

KIC 010034169

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})
010034169-01	OBS	No	199.280806	253.107038	580.8	2.672	9.1	8.1	155.19	3266	470.58	0.00
010034169-02	OBS	No	136.685670	255.353106	629.2	1.169	24.1	4.4	155.19	3266	437.02	0.00
010034169-03	OBS	No	188.530108	251.009858	1051.3	5.000	17.4	-1.0	155.19	3266	462.02	5584.98
010034169-04	OBS	No	232.138200	176.051509	196.1	3.215	15.0	3.2	155.19	3266	284.70	4231.89

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
010034169-01	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL_ZUMA—LPP_DV—ALL_TRANS_CHASES—MOD_TER_DV—MOD_POS_DV—INCONSISTENT_TRANS—CENT_FEW_DIFFS
010034169-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_TRACKER—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—CENT_FEW_DIFFS
010034169-03	OBS	FP	0.00	1	0	0	0	LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_ALT—MOD_TER_ALT—CENT_NOFITS
010034169-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_MARSHALL_TRACKER—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_FEW_DIFFS

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

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

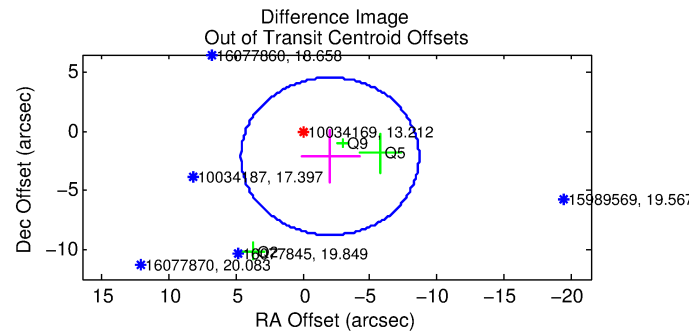
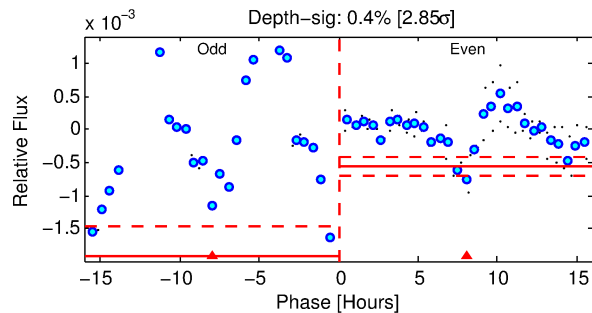
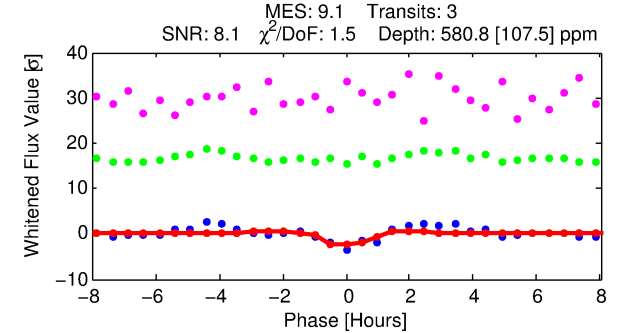
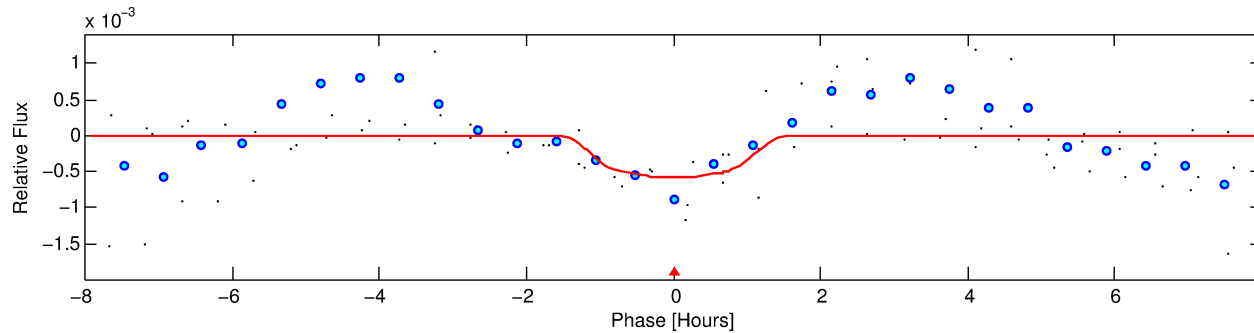
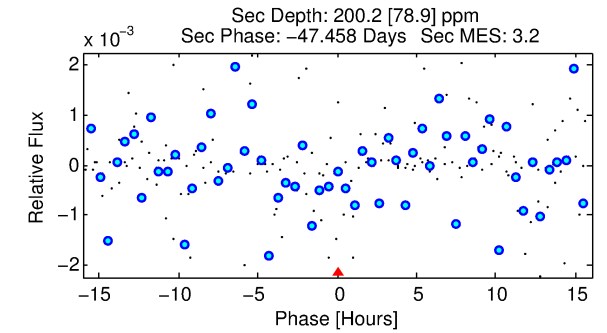
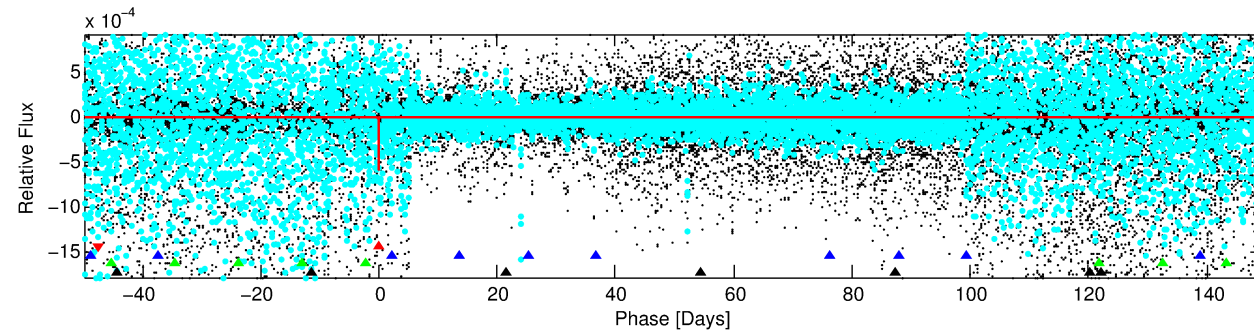
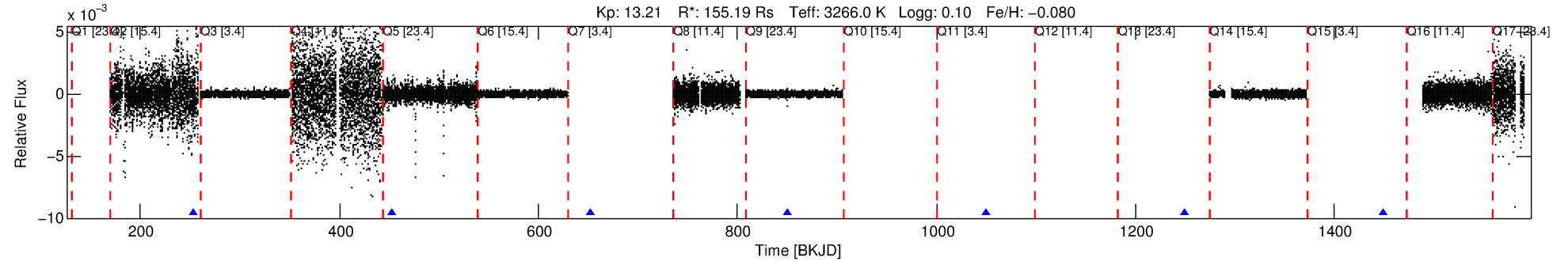
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 010034169-01

No Significant Match Found

DV One-Page Summary

KIC: 10034169 Candidate: 1 of 4 Period: 199.281 d



DV Fit Results:

Period = 199.28081 [0.00426] d
Epoch = 253.1070 [0.0102] BKJD
Rp/R* = 0.0278 [0.0620]
a/R* = 299.09 [1958.11]
b = 0.88 [1.70]
Seff = N/A
Teq = N/A
Rp = 470.58 [1053.34] Re
a = N/A
Ag = N/A
Teffp = N/A

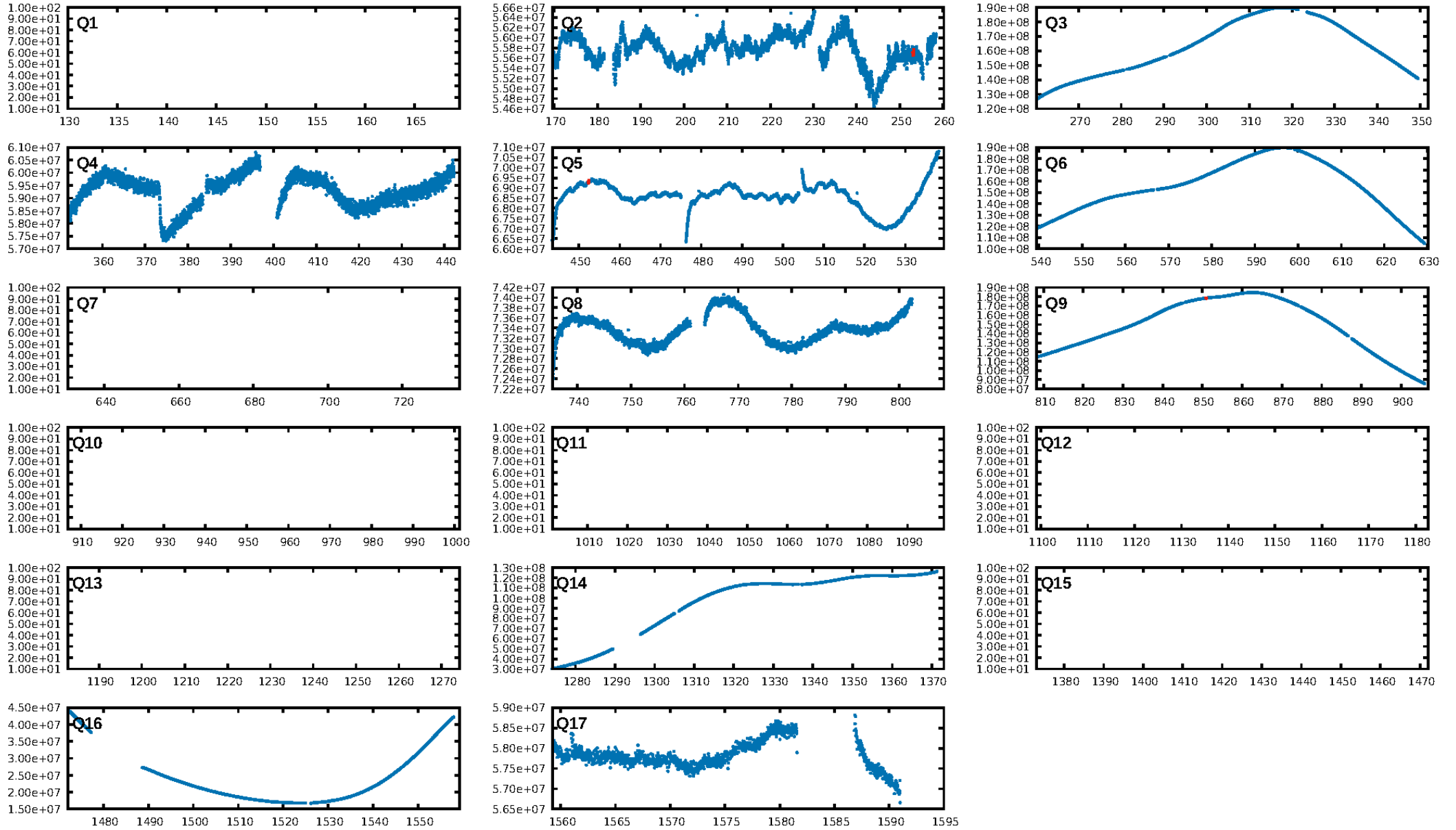
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [45.51σ]
LongPeriod-sig: 100.0% [188.64σ]
ModelChiSquare2-sig: 58.3%
ModelChiSquareGof-sig: 62.4%
Bootstrap-pfa: 1.40e-04
RollingBand-fgt: 1.00 [3/3]
GhostDiagnostic-chr: -0.6076
Centroid-sig: 1.7%
Centroid-so: 1.730 arcsec [1.29σ]
OotOffset-rm: 2.931 arcsec [1.32σ]
KicOffset-rm: 2.641 arcsec [1.18σ]
OotOffset-st: 1/0/0/2 [3]
KicOffset-st: 1/0/0/2 [3]
DiffImageQuality-fgm: 0.00 [0/3]
DiffImageOverlap-fno: 1.00 [3/3]

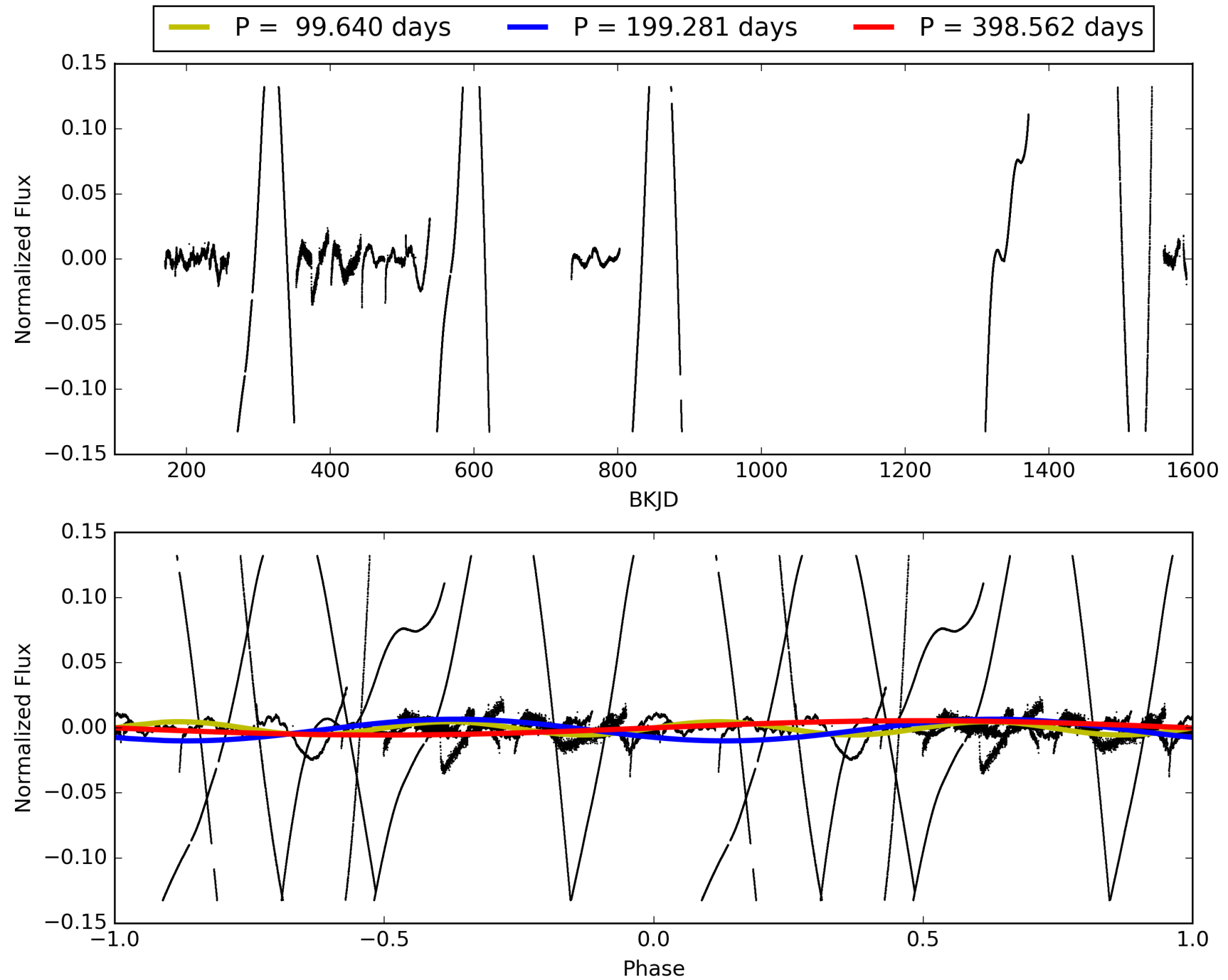
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 01-Feb-2016 16:57:32 Z

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

TCE 010034169-01, PDC Light Curves

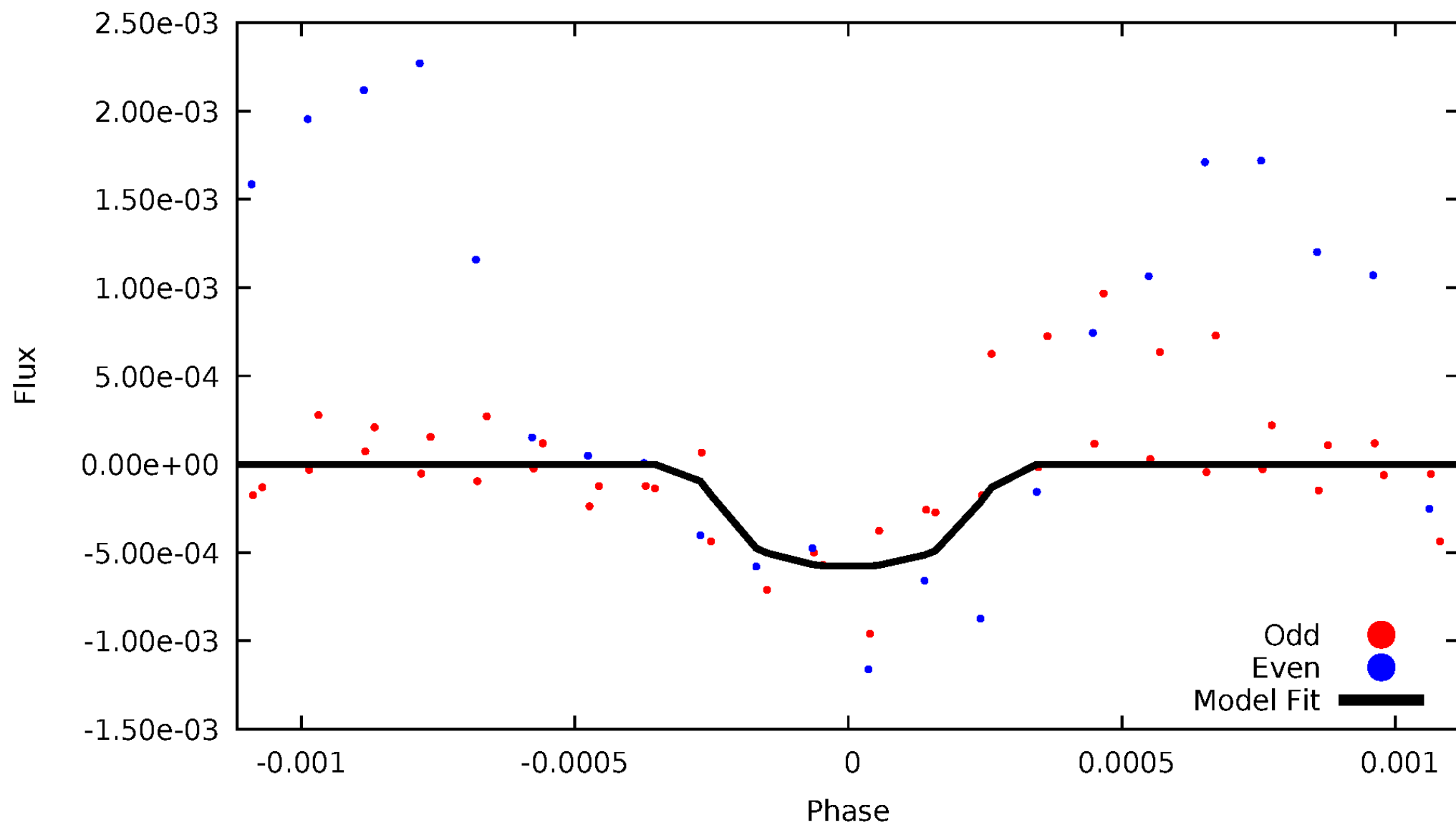


TCE 010034169-01



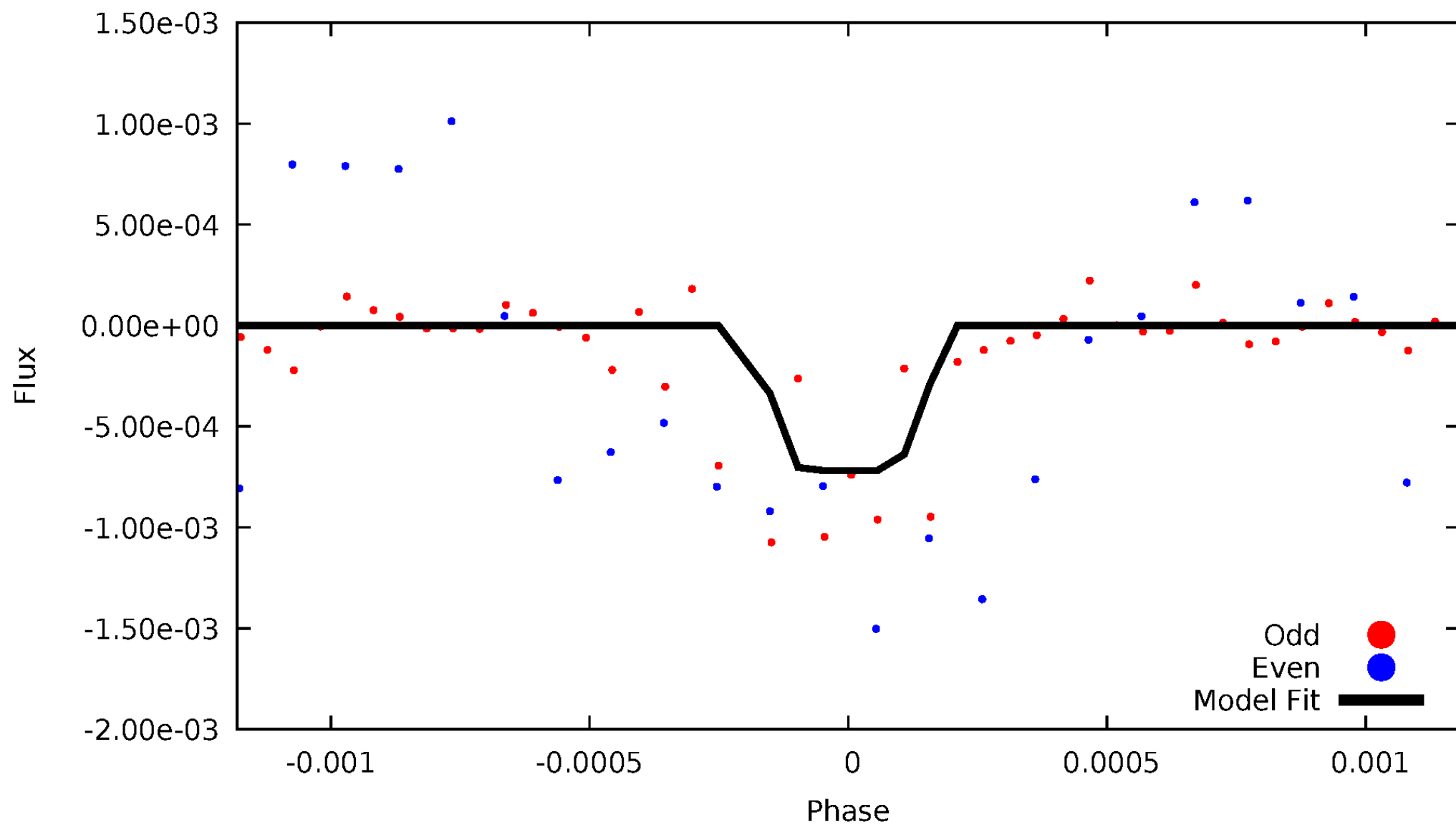
DV Odd/Even

TCE 010034169-01

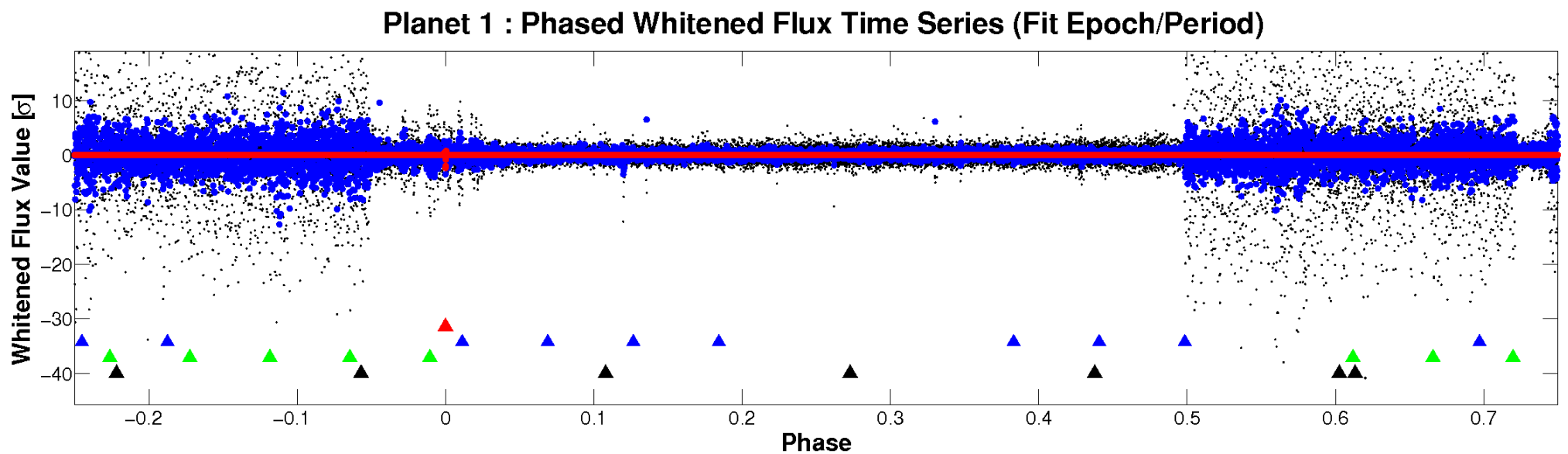
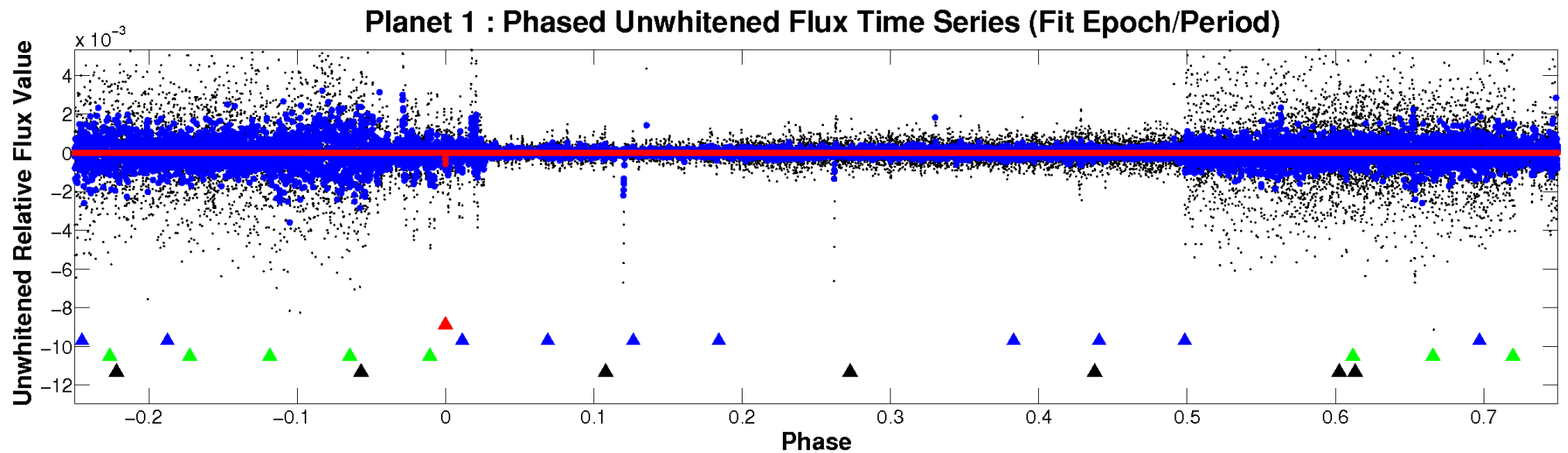


ALT Odd/Even

TCE 010034169-01

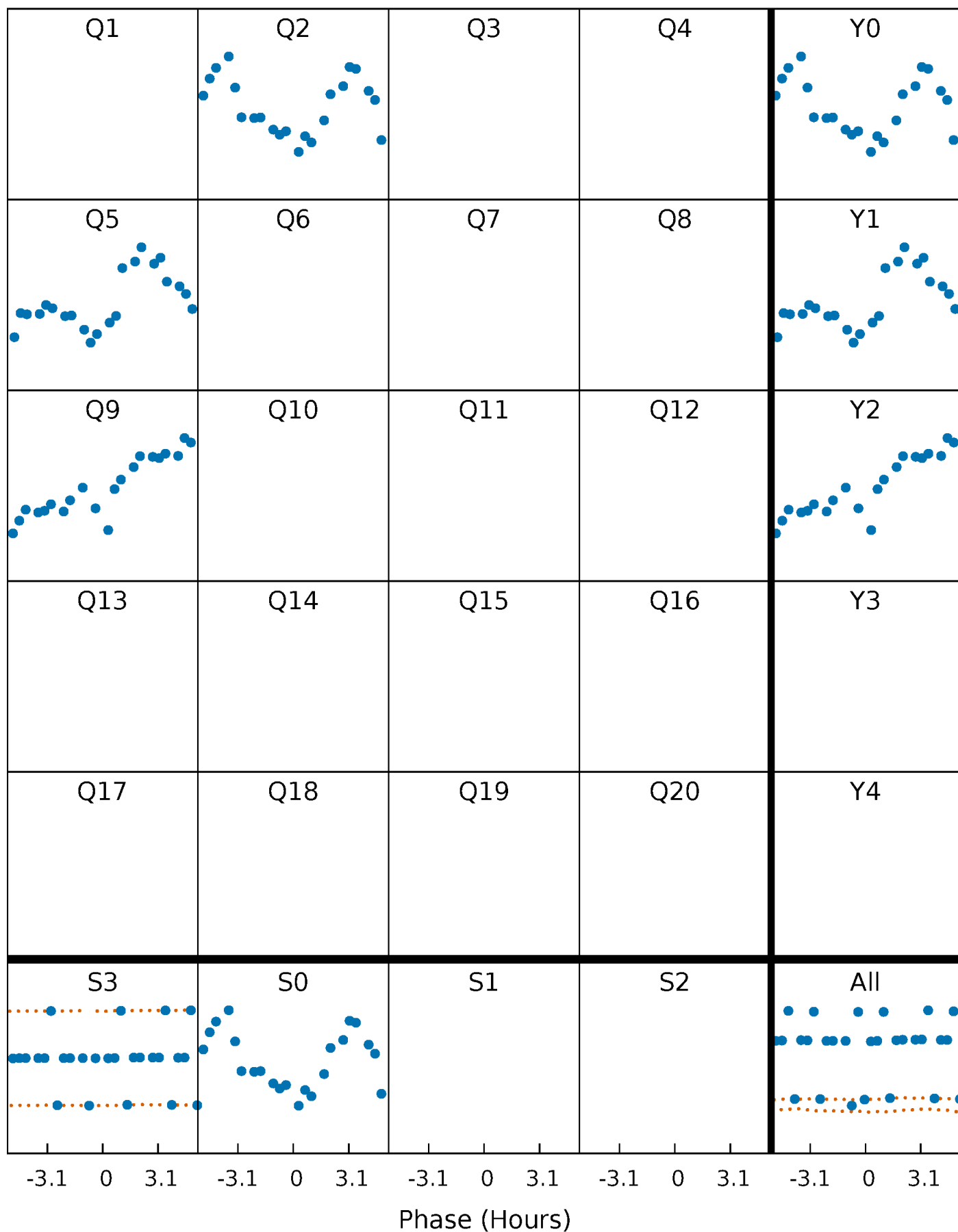


Non-Whitened Vs. Whitened Light Curve



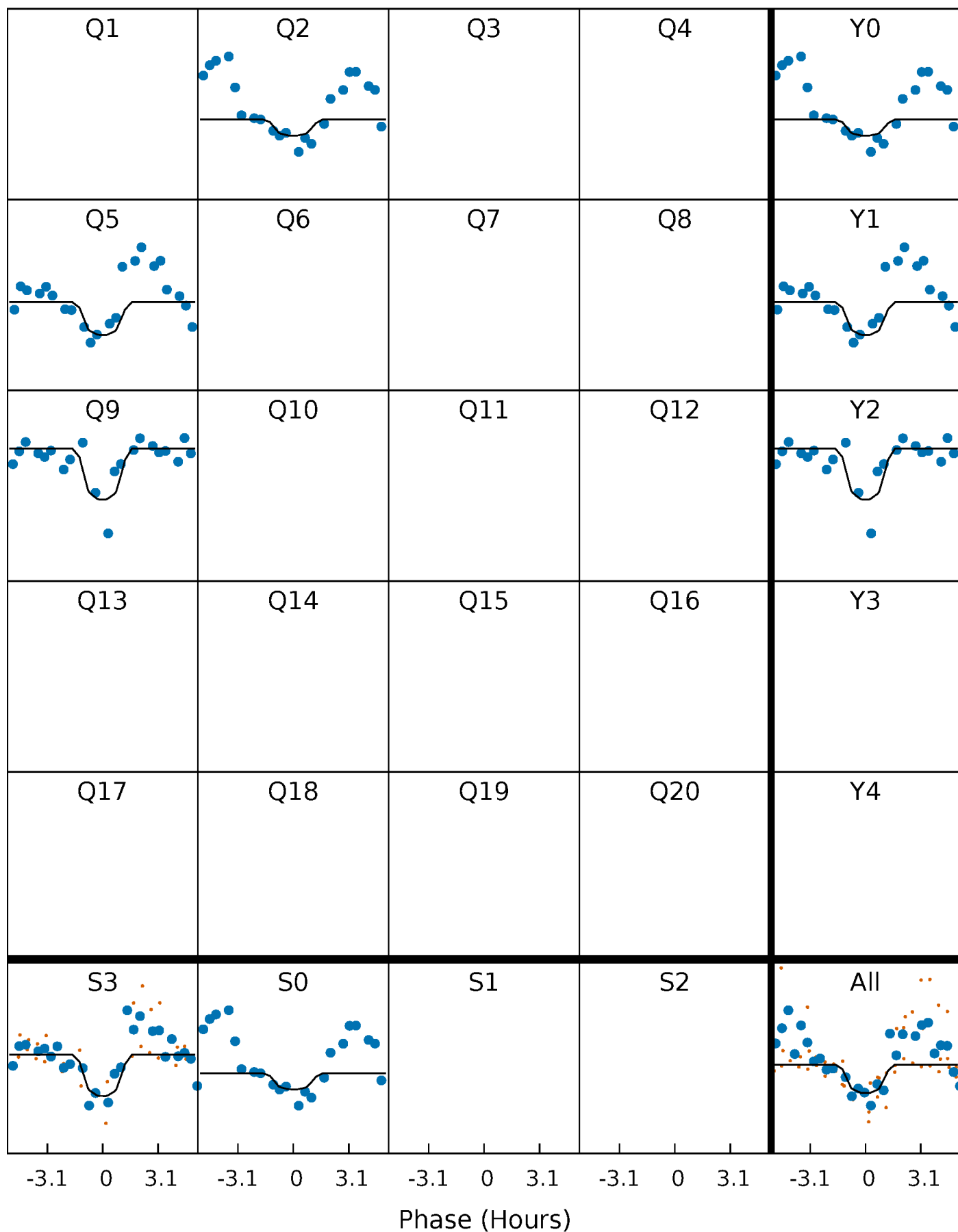
PDC Quarter-Phased Transit Curves

TCE 010034169-01 P=199.280806 Days $T_0=253.107038$ (BKJD)



