

KIC 005810113

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})
005810113-01	OBS	No	0.999956	131.701276	69.6	5.432	16.6	21.5	3.76	6478	3.27	36831.48
005810113-02	OBS	No	0.999925	132.209408	45.5	3.584	15.8	15.2	3.76	6478	2.67	36833.01

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
005810113-01	OBS	FP	0.00	1	0	0	0	LPP_DV—MOD_NONUNIQ_DV
005810113-02	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_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.

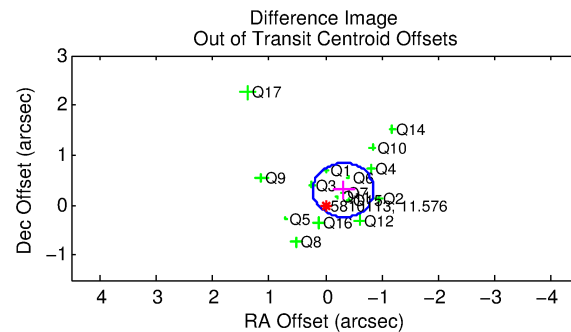
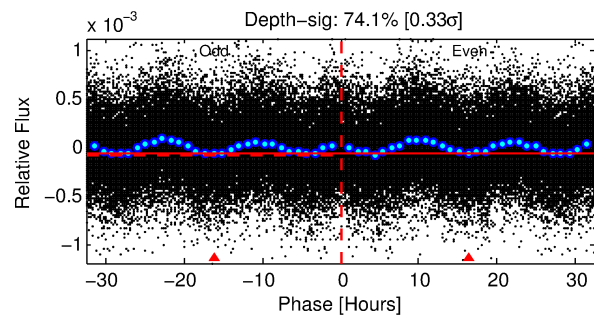
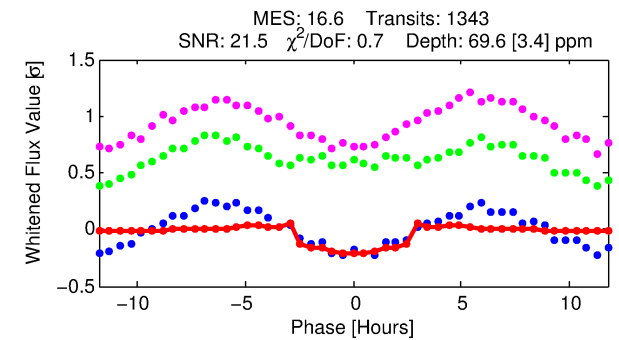
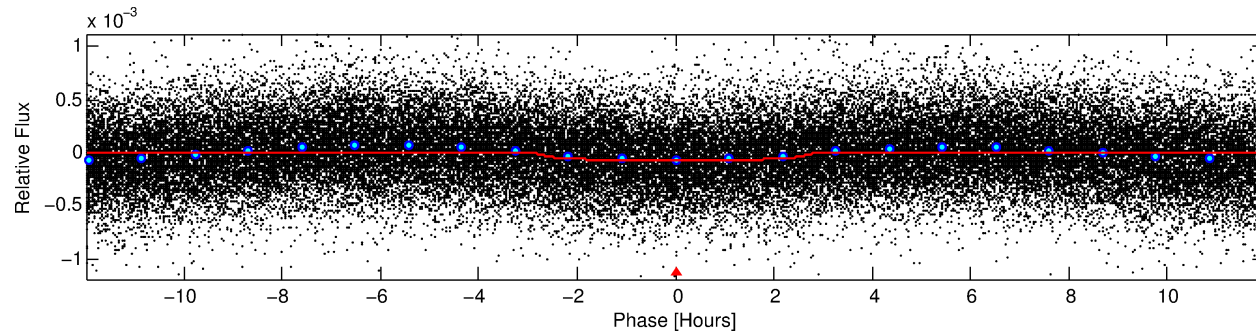
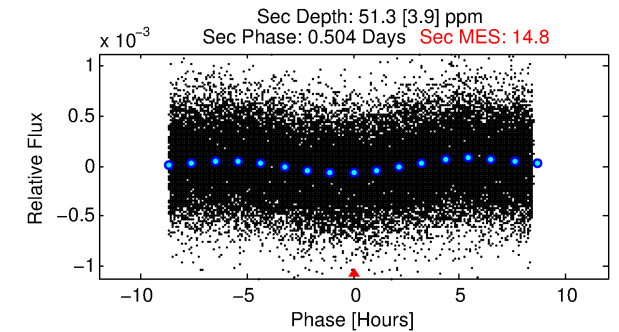
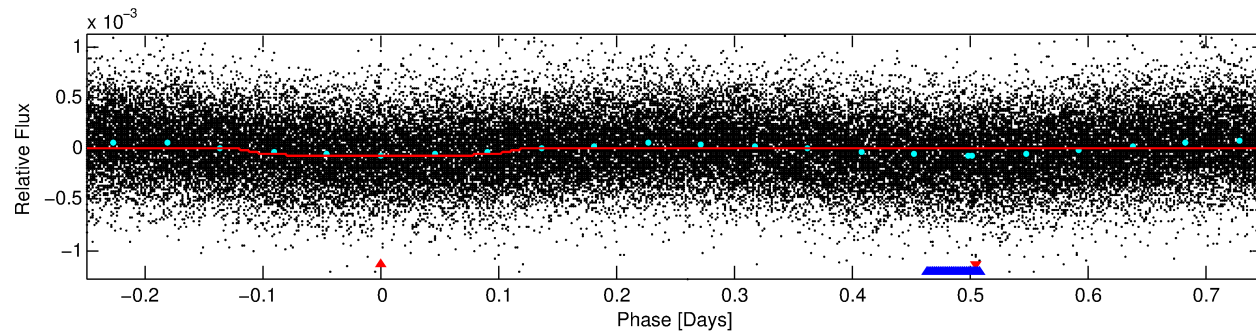
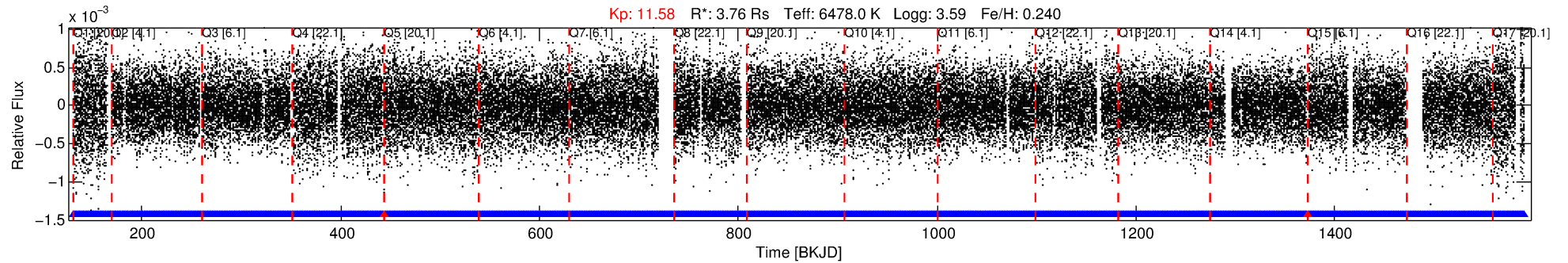
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 005810113-01

No Significant Match Found

DV One-Page Summary

KIC: 5810113 Candidate: 1 of 2 Period: 1.000 d



DV Fit Results:

Period = 0.99996 [0.00001] d
Epoch = 131.7013 [0.0015] BKJD
 $R_p/R^* = 0.0080$ [0.0020]
 $a/R^* = 1.40$ [0.91]
 $b = 0.56$ [1.63]
 $\text{Seff} = 36831.48$ [13447.55]
 $T_{\text{eq}} = 3532$ [322] K
 $R_p = 3.27$ [1.17] R_e
 $a = 0.0246$ [0.0057] AU
 $A_g = 1.60$ [1.00] [0.60σ]
 $T_{\text{eff}} = 6144$ [795] K [3.04σ]

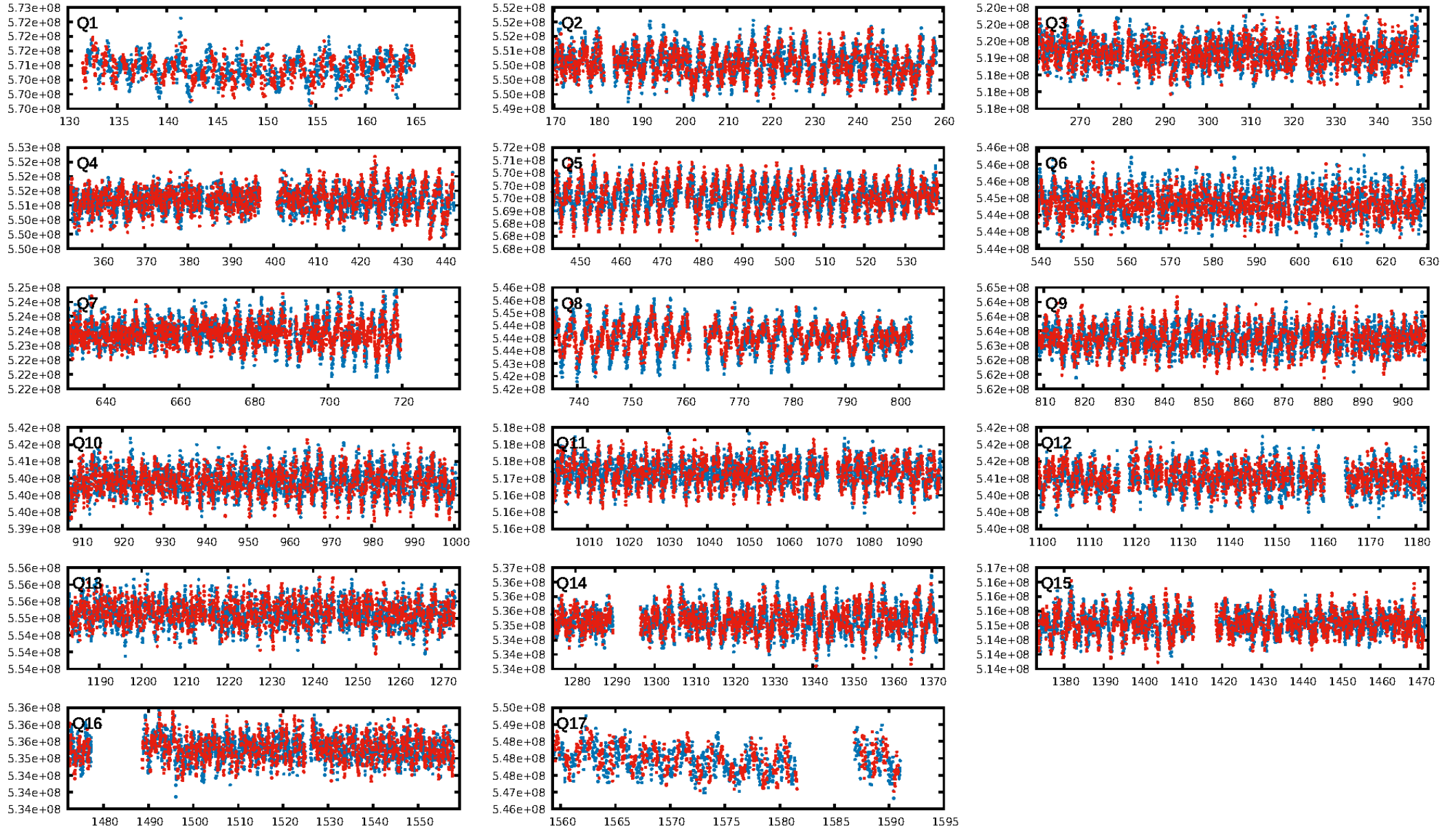
DV Diagnostic Results:

ShortPeriod-sig: 0.0% [0.00σ]
LongPeriod-sig: N/A
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: N/A
RollingBand-fgt: 1.00 [1280/1282]
GhostDiagnostic-chr: 1.349
Centroid-sig: 4.8%
Centroid-so: 0.318 arcsec [2.71σ]
OotOffset-rm: 0.437 arcsec [2.43σ]
KicOffset-rm: 0.556 arcsec [2.87σ]
OotOffset-st: 4/4/4/4 [16]
KicOffset-st: 4/4/4/4 [16]
DiffImageQuality-fgm: 1.00 [16/16]
DiffImageOverlap-fno: 0.00 [0/17]

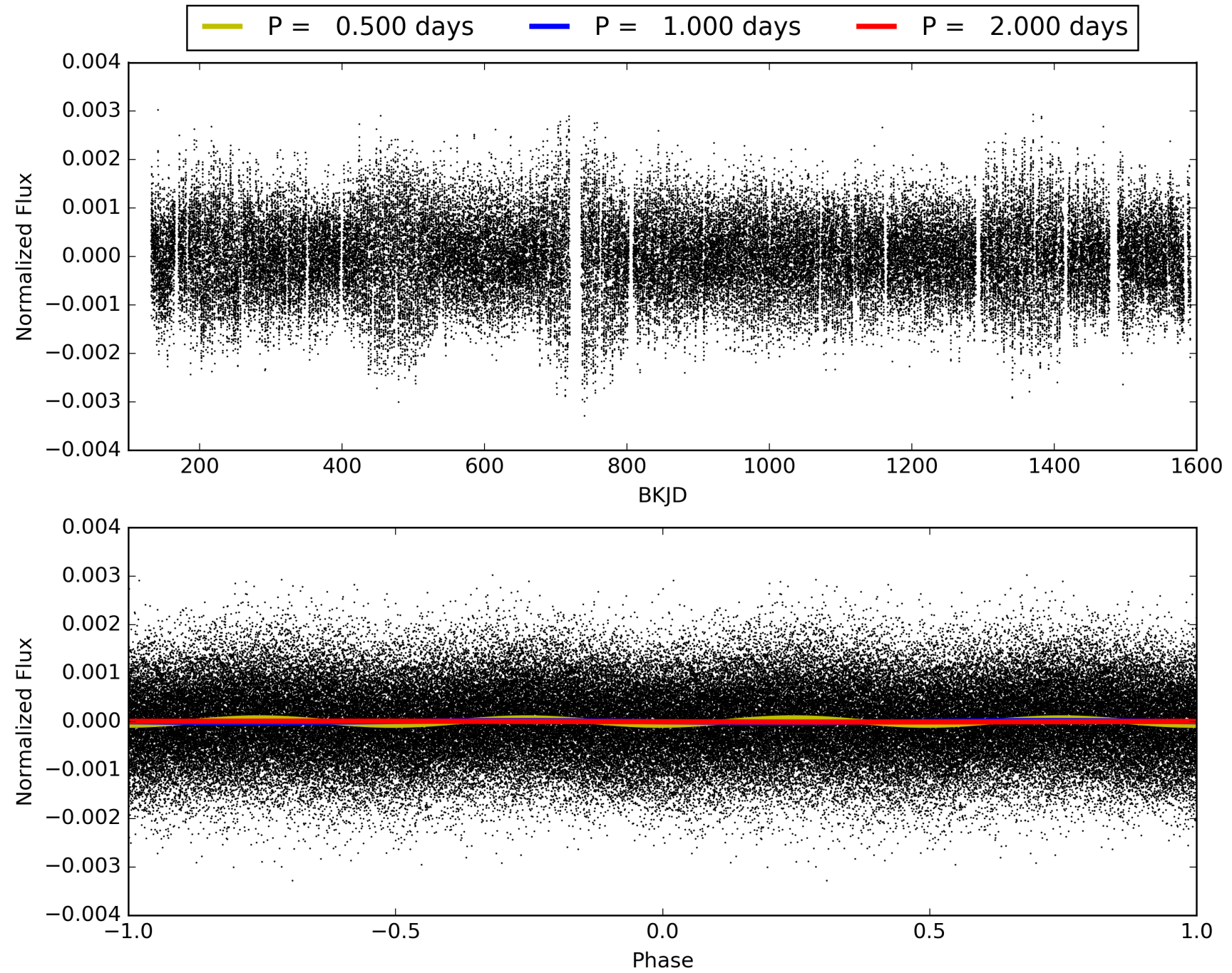
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 31-Jan-2016 12:53:11 Z

