

KIC 011074178

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})
011074178-01	OBS	1889.01	14.305132	135.063824	889.0	4.407	29.1	31.9	0.85	5741	3.01	54.67
011074178-02	OBS	1889.02	9.181860	132.415929	308.8	3.762	13.2	13.9	0.85	5741	1.64	98.75

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
011074178-01	OBS	PC	1.00	0	0	0	0	NO_COMMENT
011074178-02	OBS	PC	0.98	0	0	0	0	NO_COMMENT

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 011074178-01

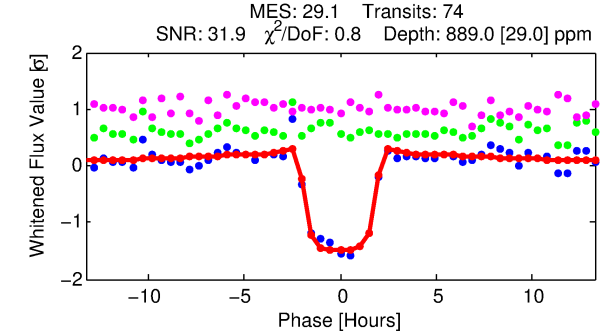
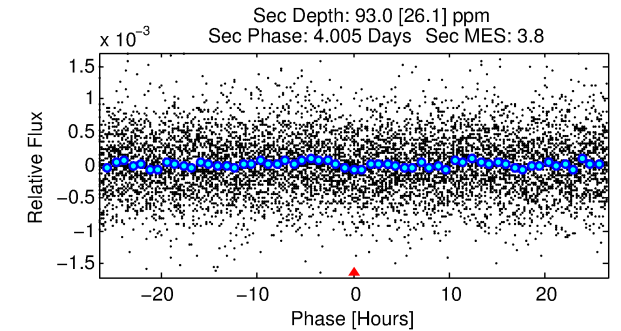
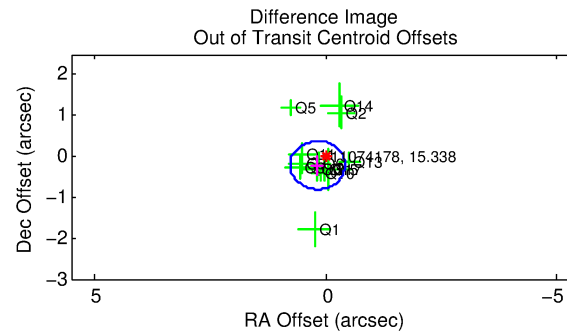
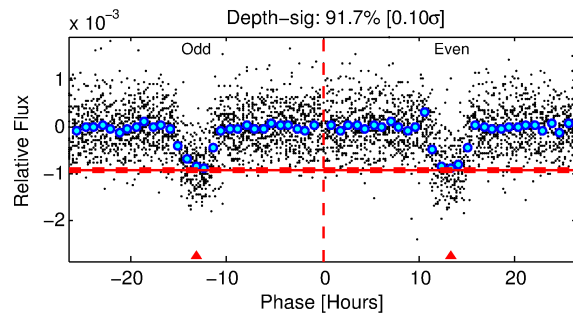
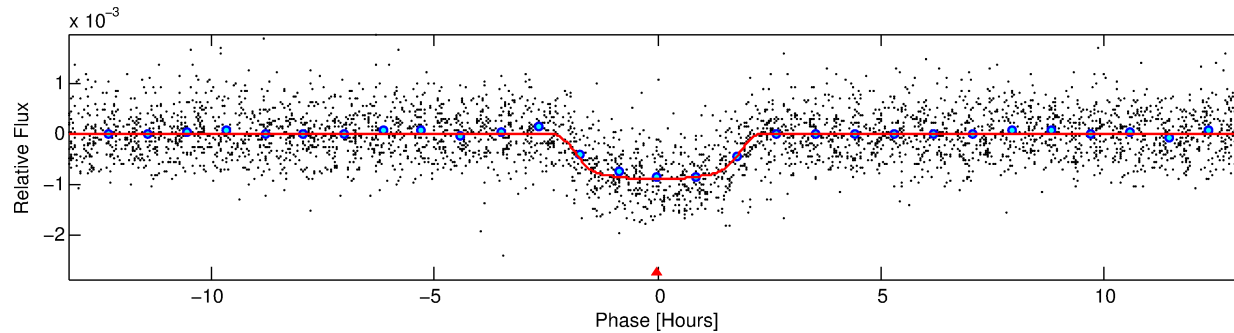
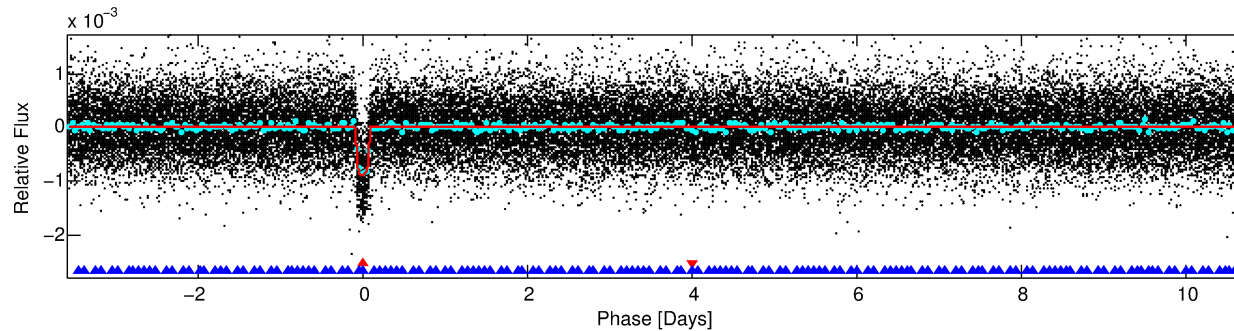
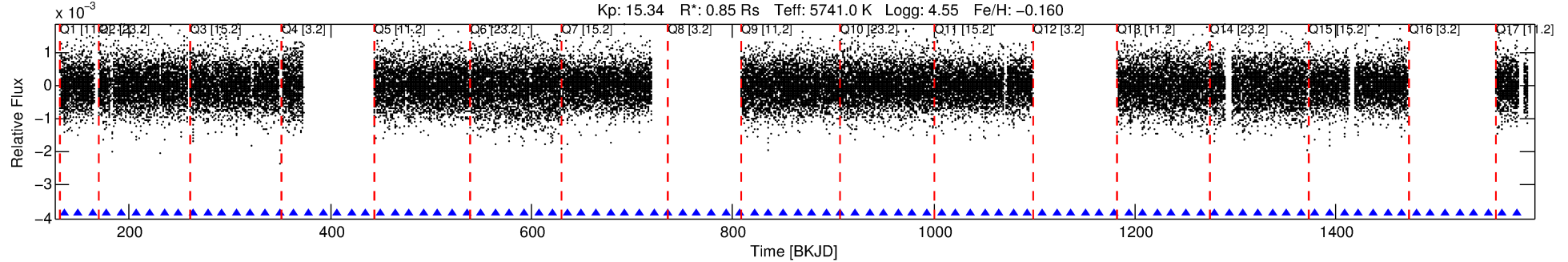
No Significant Match Found

DV One-Page Summary

KIC: 11074178 Candidate: 1 of 2 Period: 14.305 d

KOI: K01889.01 Corr: 0.990

Kp: 15.34 R*: 0.85 Rs Teff: 5741.0 K Logg: 4.55 Fe/H: -0.160



DV Fit Results:

Period = 14.30513 [0.00005] d
Epoch = 135.0638 [0.0025] BKJD
Rp/R* = 0.0326 [0.0014]
a/R* = 12.47 [2.12]
b = 0.90 [0.04]
Seff = 54.67 [20.15]
Teff = 693 [64] K
Rp = 3.01 [0.85] Re
a = 0.1129 [0.0269] AU
Ag = 72.12 [33.11] [2.15σ]
Teffp = 3124 [245] K [9.61σ]

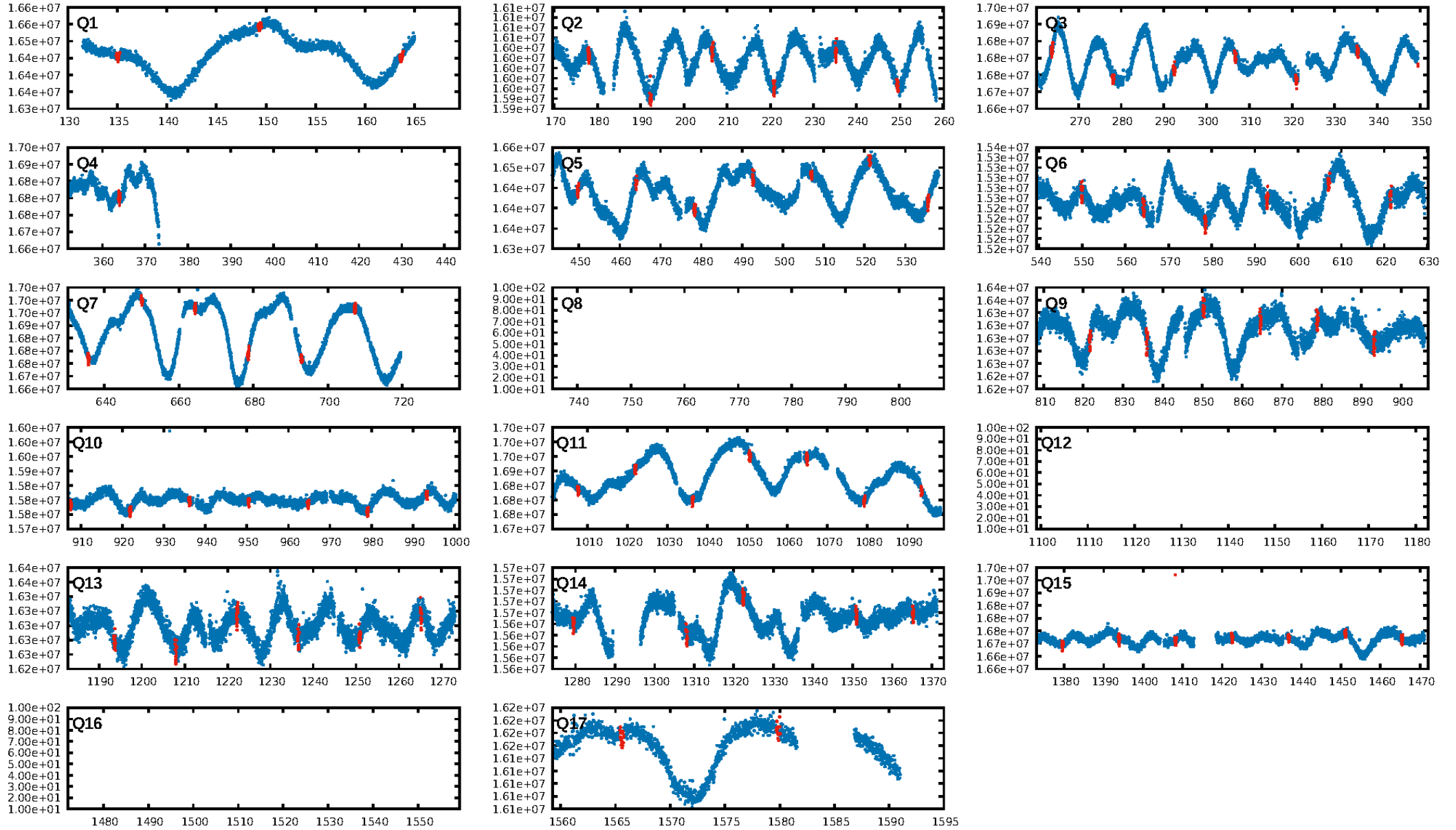
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [21.22σ]
LongPeriod-sig: N/A
ModelChiSquare2-sig: 91.0%
ModelChiSquareGof-sig: 100.0%
Bootstrap-pfa: 1.43e-176
RollingBand-fgt: 1.00 [68/68]
GhostDiagnostic-chr: 2.797
Centroid-sig: 2.4%
Centroid-so: 0.590 arcsec [1.61σ]
OotOffset-rm: 0.276 arcsec [1.40σ]
KicOffset-rm: 0.325 arcsec [1.51σ]
OotOffset-st: 4/4/0/5 [13]
KicOffset-st: 4/4/0/5 [13]
DiffImageQuality-fgm: 1.00 [13/13]
DiffImageOverlap-fno: 1.00 [14/14]

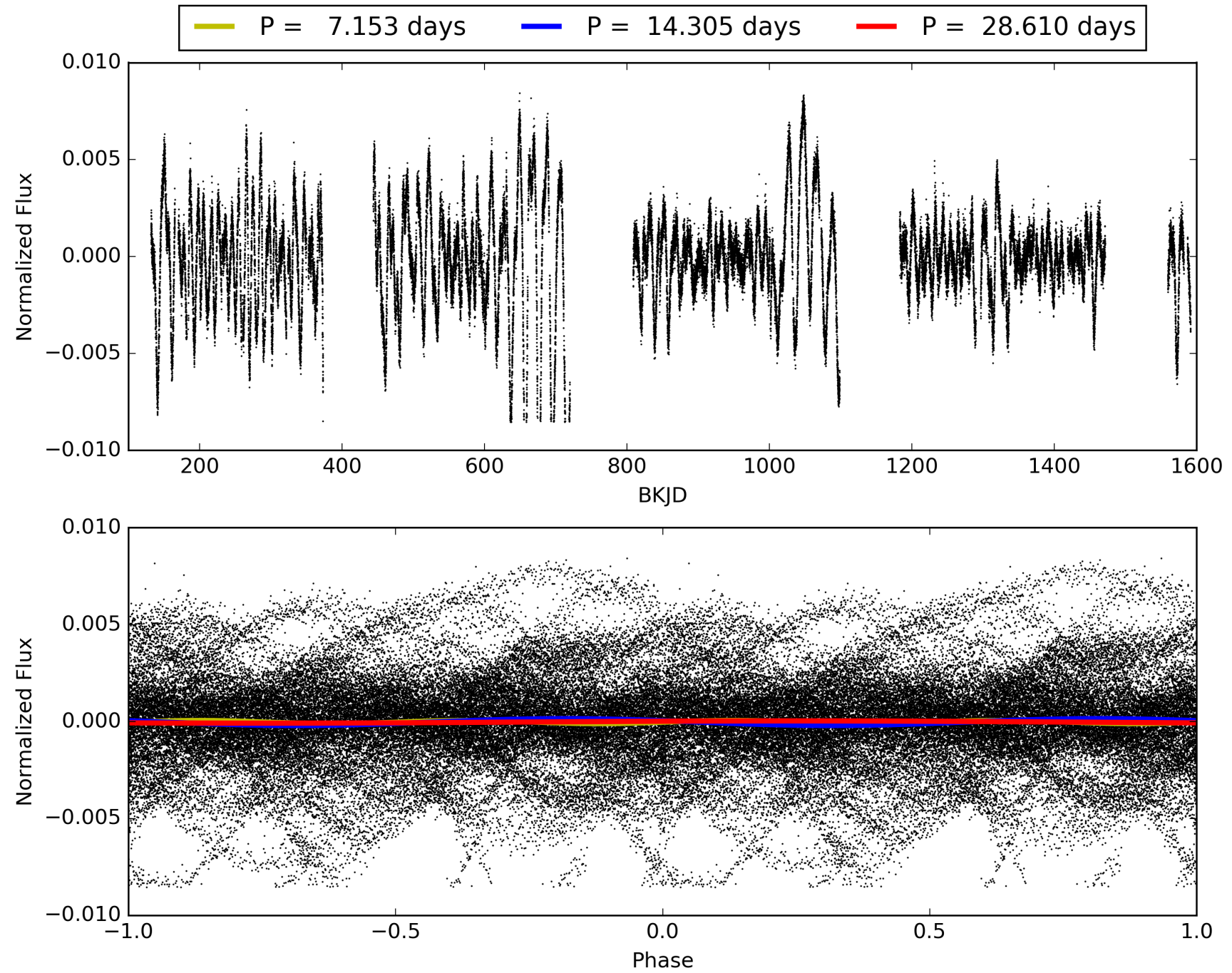
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 29-Jan-2016 02:47:26 Z

