

KIC 005731312

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})
005731312-01	OBS	6621.01	7.946415	135.093006	276408.5	2.690	16605.5	12181.2	0.57	4789	37.87	37.02
005731312-02	OBS	No	7.946530	133.168481	26458.1	2.829	1632.4	1215.4	0.57	4789	12.76	37.02
005731312-03	OBS	No	7.946447	134.824636	408.9	12.000	22.1	-1.0	0.57	4789	1.13	37.02

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
005731312-01	OBS	FP	0.00	0	1	0	0	MOD_SEC_DV—MOD_SEC_ALT—MOD_ODDEVEN_DV—DEEP_V_SHAPED—HAS_SEC_TCE—CENT_KIC_POS
005731312-02	OBS	FP	0.00	1	1	0	0	IS_SEC_TCE—CENT_KIC_POS
005731312-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_SKYE_ZUMA—LPP_DV—RESIDUAL_TCE—CENT_NOFITS

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.

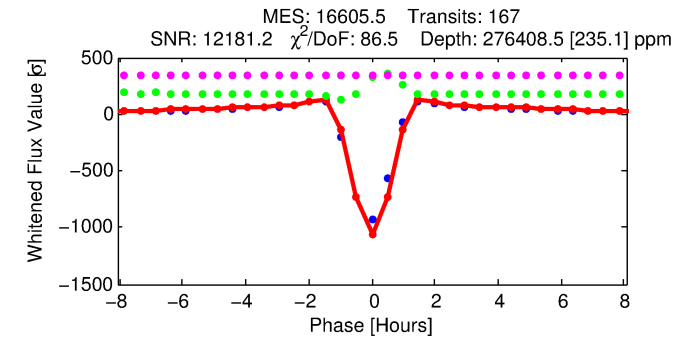
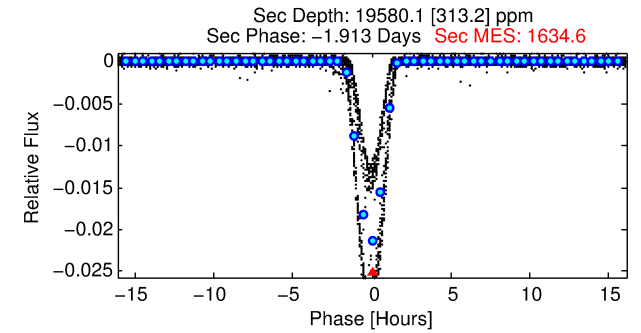
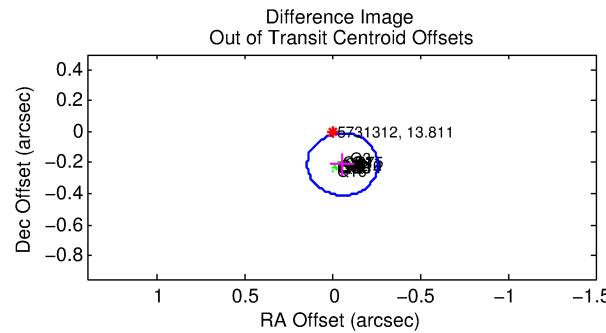
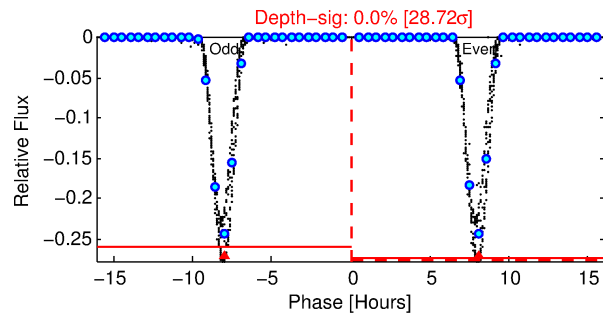
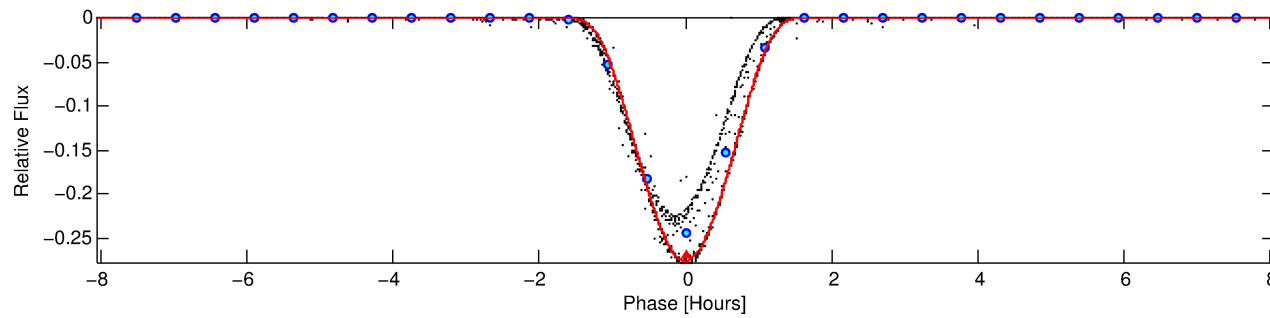
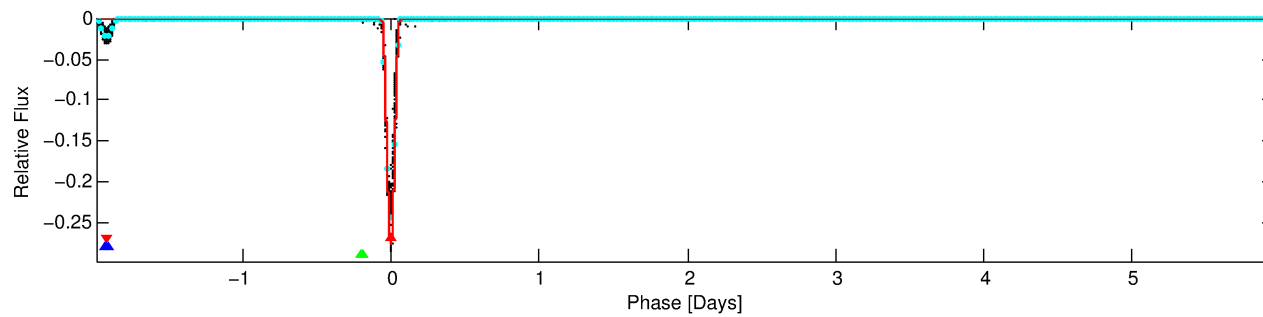
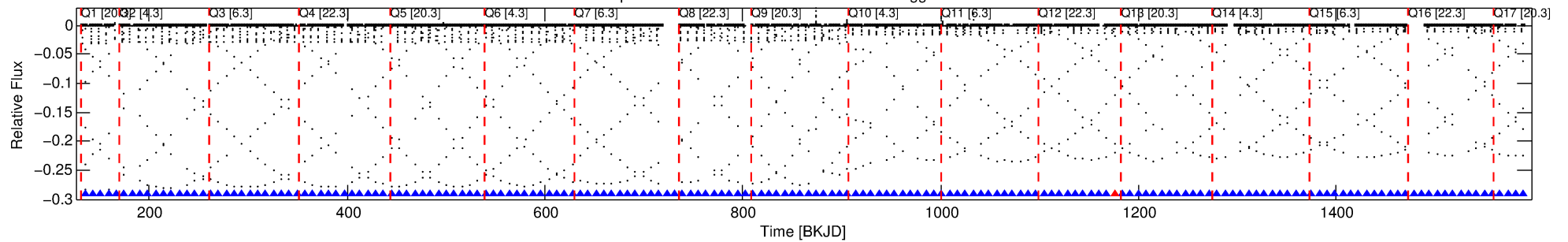
Ephemeris Match Information For 005731312-01

No Significant Match Found

DV One-Page Summary

KIC: 5731312 Candidate: 1 of 3 Period: 7.946 d
KOI: K06621.01 Corr: 0.974

Kp: 13.81 R*: 0.57 Rs Teff: 4789.0 K Logg: 4.68 Fe/H: -0.980



DV Fit Results:

Period = 7.94641 [0.00000] d
Epoch = 135.0930 [0.0000] BKJD
Rp/R* = 0.6057 [0.0426]
a/R* = 32.72 [0.39]
b = 0.69 [0.07]
Seff = 37.02 [5.60]
Teq = 629 [24] K
Rp = 37.87 [3.80] Re
a = 0.0647 [0.0040] AU
Ag = 31.39 [5.31] [5.72σ]
Teffp = 2302 [107] K [15.33σ]

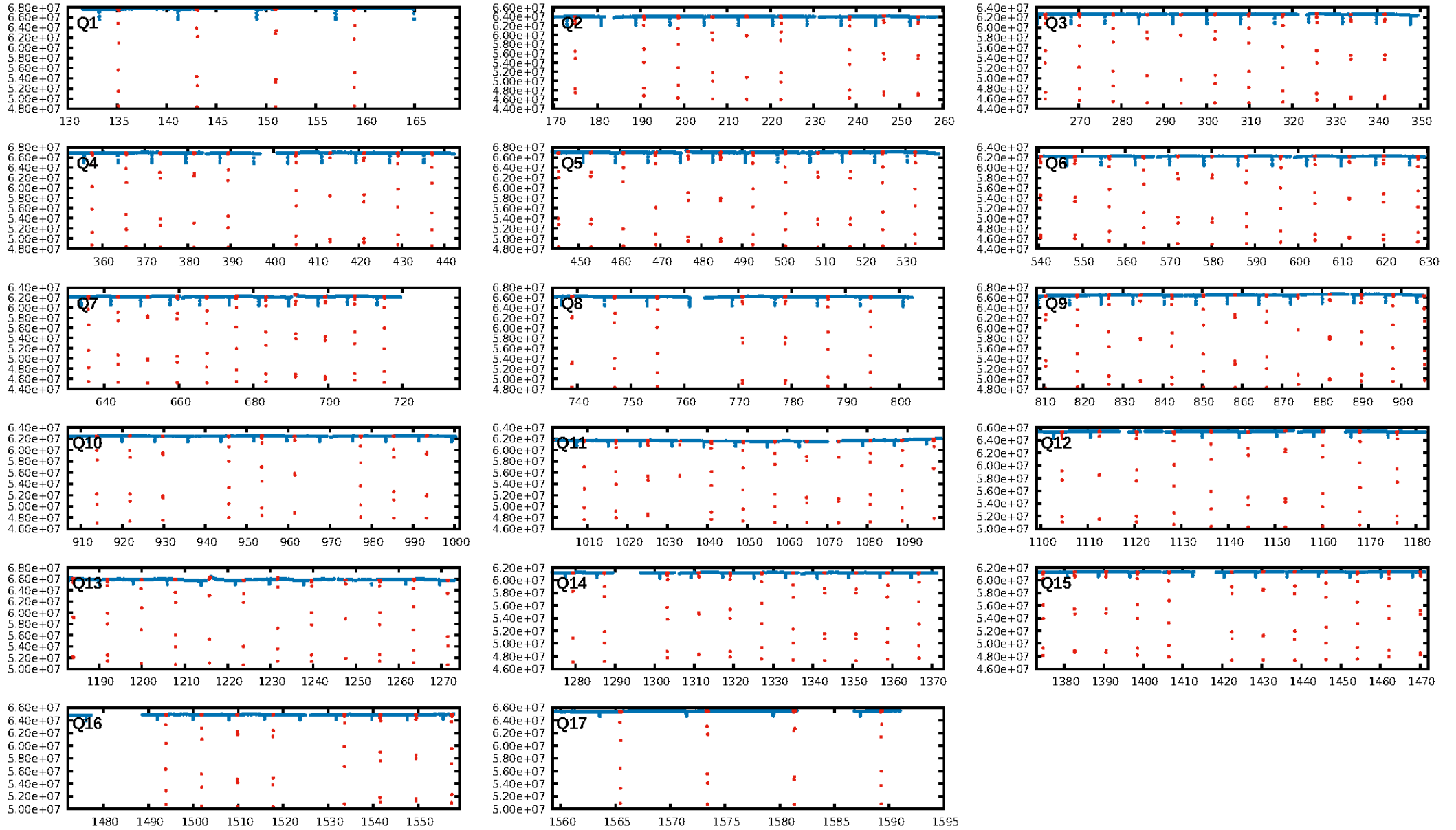
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: 0.0% [0.00σ]
ModelChiSquare2-sig: 0.0%
ModelChiSquareGof-sig: 0.0%
Bootstrap-pfa: N/A
RollingBand-fgt: 0.99 [158/159]
GhostDiagnostic-chr: 3.517
Centroid-sig: N/A
Centroid-so: 0.271 arcsec [432.44σ]
OotOffset-rm: 0.218 arcsec [3.25σ]
KicOffset-rm: 0.138 arcsec [1.98σ]
OotOffset-st: 4/4/4/5 [17]
KicOffset-st: 4/4/4/5 [17]
DiffImageQuality-fgm: 1.00 [17/17]
DiffImageOverlap-fno: 0.00 [0/17]

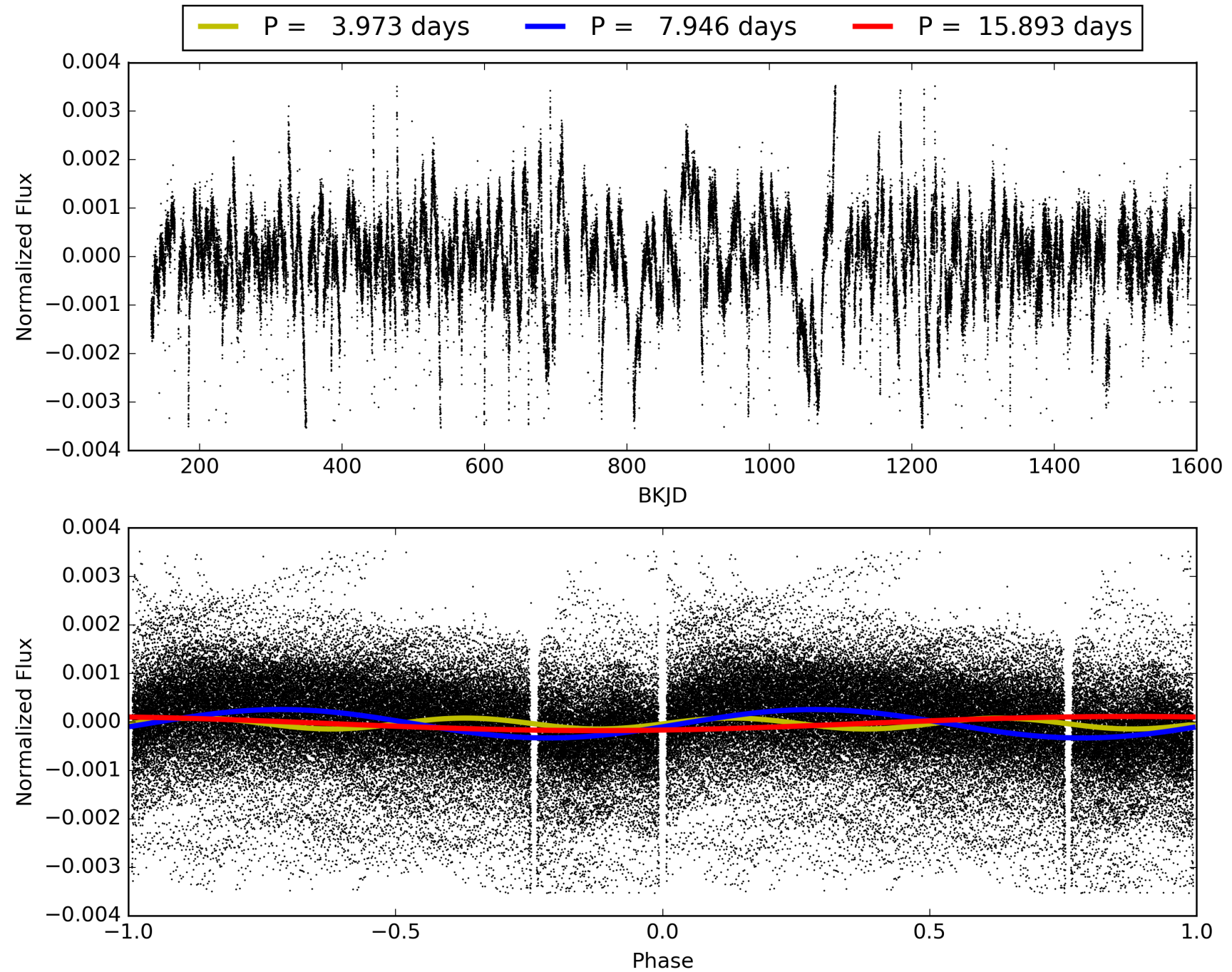
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 16:59:49 Z

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

TCE 005731312-01, PDC Light Curves

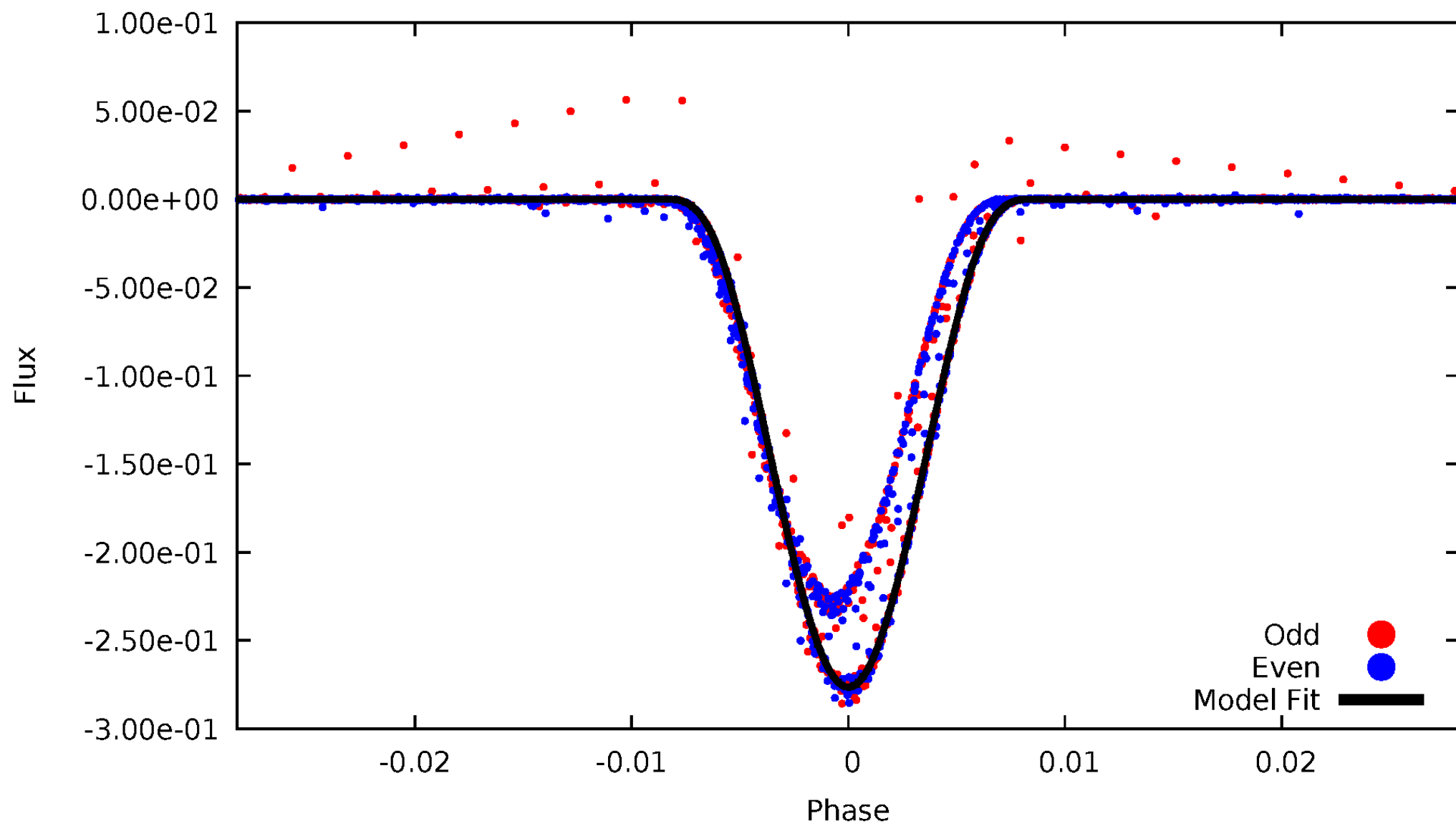


TCE 005731312-01



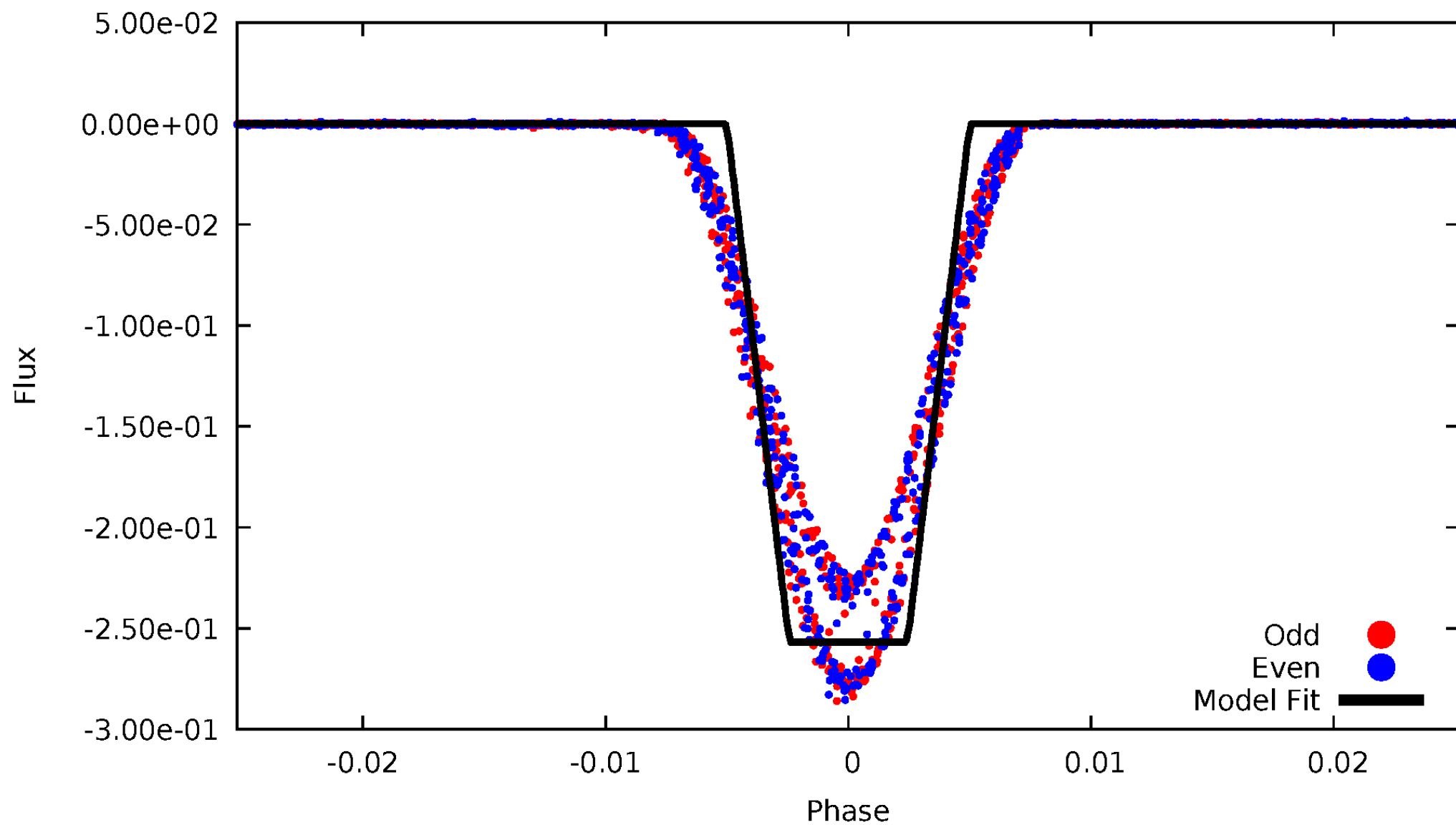
DV Odd/Even

TCE 005731312-01



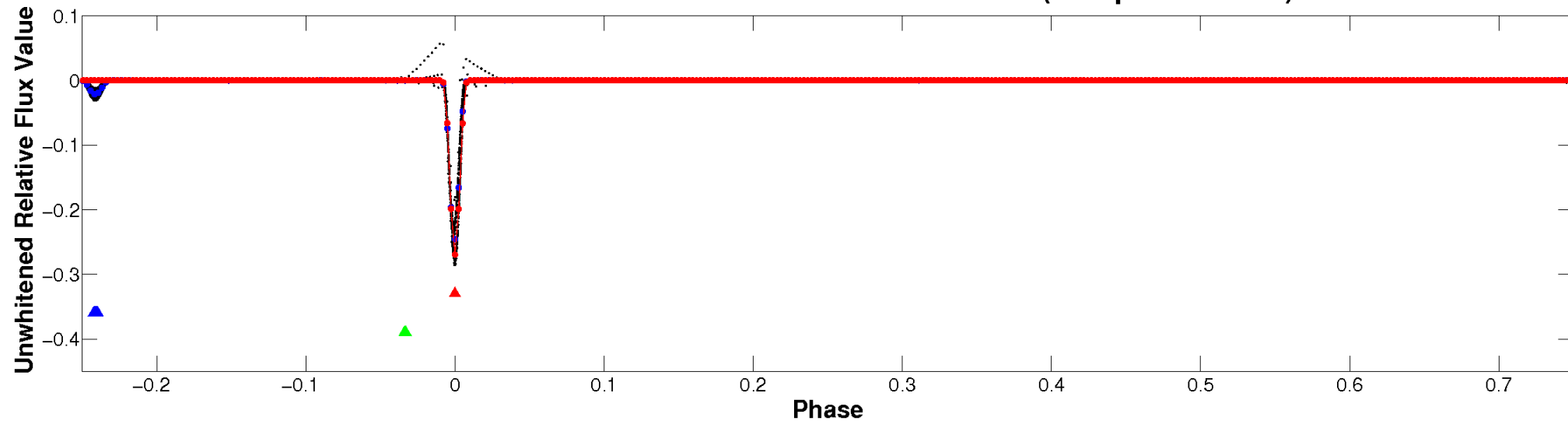
ALT Odd/Even

TCE 005731312-01

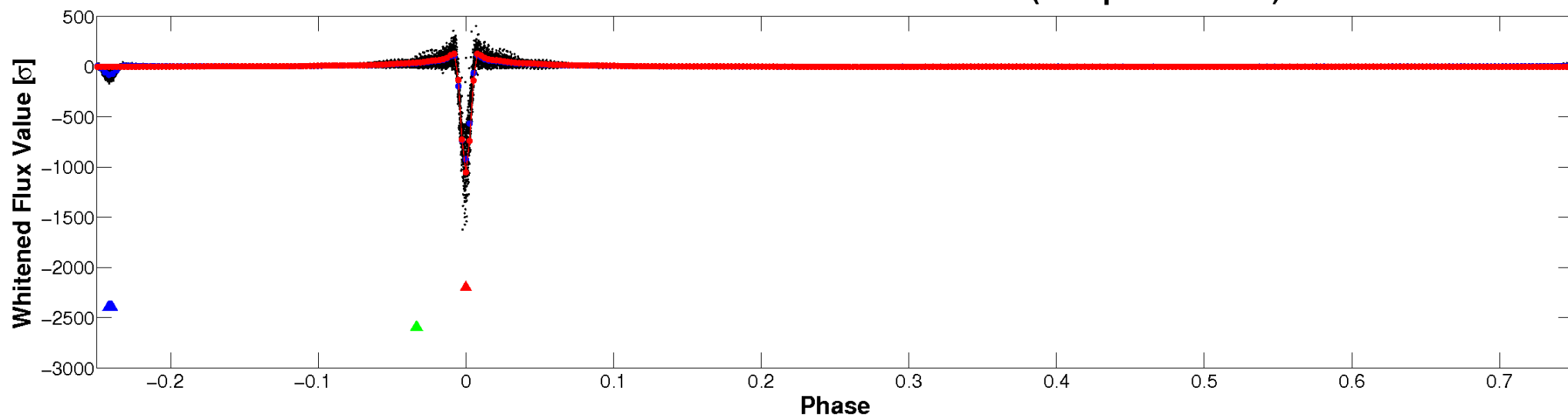


Non-Whitened Vs. Whitened Light Curve

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

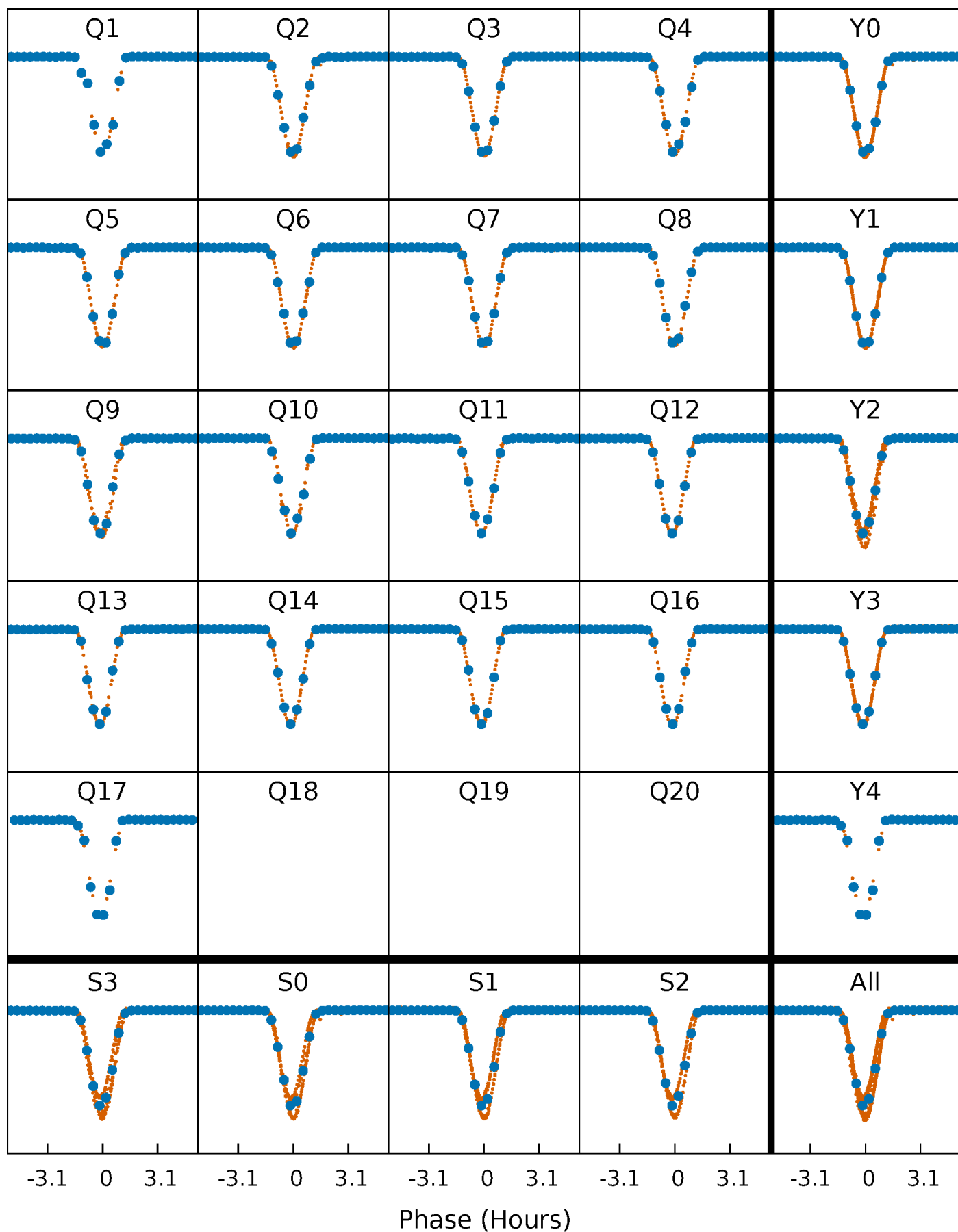


Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)



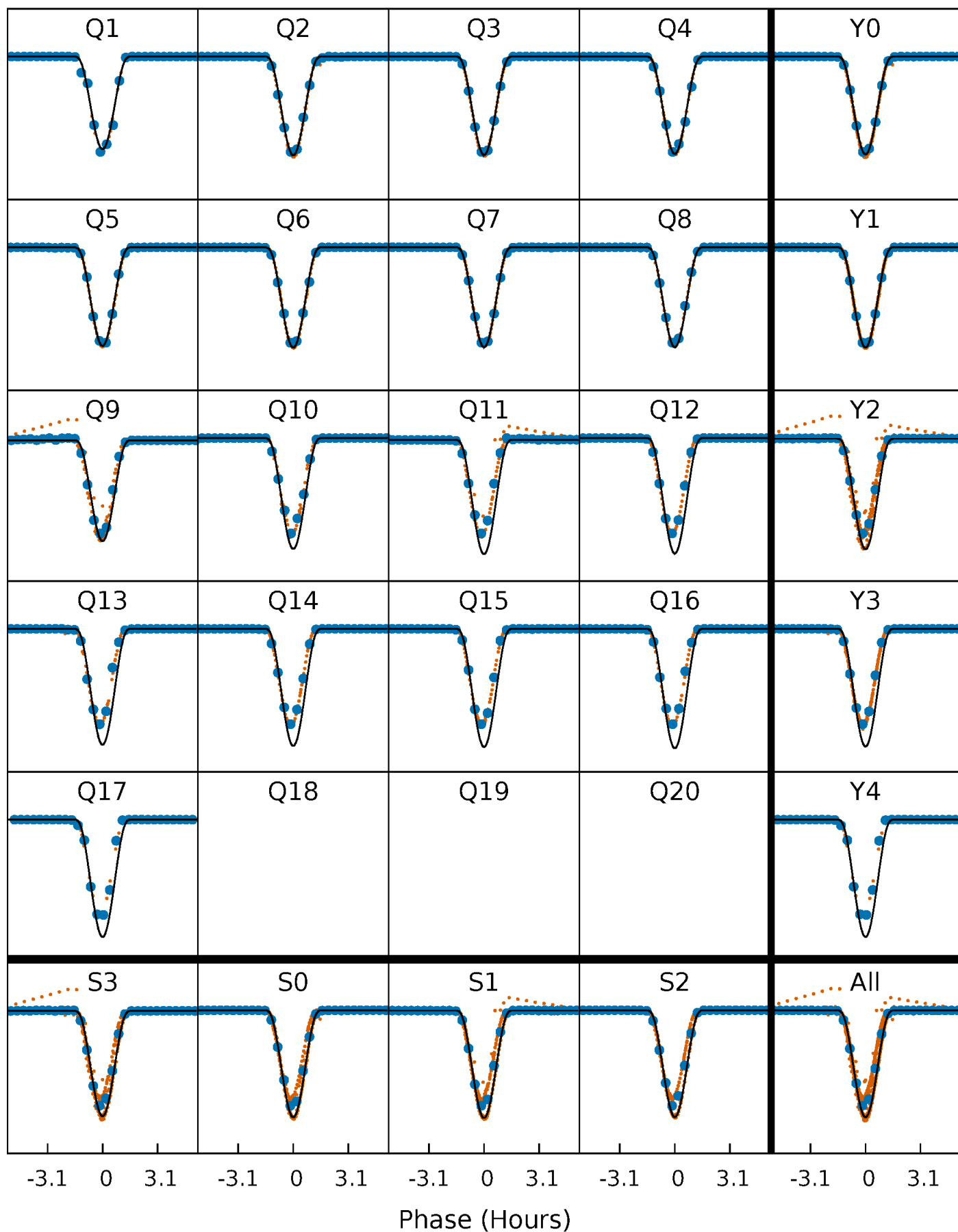
PDC Quarter-Phased Transit Curves

TCE 005731312-01 P= 7.946415 Days $T_0=135.093006$ (BKJD)