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

TCE 005810113-01, PDC Light Curves

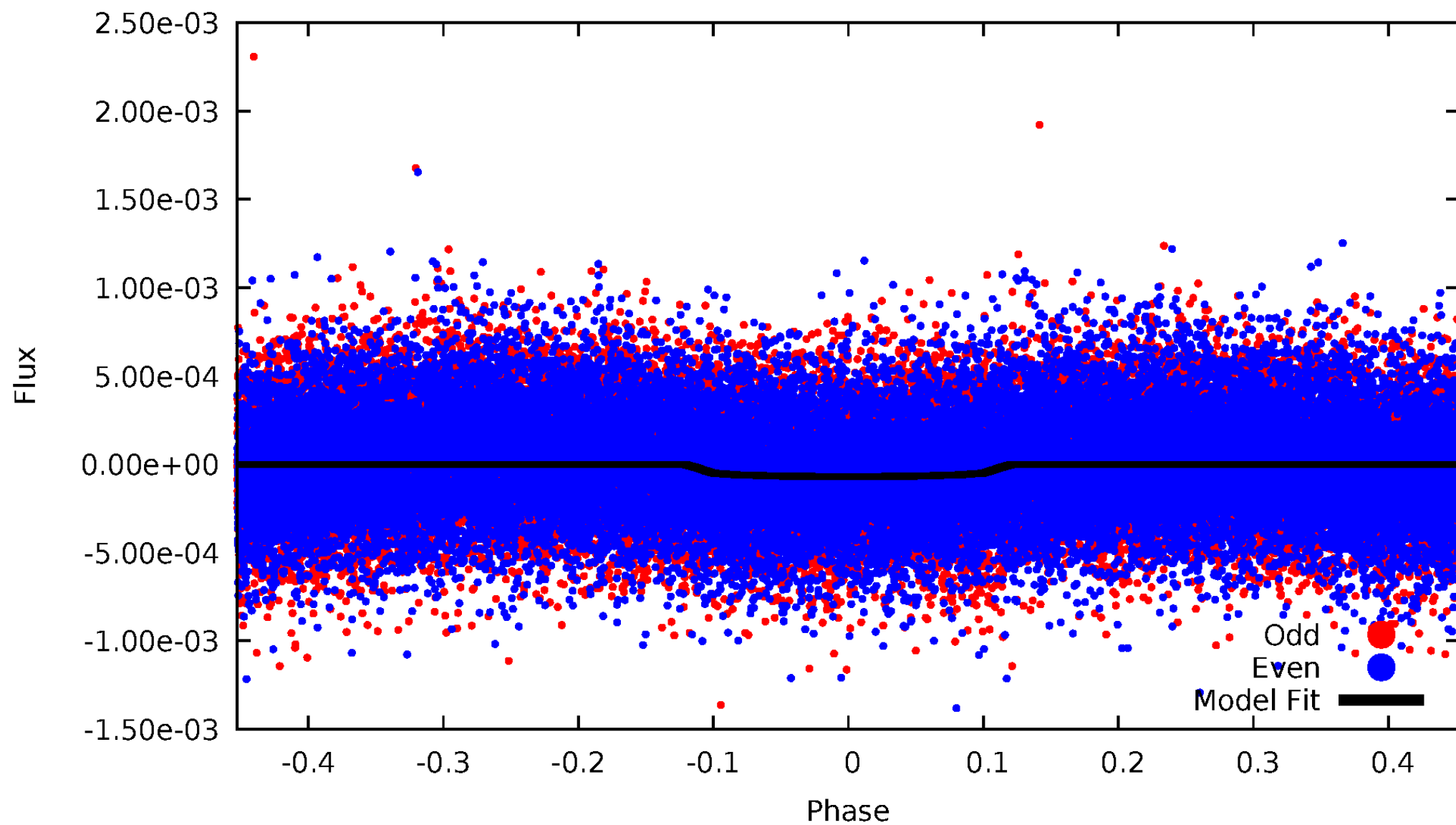


TCE 005810113-01



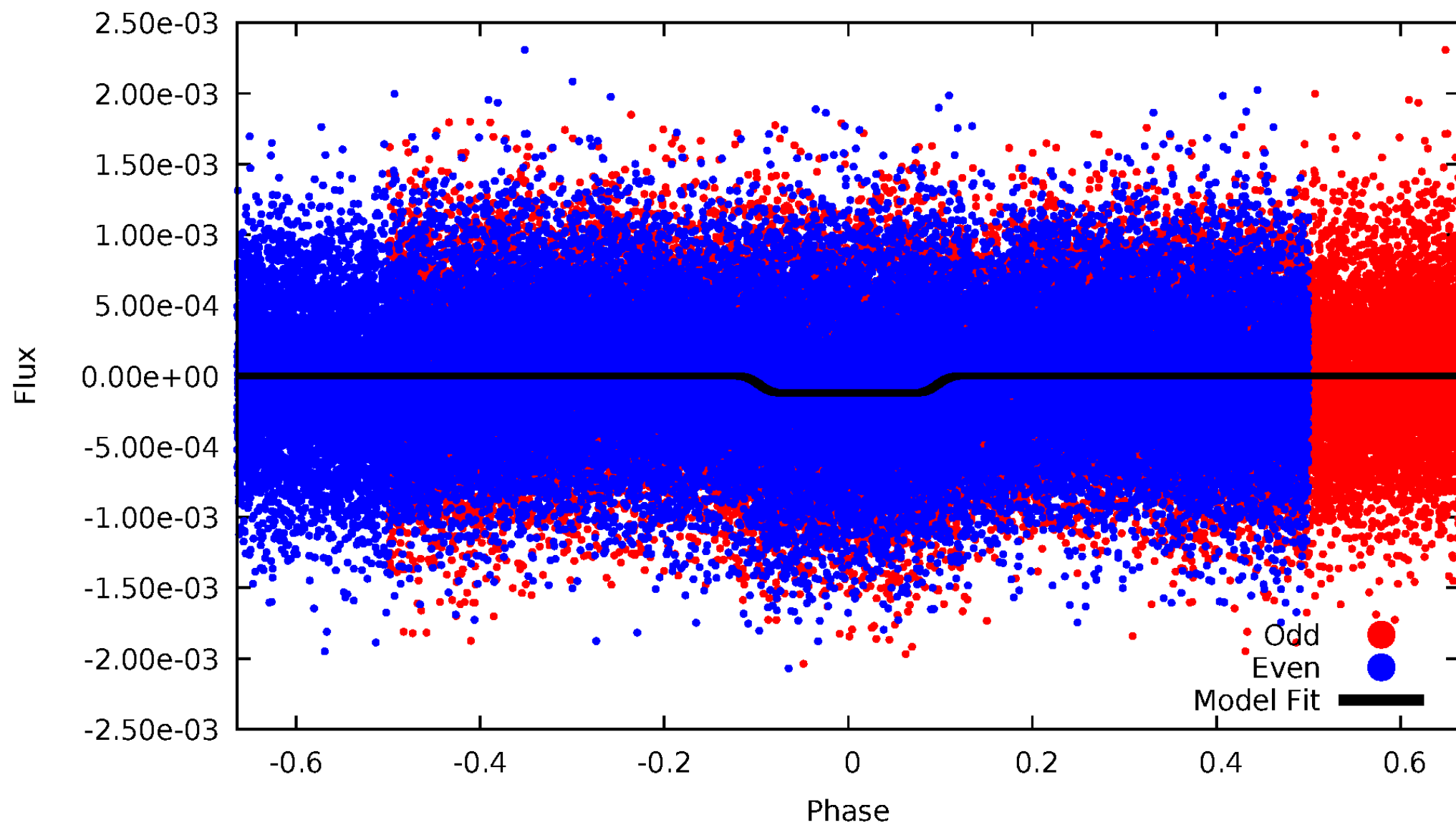
DV Odd/Even

TCE 005810113-01

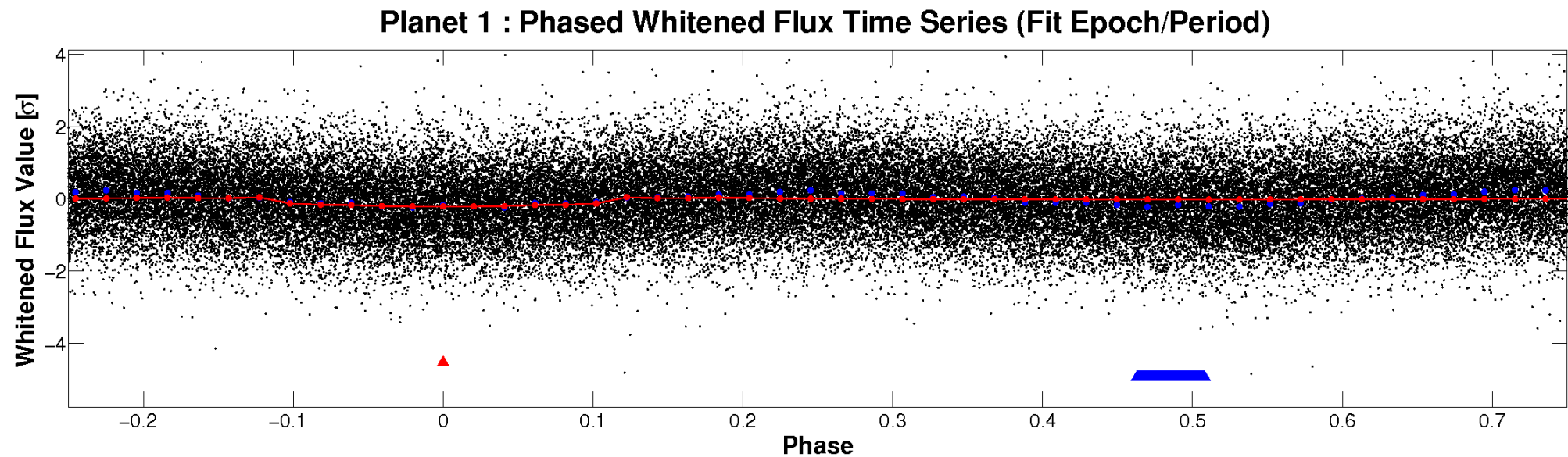
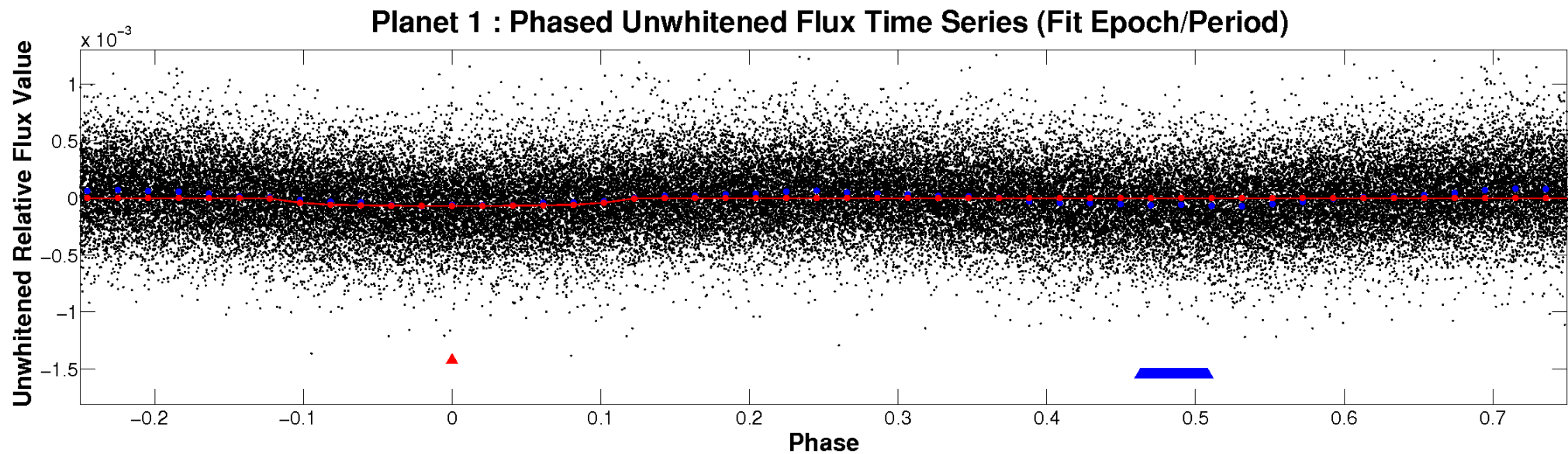


ALT Odd/Even

TCE 005810113-01

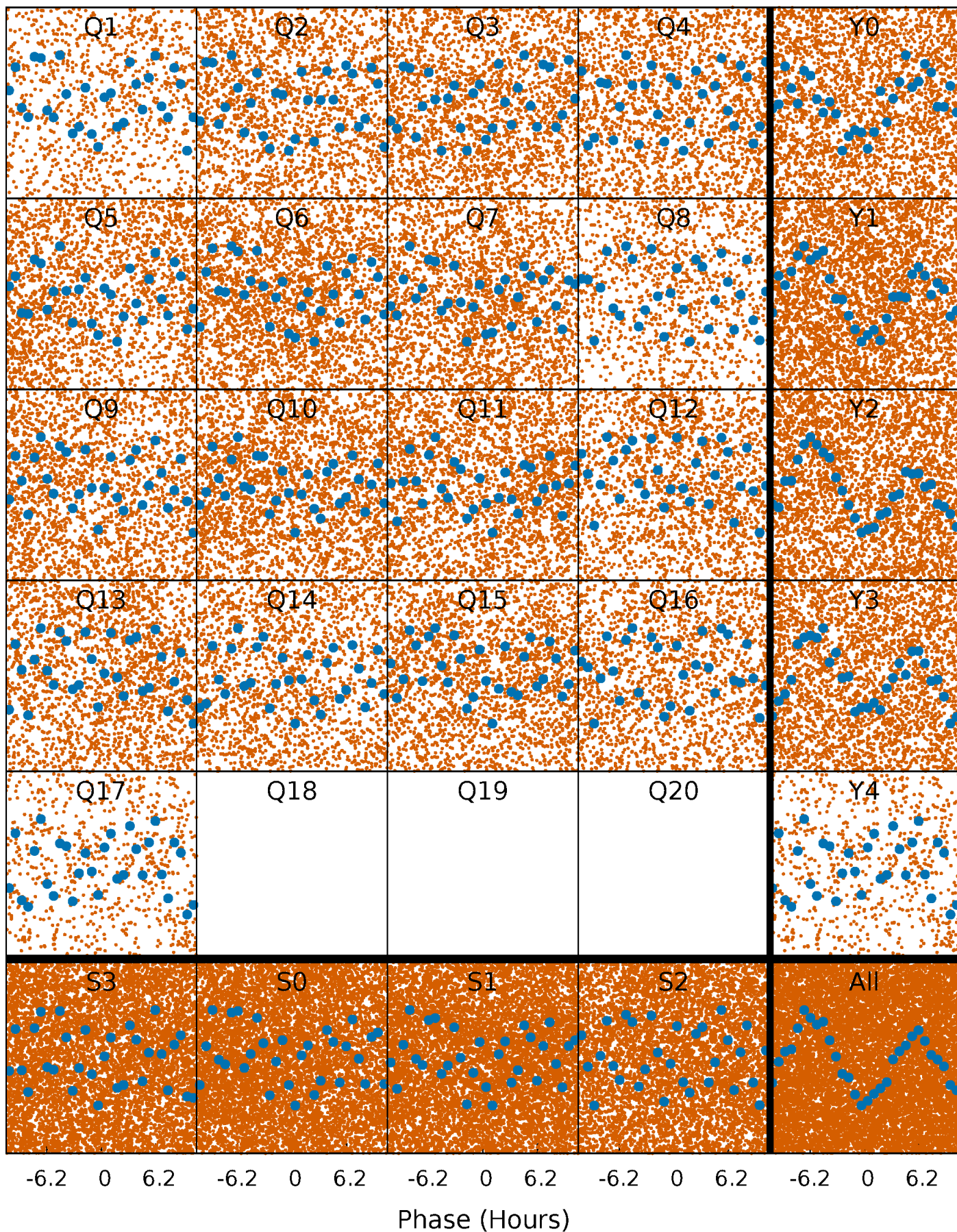


Non-Whitened Vs. Whitened Light Curve



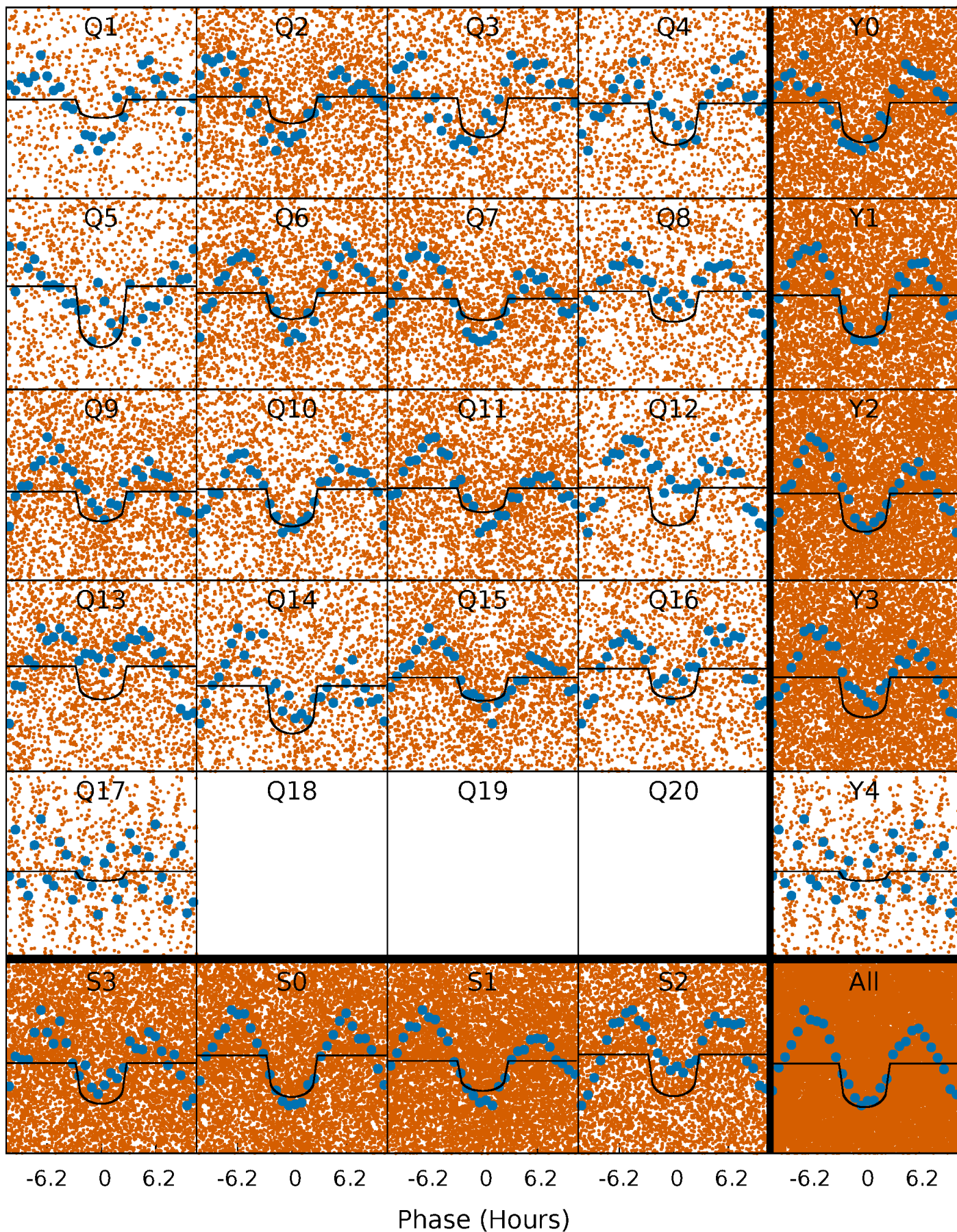
PDC Quarter-Phased Transit Curves

TCE 005810113-01 P= 0.999956 Days $T_0=131.701276$ (BKJD)



