

KIC 008640132

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})
008640132-01	OBS	No	0.651956	131.561968	121.5	1.529	11.9	13.3	6.44	7832	8.33	0.00
008640132-02	OBS	No	1.280118	132.379731	112.0	2.257	8.2	7.7	6.44	7832	7.99	132075.42

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
008640132-01	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT
008640132-02	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_POS_ALT

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

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

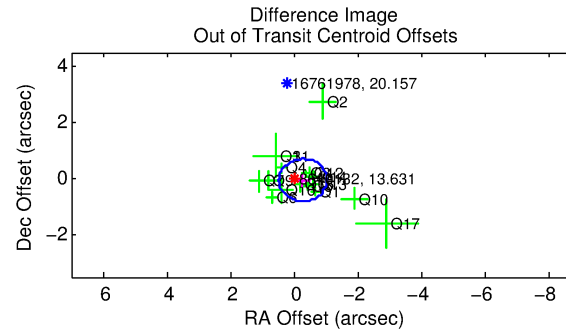
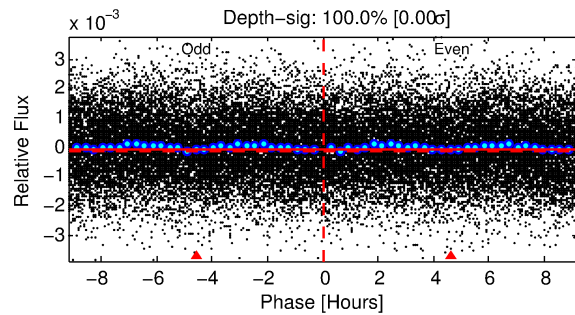
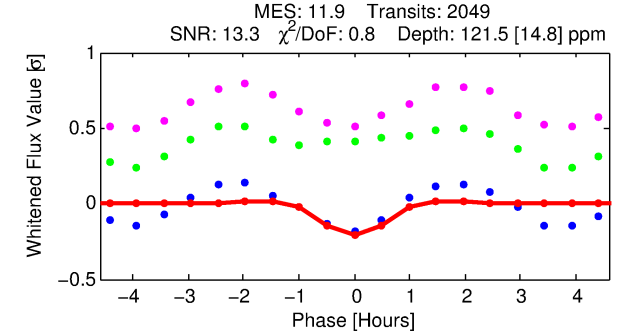
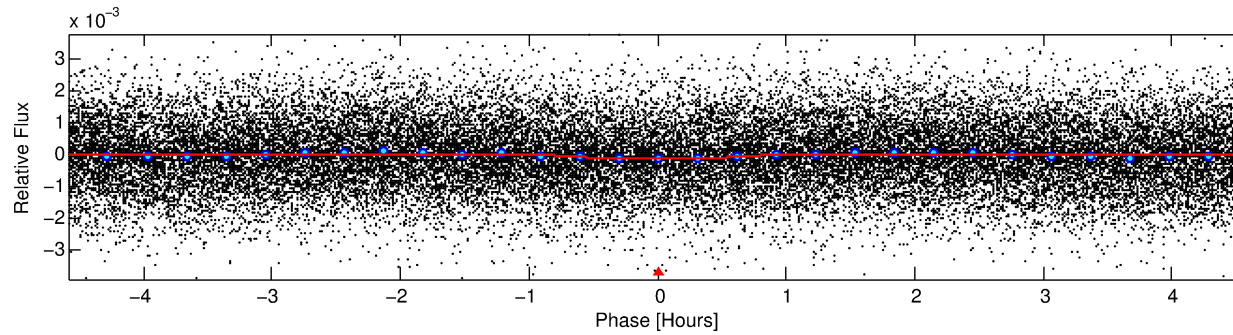
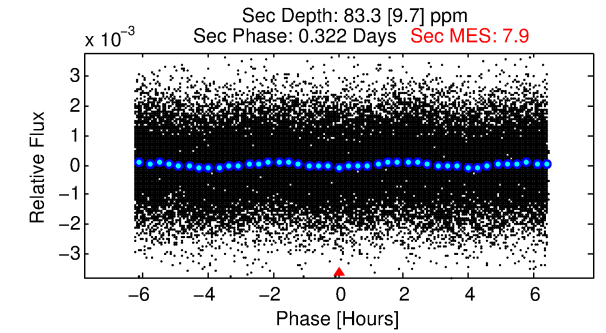
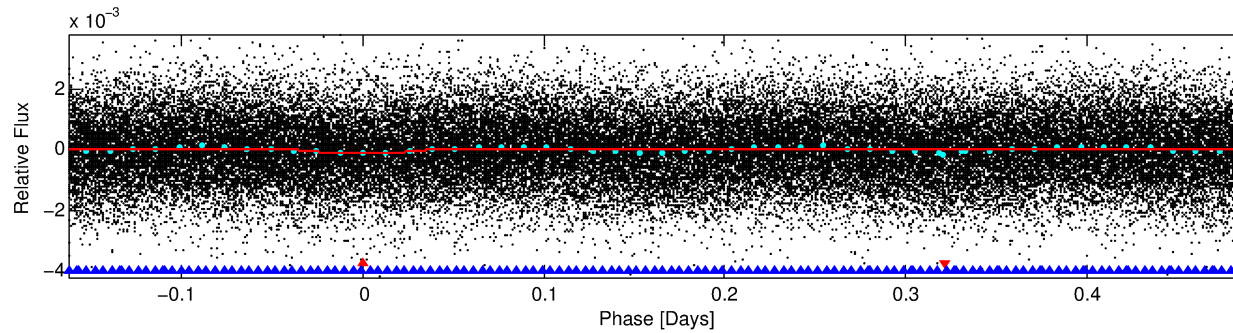
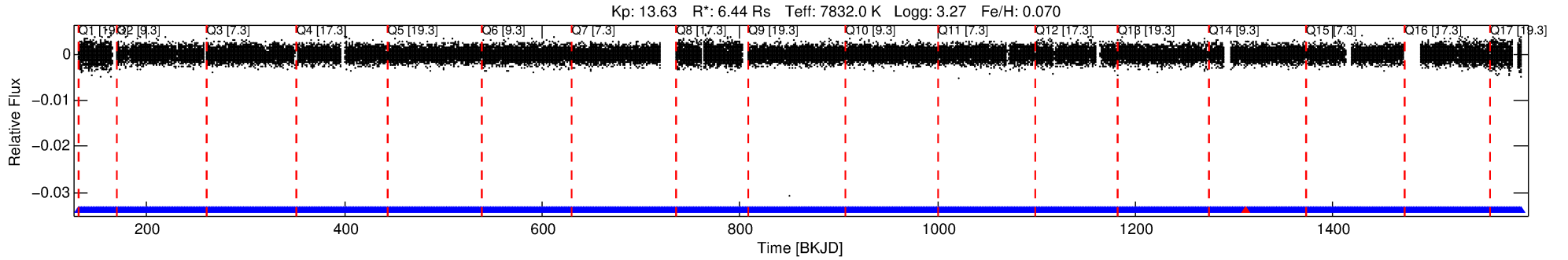
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 008640132-01

No Significant Match Found

DV One-Page Summary

KIC: 8640132 Candidate: 1 of 2 Period: 0.652 d



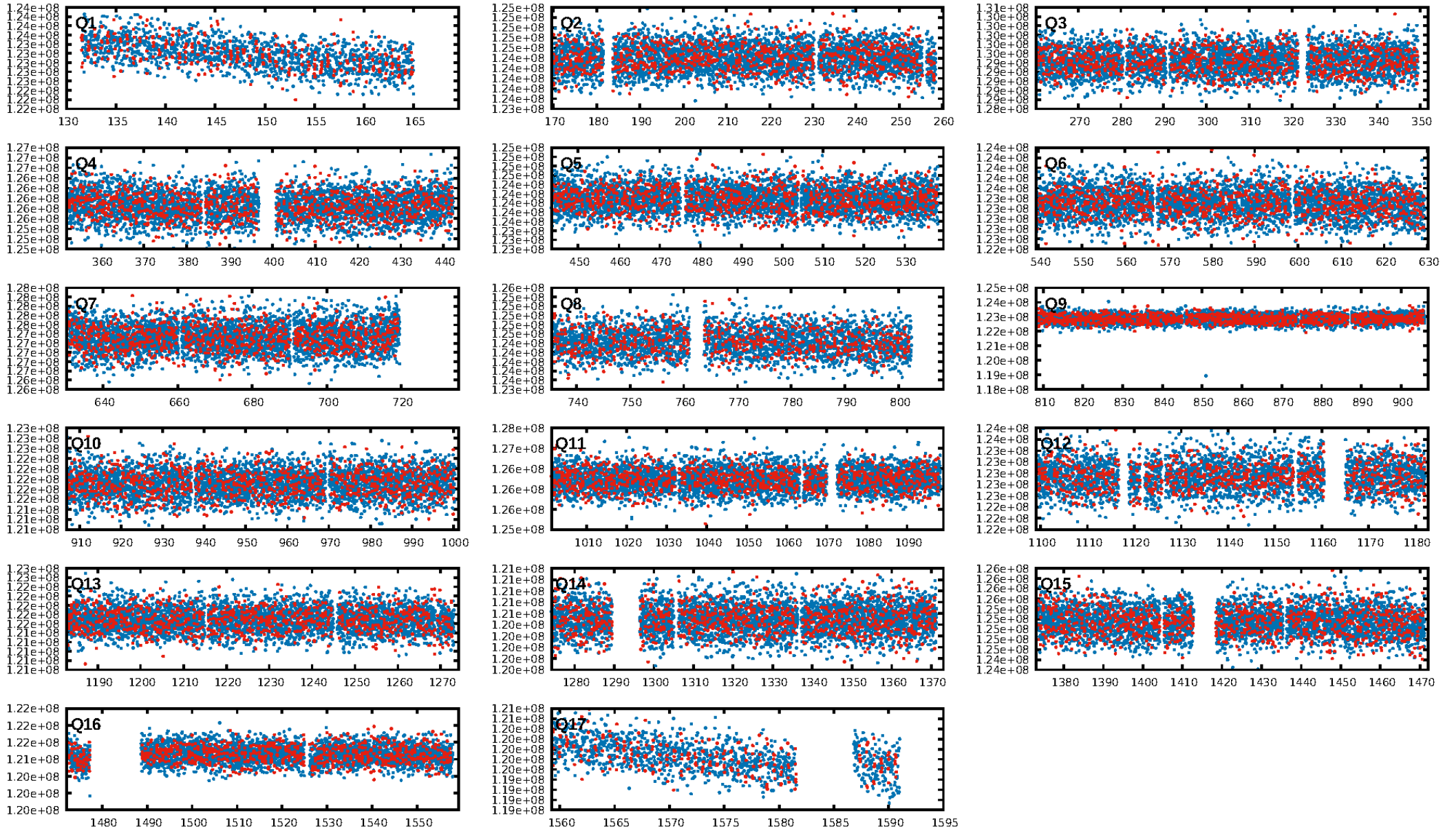
DV Fit Results:

Period = 0.65196 [0.00001] d
Epoch = 131.5620 [0.0019] BKJD
Rp/R* = 0.0118 [0.0066]
a/R* = 1.78 [3.95]
b = 0.90 [0.70]
Seff = N/A
Teq = N/A
Rp = 8.33 [7.35] Re
a = N/A
Ag = N/A
Teffp = N/A

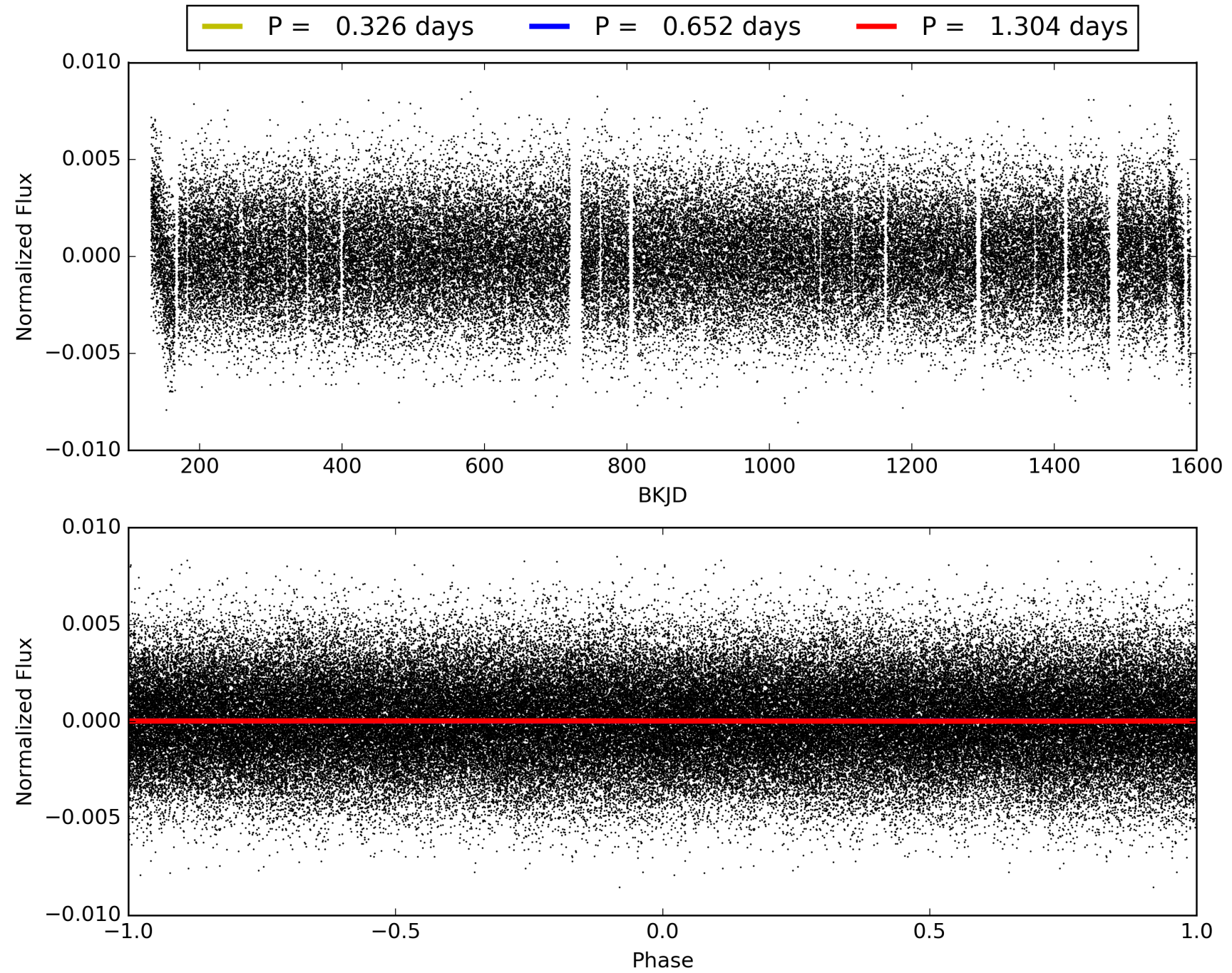
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: 100.0% [5.53σ]
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: 1.39e-47
RollingBand-fgt: 1.00 [1955/1956]
GhostDiagnostic-chr: 1.975
Centroid-sig: 73.1%
Centroid-so: 0.127 arcsec [0.74σ]
OotOffset-rm: 0.286 arcsec [1.14σ]
KicOffset-rm: 0.284 arcsec [1.07σ]
OotOffset-st: 4/4/4/5 [17]
KicOffset-st: 4/4/4/5 [17]
DiffImageQuality-fgm: 0.41 [7/17]
DiffImageOverlap-fno: 1.00 [17/17]

