

KIC 006446951

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})
006446951-01	OBS	No	1.387354	131.507588	54.0	5.000	9.7	-1.0	2.02	7615	1.50	15890.15
006446951-02	OBS	No	3.182292	133.504582	123.6	8.832	8.0	8.2	2.02	7615	2.60	5252.80

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
006446951-01	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_ALT—MOD_TER_ALT—CENT_SATURATED
006446951-02	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—CENT_SATURATED

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

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

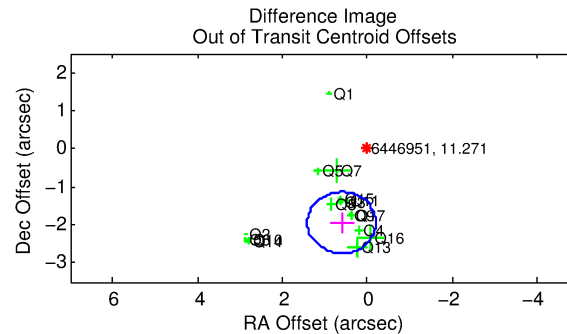
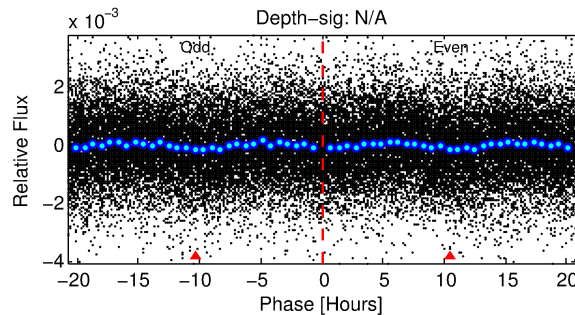
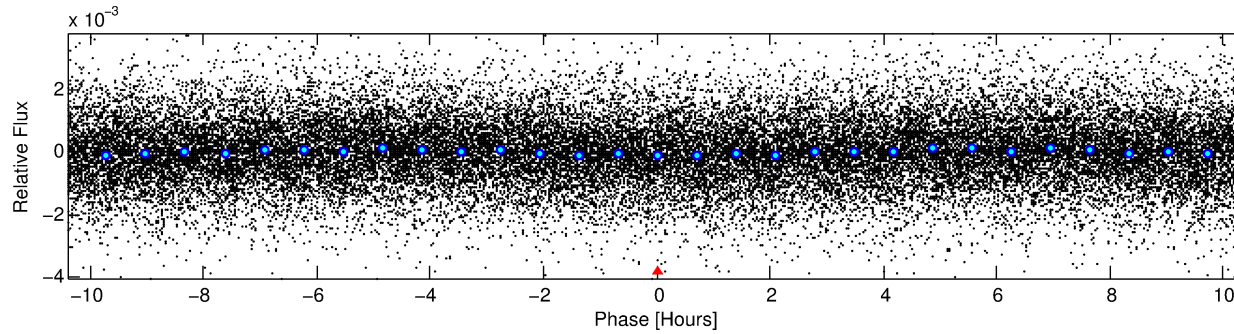
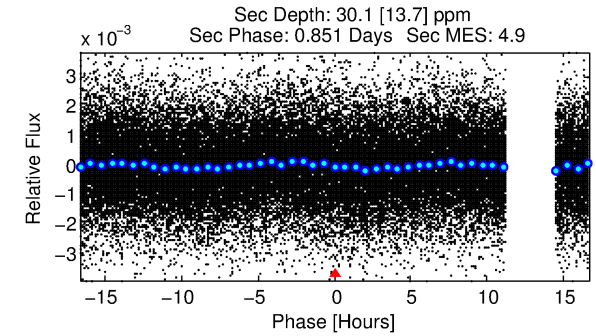
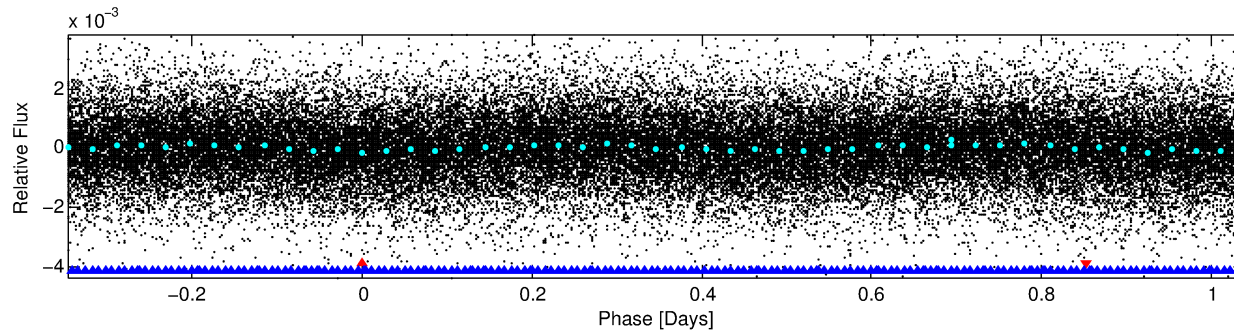
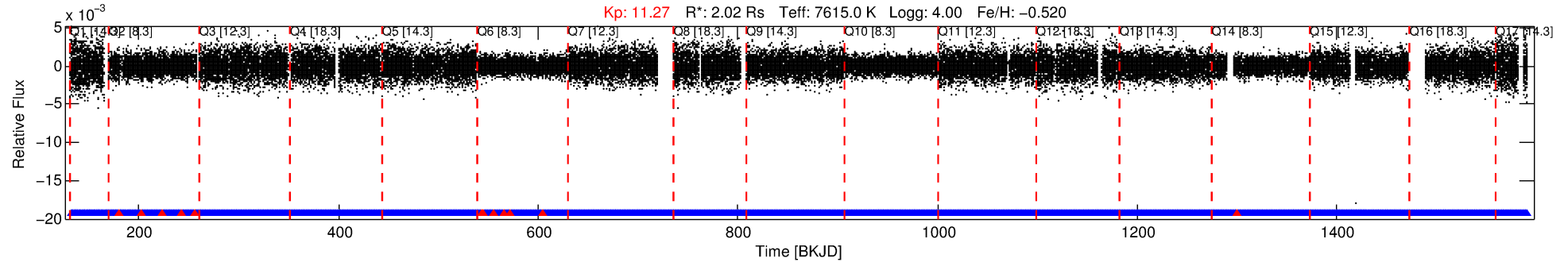
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 006446951-01

No Significant Match Found

DV One-Page Summary

KIC: 6446951 Candidate: 1 of 2 Period: 1.387 d



TPS TCE Results:

Period = 1.38735 d
Epoch = 131.5076 BKJD

DV fit results are unavailable

DV Diagnostic Results:

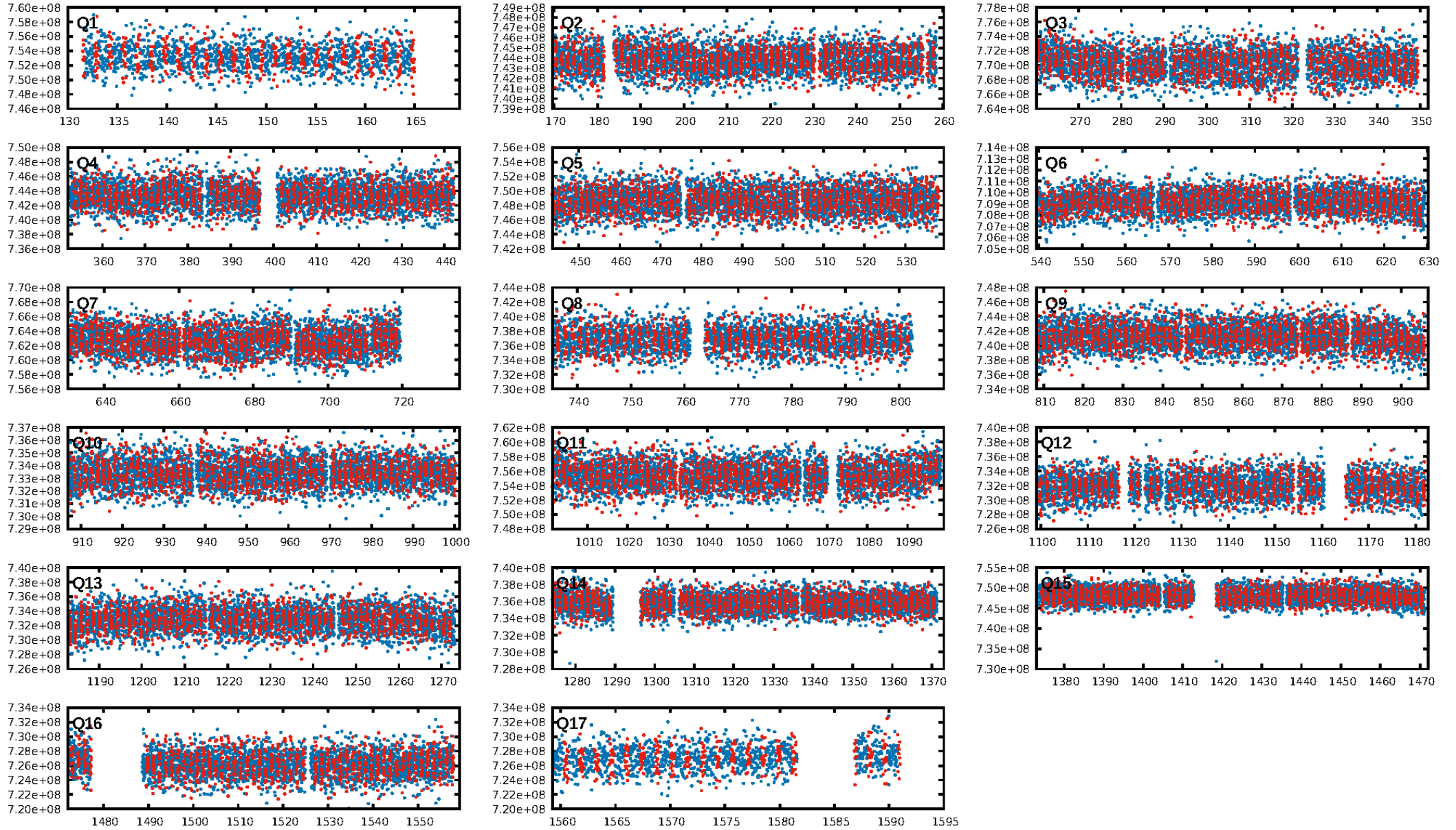
ShortPeriod-sig: N/A
LongPeriod-sig: 100.0% [4.24σ]
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: 2.31e-19
RollingBand-fgt: 0.99 [910/922]
GhostDiagnostic-chr: 1.658

Centroid-sig: 0.0%
Centroid-so: 0.357 arcsec [3.18σ]
OotOffset-rm: 2.032 arcsec [7.58σ]
KicOffset-rm: 2.171 arcsec [8.15σ]
OotOffset-st: 4/4/3/5 [16]
KicOffset-st: 4/4/3/5 [16]
DiffImageQuality-fgm: 0.88 [14/16]
DiffImageOverlap-fno: 1.00 [17/17]

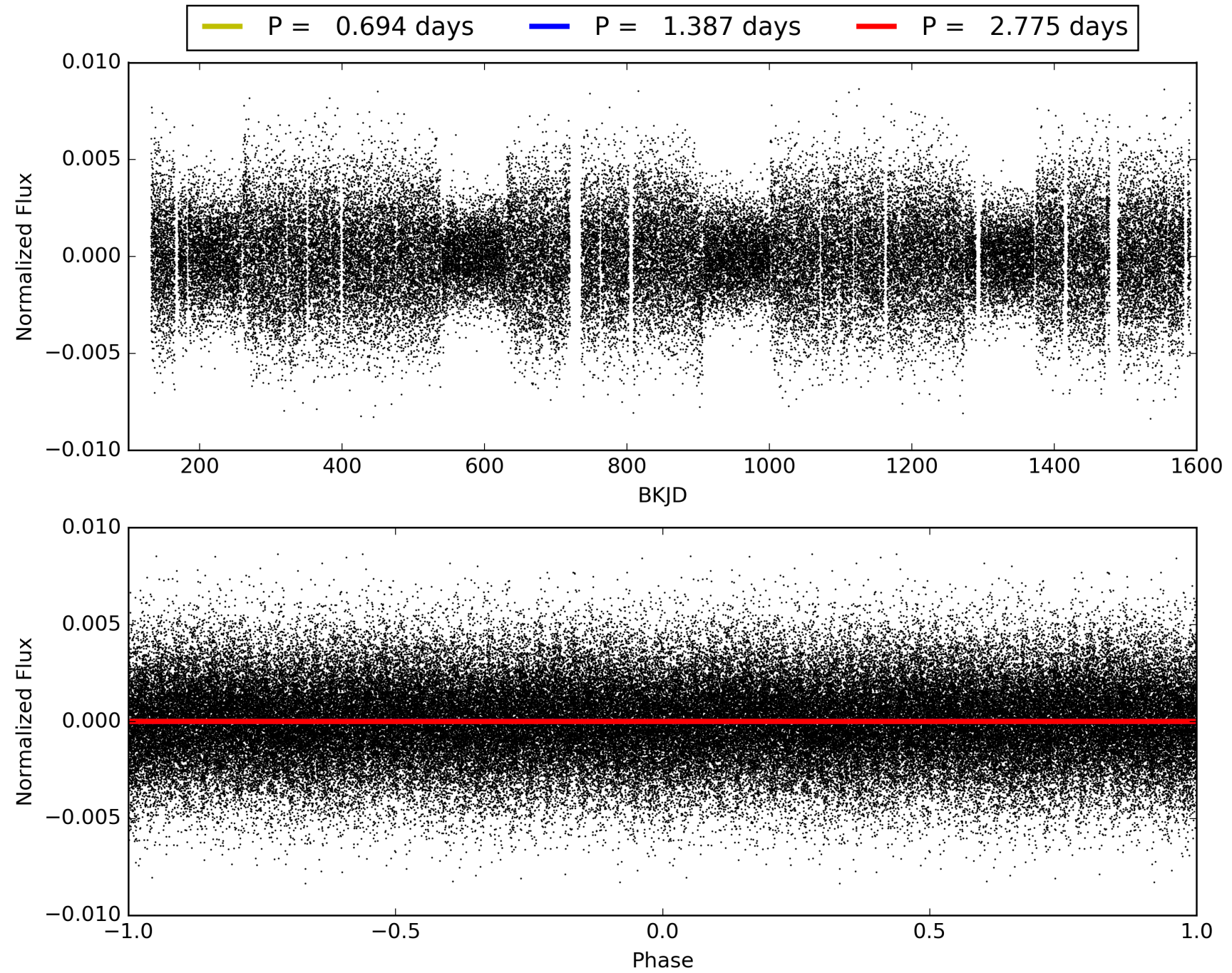
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 23:15:13 Z