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

TCE 011074178-01, PDC Light Curves

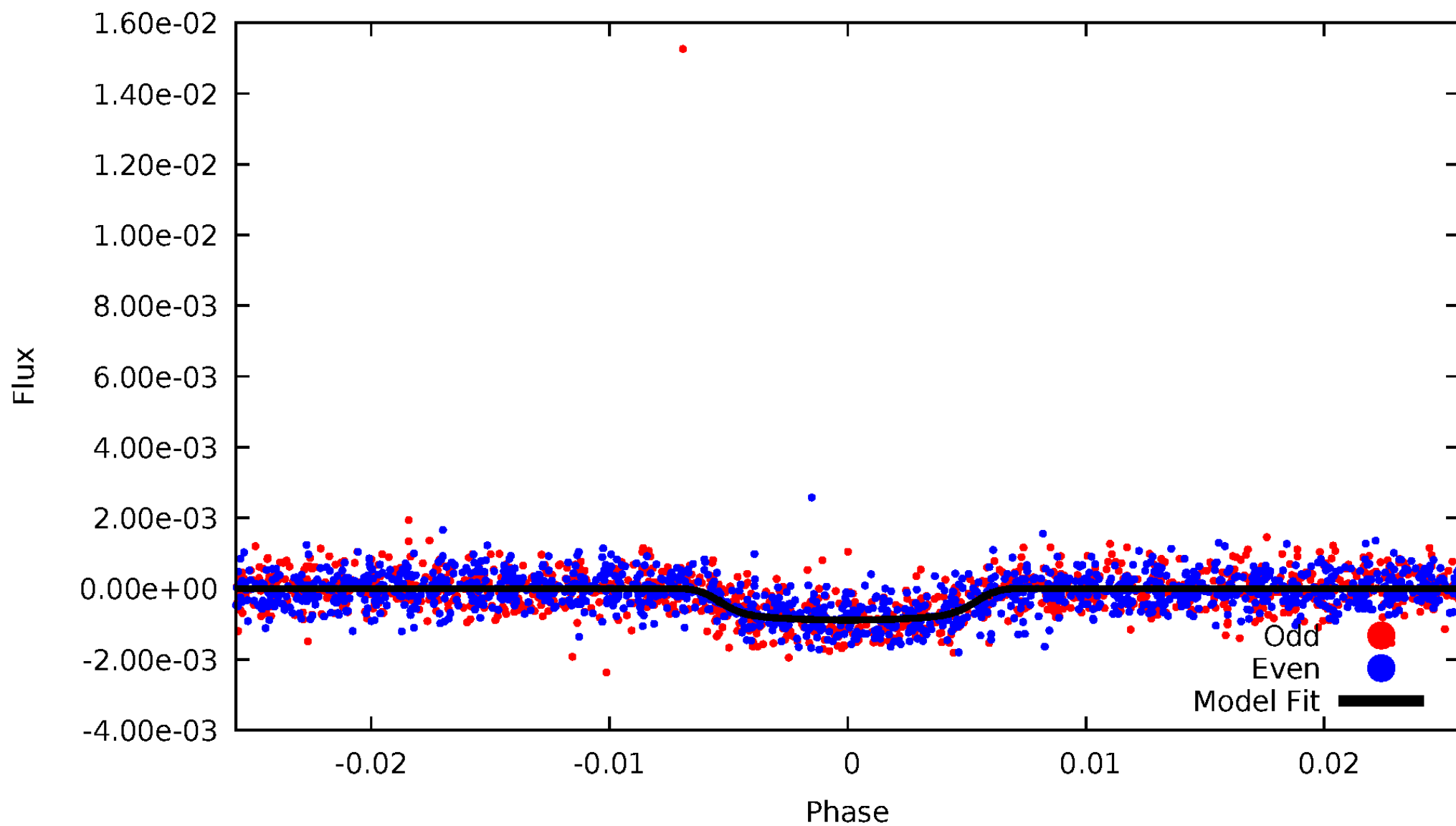


TCE 011074178-01



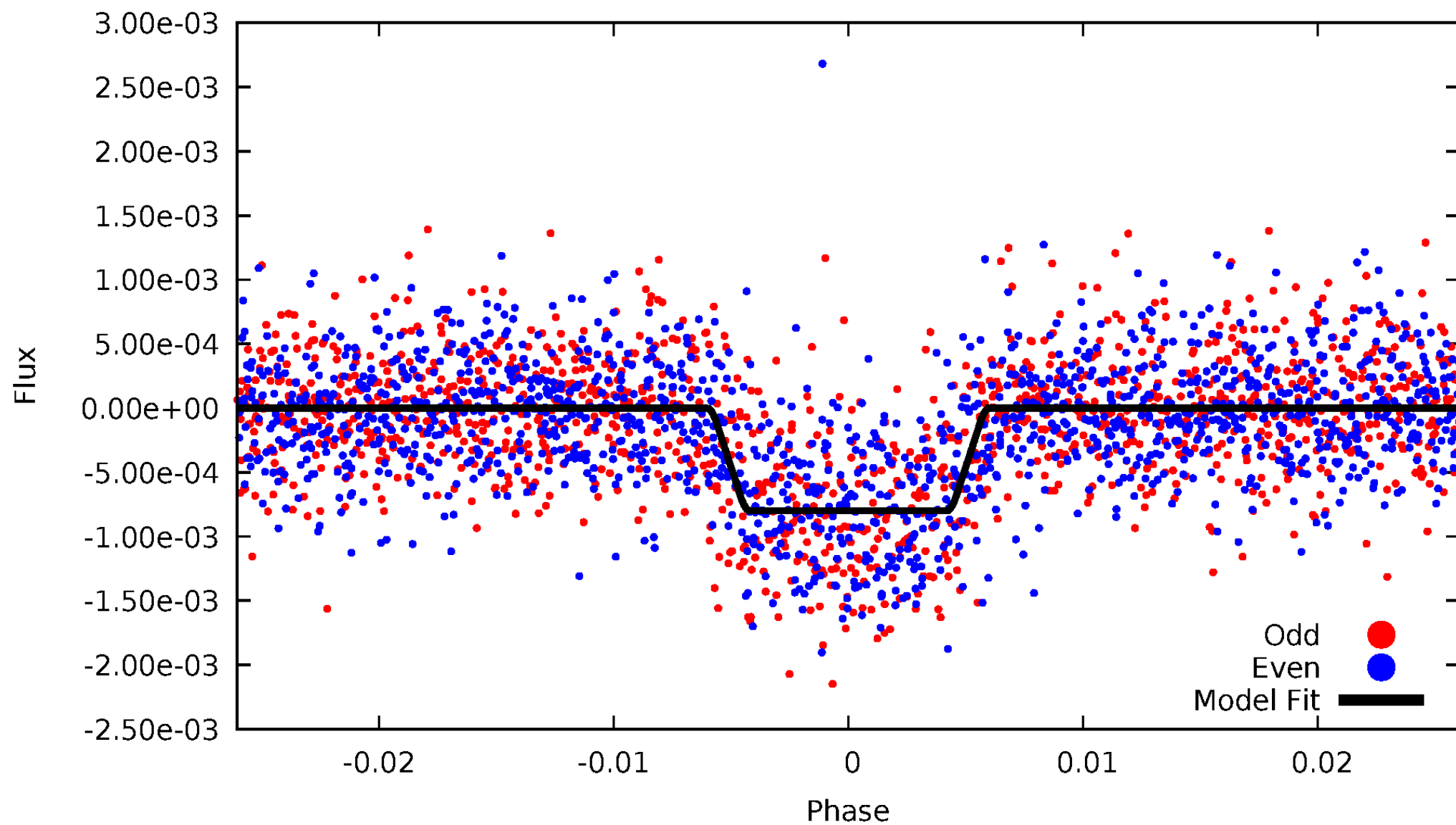
DV Odd/Even

TCE 011074178-01



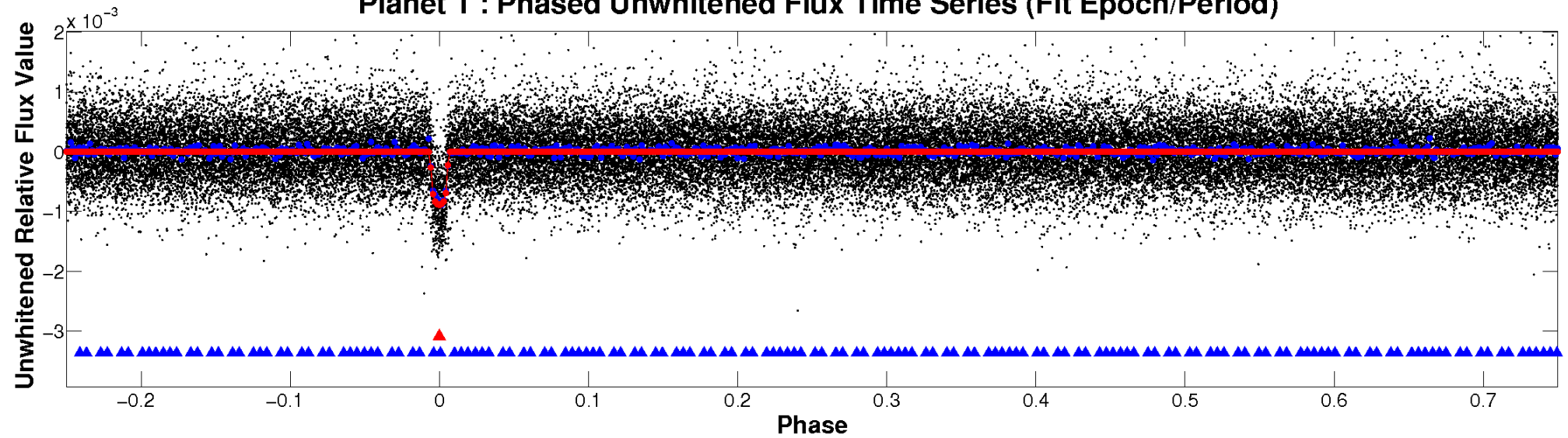
ALT Odd/Even

TCE 011074178-01

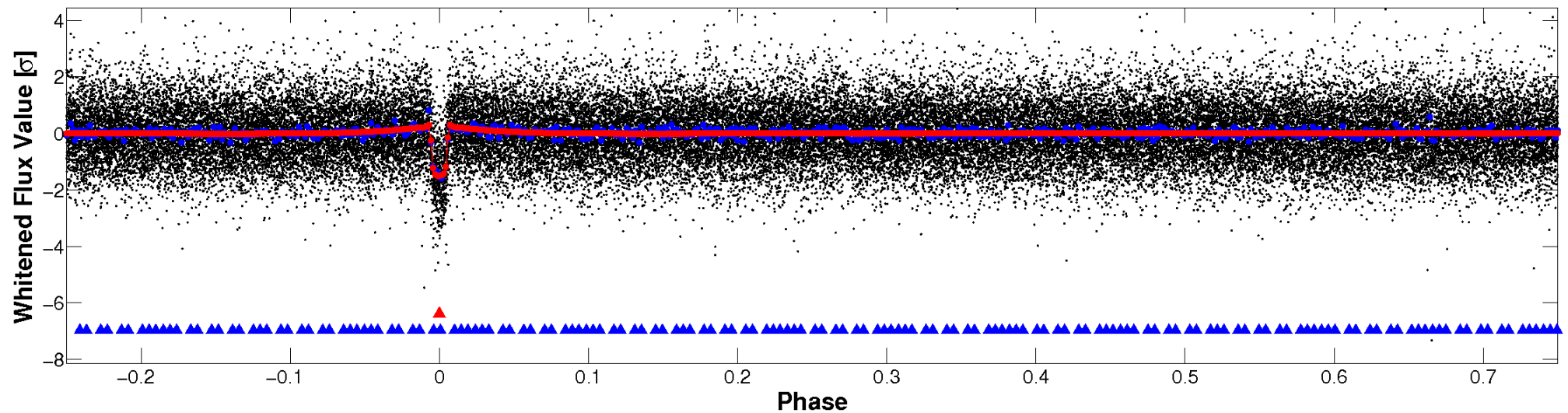


Non-Whitened Vs. Whitened Light Curve

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

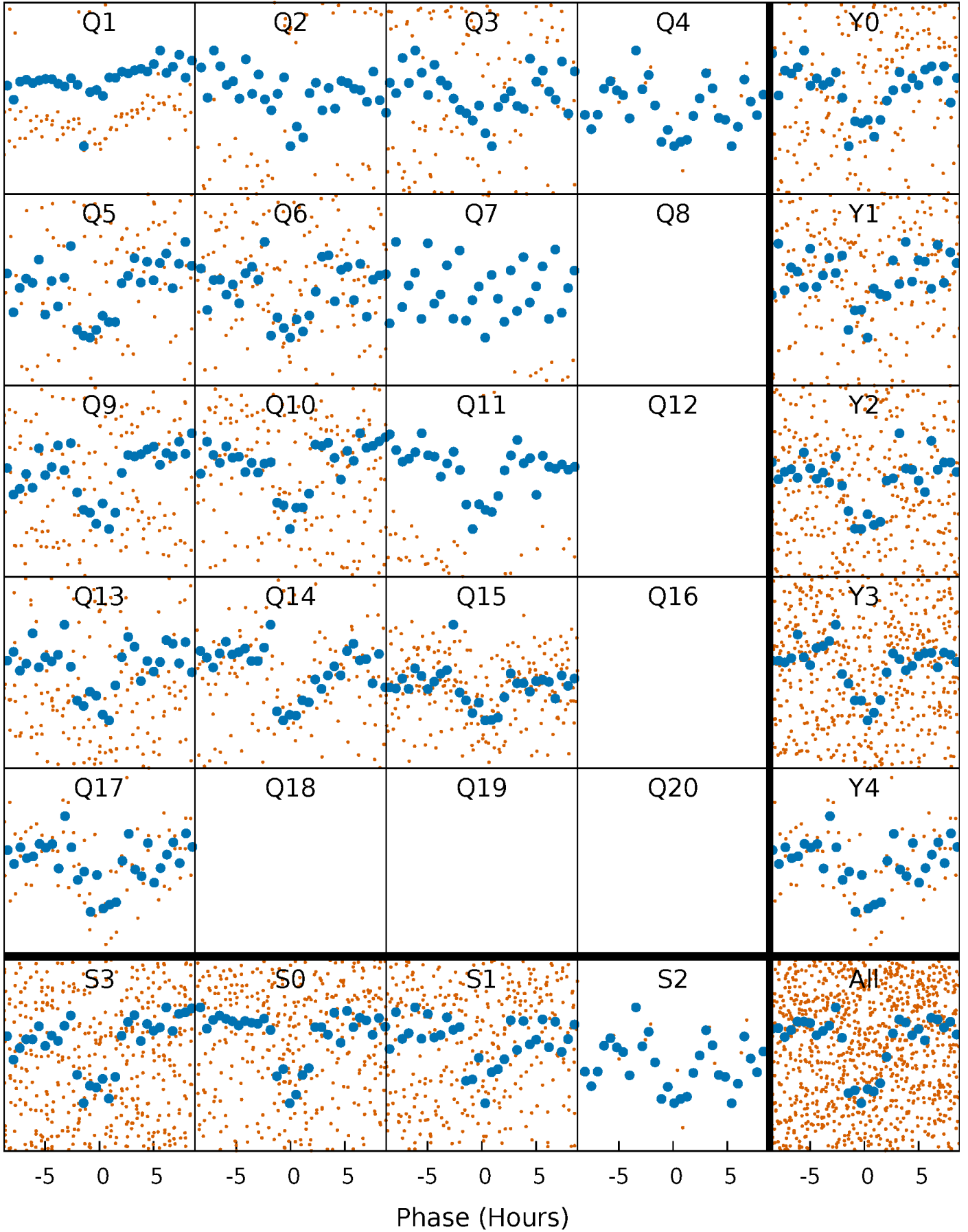


Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)



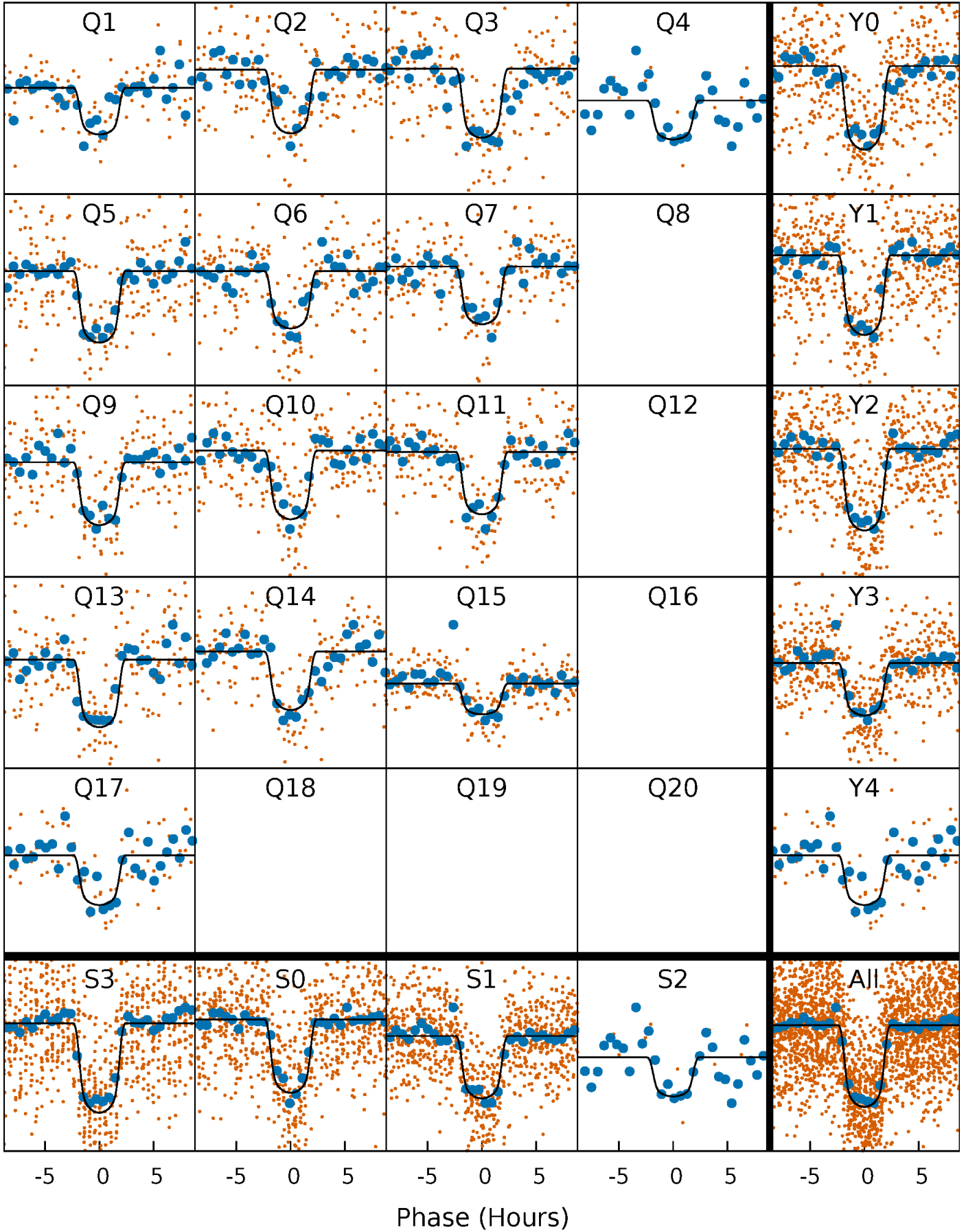
PDC Quarter-Phased Transit Curves

TCE 011074178-01 P= 14.305132 Days $T_0=135.063824$ (BKJD)



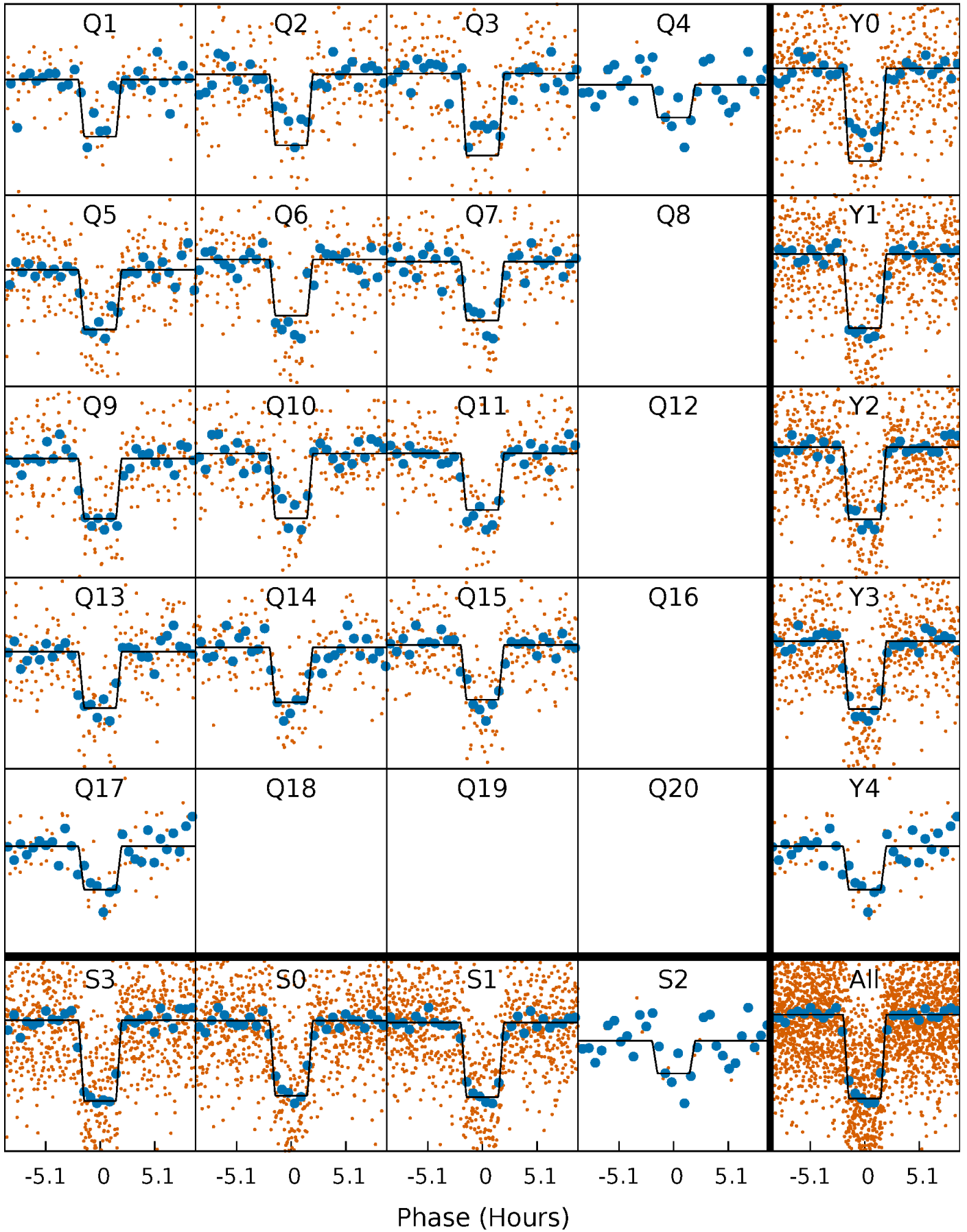
DV Quarter-Phased Transit Curves

TCE 011074178-01 P= 14.305132 Days $T_0=135.063824$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

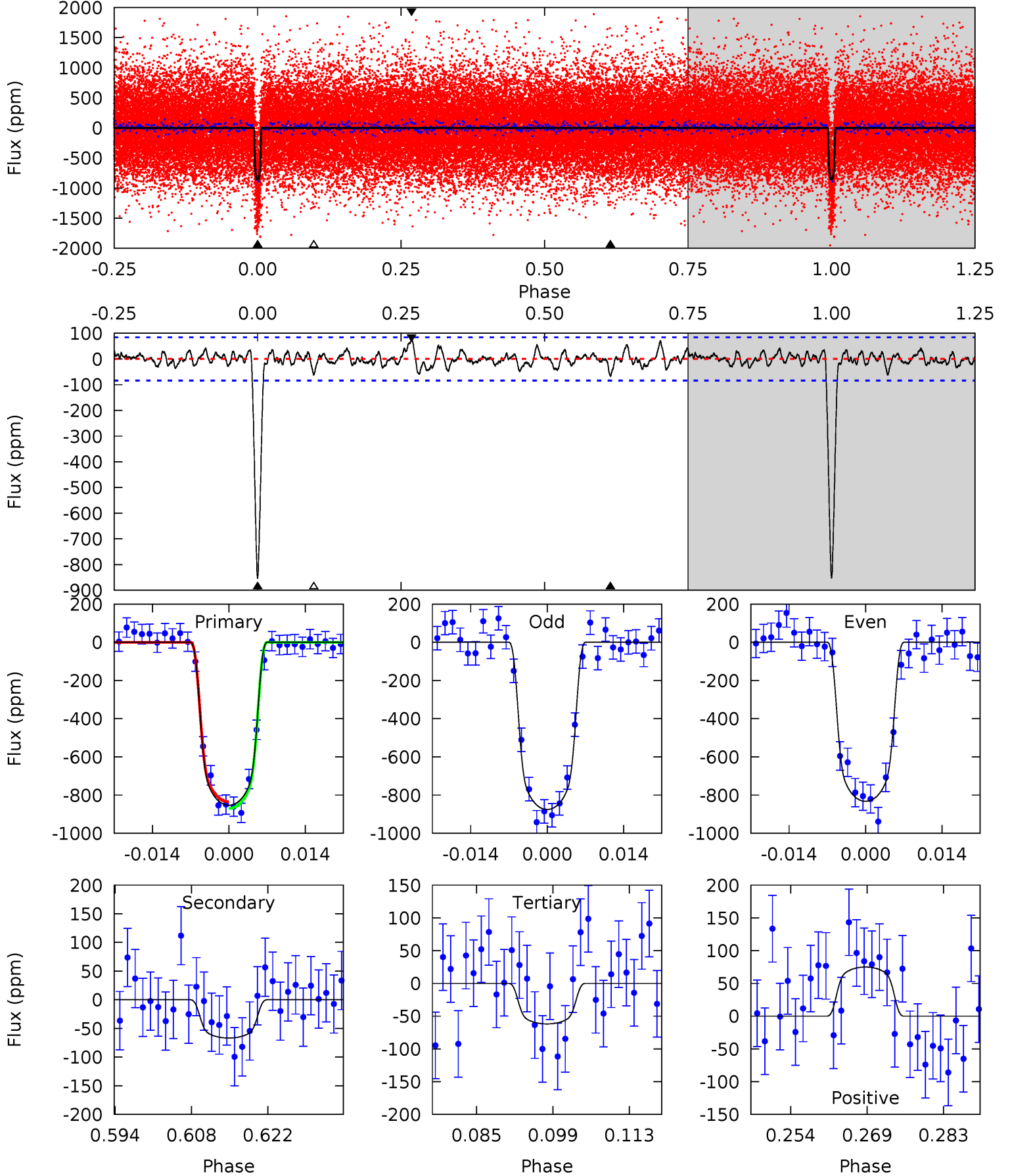
TCE 011074178-01 P= 14.305272 Days $T_0=135.057454$ (BKJD)



