

KIC 010533616

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})
010533616-01	OBS	No	449.589136	219.780896	116.3	17.158	19.8	18.2	3.21	8540	3.71	20.96
010533616-02	OBS	No	557.077987	253.495075	78.7	10.526	12.8	9.2	3.21	8540	3.23	15.75
010533616-03	OBS	No	377.687112	206.256956	62.1	15.000	15.8	-1.0	3.21	8540	2.57	26.44
010533616-04	OBS	No	427.670521	405.941817	115.1	3.378	12.6	12.3	3.21	8540	3.90	22.41
010533616-05	OBS	No	0.621661	131.735009	1.2	7.460	10.2	3.8	3.21	8540	0.35	136065.53

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
010533616-01	OBS	FP	0.00	1	0	0	0	LPP_DV—INCONSISTENT_TRANS—CENT_SATURATED
010533616-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_MARSHALL—ALL_TRANS_CHASES—INCONSISTENT_TRANS—CENT_SATURATED
010533616-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_MARSHALL—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_SATURATED
010533616-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—MOD_NONUNIQ_ALT—INCONSISTENT_TRANS—CENT_SATURATED
010533616-05	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_ALT—CENT_SATURATED

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

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

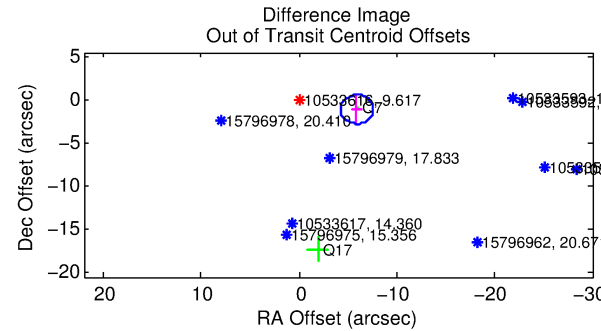
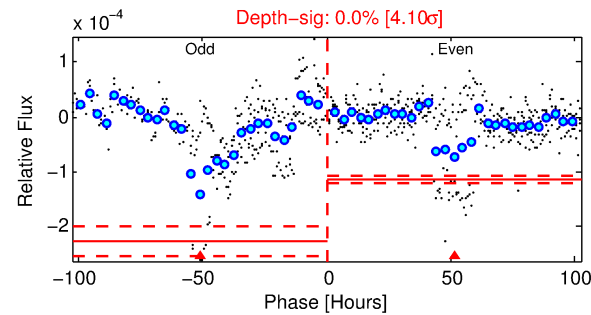
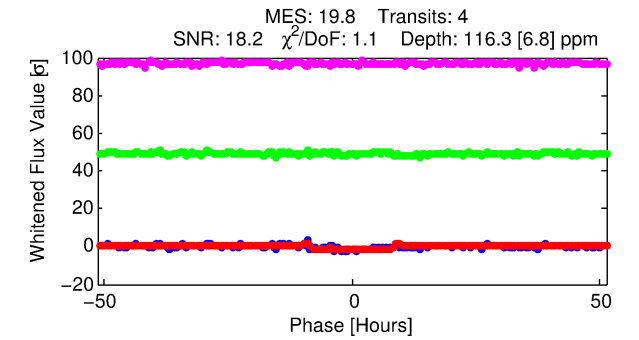
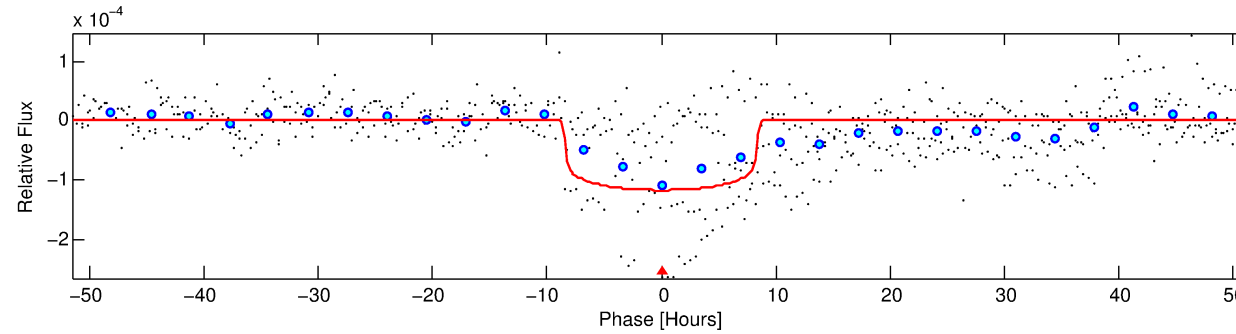
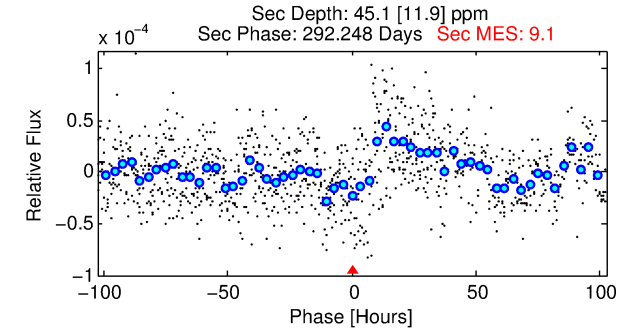
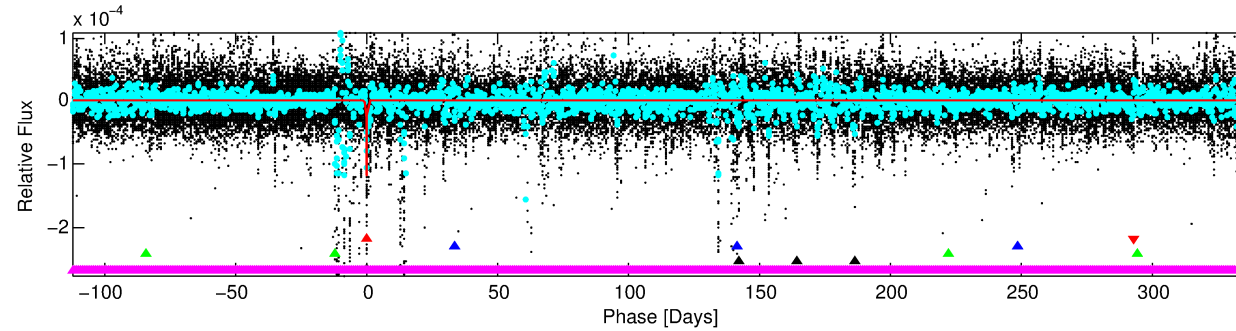
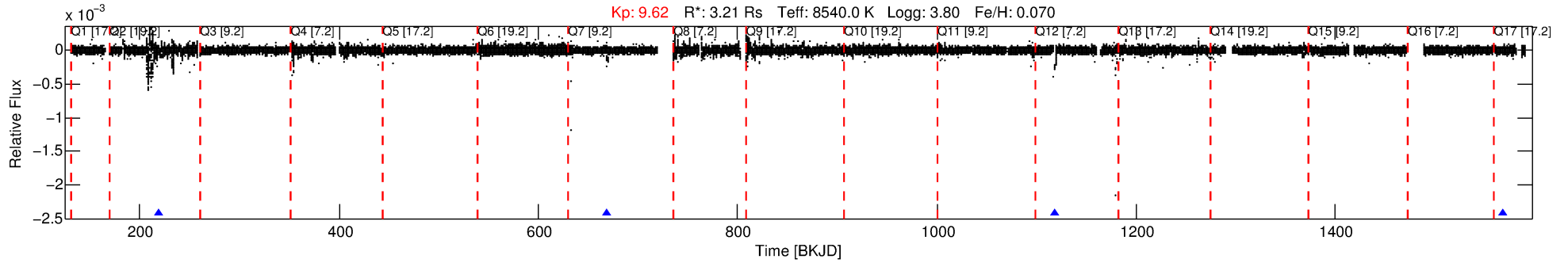
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 010533616-01

No Significant Match Found

DV One-Page Summary

KIC: 10533616 Candidate: 1 of 5 Period: 449.589 d



DV Fit Results:

Period = 449.58914 [0.00336] d
Epoch = 219.7809 [0.0063] BKJD
Rp/R* = 0.0106 [0.0011]
a/R* = 146.28 [91.88]
b = 0.70 [0.46]
Seff = 20.96 [13.91]
Teq = 546 [91] K
Rp = 3.71 [1.74] Re
a = 1.5311 [0.6321] AU
Ag = 4227.33 [3047.32] [1.39σ]
Teffp = 6802 [660] K [9.39σ]

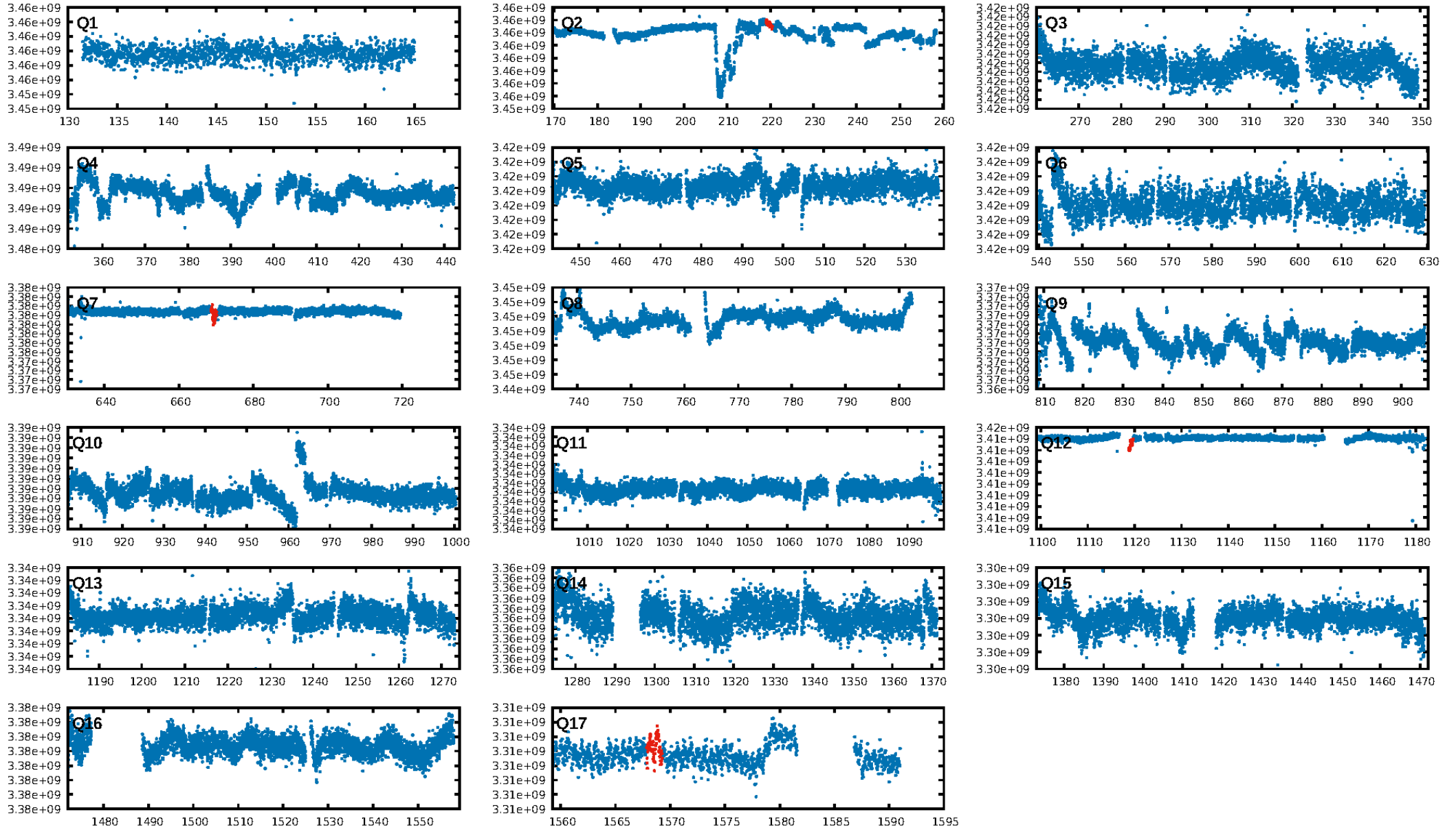
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [30.08σ]
LongPeriod-sig: 100.0% [128.16σ]
ModelChiSquare2-sig: 0.0%
ModelChiSquareGof-sig: 92.8%
Bootstrap-pfa: N/A
RollingBand-fgt: 1.00 [3/3]
GhostDiagnostic-chr: N/A
Centroid-sig: 35.7%
Centroid-so: 0.938 arcsec [1.18σ]
OotOffset-rm: 6.001 arcsec [10.80σ]
KicOffset-rm: 4.709 arcsec [5.90σ]
OotOffset-st: 0/1/0/1 [2]
KicOffset-st: 0/1/0/1 [2]
DiffImageQuality-fgm: 0.00 [0/2]
DiffImageOverlap-fno: 0.00 [0/3]

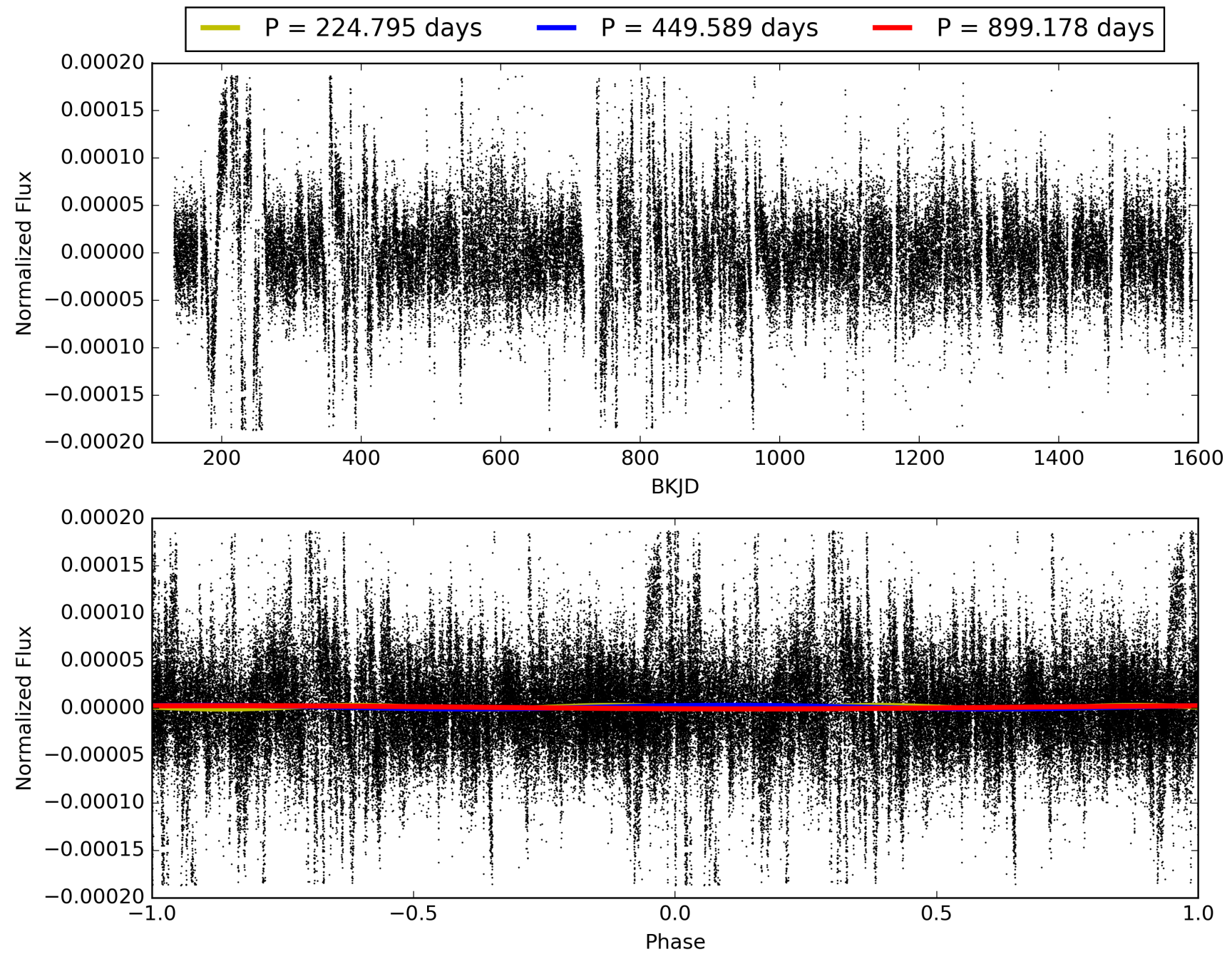
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 05:36:04 Z

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

TCE 010533616-01, PDC Light Curves

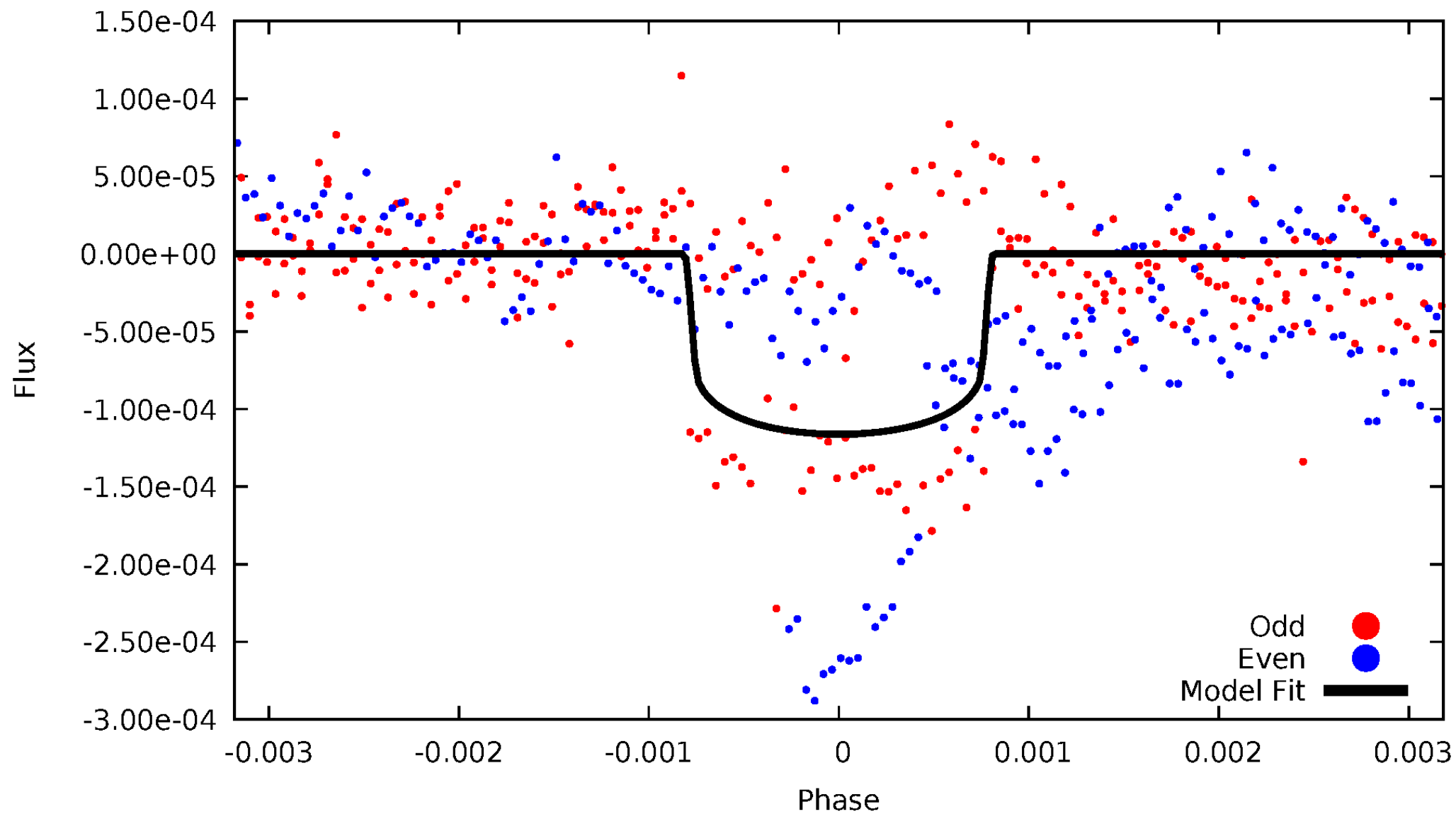


TCE 010533616-01



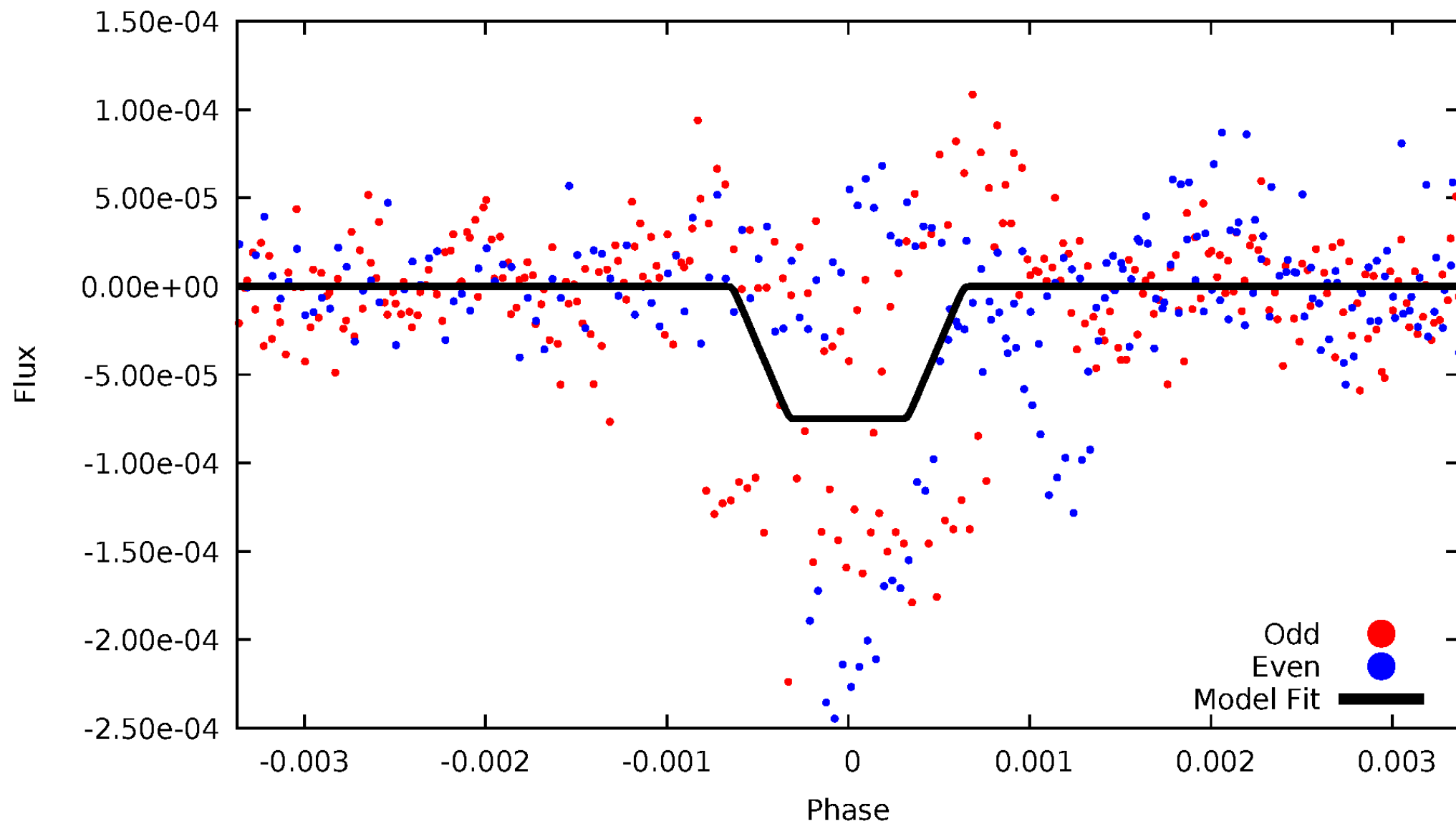
DV Odd/Even

TCE 010533616-01



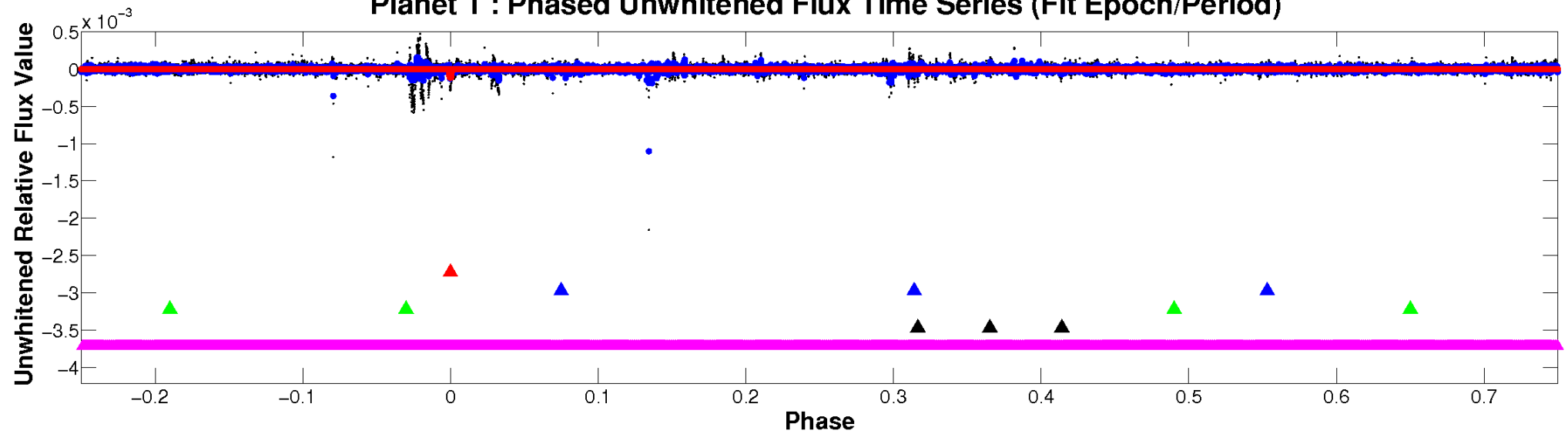
ALT Odd/Even

TCE 010533616-01

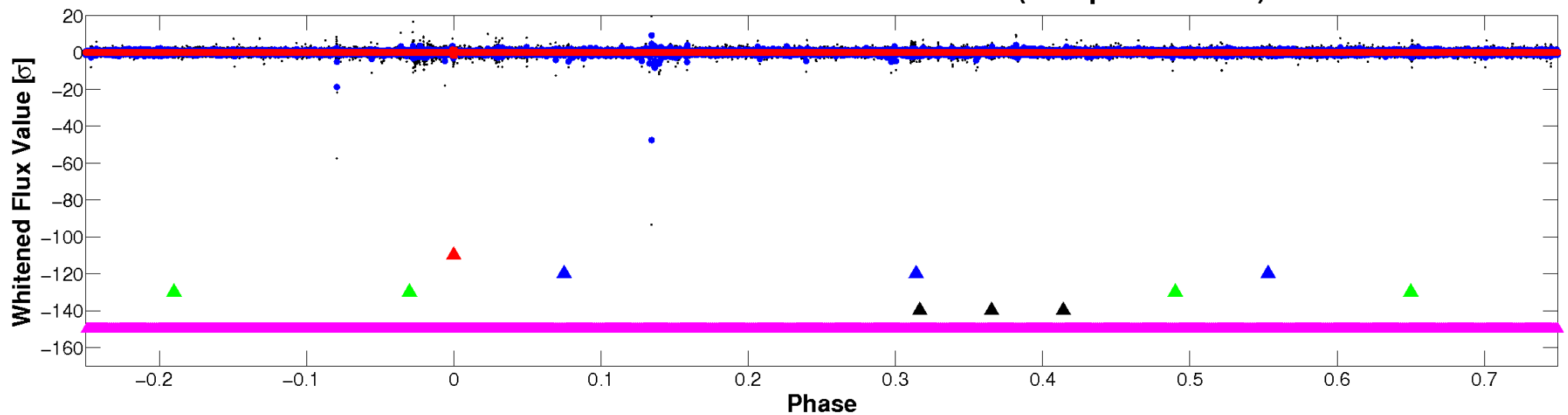


Non-Whitened Vs. Whitened Light Curve

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

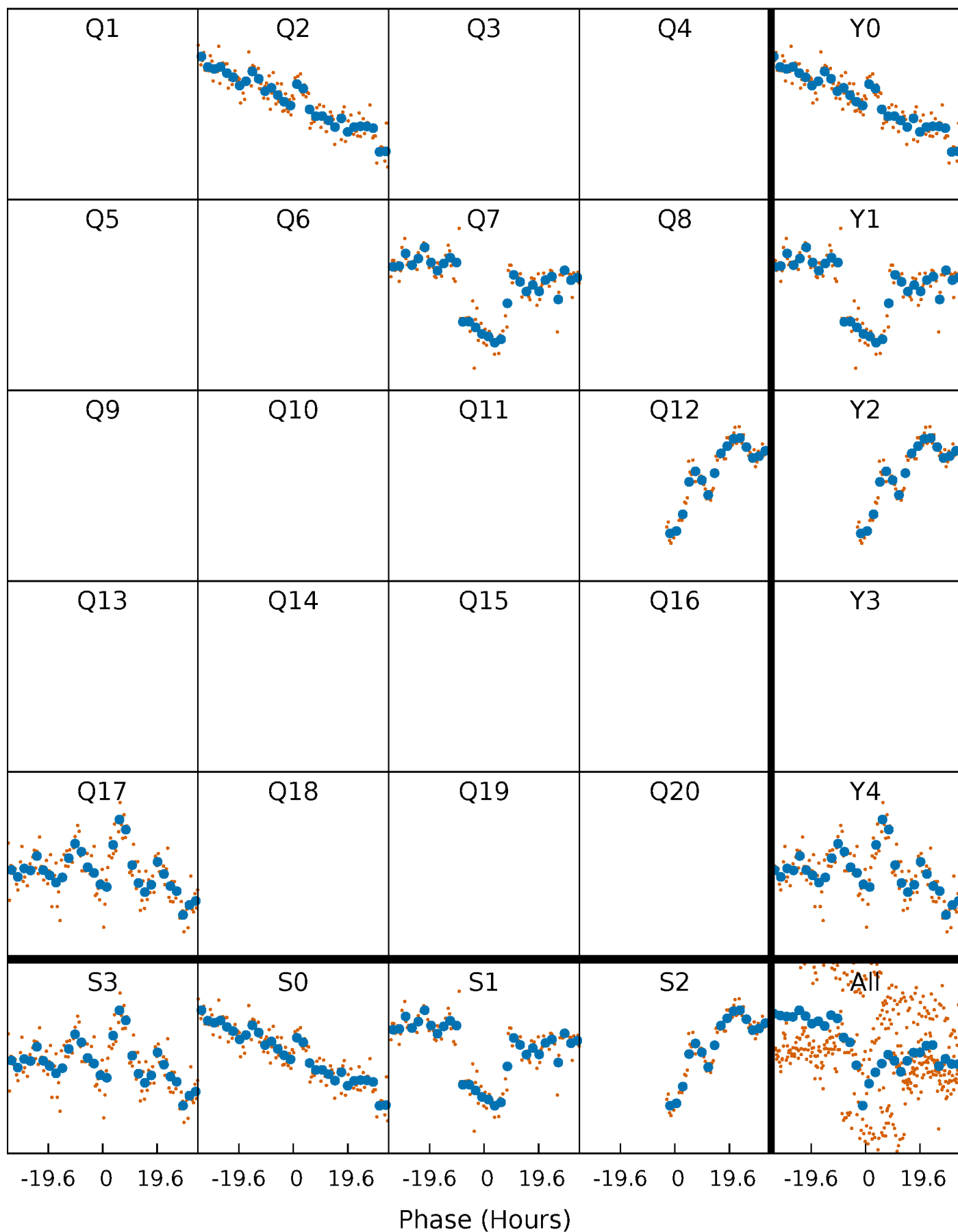


Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)



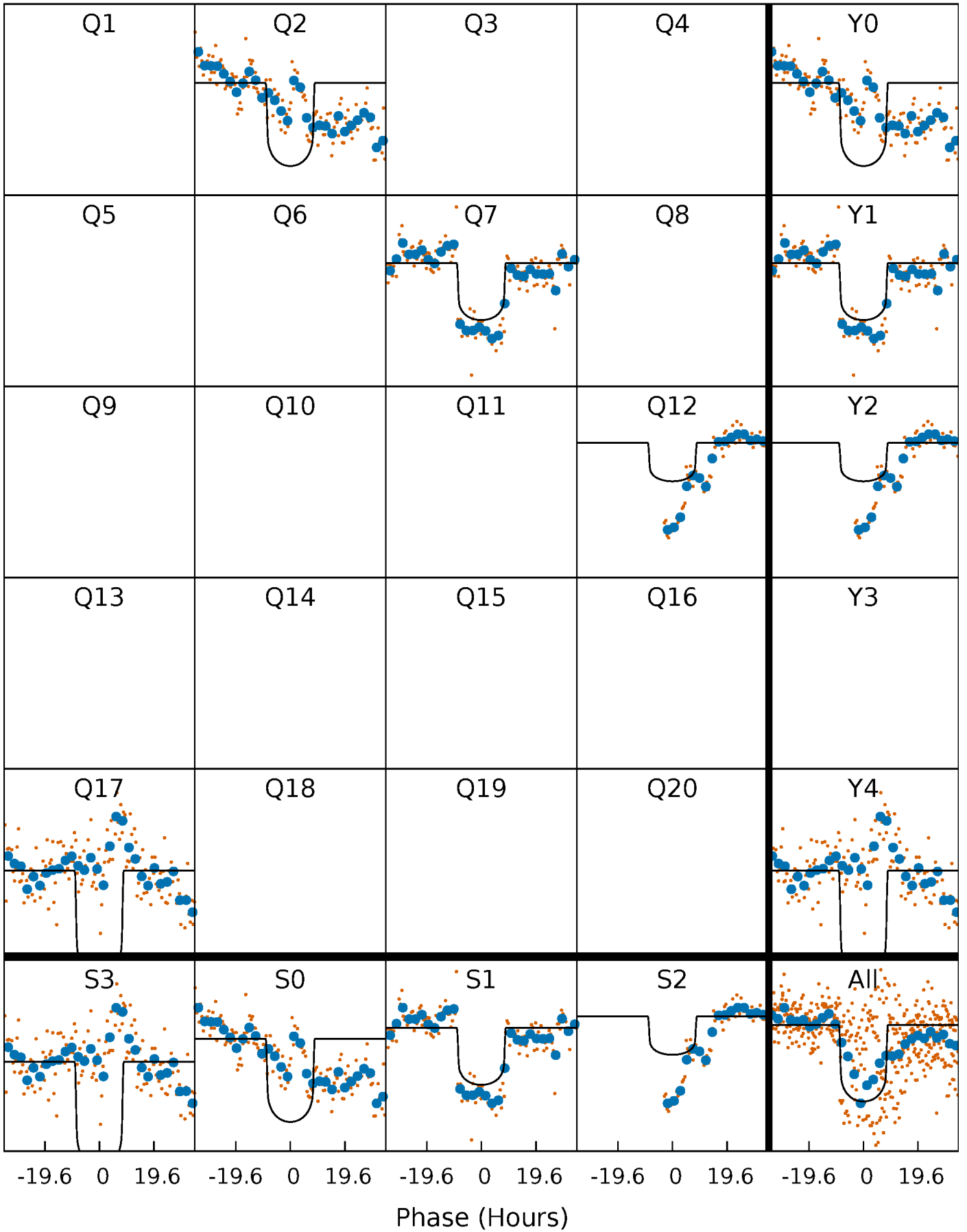
PDC Quarter-Phased Transit Curves

TCE 010533616-01 P=449.589136 Days $T_0=219.780896$ (BKJD)



