

KIC 007419318

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})
007419318-01	OBS	0313.01	18.735774	140.163287	562.7	3.210	70.0	68.7	0.80	5188	2.26	24.71
007419318-02	OBS	0313.02	8.436393	137.705176	337.8	3.390	61.2	65.5	0.80	5188	1.72	71.60

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
007419318-01	OBS	PC	1.00	0	0	0	0	NO_COMMENT
007419318-02	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.

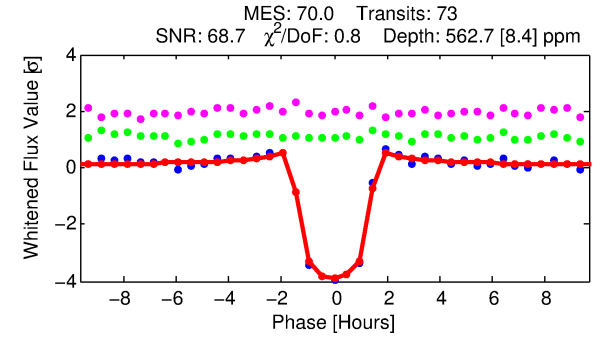
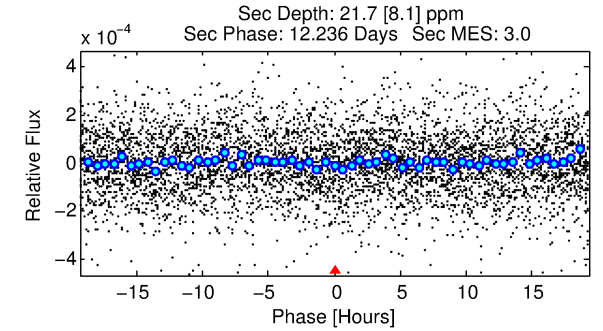
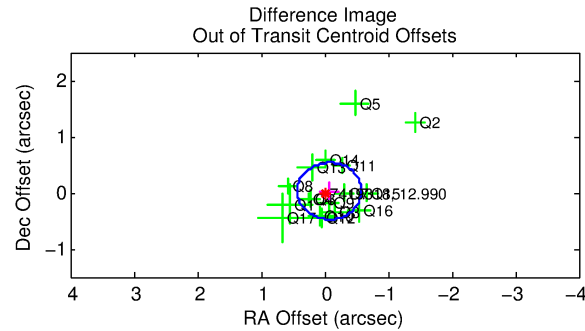
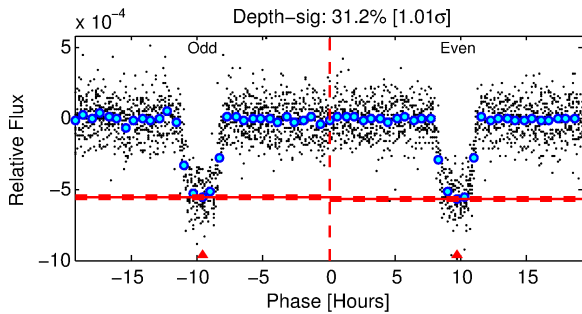
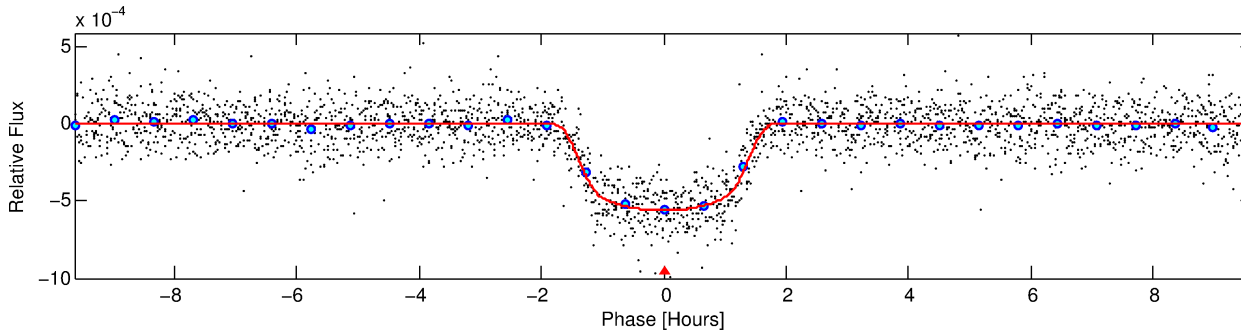
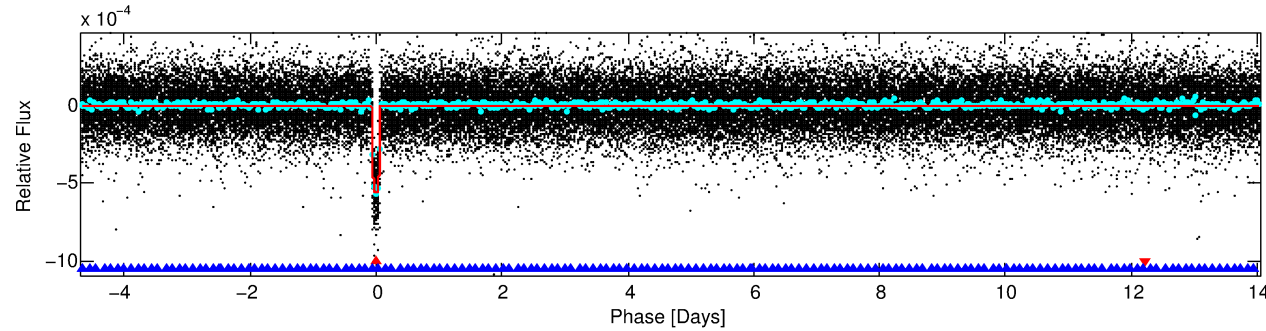
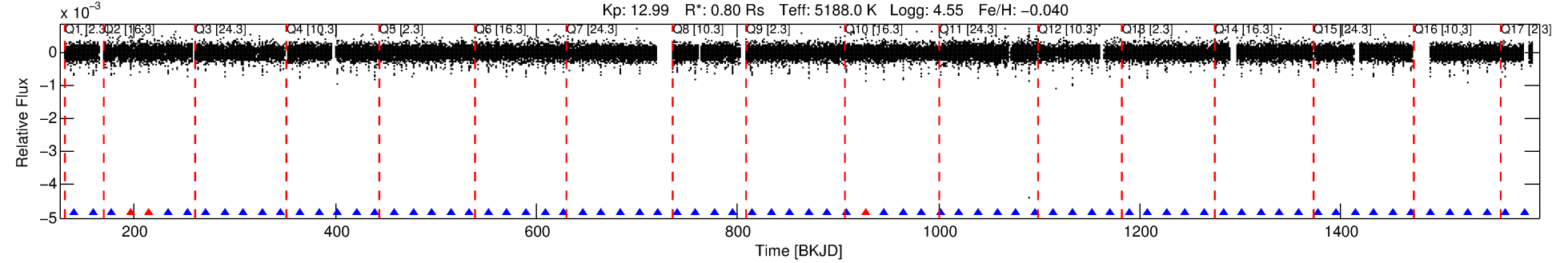
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 007419318-01

No Significant Match Found

DV One-Page Summary

KIC: 7419318 Candidate: 1 of 2 Period: 18.736 d
KOI: K00313.01 Name: Kepler-137c Corr: 0.975



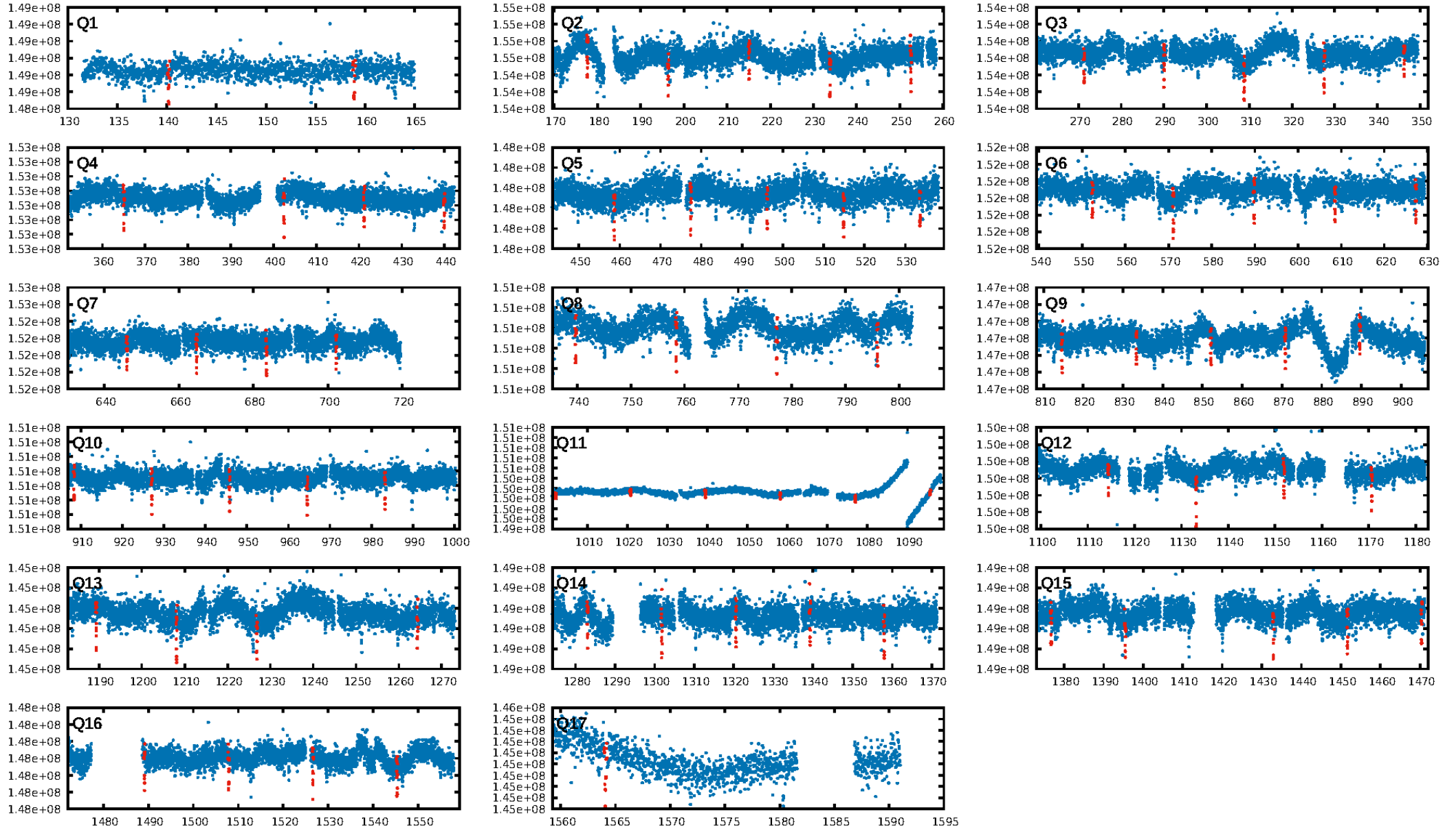
DV Fit Results:

Period = 18.73577 [0.00002] d
Epoch = 140.1633 [0.0010] BKJD
Rp/R* = 0.0261 [0.0014]
a/R* = 22.70 [4.71]
b = 0.89 [0.05]
Seff = 24.71 [2.94]
Teq = 569 [17] K
Rp = 2.26 [0.19] Re
a = 0.1288 [0.0076] AU
Ag = 38.66 [15.45] [2.44 σ]
Teffp = 2192 [218] K [7.43 σ]

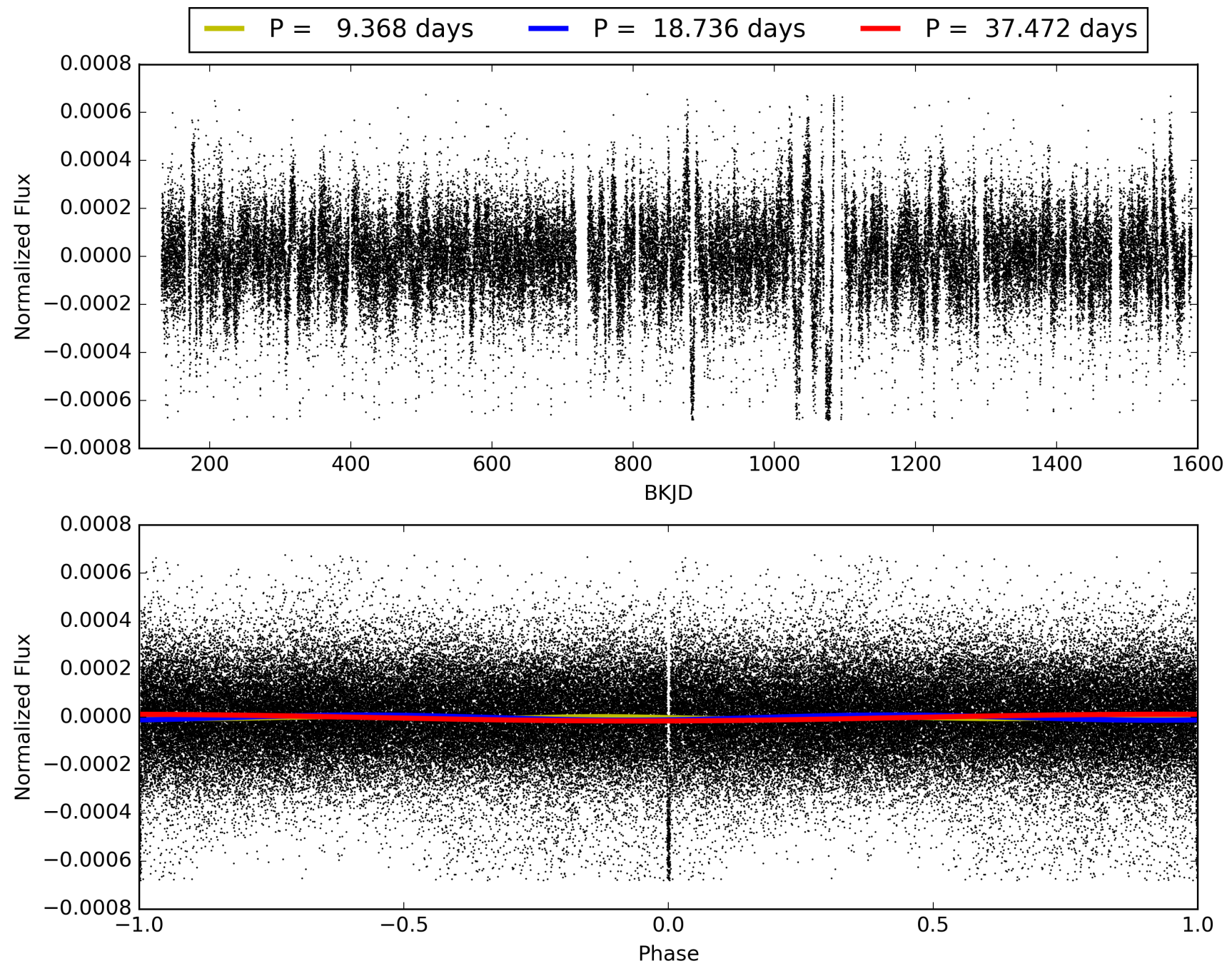
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [52.95 σ]
LongPeriod-sig: N/A
ModelChiSquare2-sig: 98.7%
ModelChiSquareGof-sig: 100.0%
Bootstrap-pfa: 0.00e+00
RollingBand-fgt: 0.96 [67/70]
GhostDiagnostic-chr: 3.955
Centroid-sig: 73.4%
Centroid-so: 0.394 arcsec [2.41 σ]
OotOffset-rm: 0.078 arcsec [0.46 σ]
KicOffset-rm: 0.207 arcsec [1.37 σ]
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]