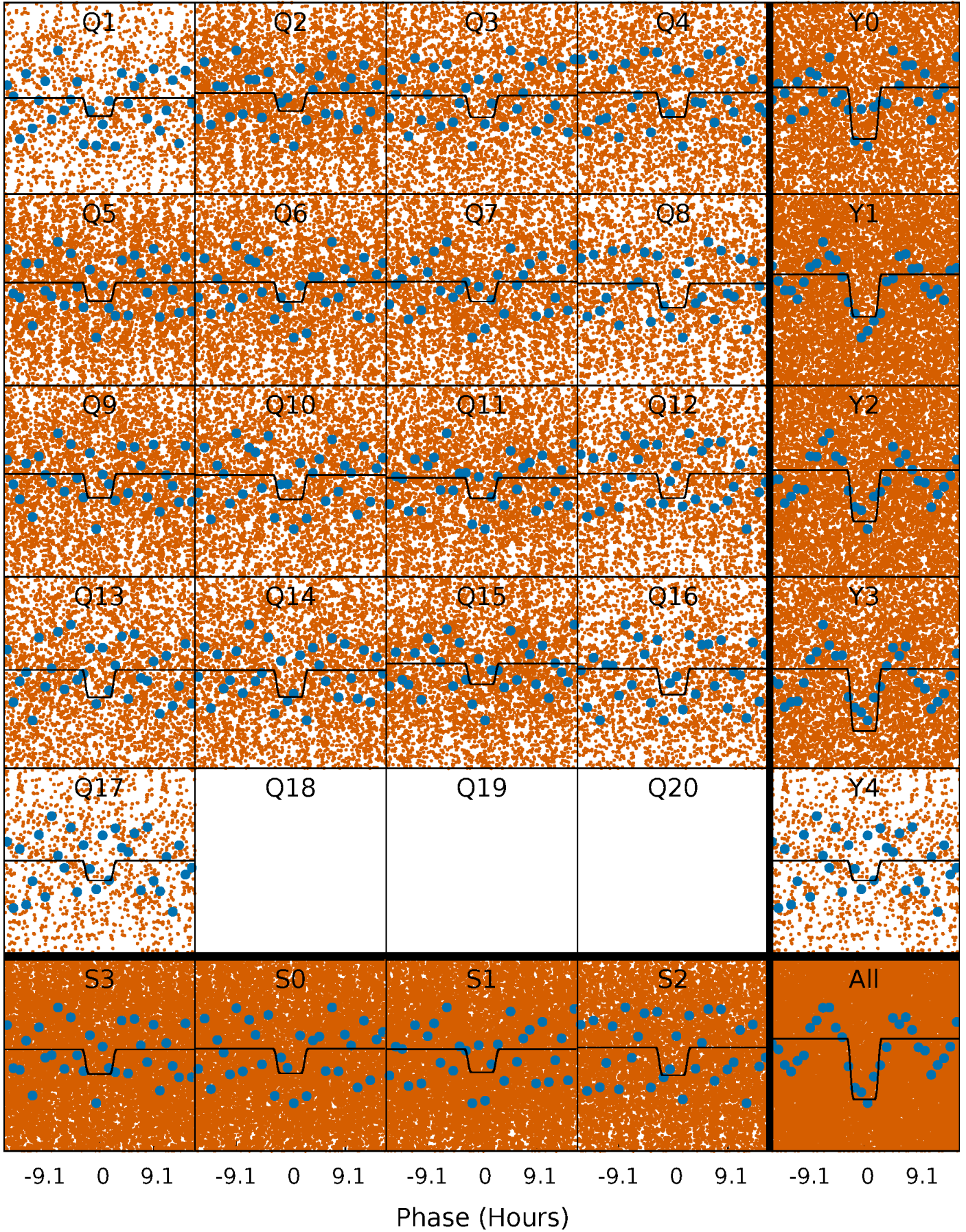
DV Quarter-Phased Transit Curves

TCE 005810113-01 P= 0.999956 Days $T_0=131.701276$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

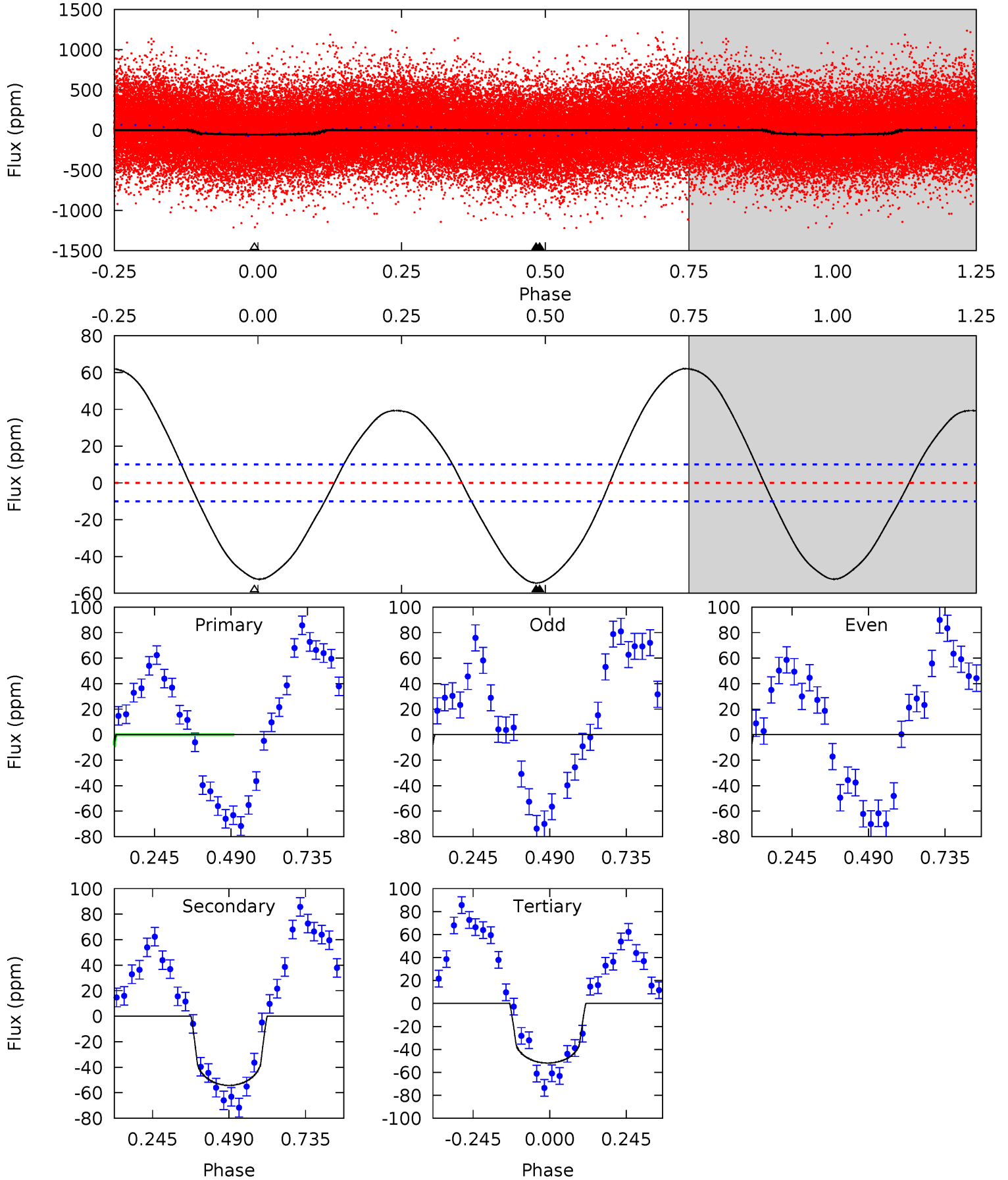
TCE 005810113-01 P= 0.999985 Days $T_0=131.681538$ (BKJD)



DV Model-Shift Uniqueness Test

005810113-01, P = 0.999956 Days, E = 130.701320 Days

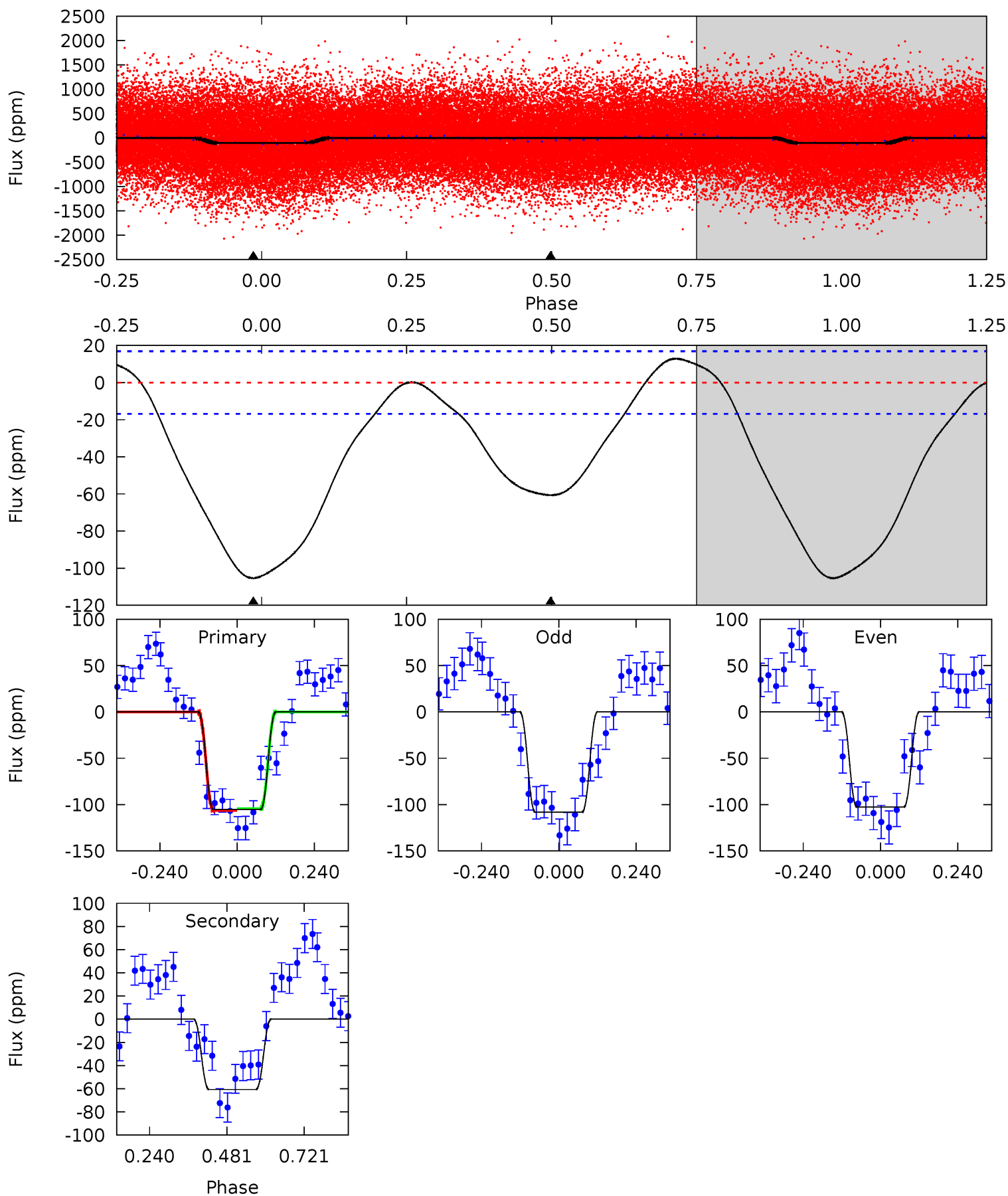
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
23.7	23.7	22.6	0	4.37	1.16	16.5	1.10	23.7	1.02	23.7	0.60	1.01	0.53	0.50



Alt Model-Shift Uniqueness Test

005810113-01, P = 0.999985 Days, E = 130.681553 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
27.4	15.7	0	0	4.38	1.17	1.83	27.4	27.4	15.7	15.7	0.71	1.00	0.11	0.25



Stellar Parameters For KIC 005810113

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	6478^{+116}_{-129}	$3.586^{+0.204}_{-0.036}$	$0.240^{+0.150}_{-0.150}$	$3.761^{+0.320}_{-0.959}$	$1.987^{+0.151}_{-0.280}$	$0.053^{+0.061}_{-0.009}$
	+2%/-2%	+6%/-1%	+62%/-62%	+9%/-25%	+8%/-14%	+117%/-17%
Source	SPE4	SPE4	SPE4	DSEP		

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

Secondary Eclipse Parameters for KIC 005810113-01 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-54 ± 2	$3.06^{+0.91}_{-0.84}$	4829^{+177}_{-276}	5967^{+1237}_{-767}	$1.927^{+1.811}_{-0.775}$
Alt.	-61 ± 4	$4.14^{+0.97}_{-0.84}$	4835^{+179}_{-294}	5163^{+675}_{-546}	$1.176^{+0.654}_{-0.388}$

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

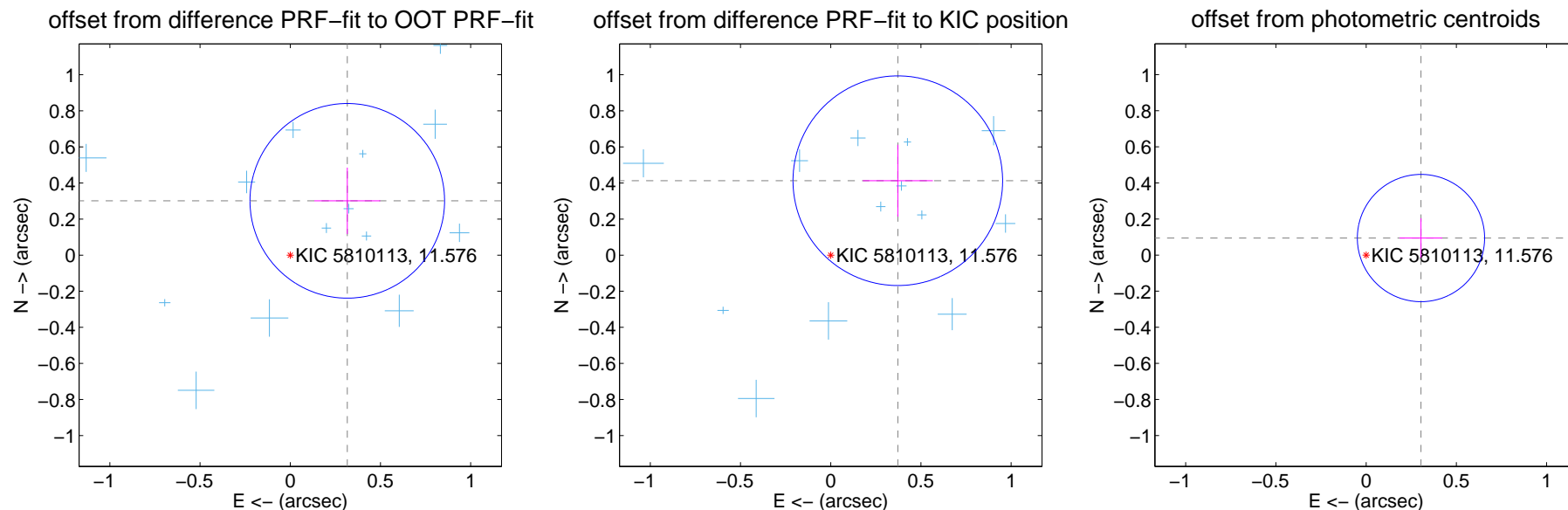
DV Centroid Data

Supplemental centroid analysis for 005810113-01. **Kepler magnitude: 11.58.** Transit SNR 21.52

There are 16 quarters with good PRF difference image offsets

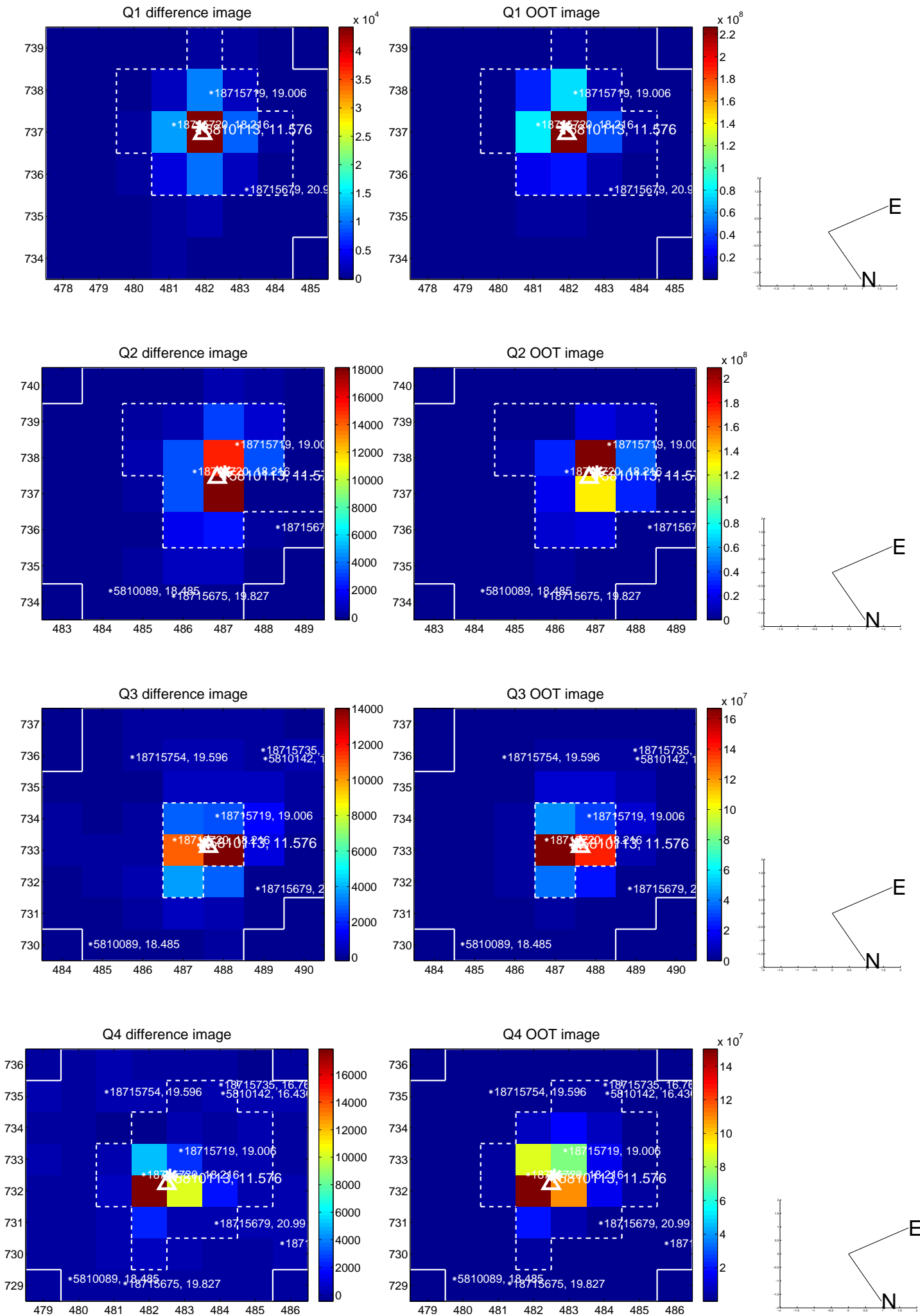
The direct PRF centroid is offset from the target star catalog position by about 0.09 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.437 ± 0.180	2.43	-0.316 ± 0.183	0.301 ± 0.184
PRF-fit source offset from KIC position	0.556 ± 0.194	2.87	-0.372 ± 0.195	0.413 ± 0.199
photometric centroid source offset	0.32 ± 0.12	2.71	-0.30 ± 0.12	0.09 ± 0.11