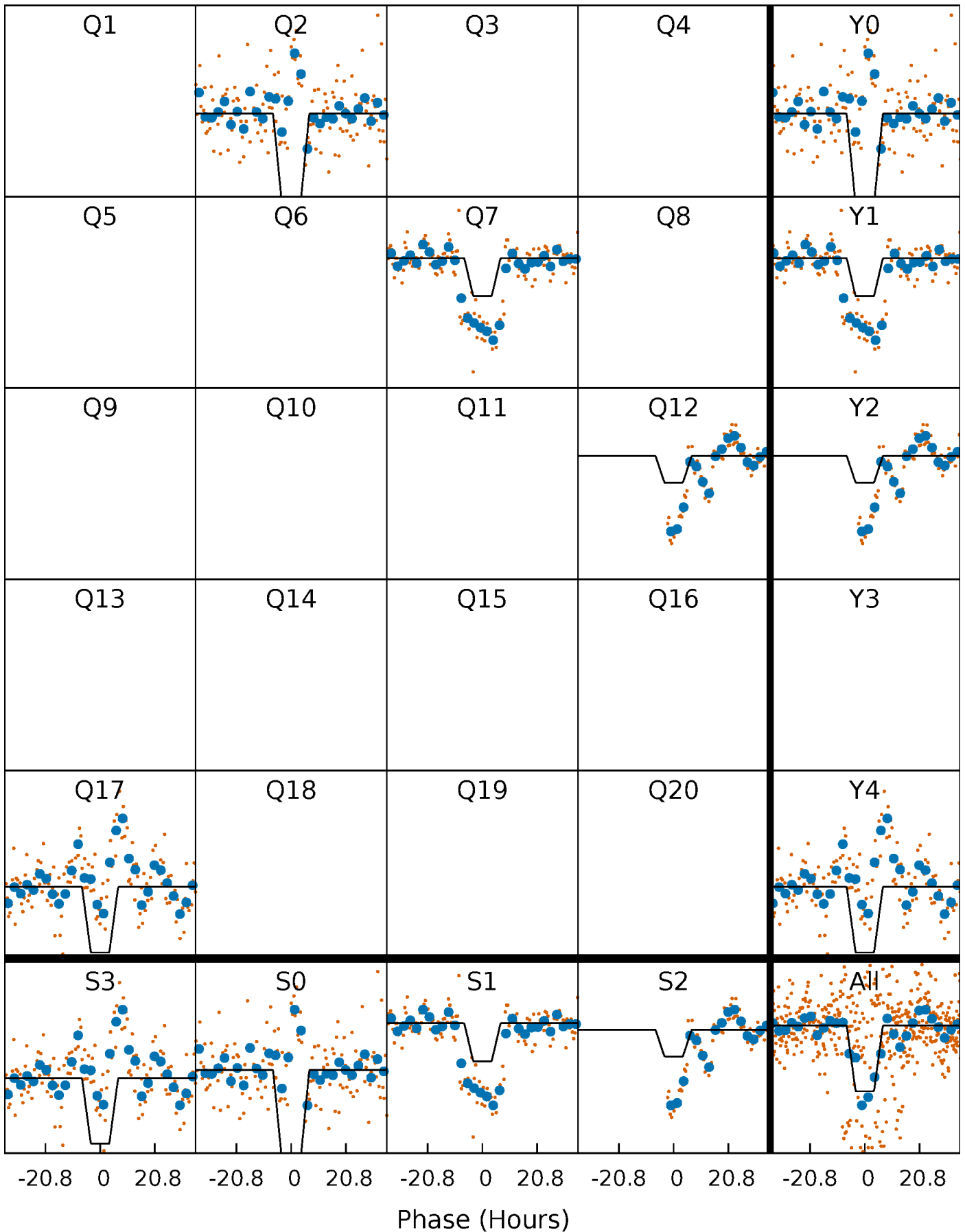
DV Quarter-Phased Transit Curves

TCE 010533616-01 $P=449.589136$ Days $T_0=219.780896$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

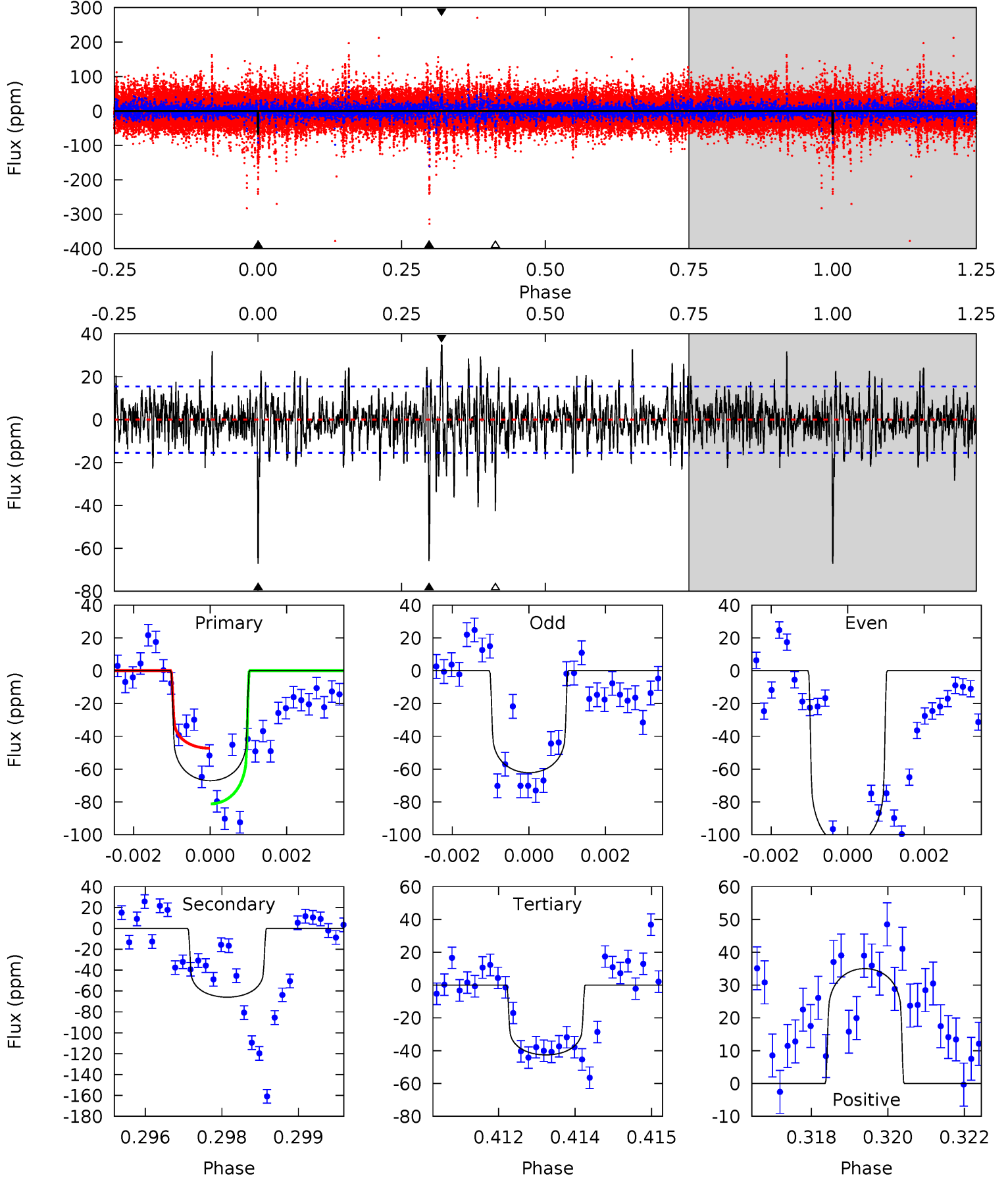
TCE 010533616-01 P=449.565565 Days $T_0=219.805140$ (BKJD)



DV Model-Shift Uniqueness Test

010533616-01, P = 449.589136 Days, E = 219.780896 Days

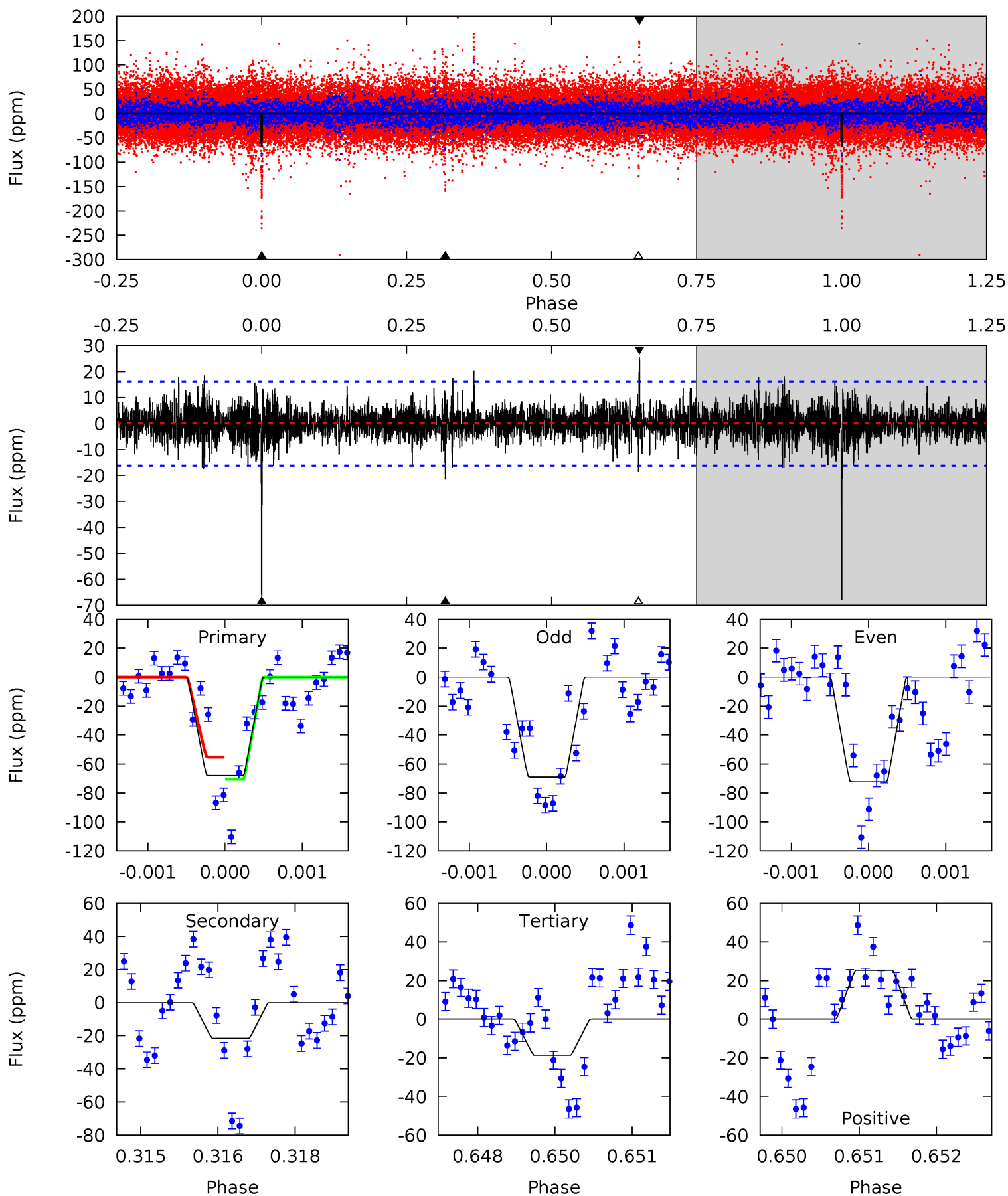
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
23.3	22.9	14.8	12.1	5.37	3.16	2.91	8.49	11.1	8.09	10.7	7.23	1.05	0.34	5.84



Alt Model-Shift Uniqueness Test

010533616-01, P = 449.565565 Days, E = 219.805140 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
22.6	7.17	6.21	8.47	5.40	3.21	1.54	16.4	14.1	0.96	-1.30	0.55	1.05	0.27	2.46



Stellar Parameters For KIC 010533616

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	$M(M_{\odot})$	p_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	8540^{+235}_{-403}	$3.799^{+0.364}_{-0.156}$	$0.070^{+0.250}_{-0.550}$	$3.211^{+0.976}_{-1.464}$	$2.365^{+0.318}_{-0.794}$	$0.101^{+0.304}_{-0.049}$
	+3%/-5%	+10%/-4%	+357%/-786%	+30%/-46%	+13%/-34%	+302%/-48%
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 010533616-01 / KOI

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	-66 ± 3	$3.51^{+0.80}_{-0.88}$	742^{+66}_{-87}	7207^{+530}_{-465}	6810^{+4316}_{-2156}
Alt.	-22 ± 3	$2.89^{+0.68}_{-0.70}$	741^{+67}_{-80}	5978^{+463}_{-425}	3329^{+2078}_{-1191}

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 $A_{obs} \gg 1.0$

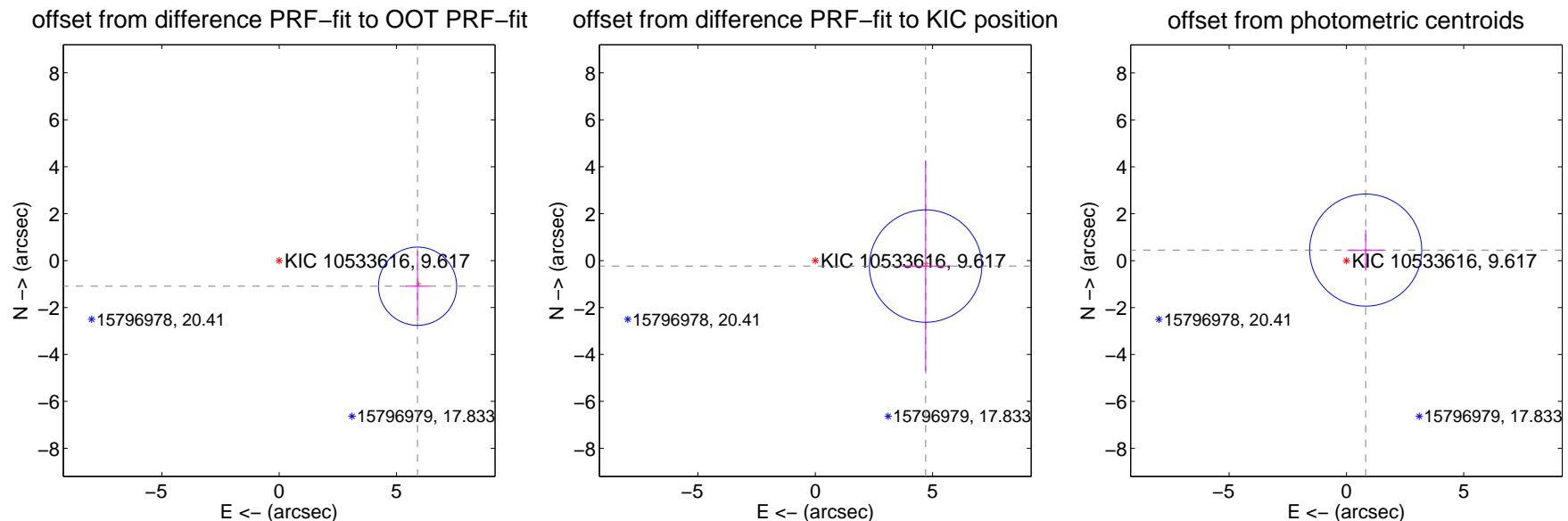
DV Centroid Data

Supplemental centroid analysis for 010533616-01. **Kepler magnitude: 9.62.** Transit SNR 18.21

There are 0 quarters with good PRF difference image offsets

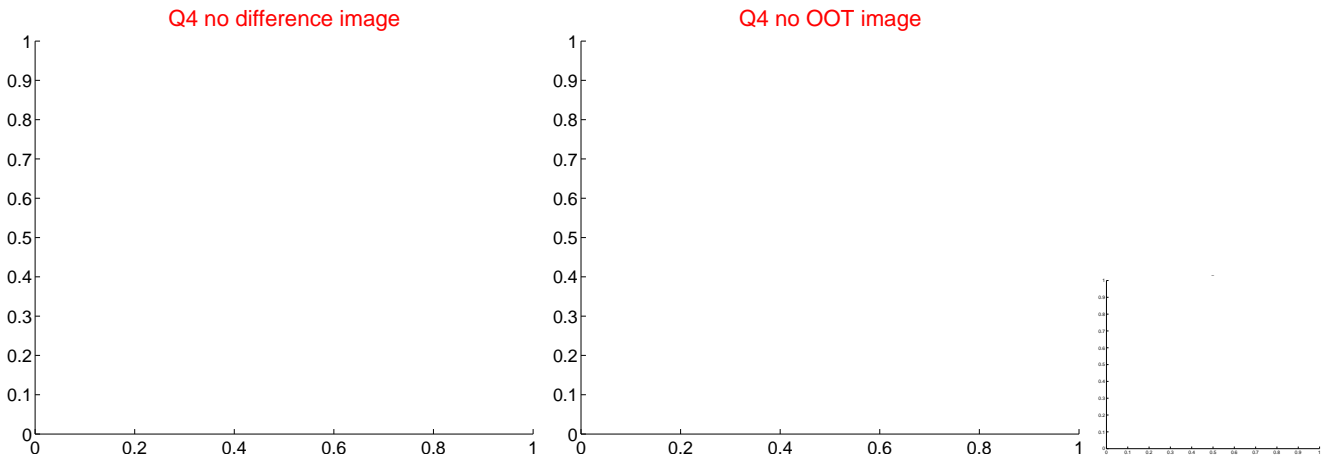
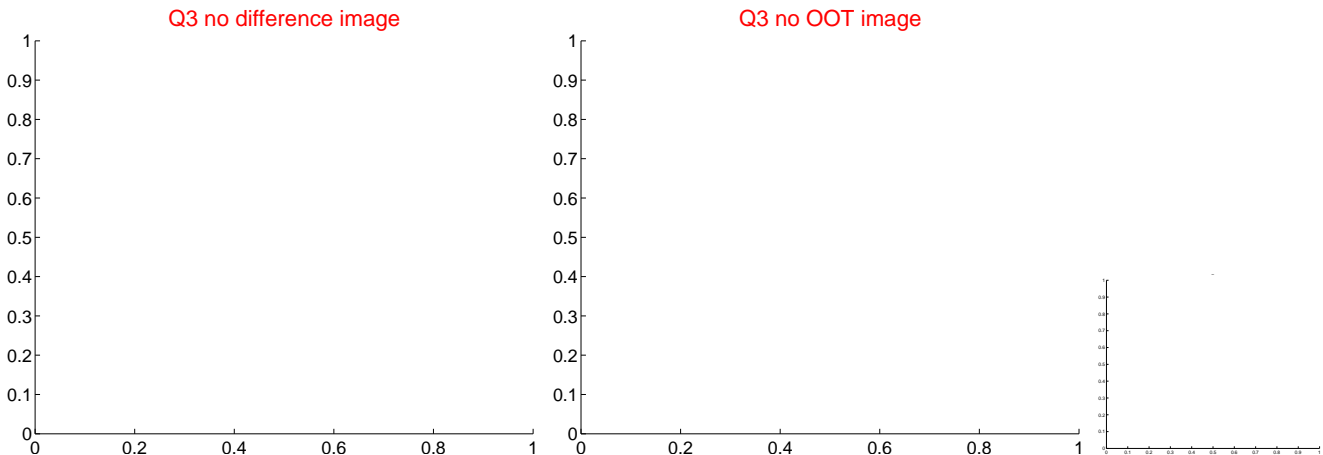
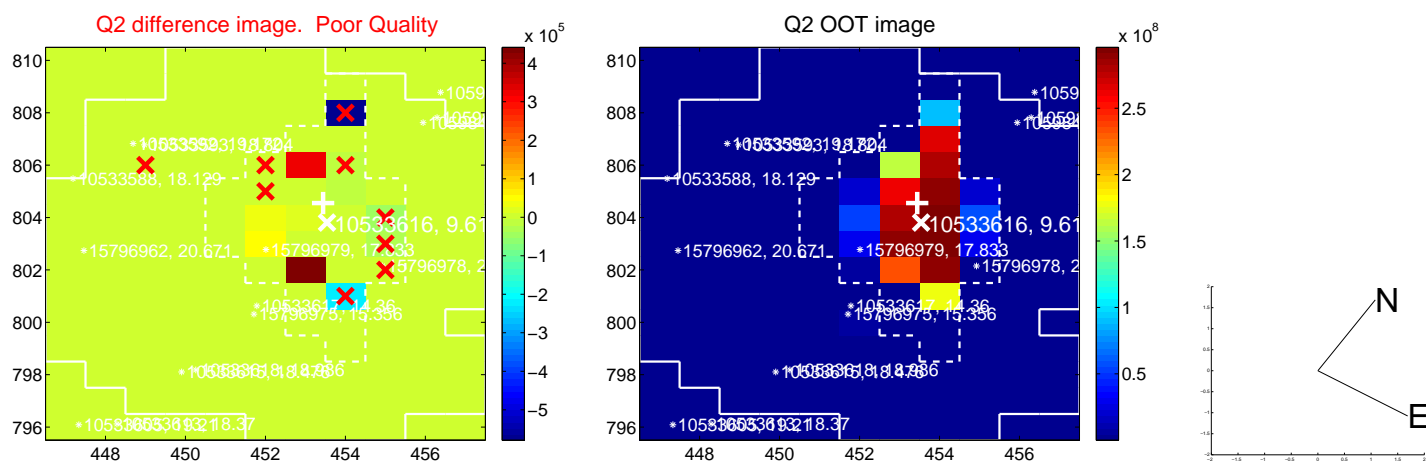
The direct PRF centroid is offset from the target star catalog position by about 1.48 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	6.001 ± 0.556	10.80	-5.900 ± 0.492	-1.092 ± 1.501
PRF-fit source offset from KIC position	4.709 ± 0.799	5.90	-4.704 ± 1.021	-0.233 ± 4.484
photometric centroid source offset	0.94 ± 0.80	1.18	-0.82 ± 0.77	0.45 ± 0.87



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



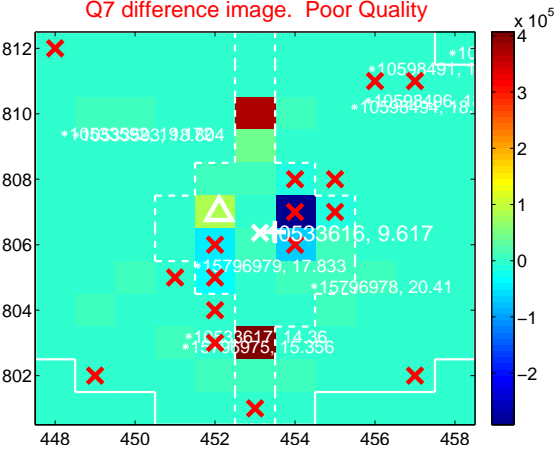
Q6 no difference image



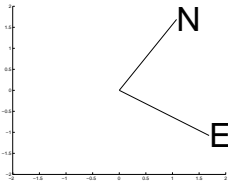
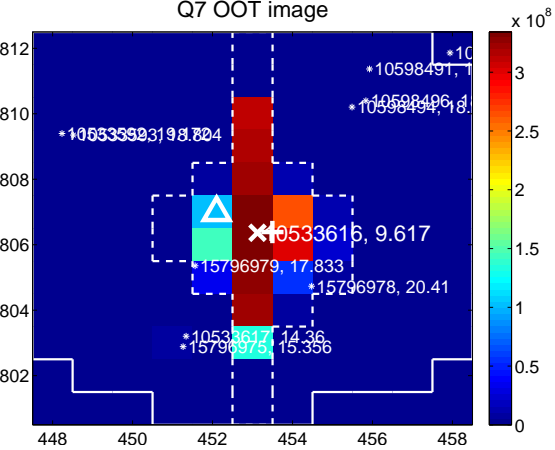
Q6 no OOT image



Q7 difference image. Poor Quality



Q7 OOT image



Q8 no difference image



Q8 no OOT image



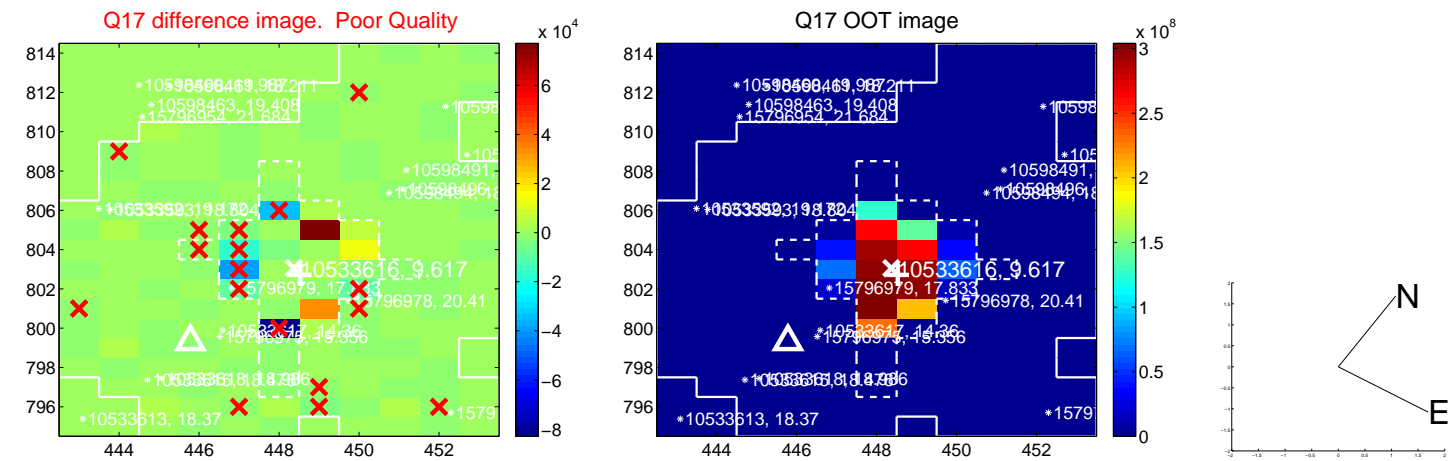
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



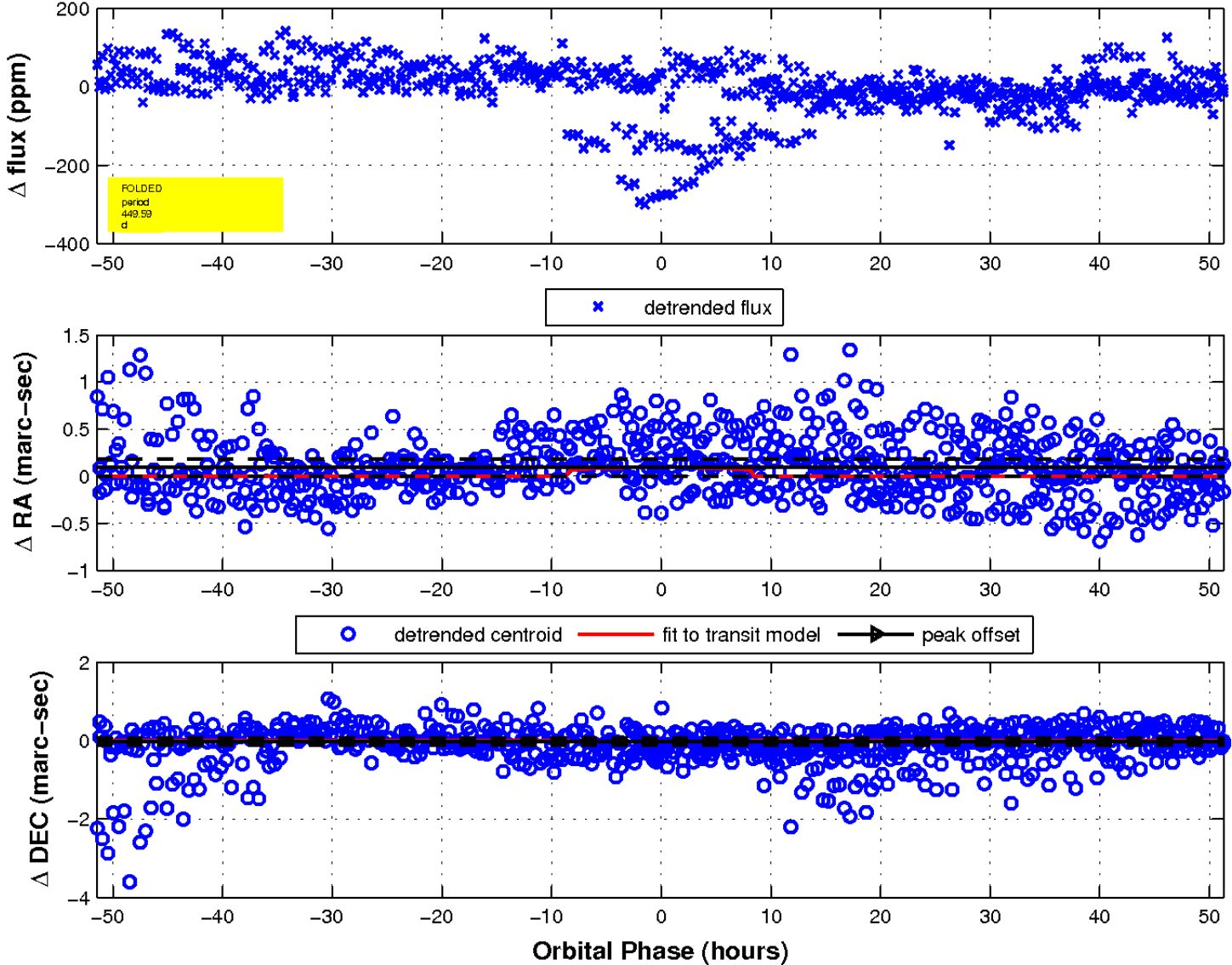
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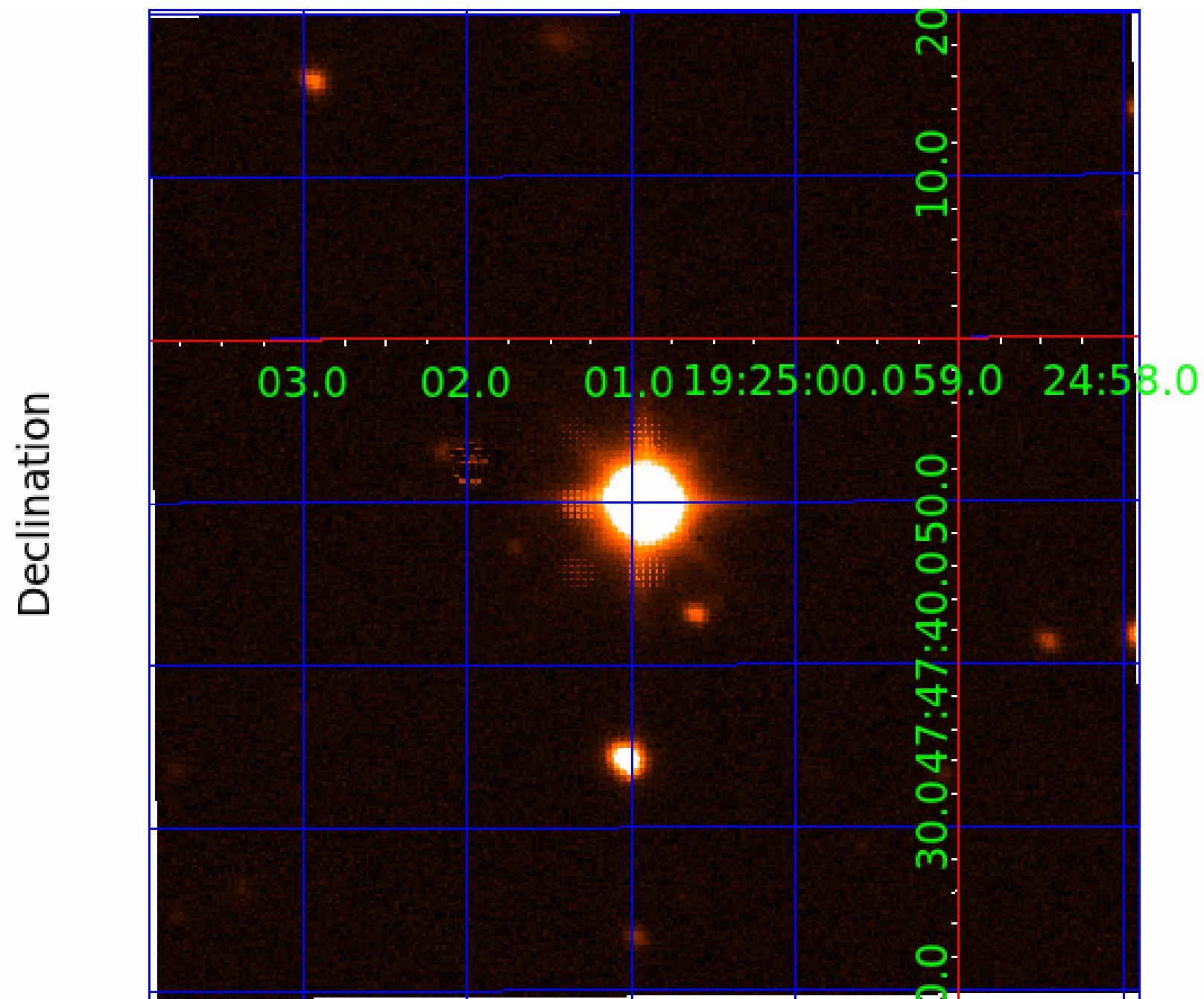
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



fluxWeightedCentroids, Planet 1 of 5



UKIRT Image



KIC 010533616

Q1-17 DR25 TCE Parameters

TCE	Run Type	KOI?	Period (Days)	Epoch (BKJD)	Depth (ppm)	Duration (Hours)	MES	SNR	R_{\star} (R_{\odot})	T_{\star} (K)	R_p (R_{\oplus})	S_p (S_{\oplus})
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Robovetter Results