TCE 007419318-01, PDC Light Curves

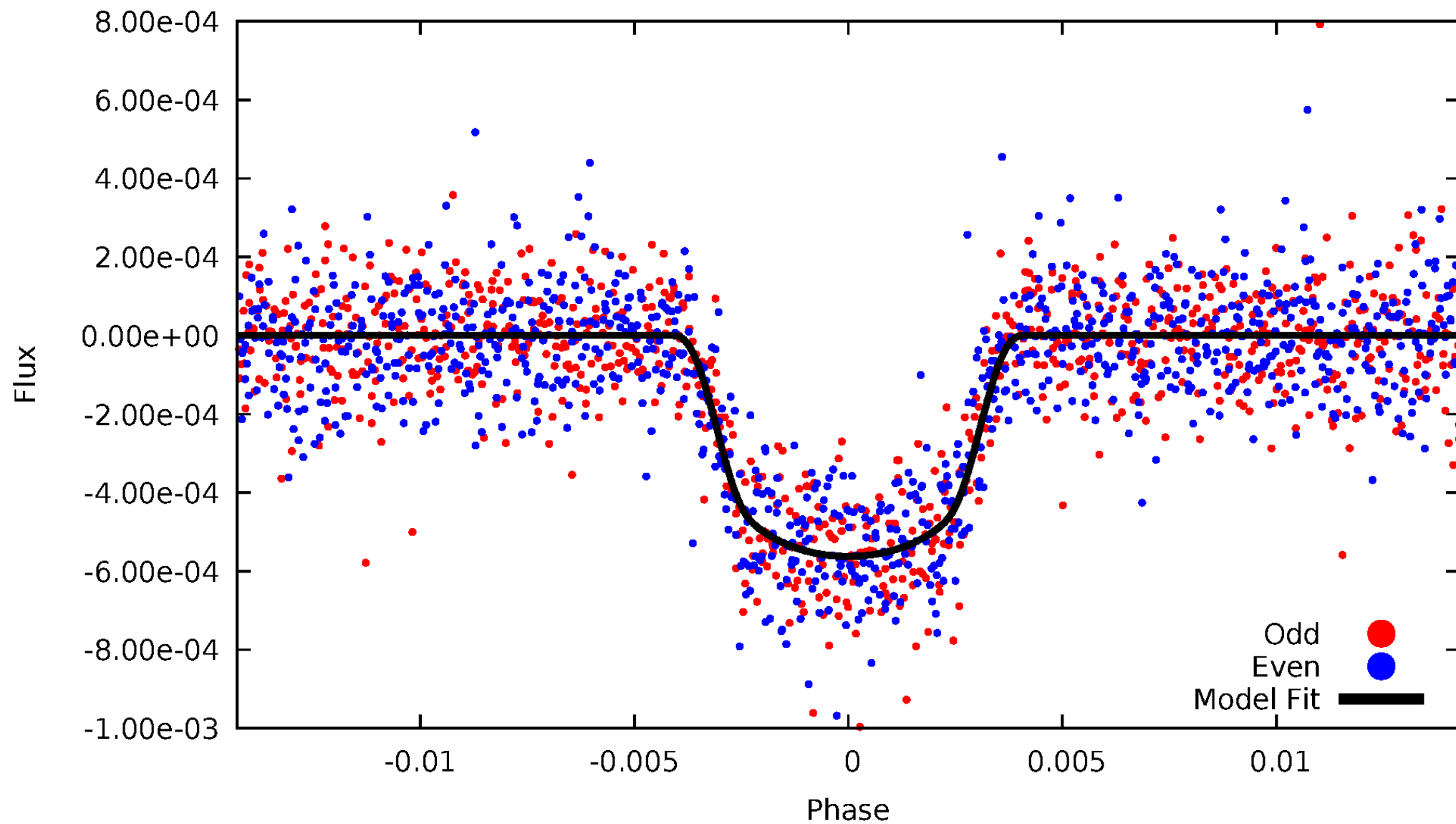


TCE 007419318-01



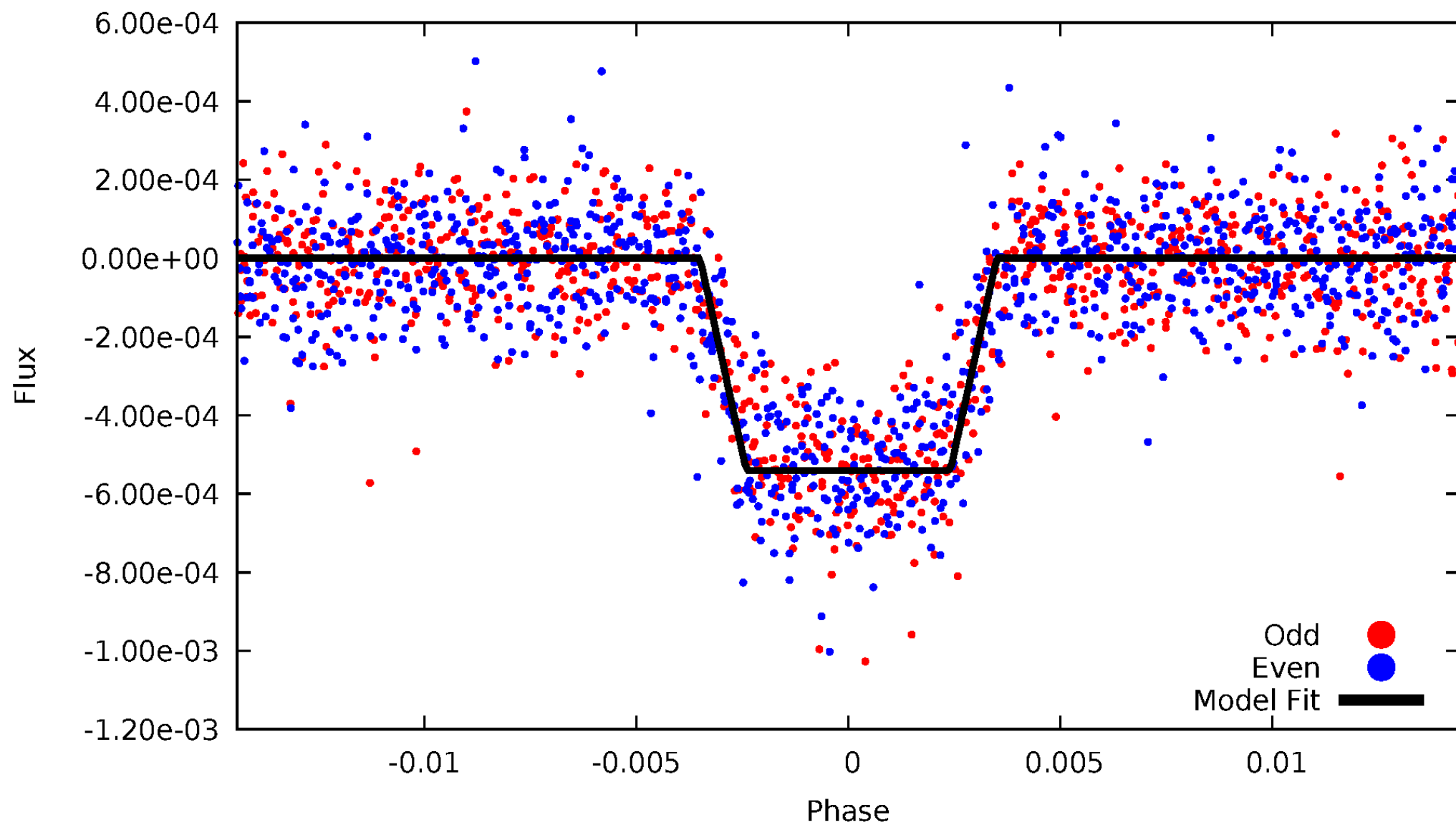
DV Odd/Even

TCE 007419318-01



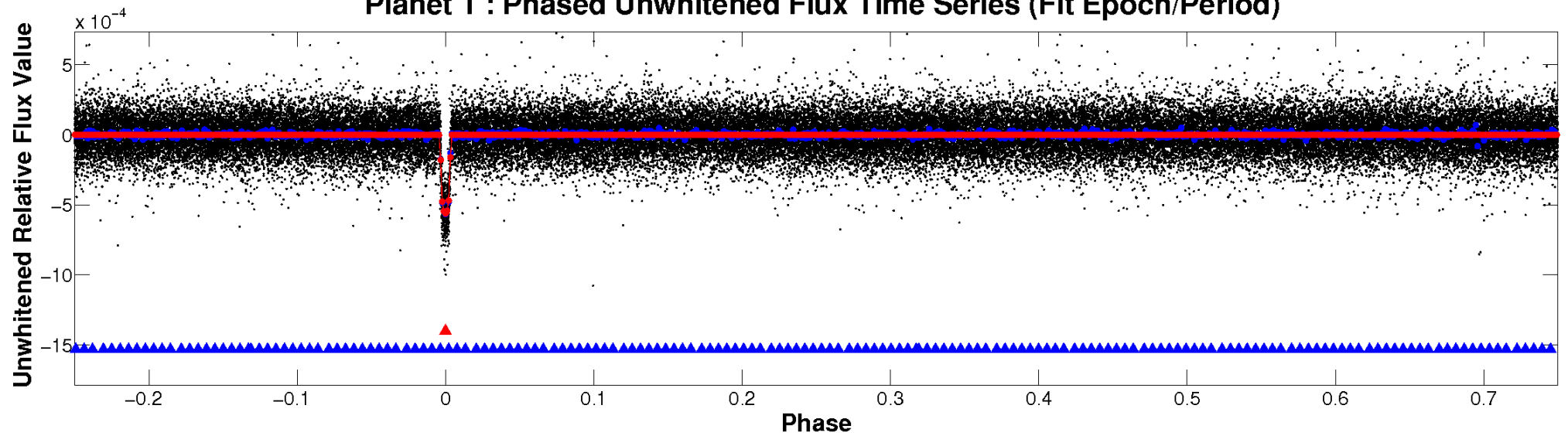
ALT Odd/Even

TCE 007419318-01

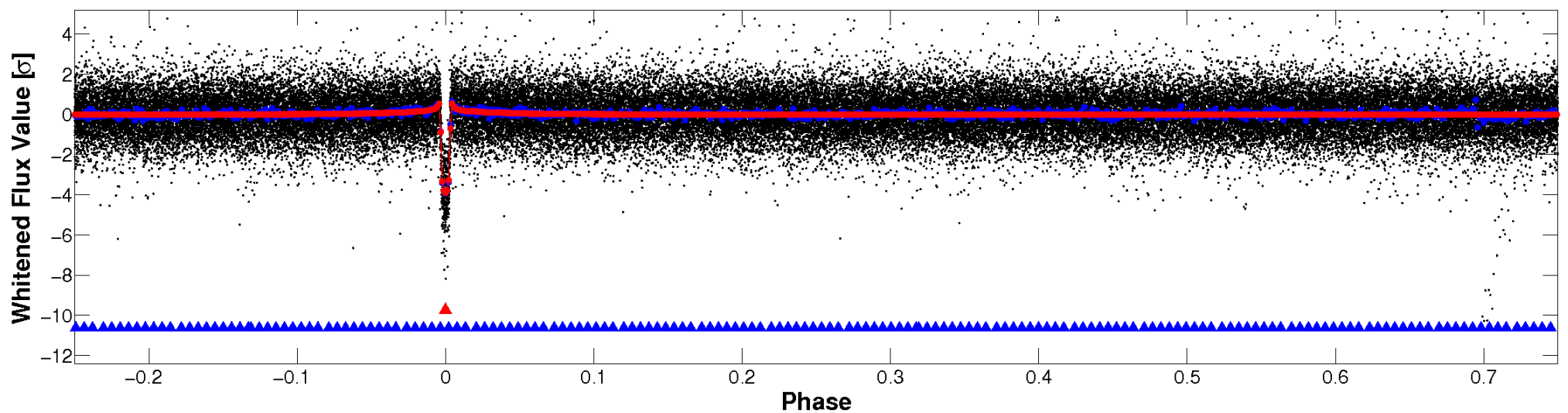


Non-Whitened Vs. Whitened Light Curve

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

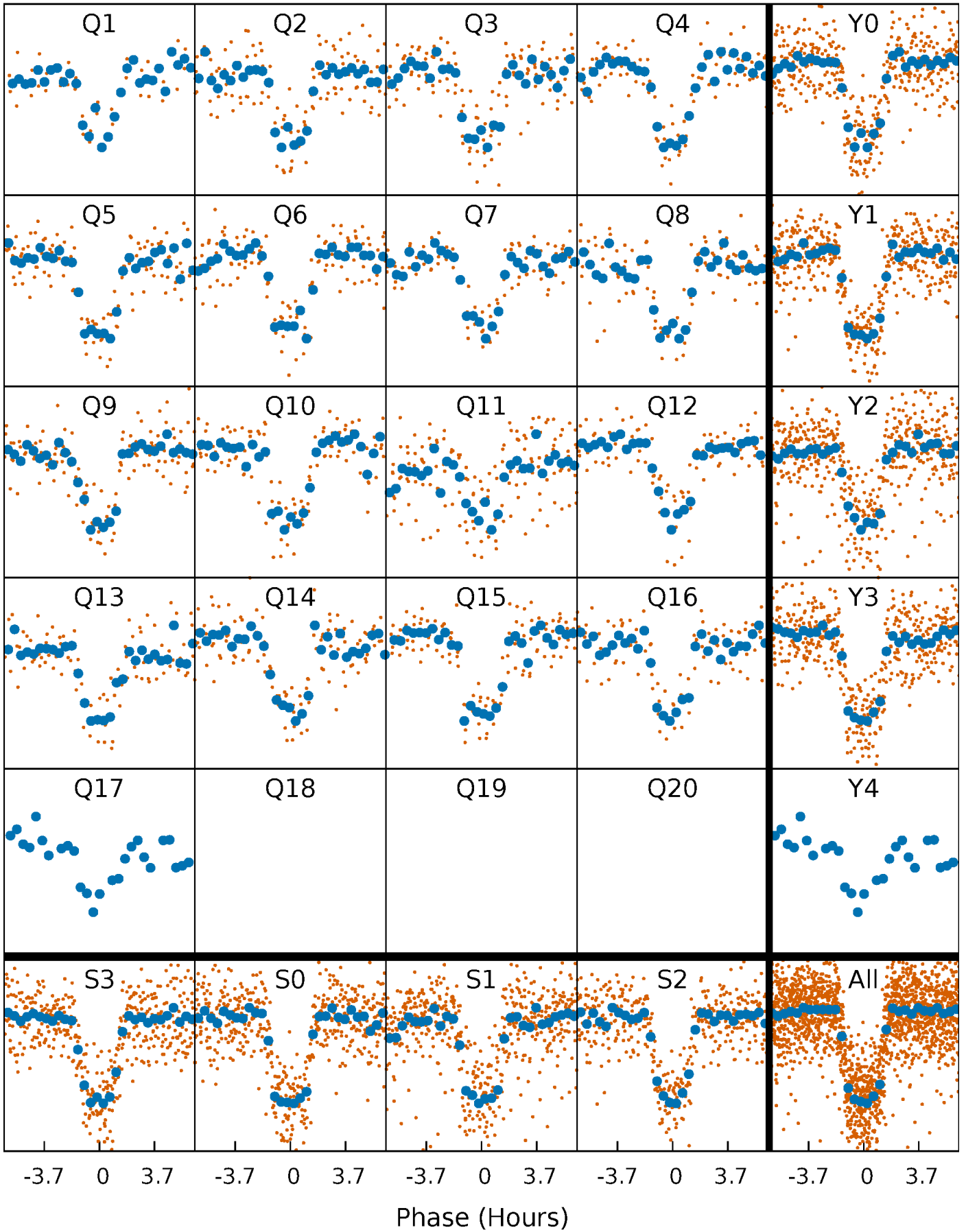


Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)



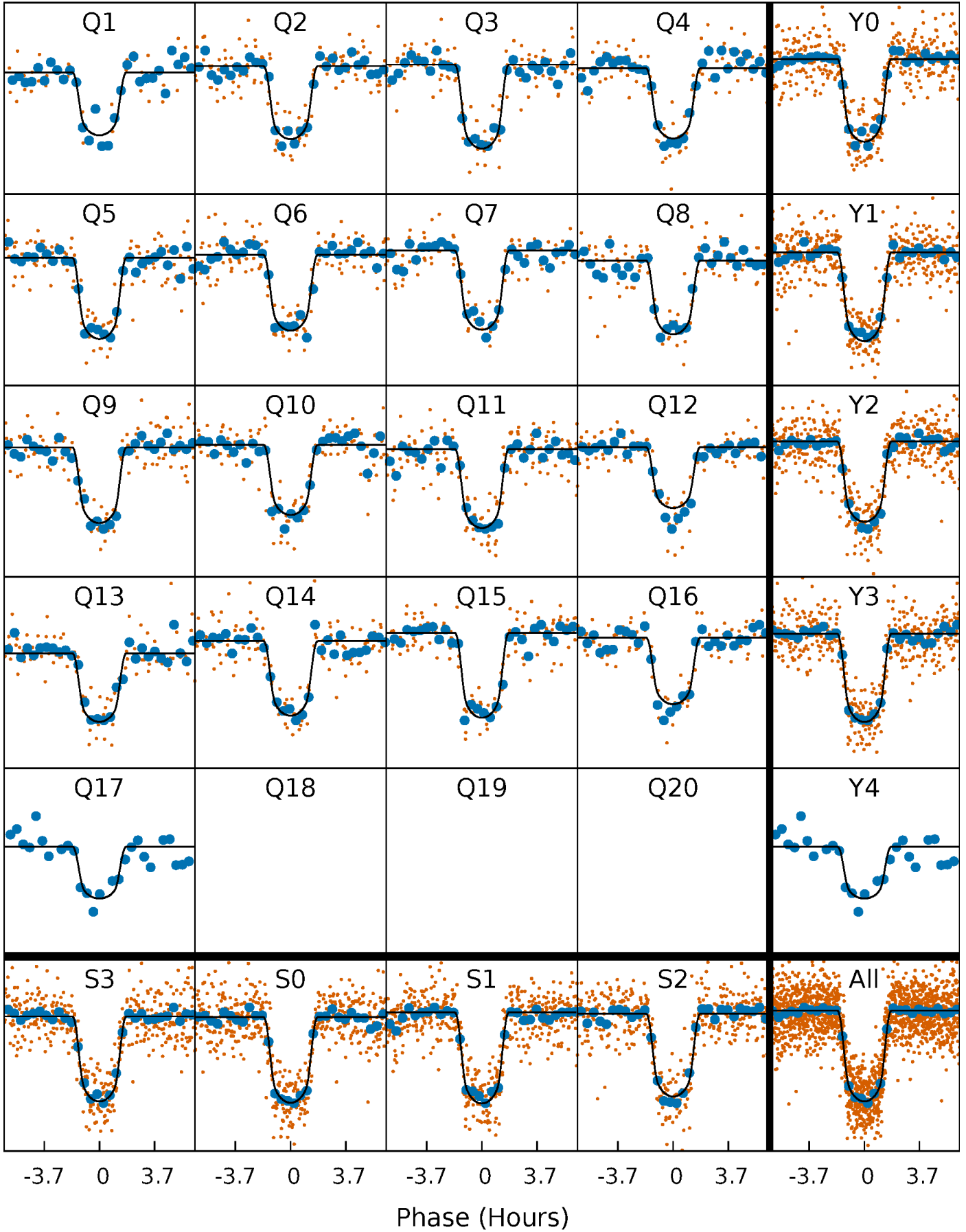
PDC Quarter-Phased Transit Curves

TCE 007419318-01 P= 18.735774 Days $T_0=140.163287$ (BKJD)