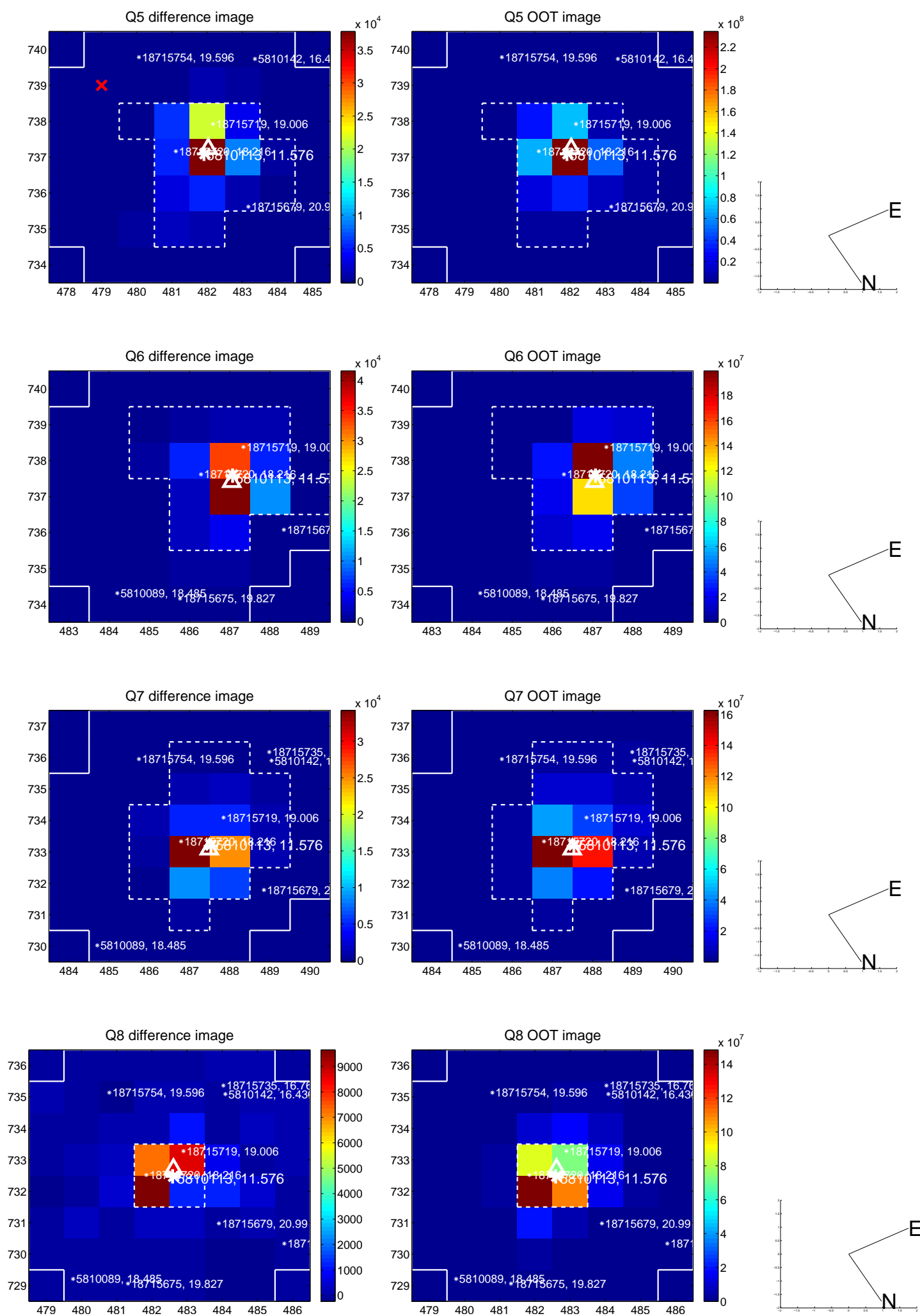


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets;** magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

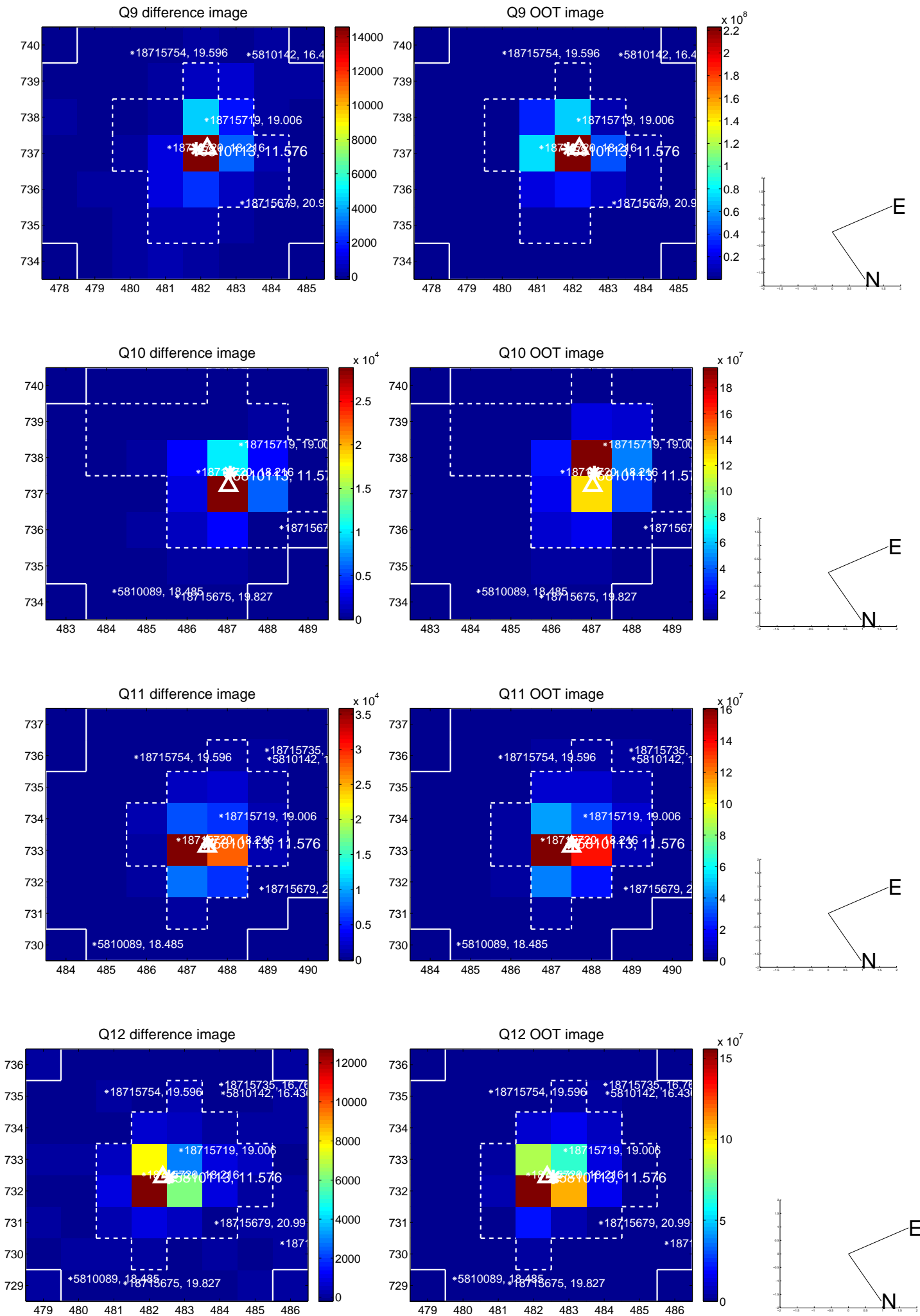
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



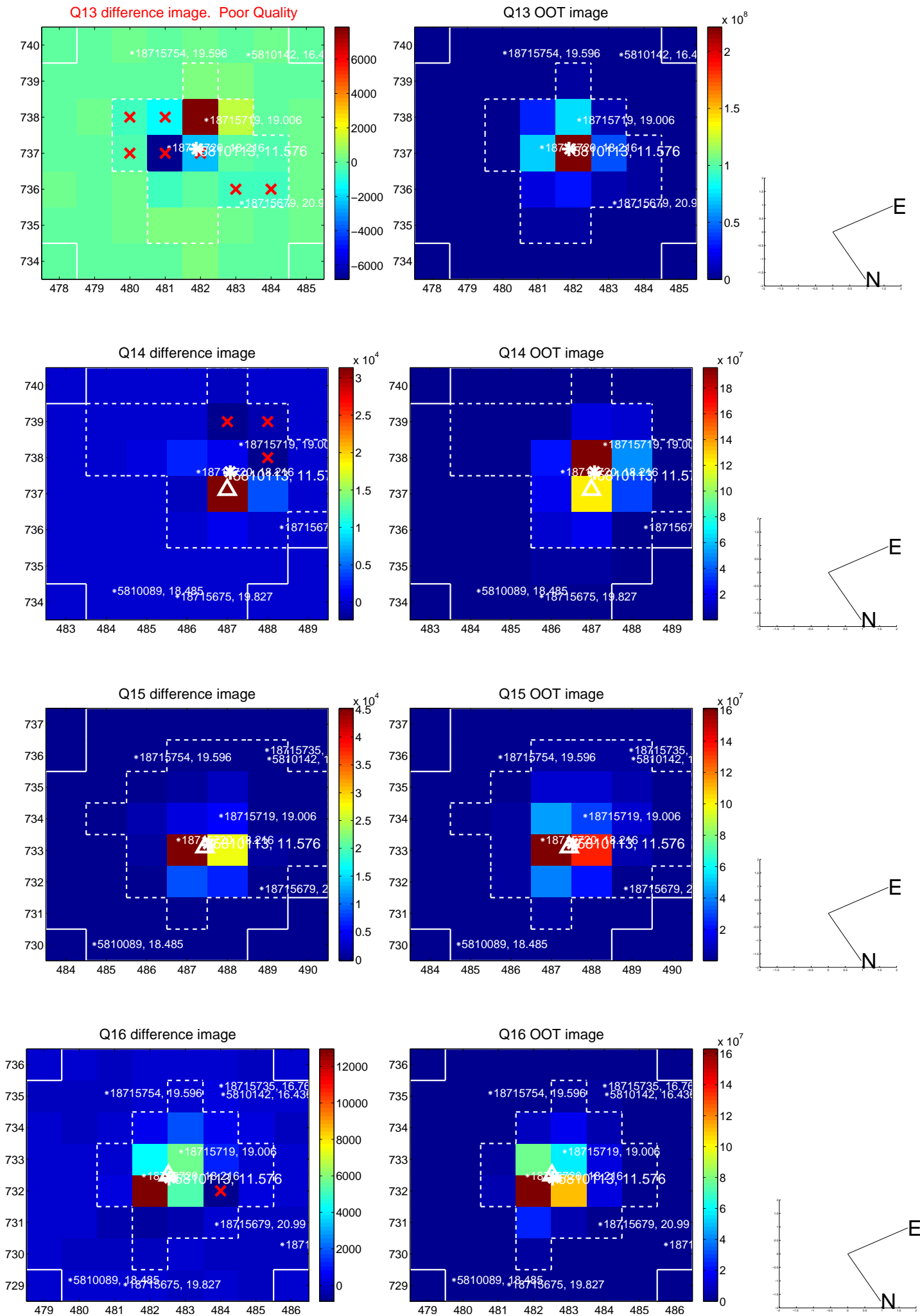
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



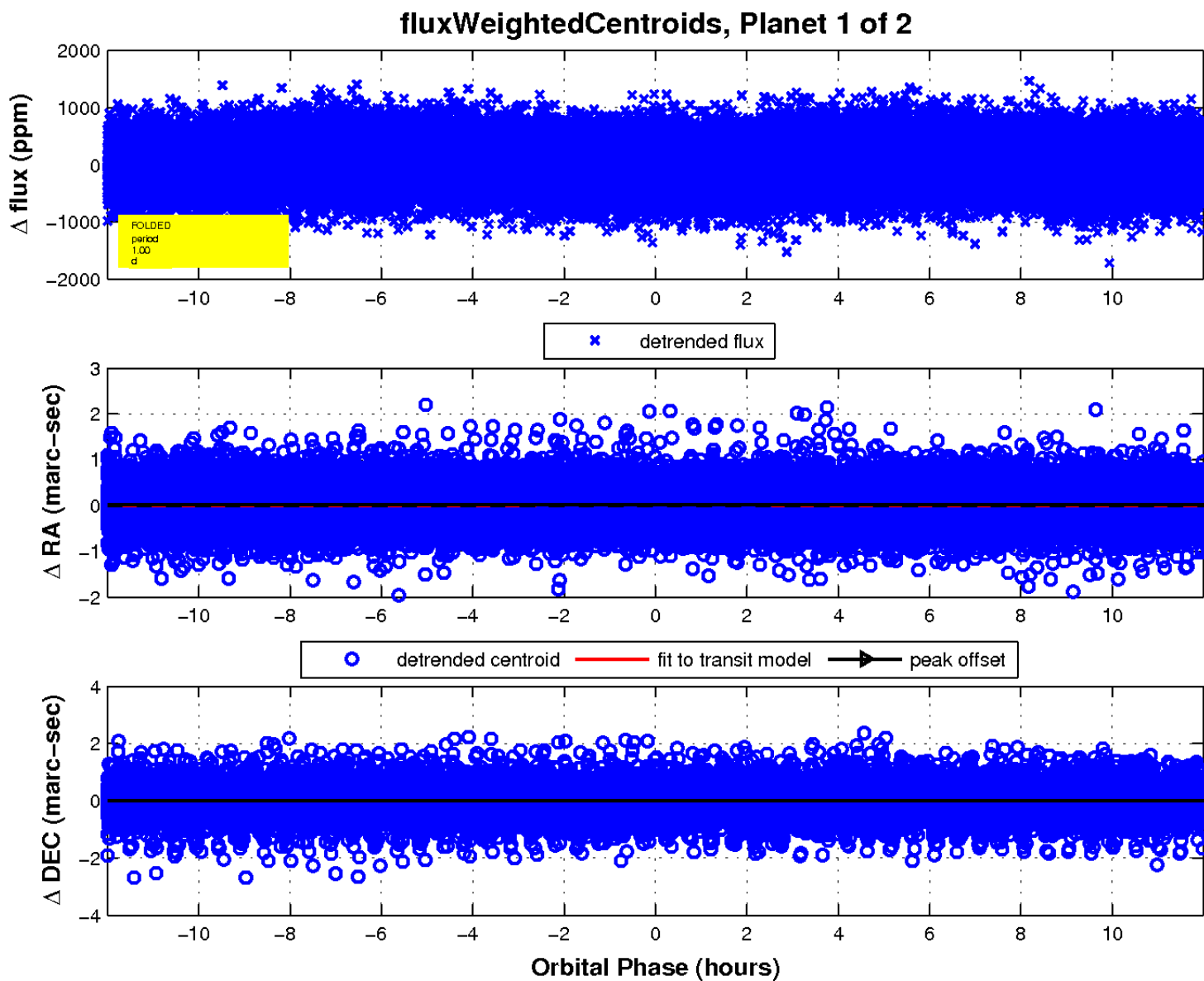
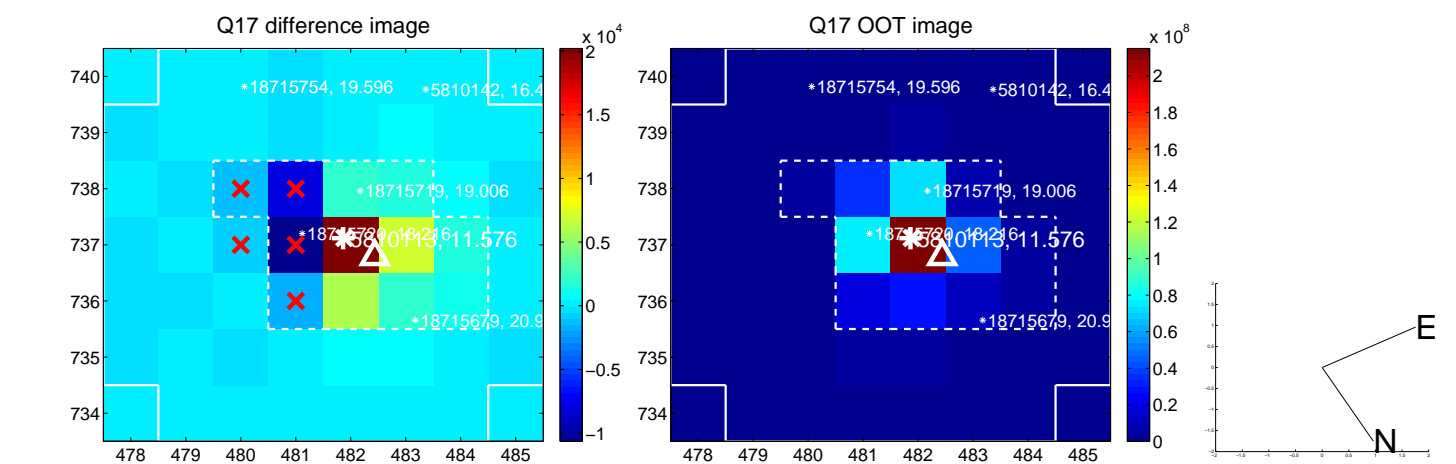
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