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010533616-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_MARSHALL—ALL_TRANS_CHASES—INCONSISTENT_TRANS—CENT_SATURATED
010533616-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_MARSHALL—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_SATURATED
010533616-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—MOD_NONUNIQ_ALT—INCONSISTENT_TRANS—CENT_SATURATED
010533616-05	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_ALT—CENT_SATURATED

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

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

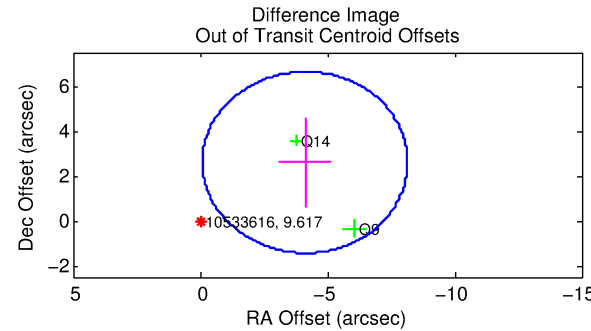
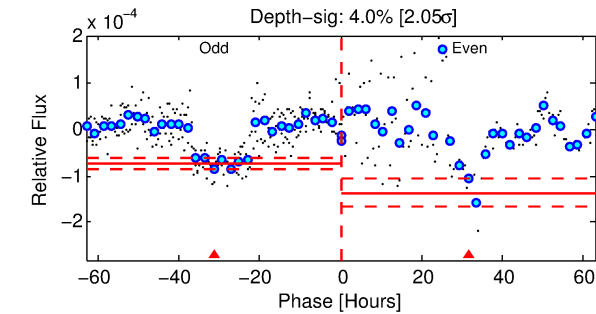
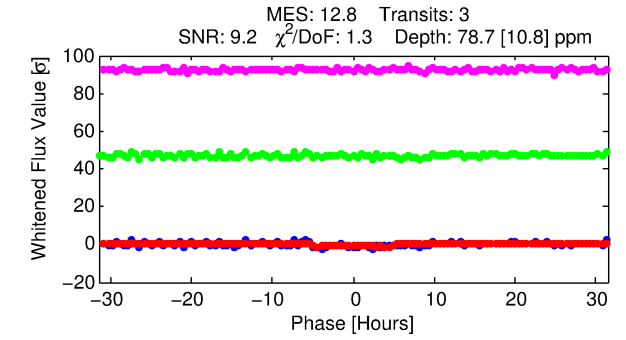
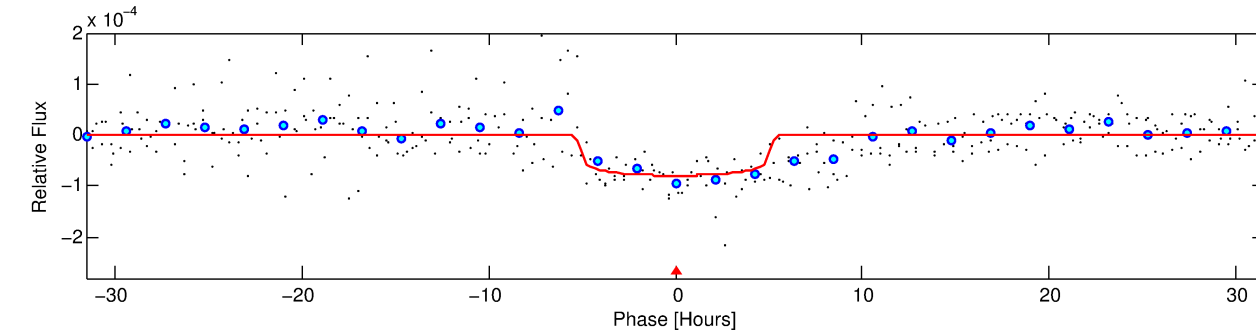
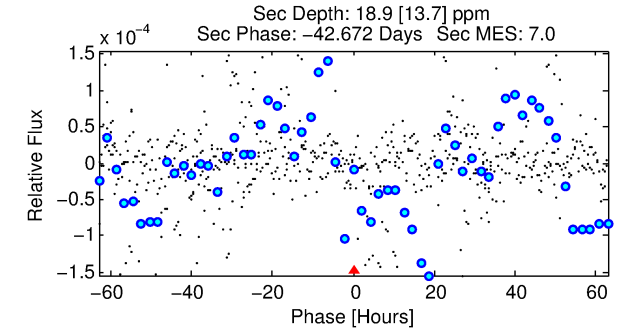
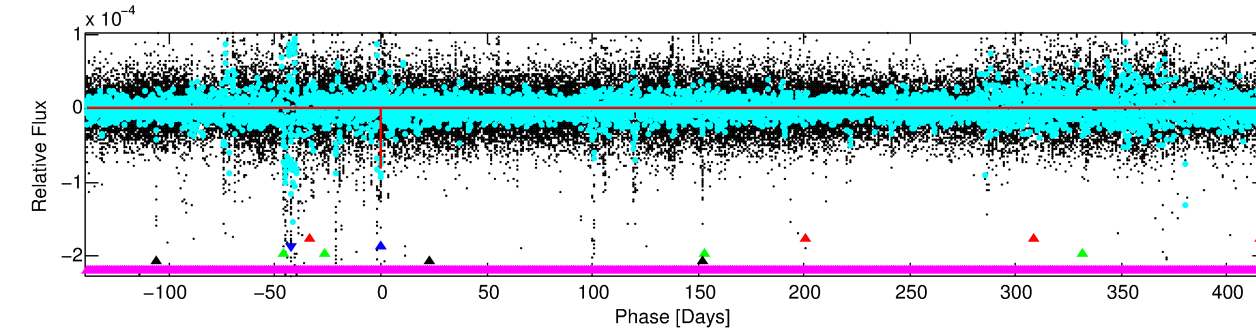
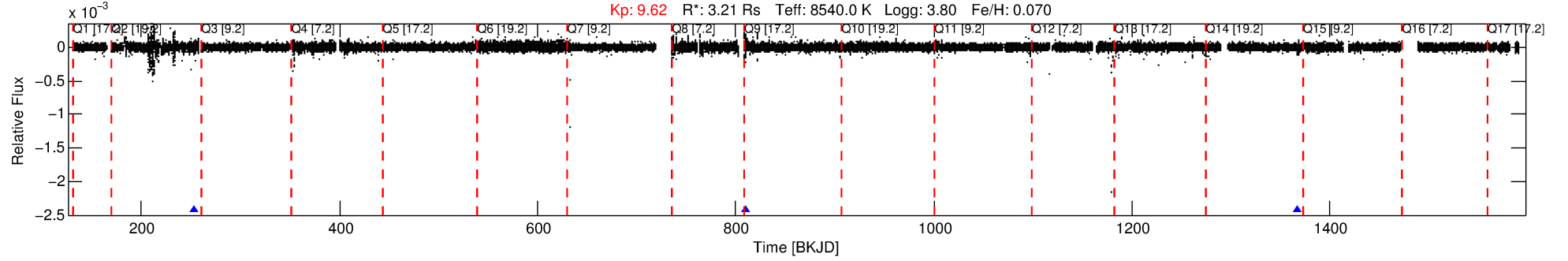
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 010533616-02

No Significant Match Found

DV One-Page Summary

KIC: 10533616 Candidate: 2 of 5 Period: 557.078 d



DV Fit Results:

Period = 557.07799 [0.00722] d
Epoch = 253.4951 [0.0105] BKJD
Rp/R* = 0.0092 [0.0018]
a/R* = 209.12 [243.26]
b = 0.87 [0.34]
Seff = 15.75 [10.45]
Teq = 508 [84] K
Rp = 3.23 [1.61] Re
a = 1.7663 [0.7292] AU
Ag = 3105.29 [3228.65] [0.96σ]
Teffp = 5863 [1237] K [4.32σ]

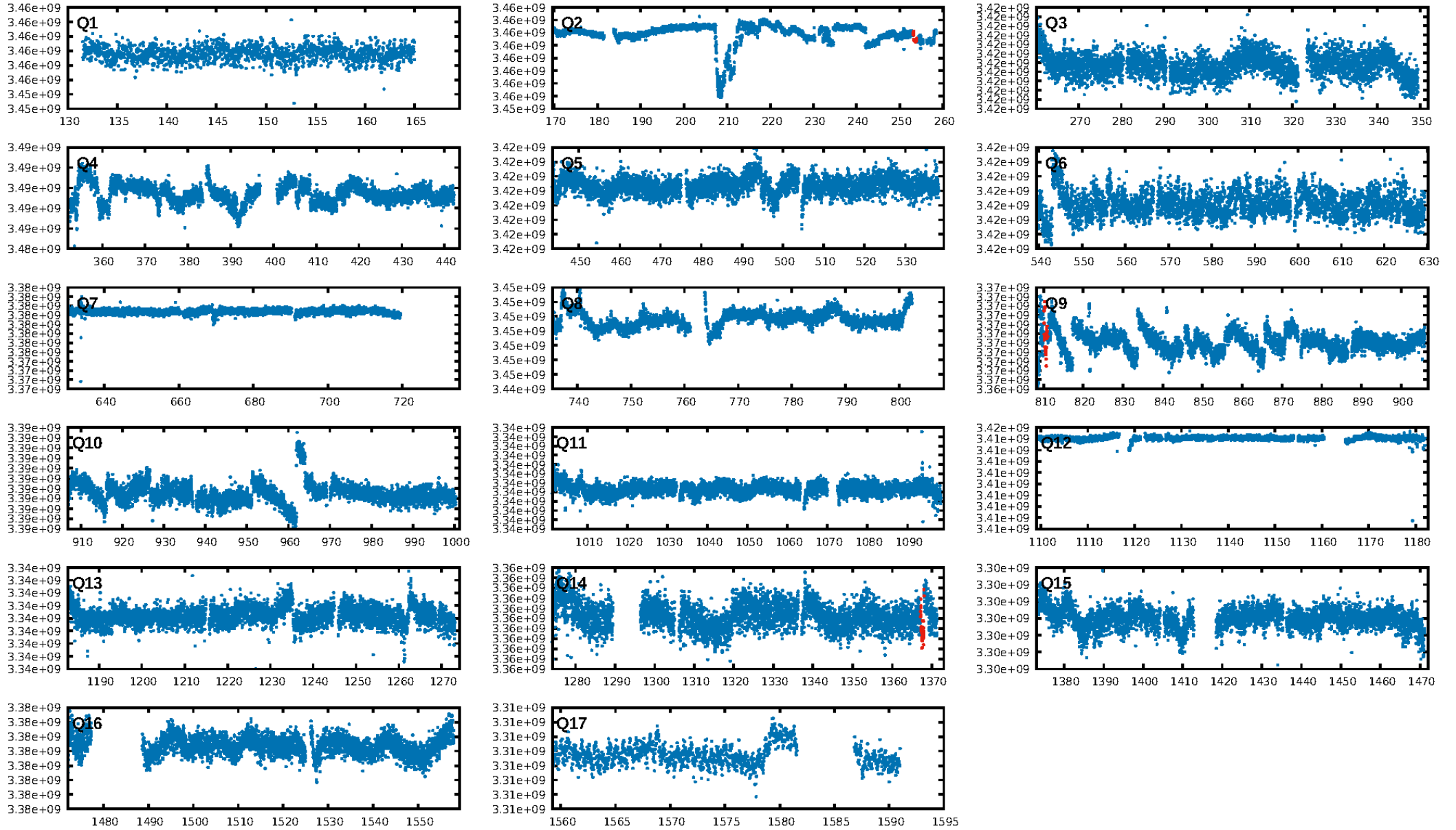
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [128.16σ]
LongPeriod-sig: N/A
ModelChiSquare2-sig: 4.0%
ModelChiSquareGof-sig: 99.7%
Bootstrap-pfa: N/A
RollingBand-fgt: 1.00 [3/3]
GhostDiagnostic-chr: N/A
Centroid-sig: 15.8%
Centroid-so: 2.998 arcsec [1.20σ]
OotOffset-rm: 4.871 arcsec [3.62σ]
KicOffset-rm: 6.748 arcsec [3.19σ]
OotOffset-st: 1/0/0/1 [2]
KicOffset-st: 1/0/0/1 [2]
DiffImageQuality-fgm: 0.00 [0/2]
DiffImageOverlap-fno: 0.00 [0/3]

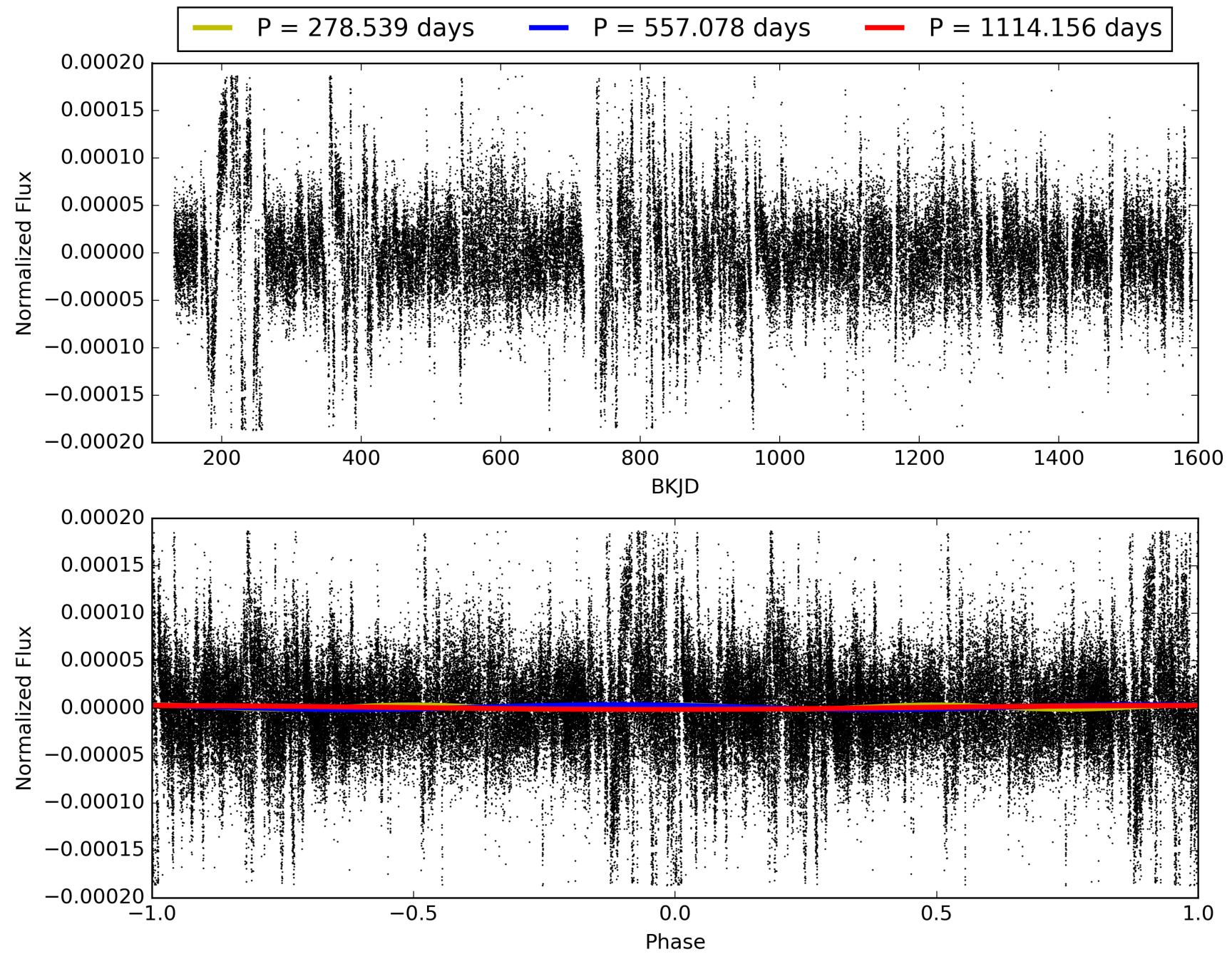
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 05:36:15 Z

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

TCE 010533616-02, PDC Light Curves

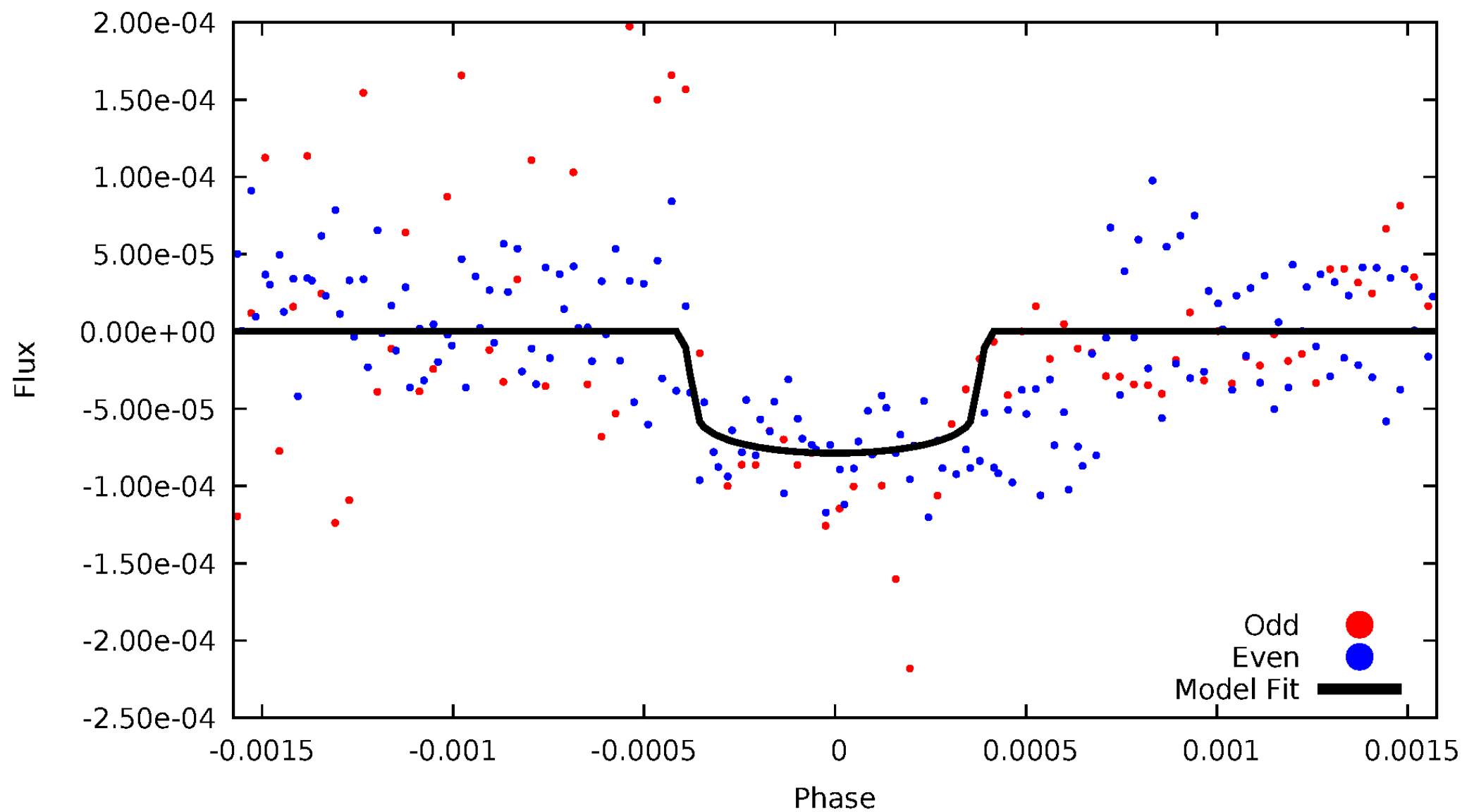


TCE 010533616-02



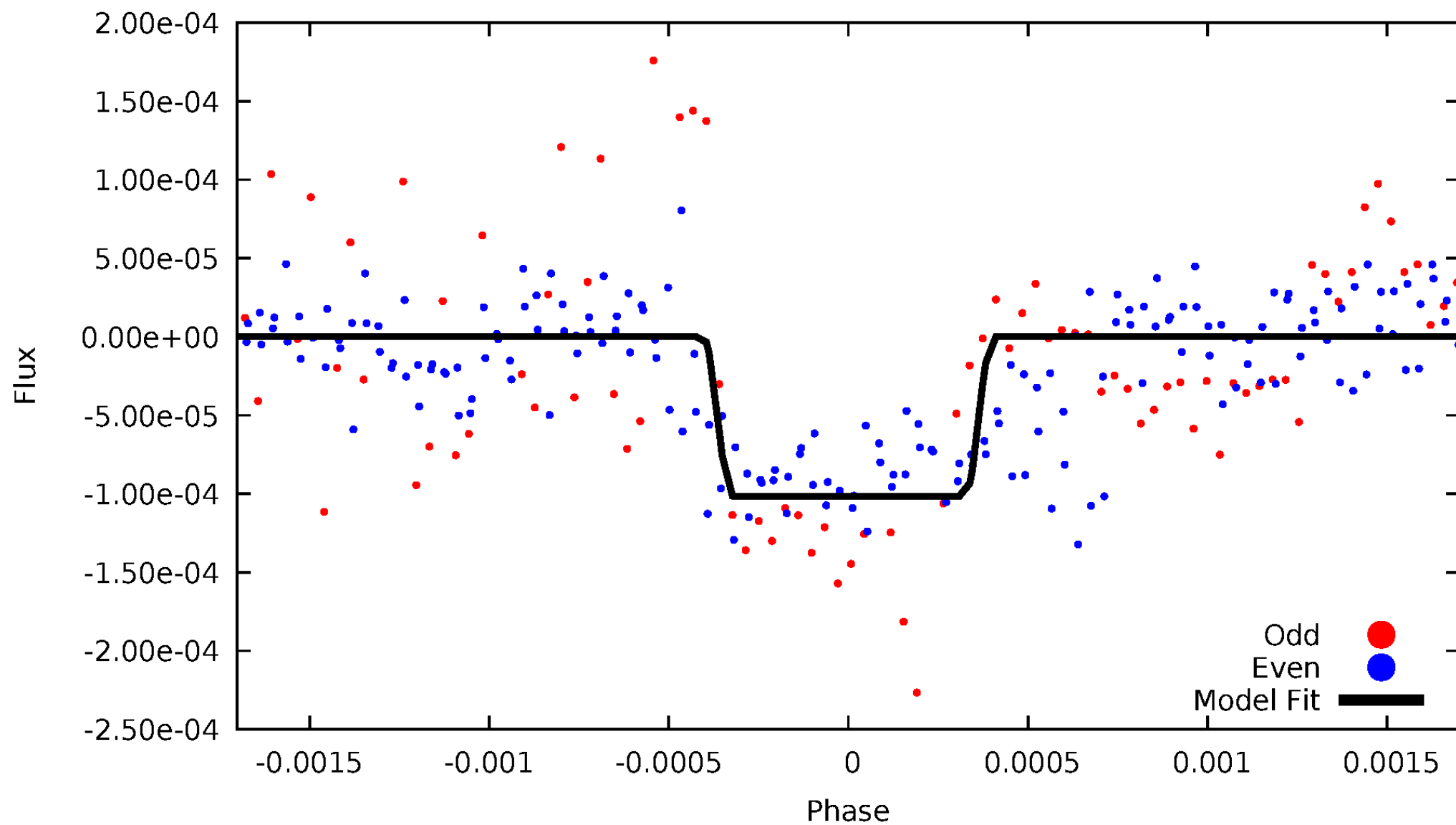
DV Odd/Even

TCE 010533616-02



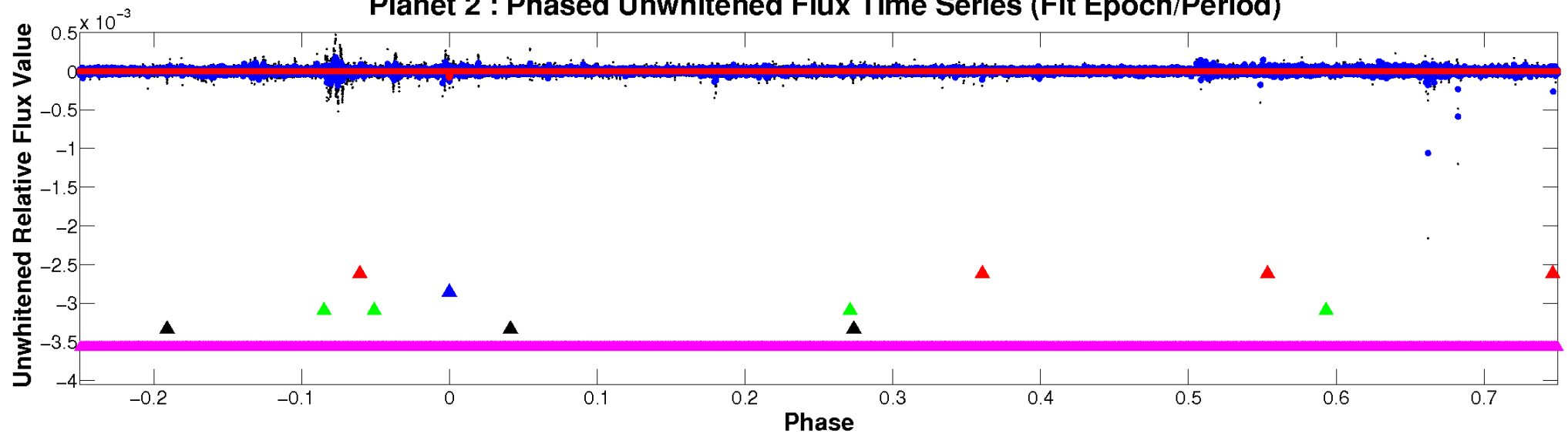
ALT Odd/Even

TCE 010533616-02

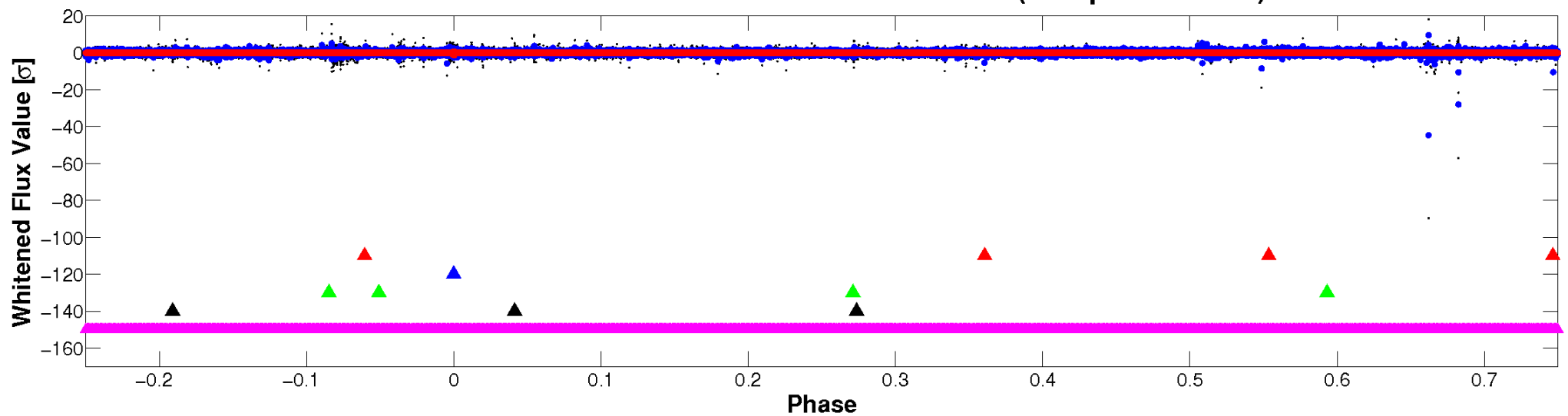


Non-Whitened Vs. Whitened Light Curve

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

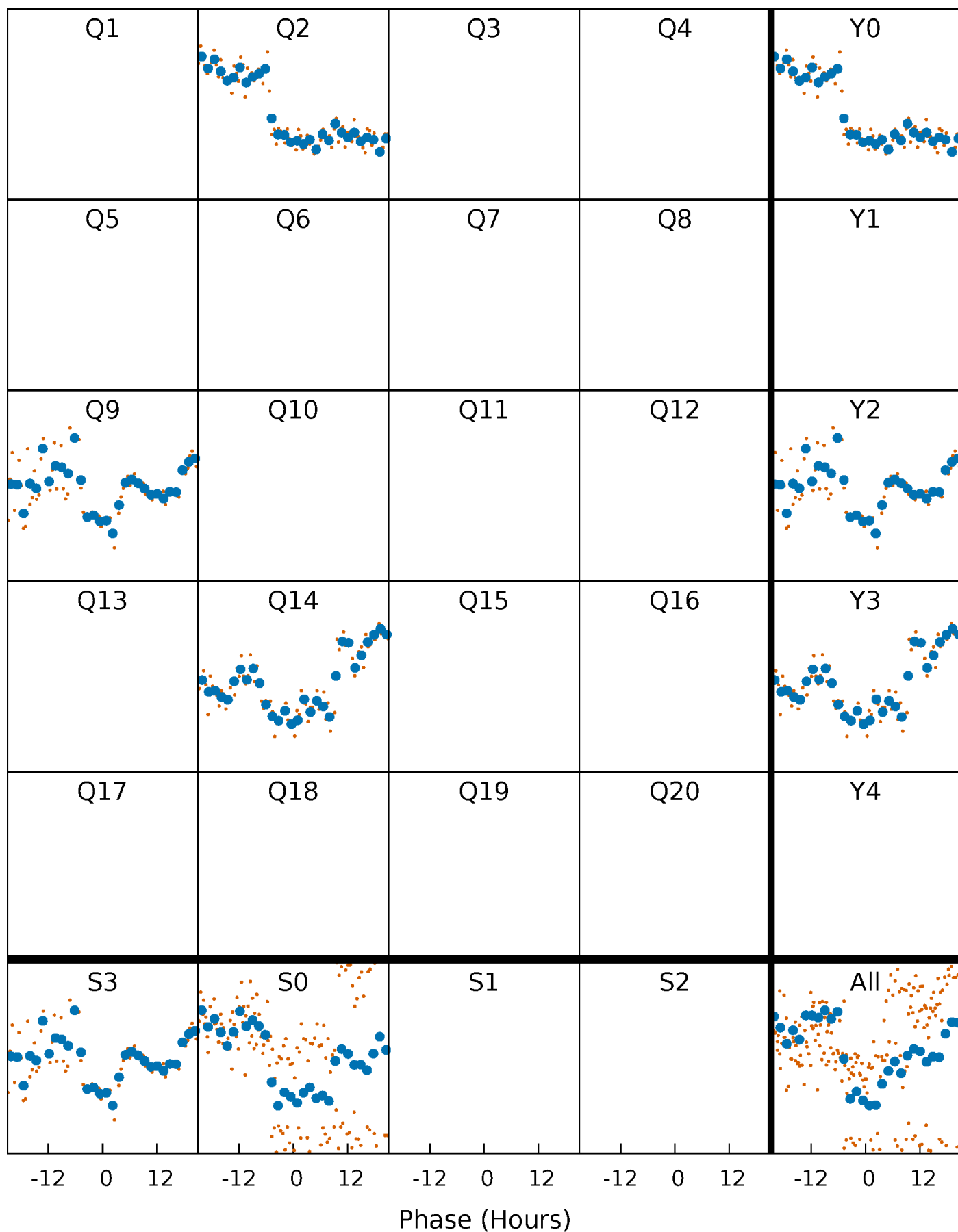


Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



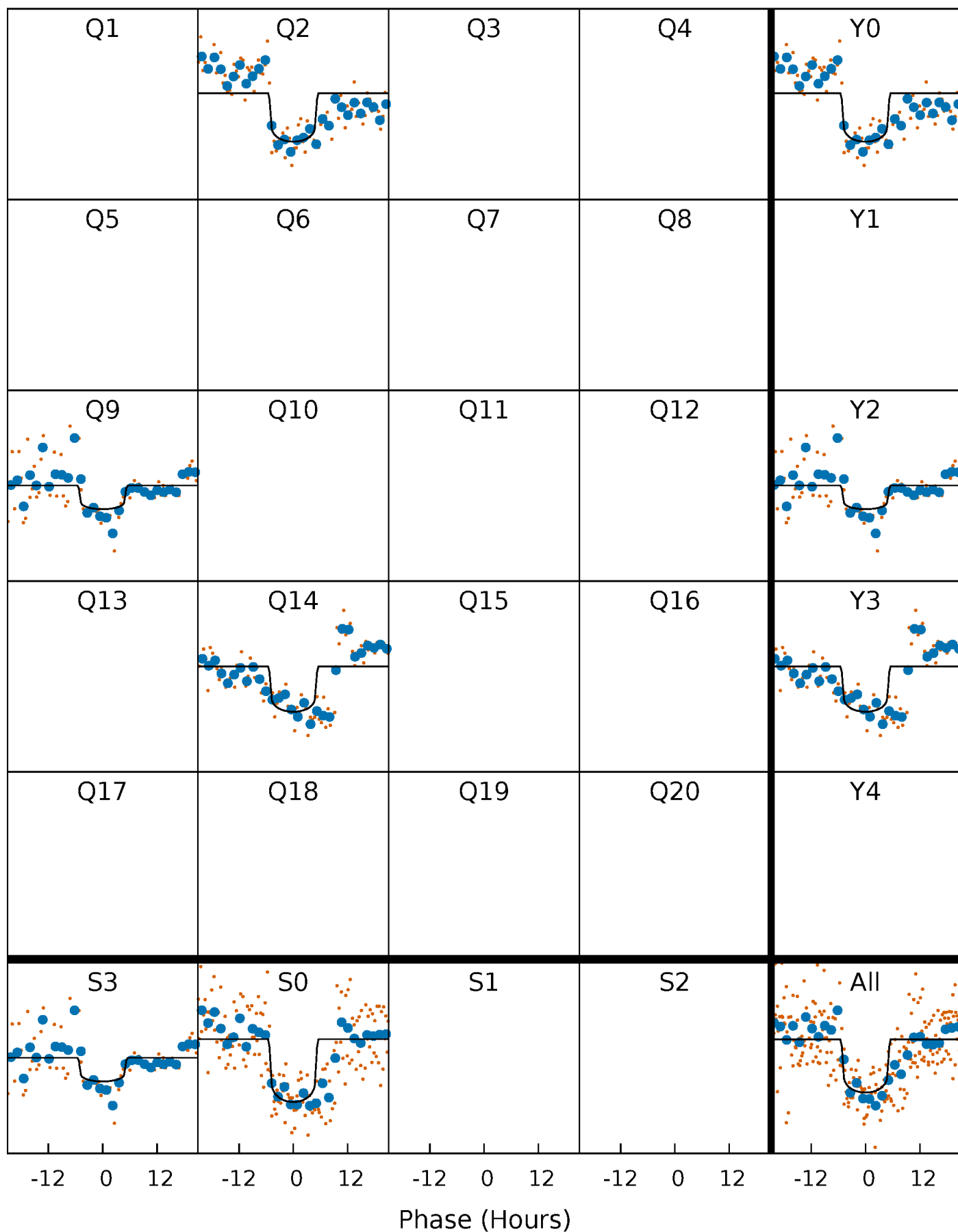
PDC Quarter-Phased Transit Curves

TCE 010533616-02 $P=557.077987$ Days $T_0=253.495074$ (BKJD)



