

KIC 002307199

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})
002307199-01	OBS	0151.01	13.447160	132.831071	1457.0	3.125	101.0	102.8	1.04	6276	5.46	122.58
002307199-02	OBS	No	13.446448	133.183648	123.0	39.342	14.1	15.5	1.04	6276	2.03	122.59

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
002307199-01	OBS	PC	0.75	0	0	0	0	NO_COMMENT
002307199-02	OBS	FP	0.00	1	0	0	0	LPP_DV—RESIDUAL_TCE

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

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

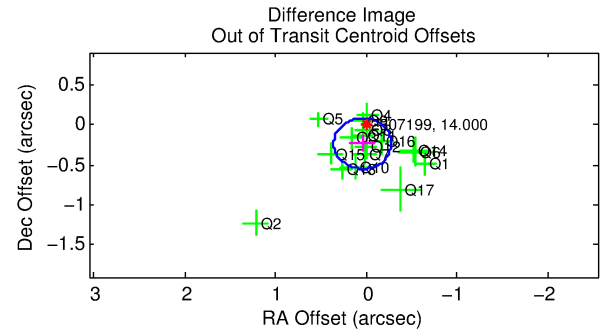
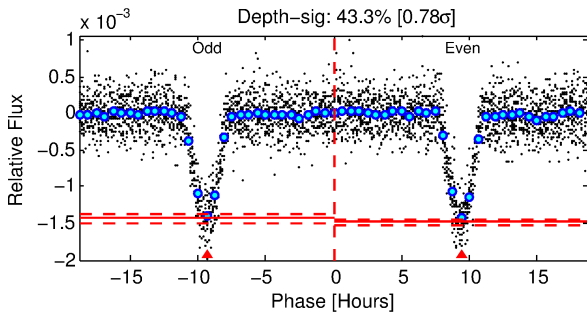
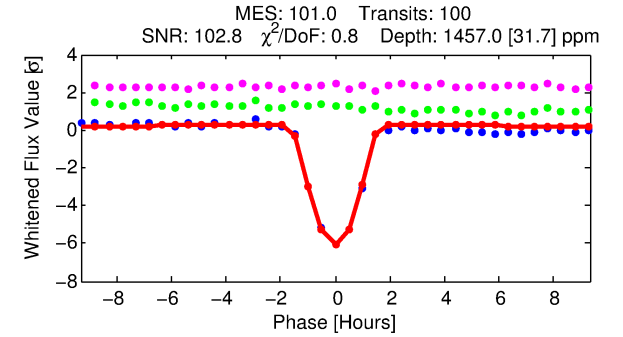
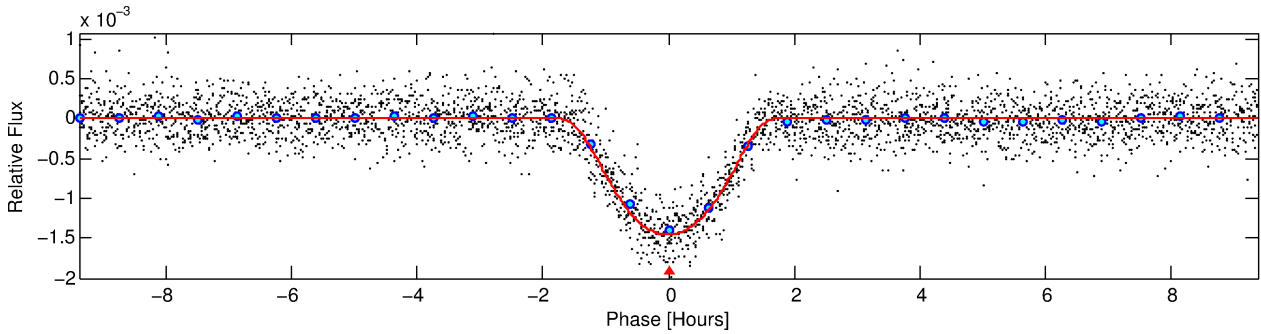
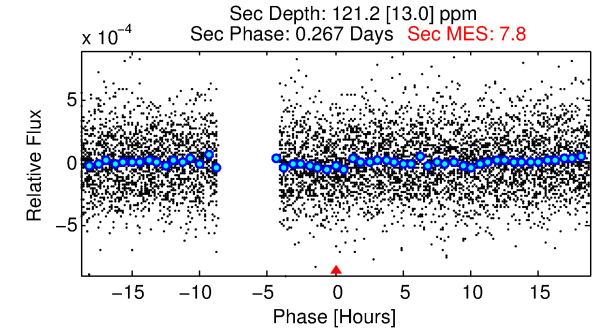
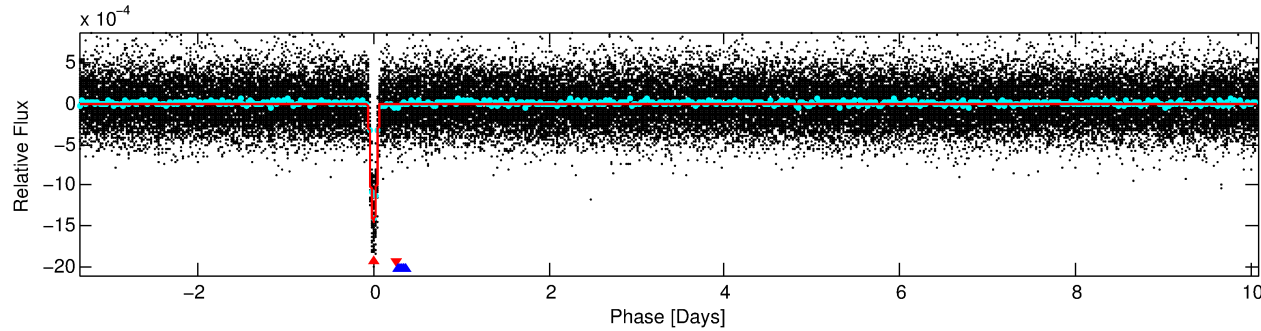
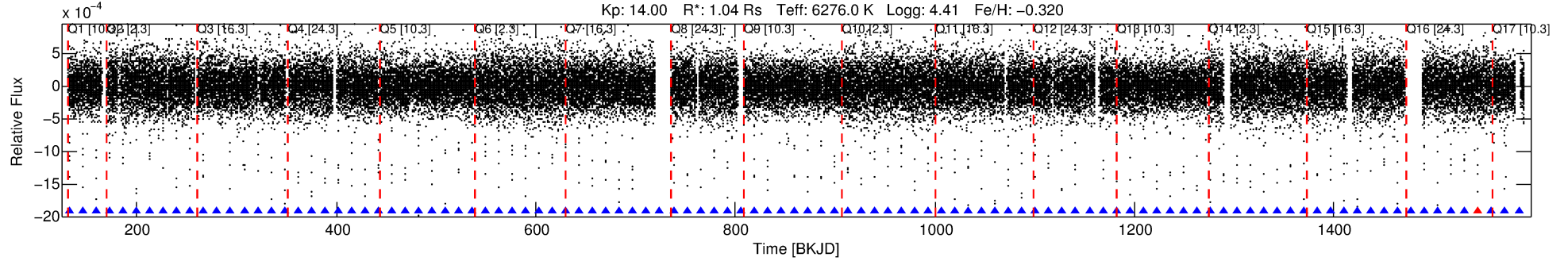
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 002307199-01

No Significant Match Found

DV One-Page Summary

KIC: 2307199 Candidate: 1 of 2 Period: 13.447 d
KOI: K00151.01 Corr: 0.983



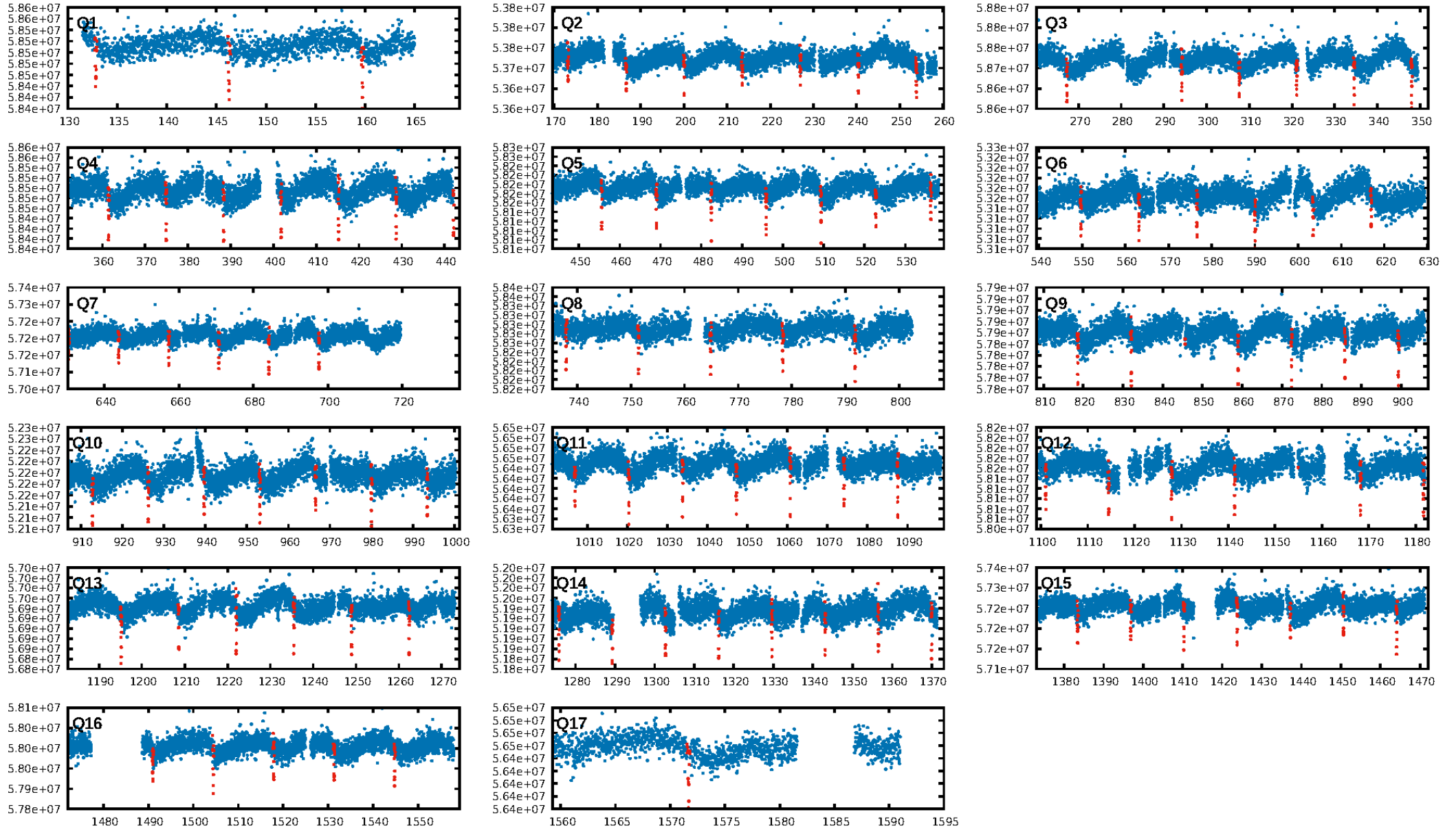
DV Fit Results:

Period = 13.44716 [0.00001] d
Epoch = 132.8311 [0.0007] BKJD
Rp/R* = 0.0481 [0.0041]
a/R* = 13.22 [0.60]
b = 0.97 [0.01]
Seff = 122.58 [48.71]
Teq = 848 [84] K
Rp = 5.46 [1.77] Re
a = 0.1109 [0.0289] AU
Ag = 27.47 [11.69] [2.26σ]
Teff = 3003 [180] K [10.83σ]

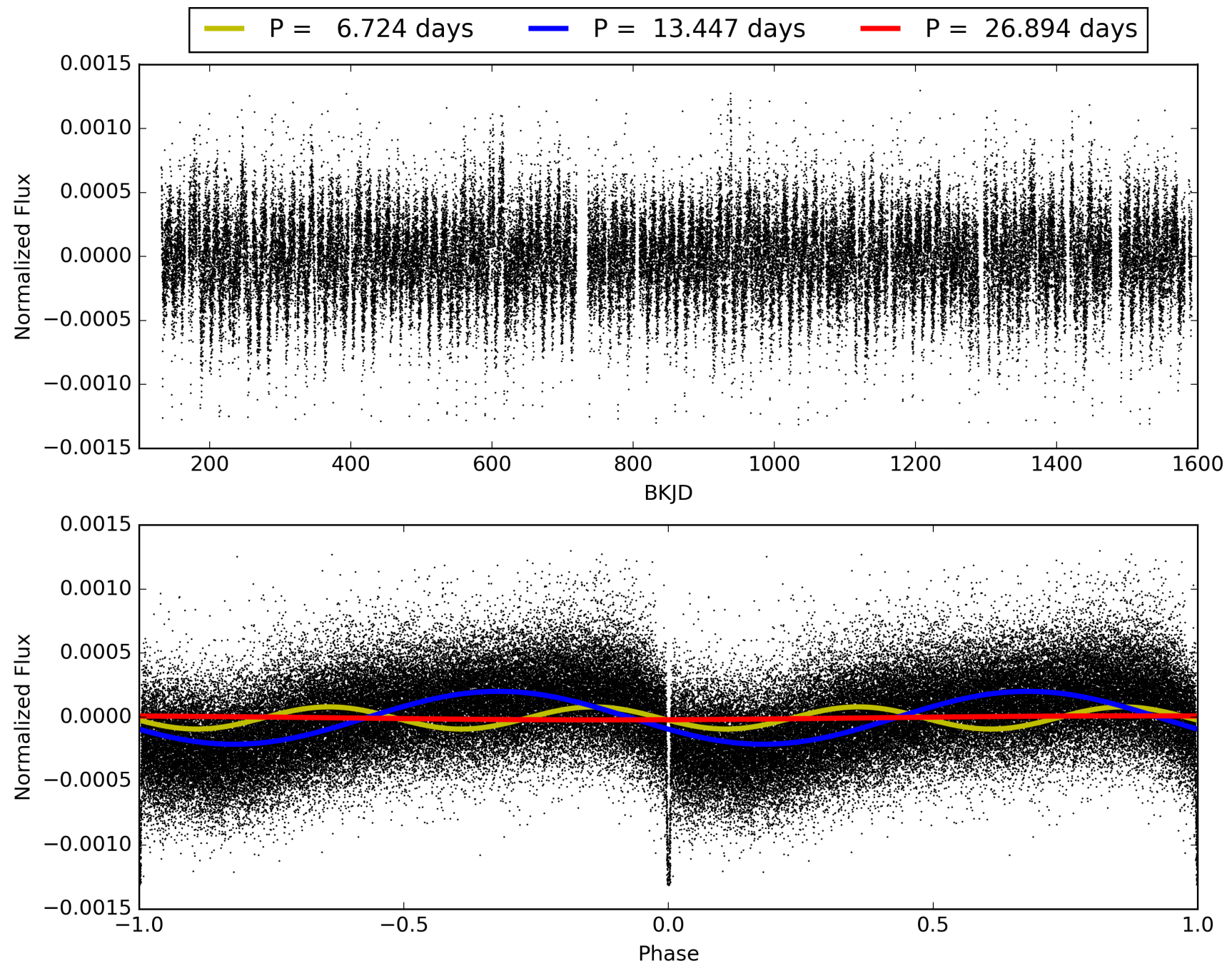
DV Diagnostic Results:

ShortPeriod-sig: 0.0% [0.00σ]
LongPeriod-sig: N/A
ModelChiSquare2-sig: 93.7%
ModelChiSquareGof-sig: 100.0%
Bootstrap-pfa: 0.00e+00
RollingBand-fgt: 0.99 [95/96]
GhostDiagnostic-chr: 6.064
Centroid-sig: 0.6%
Centroid-so: 0.742 arcsec [5.21σ]
OotOffset-rm: 0.239 arcsec [2.27σ]
OotOffset-st: 4/4/4/5 [17]
KicOffset-rm: 0.150 arcsec [1.30σ]
KicOffset-st: 4/4/4/5 [17]
DiffImageQuality-fgm: 1.00 [17/17]
DiffImageOverlap-fno: 0.00 [0/17]

