

KIC 004142789

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})
004142789-01	OBS	No	0.505258	131.757445	272.8	0.542	11.3	16.4	0.55	5129	1.00	1750.94
004142789-02	OBS	No	0.505256	132.062555	222.5	0.969	13.0	17.0	0.55	5129	0.96	1750.95

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
004142789-01	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT
004142789-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_SKYE_ZUMA_TRACKER—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—SAME_NTL_PERIOD

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

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

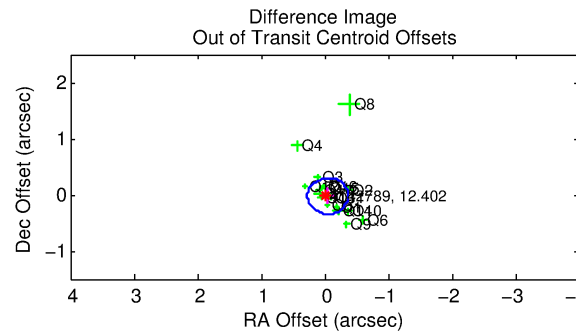
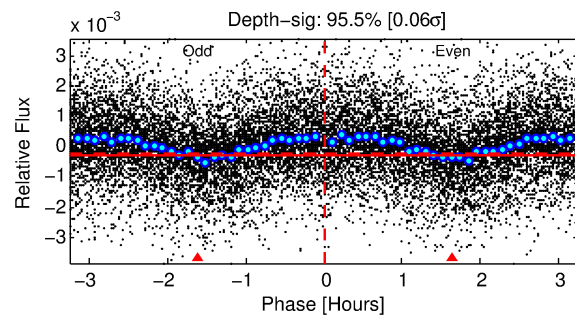
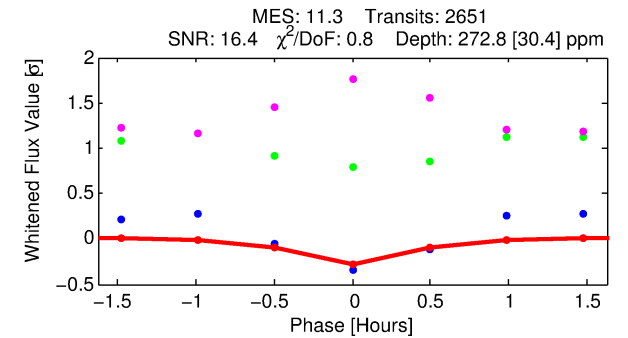
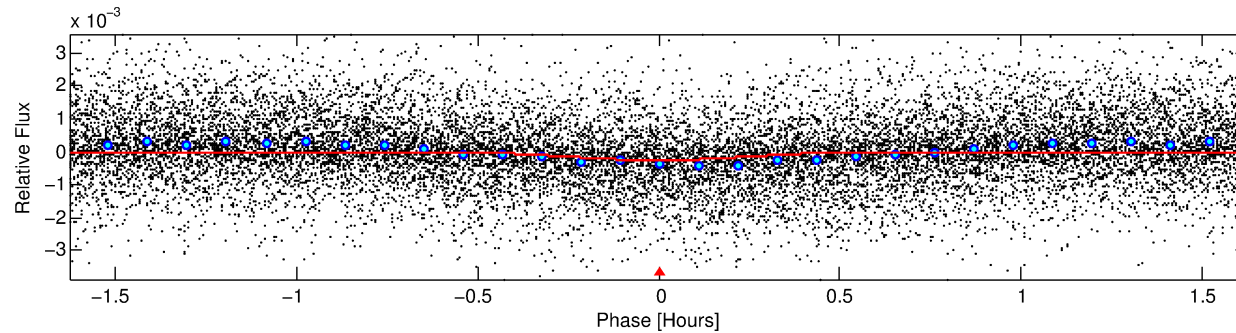
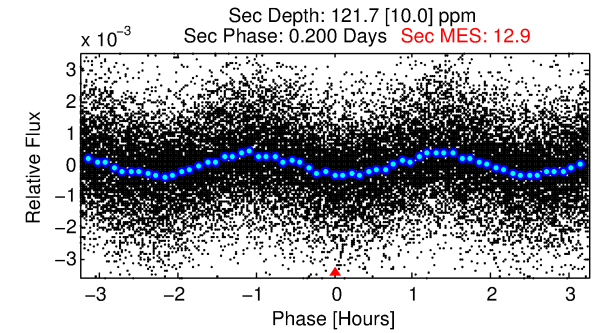
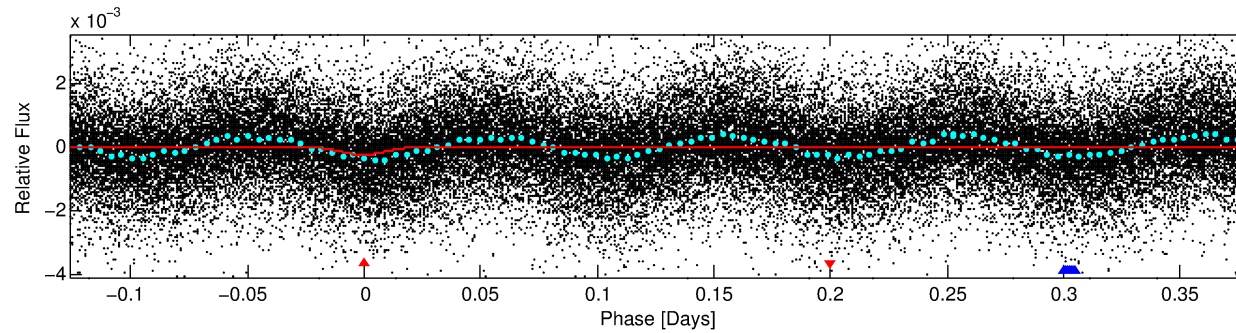
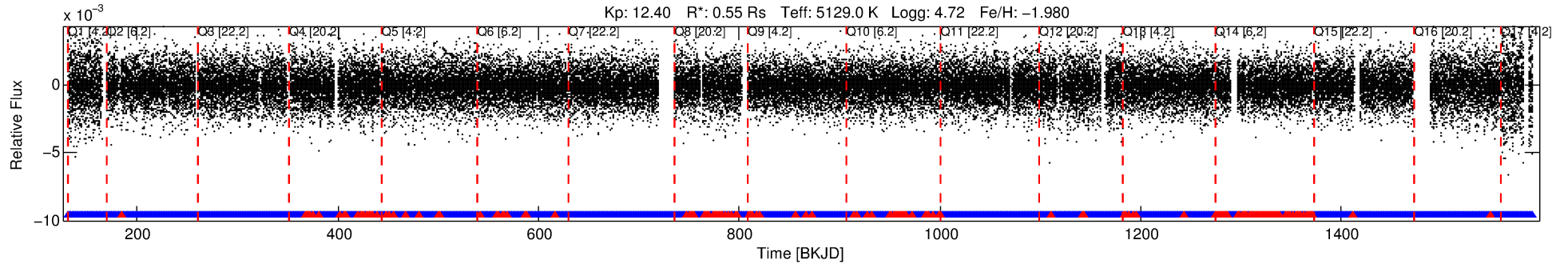
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 004142789-01

No Significant Match Found

DV One-Page Summary

KIC: 4142789 Candidate: 1 of 2 Period: 0.505 d



DV Fit Results:

Period = 0.50526 [0.00001] d
Epoch = 131.7574 [0.0010] BKJD
Rp/R* = 0.0168 [0.0048]
a/R* = 5.29 [7.83]
b = 0.70 [1.11]
Seff = 1750.94 [268.54]
Teq = 1649 [63] K
Rp = 1.00 [0.29] Re
a = 0.0103 [0.0005] AU
Ag = 7.06 [4.11] [1.47σ]
Teffp = 4157 [615] K [4.05σ]

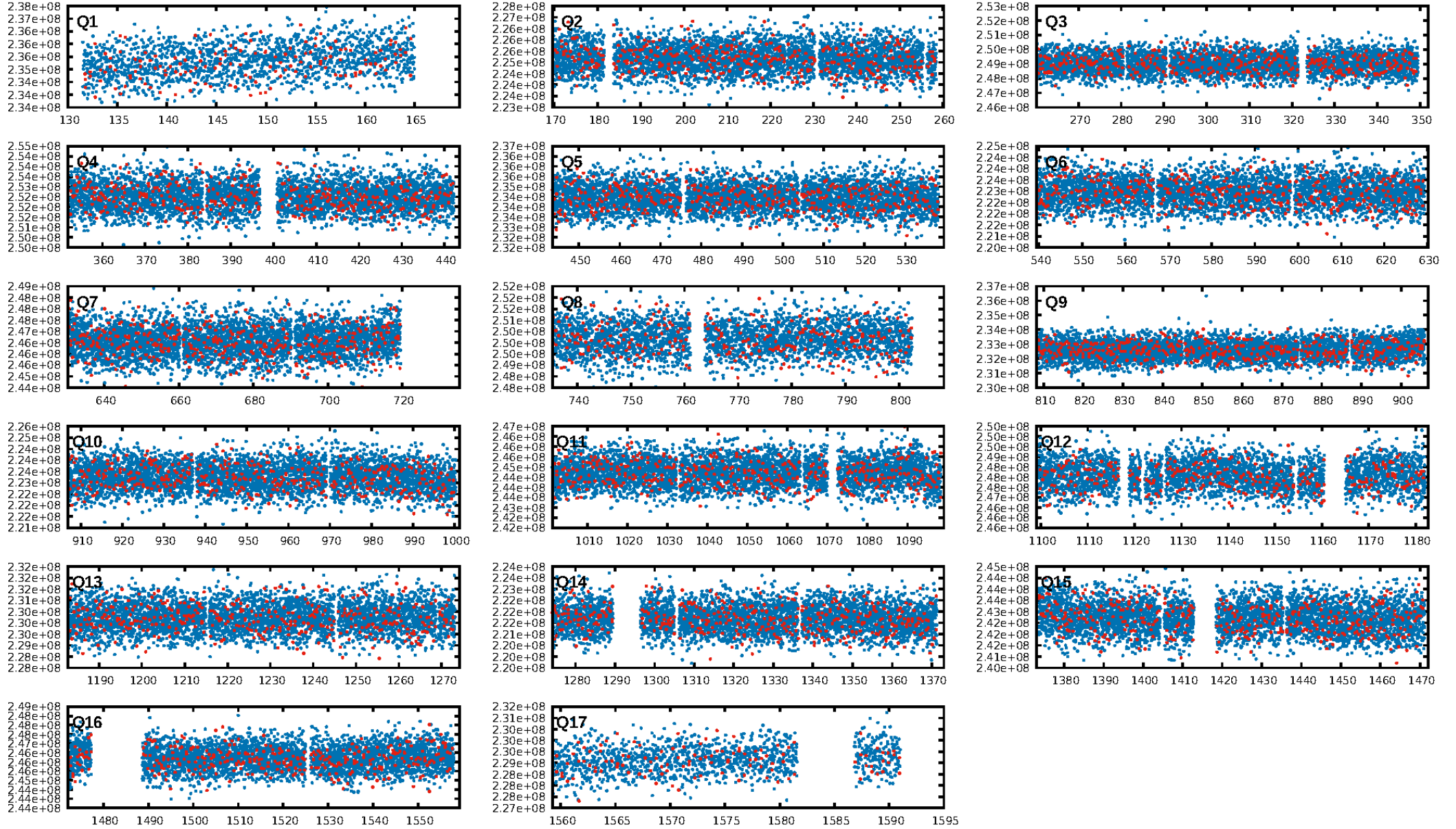
DV Diagnostic Results:

ShortPeriod-sig: 0.0% [0.00σ]
LongPeriod-sig: N/A
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: 1.99e-60
RollingBand-fgt: 0.92 [2320/2532]
GhostDiagnostic-chr: 11.99
Centroid-sig: 3.5%
Centroid-so: 0.127 arcsec [1.20σ]
OotOffset-rm: 0.056 arcsec [0.52σ]
KicOffset-rm: 0.138 arcsec [1.36σ]
OotOffset-st: 4/4/4/5 [17]
KicOffset-st: 4/4/4/5 [17]
DiffImageQuality-fgm: 0.94 [16/17]
DiffImageOverlap-fno: 0.00 [0/17]

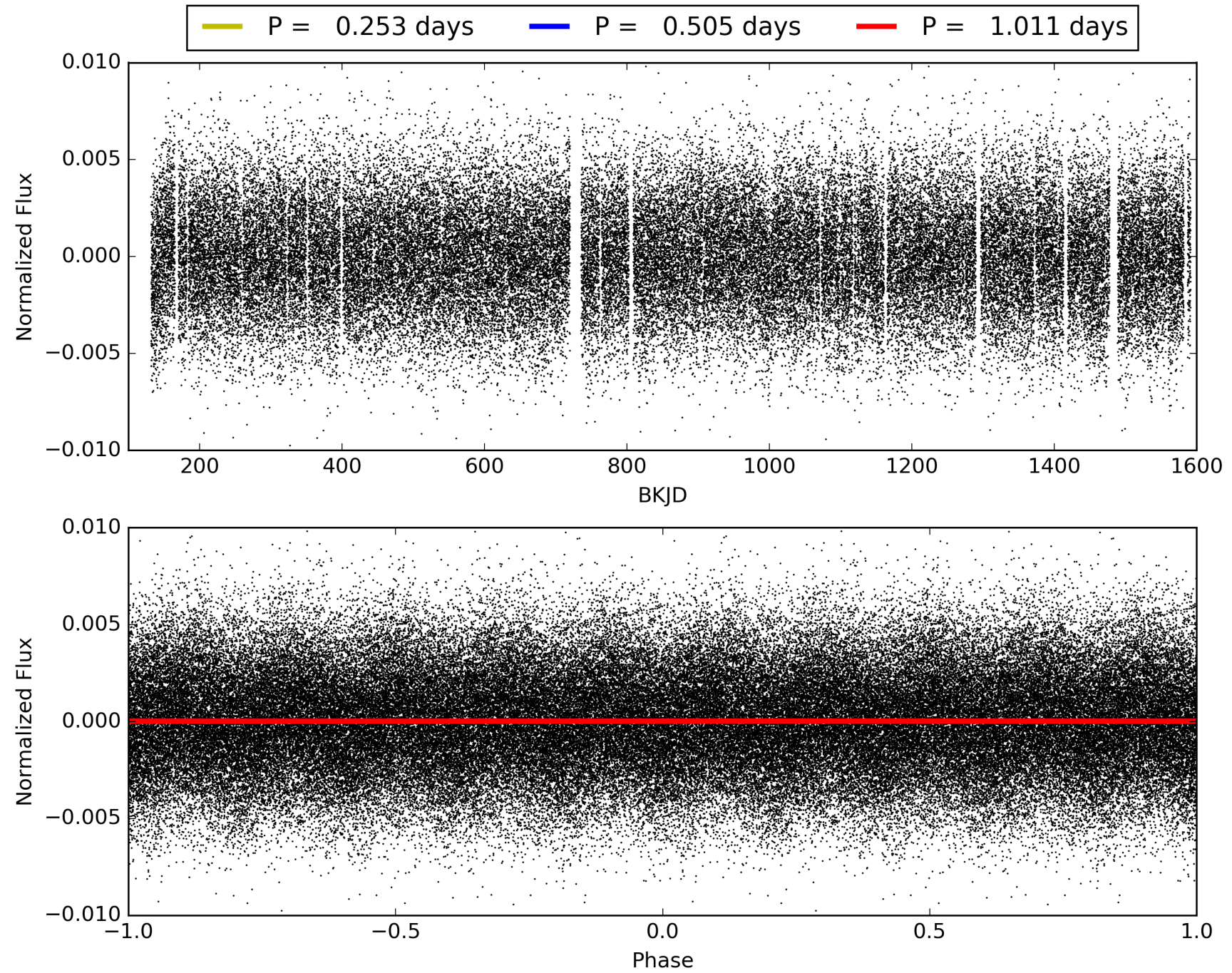
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 01-Feb-2016 14:56:59 Z

