

KIC 009145369

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})
009145369-01	OBS	No	0.665298	131.751801	145.1	2.512	9.0	8.1	1.60	6851	2.23	17806.43
009145369-02	OBS	No	0.807512	131.758602	381.1	2.917	10.9	13.0	1.60	6851	3.63	13753.09

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
009145369-01	OBS	FP	0.00	1	0	0	0	LPP_DV—MOD_NONUNIQ_DV
009145369-02	OBS	FP	0.00	1	0	0	0	TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_ALT

Notes: OBS = Observed. INJ = Injected. INV = Inverted. SCR = Scrambled.

N = Not Transit-Like. S = Stellar Eclipse. C = Centroid Offset. E = Ephemeris Match.

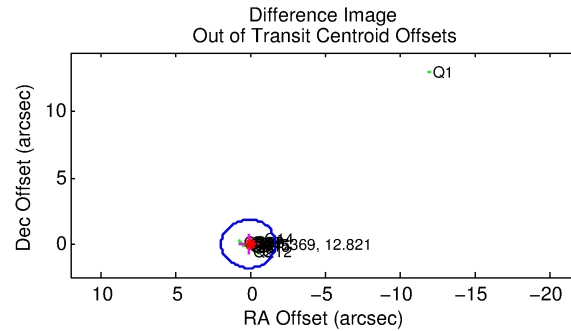
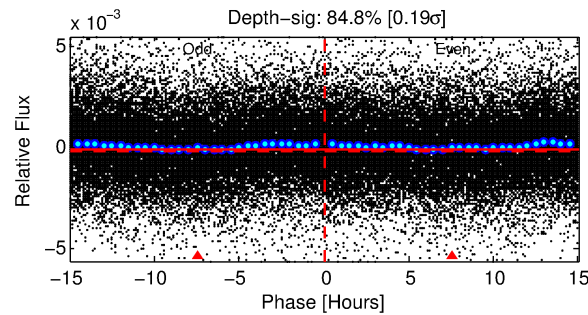
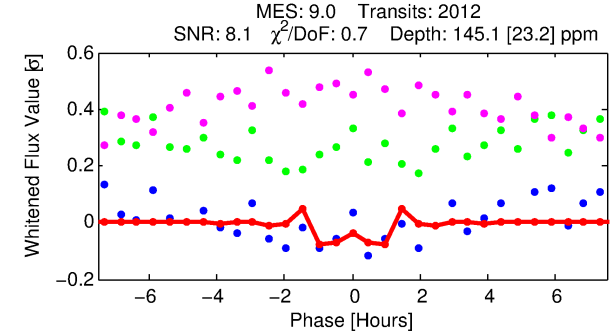
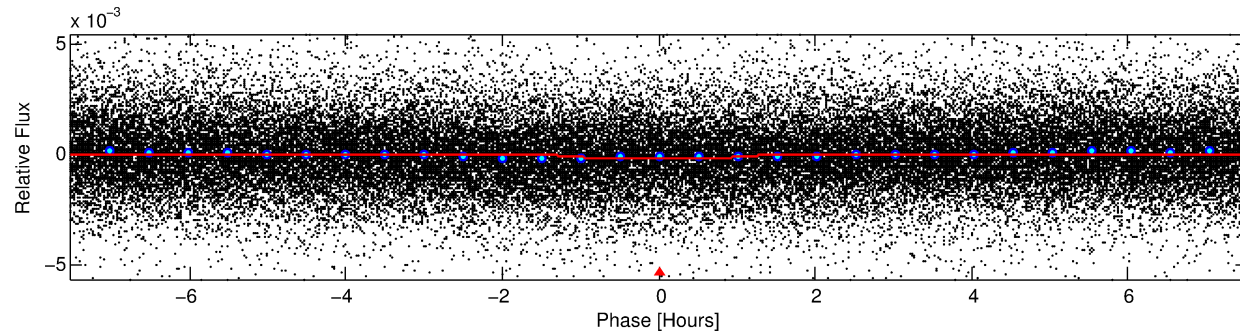
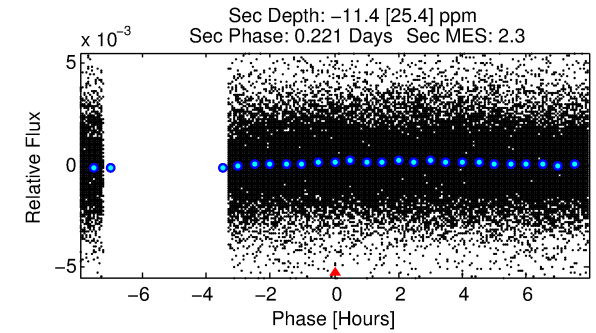
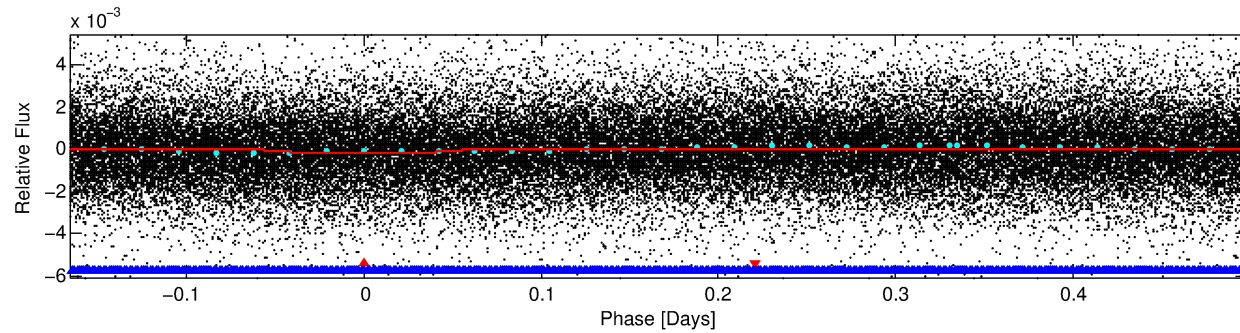
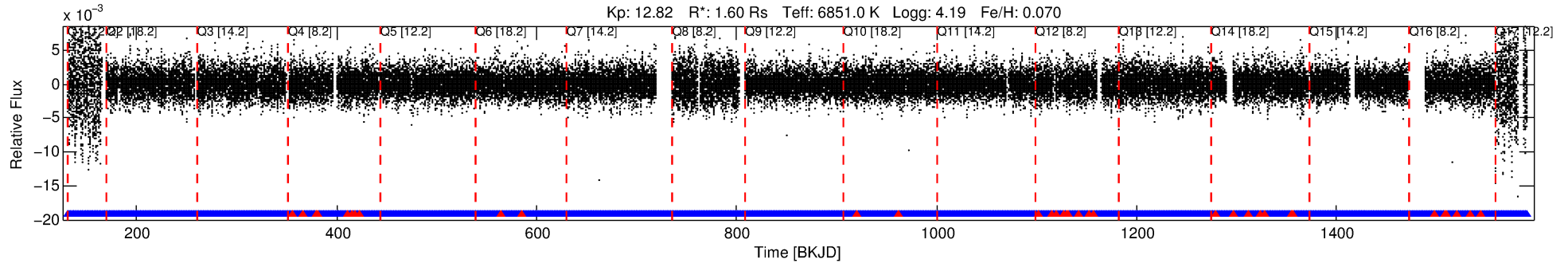
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 009145369-01

No Significant Match Found

DV One-Page Summary

KIC: 9145369 Candidate: 1 of 2 Period: 0.665 d



DV Fit Results:

Period = 0.66530 [0.00001] d
Epoch = 131.7518 [0.0014] BKJD
Rp/R* = 0.0128 [0.0028]
a/R* = 1.34 [0.67]
b = 0.90 [0.25]
Seff = 17806.43 [7713.02]
Teff = 2946 [319] K
Rp = 2.24 [0.92] Re
a = 0.0168 [0.0047] AU
Ag = N/A
Teffp = N/A

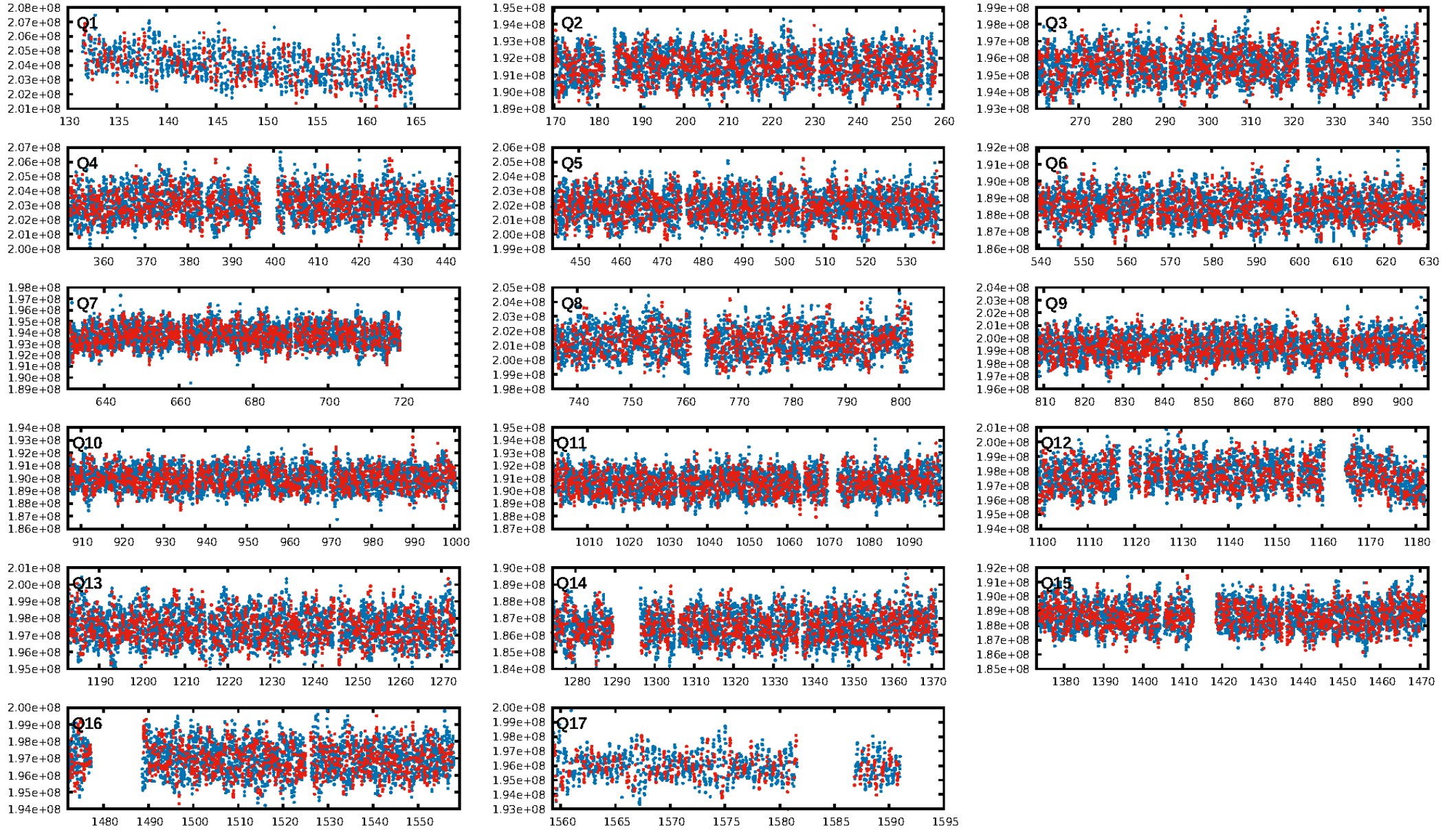
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: 62.5% [0.89σ]
ModelChiSquare2-sig: N/A
ModelChiSquareGoF-sig: N/A
Bootstrap-pfa: N/A
RollingBand-fgt: 0.98 [1883/1921]
GhostDiagnostic-chr: 1.314
Centroid-sig: 0.0%
Centroid-so: 0.455 arcsec [4.17σ]
OotOffset-rm: 0.093 arcsec [0.15σ]
KicOffset-rm: 0.205 arcsec [2.08σ]
OotOffset-st: 4/4/4/5 [17]
KicOffset-st: 4/4/4/5 [17]
DiffImageQuality-fgm: 0.82 [14/17]
DiffImageOverlap-fno: 1.00 [17/17]

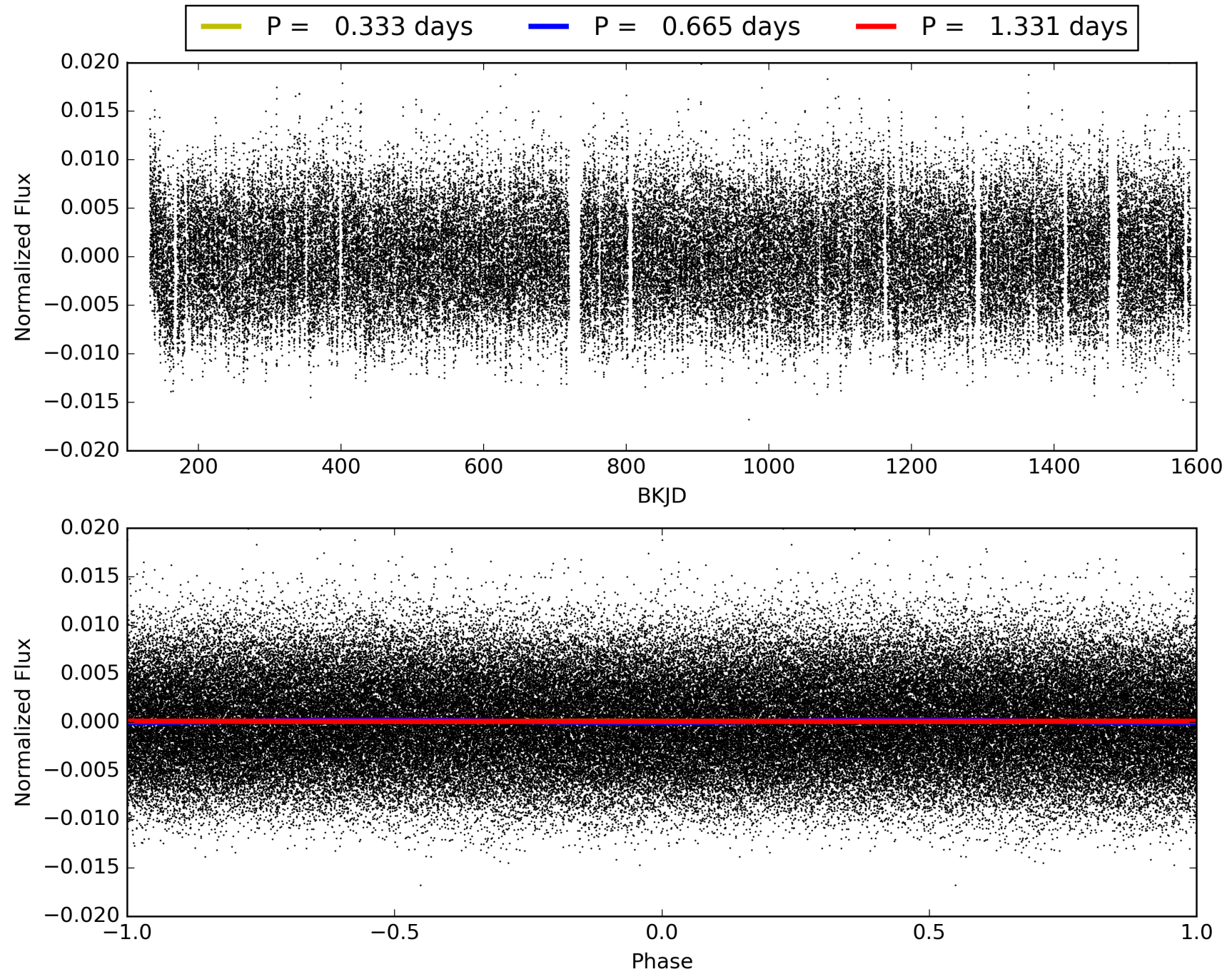
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 06:19:28 Z

