

KIC 012736658

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})
012736658-01	OBS	5980.01	0.855293	131.658364	5583.9	2.701	1521.2	958.1	1.21	5846	10.81	4935.31
012736658-02	OBS	No	0.855290	132.088260	3990.6	2.655	1443.7	869.6	1.21	5846	9.27	4935.34

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
012736658-01	OBS	FP	0.00	1	0	1	0	LPP_DV—CENT_UNRESOLVED_OFFSET
012736658-02	OBS	FP	0.00	1	0	1	0	SAME_NTL_PERIOD—CENT_UNRESOLVED_OFFSET

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 012736658-01

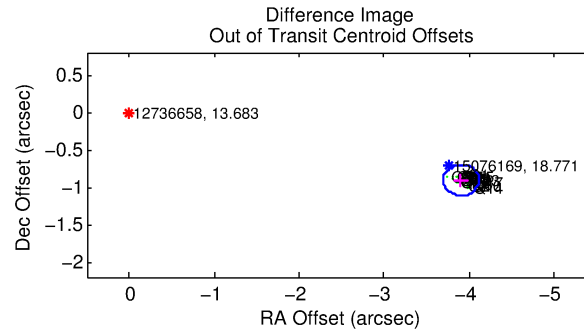
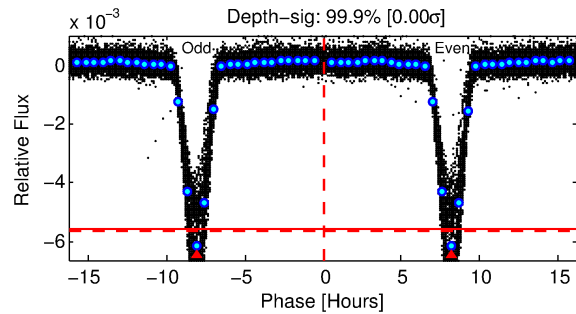
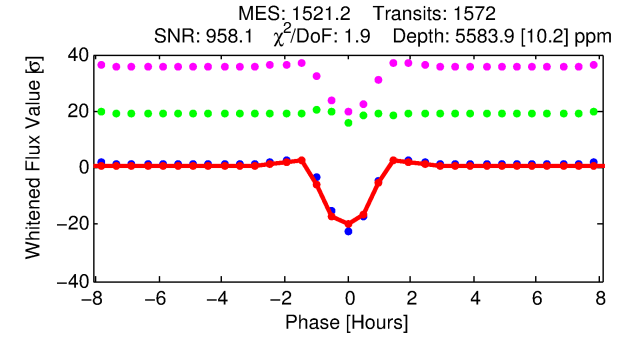
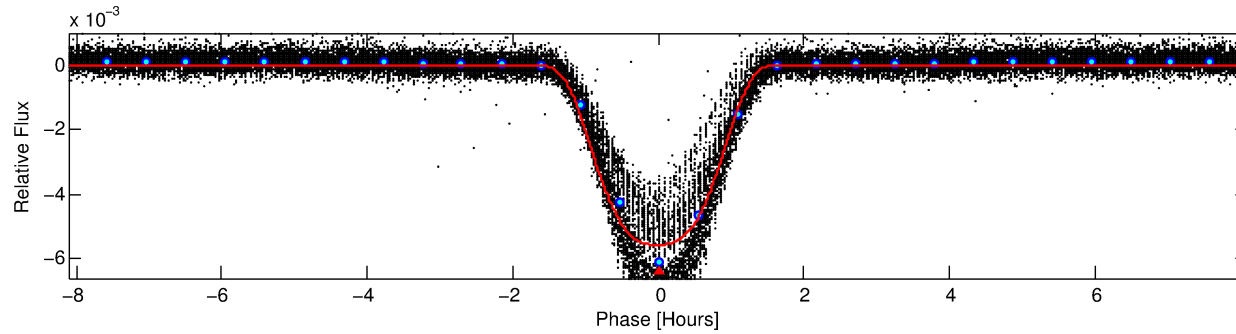
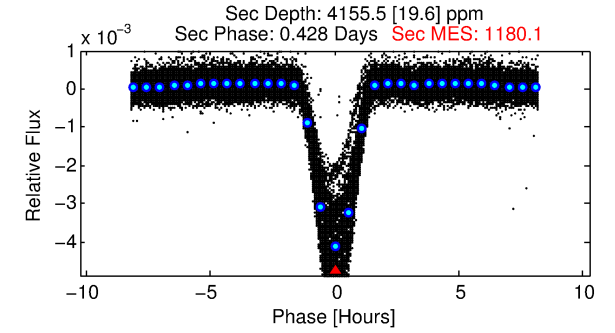
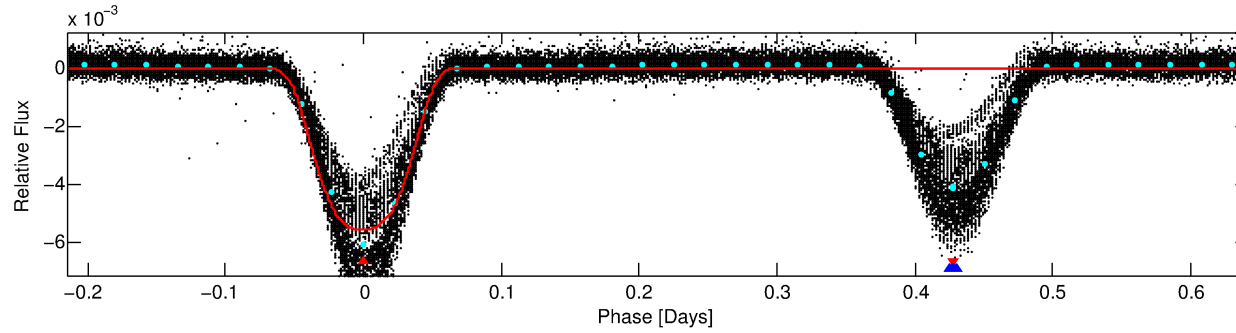
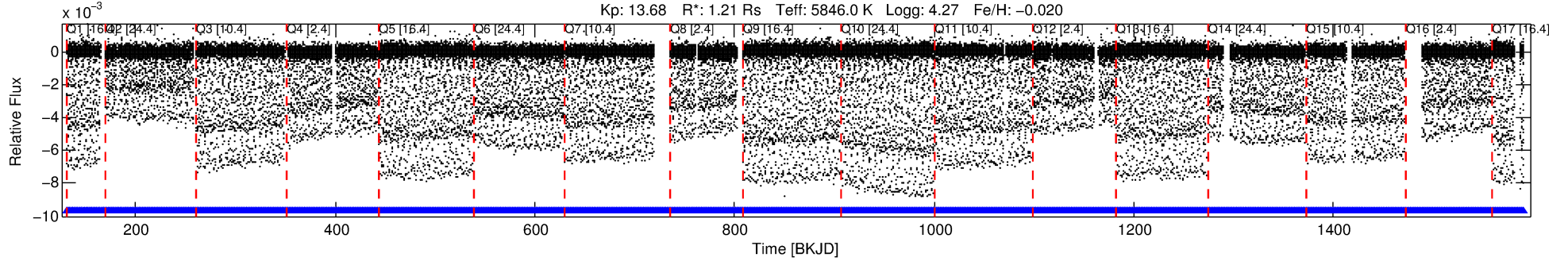
No Significant Match Found

DV One-Page Summary

KIC: 12736658 Candidate: 1 of 2 Period: 0.855 d

KOI: K05980.01 Corr: 0.965

Kp: 13.68 R*: 1.21 Rs Teff: 5846.0 K Logg: 4.27 Fe/H: -0.020



DV Fit Results:

Period = 0.85529 [0.00000] d
Epoch = 131.6584 [0.0000] BKJD
Rp/R* = 0.0821 [0.0001]
a/R* = 1.74 [0.00]
b = 0.90 [0.00]
Seff = 4935.31 [1880.52]
Teq = 2137 [204] K
Rp = 10.81 [2.93] Re
a = 0.0176 [0.0042] AU
Ag = 6.04 [2.18] [2.31σ]
Teffp = 5181 [156] K [11.86σ]

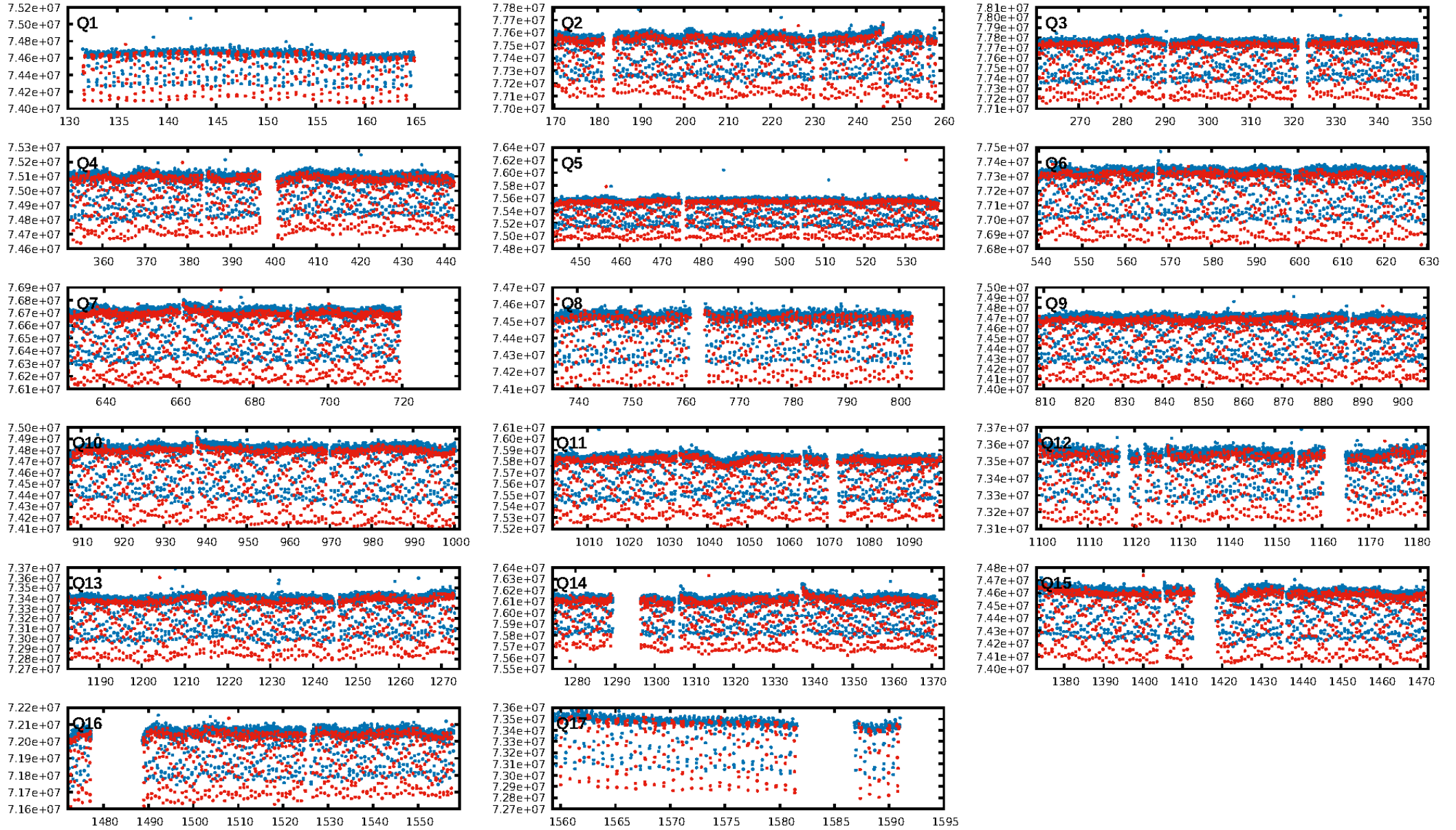
DV Diagnostic Results:

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 [1501/1501]
GhostDiagnostic-chr: 0.9605
Centroid-sig: 0.0%
Centroid-so: 4.493 arcsec [467.48σ]
OotOffset-rm: 4.015 arcsec [57.71σ]
KicOffset-rm: 3.863 arcsec [56.26σ]
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]

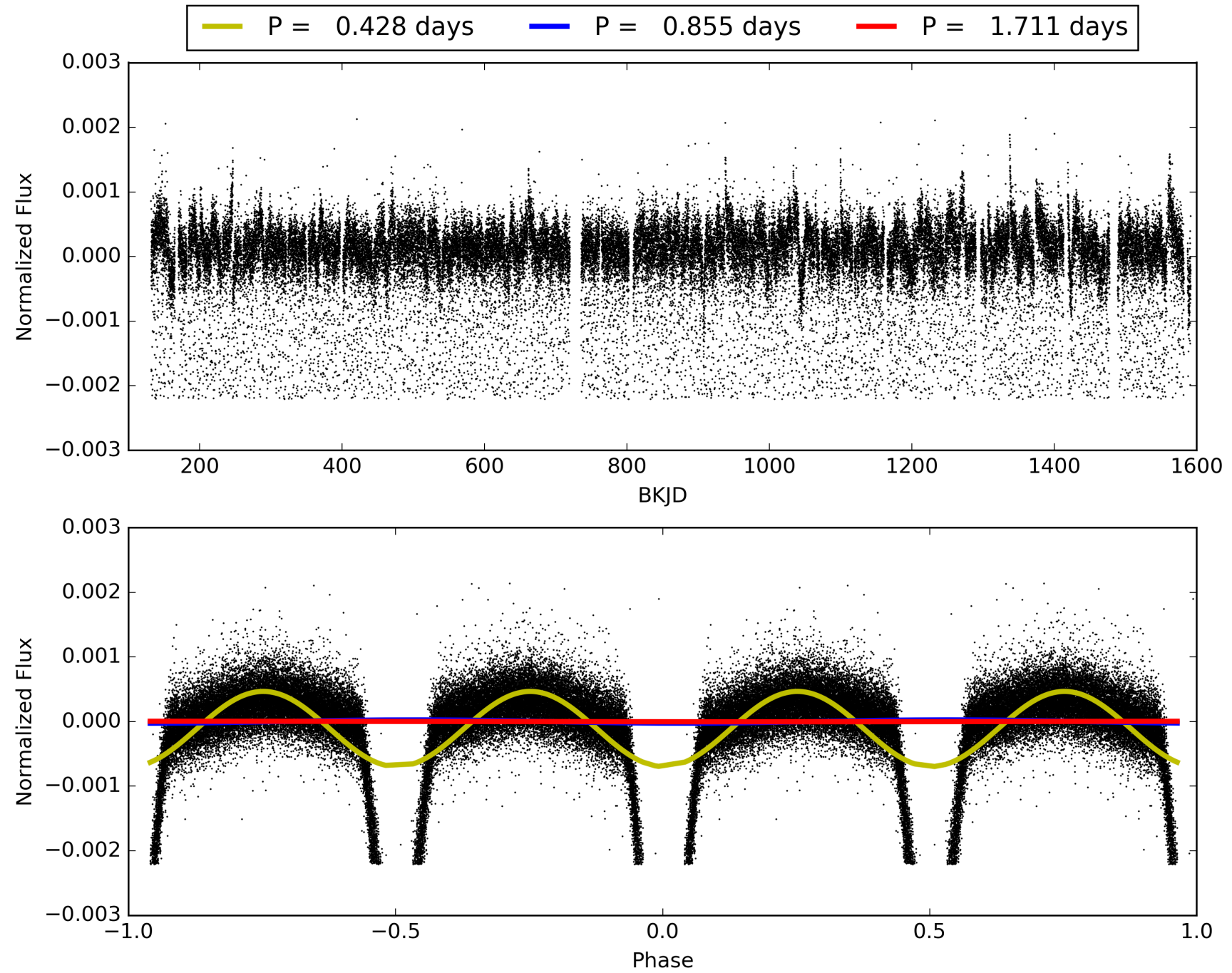
Software Revision: svn-ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 07:37:36 Z