TCE 008640132-01, PDC Light Curves

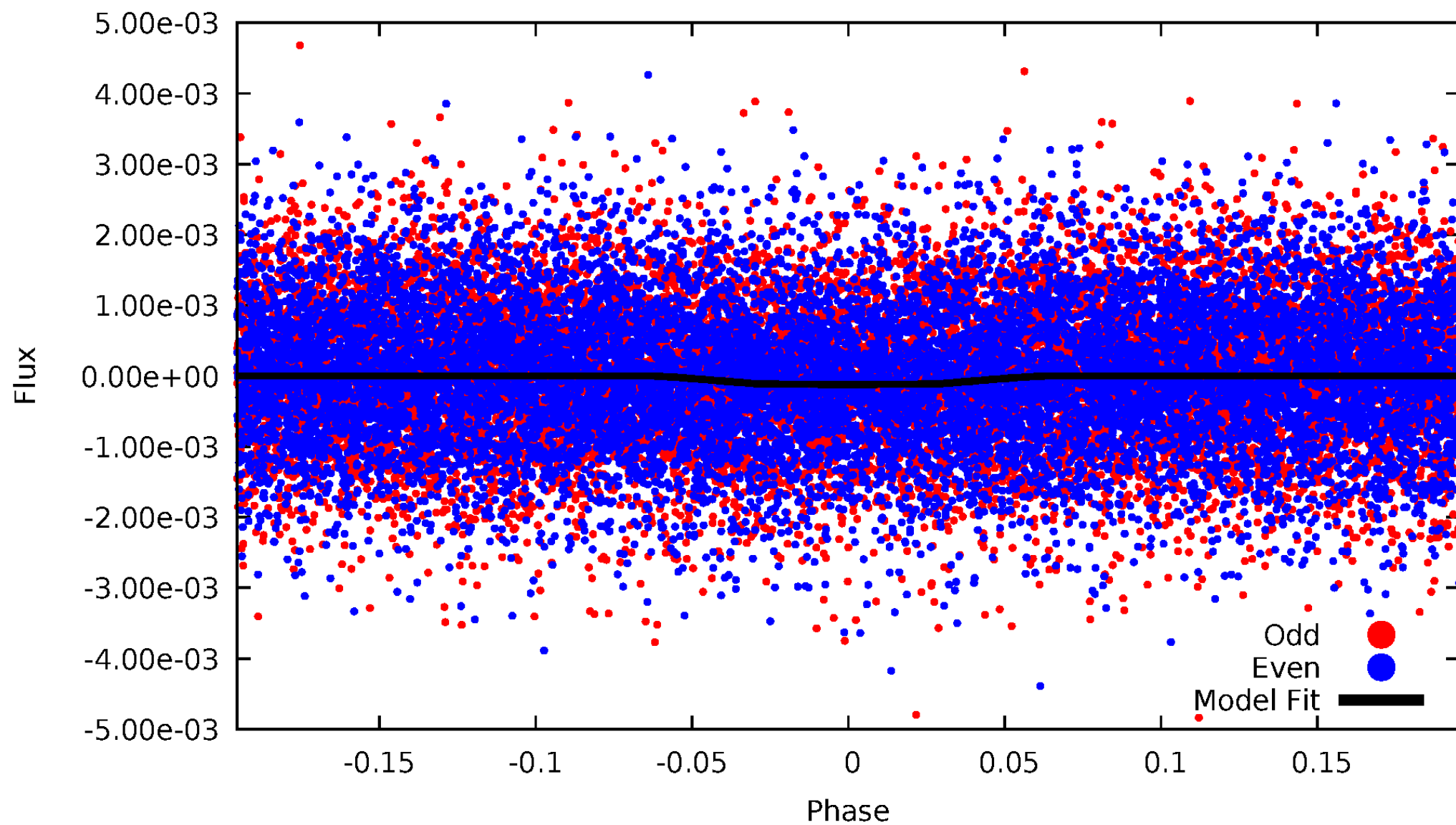


TCE 008640132-01



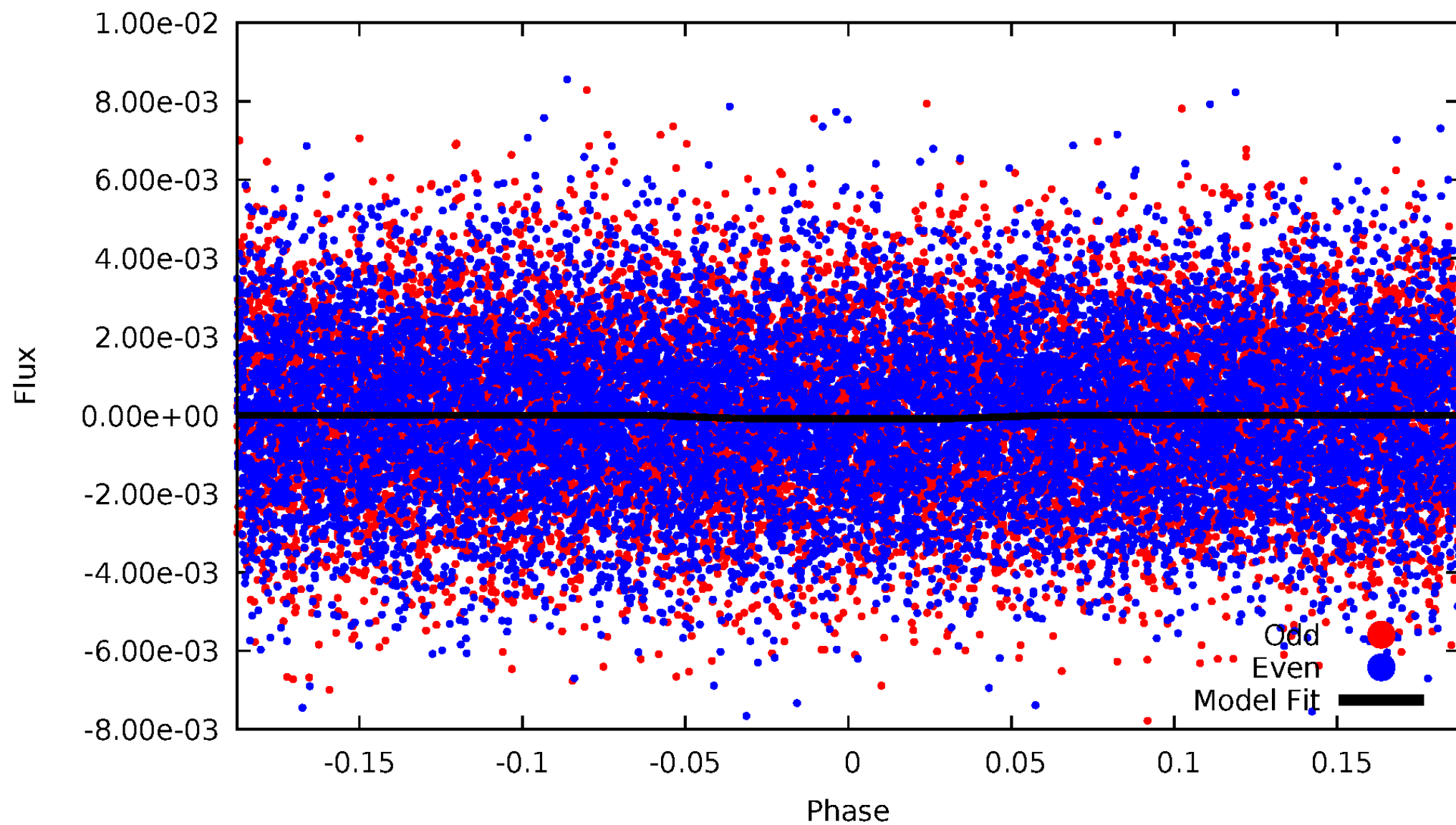
DV Odd/Even

TCE 008640132-01



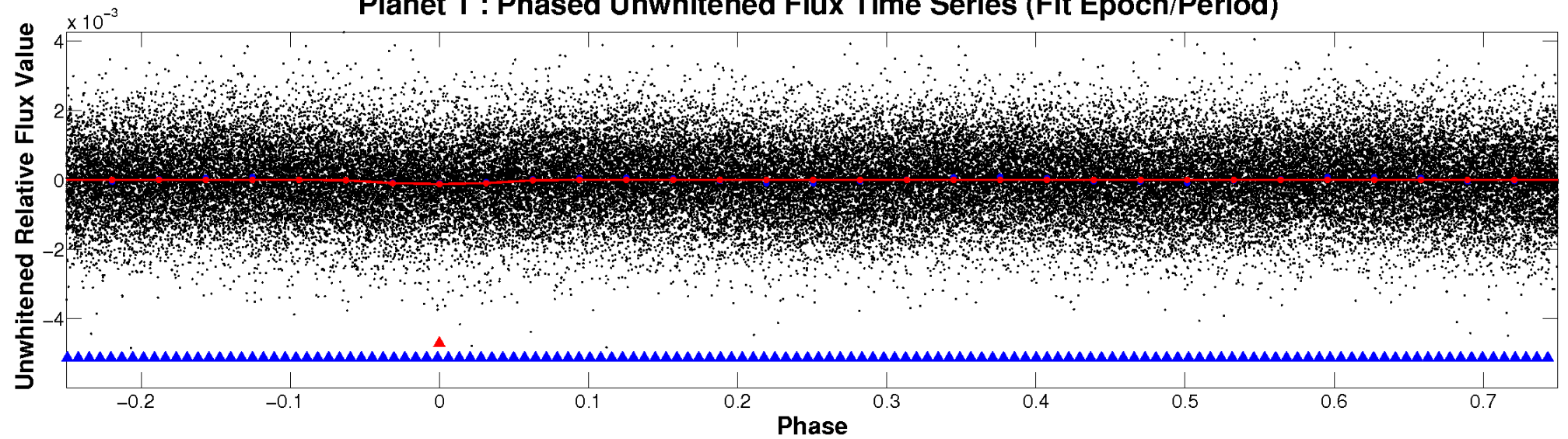
ALT Odd/Even

TCE 008640132-01

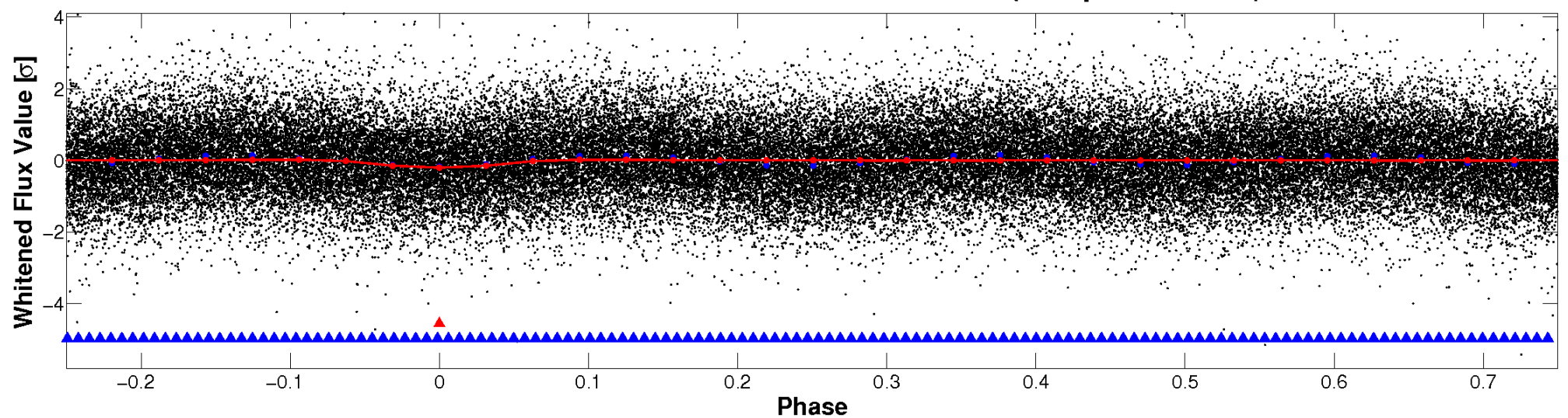


Non-Whitened Vs. Whitened Light Curve

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

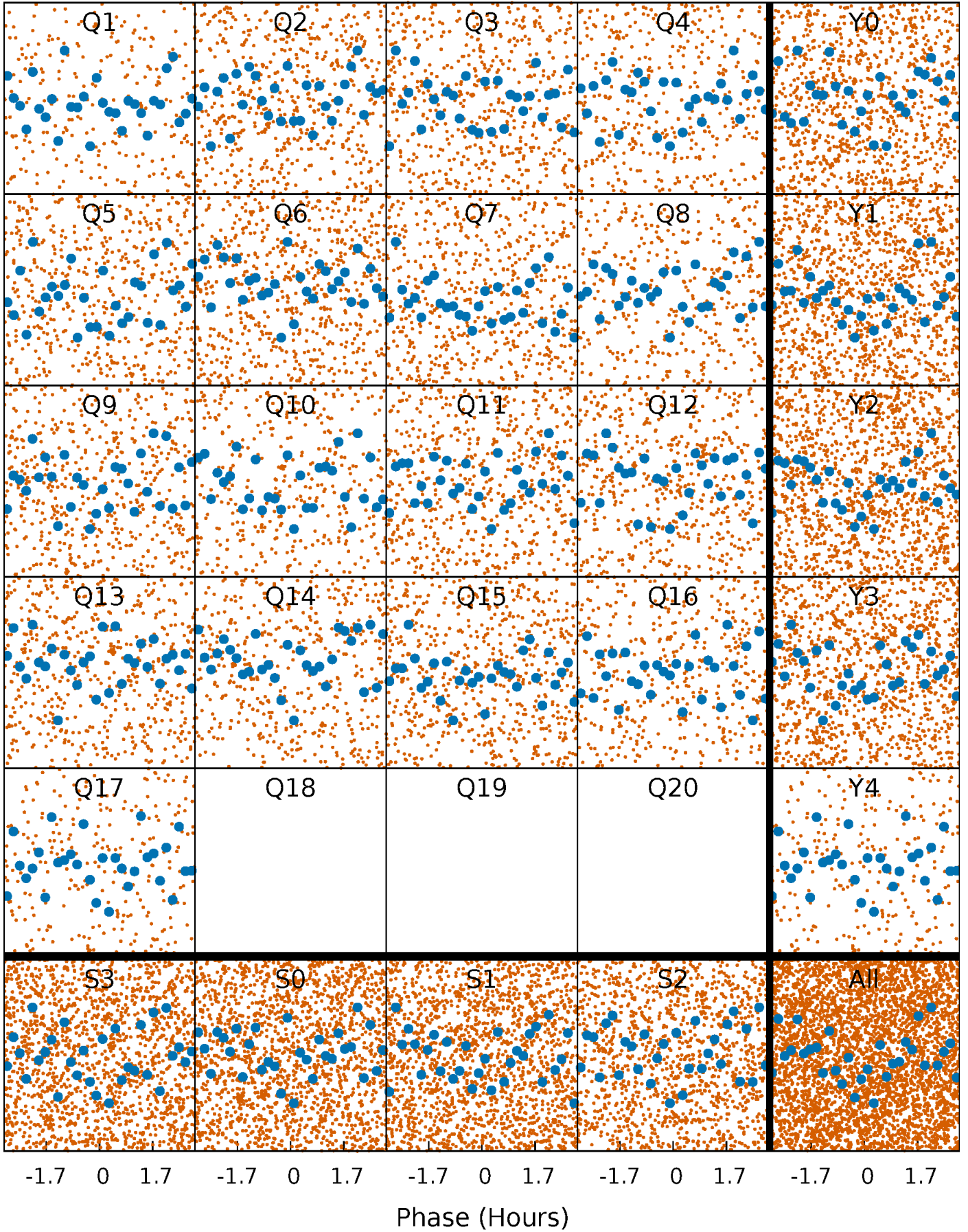


Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)



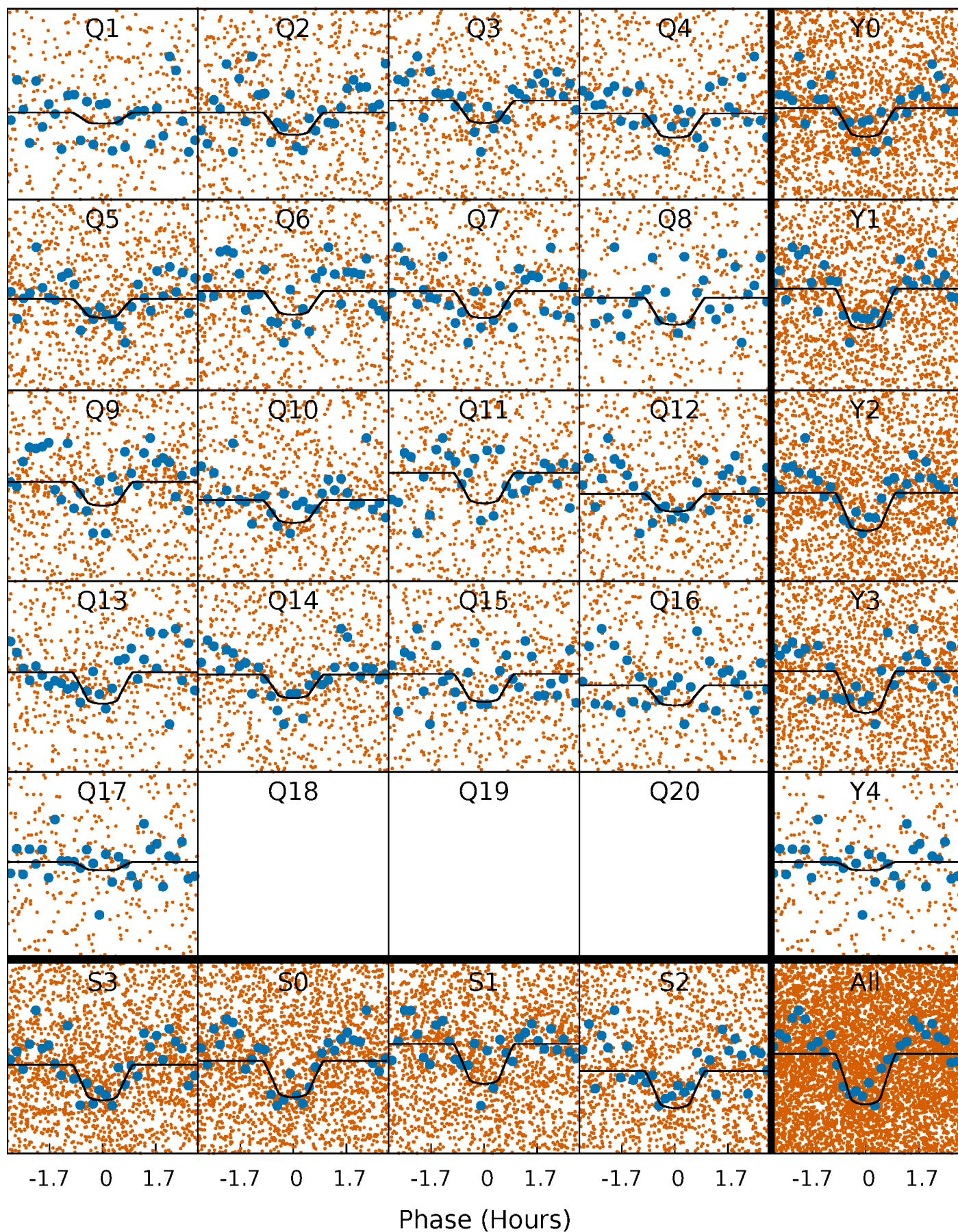
PDC Quarter-Phased Transit Curves

TCE 008640132-01 P= 0.651956 Days $T_0=131.561968$ (BKJD)



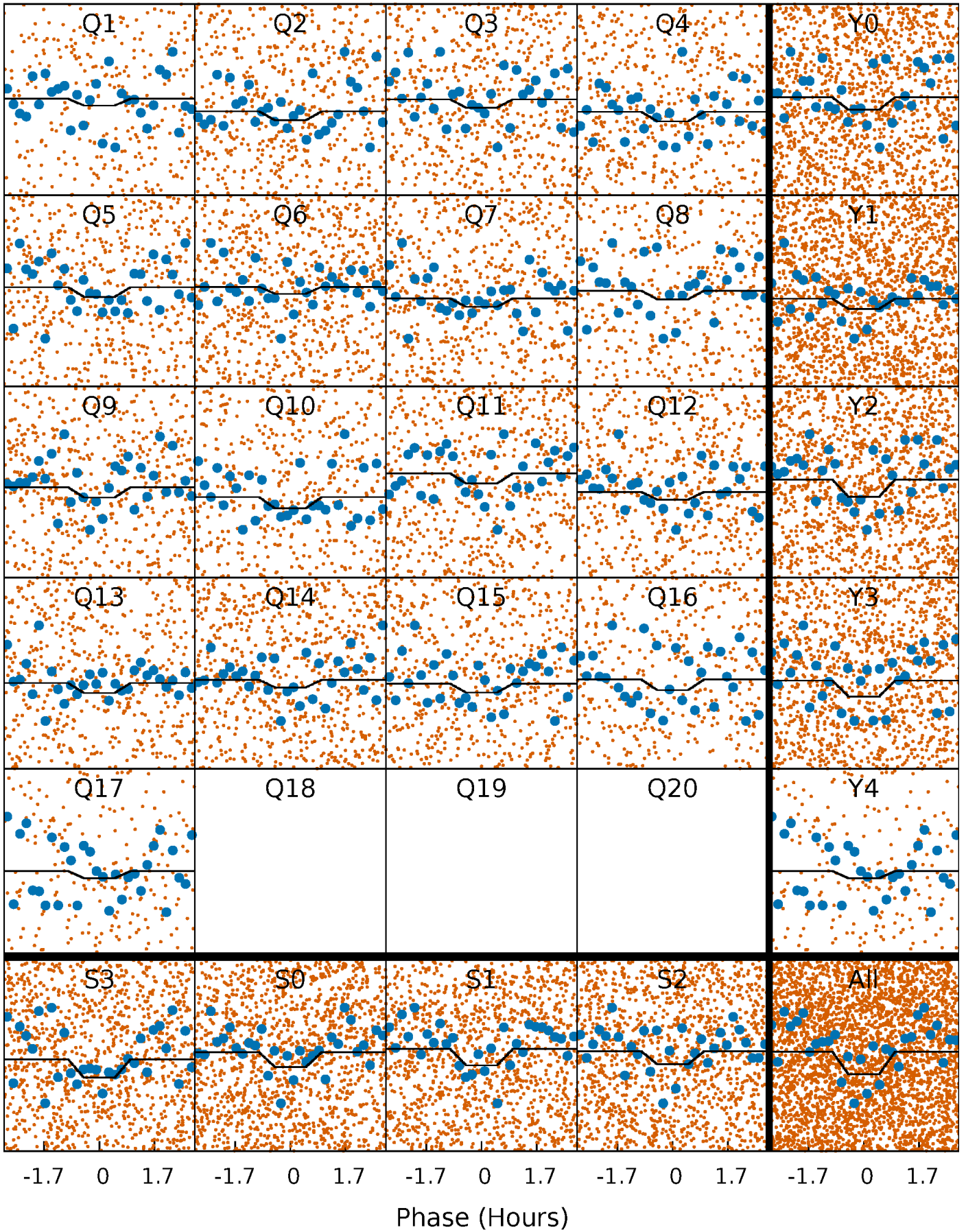
DV Quarter-Phased Transit Curves

TCE 008640132-01 P= 0.651956 Days $T_0=131.561968$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

