

KIC 009307105

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})
009307105-01	OBS	3304.01	13.543771	135.277620	4689.4	6.106	147.6	99.9	0.79	5463	10.19	44.34
009307105-02	OBS	No	13.543858	142.042849	1612.8	6.168	49.1	43.4	0.79	5463	5.51	44.34

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
009307105-01	OBS	FP	0.00	0	1	1	0	MOD_SEC_DV—MOD_SEC_ALT—MOD_ODDEVEN_DV—DEEP_V_SHAPED—HAS_SEC_TCE—CENT_UNRESOLVED_OFFSET—HALO_GHOST
009307105-02	OBS	FP	0.00	1	1	1	0	IS_SEC_TCE—CENT_UNRESOLVED_OFFSET—HALO_GHOST

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.

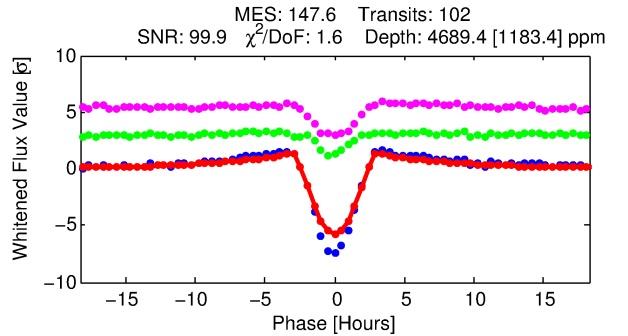
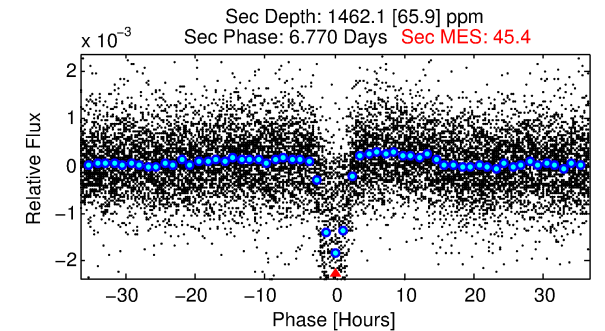
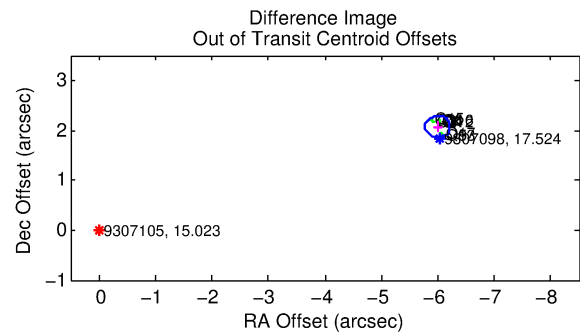
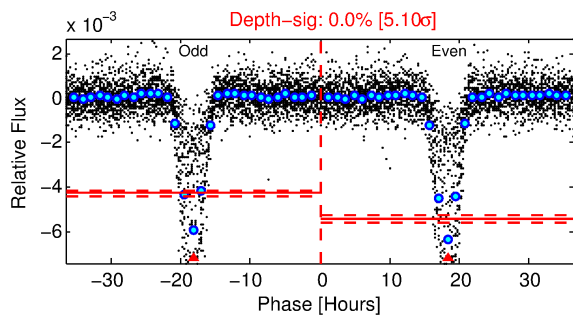
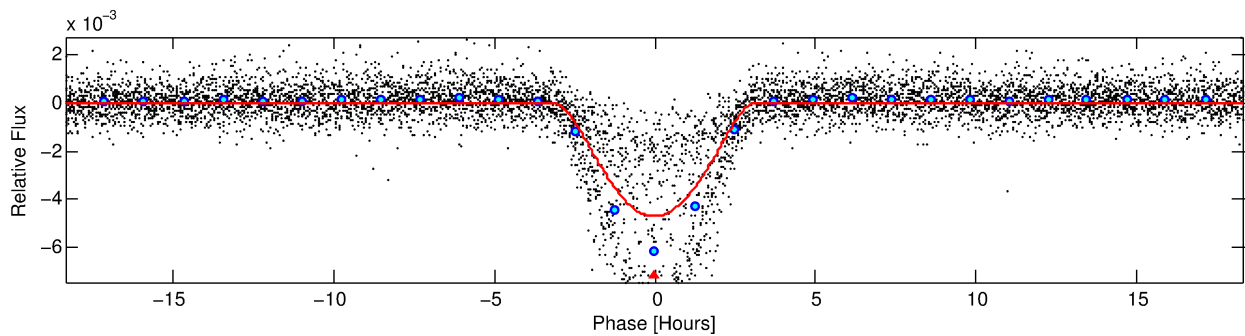
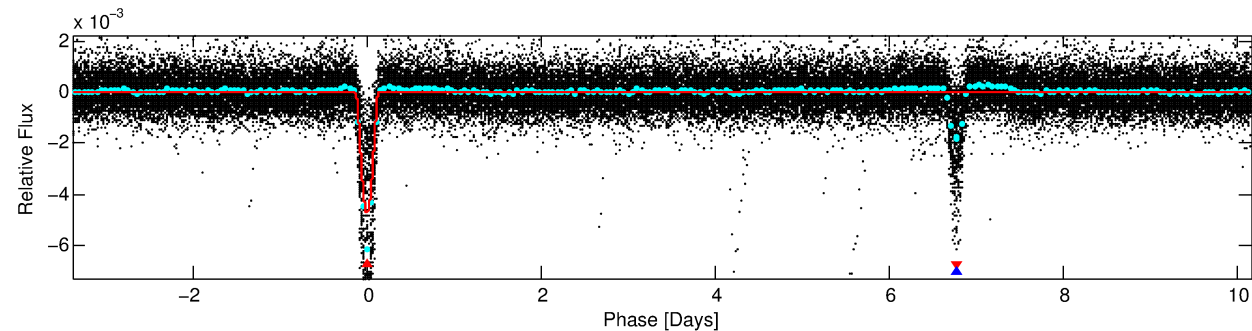
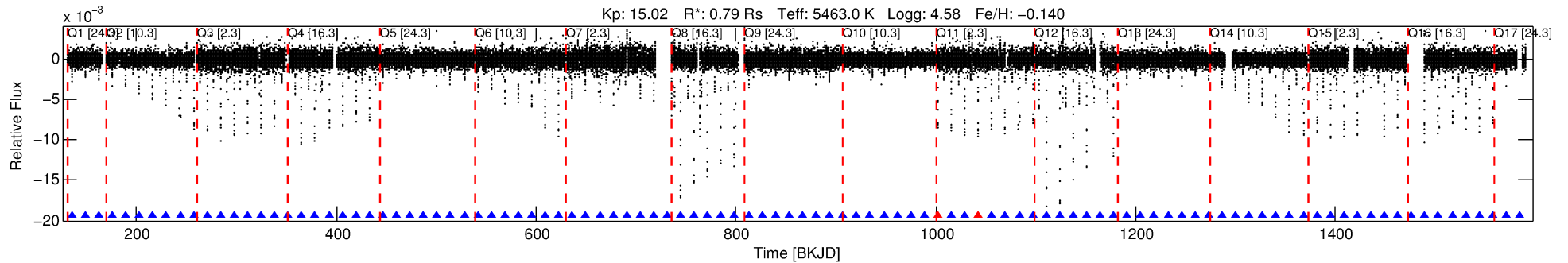
Ephemeris Match Information For 009307105-01

No Significant Match Found

DV One-Page Summary

KIC: 9307105 Candidate: 1 of 2 Period: 13.544 d
KOI: K03304.01 Corr: 0.987

Kp: 15.02 R*: 0.79 Rs Teff: 5463.0 K Logg: 4.58 Fe/H: -0.140



DV Fit Results:

Period = 13.54377 [0.00002] d
Epoch = 135.2776 [0.0012] BKJD
Rp/R* = 0.1176 [0.0429]
a/R* = 8.52 [0.55]
b = 1.00 [0.08]
Seff = 44.35 [13.30]
Teq = 658 [49] K
Rp = 10.19 [4.35] Re
a = 0.1065 [0.0196] AU
Ag = 87.90 [68.42] [1.27σ]
Teff = 3115 [580] K [4.22σ]

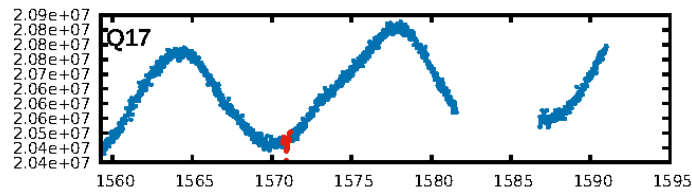
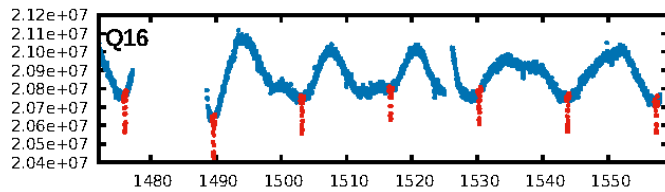
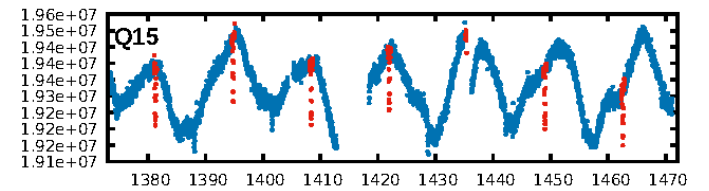
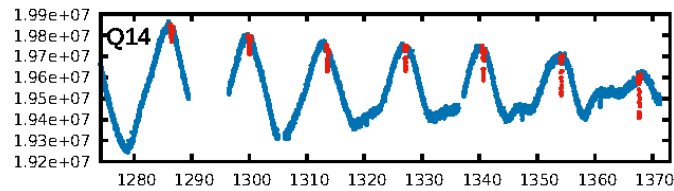
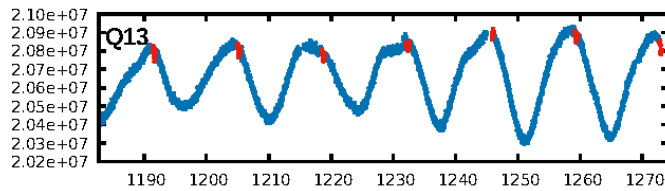
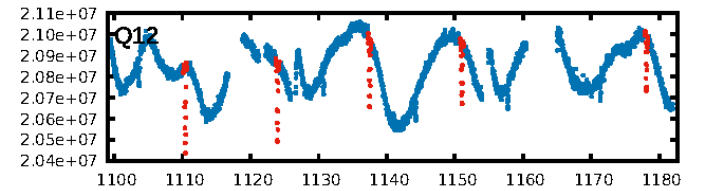
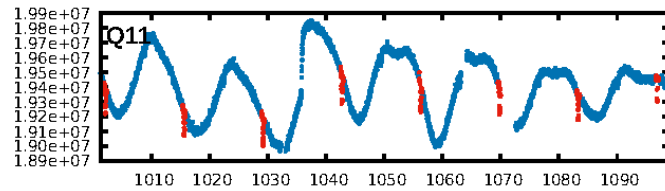
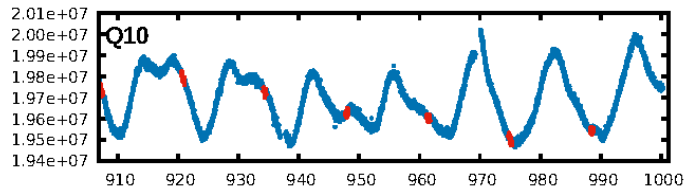
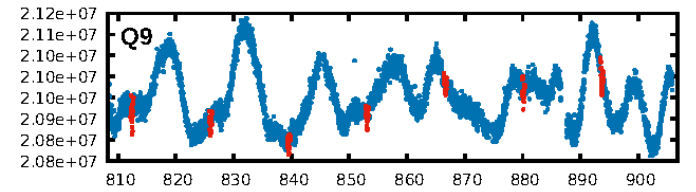
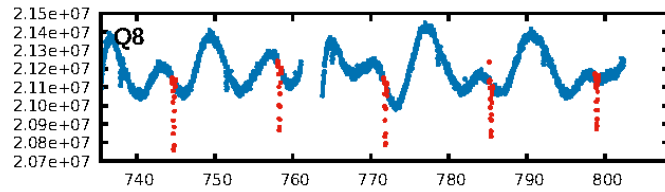
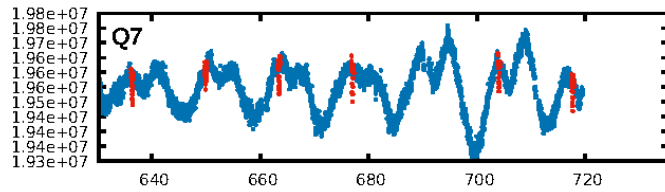
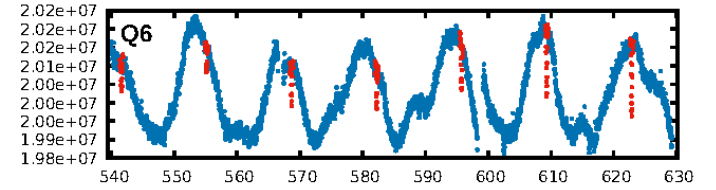
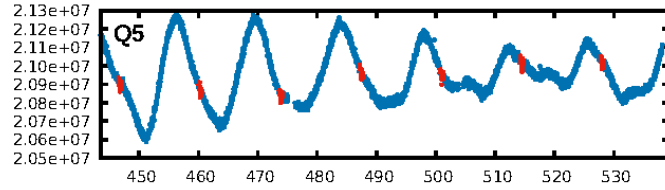
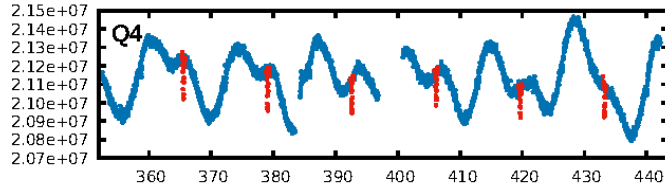
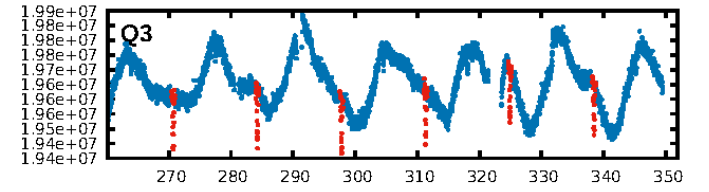
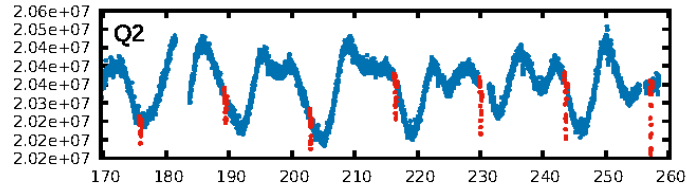
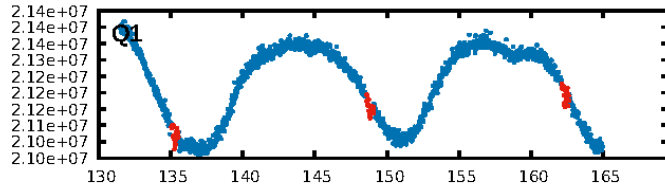
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: 0.0% [0.00σ]
ModelChiSquare2-sig: 0.0%
ModelChiSquareGof-sig: 0.0%
Bootstrap-pfa: 0.00e+00
RollingBand-fgt: 0.98 [96/98]
GhostDiagnostic-chr: -0.1984
Centroid-sig: 0.0%
Centroid-so: 26.456 arcsec [348.68σ]
OotOffset-rm: 6.346 arcsec [87.71σ]
KicOffset-rm: 6.402 arcsec [94.68σ]
OotOffset-st: 0/4/4/4 [12]
KicOffset-st: 0/4/4/4 [12]
DiffImageQuality-fgm: 1.00 [12/12]
DiffImageOverlap-fno: 1.00 [17/17]

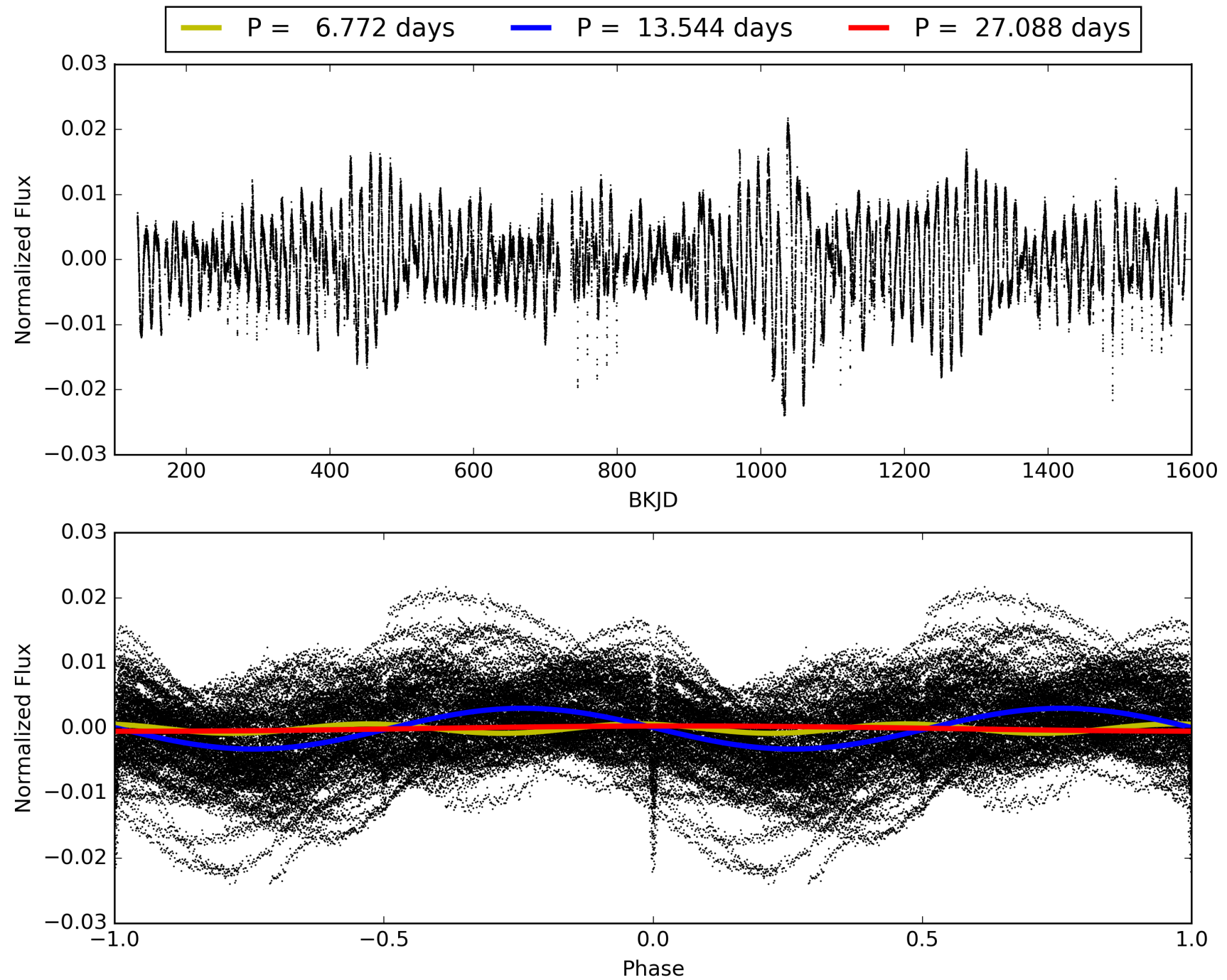
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This Data Validation Report Summary was produced in the Kepler Science Operations Center Pipeline at NASA Ames Research Center