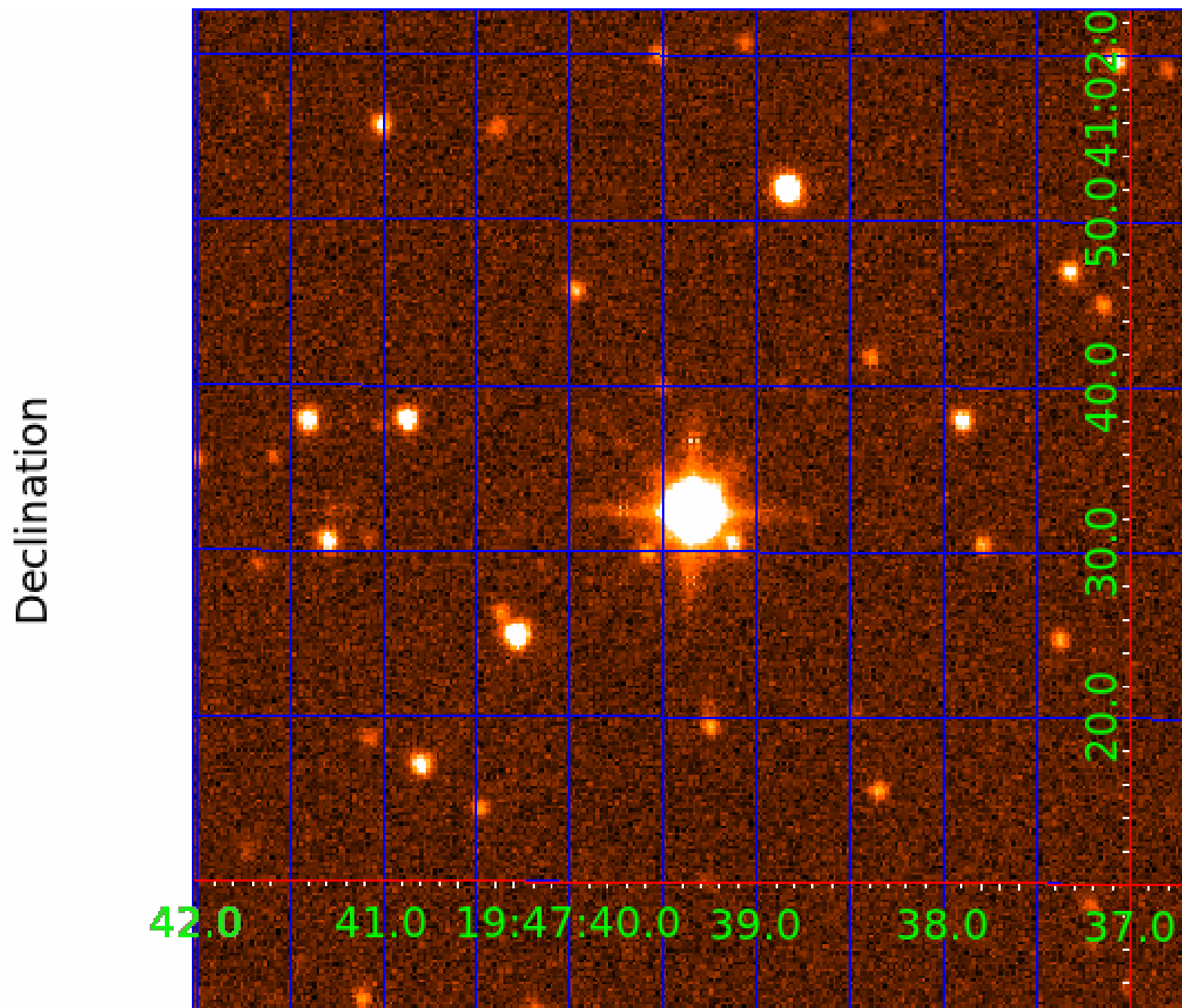
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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



UKIRT Image



KIC 005810113

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})
005810113-01	OBS	No	0.999956	131.701276	69.6	5.432	16.6	21.5	3.76	6478	3.27	36831.48
005810113-02	OBS	No	0.999925	132.209408	45.5	3.584	15.8	15.2	3.76	6478	2.67	36833.01

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
005810113-01	OBS	FP	0.00	1	0	0	0	LPP_DV—MOD_NONUNIQ_DV
005810113-02	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_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.

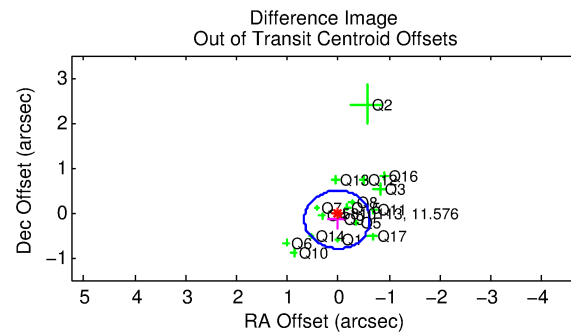
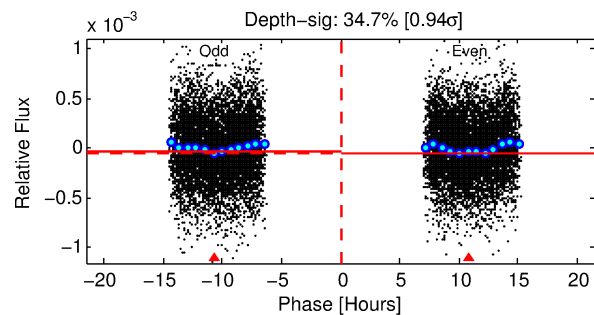
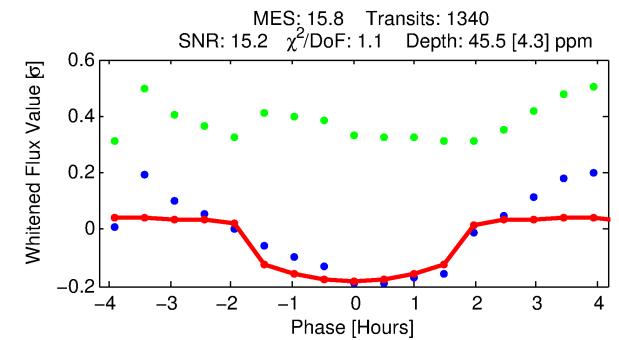
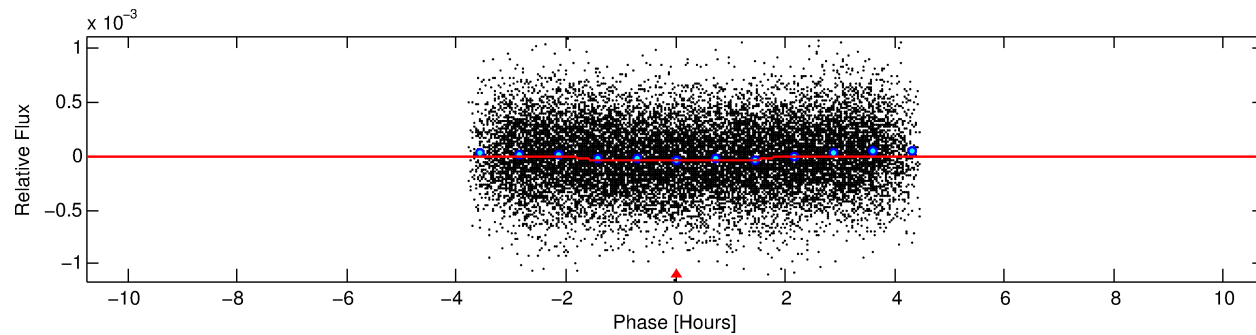
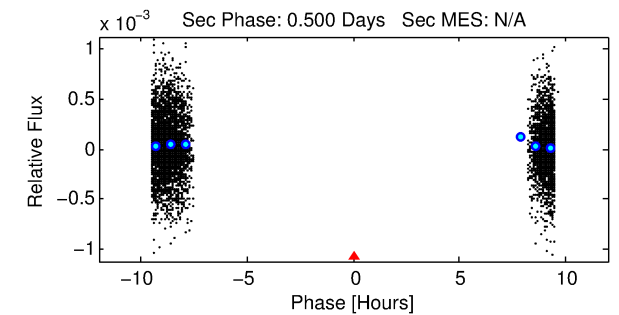
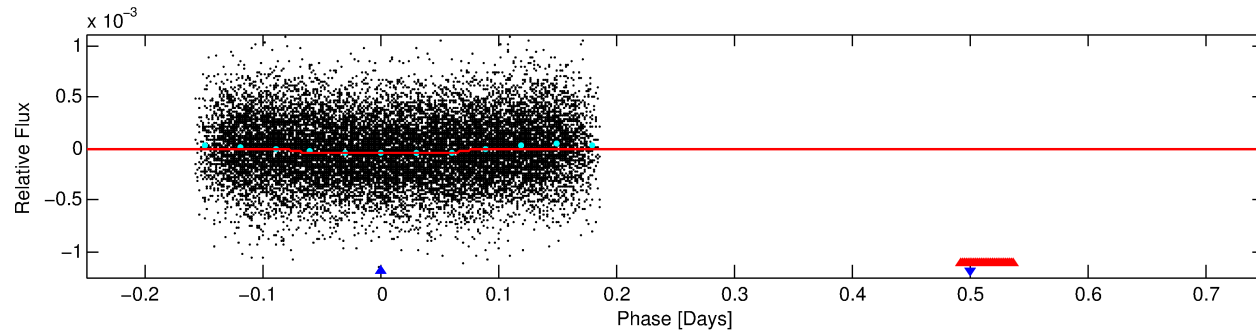
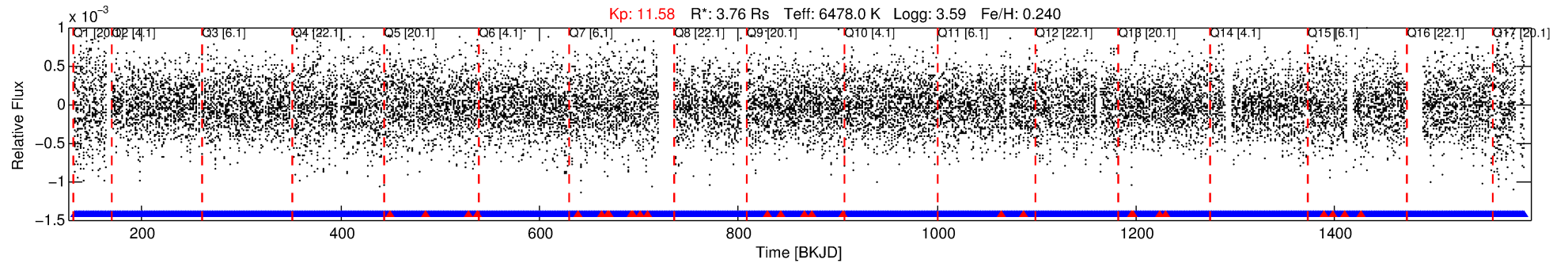
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 005810113-02

No Significant Match Found

DV One-Page Summary

KIC: 5810113 Candidate: 2 of 2 Period: 1.000 d



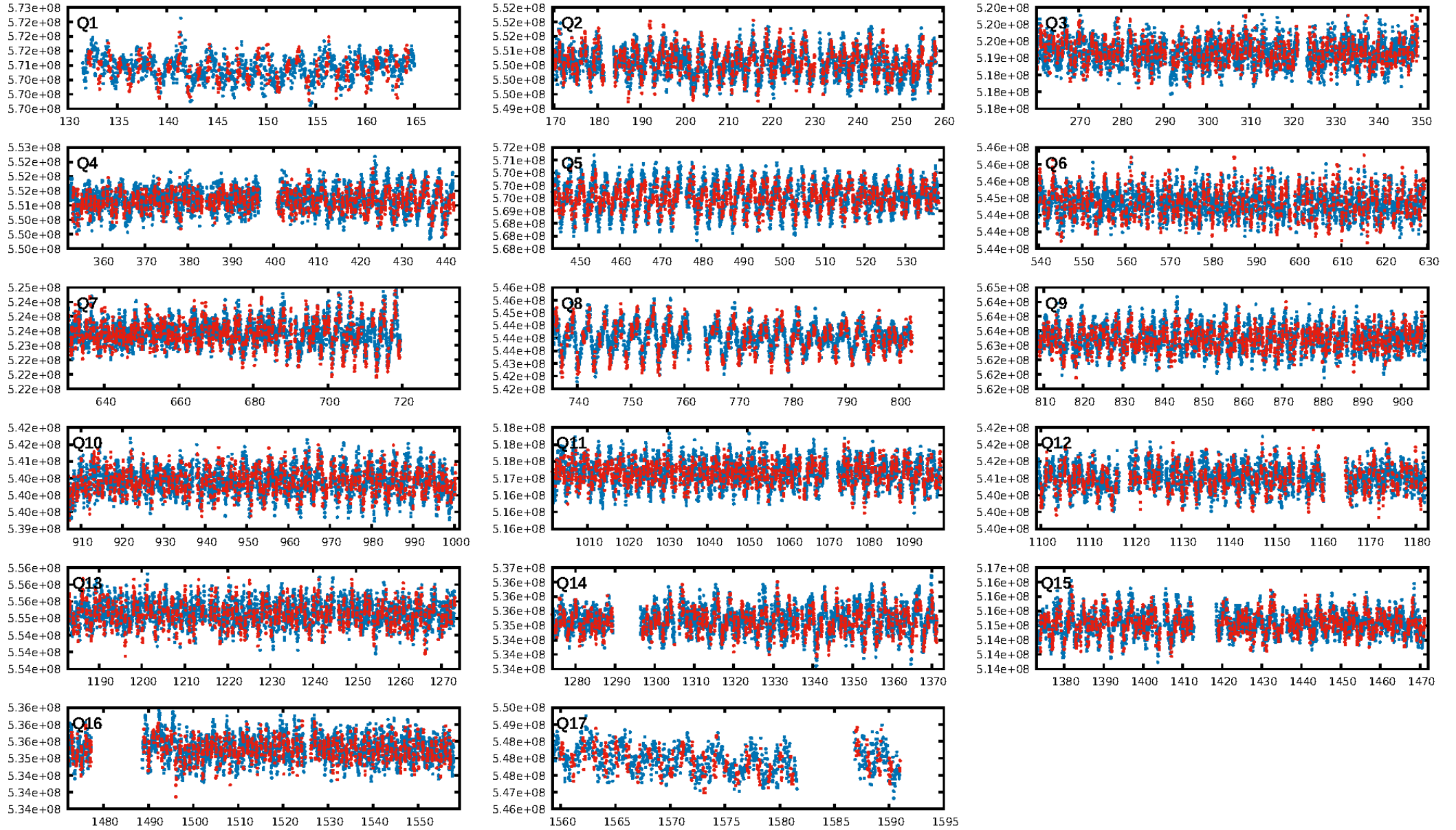
DV Fit Results:

Period = 0.99992 [0.00001] d
Epoch = 132.2094 [0.0027] BKJD
 $R_p/R^* = 0.0065$ [0.0016]
 $a/R^* = 1.84$ [1.72]
 $b = 0.63$ [1.25]
 $\text{Seff} = 36833.01$ [13448.10]
 $T_{\text{eq}} = 3533$ [322] K
 $R_p = 2.68$ [0.96] R_{e}
 $a = 0.0246$ [0.0057] AU

