

KIC 006209798

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})
006209798-01	OBS	2196.01	1.205409	131.937370	92.7	1.144	14.9	29.8	1.12	6292	1.27	3697.13
006209798-02	OBS	No	0.602708	131.935148	56.8	1.217	19.0	19.5	1.12	6292	0.99	9316.12

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
006209798-01	OBS	FP	0.00	0	1	1	0	MOD_SEC_DV—MOD_SEC_ALT—HAS_SEC_TCE—CENT_RESOLVED_OFFSET
006209798-02	OBS	FP	0.00	1	1	1	0	IS_SEC_TCE—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 006209798-01

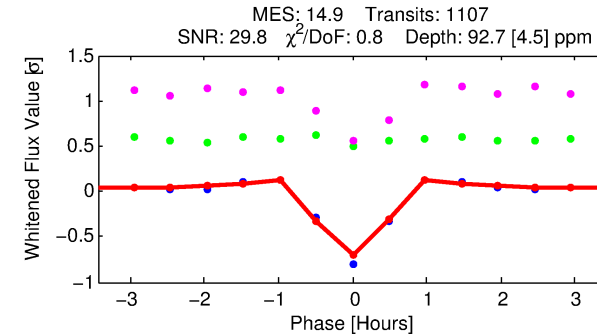
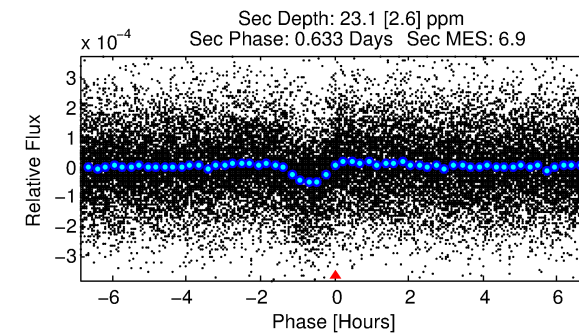
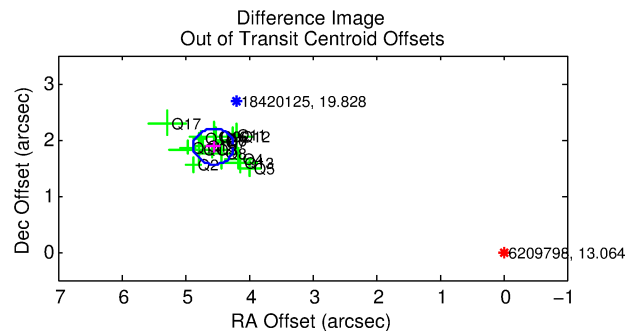
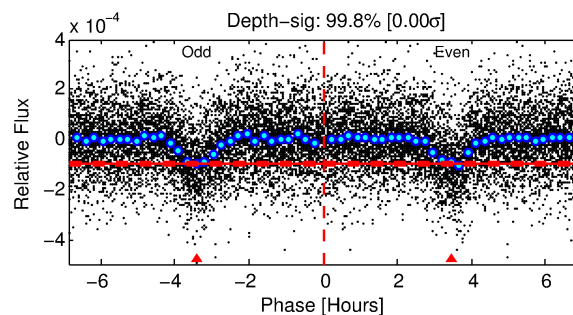
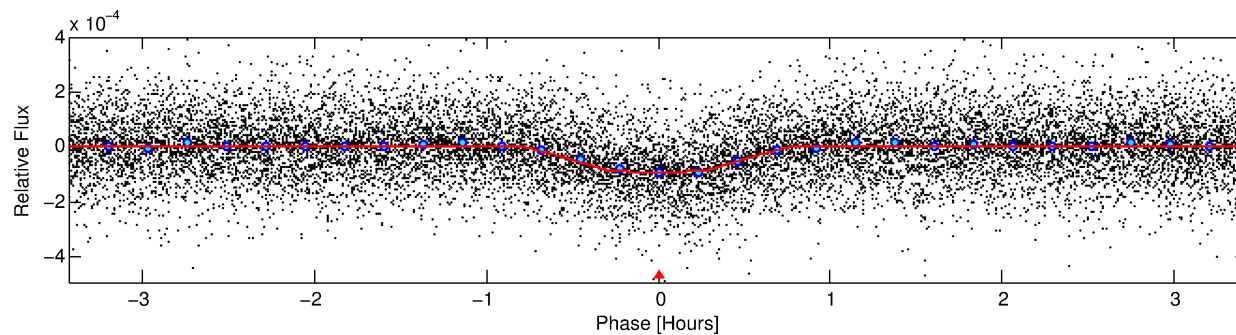
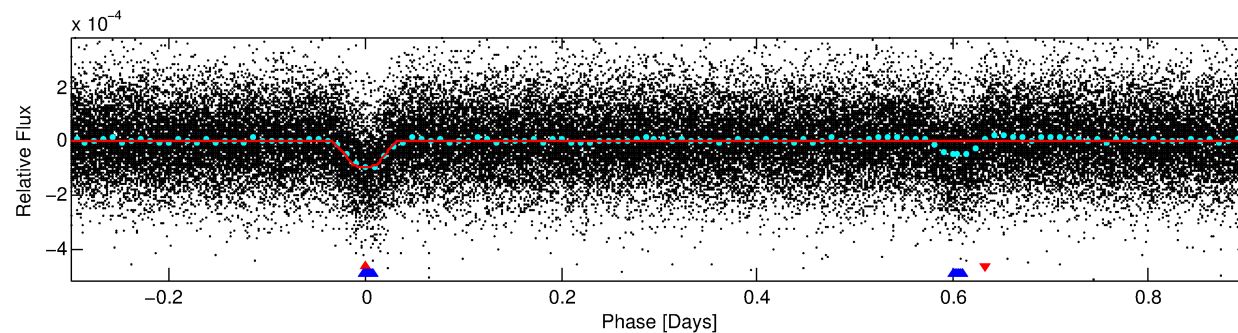
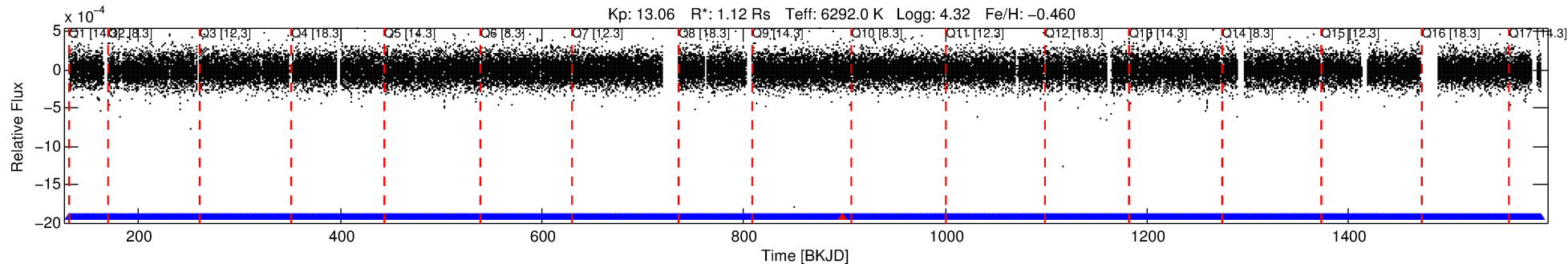
No Significant Match Found

DV One-Page Summary

KIC: 6209798 Candidate: 1 of 2 Period: 1.205 d

KOI: K02196.01 Corr: 0.853

Kp: 13.06 R*: 1.12 Rs Teff: 6292.0 K Logg: 4.32 Fe/H: -0.460



DV Fit Results:

Period = 1.20541 [0.00000] d
Epoch = 131.9374 [0.0006] BKJD
Rp/R* = 0.0104 [0.0019]
a/R* = 3.81 [3.73]
b = 0.90 [0.23]
Seff = 3697.13 [1012.09]
Teq = 1988 [136] K
Rp = 1.27 [0.35] Re
a = 0.0219 [0.0037] AU
Ag = 3.76 [1.73] [1.60σ]
Teffp = 4280 [435] K [5.03σ]

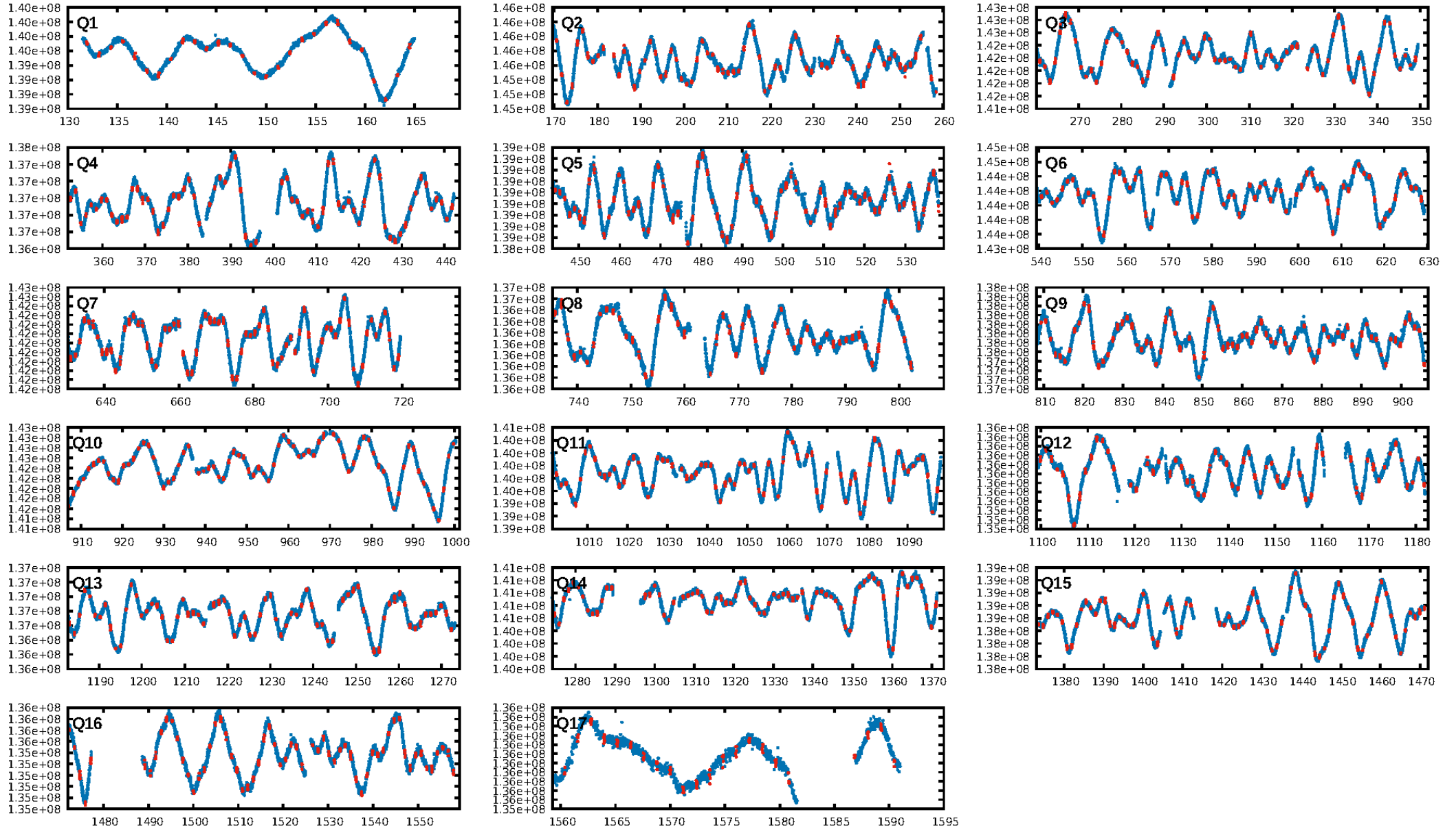
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [8.66σ]
LongPeriod-sig: N/A
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: 4.44e-46
RollingBand-fgt: 1.00 [1056/1057]
GhostDiagnostic-chr: 0.7897
Centroid-sig: N/A
Centroid-so: 1.633 arcsec [3.25σ]
OotOffset-rm: 4.923 arcsec [46.44σ]
KicOffset-rm: 4.866 arcsec [45.63σ]
OotOffset-st: 4/4/4/5 [17]
KicOffset-st: 4/4/4/5 [17]
DiffImageQuality-fgm: 1.00 [17/17]
DiffImageOverlap-fno: 0.00 [0/17]

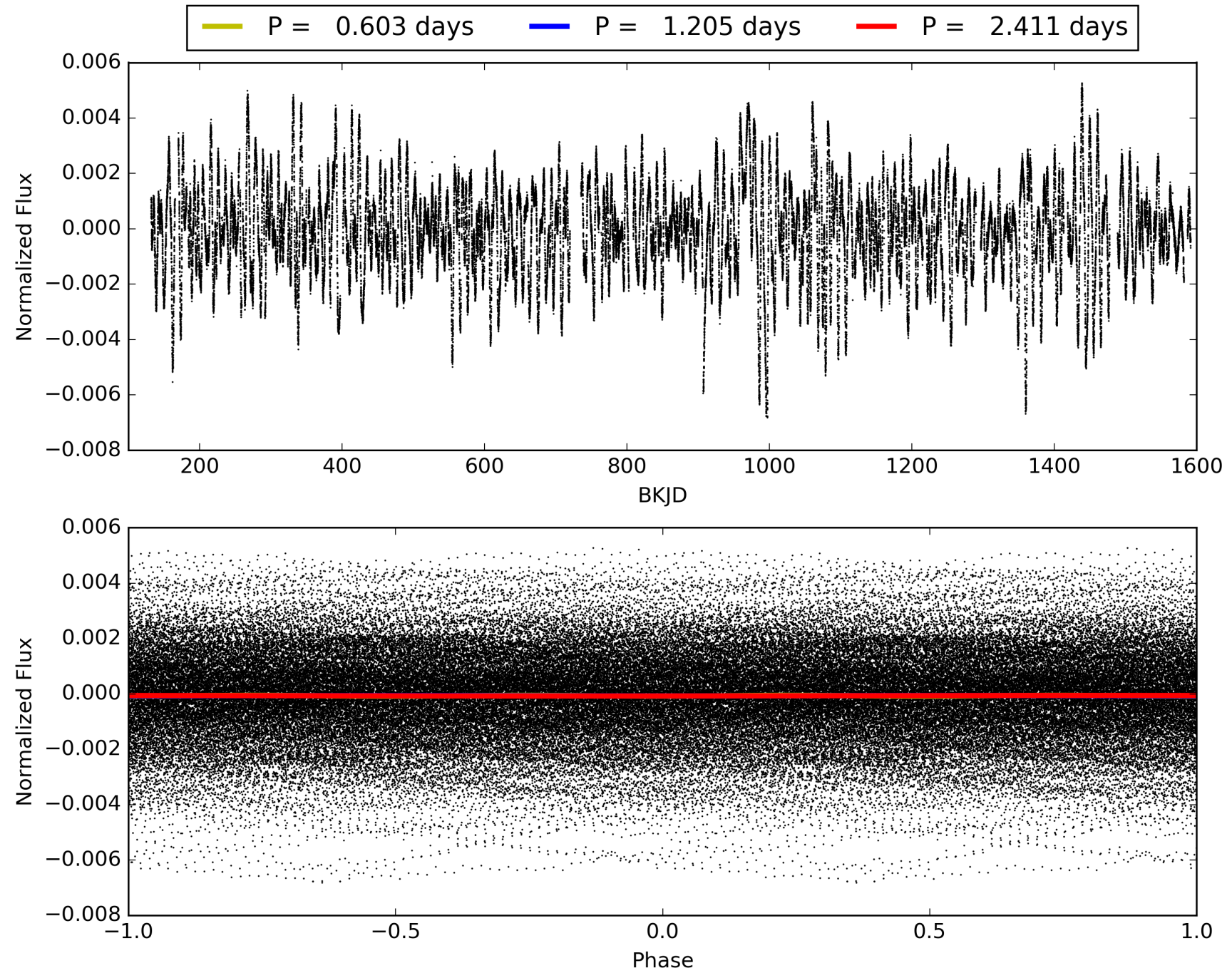
Software Revision: svn-ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 31-Jan-2016 03:22:59 Z

