

KIC 012105785

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})
012105785-01	OBS	7512.01	31.953038	142.708173	17661.8	8.139	1717.3	1371.5	2.73	5524	57.49	131.75
012105785-02	OBS	No	31.953026	157.167475	2004.0	3.839	159.9	164.9	2.73	5524	15.33	131.75

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
012105785-01	OBS	FP	0.00	0	1	0	0	MOD_SEC_DV—MOD_SEC_ALT—DEEP_V_SHAPED—HAS_SEC_TCE
012105785-02	OBS	FP	0.00	1	1	0	0	IS_SEC_TCE

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

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

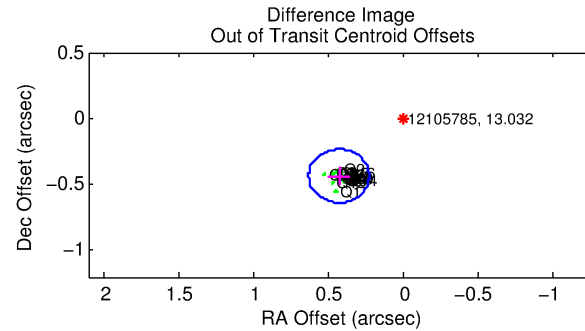
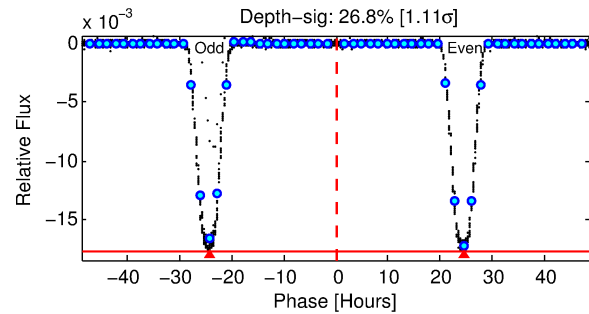
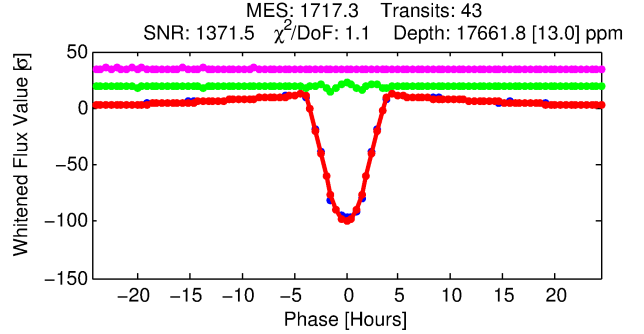
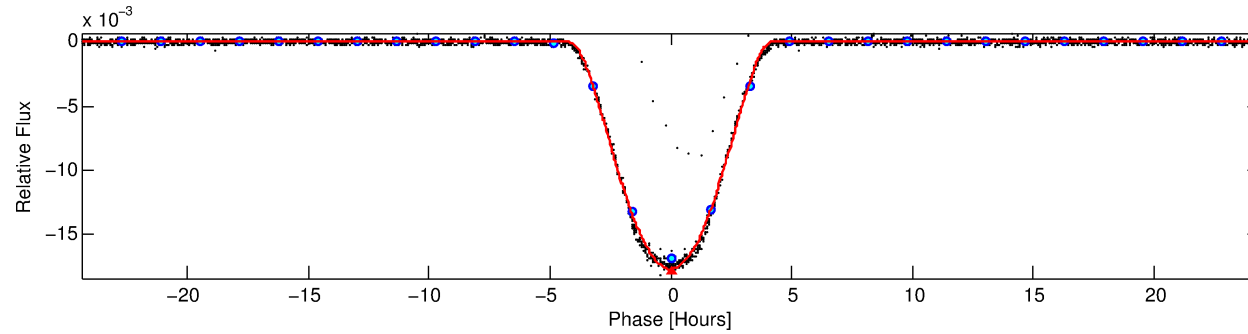
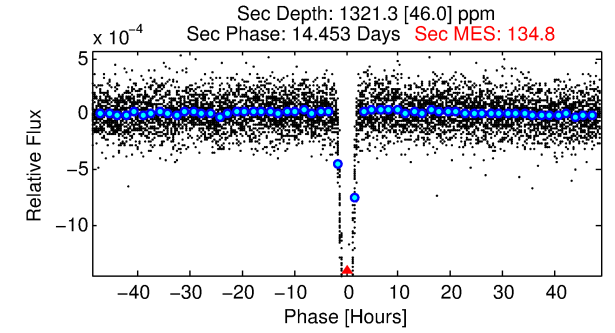
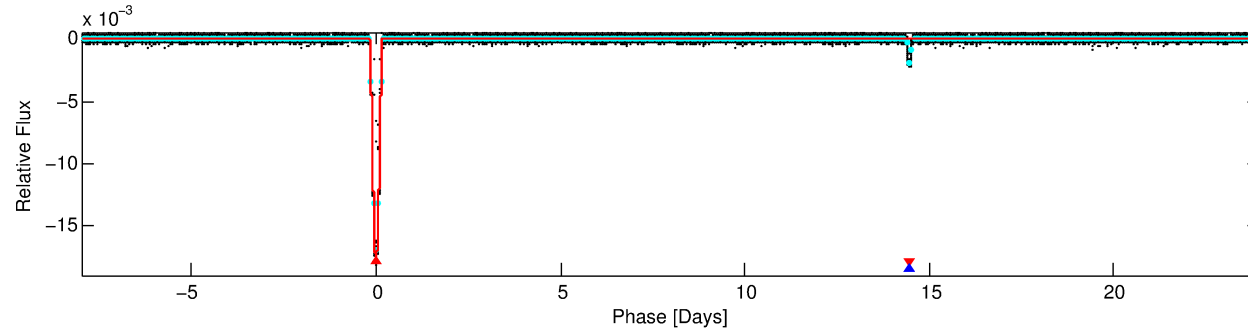
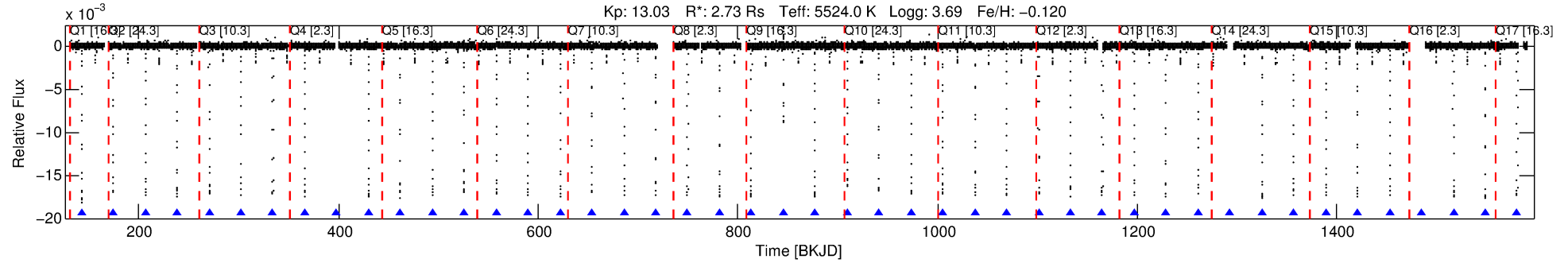
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 012105785-01

No Significant Match Found

DV One-Page Summary

KIC: 12105785 Candidate: 1 of 2 Period: 31.953 d
KOI: K07512.01 Corr: 0.994



DV Fit Results:

Period = 31.95304 [0.00000] d
Epoch = 142.7082 [0.0001] BKJD
Rp/R* = 0.1927 [0.0047]
a/R* = 21.07 [0.08]
b = 0.96 [0.01]
Seff = 131.75 [68.23]
Teff = 864 [112] K
Rp = 57.49 [21.14] Re
a = 0.2176 [0.0716] AU
Ag = 10.41 [5.28] [1.78σ]
Teffp = 2399 [80] K [11.16σ]

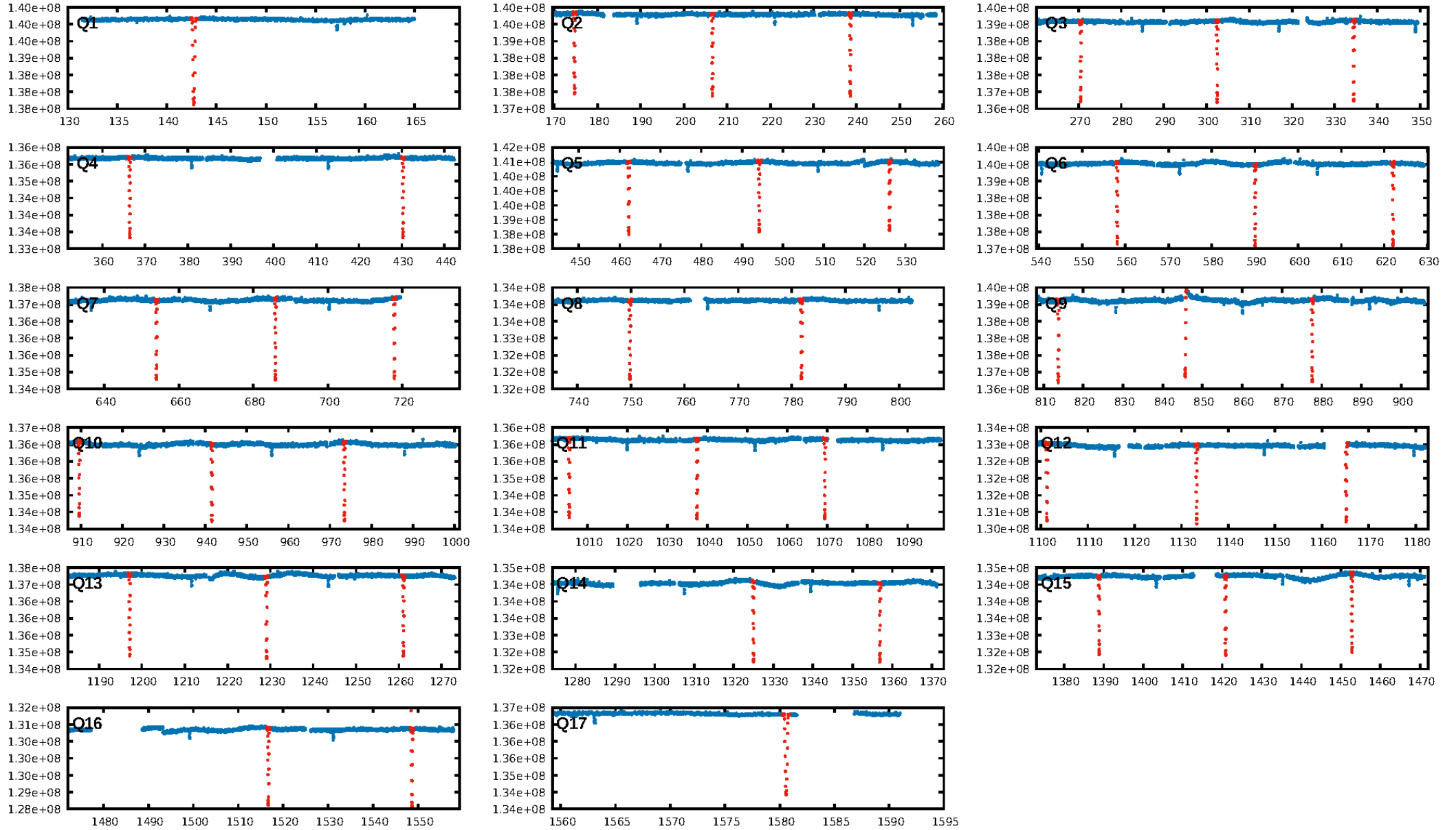
DV Diagnostic Results:

ShortPeriod-sig: 0.0% [0.00σ]
LongPeriod-sig: N/A
ModelChiSquare2-sig: 26.4%
ModelChiSquareGof-sig: 5.7%
Bootstrap-pfa: 0.00e+00
RollingBand-fgt: 1.00 [41/41]
GhostDiagnostic-chr: 5.157
Centroid-sig: 0.0%
Centroid-so: 0.259 arcsec [39.84σ]
OotOffset-rm: 0.608 arcsec [9.05σ]
KicOffset-rm: 0.396 arcsec [5.84σ]
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]

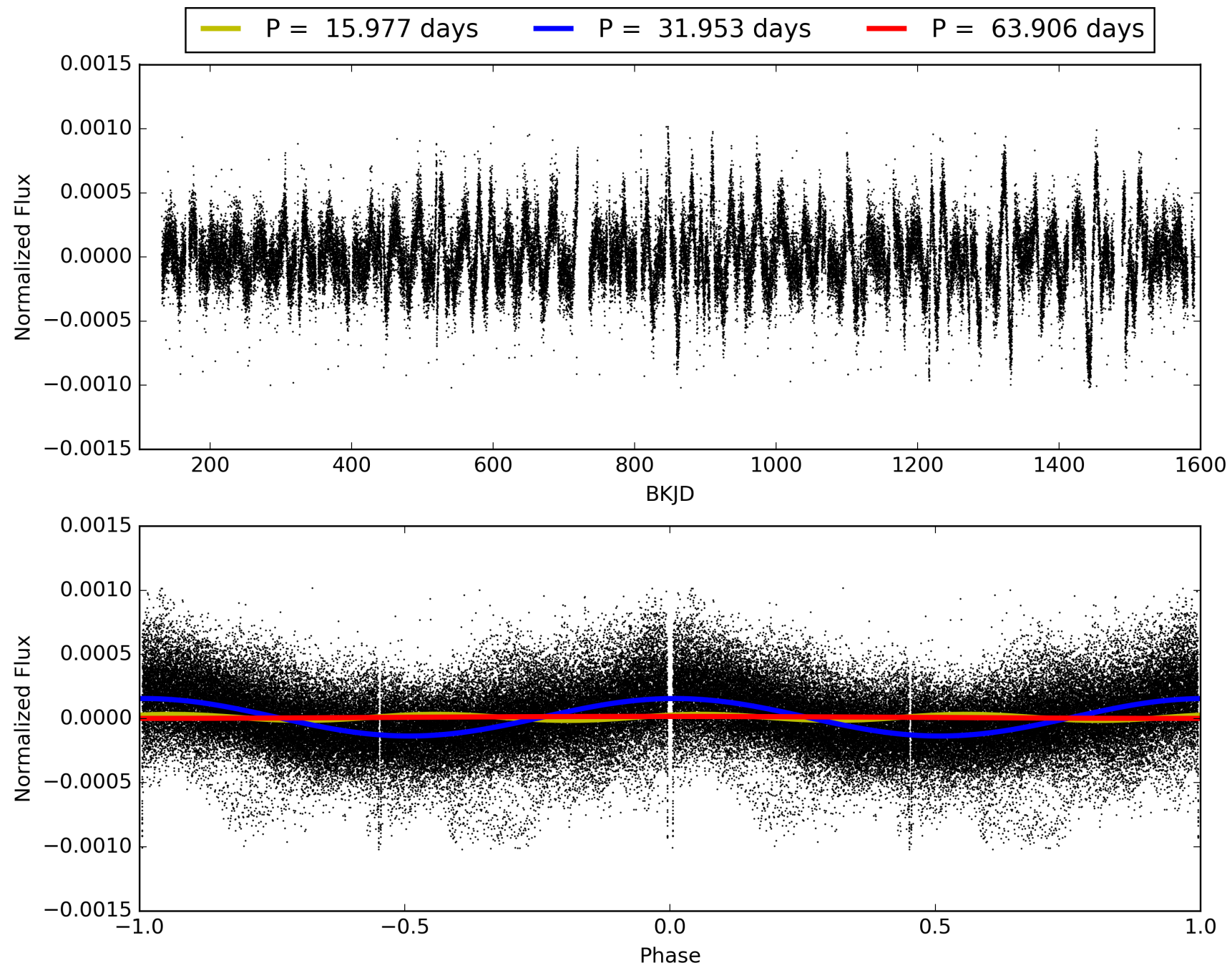
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 29-Jan-2016 16:43:13 Z

