KIC 009137907

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 ($S_\oplus$)
009137907-01	OBS	No	362.305955	381.042035	190.4	15.508	7.4	6.4	0.97	5780	1.44	1.01

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
009137907-01	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL_SKYE—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_KIC_POS

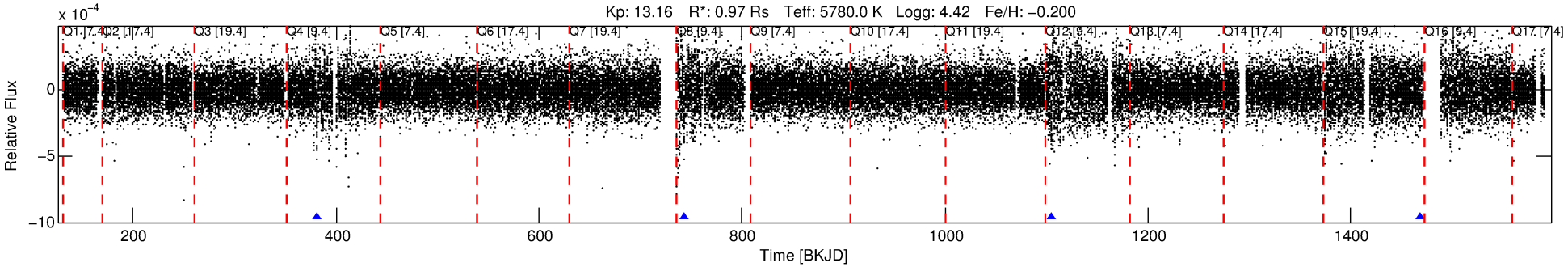
Notes: OBS = Observed. INJ = Injected. INV = Inverted. SCR = Scrambled.
N = Not Transit-Like. S = Stellar Eclipse. C = Centroid Offset. E = Ephemeris Match.
See `http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col` for comment definitions.

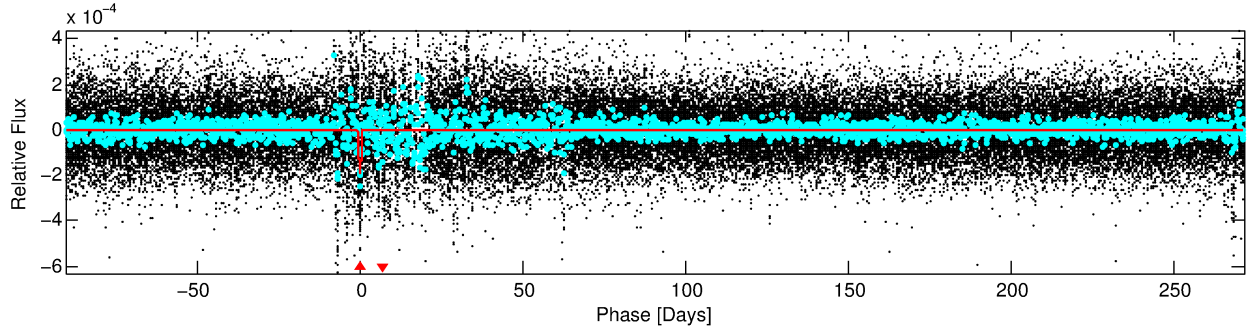
Ephemeris Match Information For 009137907-01

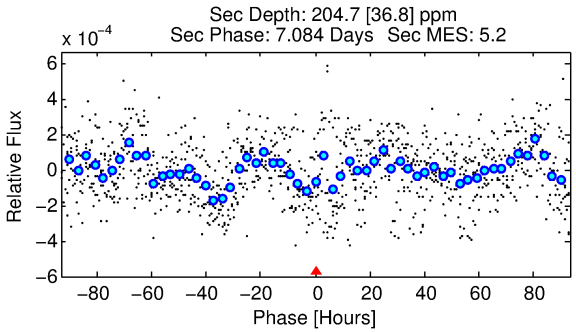
No Significant Match Found

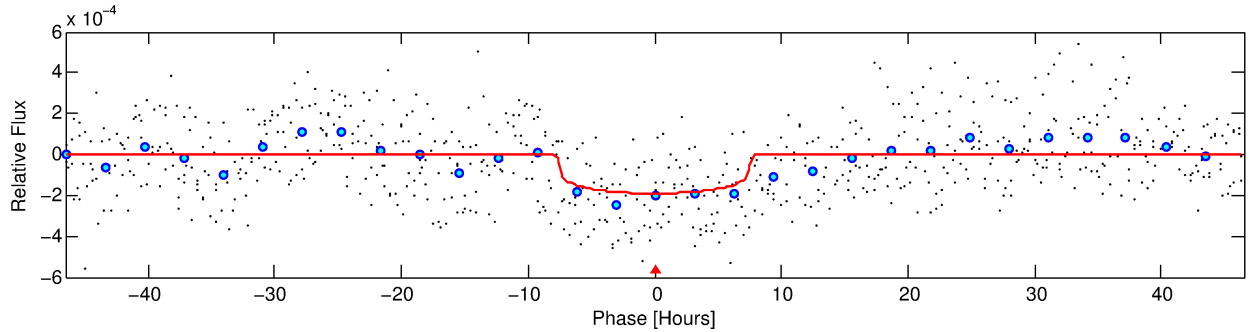
DV One-Page Summary

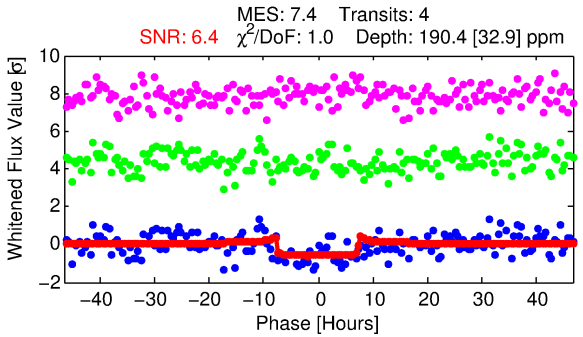
KIC: 9137907 Candidate: 1 of 1 Period: 362.306 d

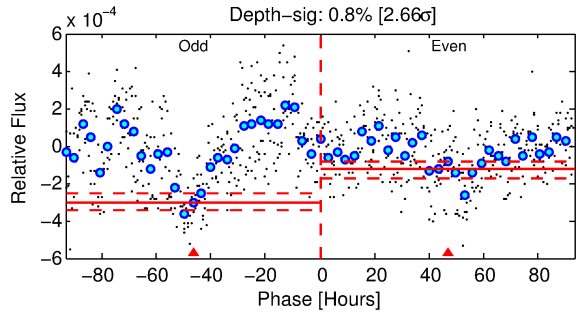


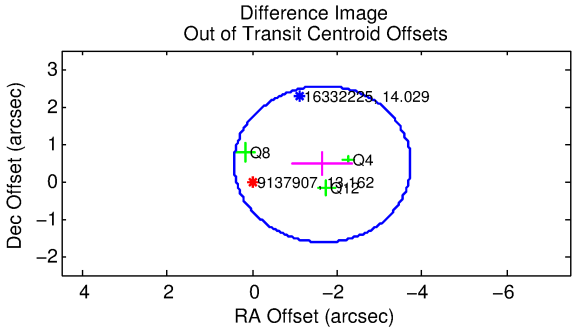












DV Fit Results:

Period = 362.30595 [0.00910] d
Epoch = 381.0420 [0.0178] BKJD
Rp/R* = 0.0137 [0.0047]
a/R* = 124.13 [184.19]
b = 0.74 [0.93]

Seff = 1.01 [0.36]
Teq = 256 [23] K
Rp = 1.44 [0.62] Re
a = 0.9595 [0.2204] AU

Ag = 49979.72 [39117.66] [1.28σ]
Teffp = 5915 [1055] K [5.36σ]

DV Diagnostic Results:

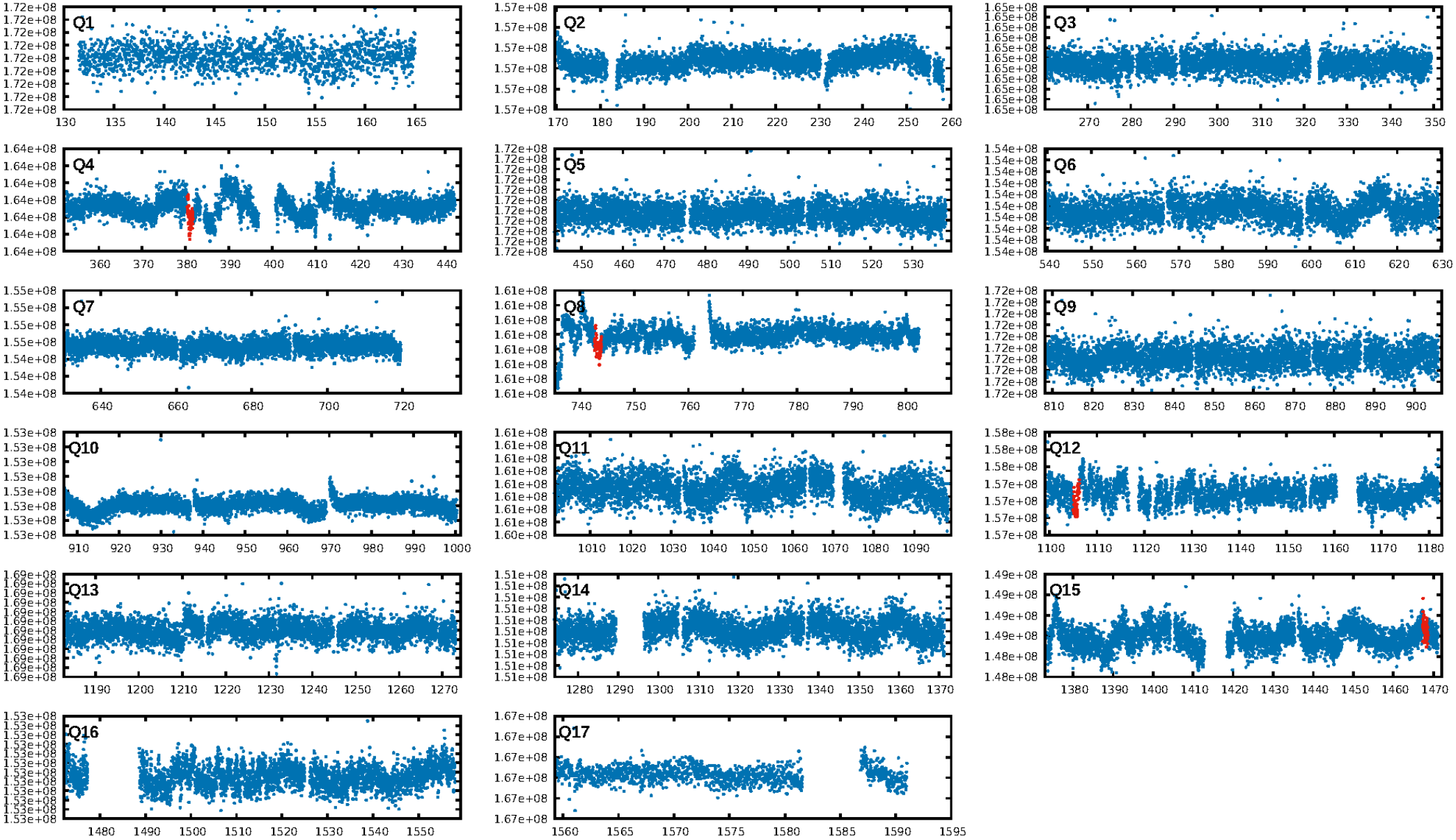
ShortPeriod−sig: N/A
LongPeriod−sig: N/A
ModelChiSquare2−sig: 0.4%
ModelChiSquareGof−sig: 99.5%
Bootstrap−pfa: 3.82e−09
RollingBand−fgt: 1.00 [4/4]
GhostDiagnostic−chr: 6.079

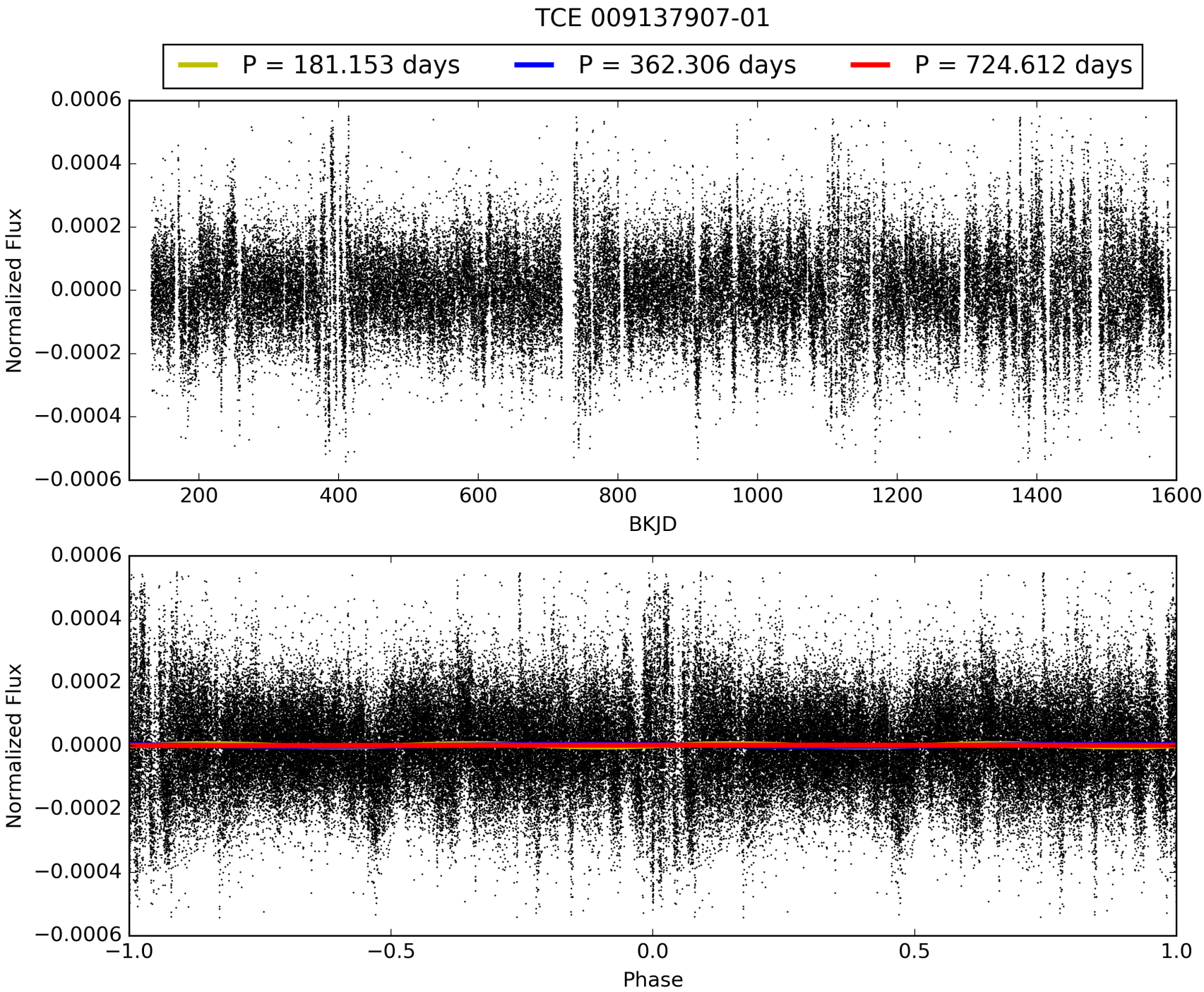
Centroid−sig: 50.1%
Centroid−so: 0.506 arcsec [0.50σ]
OotOffset−rm: 1.726 arcsec [2.48σ]
KicOffset−rm: 1.739 arcsec [2.65σ]
OotOffset−st: 0/0/3/0 [3]
KicOffset−st: 0/0/3/0 [3]
DiffImageQuality−fgm: 1.00 [3/3]
DiffImageOverlap−fno: 1.00 [4/4]

Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 31−Jan−2016 22:02:20 Z

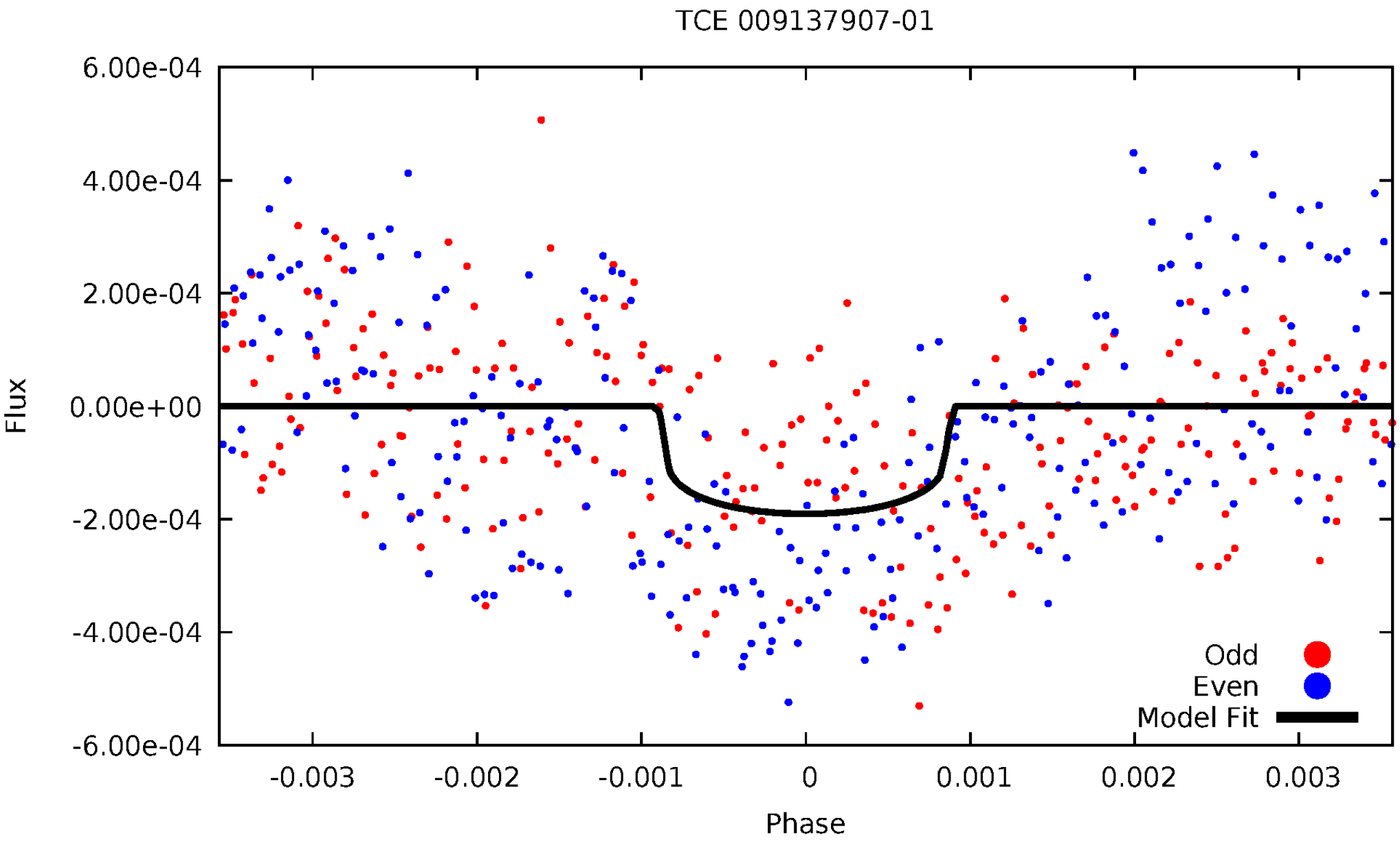
This Data Validation Report Summary was produced in the Kepler Science Operations Center Pipeline at NASA Ames Research Center