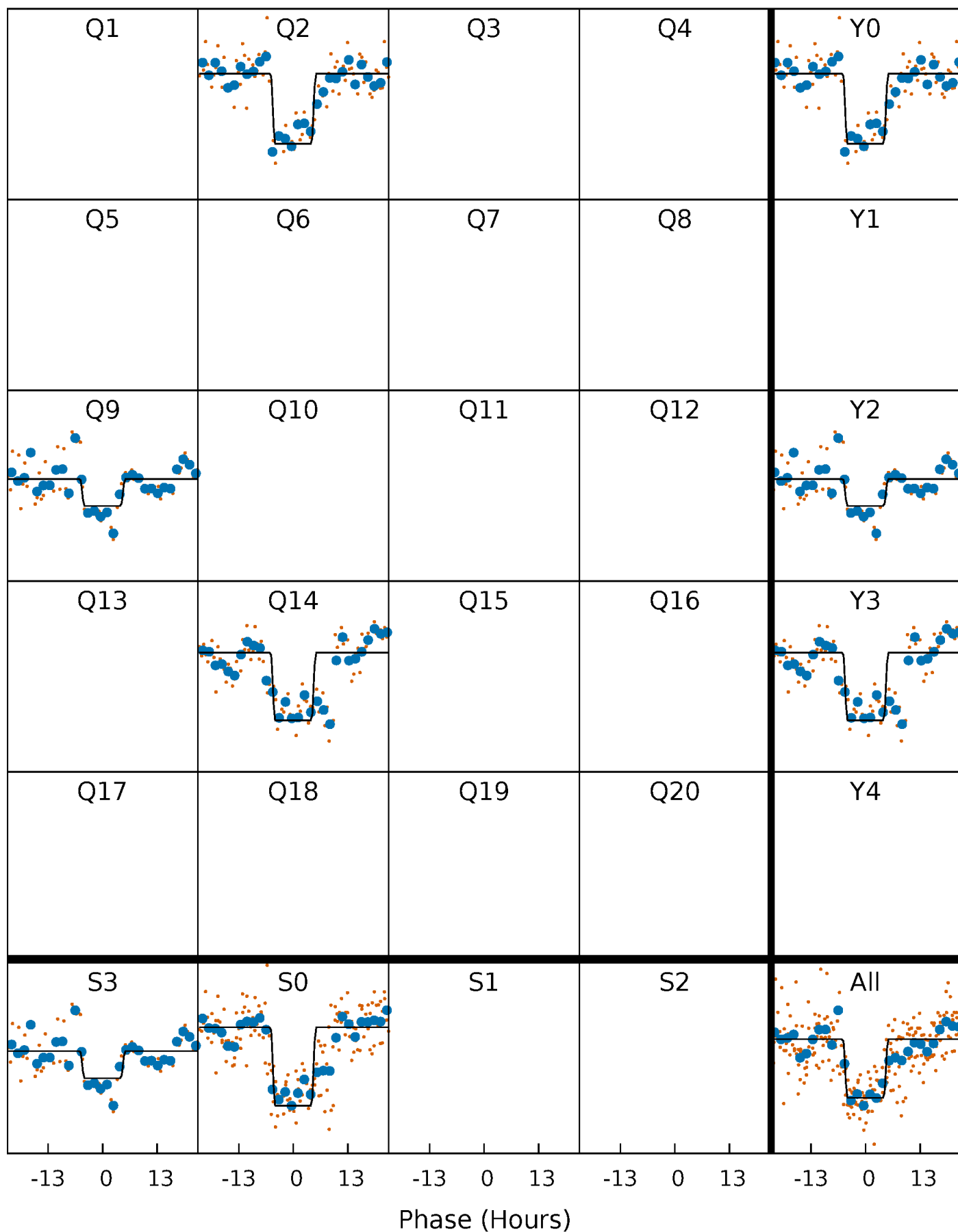
DV Quarter-Phased Transit Curves

TCE 010533616-02 P=557.077987 Days $T_0=253.495074$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

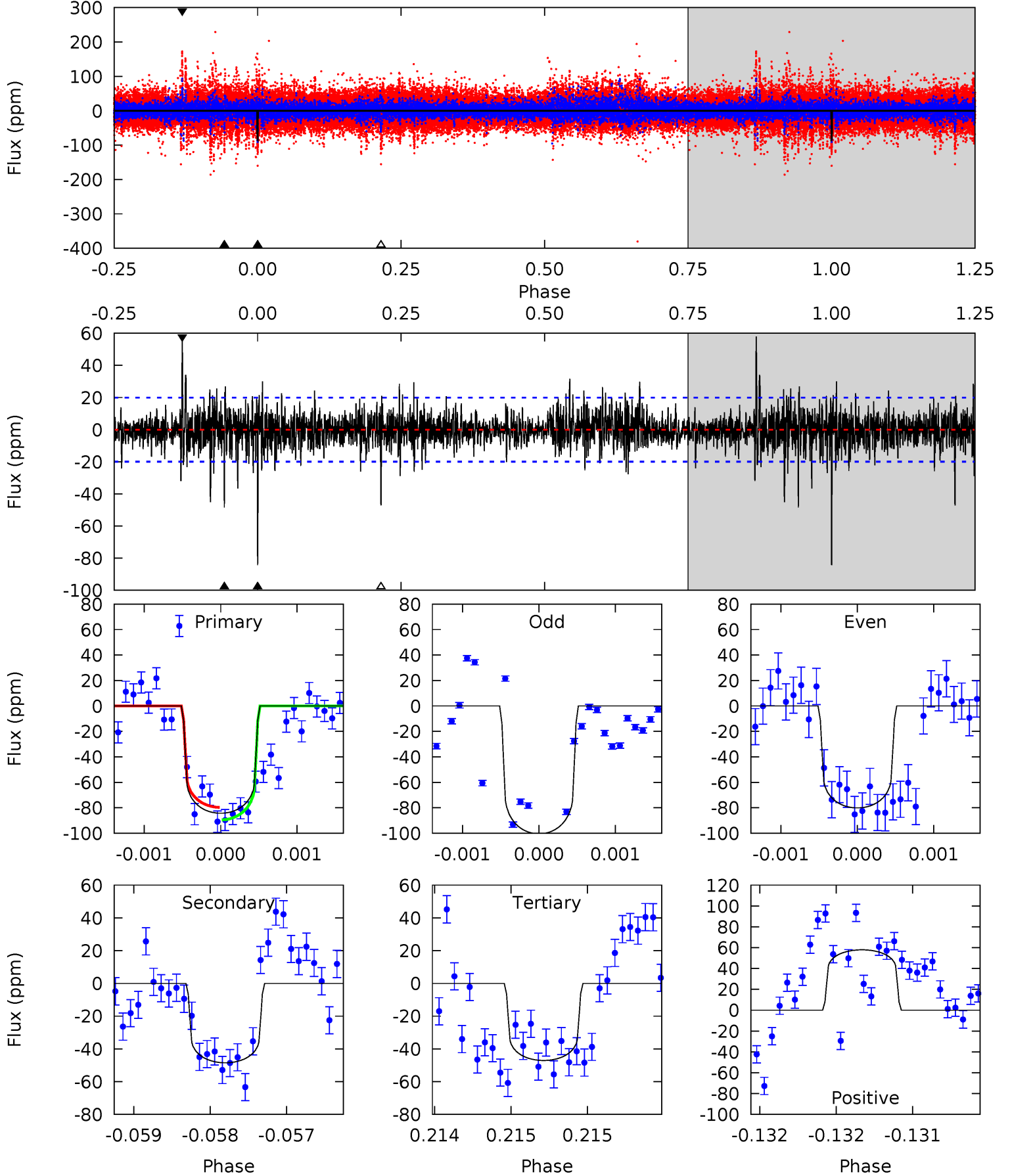
TCE 010533616-02 P=557.059713 Days $T_0=253.515960$ (BKJD)



DV Model-Shift Uniqueness Test

010533616-02, P = 557.077987 Days, E = 253.495074 Days

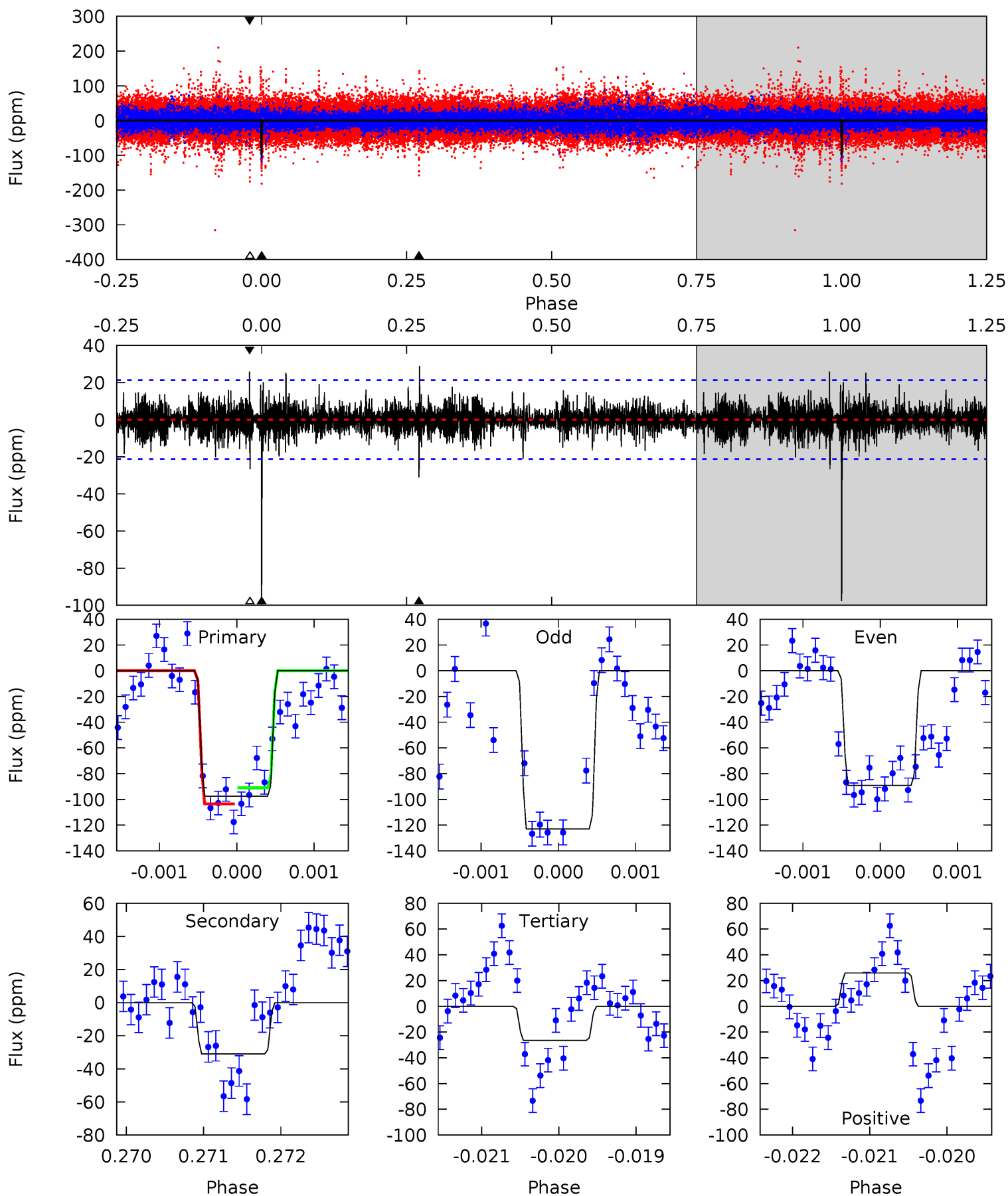
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
23.2	13.4	13.0	16.0	5.49	3.35	2.19	10.3	7.26	0.39	-2.60	2.40	1.04	0.41	1.35



Alt Model-Shift Uniqueness Test

010533616-02, P = 557.059713 Days, E = 253.515960 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
25.2	8.01	6.84	6.69	5.50	3.36	1.33	18.3	18.5	1.17	1.32	3.95	1.10	0.23	1.60



Stellar Parameters For KIC 010533616

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	$M(M_{\odot})$	p_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	8540^{+235}_{-403}	$3.799^{+0.364}_{-0.156}$	$0.070^{+0.250}_{-0.550}$	$3.211^{+0.976}_{-1.464}$	$2.365^{+0.318}_{-0.794}$	$0.101^{+0.304}_{-0.049}$
	+3%/-5%	+10%/-4%	+357%/-786%	+30%/-46%	+13%/-34%	+302%/-48%
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 010533616-02 / KOI

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	-48 ± 4	$2.97^{+0.98}_{-0.80}$	691^{+65}_{-79}	7203^{+1053}_{-775}	9119^{+7990}_{-3872}
Alt.	-31 ± 4	$3.29^{+1.01}_{-0.87}$	691^{+63}_{-81}	6055^{+683}_{-532}	4678^{+3996}_{-1806}

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

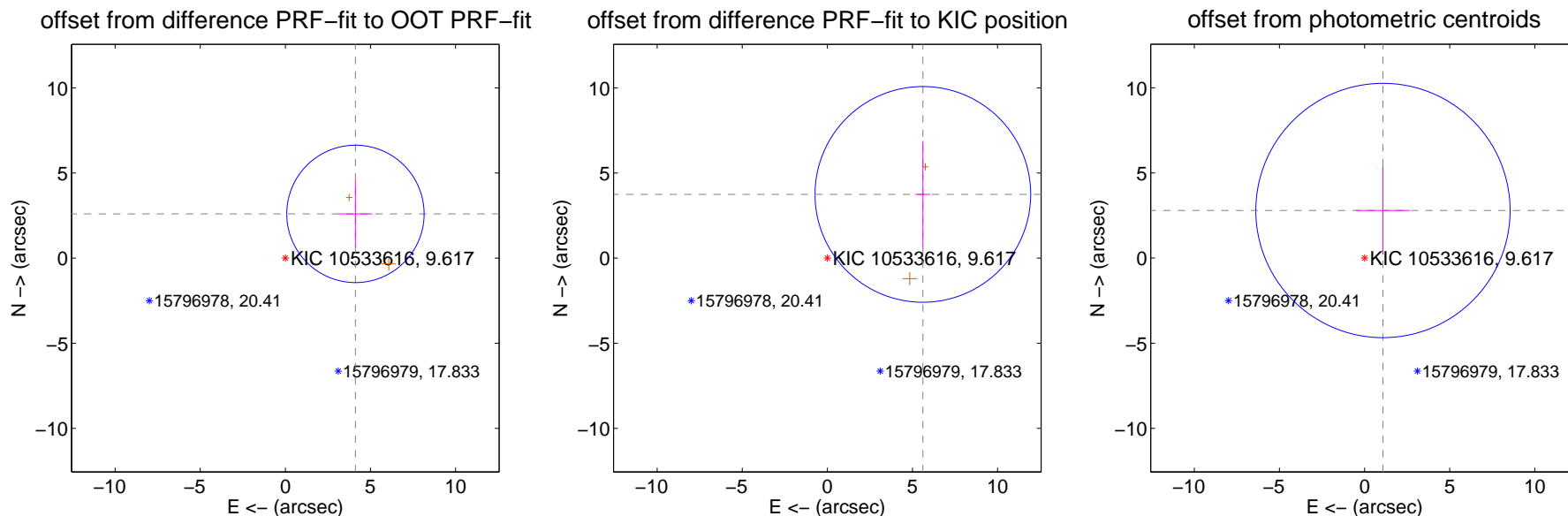
DV Centroid Data

Supplemental centroid analysis for 010533616-02. **Kepler magnitude: 9.62.** Transit SNR 9.25

There are 0 quarters with good PRF difference image offsets

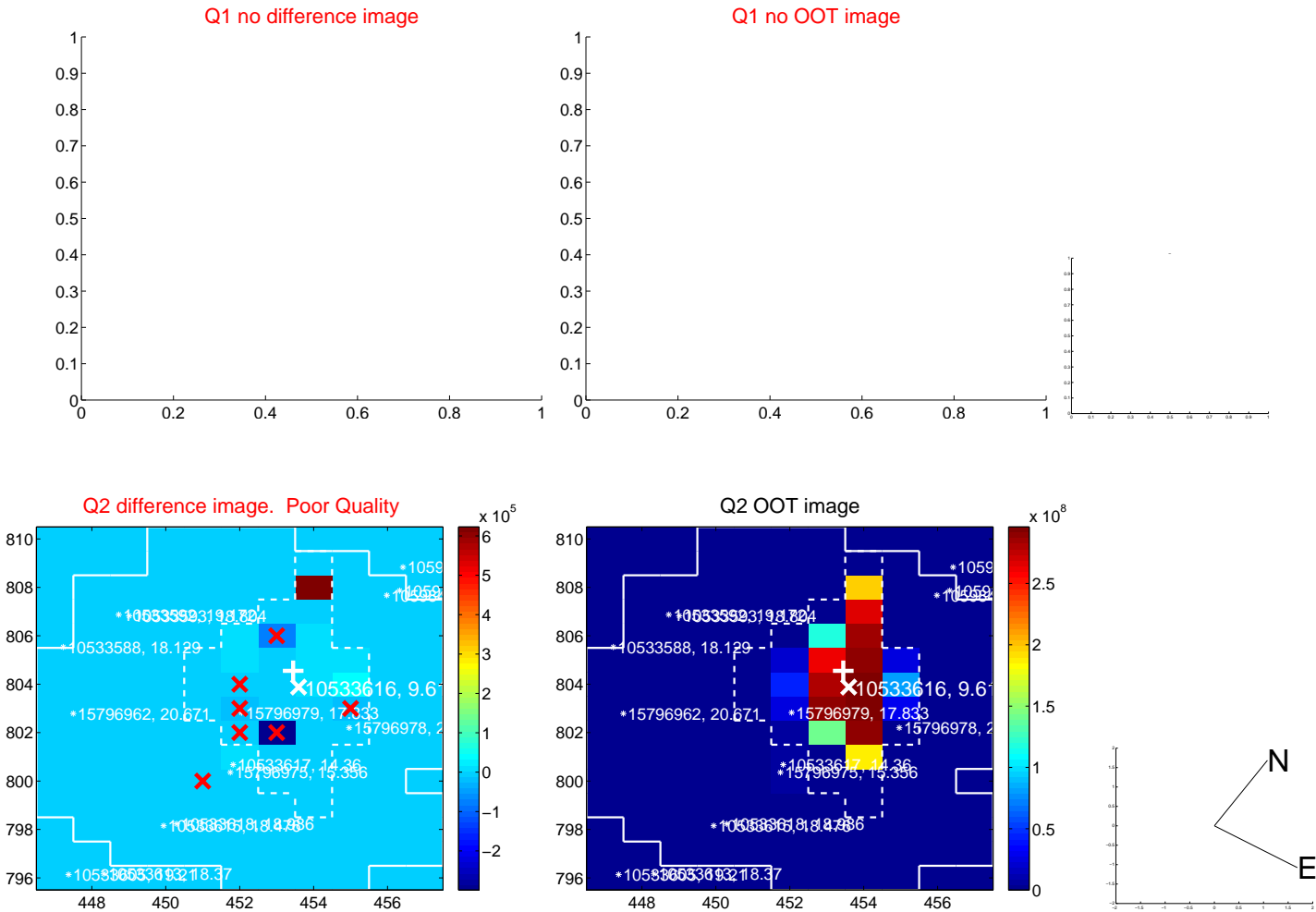
The OOT PRF centroid is offset from the target star catalog position by about 2.70 arcsec so the offset from difference PRF-fit to OOT-fit may be invalid.

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	4.871 ± 1.345	3.62	-4.119 ± 0.995	2.601 ± 1.967
PRF-fit source offset from KIC position	6.748 ± 2.113	3.19	-5.612 ± 0.445	3.747 ± 3.145
photometric centroid source offset	3.00 ± 2.49	1.20	-1.08 ± 1.58	2.80 ± 2.60



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.

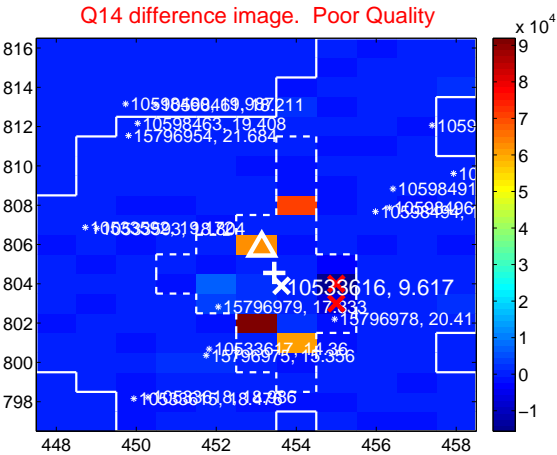
Q13 no difference image



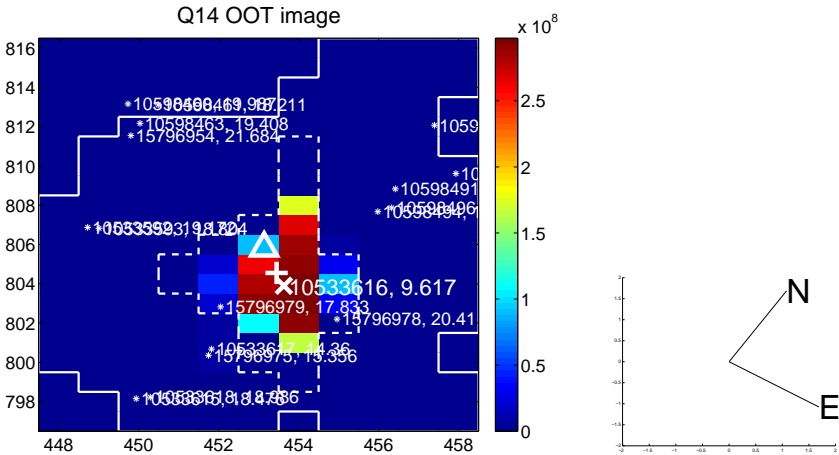
Q13 no OOT image



Q14 difference image. Poor Quality



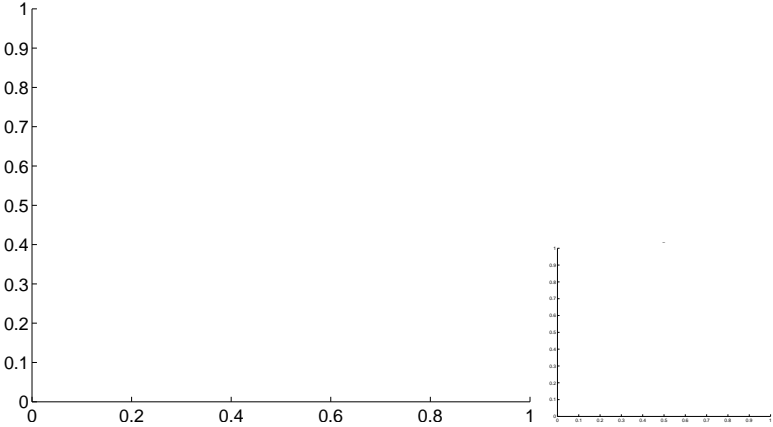
Q14 OOT image



Q15 no difference image



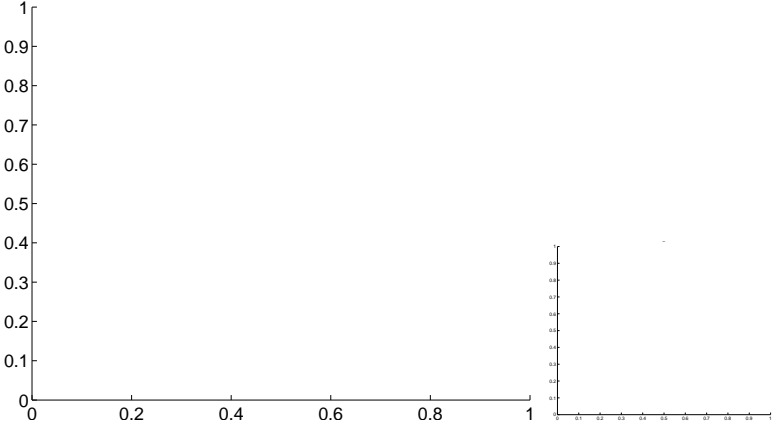
Q15 no OOT image



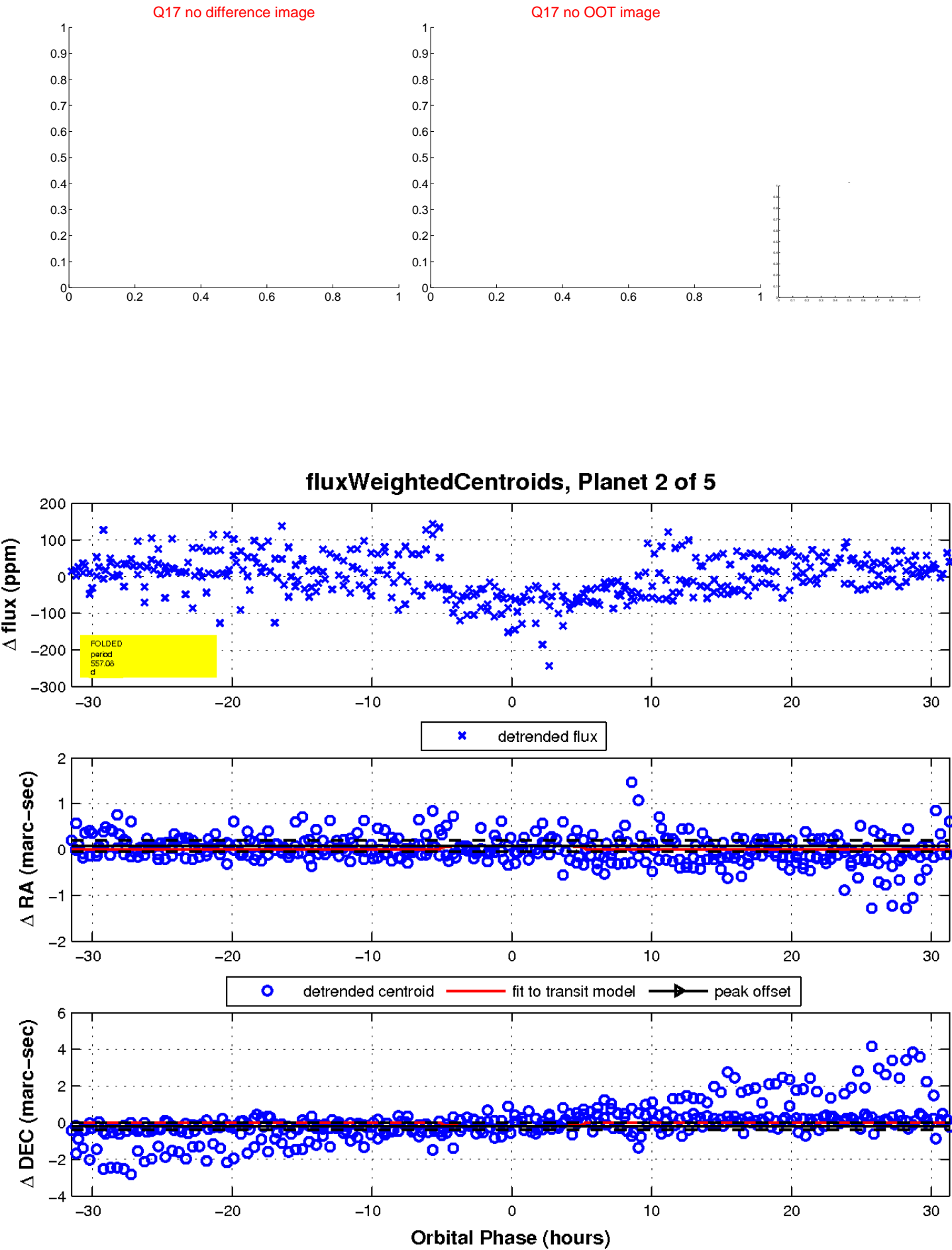
Q16 no difference image



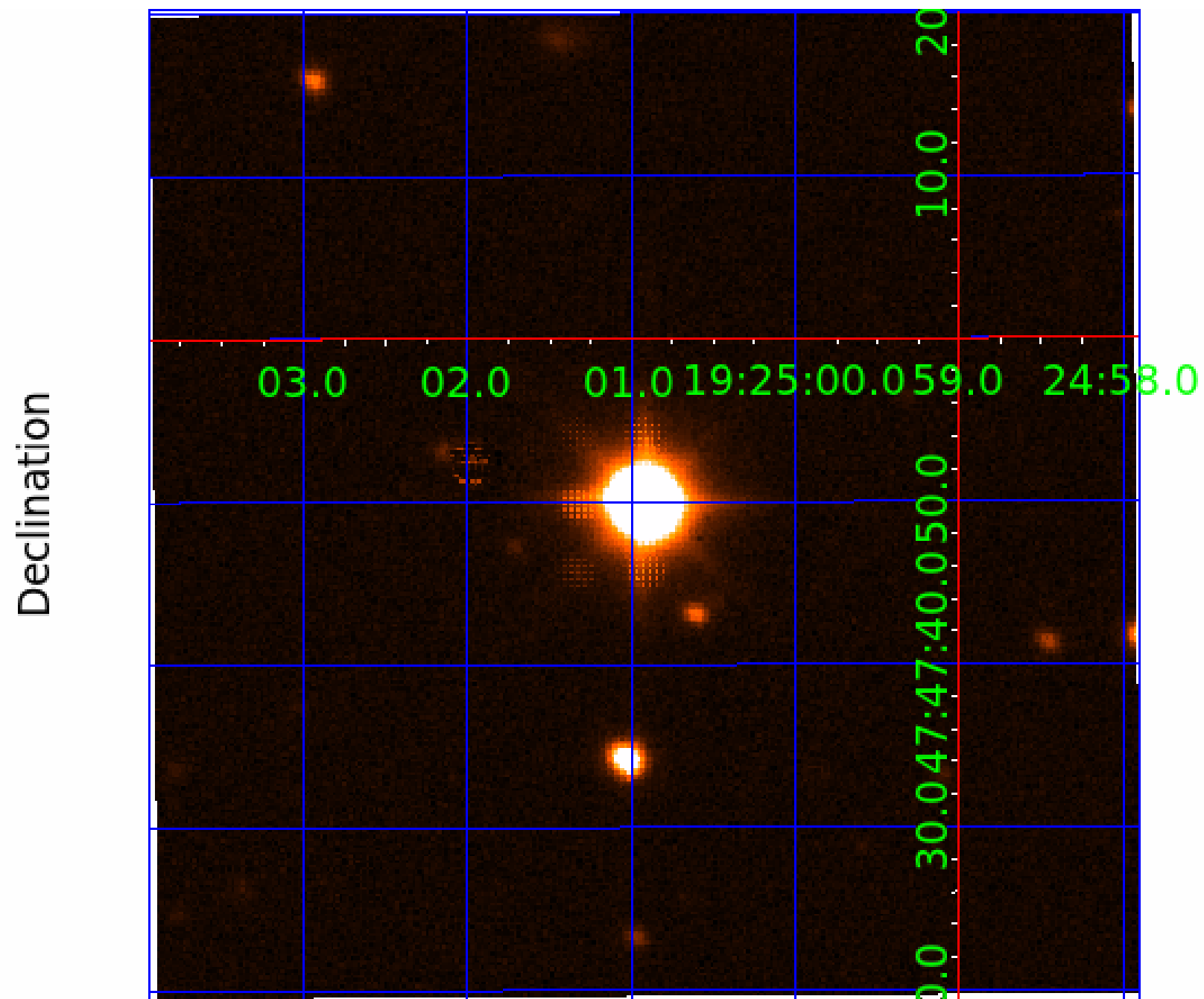
Q16 no OOT image



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



UKIRT Image



KIC 010533616

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})
010533616-01	OBS	No	449.589136	219.780896	116.3	17.158	19.8	18.2	3.21	8540	3.71	20.96
010533616-02	OBS	No	557.077987	253.495075	78.7	10.526	12.8	9.2	3.21	8540	3.23	15.75
010533616-03	OBS	No	377.687112	206.256956	62.1	15.000	15.8	-1.0	3.21	8540	2.57	26.44
010533616-04	OBS	No	427.670521	405.941817	115.1	3.378	12.6	12.3	3.21	8540	3.90	22.41
010533616-05	OBS	No	0.621661	131.735009	1.2	7.460	10.2	3.8	3.21	8540	0.35	136065.53