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

TCE 006209798-01, PDC Light Curves

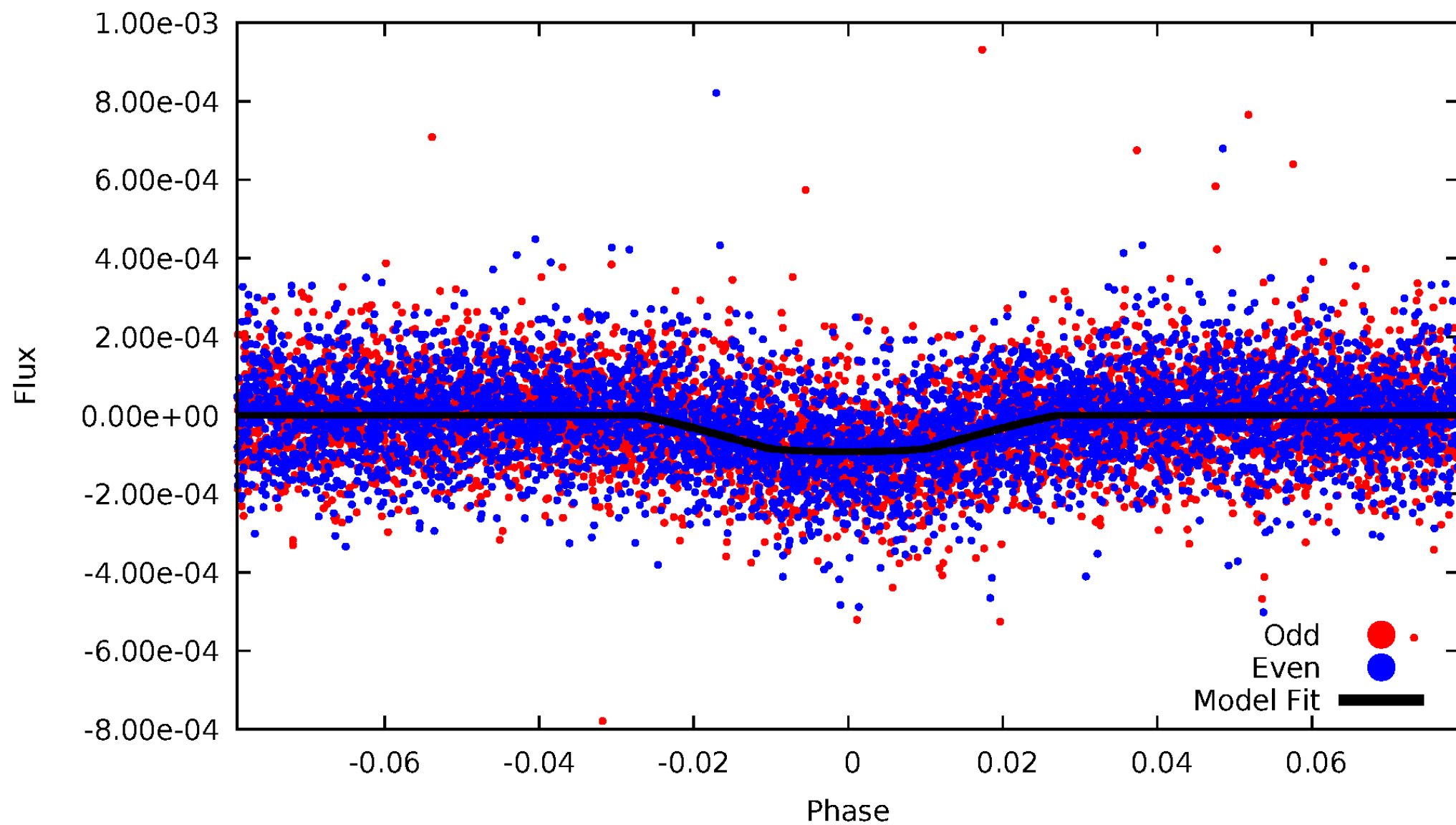


TCE 006209798-01



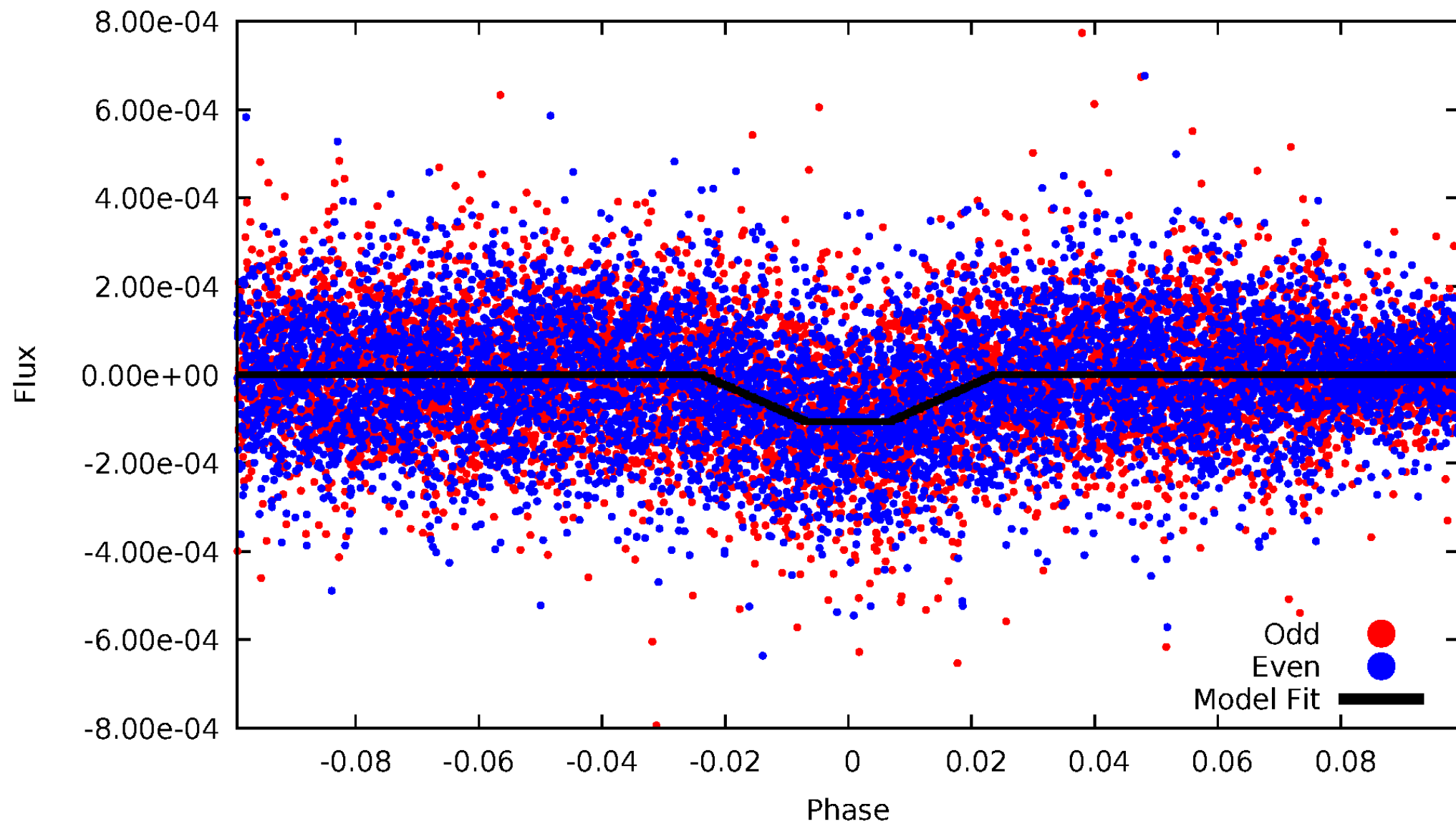
DV Odd/Even

TCE 006209798-01



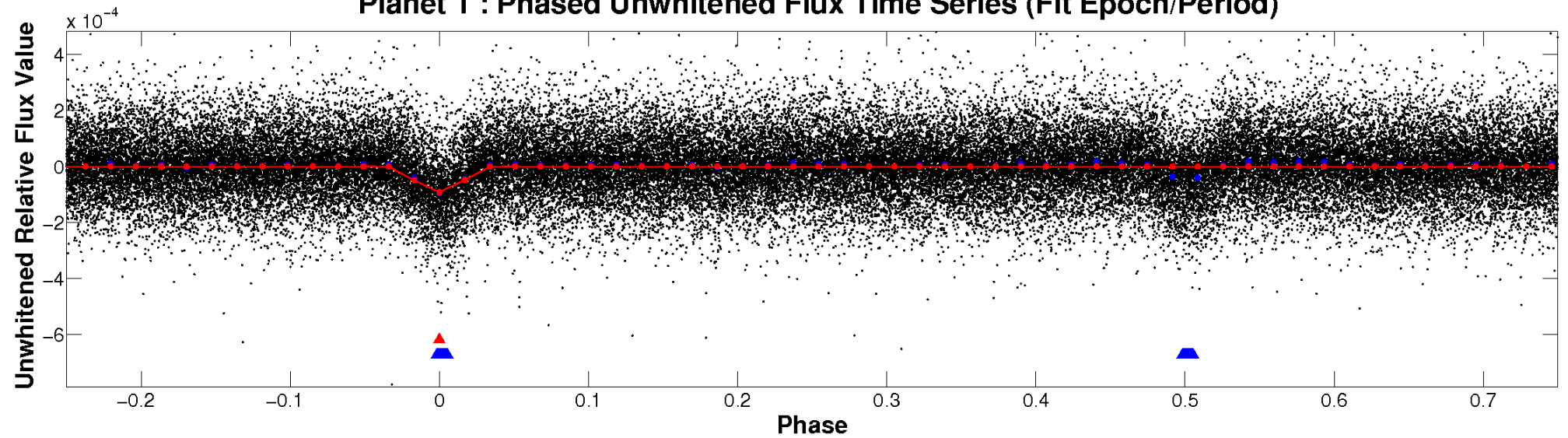
ALT Odd/Even

TCE 006209798-01

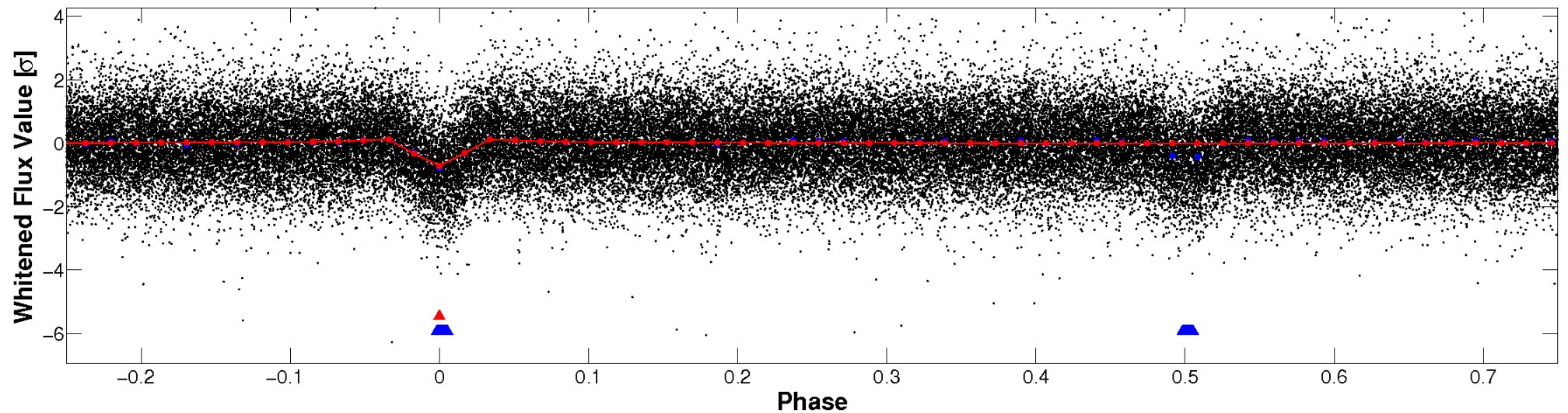


Non-Whitened Vs. Whitened Light Curve

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

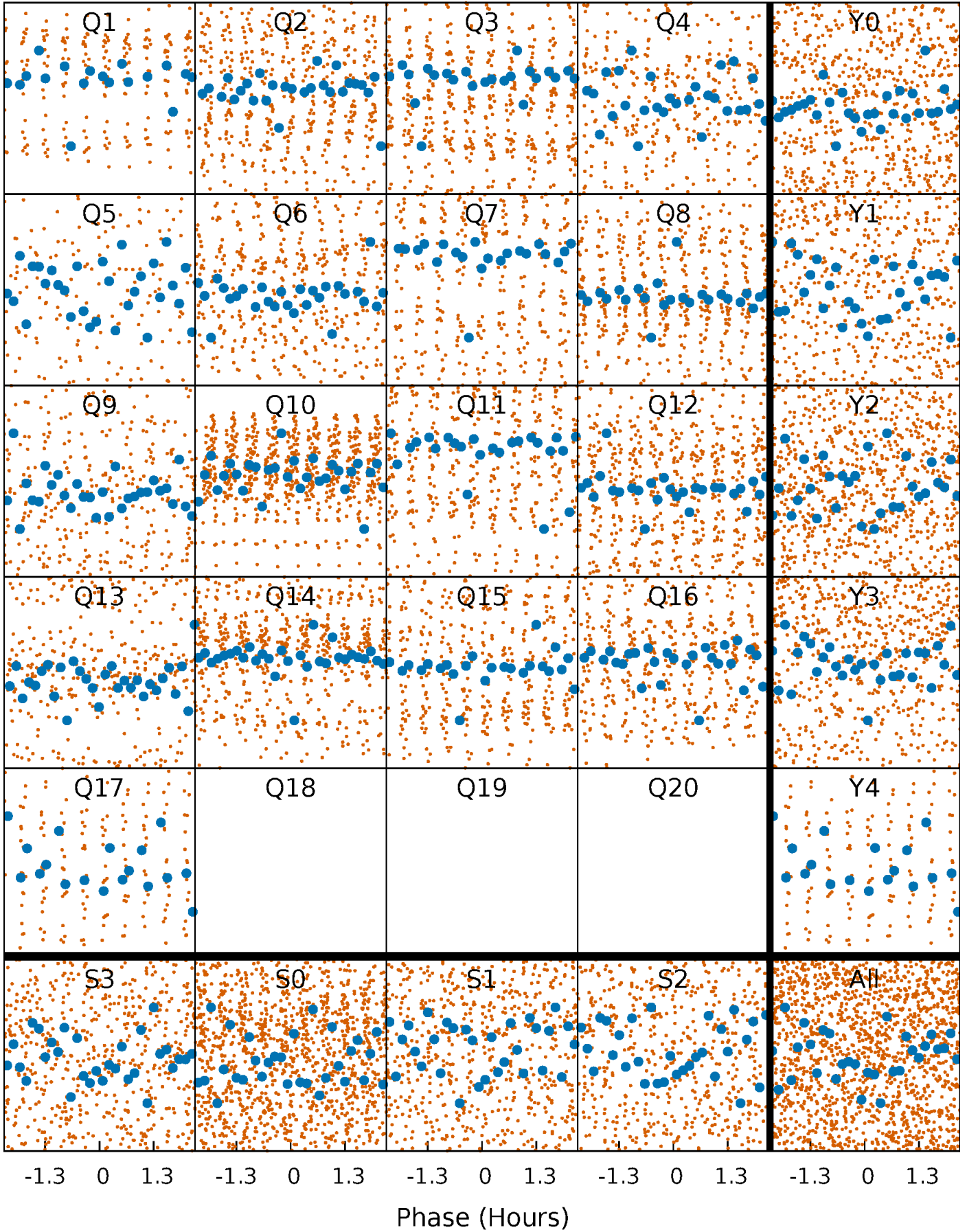


Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)



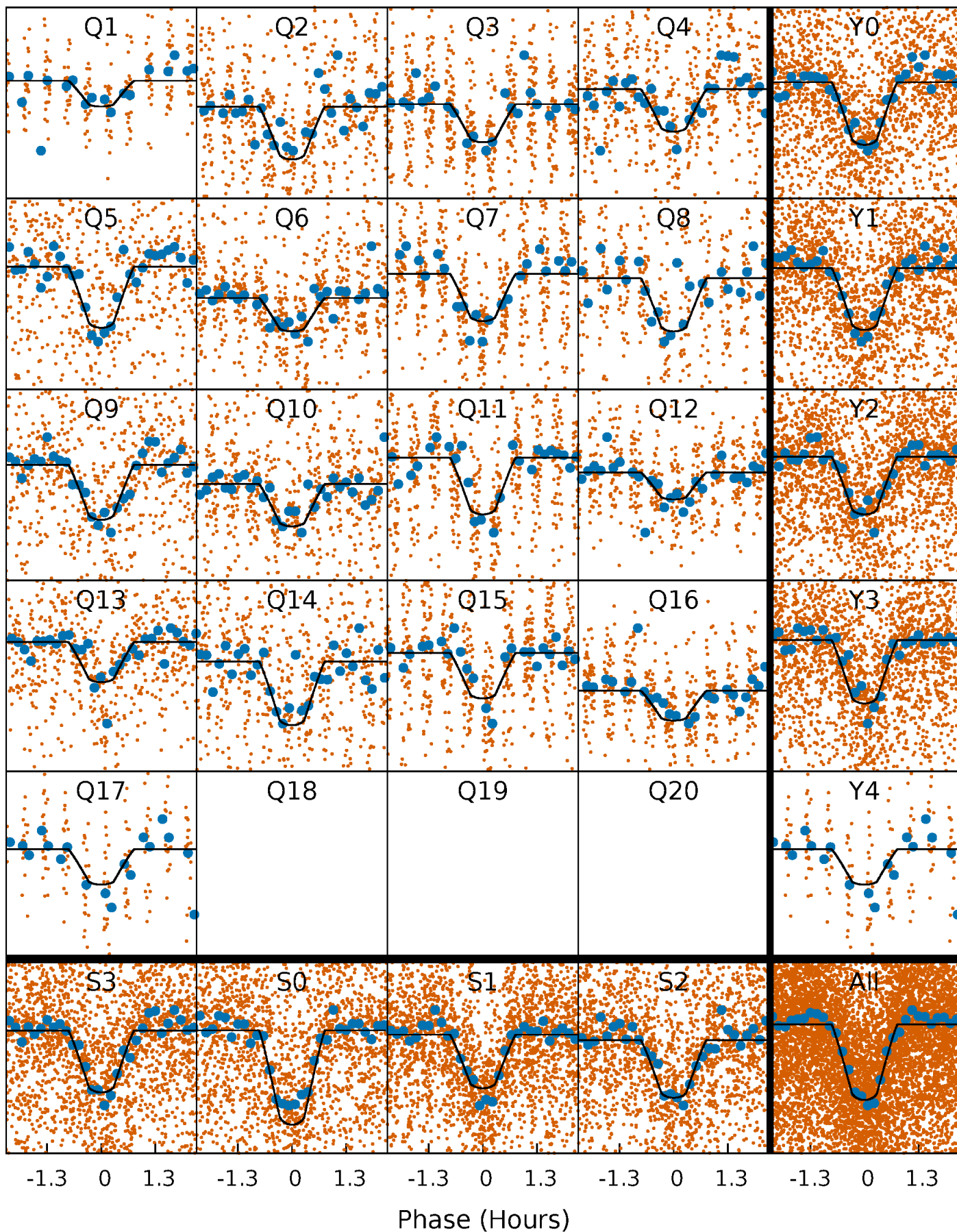
PDC Quarter-Phased Transit Curves

TCE 006209798-01 P= 1.205409 Days $T_0=131.937370$ (BKJD)



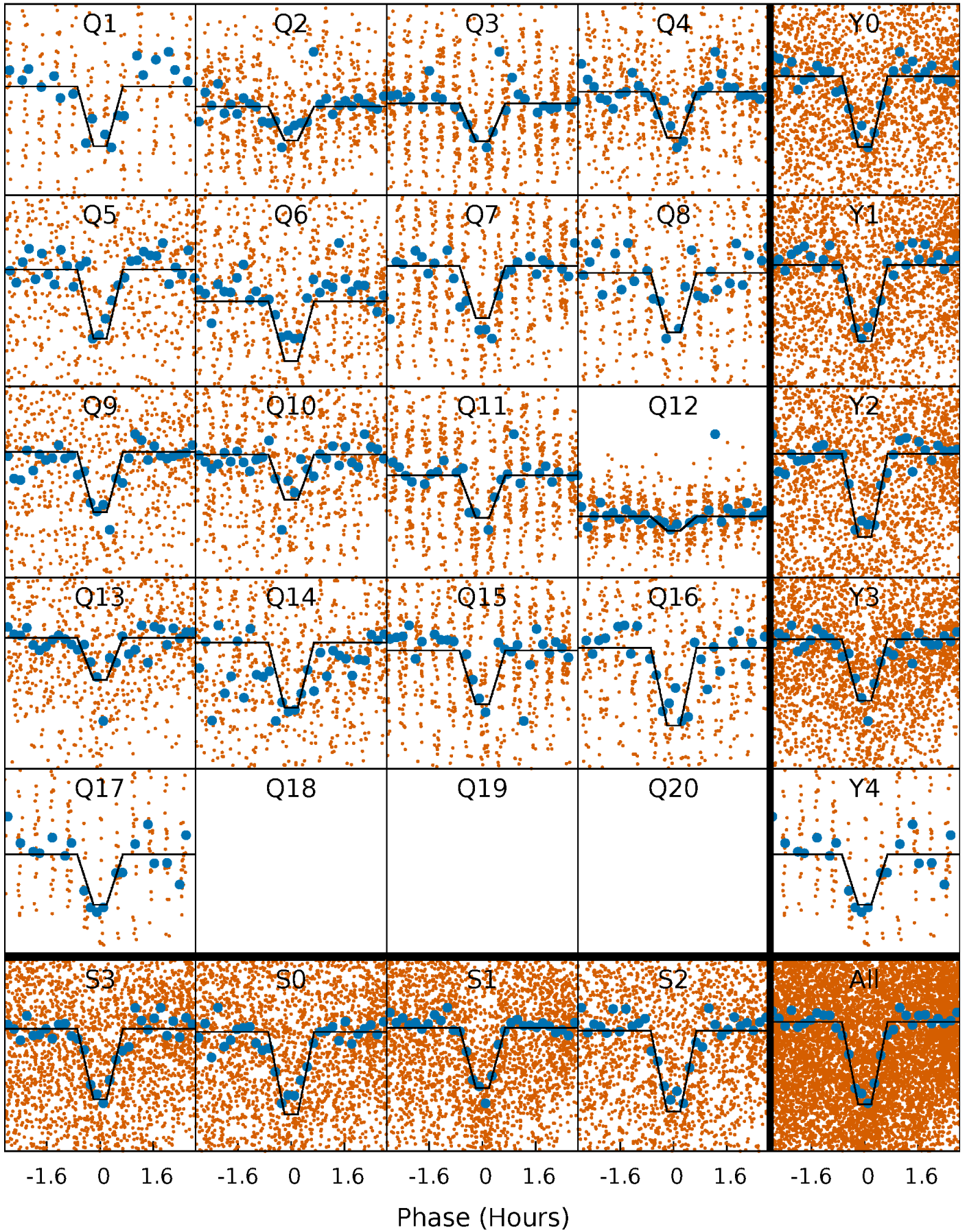
DV Quarter-Phased Transit Curves

TCE 006209798-01 P= 1.205409 Days $T_0=131.937370$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

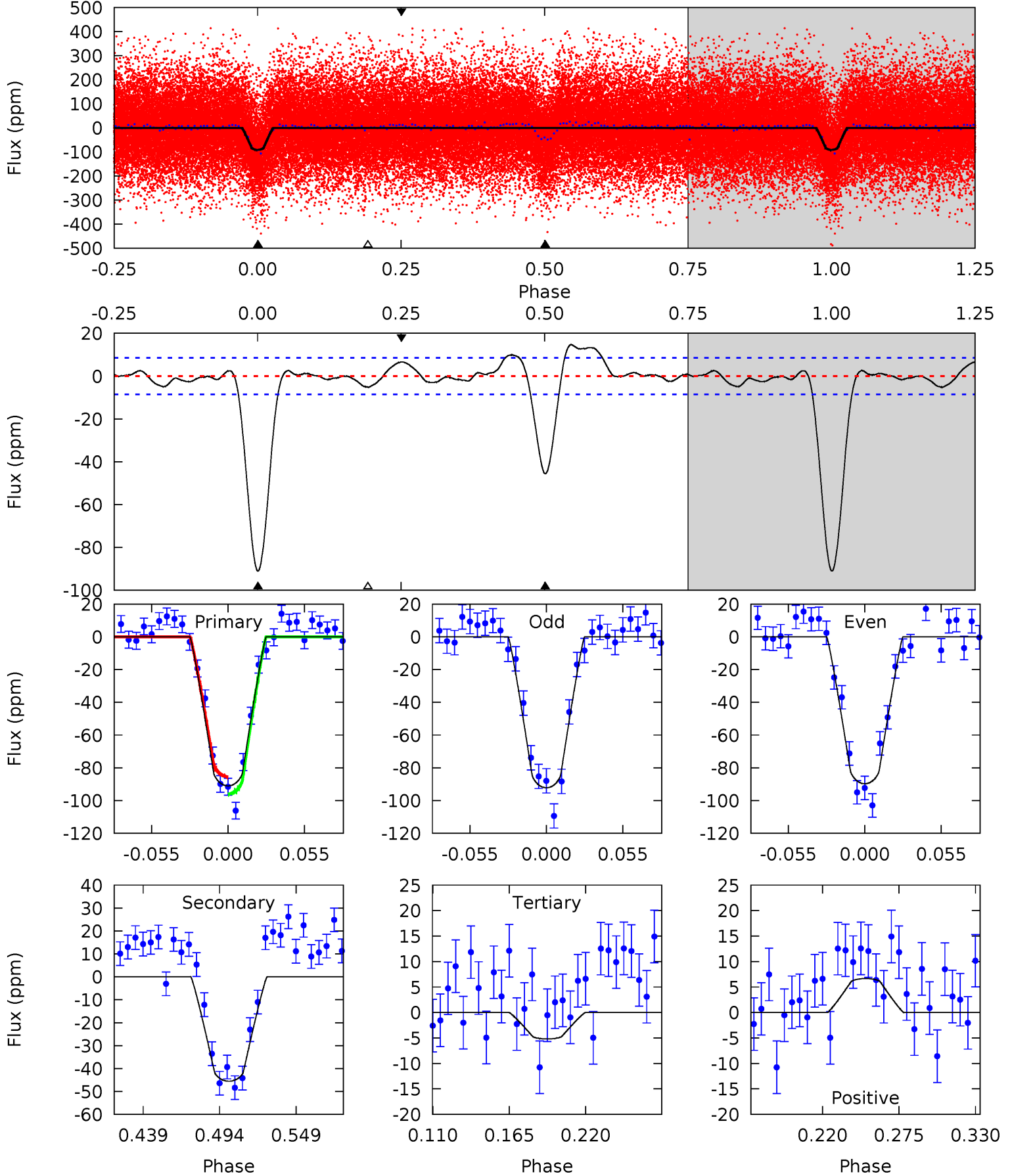
TCE 006209798-01 P= 1.205413 Days $T_0=131.936248$ (BKJD)



