

KIC 010551346

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})
010551346-01	OBS	5804.01	1.427942	132.620971	509.6	0.785	23.8	45.9	0.92	6099	2.49	1700.30
010551346-02	OBS	No	1.427973	131.936542	235.0	0.601	17.1	18.5	0.92	6099	1.71	1700.25

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
010551346-01	OBS	FP	0.00	0	1	0	0	HAS_SEC_TCE
010551346-02	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 010551346-01

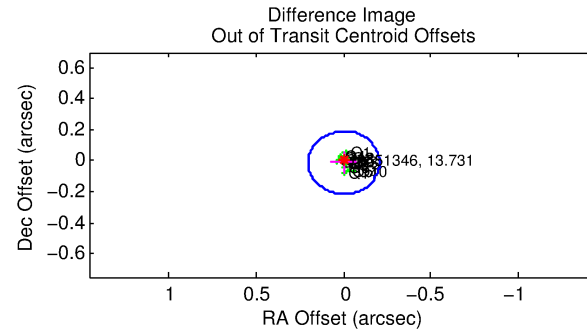
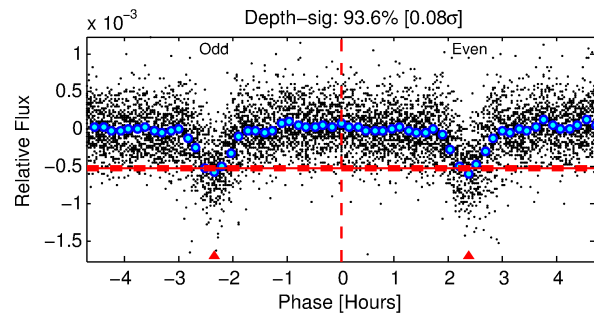
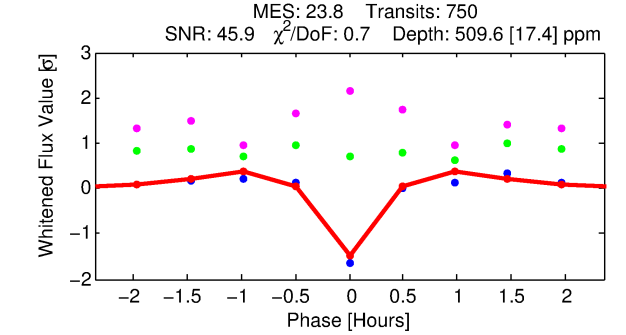
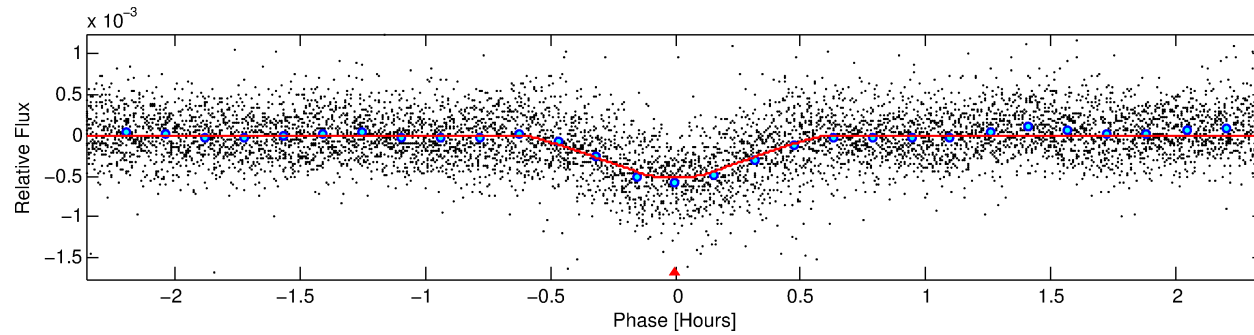
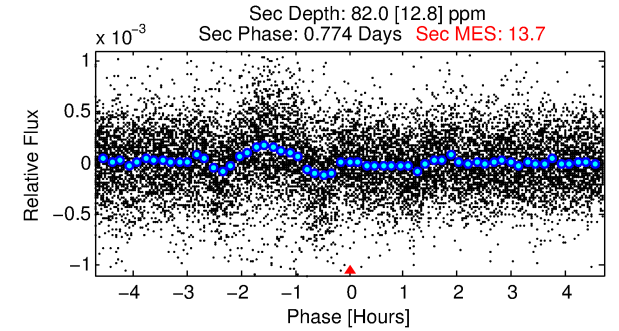
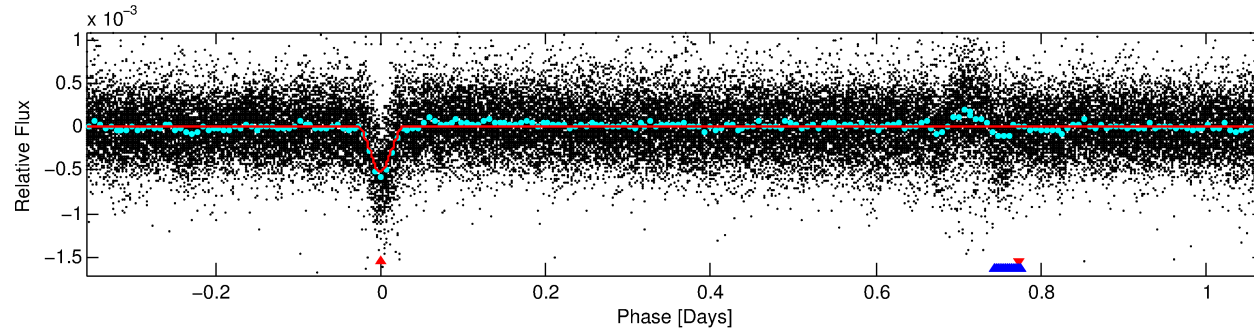
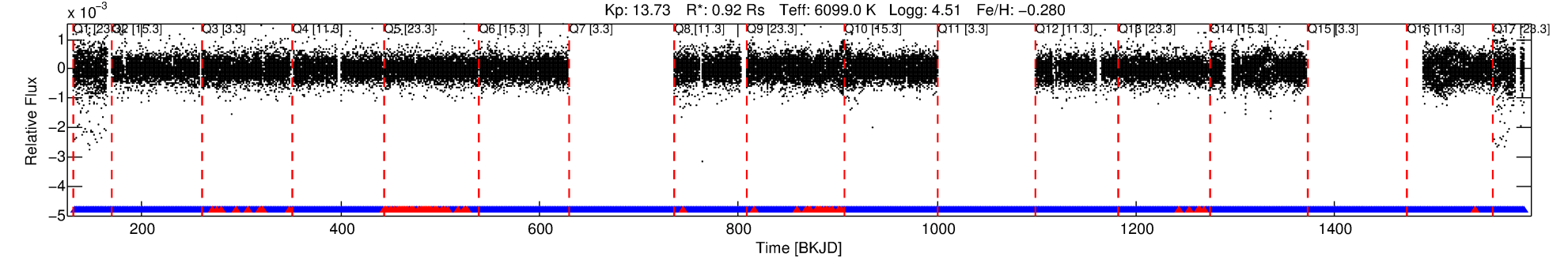
No Significant Match Found

DV One-Page Summary

KIC: 10551346 Candidate: 1 of 2 Period: 1.428 d

KOI: K05804 Corr: No Ephemeris Match

Kp: 13.73 R*: 0.92 Rs Teff: 6099.0 K Logg: 4.51 Fe/H: -0.280



DV Fit Results:

Period = 1.42794 [0.00000] d
Epoch = 132.6210 [0.0002] BKJD
Rp/R* = 0.0248 [0.0026]
a/R* = 6.79 [3.45]
b = 0.90 [0.11]
Seff = 1700.30 [554.20]
Teff = 1637 [133] K
Rp = 2.49 [0.67] Re
a = 0.0248 [0.0052] AU
Ag = 4.49 [1.79] [1.95σ]
Teffp = 3684 [262] K [6.95σ]

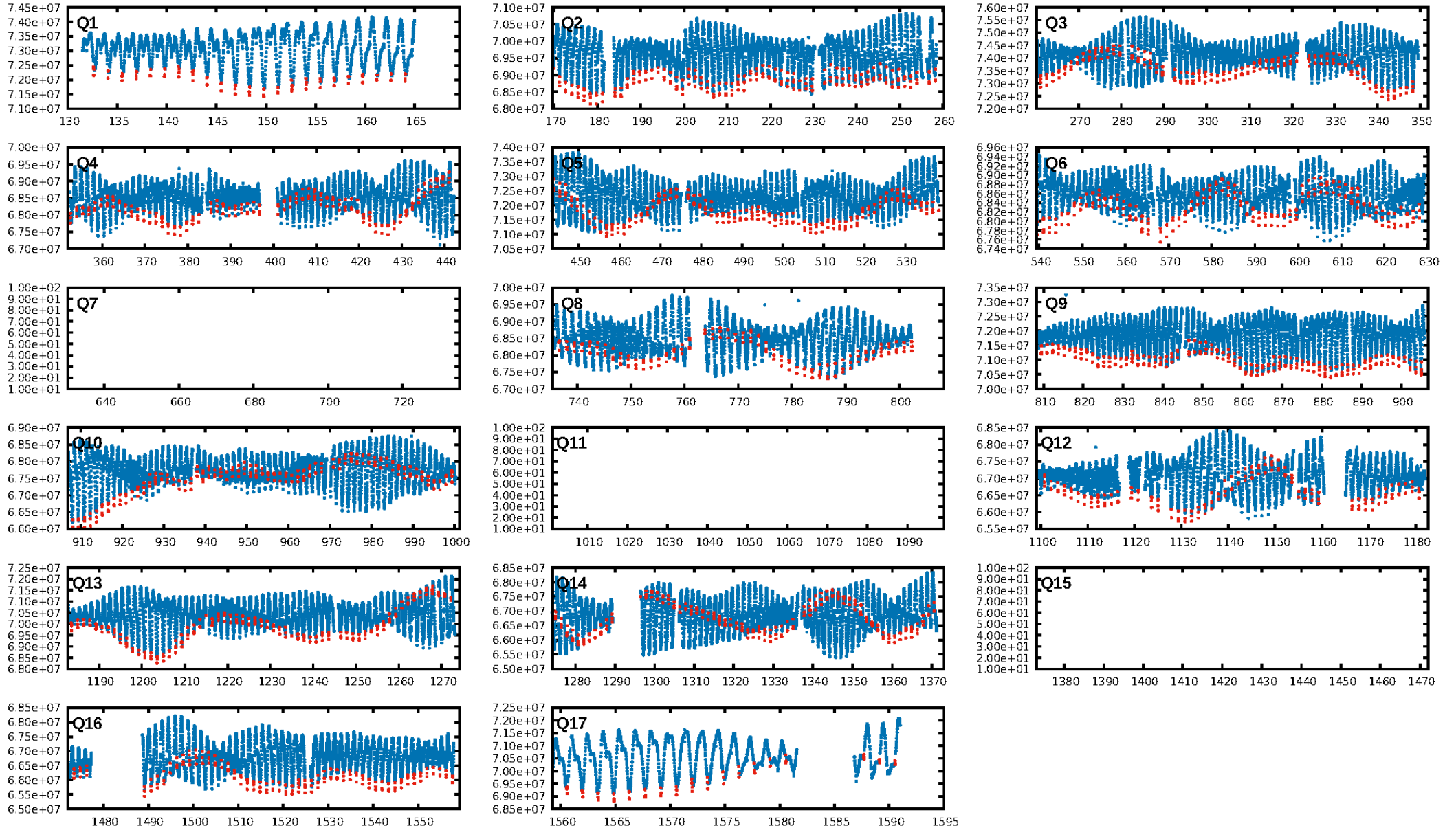
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: 0.1% [0.00σ]
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: 5.28e-137
RollingBand-fgt: 0.91 [642/709]
GhostDiagnostic-chr: 0.4627
Centroid-sig: 0.0%
Centroid-so: 0.555 arcsec [3.00σ]
OotOffset-rm: 0.013 arcsec [0.19σ]
KicOffset-rm: 0.050 arcsec [0.74σ]
OotOffset-st: 4/1/4/5 [14]
KicOffset-st: 4/1/4/5 [14]
DiffImageQuality-fgm: 1.00 [14/14]
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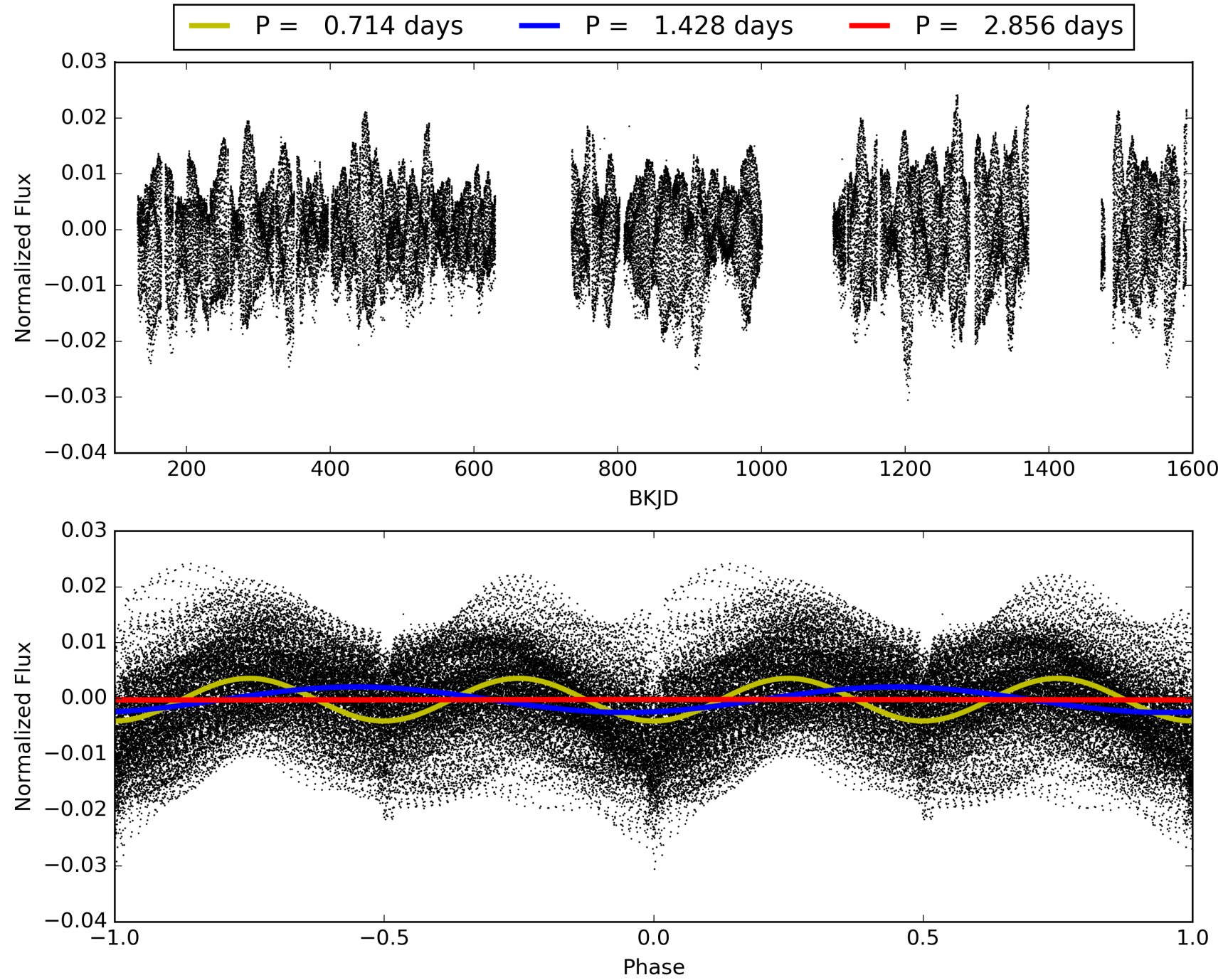
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 31-Jan-2016 15:47:33 Z