DV Model-Shift Uniqueness Test

011074178-01, $P = 14.305132$ Days, $E = 120.758692$ Days

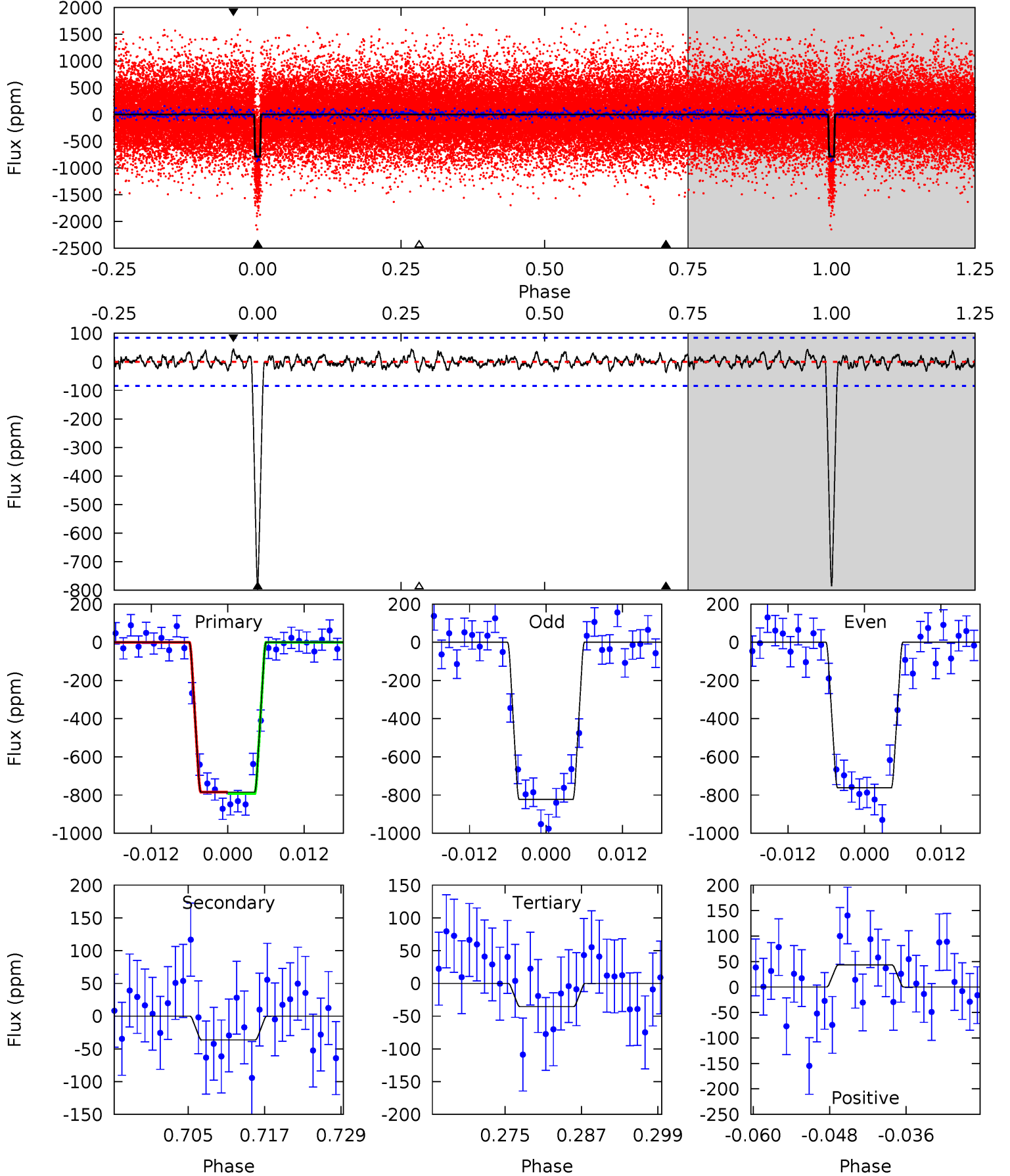
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
50.2	3.93	3.65	4.41	4.96	2.45	1.27	46.6	45.8	0.28	-0.48	1.26	1.01	0.08	1.05



Alt Model-Shift Uniqueness Test

011074178-01, $P = 14.305272$ Days, $E = 120.752182$ Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
46.4	2.15	2.10	2.56	4.99	2.51	0.86	44.3	43.9	0.05	-0.42	1.78	1.00	0.05	0.24



Stellar Parameters For KIC 011074178

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	M (M_{\odot})	p_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	5741^{+155}_{-155}	$4.555^{+0.034}_{-0.195}$	$-0.160^{+0.300}_{-0.300}$	$0.846^{+0.236}_{-0.079}$	$0.938^{+0.098}_{-0.109}$	$2.178^{+0.413}_{-1.088}$
	+3%/-3%	+1%/-4%	+188%/-188%	+28%/-9%	+10%/-12%	+19%/-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 011074178-01 / KOI 1889.01

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	-67 ± 17	$3.15^{+0.44}_{-0.29}$	993^{+67}_{-44}	3389^{+152}_{-160}	45^{+17}_{-15}
Alt.	-36 ± 17	$2.71^{+0.40}_{-0.26}$	993^{+63}_{-43}	3224^{+219}_{-320}	33^{+18}_{-17}

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 $A_{obs} \gg 1.0$

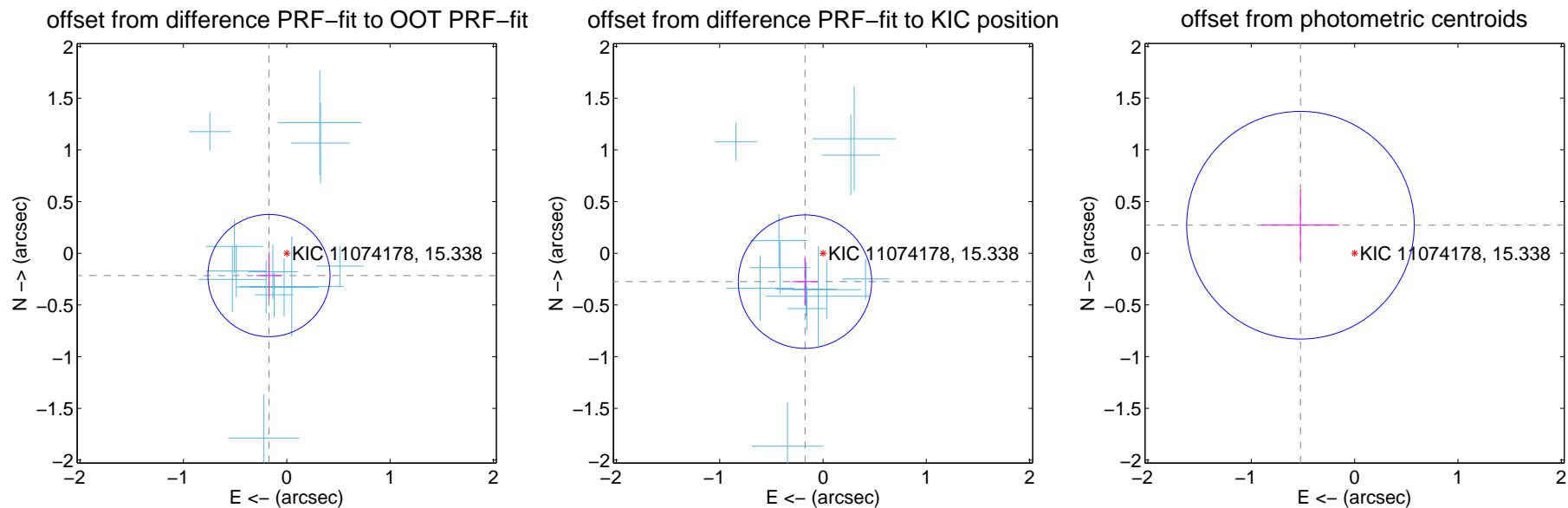
DV Centroid Data

Supplemental centroid analysis for 011074178-01. Kepler magnitude: 15.34. Transit SNR 31.92

There are 13 quarters with good PRF difference image offsets

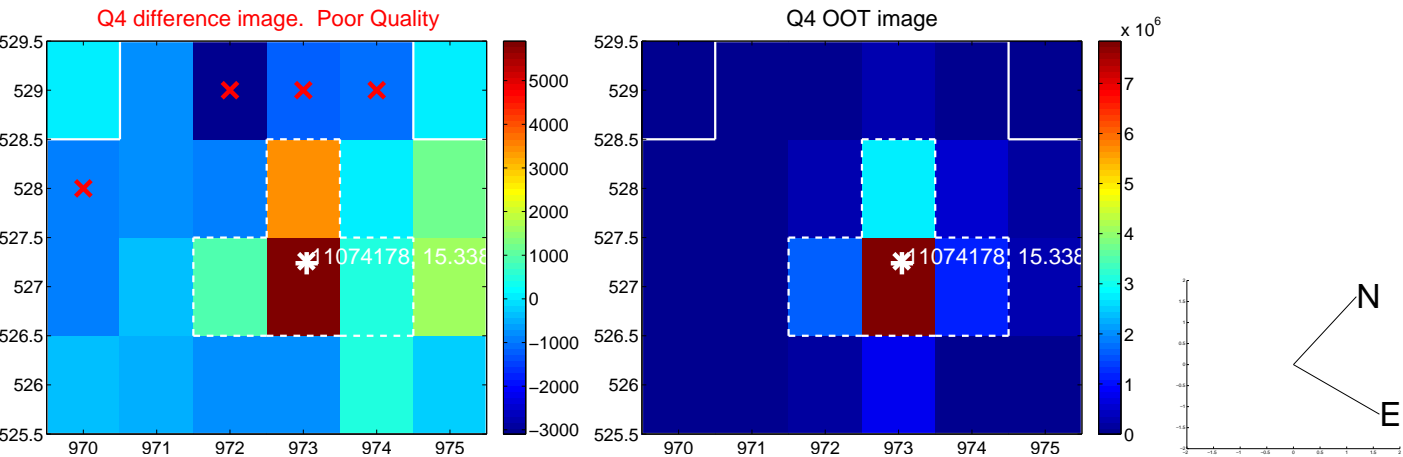
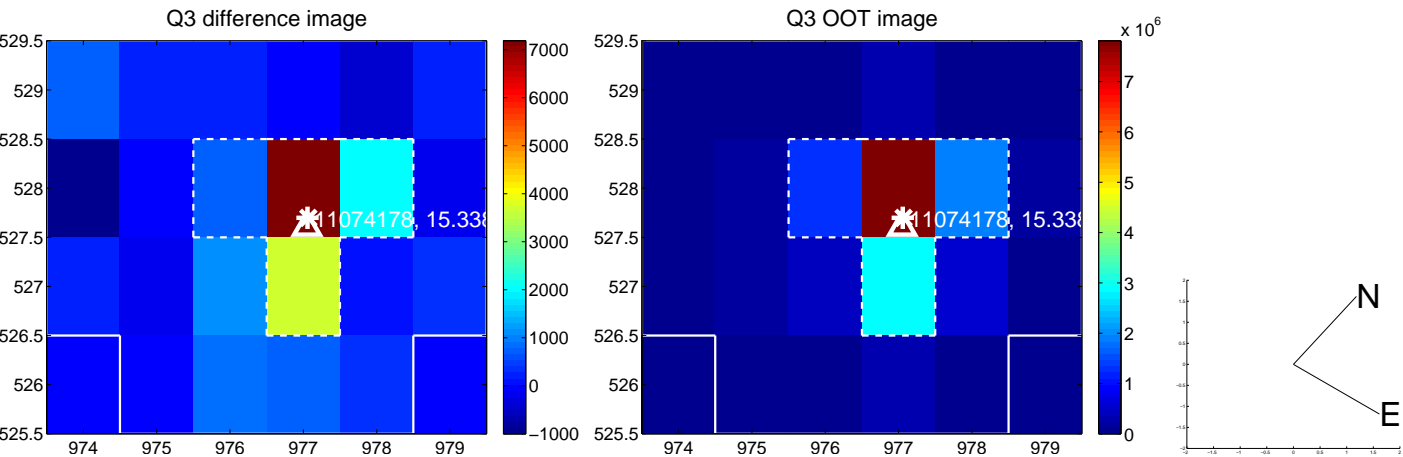
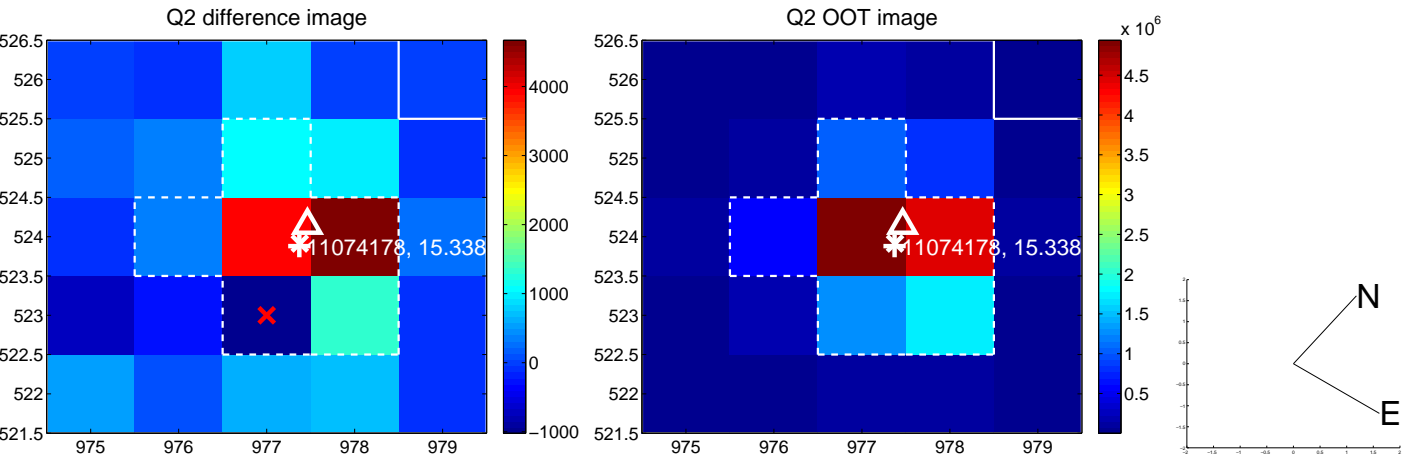
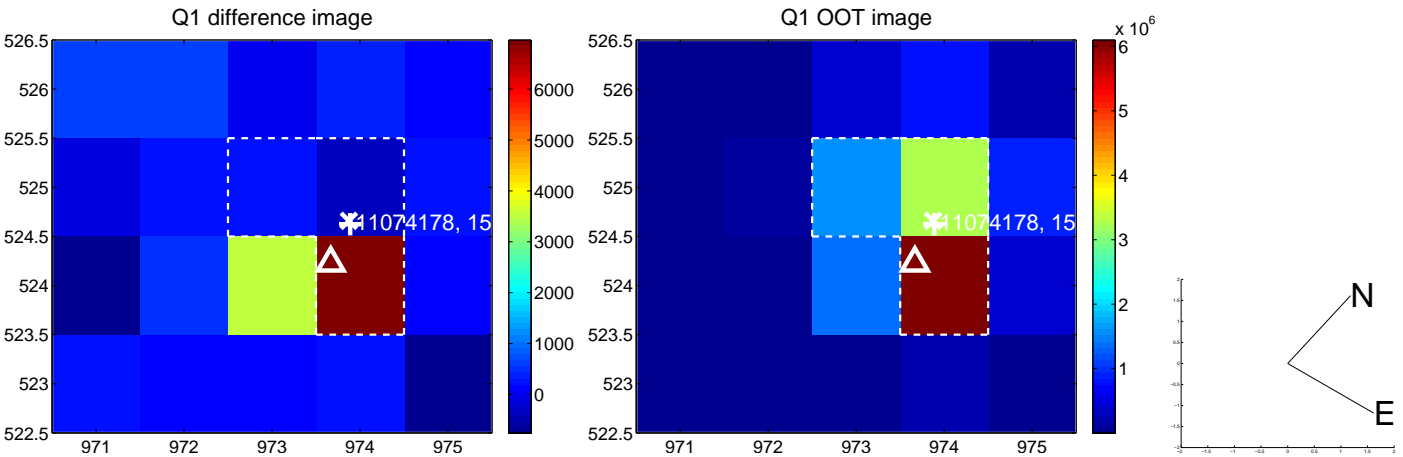
The direct PRF centroid is offset from the target star catalog position by about 0.13 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.276 ± 0.197	1.40	0.172 ± 0.121	-0.215 ± 0.226
PRF-fit source offset from KIC position	0.325 ± 0.215	1.51	0.175 ± 0.123	-0.274 ± 0.225
photometric centroid source offset	0.59 ± 0.37	1.61	0.52 ± 0.37	0.27 ± 0.34

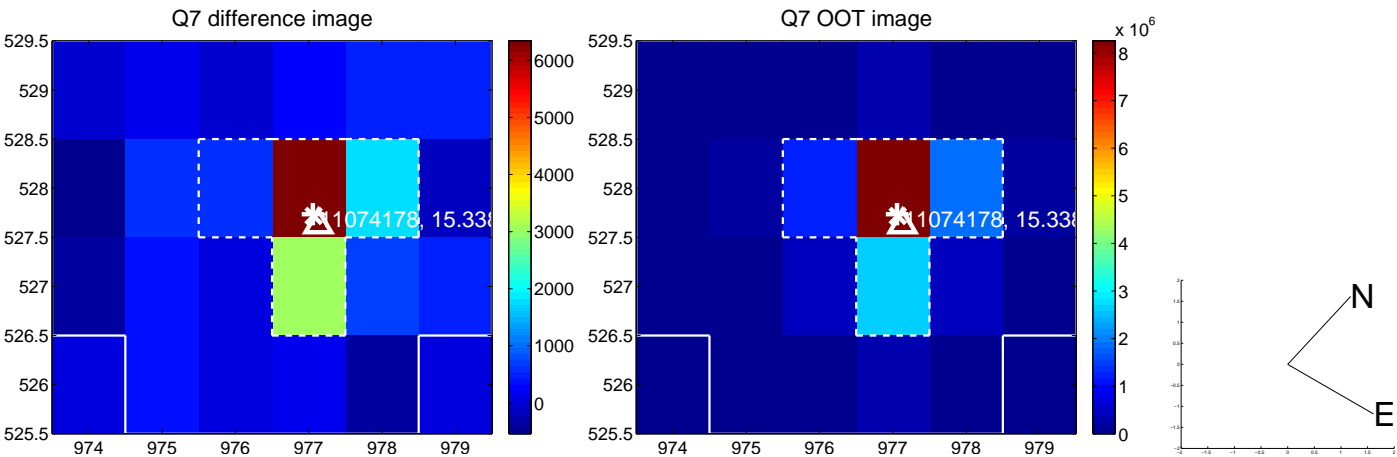
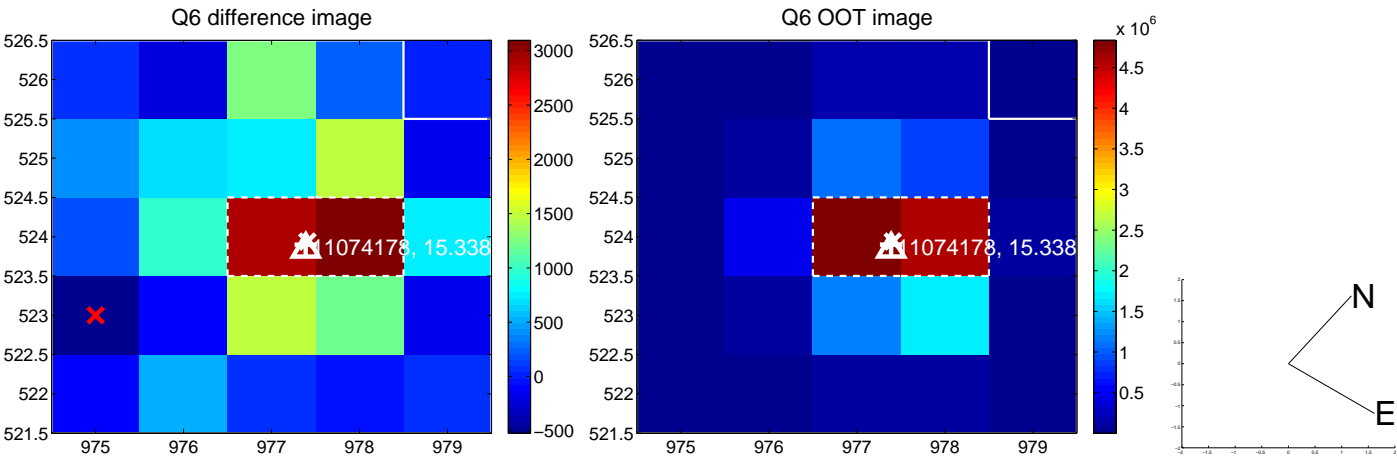
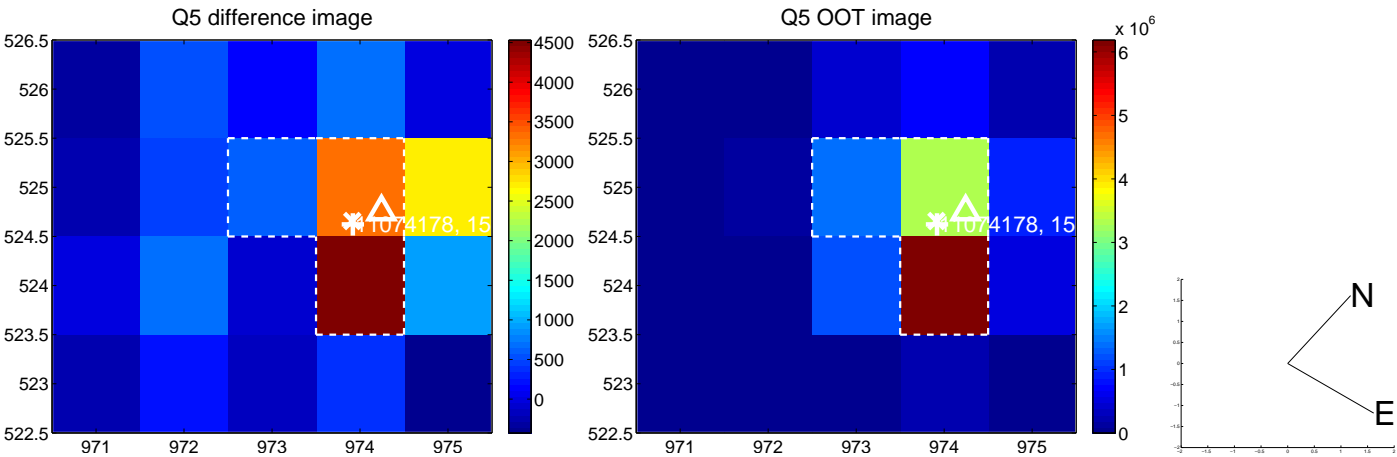