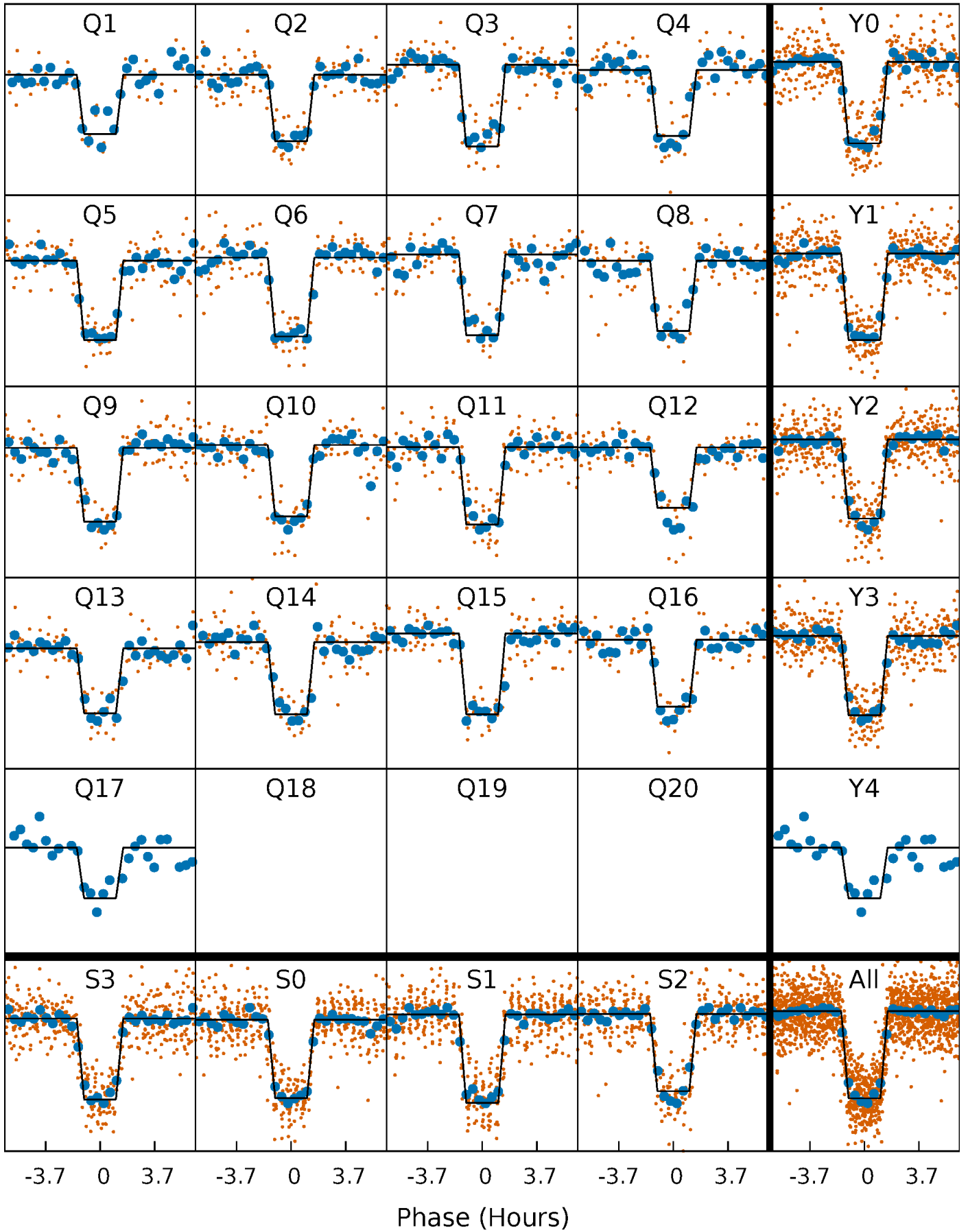
DV Quarter-Phased Transit Curves

TCE 007419318-01 P= 18.735774 Days $T_0=140.163287$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

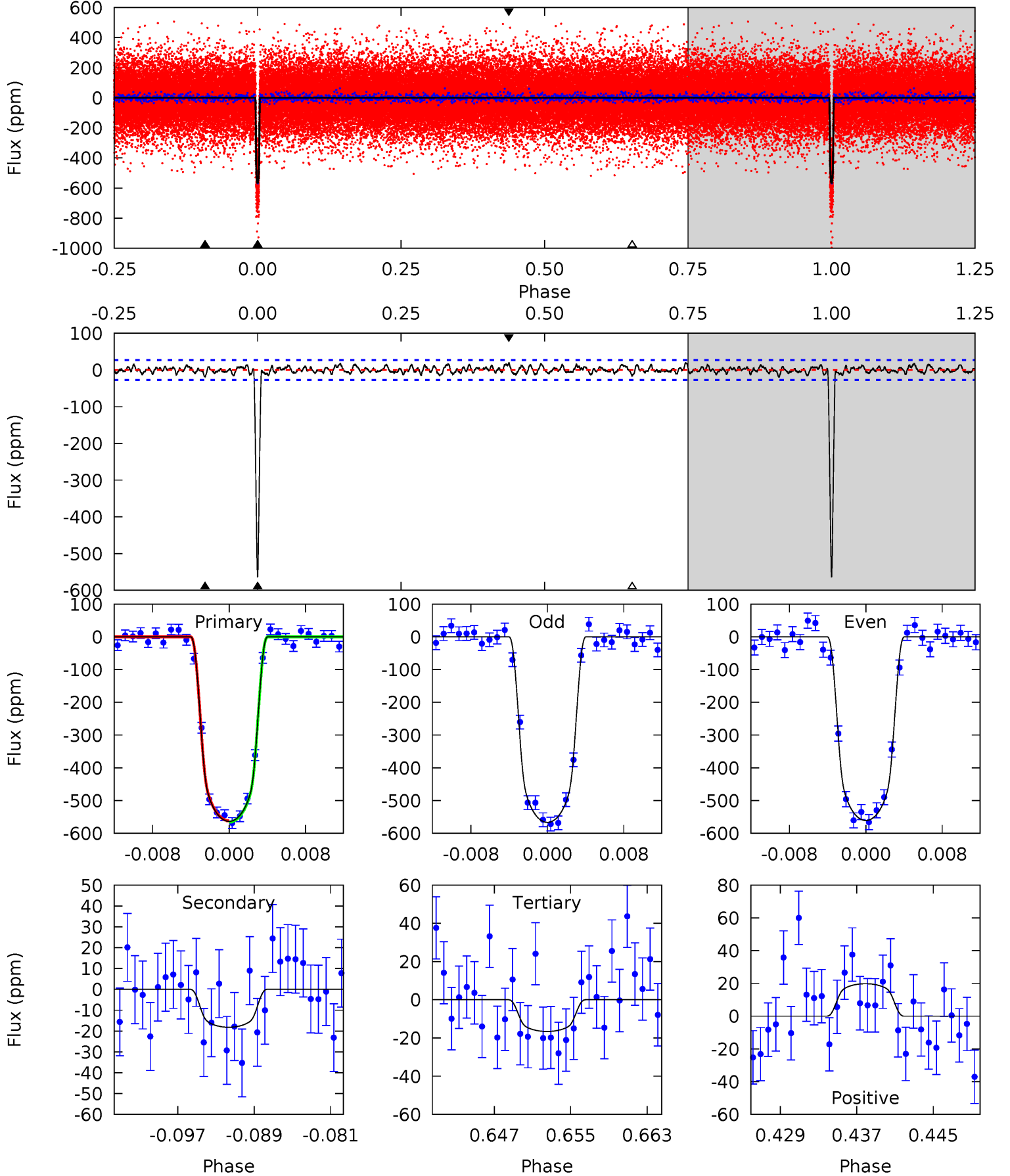
TCE 007419318-01 P= 18.735628 Days $T_0=140.168527$ (BKJD)



DV Model-Shift Uniqueness Test

007419318-01, $P = 18.735774$ Days, $E = 121.427513$ Days

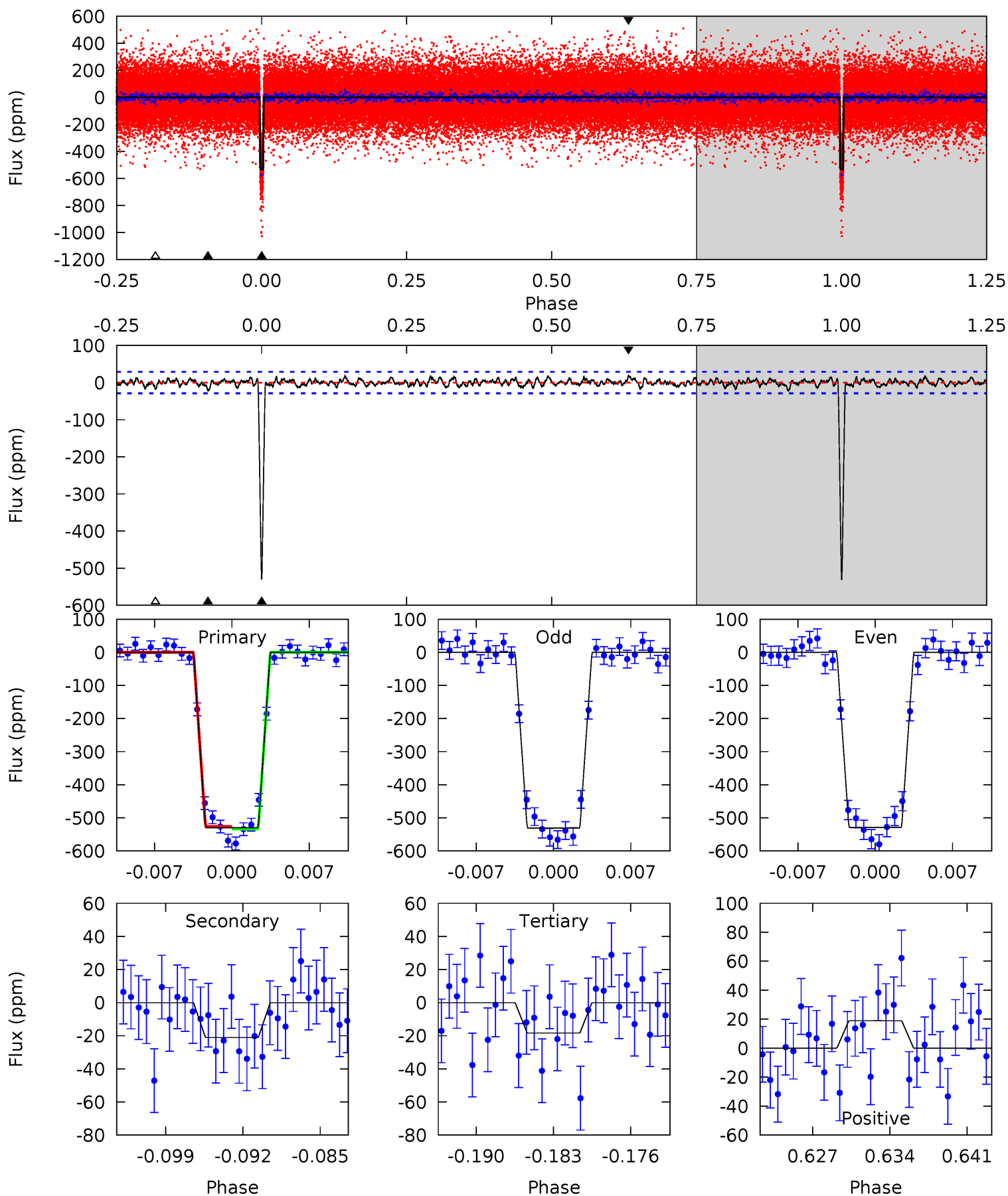
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
105.3	3.40	3.10	3.70	5.07	2.65	1.30	102.2	101.6	0.30	-0.30	0.54	1.01	0.03	0.36



Alt Model-Shift Uniqueness Test

007419318-01, $P = 18.735628$ Days, $E = 121.432899$ Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
93.2	3.71	3.22	3.34	5.09	2.69	1.15	89.9	89.8	0.48	0.37	0.18	0.99	0.03	0.72



Stellar Parameters For KIC 007419318

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	5188^{+103}_{-103}	$4.547^{+0.040}_{-0.050}$	$-0.040^{+0.150}_{-0.150}$	$0.795^{+0.053}_{-0.043}$	$0.814^{+0.046}_{-0.046}$	$2.280^{+0.358}_{-0.372}$
	+2%/-2%	+1%/-1%	+375%/-375%	+7%/-5%	+6%/-6%	+16%/-16%
Source	SPE58	SPE58	SPE58	DSEP		

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

Secondary Eclipse Parameters for KIC 007419318-01 / KOI 0313.01

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	-18 ± 5	$2.27^{+0.16}_{-0.15}$	796^{+21}_{-20}	2809^{+116}_{-120}	32^{+11}_{-9}
Alt.	-21 ± 6	$2.04^{+0.13}_{-0.14}$	796^{+21}_{-19}	2954^{+123}_{-135}	46^{+15}_{-13}

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 $A_{obs} \gg 1.0$

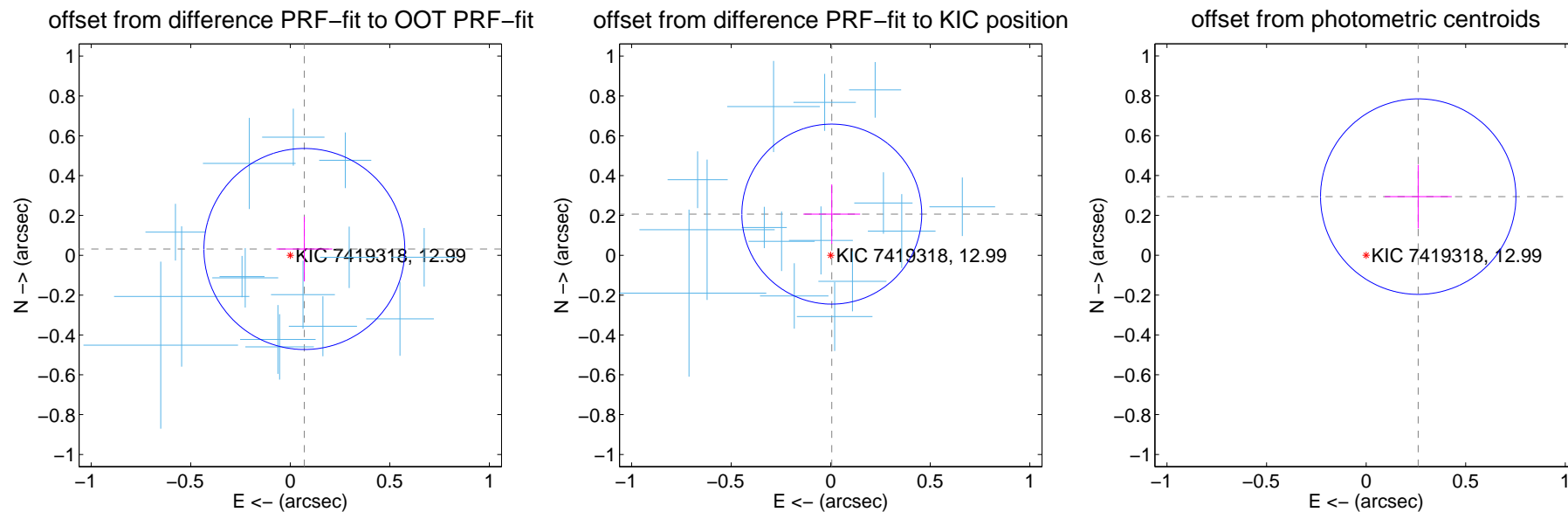
DV Centroid Data

Supplemental centroid analysis for 007419318-01. Kepler magnitude: 12.99. Transit SNR 68.69

There are 17 quarters with good PRF difference image offsets

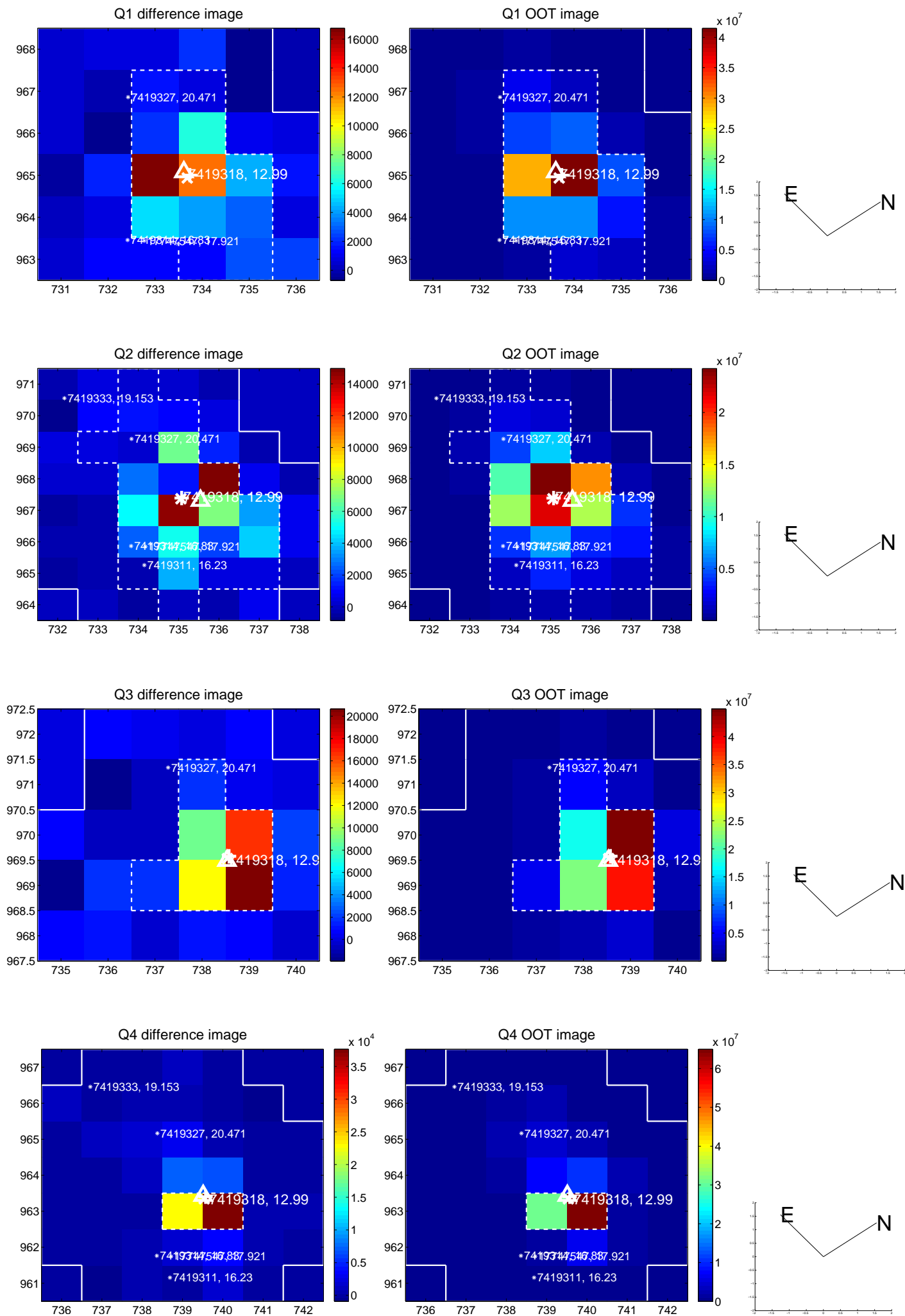
The direct PRF centroid is offset from the target star catalog position by about 0.27 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.078 ± 0.168	0.46	-0.071 ± 0.140	0.032 ± 0.163
PRF-fit source offset from KIC position	0.207 ± 0.151	1.37	-0.005 ± 0.143	0.207 ± 0.149
photometric centroid source offset	0.39 ± 0.16	2.41	-0.26 ± 0.17	0.29 ± 0.16