DV Model-Shift Uniqueness Test

006209798-01, P = 1.205409 Days, E = 130.731961 Days

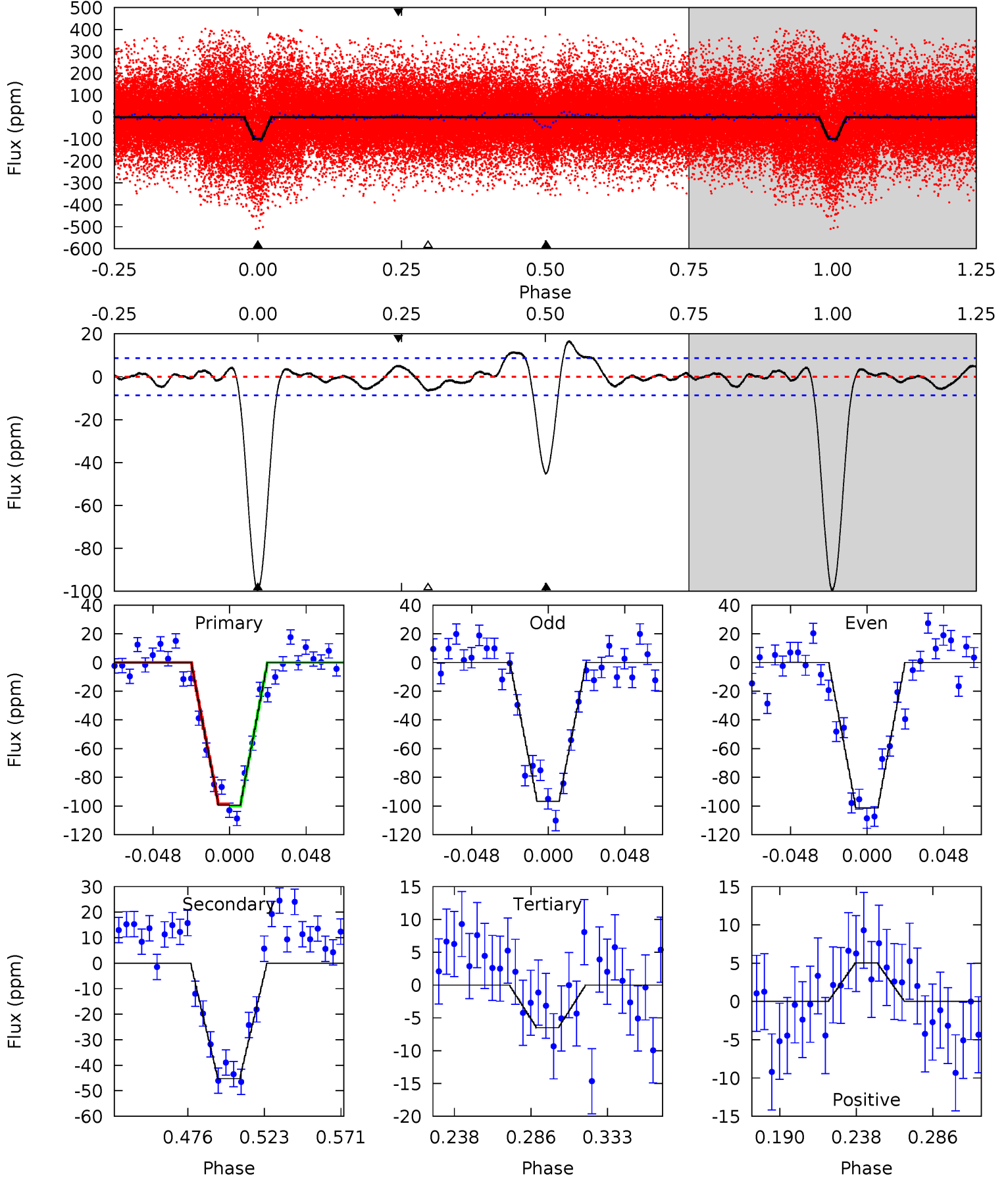
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
50.1	25.1	2.86	3.67	4.69	1.92	2.18	47.2	46.4	22.2	21.4	0.69	0.96	0.14	2.91



Alt Model-Shift Uniqueness Test

006209798-01, P = 1.205413 Days, E = 130.730835 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
54.1	24.6	3.53	2.74	4.72	1.98	2.05	50.6	51.4	21.1	21.9	1.24	0.97	0.14	0.39



Stellar Parameters For KIC 006209798

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	6292^{+170}_{-189}	$4.320^{+0.135}_{-0.135}$	$-0.460^{+0.300}_{-0.300}$	$1.122^{+0.223}_{-0.183}$	$0.959^{+0.135}_{-0.098}$	$0.957^{+0.583}_{-0.359}$
	+3%/-3%	+3%/-3%	+65%/-65%	+20%/-16%	+14%/-10%	+61%/-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 006209798-01 / KOI 2196.01

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	-46 ± 2	$1.27^{+0.29}_{-0.25}$	2774^{+156}_{-152}	5103^{+522}_{-411}	$7.533^{+4.165}_{-2.485}$
Alt.	-45 ± 2	$1.27^{+0.29}_{-0.27}$	2773^{+157}_{-146}	5089^{+583}_{-409}	$7.582^{+4.479}_{-2.620}$

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

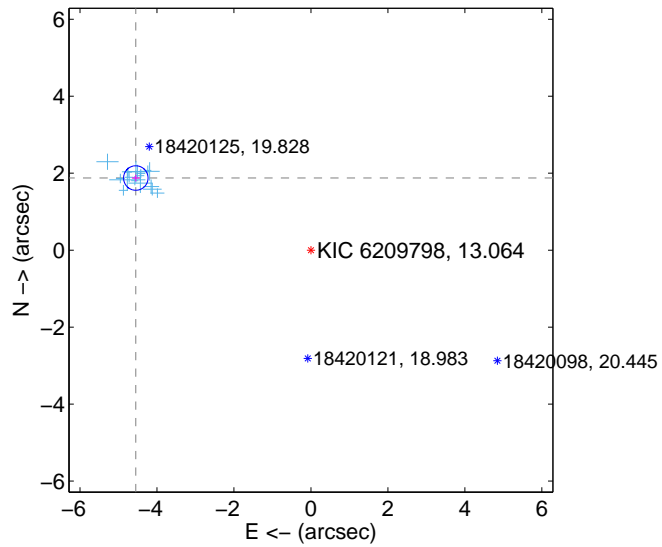
Supplemental centroid analysis for 006209798-01. Kepler magnitude: 13.06. Transit SNR 29.76

There are 17 quarters with good PRF difference image offsets

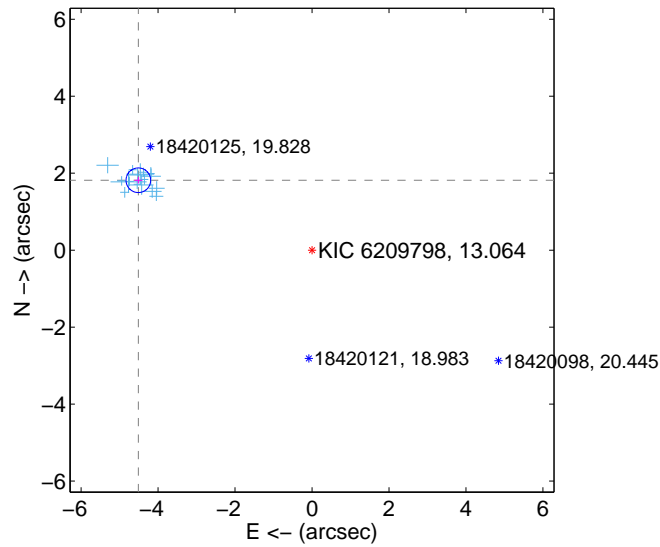
The direct PRF centroid is offset from the target star catalog position by about 0.09 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	4.923 ± 0.106	46.44	4.551 ± 0.102	1.875 ± 0.084
PRF-fit source offset from KIC position	4.866 ± 0.107	45.63	4.514 ± 0.103	1.817 ± 0.084
photometric centroid source offset	1.63 ± 0.50	3.25	1.61 ± 0.51	0.27 ± 0.42

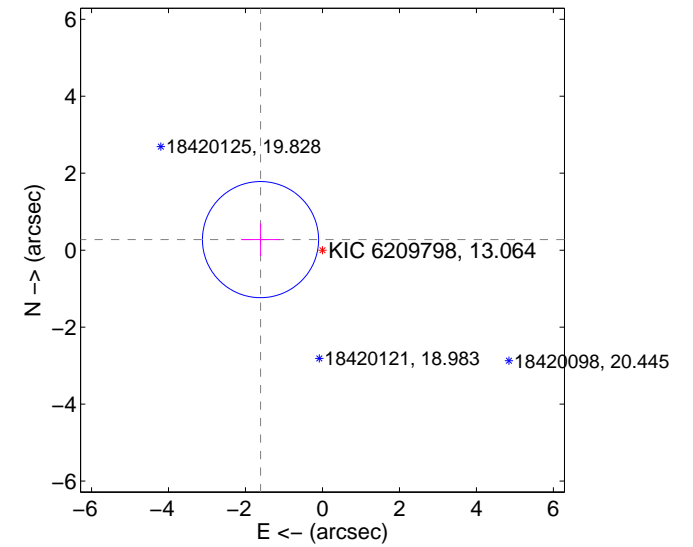
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position

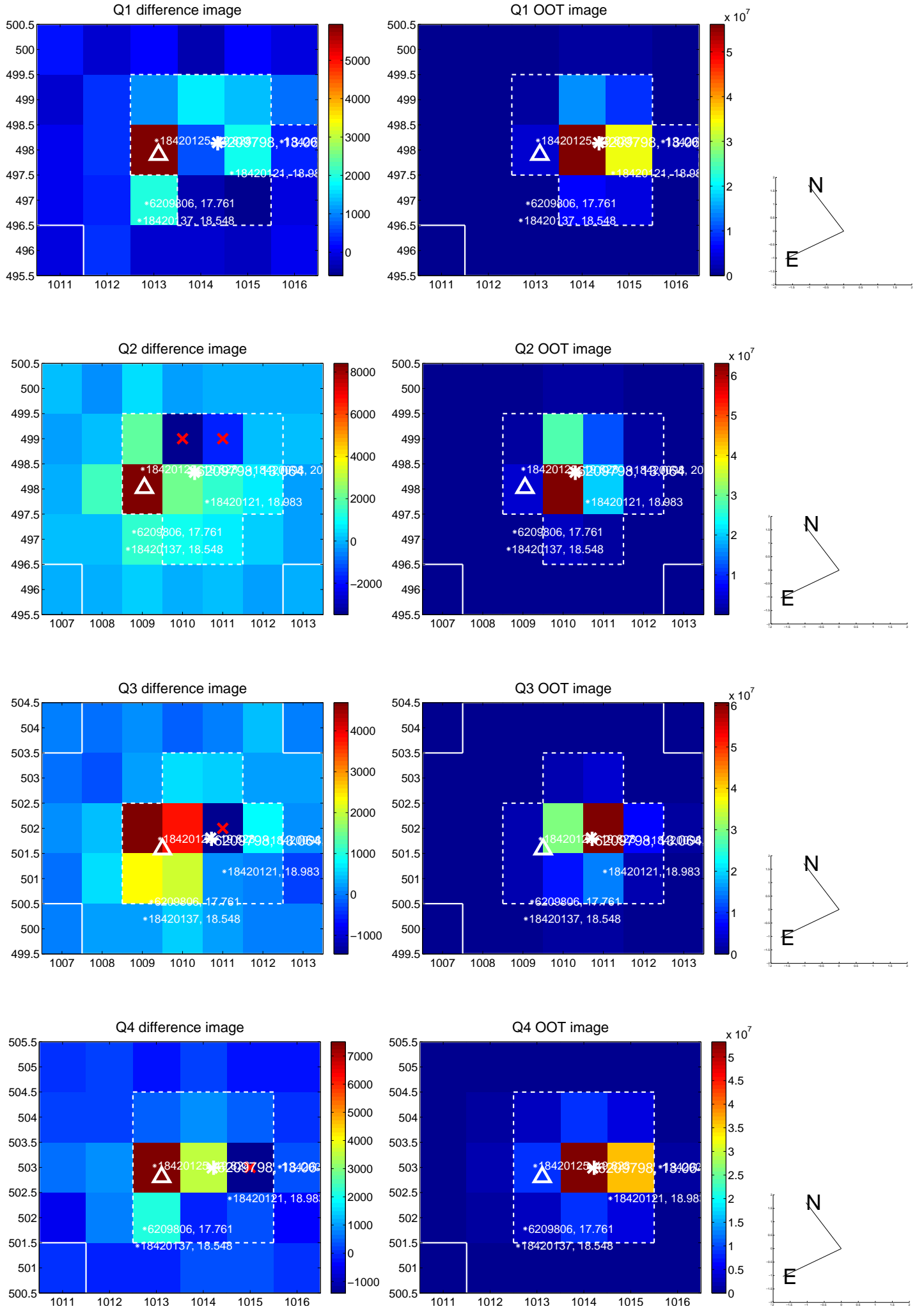


offset from photometric centroids

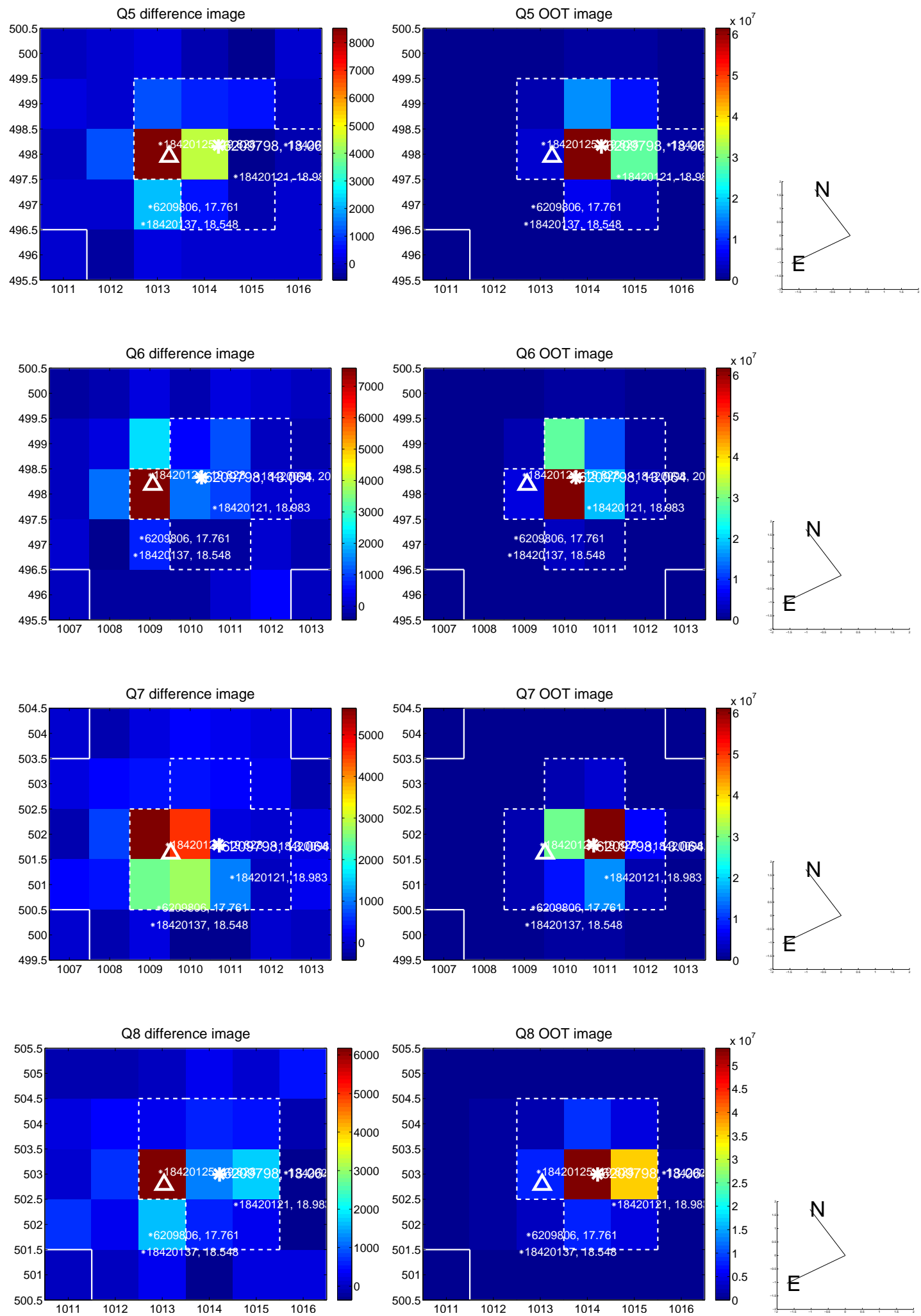


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ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