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

TCE 012105785-01, PDC Light Curves

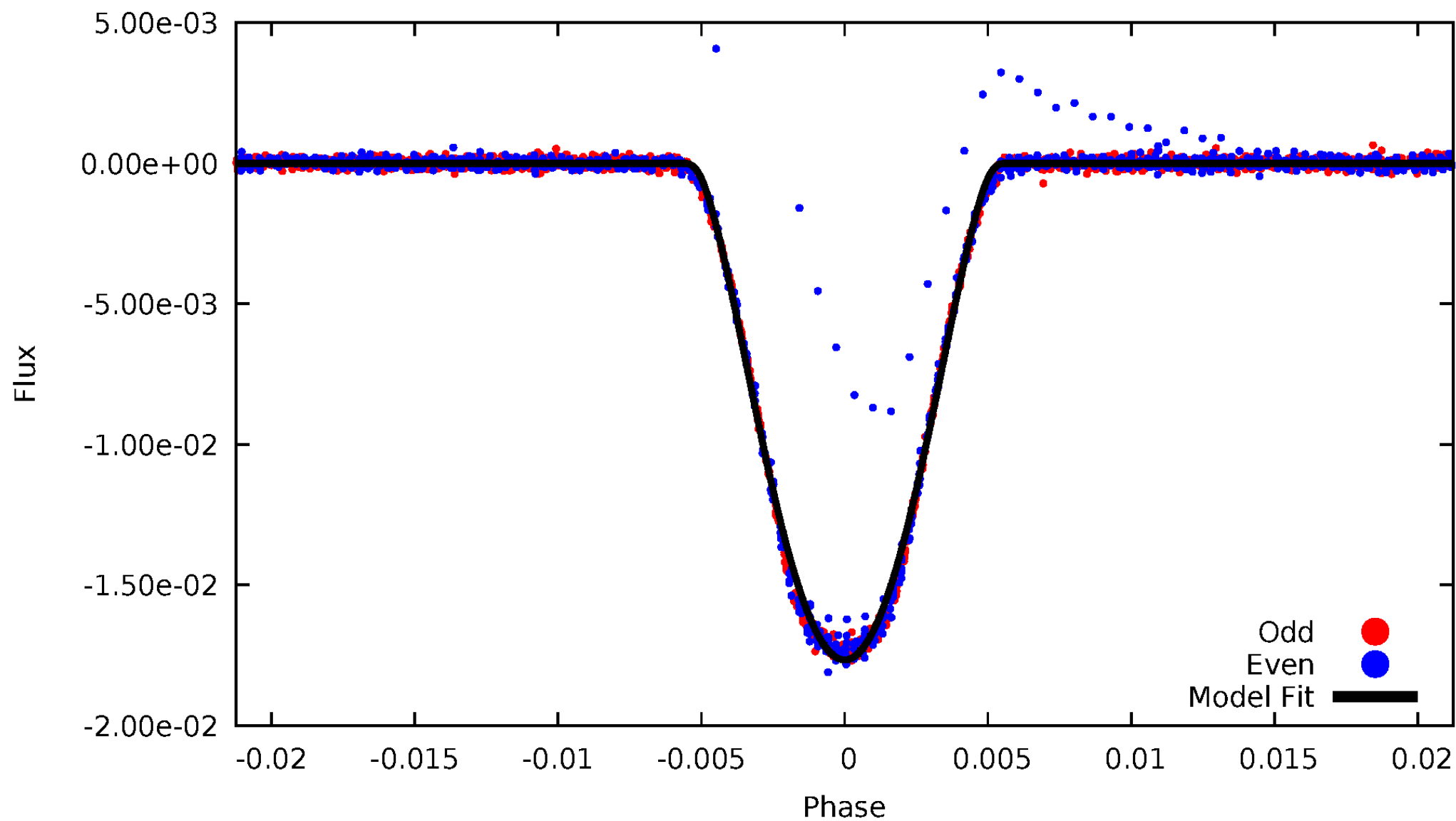


TCE 012105785-01



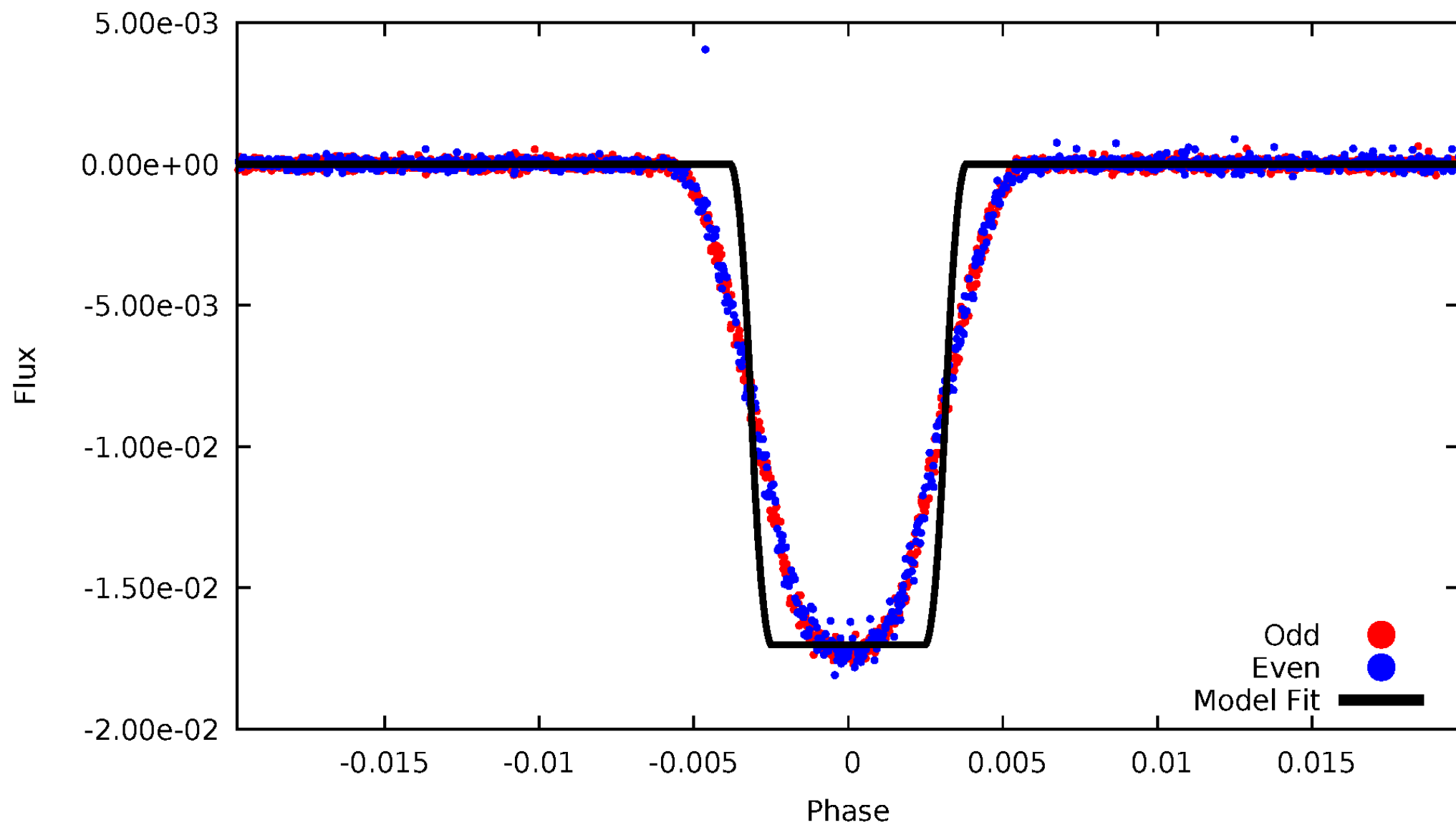
DV Odd/Even

TCE 012105785-01



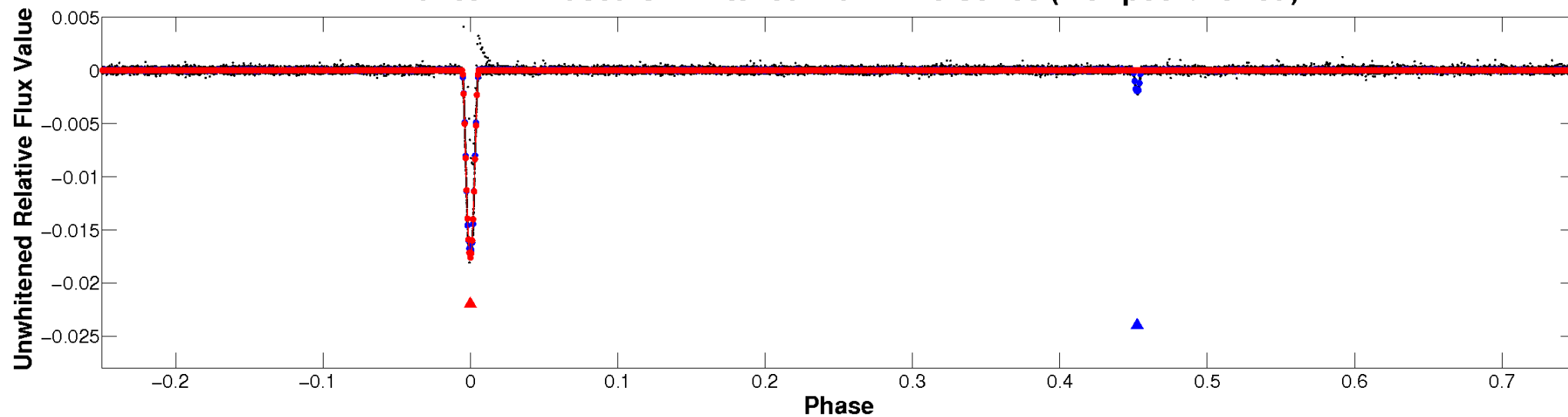
ALT Odd/Even

TCE 012105785-01

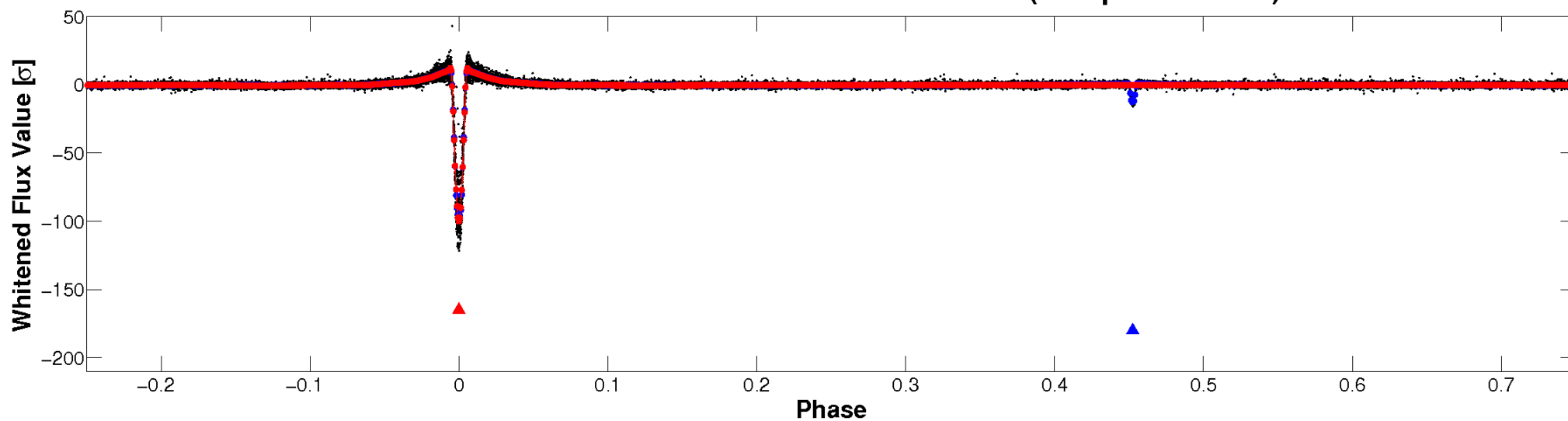


Non-Whitened Vs. Whitened Light Curve

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

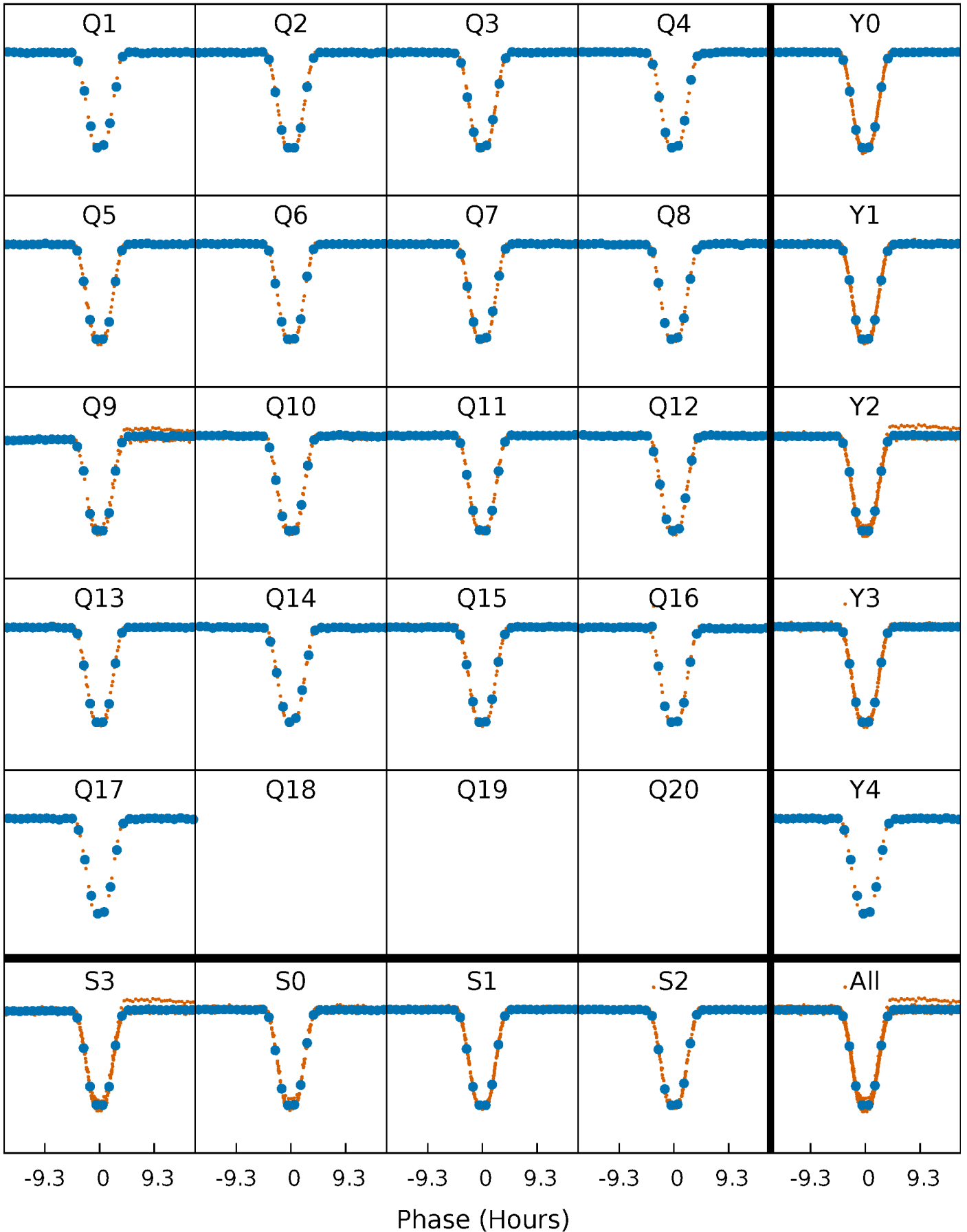


Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)



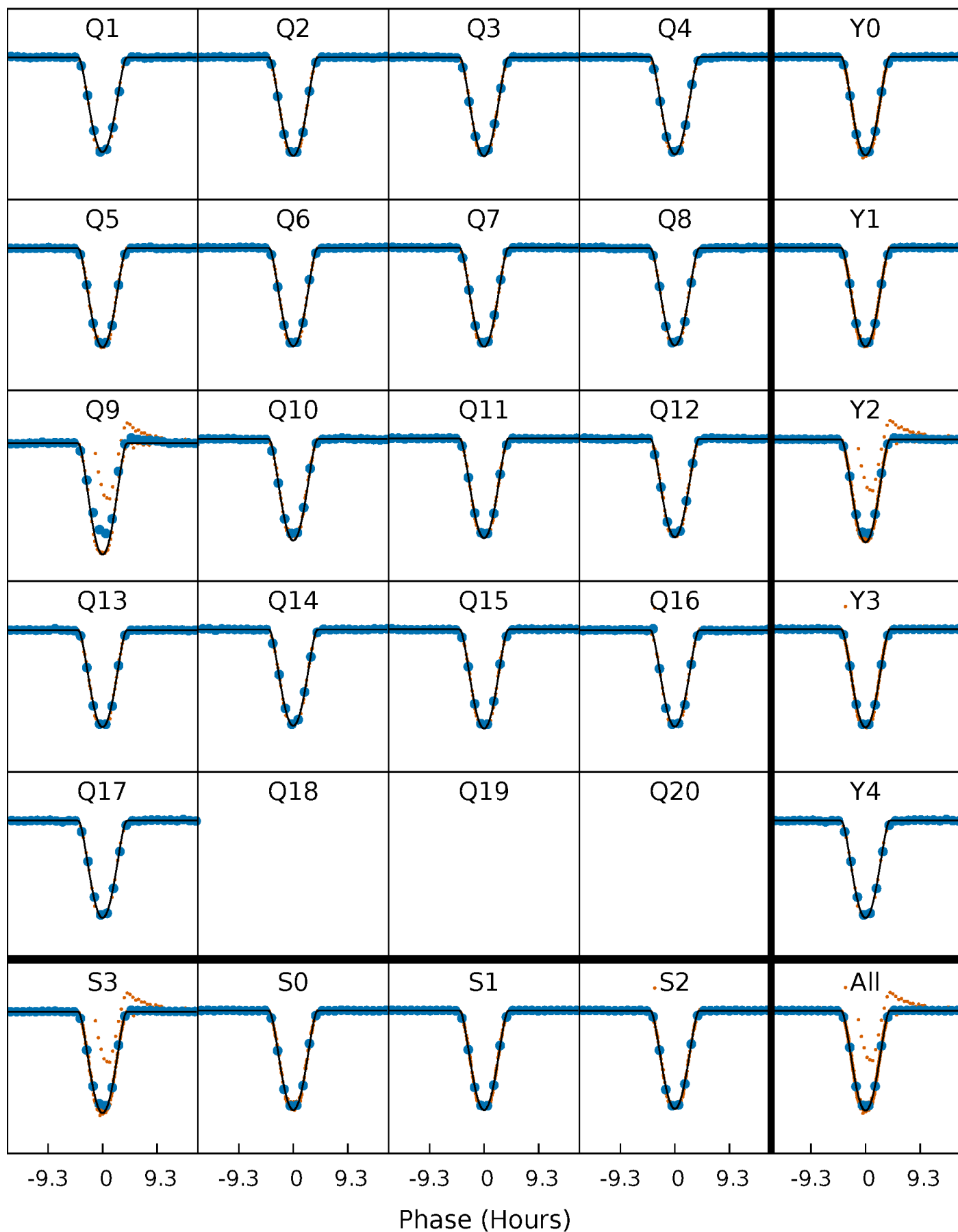
PDC Quarter-Phased Transit Curves

TCE 012105785-01 P= 31.953038 Days $T_0=142.708173$ (BKJD)



