KIC 009140402

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 ($S_\oplus$)
009140402-01	OBS	0928.01	2.494167	133.440873	506.7	2.170	37.2	44.1	0.83	5569	2.54	482.10

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
009140402-01	OBS	PC	1.00	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.

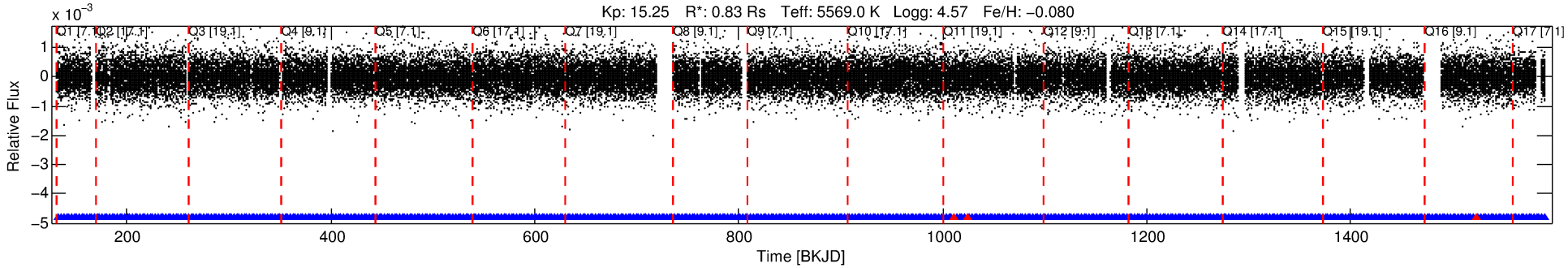
Ephemeris Match Information For 009140402-01

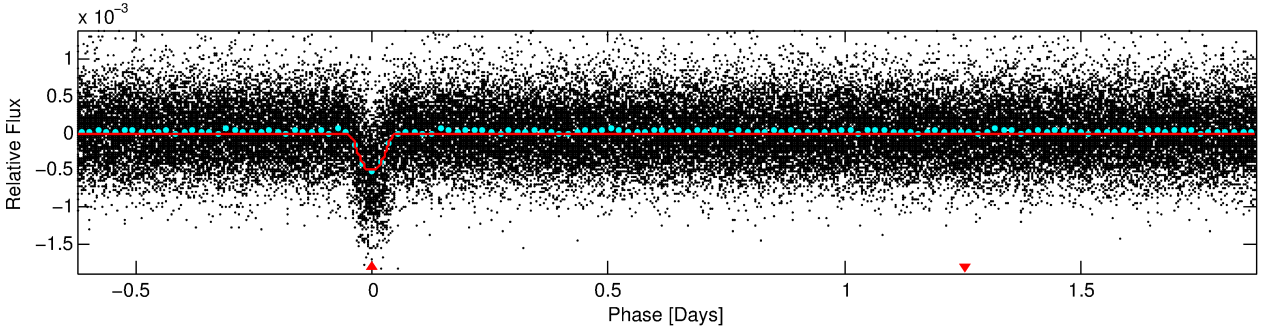
No Significant Match Found

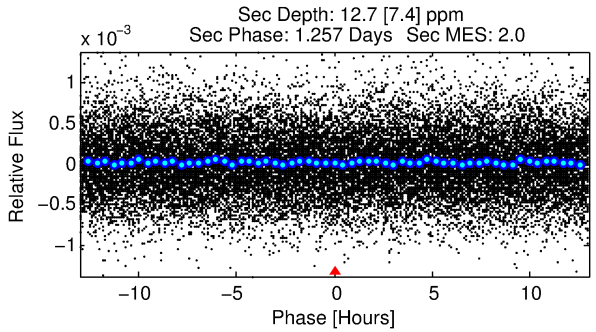
DV One-Page Summary

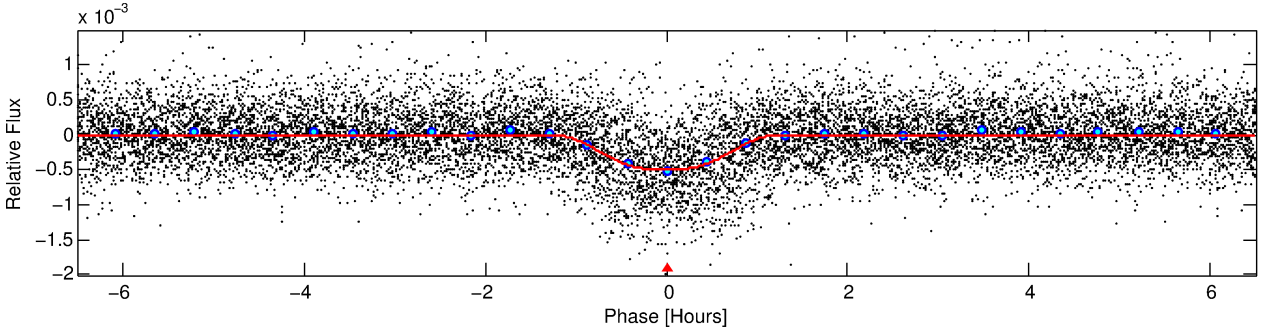
KIC: 9140402 Candidate: 1 of 1 Period: 2.494 d
KOI: K00928.01 Corr: 0.888

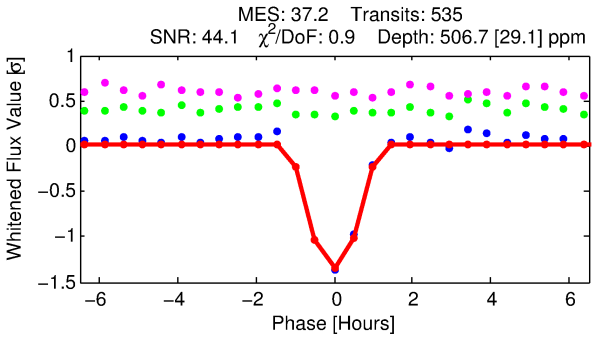
Kp: 15.25 R*: 0.83 Rs Teff: 5569.0 K Logg: 4.57 Fe/H: −0.080

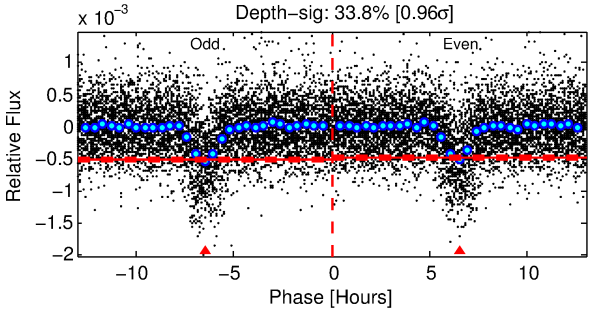


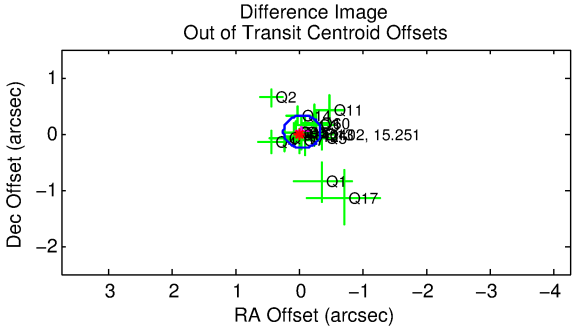












DV Fit Results:

Period = 2.49417 [0.00000] d
Epoch = 133.4409 [0.0008] BKJD
Rp/R* = 0.0281 [0.0014]
a/R* = 3.12 [0.23]
b = 0.97 [0.01]

Seff = 482.10 [77.24]
Teq = 1195 [48] K
Rp = 2.54 [0.28] Re
a = 0.0350 [0.0032] AU

Ag = 1.33 [0.81] [0.41σ]
Teffp = 1984 [296] K [2.63σ]

DV Diagnostic Results:

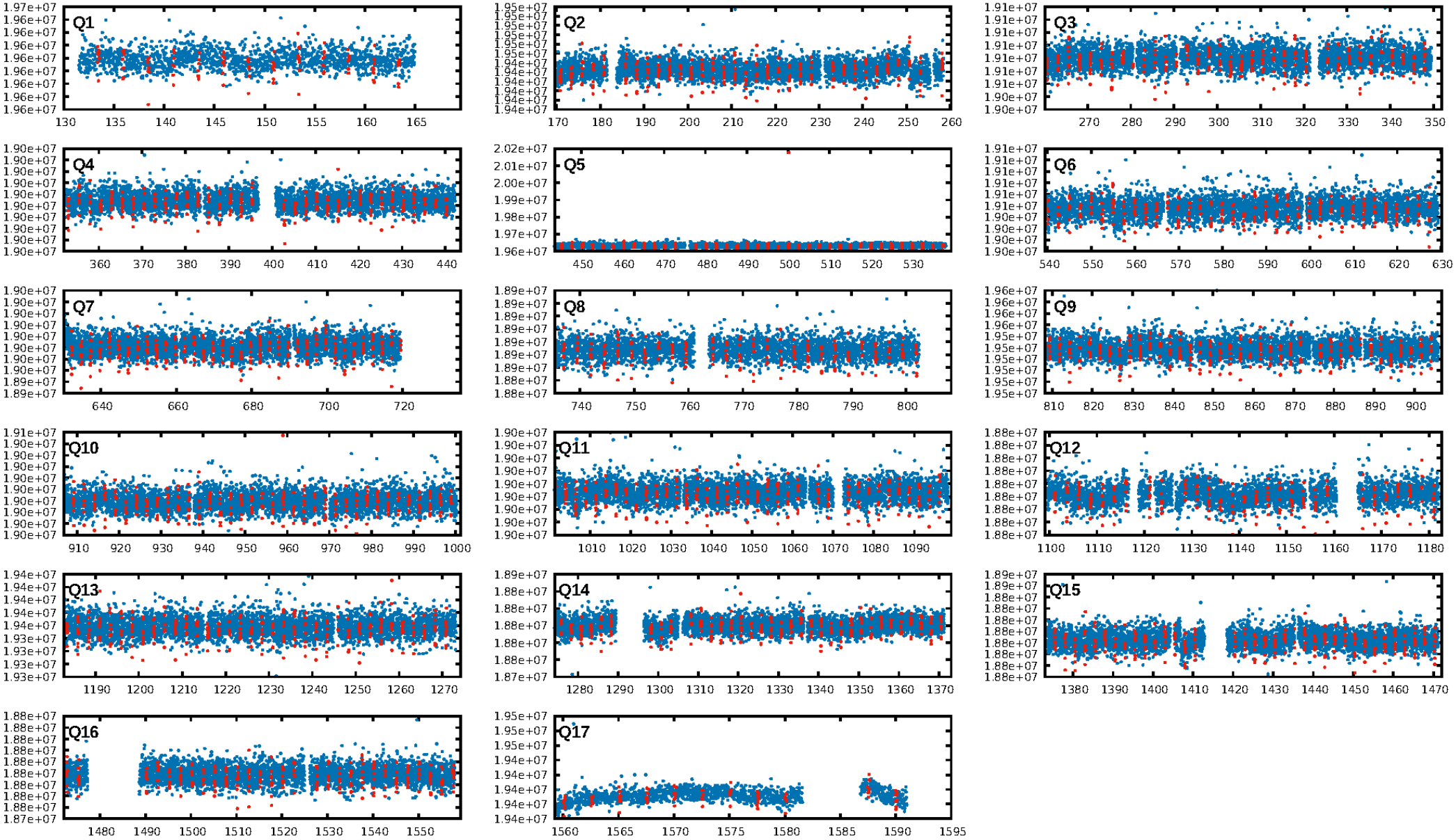
ShortPeriod−sig: N/A
LongPeriod−sig: N/A
ModelChiSquare2−sig: N/A
ModelChiSquareGof−sig: N/A
Bootstrap−pfa: 6.17e−289
RollingBand−fgt: 0.99 [508/511]
GhostDiagnostic−chr: 6.524

