

KIC 002998124

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})
002998124-01	OBS	6302.01	28.597881	152.984301	86948.8	7.700	6793.9	4153.5	2.47	6590	74.69	250.57
002998124-02	OBS	No	28.597892	137.892531	3002.8	7.850	233.2	225.3	2.47	6590	15.54	250.57

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
002998124-01	OBS	FP	0.00	0	1	0	0	MOD_SEC_DV—MOD_SEC_ALT—MOD_ODDEVEN_ALT—HAS_SEC_TCE
002998124-02	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.

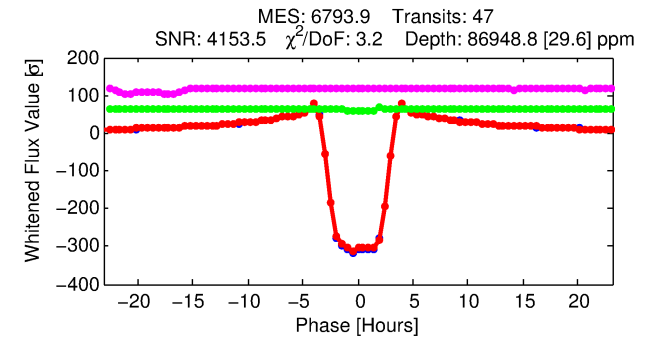
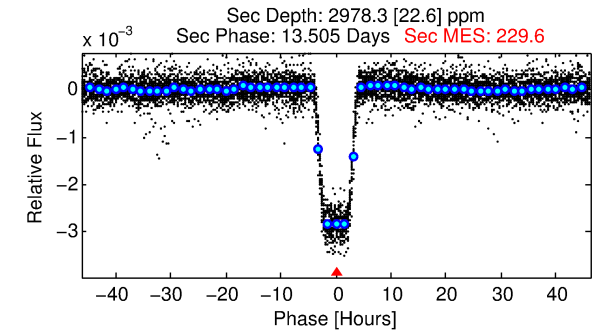
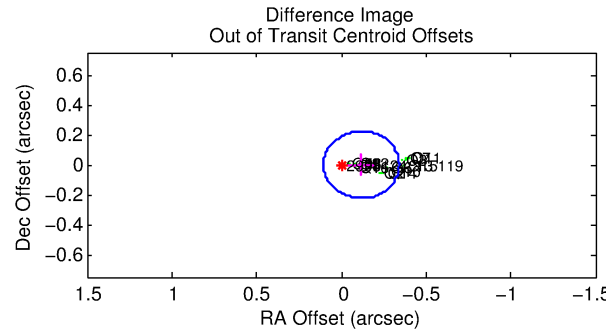
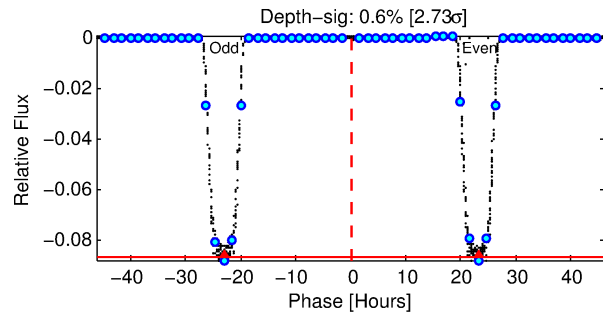
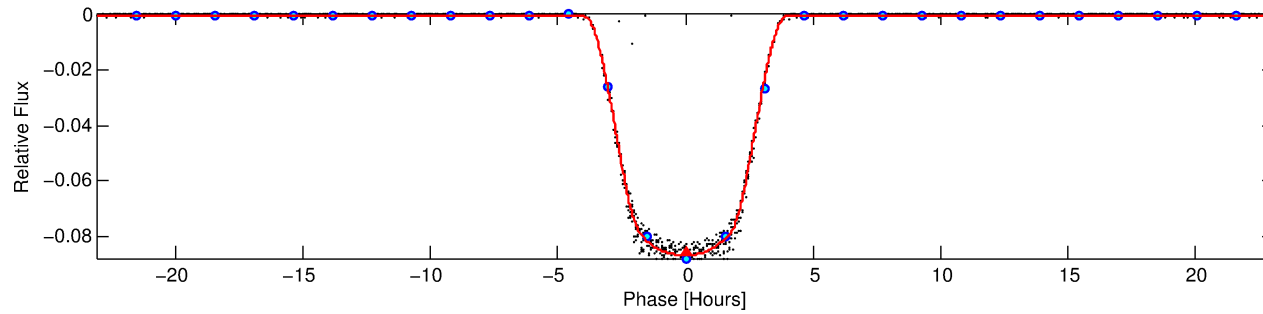
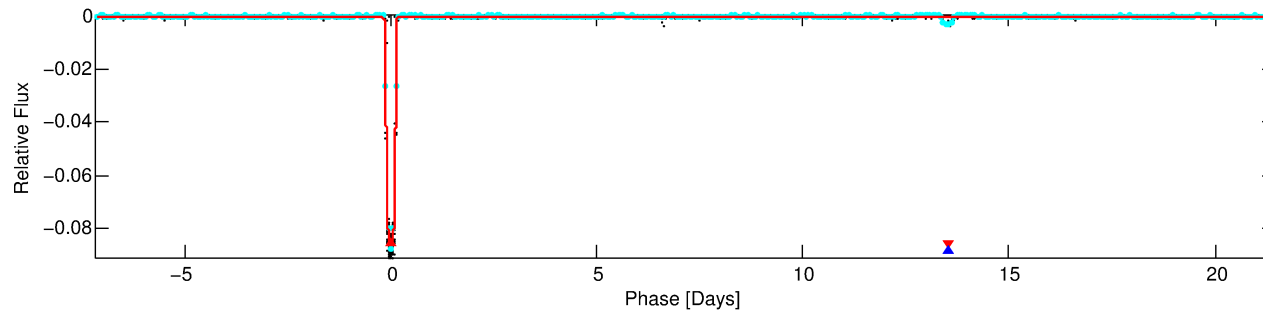
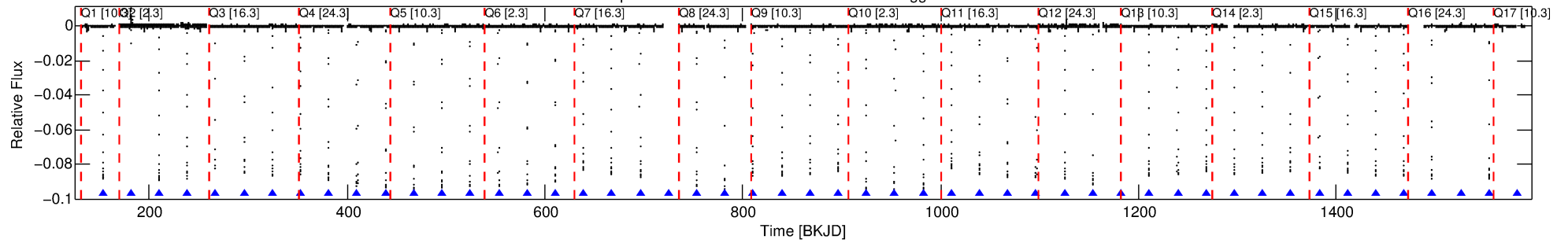
Ephemeris Match Information For 002998124-01

No Significant Match Found

DV One-Page Summary

KIC: 2998124 Candidate: 1 of 2 Period: 28.598 d
KOI: K06302.01 Corr: 1.000

Kp: 13.12 R*: 2.47 Rs Teff: 6590.0 K Logg: 3.79 Fe/H: -0.340



DV Fit Results:

Period = 28.59788 [0.00000] d
Epoch = 152.9843 [0.0000] BKJD
Rp/R* = 0.2767 [0.0001]
a/R* = 34.82 [0.02]
b = 0.35 [0.00]
Seff = 250.57 [136.85]
Teq = 1015 [139] K
Rp = 74.69 [26.11] Re
a = 0.2032 [0.0679] AU
Ag = 12.12 [6.46] [1.72σ]
Teffp = 2927 [89] K [11.63σ]

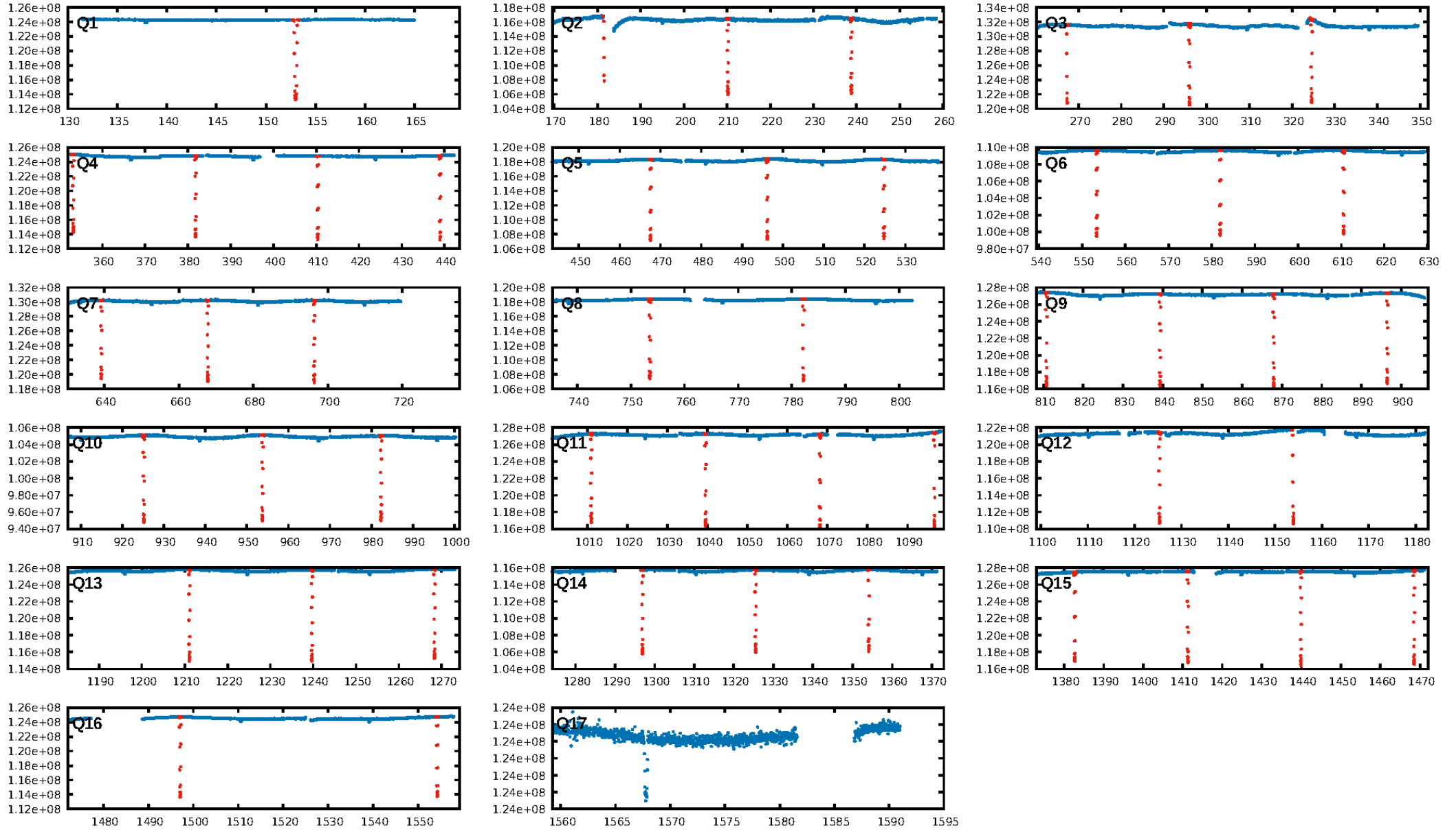
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: 0.0% [0.00σ]
ModelChiSquare2-sig: 0.0%
ModelChiSquareGof-sig: 0.0%
Bootstrap-pfa: 0.00e+00
RollingBand-fgt: 1.00 [46/46]
GhostDiagnostic-chr: 5.581
Centroid-sig: 0.0%
Centroid-so: 0.518 arcsec [400.94σ]
OotOffset-rm: 0.118 arcsec [1.58σ]
KicOffset-rm: 0.050 arcsec [0.72σ]
OotOffset-st: 4/4/4/4 [16]
KicOffset-st: 4/4/4/4 [16]
DiffImageQuality-fgm: 1.00 [16/16]
DiffImageOverlap-fno: 1.00 [16/16]

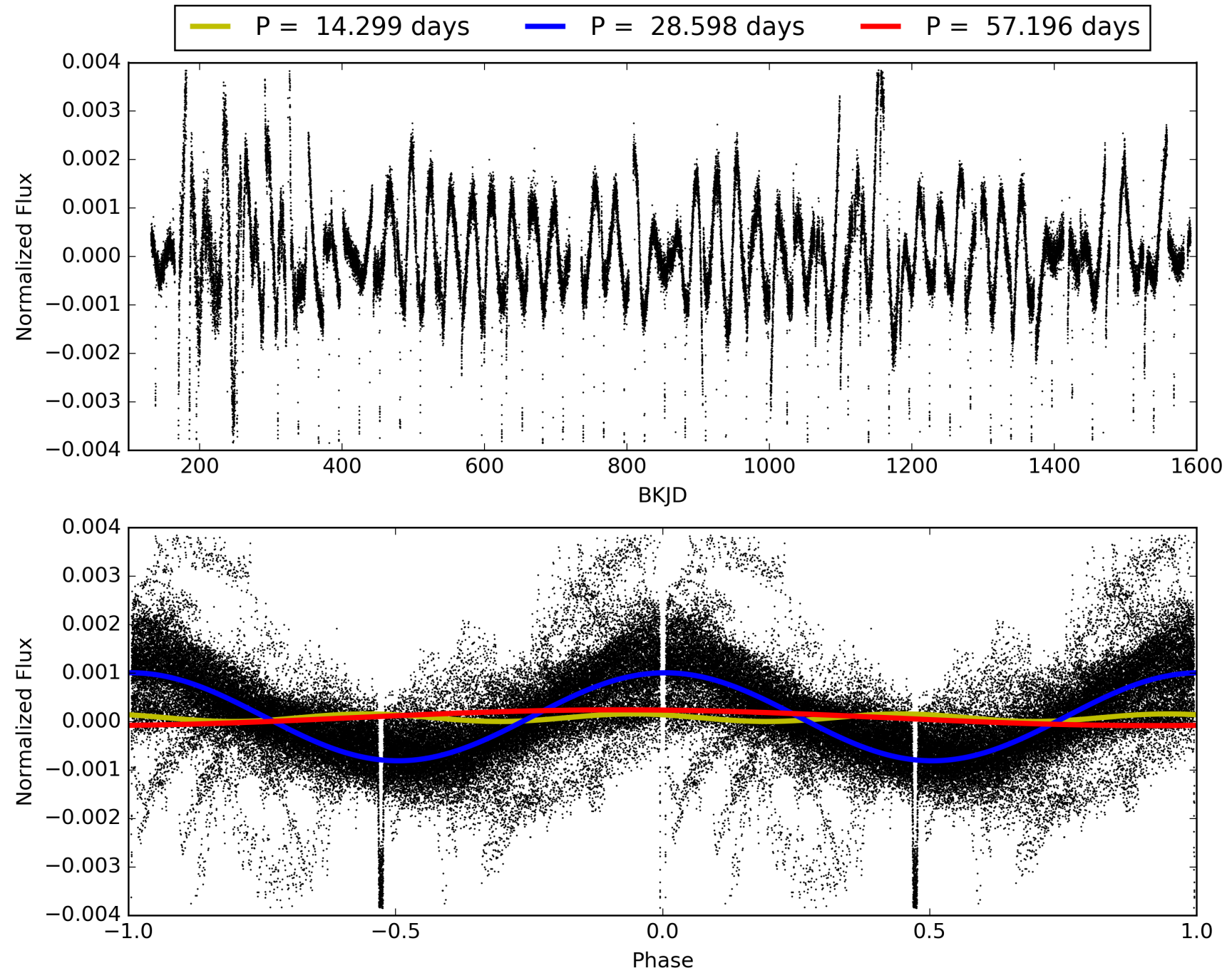
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 07:09:17 Z