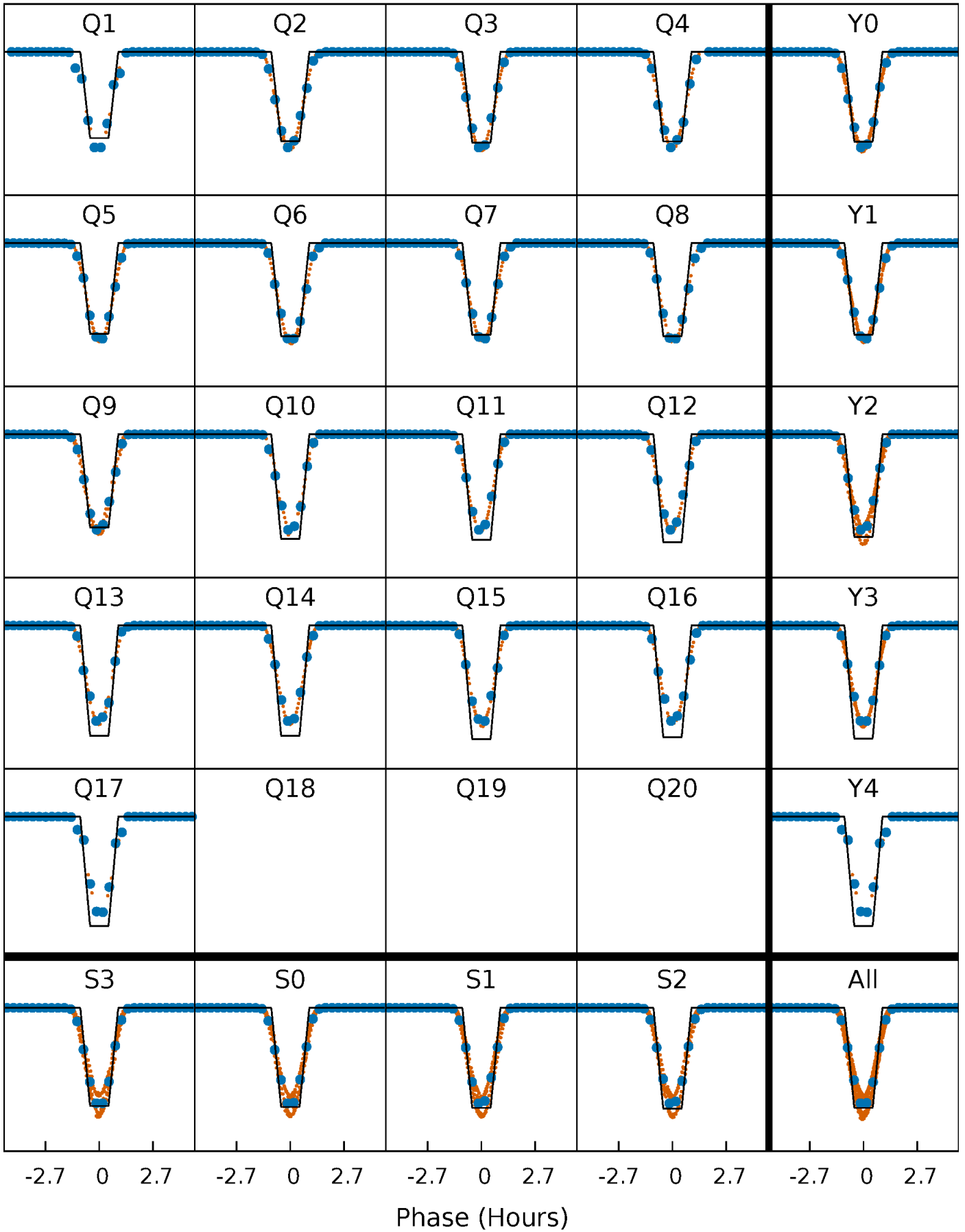
DV Quarter-Phased Transit Curves

TCE 005731312-01 P= 7.946415 Days $T_0=135.093006$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

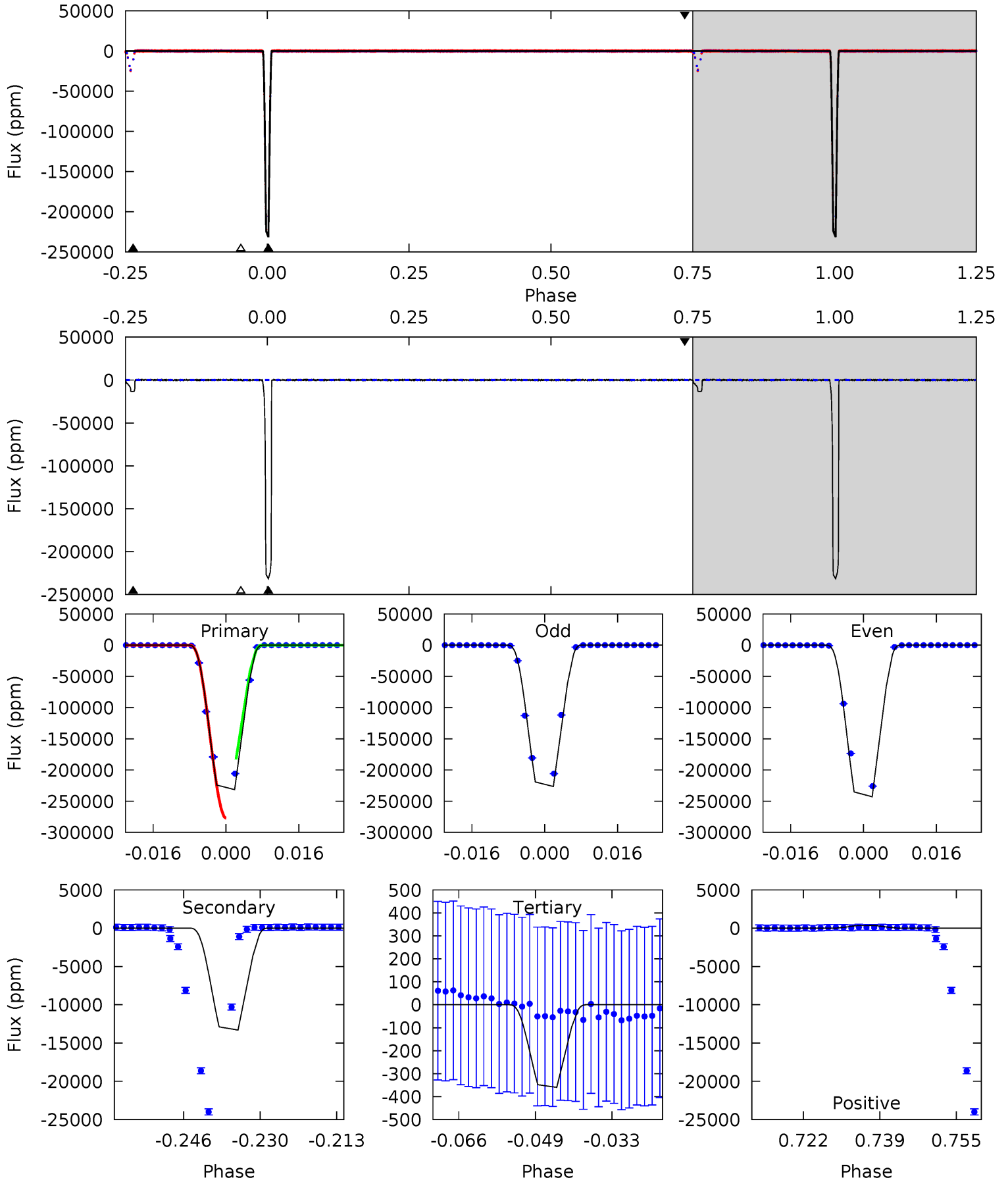
TCE 005731312-01 P= 7.946365 Days $T_0=135.094476$ (BKJD)



DV Model-Shift Uniqueness Test

005731312-01, P = 7.946415 Days, E = 127.146591 Days

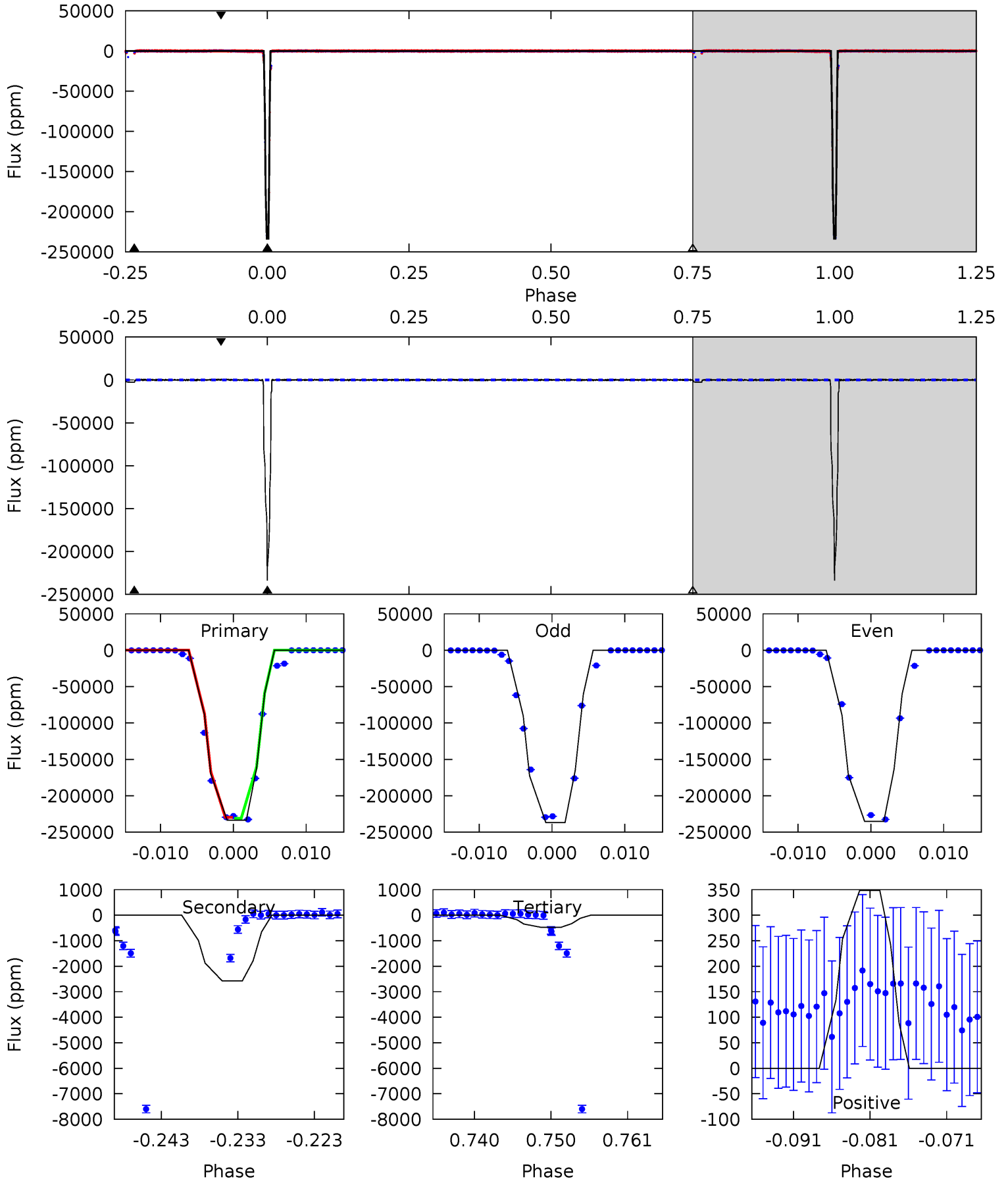
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
9758	561.1	15.2	14.6	4.93	2.40	3.49	9742	9743	545.9	546.5	342.1	0.92	0.00	0



Alt Model-Shift Uniqueness Test

005731312-01, P = 7.946365 Days, E = 127.148111 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
3630	40.0	7.34	5.42	5.02	2.57	1.50	3622	3624	32.7	34.6	14.2	0.98	0.00	0



Stellar Parameters For KIC 005731312

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	$M(M_{\odot})$	p_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	4789^{+143}_{-143}	$4.678^{+0.052}_{-0.032}$	$-0.980^{+0.300}_{-0.300}$	$0.573^{+0.041}_{-0.041}$	$0.571^{+0.049}_{-0.024}$	$4.271^{+0.908}_{-0.575}$
	+3%/-3%	+1%/-1%	+31%/-31%	+7%/-7%	+9%/-4%	+21%/-13%
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 005731312-01 / KOI 6621.01

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	-13307 ± 24	$37.94^{+3.20}_{-3.02}$	877^{+31}_{-32}	2788^{+80}_{-74}	22^{+4}_{-3}
Alt.	-2574 ± 64	$31.45^{+3.10}_{-2.80}$	875^{+31}_{-31}	2361^{+71}_{-58}	$6.029^{+1.254}_{-0.912}$

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 $A_{obs} \gg 1.0$

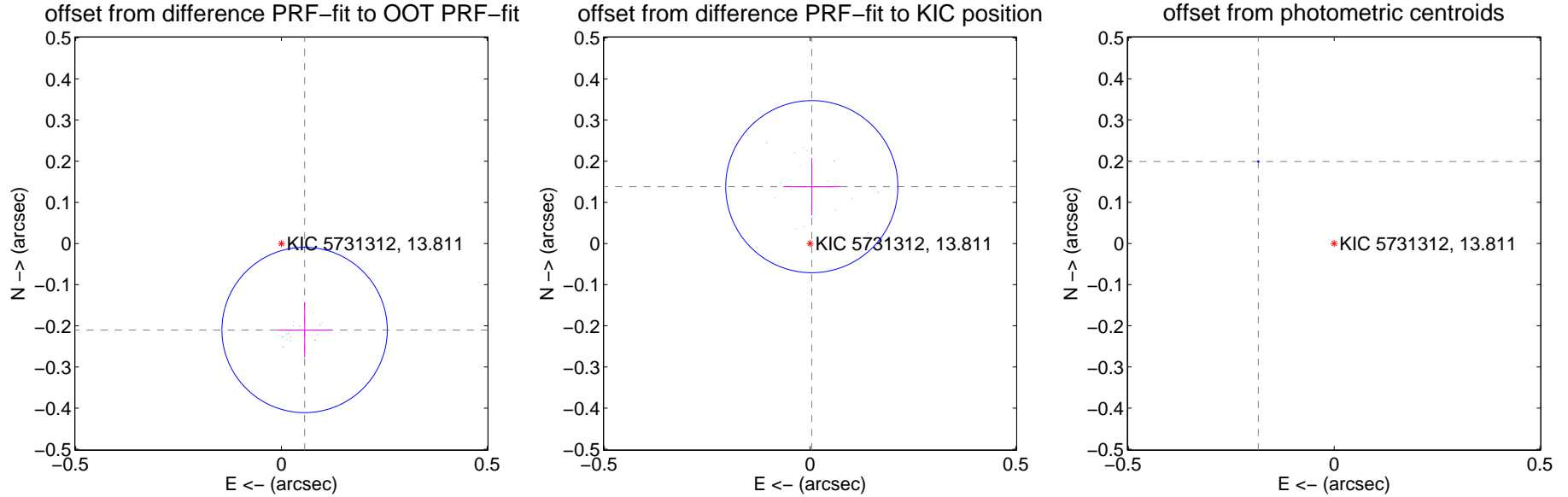
DV Centroid Data

Supplemental centroid analysis for 005731312-01. Kepler magnitude: 13.81. Transit SNR 12181.16

There are 17 quarters with good PRF difference image offsets

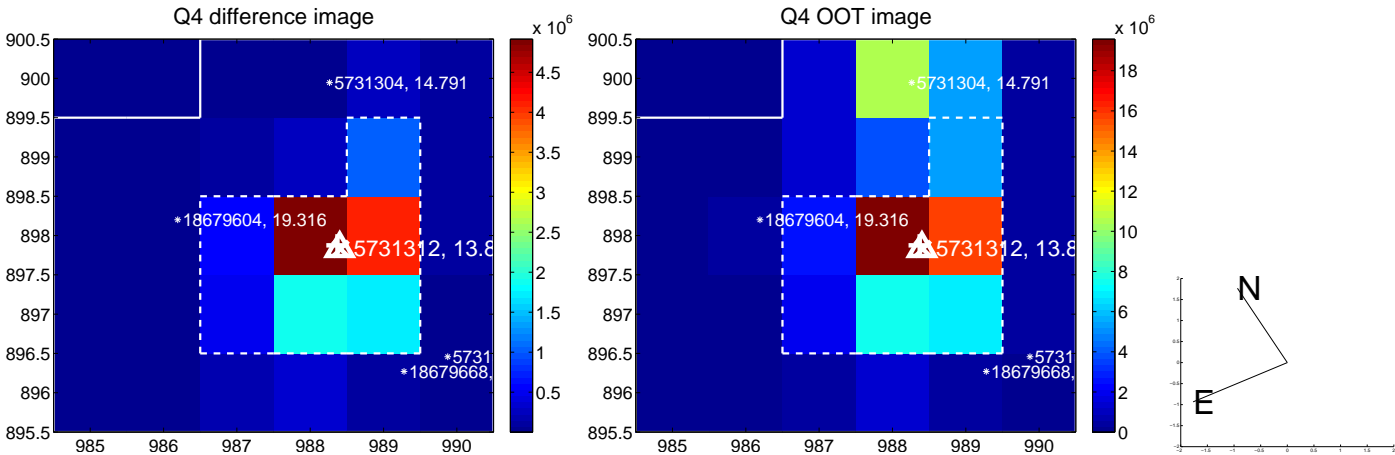
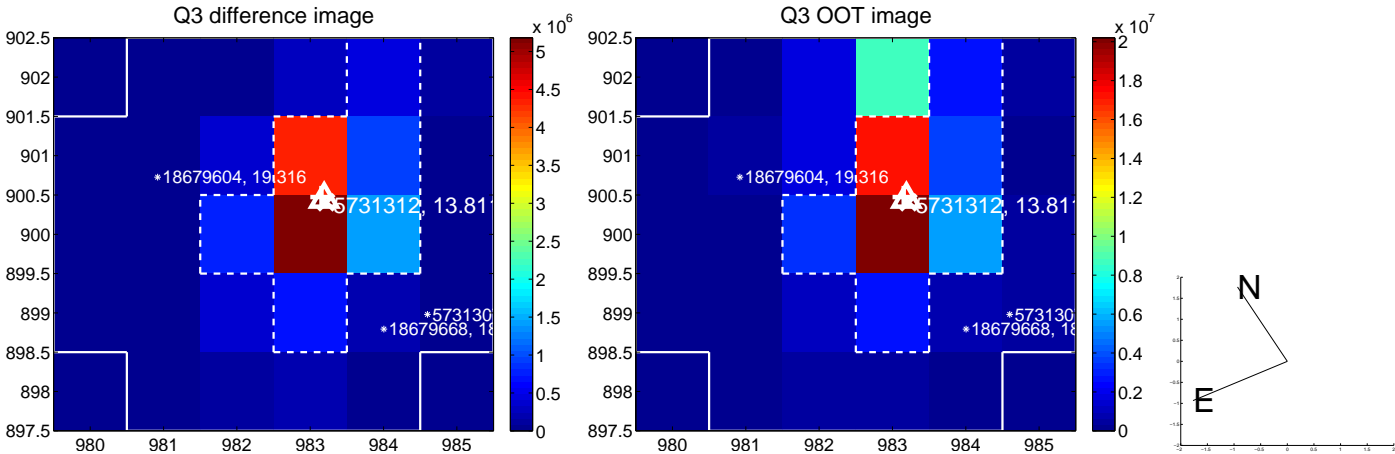
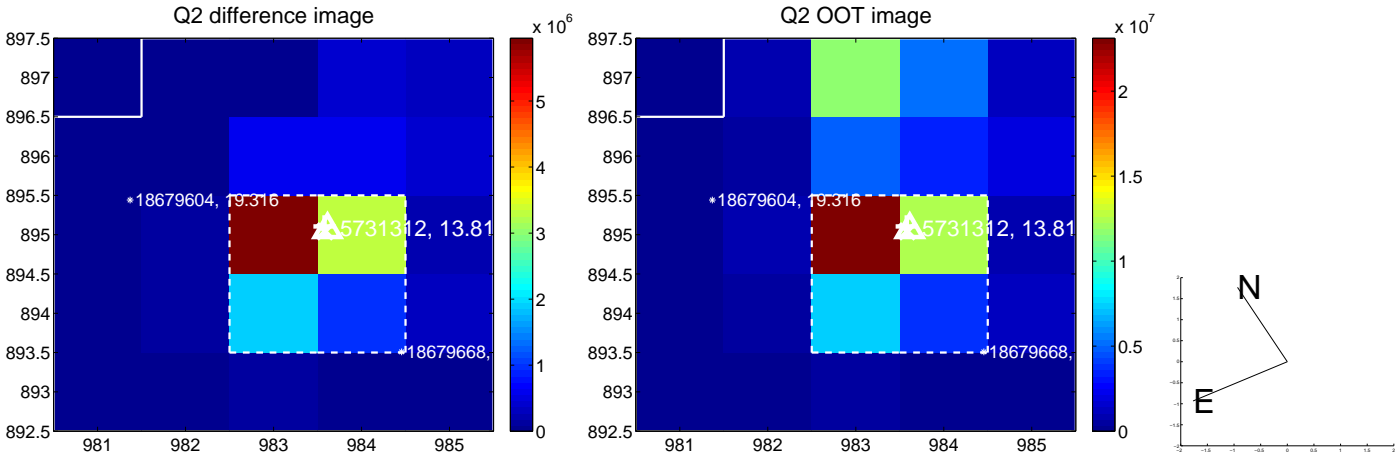
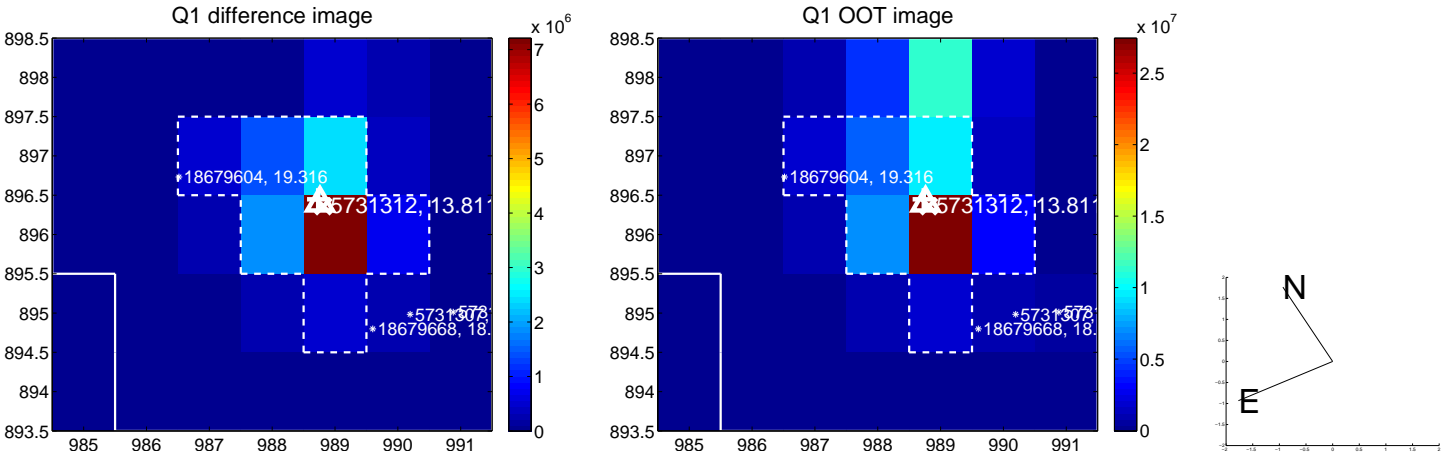
The direct PRF centroid is offset from the target star catalog position by about 0.43 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.218 ± 0.067	3.25	-0.056 ± 0.067	-0.210 ± 0.067
PRF-fit source offset from KIC position	0.138 ± 0.070	1.98	-0.004 ± 0.069	0.138 ± 0.070
photometric centroid source offset	0.27 ± 0.00	432.44	0.18 ± 0.00	0.20 ± 0.00

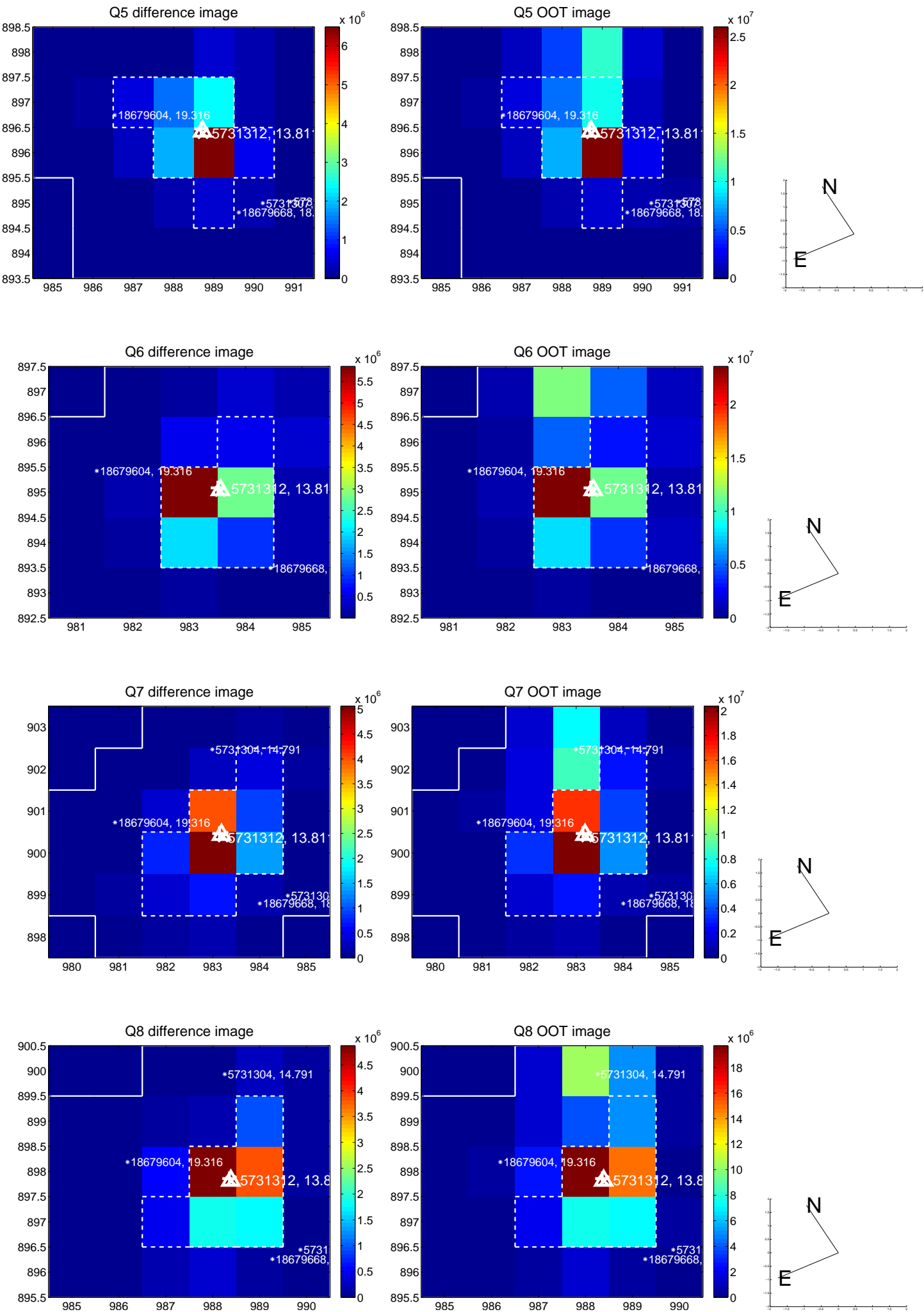


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

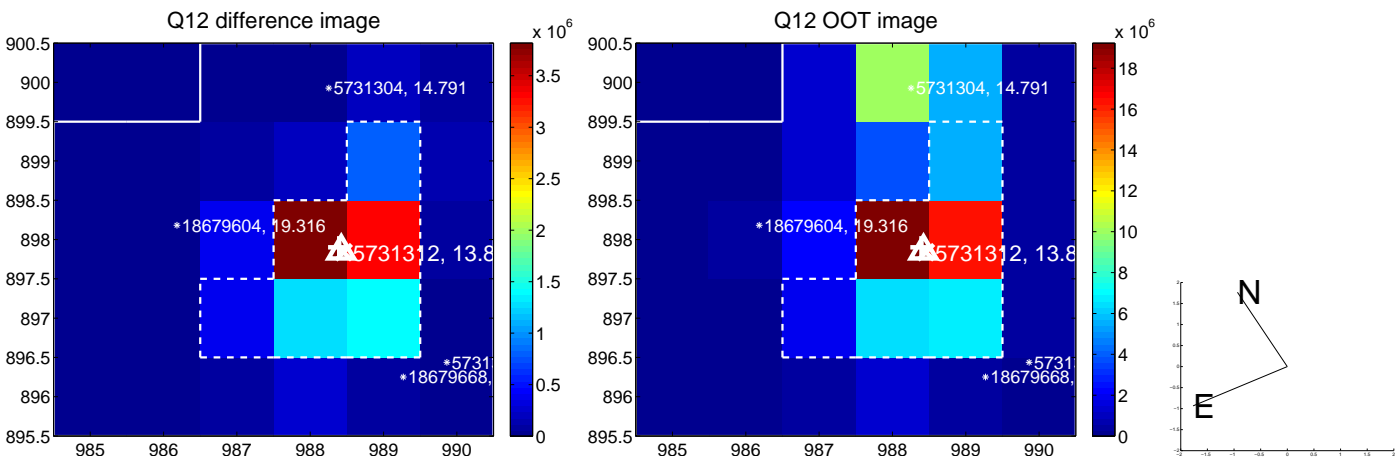
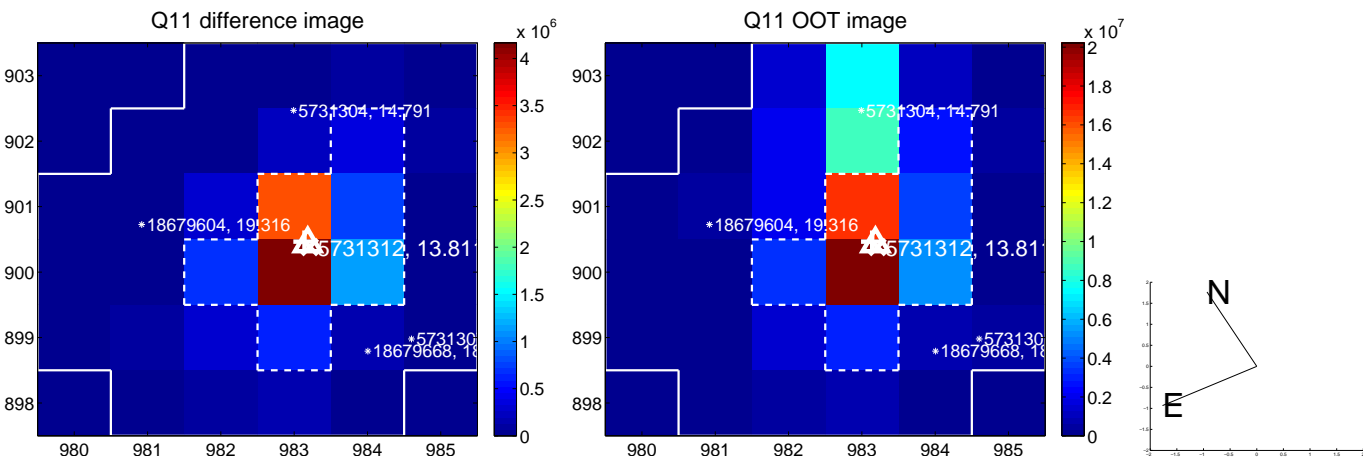
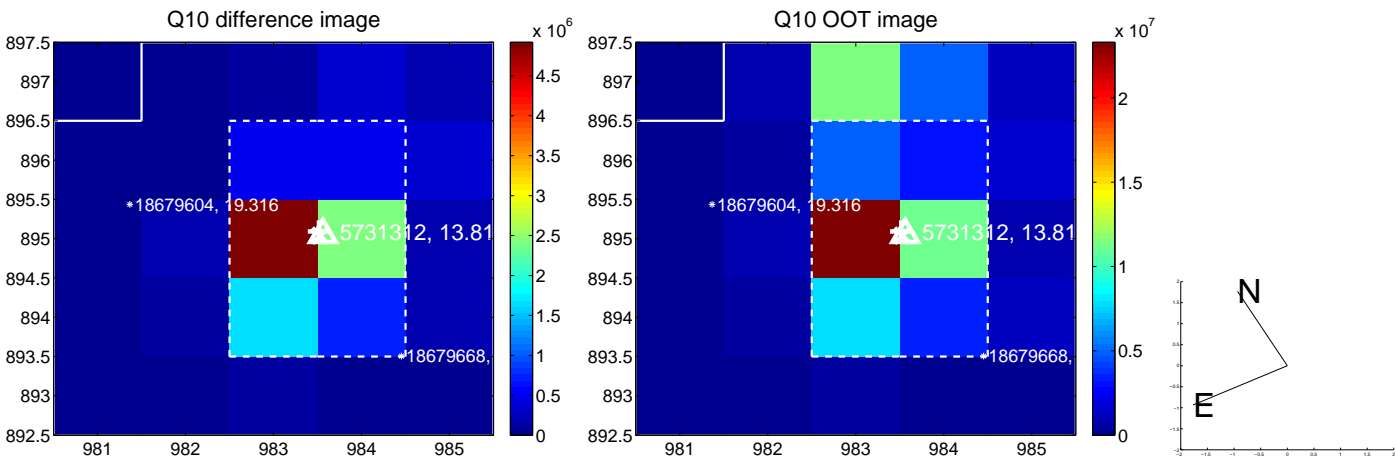
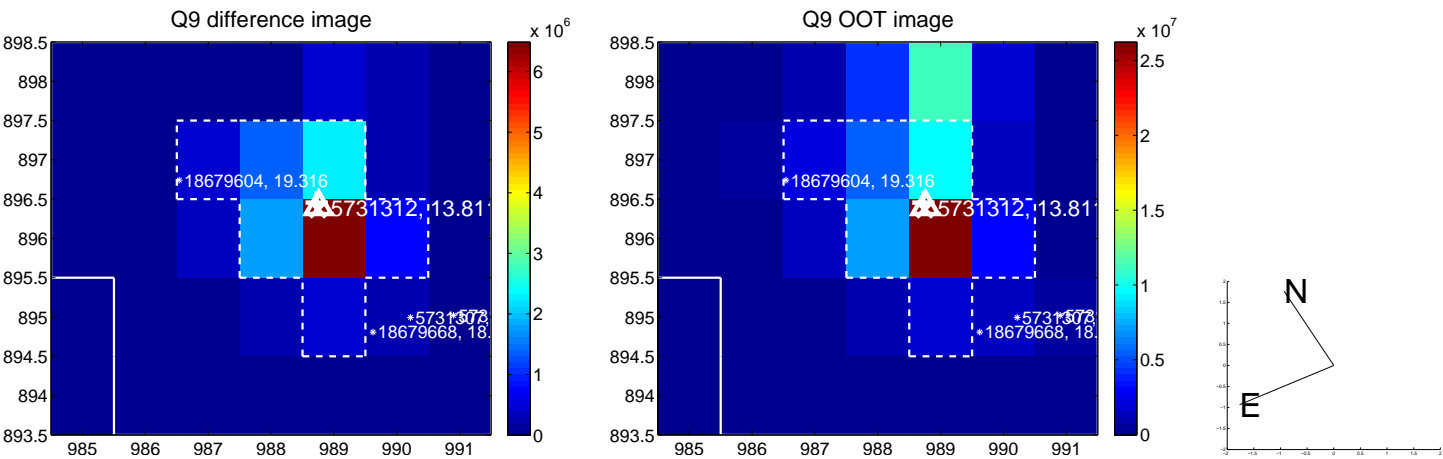
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