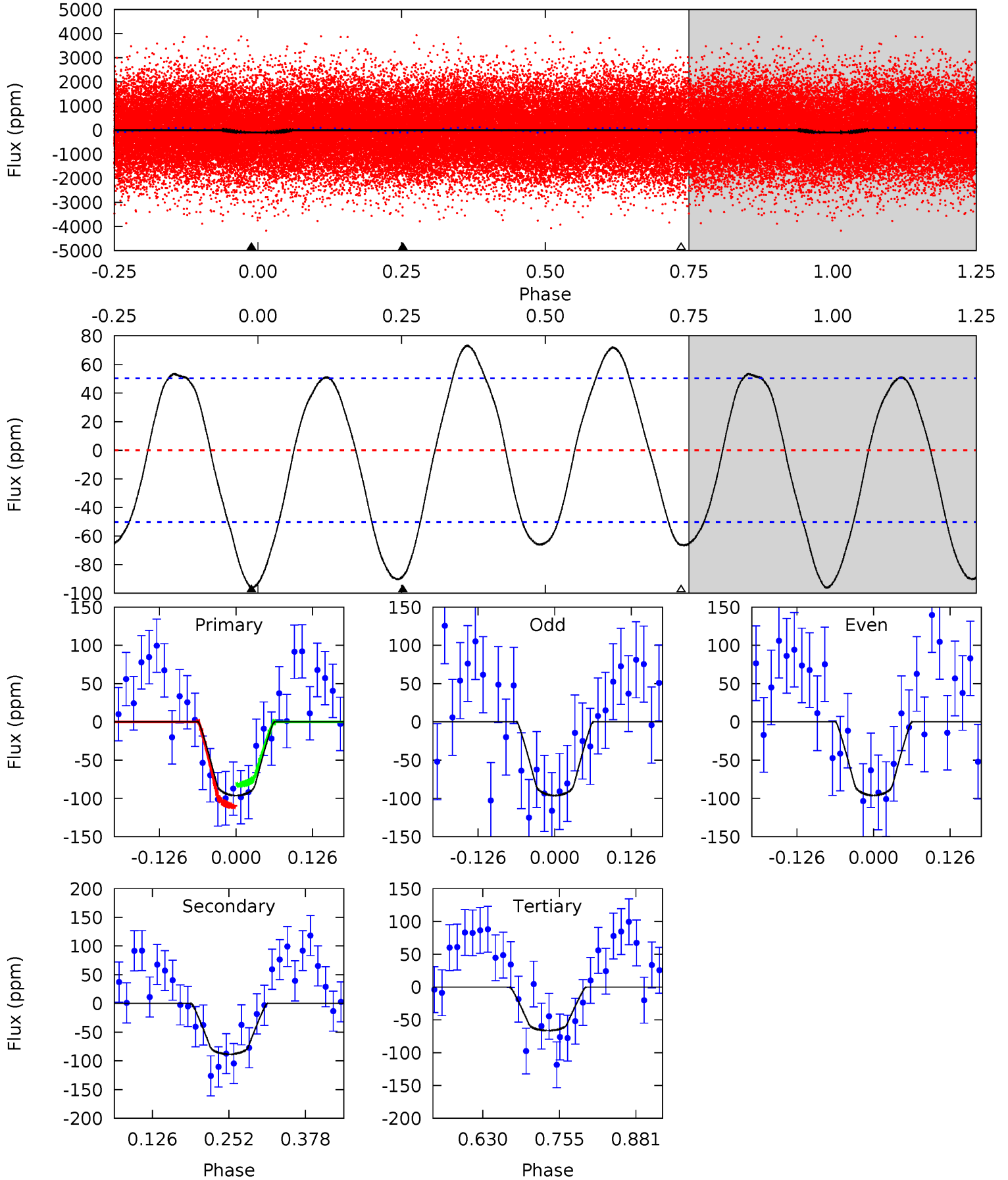
TCE 008640132-01 P= 0.651946 Days $T_0=131.569878$ (BKJD)



DV Model-Shift Uniqueness Test

008640132-01, P = 0.651956 Days, E = 130.910012 Days

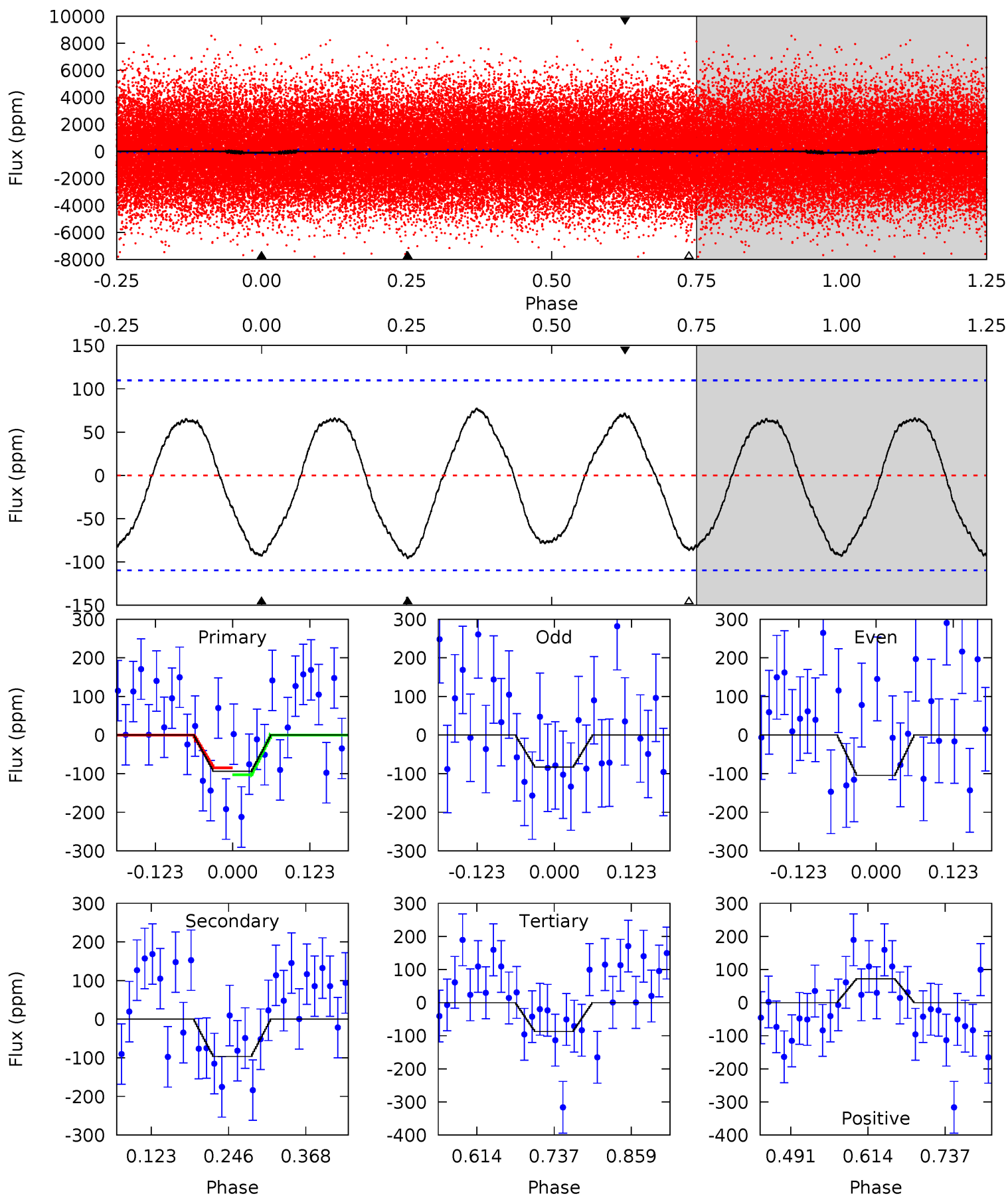
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
8.65	7.93	5.96	0	4.52	1.53	4.24	2.69	8.65	1.98	7.93	0.01	0.97	0.43	1.25



Alt Model-Shift Uniqueness Test

008640132-01, P = 0.651946 Days, E = 130.917932 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
3.86	3.98	3.59	2.98	4.52	1.54	2.19	0.27	0.88	0.38	1.00	0.43	0.92	0.45	0.36



Stellar Parameters For KIC 008640132

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	$M(M_{\odot})$	p_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	7832^{+215}_{-350}	$3.268^{+0.782}_{-0.138}$	$0.070^{+0.250}_{-0.350}$	$6.444^{+1.471}_{-4.413}$	$2.809^{+0.127}_{-1.142}$	$0.015^{+0.261}_{-0.006}$
	+3%/-4%	+24%/-4%	+357%/-500%	+23%/-68%	+5%/-41%	+1767%/-40%
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 008640132-01 / KOI

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	-88 ± 11	$6.82^{+5.14}_{-3.90}$	8103^{+860}_{-1561}	5047^{+4801}_{-10863}	$0.439^{+1.811}_{-0.293}$
Alt.	-97 ± 24	$6.04^{+4.23}_{-3.82}$	8102^{+849}_{-1503}	6105^{+7112}_{-11392}	$0.605^{+3.043}_{-0.418}$

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 $A_{\text{obs}} \gg 1.0$

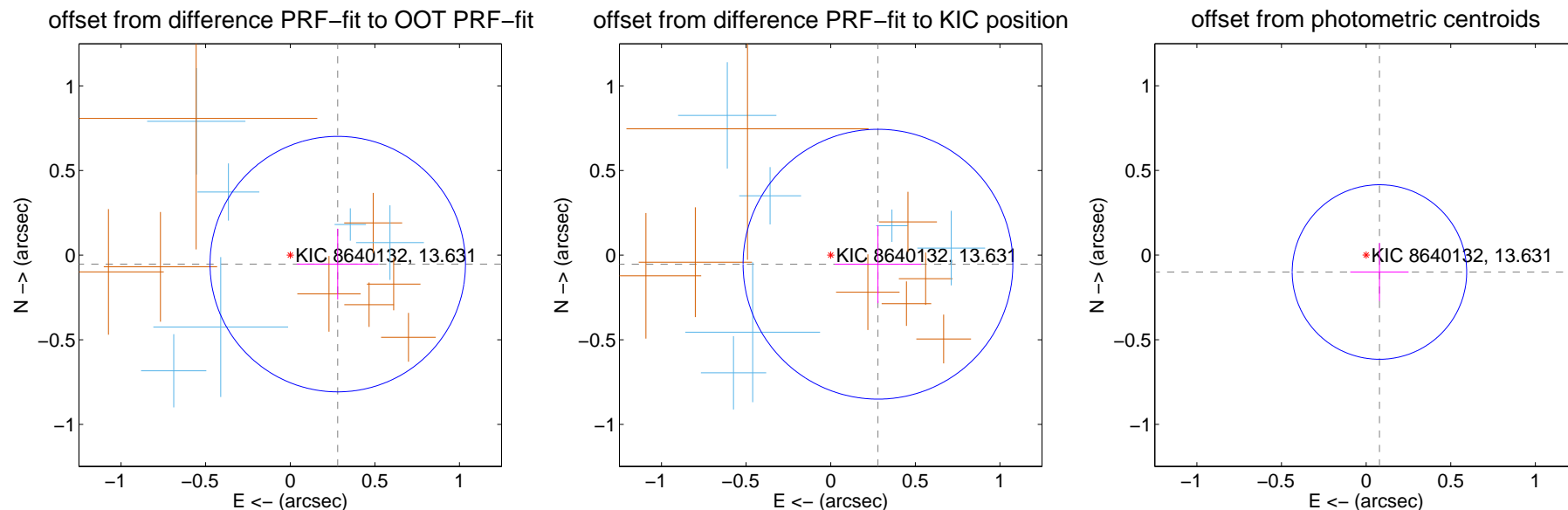
DV Centroid Data

Supplemental centroid analysis for 008640132-01. Kepler magnitude: 13.63. Transit SNR 13.28

There are 7 quarters with good PRF difference image offsets

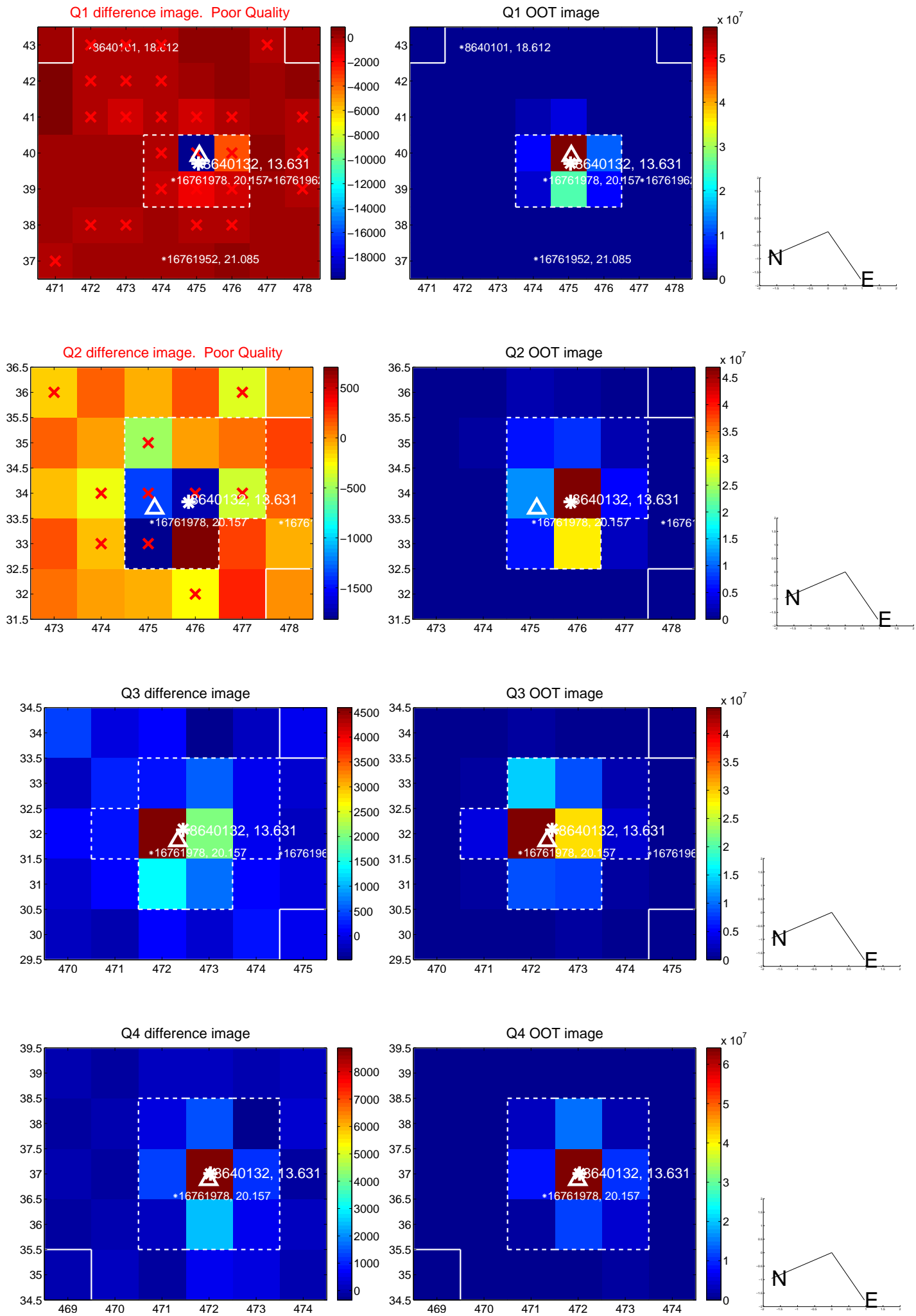
The direct PRF centroid is offset from the target star catalog position by about 0.05 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.286 ± 0.252	1.14	-0.281 ± 0.242	-0.053 ± 0.209
PRF-fit source offset from KIC position	0.284 ± 0.266	1.07	-0.279 ± 0.255	-0.053 ± 0.230
photometric centroid source offset	0.13 ± 0.17	0.74	-0.08 ± 0.17	-0.10 ± 0.17