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

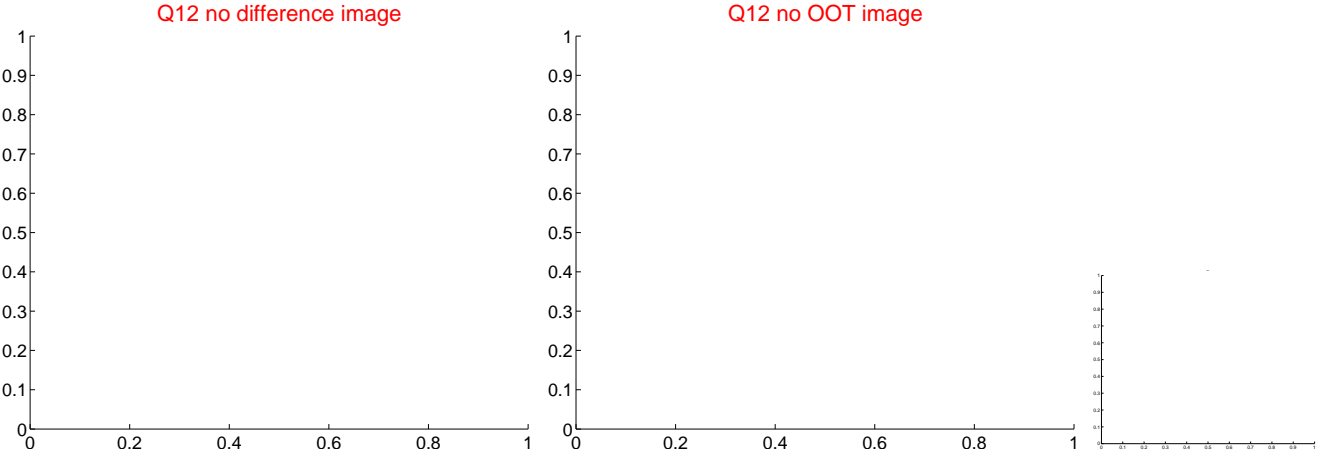
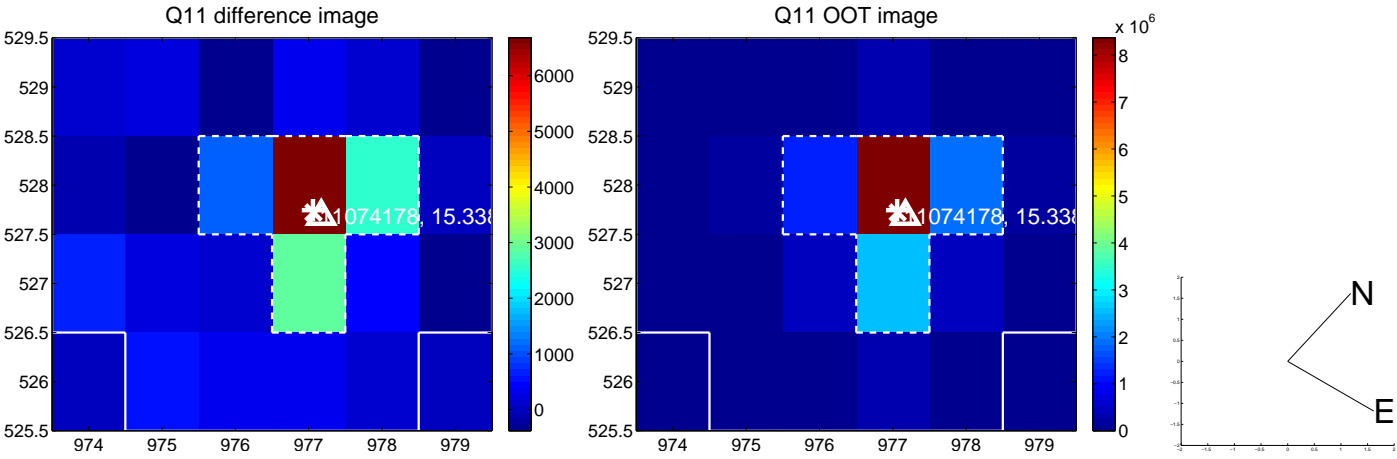
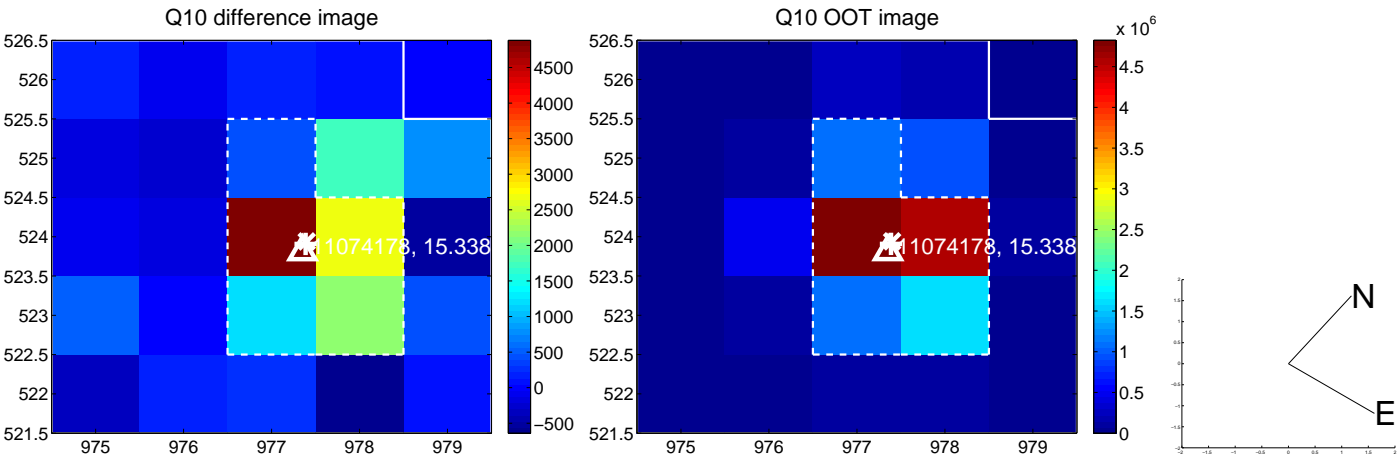
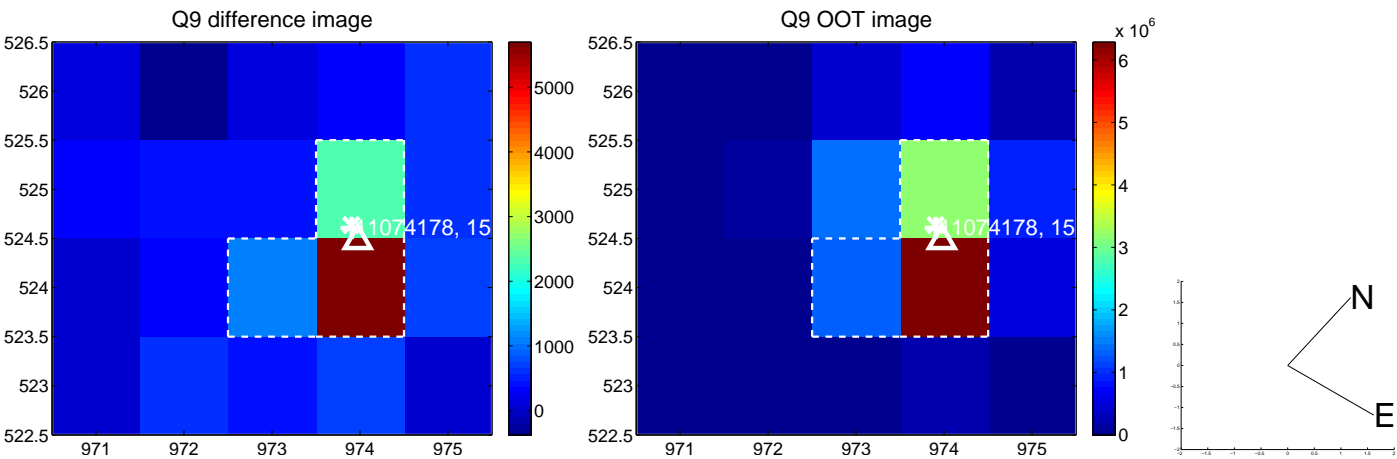
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



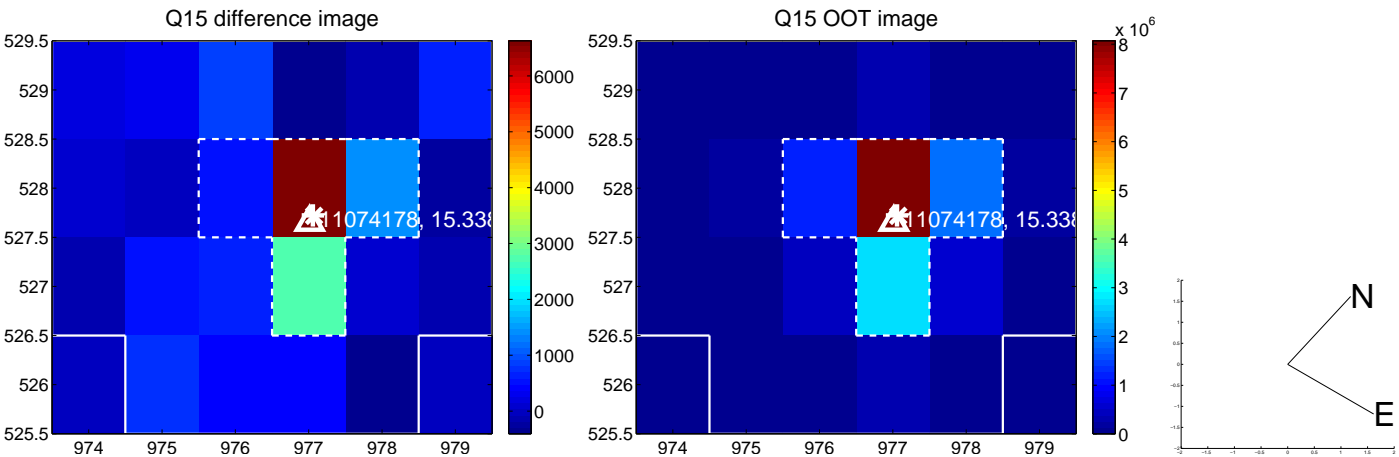
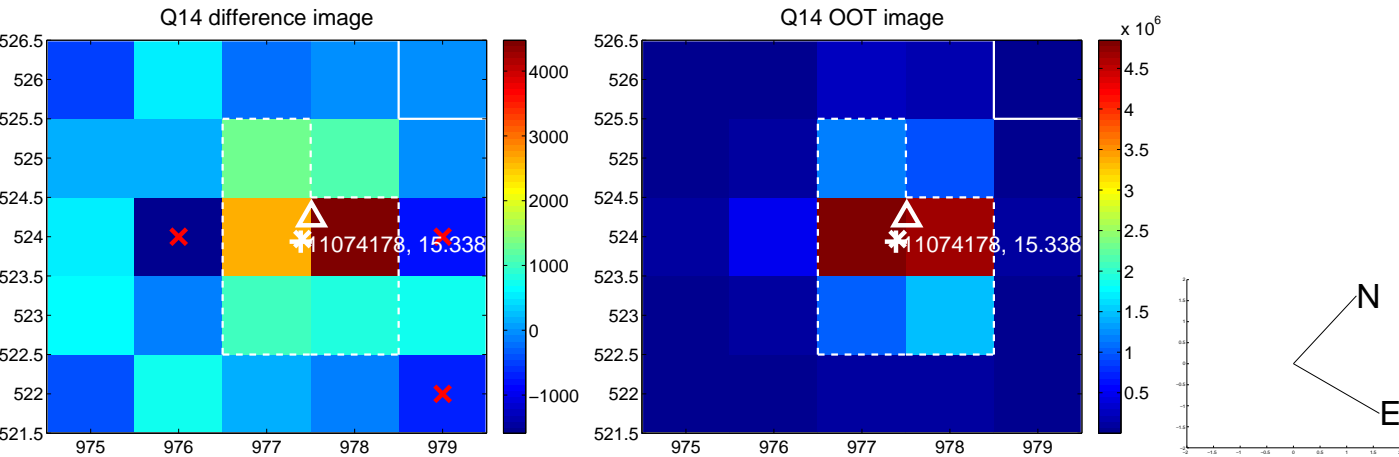
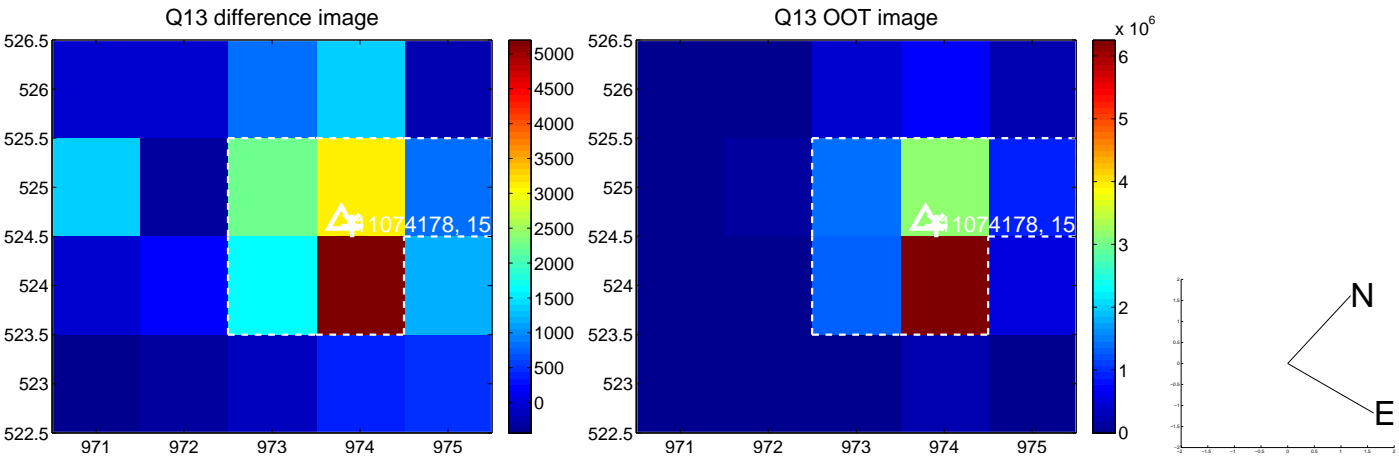
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



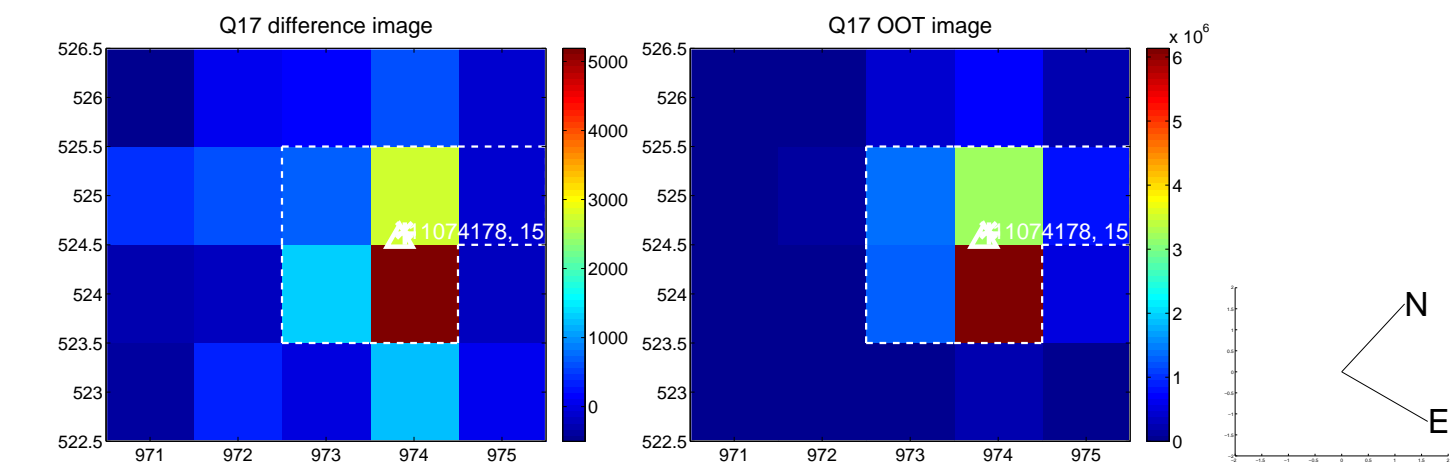
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



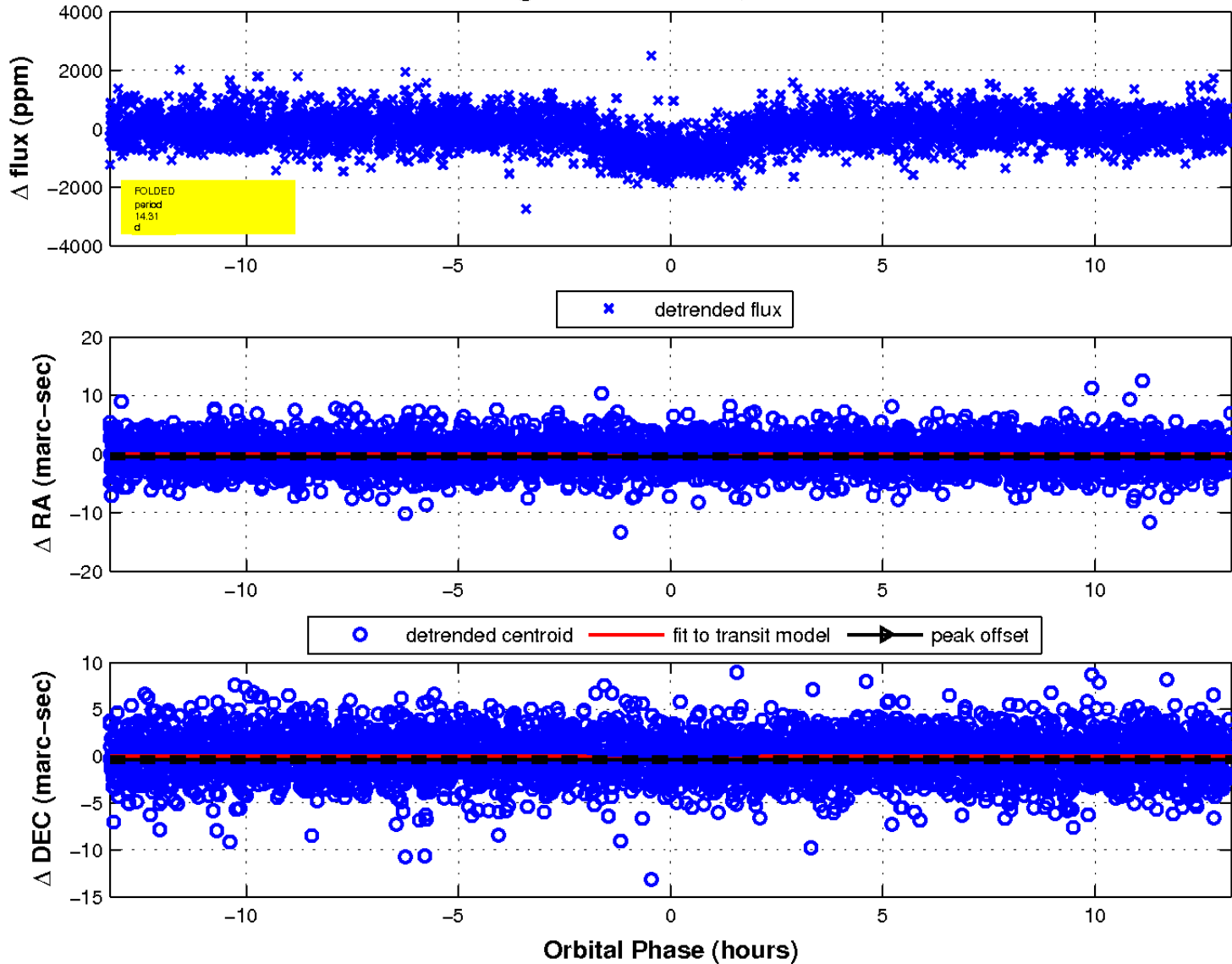
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

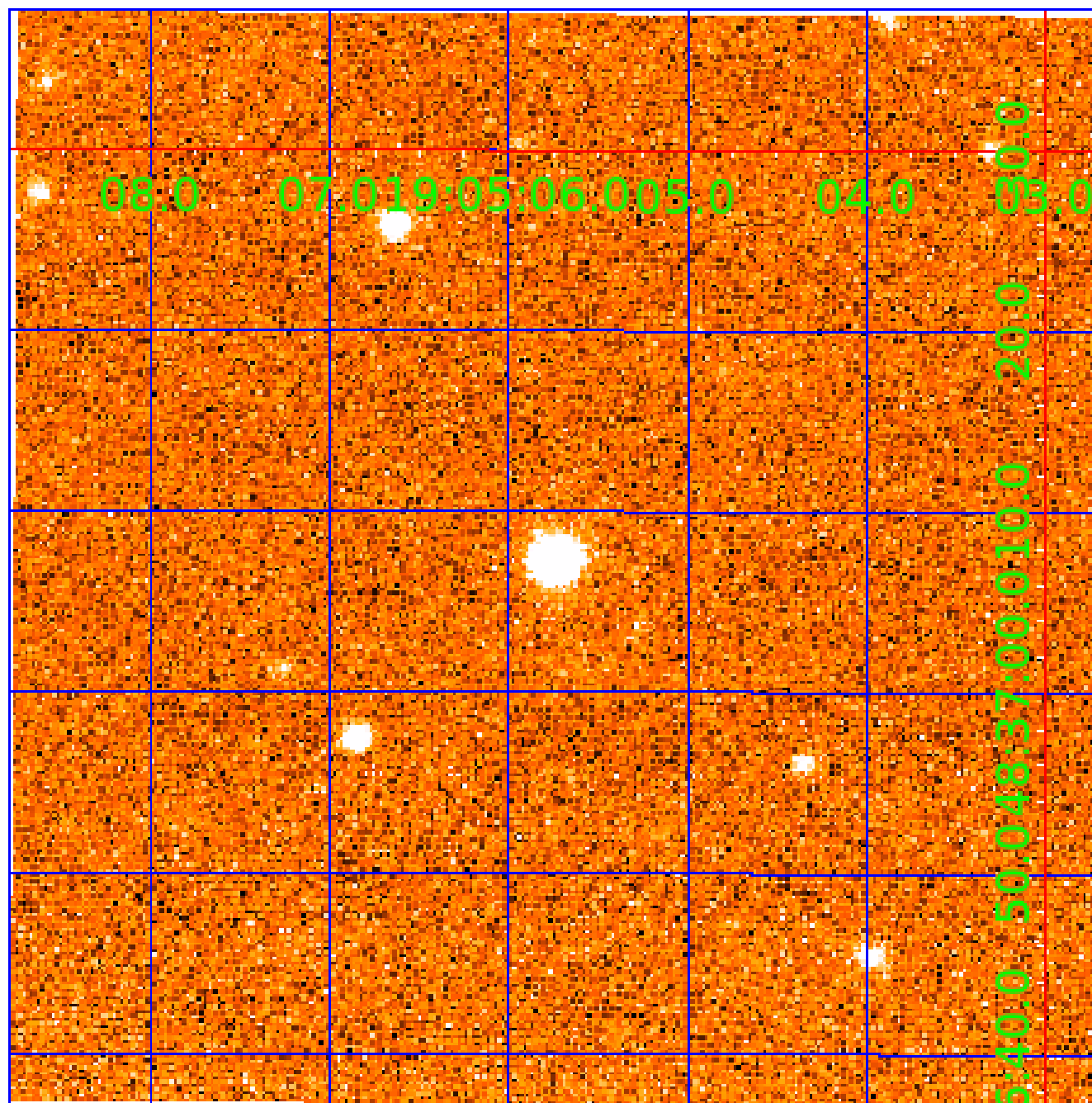


fluxWeightedCentroids, Planet 1 of 2



UKIRT Image

Declination



KIC 011074178

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})
011074178-01	OBS	1889.01	14.305132	135.063824	889.0	4.407	29.1	31.9	0.85	5741	3.01	54.67
011074178-02	OBS	1889.02	9.181860	132.415929	308.8	3.762	13.2	13.9	0.85	5741	1.64	98.75