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
010533616-01	OBS	FP	0.00	1	0	0	0	LPP_DV—INCONSISTENT_TRANS—CENT_SATURATED
010533616-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_MARSHALL—ALL_TRANS_CHASES—INCONSISTENT_TRANS—CENT_SATURATED
010533616-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_MARSHALL—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_SATURATED
010533616-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—MOD_NONUNIQ_ALT—INCONSISTENT_TRANS—CENT_SATURATED
010533616-05	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_ALT—CENT_SATURATED

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

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

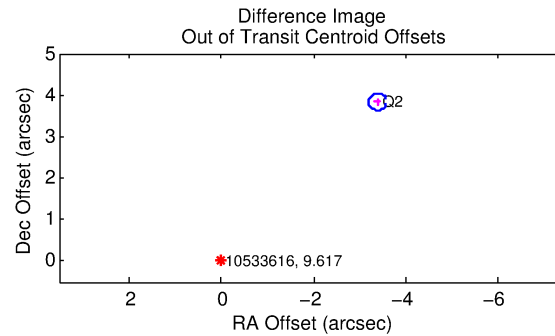
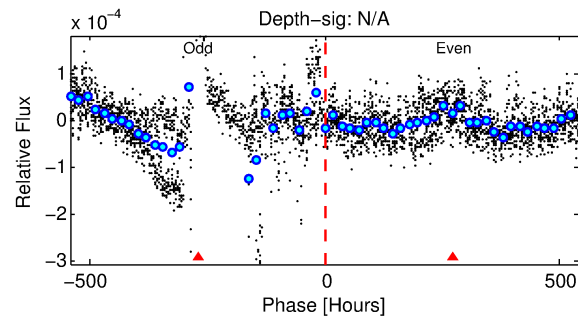
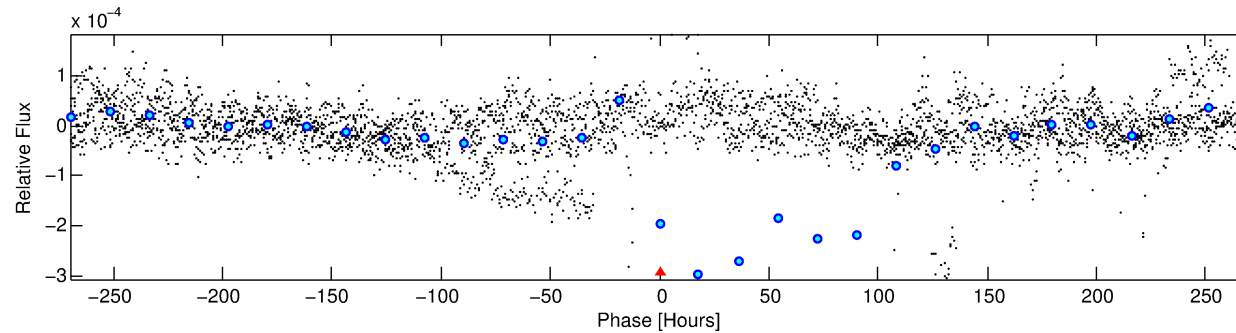
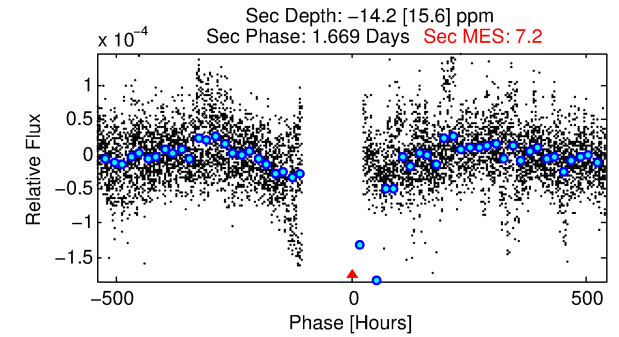
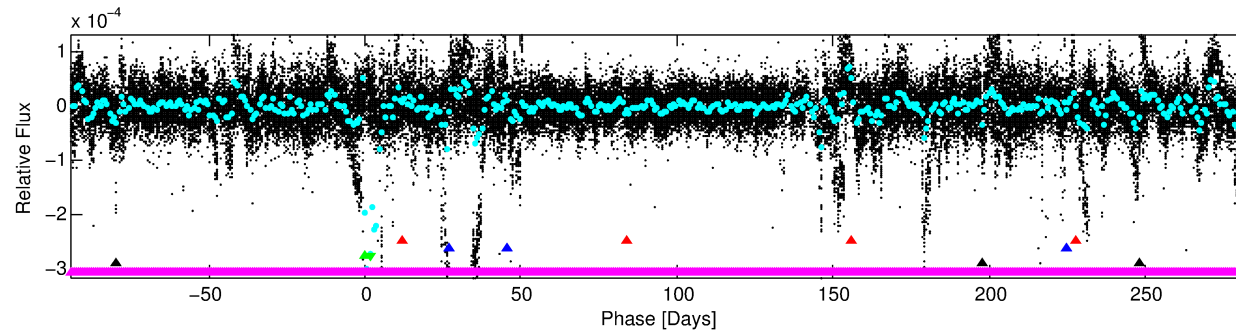
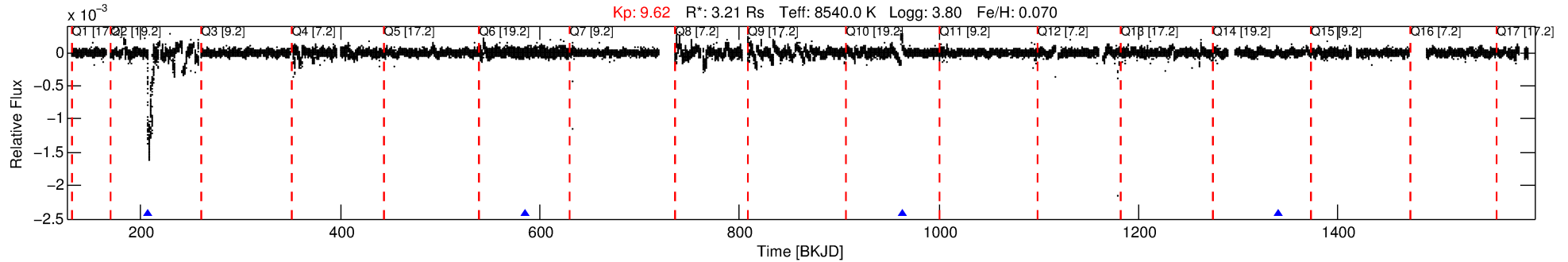
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 010533616-03

No Significant Match Found

DV One-Page Summary

KIC: 10533616 Candidate: 3 of 5 Period: 377.687 d



TPS TCE Results:

Period = 377.68711 d
Epoch = 206.2570 BKJD

DV fit results are unavailable

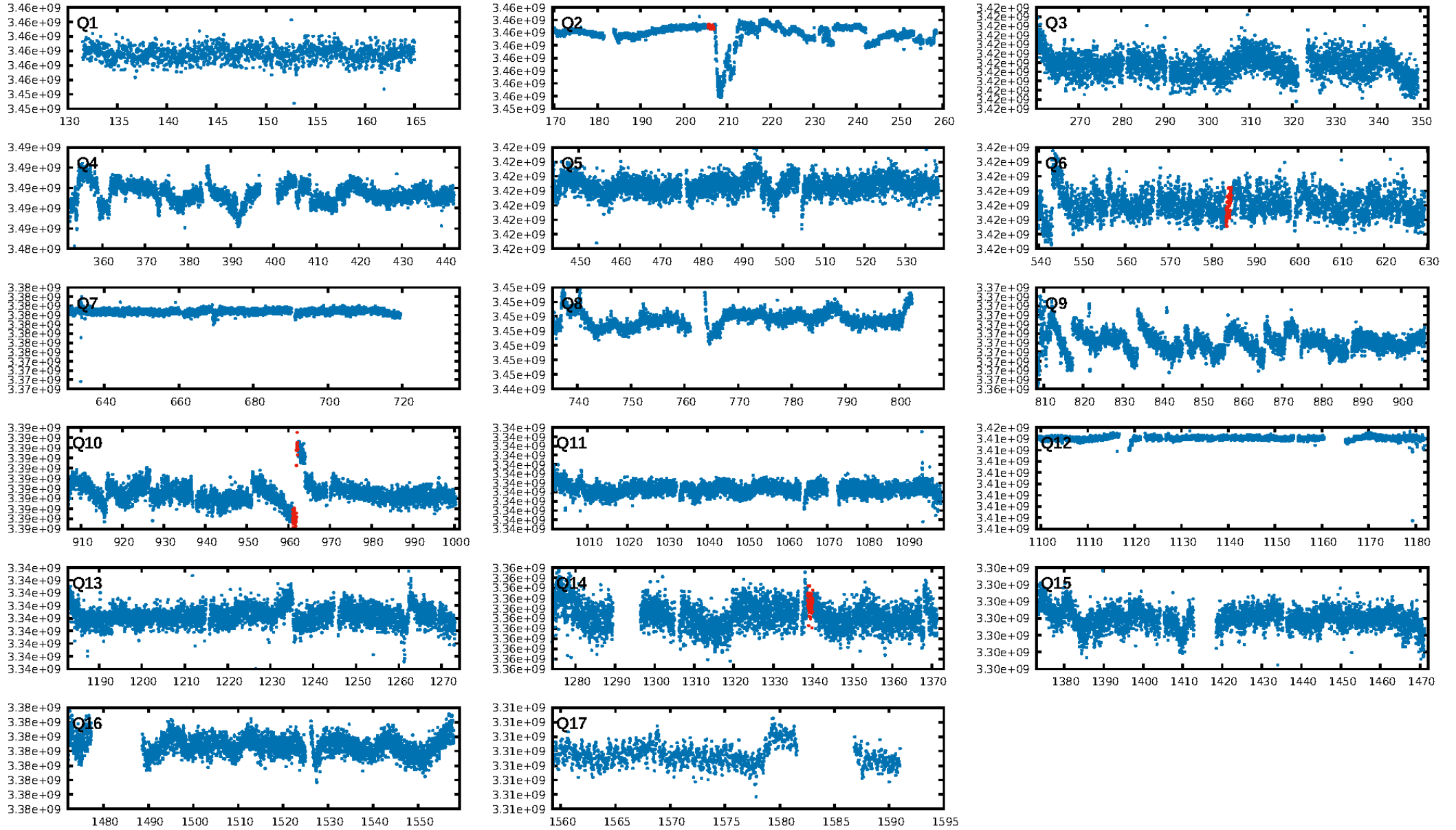
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [540.19σ]
LongPeriod-sig: 100.0% [78.02σ]
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: N/A
RollingBand-fgt: 1.00 [4/4]
GhostDiagnostic-chr: N/A
Centroid-sig: 0.6%
Centroid-so: 11.322 arcsec [2.27σ]
OotOffset-rm: 5.118 arcsec [76.41σ]
KicOffset-rm: 8.135 arcsec [121.45σ]
OotOffset-st: 1/0/0/0 [1]
KicOffset-st: 1/0/0/0 [1]
DiffImageQuality-fgm: 0.00 [0/1]
DiffImageOverlap-fno: 0.00 [0/2]

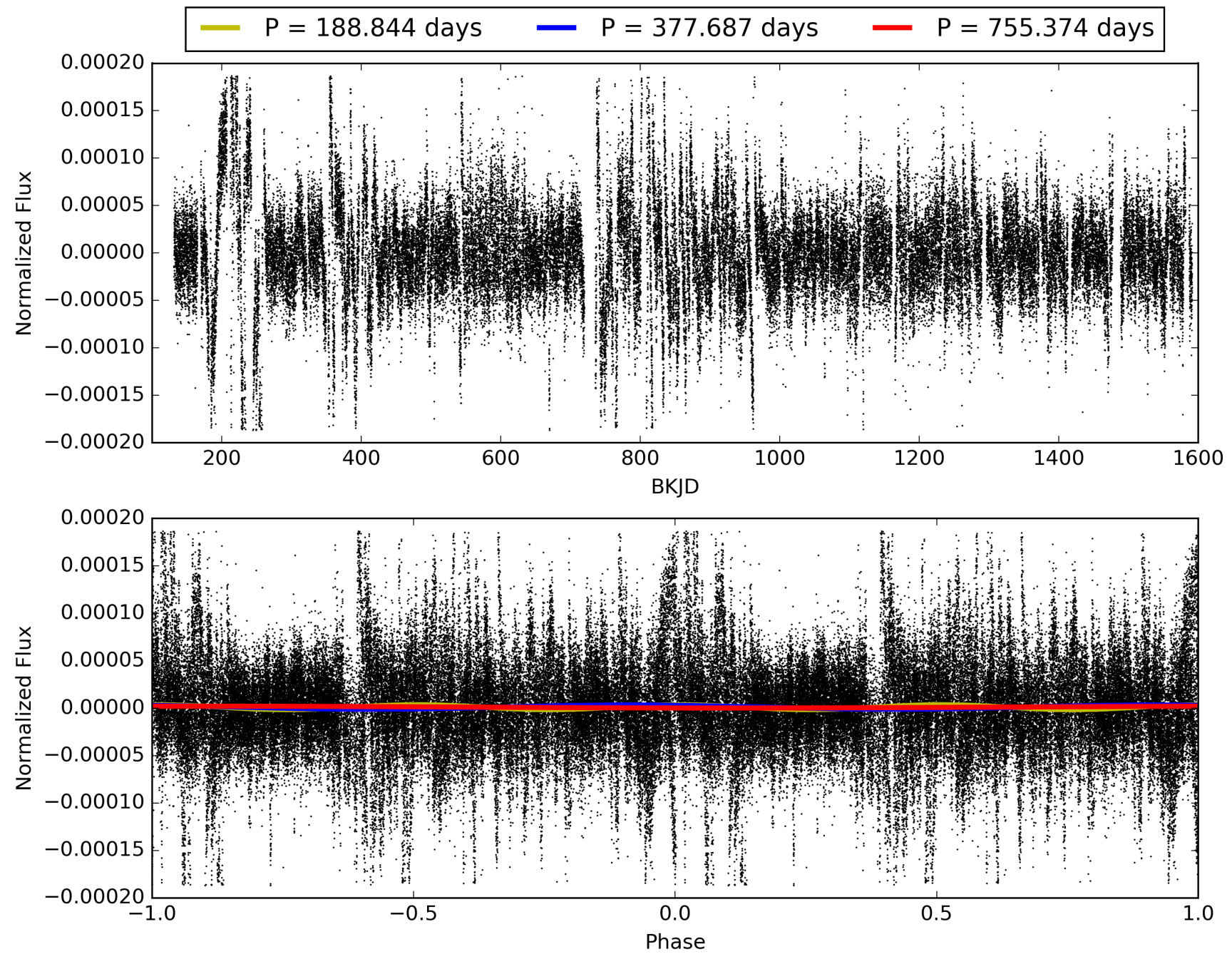
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 05:36:25 Z

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

TCE 010533616-03, PDC Light Curves

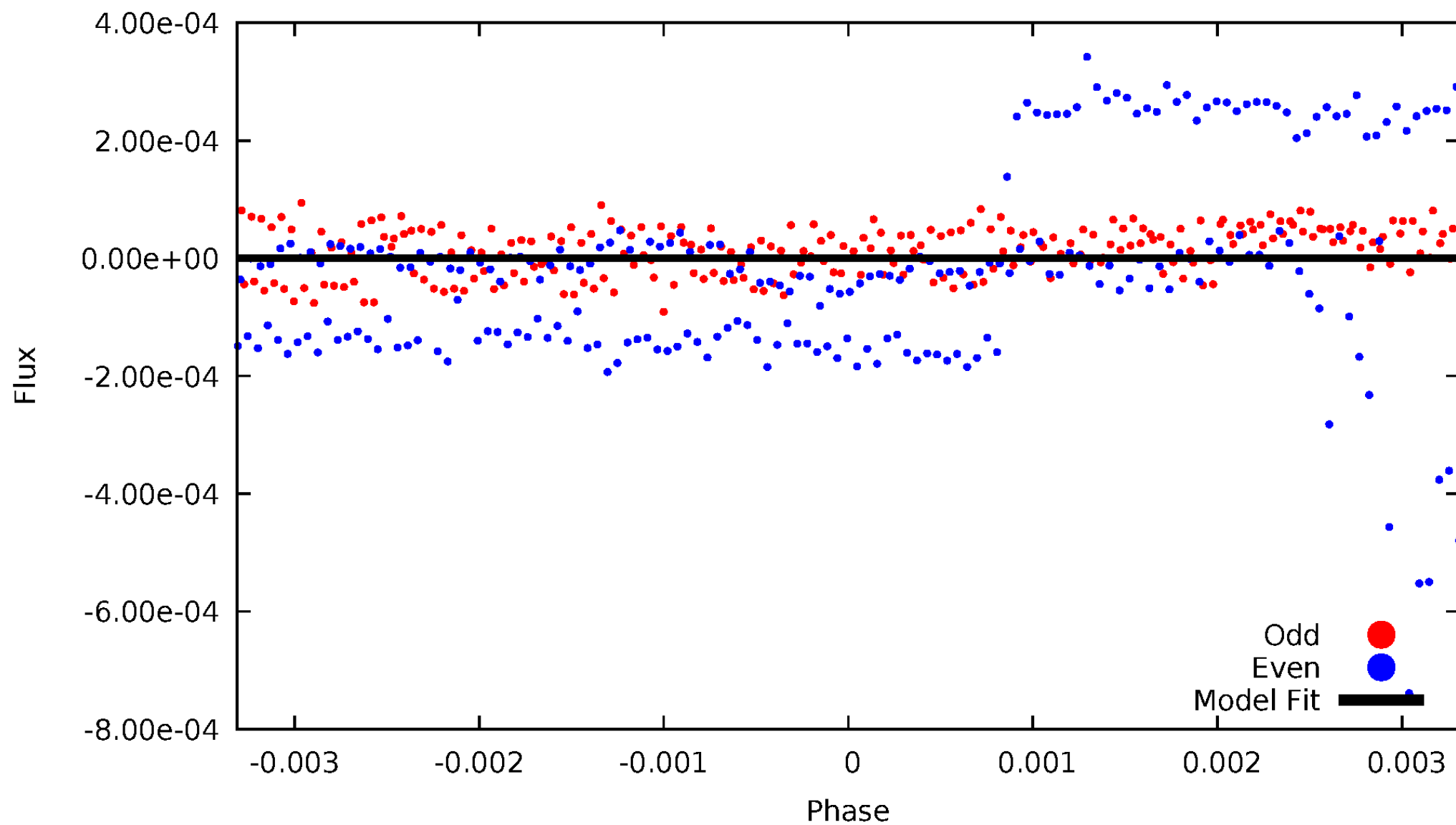


TCE 010533616-03



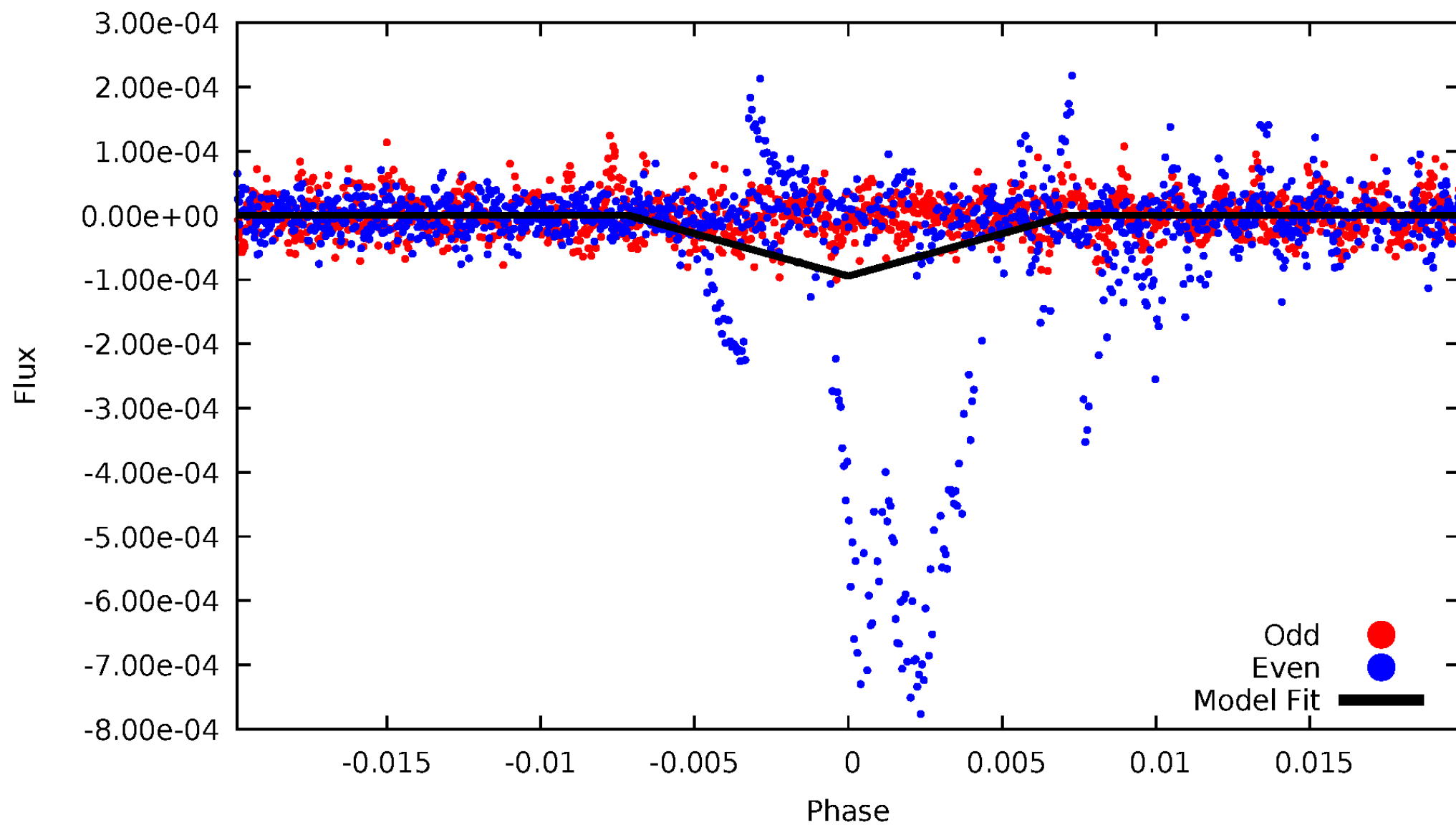
DV Odd/Even

TCE 010533616-03

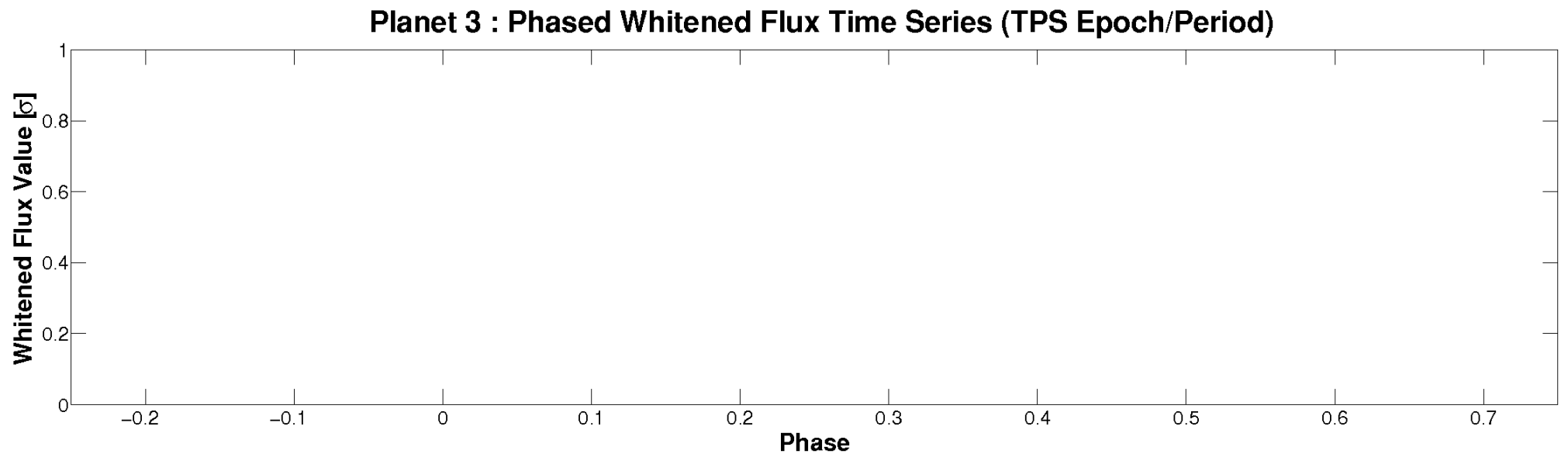
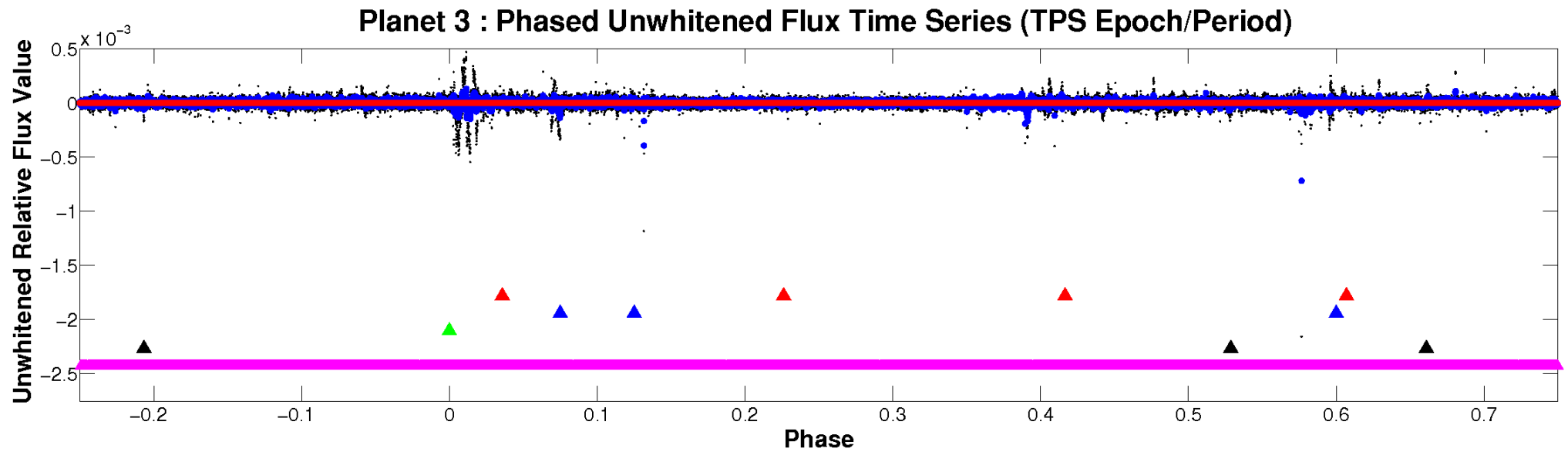


ALT Odd/Even

TCE 010533616-03

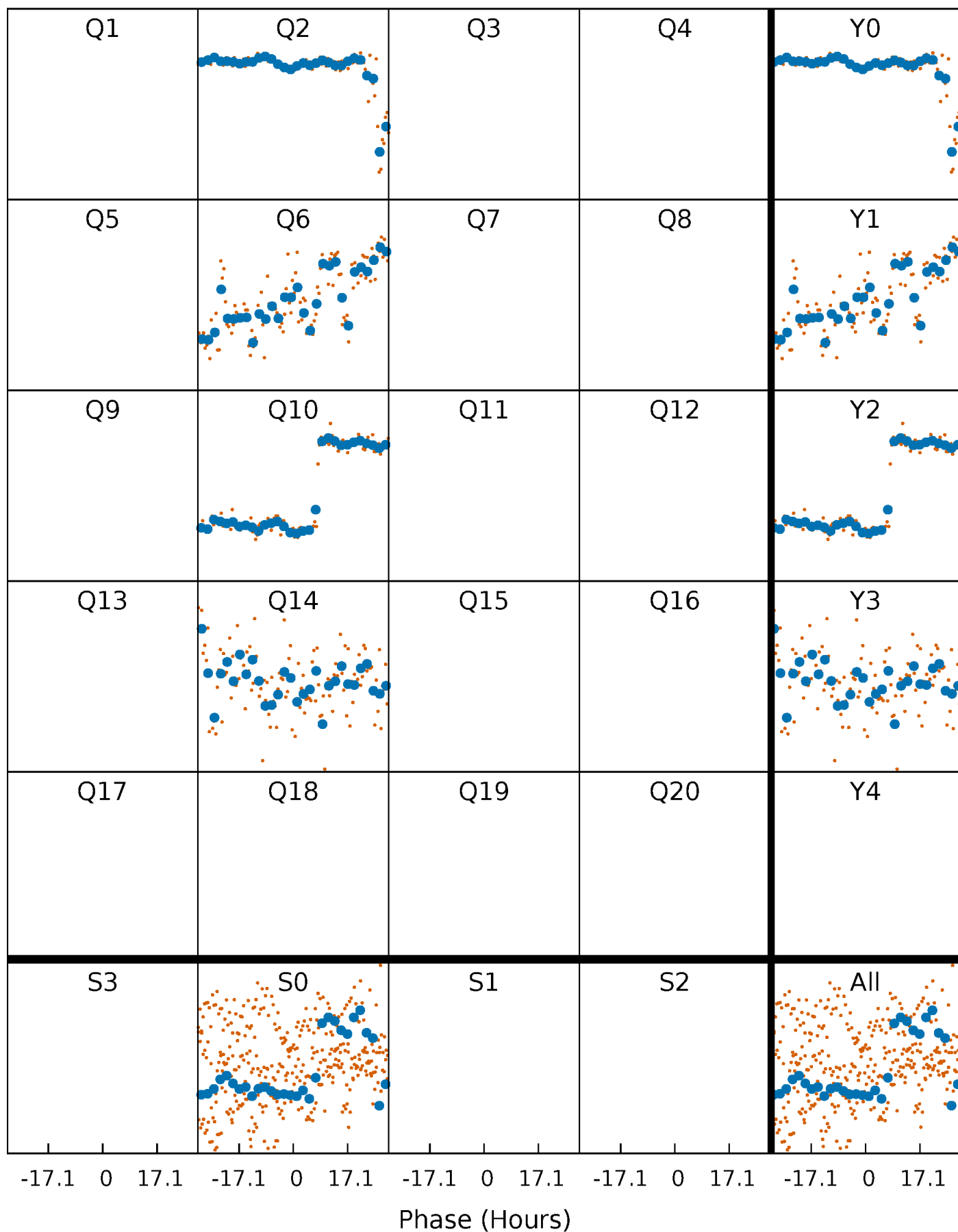


Non-Whitened Vs. Whitened Light Curve



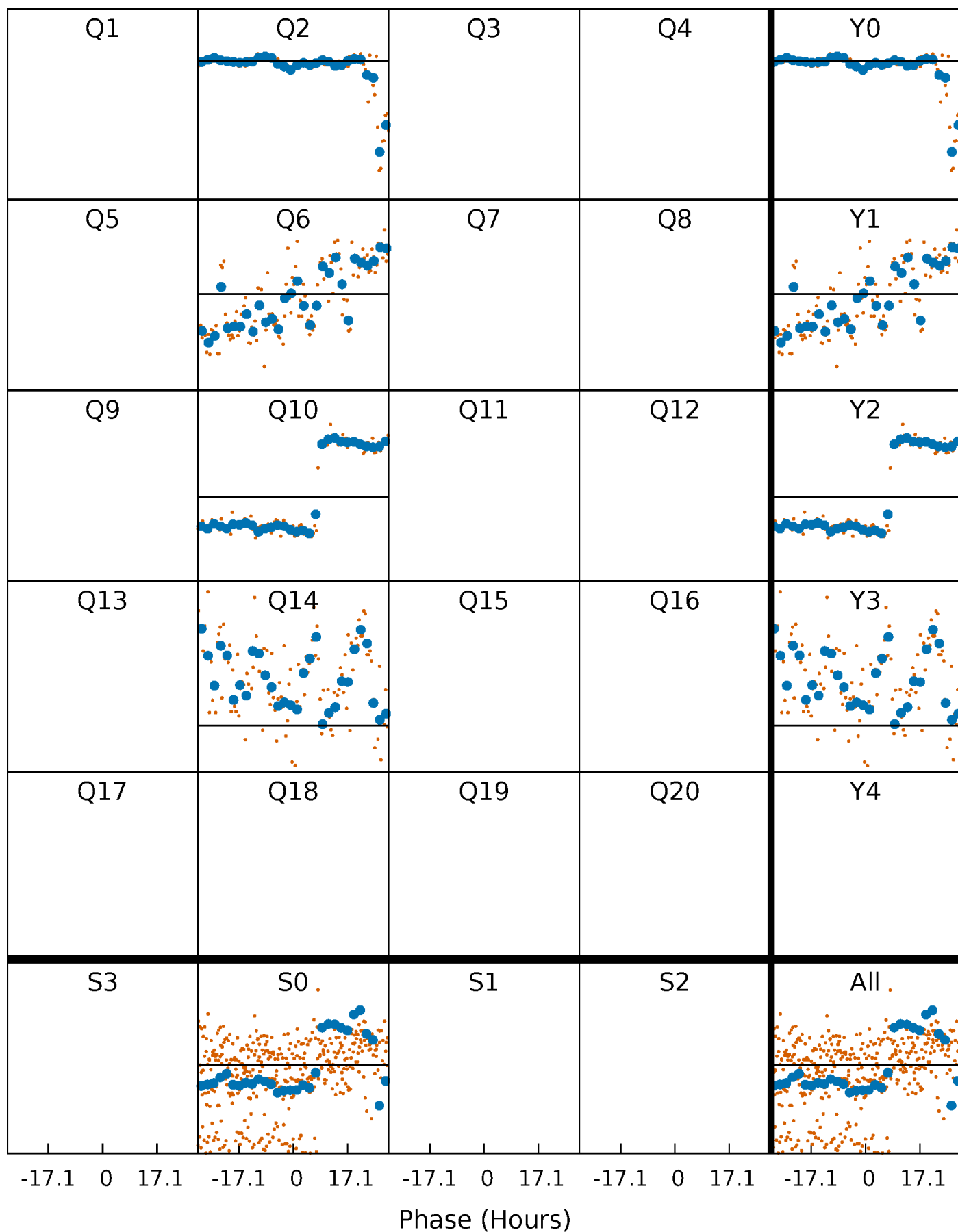
PDC Quarter-Phased Transit Curves

TCE 010533616-03 $P=377.687112$ Days $T_0=206.256956$ (BKJD)