TCE 002307199-01, PDC Light Curves

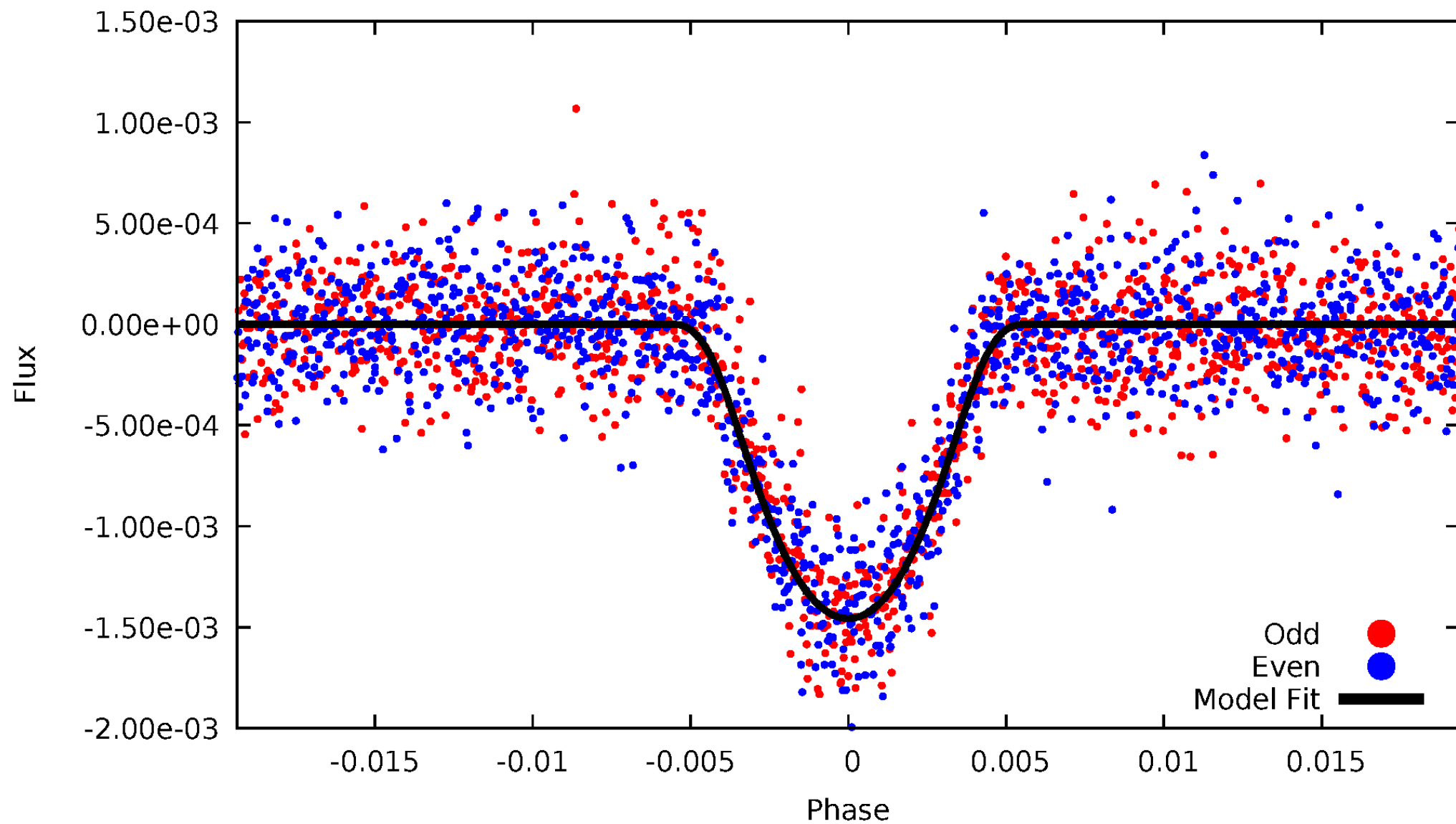


TCE 002307199-01



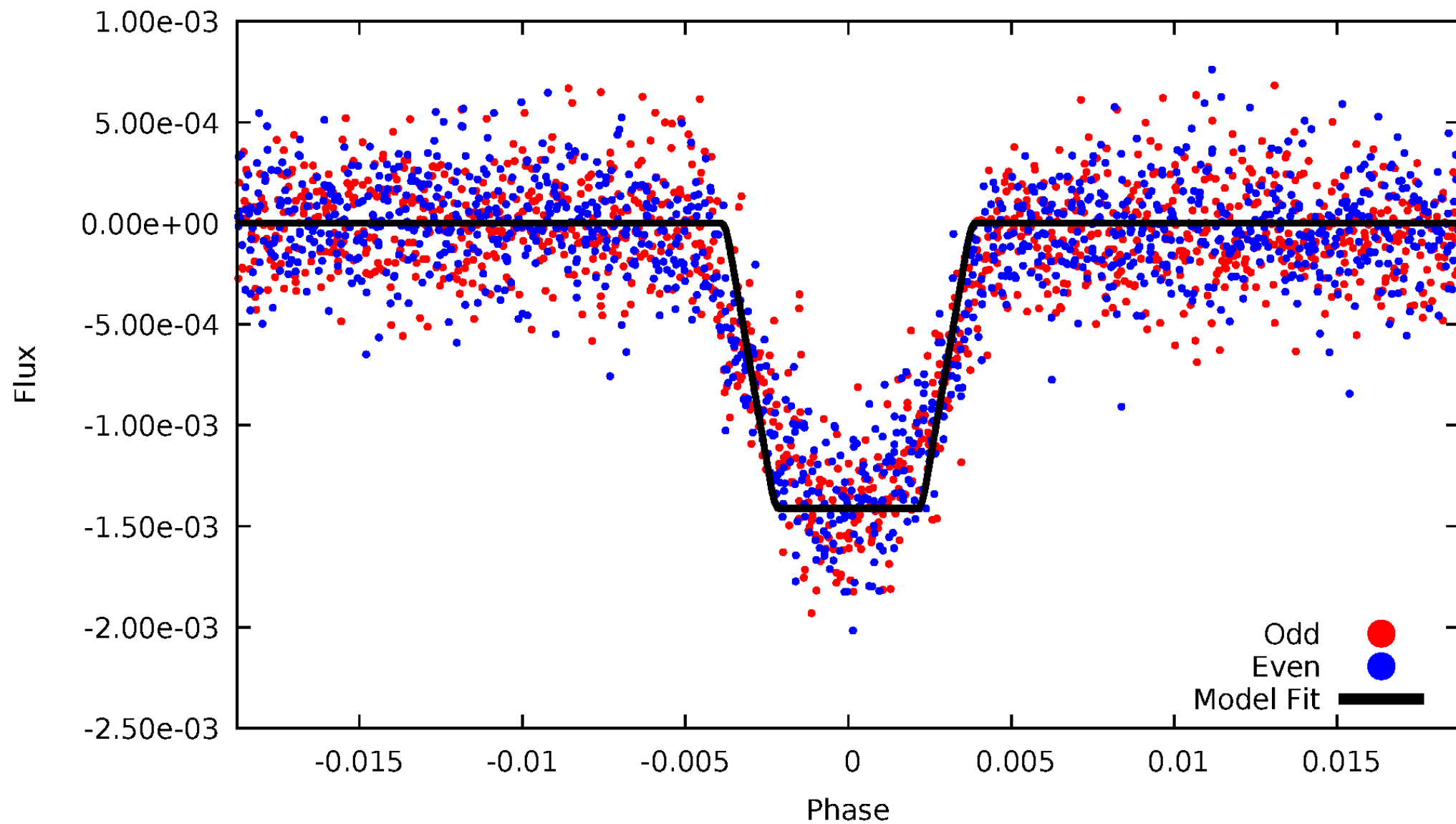
DV Odd/Even

TCE 002307199-01

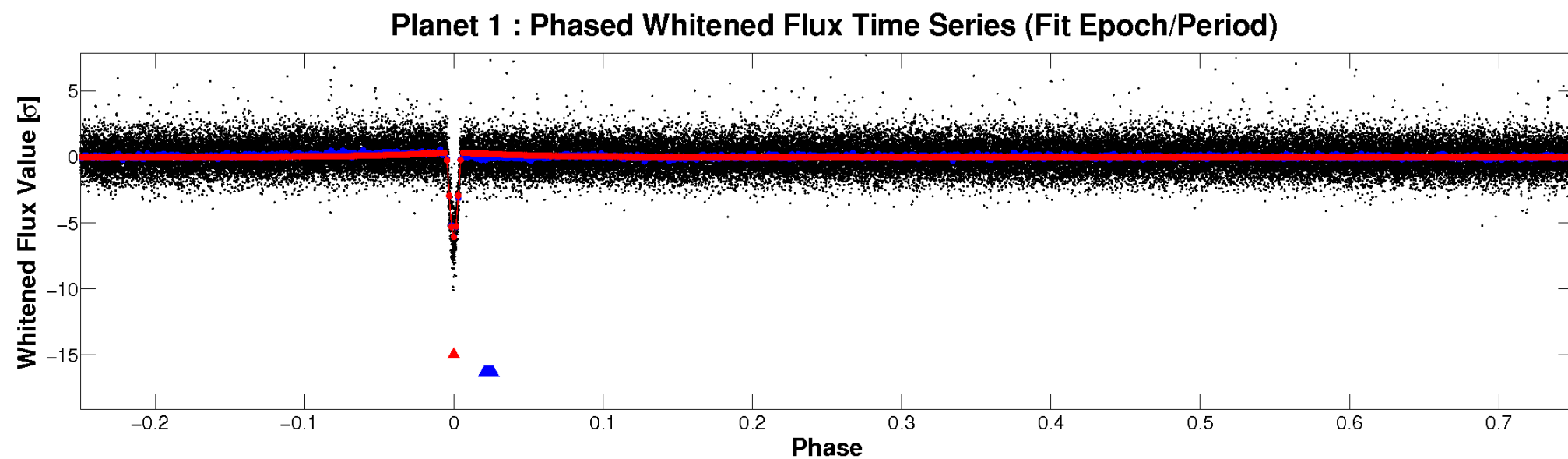
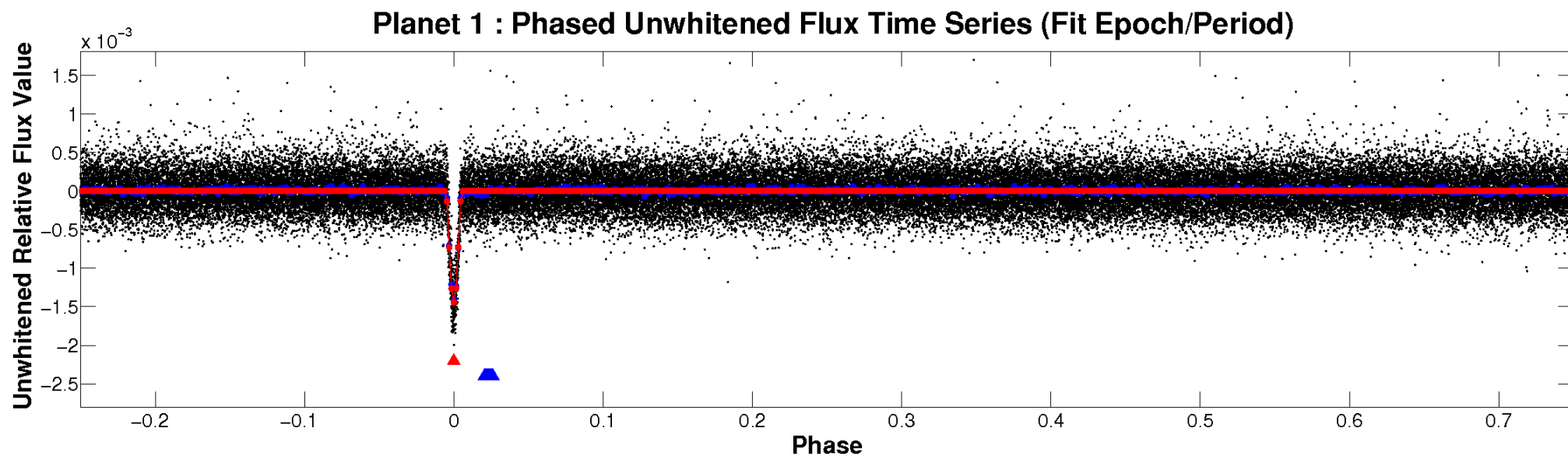


ALT Odd/Even

TCE 002307199-01

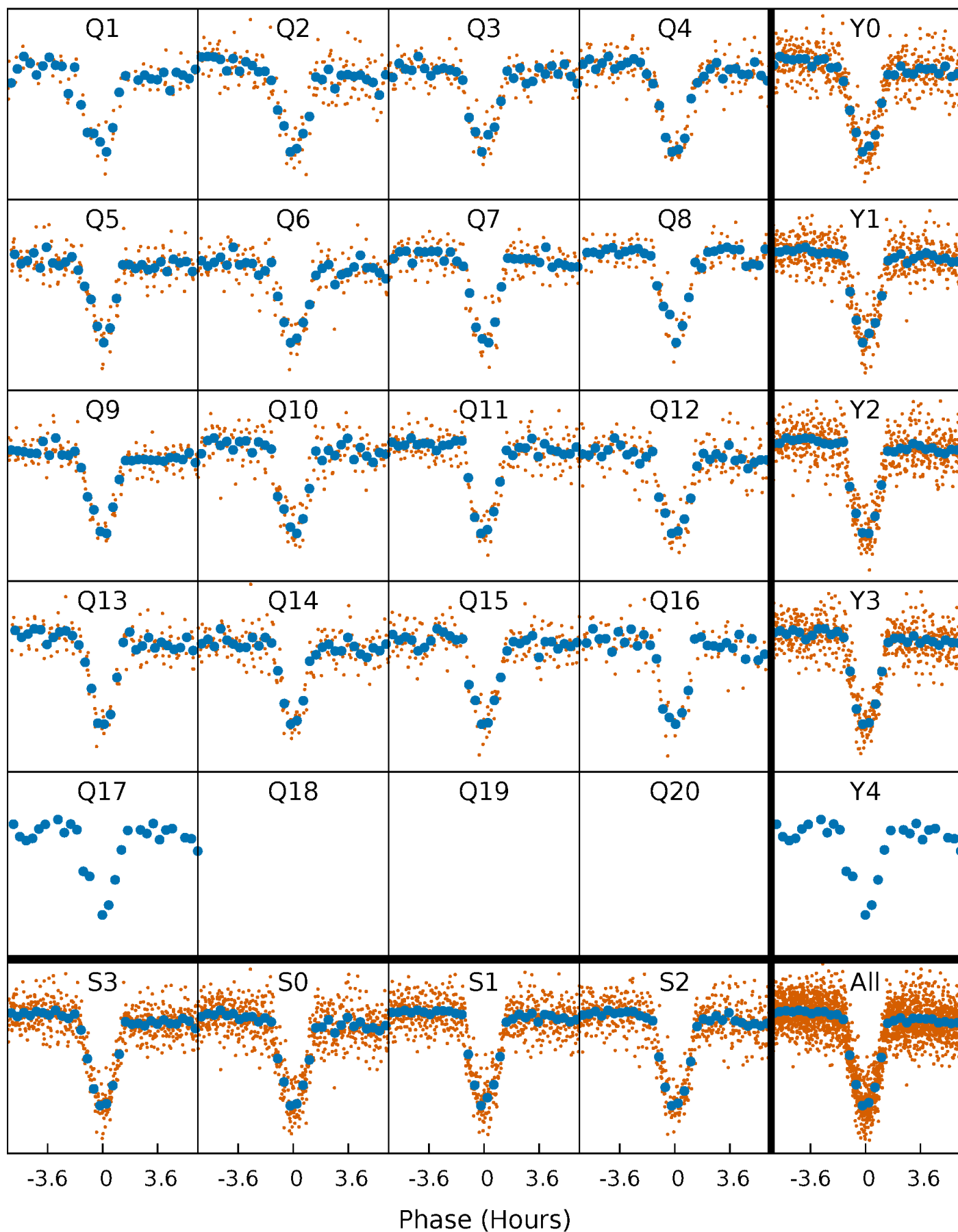


Non-Whitened Vs. Whitened Light Curve



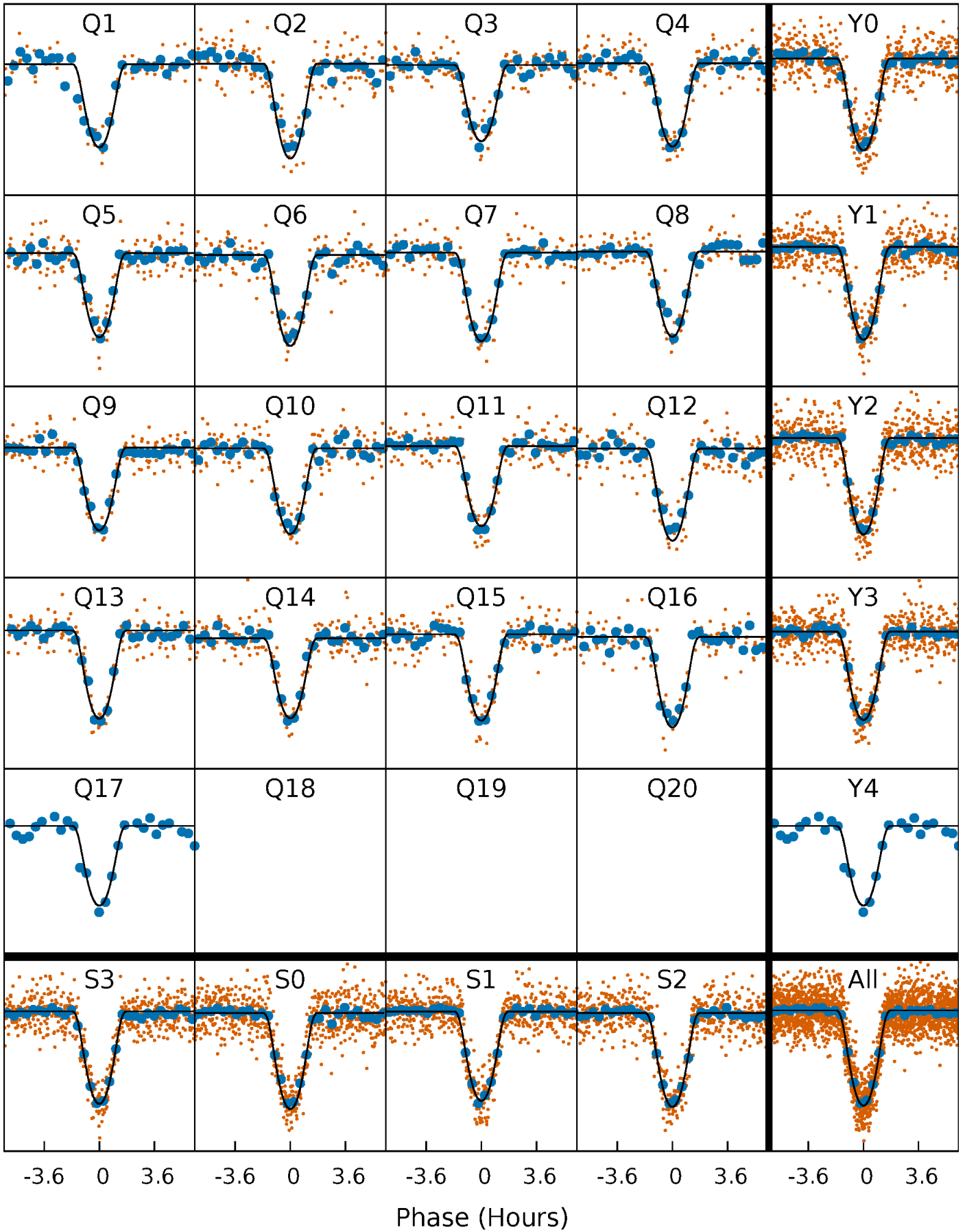
PDC Quarter-Phased Transit Curves

TCE 002307199-01 P= 13.447160 Days $T_0=132.831071$ (BKJD)



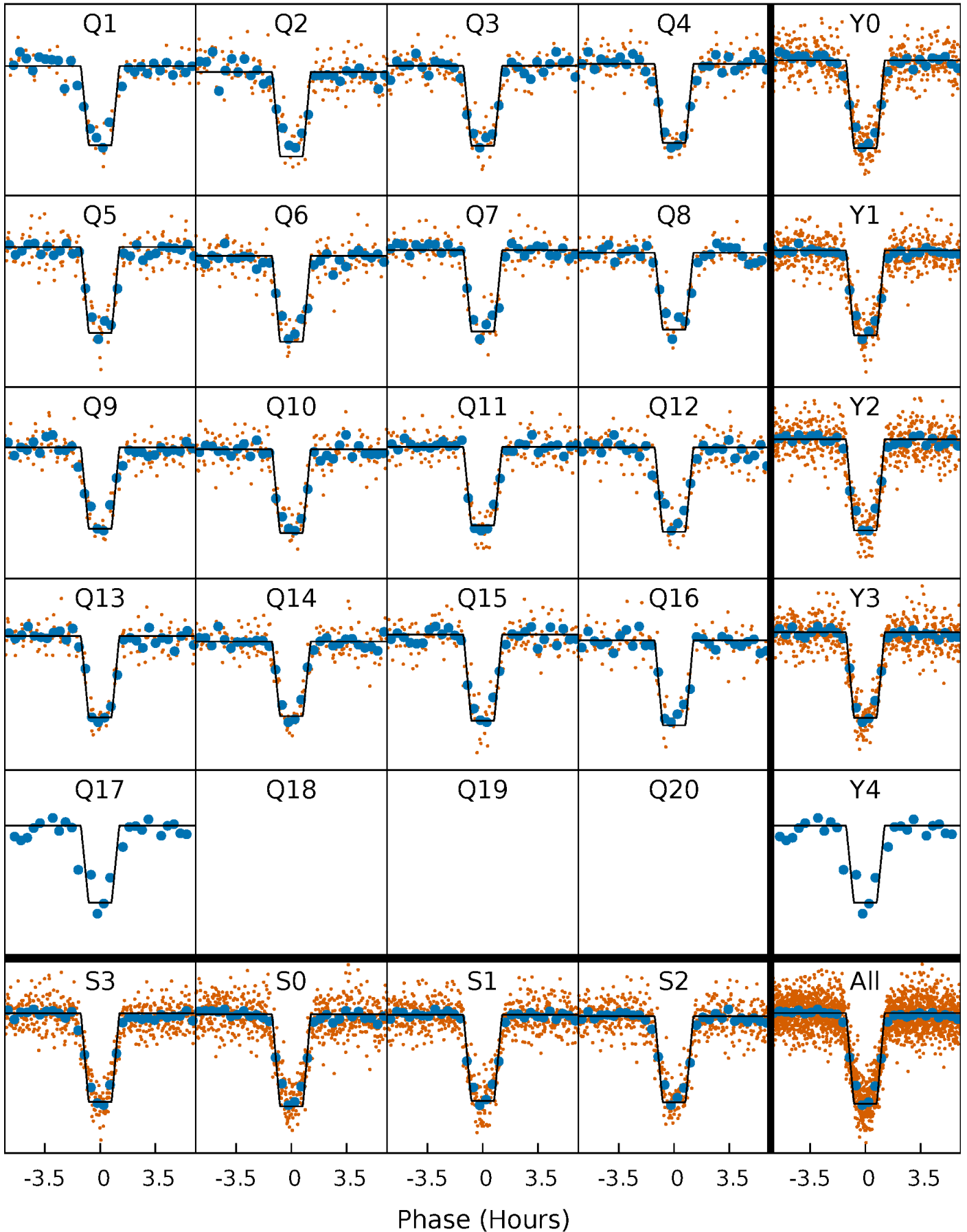
DV Quarter-Phased Transit Curves

TCE 002307199-01 P= 13.447160 Days $T_0=132.831071$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

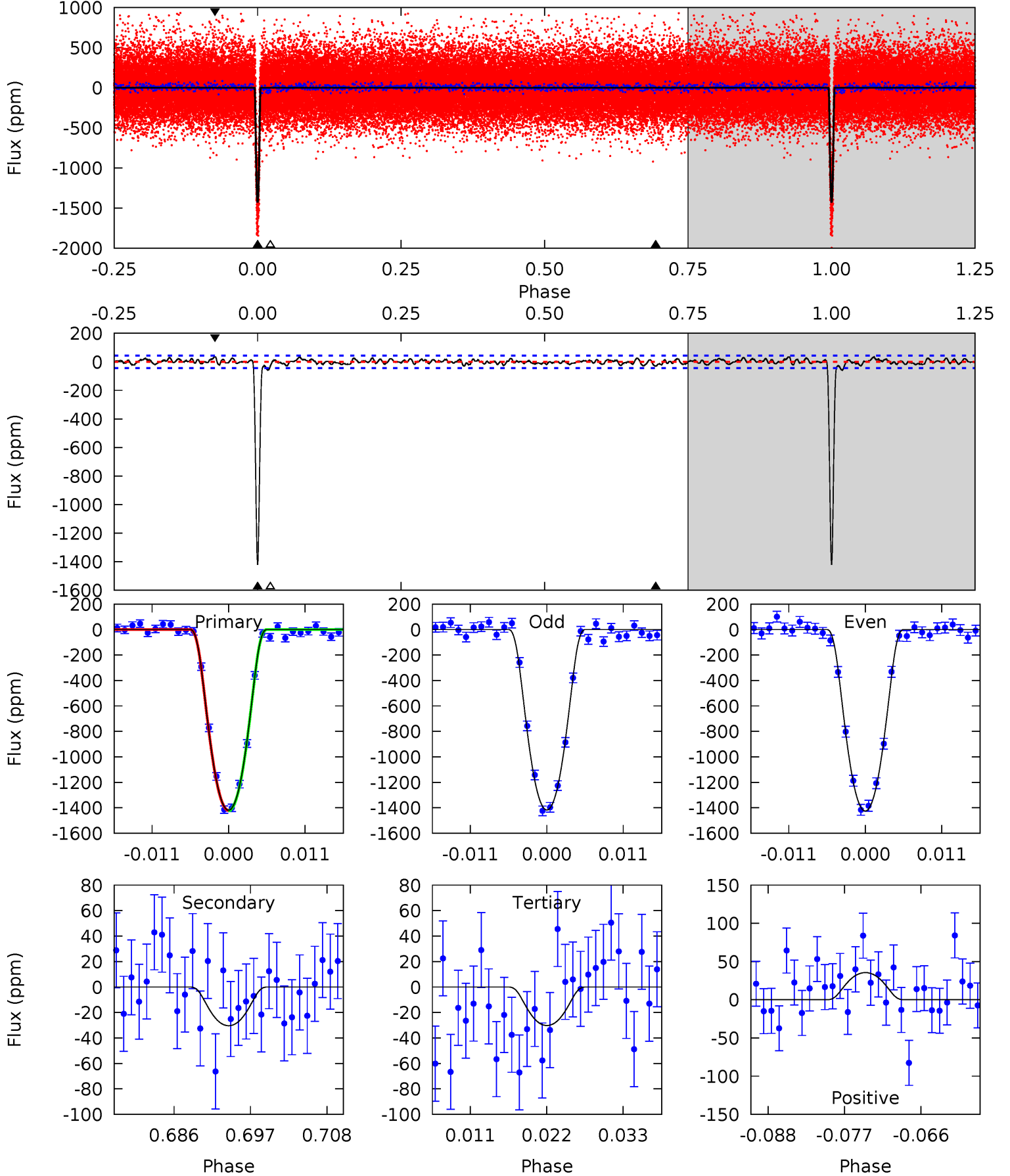
TCE 002307199-01 $P = 13.447195$ Days $T_0 = 132.829657$ (BKJD)