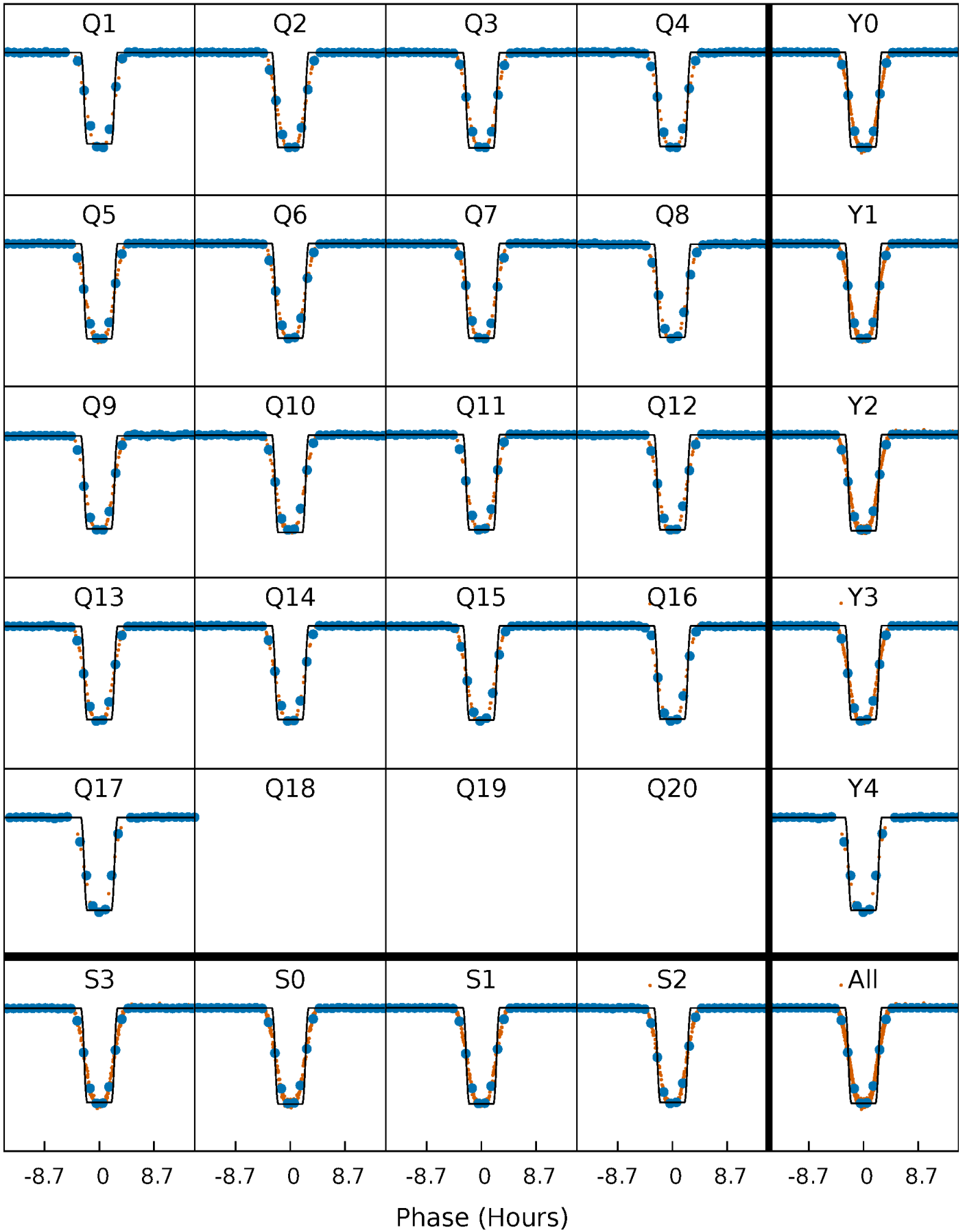
DV Quarter-Phased Transit Curves

TCE 012105785-01 P= 31.953038 Days $T_0=142.708173$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

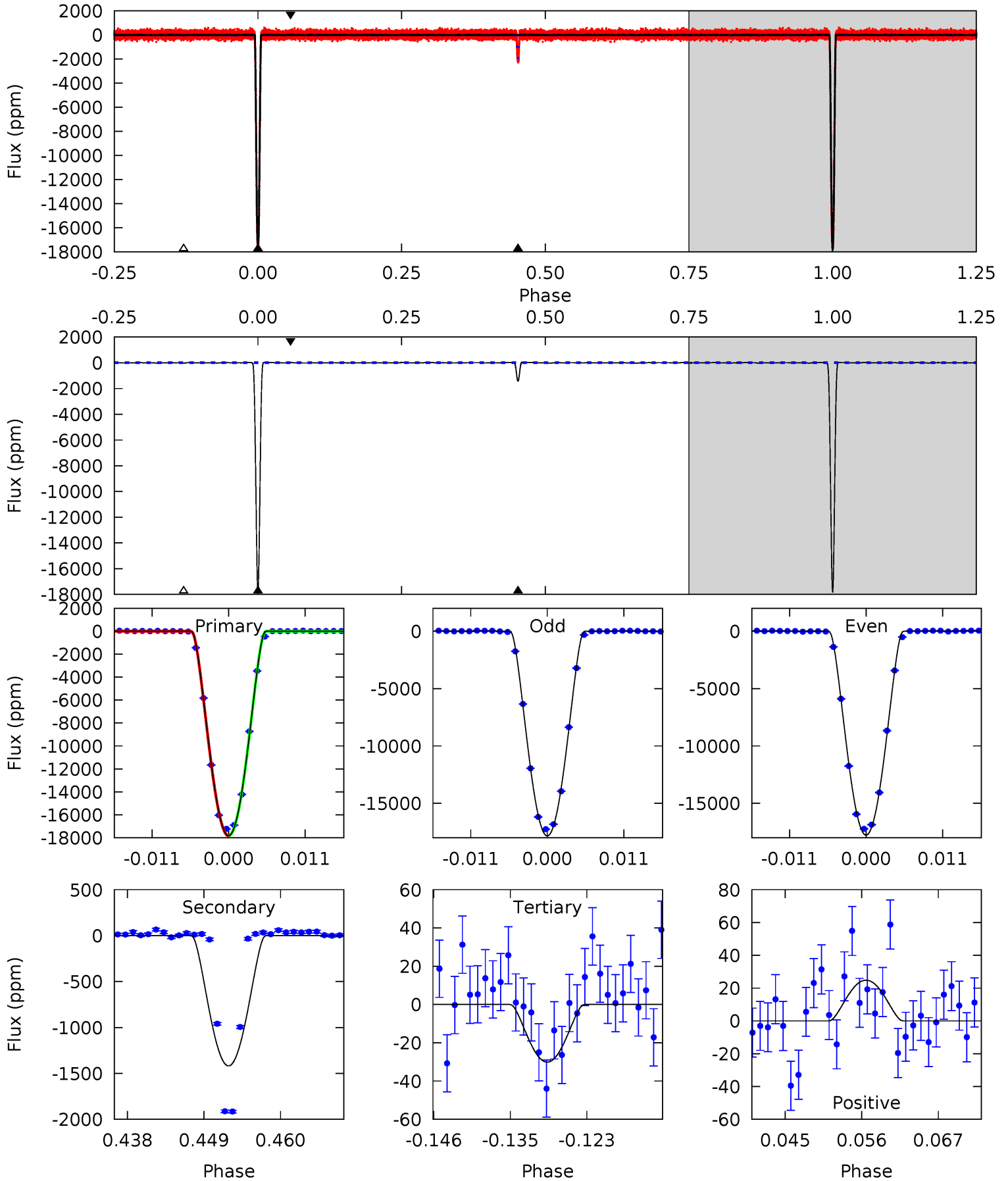
TCE 012105785-01 P= 31.953245 Days $T_0=142.703664$ (BKJD)



DV Model-Shift Uniqueness Test

012105785-01, P = 31.953038 Days, E = 110.755135 Days

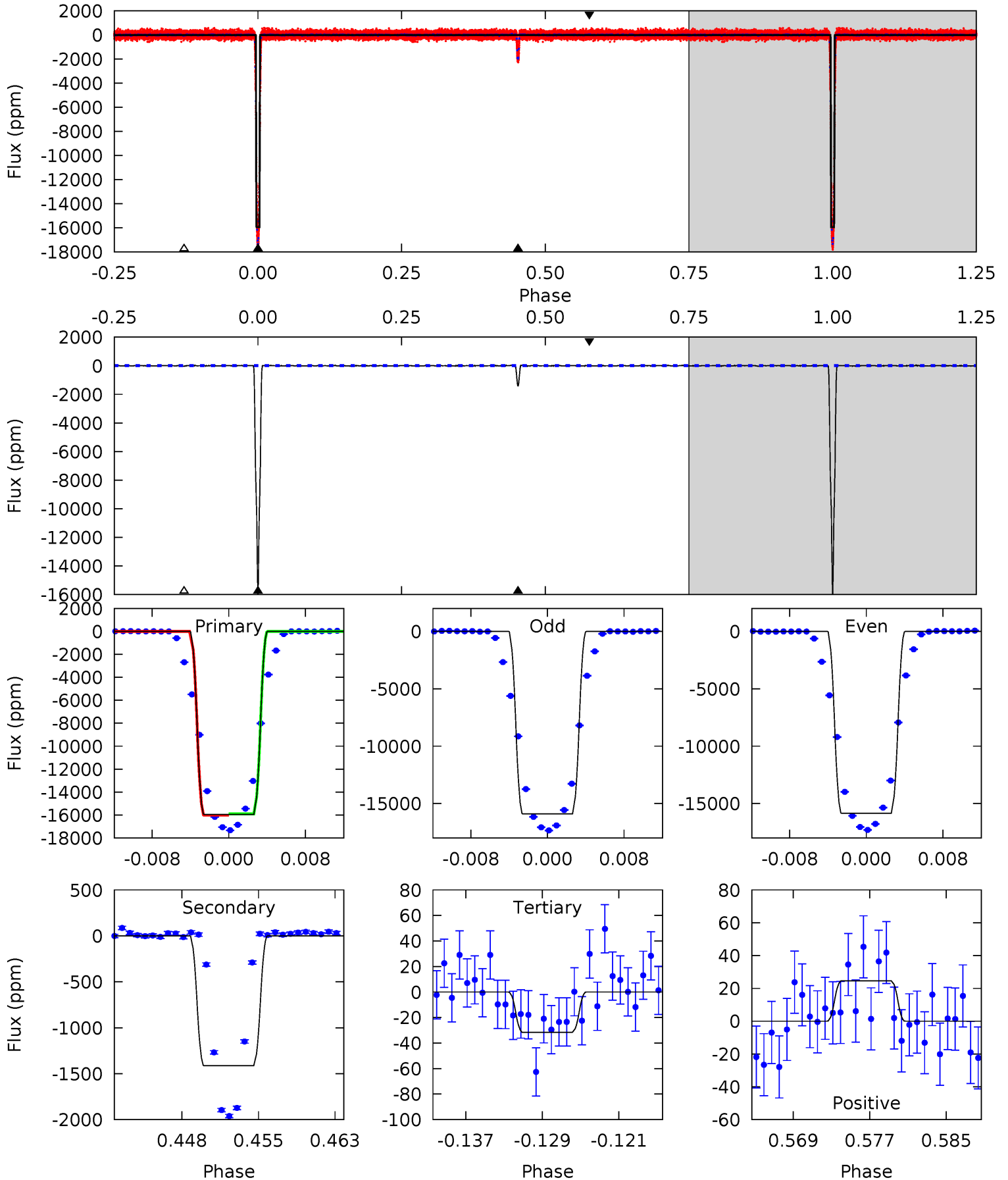
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
3418	272.1	5.77	4.76	5.00	2.54	2.11	3412	3413	266.3	267.3	6.52	0.98	0.00	1.33



Alt Model-Shift Uniqueness Test

012105785-01, P = 31.953245 Days, E = 110.750419 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
2212	196.1	4.38	3.42	5.08	2.67	1.27	2208	2209	191.7	192.7	4.10	1.00	0.00	6.49



Stellar Parameters For KIC 012105785

	$T_{\text{eff}} (K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M (M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	5524^{+165}_{-165}	$3.693^{+0.287}_{-0.123}$	$-0.120^{+0.300}_{-0.300}$	$2.734^{+0.540}_{-1.003}$	$1.346^{+0.157}_{-0.365}$	$0.093^{+0.189}_{-0.035}$
	+3%/-3%	+8%/-3%	+250%/-250%	+20%/-37%	+12%/-27%	+204%/-38%
Source	PHO1	FLK73	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 012105785-01 / KOI 7512.01

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-1418 ± 5	$56.69^{+7.38}_{-11.63}$	1199^{+72}_{-115}	3065^{+61}_{-60}	12^{+5}_{-2}
Alt.	-1413 ± 7	$38.43^{+4.47}_{-7.17}$	1198^{+75}_{-104}	3454^{+78}_{-83}	25^{+10}_{-5}

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

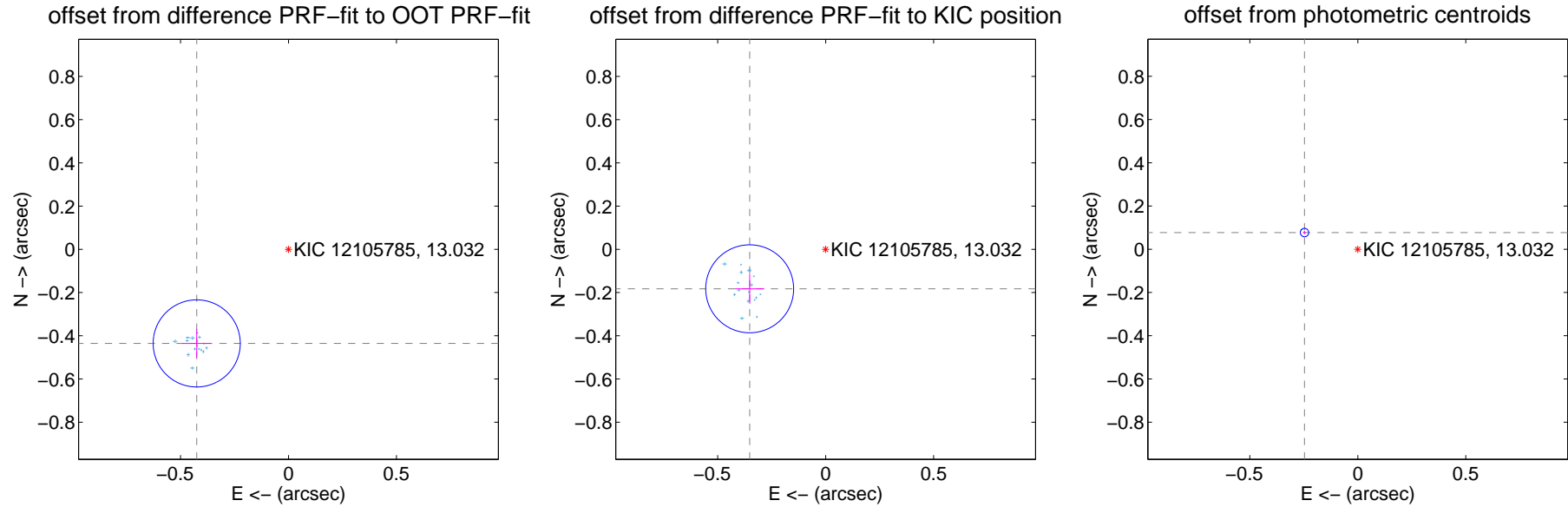
DV Centroid Data

Supplemental centroid analysis for 012105785-01. Kepler magnitude: 13.03. Transit SNR 1371.46

There are 17 quarters with good PRF difference image offsets

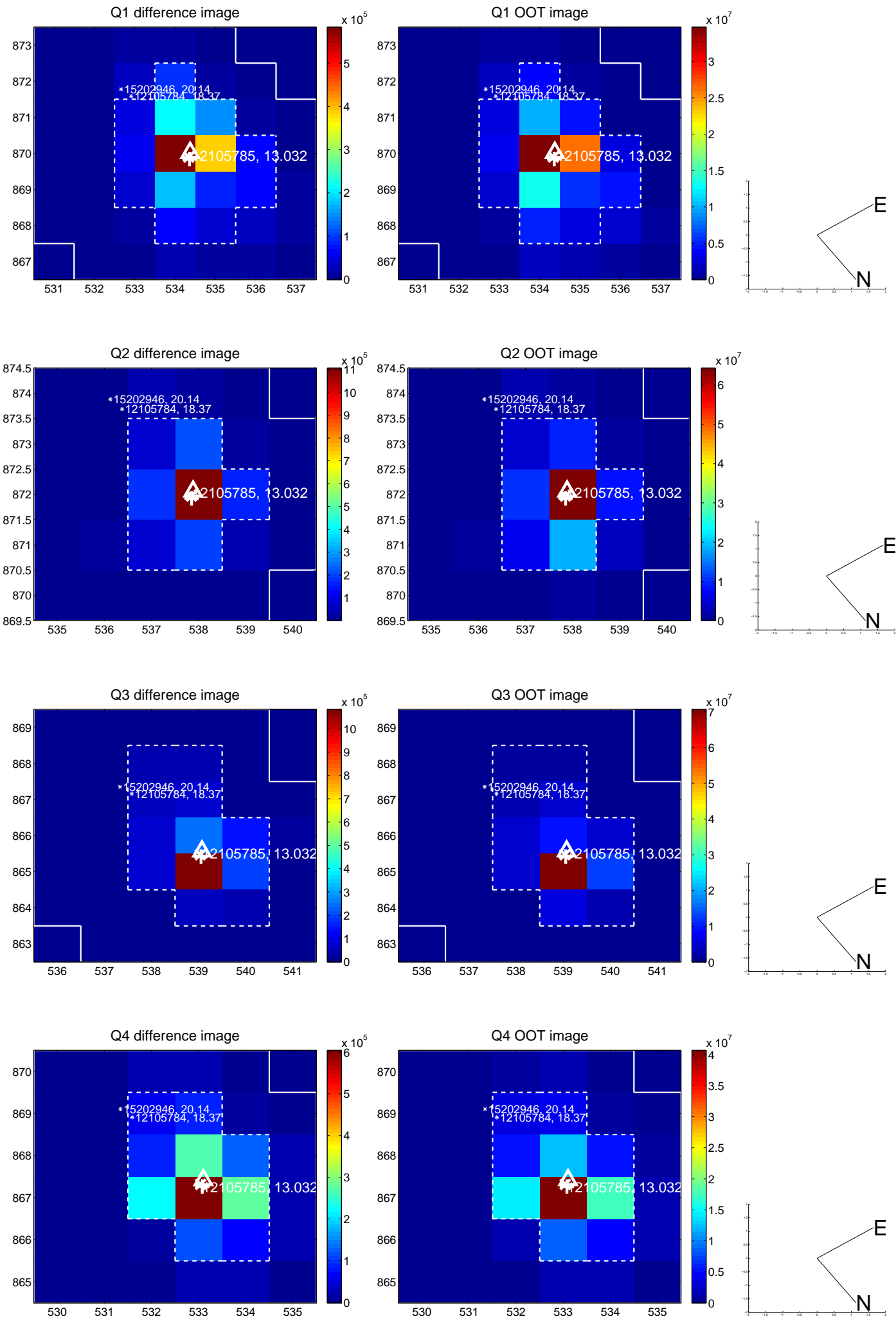
The direct PRF centroid is offset from the target star catalog position by about 0.32 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.608 ± 0.067	9.05	0.425 ± 0.067	-0.435 ± 0.067
PRF-fit source offset from KIC position	0.396 ± 0.068	5.84	0.352 ± 0.067	-0.183 ± 0.069
photometric centroid source offset	0.26 ± 0.01	39.84	0.25 ± 0.01	0.08 ± 0.01