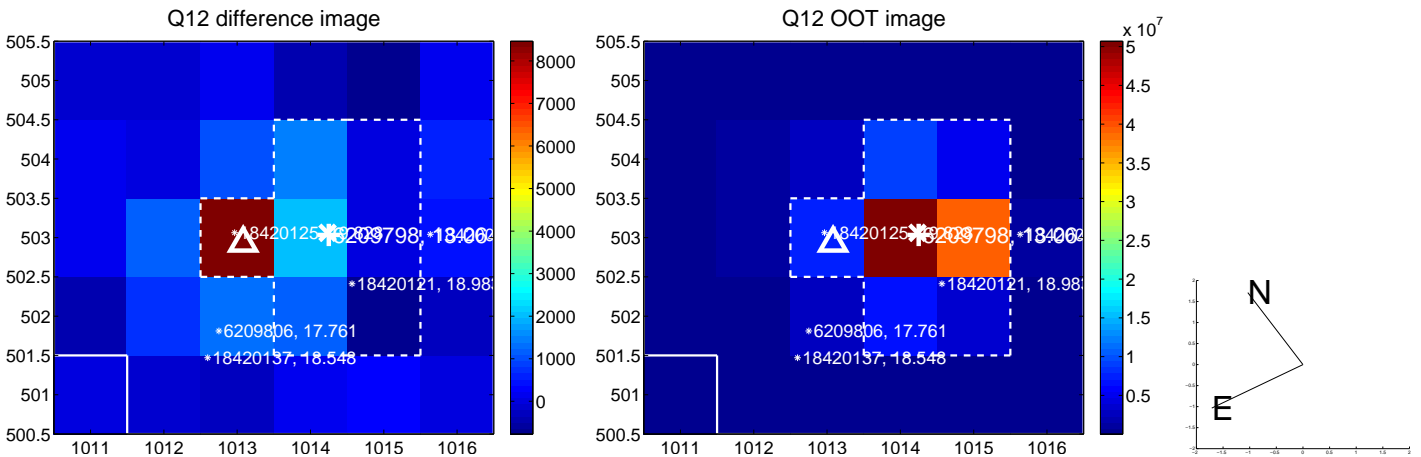
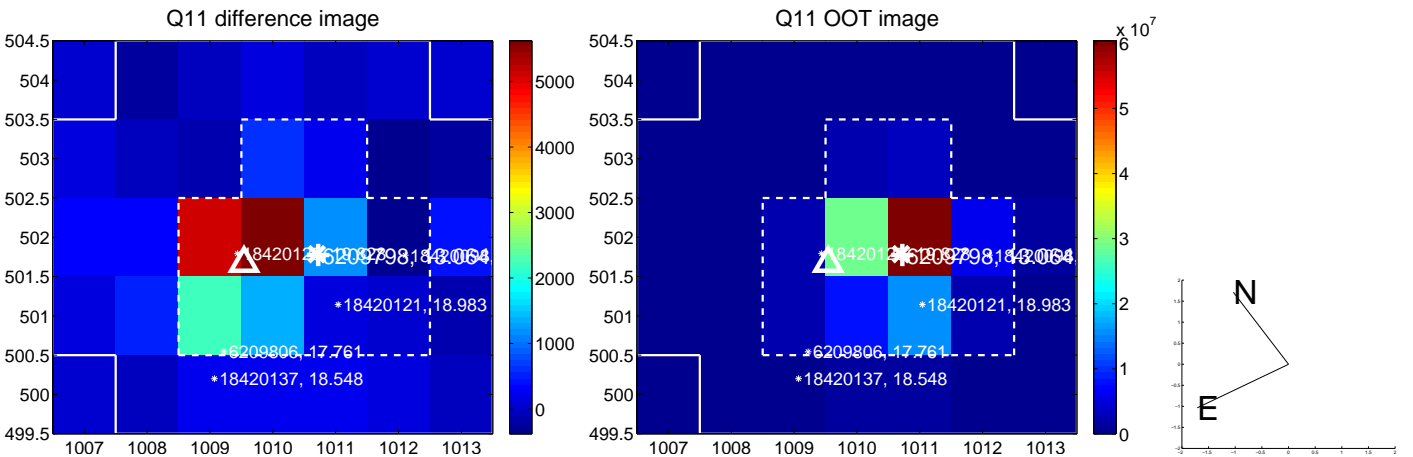
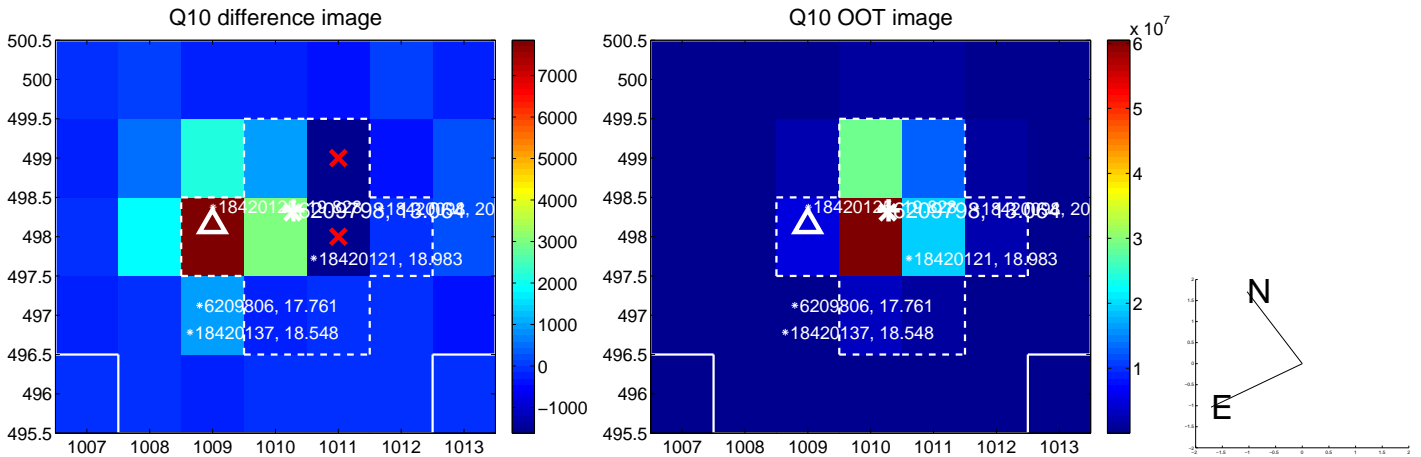
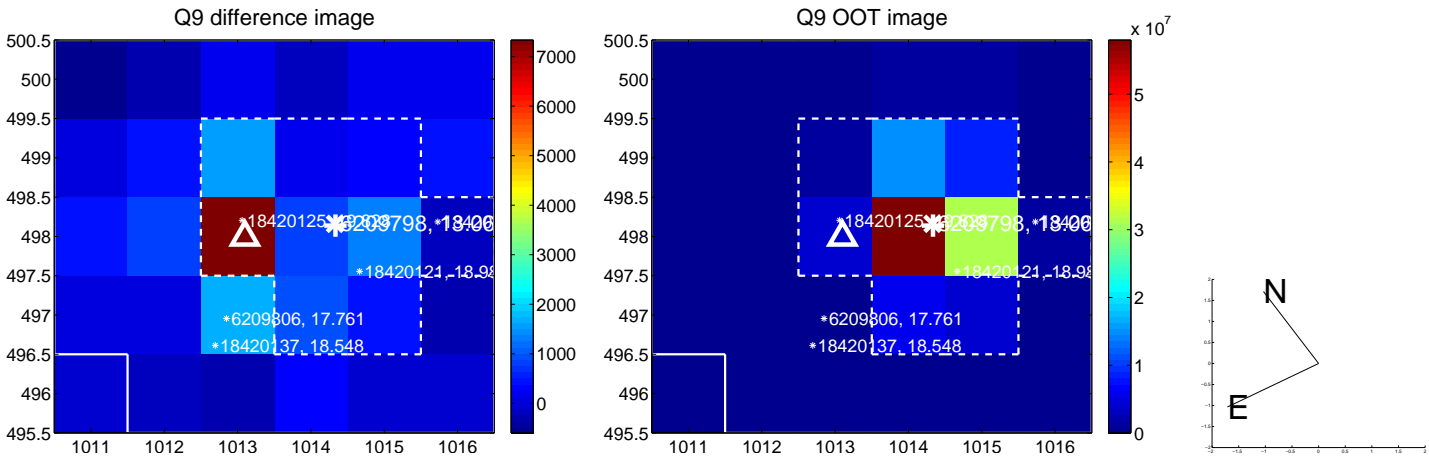
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



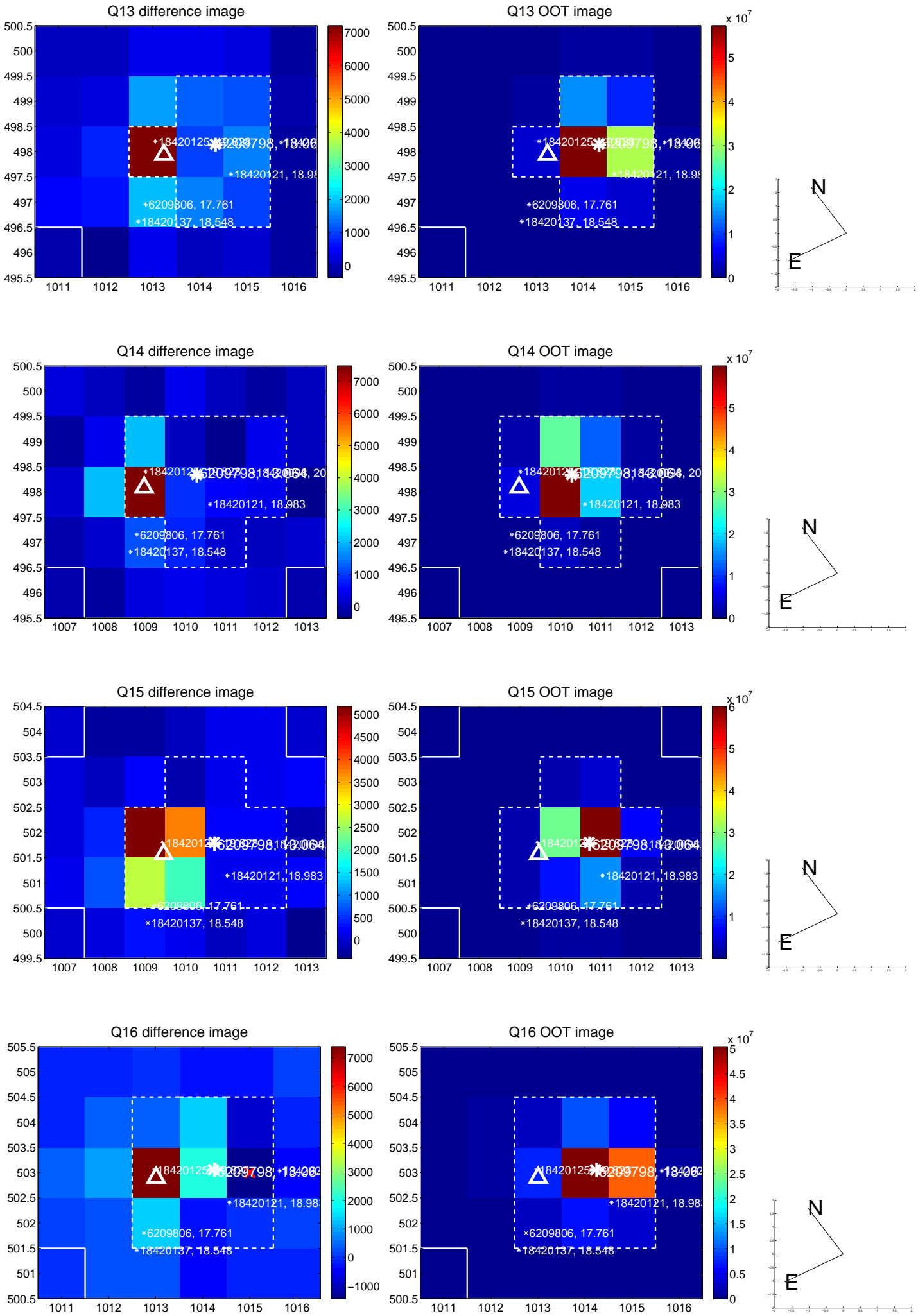
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



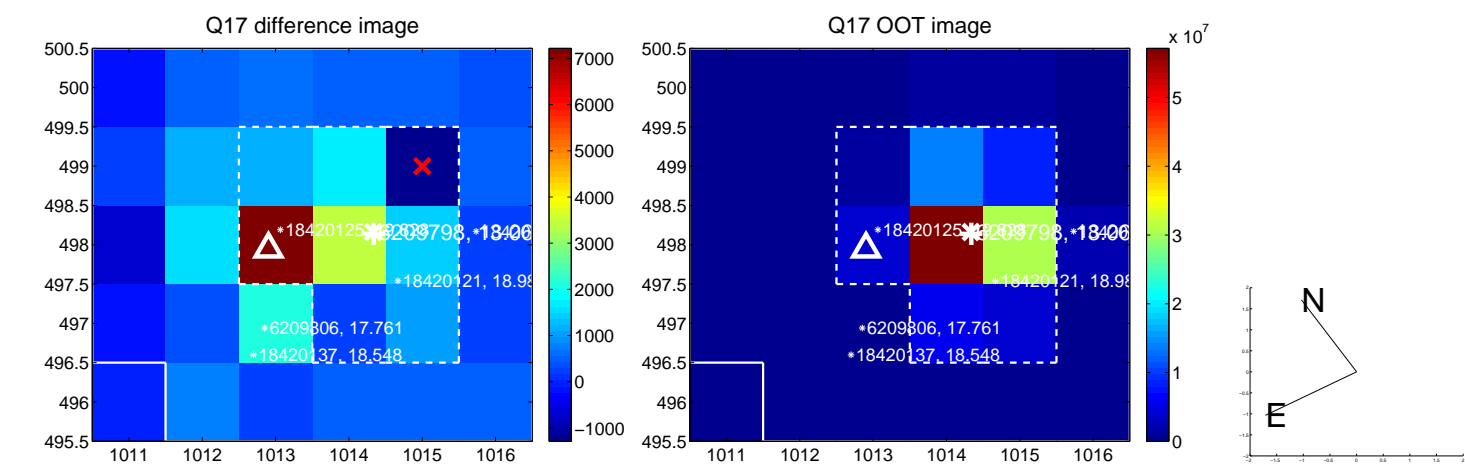
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



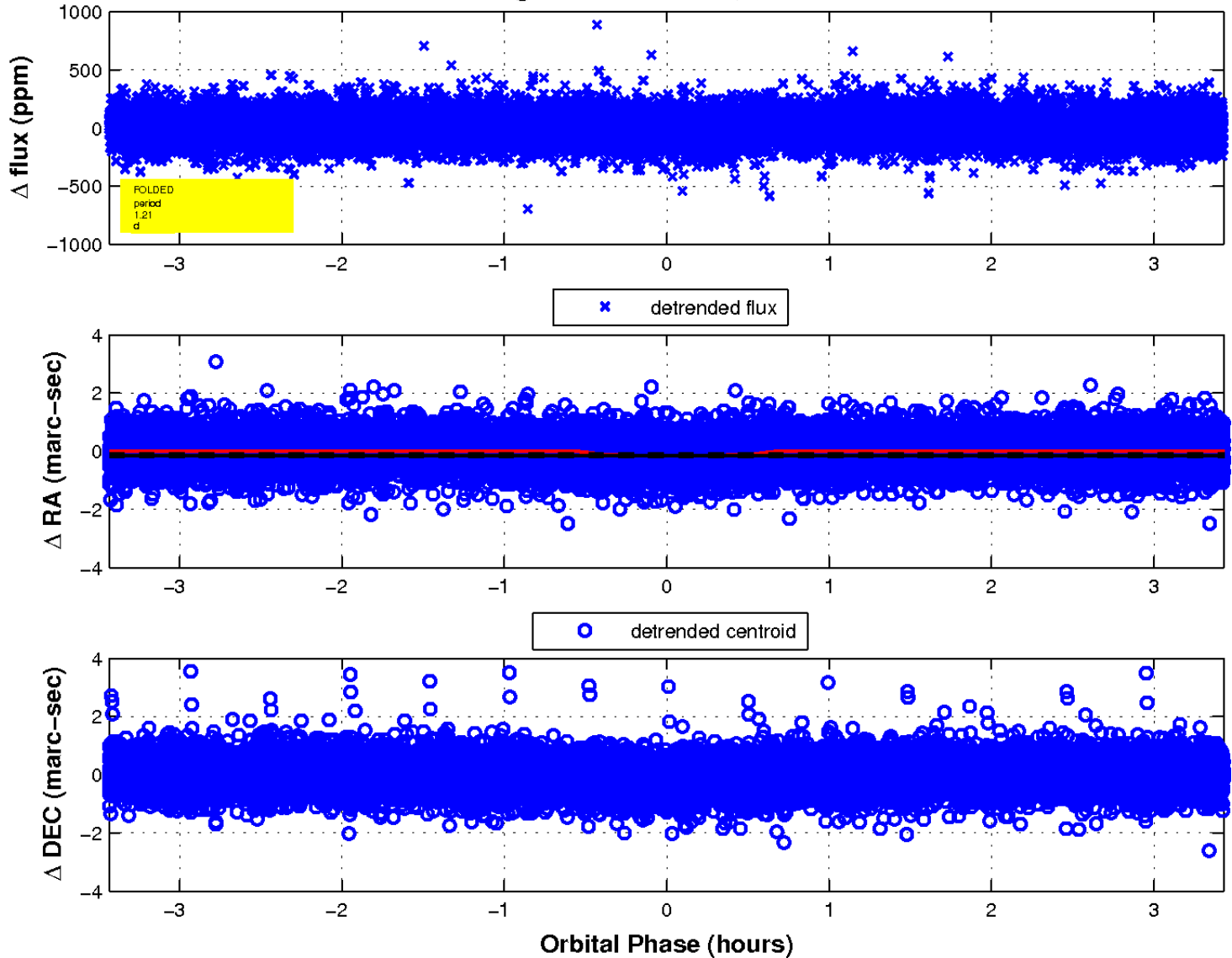
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

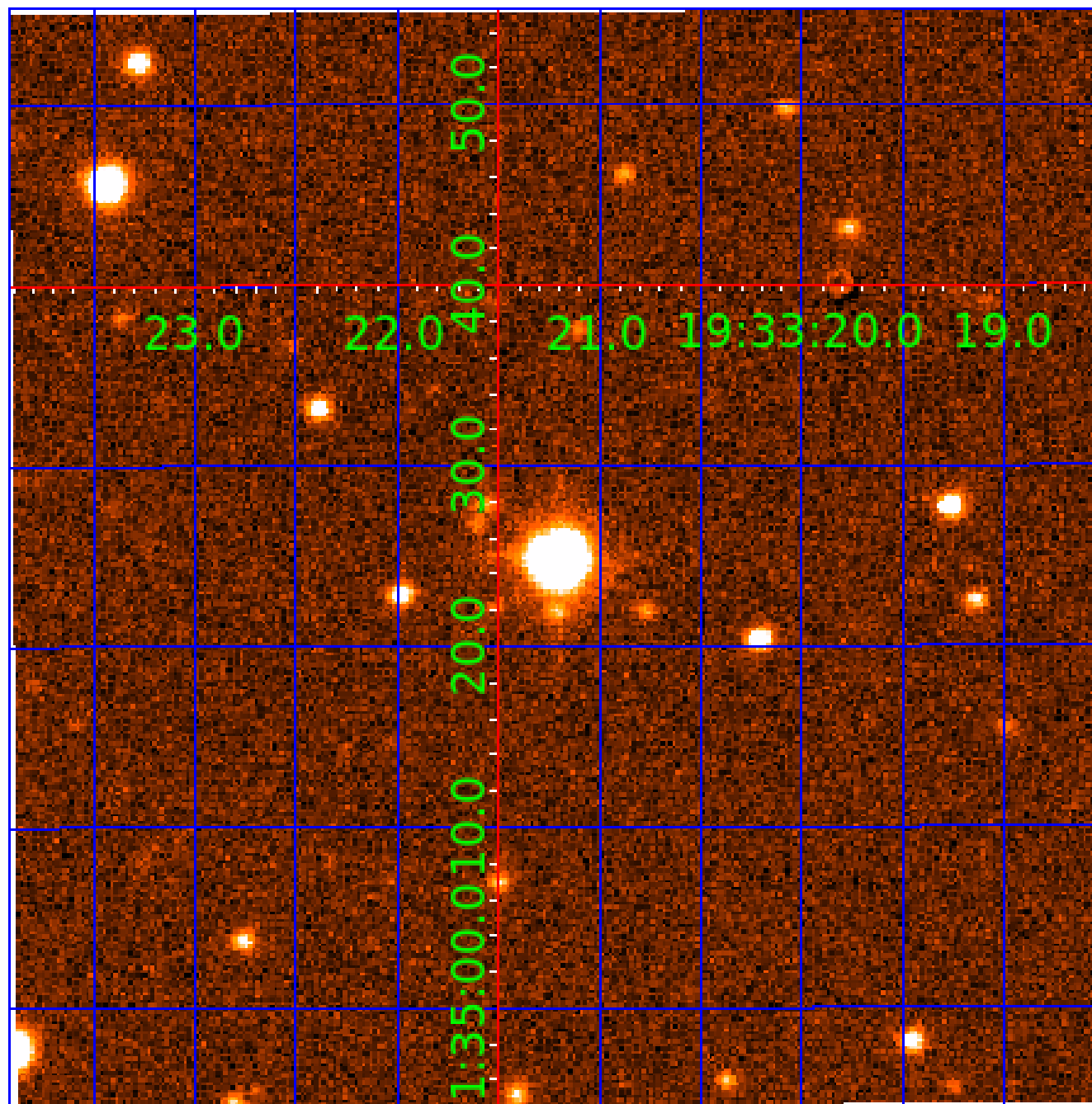


fluxWeightedCentroids, Planet 1 of 2



UKIRT Image

Declination



KIC 006209798

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})
006209798-01	OBS	2196.01	1.205409	131.937370	92.7	1.144	14.9	29.8	1.12	6292	1.27	3697.13
006209798-02	OBS	No	0.602708	131.935148	56.8	1.217	19.0	19.5	1.12	6292	0.99	9316.12

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
006209798-01	OBS	FP	0.00	0	1	1	0	MOD_SEC_DV—MOD_SEC_ALT—HAS_SEC_TCE—CENT_RESOLVED_OFFSET
006209798-02	OBS	FP	0.00	1	1	1	0	IS_SEC_TCE—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.