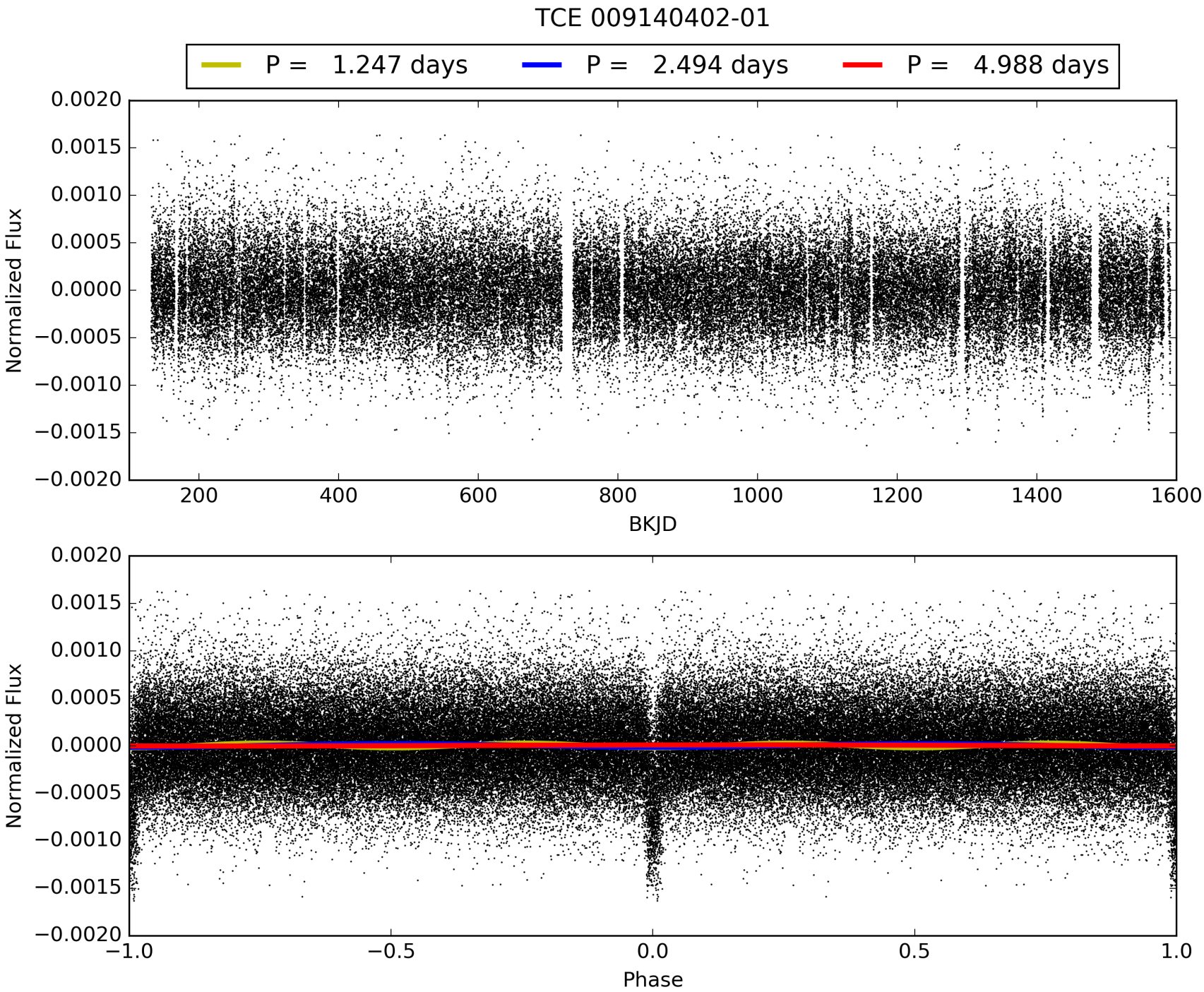
Centroid−sig: 6.4%
Centroid−so: 0.807 arcsec [2.68σ]
OotOffset−rm: 0.050 arcsec [0.51σ]
KicOffset−rm: 0.265 arcsec [2.04σ]
OotOffset−st: 4/4/4/5 [17]
KicOffset−st: 4/4/4/5 [17]
DiffImageQuality−fgm: 1.00 [17/17]
DiffImageOverlap−fno: 1.00 [17/17]

Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 29−Jan−2016 01:11:46 Z

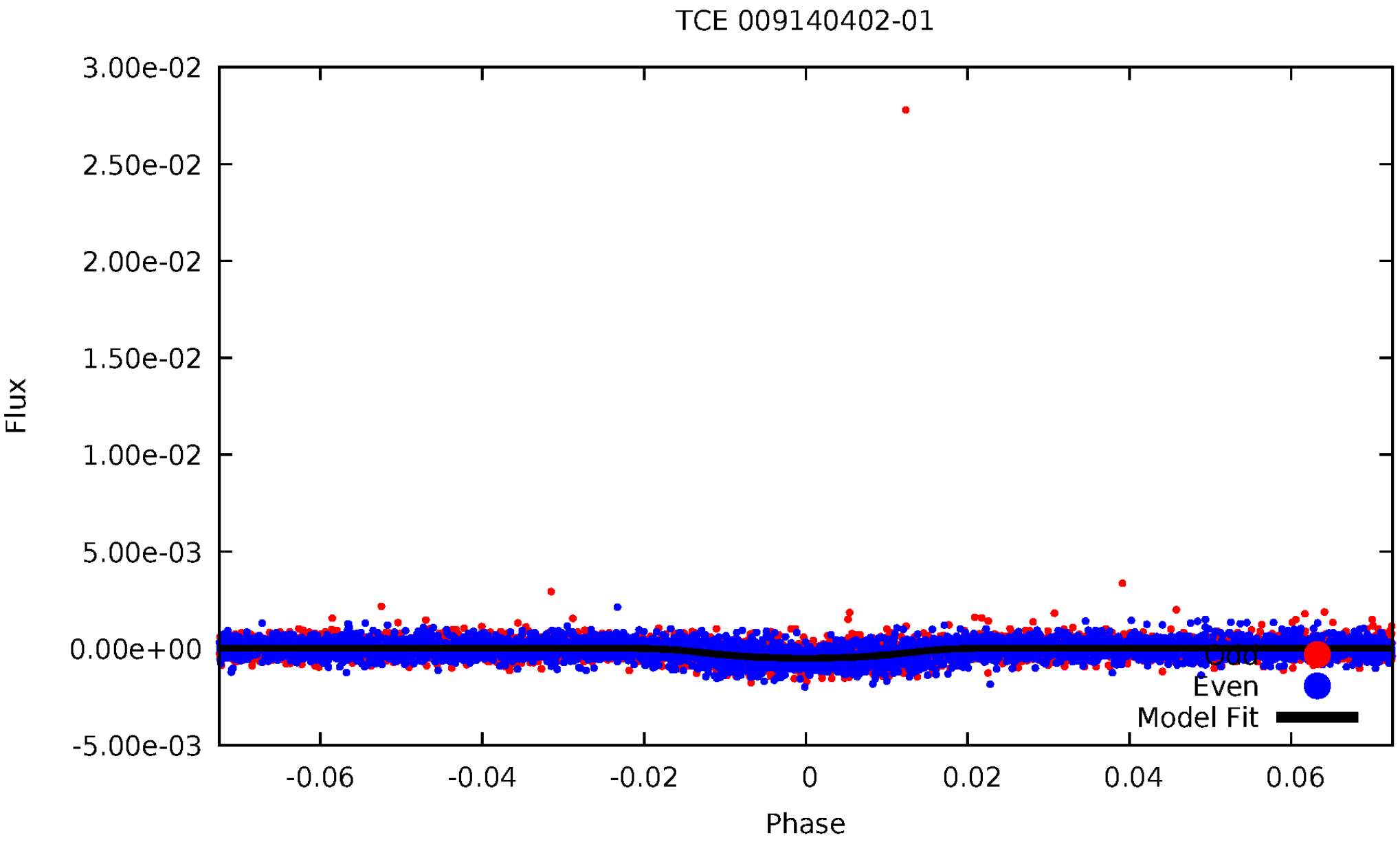
This Data Validation Report Summary was produced in the Kepler Science Operations Center Pipeline at NASA Ames Research Center