TCE 009137907-01, PDC Light Curves

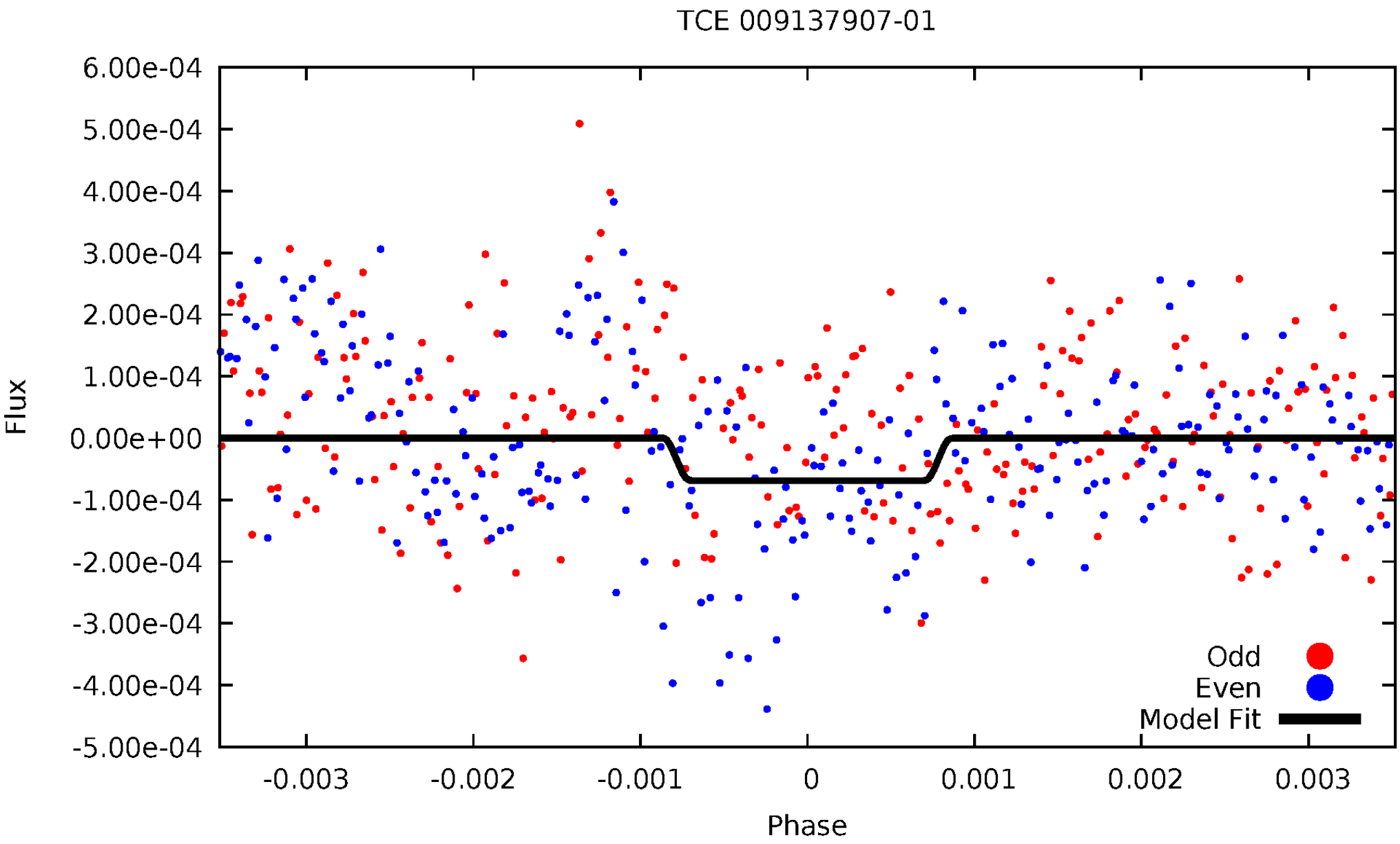



TCE 009137907-01
P = 181.153 days
P = 362.306 days
P = 724.612 days
Normalized Flux
0.0006
0.0004
0.0002
0.0000
−0.0002
−0.0004
−0.0006
200
400
600
800
1000
1200
1400
1600
BKJD
Normalized Flux
0.0006
0.0004
0.0002
0.0000
−0.0002
−0.0004
−0.0006
−1.0
−0.5
0.0
0.5
1.0
Phase

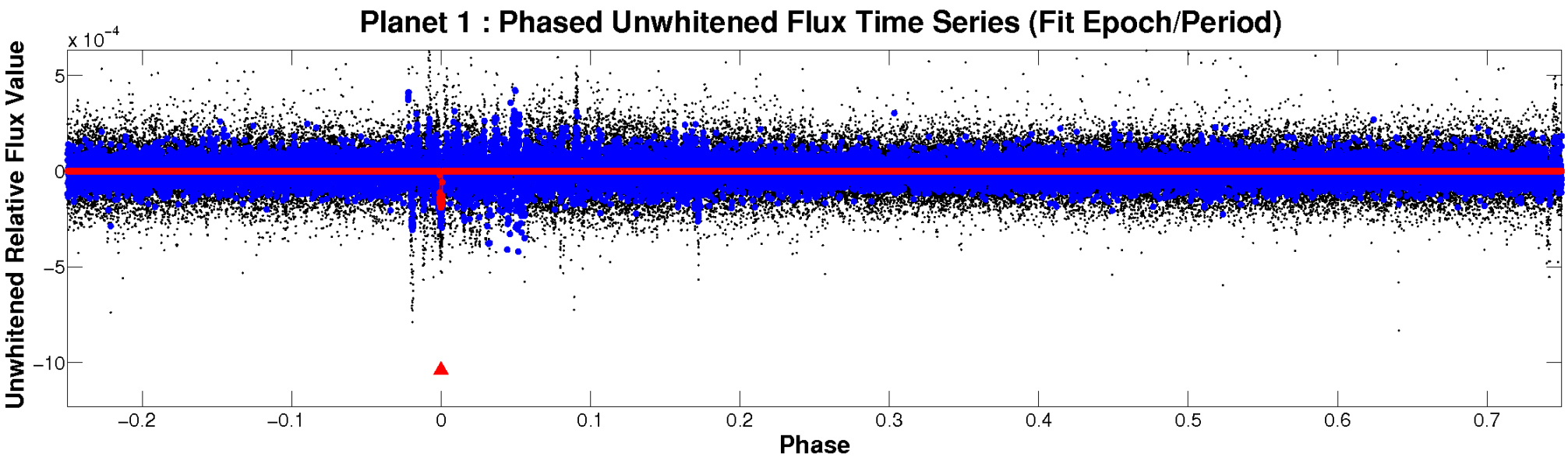
DV Odd/Even

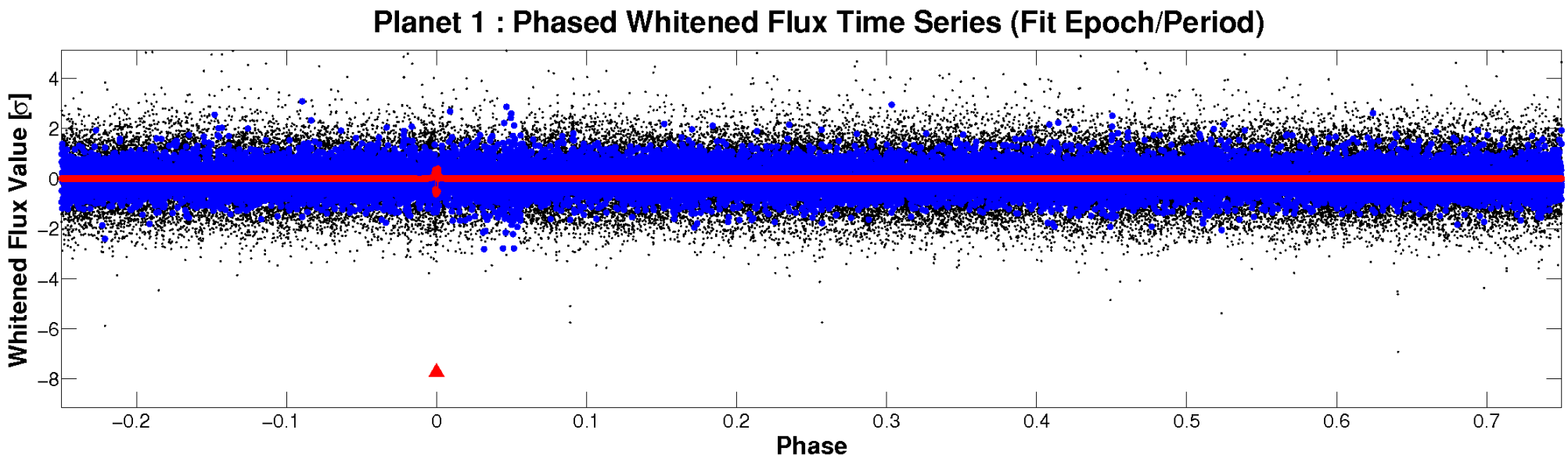

TCE 009137907-01
6.00e-04
4.00e-04
2.00e-04
0.00e+00
-2.00e-04
-4.00e-04
-6.00e-04
Flux
-0.003
-0.002
-0.001
0
0.001
0.002
0.003
Phase
Odd
Even
Model Fit