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

TCE 002998124-01, PDC Light Curves

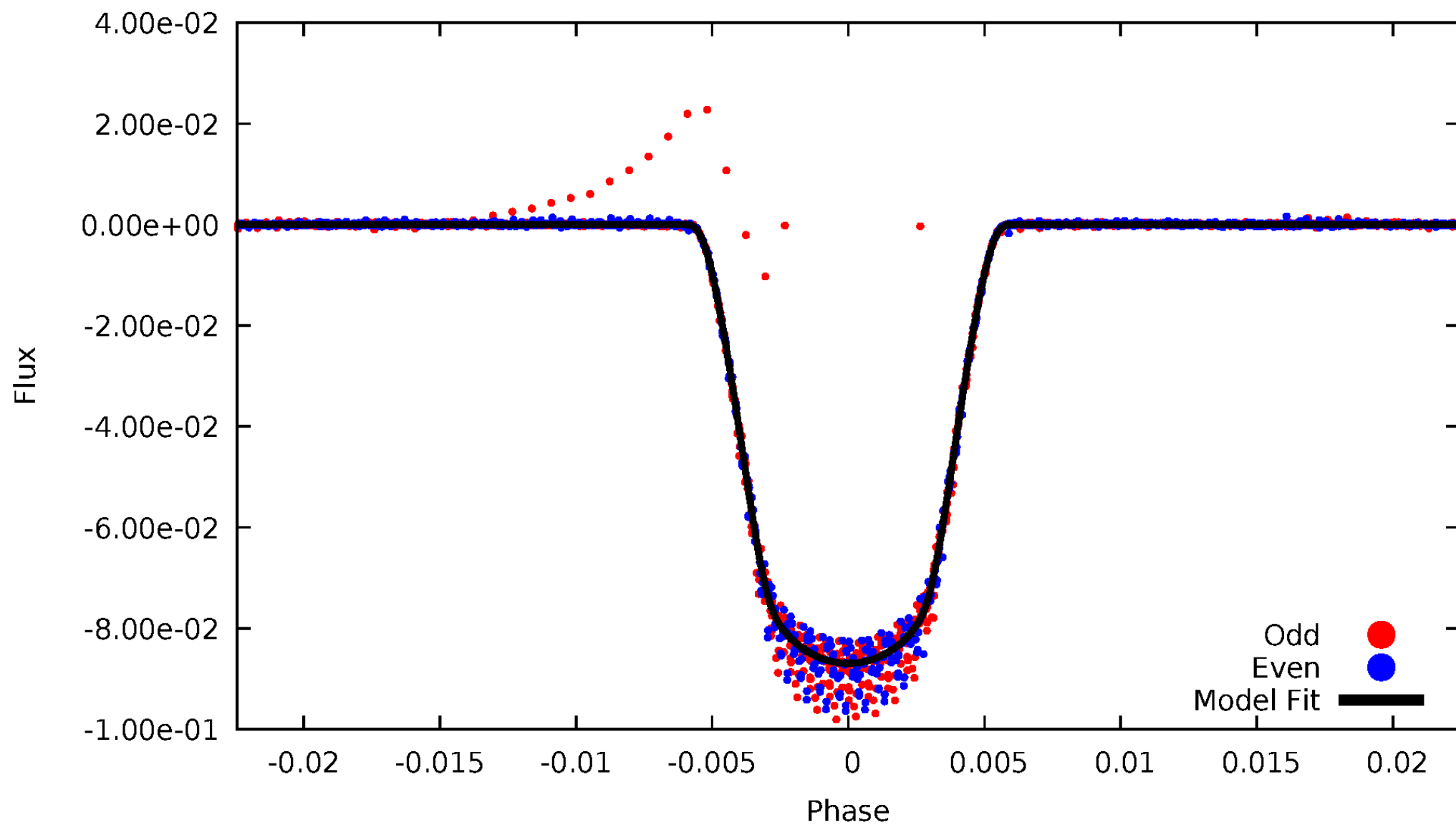


TCE 002998124-01



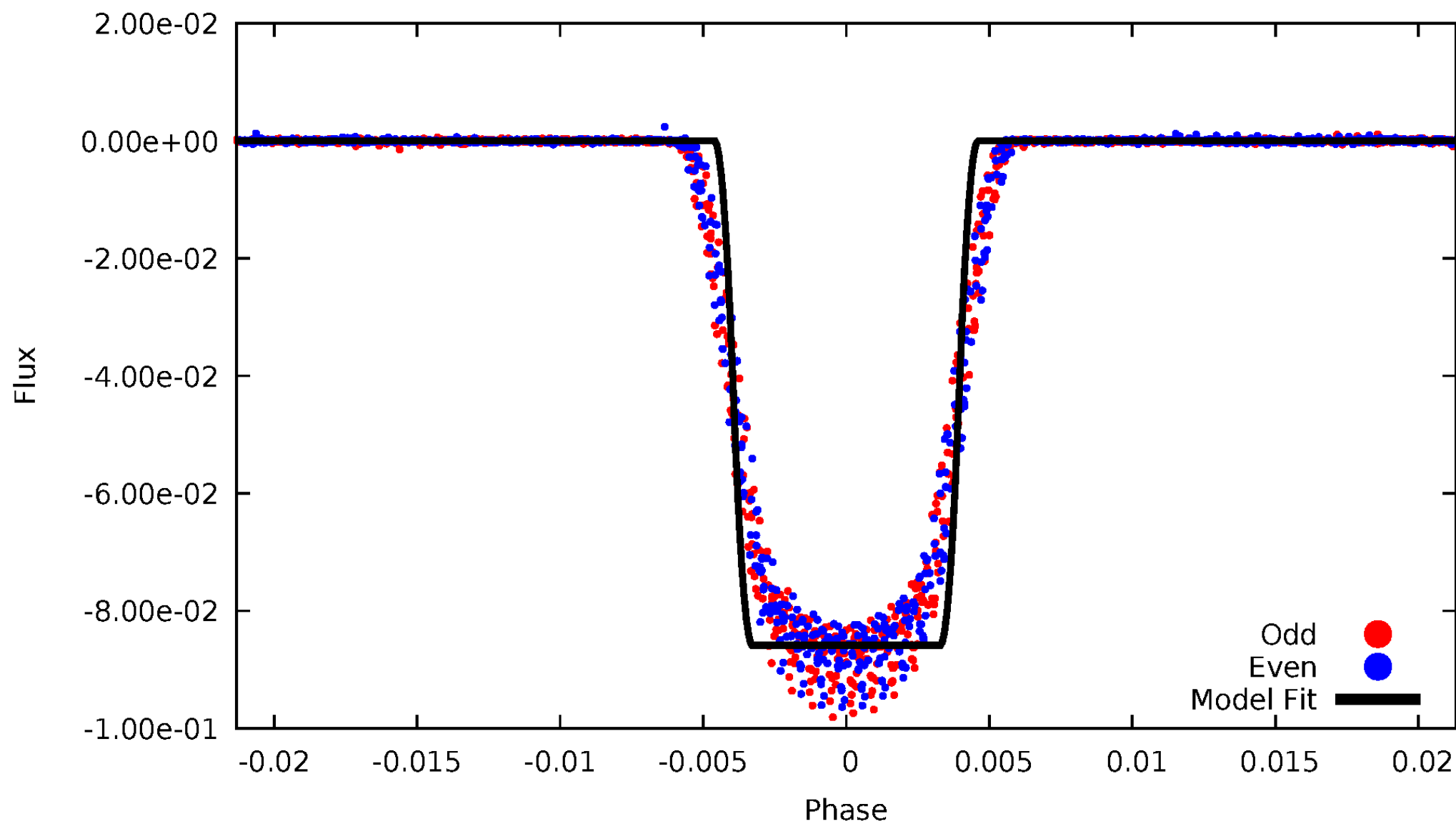
DV Odd/Even

TCE 002998124-01



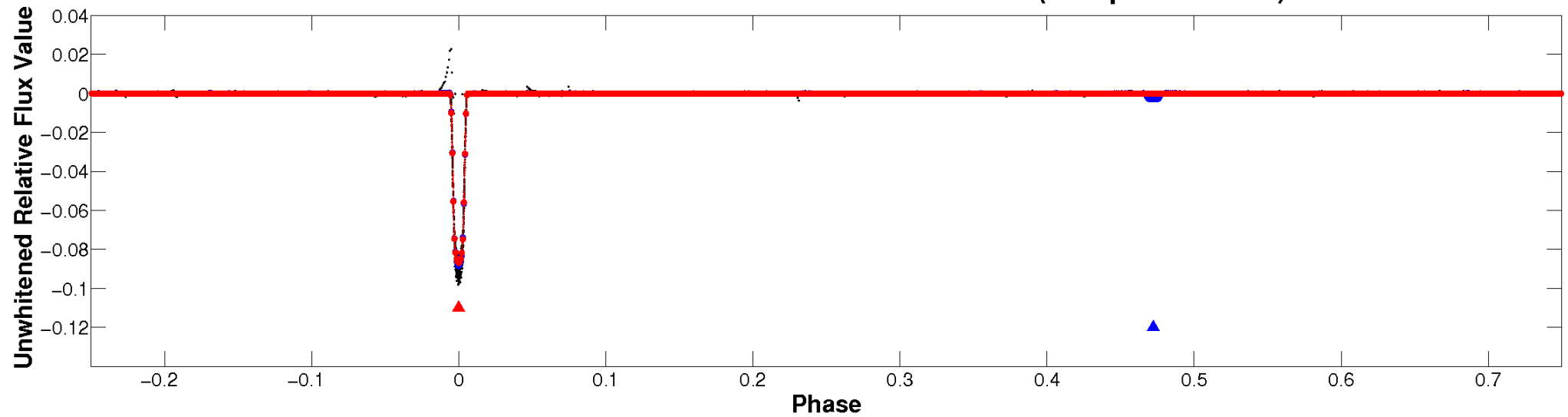
ALT Odd/Even

TCE 002998124-01

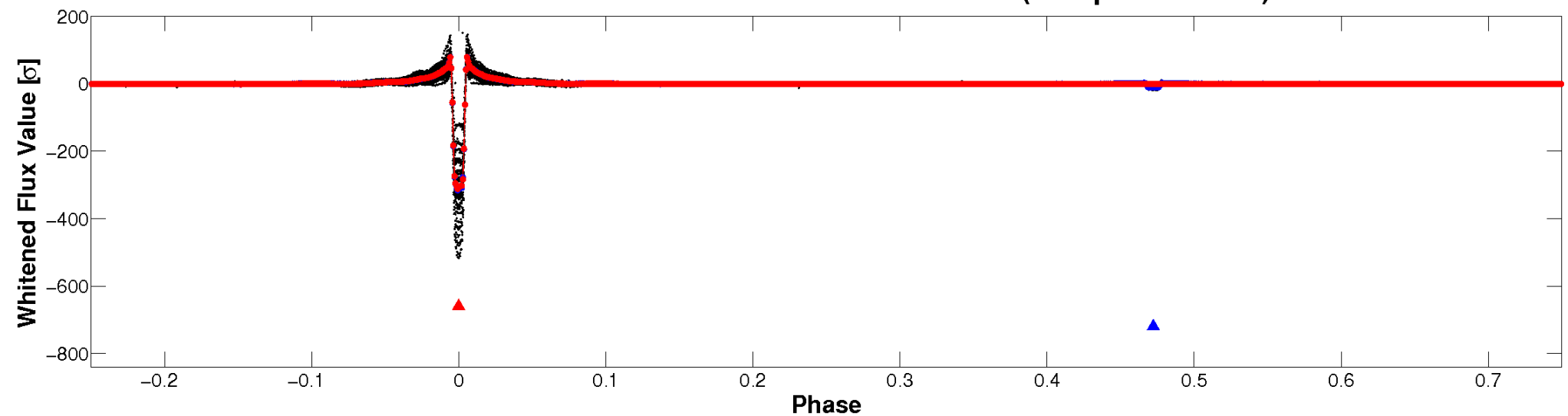


Non-Whitened Vs. Whitened Light Curve

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

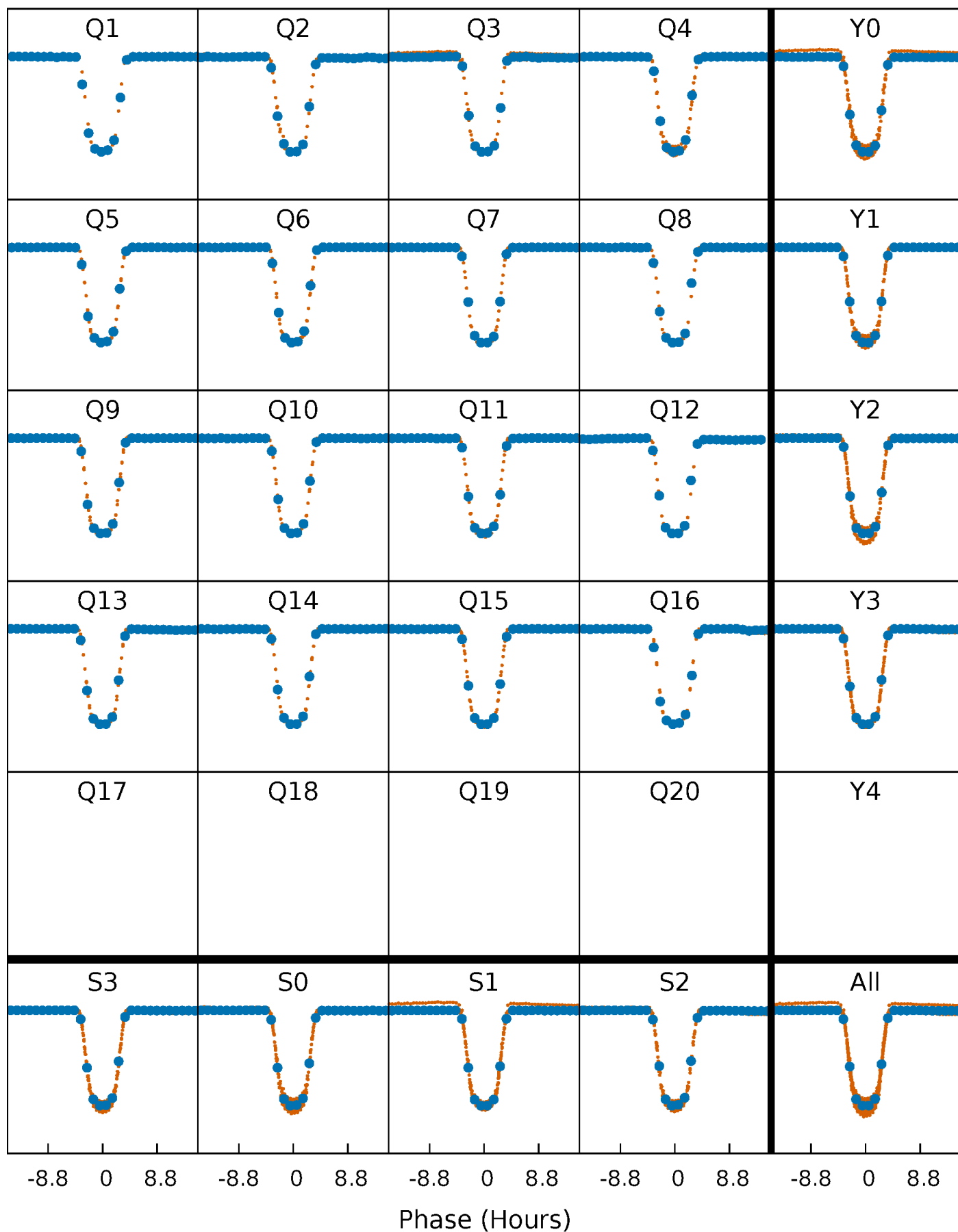


Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)



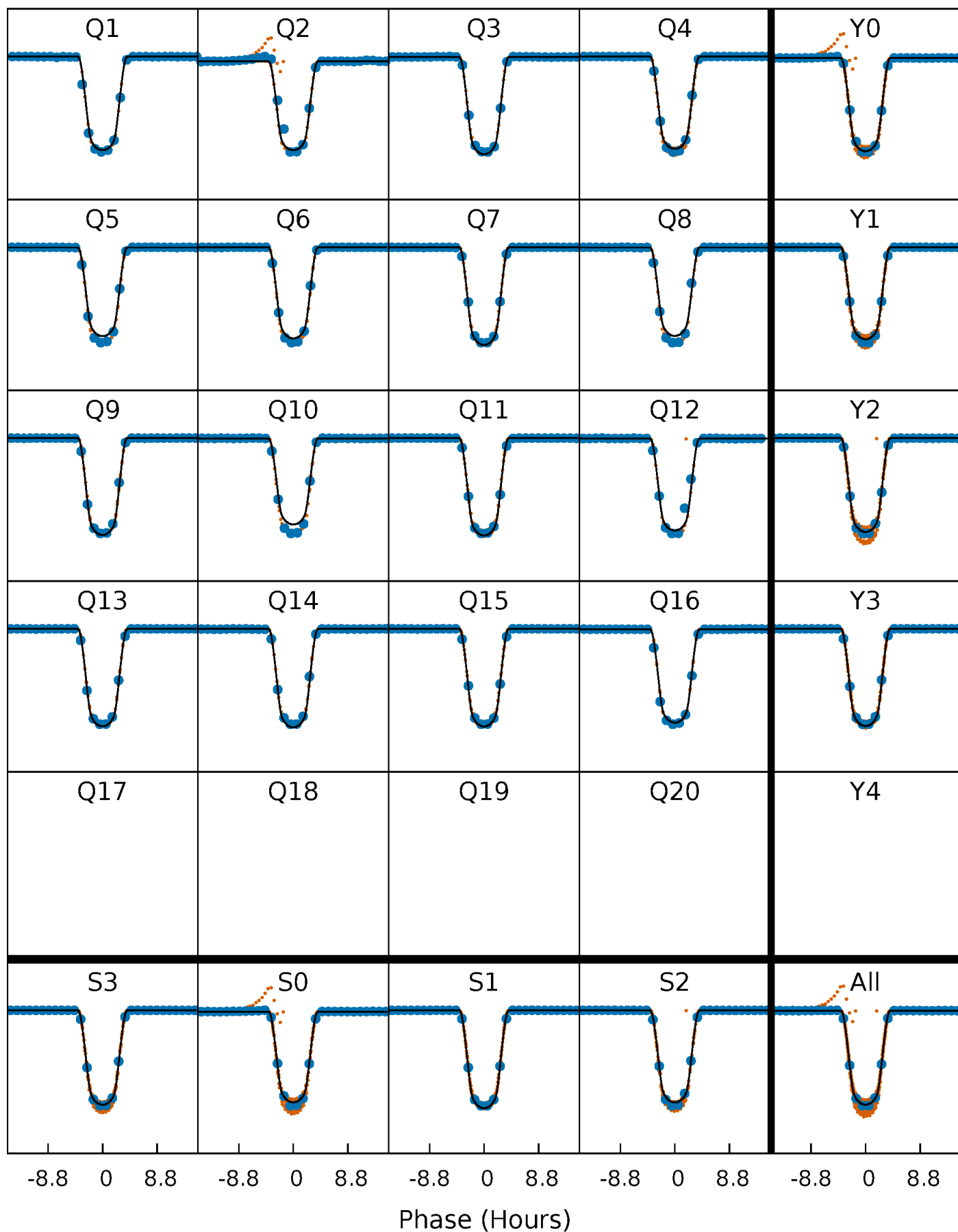
PDC Quarter-Phased Transit Curves

TCE 002998124-01 P= 28.597881 Days $T_0=152.984301$ (BKJD)