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

TCE 004142789-01, PDC Light Curves

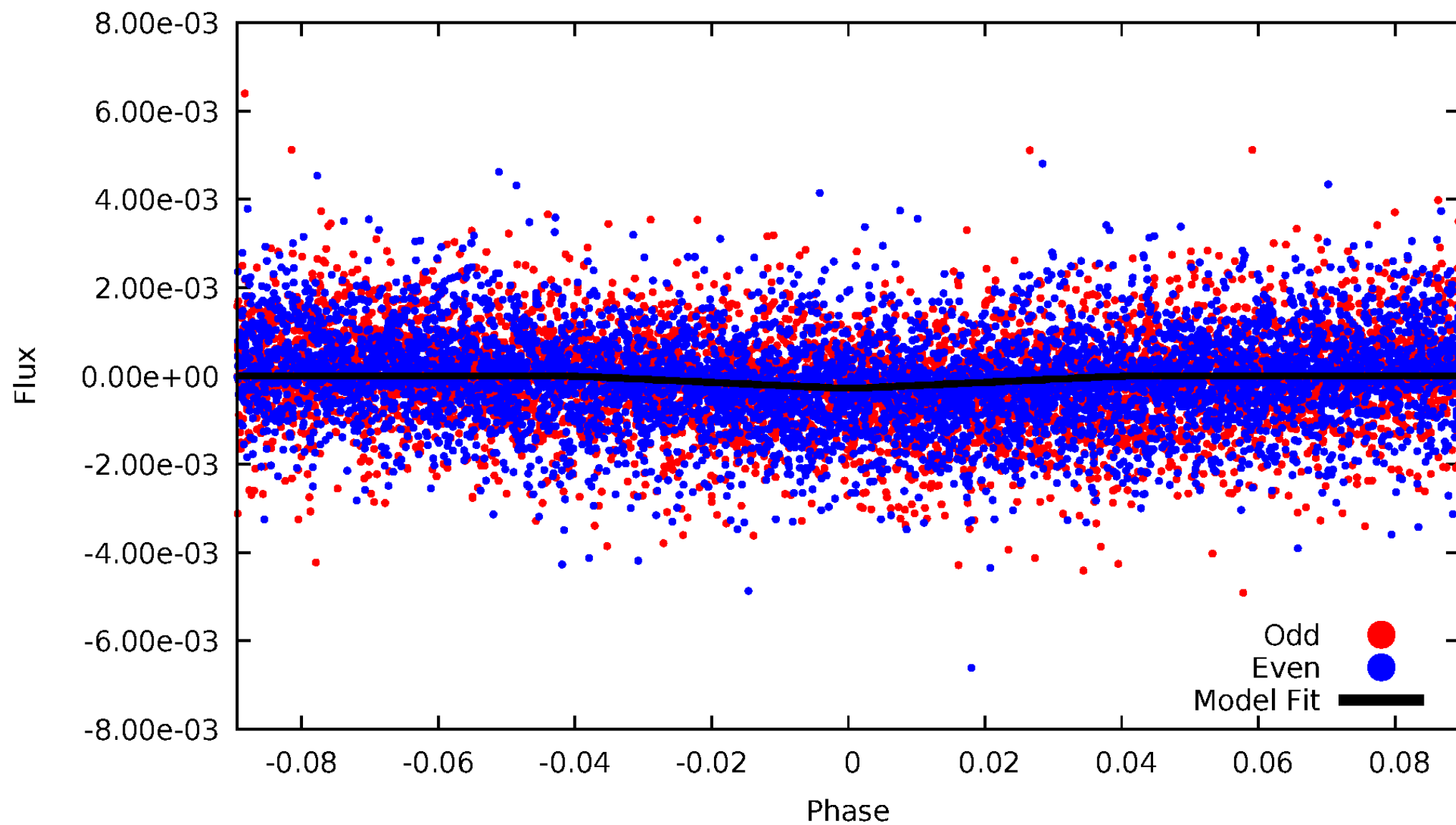


TCE 004142789-01



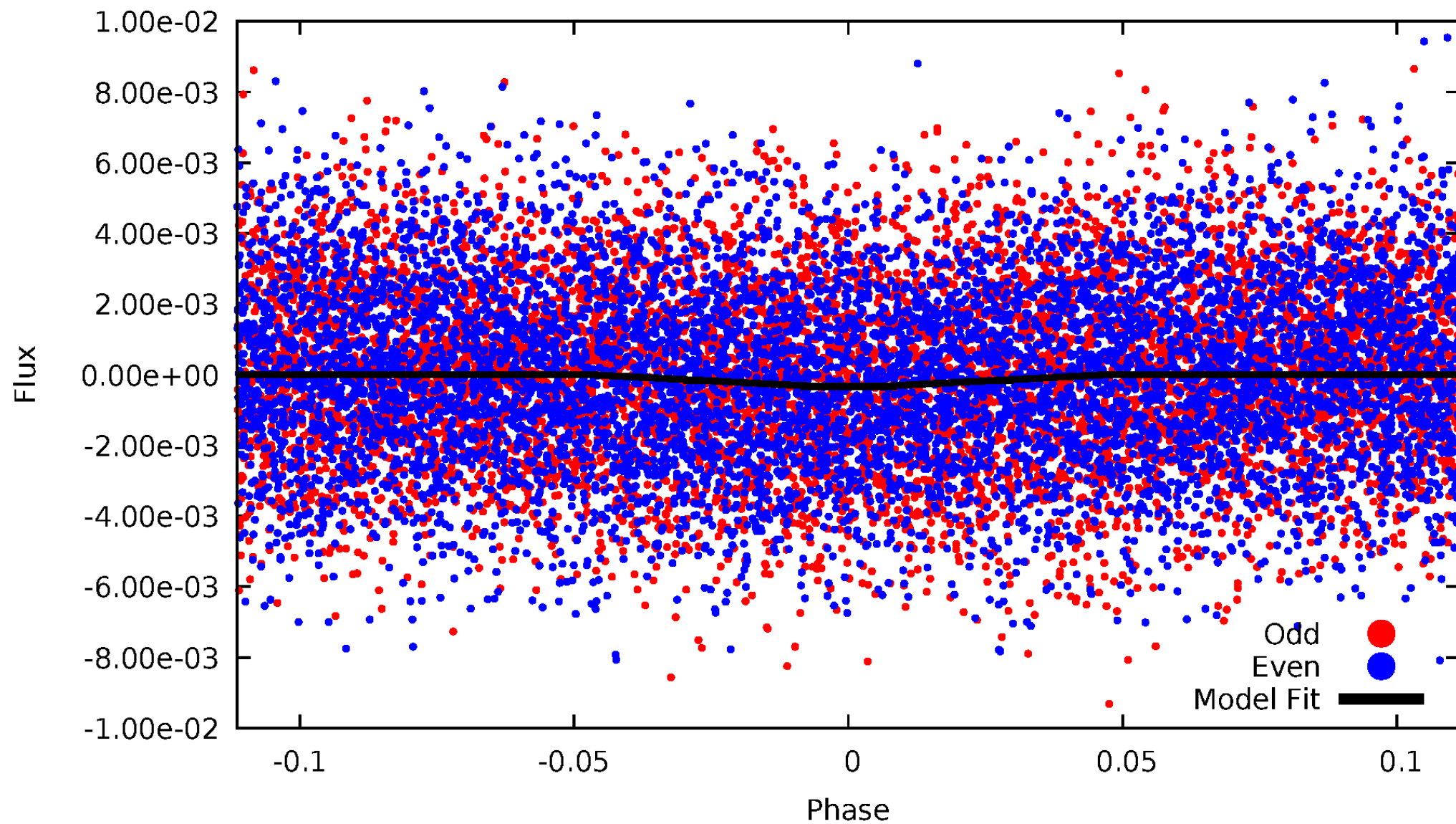
DV Odd/Even

TCE 004142789-01



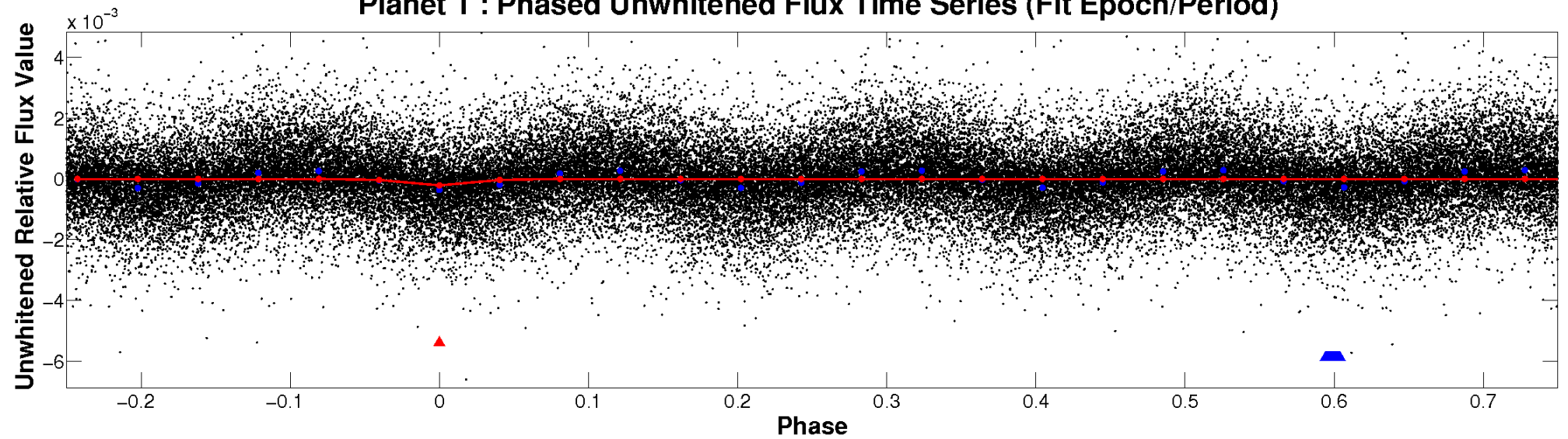
ALT Odd/Even

TCE 004142789-01

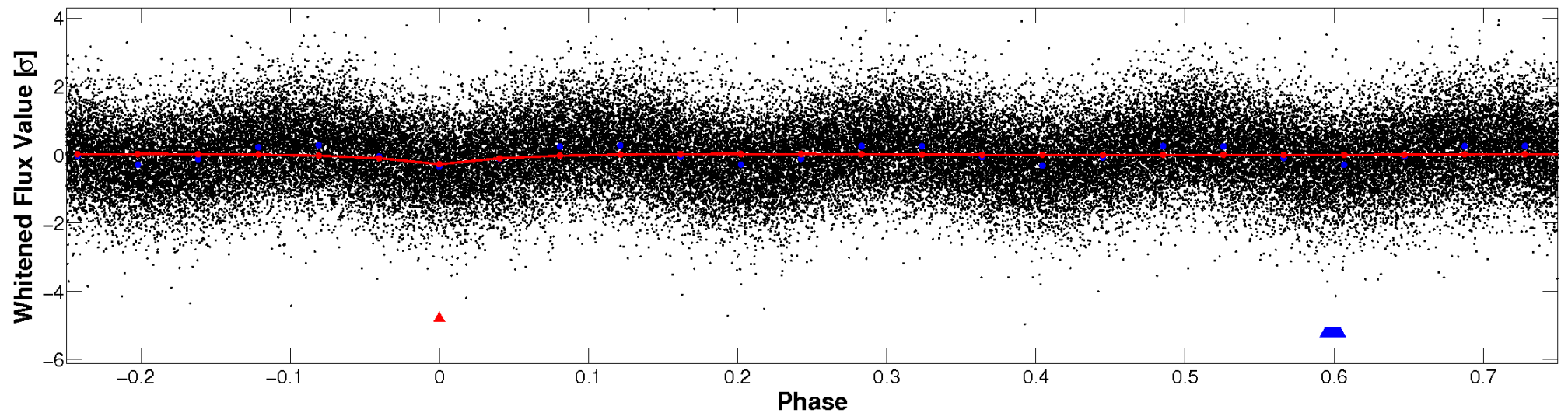


Non-Whitened Vs. Whitened Light Curve

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

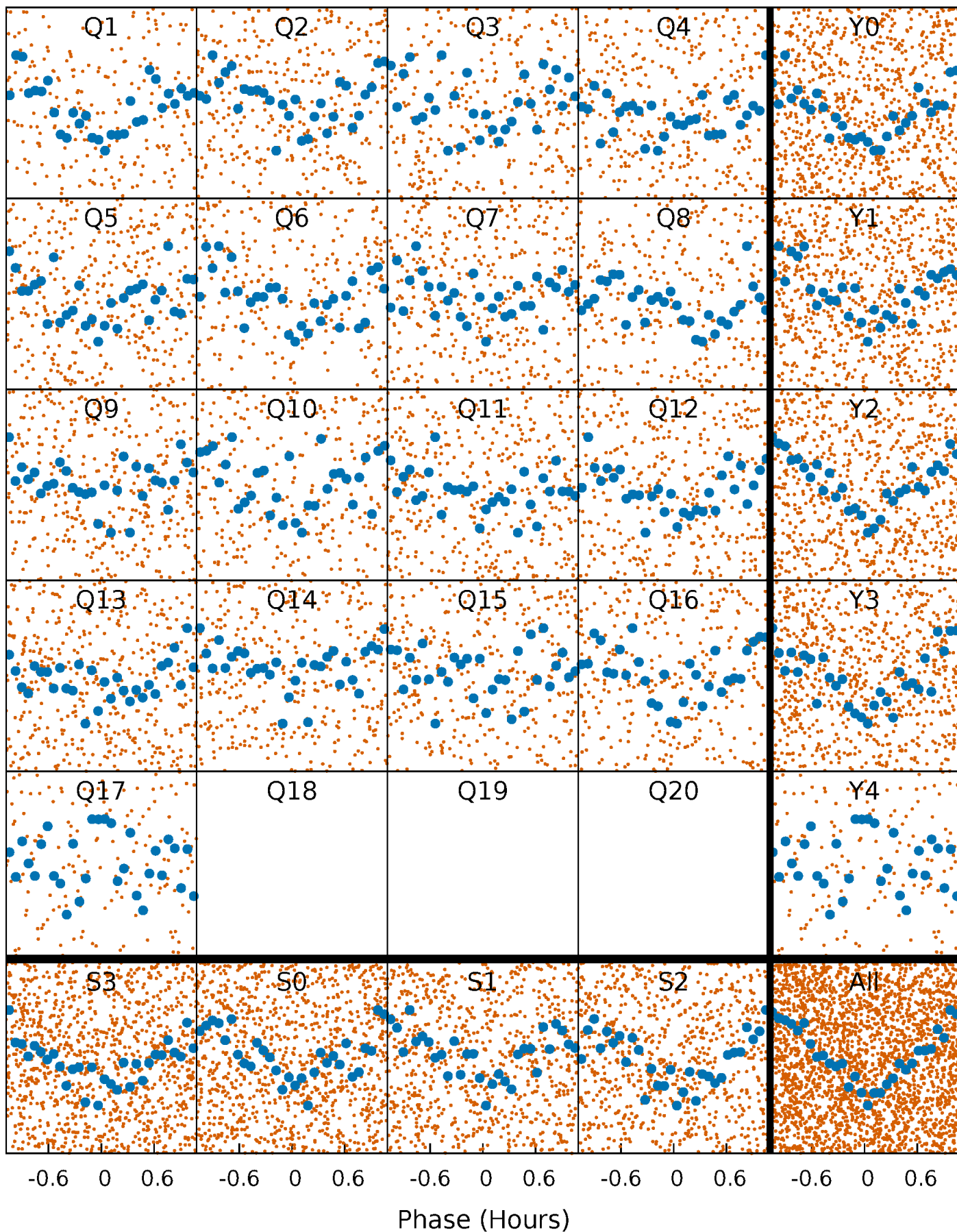


Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)



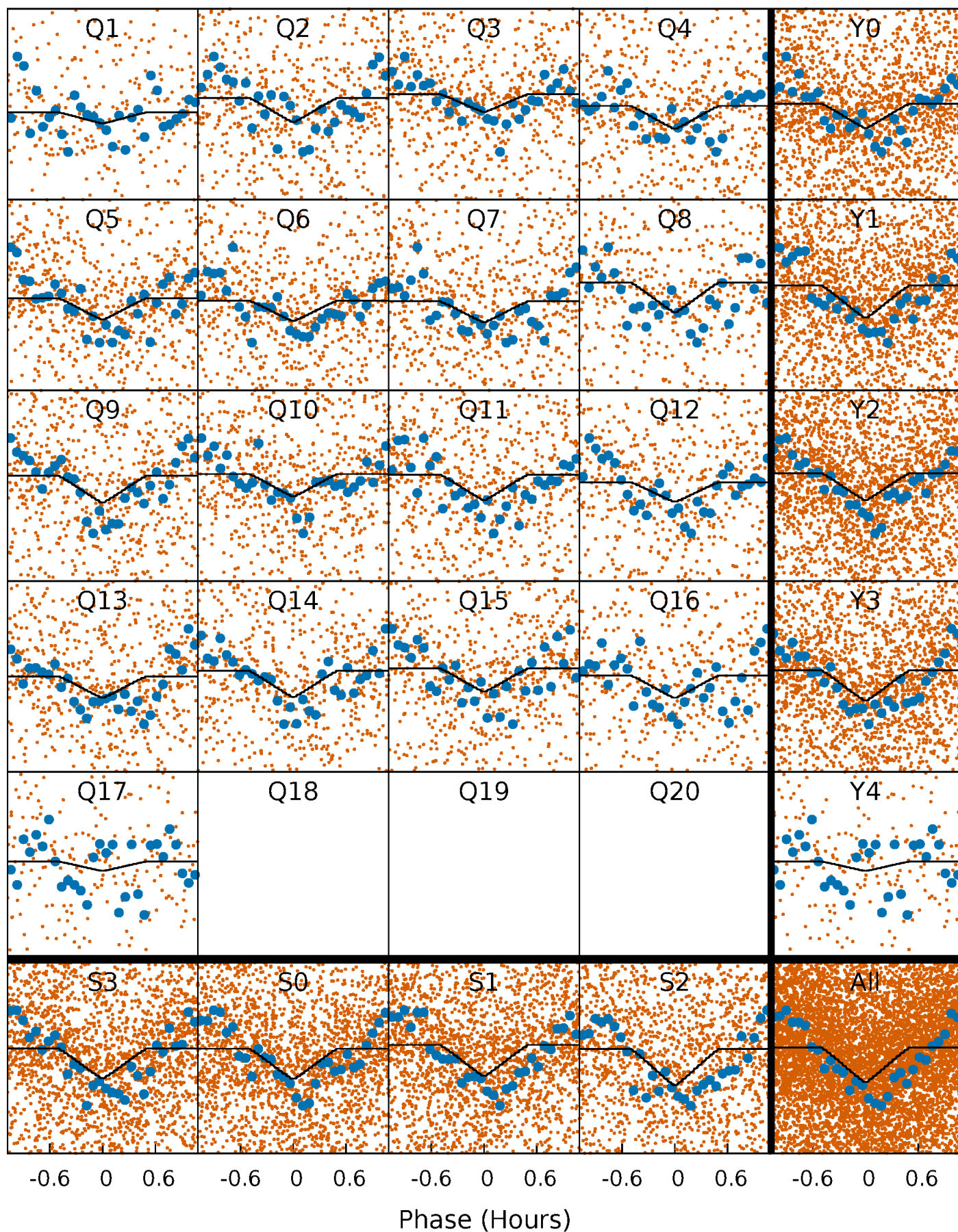
PDC Quarter-Phased Transit Curves

TCE 004142789-01 P= 0.505258 Days $T_0=131.757445$ (BKJD)