ALT Odd/Even


TCE 009137907-01
6.00e-04
5.00e-04
4.00e-04
3.00e-04
2.00e-04
1.00e-04
0.00e+00
-1.00e-04
-2.00e-04
-3.00e-04
-4.00e-04
-5.00e-04
Flux
-0.003
-0.002
-0.001
0
0.001
0.002
0.003
Phase
Odd
Even
Model Fit

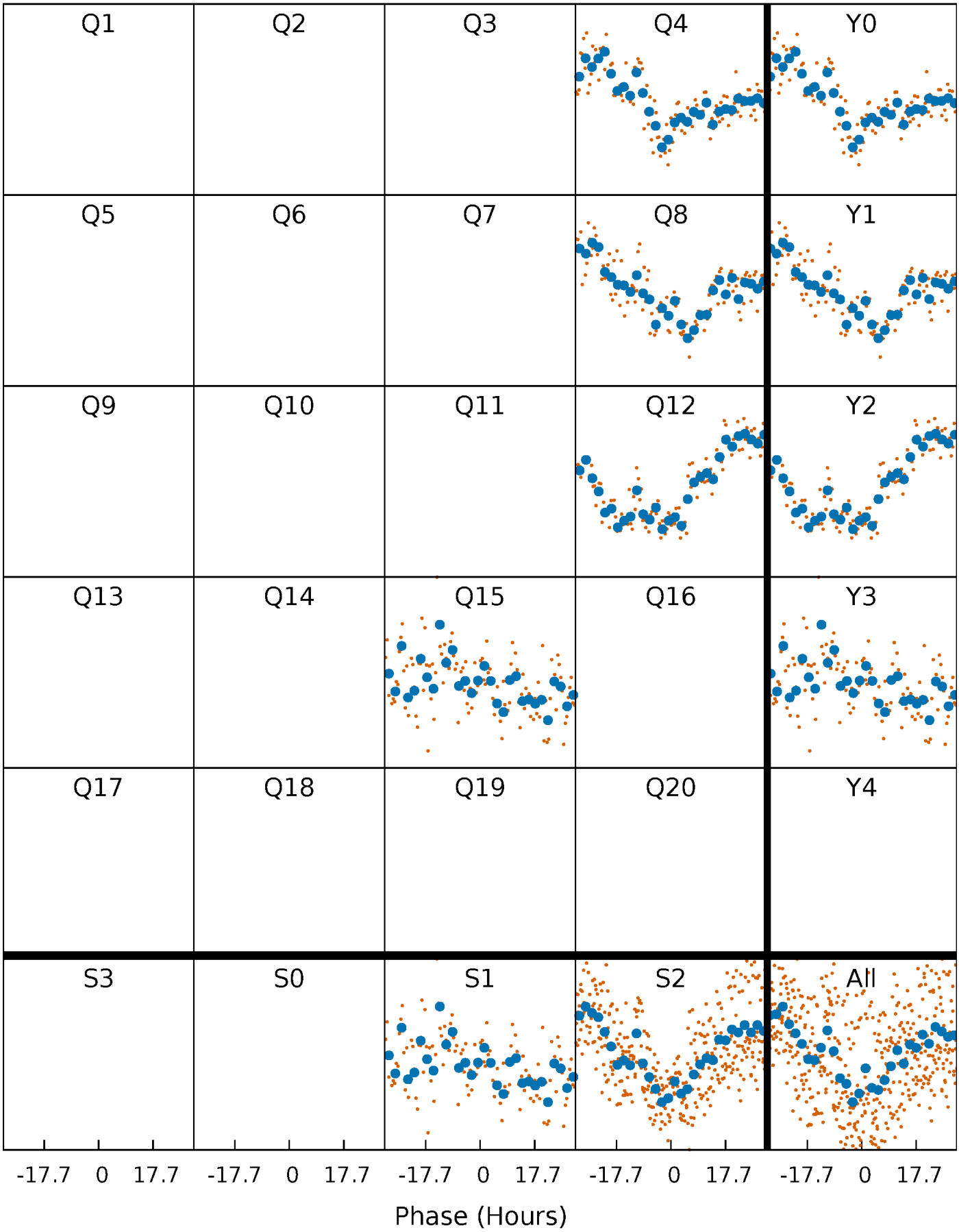
Non-Whitened Vs. Whitened Light Curve





PDC Quarter-Phased Transit Curves

TCE 009137907-01 P=362.305955 Days T_0=381.042035 (BKJD)

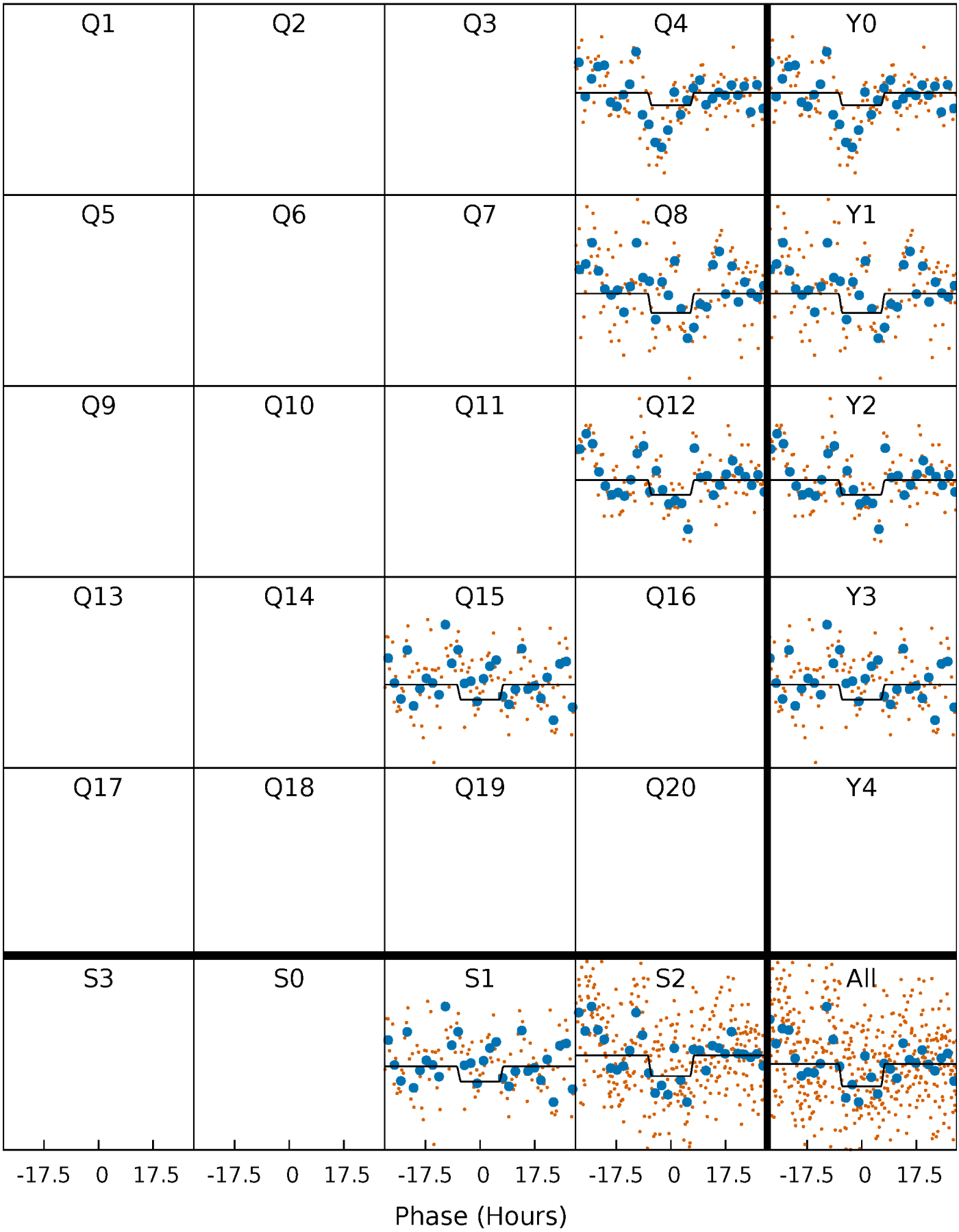


DV Quarter-Phased Transit Curves

TCE 009137907-01 P=362.305955 Days T_0=381.042035 (BKJD)