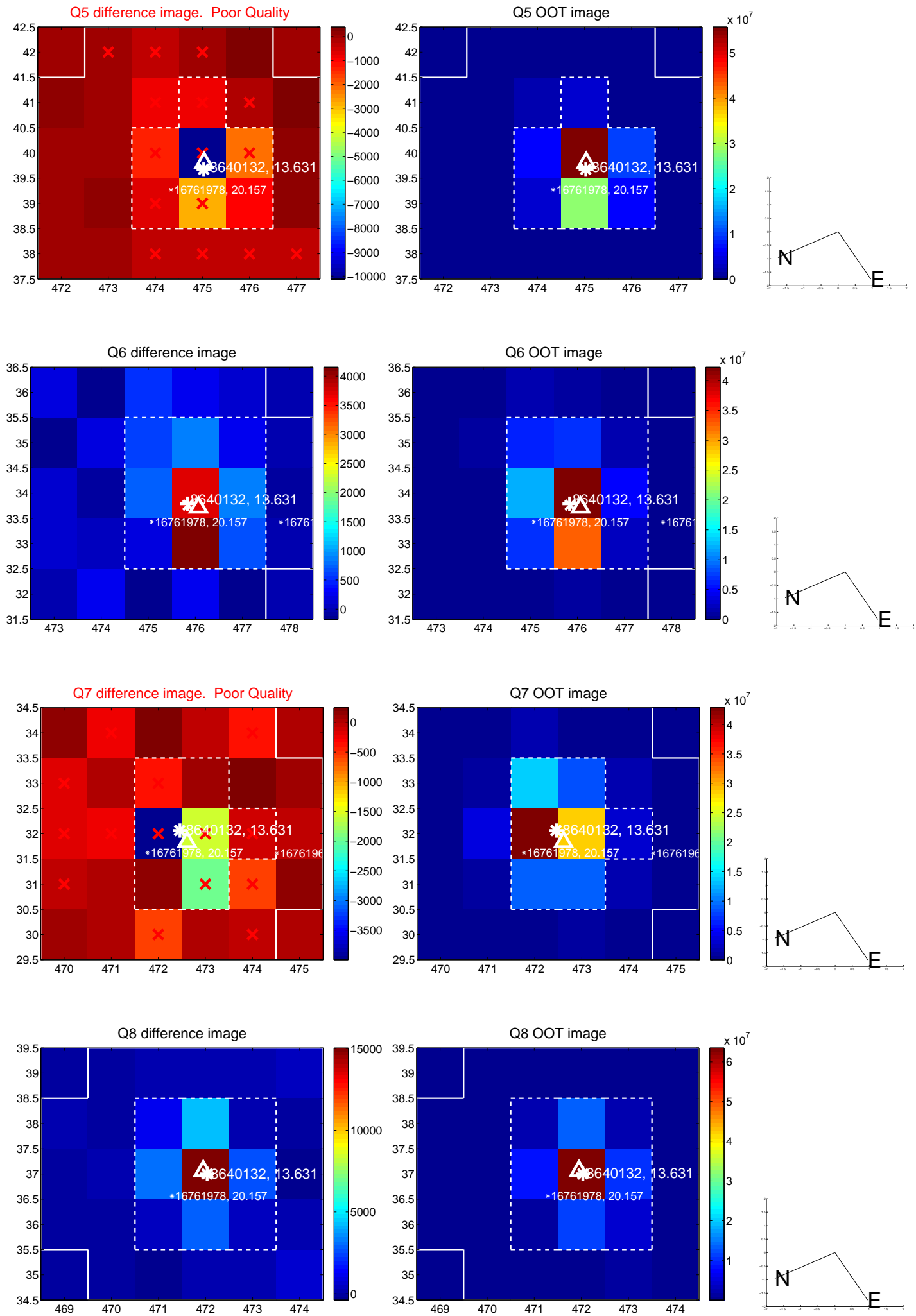


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

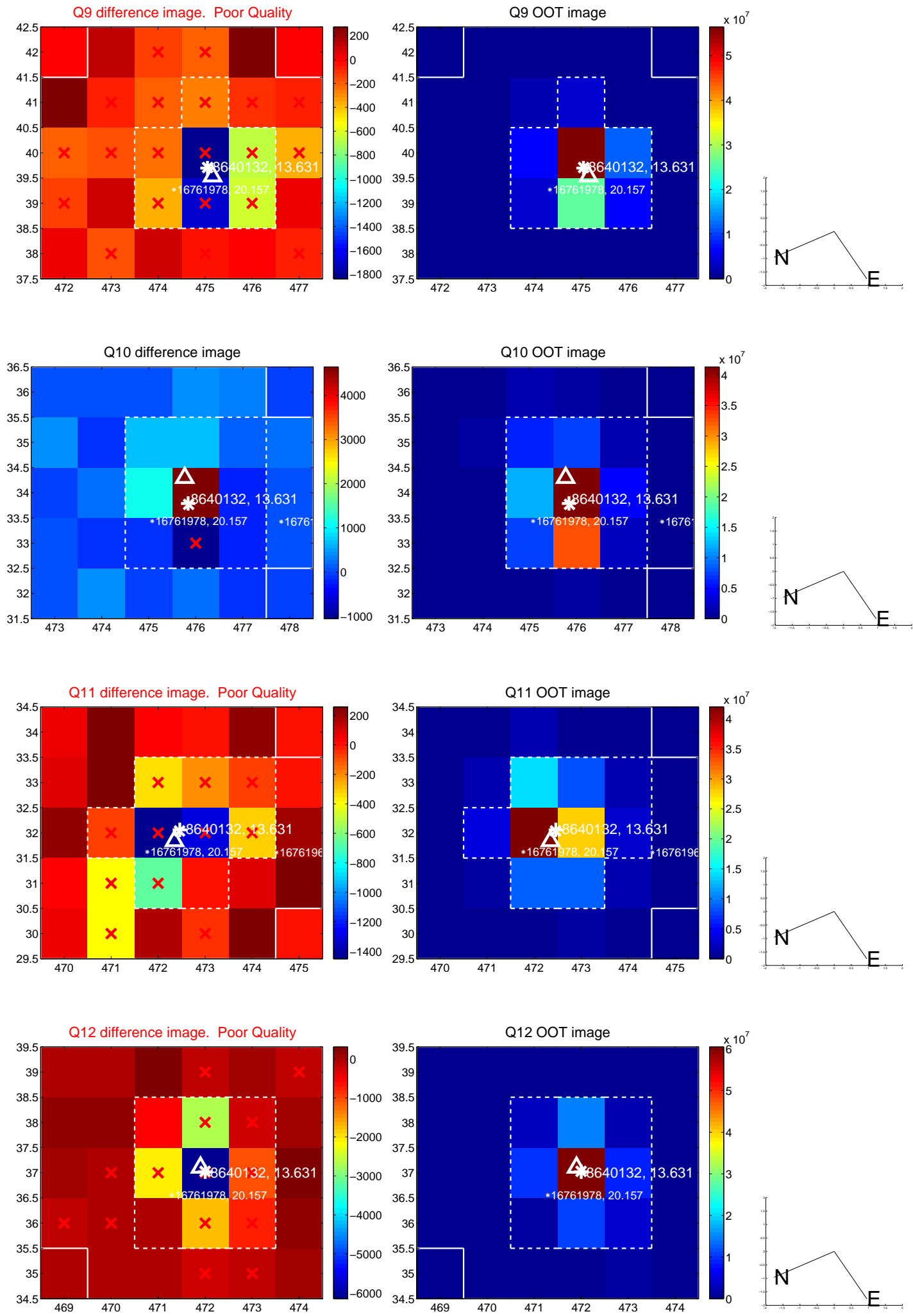
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



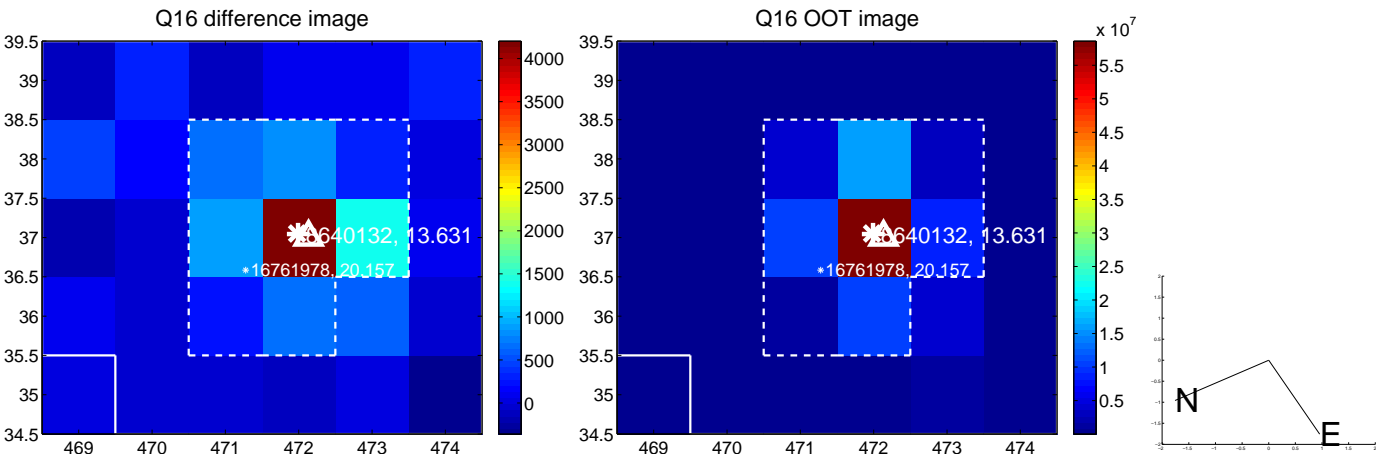
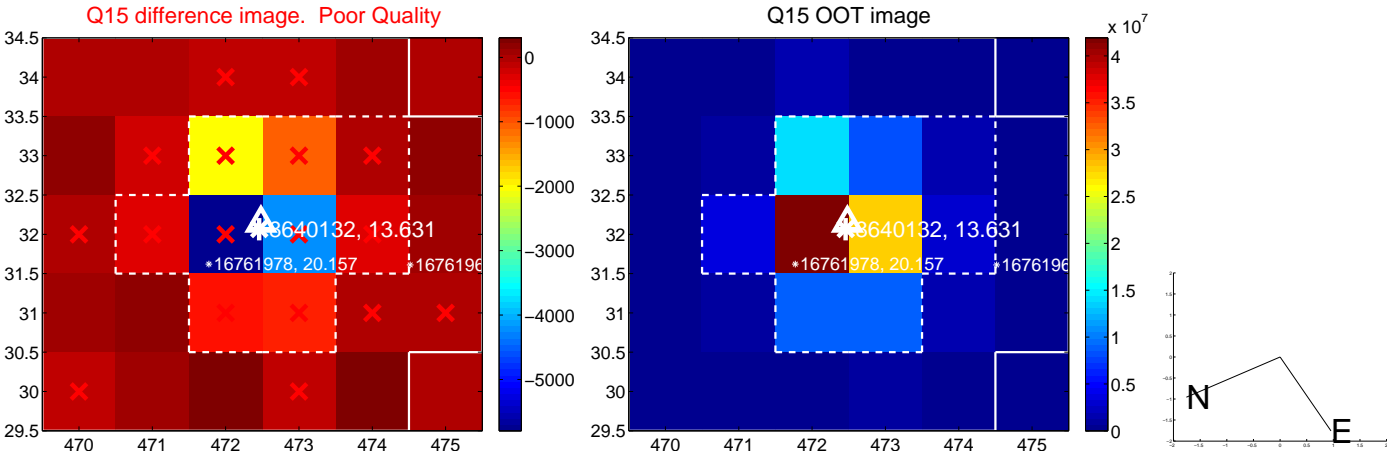
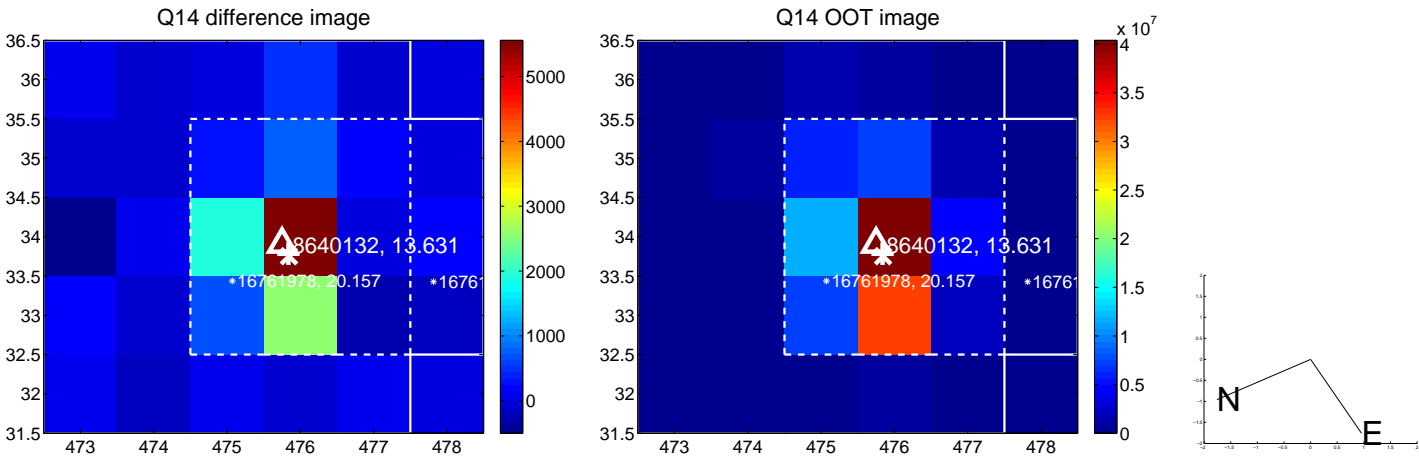
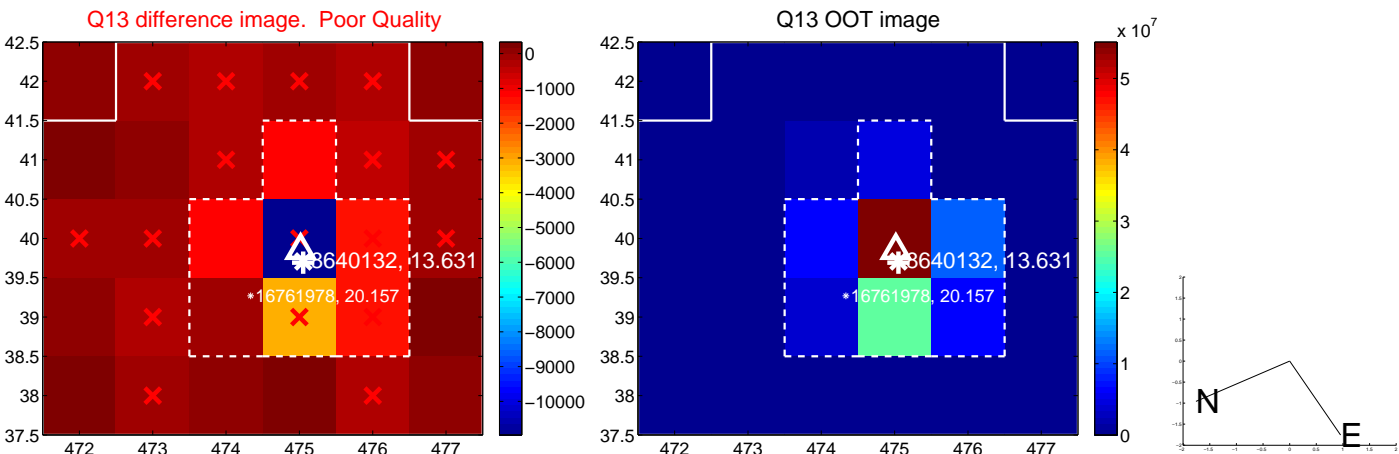
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



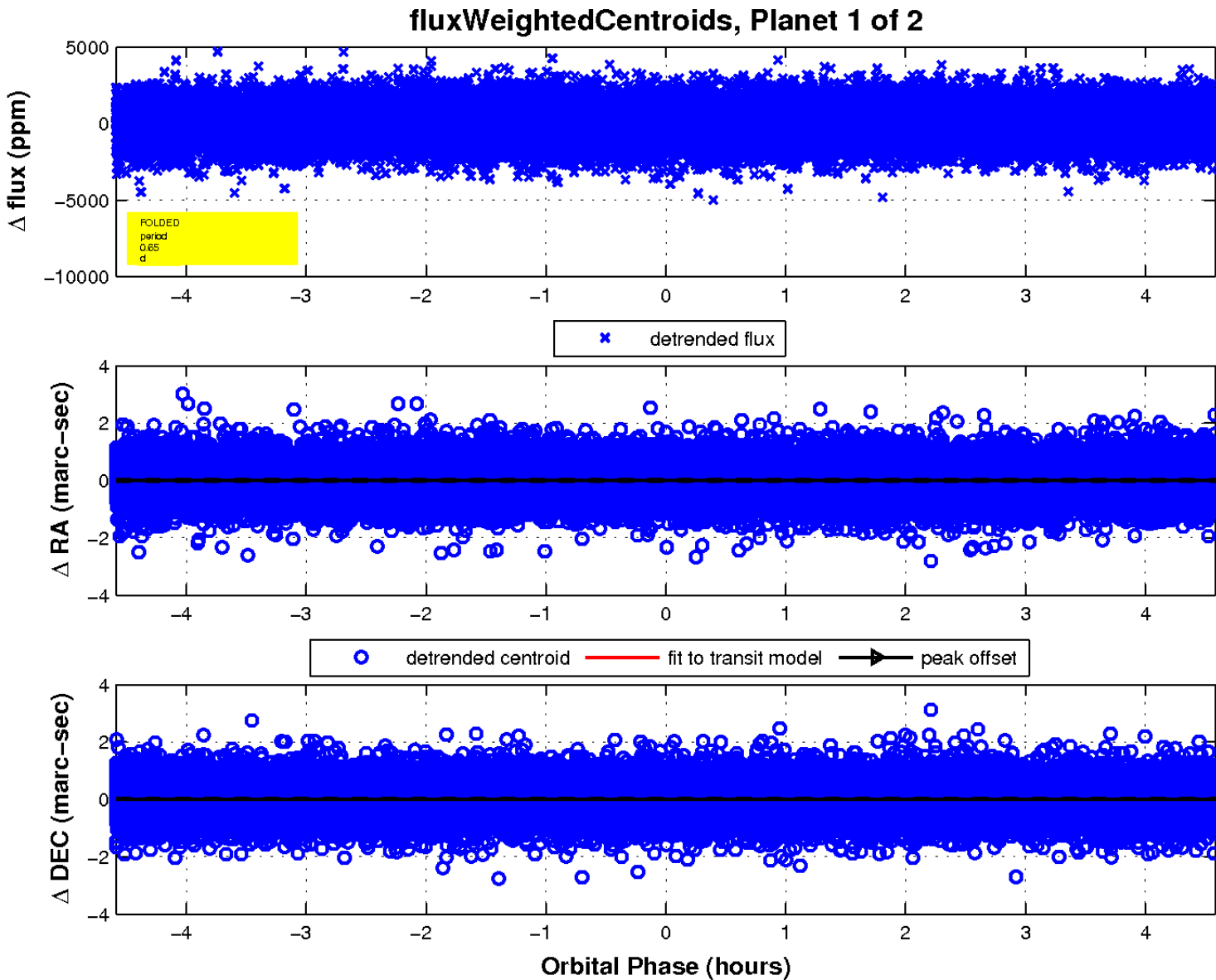
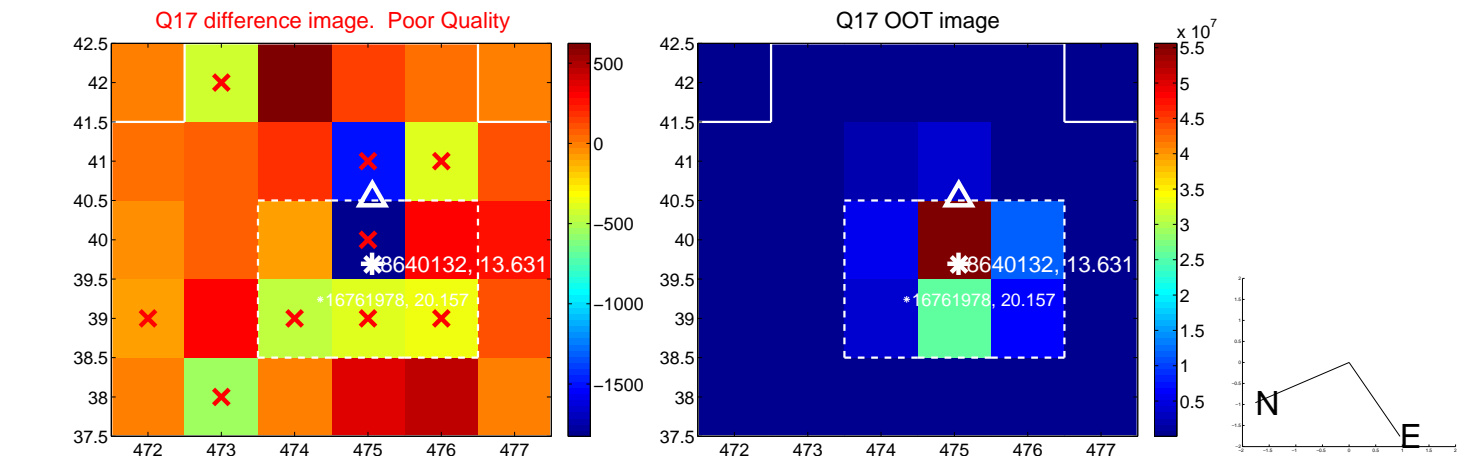
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

