

KIC 004742420

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})
004742420-01	OBS	6120.01	90.100388	143.877248	278.7	10.220	9.2	9.5	1.01	6116	1.86	8.07

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
004742420-01	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.

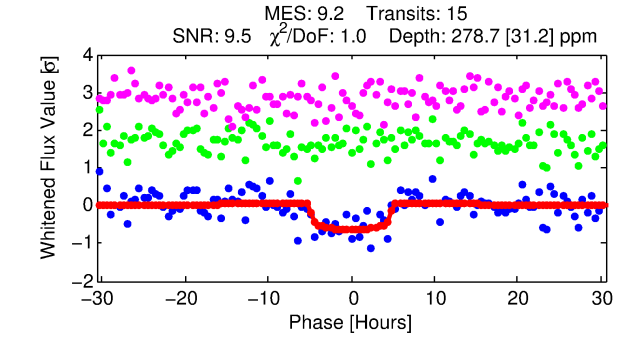
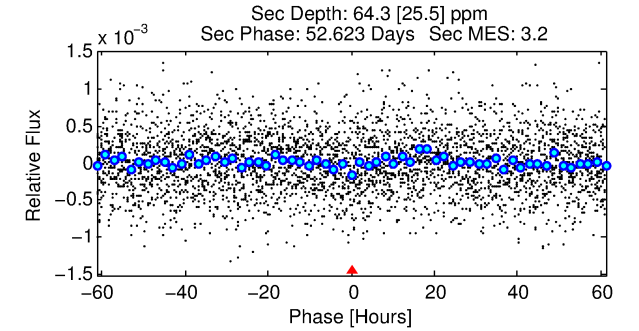
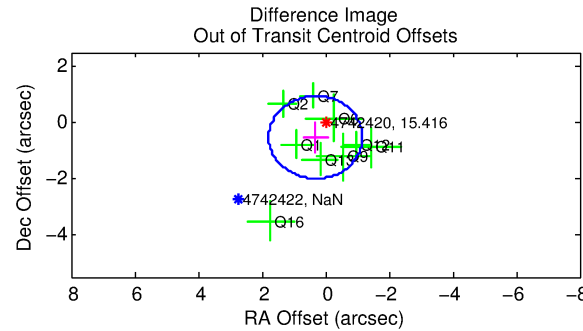
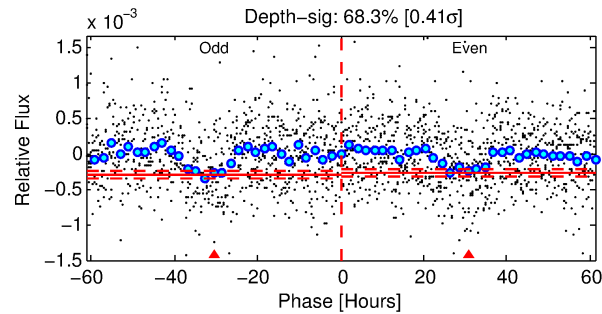
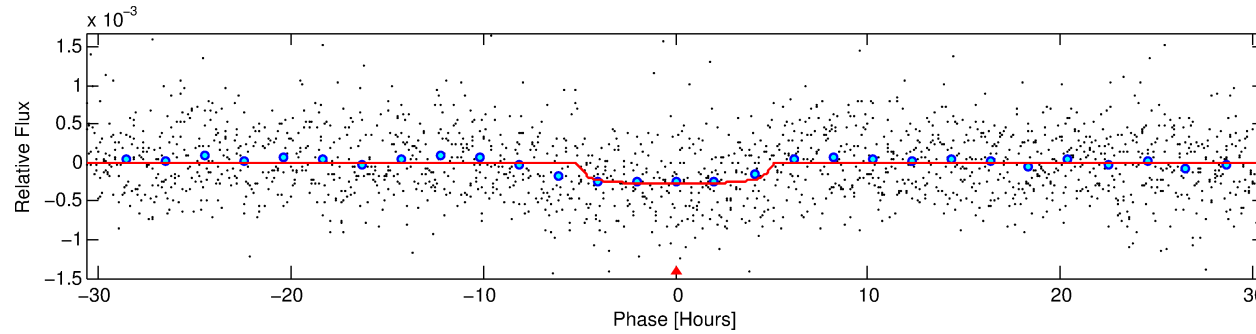
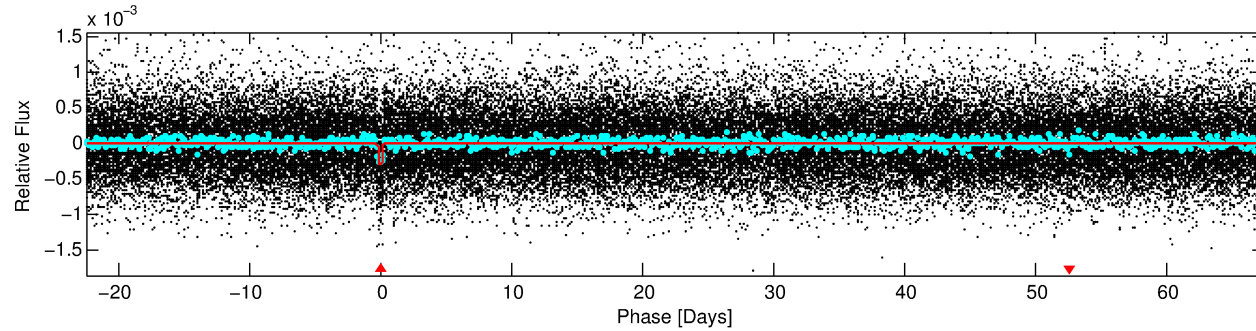
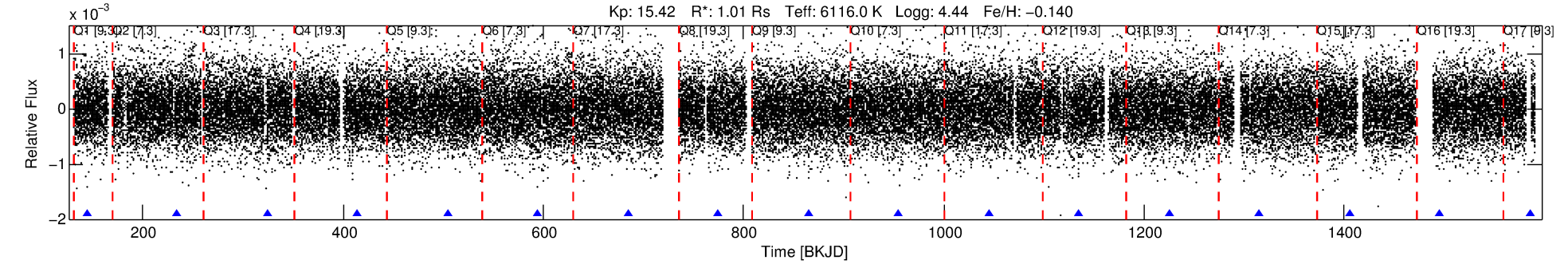
Ephemeris Match Information For 004742420-01

No Significant Match Found

DV One-Page Summary

KIC: 4742420 Candidate: 1 of 1 Period: 90.100 d

KOI: K06120.01 Corr: 0.874



DV Fit Results:

Period = 90.10039 [0.00204] d
Epoch = 143.8772 [0.0182] BKJD
Rp/R* = 0.0170 [0.0059]
a/R* = 41.95 [72.97]
b = 0.80 [0.77]
Seff = 8.07 [3.34]
Teff = 430 [44] K
Rp = 1.87 [0.89] Re
a = 0.3973 [0.1080] AU
Ag = 1604.42 [1427.37] [1.12 σ]
Teffp = 4205 [853] K [4.42 σ]

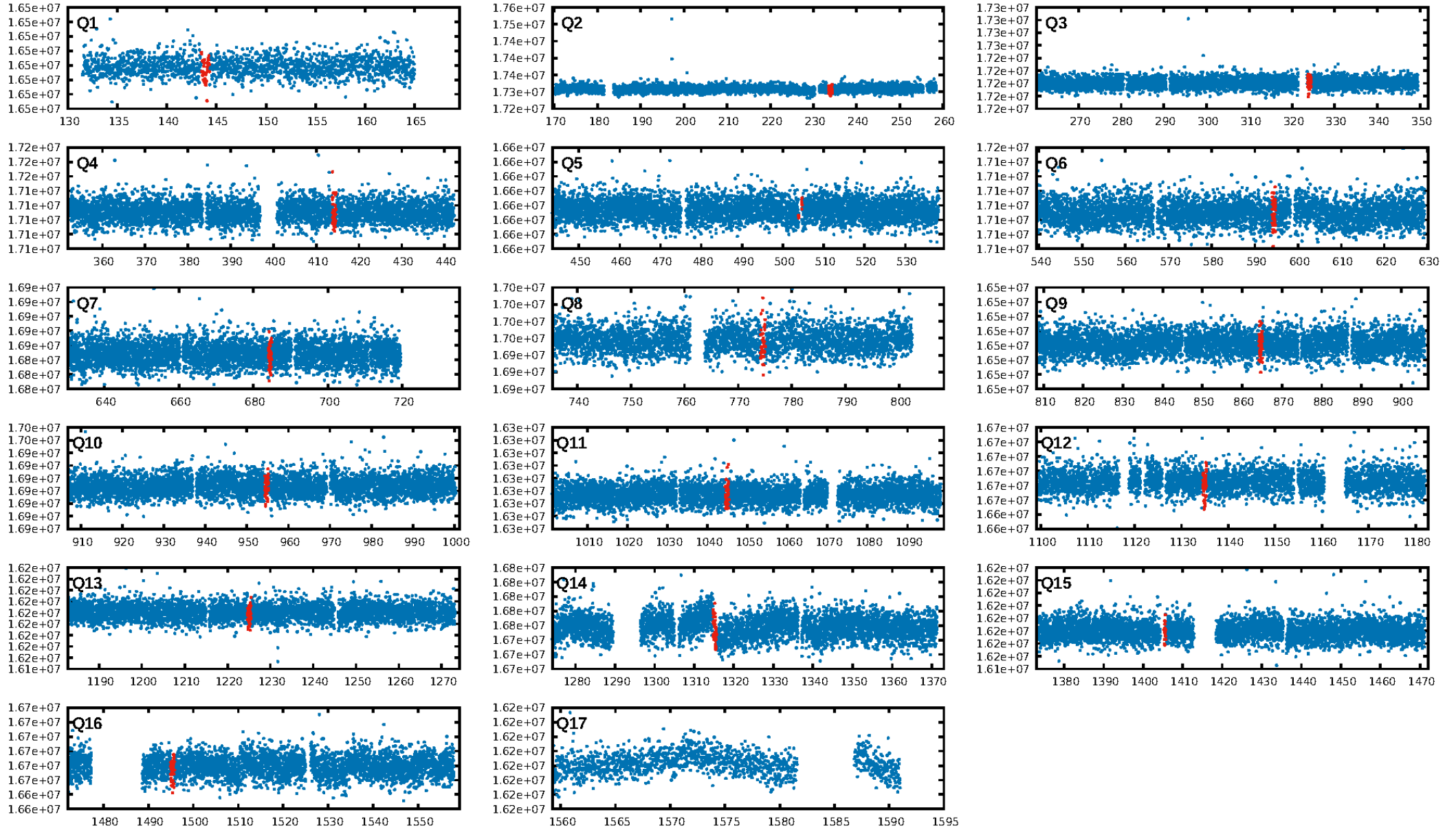
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: N/A
ModelChiSquare2-sig: 75.1%
ModelChiSquareGof-sig: 100.0%
Bootstrap-pfa: 9.01e-20
RollingBand-fgt: 1.00 [14/14]
GhostDiagnostic-chr: 0.9117
Centroid-sig: 0.0%
Centroid-so: 4.833 arcsec [3.17 σ]
OotOffset-rm: 0.613 arcsec [1.25 σ]
KicOffset-rm: 0.997 arcsec [1.87 σ]
OotOffset-st: 2/2/2/3 [9]
KicOffset-st: 2/2/2/3 [9]
DiffImageQuality-fgm: 1.00 [9/9]
DiffImageOverlap-fno: 1.00 [13/13]