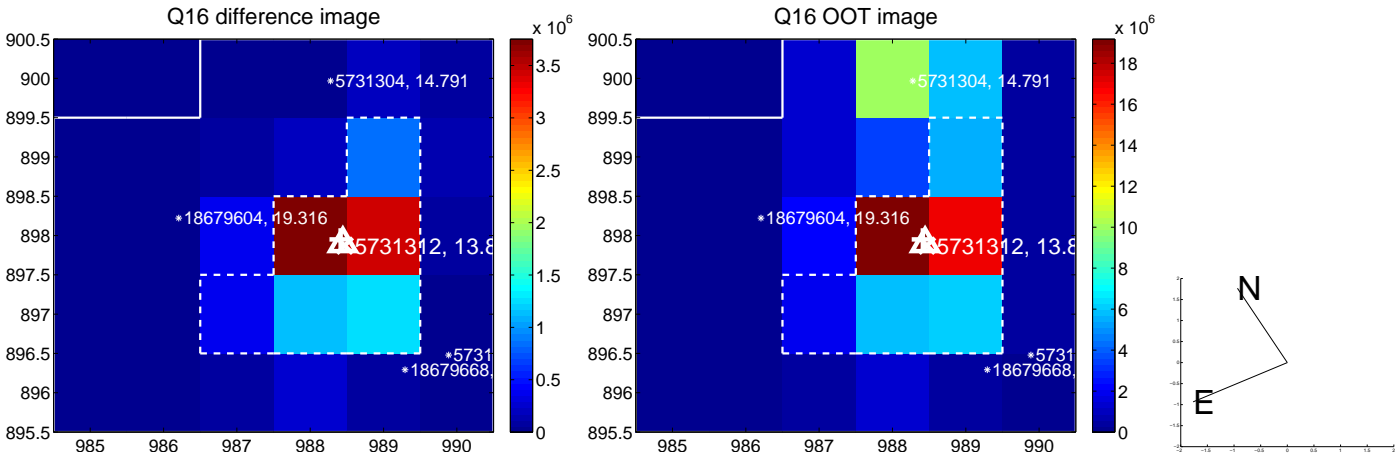
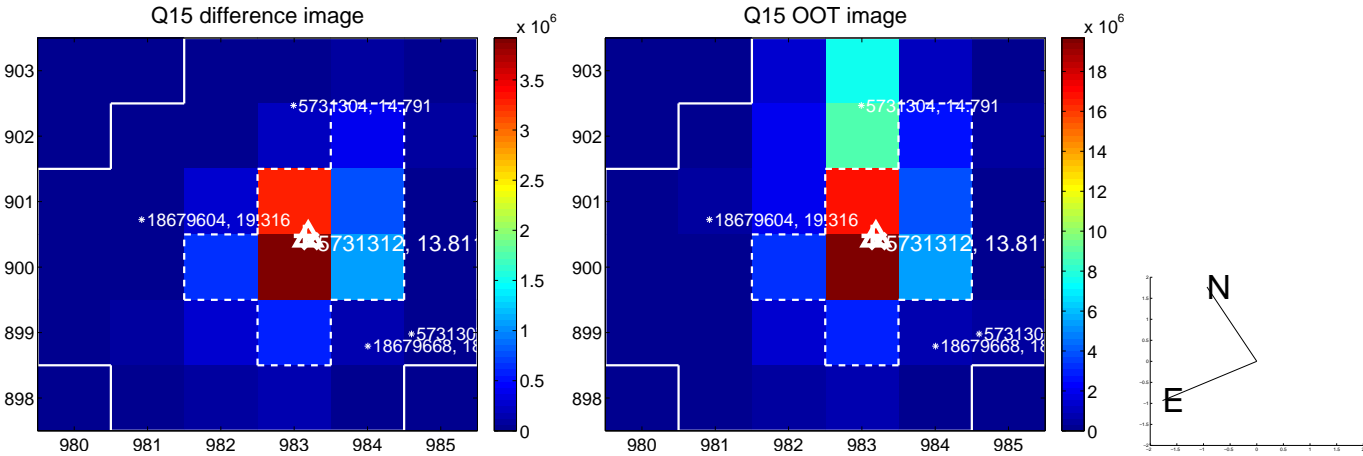
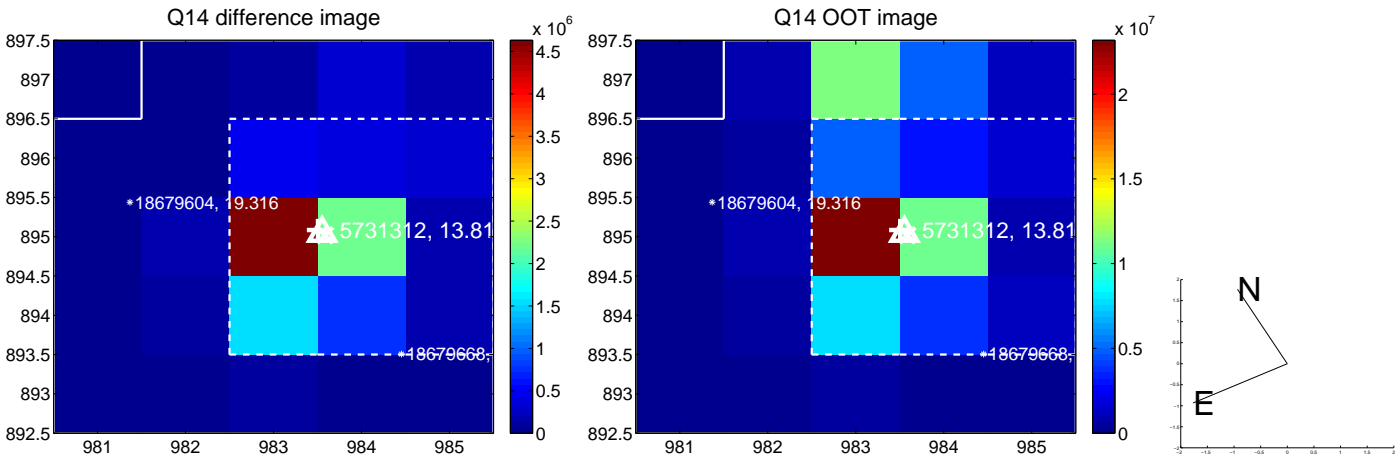
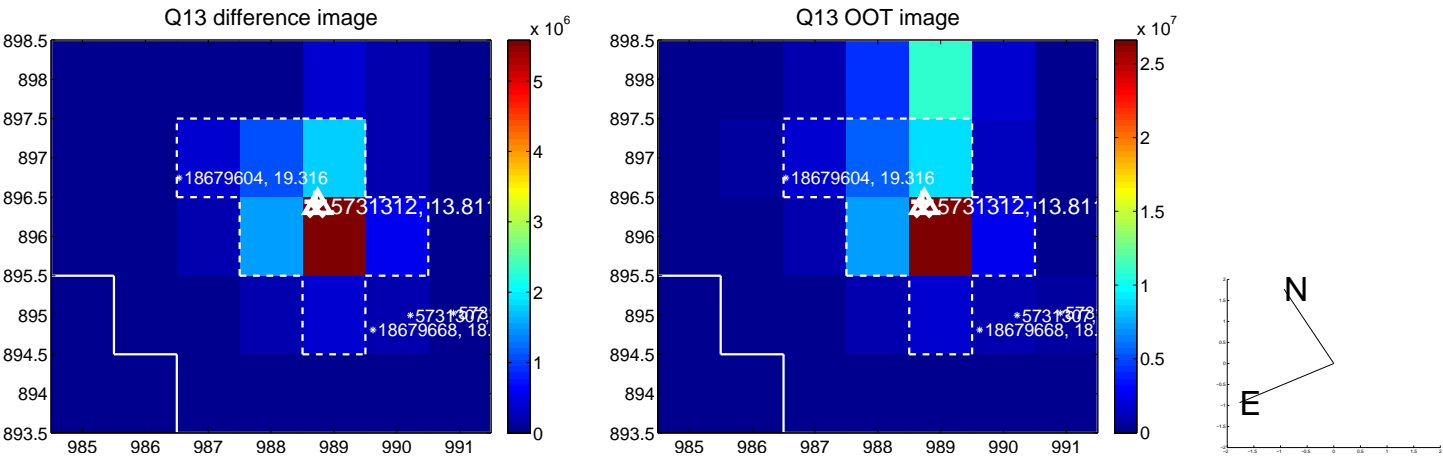
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



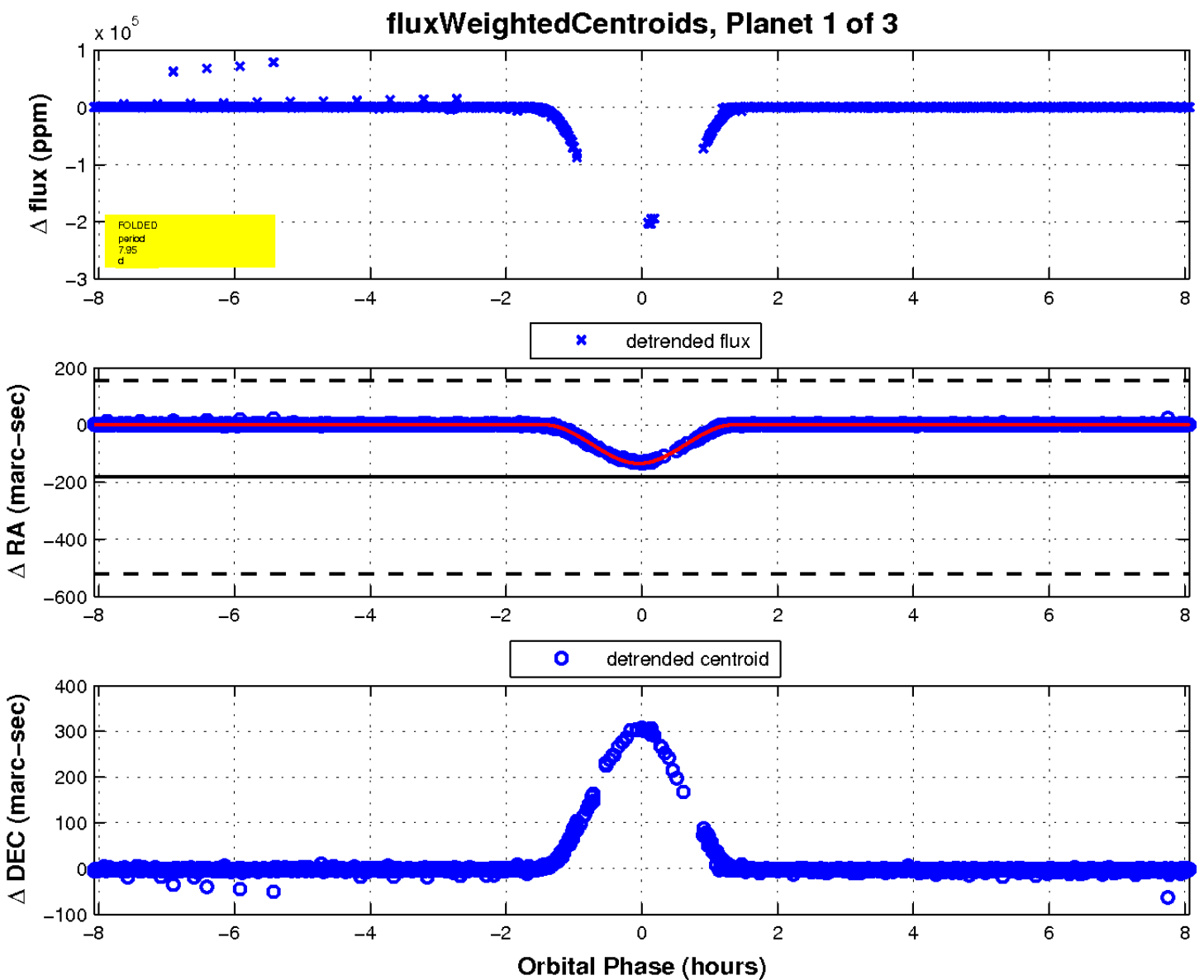
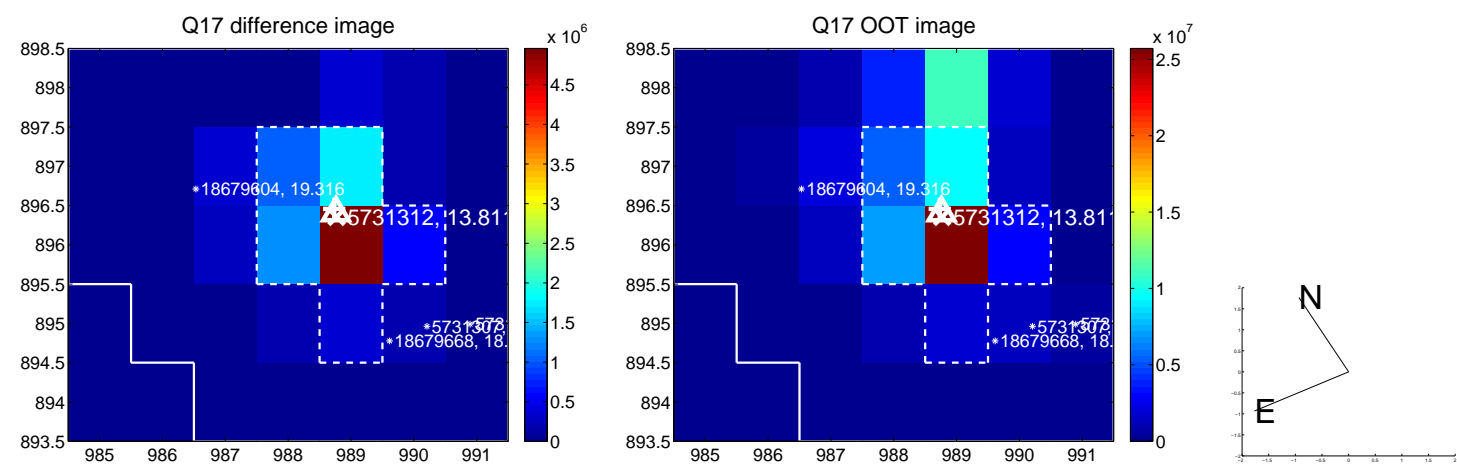
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

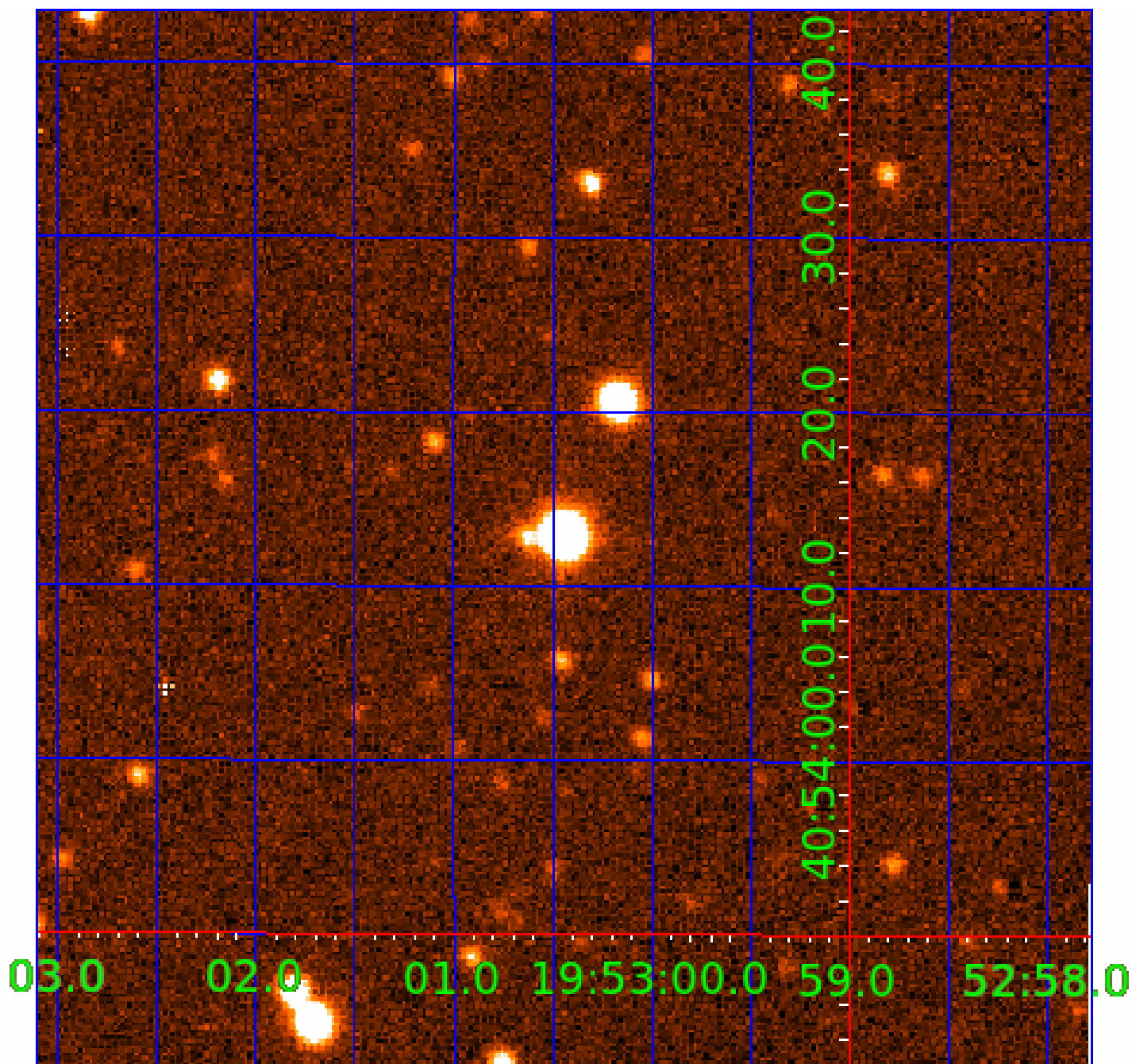


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 005731312

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})
005731312-01	OBS	6621.01	7.946415	135.093006	276408.5	2.690	16605.5	12181.2	0.57	4789	37.87	37.02
005731312-02	OBS	No	7.946530	133.168481	26458.1	2.829	1632.4	1215.4	0.57	4789	12.76	37.02
005731312-03	OBS	No	7.946447	134.824636	408.9	12.000	22.1	-1.0	0.57	4789	1.13	37.02

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
005731312-01	OBS	FP	0.00	0	1	0	0	MOD_SEC_DV—MOD_SEC_ALT—MOD_ODDEVEN_DV—DEEP_V_SHAPED—HAS_SEC_TCE—CENT_KIC_POS
005731312-02	OBS	FP	0.00	1	1	0	0	IS_SEC_TCE—CENT_KIC_POS
005731312-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_SKYE_ZUMA—LPP_DV—RESIDUAL_TCE—CENT_NOFITS

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 005731312-02

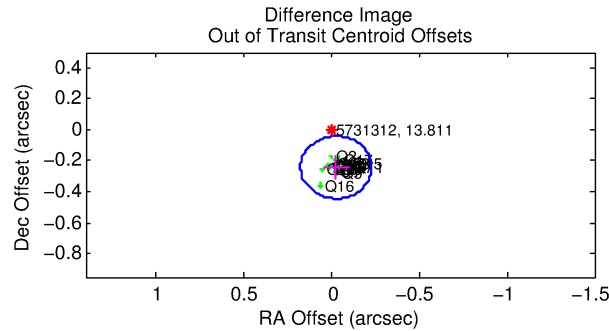
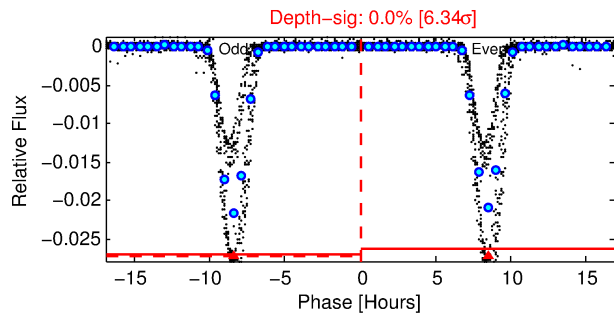
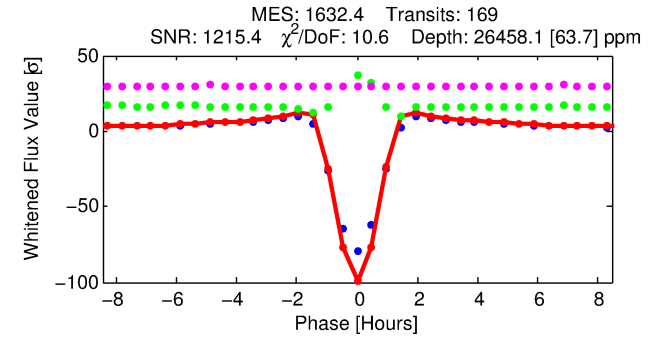
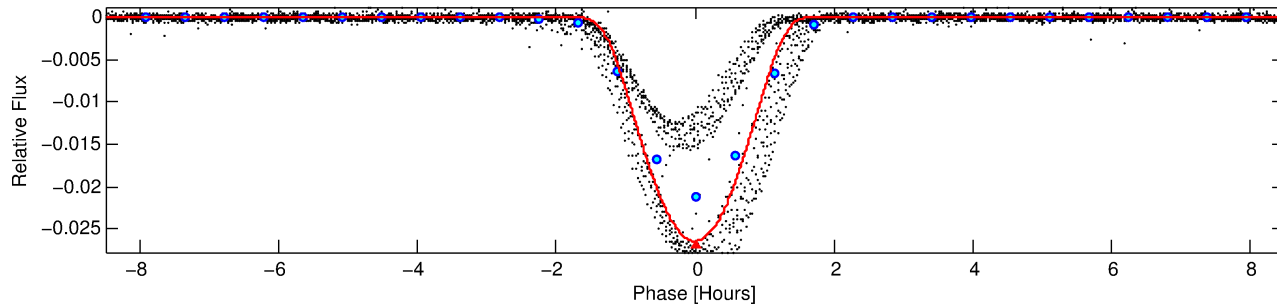
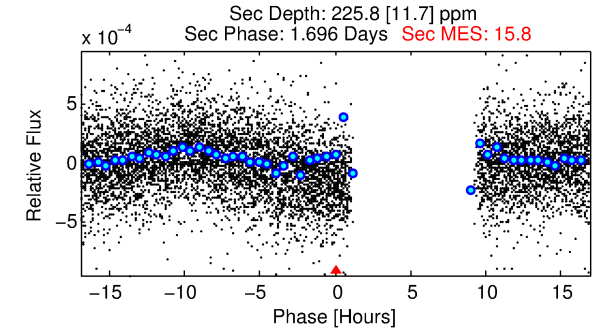
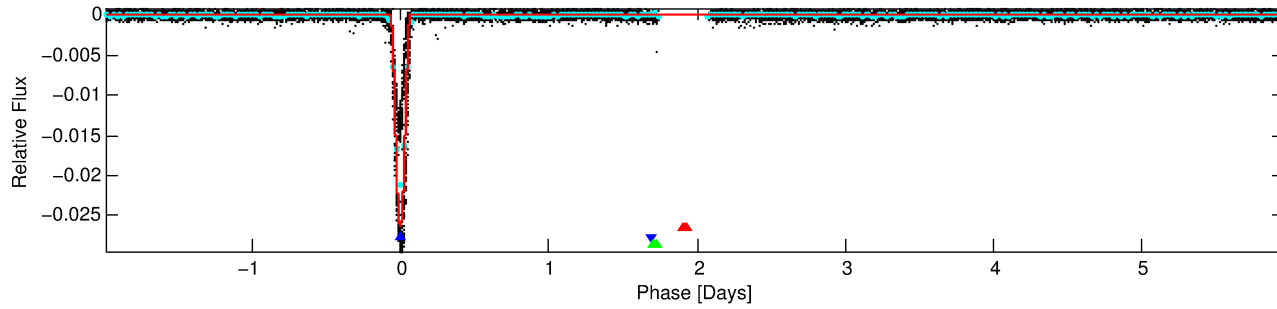
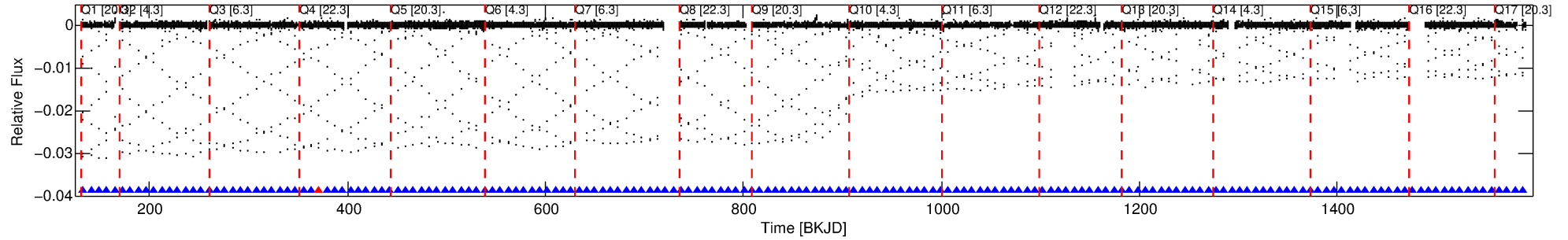
No Significant Match Found

DV One-Page Summary

KIC: 5731312 Candidate: 2 of 3 Period: 7.947 d

KOI: K06621 Corr: No Ephemeris Match

Kp: 13.81 R*: 0.57 Rs Teff: 4789.0 K Logg: 4.68 Fe/H: -0.980



DV Fit Results:

Period = 7.94653 [0.00000] d
Epoch = 133.1685 [0.0001] BKJD
Rp/R* = 0.2041 [0.0085]
a/R* = 17.13 [0.16]
b = 0.90 [0.02]
Seff = 37.02 [5.60]
Teq = 629 [24] K
Rp = 12.76 [1.06] Re
a = 0.0647 [0.0040] AU
Ag = 3.19 [0.43] [5.08σ]
Teffp = 1300 [50] K [12.07σ]

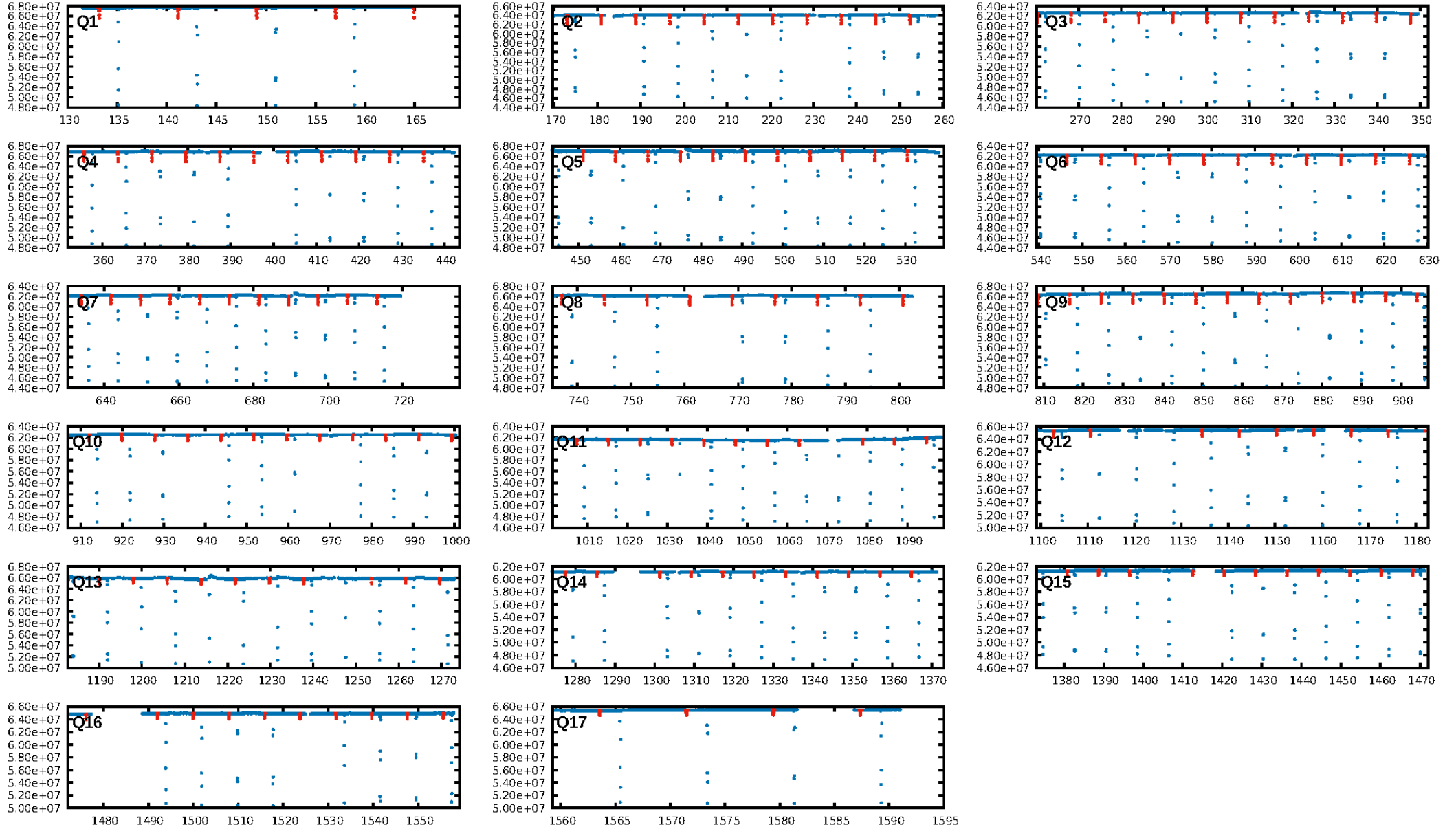
DV Diagnostic Results:

ShortPeriod-sig: 0.0% [0.00σ]
LongPeriod-sig: N/A
ModelChiSquare2-sig: 0.0%
ModelChiSquareGof-sig: 0.0%
Bootstrap-pfa: N/A
RollingBand-fgt: 0.99 [159/160]
GhostDiagnostic-chr: 2.781
Centroid-sig: N/A
Centroid-so: 0.524 arcsec [91.67σ]
OotOffset-rm: 0.244 arcsec [3.63σ]
KicOffset-rm: 0.100 arcsec [1.46σ]
OotOffset-st: 4/4/4/5 [17]
KicOffset-st: 4/4/4/5 [17]
DiffImageQuality-fgm: 1.00 [17/17]
DiffImageOverlap-fno: 1.00 [17/17]