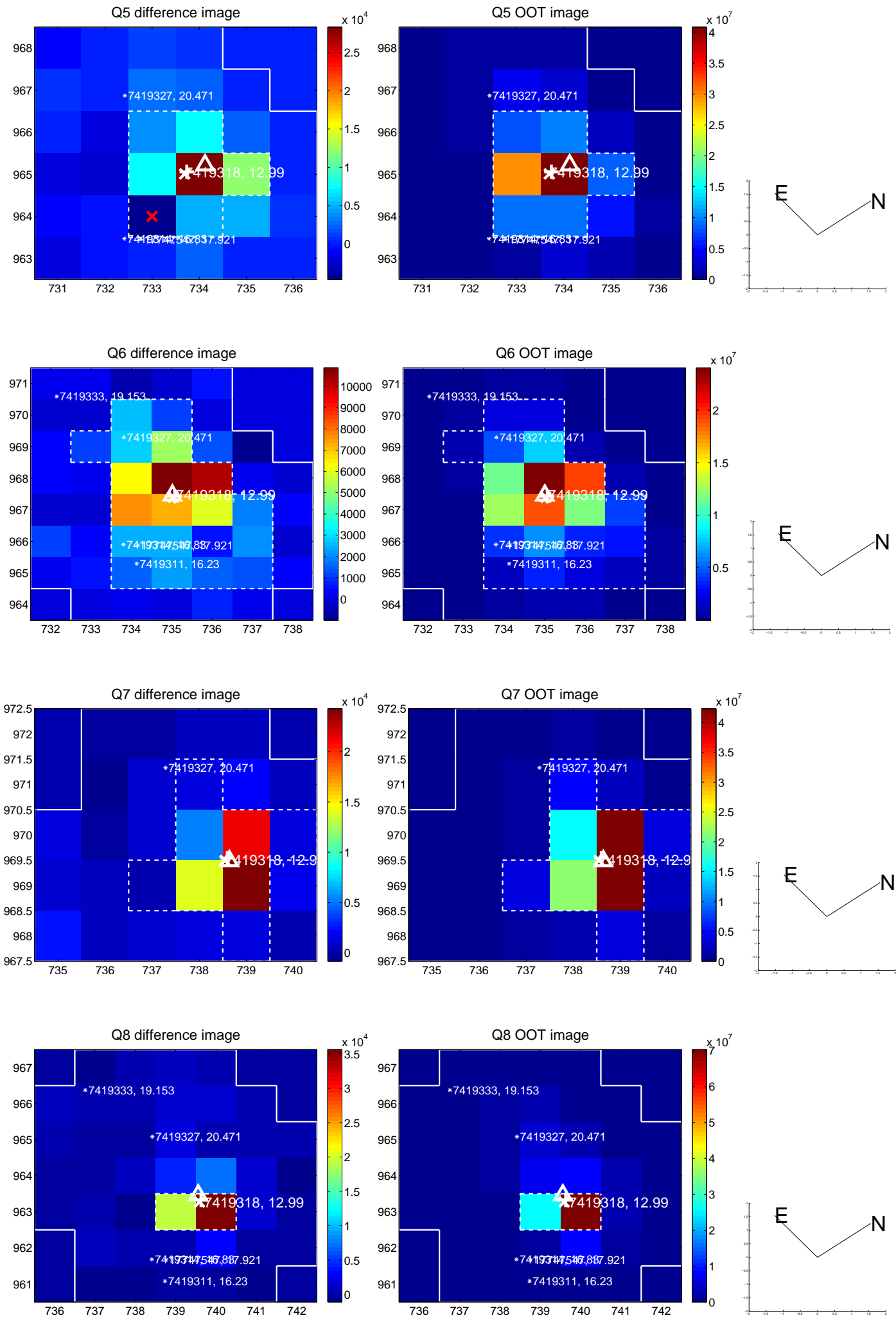


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses:** good quarterly centroid offsets; **Vermillion crosses:** bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

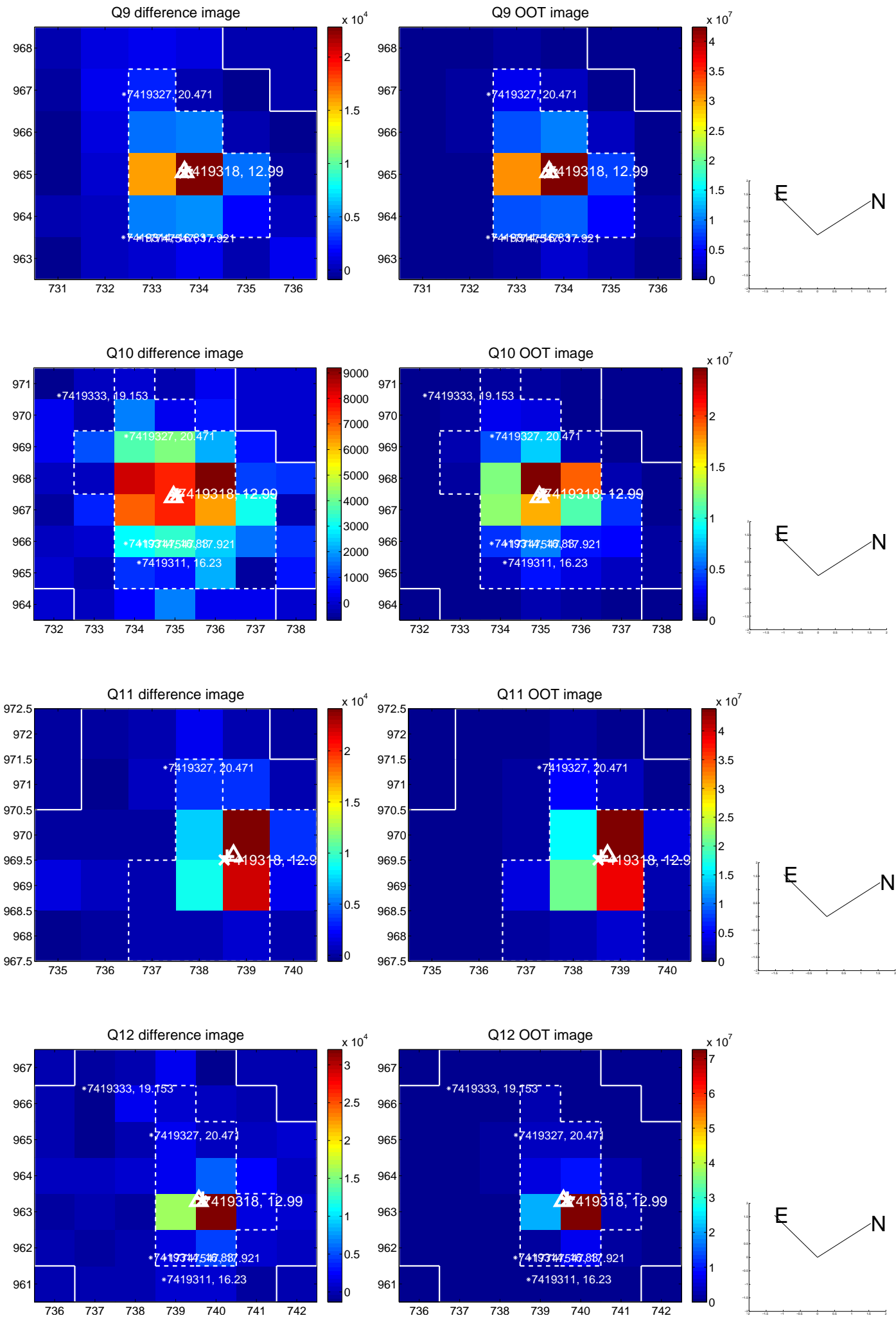
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



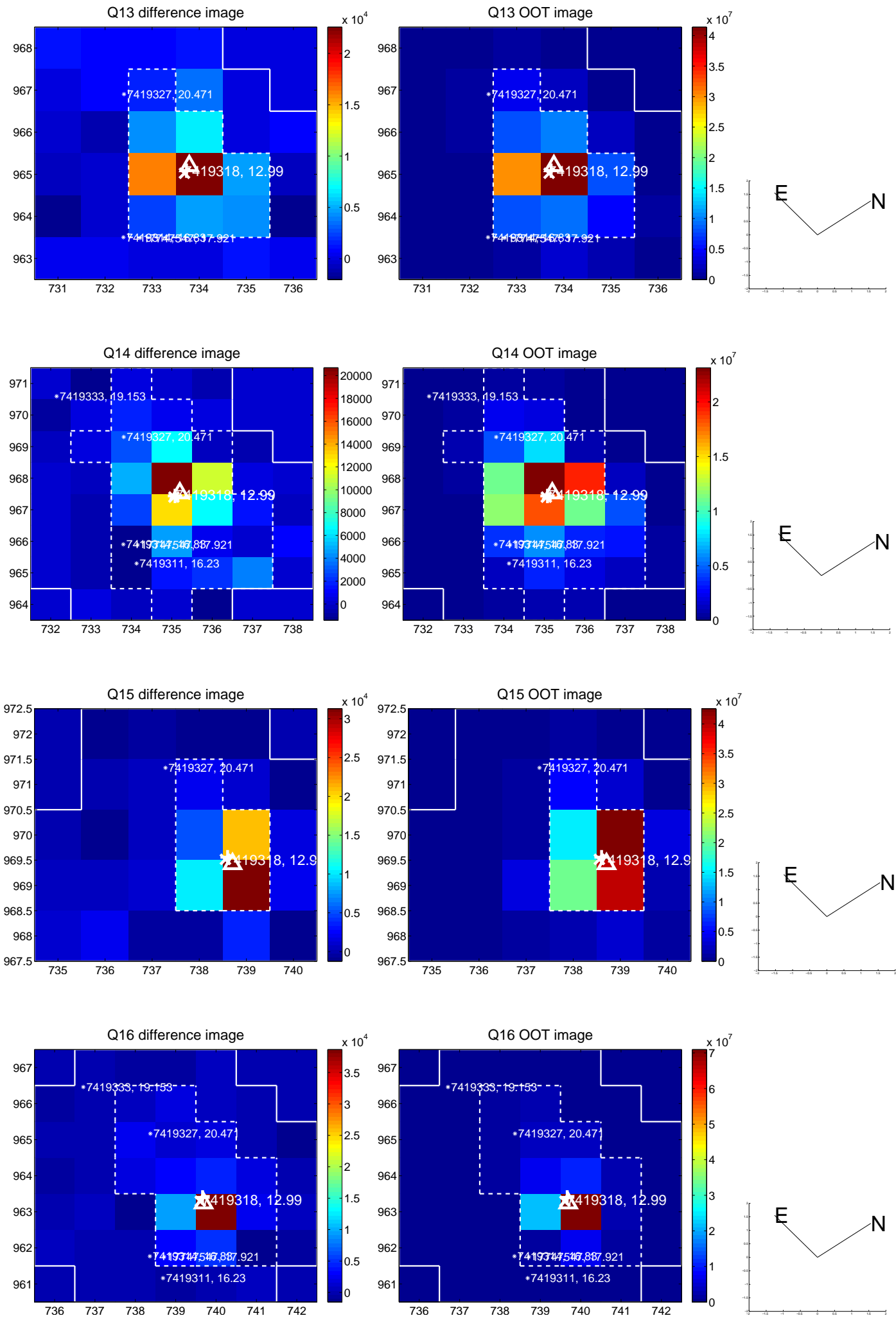
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



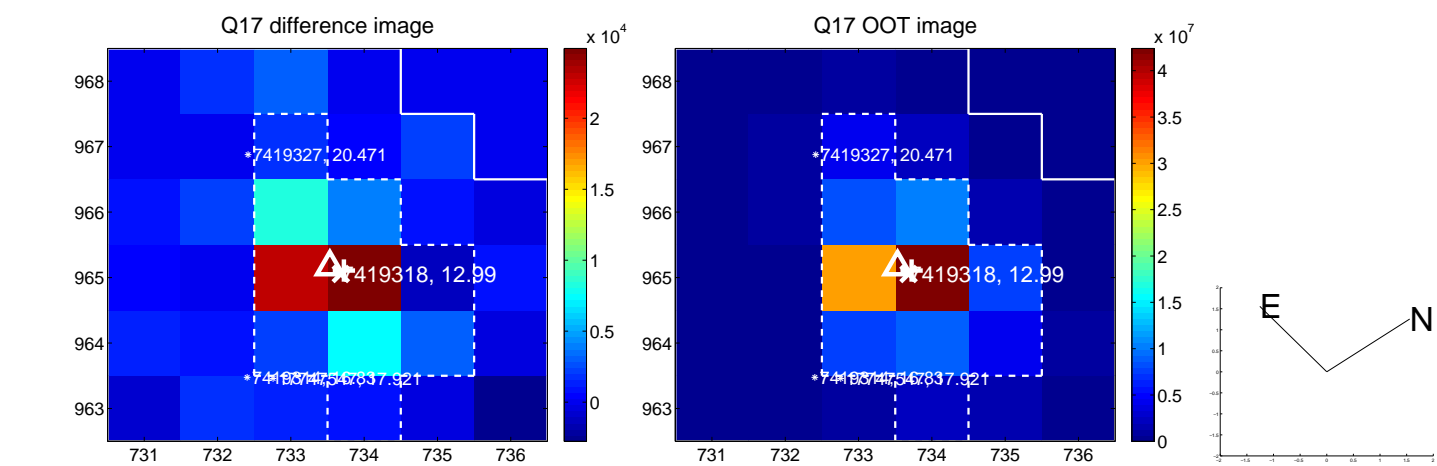
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



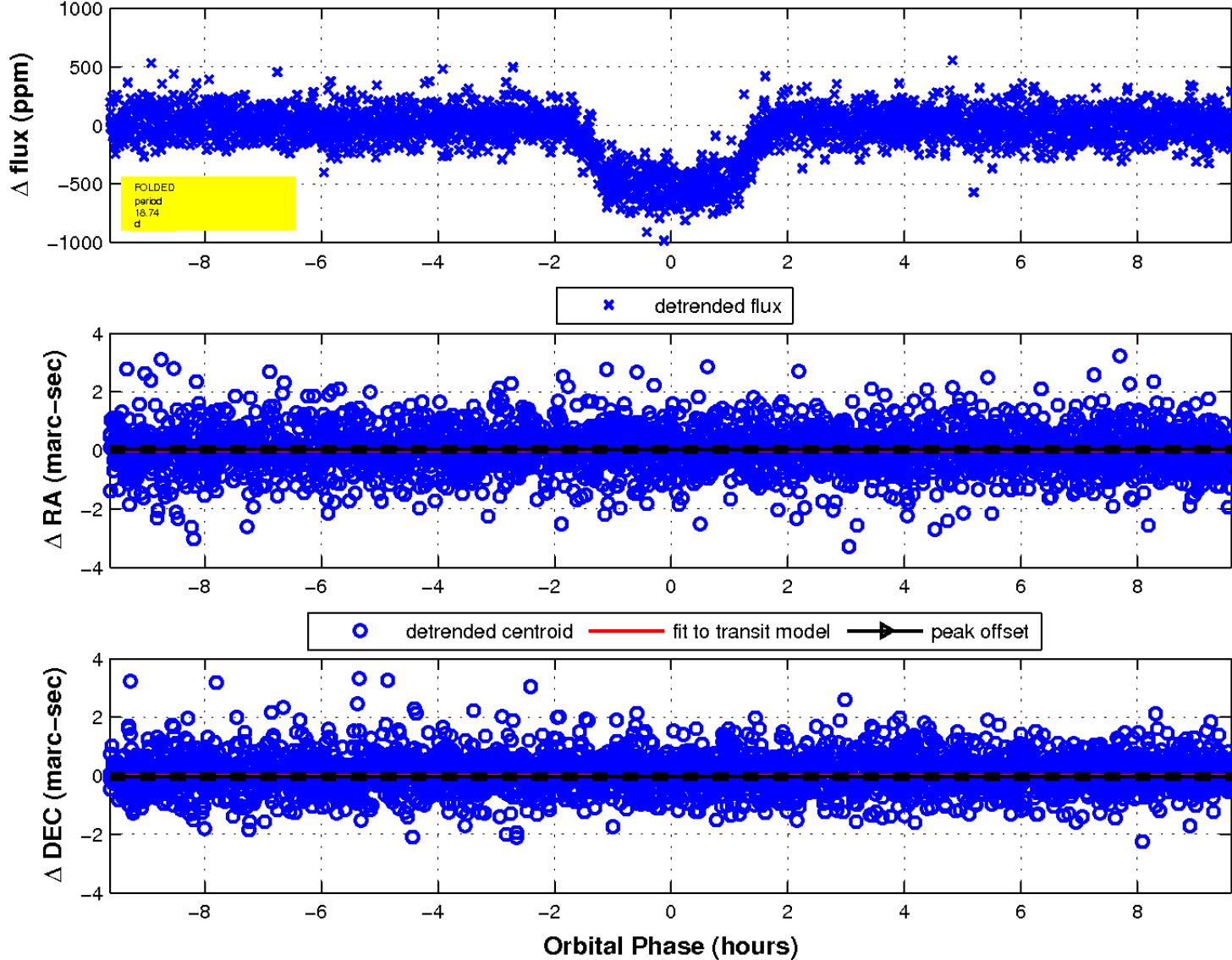
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

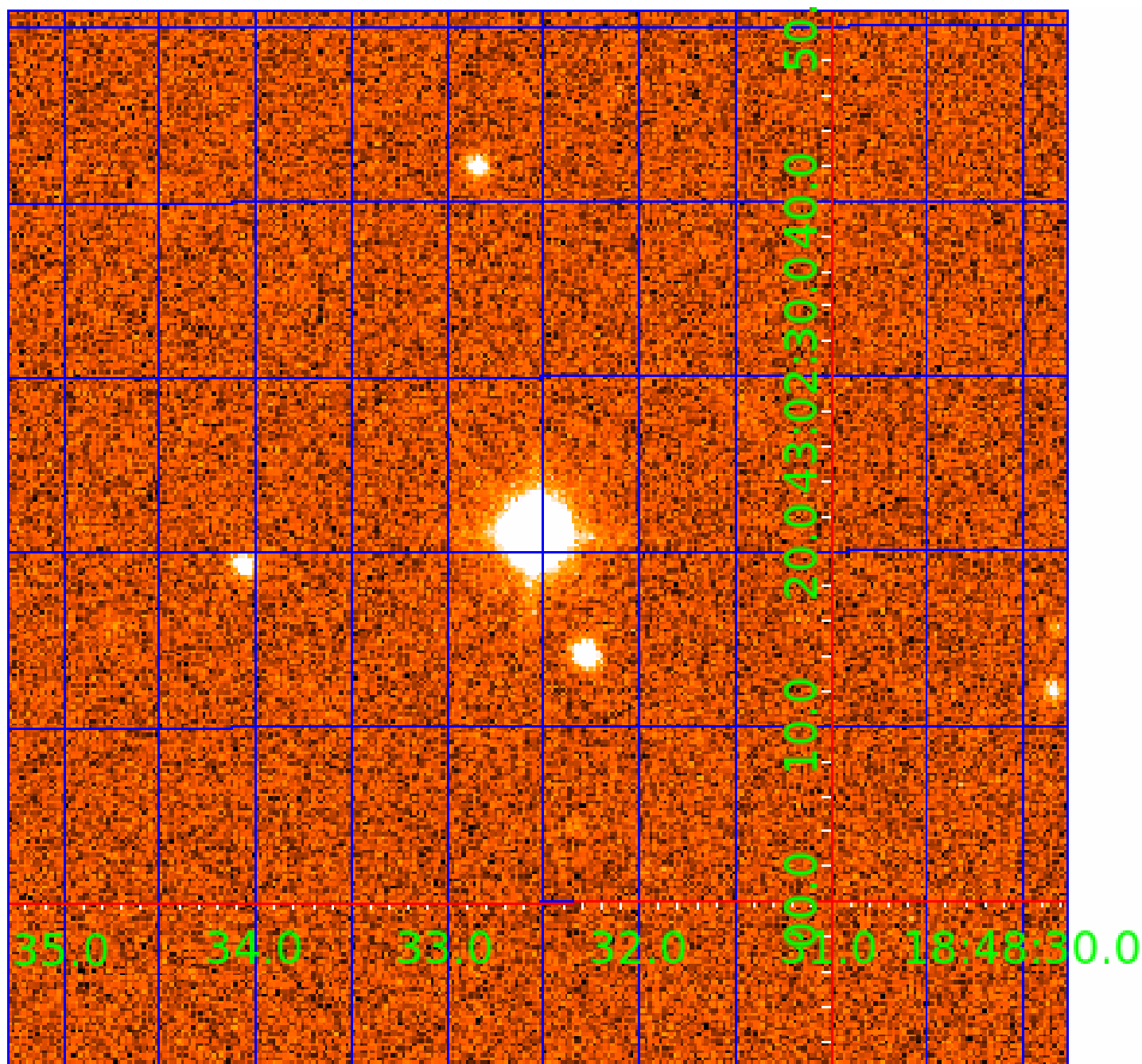


fluxWeightedCentroids, Planet 1 of 2



UKIRT Image

Declination



KIC 007419318

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})
007419318-01	OBS	0313.01	18.735774	140.163287	562.7	3.210	70.0	68.7	0.80	5188	2.26	24.71
007419318-02	OBS	0313.02	8.436393	137.705176	337.8	3.390	61.2	65.5	0.80	5188	1.72	71.60

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
007419318-01	OBS	PC	1.00	0	0	0	0	NO_COMMENT
007419318-02	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.