DV Model-Shift Uniqueness Test

002307199-01, P = 13.447160 Days, E = 119.383911 Days

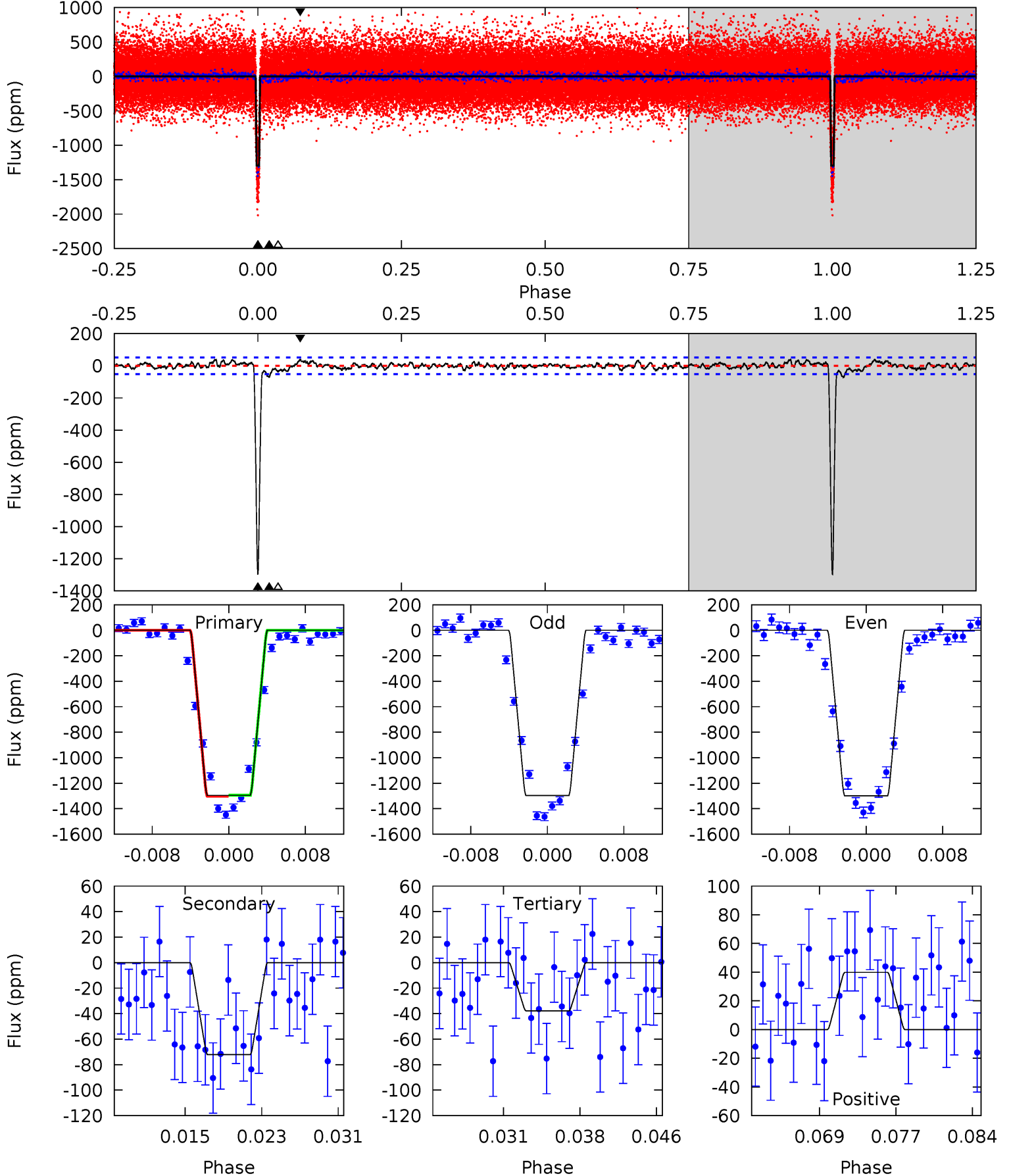
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
164.5	3.52	3.50	4.12	5.01	2.54	1.49	161.0	160.4	0.02	-0.59	0.51	1.00	0.02	0.11



Alt Model-Shift Uniqueness Test

002307199-01, P = 13.447195 Days, E = 119.382462 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
126.3	7.03	3.69	3.88	5.08	2.67	1.31	122.6	122.4	3.34	3.14	0.13	1.00	0.03	0.42



Stellar Parameters For KIC 002307199

	$T_{\text{eff}} (K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R (R_{\odot})$	$M (M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	6276^{+169}_{-206}	$4.405^{+0.087}_{-0.203}$	$-0.320^{+0.300}_{-0.300}$	$1.041^{+0.326}_{-0.140}$	$1.001^{+0.158}_{-0.115}$	$1.249^{+0.473}_{-0.663}$
	+3%/-3%	+2%/-5%	+94%/-94%	+31%/-13%	+16%/-11%	+38%/-53%
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 002307199-01 / KOI 0151.01

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-30 ± 9	$5.62^{+1.00}_{-0.68}$	1202^{+85}_{-61}	2830^{+143}_{-144}	$6.276^{+2.929}_{-2.238}$
Alt.	-72 ± 10	$4.44^{+0.81}_{-0.68}$	1204^{+90}_{-62}	3460^{+184}_{-146}	24^{+10}_{-7}

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

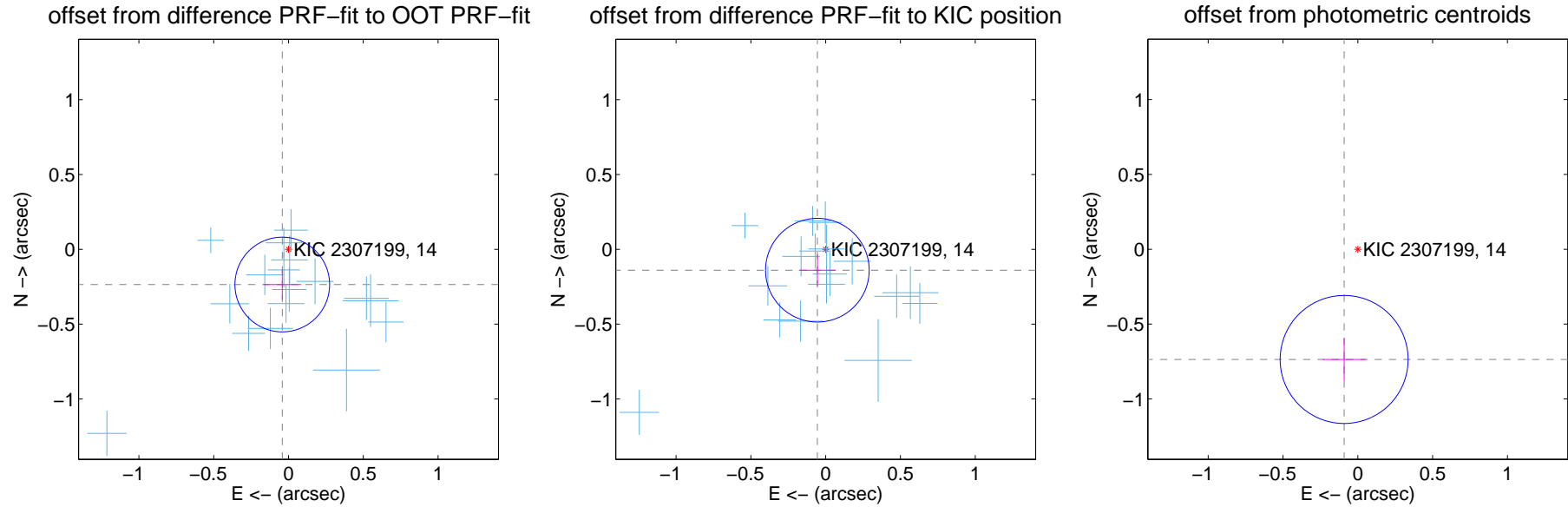
DV Centroid Data

Supplemental centroid analysis for 002307199-01. Kepler magnitude: 14.00. Transit SNR 102.80

There are 17 quarters with good PRF difference image offsets

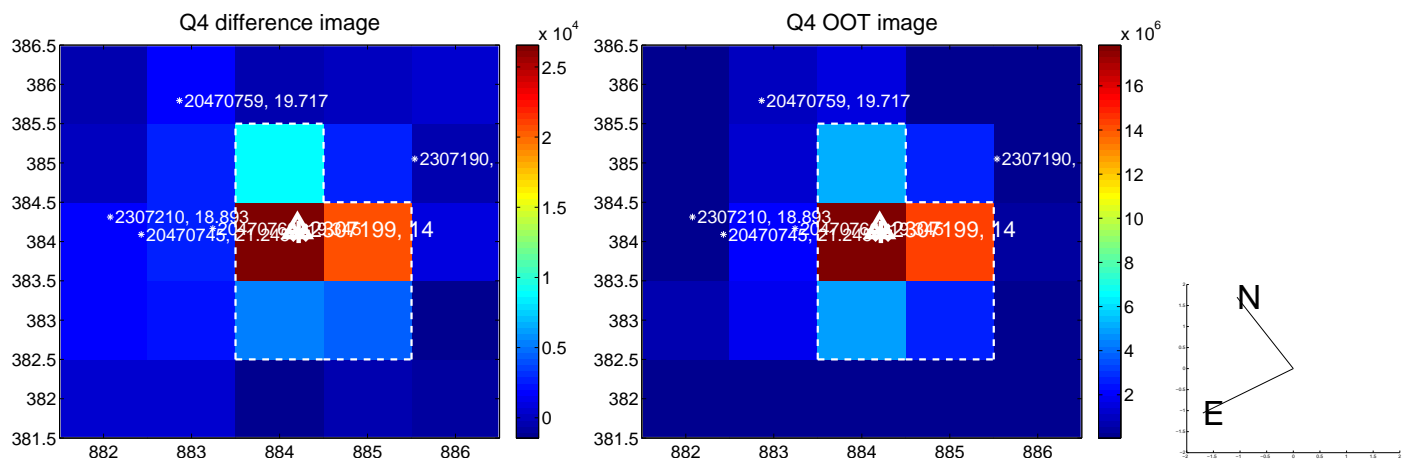
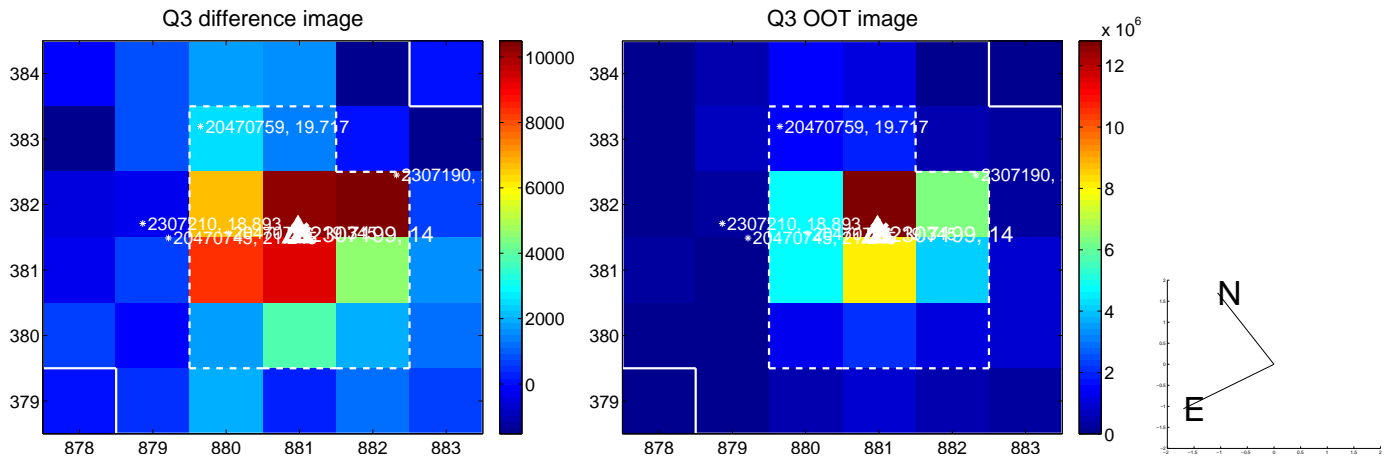
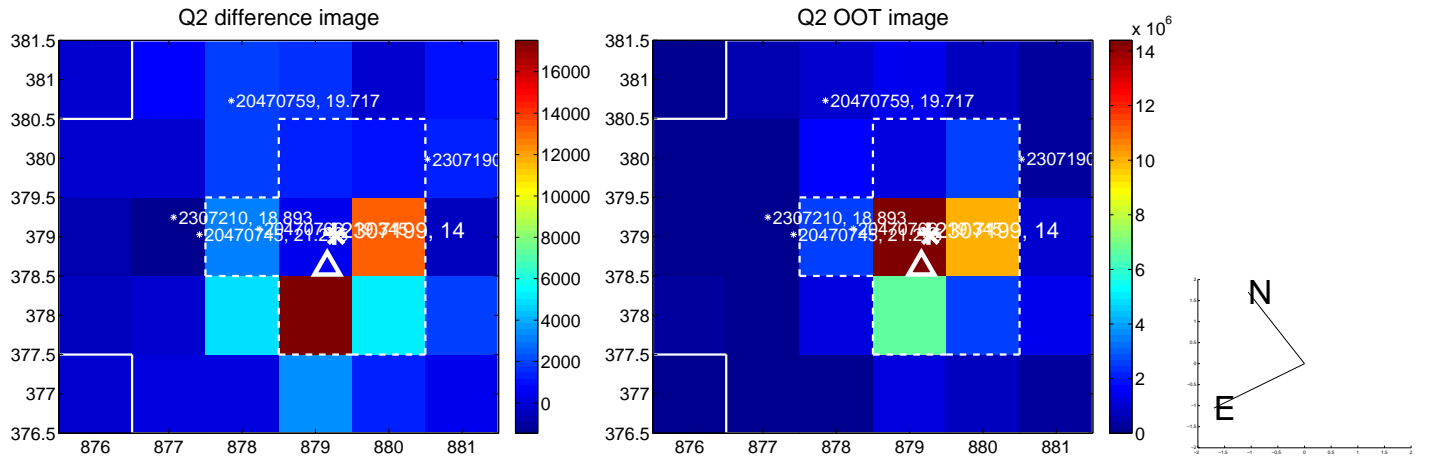
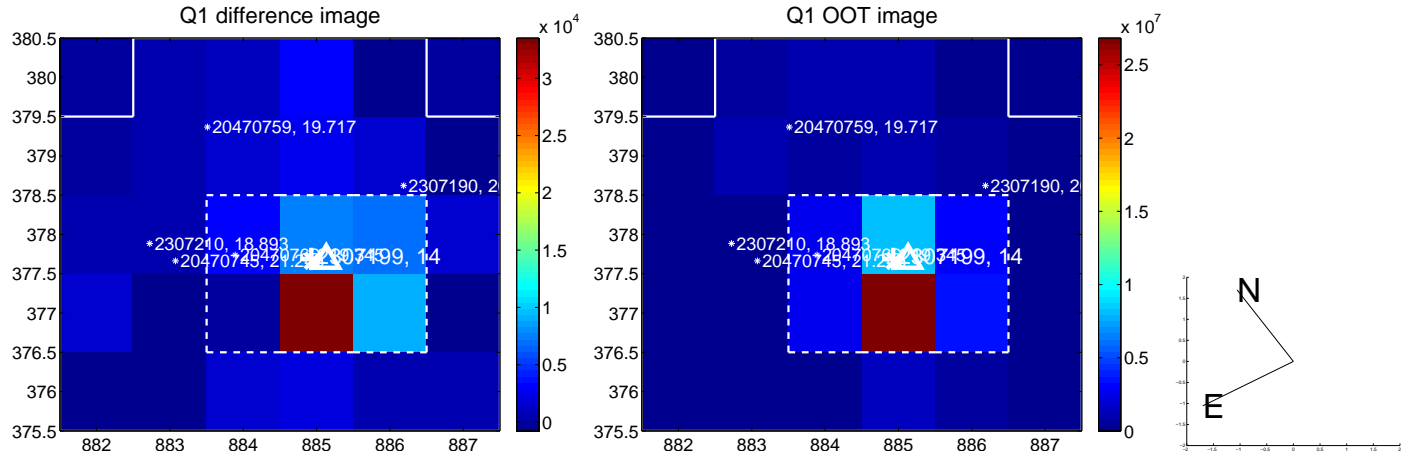
The direct PRF centroid is offset from the target star catalog position by about 0.07 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.239 ± 0.105	2.27	0.042 ± 0.126	-0.235 ± 0.101
PRF-fit source offset from KIC position	0.150 ± 0.115	1.30	0.055 ± 0.123	-0.140 ± 0.105
photometric centroid source offset	0.74 ± 0.14	5.21	0.09 ± 0.14	-0.74 ± 0.14

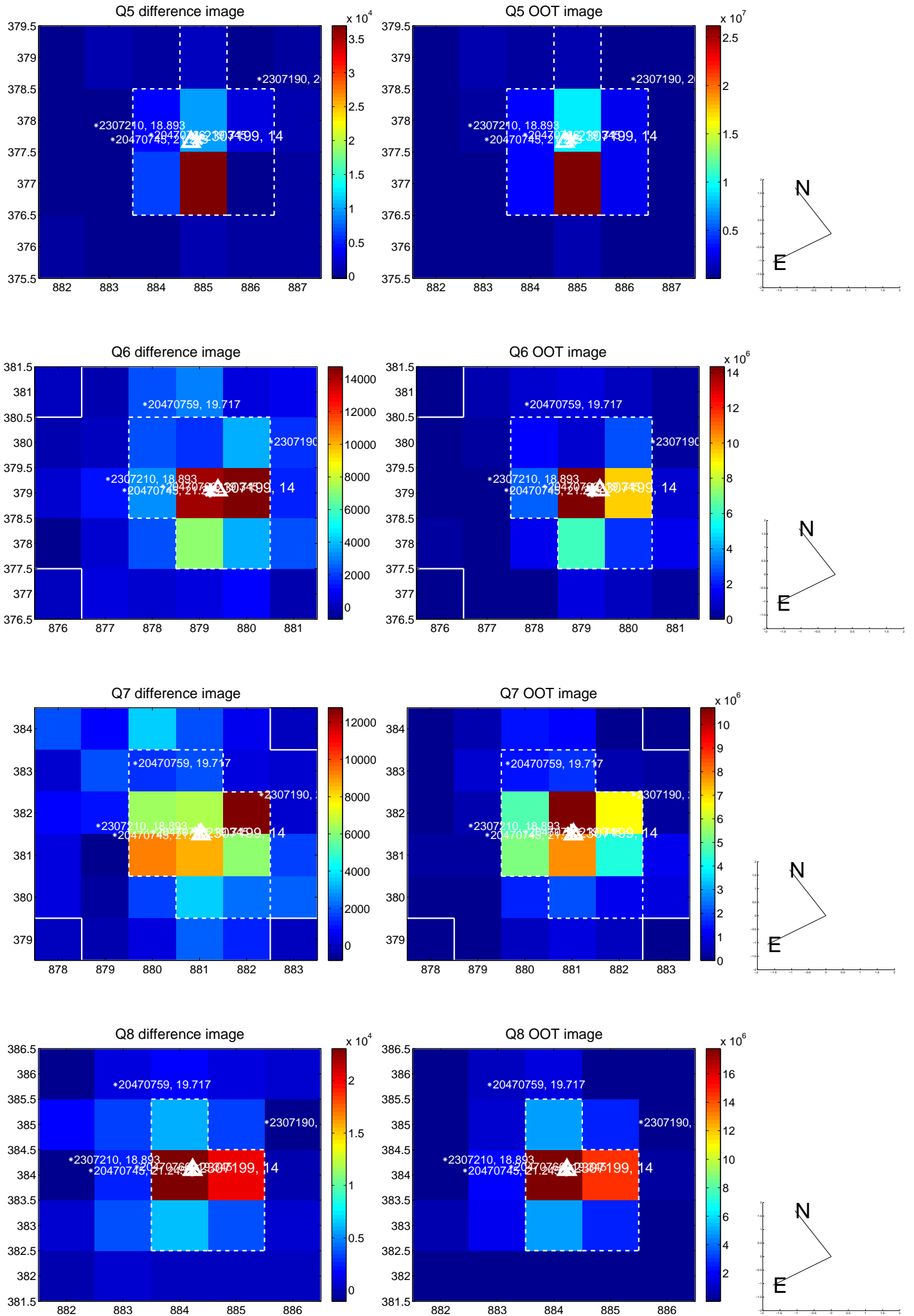


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ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