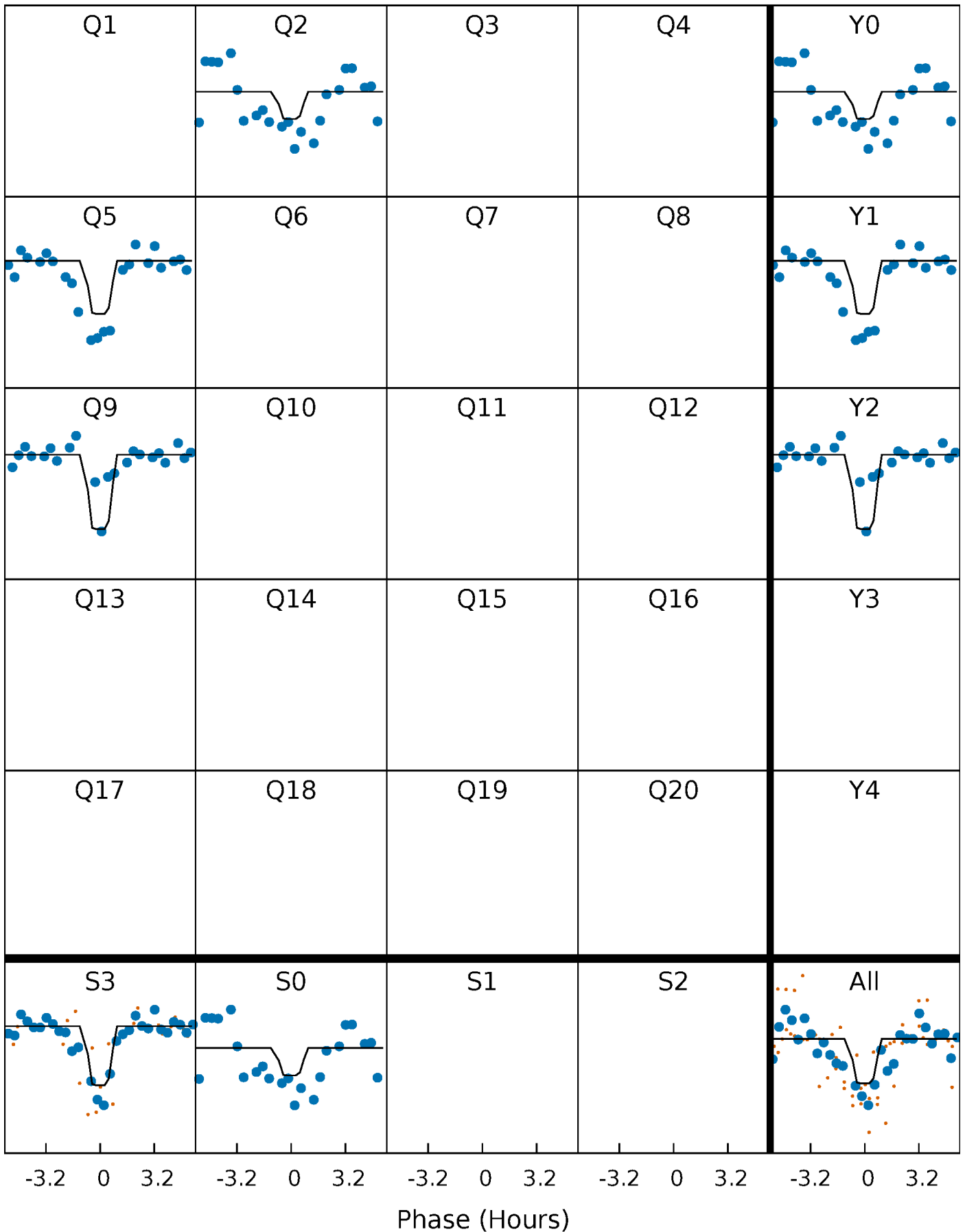
DV Quarter-Phased Transit Curves

TCE 010034169-01 P=199.280806 Days $T_0=253.107038$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

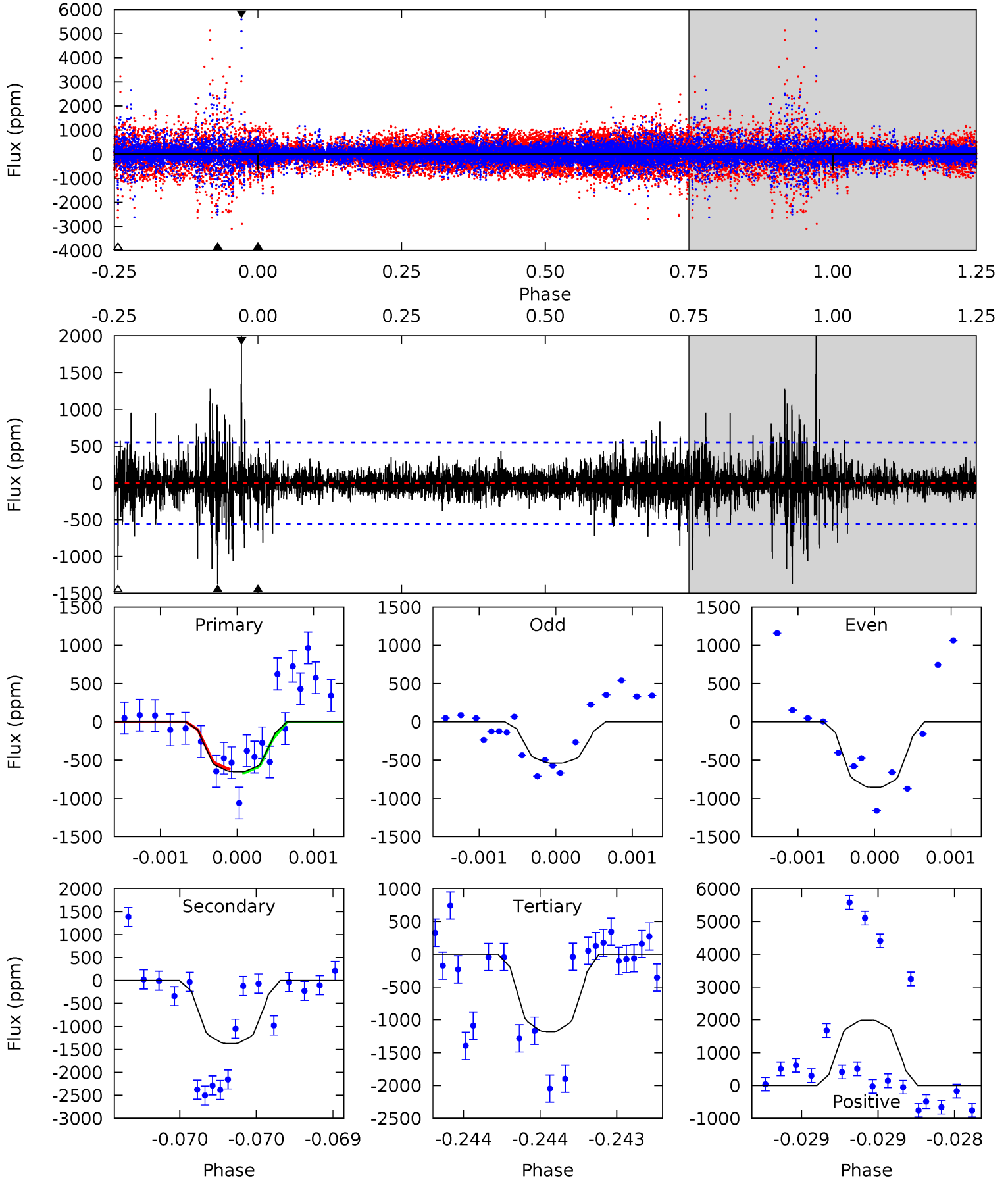
TCE 010034169-01 P=199.284179 Days $T_0=253.103685$ (BKJD)



DV Model-Shift Uniqueness Test

010034169-01, P = 199.280806 Days, E = 53.826232 Days

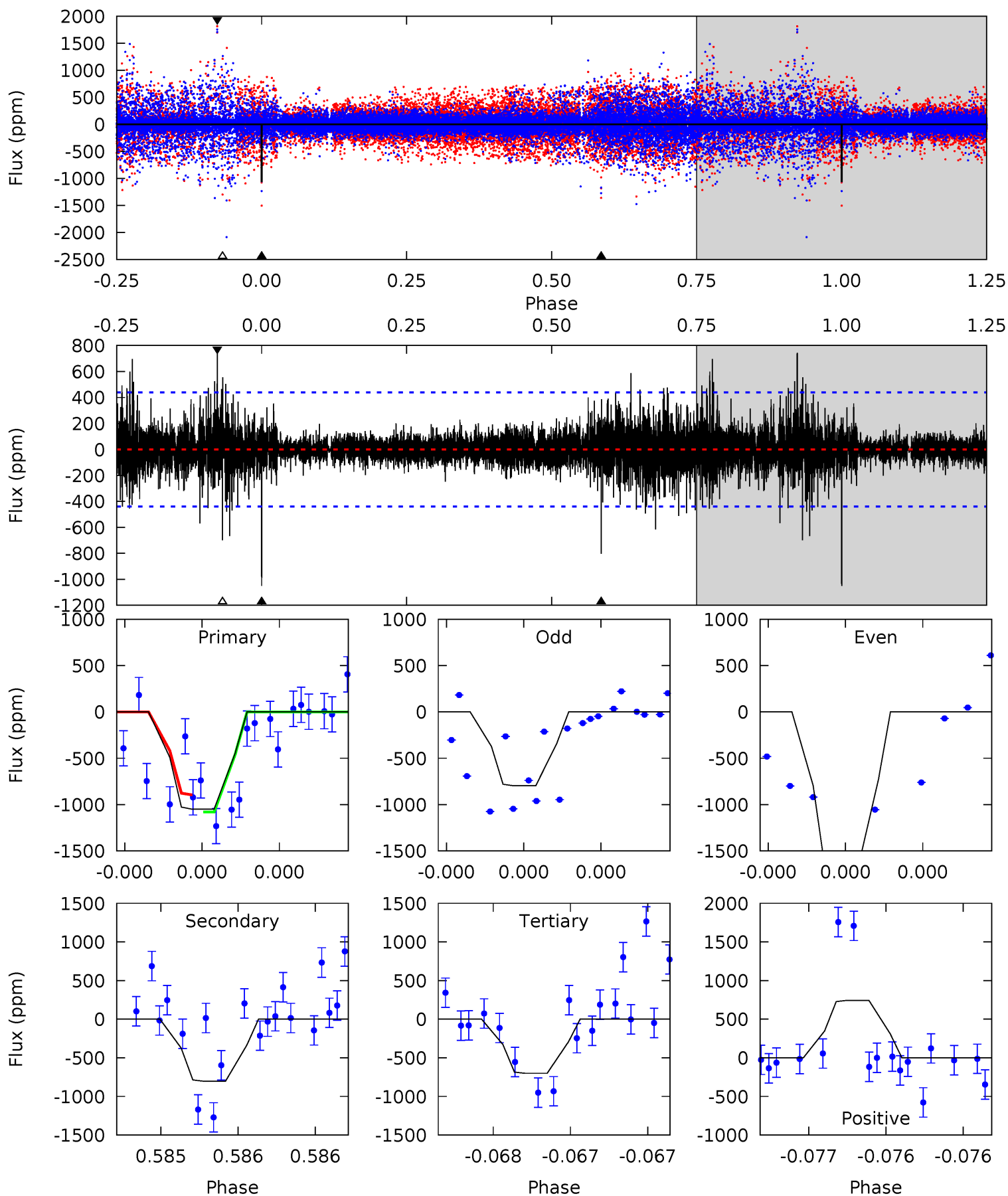
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
6.56	13.8	11.9	20.0	5.56	3.47	1.67	-5.31	-13.5	1.93	-6.22	1.01	1.09	0.59	0.18



Alt Model-Shift Uniqueness Test

010034169-01, P = 199.284179 Days, E = 53.819506 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
13.4	10.3	8.97	9.52	5.63	3.57	1.31	4.47	3.92	1.31	0.76	4.10	0.82	0.41	0.83



Stellar Parameters For KIC 010034169

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	M (M_{\odot})	p_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	3266^{+117}_{-78}	$0.095^{+0.208}_{-0.065}$	$-0.080^{+0.250}_{-0.100}$	$155.187^{+9.192}_{-27.576}$	$1.095^{+0.206}_{-0.120}$	$0.000^{+0.000}_{-0.000}$
	+4%/-2%	+219%/-68%	+312%/-125%	+6%/-18%	+19%/-11%	+85%/-15%
Source	KIC0	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 010034169-01 / KOI

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	-1373 ± 100	$871.81^{+817.81}_{-583.39}$	2980^{+140}_{-165}	2585^{+1541}_{-5168}	$0.473^{+4.051}_{-0.346}$
Alt.	-802 ± 78	$852.42^{+785.50}_{-582.09}$	2982^{+127}_{-157}	-1228^{+5064}_{-1438}	$0.300^{+2.748}_{-0.220}$

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

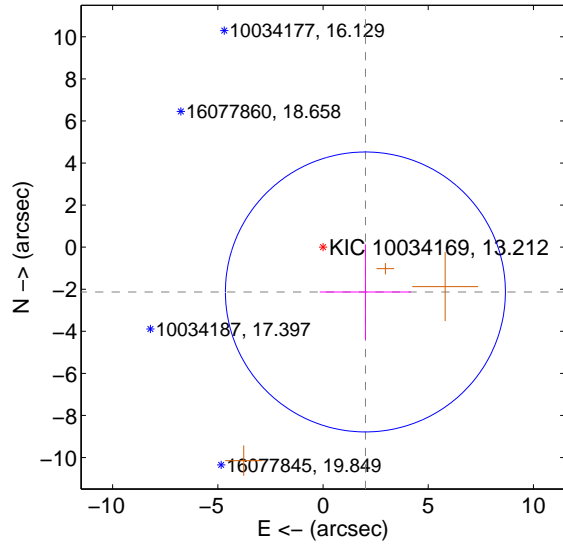
Supplemental centroid analysis for 010034169-01. Kepler magnitude: 13.21. Transit SNR 8.07

There are 0 quarters with good PRF difference image offsets

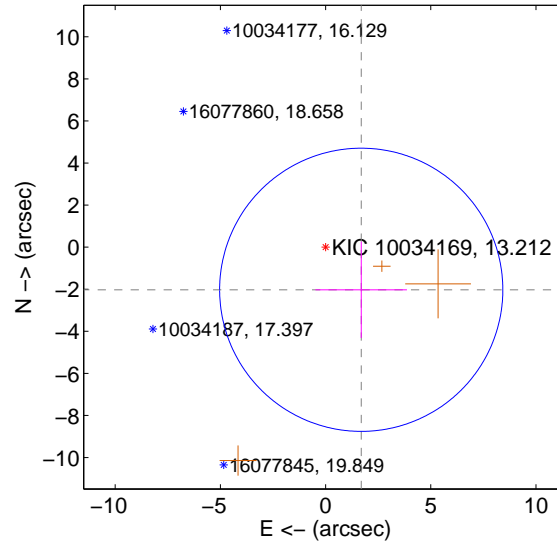
The direct PRF centroid is offset from the target star catalog position by about 0.31 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	2.931 ± 2.218	1.32	-2.014 ± 2.167	-2.129 ± 2.262
PRF-fit source offset from KIC position	2.641 ± 2.244	1.18	-1.695 ± 2.175	-2.026 ± 2.290
photometric centroid source offset	1.73 ± 1.34	1.29	0.55 ± 1.60	-1.64 ± 1.31

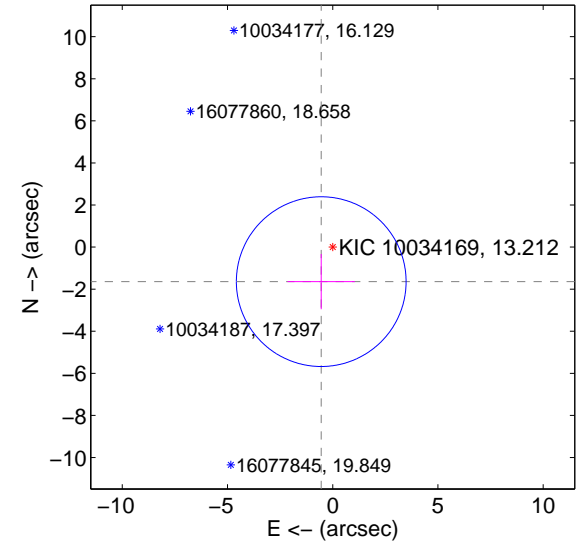
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position

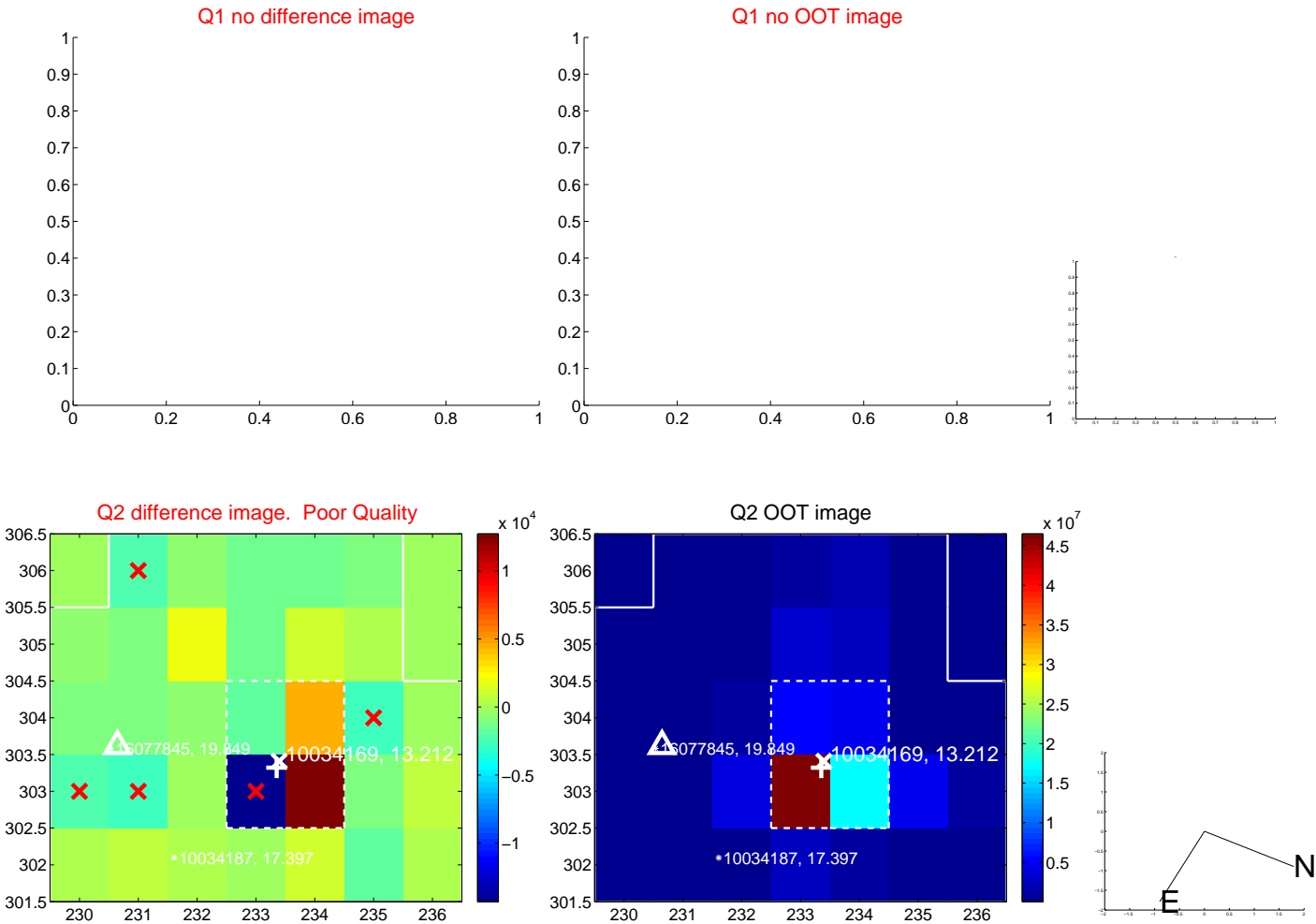


offset from photometric centroids

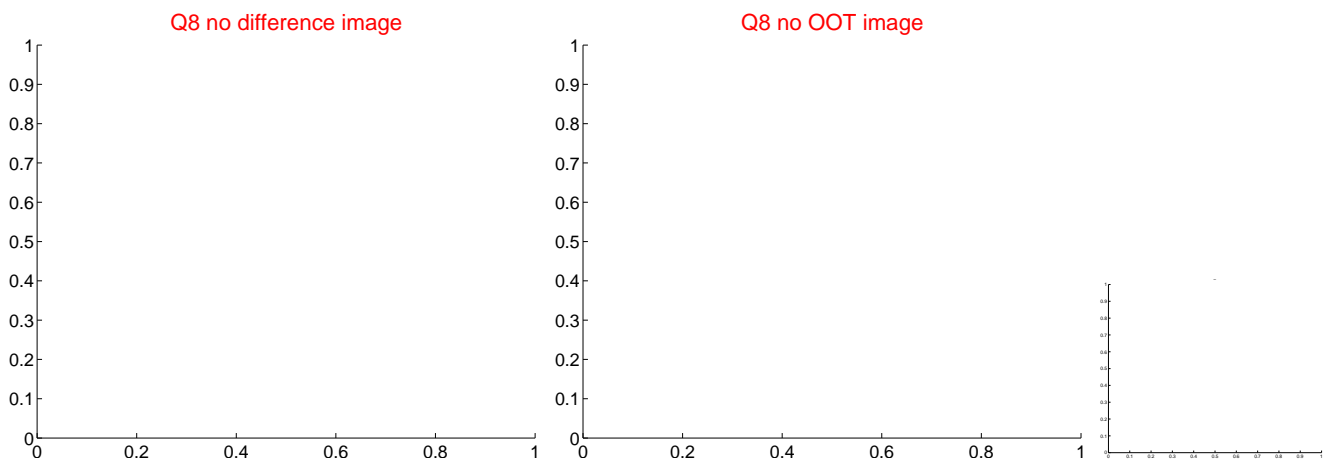
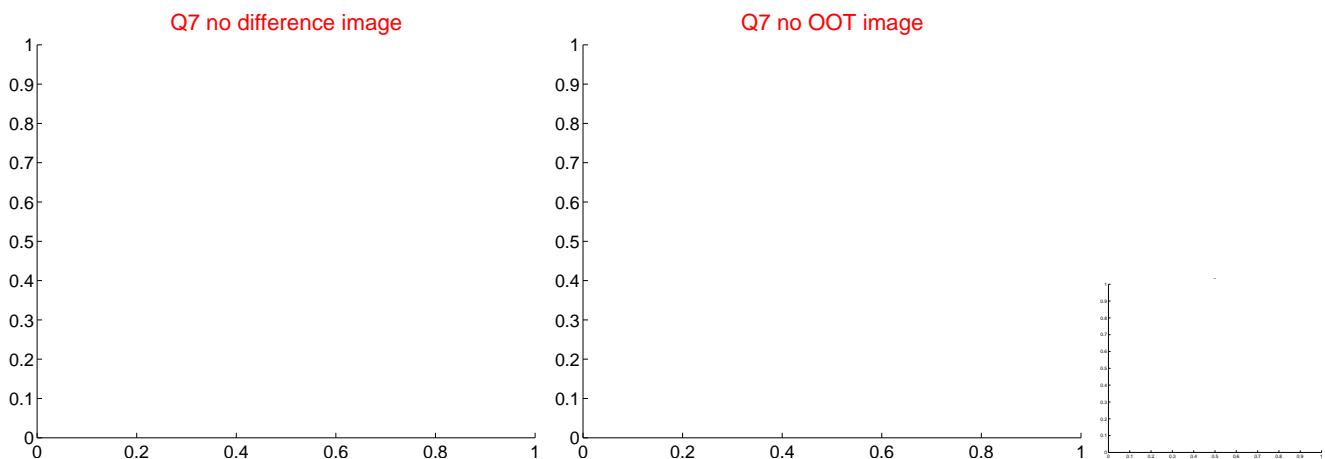
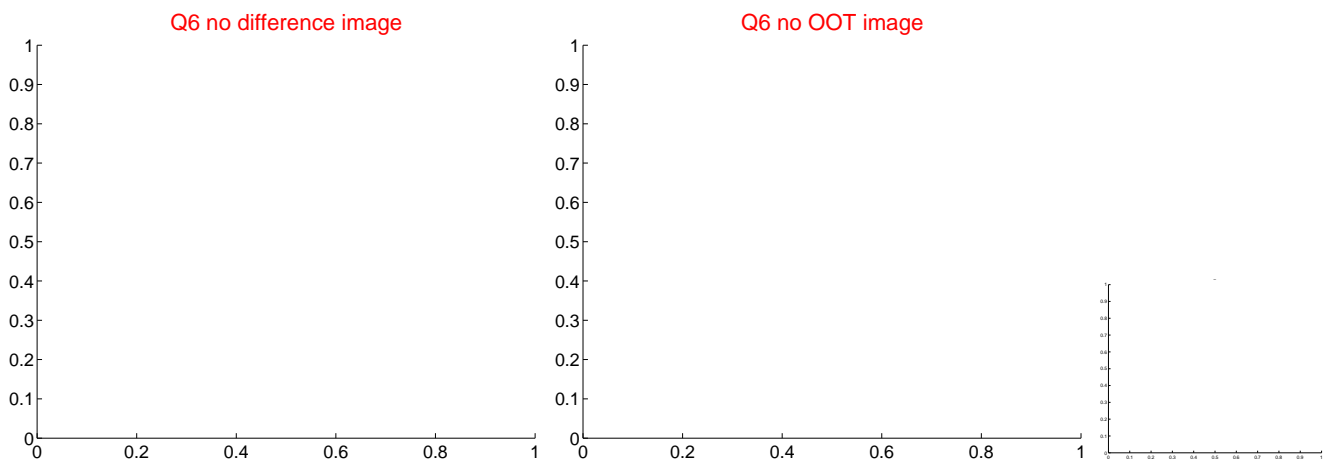
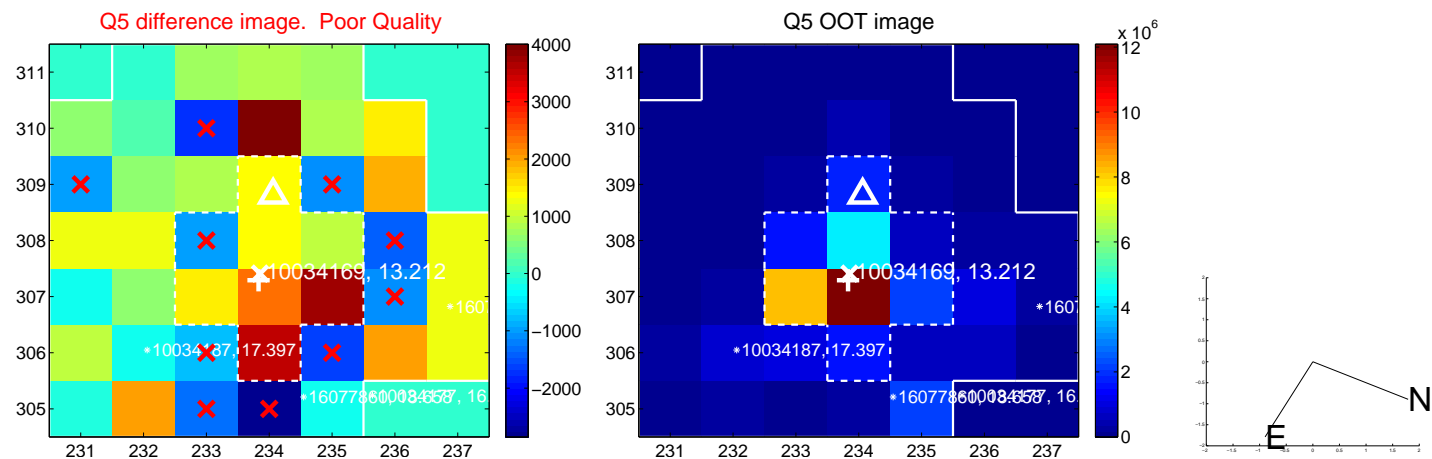


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ . Red *: target star. Blue *: Other stars. Text next to a star gives its KIC ID and kepmag. KIC IDs > 15,000,000 are from the UKIRT catalog.

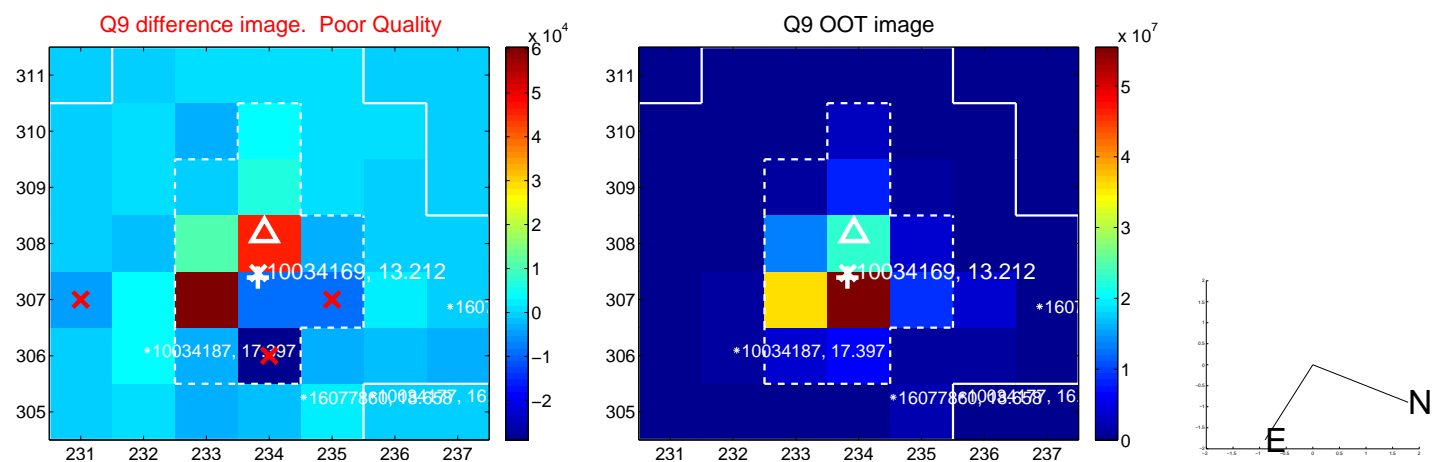
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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



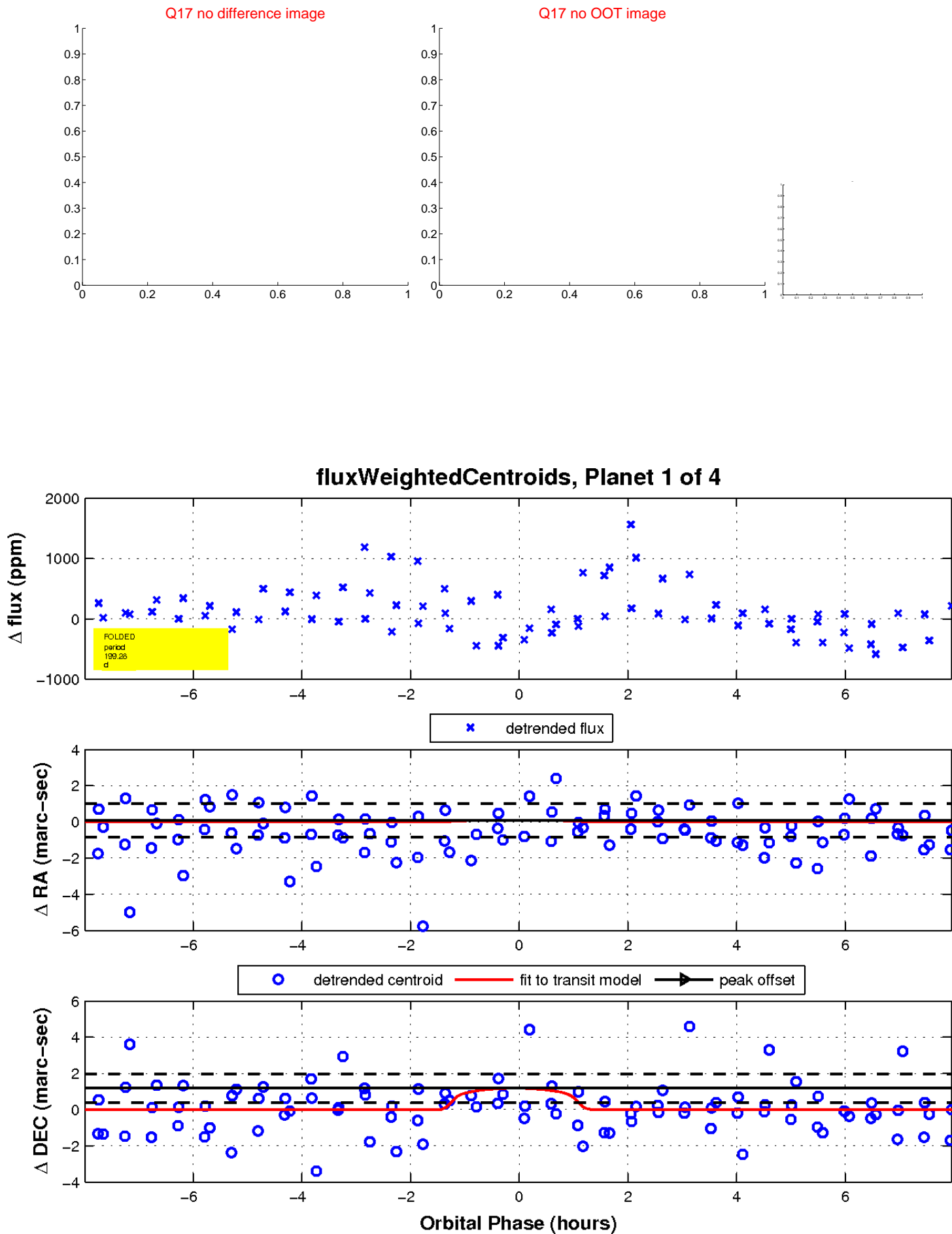
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



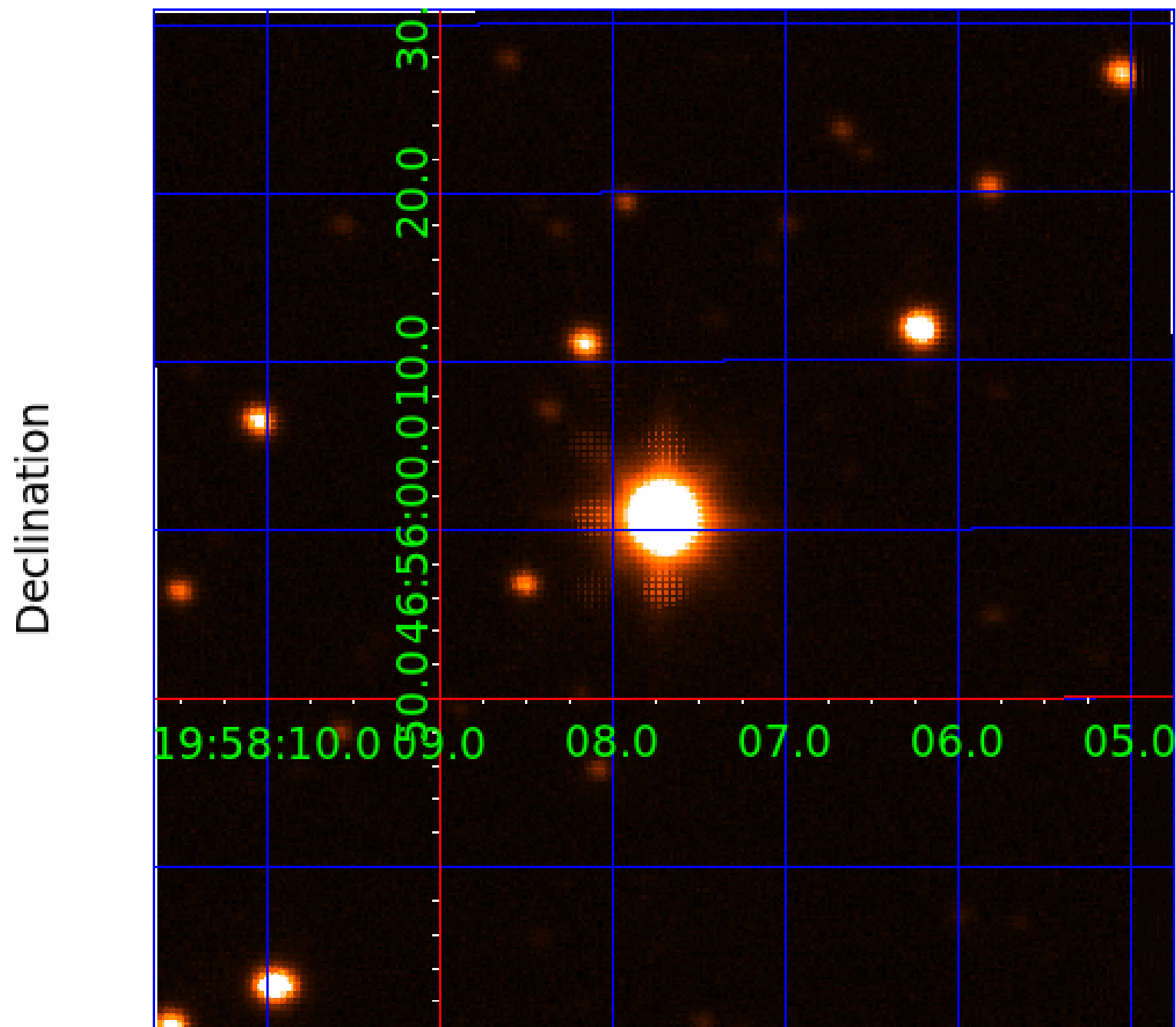
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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