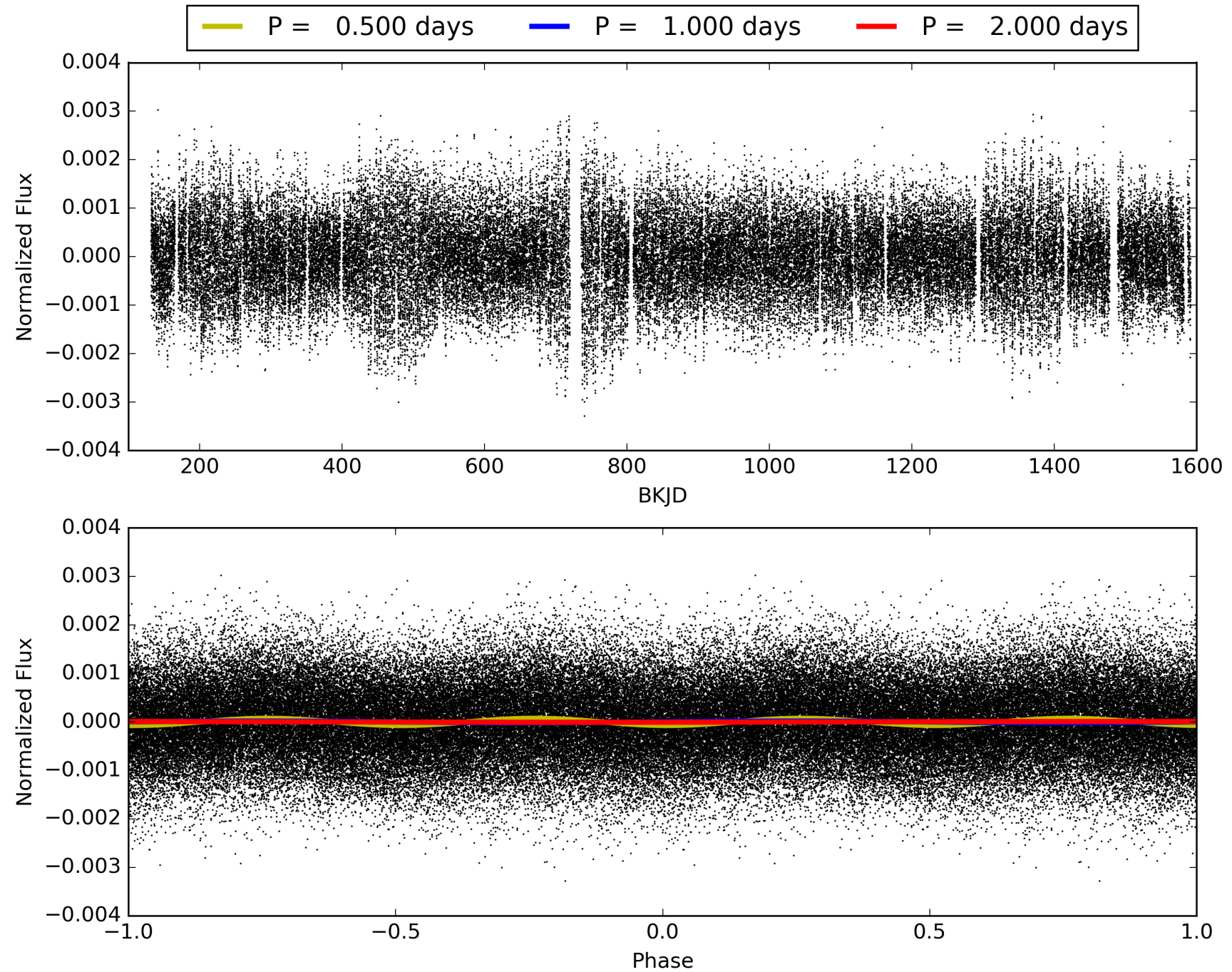
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: 0.0% [0.00σ]
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: N/A
RollingBand-fgt: 0.98 [1254/1281]
GhostDiagnostic-chr: 1.813
Centroid-sig: 0.8%
Centroid-so: 0.460 arcsec [2.27σ]
OotOffset-rm: 0.158 arcsec [0.73σ]
KicOffset-rm: 0.161 arcsec [1.03σ]
OotOffset-st: 4/4/4/5 [17]
KicOffset-st: 4/4/4/5 [17]
DiffImageQuality-fgm: 0.94 [16/17]
DiffImageOverlap-fno: 1.00 [17/17]