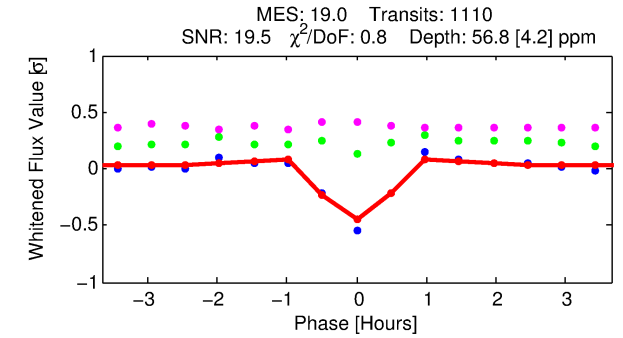
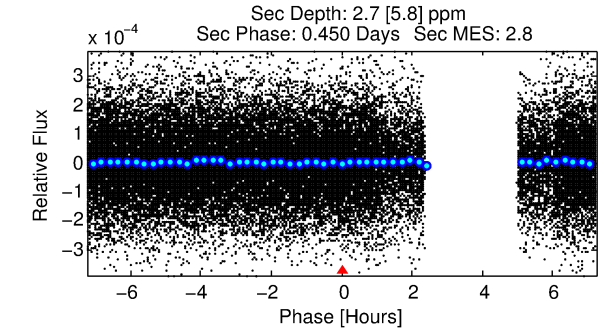
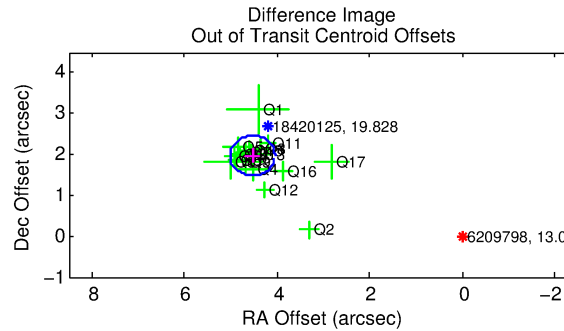
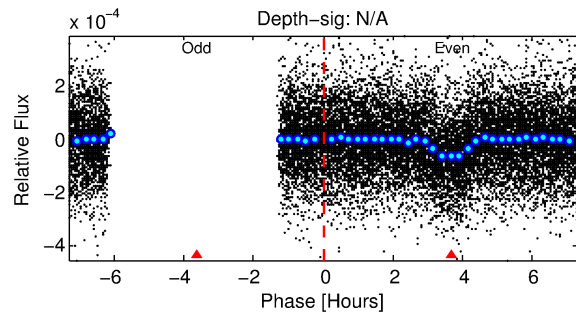
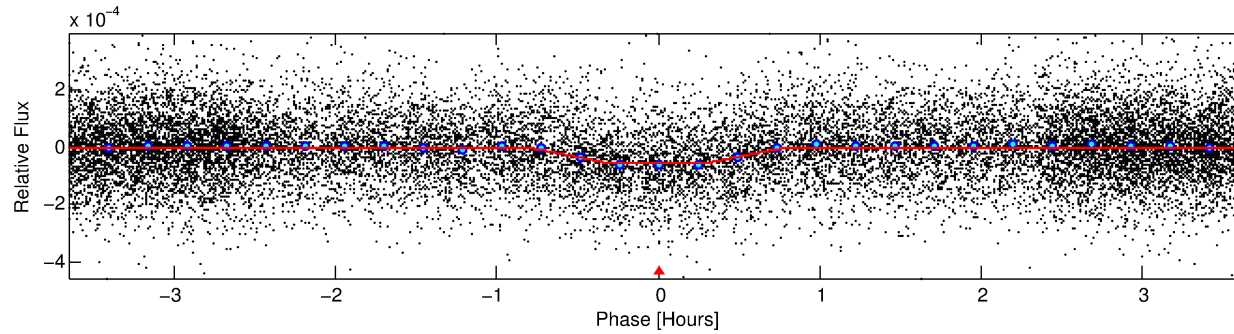
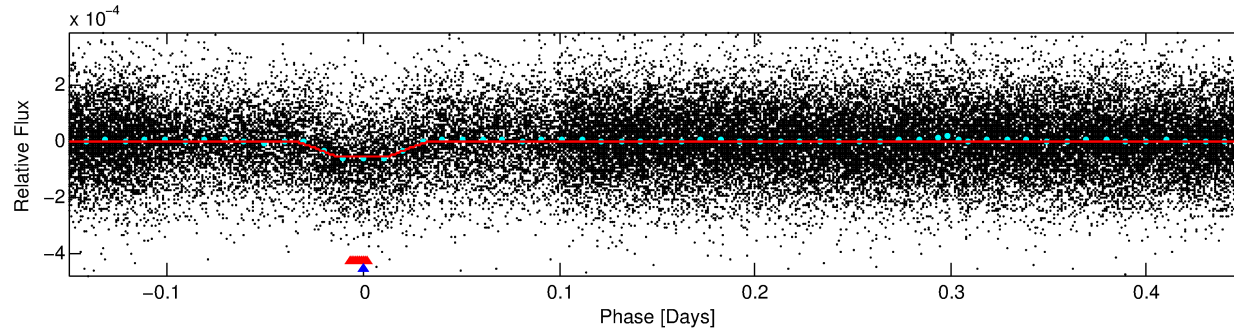
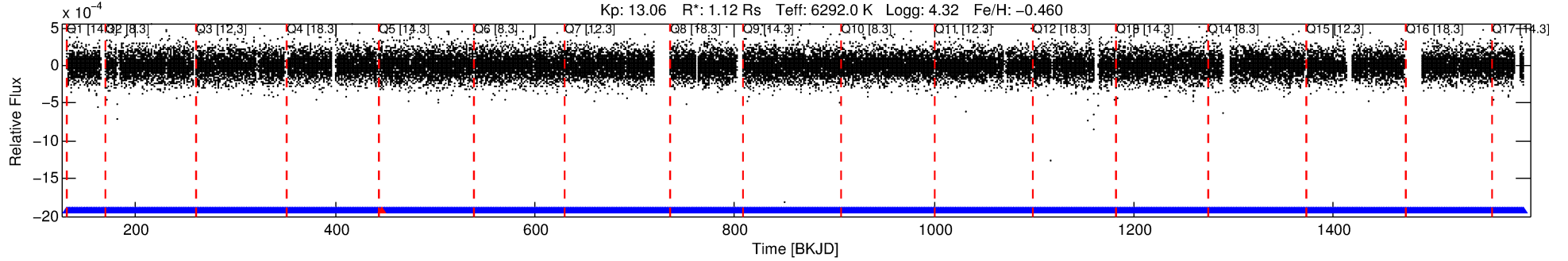
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 006209798-02

No Significant Match Found

DV One-Page Summary

KIC: 6209798 Candidate: 2 of 2 Period: 0.603 d
KOI: K02196 Corr: No Ephemeris Match



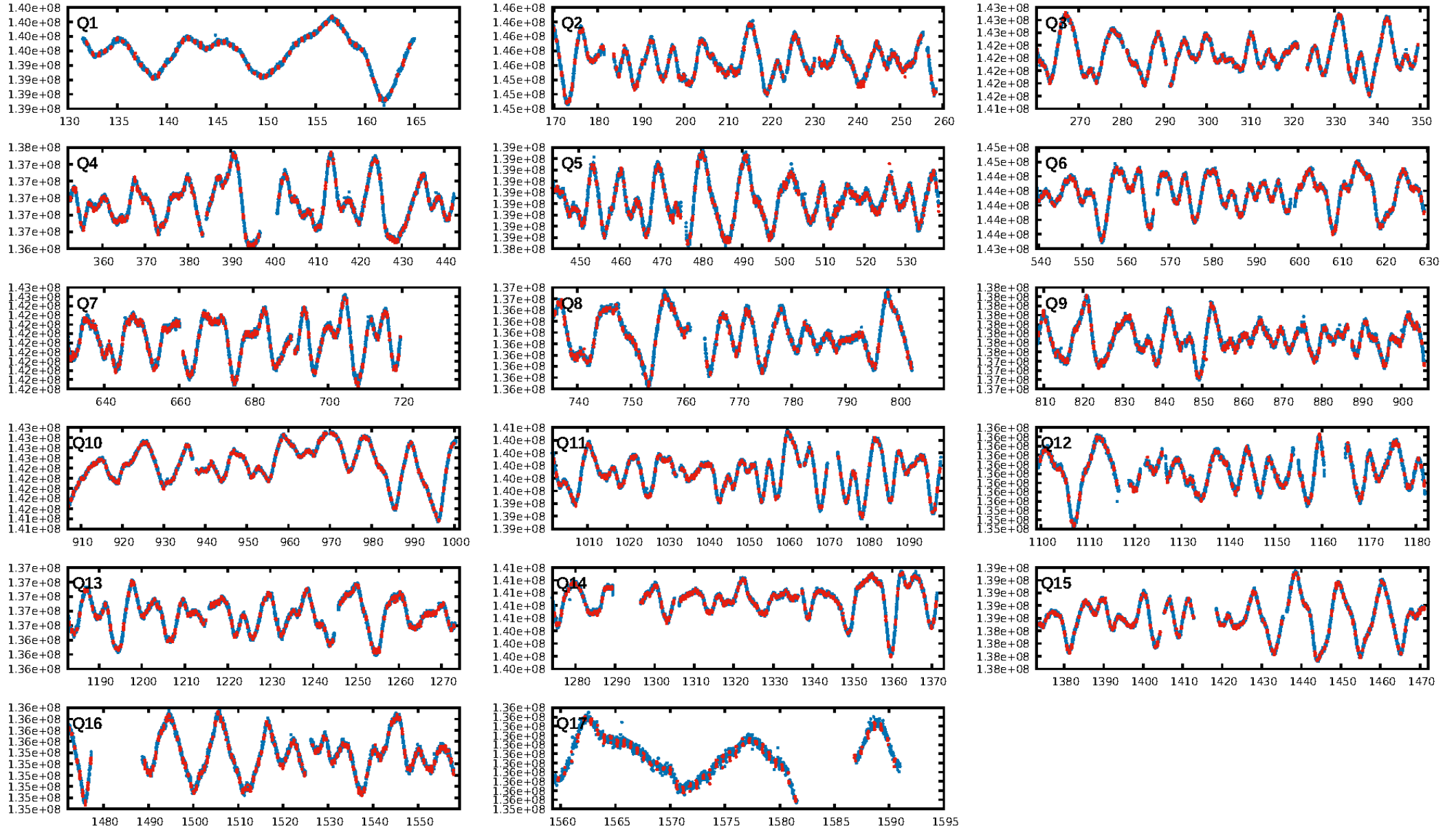
DV Fit Results:

Period = 0.60271 [0.00001] d
Epoch = 131.9351 [0.0009] BKJD
Rp/R* = 0.0081 [0.0016]
a/R* = 1.96 [1.60]
b = 0.90 [0.24]
Seff = 9316.12 [2550.28]
Teq = 2505 [171] K
Rp = 0.99 [0.28] Re
a = 0.0138 [0.0023] AU
Ag = 0.29 [0.63] [-1.14σ]
Teffp = 2835 [1536] K [0.21σ]

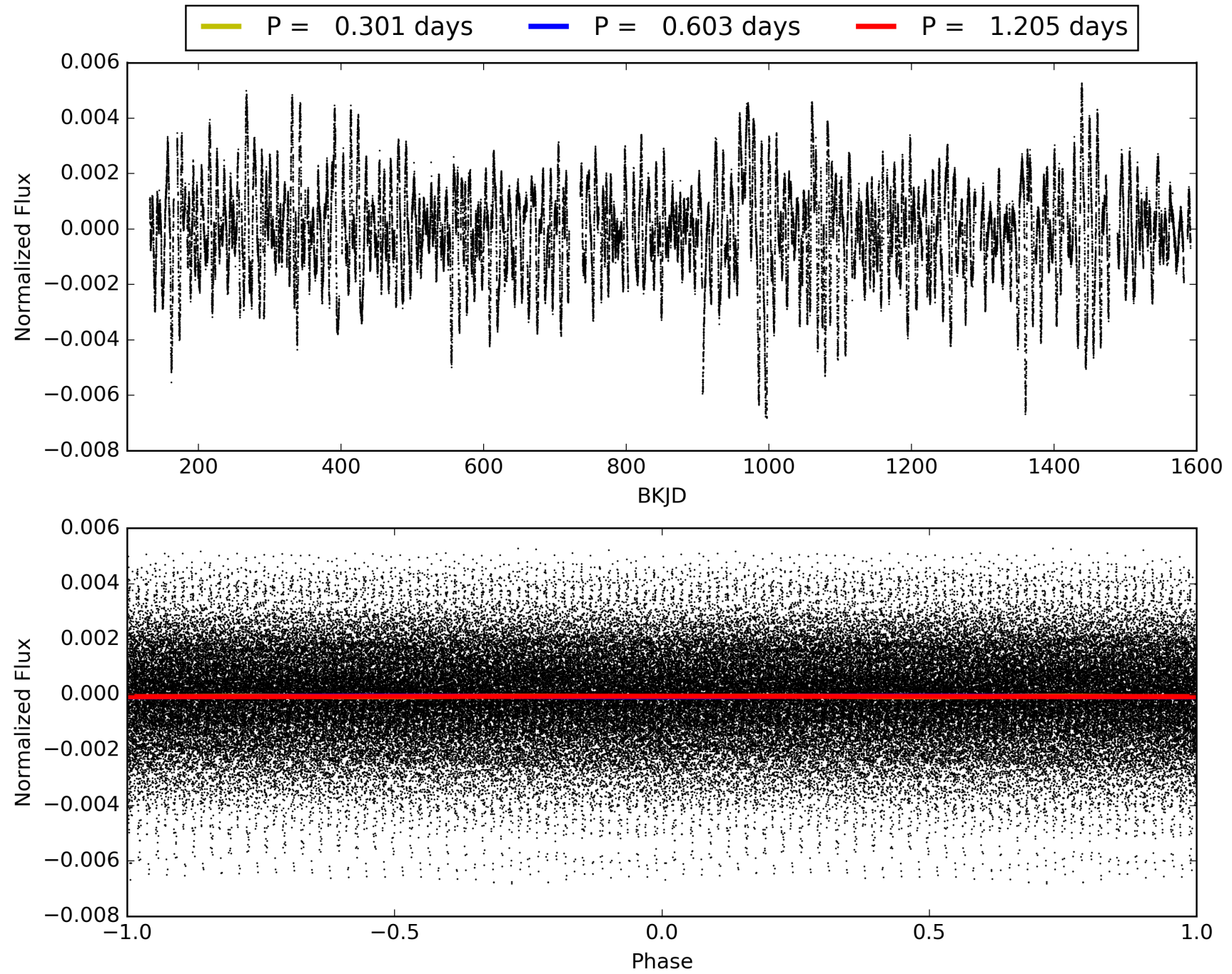
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: 100.0% [8.66σ]
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: 5.55e-68
RollingBand-fgt: 1.00 [1060/1061]
GhostDiagnostic-chr: 1.165
Centroid-sig: N/A
Centroid-so: 5.791 arcsec [10.68σ]
OotOffset-rm: 4.944 arcsec [30.46σ]
KicOffset-rm: 4.868 arcsec [27.13σ]
OotOffset-st: 4/4/4/5 [17]
KicOffset-st: 4/4/4/5 [17]
DiffImageQuality-fgm: 0.94 [16/17]
DiffImageOverlap-fno: 1.00 [17/17]