Alt. Detrend Quarter-Phased Transit Curves

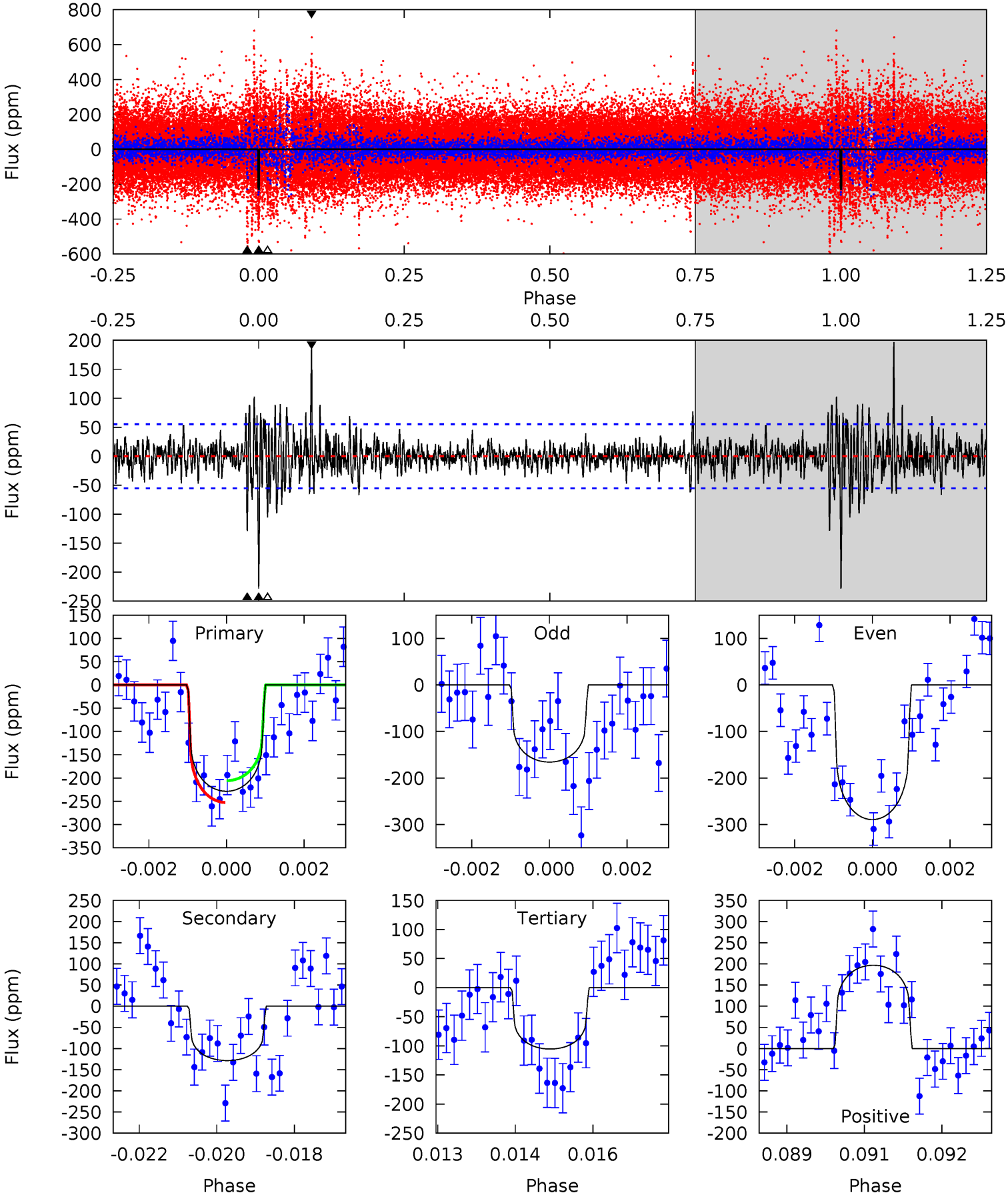
TCE 009137907-01 P=362.259774 Days T_0=381.091508 (BKJD)



DV Model-Shift Uniqueness Test

009137907-01, P = 362.305955 Days, E = 18.736080 Days

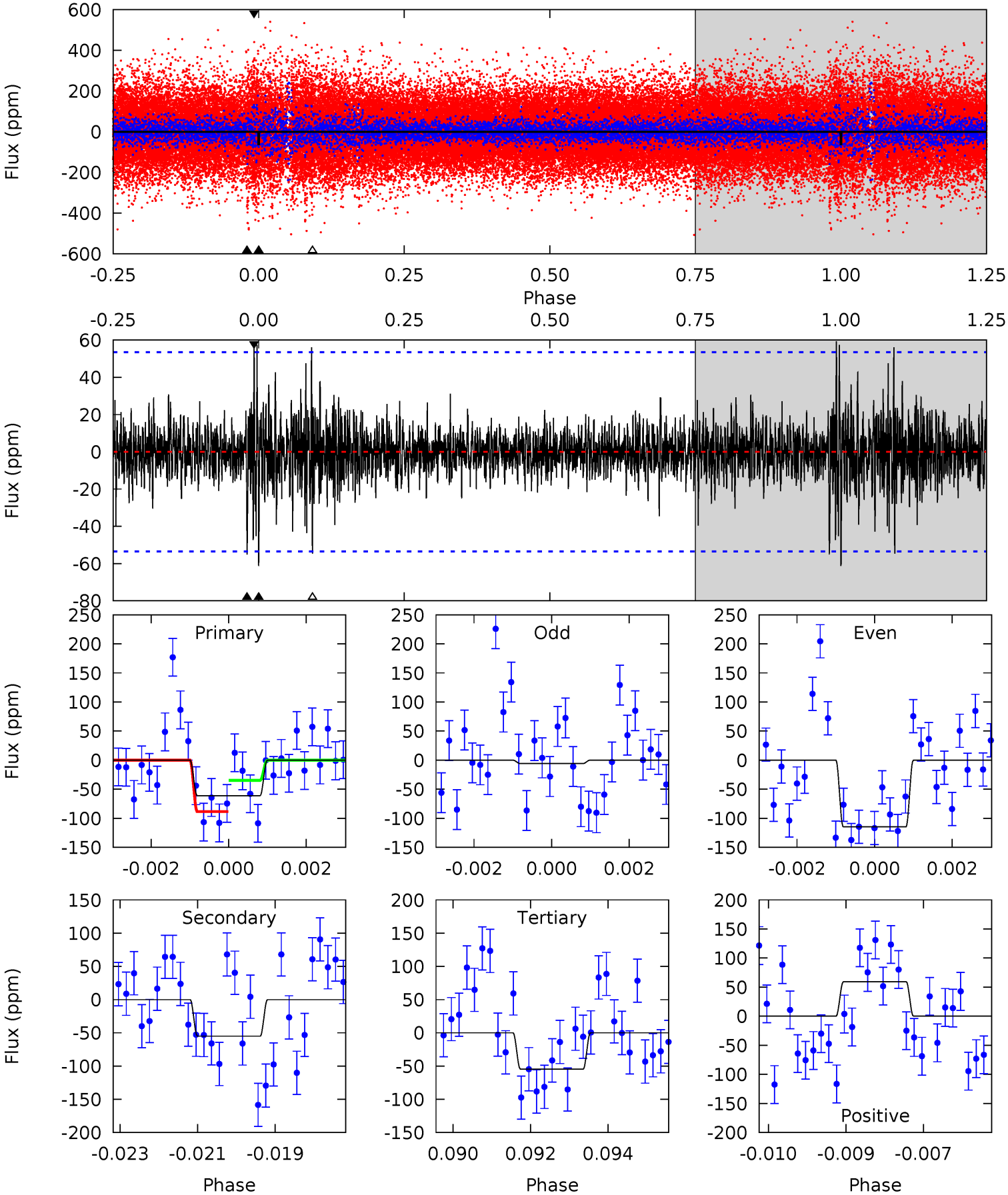
Pri	Sec	Ter	Pos	FA_1	FA_2	F_{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
22.1	12.4	10.2	19.0	5.34	3.12	2.10	11.9	3.07	2.23	-6.60	5.93	0.80	0.46	2.27



Alt Model-Shift Uniqueness Test

009137907-01, P = 362.259774 Days, E = 18.831734 Days

Pri	Sec	Ter	Pos	FA_1	FA_2	F_{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
6.14	5.51	5.47	5.93	5.35	3.13	1.04	0.67	0.20	0.04	-0.42	5.47	1.01	0.49	2.70



Stellar Parameters For KIC 009137907

	$T_{\rm eff}(K)$	$\log(g)$	[Fe/H]	R ($R_\odot$)	$M(M_\odot)$	$p_\star$ (g·cm^{-3})
	5780^{+143}_{-158}	$4.421^{+0.116}_{-0.188}$	$-0.200^{+0.300}_{-0.300}$	$0.966^{+0.259}_{-0.139}$	$0.899^{+0.120}_{-0.087}$	$1.404^{+0.660}_{-0.684}$
	+2%/-3%	+3%/-4%	+150%/-150%	+27%/-14%	+13%/-10%	+47%/-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 009137907-01 / KOI

Detrend	Depth (ppm)	R_p ($R_\oplus$)	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	-129±10	$1.46^{+0.54}_{-0.50}$	361^{+24}_{-19}	5321^{+1141}_{-647}	30585^{+40371}_{-14536}
Alt.	-55±10	$0.91^{+0.58}_{-0.49}$	360^{+25}_{-18}	5422^{+2710}_{-967}	$33845^{+126616}_{-21434}$