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

TCE 009145369-01, PDC Light Curves

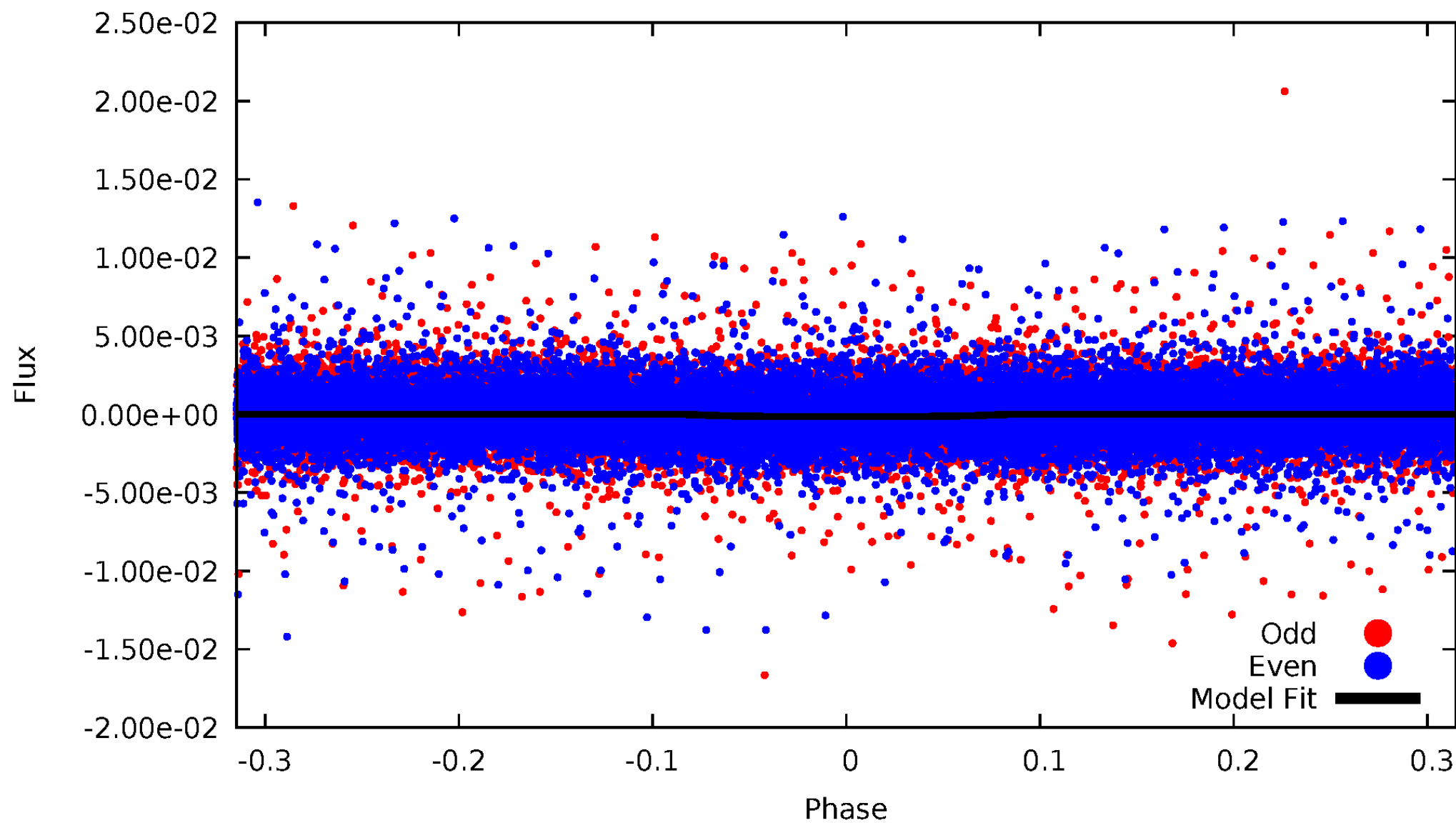


TCE 009145369-01



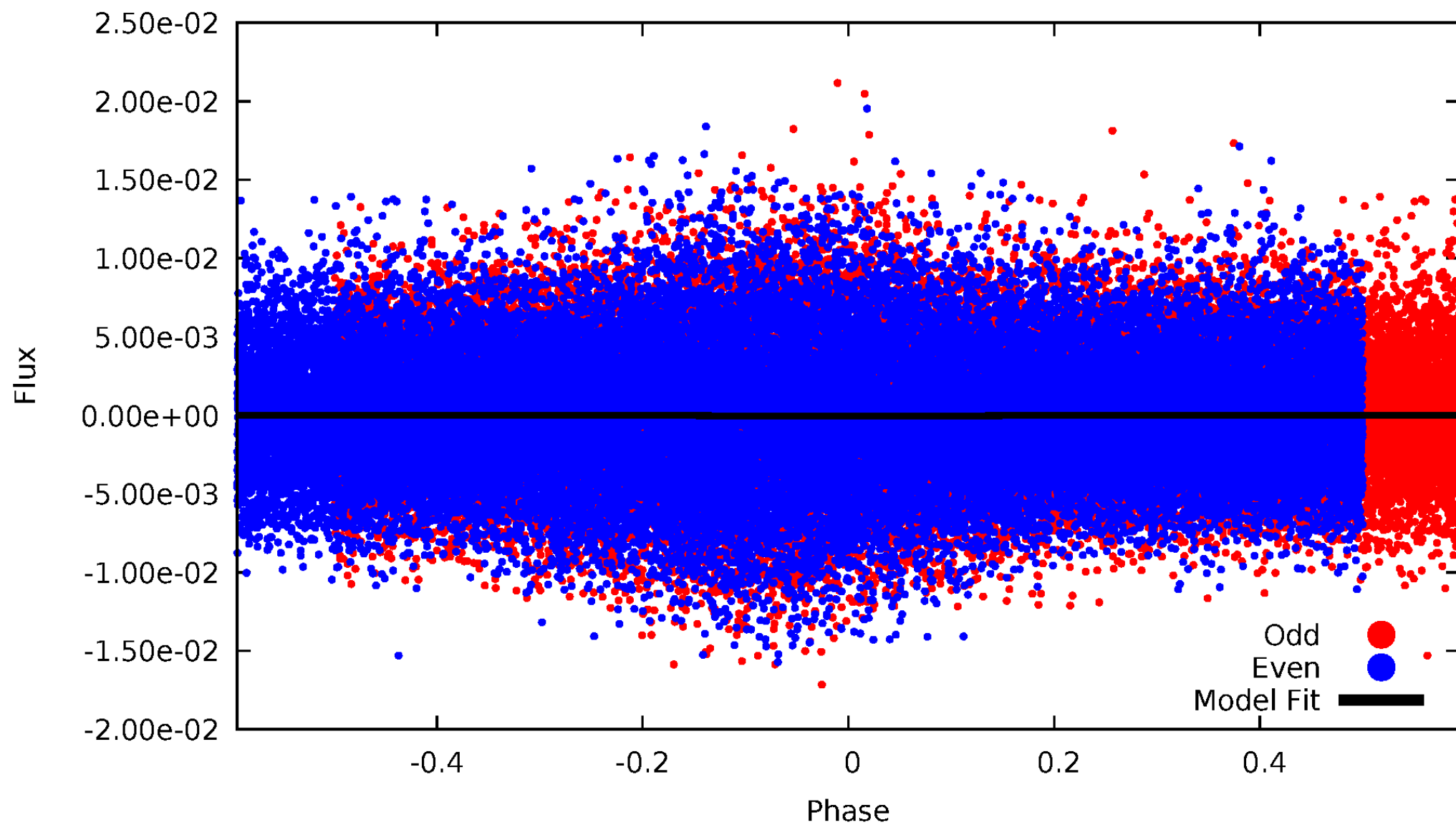
DV Odd/Even

TCE 009145369-01



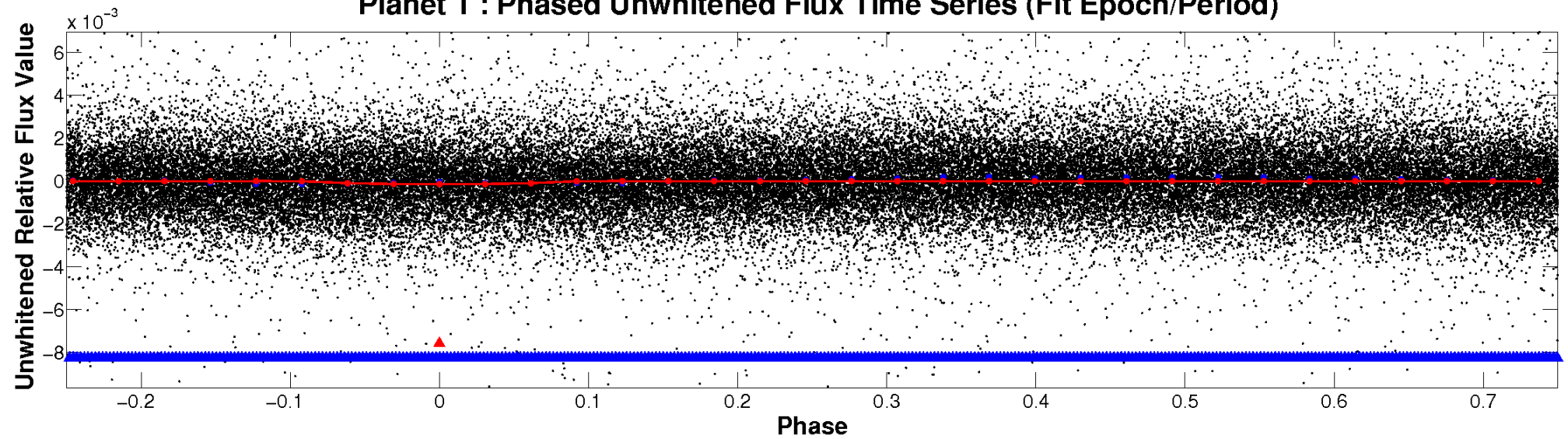
ALT Odd/Even

TCE 009145369-01

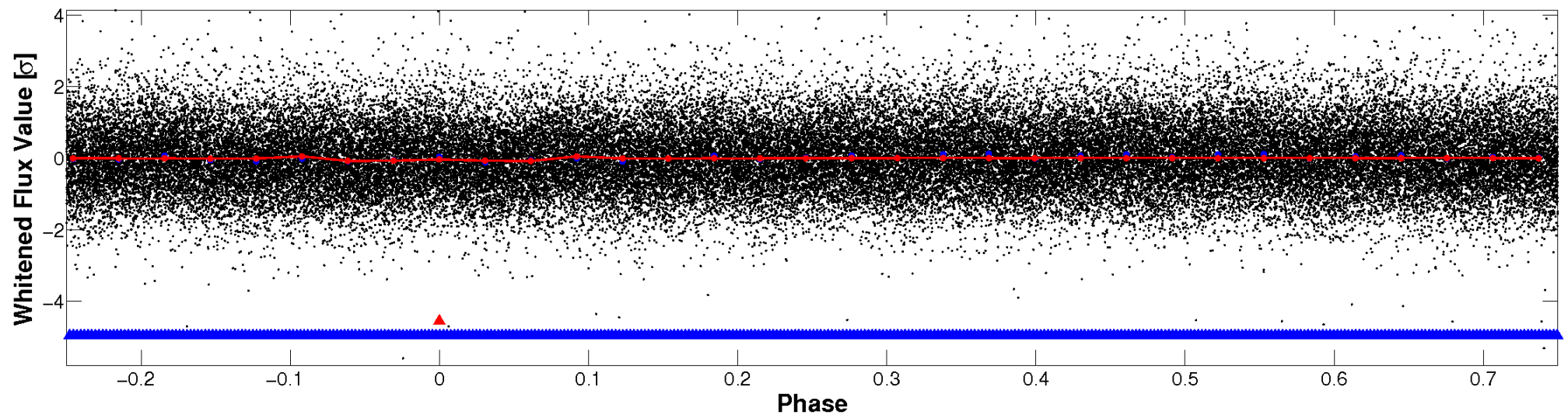


Non-Whitened Vs. Whitened Light Curve

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

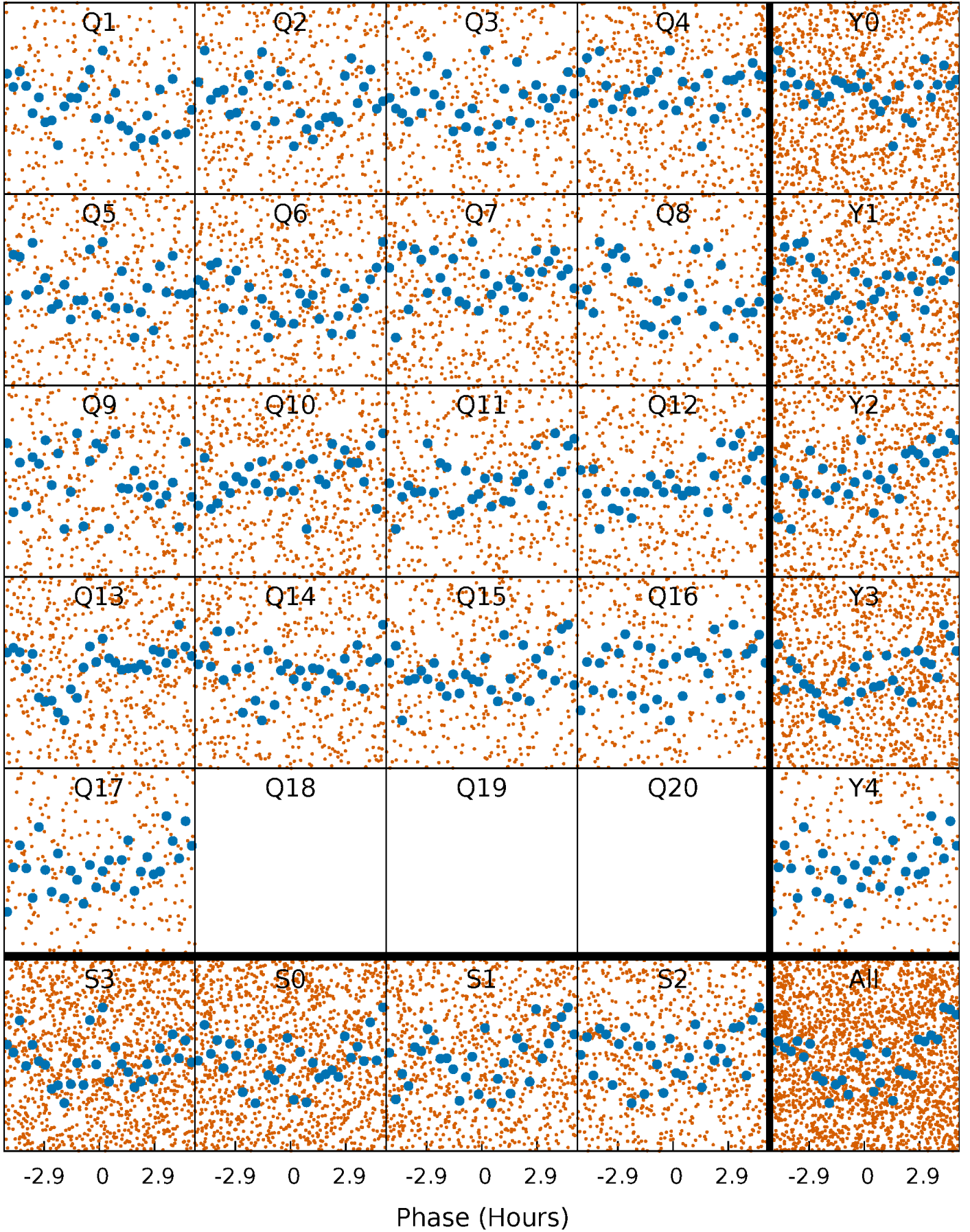


Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)



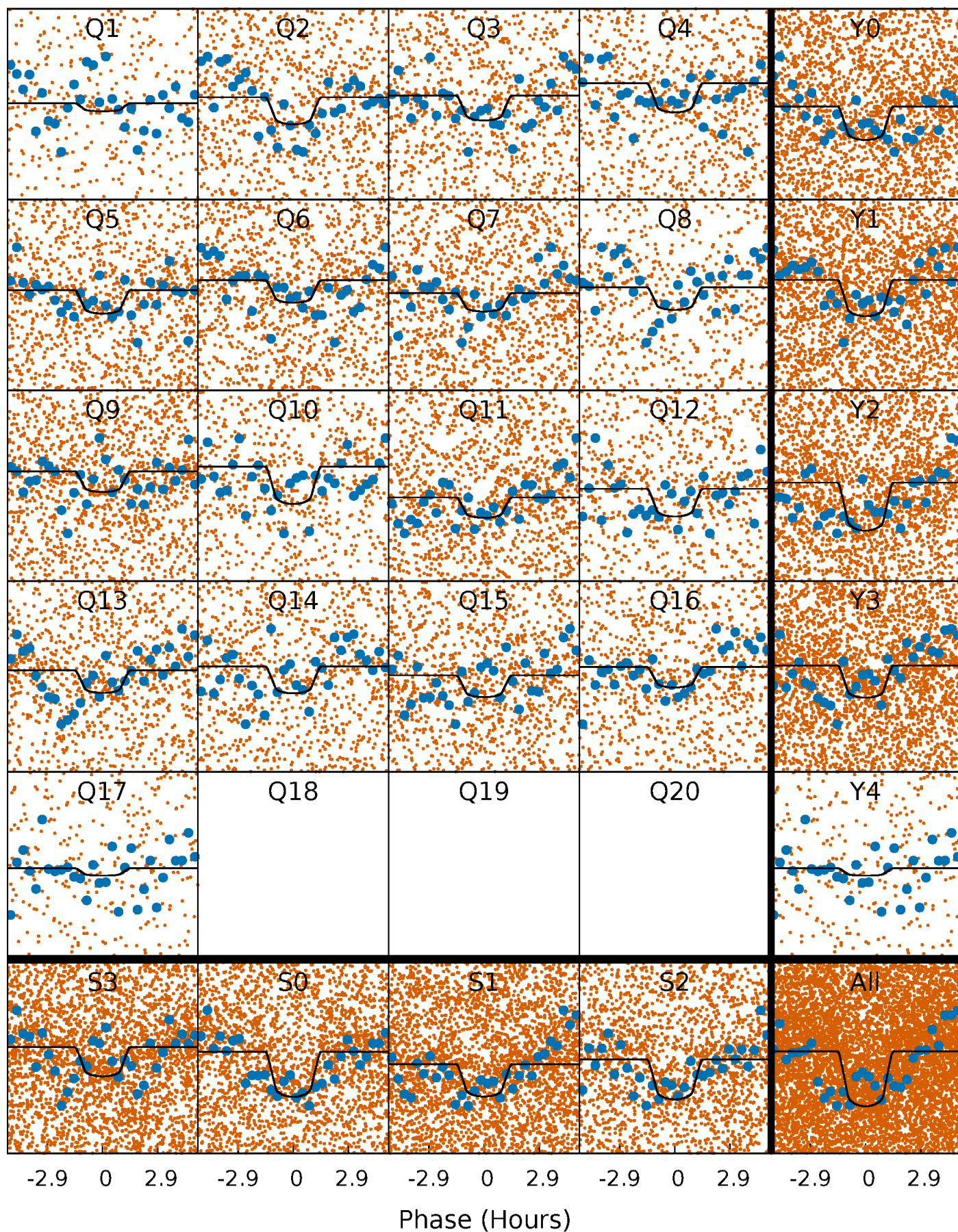
PDC Quarter-Phased Transit Curves

TCE 009145369-01 P= 0.665298 Days $T_0=131.751801$ (BKJD)



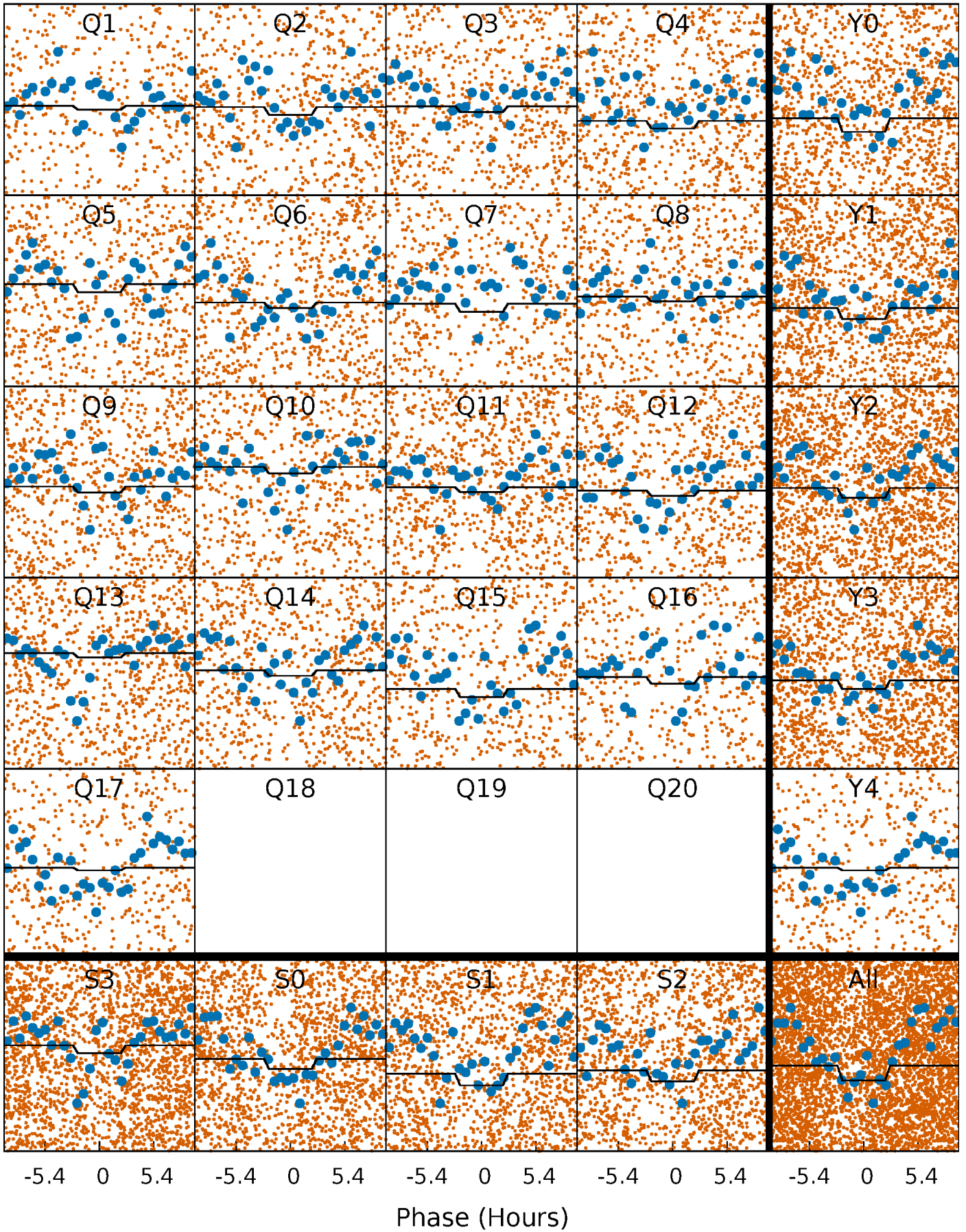
DV Quarter-Phased Transit Curves

TCE 009145369-01 P= 0.665298 Days $T_0=131.751801$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