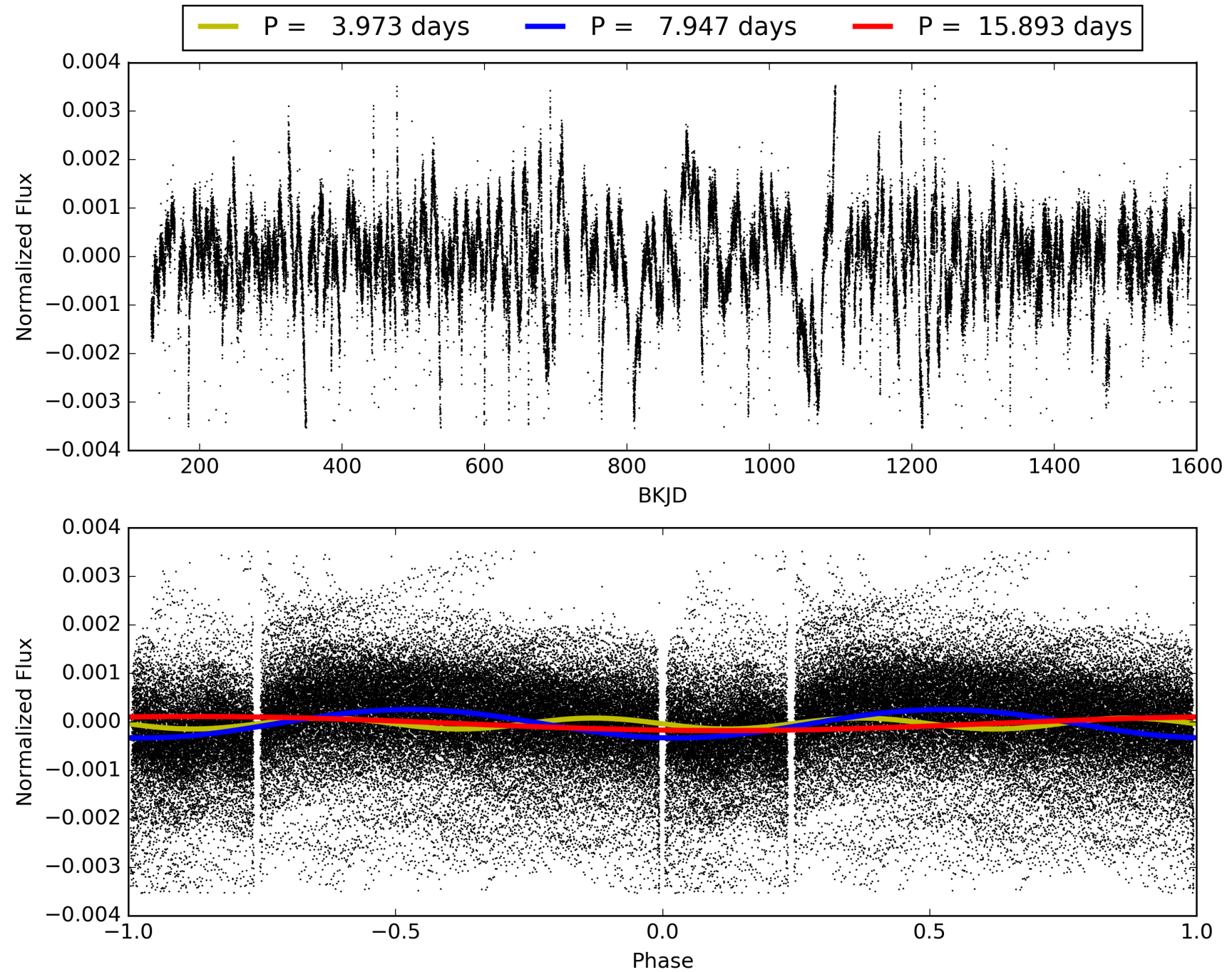
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 16:59:53 Z

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

TCE 005731312-02, PDC Light Curves

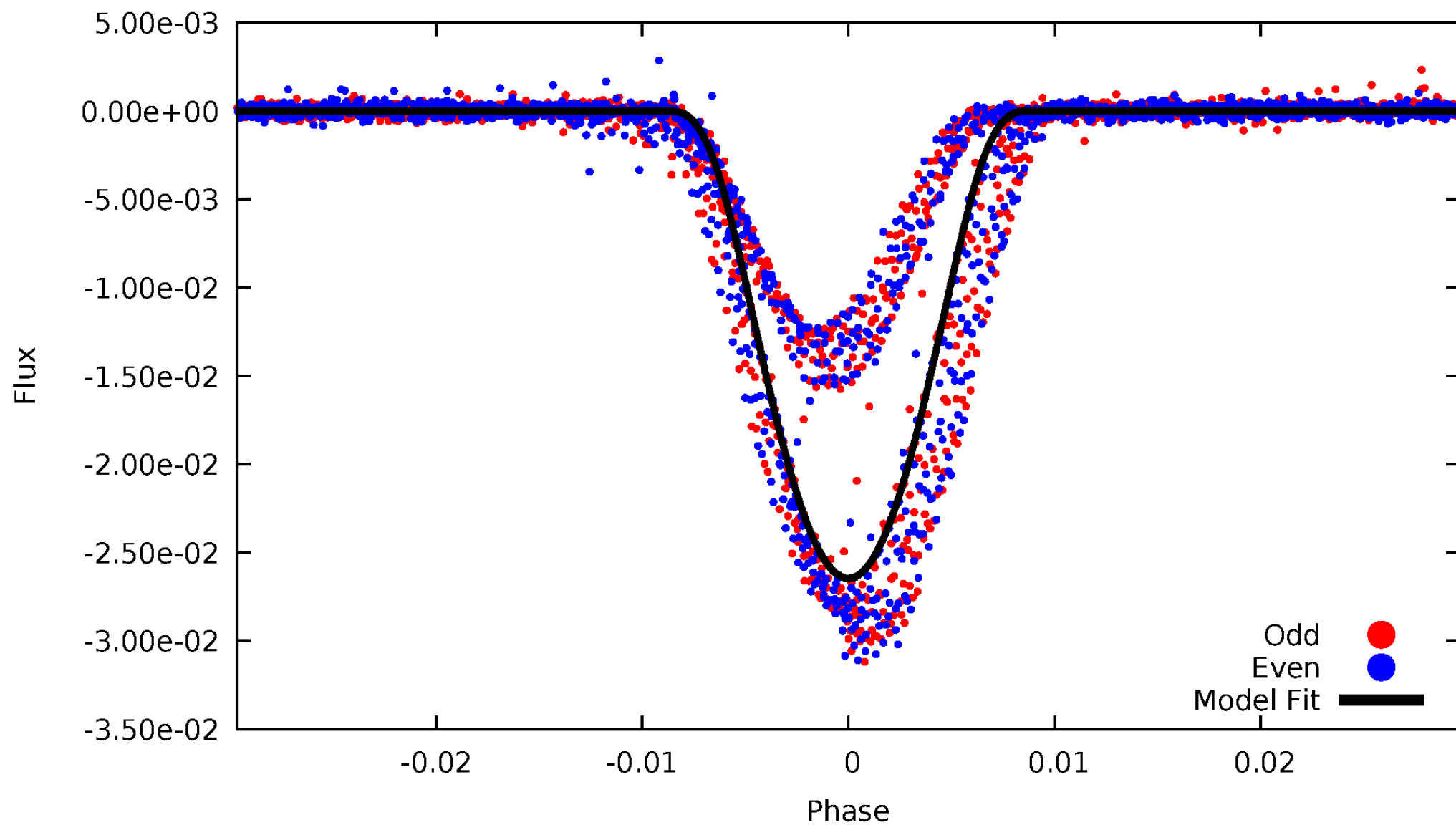


TCE 005731312-02



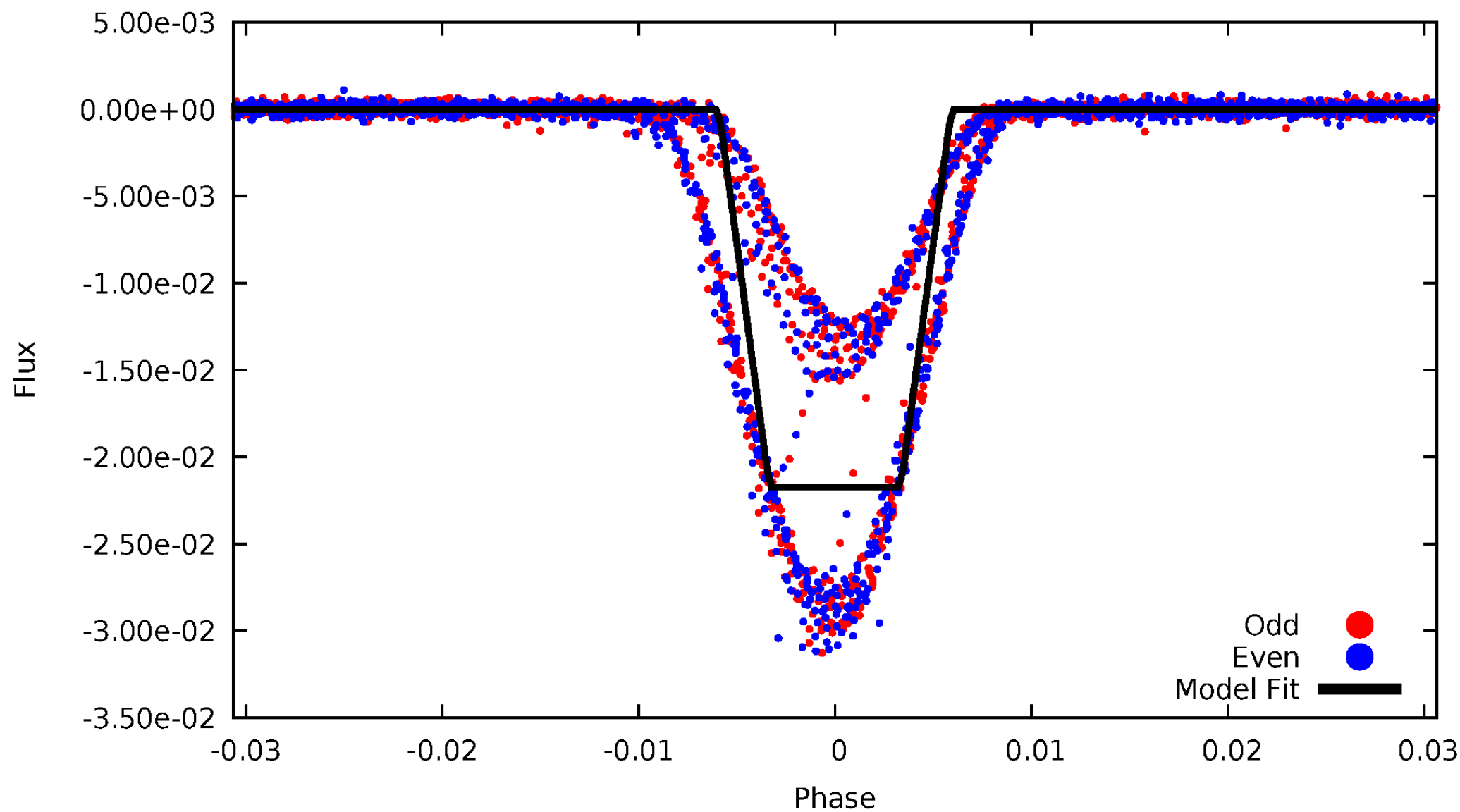
DV Odd/Even

TCE 005731312-02



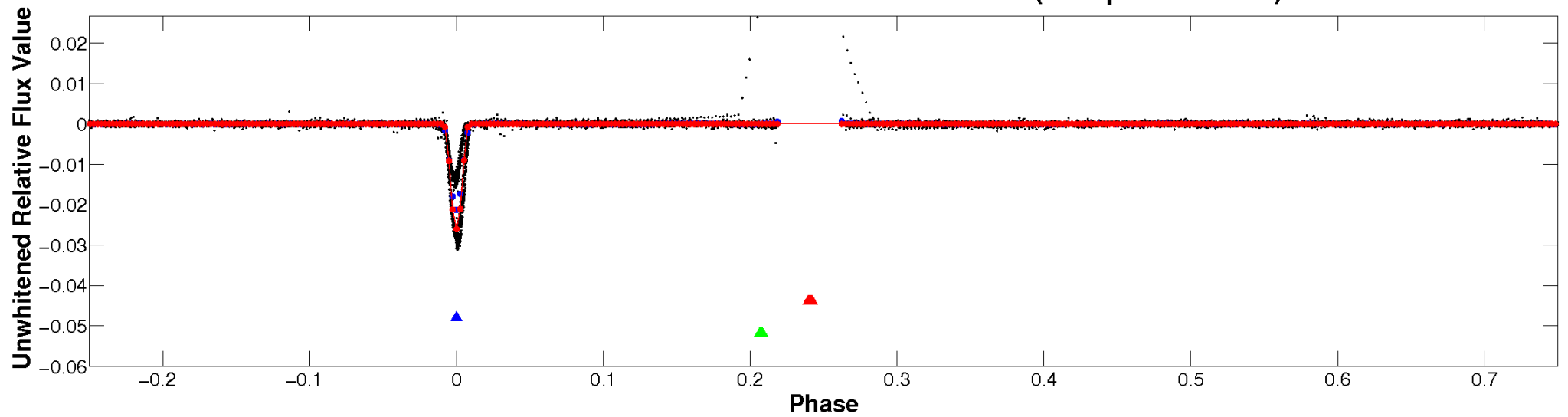
ALT Odd/Even

TCE 005731312-02

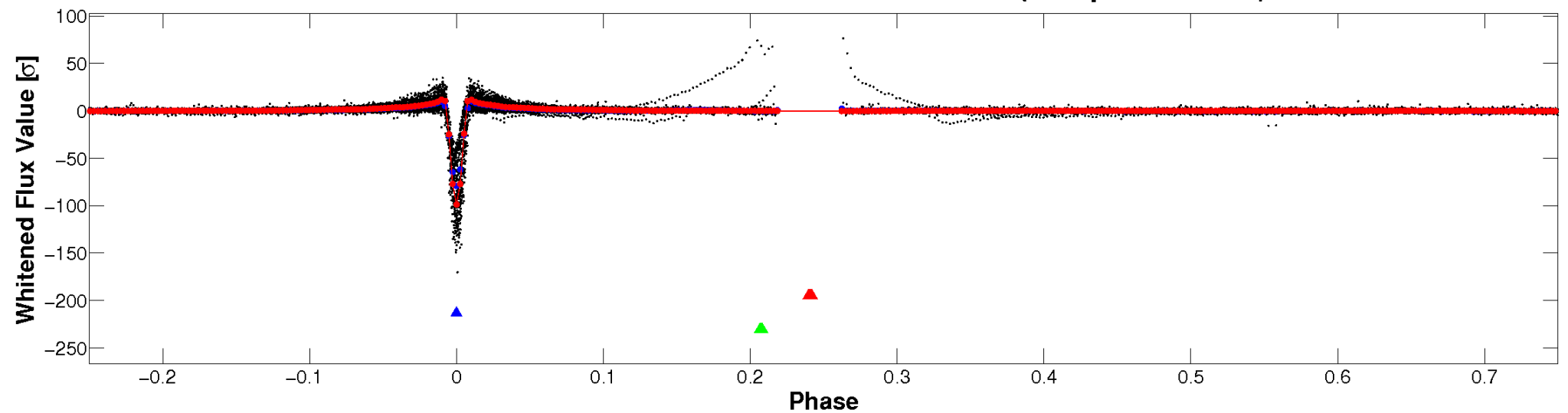


Non-Whitened Vs. Whitened Light Curve

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

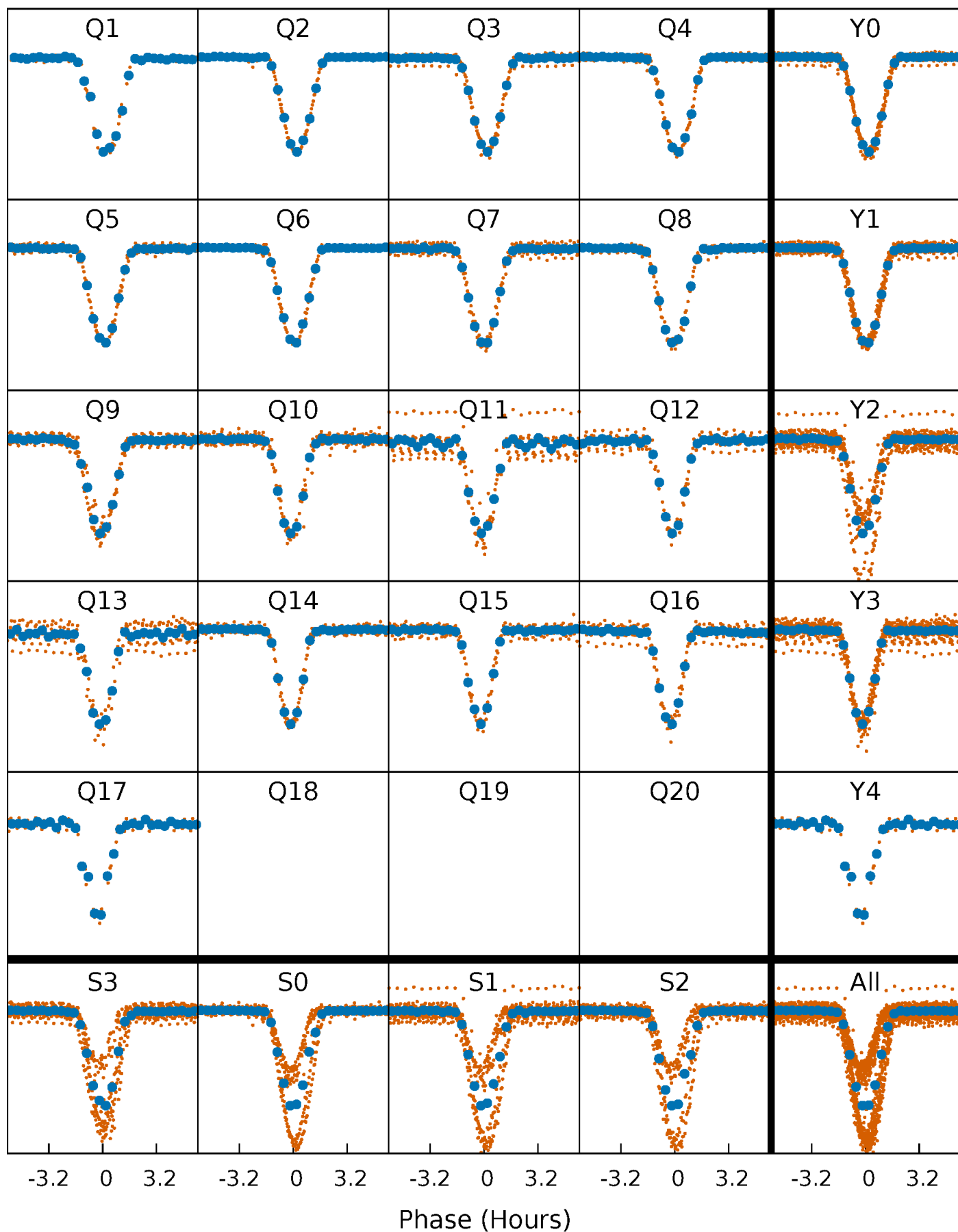


Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



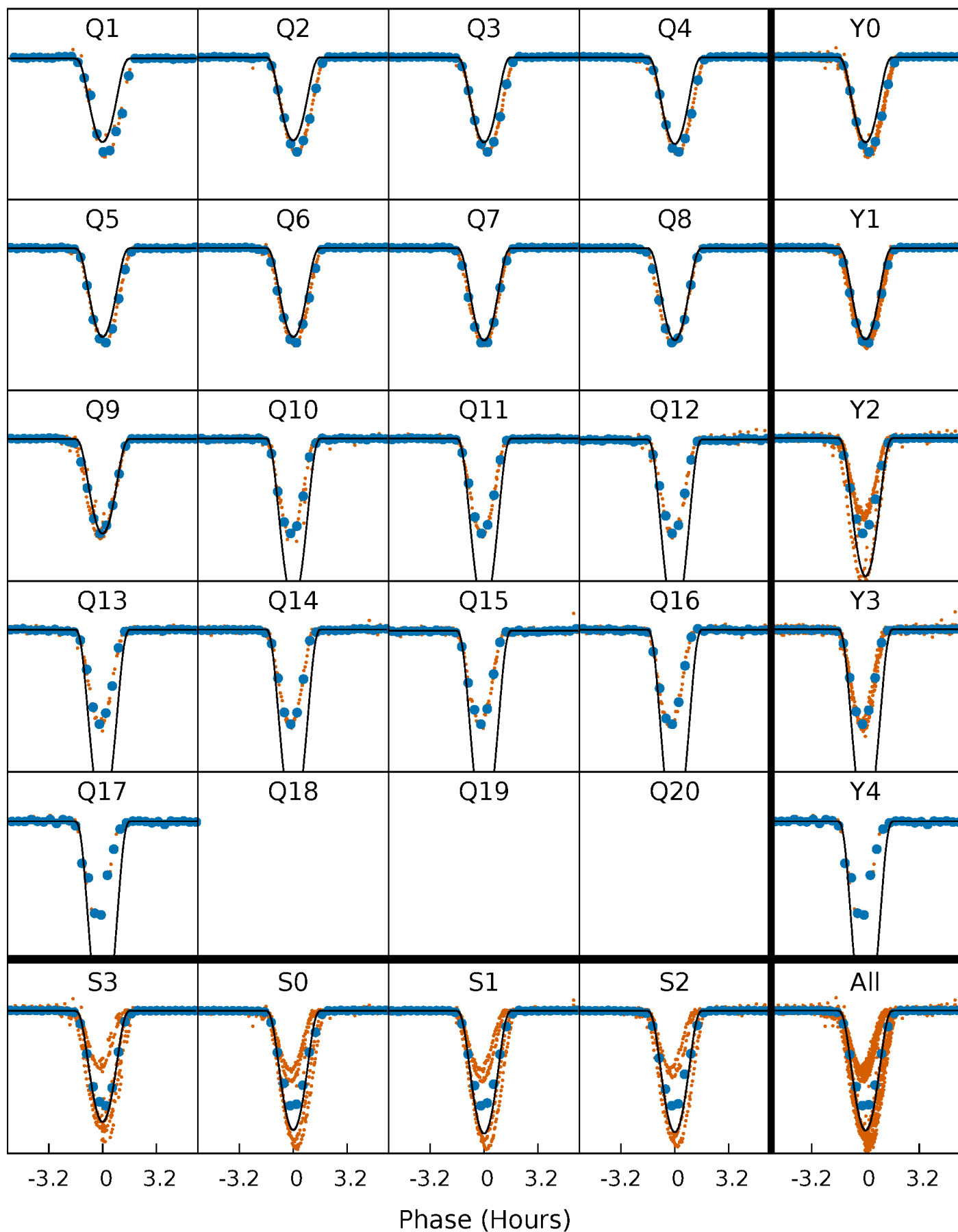
PDC Quarter-Phased Transit Curves

TCE 005731312-02 P= 7.946530 Days $T_0=133.168481$ (BKJD)



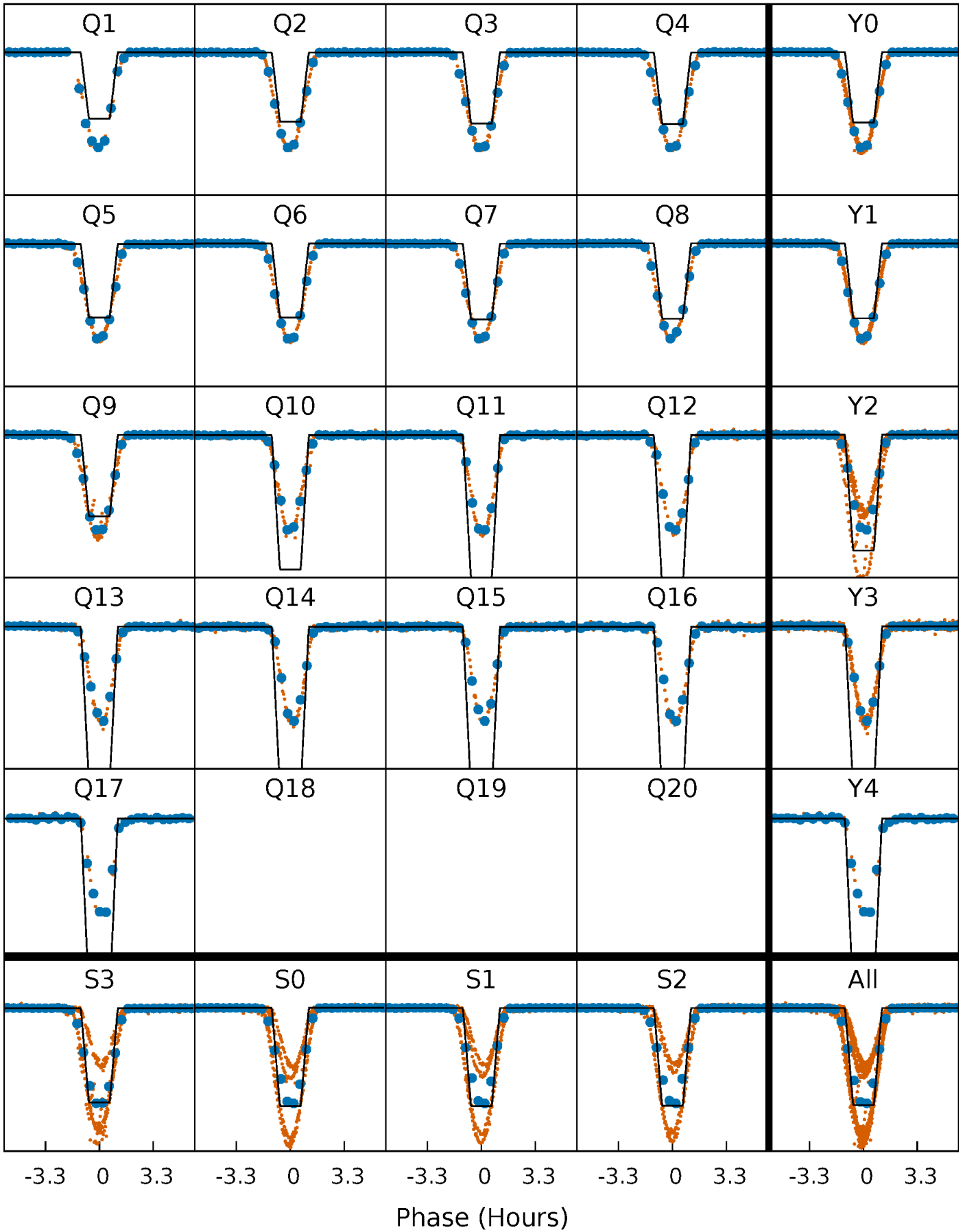
DV Quarter-Phased Transit Curves

TCE 005731312-02 P= 7.946530 Days $T_0=133.168481$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

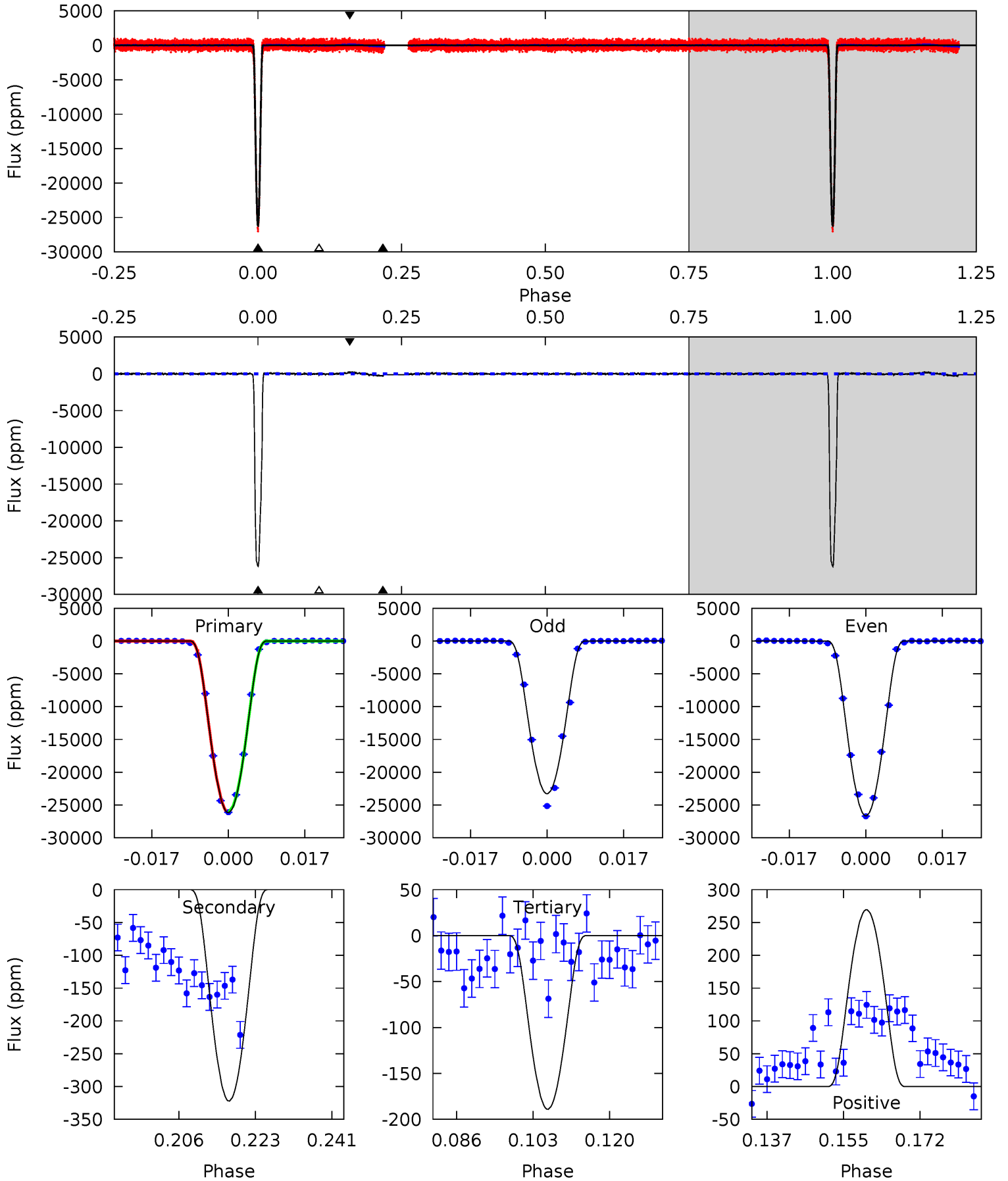
TCE 005731312-02 P= 7.946365 Days $T_0=133.180384$ (BKJD)



DV Model-Shift Uniqueness Test

005731312-02, P = 7.946530 Days, E = 125.221951 Days

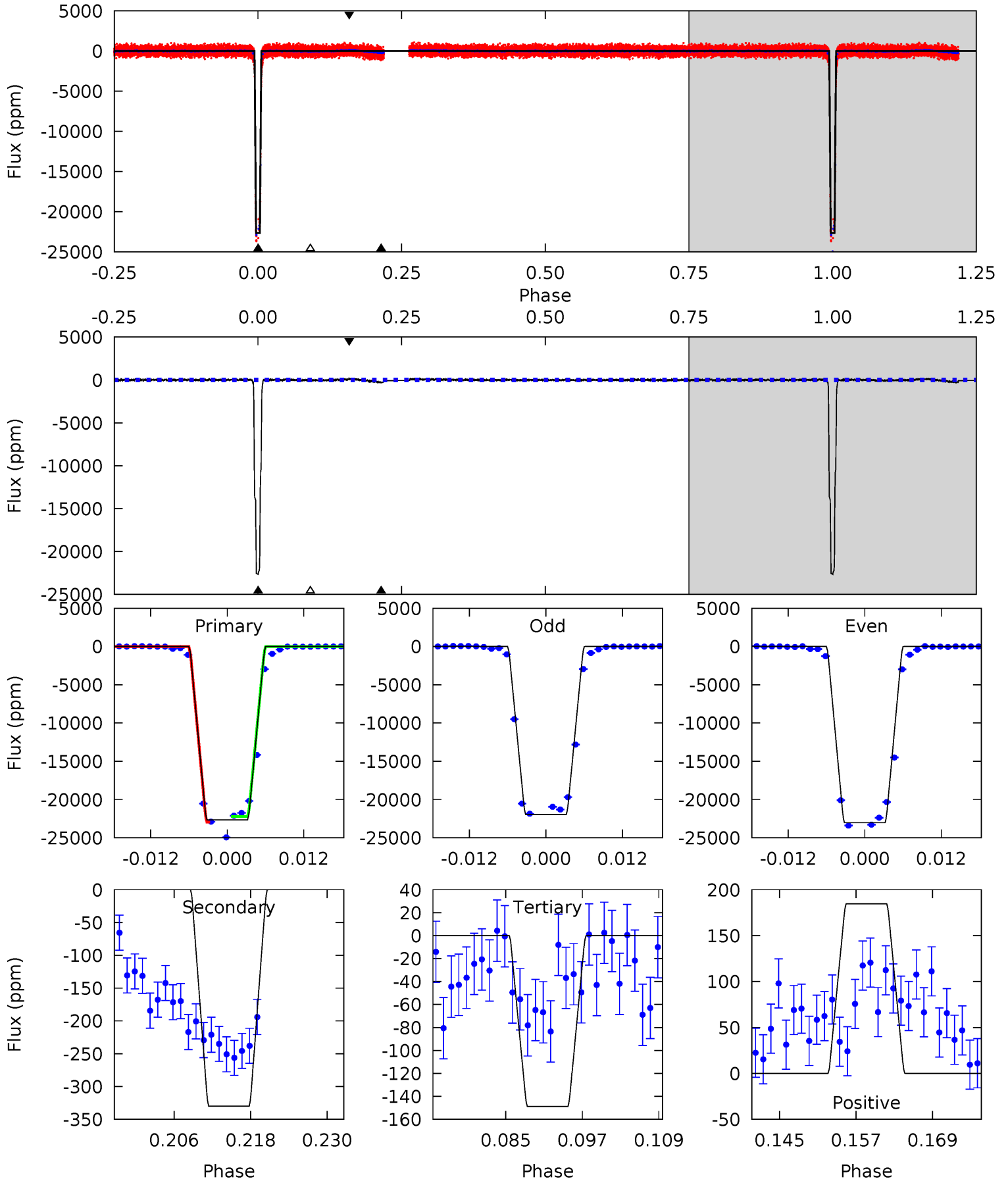
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
1732	21.3	12.5	17.8	4.92	2.38	3.53	1720	1714	8.81	3.49	110.2	0.78	0.01	0