TCE 009140402-01, PDC Light Curves

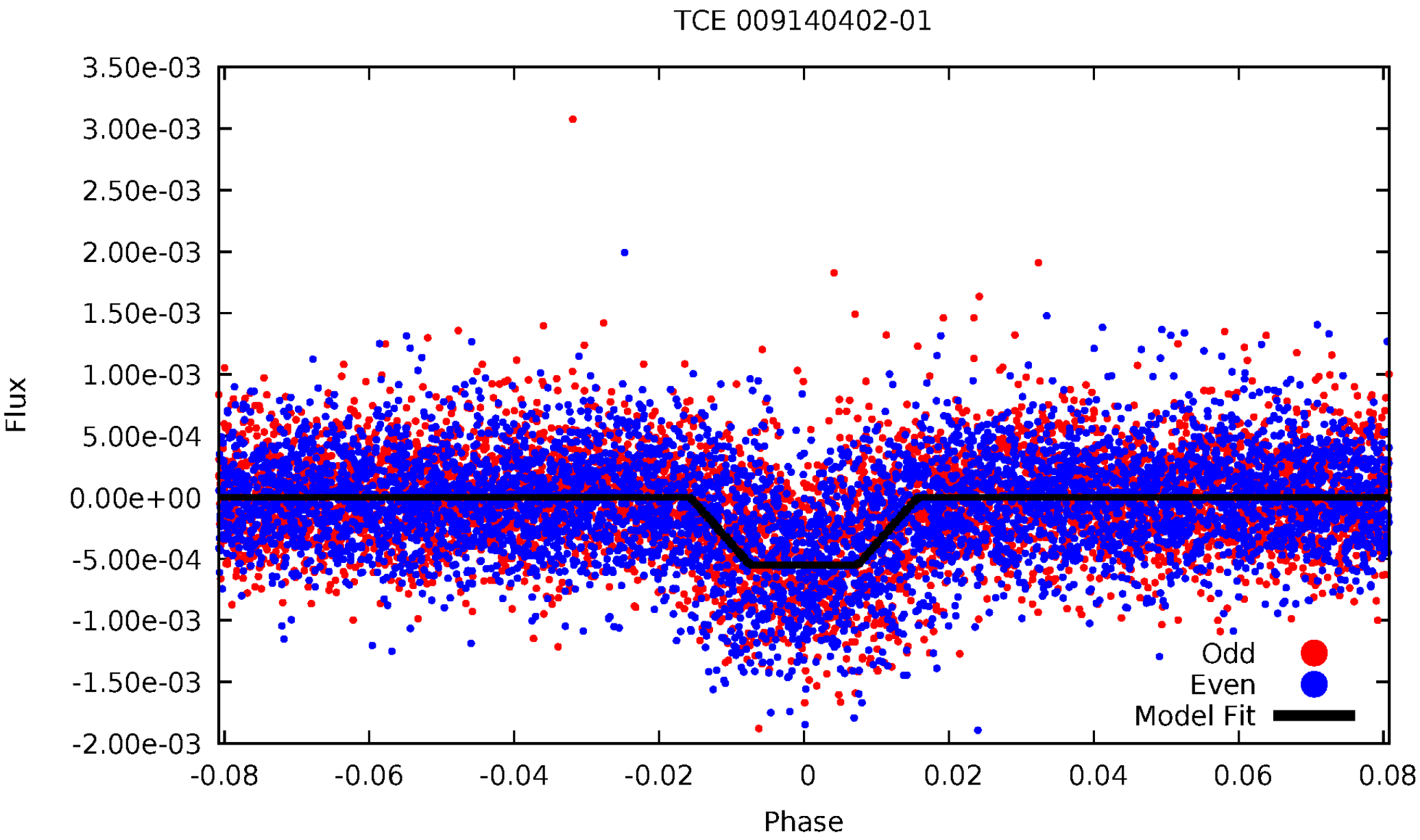



TCE 009140402-01
P = 1.247 days
P = 2.494 days
P = 4.988 days
Normalized Flux
BKJD
Normalized Flux
Phase

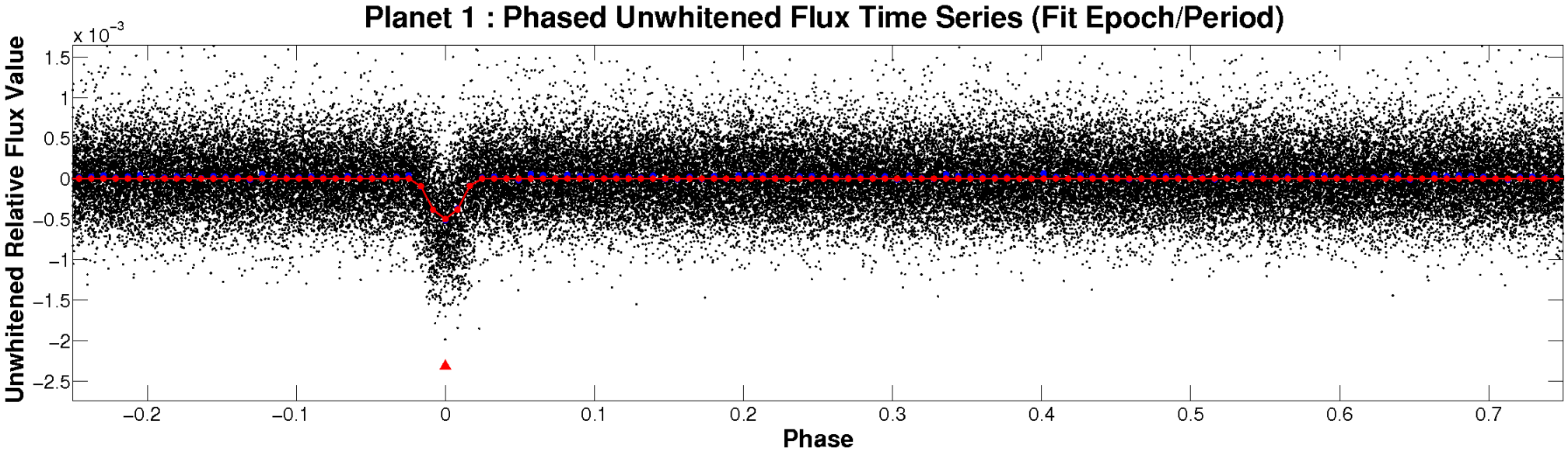
DV Odd/Even

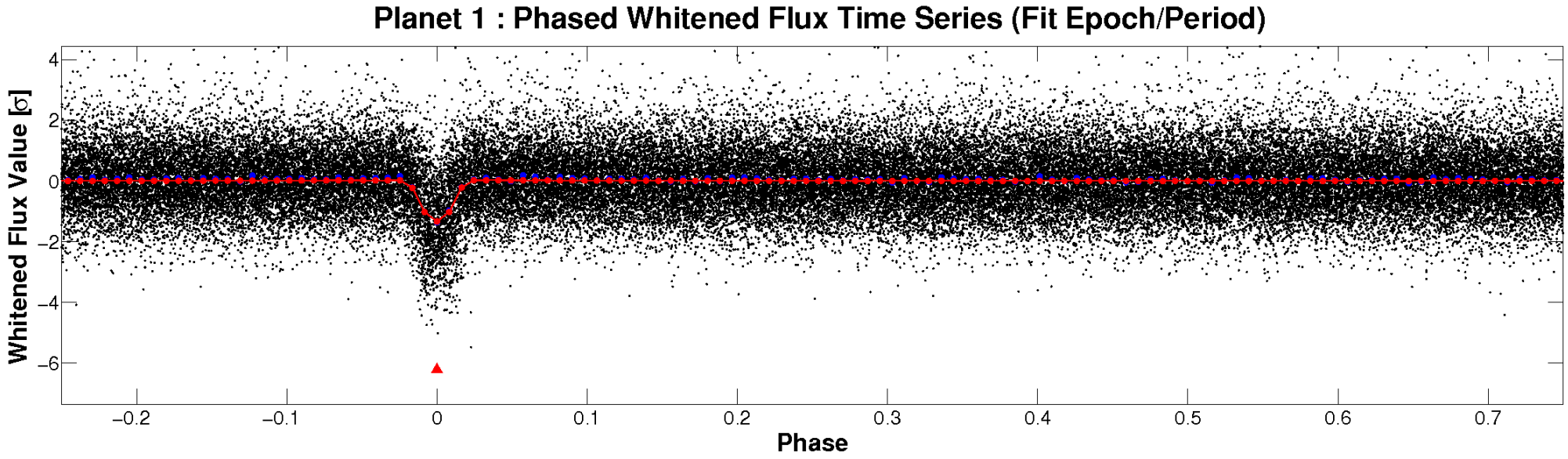

TCE 009140402-01
3.00e-02
2.50e-02
2.00e-02
1.50e-02
1.00e-02
5.00e-03
0.00e+00
-5.00e-03
Flux
-0.06
-0.04
-0.02
0
0.02
0.04
0.06
Phase
Odd
Even
Model Fit

ALT Odd/Even


TCE 009140402-01
3.50e-03
3.00e-03
2.50e-03
2.00e-03
1.50e-03
1.00e-03
5.00e-04
0.00e+00
-5.00e-04
-1.00e-03
-1.50e-03
-2.00e-03
Flux
-0.08
-0.06
-0.04
-0.02
0
0.02
0.04
0.06
0.08
Phase
Odd
Even
Model Fit