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

TCE 012736658-01, PDC Light Curves

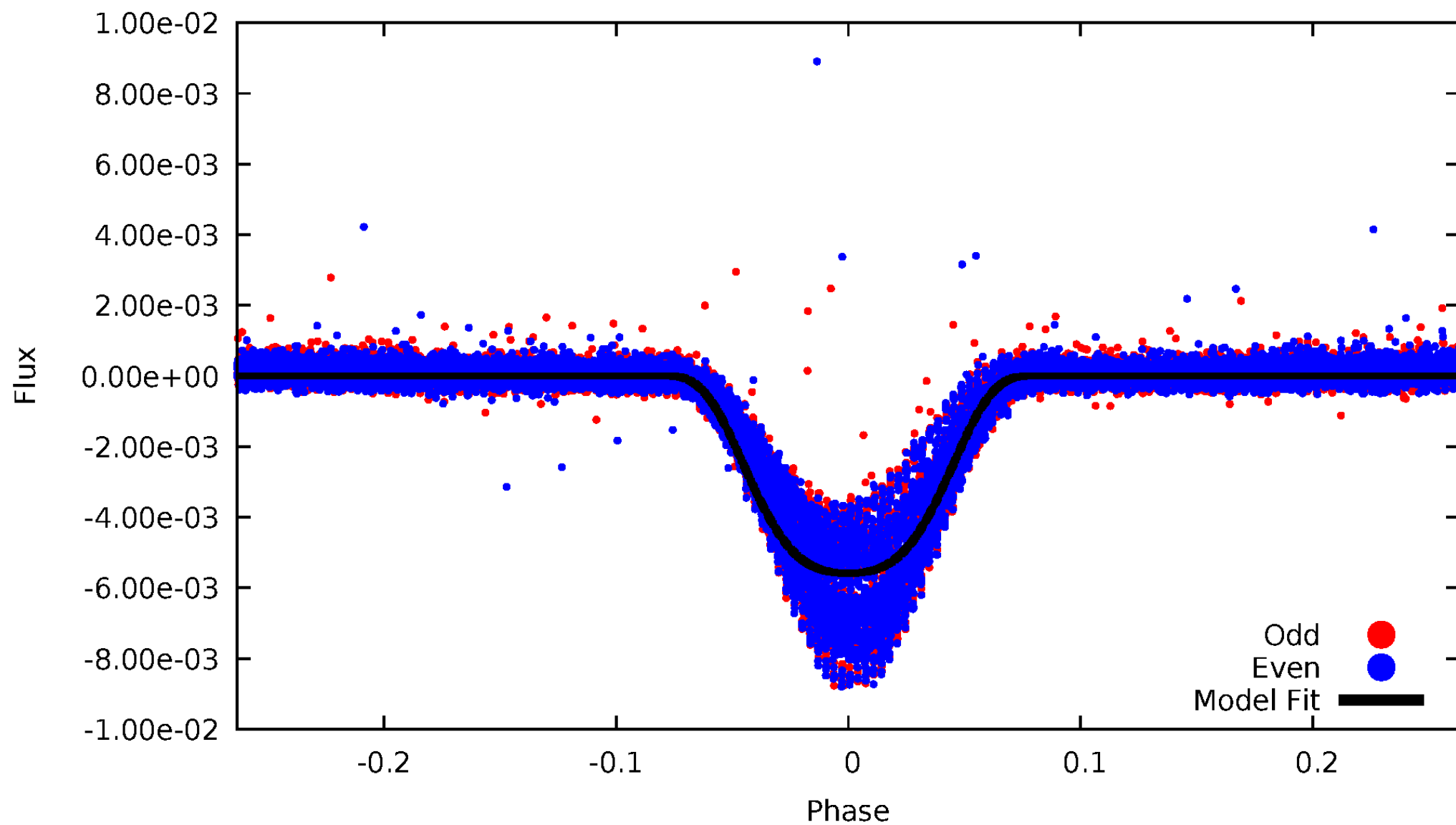


TCE 012736658-01



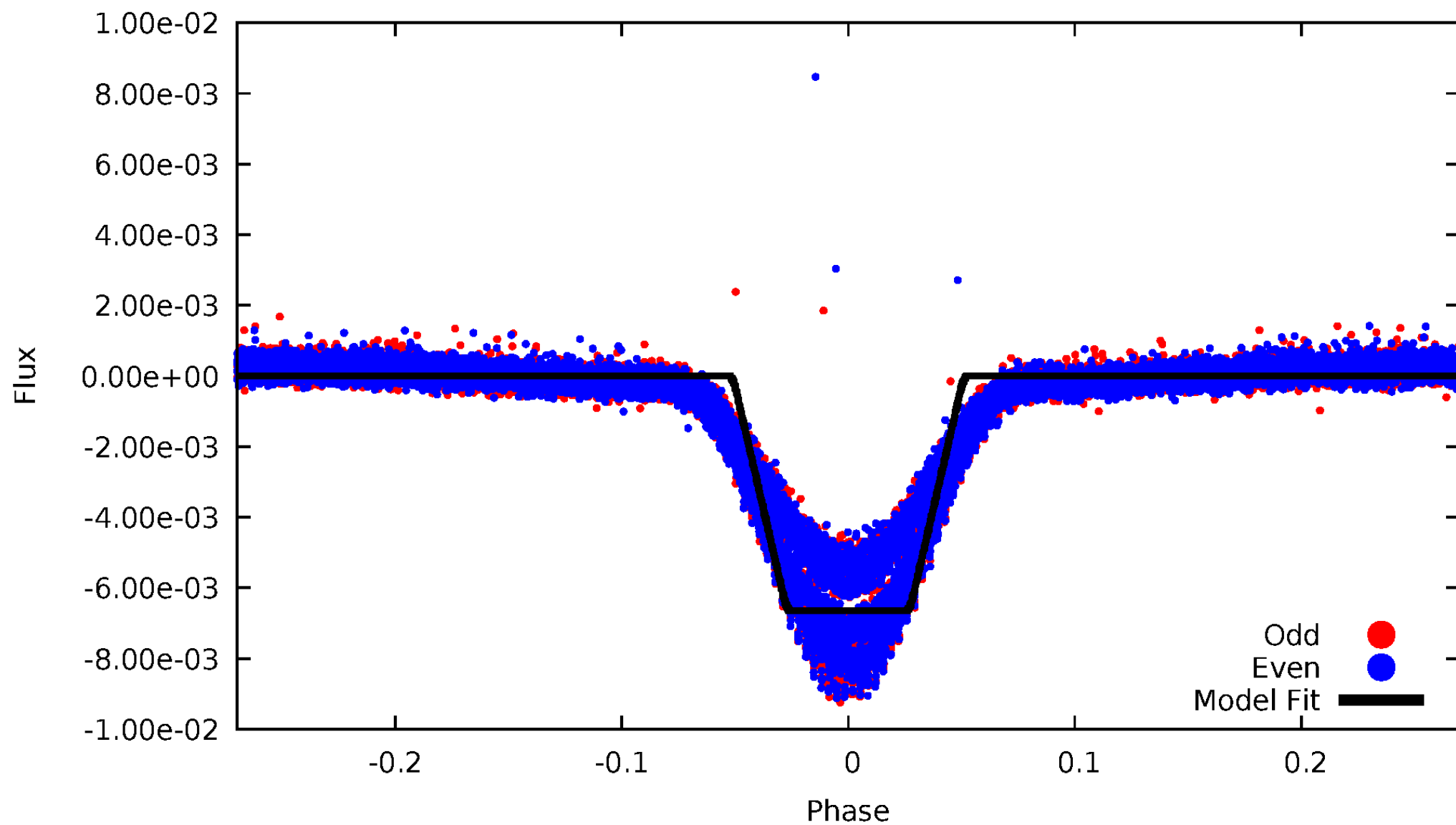
DV Odd/Even

TCE 012736658-01



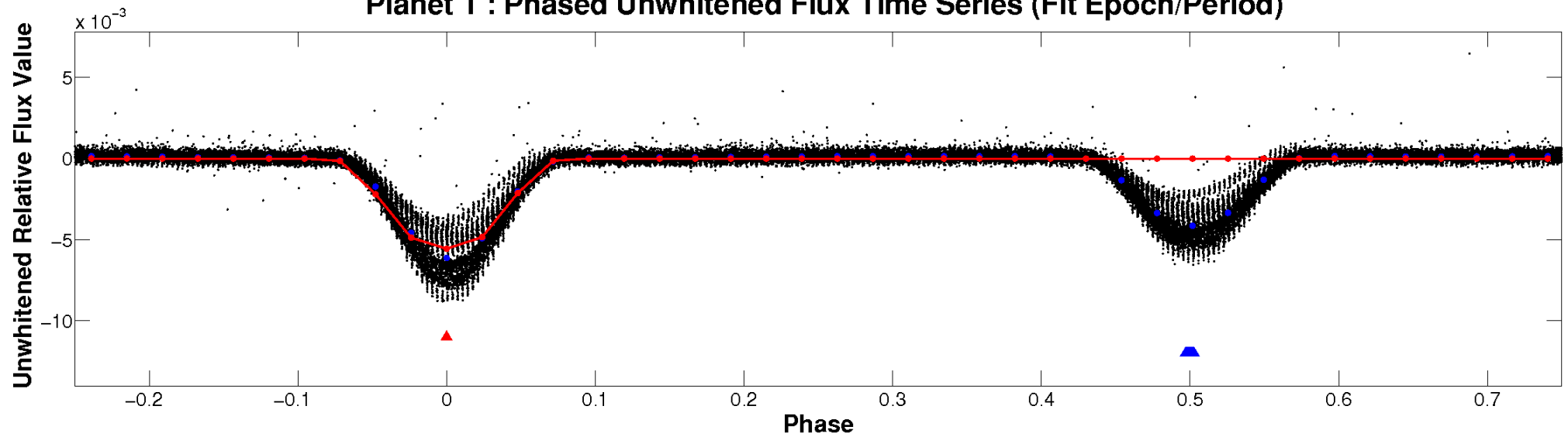
ALT Odd/Even

TCE 012736658-01

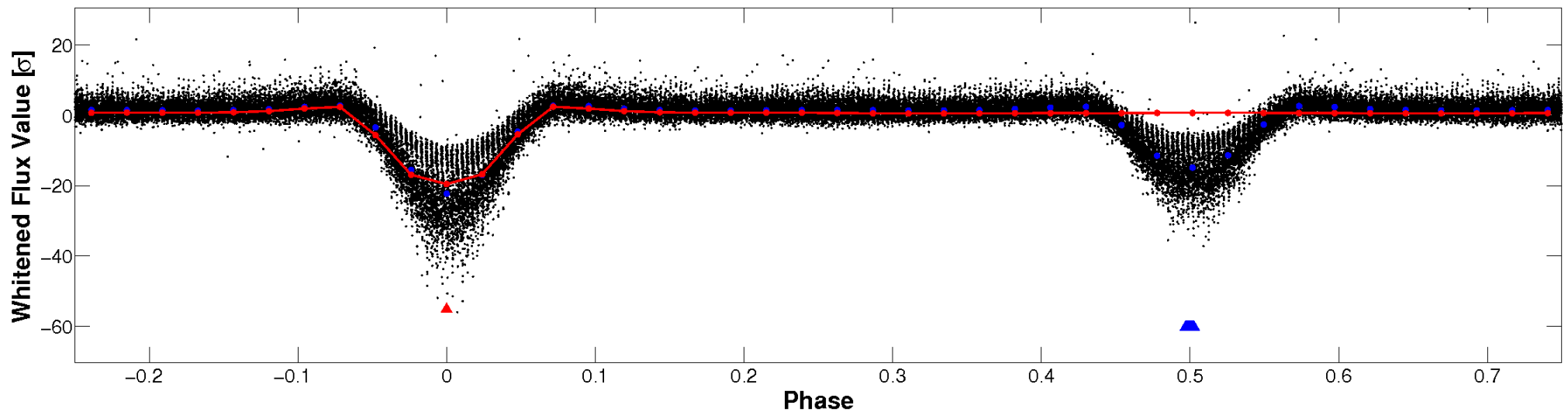


Non-Whitened Vs. Whitened Light Curve

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

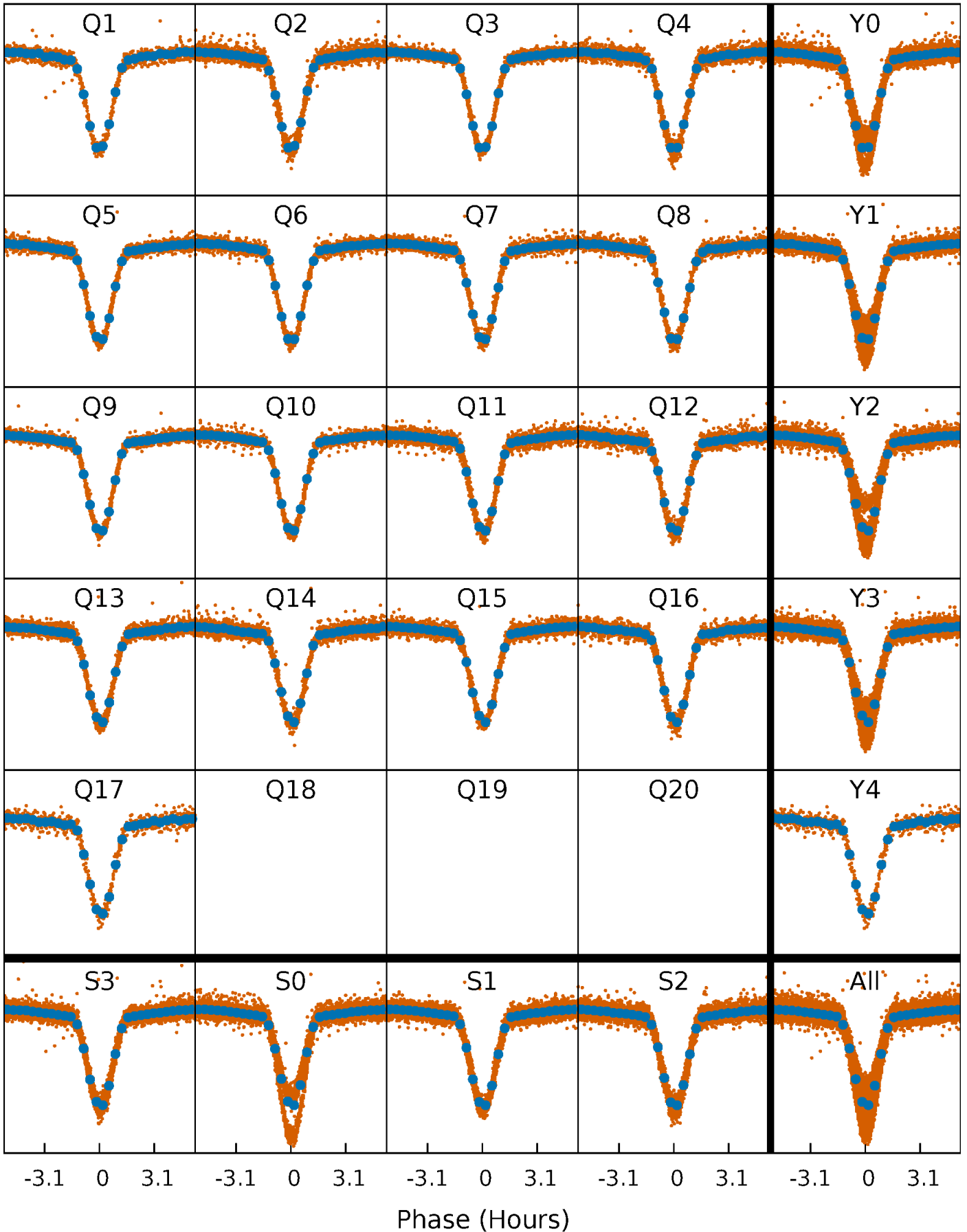


Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)



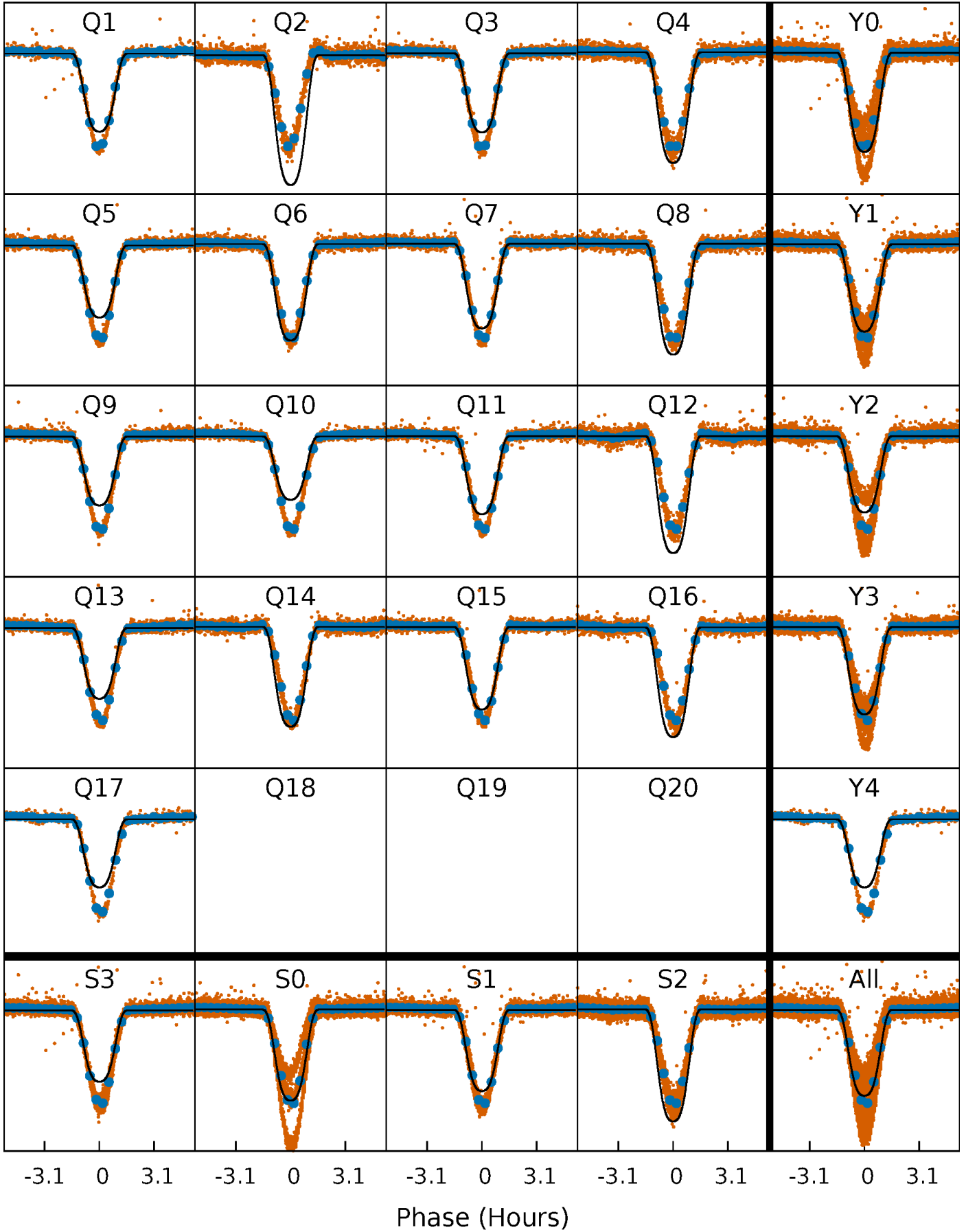
PDC Quarter-Phased Transit Curves

TCE 012736658-01 P= 0.855293 Days $T_0=131.658364$ (BKJD)