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

TCE 006446951-01, PDC Light Curves

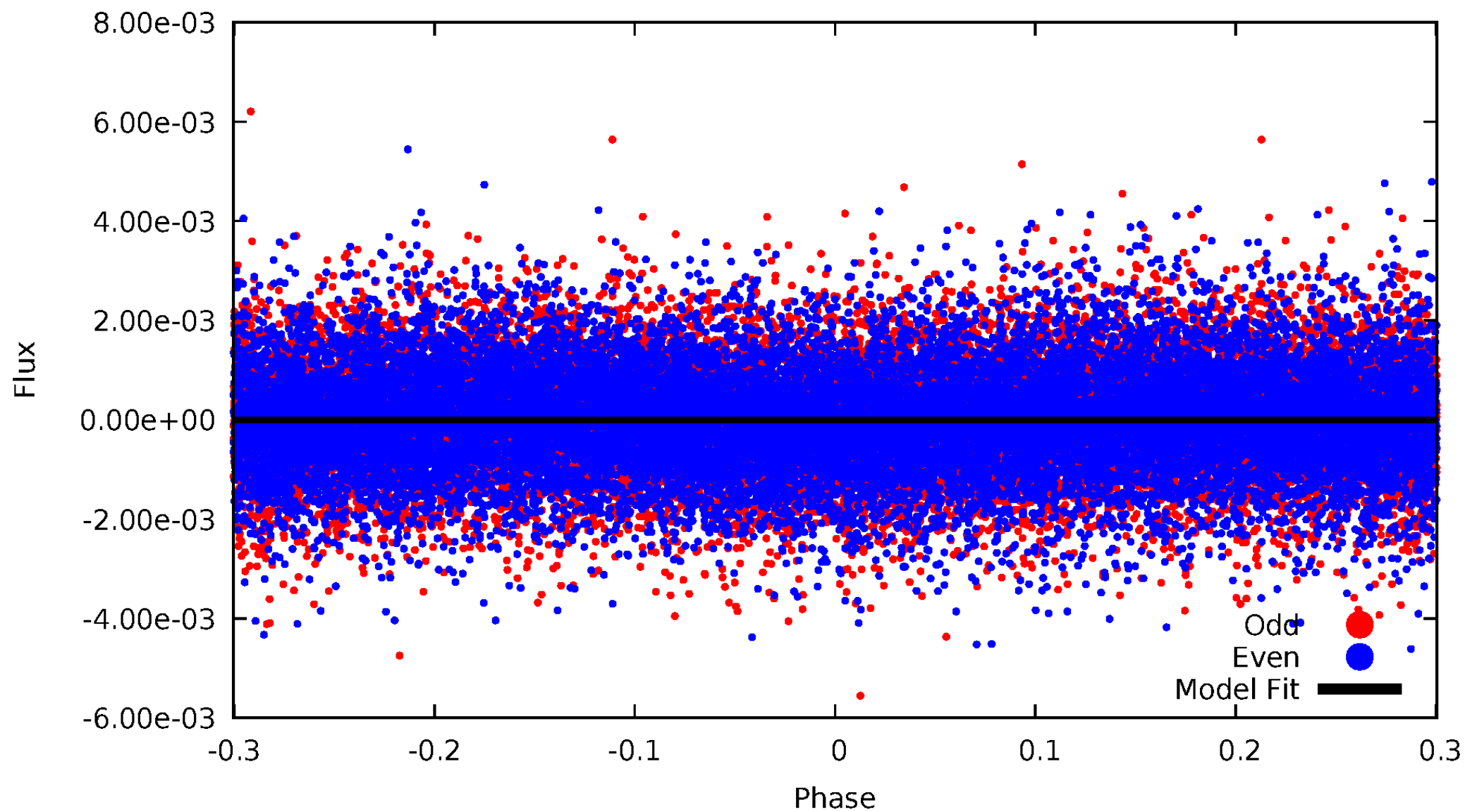


TCE 006446951-01



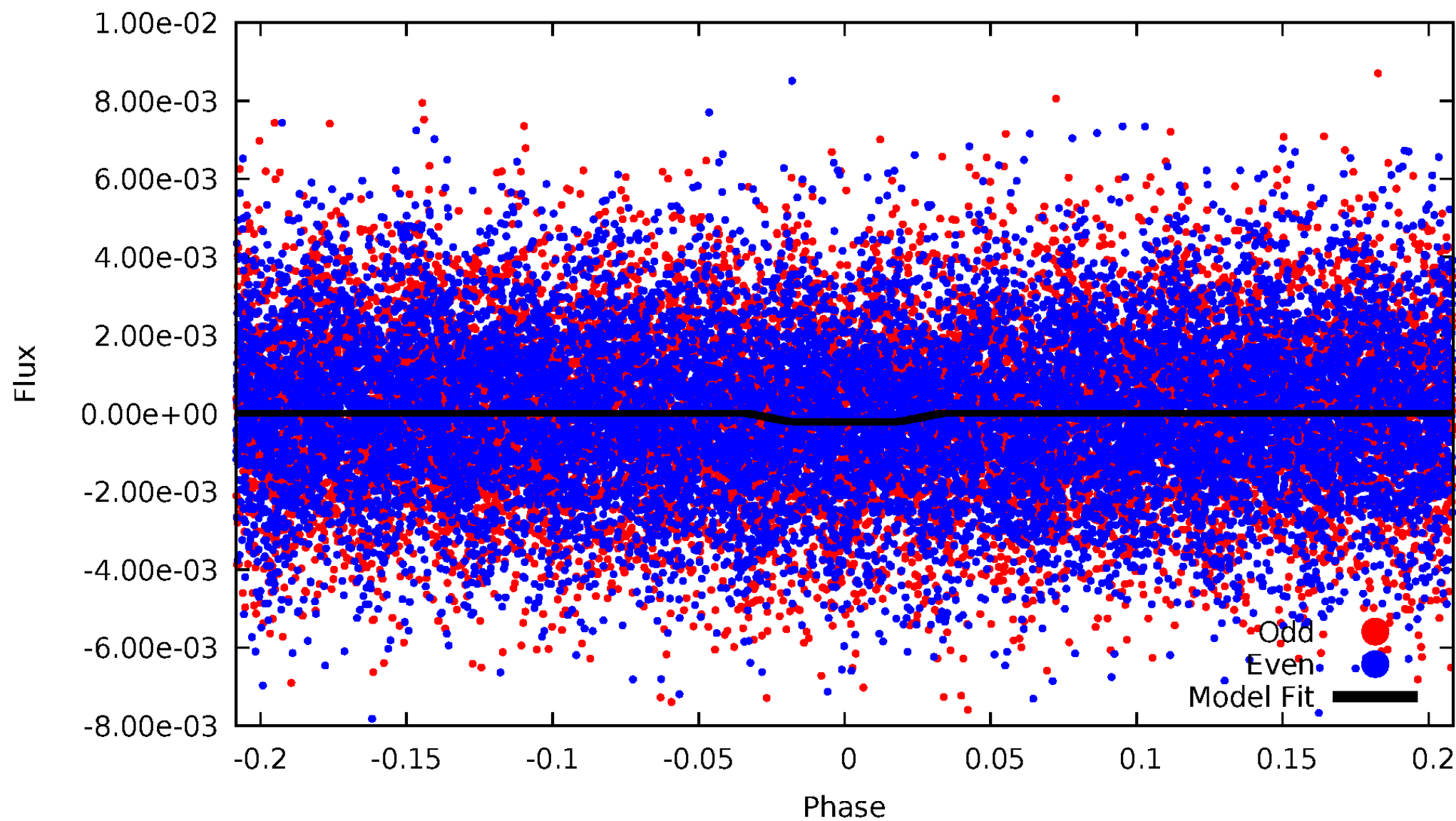
DV Odd/Even

TCE 006446951-01

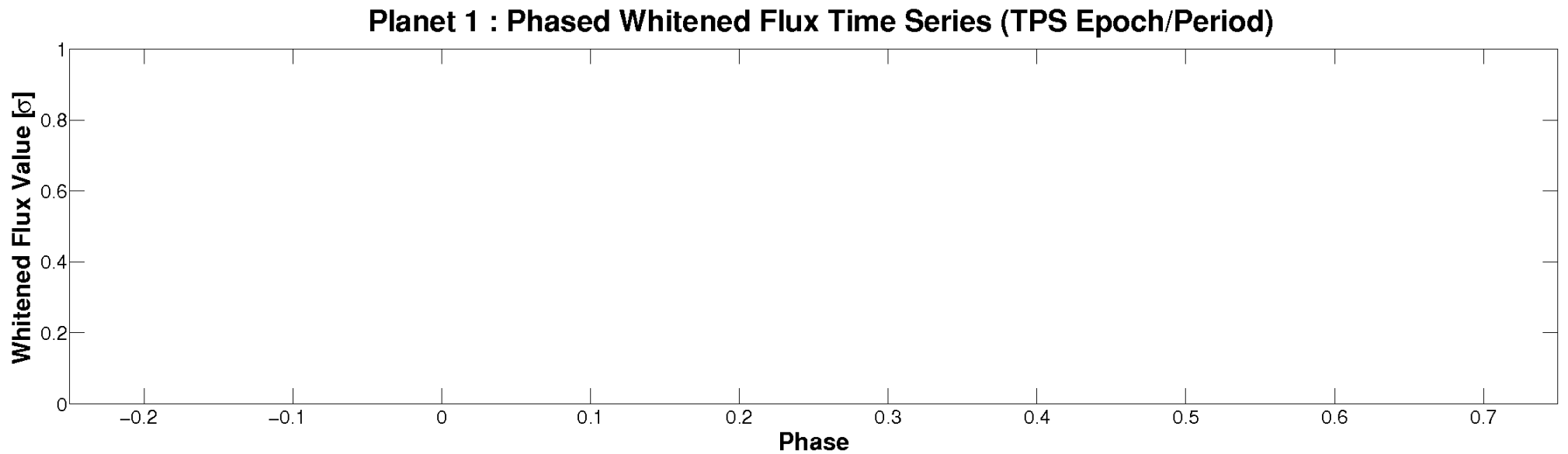
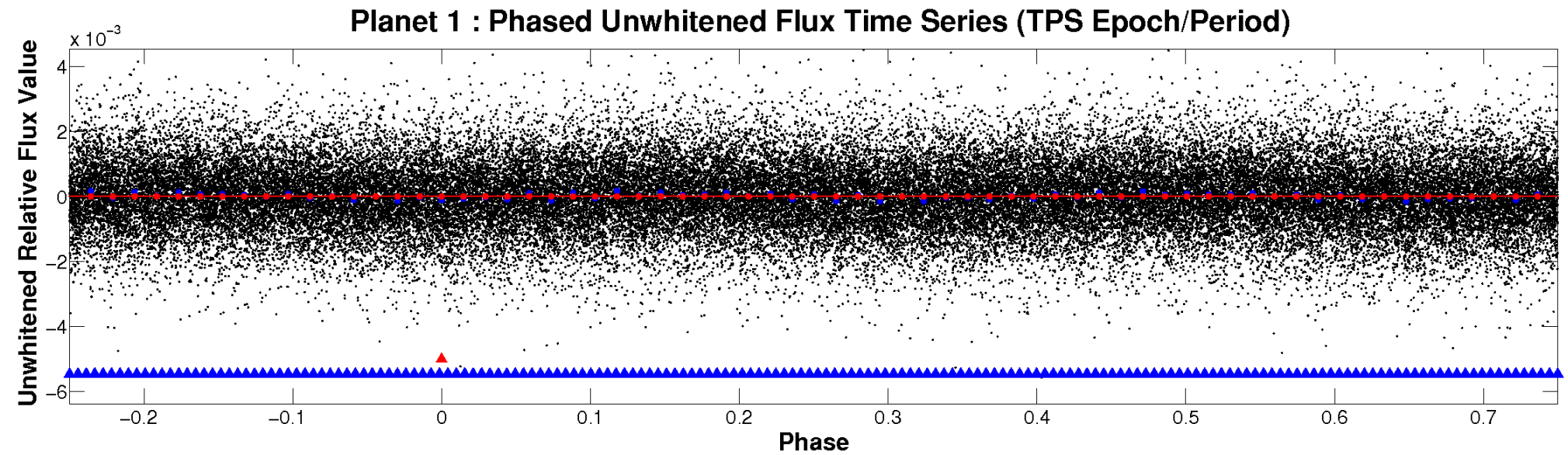


ALT Odd/Even

TCE 006446951-01

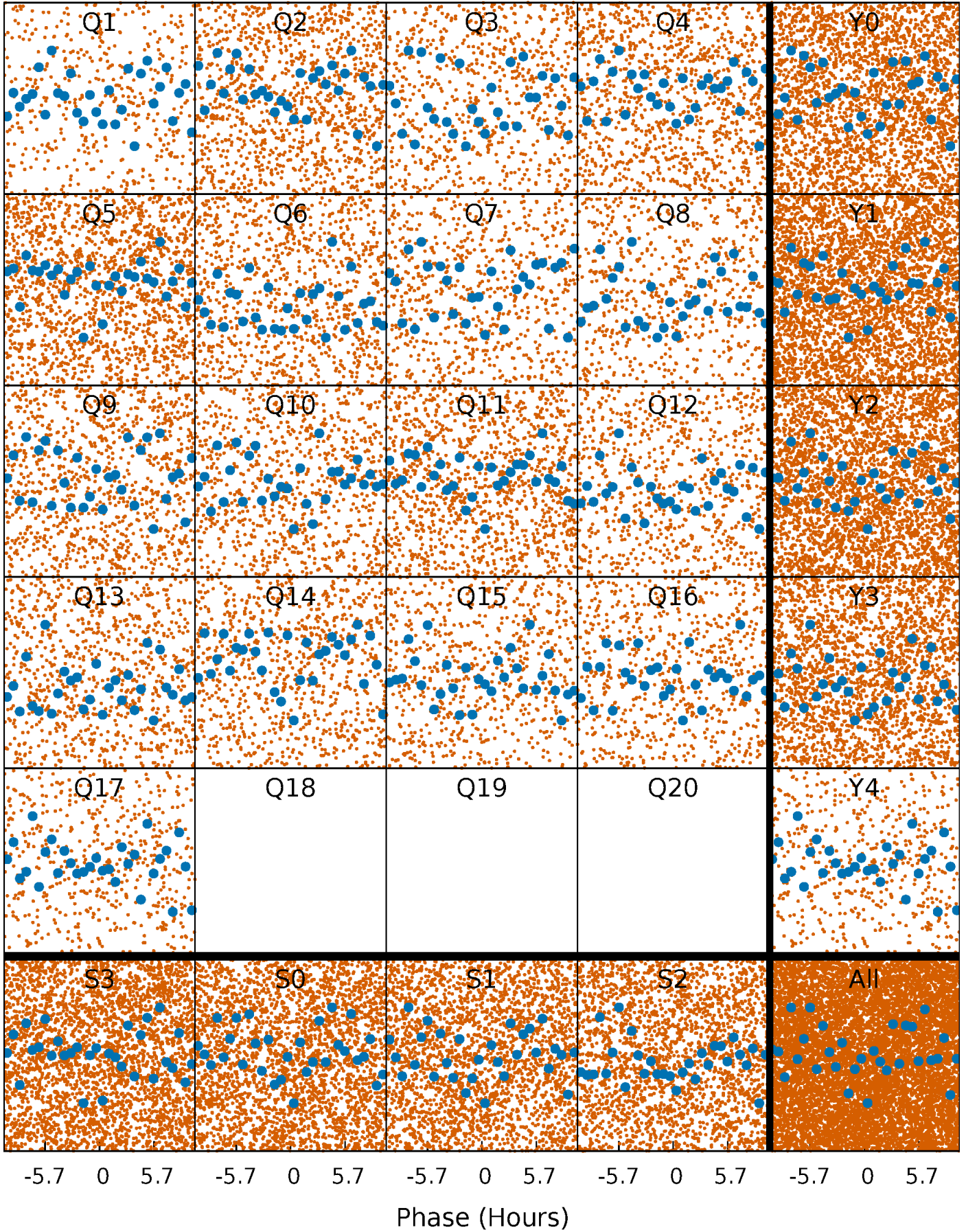


Non-Whitened Vs. Whitened Light Curve



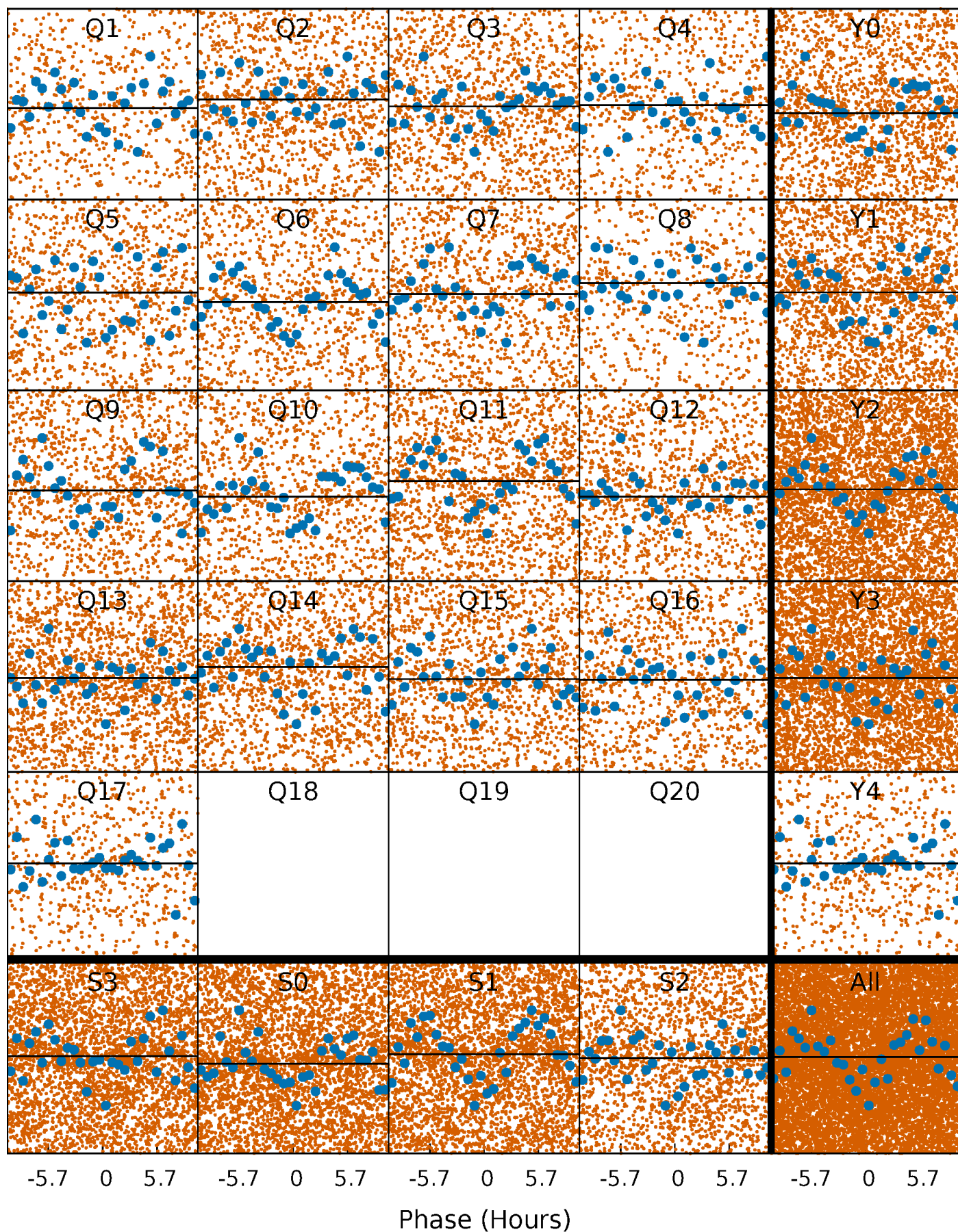
PDC Quarter-Phased Transit Curves

TCE 006446951-01 P= 1.387354 Days $T_0=131.507588$ (BKJD)



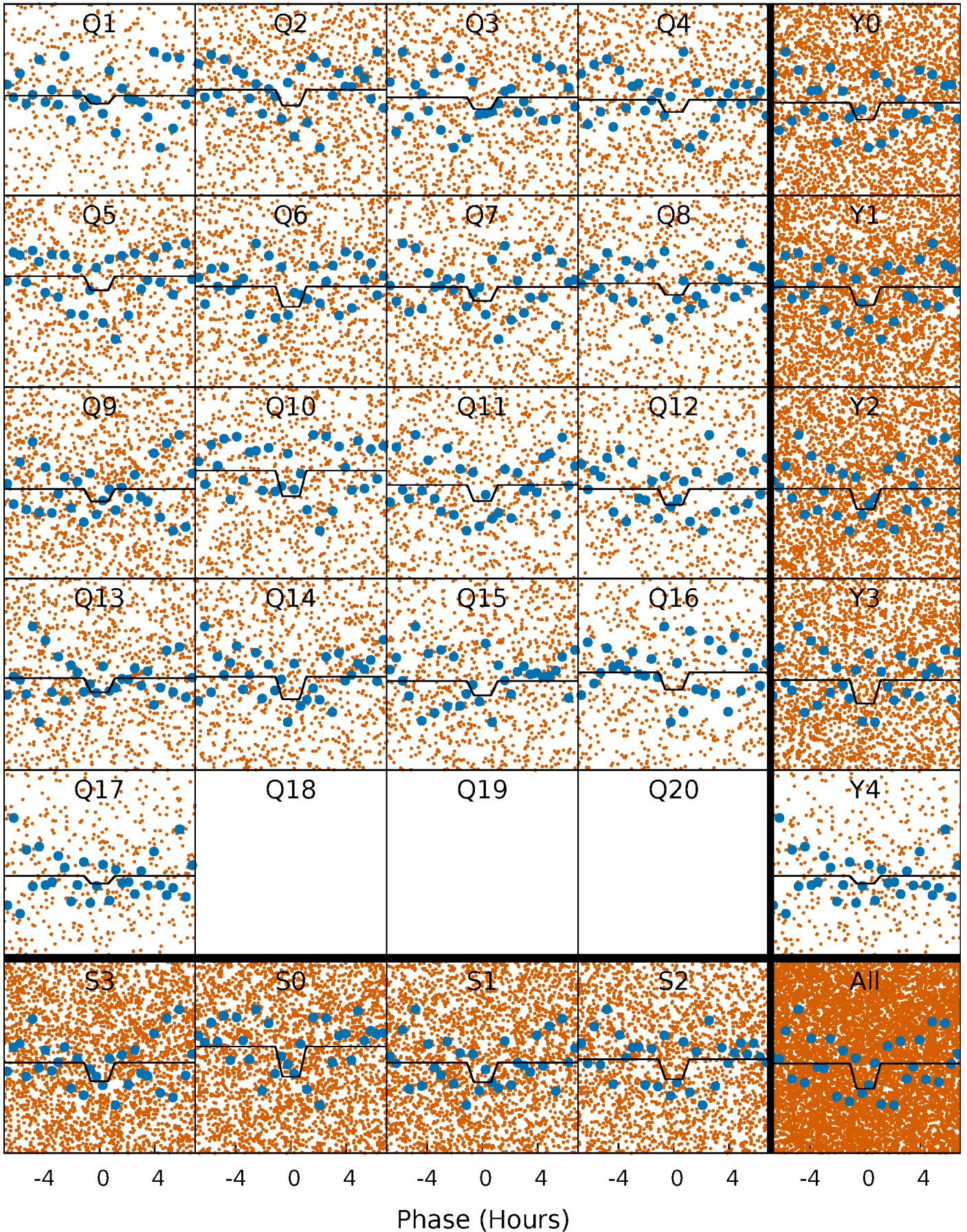
DV Quarter-Phased Transit Curves

TCE 006446951-01 P= 1.387354 Days $T_0=131.507588$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

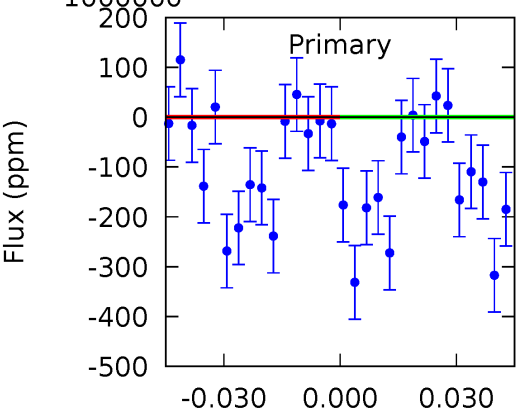
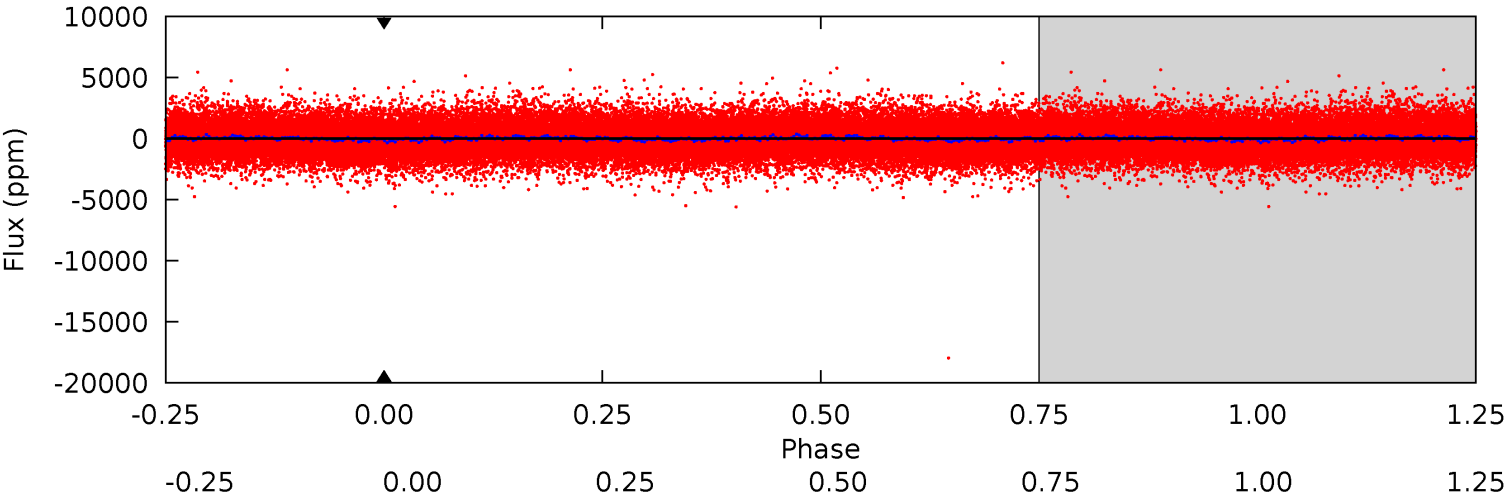
TCE 006446951-01 P= 1.387354 Days $T_0=132.866206$ (BKJD)