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
011074178-01	OBS	PC	1.00	0	0	0	0	NO_COMMENT
011074178-02	OBS	PC	0.98	0	0	0	0	NO_COMMENT

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

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

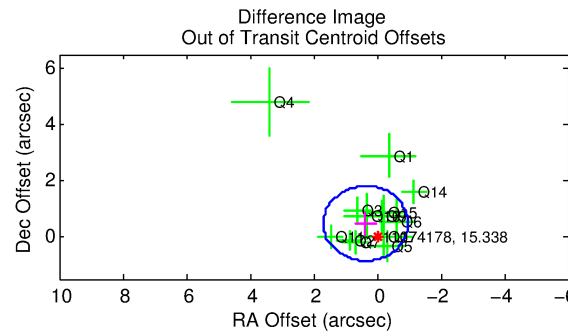
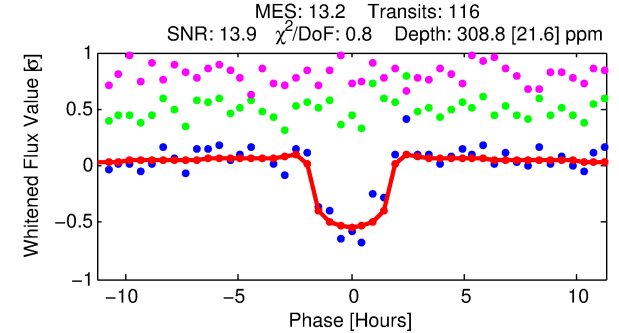
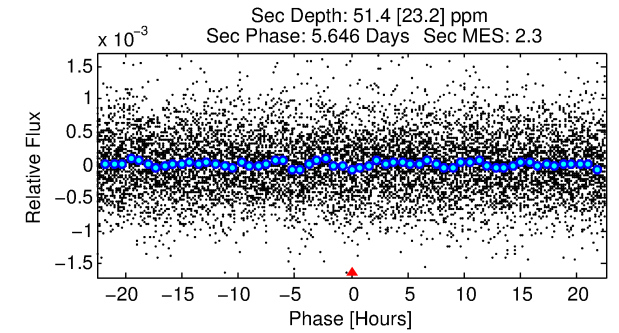
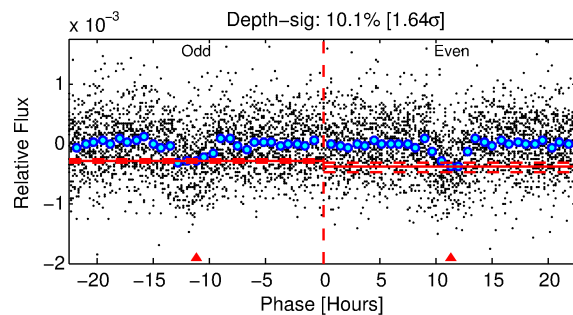
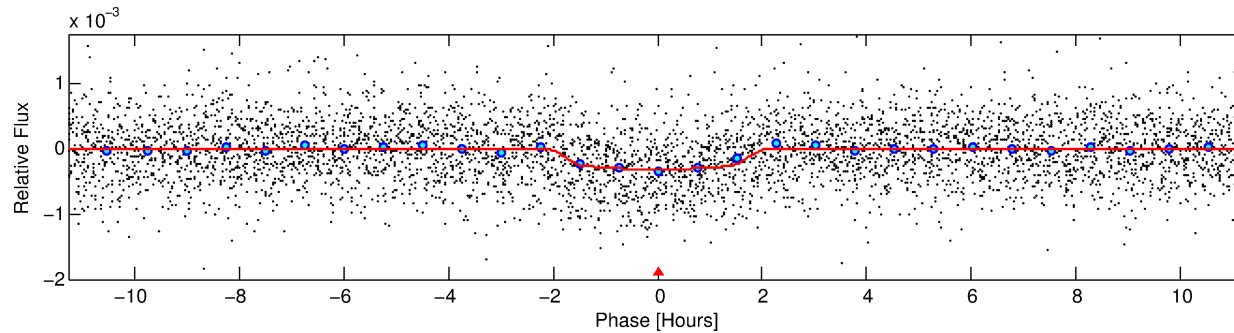
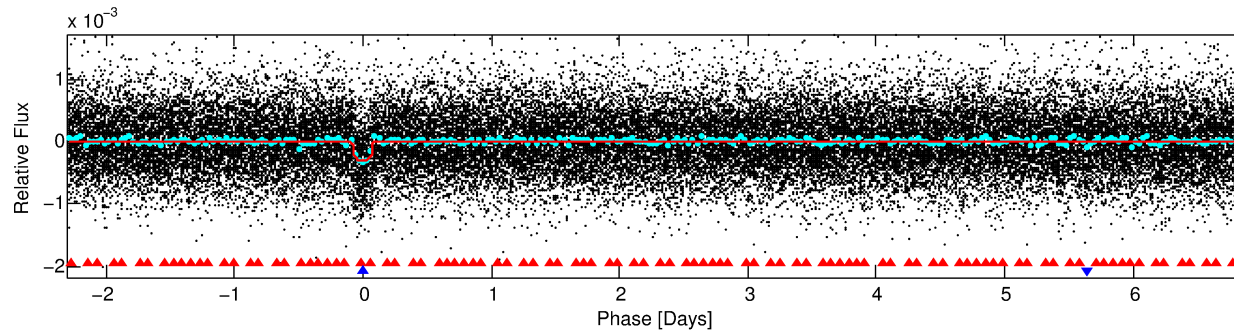
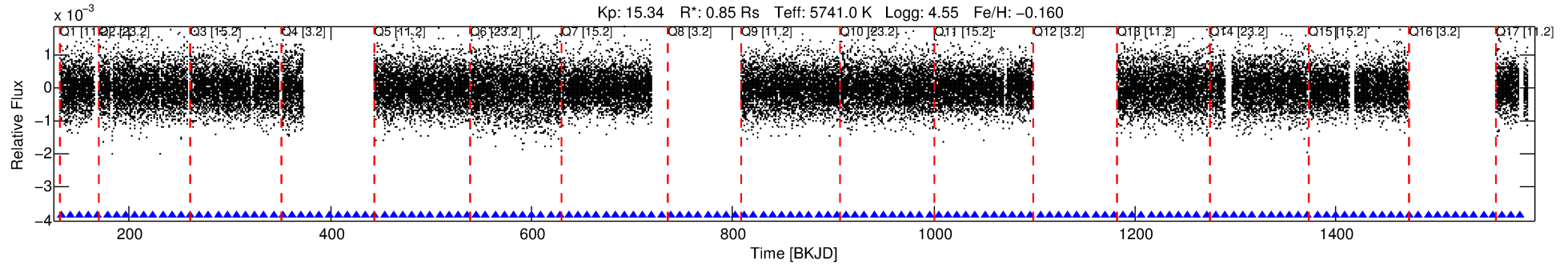
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 011074178-02

No Significant Match Found

DV One-Page Summary

KIC: 11074178 Candidate: 2 of 2 Period: 9.182 d
KOI: K01889.02 Corr: 0.950



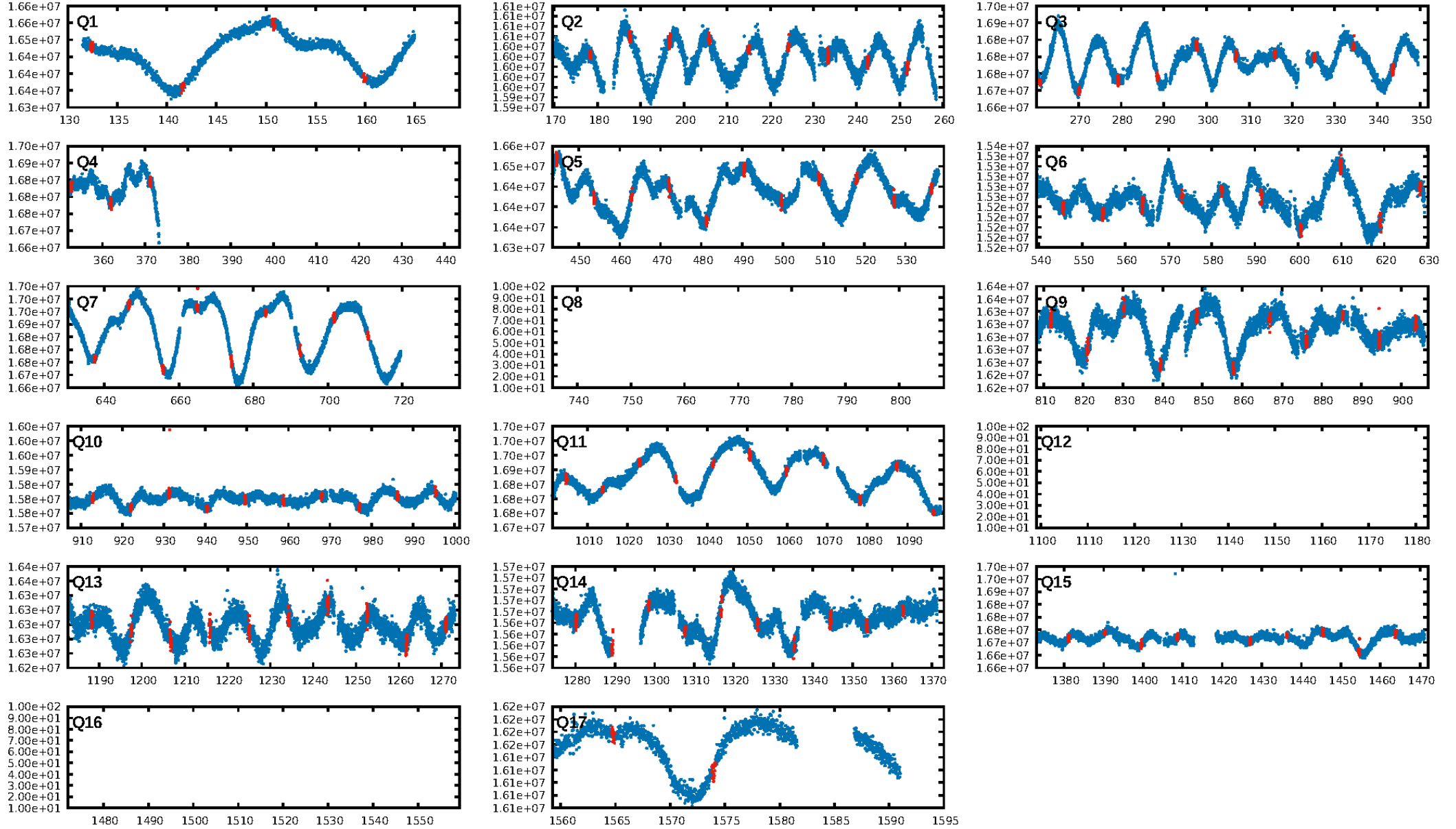
DV Fit Results:

Period = 9.18186 [0.00006] d
Epoch = 132.4159 [0.0046] BKJD
Rp/R* = 0.0178 [0.0101]
a/R* = 12.04 [30.77]
b = 0.79 [1.26]
Seff = 98.75 [36.40]
Teff = 804 [74] K
Rp = 1.64 [1.04] Re
a = 0.0840 [0.0201] AU
Ag = 74.16 [94.14] [0.78 σ]
Teffp = 3647 [1116] K [2.54 σ]

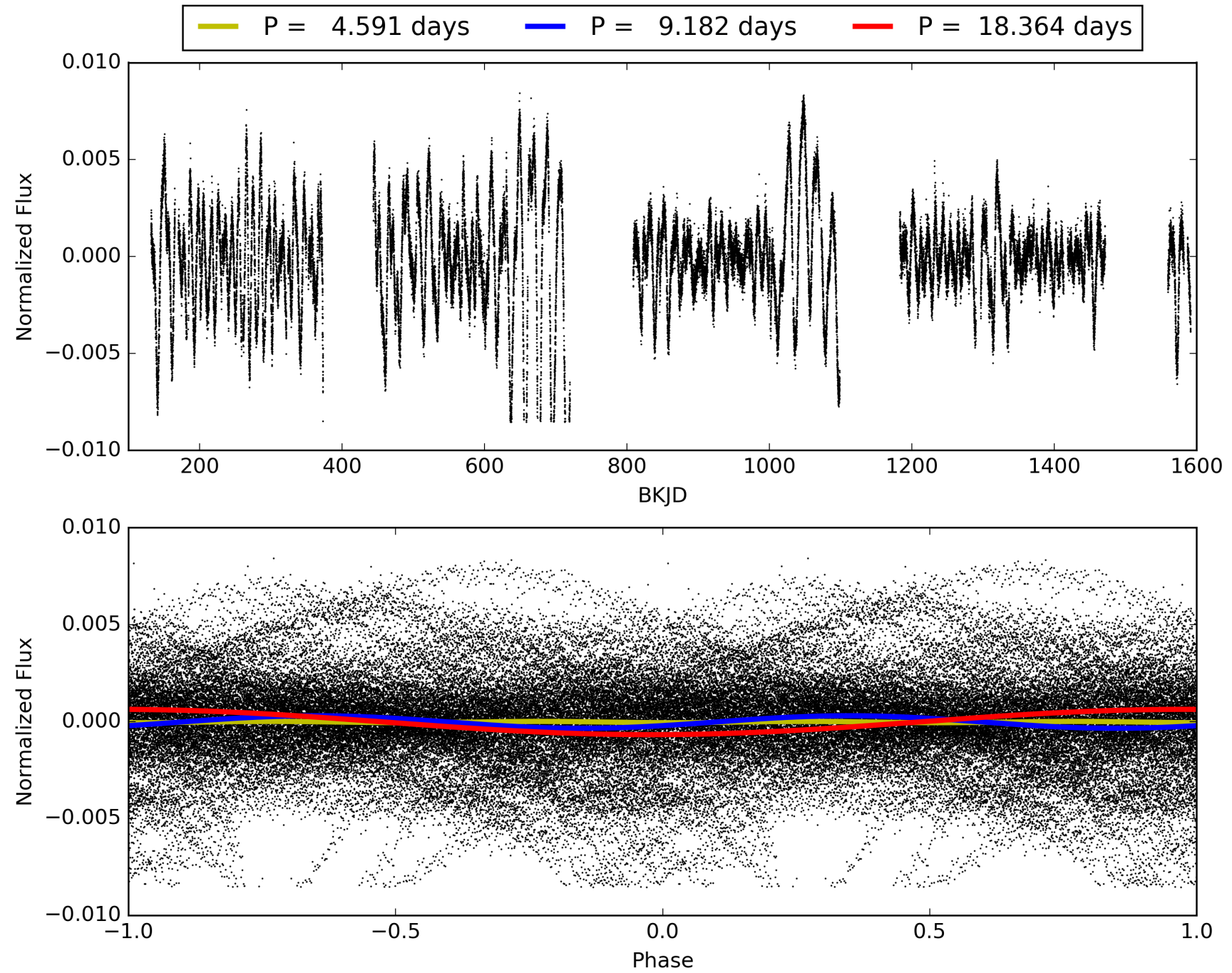
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: 100.0% [21.22 σ]
ModelChiSquare2-sig: 100.0%
ModelChiSquareGof-sig: 100.0%
Bootstrap-pfa: 3.76e-38
RollingBand-fgt: 1.00 [107/107]
GhostDiagnostic-chr: 6.213
Centroid-sig: 2.3%
Centroid-so: 1.042 arcsec [1.29 σ]
OotOffset-rm: 0.599 arcsec [1.35 σ]
KicOffset-rm: 0.550 arcsec [1.27 σ]
OotOffset-st: 4/4/1/4 [13]
KicOffset-st: 4/4/1/4 [13]
DiffImageQuality-fgm: 0.92 [12/13]
DiffImageOverlap-fno: 1.00 [14/14]