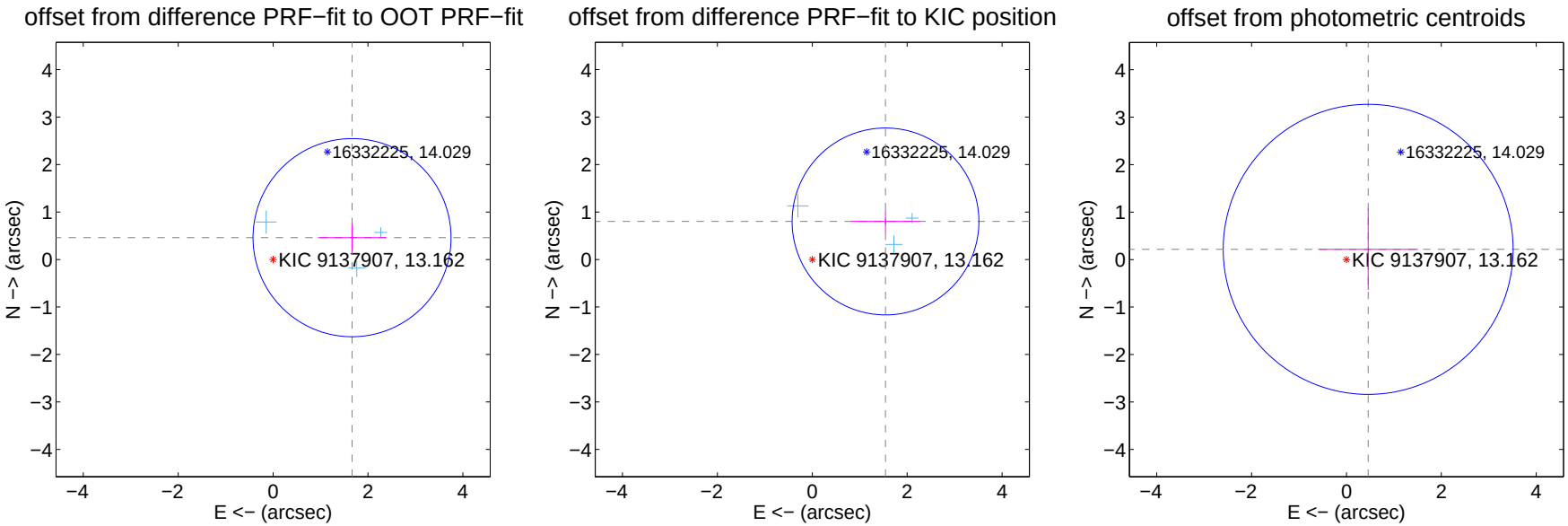
T_{max} = Theoretical Maximum Planetary Temperature
T_{obs} = Observed Planetary Temperature (Assuming A=0.3)
A_{obs} = Observed Albedo (Assuming T=0)

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

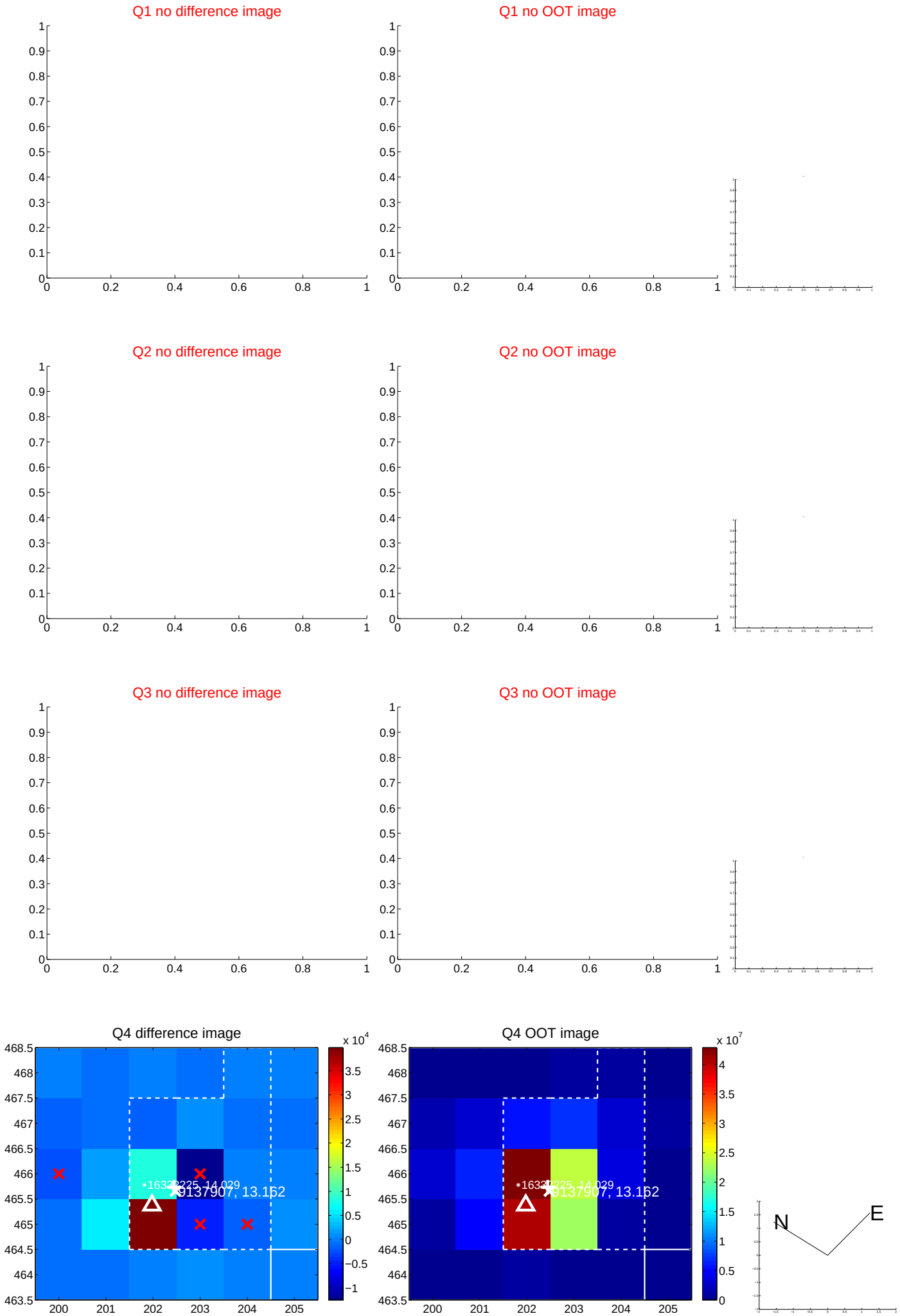
Supplemental centroid analysis for 009137907-01. Kepler magnitude: 13.16. Transit SNR 6.41
There are 3 quarters with good PRF difference image offsets
The direct PRF centroid is offset from the target star catalog position by about 0.50 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	1.726 ± 0.695	2.48	-1.663 ± 0.717	0.460 ± 0.294
PRF-fit source offset from KIC position	1.739 ± 0.656	2.65	-1.543 ± 0.729	0.801 ± 0.233
photometric centroid source offset	0.51 ± 1.02	0.50	-0.46 ± 1.05	0.22 ± 0.86

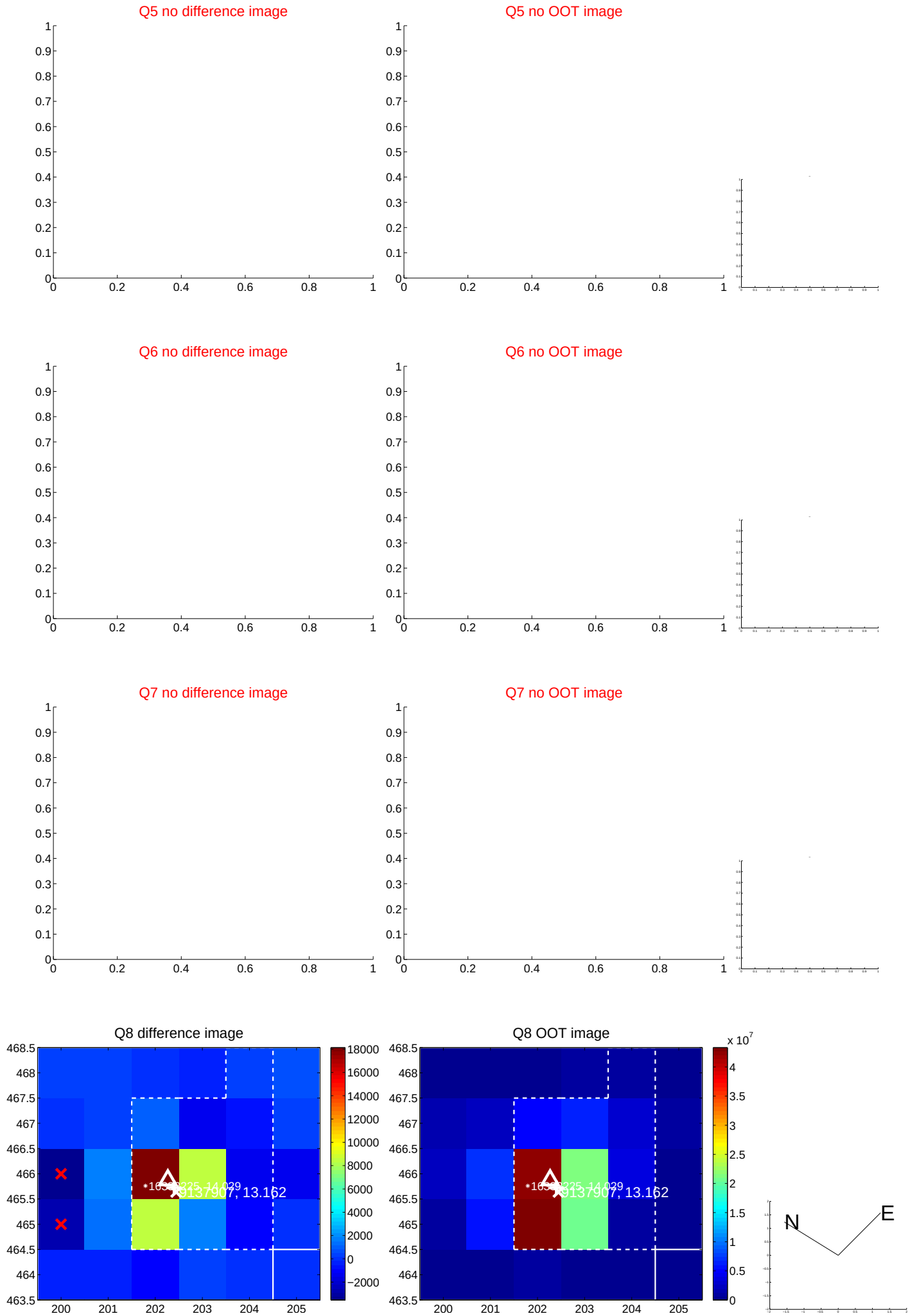


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one-σ uncertainty. Blue circle: three-σ. Red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