DV Model-Shift Uniqueness Test

006446951-01, P = 1.387354 Days, E = 131.507588 Days

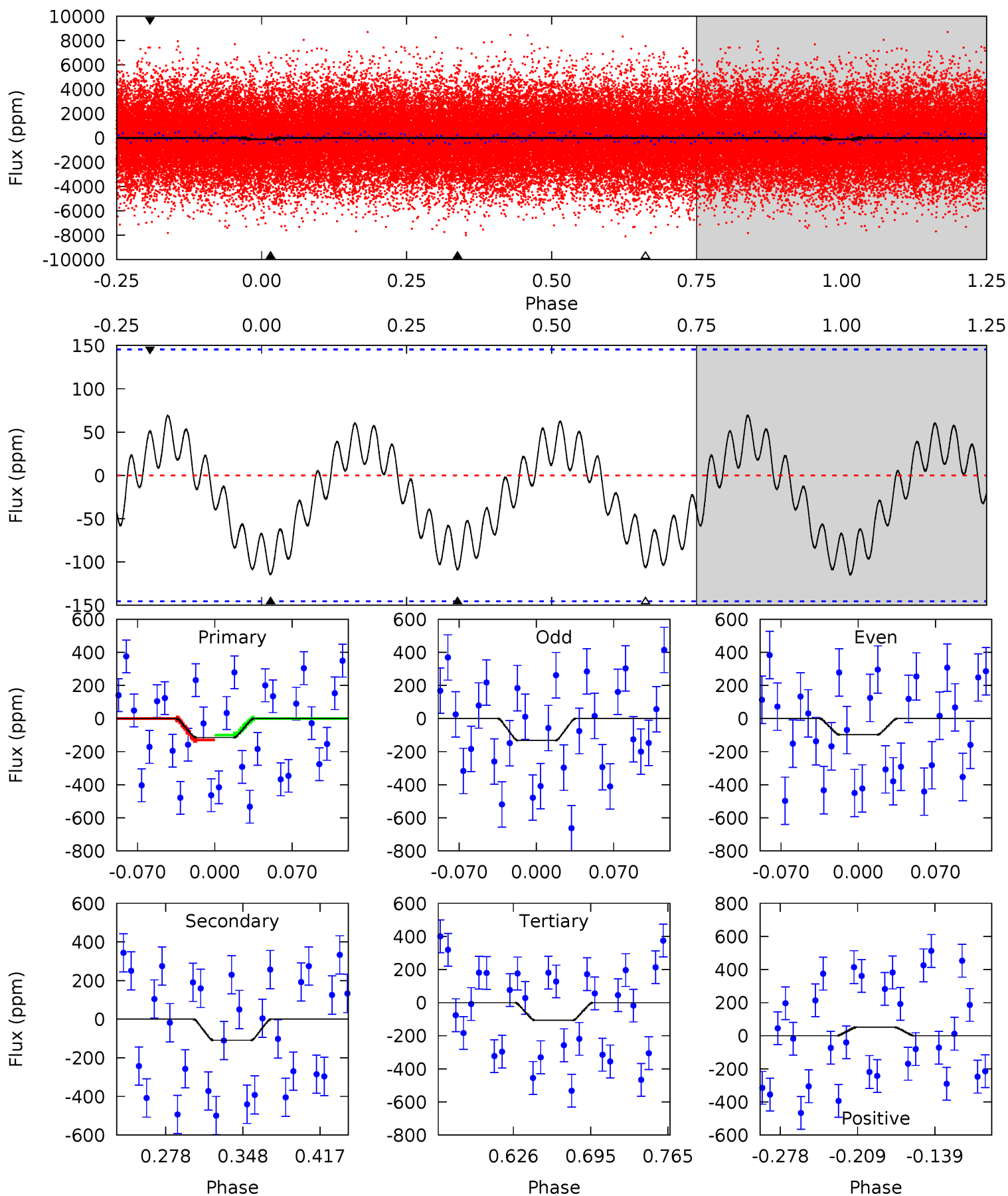
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
0	0	0	0	1.00	1.00	1.00	0	0	0	0	0	0	0	0



Alt Model-Shift Uniqueness Test

006446951-01, P = 1.387354 Days, E = 131.478852 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
3.66	3.47	3.39	1.63	4.64	1.82	1.31	0.27	2.03	0.08	1.84	0.55	1.26	0.38	0.46



Stellar Parameters For KIC 006446951

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	$M(M_{\odot})$	p_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	7615^{+234}_{-313}	$4.000^{+0.294}_{-0.126}$	$-0.520^{+0.250}_{-0.300}$	$2.017^{+0.470}_{-0.705}$	$1.486^{+0.186}_{-0.278}$	$0.255^{+0.477}_{-0.113}$
	+3%/-4%	+7%/-3%	+48%/-58%	+23%/-35%	+13%/-19%	+187%/-44%
Source	KIC0	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 006446951-01 / KOI

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	0 ± 1000000	$14.46^{+15.42}_{-10.39}$	3938^{+290}_{-383}	5778^{+45754}_{-50953}	$4.122^{+404.125}_{-349.990}$
Alt.	-109 ± 31	$14.83^{+18.30}_{-10.25}$	3914^{+284}_{-354}	-2985^{+7860}_{-584}	$0.199^{+1.826}_{-0.159}$

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

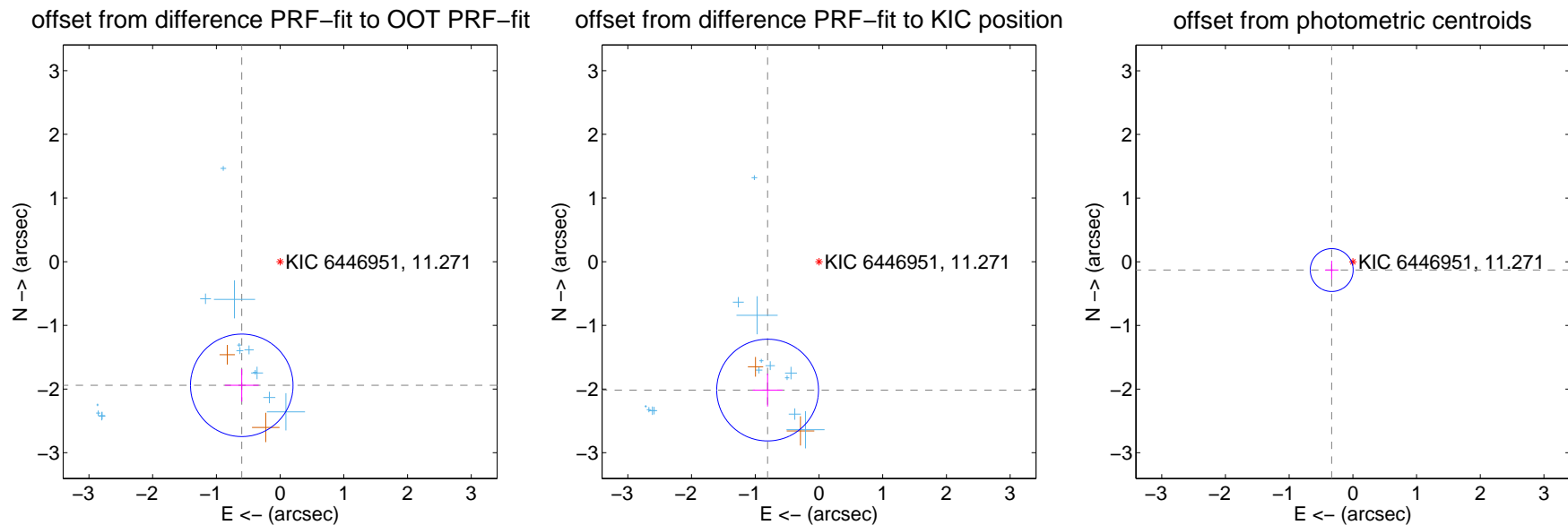
DV Centroid Data

Supplemental centroid analysis for 006446951-01. **Kepler magnitude: 11.27.** Transit SNR -1.00

There are 14 quarters with good PRF difference image offsets

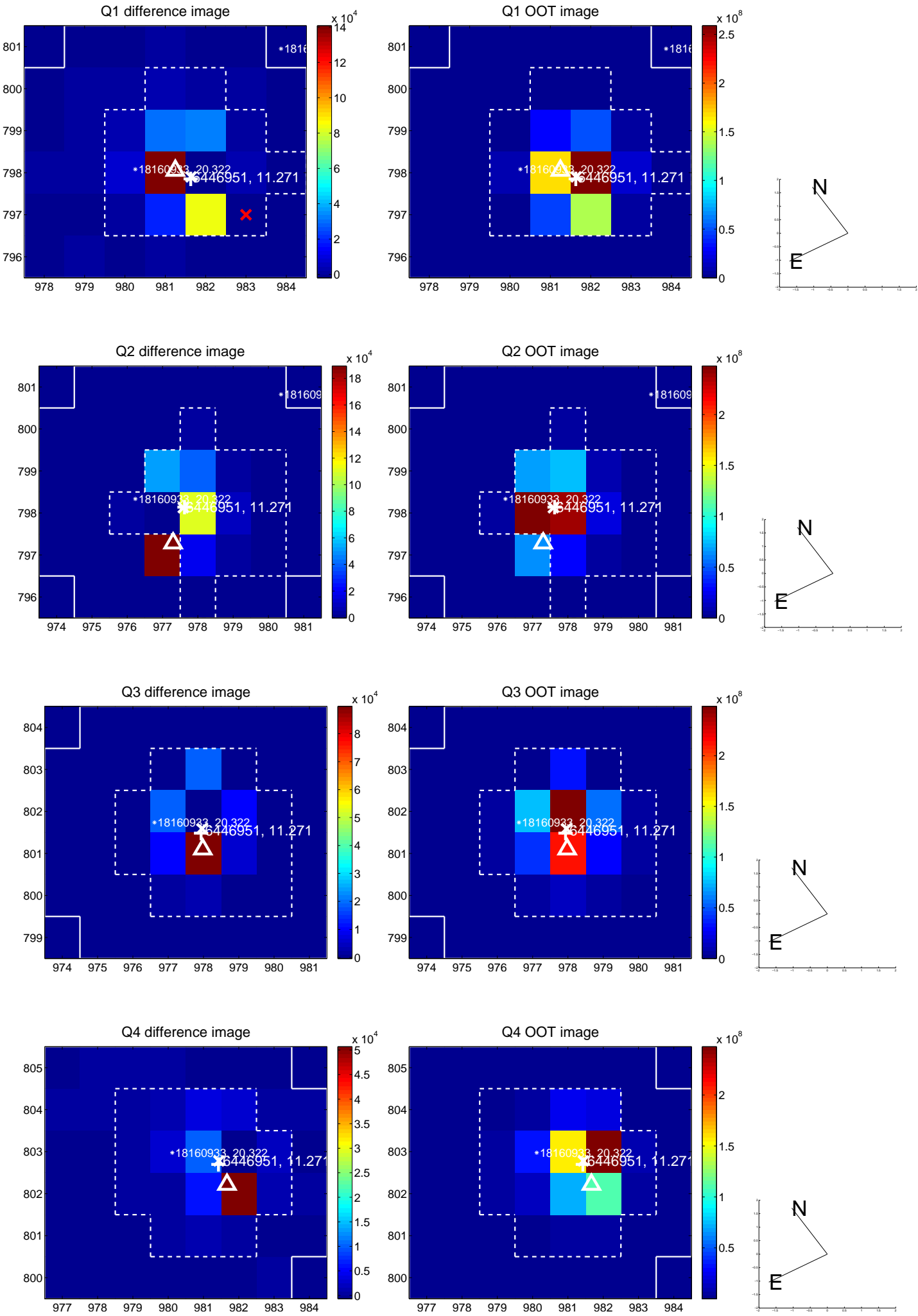
The direct PRF centroid is offset from the target star catalog position by about 0.08 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	2.032 ± 0.268	7.58	0.602 ± 0.265	-1.941 ± 0.255
PRF-fit source offset from KIC position	2.171 ± 0.266	8.15	0.806 ± 0.235	-2.016 ± 0.259
photometric centroid source offset	0.36 ± 0.11	3.18	0.33 ± 0.11	-0.13 ± 0.15

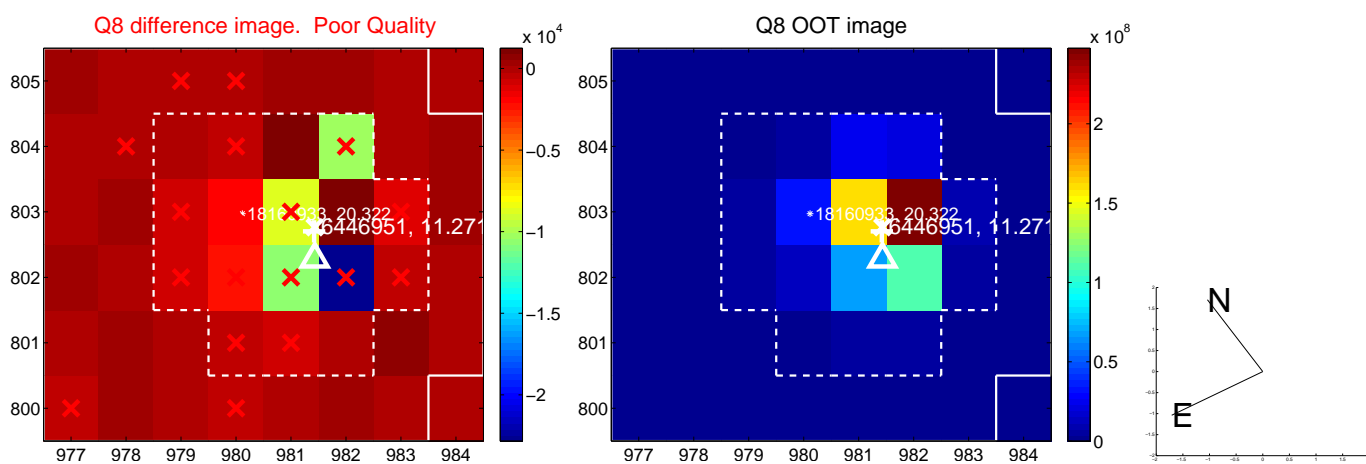
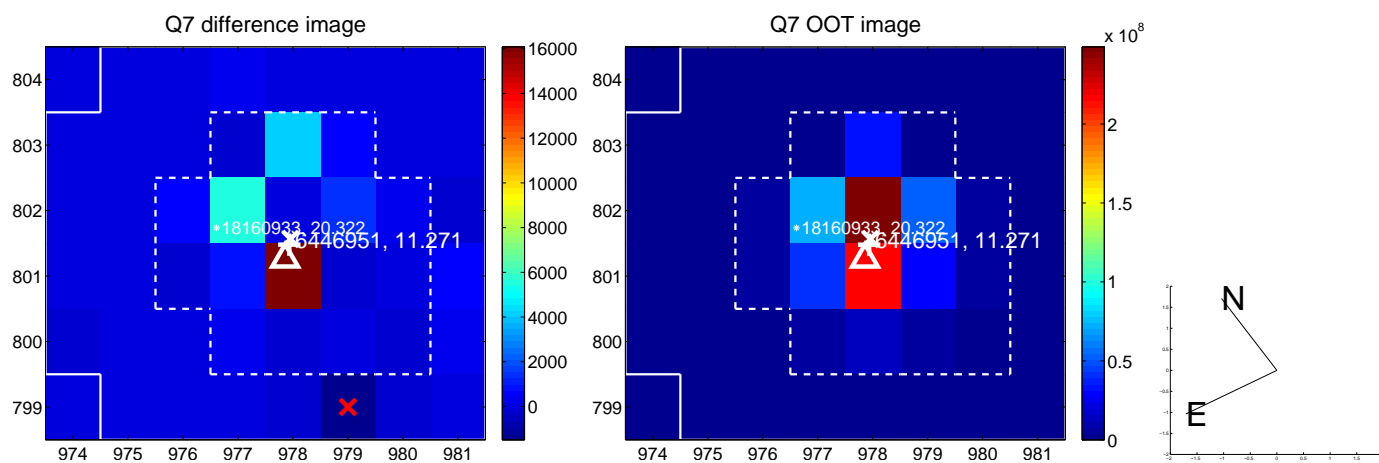
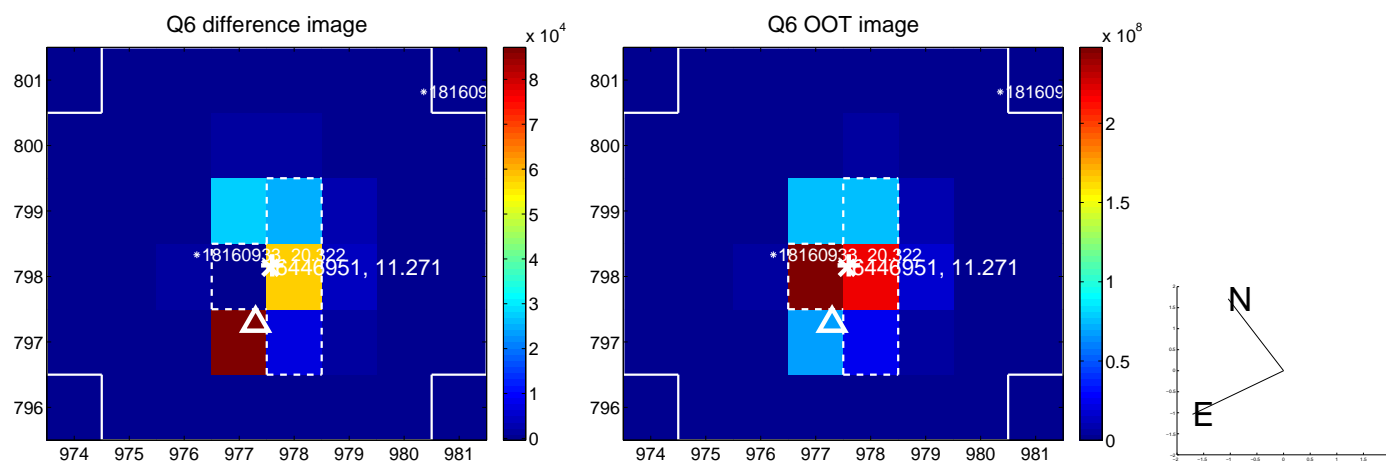
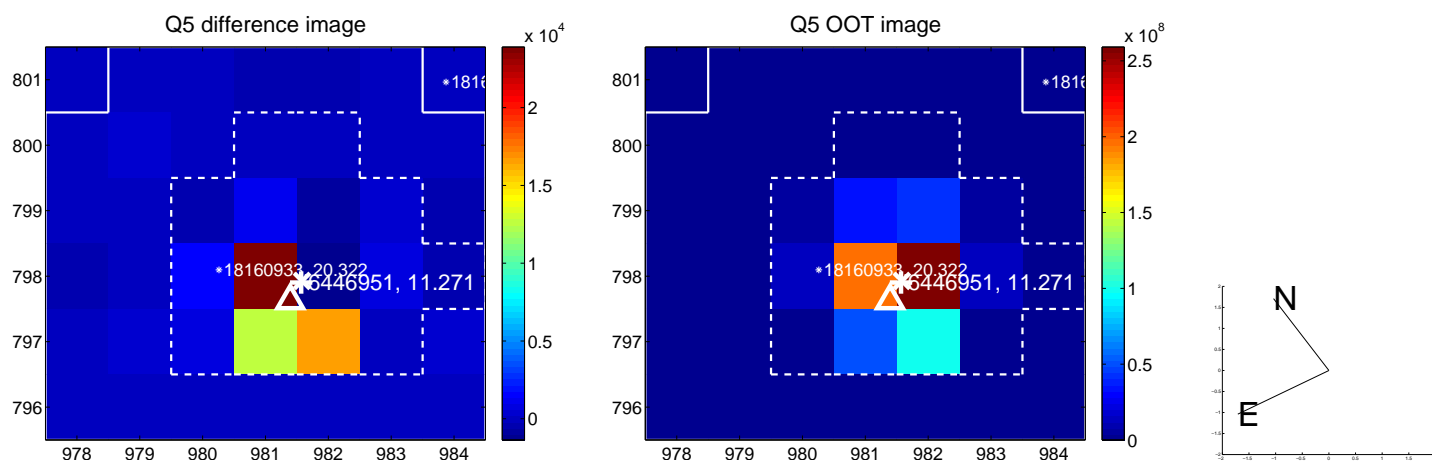