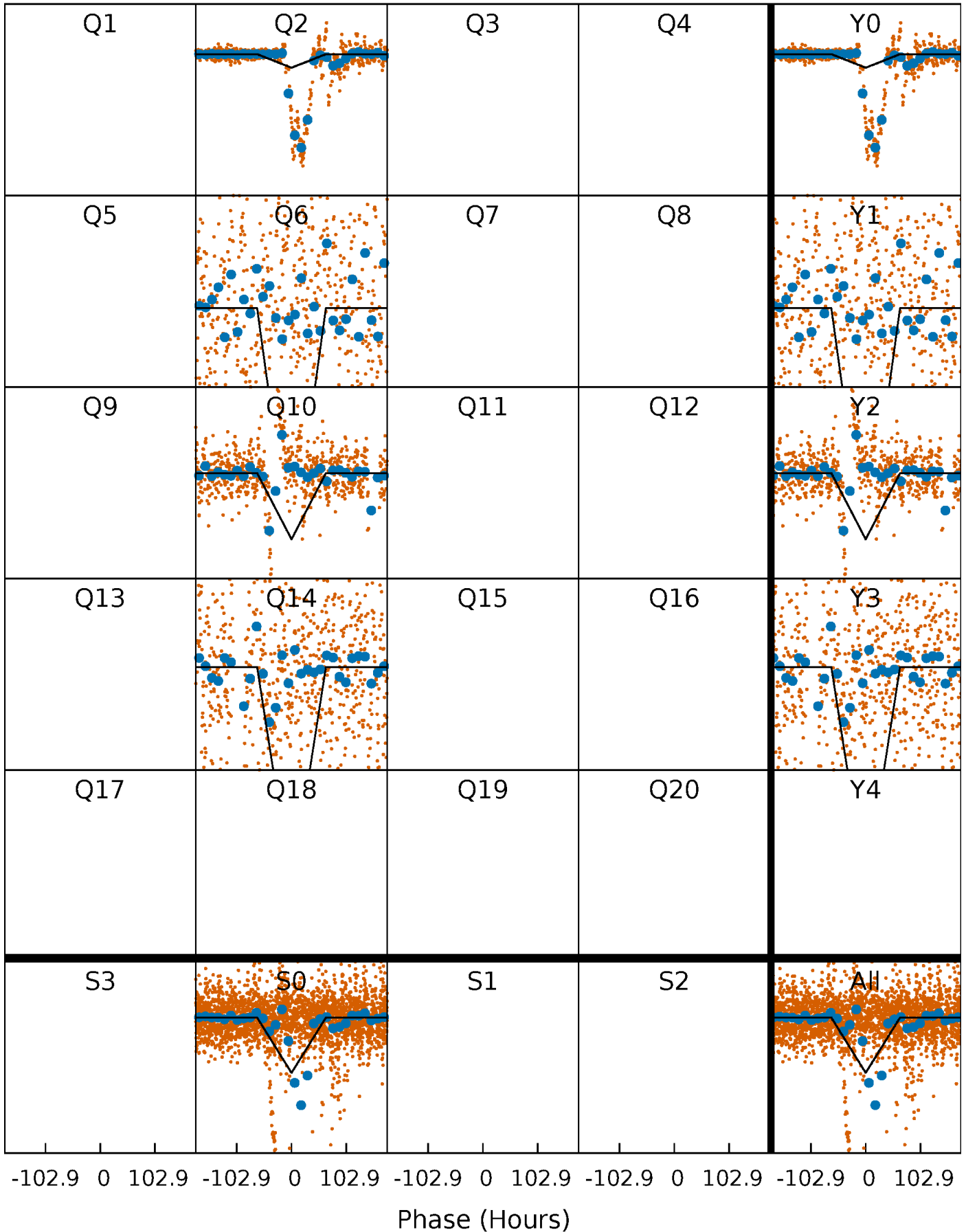
DV Quarter-Phased Transit Curves

TCE 010533616-03 P=377.687112 Days $T_0=206.256956$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

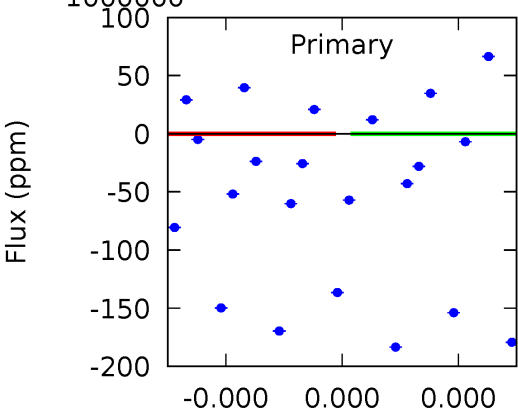
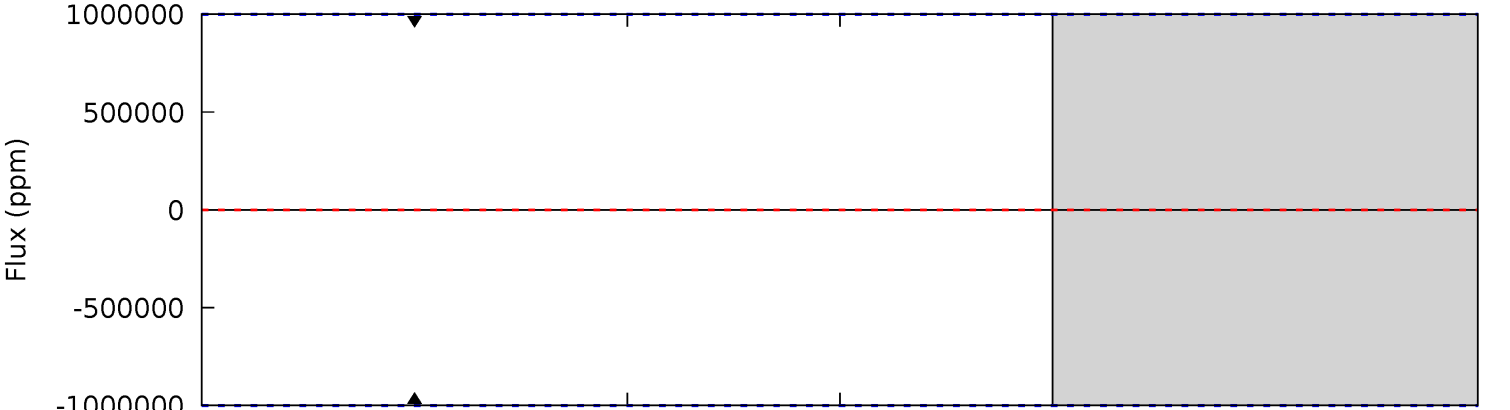
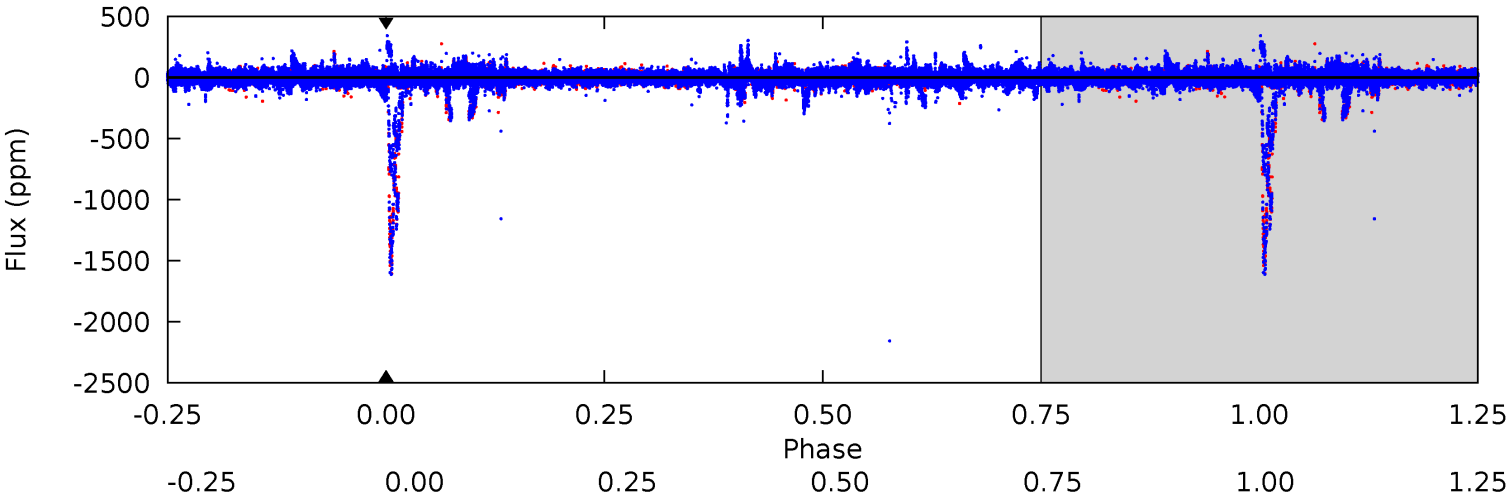
TCE 010533616-03 P=377.687112 Days $T_0=207.825428$ (BKJD)



DV Model-Shift Uniqueness Test

010533616-03, P = 377.687112 Days, E = 206.256956 Days

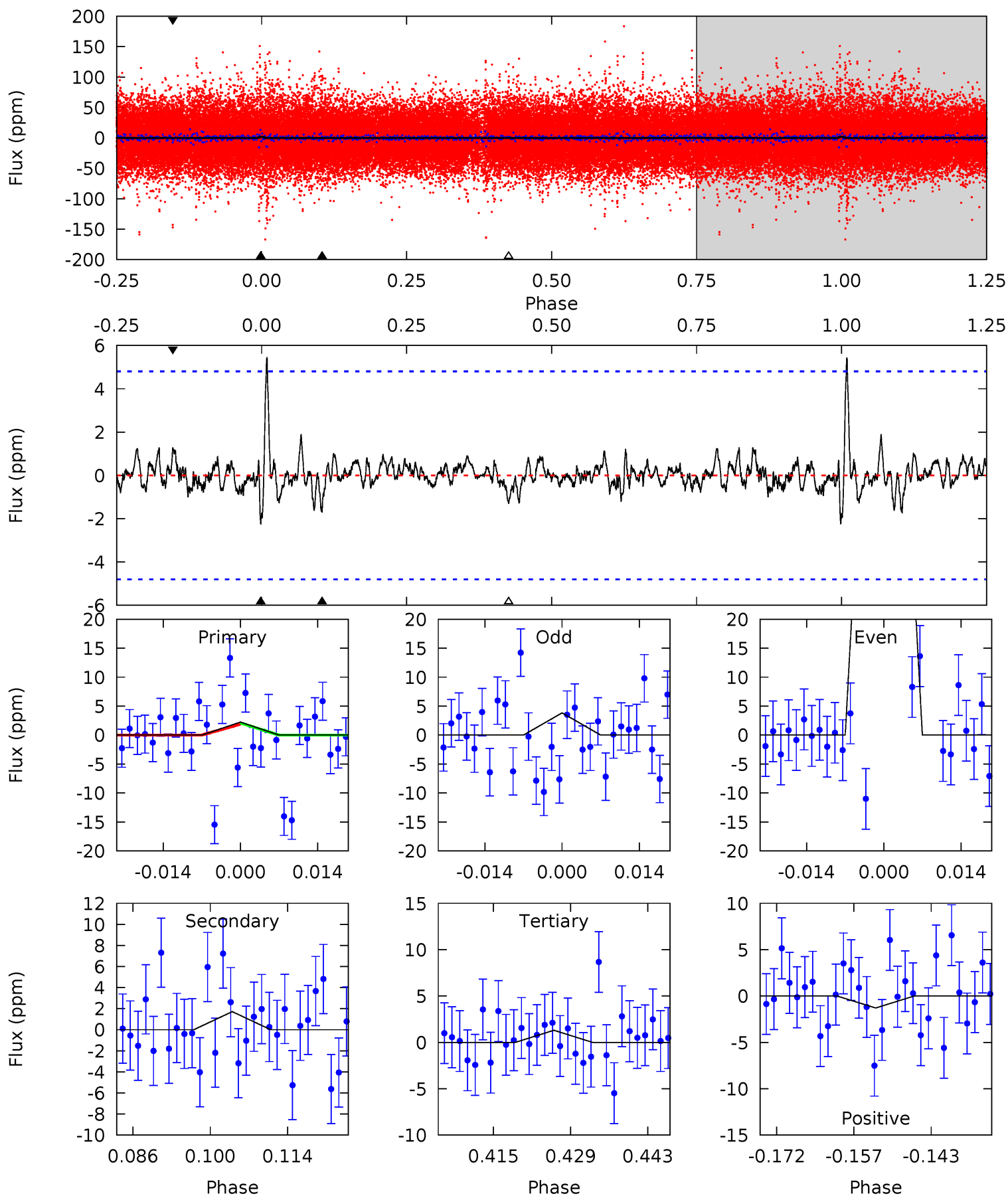
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
0	0	0	0	1.00	1.00	1.00	0	0	0	0	0	0	0	0



Alt Model-Shift Uniqueness Test

010533616-03, P = 377.687112 Days, E = 207.825428 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
2.31	1.77	1.34	1.33	4.96	2.45	0.47	0.97	0.98	0.42	0.43	62.6	26.5	0.71	0.10



Stellar Parameters For KIC 010533616

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	$M(M_{\odot})$	p_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	8540^{+235}_{-403}	$3.799^{+0.364}_{-0.156}$	$0.070^{+0.250}_{-0.550}$	$3.211^{+0.976}_{-1.464}$	$2.365^{+0.318}_{-0.794}$	$0.101^{+0.304}_{-0.049}$
	+3%/-5%	+10%/-4%	+357%/-786%	+30%/-46%	+13%/-34%	+302%/-48%
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 010533616-03 / KOI

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	0 ± 1000000	$23.19^{+26.41}_{-16.38}$	791^{+66}_{-82}	5664^{+66236}_{-58603}	$1824^{+452983}_{-306011}$
Alt.	-2 ± 1	$22.95^{+27.21}_{-16.15}$	790^{+70}_{-89}	2012^{+744}_{-510}	$2.661^{+31.468}_{-2.264}$

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

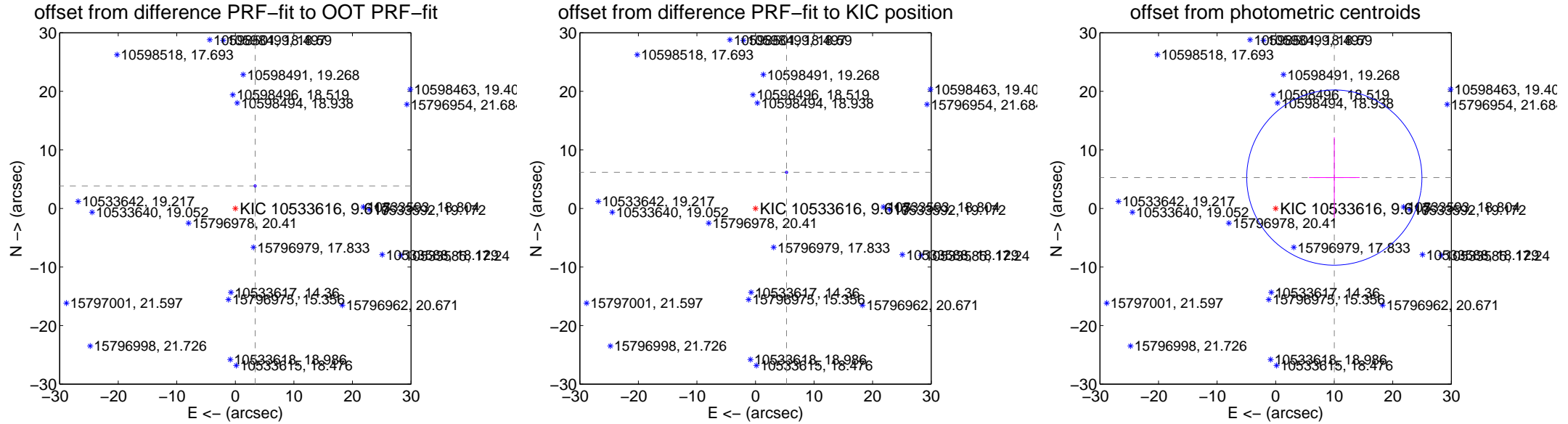
DV Centroid Data

Supplemental centroid analysis for 010533616-03. **Kepler magnitude: 9.62.** Transit SNR -1.00

There are 0 quarters with good PRF difference image offsets

The OOT PRF centroid is offset from the target star catalog position by about 3.02 arcsec so the offset from difference PRF-fit to OOT-fit may be invalid.

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	5.118 \pm 0.067	76.41	-3.381 \pm 0.067	3.843 \pm 0.067
PRF-fit source offset from KIC position	8.135 \pm 0.067	121.45	-5.308 \pm 0.067	6.164 \pm 0.067
photometric centroid source offset	11.32 \pm 4.99	2.27	-10.02 \pm 4.32	5.27 \pm 6.87



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.

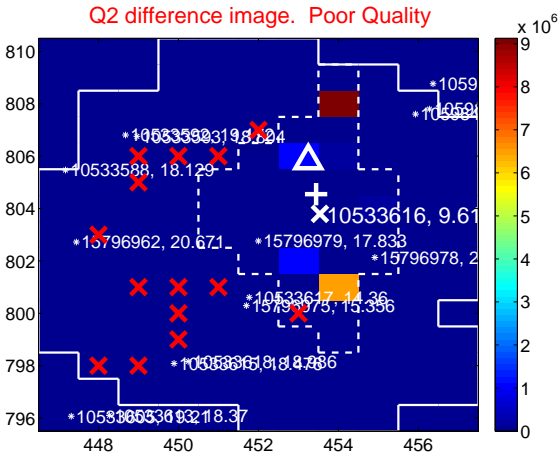
Q1 no difference image



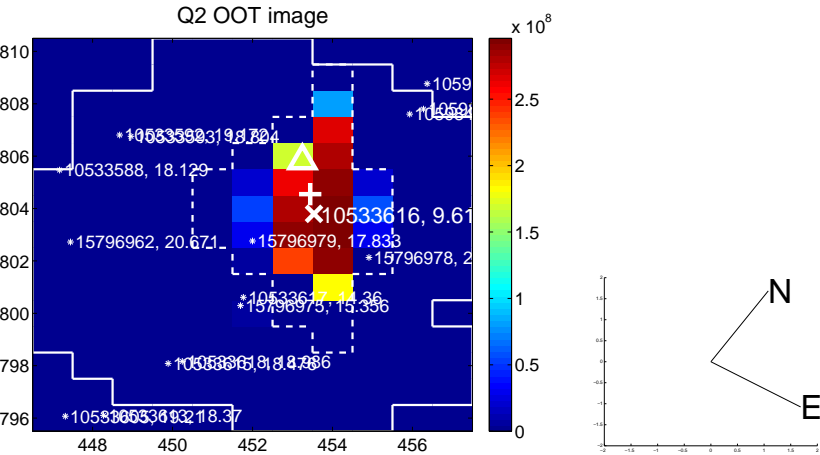
Q1 no OOT image



Q2 difference image. Poor Quality



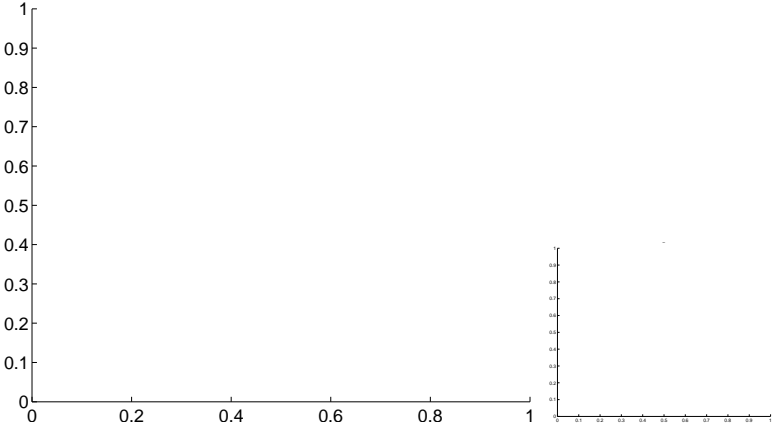
Q2 OOT image



Q3 no difference image



Q3 no OOT image



Q4 no difference image



Q4 no OOT image



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

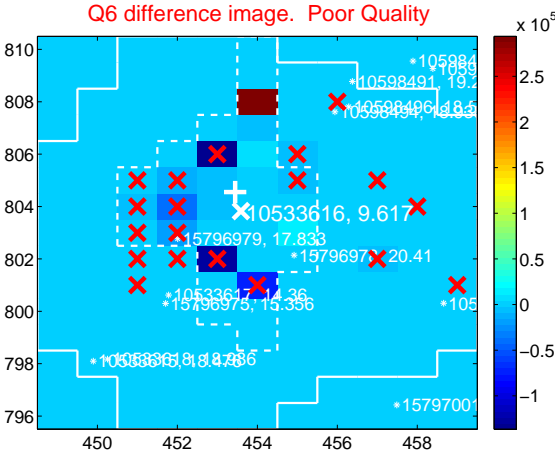
Q5 no difference image



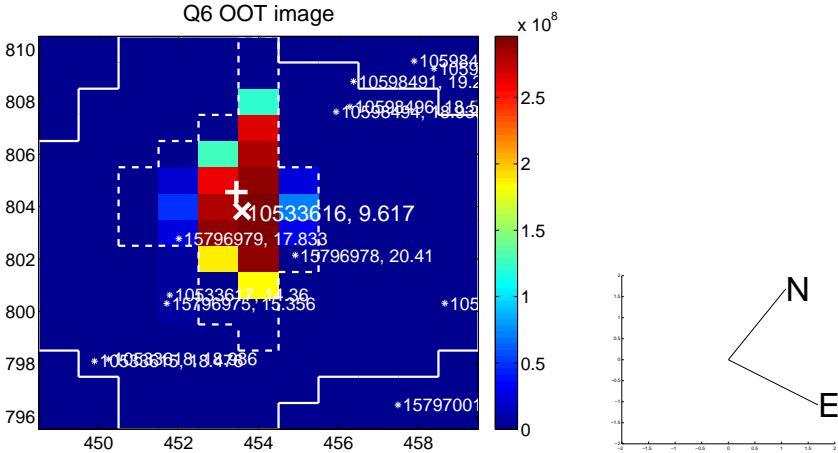
Q5 no OOT image



Q6 difference image. Poor Quality



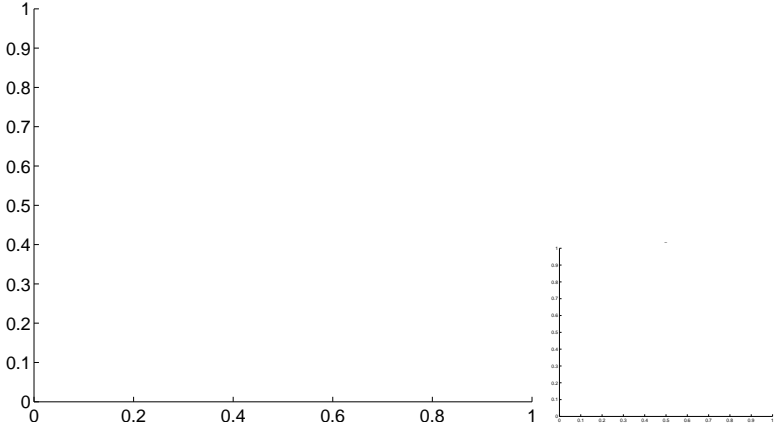
Q6 OOT image



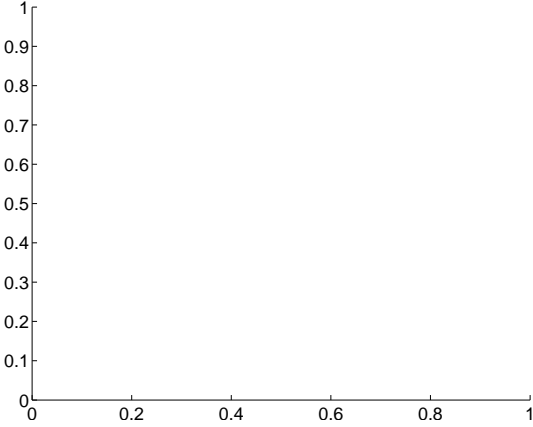
Q7 no difference image



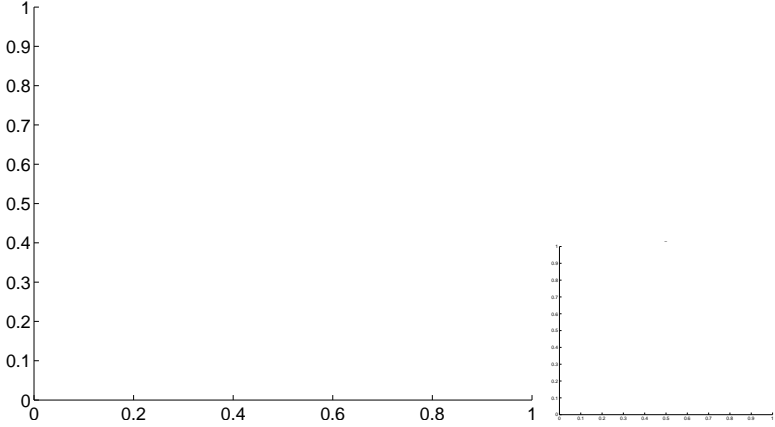
Q7 no OOT image



Q8 no difference image



Q8 no OOT image



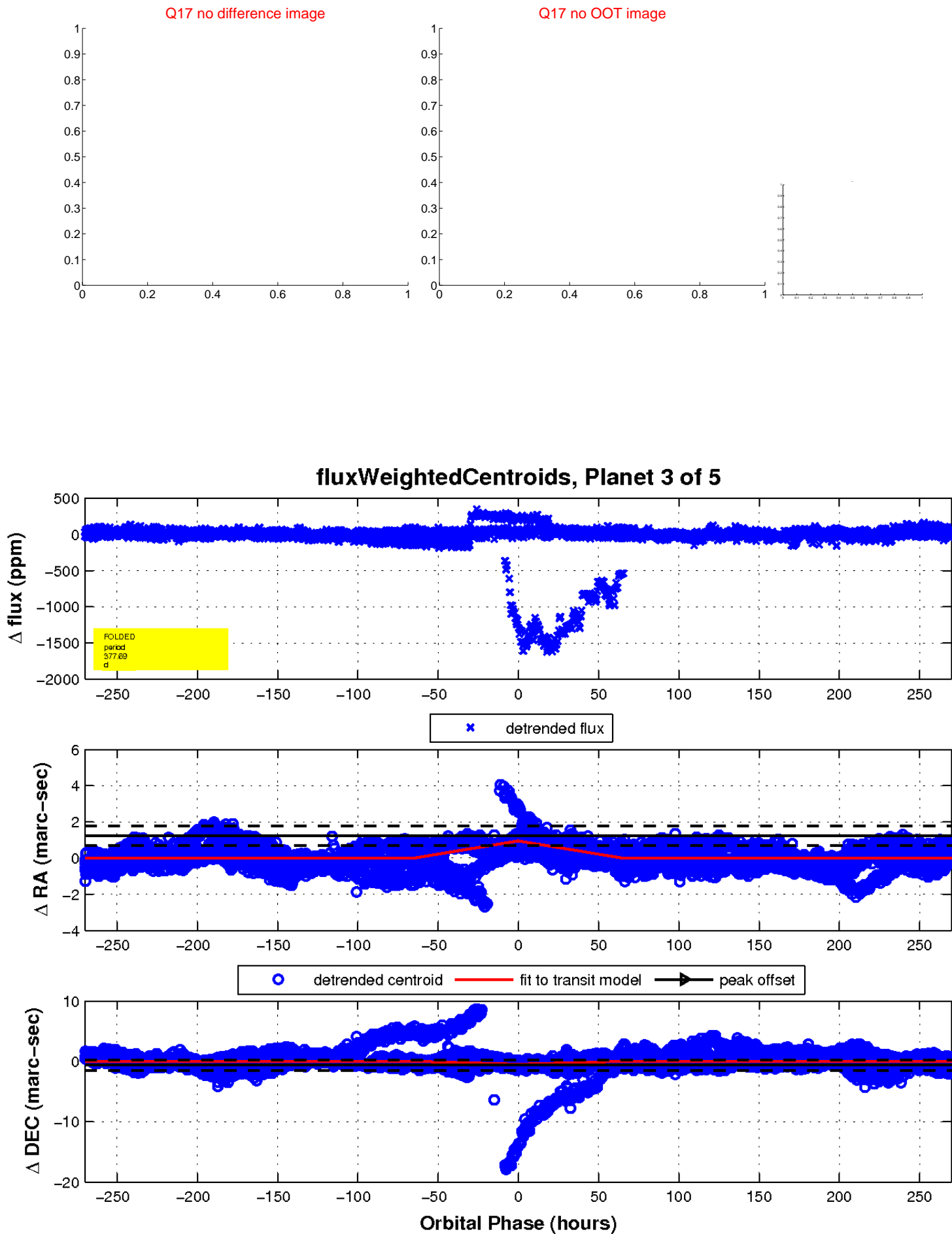
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



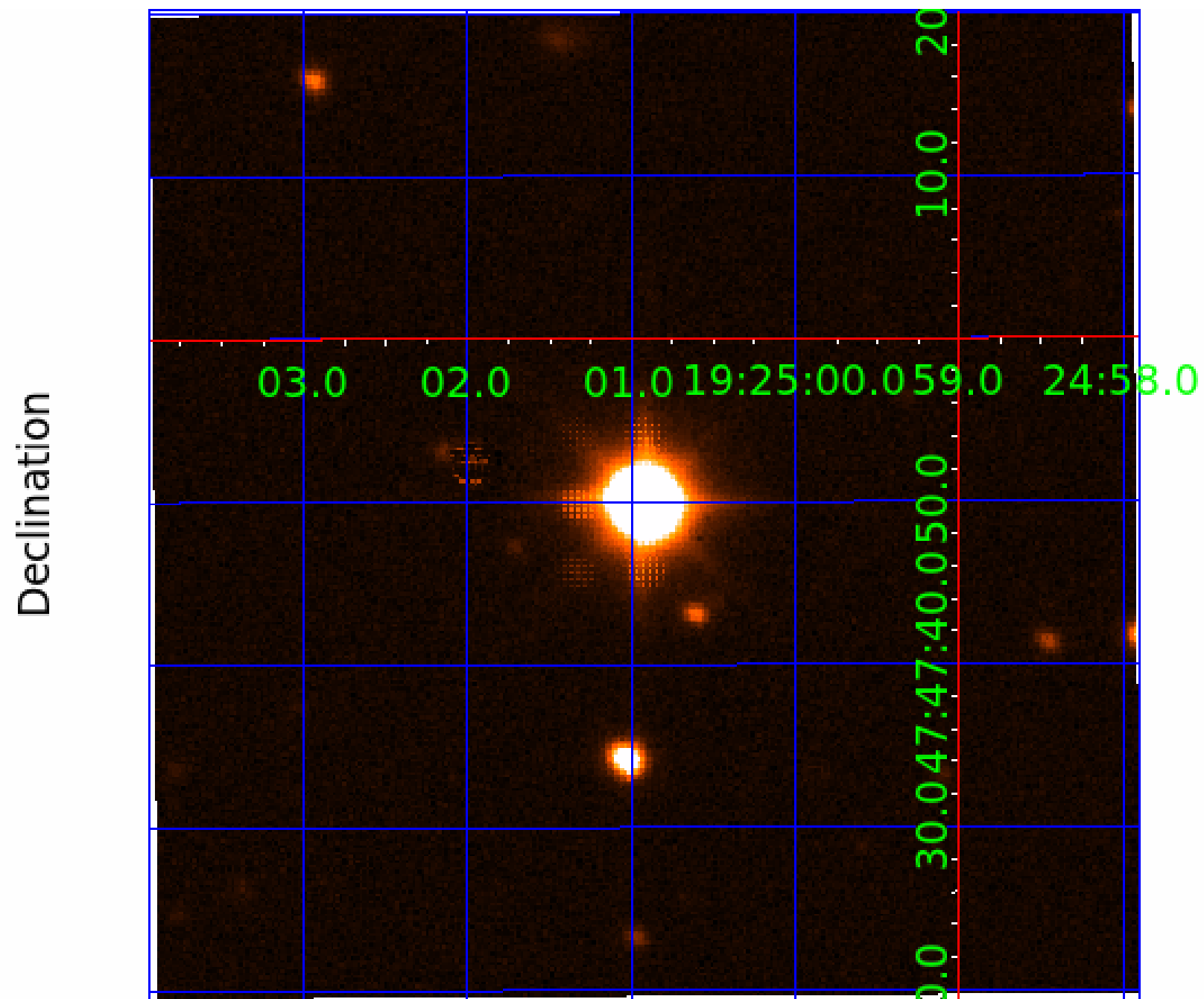
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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



UKIRT Image



KIC 010533616

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})
010533616-01	OBS	No	449.589136	219.780896	116.3	17.158	19.8	18.2	3.21	8540	3.71	20.96
010533616-02	OBS	No	557.077987	253.495075	78.7	10.526	12.8	9.2	3.21	8540	3.23	15.75
010533616-03	OBS	No	377.687112	206.256956	62.1	15.000	15.8	-1.0	3.21	8540	2.57	26.44
010533616-04	OBS	No	427.670521	405.941817	115.1	3.378	12.6	12.3	3.21	8540	3.90	22.41
010533616-05	OBS	No	0.621661	131.735009	1.2	7.460	10.2	3.8	3.21	8540	0.35	136065.53

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
010533616-01	OBS	FP	0.00	1	0	0	0	LPP_DV—INCONSISTENT_TRANS—CENT_SATURATED
010533616-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_MARSHALL—ALL_TRANS_CHASES—INCONSISTENT_TRANS—CENT_SATURATED
010533616-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_MARSHALL—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_SATURATED
010533616-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—MOD_NONUNIQ_ALT—INCONSISTENT_TRANS—CENT_SATURATED
010533616-05	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_ALT—CENT_SATURATED