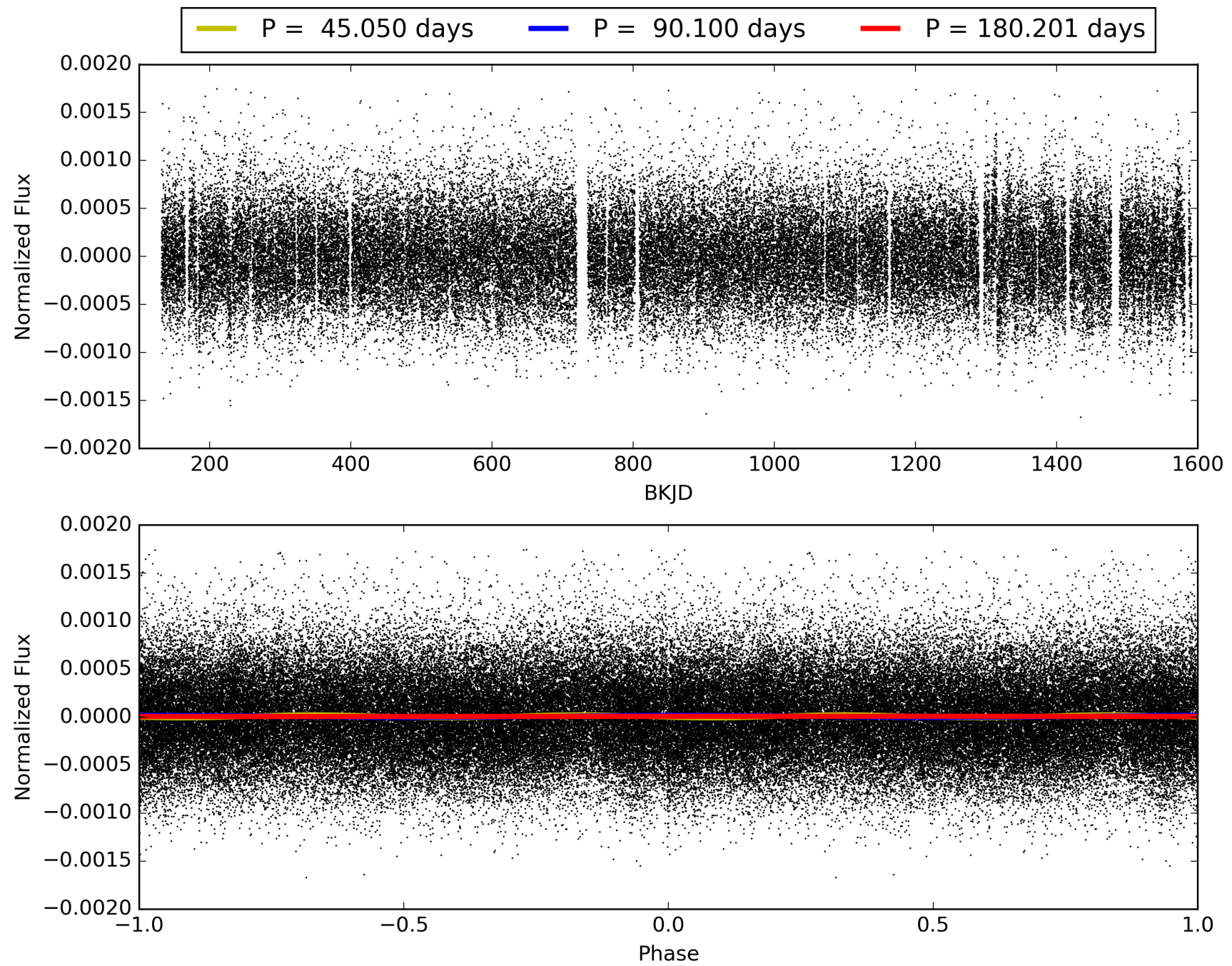
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 31-Jan-2016 02:58:24 Z