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets;** magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

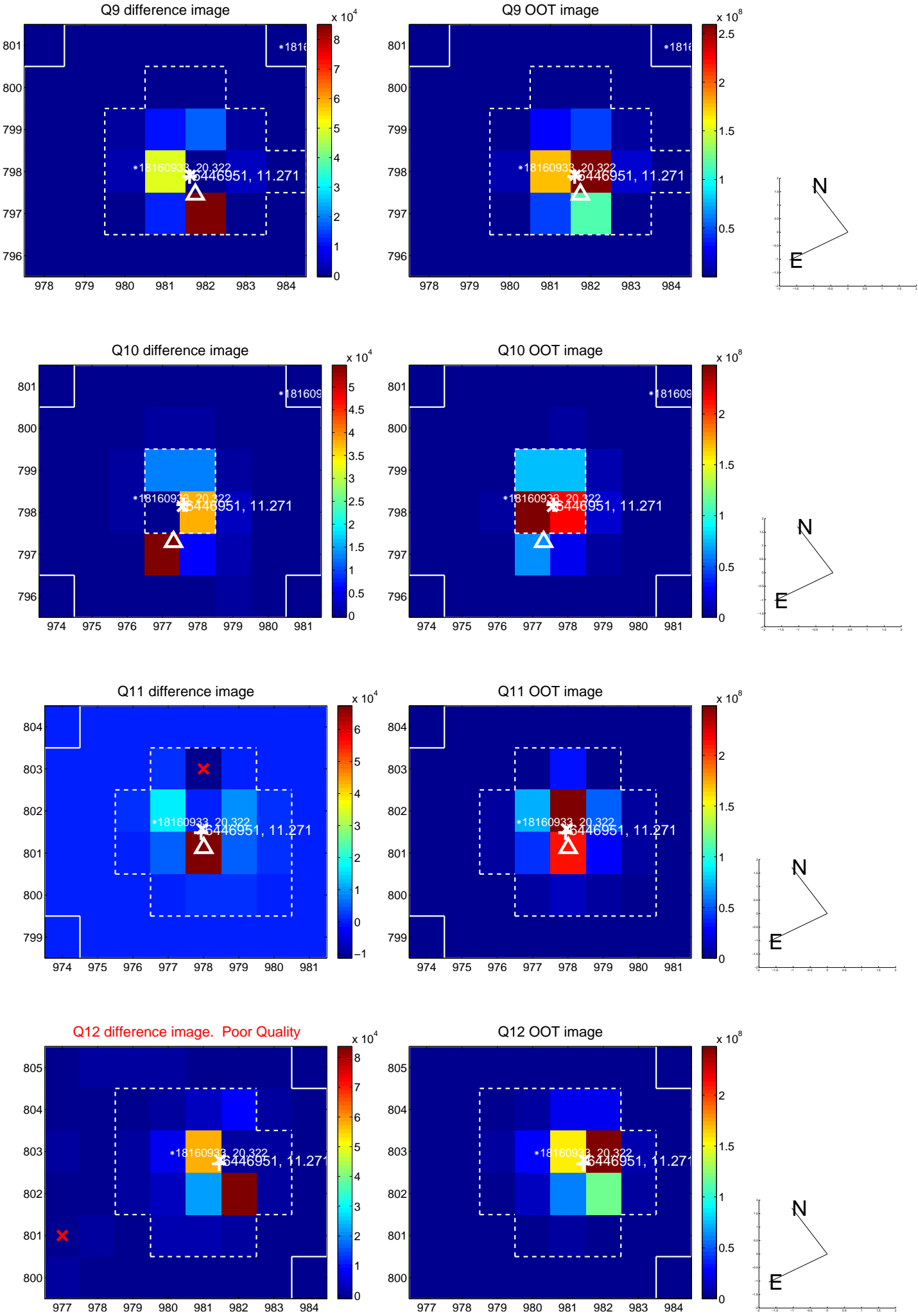
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



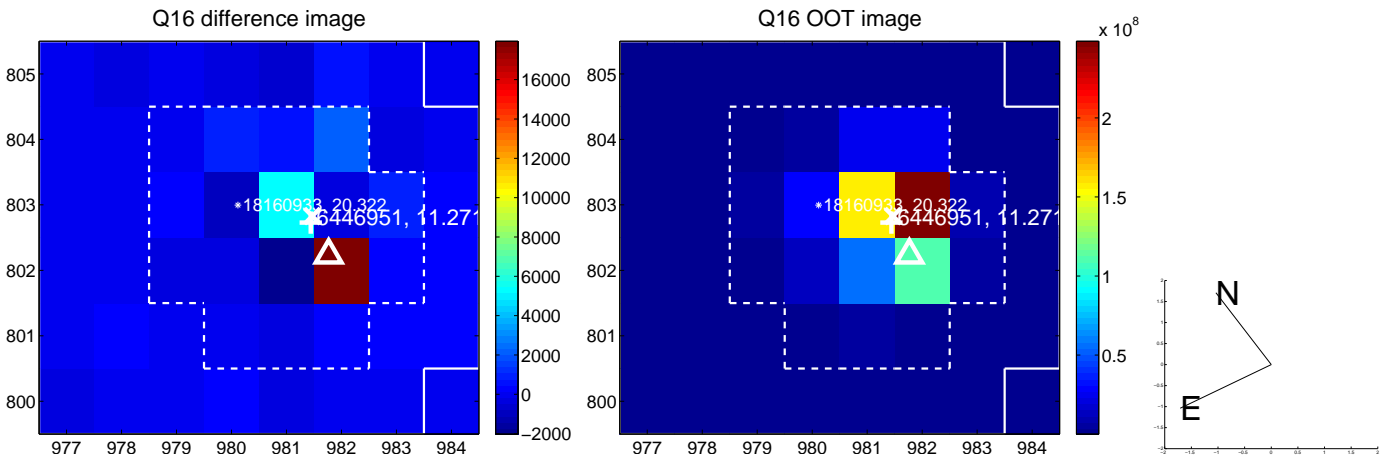
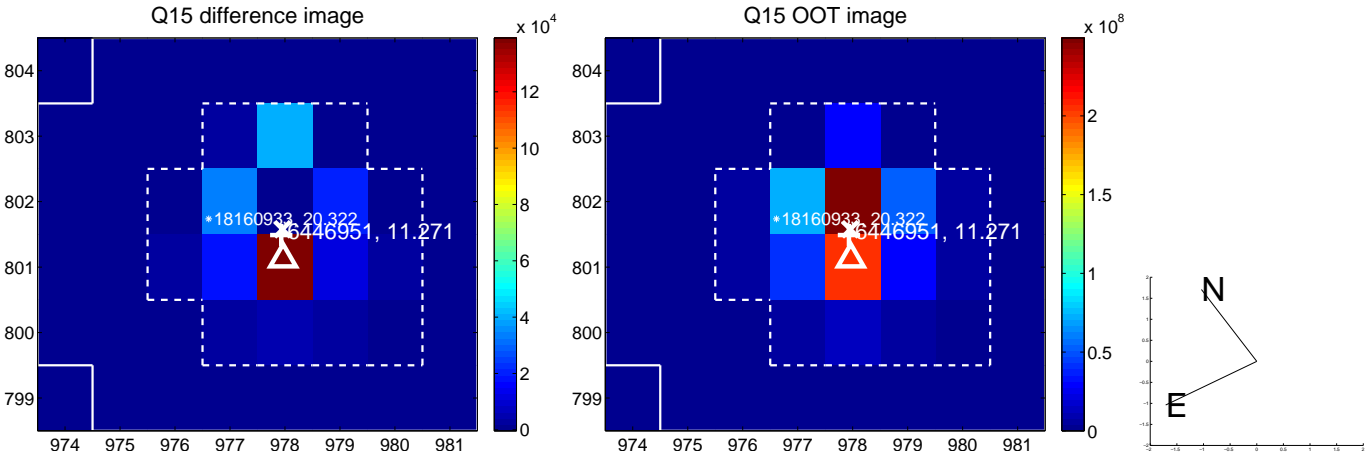
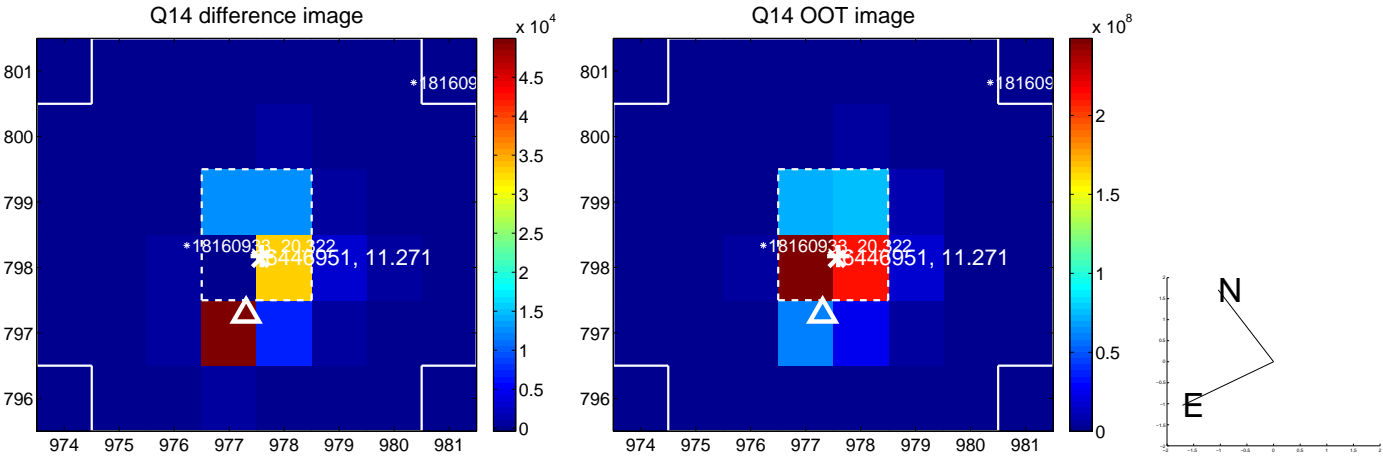
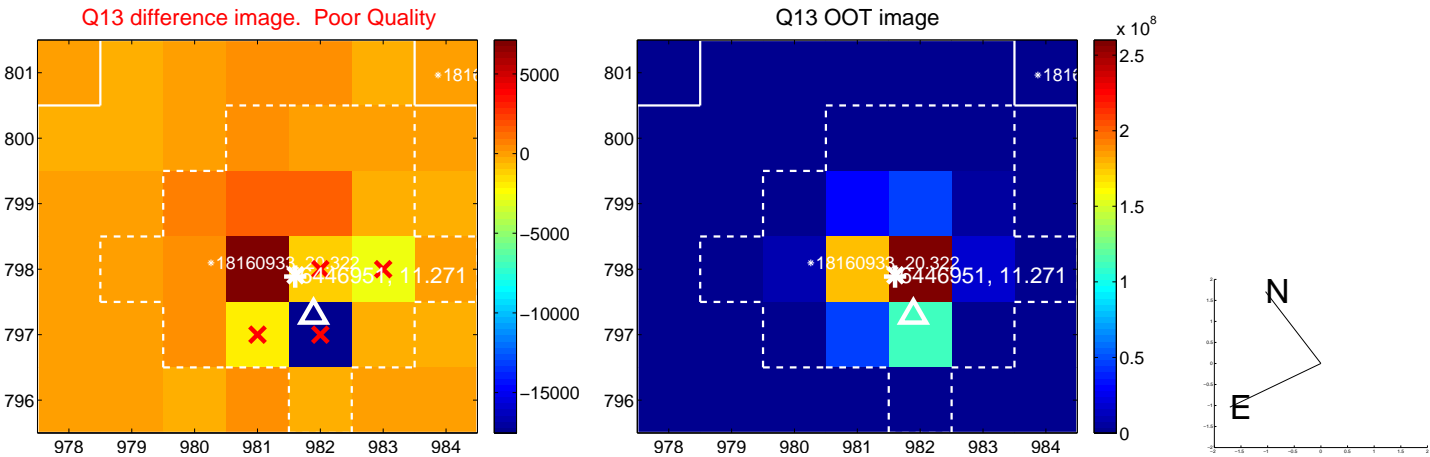
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



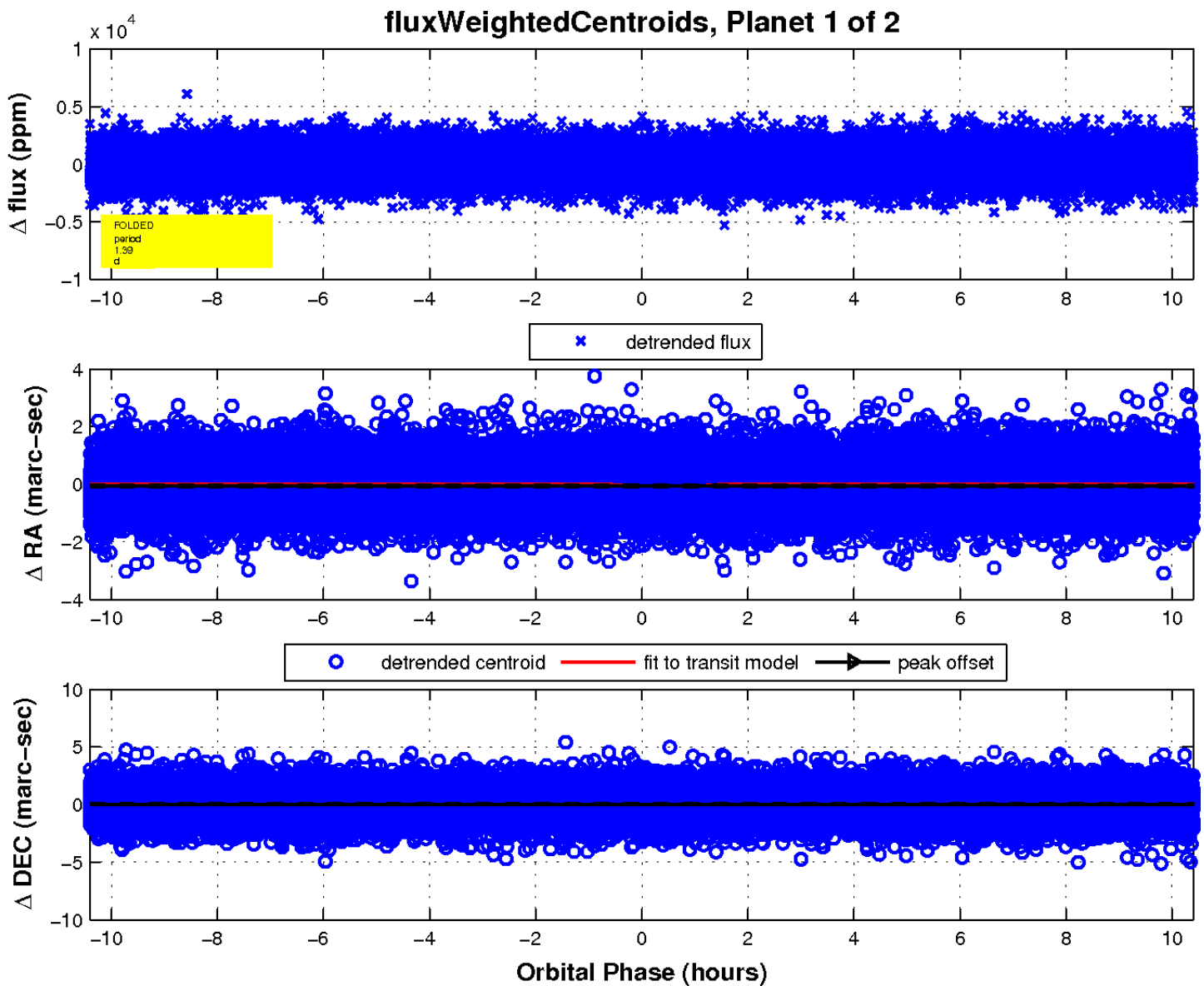
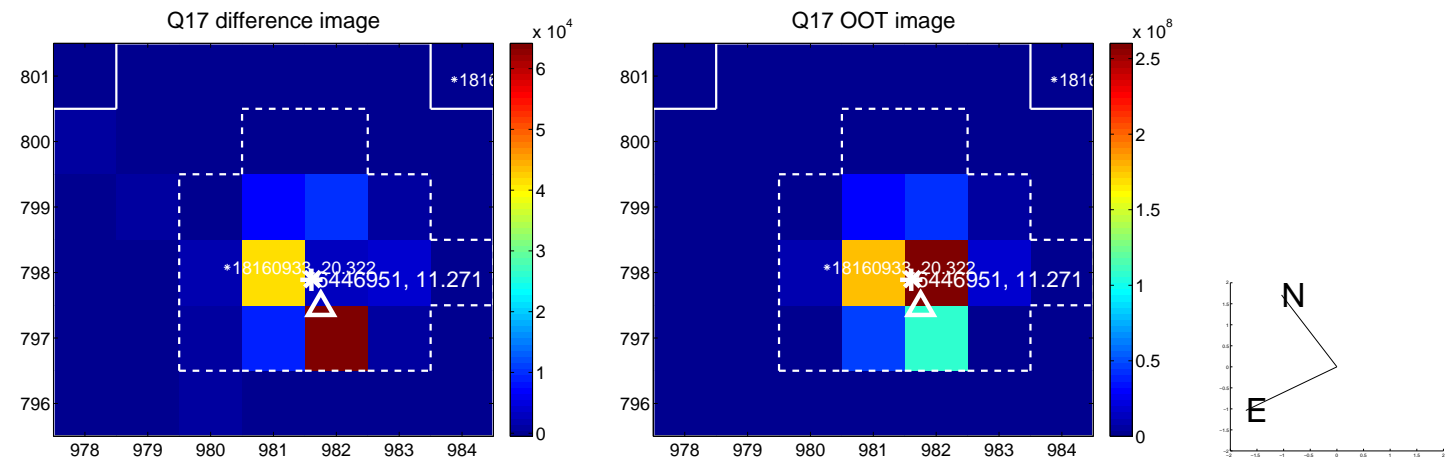
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