TCE 009307105-01, PDC Light Curves

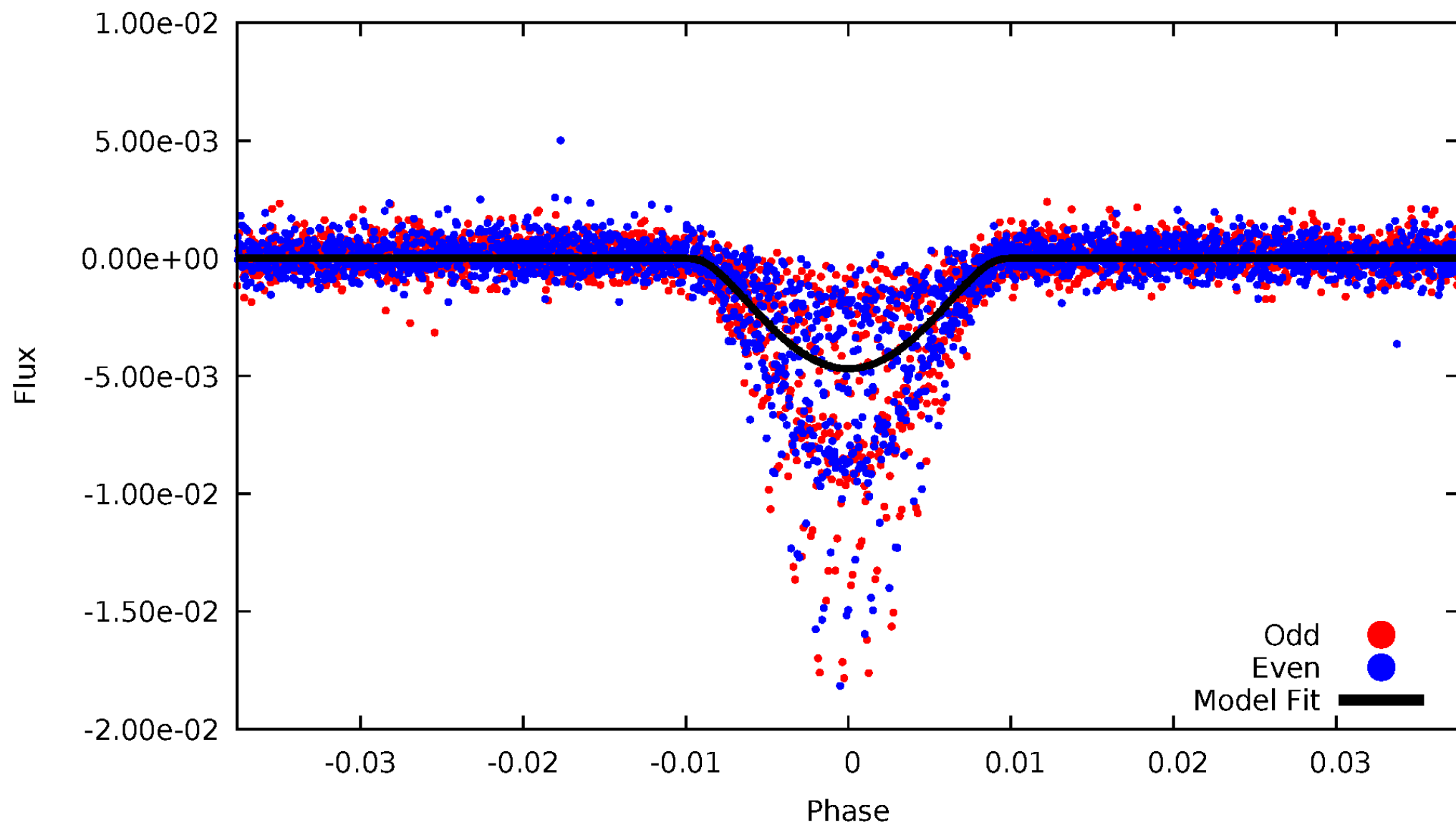


TCE 009307105-01



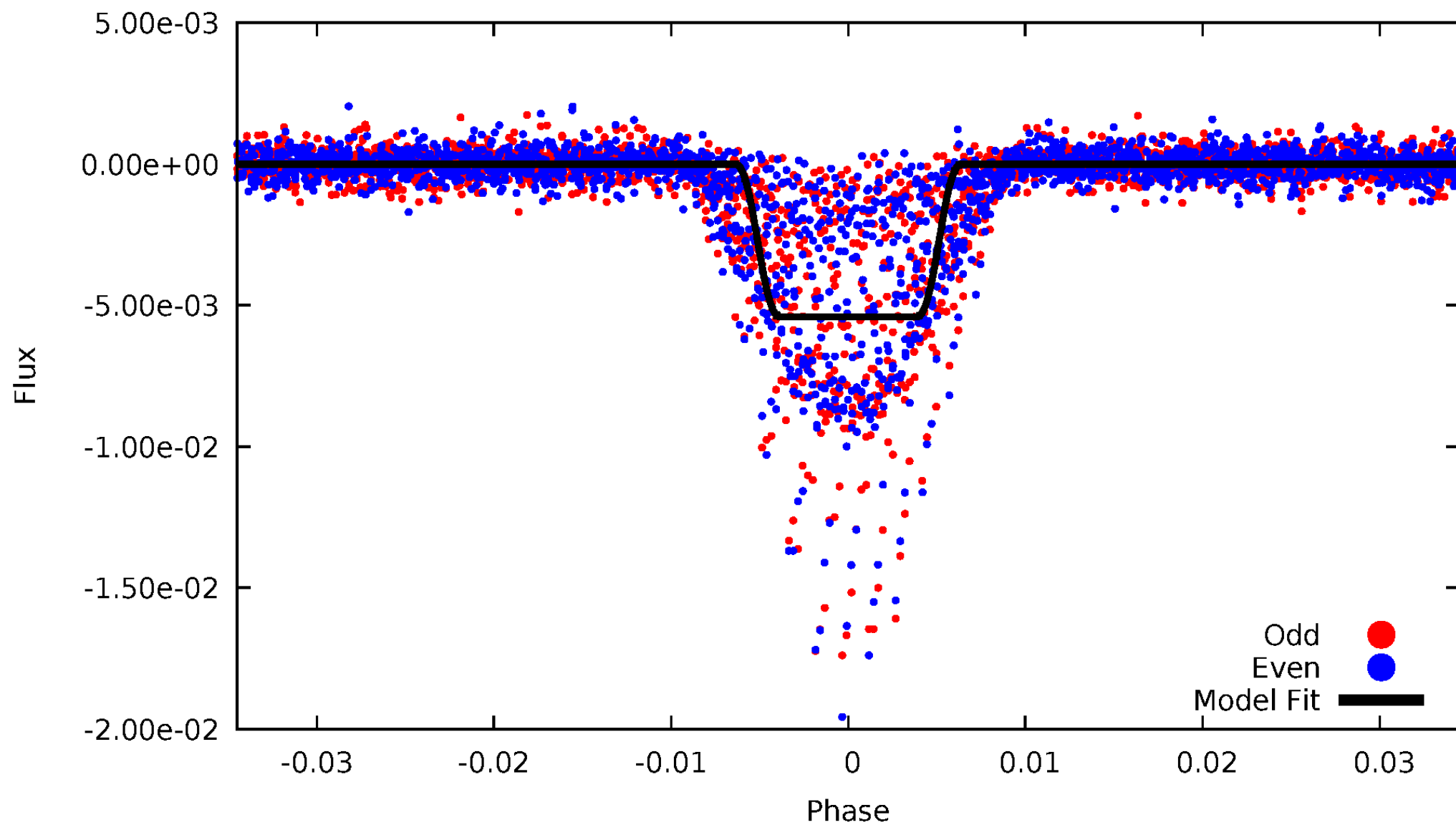
DV Odd/Even

TCE 009307105-01



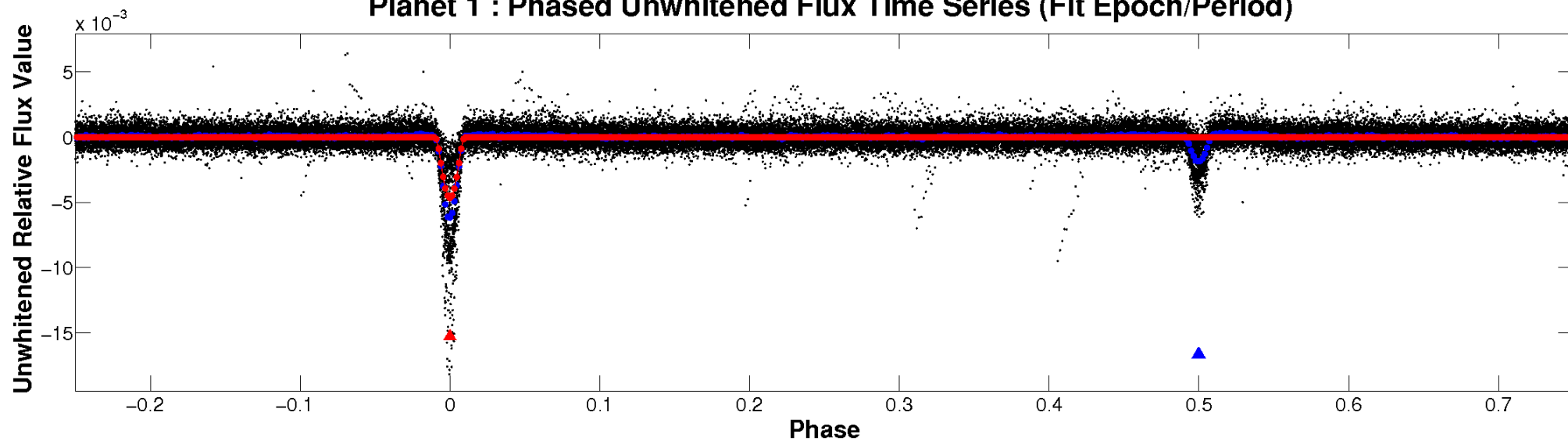
ALT Odd/Even

TCE 009307105-01

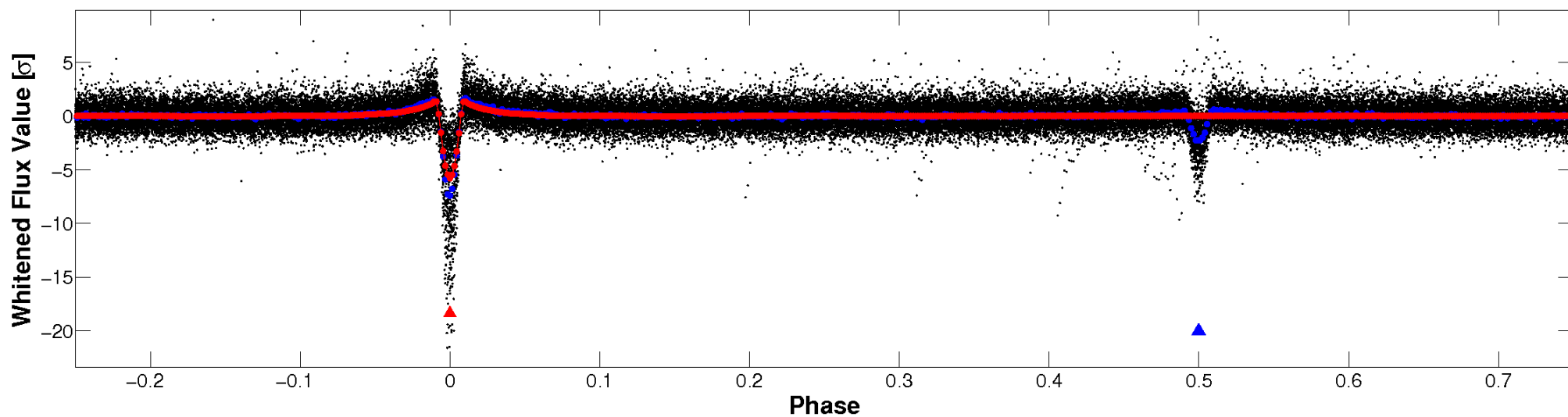


Non-Whitened Vs. Whitened Light Curve

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

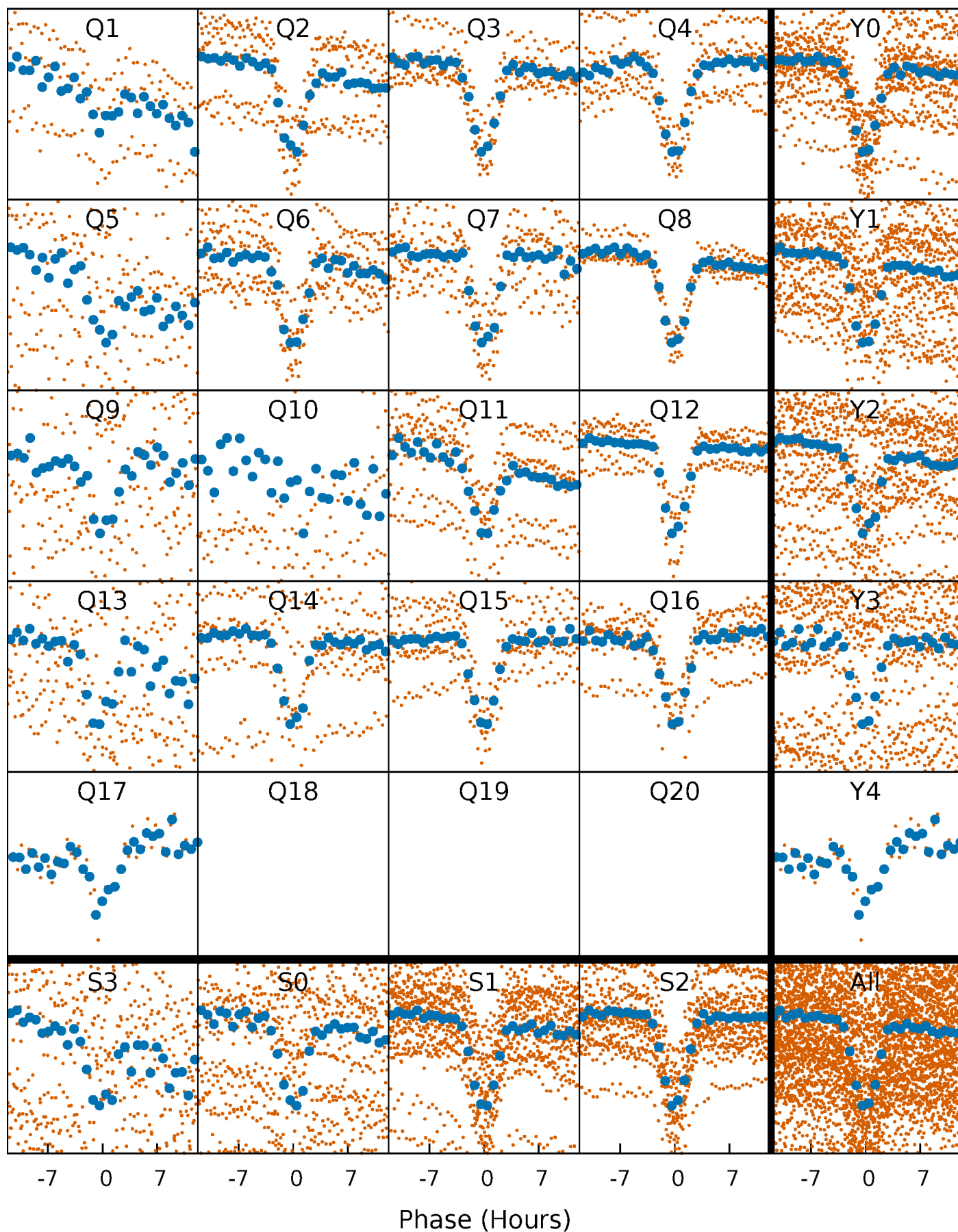


Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)



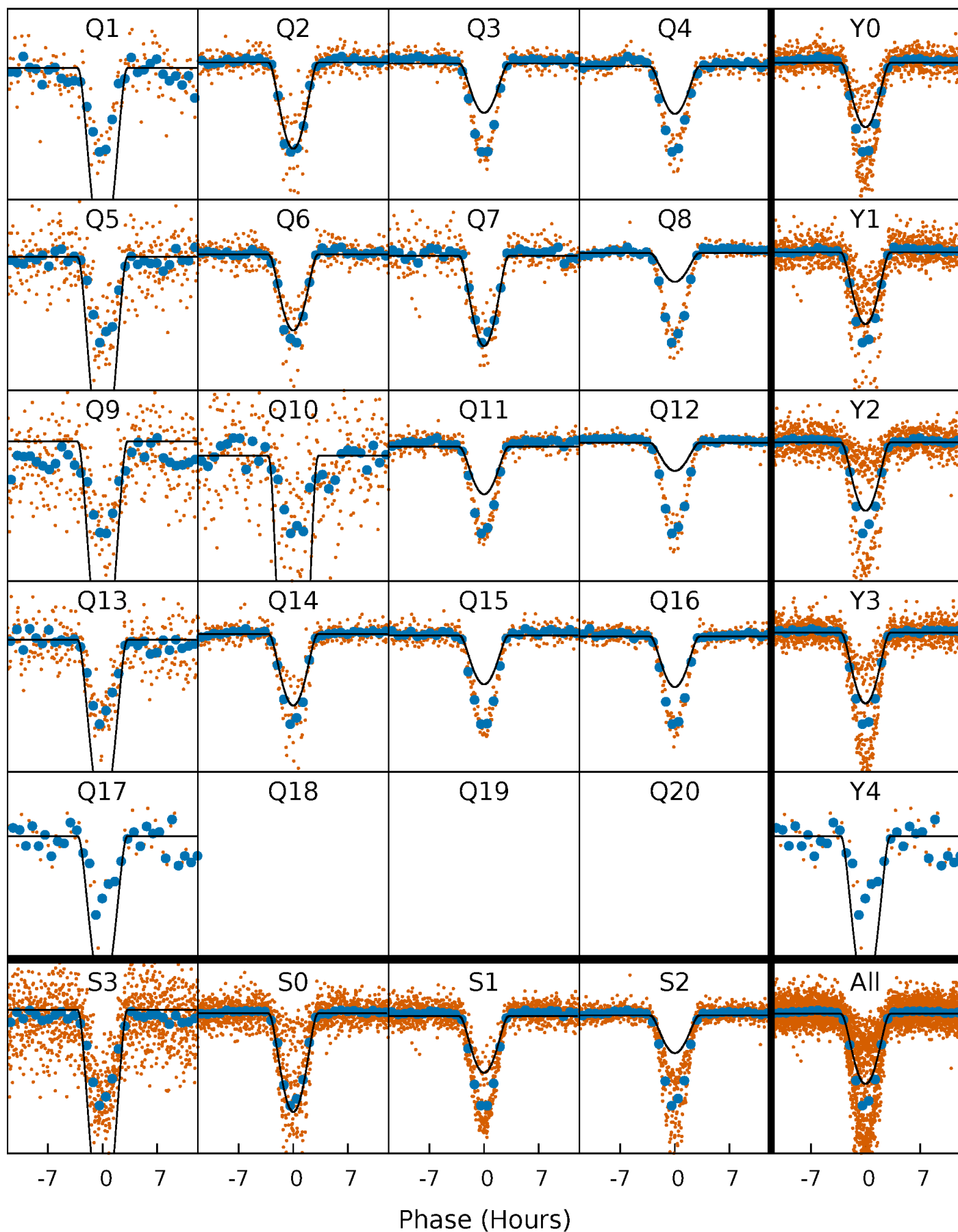
PDC Quarter-Phased Transit Curves

TCE 009307105-01 P= 13.543771 Days $T_0=135.277619$ (BKJD)



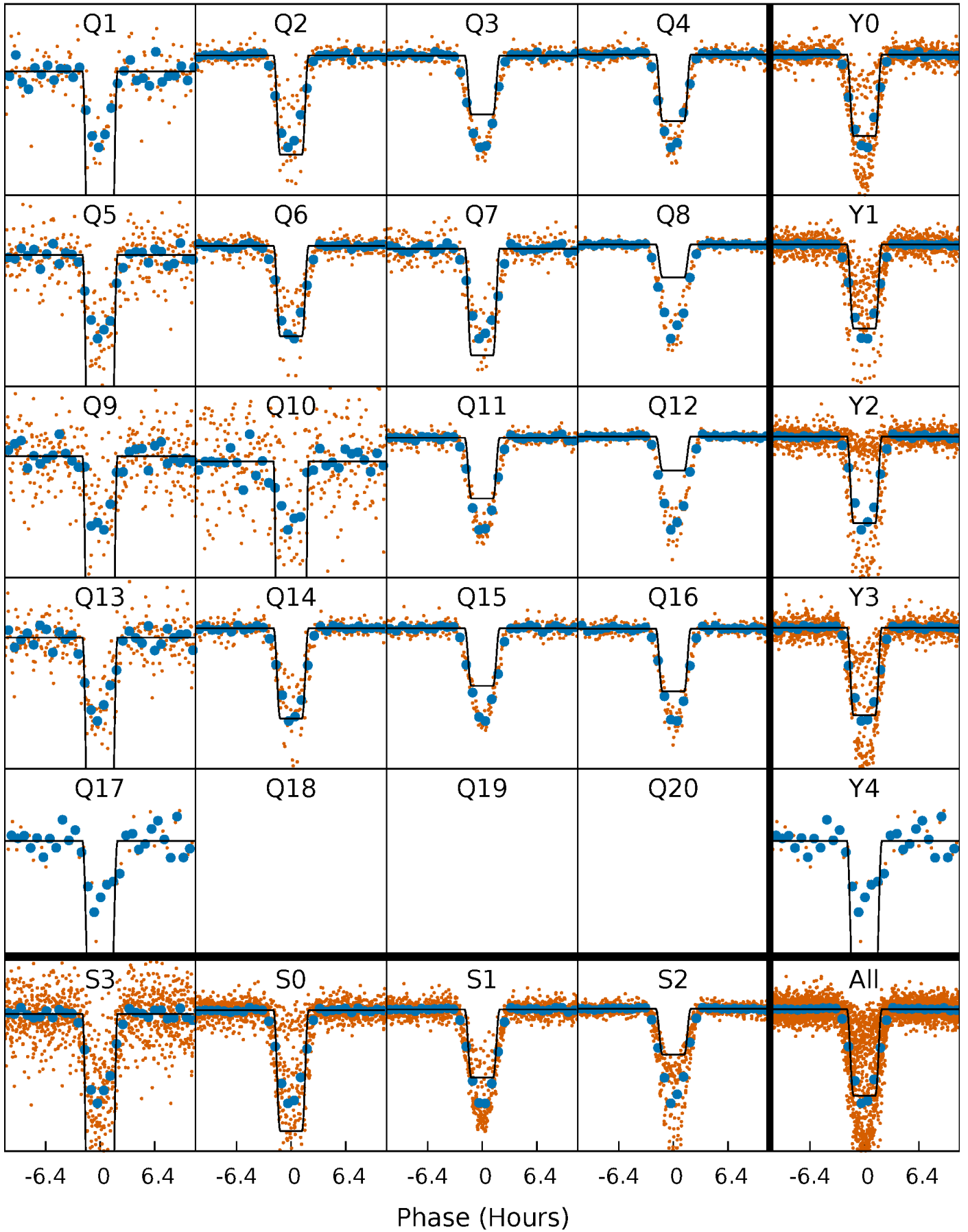
DV Quarter-Phased Transit Curves

TCE 009307105-01 P= 13.543771 Days $T_0=135.277619$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

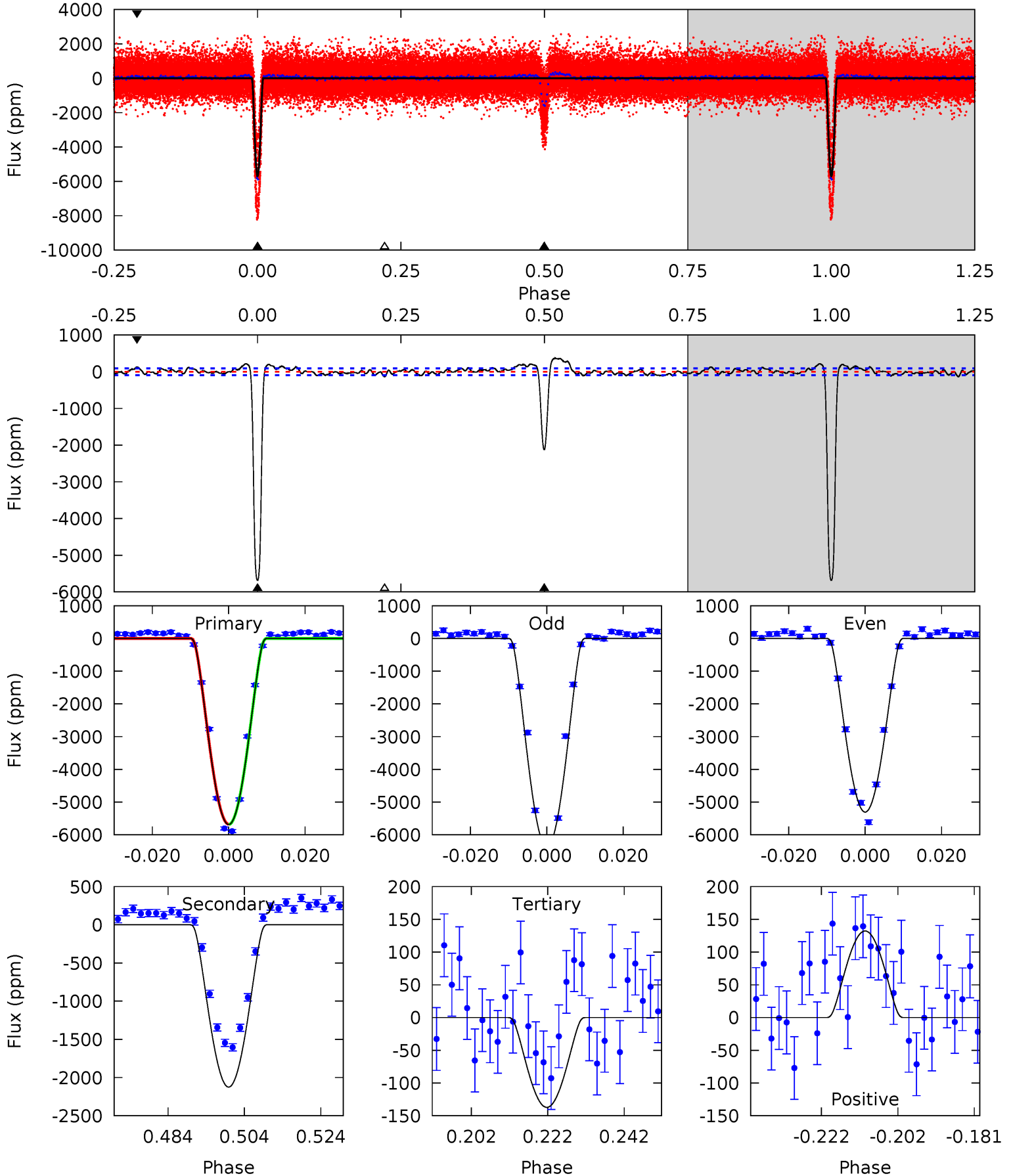
TCE 009307105-01 P= 13.543698 Days $T_0=135.280736$ (BKJD)