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

TCE 010551346-01, PDC Light Curves

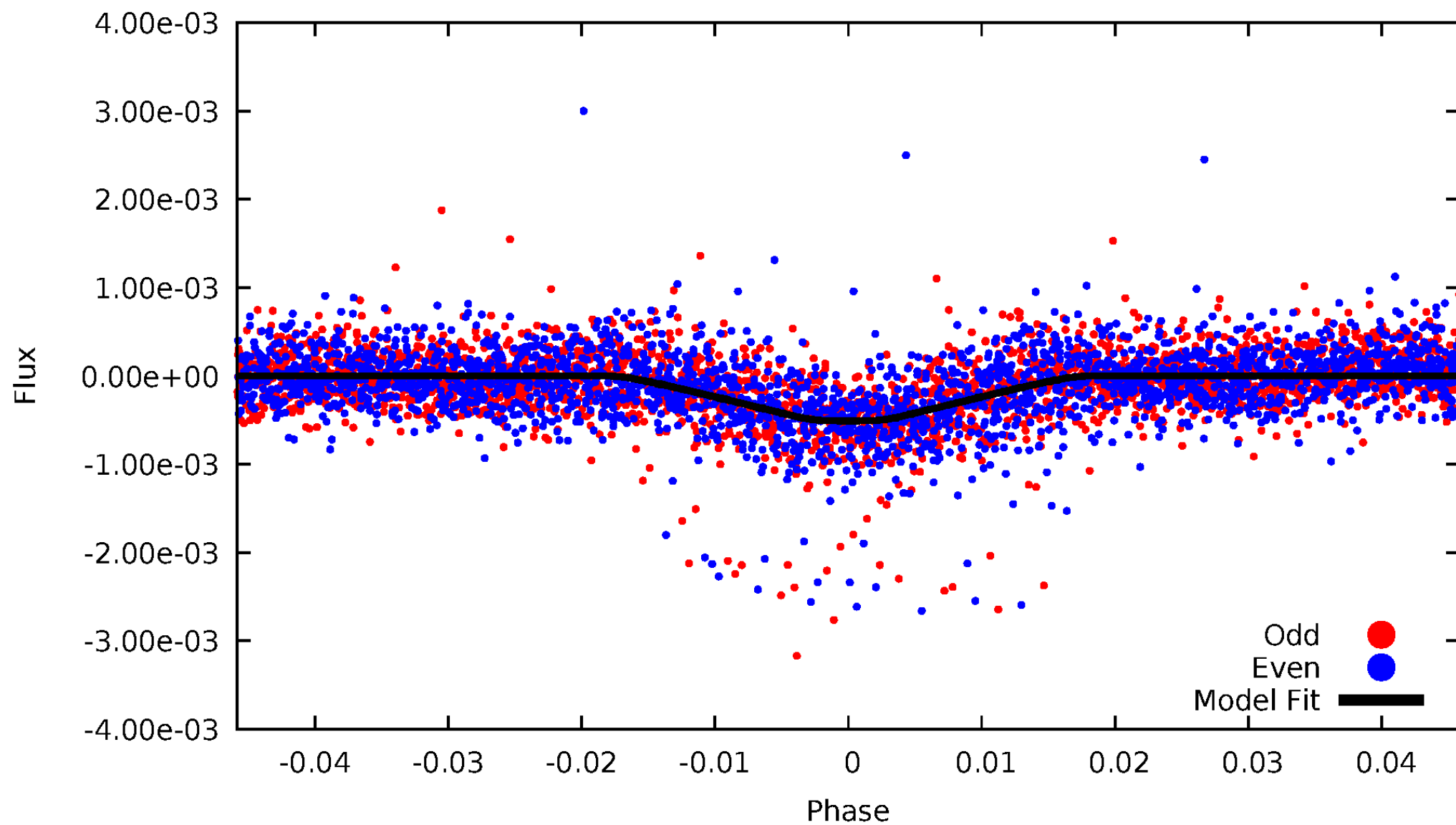


TCE 010551346-01



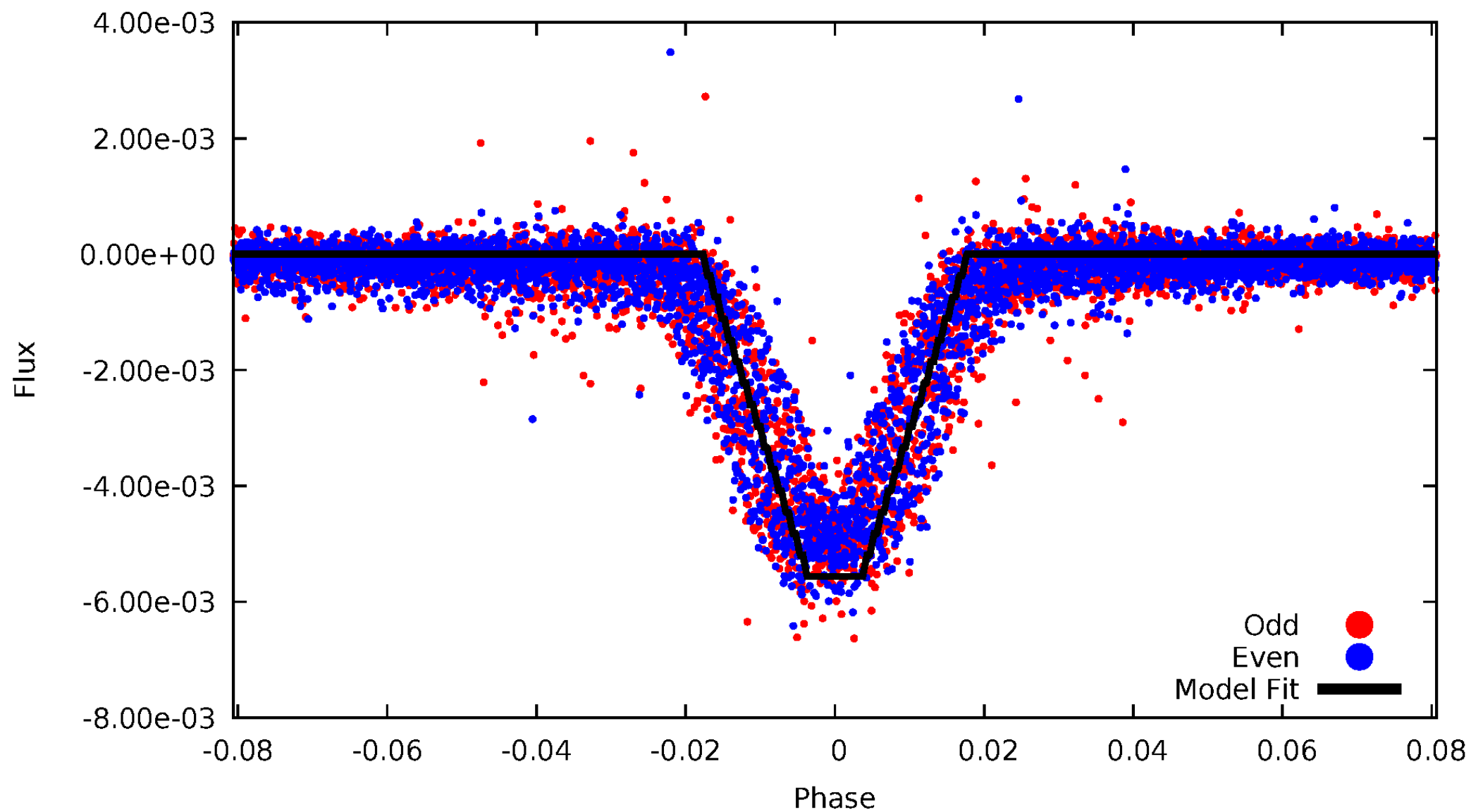
DV Odd/Even

TCE 010551346-01



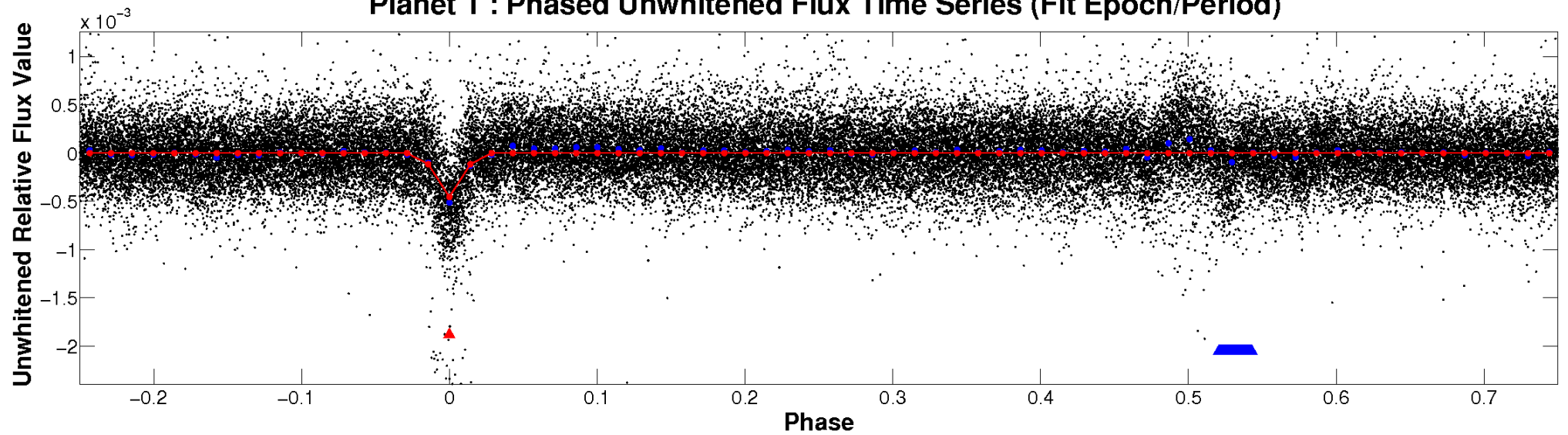
ALT Odd/Even

TCE 010551346-01

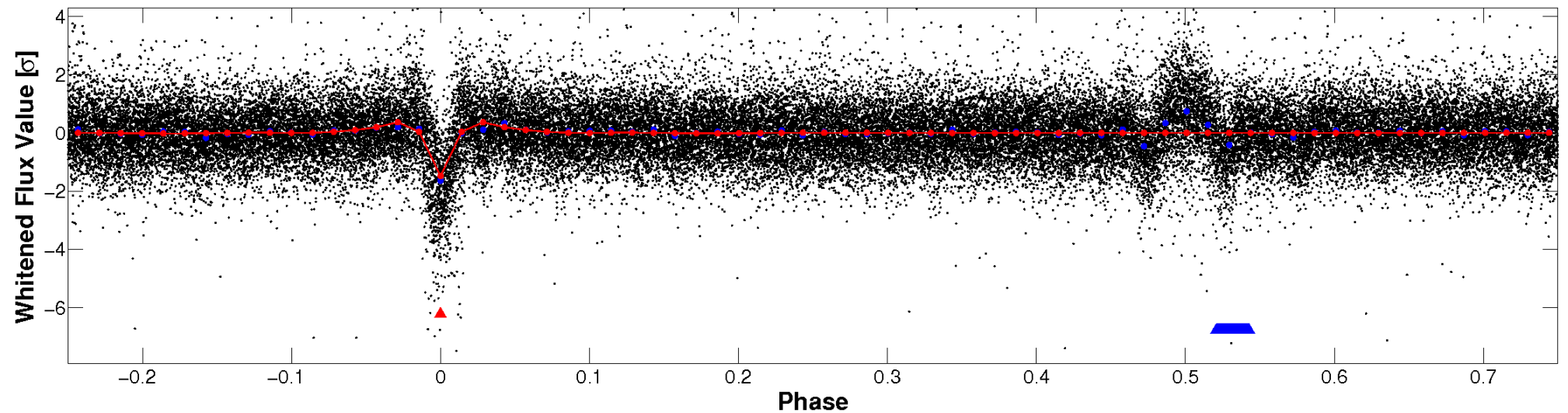


Non-Whitened Vs. Whitened Light Curve

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

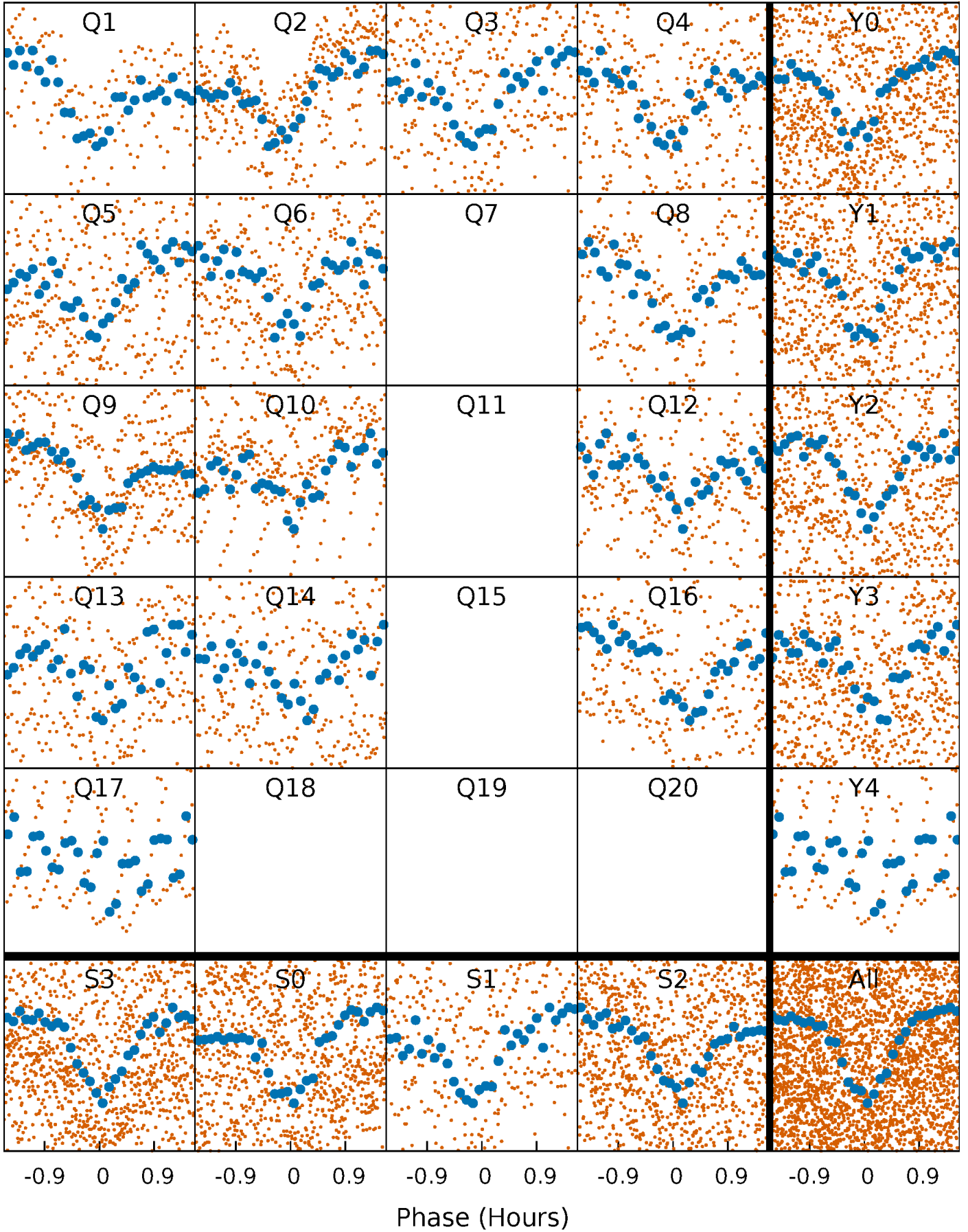


Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)



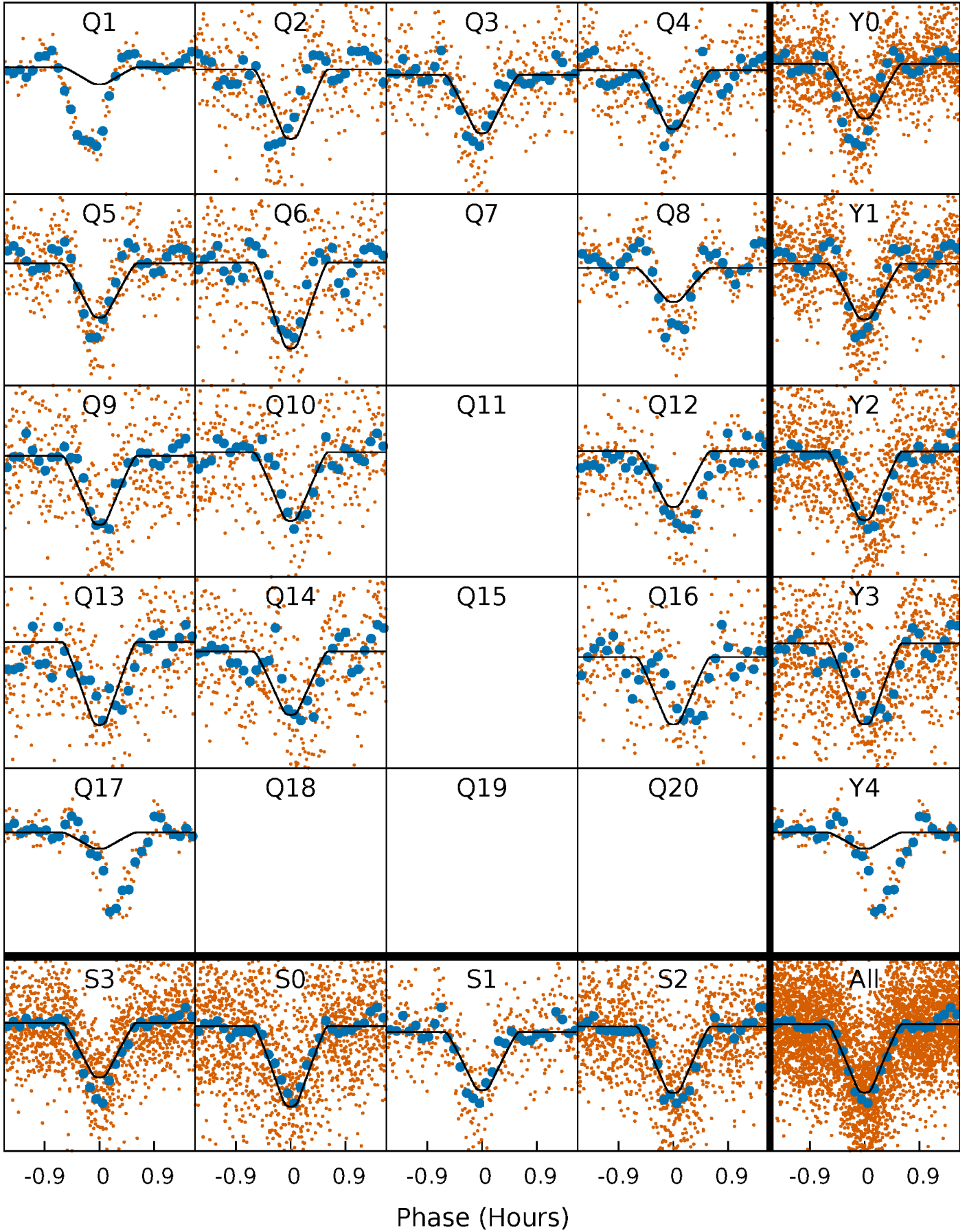
PDC Quarter-Phased Transit Curves

TCE 010551346-01 P= 1.427942 Days $T_0=132.620971$ (BKJD)



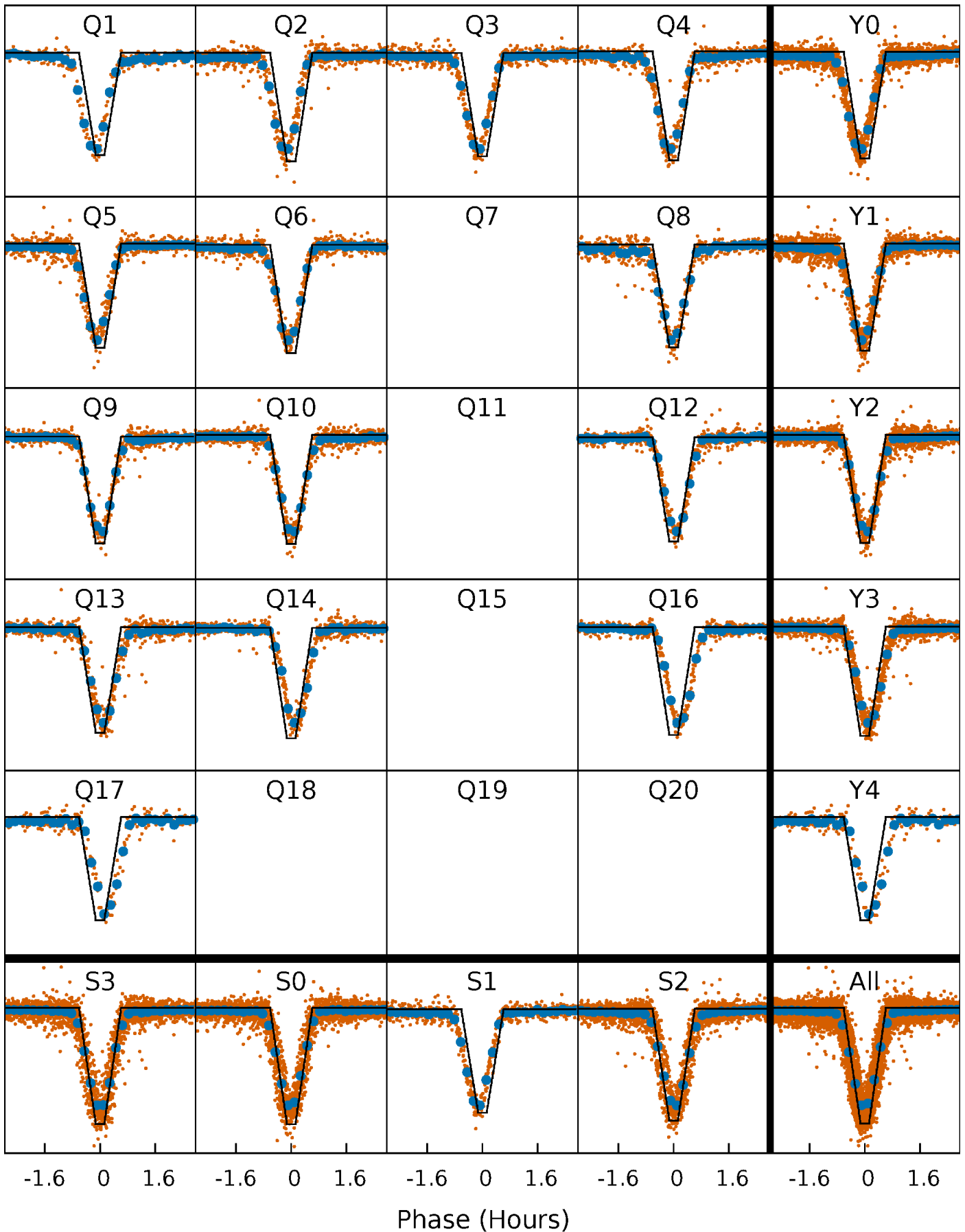
DV Quarter-Phased Transit Curves

TCE 010551346-01 P= 1.427942 Days $T_0=132.620971$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

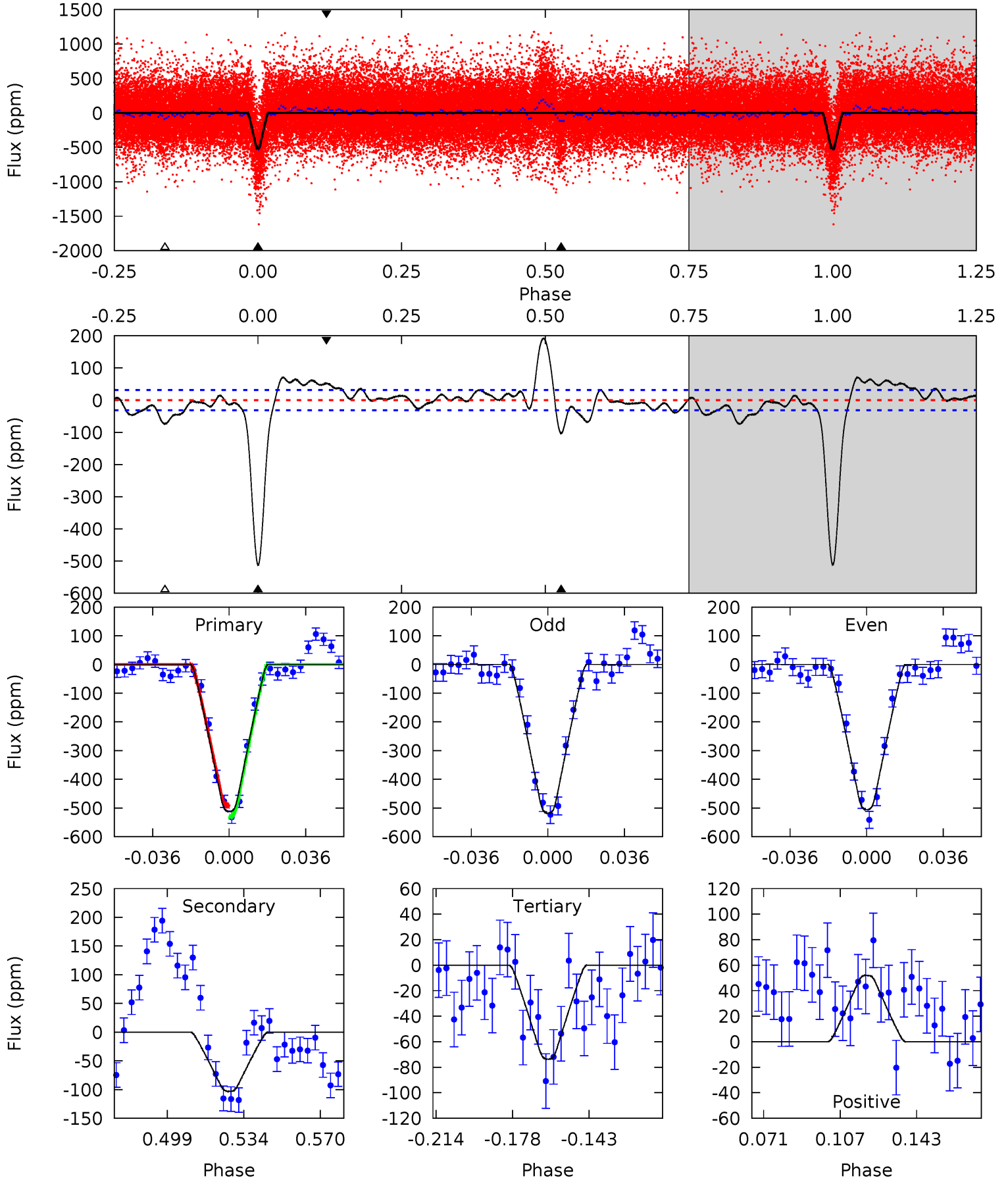
TCE 010551346-01 P= 1.427946 Days $T_0=132.620892$ (BKJD)