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

TCE 004742420-01, PDC Light Curves

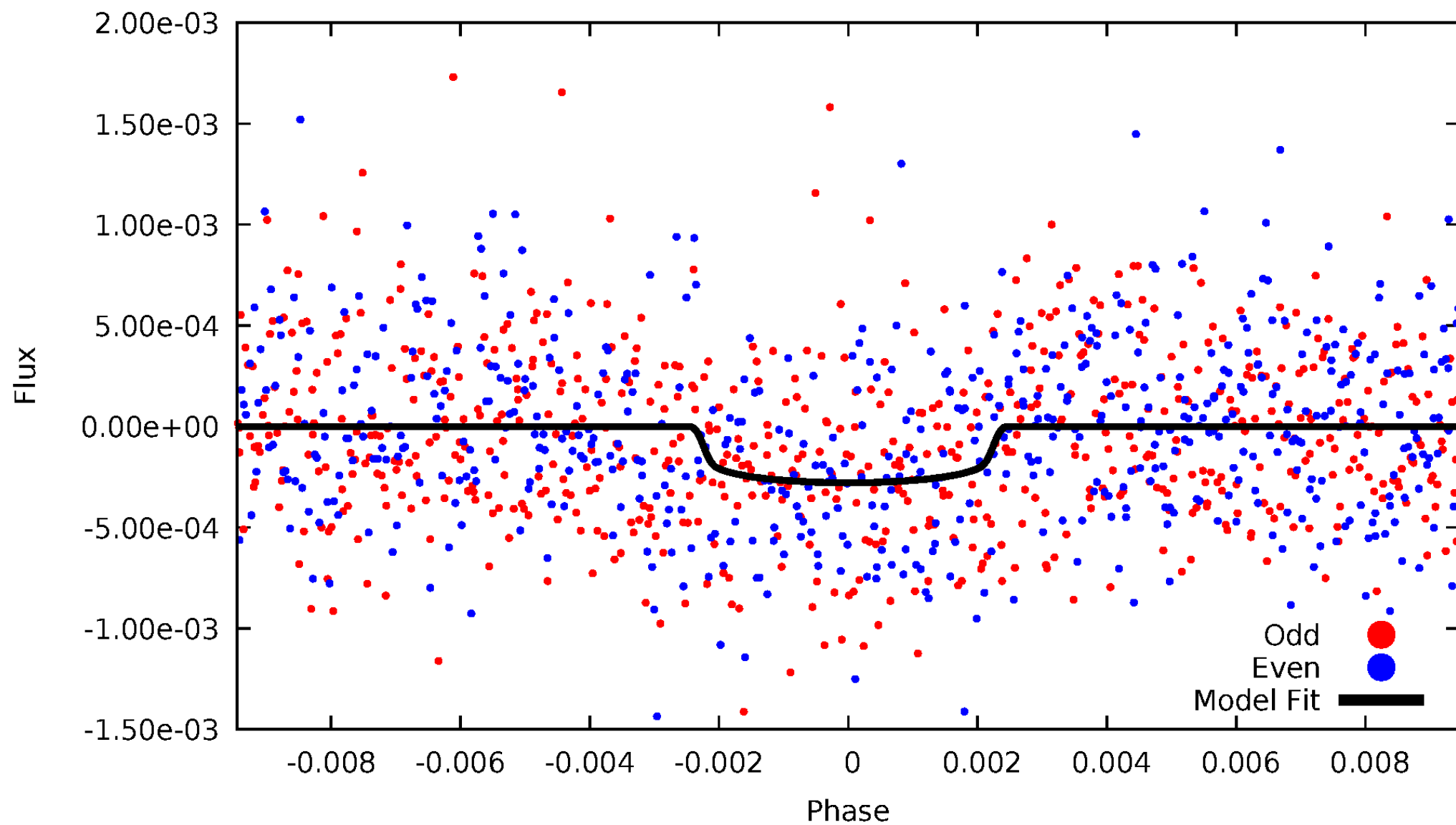


TCE 004742420-01



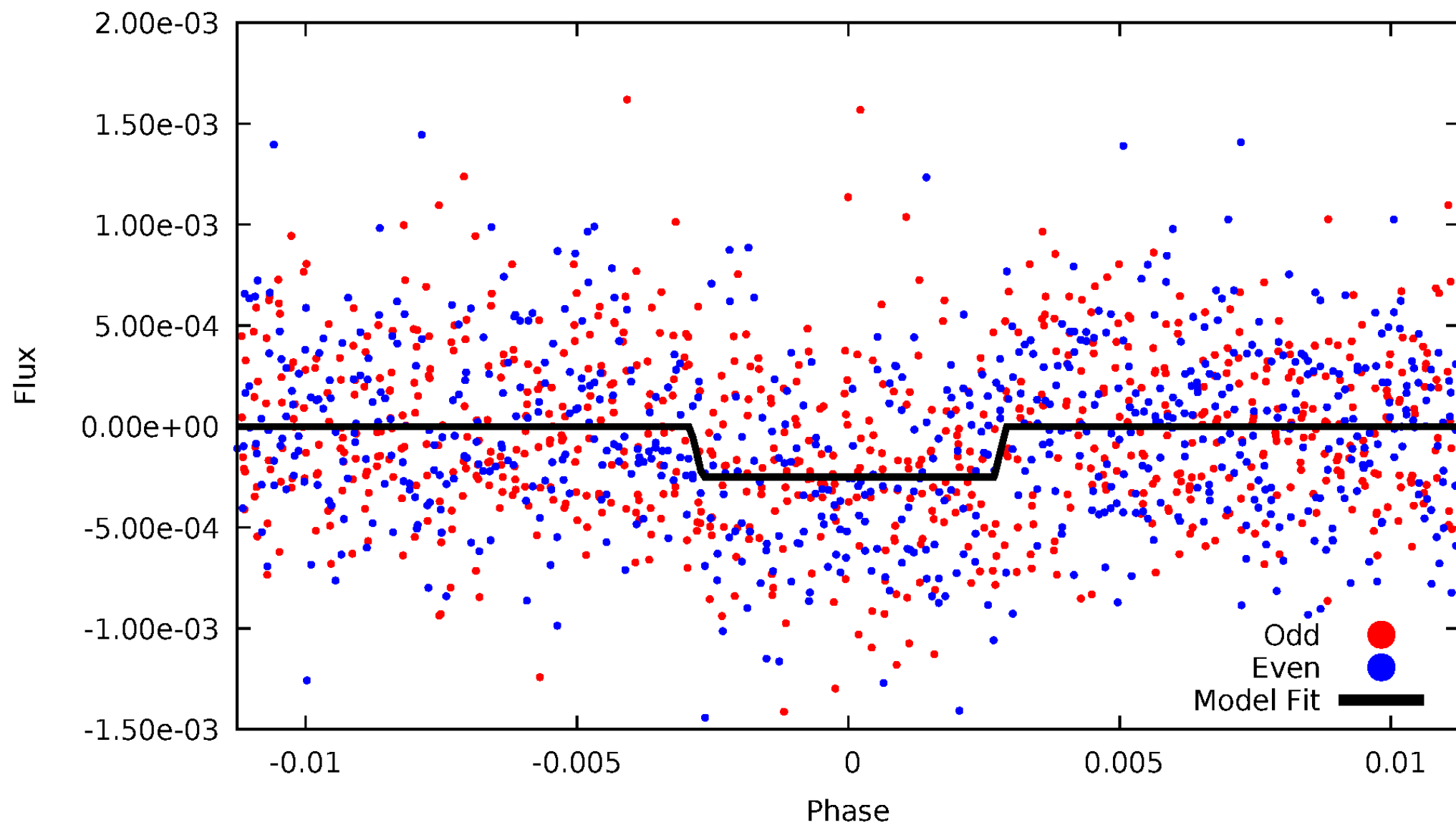
DV Odd/Even

TCE 004742420-01



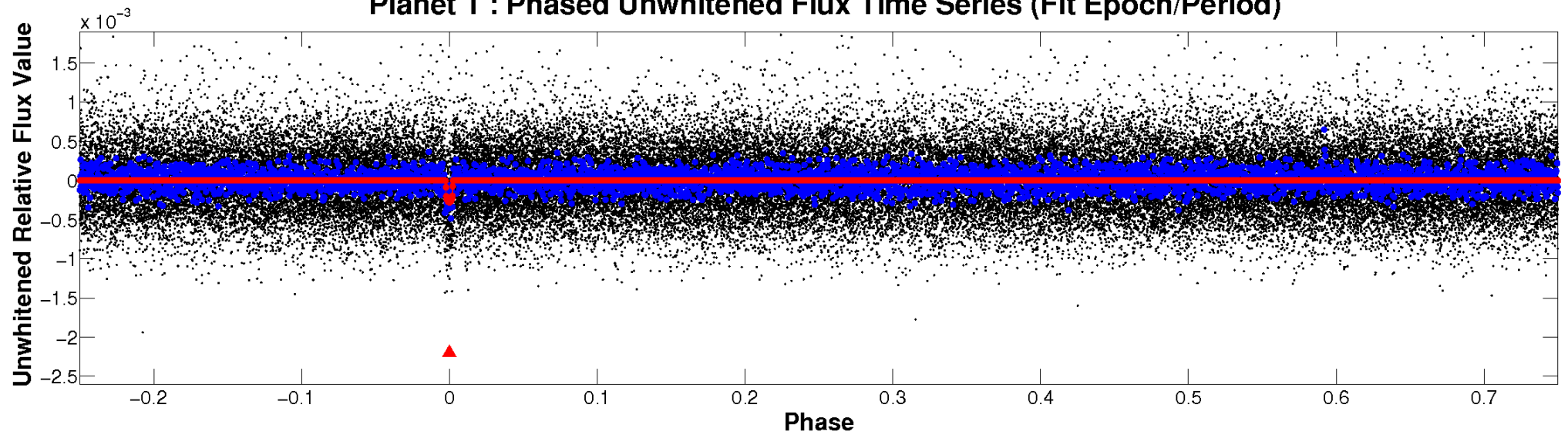
ALT Odd/Even

TCE 004742420-01

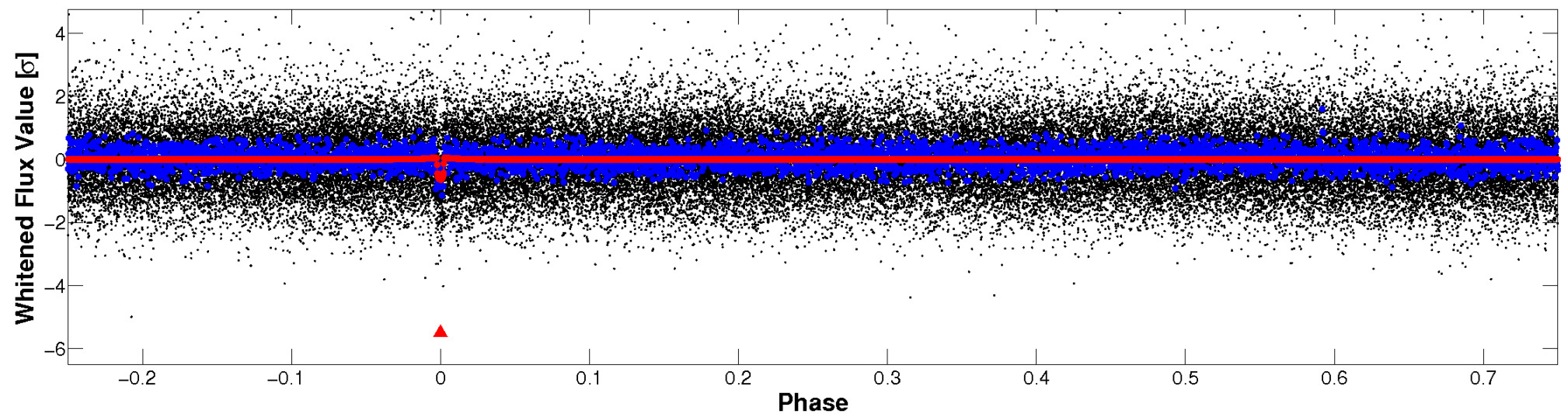


Non-Whitened Vs. Whitened Light Curve

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



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



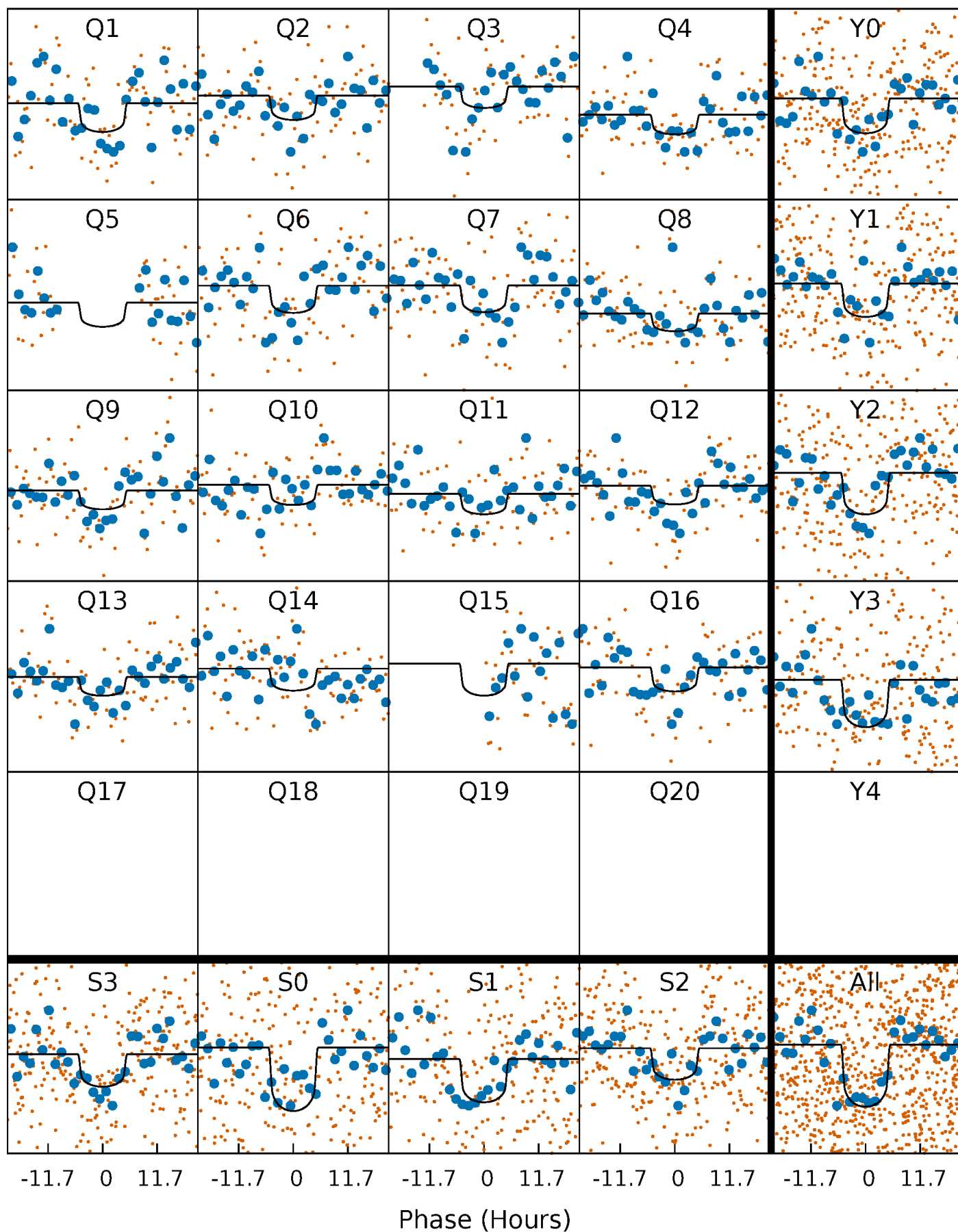
PDC Quarter-Phased Transit Curves

TCE 004742420-01 P= 90.100388 Days $T_0=143.877248$ (BKJD)