DV Model-Shift Uniqueness Test

009307105-01, P = 13.543771 Days, E = 121.733848 Days

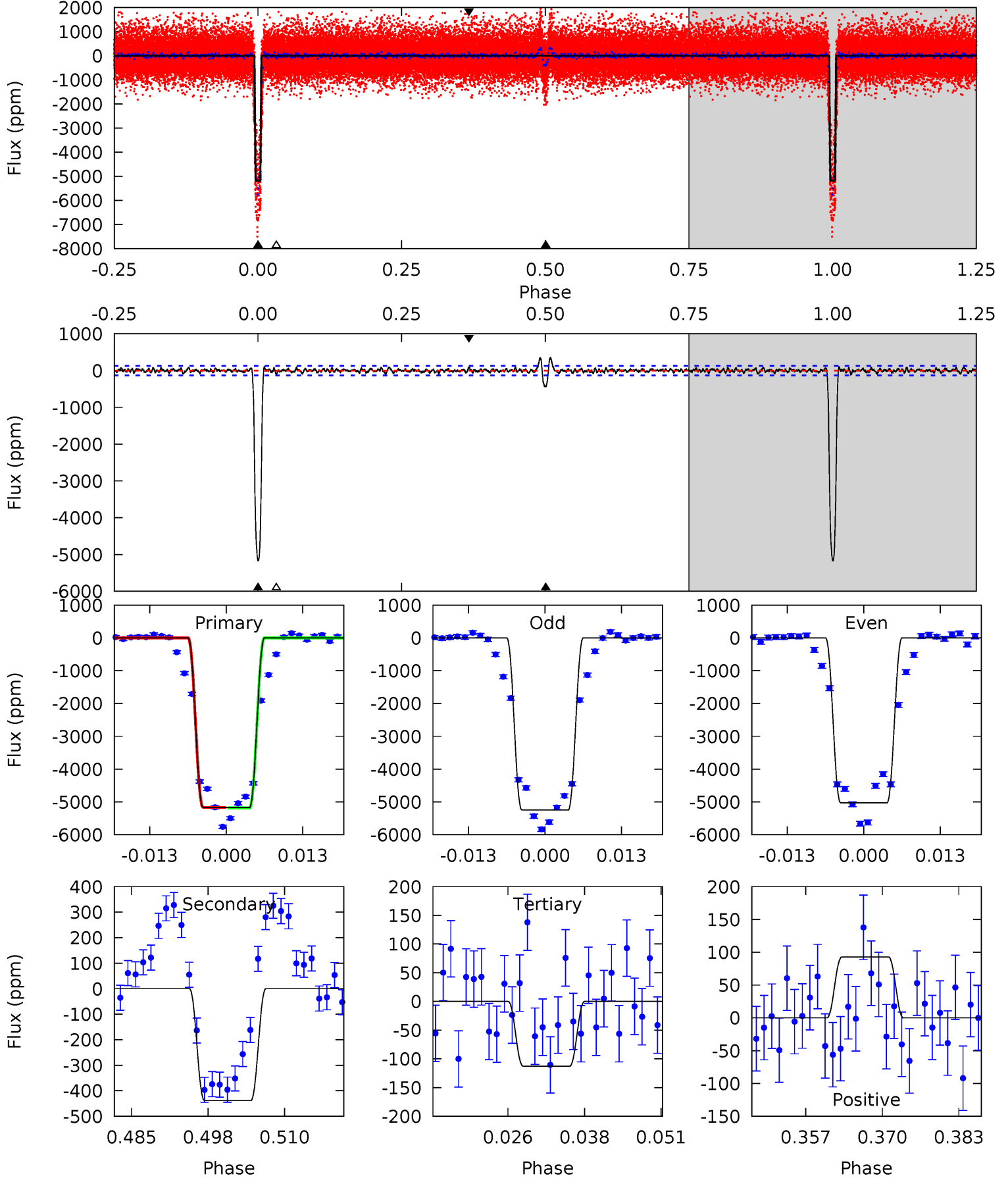
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
298.4	111.5	7.20	6.94	4.89	2.32	4.29	291.2	291.4	104.3	104.5	27.9	1.08	0.06	0.28



Alt Model-Shift Uniqueness Test

009307105-01, P = 13.543698 Days, E = 121.737038 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
199.8	16.9	4.36	3.59	4.98	2.49	1.19	195.5	196.2	12.6	13.3	4.22	1.05	0.06	0



Stellar Parameters For KIC 009307105

	$T_{\text{eff}} (K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R (R_{\odot})$	$M (M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	5463^{+191}_{-172}	$4.582^{+0.036}_{-0.144}$	$-0.140^{+0.300}_{-0.300}$	$0.794^{+0.175}_{-0.070}$	$0.883^{+0.082}_{-0.101}$	$2.488^{+0.448}_{-0.971}$
	+3%/-3%	+1%/-3%	+214%/-214%	+22%/-9%	+9%/-11%	+18%/-39%
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 009307105-01 / KOI 3304.01

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-2124 ± 19	$10.61^{+3.88}_{-3.95}$	939^{+47}_{-41}	3785^{+698}_{-367}	117^{+178}_{-55}
Alt.	-438 ± 26	$6.91^{+3.77}_{-3.37}$	940^{+55}_{-41}	3379^{+826}_{-411}	57^{+156}_{-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 $A_{\text{obs}} \gg 1.0$

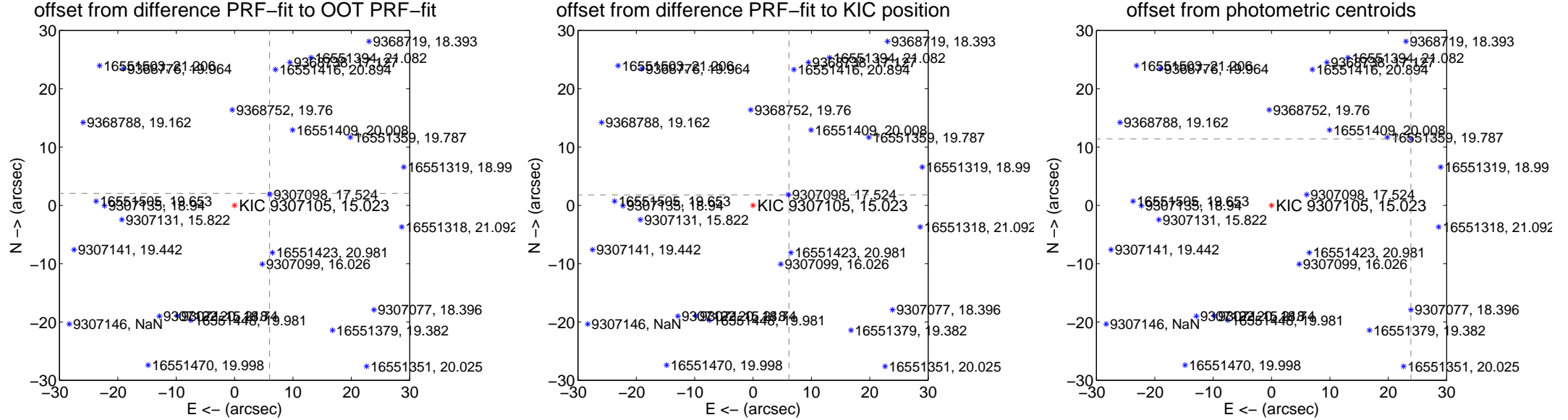
DV Centroid Data

Supplemental centroid analysis for 009307105-01. Kepler magnitude: 15.02. Transit SNR 99.86

There are 12 quarters with good PRF difference image offsets

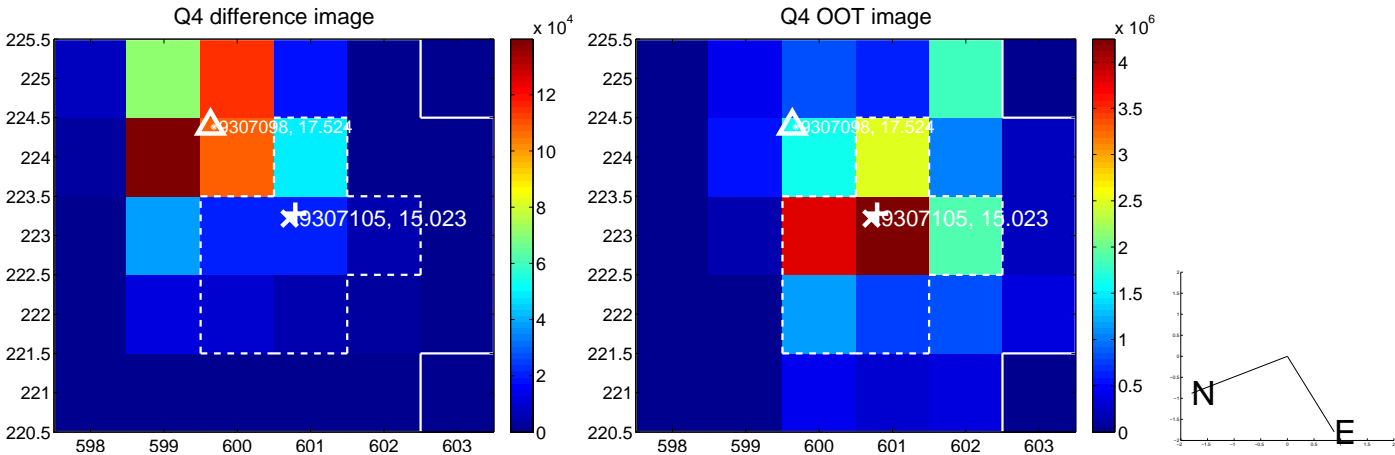
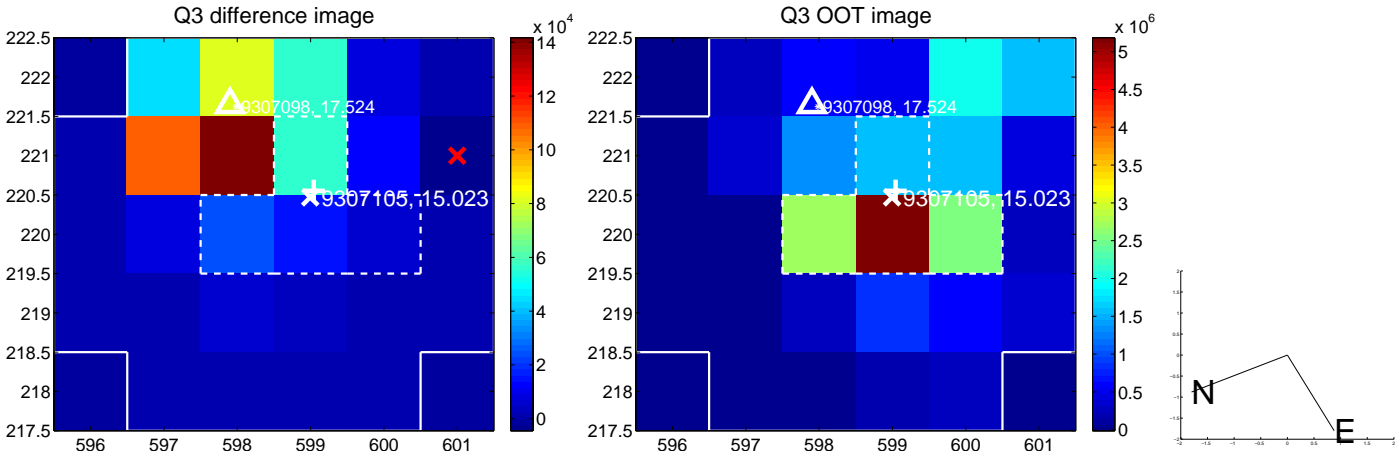
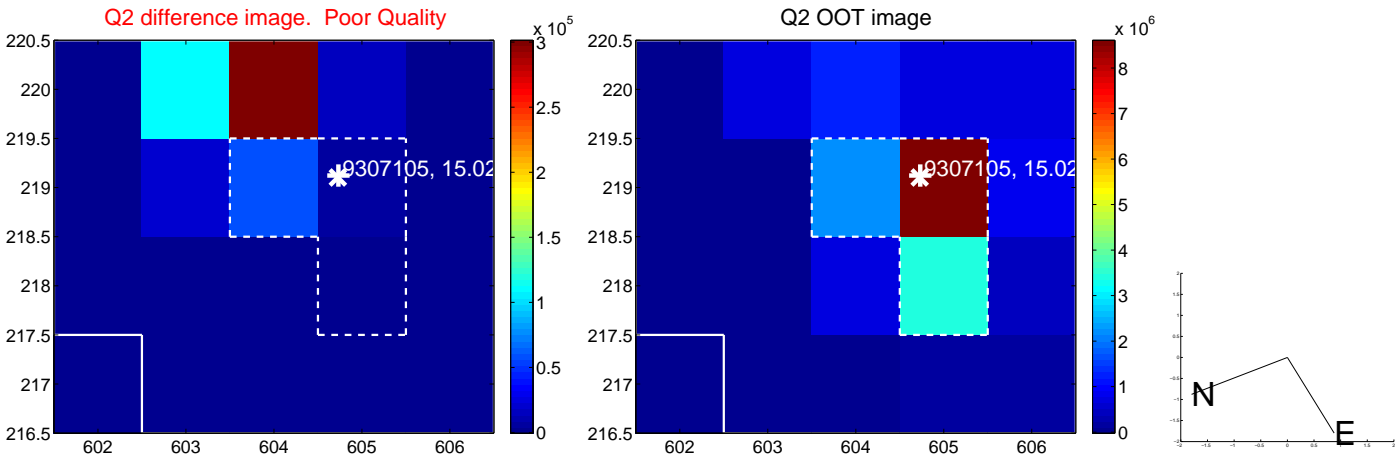
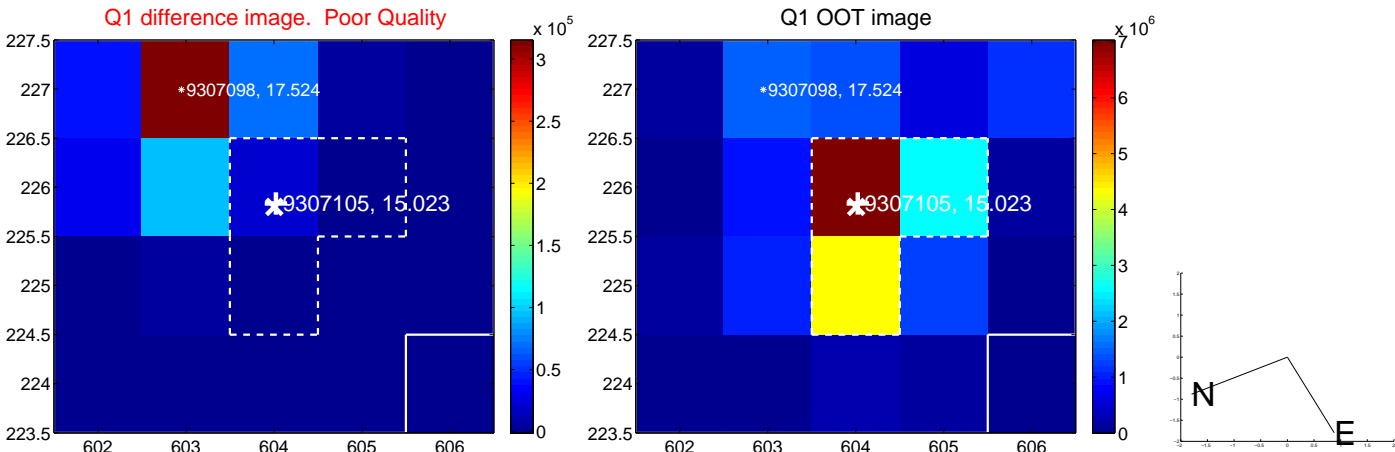
The direct PRF centroid is offset from the target star catalog position by about 0.22 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	6.346 ± 0.072	87.71	-5.999 ± 0.071	2.071 ± 0.084
PRF-fit source offset from KIC position	6.402 ± 0.068	94.68	-6.148 ± 0.068	1.786 ± 0.068
photometric centroid source offset	26.45 ± 0.08	348.68	-23.87 ± 0.08	11.41 ± 0.07

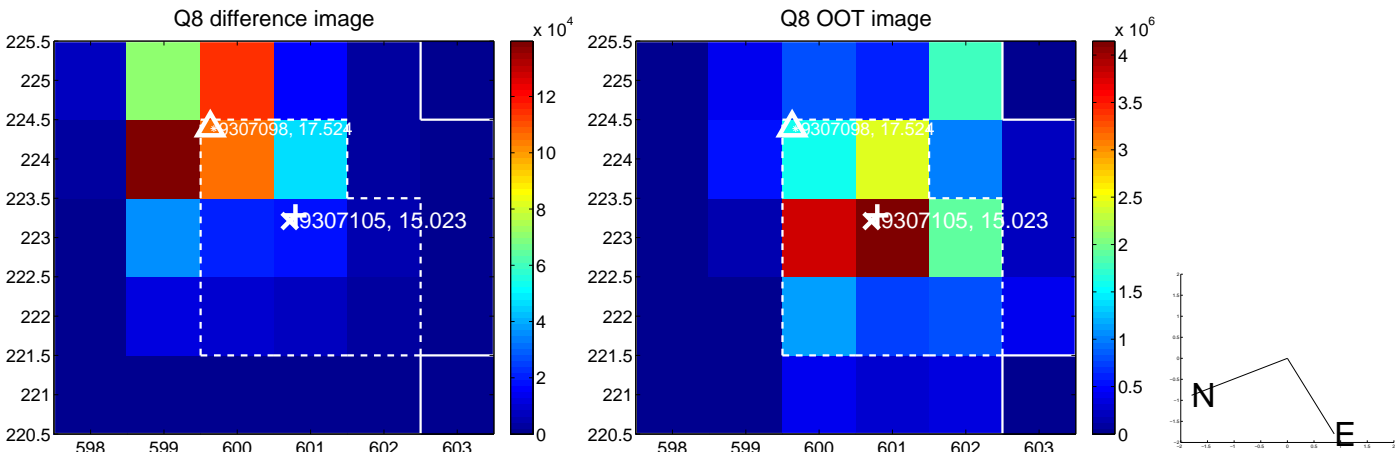
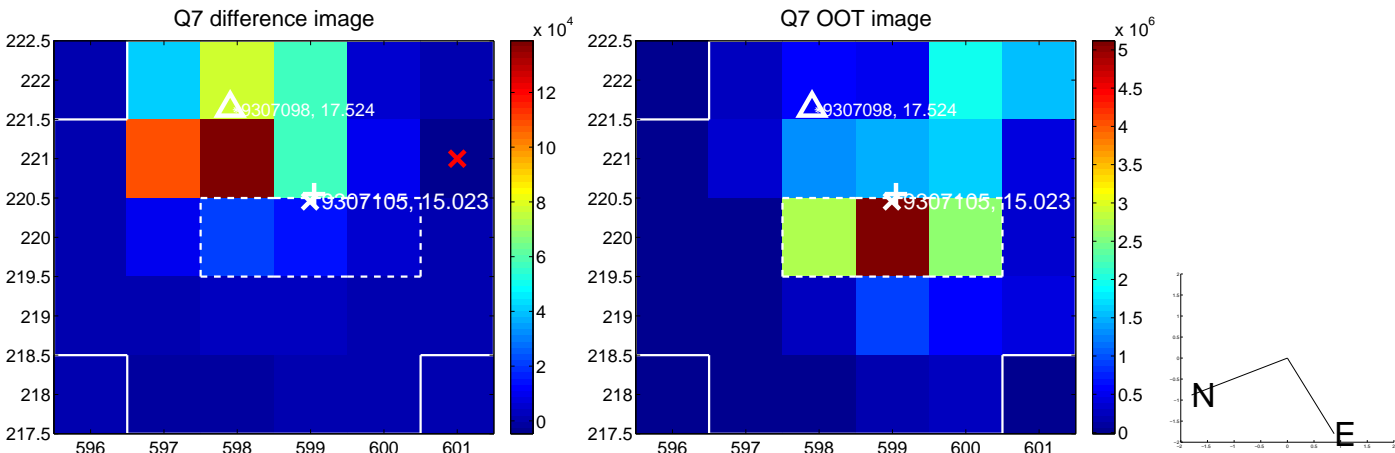
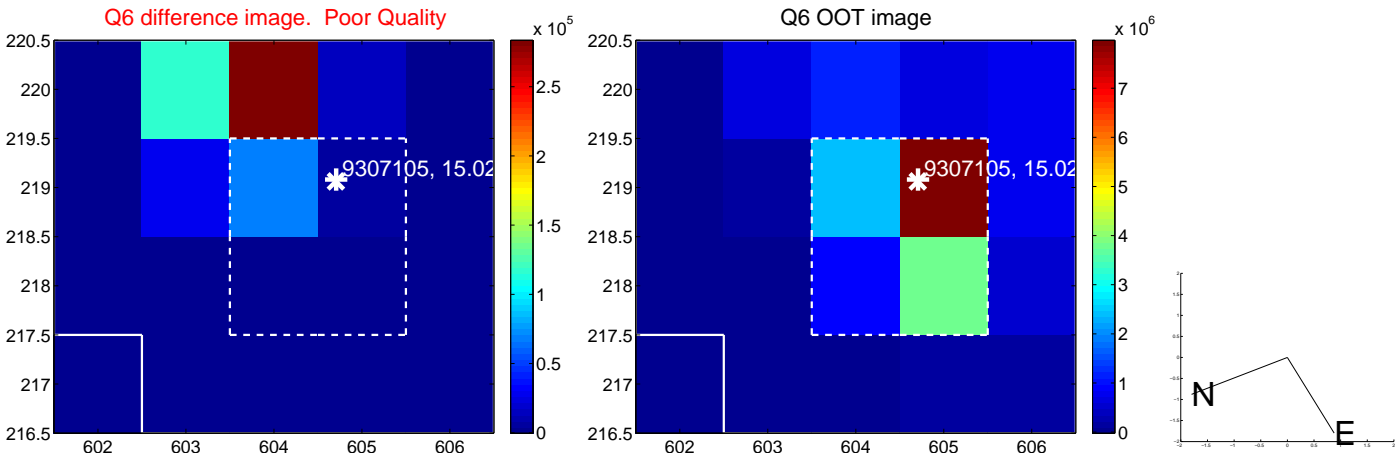
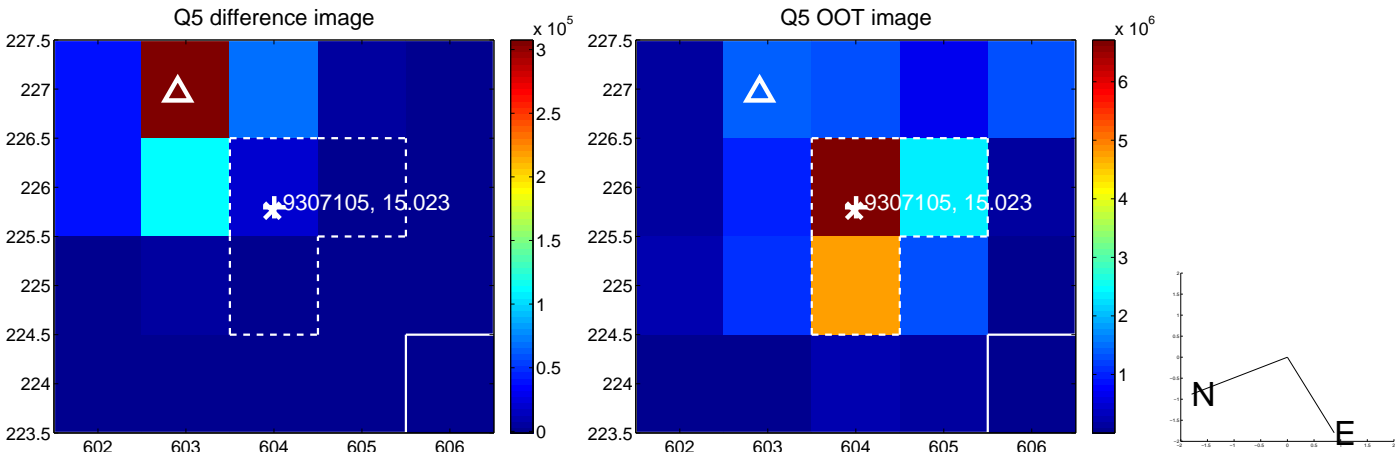