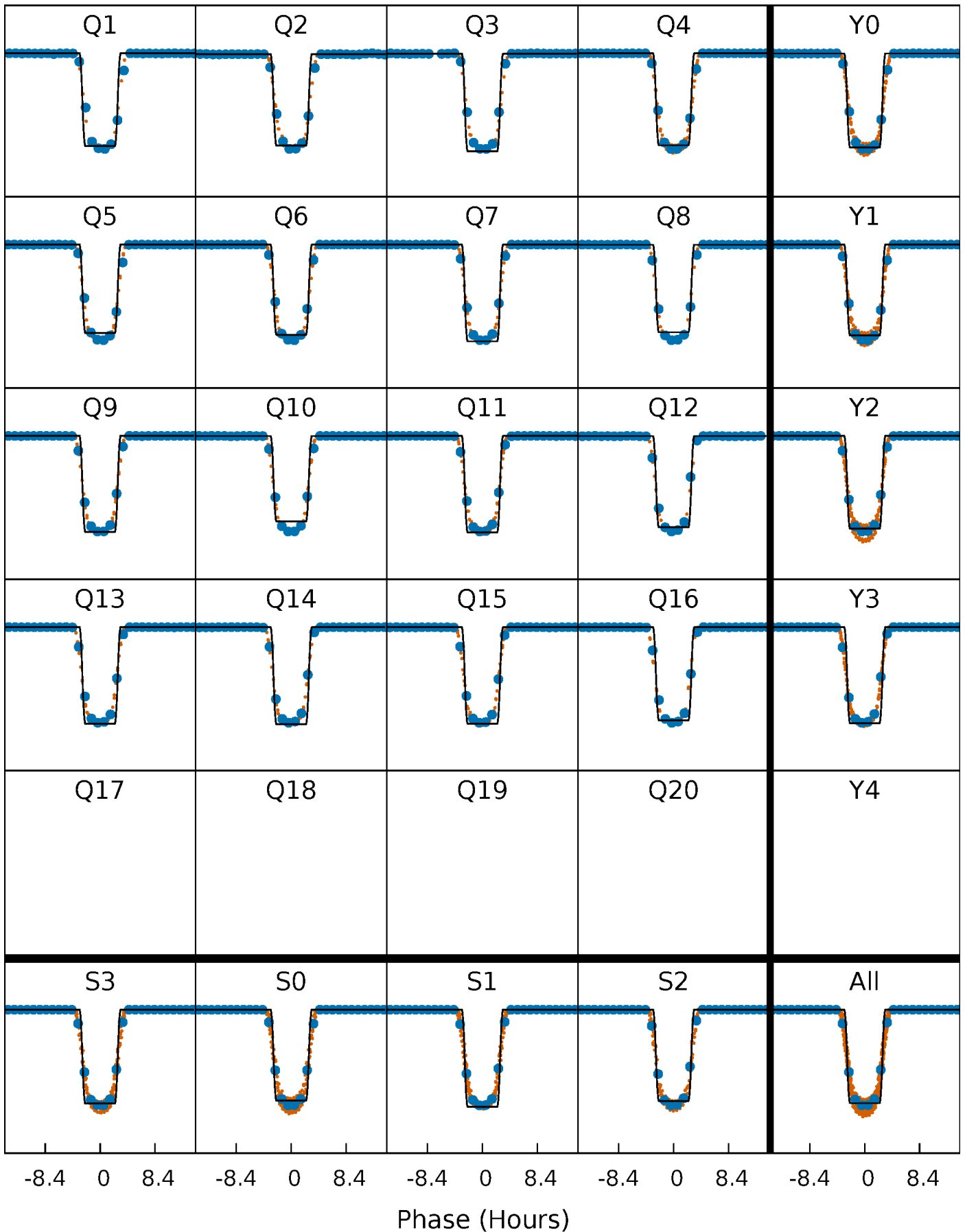
DV Quarter-Phased Transit Curves

TCE 002998124-01 P= 28.597881 Days $T_0=152.984301$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

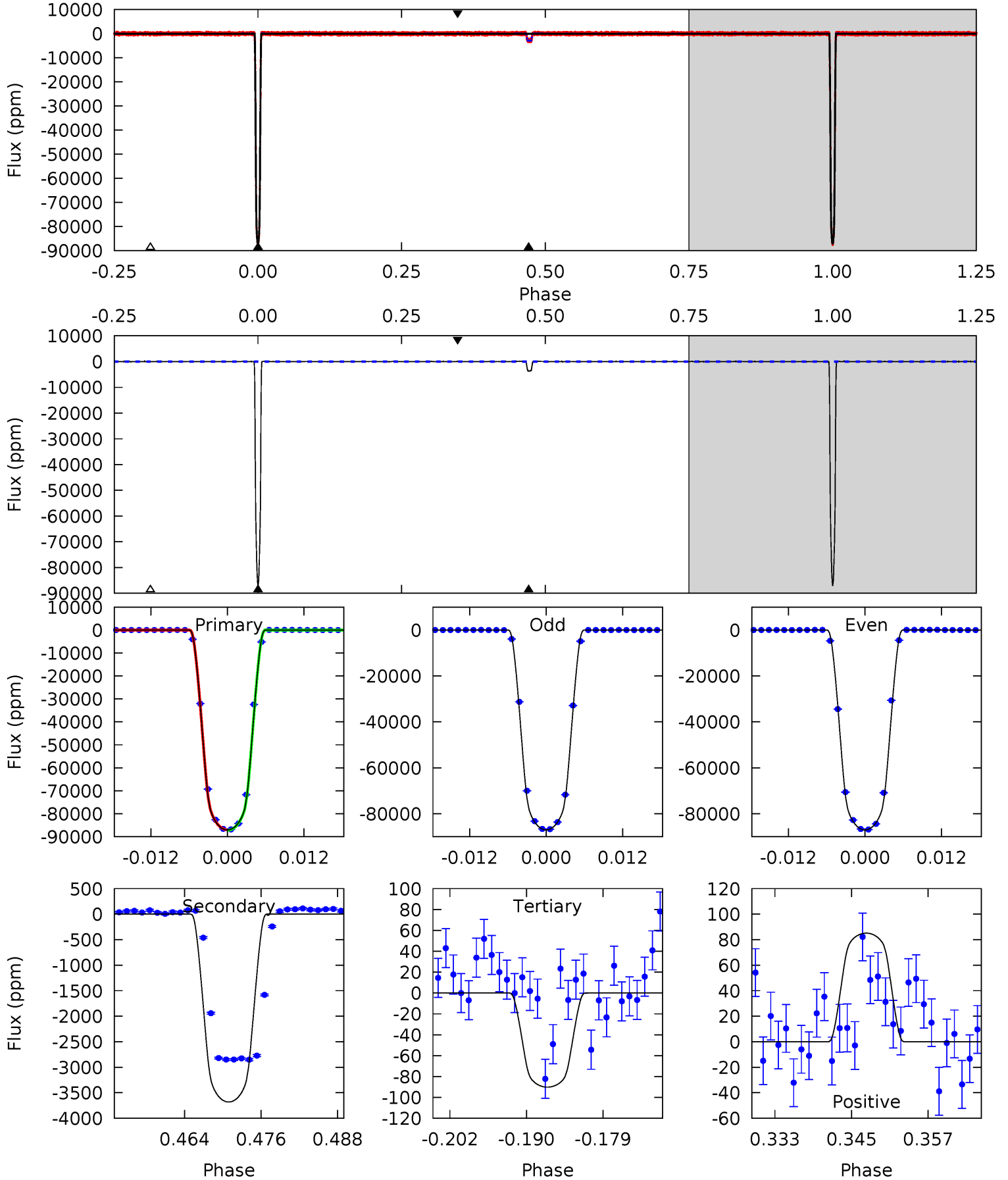
TCE 002998124-01 P= 28.598237 Days $T_0=152.975613$ (BKJD)



DV Model-Shift Uniqueness Test

002998124-01, P = 28.597881 Days, E = 124.386420 Days

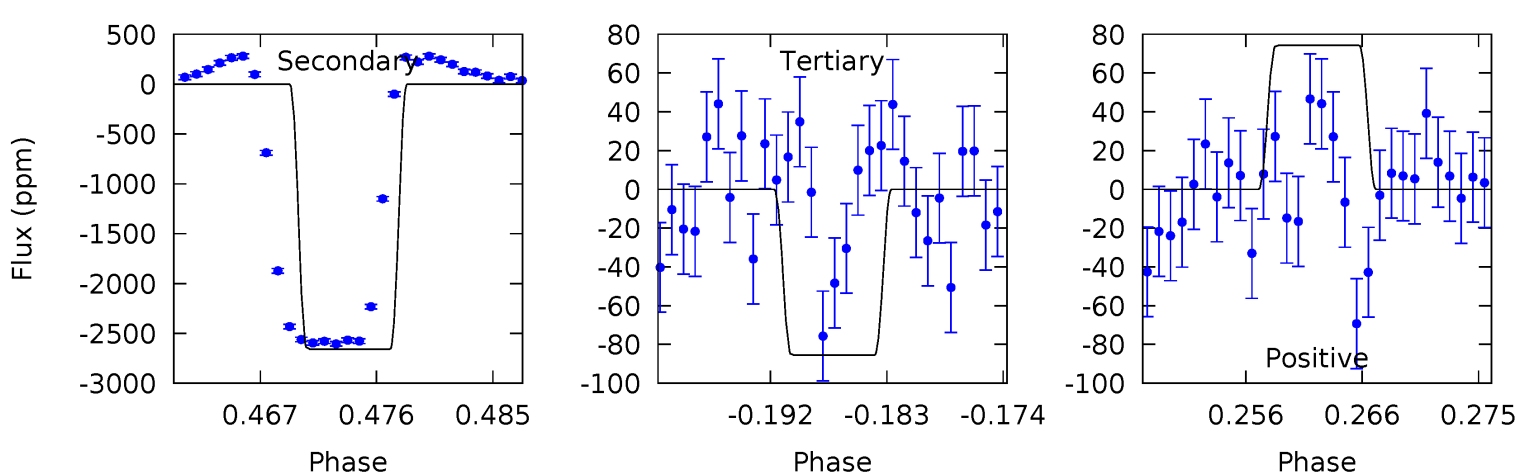
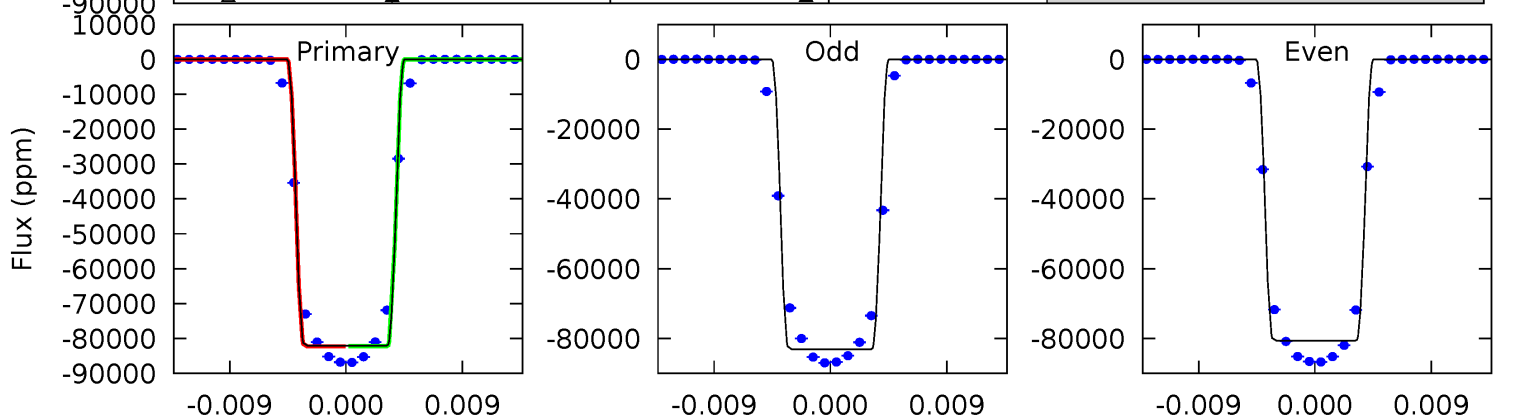
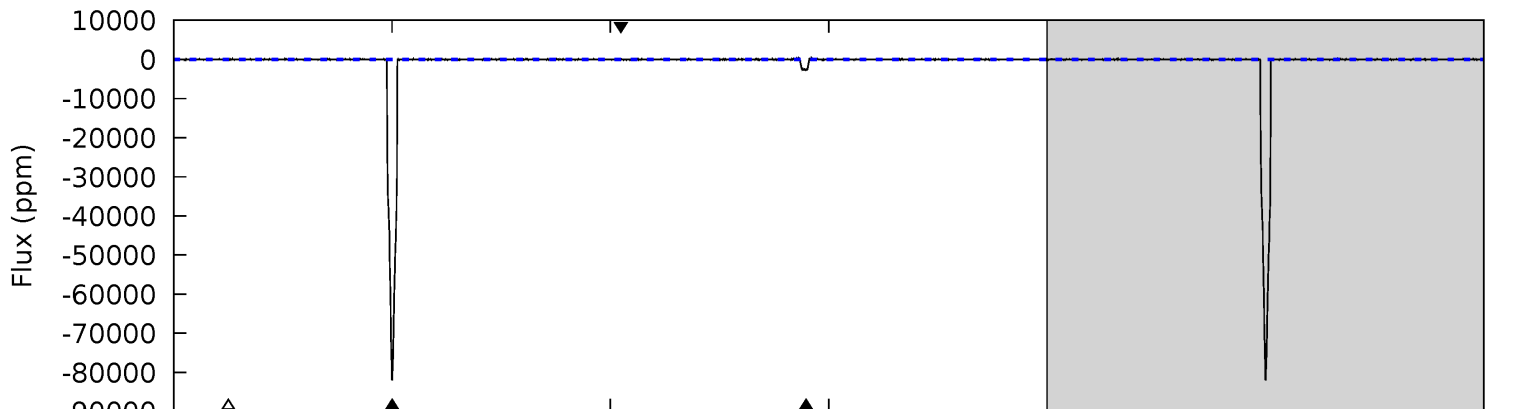
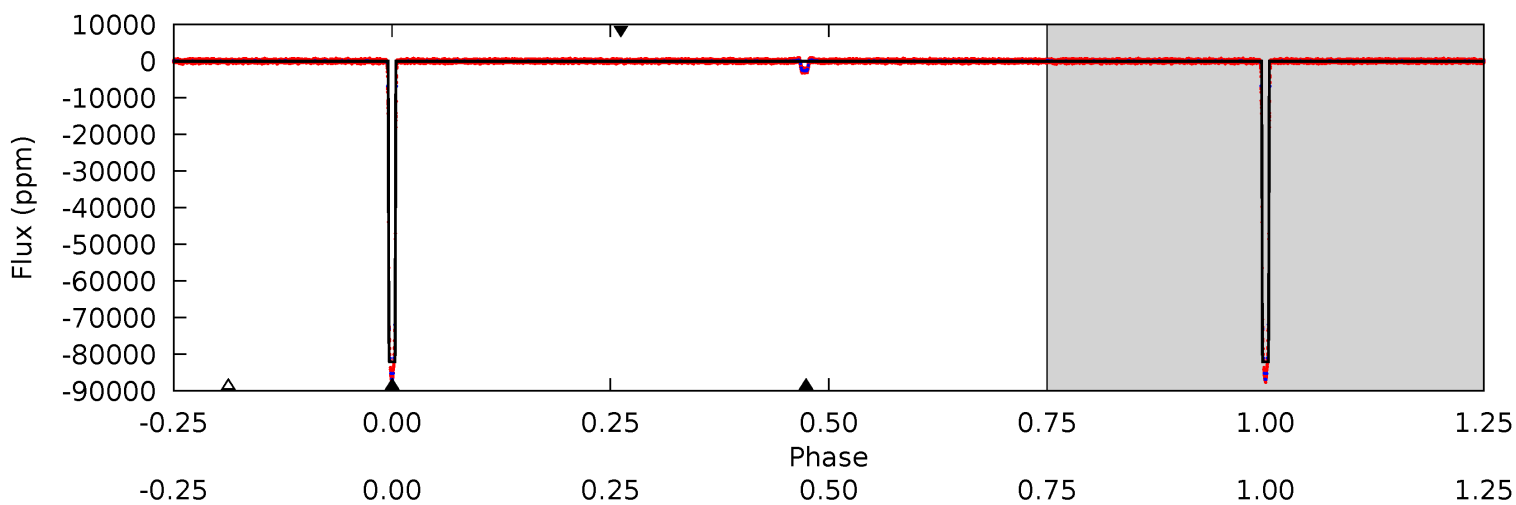
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
7635	322.8	7.91	7.46	4.99	2.52	2.58	7627	7627	314.9	315.3	0.40	0.99	0.00	0



Alt Model-Shift Uniqueness Test

002998124-01, P = 28.598237 Days, E = 124.377376 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
3984	129.2	4.15	3.61	5.04	2.61	1.24	3979	3980	125.0	125.6	62.2	1.01	0.00	0



Stellar Parameters For KIC 002998124

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	$M(M_{\odot})$	p_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	6590^{+179}_{-199}	$3.787^{+0.312}_{-0.078}$	$-0.340^{+0.300}_{-0.250}$	$2.474^{+0.466}_{-0.865}$	$1.368^{+0.227}_{-0.252}$	$0.127^{+0.259}_{-0.039}$
	+3%/-3%	+8%/-2%	+88%/-74%	+19%/-35%	+17%/-18%	+203%/-31%
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 002998124-01 / KOI 6302.01

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	-3679 ± 11	$72.30^{+8.80}_{-14.00}$	1383^{+88}_{-122}	3546^{+53}_{-65}	16^{+7}_{-3}
Alt.	-2660 ± 21	$76.24^{+9.28}_{-13.69}$	1380^{+82}_{-119}	3302^{+54}_{-63}	10^{+4}_{-2}

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

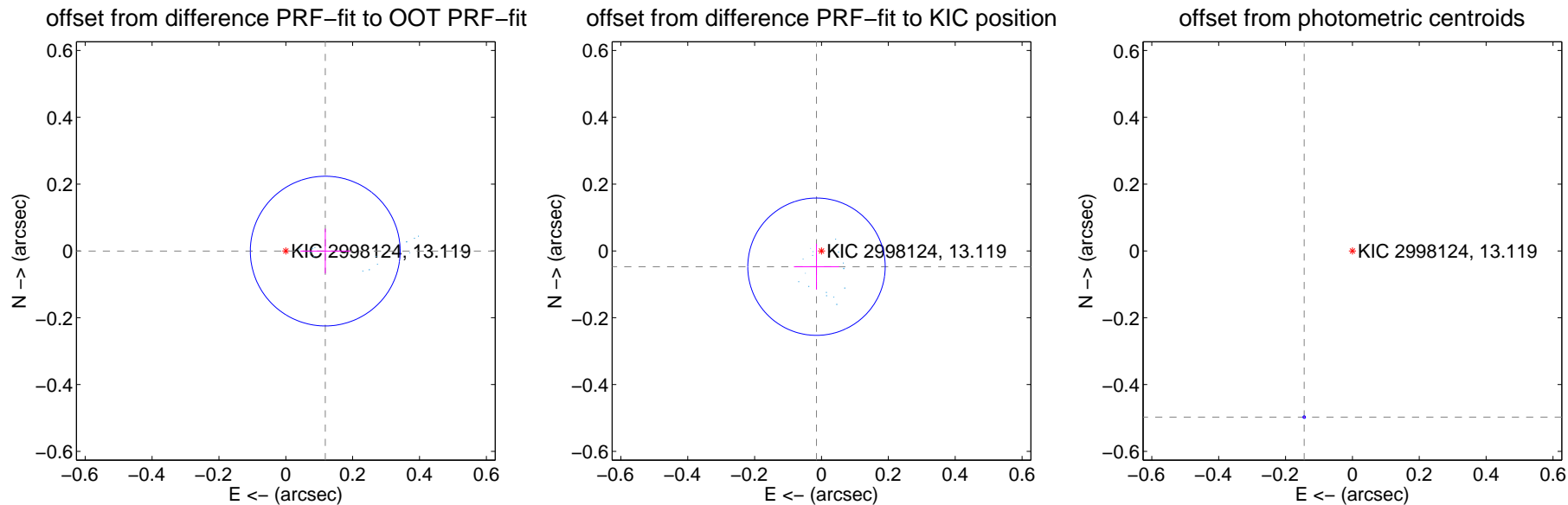
DV Centroid Data

Supplemental centroid analysis for 002998124-01. Kepler magnitude: 13.12. Transit SNR 4153.47