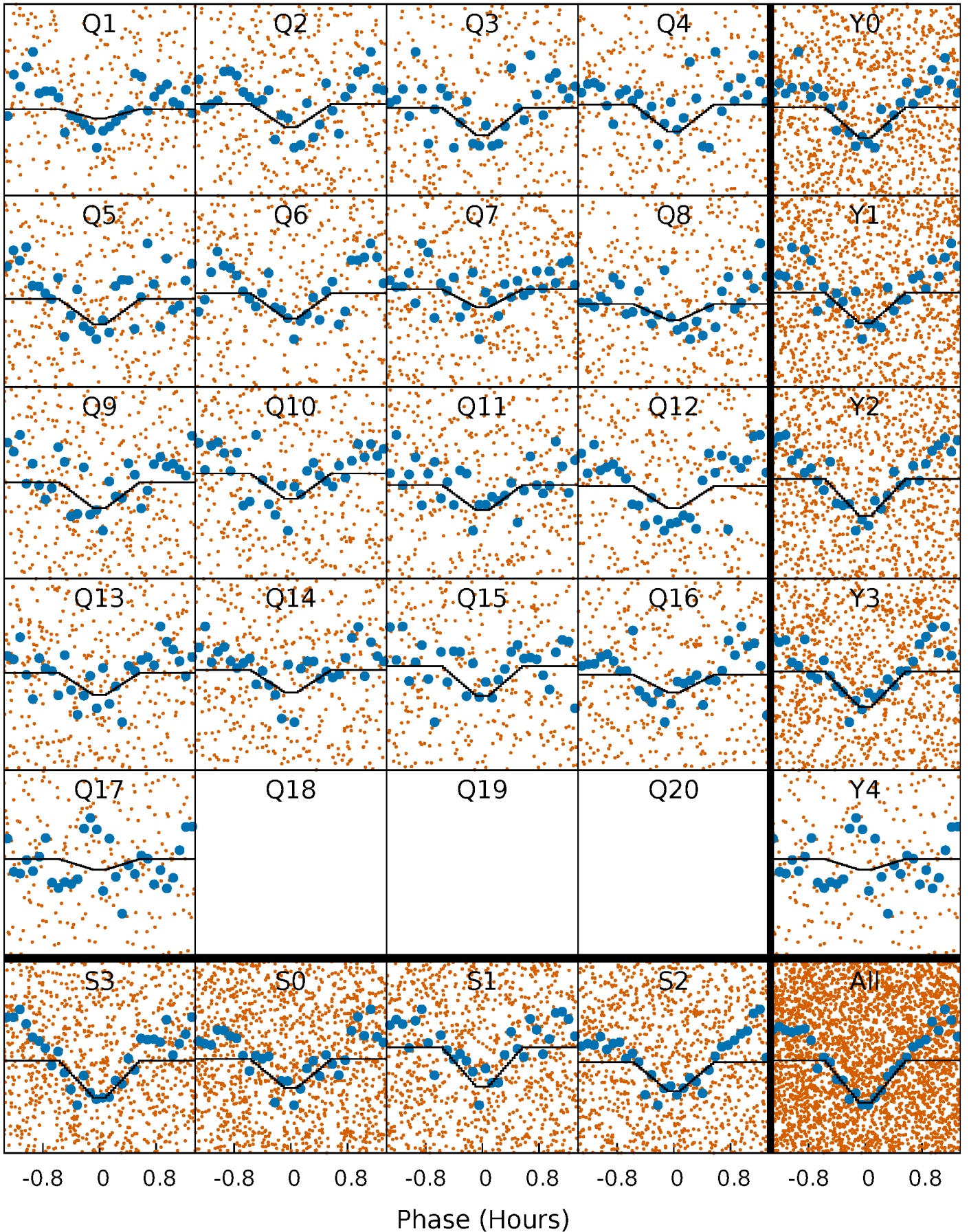
DV Quarter-Phased Transit Curves

TCE 004142789-01 P= 0.505258 Days $T_0=131.757445$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

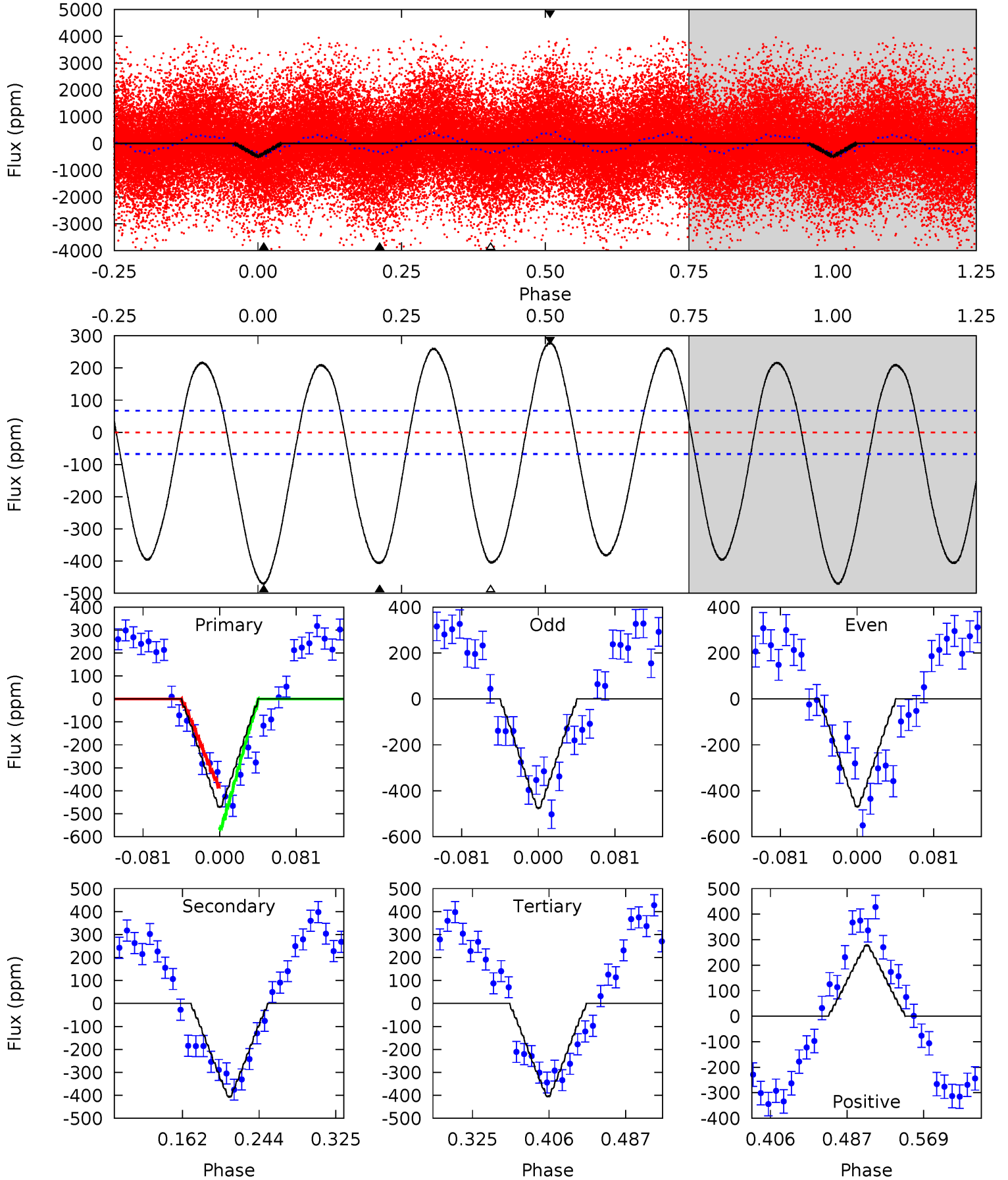
TCE 004142789-01 P= 0.505259 Days $T_0=131.759332$ (BKJD)



DV Model-Shift Uniqueness Test

004142789-01, P = 0.505258 Days, E = 131.252187 Days

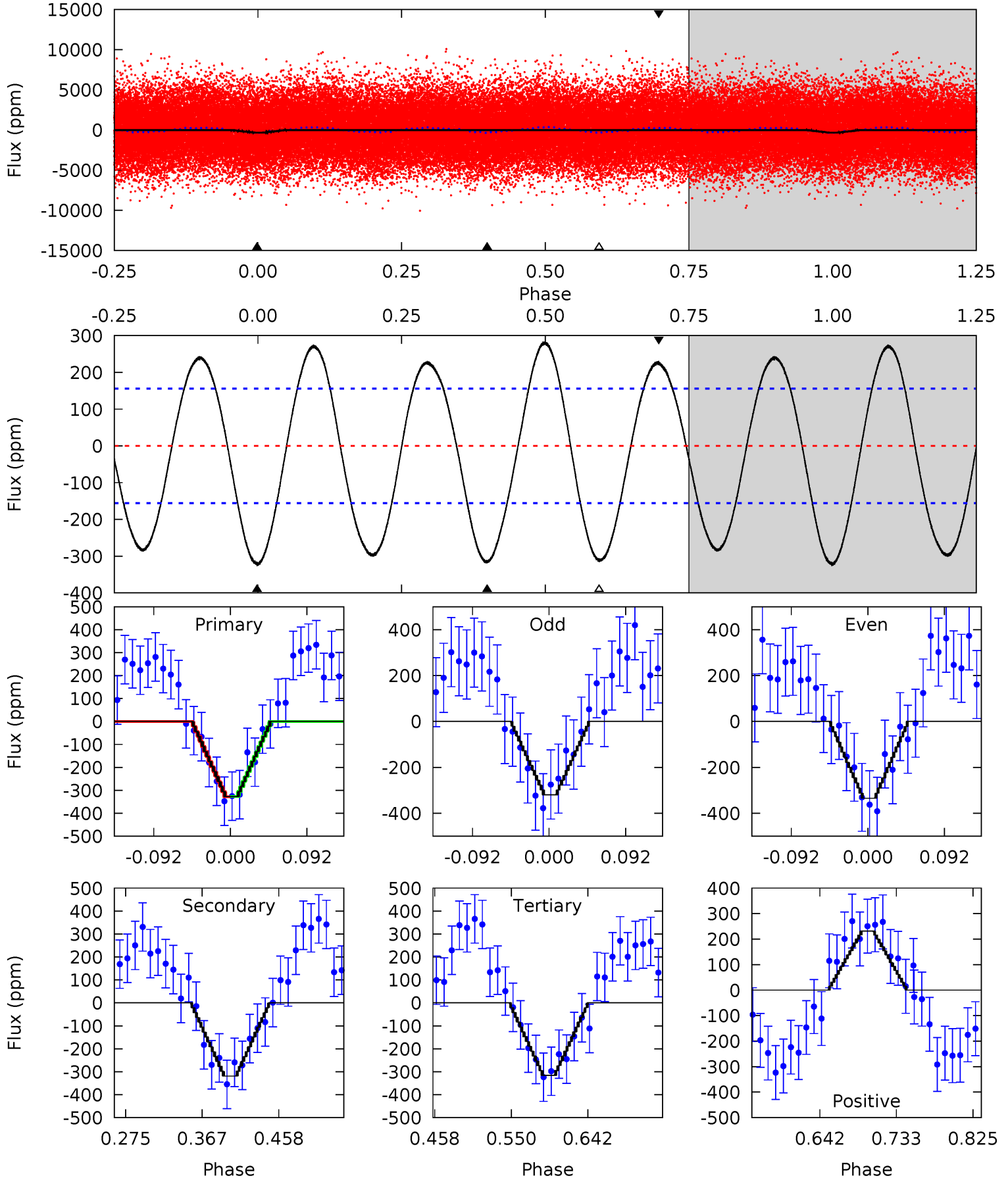
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
32.3	27.8	27.8	19.0	4.61	1.74	15.9	4.49	13.2	0.08	8.82	0.23	1.13	0.37	6.29



Alt Model-Shift Uniqueness Test

004142789-01, P = 0.505259 Days, E = 131.254073 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
9.64	9.39	9.29	6.80	4.58	1.69	5.80	0.34	2.83	0.10	2.59	0.22	0.78	0.46	0.02



Stellar Parameters For KIC 004142789

	$T_{\text{eff}}(K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	5129^{+170}_{-170}	$4.716^{+0.045}_{-0.021}$	$-1.980^{+0.150}_{-0.050}$	$0.545^{+0.022}_{-0.028}$	$0.564^{+0.038}_{-0.017}$	$4.900^{+0.795}_{-0.381}$
	+3%/-3%	+1%/-0%	+8%/-3%	+4%/-5%	+7%/-3%	+16%/-8%
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 004142789-01 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-406 ± 15	$1.00^{+0.31}_{-0.29}$	2292^{+79}_{-77}	5532^{+1030}_{-626}	24^{+25}_{-10}
Alt.	-319 ± 34	$1.07^{+0.28}_{-0.29}$	2296^{+85}_{-86}	5073^{+804}_{-506}	16^{+14}_{-6}

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

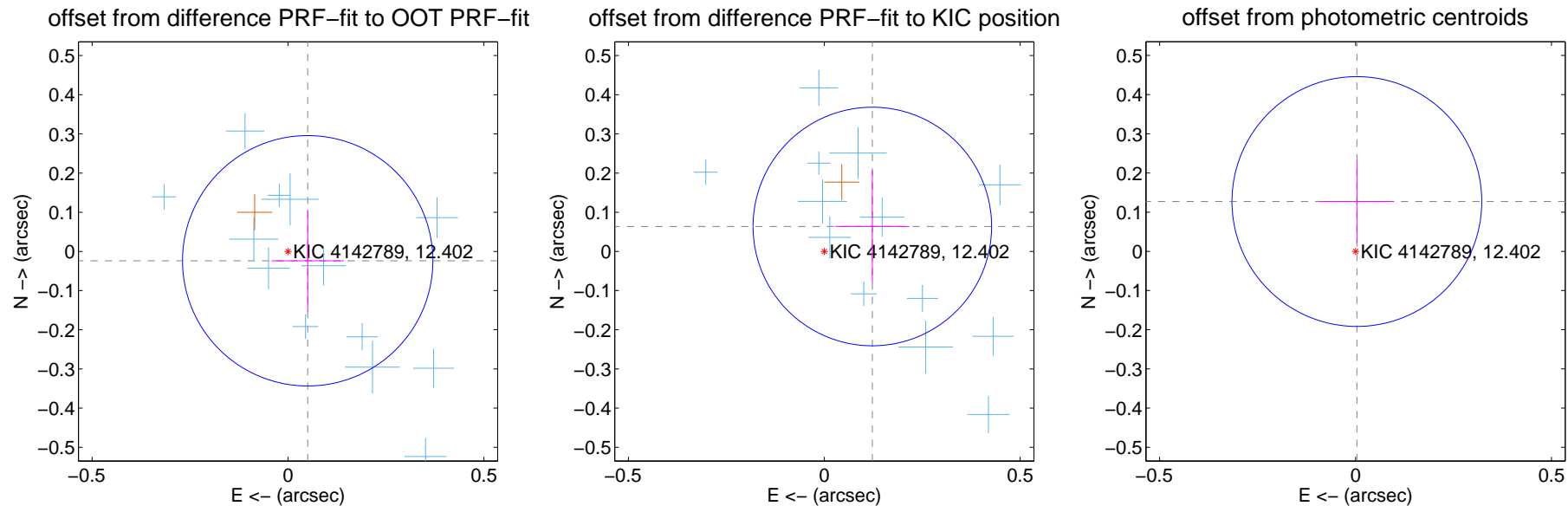
DV Centroid Data

Supplemental centroid analysis for 004142789-01. Kepler magnitude: 12.40. Transit SNR 16.43

There are 16 quarters with good PRF difference image offsets

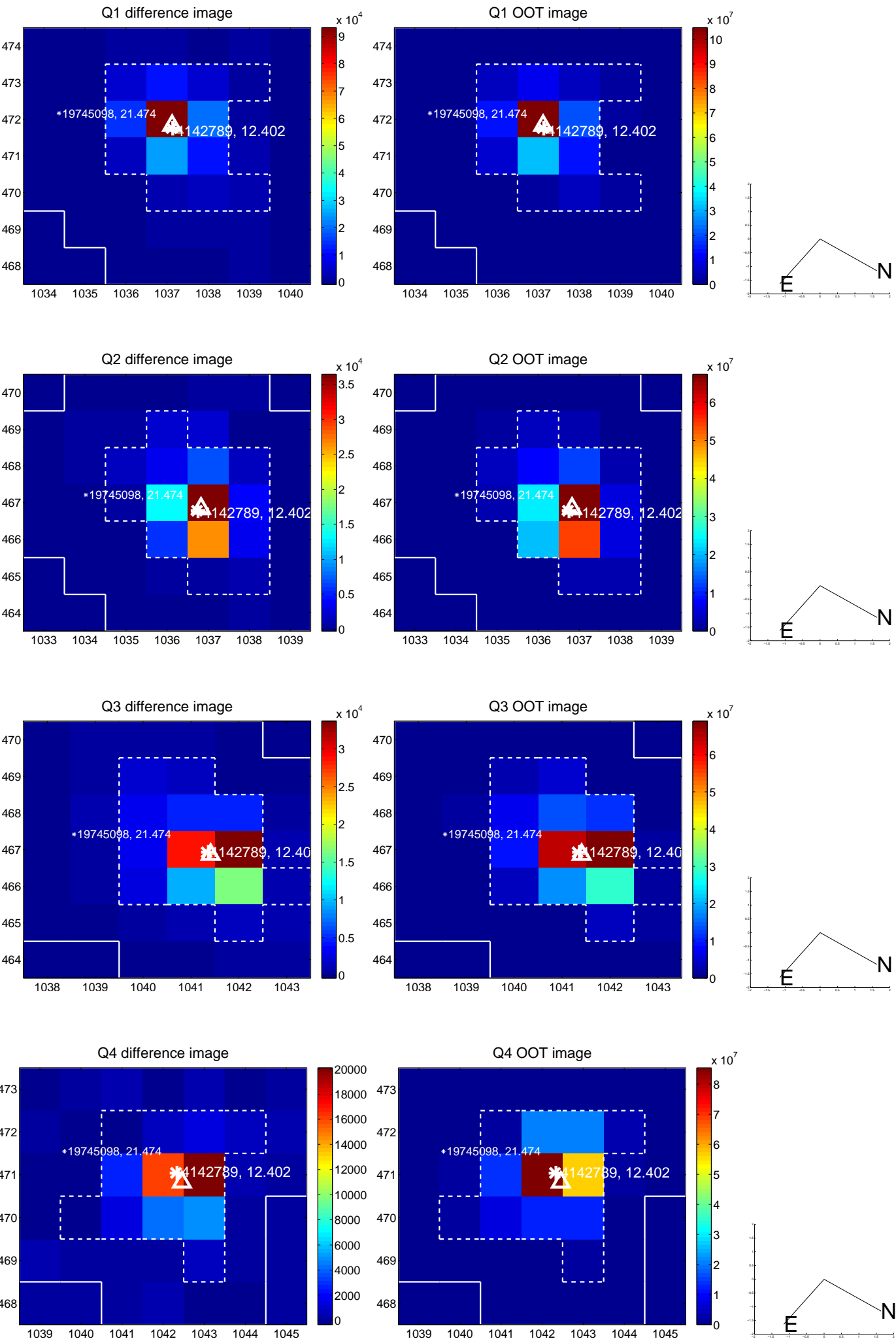
The direct PRF centroid is offset from the target star catalog position by about 0.15 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.056 ± 0.107	0.52	-0.050 ± 0.092	-0.024 ± 0.130
PRF-fit source offset from KIC position	0.138 ± 0.101	1.36	-0.123 ± 0.094	0.064 ± 0.143
photometric centroid source offset	0.13 ± 0.11	1.20	-0.00 ± 0.10	0.13 ± 0.11