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets;** magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

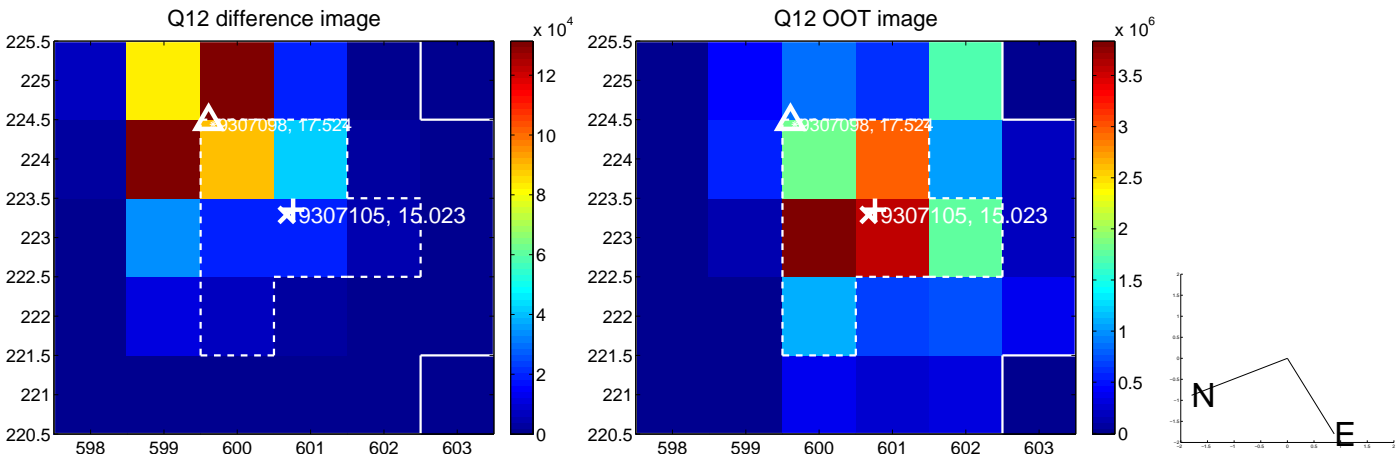
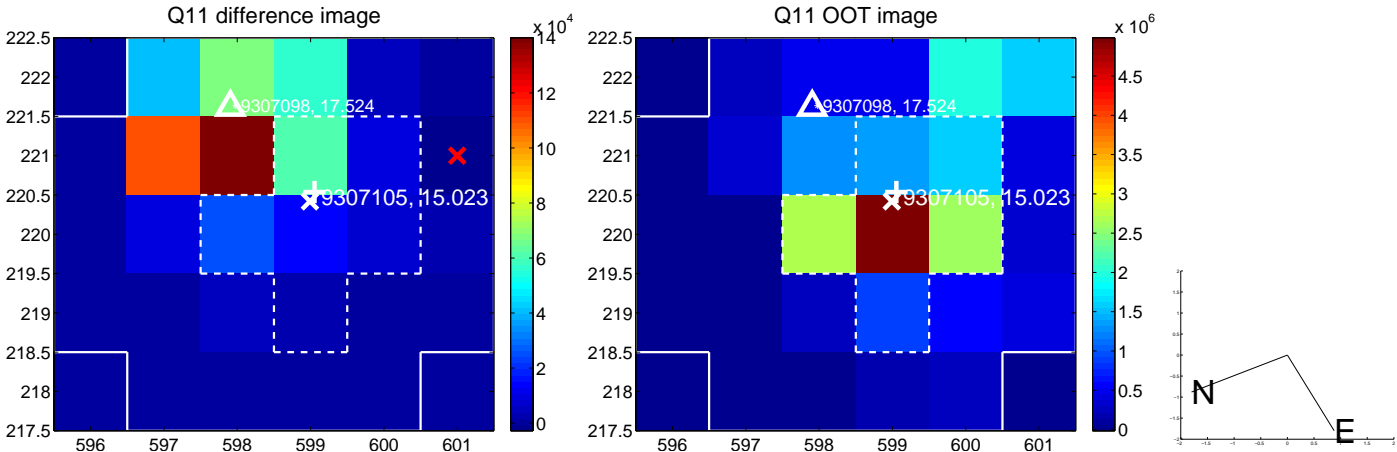
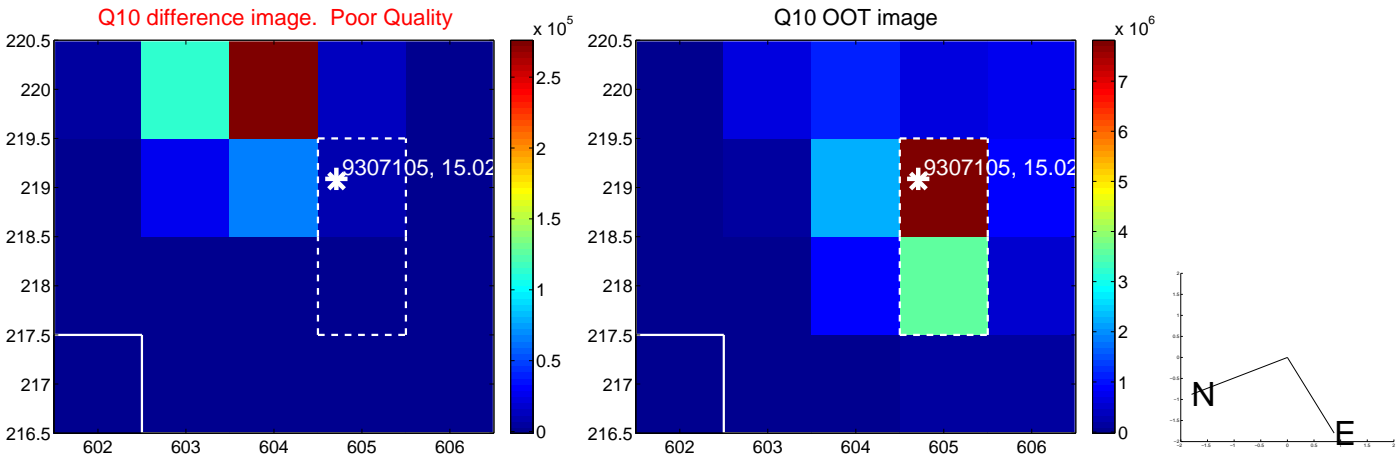
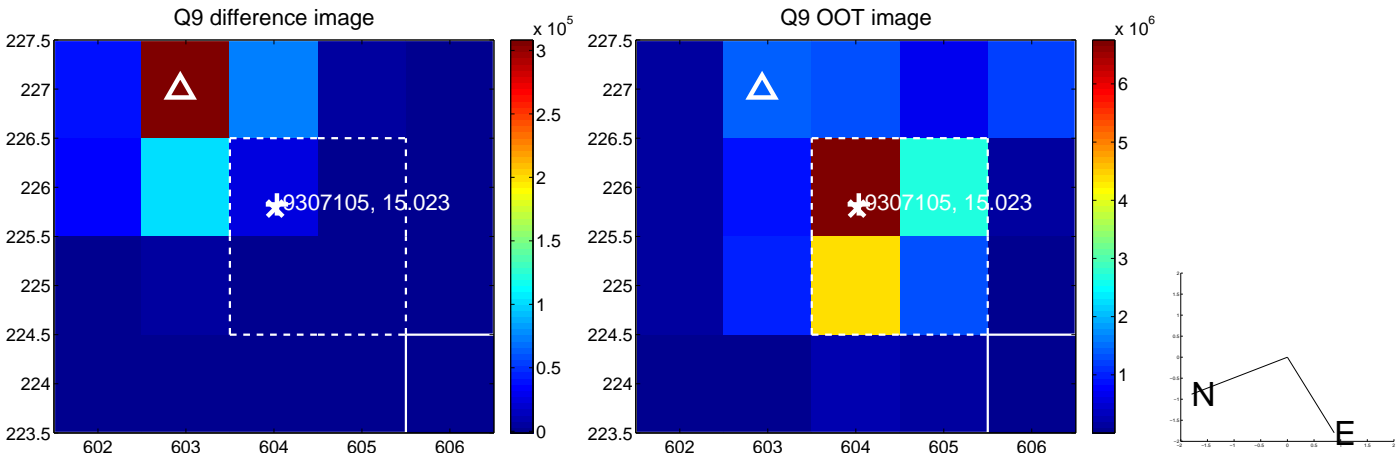
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



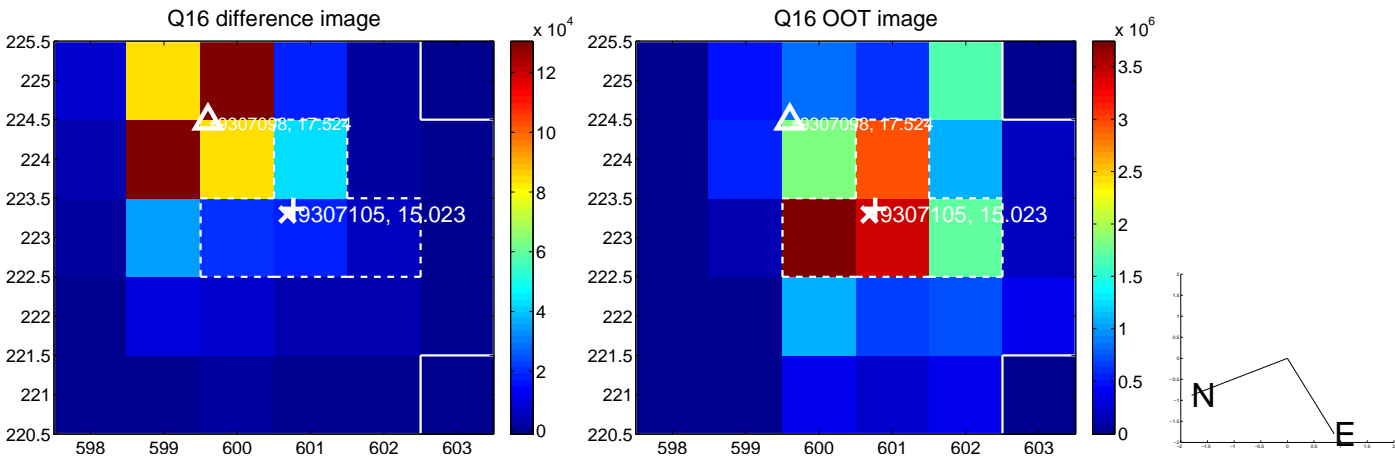
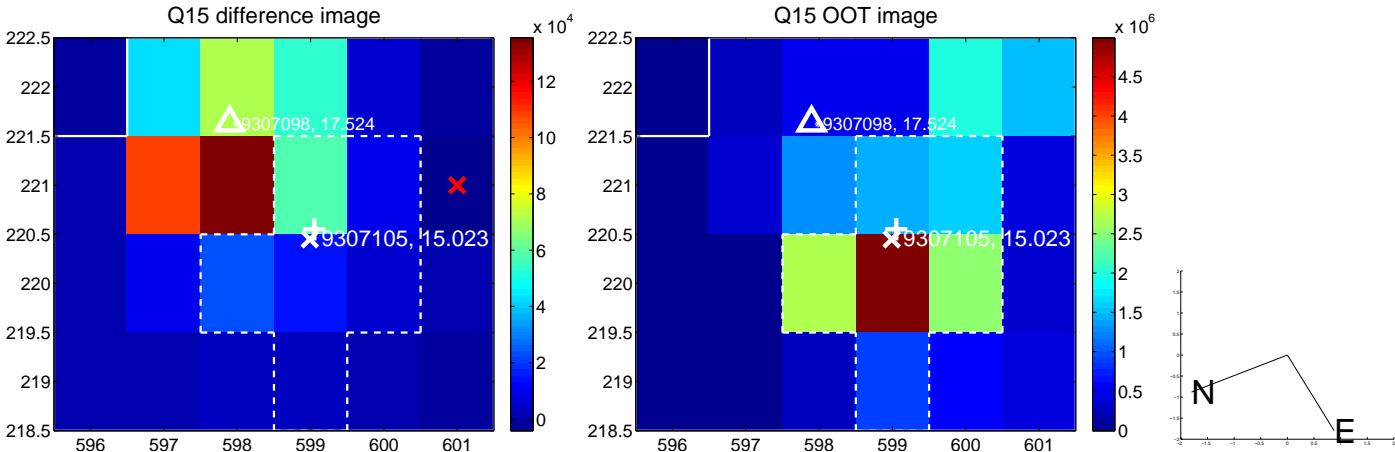
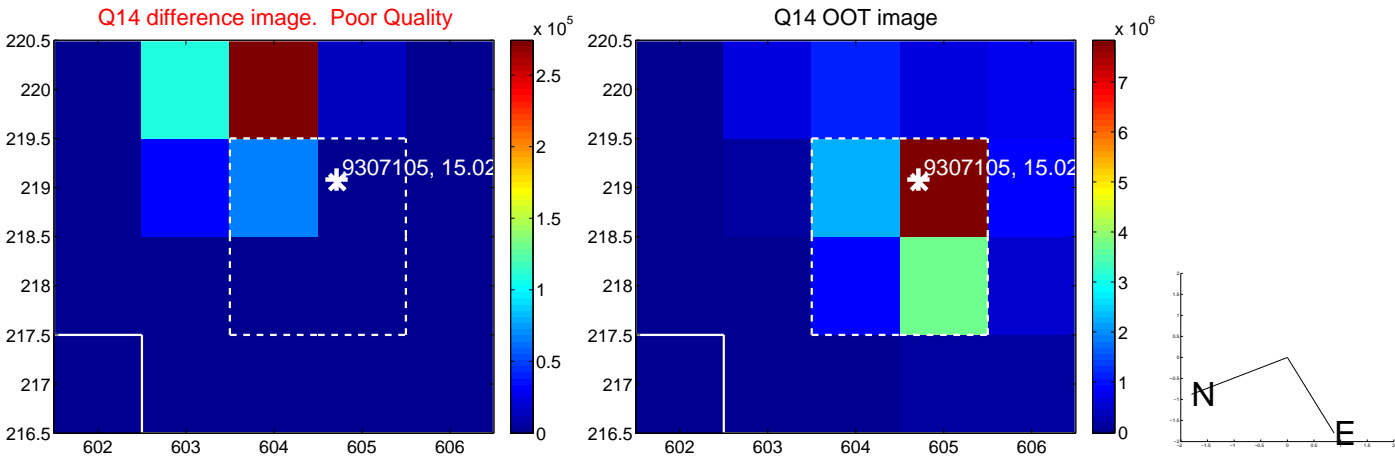
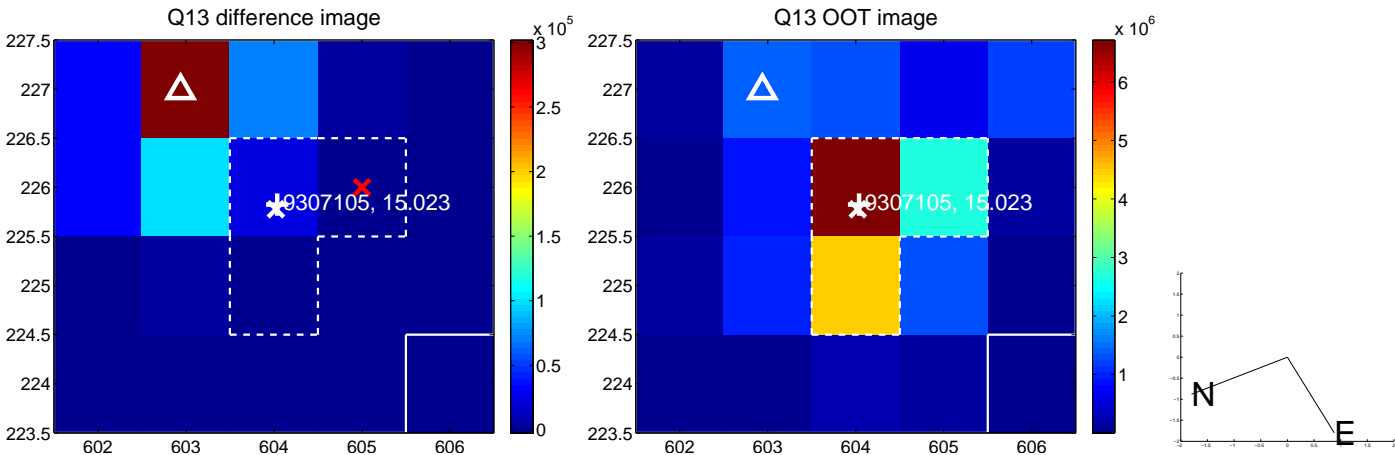
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



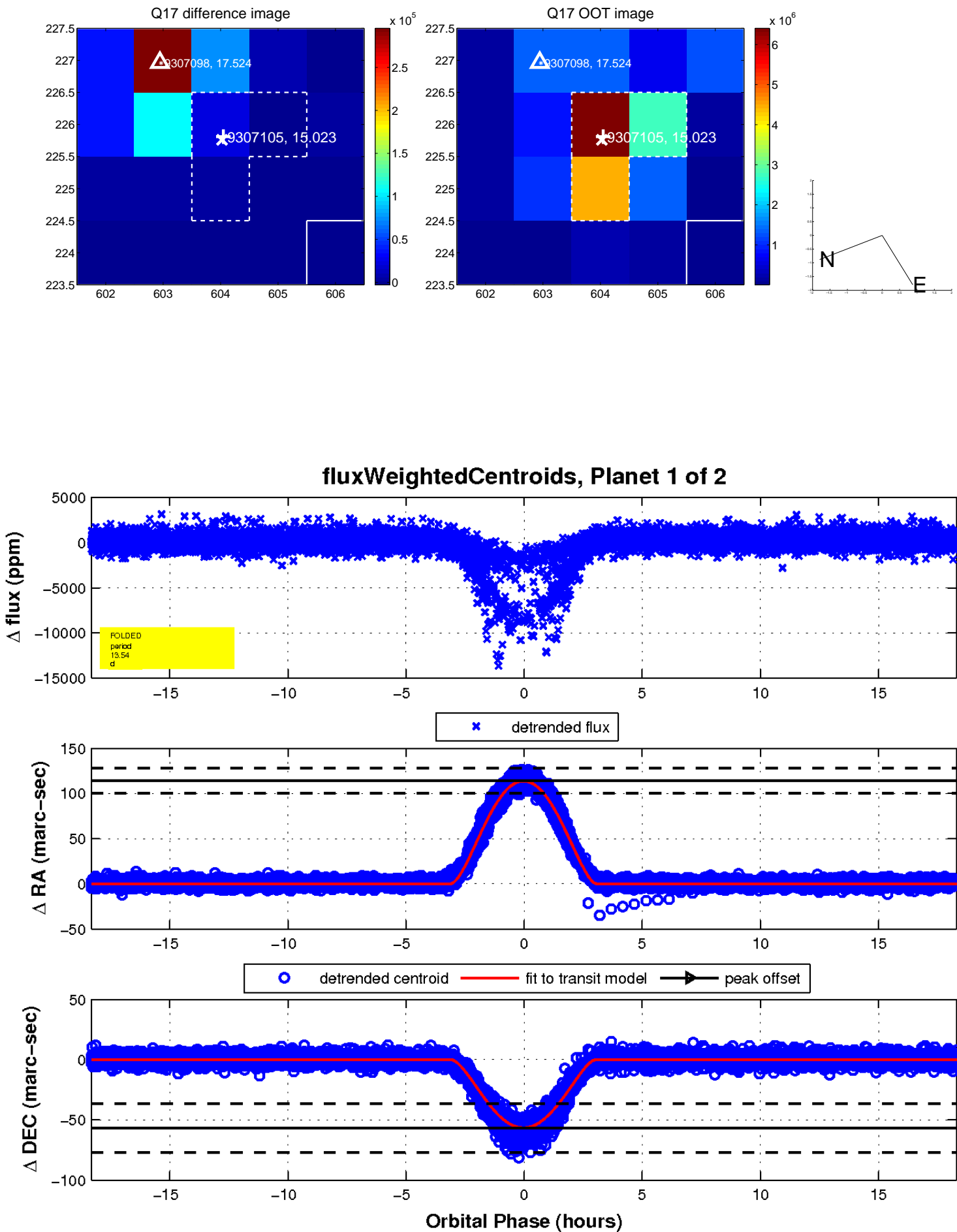
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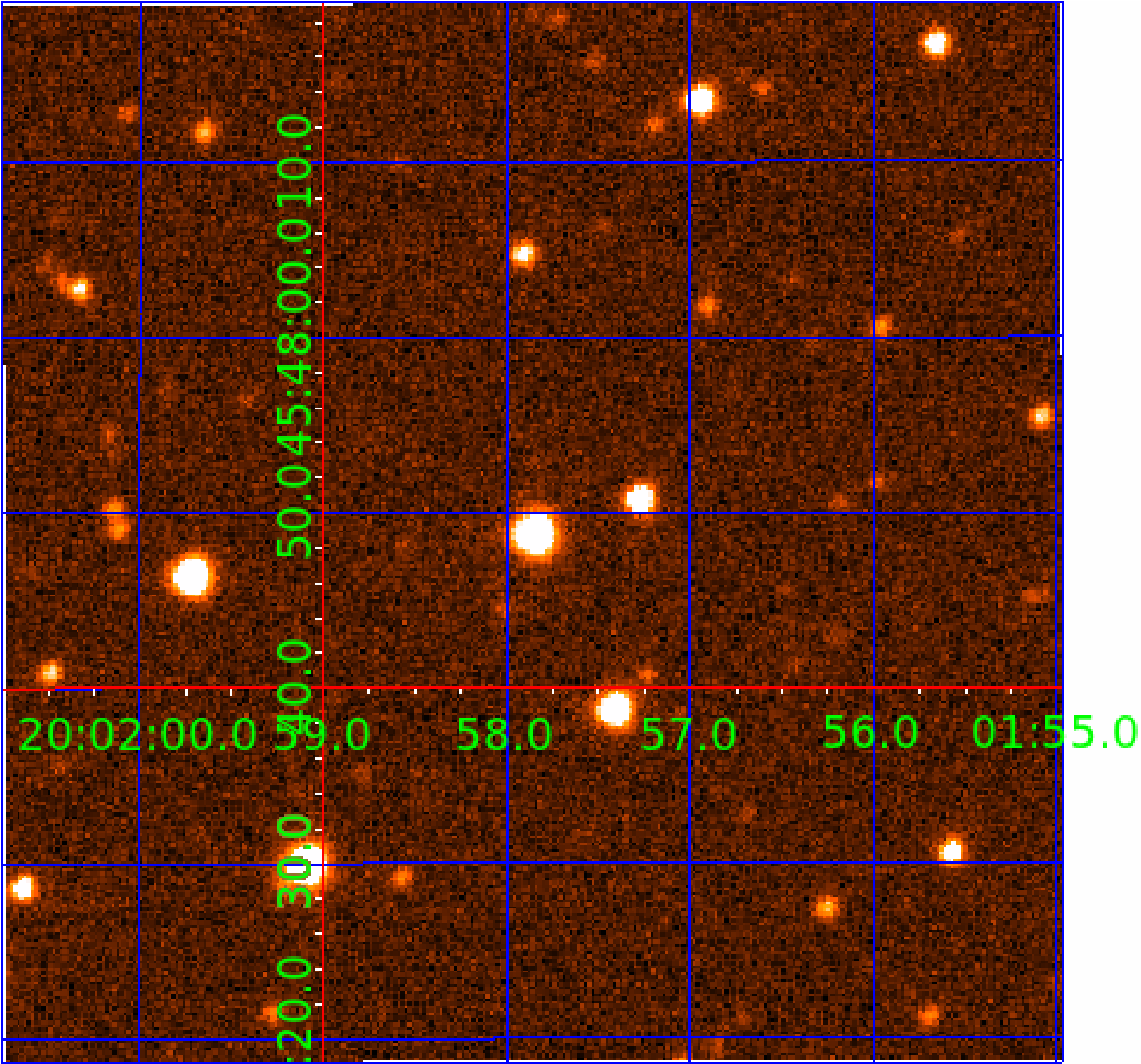


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 009307105

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})
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009307105-02	OBS	No	13.543858	142.042849	1612.8	6.168	49.1	43.4	0.79	5463	5.51	44.34

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
009307105-01	OBS	FP	0.00	0	1	1	0	MOD_SEC_DV—MOD_SEC_ALT—MOD_ODDEVEN_DV—DEEP_V_SHAPED—HAS_SEC_TCE—CENT_UNRESOLVED_OFFSET—HALO_GHOST
009307105-02	OBS	FP	0.00	1	1	1	0	IS_SEC_TCE—CENT_UNRESOLVED_OFFSET—HALO_GHOST

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.