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

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

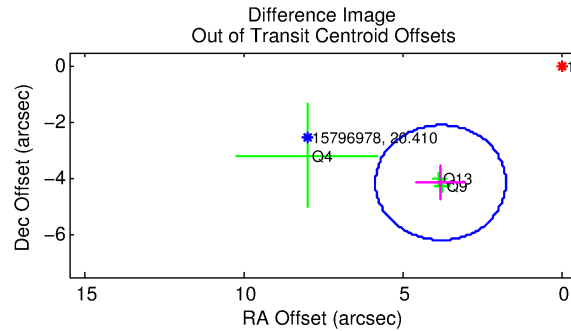
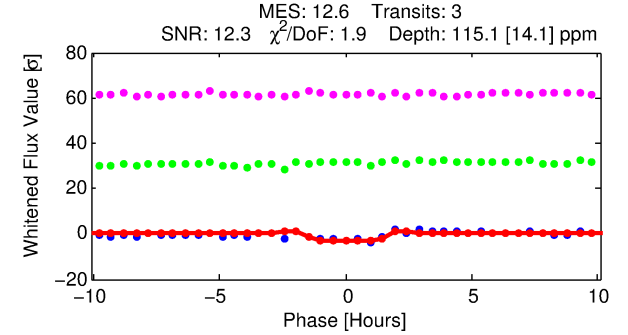
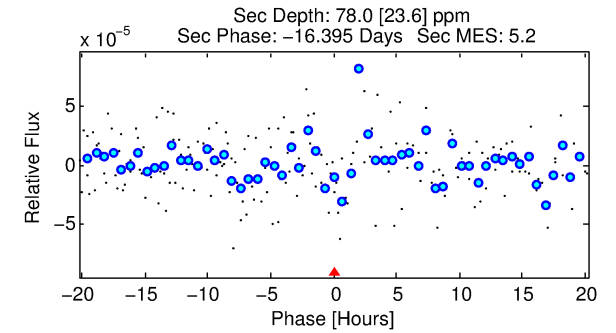
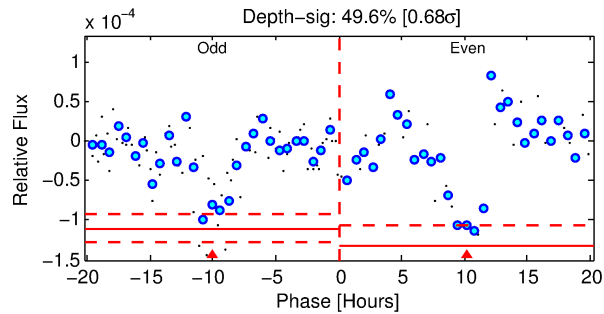
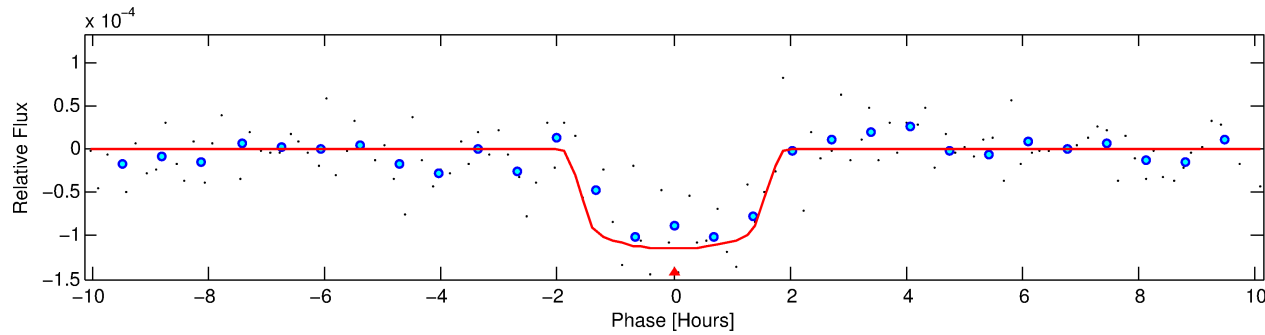
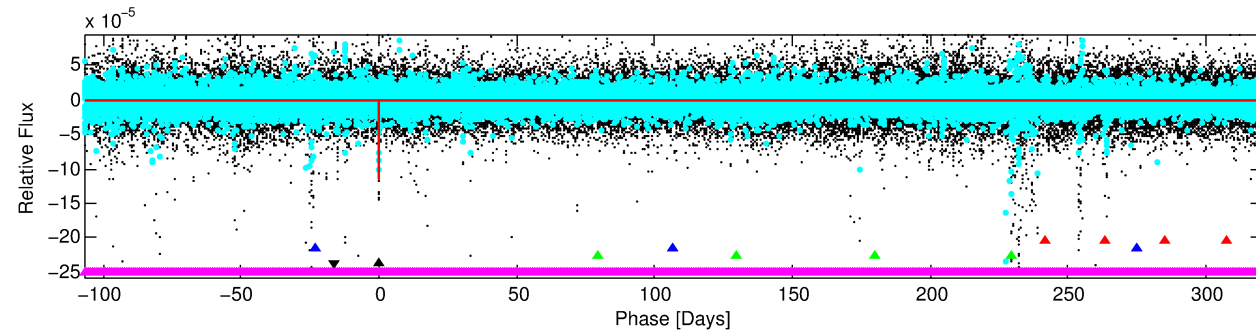
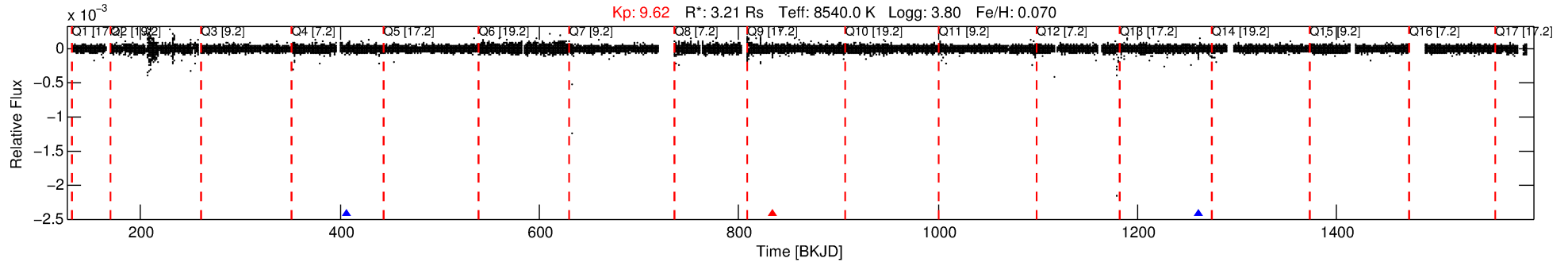
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 010533616-04

No Significant Match Found

DV One-Page Summary

KIC: 10533616 Candidate: 4 of 5 Period: 427.671 d



DV Fit Results:

Period = 427.67052 [0.00432] d
Epoch = 405.9418 [0.0056] BKJD
Rp/R* = 0.0111 [0.0046]
a/R* = 509.81 [1341.70]
b = 0.86 [0.78]
Seff = 22.40 [14.87]
Teq = 555 [92] K
Rp = 3.91 [2.40] Re
a = 1.4809 [0.6114] AU
Ag = 6167.90 [6704.09] [0.92 σ]
Teffp = 7601 [1713] K [4.11 σ]

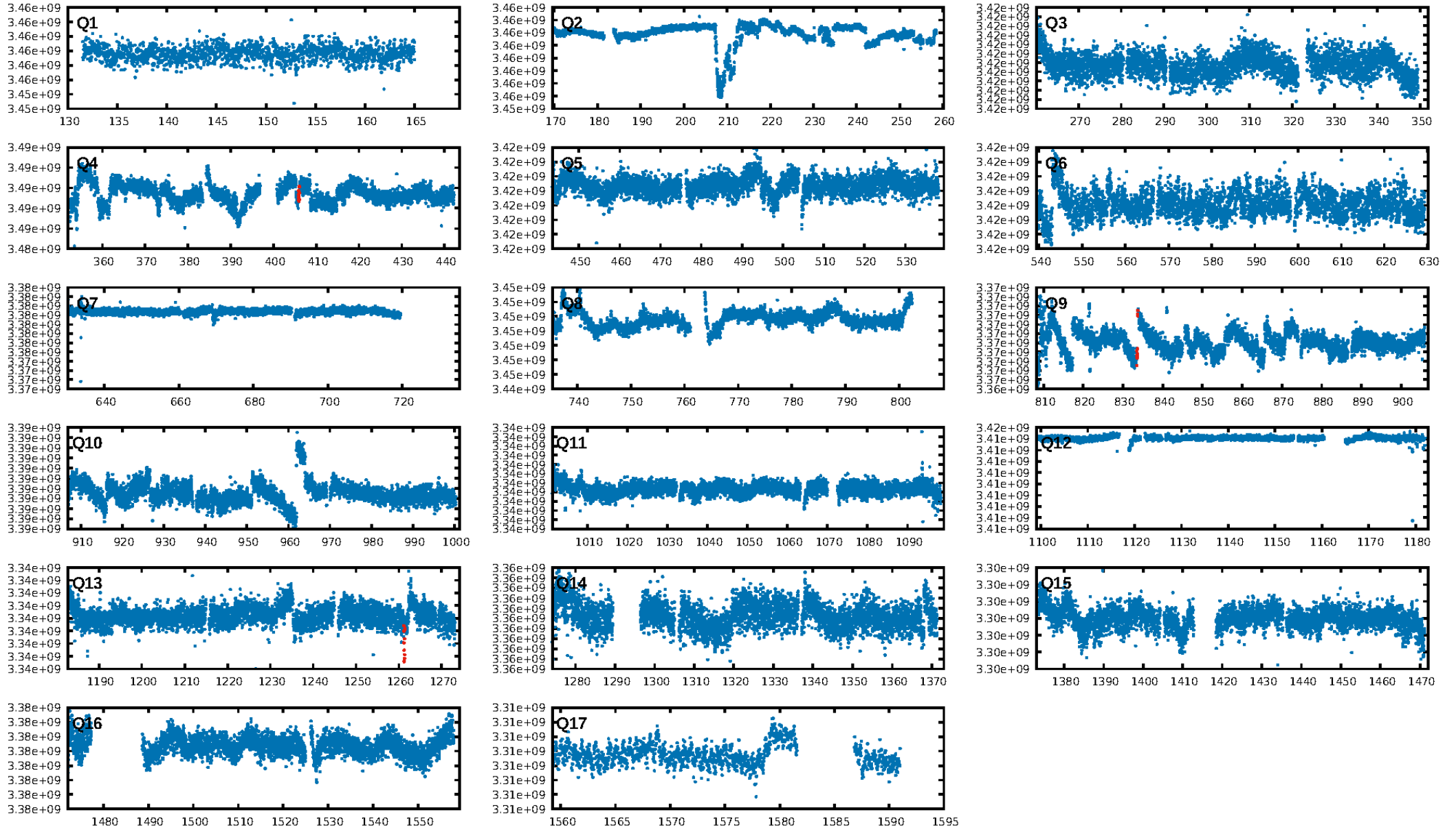
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [78.02 σ]
LongPeriod-sig: 100.0% [30.08 σ]
ModelChiSquare2-sig: 0.0%
ModelChiSquareGof-sig: 23.5%
Bootstrap-pfa: N/A
RollingBand-fgt: 0.67 [2/3]
GhostDiagnostic-chr: N/A
Centroid-sig: 15.0%
Centroid-so: 1.227 arcsec [0.84 σ]
OotOffset-rm: 5.635 arcsec [8.26 σ]
KicOffset-rm: 7.071 arcsec [10.27 σ]
OotOffset-st: 0/0/1/2 [3]
KicOffset-st: 0/0/1/2 [3]
DiffImageQuality-fgm: 0.00 [0/3]
DiffImageOverlap-fno: 0.00 [0/3]

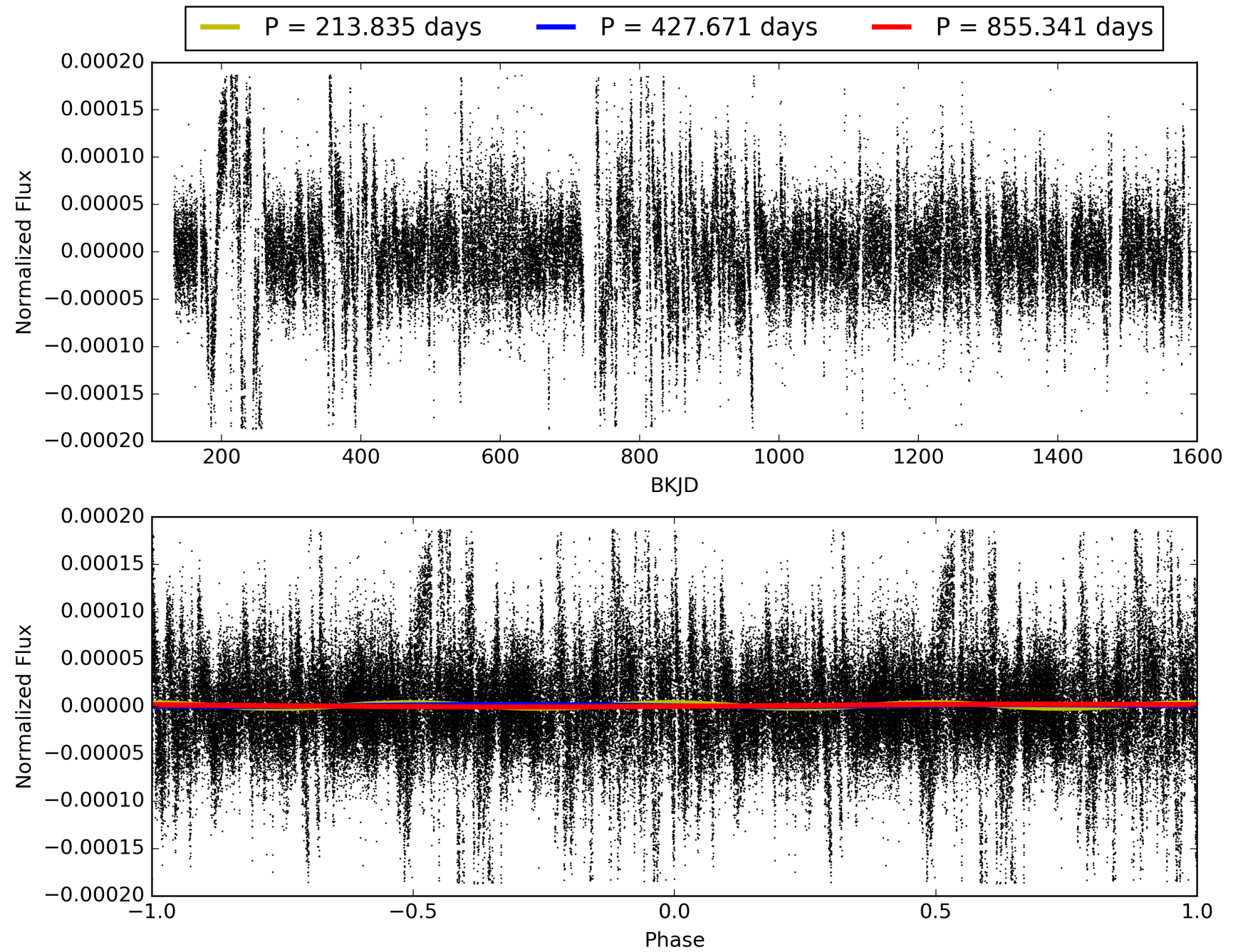
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 05:36:42 Z

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

TCE 010533616-04, PDC Light Curves

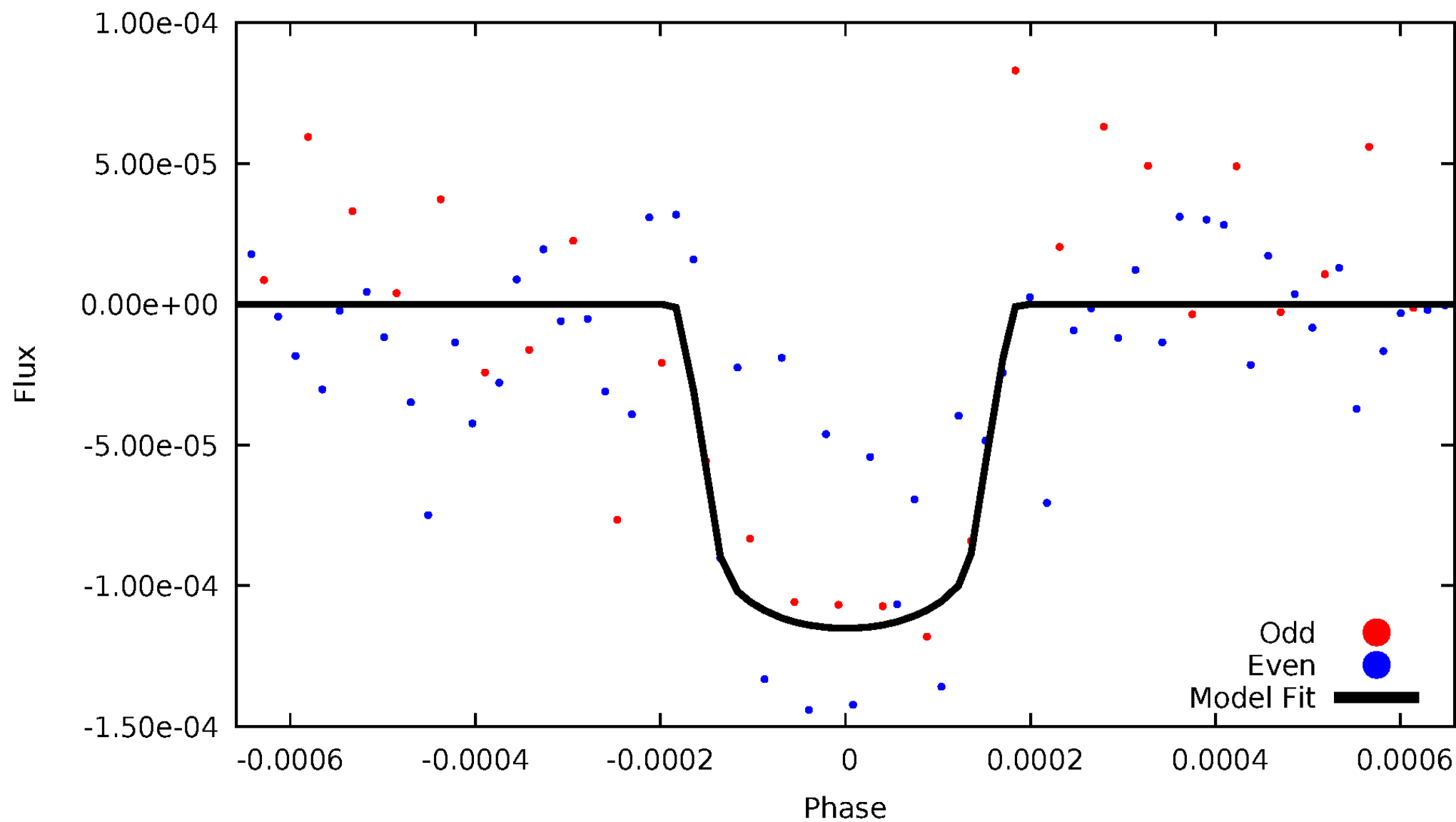


TCE 010533616-04



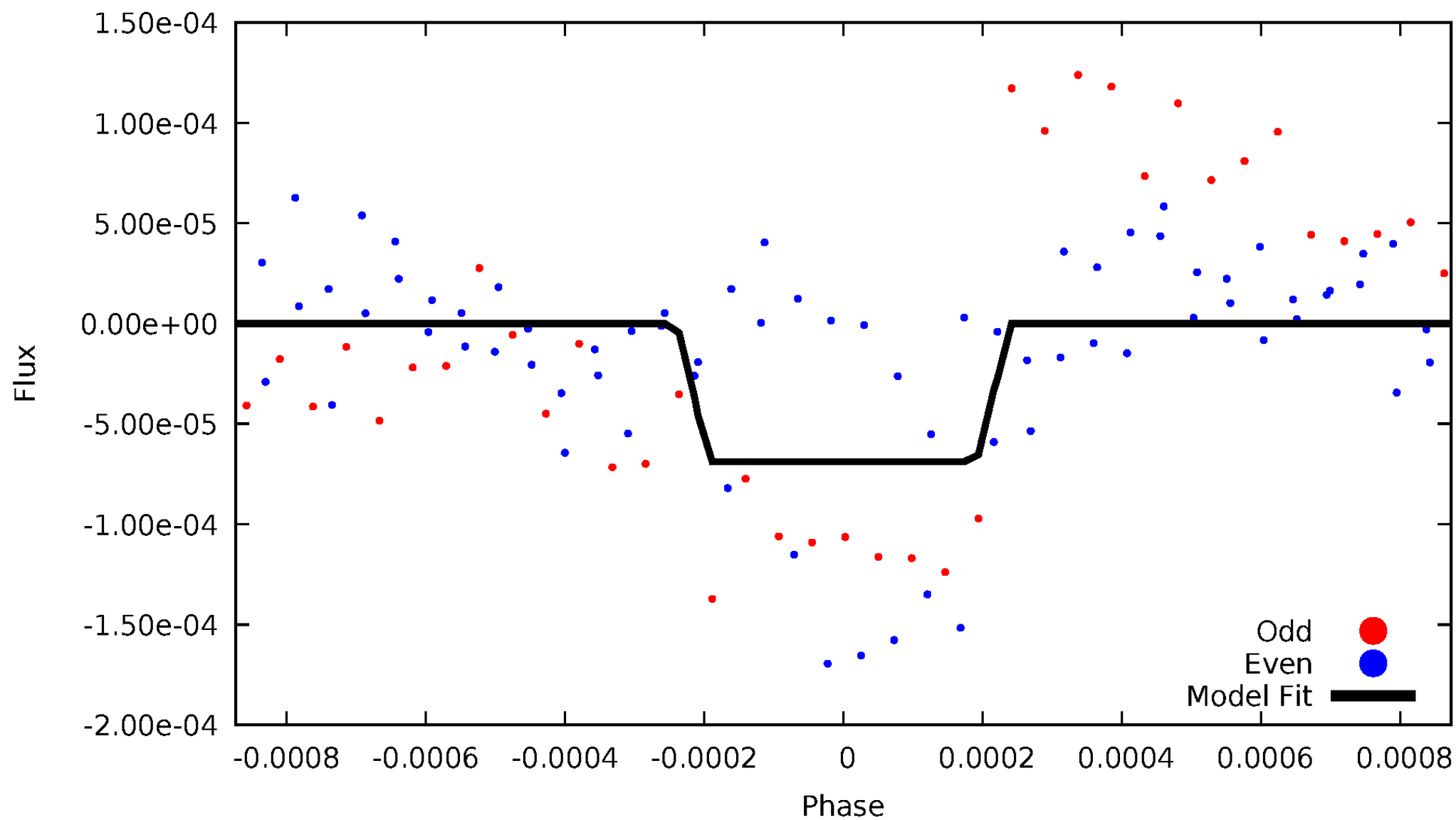
DV Odd/Even

TCE 010533616-04



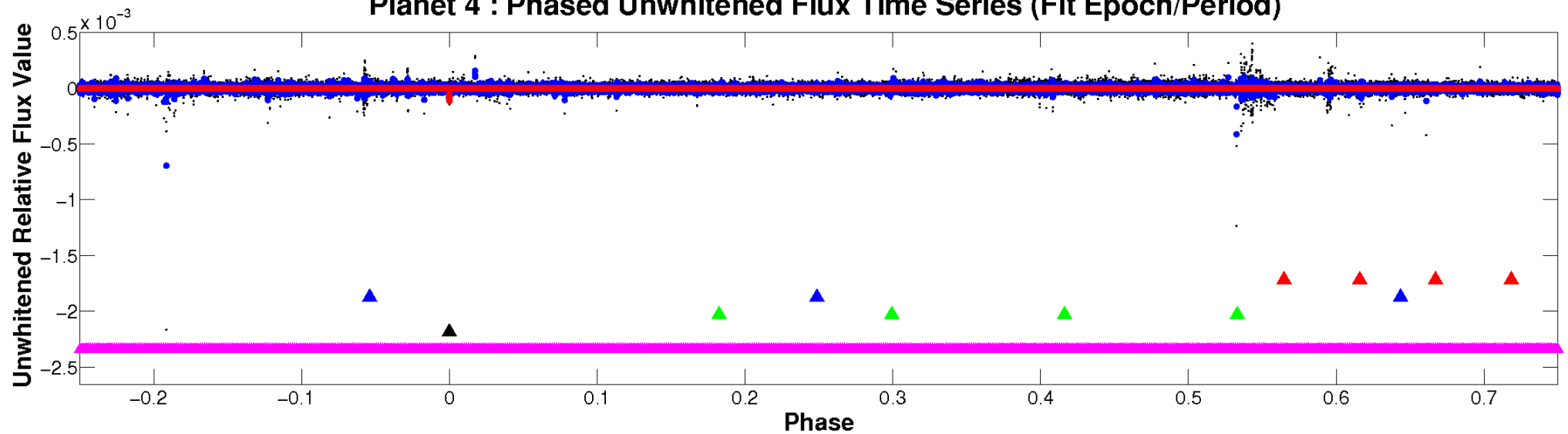
ALT Odd/Even

TCE 010533616-04

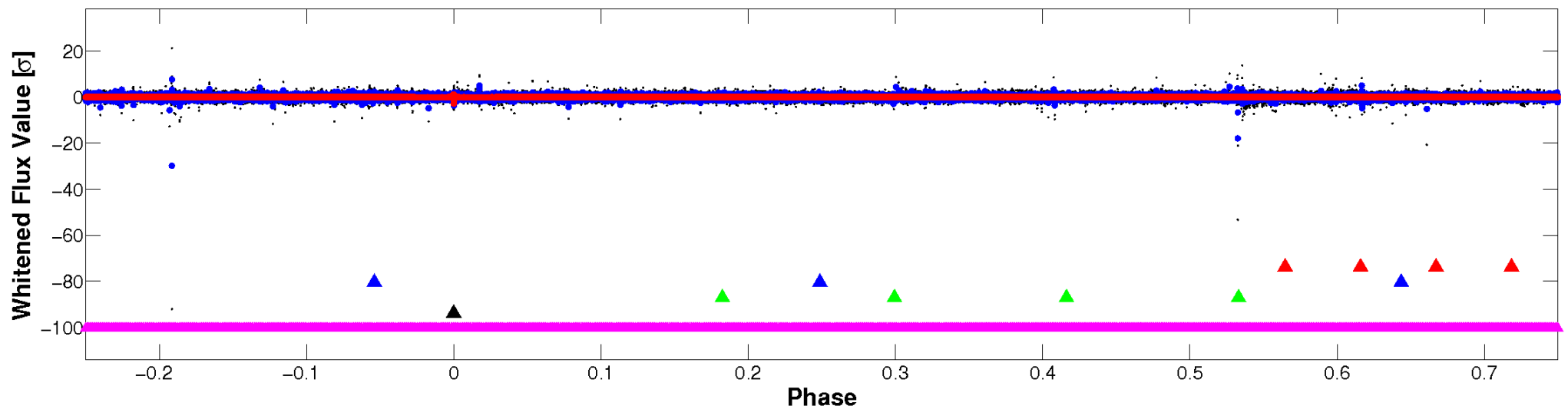


Non-Whitened Vs. Whitened Light Curve

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

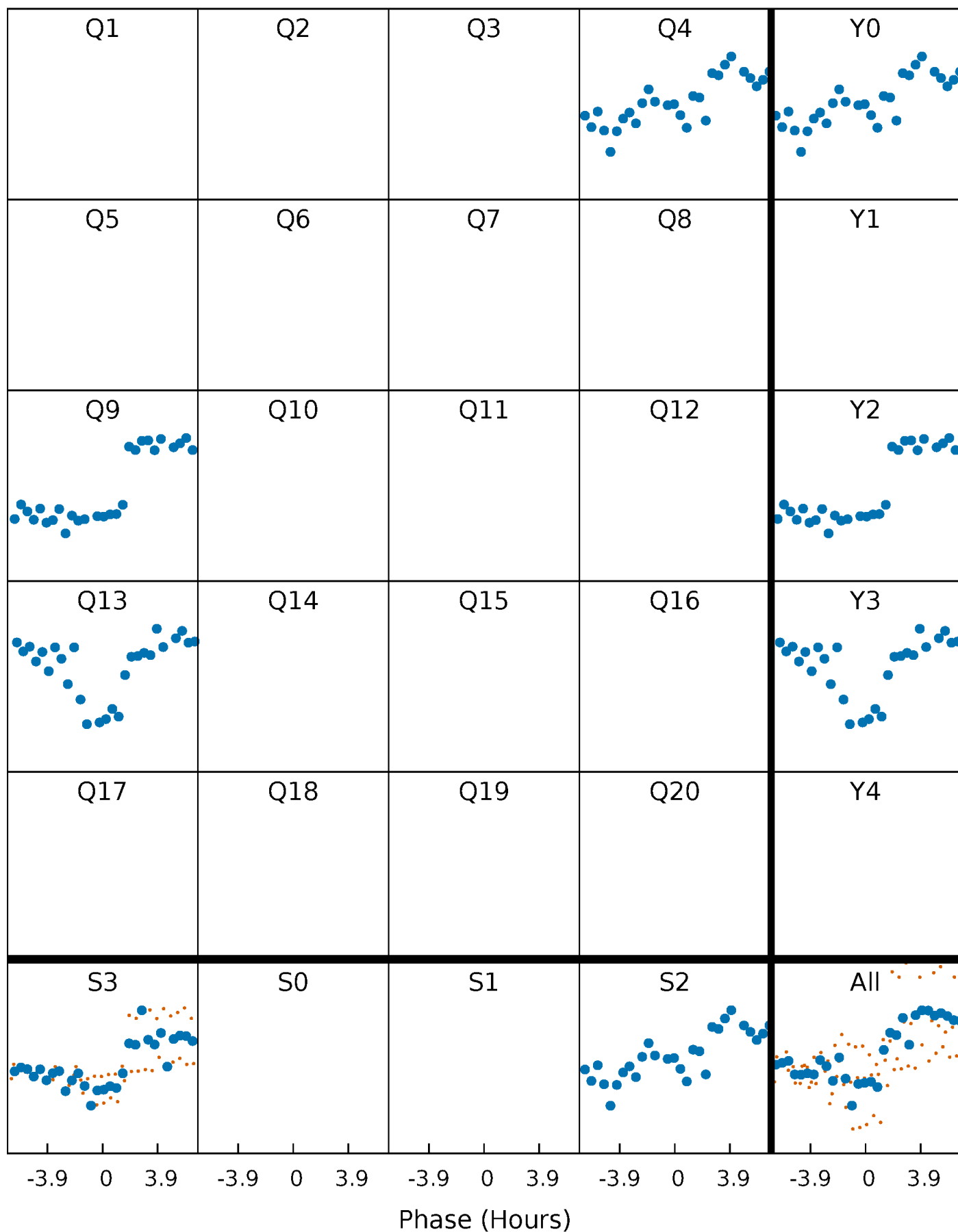


Planet 4 : Phased Whitened Flux Time Series (Fit Epoch/Period)



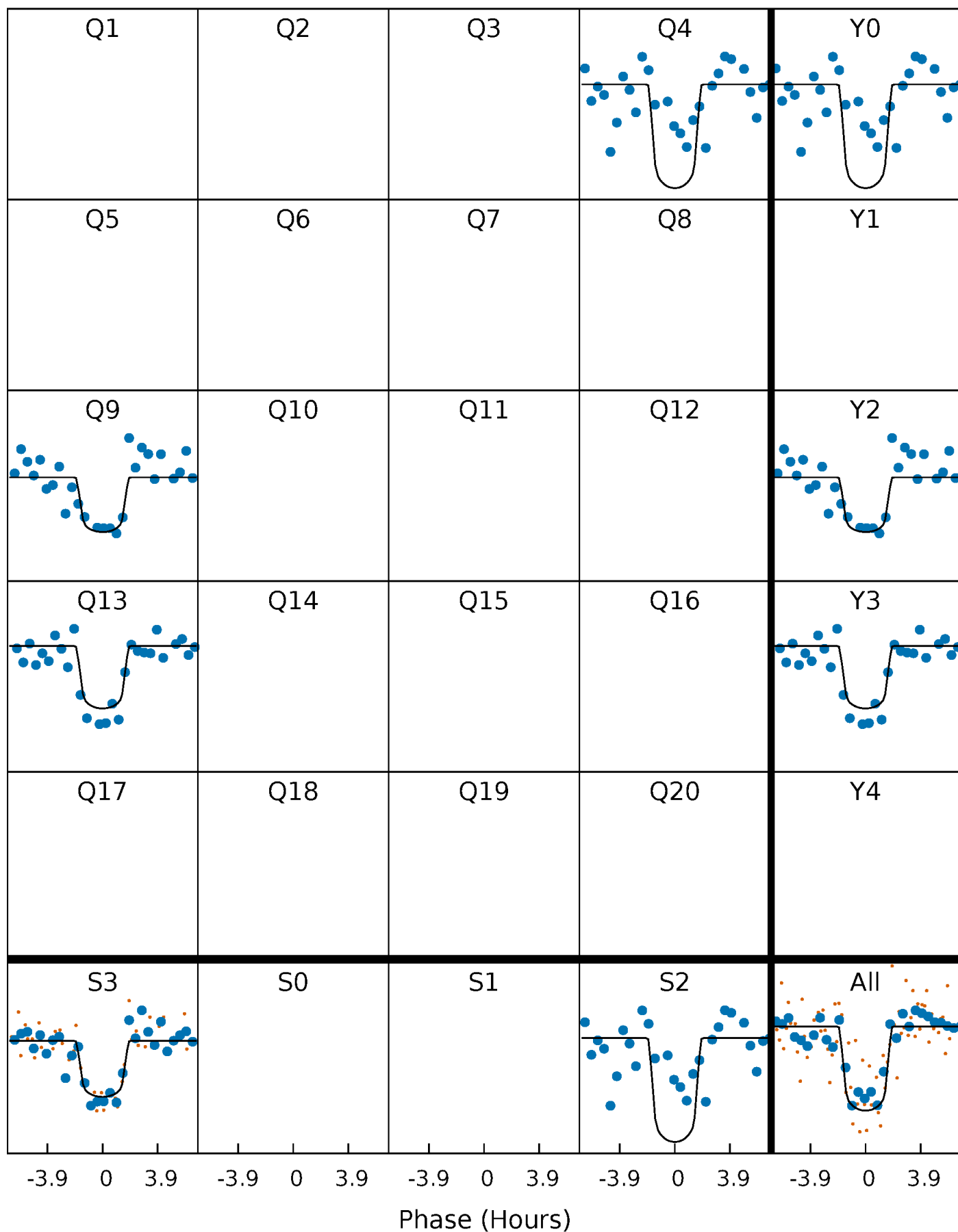
PDC Quarter-Phased Transit Curves

TCE 010533616-04 $P=427.670521$ Days $T_0=405.941817$ (BKJD)