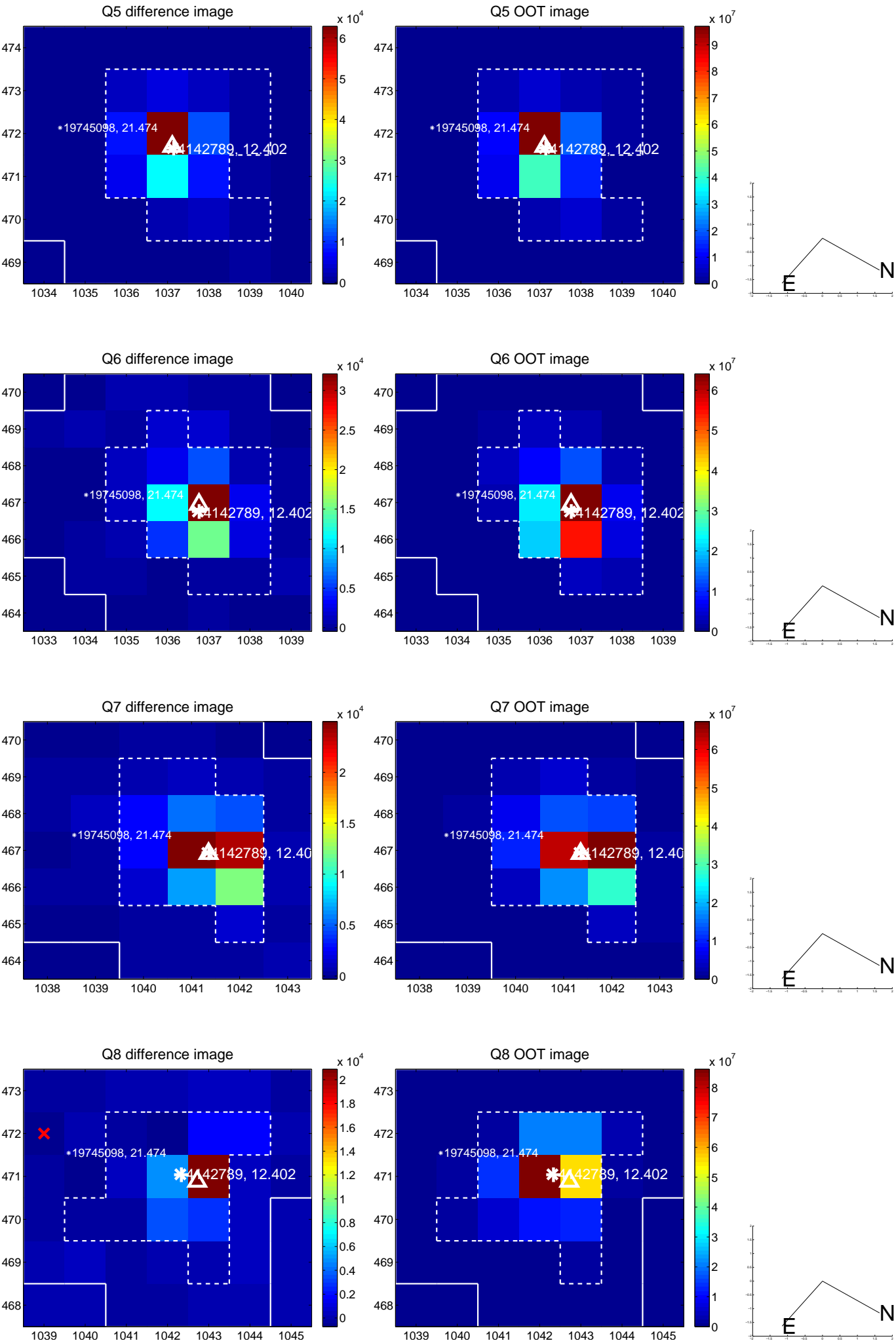


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses:** good quarterly centroid offsets; **Vermillion crosses:** bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

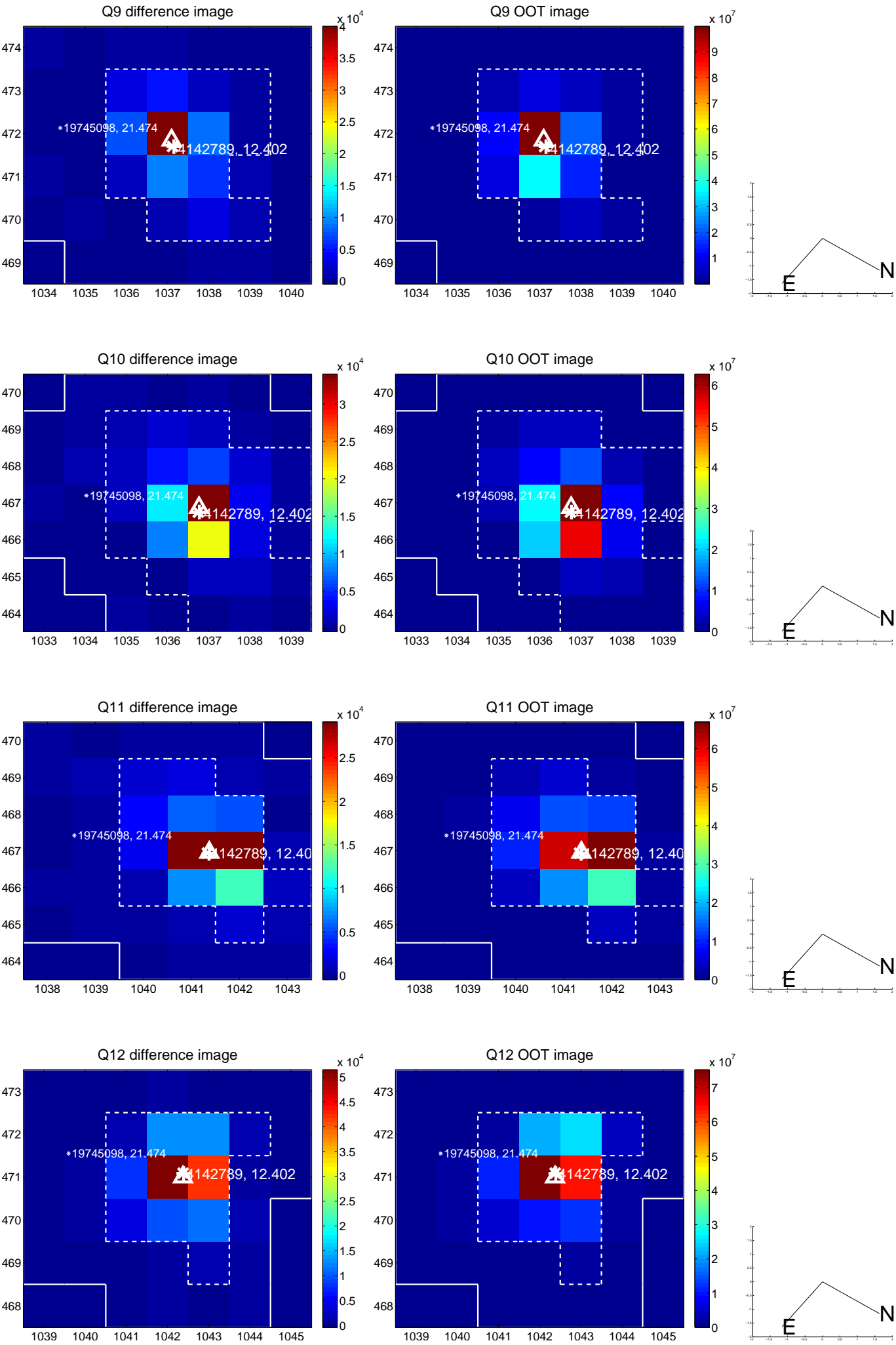
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



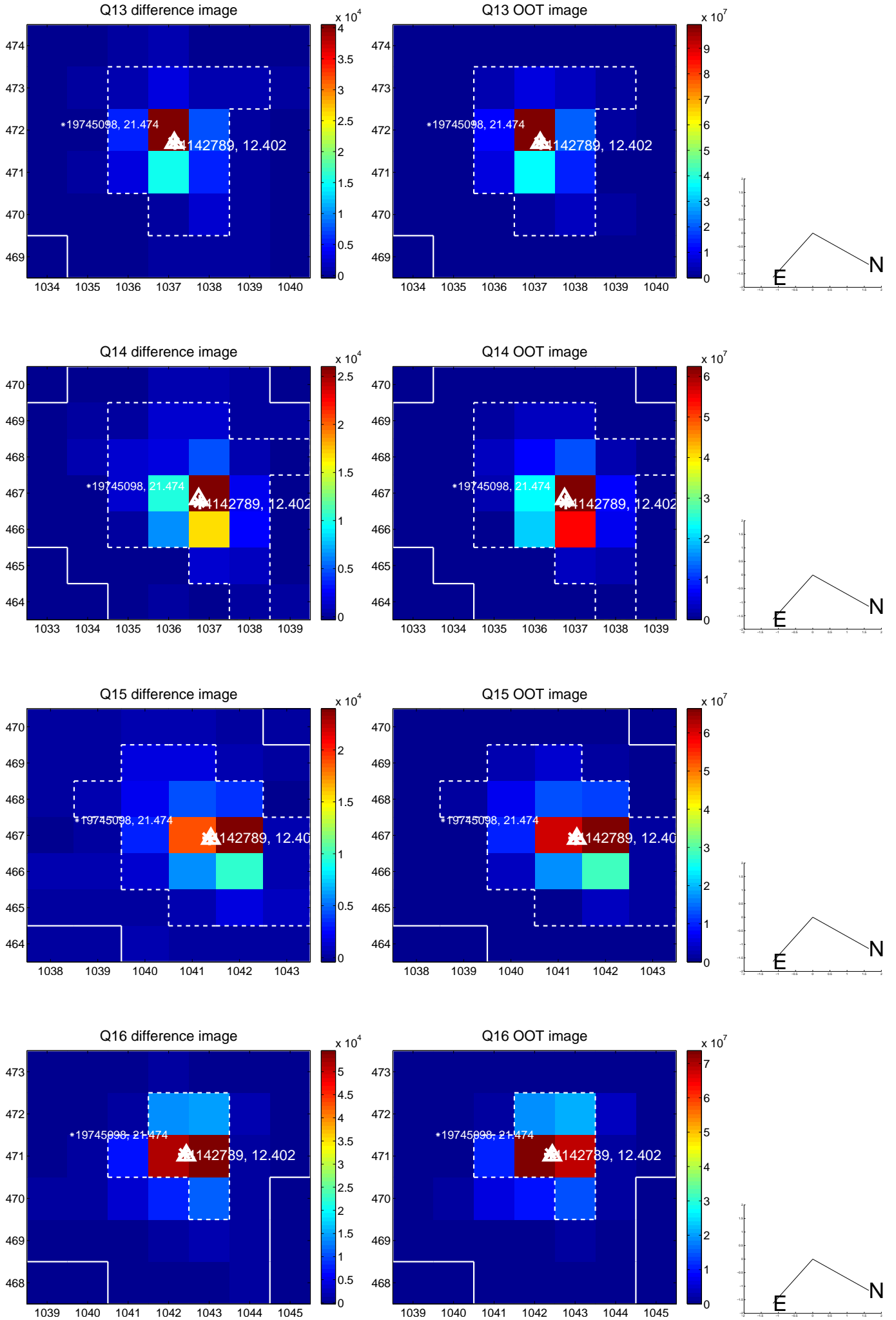
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



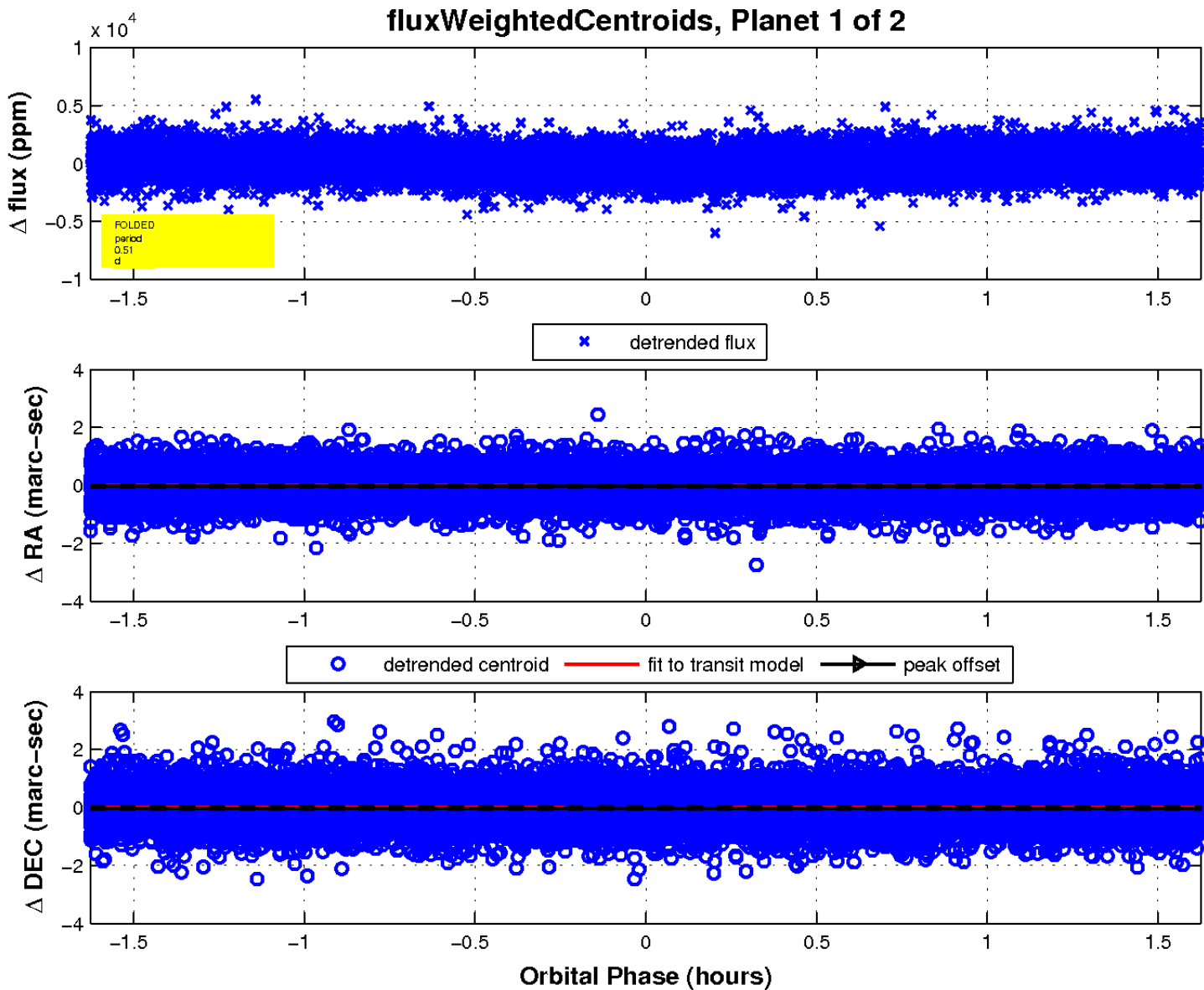
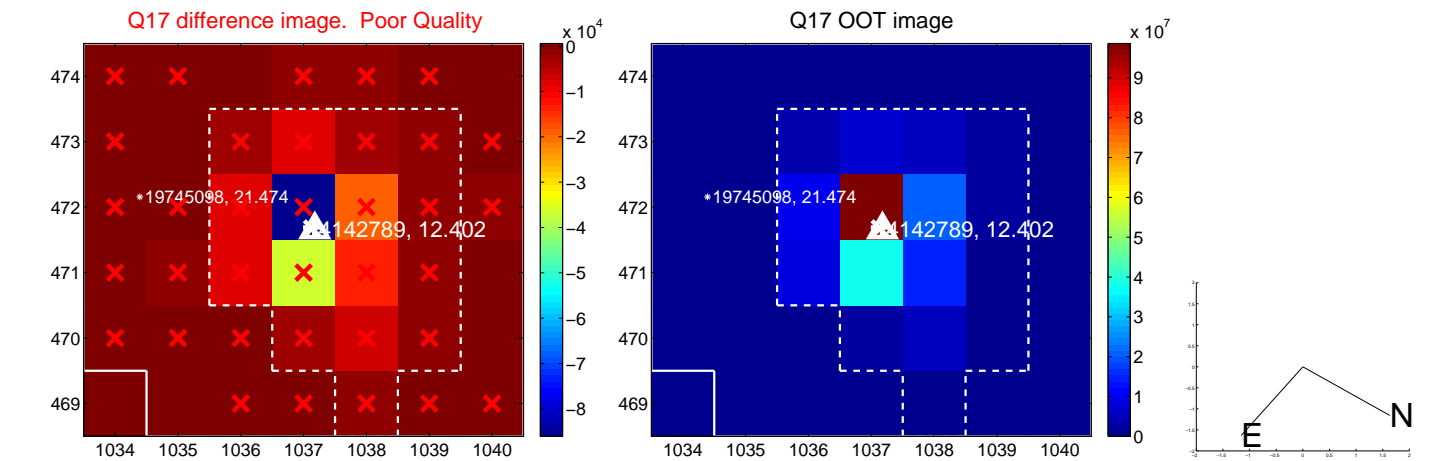
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