TCE 006209798-02, PDC Light Curves

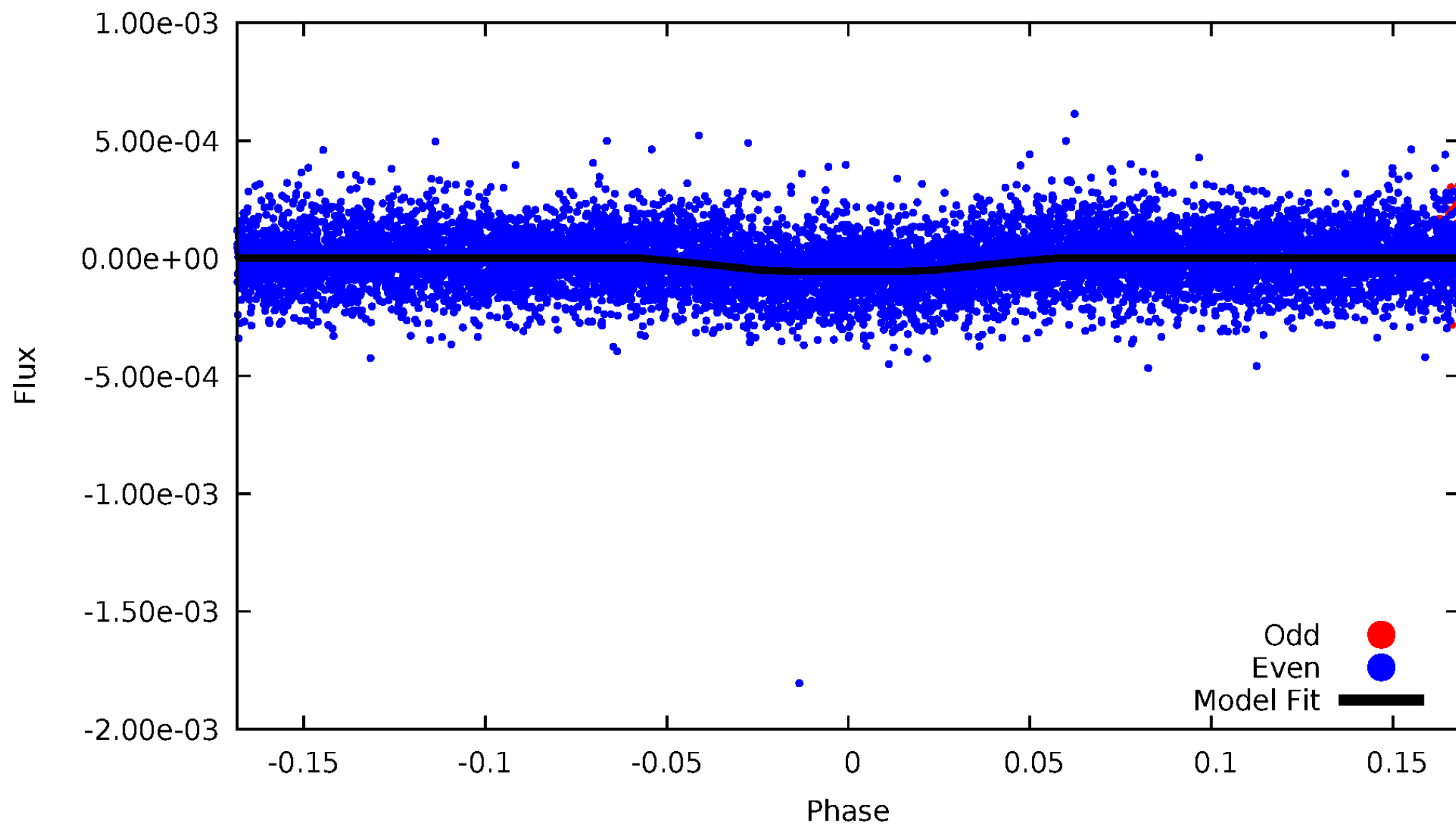


TCE 006209798-02



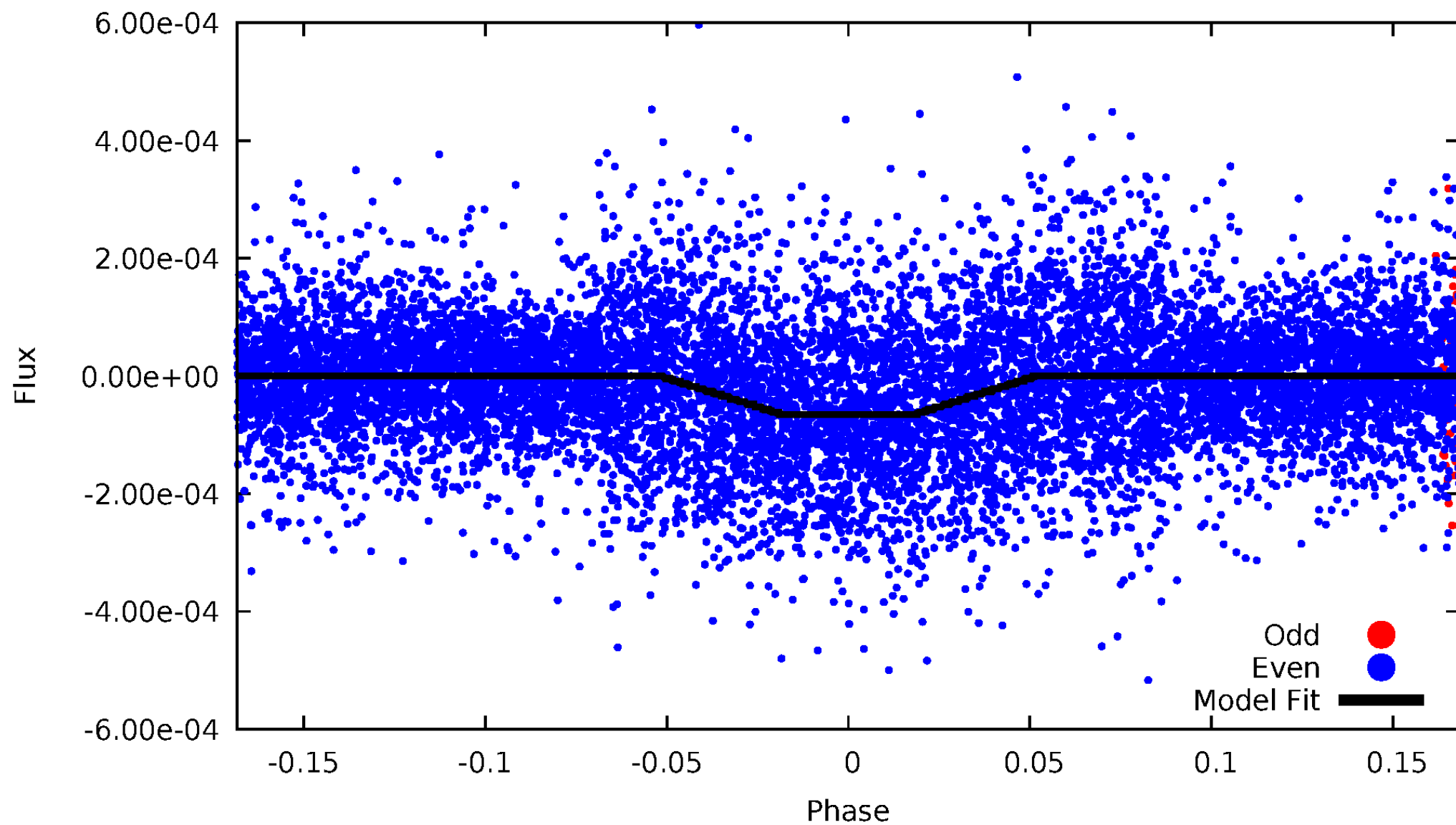
DV Odd/Even

TCE 006209798-02



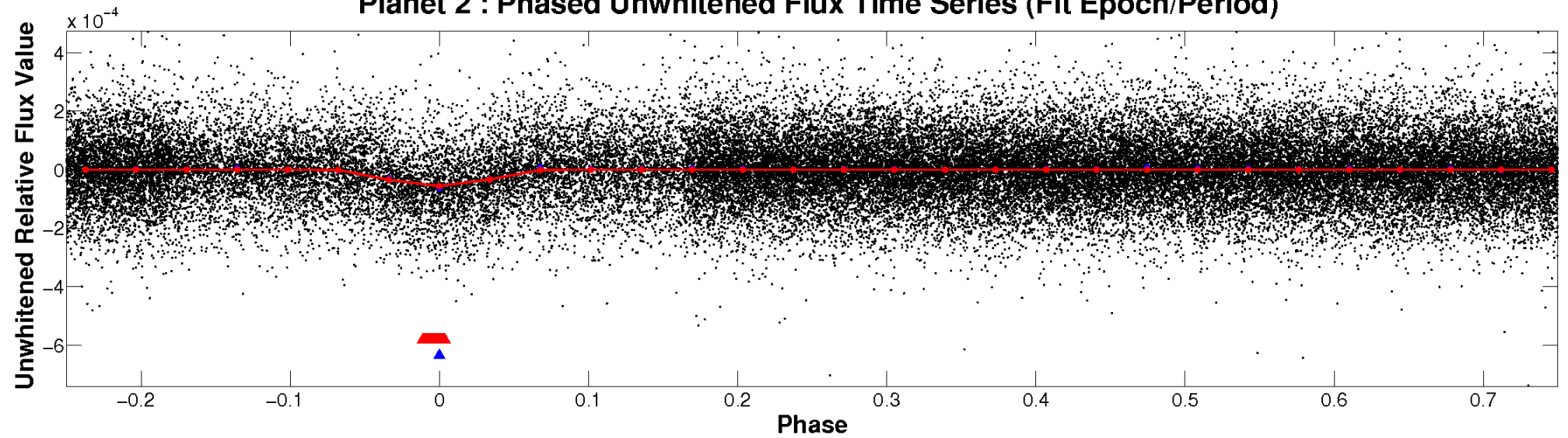
ALT Odd/Even

TCE 006209798-02

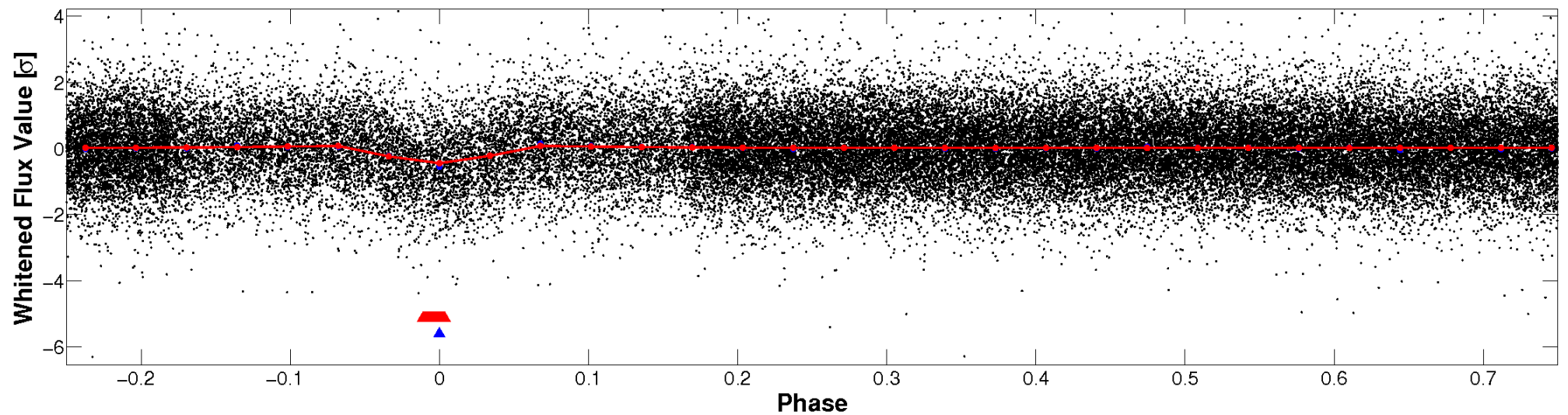


Non-Whitened Vs. Whitened Light Curve

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

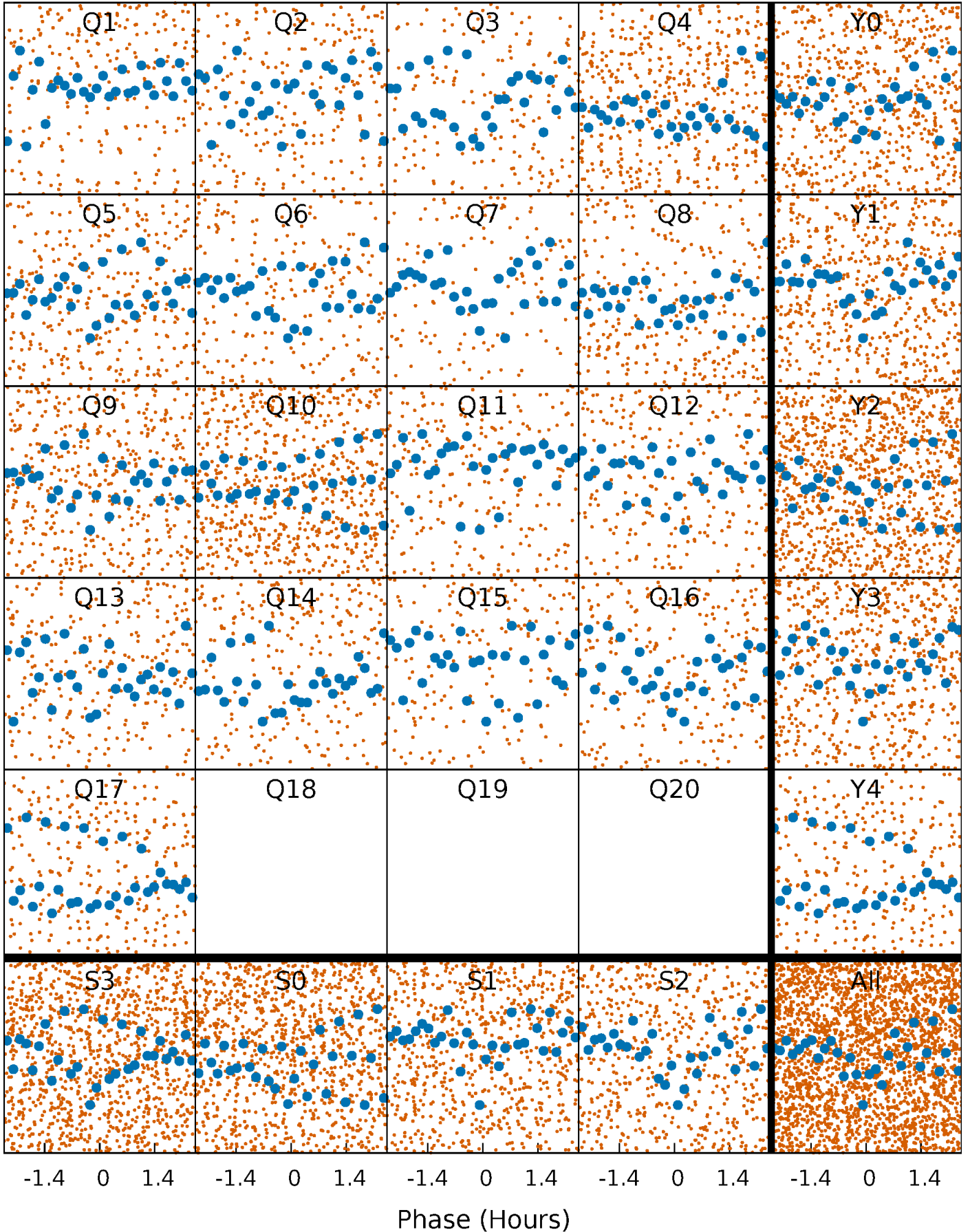


Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



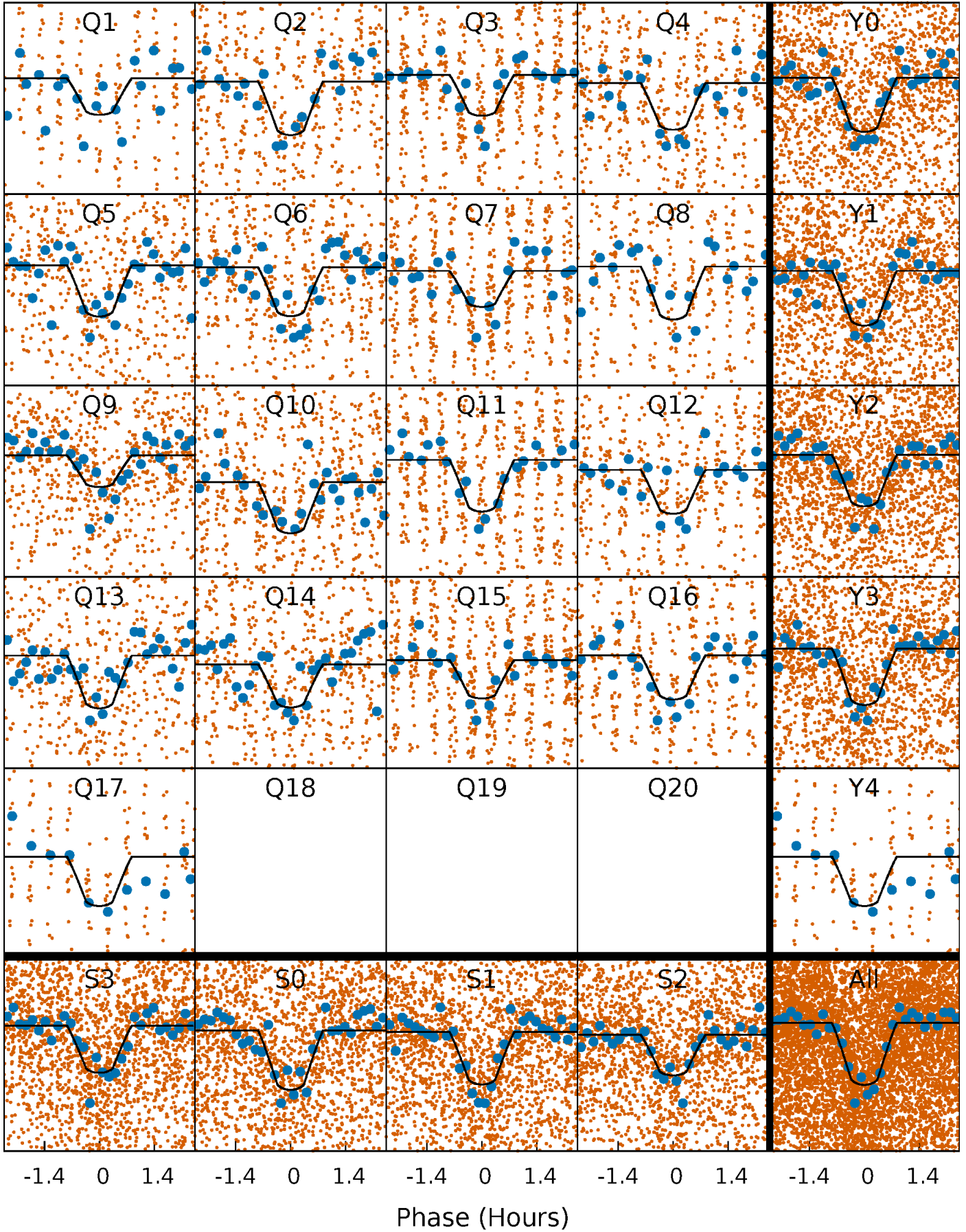
PDC Quarter-Phased Transit Curves

TCE 006209798-02 P= 0.602708 Days $T_0=131.935147$ (BKJD)



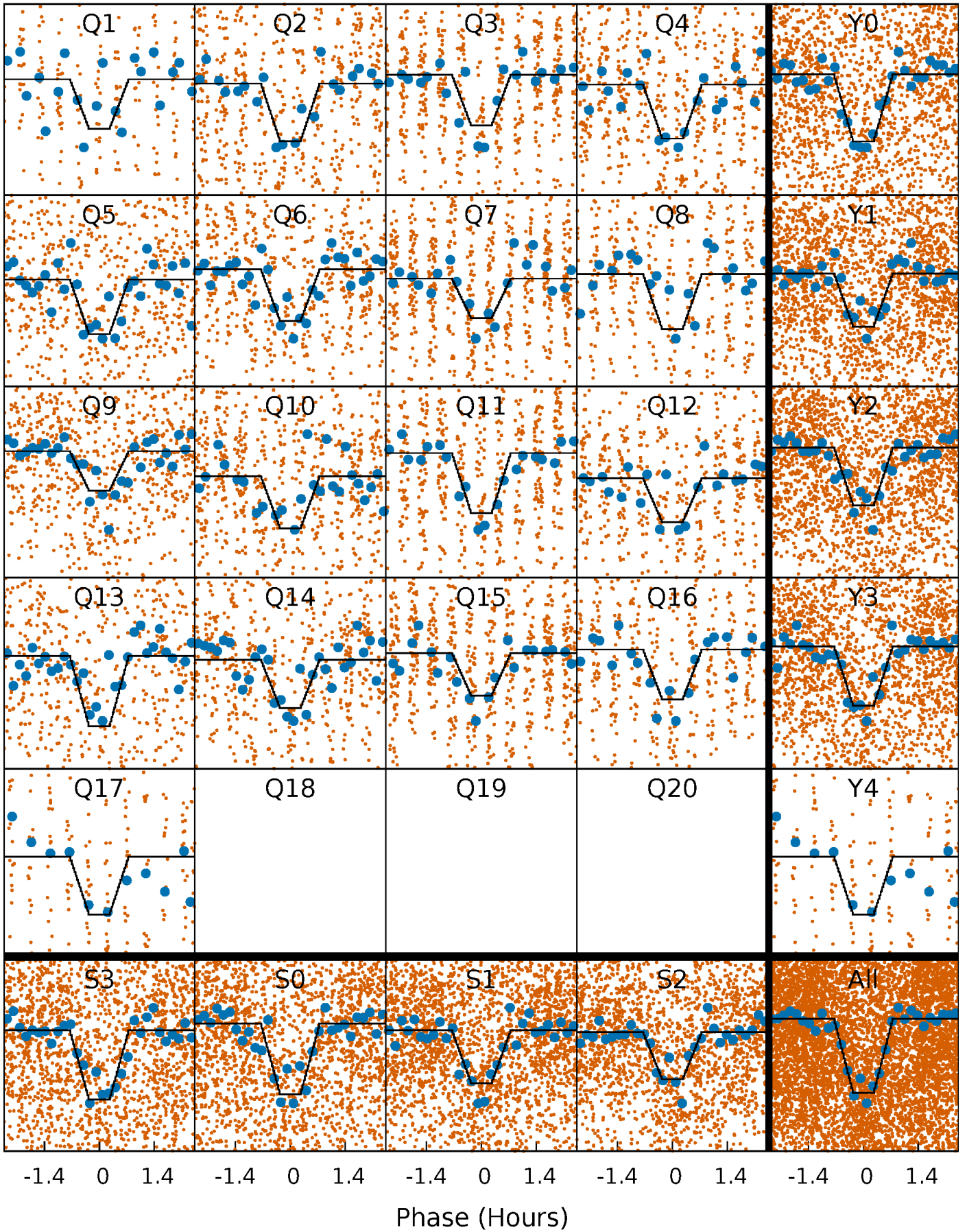
DV Quarter-Phased Transit Curves

TCE 006209798-02 P= 0.602708 Days $T_0=131.935147$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

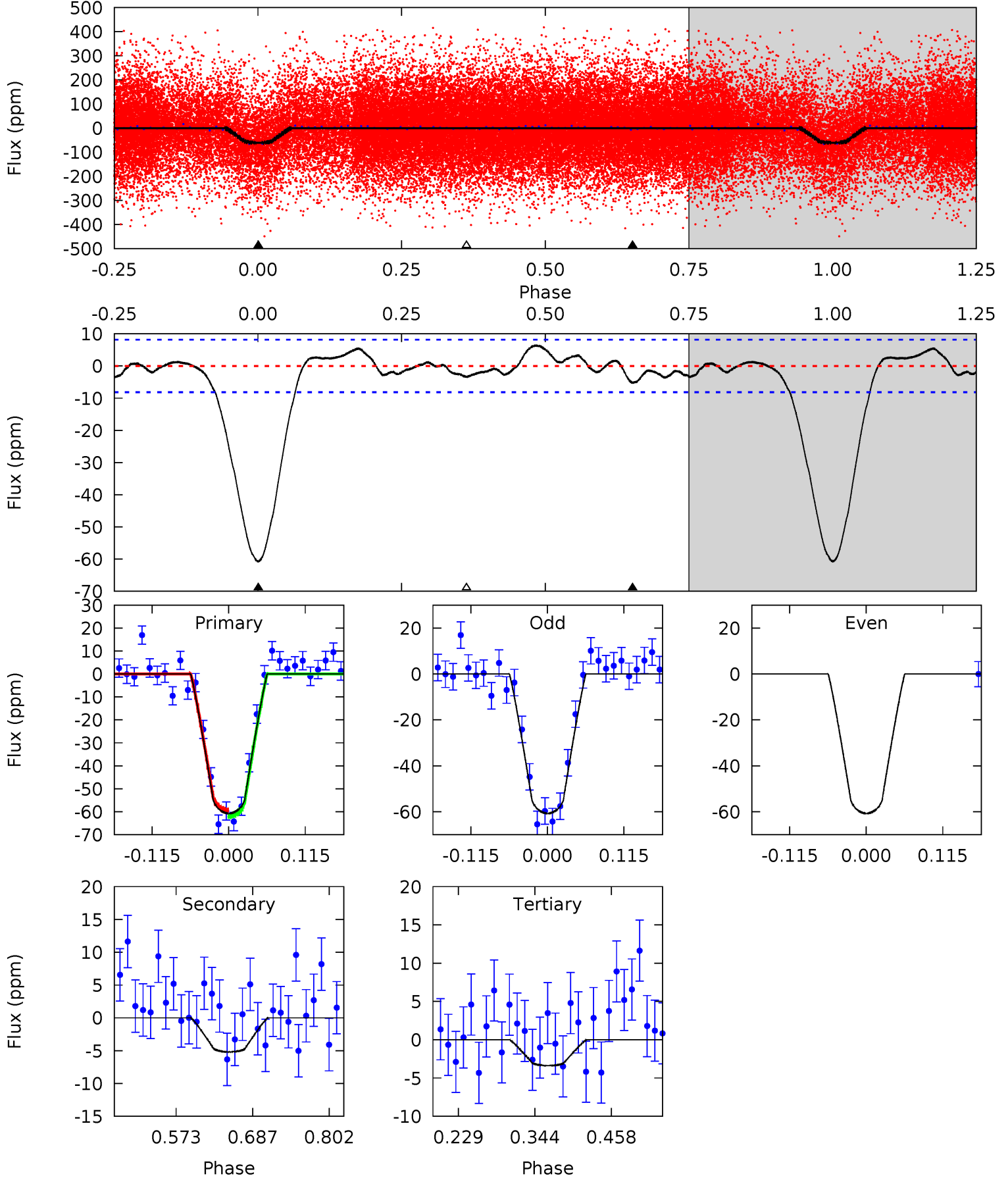
TCE 006209798-02 P= 0.602708 Days $T_0=131.935147$ (BKJD)