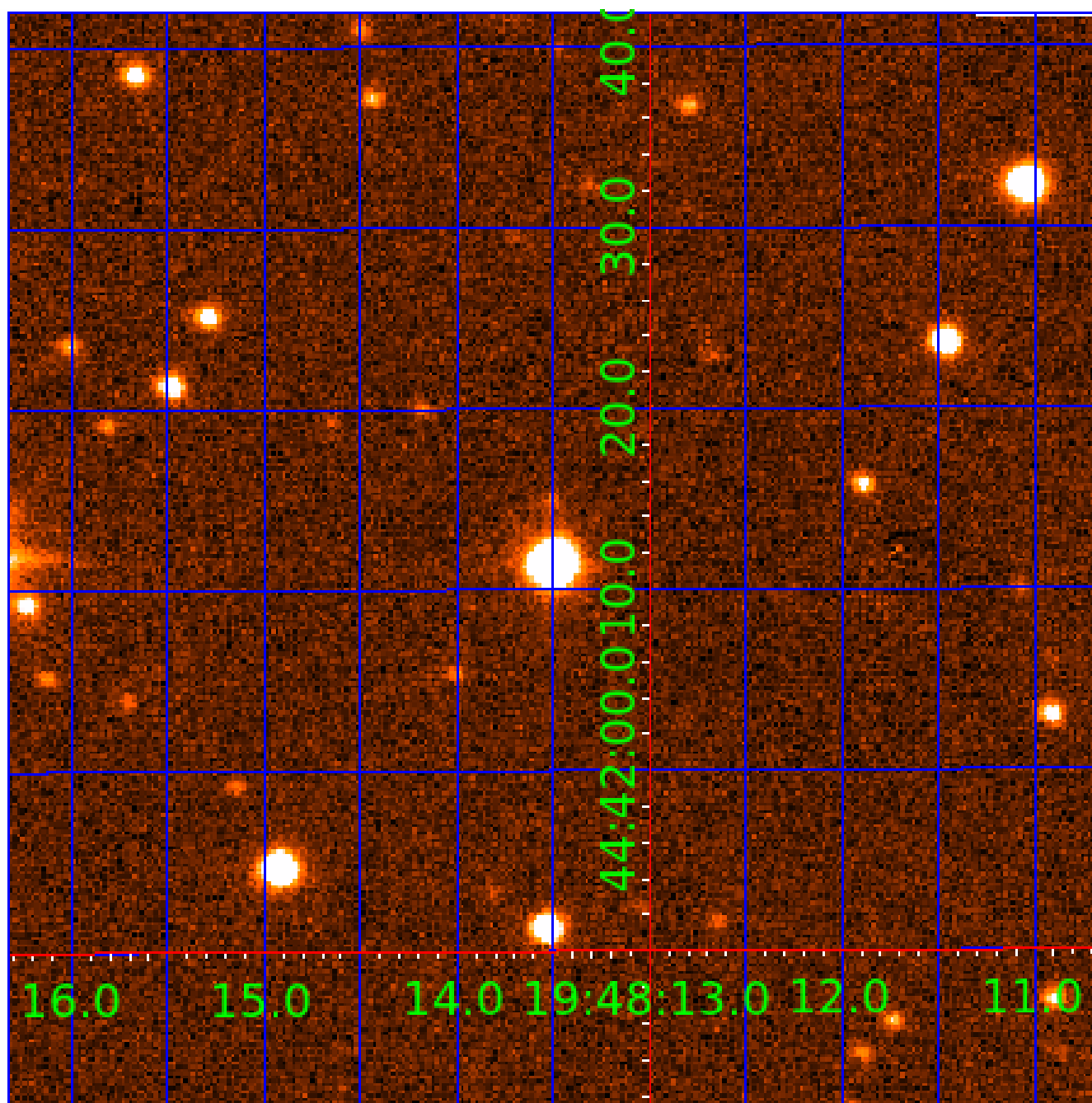


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 008640132

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})
008640132-01	OBS	No	0.651956	131.561968	121.5	1.529	11.9	13.3	6.44	7832	8.33	0.00
008640132-02	OBS	No	1.280118	132.379731	112.0	2.257	8.2	7.7	6.44	7832	7.99	132075.42

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
008640132-01	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT
008640132-02	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_POS_ALT

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

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

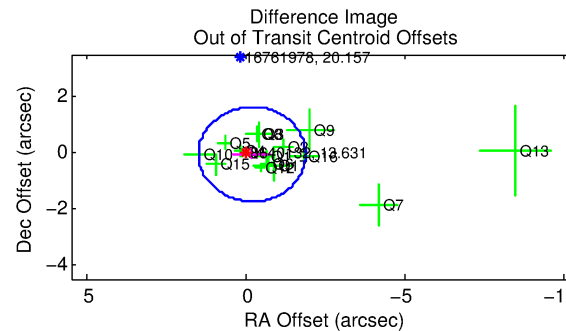
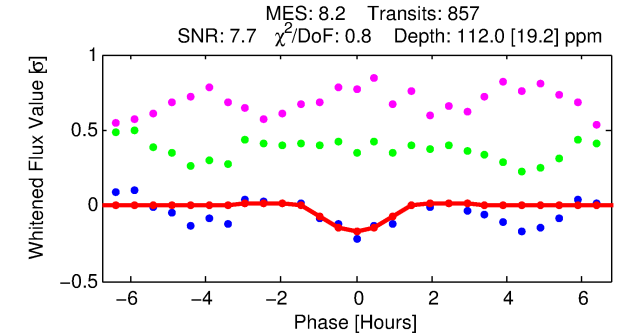
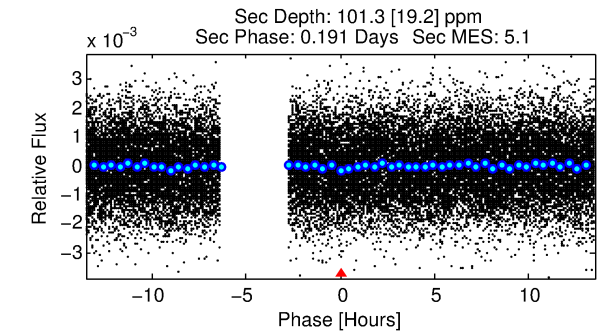
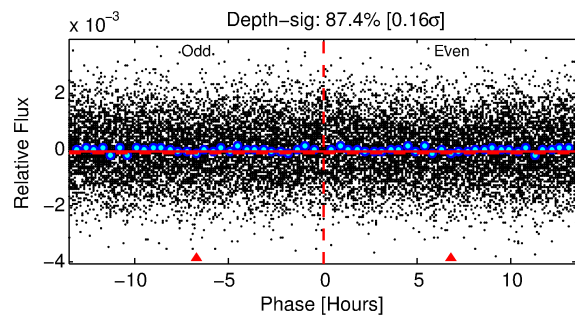
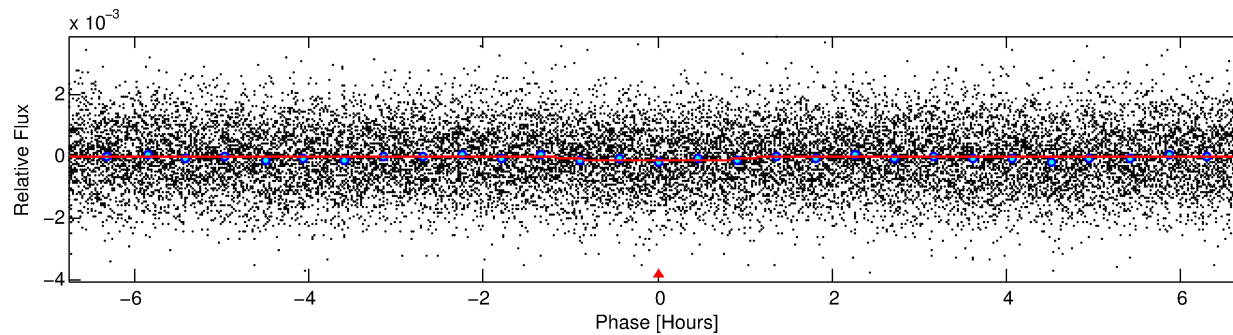
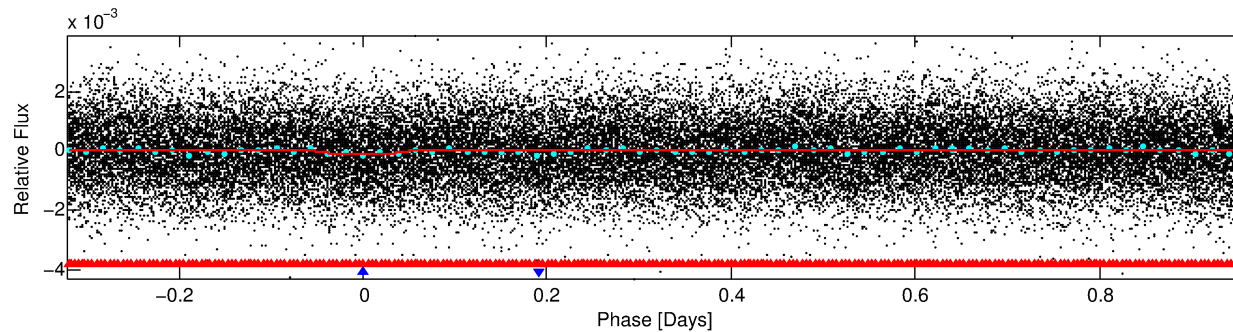
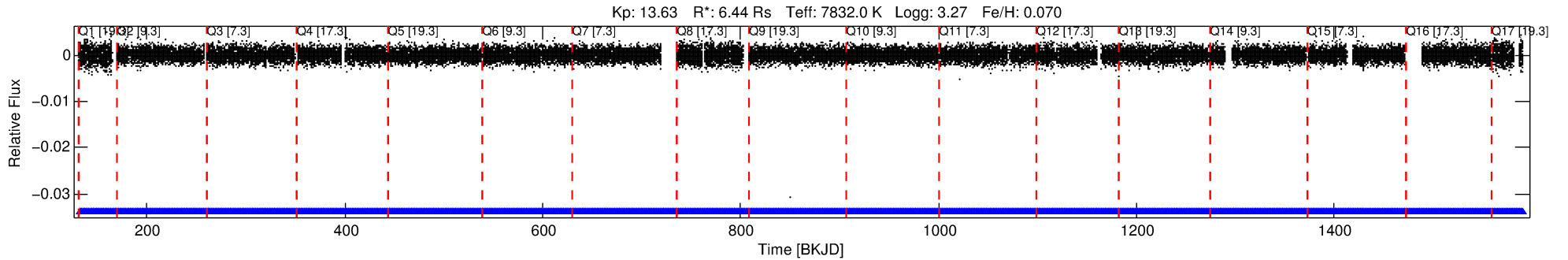
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 008640132-02

No Significant Match Found

DV One-Page Summary

KIC: 8640132 Candidate: 2 of 2 Period: 1.280 d



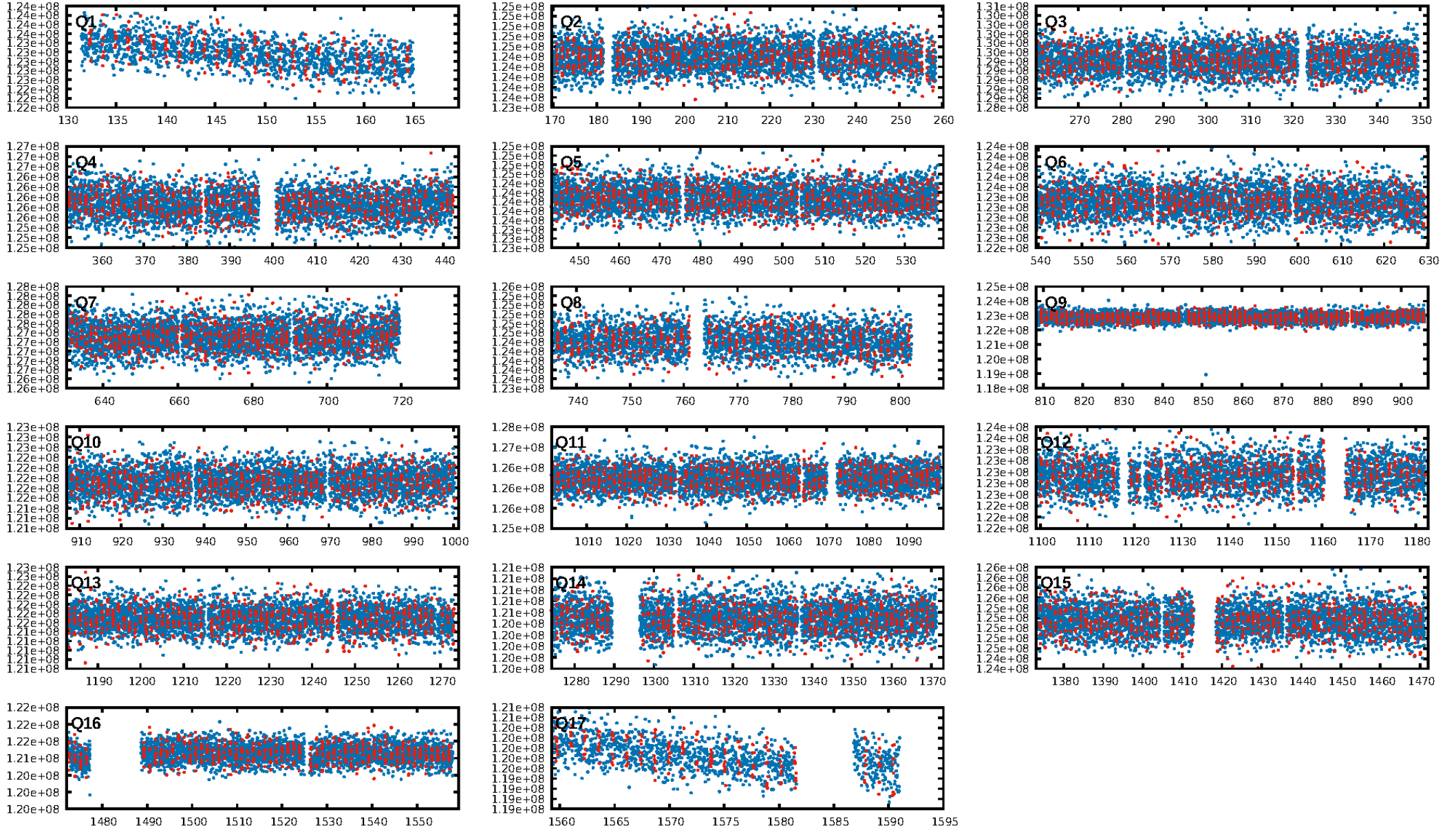
DV Fit Results:

Period = 1.28012 [0.00001] d
Epoch = 132.3797 [0.0045] BKJD
Rp/R* = 0.0114 [0.0096]
a/R* = 2.20 [8.64]
b = 0.90 [1.05]
Seff = 132075.41 [171259.82]
Teq = 4861 [1576] K
Rp = 7.99 [8.68] Re
a = 0.0326 [0.0246] AU
Ag = 0.92 [1.97] [-0.04σ]
Teffp = 7370 [3145] K [0.71σ]

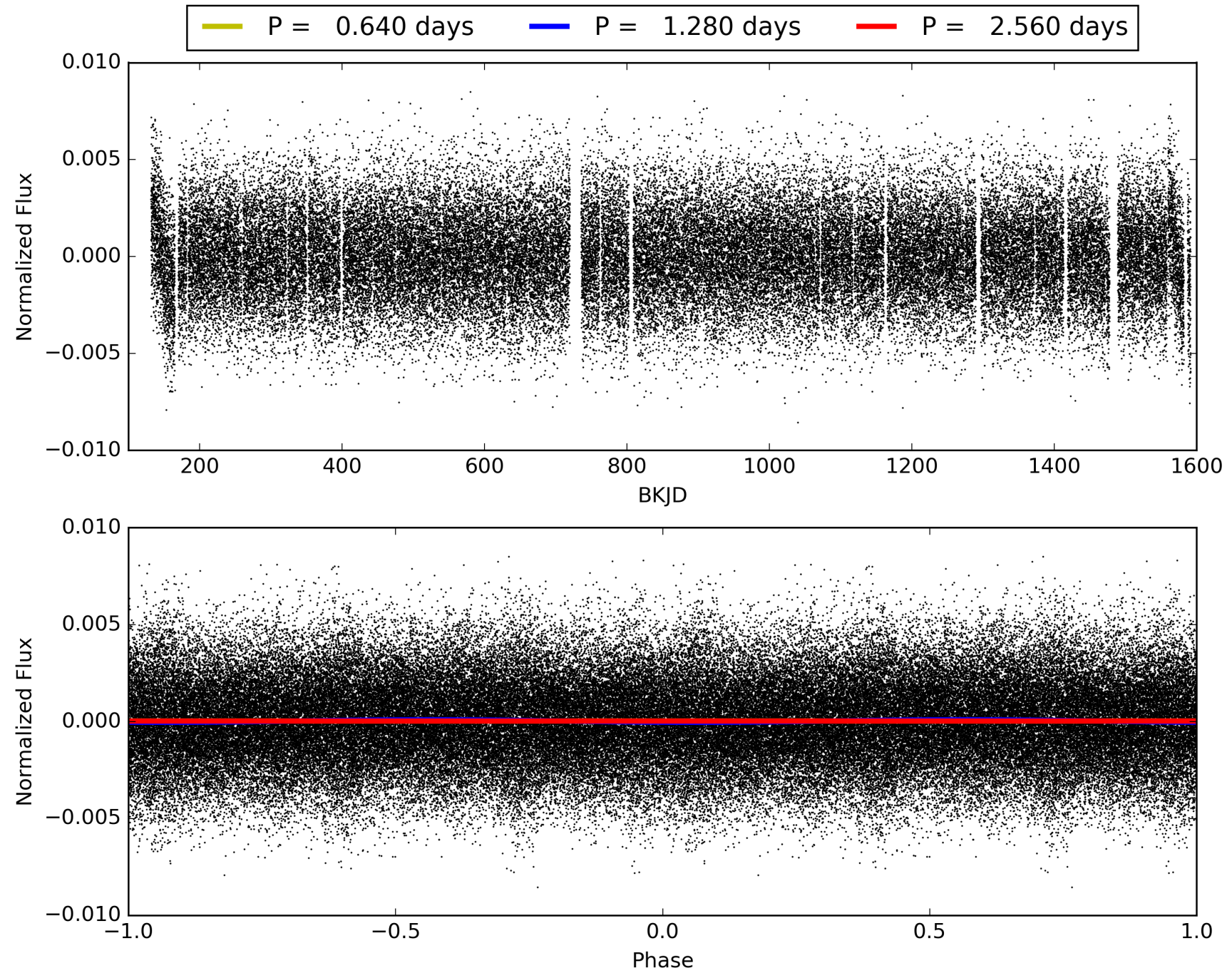
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [5.53σ]
LongPeriod-sig: N/A
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: 6.60e-24
RollingBand-fgt: 1.00 [820/820]
GhostDiagnostic-chr: 1.008
Centroid-sig: 43.8%
Centroid-so: 0.252 arcsec [1.18σ]
OotOffset-rm: 0.196 arcsec [0.35σ]
KicOffset-rm: 0.232 arcsec [0.40σ]
OotOffset-st: 4/3/4/5 [16]
KicOffset-st: 4/3/4/5 [16]
DiffImageQuality-fgm: 0.69 [11/16]
DiffImageOverlap-fno: 1.00 [17/17]