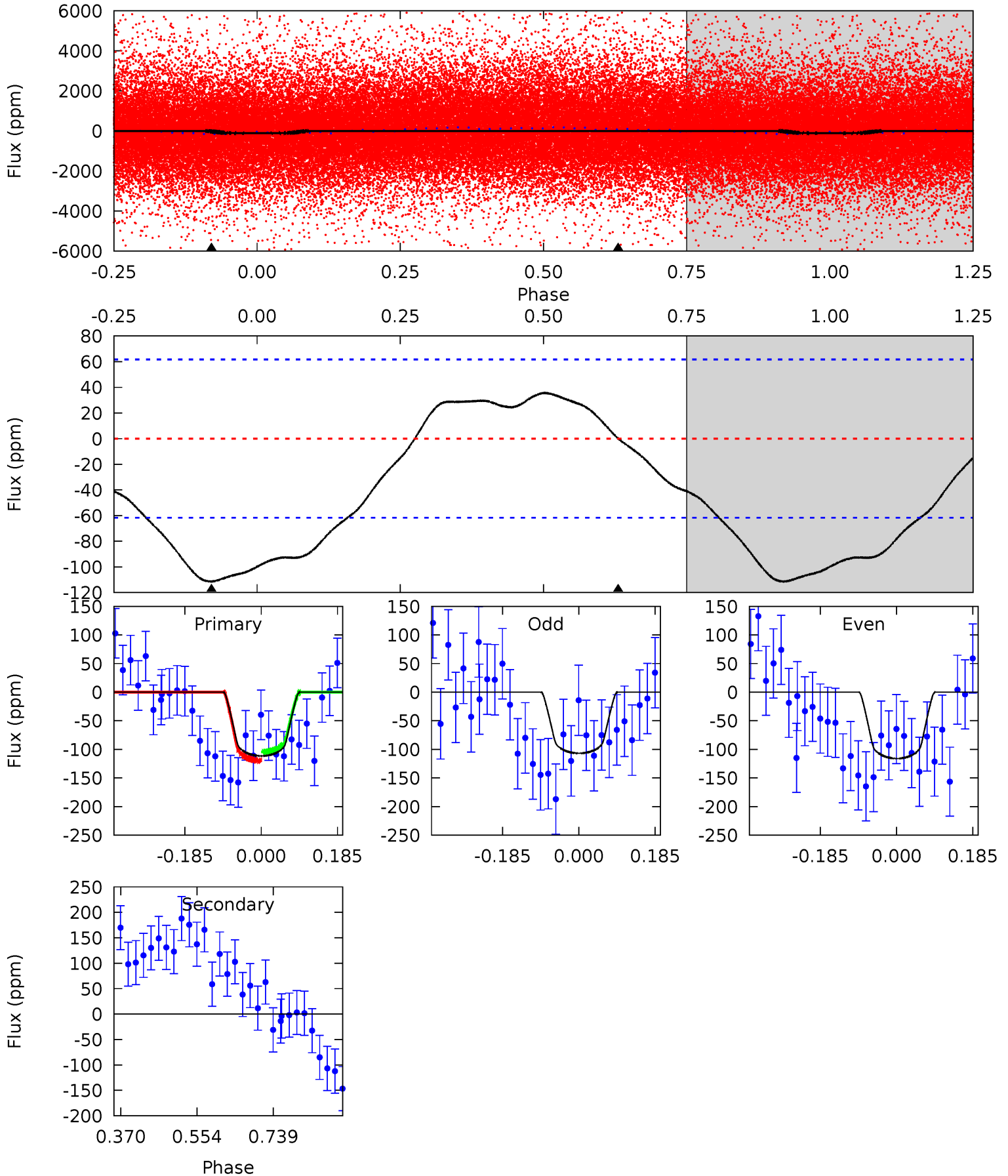
TCE 009145369-01 P= 0.665297 Days $T_0=131.743901$ (BKJD)



DV Model-Shift Uniqueness Test

009145369-01, P = 0.665298 Days, E = 131.086503 Days

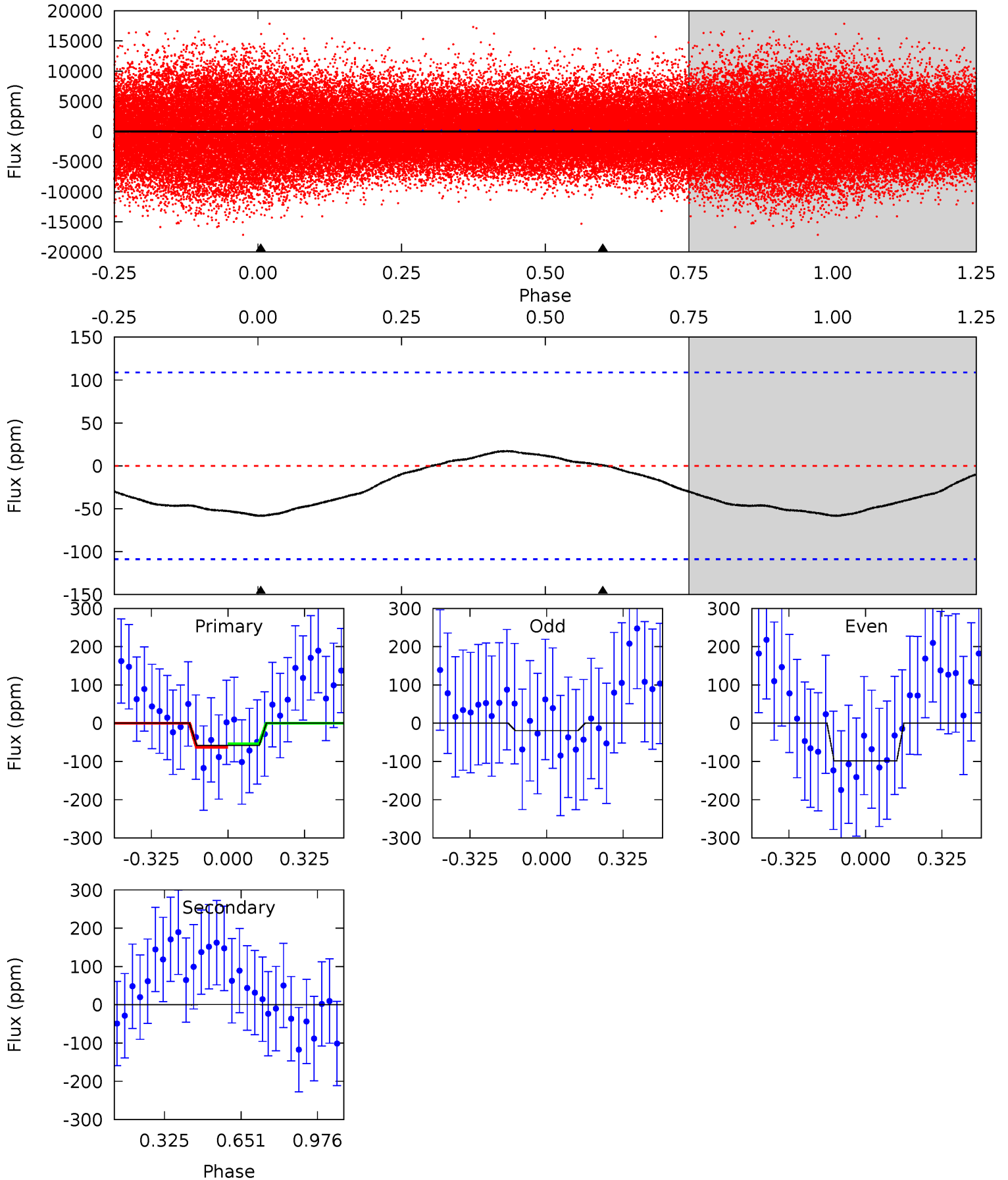
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
8.01	0	0	0	4.43	1.33	2.79	8.01	8.01	0	0	0.32	0.78	0.24	0.56



Alt Model-Shift Uniqueness Test

009145369-01, P = 0.665297 Days, E = 131.078604 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
2.31	-0.02	0	0	4.31	0.98	0.20	2.31	2.31	-0.02	-0.02	1.57	0.90	0.23	0.17



Stellar Parameters For KIC 009145369

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	6851^{+189}_{-307}	$4.187^{+0.112}_{-0.208}$	$0.070^{+0.200}_{-0.350}$	$1.596^{+0.554}_{-0.298}$	$1.428^{+0.218}_{-0.218}$	$0.495^{+0.326}_{-0.266}$
	+3%/-4%	+3%/-5%	+286%/-500%	+35%/-19%	+15%/-15%	+66%/-54%
Source	PHO54	PHO54	PHO54	DSEP		

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

Secondary Eclipse Parameters for KIC 009145369-01 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	0 ± 14	$2.32^{+0.64}_{-0.60}$	4150^{+330}_{-242}	-3775^{+7061}_{-712}	$0.002^{+0.440}_{-0.454}$
Alt.	1 ± 25	$1.21^{+0.60}_{-0.51}$	4150^{+320}_{-269}	-3960^{+9651}_{-2292}	$-0.064^{+2.854}_{-3.321}$

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 $A_{obs} \gg 1.0$

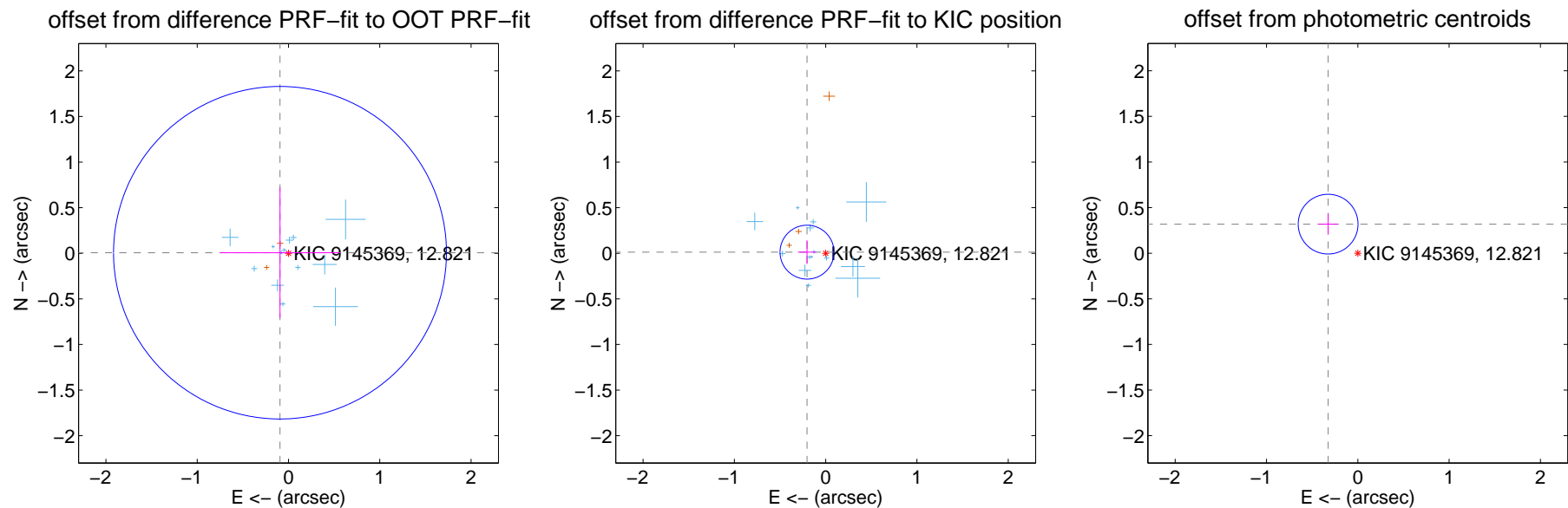
DV Centroid Data

Supplemental centroid analysis for 009145369-01. Kepler magnitude: 12.82. Transit SNR 8.13

There are 14 quarters with good PRF difference image offsets

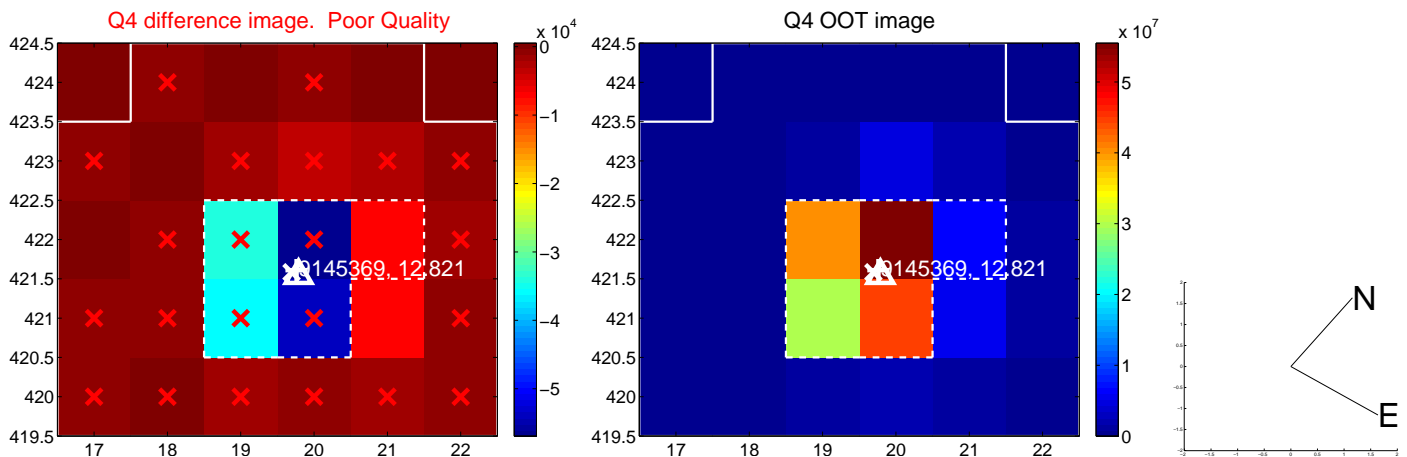
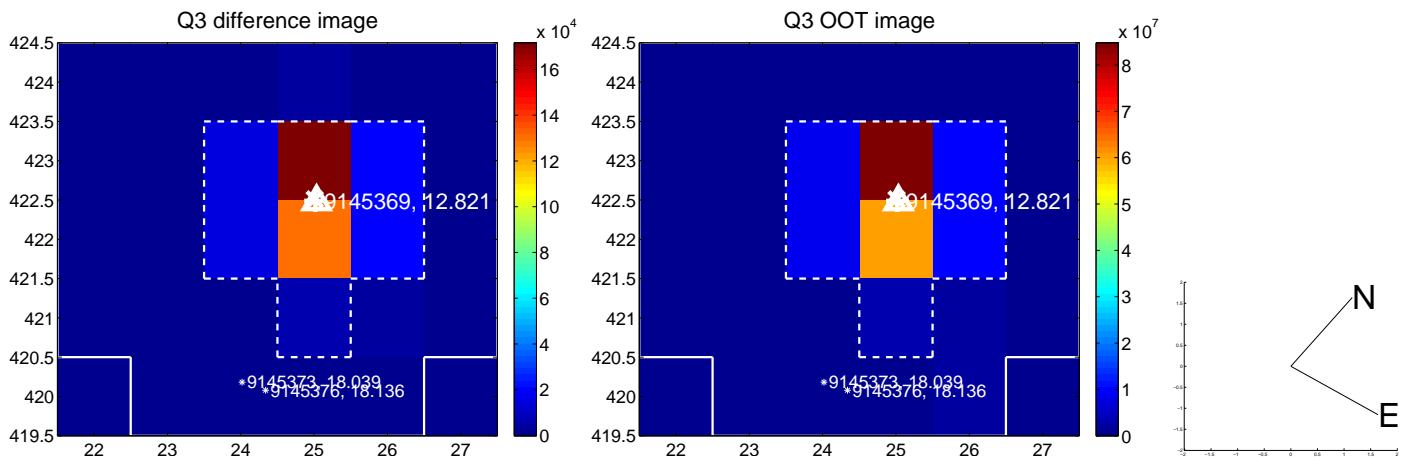
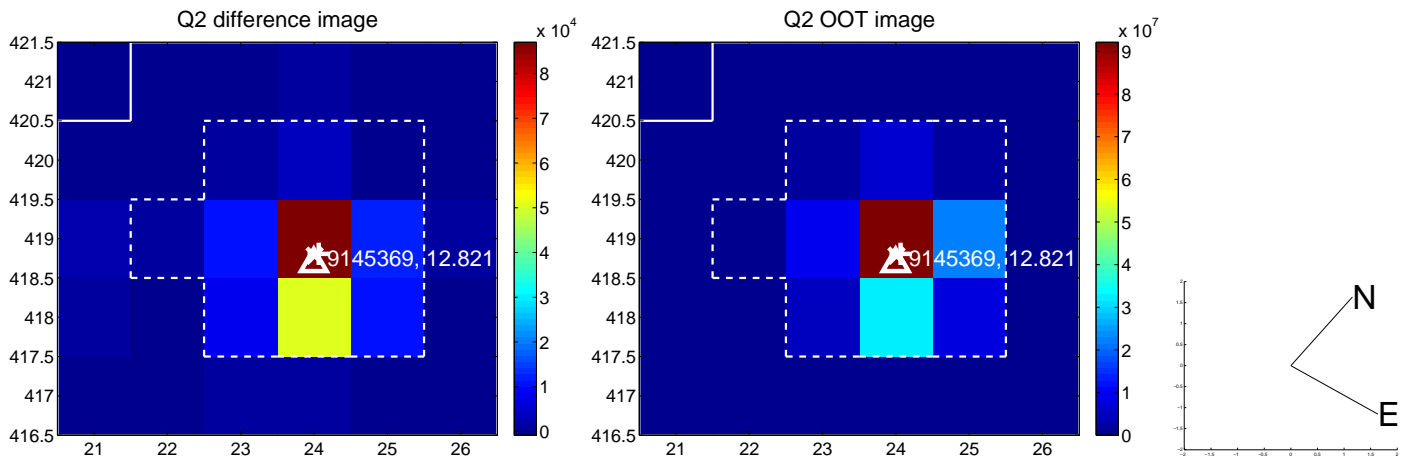
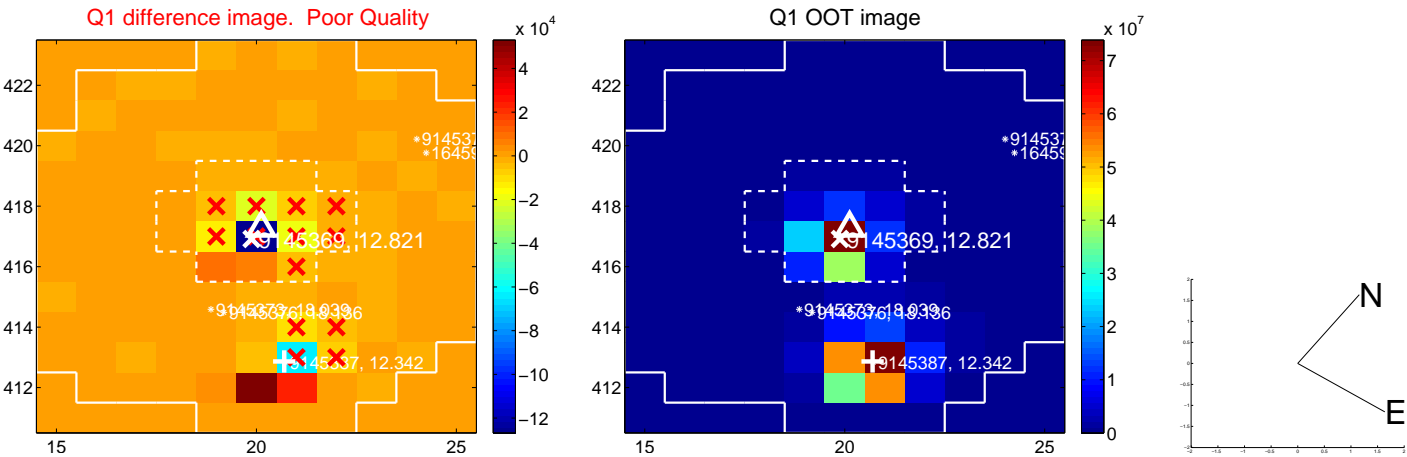
The direct PRF centroid is offset from the target star catalog position by about 0.24 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.093 ± 0.608	0.15	0.093 ± 0.656	0.006 ± 0.714
PRF-fit source offset from KIC position	0.205 ± 0.098	2.08	0.204 ± 0.099	0.012 ± 0.130
photometric centroid source offset	0.46 ± 0.11	4.17	0.33 ± 0.10	0.32 ± 0.11