DV Model-Shift Uniqueness Test

006209798-02, P = 0.602708 Days, E = 131.332439 Days

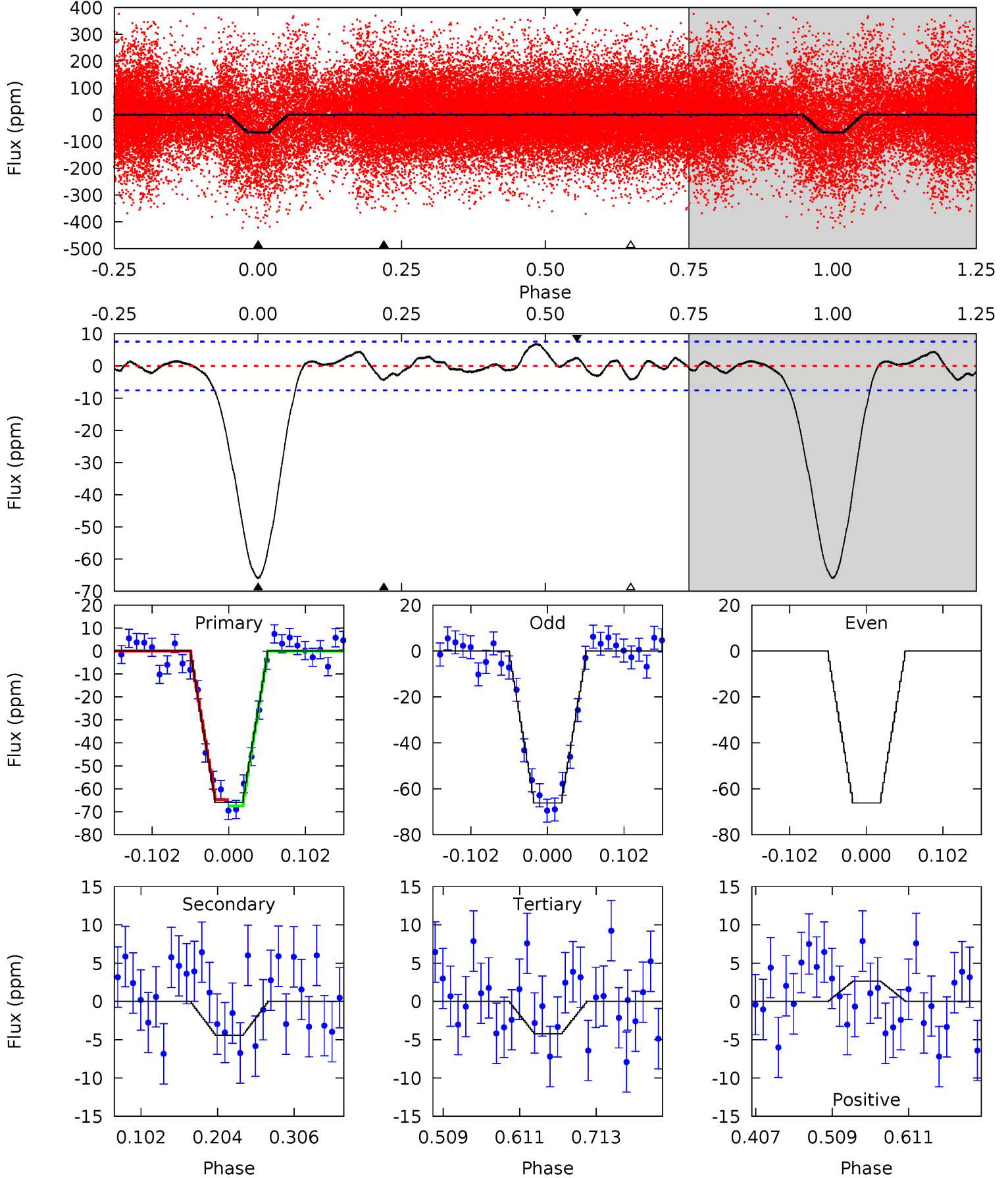
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
33.7	2.88	1.88	0	4.54	1.58	1.43	31.8	33.7	1.01	2.88	0	1.07	0.09	0.61



Alt Model-Shift Uniqueness Test

006209798-02, P = 0.602708 Days, E = 131.332439 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
39.8	2.67	2.55	1.60	4.56	1.64	1.30	37.3	38.2	0.12	1.06	0	1.02	0.09	0.81



Stellar Parameters For KIC 006209798

	$T_{\text{eff}}(K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	6292^{+170}_{-189}	$4.320^{+0.135}_{-0.135}$	$-0.460^{+0.300}_{-0.300}$	$1.122^{+0.223}_{-0.183}$	$0.959^{+0.135}_{-0.098}$	$0.957^{+0.583}_{-0.359}$
	+3%/-3%	+3%/-3%	+65%/-65%	+20%/-16%	+14%/-10%	+61%/-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 006209798-02 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-5 ± 2	$0.99^{+0.24}_{-0.23}$	3507^{+210}_{-188}	3258^{+599}_{-556}	$0.530^{+0.461}_{-0.247}$
Alt.	-4 ± 2	$0.99^{+0.22}_{-0.21}$	3502^{+203}_{-191}	3097^{+617}_{-5775}	$0.462^{+0.415}_{-0.215}$

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

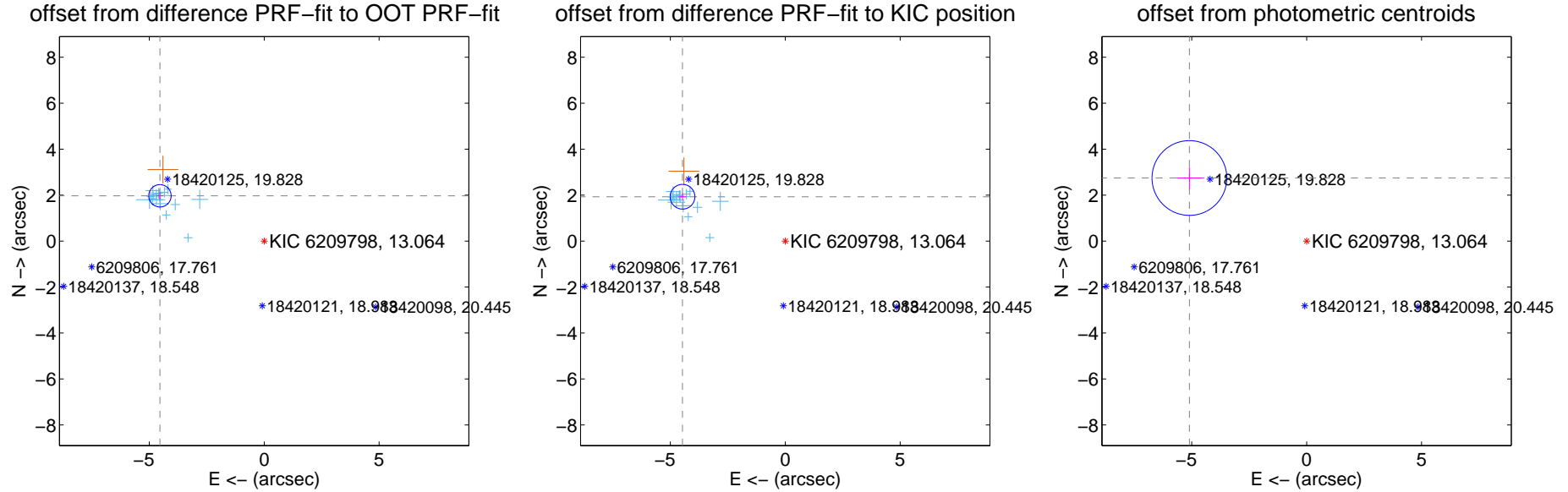
DV Centroid Data

Supplemental centroid analysis for 006209798-02. Kepler magnitude: 13.06. Transit SNR 19.54

There are 16 quarters with good PRF difference image offsets

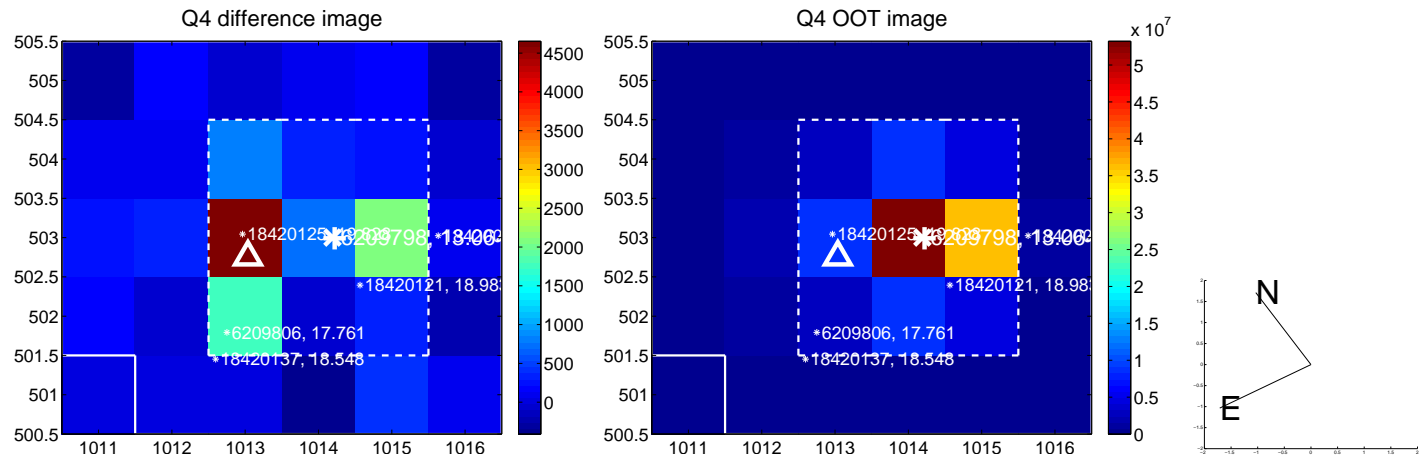
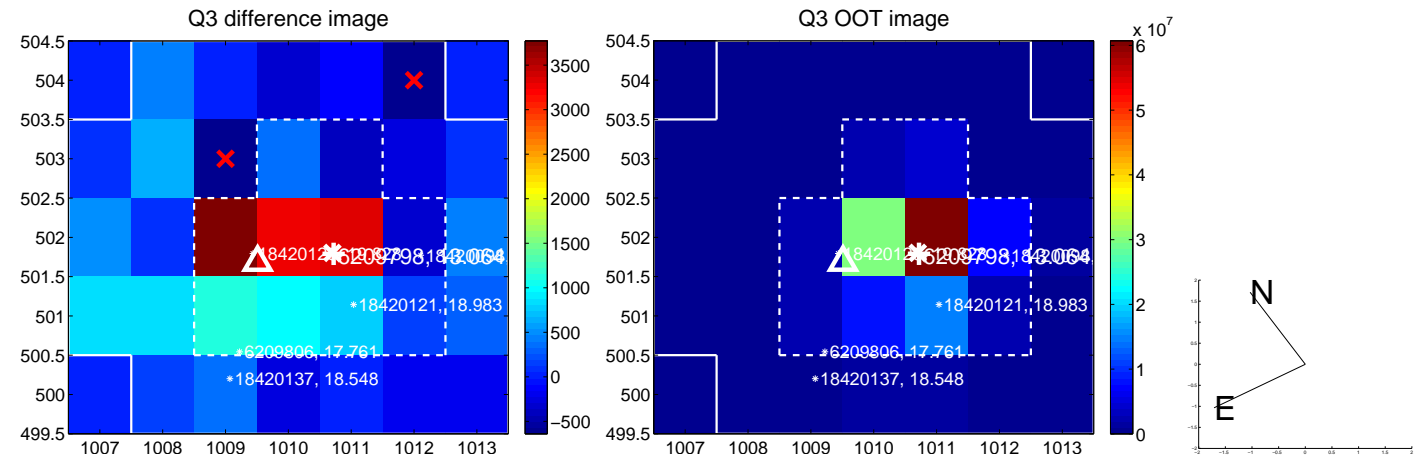
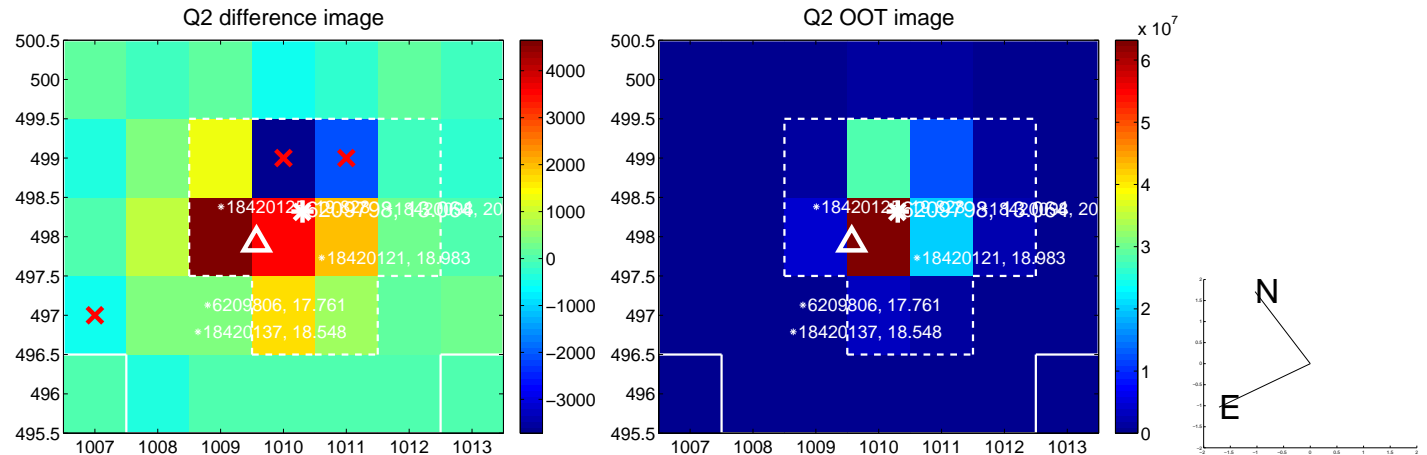
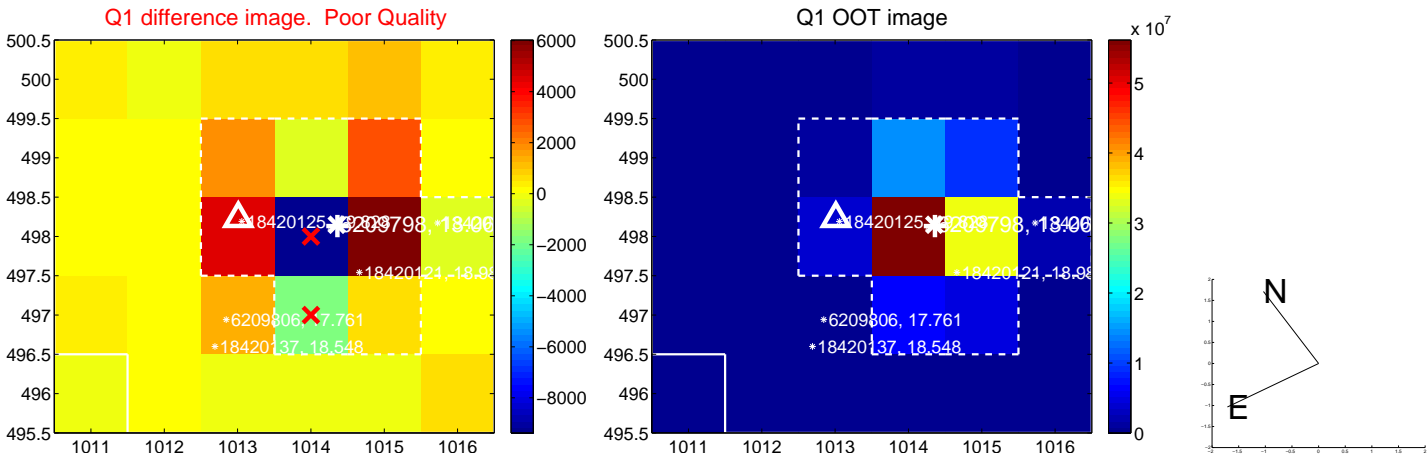
The direct PRF centroid is offset from the target star catalog position by about 0.08 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	4.944 ± 0.162	30.46	4.534 ± 0.147	1.971 ± 0.160
PRF-fit source offset from KIC position	4.868 ± 0.179	27.13	4.470 ± 0.163	1.929 ± 0.148
photometric centroid source offset	5.79 ± 0.54	10.68	5.10 ± 0.56	2.74 ± 0.47