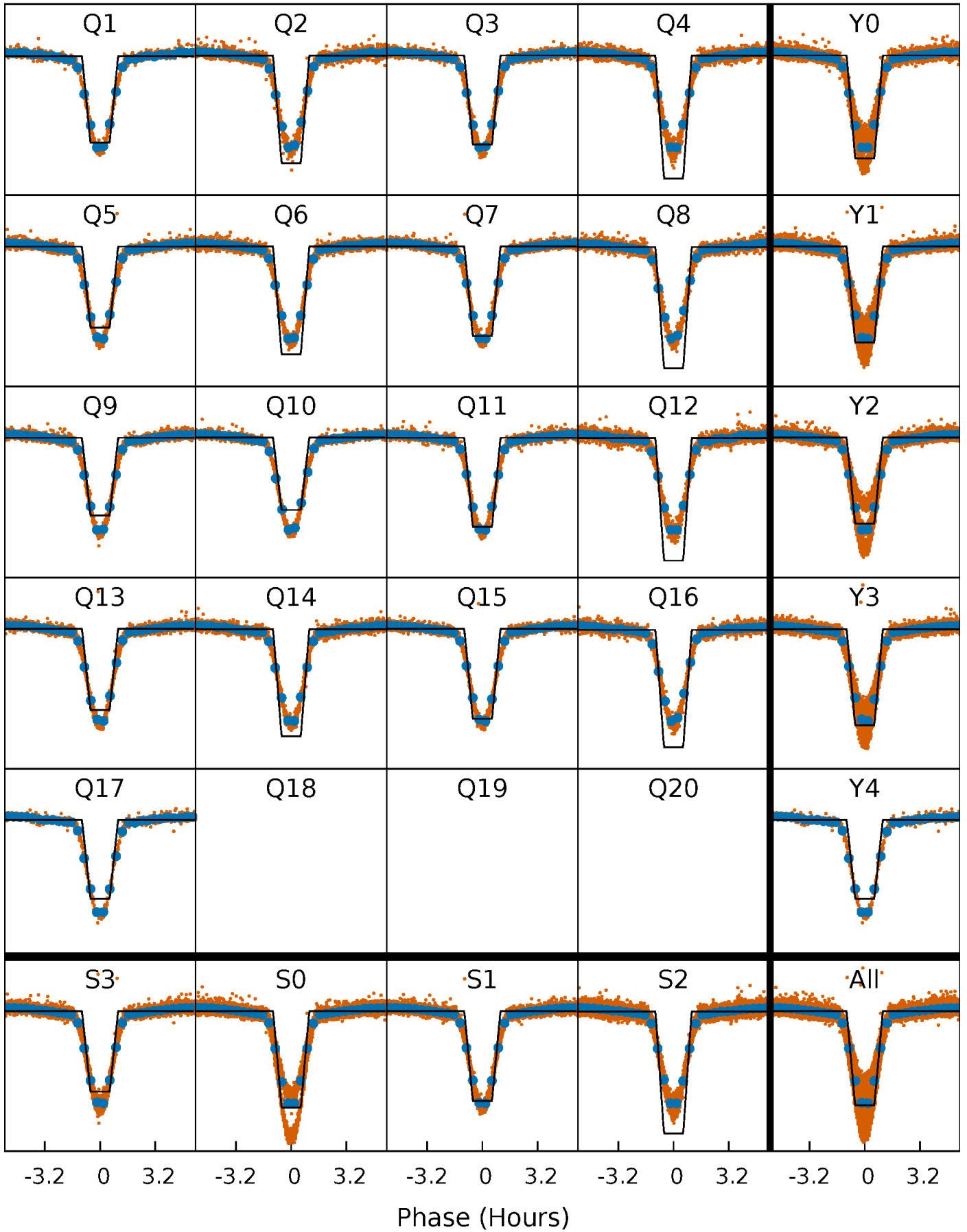
DV Quarter-Phased Transit Curves

TCE 012736658-01 P= 0.855293 Days $T_0=131.658364$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

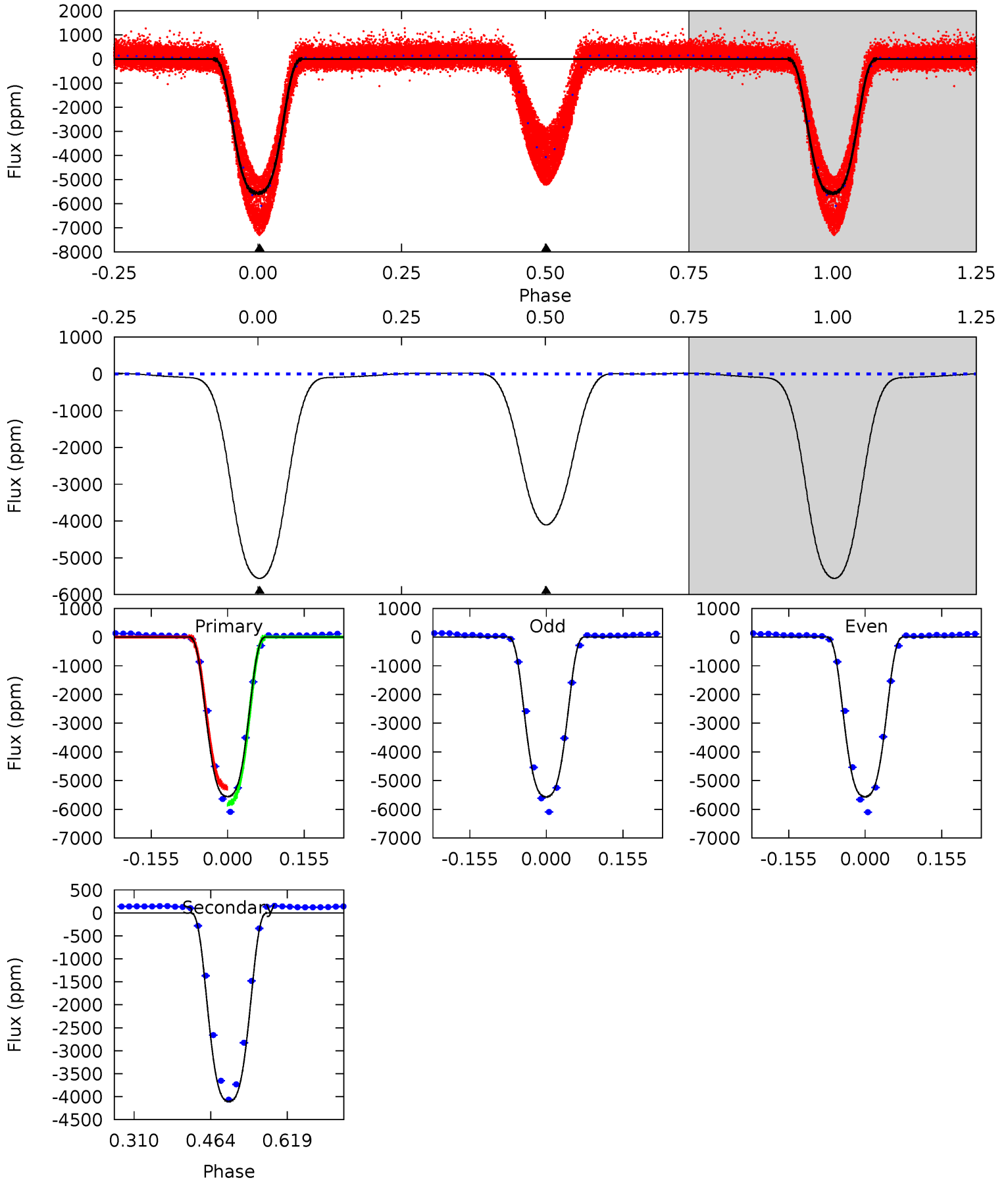
TCE 012736658-01 P= 0.855295 Days $T_0=131.658162$ (BKJD)



DV Model-Shift Uniqueness Test

012736658-01, P = 0.855293 Days, E = 130.803071 Days

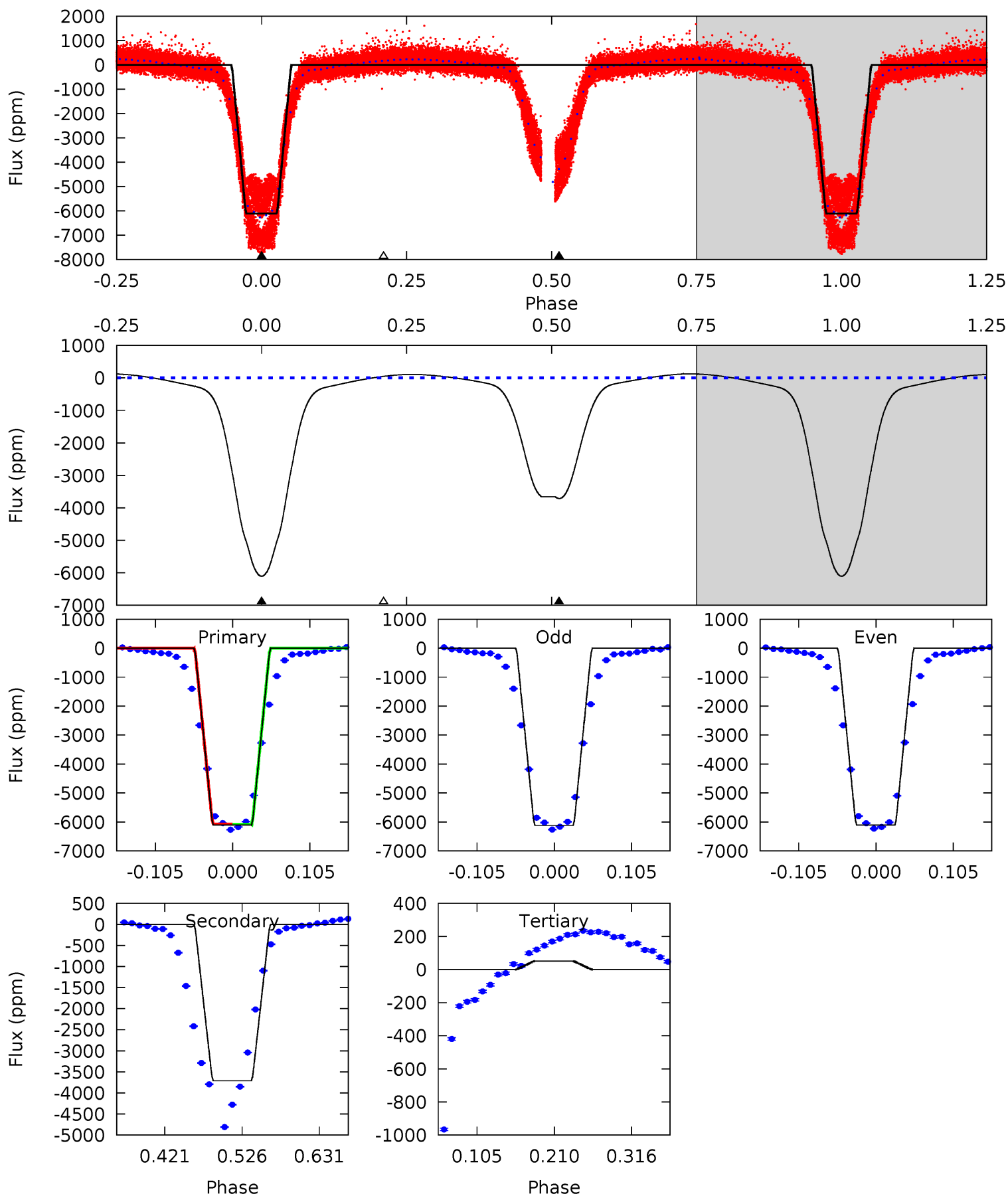
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
2067	1527	0	0	4.47	1.42	10.9	2067	2067	1527	1527	1.15	0.97	0.00	0



Alt Model-Shift Uniqueness Test

012736658-01, P = 0.855295 Days, E = 130.802867 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
1830	1112	-15.1	0	4.55	1.62	35.9	1845	1830	1127	1112	1.71	0.97	0.02	0.97



Stellar Parameters For KIC 012736658

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	$M(M_{\odot})$	p_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	5846^{+158}_{-176}	$4.270^{+0.204}_{-0.167}$	$-0.020^{+0.300}_{-0.300}$	$1.207^{+0.327}_{-0.268}$	$0.988^{+0.140}_{-0.115}$	$0.792^{+0.775}_{-0.398}$
	+3%/-3%	+5%/-4%	+1500%/-1500%	+27%/-22%	+14%/-12%	+98%/-50%
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 012736658-01 / KOI 5980.01

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	-4108 ± 3	$10.81^{+1.59}_{-1.40}$	2992^{+201}_{-219}	5167^{+122}_{-142}	$5.992^{+1.911}_{-1.351}$
Alt.	-3712 ± 3	$10.62^{+1.62}_{-1.34}$	2960^{+223}_{-194}	5061^{+120}_{-132}	$5.668^{+1.529}_{-1.309}$

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

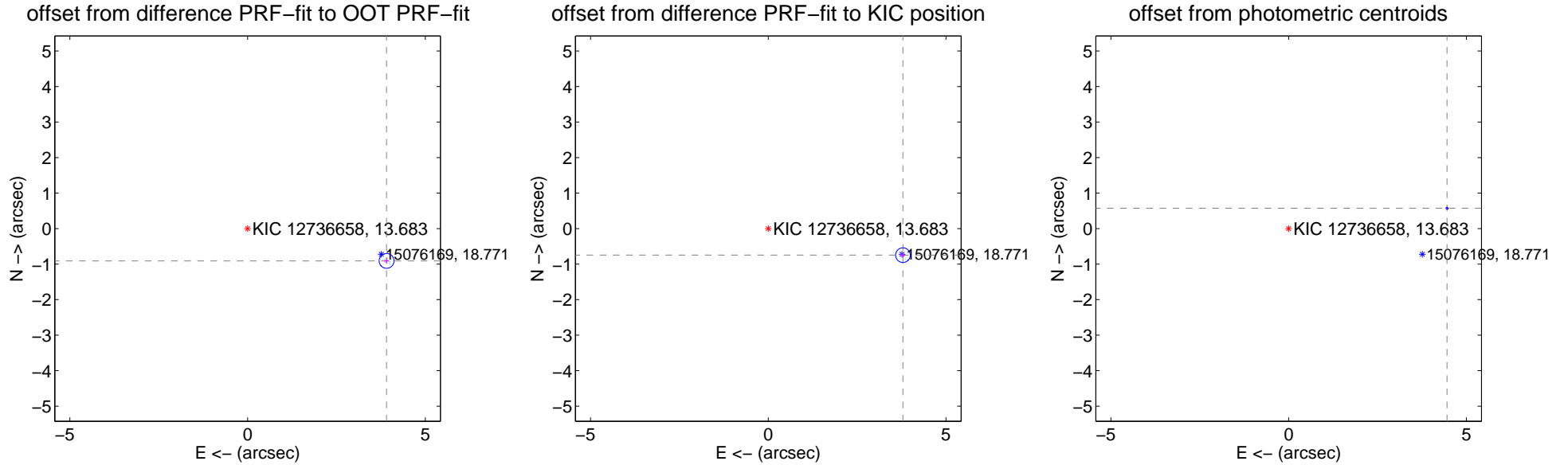
DV Centroid Data

Supplemental centroid analysis for 012736658-01. Kepler magnitude: 13.68. Transit SNR 958.10

There are 17 quarters with good PRF difference image offsets

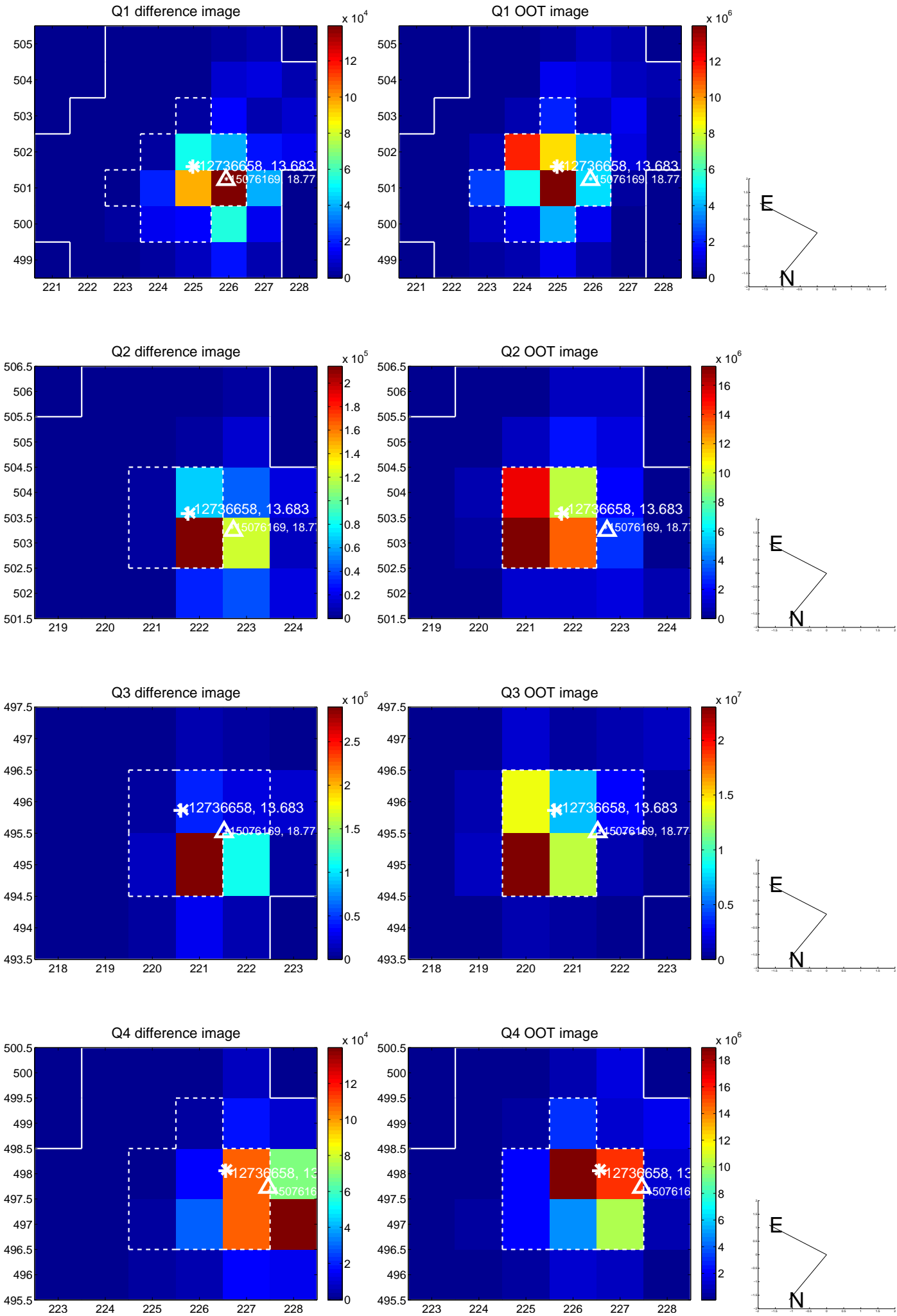
The direct PRF centroid is offset from the target star catalog position by about 0.29 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	4.015 ± 0.070	57.71	-3.911 ± 0.070	-0.909 ± 0.068
PRF-fit source offset from KIC position	3.863 ± 0.069	56.26	-3.790 ± 0.069	-0.747 ± 0.068
photometric centroid source offset	4.49 ± 0.01	467.48	-4.46 ± 0.01	0.57 ± 0.01