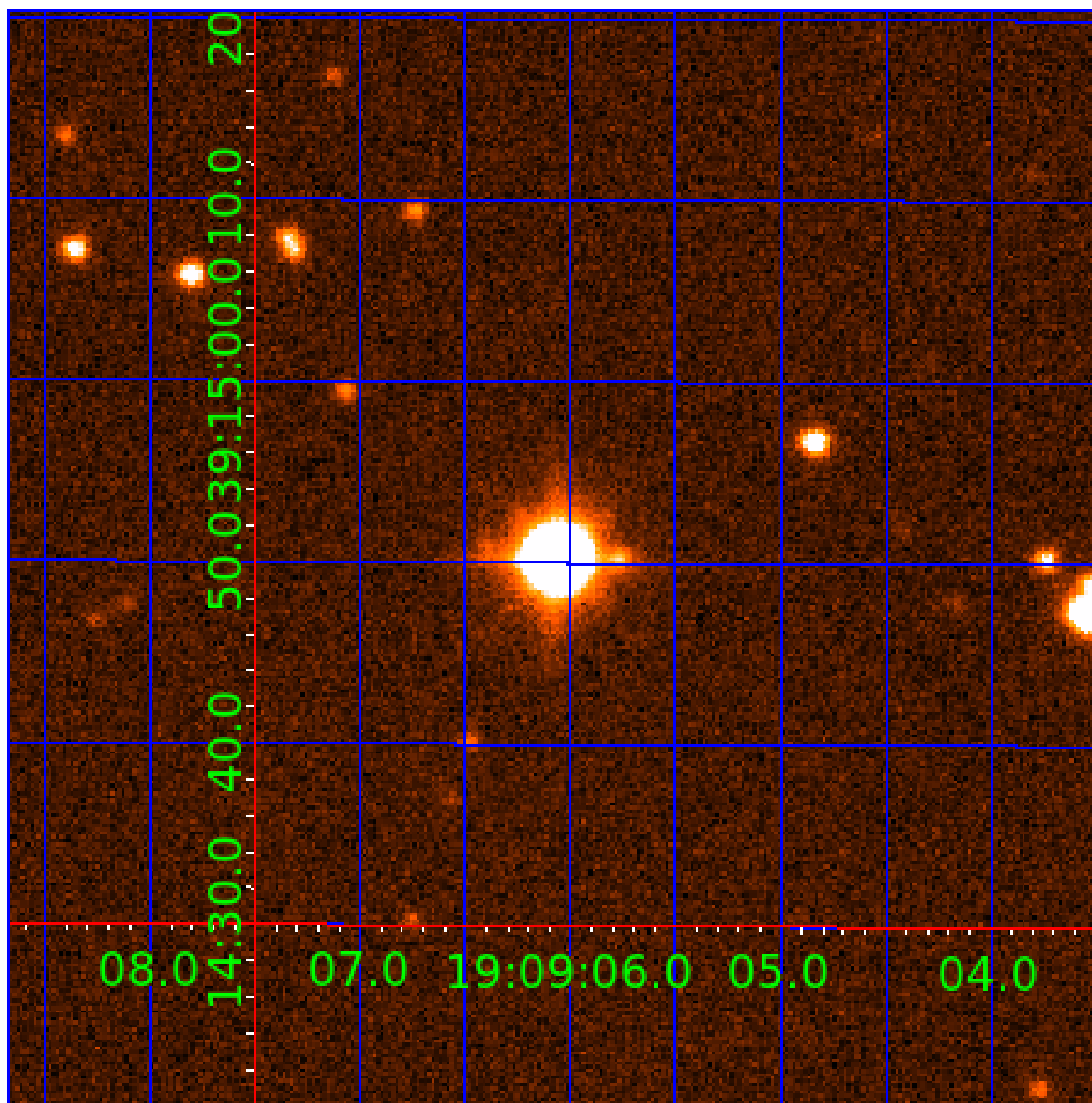


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 004142789

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})
004142789-01	OBS	No	0.505258	131.757445	272.8	0.542	11.3	16.4	0.55	5129	1.00	1750.94
004142789-02	OBS	No	0.505256	132.062555	222.5	0.969	13.0	17.0	0.55	5129	0.96	1750.95

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
004142789-01	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT
004142789-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_SKYE_ZUMA_TRACKER—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—SAME_NTL_PERIOD

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

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

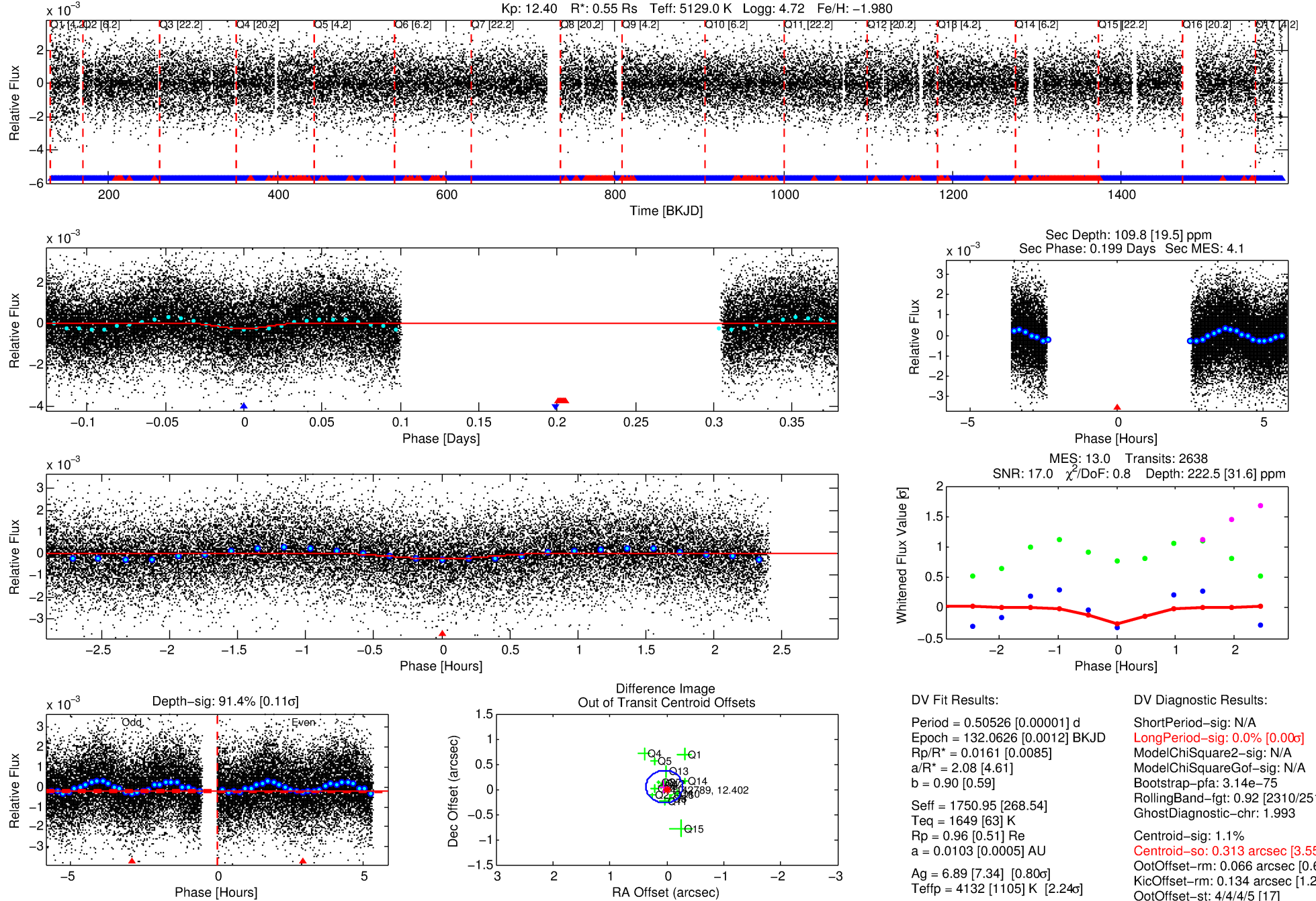
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 004142789-02

No Significant Match Found

DV One-Page Summary

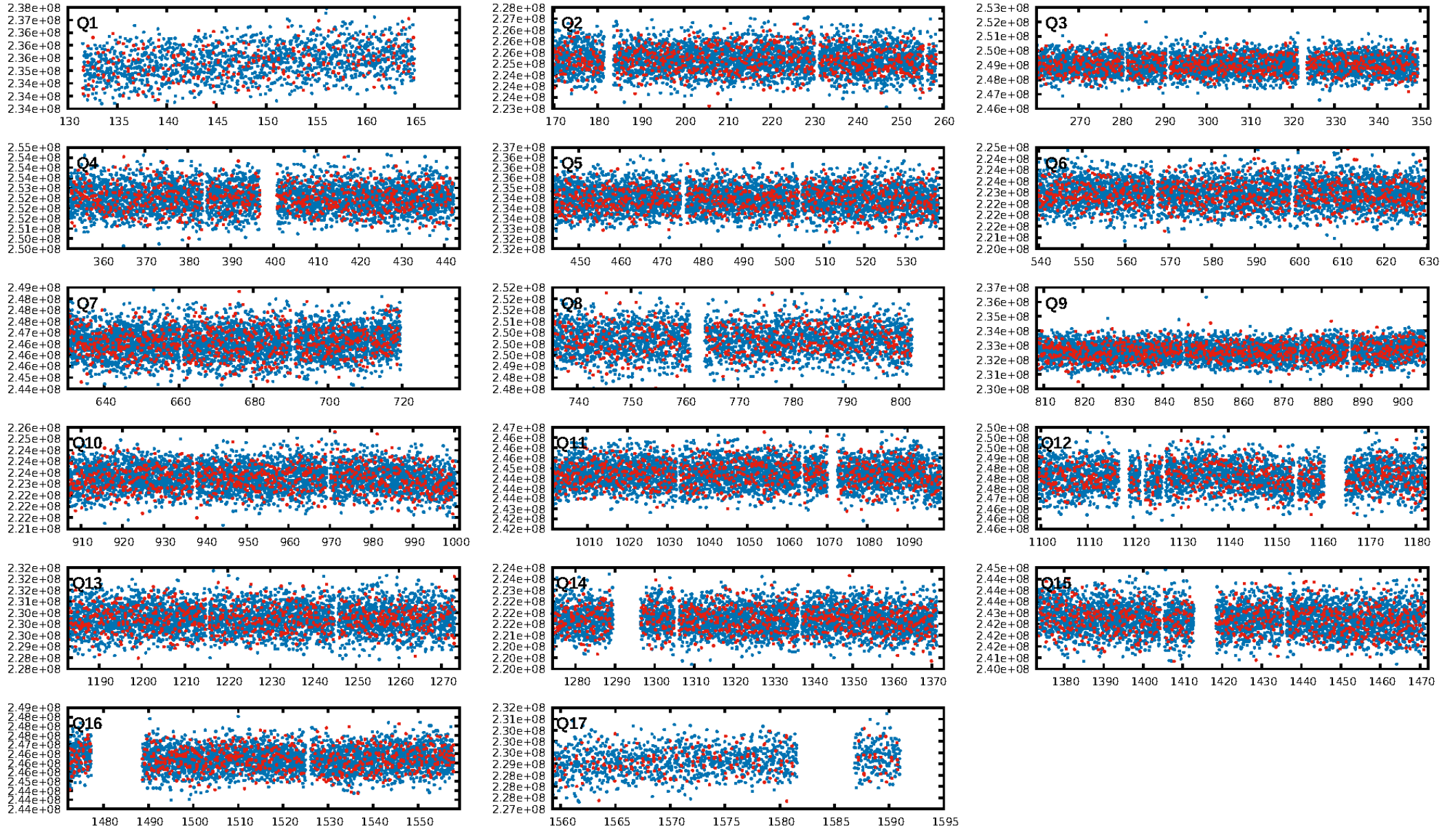
KIC: 4142789 Candidate: 2 of 2 Period: 0.505 d



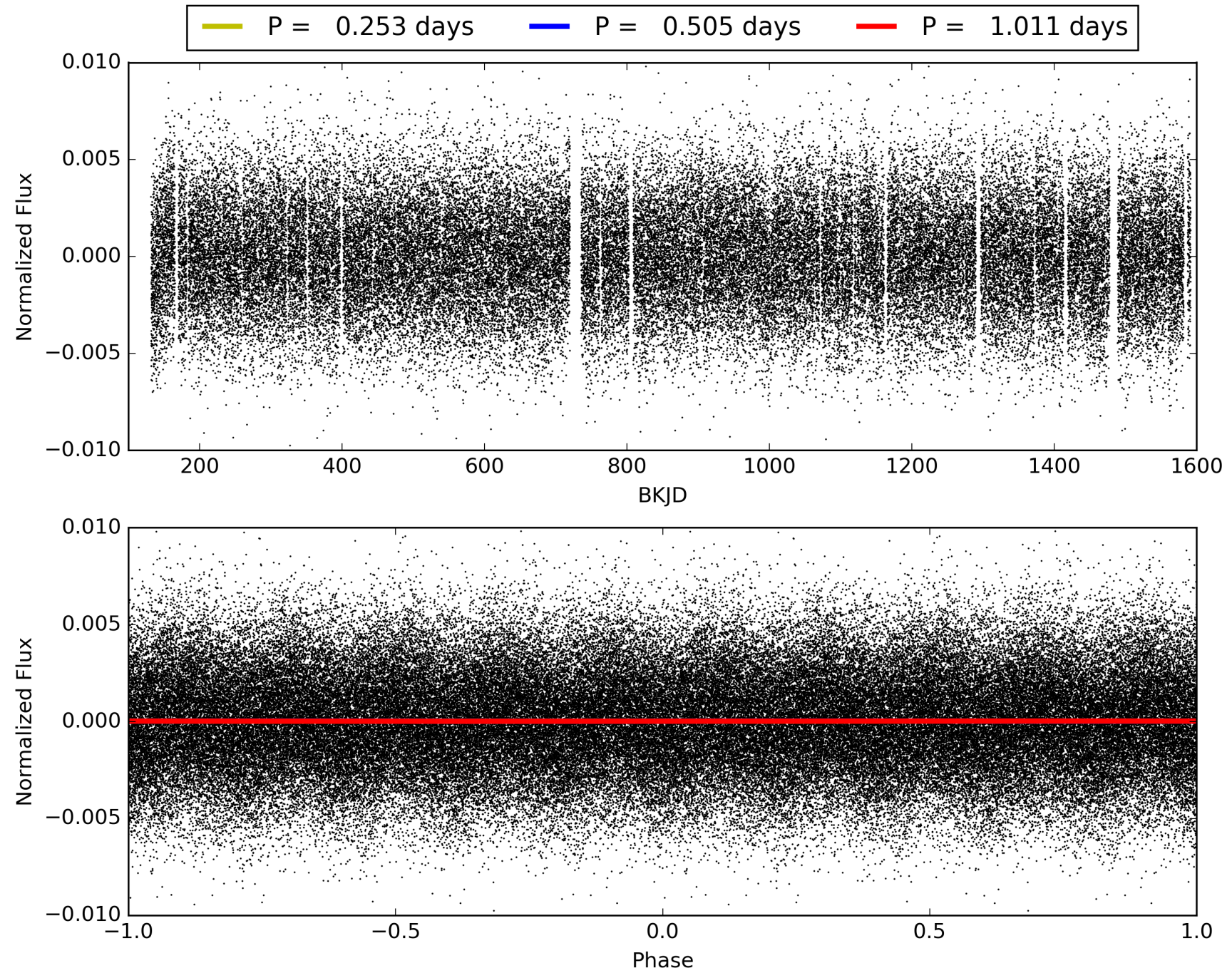
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 01-Feb-2016 14:57:08 Z