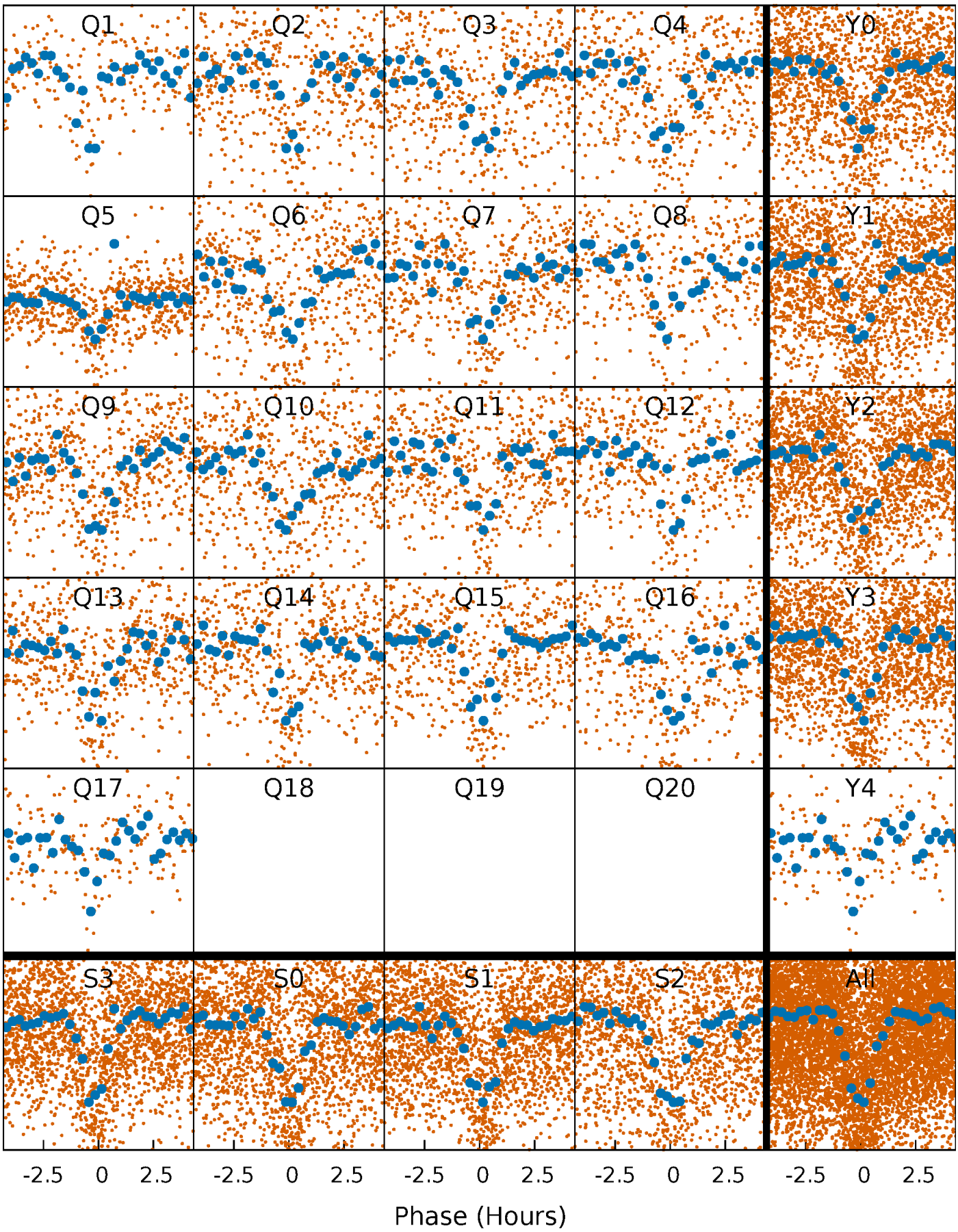
Non-Whitened Vs. Whitened Light Curve





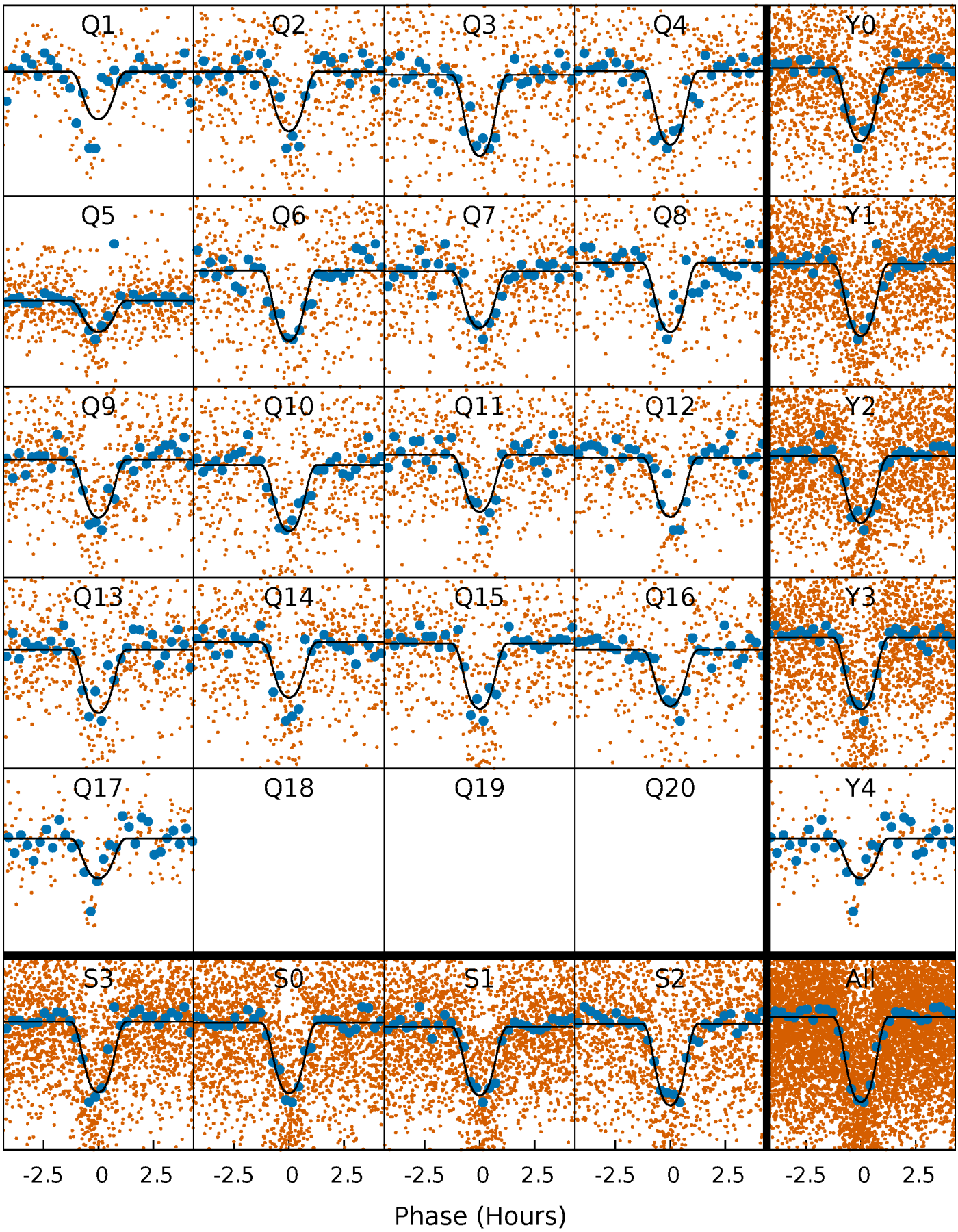
PDC Quarter-Phased Transit Curves

TCE 009140402-01 P= 2.494167 Days T_0=133.440873 (BKJD)