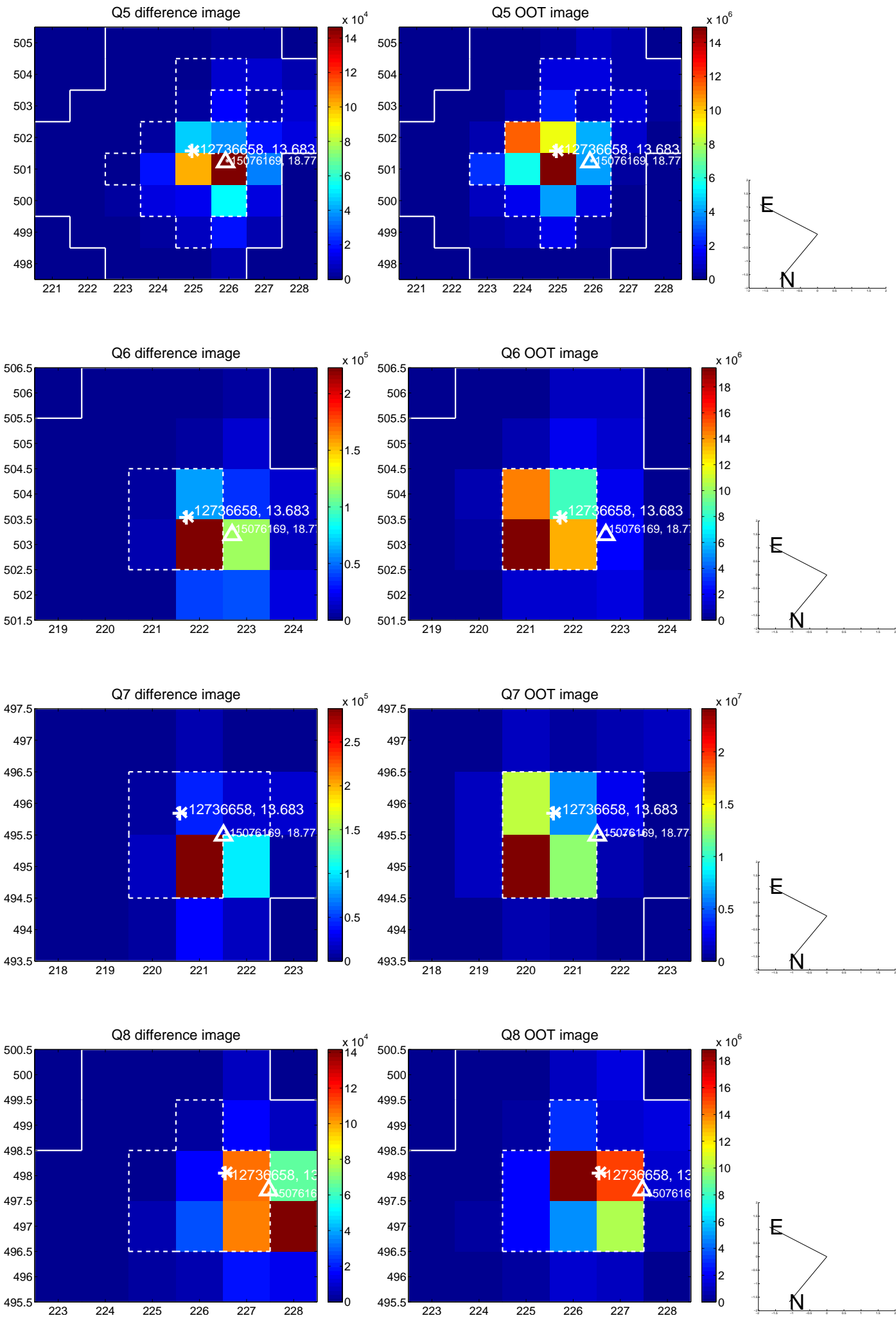


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

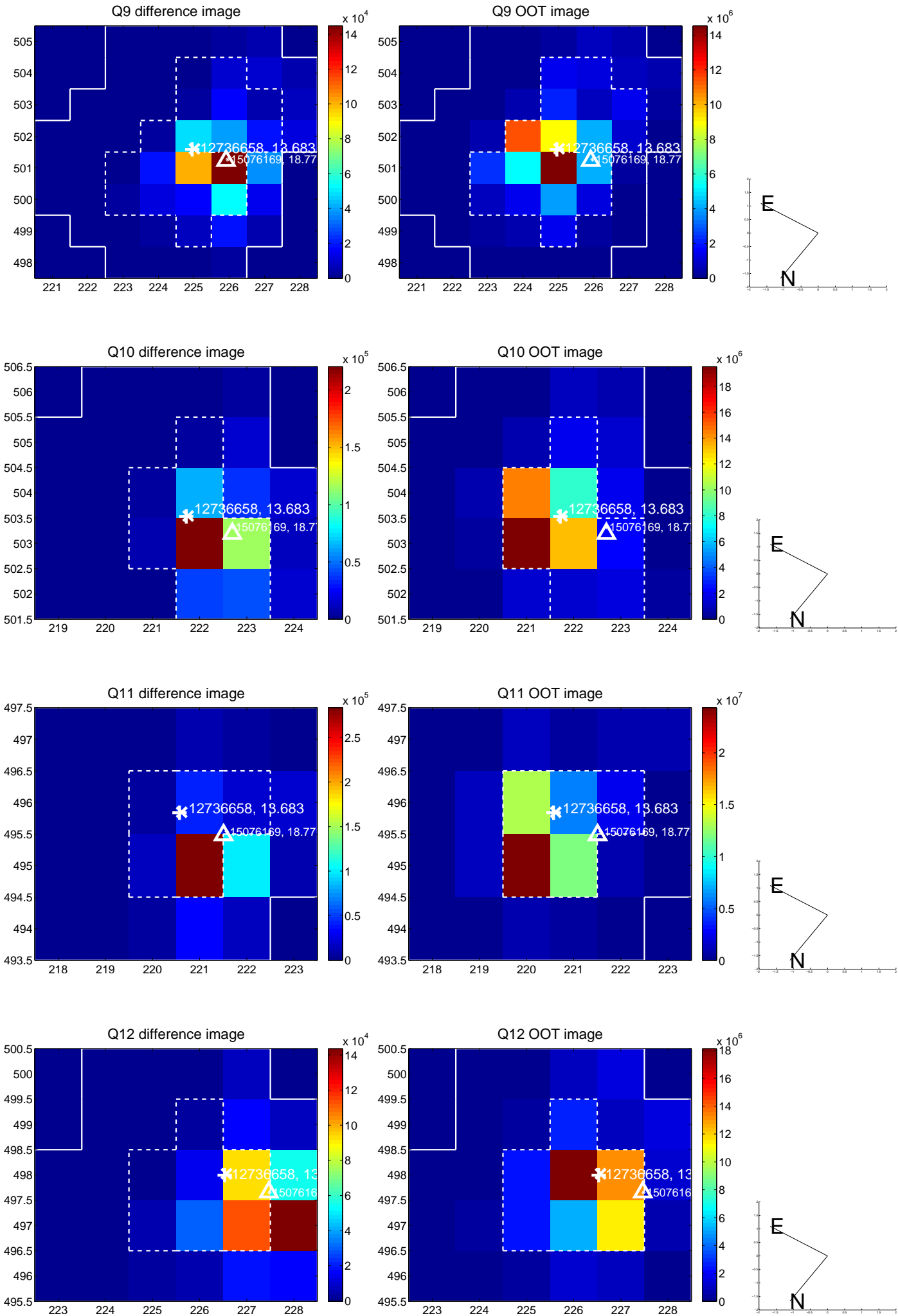
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



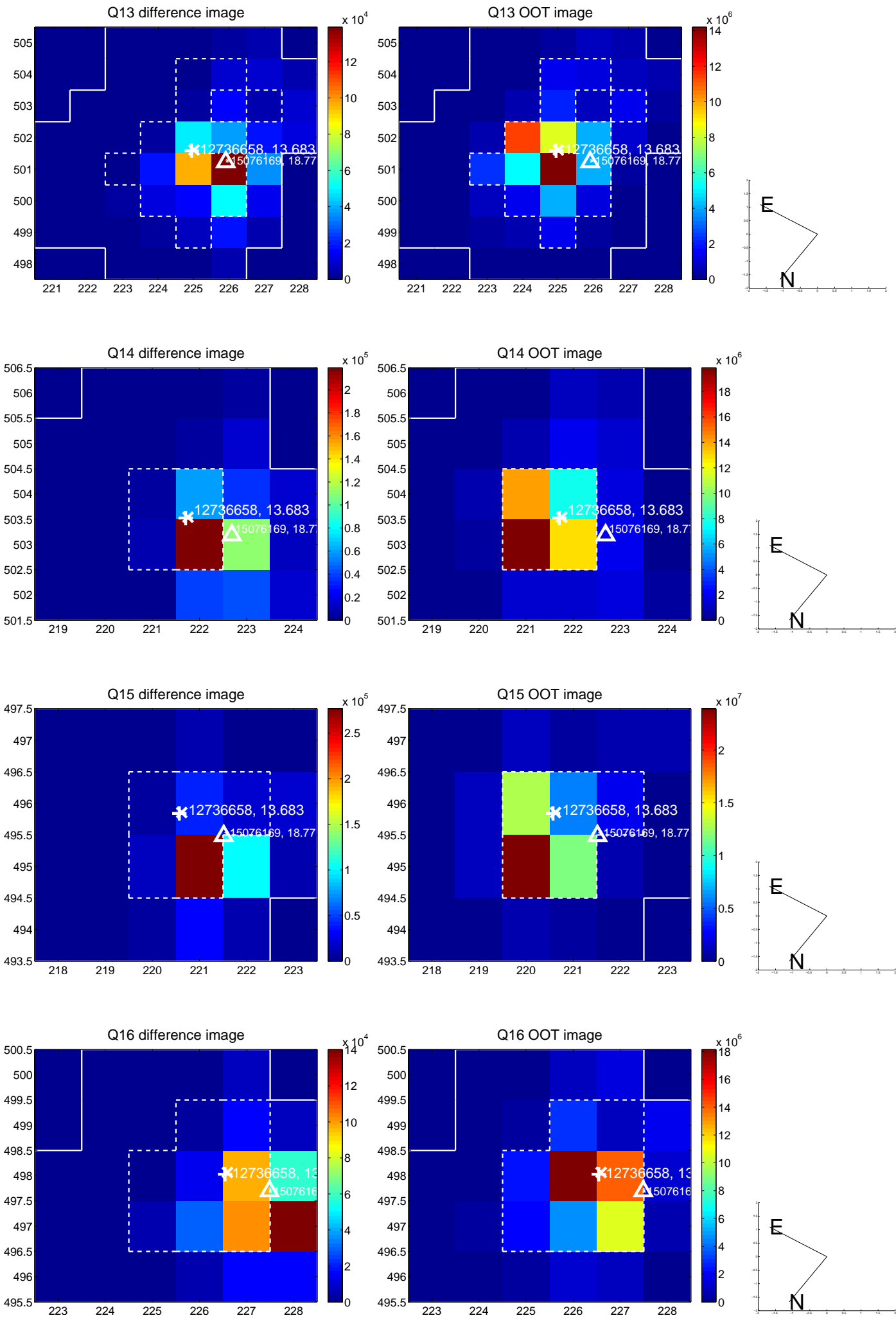
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



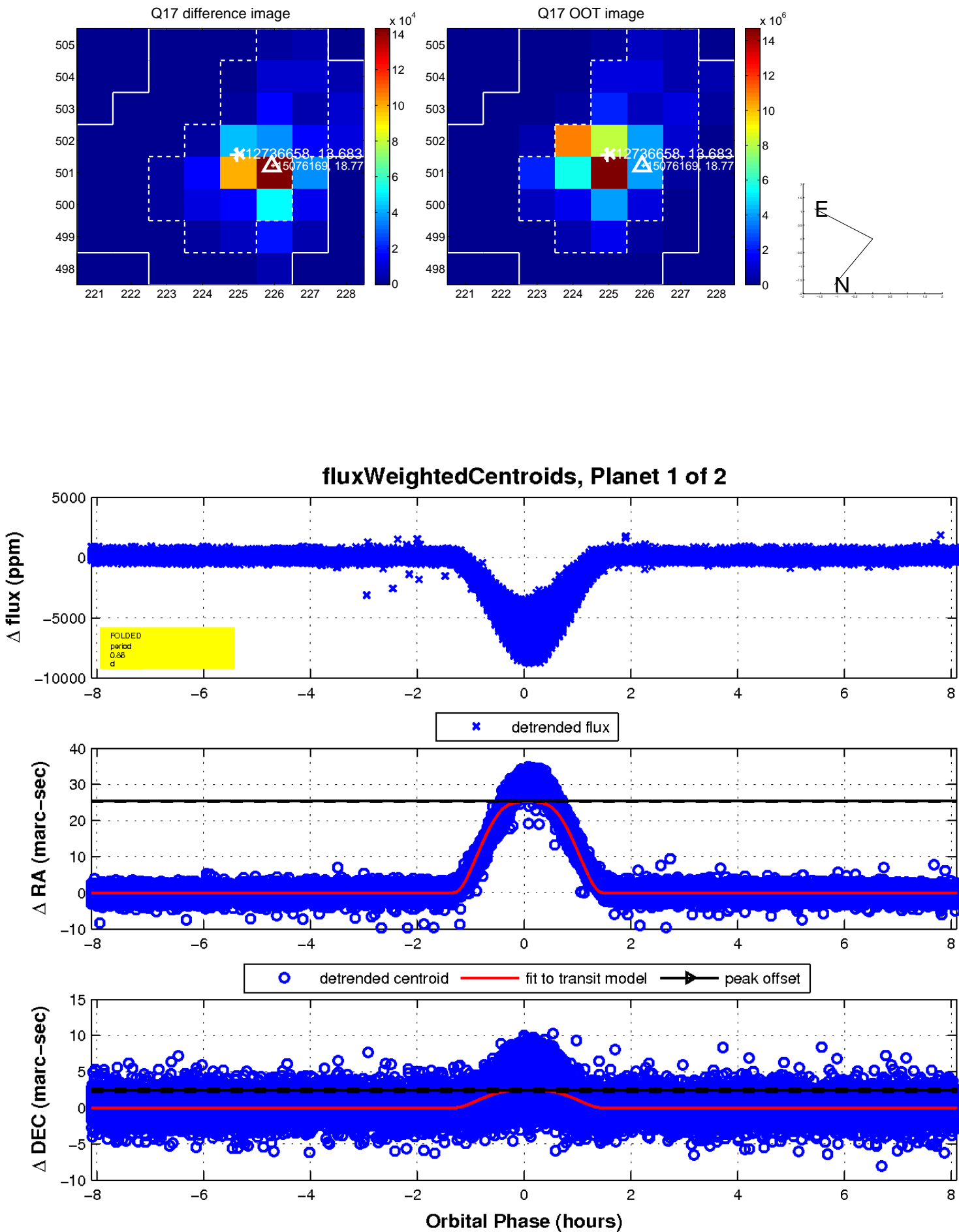
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

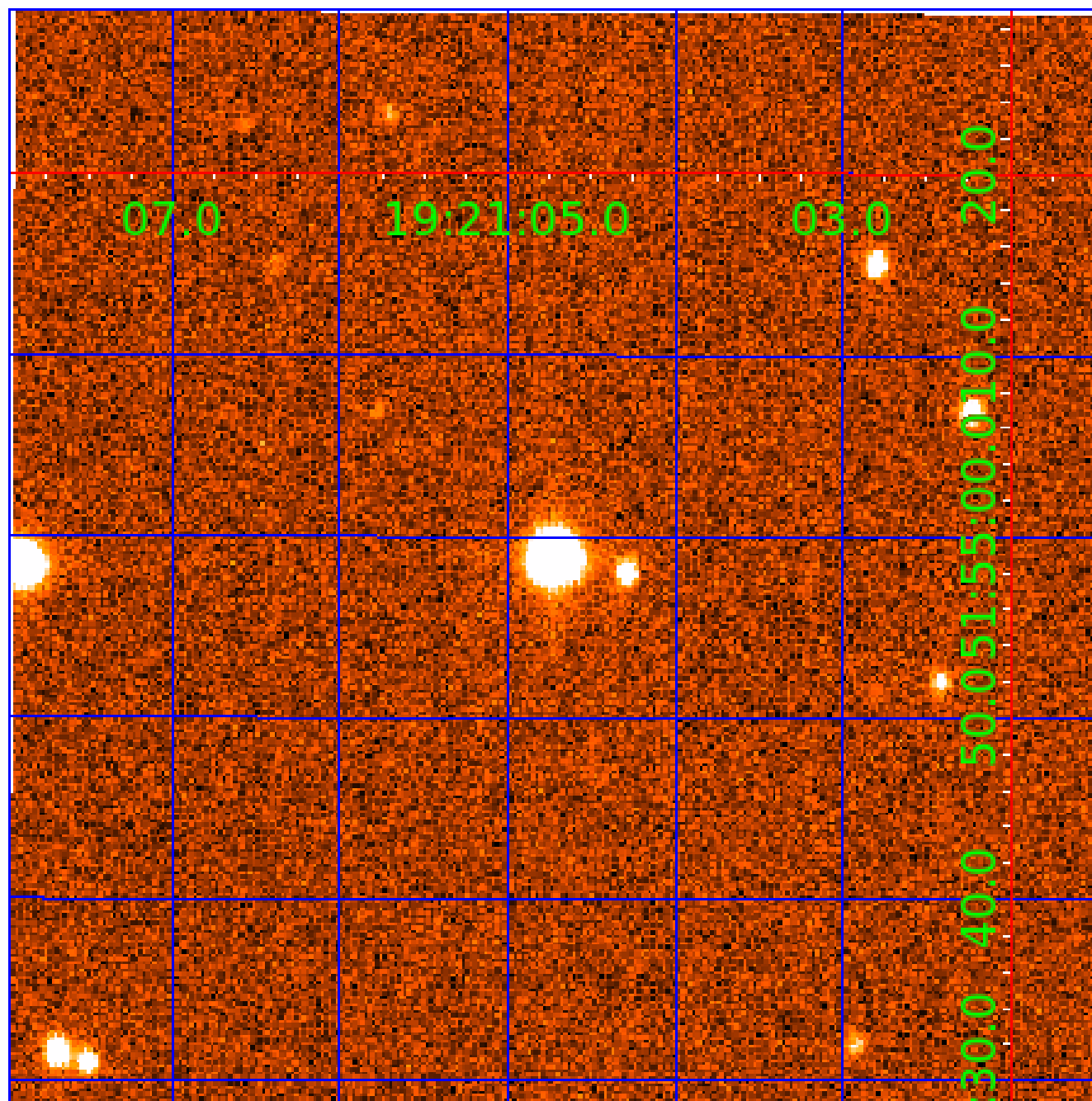


white ×: KIC target position; +: OOT centroid; △: difference centroid. red ×: large negative pixel value.