Alt Model-Shift Uniqueness Test

005731312-02, P = 7.946365 Days, E = 125.234019 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
841.7	12.3	5.53	6.86	4.99	2.51	1.58	836.2	834.9	6.72	5.39	19.7	0.79	0.01	0



Stellar Parameters For KIC 005731312

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	$M(M_{\odot})$	p_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	4789^{+143}_{-143}	$4.678^{+0.052}_{-0.032}$	$-0.980^{+0.300}_{-0.300}$	$0.573^{+0.041}_{-0.041}$	$0.571^{+0.049}_{-0.024}$	$4.271^{+0.908}_{-0.575}$
	+3%/-3%	+1%/-1%	+31%/-31%	+7%/-7%	+9%/-4%	+21%/-13%
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 005731312-02 / KOI

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	-322 ± 15	$12.68^{+0.80}_{-0.72}$	874^{+30}_{-32}	2285^{+49}_{-46}	$4.639^{+0.603}_{-0.531}$
Alt.	-330 ± 27	$9.17^{+0.67}_{-0.62}$	873^{+30}_{-29}	2485^{+62}_{-64}	$9.077^{+1.493}_{-1.310}$

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

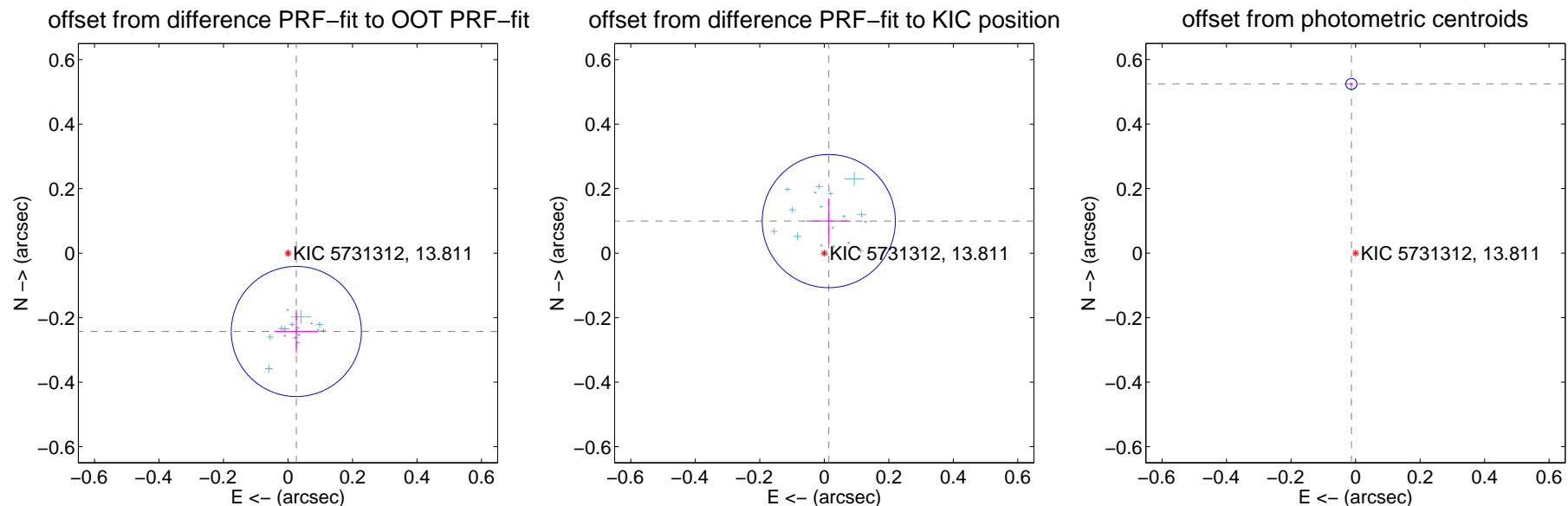
DV Centroid Data

Supplemental centroid analysis for 005731312-02. Kepler magnitude: 13.81. Transit SNR 1215.44

There are 17 quarters with good PRF difference image offsets

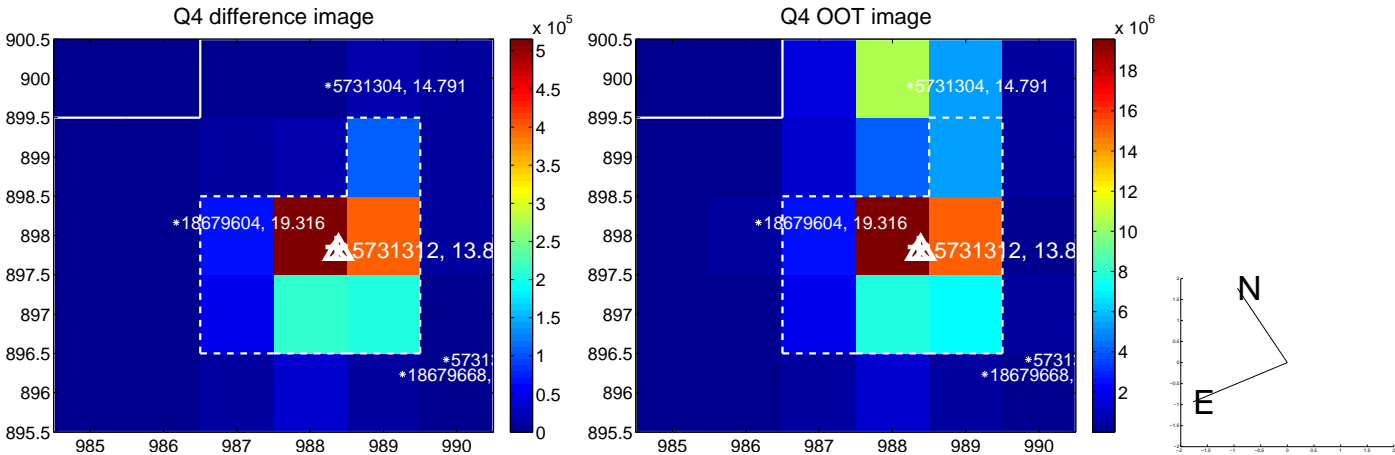
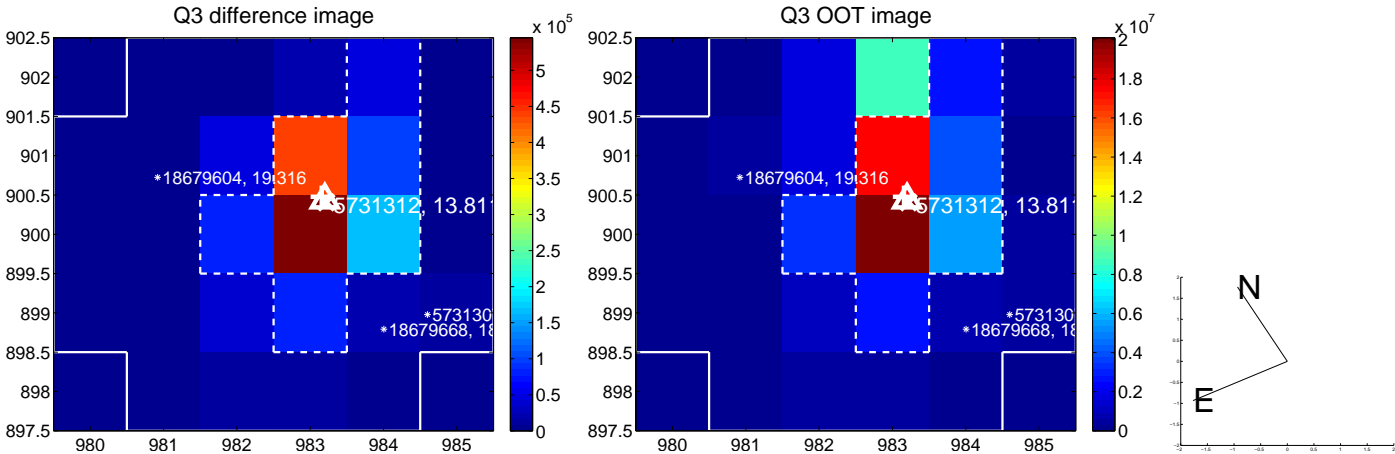
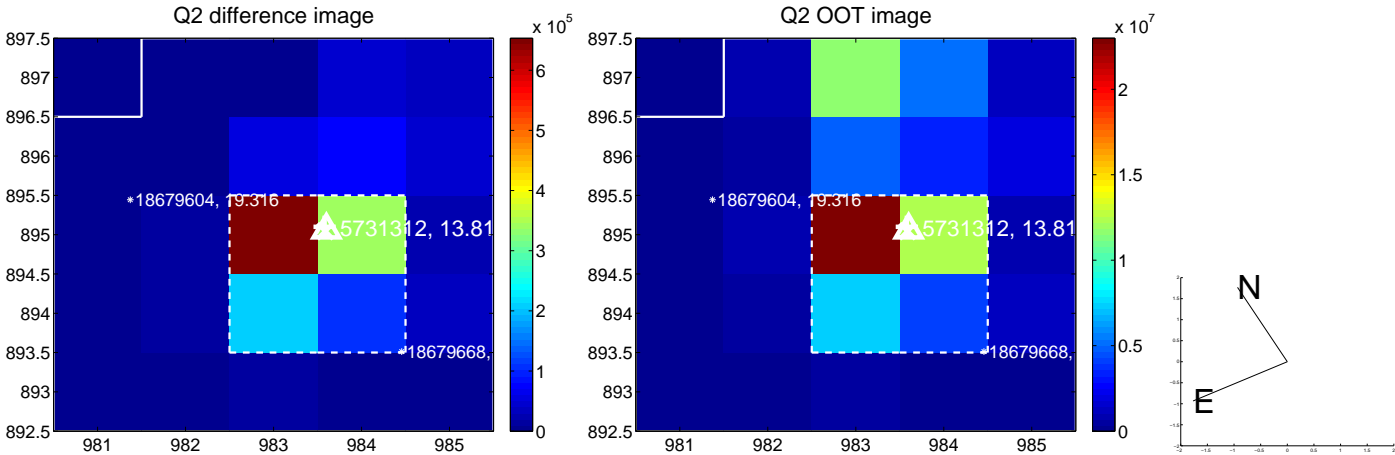
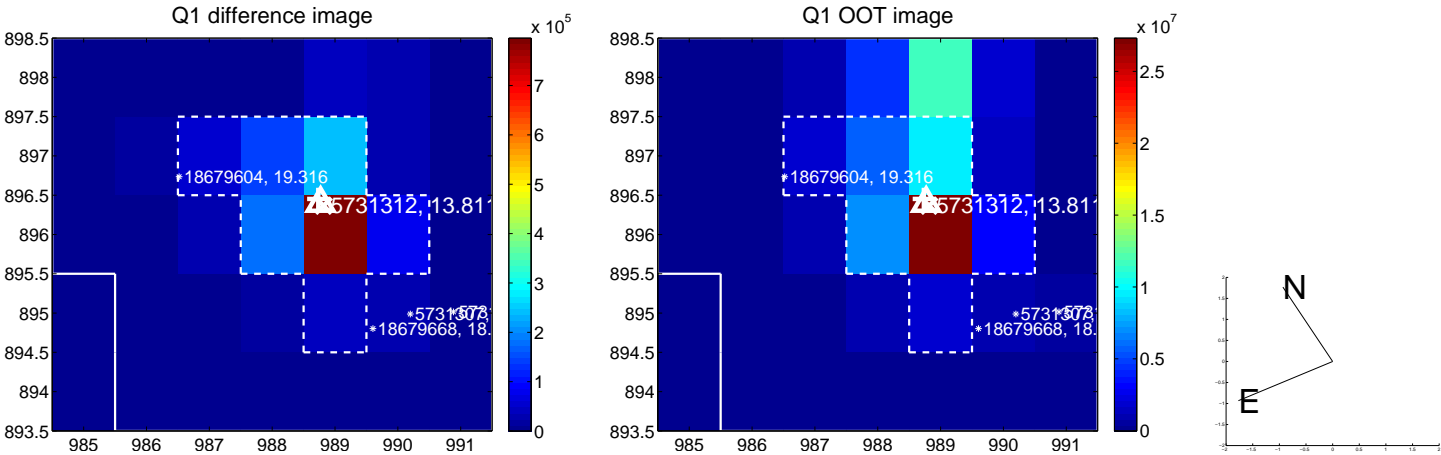
The direct PRF centroid is offset from the target star catalog position by about 0.43 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.244 ± 0.067	3.63	-0.026 ± 0.068	-0.243 ± 0.067
PRF-fit source offset from KIC position	0.100 ± 0.069	1.46	-0.014 ± 0.069	0.099 ± 0.069
photometric centroid source offset	0.52 ± 0.01	91.67	0.01 ± 0.01	0.52 ± 0.01

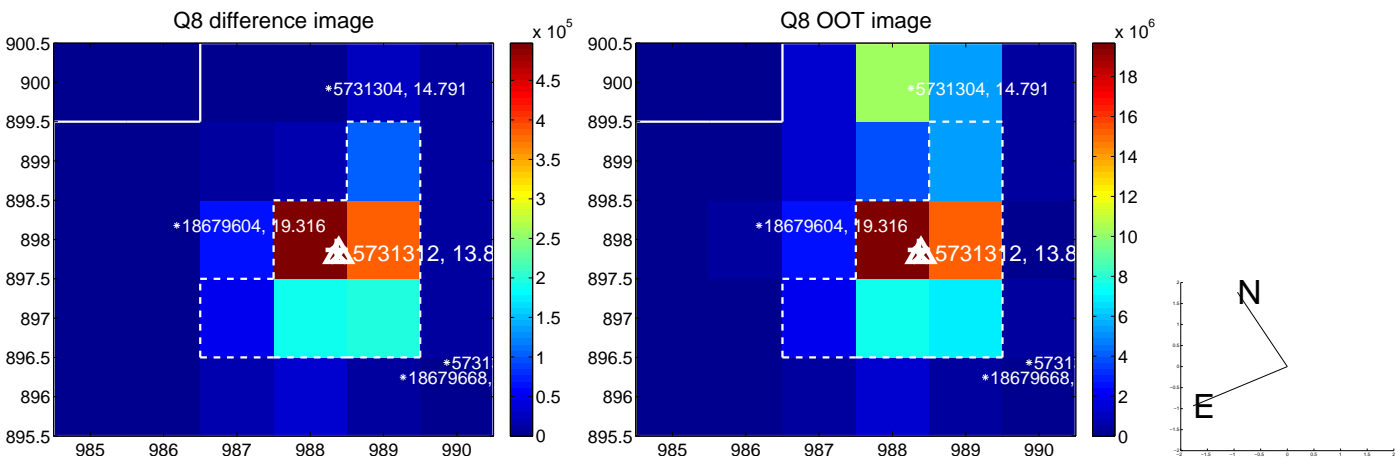
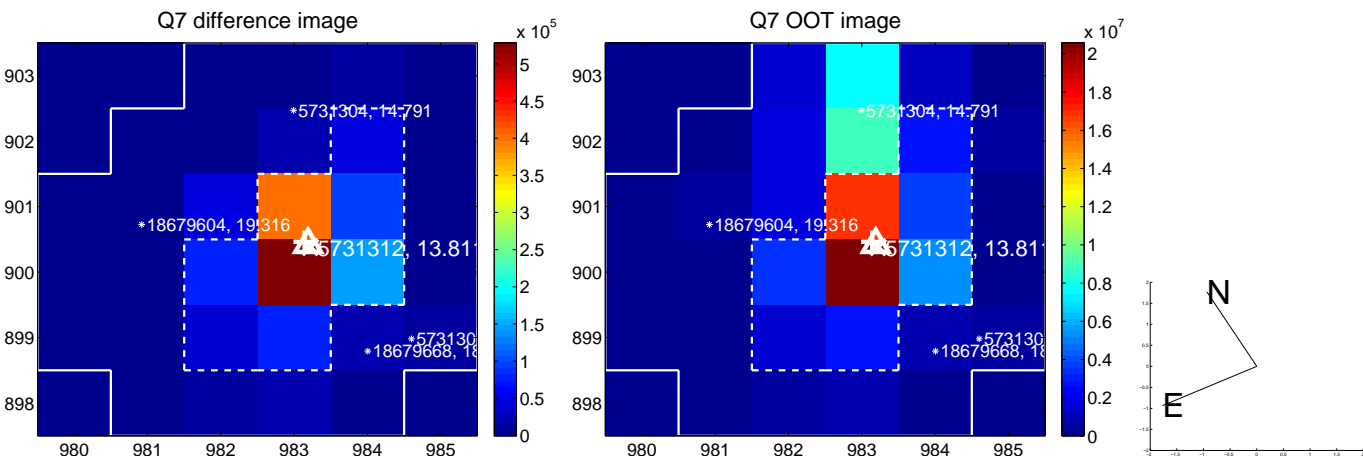
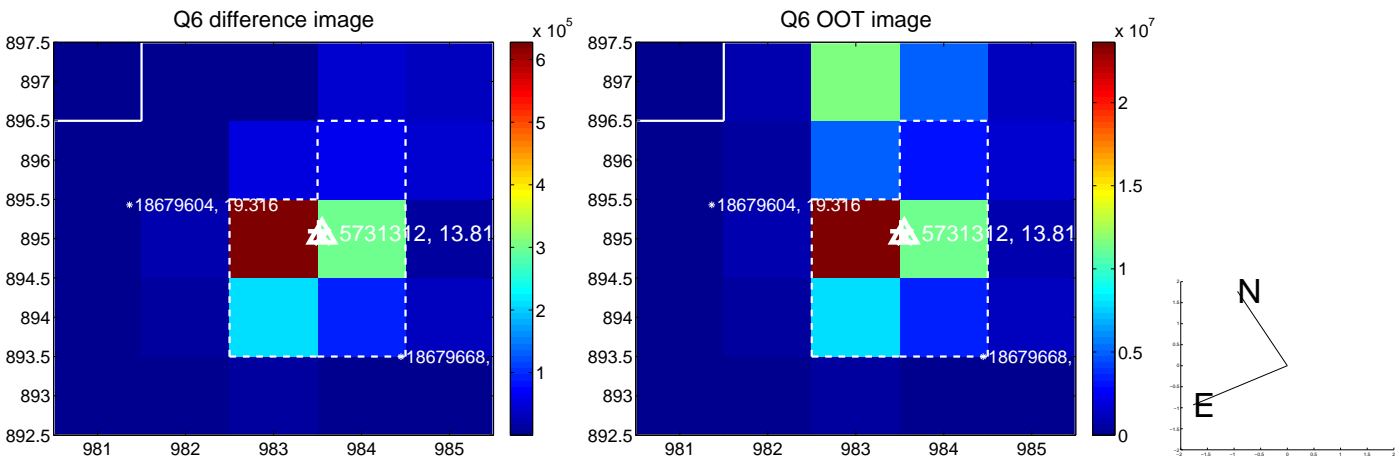
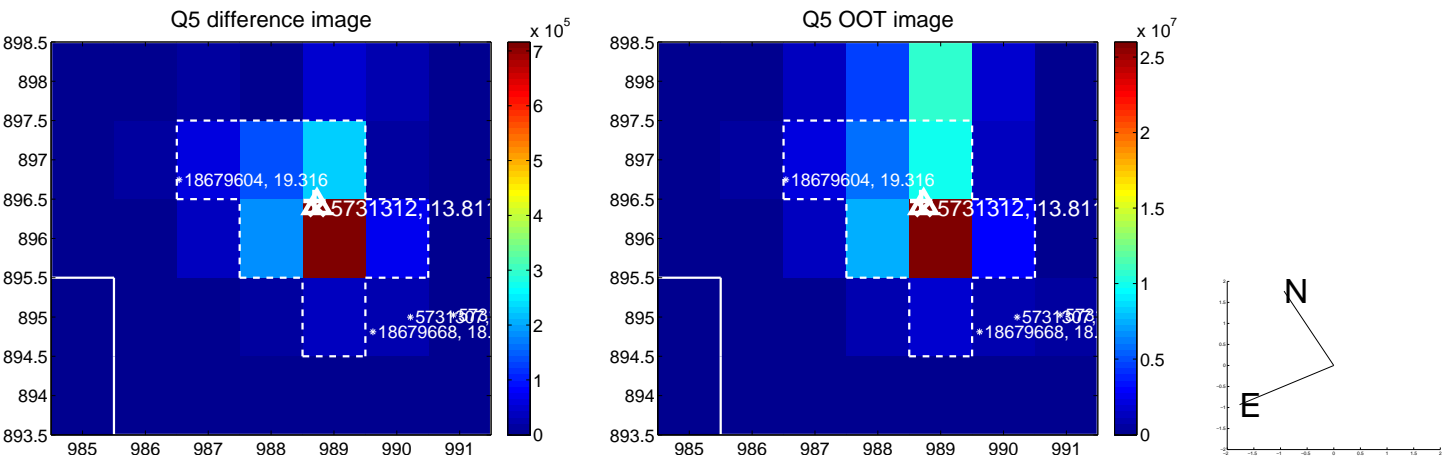


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses:** good quarterly centroid offsets; **Vermillion crosses:** bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

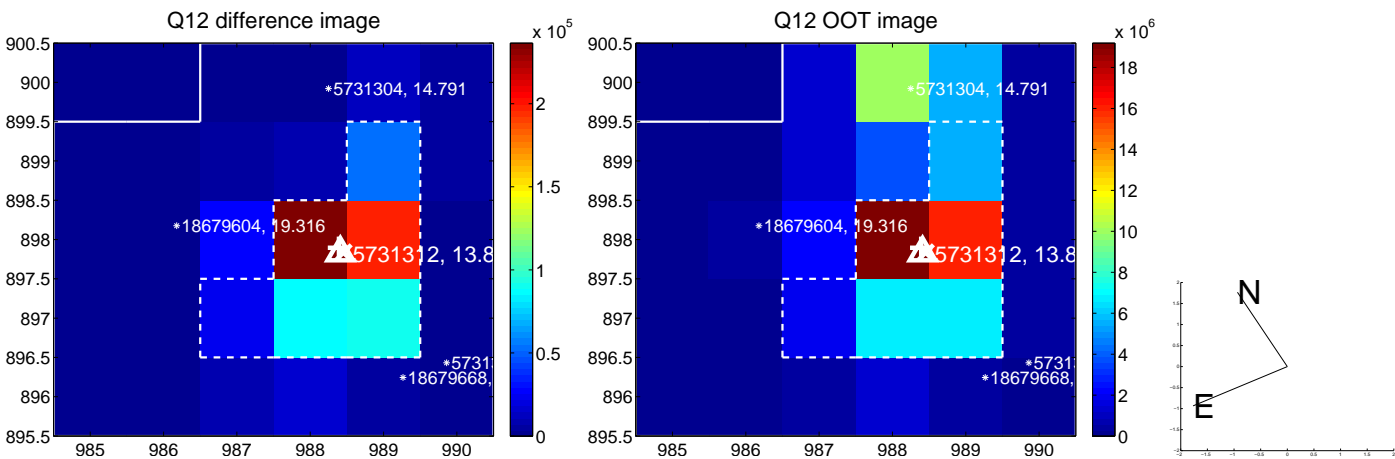
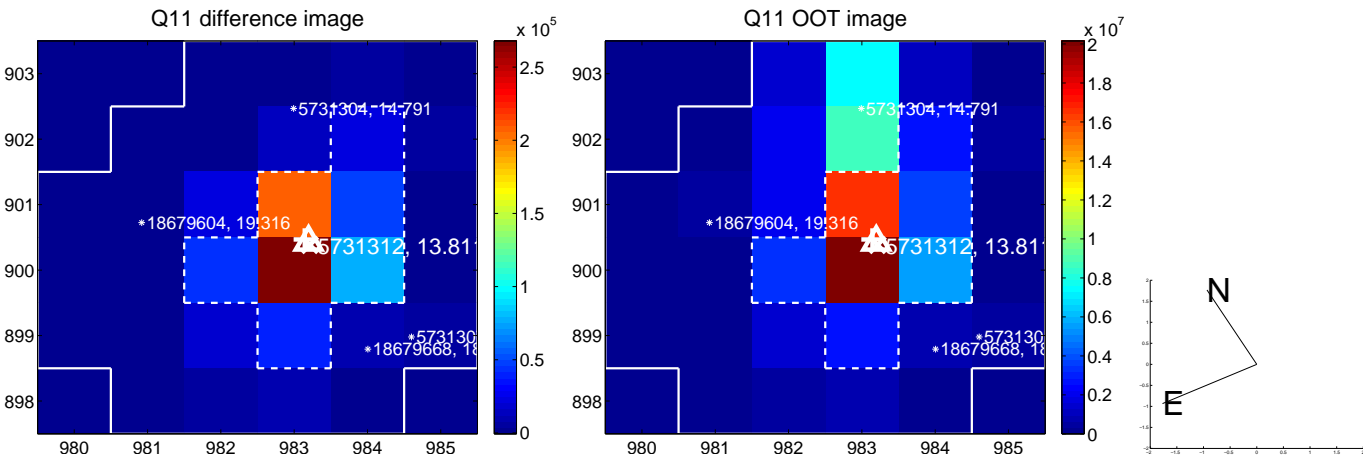
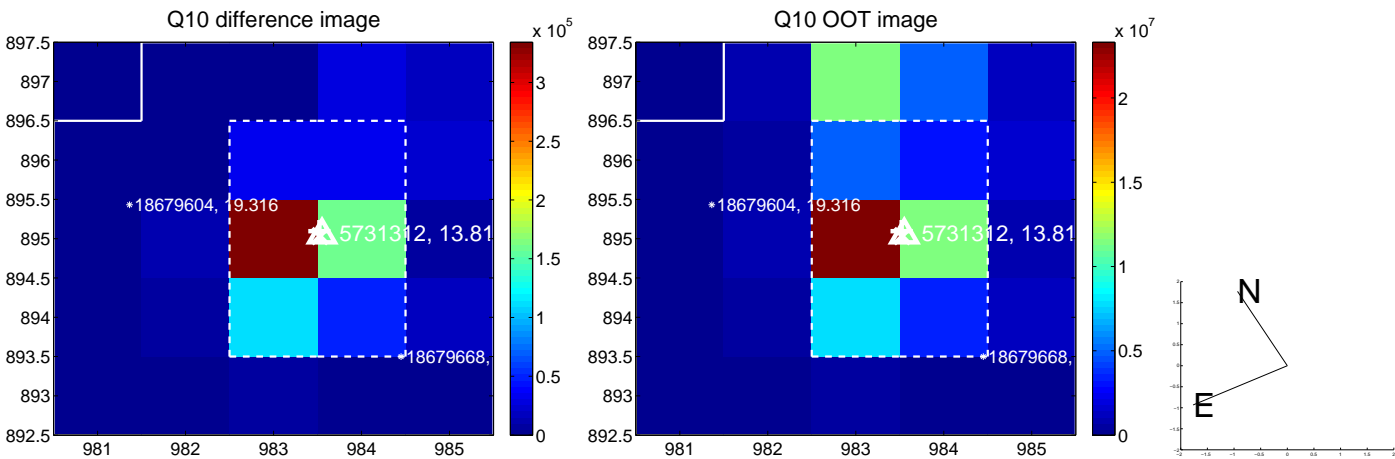
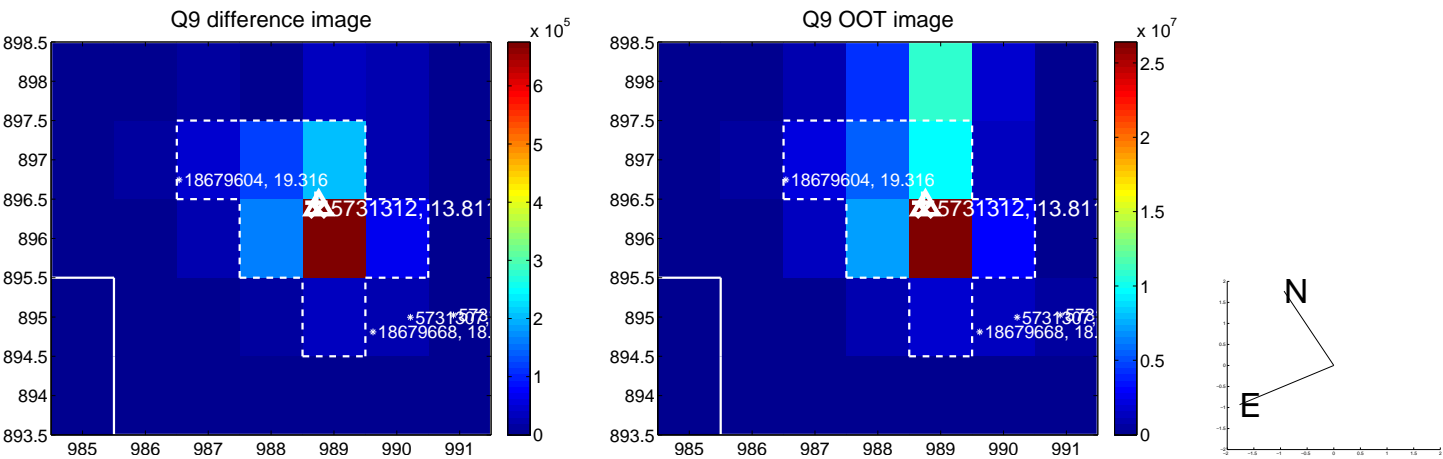
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



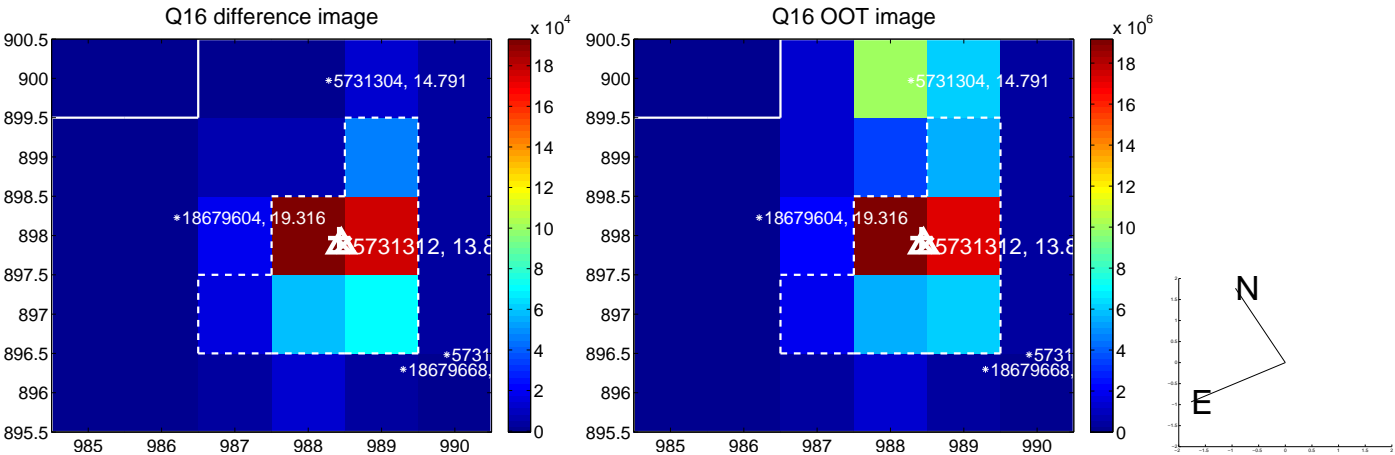
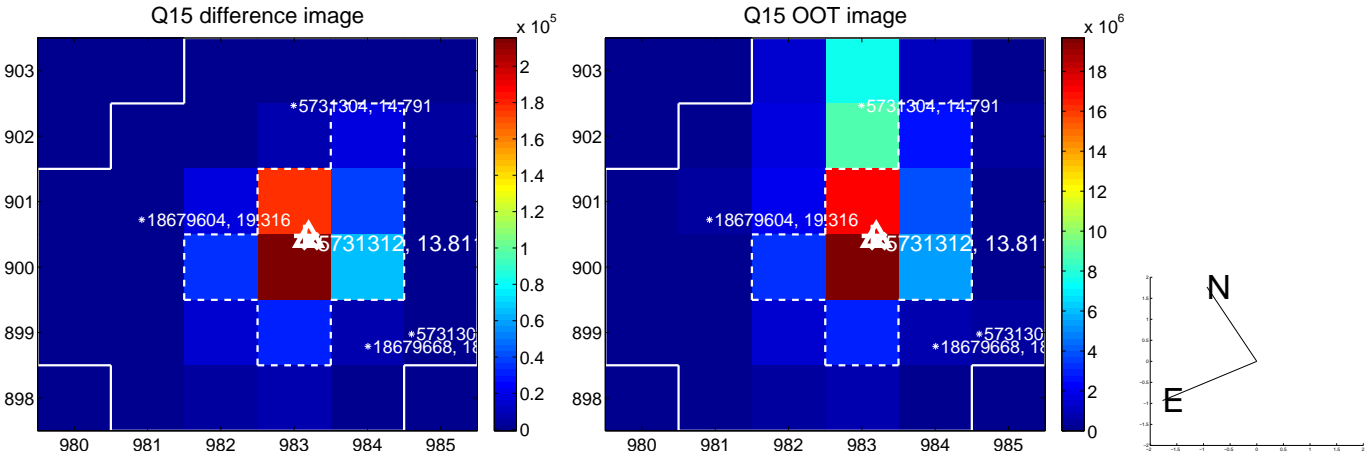
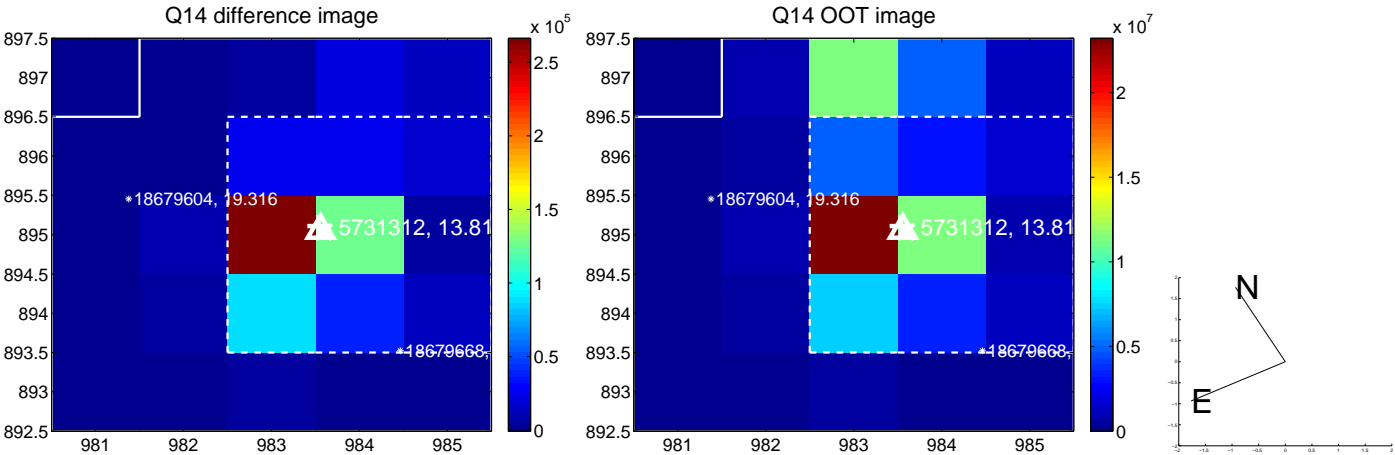
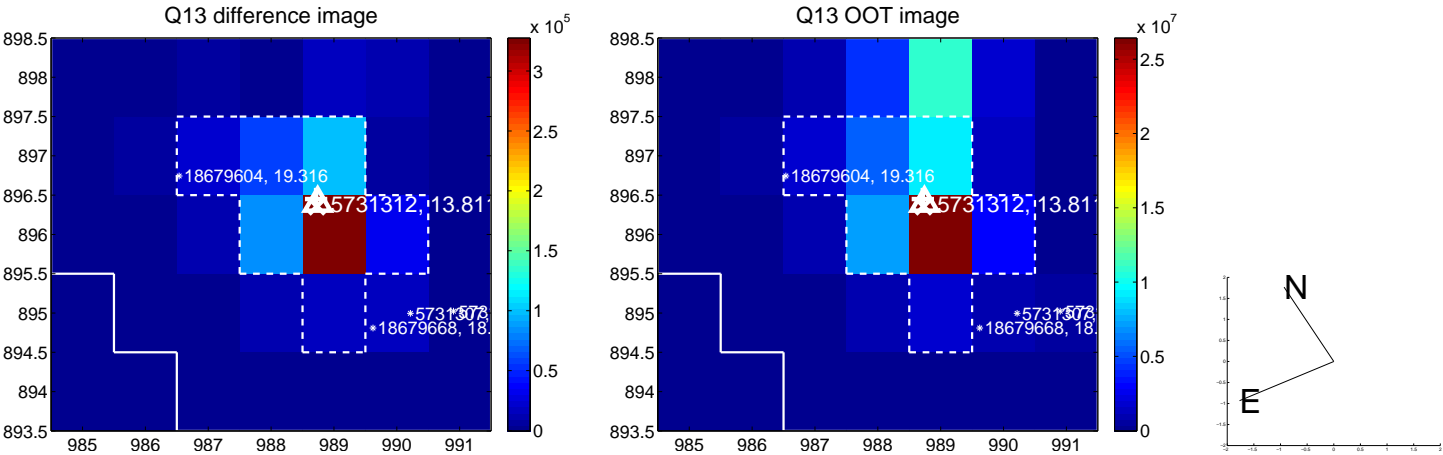
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