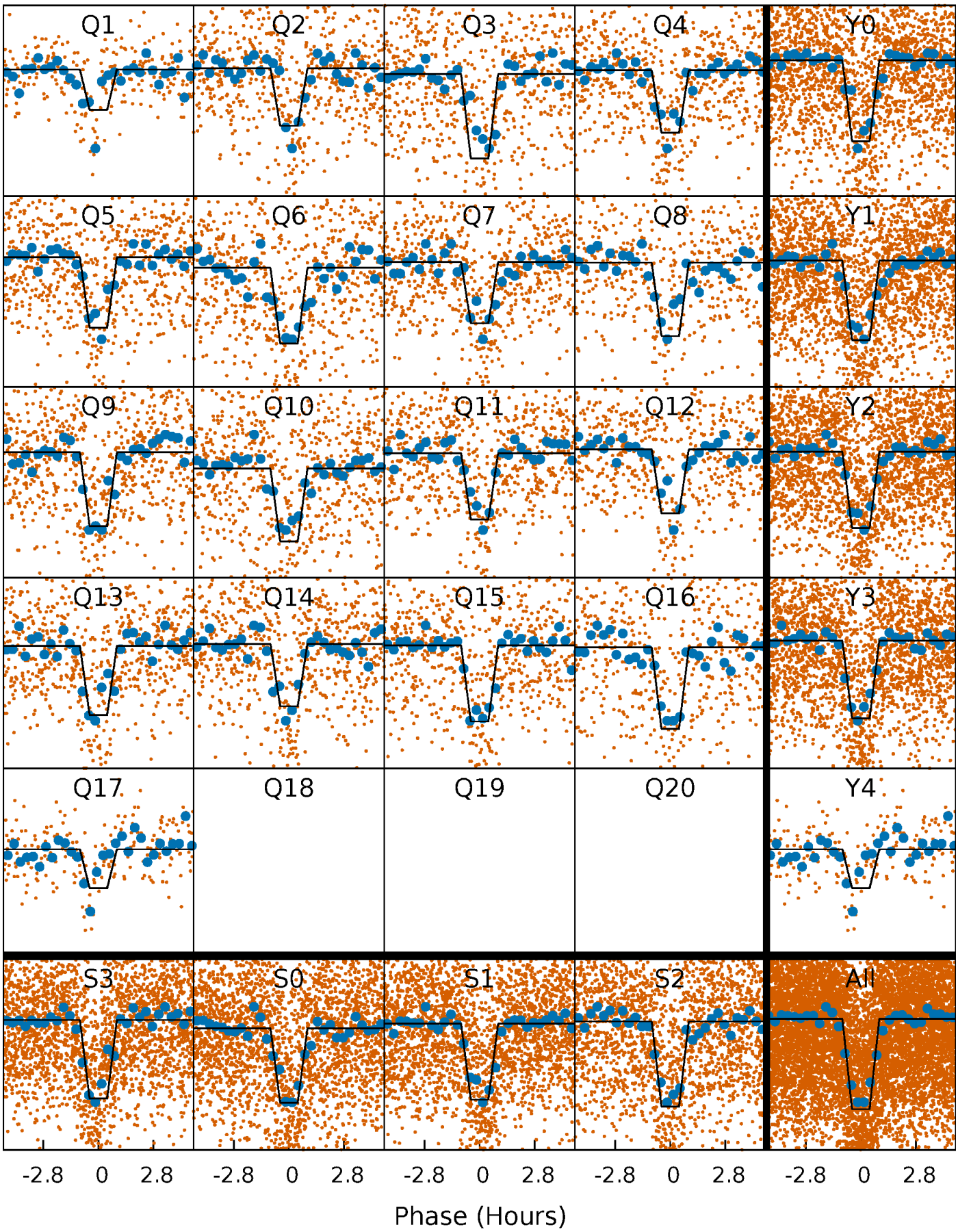
DV Quarter-Phased Transit Curves

TCE 009140402-01 P= 2.494167 Days T_0=133.440873 (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

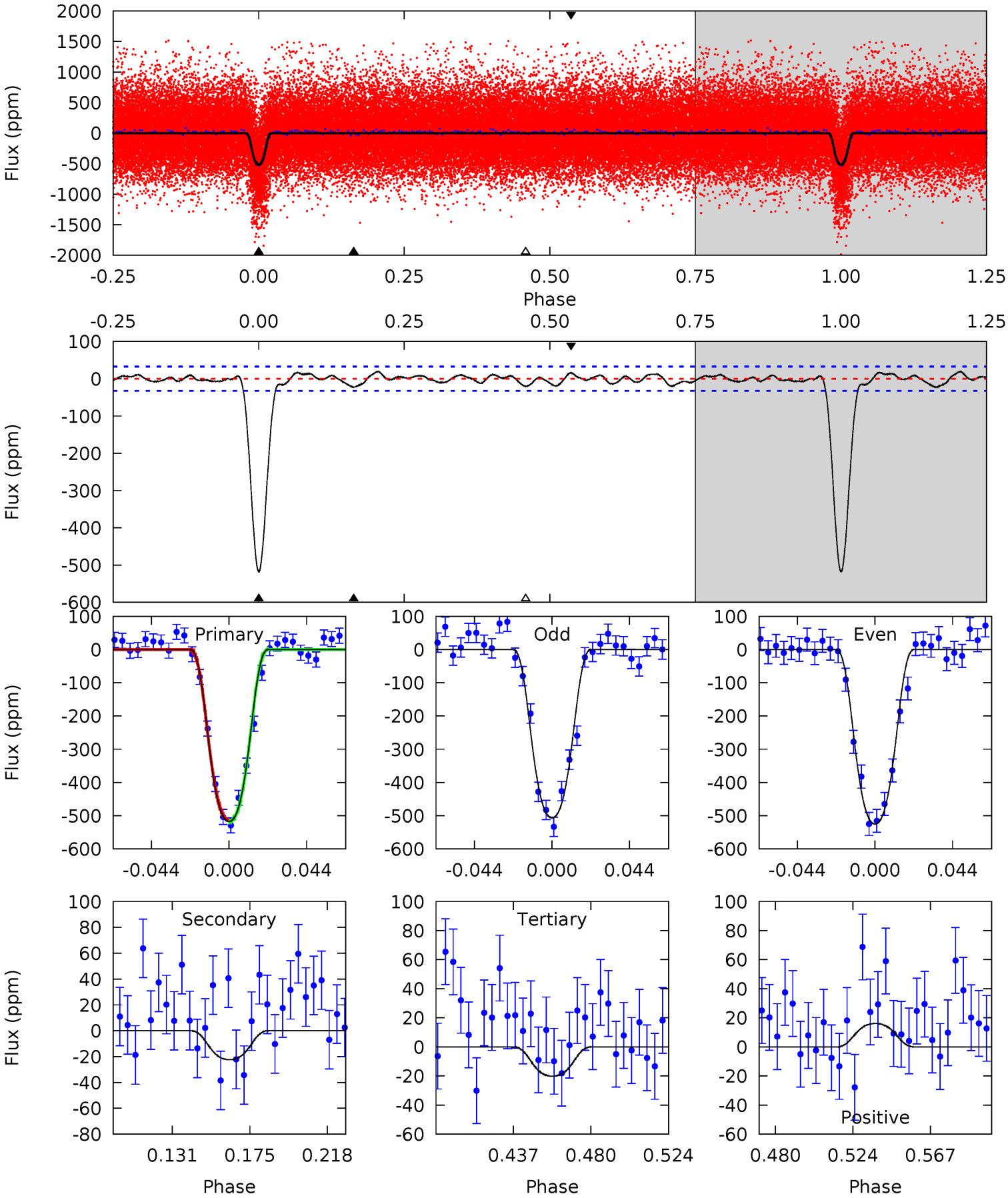
TCE 009140402-01 P= 2.494185 Days T_0=133.435936 (BKJD)



DV Model-Shift Uniqueness Test

009140402-01, P = 2.494167 Days, E = 130.946706 Days

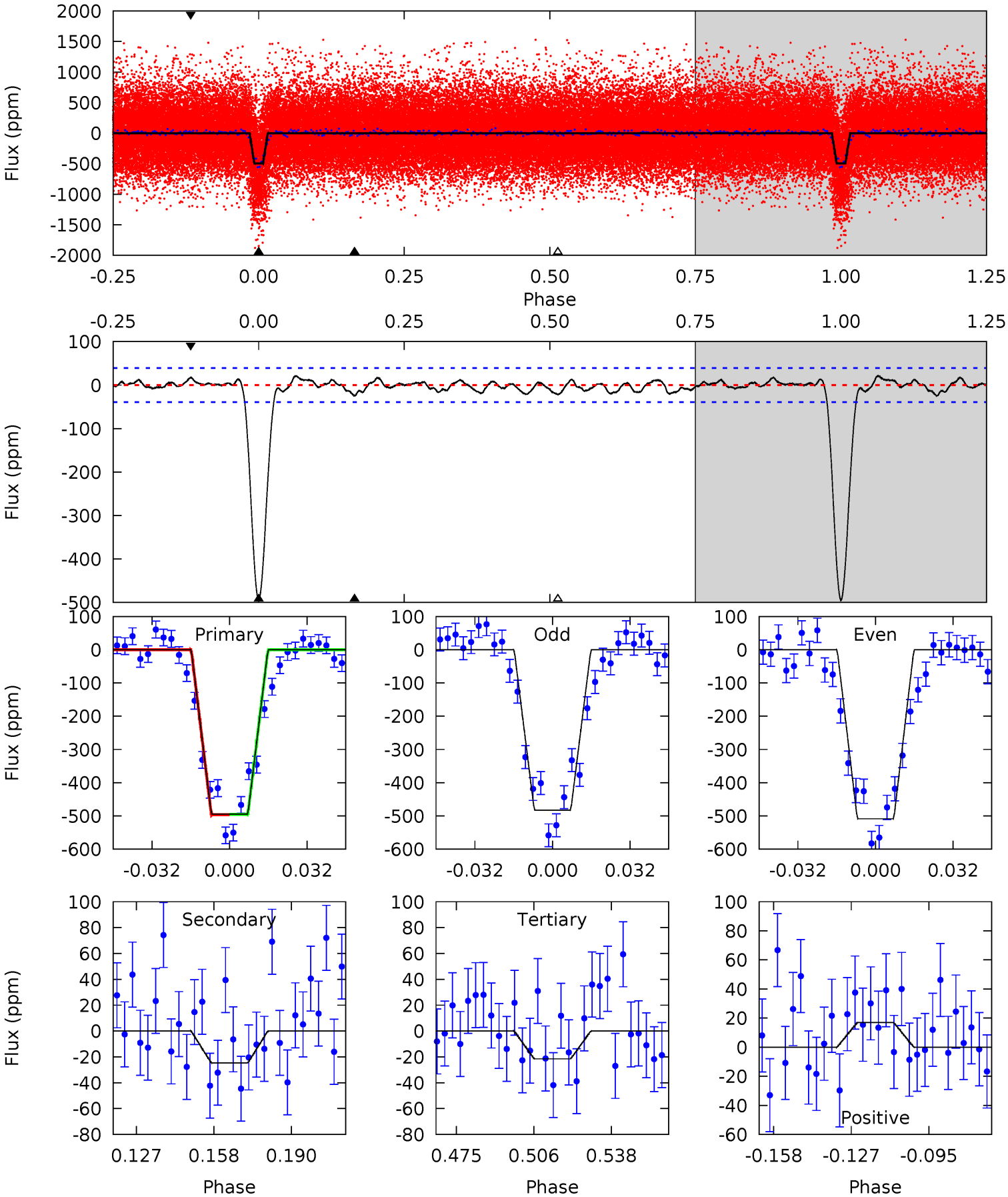
Pri	Sec	Ter	Pos	FA_1	FA_2	F_{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
74.9	3.25	2.92	2.33	4.74	2.02	1.19	71.9	72.5	0.33	0.92	1.36	0.96	0.04	0.31



Alt Model-Shift Uniqueness Test

009140402-01, P = 2.494185 Days, E = 130.941751 Days

Pri	Sec	Ter	Pos	FA_1	FA_2	F_{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
60.8	3.03	2.64	2.08	4.80	2.15	1.11	58.1	58.7	0.39	0.95	1.59	0.99	0.04	0.05