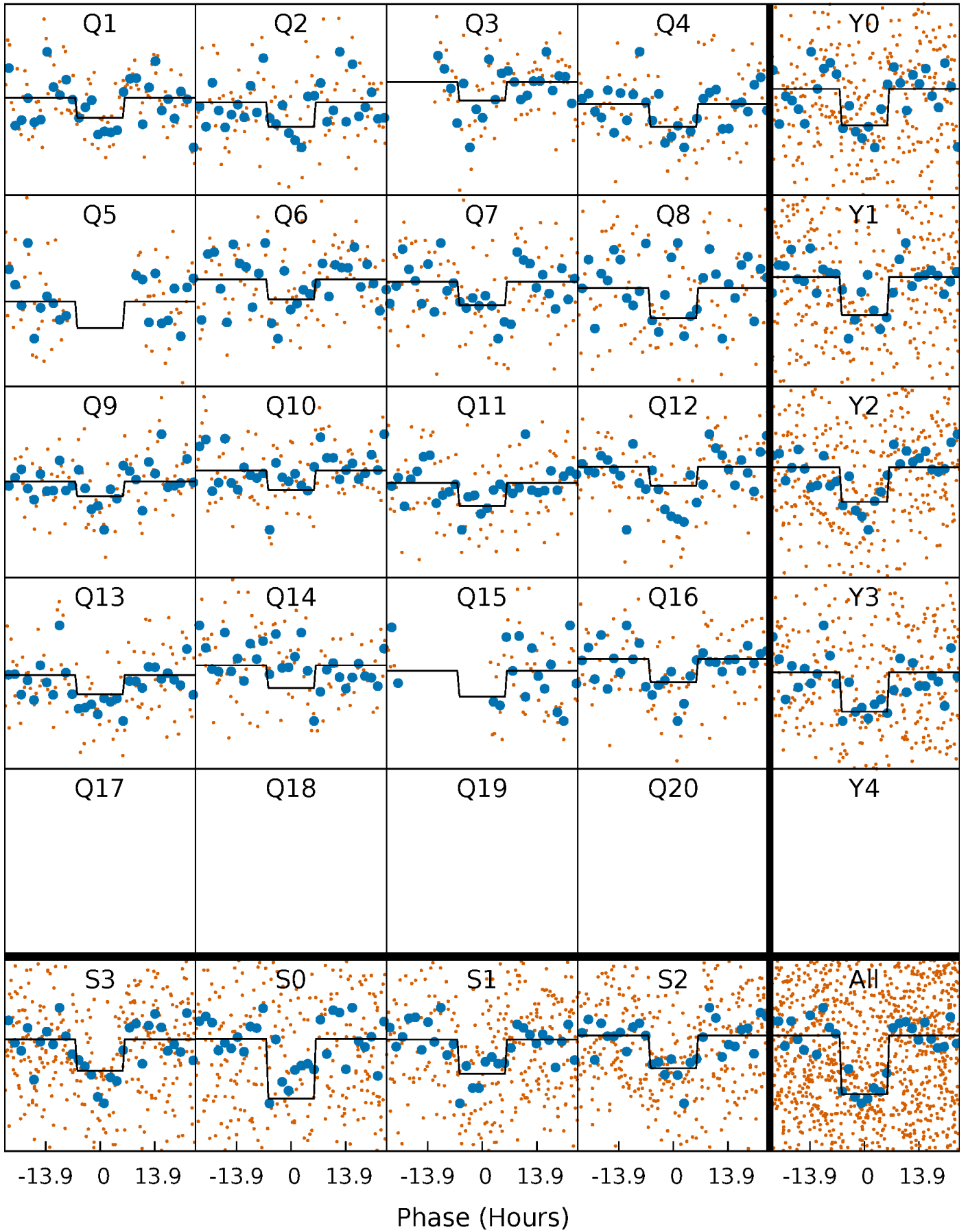
DV Quarter-Phased Transit Curves

TCE 004742420-01 P= 90.100388 Days $T_0=143.877248$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

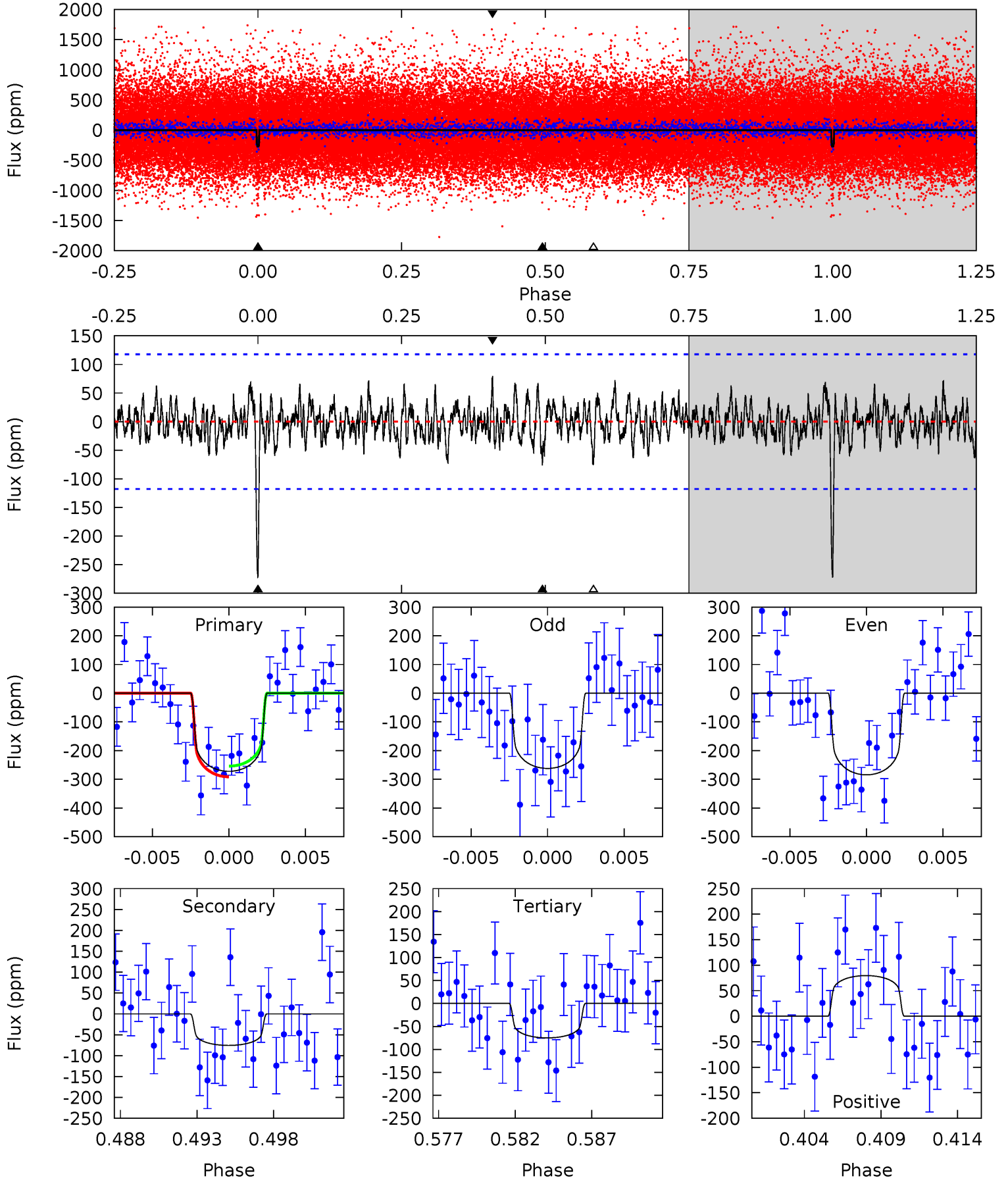
TCE 004742420-01 P= 90.097071 Days $T_0=143.854795$ (BKJD)