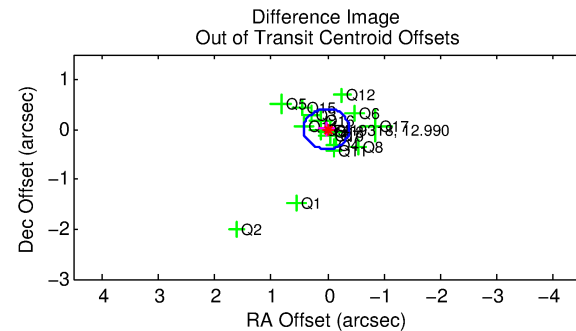
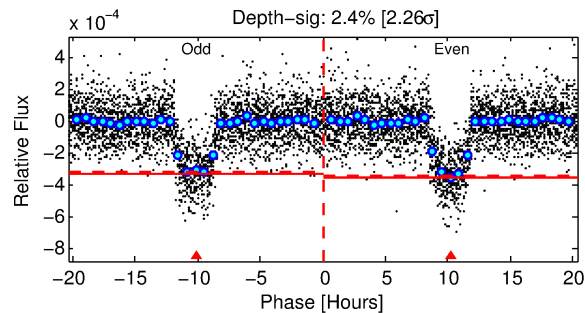
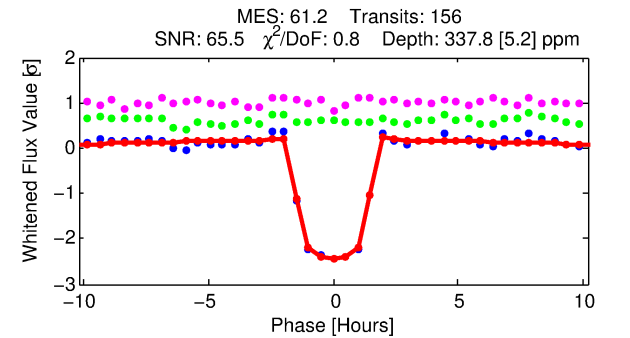
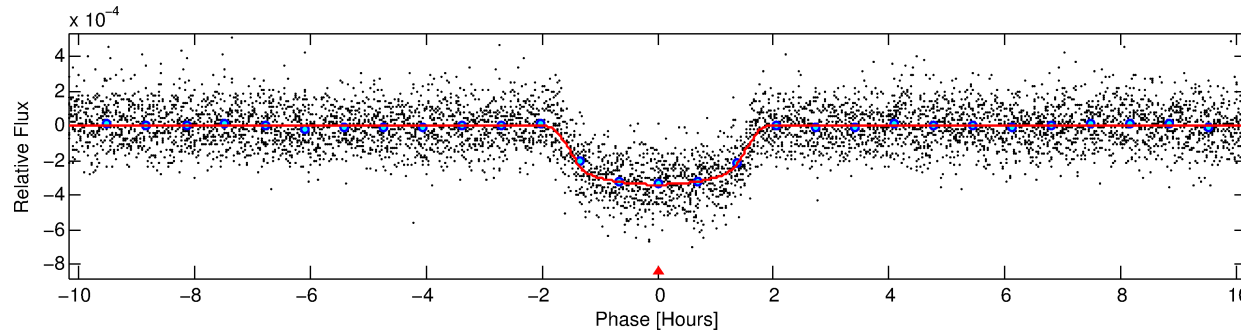
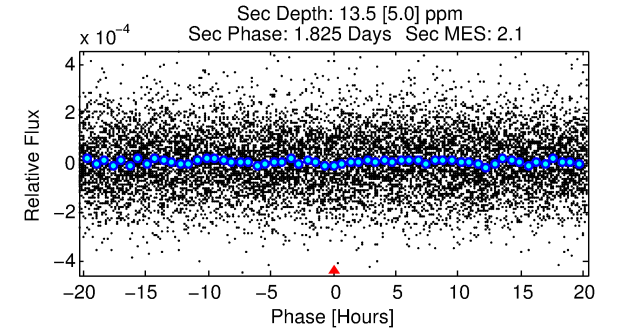
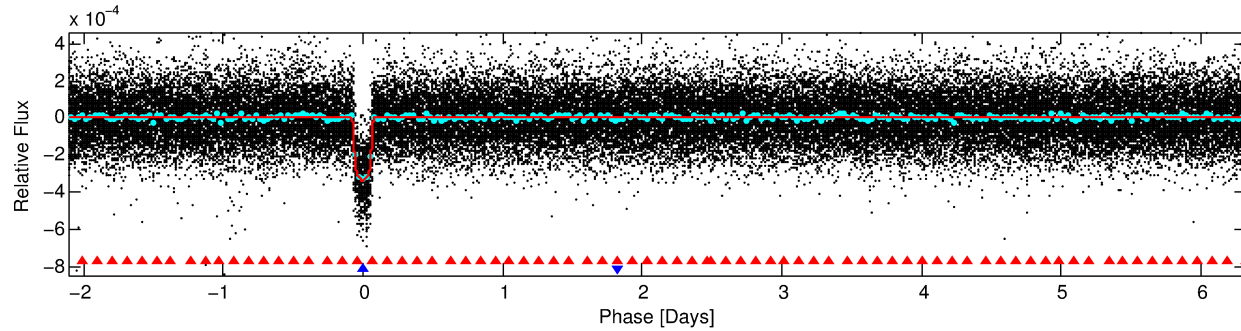
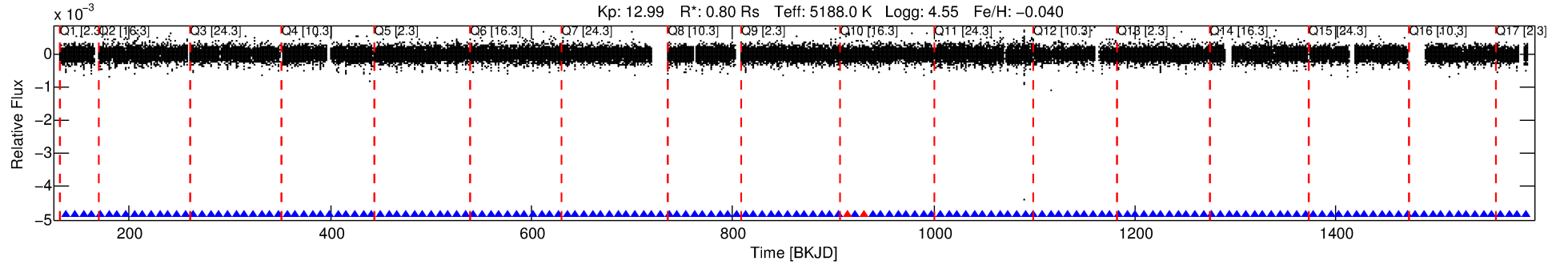
Ephemeris Match Information For 007419318-02

No Significant Match Found

DV One-Page Summary

KIC: 7419318 Candidate: 2 of 2 Period: 8.436 d
KOI: K00313.02 Name: Kepler-137b Corr: 0.984

Kp: 12.99 R*: 0.80 Rs Teff: 5188.0 K Logg: 4.55 Fe/H: -0.040



DV Fit Results:

Period = 8.43639 [0.00001] d
Epoch = 137.7052 [0.0010] BKJD
Rp/R* = 0.0198 [0.0017]
a/R* = 10.06 [3.51]
b = 0.87 [0.10]
Seff = 71.60 [8.52]
Teq = 742 [22] K
Rp = 1.72 [0.19] Re
a = 0.0757 [0.0044] AU
Ag = 14.38 [6.06] [2.21σ]
Teffp = 2233 [234] K [6.34σ]

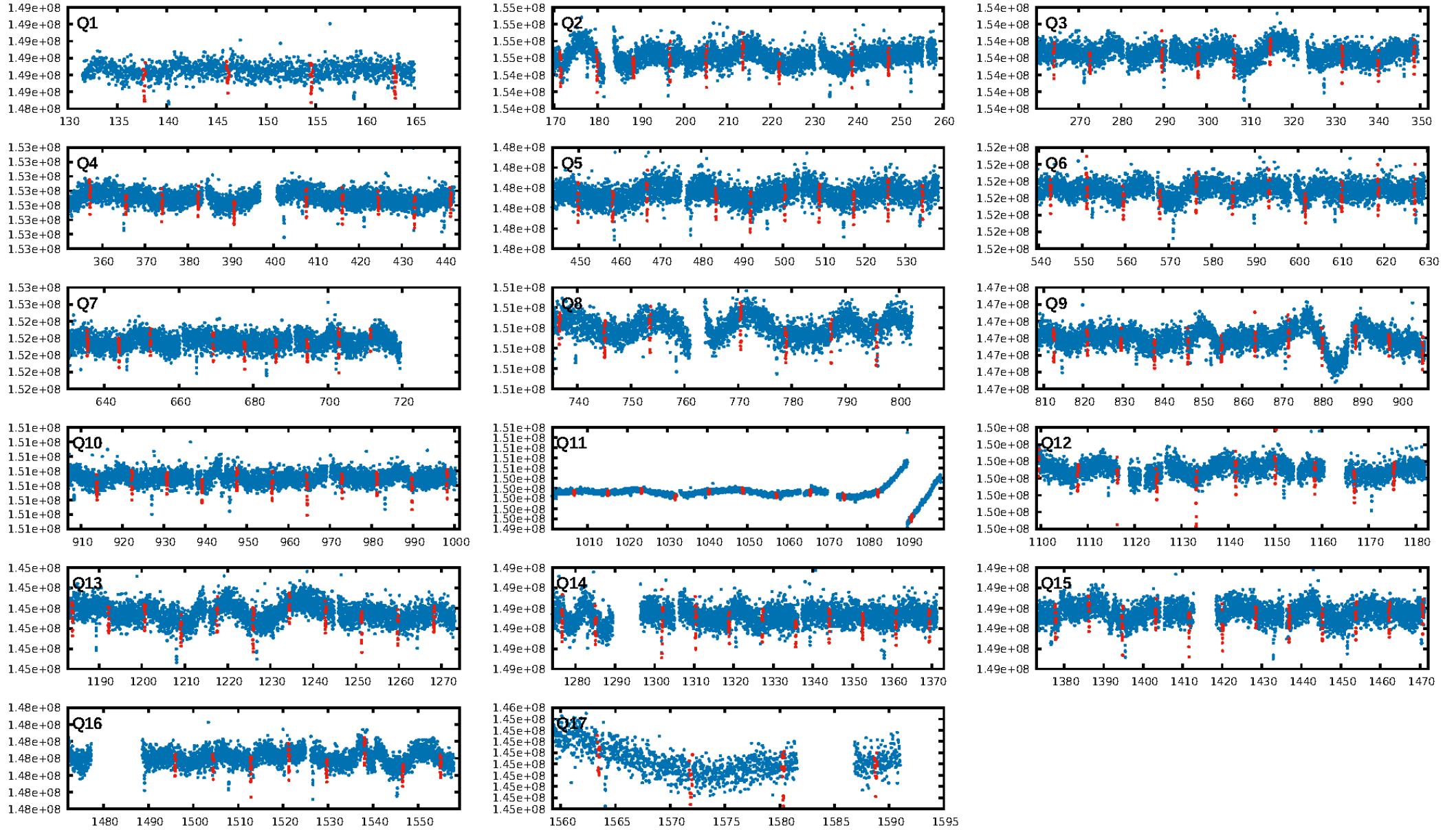
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: 100.0% [52.95σ]
ModelChiSquare2-sig: 99.9%
ModelChiSquareGof-sig: 100.0%
Bootstrap-pfa: 0.00e+00
RollingBand-fgt: 0.99 [146/148]
GhostDiagnostic-chr: 2.928
Centroid-sig: 74.3%
Centroid-so: 0.385 arcsec [2.11σ]
OotOffset-rm: 0.021 arcsec [0.16σ]
KicOffset-rm: 0.275 arcsec [1.78σ]
OotOffset-st: 4/4/4/5 [17]
KicOffset-st: 4/4/4/5 [17]
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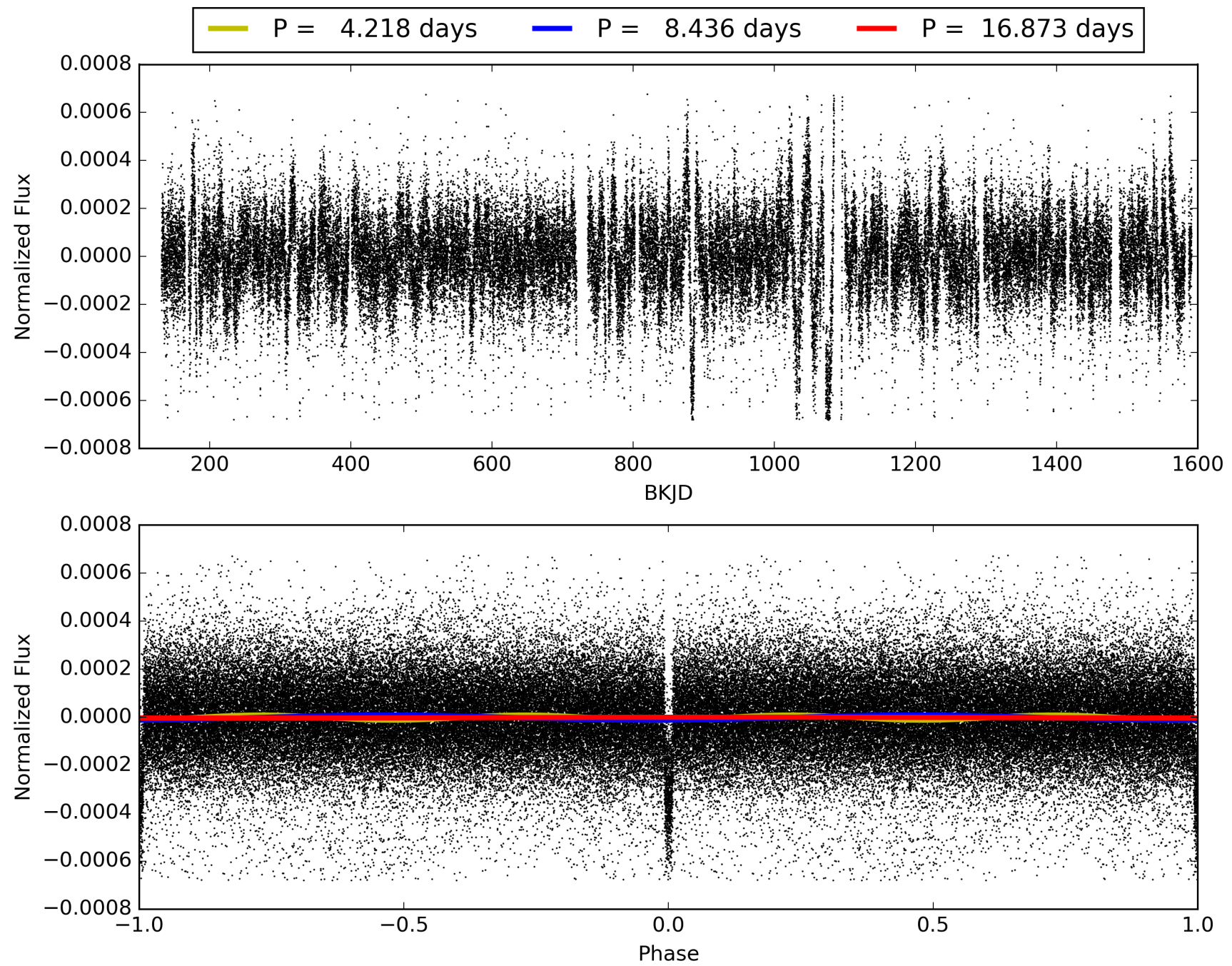
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This Data Validation Report Summary was produced in the Kepler Science Operations Center Pipeline at NASA Ames Research Center