Stellar Parameters For KIC 009140402

	$T_{\rm eff}(K)$	$\log(g)$	[Fe/H]	R ($R_\odot$)	$M(M_\odot)$	$p_\star$ (g·cm^{-3})
	5569^{+99}_{-110}	$4.566^{+0.020}_{-0.080}$	$-0.080^{+0.150}_{-0.150}$	$0.829^{+0.082}_{-0.041}$	$0.928^{+0.039}_{-0.078}$	$2.295^{+0.222}_{-0.555}$
	+2%/-2%	+0%/-2%	+188%/-188%	+10%/-5%	+4%/-8%	+10%/-24%
Source	SPE3	SPE3	SPE3	DSEP		

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

Secondary Eclipse Parameters for KIC 009140402-01 / KOI 0928.01

Detrend	Depth (ppm)	R_p ($R_\oplus$)	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	-22±7	$2.59^{+0.19}_{-0.17}$	1687^{+50}_{-44}	2902^{+137}_{-174}	$2.238^{+0.728}_{-0.709}$
Alt.	-25±8	$2.15^{+0.17}_{-0.17}$	1687^{+49}_{-40}	3130^{+163}_{-215}	$3.585^{+1.315}_{-1.273}$

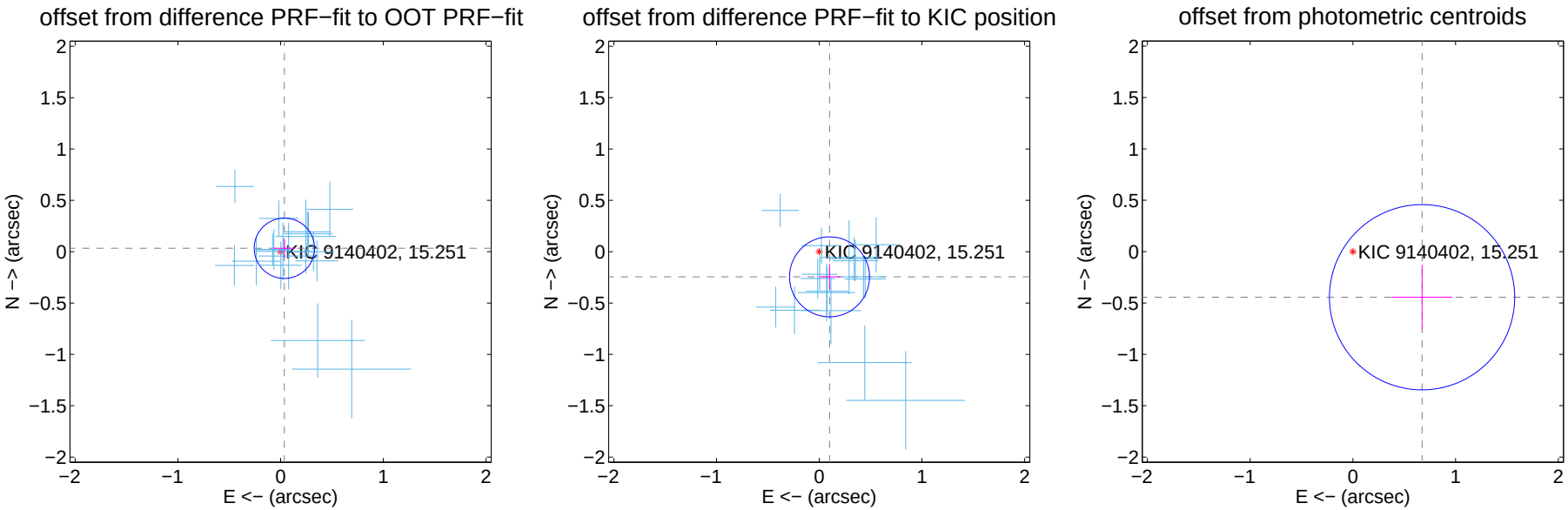
T_{max} = Theoretical Maximum Planetary Temperature
T_{obs} = Observed Planetary Temperature (Assuming A=0.3)
A_{obs} = Observed Albedo (Assuming T=0)

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

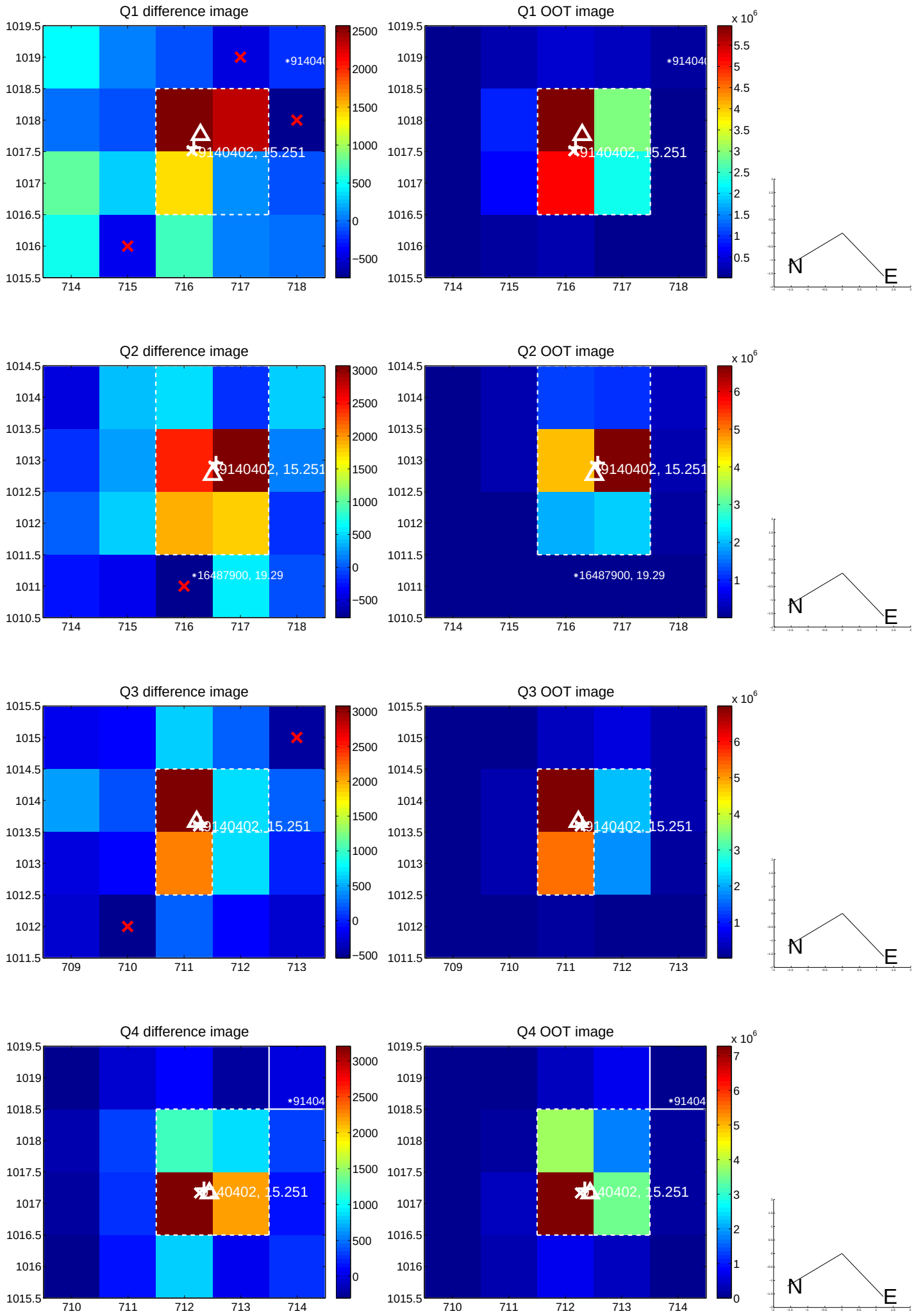
Supplemental centroid analysis for 009140402-01. Kepler magnitude: 15.25. Transit SNR 44.11
There are 17 quarters with good PRF difference image offsets
The direct PRF centroid is offset from the target star catalog position by about 0.34 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.050 ± 0.098	0.51	-0.037 ± 0.100	0.033 ± 0.095
PRF-fit source offset from KIC position	0.265 ± 0.130	2.04	-0.100 ± 0.105	-0.245 ± 0.122
photometric centroid source offset	0.81 ± 0.30	2.68	-0.67 ± 0.29	-0.44 ± 0.31