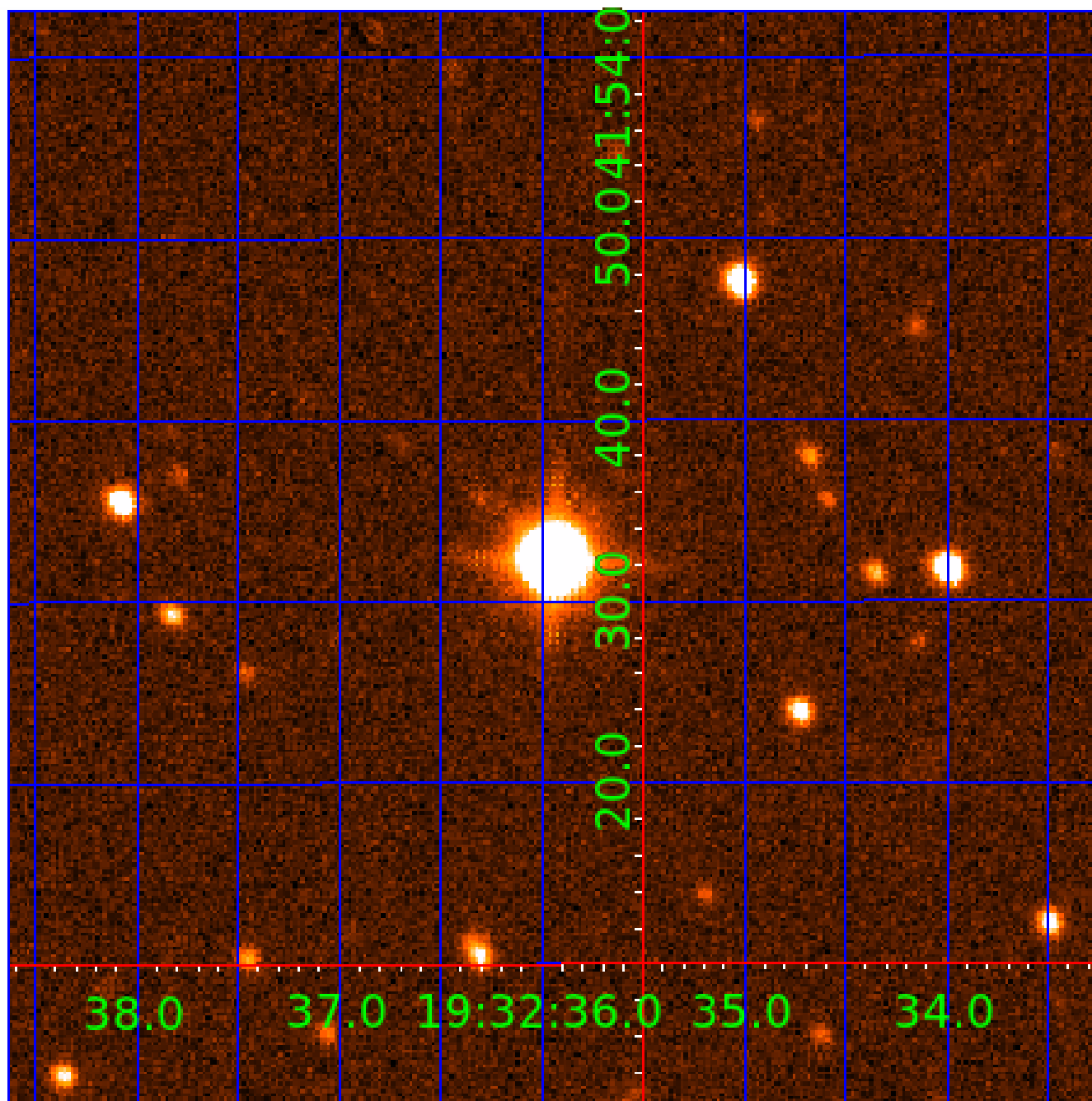


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 006446951

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})
006446951-01	OBS	No	1.387354	131.507588	54.0	5.000	9.7	-1.0	2.02	7615	1.50	15890.15
006446951-02	OBS	No	3.182292	133.504582	123.6	8.832	8.0	8.2	2.02	7615	2.60	5252.80

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
006446951-01	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_ALT—MOD_TER_ALT—CENT_SATURATED
006446951-02	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—CENT_SATURATED

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

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

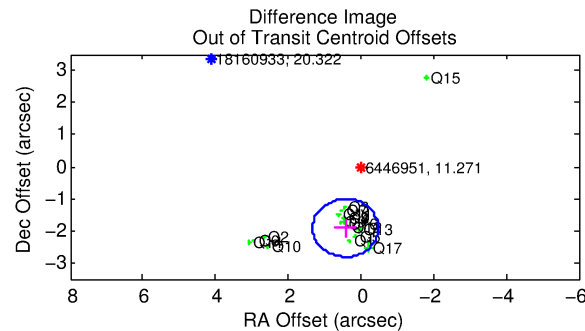
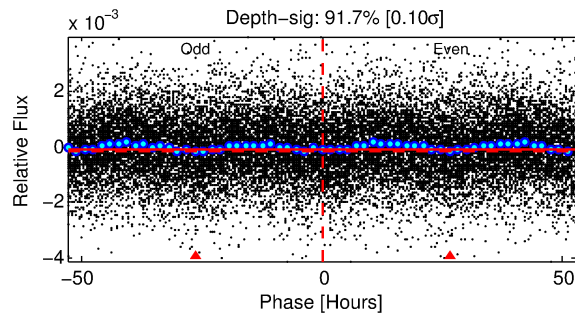
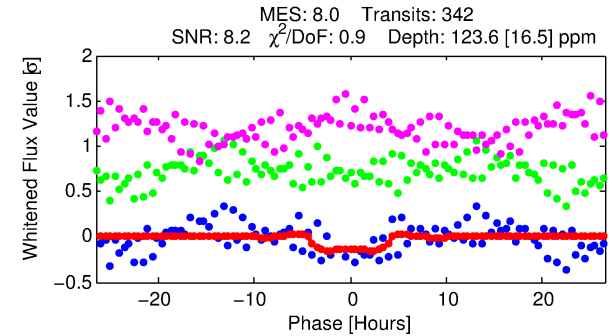
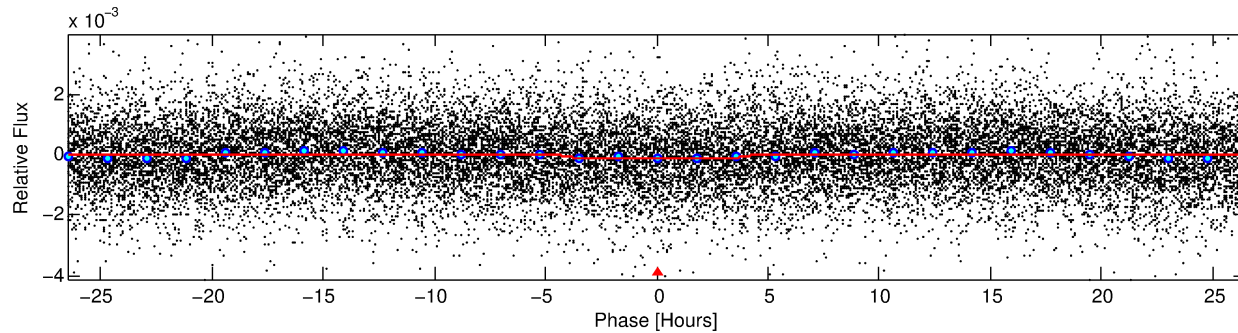
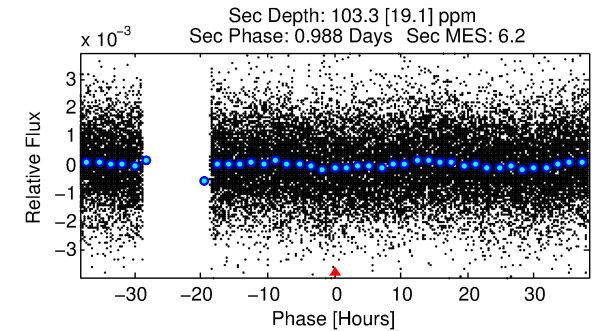
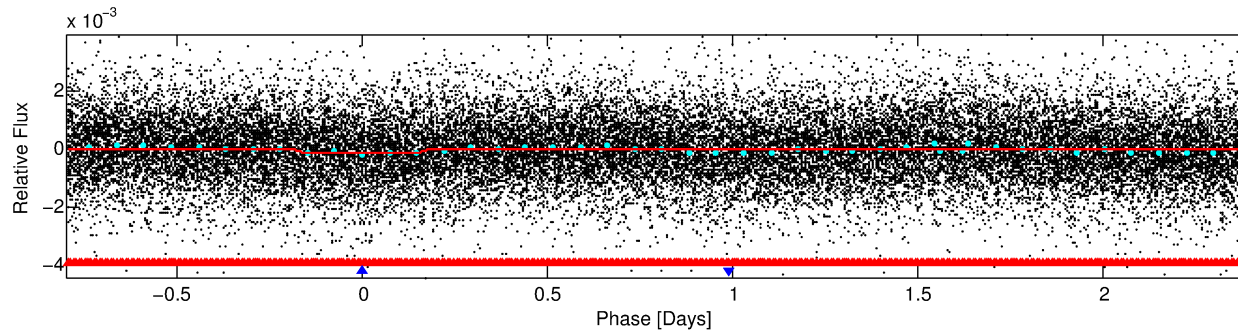
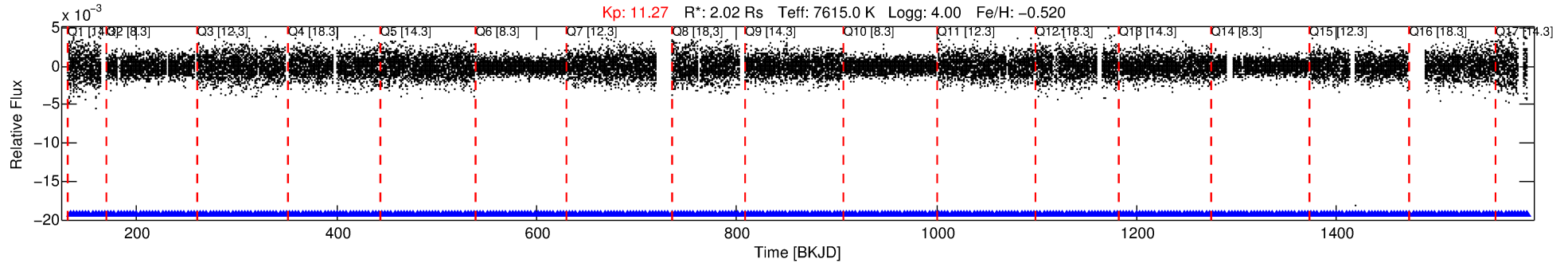
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 006446951-02

No Significant Match Found

DV One-Page Summary

KIC: 6446951 Candidate: 2 of 2 Period: 3.182 d



DV Fit Results:

Period = 3.18229 [0.00006] d
Epoch = 133.5046 [0.0144] BKJD
 R_p/R^* = 0.0118 [0.0033]
 a/R^* = 1.58 [1.67]
 b = 0.90 [0.37]
 S_{eff} = 5252.80 [2804.26]
 T_{eq} = 2171 [290] K
 R_p = 2.59 [1.16] R_e
 a = 0.0483 [0.0157] AU
 A_g = 19.69 [15.31] [1.22σ]
 T_{eff} = 7070 [1081] K [4.38σ]

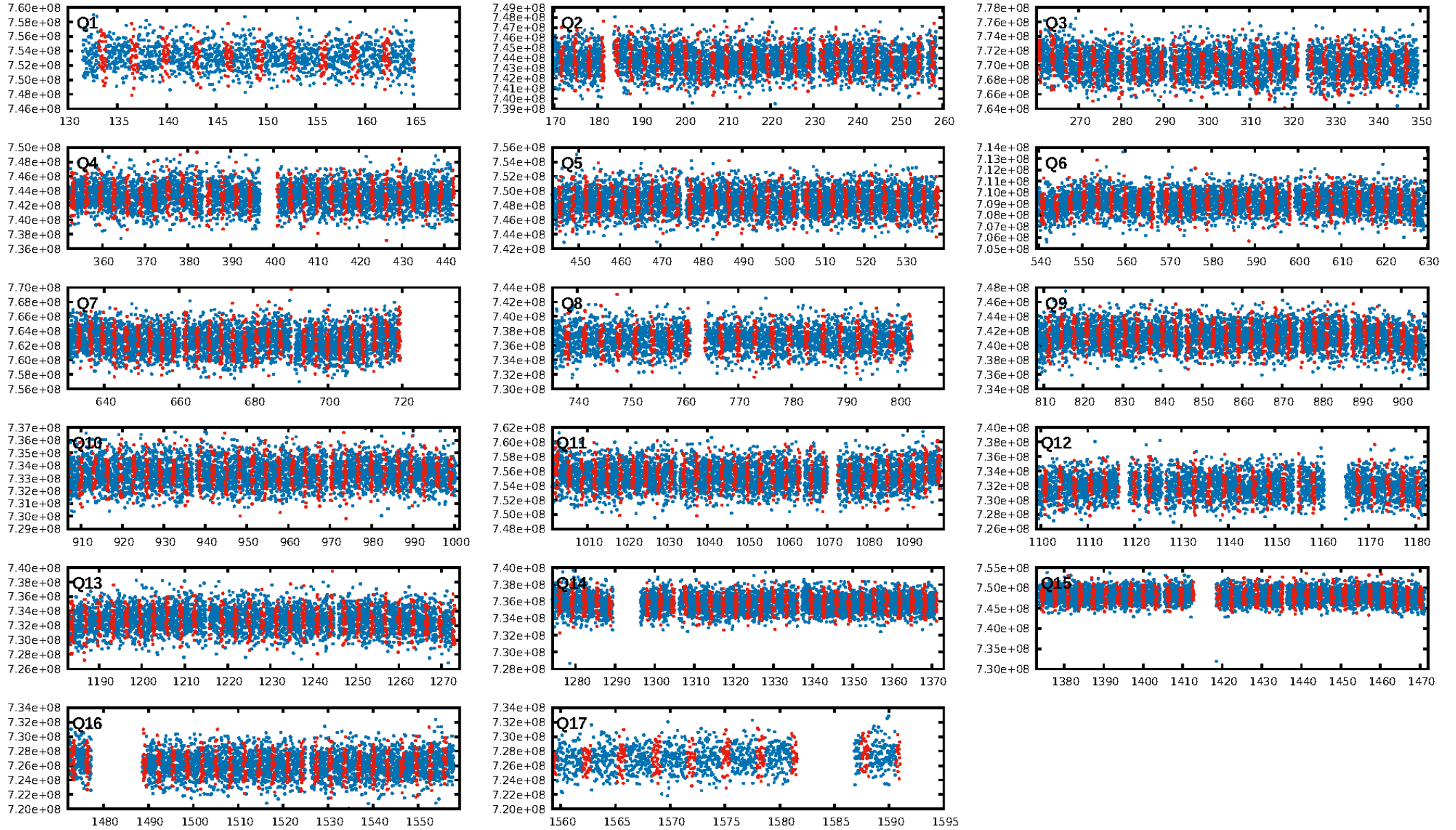
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [4.24σ]
LongPeriod-sig: N/A
ModelChiSquare2-sig: N/A
ModelChiSquareGoF-sig: N/A
Bootstrap-pfa: 6.63e-14
RollingBand-fgt: 1.00 [329/329]
GhostDiagnostic-chr: 0.7314
Centroid-sig: 0.0%
Centroid-so: 0.637 arcsec [2.33σ]
OotOffset-rm: 1.959 arcsec [6.52σ]
KicOffset-rm: 2.130 arcsec [6.78σ]
OotOffset-st: 4/4/4/5 [17]
KicOffset-st: 4/4/4/5 [17]
DiffImageQuality-fgm: 0.88 [15/17]
DiffImageOverlap-fno: 0.00 [0/17]

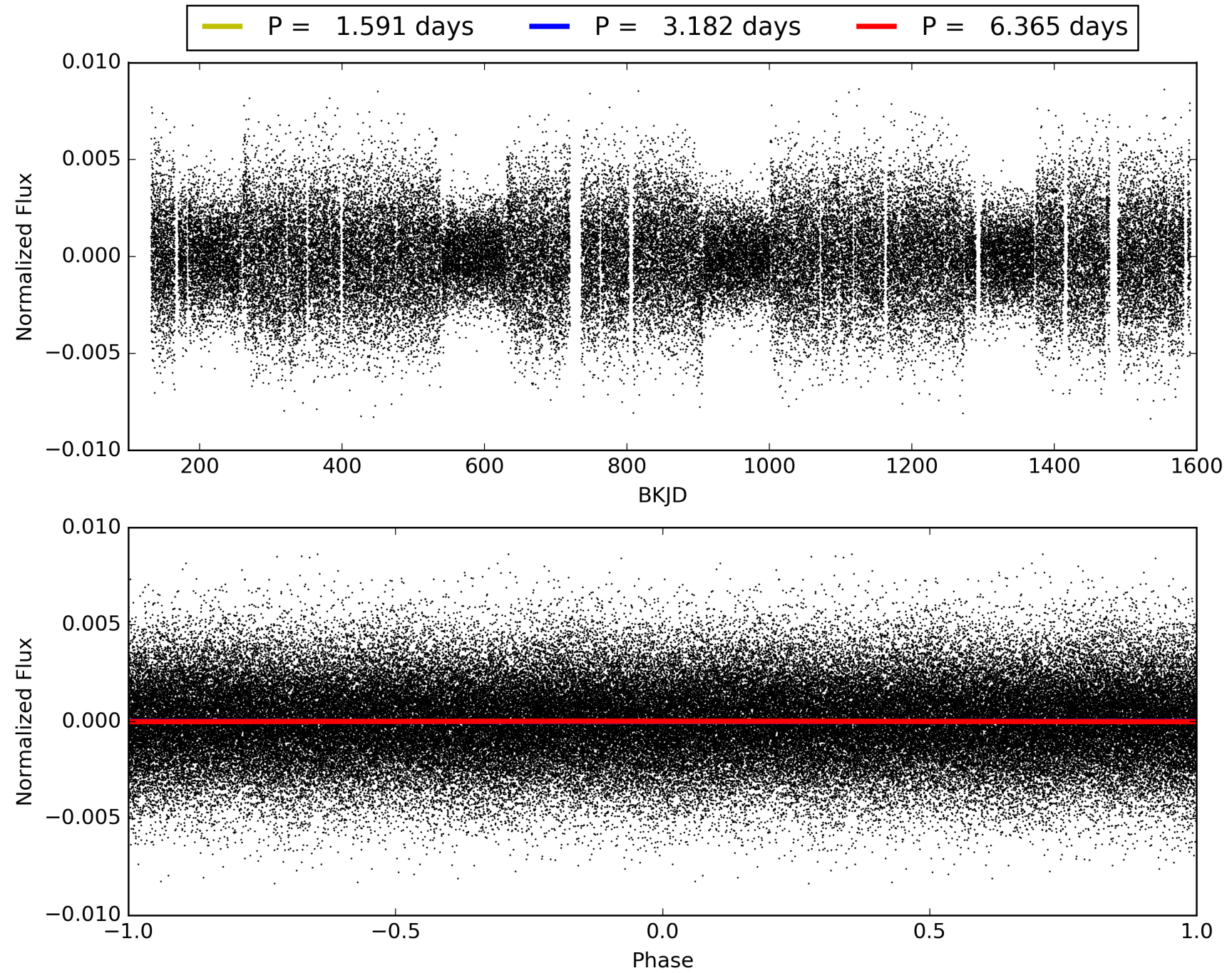
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 23:15:24 Z