TCE 007419318-02, PDC Light Curves

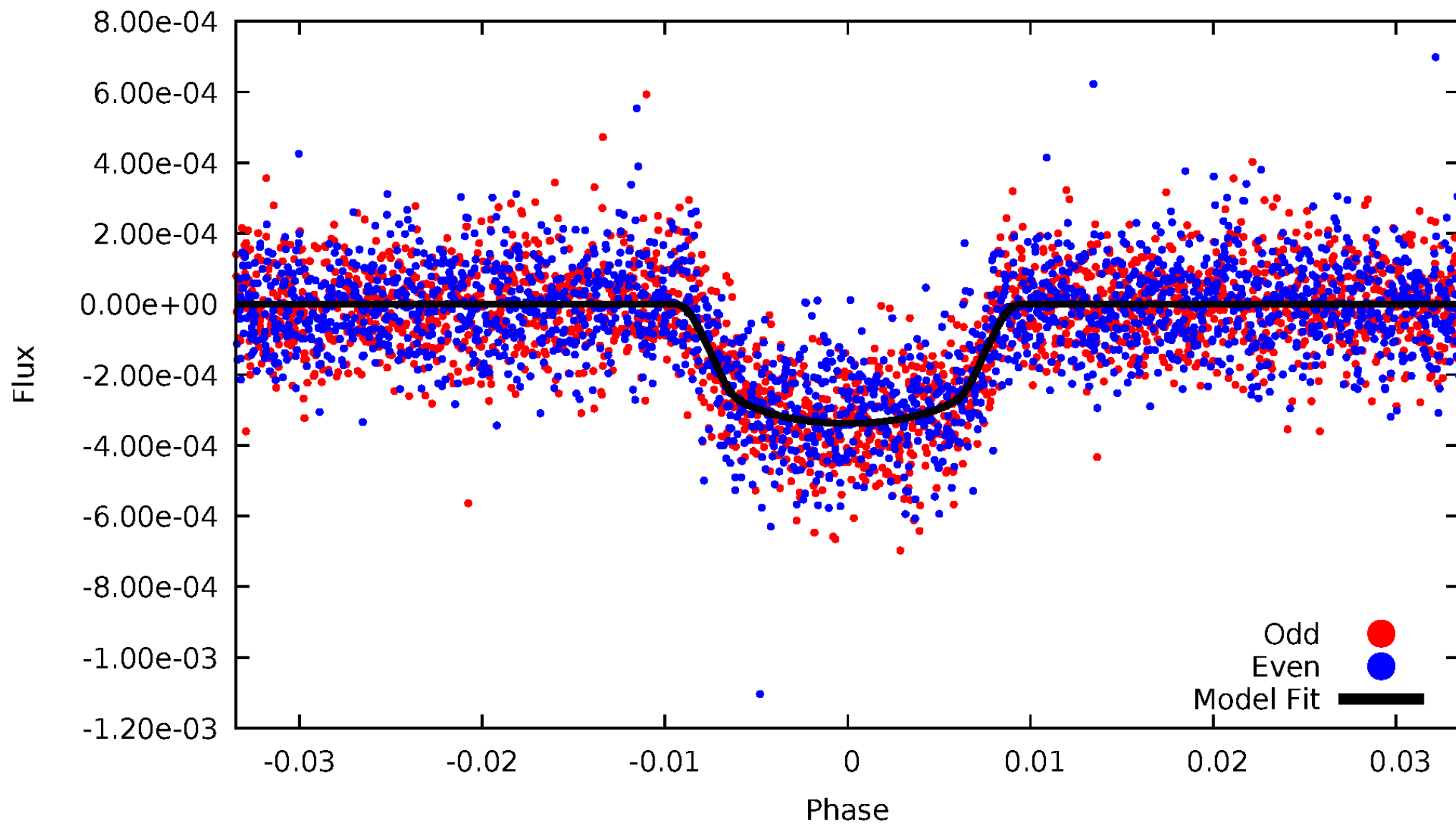


TCE 007419318-02



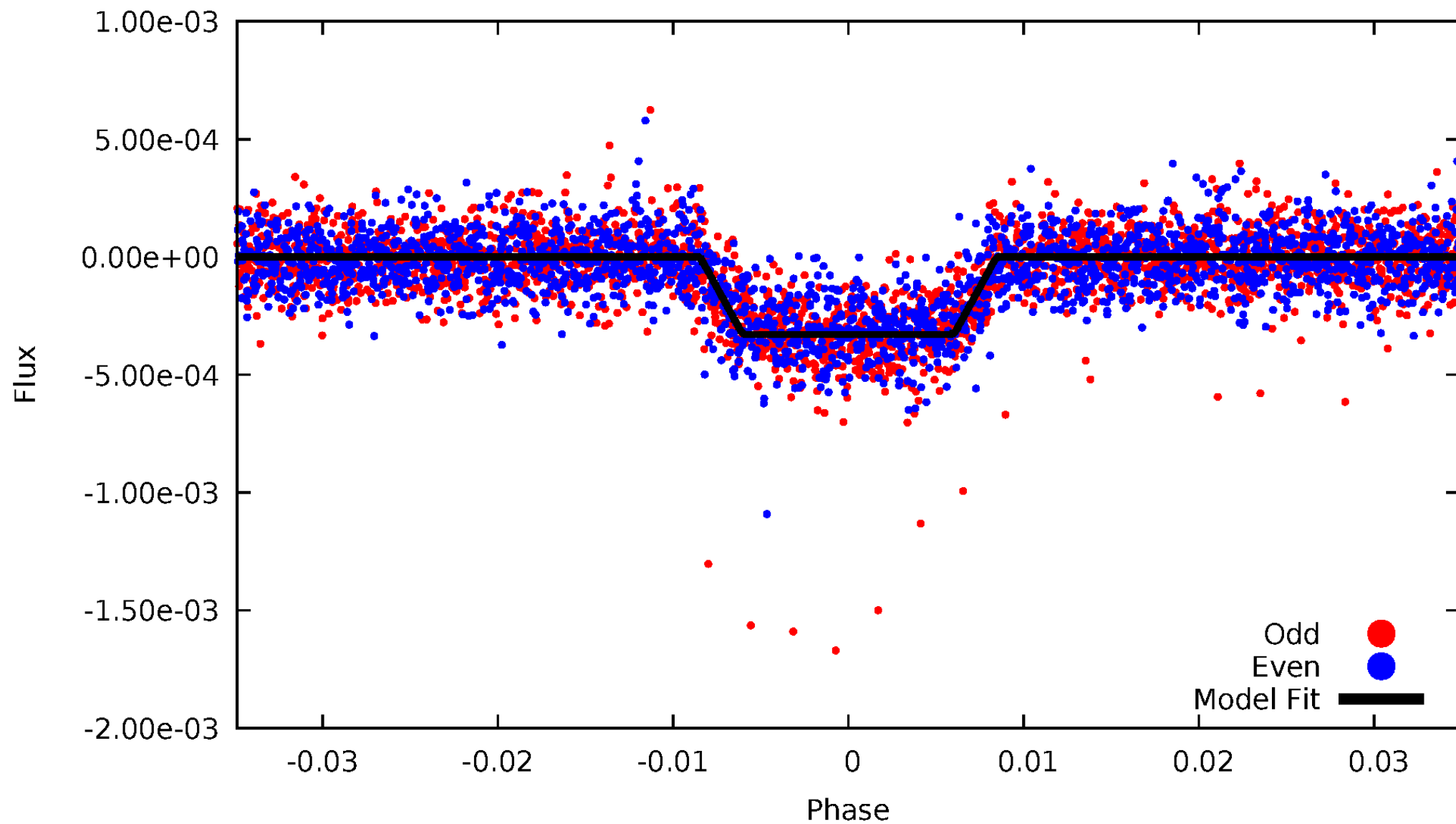
DV Odd/Even

TCE 007419318-02



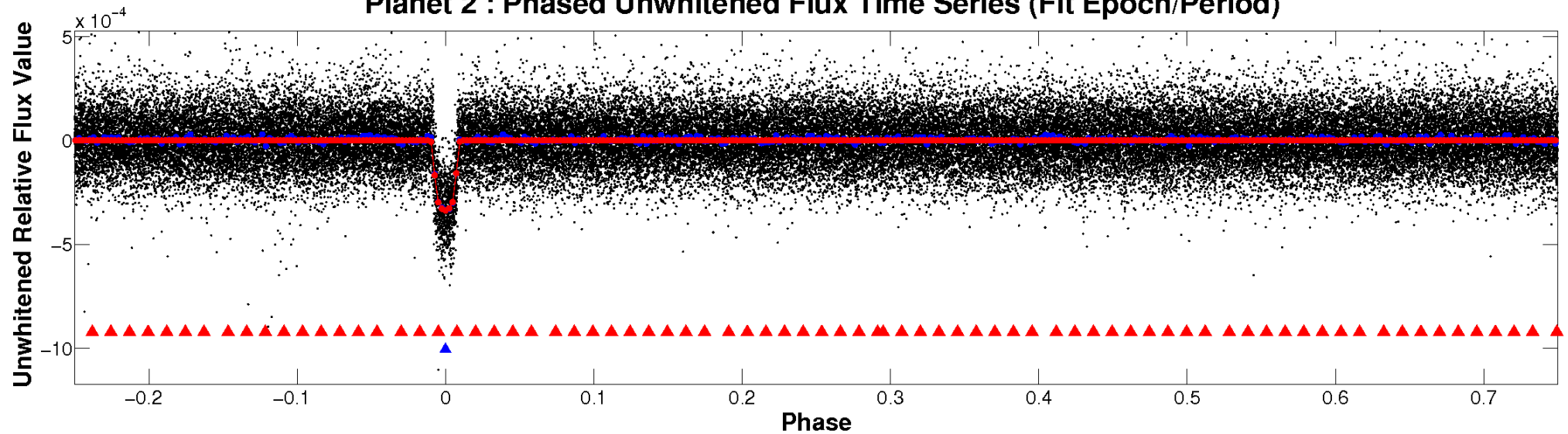
ALT Odd/Even

TCE 007419318-02

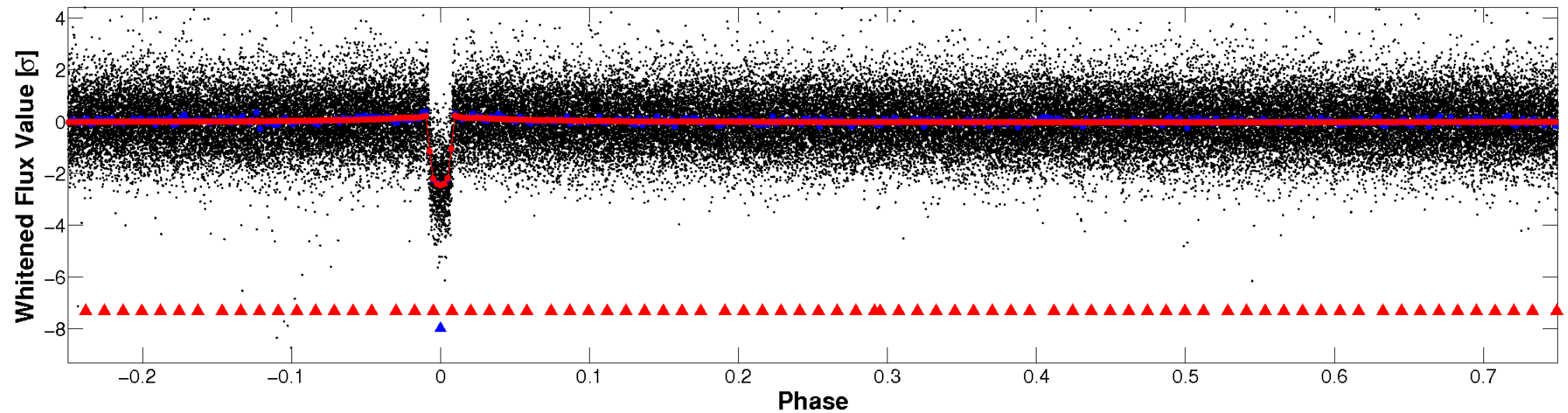


Non-Whitened Vs. Whitened Light Curve

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

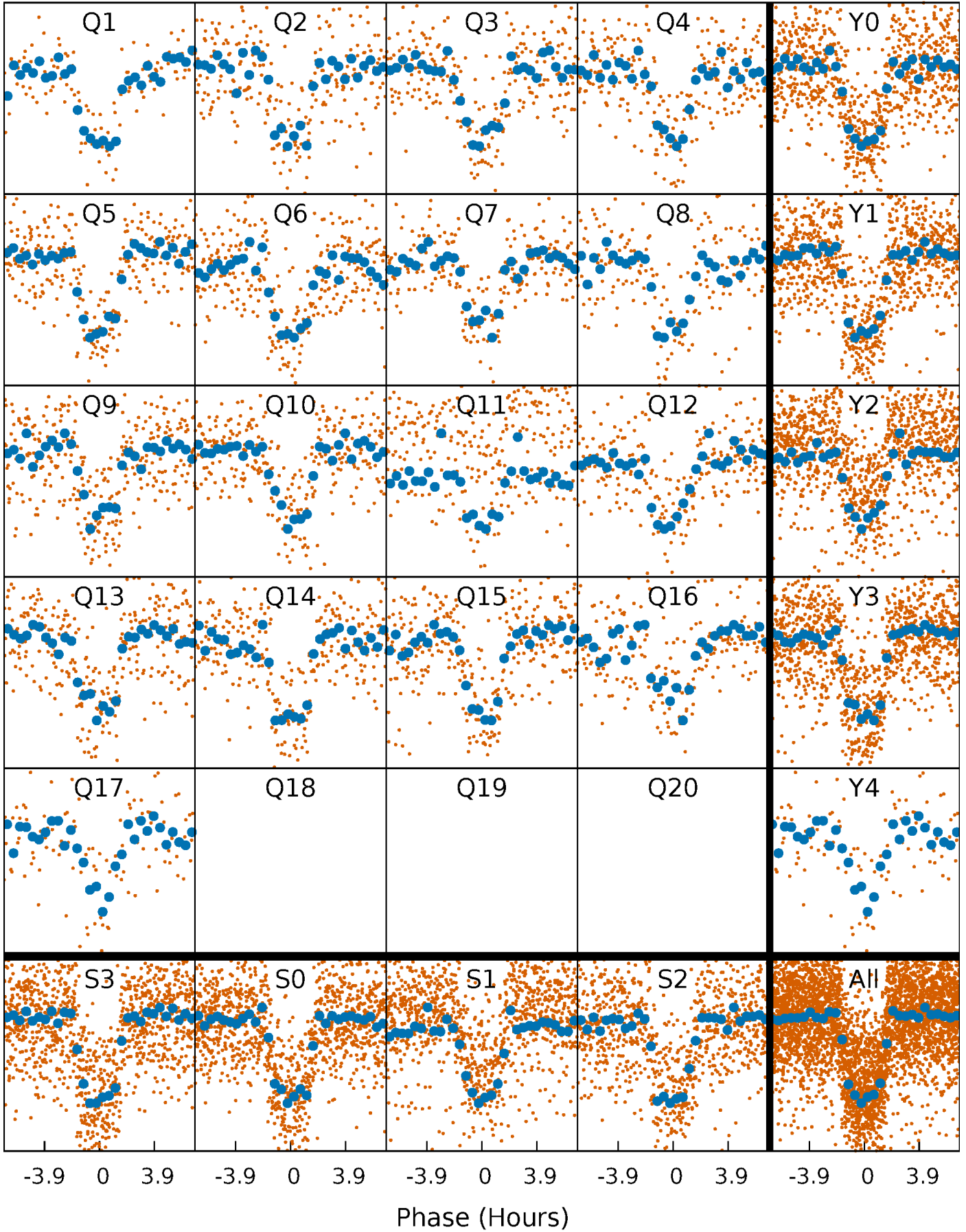


Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



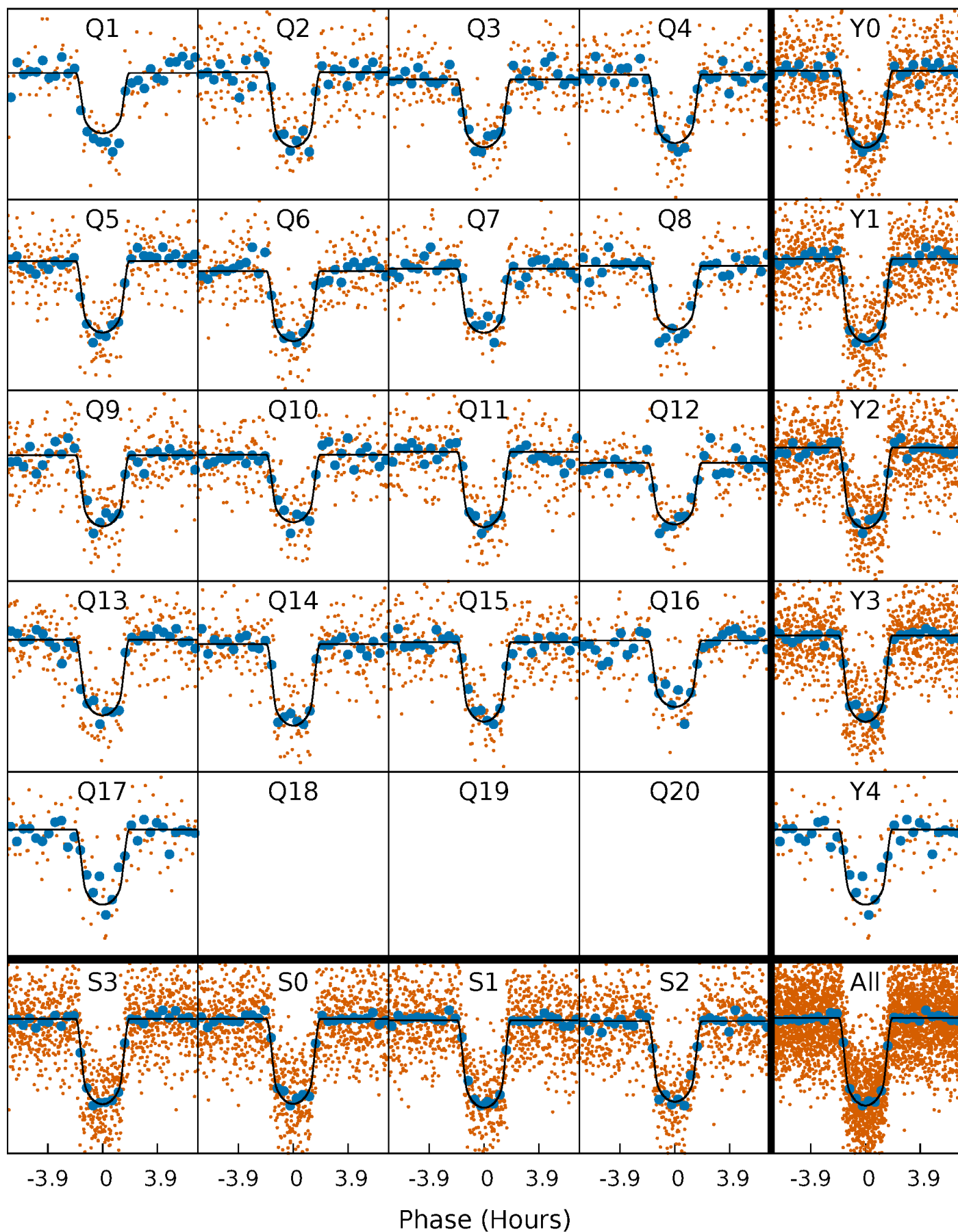
PDC Quarter-Phased Transit Curves

TCE 007419318-02 P= 8.436393 Days $T_0=137.705176$ (BKJD)