UKIRT Image



KIC 010034169

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})
010034169-01	OBS	No	199.280806	253.107038	580.8	2.672	9.1	8.1	155.19	3266	470.58	0.00
010034169-02	OBS	No	136.685670	255.353106	629.2	1.169	24.1	4.4	155.19	3266	437.02	0.00
010034169-03	OBS	No	188.530108	251.009858	1051.3	5.000	17.4	-1.0	155.19	3266	462.02	5584.98
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Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
010034169-01	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL_ZUMA—LPP_DV—ALL_TRANS_CHASES—MOD_TER_DV—MOD_POS_DV—INCONSISTENT_TRANS—CENT_FEW_DIFFS
010034169-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_TRACKER—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—CENT_FEW_DIFFS
010034169-03	OBS	FP	0.00	1	0	0	0	LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_ALT—MOD_TER_ALT—CENT_NOFITS
010034169-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_MARSHALL_TRACKER—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_FEW_DIFFS

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

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

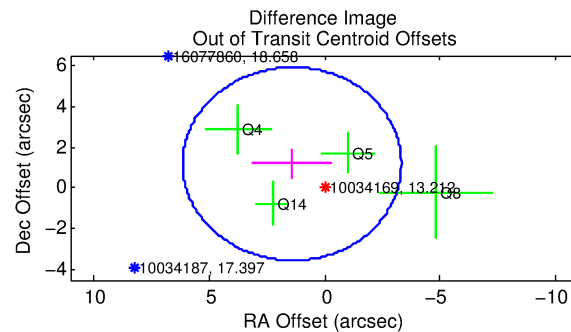
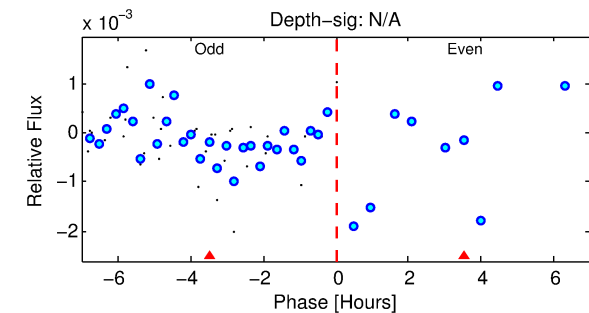
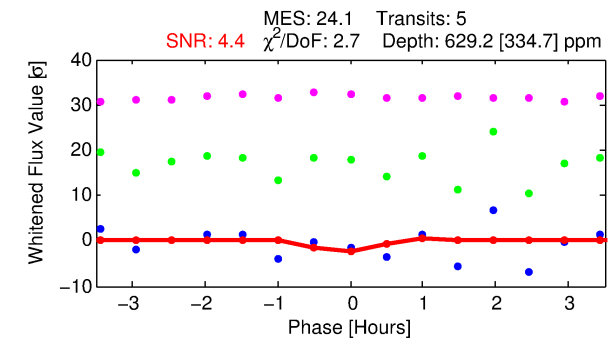
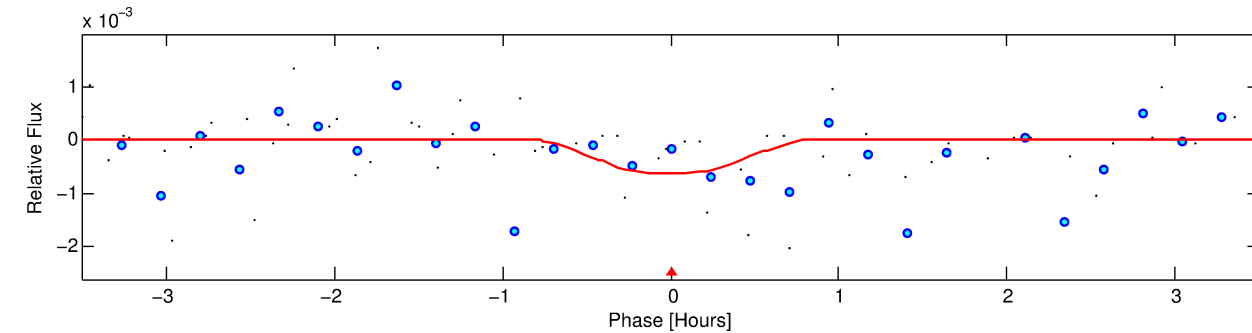
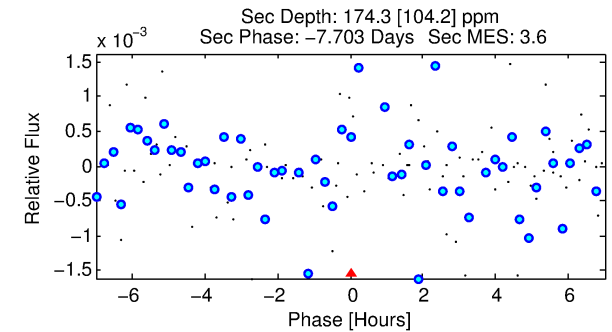
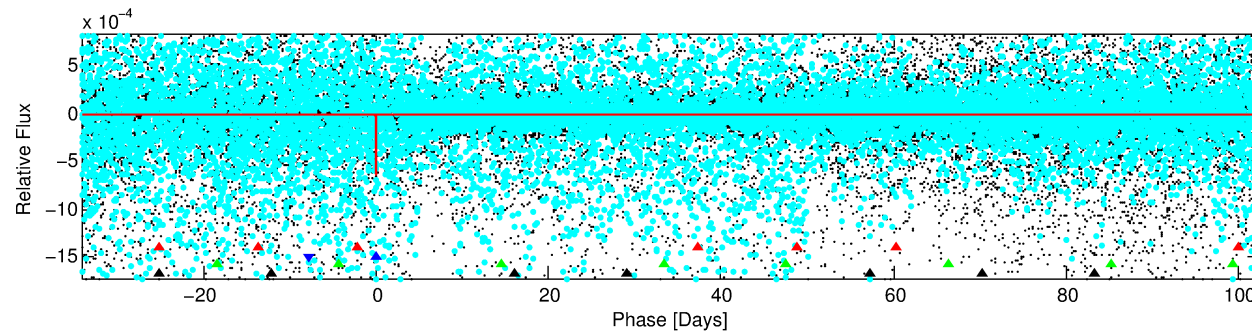
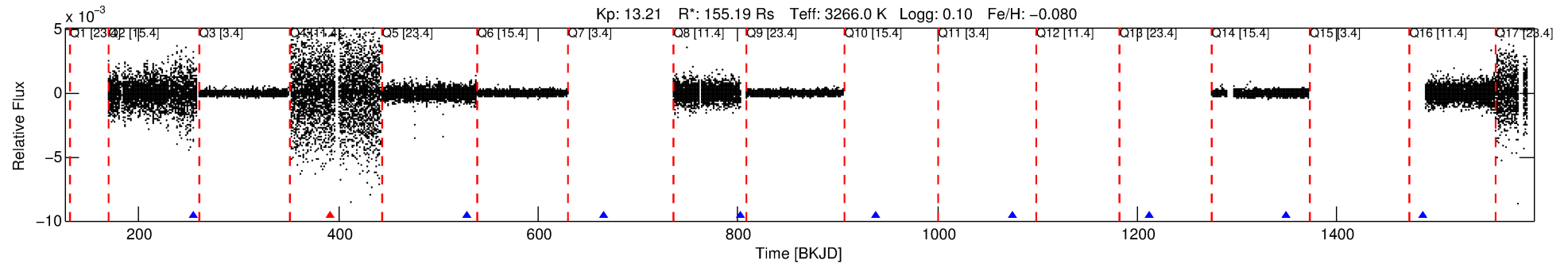
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 010034169-02

No Significant Match Found

DV One-Page Summary

KIC: 10034169 Candidate: 2 of 4 Period: 136.686 d



DV Fit Results:

Period = 136.68567 [0.00564] d
Epoch = 255.3531 [0.0121] BKJD
Rp/R* = 0.0258 [0.1890]
a/R* = 621.84 [10690.61]
b = 0.75 [10.66]
Seff = N/A
Teq = N/A
Rp = 437.03 [3201.10] Re
a = N/A
Ag = N/A
Teffp = N/A

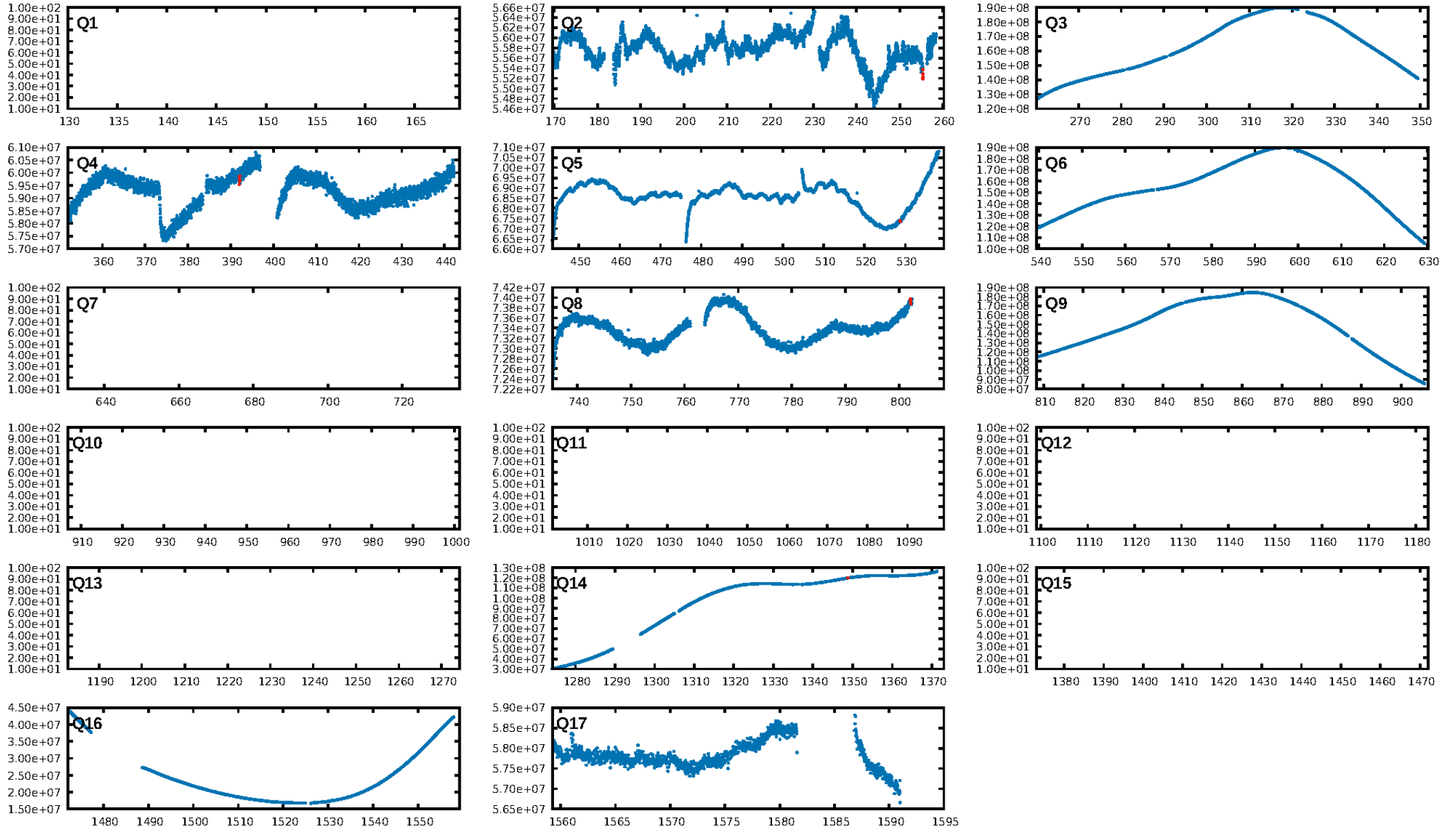
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: 100.0% [242.32]
ModelChiSquare2-sig: 0.1%
ModelChiSquareGof-sig: 23.9%
Bootstrap-pfa: 1.15e-12
RollingBand-fgt: 0.80 [4/5]
GhostDiagnostic-chr: -5.932
Centroid-sig: 77.1%
Centroid-so: 0.521 arcsec [0.37]
OotOffset-rm: 1.837 arcsec [1.16]
KicOffset-rm: 2.274 arcsec [1.49]
OotOffset-st: 1/0/2/1 [4]
KicOffset-st: 1/0/2/1 [4]
DiffImageQuality-fgm: 0.00 [0/4]
DiffImageOverlap-fno: 1.00 [4/4]

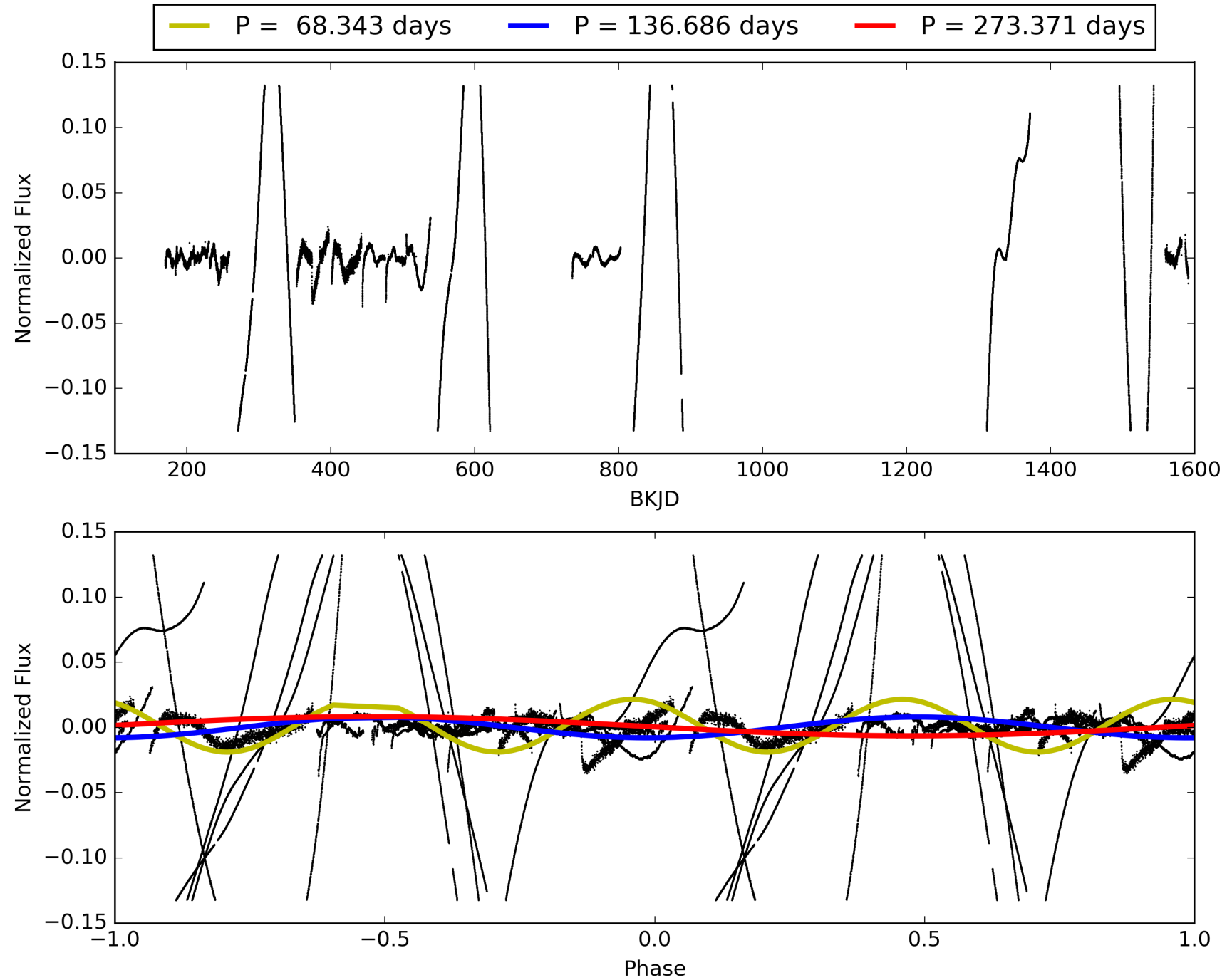
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 01-Feb-2016 16:57:44 Z

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

TCE 010034169-02, PDC Light Curves

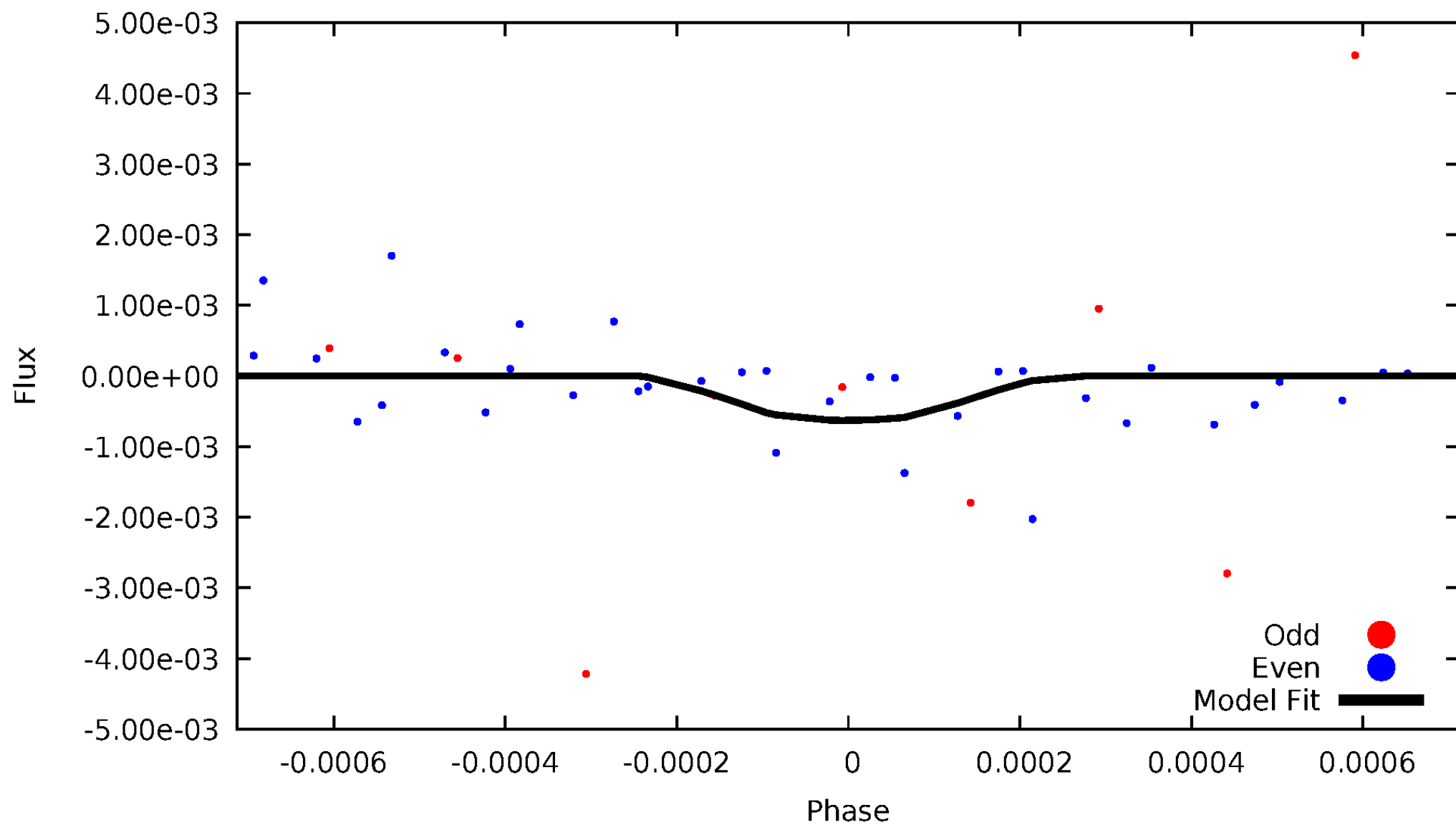


TCE 010034169-02



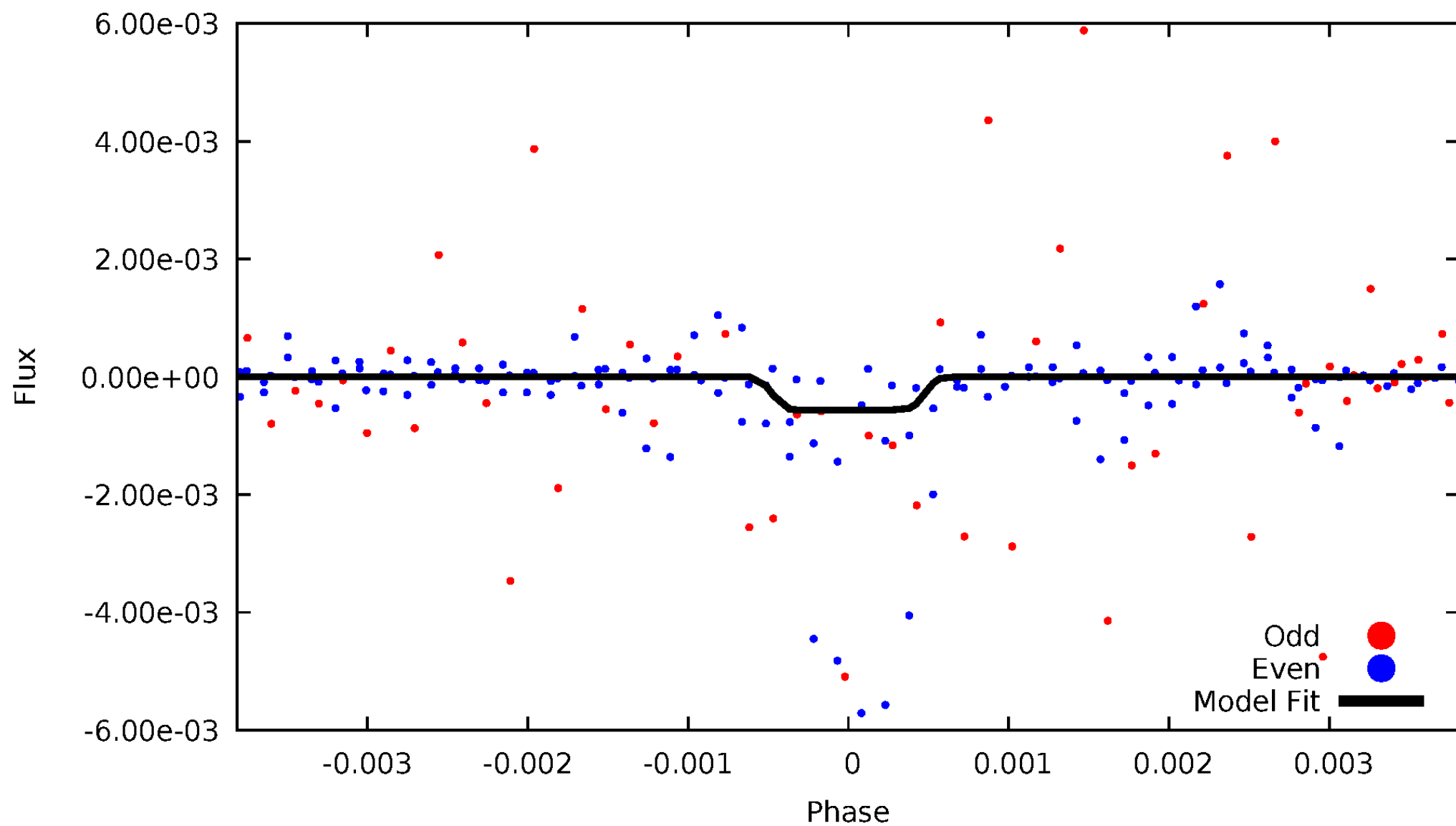
DV Odd/Even

TCE 010034169-02



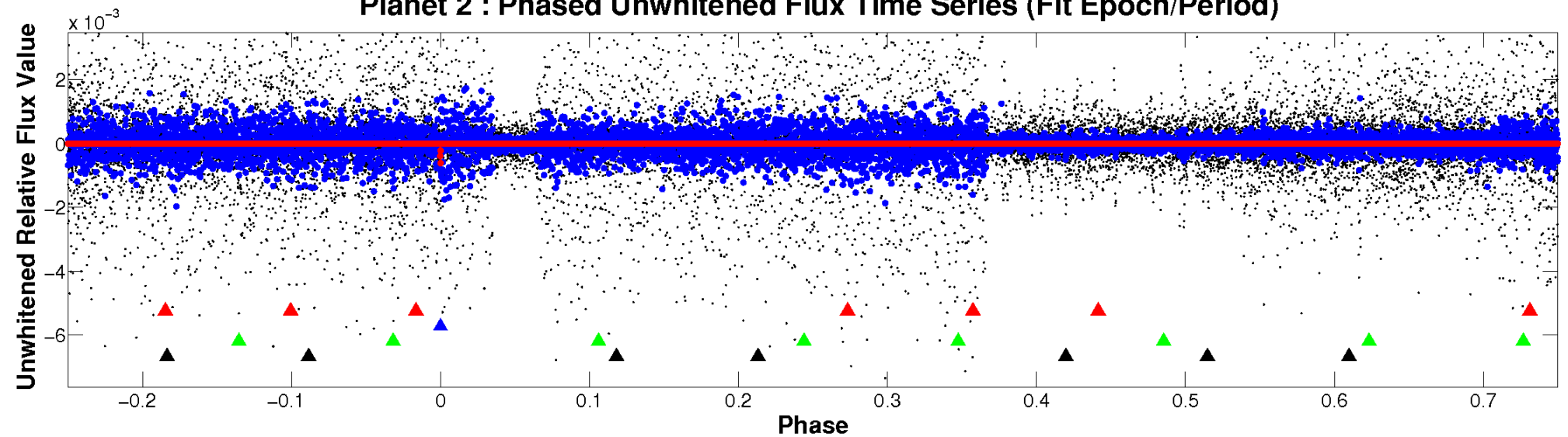
ALT Odd/Even

TCE 010034169-02

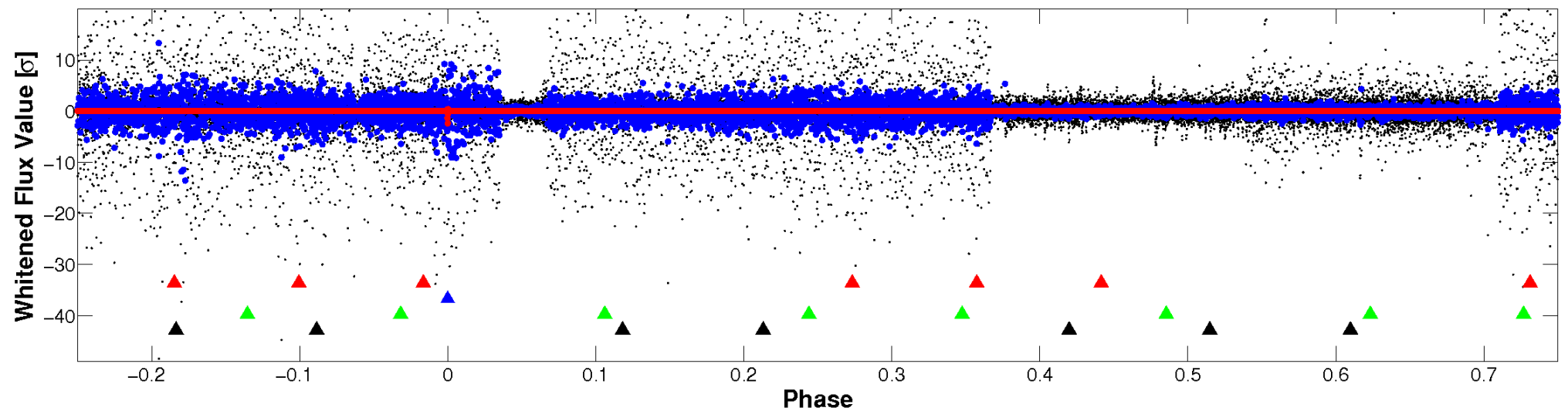


Non-Whitened Vs. Whitened Light Curve

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

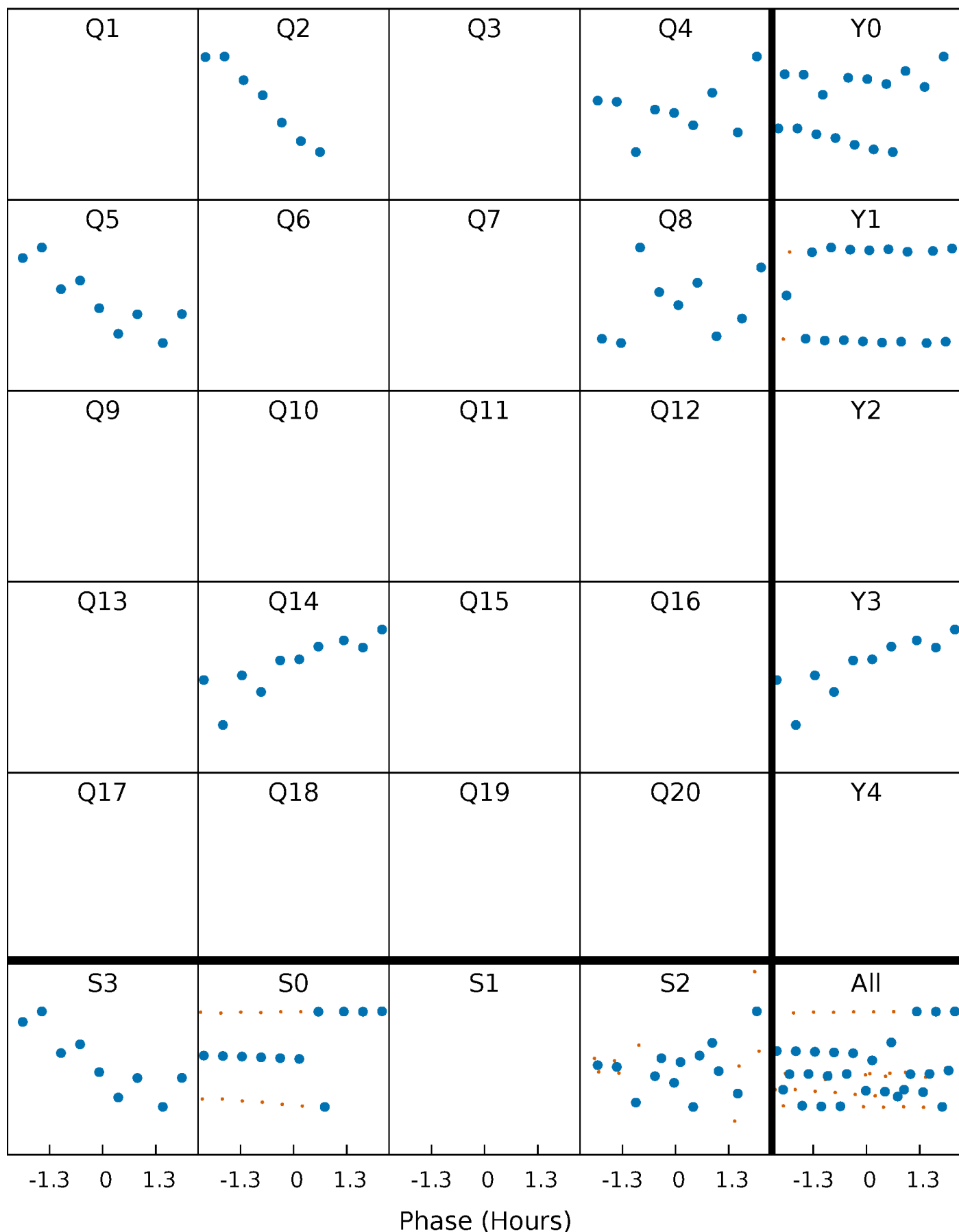


Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



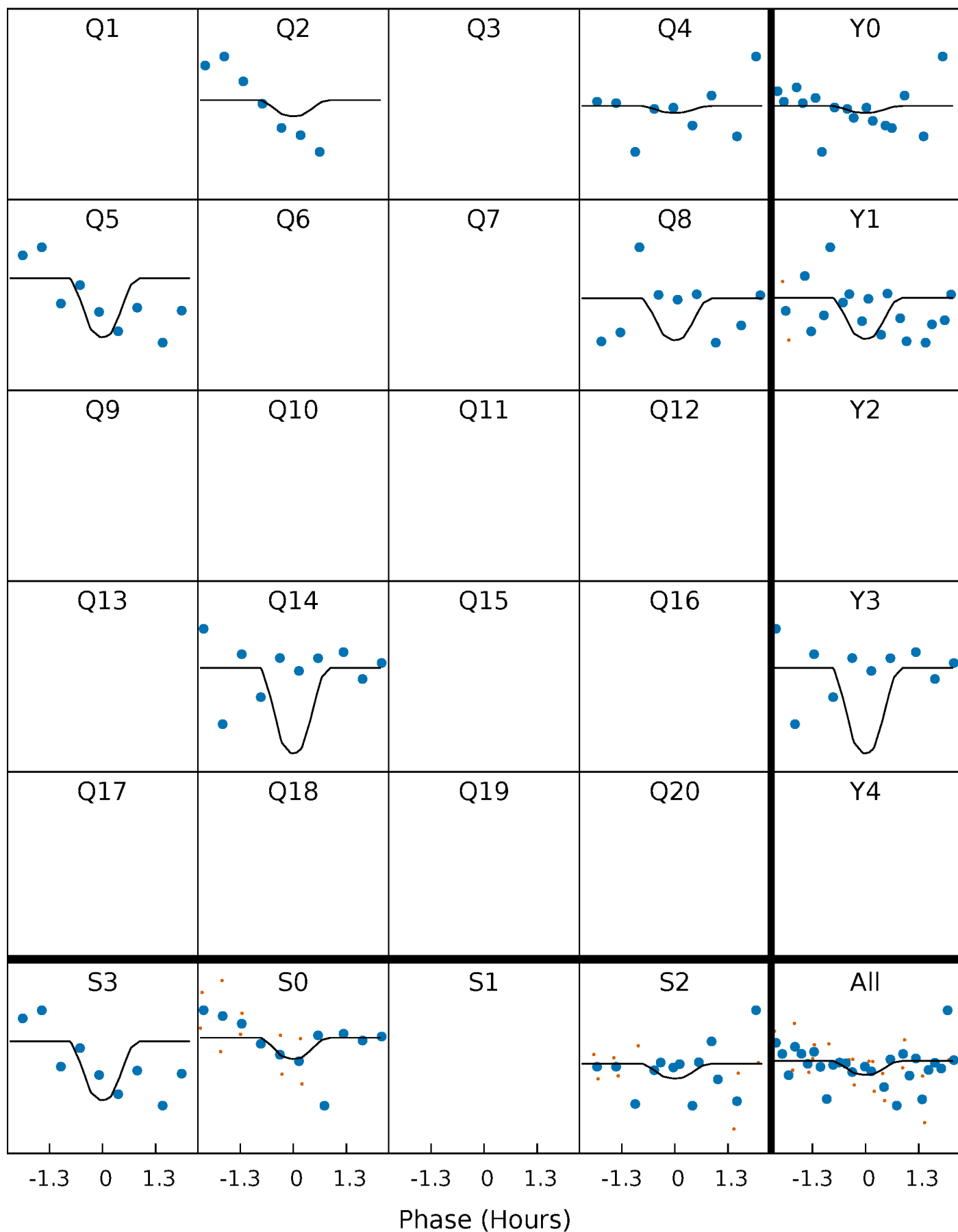
PDC Quarter-Phased Transit Curves

TCE 010034169-02 P=136.685670 Days $T_0=255.353106$ (BKJD)