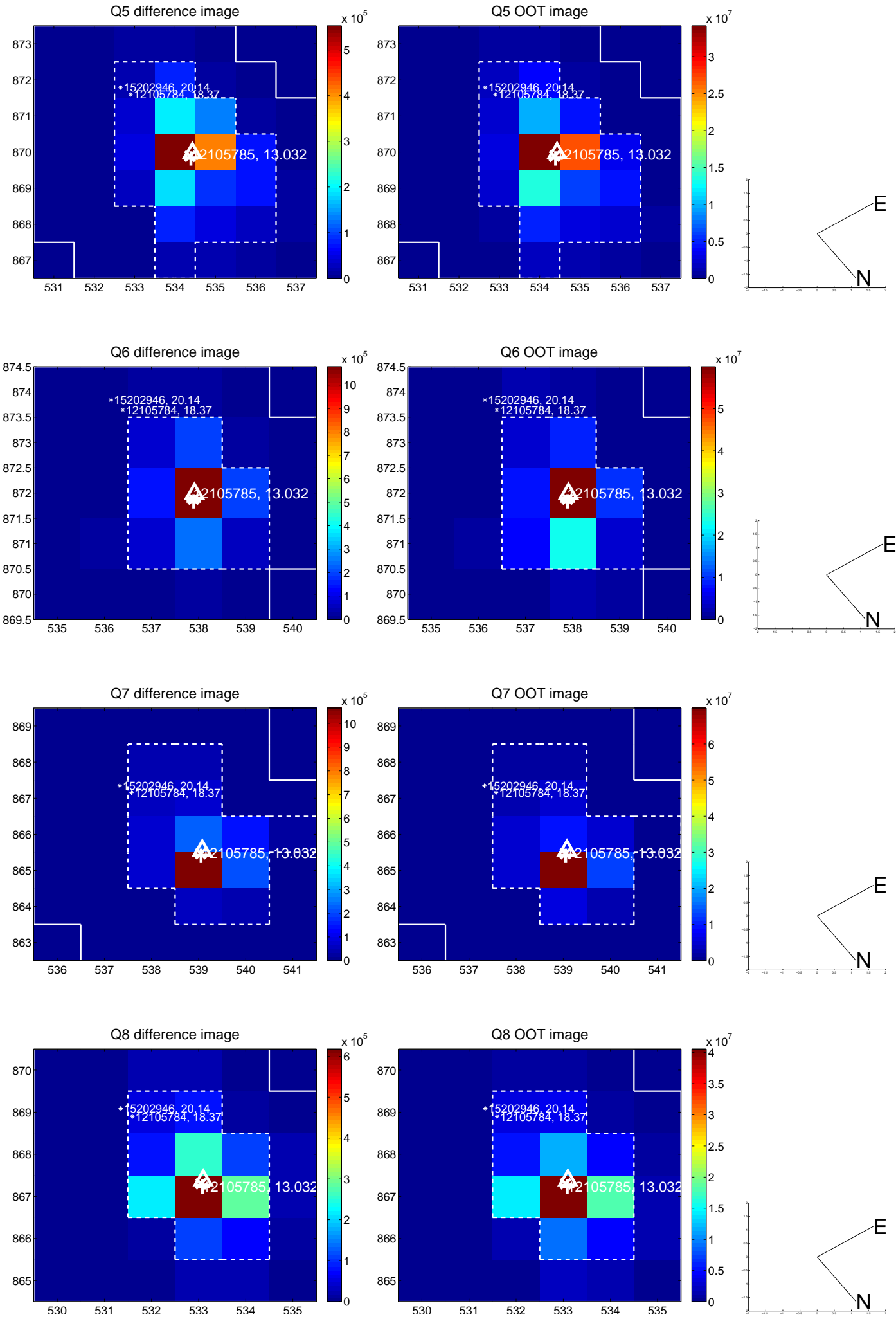


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses:** good quarterly centroid offsets; **Vermillion crosses:** bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

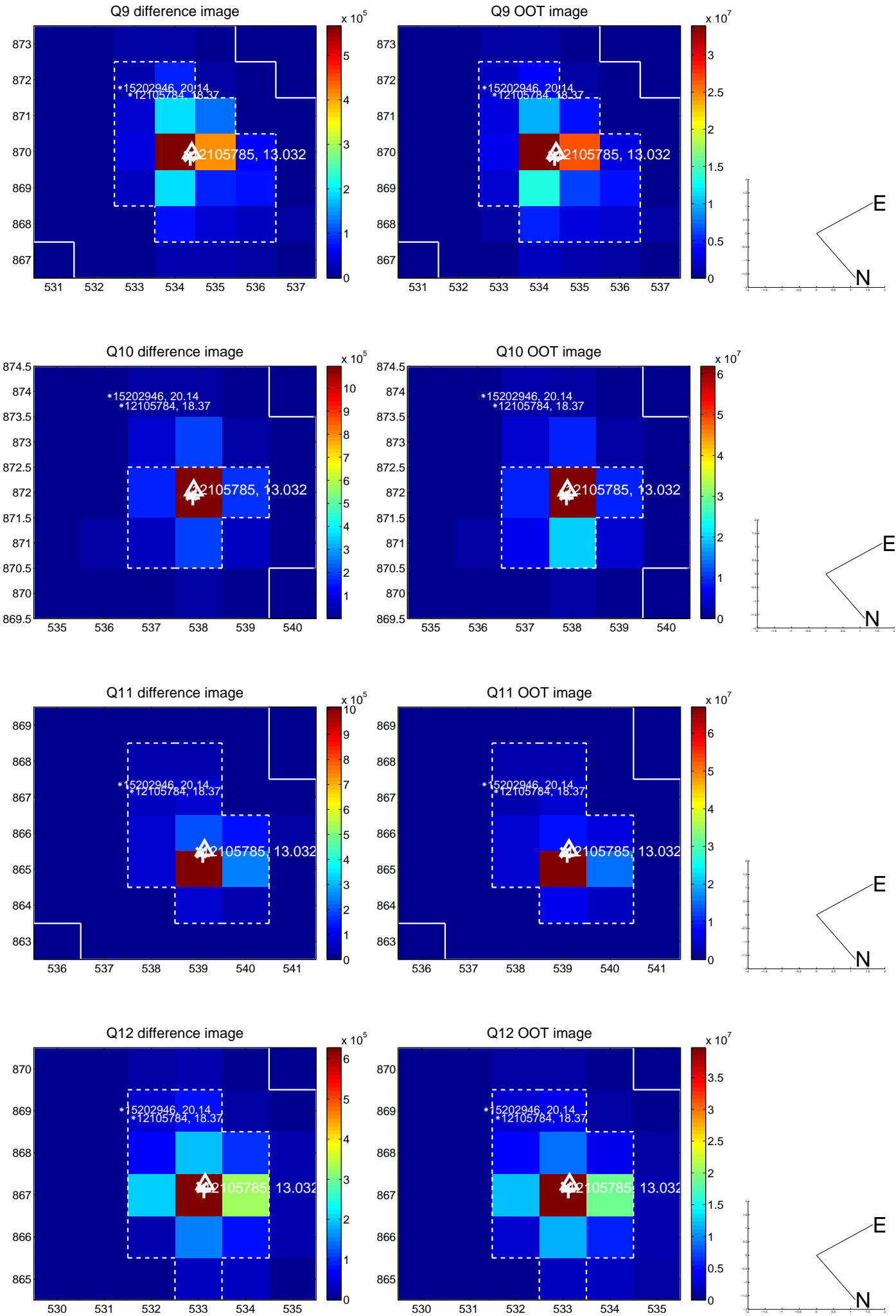
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



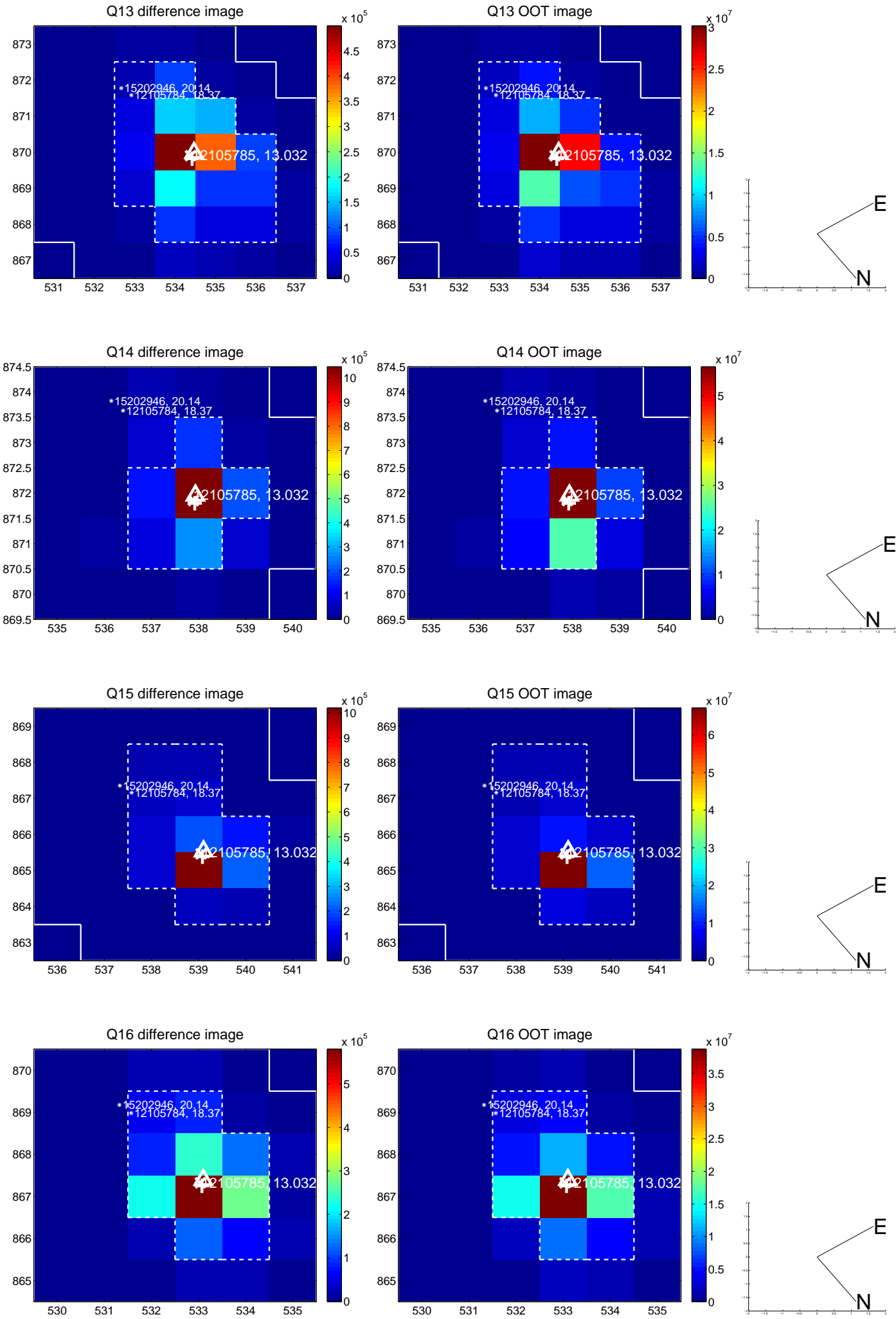
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



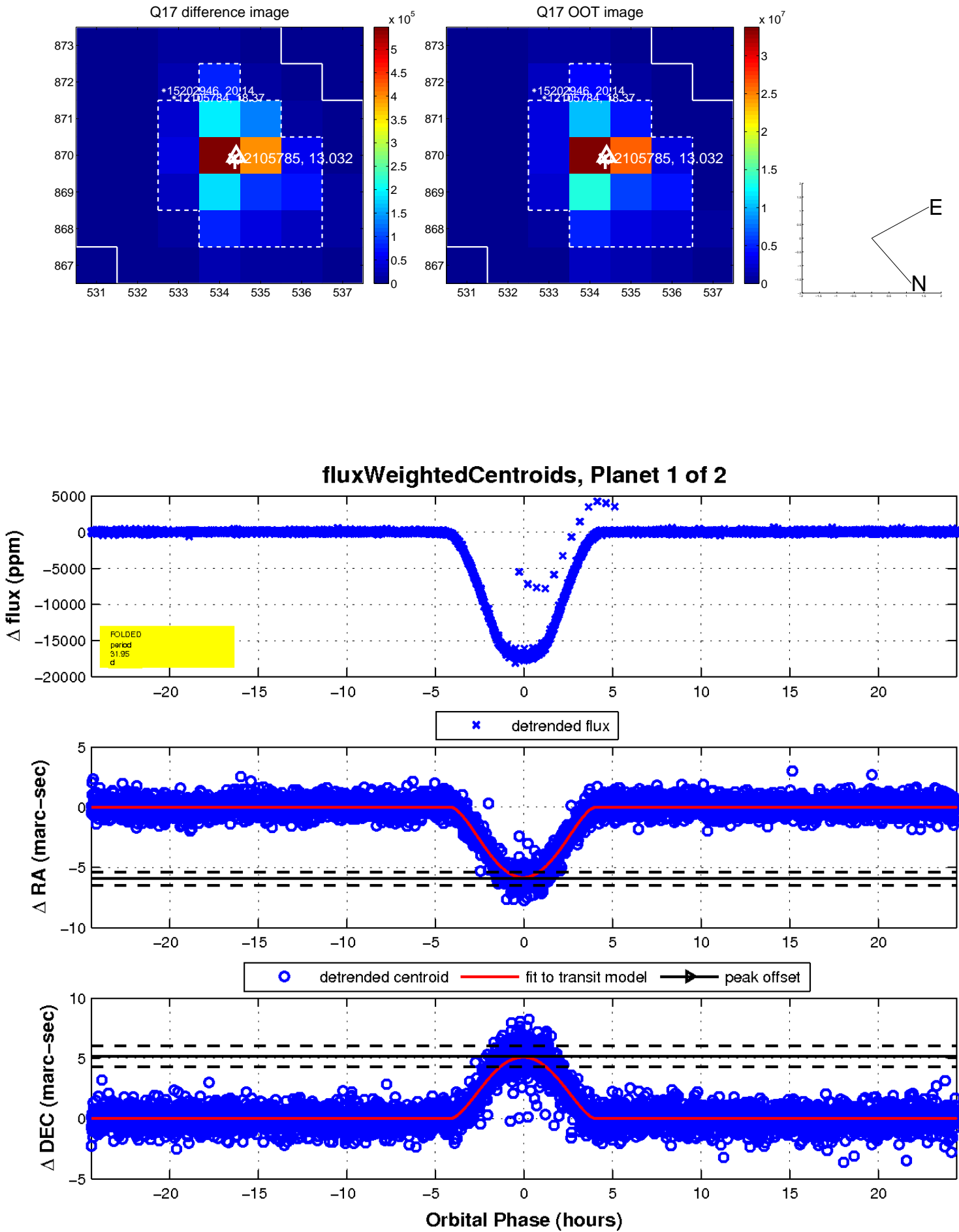
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