DV Model-Shift Uniqueness Test

010551346-01, P = 1.427942 Days, E = 131.193029 Days

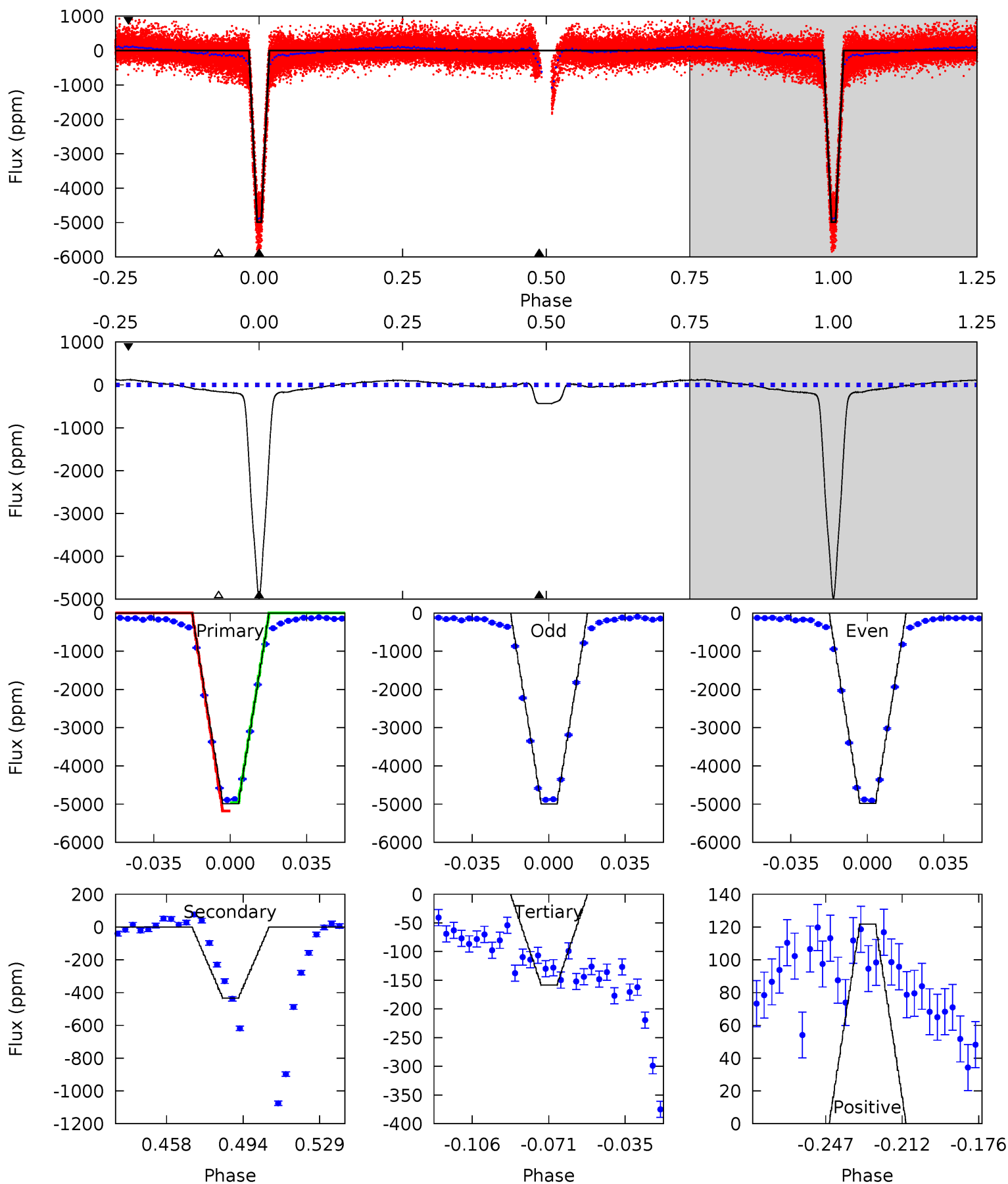
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
78.0	15.7	11.2	7.91	4.78	2.10	4.94	66.8	70.1	4.48	7.78	0.94	1.11	0.27	2.89



Alt Model-Shift Uniqueness Test

010551346-01, P = 1.427946 Days, E = 131.192946 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
800.0	69.6	25.4	19.5	4.78	2.11	13.2	774.6	780.4	44.2	50.0	1.59	1.00	0.02	17.5



Stellar Parameters For KIC 010551346

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	M (M_{\odot})	p_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	6099^{+167}_{-182}	$4.511^{+0.044}_{-0.165}$	$-0.280^{+0.300}_{-0.300}$	$0.919^{+0.230}_{-0.082}$	$1.000^{+0.119}_{-0.130}$	$1.814^{+0.412}_{-0.838}$
	+3%/-3%	+1%/-4%	+107%/-107%	+25%/-9%	+12%/-13%	+23%/-46%
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 010551346-01 / KOI 5804.01

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	-103 ± 7	$2.60^{+0.38}_{-0.35}$	2337^{+134}_{-103}	4116^{+207}_{-166}	$5.085^{+1.620}_{-1.166}$
Alt.	-434 ± 6	$7.67^{+1.06}_{-0.63}$	2328^{+139}_{-97}	3577^{+77}_{-83}	$2.453^{+0.380}_{-0.503}$

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

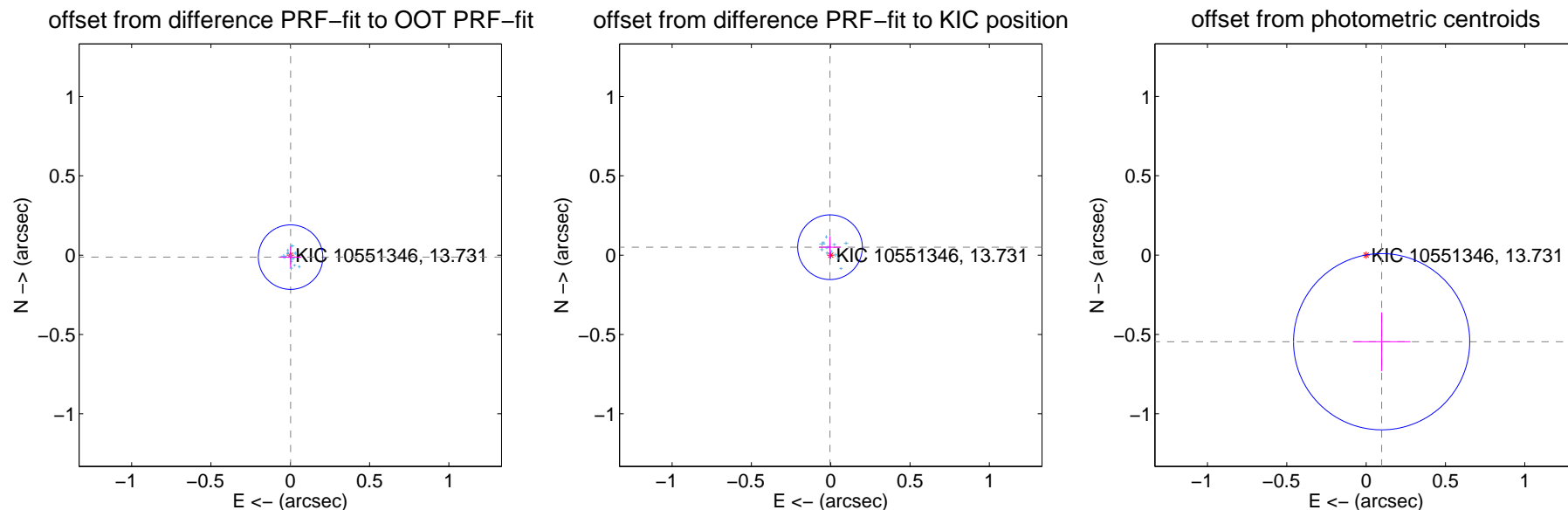
DV Centroid Data

Supplemental centroid analysis for 010551346-01. Kepler magnitude: 13.73. Transit SNR 45.94

There are 14 quarters with good PRF difference image offsets

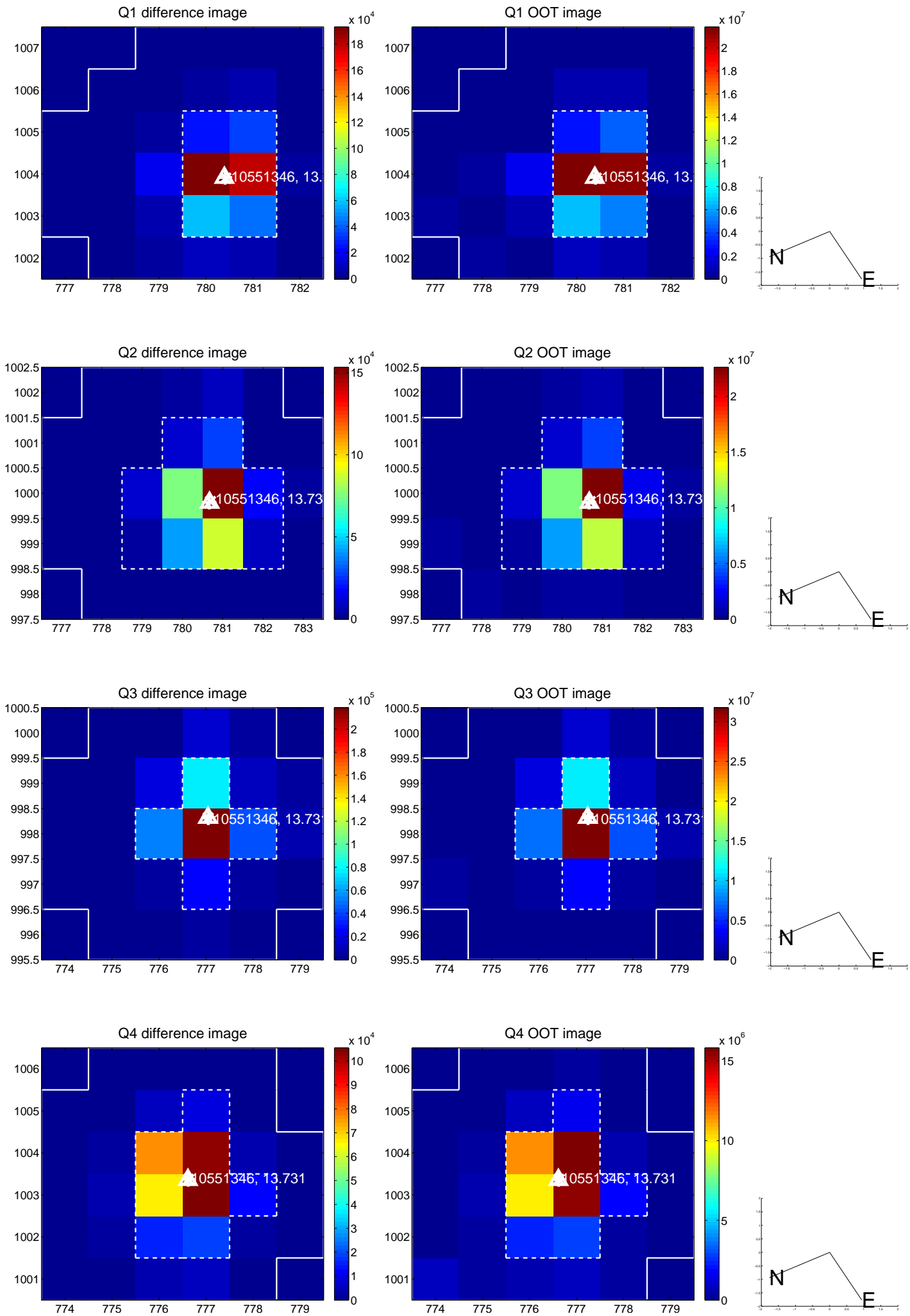
The direct PRF centroid is offset from the target star catalog position by about 0.08 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.013 ± 0.068	0.19	-0.002 ± 0.067	-0.012 ± 0.068
PRF-fit source offset from KIC position	0.050 ± 0.068	0.74	0.004 ± 0.068	0.050 ± 0.068
photometric centroid source offset	0.55 ± 0.19	3.00	-0.10 ± 0.18	-0.55 ± 0.19

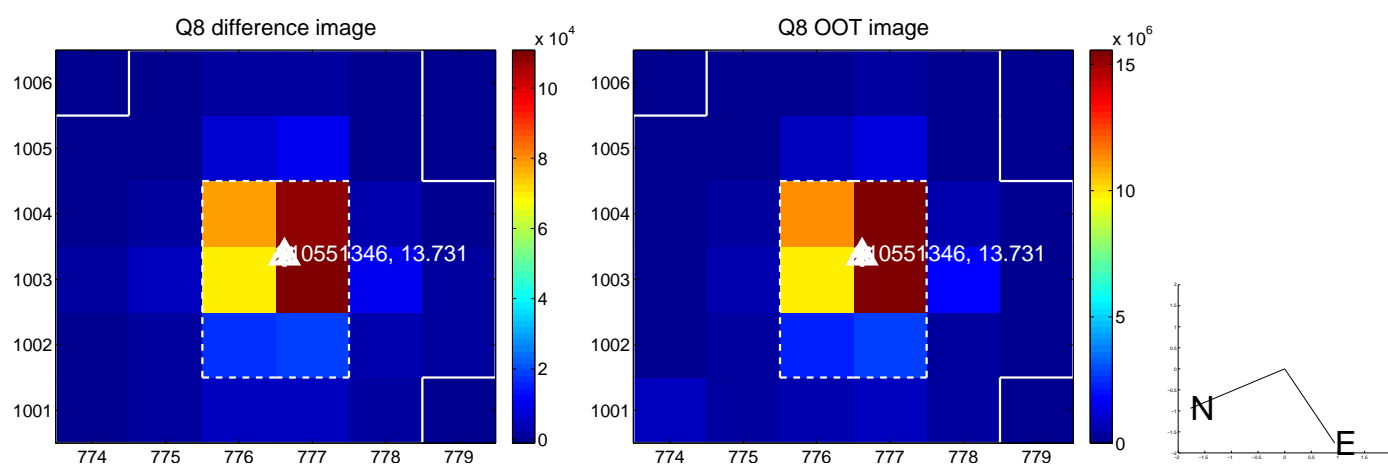
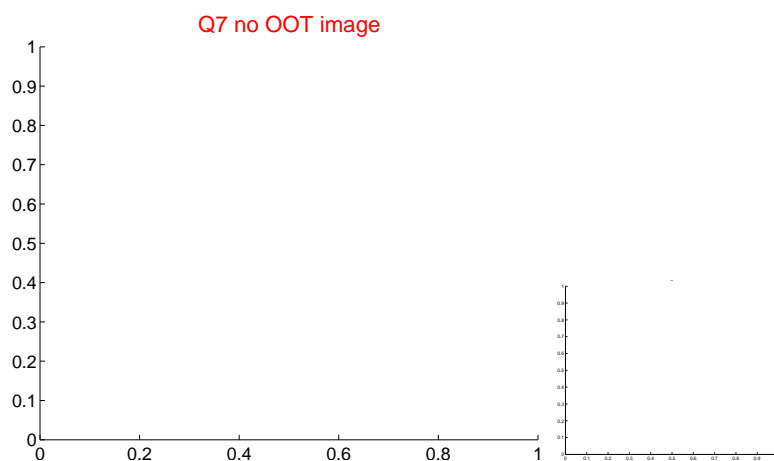
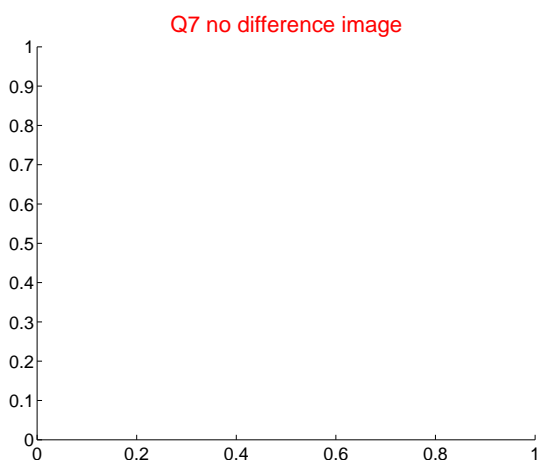
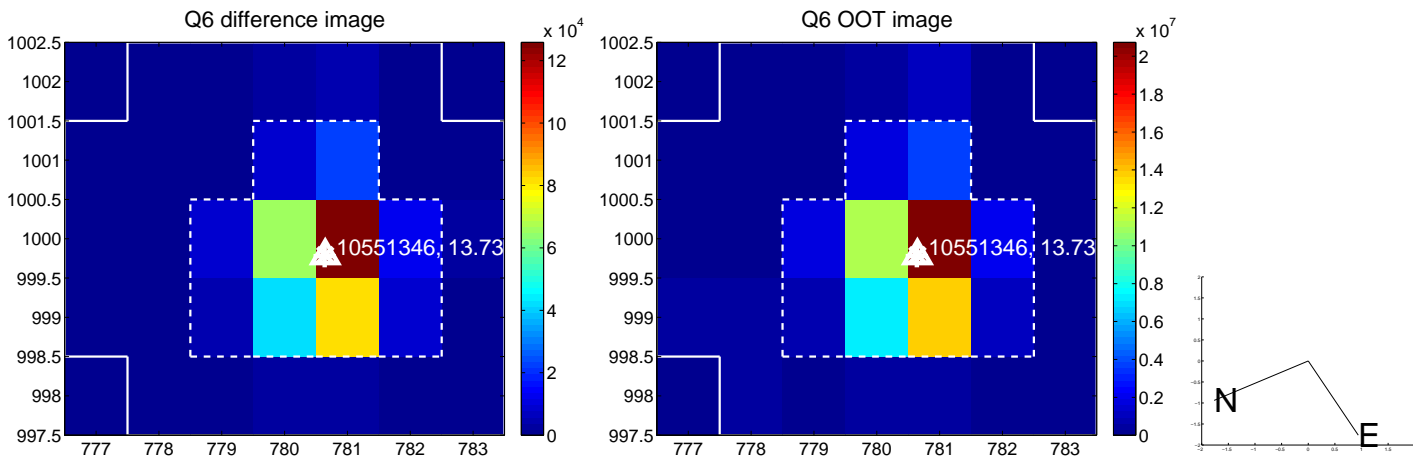
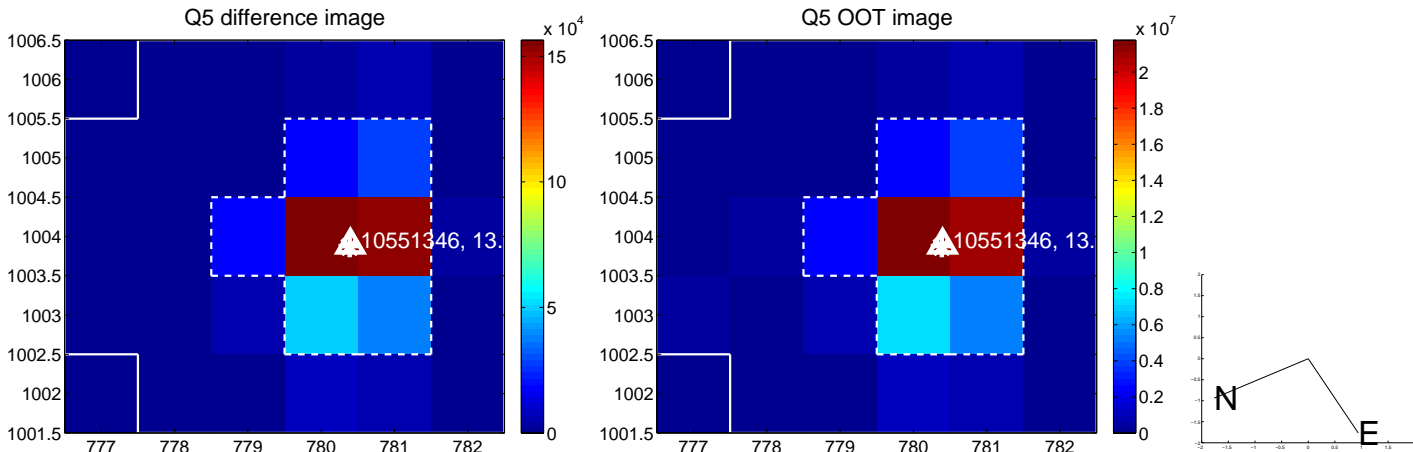


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets**; **Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