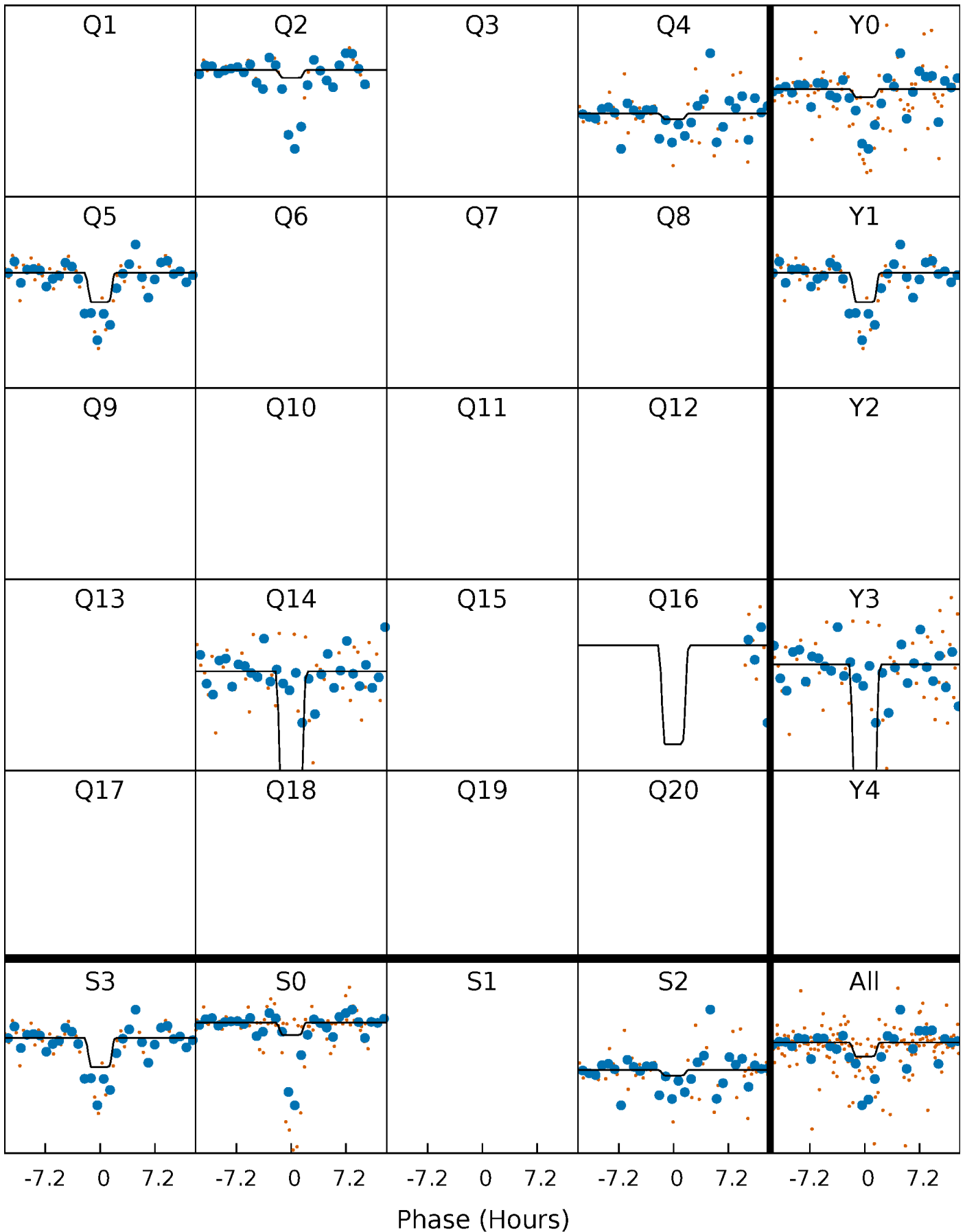
DV Quarter-Phased Transit Curves

TCE 010034169-02 P=136.685670 Days $T_0=255.353106$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

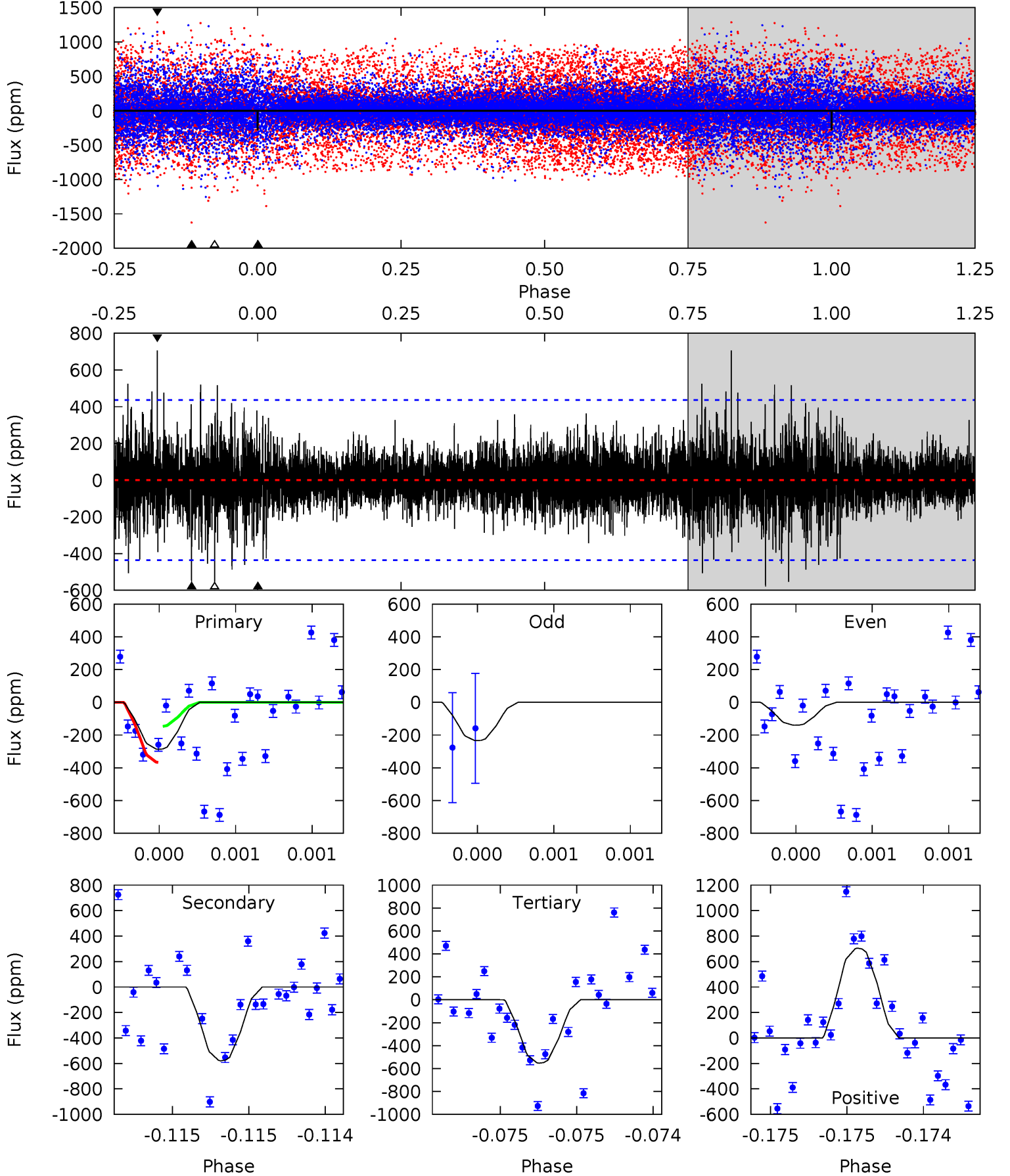
TCE 010034169-02 P=137.037236 Days $T_0=254.962635$ (BKJD)



DV Model-Shift Uniqueness Test

010034169-02, P = 136.685670 Days, E = 118.667436 Days

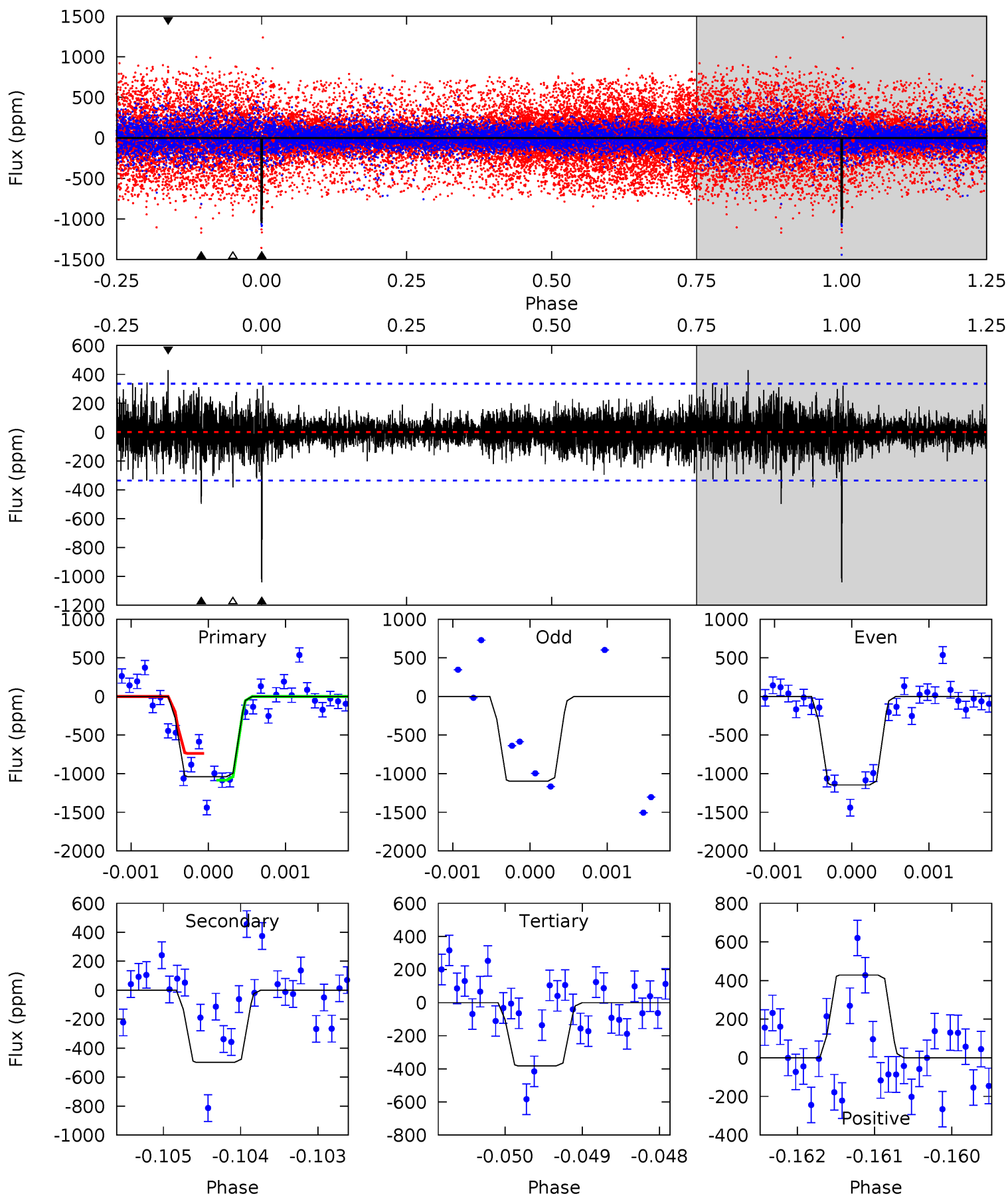
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
3.67	7.39	7.05	9.00	5.57	3.47	1.33	-3.39	-5.33	0.34	-1.61	0.23	1.12	0.55	1.43



Alt Model-Shift Uniqueness Test

010034169-02, P = 137.037236 Days, E = 117.925399 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
16.8	8.05	6.17	6.93	5.42	3.24	1.21	10.6	9.88	1.87	1.12	0.21	1.24	0.29	0



Stellar Parameters For KIC 010034169

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	3266^{+117}_{-78}	$0.095^{+0.208}_{-0.065}$	$-0.080^{+0.250}_{-0.100}$	$155.187^{+9.192}_{-27.576}$	$1.095^{+0.206}_{-0.120}$	$0.000^{+0.000}_{-0.000}$
	+4%/-2%	+219%/-68%	+312%/-125%	+6%/-18%	+19%/-11%	+85%/-15%
Source	KIC0	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 010034169-02 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	-579 ± 78	$2224.68^{+2478.71}_{-1599.56}$	3384^{+154}_{-173}	-2902^{+537}_{-131}	$0.019^{+0.233}_{-0.015}$
Alt.	-497 ± 62	$2224.42^{+2637.35}_{-1560.70}$	3373^{+153}_{-169}	-2905^{+322}_{-129}	$0.016^{+0.166}_{-0.013}$

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 $A_{obs} \gg 1.0$

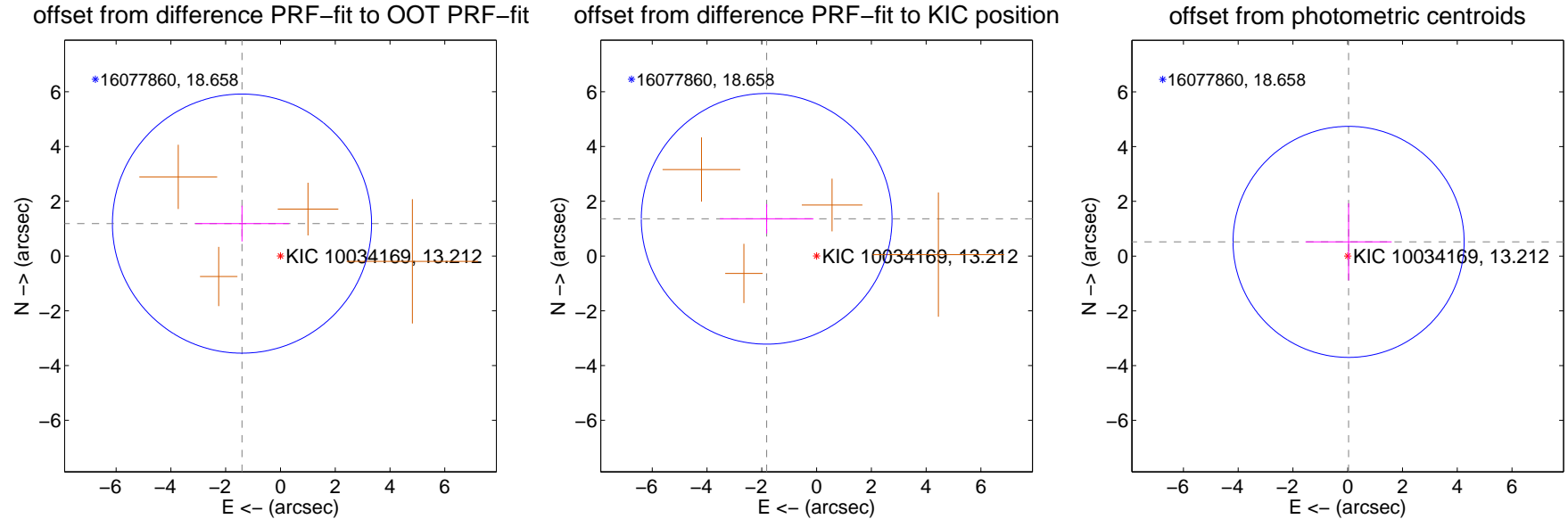
DV Centroid Data

Supplemental centroid analysis for 010034169-02. Kepler magnitude: 13.21. Transit SNR 4.42

There are 0 quarters with good PRF difference image offsets

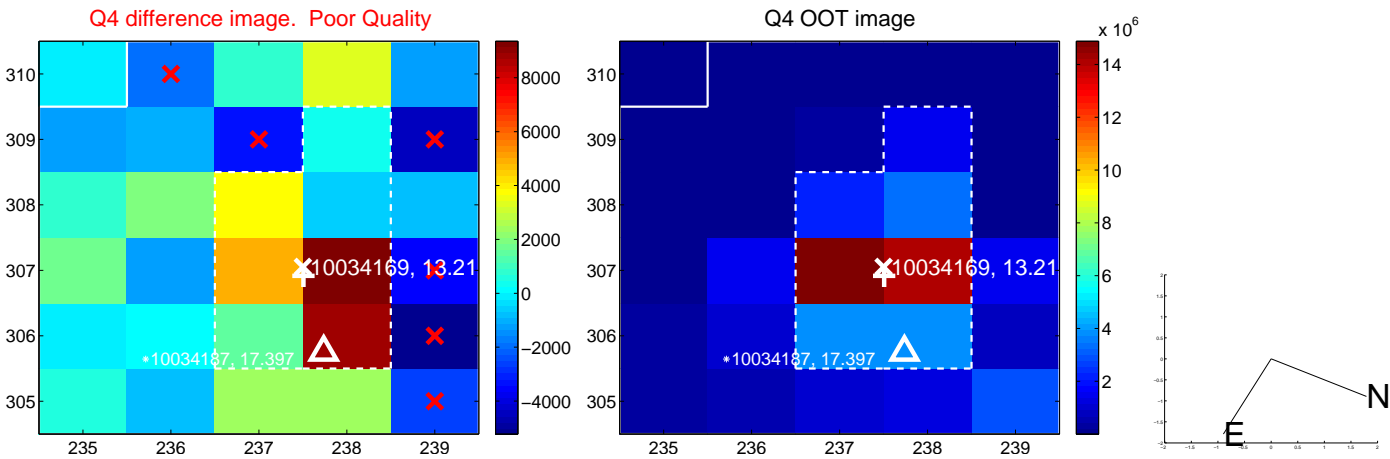
The direct PRF centroid is offset from the target star catalog position by about 0.42 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	1.837 ± 1.577	1.16	1.405 ± 1.713	1.184 ± 0.653
PRF-fit source offset from KIC position	2.274 ± 1.526	1.49	1.823 ± 1.710	1.359 ± 0.536
photometric centroid source offset	0.52 ± 1.41	0.37	-0.03 ± 1.57	0.52 ± 1.41

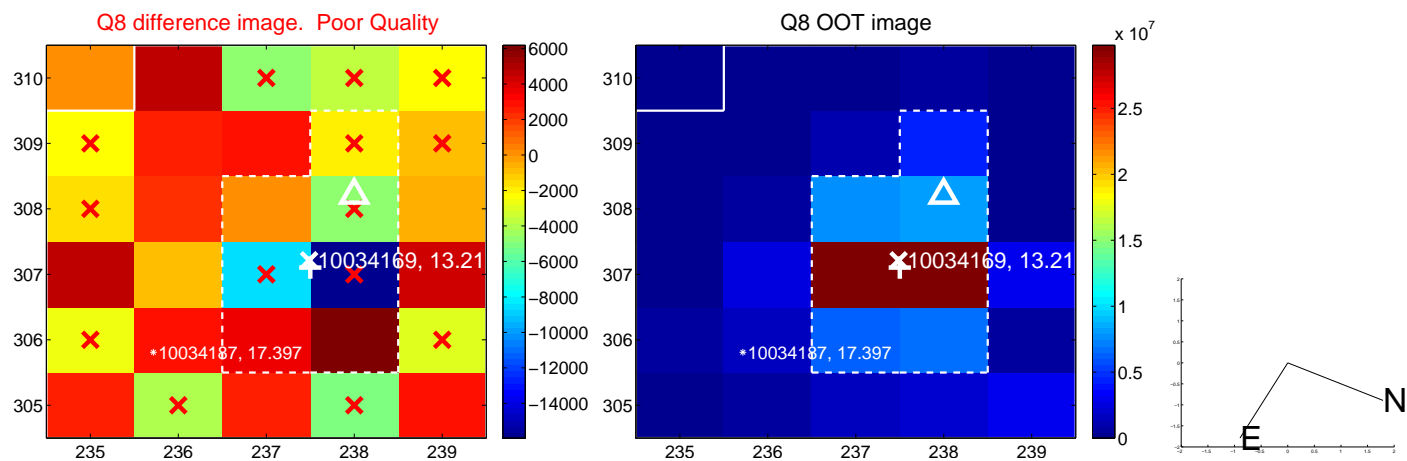
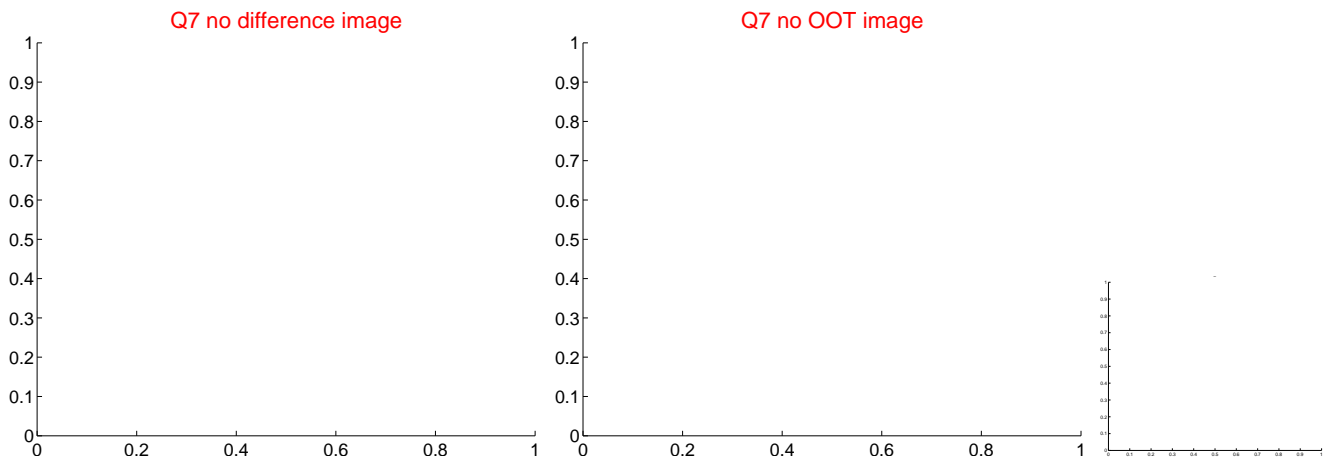
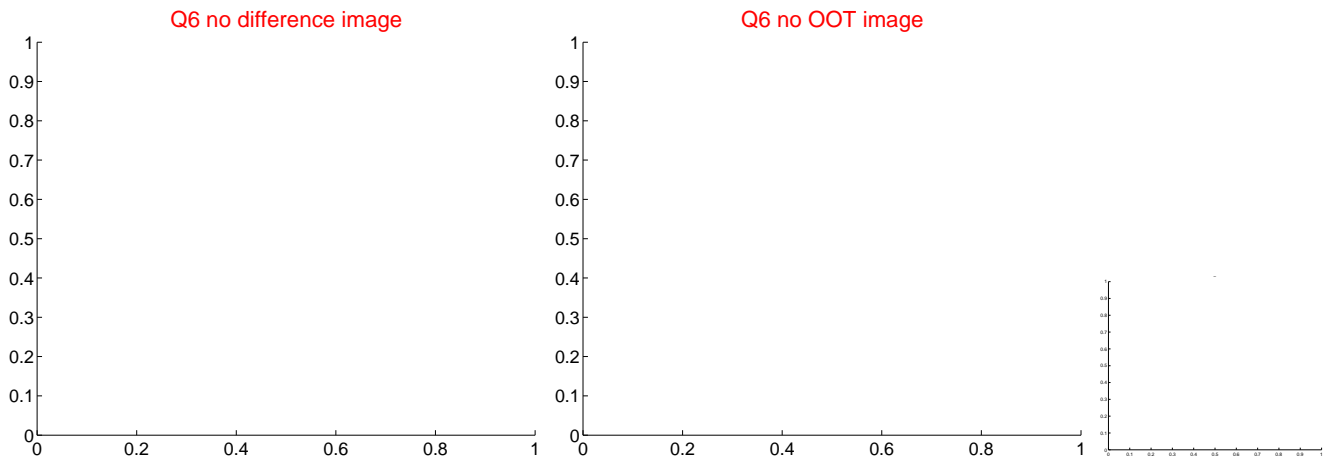
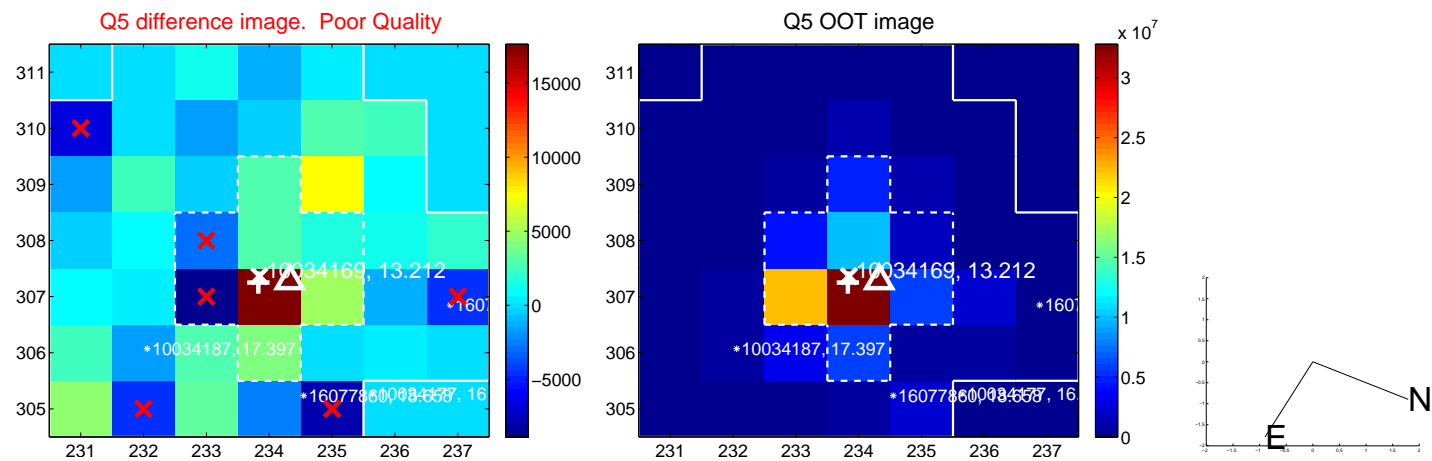


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

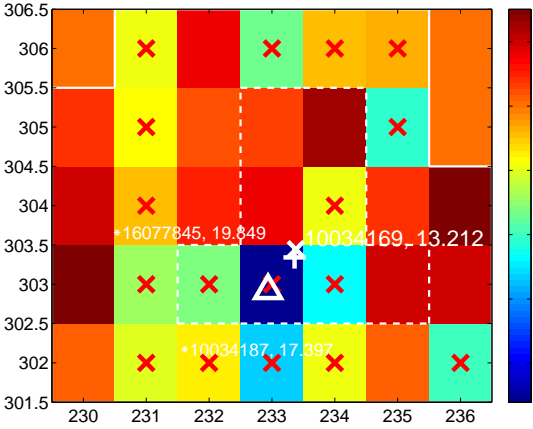
Q13 no difference image



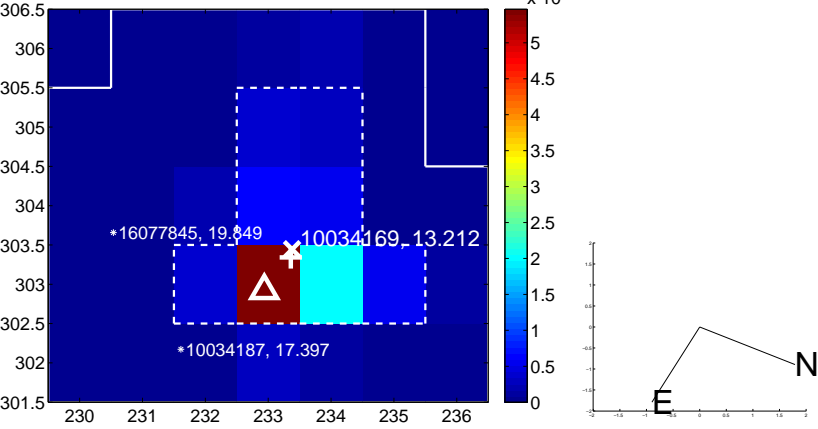
Q13 no OOT image



Q14 difference image. Poor Quality



Q14 OOT image



Q15 no difference image



Q15 no OOT image



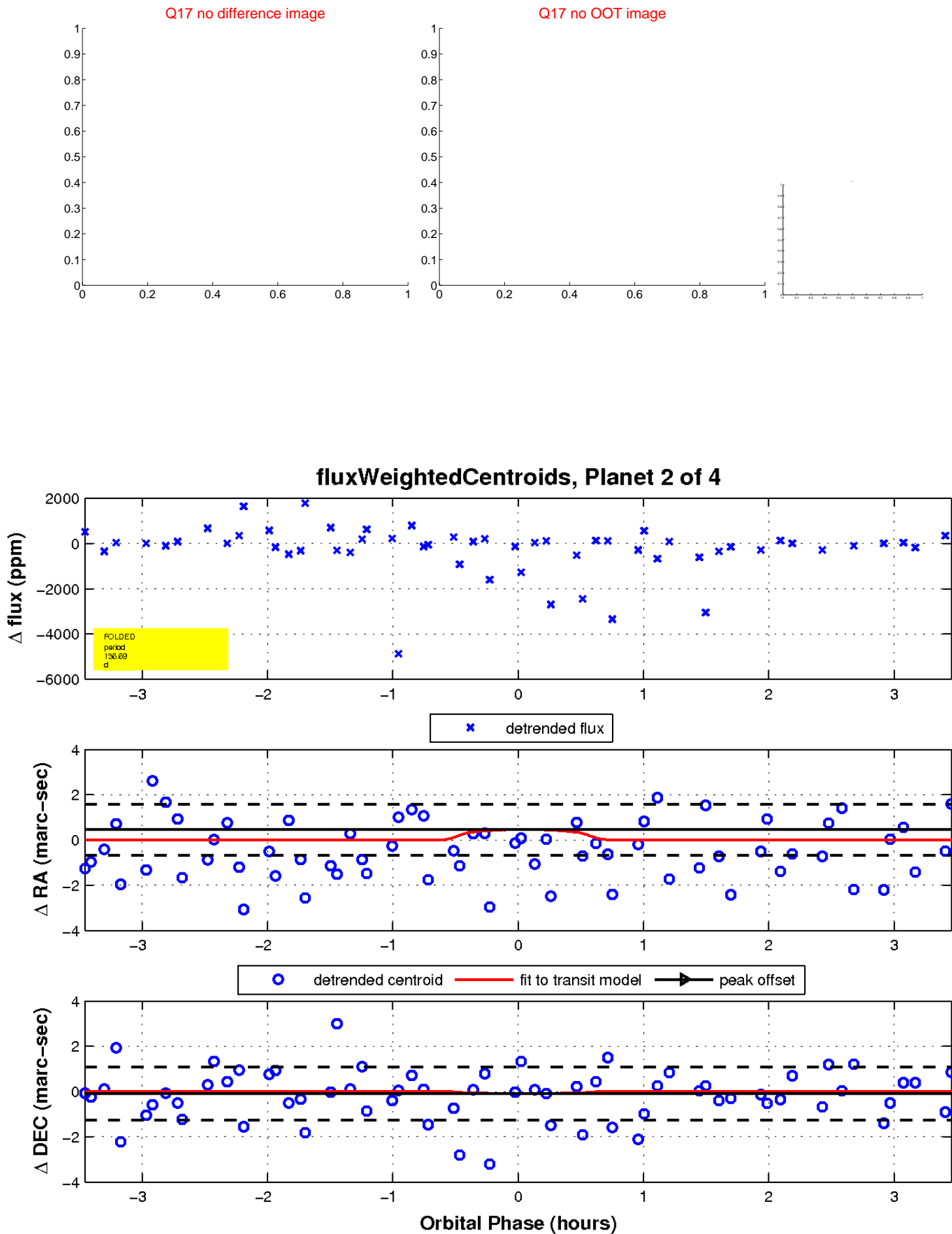
Q16 no difference image



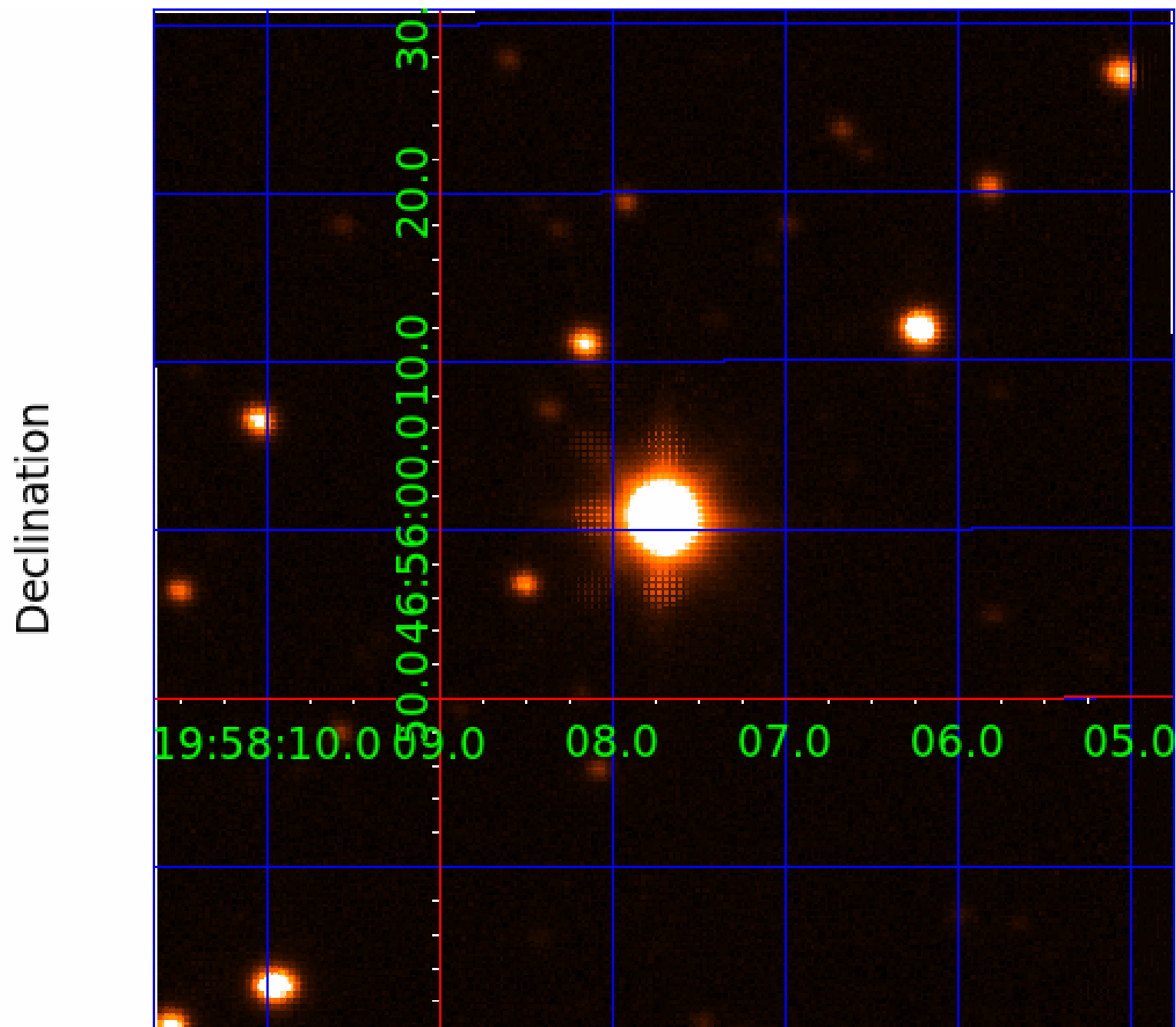
Q16 no OOT image



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



UKIRT Image



KIC 010034169

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})
010034169-01	OBS	No	199.280806	253.107038	580.8	2.672	9.1	8.1	155.19	3266	470.58	0.00
010034169-02	OBS	No	136.685670	255.353106	629.2	1.169	24.1	4.4	155.19	3266	437.02	0.00
010034169-03	OBS	No	188.530108	251.009858	1051.3	5.000	17.4	-1.0	155.19	3266	462.02	5584.98
010034169-04	OBS	No	232.138200	176.051509	196.1	3.215	15.0	3.2	155.19	3266	284.70	4231.89

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
010034169-01	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL_ZUMA—LPP_DV—ALL_TRANS_CHASES—MOD_TER_DV—MOD_POS_DV—INCONSISTENT_TRANS—CENT_FEW_DIFFS
010034169-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_TRACKER—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—CENT_FEW_DIFFS
010034169-03	OBS	FP	0.00	1	0	0	0	LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_ALT—MOD_TER_ALT—CENT_NOFITS
010034169-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_MARSHALL_TRACKER—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_FEW_DIFFS