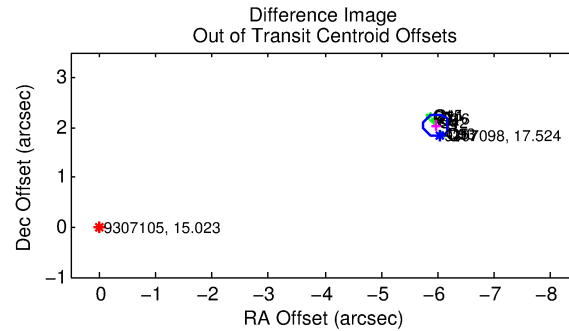
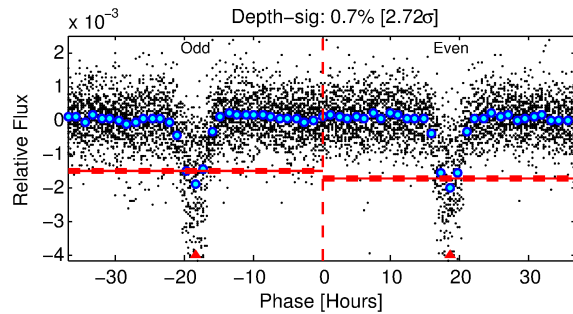
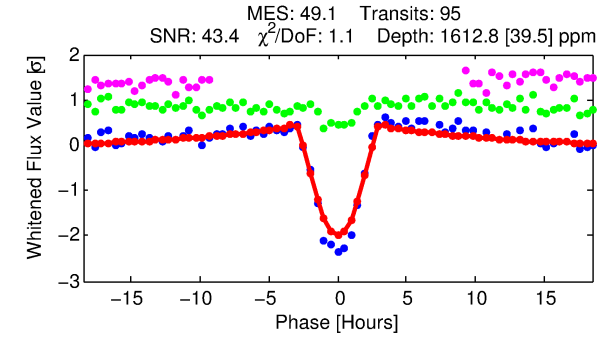
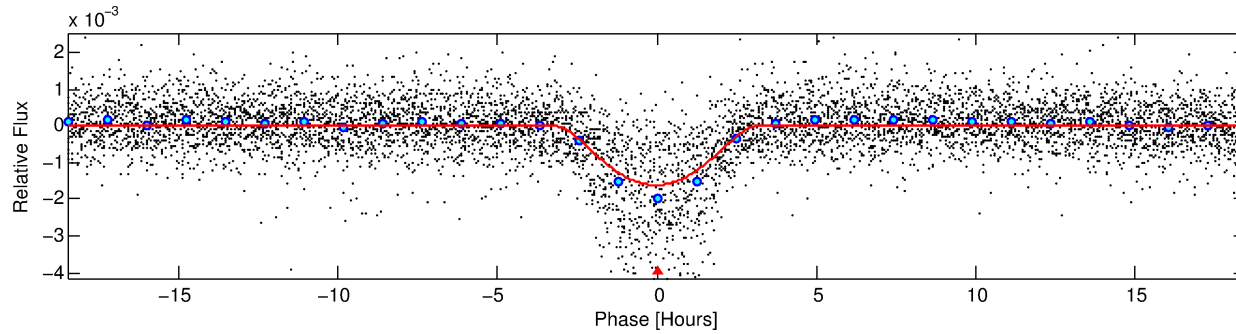
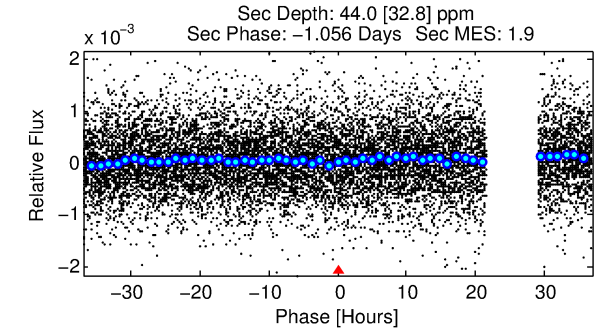
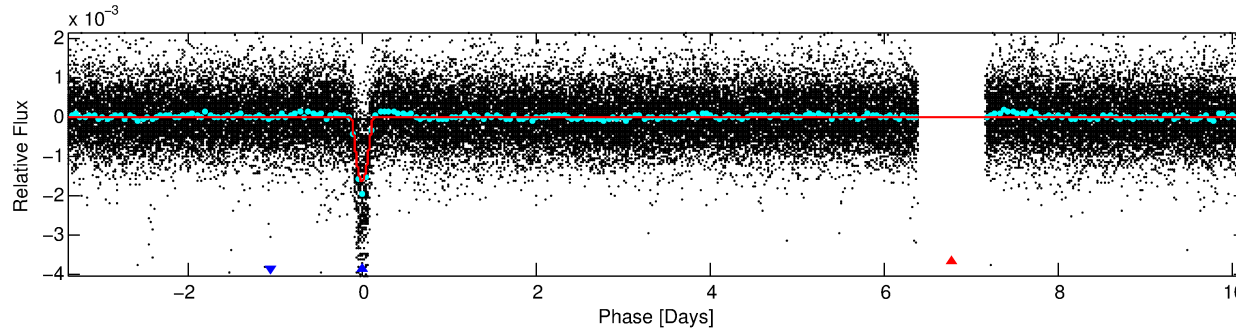
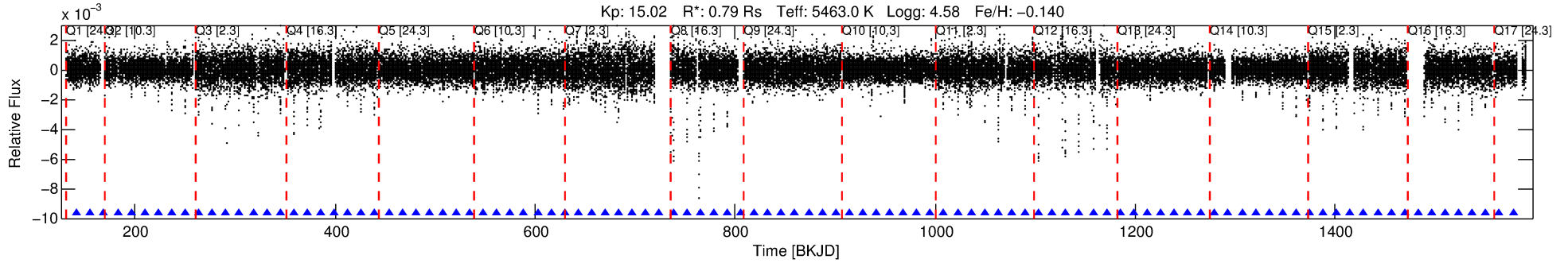
Ephemeris Match Information For 009307105-02

No Significant Match Found

DV One-Page Summary

KIC: 9307105 Candidate: 2 of 2 Period: 13.544 d
KOI: K03304 Corr: No Ephemeris Match

Kp: 15.02 R*: 0.79 Rs Teff: 5463.0 K Logg: 4.58 Fe/H: -0.140



DV Fit Results:

Period = 13.54386 [0.00005] d
Epoch = 142.0428 [0.0031] BKJD
Rp/R* = 0.0636 [0.0301]
a/R* = 6.70 [0.83]
b = 0.99 [0.05]
Seff = 44.34 [13.30]
Teff = 658 [49] K
Rp = 5.51 [2.88] Re
a = 0.1065 [0.0196] AU
Ag = 9.04 [11.15] [0.72σ]
Teffp = 1764 [535] K [2.06σ]

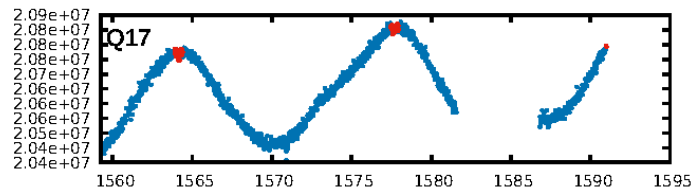
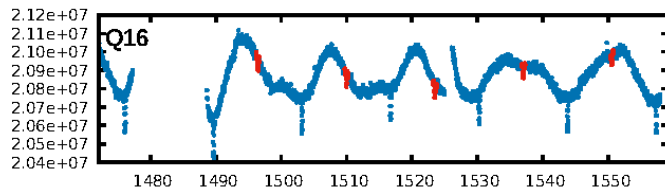
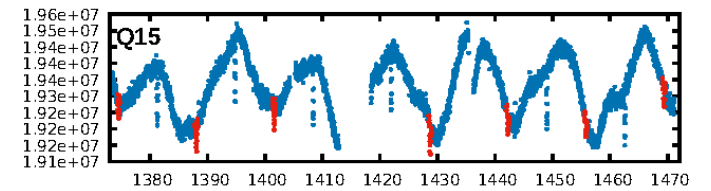
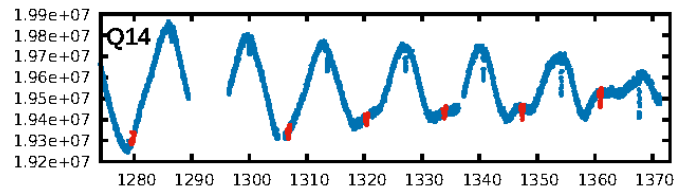
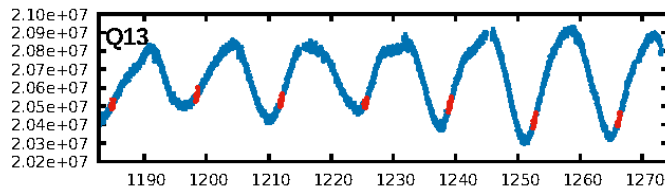
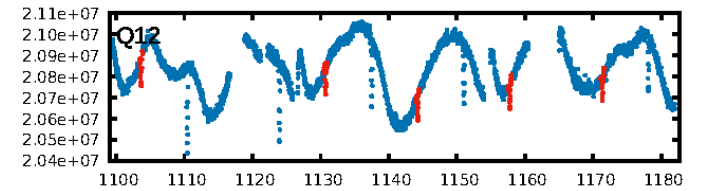
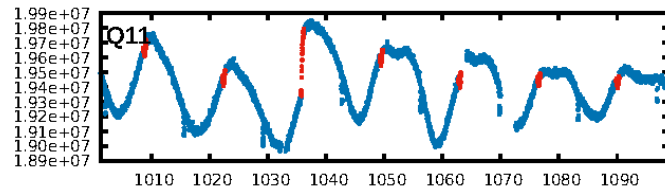
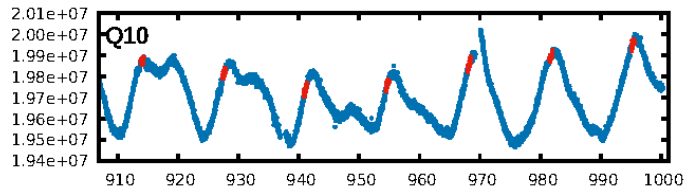
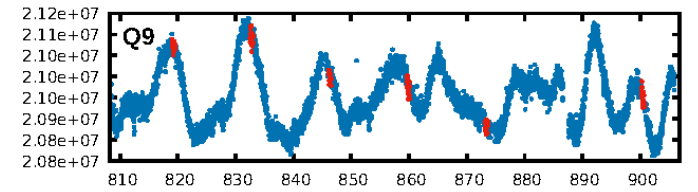
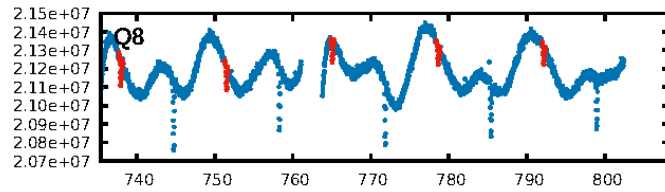
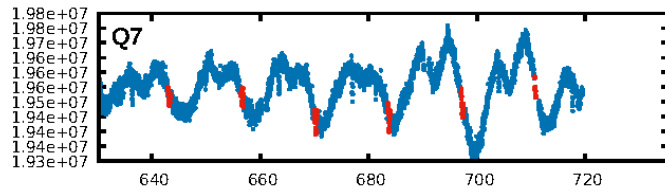
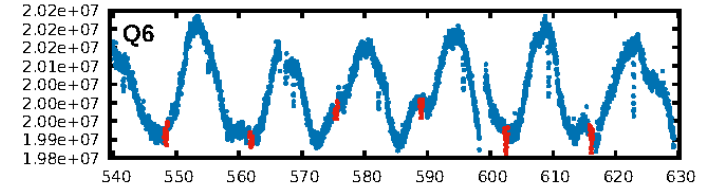
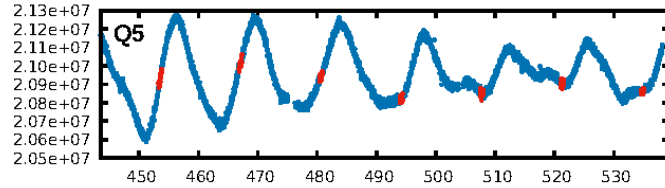
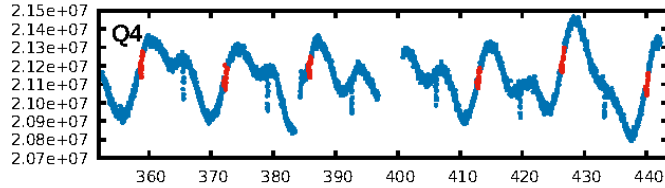
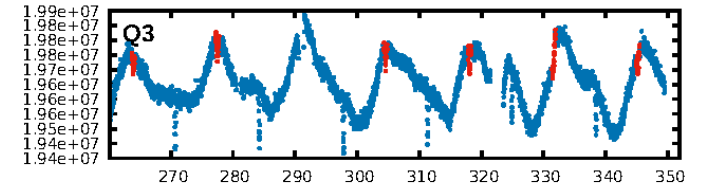
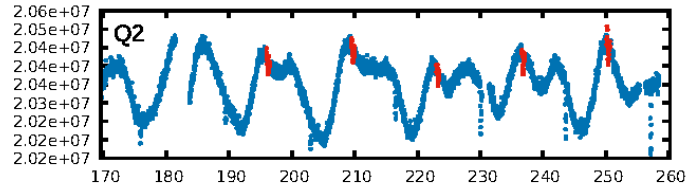
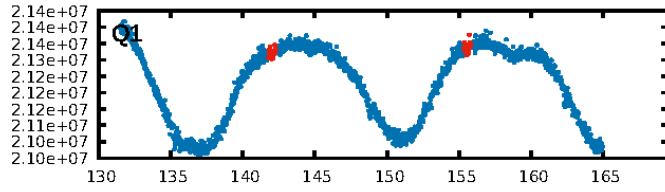
DV Diagnostic Results:

ShortPeriod-sig: 0.0% [0.00σ]
LongPeriod-sig: N/A
ModelChiSquare2-sig: 0.0%
ModelChiSquareGof-sig: 99.9%
Bootstrap-pfa: 0.00e+00
RollingBand-fgt: 1.00 [91/91]
GhostDiagnostic-chr: -0.1816
Centroid-sig: 0.0%
Centroid-so: 27.113 arcsec [121.42σ]
OotOffset-rm: 6.298 arcsec [84.29σ]
KicOffset-rm: 6.372 arcsec [91.43σ]
OotOffset-st: 0/4/4/4 [12]
KicOffset-st: 0/4/4/4 [12]
DiffImageQuality-fgm: 1.00 [12/12]
DiffImageOverlap-fno: 1.00 [17/17]

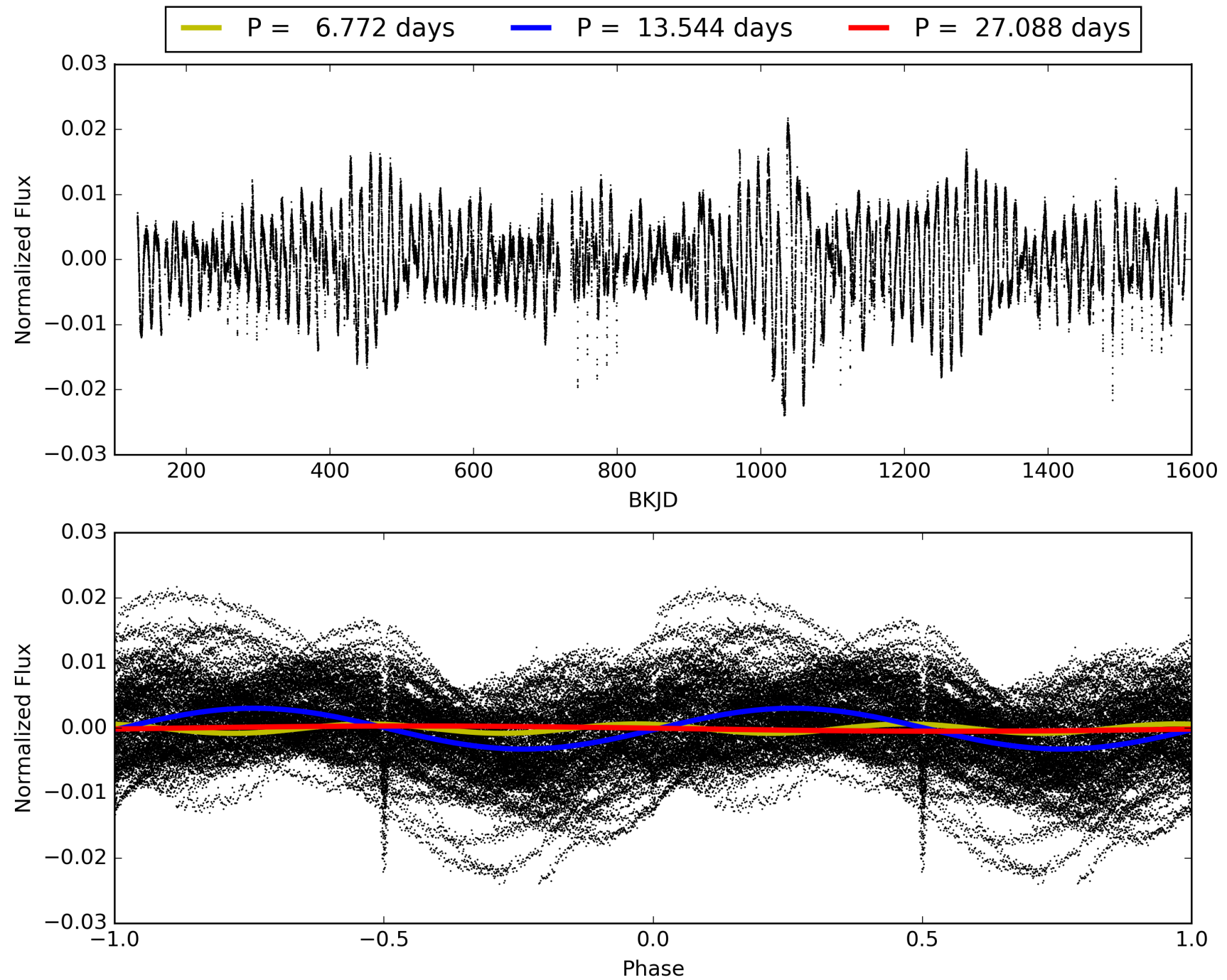
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 31-Jan-2016 17:58:12 Z