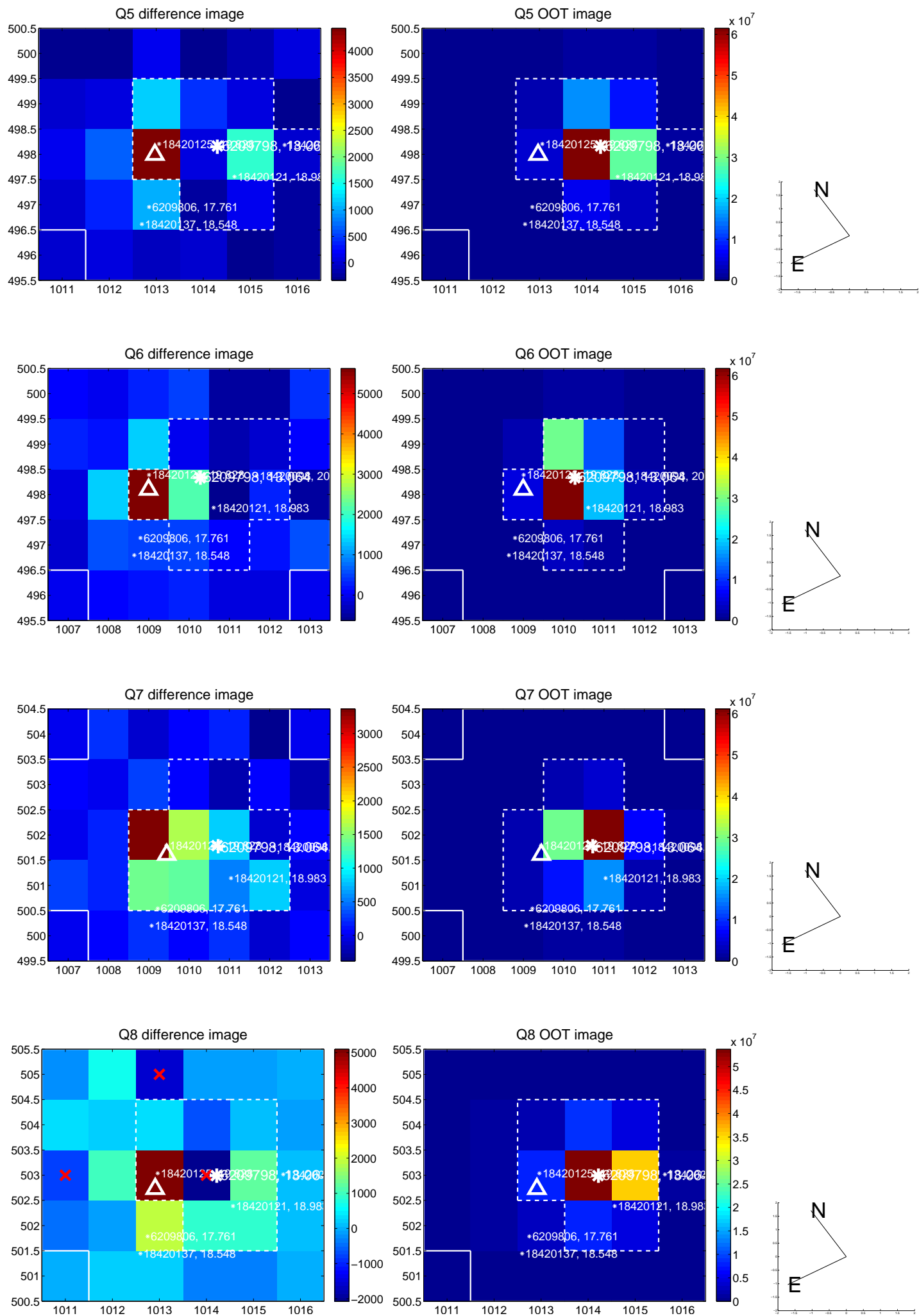


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

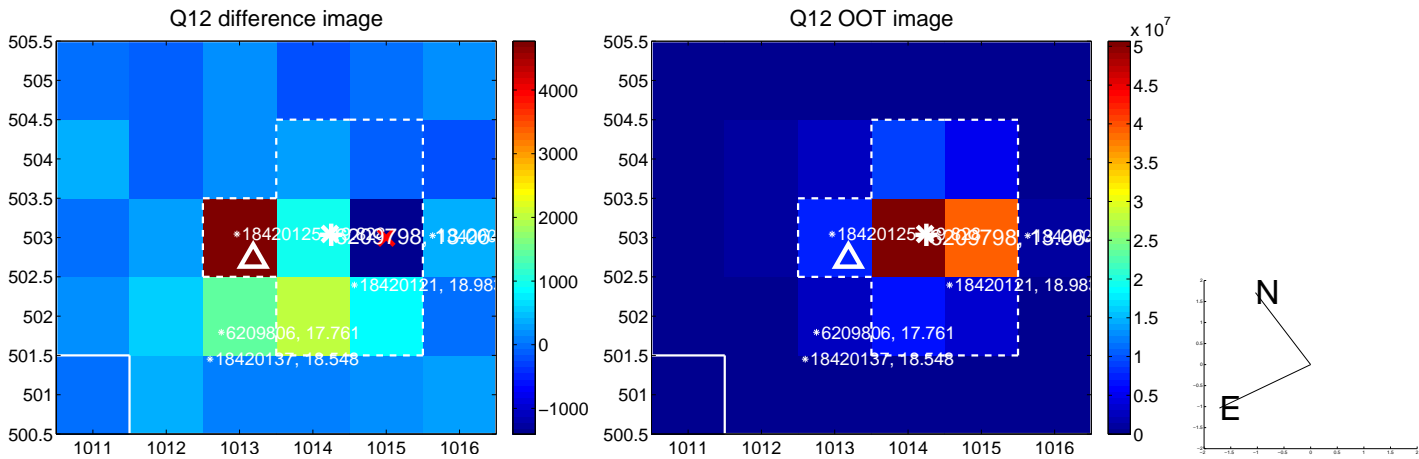
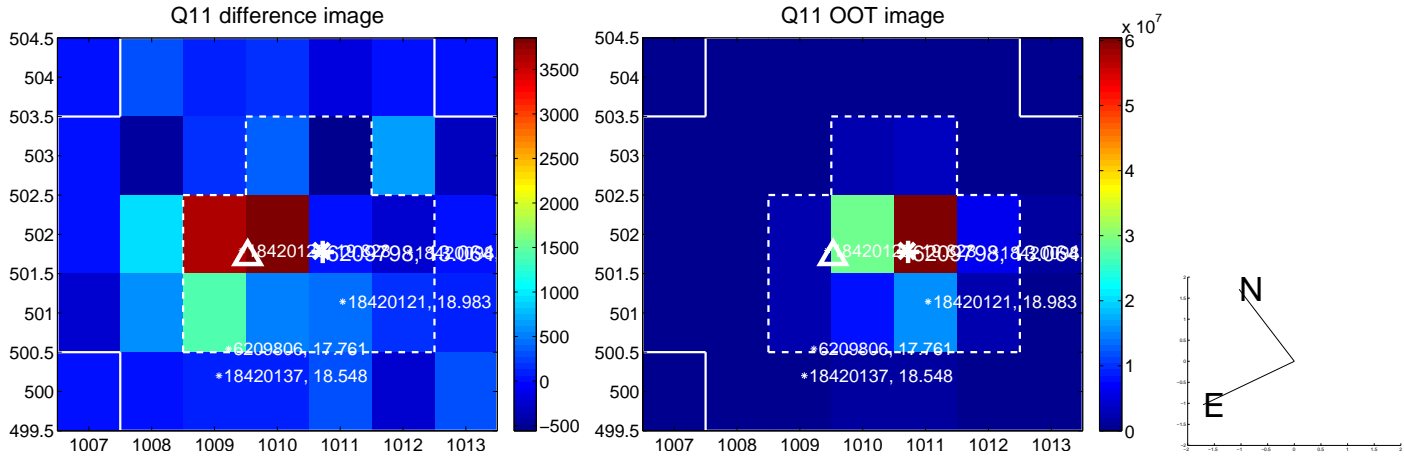
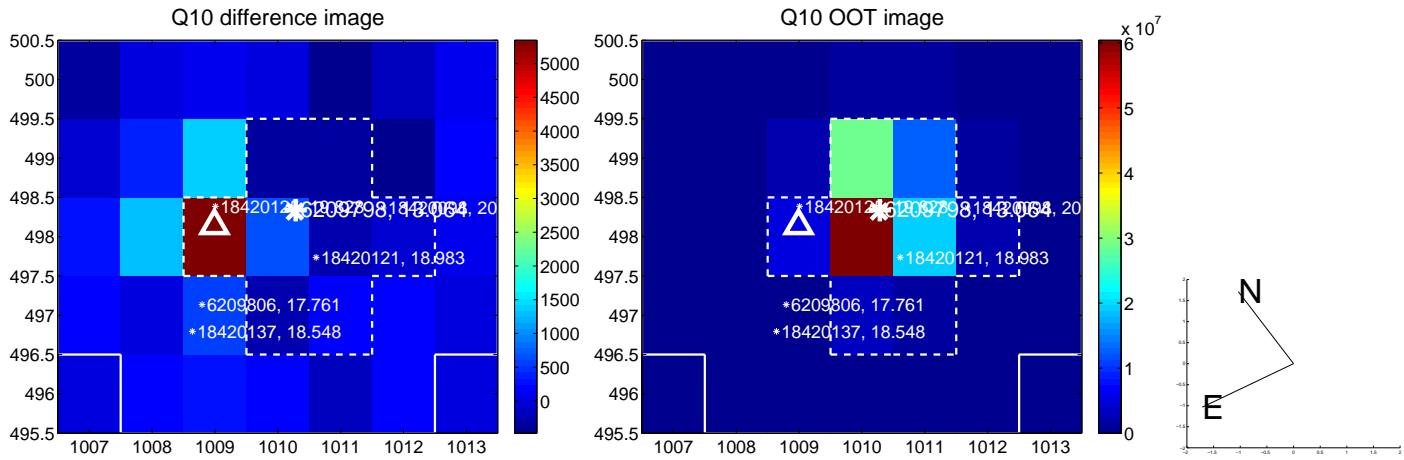
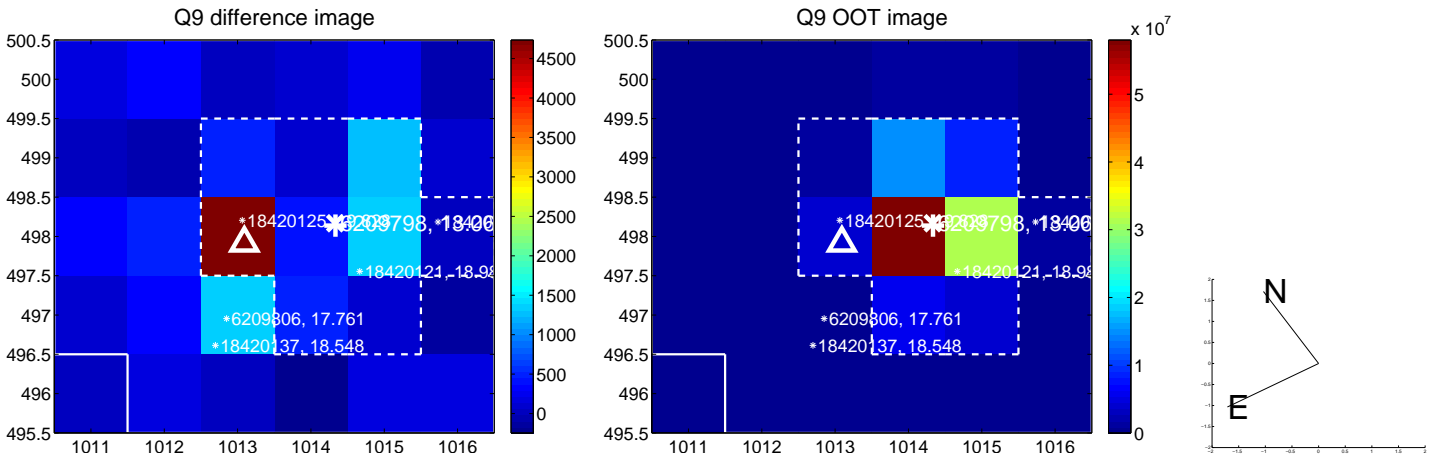
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



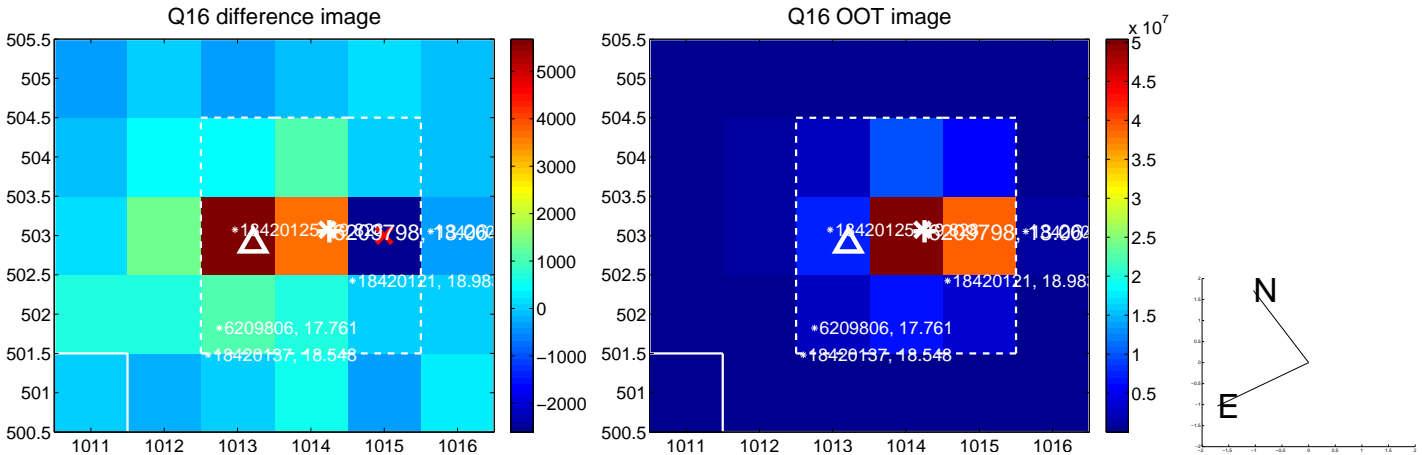
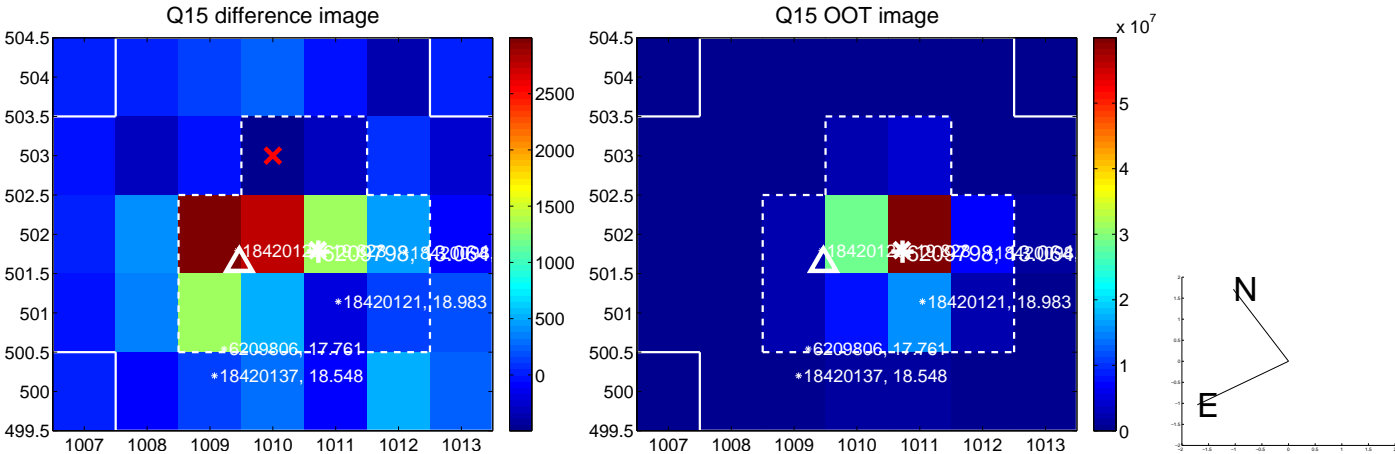
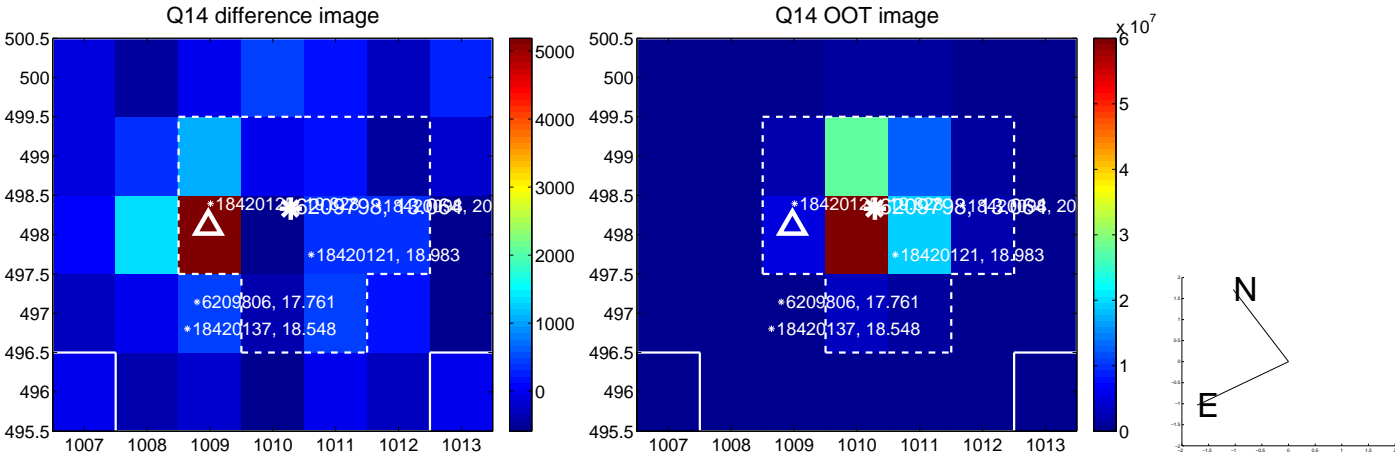
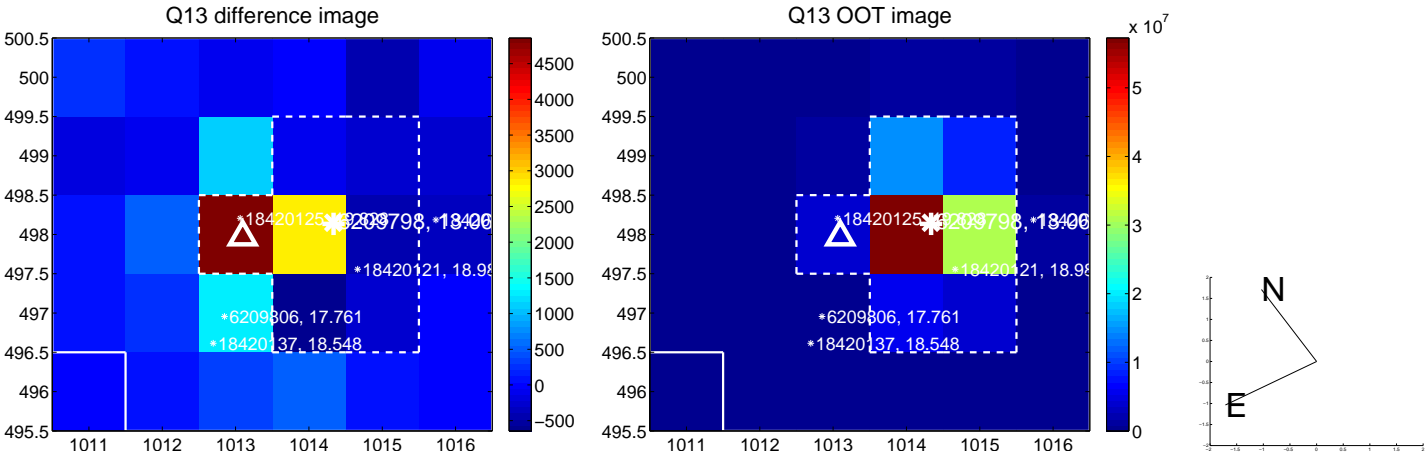
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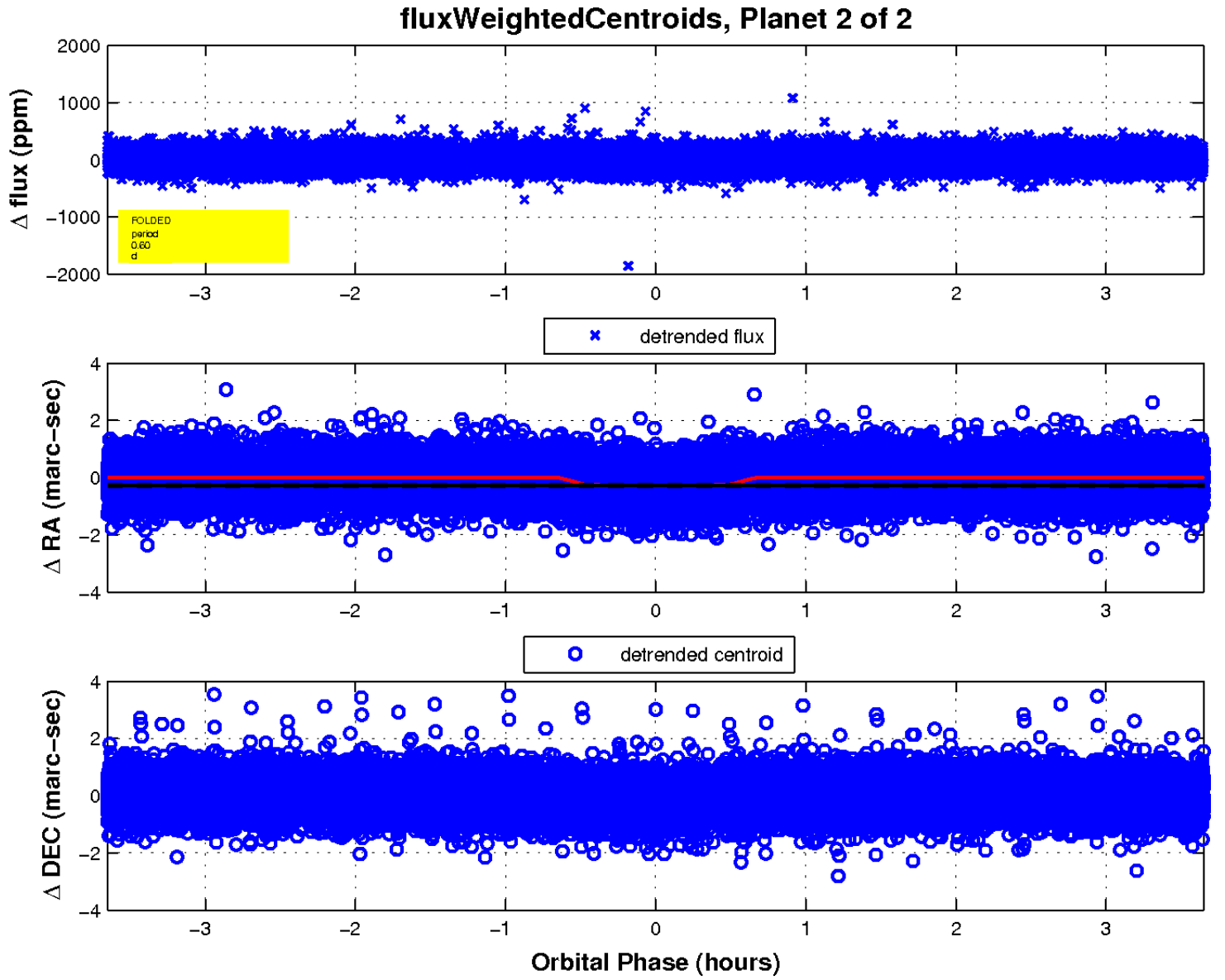
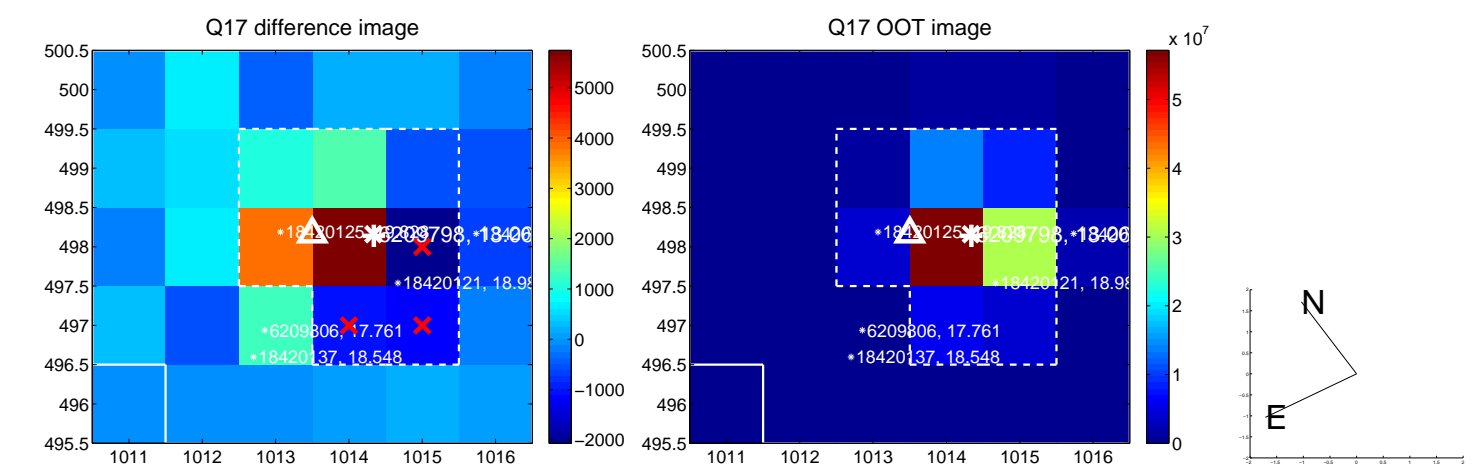
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UKIRT Image

Declination