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

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

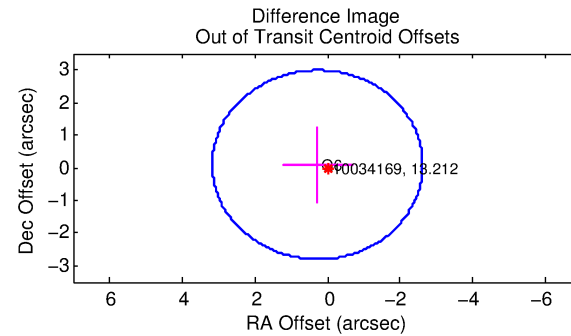
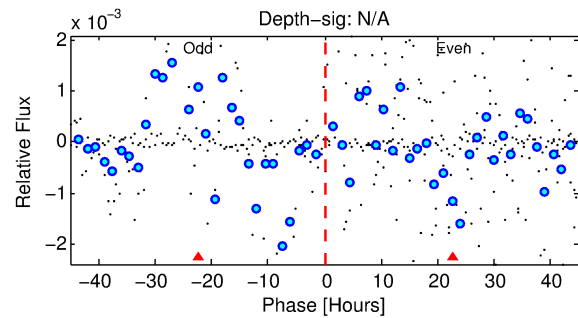
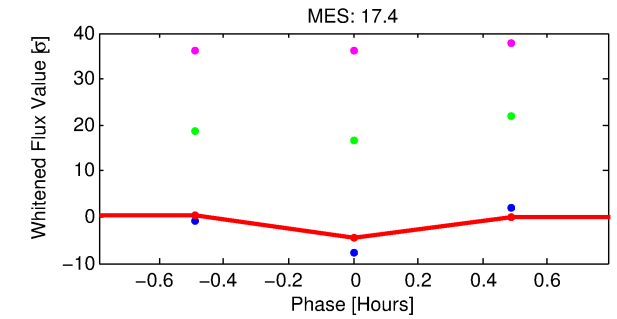
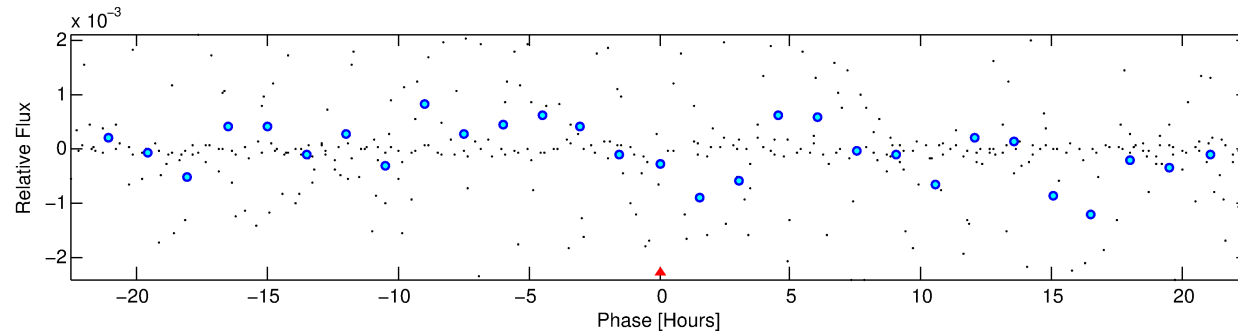
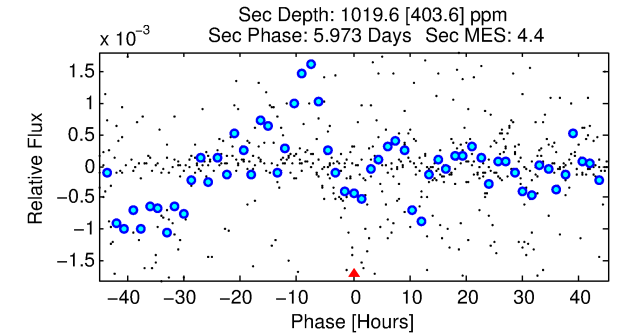
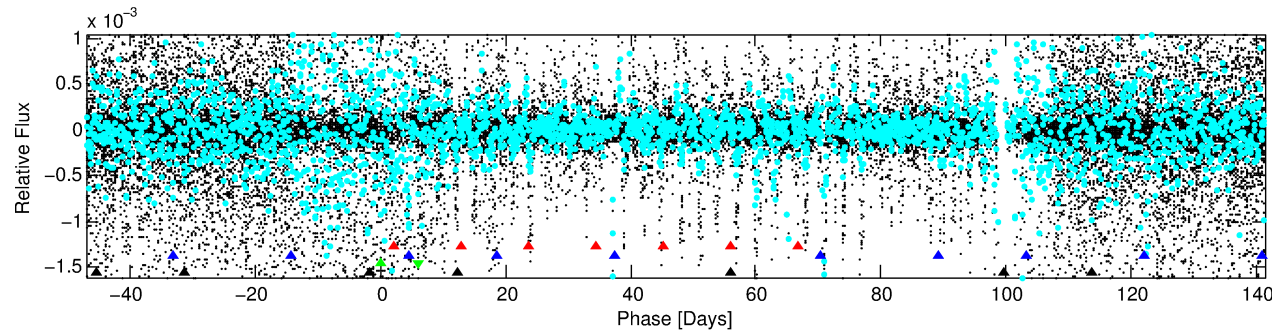
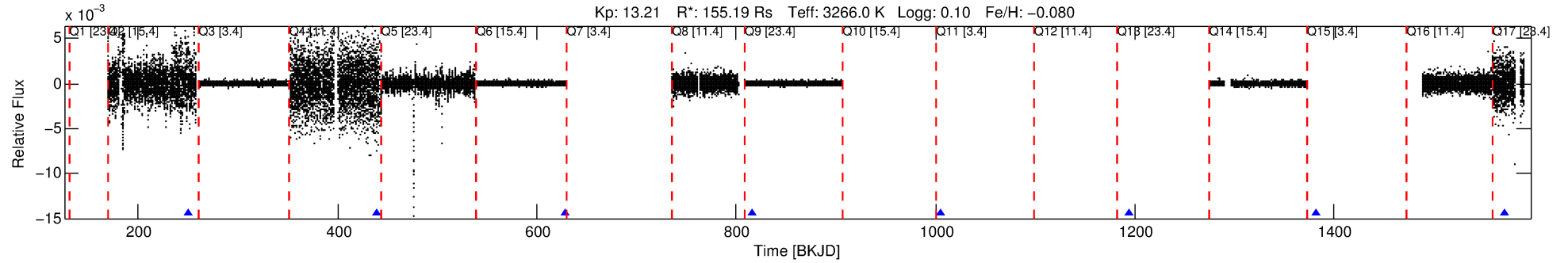
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 010034169-03

No Significant Match Found

DV One-Page Summary

KIC: 10034169 Candidate: 3 of 4 Period: 188.530 d



TPS TCE Results:

Period = 188.53011 d
Epoch = 251.0099 BKJD

DV fit results are unavailable

DV Diagnostic Results:

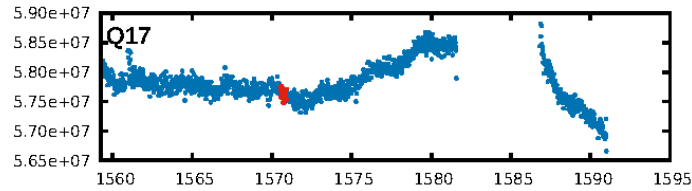
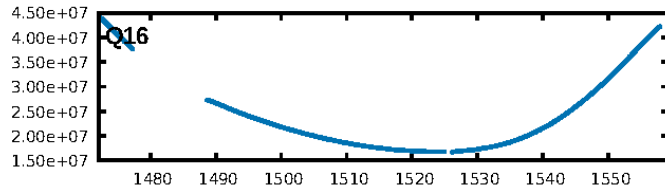
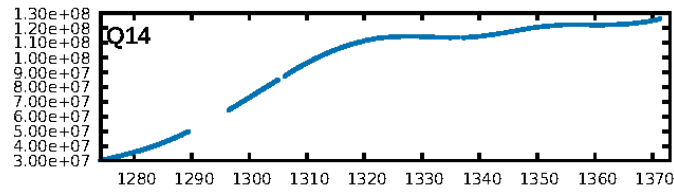
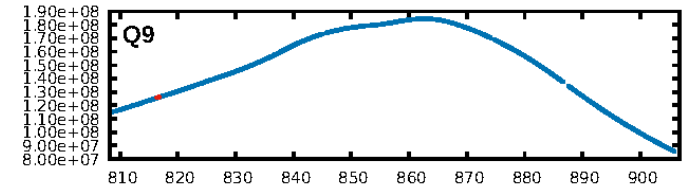
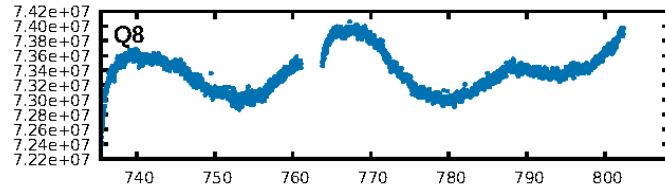
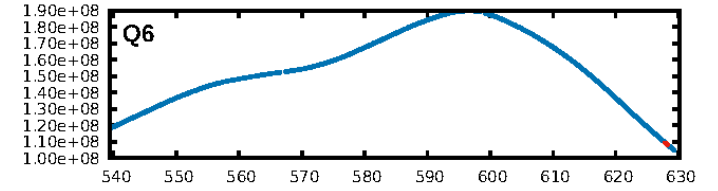
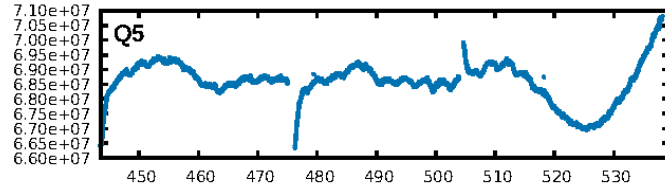
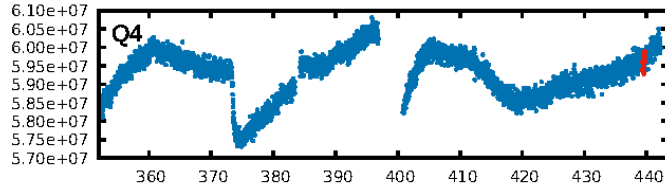
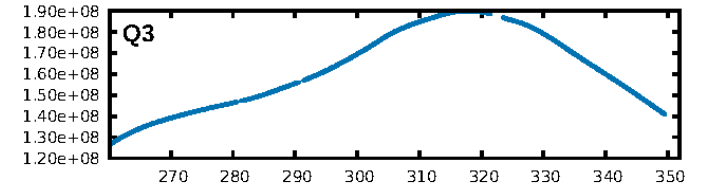
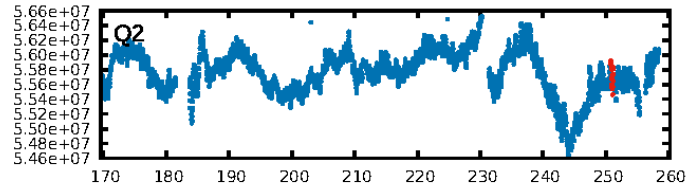
ShortPeriod-sig: 100.0% [242.32σ]
LongPeriod-sig: 100.0% [45.51σ]
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: 1.17e-08
RollingBand-fgt: 1.00 [4/4]
GhostDiagnostic-chr: 1.607

Centroid-sig: 93.3%
Centroid-so: 1.126 arcsec [0.65σ]
OotOffset-rm: 0.288 arcsec [0.30σ]
KicOffset-rm: 0.606 arcsec [0.64σ]
OotOffset-st: 1/0/0/0 [1]
KicOffset-st: 1/0/0/0 [1]
DiffImageQuality-fgm: 1.00 [1/1]
DiffImageOverlap-fno: 1.00 [5/5]

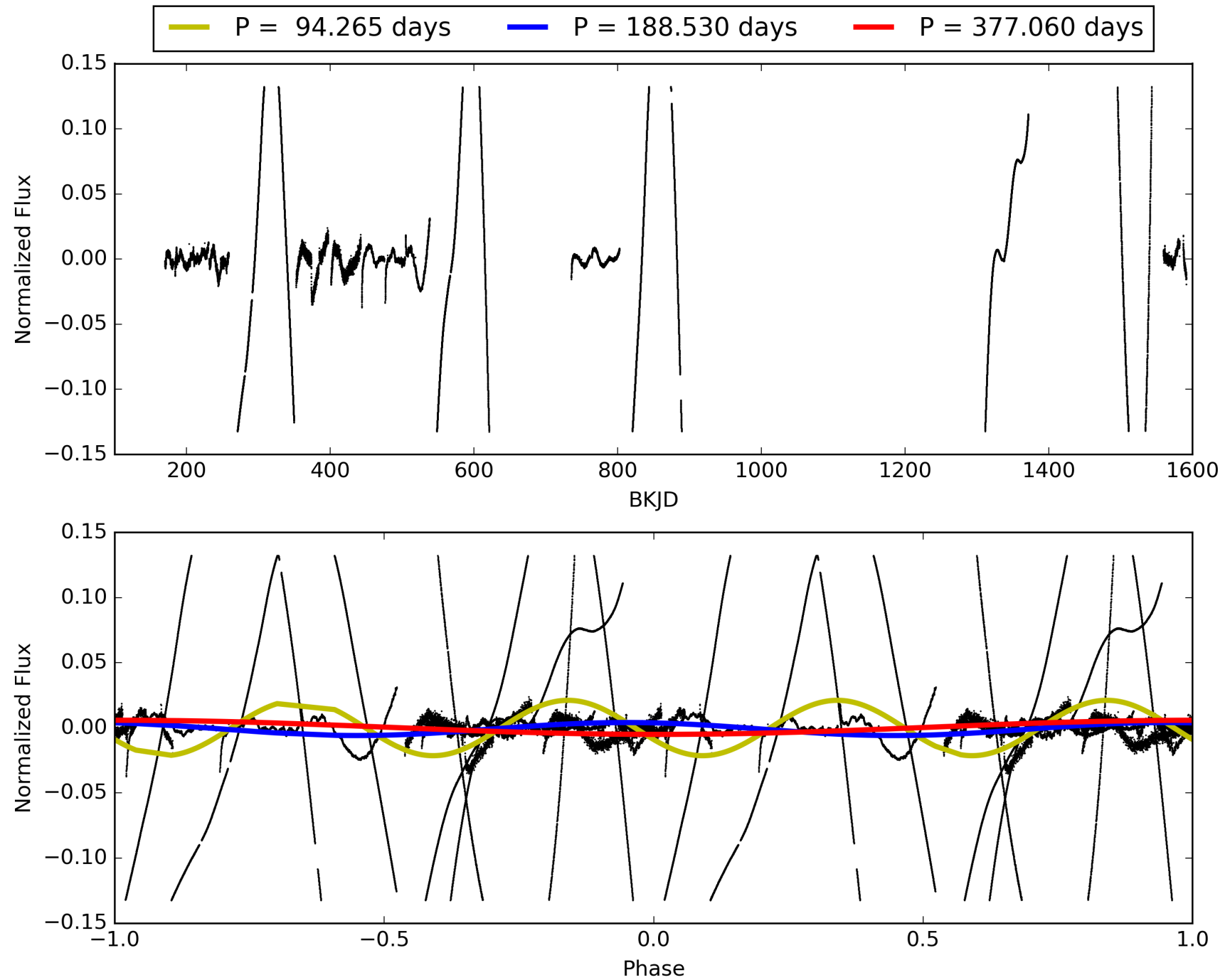
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 01-Feb-2016 16:57:50 Z

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

TCE 010034169-03, PDC Light Curves

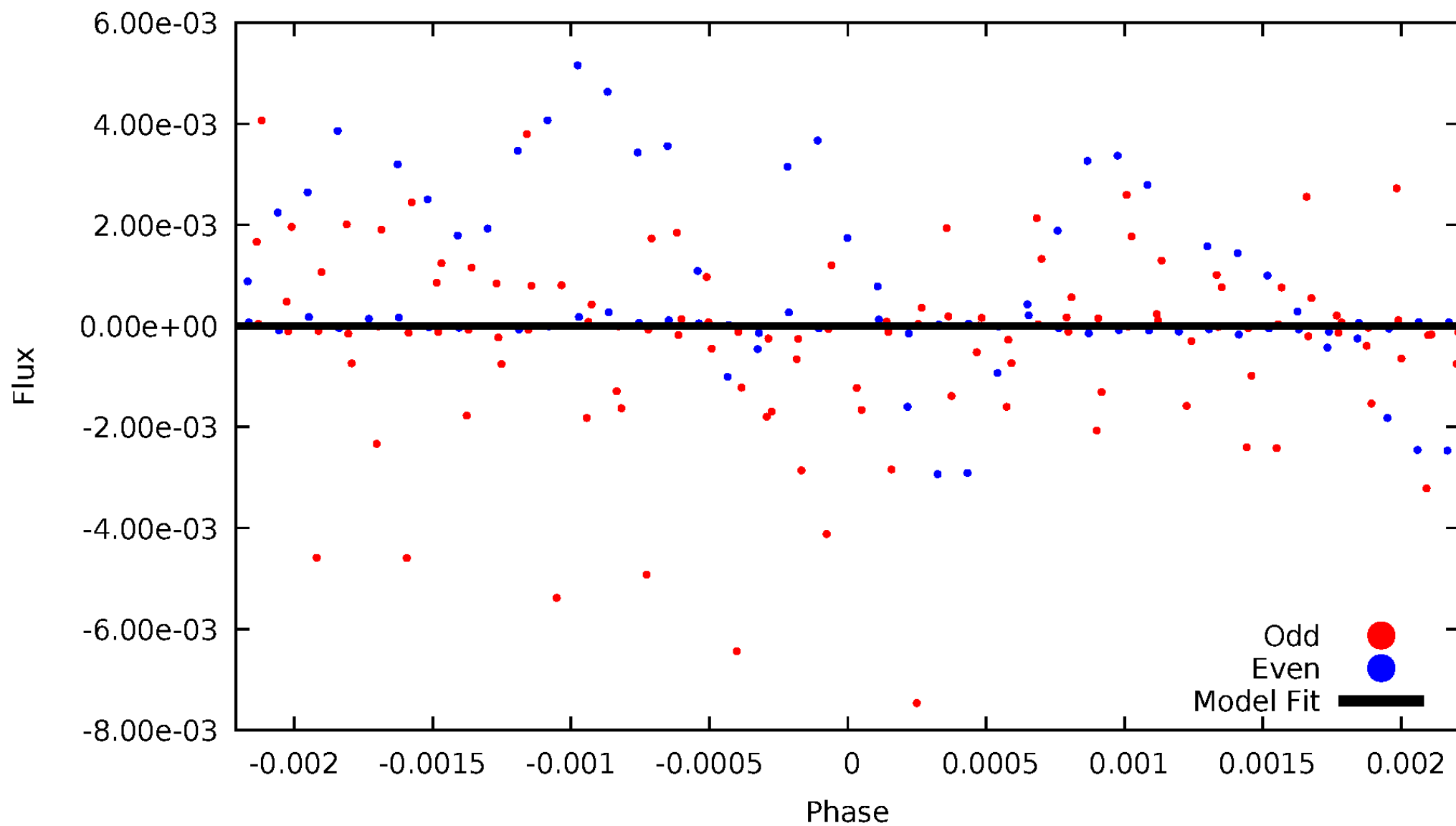


TCE 010034169-03



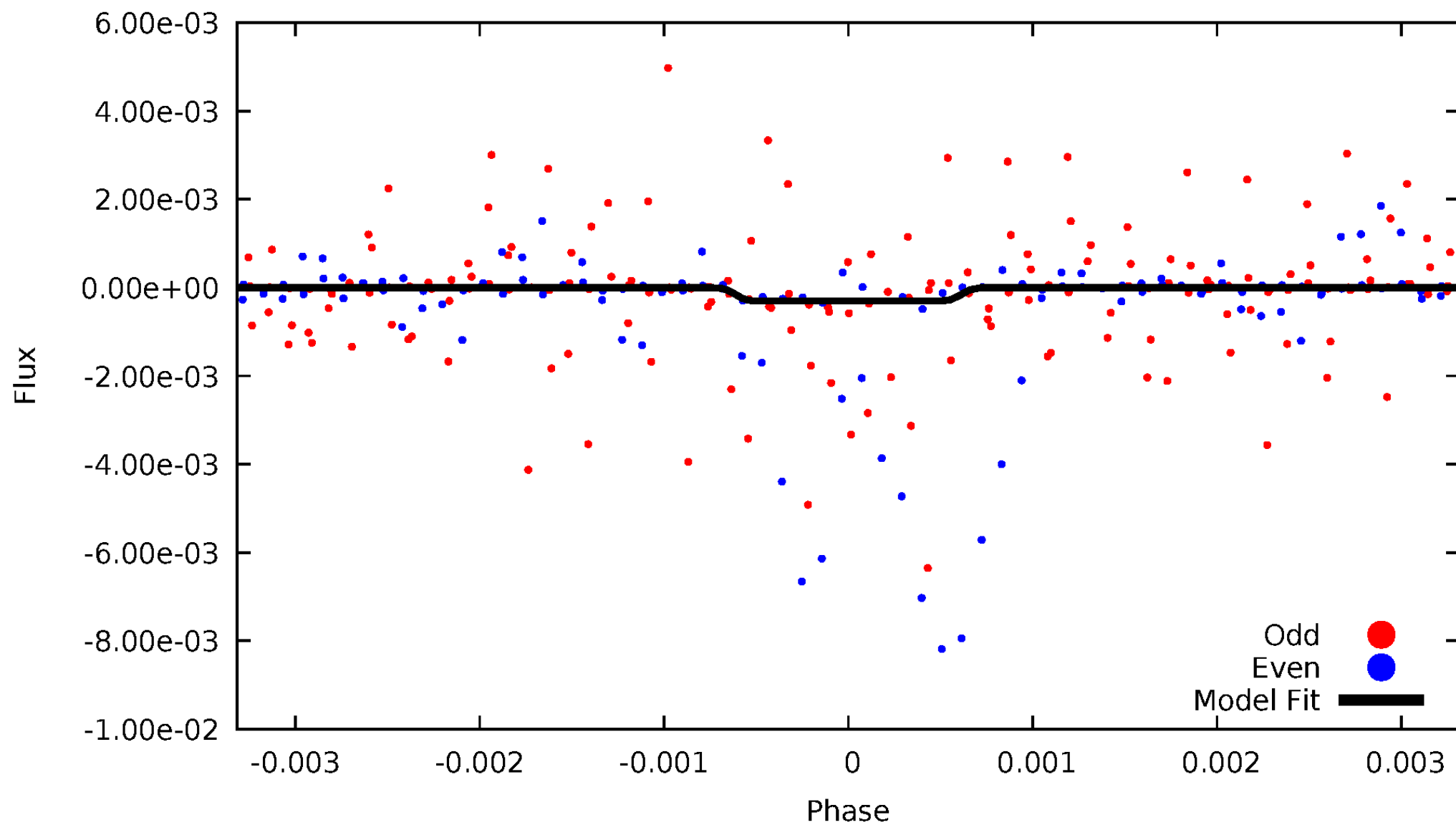
DV Odd/Even

TCE 010034169-03

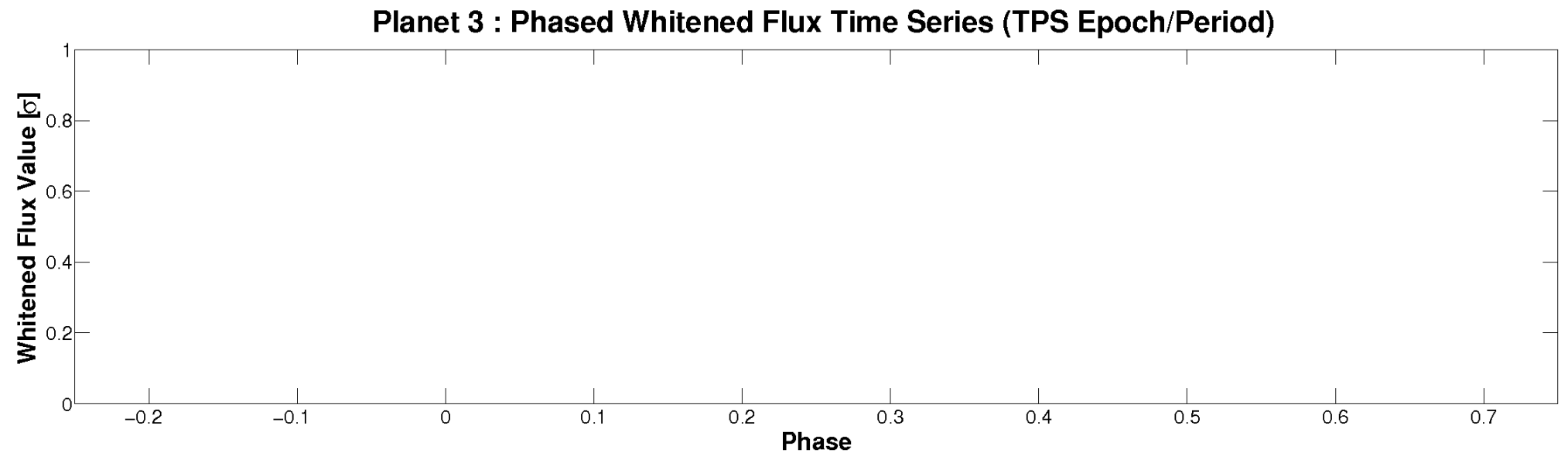
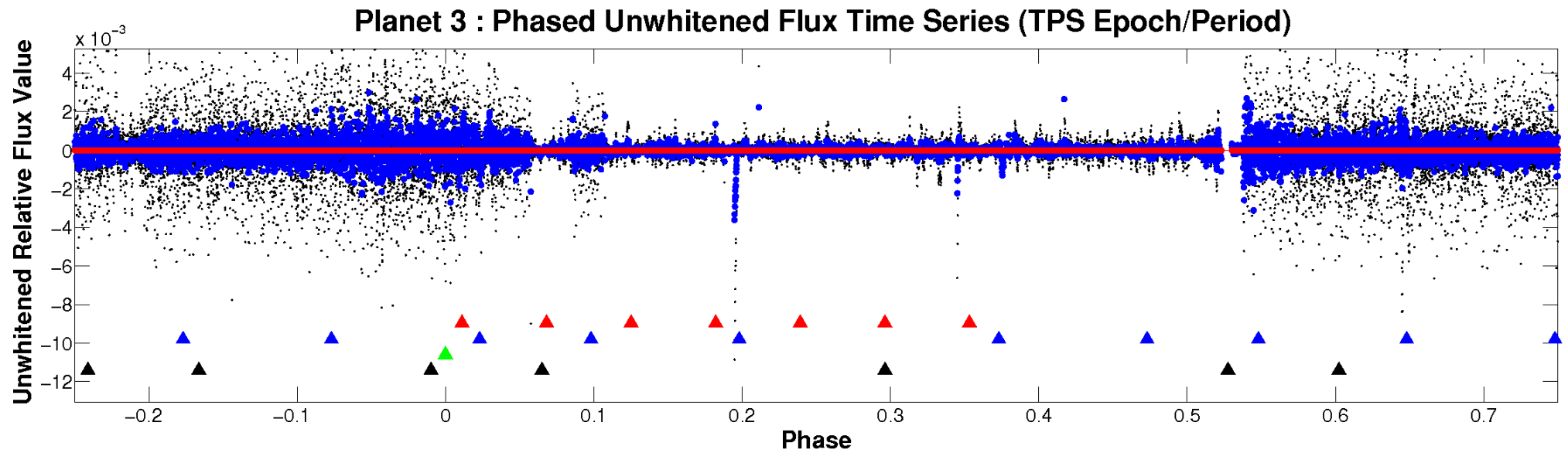


ALT Odd/Even

TCE 010034169-03

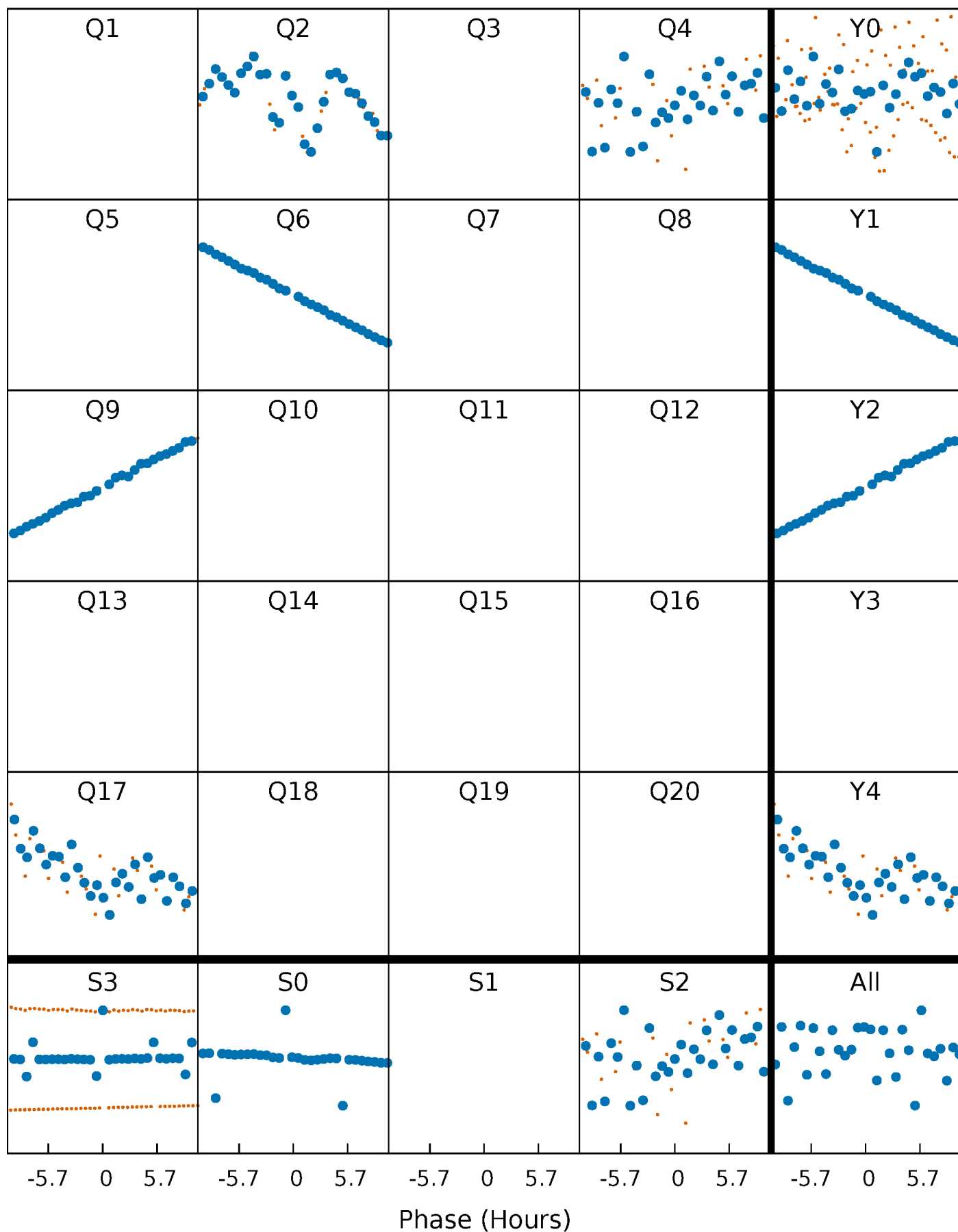


Non-Whitened Vs. Whitened Light Curve



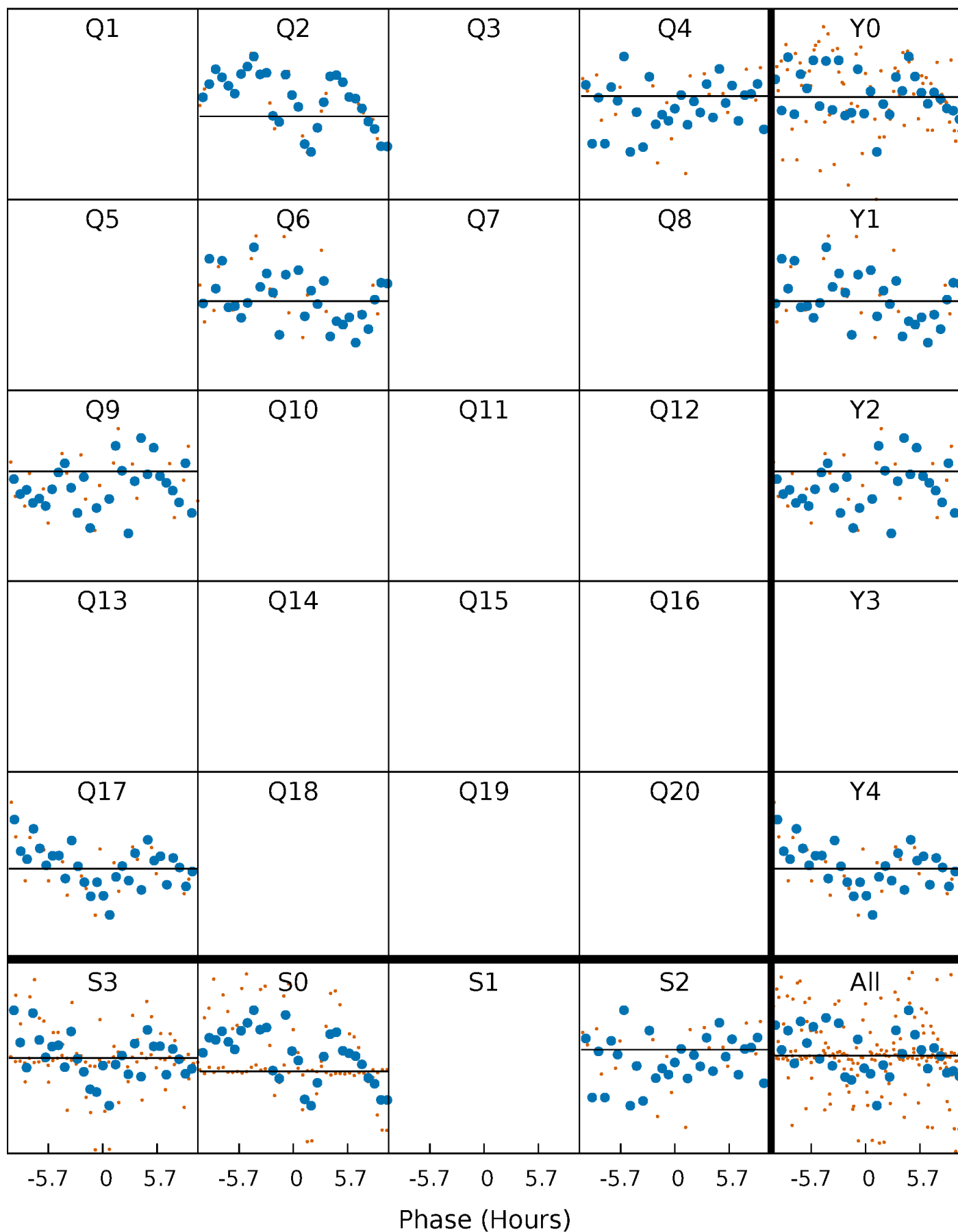
PDC Quarter-Phased Transit Curves

TCE 010034169-03 $P=188.530108$ Days $T_0=251.009858$ (BKJD)



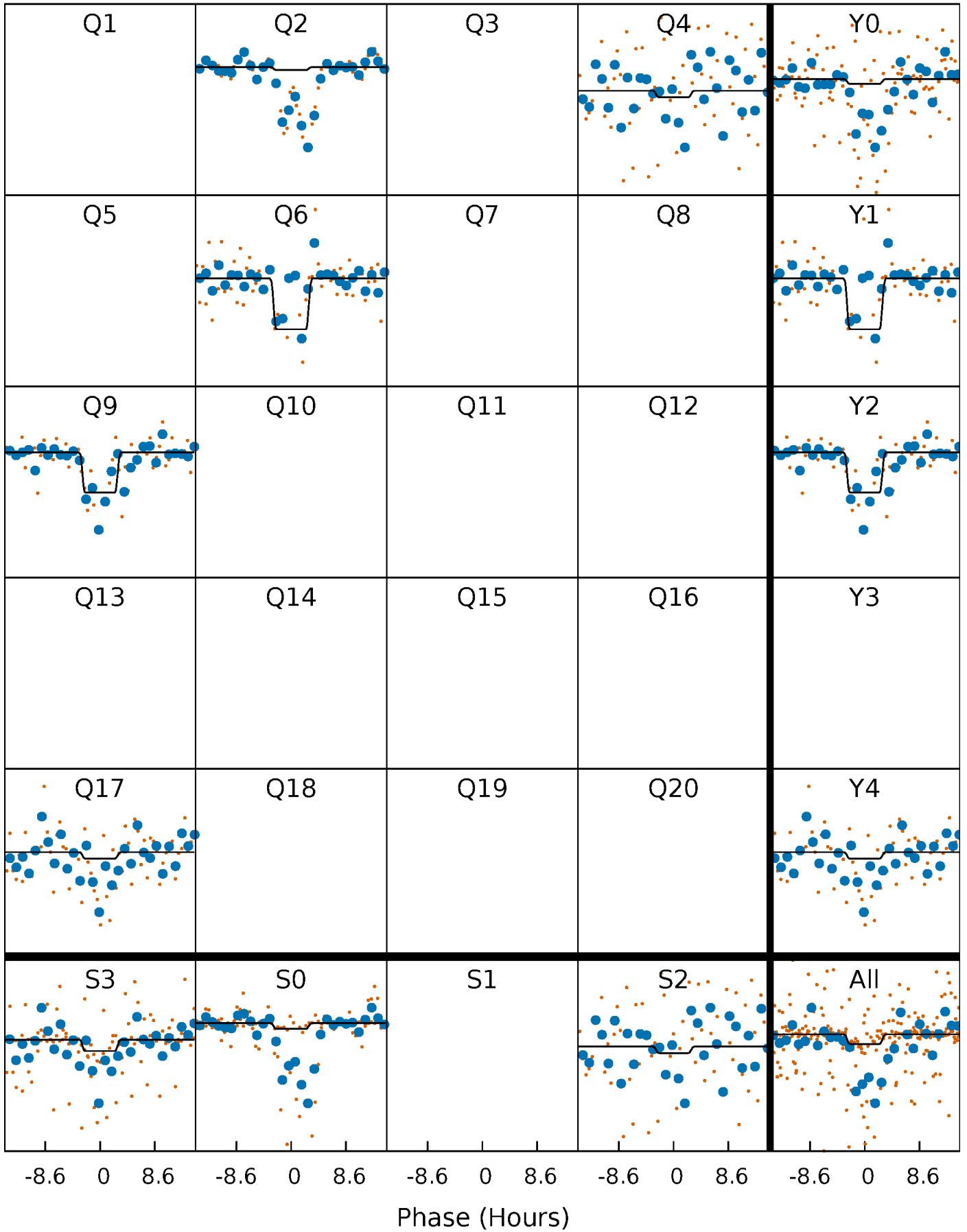
DV Quarter-Phased Transit Curves

TCE 010034169-03 P=188.530108 Days $T_0=251.009858$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