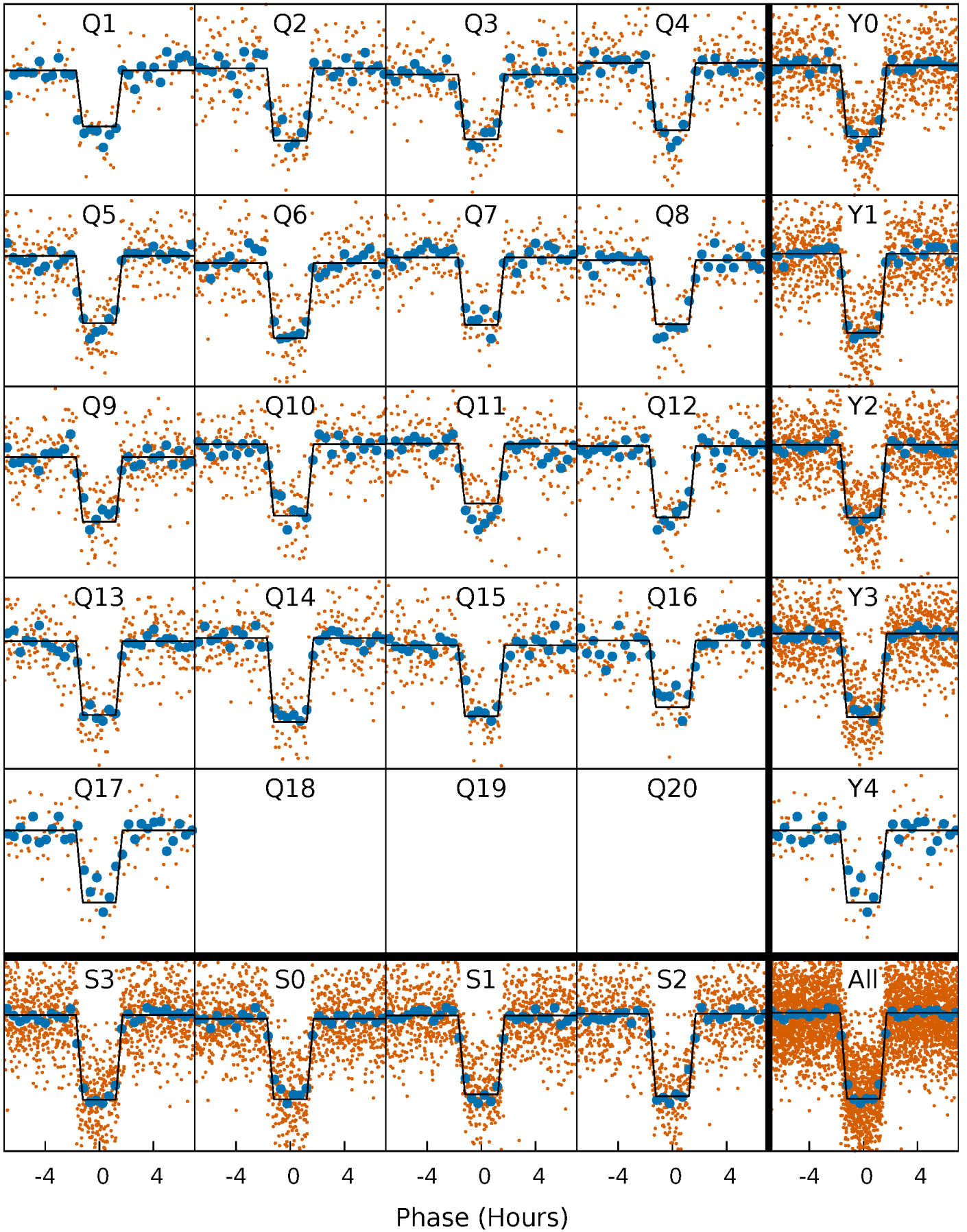
DV Quarter-Phased Transit Curves

TCE 007419318-02 P= 8.436393 Days $T_0=137.705176$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

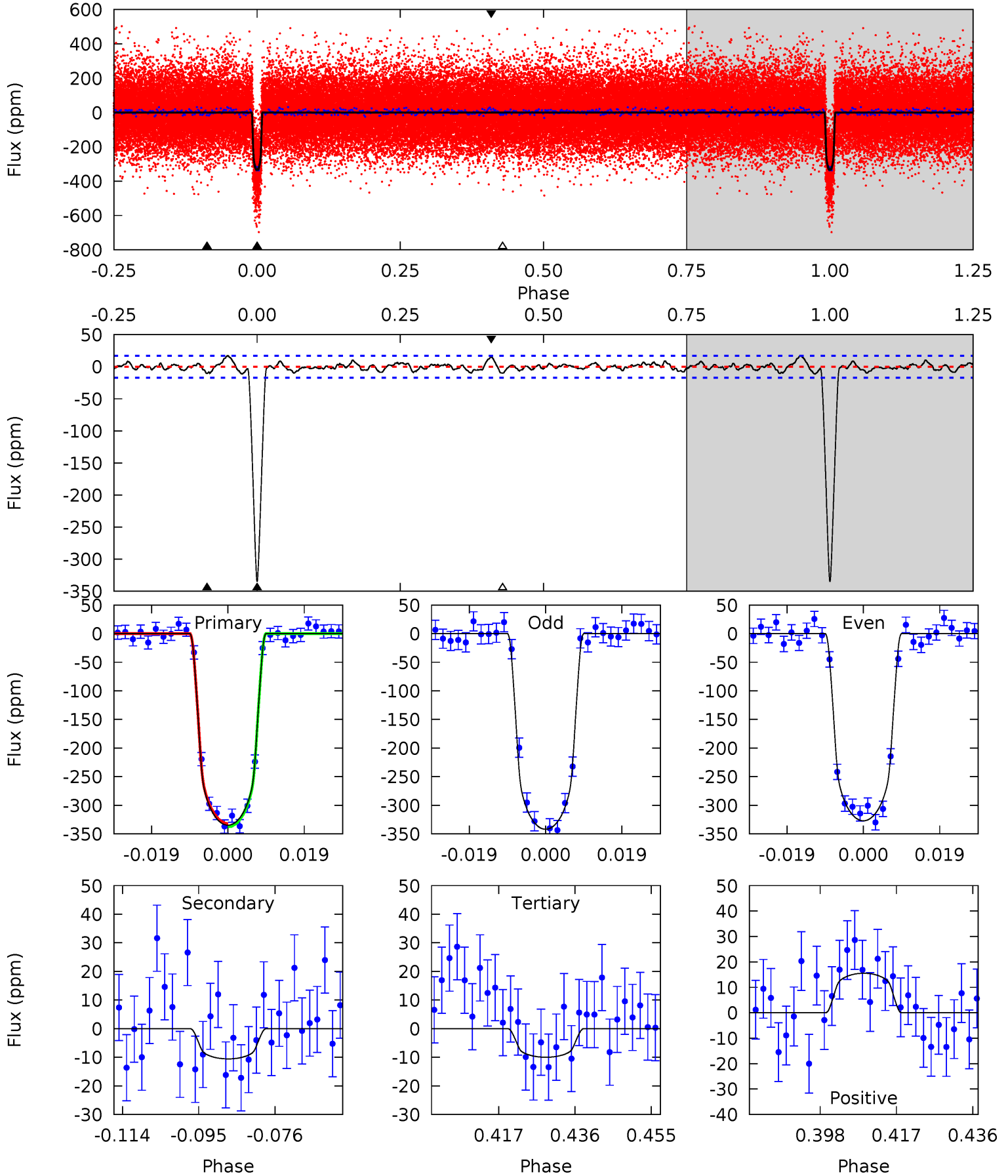
TCE 007419318-02 P= 8.436336 Days $T_0=137.710373$ (BKJD)



DV Model-Shift Uniqueness Test

007419318-02, P = 8.436393 Days, E = 129.268783 Days

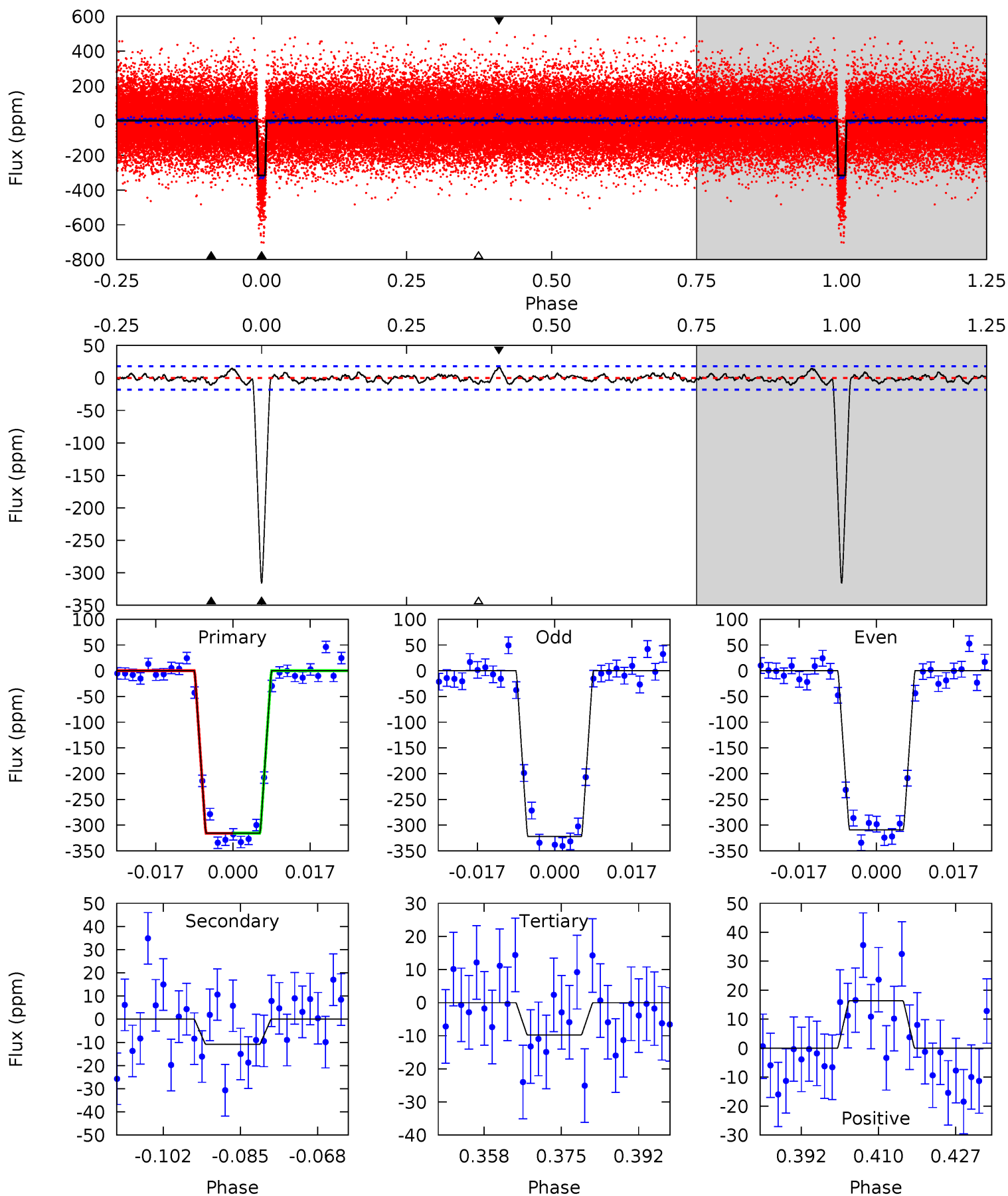
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
96.3	3.04	2.87	4.47	4.90	2.35	1.36	93.5	91.9	0.17	-1.43	2.13	1.01	0.05	0.77



Alt Model-Shift Uniqueness Test

007419318-02, P = 8.436336 Days, E = 129.274037 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
86.5	2.98	2.67	4.48	4.92	2.39	1.22	83.8	82.0	0.31	-1.50	1.81	1.04	0.05	0.08



Stellar Parameters For KIC 007419318

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	5188^{+103}_{-103}	$4.547^{+0.040}_{-0.050}$	$-0.040^{+0.150}_{-0.150}$	$0.795^{+0.053}_{-0.043}$	$0.814^{+0.046}_{-0.046}$	$2.280^{+0.358}_{-0.372}$
	+2%/-2%	+1%/-1%	+375%/-375%	+7%/-5%	+6%/-6%	+16%/-16%
Source	SPE58	SPE58	SPE58	DSEP		

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

Secondary Eclipse Parameters for KIC 007419318-02 / KOI 0313.02

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-11 ± 3	$1.73^{+0.18}_{-0.17}$	1038^{+26}_{-27}	2801^{+142}_{-160}	11^{+5}_{-4}
Alt.	-11 ± 4	$1.56^{+0.18}_{-0.16}$	1038^{+28}_{-27}	2890^{+155}_{-176}	14^{+6}_{-5}

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 $T_{\text{obs}} \gg T_{\text{max}}$ AND $A_{\text{obs}} \gg 1.0$

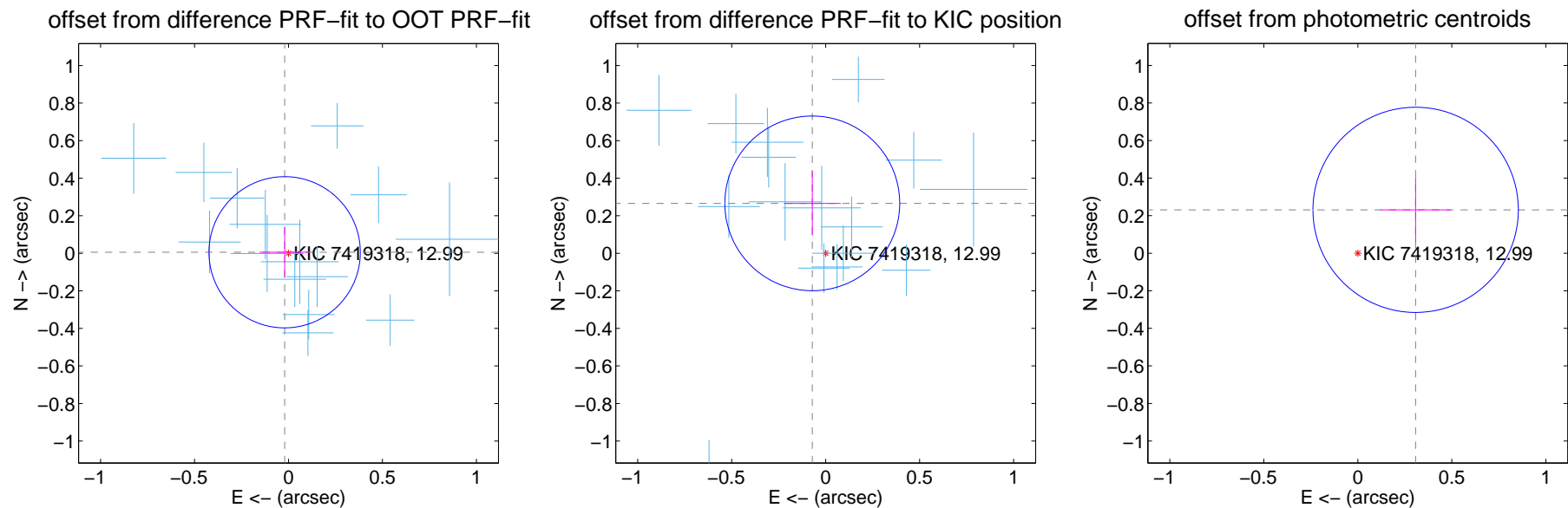
DV Centroid Data

Supplemental centroid analysis for 007419318-02. Kepler magnitude: 12.99. Transit SNR 65.49

There are 17 quarters with good PRF difference image offsets

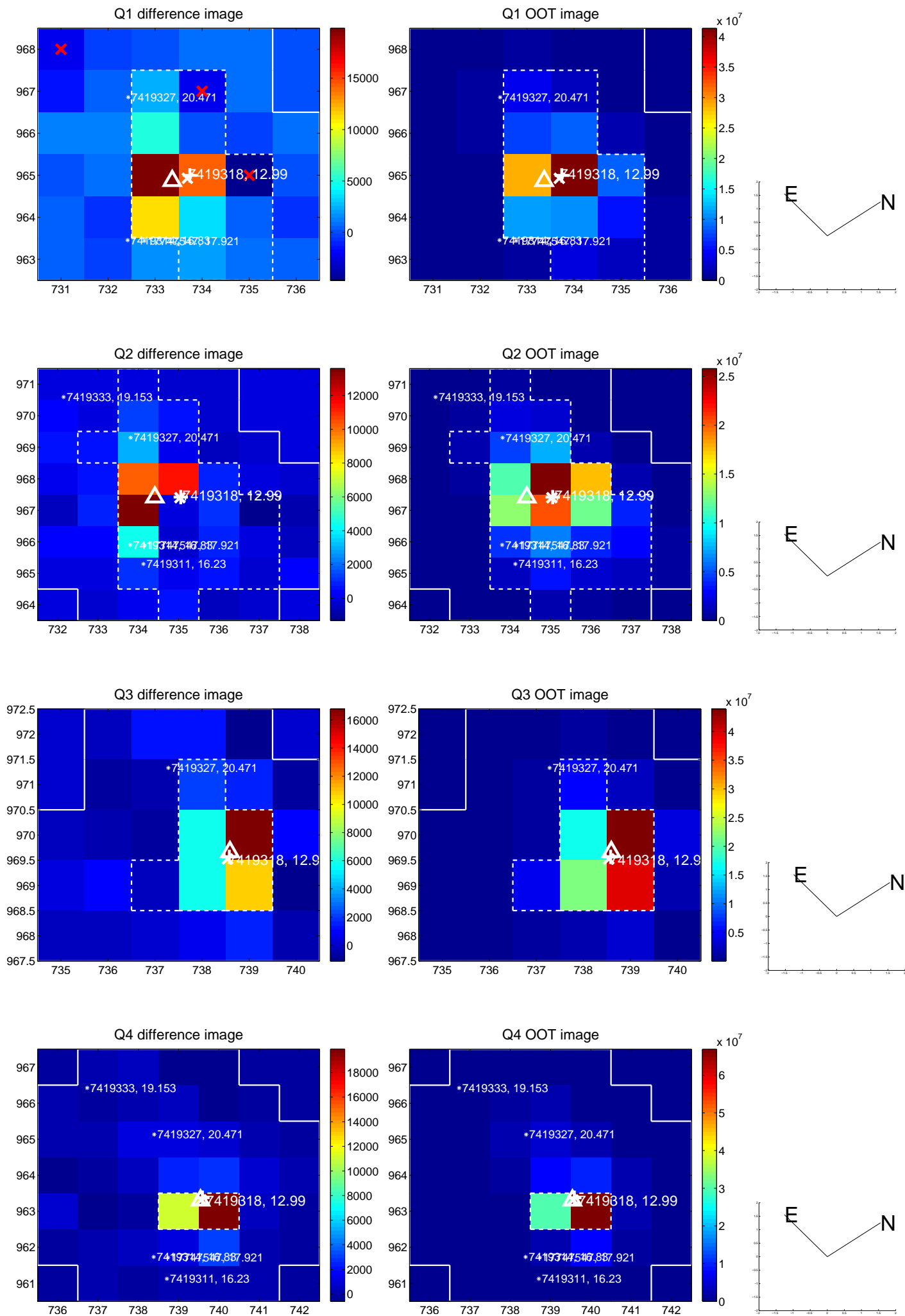
The direct PRF centroid is offset from the target star catalog position by about 0.27 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.021 ± 0.134	0.16	0.021 ± 0.134	0.005 ± 0.136
PRF-fit source offset from KIC position	0.275 ± 0.155	1.78	0.071 ± 0.152	0.266 ± 0.172
photometric centroid source offset	0.38 ± 0.18	2.11	-0.31 ± 0.19	0.23 ± 0.17