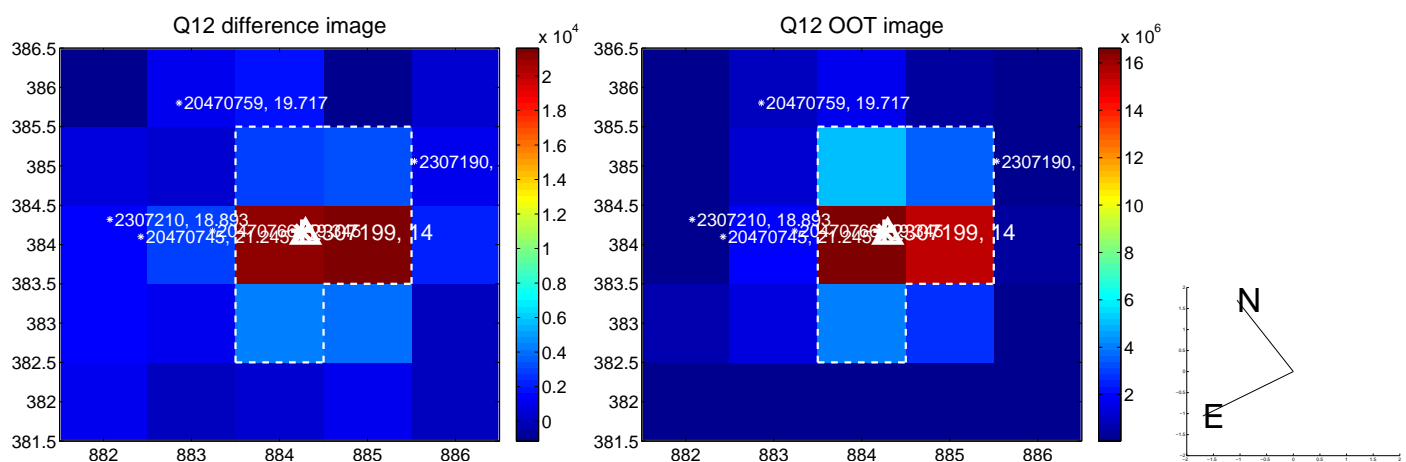
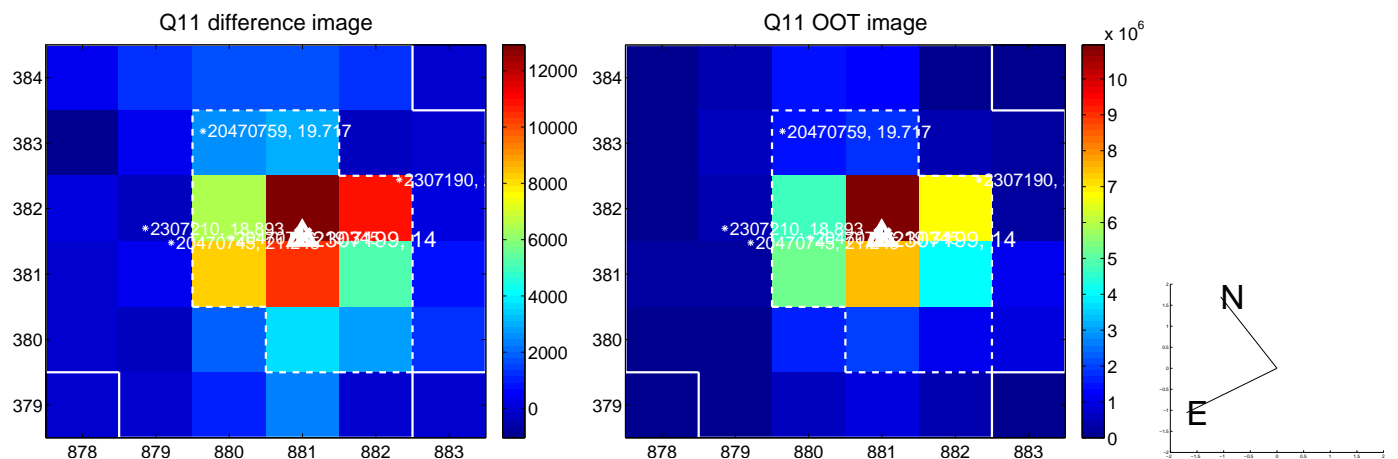
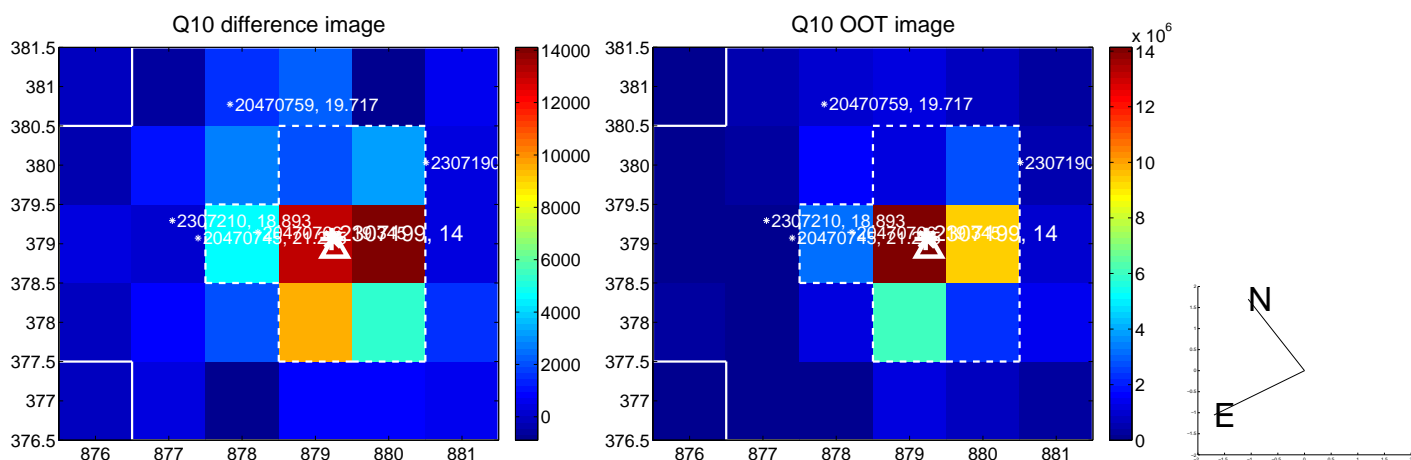
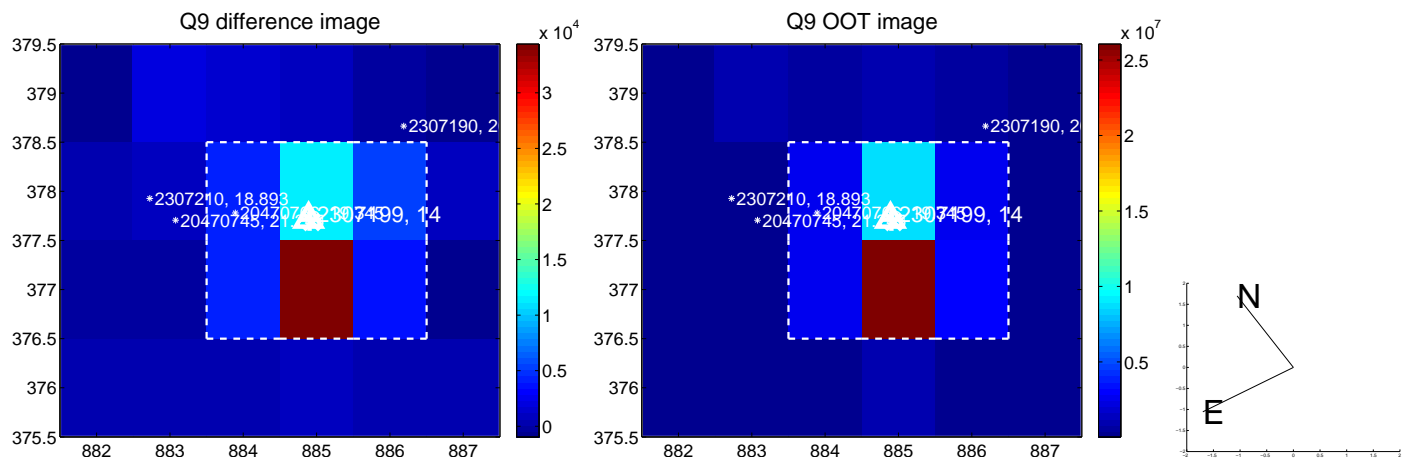
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



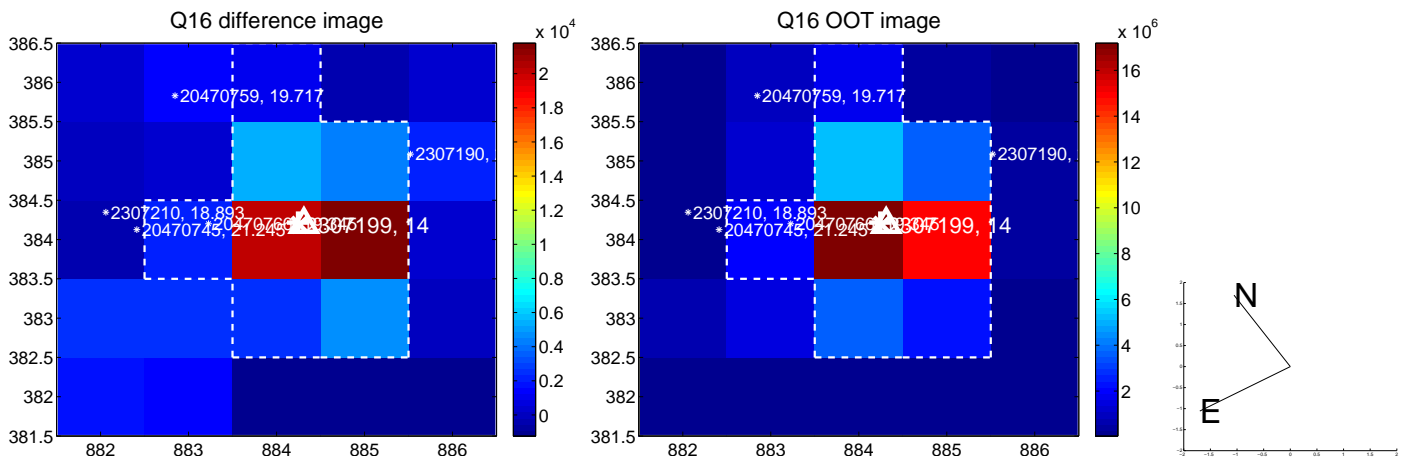
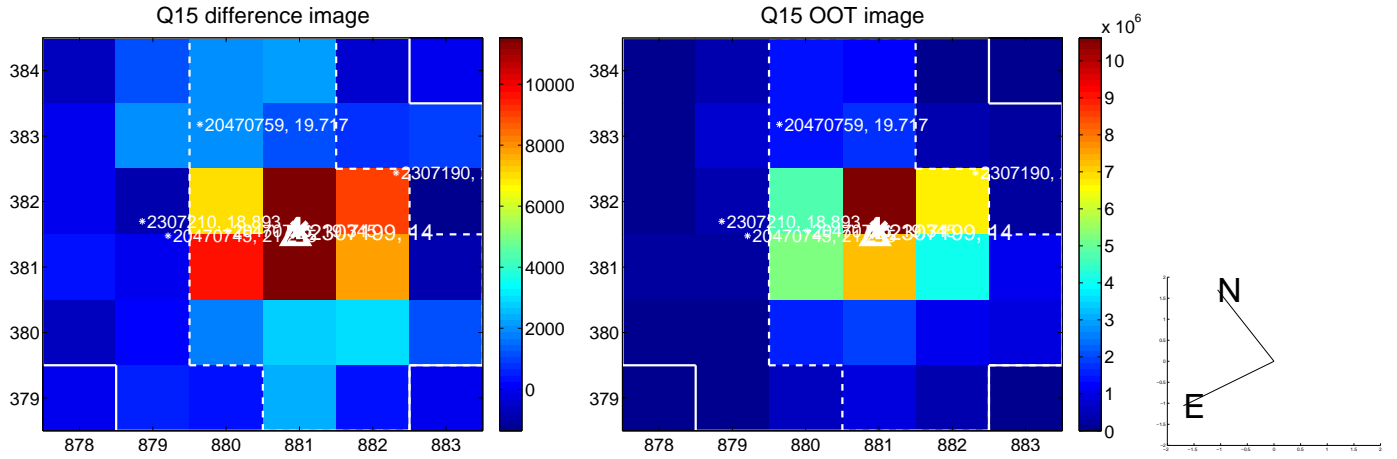
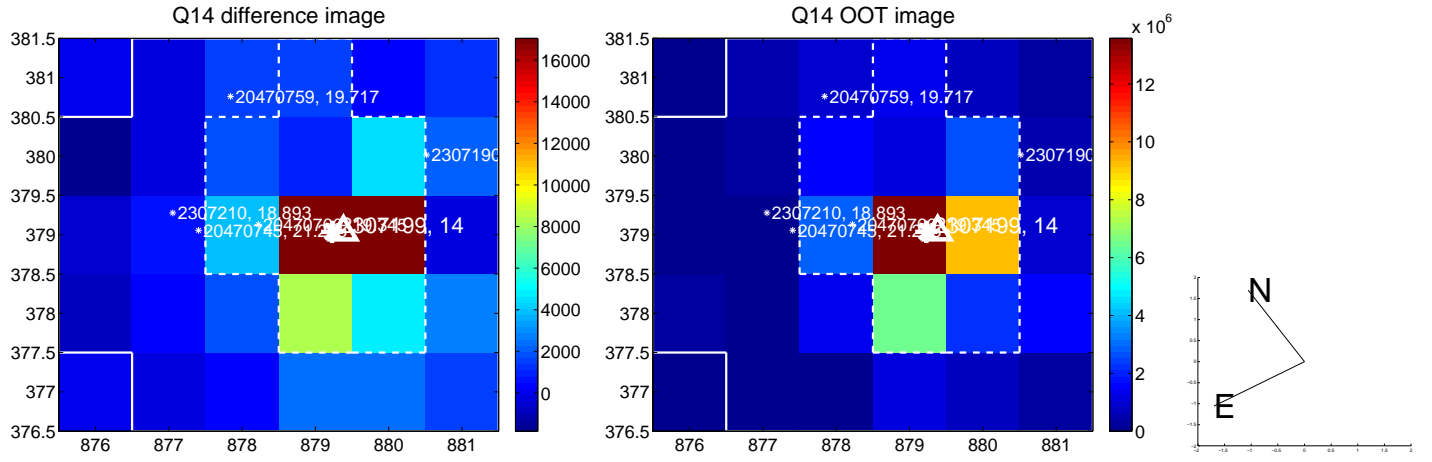
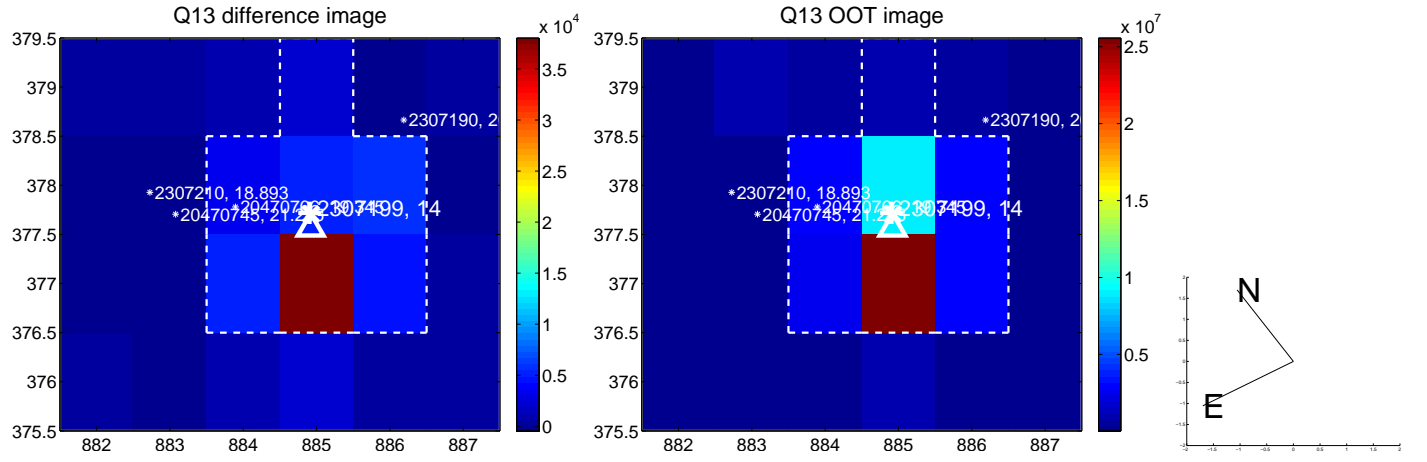
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



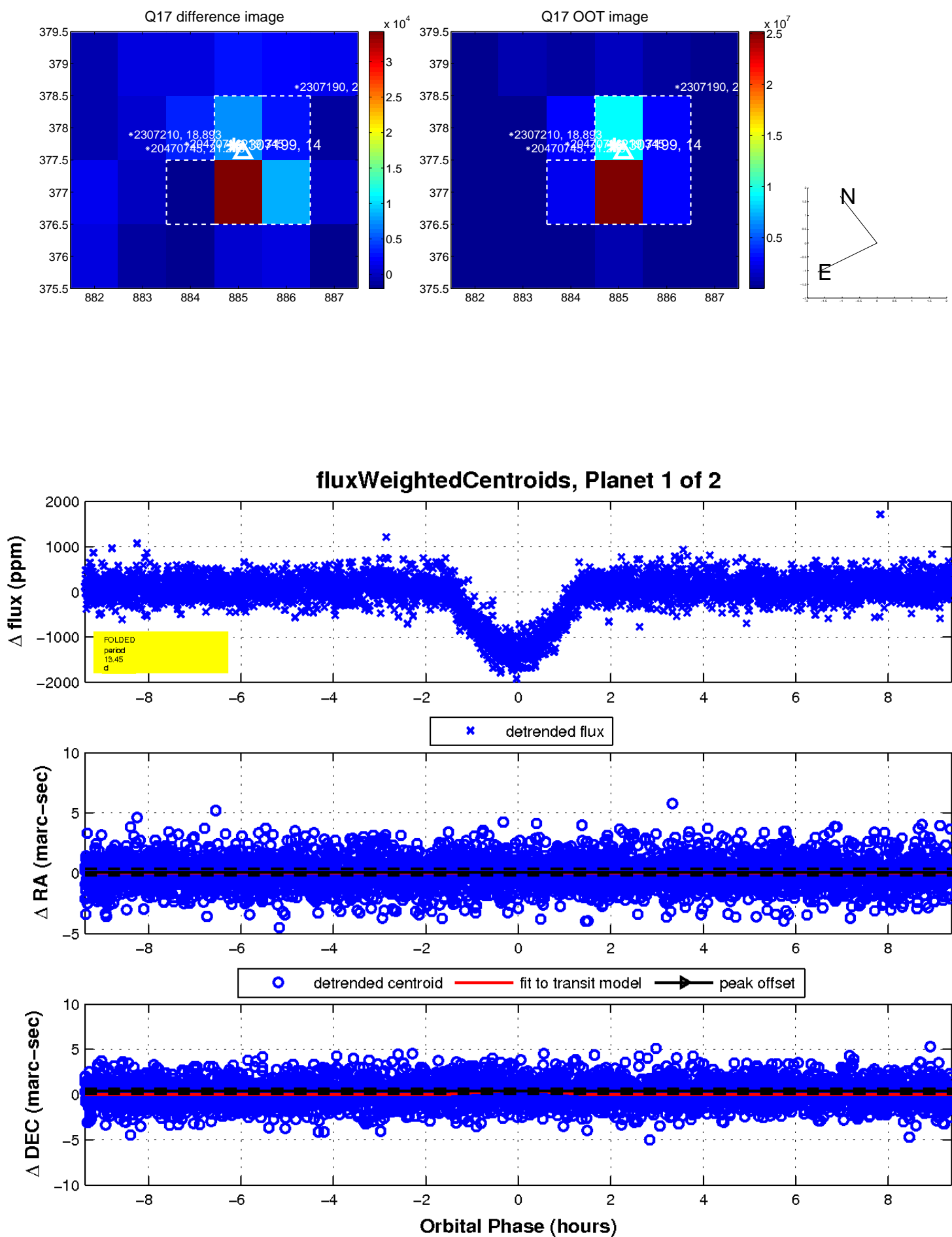
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