DV Model-Shift Uniqueness Test

004742420-01, P = 90.100388 Days, E = 53.776860 Days

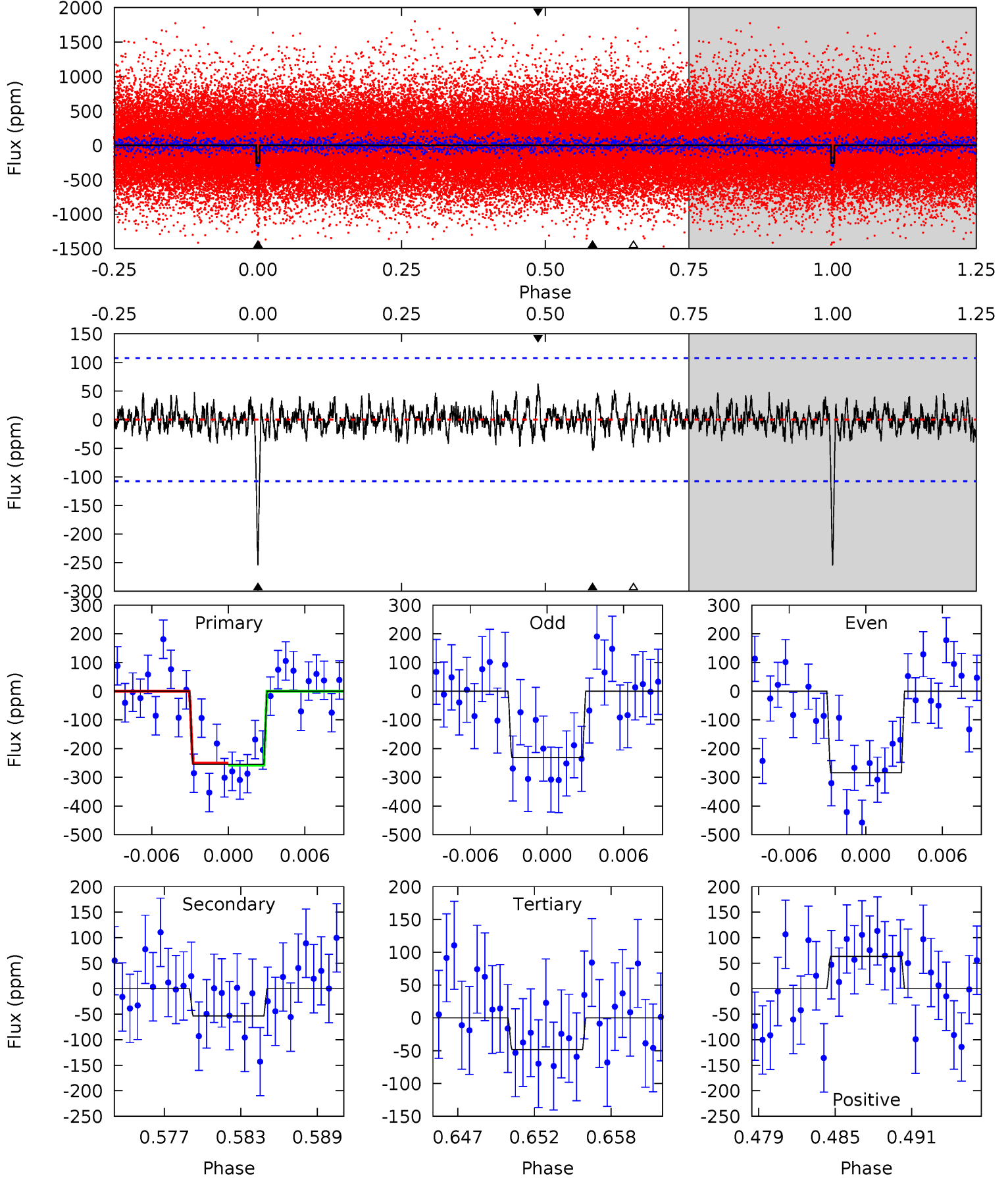
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
11.9	3.31	3.28	3.49	5.16	2.81	1.10	8.65	8.44	0.02	-0.18	0.49	0.88	0.23	0.82



Alt Model-Shift Uniqueness Test

004742420-01, P = 90.097071 Days, E = 53.757724 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
12.1	2.55	2.30	3.01	5.13	2.76	0.80	9.85	9.13	0.25	-0.46	1.25	0.97	0.20	0.17



Stellar Parameters For KIC 004742420

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	6116^{+190}_{-211}	$4.444^{+0.070}_{-0.210}$	$-0.140^{+0.300}_{-0.300}$	$1.008^{+0.331}_{-0.133}$	$1.025^{+0.150}_{-0.135}$	$1.411^{+0.426}_{-0.778}$
	+3%/-3%	+2%/-5%	+214%/-214%	+33%/-13%	+15%/-13%	+30%/-55%
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 004742420-01 / KOI 6120.01

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	-75 ± 23	$1.95^{+0.75}_{-0.68}$	611^{+48}_{-34}	4505^{+909}_{-556}	1614^{+2173}_{-812}
Alt.	-53 ± 21	$1.82^{+0.72}_{-0.66}$	613^{+47}_{-33}	4317^{+922}_{-556}	1278^{+2068}_{-716}

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

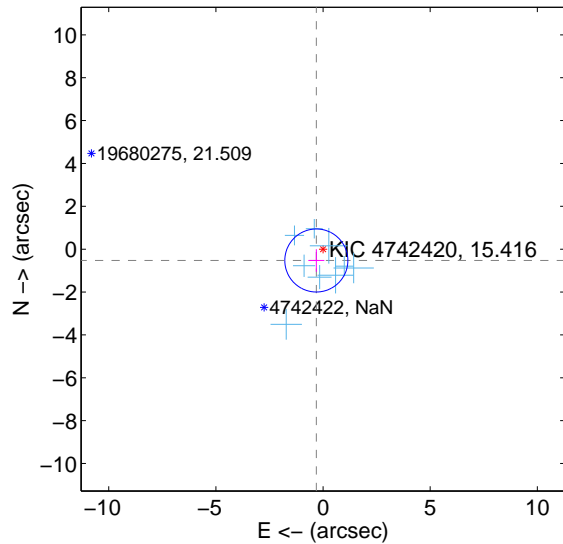
Supplemental centroid analysis for 004742420-01. Kepler magnitude: 15.42. Transit SNR 9.48

There are 9 quarters with good PRF difference image offsets

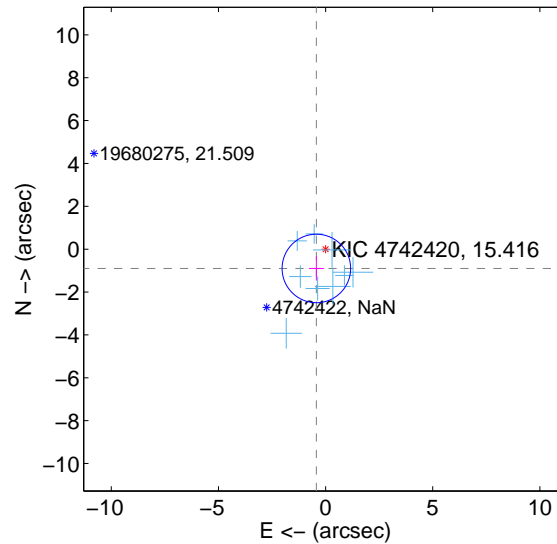
The direct PRF centroid is offset from the target star catalog position by about 0.43 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.613 ± 0.490	1.25	0.313 ± 0.374	-0.528 ± 0.525
PRF-fit source offset from KIC position	0.997 ± 0.533	1.87	0.430 ± 0.350	-0.900 ± 0.567
photometric centroid source offset	4.83 ± 1.52	3.17	-0.14 ± 1.41	4.83 ± 1.52

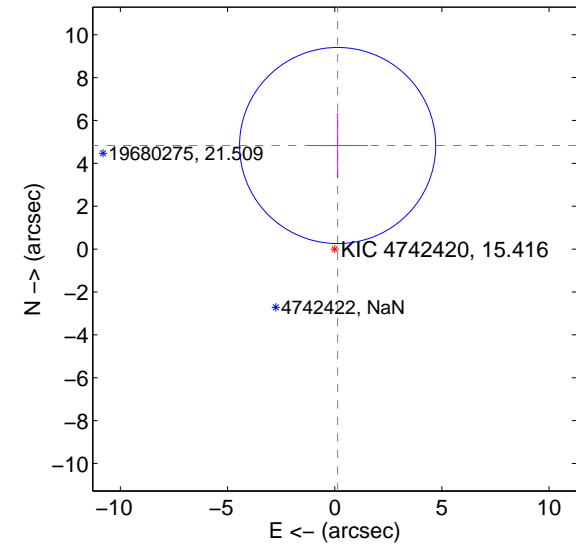
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position