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

TCE 004142789-02, PDC Light Curves

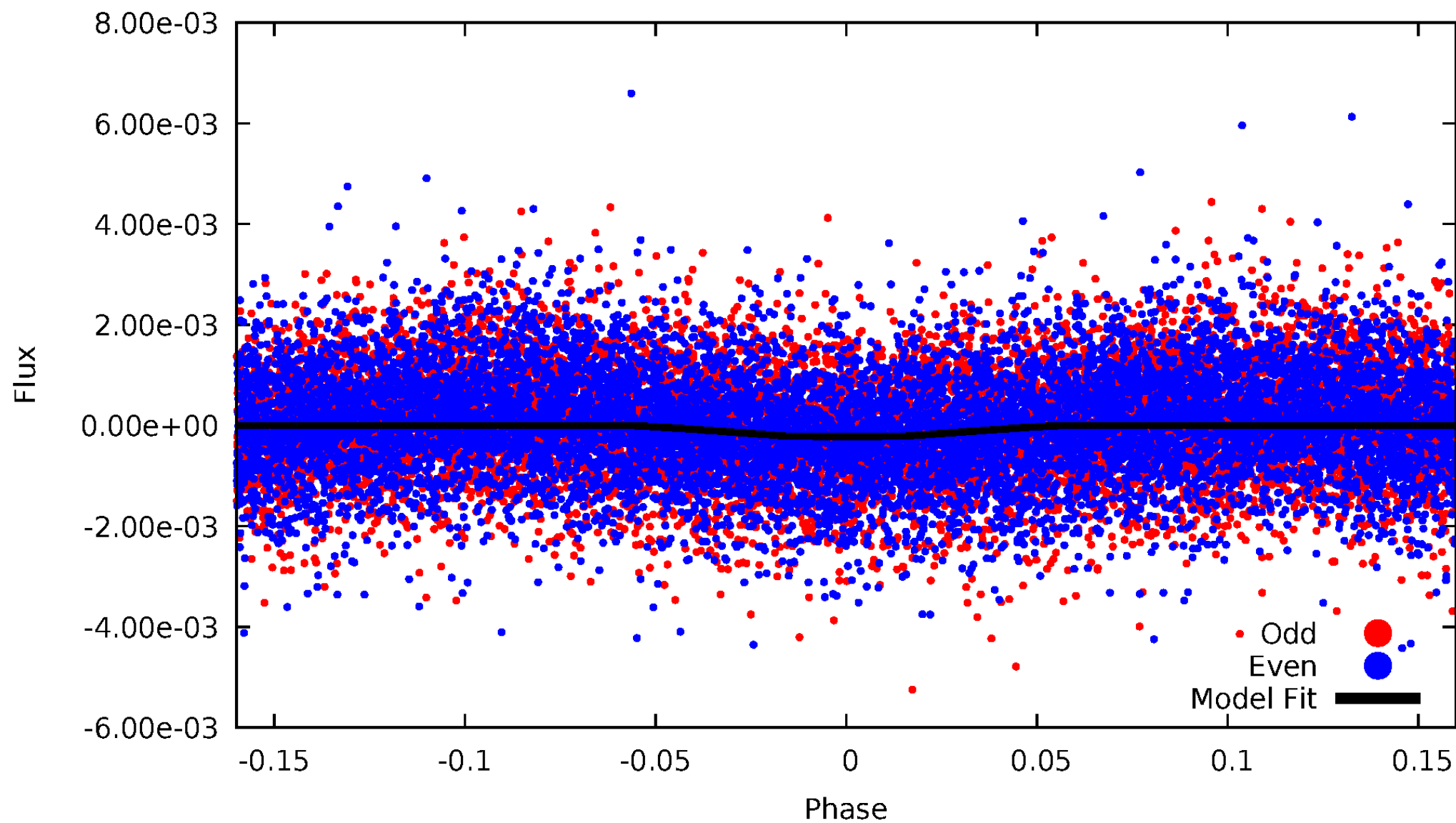


TCE 004142789-02



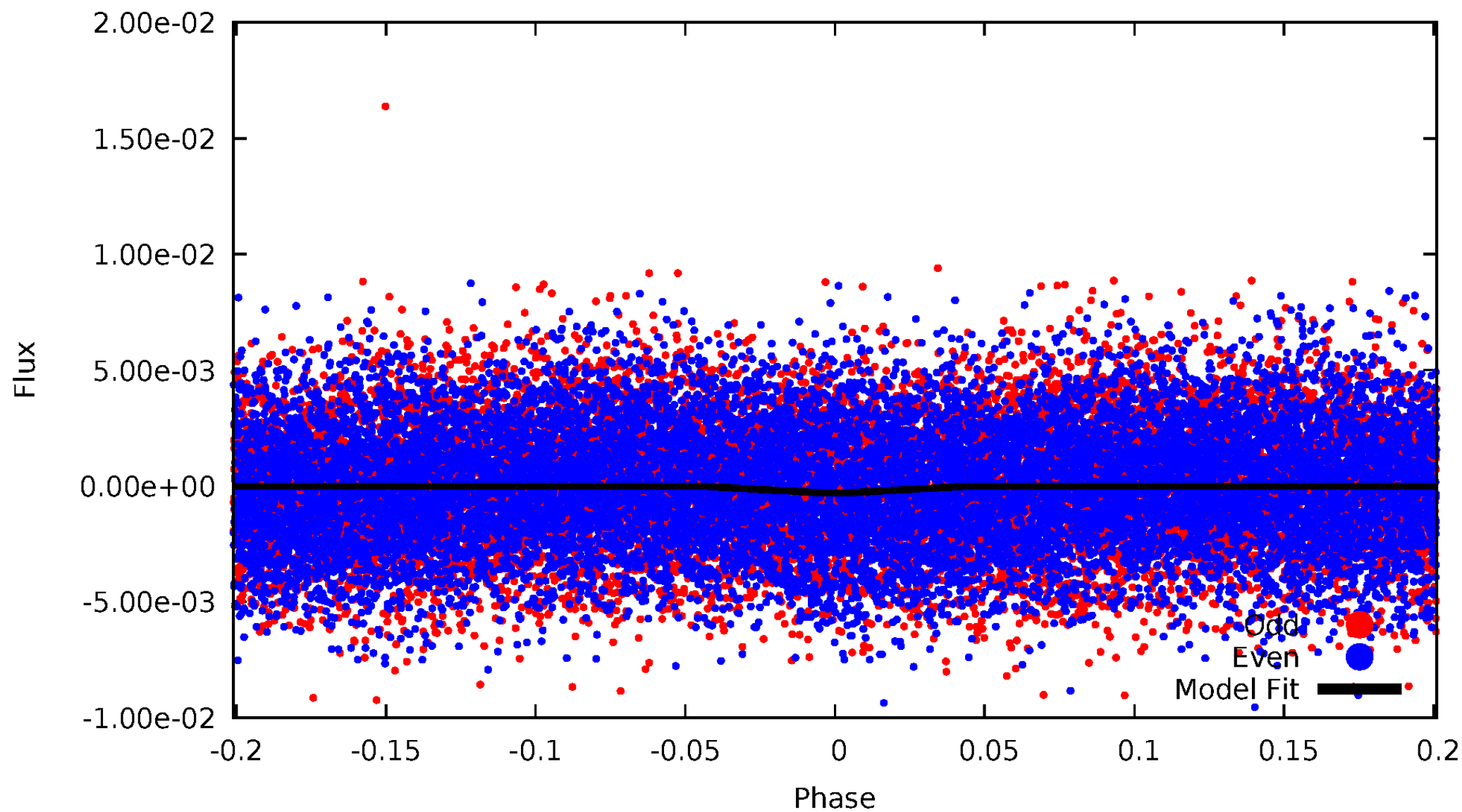
DV Odd/Even

TCE 004142789-02



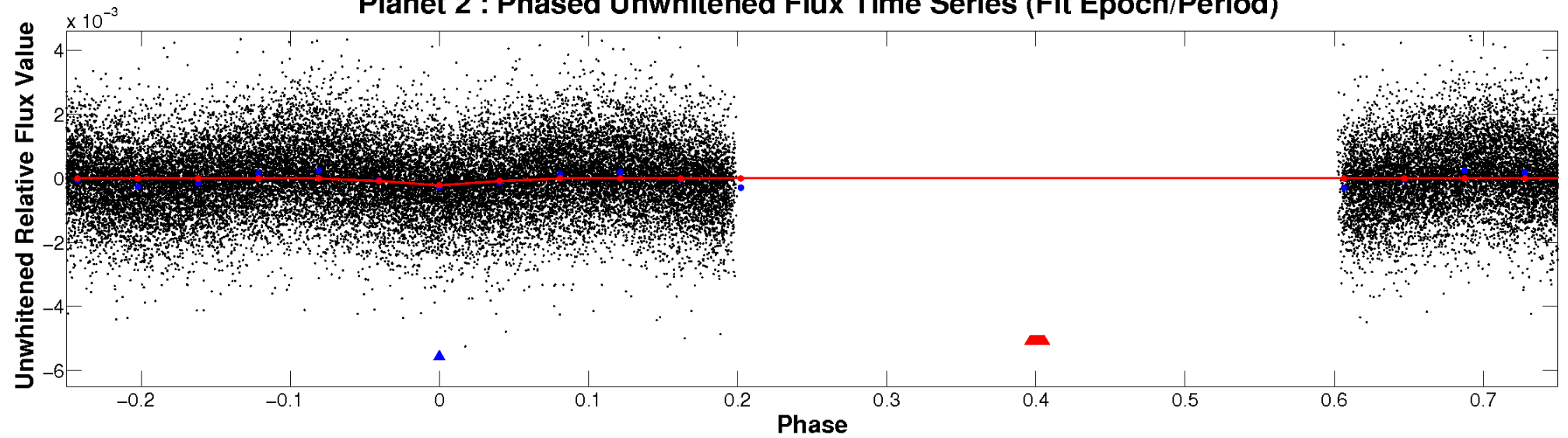
ALT Odd/Even

TCE 004142789-02

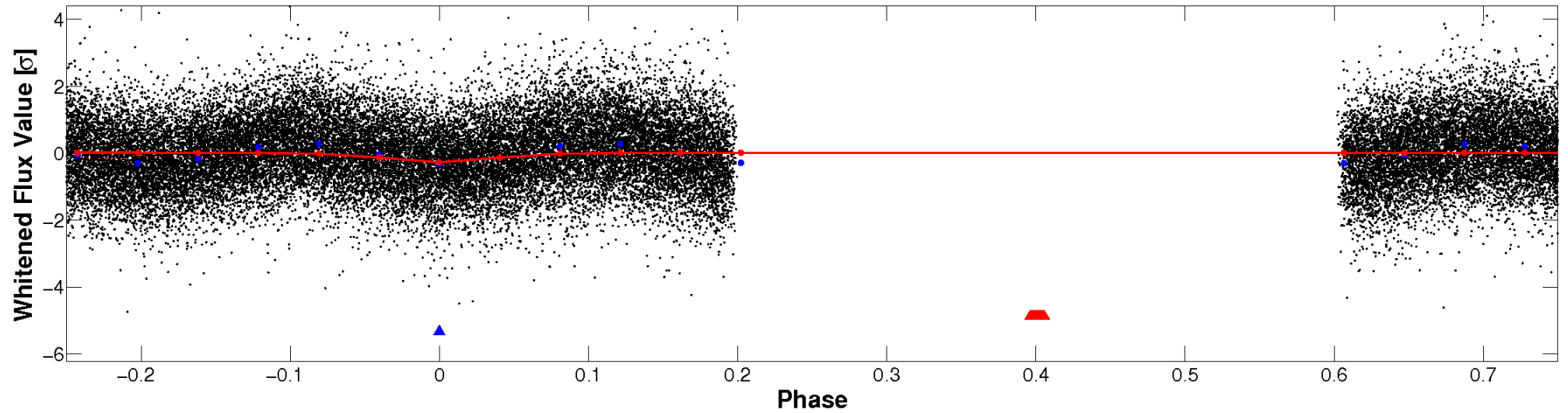


Non-Whitened Vs. Whitened Light Curve

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

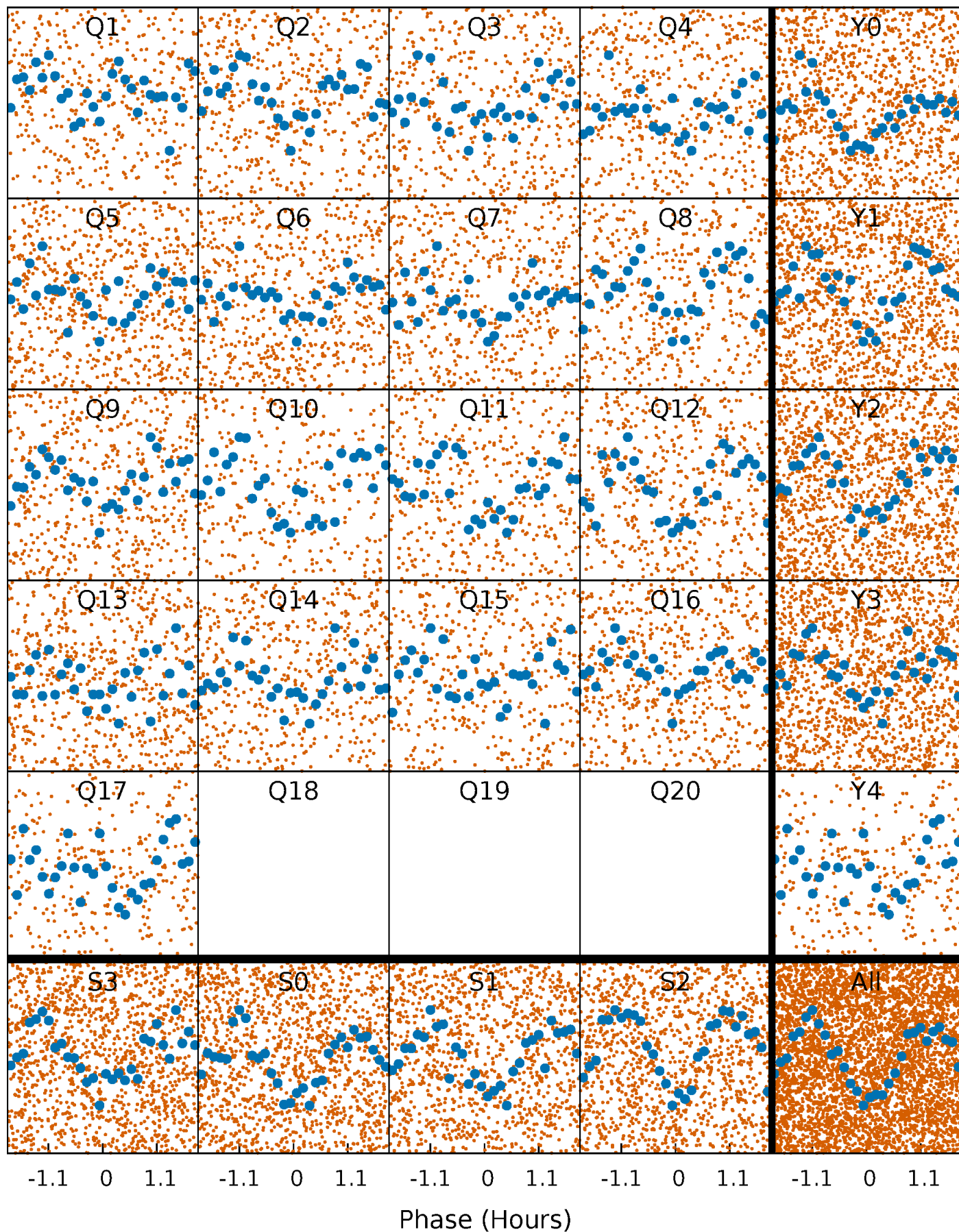


Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



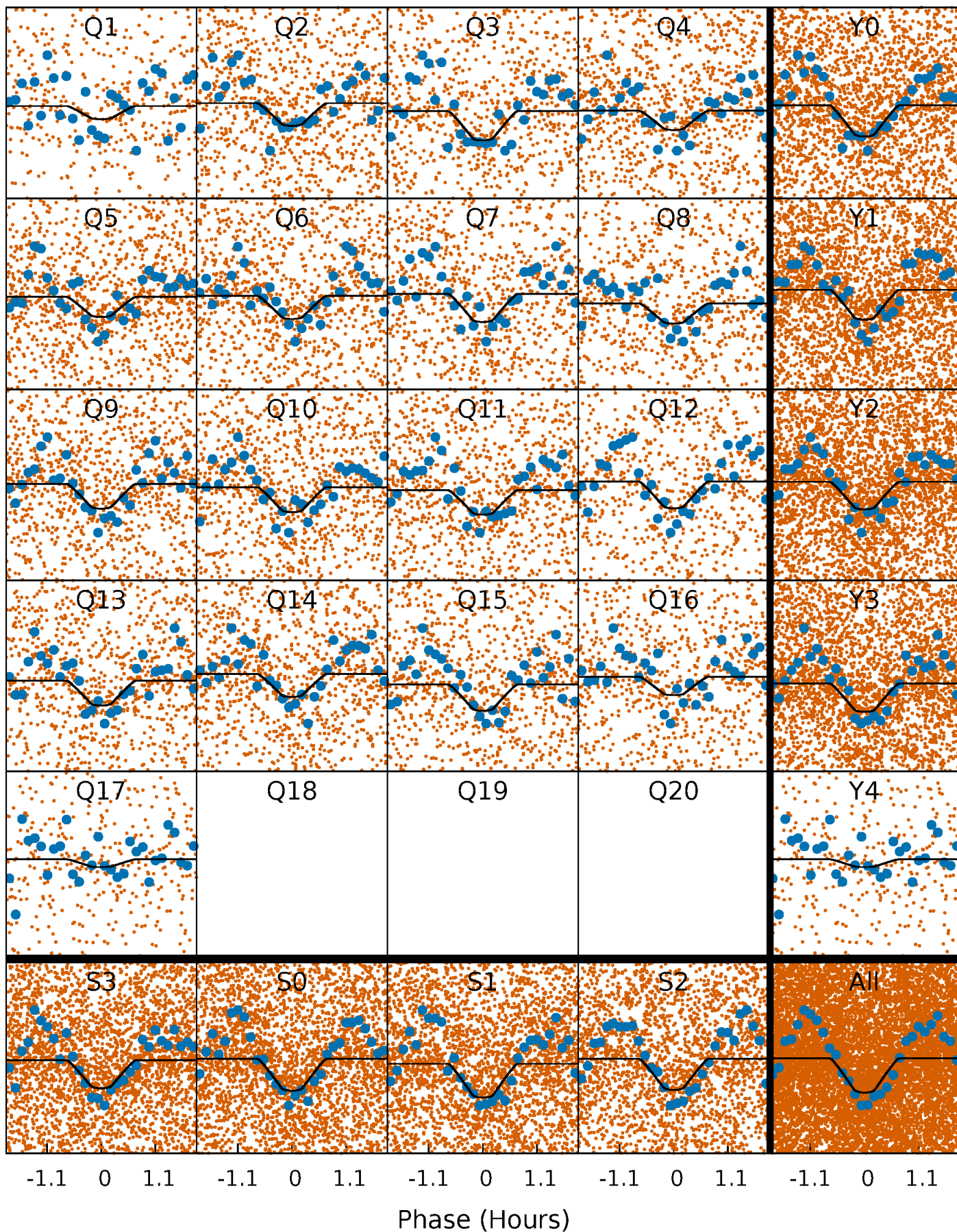
PDC Quarter-Phased Transit Curves

TCE 004142789-02 P= 0.505256 Days $T_0=132.062555$ (BKJD)