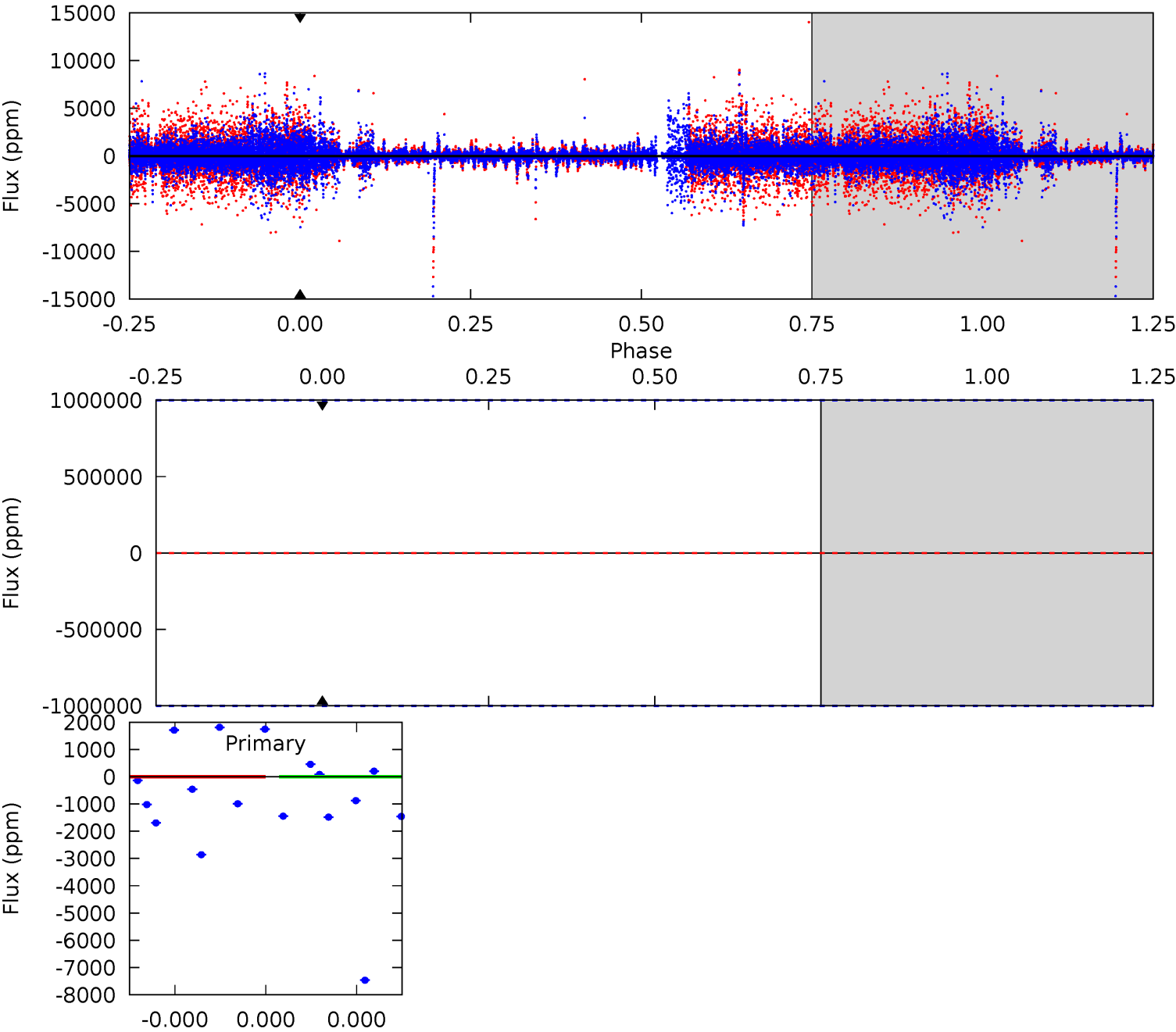
TCE 010034169-03 P=188.530108 Days $T_0=250.975570$ (BKJD)



DV Model-Shift Uniqueness Test

010034169-03, P = 188.530108 Days, E = 62.479750 Days

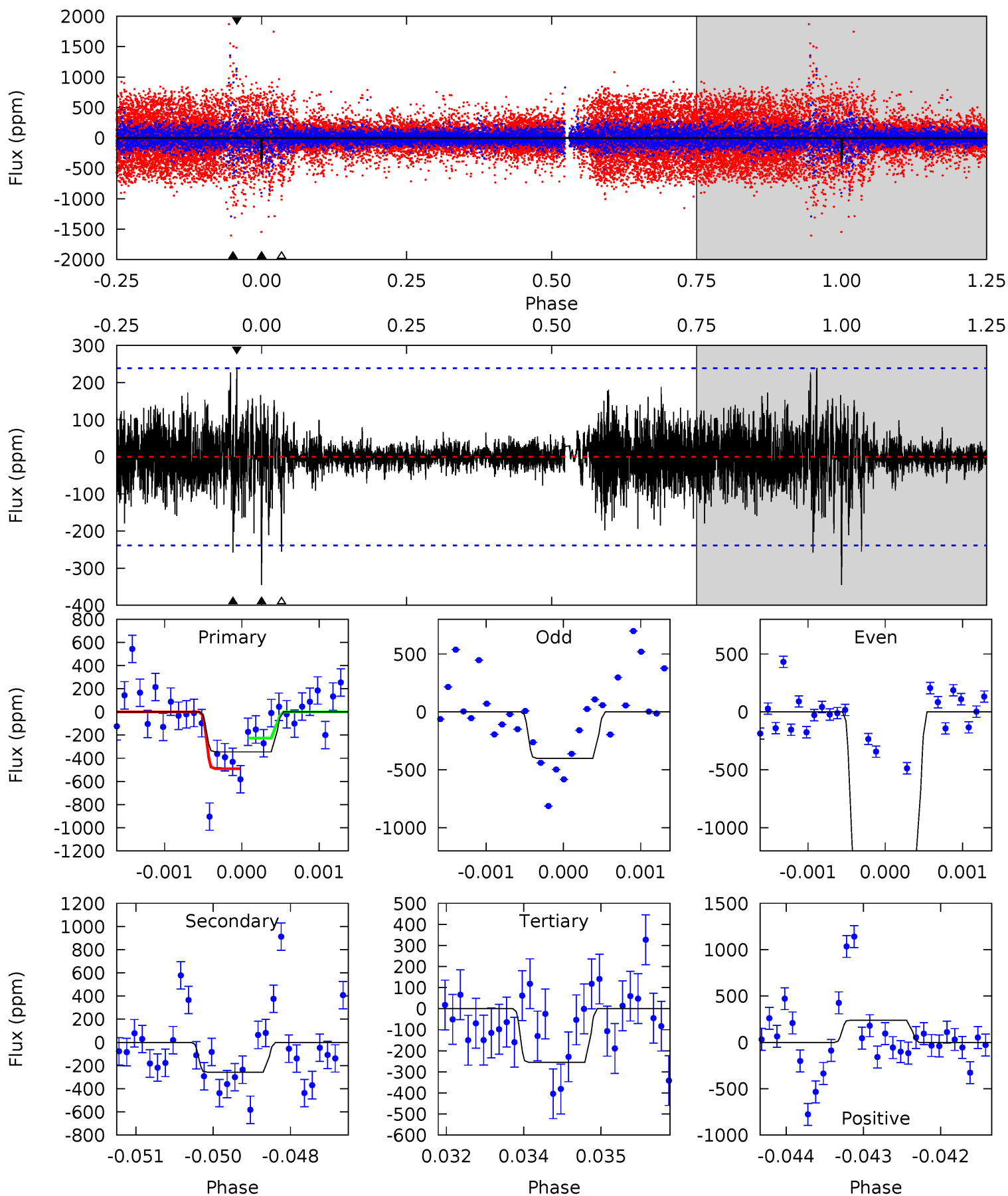
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
0	0	0	0	1.00	1.00	1.00	0	0	0	0	0	0	0	0



Alt Model-Shift Uniqueness Test

010034169-03, P = 188.530108 Days, E = 62.445462 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
7.82	5.82	5.77	5.42	5.40	3.21	1.05	2.05	2.40	0.05	0.40	10.3	2.12	0.41	0



Stellar Parameters For KIC 010034169

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	M (M_{\odot})	p_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	3266^{+117}_{-78}	$0.095^{+0.208}_{-0.065}$	$-0.080^{+0.250}_{-0.100}$	$155.187^{+9.192}_{-27.576}$	$1.095^{+0.206}_{-0.120}$	$0.000^{+0.000}_{-0.000}$
	+4%/-2%	+219%/-68%	+312%/-125%	+6%/-18%	+19%/-11%	+85%/-15%
Source	KIC0	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 010034169-03 / KOI

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	0 ± 1000000	$1226.35^{+1370.32}_{-860.53}$	3043^{+135}_{-169}	-2531^{+9512}_{-3749}	$0.145^{+37.300}_{-25.284}$
Alt.	-257 ± 44	$1098.92^{+1344.52}_{-772.02}$	3046^{+143}_{-163}	-2687^{+5473}_{-142}	$0.054^{+0.551}_{-0.044}$

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

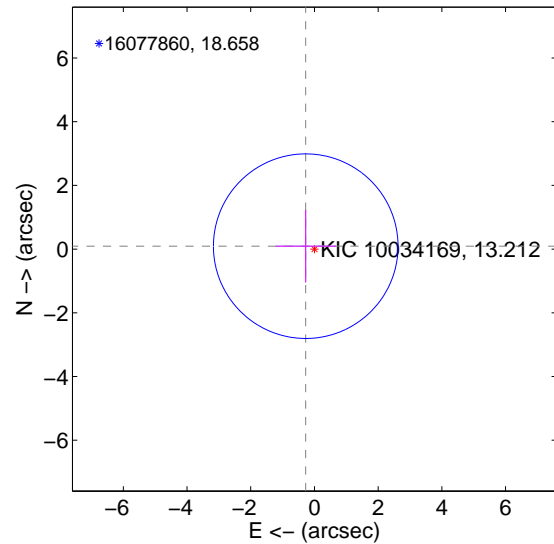
Supplemental centroid analysis for 010034169-03. Kepler magnitude: 13.21. Transit SNR -1.00

There are 1 quarters with good PRF difference image offsets

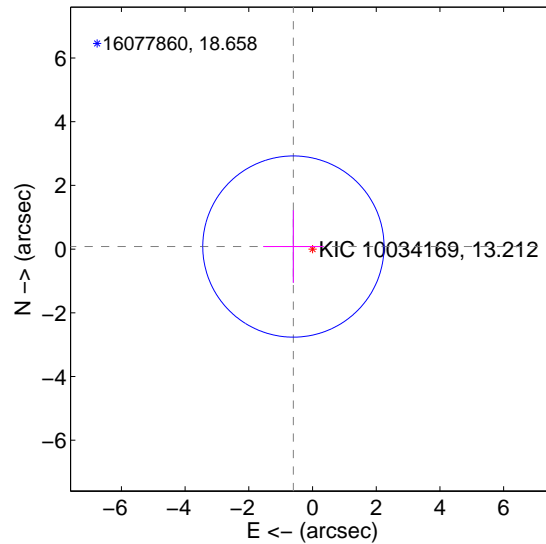
The direct PRF centroid is offset from the target star catalog position by about 0.33 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.288 ± 0.966	0.30	0.273 ± 0.944	0.092 ± 1.137
PRF-fit source offset from KIC position	0.606 ± 0.948	0.64	0.601 ± 0.944	0.080 ± 1.137
photometric centroid source offset	1.13 ± 1.73	0.65	1.10 ± 1.75	0.23 ± 1.47

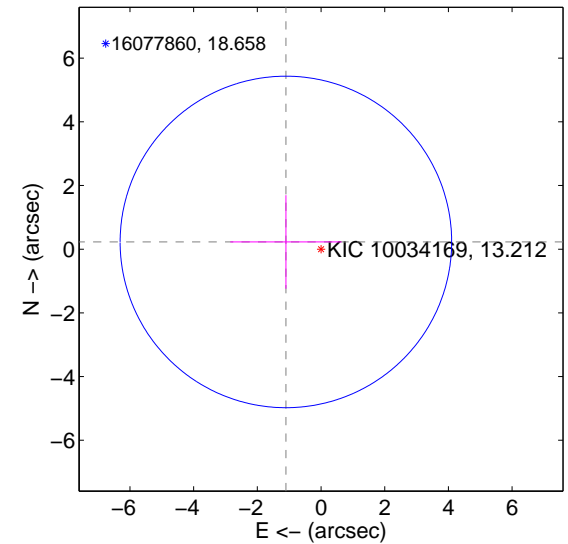
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position

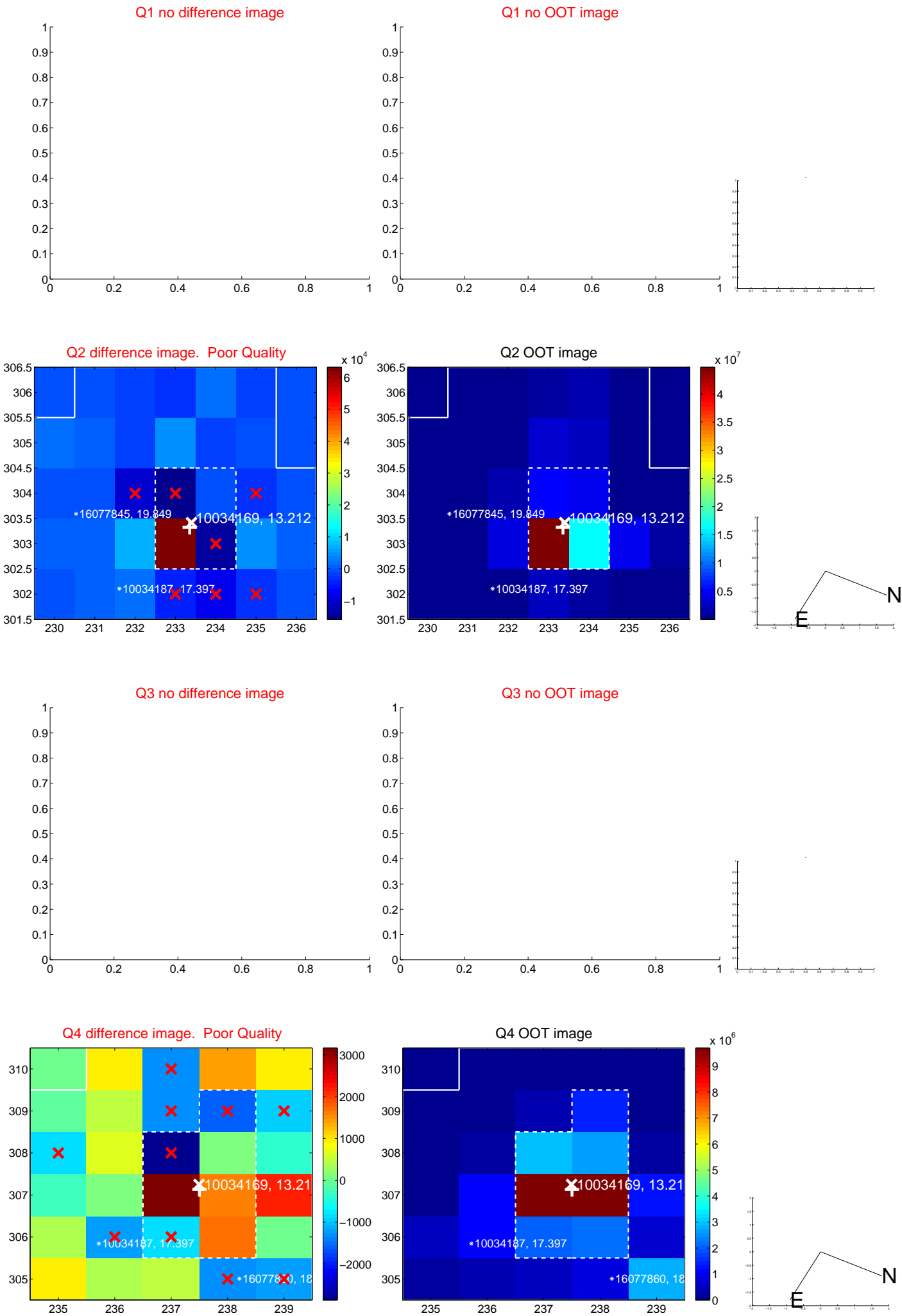


offset from photometric centroids



Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ . Red *: target star. Blue *: Other stars. Text next to a star gives its KIC ID and kepmag. KIC IDs > 15,000,000 are from the UKIRT catalog.

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



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

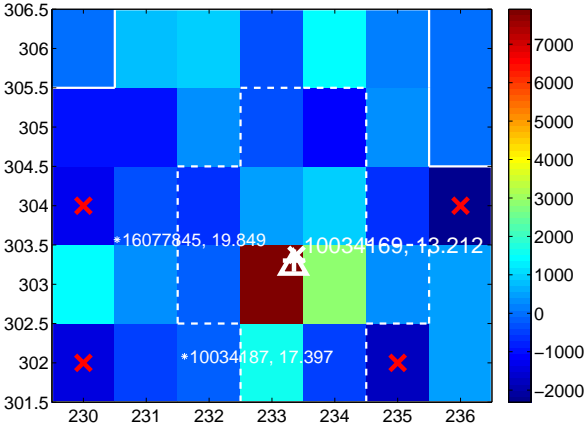
Q5 no difference image



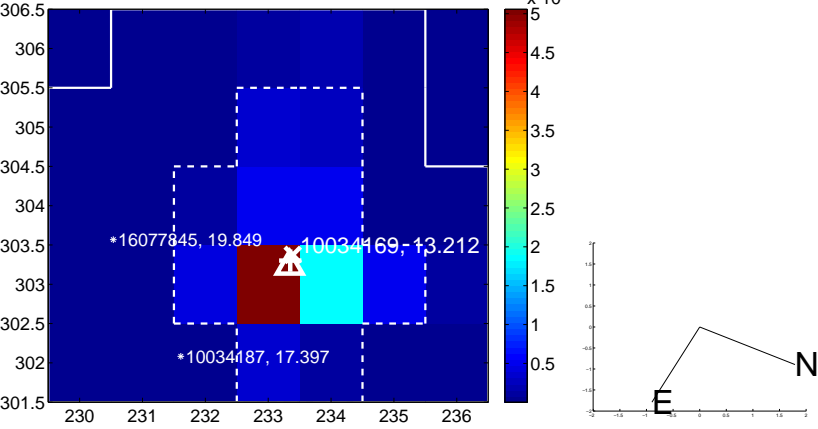
Q5 no OOT image



Q6 difference image



Q6 OOT image



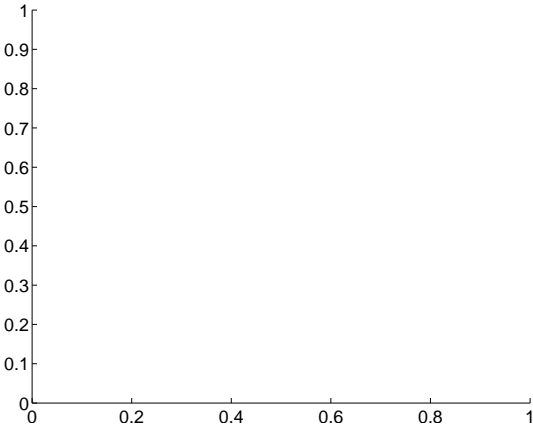
Q7 no difference image



Q7 no OOT image



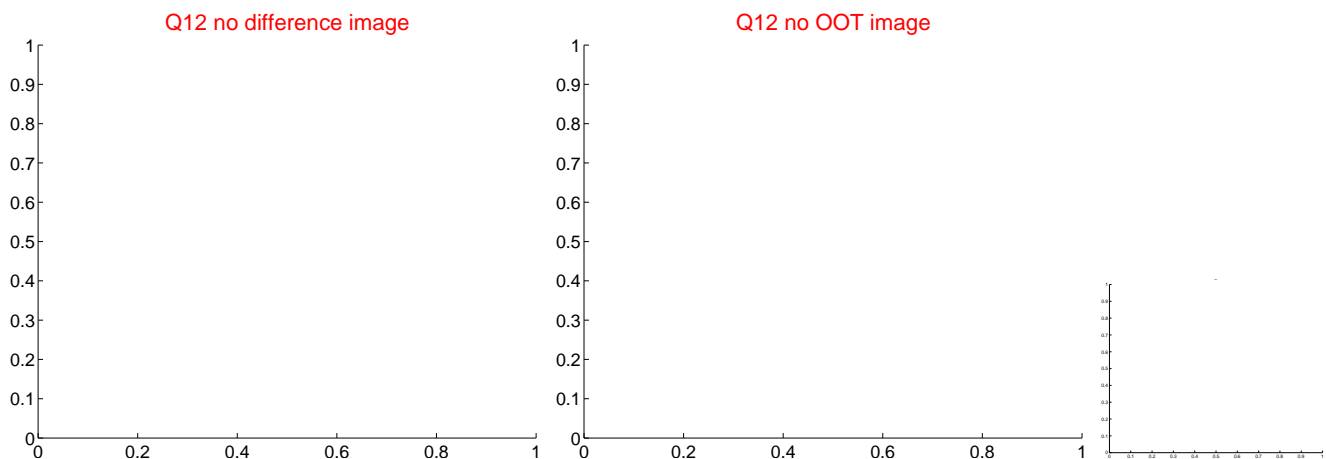
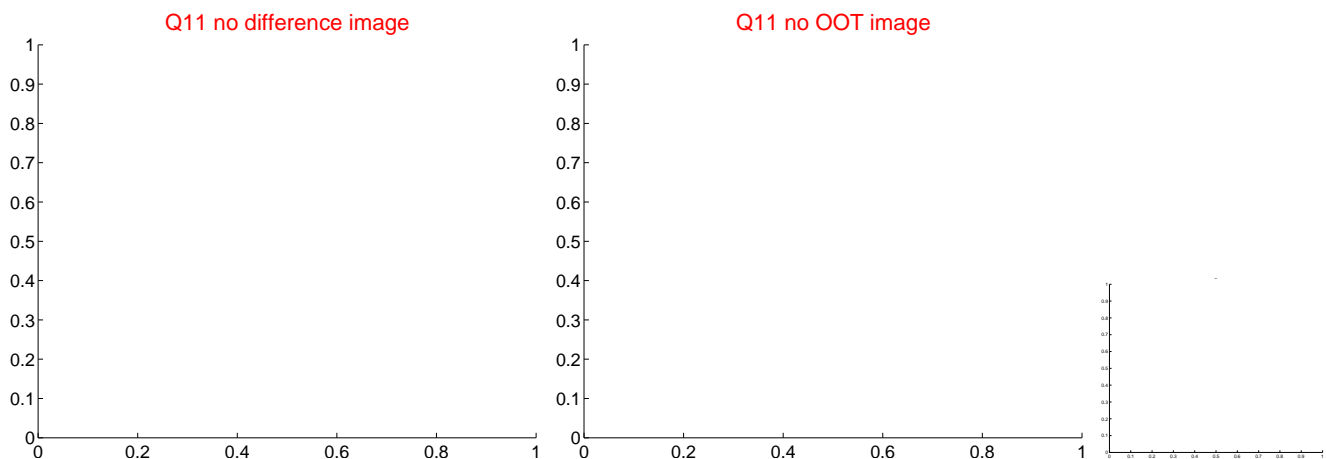
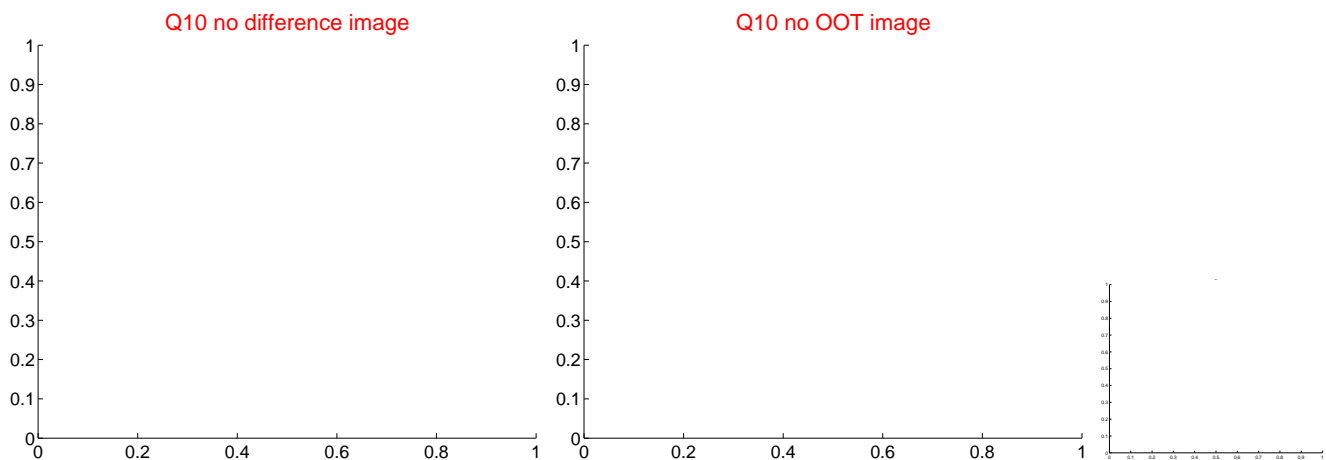
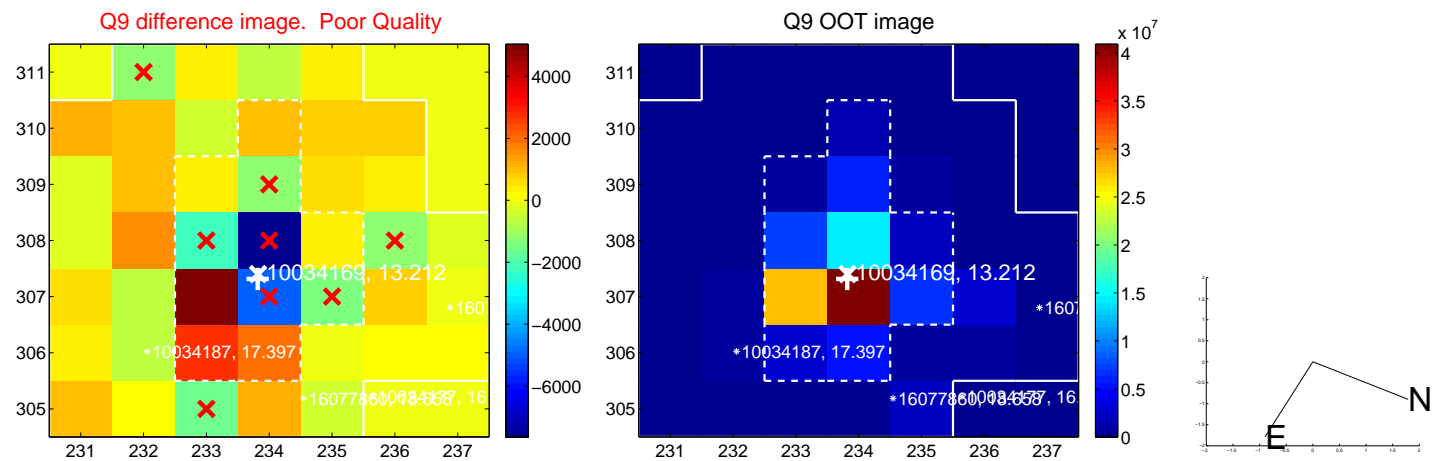
Q8 no difference image



Q8 no OOT image



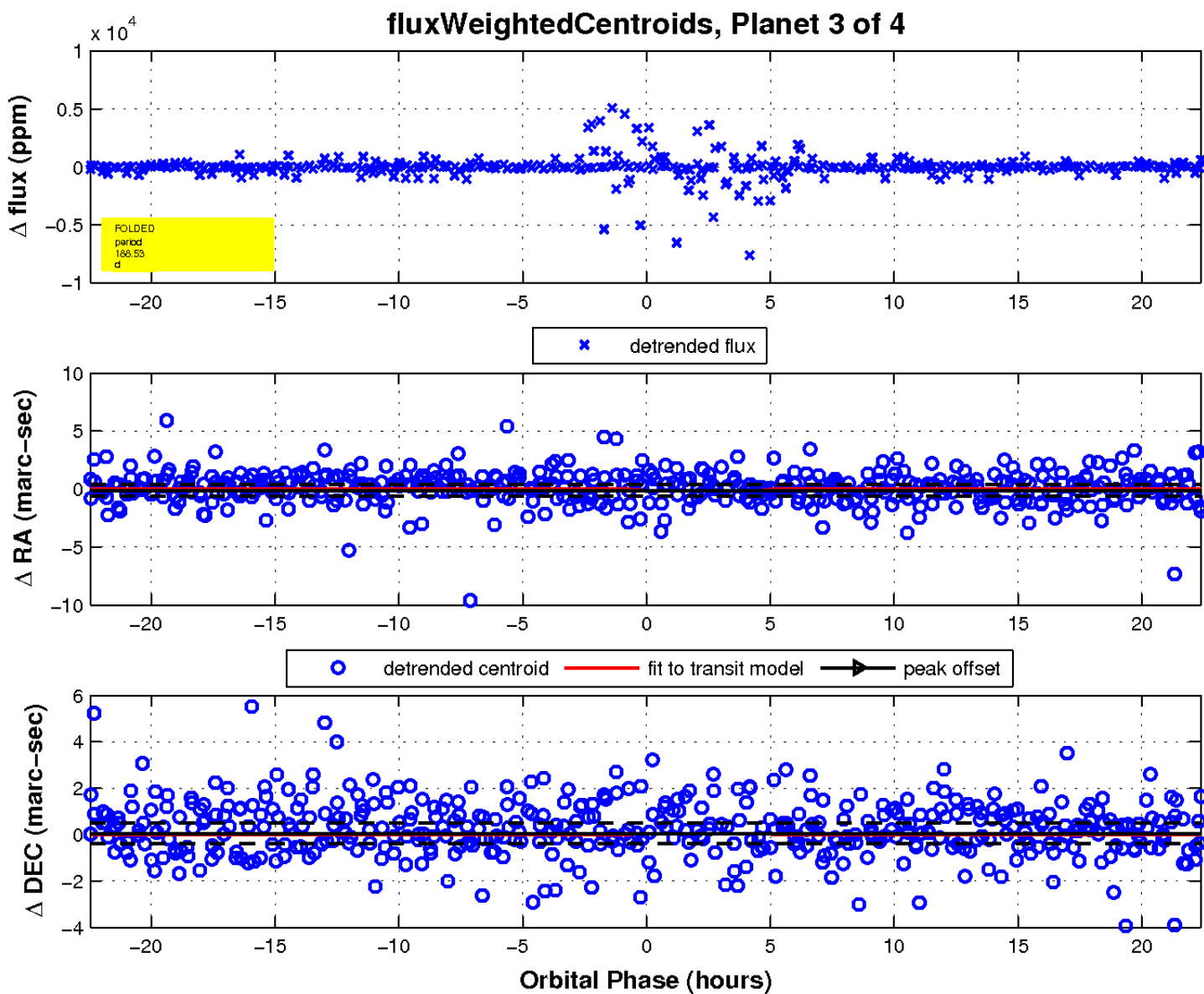
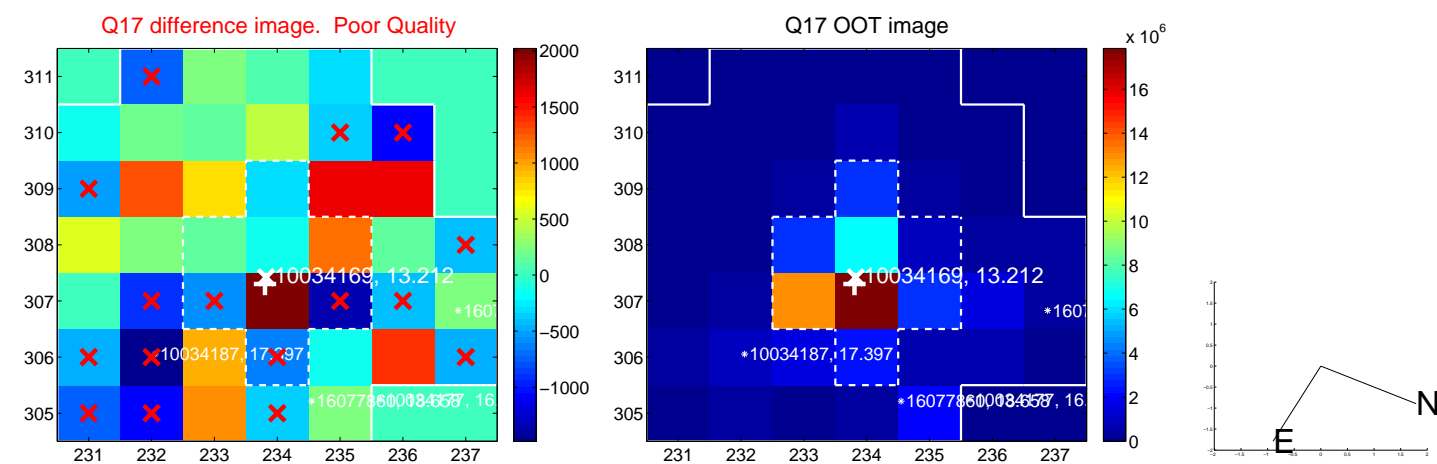
white ×: KIC target position; +: OOT centroid; △: difference centroid. red ✕: large negative pixel value.