UKIRT Image

Declination



KIC 012736658

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})
012736658-01	OBS	5980.01	0.855293	131.658364	5583.9	2.701	1521.2	958.1	1.21	5846	10.81	4935.31
012736658-02	OBS	No	0.855290	132.088260	3990.6	2.655	1443.7	869.6	1.21	5846	9.27	4935.34

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
012736658-01	OBS	FP	0.00	1	0	1	0	LPP_DV—CENT_UNRESOLVED_OFFSET
012736658-02	OBS	FP	0.00	1	0	1	0	SAME_NTL_PERIOD—CENT_UNRESOLVED_OFFSET

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.

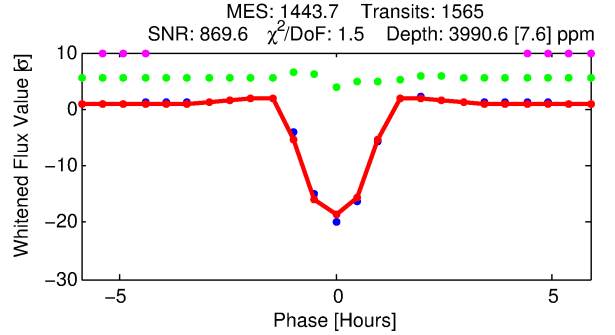
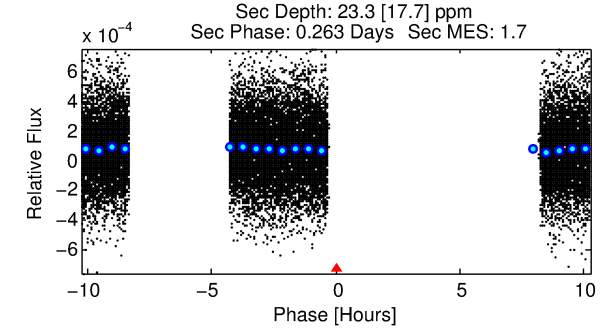
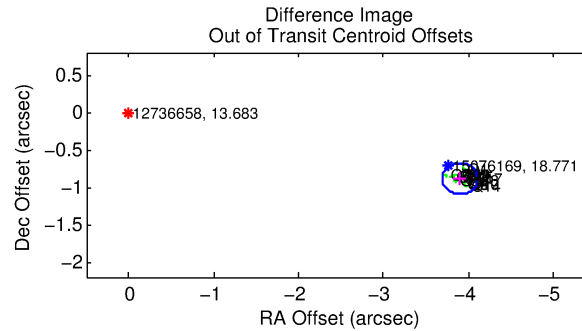
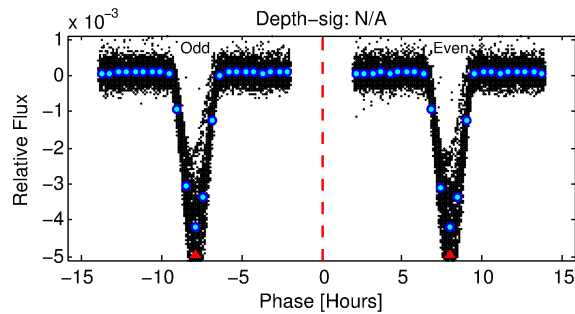
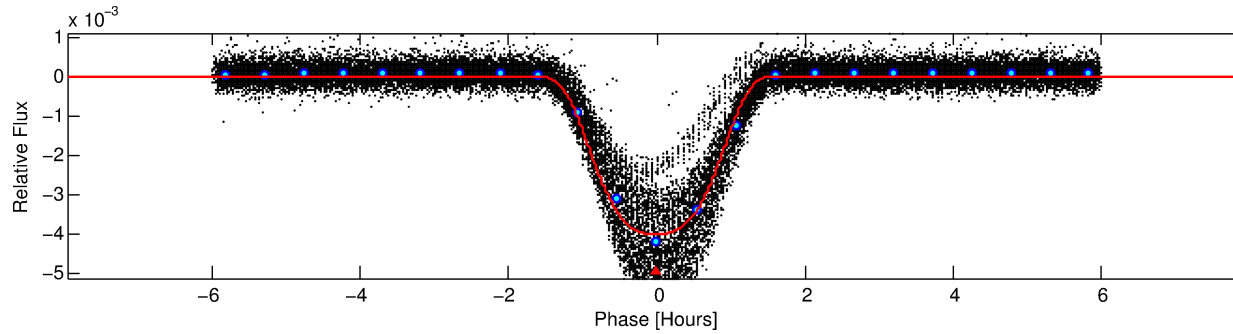
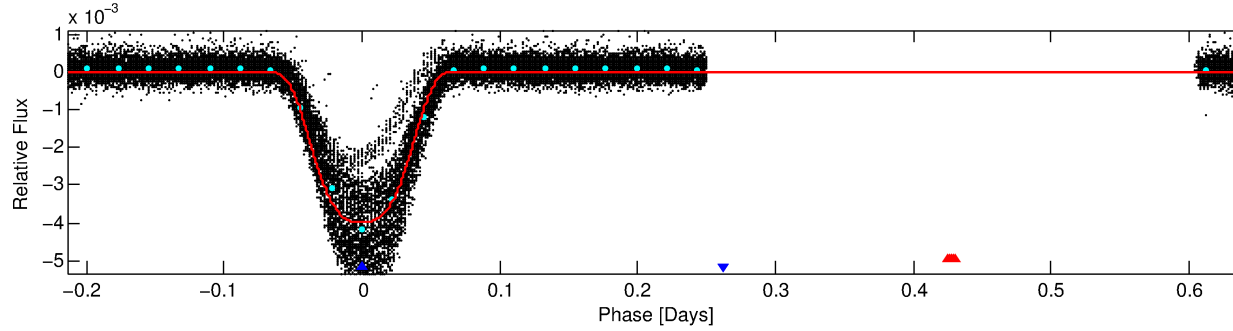
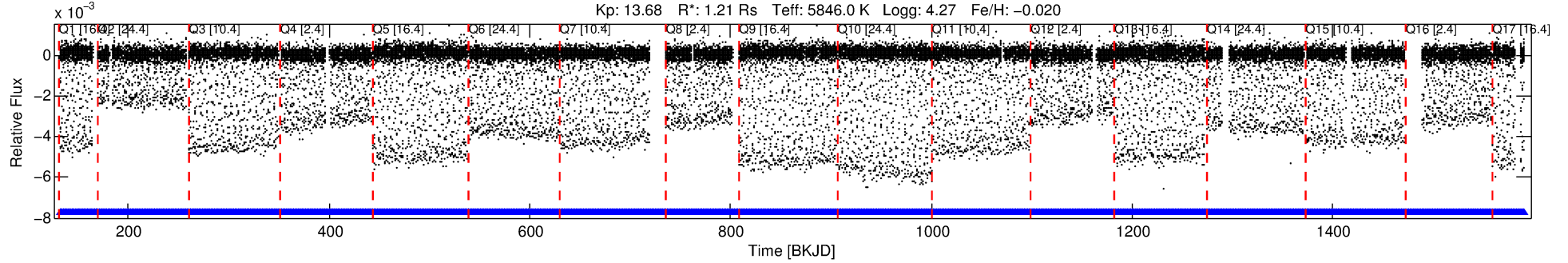
Ephemeris Match Information For 012736658-02

No Significant Match Found

DV One-Page Summary

KIC: 12736658 Candidate: 2 of 2 Period: 0.855 d
KOI: K05980 Corr: No Ephemeris Match

Kp: 13.68 R*: 1.21 Rs Teff: 5846.0 K Logg: 4.27 Fe/H: -0.020



DV Fit Results:

Period = 0.85529 [0.00000] d
Epoch = 132.0883 [0.0000] BKJD
Rp/R* = 0.0704 [0.0001]
a/R* = 1.68 [0.00]
b = 0.92 [0.00]
Seff = 4935.34 [1880.53]
Teq = 2137 [204] K
Rp = 9.27 [2.51] Re
a = 0.0176 [0.0042] AU
Ag = 0.05 [0.04] [-24.60σ]
Teff = 1530 [295] K [-1.69σ]

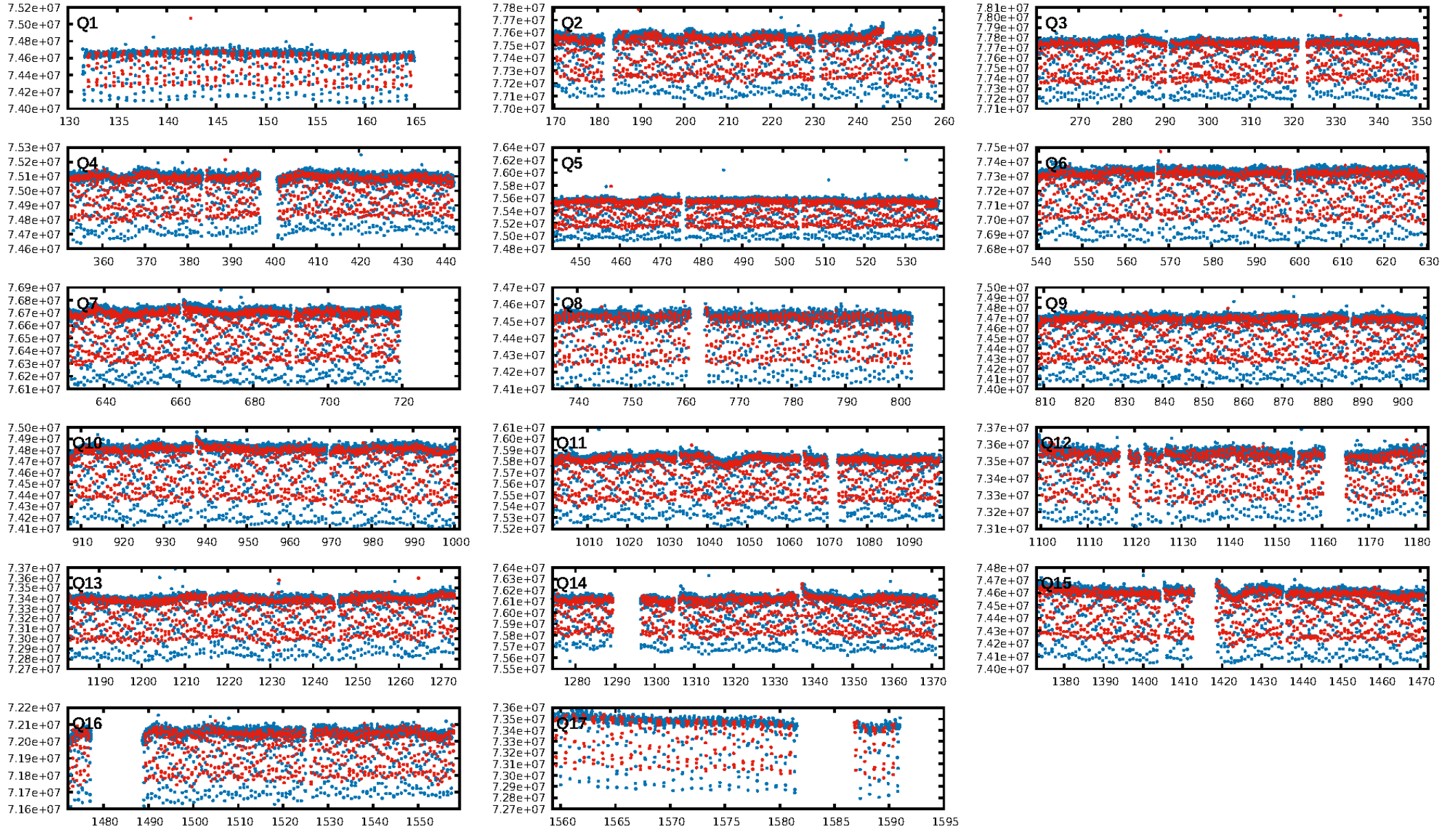
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: 0.0% [0.00σ]
ModelChiSquare2-sig: N/A
ModelChiSquareGoF-sig: N/A
Bootstrap-pfa: N/A
RollingBand-fgt: 1.00 [1495/1495]
GhostDiagnostic-chr: 0.9924
Centroid-sig: 0.0%
Centroid-so: 4.965 arcsec [366.65σ]
OotOffset-rm: 4.004 arcsec [57.87σ]
KicOffset-rm: 3.850 arcsec [56.58σ]
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]

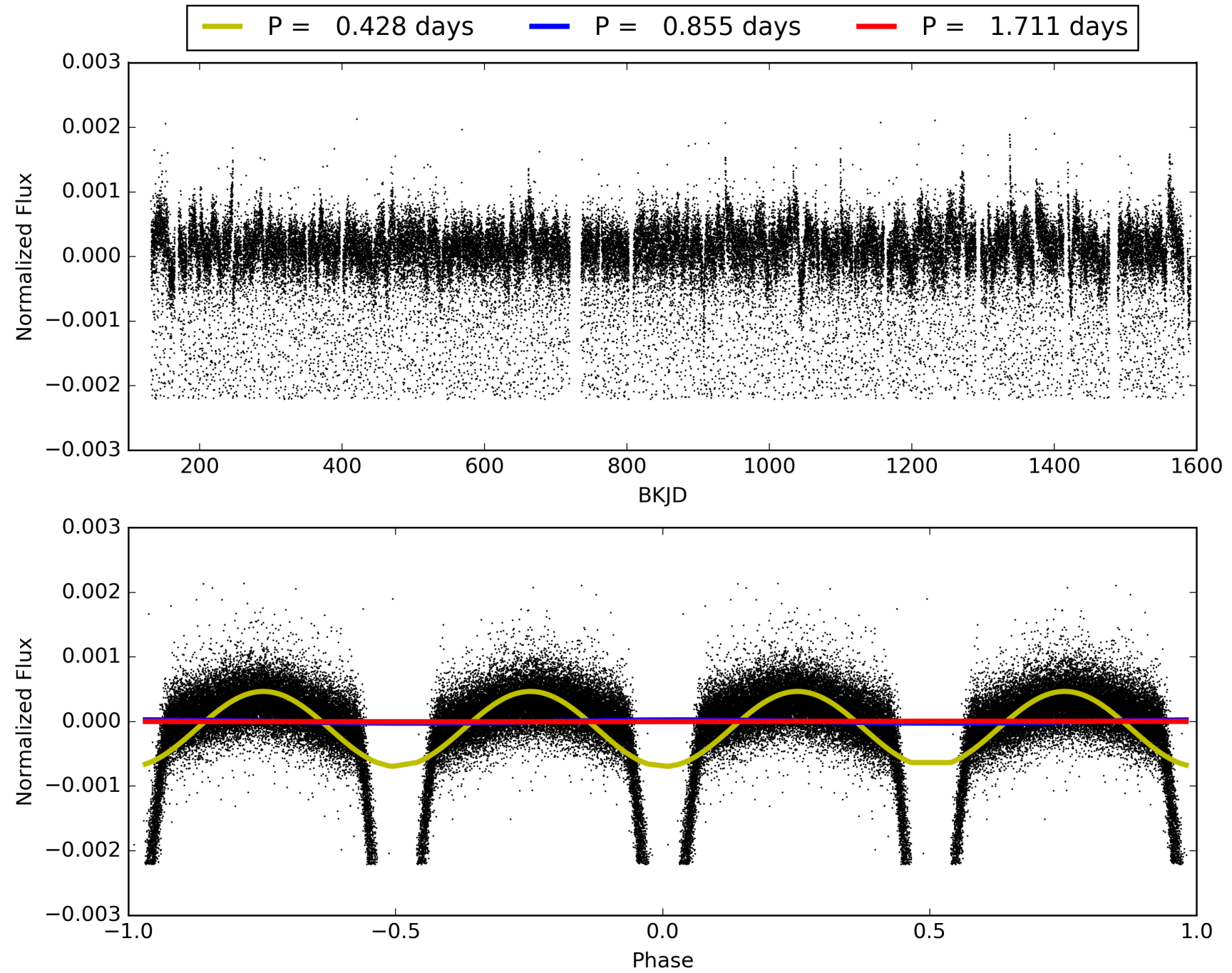
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 07:37:46 Z