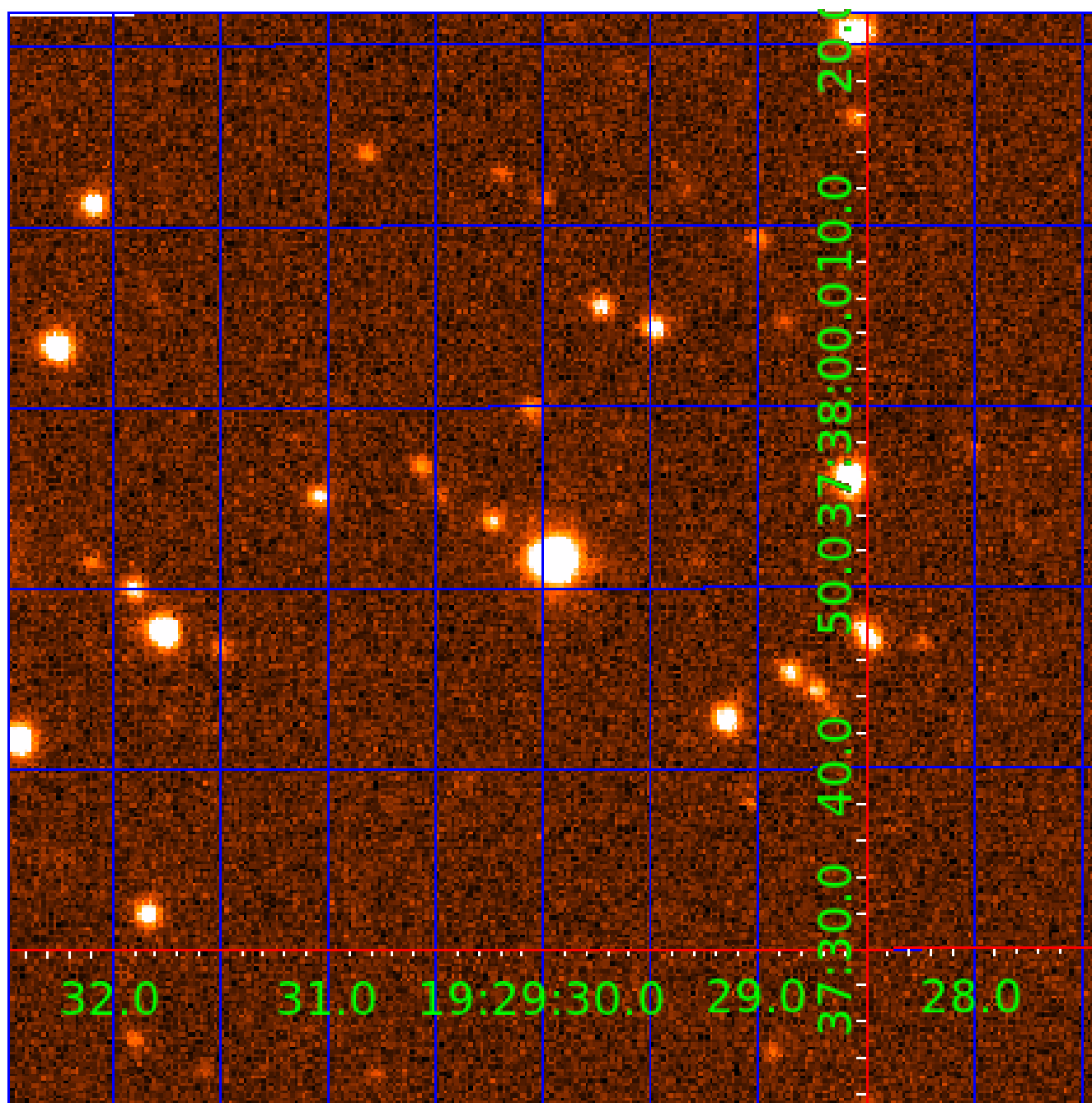


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 002307199

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})
002307199-01	OBS	0151.01	13.447160	132.831071	1457.0	3.125	101.0	102.8	1.04	6276	5.46	122.58
002307199-02	OBS	No	13.446448	133.183648	123.0	39.342	14.1	15.5	1.04	6276	2.03	122.59

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
002307199-01	OBS	PC	0.75	0	0	0	0	NO_COMMENT
002307199-02	OBS	FP	0.00	1	0	0	0	LPP_DV—RESIDUAL_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 002307199-02

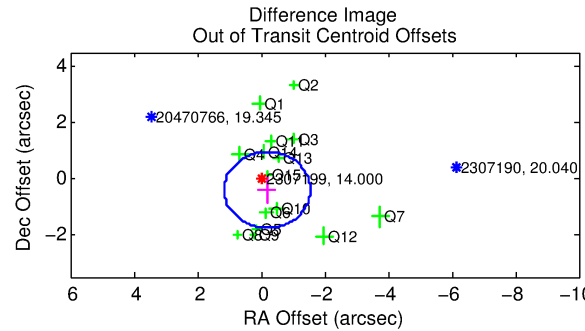
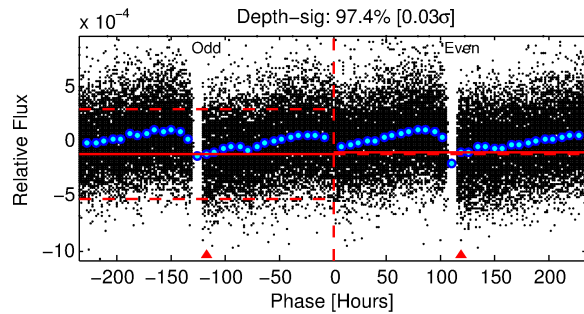
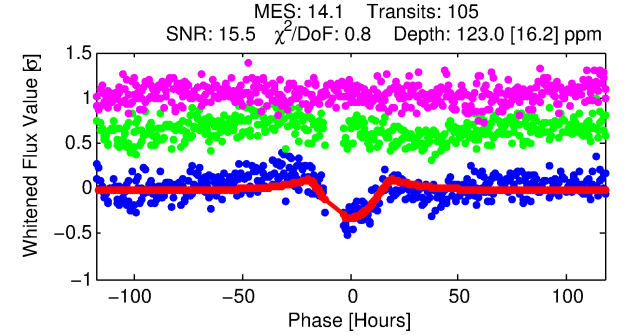
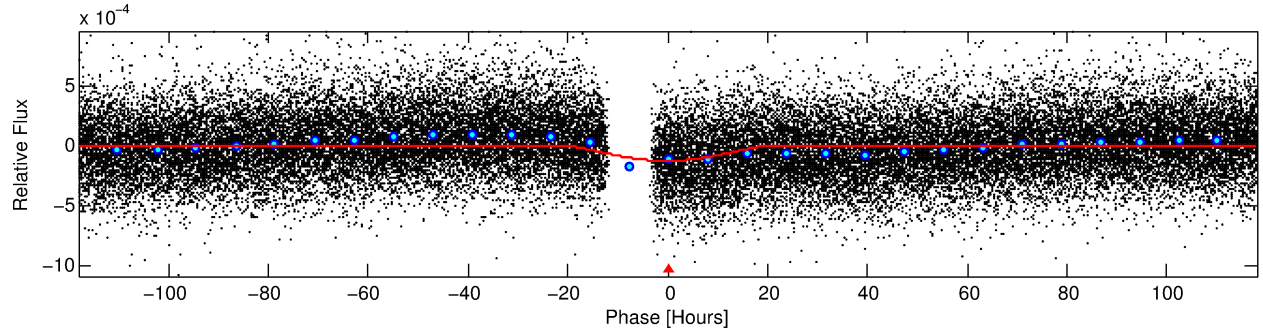
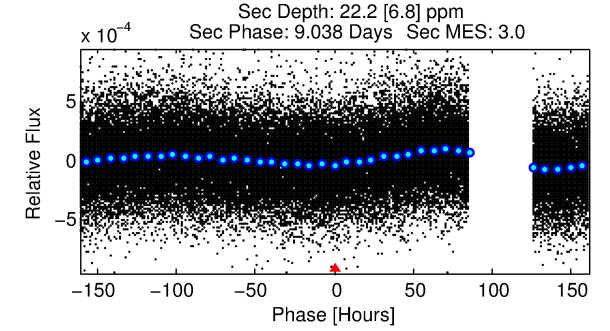
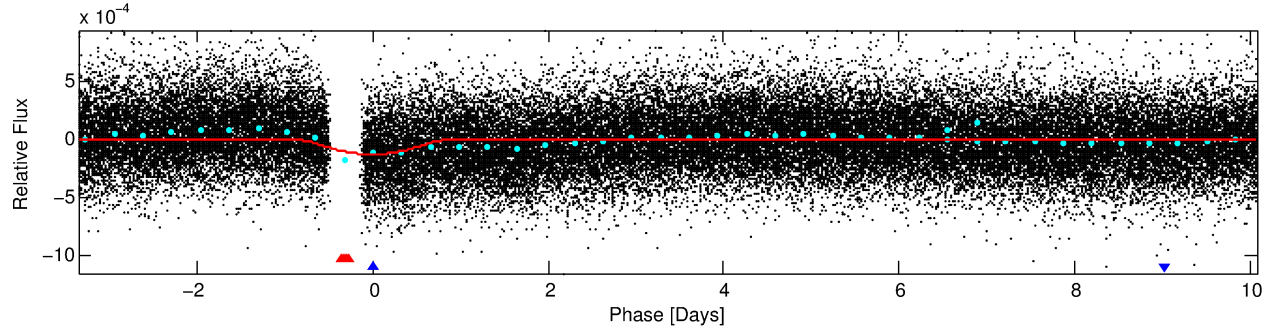
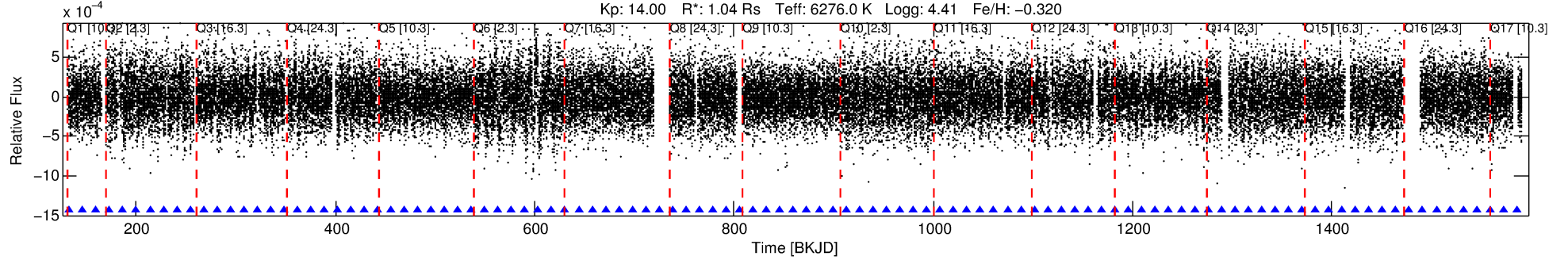
No Significant Match Found

DV One-Page Summary

KIC: 2307199 Candidate: 2 of 2 Period: 13.446 d

KOI: K00151 Corr: No Ephemeris Match

Kp: 14.00 R*: 1.04 Rs Teff: 6276.0 K Logg: 4.41 Fe/H: -0.320



DV Fit Results:

Period = 13.44645 [0.00074] d
Epoch = 133.1836 [0.0461] BKJD
Rp/R* = 0.0179 [0.0147]
a/R* = 1.14 [0.05]
b = 1.00 [0.03]
Seff = 122.59 [48.72]
Teq = 848 [84] K
Rp = 2.03 [1.78] Re
a = 0.1109 [0.0289] AU
Ag = 36.31 [62.07] [0.57σ]
Teffp = 3220 [1347] K [1.76σ]

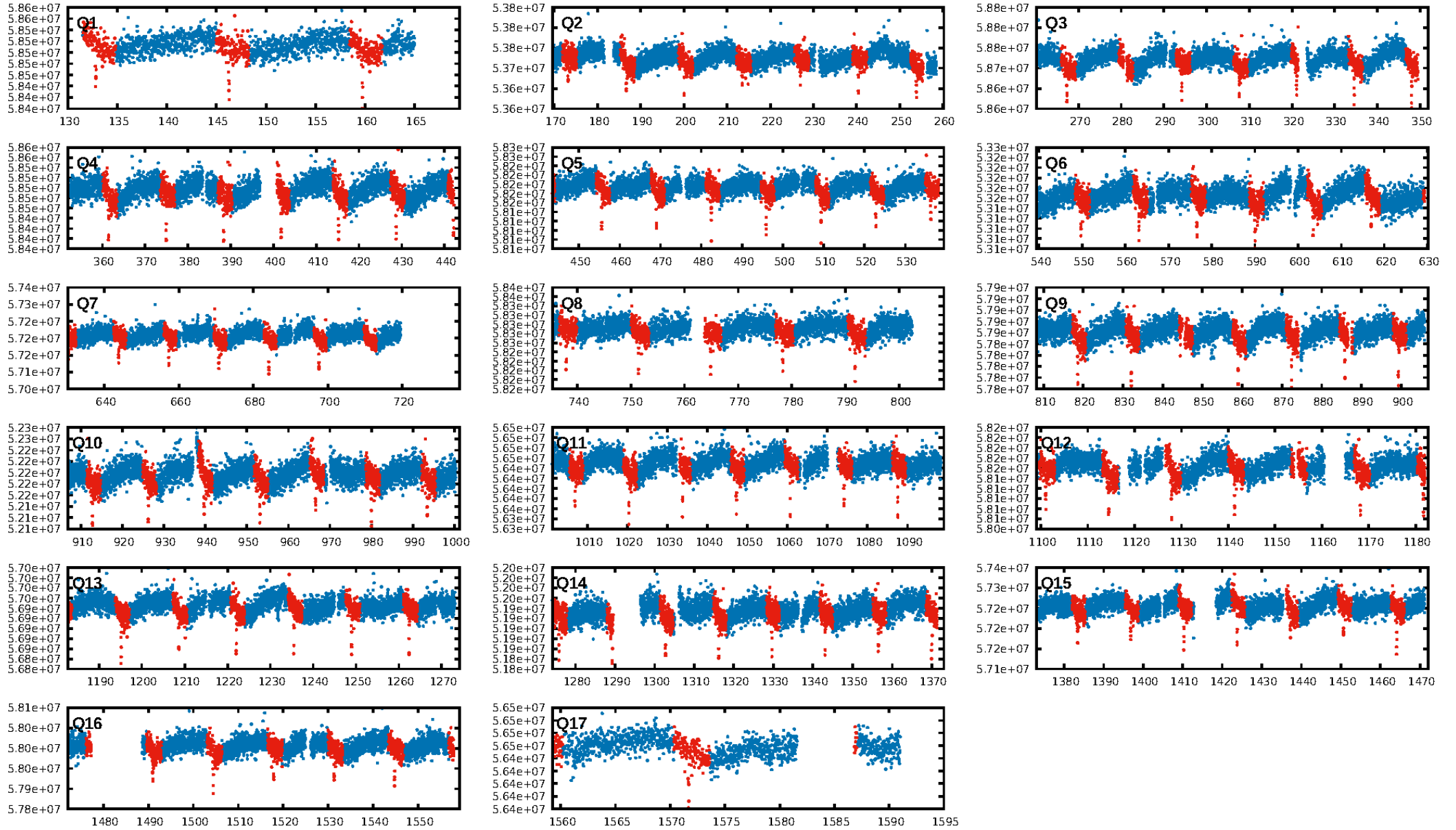
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: 0.0% [0.00σ]
ModelChiSquare2-sig: 88.0%
ModelChiSquareGof-sig: 100.0%
Bootstrap-pfa: 5.53e-45
RollingBand-fgt: 1.00 [101/101]
GhostDiagnostic-chr: 1.894
Centroid-sig: 7.5%
Centroid-so: 0.604 arcsec [1.12σ]
OotOffset-rm: 0.443 arcsec [0.98σ]
KicOffset-rm: 0.344 arcsec [0.80σ]
OotOffset-st: 4/4/3/4 [15]
KicOffset-st: 4/4/3/4 [15]
DiffImageQuality-fgm: 0.93 [14/15]
DiffImageOverlap-fno: 0.00 [0/16]

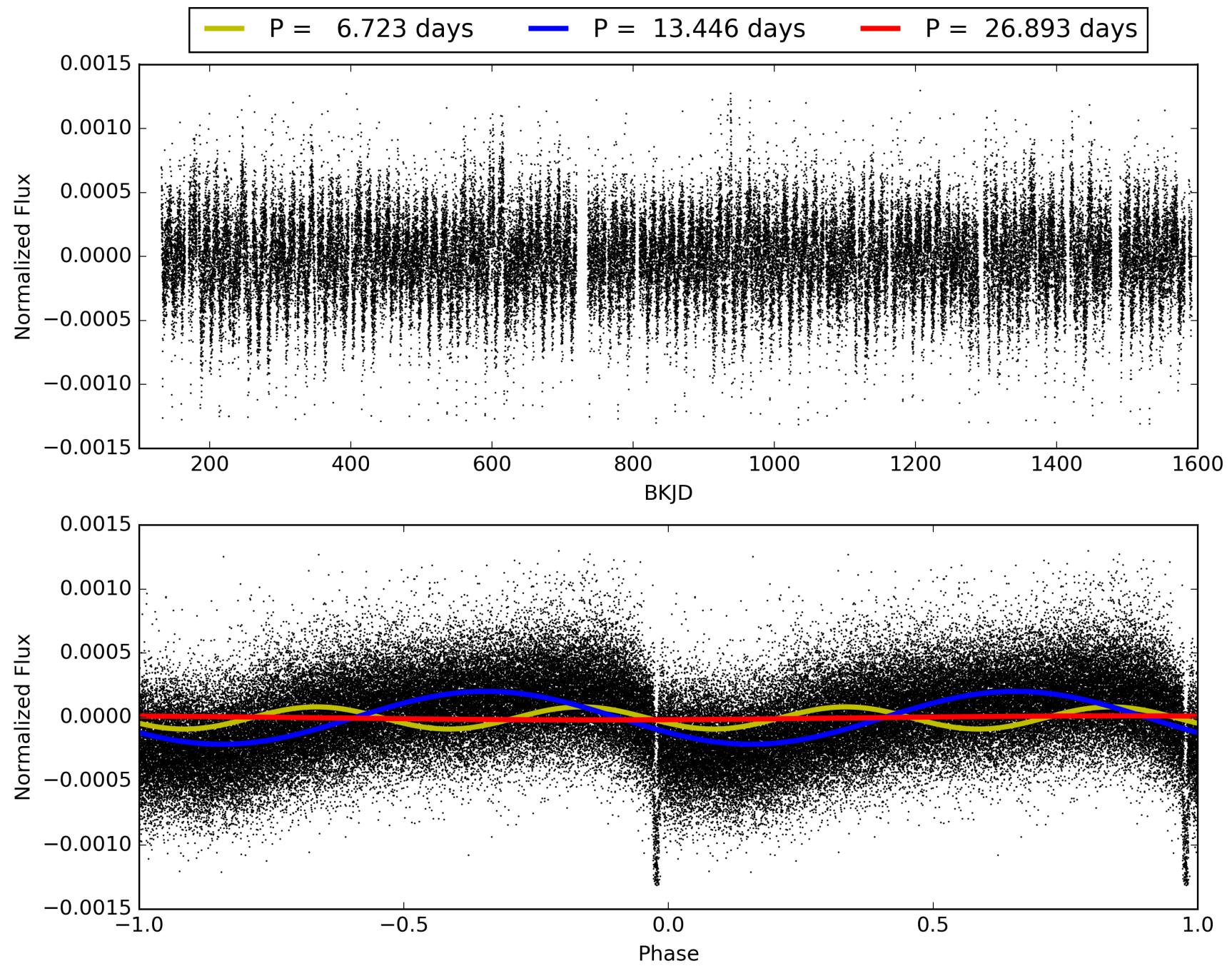
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 05:35:43 Z