There are 16 quarters with good PRF difference image offsets

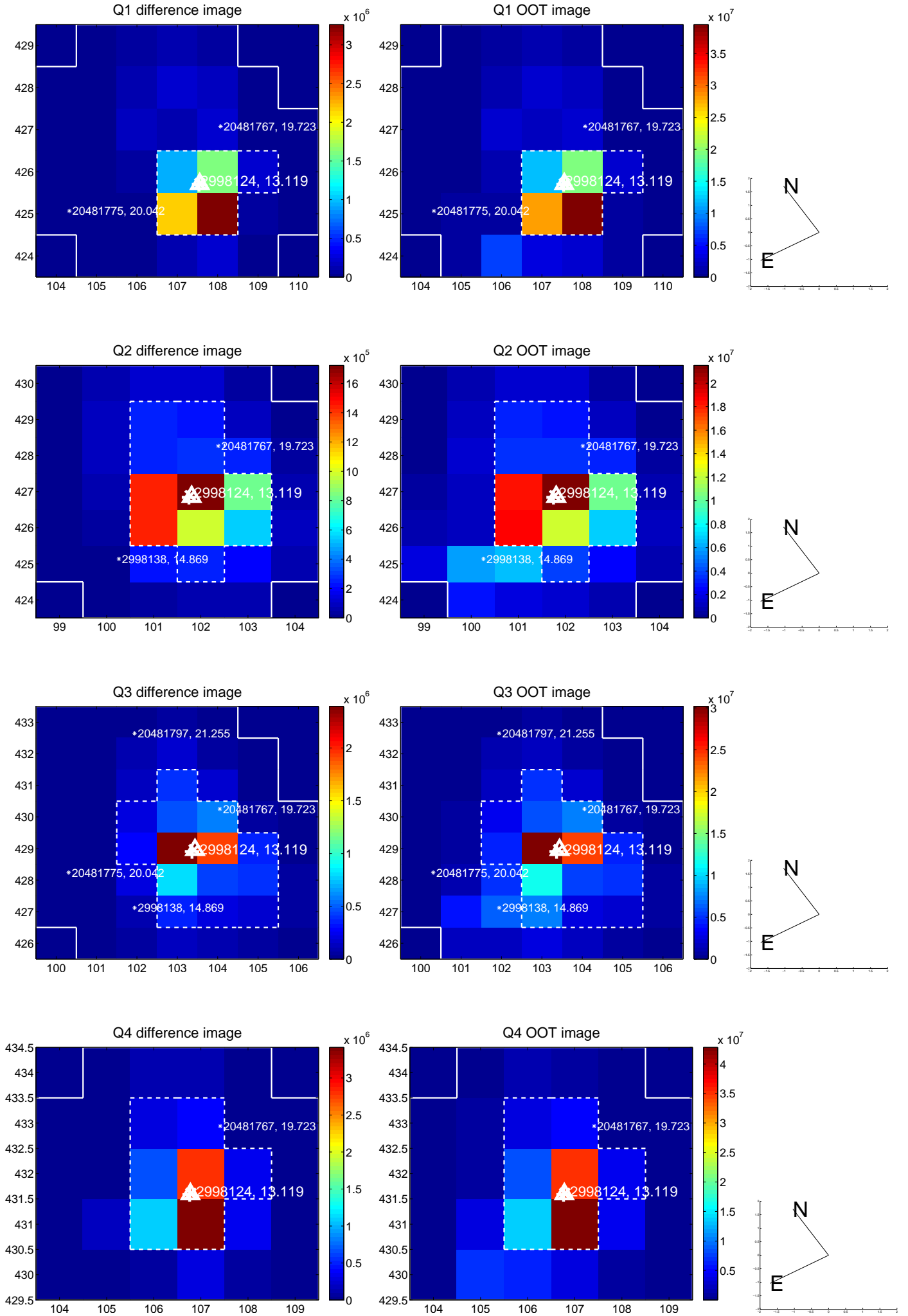
The direct PRF centroid is offset from the target star catalog position by about 0.13 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.118 ± 0.075	1.58	-0.118 ± 0.075	-0.001 ± 0.067
PRF-fit source offset from KIC position	0.050 ± 0.068	0.72	0.015 ± 0.068	-0.047 ± 0.069
photometric centroid source offset	0.52 ± 0.00	400.94	0.14 ± 0.00	-0.50 ± 0.00

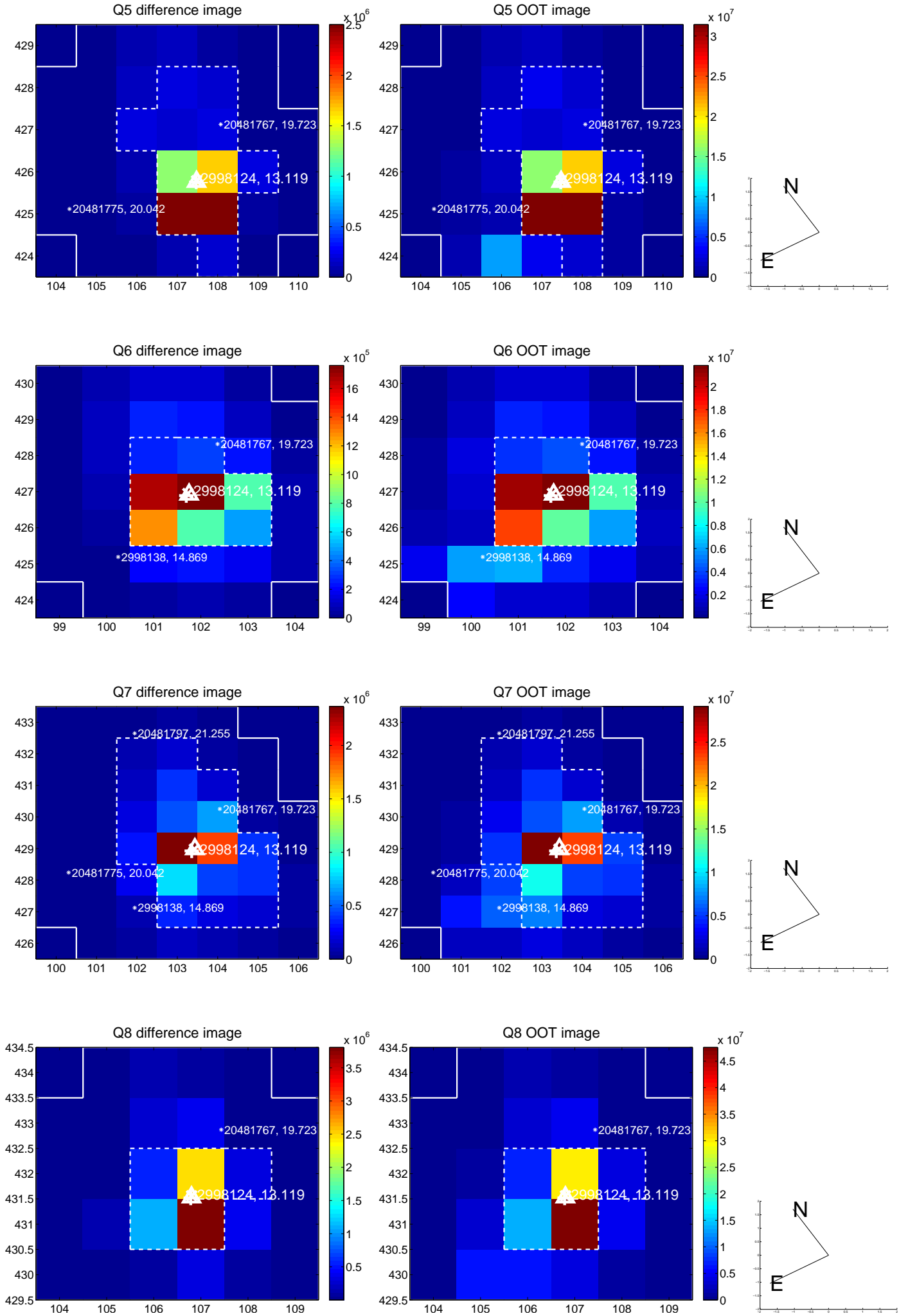


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ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

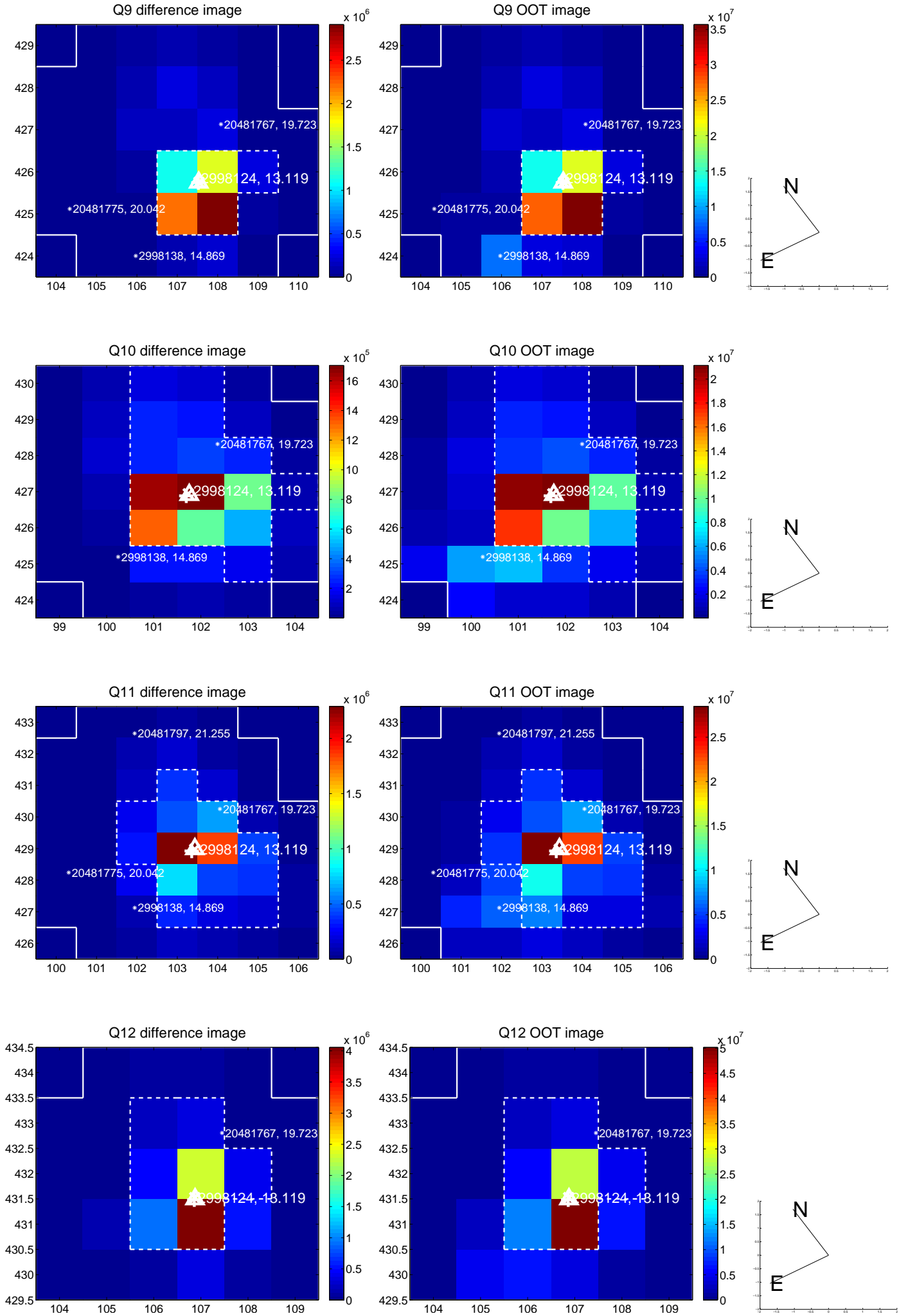
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



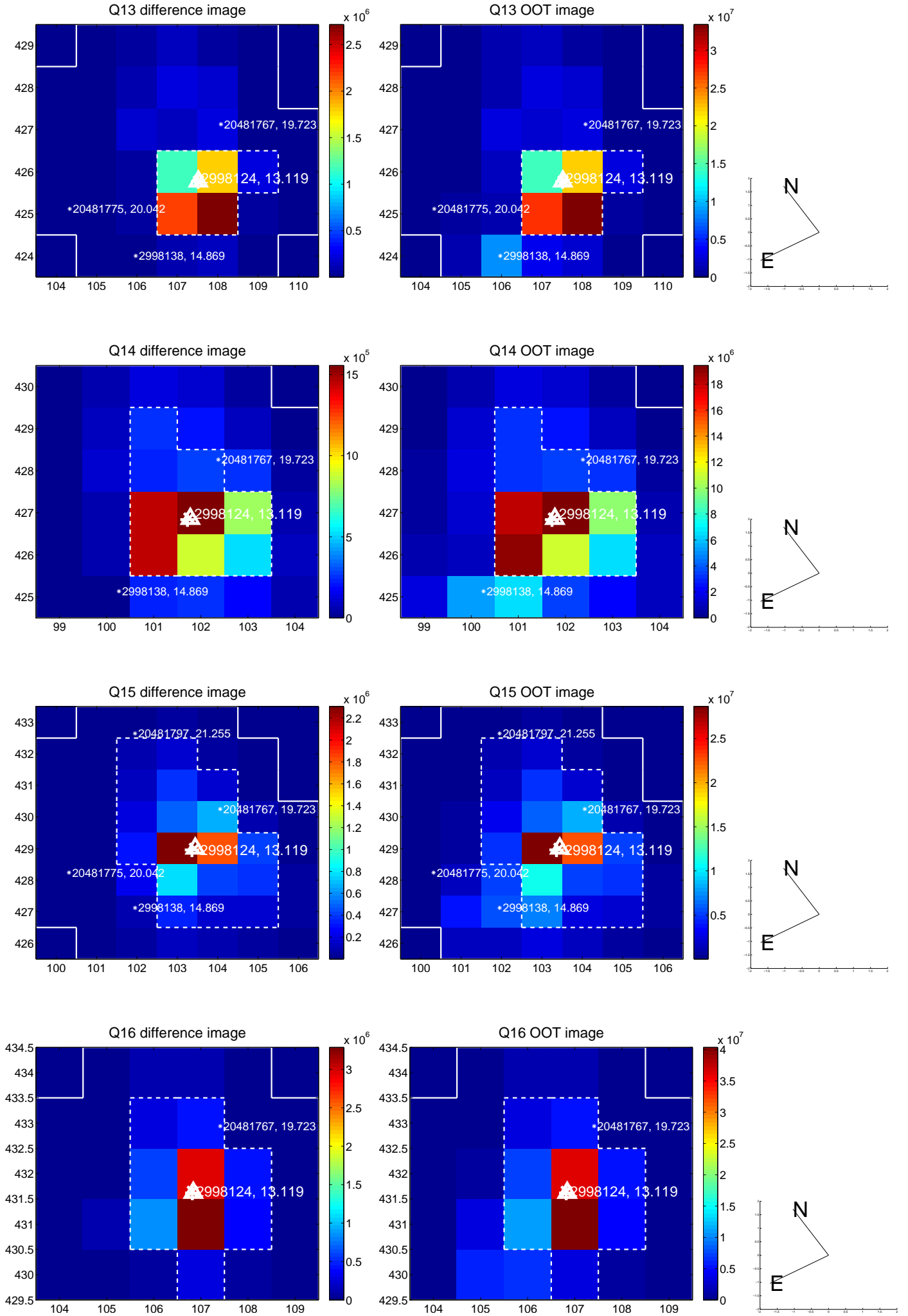
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



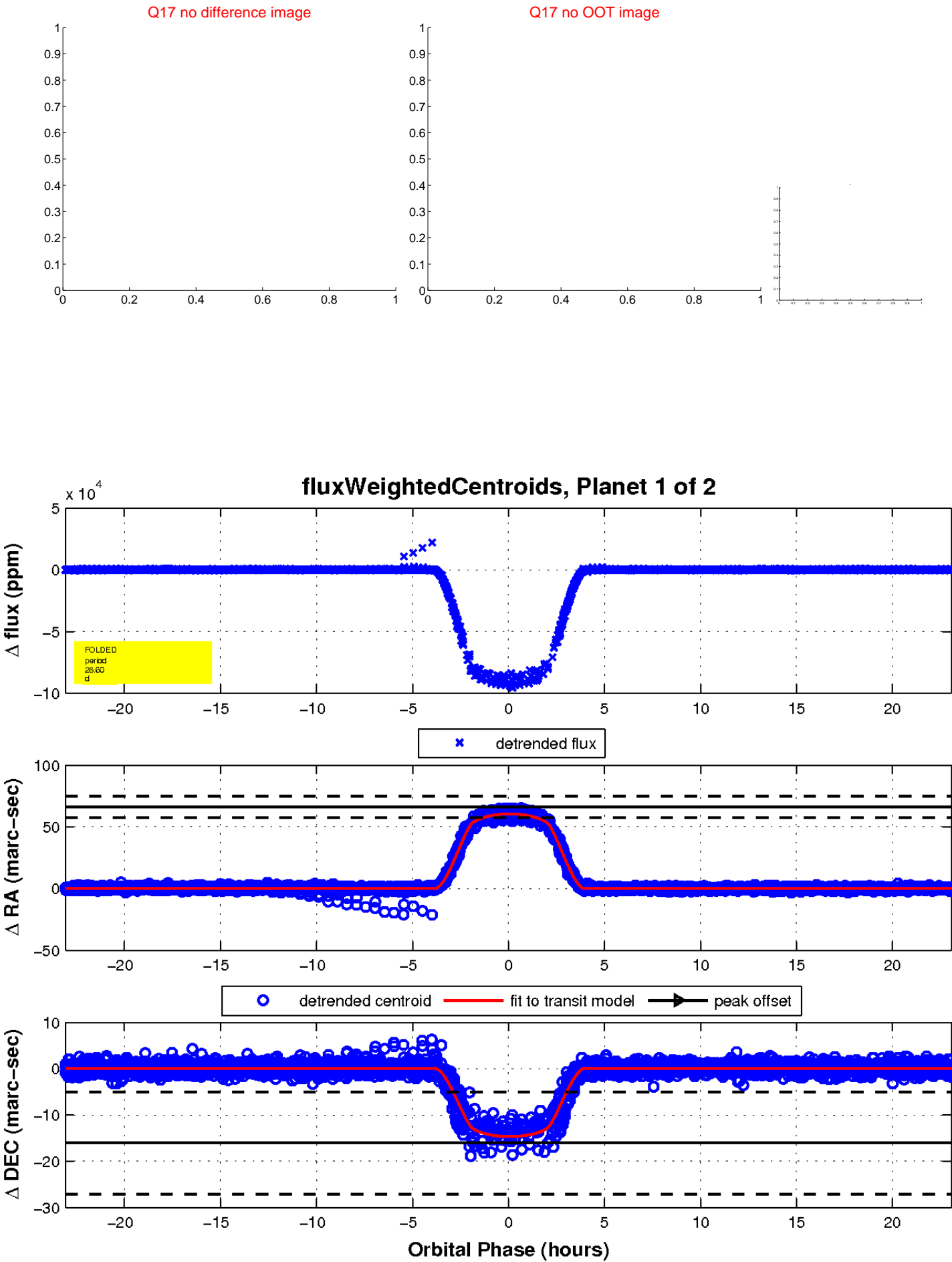
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