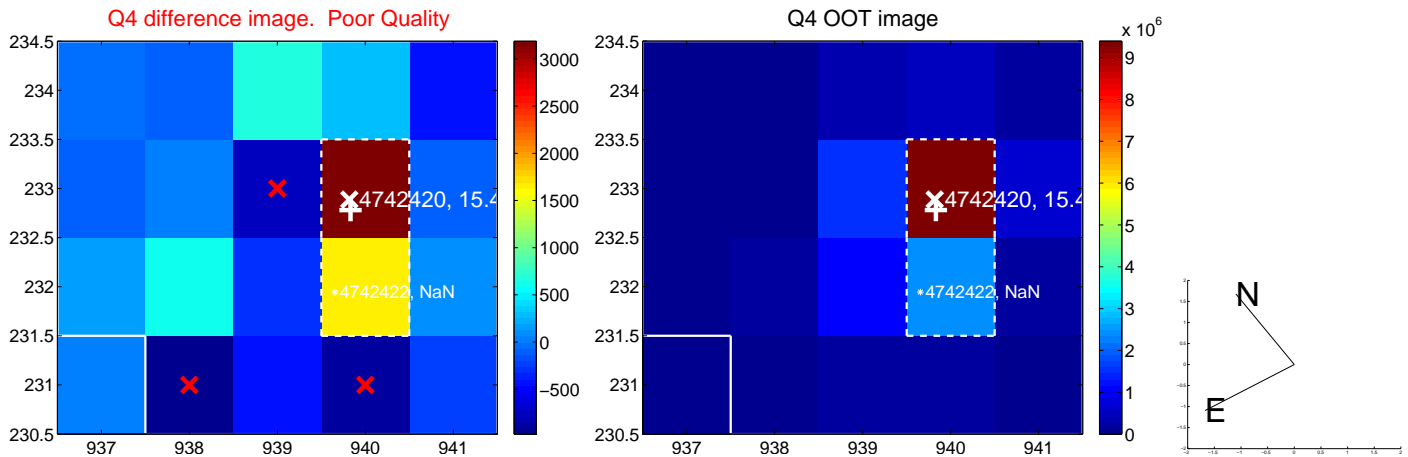
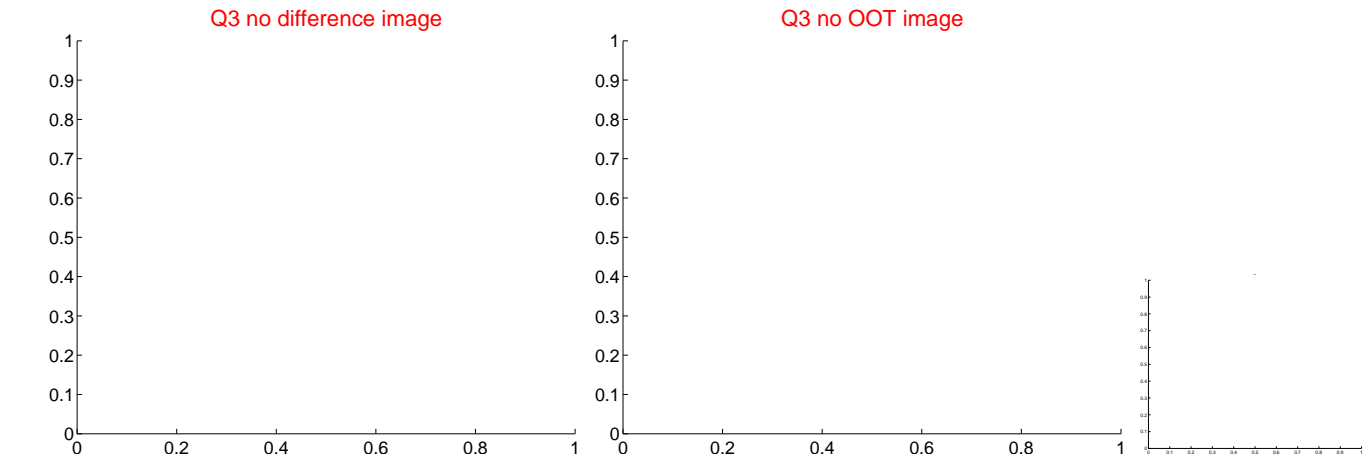
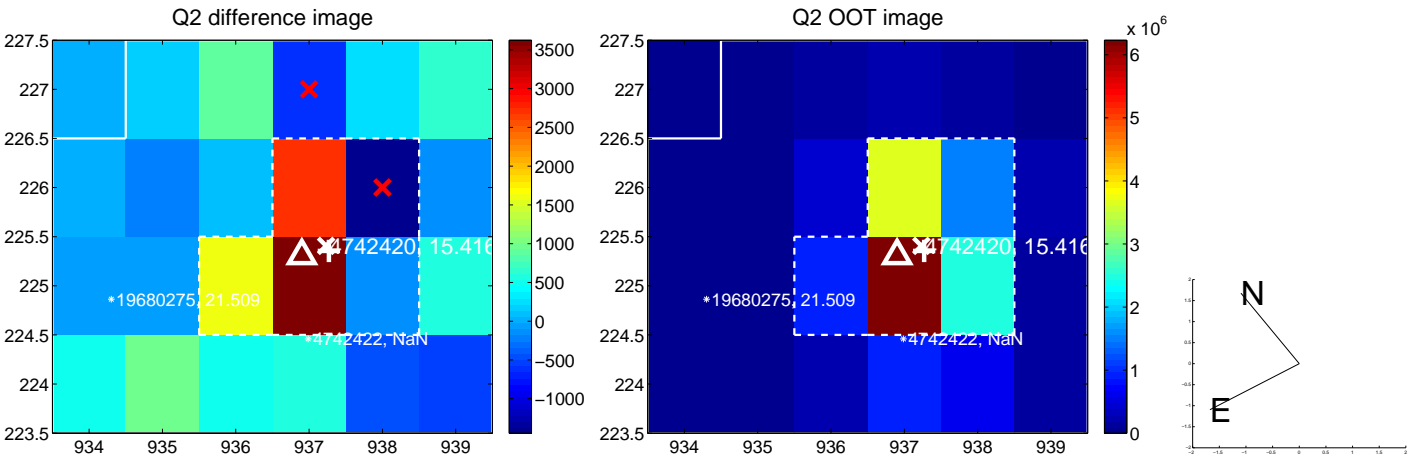
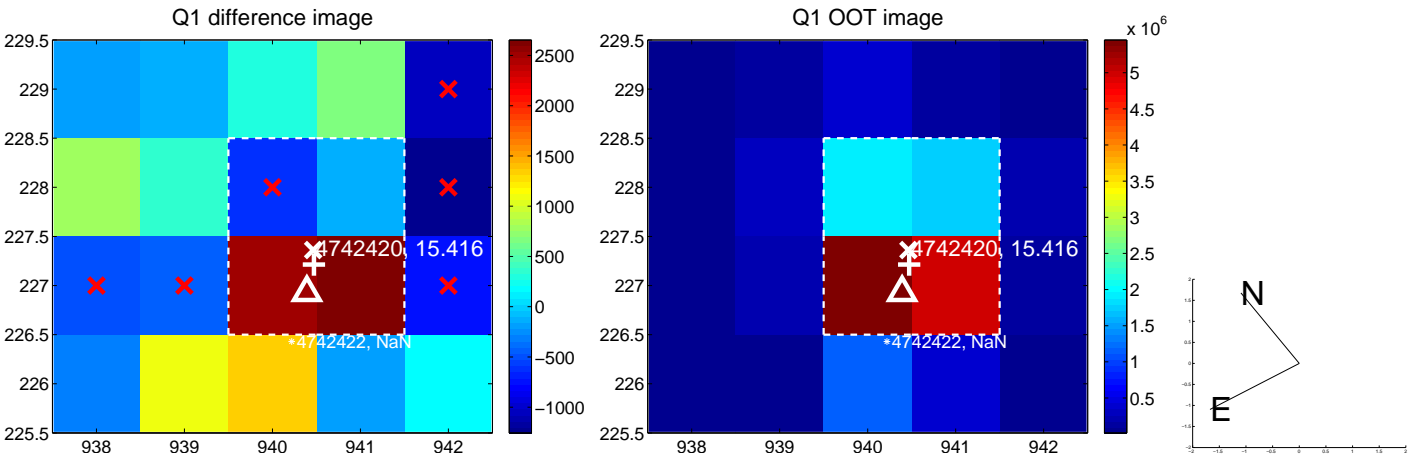