TCE 011074178-02, PDC Light Curves

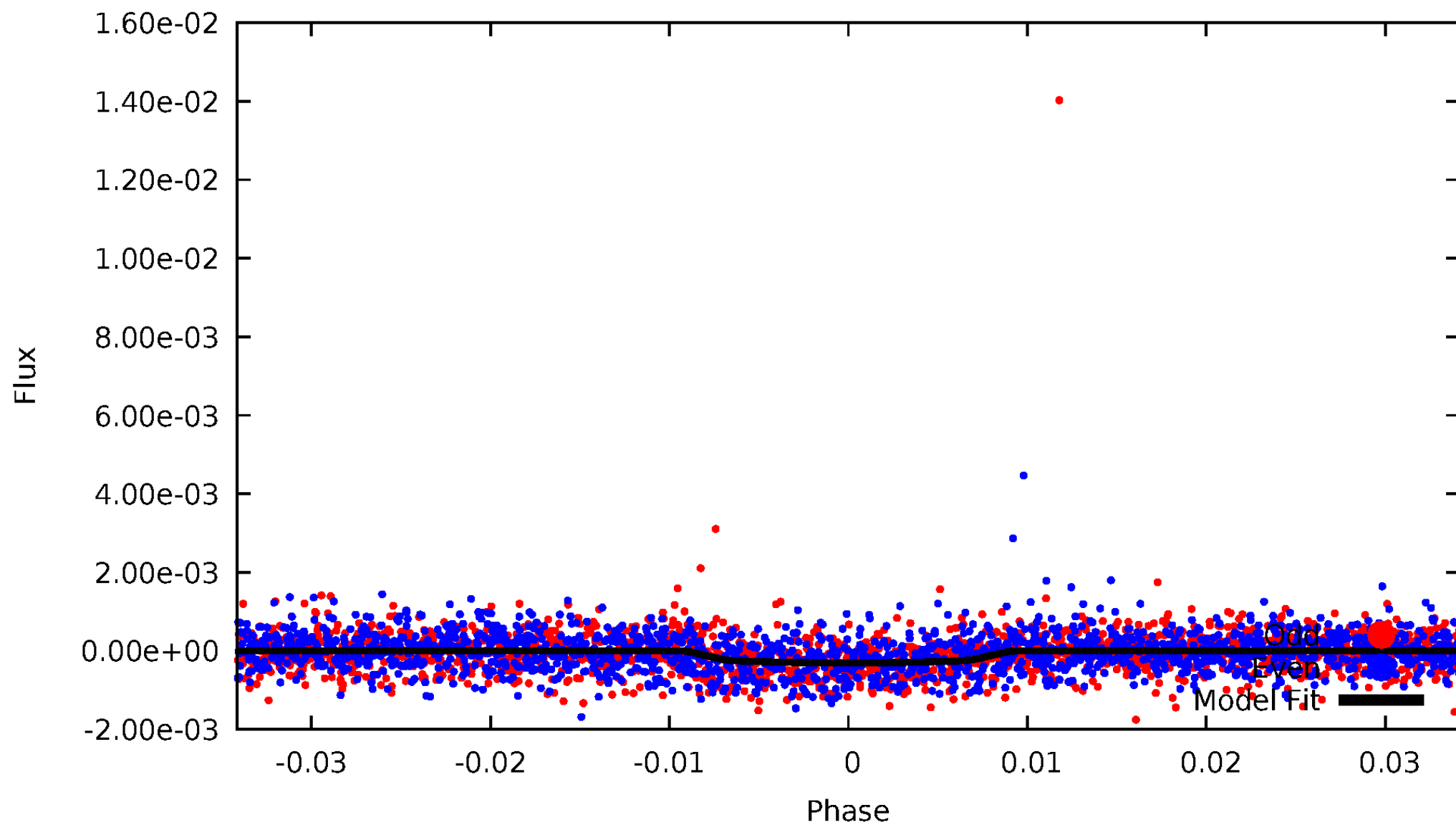


TCE 011074178-02



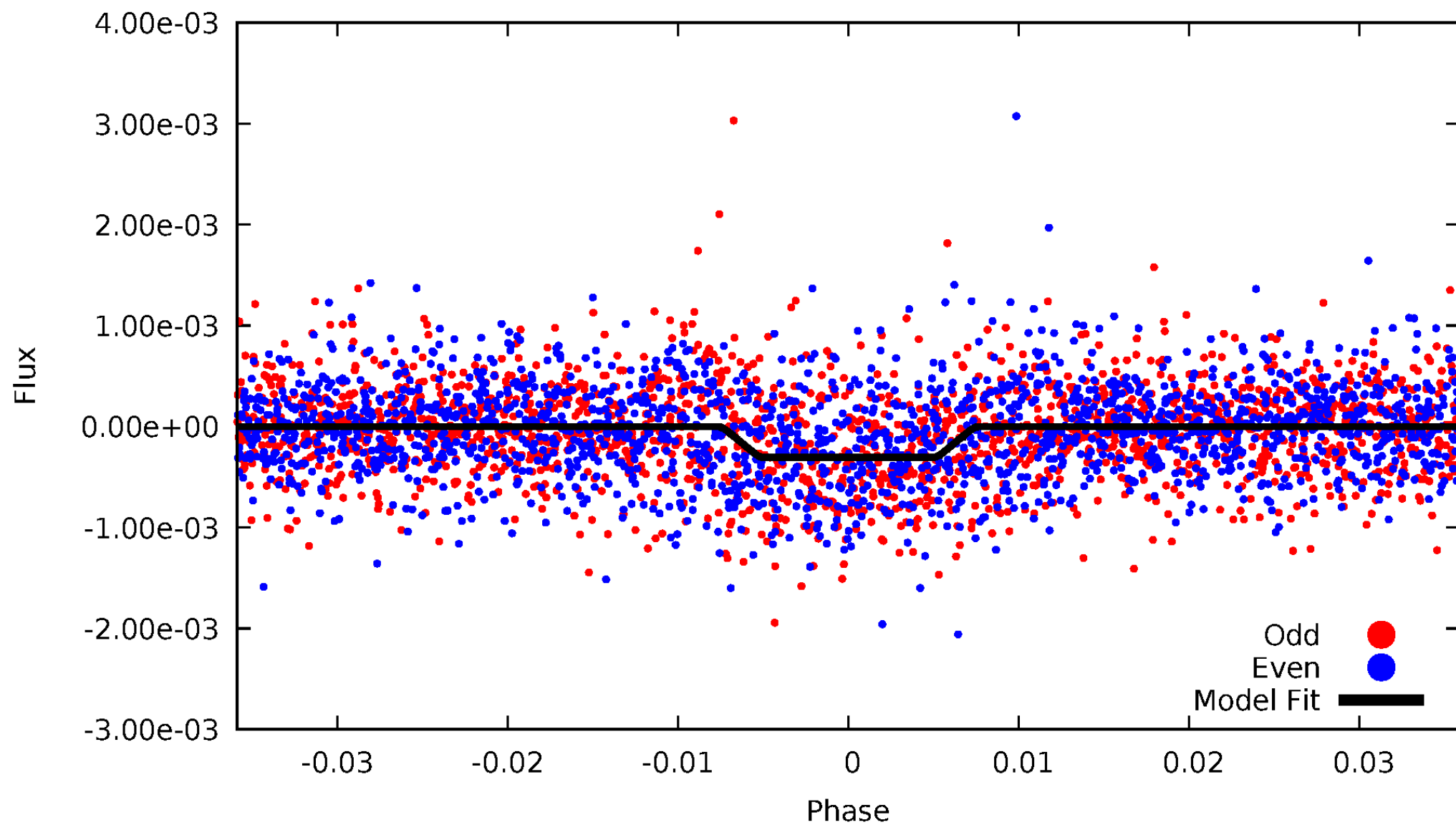
DV Odd/Even

TCE 011074178-02



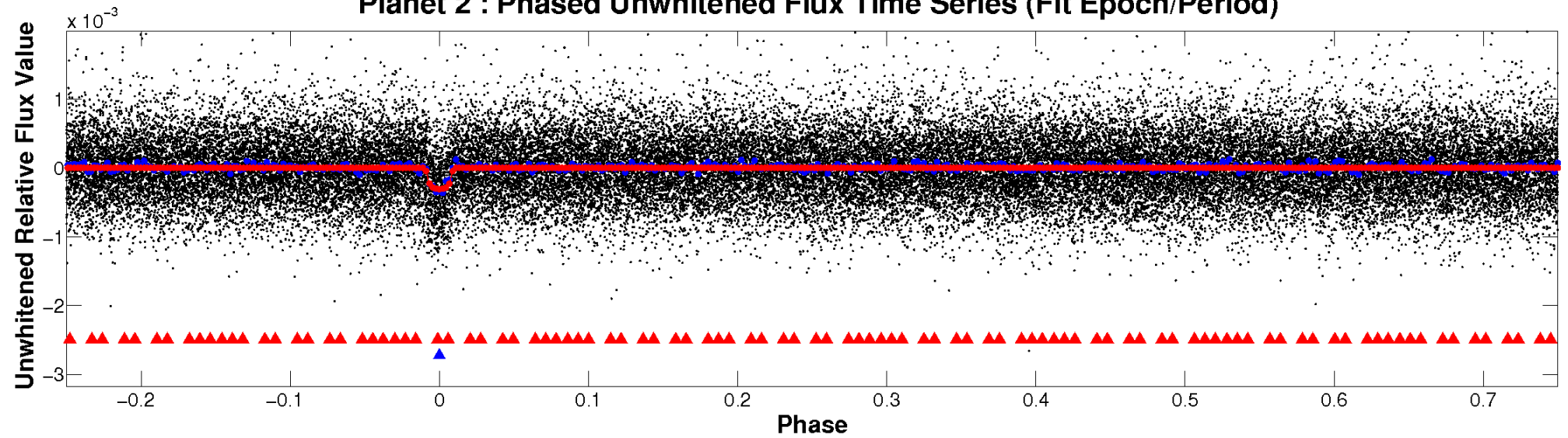
ALT Odd/Even

TCE 011074178-02

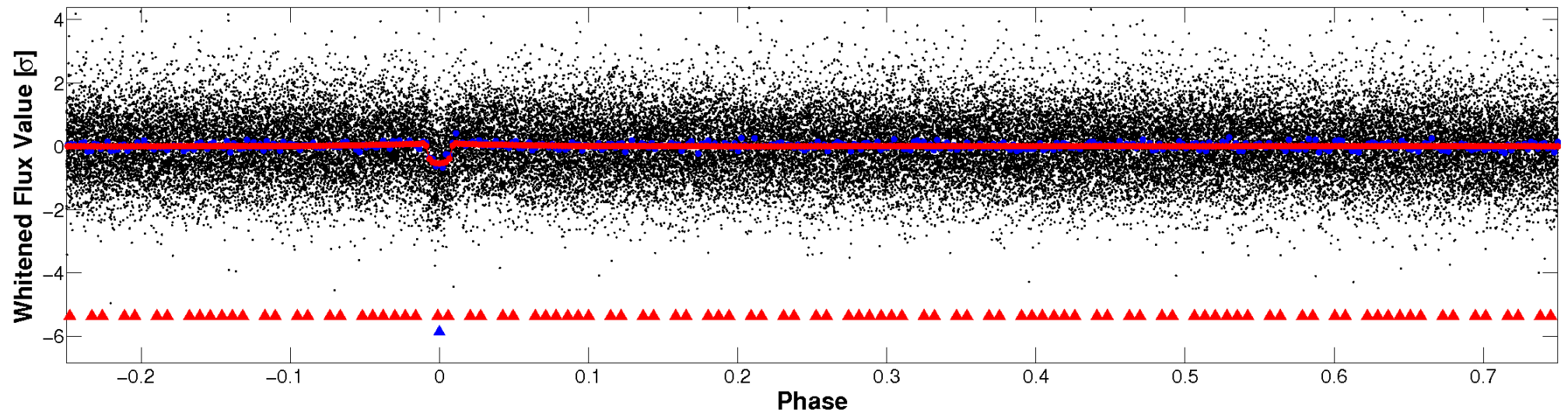


Non-Whitened Vs. Whitened Light Curve

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

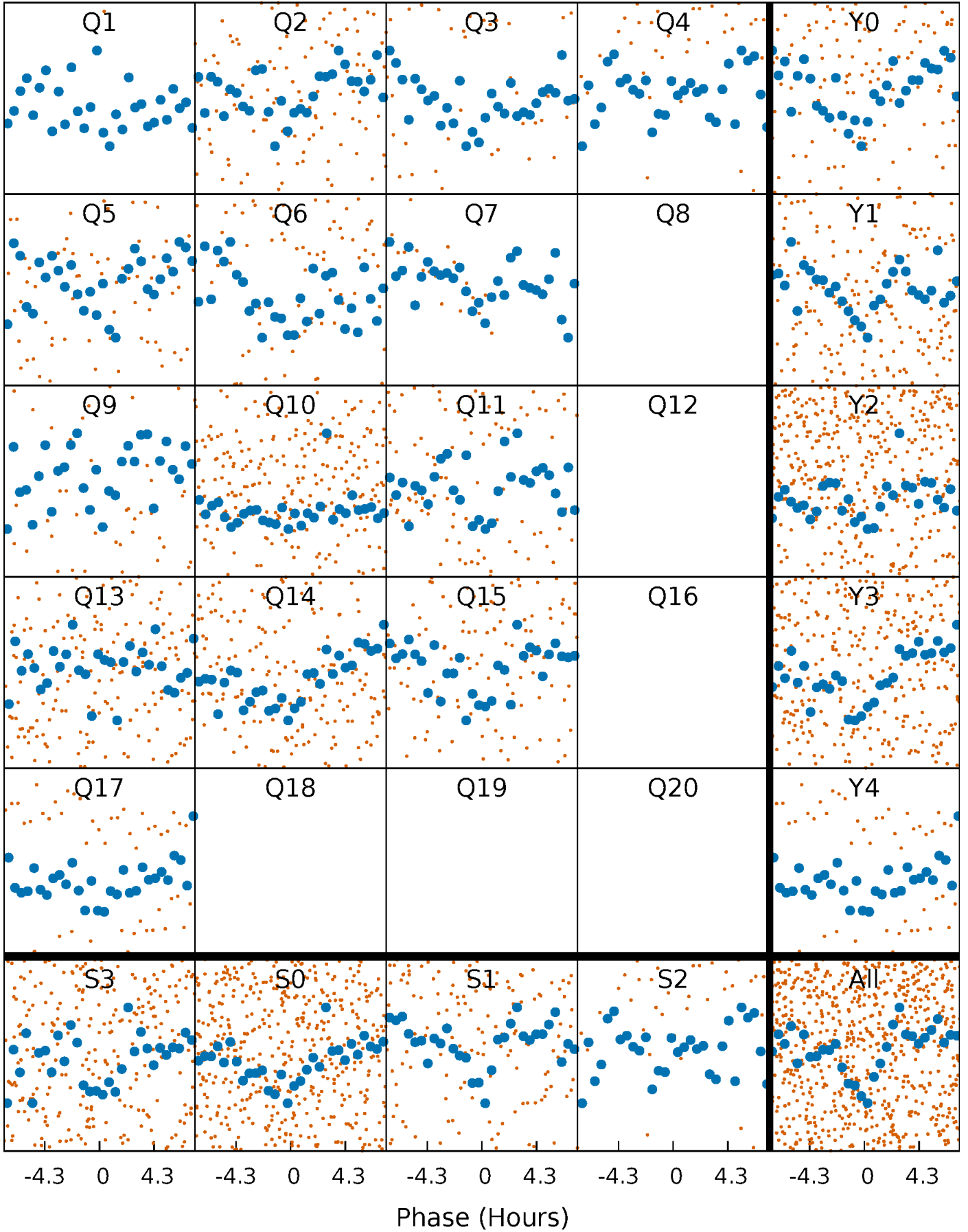


Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



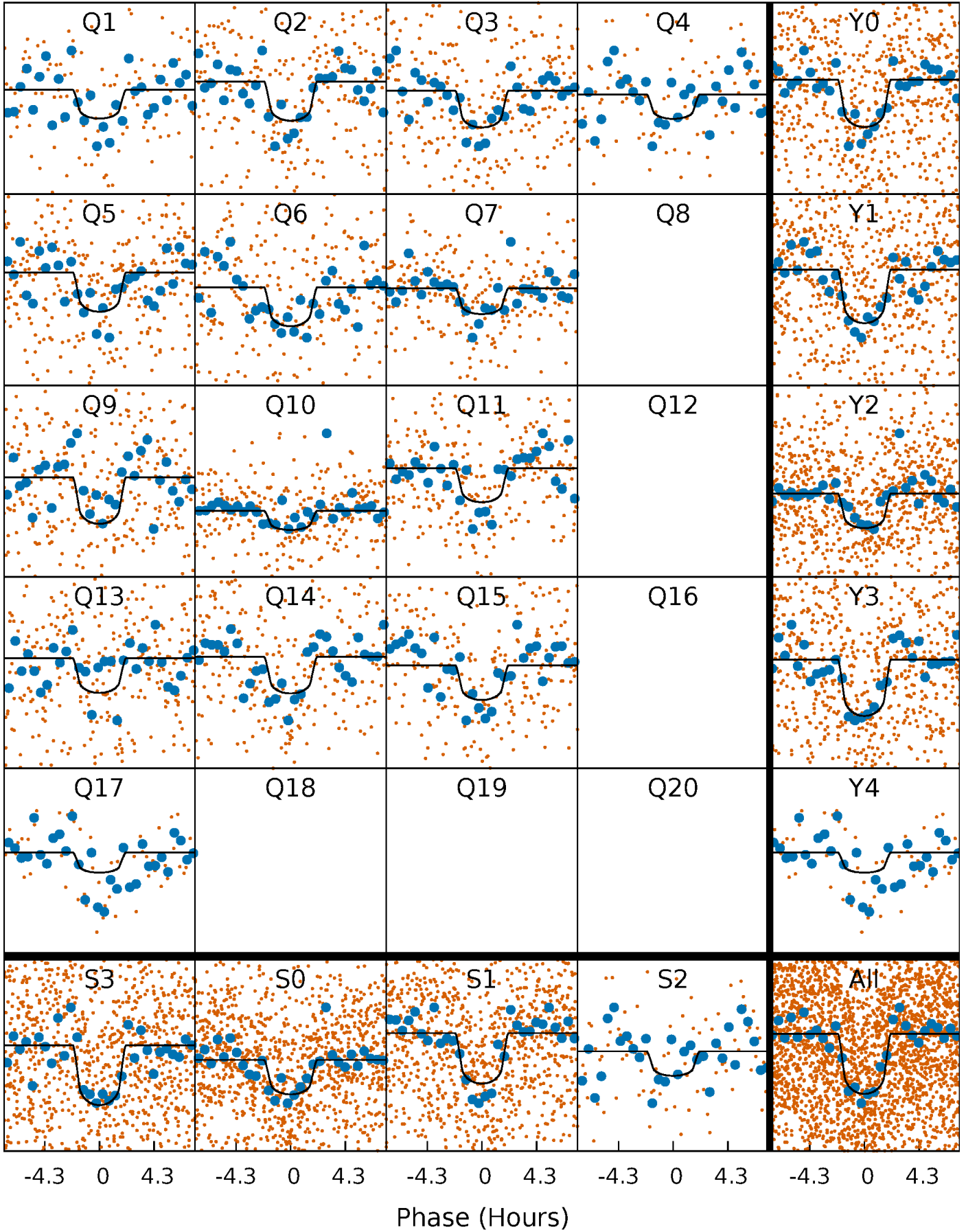
PDC Quarter-Phased Transit Curves

TCE 011074178-02 P= 9.181860 Days $T_0=132.415929$ (BKJD)



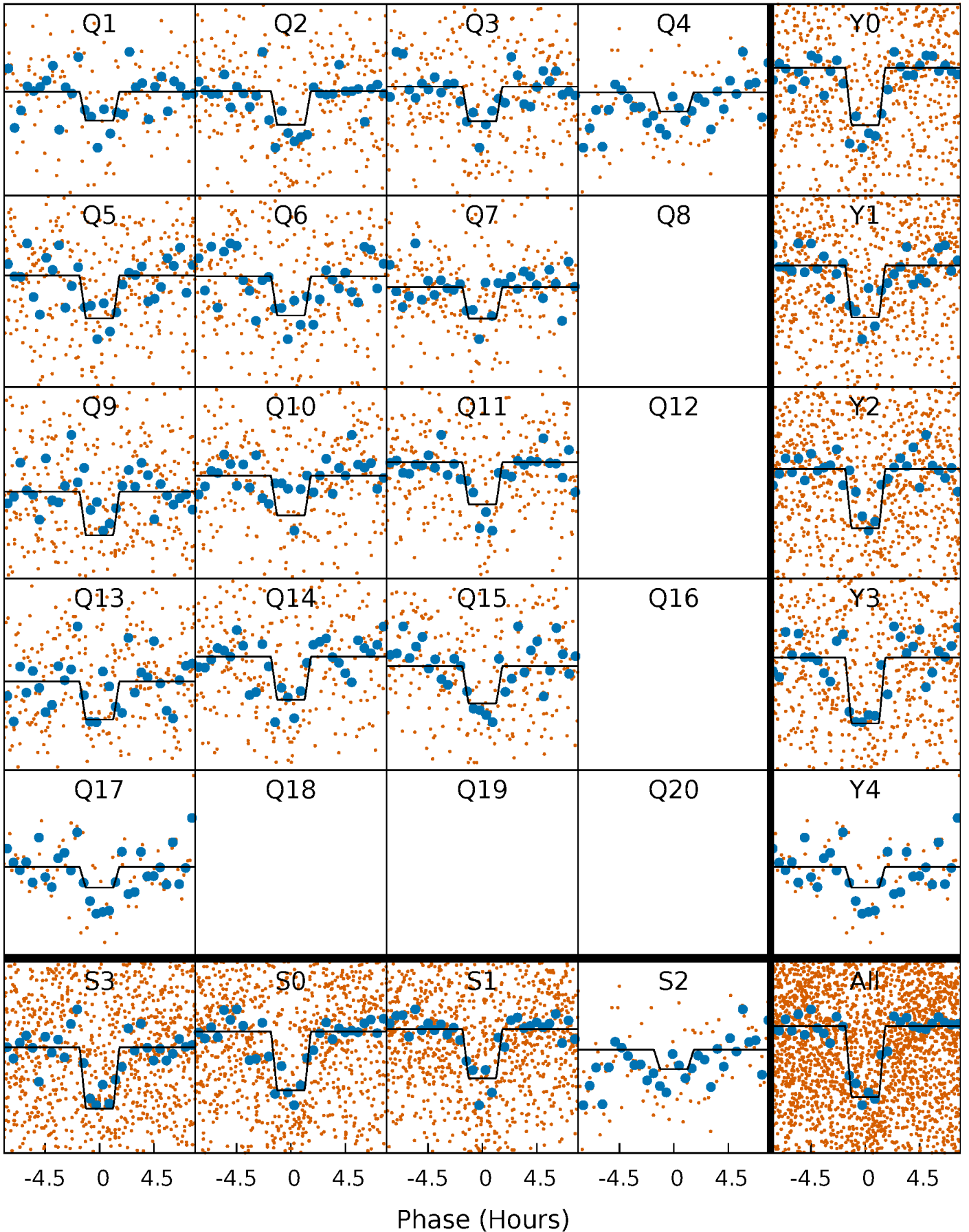
DV Quarter-Phased Transit Curves

TCE 011074178-02 P= 9.181860 Days $T_0=132.415929$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

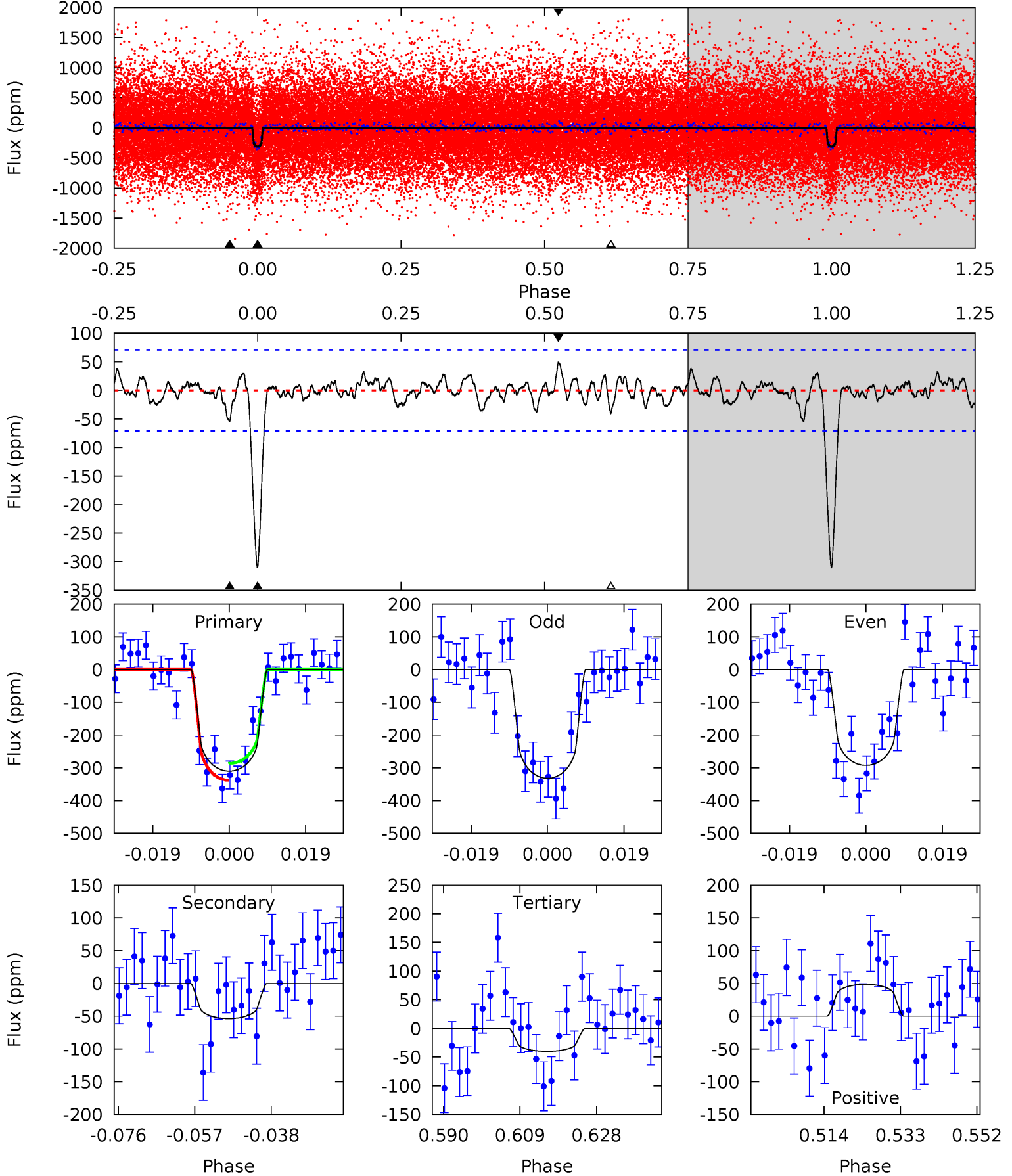
TCE 011074178-02 P= 9.181864 Days $T_0=132.409329$ (BKJD)