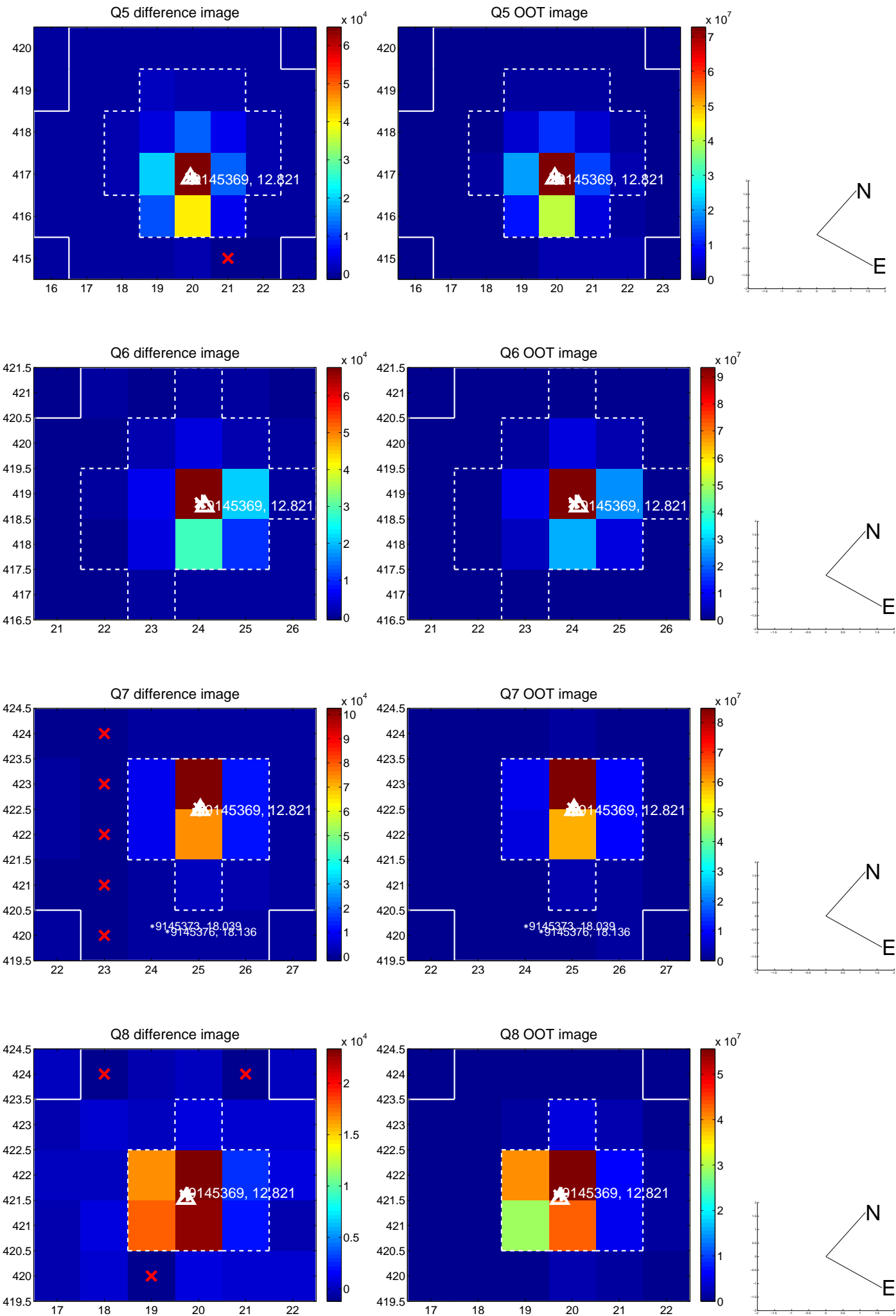


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses:** good quarterly centroid offsets; **Vermillion crosses:** bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

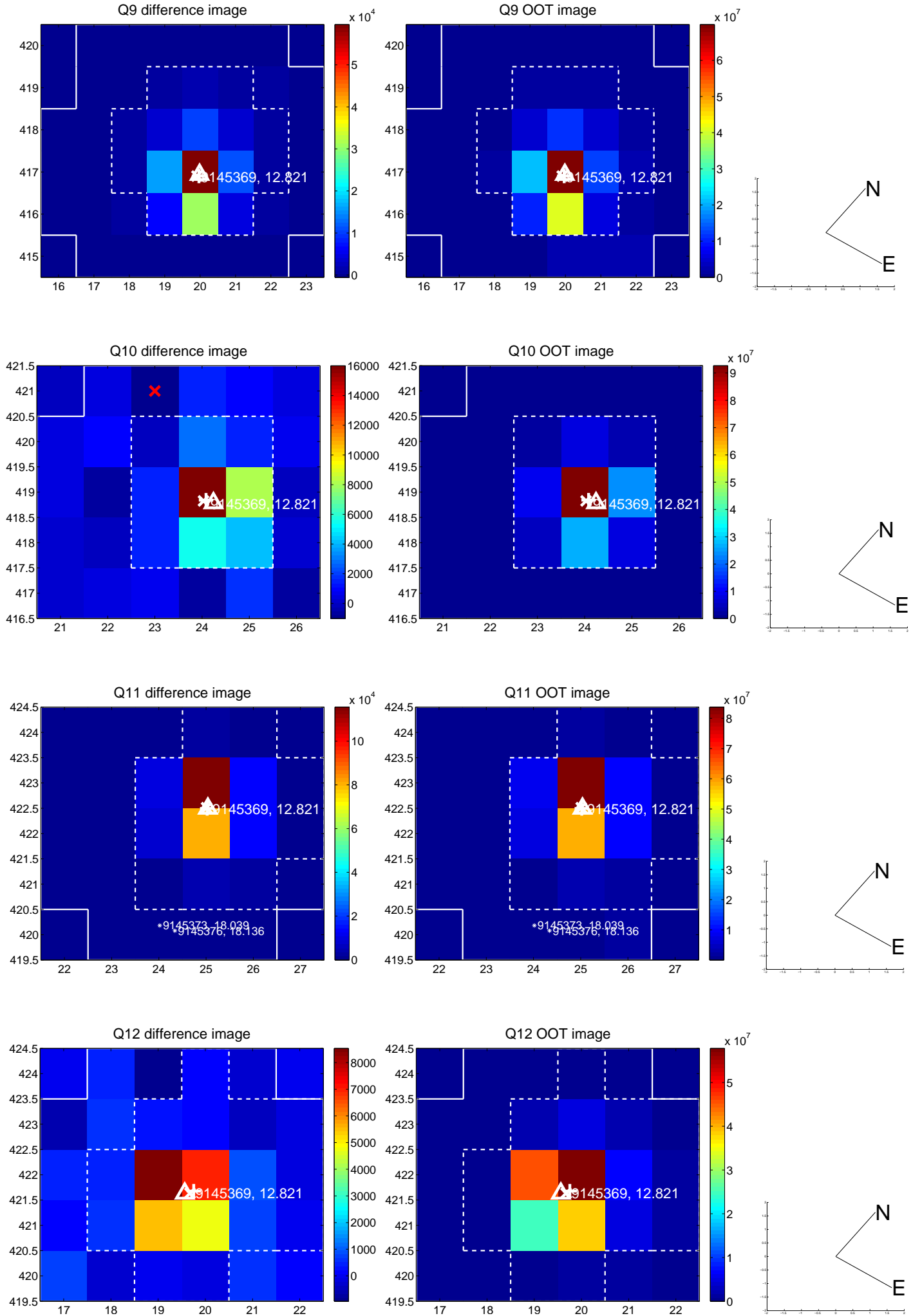
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



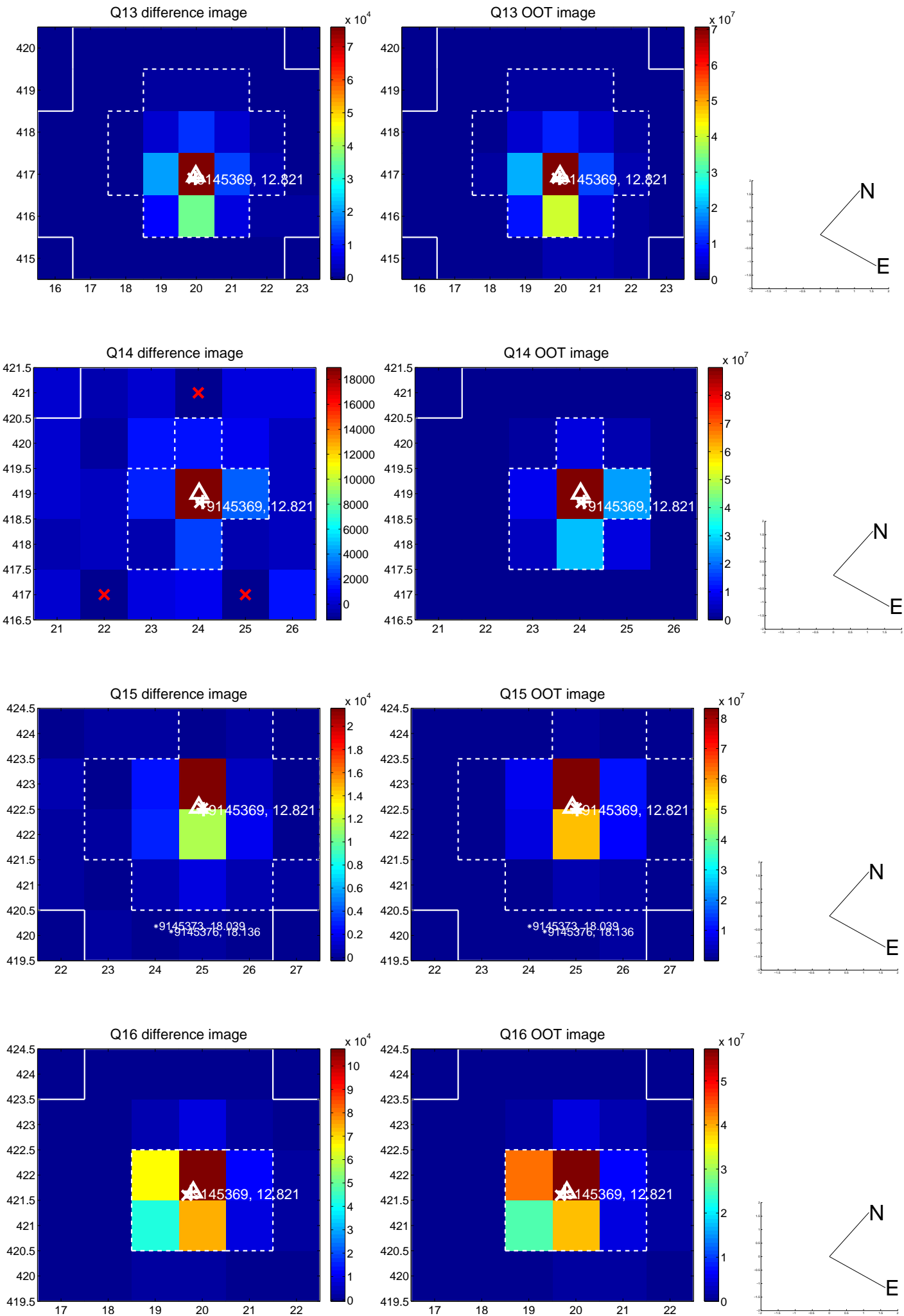
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



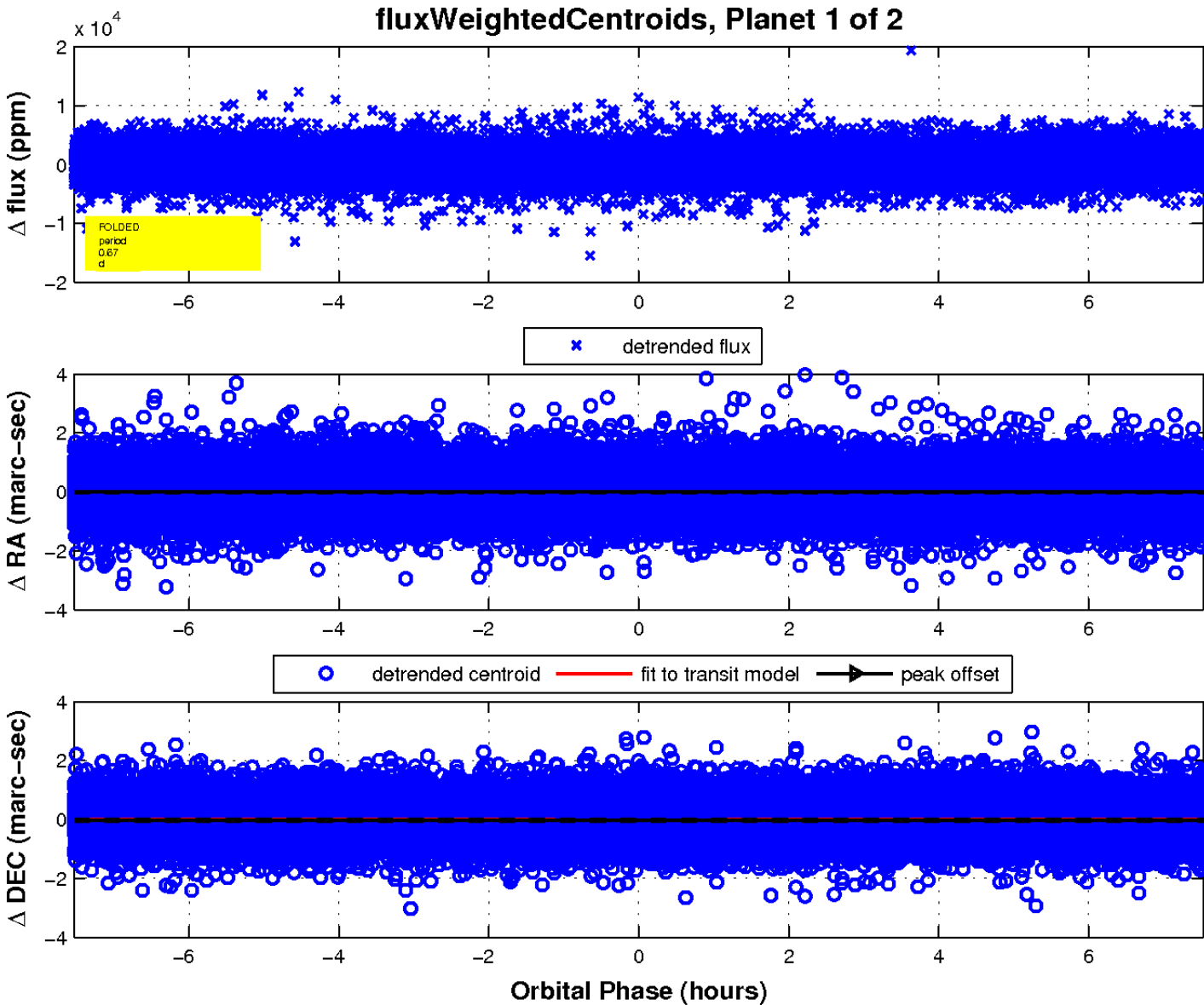
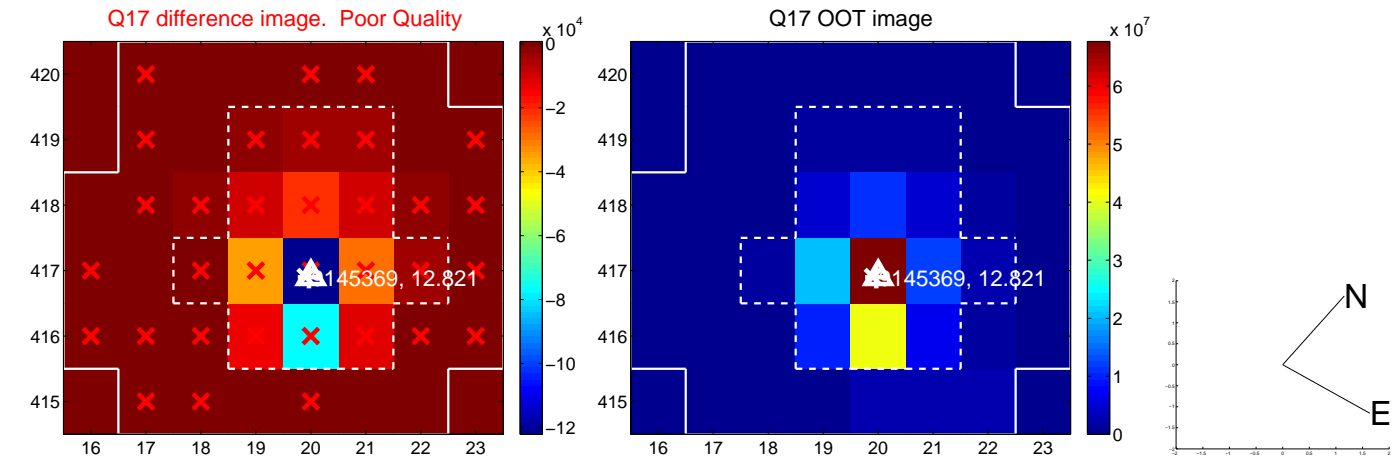
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

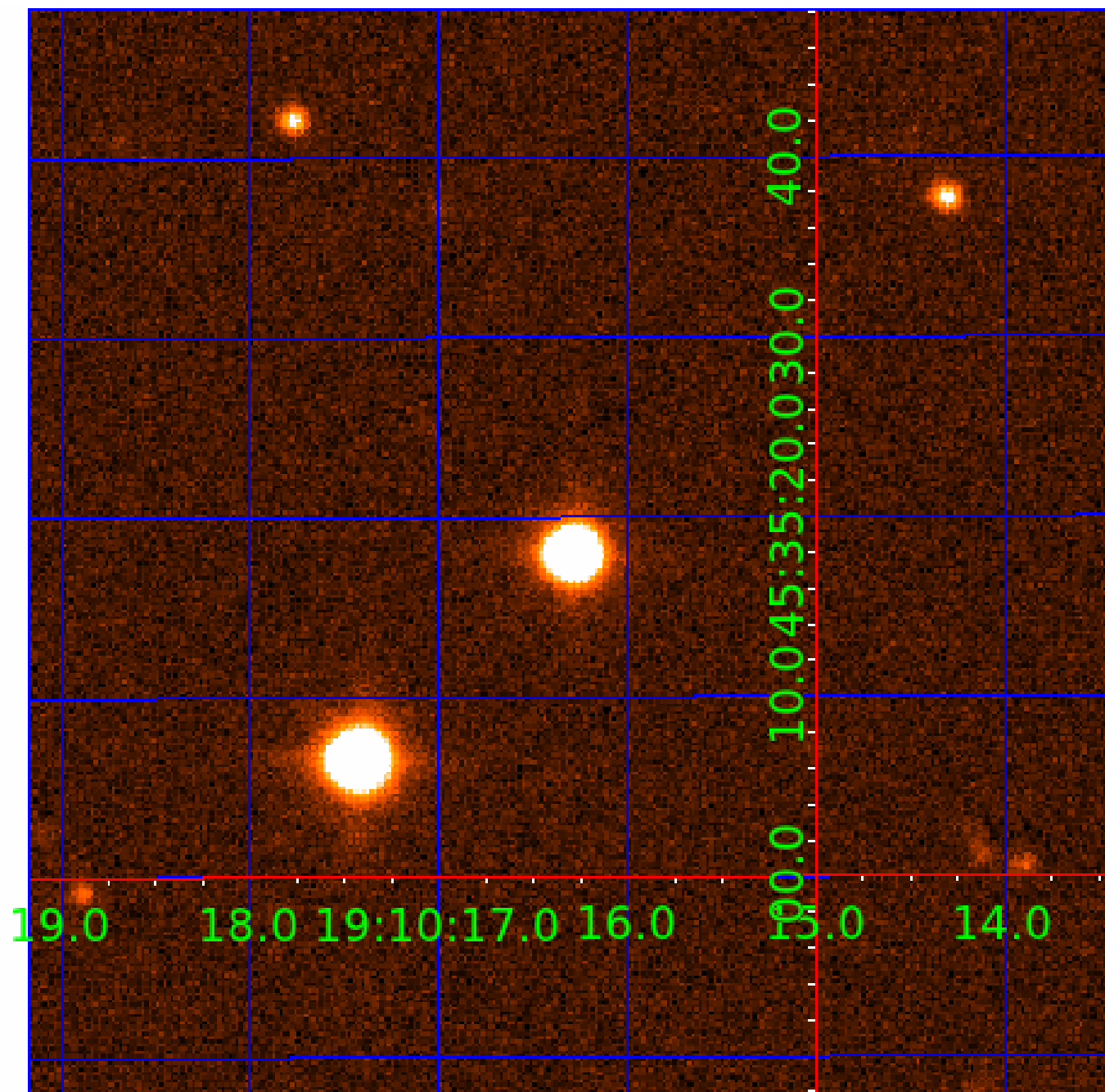


white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 009145369

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})
009145369-01	OBS	No	0.665298	131.751801	145.1	2.512	9.0	8.1	1.60	6851	2.23	17806.43
009145369-02	OBS	No	0.807512	131.758602	381.1	2.917	10.9	13.0	1.60	6851	3.63	13753.09

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
009145369-01	OBS	FP	0.00	1	0	0	0	LPP_DV—MOD_NONUNIQ_DV
009145369-02	OBS	FP	0.00	1	0	0	0	TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_ALT

Notes: OBS = Observed. INJ = Injected. INV = Inverted. SCR = Scrambled.