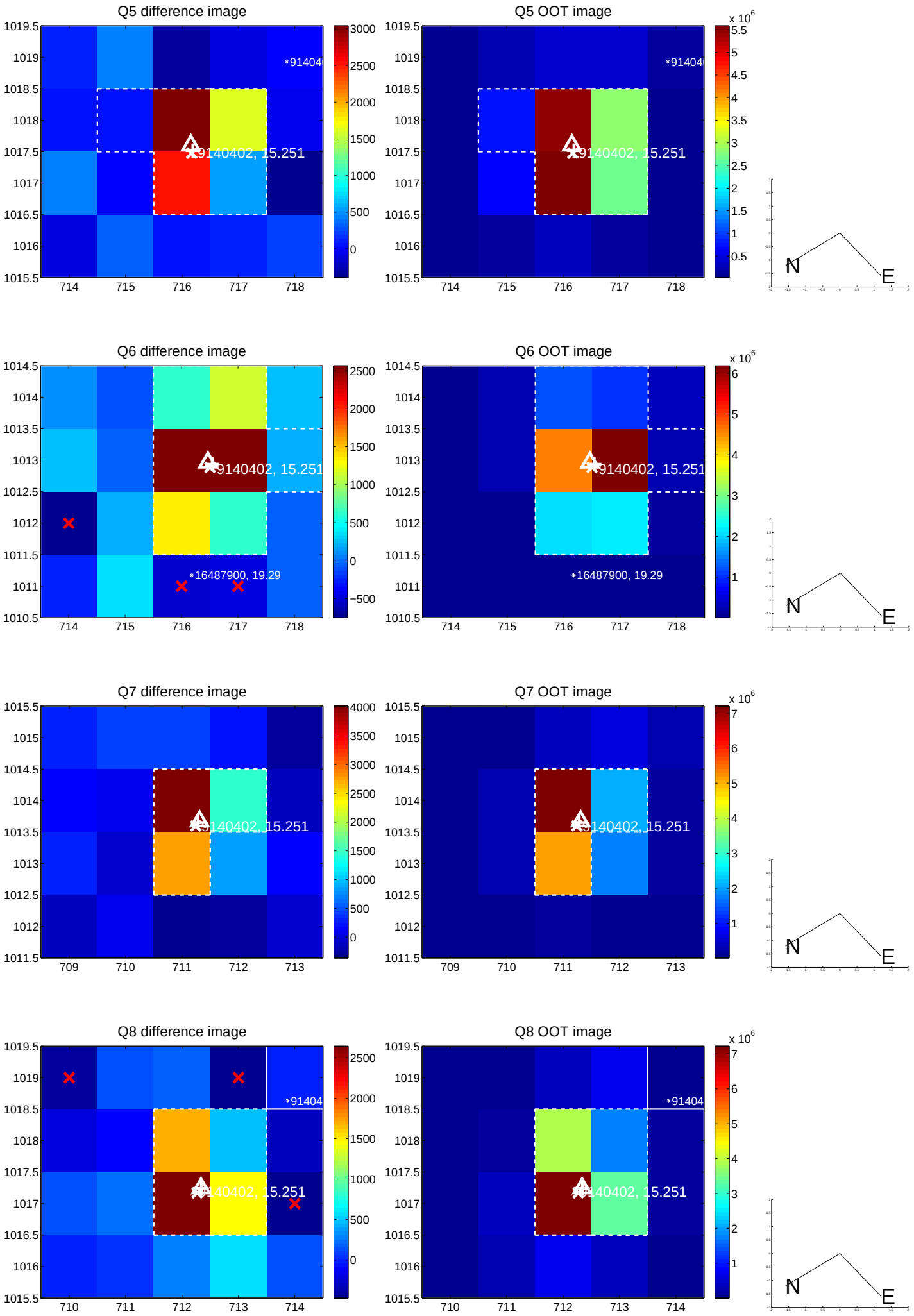


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one-σ uncertainty. Blue circle: three-σ. Red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



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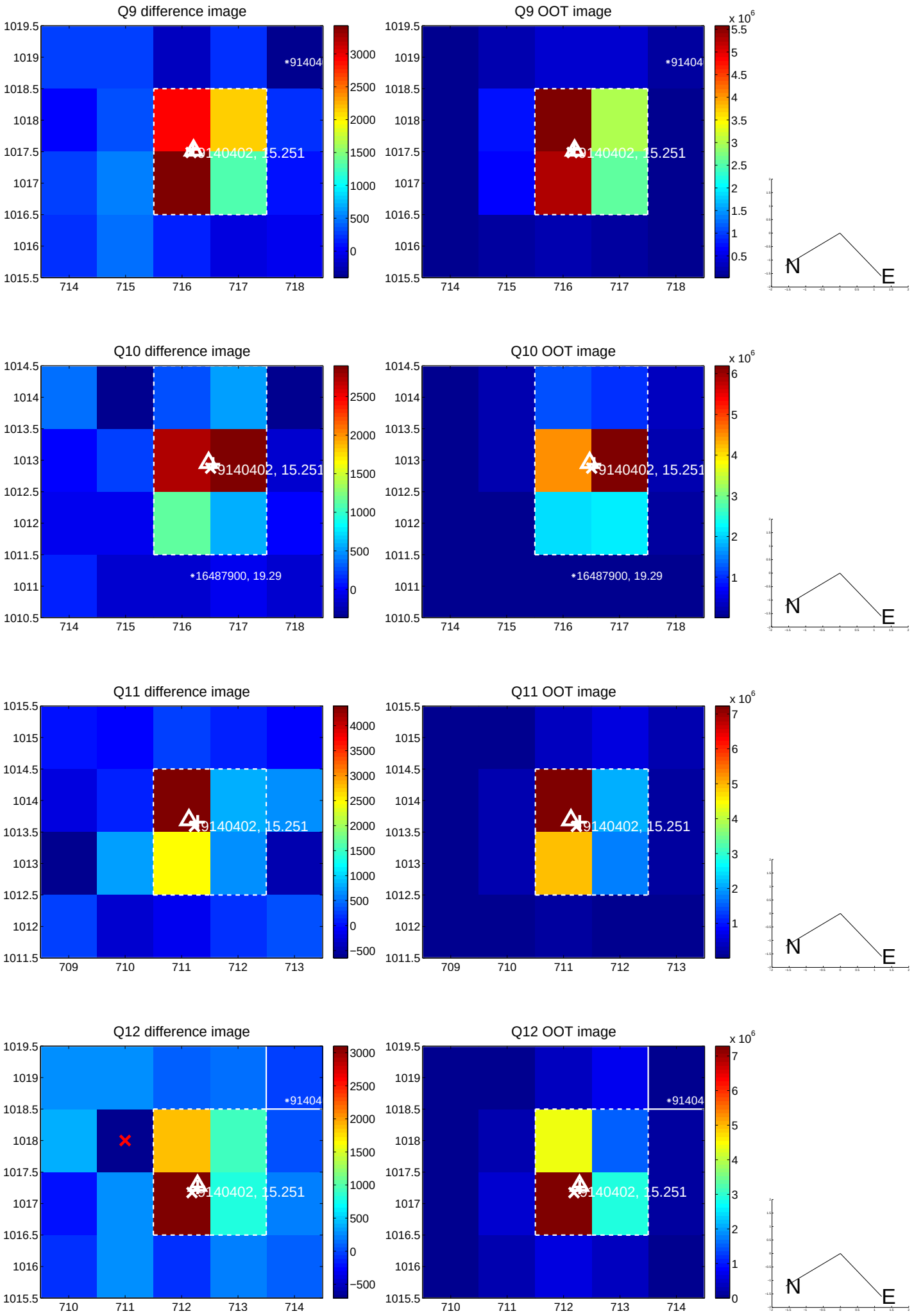
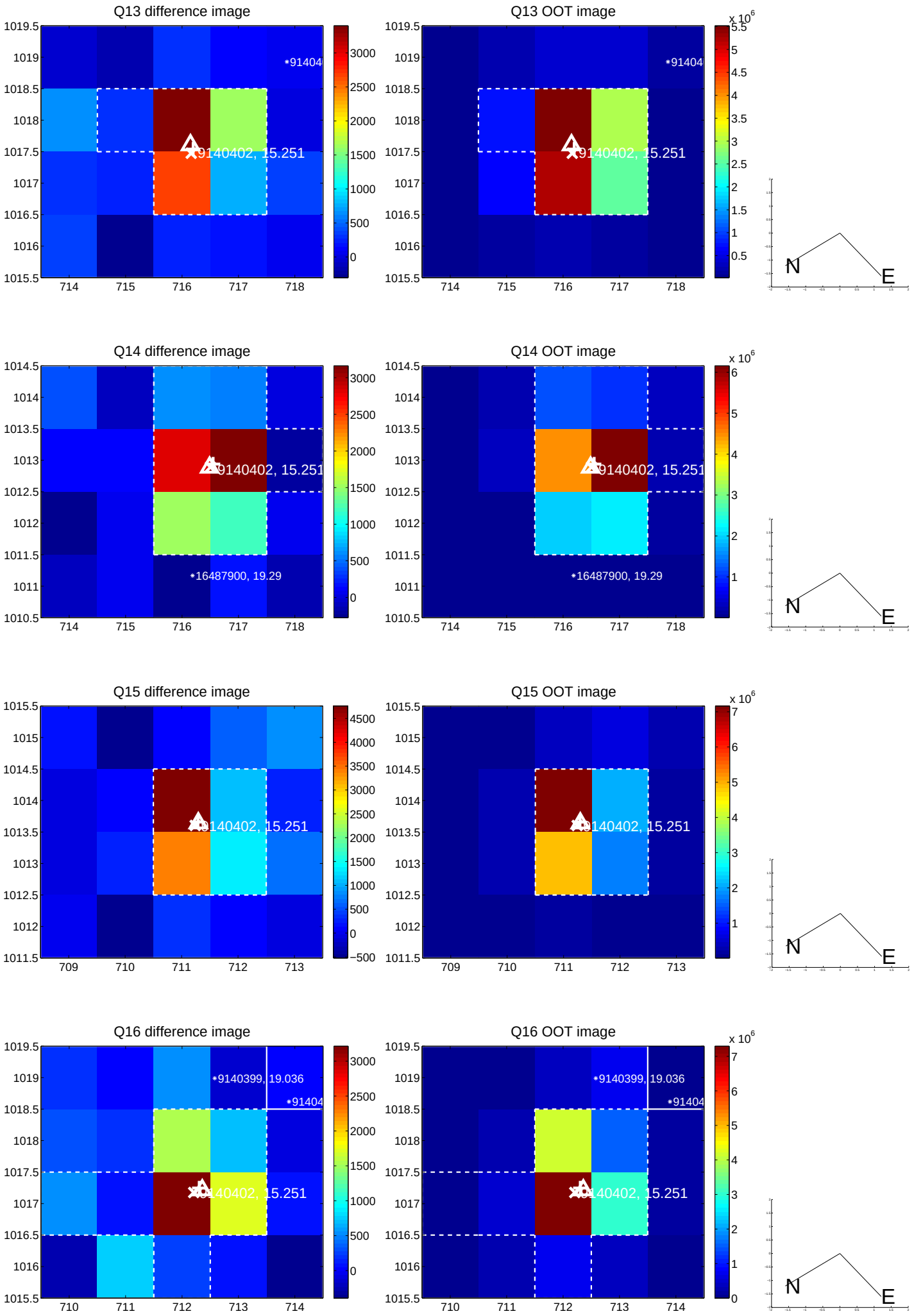
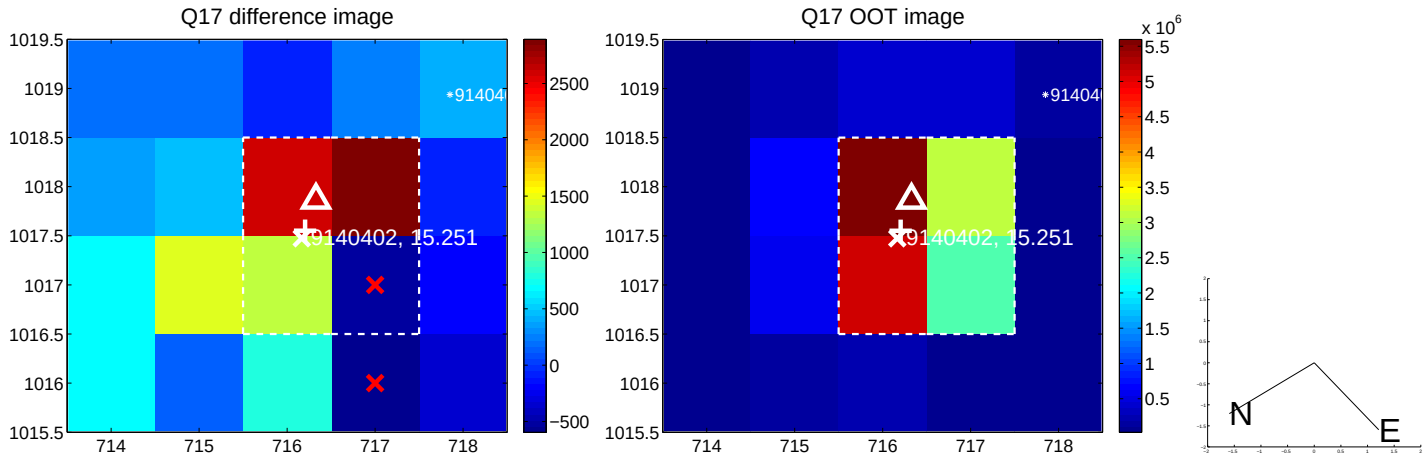
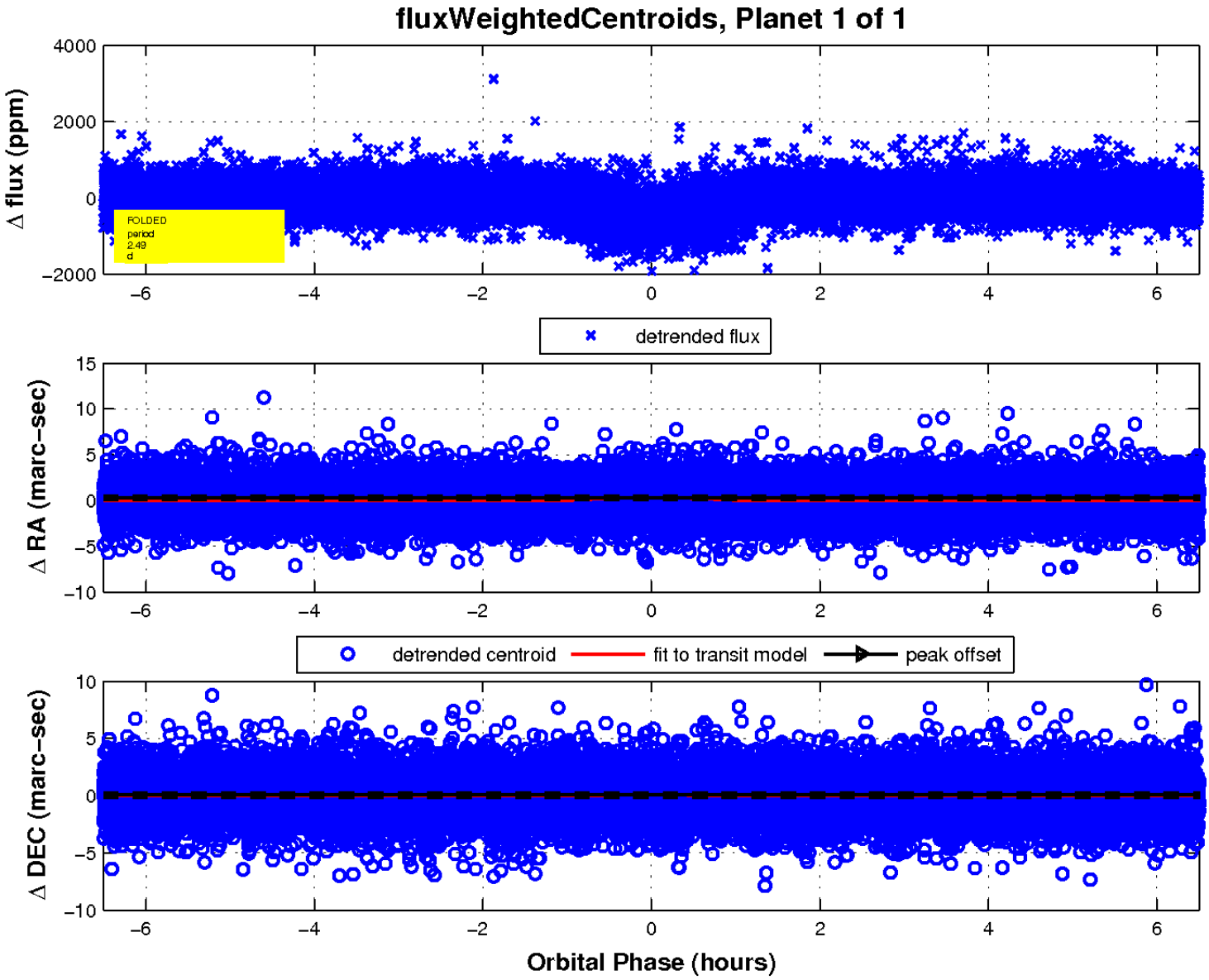