TCE 008640132-02, PDC Light Curves

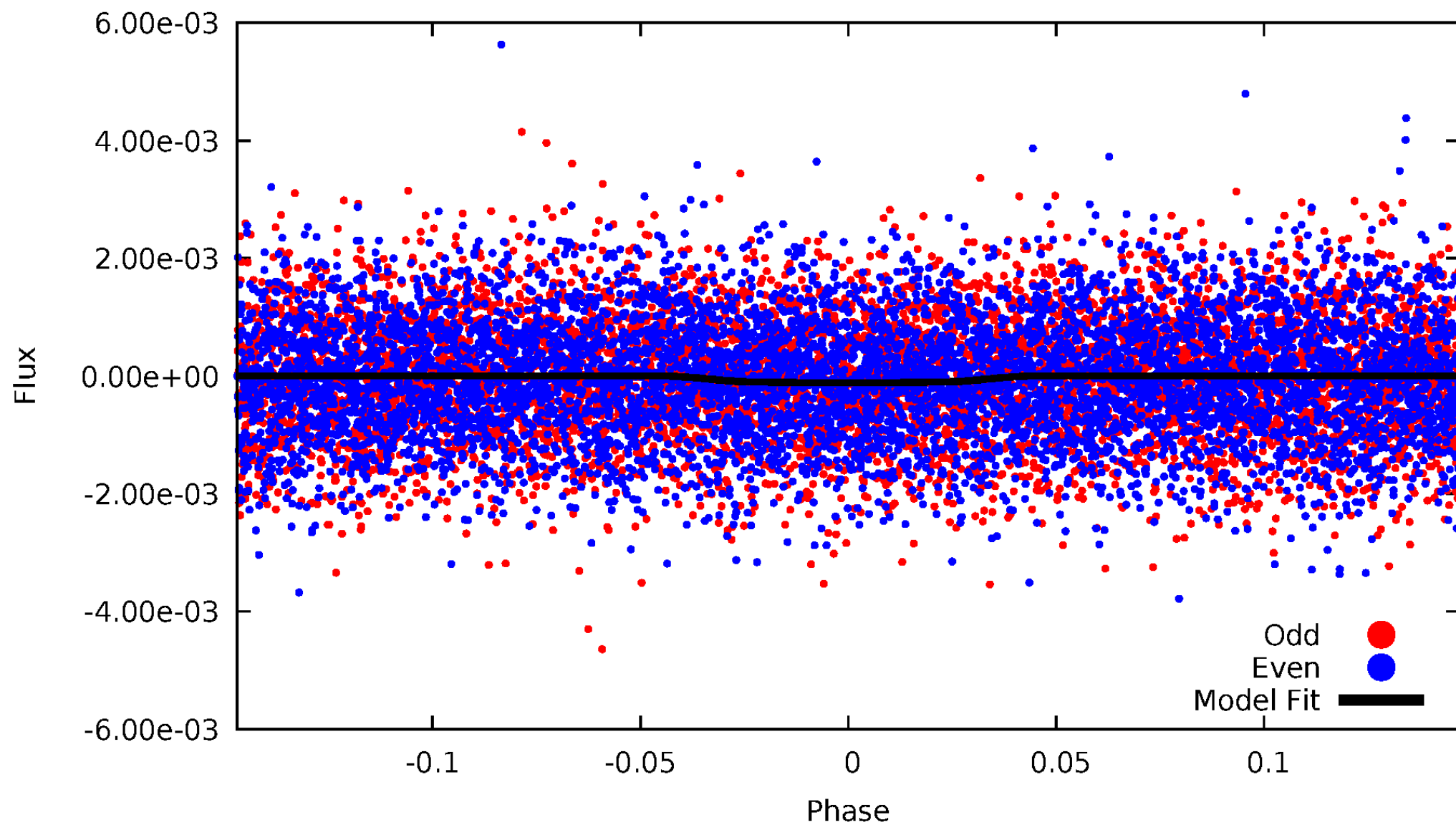


TCE 008640132-02



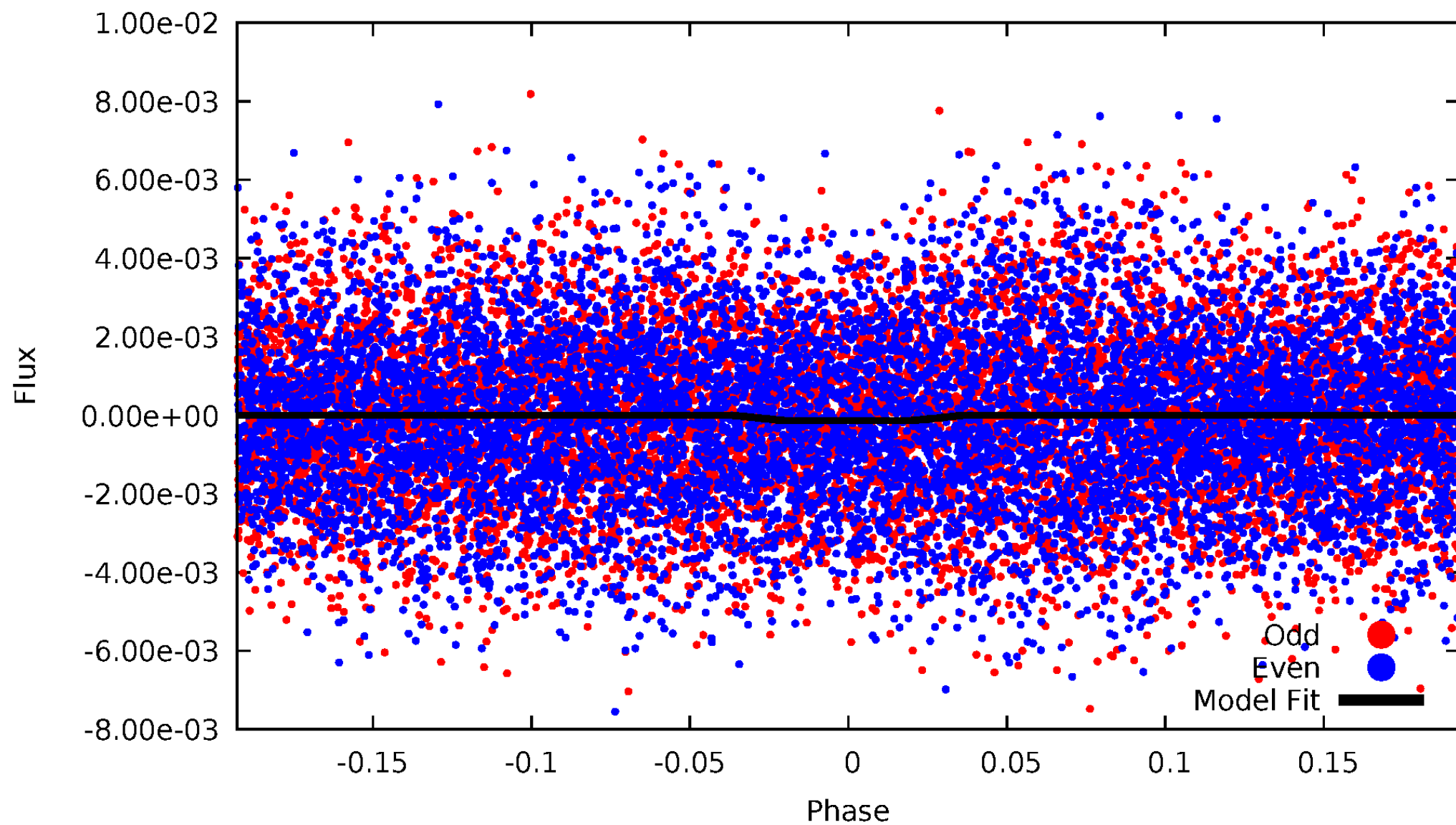
DV Odd/Even

TCE 008640132-02



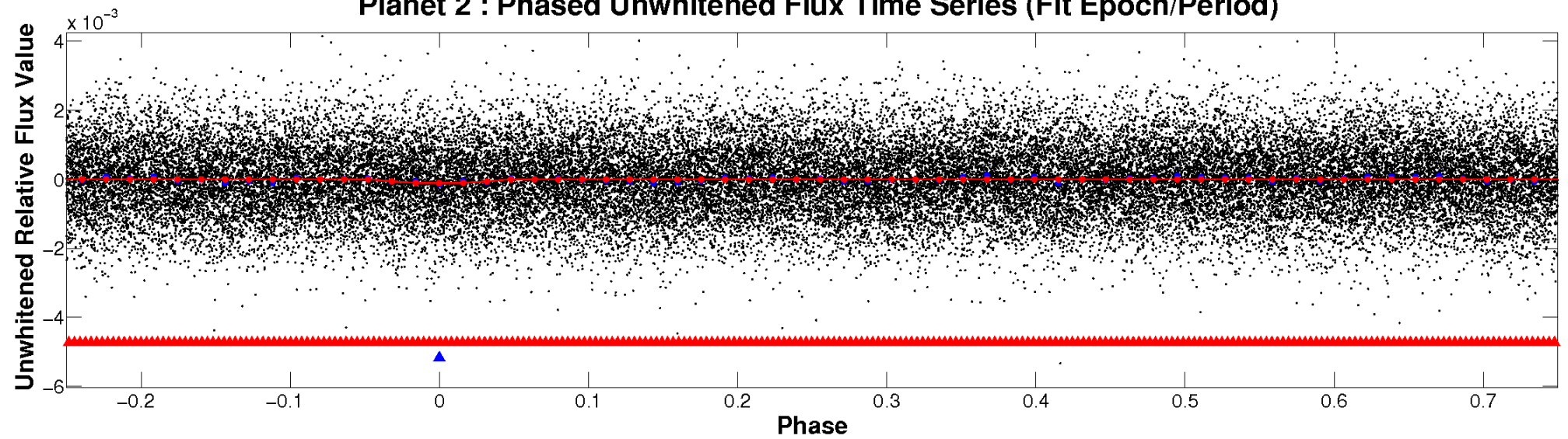
ALT Odd/Even

TCE 008640132-02

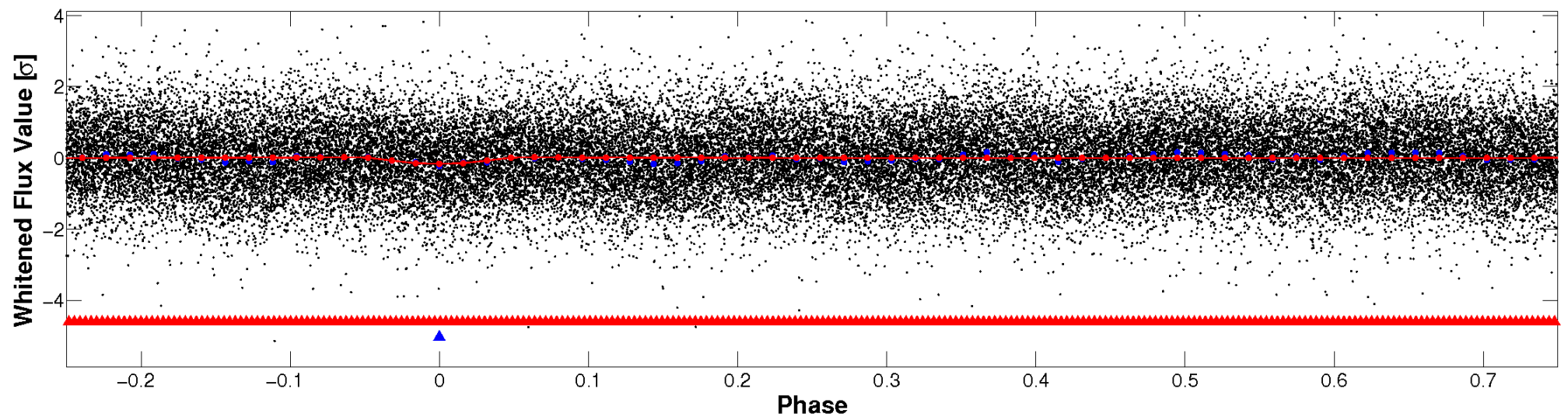


Non-Whitened Vs. Whitened Light Curve

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

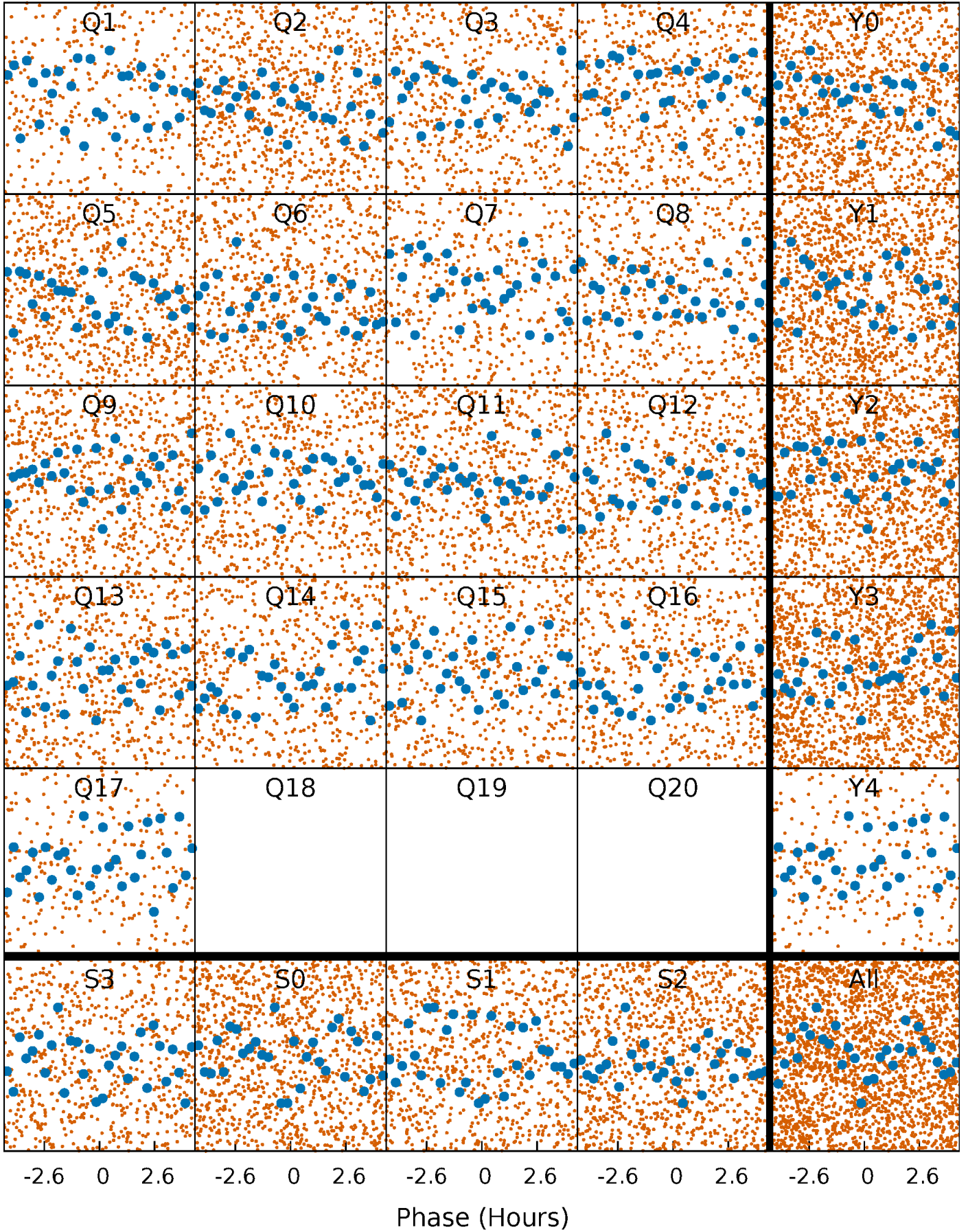


Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



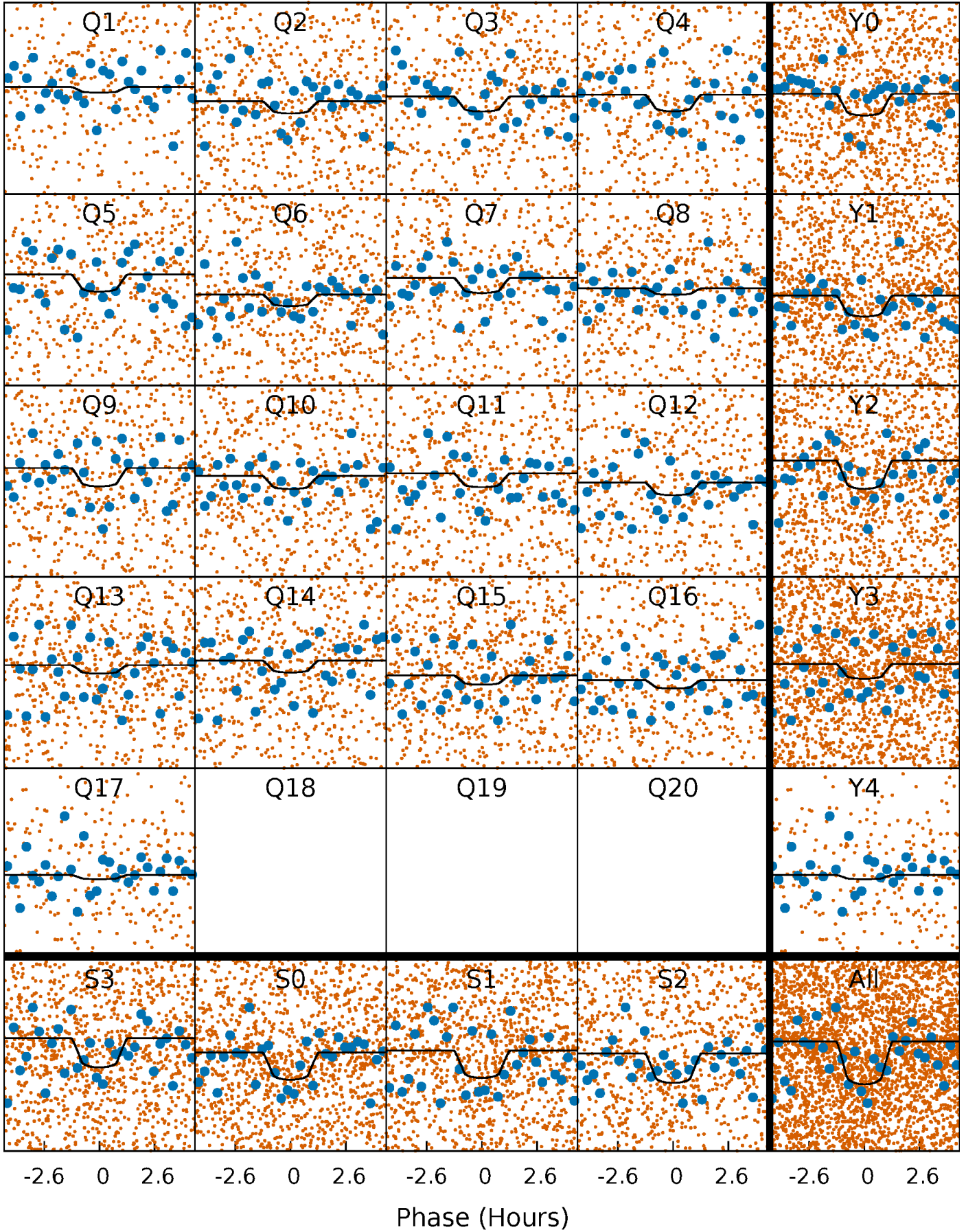
PDC Quarter-Phased Transit Curves

TCE 008640132-02 P= 1.280118 Days $T_0=132.379731$ (BKJD)