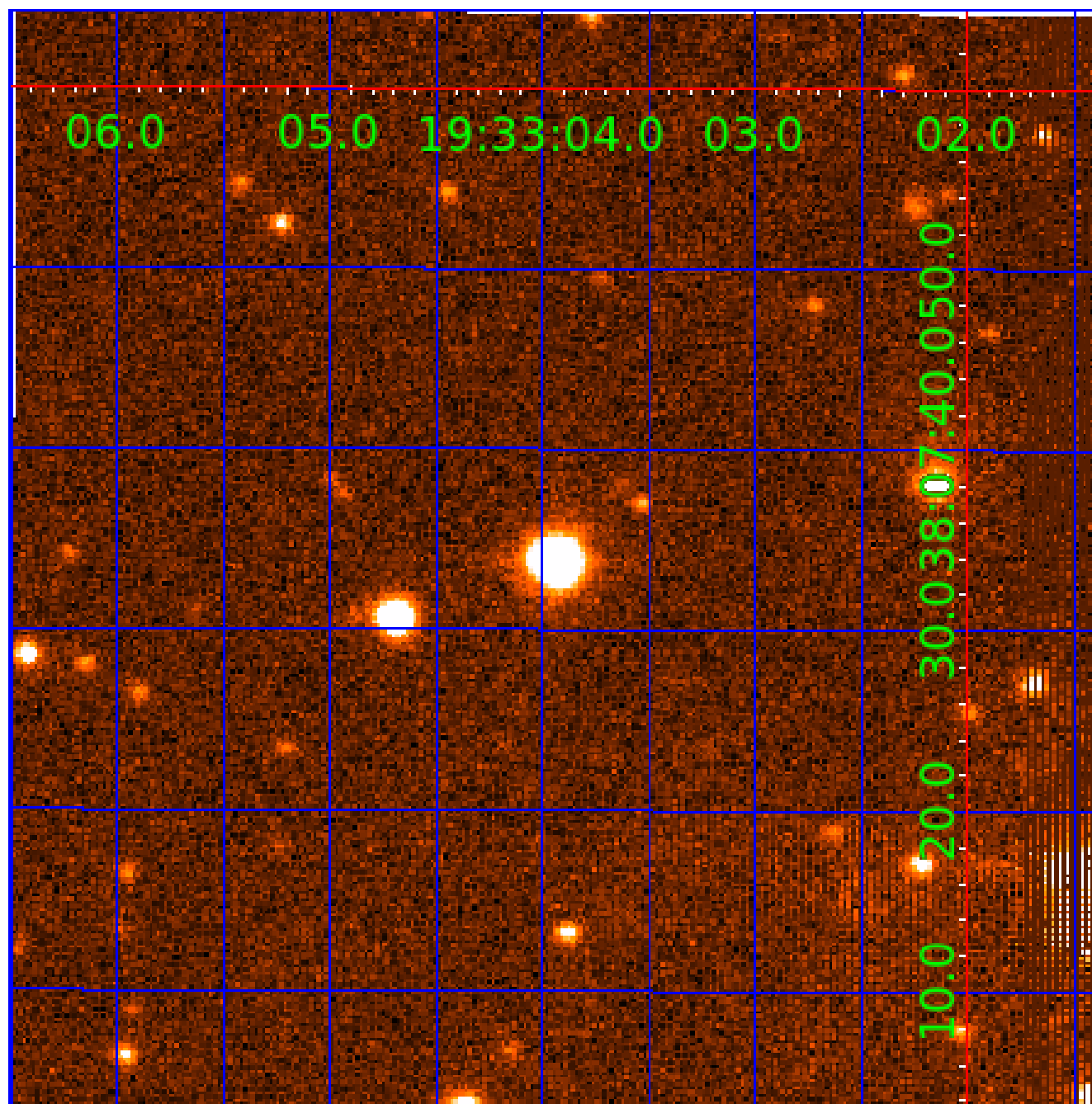


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 002998124

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})
002998124-01	OBS	6302.01	28.597881	152.984301	86948.8	7.700	6793.9	4153.5	2.47	6590	74.69	250.57
002998124-02	OBS	No	28.597892	137.892531	3002.8	7.850	233.2	225.3	2.47	6590	15.54	250.57

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
002998124-01	OBS	FP	0.00	0	1	0	0	MOD_SEC_DV—MOD_SEC_ALT—MOD_ODDEVEN_ALT—HAS_SEC_TCE
002998124-02	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 002998124-02

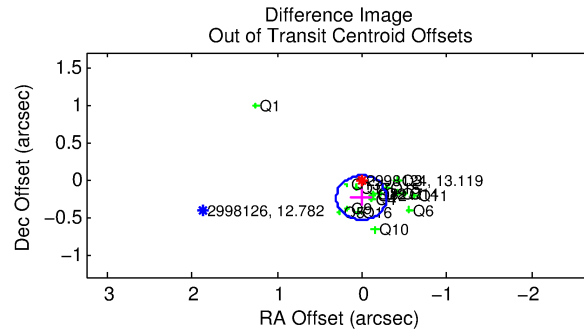
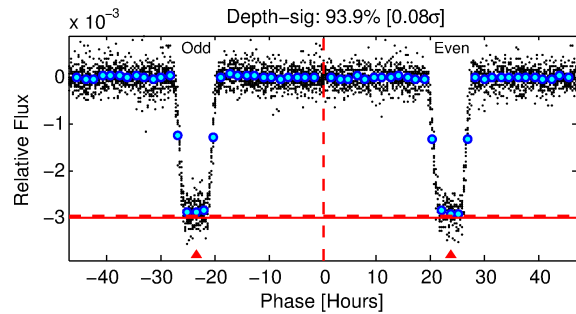
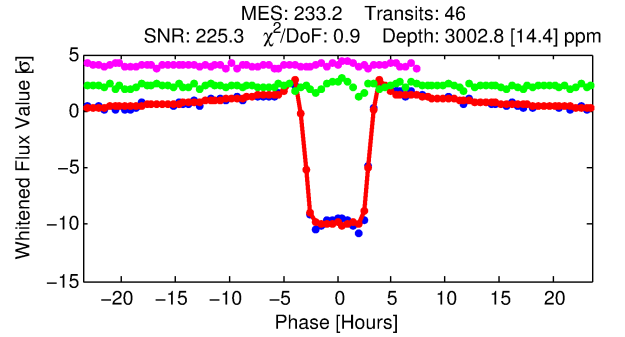
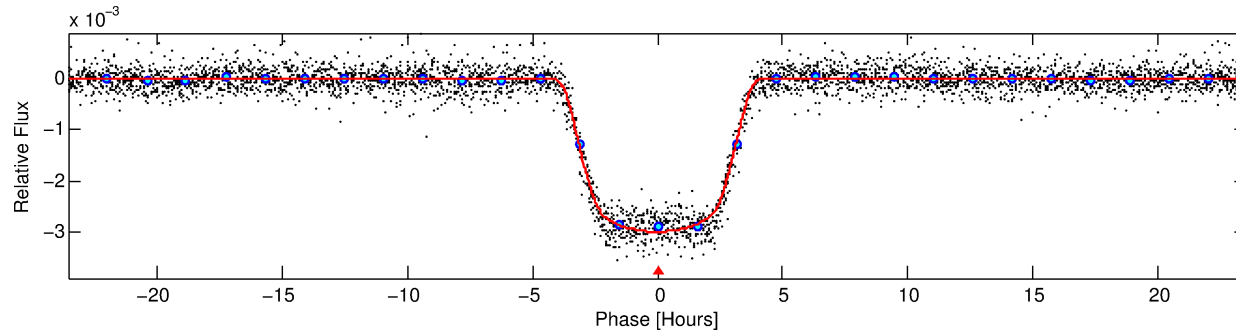
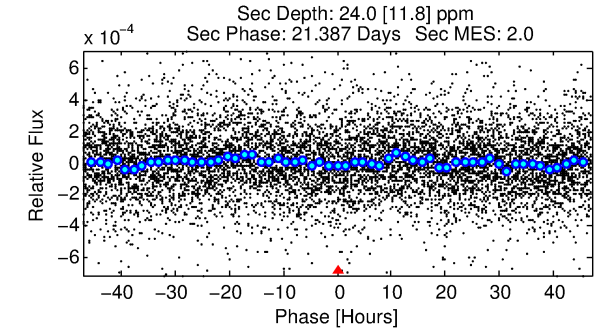
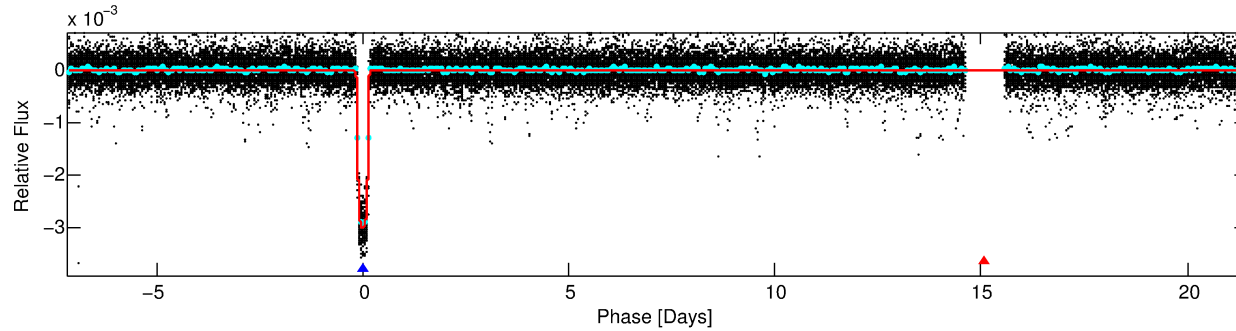
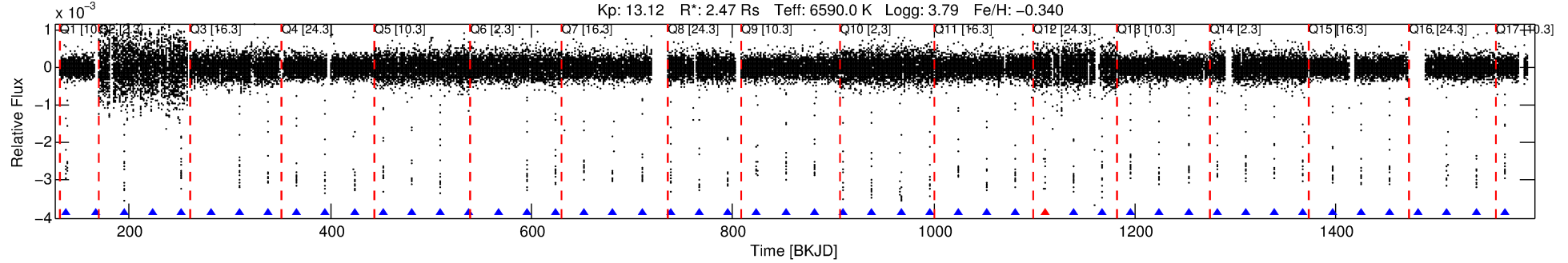
No Significant Match Found

DV One-Page Summary

KIC: 2998124 Candidate: 2 of 2 Period: 28.598 d

KOI: K06302 Corr: No Ephemeris Match

Kp: 13.12 R*: 2.47 Rs Teff: 6590.0 K Logg: 3.79 Fe/H: -0.340



DV Fit Results:

Period = 28.59789 [0.00002] d
Epoch = 137.8925 [0.0007] BKJD
Rp/R* = 0.0576 [0.0002]
a/R* = 16.62 [0.17]
b = 0.87 [0.00]
Seff = 250.57 [136.85]
Teq = 1015 [139] K
Rp = 15.54 [5.43] Re
a = 0.2032 [0.0679] AU
Ag = 2.26 [1.64] [0.77σ]
Teffp = 1923 [243] K [3.25σ]

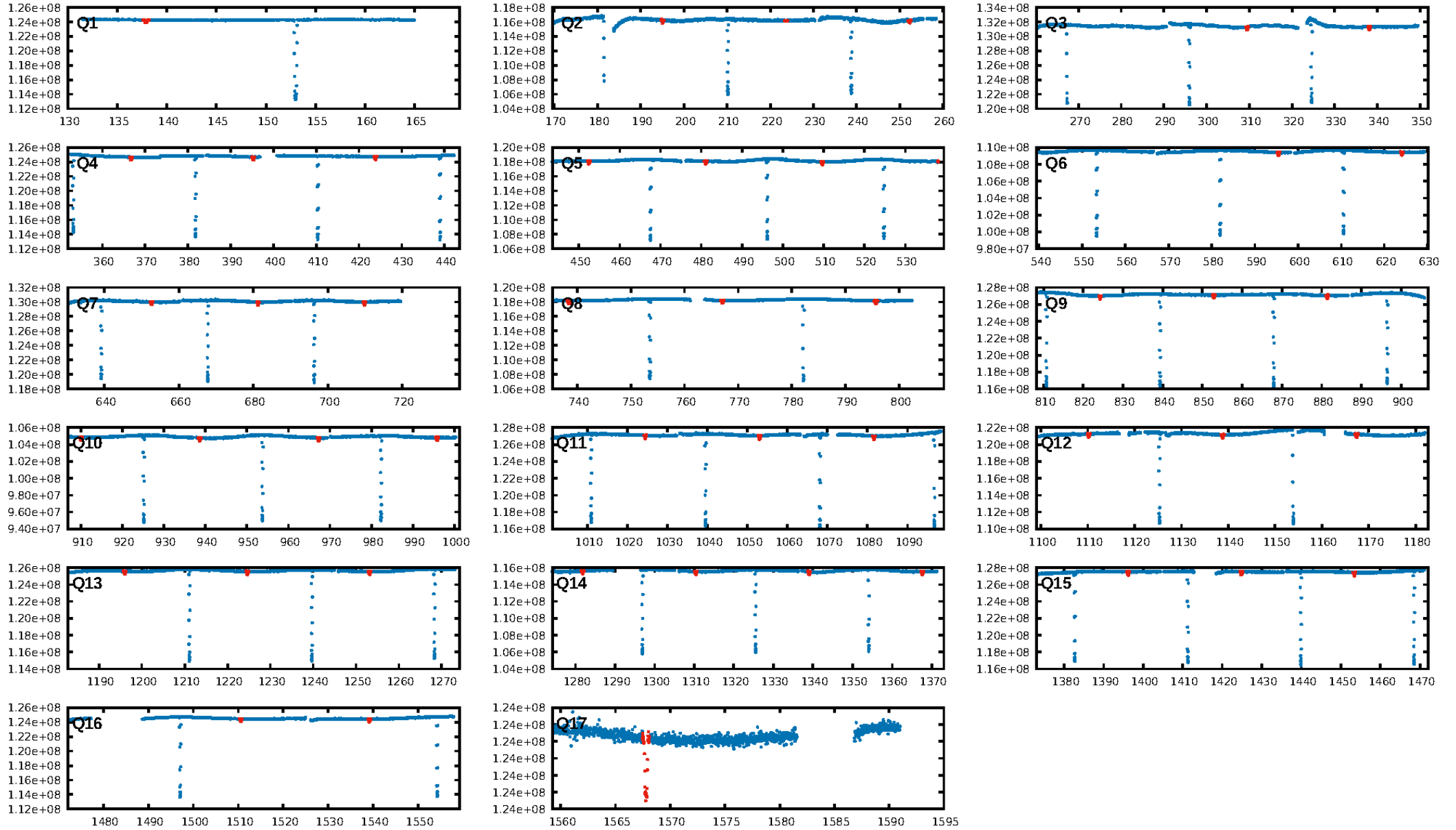
DV Diagnostic Results:

ShortPeriod-sig: 0.0% [0.00σ]
LongPeriod-sig: N/A
ModelChiSquare2-sig: 0.0%
ModelChiSquareGof-sig: 100.0%
Bootstrap-pfa: 0.00e+00
RollingBand-fgt: 0.98 [43/44]
GhostDiagnostic-chr: 6.452
Centroid-sig: 0.0%
Centroid-so: 0.723 arcsec [19.72σ]
OotOffset-rm: 0.241 arcsec [2.44σ]
OotOffset-st: 4/4/4/5 [17]
KicOffset-rm: 0.323 arcsec [3.42σ]
KicOffset-st: 4/4/4/5 [17]
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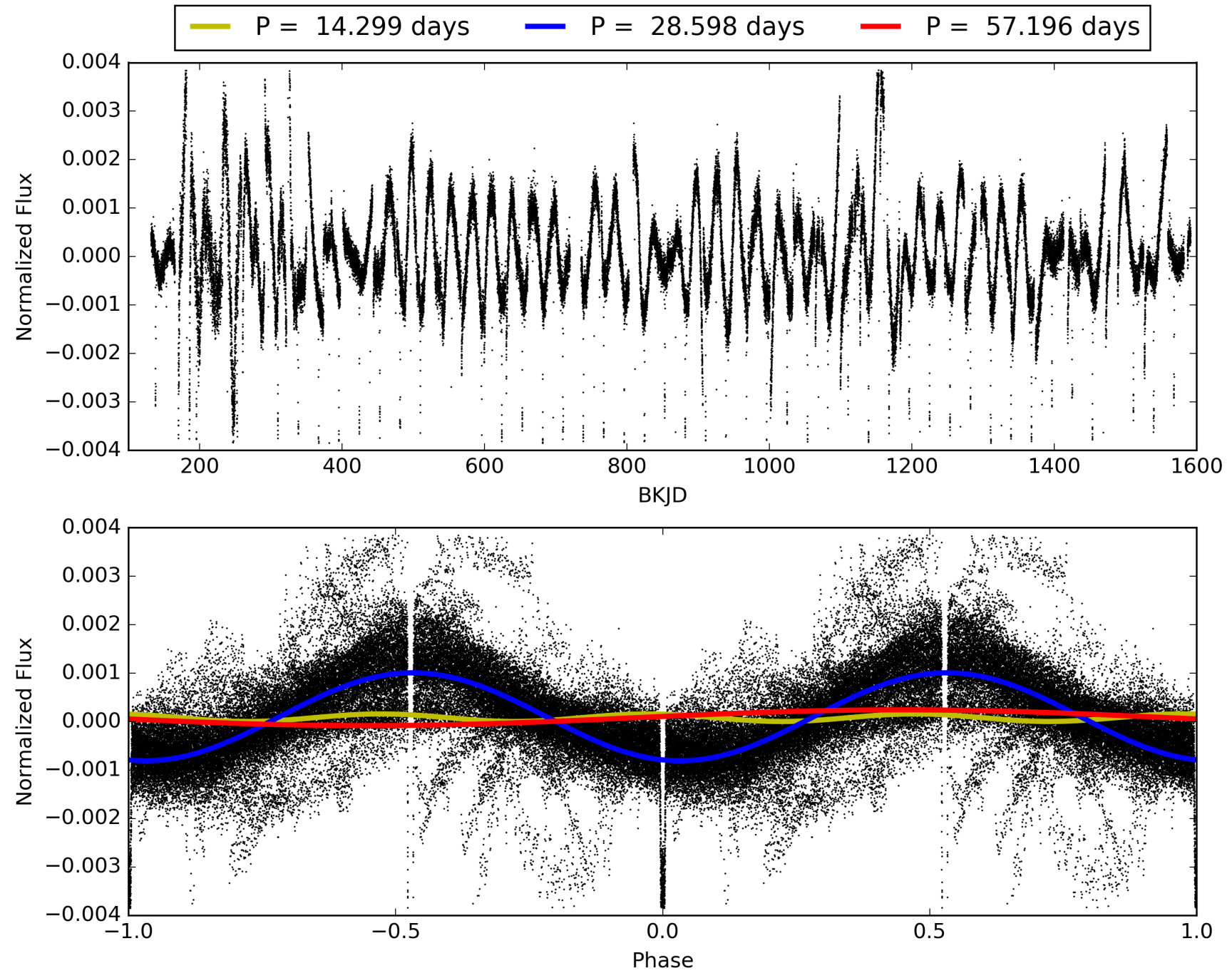
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This Data Validation Report Summary was produced in the Kepler Science Operations Center Pipeline at NASA Ames Research Center