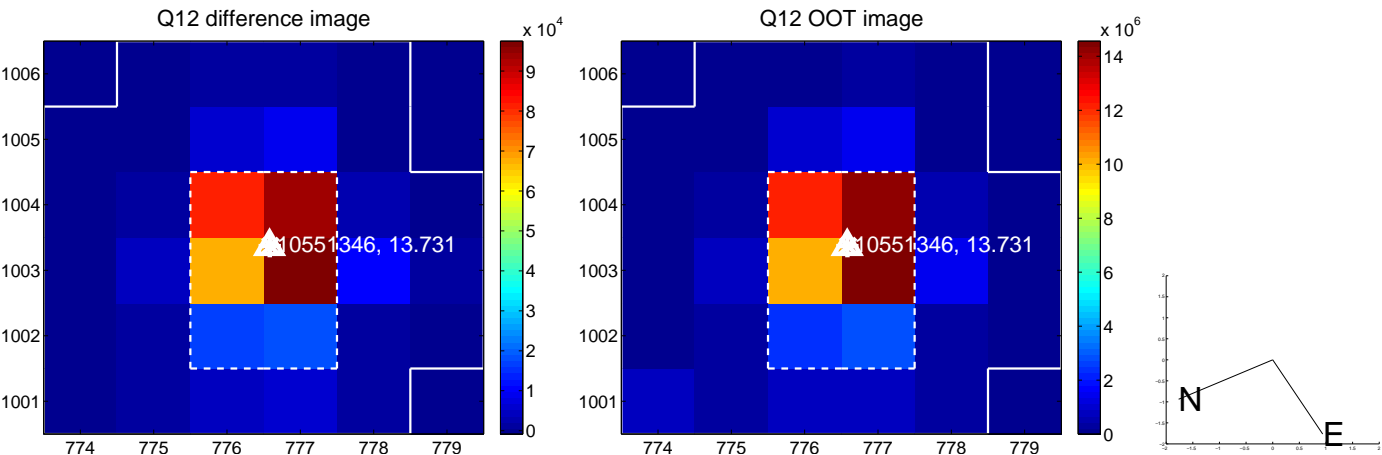
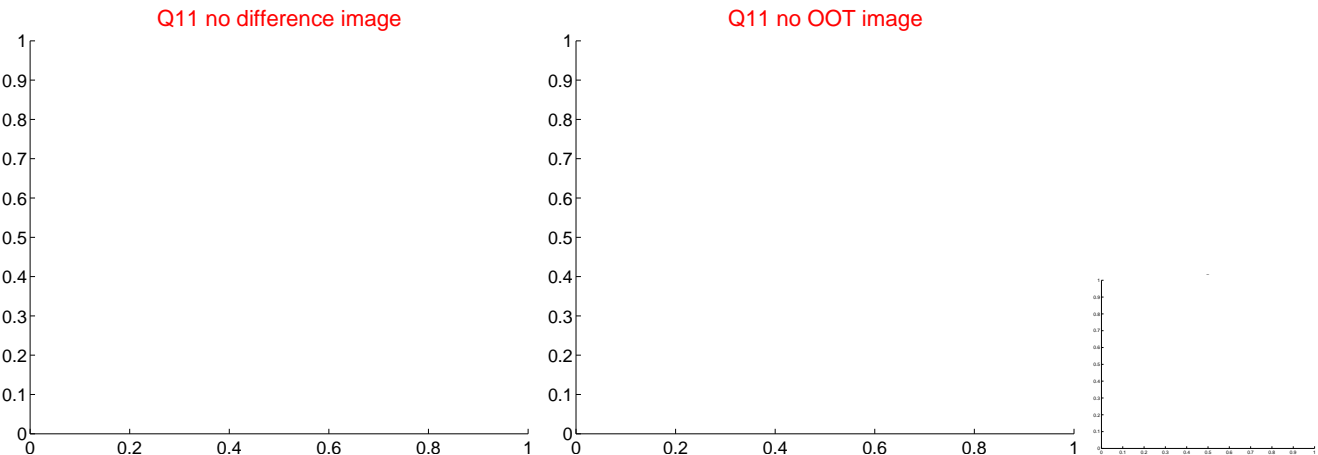
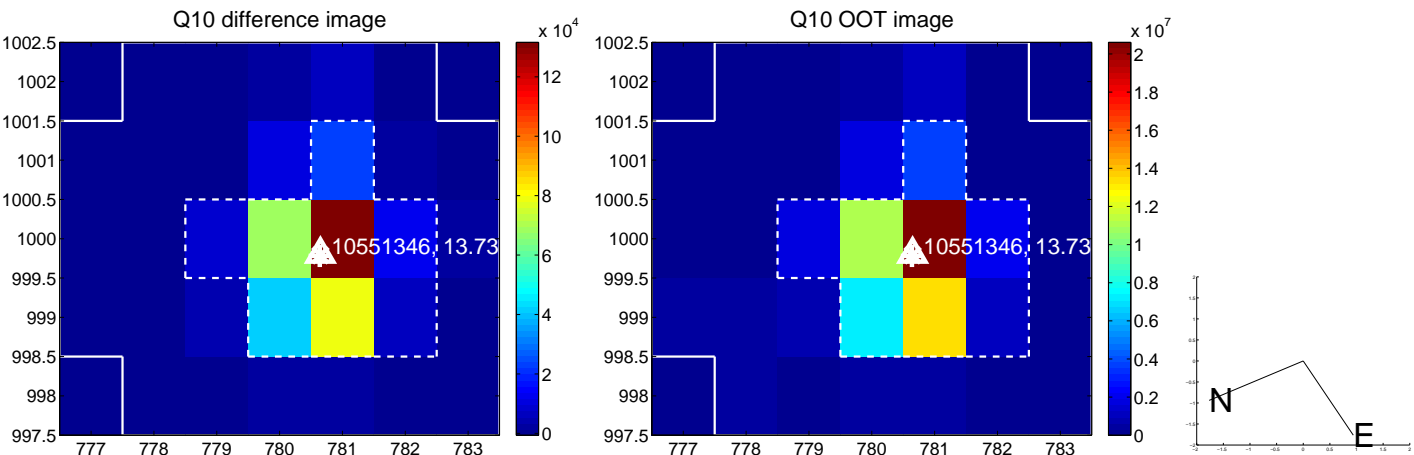
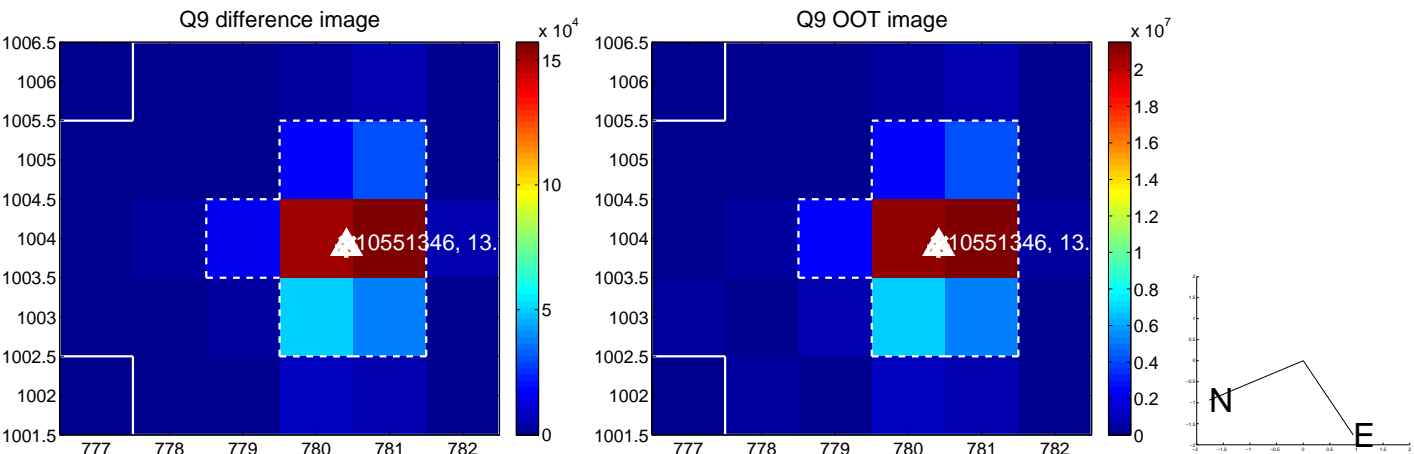
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



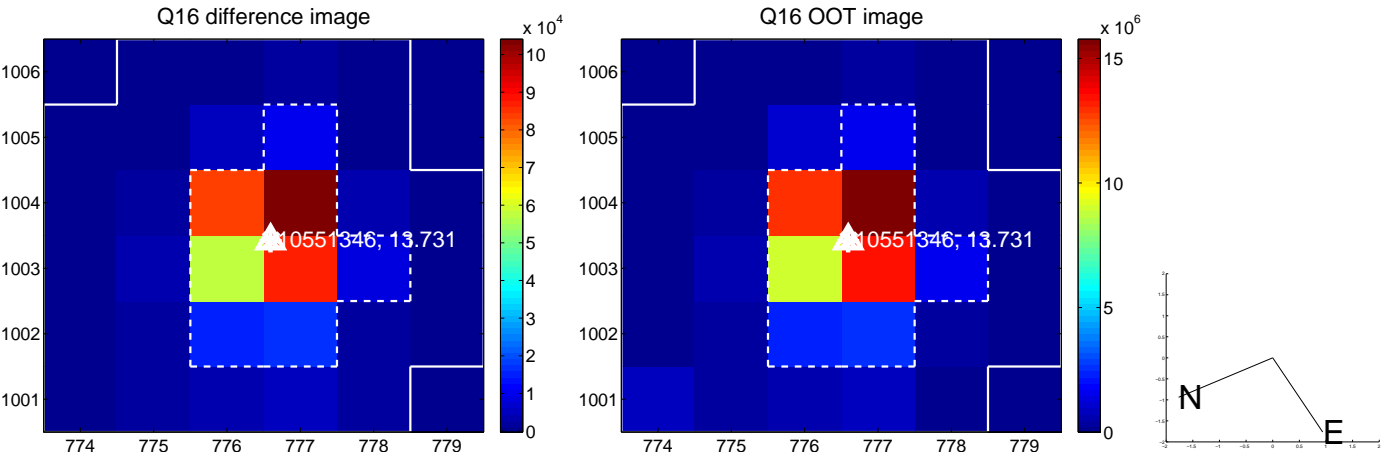
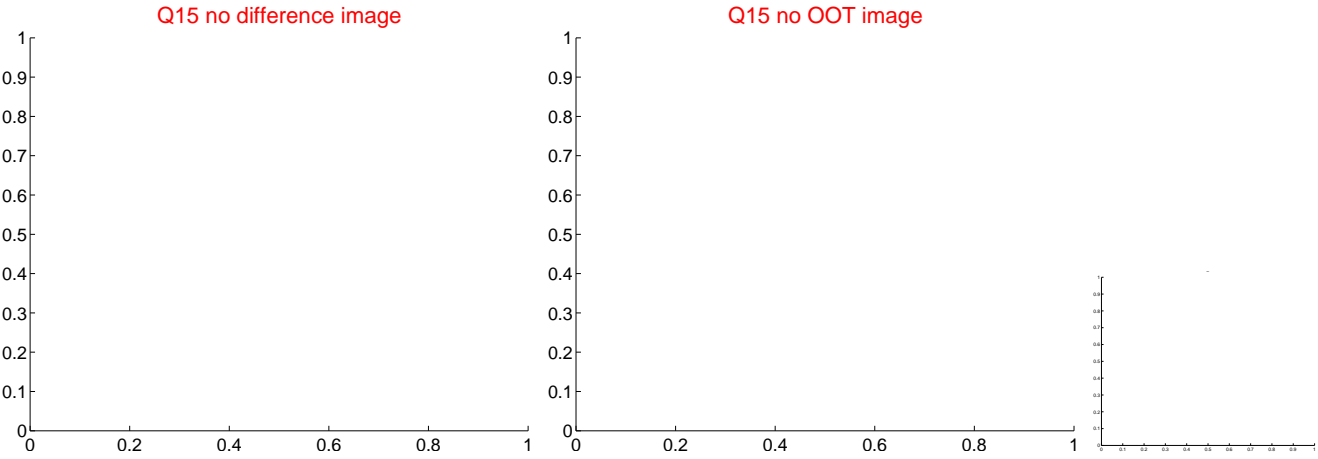
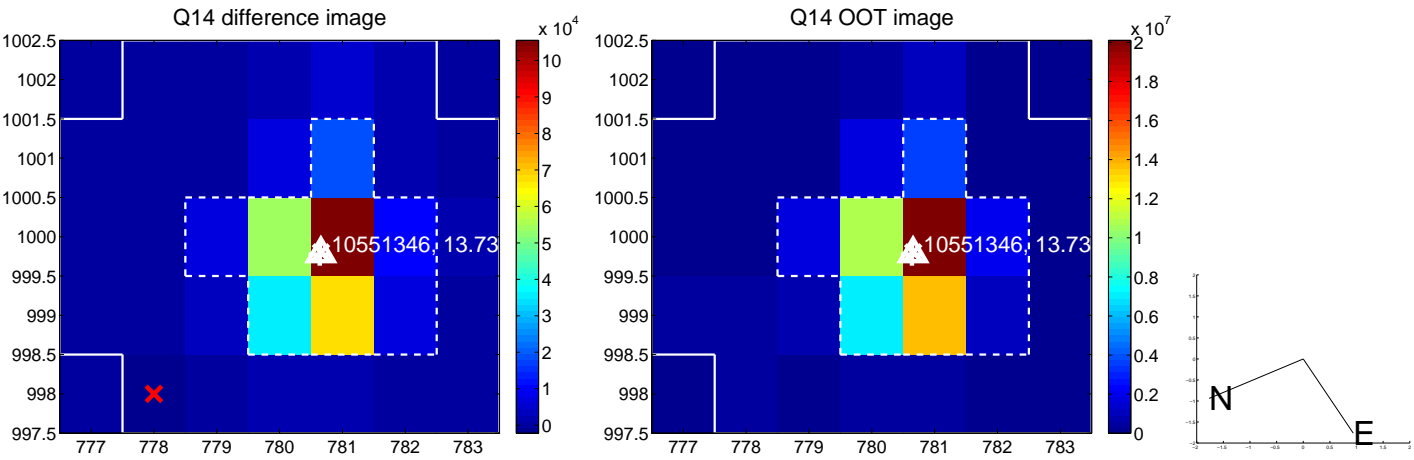
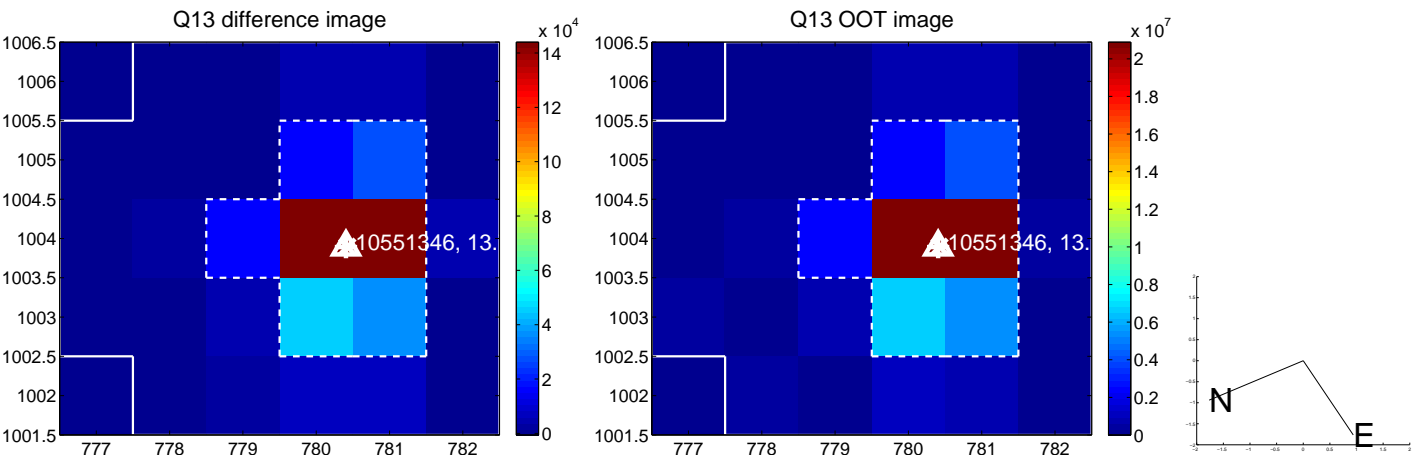
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



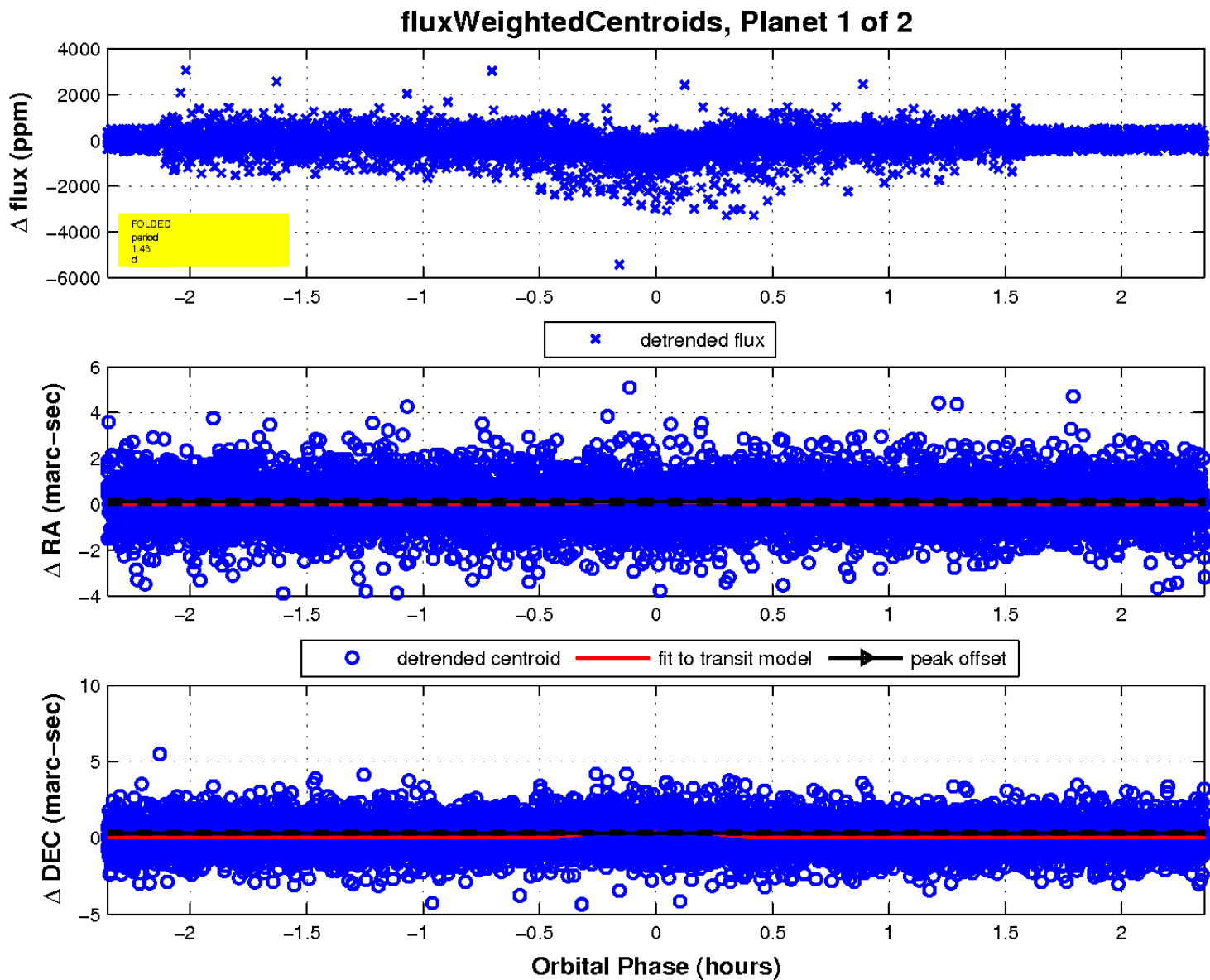
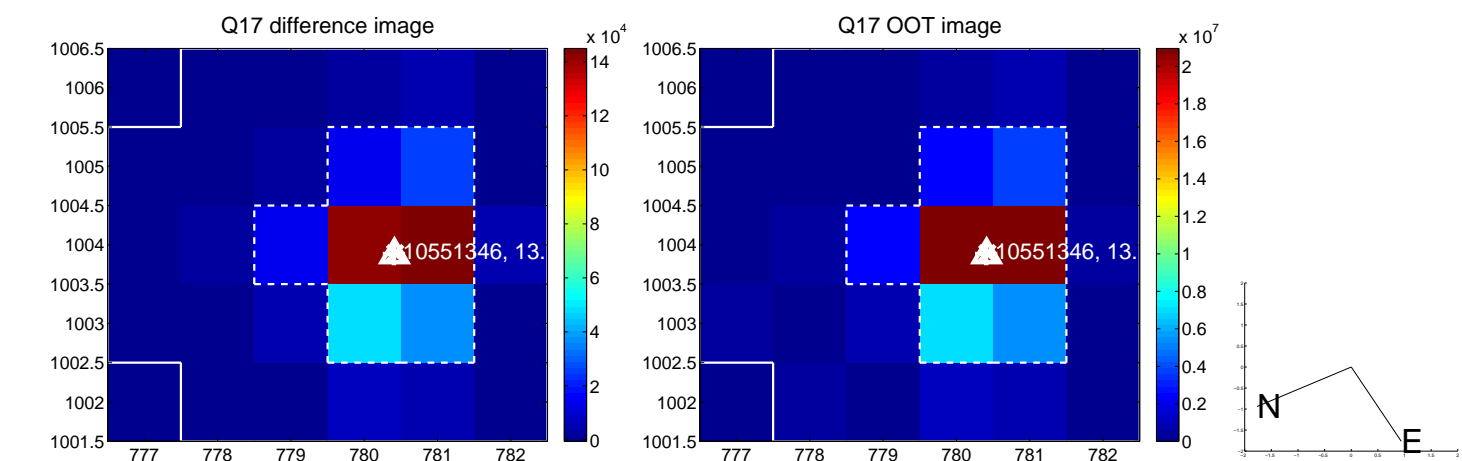
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

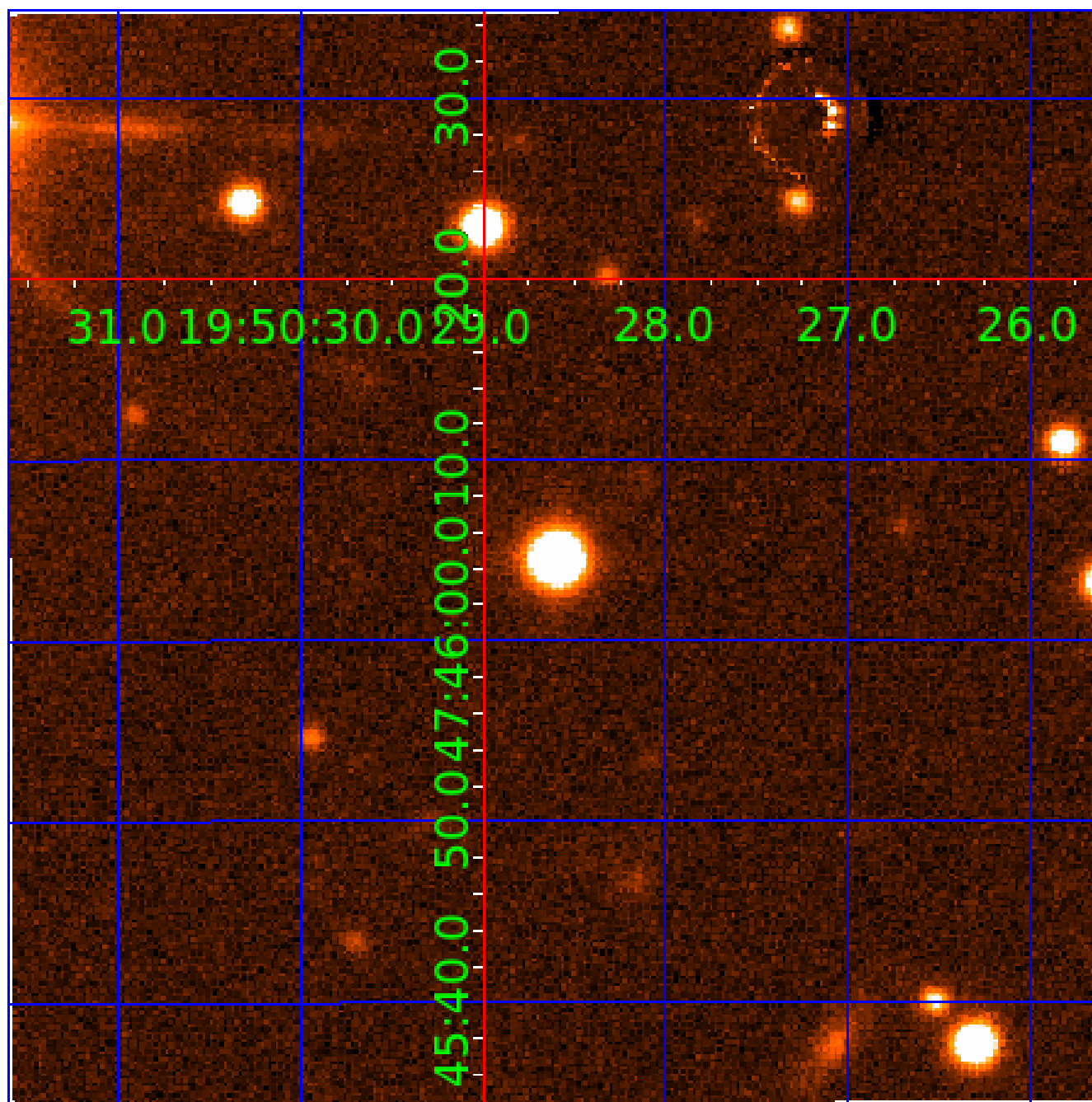


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 010551346

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})
010551346-01	OBS	5804.01	1.427942	132.620971	509.6	0.785	23.8	45.9	0.92	6099	2.49	1700.30
010551346-02	OBS	No	1.427973	131.936542	235.0	0.601	17.1	18.5	0.92	6099	1.71	1700.25