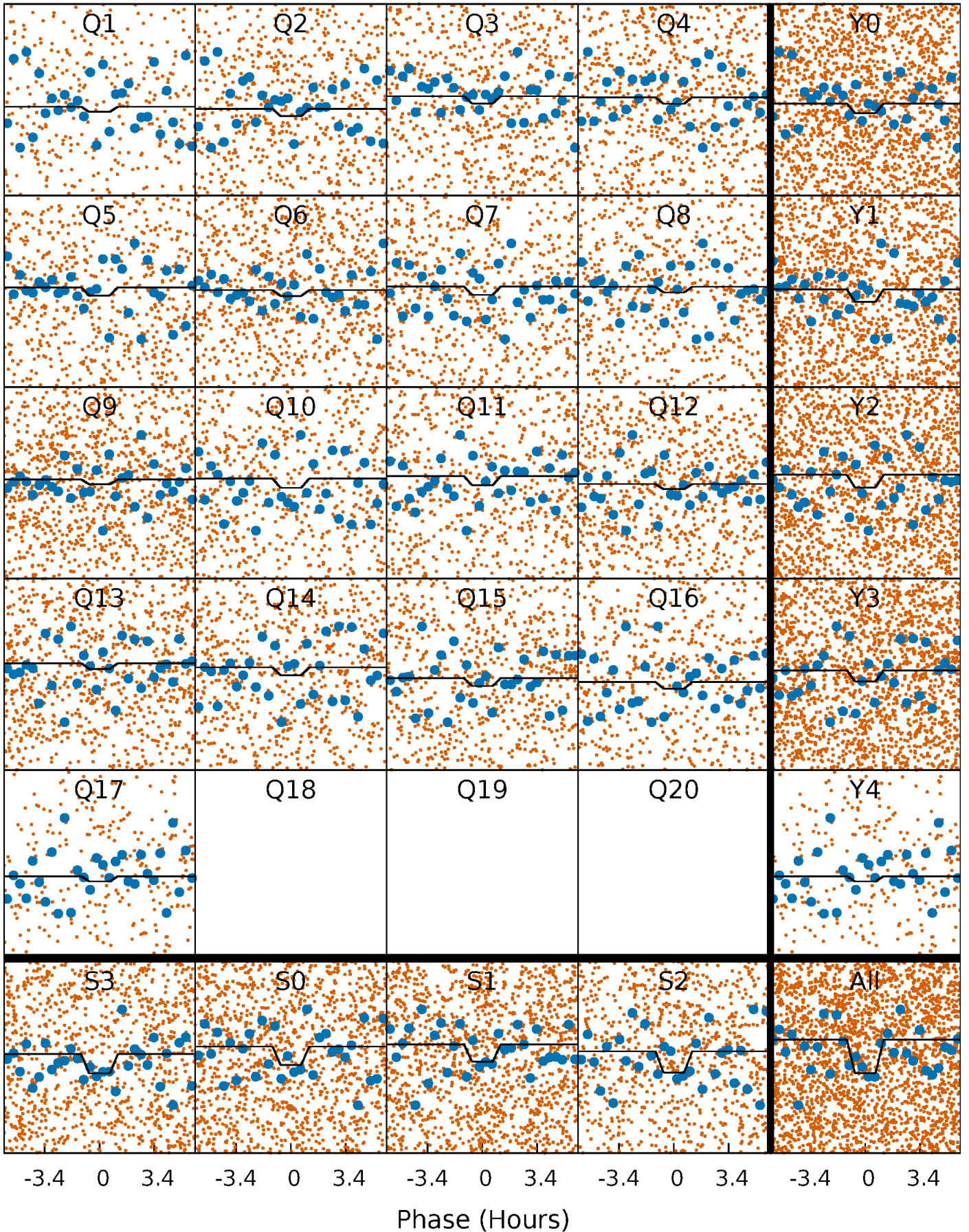
DV Quarter-Phased Transit Curves

TCE 008640132-02 P= 1.280118 Days $T_0=132.379731$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

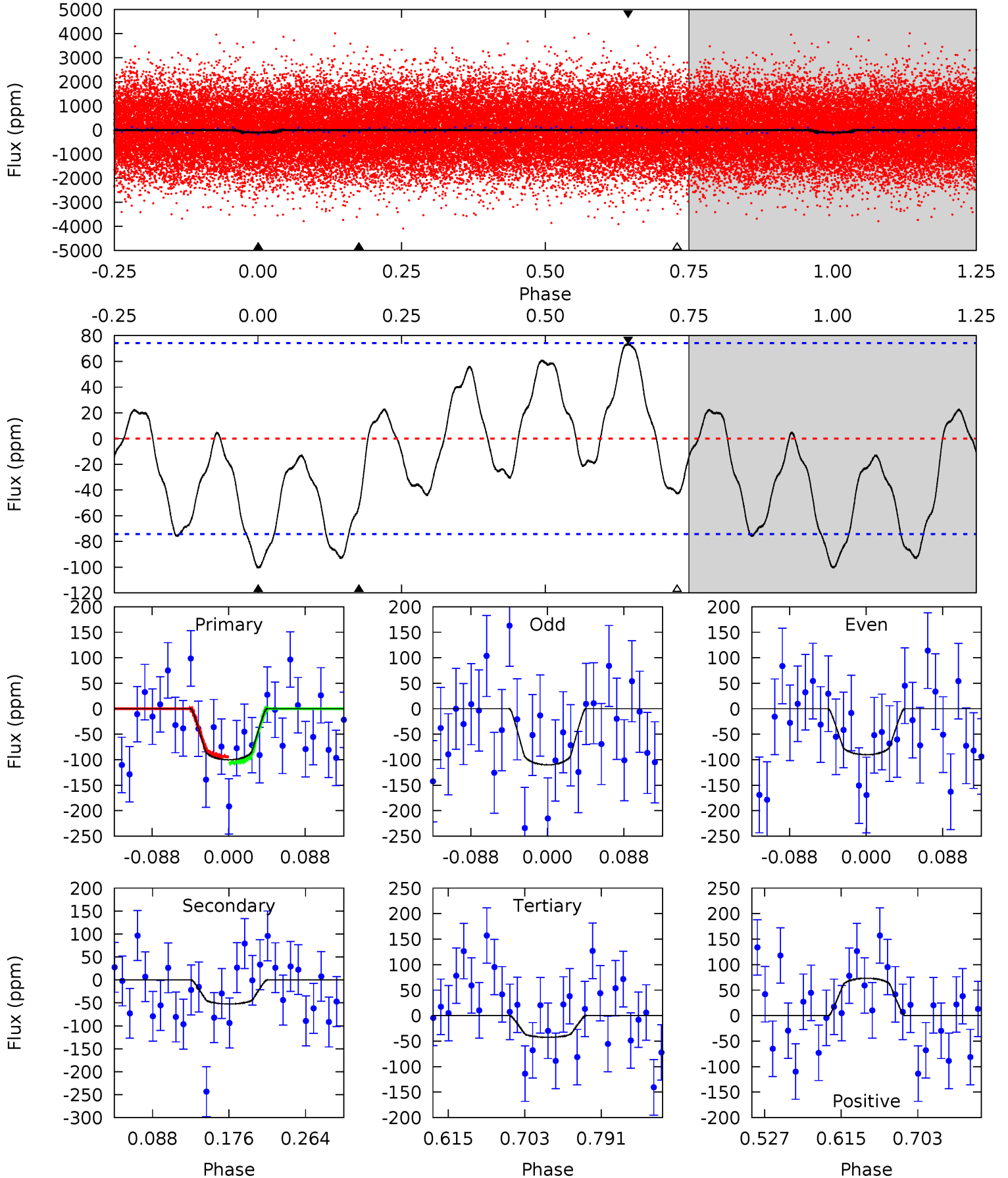
TCE 008640132-02 P= 1.280159 Days $T_0=132.358984$ (BKJD)



DV Model-Shift Uniqueness Test

008640132-02, P = 1.280118 Days, E = 131.099613 Days

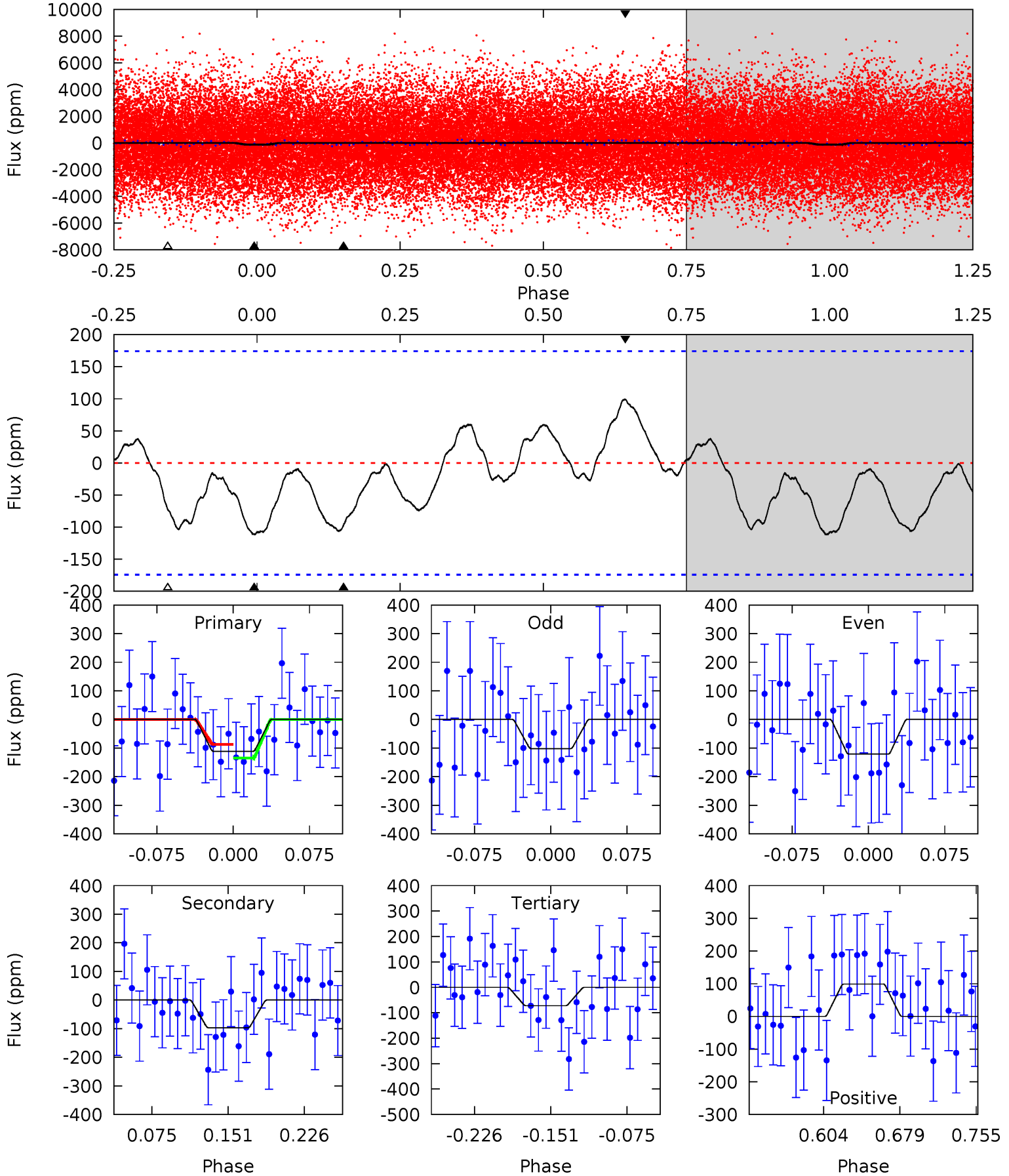
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
6.20	3.23	2.64	4.53	4.59	1.71	2.34	3.56	1.67	0.60	-1.29	0.62	0.90	0.42	0.37



Alt Model-Shift Uniqueness Test

008640132-02, P = 1.280159 Days, E = 131.078825 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
2.95	2.57	1.92	2.63	4.62	1.78	1.24	1.04	0.33	0.65	-0.05	0.25	0.51	0.47	0.64



Stellar Parameters For KIC 008640132

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	$M(M_{\odot})$	p_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	7832^{+215}_{-350}	$3.268^{+0.782}_{-0.138}$	$0.070^{+0.250}_{-0.350}$	$6.444^{+1.471}_{-4.413}$	$2.809^{+0.127}_{-1.142}$	$0.015^{+0.261}_{-0.006}$
	+3%/-4%	+24%/-4%	+357%/-500%	+23%/-68%	+5%/-41%	+1767%/-40%
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 008640132-02 / KOI

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	-52 ± 16	$7.32^{+6.76}_{-4.66}$	6525^{+637}_{-1104}	4585^{+4903}_{-9279}	$0.509^{+3.331}_{-0.368}$
Alt.	-97 ± 38	$7.46^{+6.89}_{-4.78}$	6493^{+637}_{-1204}	5641^{+6248}_{-9652}	$0.890^{+5.909}_{-0.665}$

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 $A_{obs} \gg 1.0$

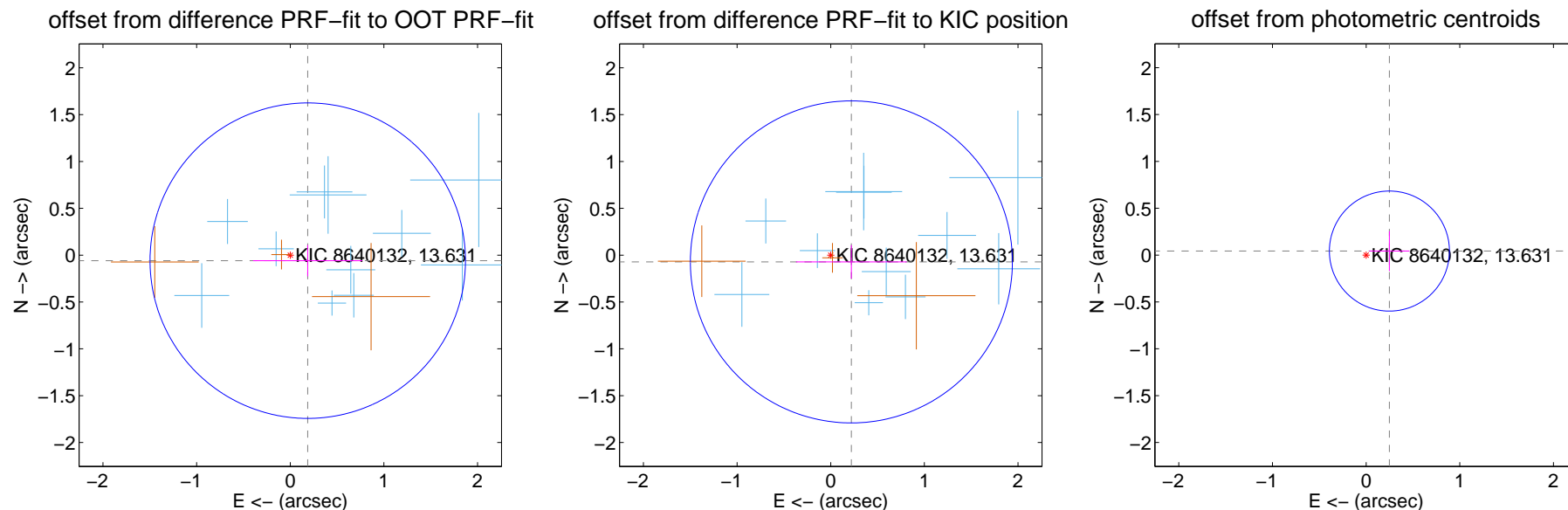
DV Centroid Data

Supplemental centroid analysis for 008640132-02. Kepler magnitude: 13.63. Transit SNR 7.71

There are 11 quarters with good PRF difference image offsets

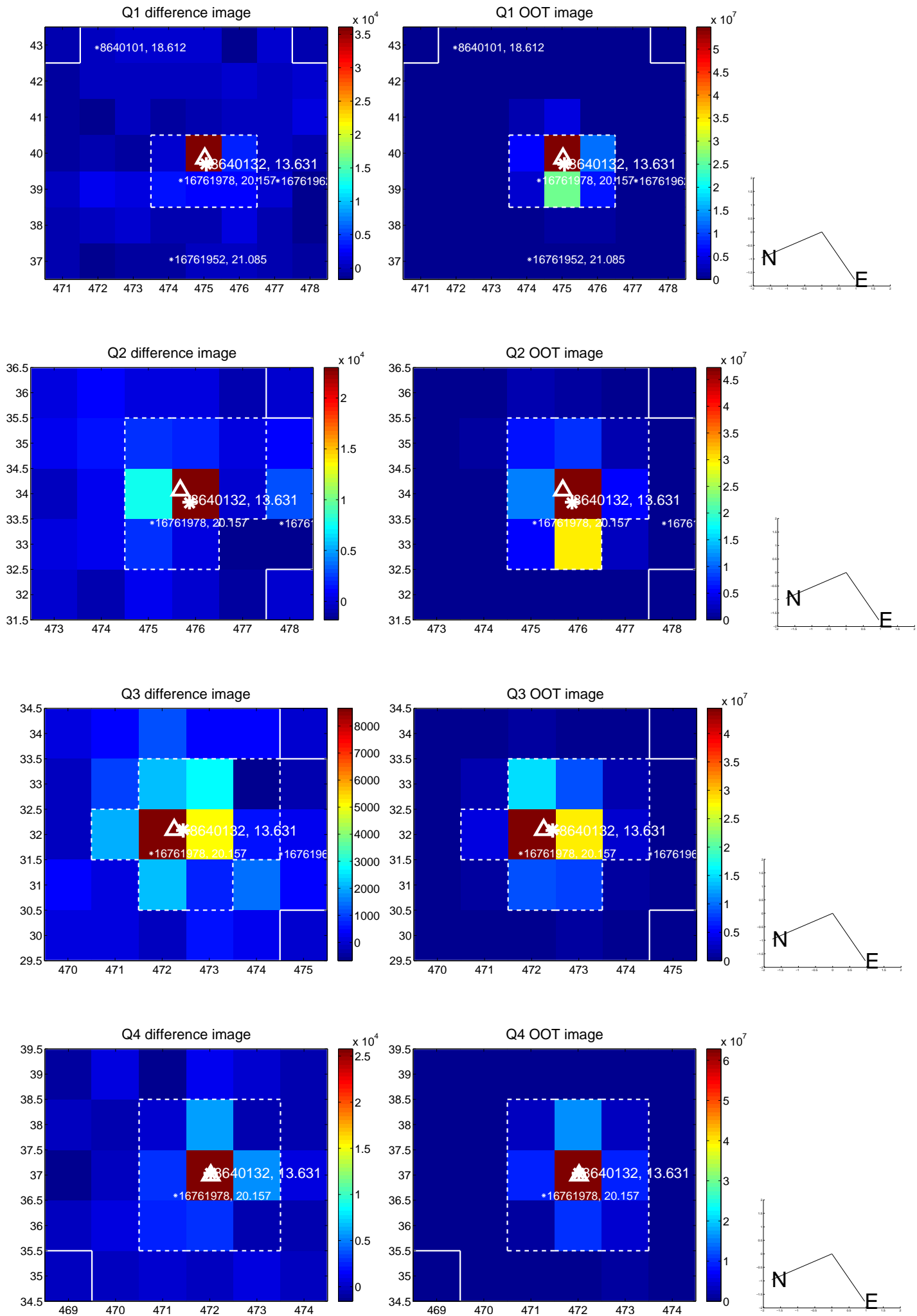
The direct PRF centroid is offset from the target star catalog position by about 0.05 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.196 ± 0.561	0.35	-0.187 ± 0.583	-0.059 ± 0.167
PRF-fit source offset from KIC position	0.232 ± 0.573	0.40	-0.221 ± 0.591	-0.072 ± 0.179
photometric centroid source offset	0.25 ± 0.21	1.18	-0.25 ± 0.21	0.04 ± 0.21