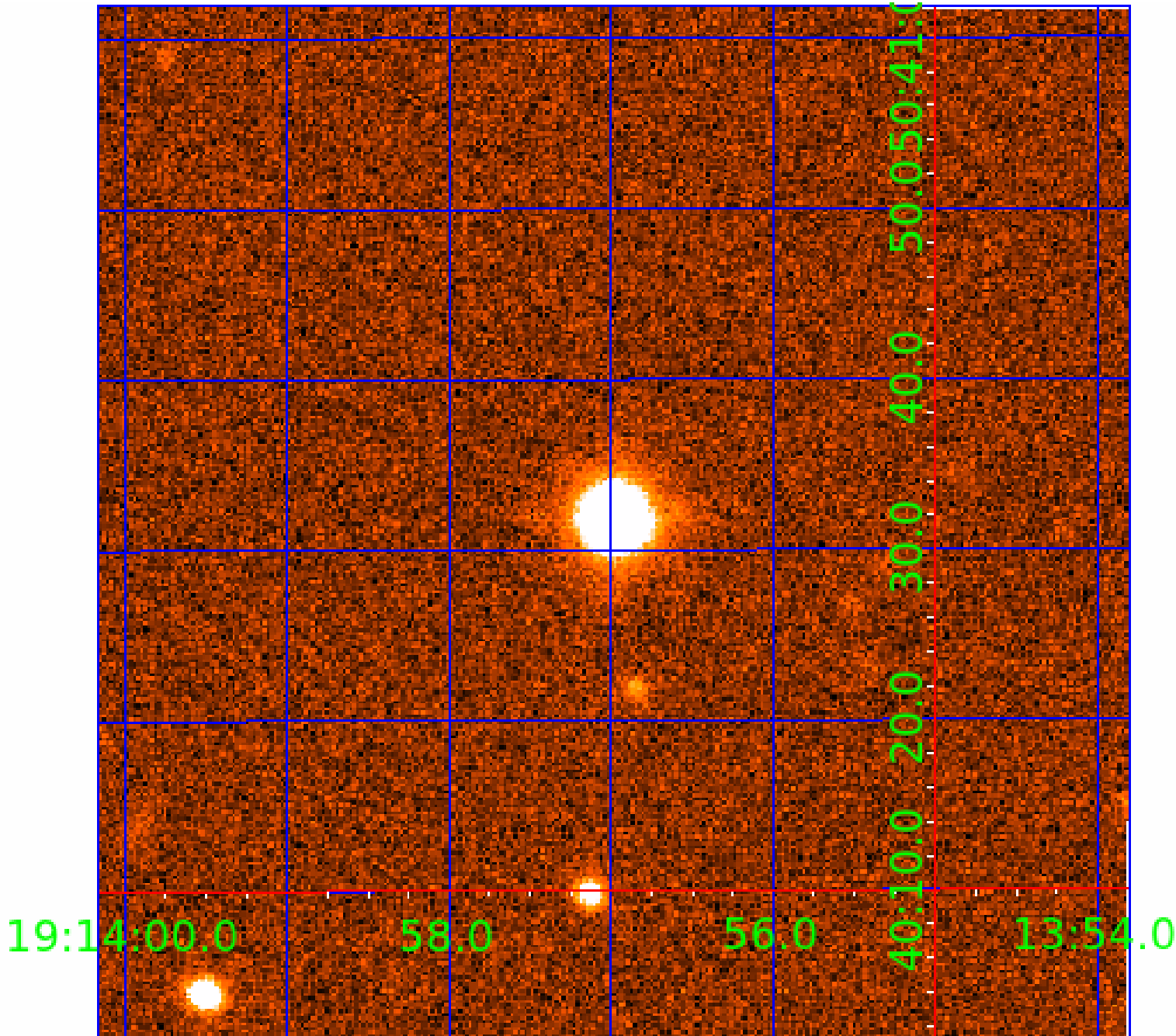


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 012105785

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})
012105785-01	OBS	7512.01	31.953038	142.708173	17661.8	8.139	1717.3	1371.5	2.73	5524	57.49	131.75
012105785-02	OBS	No	31.953026	157.167475	2004.0	3.839	159.9	164.9	2.73	5524	15.33	131.75

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
012105785-01	OBS	FP	0.00	0	1	0	0	MOD_SEC_DV—MOD_SEC_ALT—DEEP_V_SHAPED—HAS_SEC_TCE
012105785-02	OBS	FP	0.00	1	1	0	0	IS_SEC_TCE

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

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

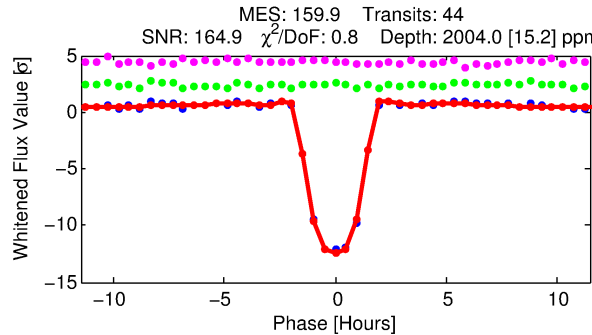
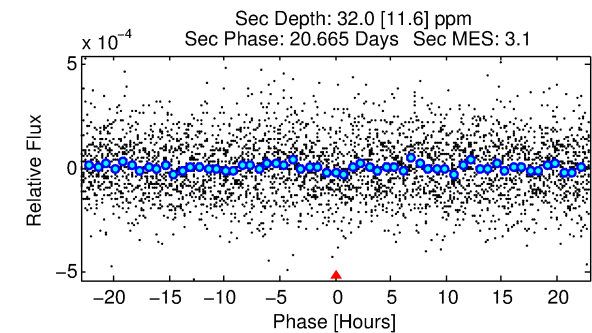
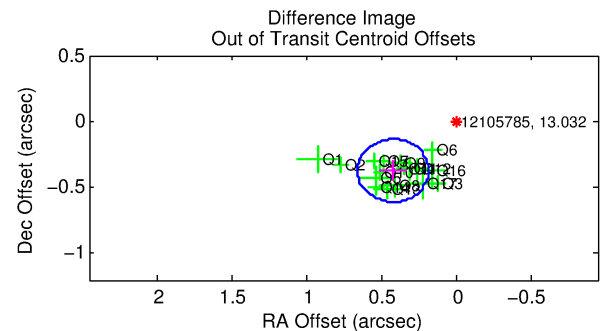
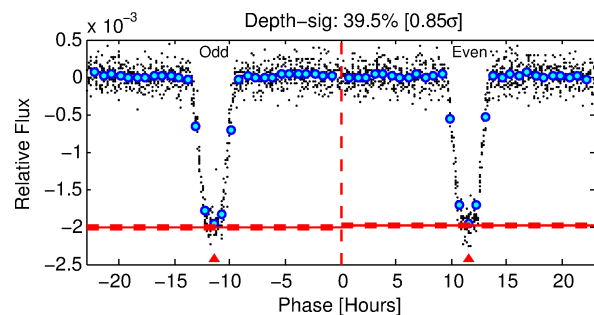
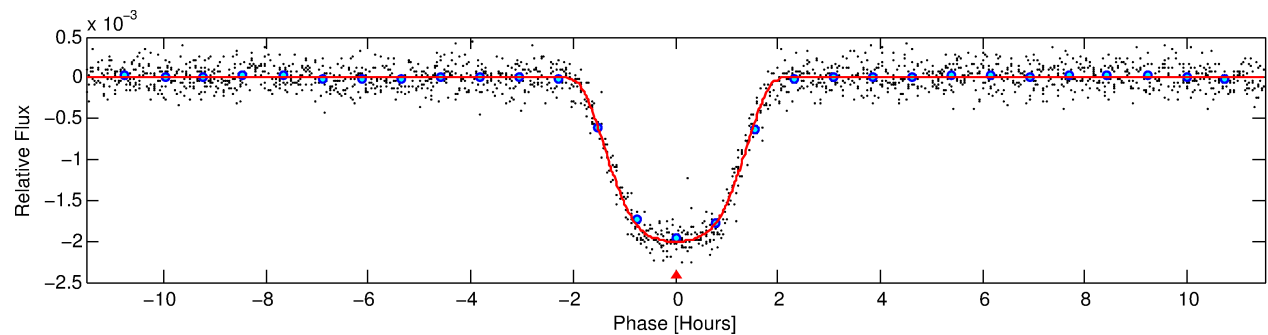
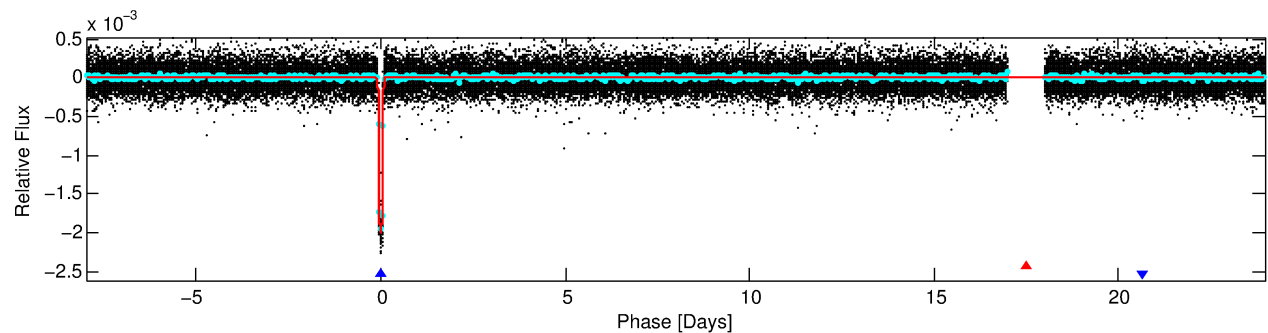
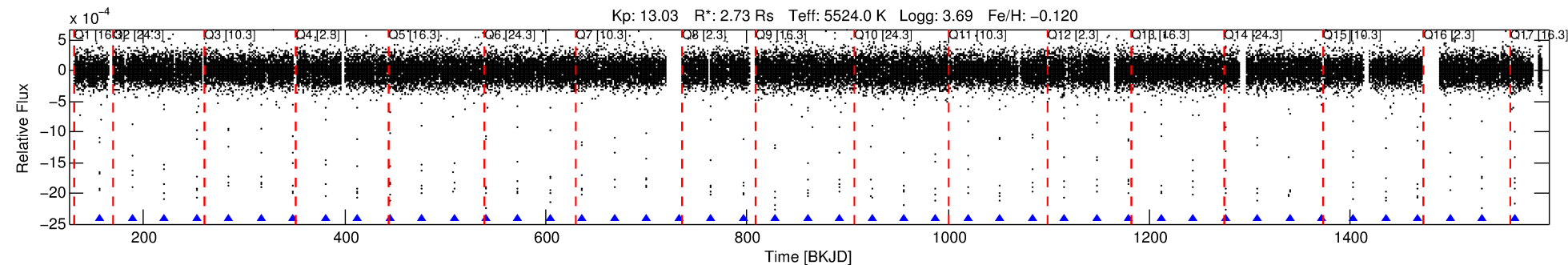
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 012105785-02

No Significant Match Found

DV One-Page Summary

KIC: 12105785 Candidate: 2 of 2 Period: 31.953 d
KOI: K07512 Corr: No Ephemeris Match



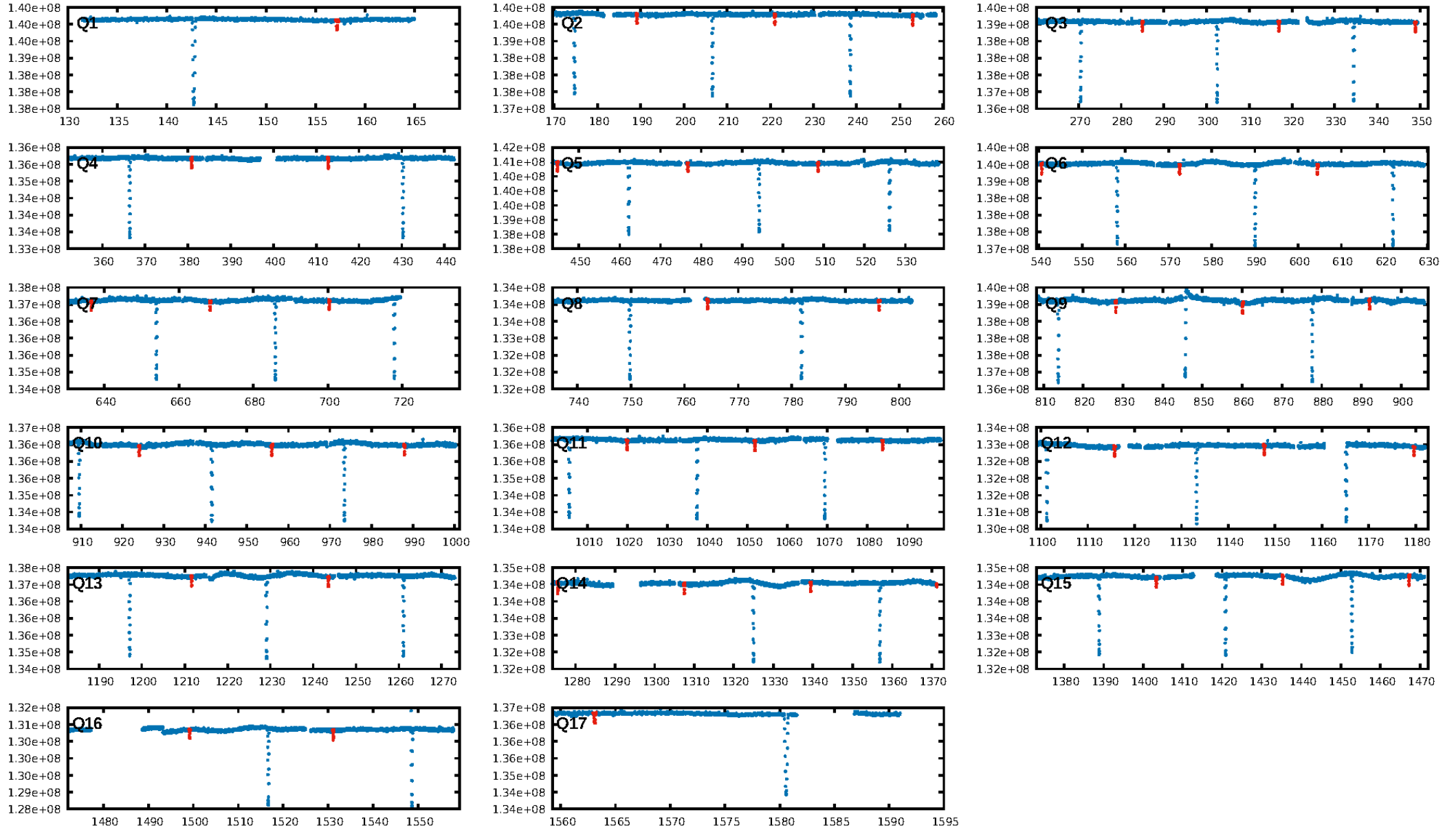
DV Fit Results:

Period = 31.95303 [0.00002] d
Epoch = 157.1675 [0.0005] BKJD
Rp/R* = 0.0514 [0.0003]
a/R* = 30.70 [0.44]
b = 0.93 [0.00]
Seff = 131.75 [68.23]
Teq = 864 [112] K
Rp = 15.33 [5.62] Re
a = 0.2176 [0.0716] AU
Ag = 3.55 [2.20] [1.16 σ]
Teffp = 1833 [175] K [4.66 σ]

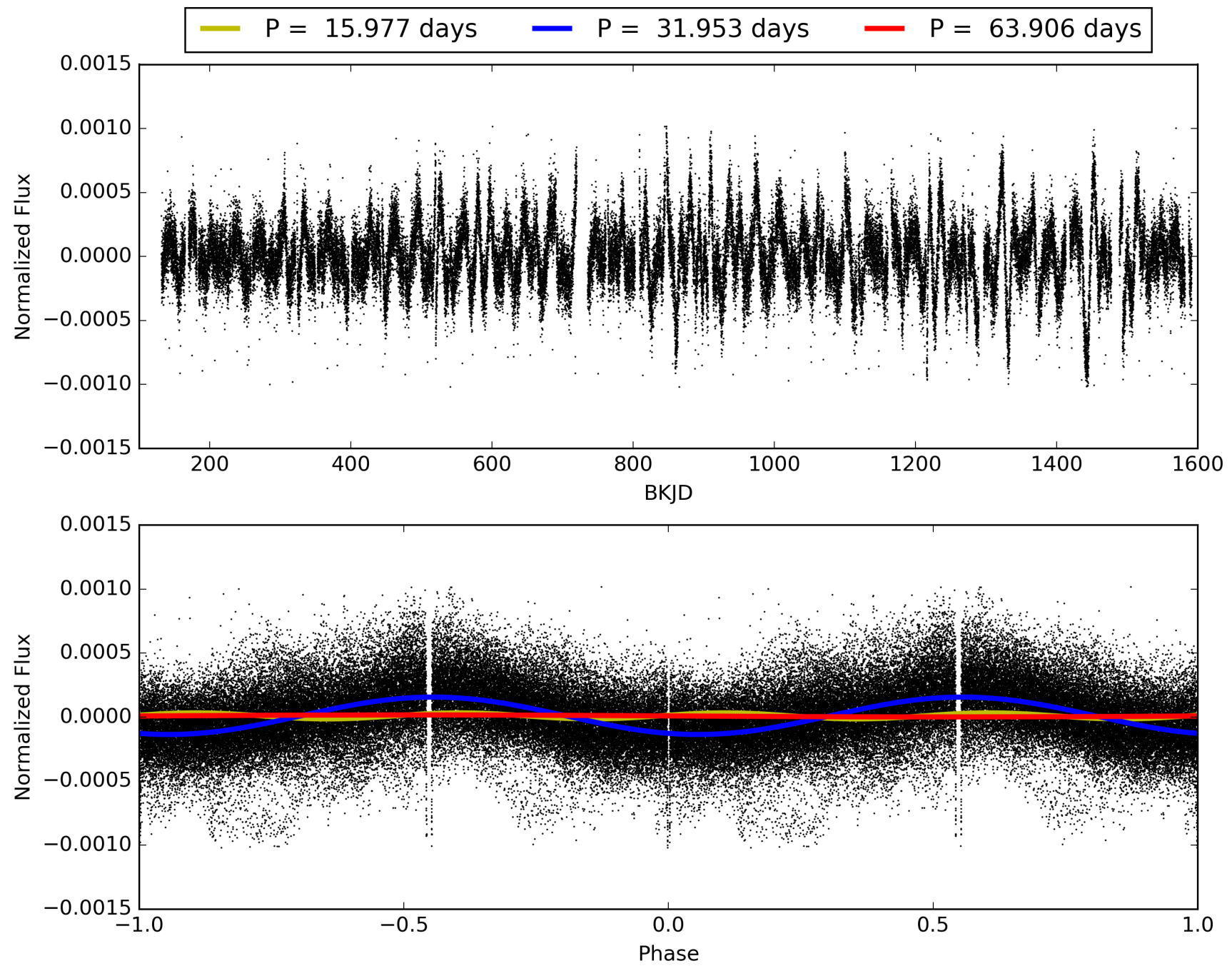
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: 0.0% [0.00 σ]
ModelChiSquare2-sig: 75.1%
ModelChiSquareGof-sig: 100.0%
Bootstrap-pfa: 0.00e+00
RollingBand-fgt: 1.00 [42/42]
GhostDiagnostic-chr: 6.909
Centroid-sig: 0.0%
Centroid-so: 0.244 arcsec [3.30 σ]
OotOffset-rm: 0.561 arcsec [7.08 σ]
KicOffset-rm: 0.371 arcsec [4.51 σ]
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]