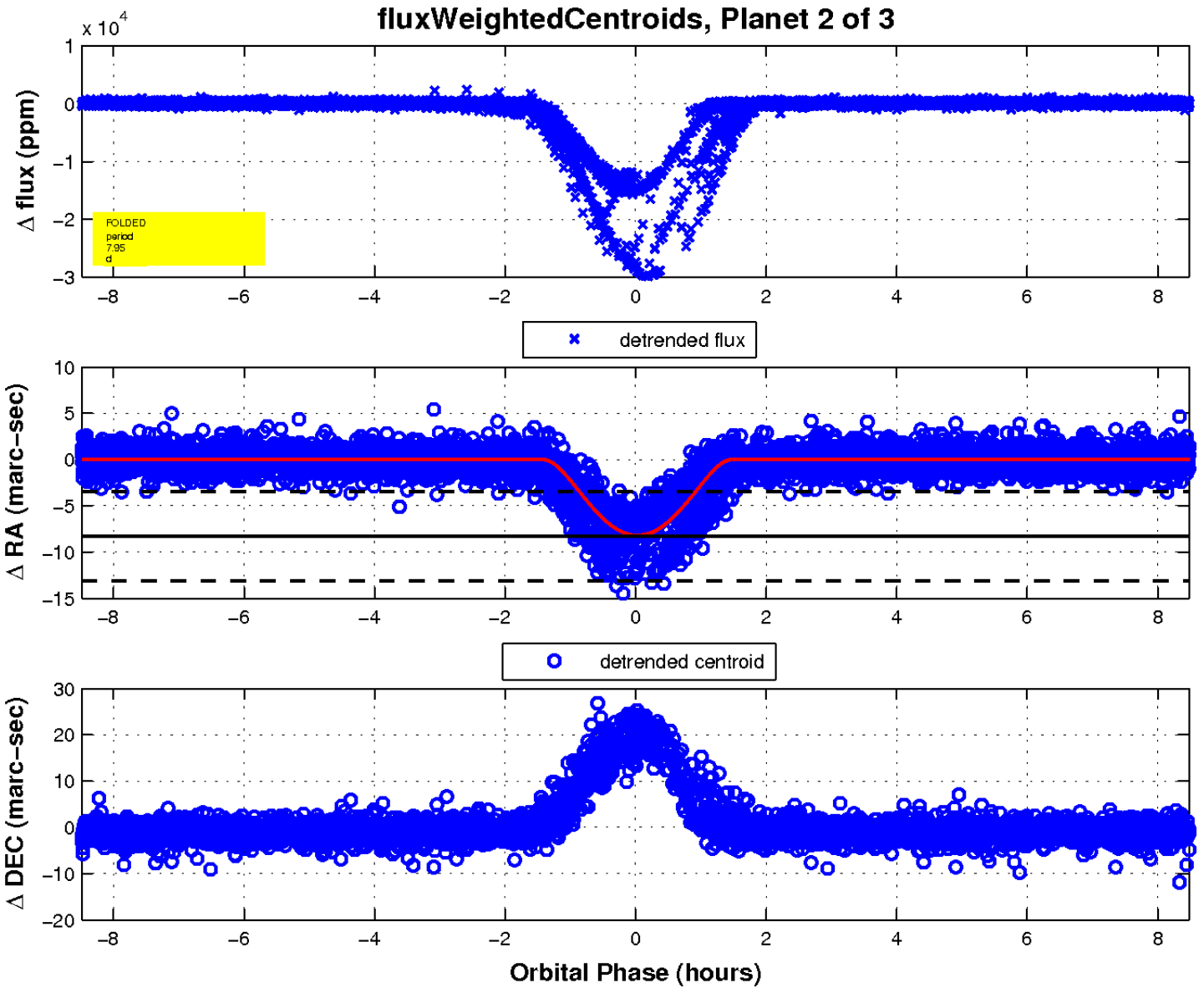
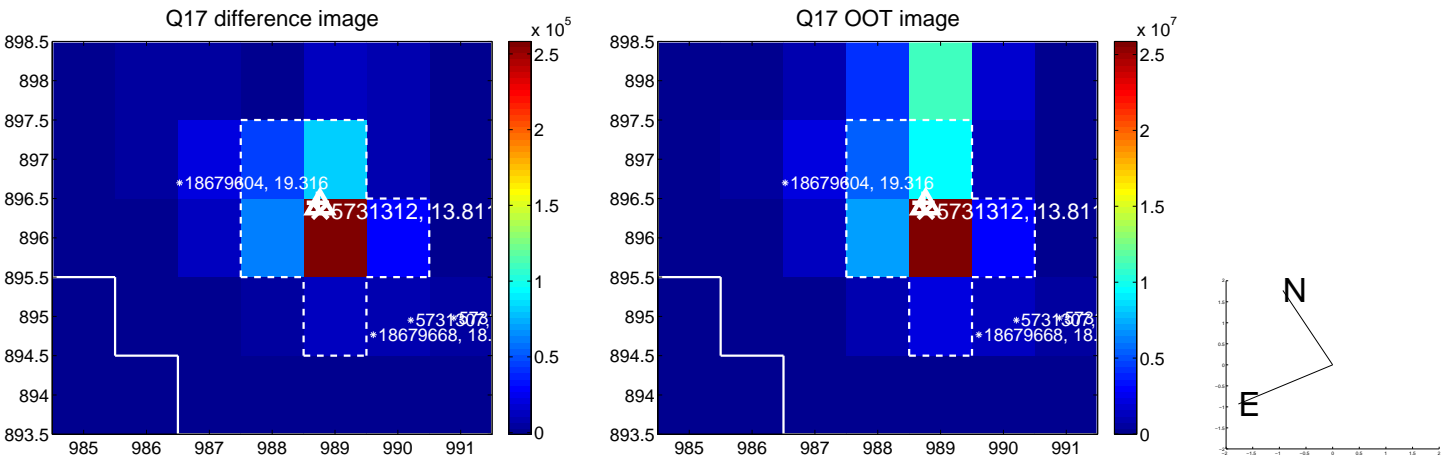
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

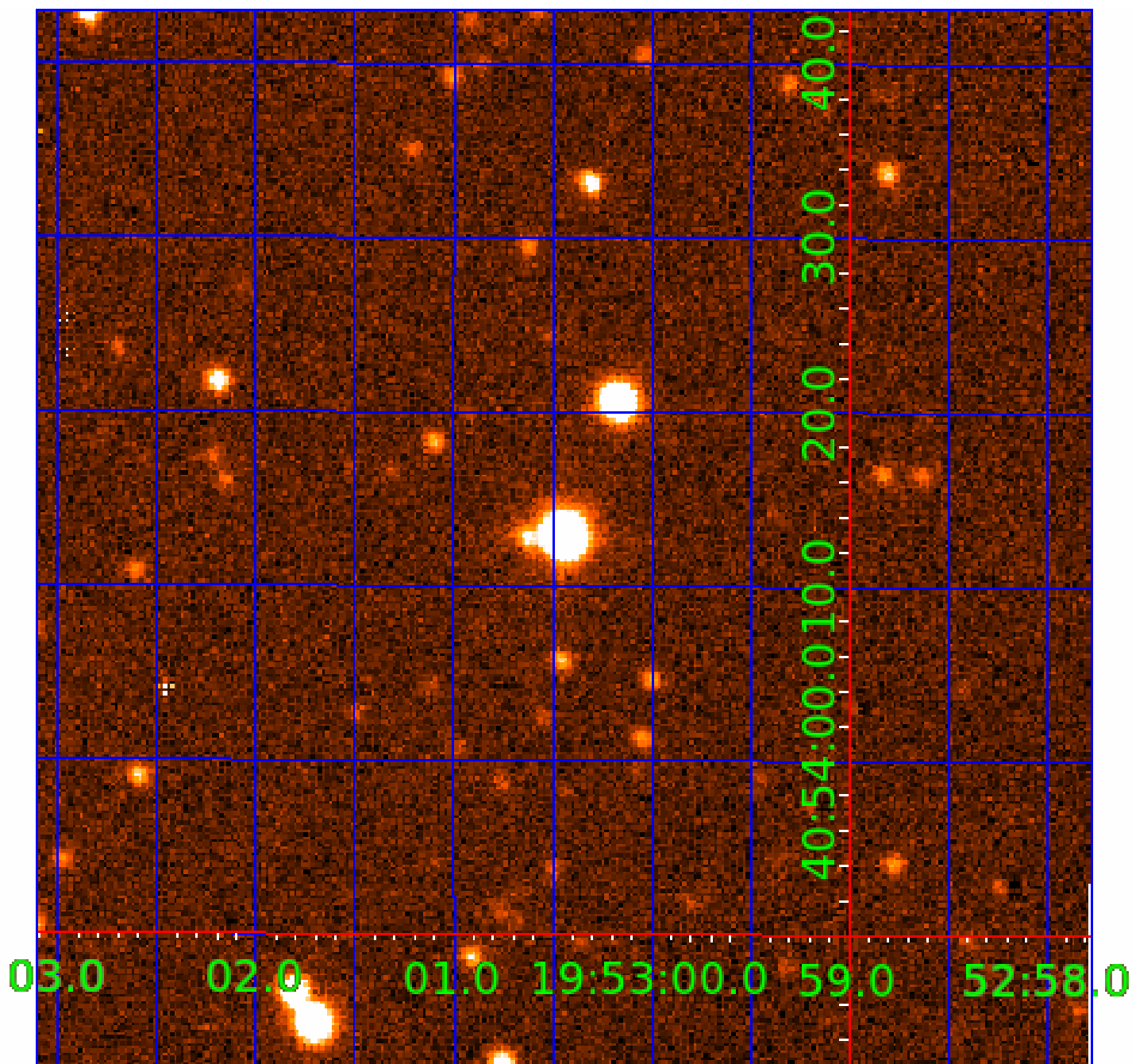


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 005731312

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})
005731312-01	OBS	6621.01	7.946415	135.093006	276408.5	2.690	16605.5	12181.2	0.57	4789	37.87	37.02
005731312-02	OBS	No	7.946530	133.168481	26458.1	2.829	1632.4	1215.4	0.57	4789	12.76	37.02
005731312-03	OBS	No	7.946447	134.824636	408.9	12.000	22.1	-1.0	0.57	4789	1.13	37.02

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
005731312-01	OBS	FP	0.00	0	1	0	0	MOD_SEC_DV—MOD_SEC_ALT—MOD_ODDEVEN_DV—DEEP_V_SHAPED—HAS_SEC_TCE—CENT_KIC_POS
005731312-02	OBS	FP	0.00	1	1	0	0	IS_SEC_TCE—CENT_KIC_POS
005731312-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_SKYE_ZUMA—LPP_DV—RESIDUAL_TCE—CENT_NOFITS

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 005731312-03

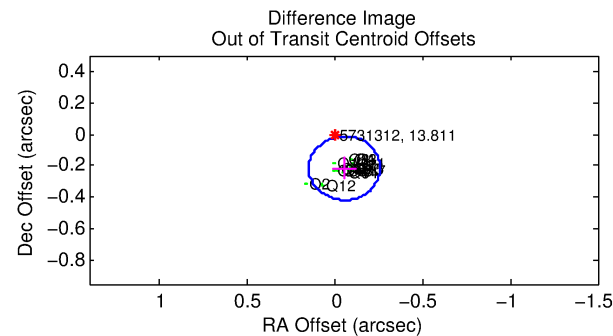
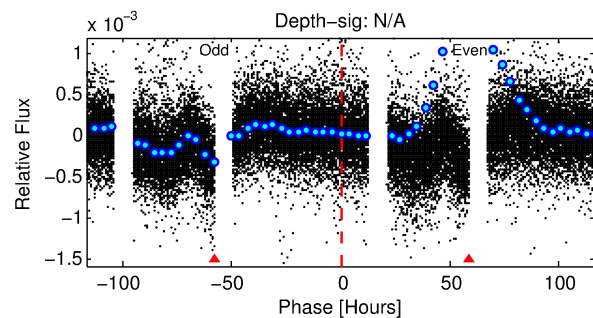
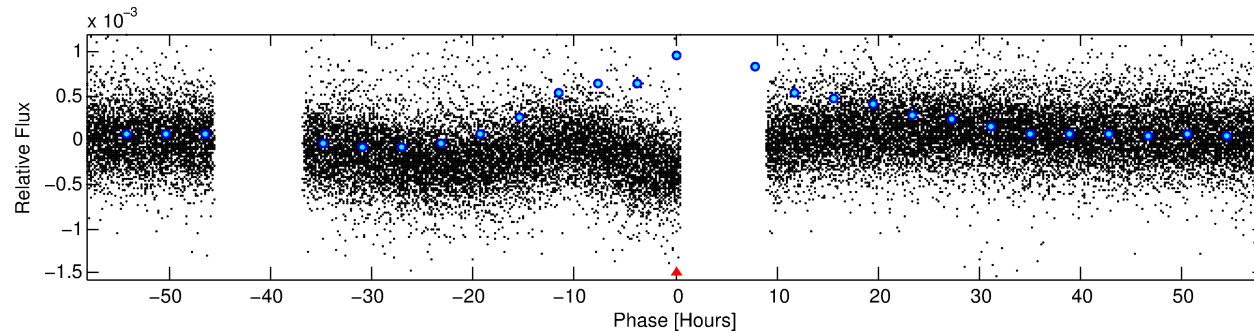
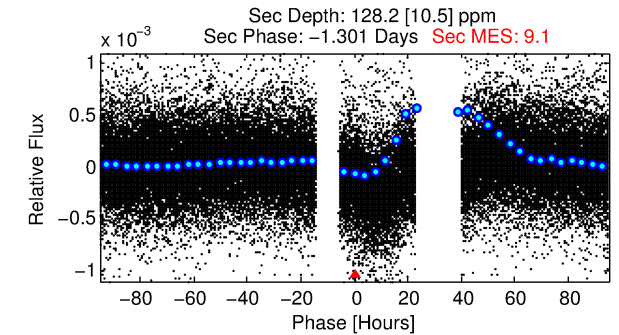
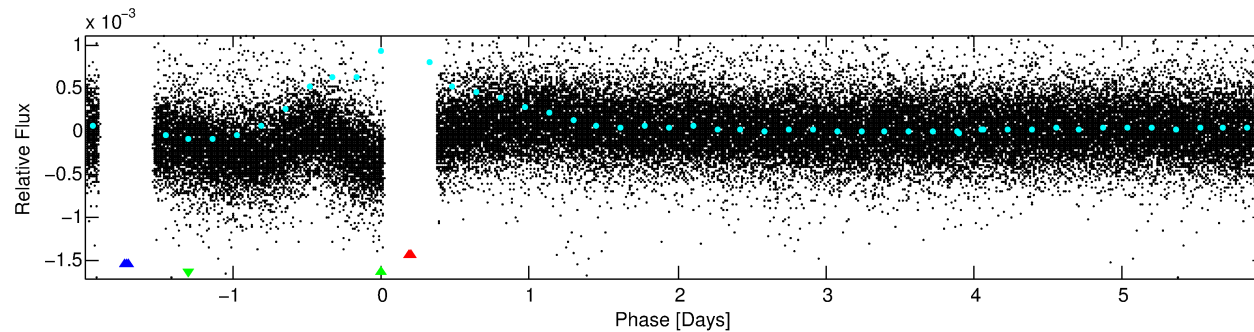
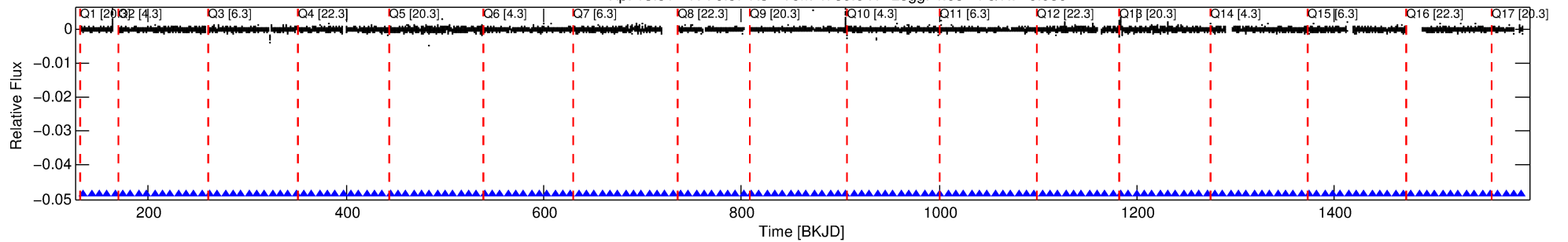
No Significant Match Found

DV One-Page Summary

KIC: 5731312 Candidate: 3 of 3 Period: 7.946 d

KOI: K06621 Corr: No Ephemeris Match

Kp: 13.81 R*: 0.57 Rs Teff: 4789.0 K Logg: 4.68 Fe/H: -0.980



TPS TCE Results:

Period = 7.94645 d
Epoch = 134.8246 BKJD

DV fit results are unavailable

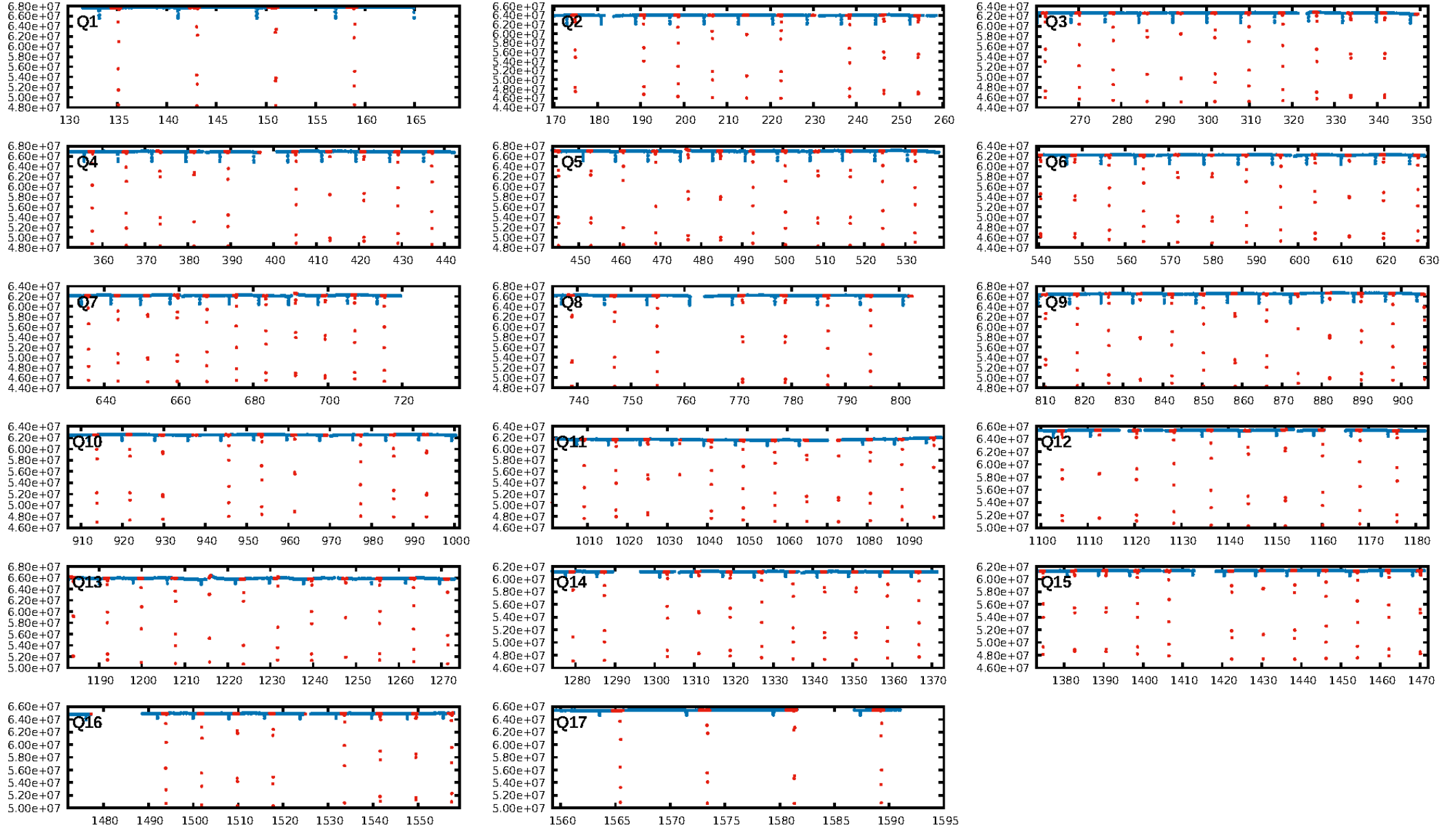
DV Diagnostic Results:

ShortPeriod-sig: 0.0% [0.00σ]
LongPeriod-sig: 0.0% [0.00σ]
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: N/A
RollingBand-fgt: 1.00 [166/166]
GhostDiagnostic-chr: 47.94
Centroid-sig: N/A
Centroid-so: 0.935 arcsec [4.35σ]
OotOffset-rm: 0.221 arcsec [3.27σ]
KicOffset-rm: 0.143 arcsec [2.04σ]
OotOffset-st: 4/4/4/5 [17]
KicOffset-st: 4/4/4/5 [17]
DiffImageQuality-fgm: 1.00 [17/17]
DiffImageOverlap-fno: 0.00 [0/17]

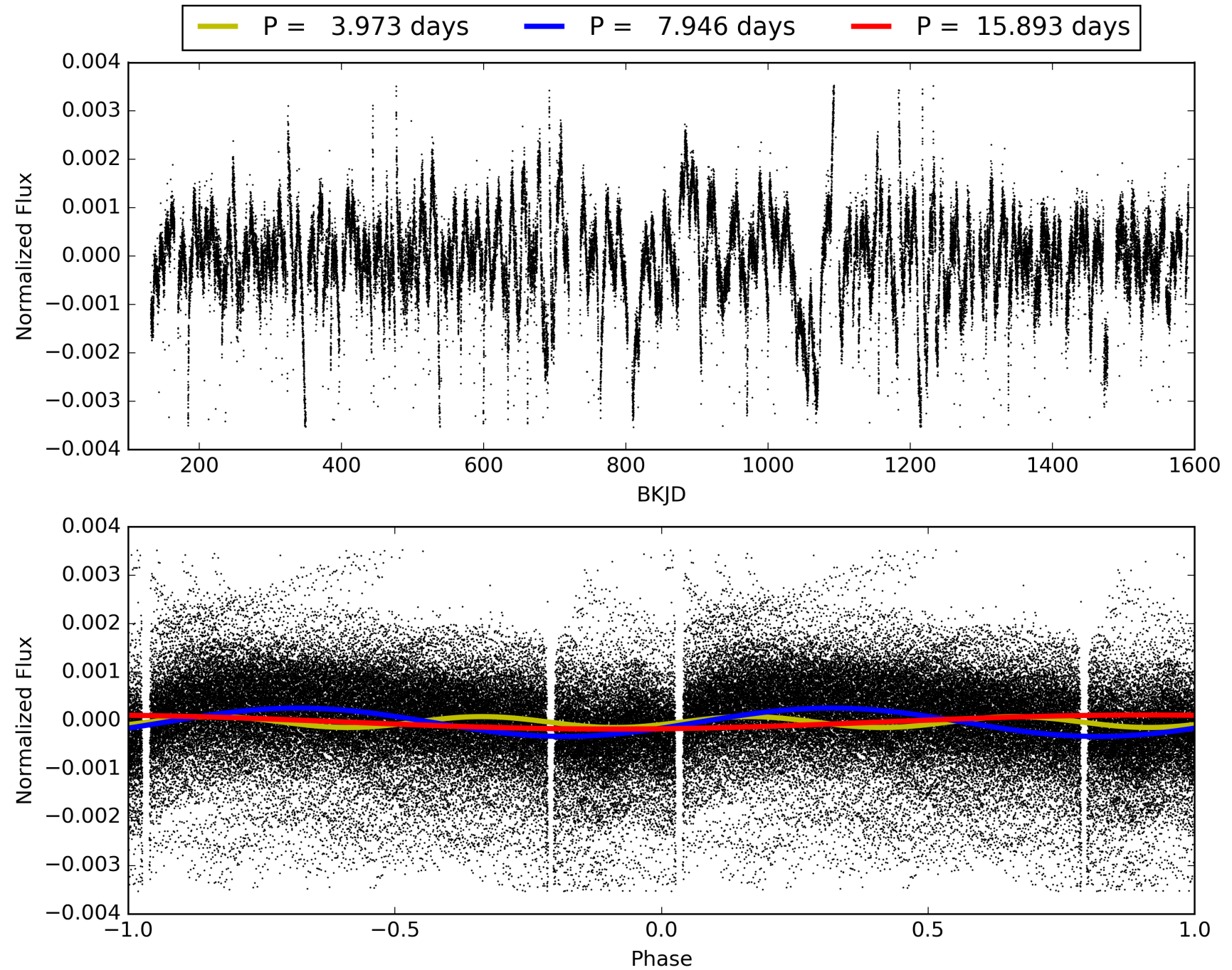
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 16:59:59 Z