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

TCE 006446951-02, PDC Light Curves

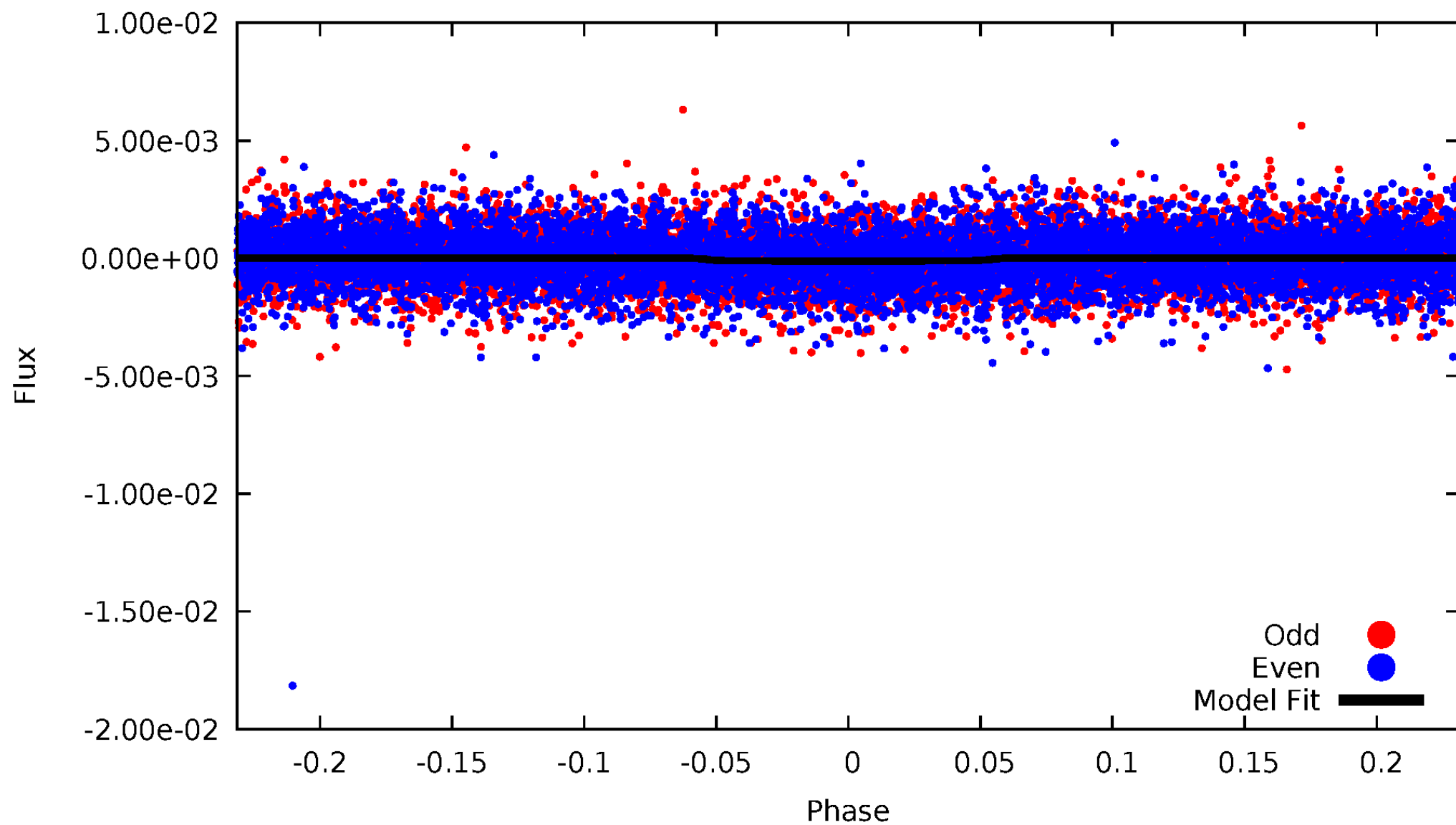


TCE 006446951-02



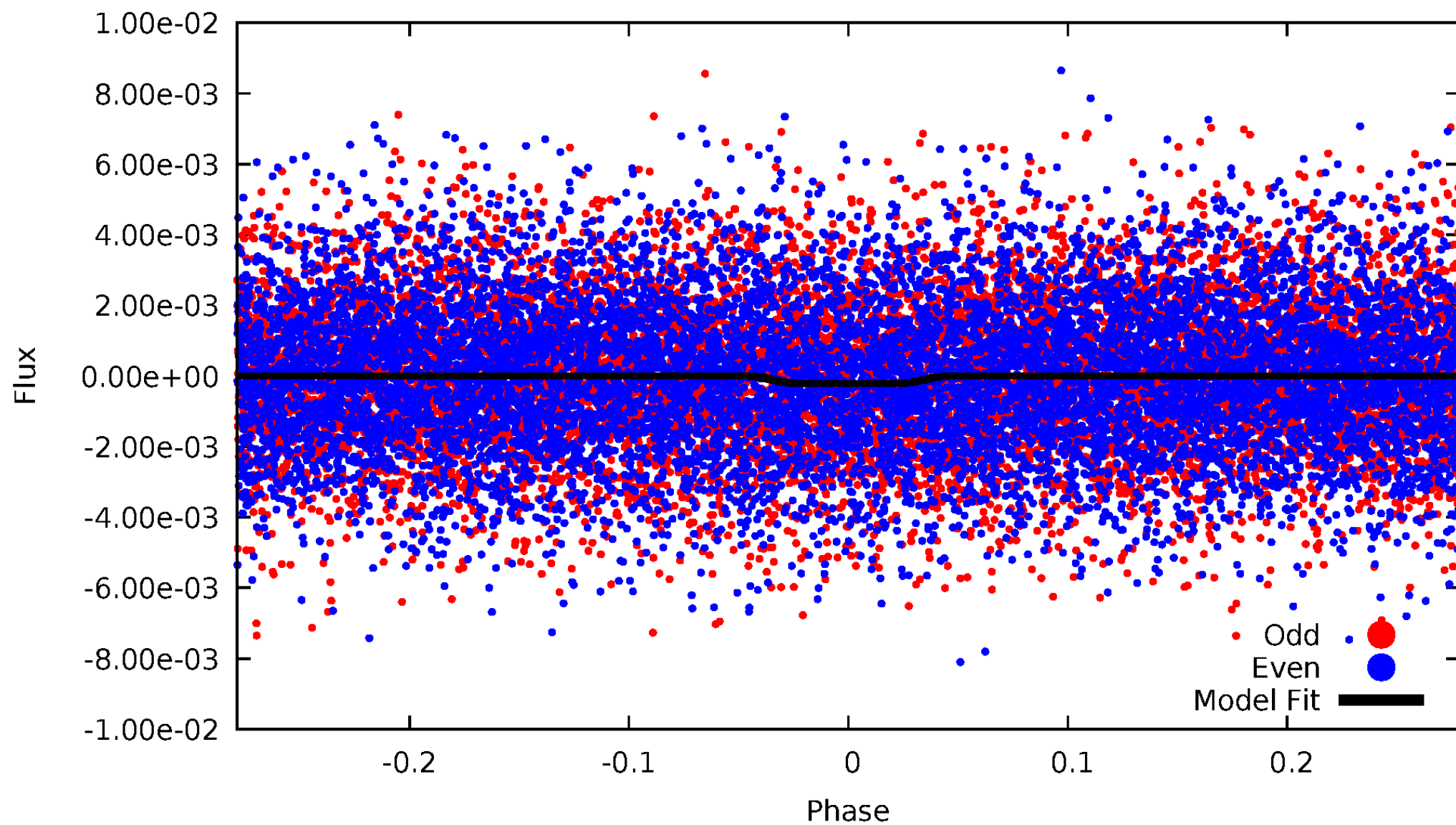
DV Odd/Even

TCE 006446951-02



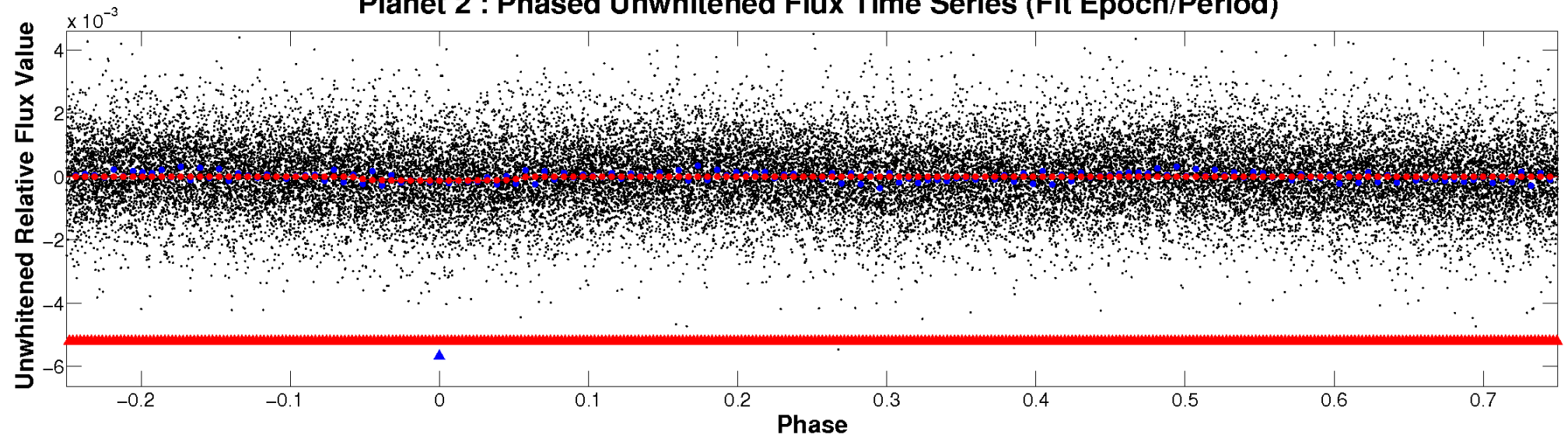
ALT Odd/Even

TCE 006446951-02

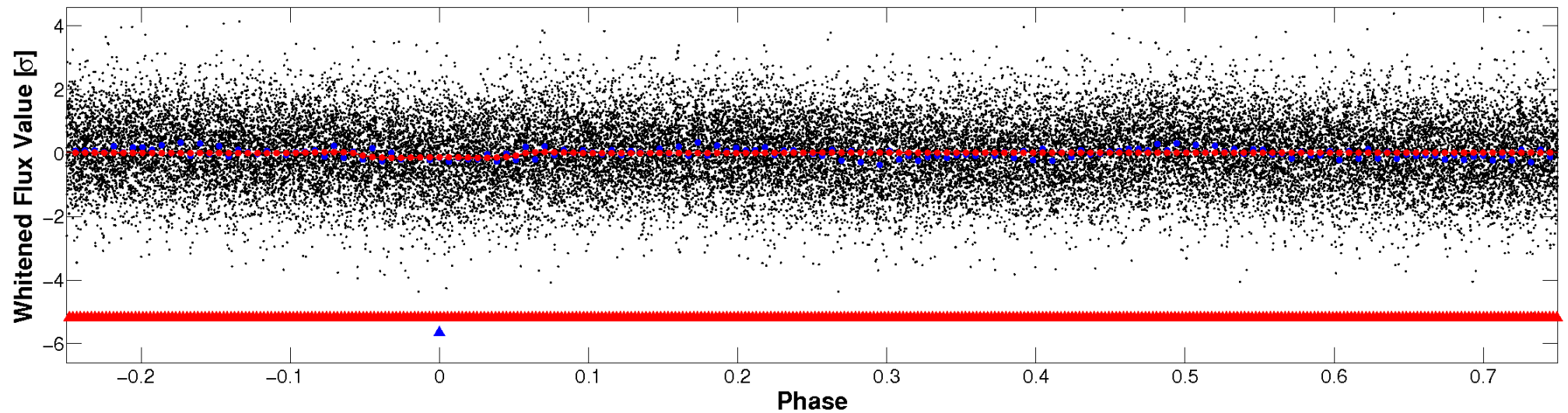


Non-Whitened Vs. Whitened Light Curve

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

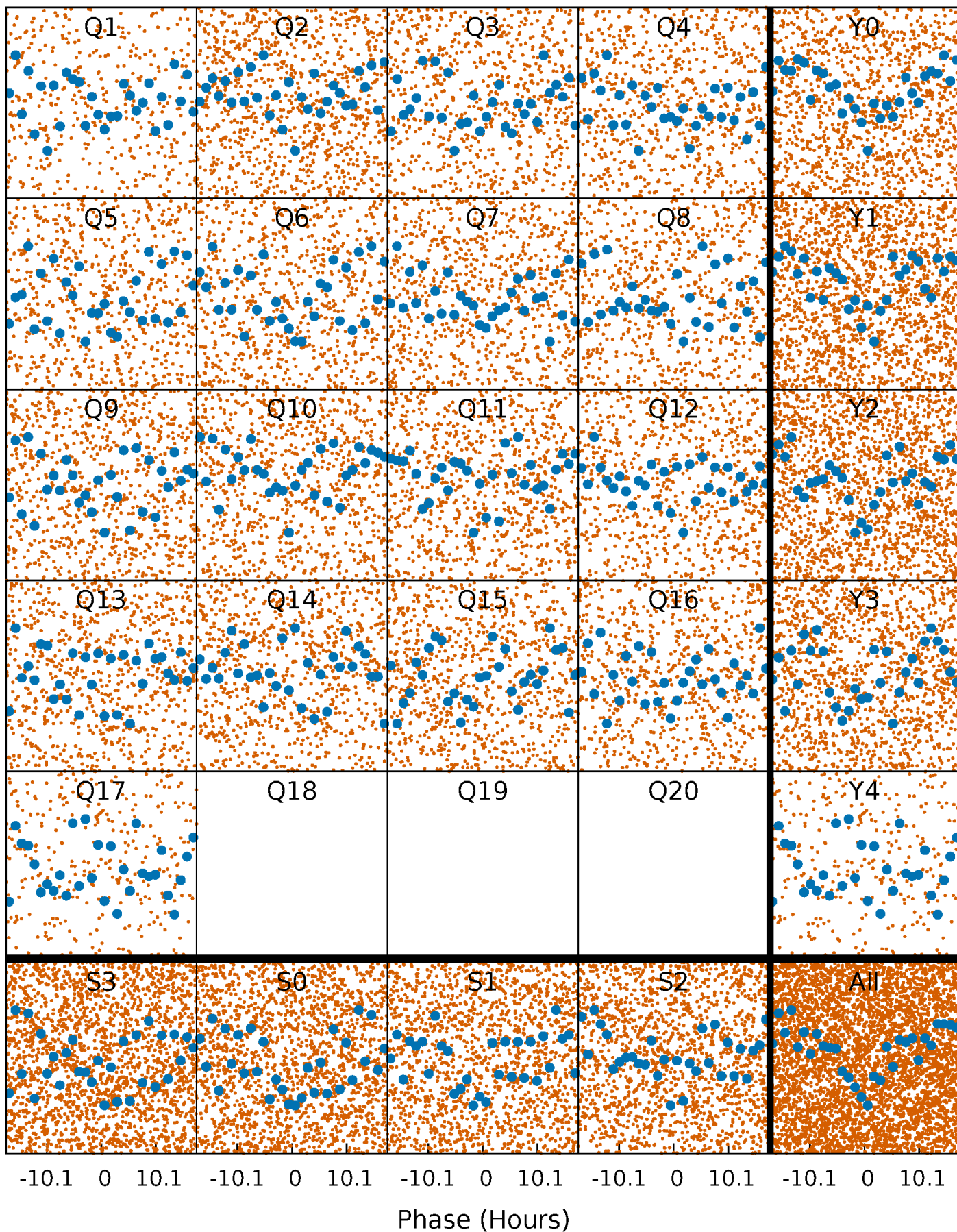


Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



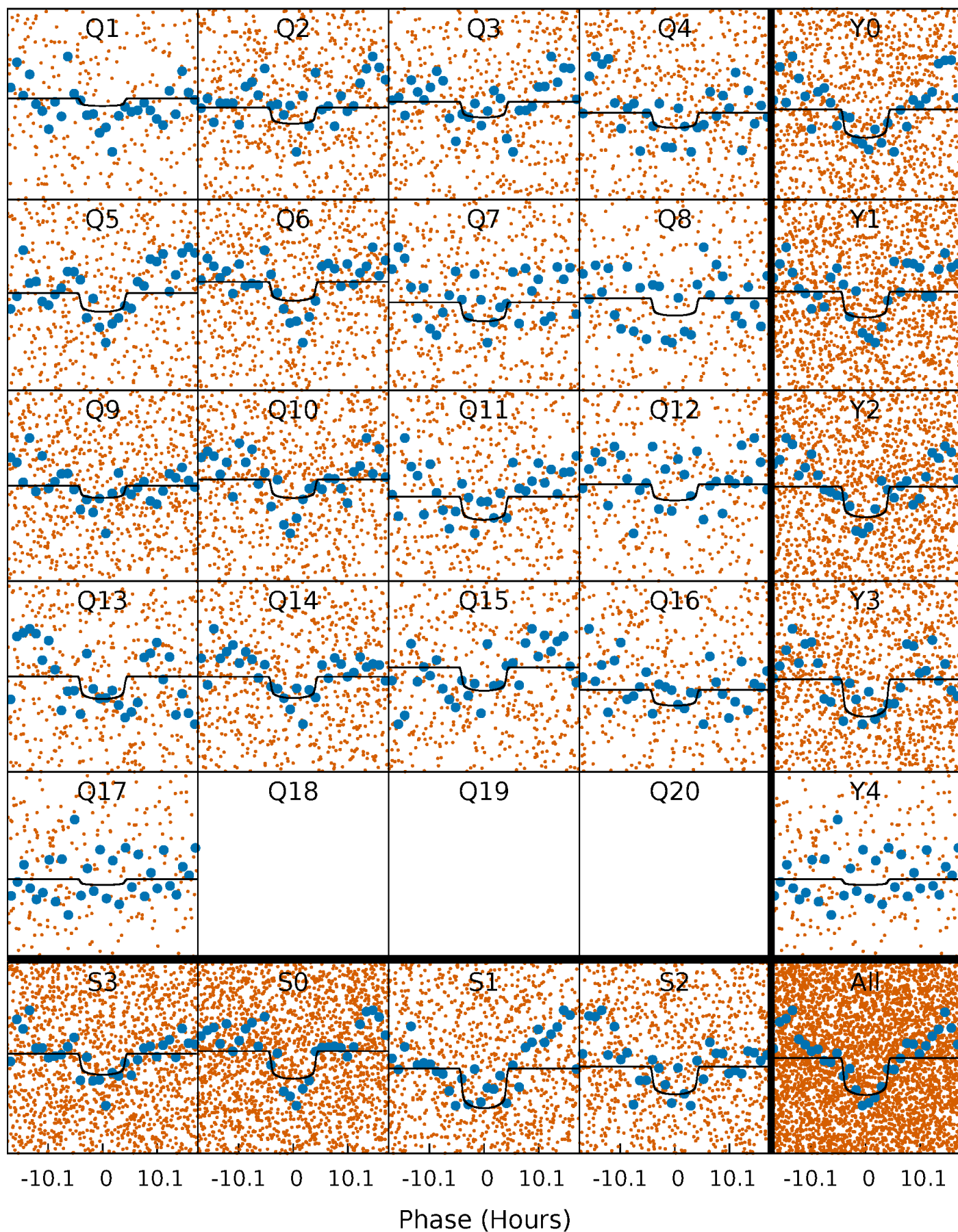
PDC Quarter-Phased Transit Curves

TCE 006446951-02 P= 3.182292 Days $T_0=133.504582$ (BKJD)