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

TCE 012736658-02, PDC Light Curves

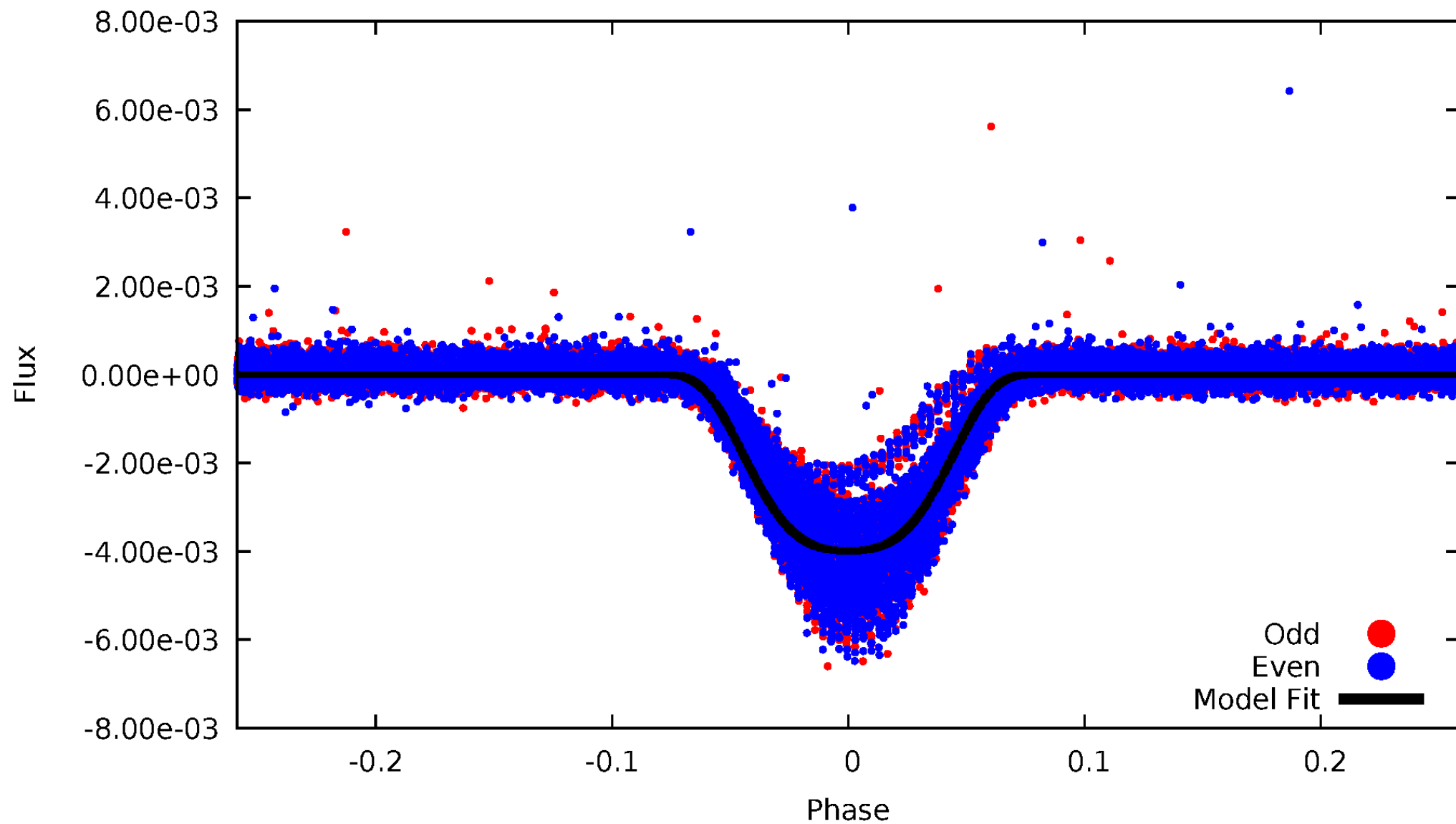


TCE 012736658-02



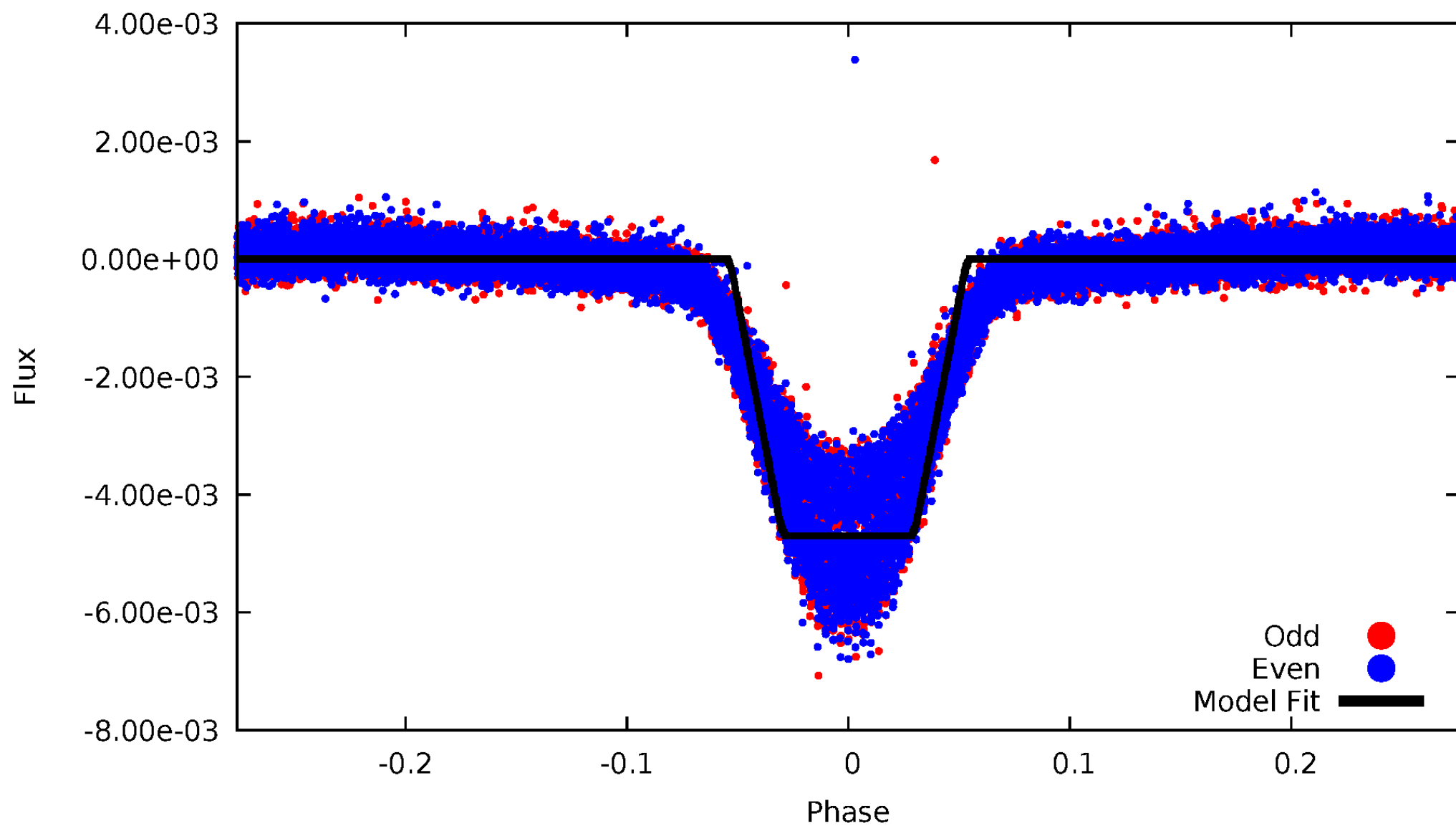
DV Odd/Even

TCE 012736658-02



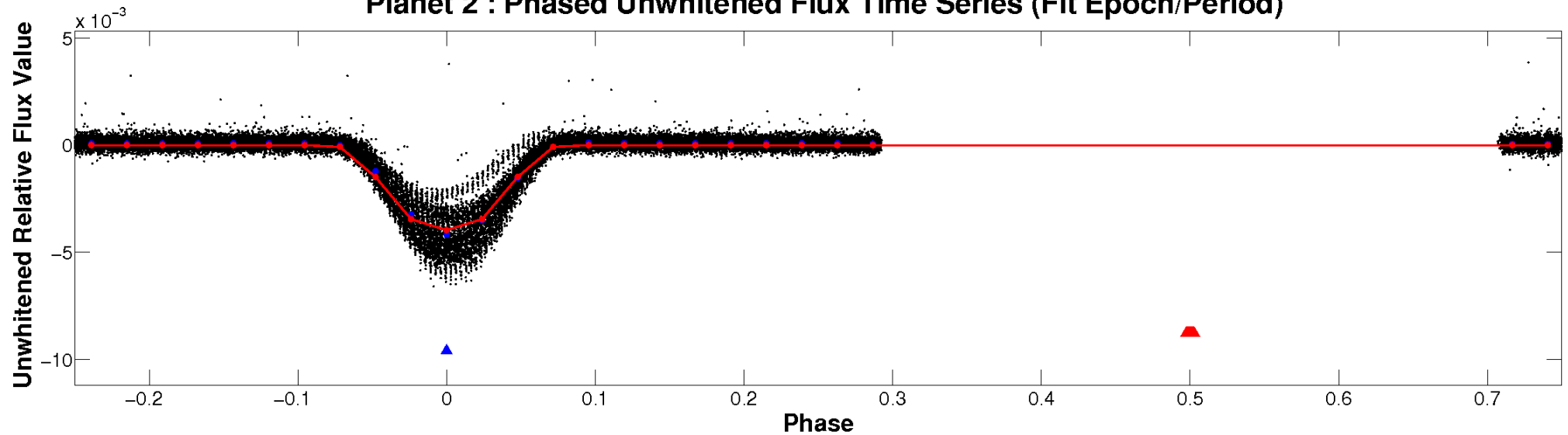
ALT Odd/Even

TCE 012736658-02

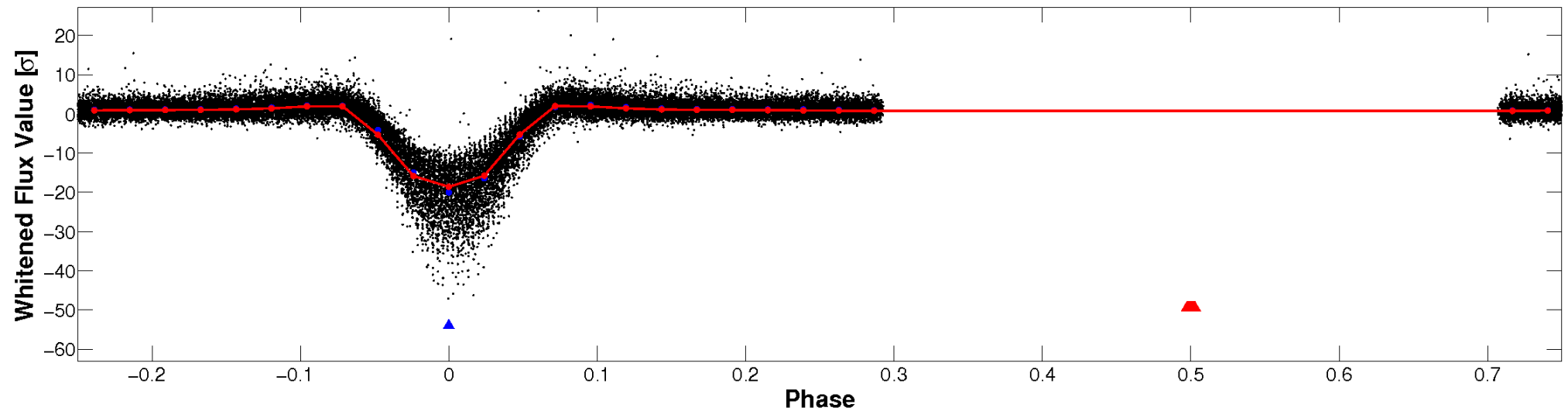


Non-Whitened Vs. Whitened Light Curve

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

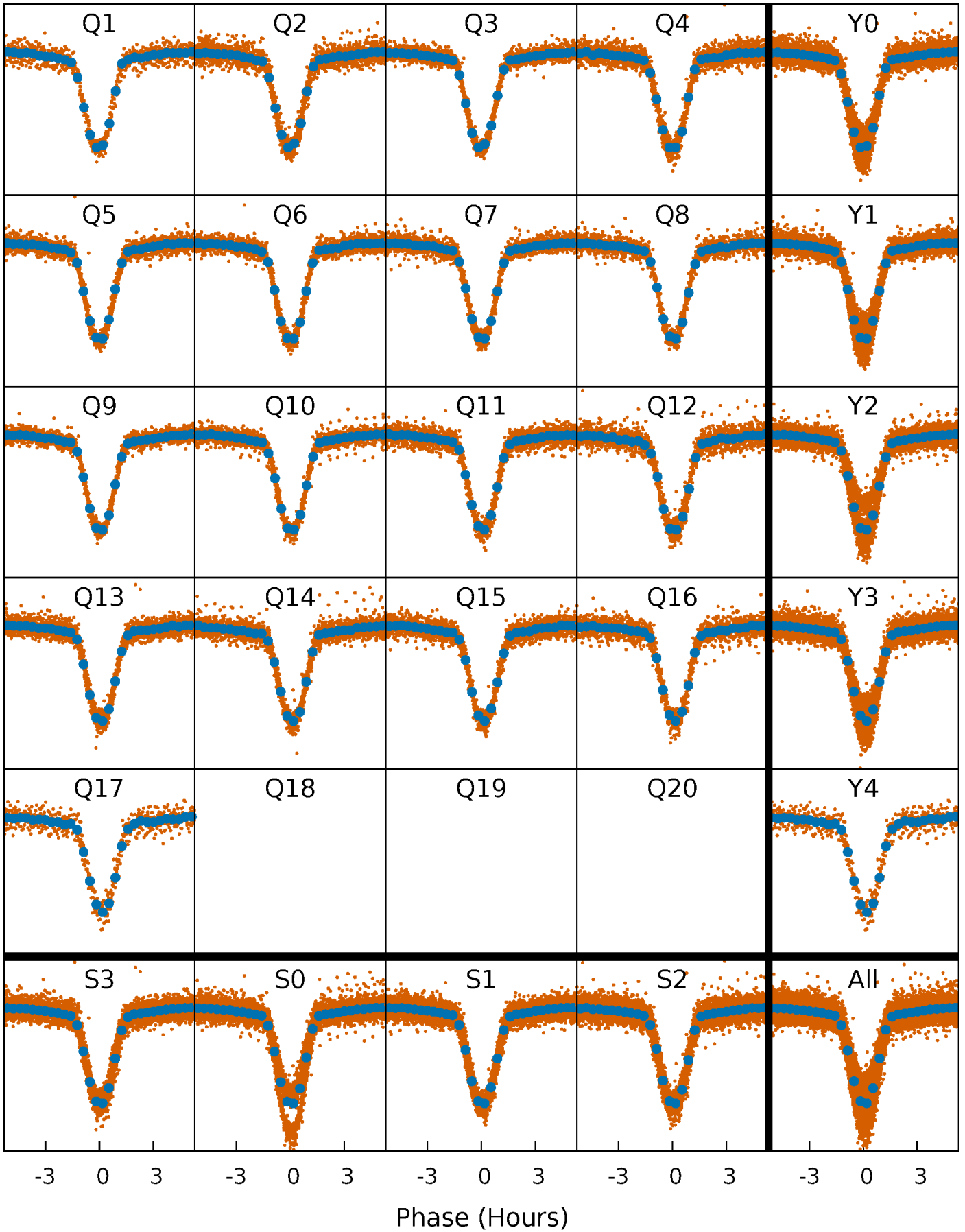


Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



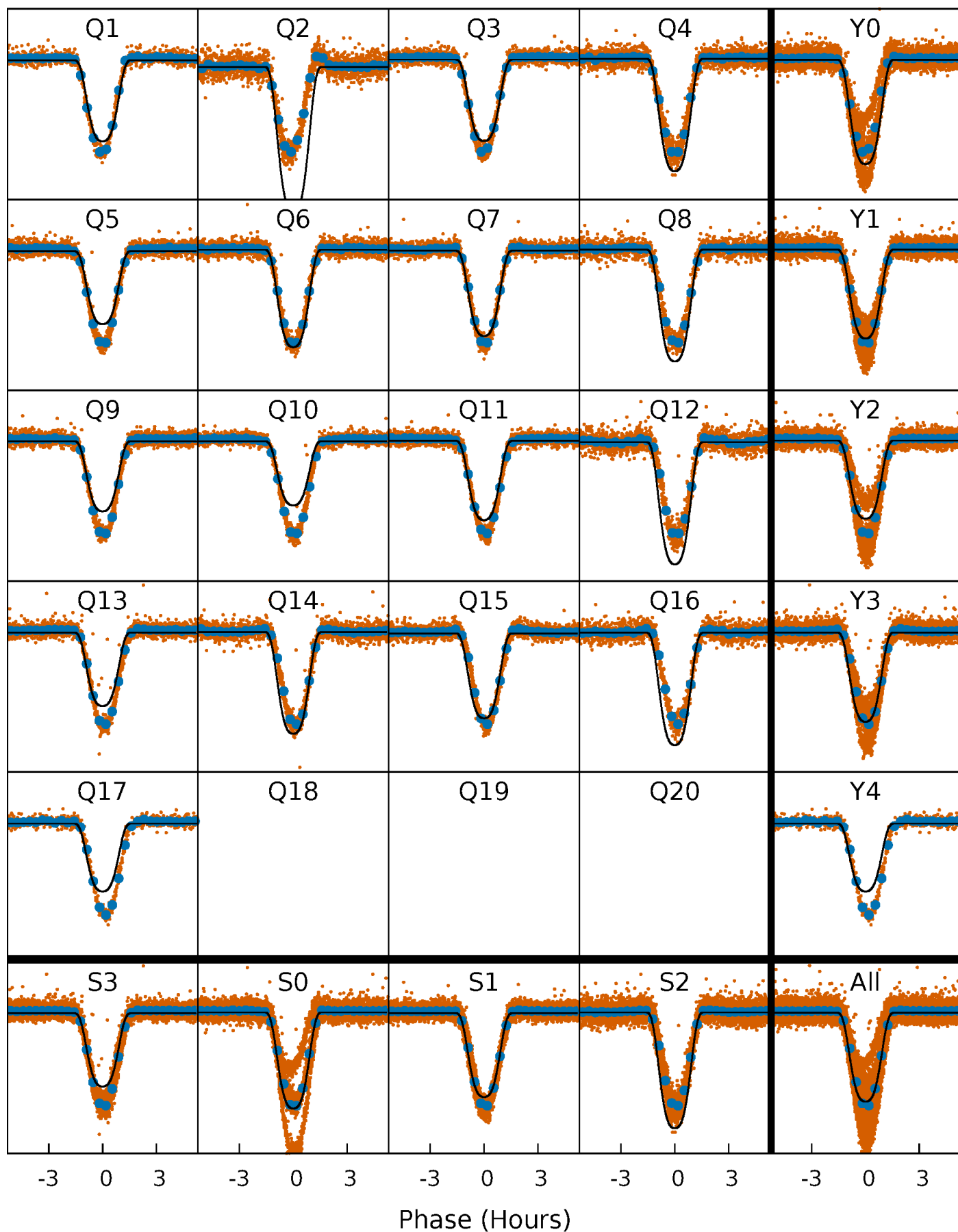
PDC Quarter-Phased Transit Curves

TCE 012736658-02 P= 0.855290 Days $T_0=132.088260$ (BKJD)