N = Not Transit-Like. S = Stellar Eclipse. C = Centroid Offset. E = Ephemeris Match.

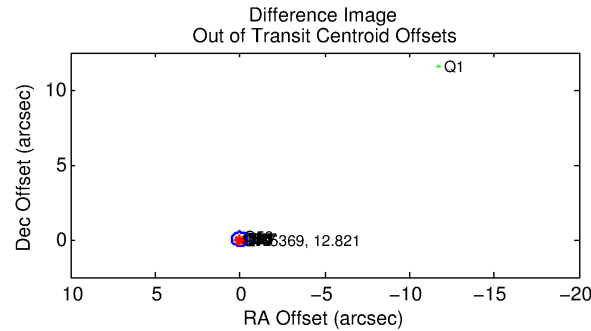
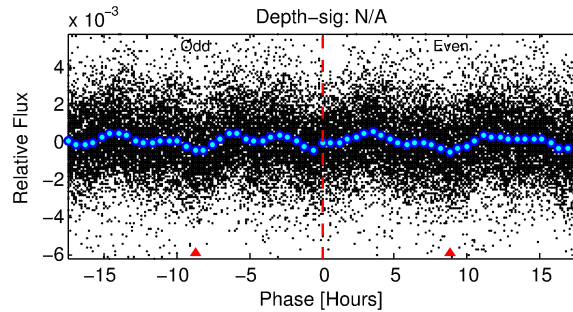
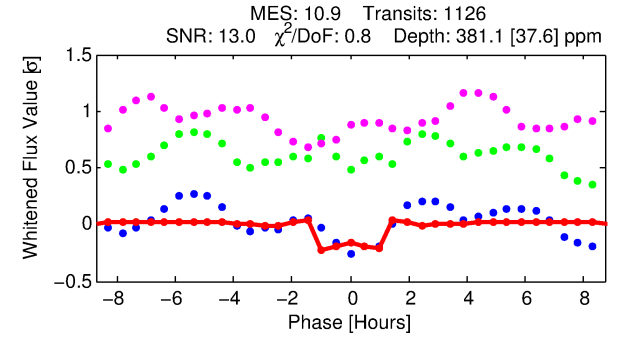
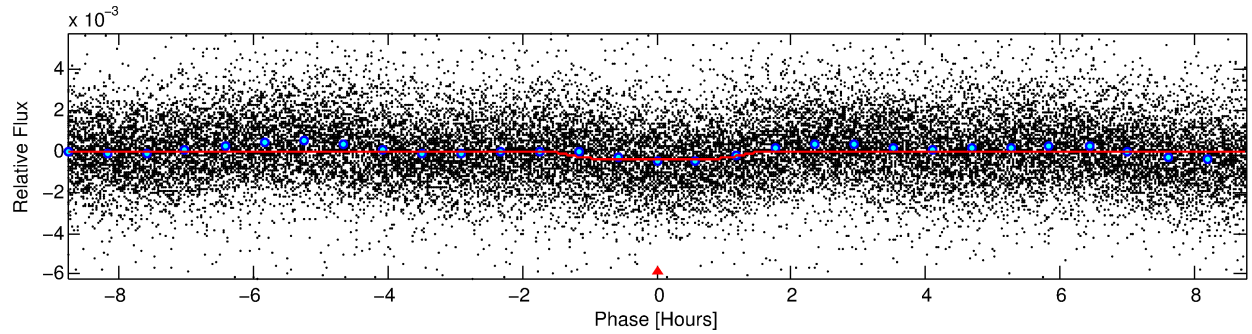
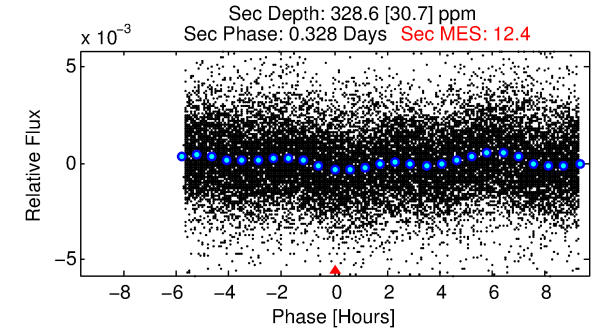
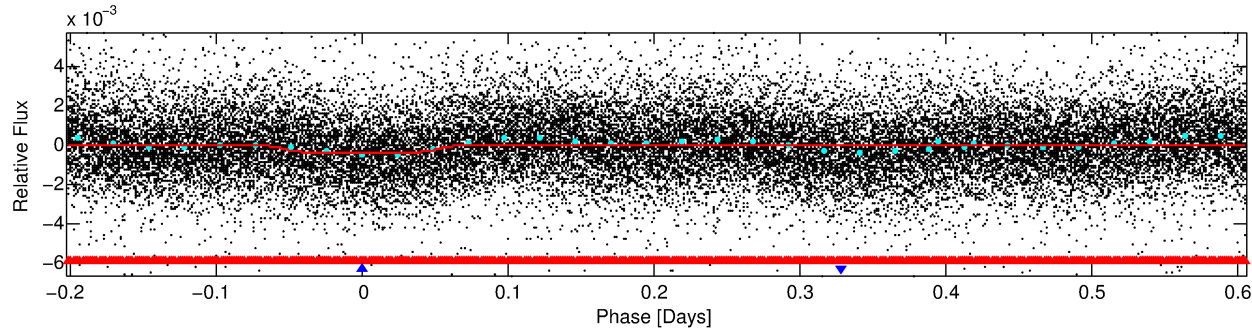
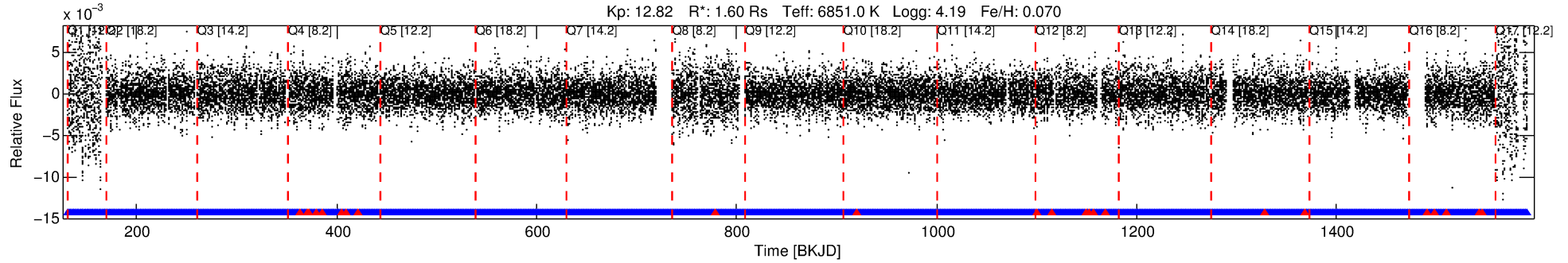
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 009145369-02

No Significant Match Found

DV One-Page Summary

KIC: 9145369 Candidate: 2 of 2 Period: 0.808 d



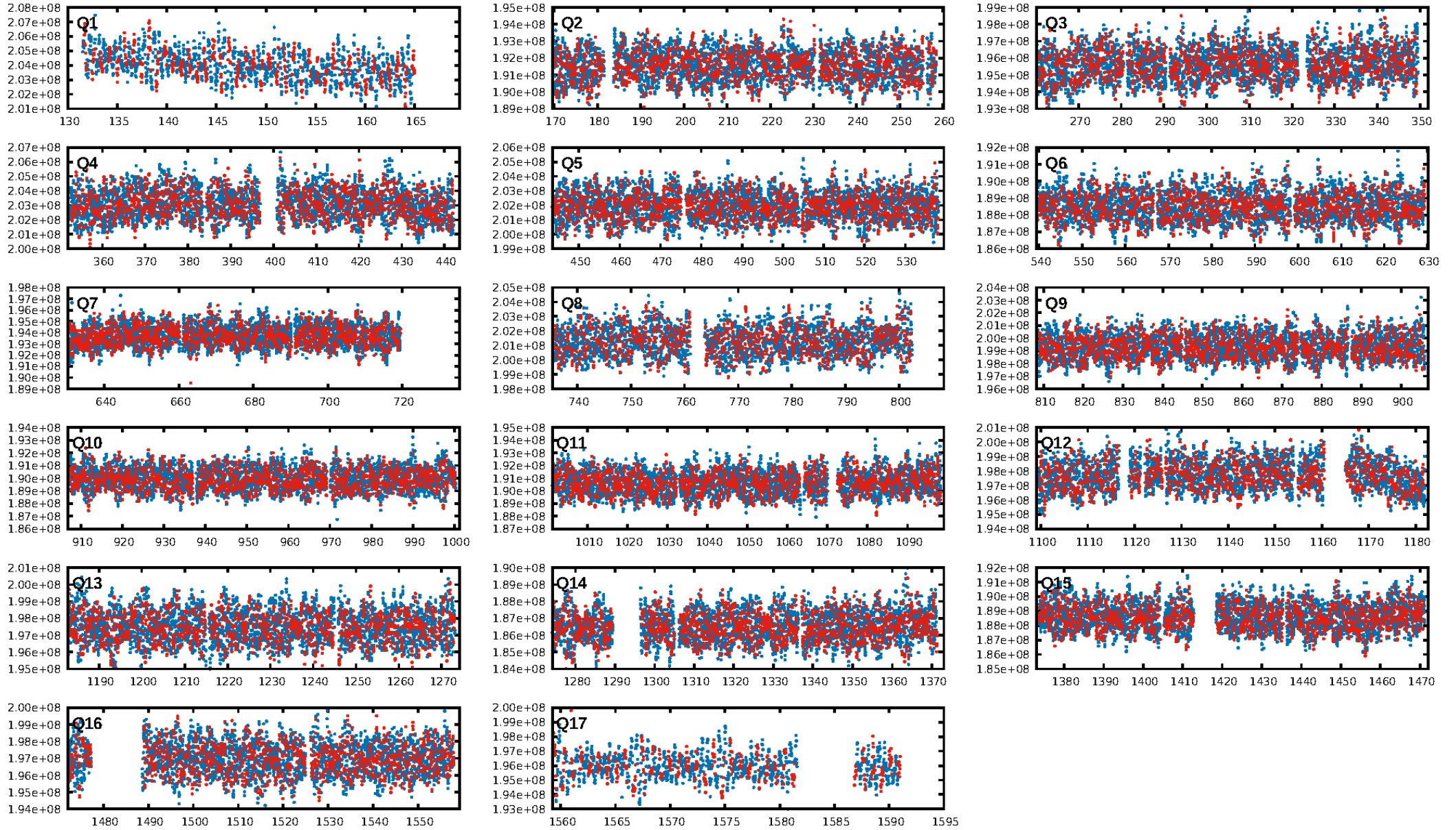
DV Fit Results:

Period = 0.80751 [0.00001] d
Epoch = 131.7586 [0.0014] BKJD
Rp/R* = 0.0209 [0.0022]
a/R* = 1.39 [0.33]
b = 0.90 [0.11]
Seff = 13753.09 [5957.28]
Teff = 2761 [299] K
Rp = 3.63 [1.32] Re
a = 0.0191 [0.0054] AU
Ag = 5.01 [2.28] [1.76σ]
Teffp = 6388 [464] K [6.57σ]

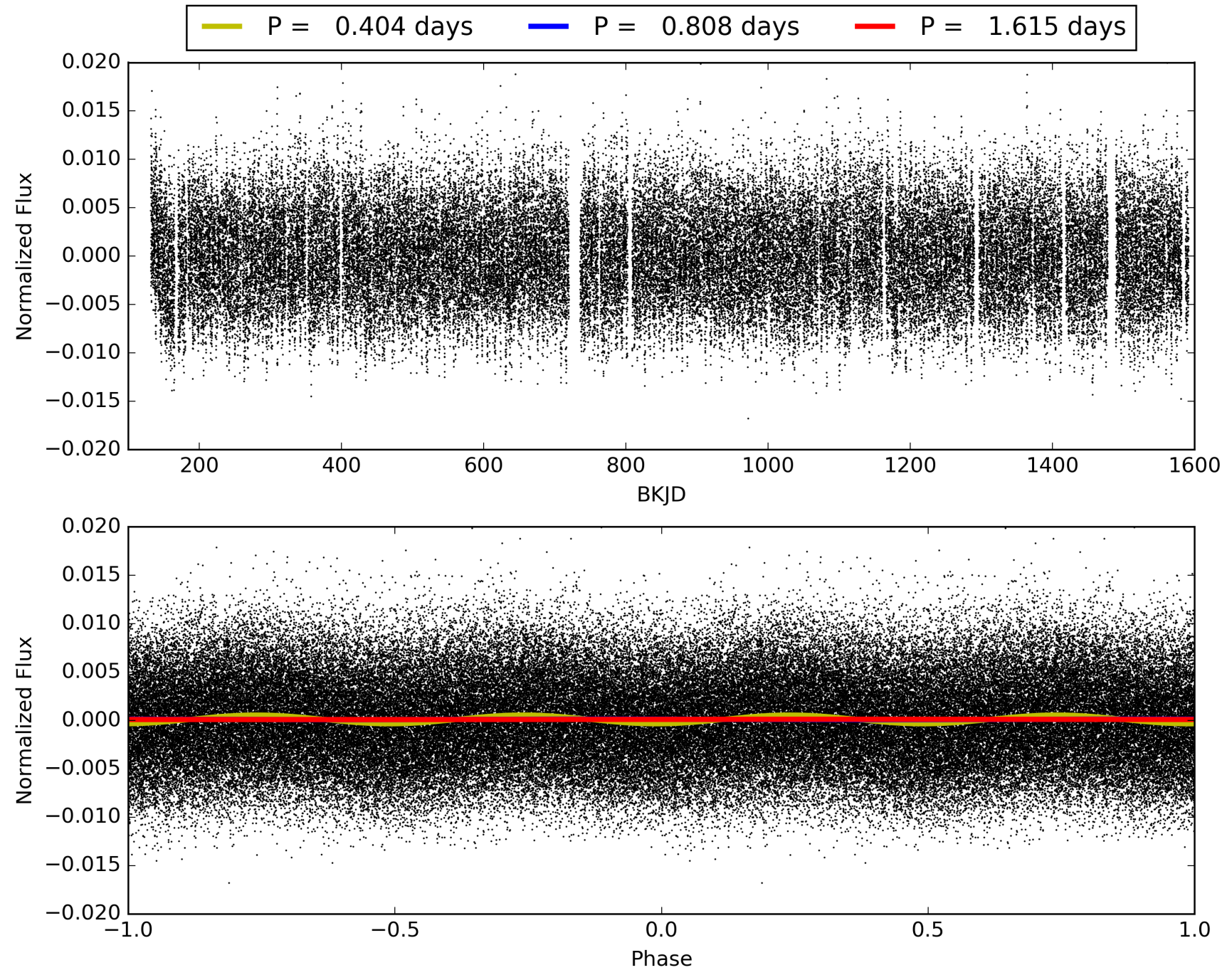
DV Diagnostic Results:

ShortPeriod-sig: 62.5% [0.89σ]
LongPeriod-sig: N/A
ModelChiSquare2-sig: N/A
ModelChiSquareGo-sig: N/A
Bootstrap-pfa: N/A
RollingBand-fgt: 0.98 [1054/1077]
GhostDiagnostic-chr: 1.836
Centroid-sig: 4.3%
Centroid-so: 0.243 arcsec [5.61σ]
OotOffset-rm: 0.045 arcsec [0.28σ]
KicOffset-rm: 0.261 arcsec [3.49σ]
OotOffset-st: 4/4/4/5 [17]
KicOffset-st: 4/4/4/5 [17]
DiffImageQuality-fgm: 1.00 [17/17]
DiffImageOverlap-fno: 0.00 [0/17]