white ×: KIC target position; +: OOT centroid; △: difference centroid. red ×: large negative pixel value.

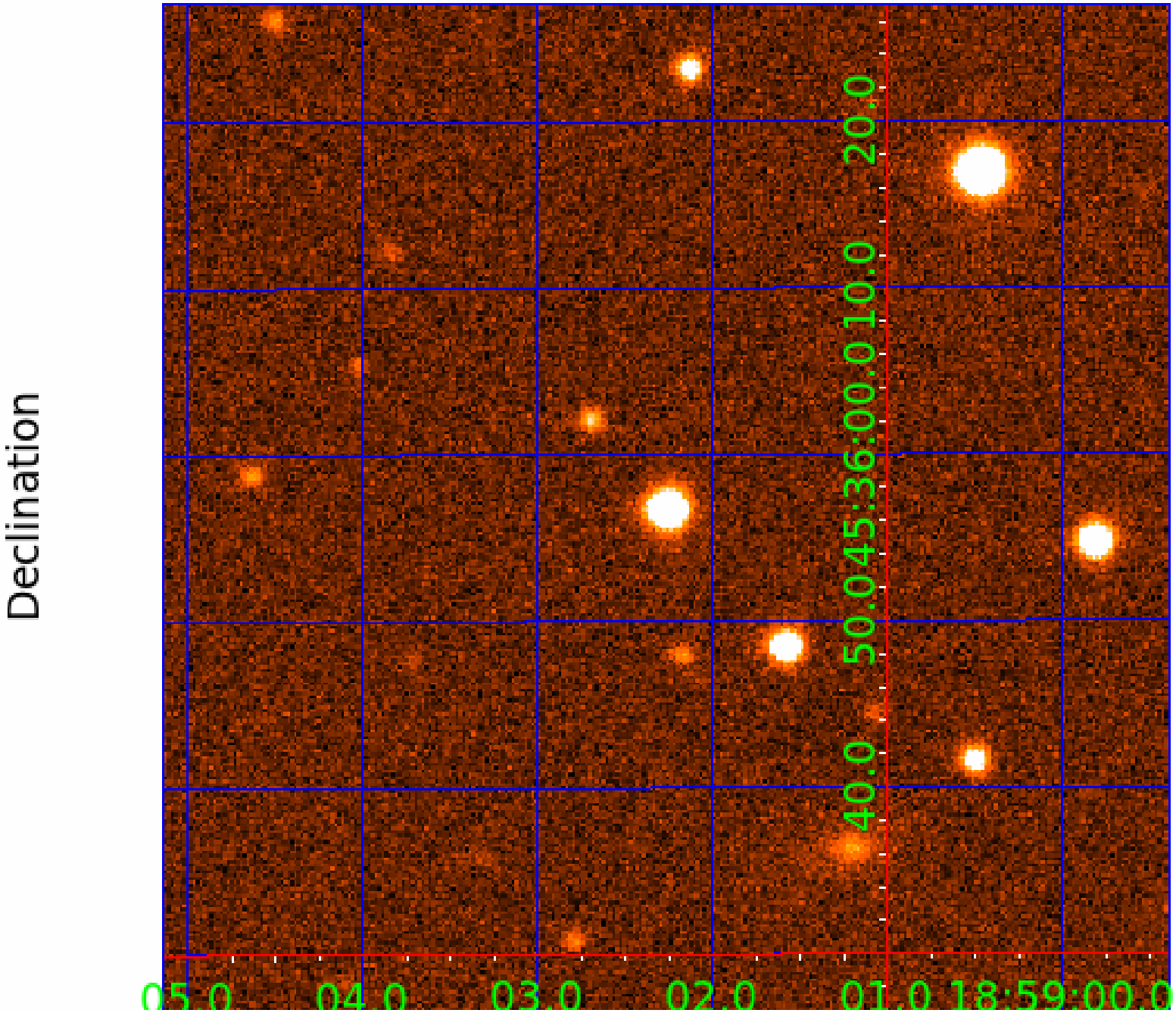


white ×: KIC target position; +: OOT centroid; △: difference centroid. red ×: large negative pixel value.





UKIRT Image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