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

TCE 002307199-02, PDC Light Curves

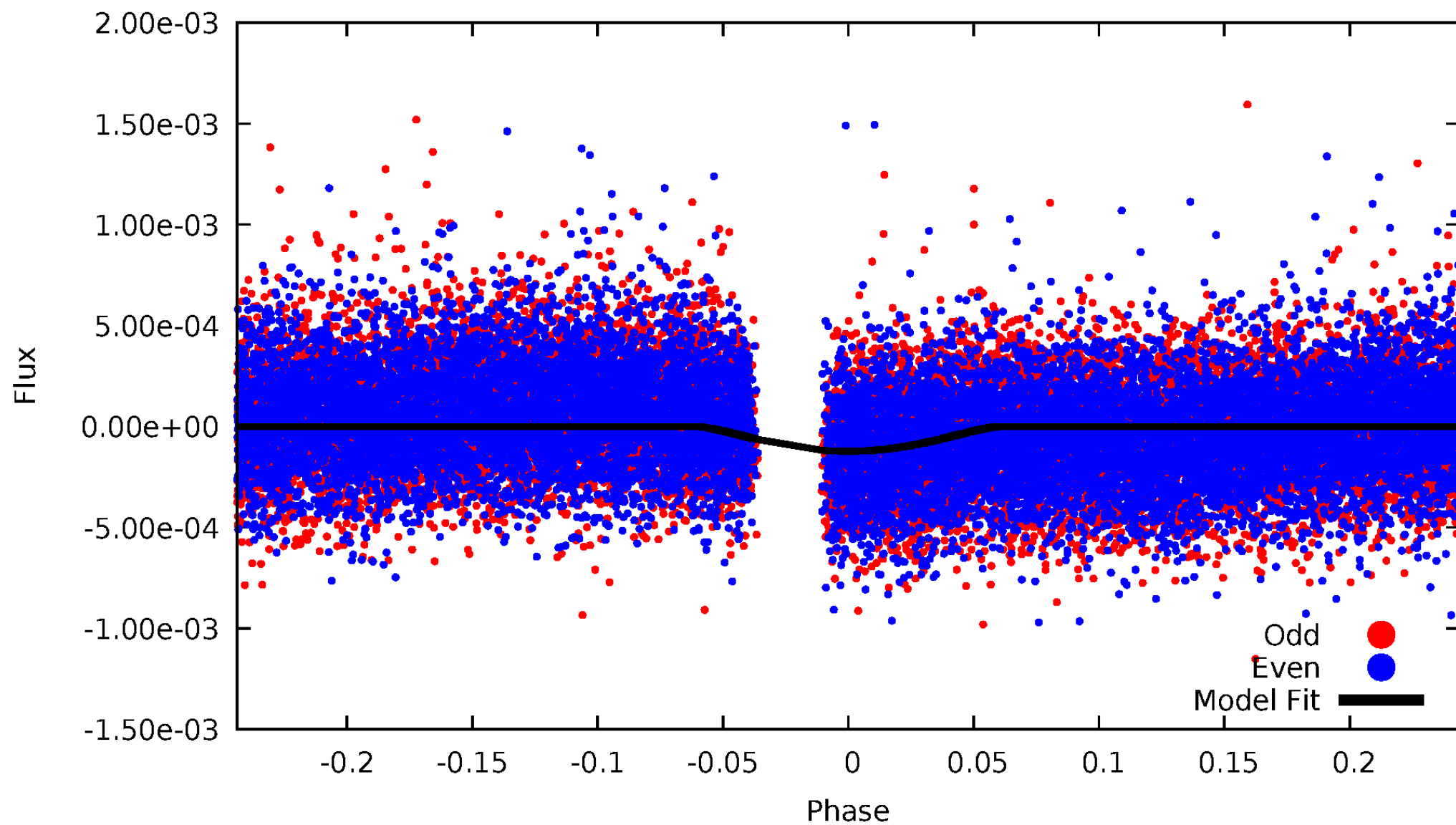


TCE 002307199-02



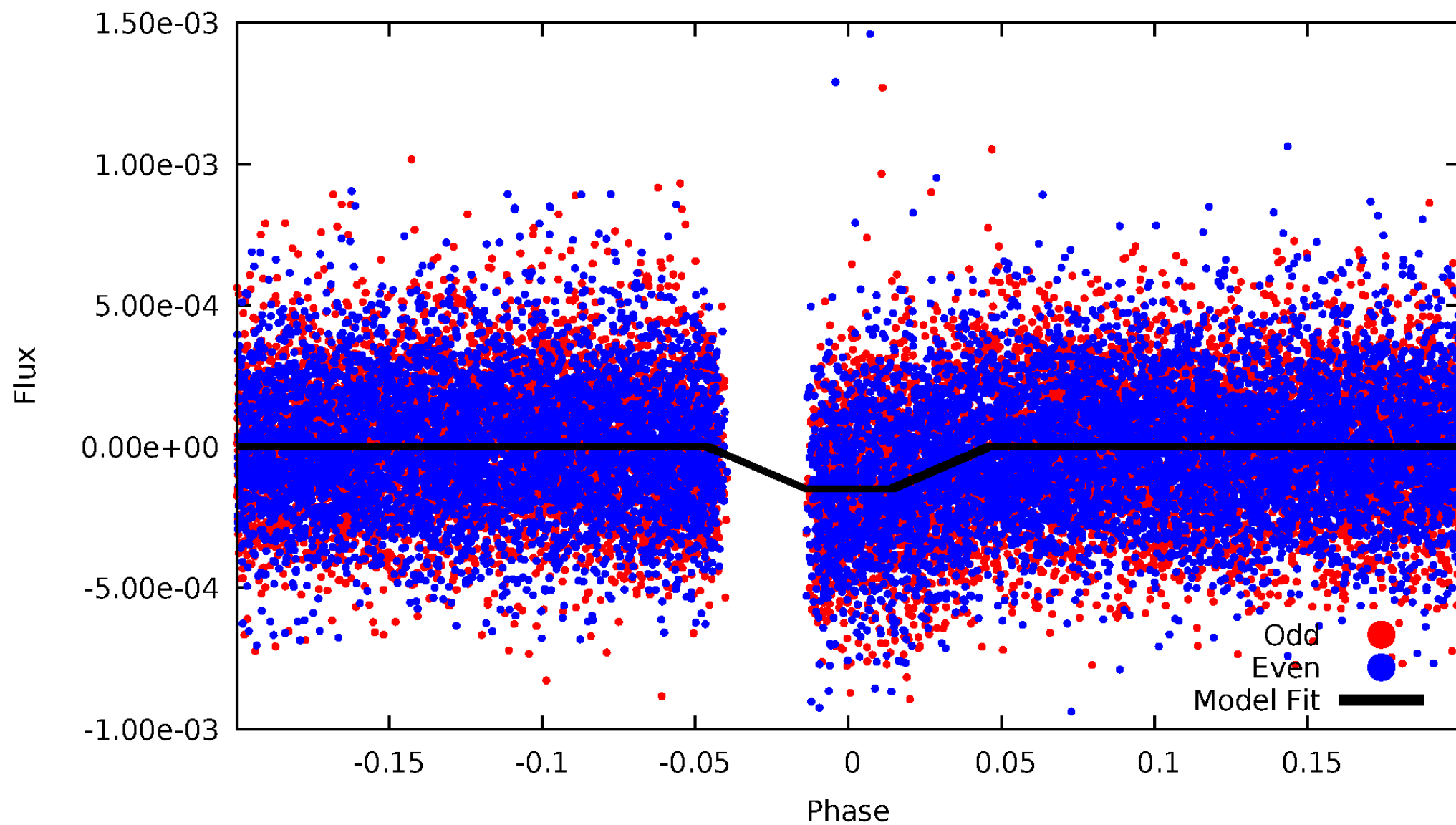
DV Odd/Even

TCE 002307199-02



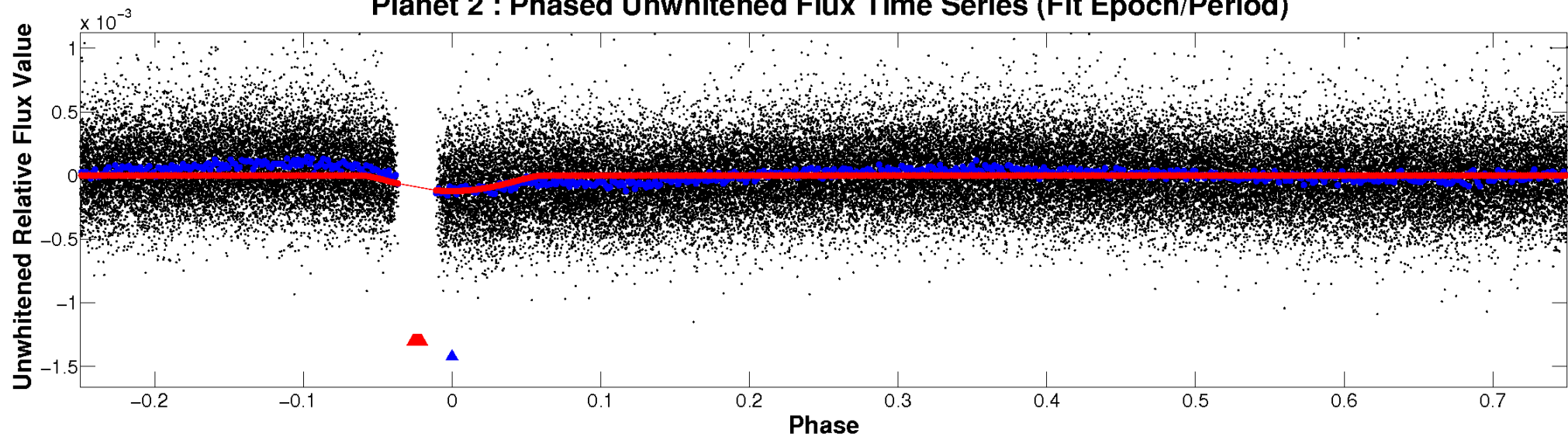
ALT Odd/Even

TCE 002307199-02

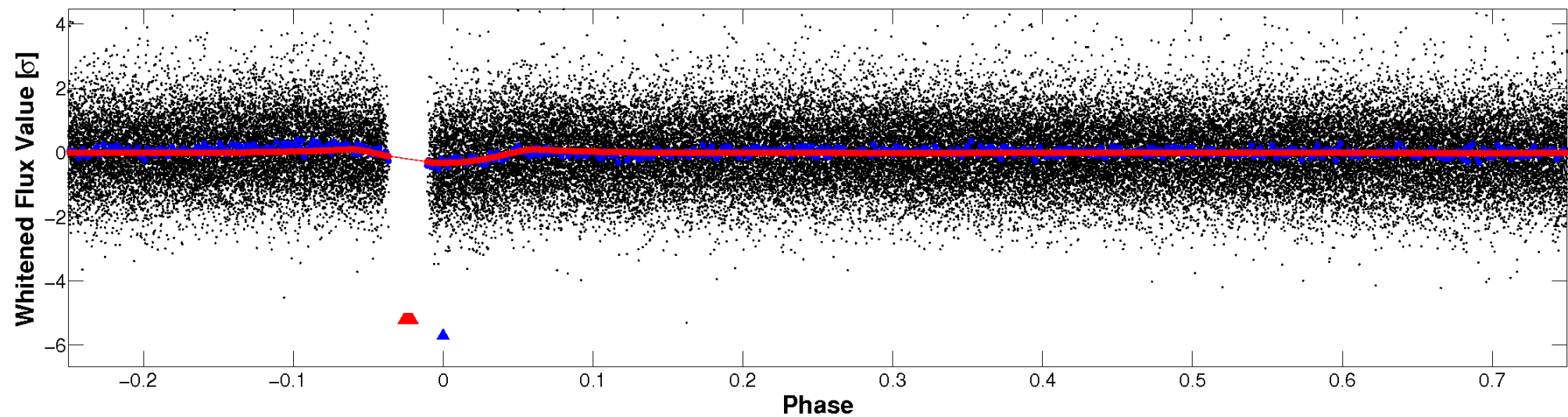


Non-Whitened Vs. Whitened Light Curve

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

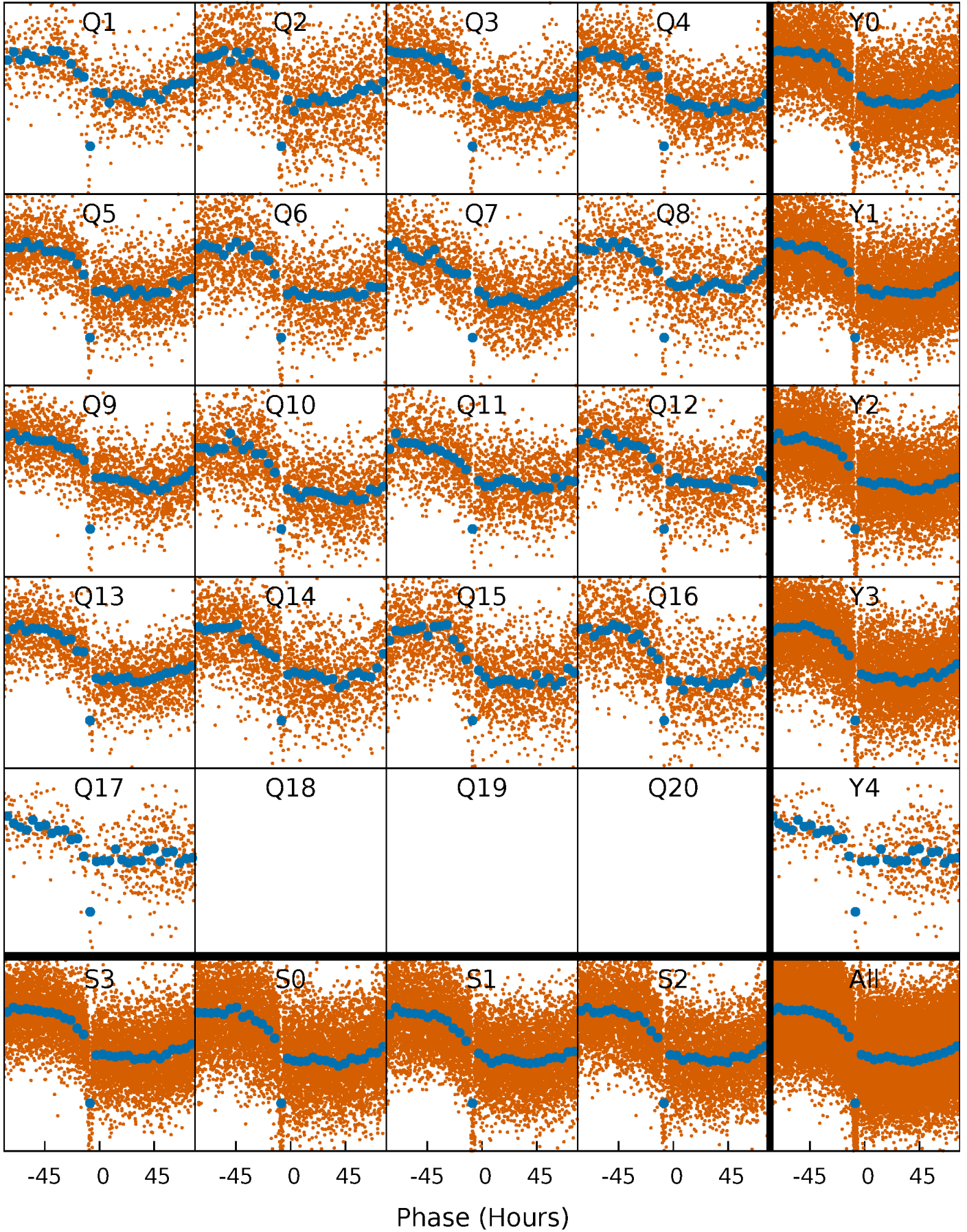


Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



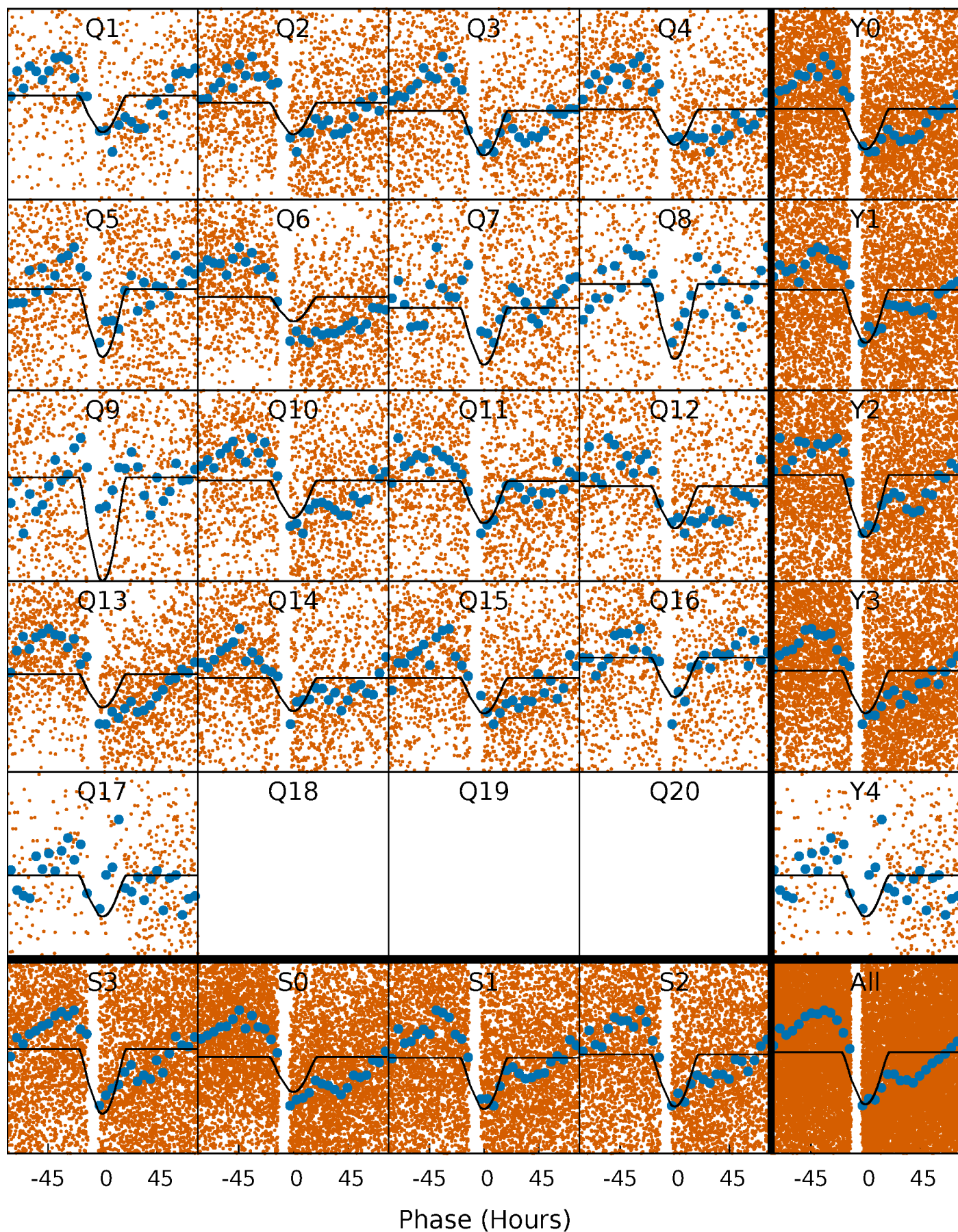
PDC Quarter-Phased Transit Curves

TCE 002307199-02 P= 13.446448 Days $T_0=133.183648$ (BKJD)



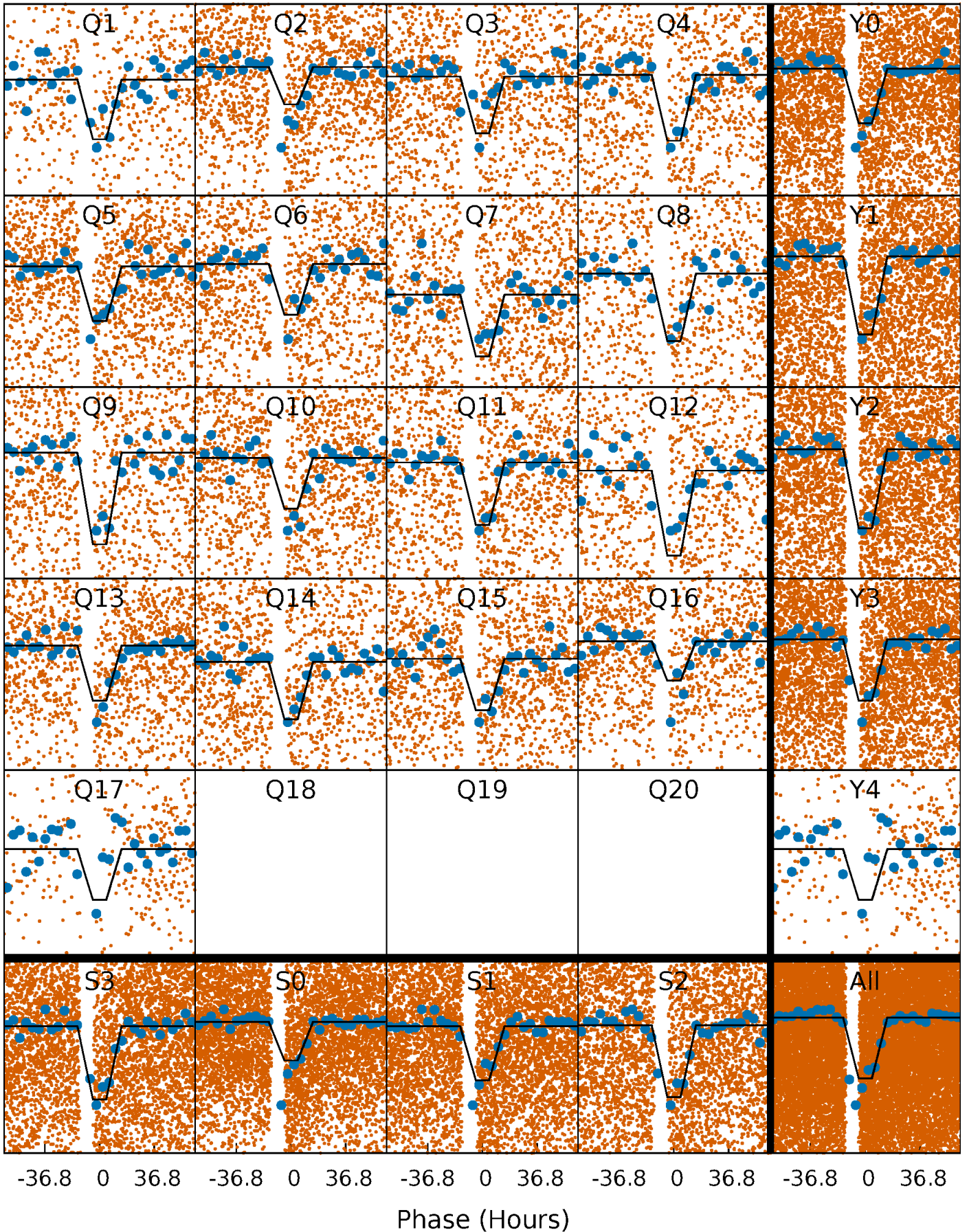
DV Quarter-Phased Transit Curves

TCE 002307199-02 P= 13.446448 Days $T_0=133.183648$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