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

TCE 009307105-02, PDC Light Curves

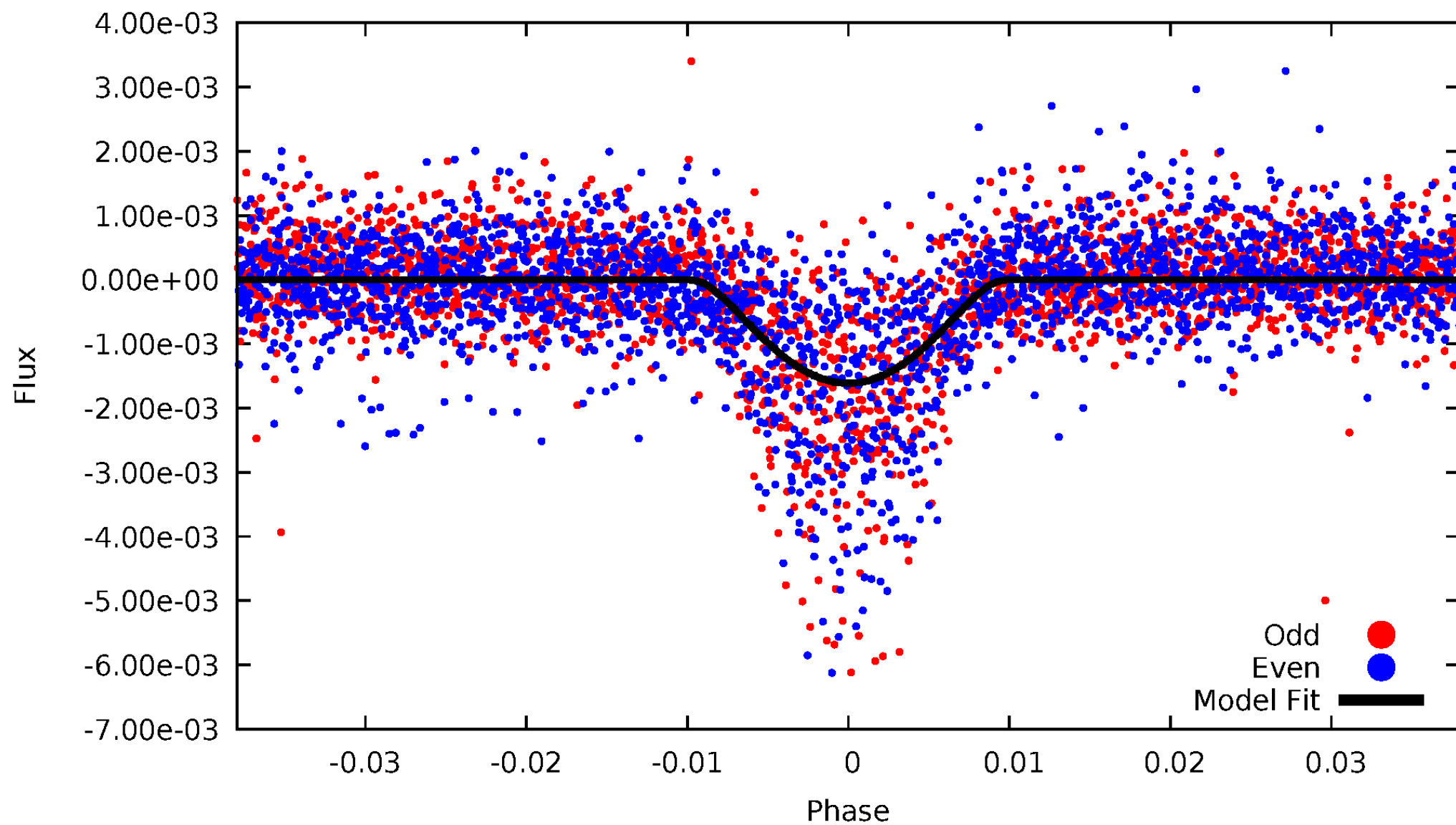


TCE 009307105-02



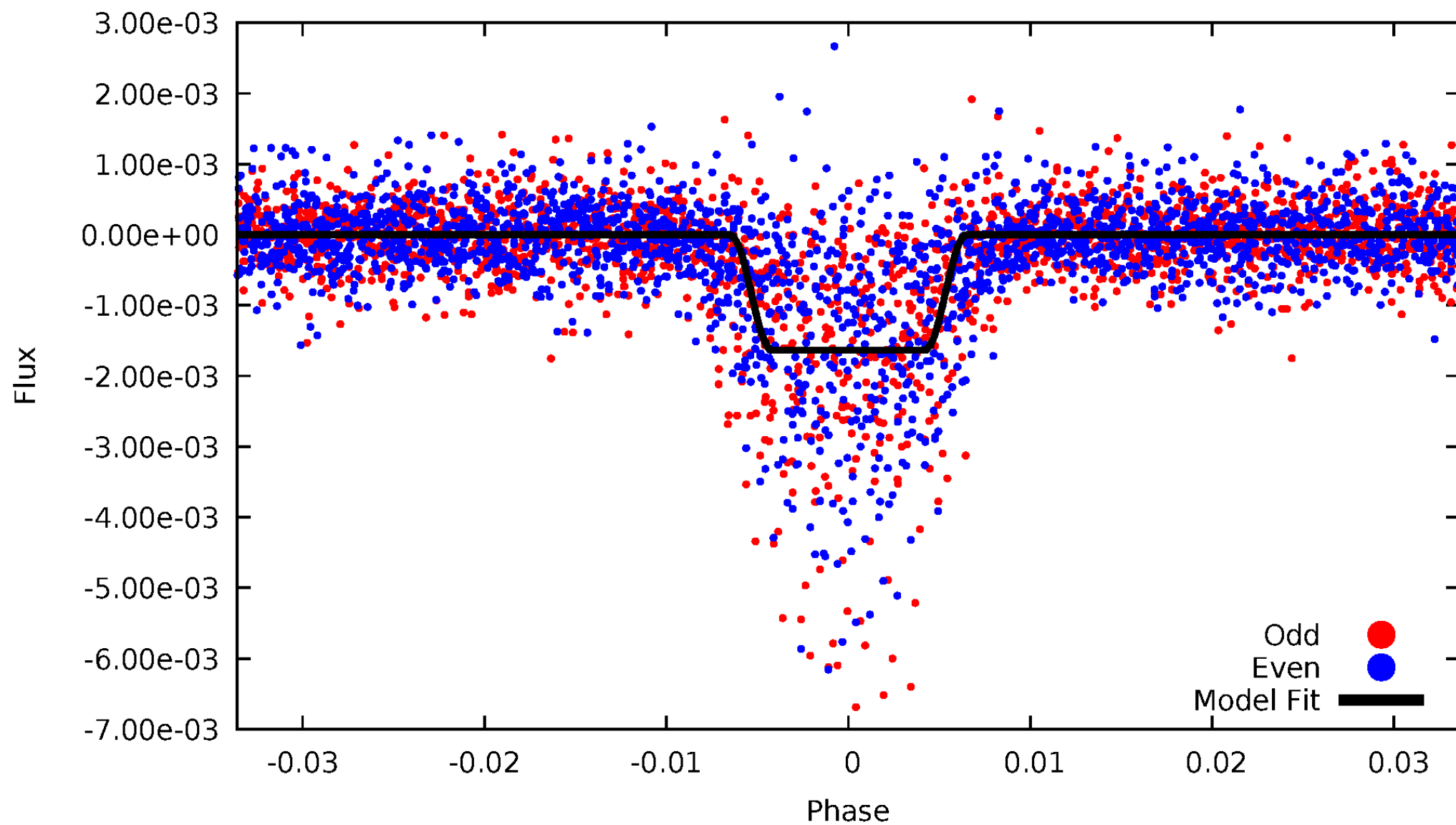
DV Odd/Even

TCE 009307105-02



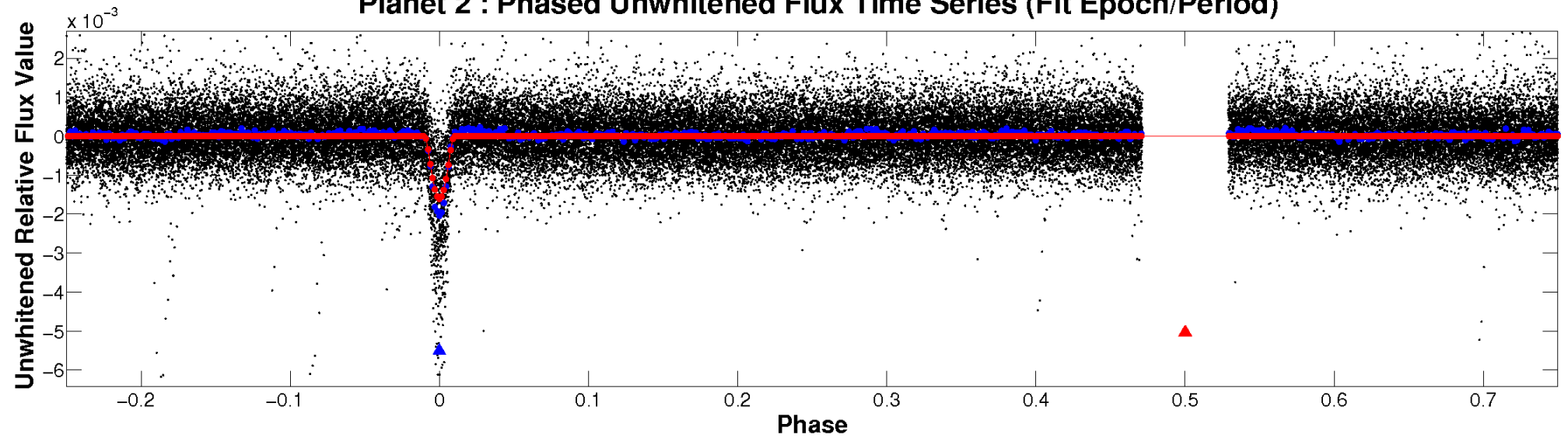
ALT Odd/Even

TCE 009307105-02

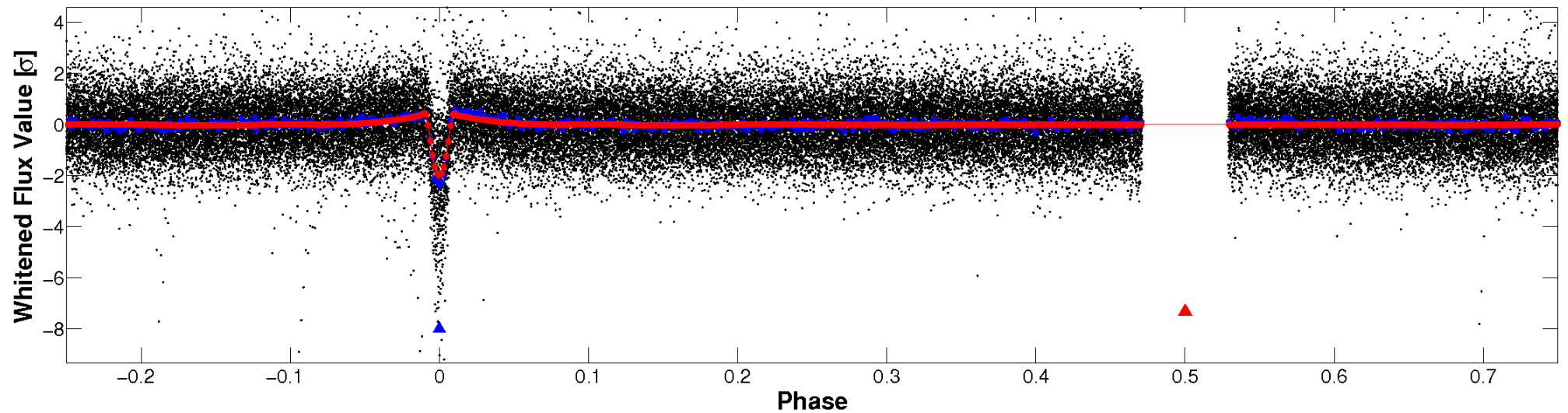


Non-Whitened Vs. Whitened Light Curve

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

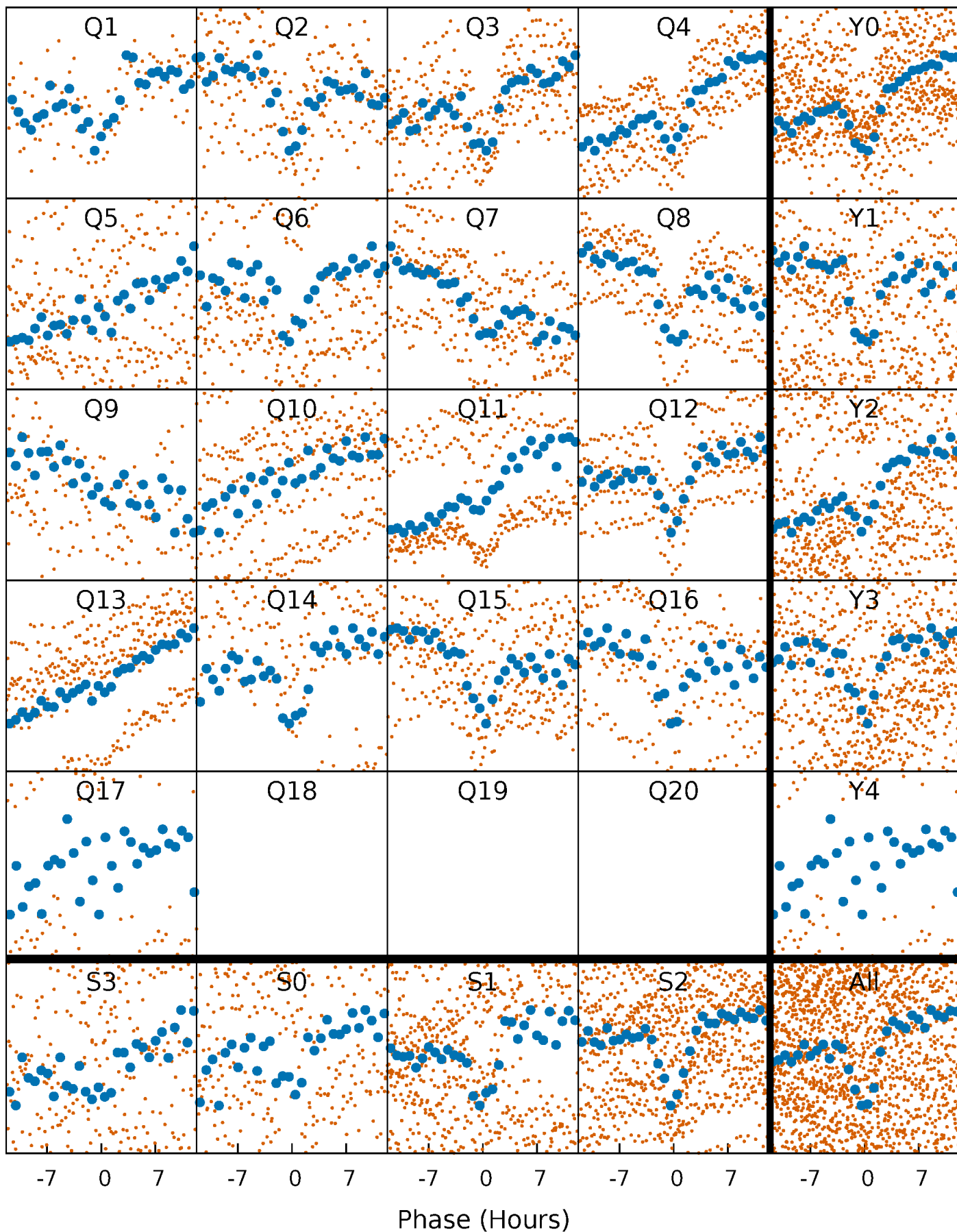


Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



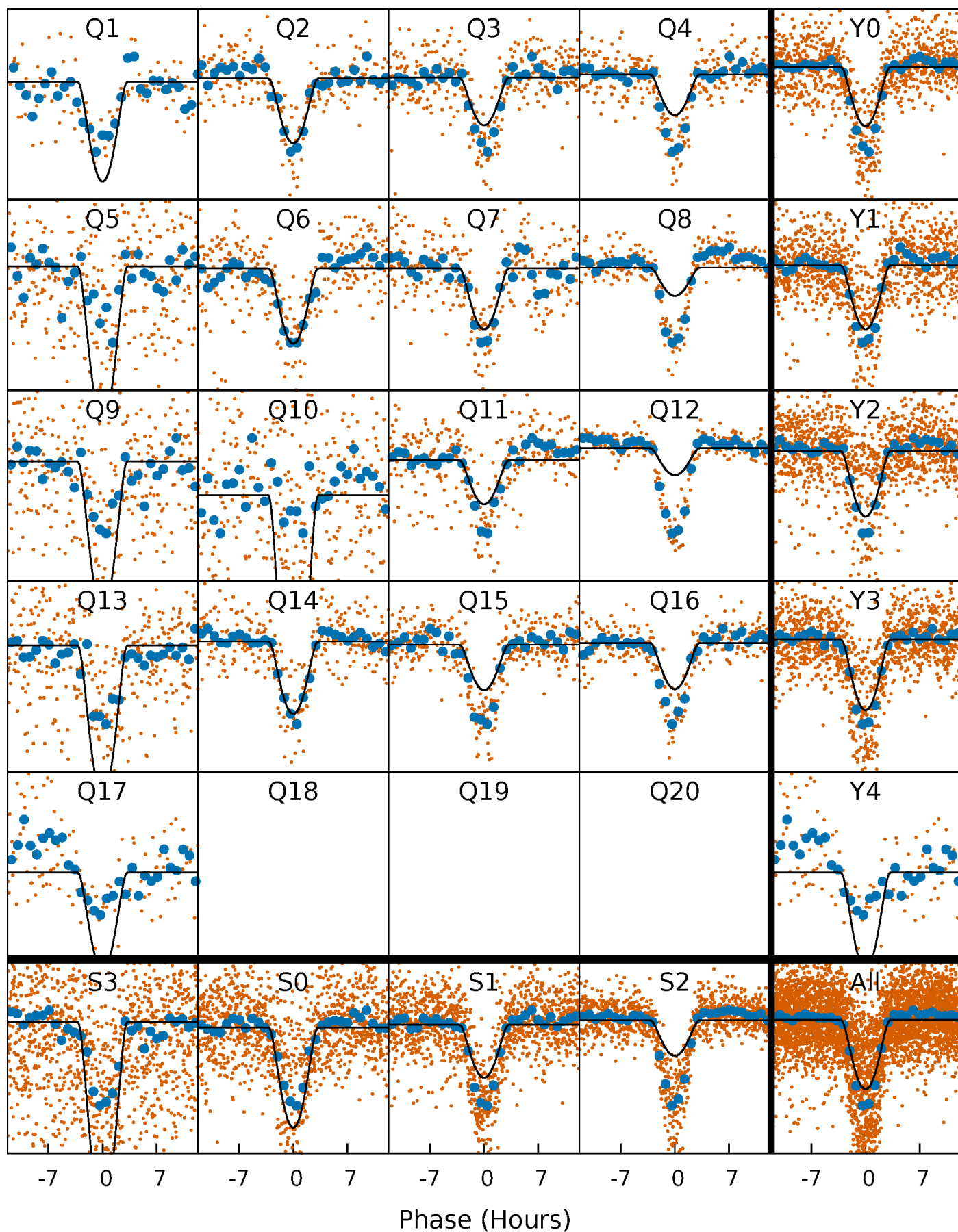
PDC Quarter-Phased Transit Curves

TCE 009307105-02 P= 13.543858 Days $T_0=142.042849$ (BKJD)



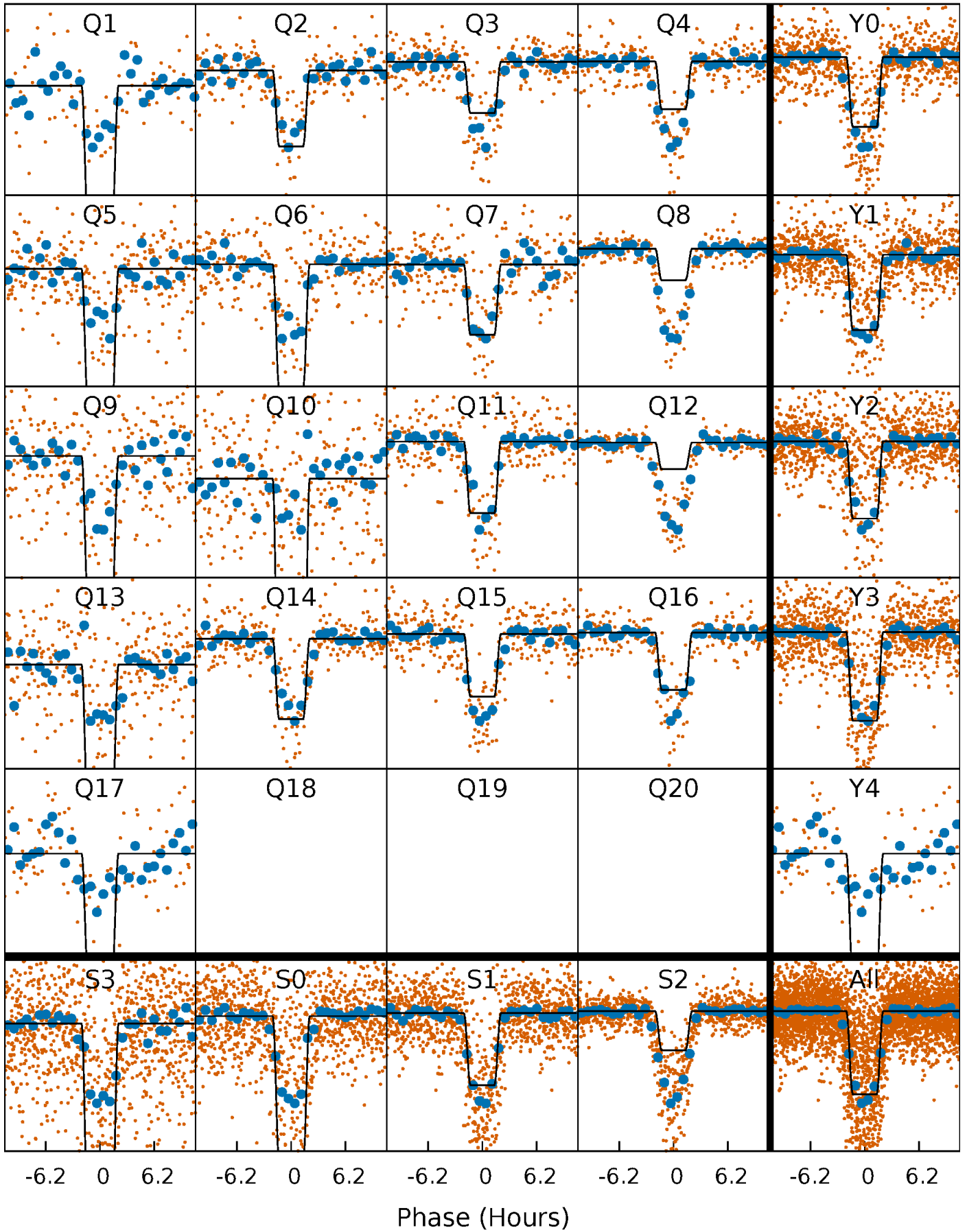
DV Quarter-Phased Transit Curves

TCE 009307105-02 P= 13.543858 Days $T_0=142.042849$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

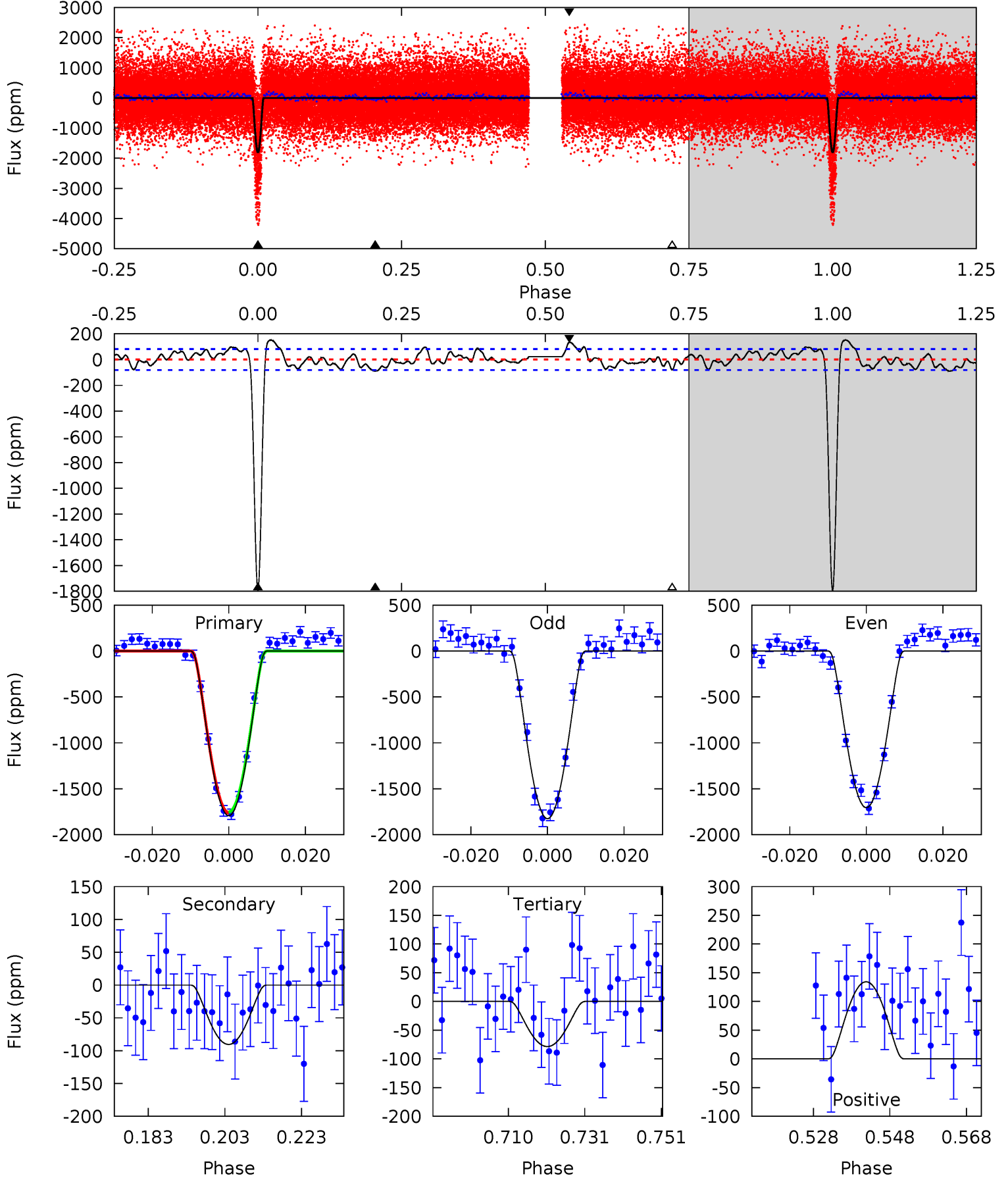
TCE 009307105-02 P= 13.543698 Days $T_0=142.050880$ (BKJD)