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
010551346-01	OBS	FP	0.00	0	1	0	0	HAS_SEC_TCE
010551346-02	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 010551346-02

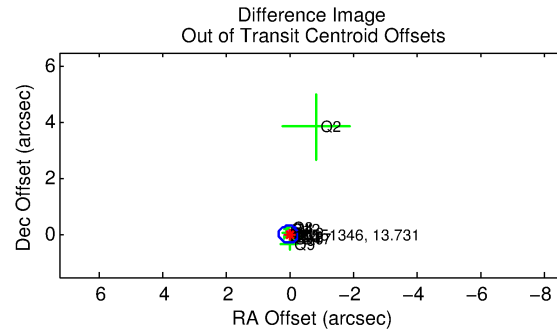
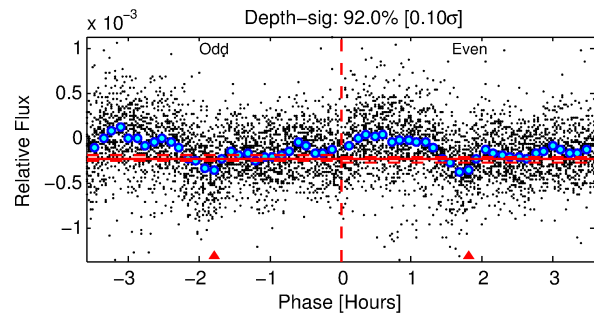
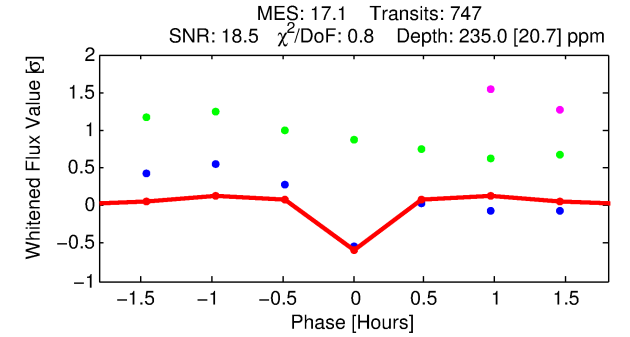
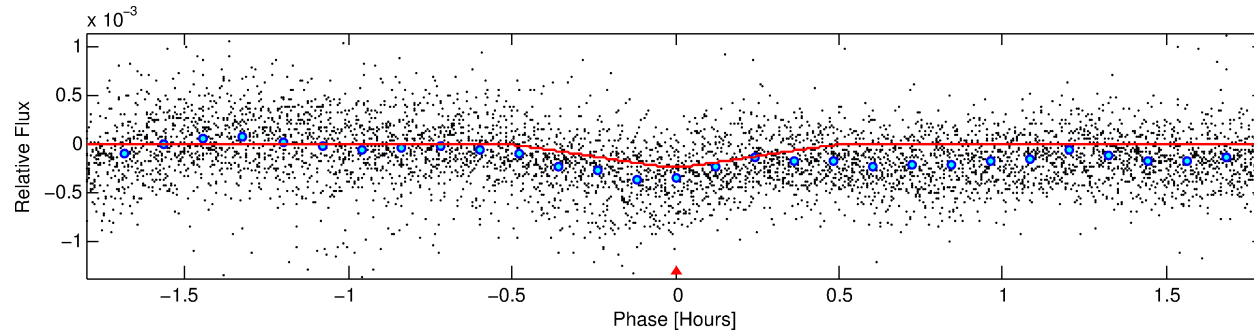
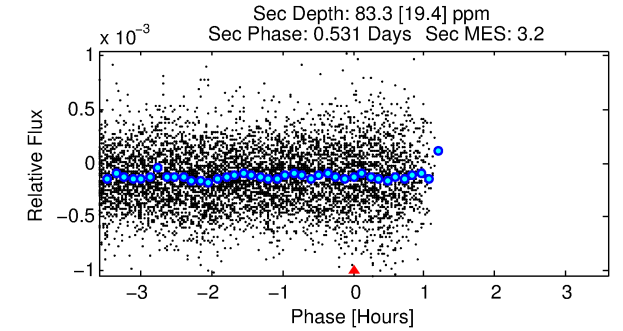
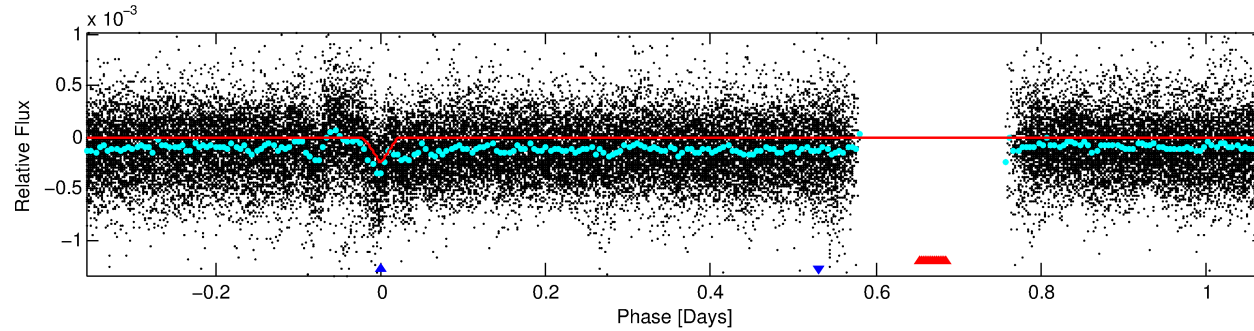
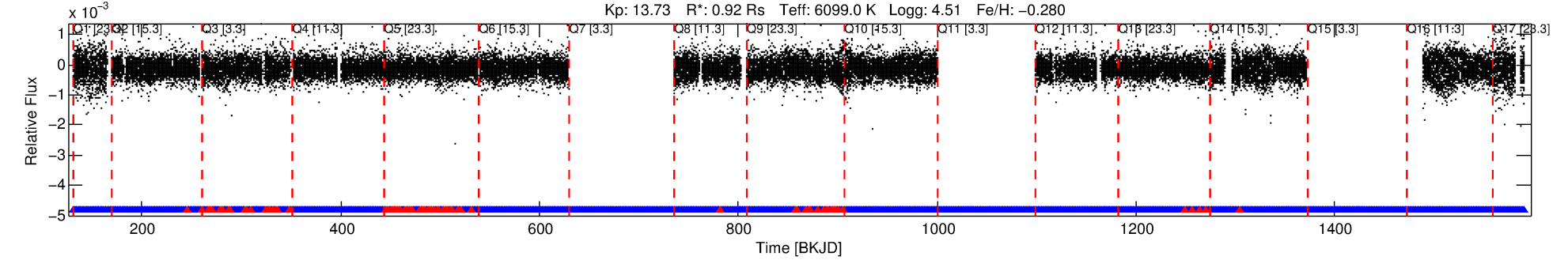
No Significant Match Found

DV One-Page Summary

KIC: 10551346 Candidate: 2 of 2 Period: 1.428 d

KOI: K05804 Corr: No Ephemeris Match

Kp: 13.73 R*: 0.92 Rs Teff: 6099.0 K Logg: 4.51 Fe/H: -0.280



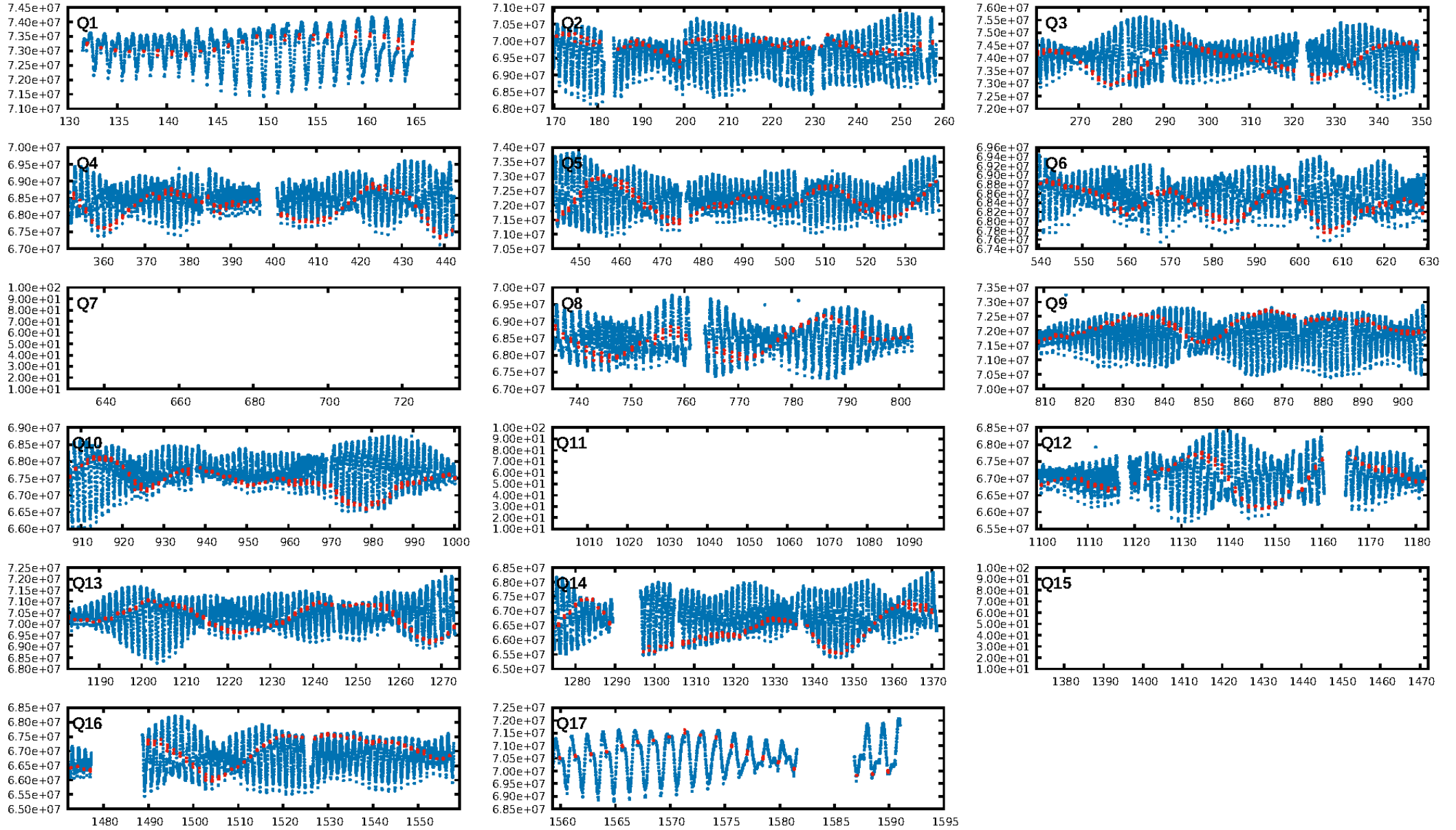
DV Fit Results:

Period = 1.42797 [0.00001] d
Epoch = 131.9365 [0.0005] BKJD
Rp/R* = 0.0170 [0.0032]
a/R* = 8.65 [8.19]
b = 0.90 [0.21]
Seff = 1700.25 [554.18]
Teff = 1637 [133] K
Rp = 1.71 [0.54] Re
a = 0.0248 [0.0052] AU
Ag = 9.68 [5.22] [1.66σ]
Teffp = 4465 [516] K [5.31σ]

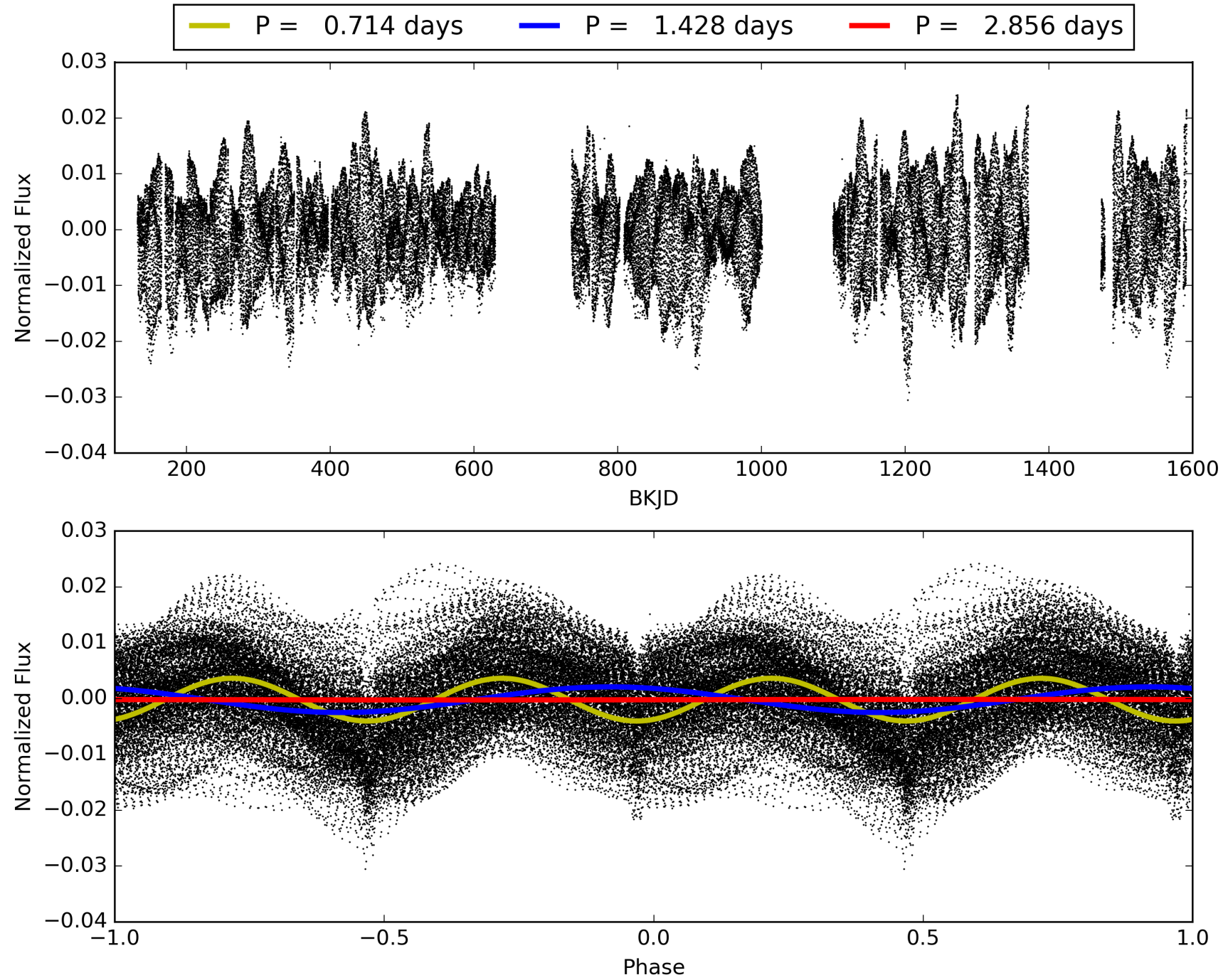
DV Diagnostic Results:

ShortPeriod-sig: 0.1% [0.00σ]
LongPeriod-sig: N/A
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: 4.90e-70
RollingBand-fgt: 0.88 [623/704]
GhostDiagnostic-chr: -5.077
Centroid-sig: 6.3%
Centroid-so: 0.755 arcsec [1.68σ]
OotOffset-rm: 0.057 arcsec [0.55σ]
KicOffset-rm: 0.076 arcsec [0.46σ]
OotOffset-st: 4/1/4/5 [14]
KicOffset-st: 4/1/4/5 [14]
DiffImageQuality-fgm: 0.93 [13/14]
DiffImageOverlap-fno: 1.00 [14/14]