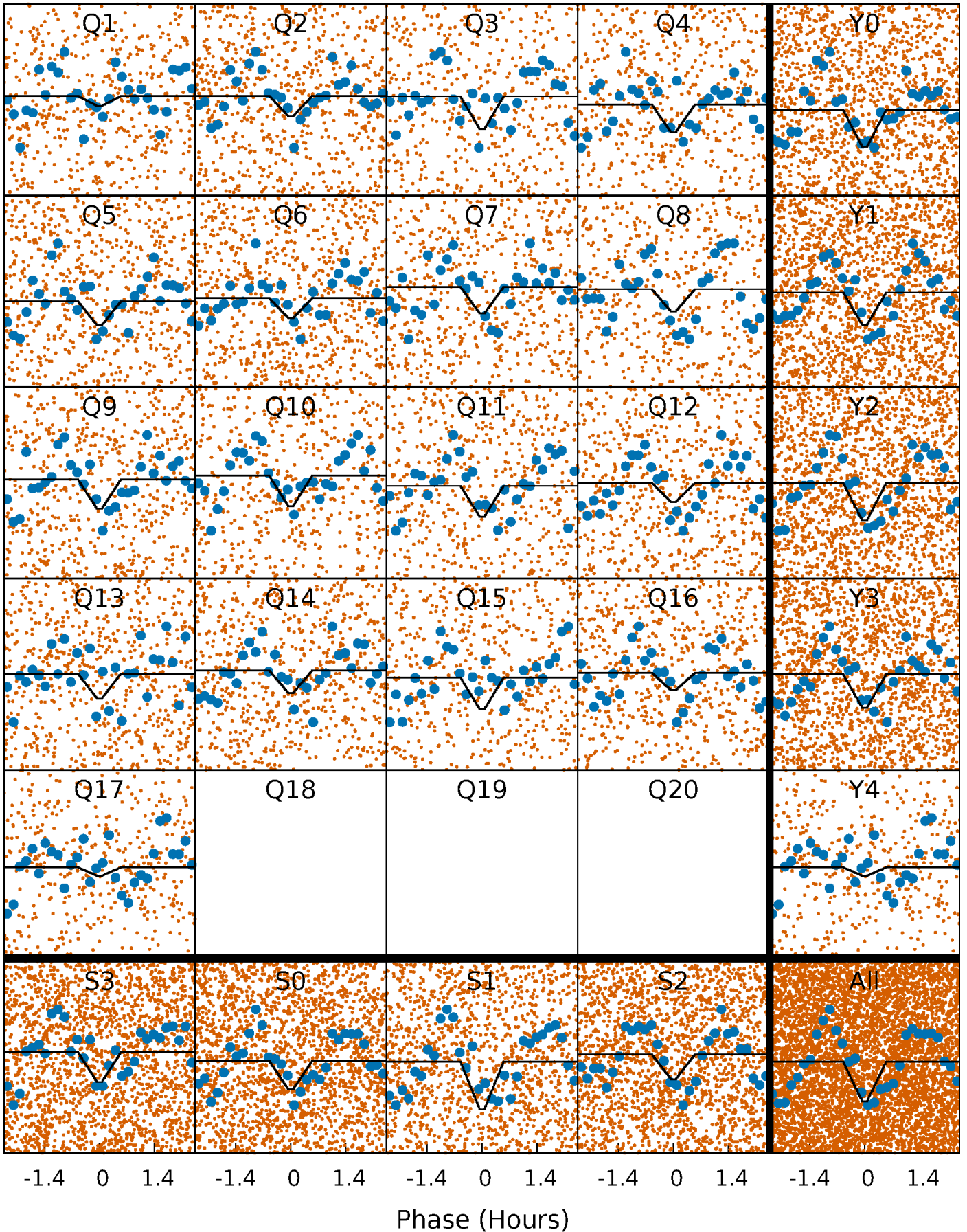
DV Quarter-Phased Transit Curves

TCE 004142789-02 P= 0.505256 Days $T_0=132.062555$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

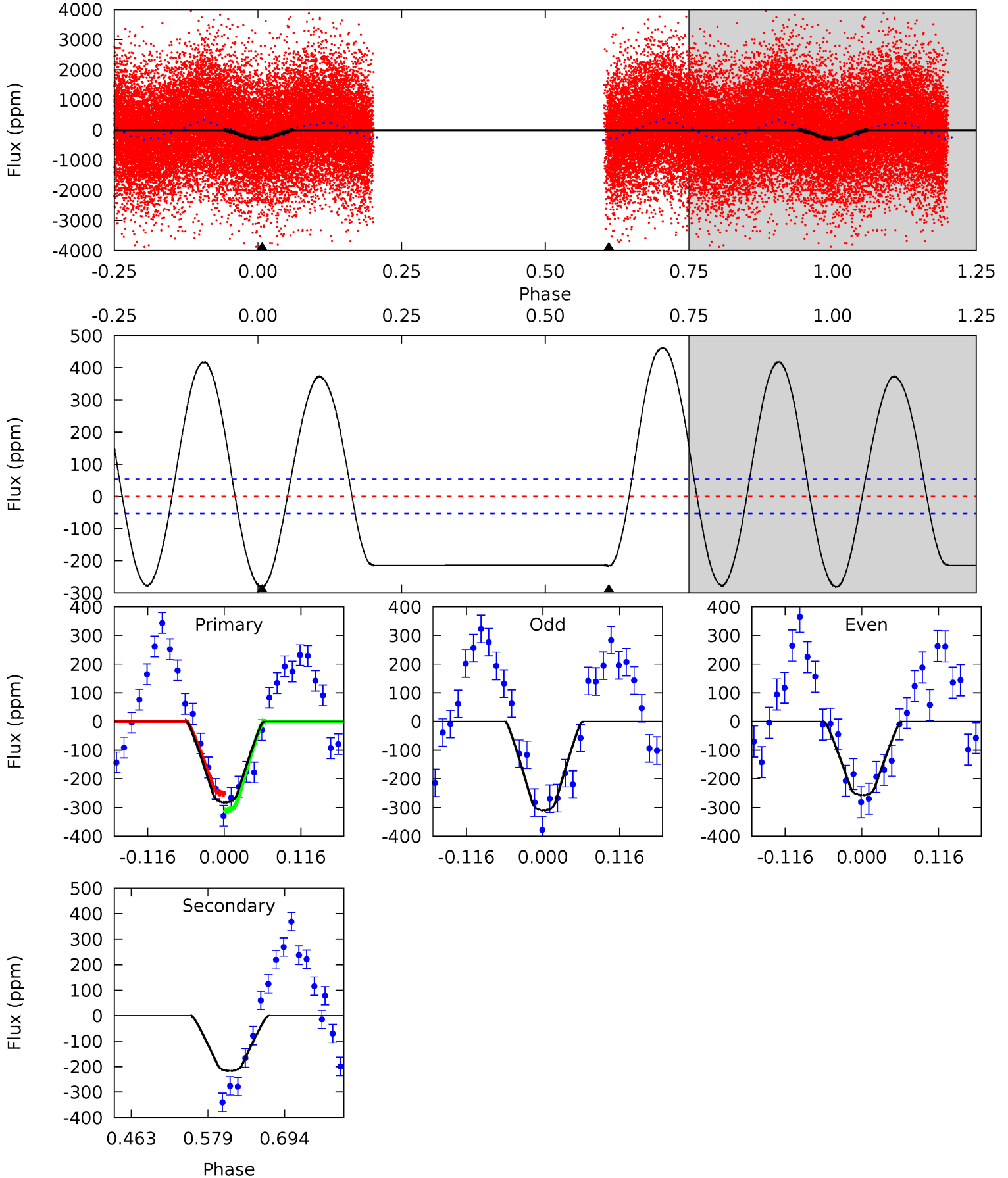
TCE 004142789-02 P= 0.505255 Days $T_0=132.056160$ (BKJD)



DV Model-Shift Uniqueness Test

004142789-02, P = 0.505256 Days, E = 131.052043 Days

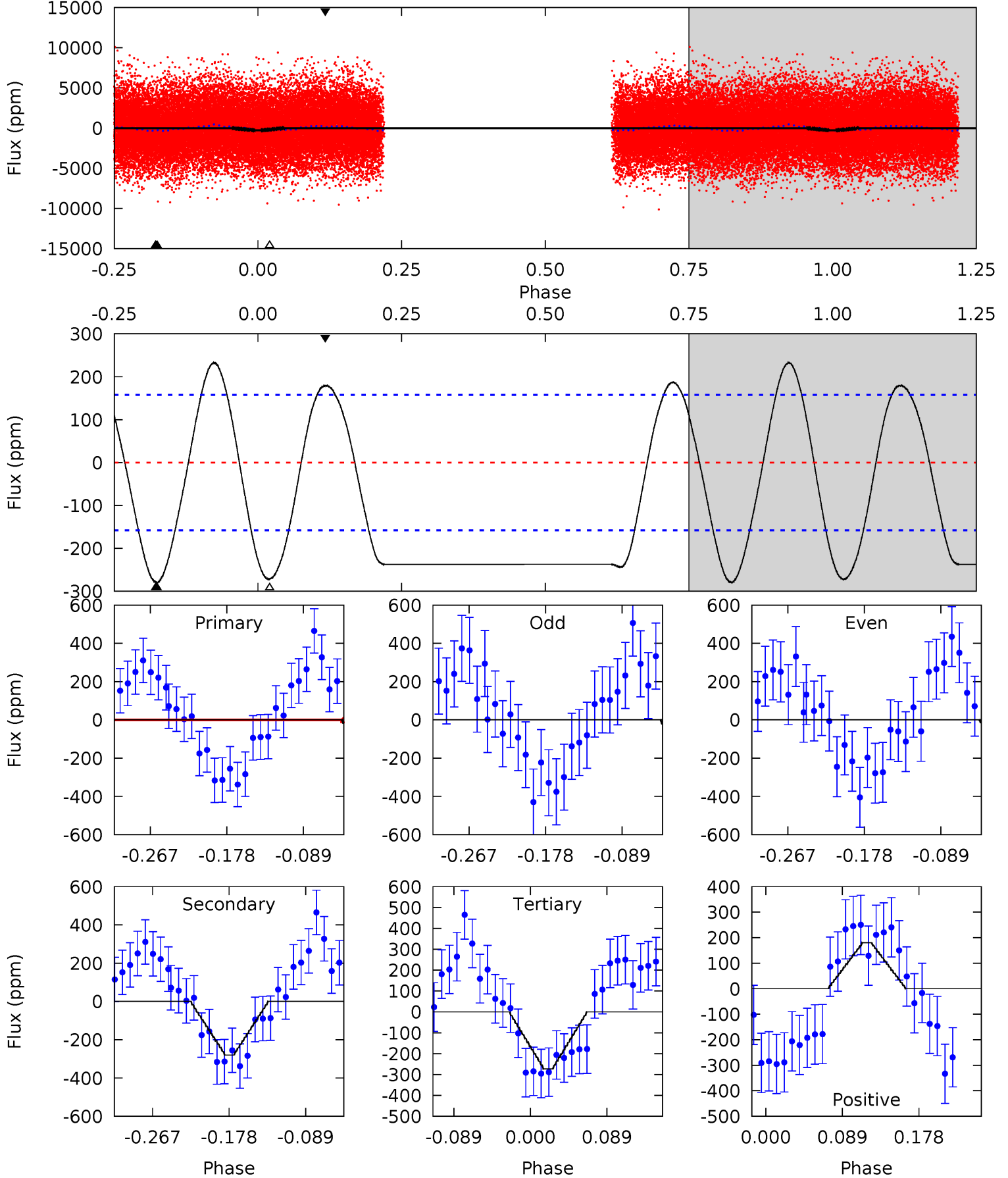
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
23.8	18.3	0	0	4.53	1.57	17.5	23.8	23.8	18.3	18.3	2.22	1.09	0.62	2.48



Alt Model-Shift Uniqueness Test

004142789-02, P = 0.505255 Days, E = 131.045650 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
8.18	8.14	7.95	5.25	4.59	1.70	4.80	0.23	2.93	0.19	2.90	1.24	0.89	0.45	3.71



Stellar Parameters For KIC 004142789

	$T_{\text{eff}}(K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	5129^{+170}_{-170}	$4.716^{+0.045}_{-0.021}$	$-1.980^{+0.150}_{-0.050}$	$0.545^{+0.022}_{-0.028}$	$0.564^{+0.038}_{-0.017}$	$4.900^{+0.795}_{-0.381}$
	+3%/-3%	+1%/-0%	+8%/-3%	+4%/-5%	+7%/-3%	+16%/-8%
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 004142789-02 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-217 ± 12	$1.01^{+0.50}_{-0.49}$	2300^{+74}_{-87}	4822^{+1773}_{-739}	13^{+36}_{-7}
Alt.	-280 ± 34	$0.99^{+0.51}_{-0.46}$	2298^{+86}_{-80}	5111^{+1772}_{-822}	17^{+38}_{-9}

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

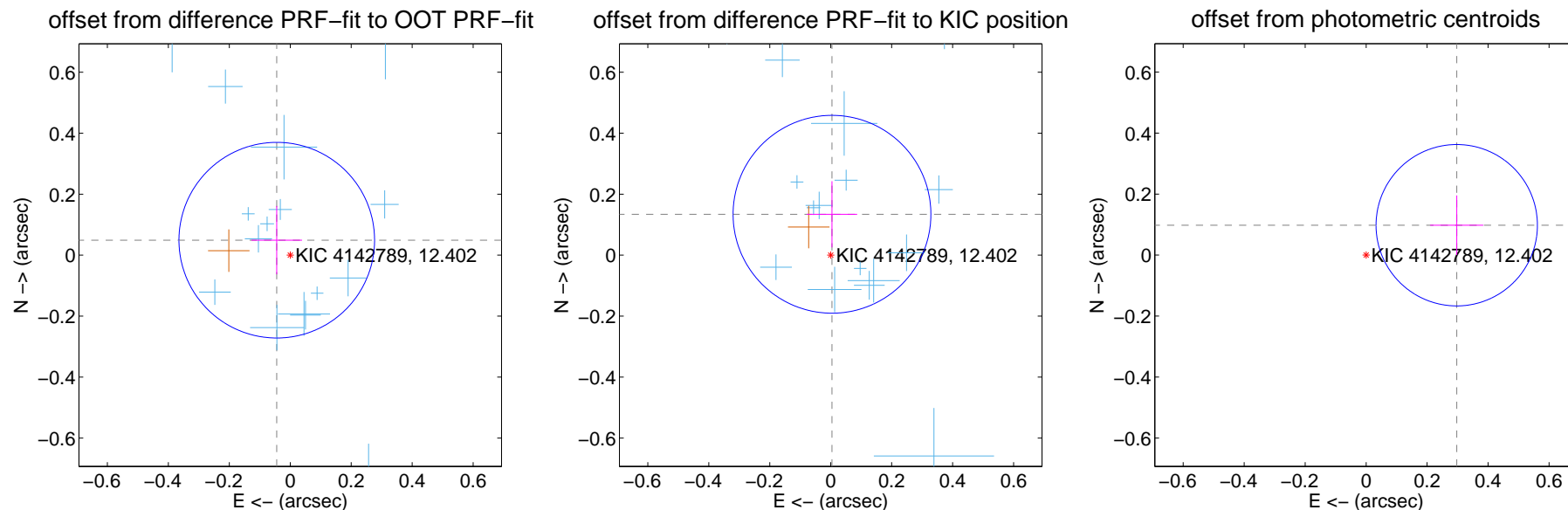
DV Centroid Data

Supplemental centroid analysis for 004142789-02. Kepler magnitude: 12.40. Transit SNR 17.03

There are 16 quarters with good PRF difference image offsets

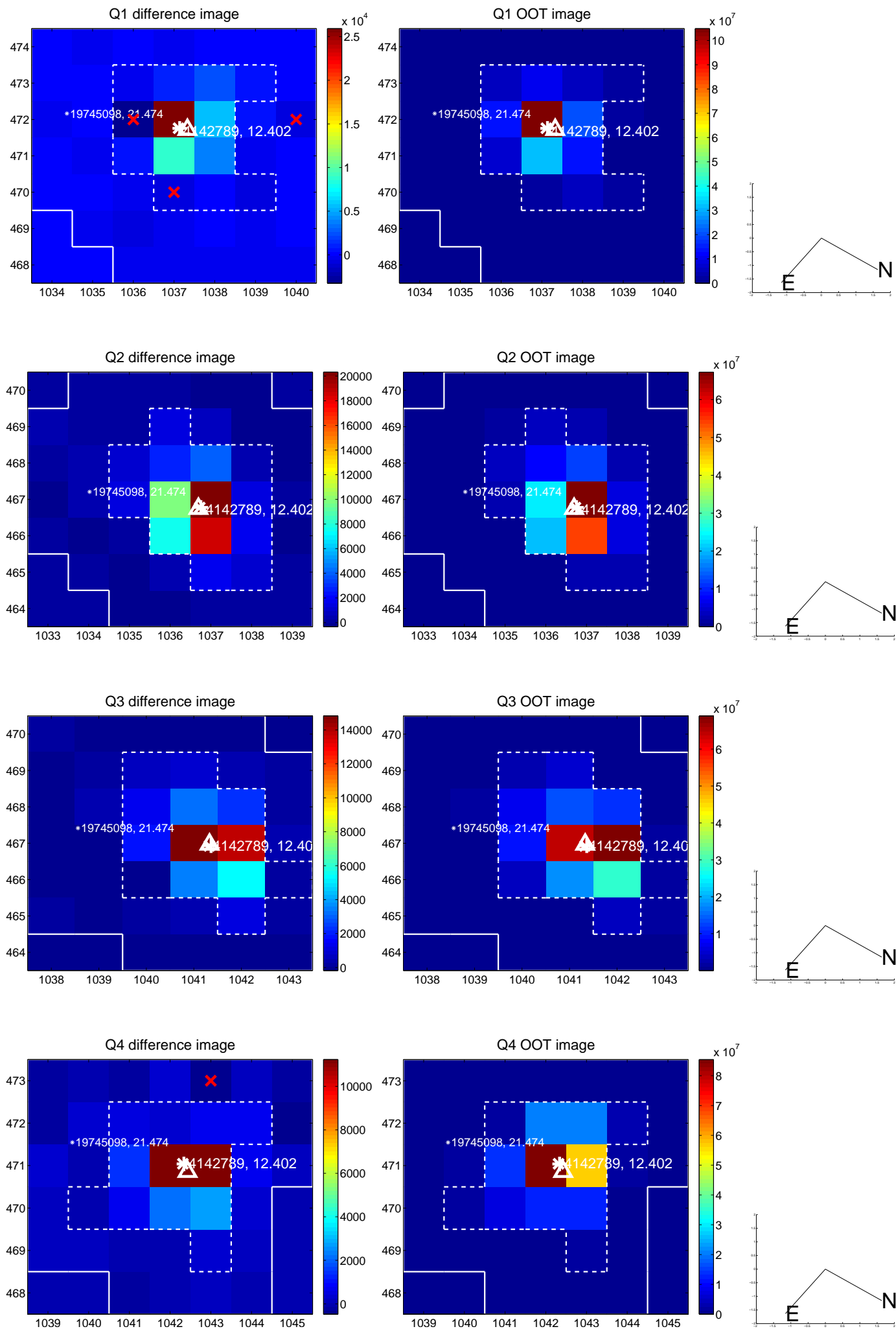
The direct PRF centroid is offset from the target star catalog position by about 0.15 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.066 ± 0.107	0.62	0.044 ± 0.083	0.049 ± 0.112
PRF-fit source offset from KIC position	0.134 ± 0.108	1.24	-0.004 ± 0.083	0.134 ± 0.109
photometric centroid source offset	0.31 ± 0.09	3.55	-0.30 ± 0.09	0.10 ± 0.10