TCE 002998124-02, PDC Light Curves

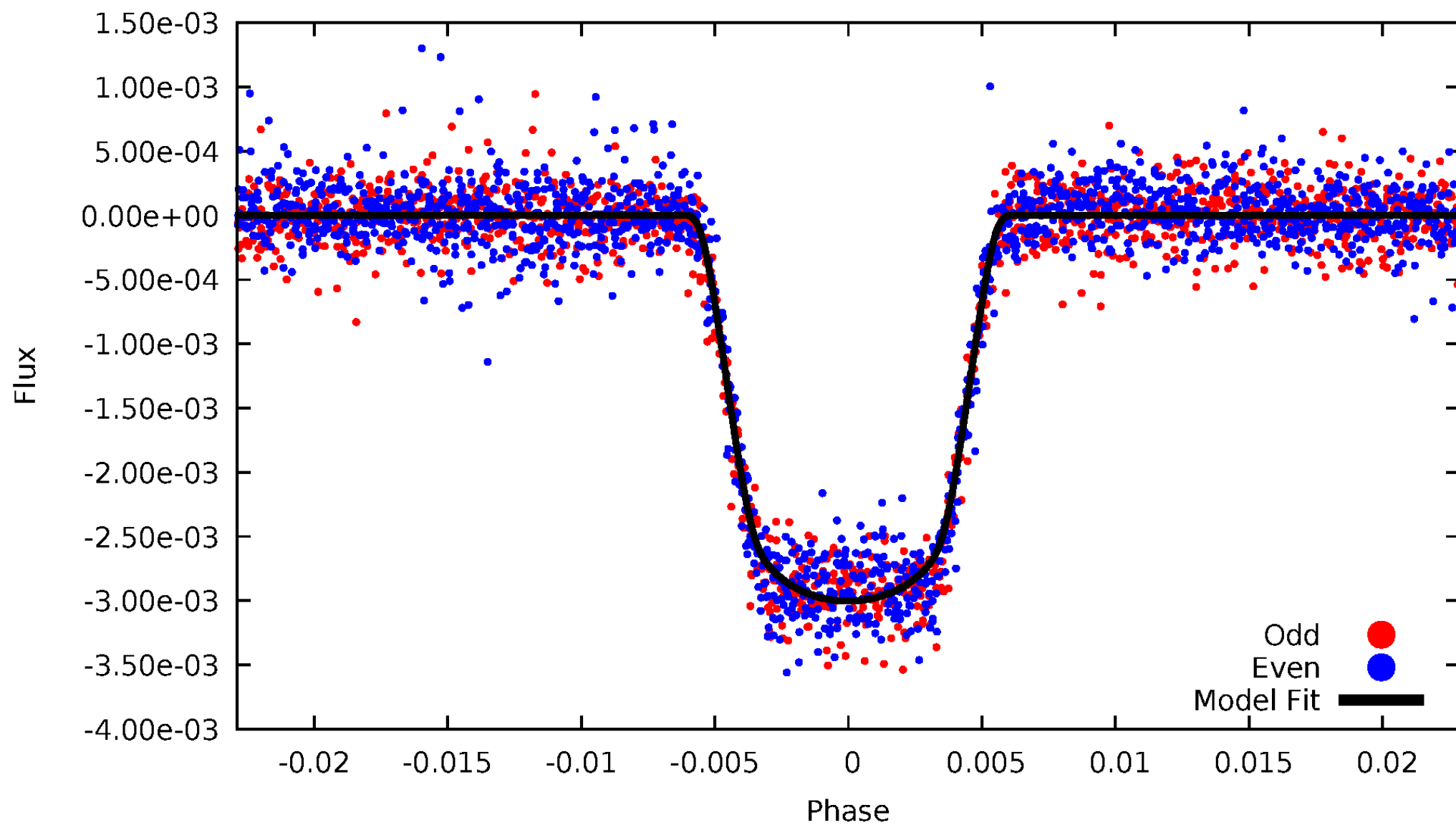


TCE 002998124-02



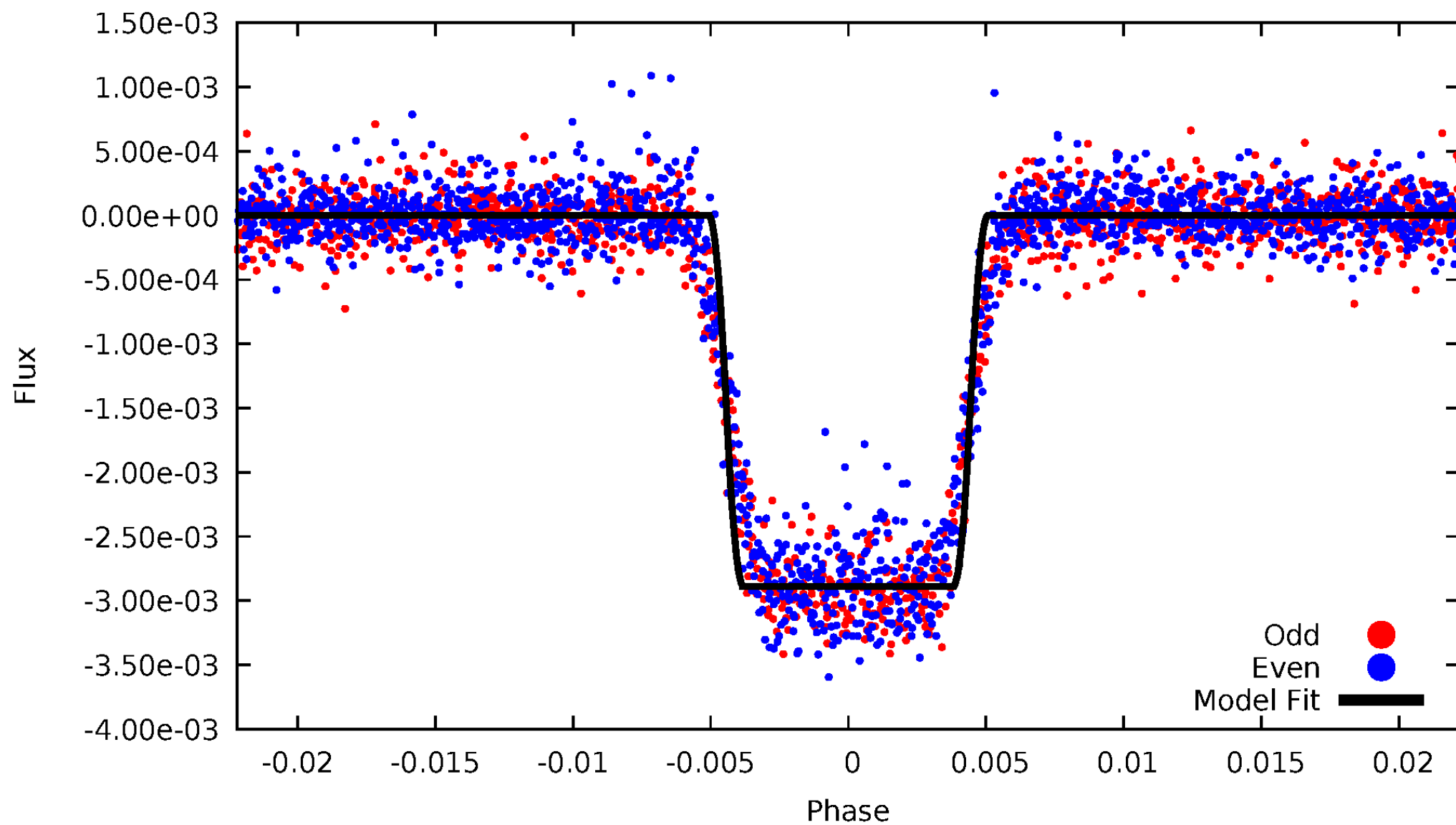
DV Odd/Even

TCE 002998124-02



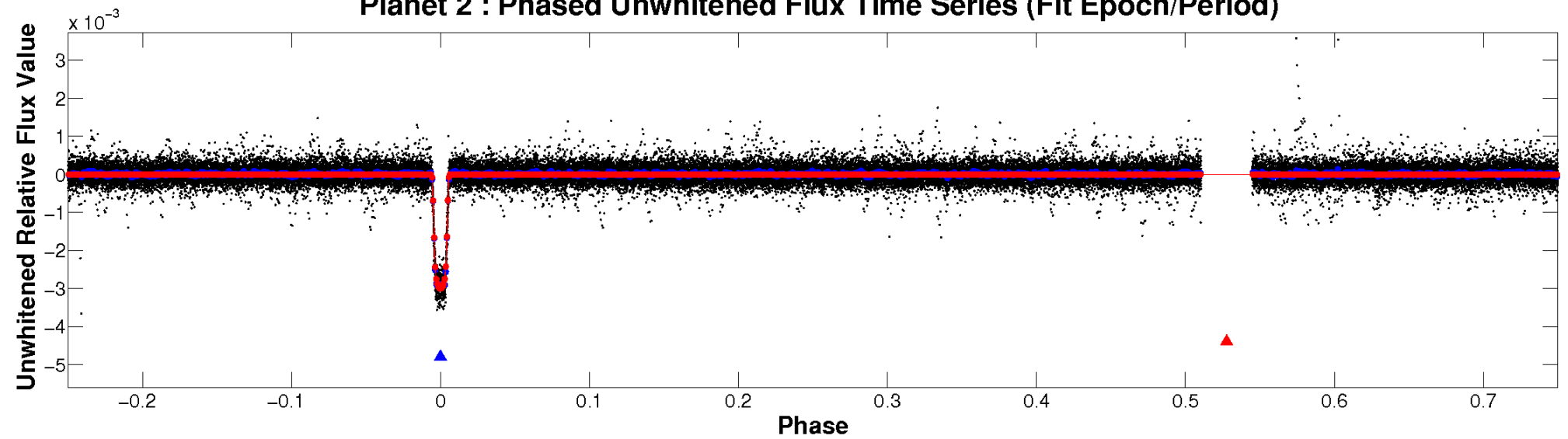
ALT Odd/Even

TCE 002998124-02

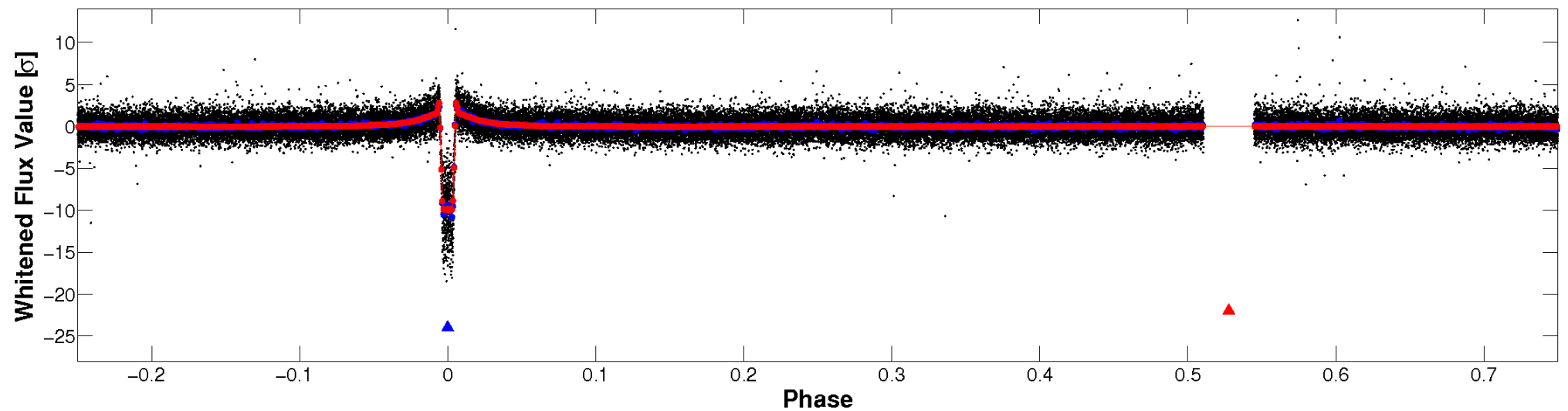


Non-Whitened Vs. Whitened Light Curve

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

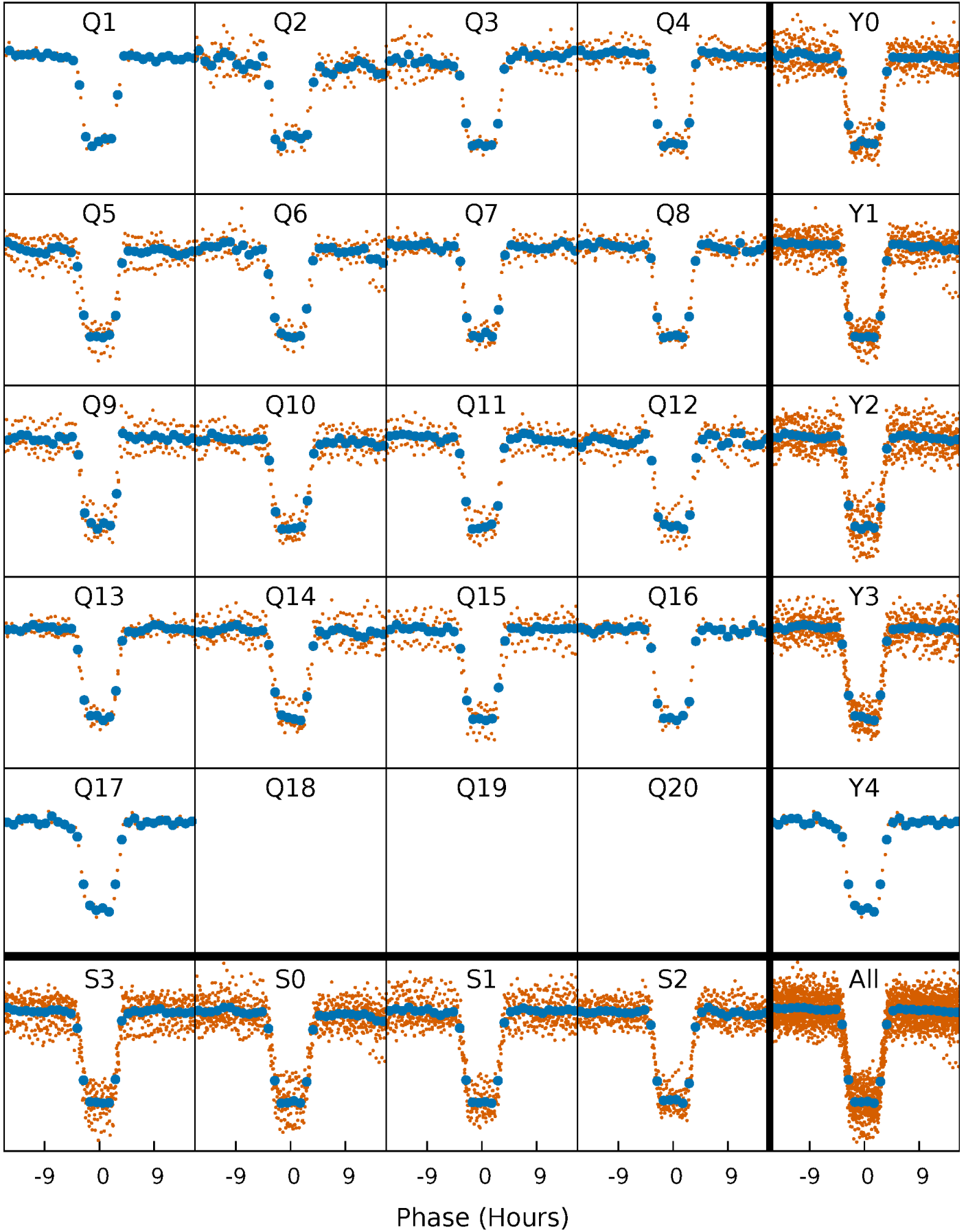


Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



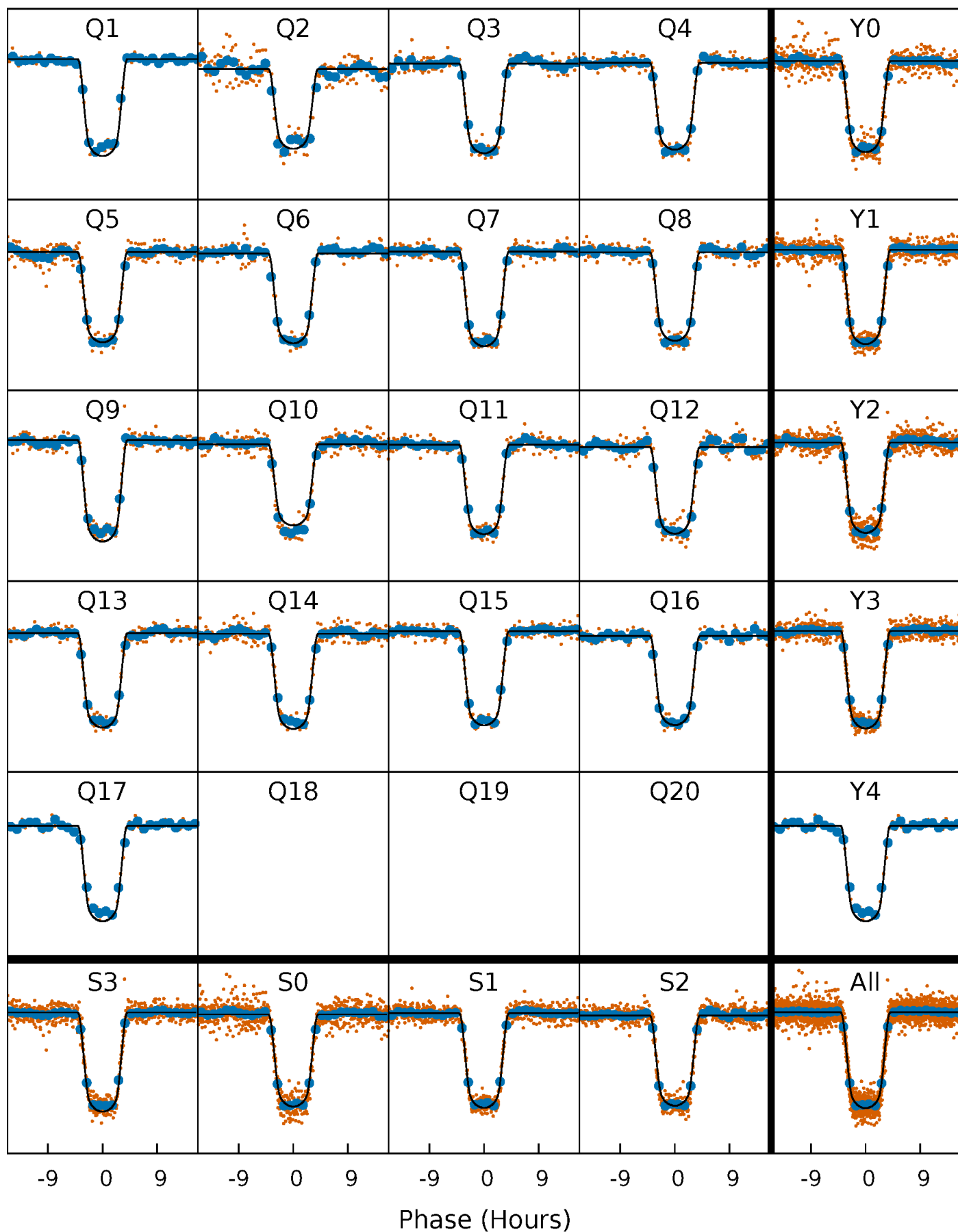
PDC Quarter-Phased Transit Curves

TCE 002998124-02 P= 28.597892 Days $T_0=137.892531$ (BKJD)