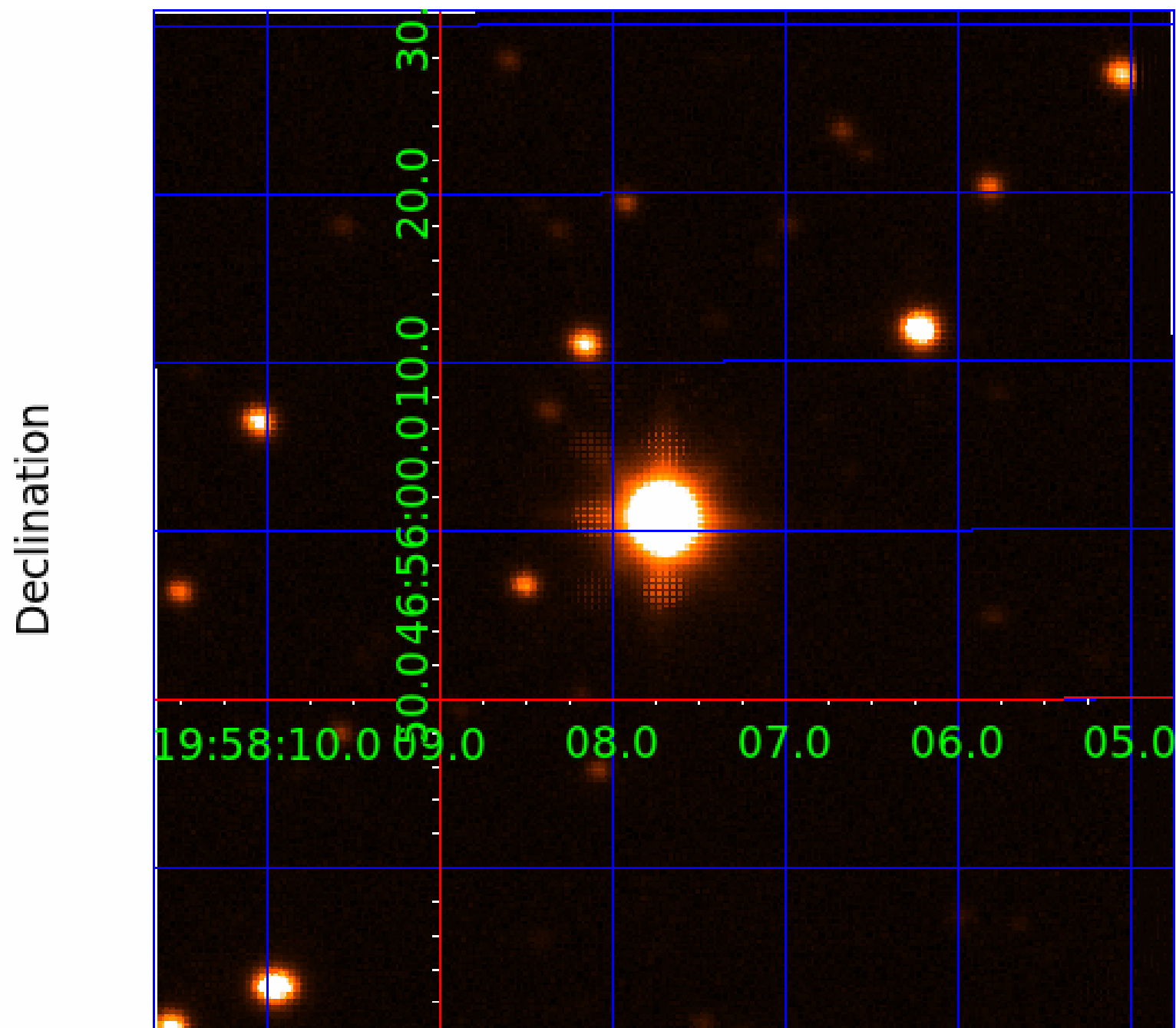
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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



UKIRT Image



KIC 010034169

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})
010034169-01	OBS	No	199.280806	253.107038	580.8	2.672	9.1	8.1	155.19	3266	470.58	0.00
010034169-02	OBS	No	136.685670	255.353106	629.2	1.169	24.1	4.4	155.19	3266	437.02	0.00
010034169-03	OBS	No	188.530108	251.009858	1051.3	5.000	17.4	-1.0	155.19	3266	462.02	5584.98
010034169-04	OBS	No	232.138200	176.051509	196.1	3.215	15.0	3.2	155.19	3266	284.70	4231.89

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
010034169-01	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL_ZUMA—LPP_DV—ALL_TRANS_CHASES—MOD_TER_DV—MOD_POS_DV—INCONSISTENT_TRANS—CENT_FEW_DIFFS
010034169-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_TRACKER—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—CENT_FEW_DIFFS
010034169-03	OBS	FP	0.00	1	0	0	0	LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_ALT—MOD_TER_ALT—CENT_NOFITS
010034169-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_MARSHALL_TRACKER—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_FEW_DIFFS

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

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

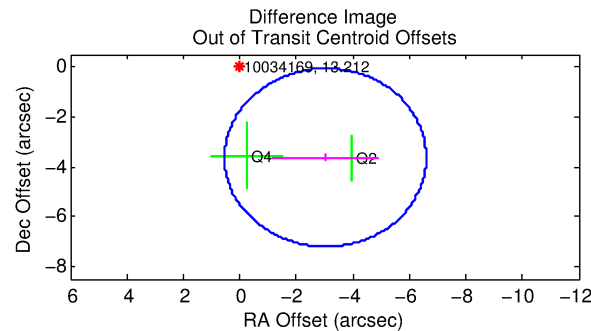
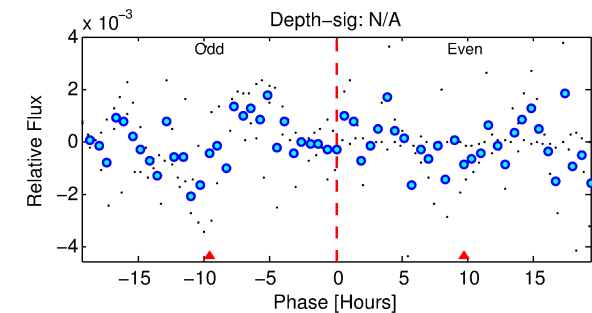
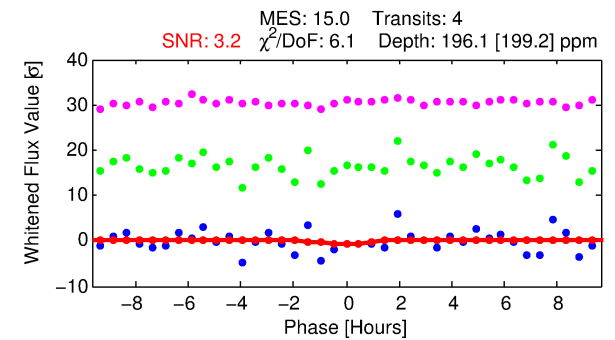
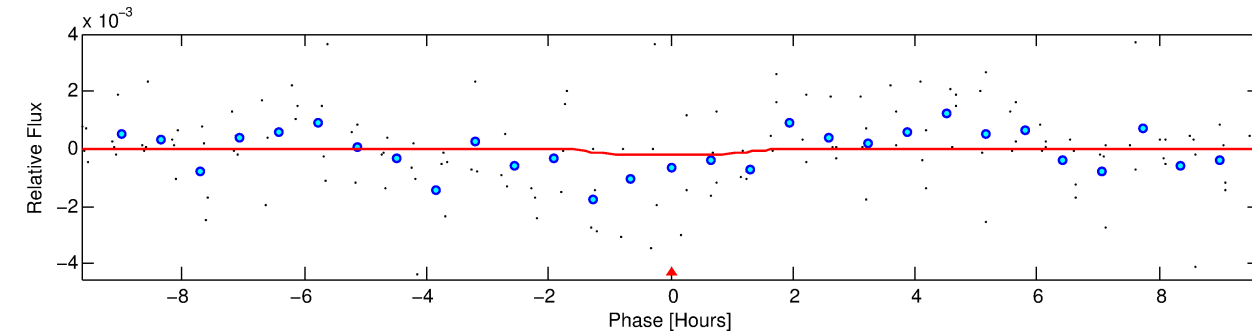
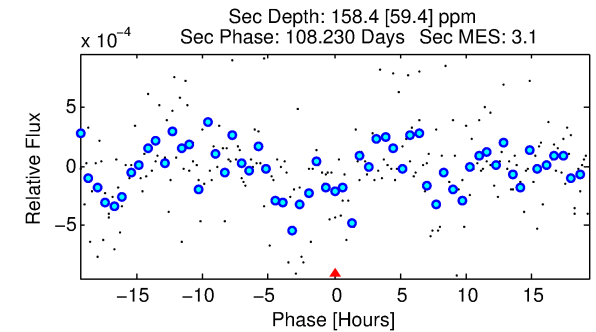
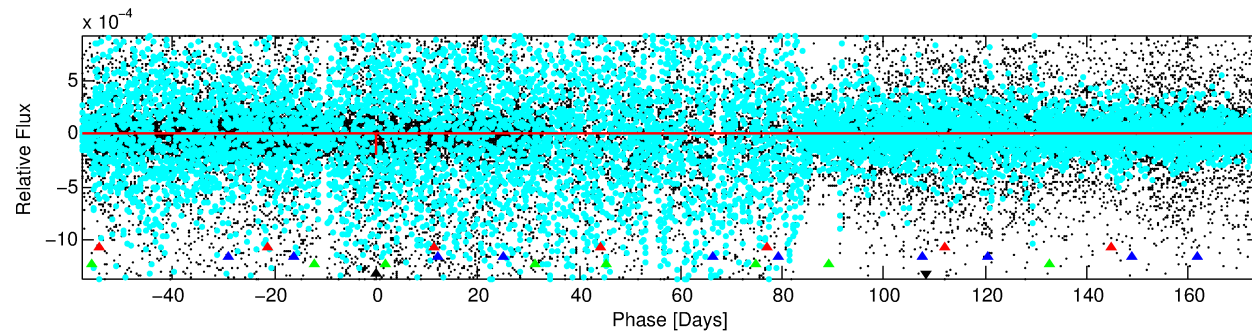
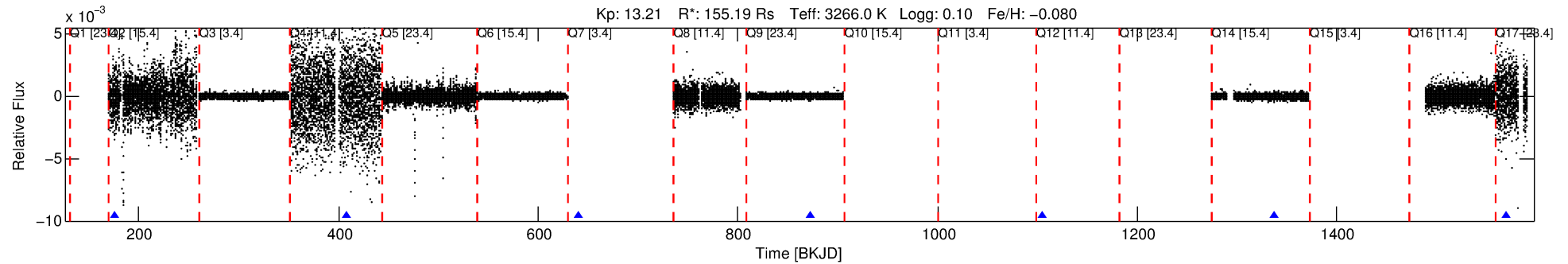
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 010034169-04

No Significant Match Found

DV One-Page Summary

KIC: 10034169 Candidate: 4 of 4 Period: 232.138 d



DV Fit Results:

Period = 232.13820 [0.02690] d
Epoch = 176.0515 [0.0836] BKJD
Rp/R* = 0.0168 [0.0803]
a/R* = 248.51 [3705.79]
b = 0.91 [2.86]
Seff = 4231.88 [1563.59]
Teq = 2057 [190] K
Rp = 284.70 [1361.09] Re
a = 0.7617 [0.1514] AU
Ag = 0.62 [5.97] [-0.06] σ
Teffp = 2826 [6756] K [0.11] σ

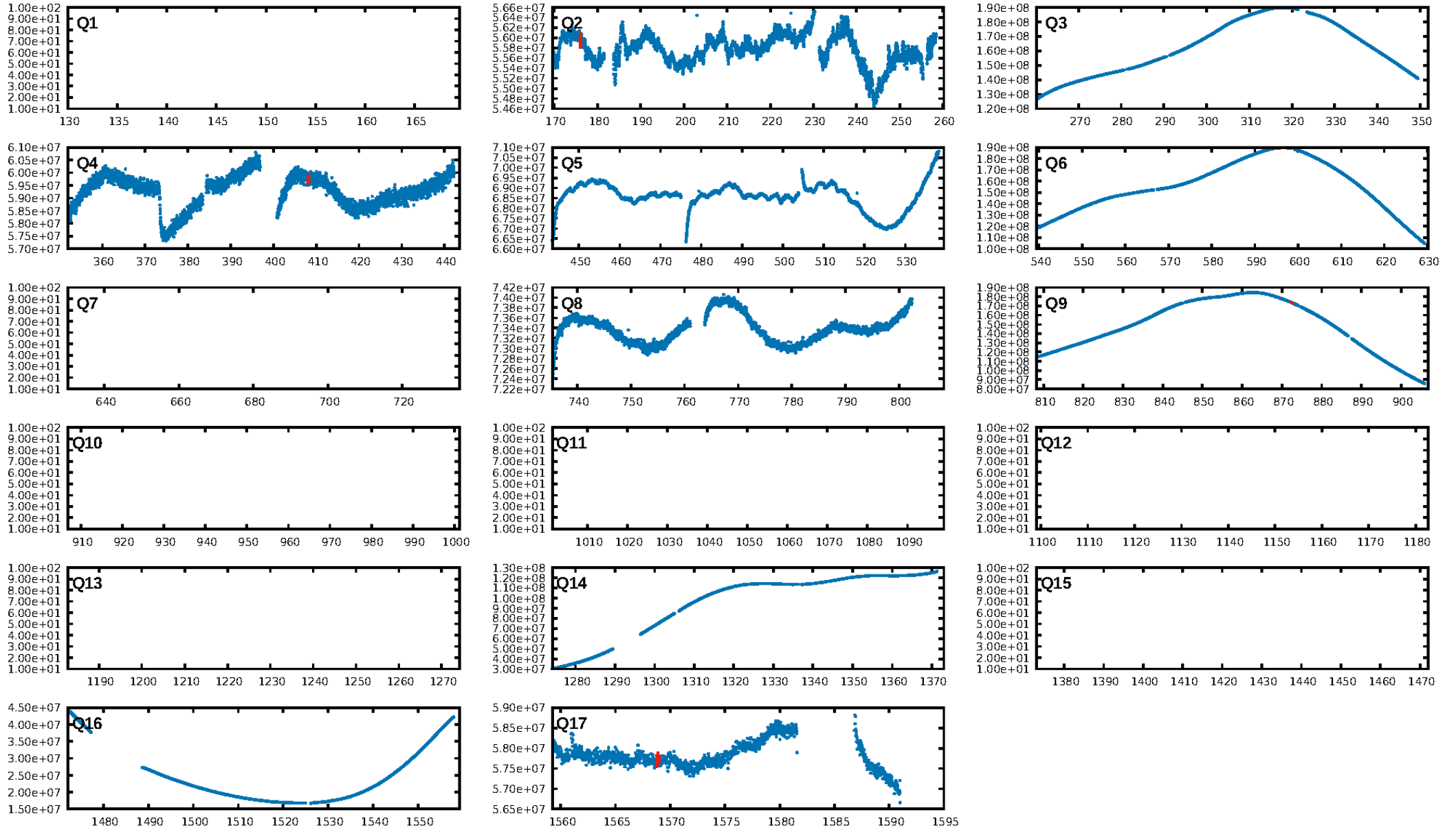
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [188.64] σ
LongPeriod-sig: N/A
ModelChiSquare2-sig: 0.0%
ModelChiSquareGof-sig: 0.0%
Bootstrap-pfa: 5.66e-08
RollingBand-fgt: 1.00 [3/3]
GhostDiagnostic-chr: -1.566
Centroid-sig: 28.1%
Centroid-so: 3.088 arcsec [0.93] σ
OotOffset-rm: 4.732 arcsec [3.98] σ
KicOffset-rm: 4.297 arcsec [4.11] σ
OotOffset-st: 1/0/1/0 [2]
KicOffset-st: 1/0/1/0 [2]
DiffImageQuality-fgm: 0.00 [0/2]
DiffImageOverlap-fno: 1.00 [4/4]

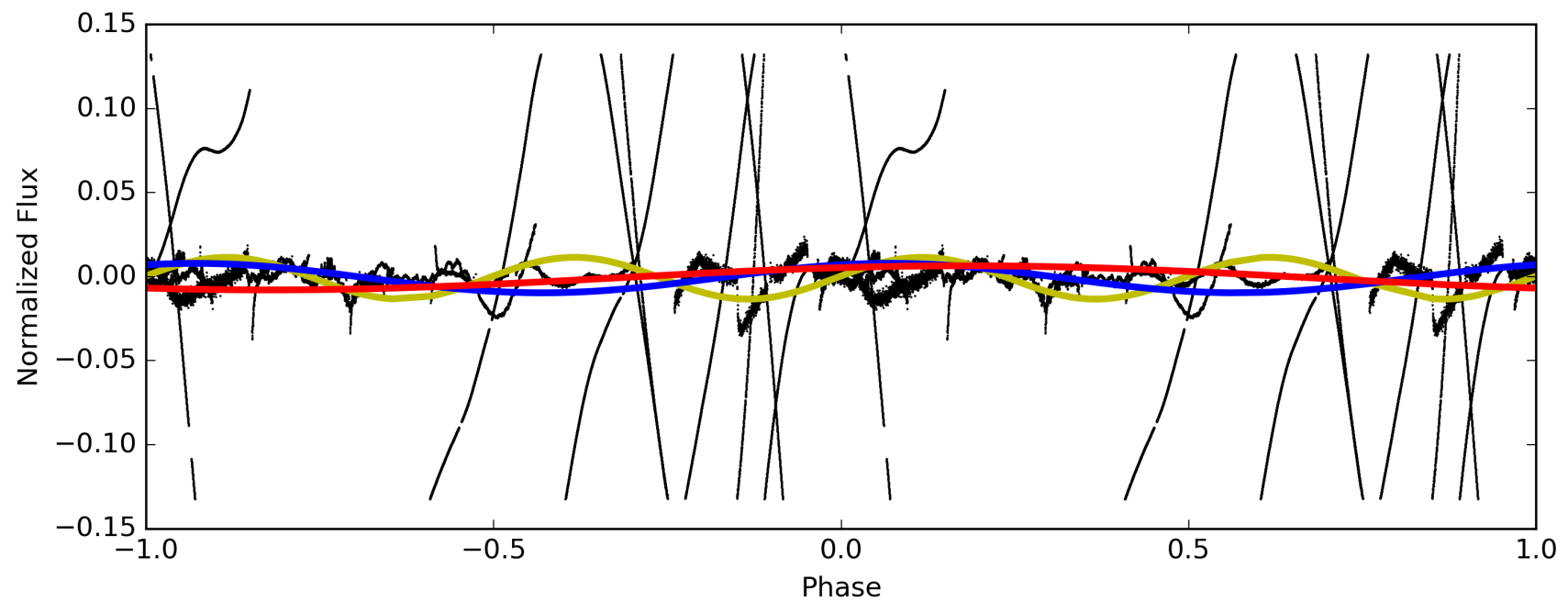
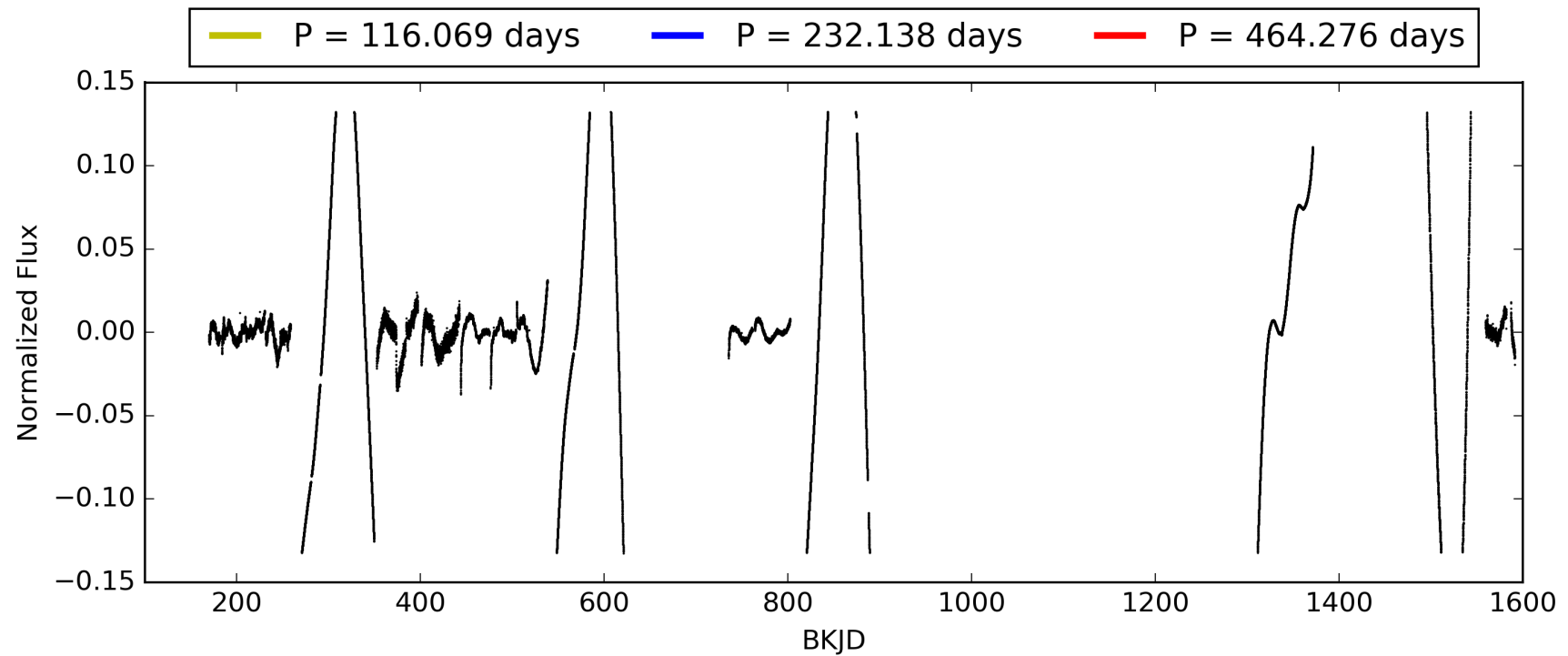
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 01-Feb-2016 16:57:59 Z

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

TCE 010034169-04, PDC Light Curves

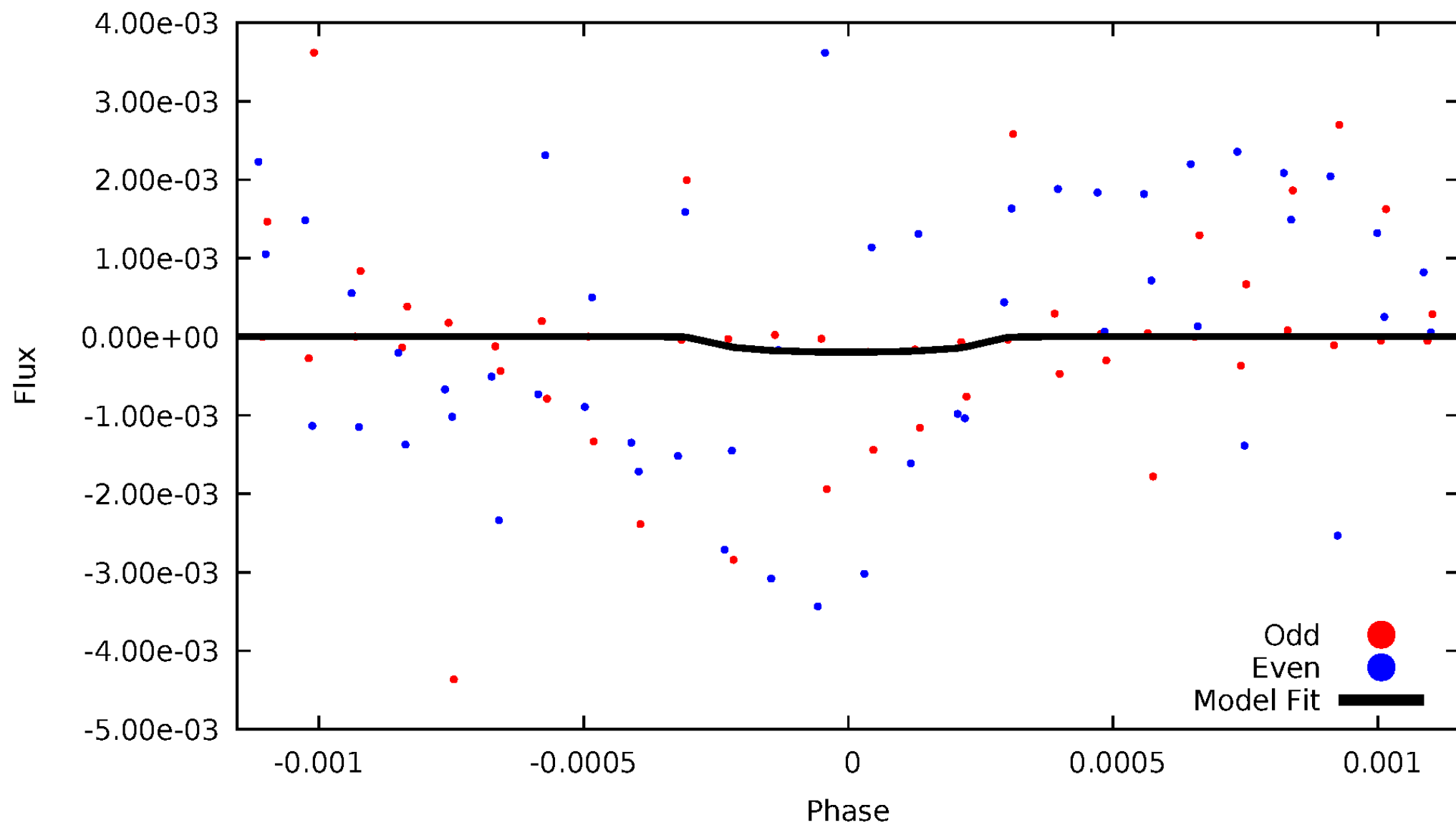


TCE 010034169-04



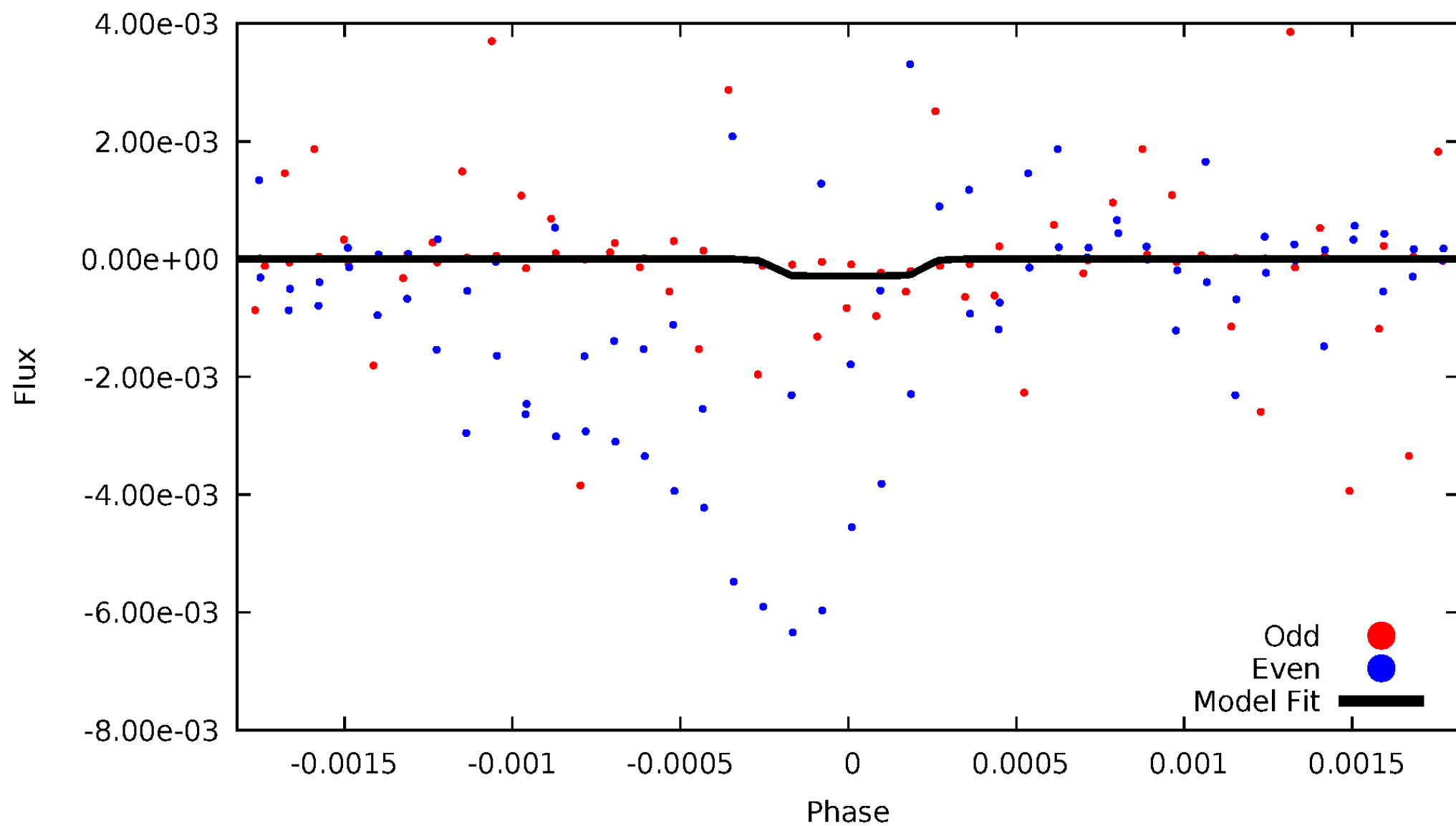
DV Odd/Even

TCE 010034169-04



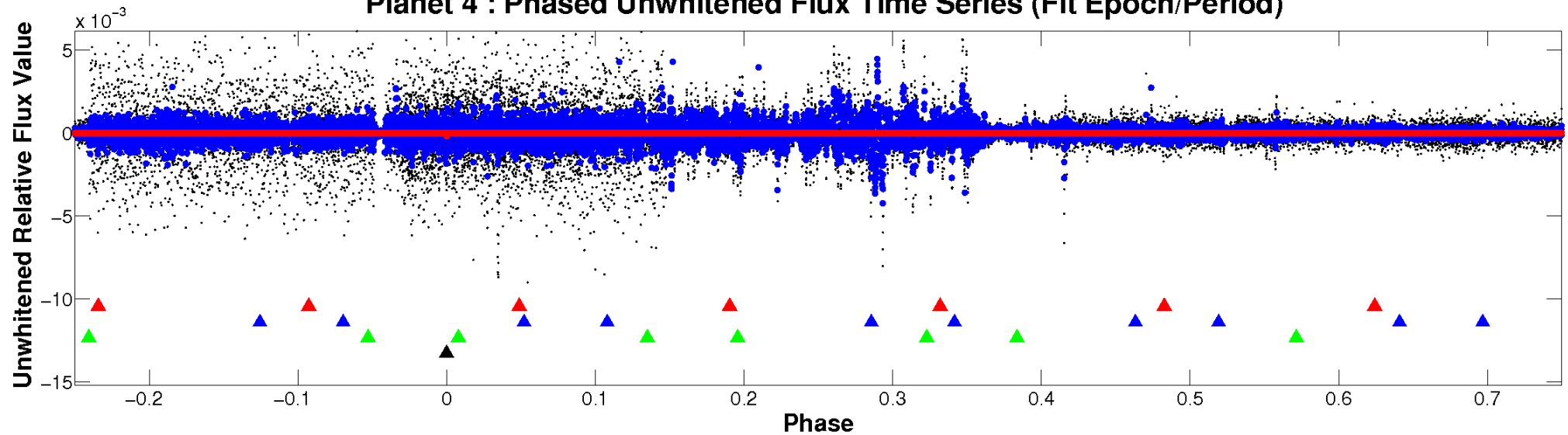
ALT Odd/Even

TCE 010034169-04

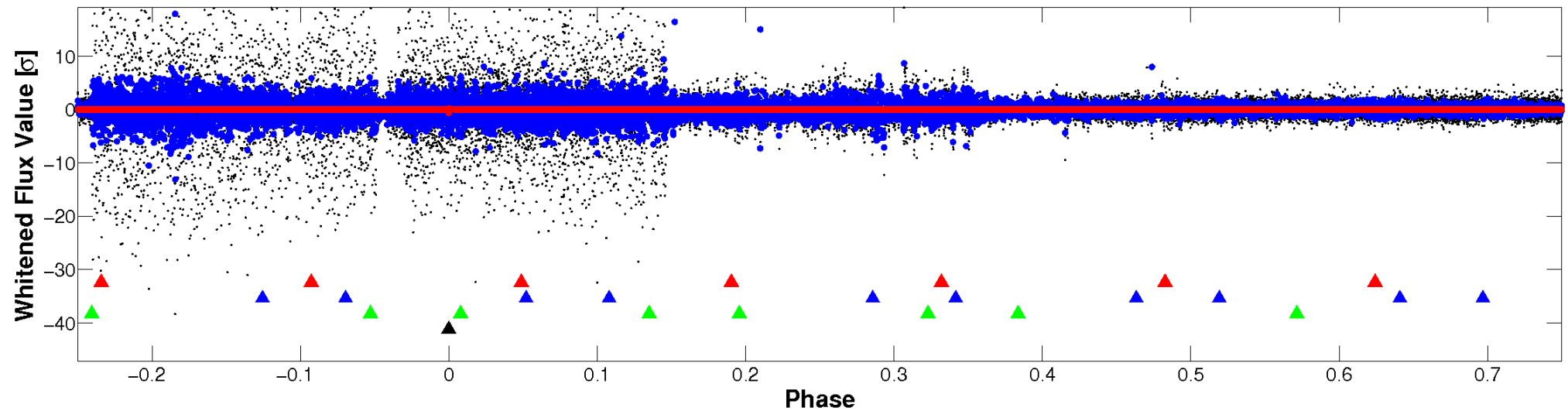


Non-Whitened Vs. Whitened Light Curve

Planet 4 : Phased Unwhitened Flux Time Series (Fit Epoch/Period)

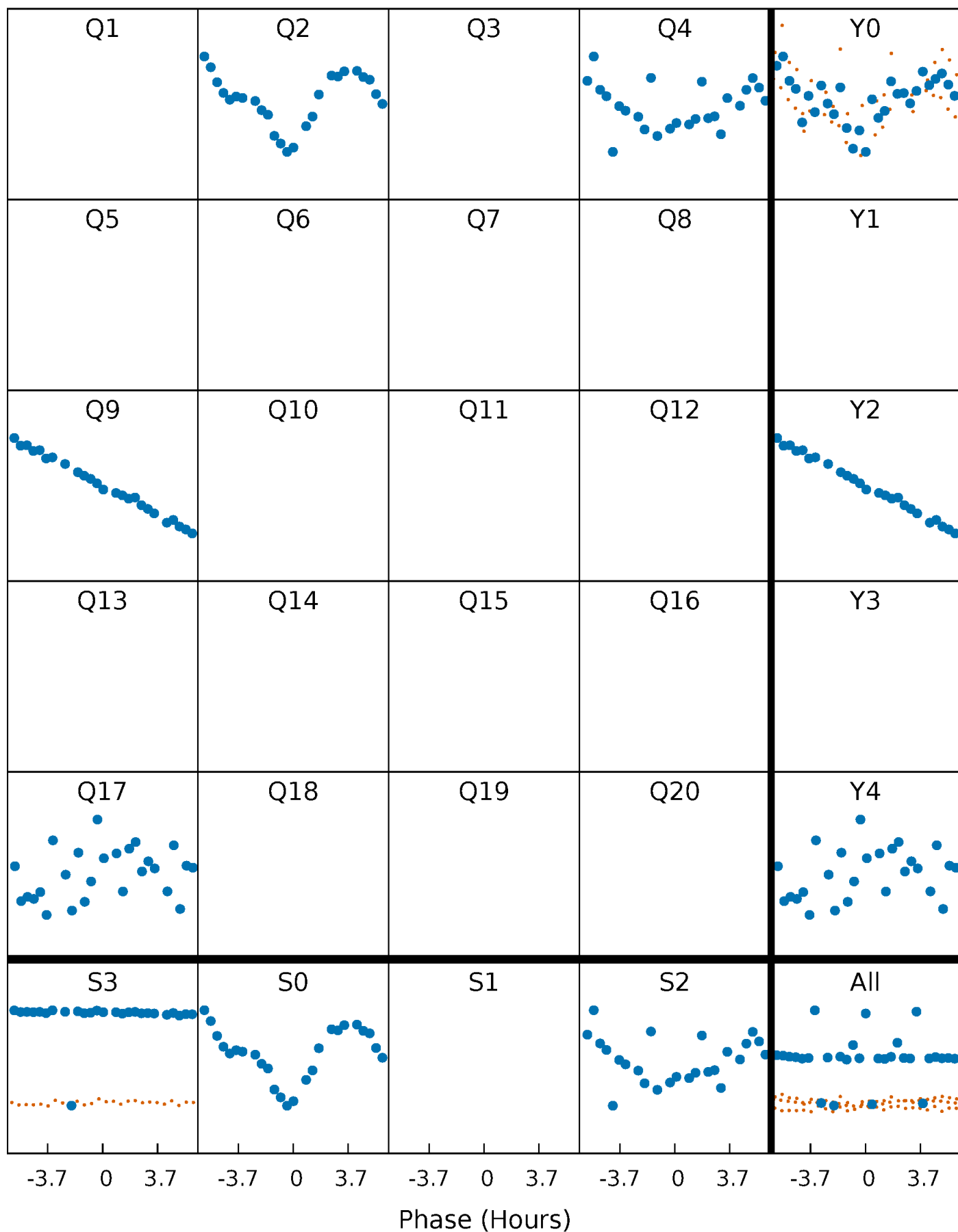


Planet 4 : Phased Whitened Flux Time Series (Fit Epoch/Period)