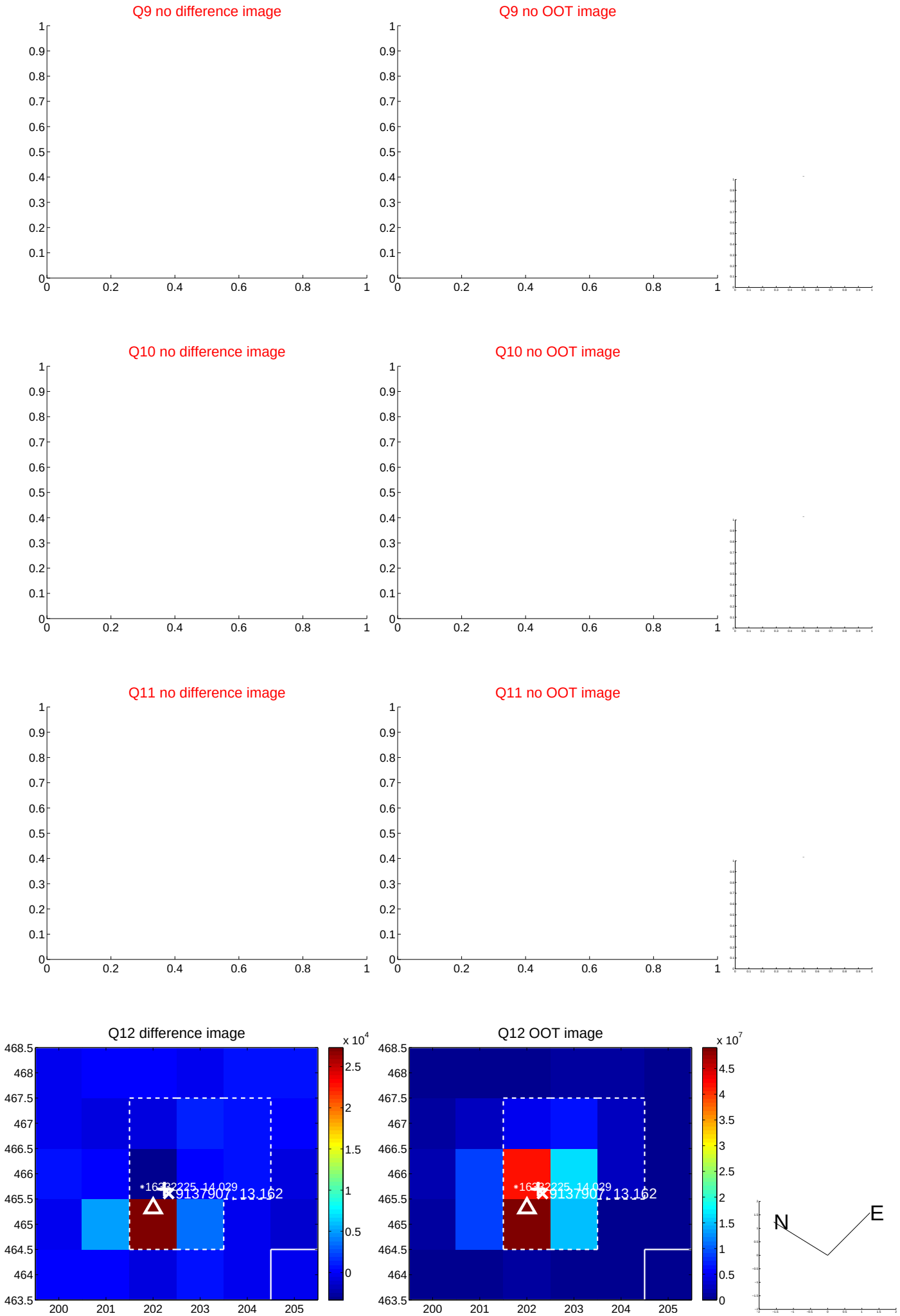
white ×: KIC target position; +: OOT centroid; △: difference centroid. red ×: large negative pixel value.



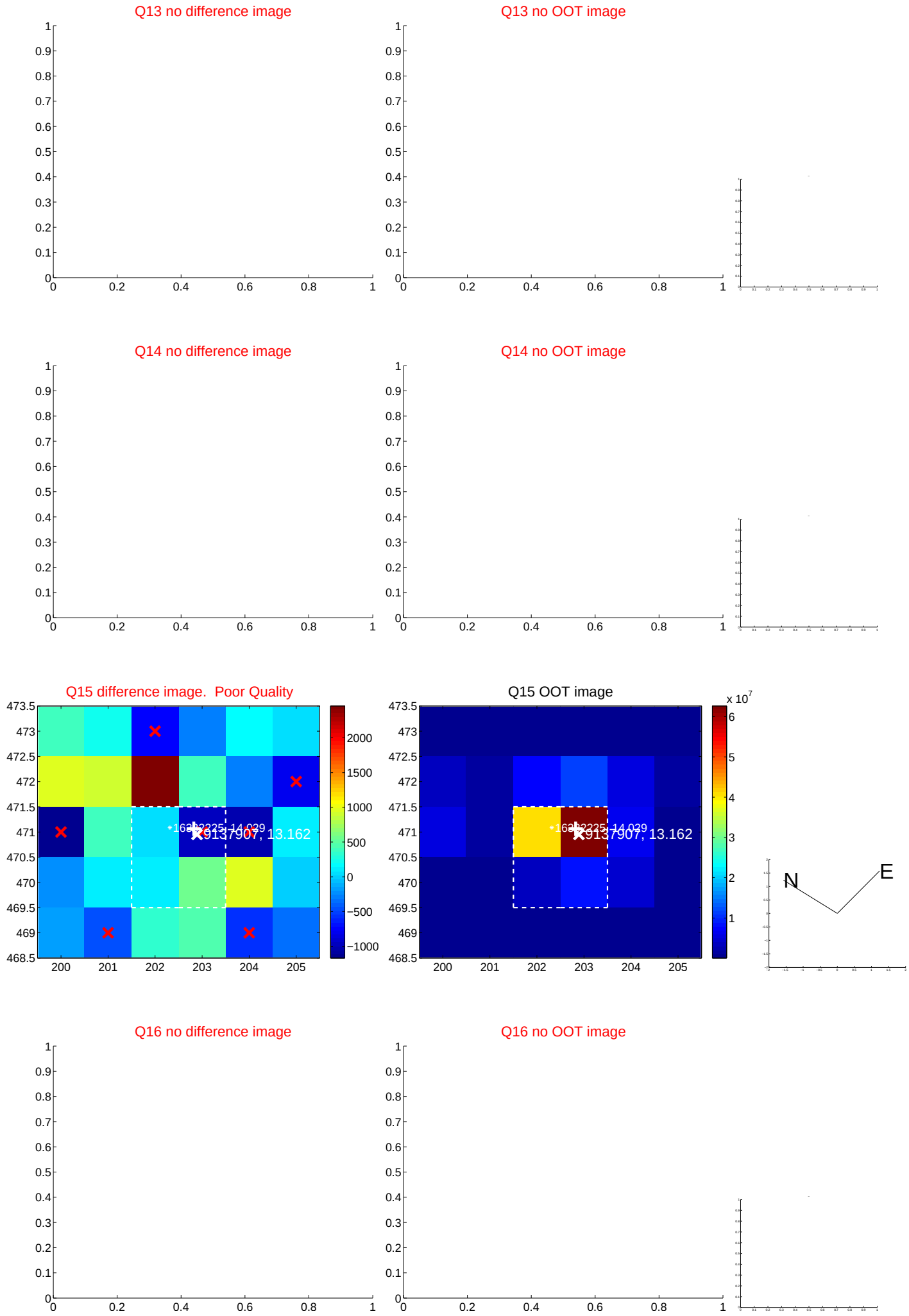
white ×: KIC target position; +: OOT centroid; △: difference centroid. red ×: large negative pixel value.