TCE 009145369-02, PDC Light Curves

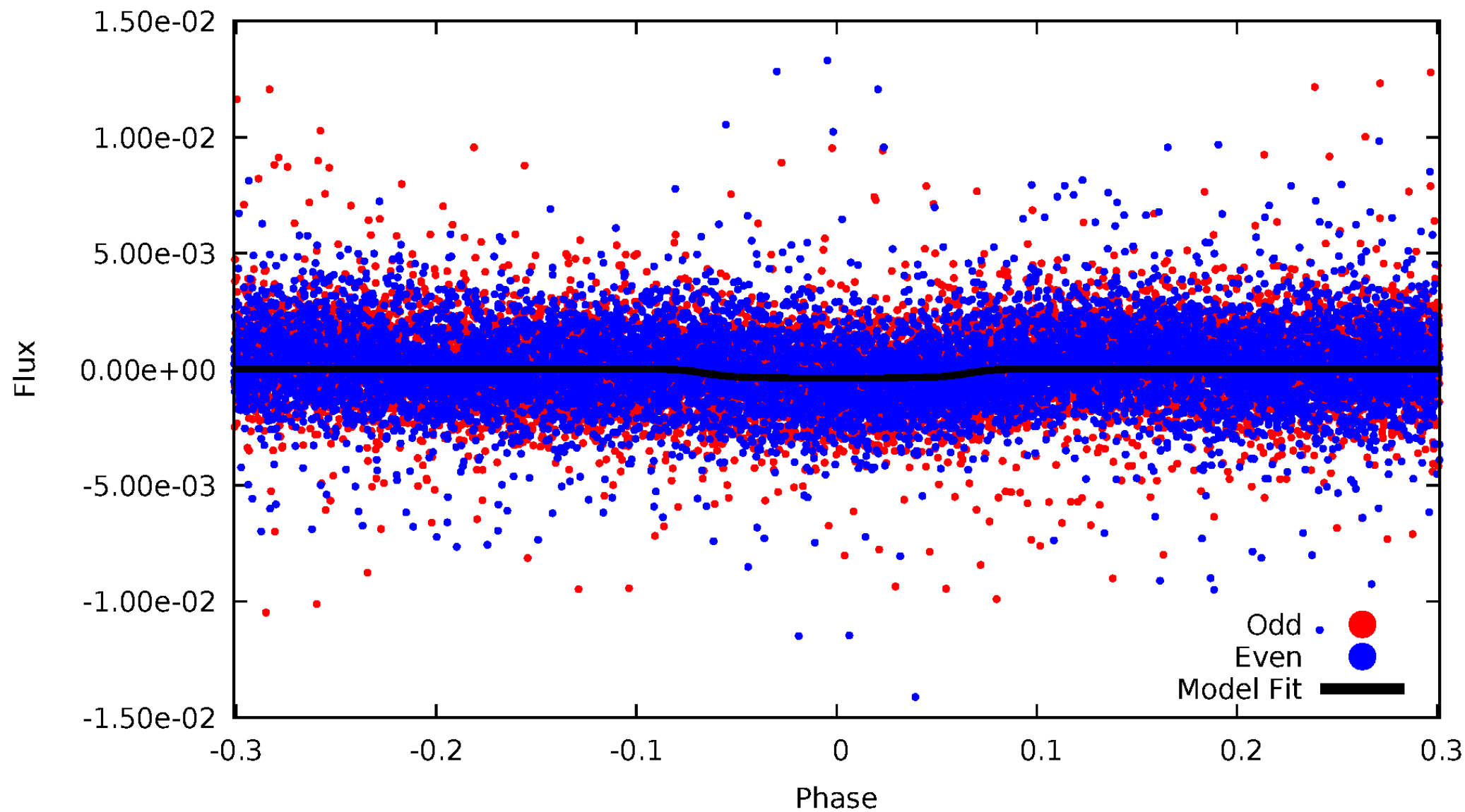


TCE 009145369-02



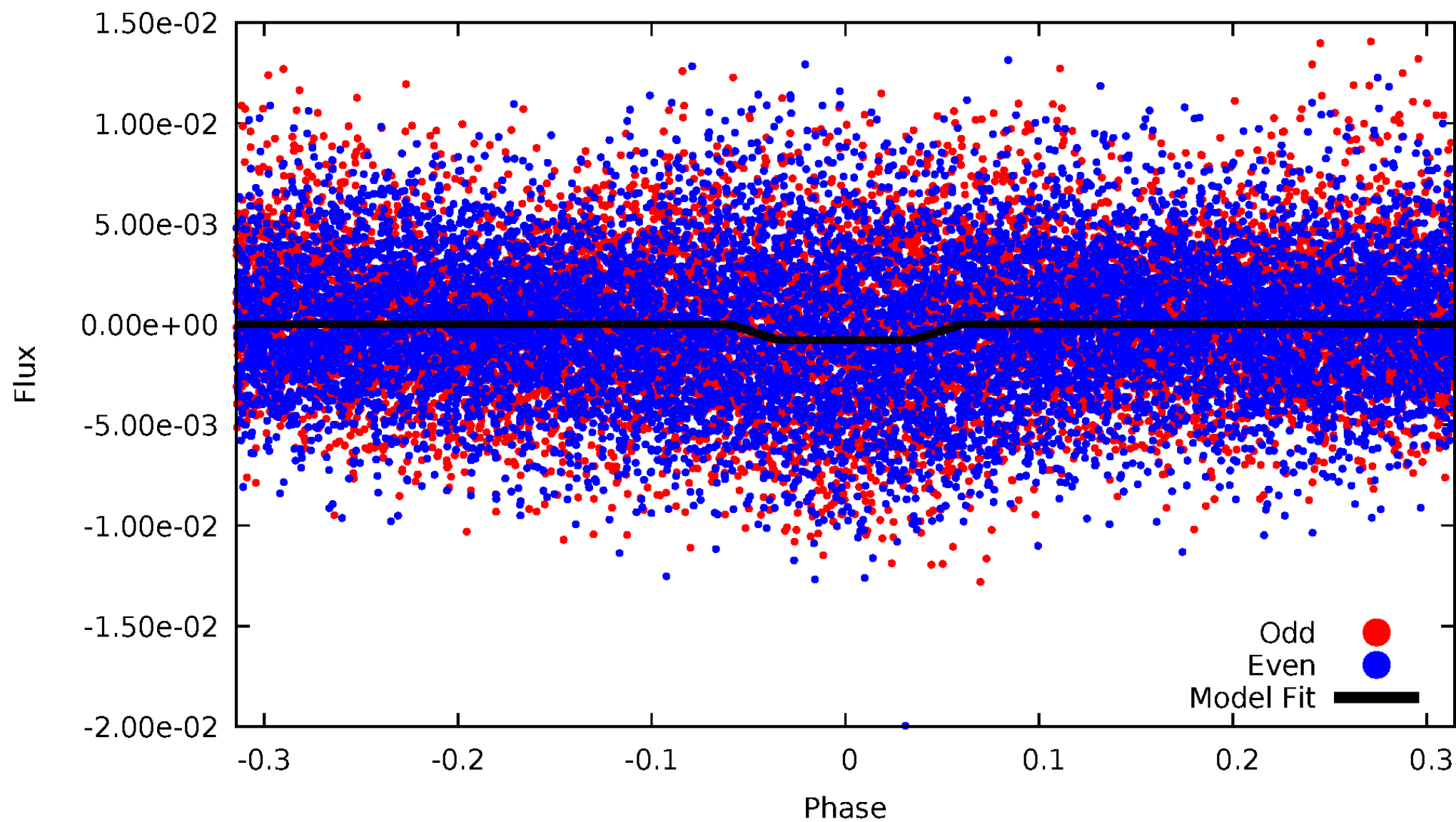
DV Odd/Even

TCE 009145369-02



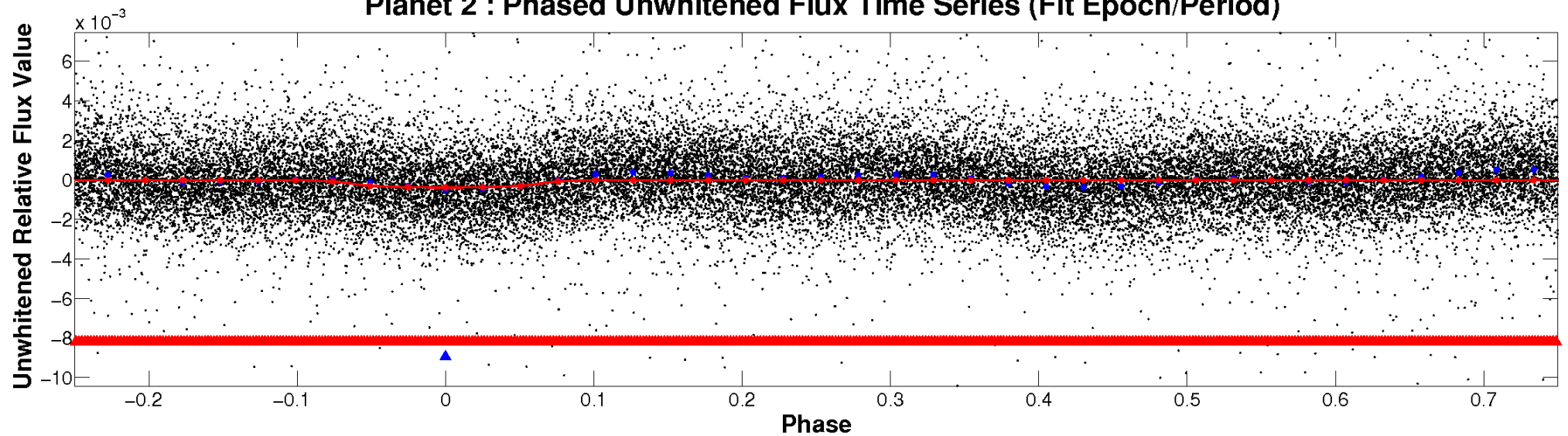
ALT Odd/Even

TCE 009145369-02

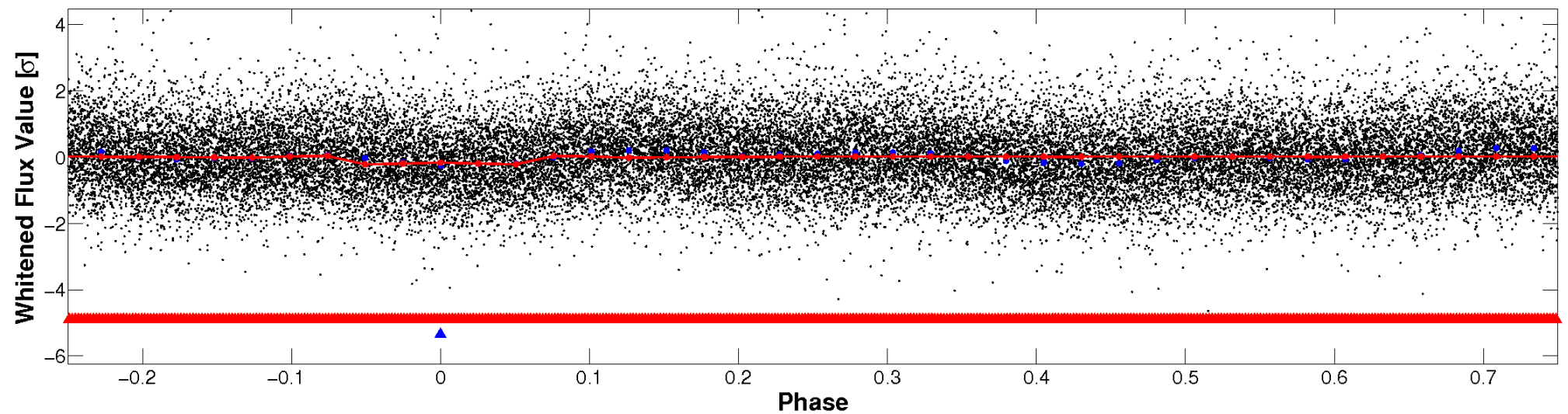


Non-Whitened Vs. Whitened Light Curve

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

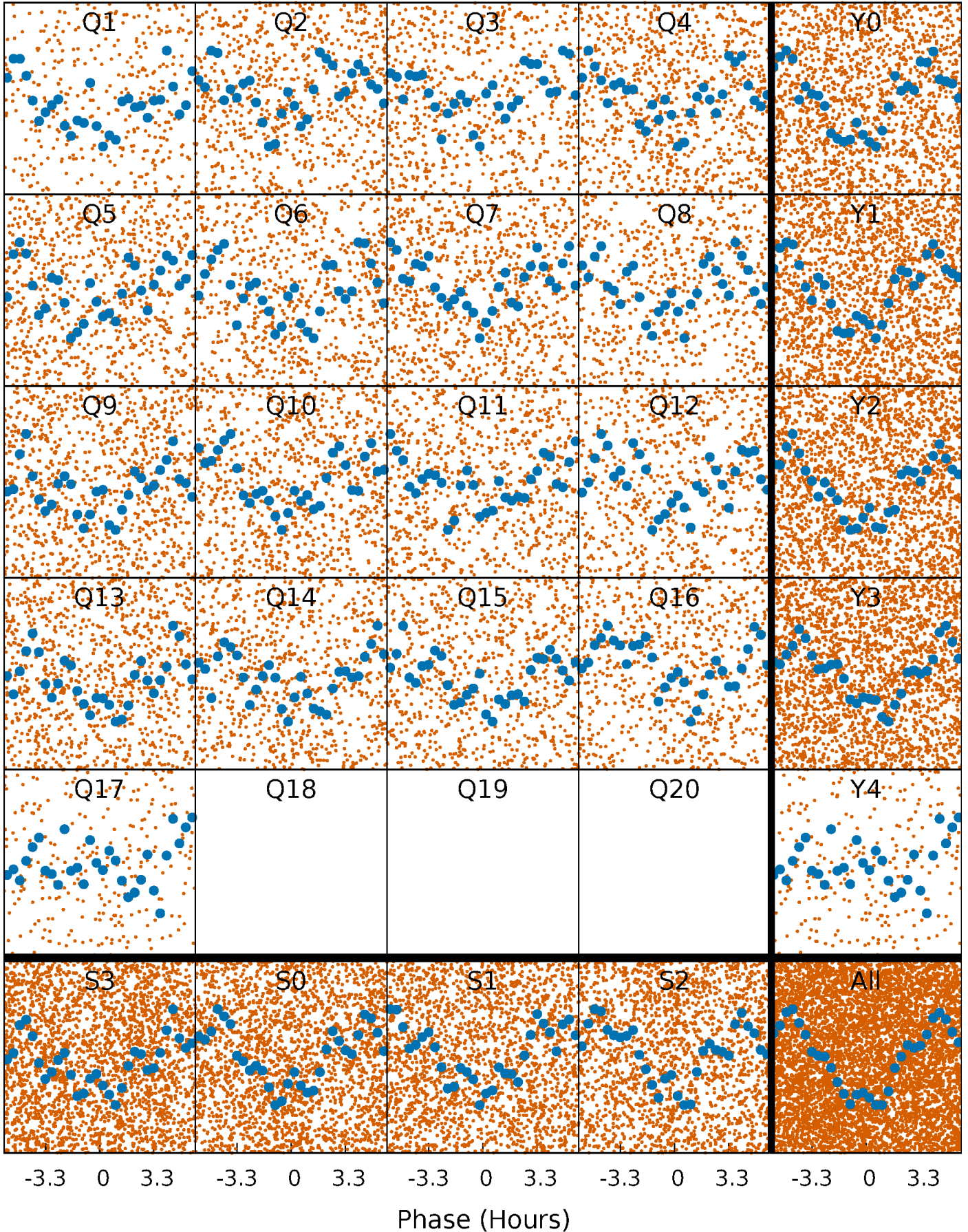


Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



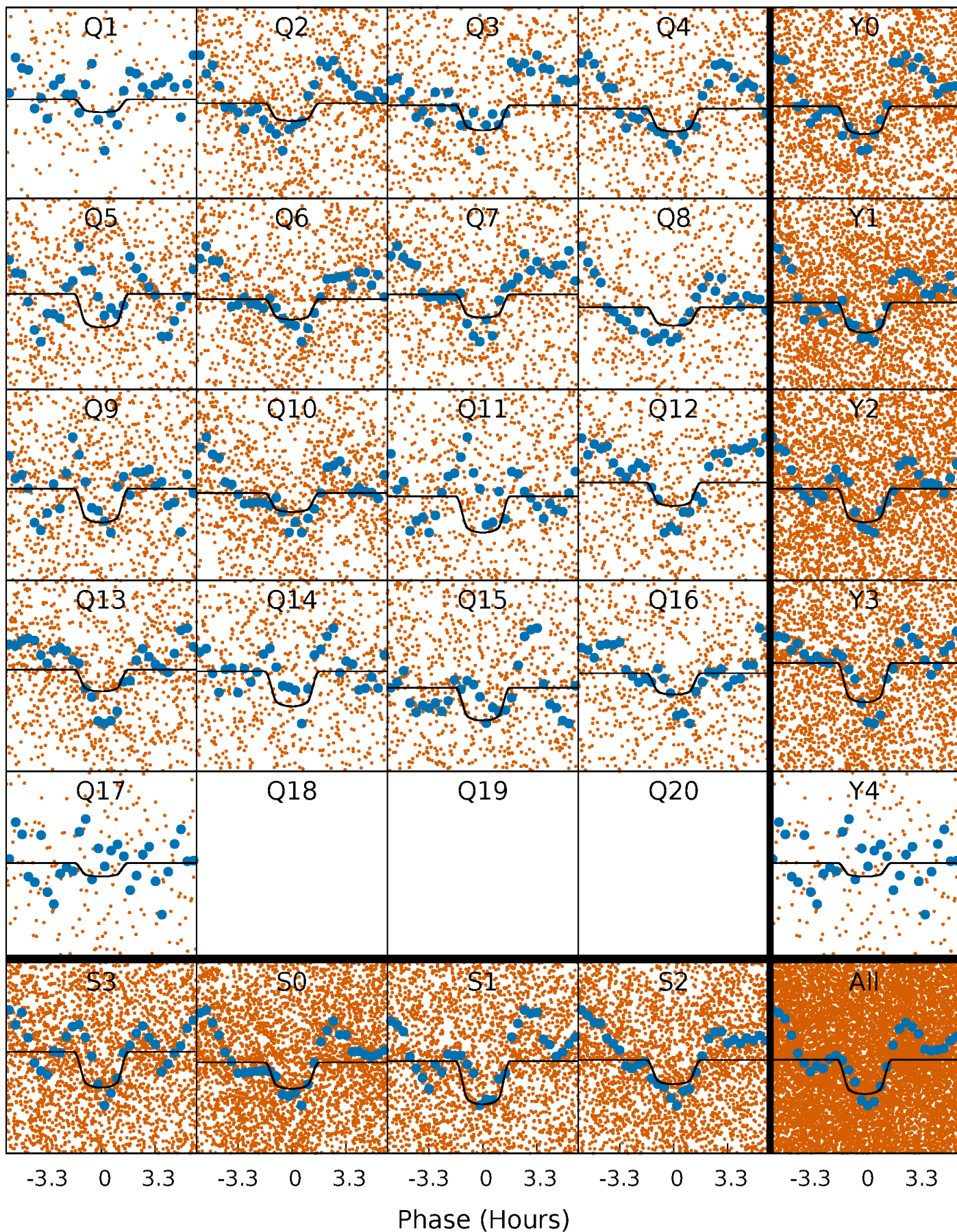
PDC Quarter-Phased Transit Curves

TCE 009145369-02 $P = 0.807512$ Days $T_0 = 131.758602$ (BKJD)