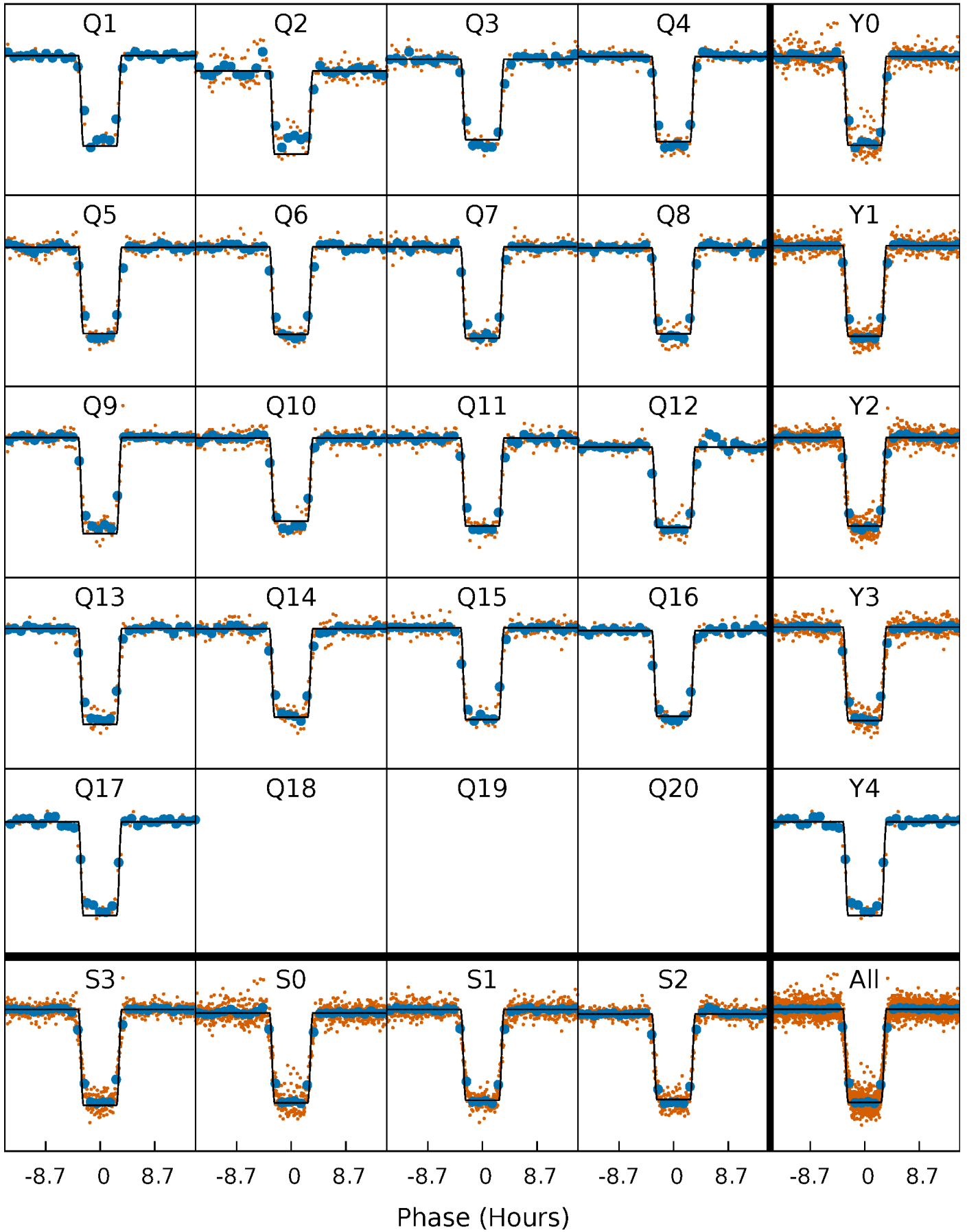
DV Quarter-Phased Transit Curves

TCE 002998124-02 P= 28.597892 Days $T_0=137.892531$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

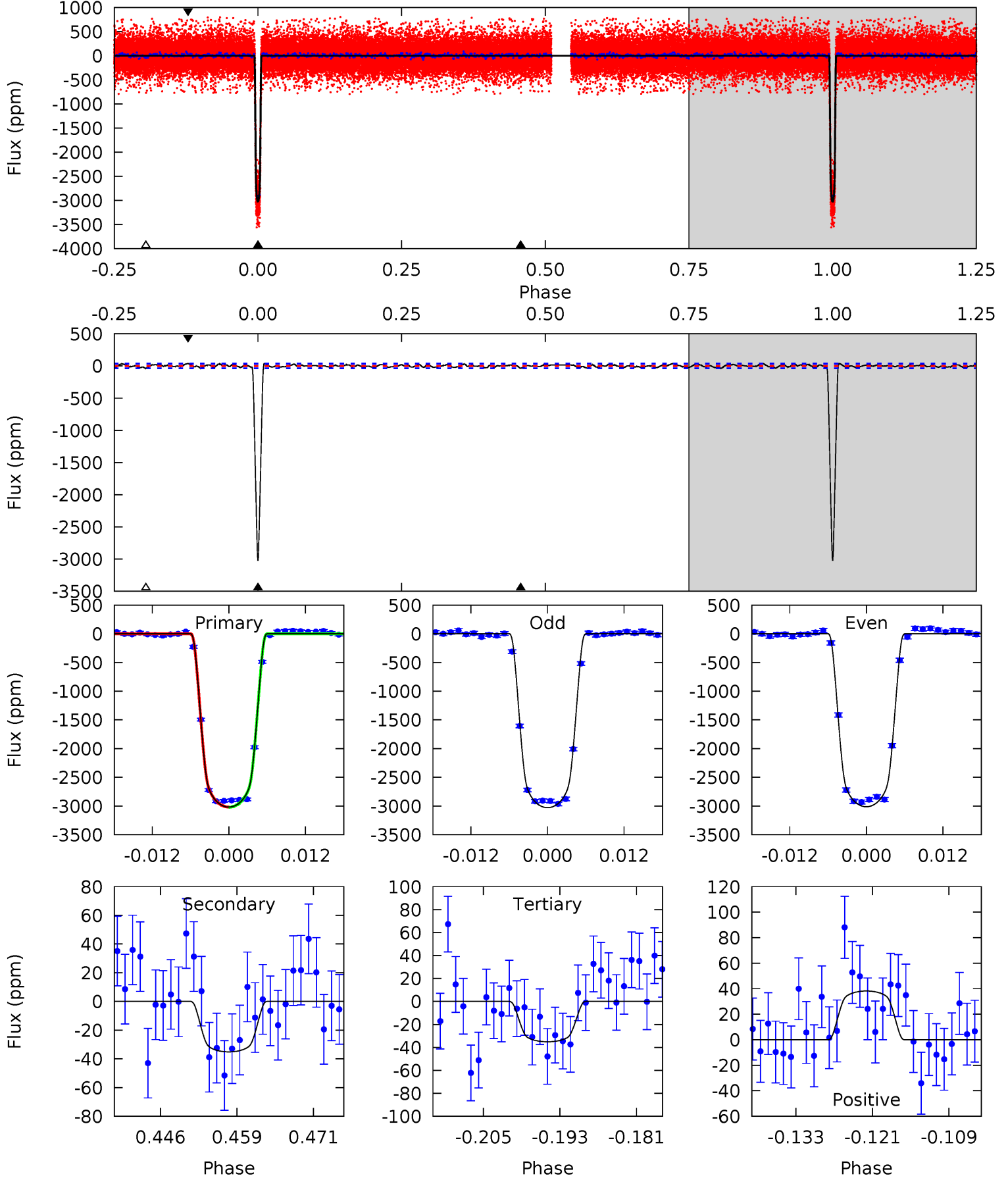
TCE 002998124-02 P= 28.598056 Days $T_0=137.888139$ (BKJD)



DV Model-Shift Uniqueness Test

002998124-02, P = 28.597892 Days, E = 109.294639 Days

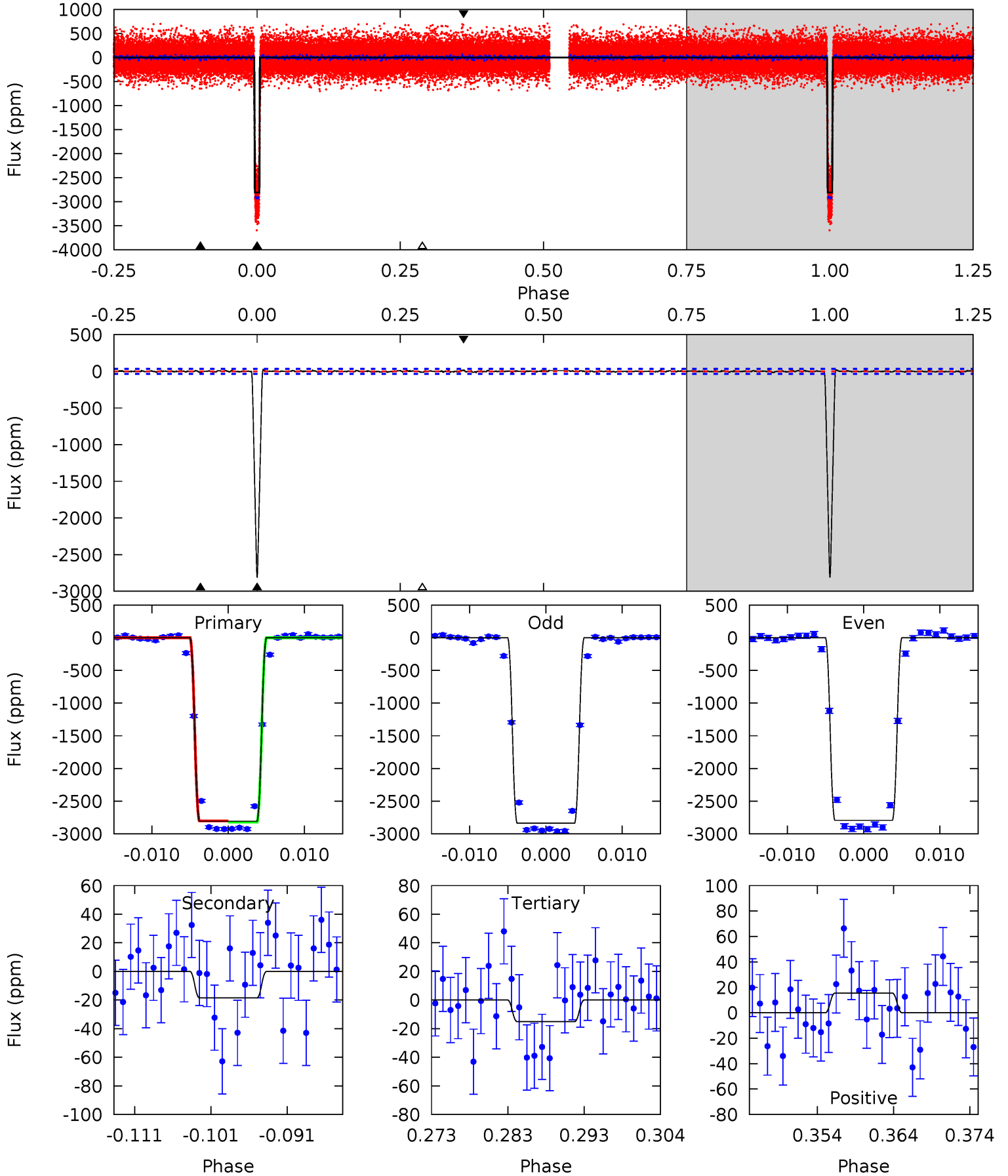
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
419.6	4.88	4.88	5.31	4.99	2.51	1.97	414.7	414.3	0.01	-0.43	1.16	0.98	0.01	0.23



Alt Model-Shift Uniqueness Test

002998124-02, P = 28.598056 Days, E = 109.290083 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
400.8	2.64	2.16	2.21	5.02	2.57	0.70	398.7	398.6	0.49	0.43	3.09	0.99	0.01	1.45



Stellar Parameters For KIC 002998124

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	$M(M_{\odot})$	p_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	6590^{+179}_{-199}	$3.787^{+0.312}_{-0.078}$	$-0.340^{+0.300}_{-0.250}$	$2.474^{+0.466}_{-0.865}$	$1.368^{+0.227}_{-0.252}$	$0.127^{+0.259}_{-0.039}$
	+3%/-3%	+8%/-2%	+88%/-74%	+19%/-35%	+17%/-18%	+203%/-31%
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 002998124-02 / KOI

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	-35 ± 7	$14.89^{+1.88}_{-2.67}$	1378^{+87}_{-120}	2806^{+92}_{-102}	$3.680^{+1.907}_{-0.959}$
Alt.	-18 ± 7	$14.06^{+1.76}_{-2.67}$	1383^{+89}_{-123}	2597^{+135}_{-167}	$2.156^{+1.274}_{-0.881}$

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

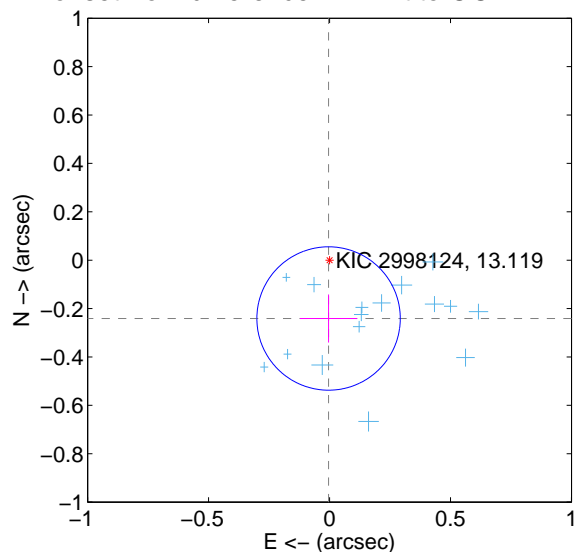
Supplemental centroid analysis for 002998124-02. Kepler magnitude: 13.12. Transit SNR 225.26

There are 17 quarters with good PRF difference image offsets

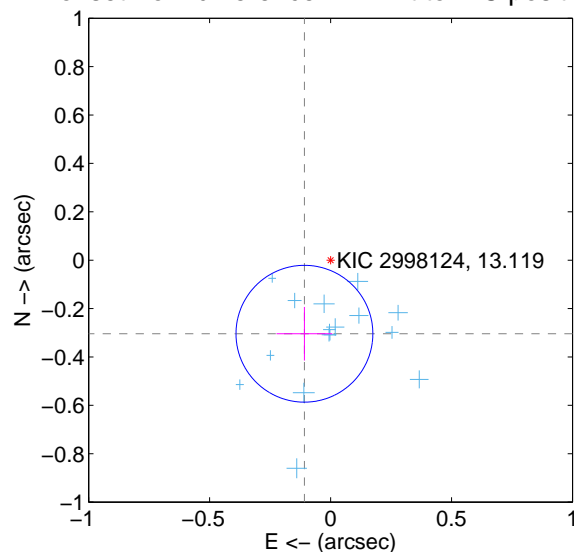
The direct PRF centroid is offset from the target star catalog position by about 0.11 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.241 ± 0.099	2.44	0.004 ± 0.118	-0.241 ± 0.100
PRF-fit source offset from KIC position	0.323 ± 0.094	3.42	0.108 ± 0.116	-0.304 ± 0.111
photometric centroid source offset	0.72 ± 0.04	19.72	0.32 ± 0.05	-0.65 ± 0.03

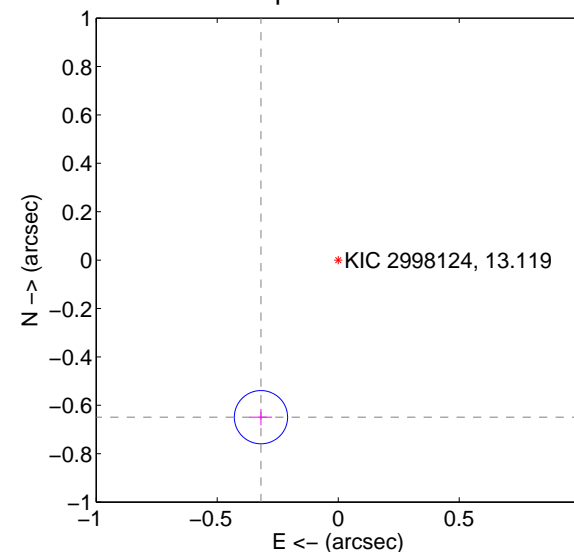
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position