TCE 010551346-02, PDC Light Curves

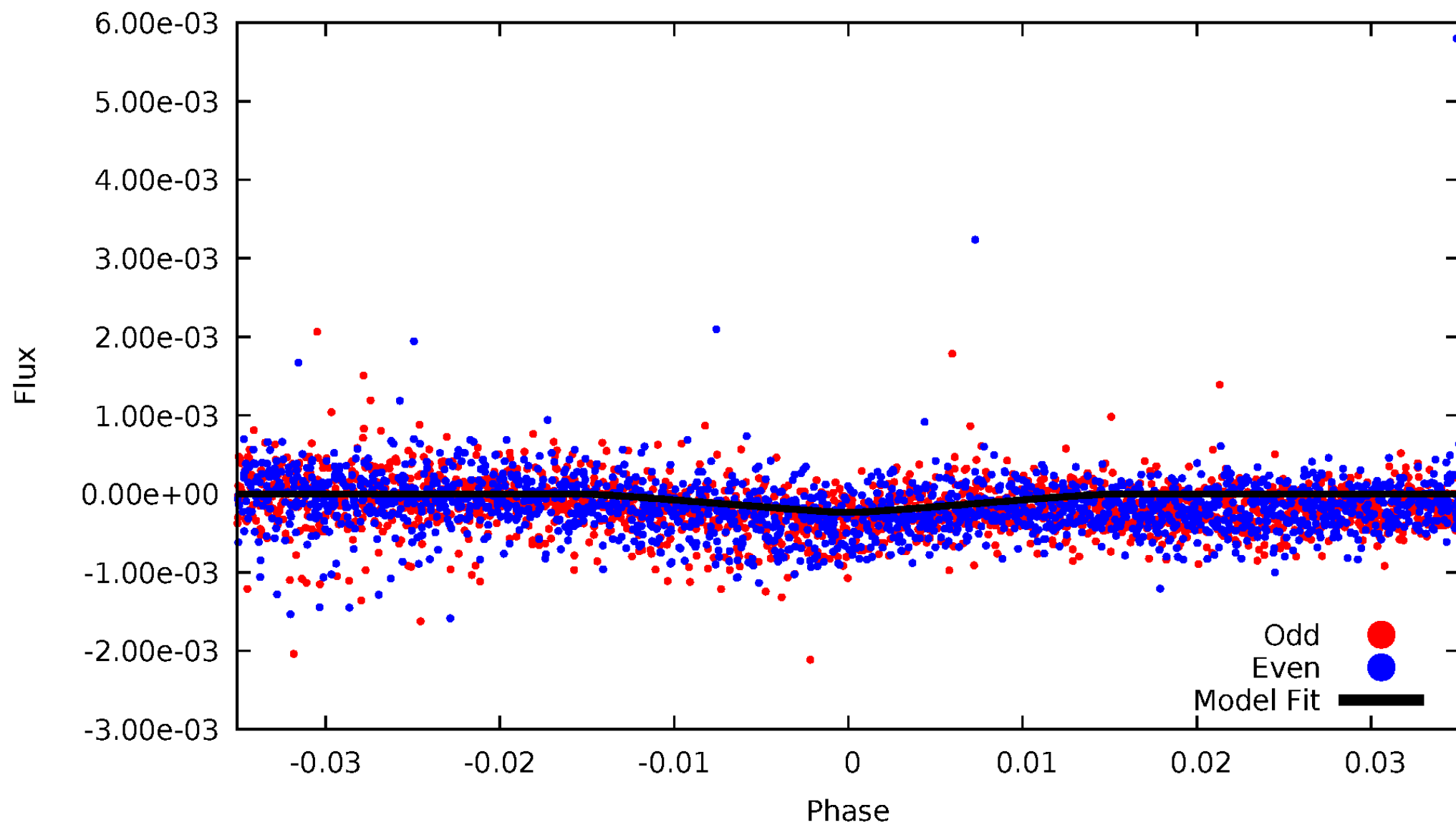


TCE 010551346-02



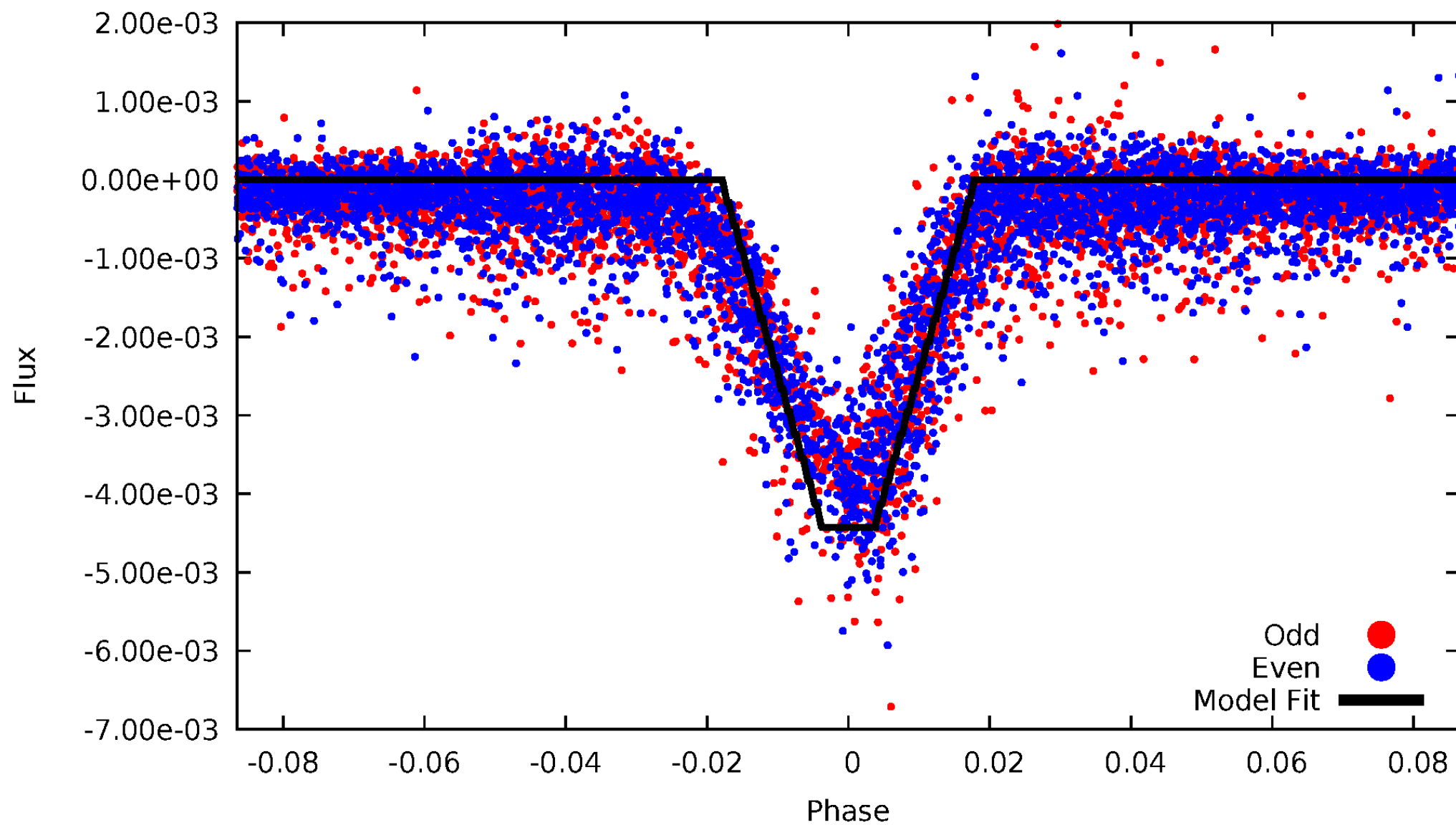
DV Odd/Even

TCE 010551346-02



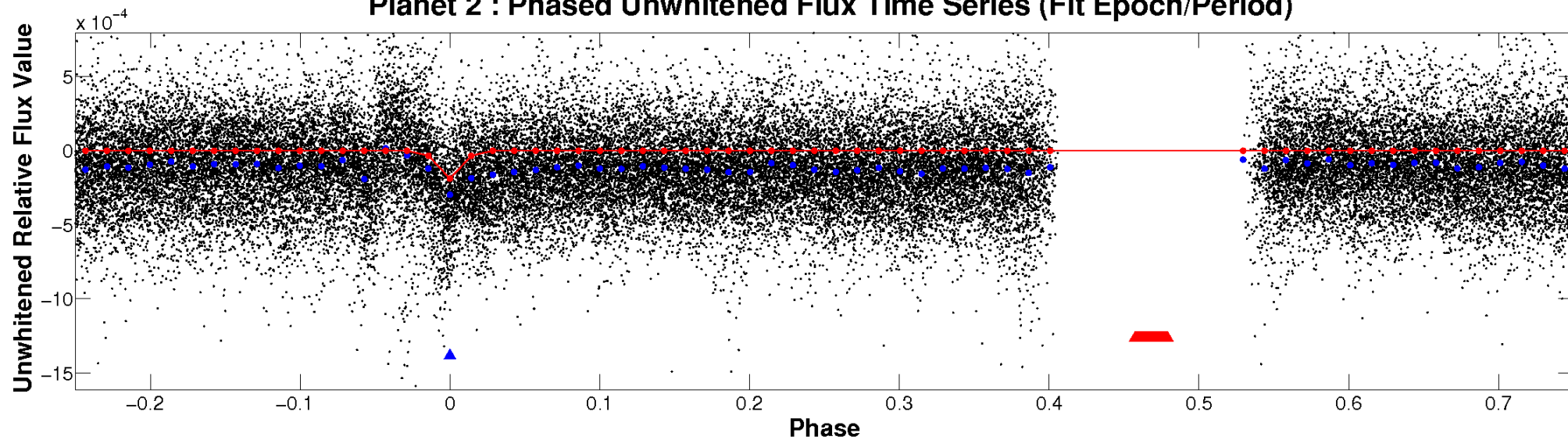
ALT Odd/Even

TCE 010551346-02

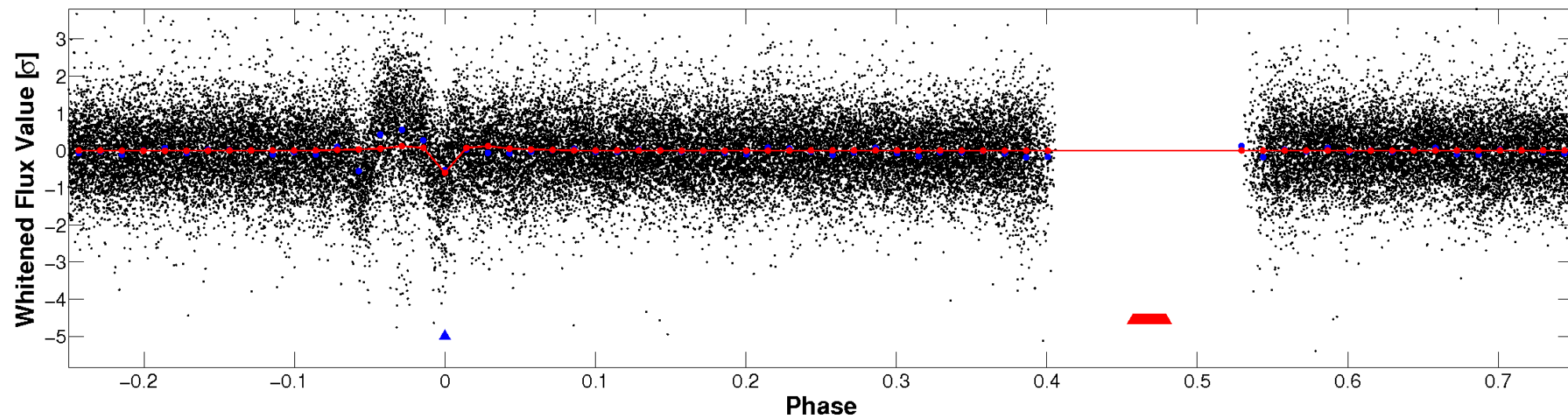


Non-Whitened Vs. Whitened Light Curve

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

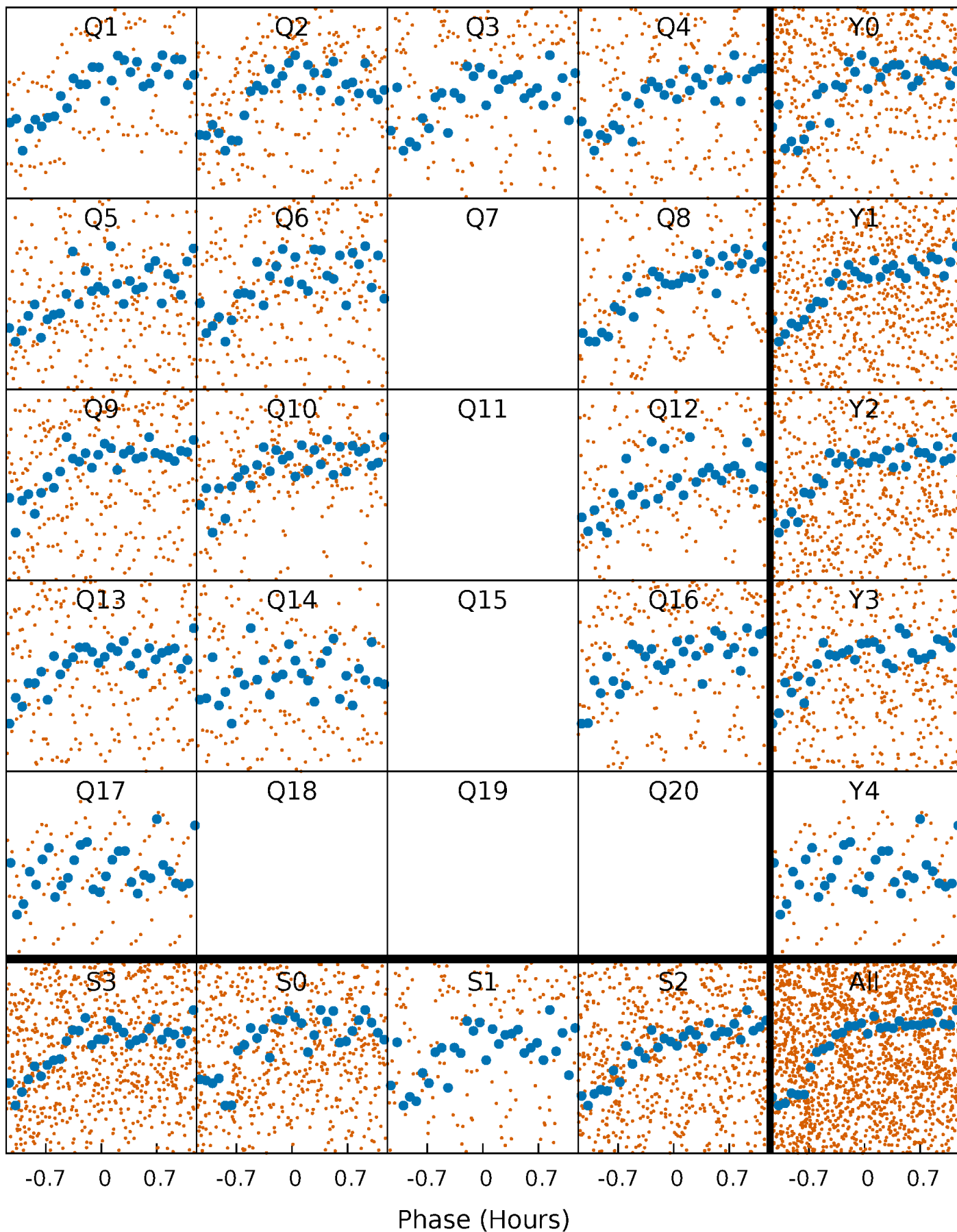


Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



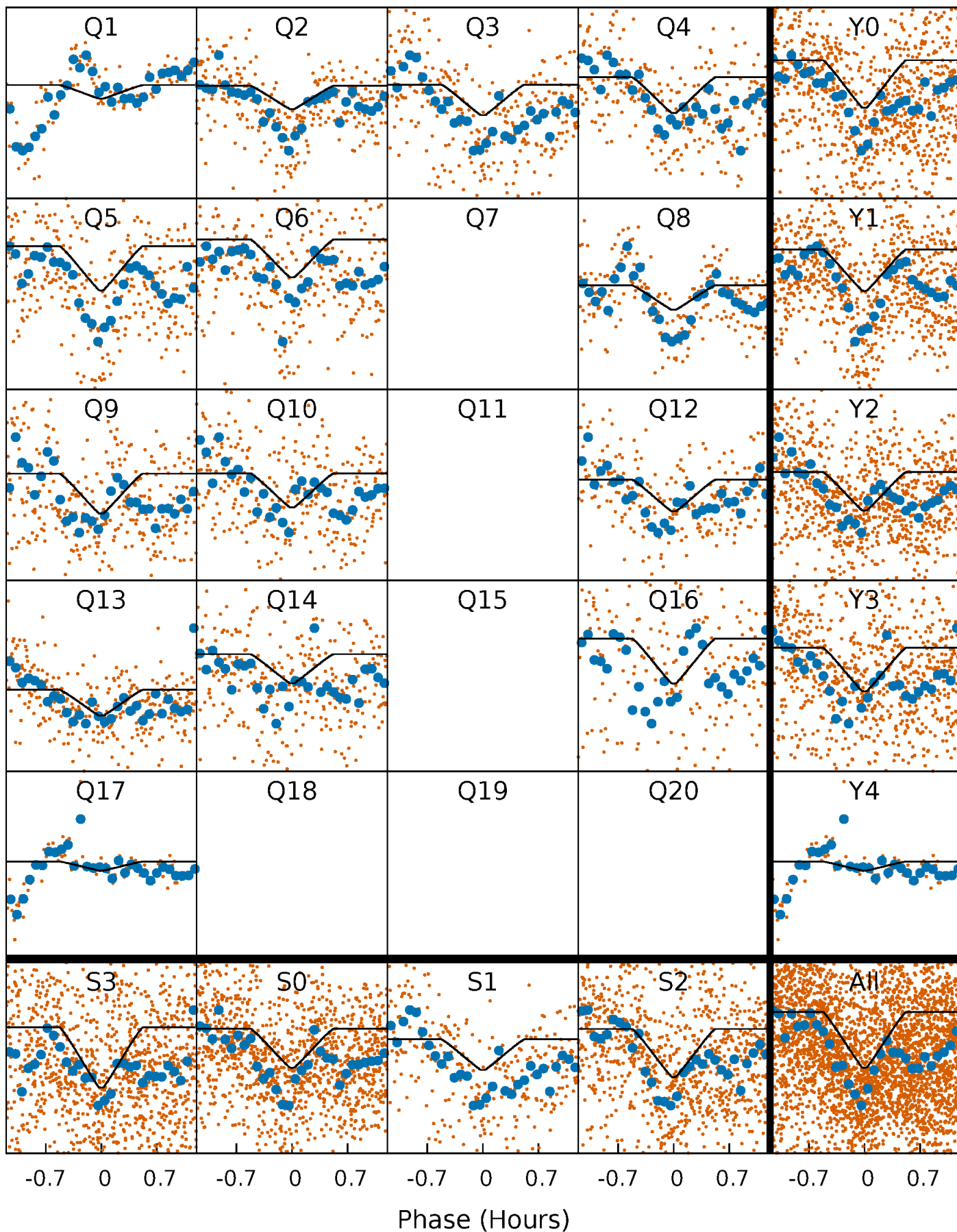
PDC Quarter-Phased Transit Curves

TCE 010551346-02 P= 1.427973 Days $T_0=131.936542$ (BKJD)



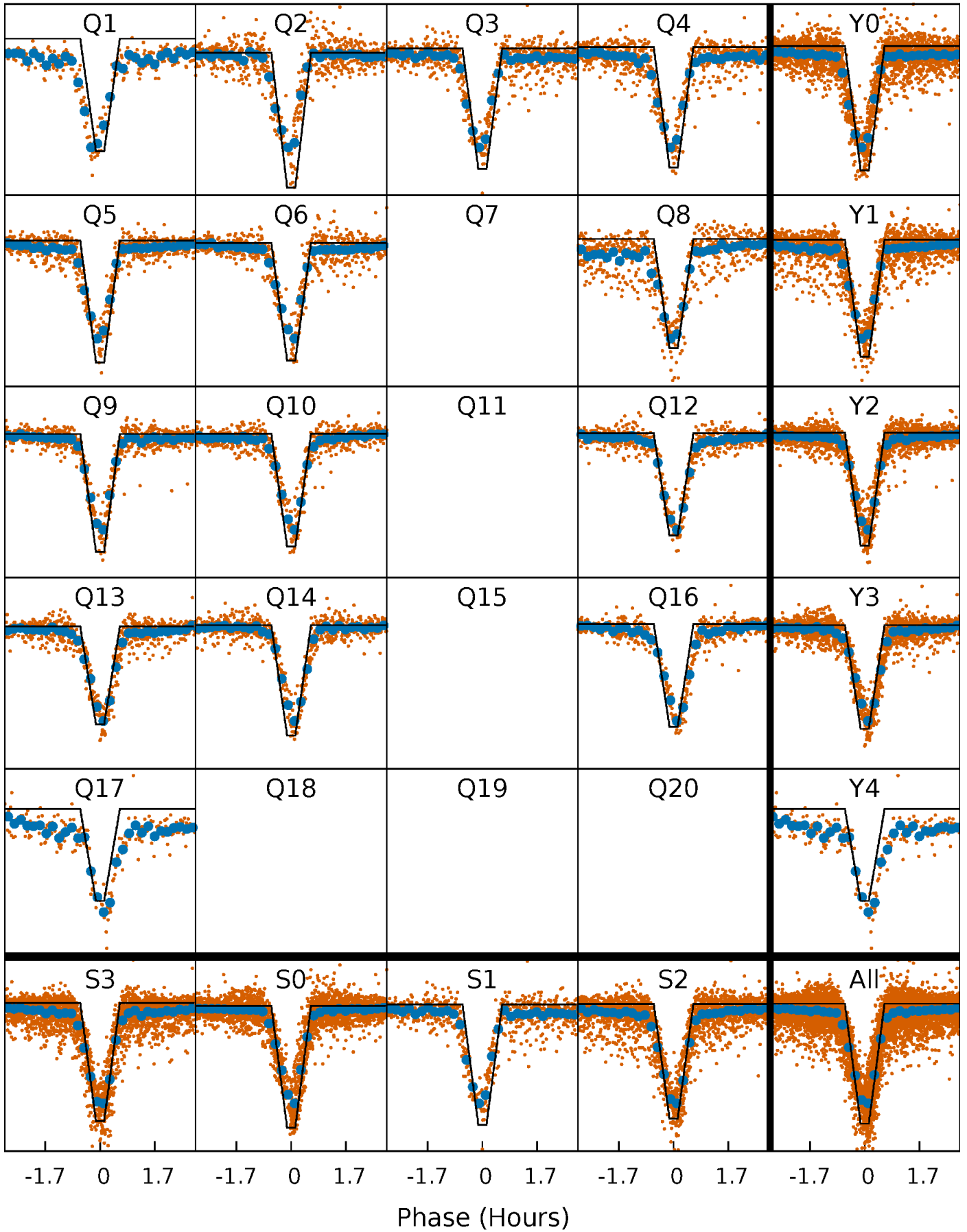
DV Quarter-Phased Transit Curves

TCE 010551346-02 $P = 1.427973$ Days $T_0 = 131.936542$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

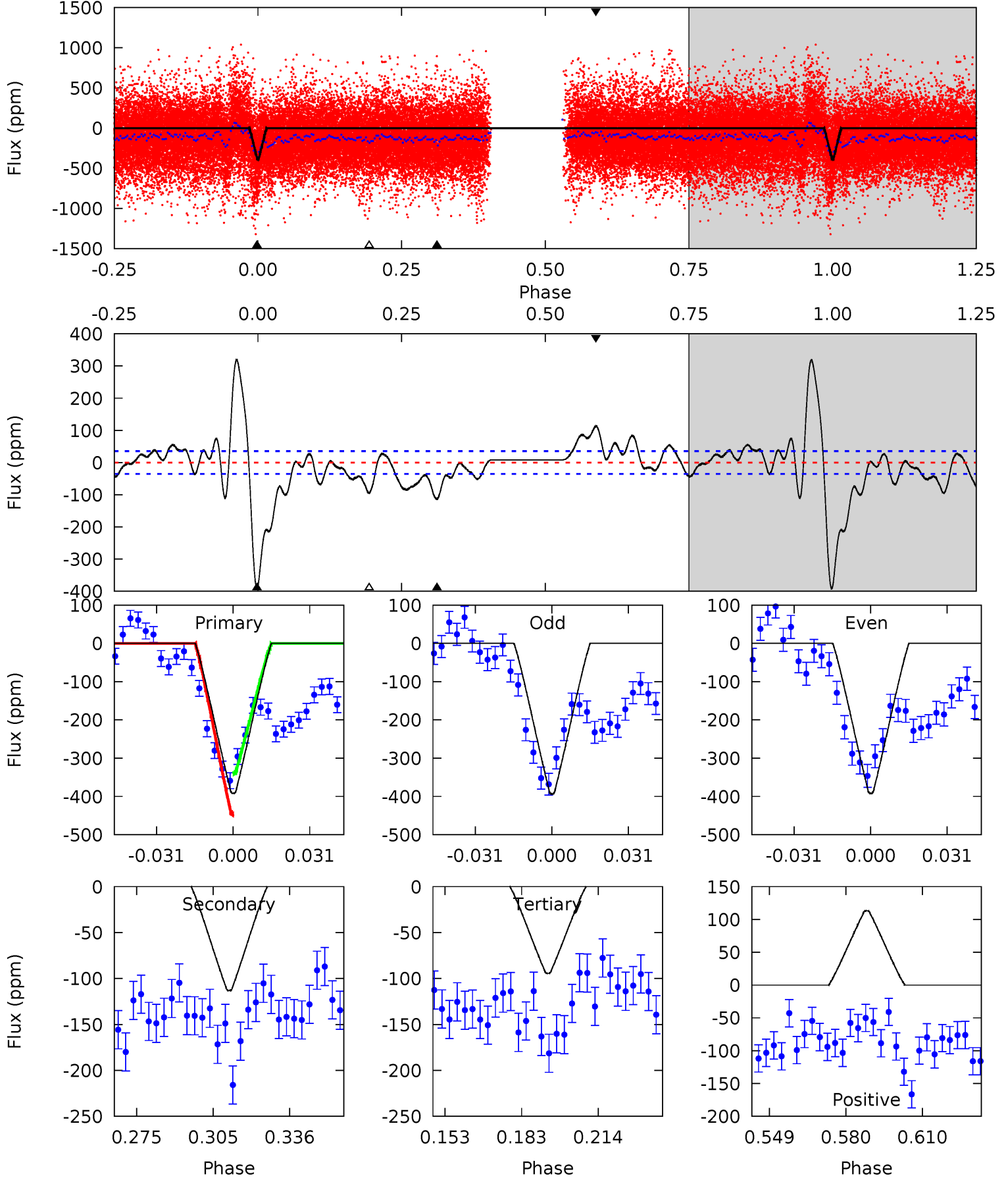
TCE 010551346-02 $P = 1.427951$ Days $T_0 = 131.905225$ (BKJD)