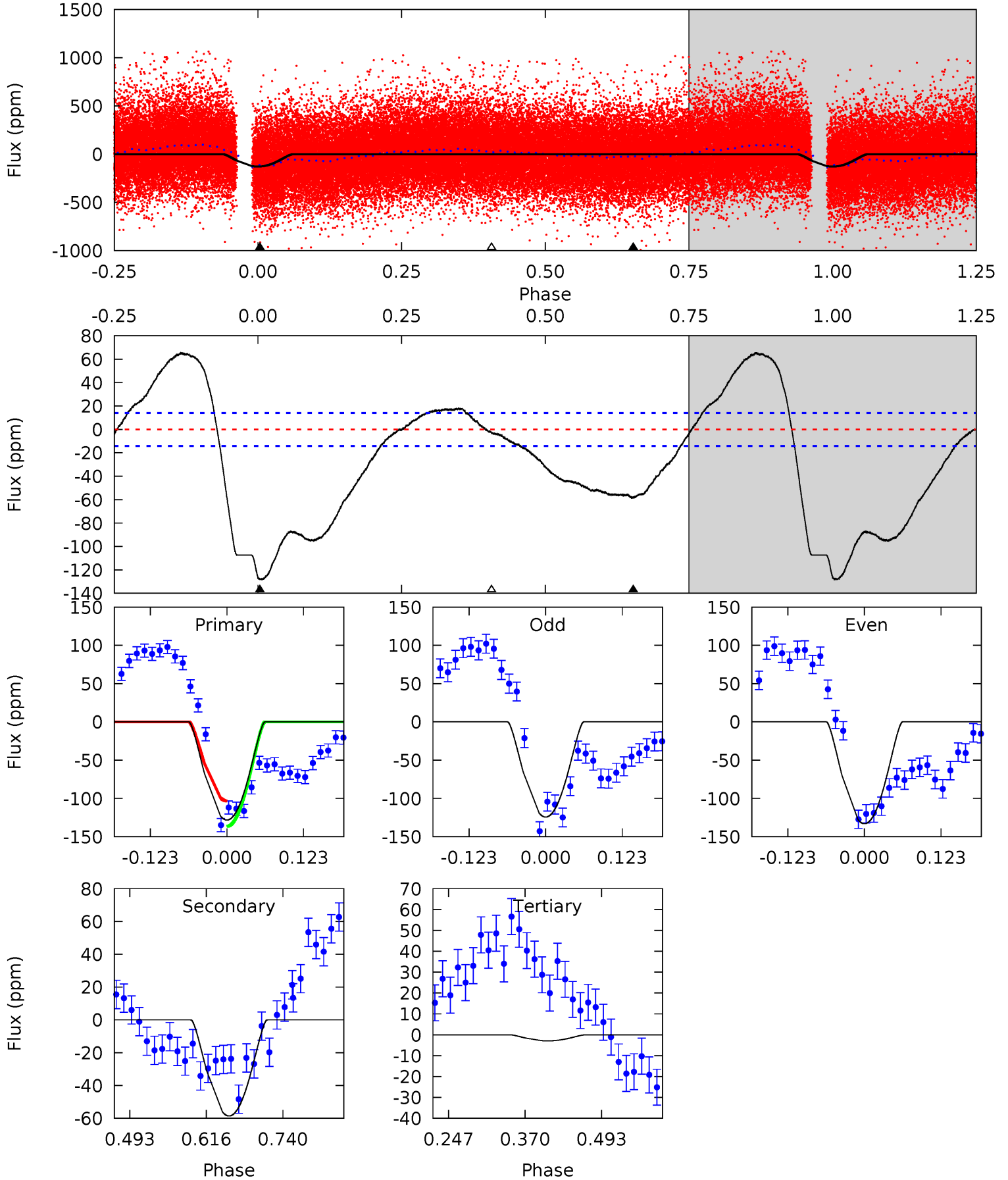
TCE 002307199-02 P= 13.446511 Days $T_0=133.225689$ (BKJD)



DV Model-Shift Uniqueness Test

002307199-02, P = 13.446448 Days, E = 119.737200 Days

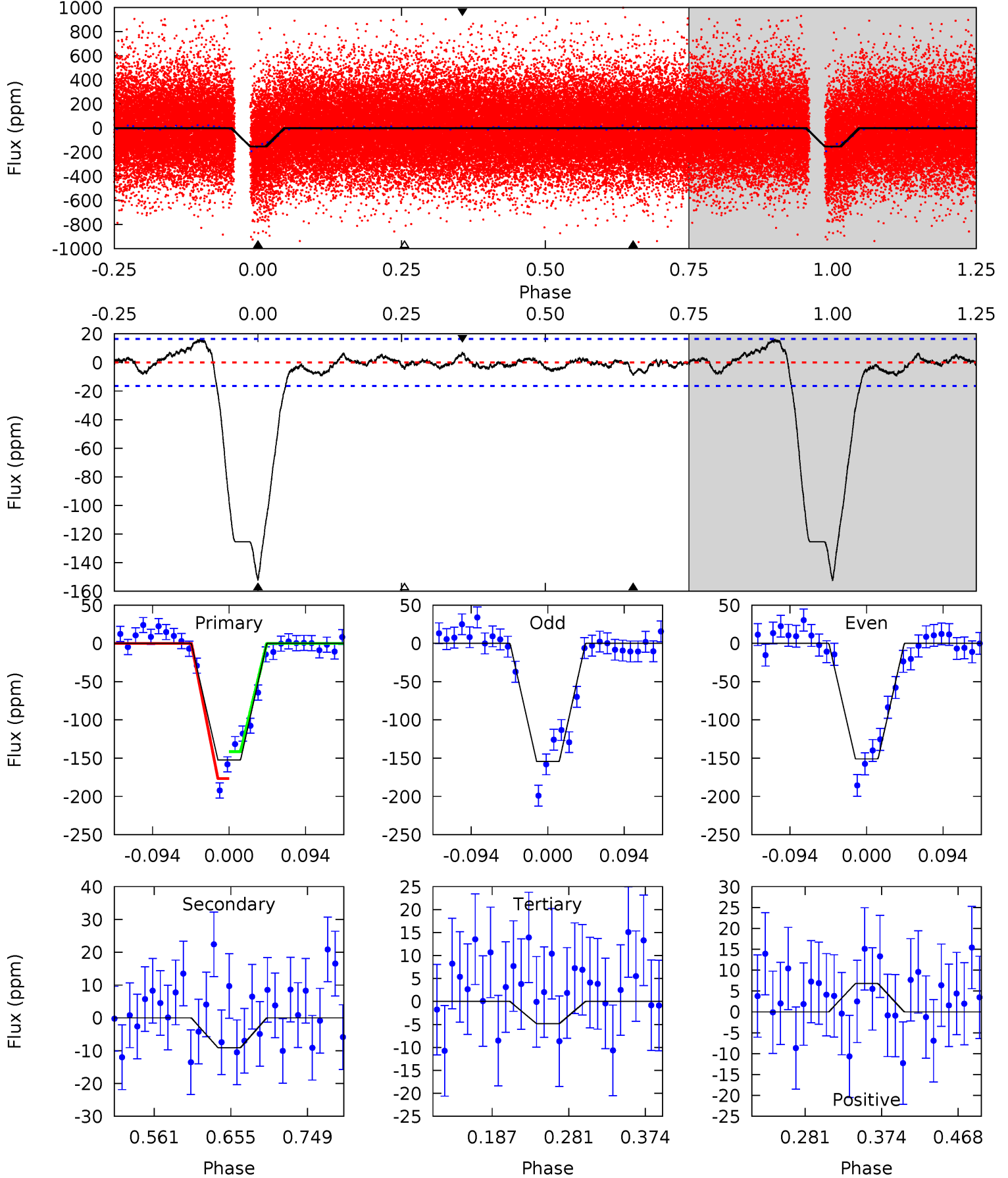
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
40.9	18.7	0.93	0	4.52	1.54	10.5	39.9	40.9	17.7	18.7	1.39	1.13	0.34	4.97



Alt Model-Shift Uniqueness Test

002307199-02, P = 13.446511 Days, E = 119.779178 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
42.4	2.52	1.35	1.89	4.58	1.68	1.25	41.0	40.5	1.17	0.64	0.47	1.62	0.10	4.27



Stellar Parameters For KIC 002307199

	$T_{\text{eff}} (K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R (R_{\odot})$	$M (M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	6276^{+169}_{-206}	$4.405^{+0.087}_{-0.203}$	$-0.320^{+0.300}_{-0.300}$	$1.041^{+0.326}_{-0.140}$	$1.001^{+0.158}_{-0.115}$	$1.249^{+0.473}_{-0.663}$
	+3%/-3%	+2%/-5%	+94%/-94%	+31%/-13%	+16%/-11%	+38%/-53%
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 002307199-02 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-59 ± 3	$2.26^{+1.72}_{-1.38}$	1198^{+91}_{-66}	4174^{+2070}_{-704}	74^{+443}_{-49}
Alt.	-9 ± 4	$1.89^{+1.57}_{-1.27}$	1198^{+88}_{-56}	3260^{+1474}_{-588}	17^{+132}_{-13}

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

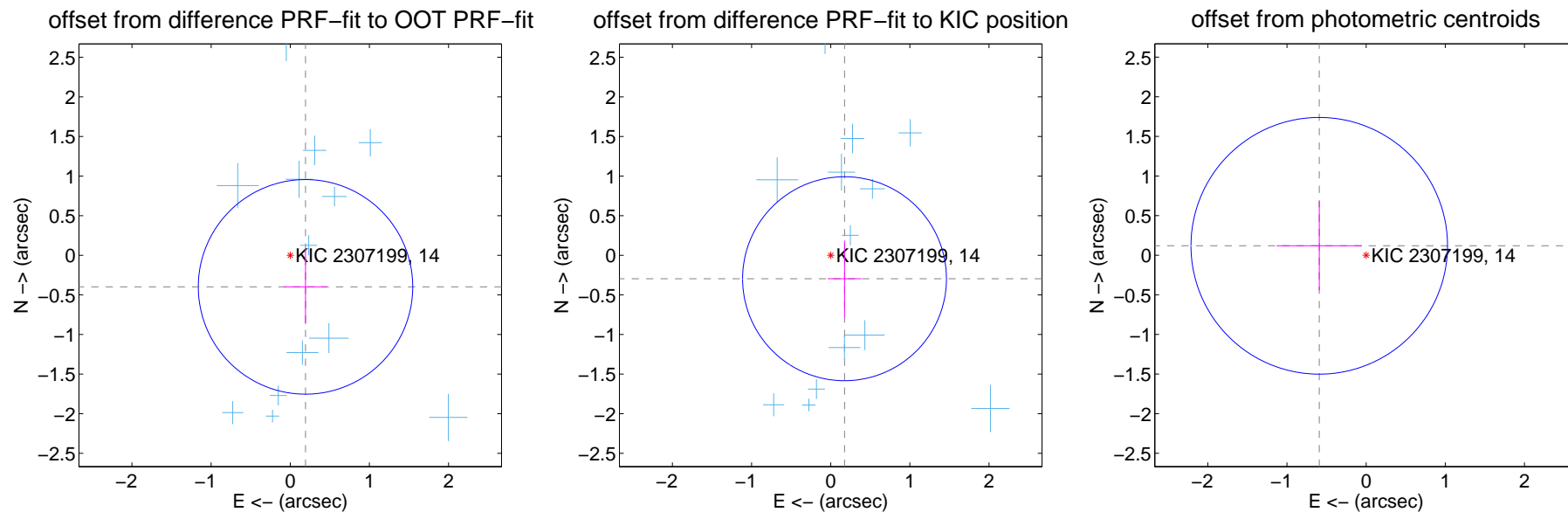
DV Centroid Data

Supplemental centroid analysis for 002307199-02. Kepler magnitude: 14.00. Transit SNR 15.45

There are 14 quarters with good PRF difference image offsets

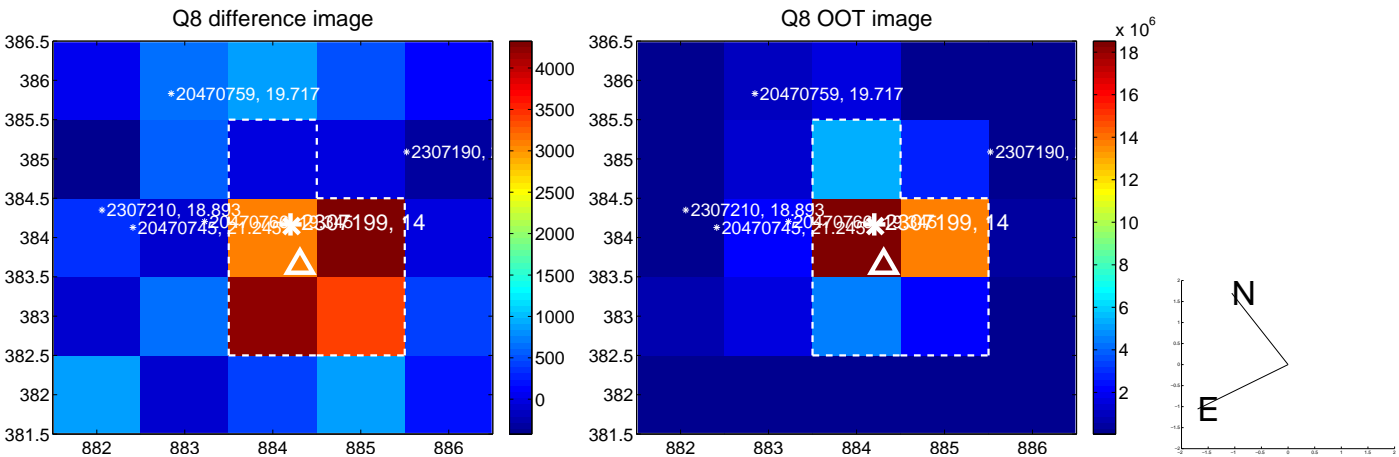
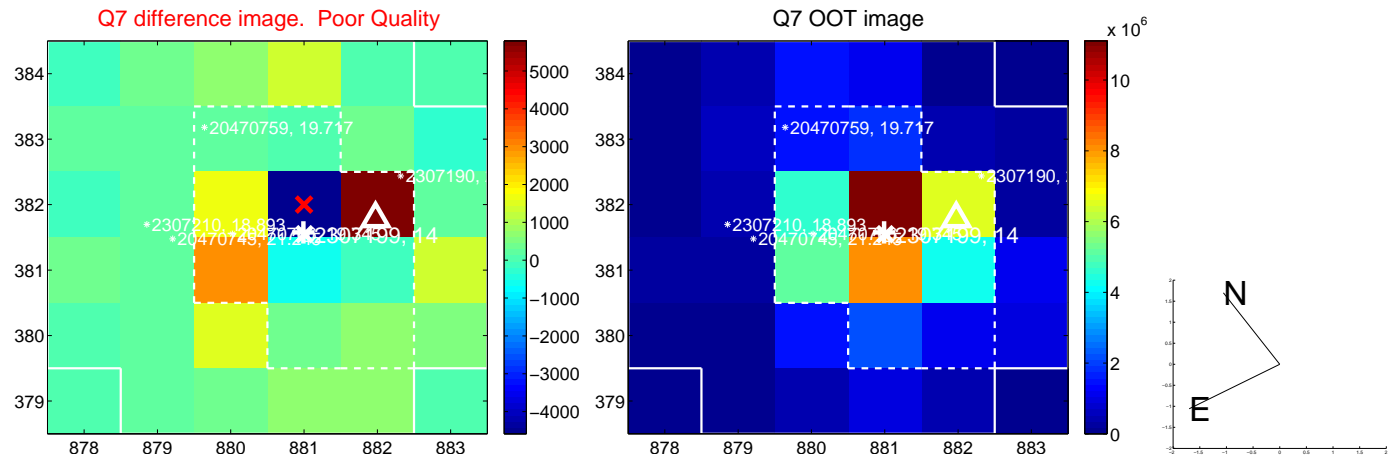
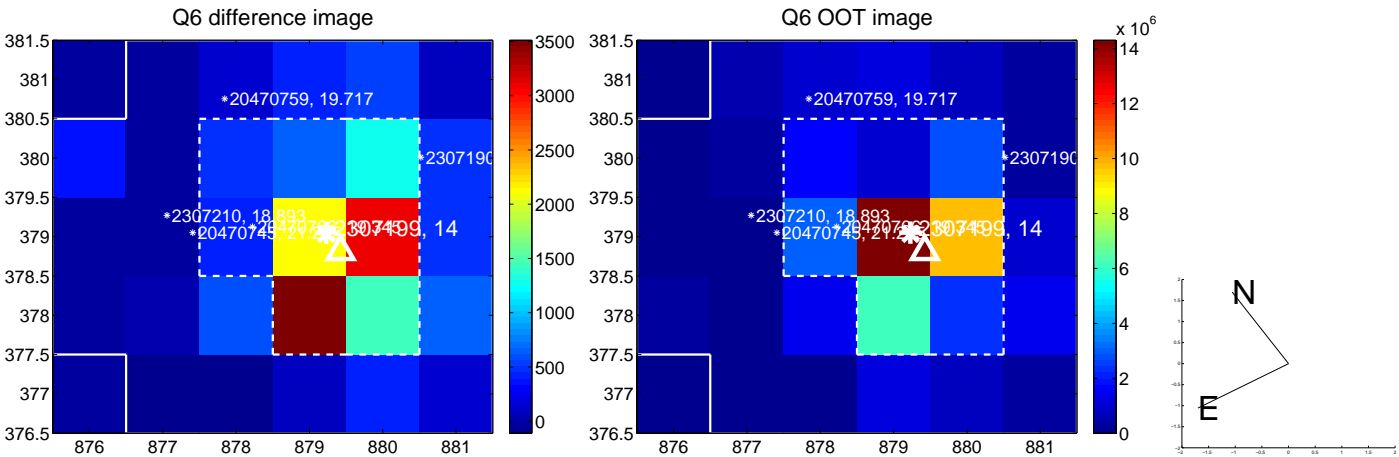
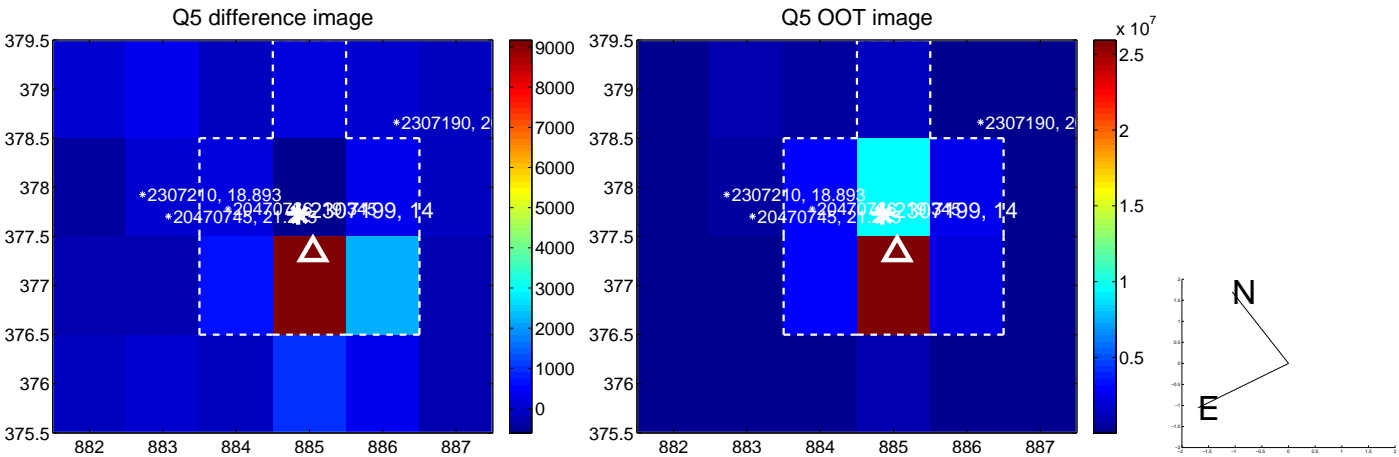
The direct PRF centroid is offset from the target star catalog position by about 0.13 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.443 ± 0.452	0.98	-0.193 ± 0.273	-0.399 ± 0.469
PRF-fit source offset from KIC position	0.344 ± 0.429	0.80	-0.174 ± 0.212	-0.296 ± 0.482
photometric centroid source offset	0.60 ± 0.54	1.12	0.59 ± 0.54	0.12 ± 0.56