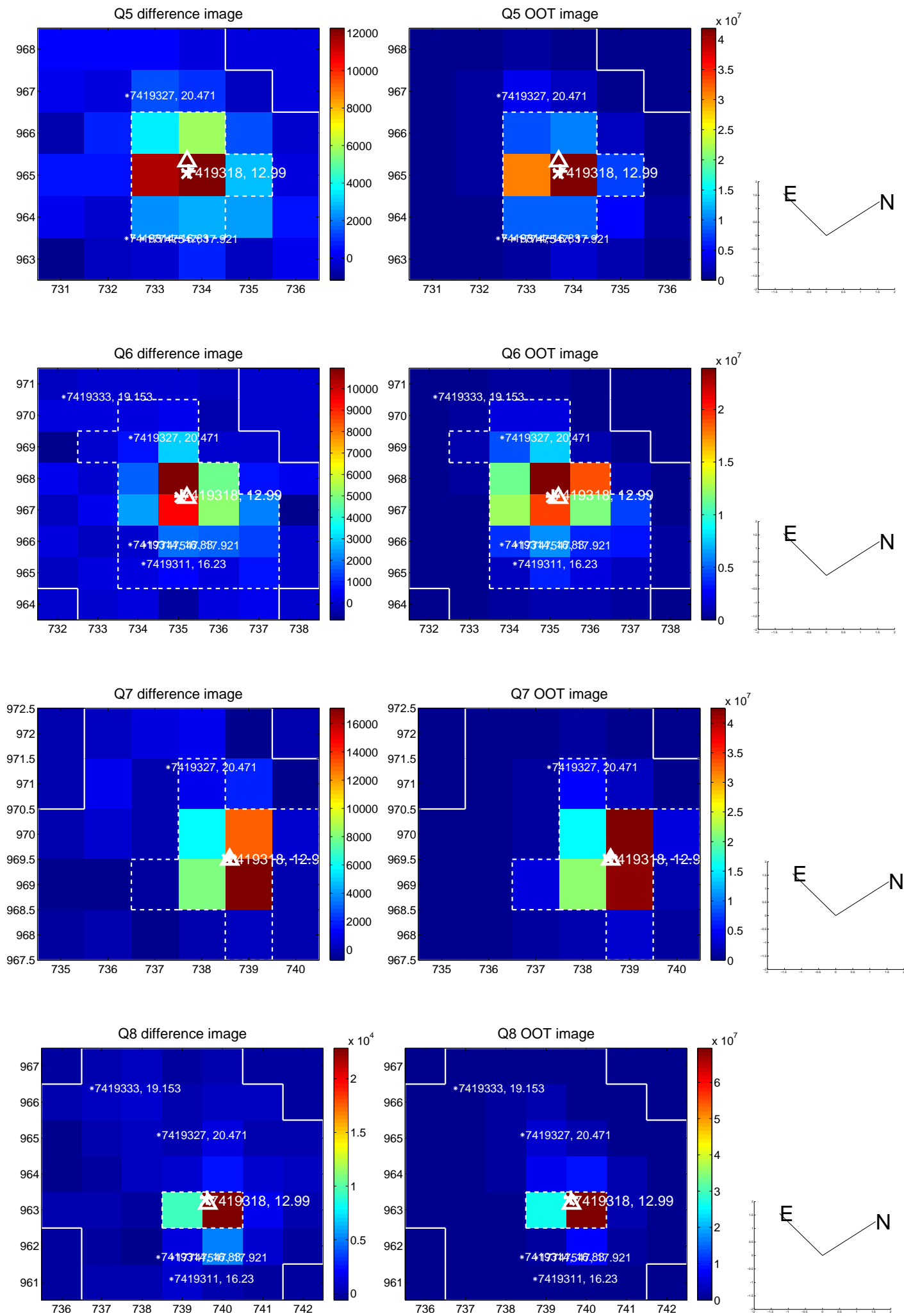


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses:** good quarterly centroid offsets; **Vermillion crosses:** bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

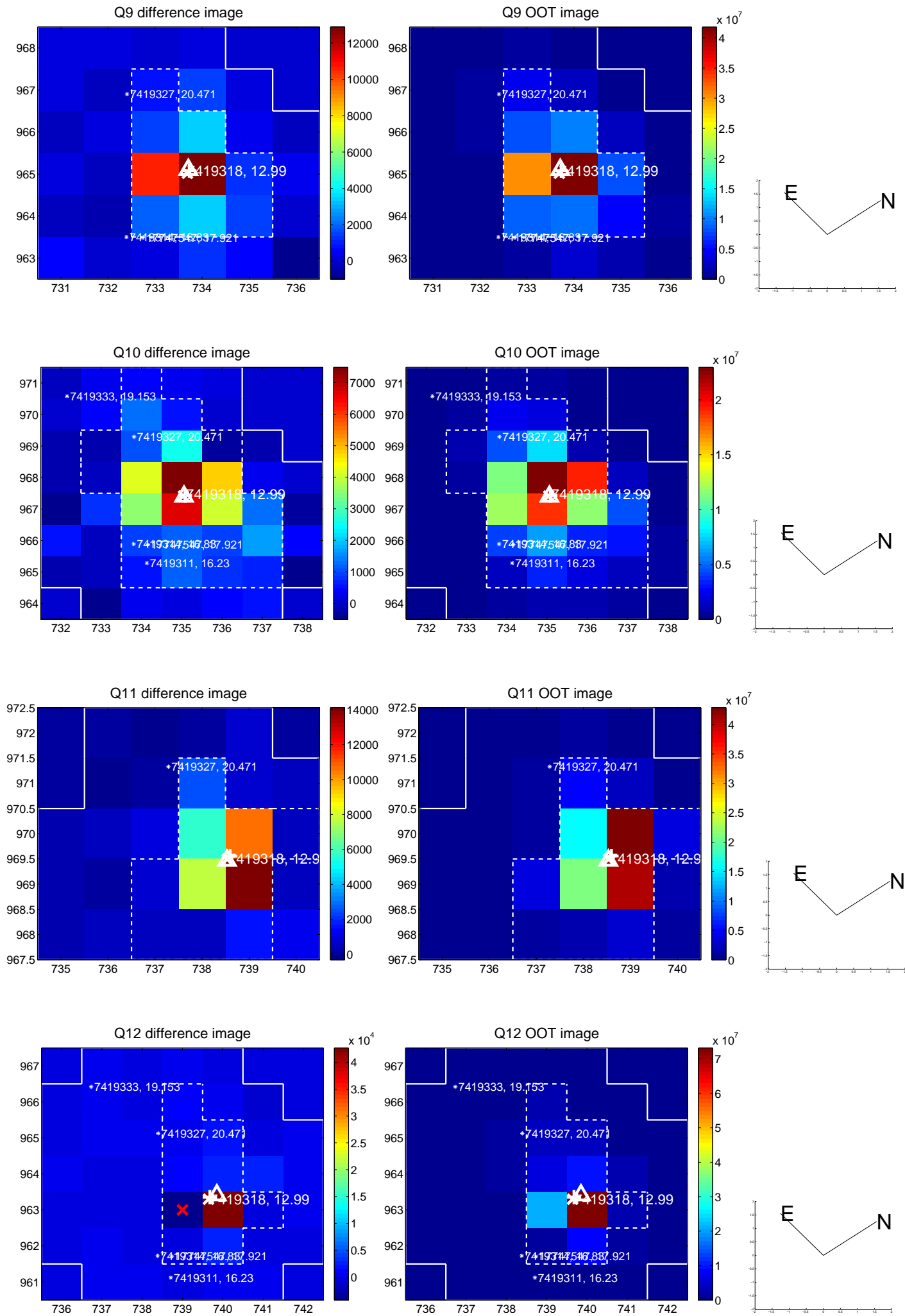
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



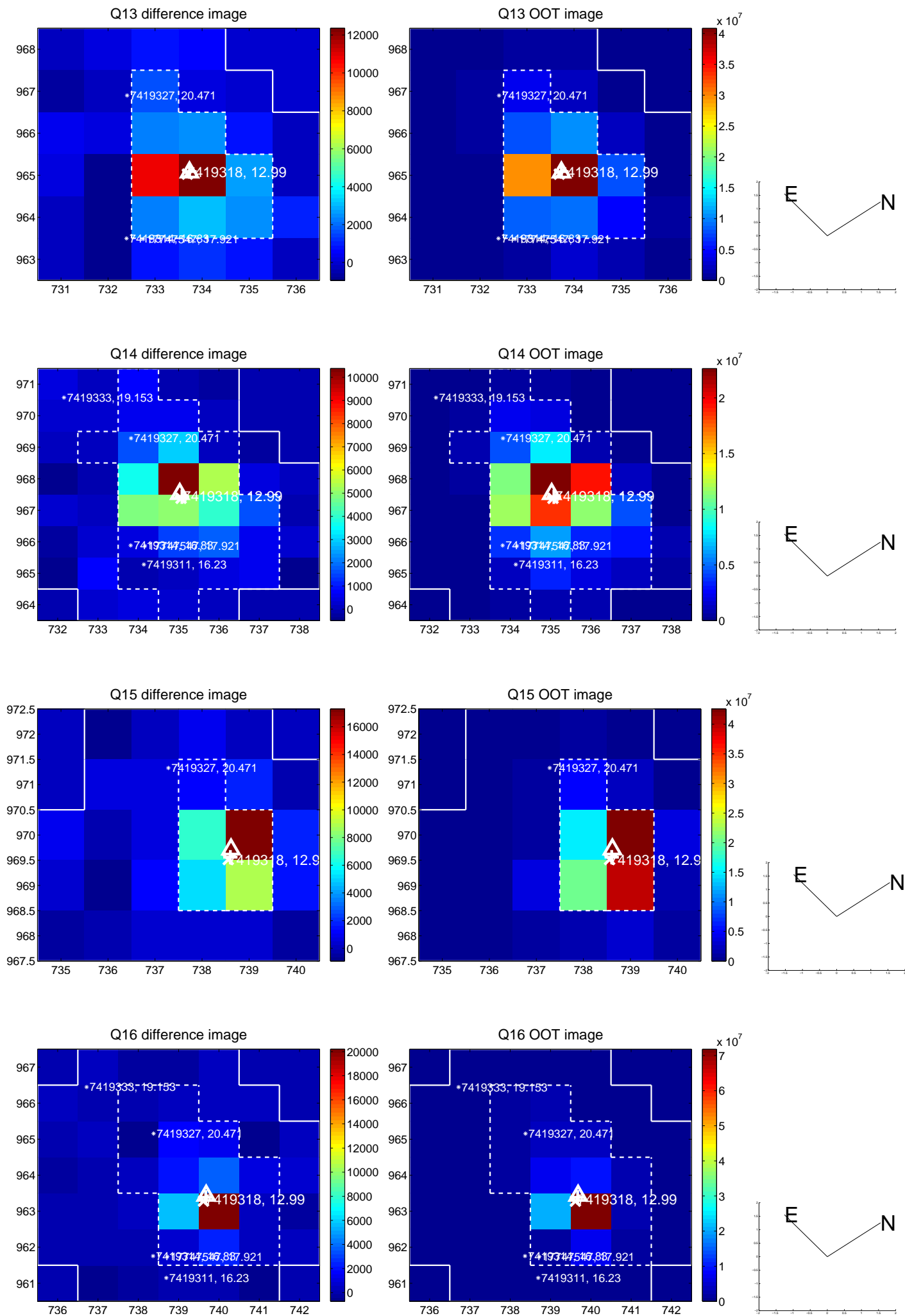
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



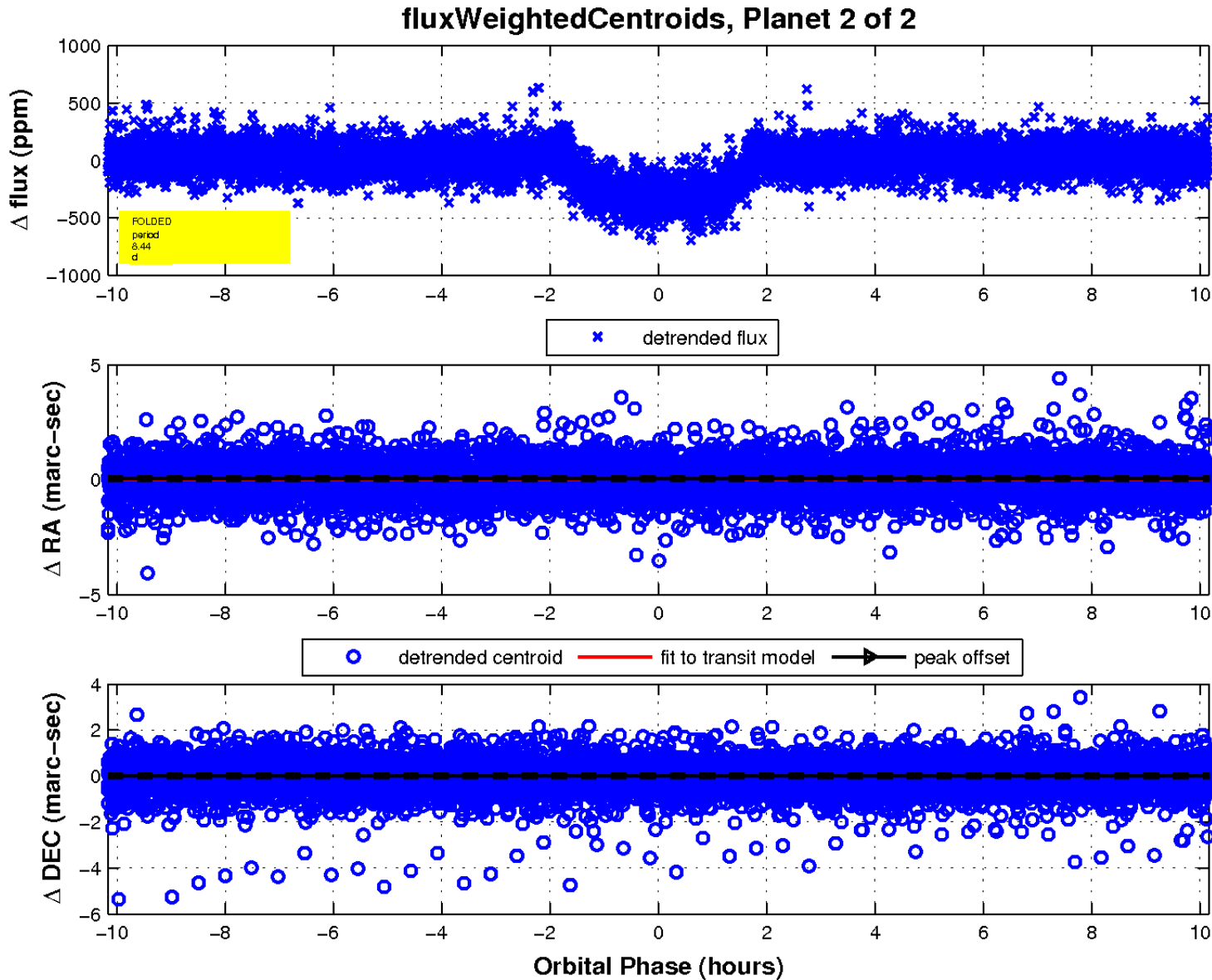
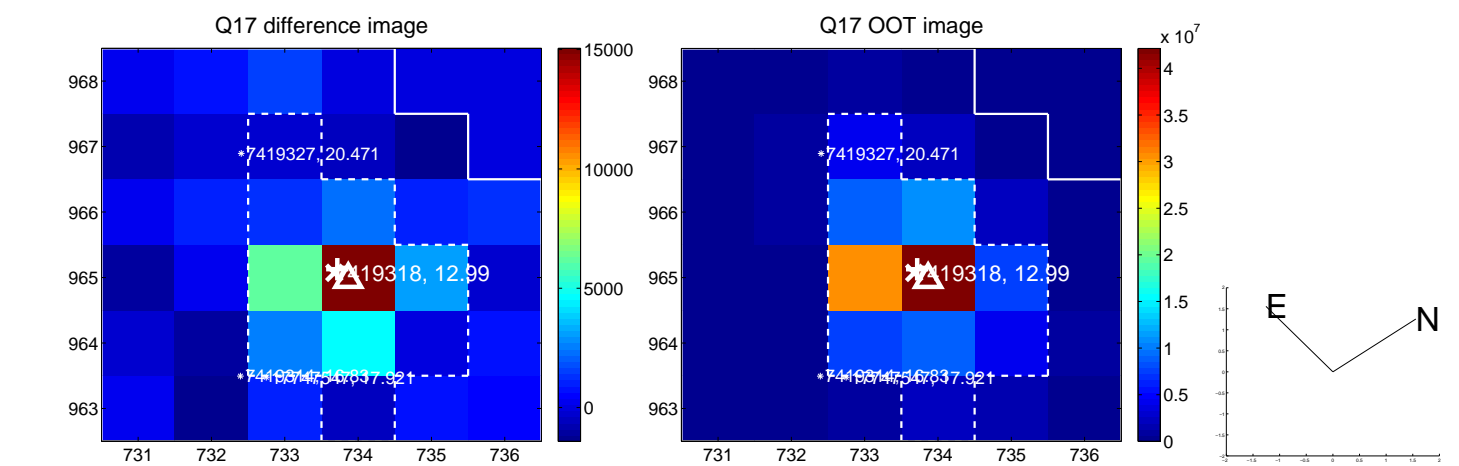
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UKIRT Image

Declination