DV Model-Shift Uniqueness Test

010551346-02, P = 1.427973 Days, E = 130.508569 Days

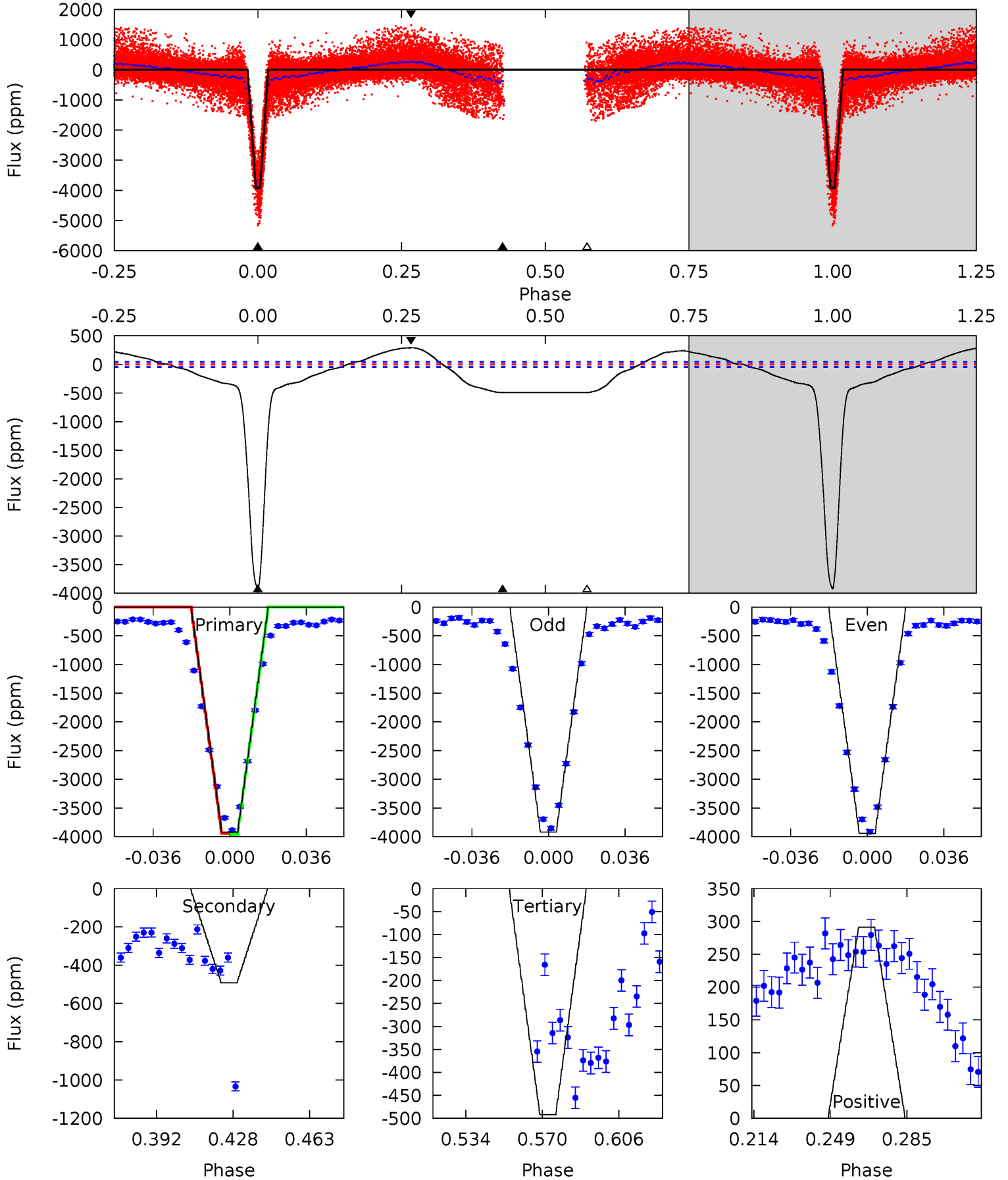
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
53.0	15.3	12.8	15.3	4.81	2.16	8.28	40.2	37.7	2.53	-0.01	0.10	1.00	0.45	7.32



Alt Model-Shift Uniqueness Test

010551346-02, P = 1.427951 Days, E = 130.477274 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
413.6	51.9	51.9	30.7	4.78	2.10	22.2	361.7	382.9	0.01	21.2	1.15	1.02	0.07	0



Stellar Parameters For KIC 010551346

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	M (M_{\odot})	p_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	6099^{+167}_{-182}	$4.511^{+0.044}_{-0.165}$	$-0.280^{+0.300}_{-0.300}$	$0.919^{+0.230}_{-0.082}$	$1.000^{+0.119}_{-0.130}$	$1.814^{+0.412}_{-0.838}$
	+3%/-3%	+1%/-4%	+107%/-107%	+25%/-9%	+12%/-13%	+23%/-46%
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 010551346-02 / KOI

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	-113 ± 7	$1.76^{+0.42}_{-0.33}$	2325^{+138}_{-104}	4913^{+460}_{-378}	12^{+7}_{-4}
Alt.	-492 ± 9	$6.87^{+0.93}_{-0.63}$	2328^{+147}_{-100}	3820^{+103}_{-105}	$3.473^{+0.654}_{-0.679}$

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

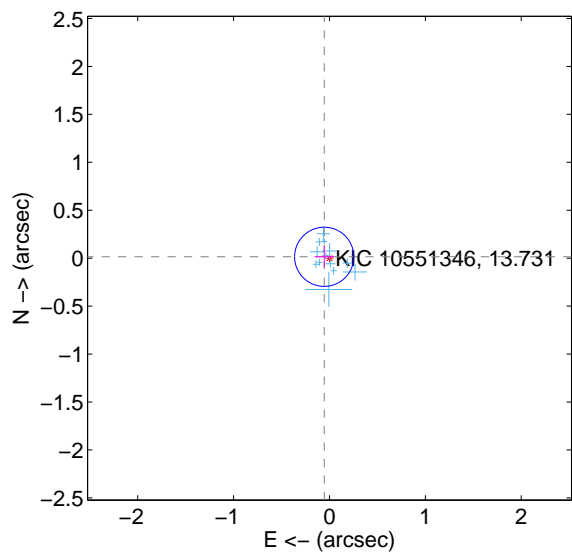
Supplemental centroid analysis for 010551346-02. Kepler magnitude: 13.73. Transit SNR 18.53

There are 13 quarters with good PRF difference image offsets

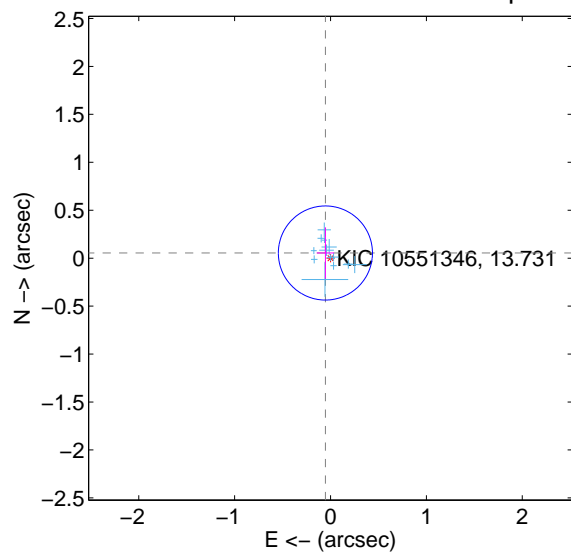
The direct PRF centroid is offset from the target star catalog position by about 0.08 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.057 ± 0.103	0.55	0.055 ± 0.102	0.014 ± 0.108
PRF-fit source offset from KIC position	0.076 ± 0.164	0.46	0.053 ± 0.091	0.054 ± 0.268
photometric centroid source offset	0.76 ± 0.45	1.68	-0.75 ± 0.45	0.04 ± 0.45

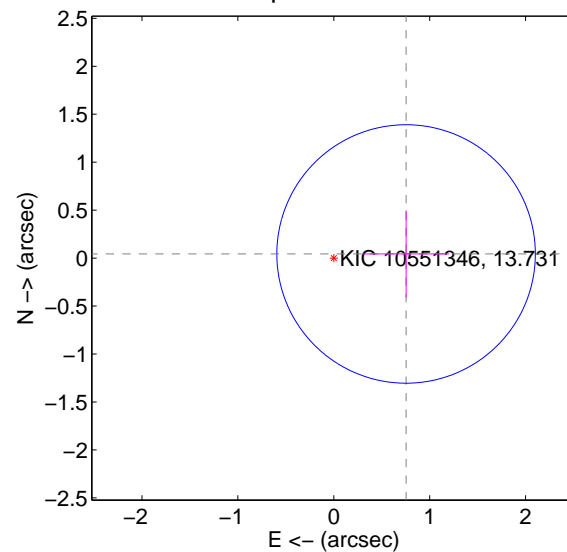
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position

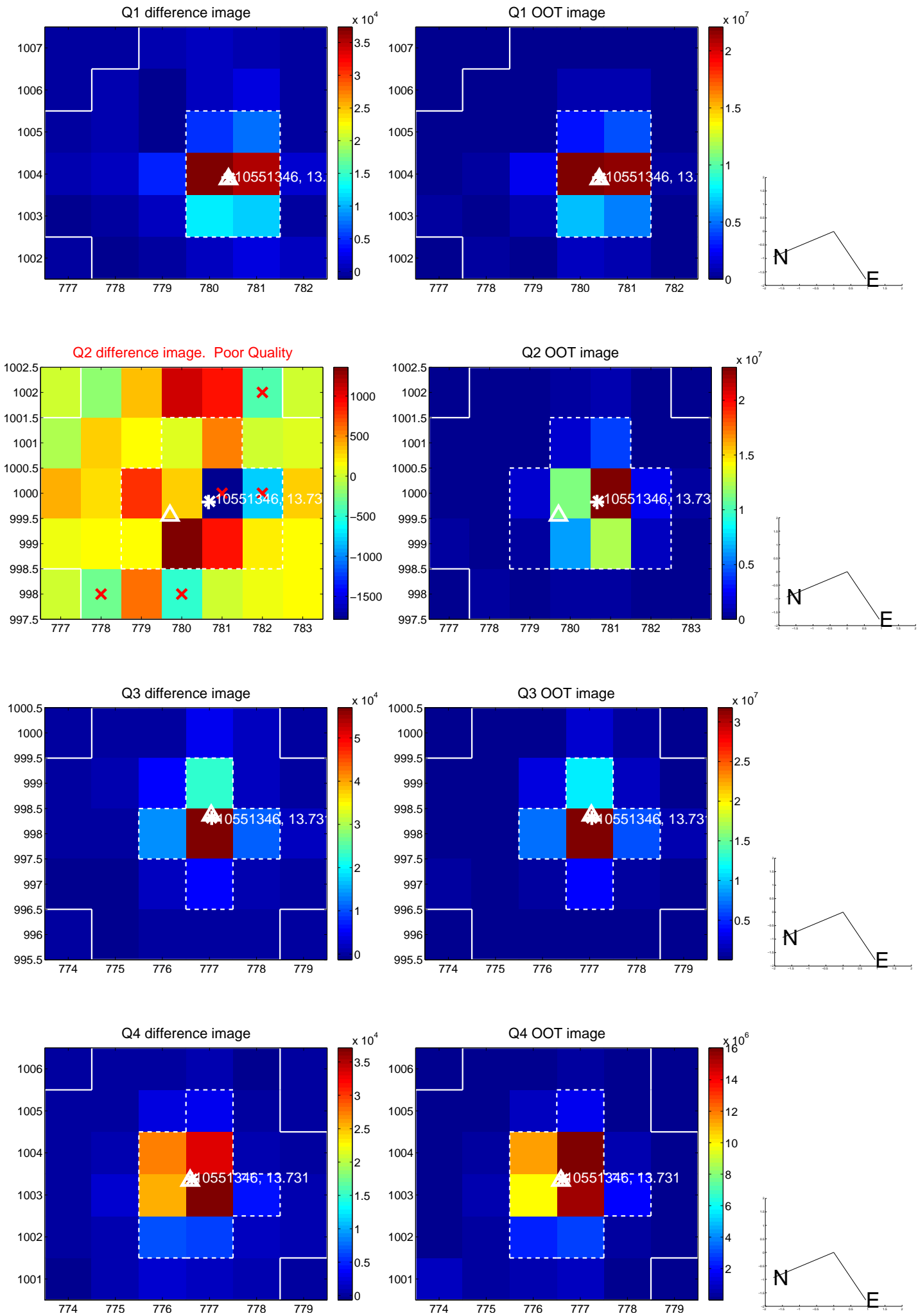


offset from photometric centroids

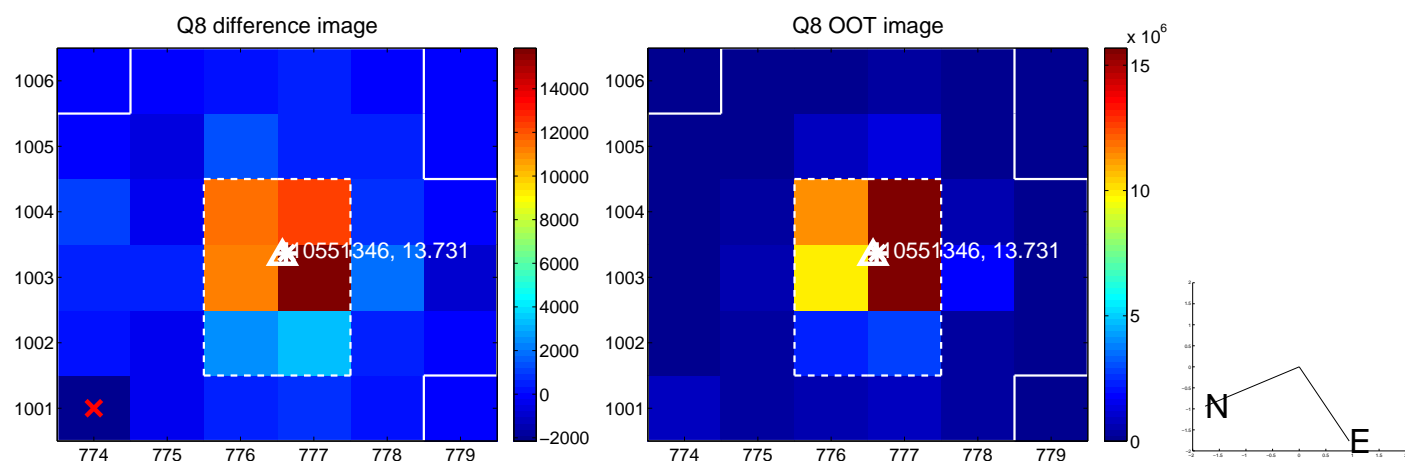
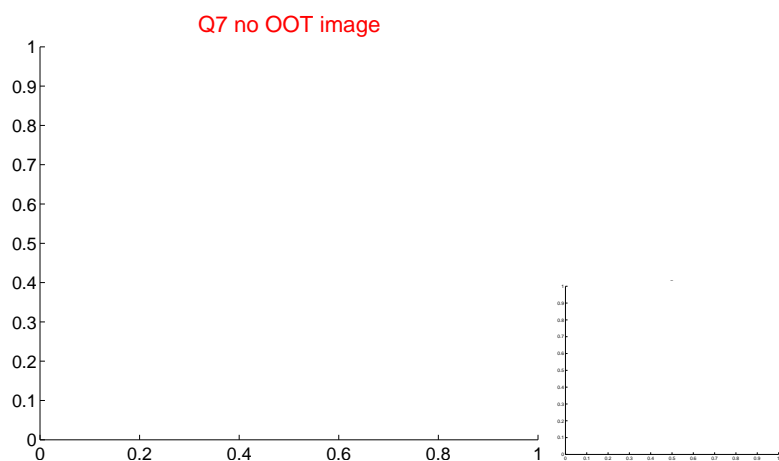
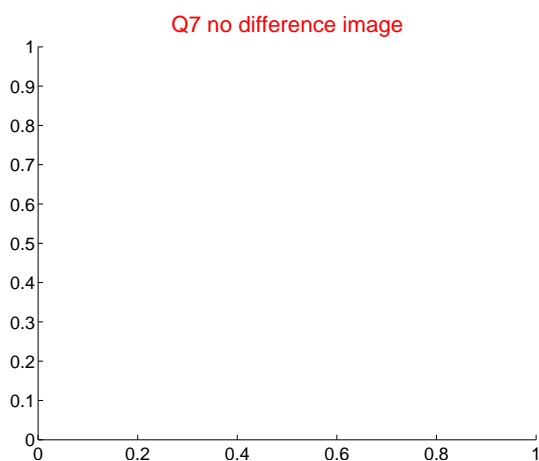
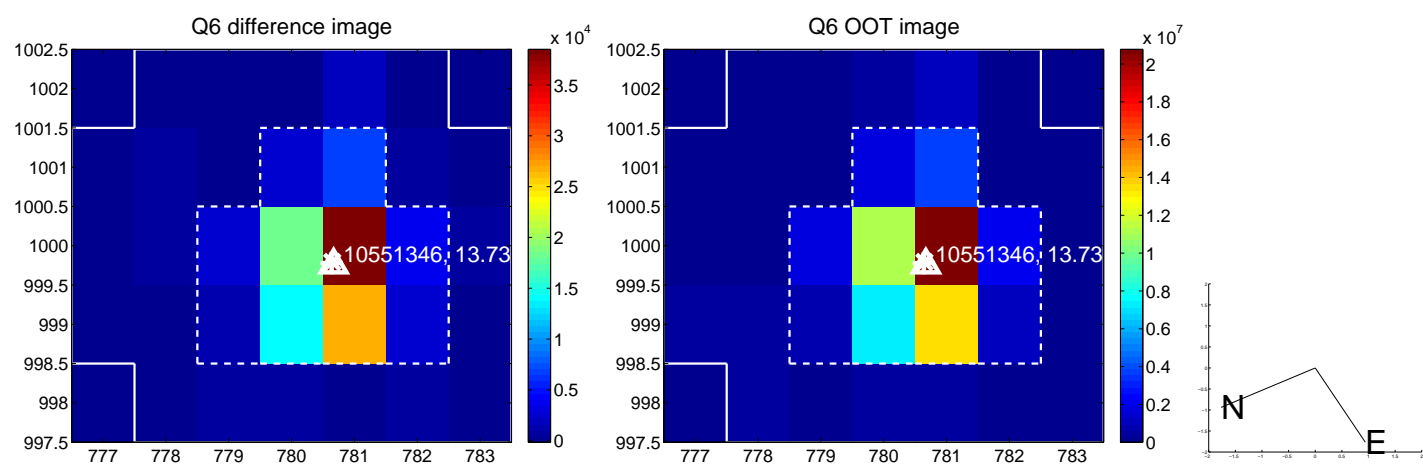
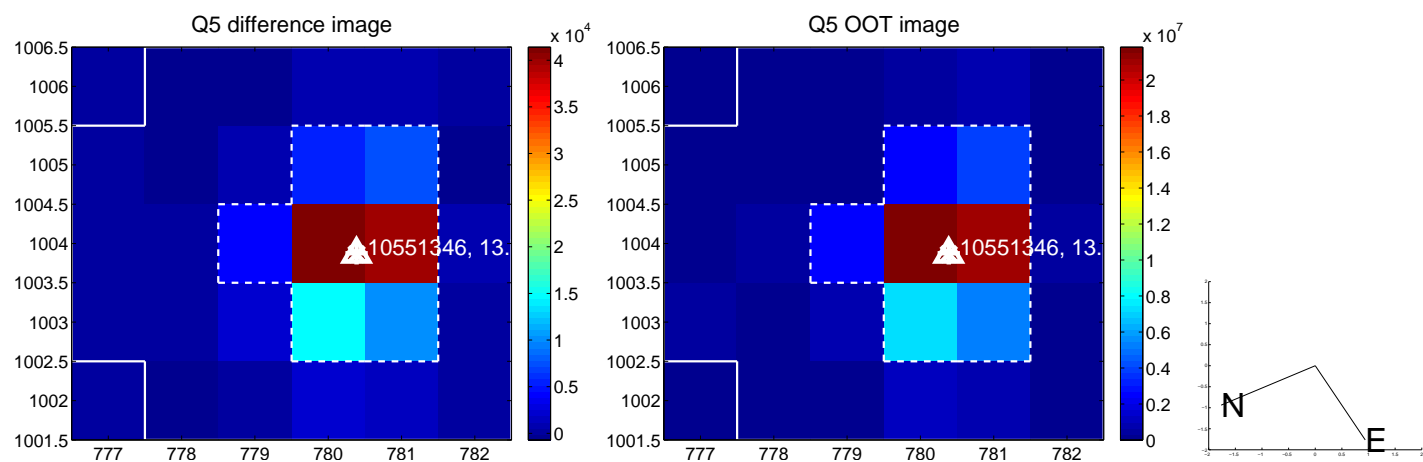


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses:** good quarterly centroid offsets; **Vermillion crosses:** bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