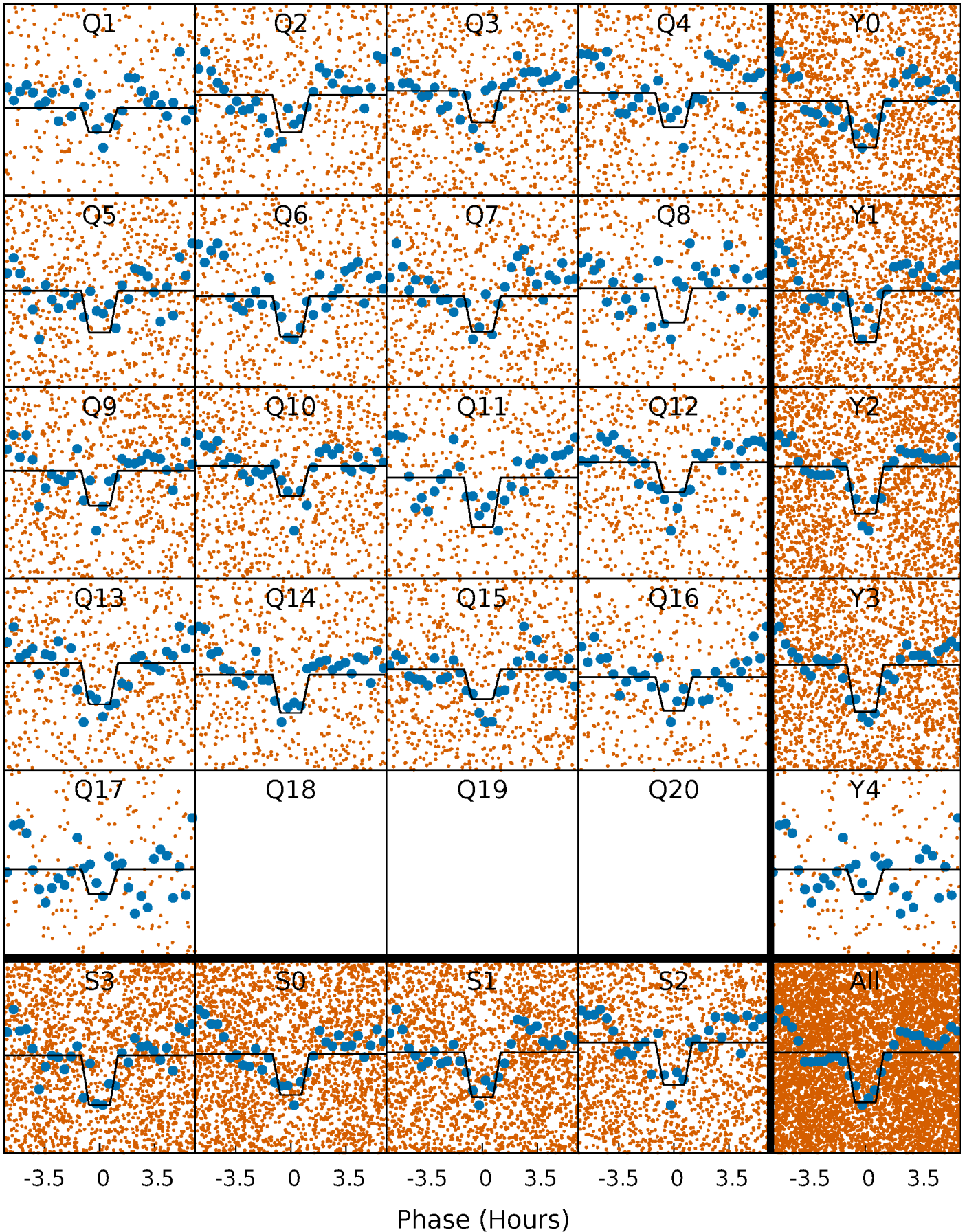
DV Quarter-Phased Transit Curves

TCE 009145369-02 P= 0.807512 Days $T_0=131.758602$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

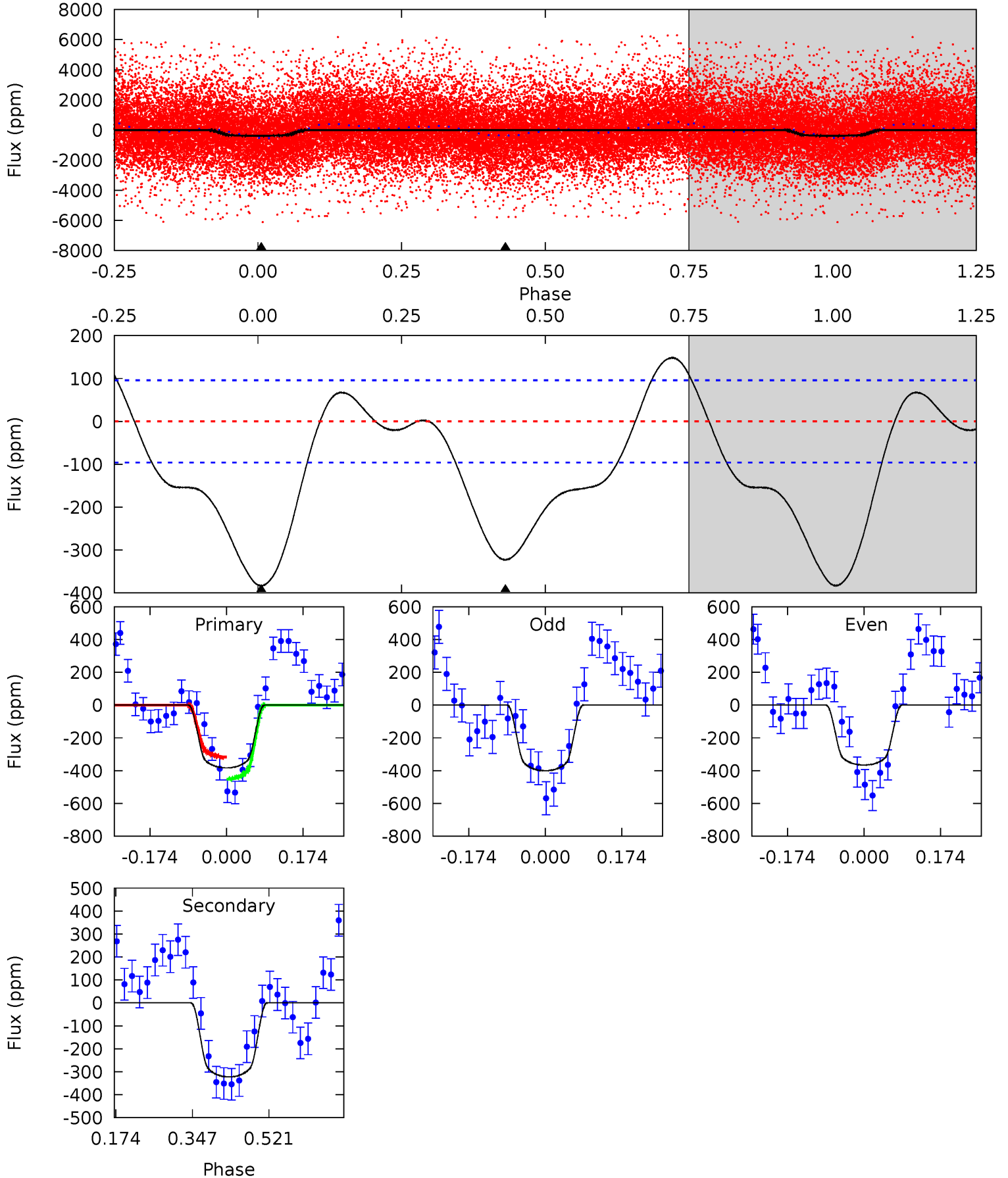
TCE 009145369-02 P= 0.807525 Days $T_0=131.756892$ (BKJD)



DV Model-Shift Uniqueness Test

009145369-02, P = 0.807512 Days, E = 130.951090 Days

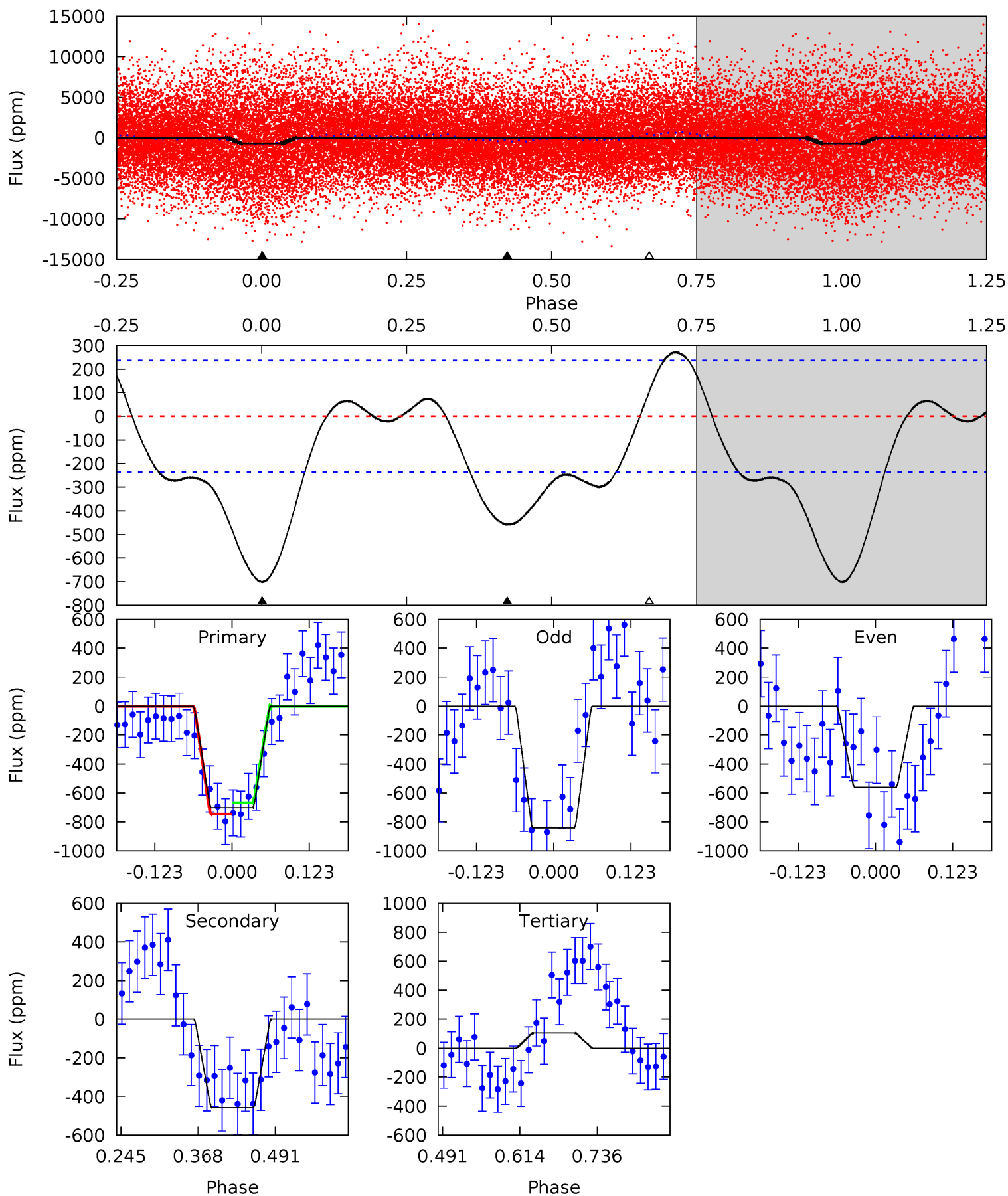
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
17.8	15.0	0	0	4.45	1.36	3.83	17.8	17.8	15.0	15.0	0.81	0.87	0.28	3.14



Alt Model-Shift Uniqueness Test

009145369-02, P = 0.807525 Days, E = 130.949367 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
13.4	8.74	-2.00	0	4.52	1.54	3.30	15.4	13.4	10.7	8.74	2.71	1.01	0.28	0.73



Stellar Parameters For KIC 009145369

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	6851^{+189}_{-307}	$4.187^{+0.112}_{-0.208}$	$0.070^{+0.200}_{-0.350}$	$1.596^{+0.554}_{-0.298}$	$1.428^{+0.218}_{-0.218}$	$0.495^{+0.326}_{-0.266}$
	+3%/-4%	+3%/-5%	+286%/-500%	+35%/-19%	+15%/-15%	+66%/-54%
Source	PHO54	PHO54	PHO54	DSEP		

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

Secondary Eclipse Parameters for KIC 009145369-02 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	-323 ± 22	$3.71^{+0.68}_{-0.61}$	3886^{+293}_{-245}	6222^{+447}_{-437}	$4.713^{+1.821}_{-1.350}$
Alt.	-458 ± 52	$5.02^{+0.95}_{-0.66}$	3902^{+326}_{-259}	5790^{+347}_{-345}	$3.549^{+1.211}_{-0.982}$

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 $A_{obs} \gg 1.0$

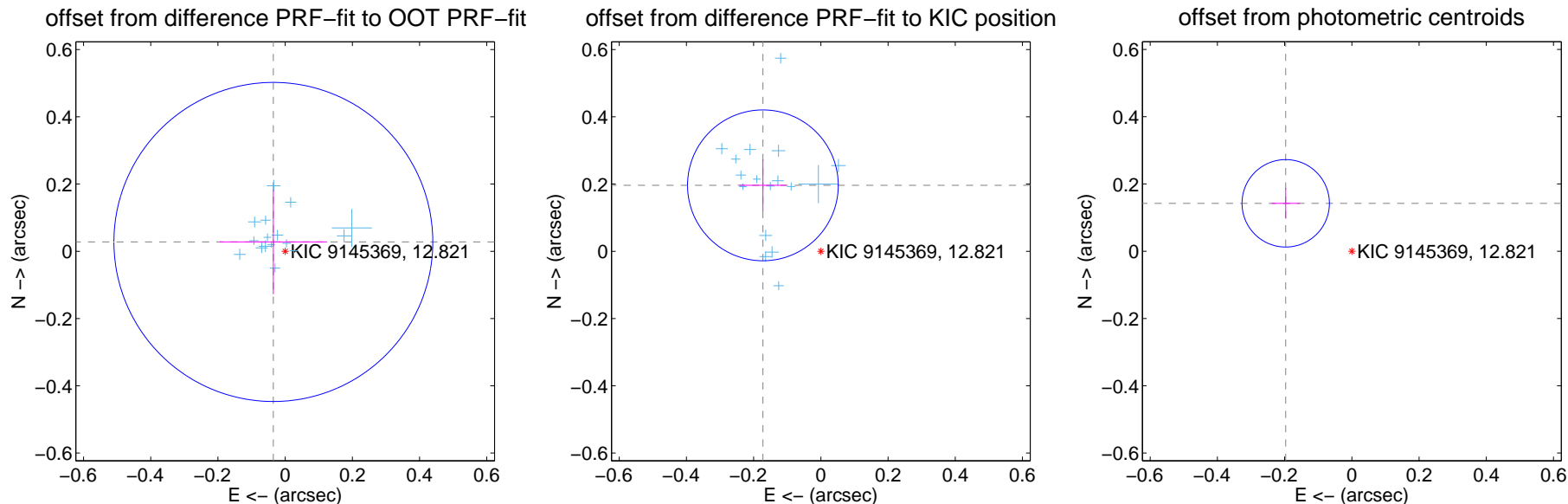
DV Centroid Data

Supplemental centroid analysis for 009145369-02. Kepler magnitude: 12.82. Transit SNR 12.99

There are 17 quarters with good PRF difference image offsets

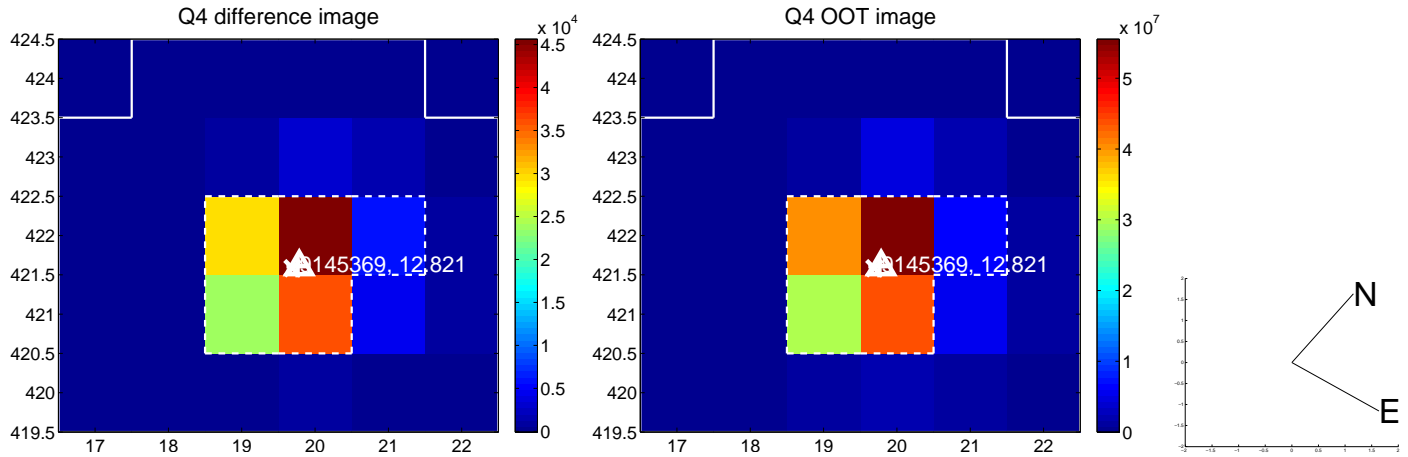
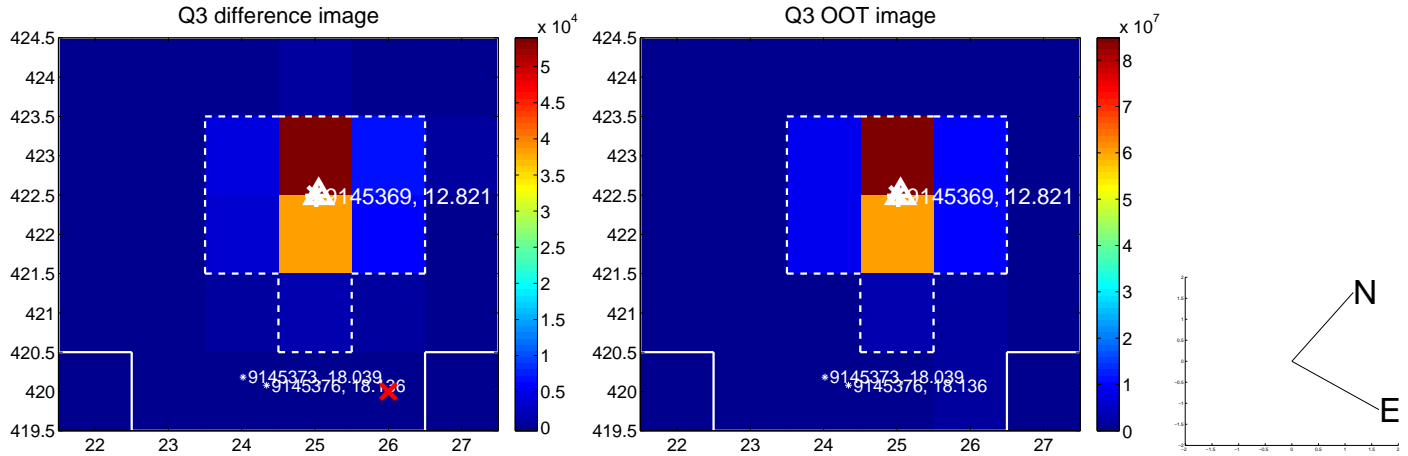
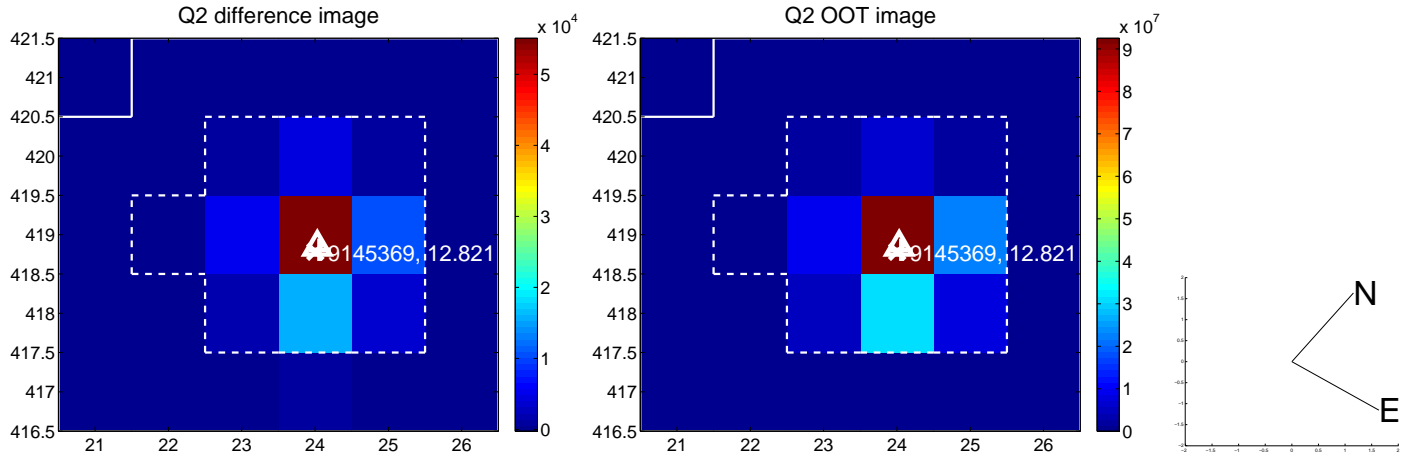
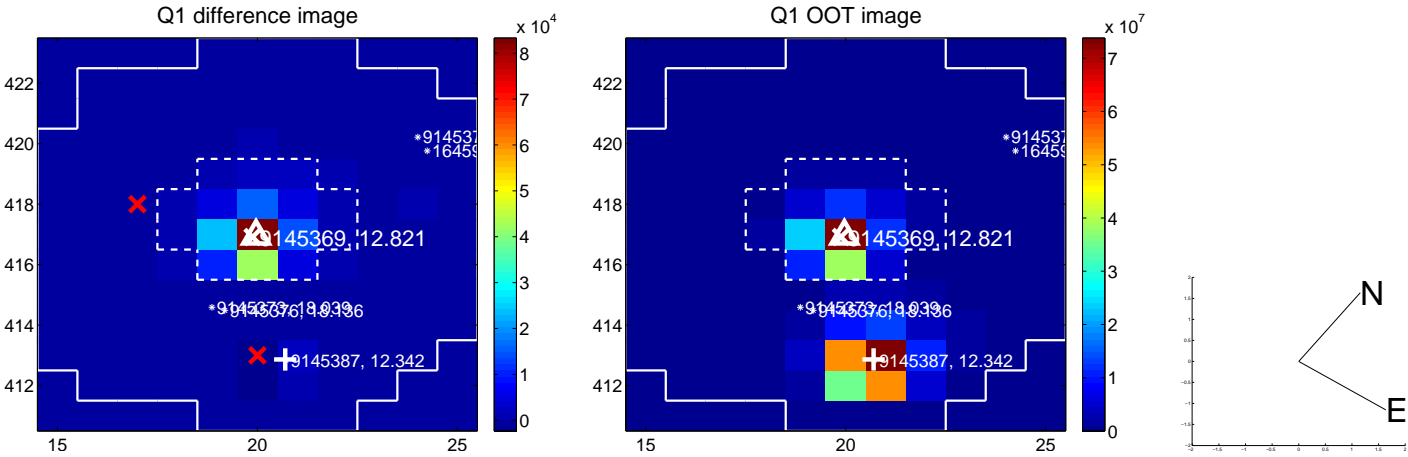
The direct PRF centroid is offset from the target star catalog position by about 0.24 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.045 ± 0.158	0.28	0.035 ± 0.160	0.028 ± 0.156
PRF-fit source offset from KIC position	0.261 ± 0.075	3.49	0.172 ± 0.070	0.196 ± 0.077
photometric centroid source offset	0.24 ± 0.04	5.61	0.20 ± 0.04	0.14 ± 0.05