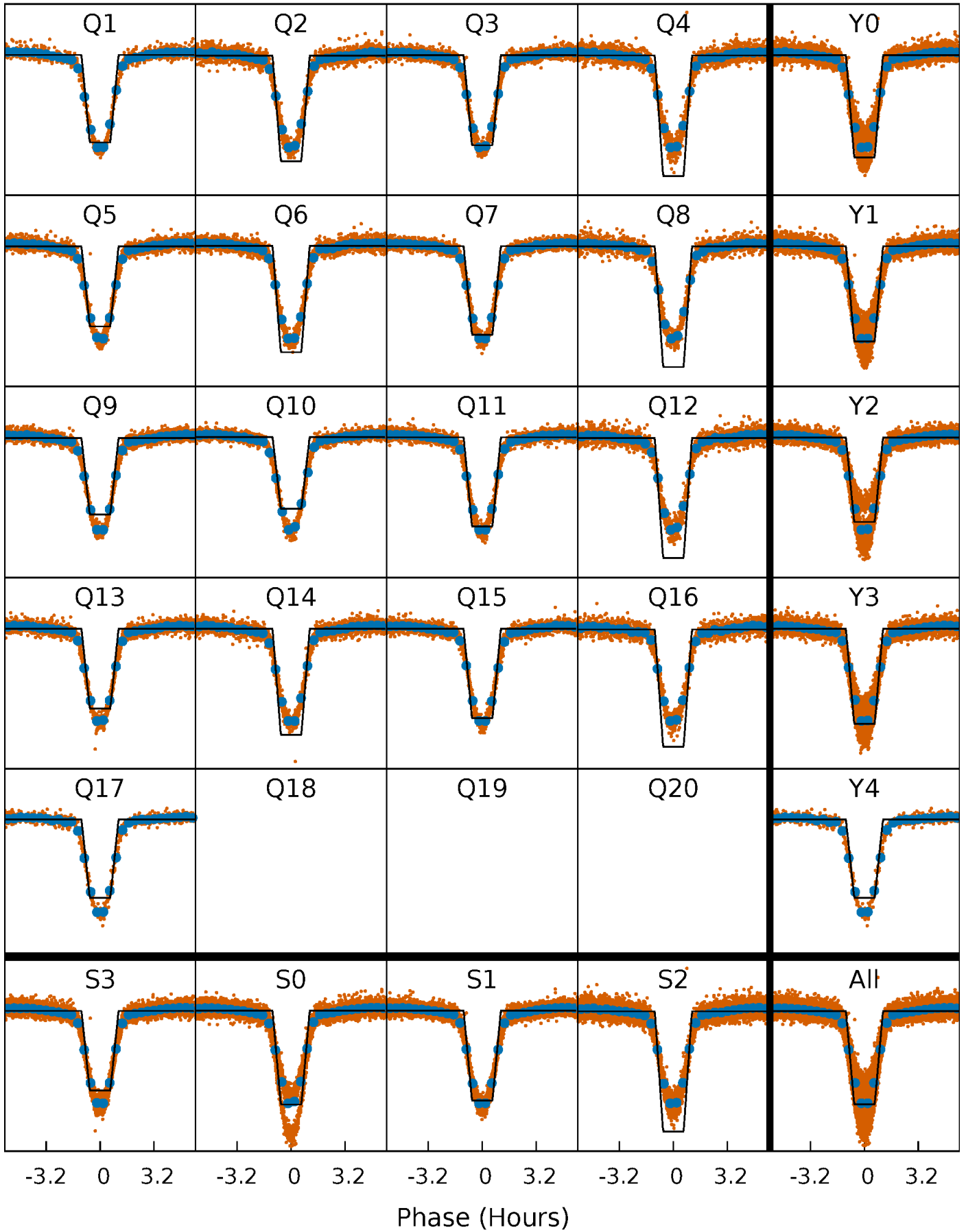
DV Quarter-Phased Transit Curves

TCE 012736658-02 P= 0.855290 Days $T_0=132.088260$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

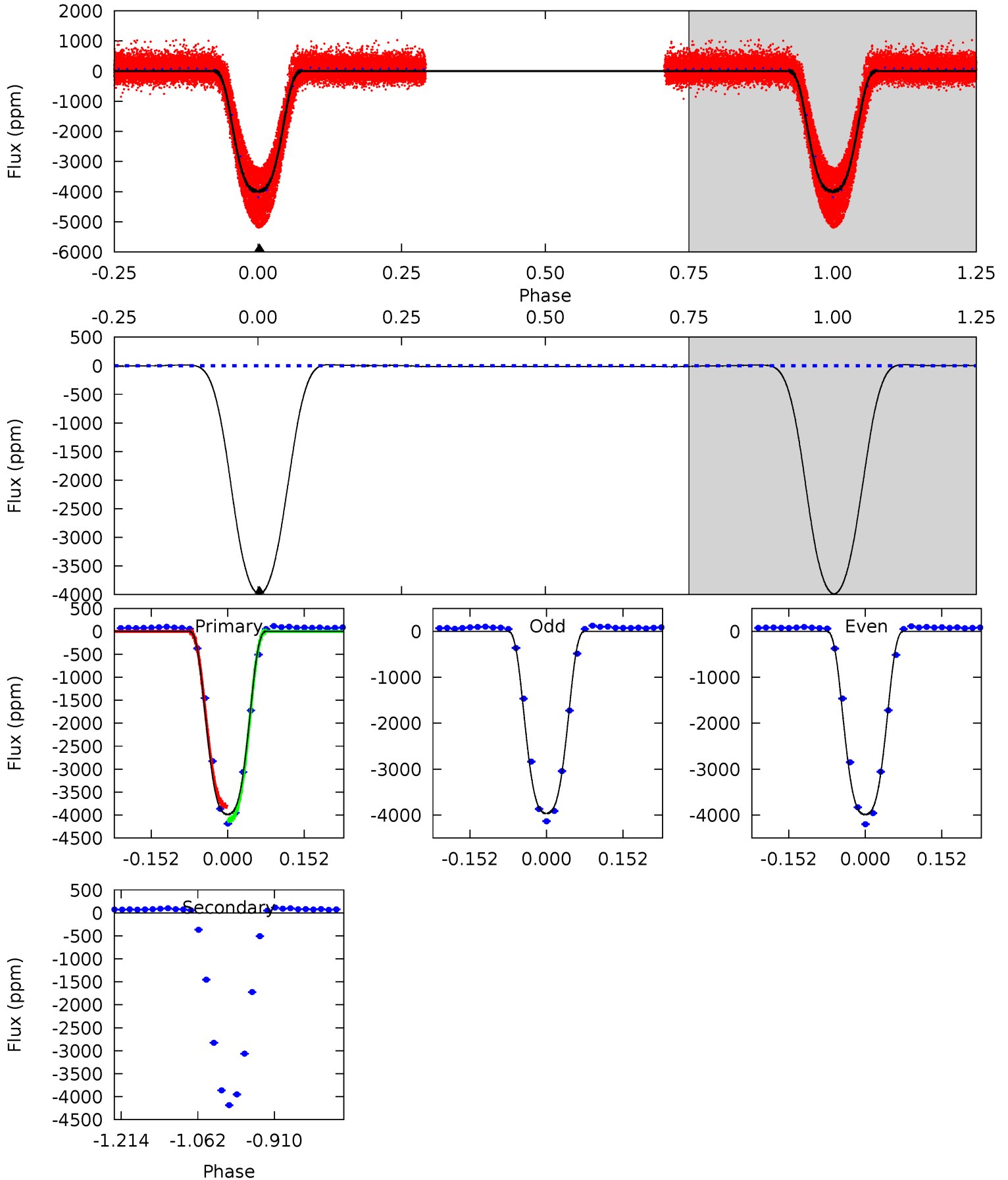
TCE 012736658-02 $P = 0.855295$ Days $T_0 = 132.085943$ (BKJD)



DV Model-Shift Uniqueness Test

012736658-02, P = 0.855290 Days, E = 131.232970 Days

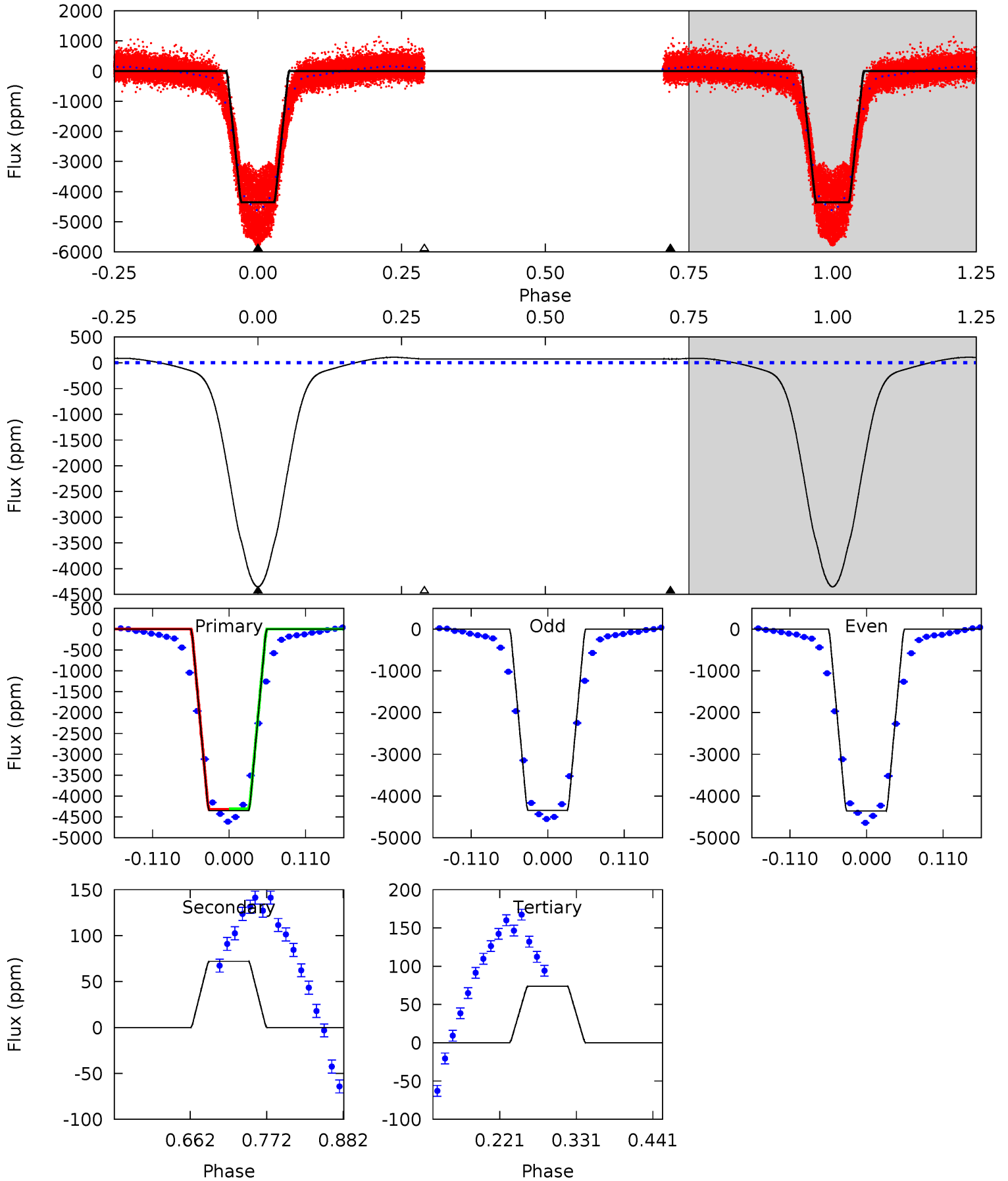
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
1677	0	0	0	4.48	1.43	2.95	1677	1677	0	0	5.12	0.98	0.00	0



Alt Model-Shift Uniqueness Test

012736658-02, P = 0.855295 Days, E = 131.230648 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
1586	-26.2	-26.9	0	4.54	1.60	33.4	1613	1586	0.66	-26.2	2.87	0.98	0.02	2.69



Stellar Parameters For KIC 012736658

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	$M(M_{\odot})$	p_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	5846^{+158}_{-176}	$4.270^{+0.204}_{-0.167}$	$-0.020^{+0.300}_{-0.300}$	$1.207^{+0.327}_{-0.268}$	$0.988^{+0.140}_{-0.115}$	$0.792^{+0.775}_{-0.398}$
	+3%/-3%	+5%/-4%	+1500%/-1500%	+27%/-22%	+14%/-12%	+98%/-50%
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 012736658-02 / KOI

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	0 ± 2	$9.21^{+1.62}_{-1.22}$	2980^{+224}_{-212}	-3081^{+128}_{-129}	$0.000^{+0.004}_{-0.005}$
Alt.	72 ± 3	$8.91^{+1.44}_{-1.18}$	2956^{+237}_{-207}	-3261^{+99}_{-112}	$-0.154^{+0.036}_{-0.050}$

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

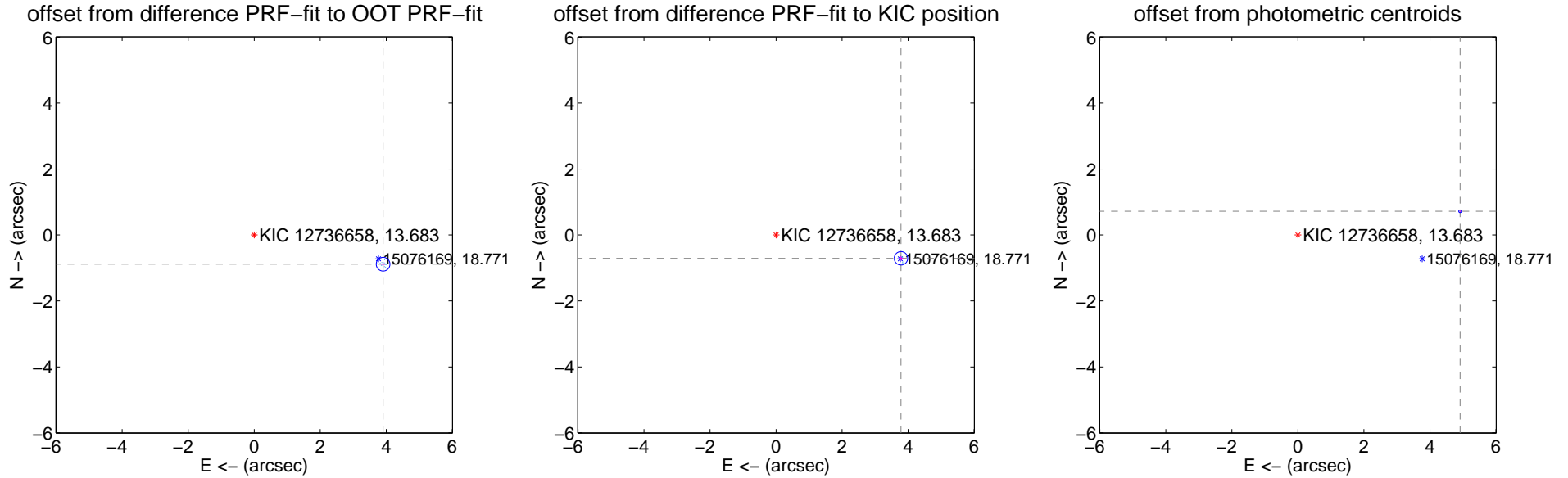
DV Centroid Data

Supplemental centroid analysis for 012736658-02. Kepler magnitude: 13.68. Transit SNR 869.59

There are 17 quarters with good PRF difference image offsets

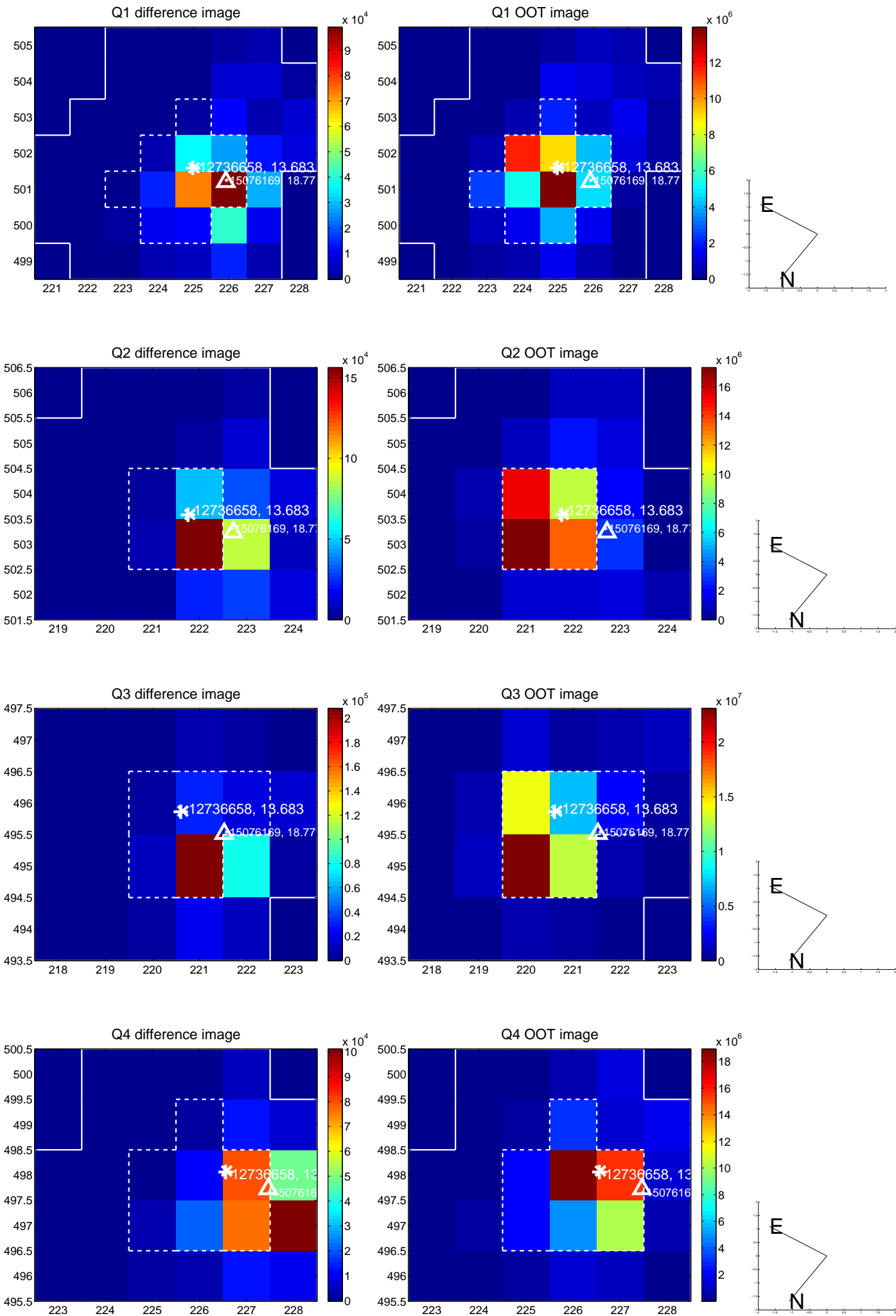
The direct PRF centroid is offset from the target star catalog position by about 0.29 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	4.004 ± 0.069	57.87	-3.905 ± 0.069	-0.886 ± 0.068
PRF-fit source offset from KIC position	3.850 ± 0.068	56.58	-3.784 ± 0.068	-0.708 ± 0.067
photometric centroid source offset	4.96 ± 0.01	366.65	-4.91 ± 0.01	0.72 ± 0.01