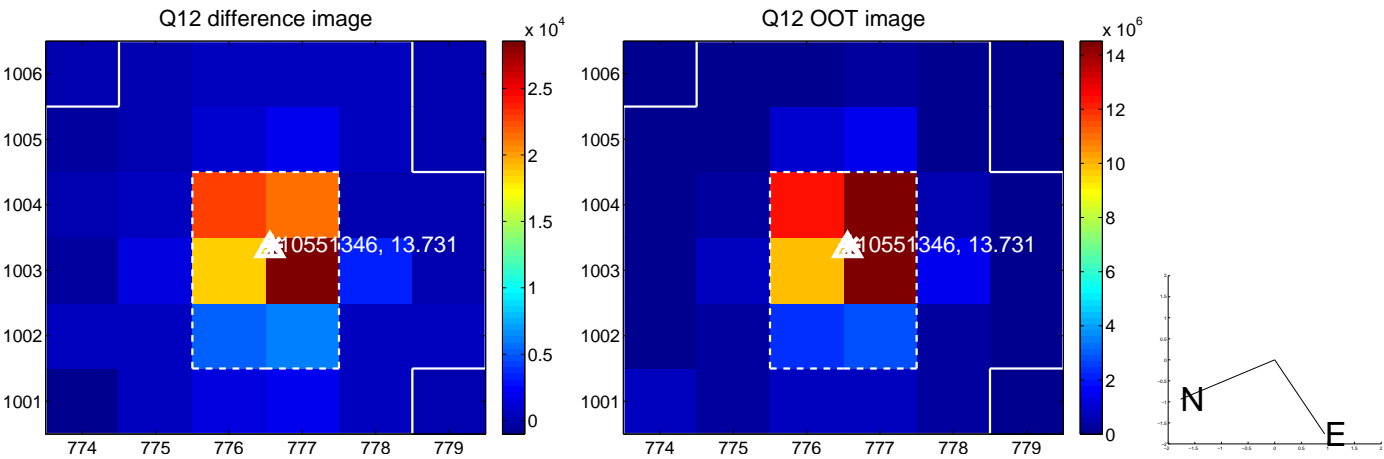
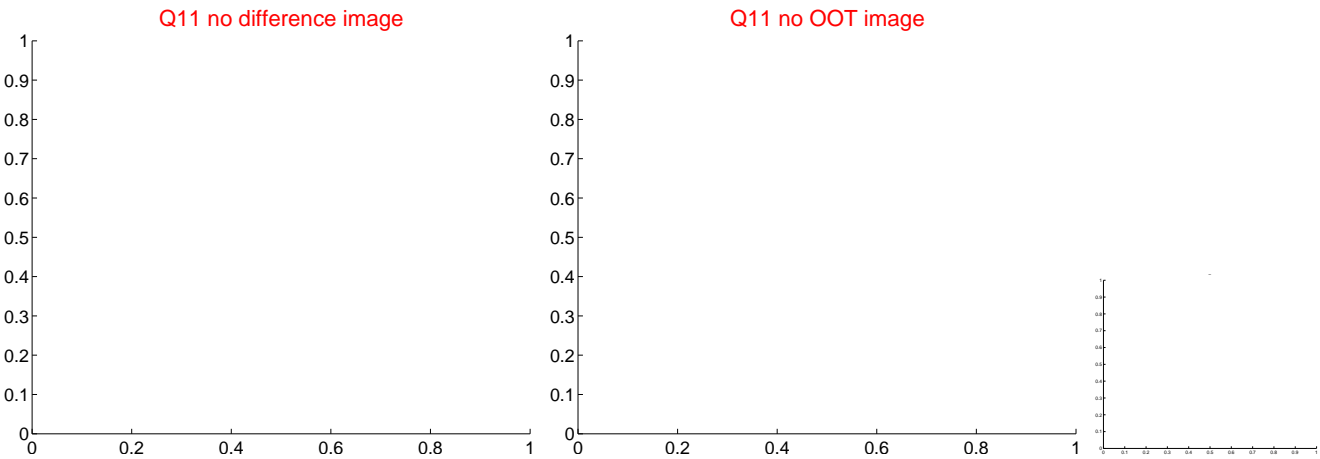
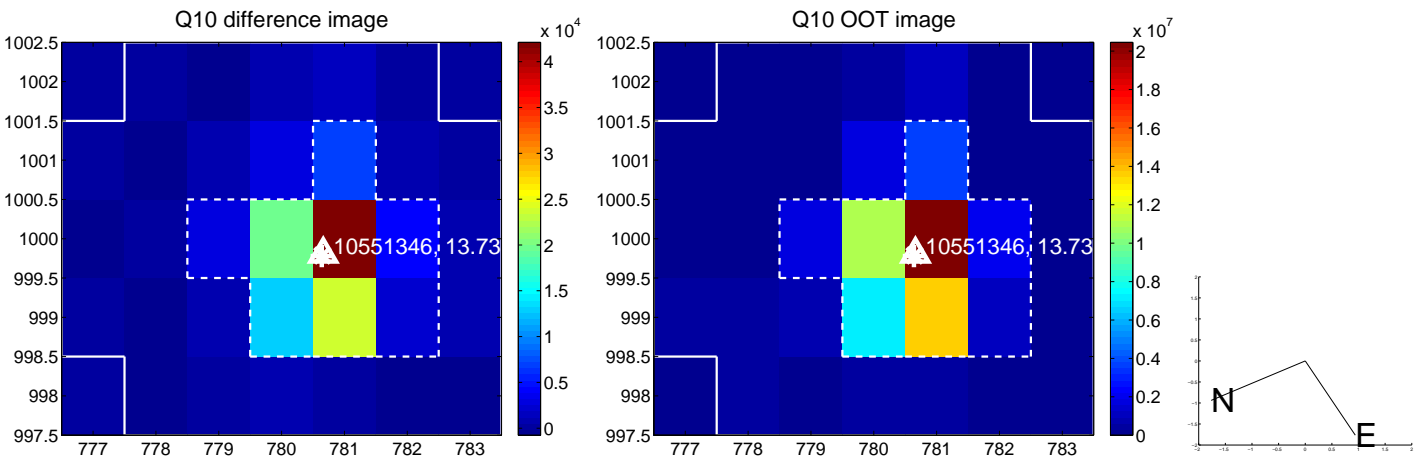
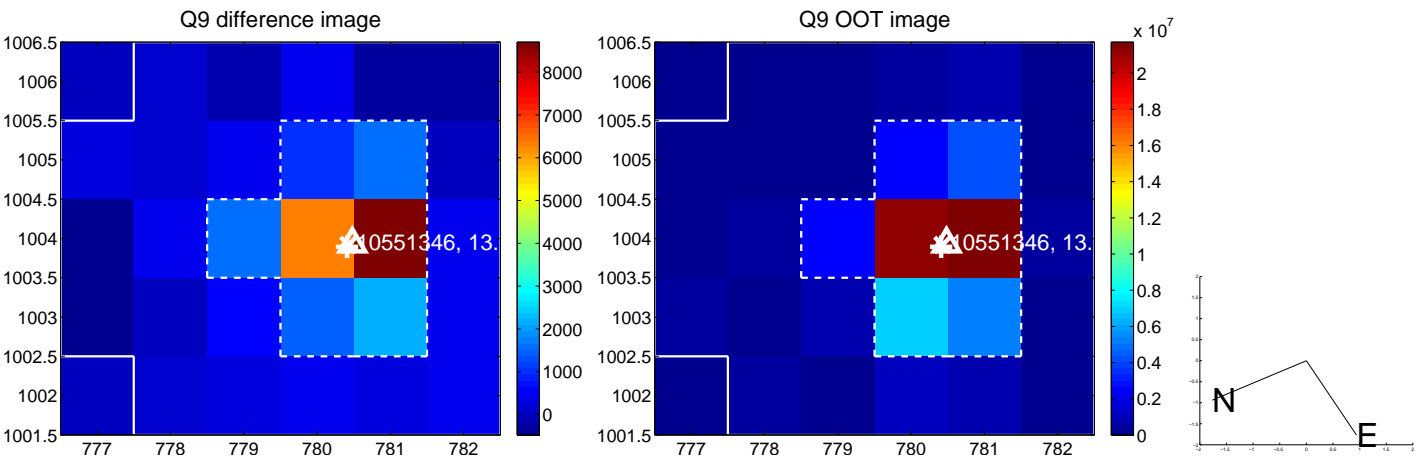
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



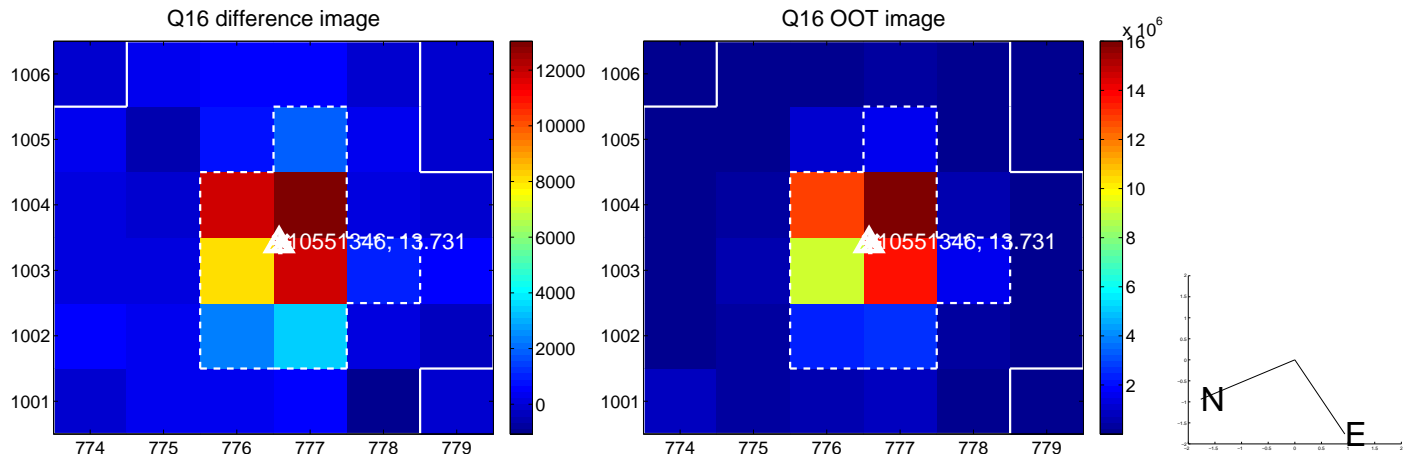
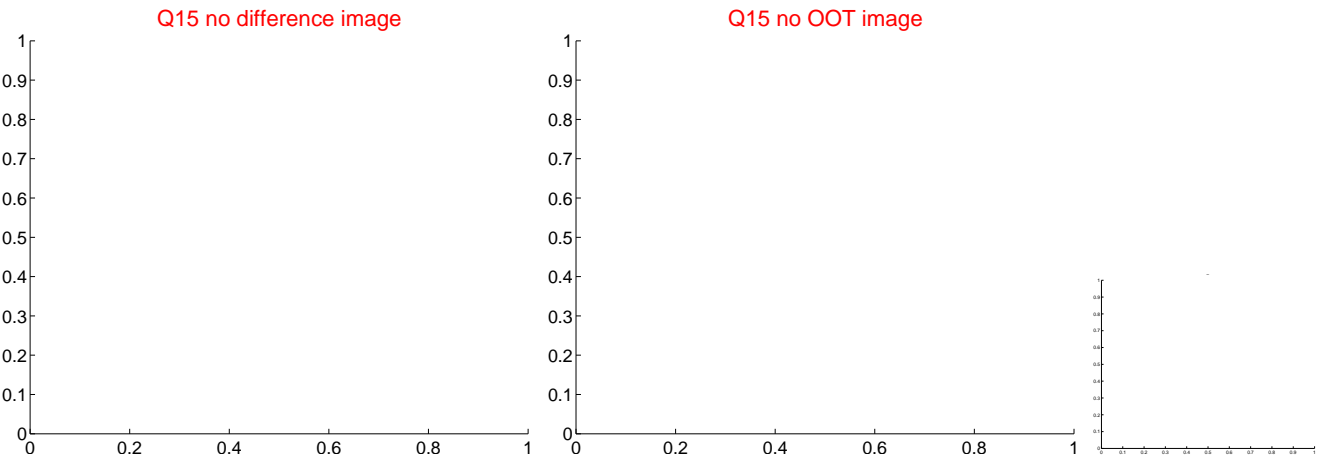
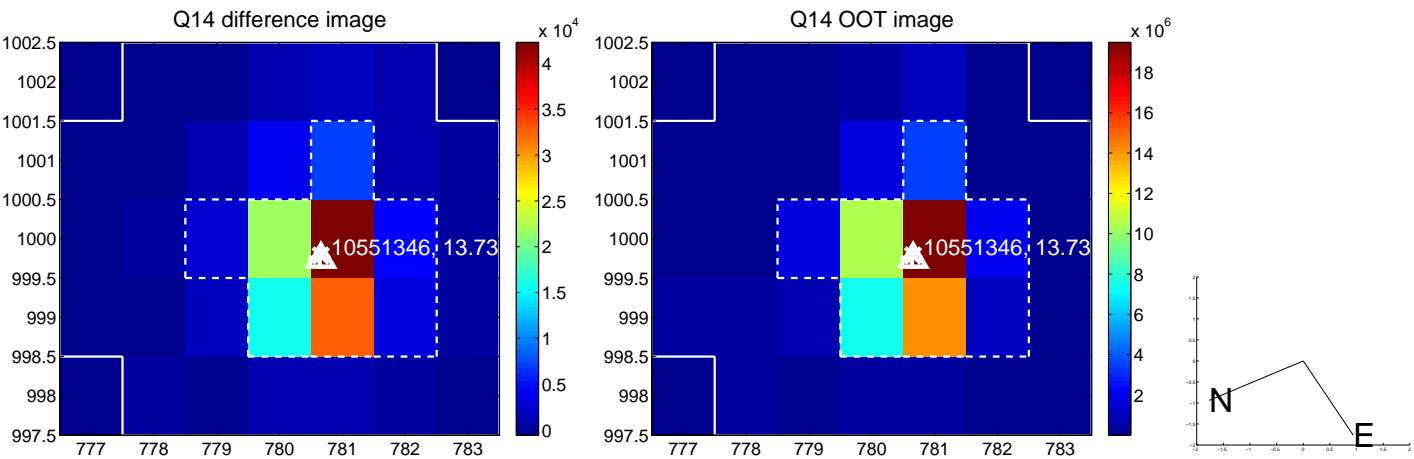
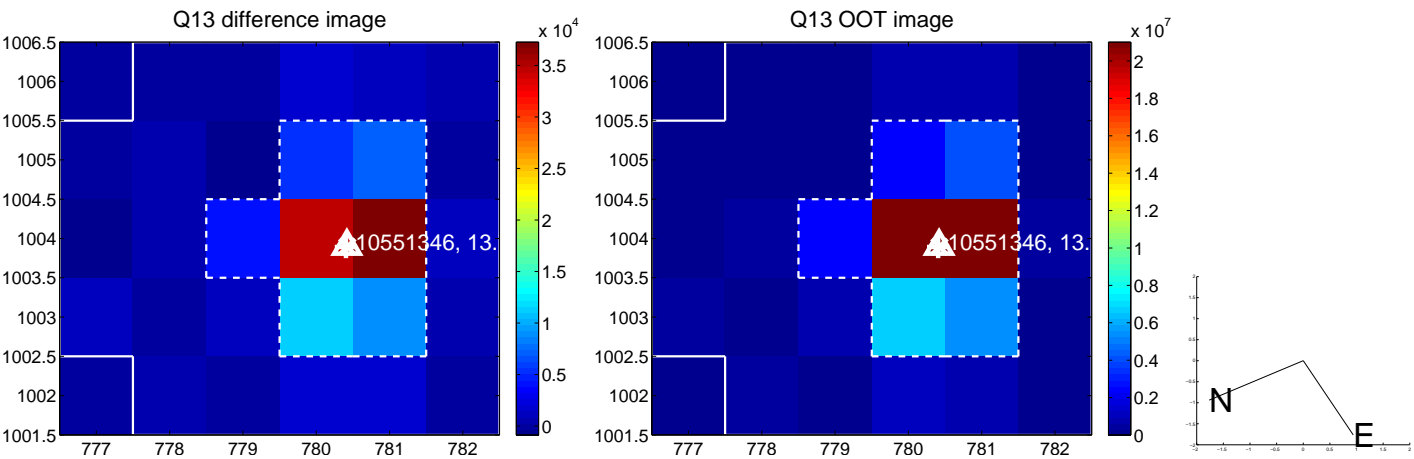
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



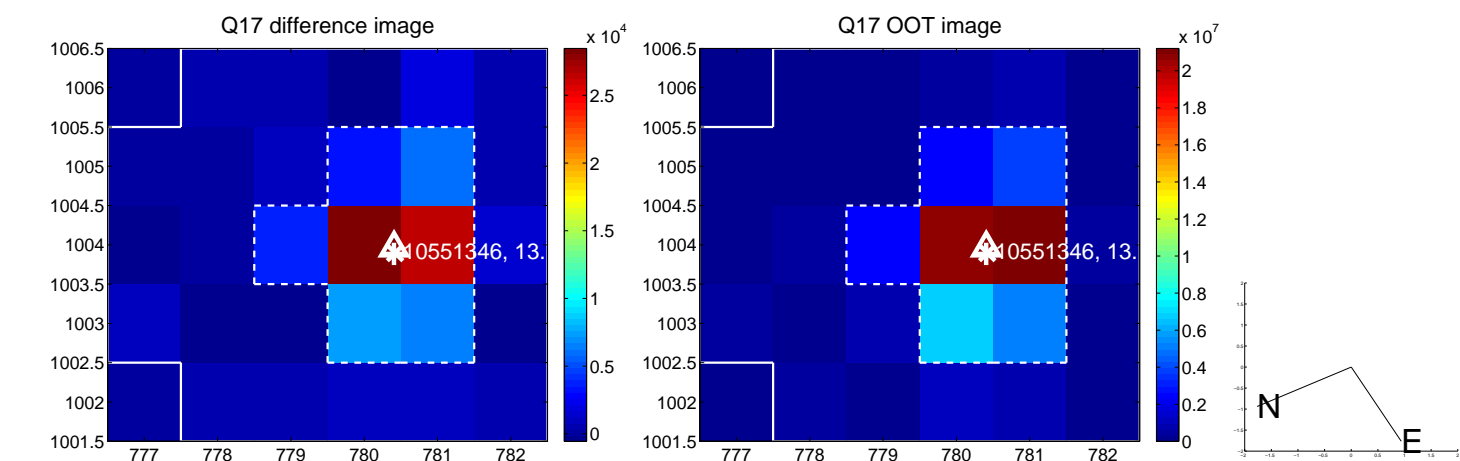
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



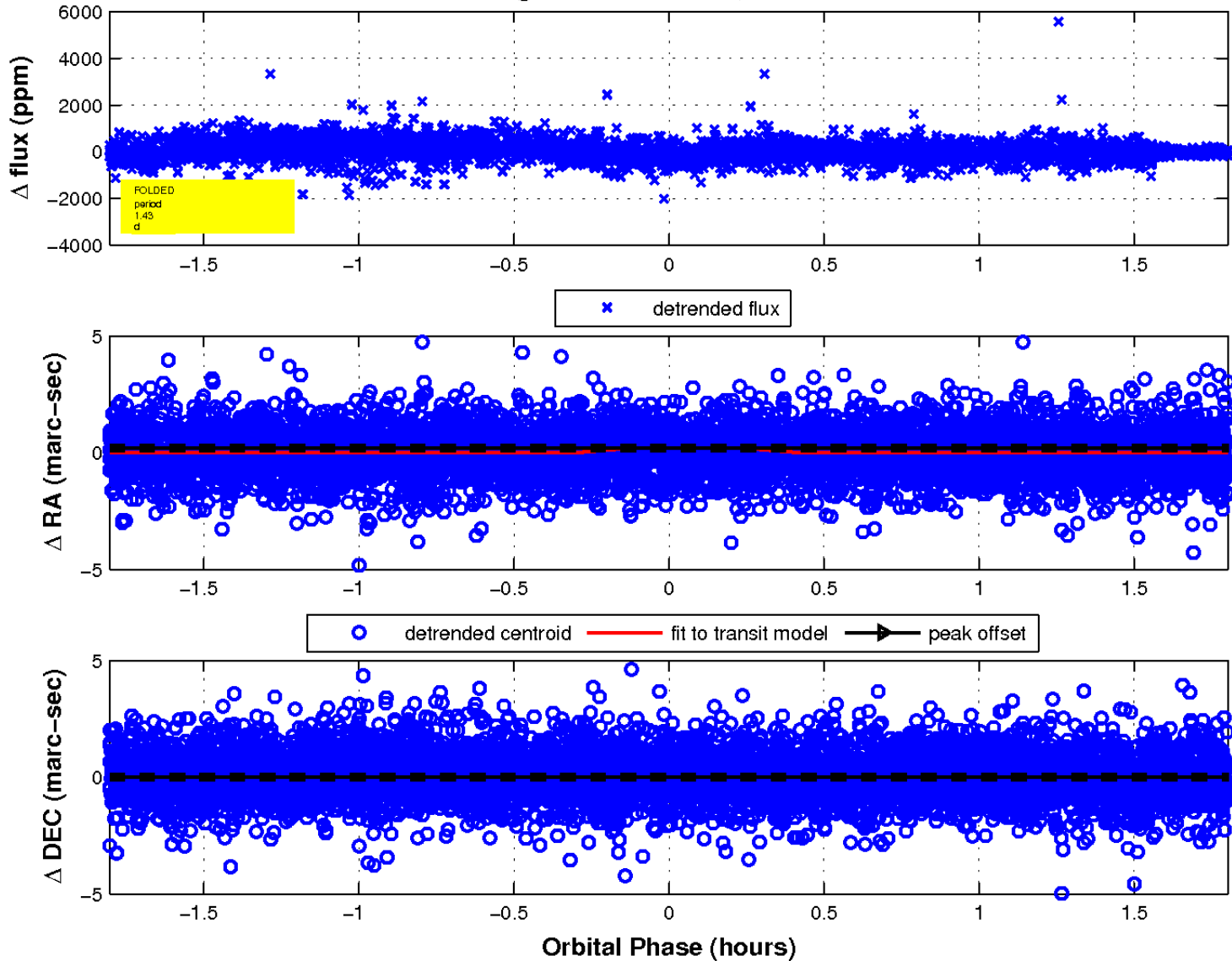
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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



fluxWeightedCentroids, Planet 2 of 2



UKIRT Image

Declination