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

TCE 005731312-03, PDC Light Curves

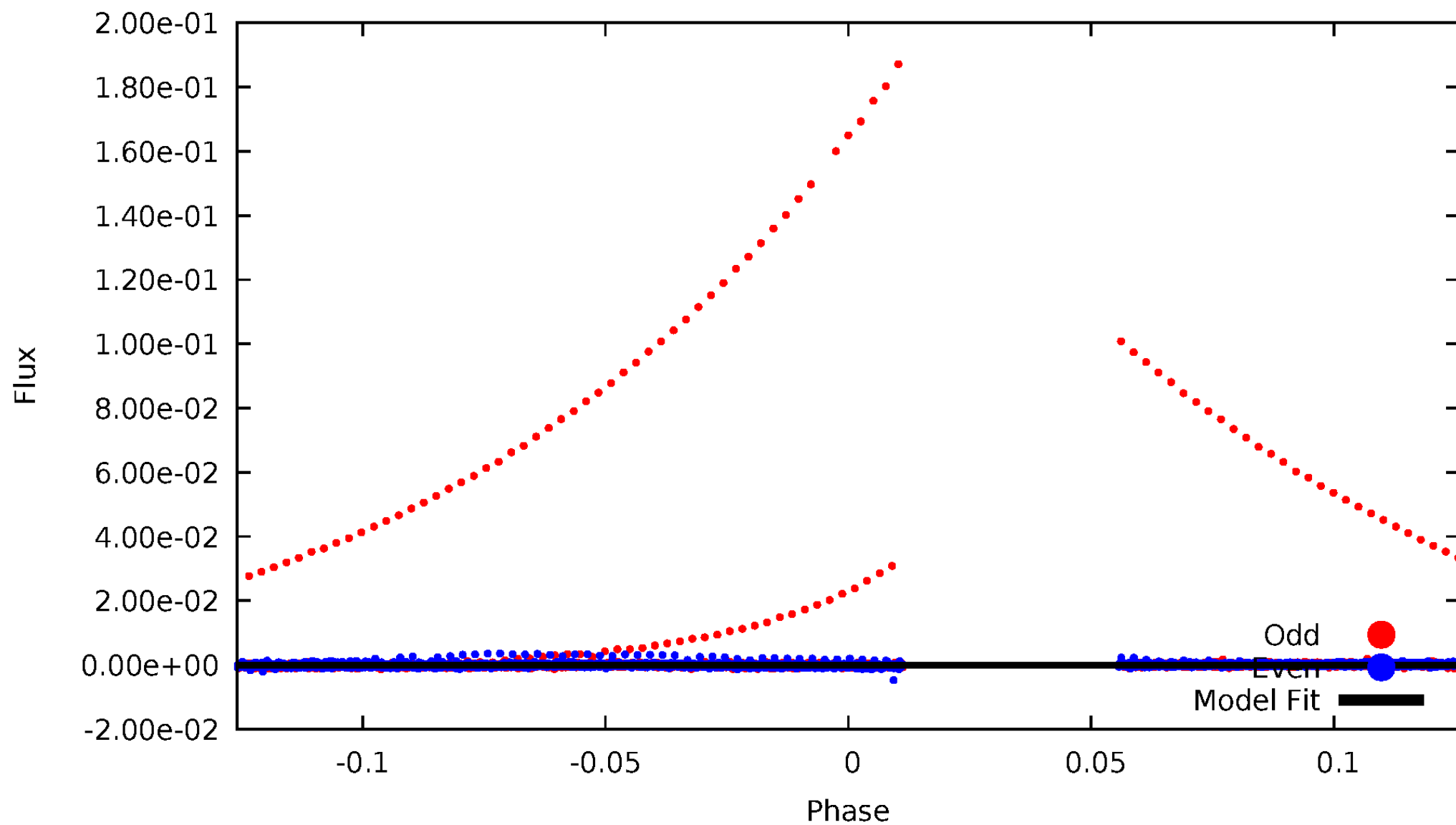


TCE 005731312-03



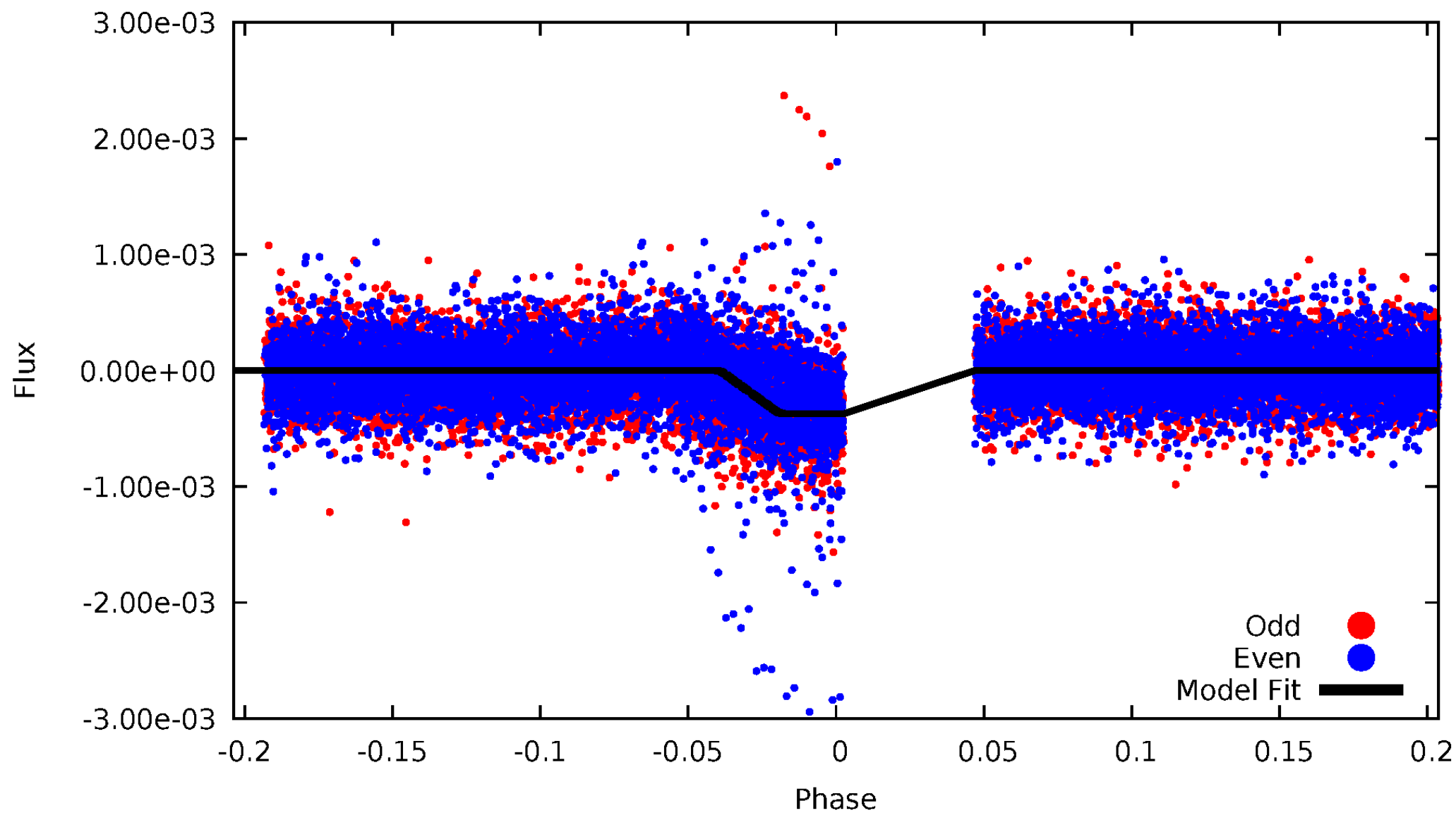
DV Odd/Even

TCE 005731312-03

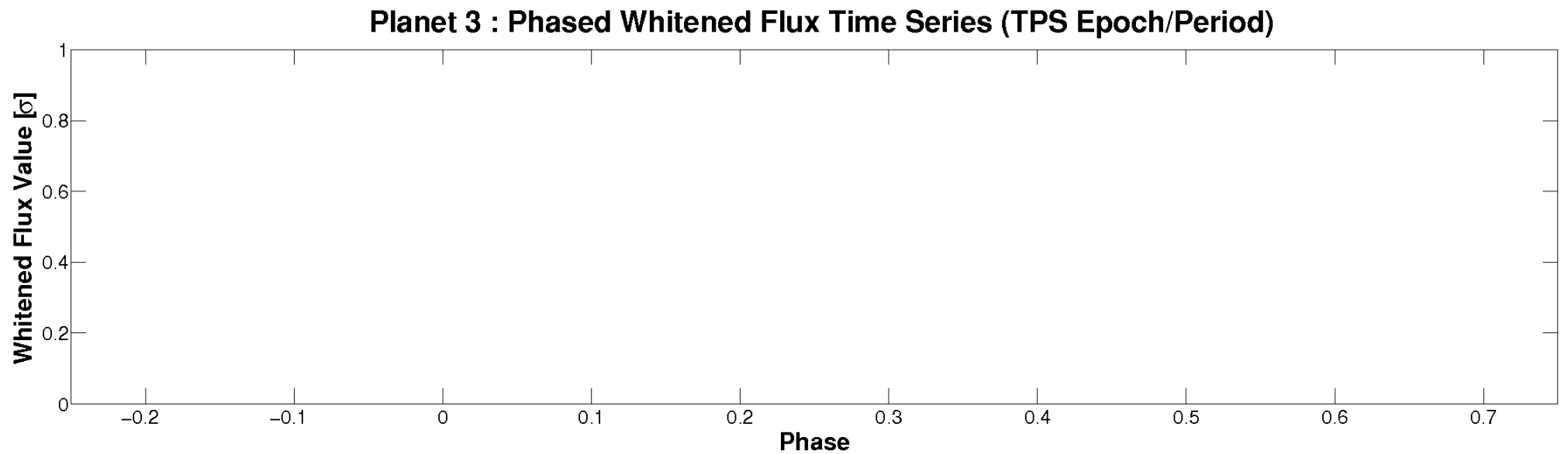
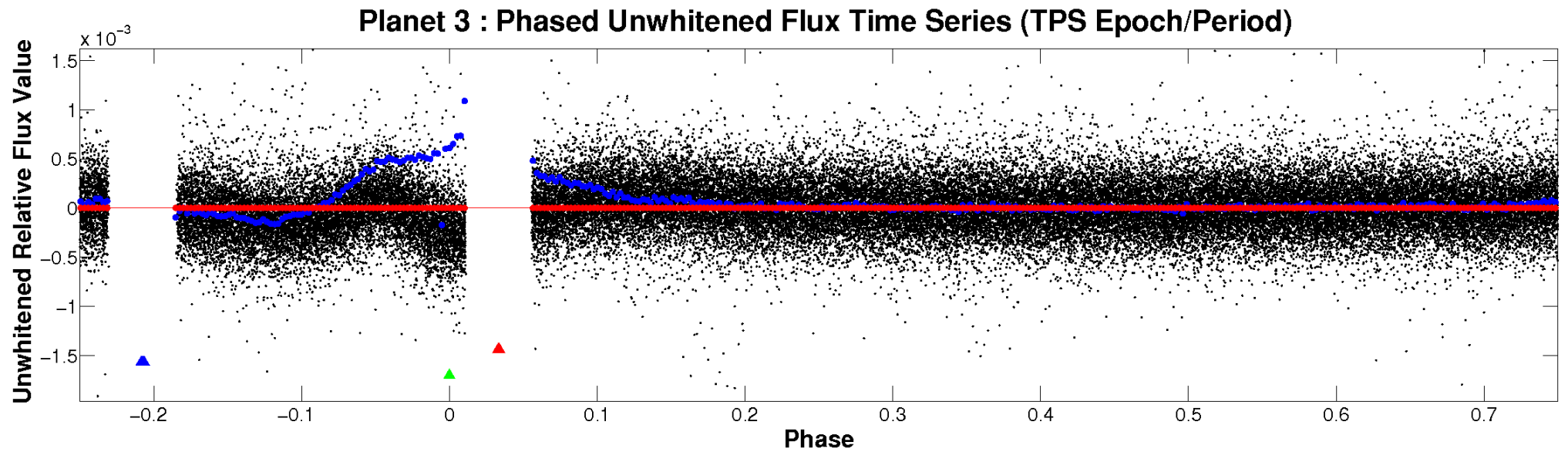


ALT Odd/Even

TCE 005731312-03

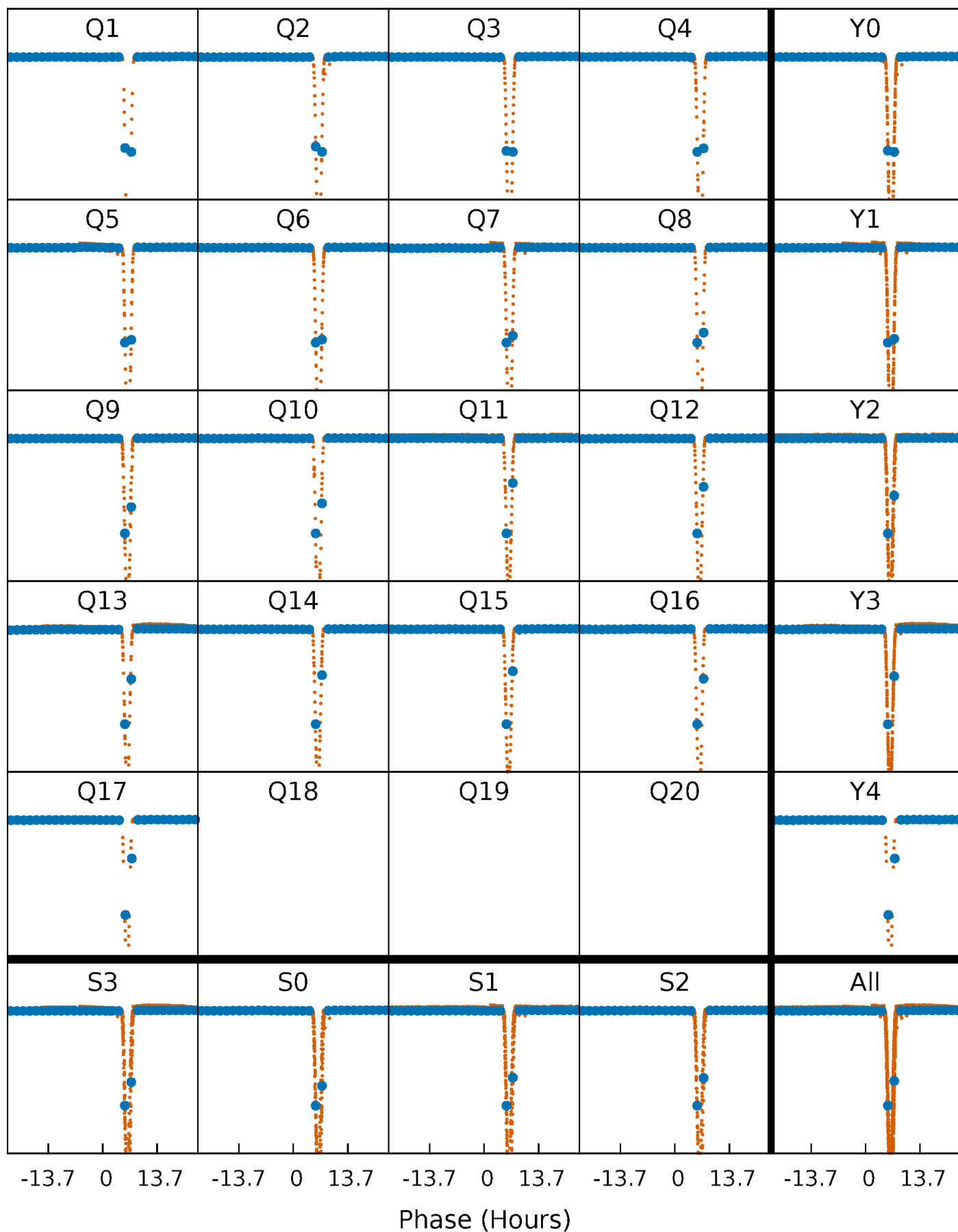


Non-Whitened Vs. Whitened Light Curve



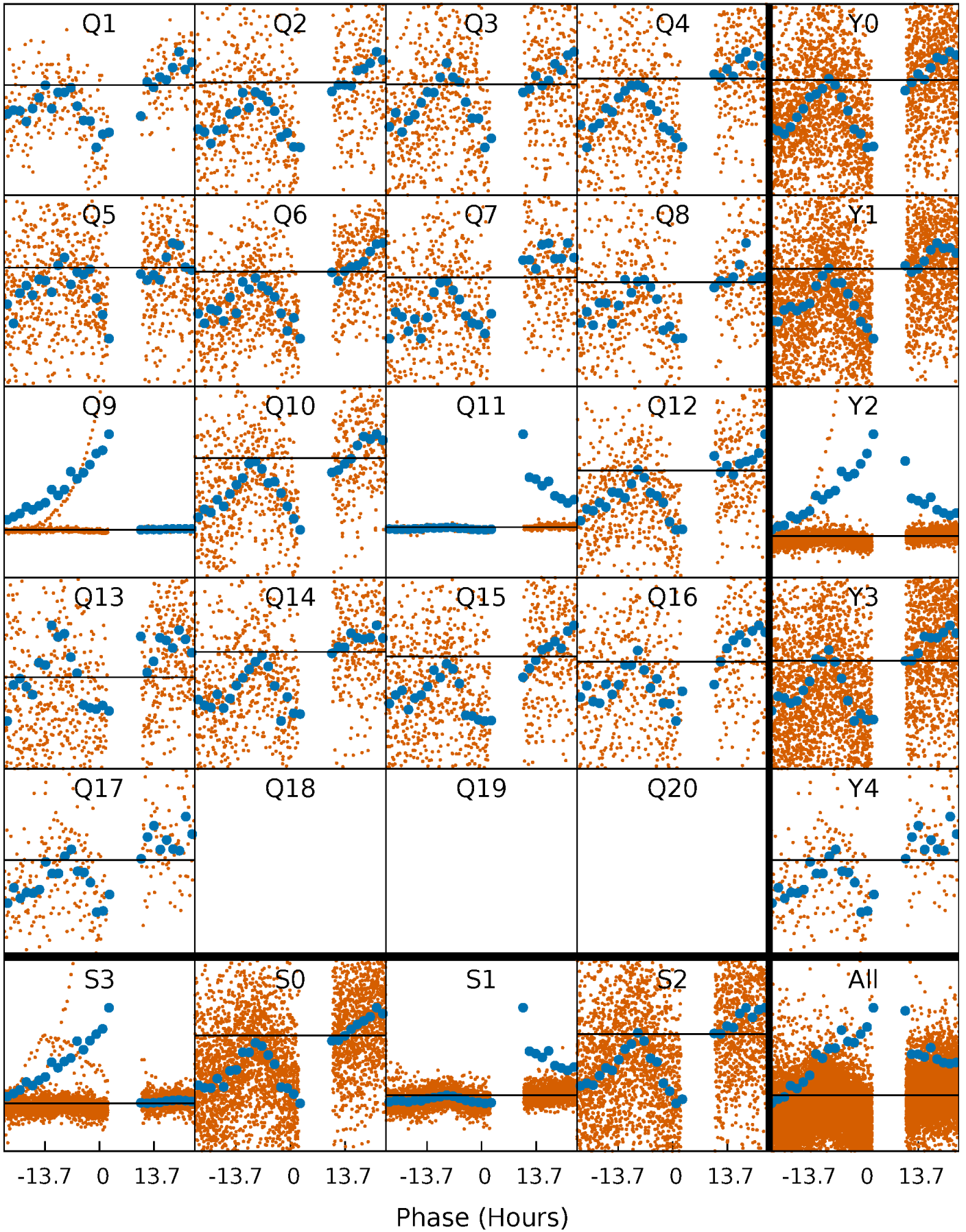
PDC Quarter-Phased Transit Curves

TCE 005731312-03 P= 7.946447 Days $T_0=134.824636$ (BKJD)



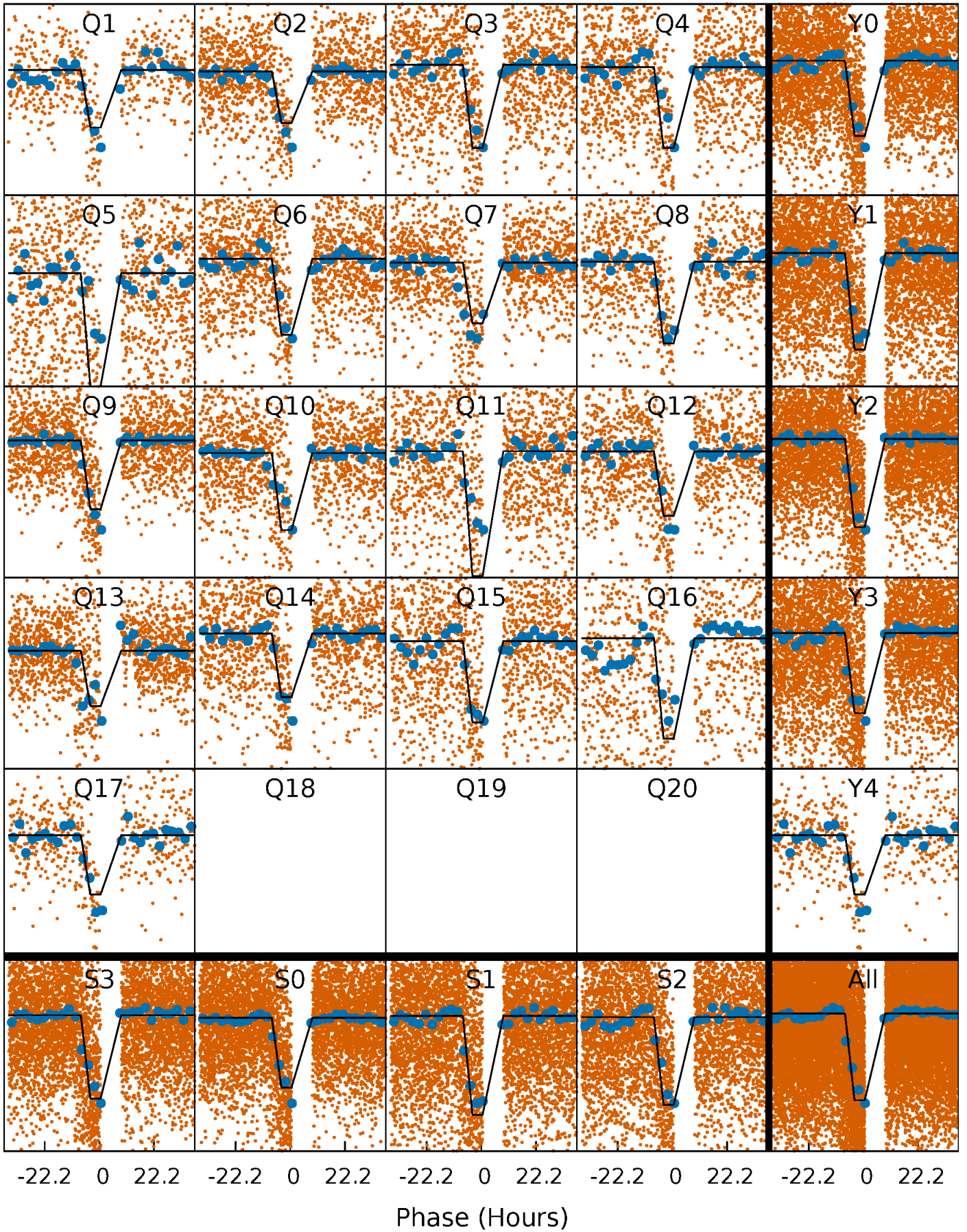
DV Quarter-Phased Transit Curves

TCE 005731312-03 P= 7.946447 Days $T_0=134.824636$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

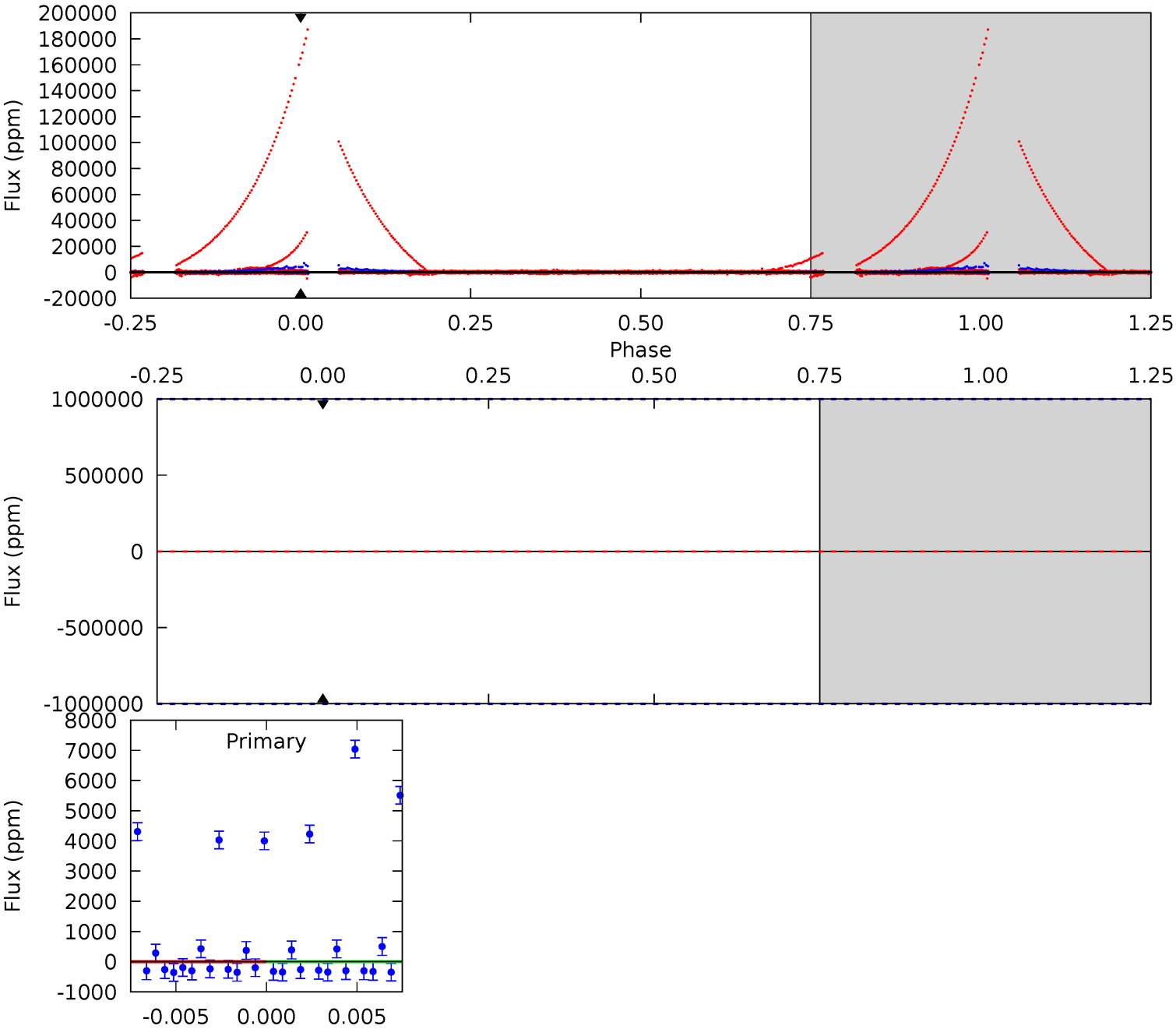
TCE 005731312-03 P= 7.946447 Days $T_0=134.892834$ (BKJD)



DV Model-Shift Uniqueness Test

005731312-03, P = 7.946447 Days, E = 126.878189 Days

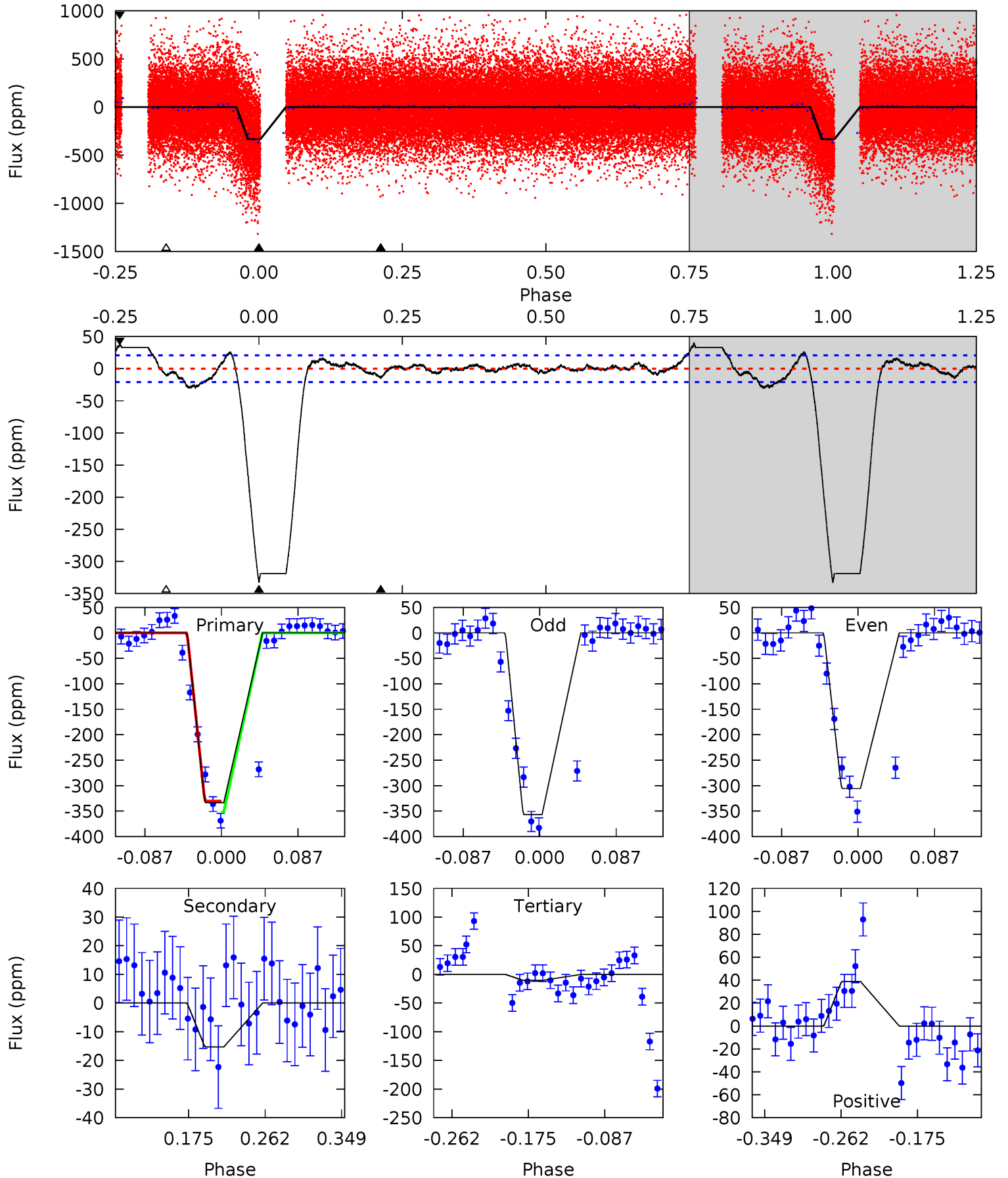
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
0	0	0	0	1.00	1.00	1.00	0	0	0	0	0	0	0	0



Alt Model-Shift Uniqueness Test

005731312-03, P = 7.946447 Days, E = 126.946387 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
73.5	3.37	2.32	8.56	4.59	1.71	2.32	71.2	65.0	1.06	-5.18	5.66	1.09	0.11	1.09



Stellar Parameters For KIC 005731312

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	$M(M_{\odot})$	p_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	4789^{+143}_{-143}	$4.678^{+0.052}_{-0.032}$	$-0.980^{+0.300}_{-0.300}$	$0.573^{+0.041}_{-0.041}$	$0.571^{+0.049}_{-0.024}$	$4.271^{+0.908}_{-0.575}$
	+3%/-3%	+1%/-1%	+31%/-31%	+7%/-7%	+9%/-4%	+21%/-13%
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 005731312-03 / KOI

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	0 ± 1000000	$4.74^{+4.22}_{-3.48}$	875^{+31}_{-32}	3274^{+10553}_{-16682}	73^{+19855}_{-17641}
Alt.	-15 ± 5	$4.66^{+4.71}_{-3.01}$	875^{+33}_{-31}	1999^{+591}_{-448}	$1.555^{+10.851}_{-1.170}$

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 $A_{obs} \gg 1.0$

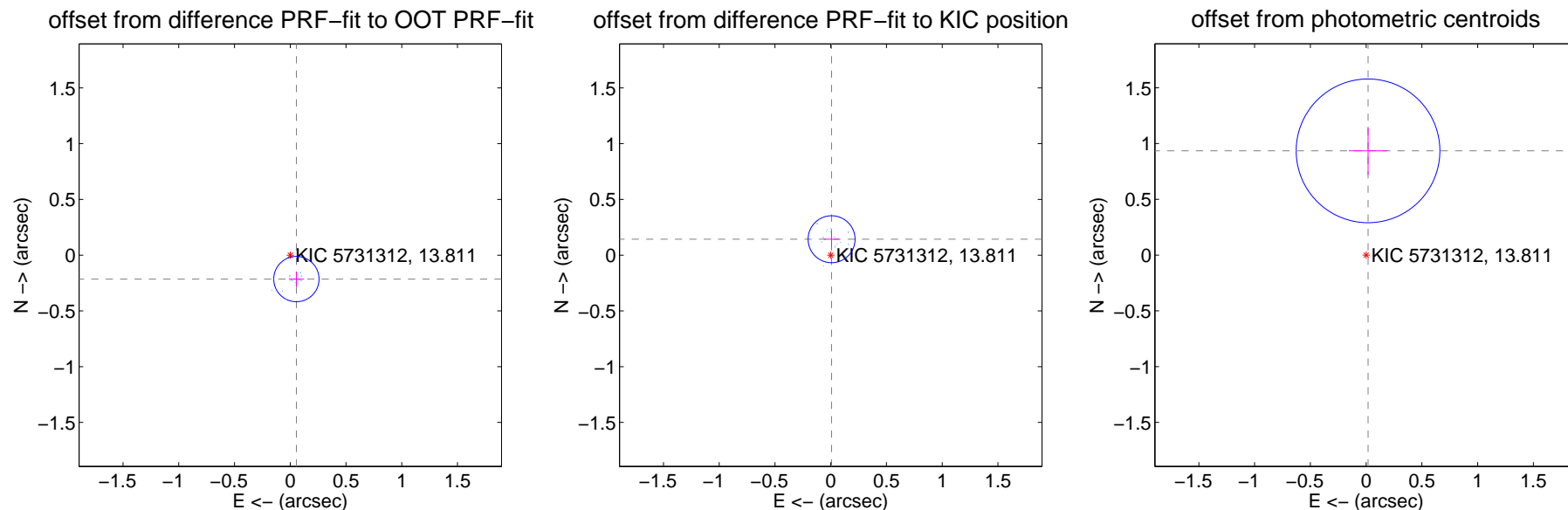
DV Centroid Data

Supplemental centroid analysis for 005731312-03. Kepler magnitude: 13.81. Transit SNR -1.00

There are 17 quarters with good PRF difference image offsets

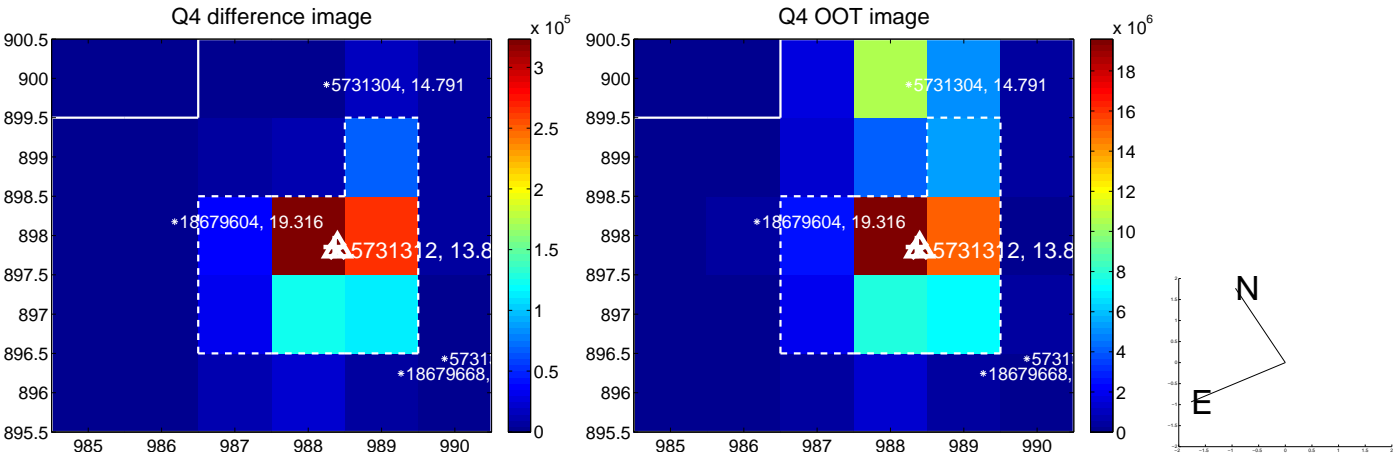
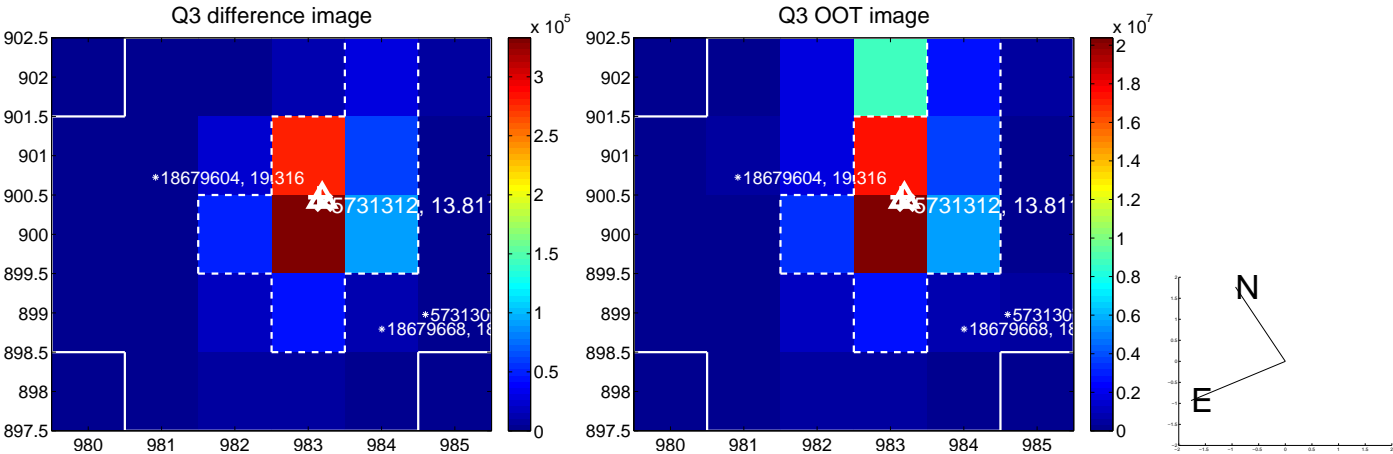
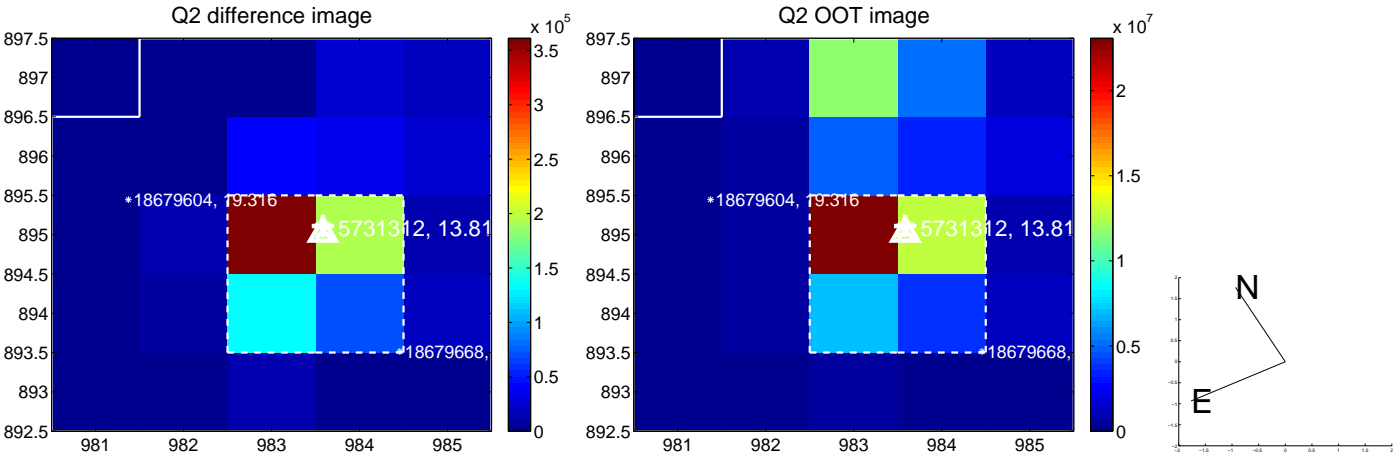
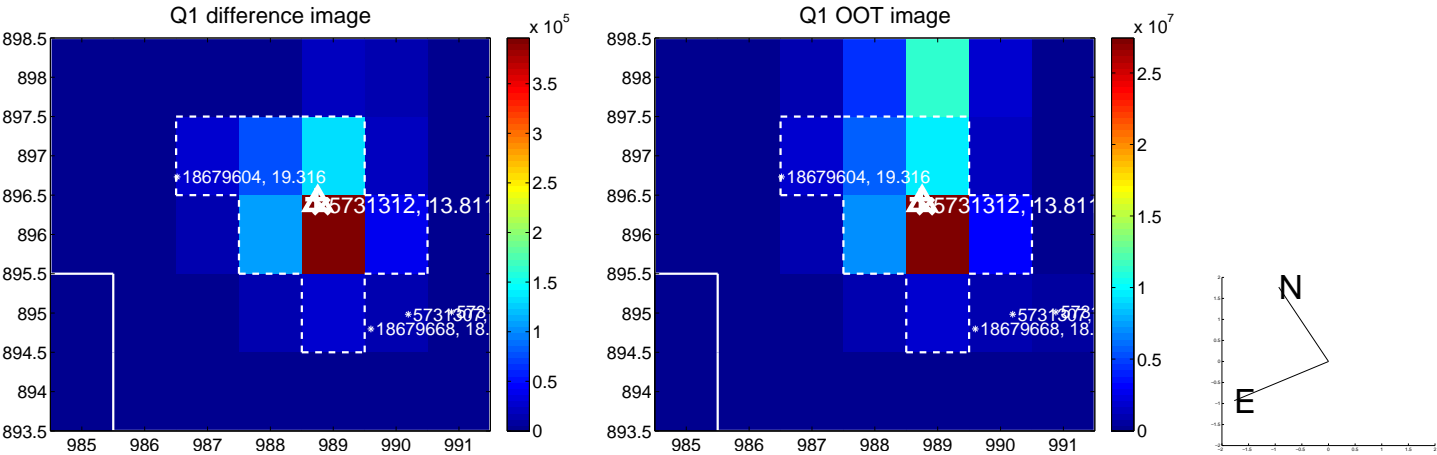
The direct PRF centroid is offset from the target star catalog position by about 0.44 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.221 ± 0.068	3.27	-0.055 ± 0.068	-0.215 ± 0.068
PRF-fit source offset from KIC position	0.143 ± 0.070	2.04	-0.008 ± 0.069	0.143 ± 0.070
photometric centroid source offset	0.93 ± 0.21	4.35	-0.02 ± 0.17	0.93 ± 0.21