DV Model-Shift Uniqueness Test

009307105-02, P = 13.543858 Days, E = 128.498991 Days

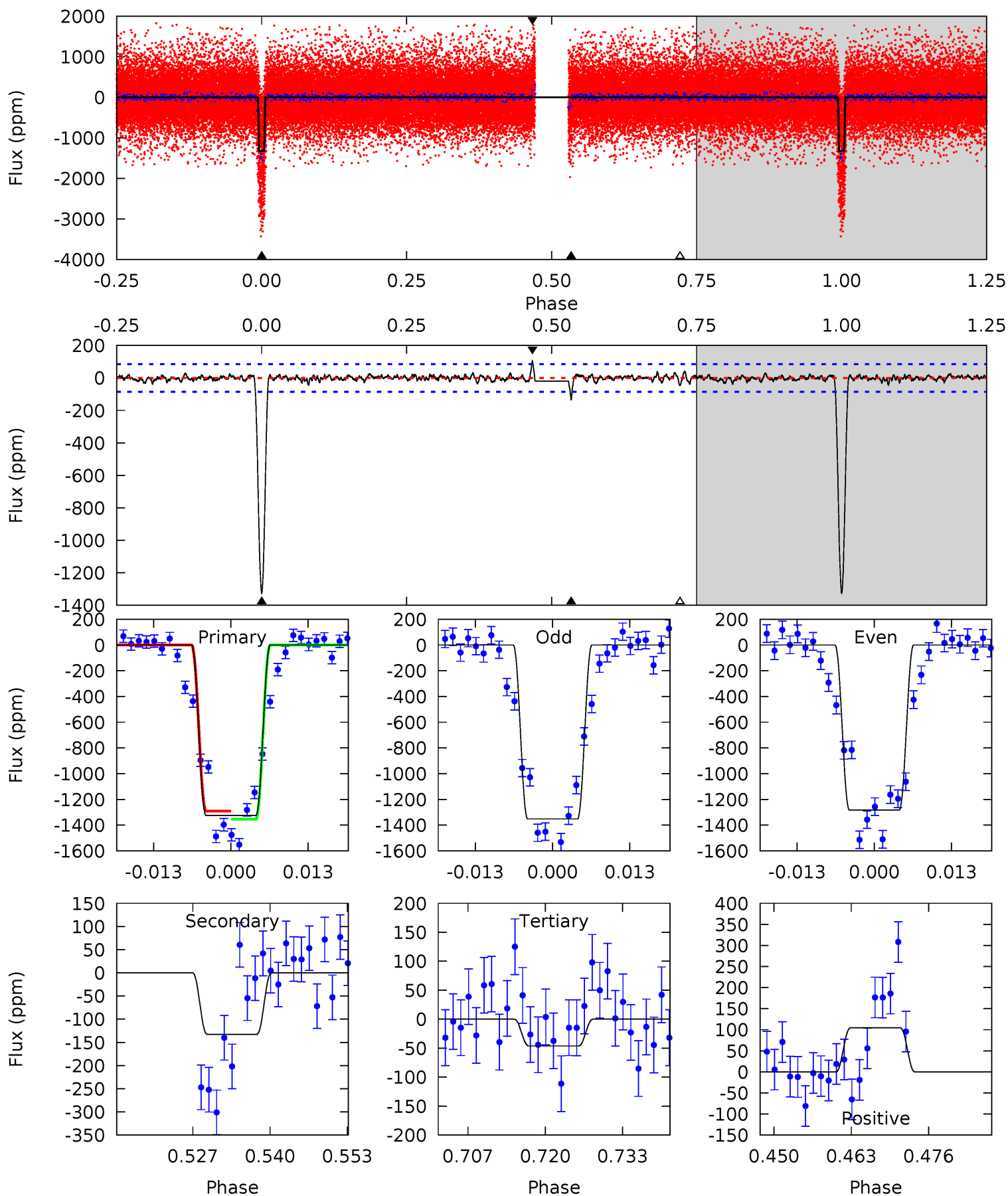
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
107.9	5.45	4.72	8.08	4.89	2.32	2.81	103.1	99.8	0.72	-2.63	3.59	1.10	0.08	0.30



Alt Model-Shift Uniqueness Test

009307105-02, P = 13.543698 Days, E = 128.507182 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
77.5	7.76	2.70	6.11	4.98	2.49	0.81	74.8	71.4	5.06	1.65	2.03	1.11	0.07	1.86



Stellar Parameters For KIC 009307105

	$T_{\text{eff}} (K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R (R_{\odot})$	$M (M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	5463^{+191}_{-172}	$4.582^{+0.036}_{-0.144}$	$-0.140^{+0.300}_{-0.300}$	$0.794^{+0.175}_{-0.070}$	$0.883^{+0.082}_{-0.101}$	$2.488^{+0.448}_{-0.971}$
	+3%/-3%	+1%/-3%	+214%/-214%	+22%/-9%	+9%/-11%	+18%/-39%
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 009307105-02 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-91±17	$5.68^{+2.85}_{-2.64}$	938^{+52}_{-38}	2834^{+565}_{-296}	17^{+43}_{-10}
Alt.	-133±17	$3.94^{+2.59}_{-2.22}$	937^{+48}_{-40}	3332^{+1019}_{-457}	54^{+209}_{-35}

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

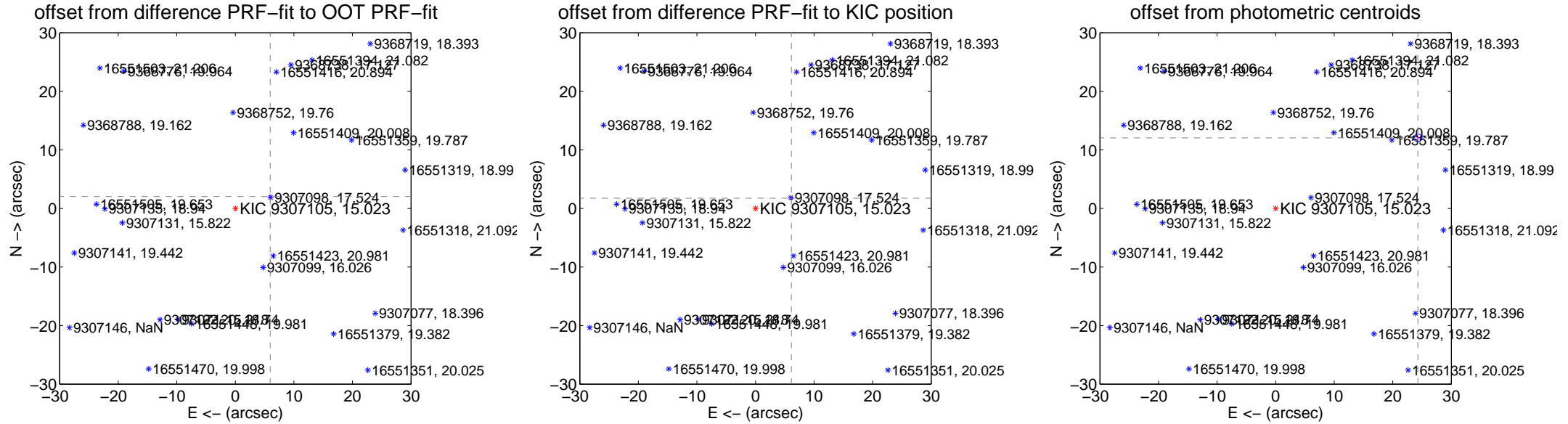
DV Centroid Data

Supplemental centroid analysis for 009307105-02. Kepler magnitude: 15.02. Transit SNR 43.45

There are 12 quarters with good PRF difference image offsets

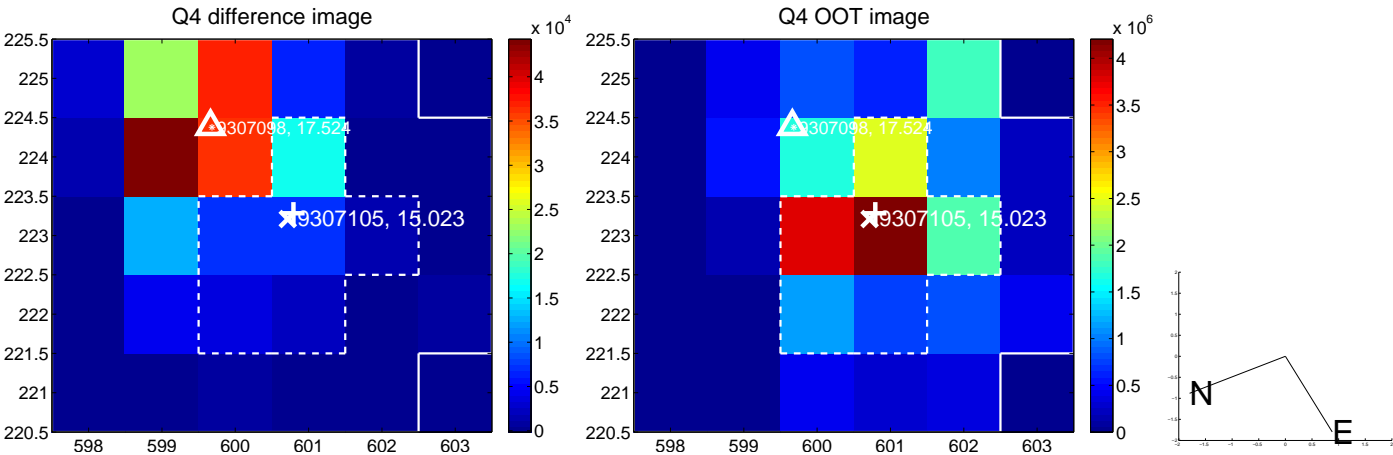
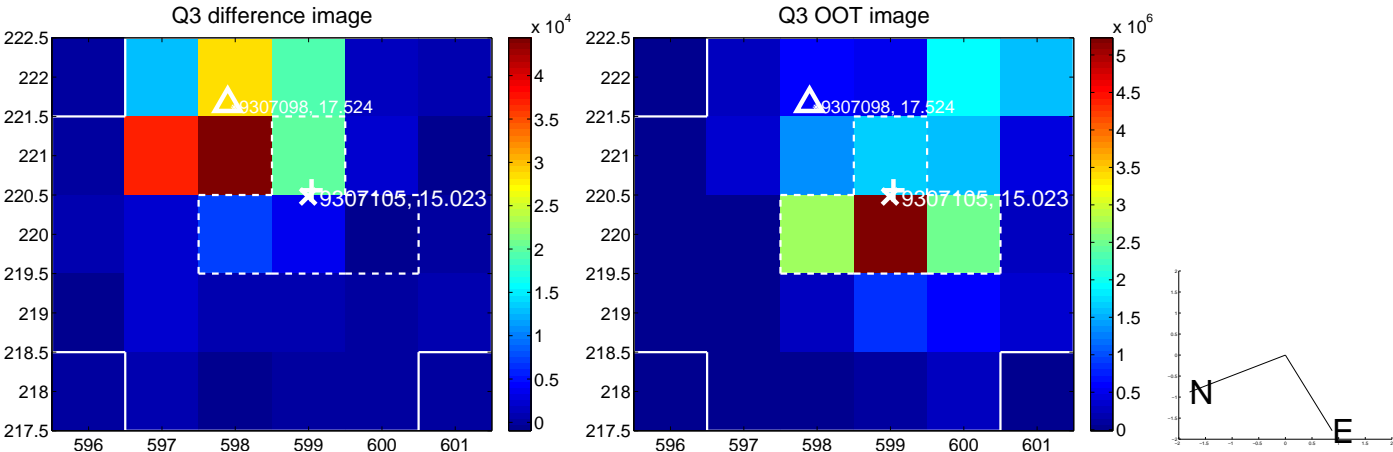
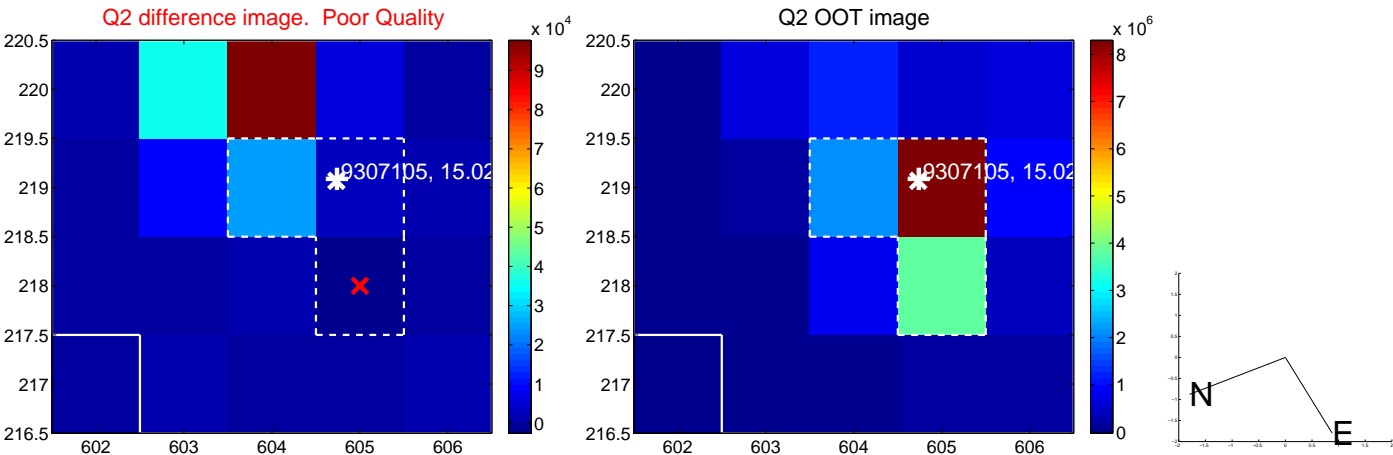
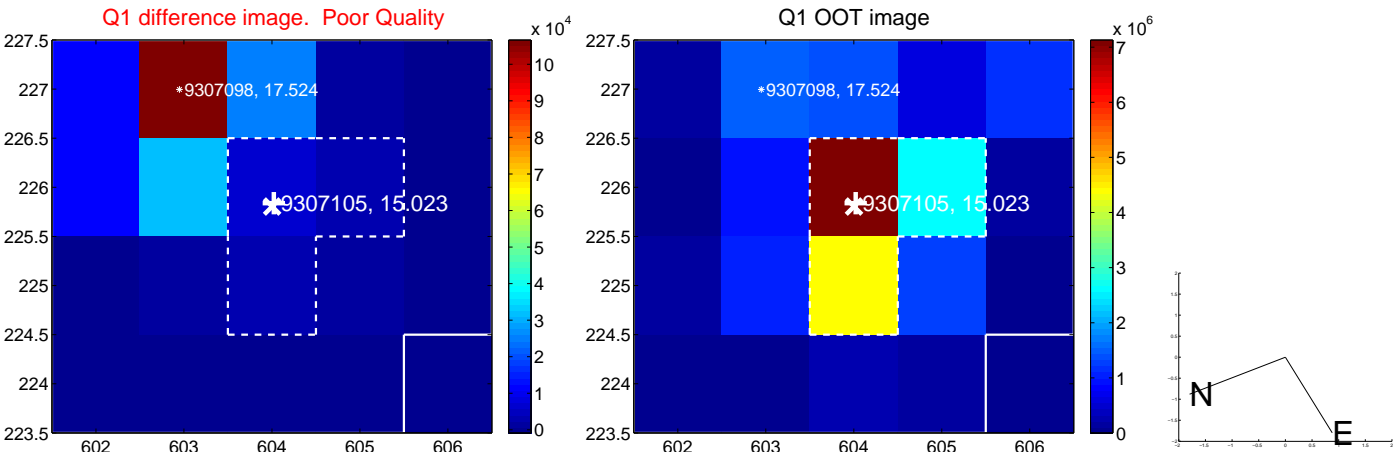
The direct PRF centroid is offset from the target star catalog position by about 0.21 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	6.298 ± 0.075	84.29	-5.959 ± 0.073	2.037 ± 0.086
PRF-fit source offset from KIC position	6.372 ± 0.070	91.43	-6.126 ± 0.070	1.753 ± 0.070
photometric centroid source offset	27.11 ± 0.22	121.42	-24.29 ± 0.22	12.04 ± 0.22

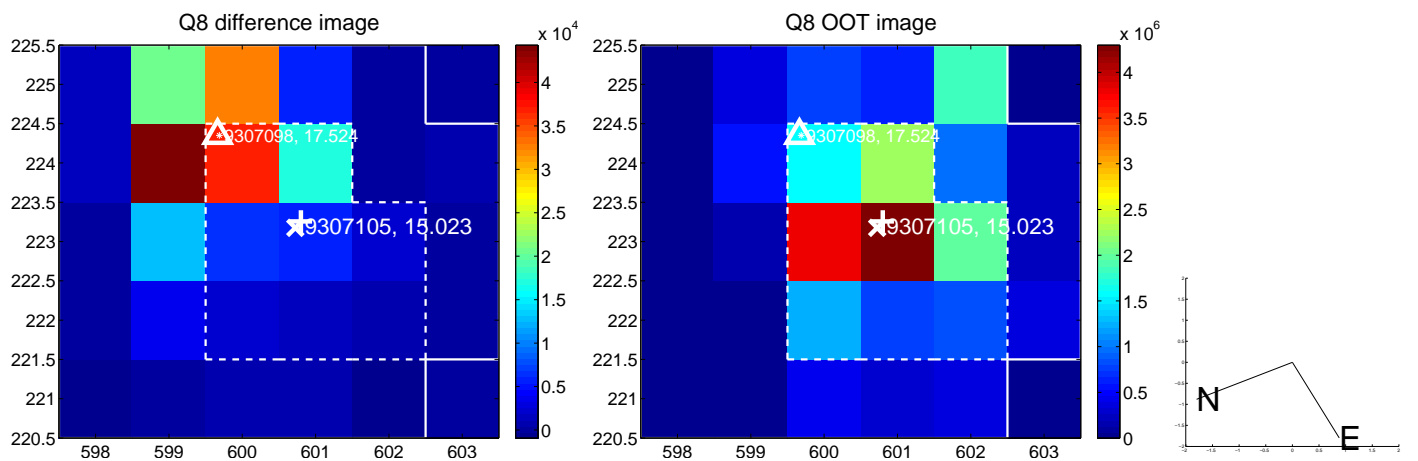
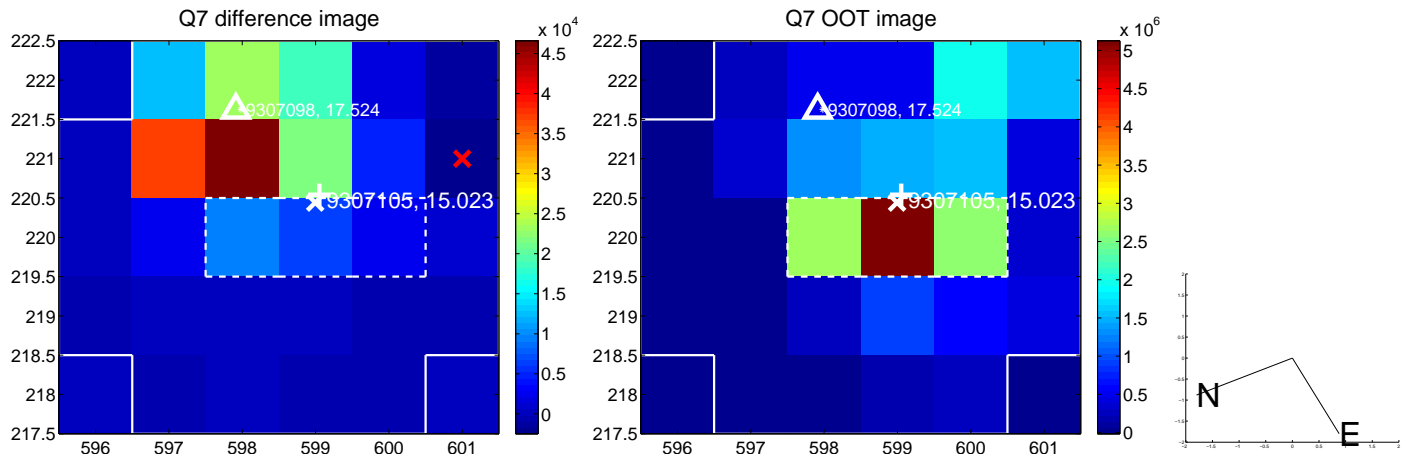
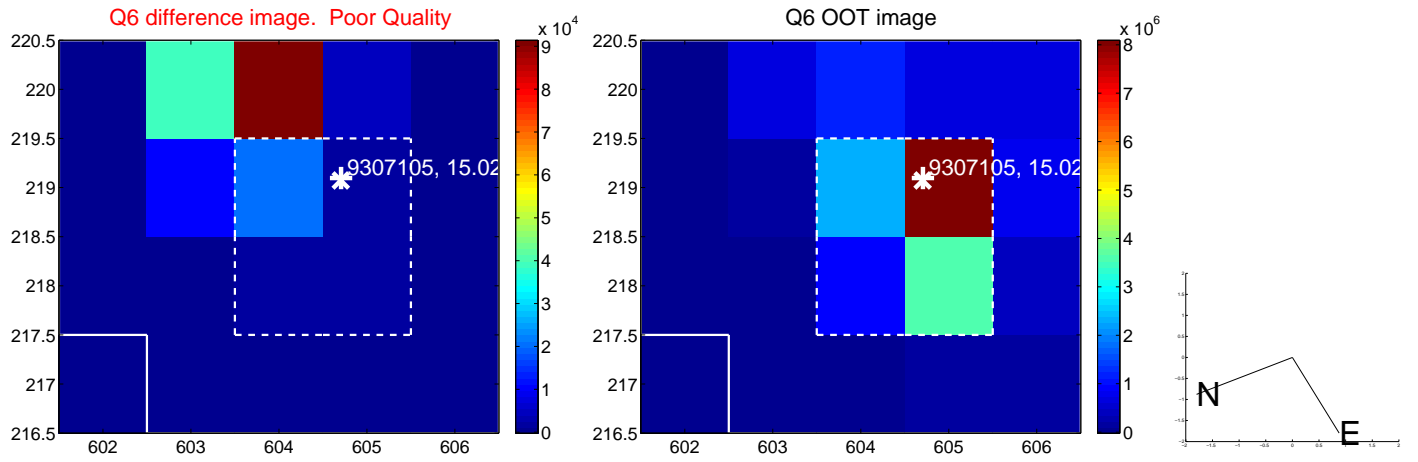
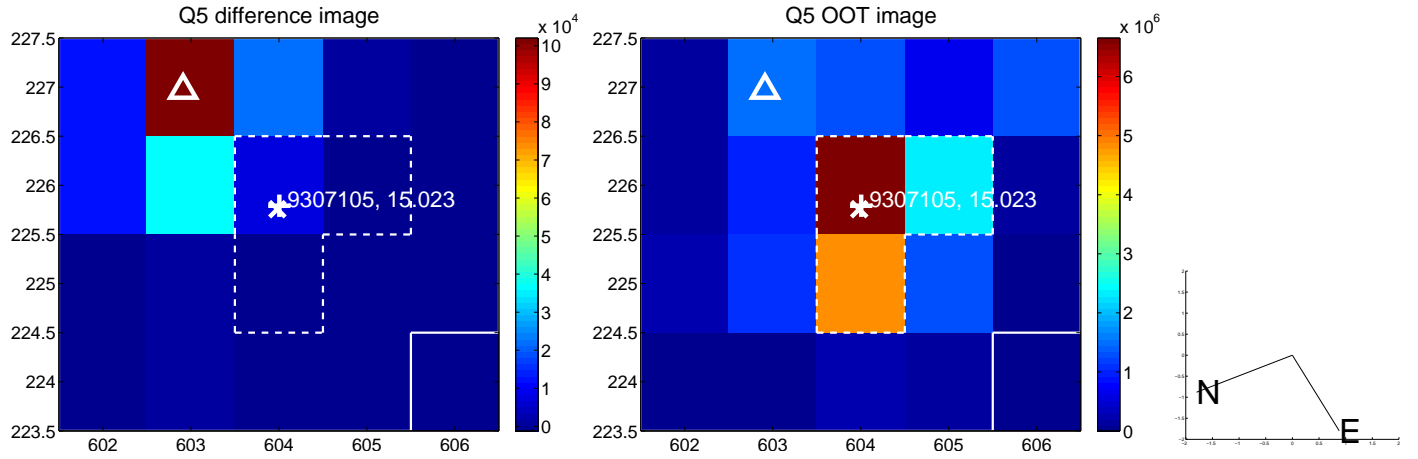