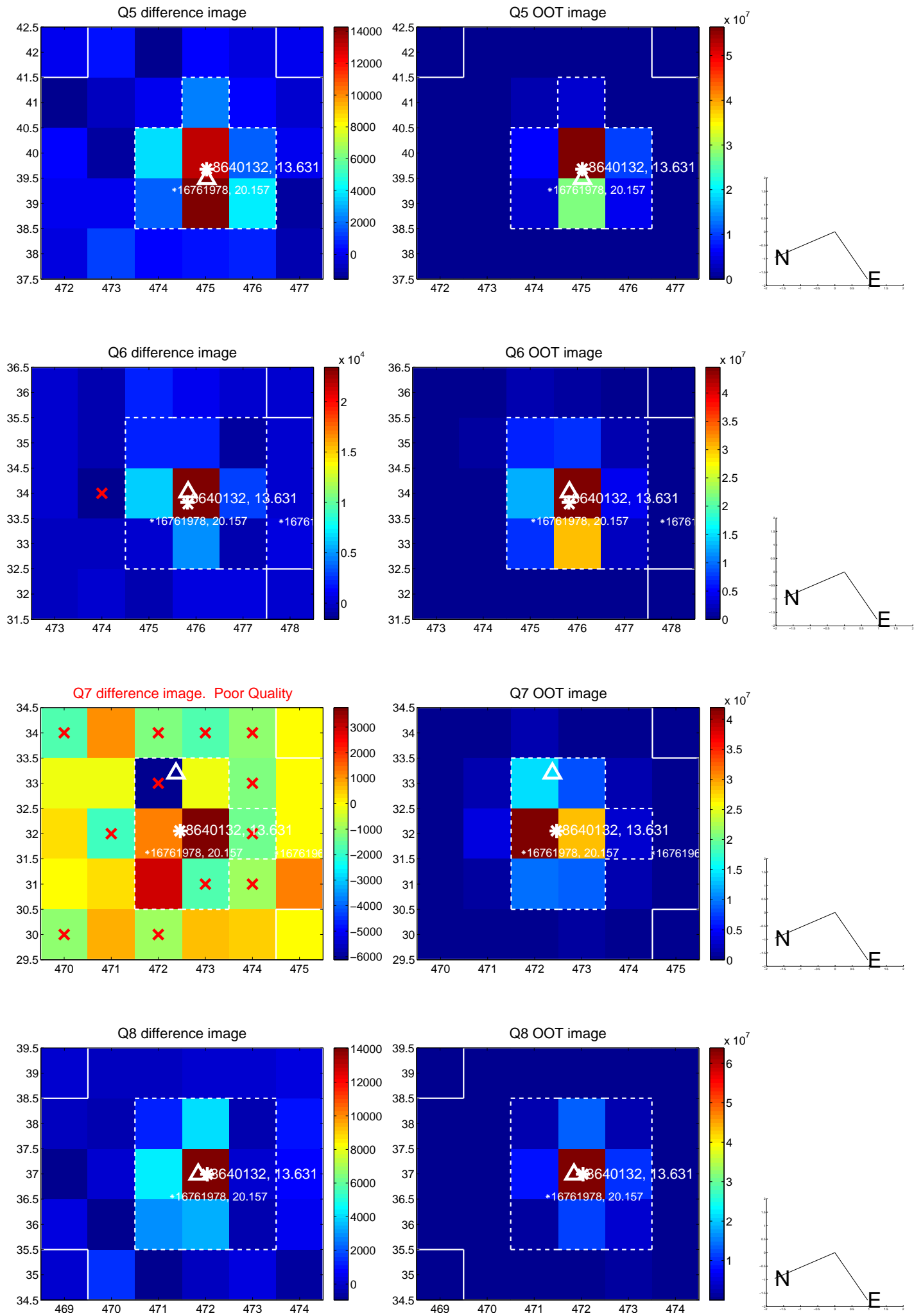


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ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

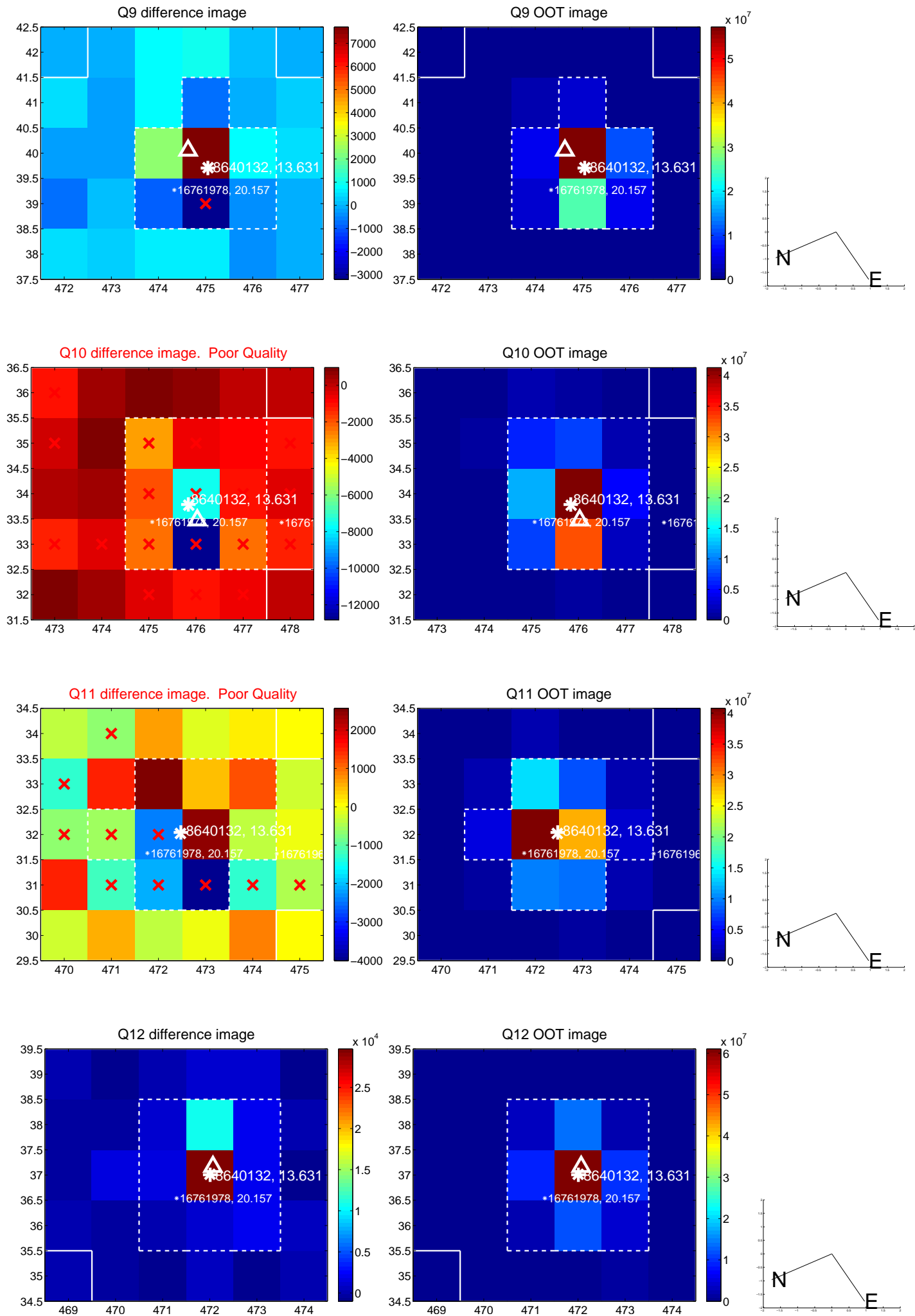
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



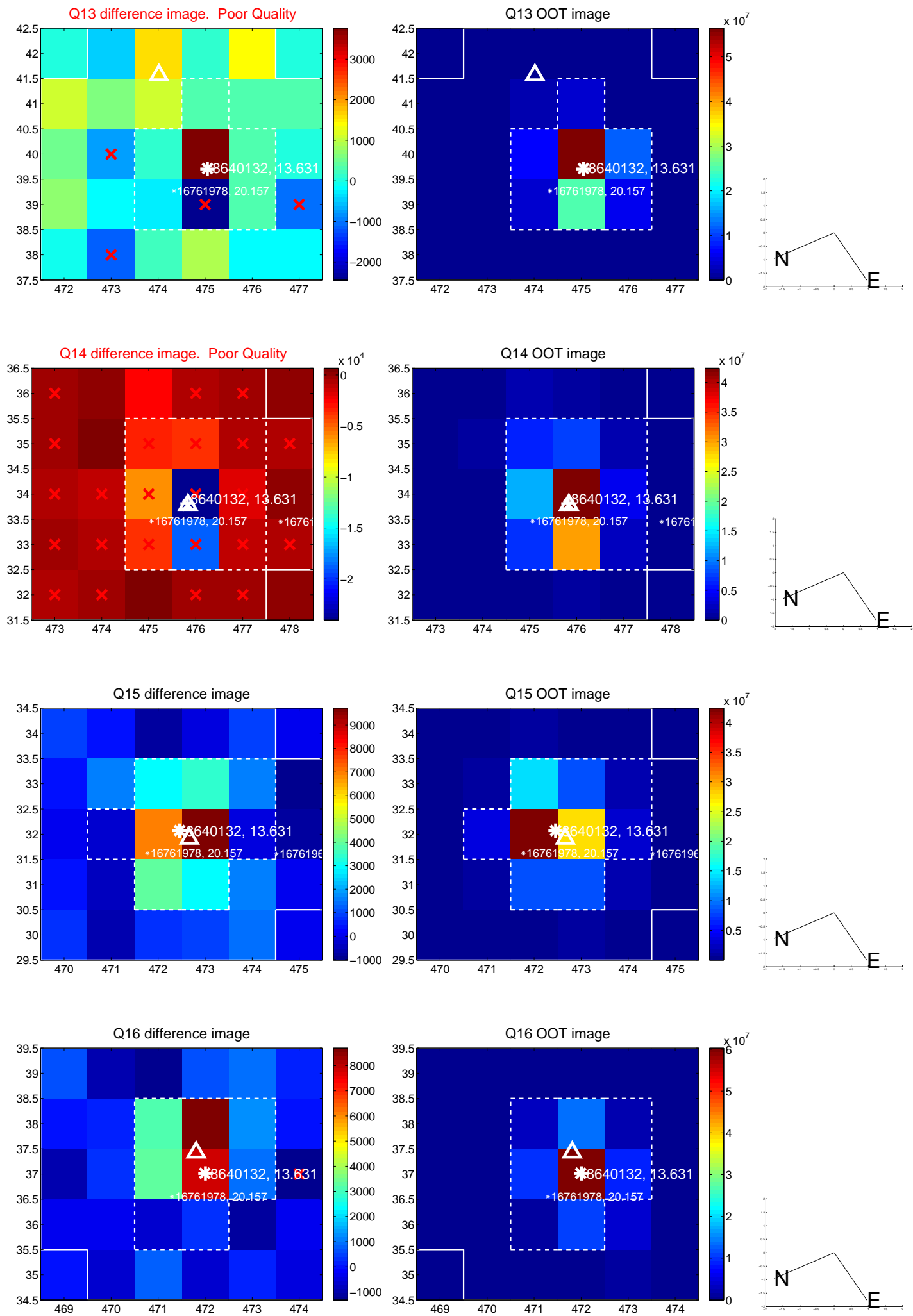
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



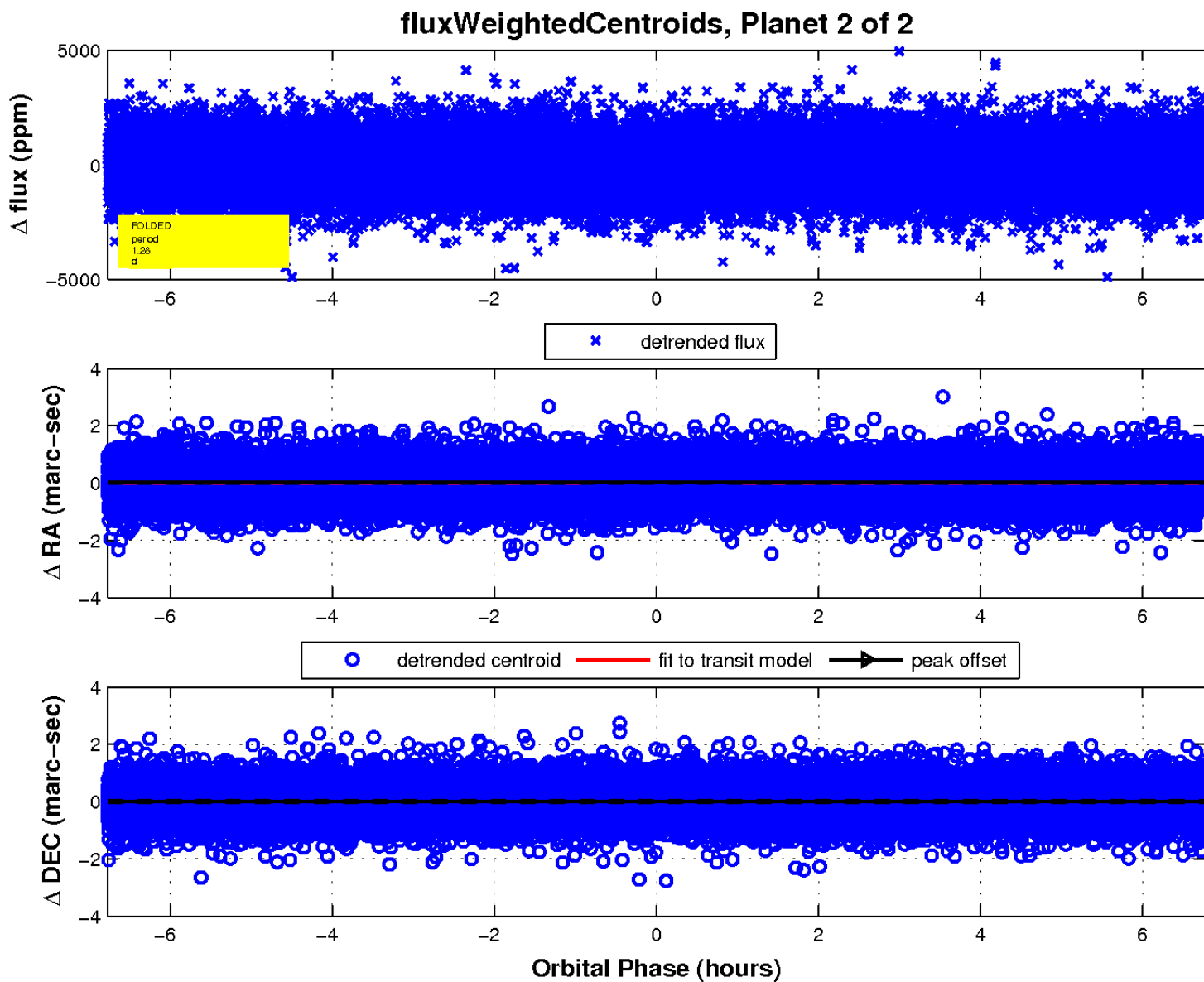
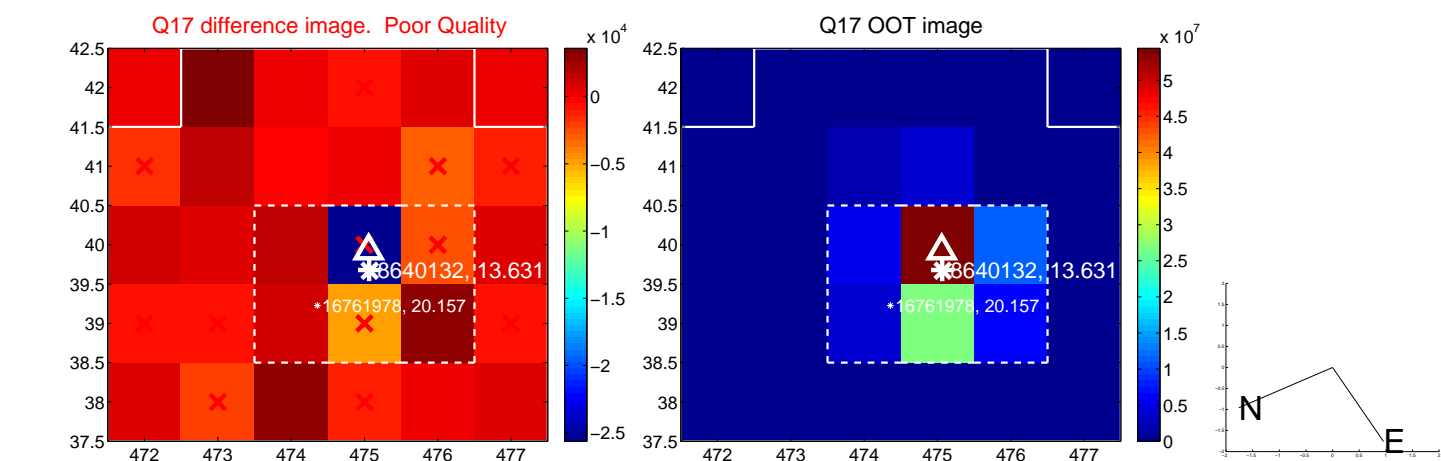
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