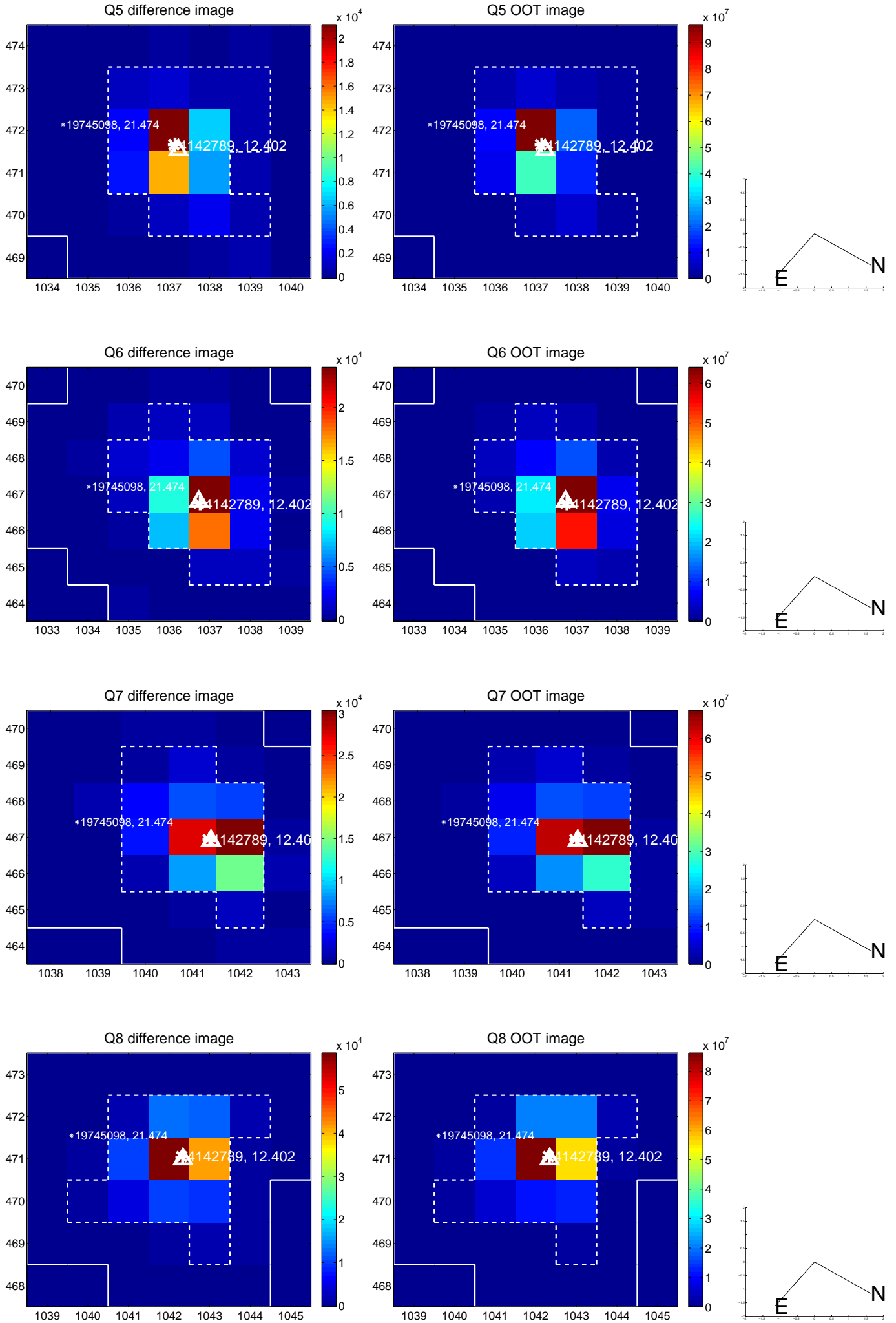


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses:** good quarterly centroid offsets; **Vermillion crosses:** bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

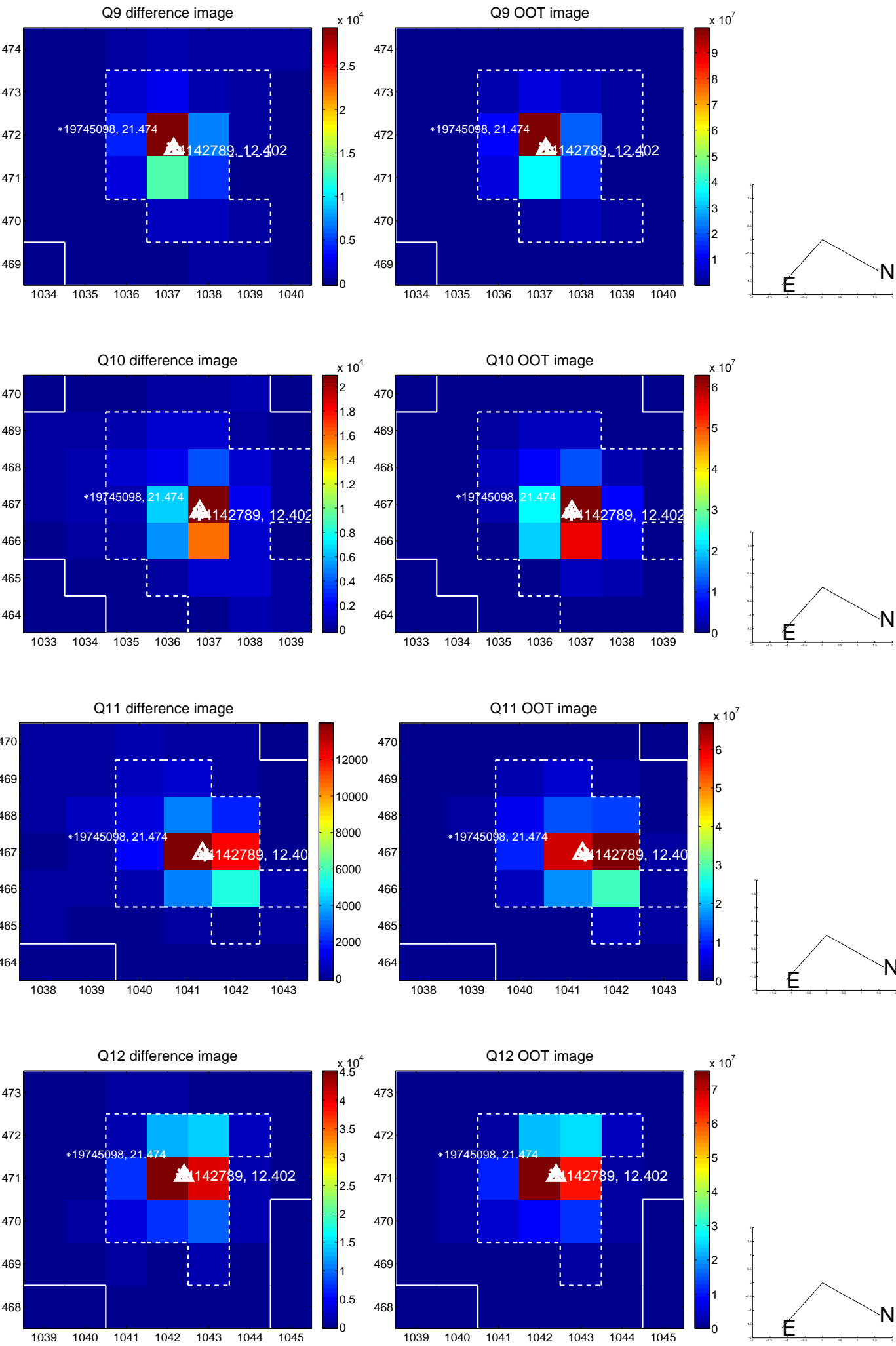
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



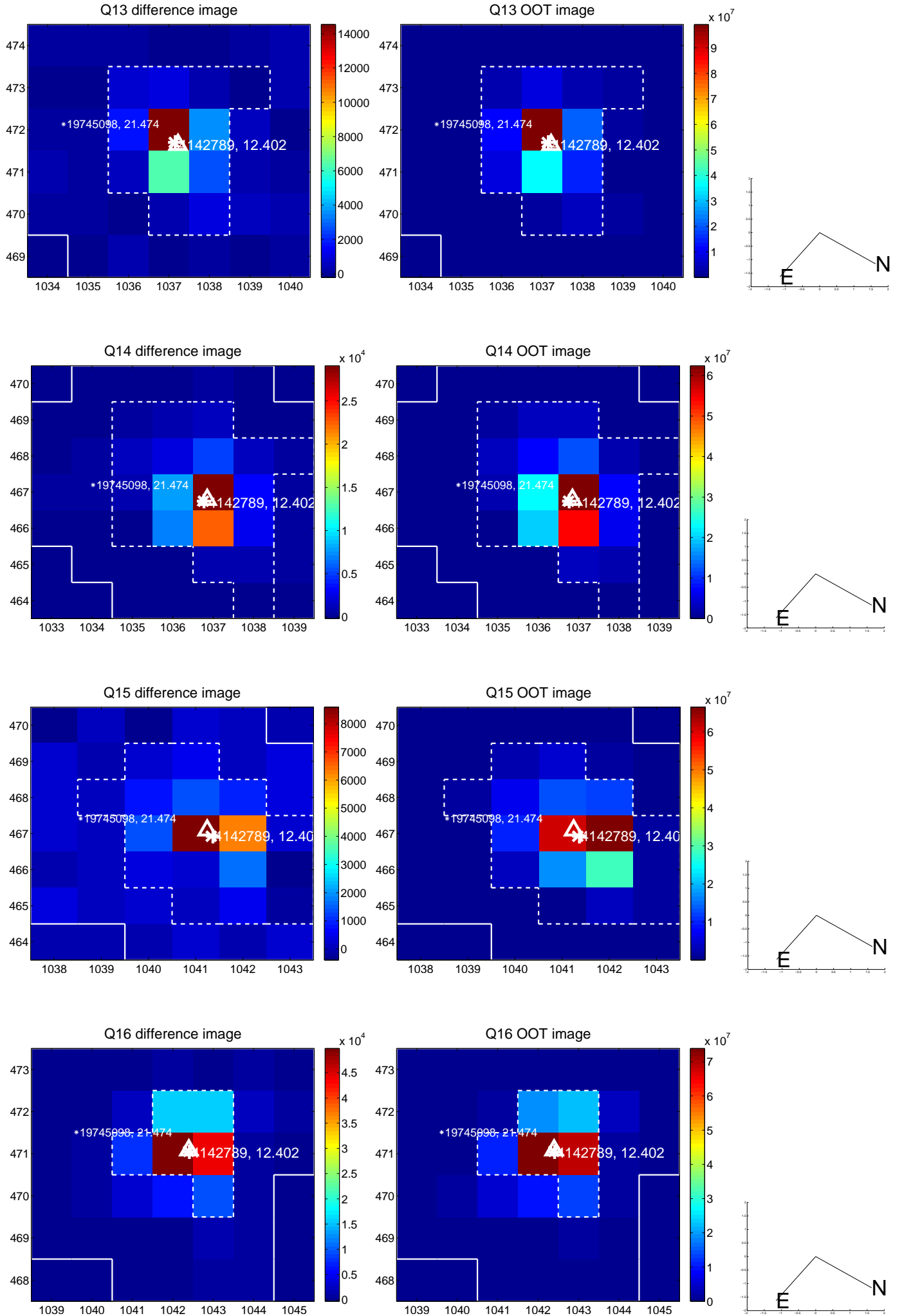
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



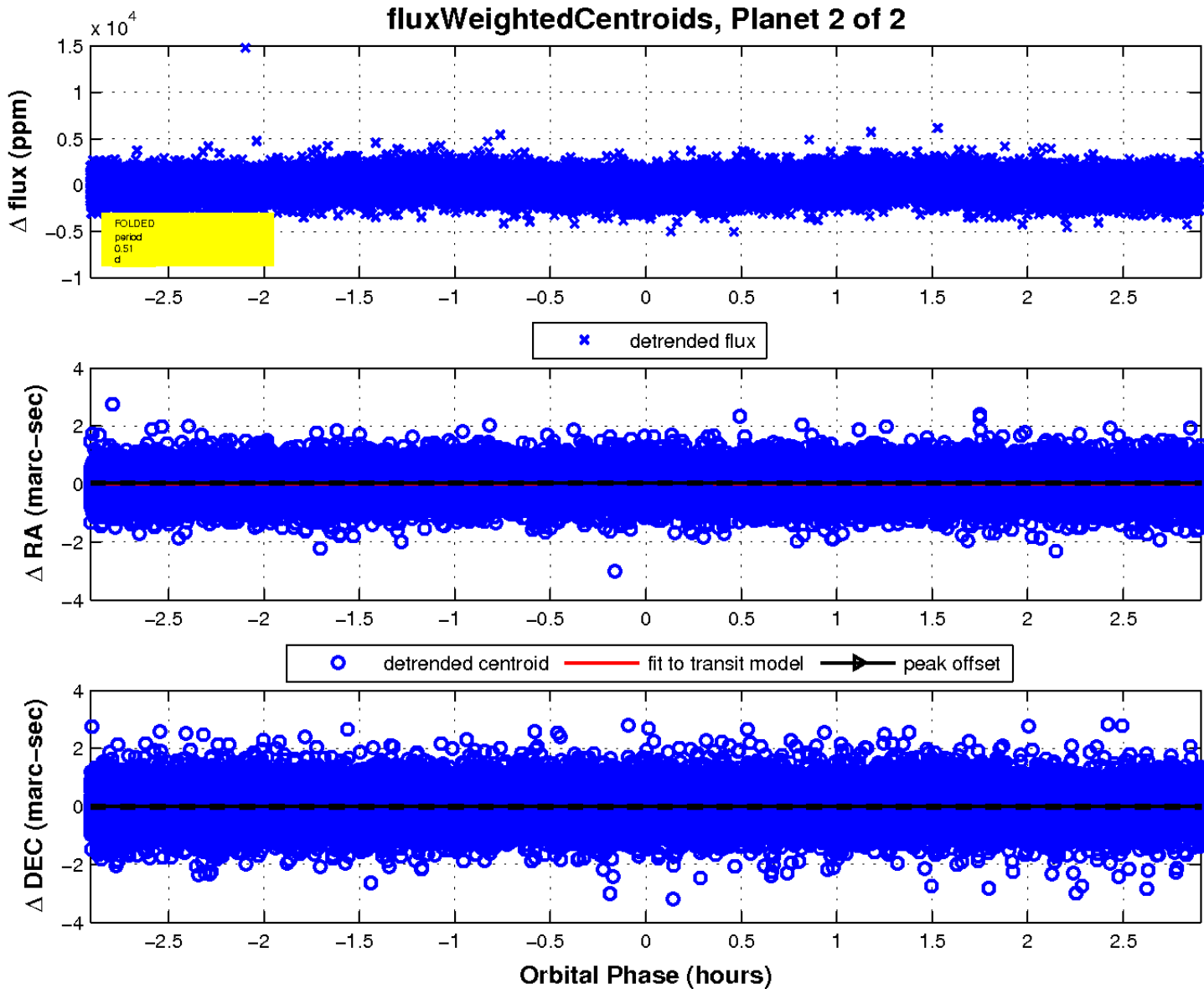
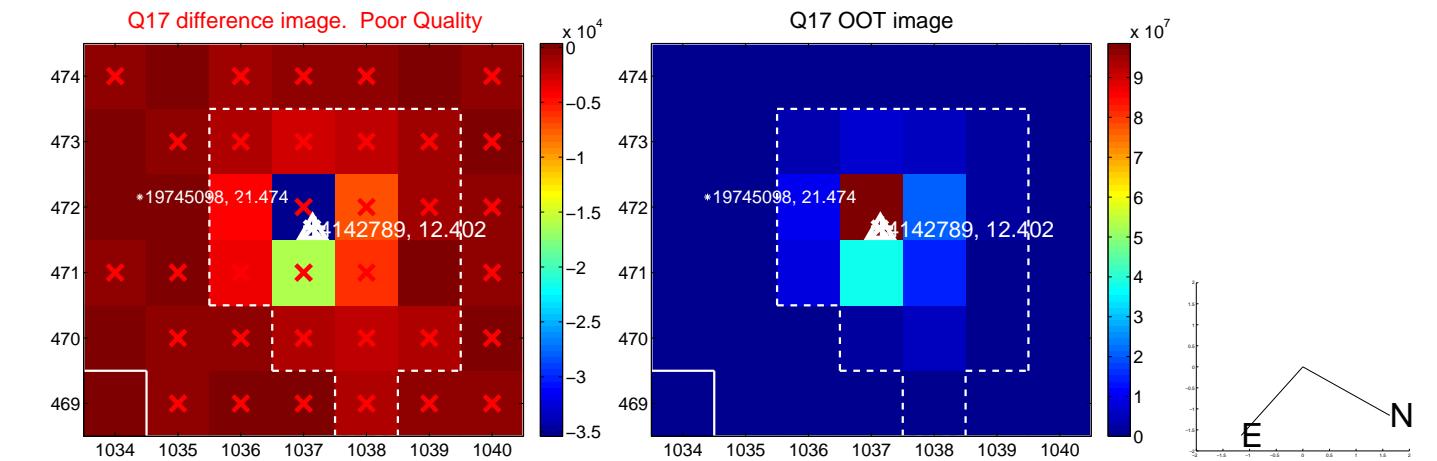
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