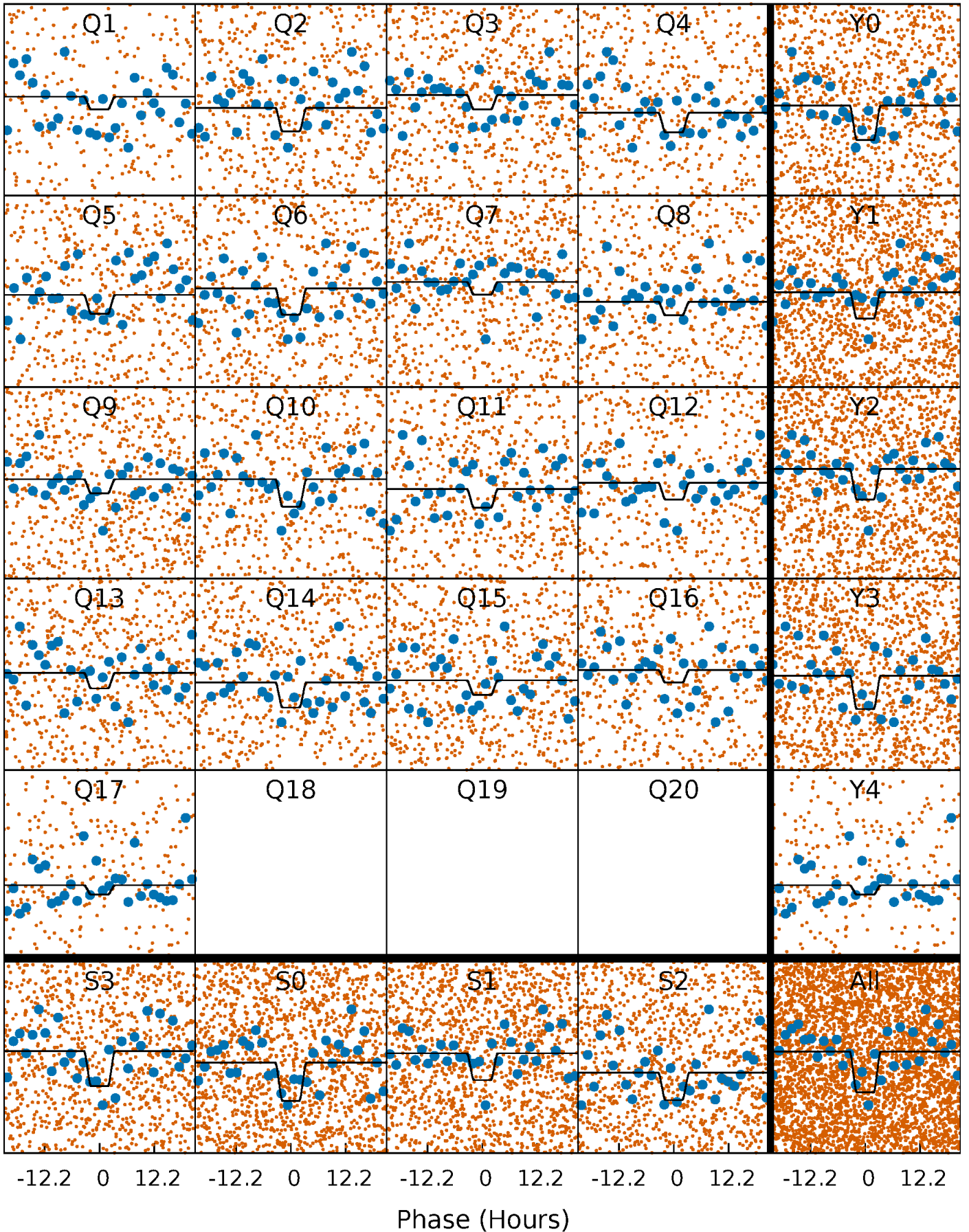
DV Quarter-Phased Transit Curves

TCE 006446951-02 P= 3.182292 Days $T_0=133.504582$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

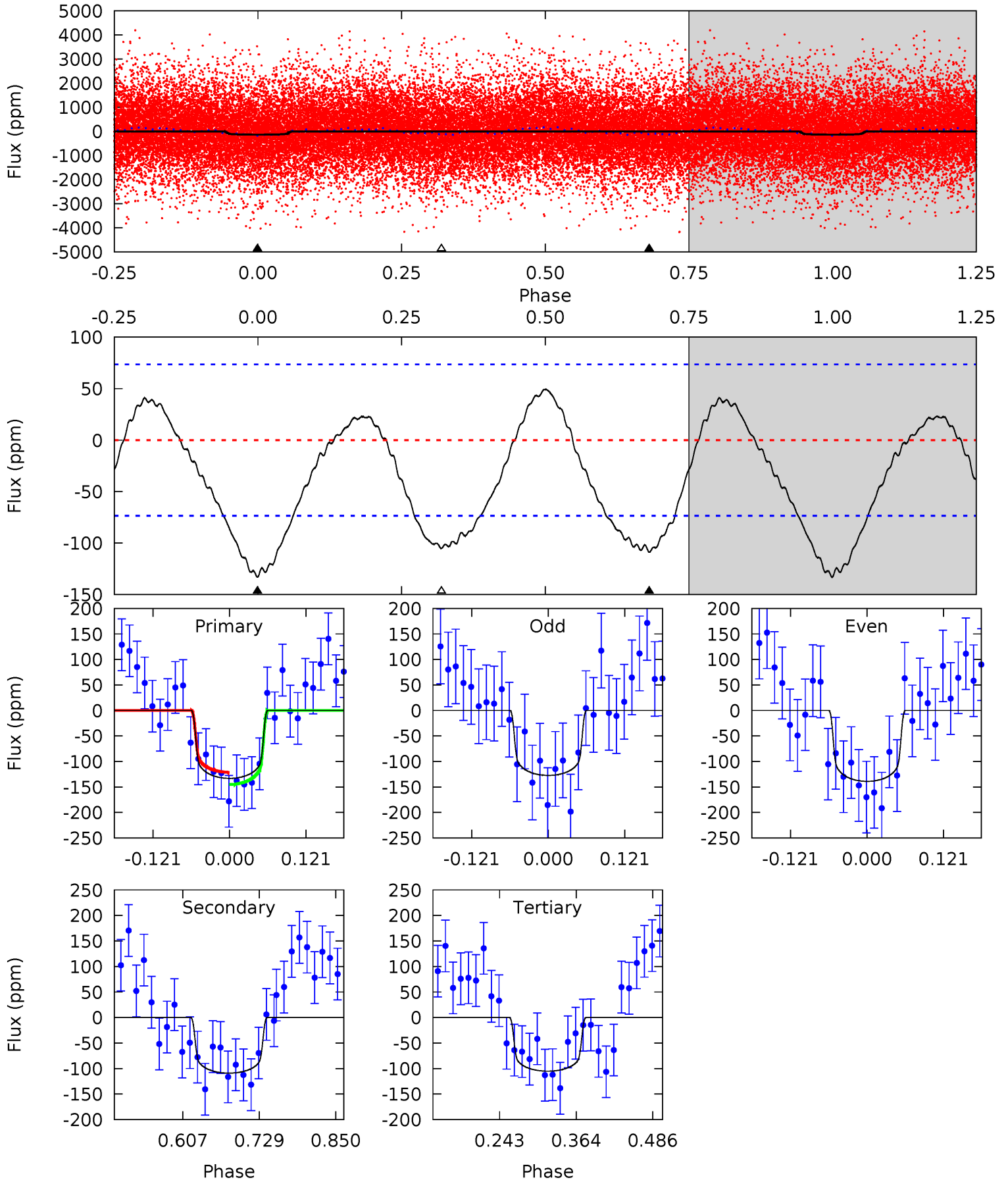
TCE 006446951-02 P= 3.182033 Days $T_0=133.558692$ (BKJD)



DV Model-Shift Uniqueness Test

006446951-02, P = 3.182292 Days, E = 130.322290 Days

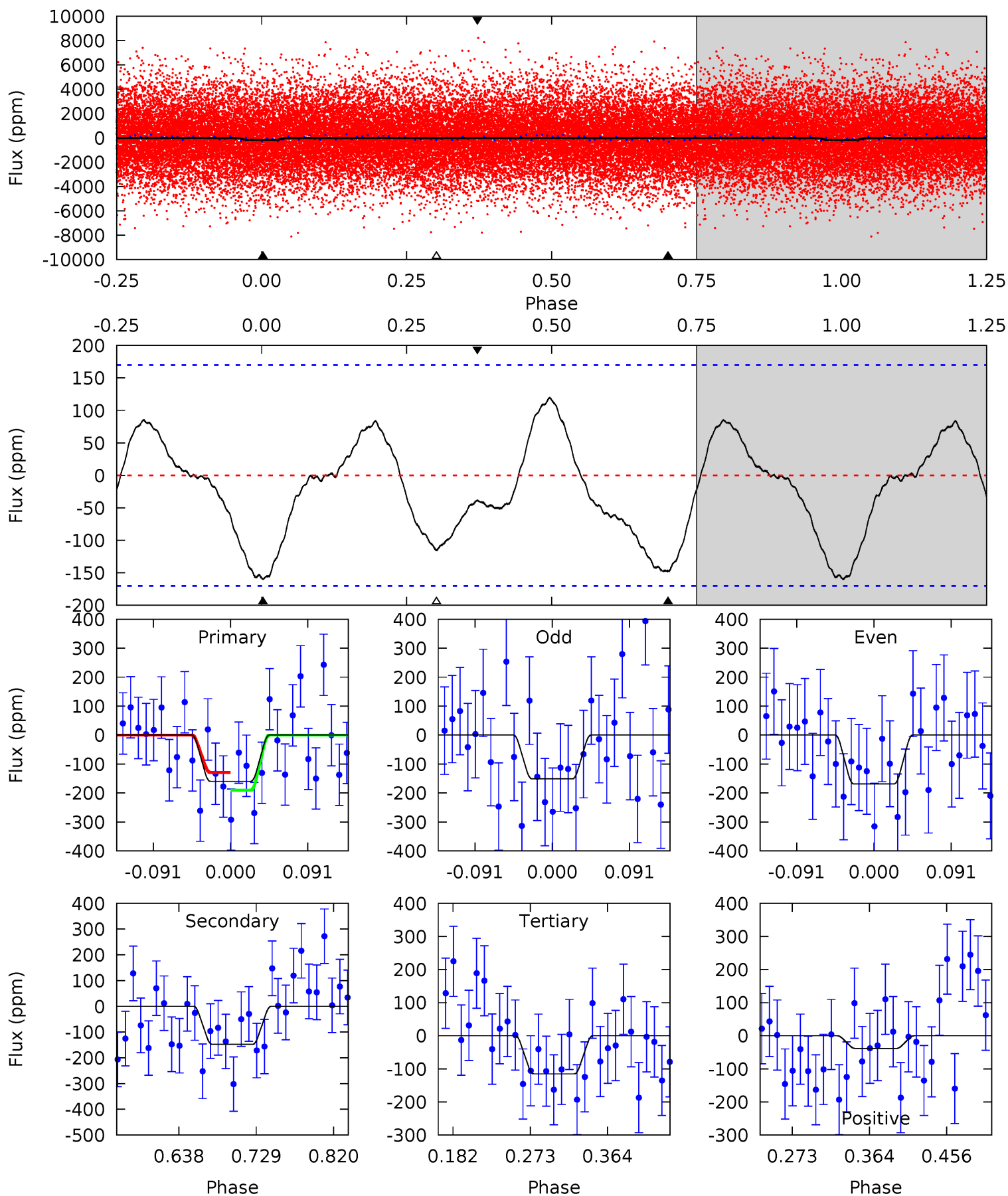
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
8.19	6.70	6.47	0	4.52	1.55	3.01	1.72	8.19	0.24	6.70	0.36	1.03	0.27	0.74



Alt Model-Shift Uniqueness Test

006446951-02, P = 3.182033 Days, E = 130.376659 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
4.30	3.98	3.10	-1.04	4.58	1.69	1.62	1.20	5.34	0.87	5.02	0.23	1.25	0.43	0.82



Stellar Parameters For KIC 006446951

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	M (M_{\odot})	p_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	7615^{+234}_{-313}	$4.000^{+0.294}_{-0.126}$	$-0.520^{+0.250}_{-0.300}$	$2.017^{+0.470}_{-0.705}$	$1.486^{+0.186}_{-0.278}$	$0.255^{+0.477}_{-0.113}$
	+3%/-4%	+7%/-3%	+48%/-58%	+23%/-35%	+13%/-19%	+187%/-44%
Source	KIC0	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 006446951-02 / KOI

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	-109 ± 16	$2.47^{+0.87}_{-0.79}$	2981^{+223}_{-255}	7055^{+1616}_{-902}	23^{+26}_{-10}
Alt.	-148 ± 37	$2.98^{+0.92}_{-0.83}$	2969^{+226}_{-271}	6929^{+1258}_{-957}	21^{+21}_{-10}

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 $A_{obs} \gg 1.0$

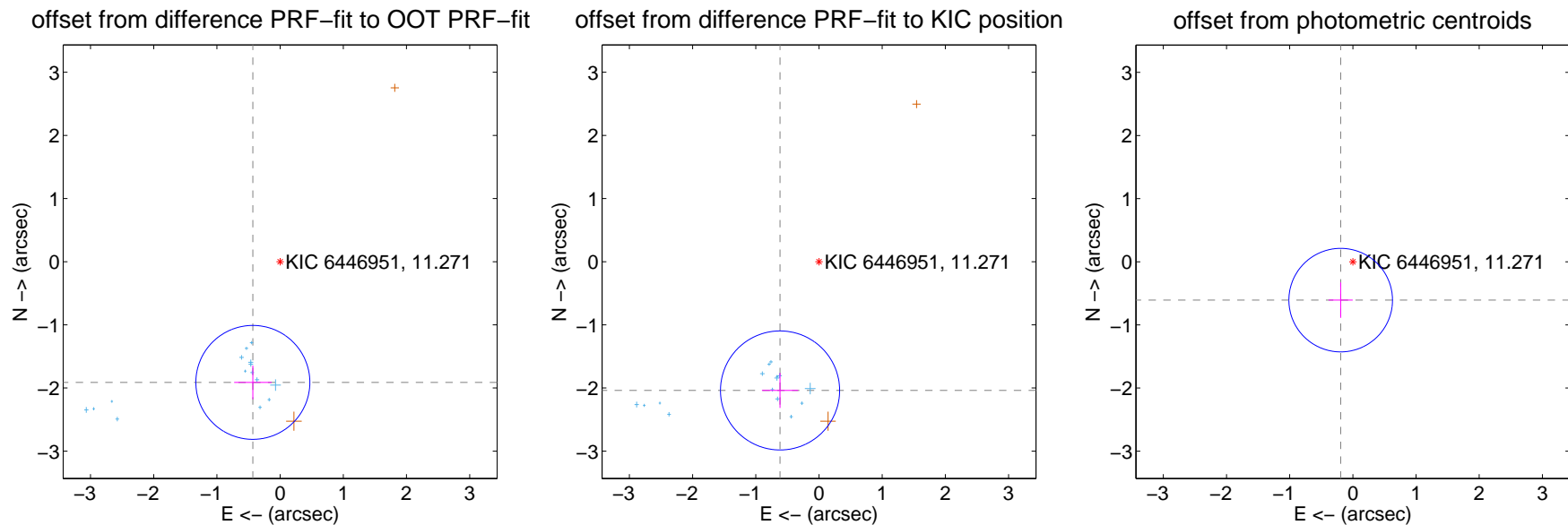
DV Centroid Data

Supplemental centroid analysis for 006446951-02. **Kepler magnitude: 11.27.** Transit SNR 8.22

There are 15 quarters with good PRF difference image offsets

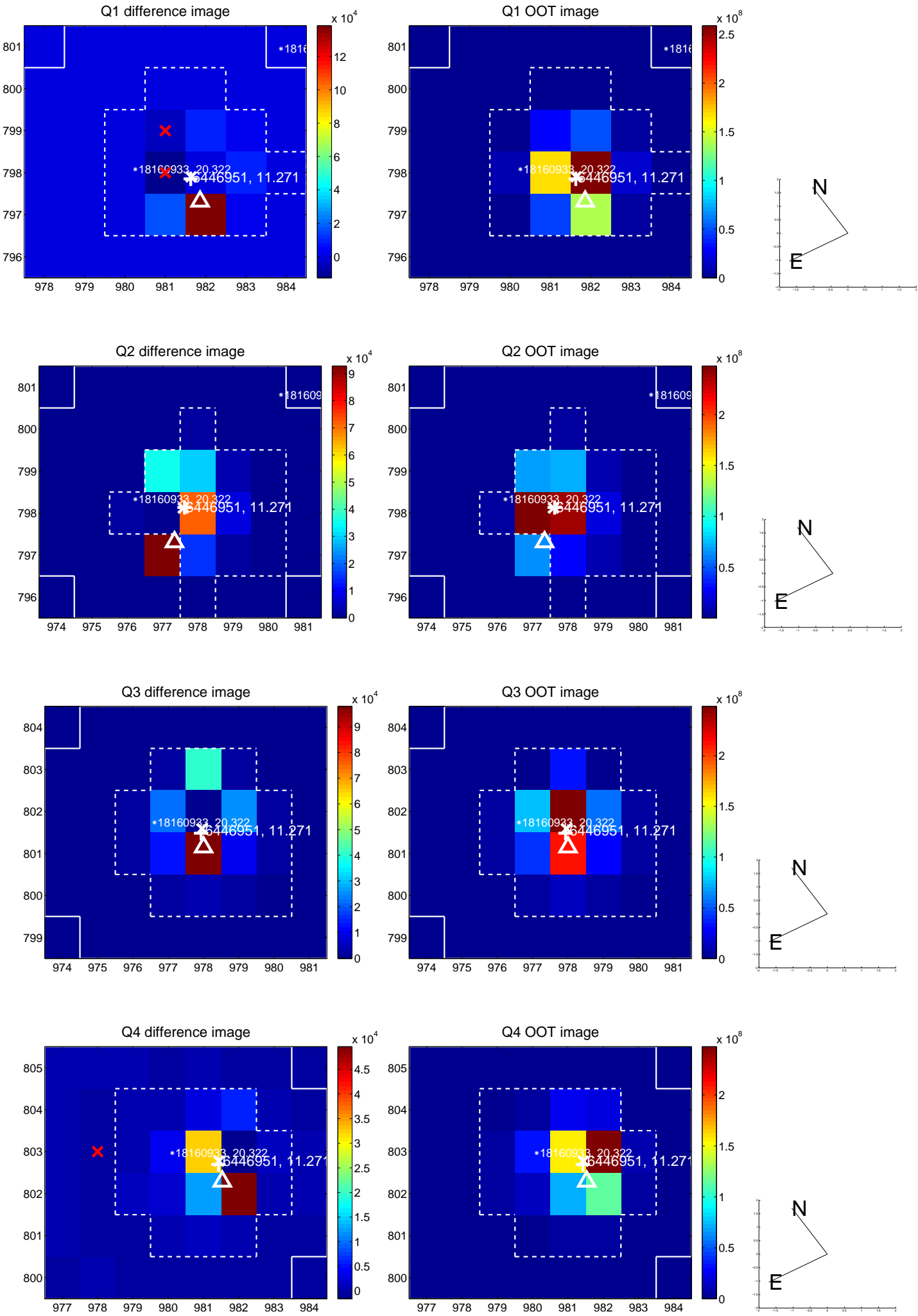
The direct PRF centroid is offset from the target star catalog position by about 0.08 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	1.959 ± 0.301	6.52	0.431 ± 0.297	-1.911 ± 0.266
PRF-fit source offset from KIC position	2.130 ± 0.314	6.78	0.616 ± 0.287	-2.039 ± 0.277
photometric centroid source offset	0.64 ± 0.27	2.33	0.19 ± 0.19	-0.61 ± 0.28