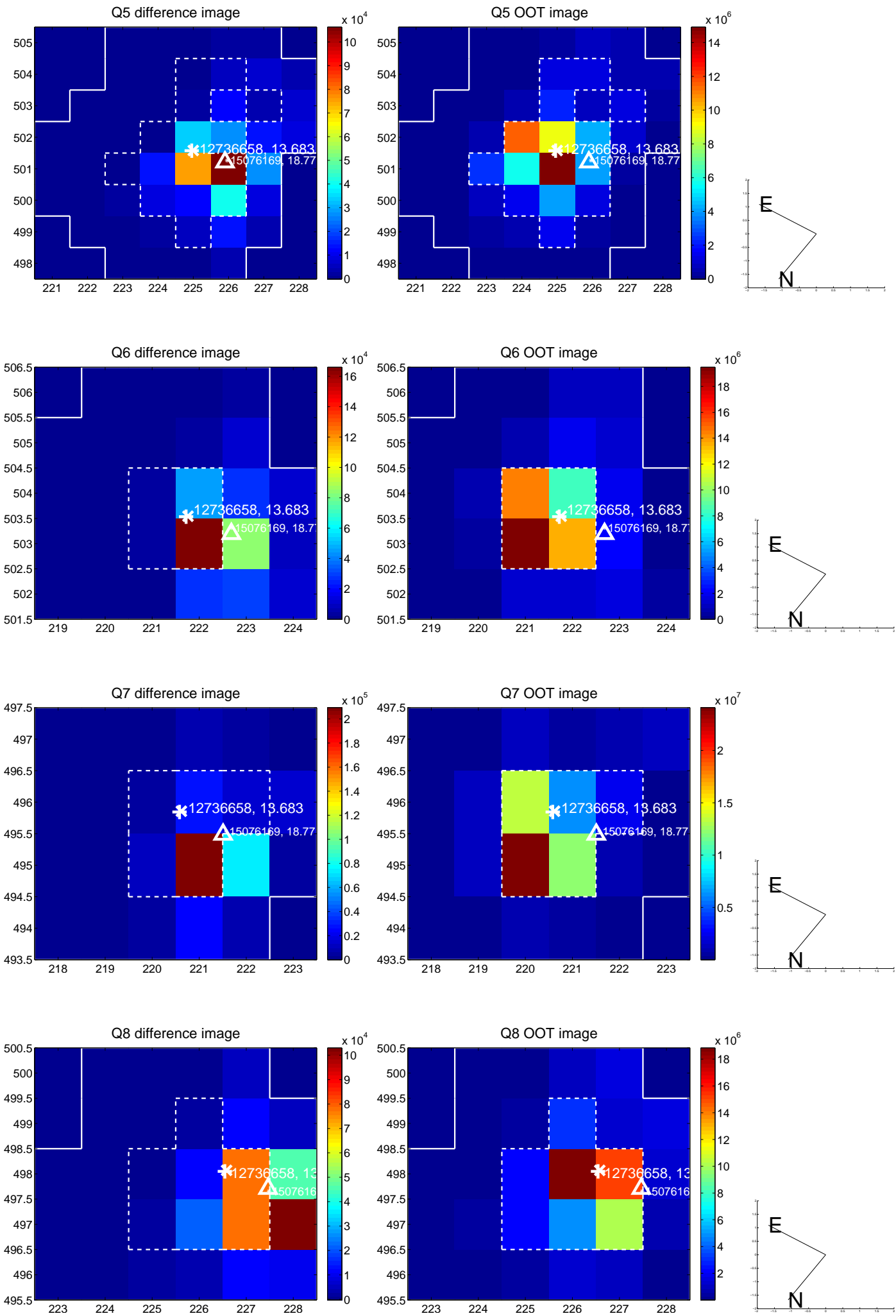


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ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

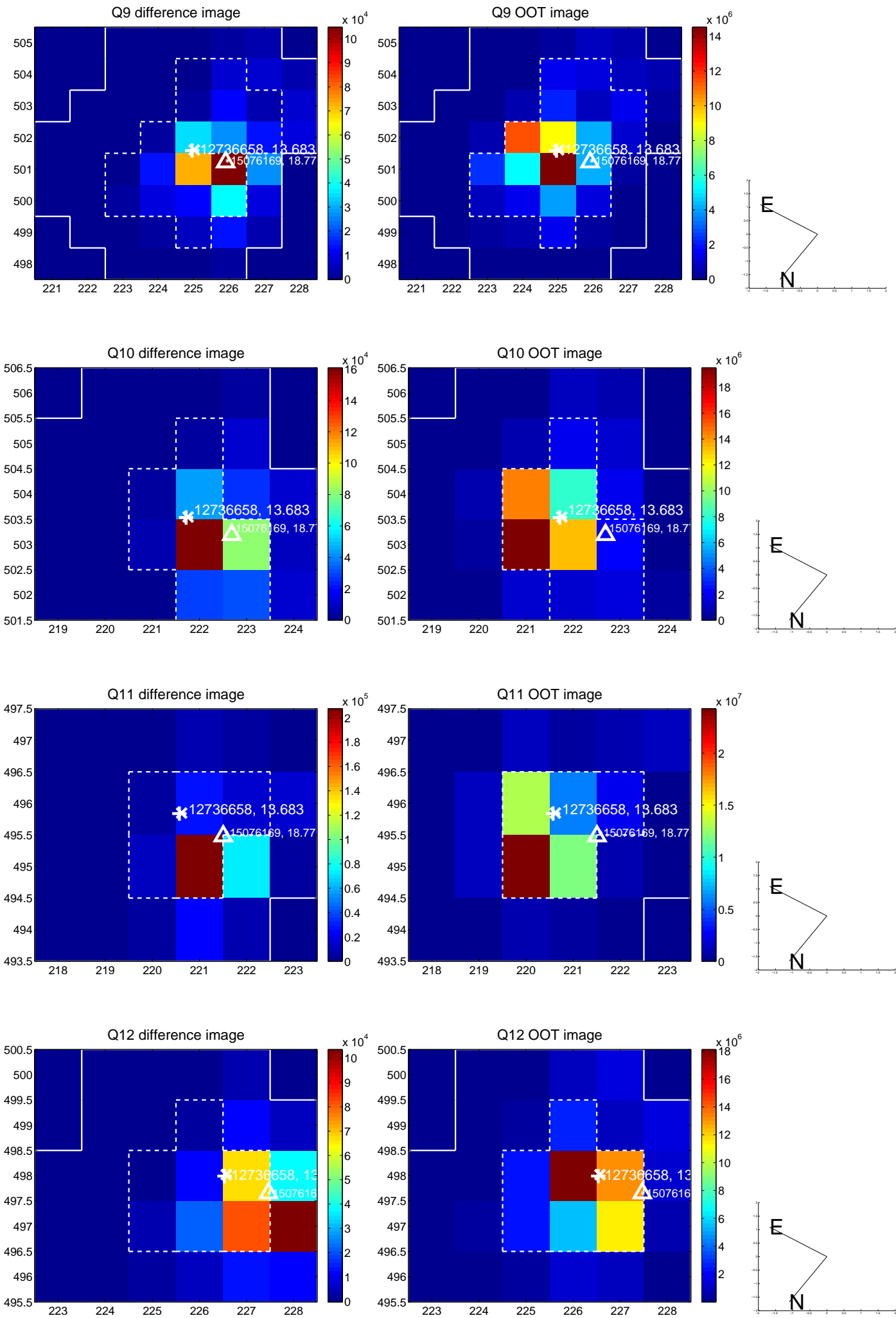
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



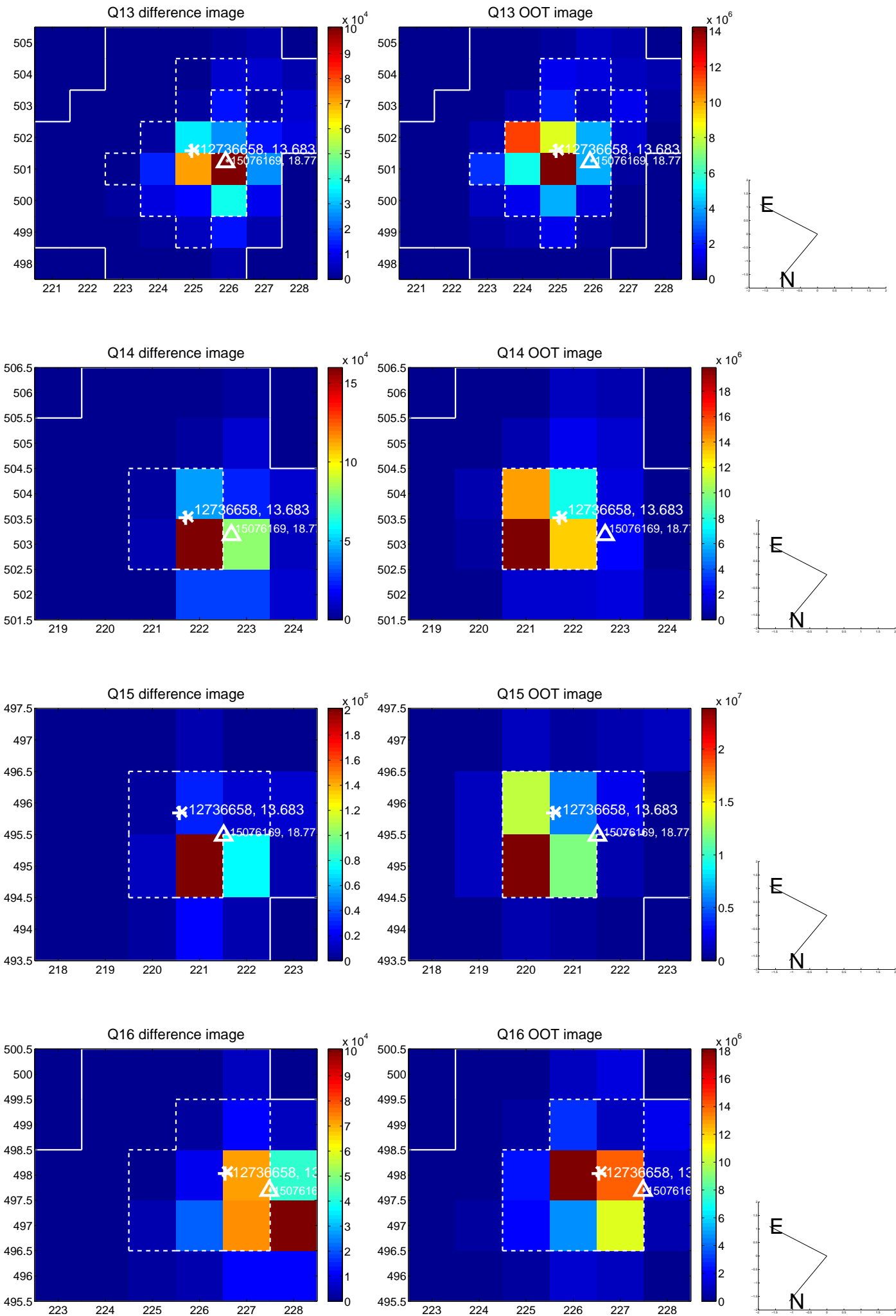
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



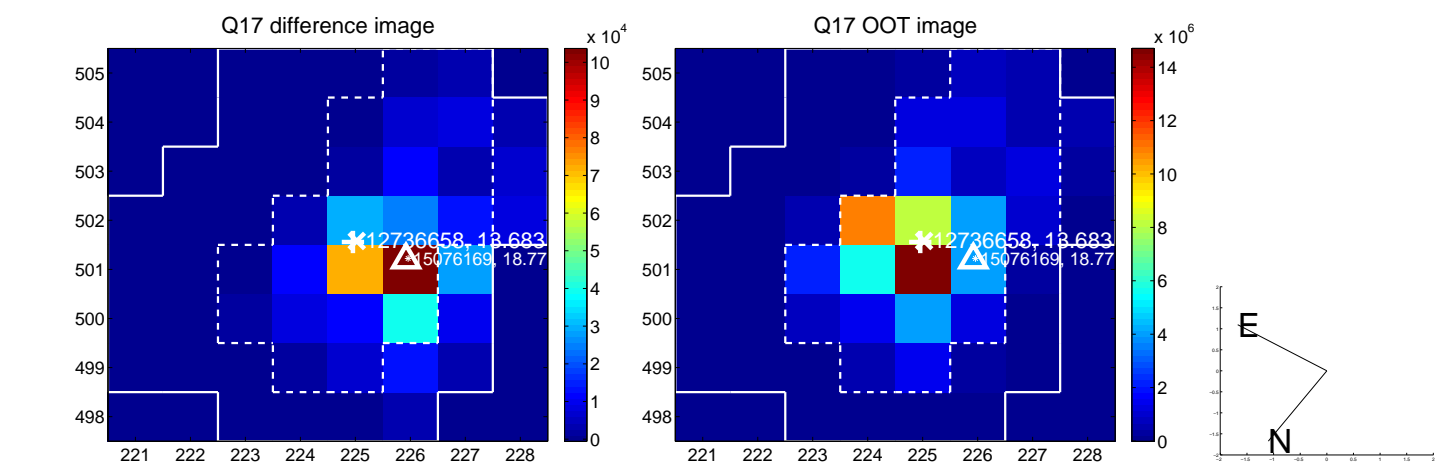
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



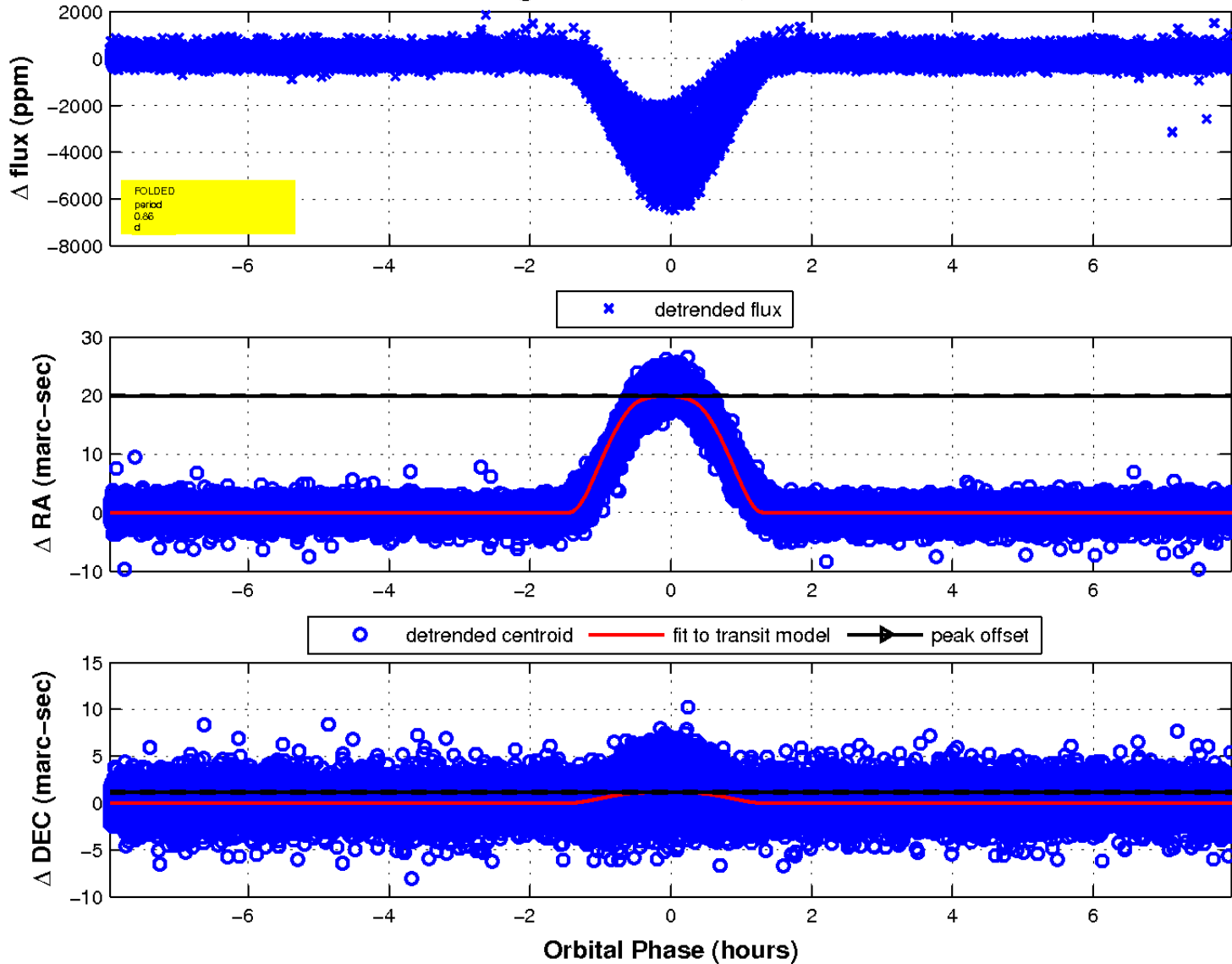
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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



fluxWeightedCentroids, Planet 2 of 2



UKIRT Image

Declination