offset from photometric centroids

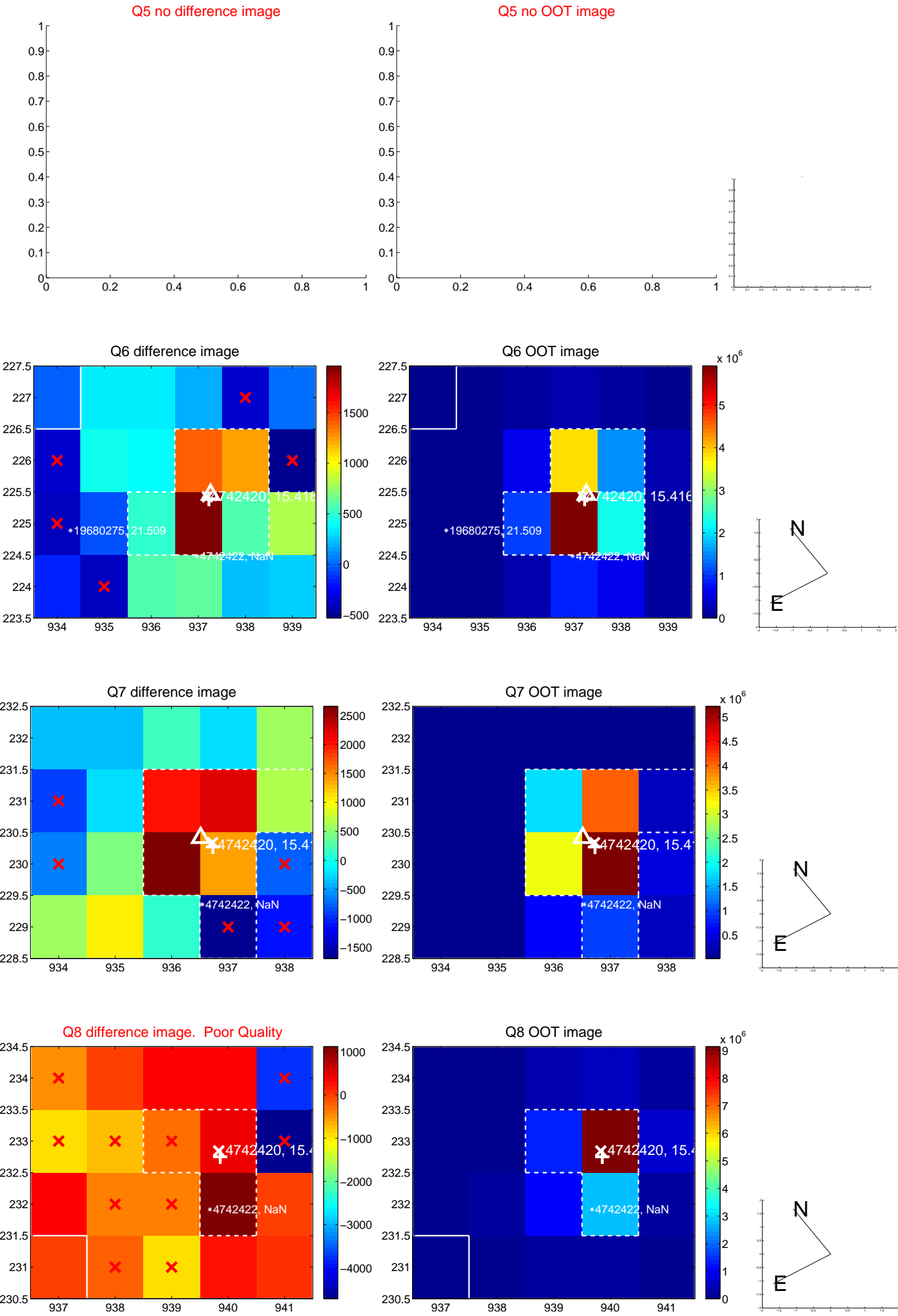


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

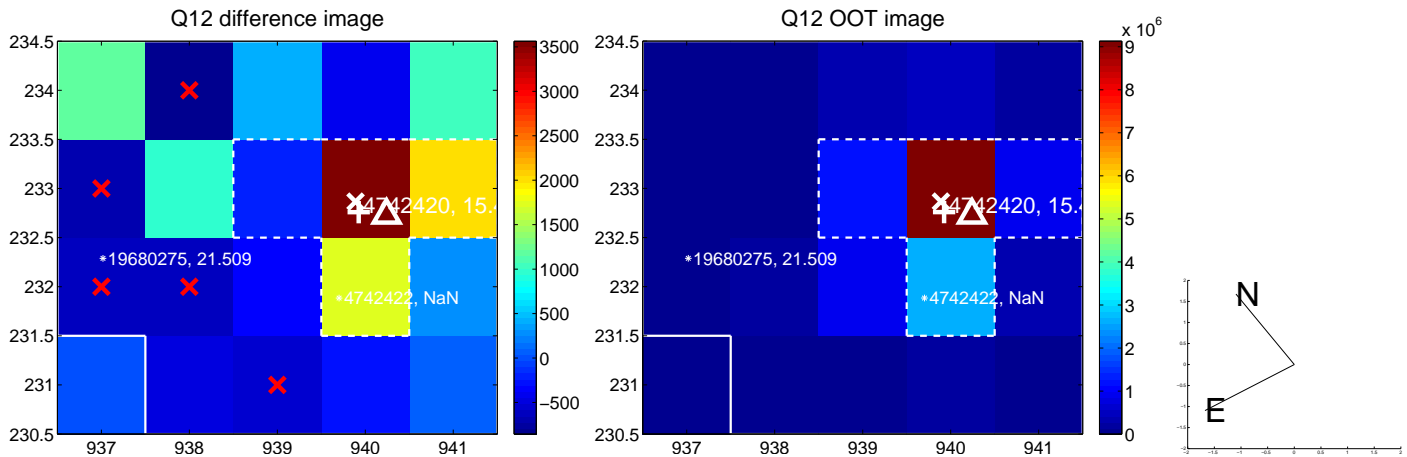
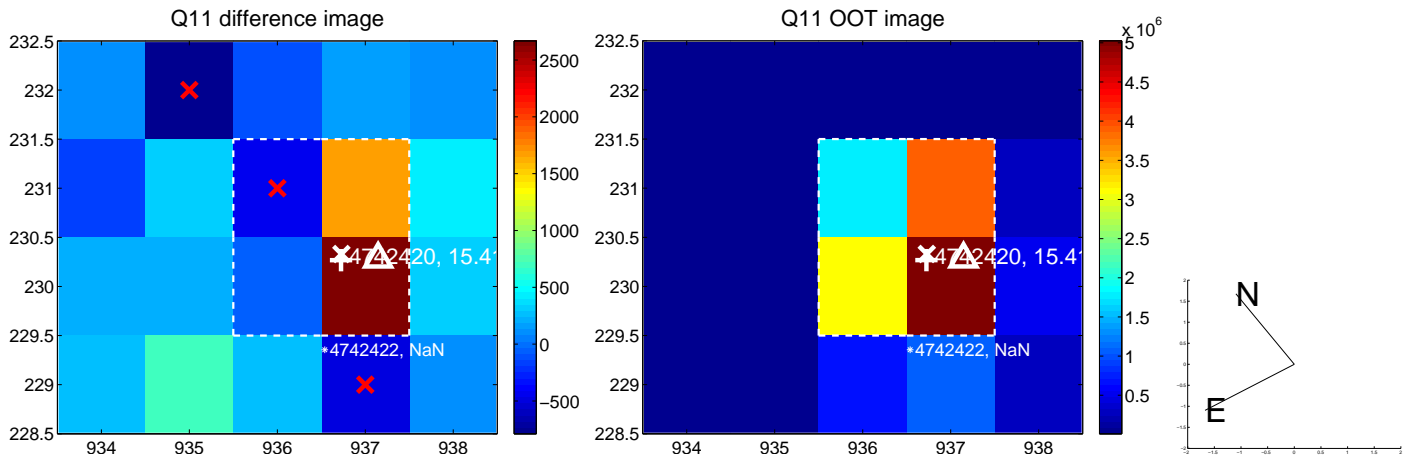
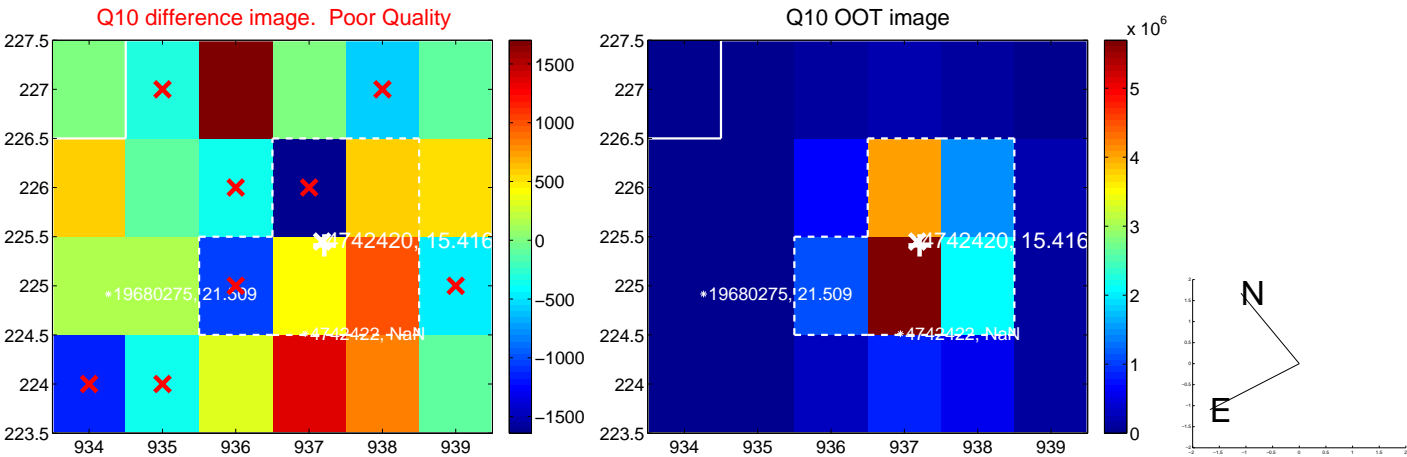
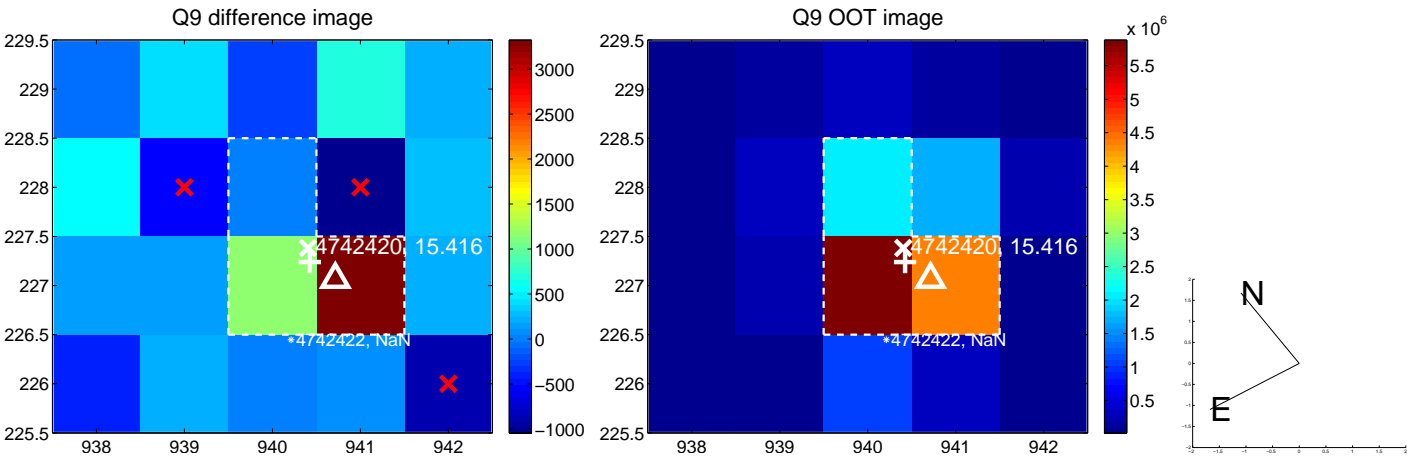
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