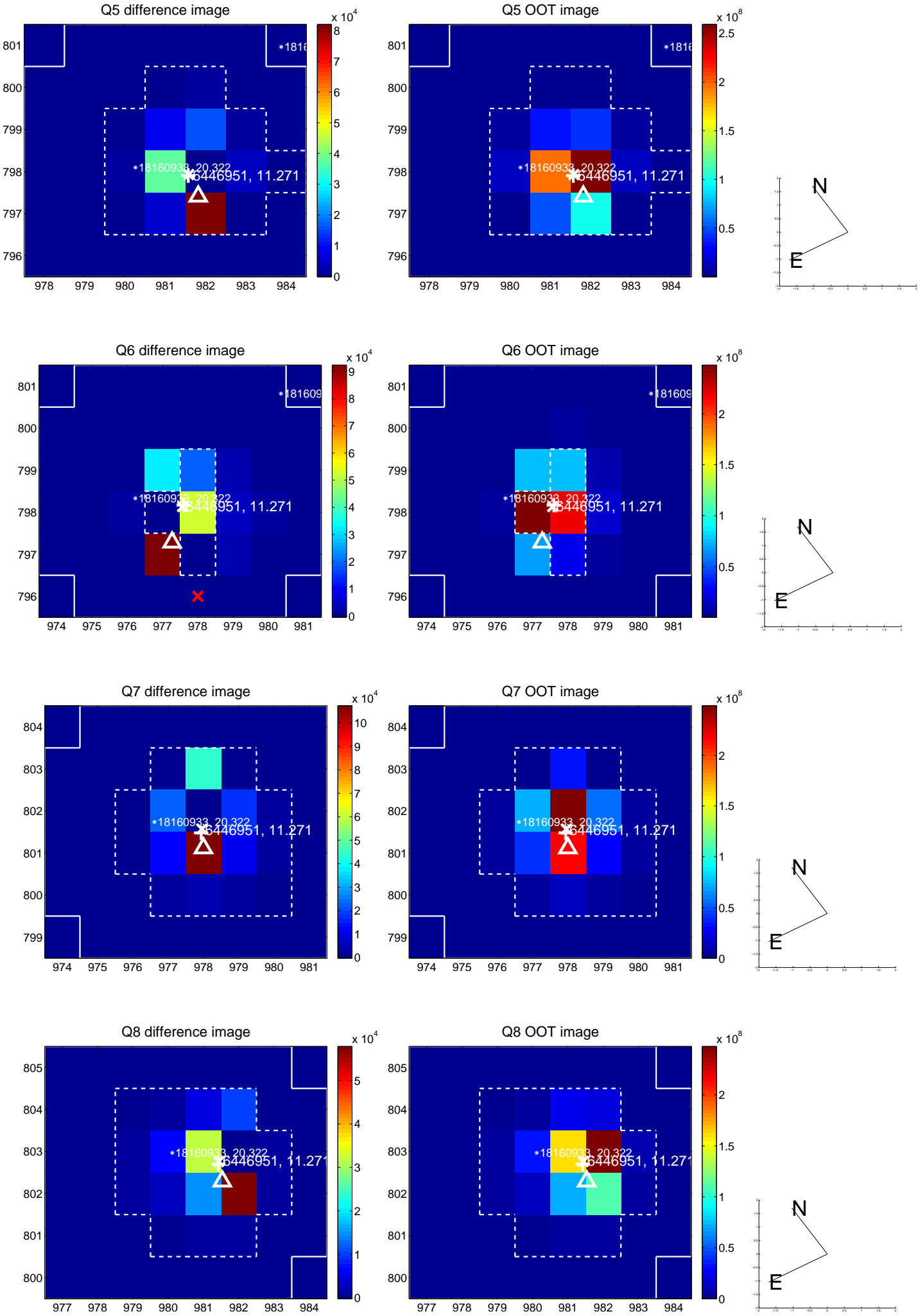


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets;** magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

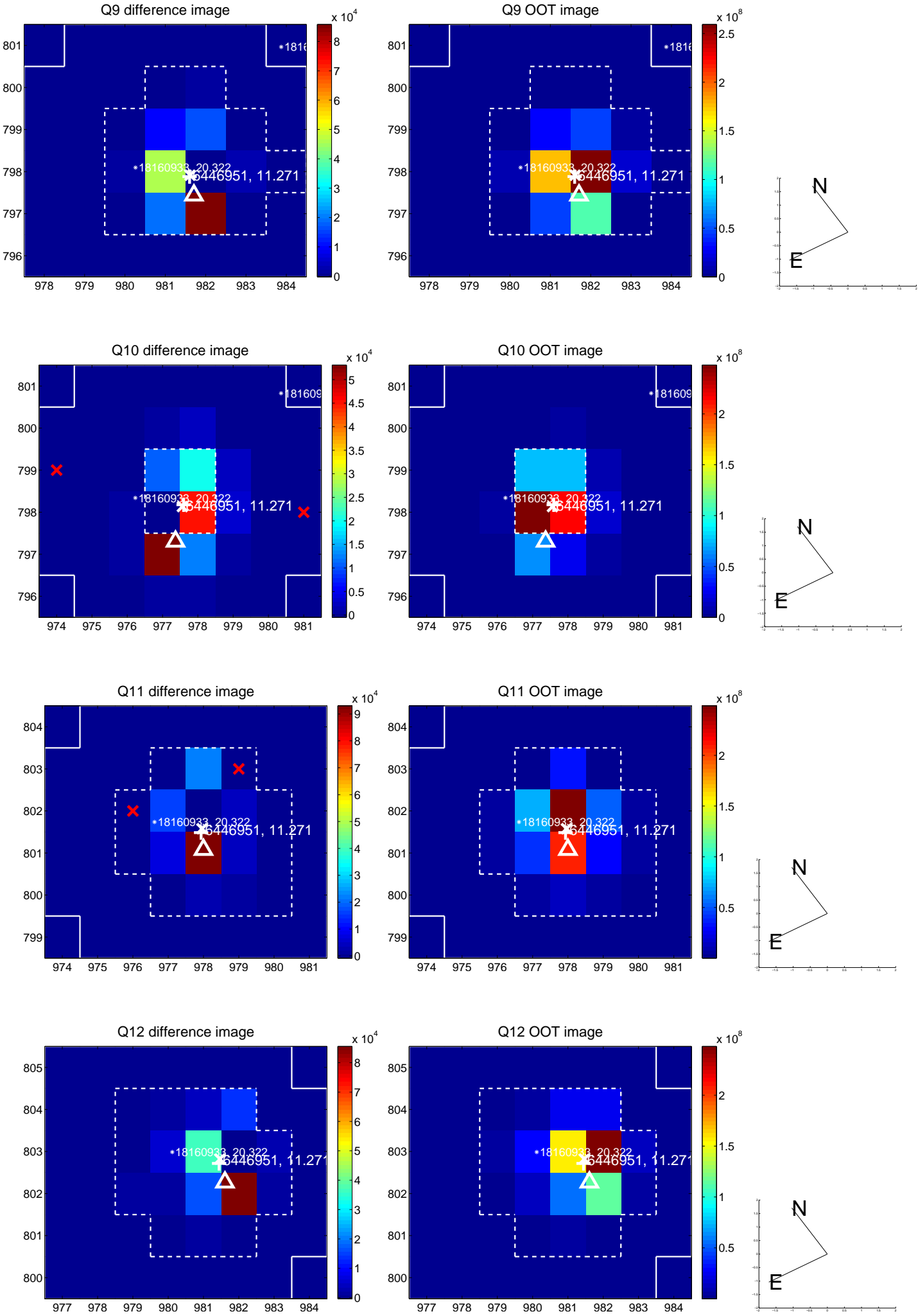
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



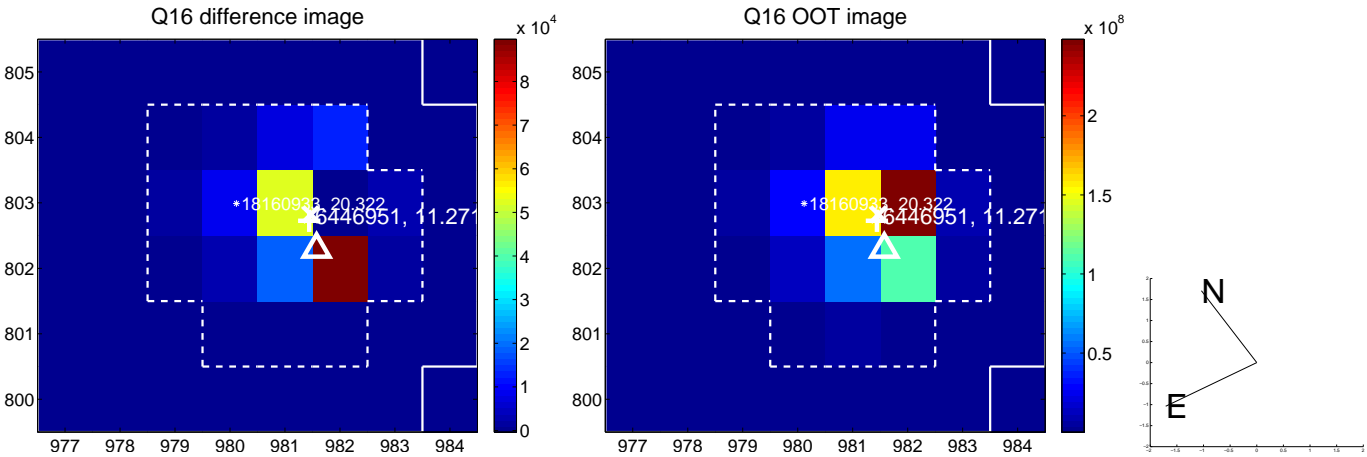
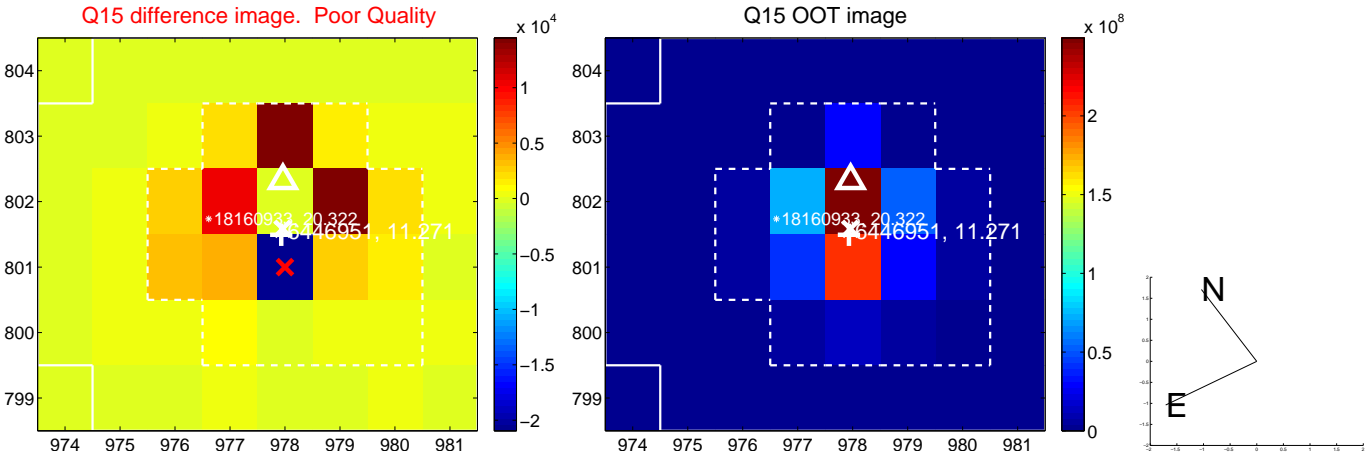
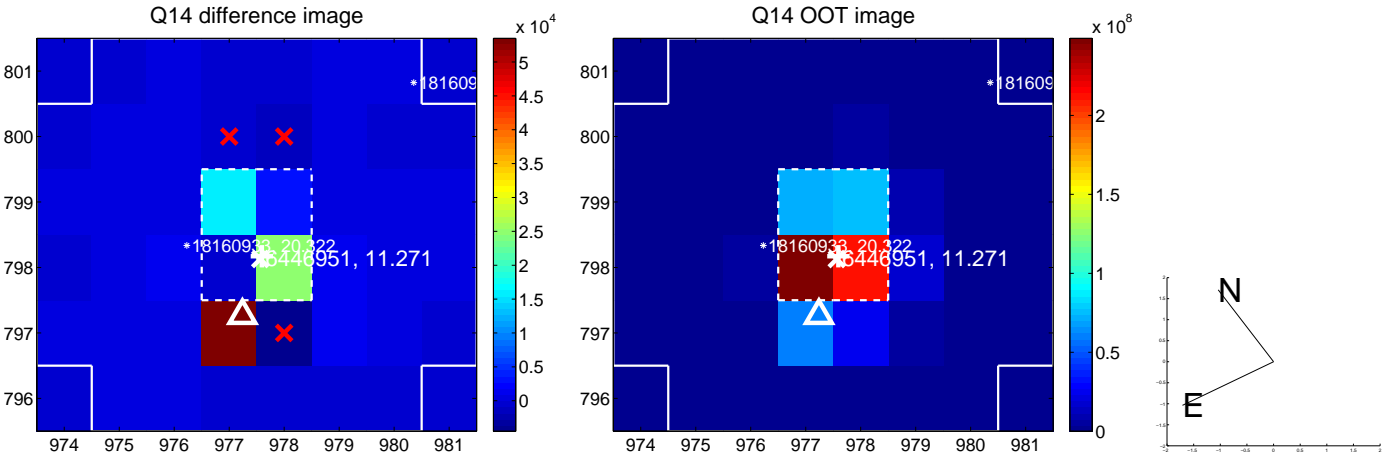
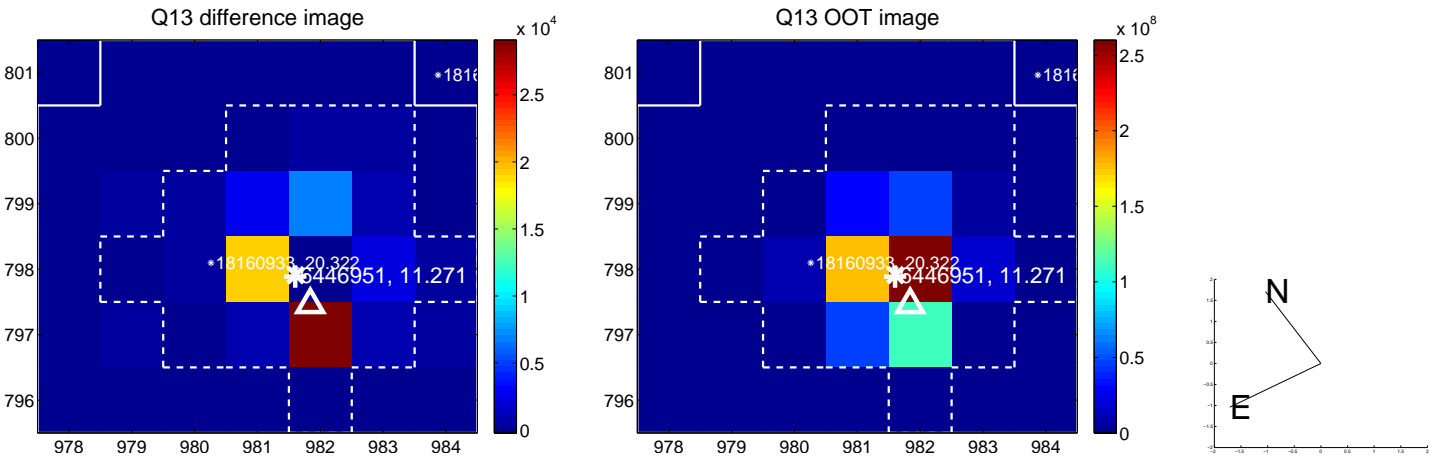
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



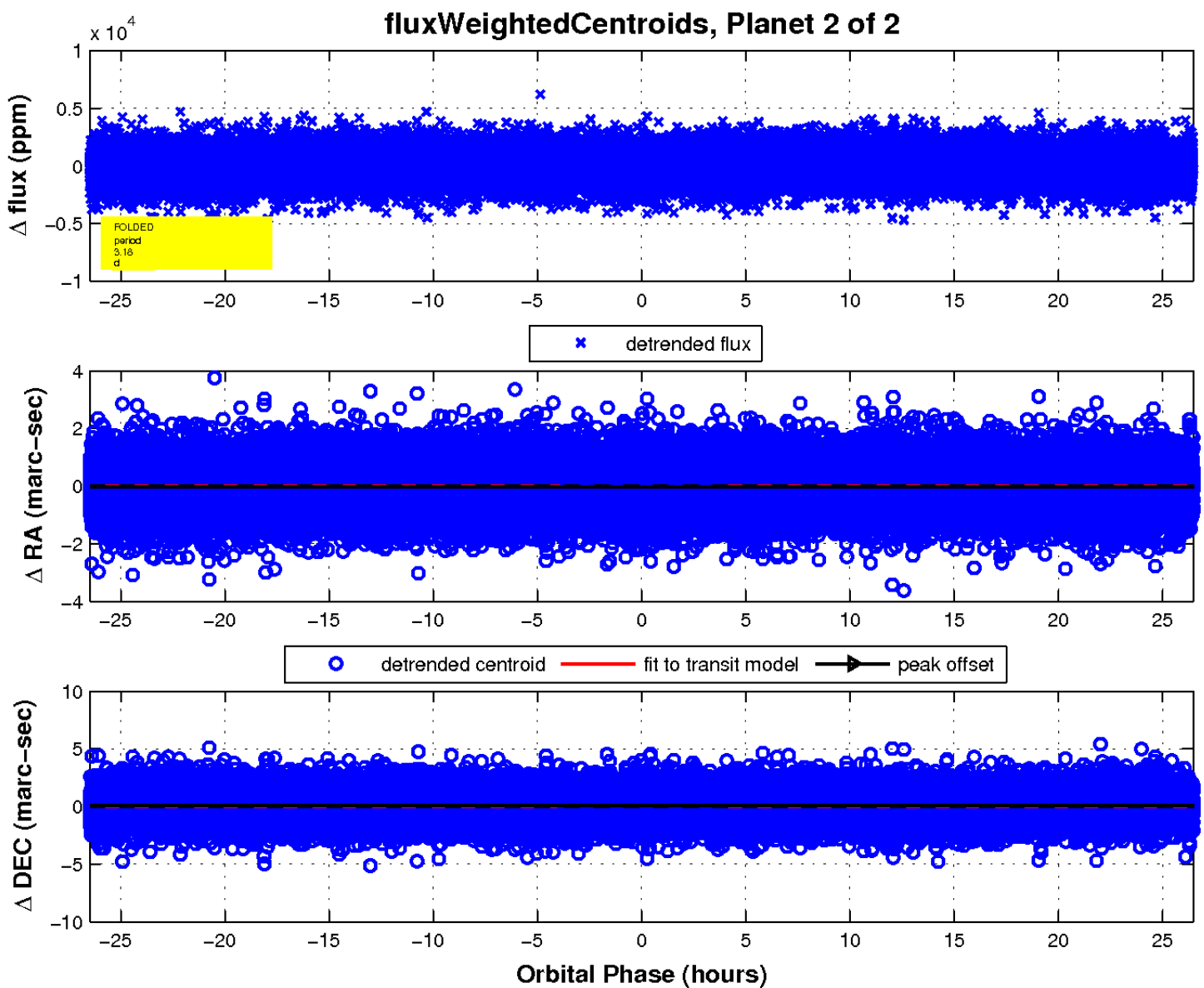
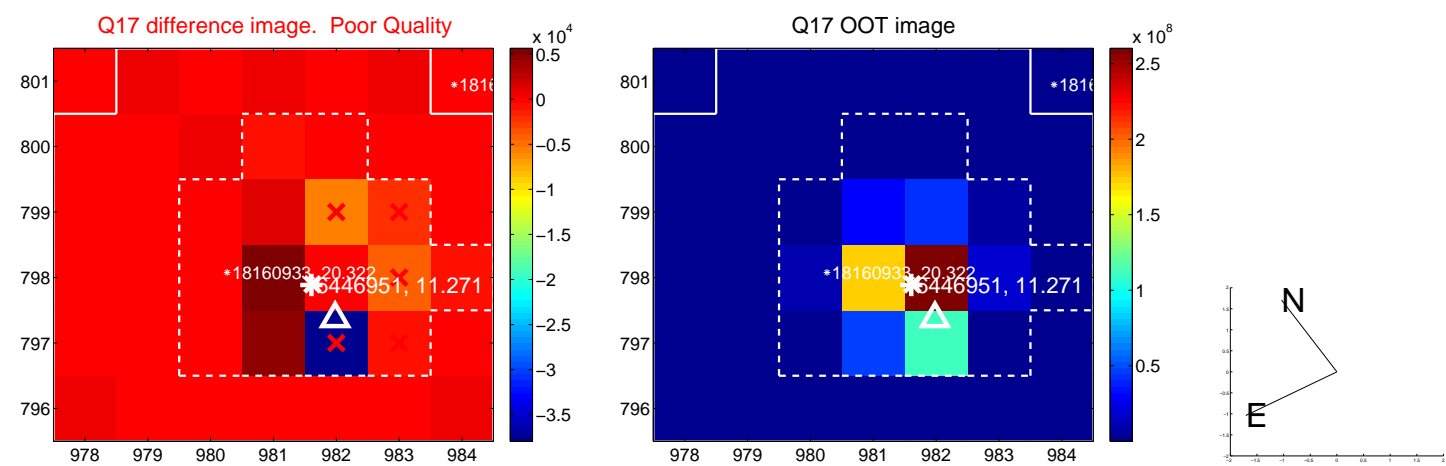
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