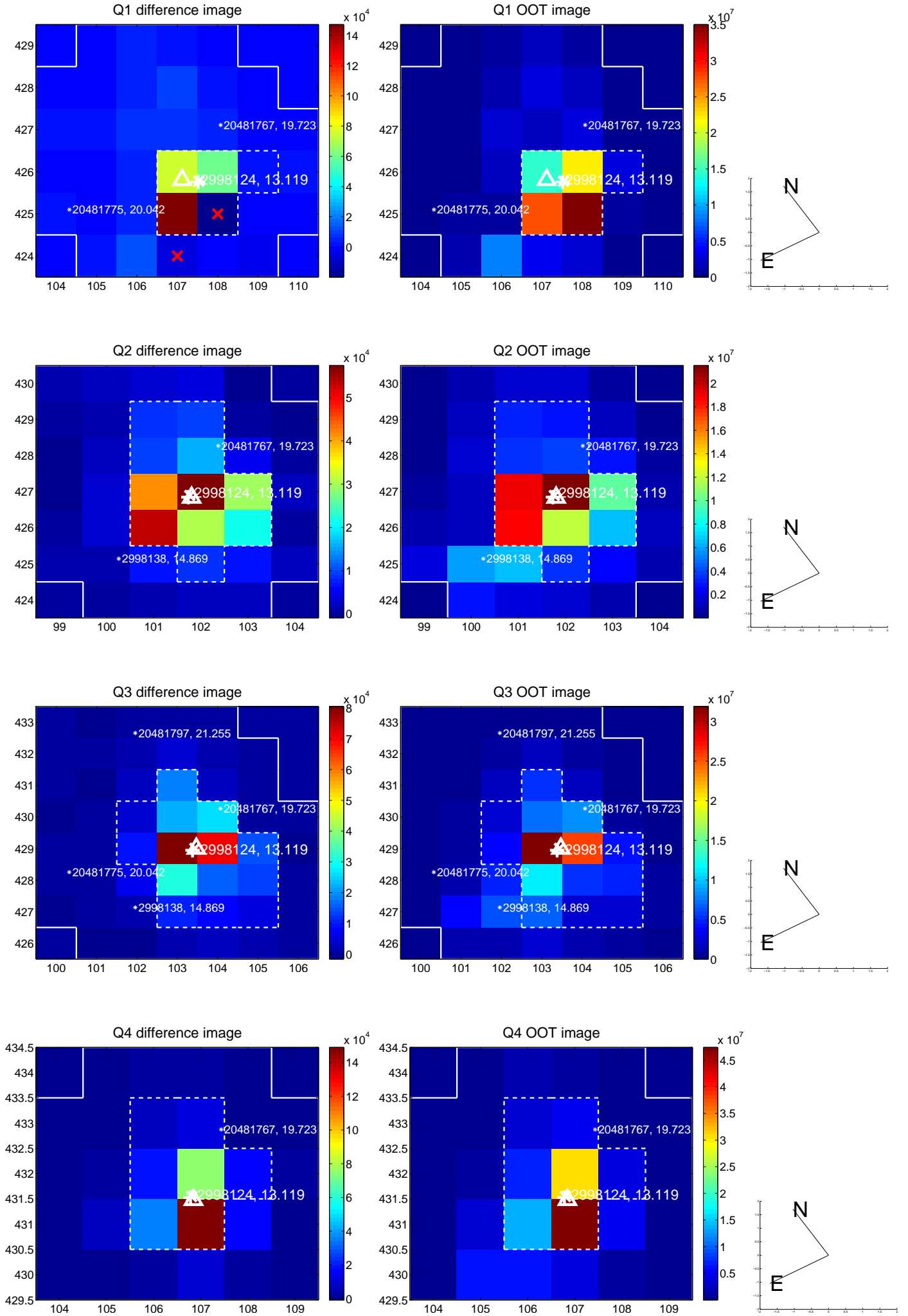


offset from photometric centroids

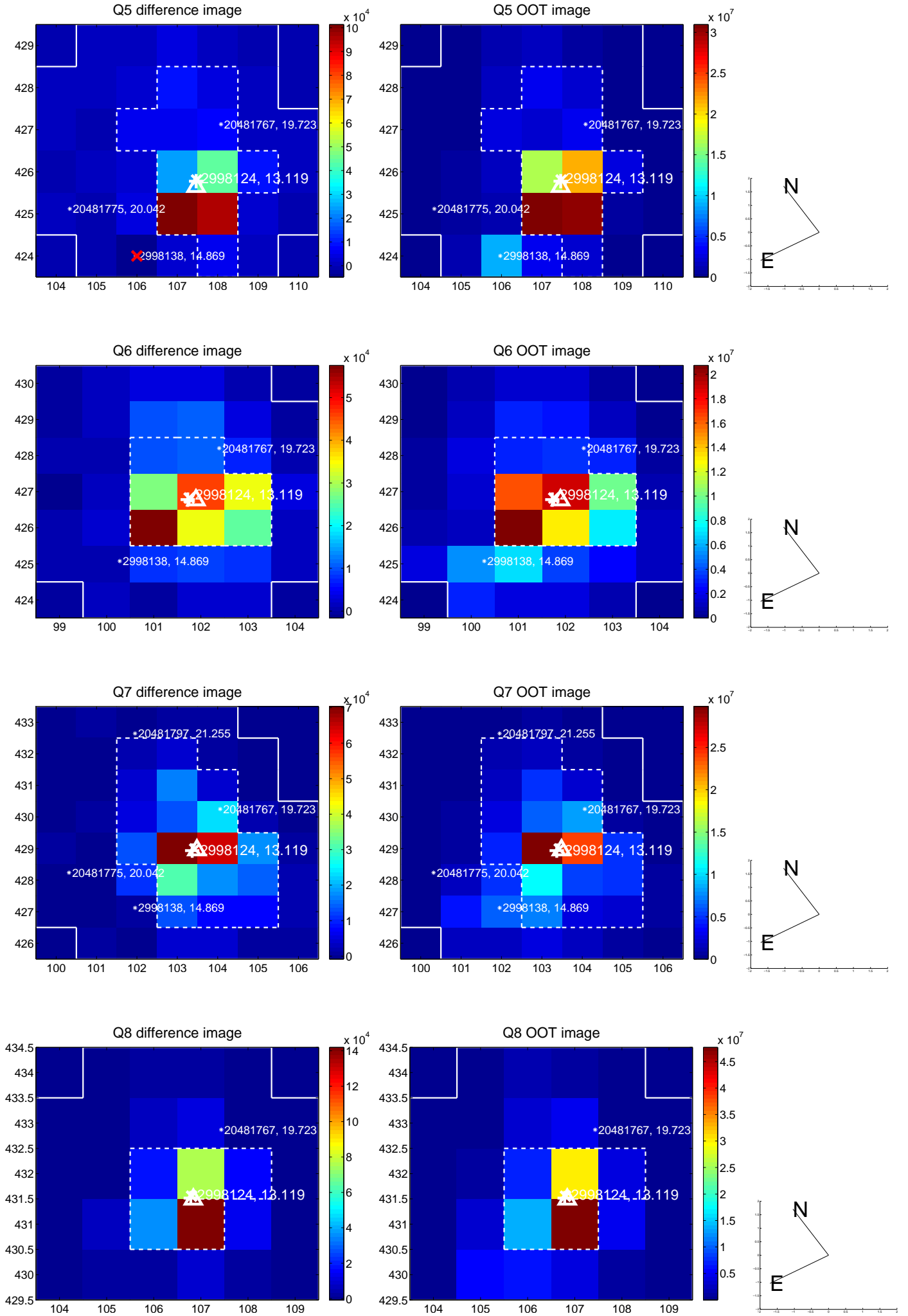


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

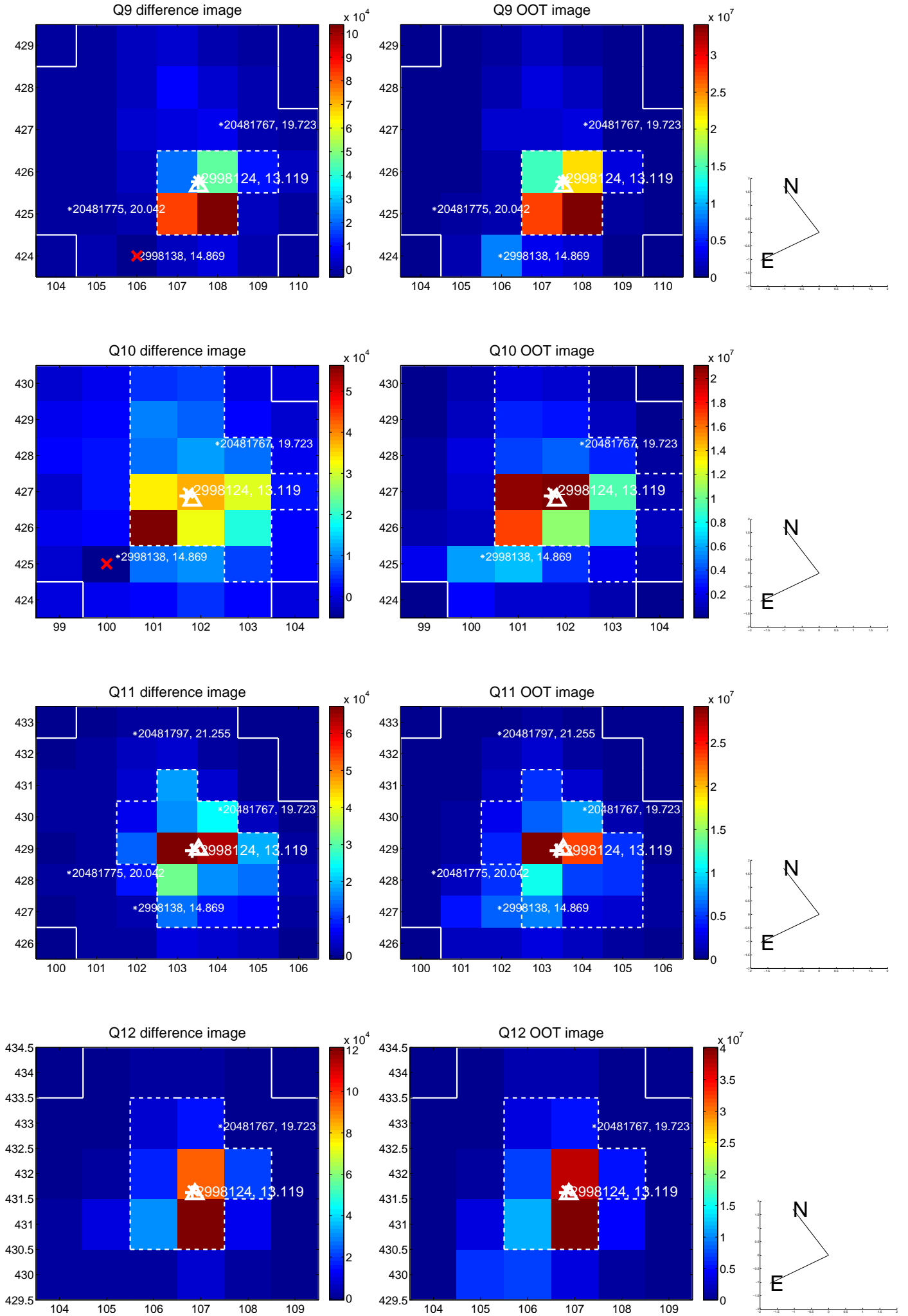
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



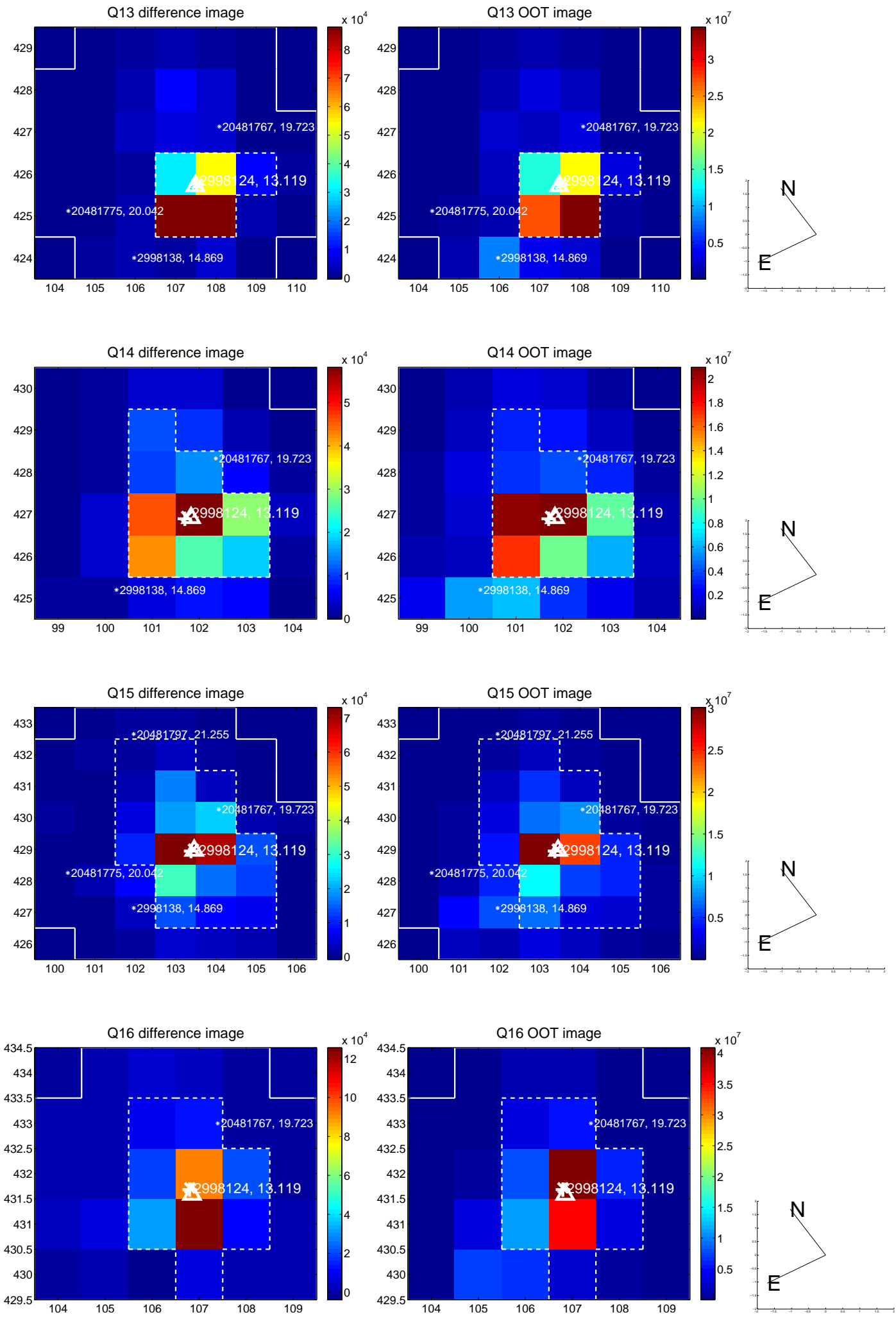
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



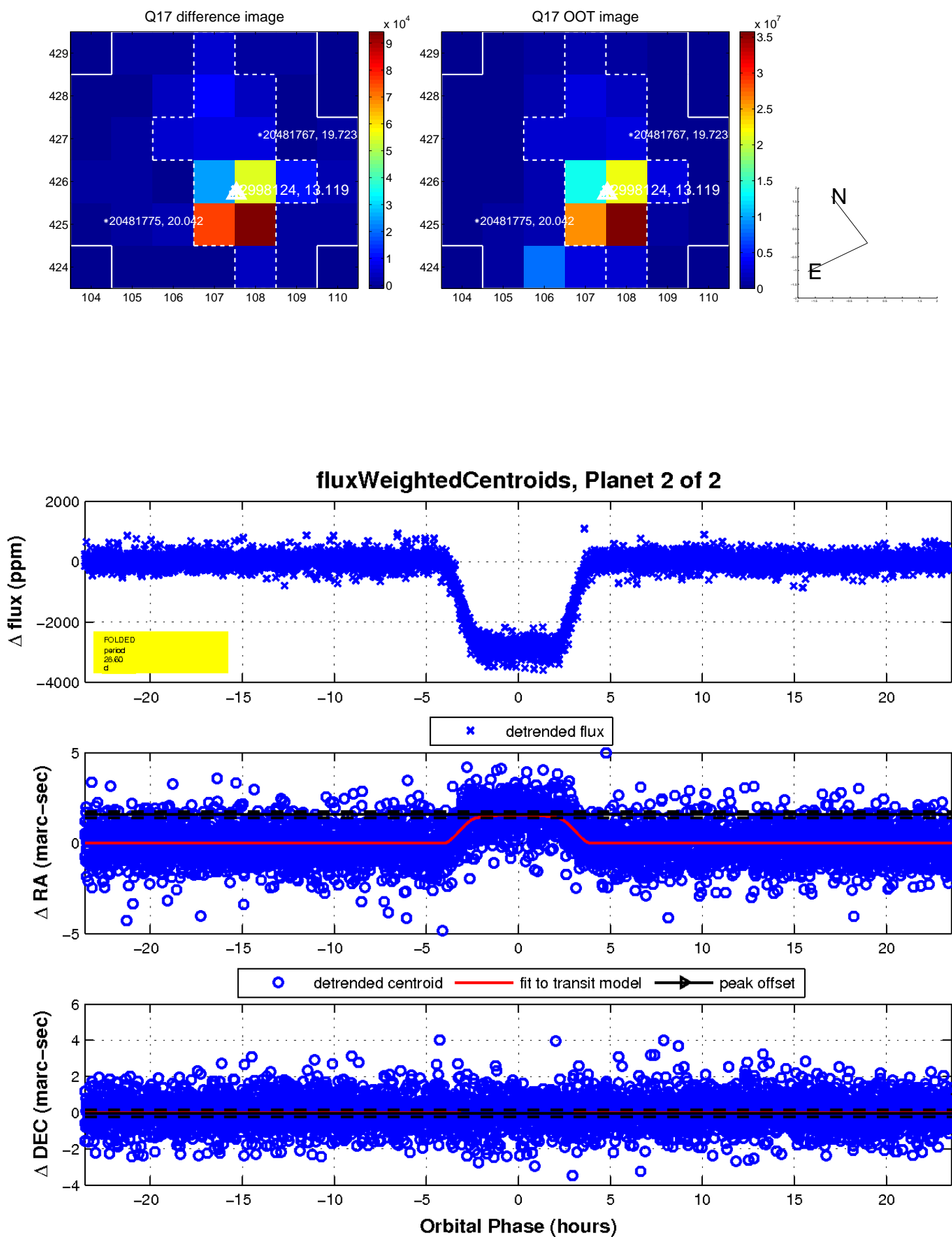
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