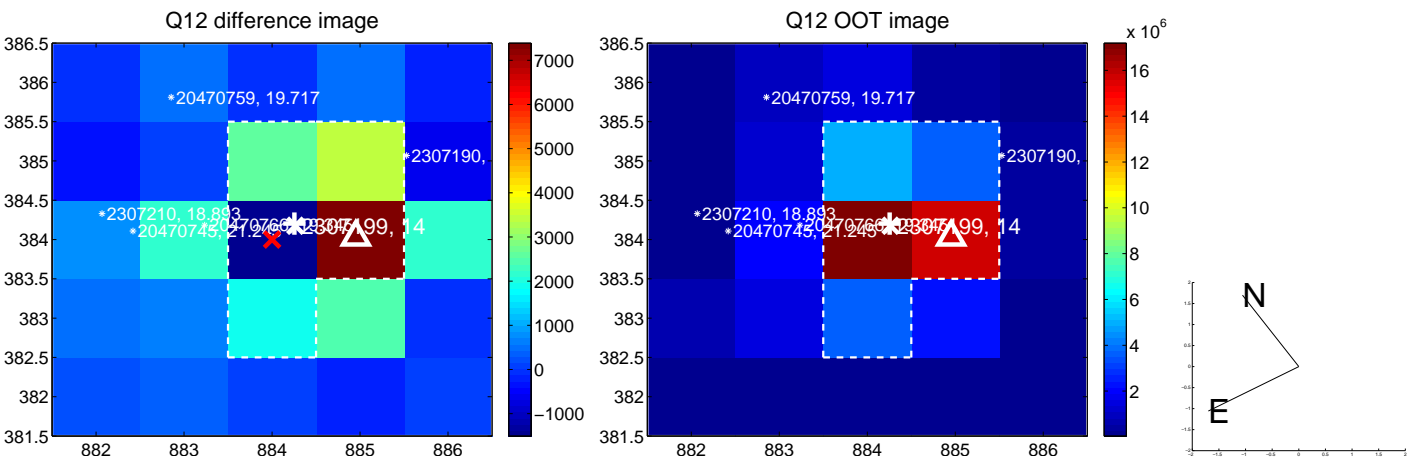
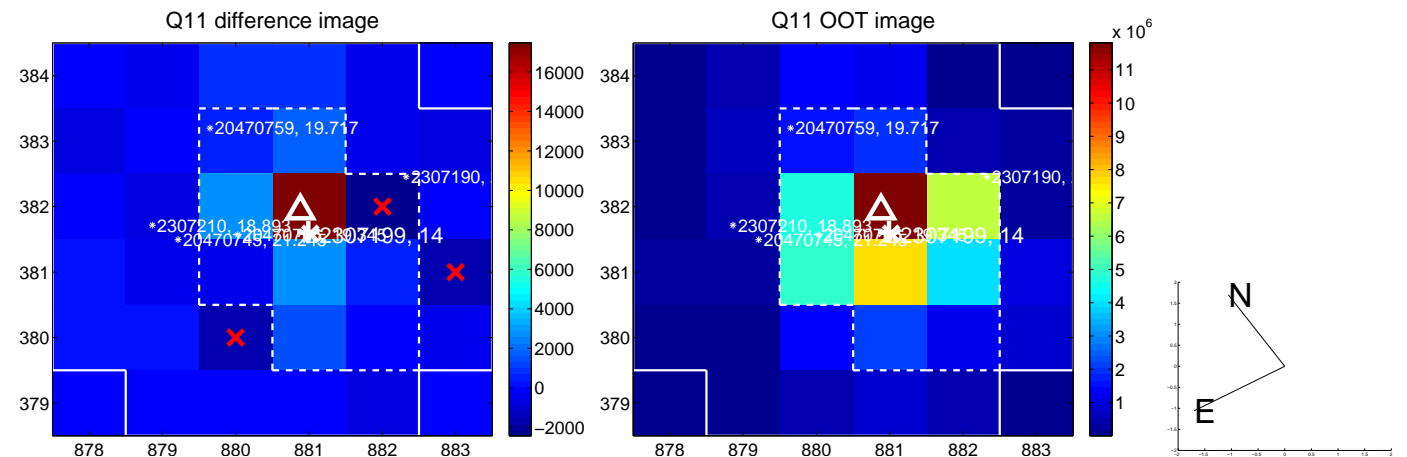
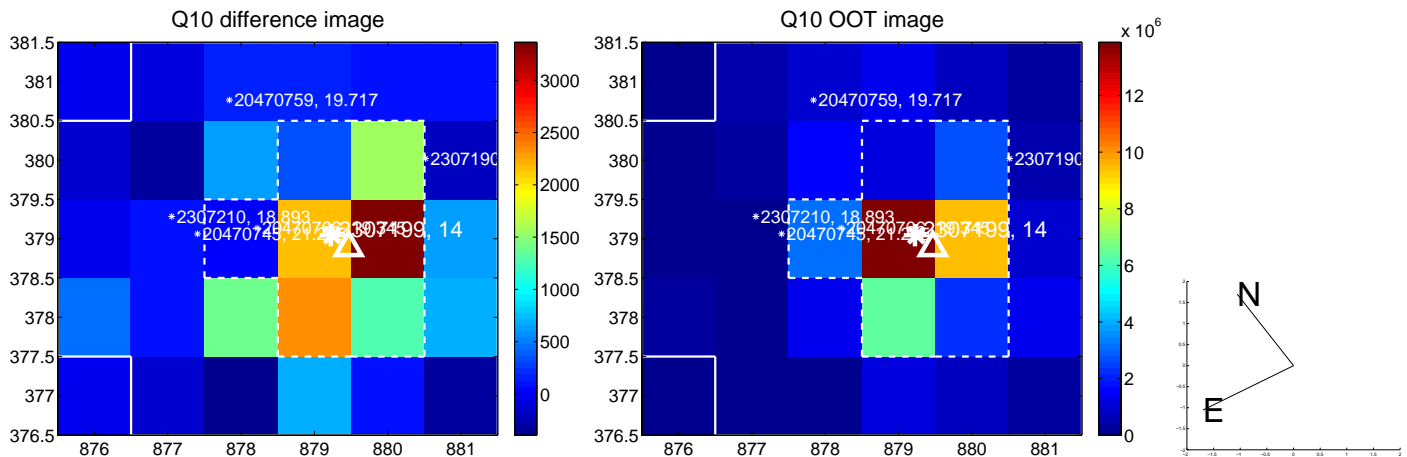
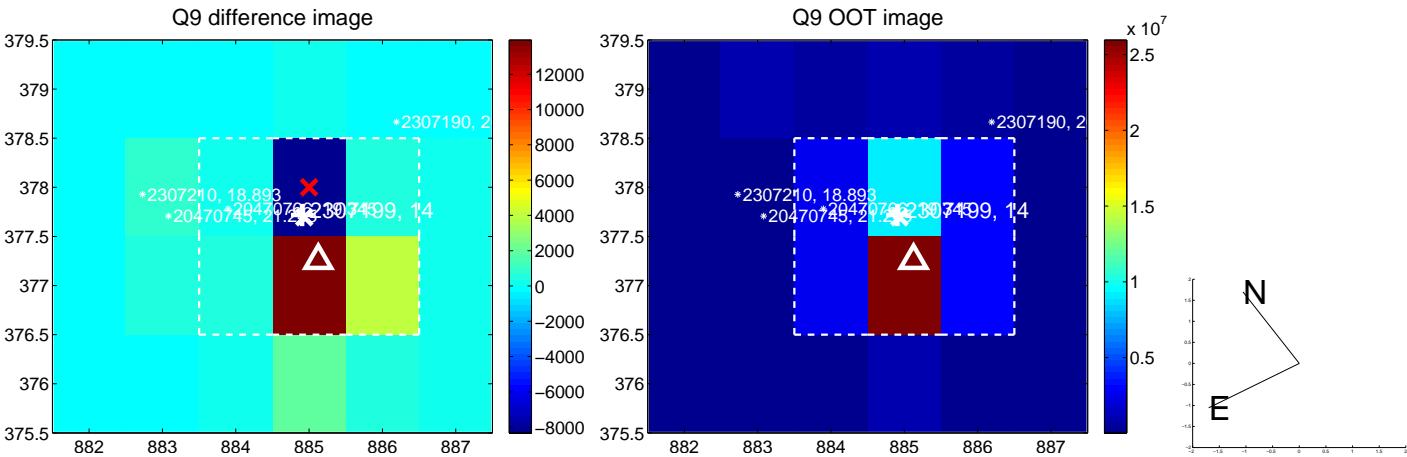


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses:** good quarterly centroid offsets; **Vermillion crosses:** bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

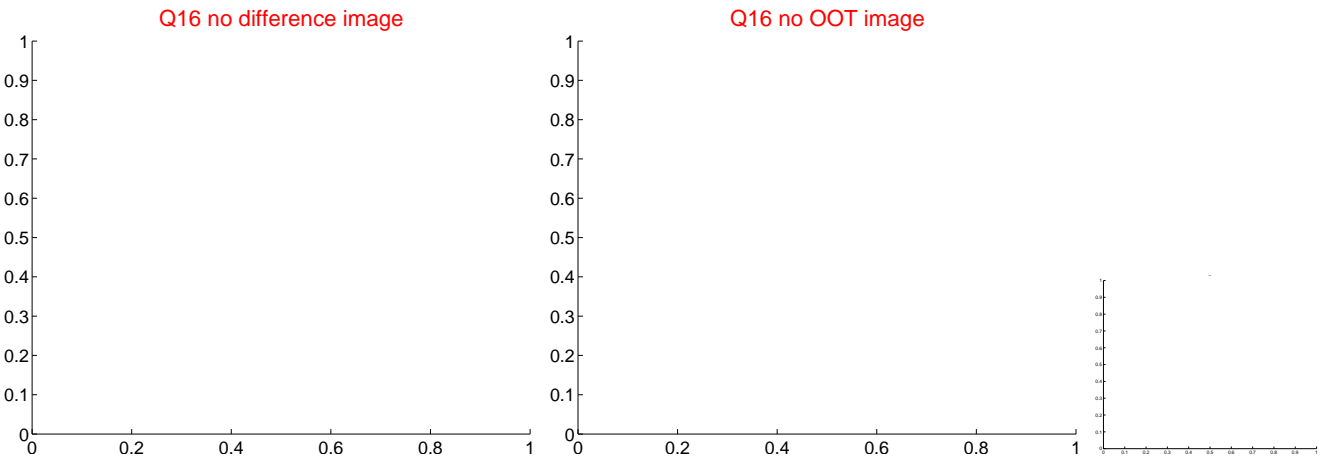
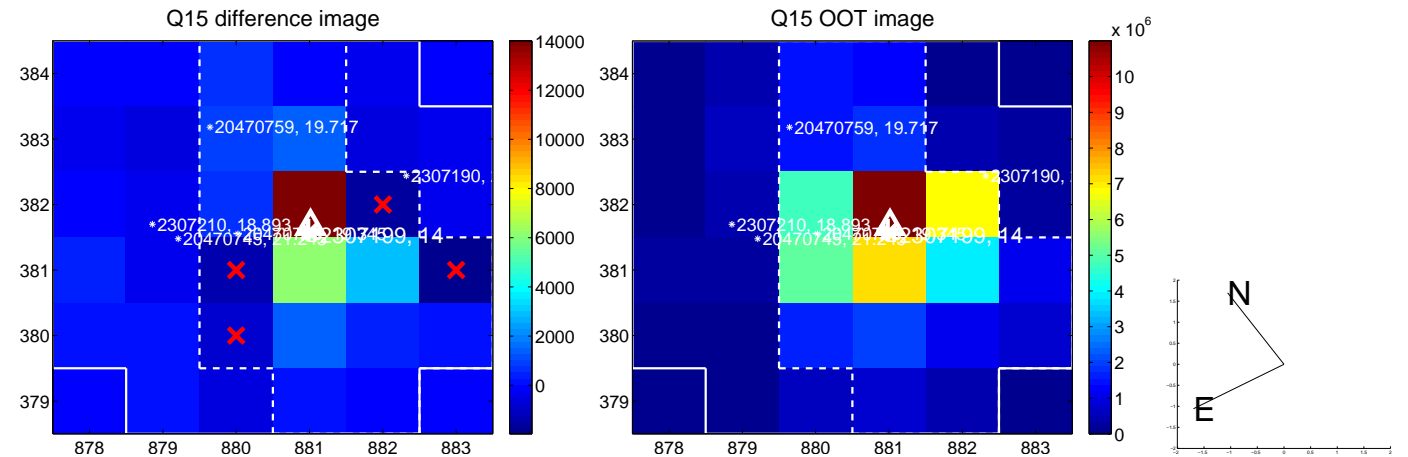
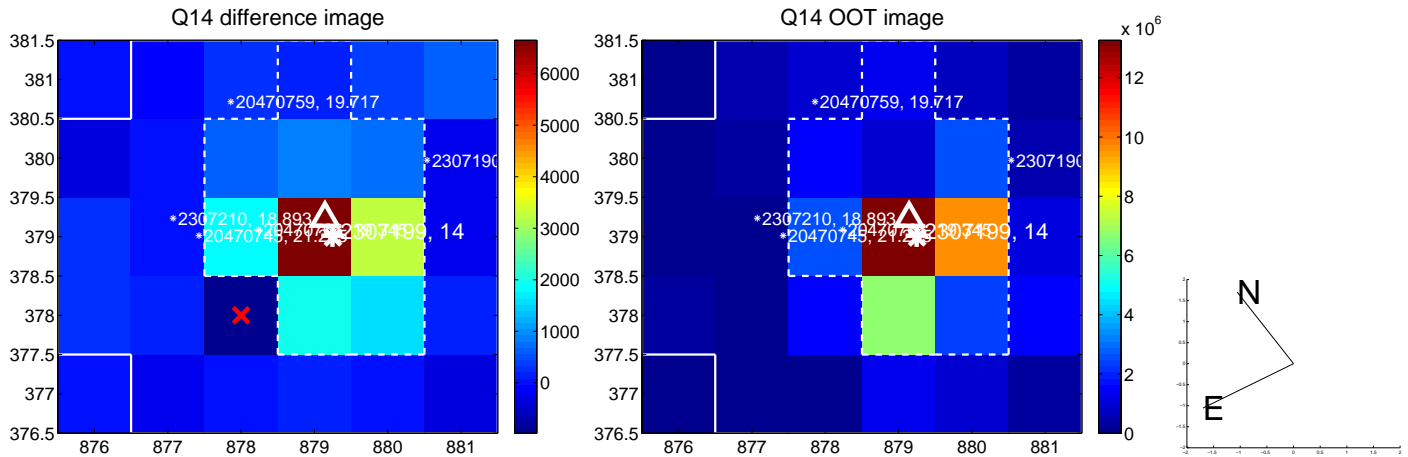
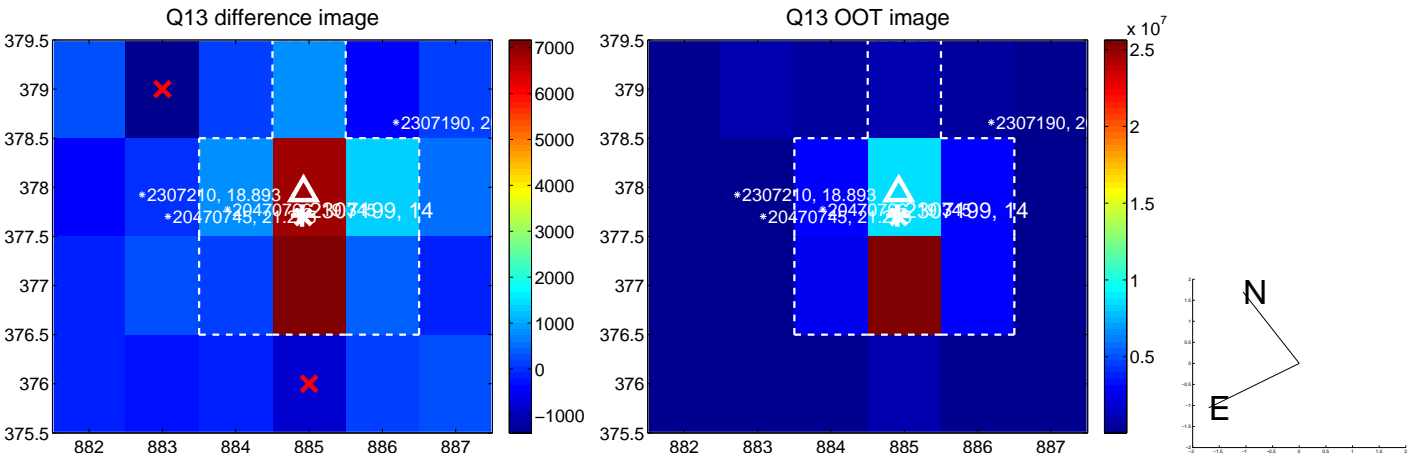
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



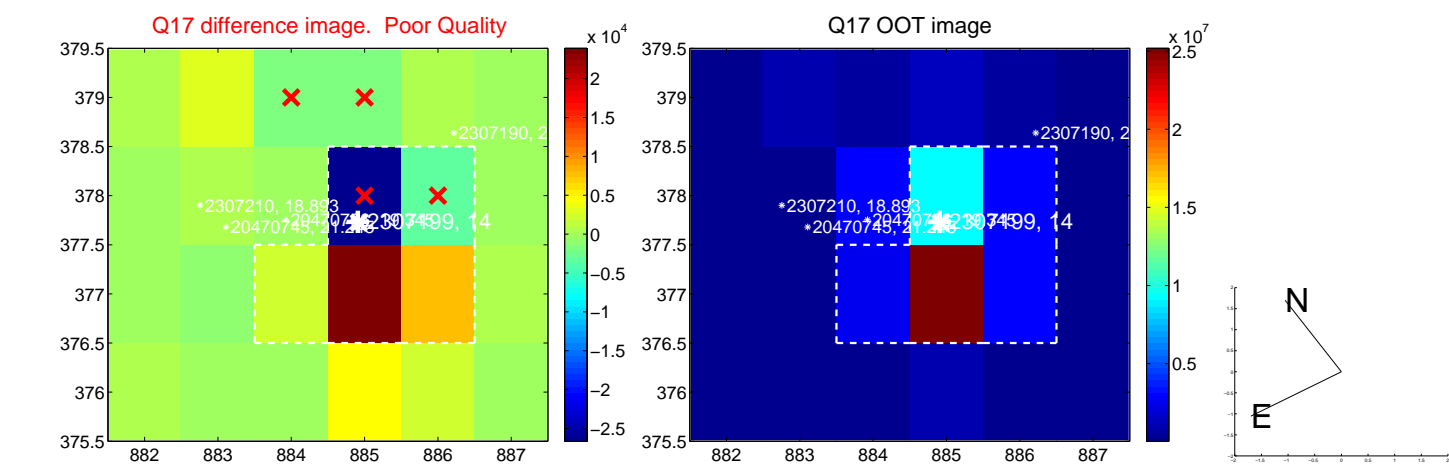
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



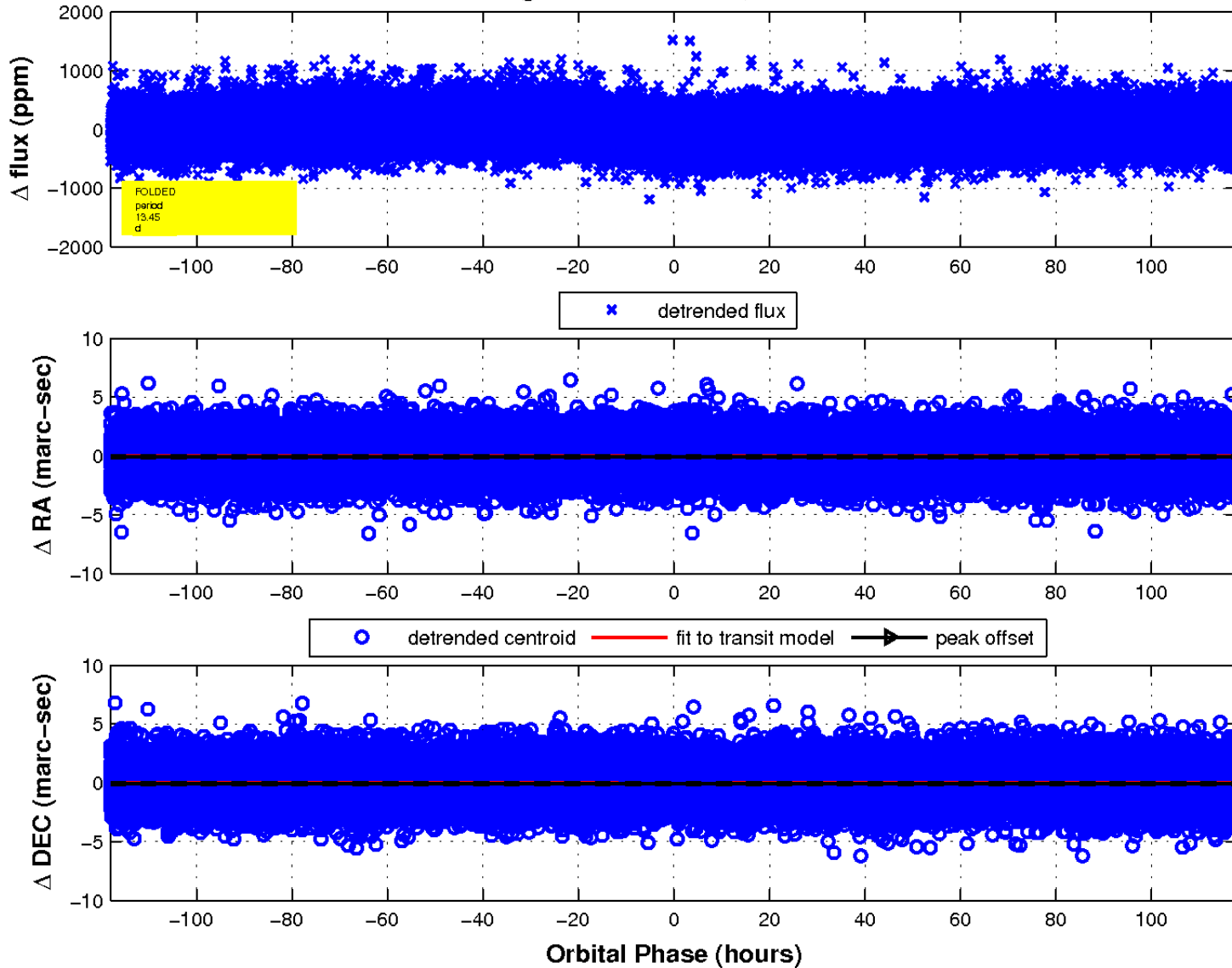
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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



fluxWeightedCentroids, Planet 2 of 2



UKIRT Image

Declination