TCE 005810113-02, PDC Light Curves

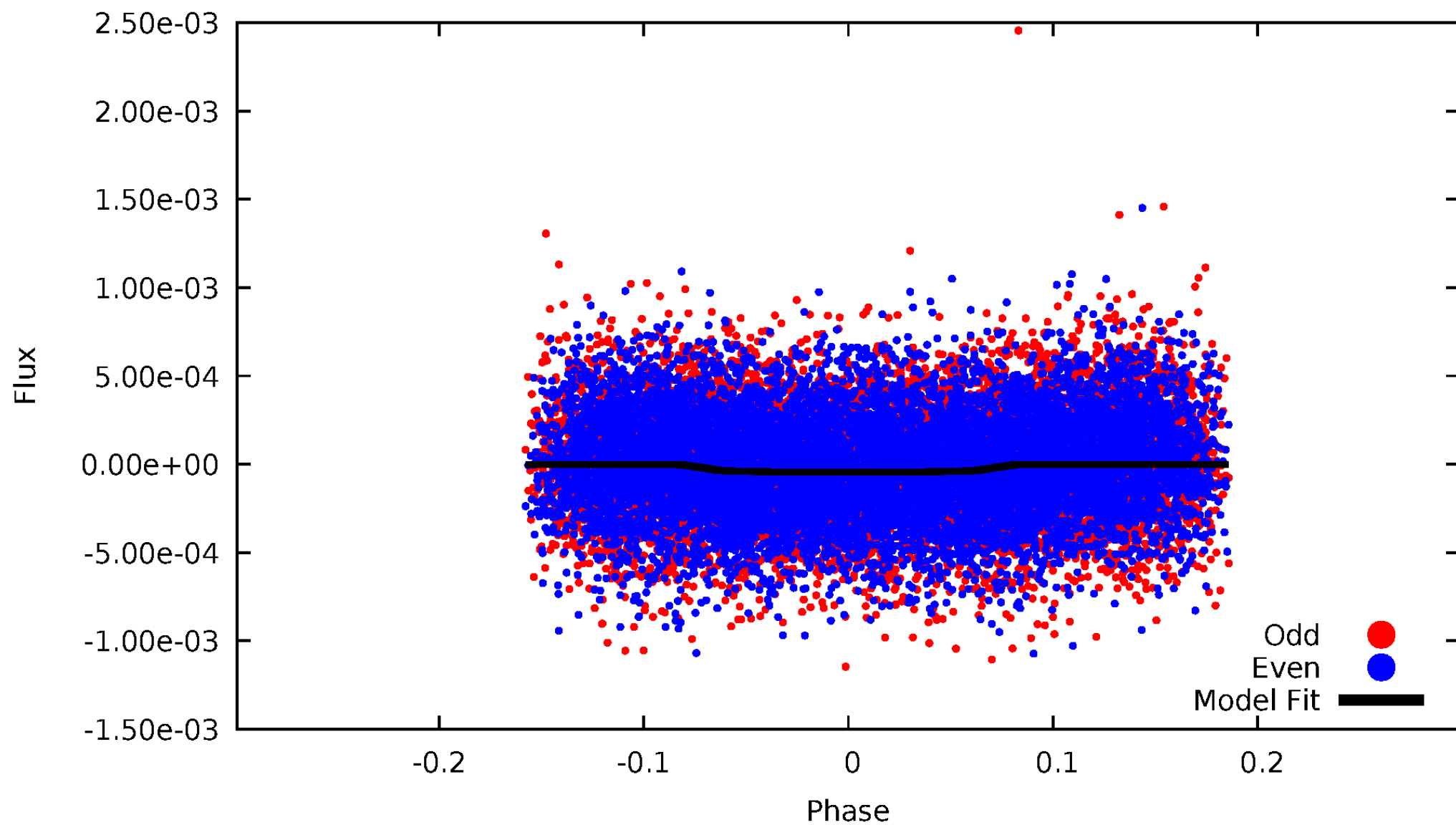


TCE 005810113-02



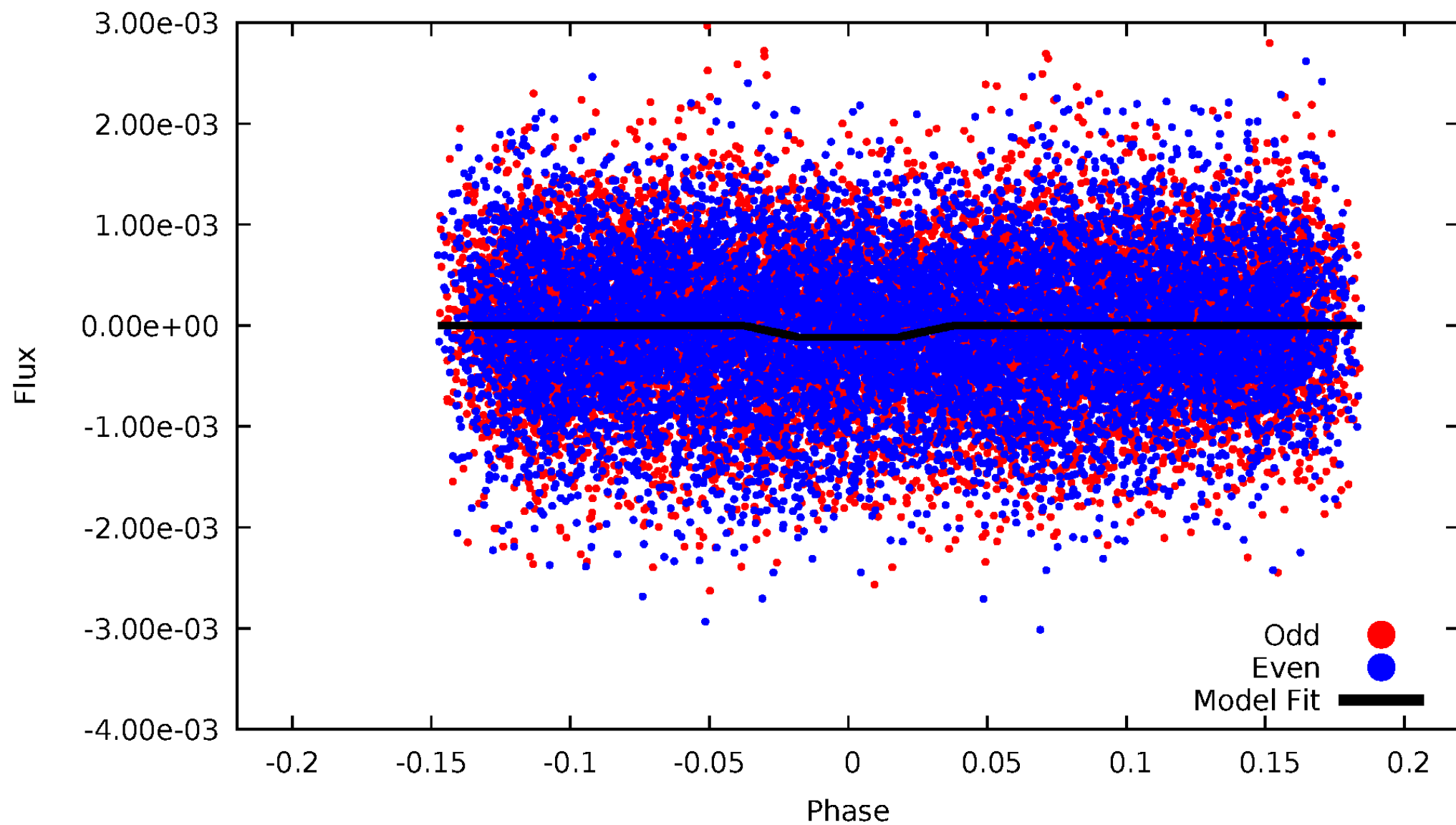
DV Odd/Even

TCE 005810113-02



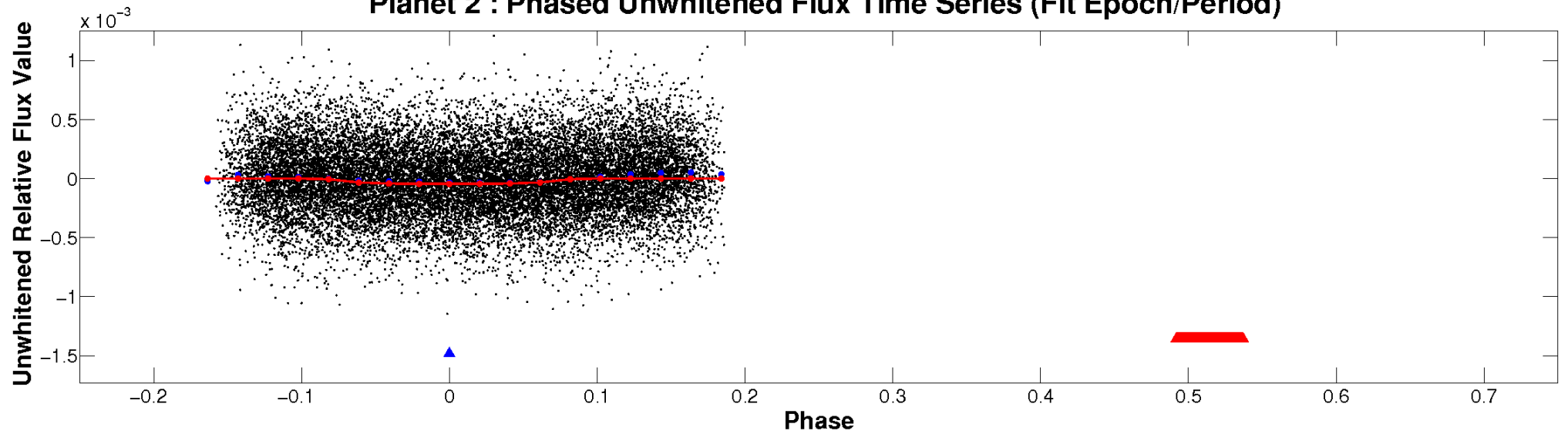
ALT Odd/Even

TCE 005810113-02

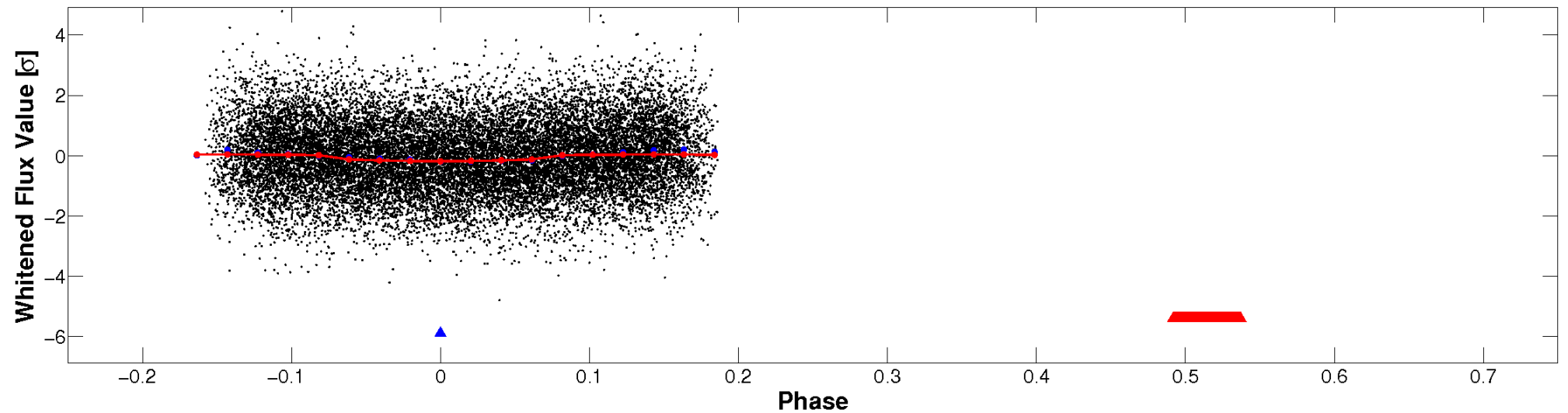


Non-Whitened Vs. Whitened Light Curve

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

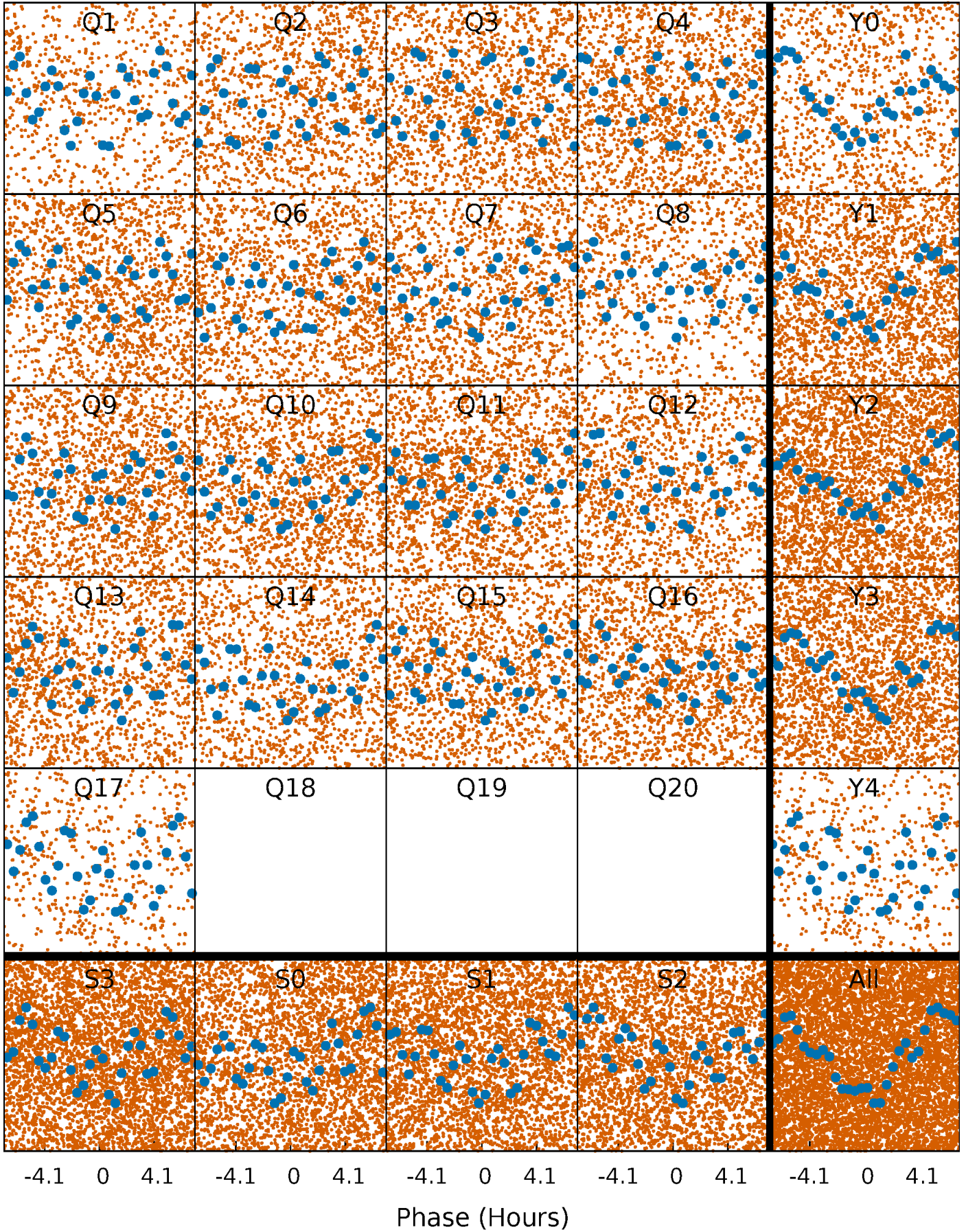


Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



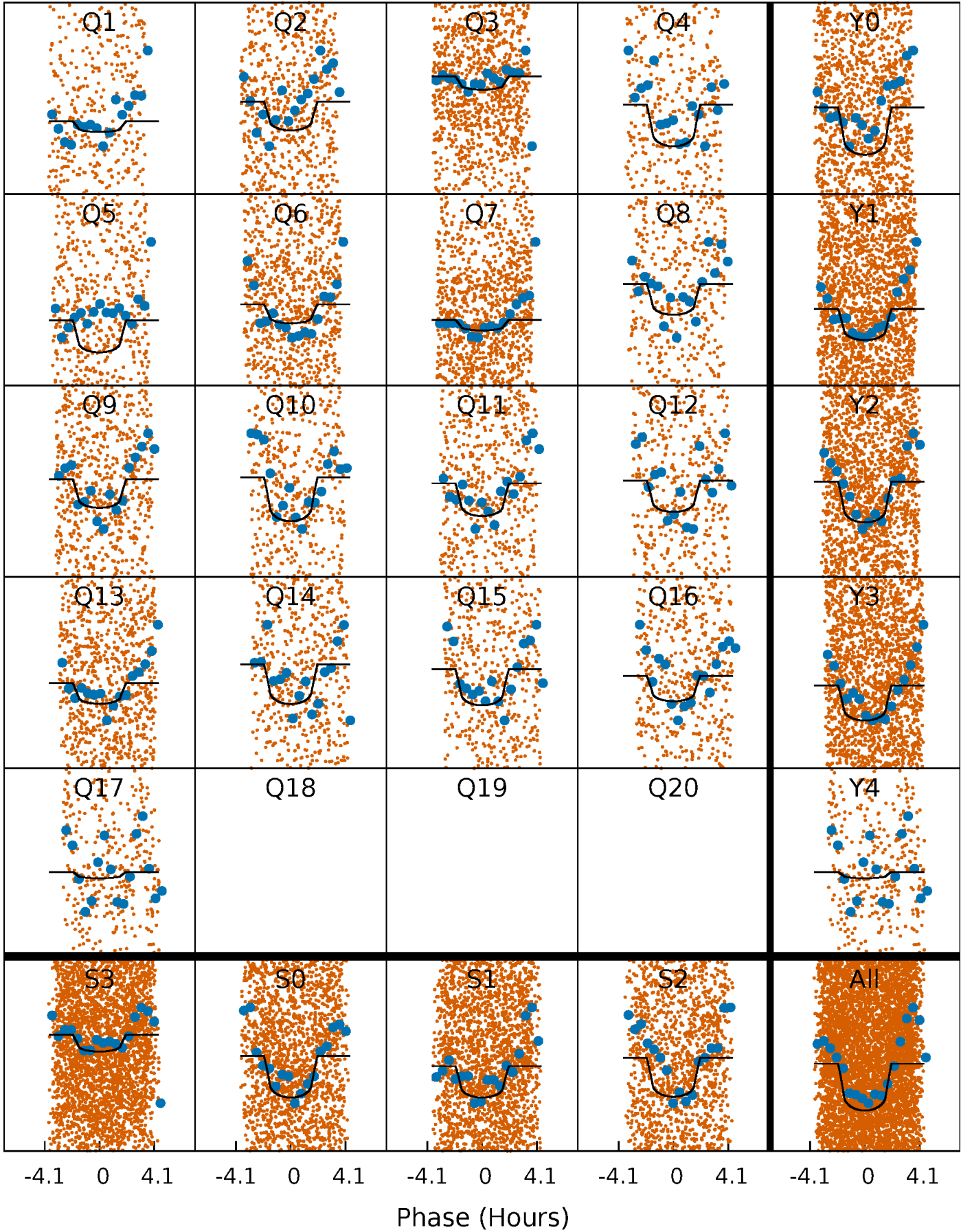
PDC Quarter-Phased Transit Curves

TCE 005810113-02 P= 0.999925 Days $T_0=132.209408$ (BKJD)



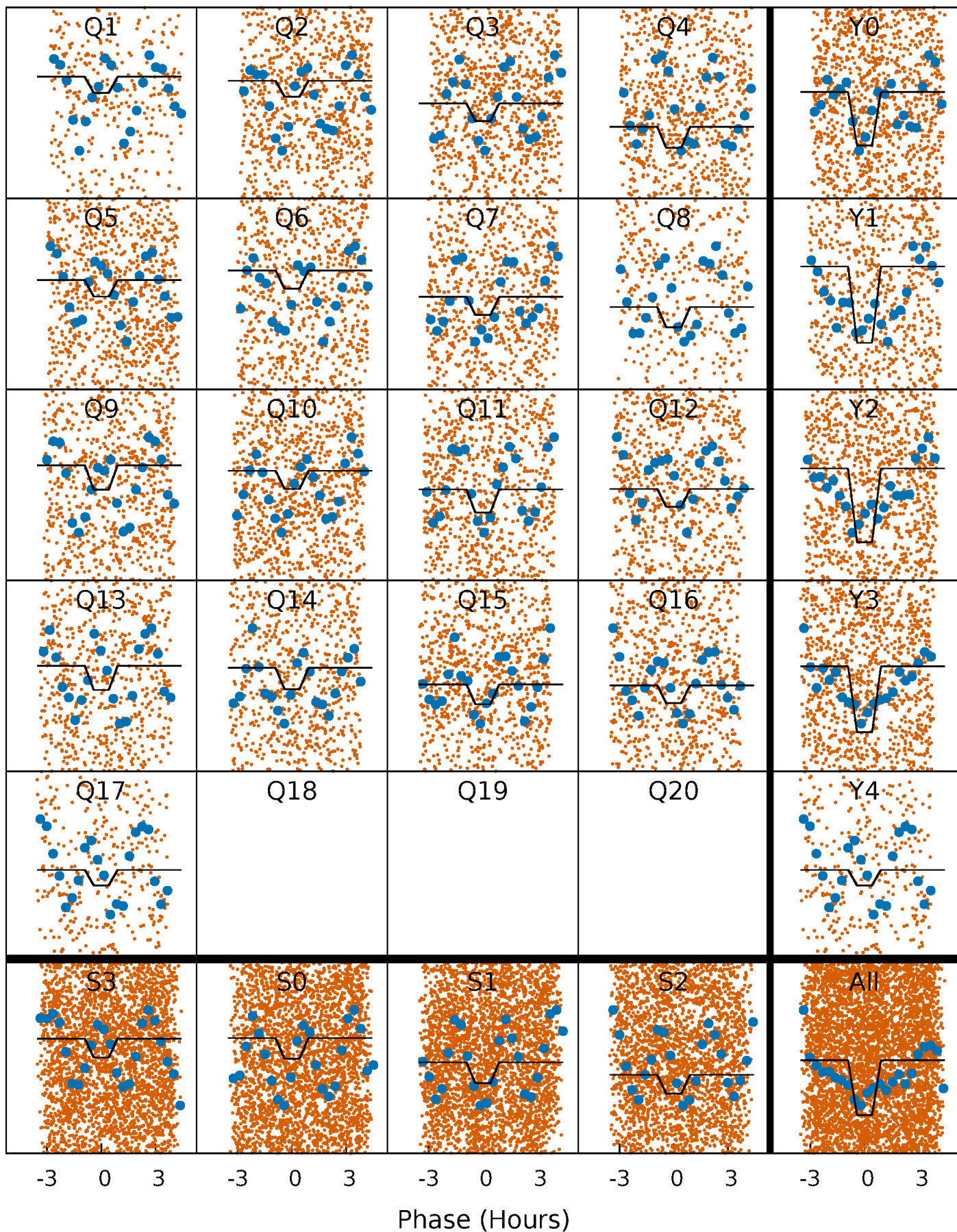
DV Quarter-Phased Transit Curves

TCE 005810113-02 P= 0.999925 Days $T_0=132.209408$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

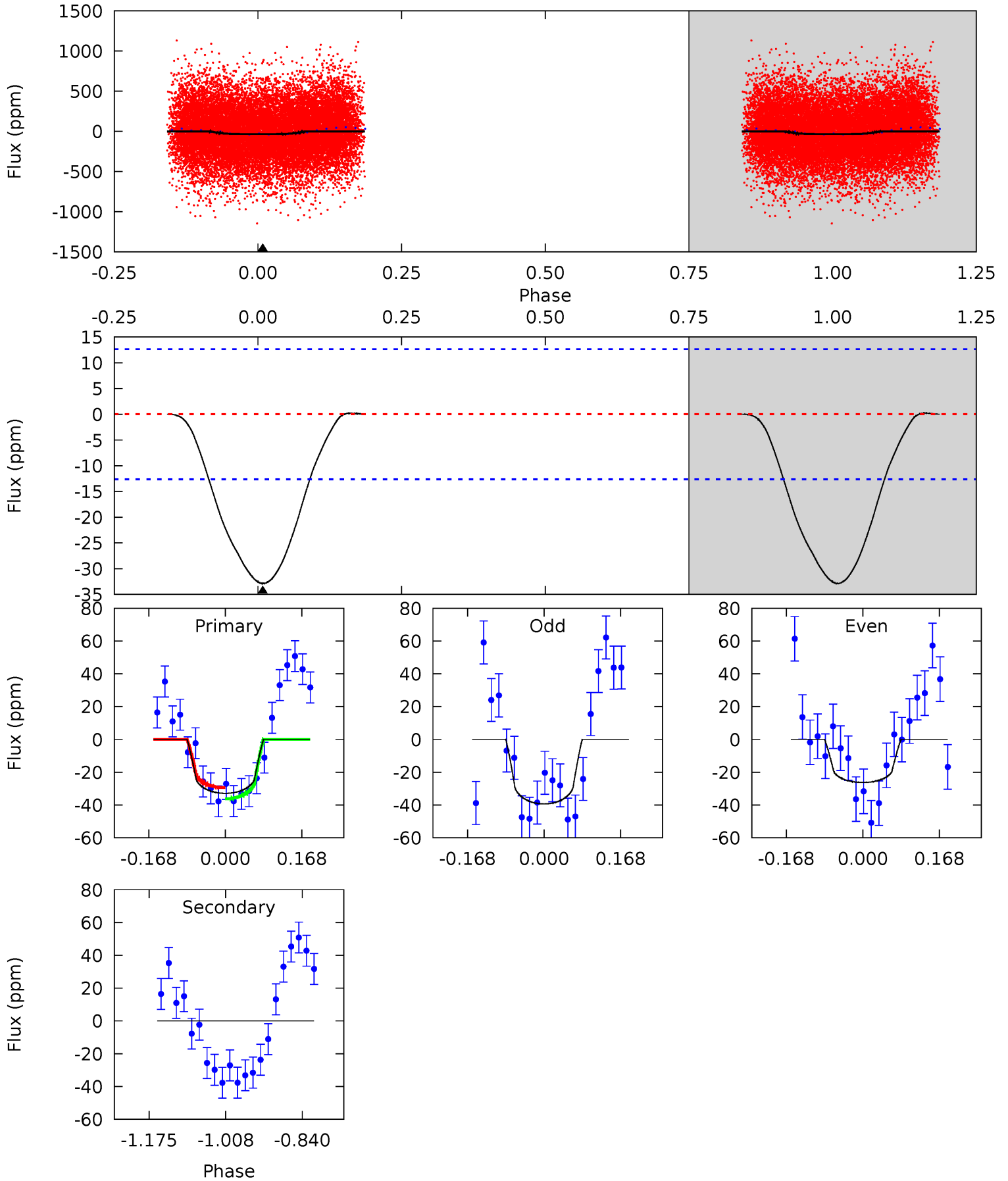
TCE 005810113-02 P= 0.999978 Days $T_0=132.166660$ (BKJD)



DV Model-Shift Uniqueness Test

005810113-02, P = 0.999925 Days, E = 131.209483 Days

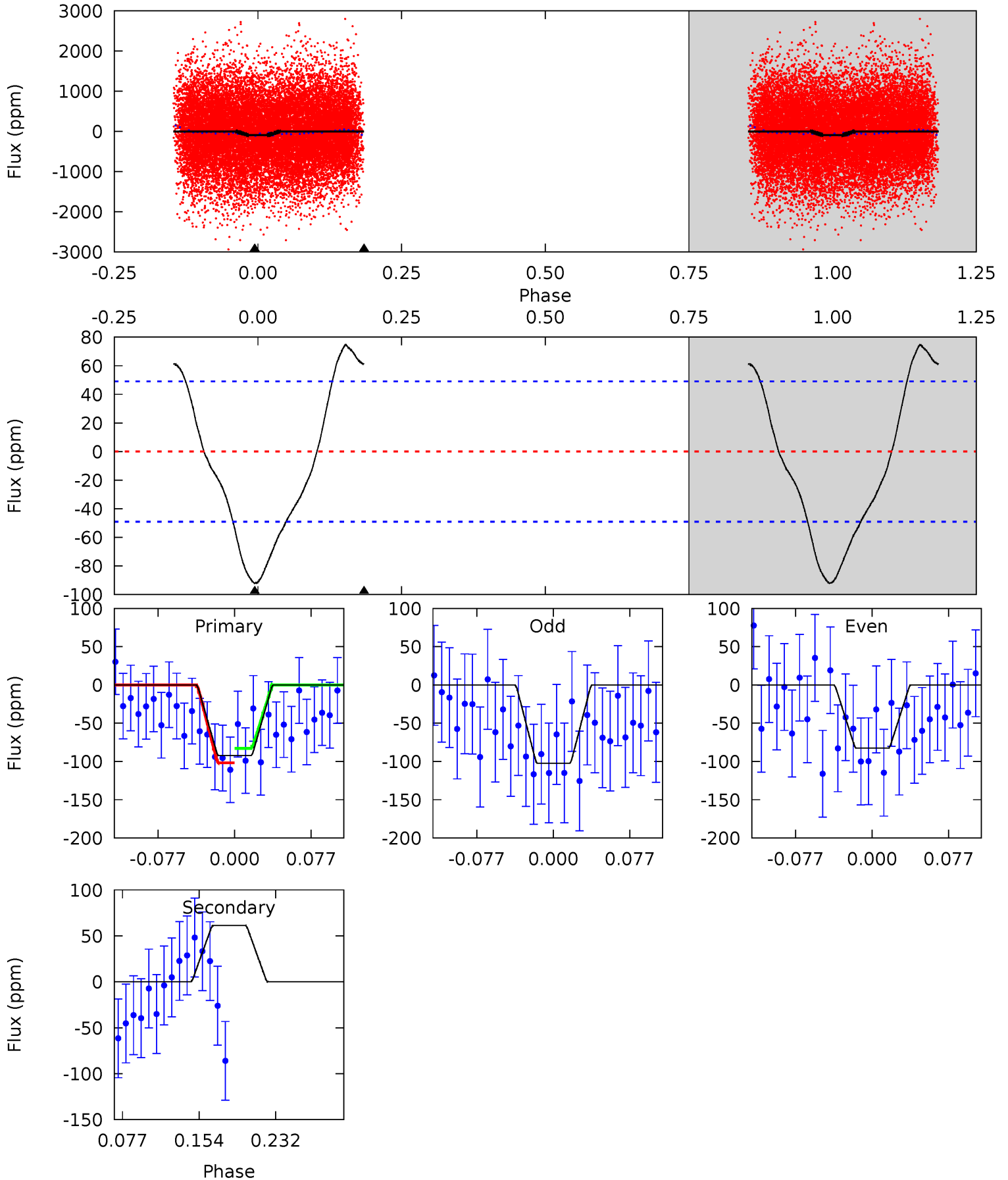
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
11.6	0	0	0	4.45	1.38	0.13	11.6	11.6	0	0	2.31	0.93	0.01	1.20



Alt Model-Shift Uniqueness Test

005810113-02, P = 0.999978 Days, E = 131.166682 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
8.69	-5.77	0	0	4.62	1.77	2.45	8.69	8.69	-5.77	-5.77	0.93	1.06	0.45	0.88



Stellar Parameters For KIC 005810113

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	6478^{+116}_{-129}	$3.586^{+0.204}_{-0.036}$	$0.240^{+0.150}_{-0.150}$	$3.761^{+0.320}_{-0.959}$	$1.987^{+0.151}_{-0.280}$	$0.053^{+0.061}_{-0.009}$
	+2%/-2%	+6%/-1%	+62%/-62%	+9%/-25%	+8%/-14%	+117%/-17%
Source	SPE4	SPE4	SPE4	DSEP		

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

Secondary Eclipse Parameters for KIC 005810113-02 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	0 ± 3	$2.55^{+0.66}_{-0.72}$	4850^{+172}_{-305}	-4188^{+620}_{-397}	$0.004^{+0.171}_{-0.159}$
Alt.	61 ± 11	$4.28^{+0.79}_{-0.79}$	4835^{+173}_{-312}	-5787^{+358}_{-451}	$-1.133^{+0.362}_{-0.548}$