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets;** magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

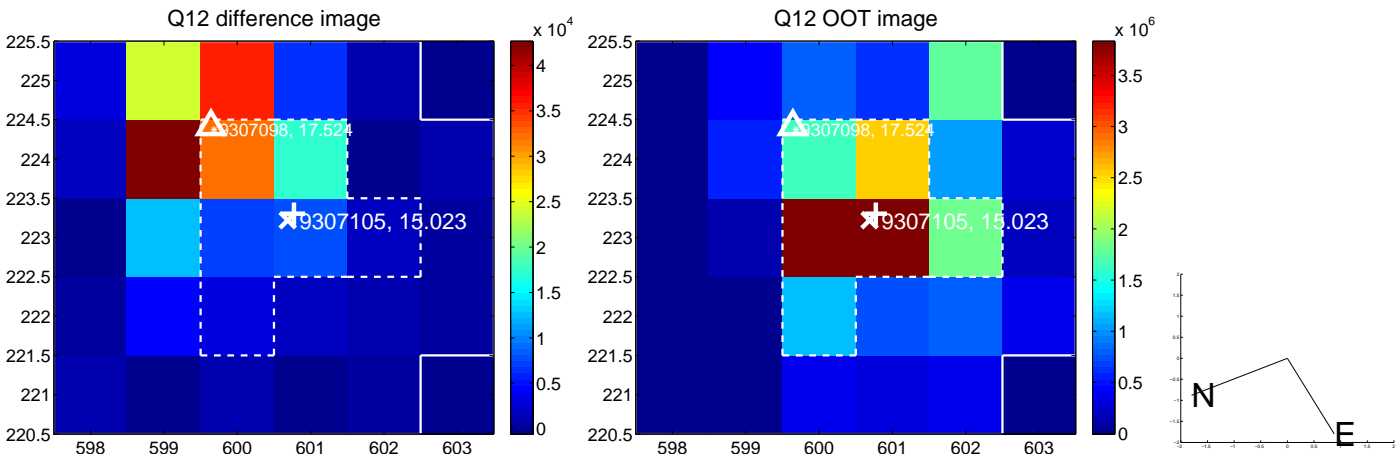
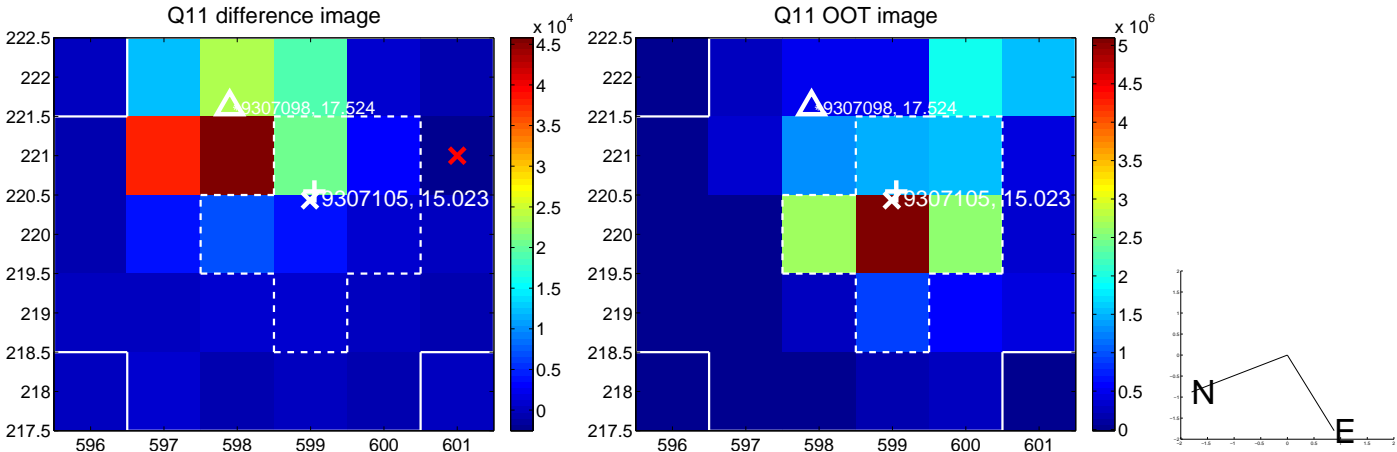
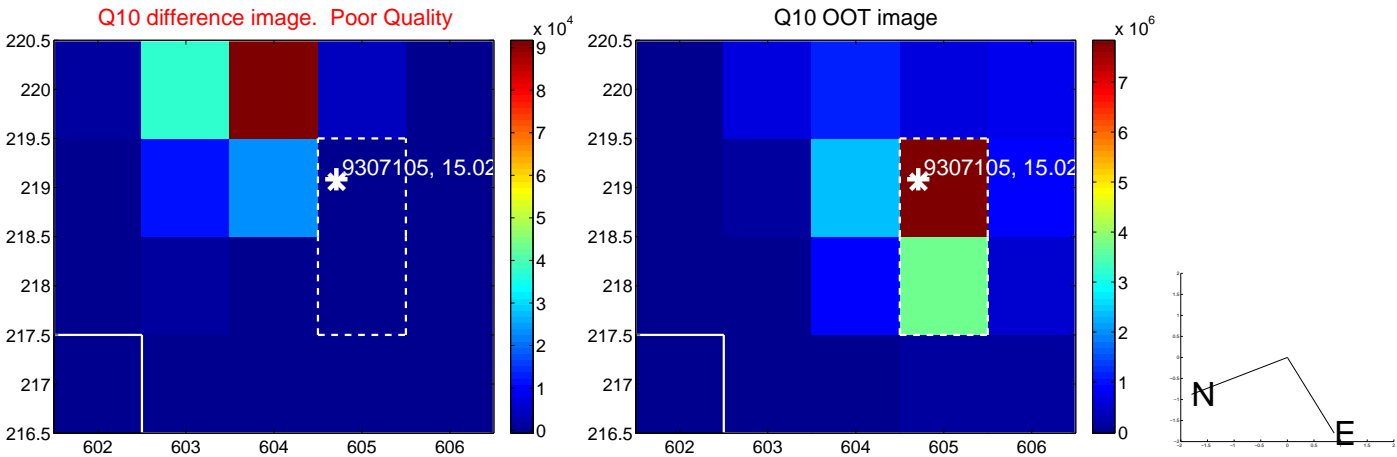
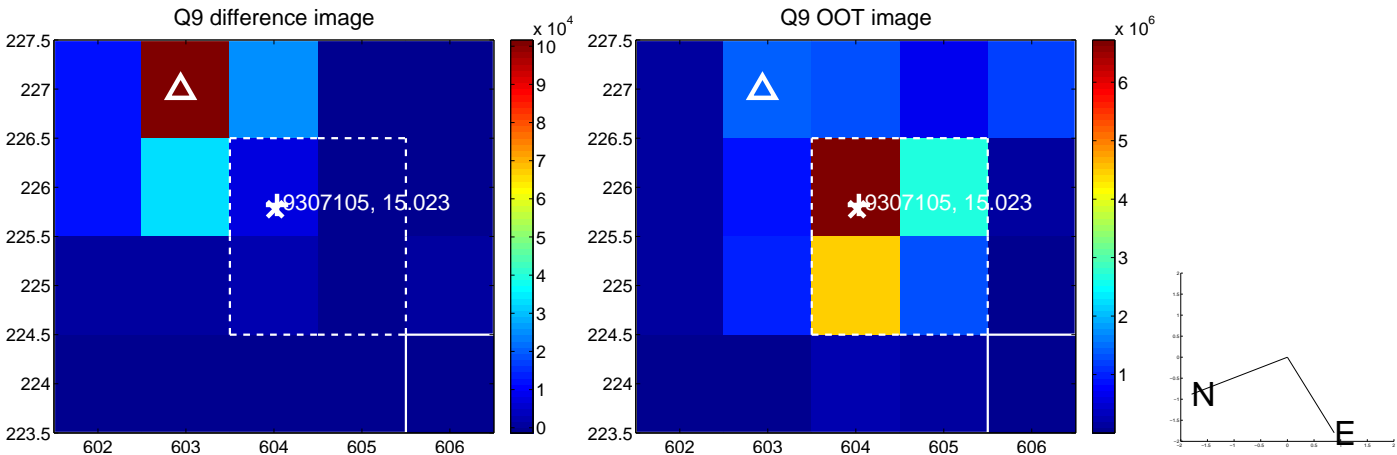
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



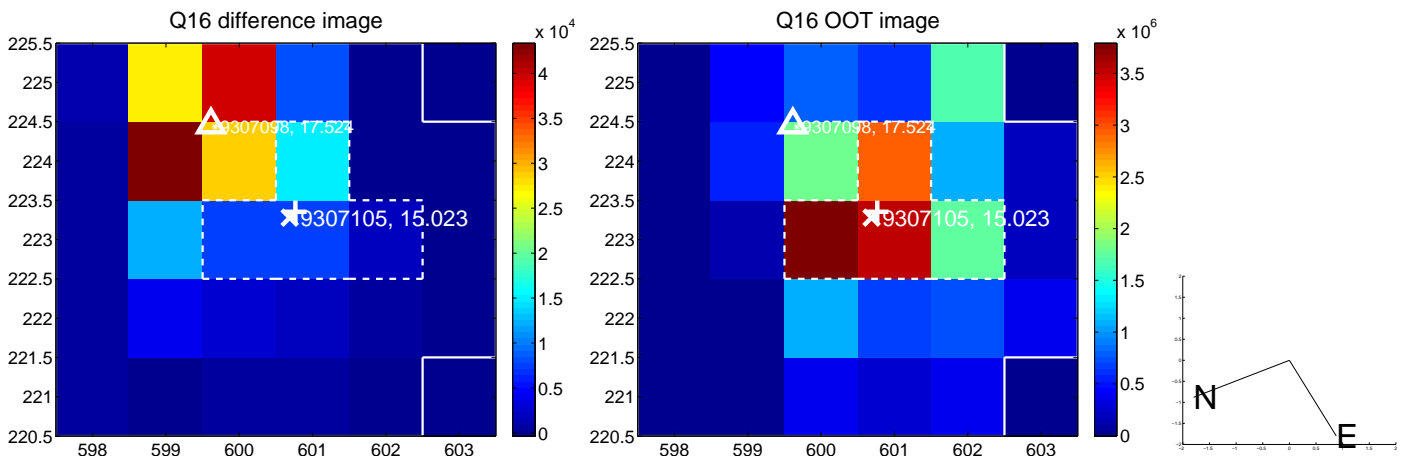
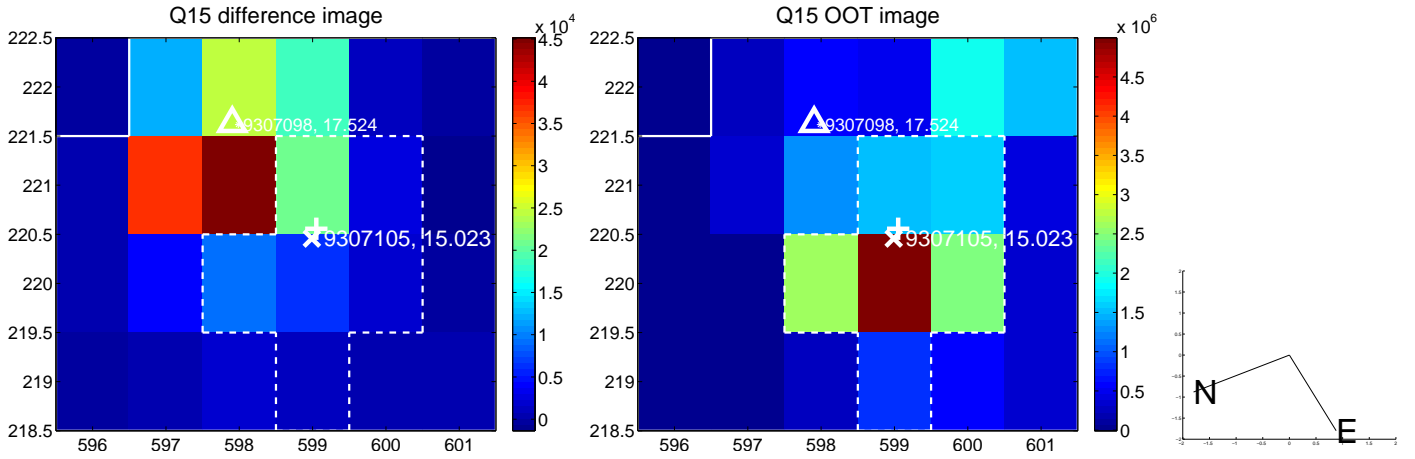
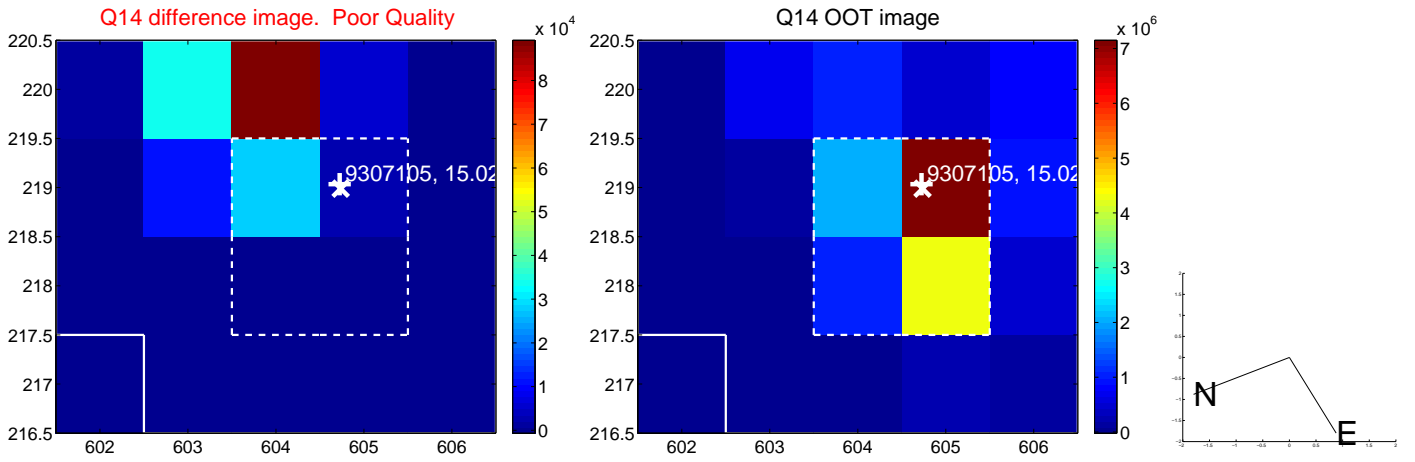
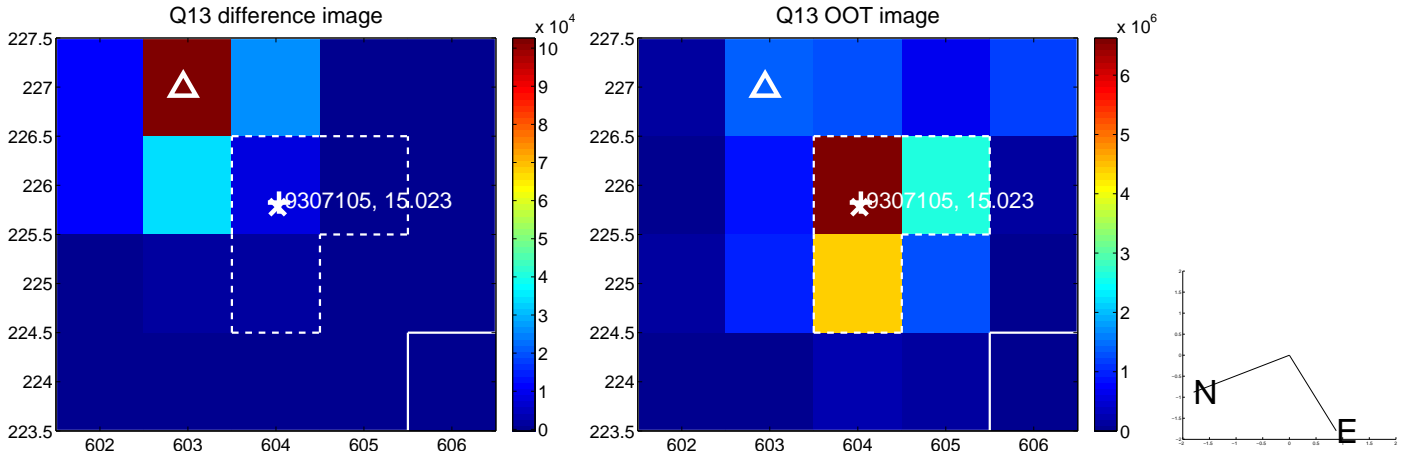
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



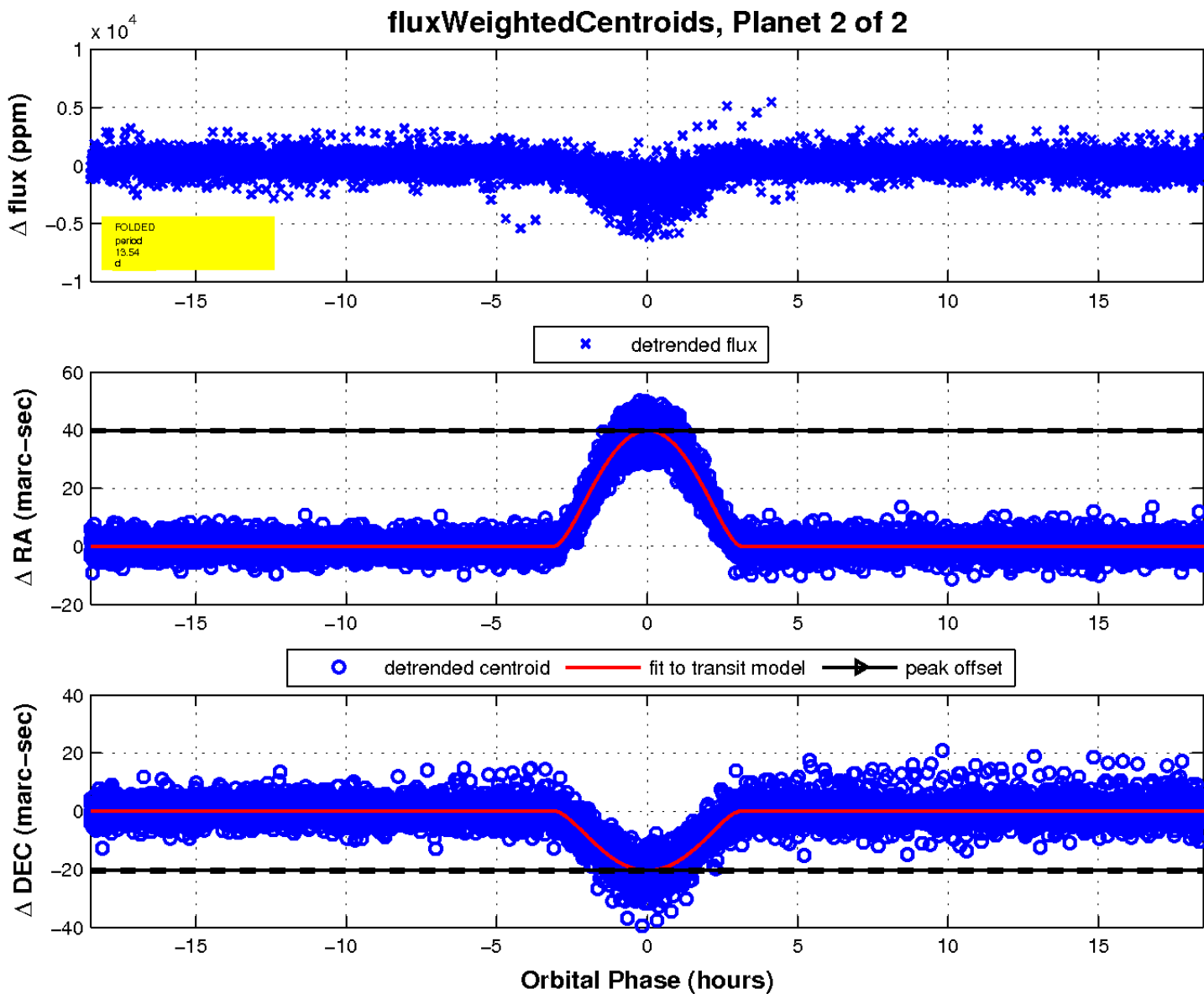
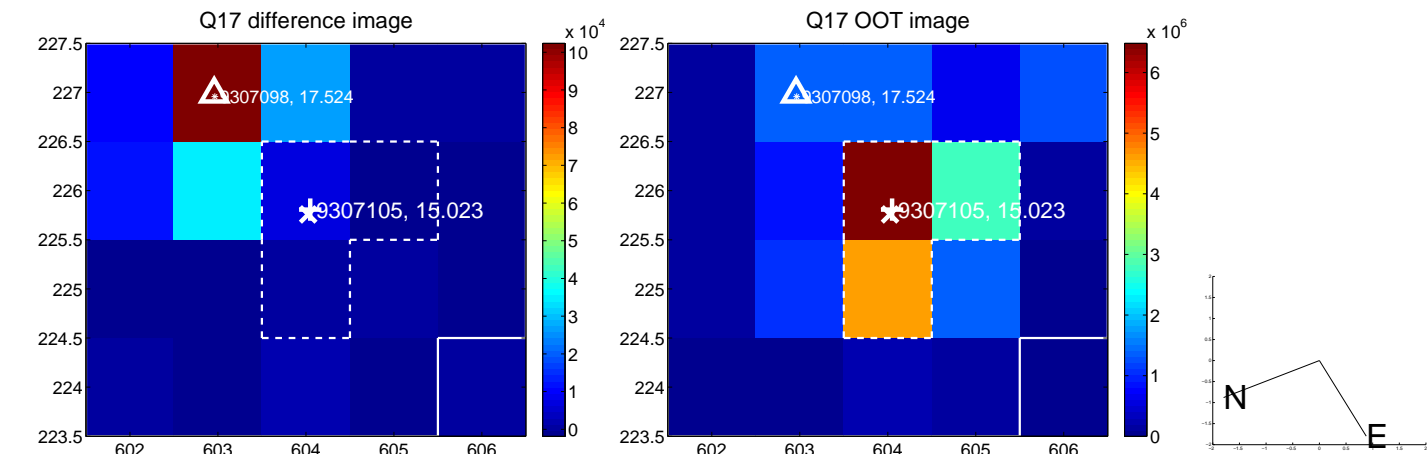
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