DV Model-Shift Uniqueness Test

011074178-02, P = 9.181860 Days, E = 123.234069 Days

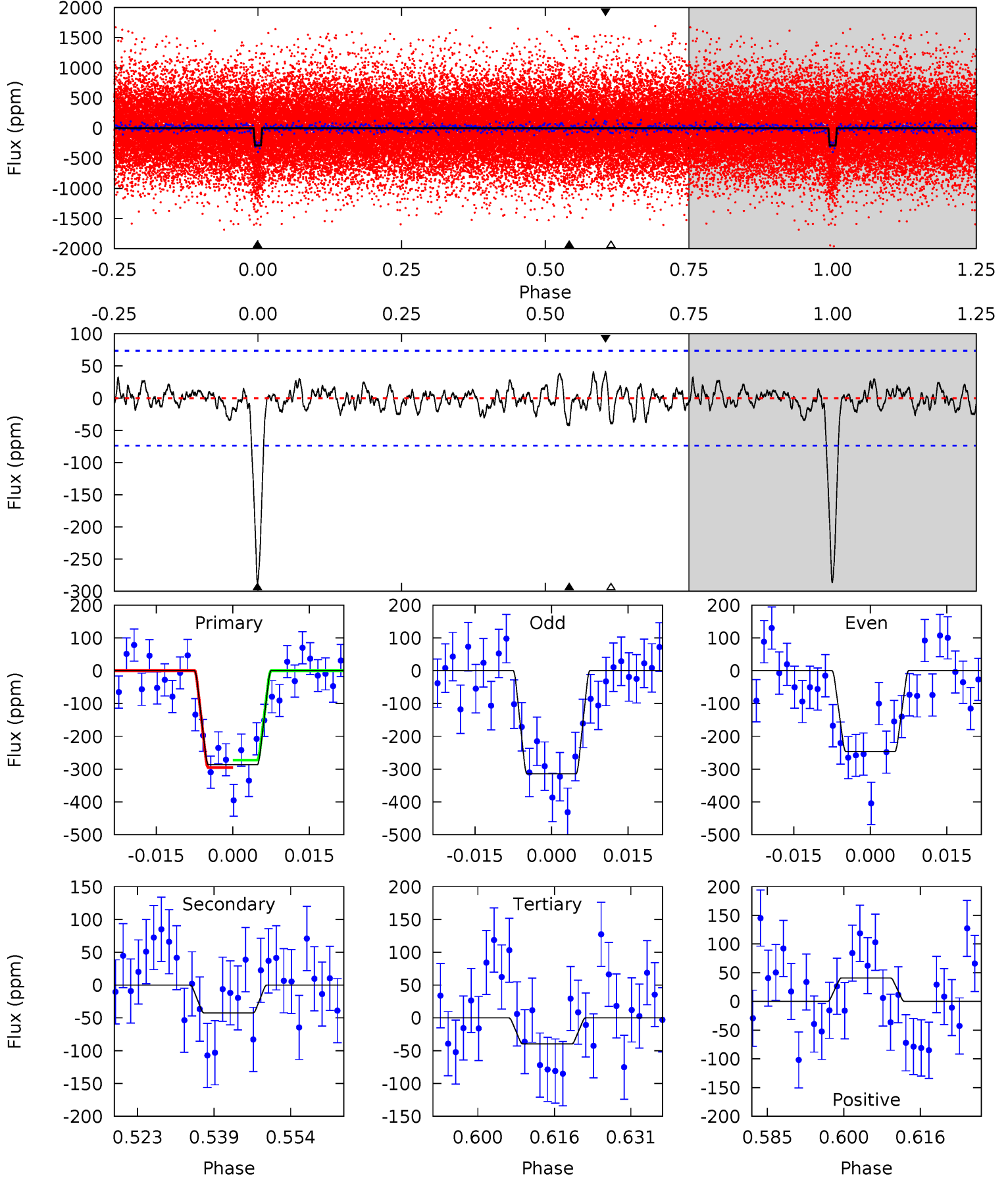
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
21.4	3.71	2.76	3.35	4.90	2.35	1.01	18.6	18.0	0.95	0.35	1.36	1.01	0.14	1.78



Alt Model-Shift Uniqueness Test

011074178-02, P = 9.181864 Days, E = 123.227465 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
19.2	2.85	2.67	2.74	4.94	2.42	0.91	16.6	16.5	0.18	0.11	2.27	0.96	0.12	0.75



Stellar Parameters For KIC 011074178

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	M (M_{\odot})	p_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	5741^{+155}_{-155}	$4.555^{+0.034}_{-0.195}$	$-0.160^{+0.300}_{-0.300}$	$0.846^{+0.236}_{-0.079}$	$0.938^{+0.098}_{-0.109}$	$2.178^{+0.413}_{-1.088}$
	+3%/-3%	+1%/-4%	+188%/-188%	+28%/-9%	+10%/-12%	+19%/-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 011074178-02 / KOI 1889.02

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	-54 ± 15	$1.80^{+0.99}_{-0.91}$	1152^{+71}_{-51}	3956^{+1288}_{-555}	64^{+211}_{-39}
Alt.	-42 ± 15	$1.76^{+0.99}_{-0.88}$	1154^{+79}_{-53}	3808^{+1050}_{-552}	53^{+135}_{-34}

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

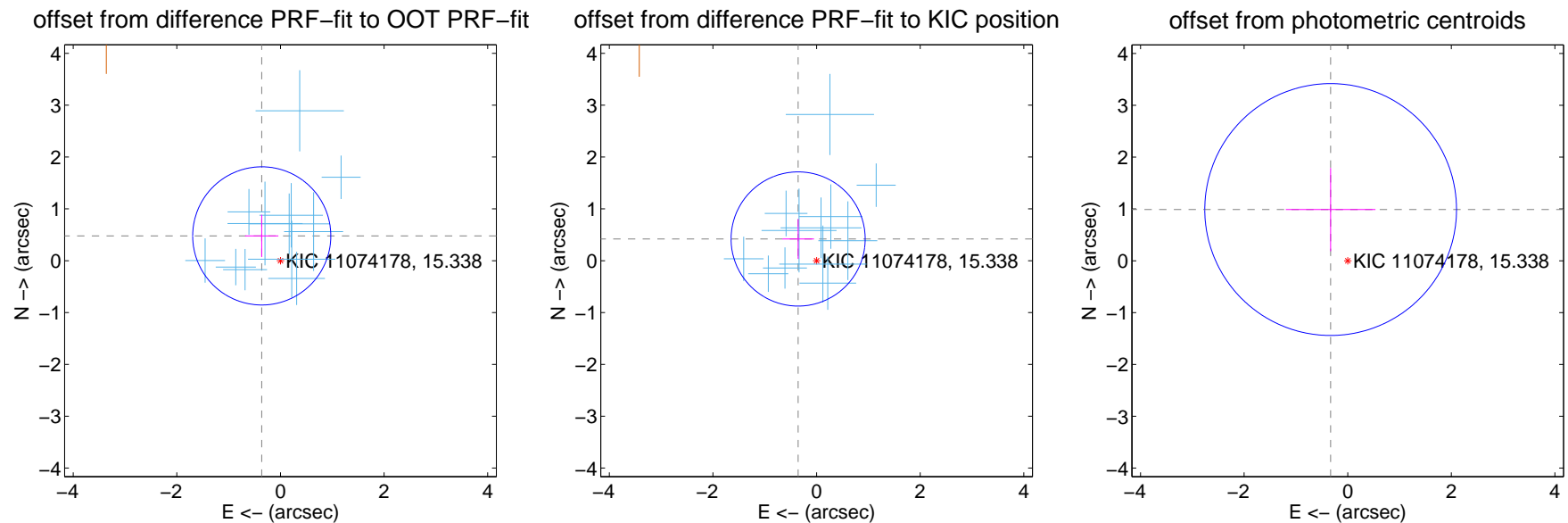
DV Centroid Data

Supplemental centroid analysis for 011074178-02. Kepler magnitude: 15.34. Transit SNR 13.90

There are 12 quarters with good PRF difference image offsets

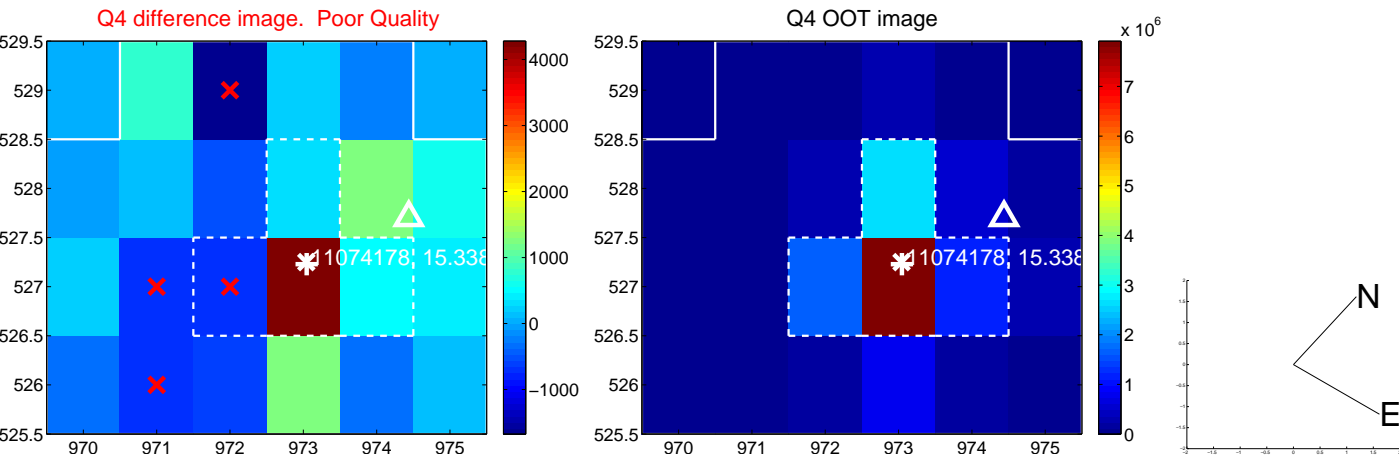
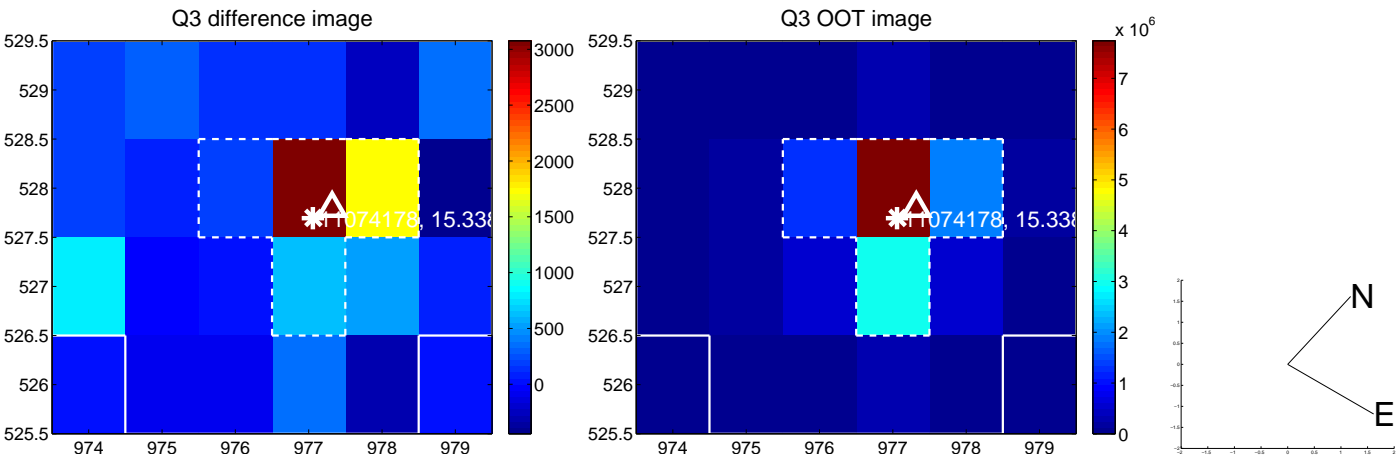
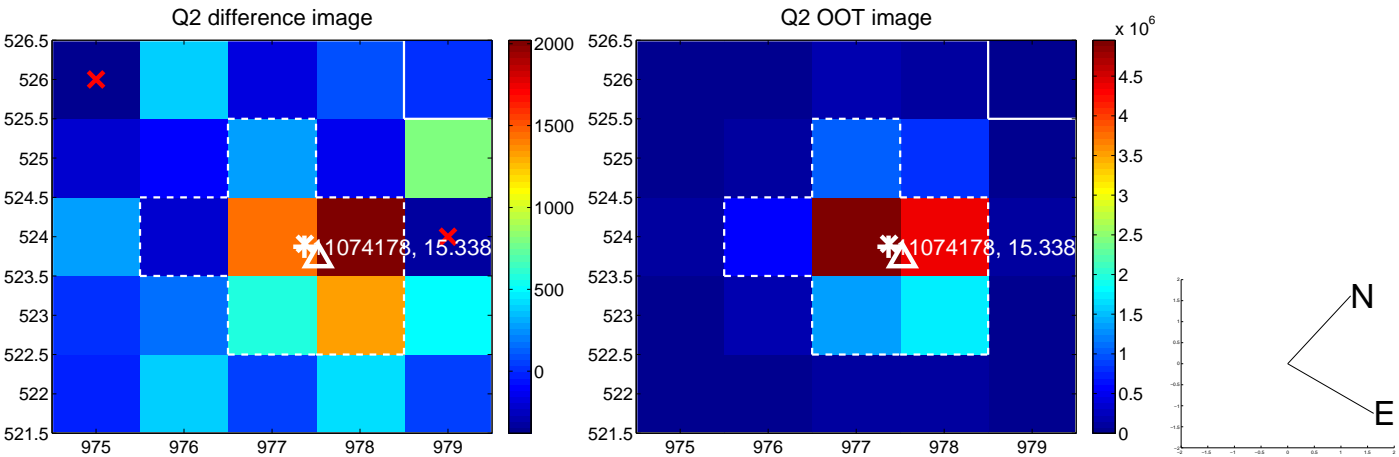
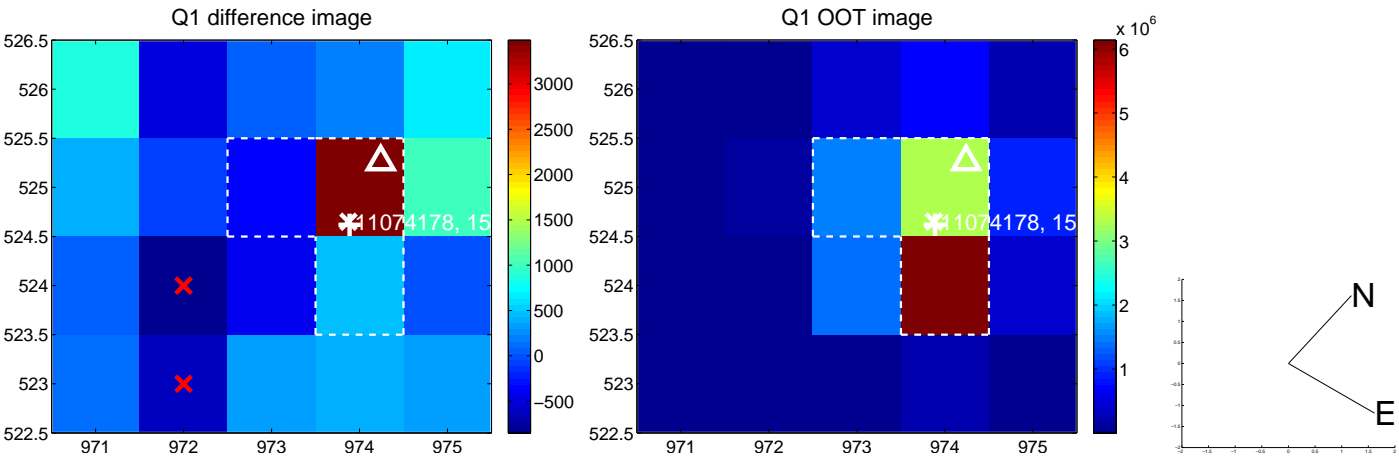
The direct PRF centroid is offset from the target star catalog position by about 0.13 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.599 ± 0.444	1.35	0.361 ± 0.321	0.478 ± 0.409
PRF-fit source offset from KIC position	0.550 ± 0.431	1.27	0.356 ± 0.306	0.419 ± 0.384
photometric centroid source offset	1.04 ± 0.81	1.29	0.33 ± 0.87	0.99 ± 0.80

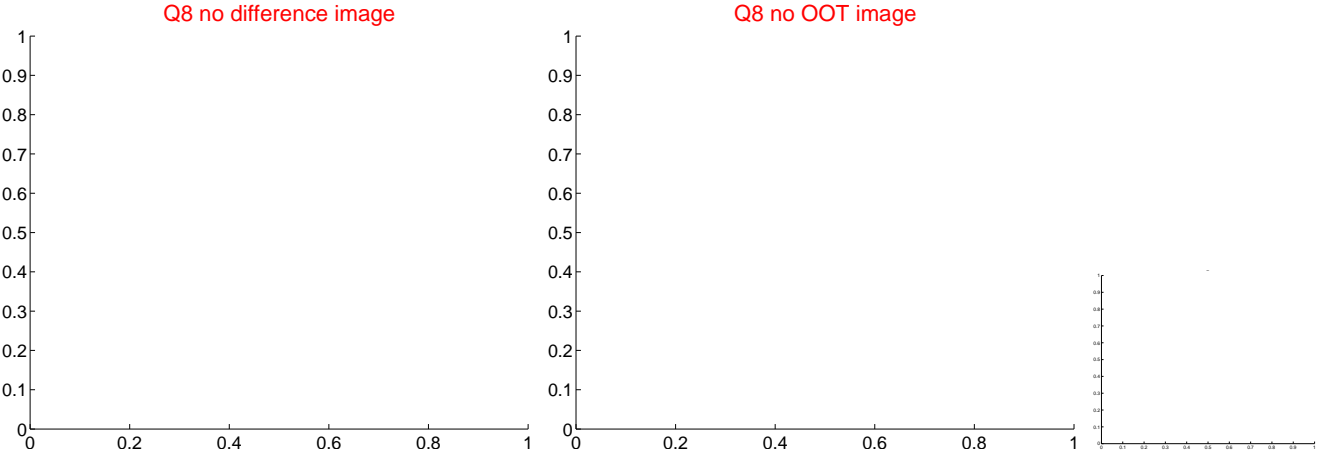
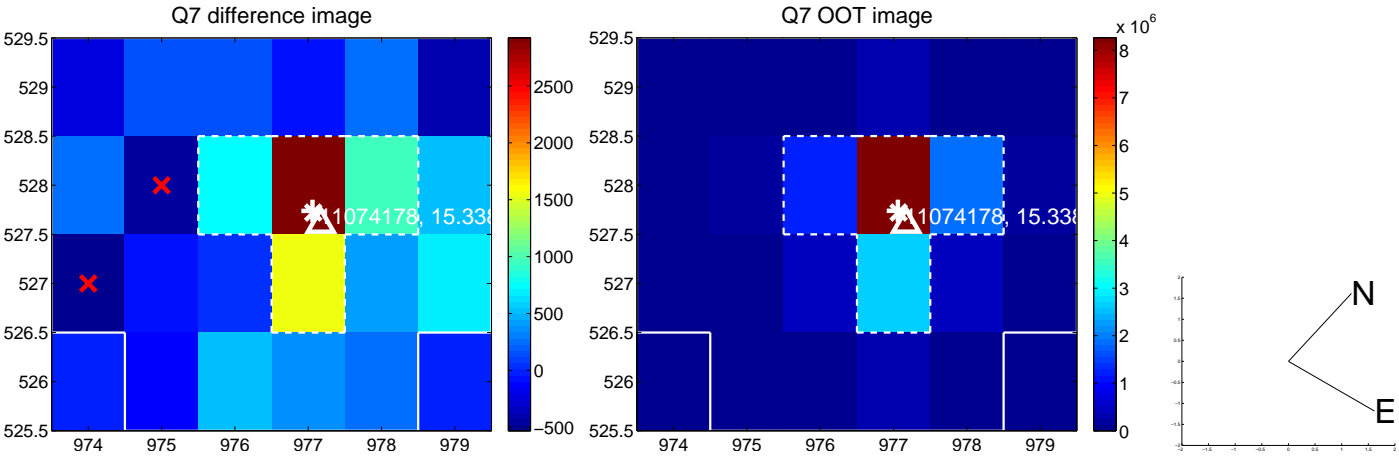
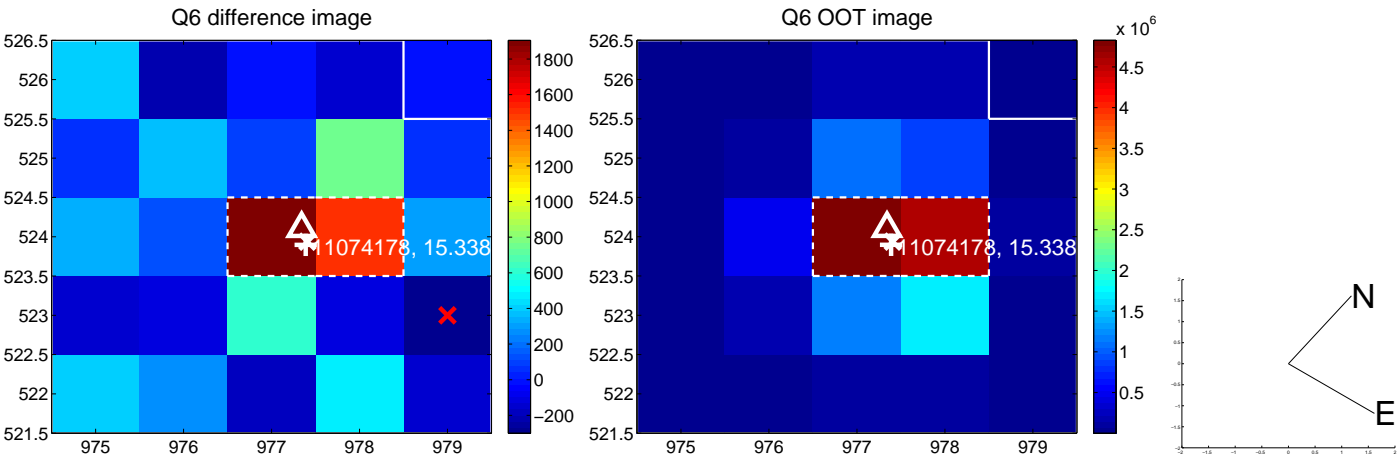
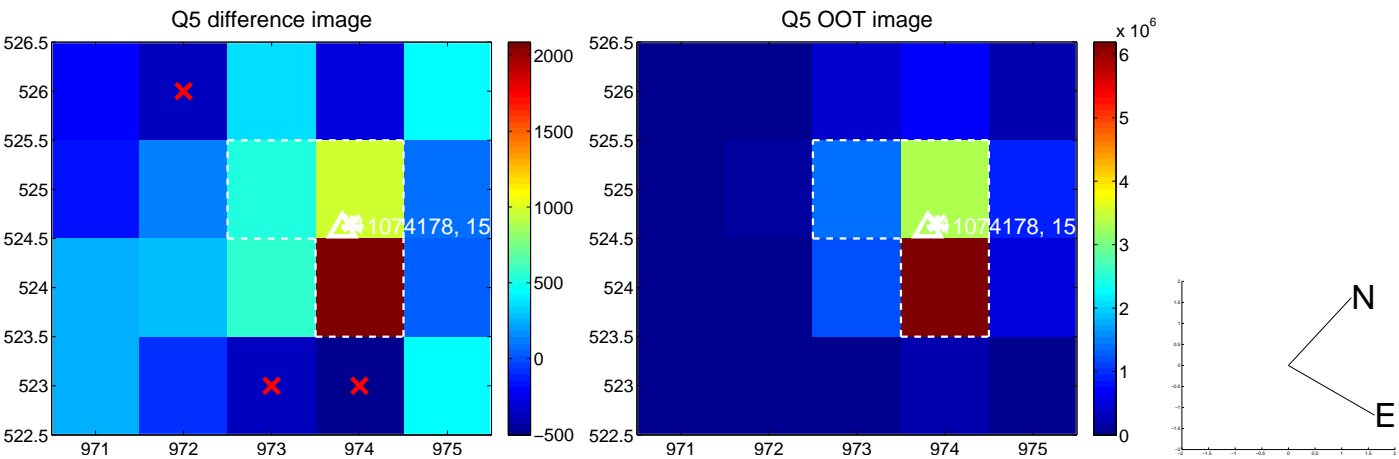