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 $A_{obs} \gg 1.0$

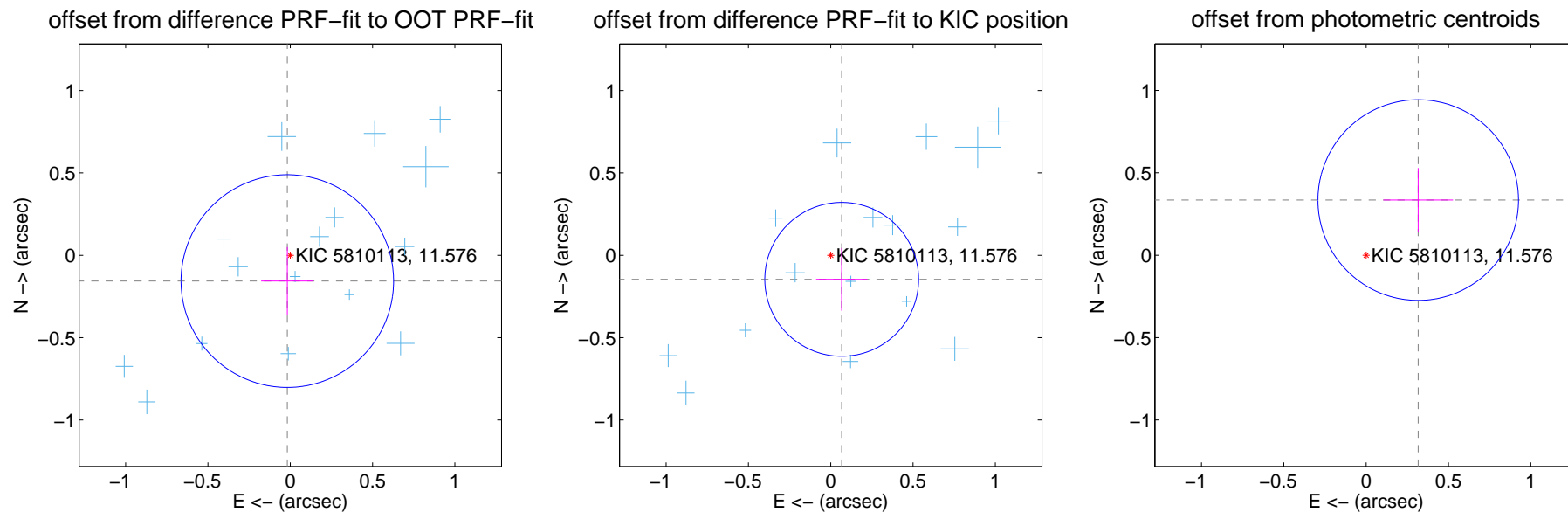
DV Centroid Data

Supplemental centroid analysis for 005810113-02. **Kepler magnitude: 11.58.** Transit SNR 15.25

There are 16 quarters with good PRF difference image offsets

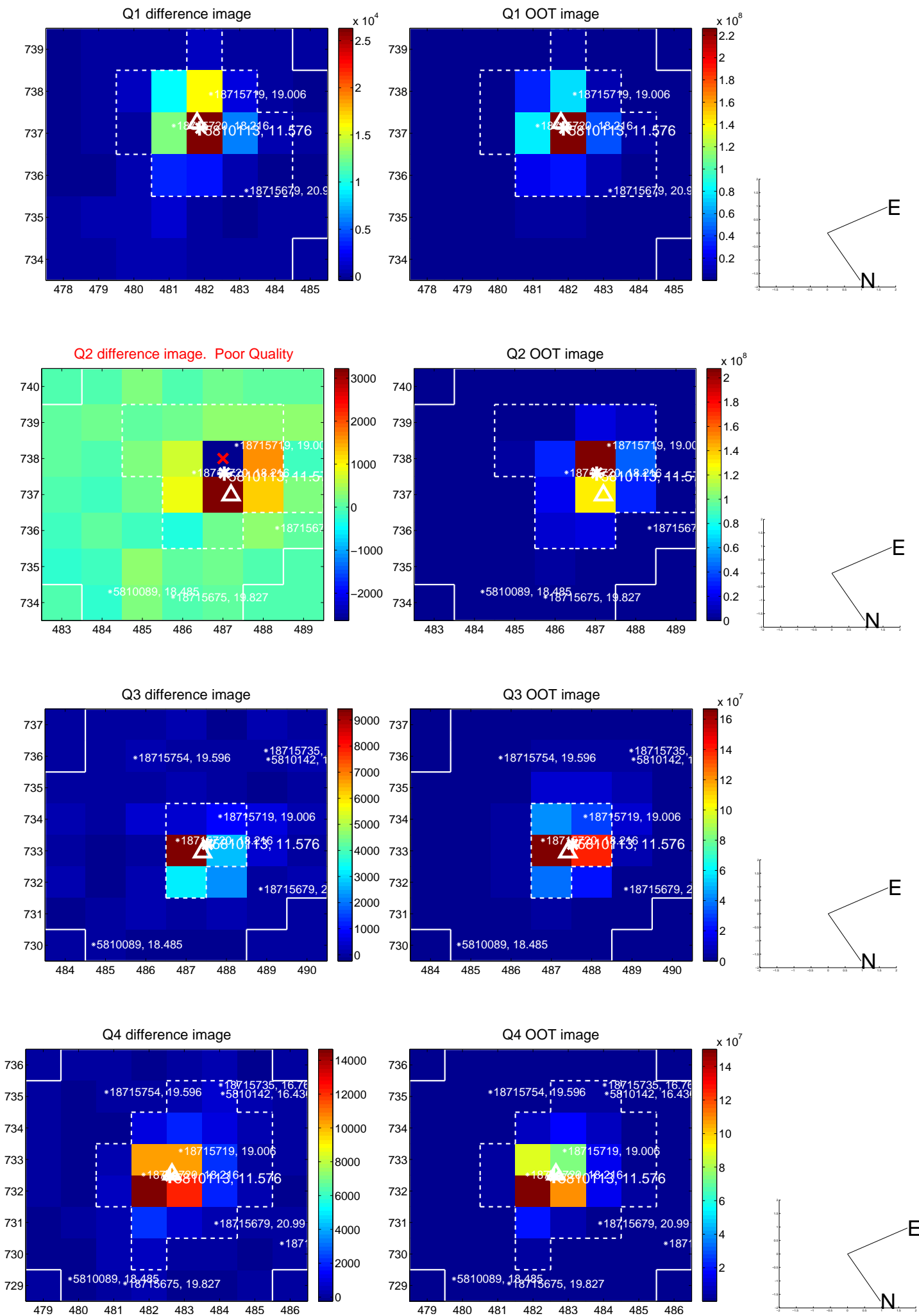
The direct PRF centroid is offset from the target star catalog position by about 0.09 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.158 ± 0.215	0.73	0.018 ± 0.159	-0.157 ± 0.206
PRF-fit source offset from KIC position	0.161 ± 0.156	1.03	-0.067 ± 0.155	-0.146 ± 0.191
photometric centroid source offset	0.46 ± 0.20	2.27	-0.32 ± 0.21	0.33 ± 0.19

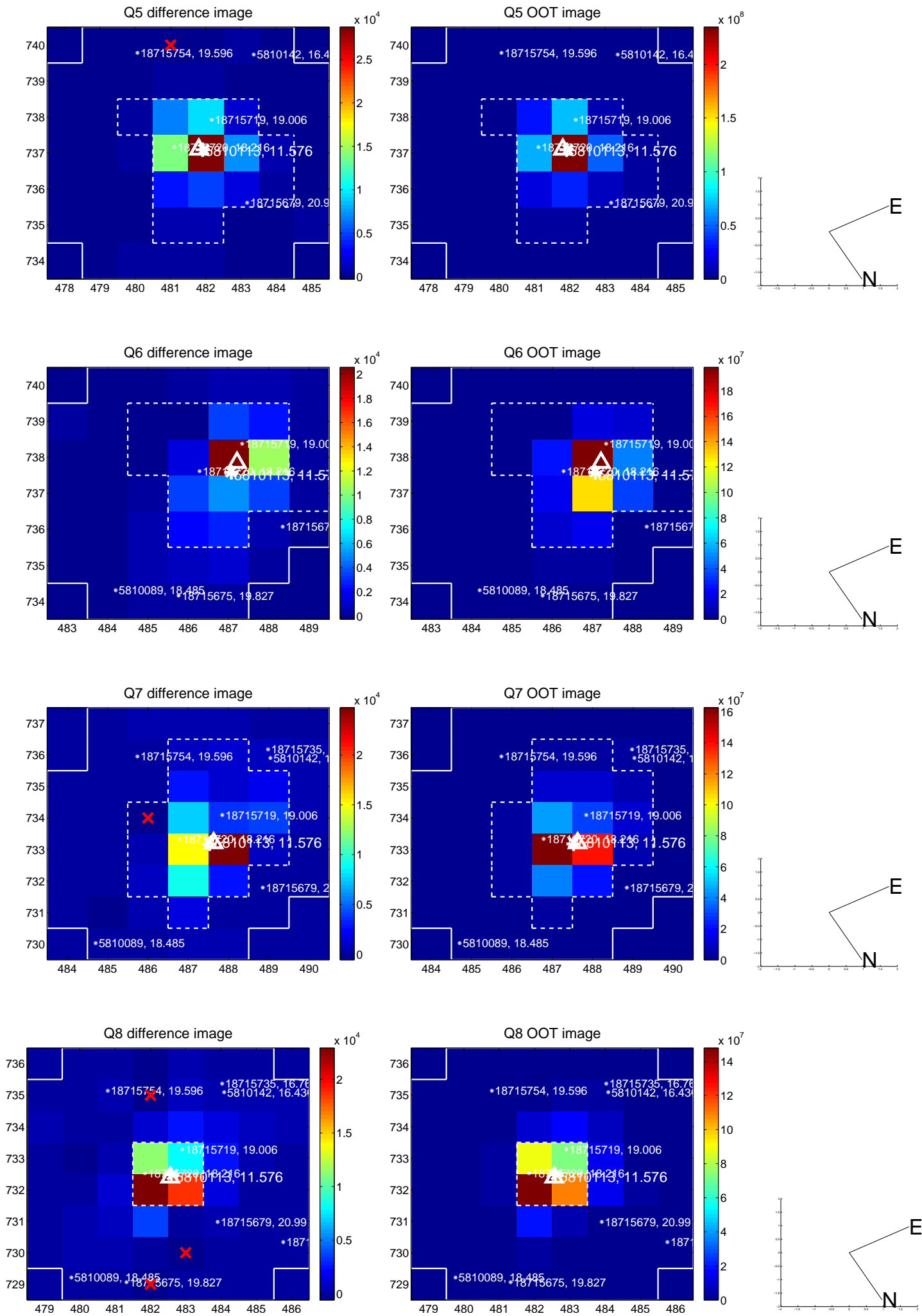


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets;** magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

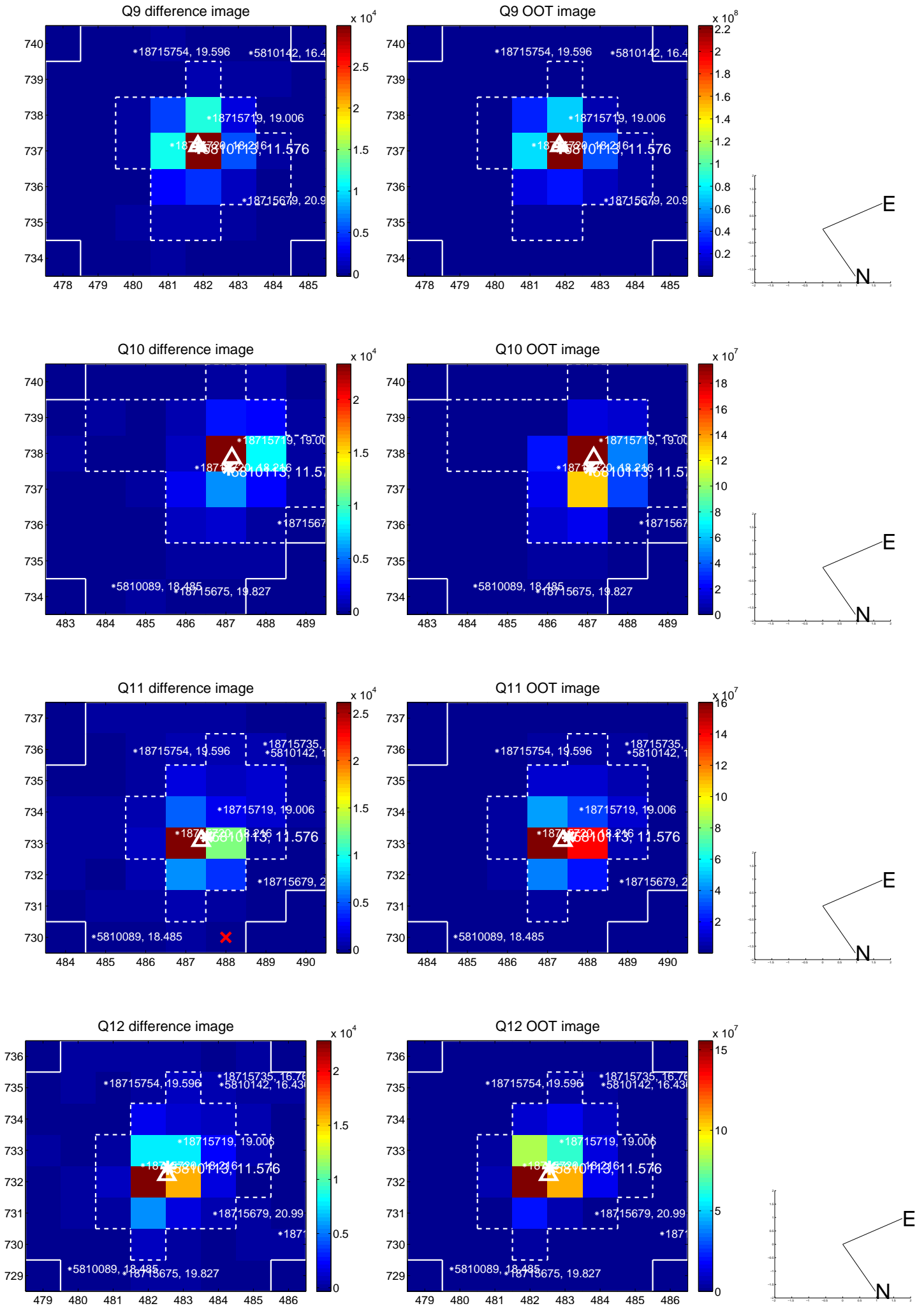
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



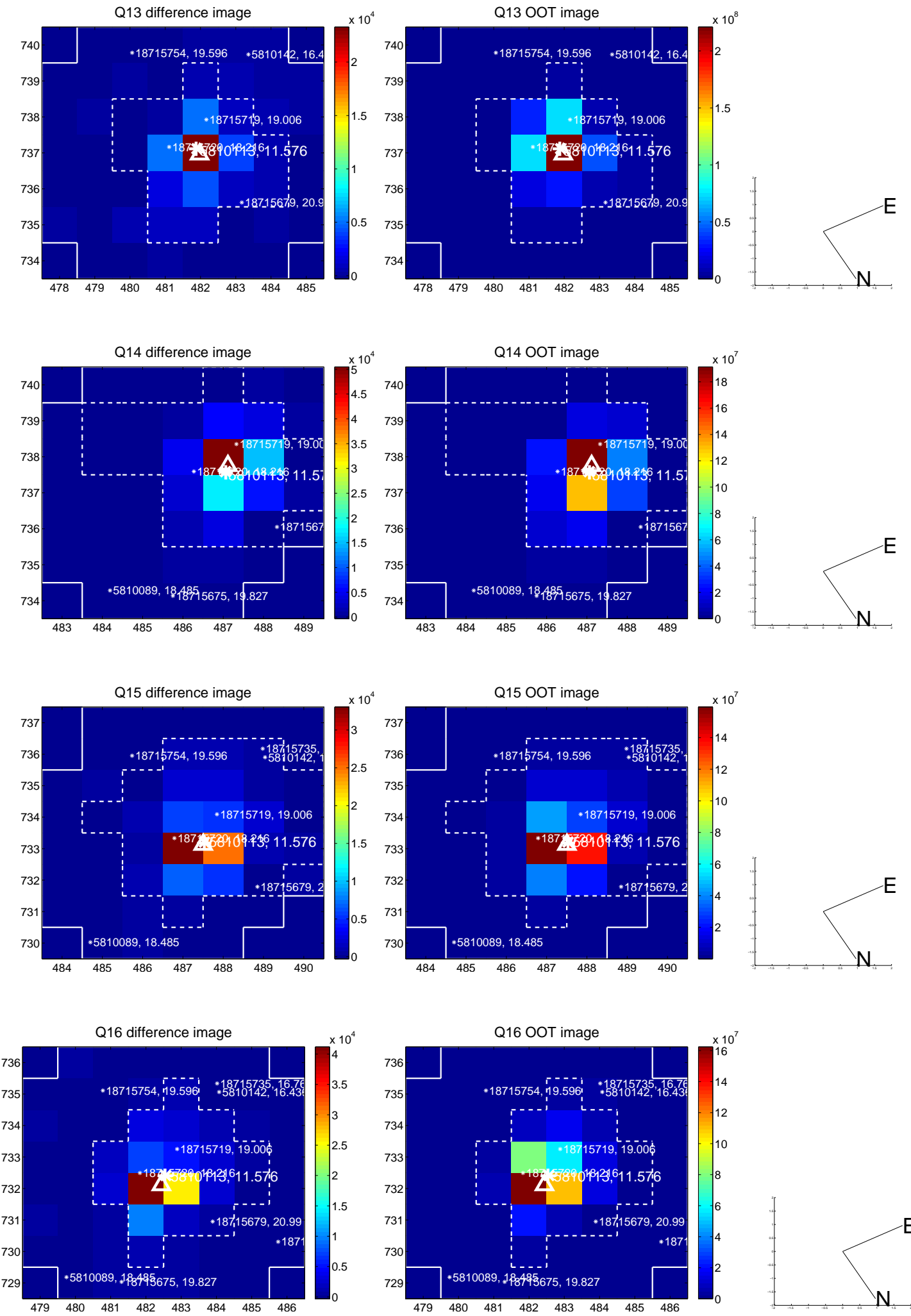
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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



UKIRT Image