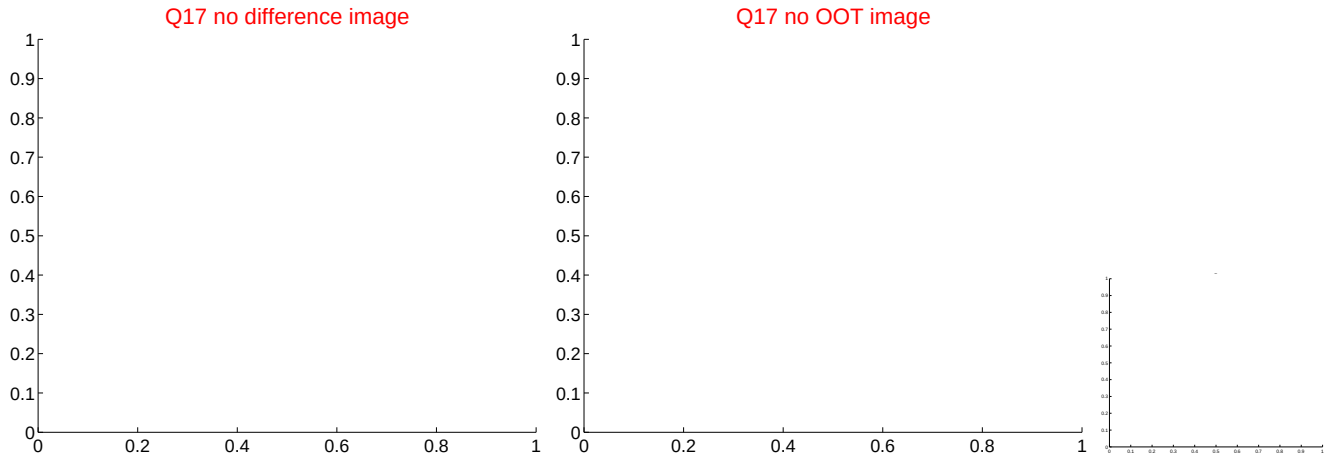
white ×: KIC target position; +: OOT centroid; △: difference centroid. red ×: large negative pixel value.

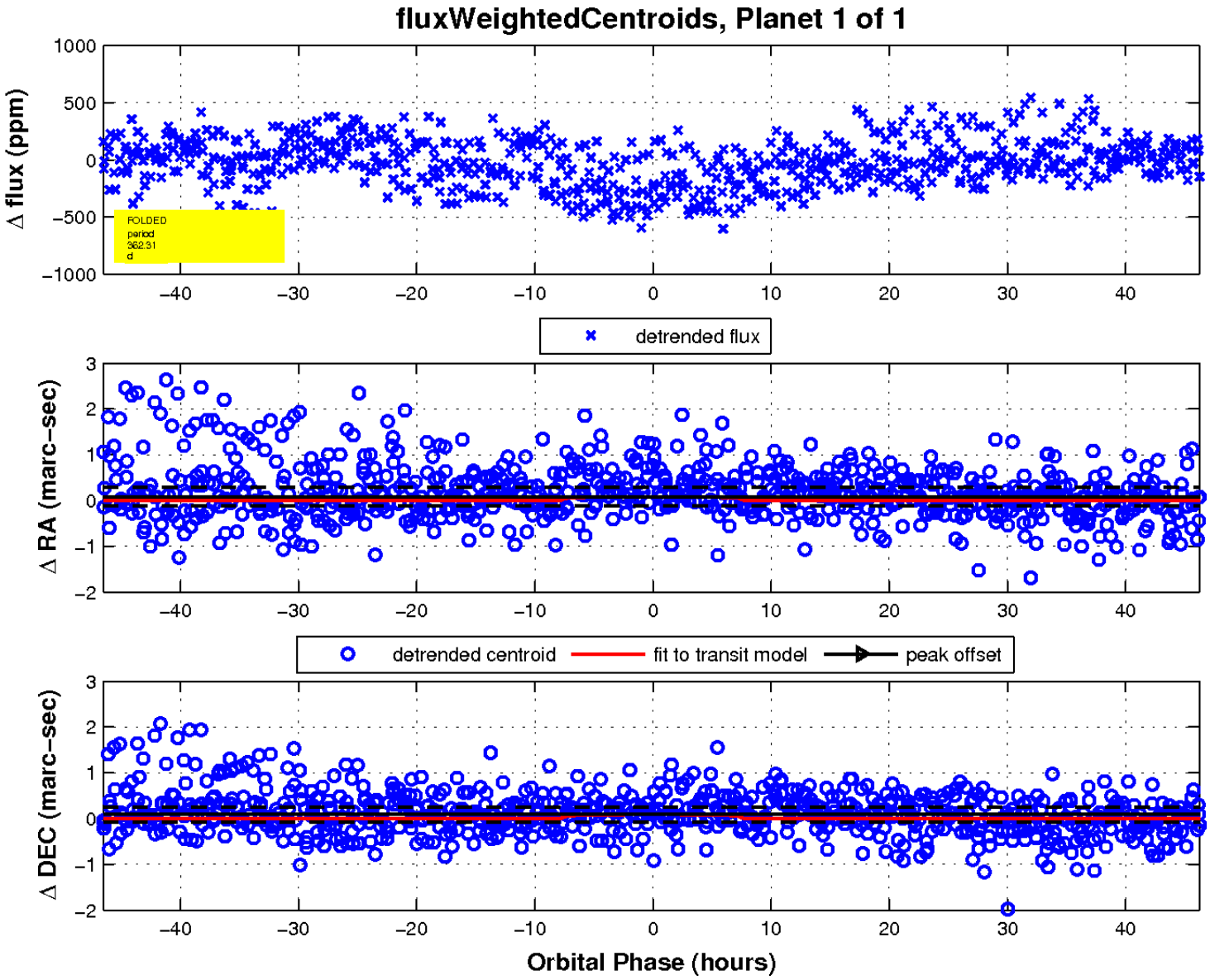


white ×: KIC target position; +: OOT centroid; △: difference centroid. red ✕: large negative pixel value.

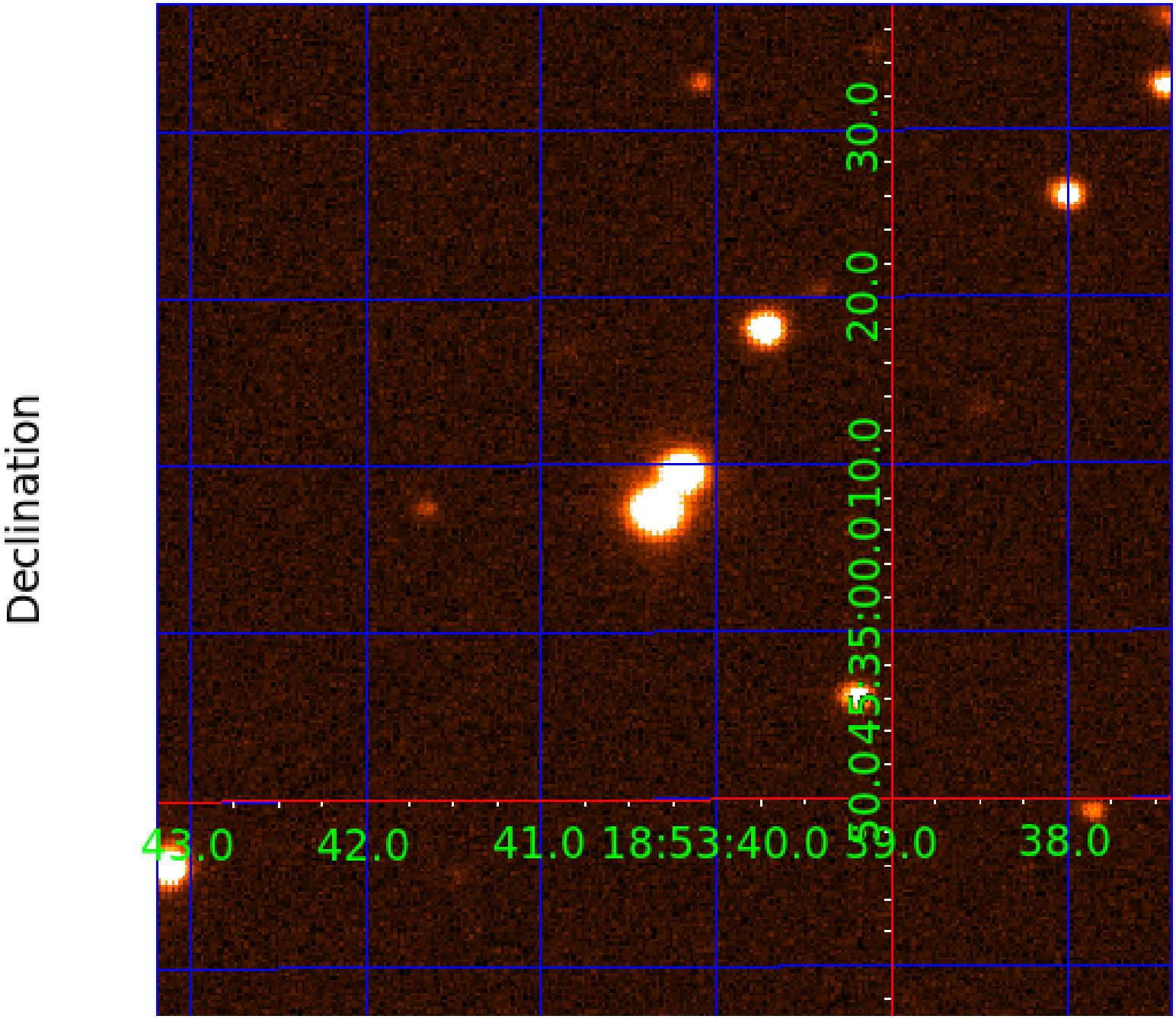


white ×: KIC target position; +: OOT centroid; △: difference centroid. red ×: large negative pixel value.





UKIRT Image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