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses:** good quarterly centroid offsets; **Vermillion crosses:** bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

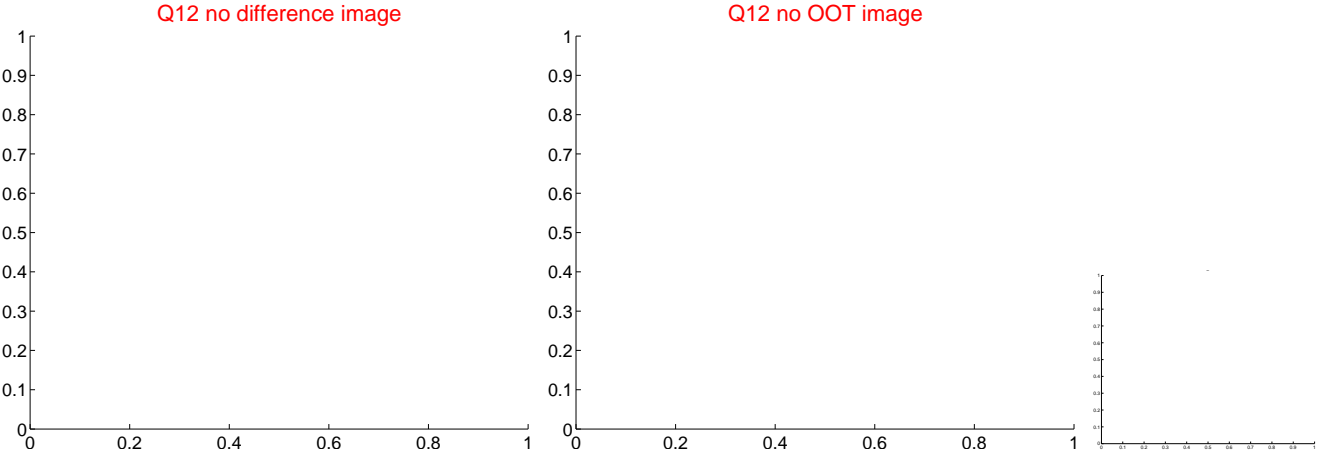
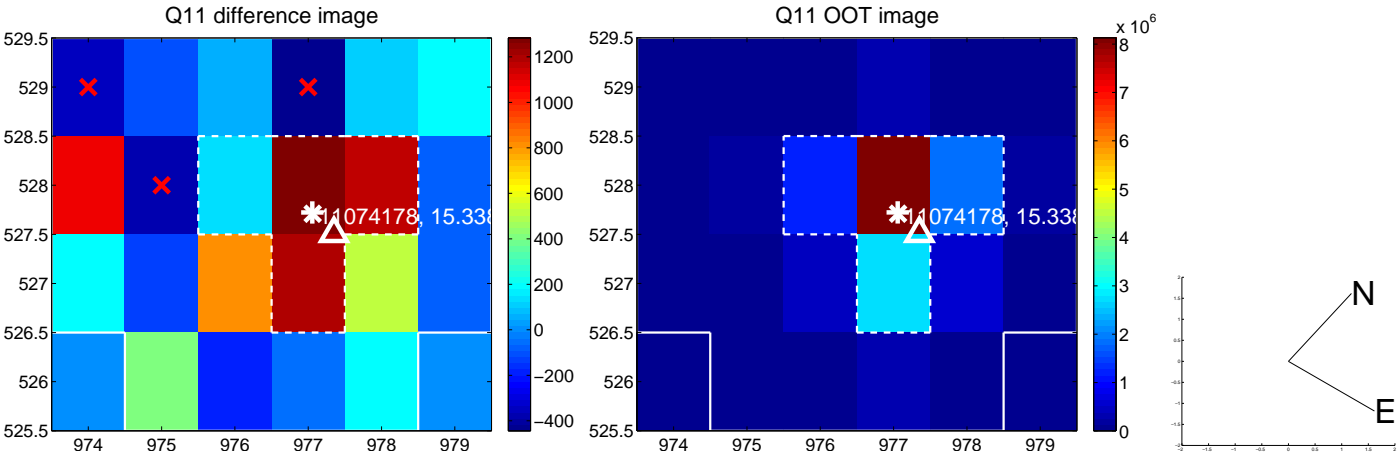
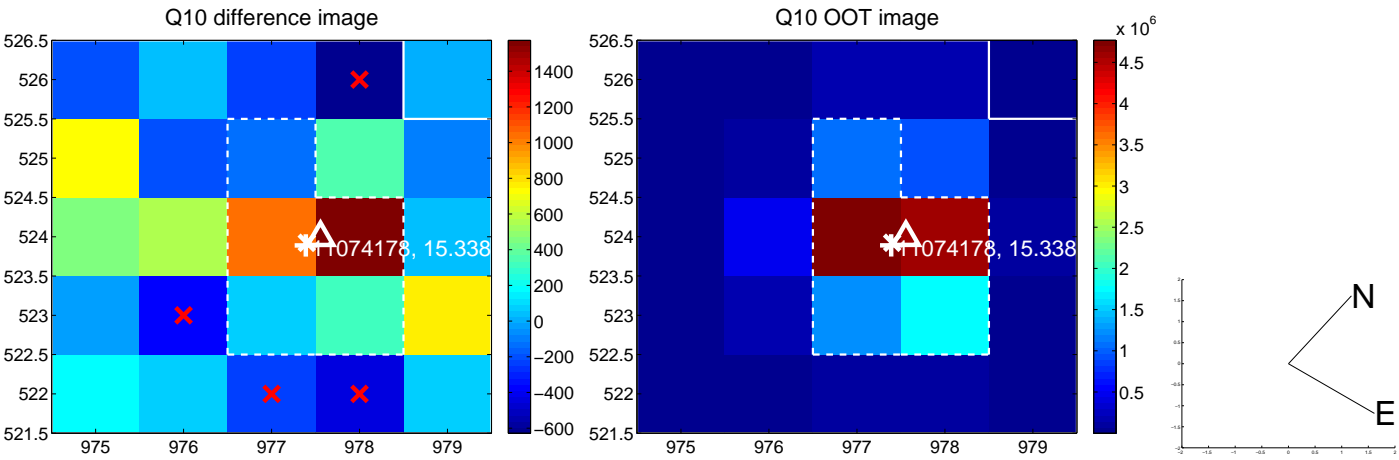
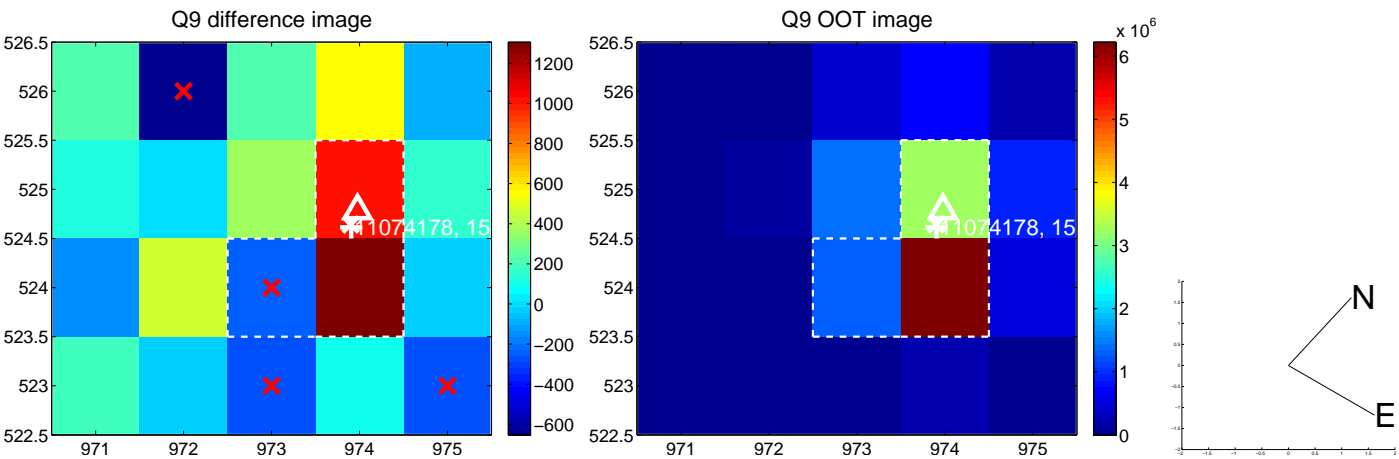
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



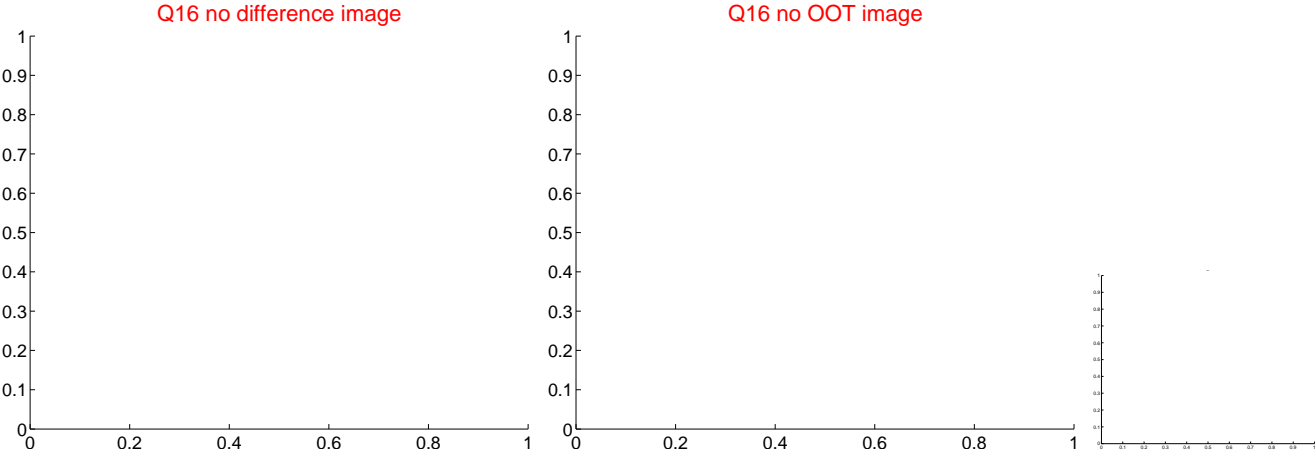
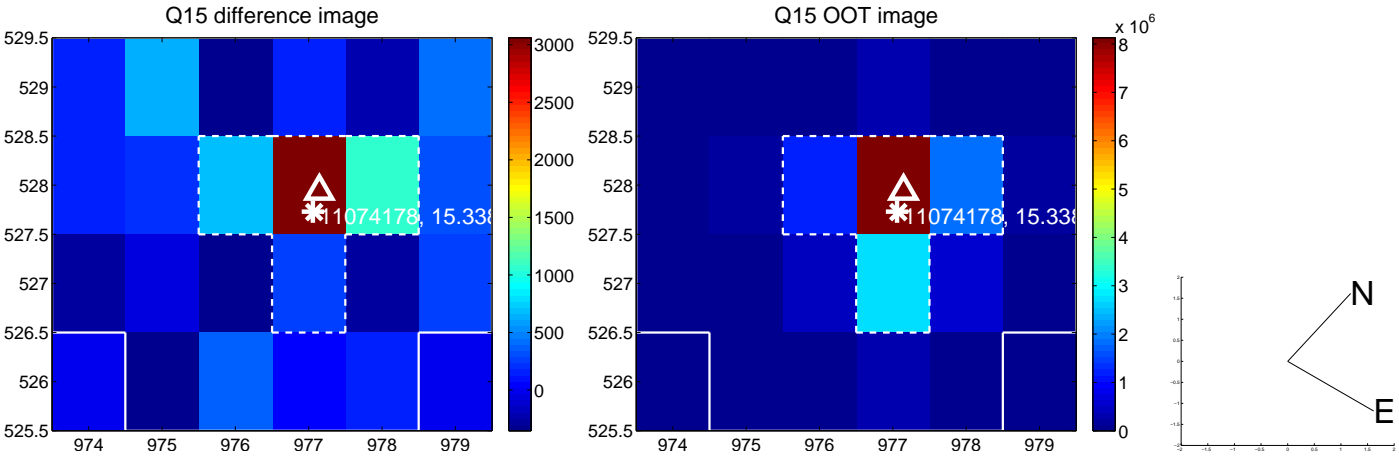
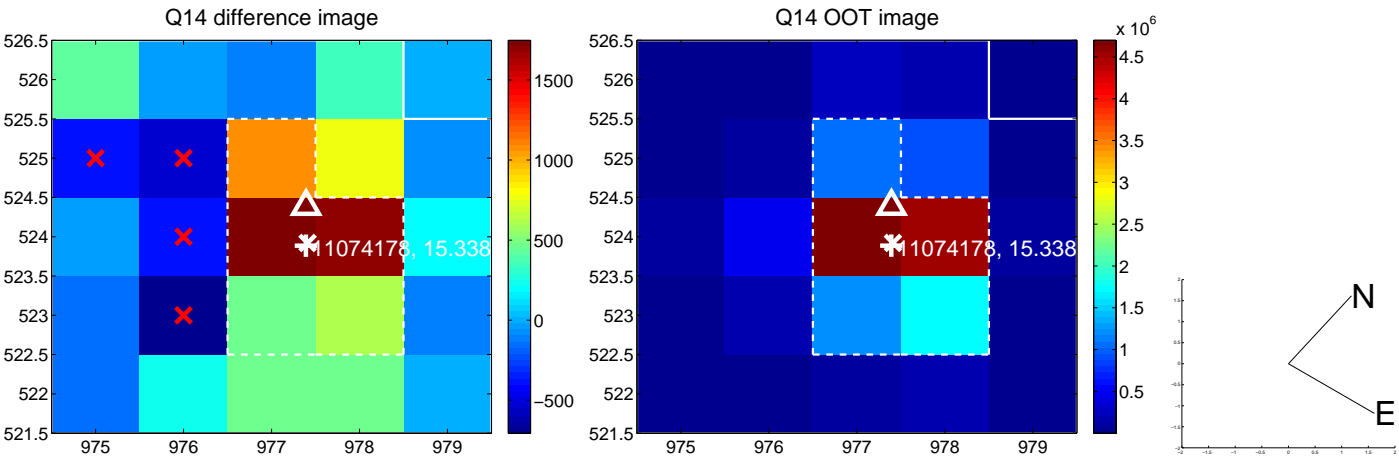
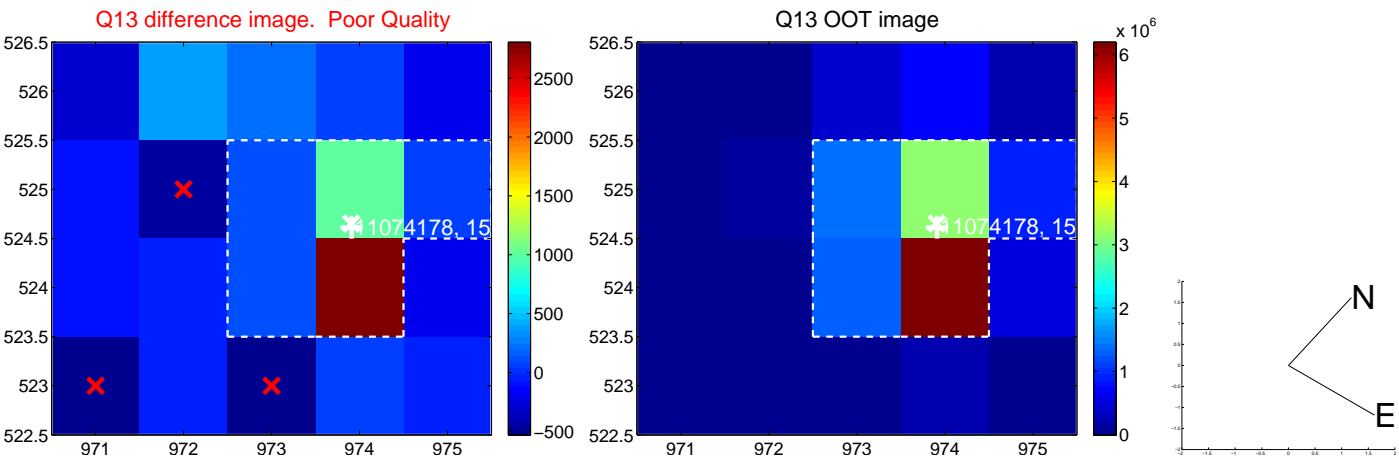
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



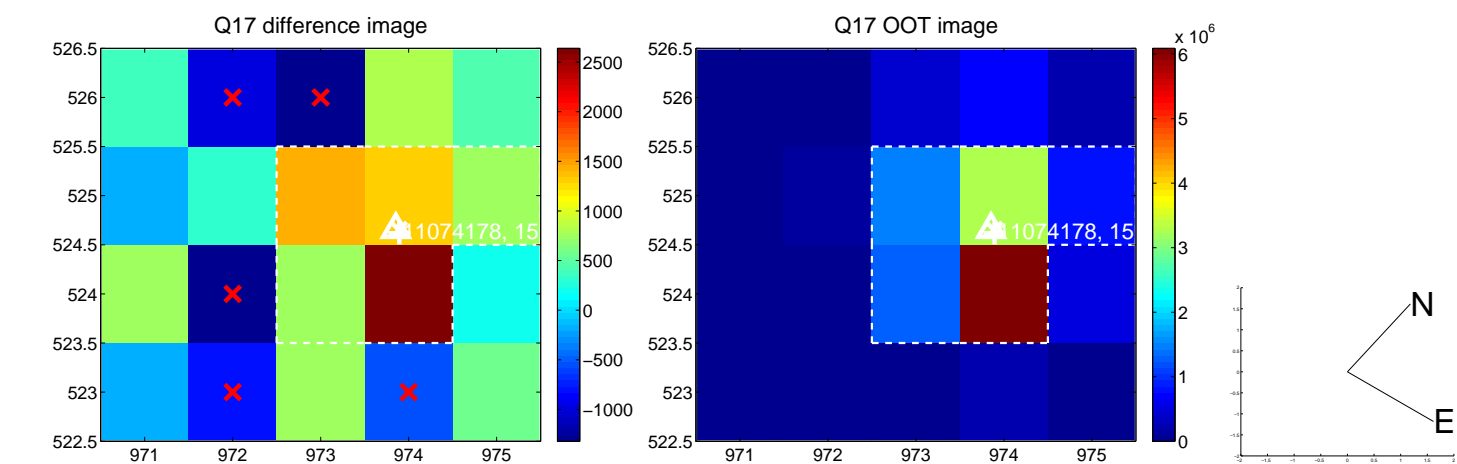
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



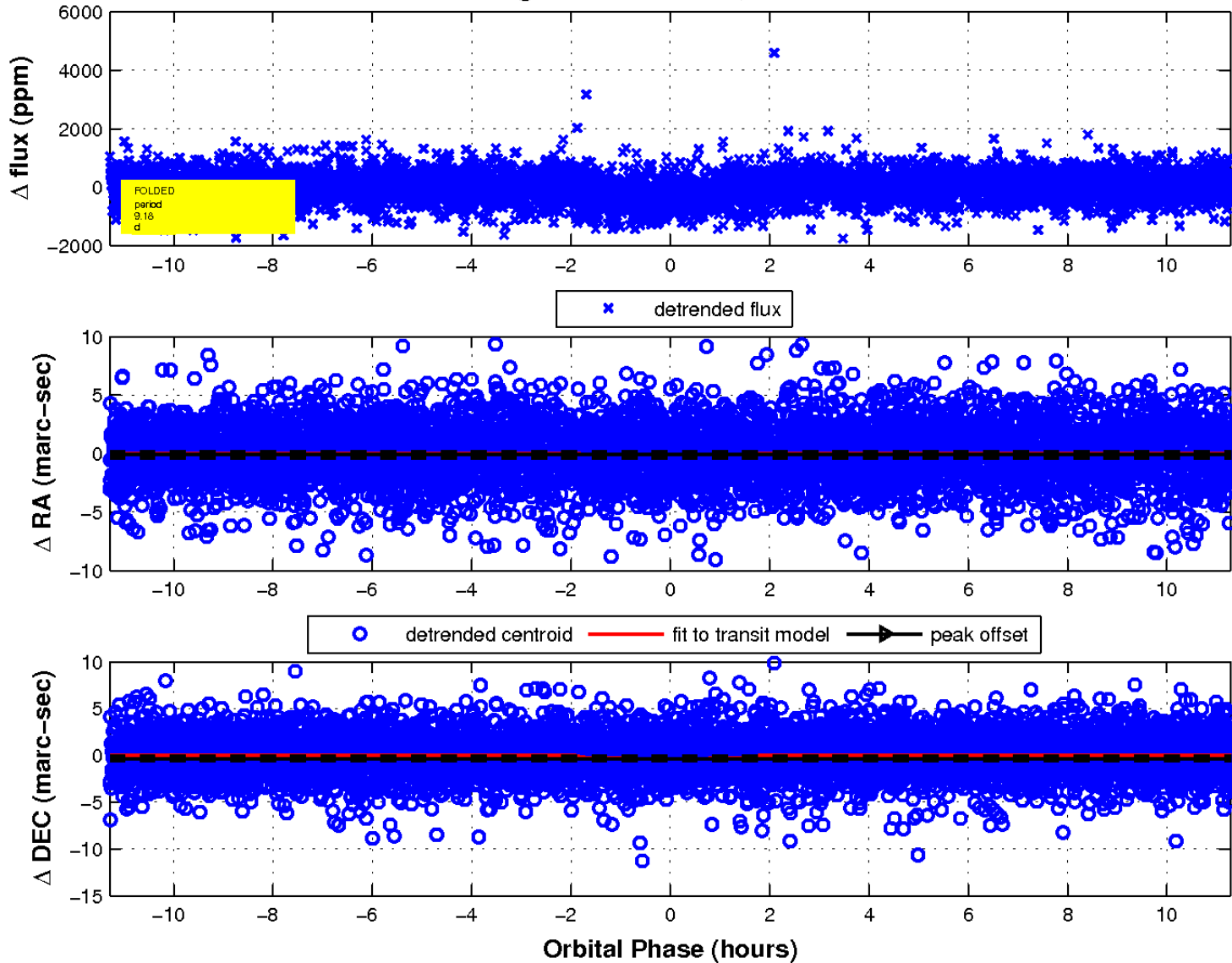
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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



fluxWeightedCentroids, Planet 2 of 2



UKIRT Image

Declination