TCE 012105785-02, PDC Light Curves

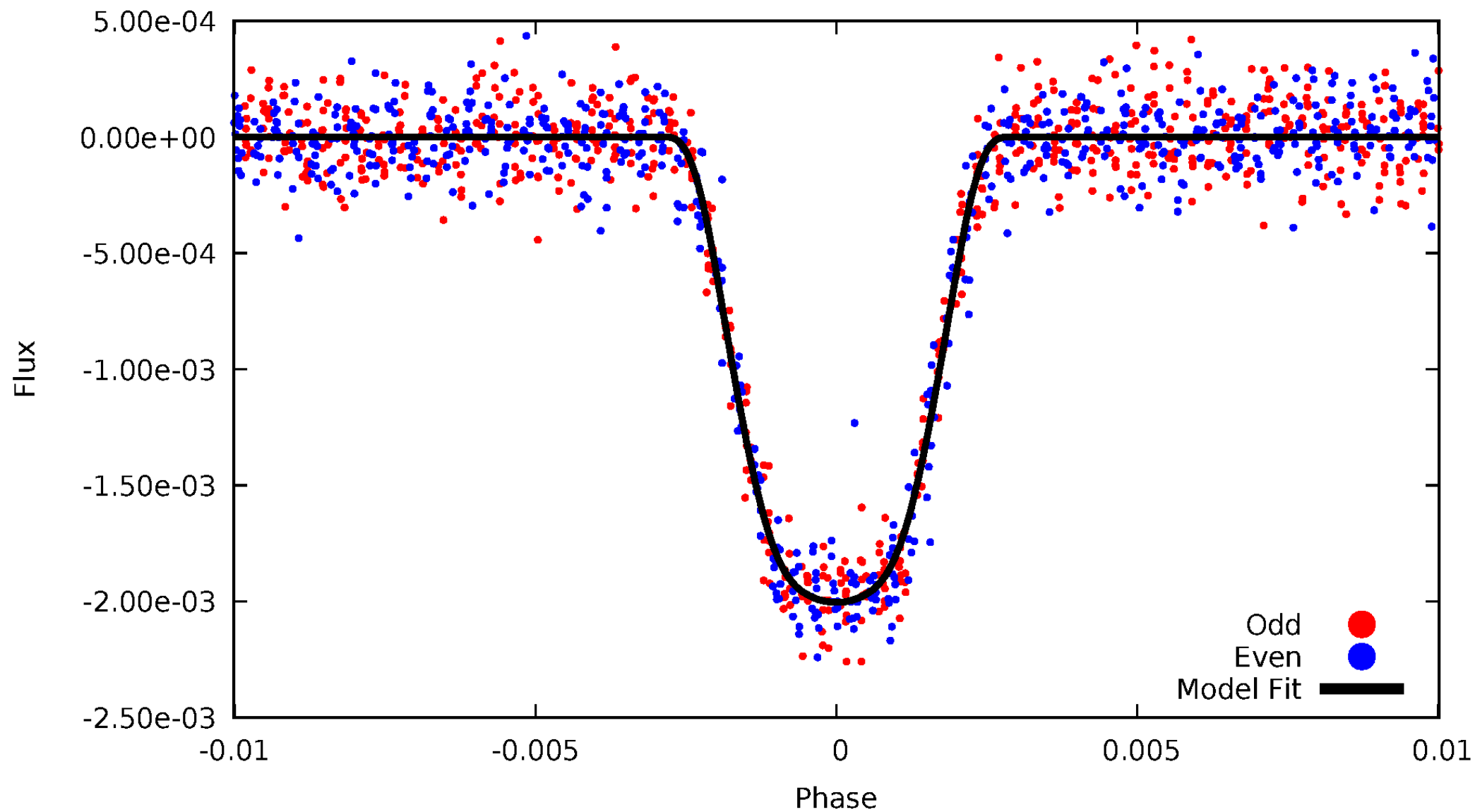


TCE 012105785-02



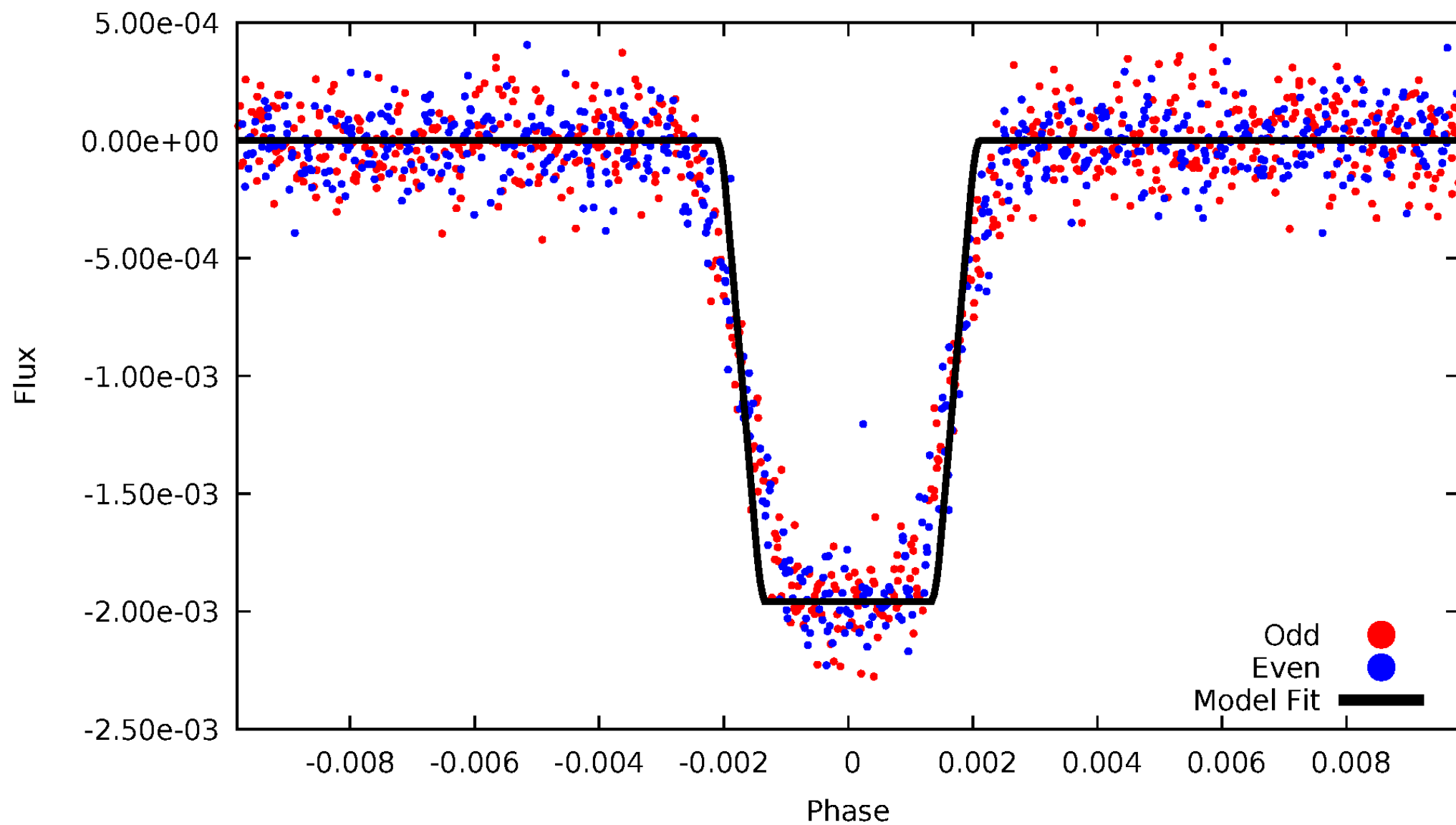
DV Odd/Even

TCE 012105785-02



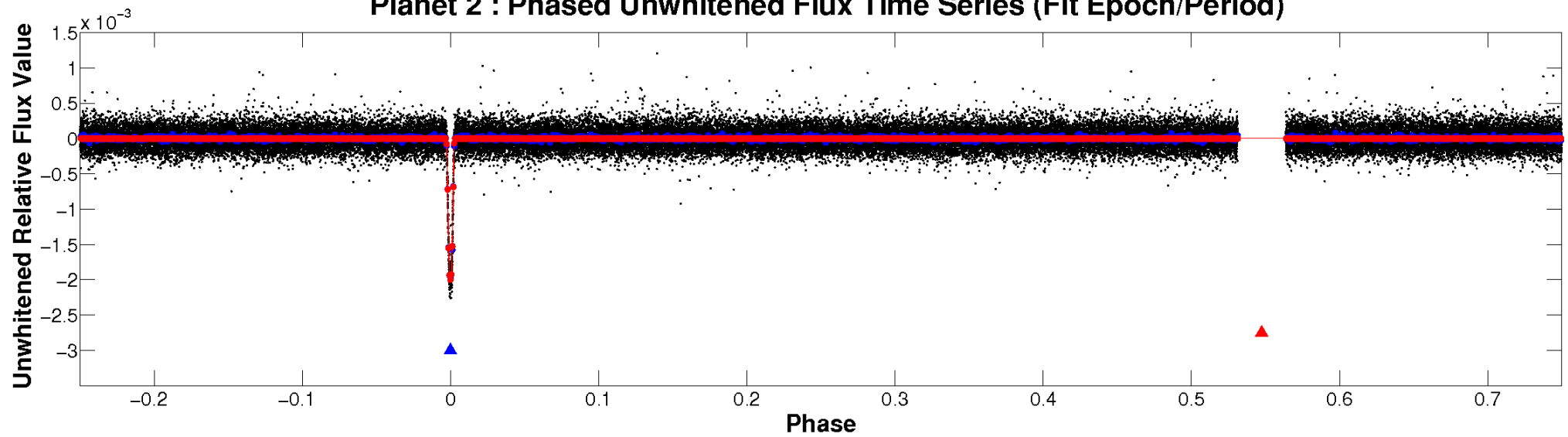
ALT Odd/Even

TCE 012105785-02

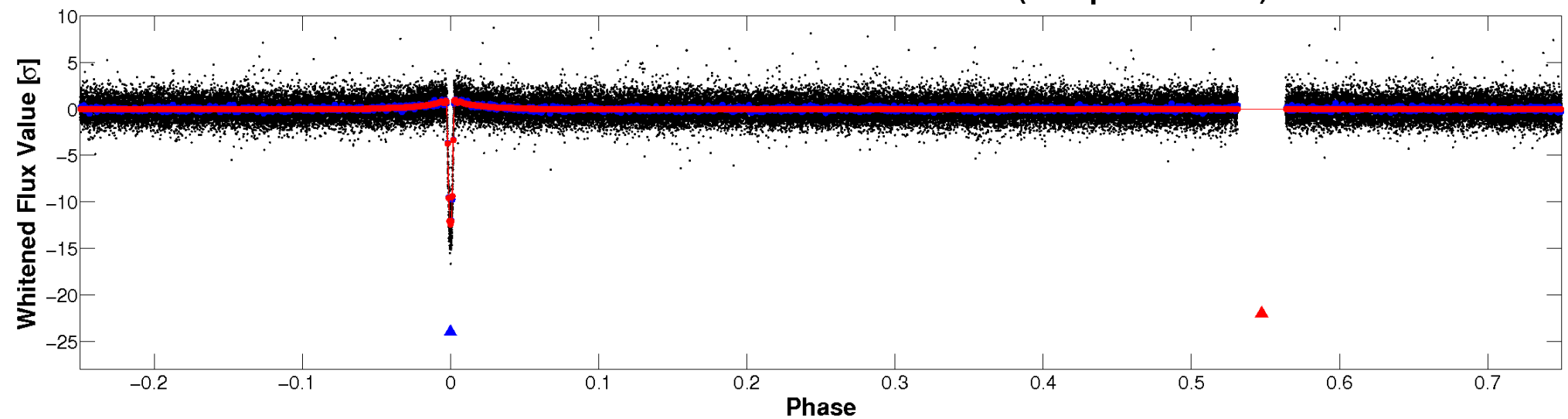


Non-Whitened Vs. Whitened Light Curve

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

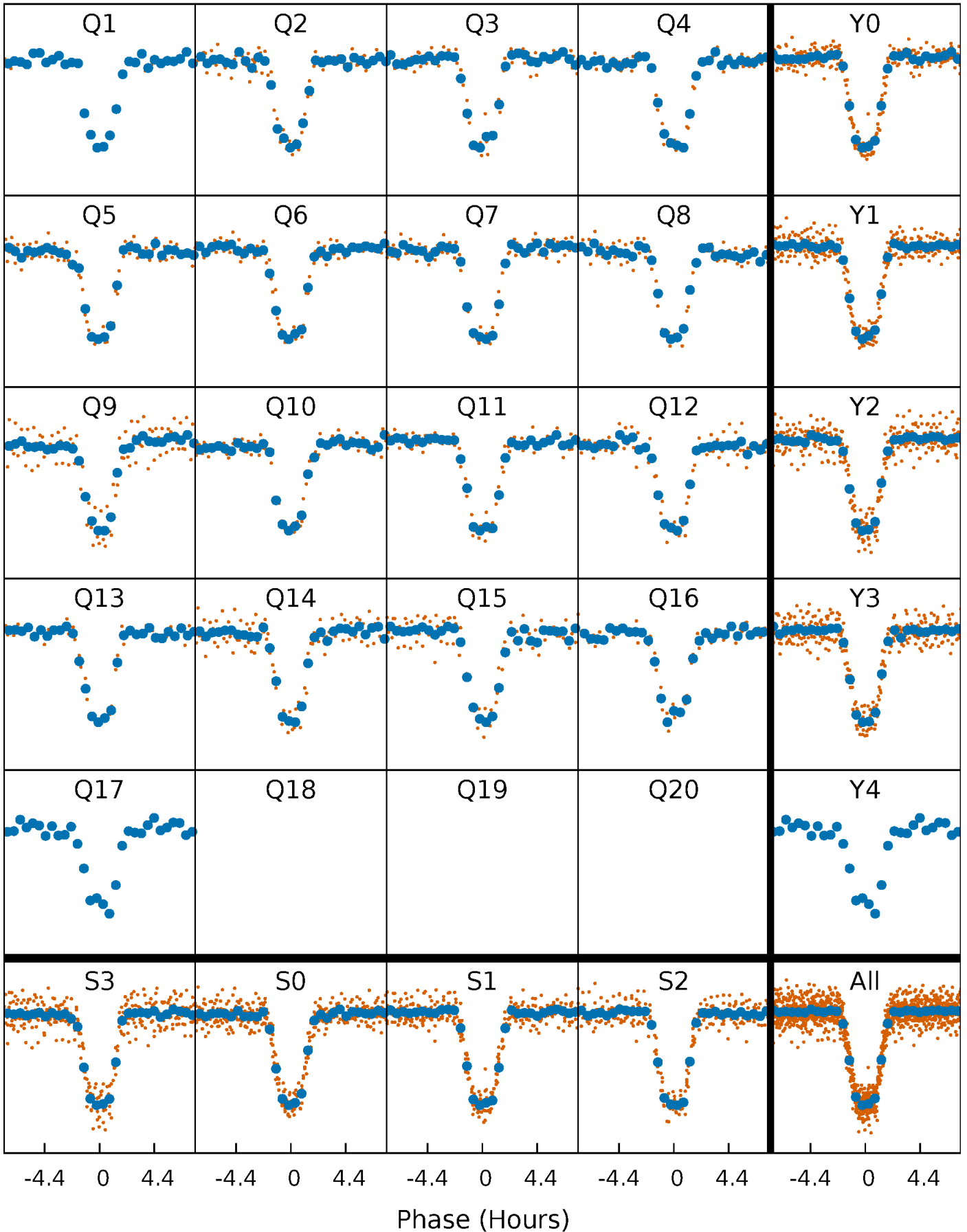


Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



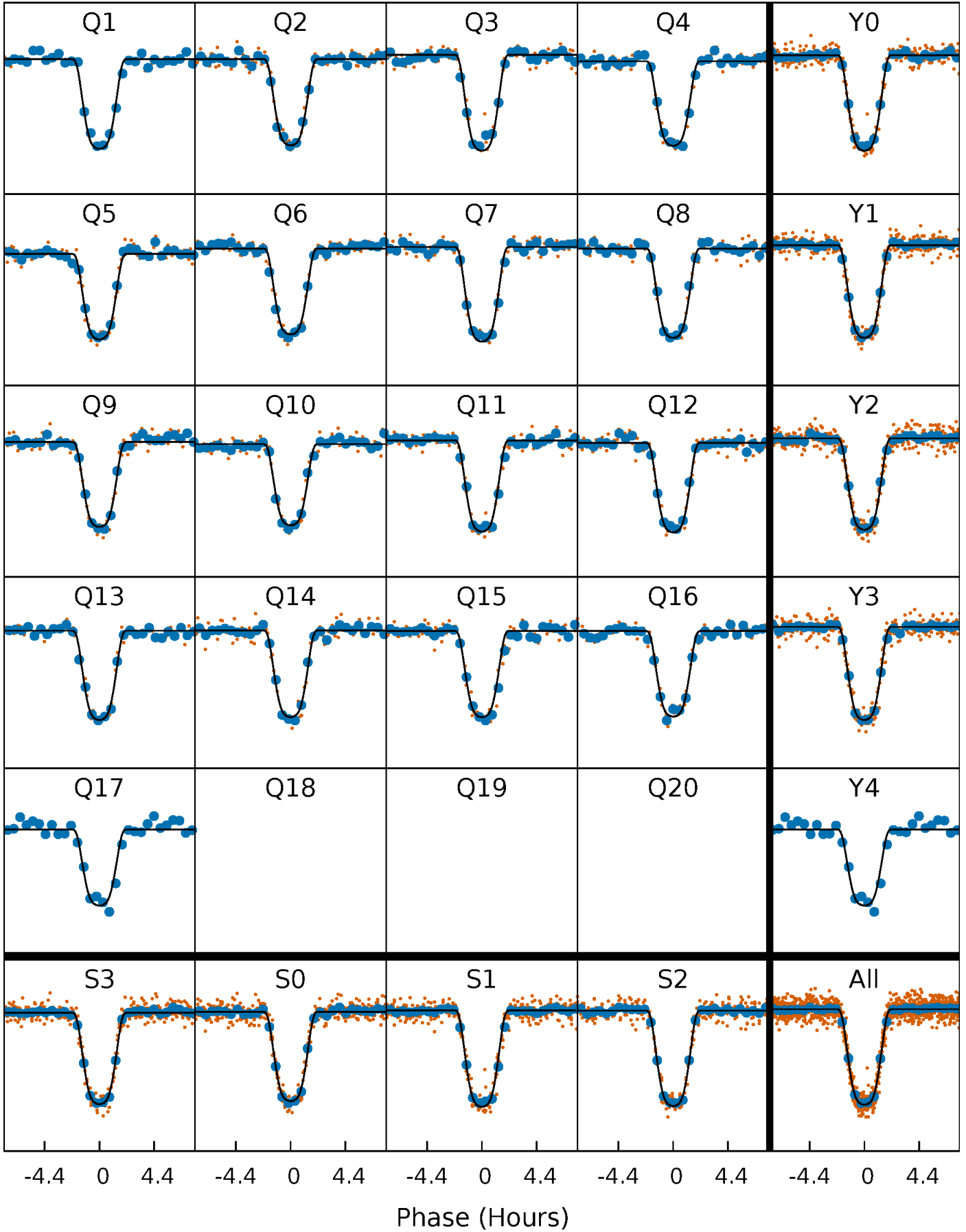
PDC Quarter-Phased Transit Curves

TCE 012105785-02 P= 31.953026 Days $T_0=157.167475$ (BKJD)