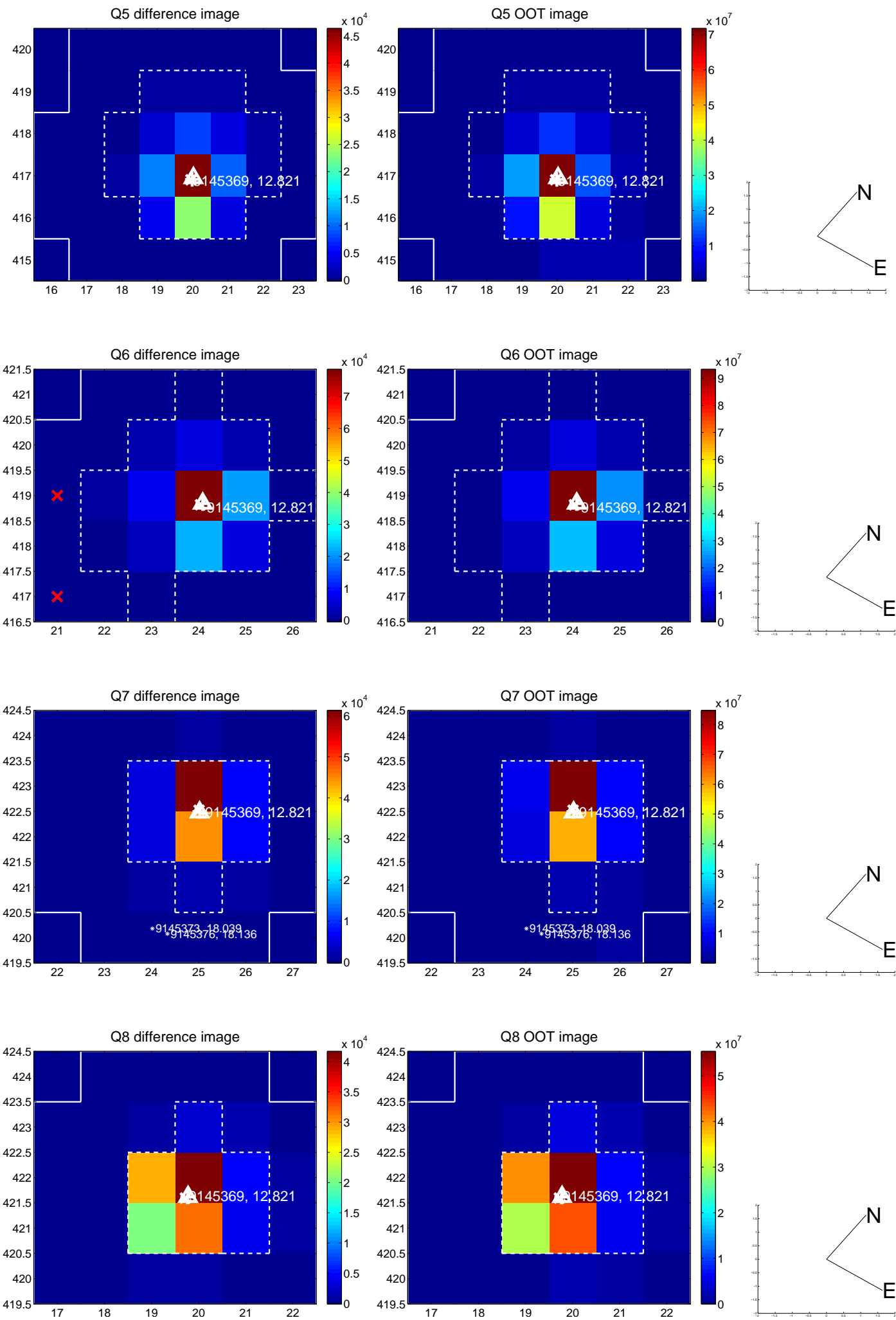


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

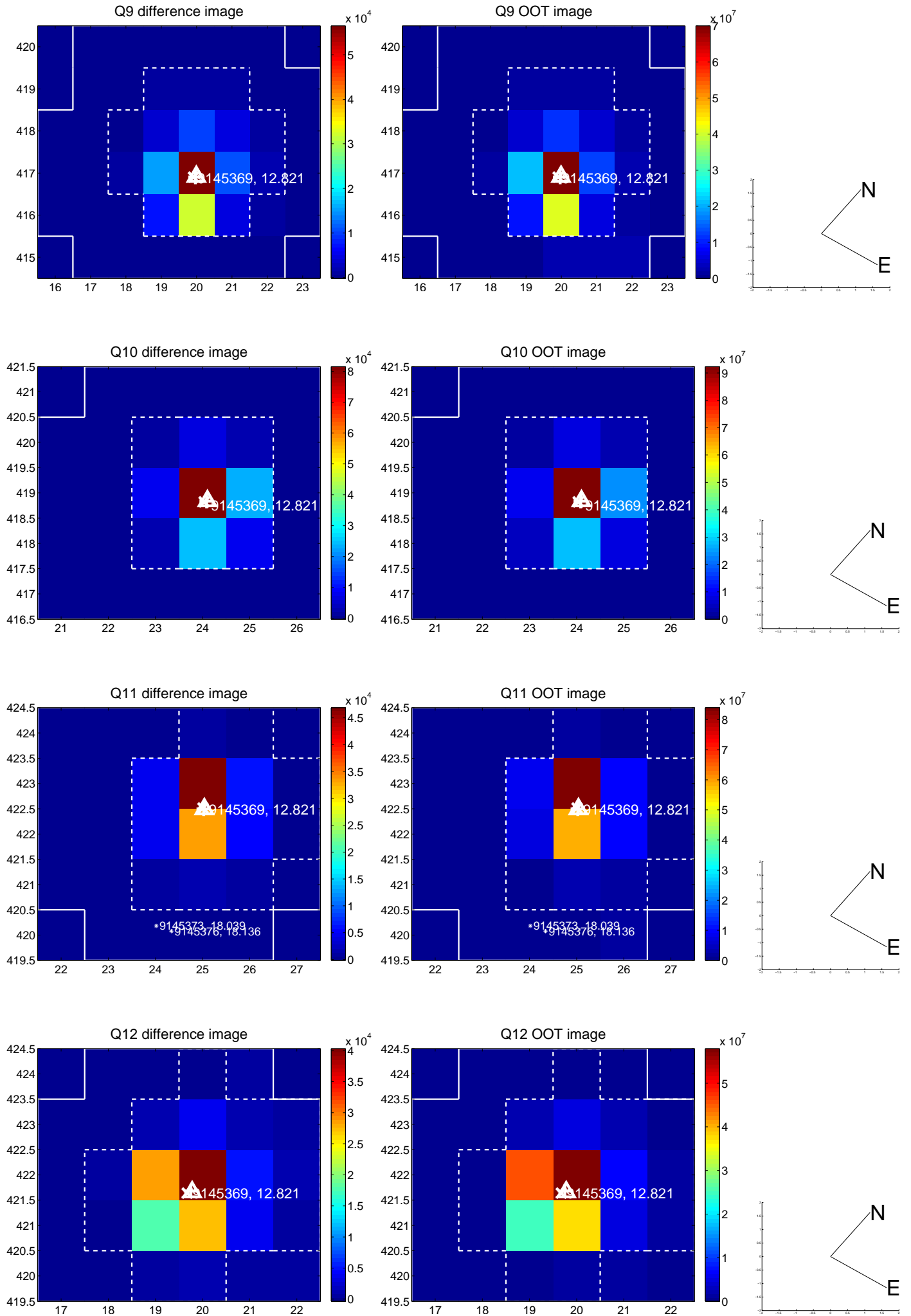
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



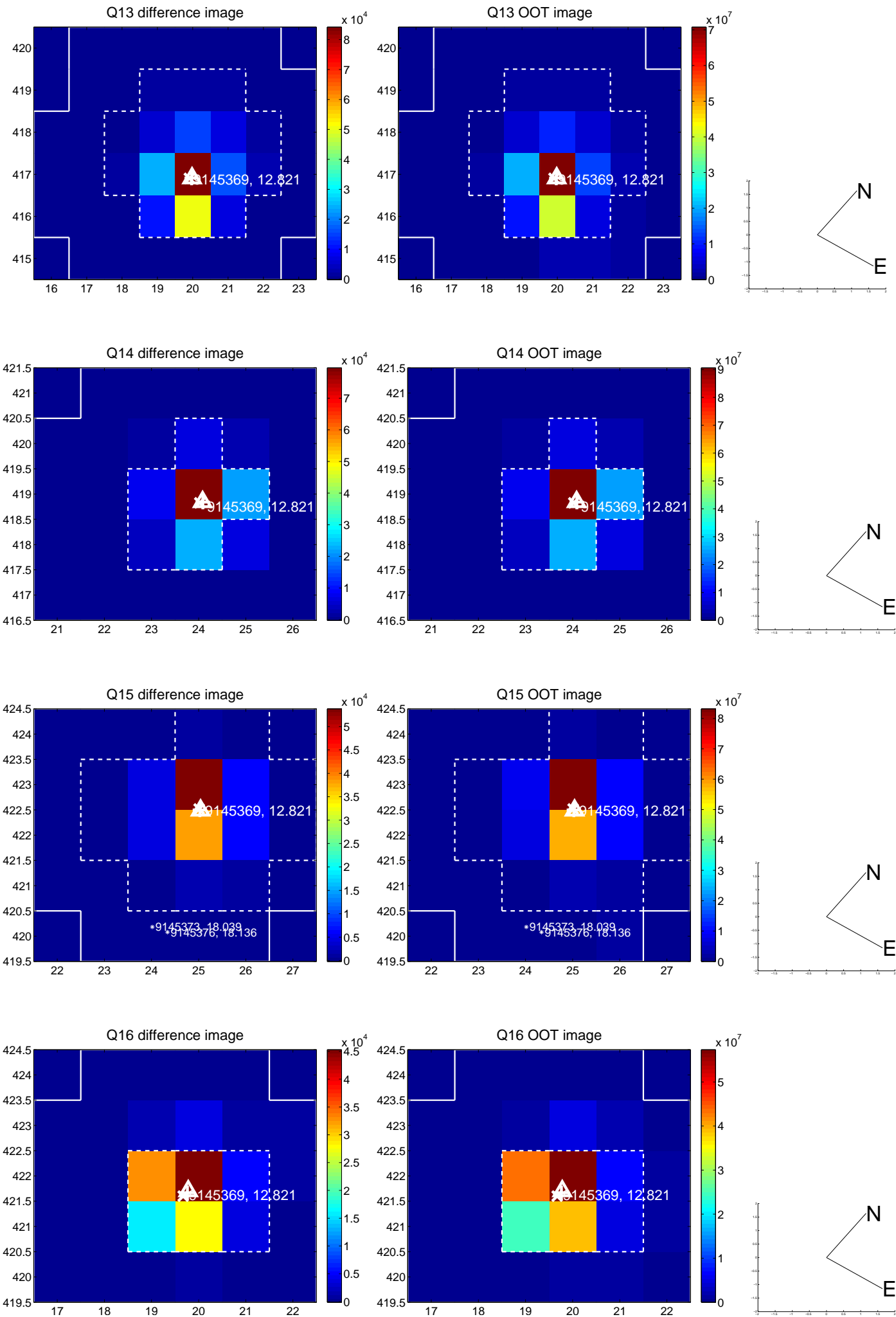
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



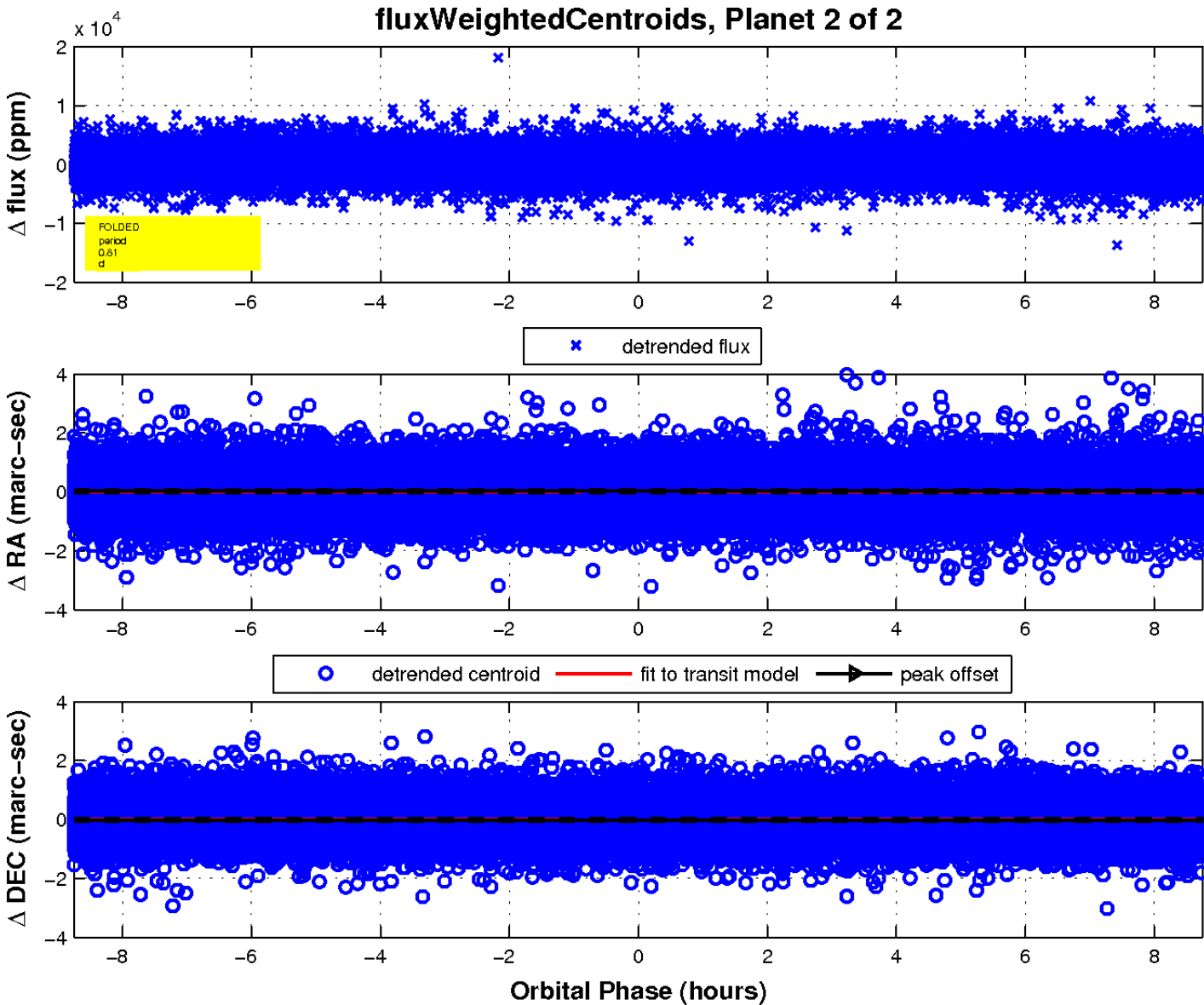
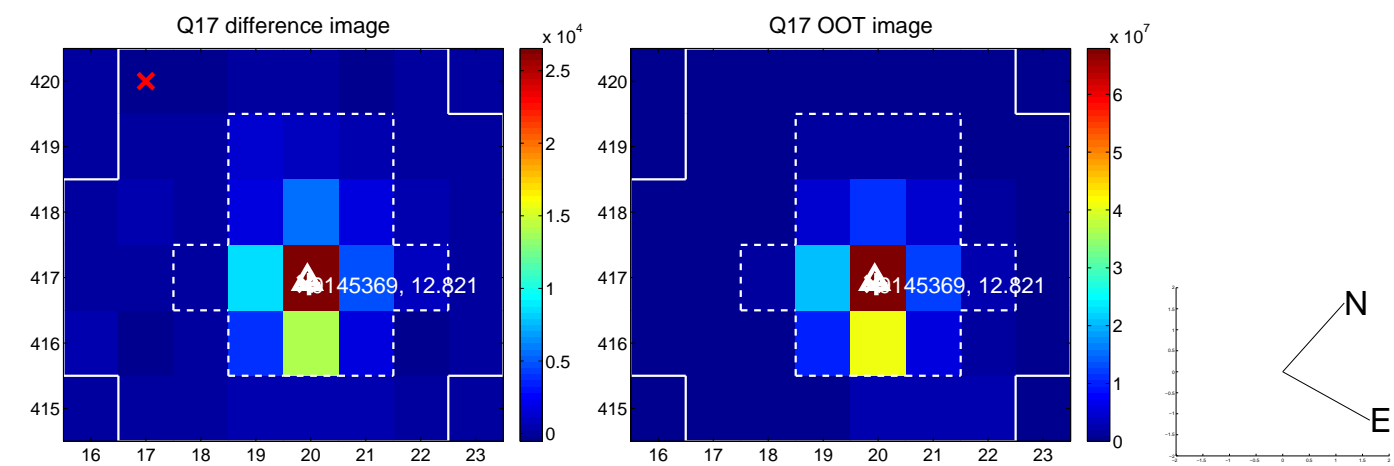
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