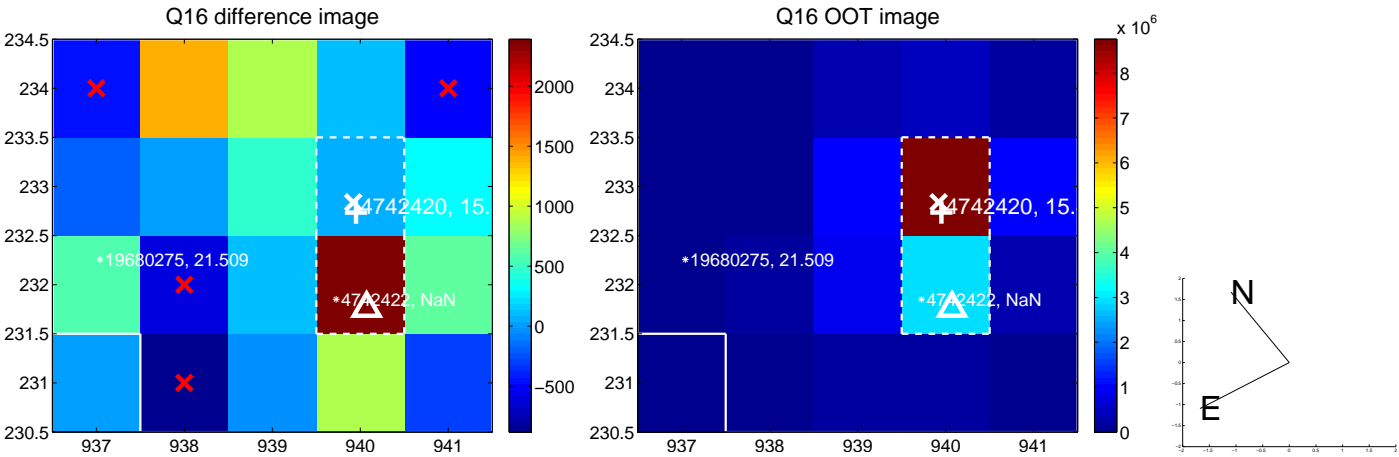
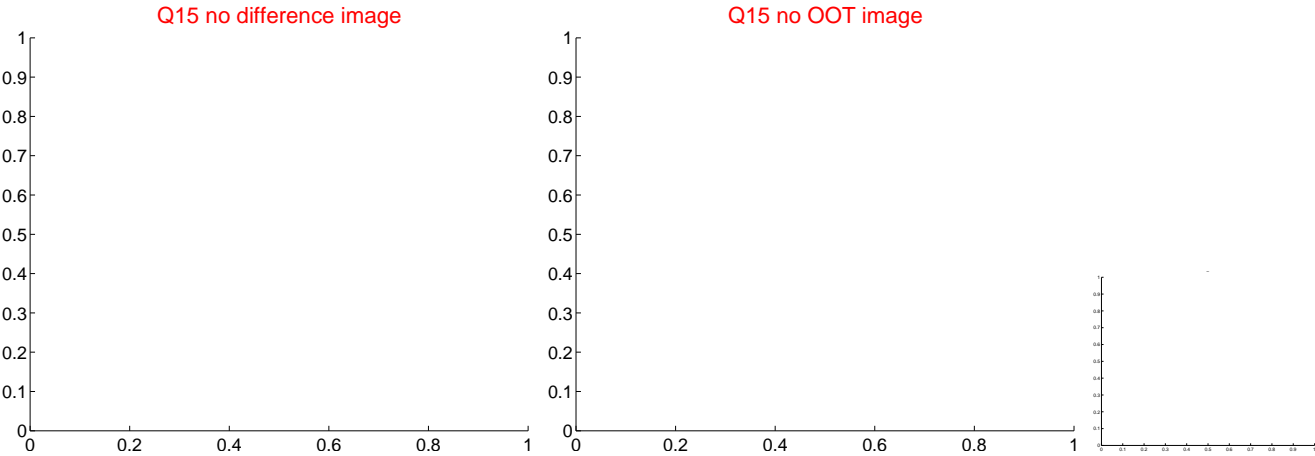
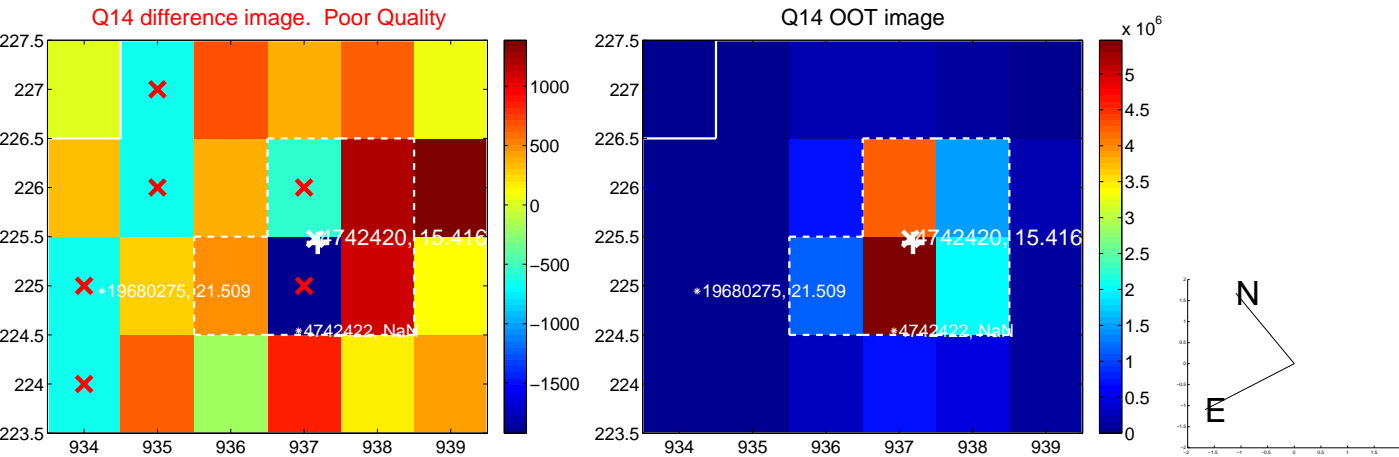
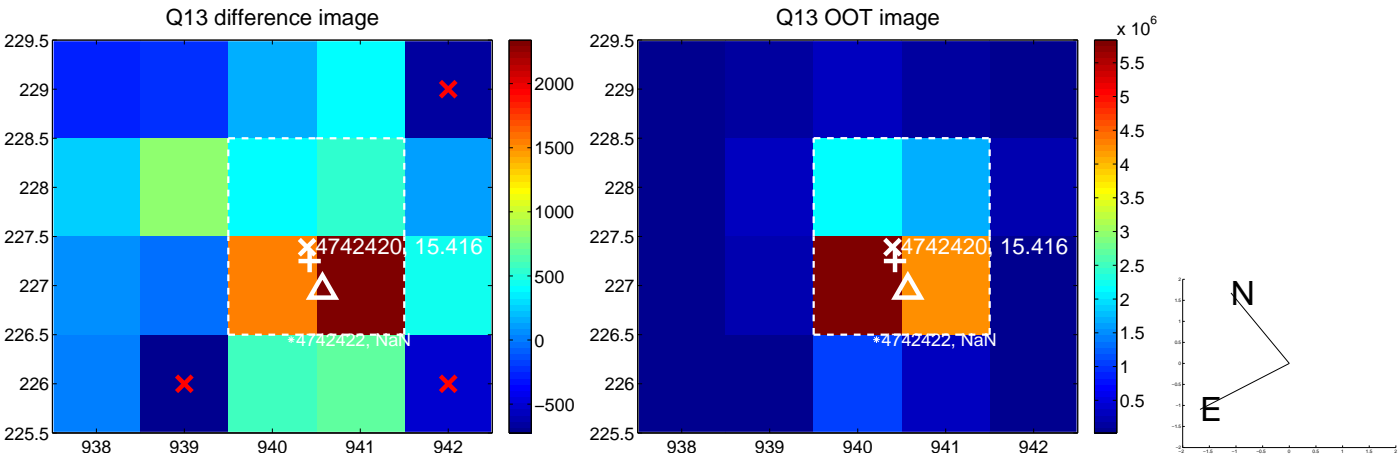
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



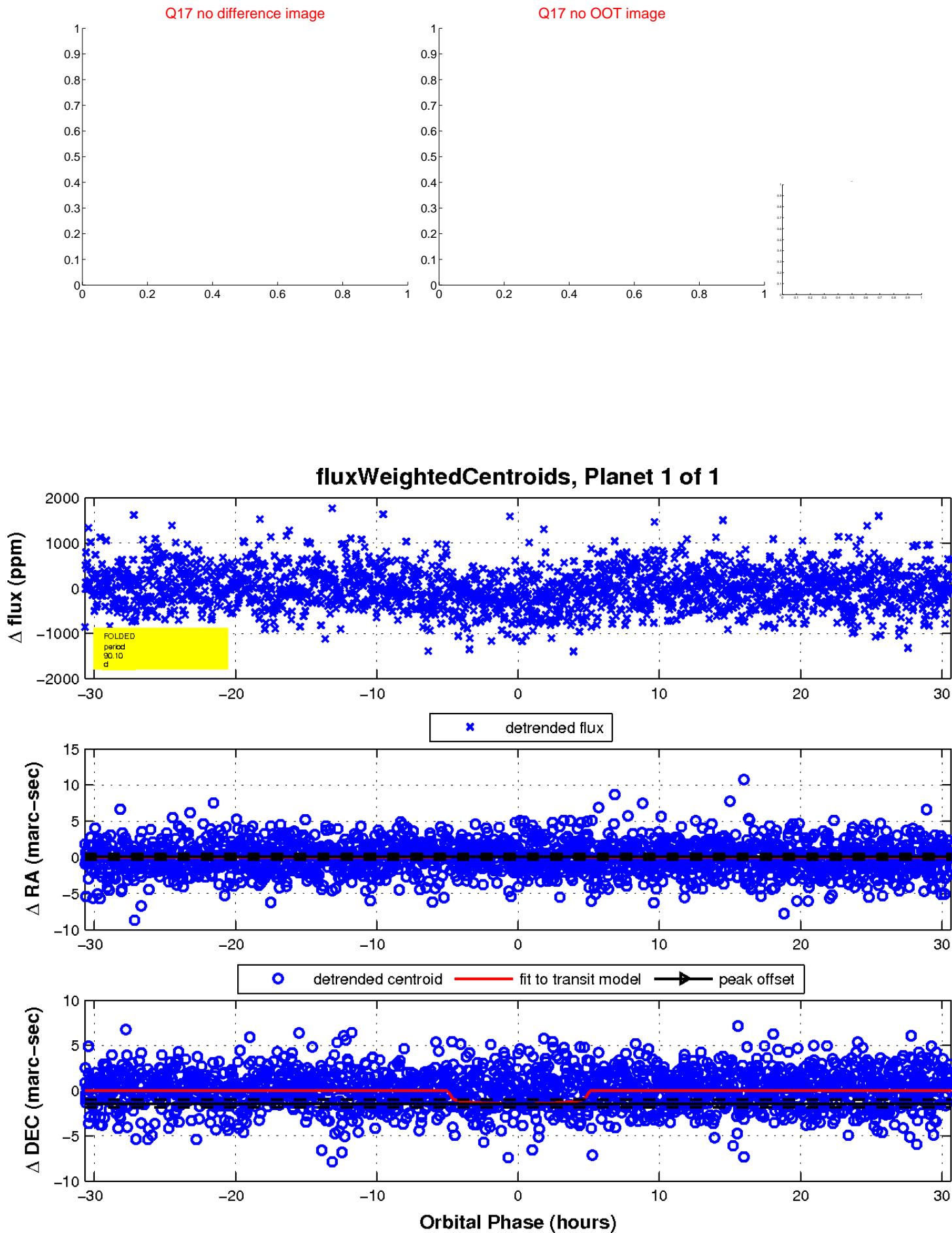
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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UKIRT Image

Declination