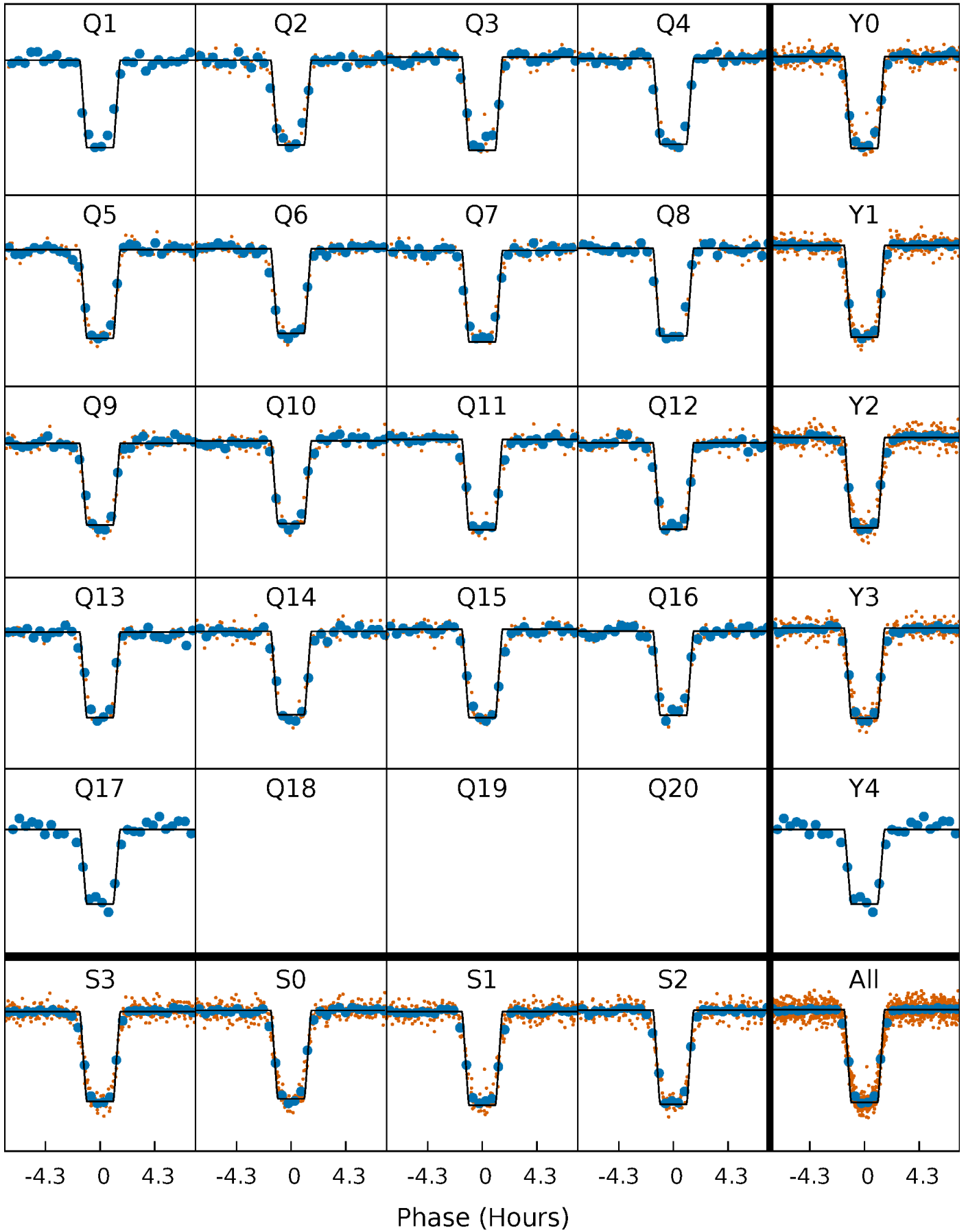
DV Quarter-Phased Transit Curves

TCE 012105785-02 P= 31.953026 Days $T_0=157.167475$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

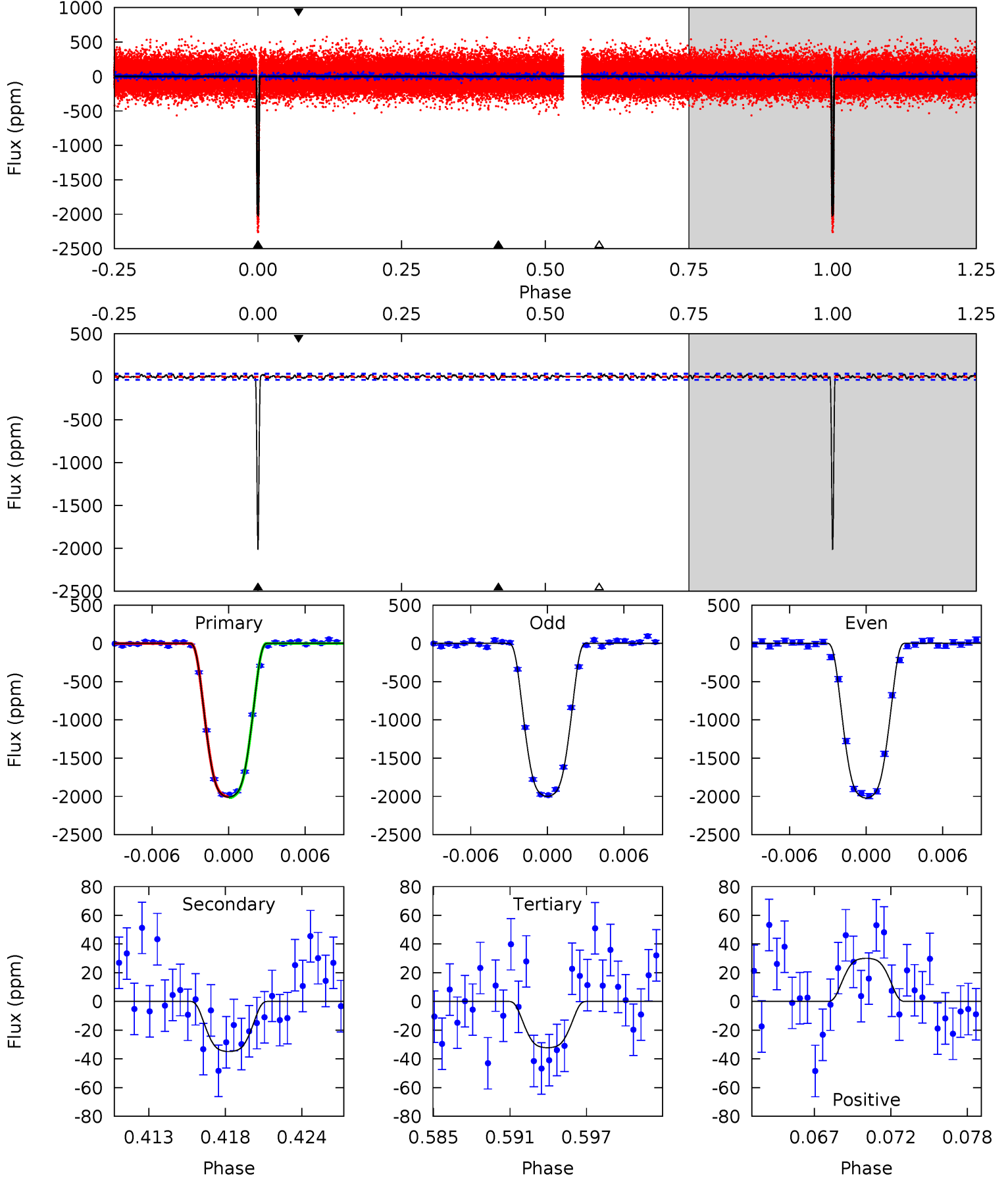
TCE 012105785-02 P= 31.952923 Days $T_0=157.169926$ (BKJD)



DV Model-Shift Uniqueness Test

012105785-02, $P = 31.953026$ Days, $E = 125.214449$ Days

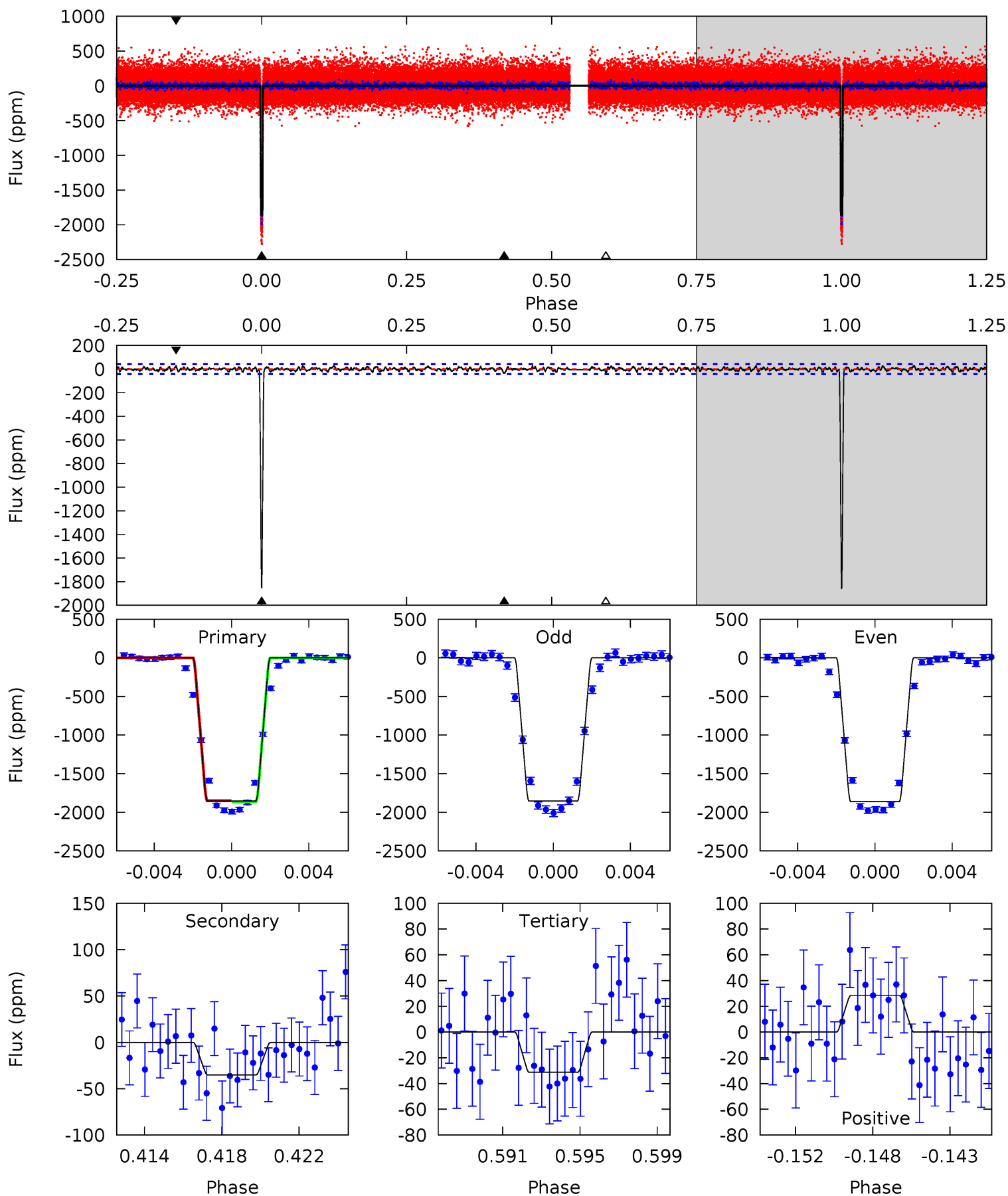
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
285.8	4.96	4.59	4.28	5.14	2.77	1.61	281.2	281.5	0.38	0.68	1.51	1.00	0.01	0.97



Alt Model-Shift Uniqueness Test

012105785-02, $P = 31.952923$ Days, $E = 125.217003$ Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
229.4	4.33	3.87	3.51	5.19	2.86	1.22	225.5	225.8	0.46	0.82	0.42	1.01	0.02	0.76



Stellar Parameters For KIC 012105785

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	5524^{+165}_{-165}	$3.693^{+0.287}_{-0.123}$	$-0.120^{+0.300}_{-0.300}$	$2.734^{+0.540}_{-1.003}$	$1.346^{+0.157}_{-0.365}$	$0.093^{+0.189}_{-0.035}$
	+3%/-3%	+8%/-3%	+250%/-250%	+20%/-37%	+12%/-27%	+204%/-38%
Source	PHO1	FLK73	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 012105785-02 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	-35 ± 7	$15.05^{+1.90}_{-2.81}$	1192^{+80}_{-109}	2634^{+79}_{-88}	$4.050^{+1.973}_{-1.115}$
Alt.	-35 ± 8	$12.92^{+1.65}_{-2.75}$	1188^{+84}_{-107}	2748^{+90}_{-113}	$5.562^{+2.716}_{-1.730}$

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 $A_{obs} \gg 1.0$

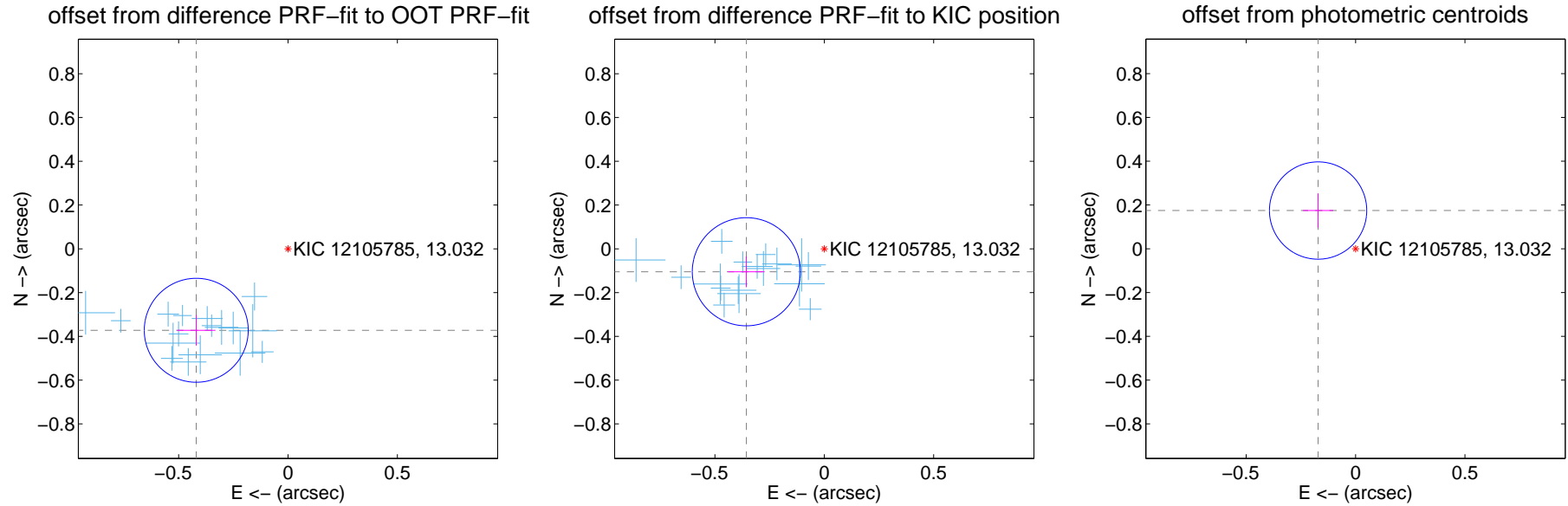
DV Centroid Data

Supplemental centroid analysis for 012105785-02. Kepler magnitude: 13.03. Transit SNR 164.87

