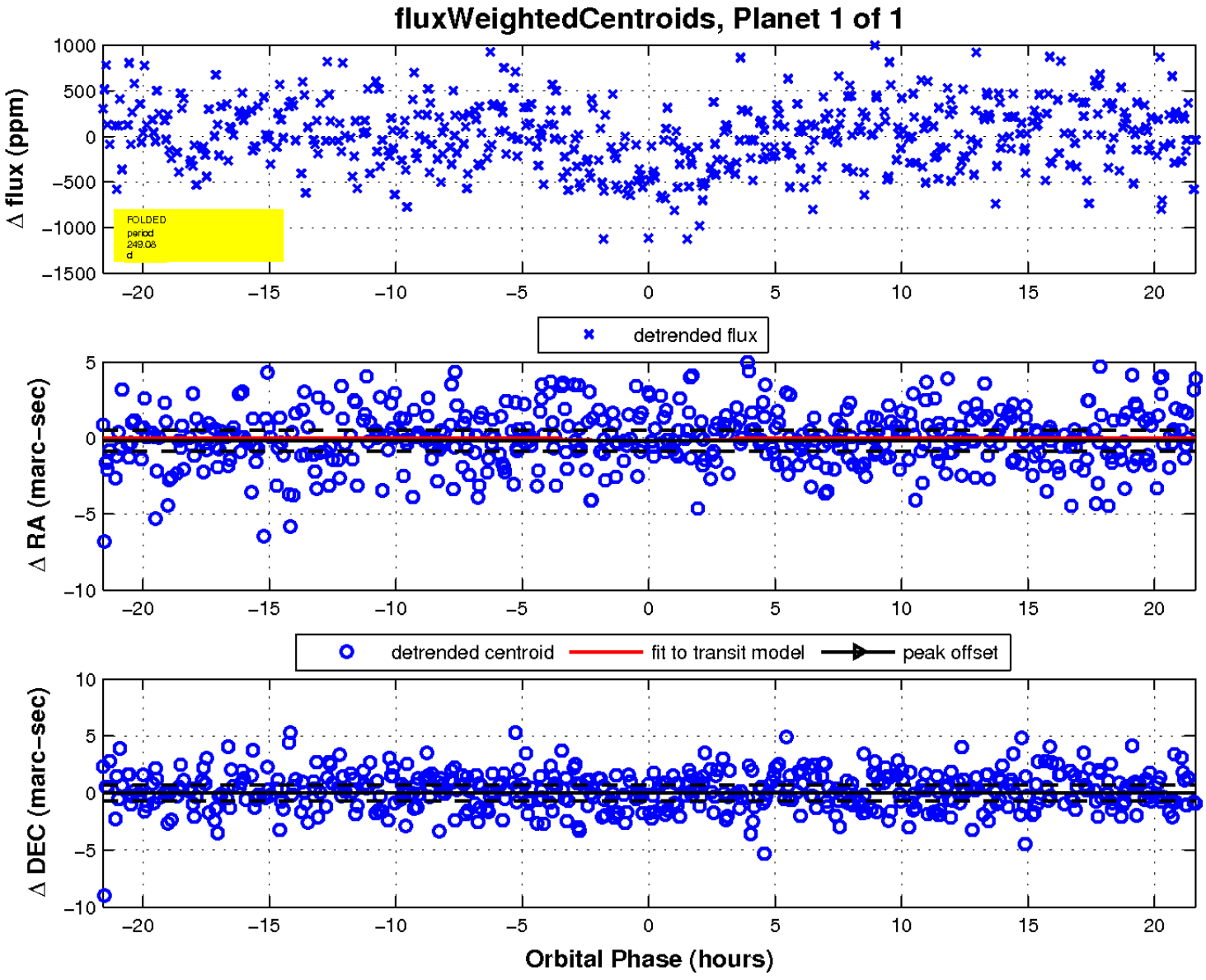






white ×: KIC target position; +: OOT centroid; △: difference centroid. red ×: large negative pixel value.





UKIRT Image

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