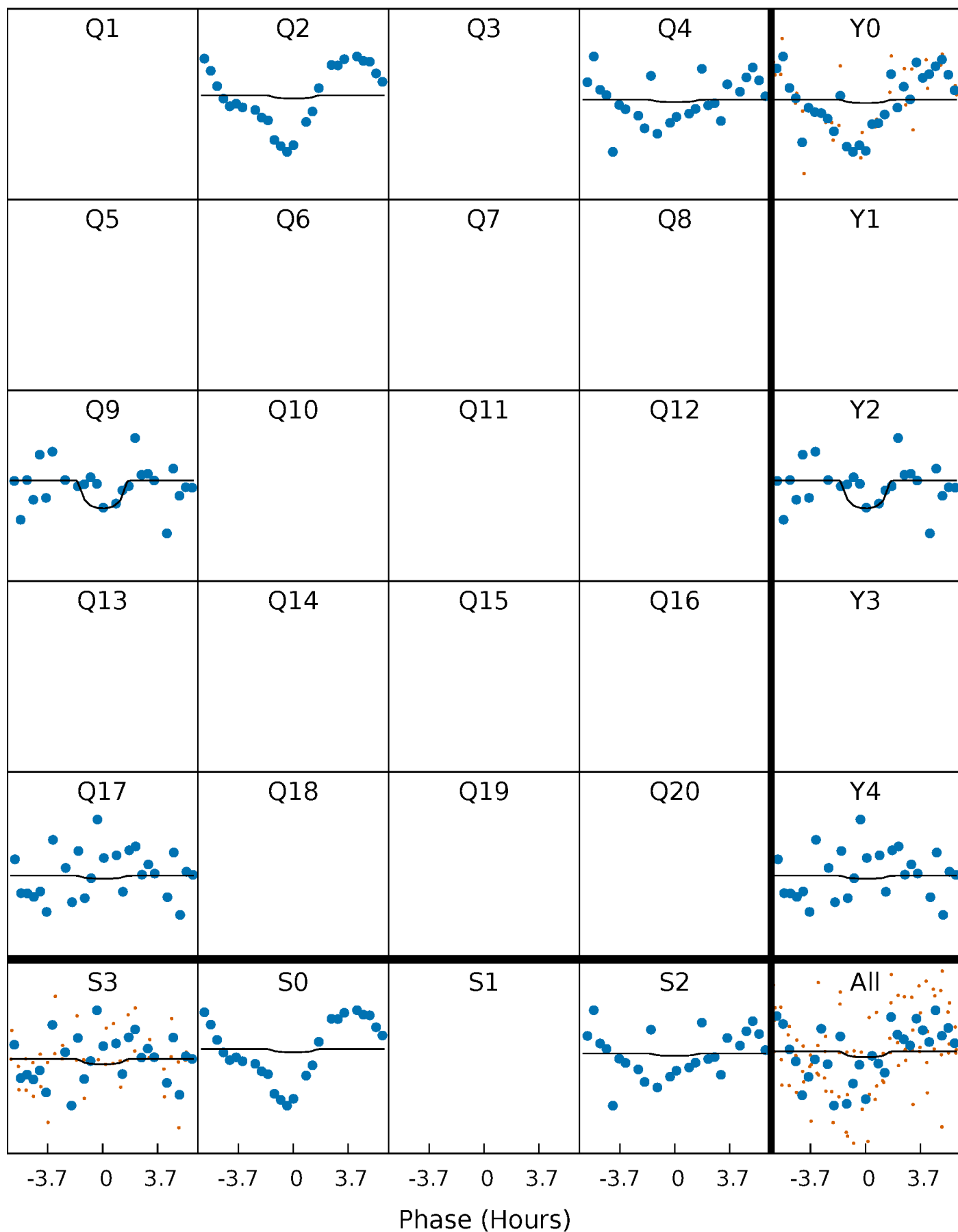
PDC Quarter-Phased Transit Curves

TCE 010034169-04 P=232.138200 Days $T_0=176.051509$ (BKJD)



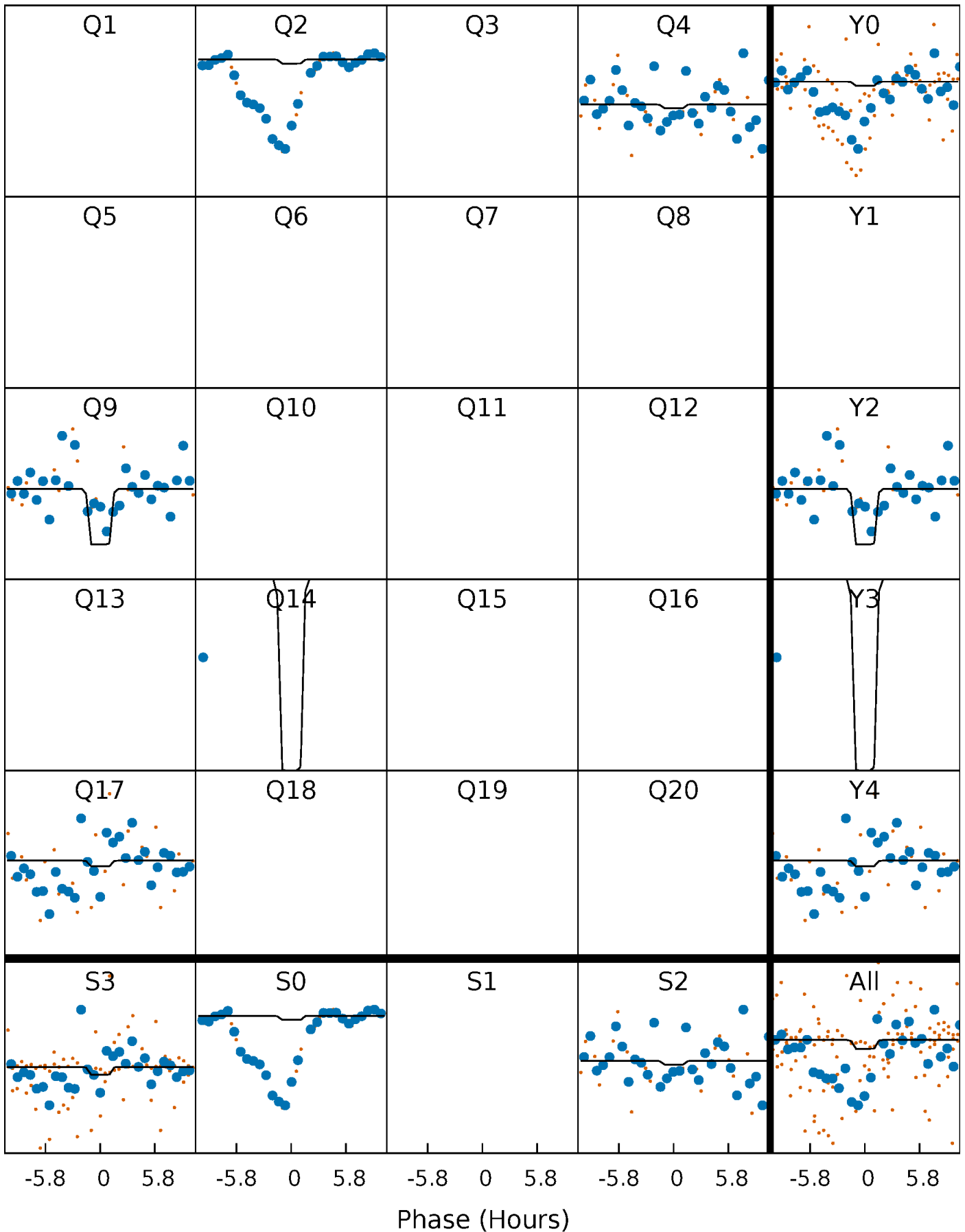
DV Quarter-Phased Transit Curves

TCE 010034169-04 $P=232.138200$ Days $T_0=176.051509$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

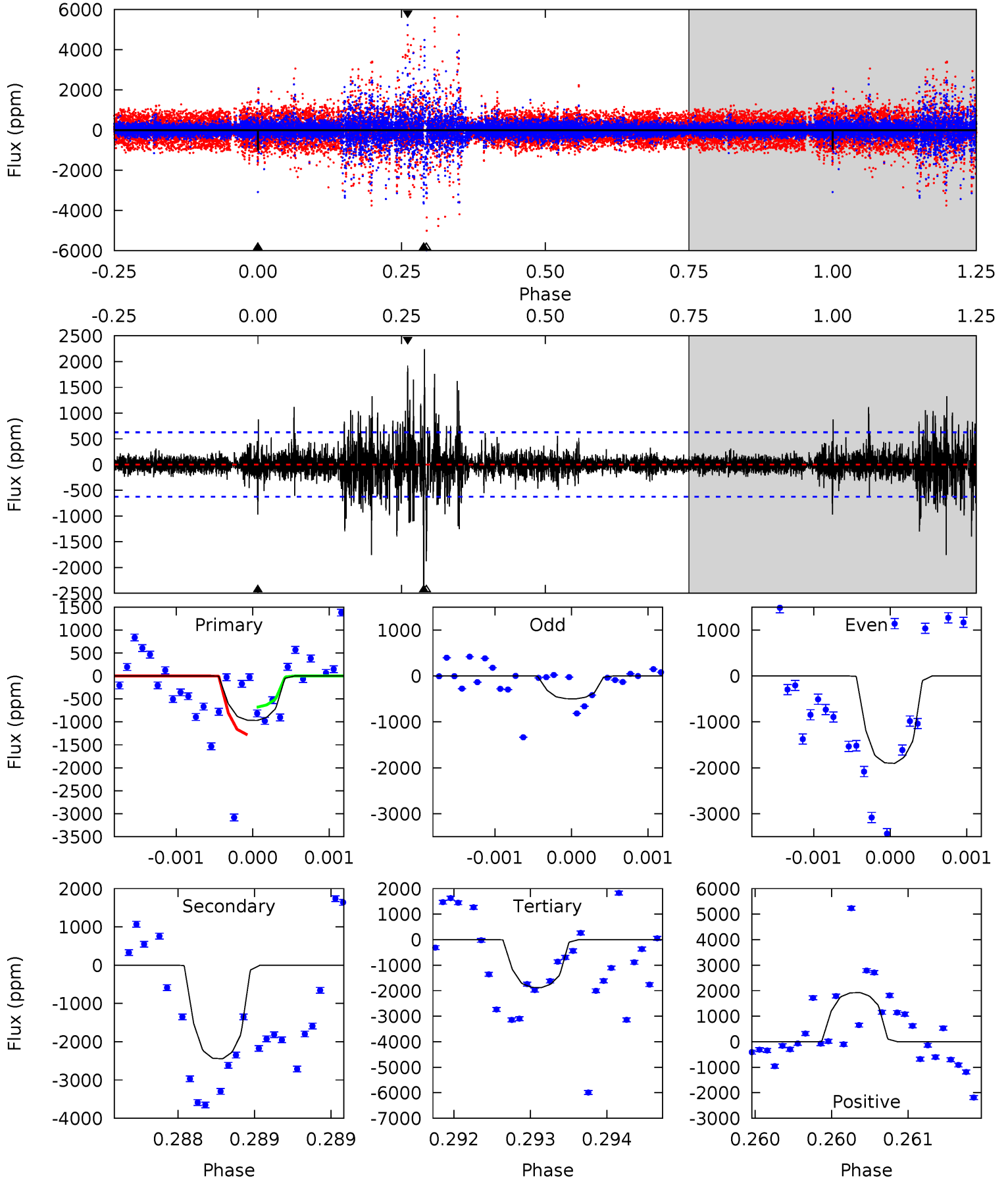
TCE 010034169-04 $P=232.125242$ Days $T_0=176.076544$ (BKJD)



DV Model-Shift Uniqueness Test

010034169-04, P = 232.138200 Days, E = 176.051509 Days

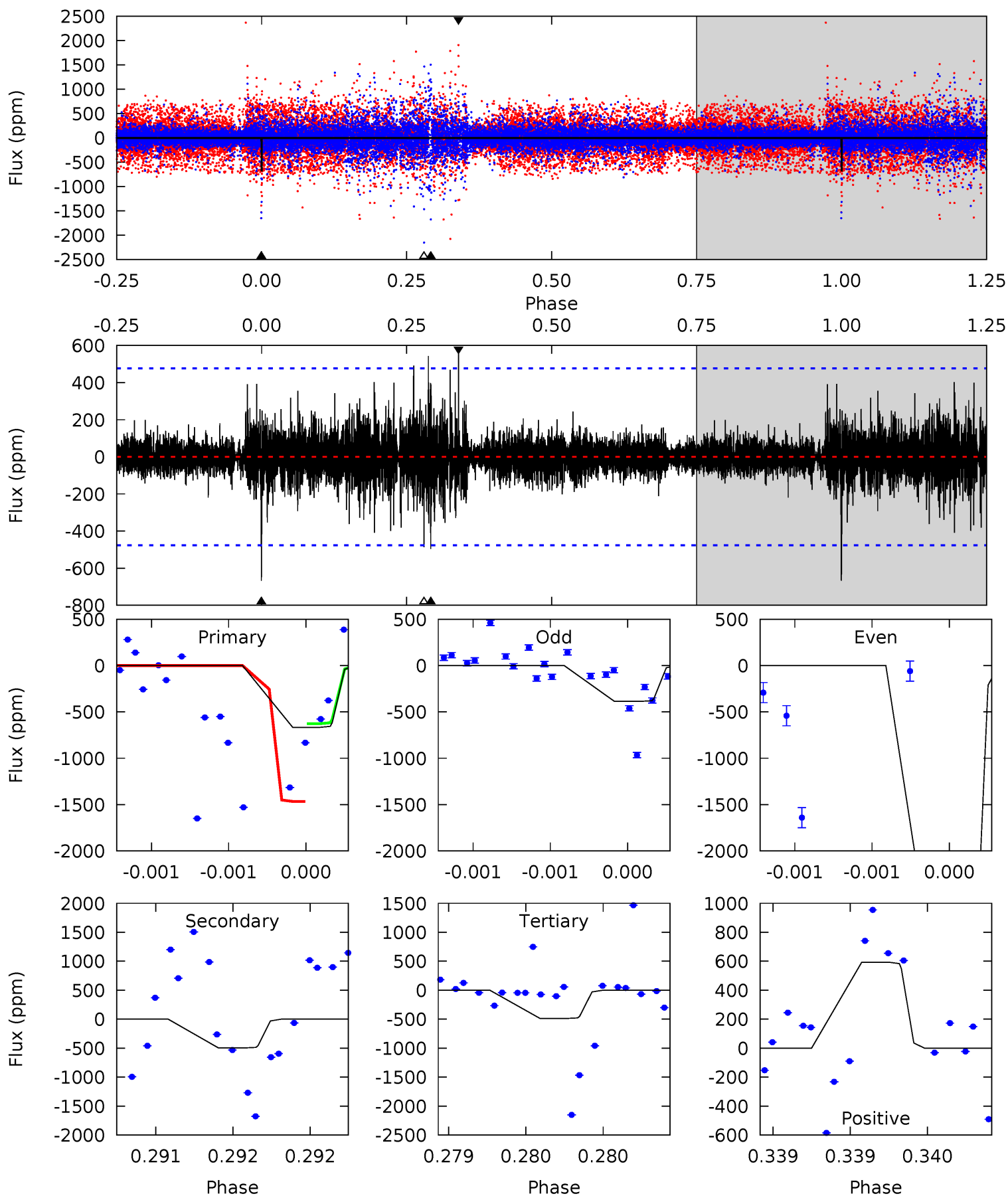
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
8.53	21.5	16.5	16.9	5.51	3.39	1.75	-8.00	-8.42	5.00	4.59	5.58	1.00	0.48	0



Alt Model-Shift Uniqueness Test

010034169-04, P = 232.125242 Days, E = 176.076544 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
7.77	5.78	5.68	6.92	5.56	3.46	0.82	2.10	0.86	0.10	-1.14	19.7	2.99	0.47	5.94



Stellar Parameters For KIC 010034169

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	M (M_{\odot})	p_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	3266^{+117}_{-78}	$0.095^{+0.208}_{-0.065}$	$-0.080^{+0.250}_{-0.100}$	$155.187^{+9.192}_{-27.576}$	$1.095^{+0.206}_{-0.120}$	$0.000^{+0.000}_{-0.000}$
	+4%/-2%	+219%/-68%	+312%/-125%	+6%/-18%	+19%/-11%	+85%/-15%
Source	KIC0	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 010034169-04 / KOI

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	-2445 ± 114	$1008.51^{+1014.57}_{-714.92}$	2845^{+140}_{-150}	2886^{+1871}_{-5231}	$0.809^{+9.326}_{-0.607}$
Alt.	-495 ± 86	$1022.06^{+981.77}_{-708.05}$	2832^{+137}_{-144}	-2438^{+5763}_{-230}	$0.159^{+1.398}_{-0.120}$

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 $A_{obs} \gg 1.0$

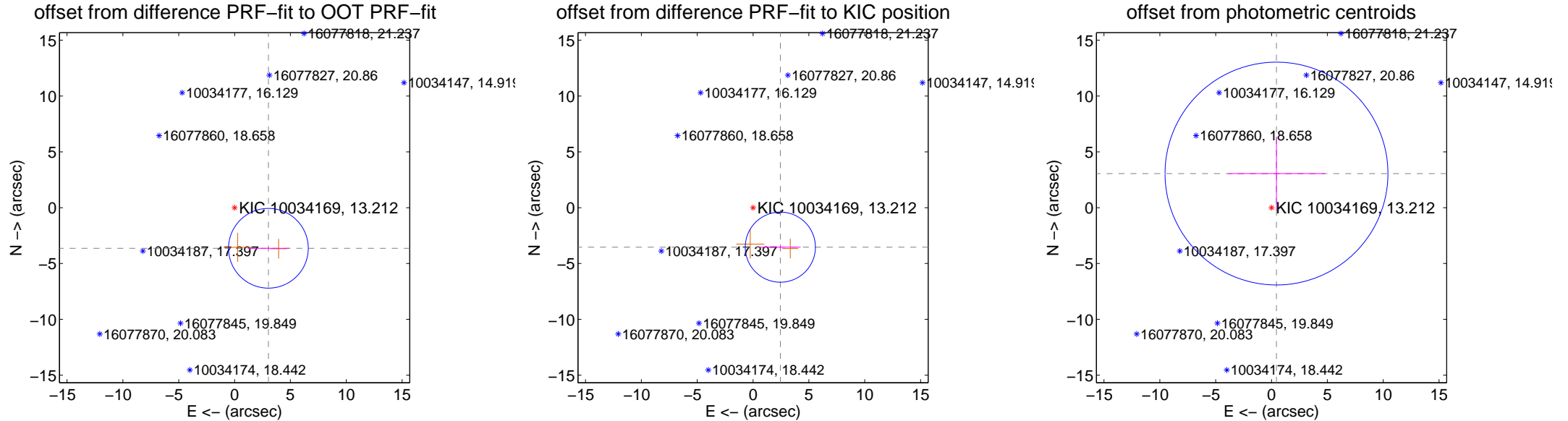
DV Centroid Data

Supplemental centroid analysis for 010034169-04. Kepler magnitude: 13.21. Transit SNR 3.20

There are 0 quarters with good PRF difference image offsets

The direct PRF centroid is offset from the target star catalog position by about 0.60 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	4.732 ± 1.190	3.98	-3.028 ± 1.856	-3.636 ± 0.095
PRF-fit source offset from KIC position	4.297 ± 1.047	4.11	-2.442 ± 1.812	-3.536 ± 0.228
photometric centroid source offset	3.09 ± 3.33	0.93	-0.44 ± 4.33	3.06 ± 3.30



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.

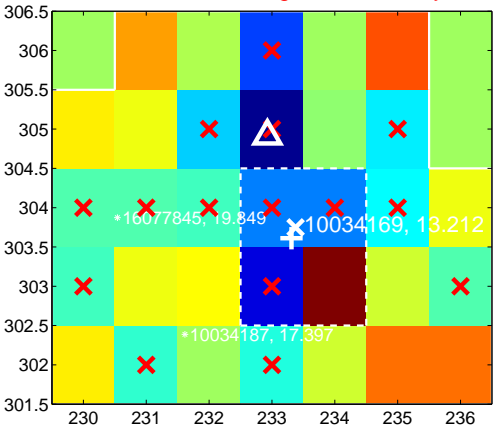
Q1 no difference image



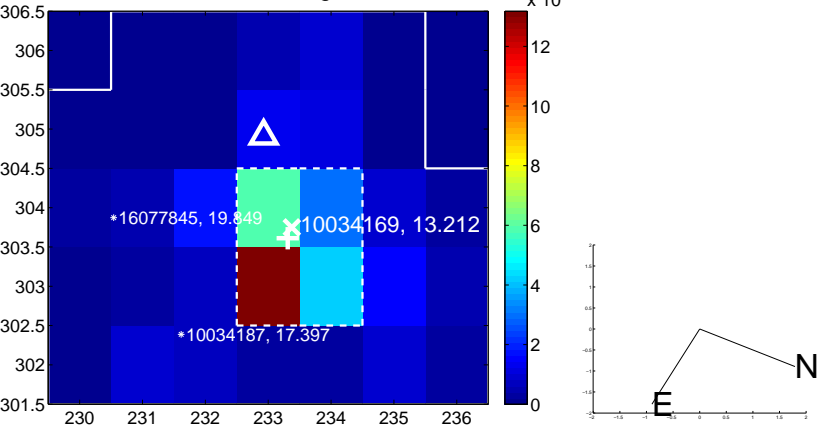
Q1 no OOT image



Q2 difference image. Poor Quality



Q2 OOT image



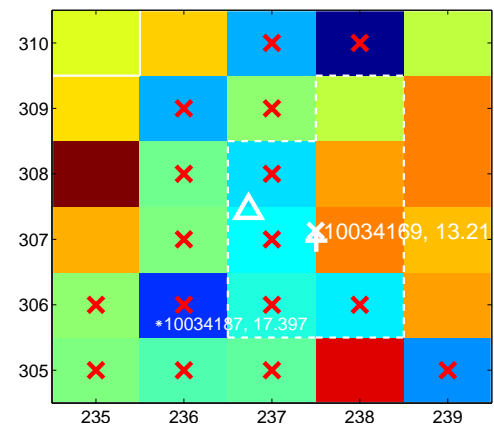
Q3 no difference image



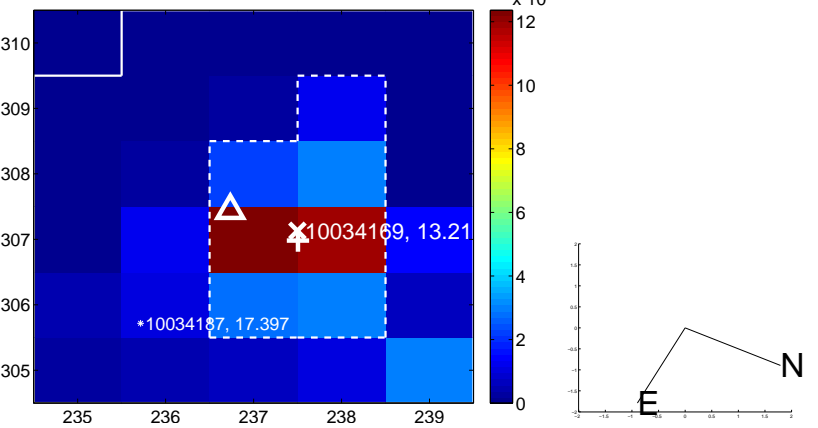
Q3 no OOT image



Q4 difference image. Poor Quality



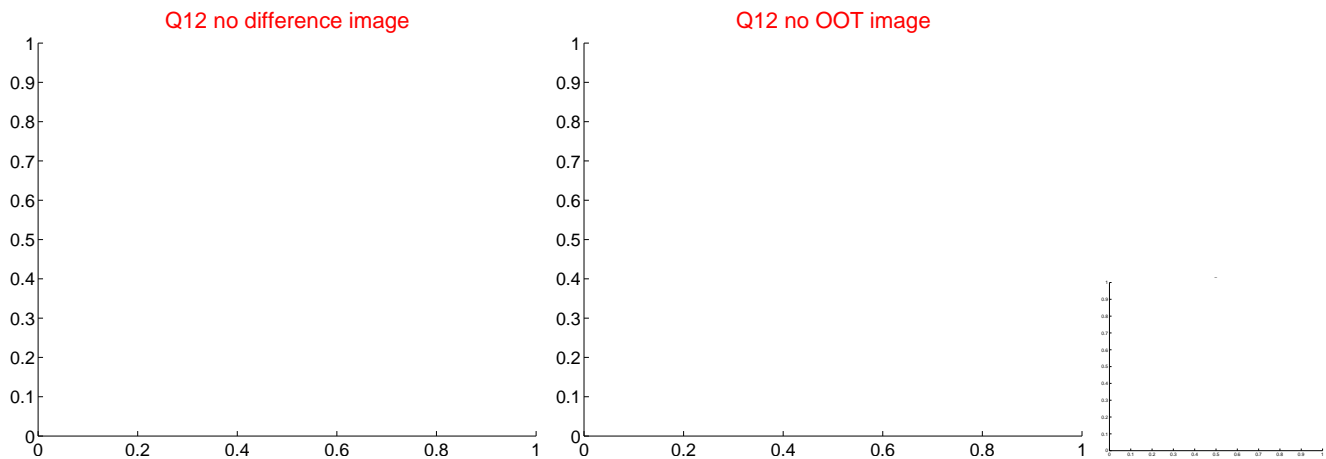
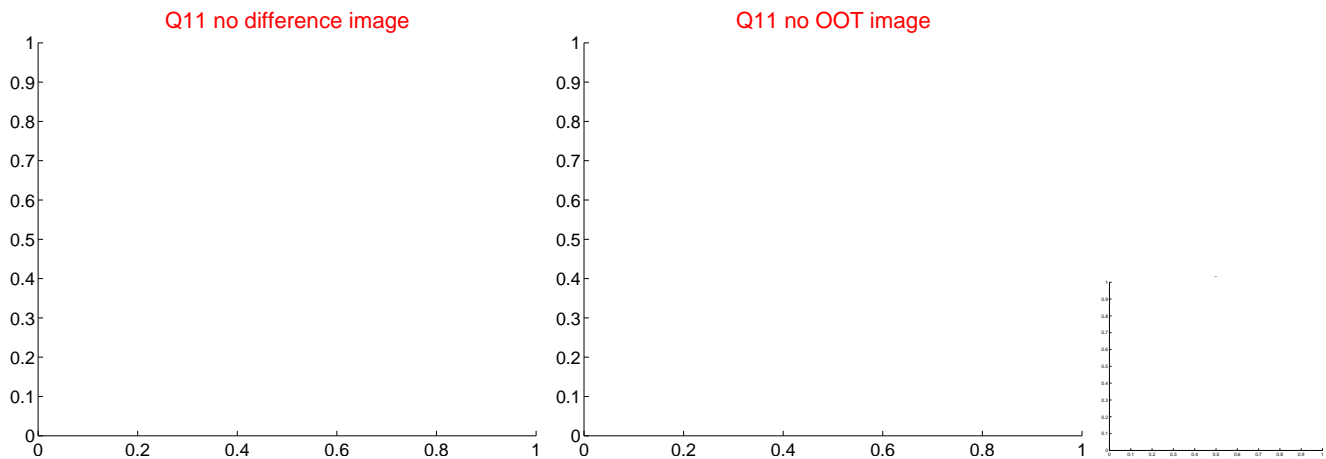
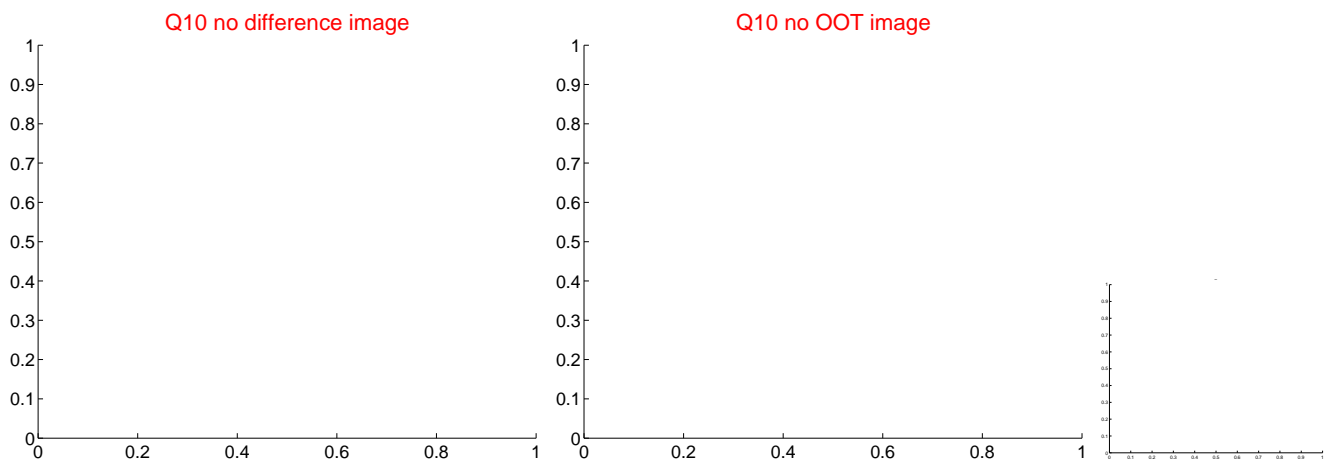
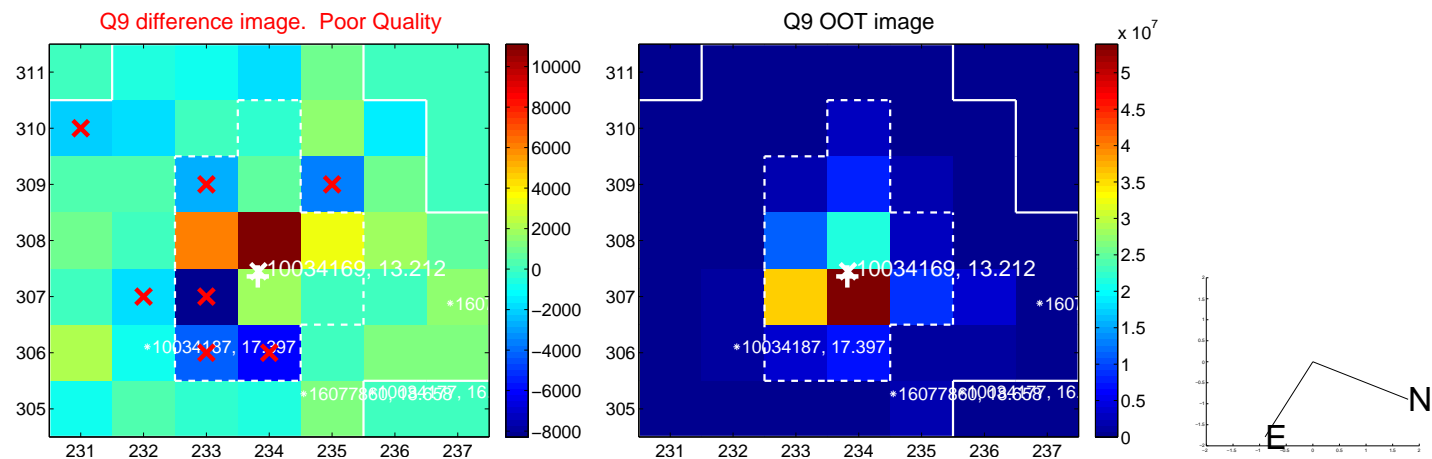
Q4 OOT image



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



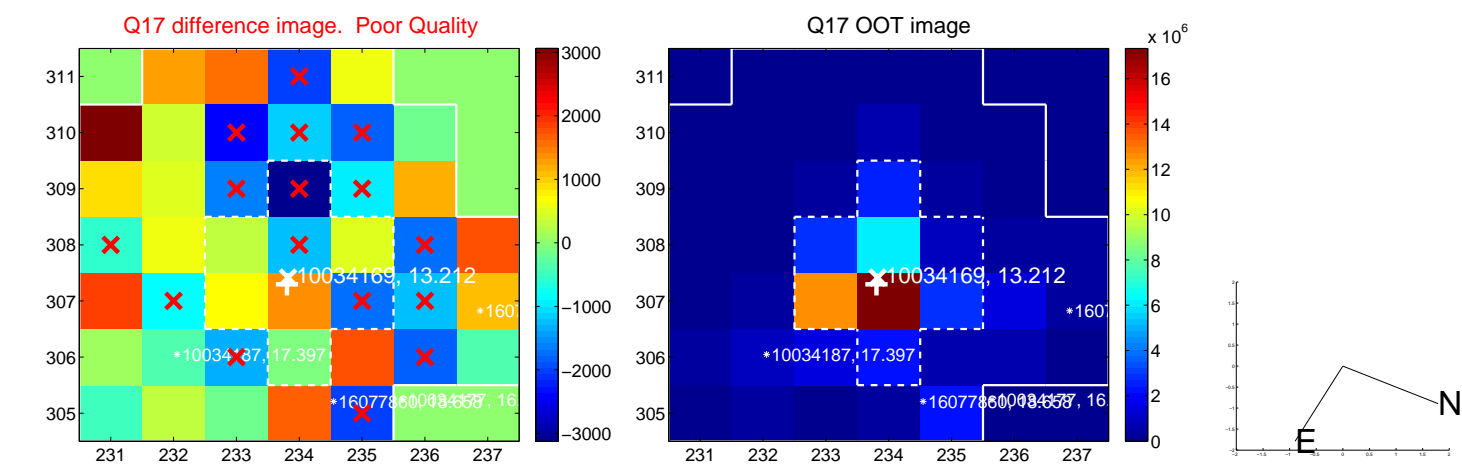
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



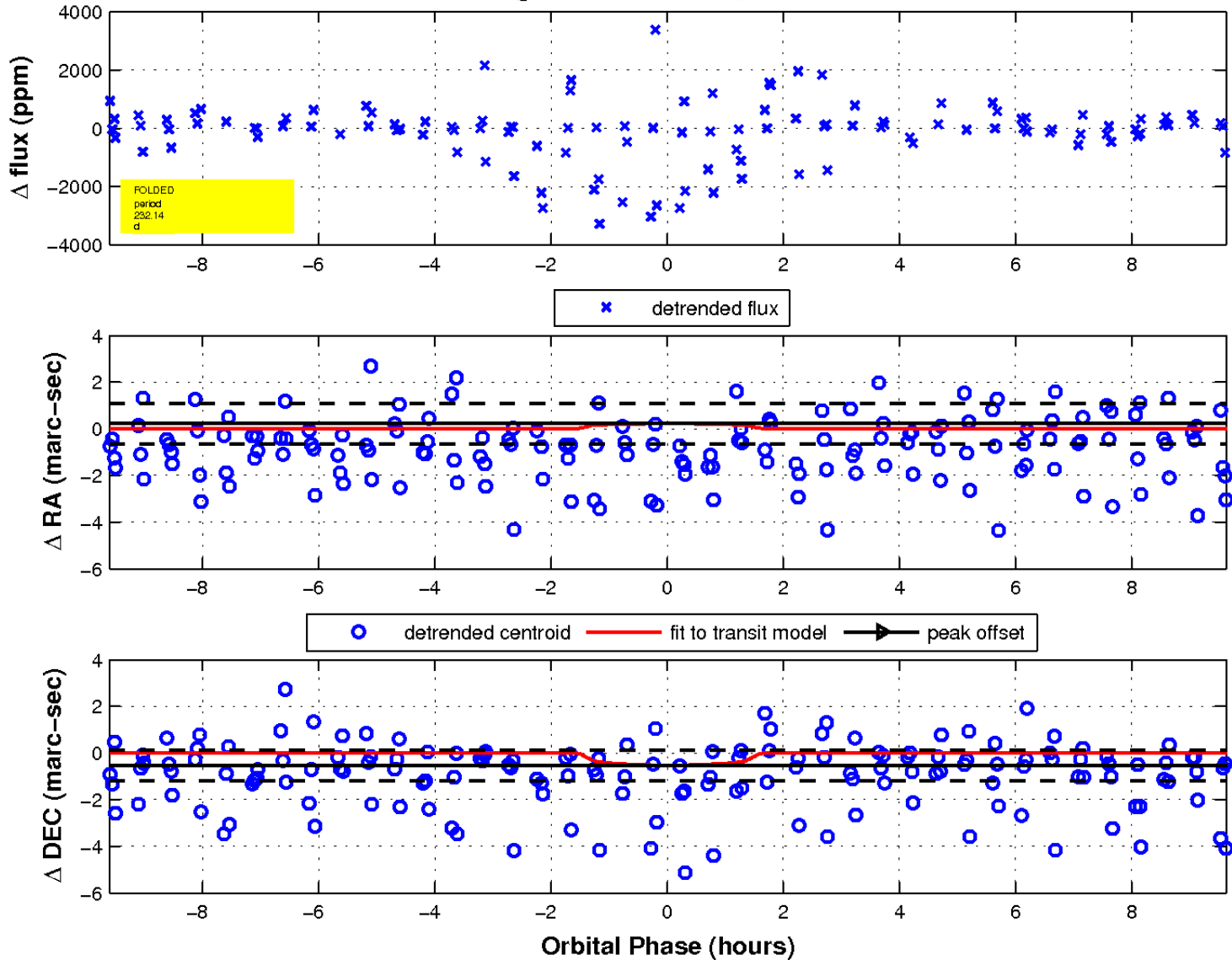
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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



fluxWeightedCentroids, Planet 4 of 4



UKIRT Image