There are 17 quarters with good PRF difference image offsets

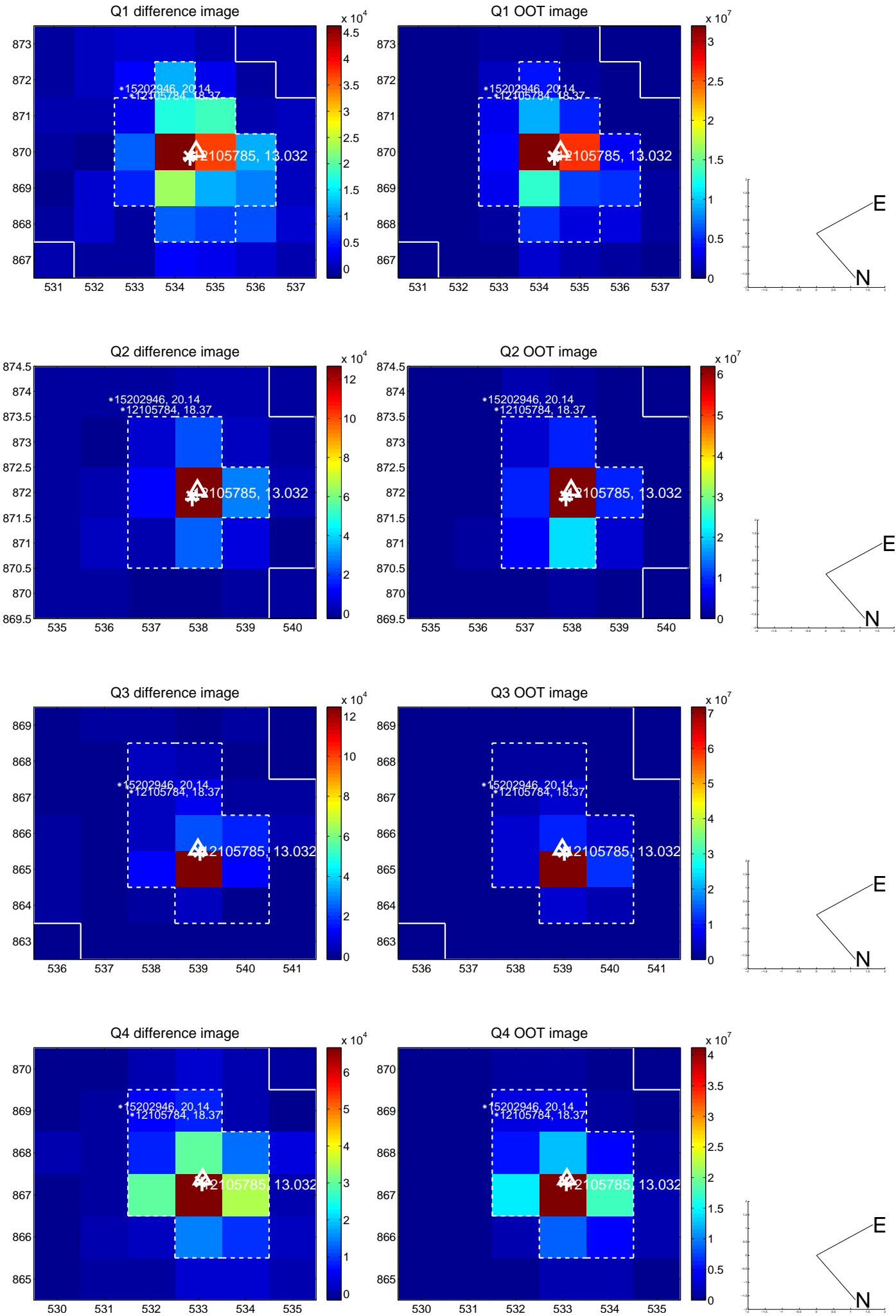
The direct PRF centroid is offset from the target star catalog position by about 0.33 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.561 ± 0.079	7.08	0.419 ± 0.088	-0.372 ± 0.070
PRF-fit source offset from KIC position	0.371 ± 0.082	4.51	0.356 ± 0.084	-0.105 ± 0.070
photometric centroid source offset	0.24 ± 0.07	3.30	0.17 ± 0.07	0.17 ± 0.08

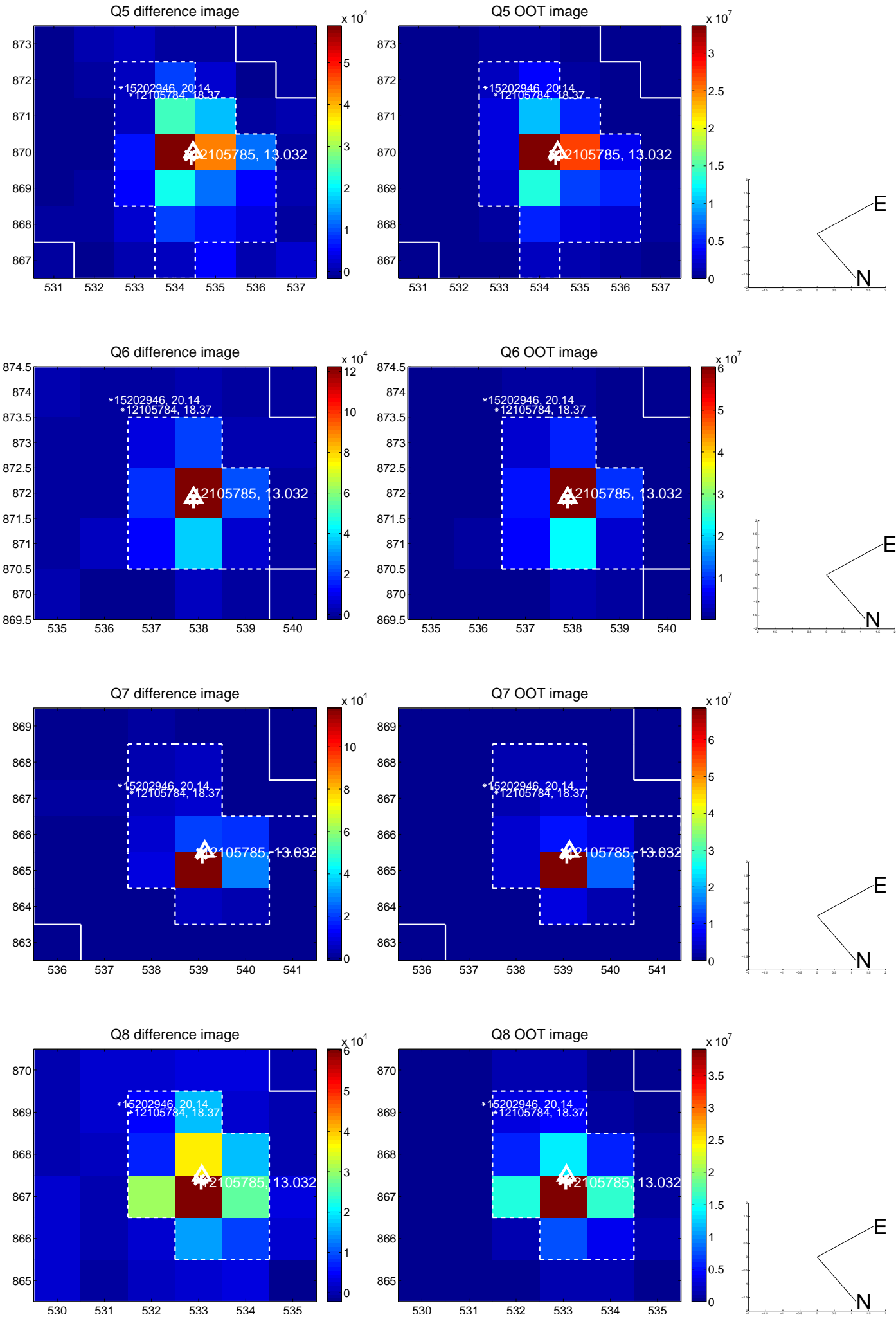


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses:** good quarterly centroid offsets; **Vermillion crosses:** bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

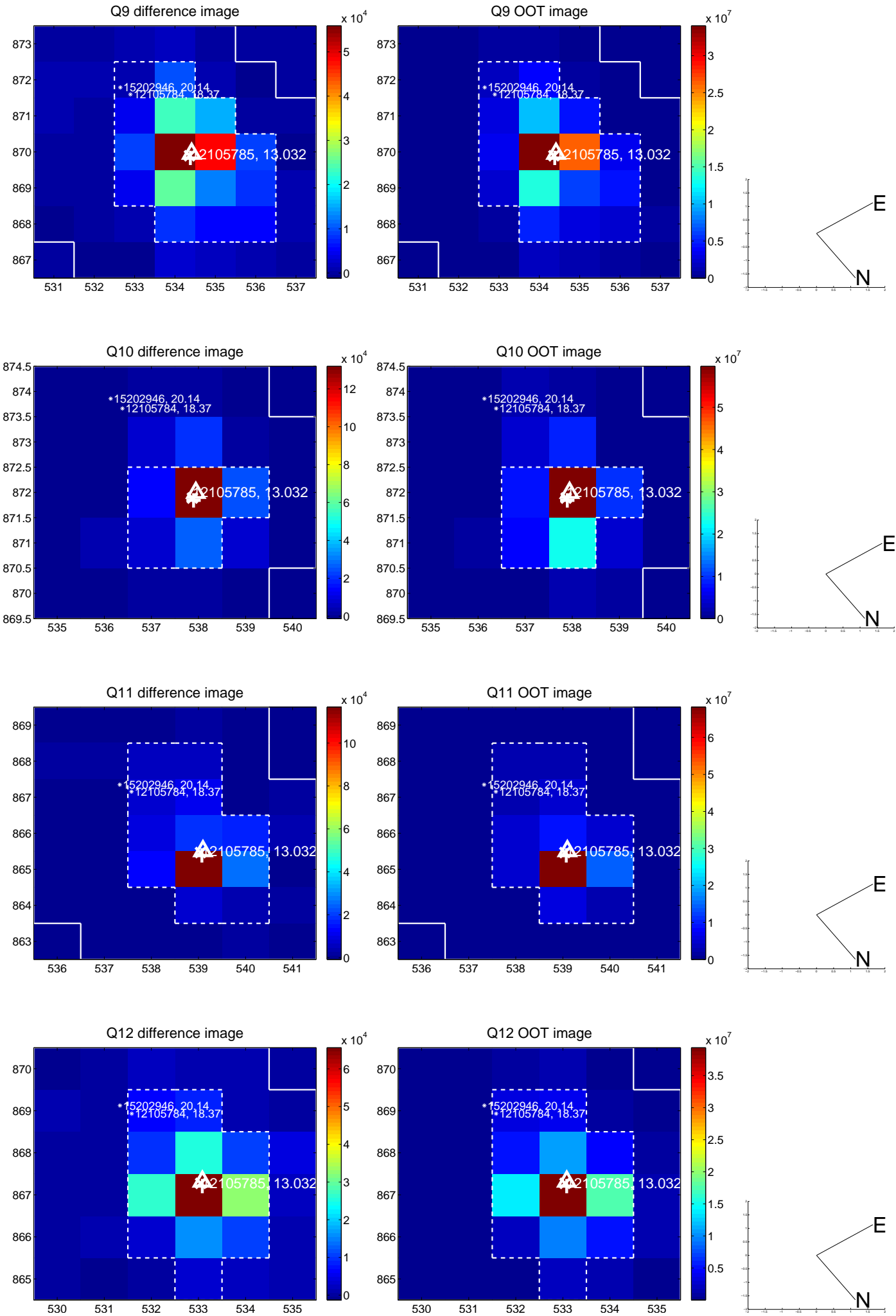
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



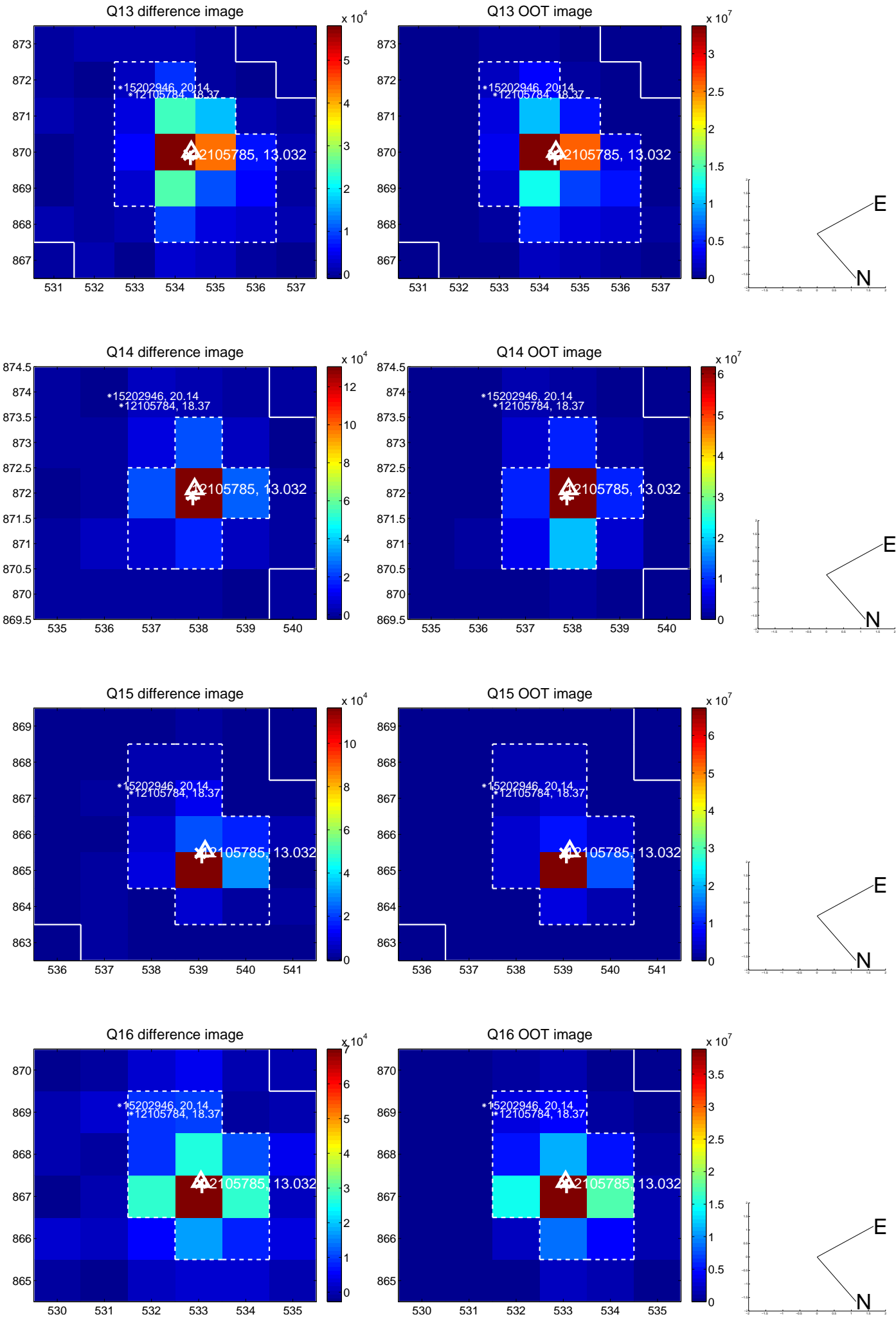
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



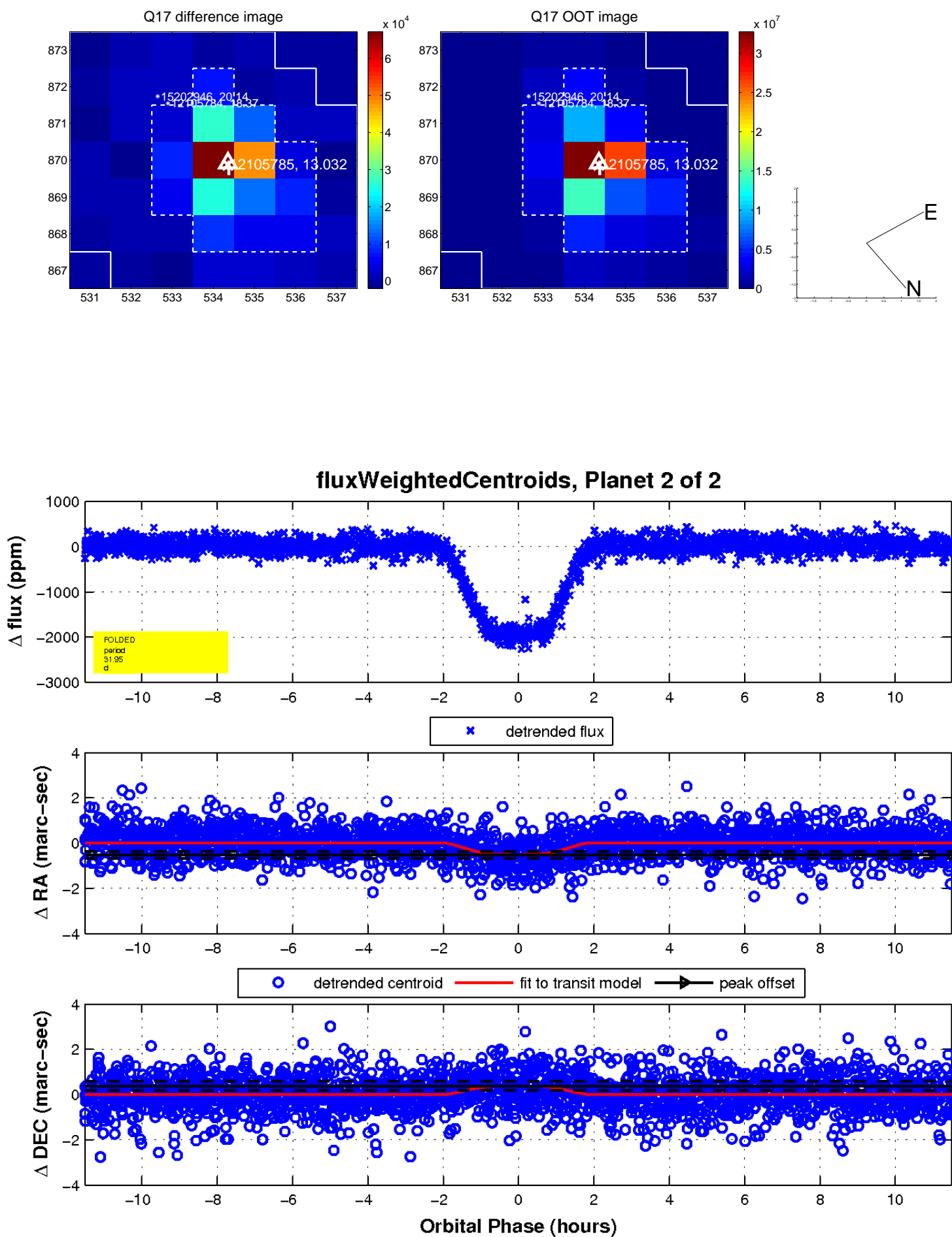
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