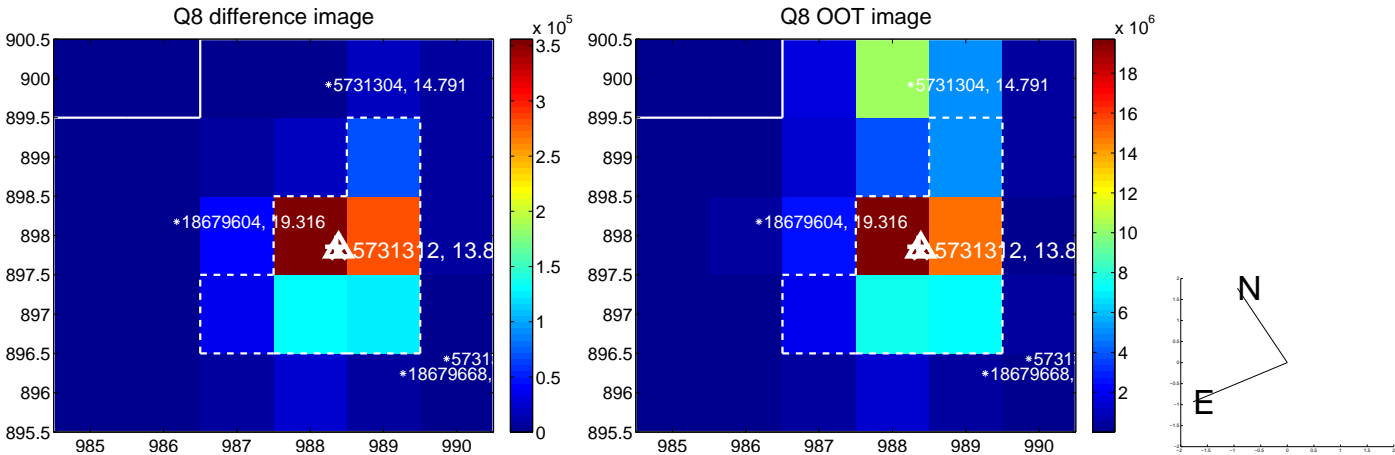
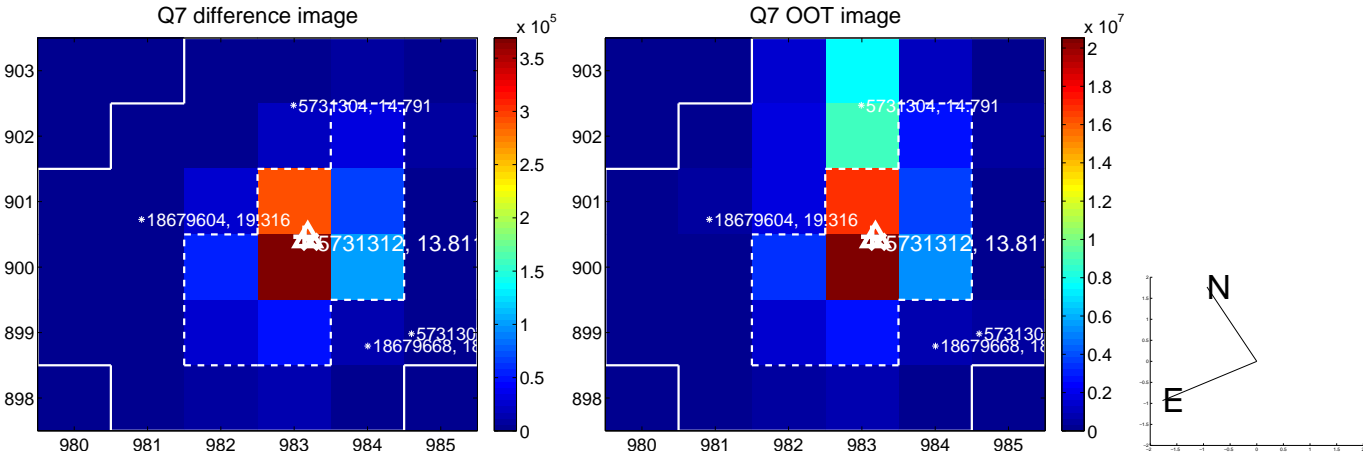
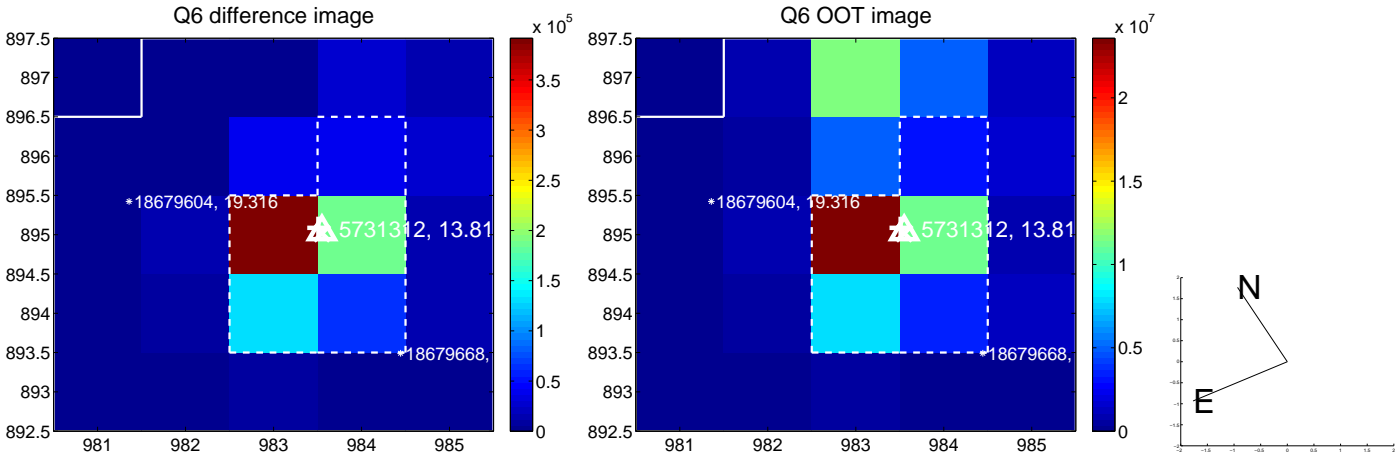
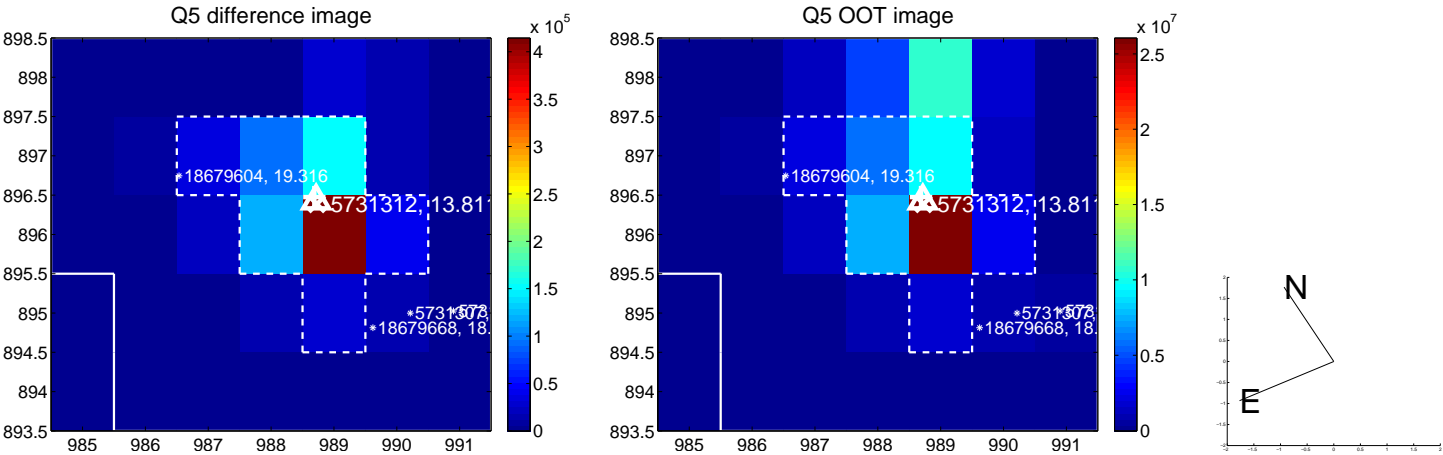


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ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

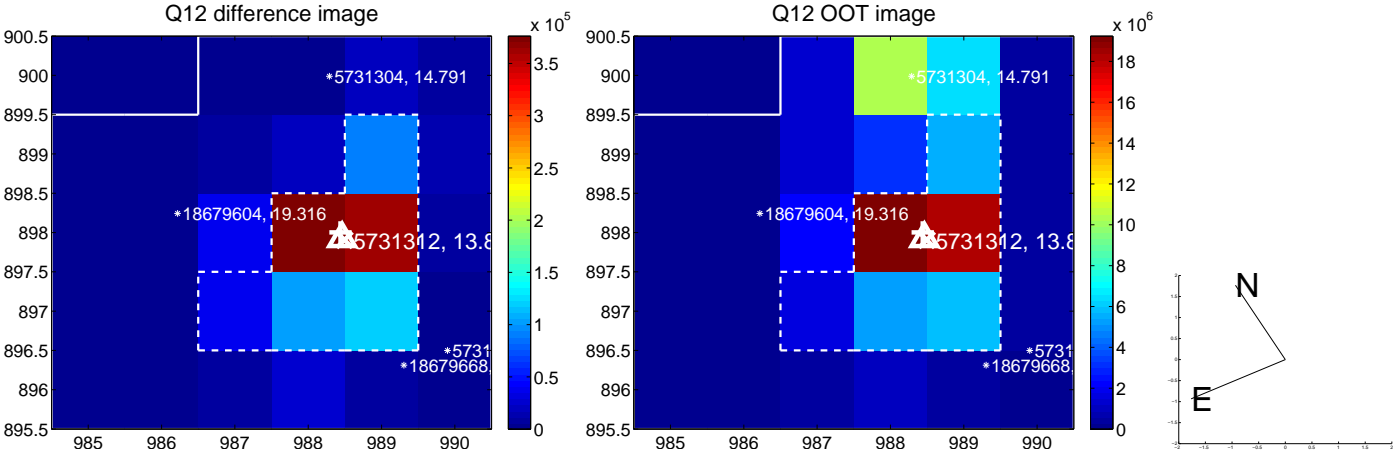
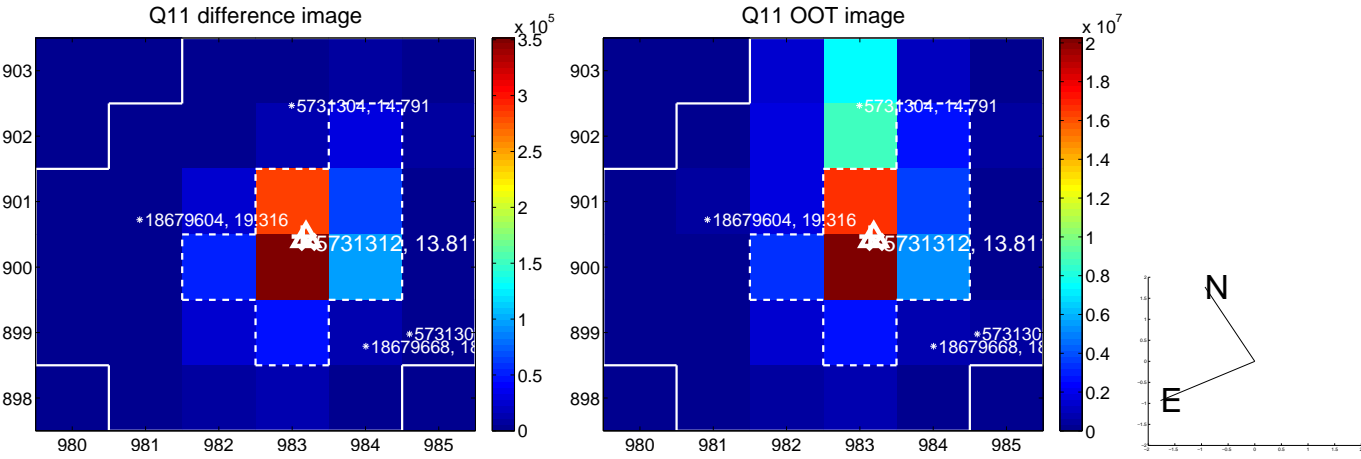
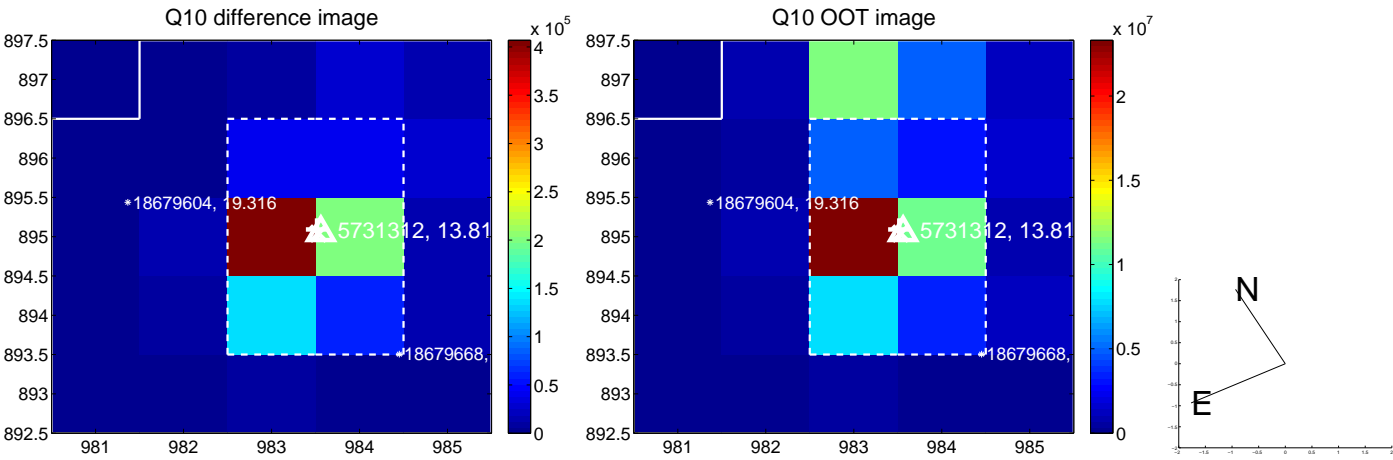
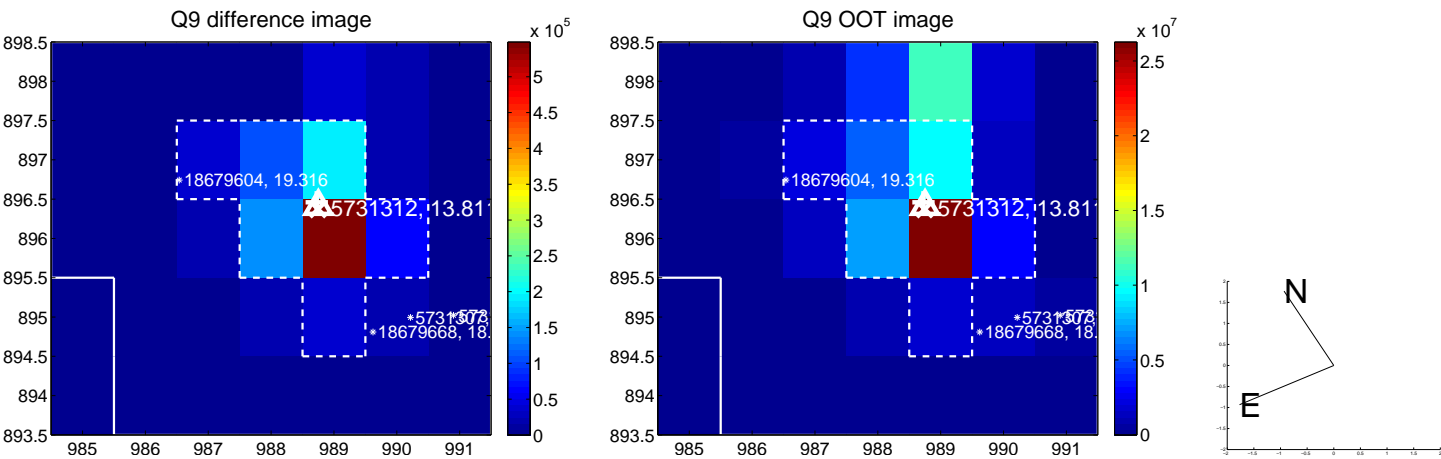
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



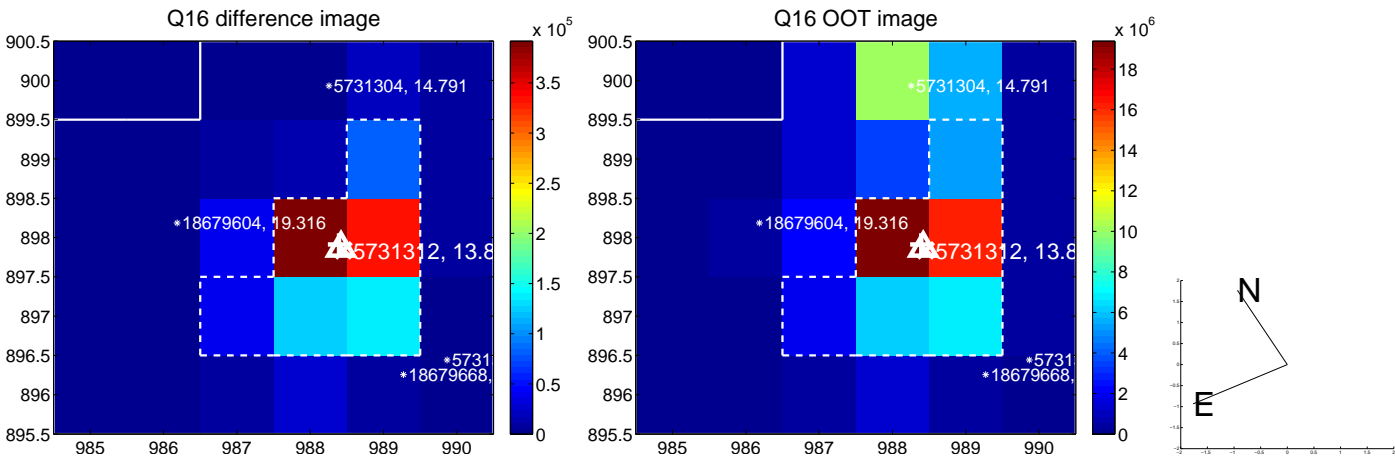
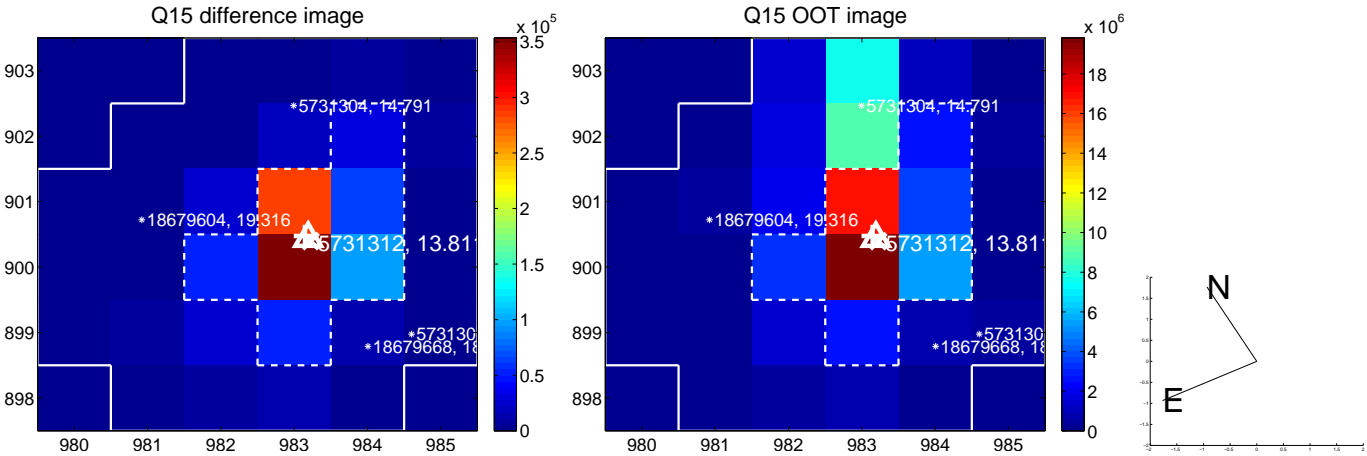
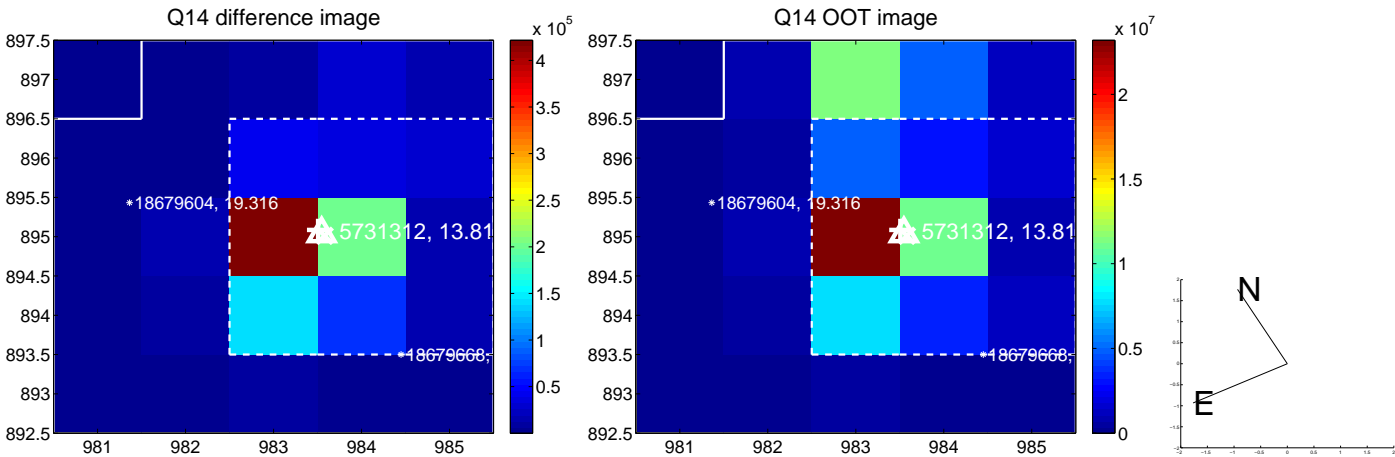
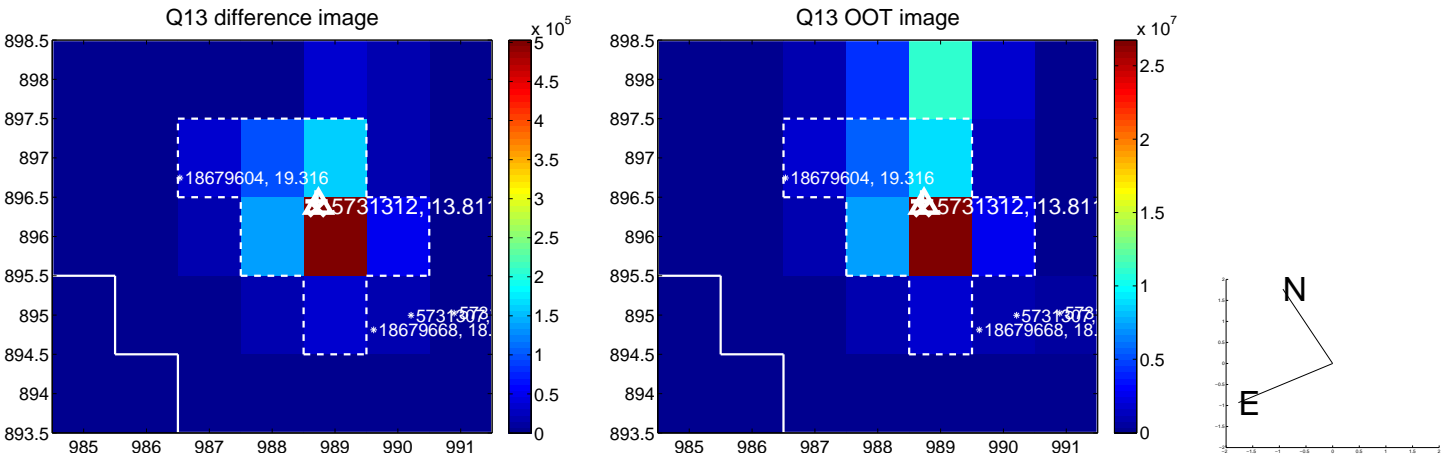
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



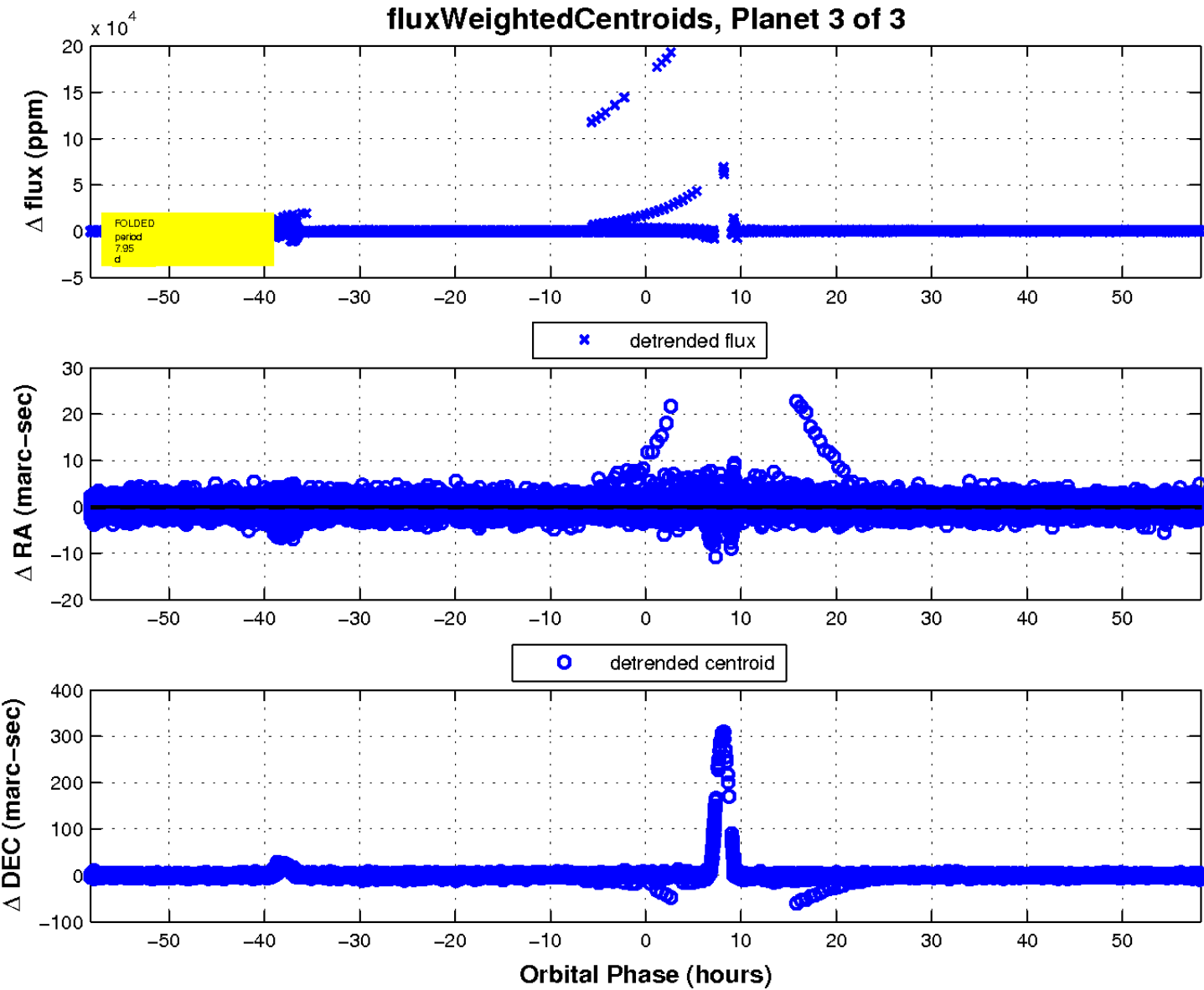
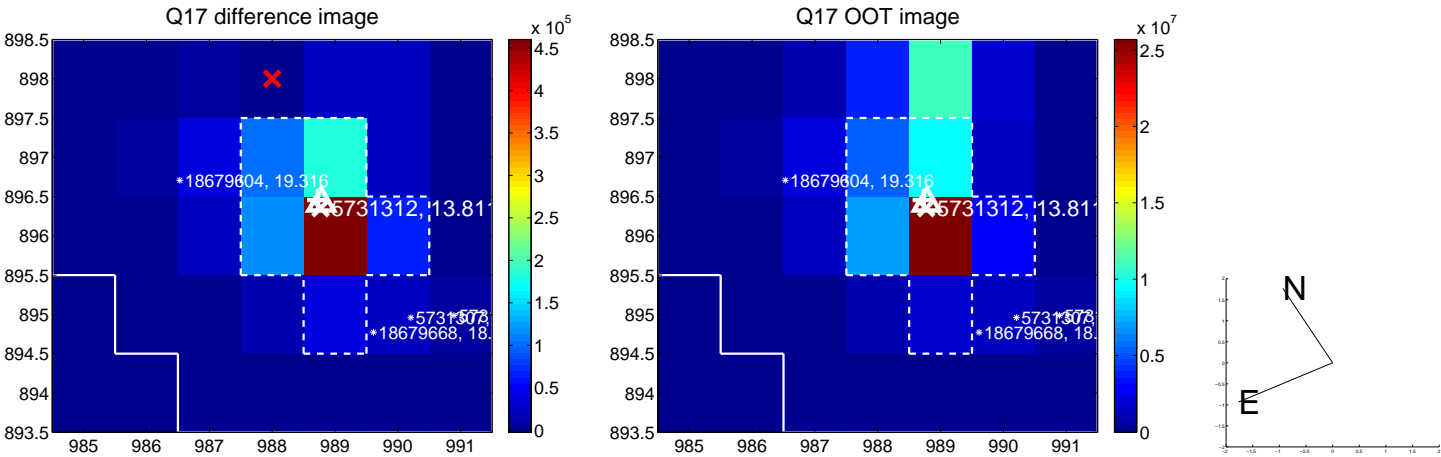
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