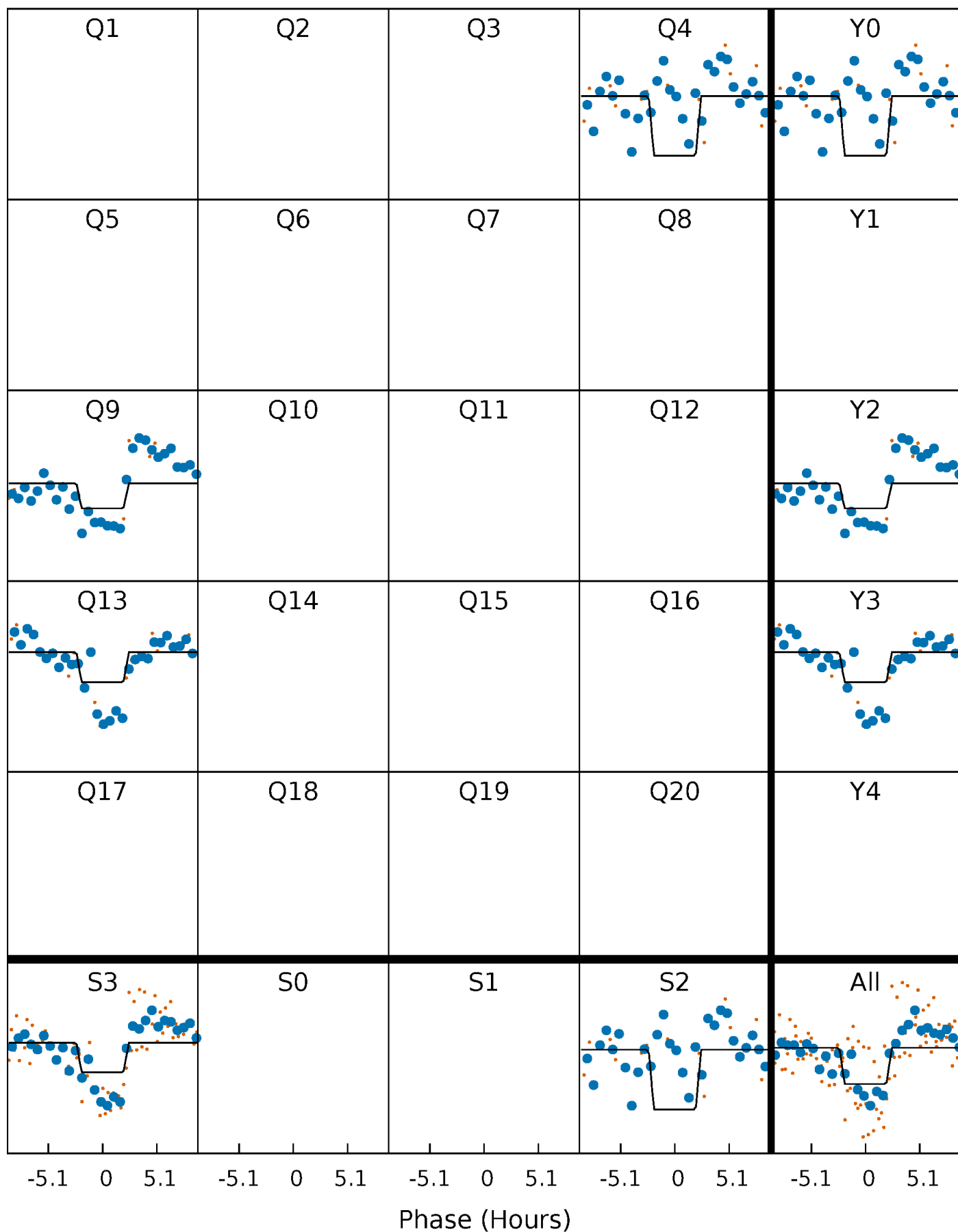
DV Quarter-Phased Transit Curves

TCE 010533616-04 P=427.670521 Days $T_0=405.941817$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

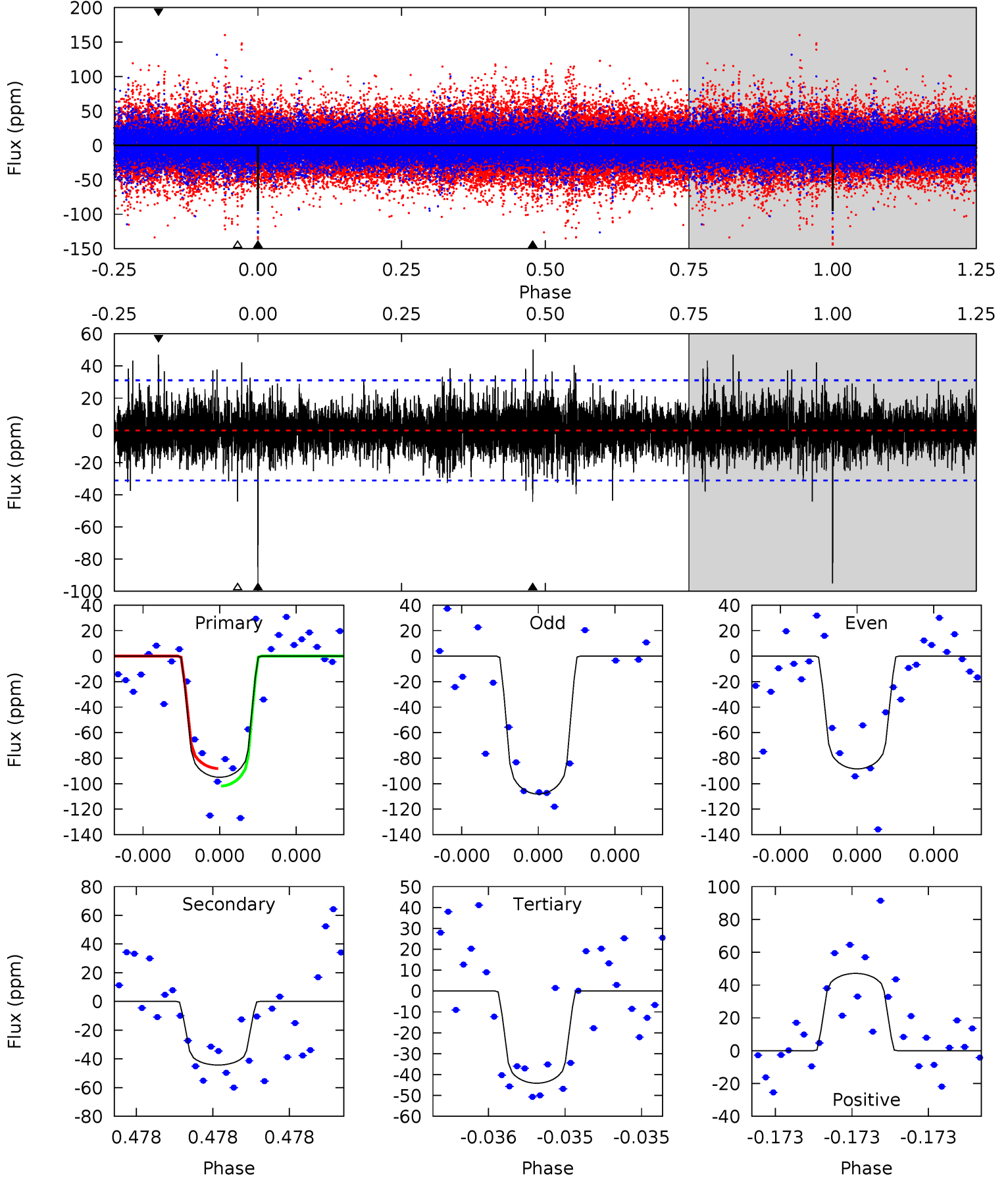
TCE 010533616-04 $P=427.667600$ Days $T_0=405.919944$ (BKJD)



DV Model-Shift Uniqueness Test

010533616-04, P = 427.670521 Days, E = 405.941817 Days

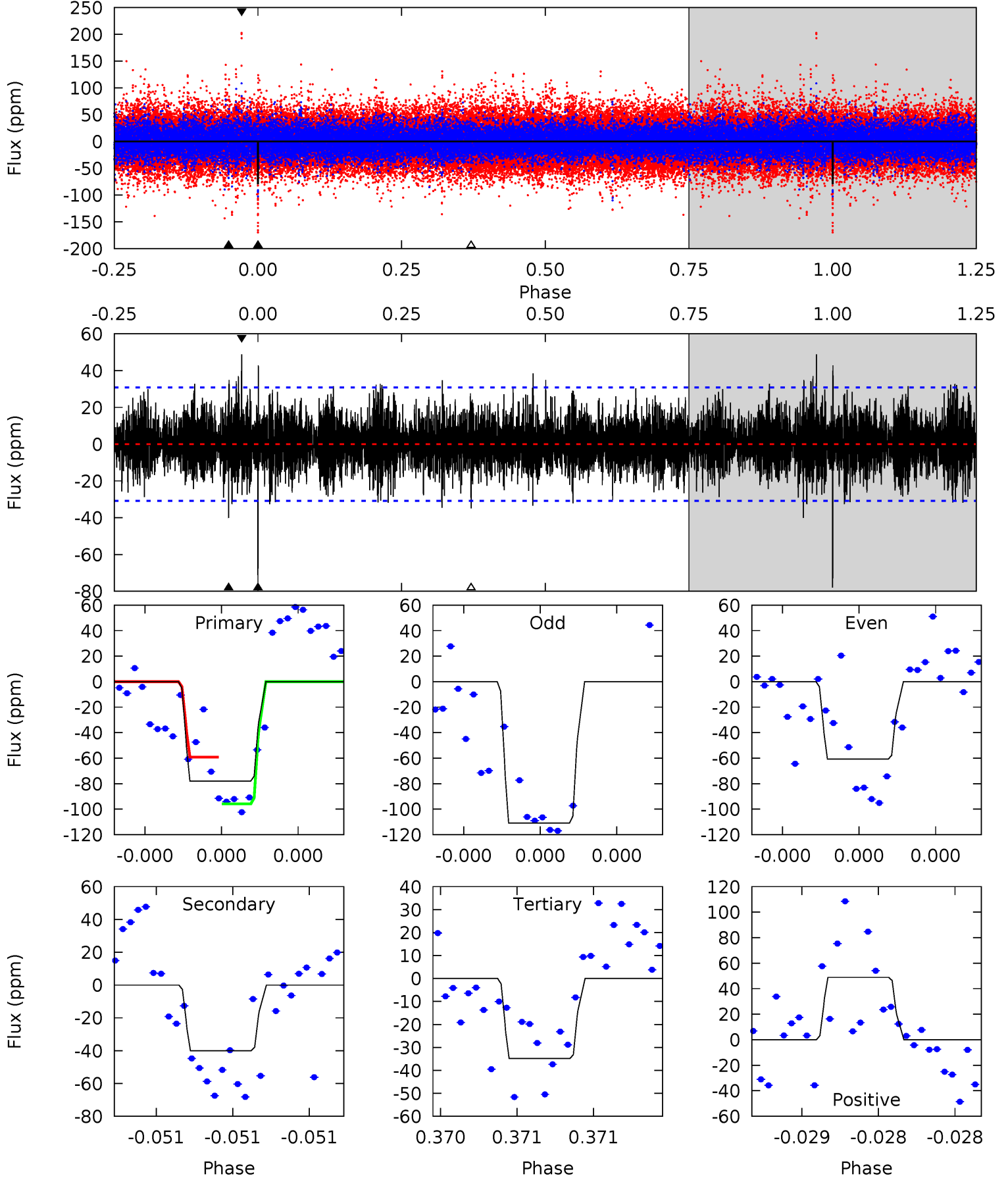
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
17.2	8.01	7.98	8.51	5.63	3.57	1.76	9.19	8.66	0.03	-0.51	1.68	0.88	0.35	1.24



Alt Model-Shift Uniqueness Test

010533616-04, P = 427.667600 Days, E = 405.919944 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
14.1	7.24	6.31	8.84	5.59	3.51	1.90	7.80	5.27	0.92	-1.61	4.21	0.70	0.39	3.32



Stellar Parameters For KIC 010533616

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	$M(M_{\odot})$	p_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	8540^{+235}_{-403}	$3.799^{+0.364}_{-0.156}$	$0.070^{+0.250}_{-0.550}$	$3.211^{+0.976}_{-1.464}$	$2.365^{+0.318}_{-0.794}$	$0.101^{+0.304}_{-0.049}$
	+3%/-5%	+10%/-4%	+357%/-786%	+30%/-46%	+13%/-34%	+302%/-48%
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 010533616-04 / KOI

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	-44 ± 6	$3.55^{+1.89}_{-1.55}$	757^{+65}_{-84}	6353^{+2091}_{-1001}	4236^{+7988}_{-2439}
Alt.	-40 ± 6	$2.77^{+1.93}_{-1.44}$	754^{+67}_{-80}	6973^{+4258}_{-1402}	6004^{+19185}_{-3777}

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 $A_{obs} \gg 1.0$

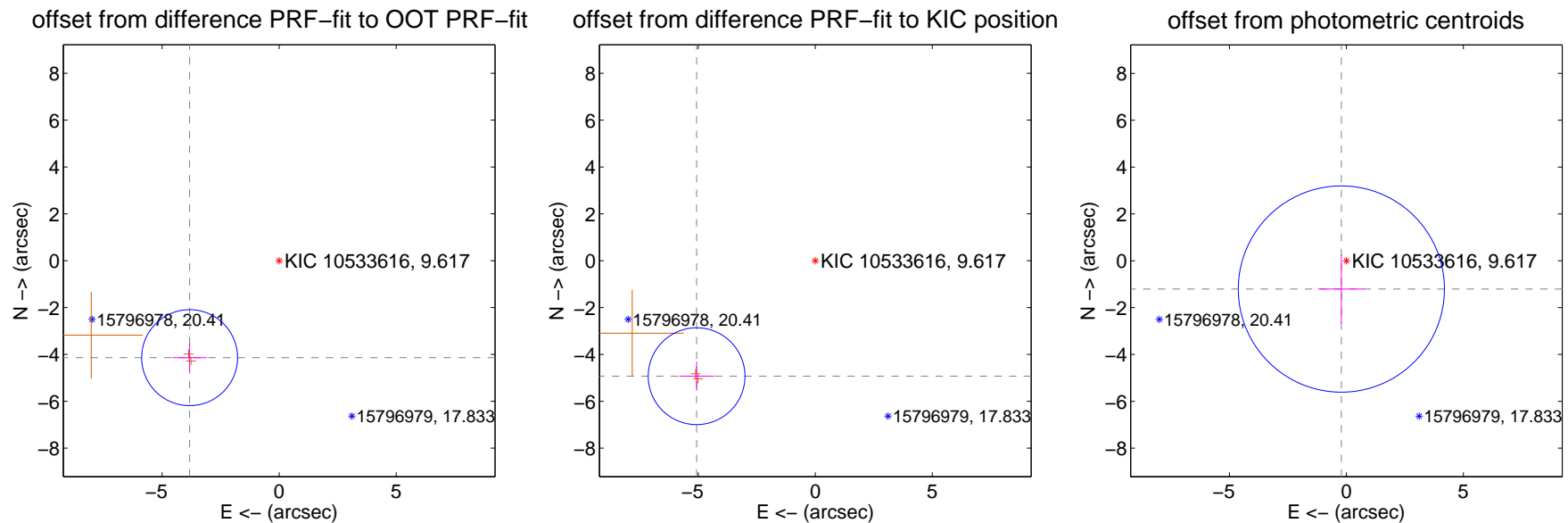
DV Centroid Data

Supplemental centroid analysis for 010533616-04. **Kepler magnitude: 9.62.** Transit SNR 12.30

There are 0 quarters with good PRF difference image offsets

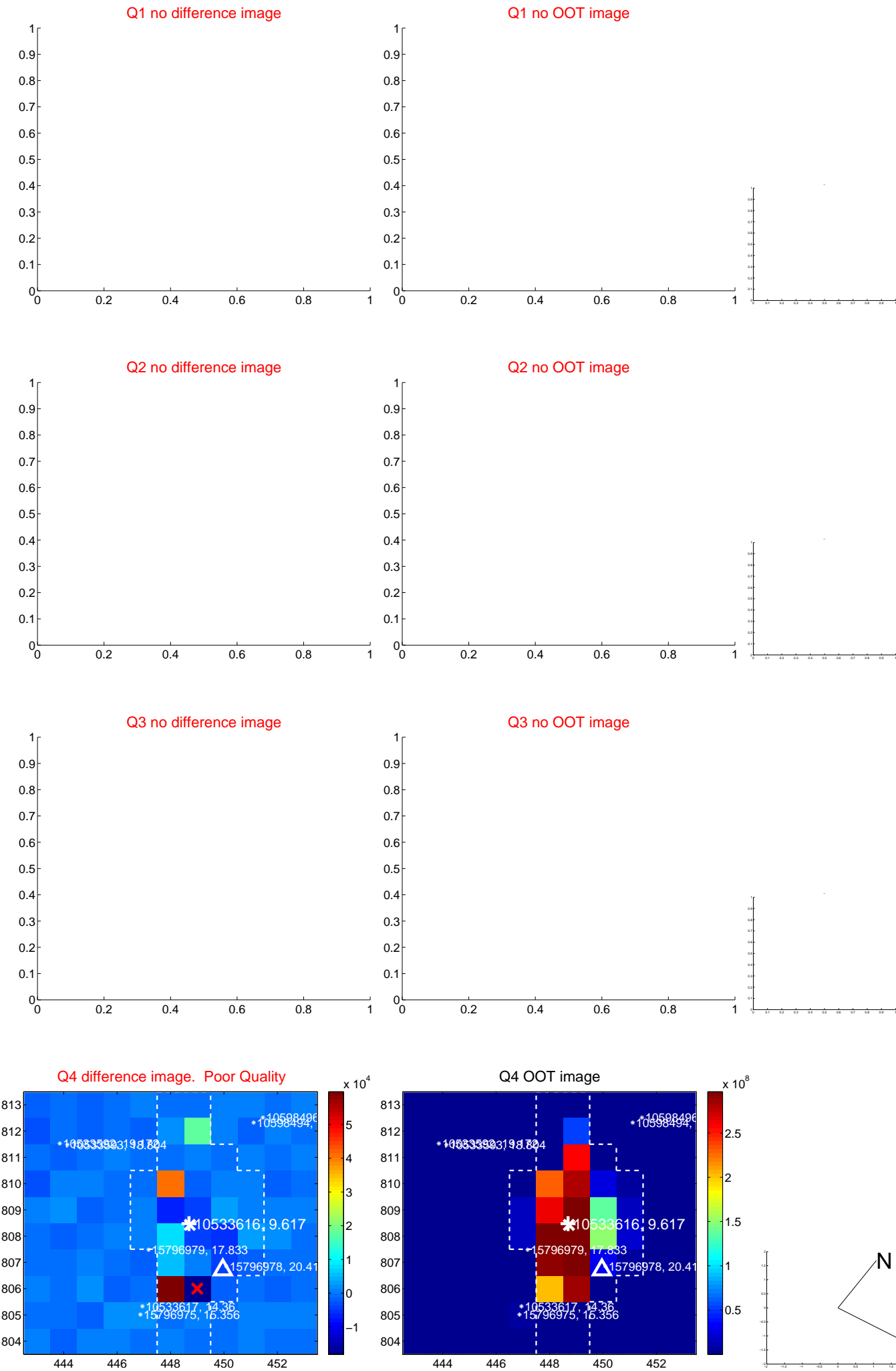
The direct PRF centroid is offset from the target star catalog position by about 1.50 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	5.635 ± 0.683	8.26	3.824 ± 0.742	-4.139 ± 0.628
PRF-fit source offset from KIC position	7.071 ± 0.689	10.27	5.069 ± 0.742	-4.930 ± 0.628
photometric centroid source offset	1.23 ± 1.47	0.84	0.22 ± 0.99	-1.21 ± 1.48



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.

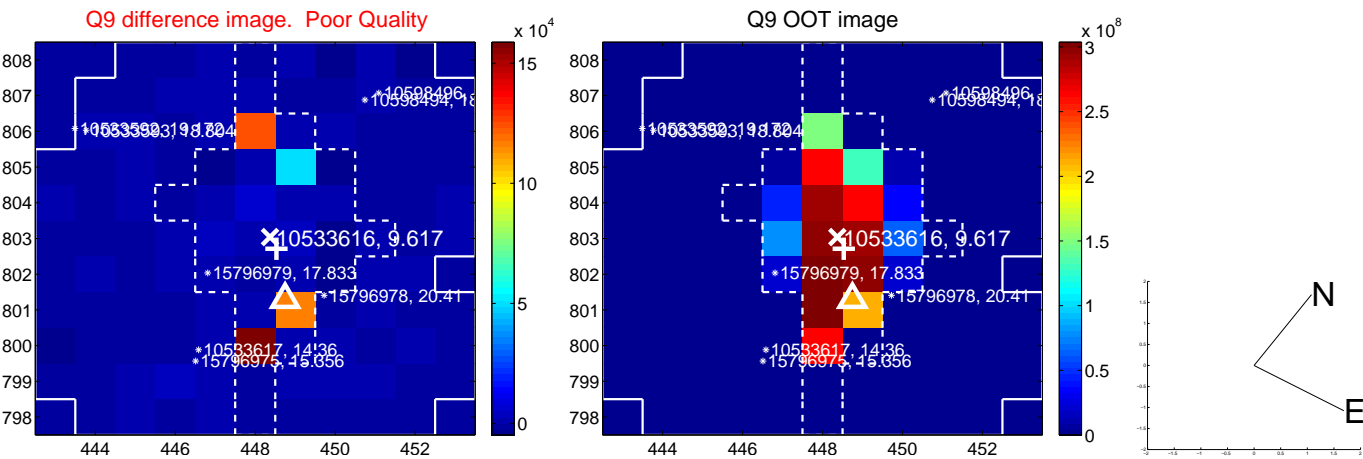
white ×: KIC target position; +: OOT centroid; △: difference centroid. red ✕: large negative pixel value.



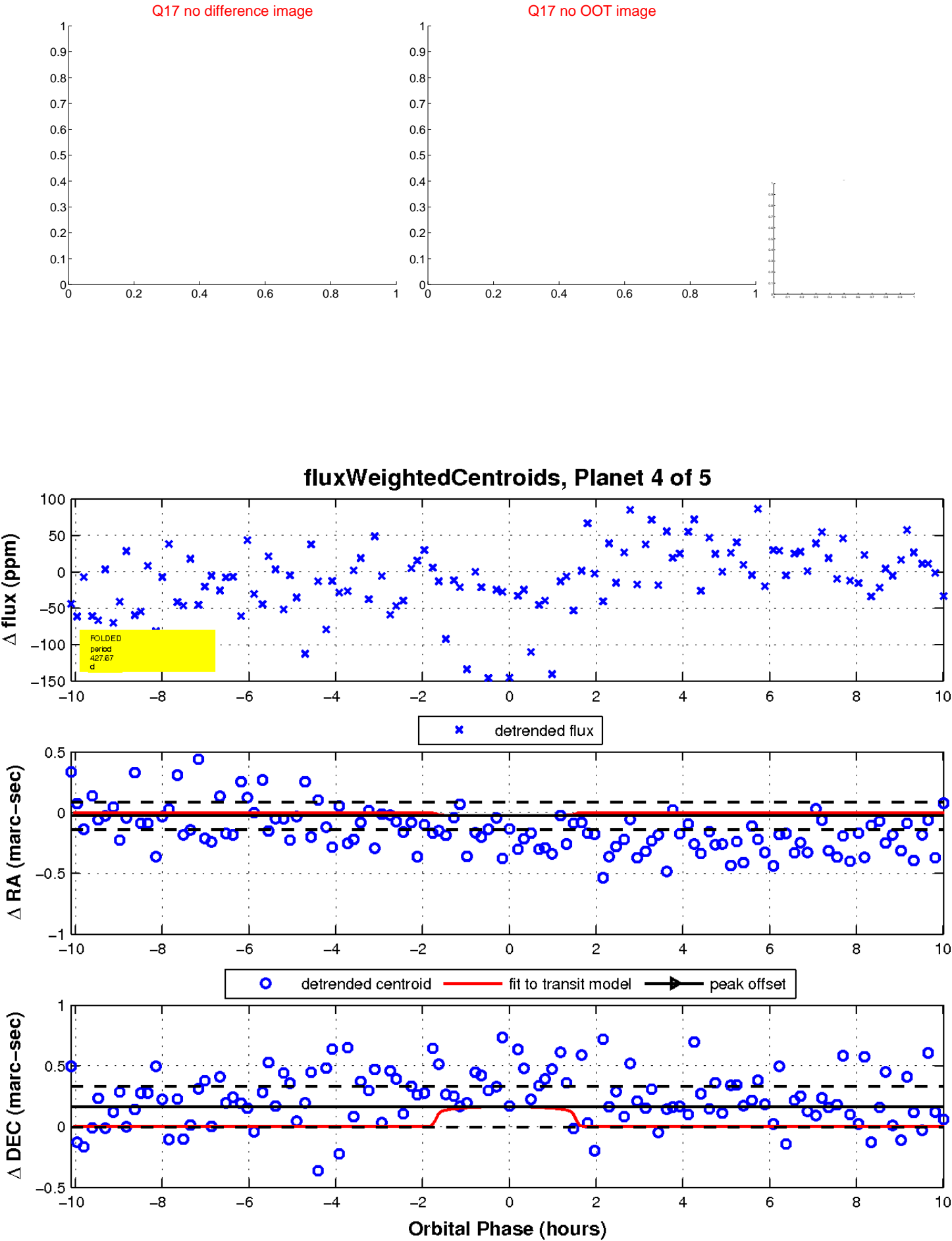
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



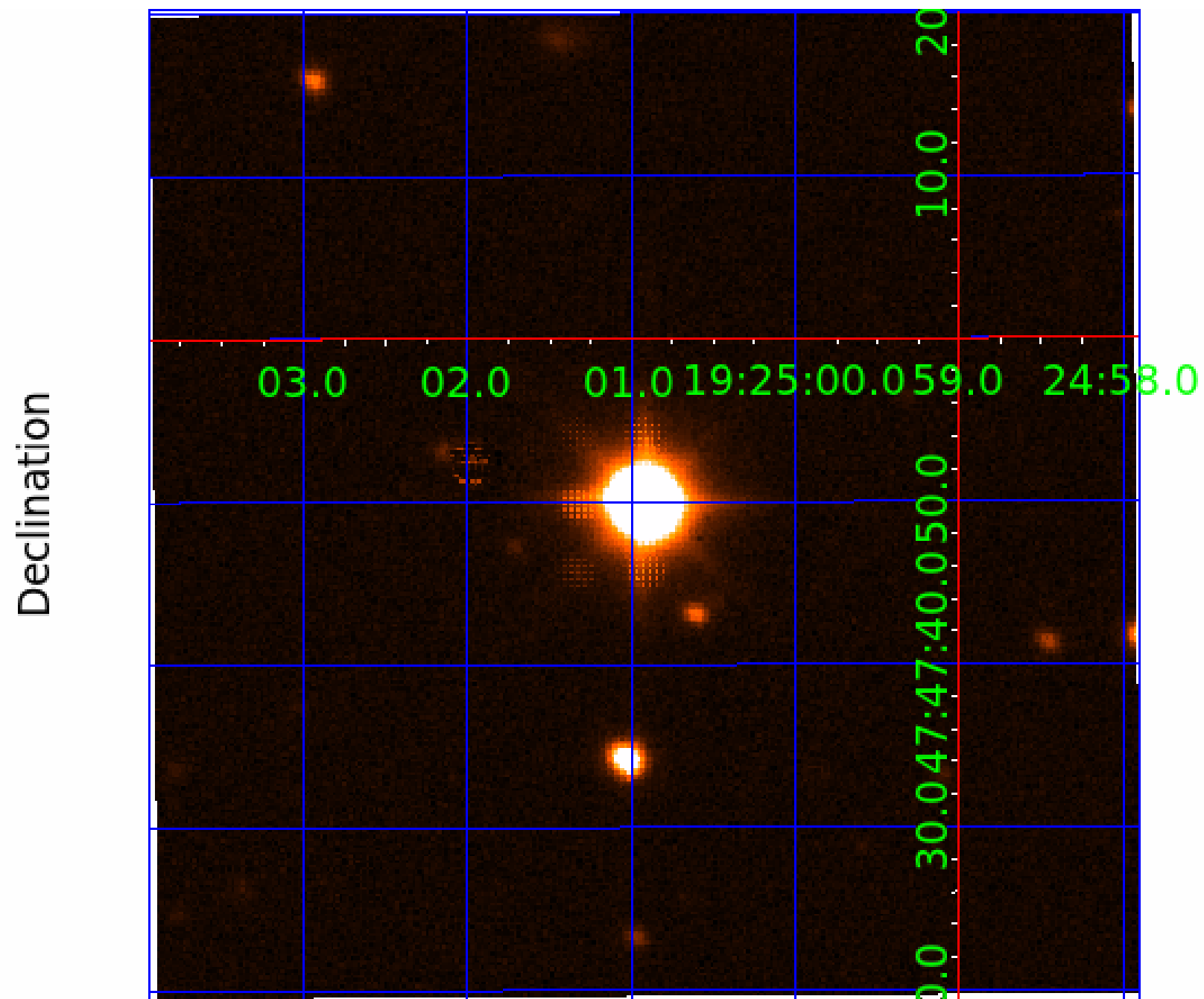
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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



UKIRT Image



KIC 010533616

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})
010533616-01	OBS	No	449.589136	219.780896	116.3	17.158	19.8	18.2	3.21	8540	3.71	20.96
010533616-02	OBS	No	557.077987	253.495075	78.7	10.526	12.8	9.2	3.21	8540	3.23	15.75
010533616-03	OBS	No	377.687112	206.256956	62.1	15.000	15.8	-1.0	3.21	8540	2.57	26.44
010533616-04	OBS	No	427.670521	405.941817	115.1	3.378	12.6	12.3	3.21	8540	3.90	22.41
010533616-05	OBS	No	0.621661	131.735009	1.2	7.460	10.2	3.8	3.21	8540	0.35	136065.53

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
010533616-01	OBS	FP	0.00	1	0	0	0	LPP_DV—INCONSISTENT_TRANS—CENT_SATURATED
010533616-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_MARSHALL—ALL_TRANS_CHASES—INCONSISTENT_TRANS—CENT_SATURATED
010533616-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_MARSHALL—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_SATURATED
010533616-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—MOD_NONUNIQ_ALT—INCONSISTENT_TRANS—CENT_SATURATED
010533616-05	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_ALT—CENT_SATURATED

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

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

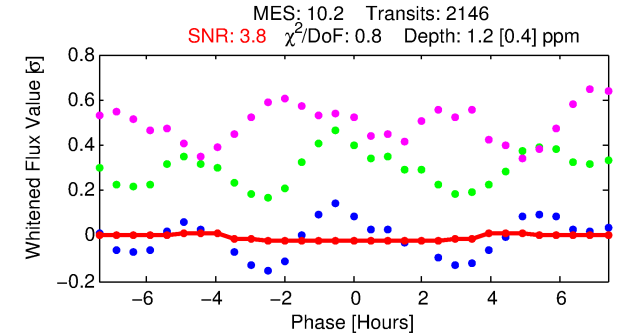
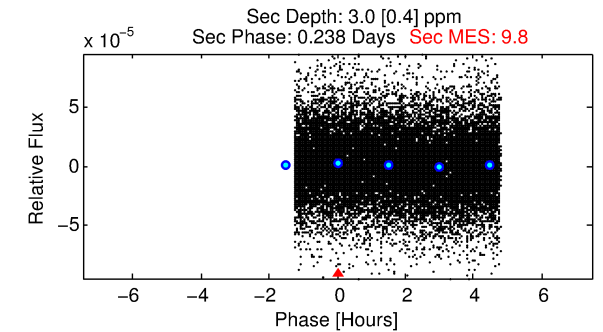
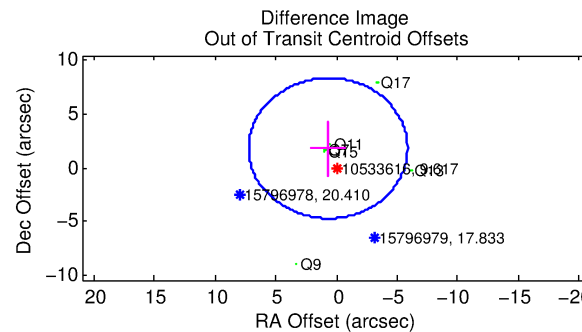
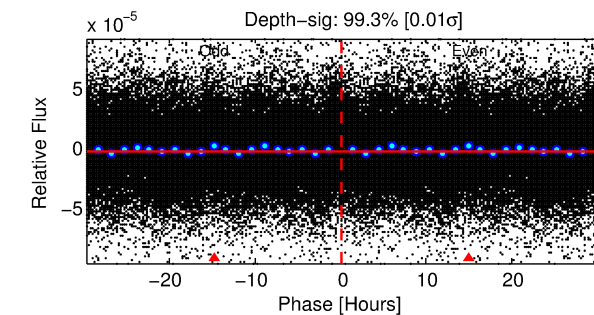
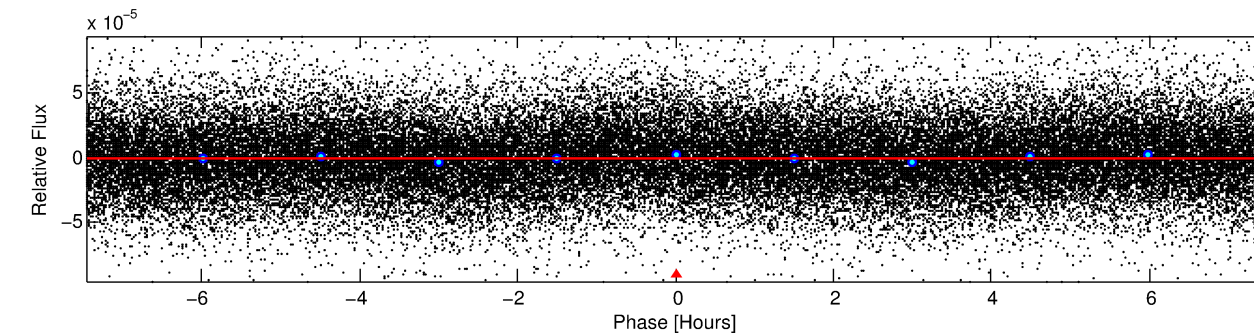
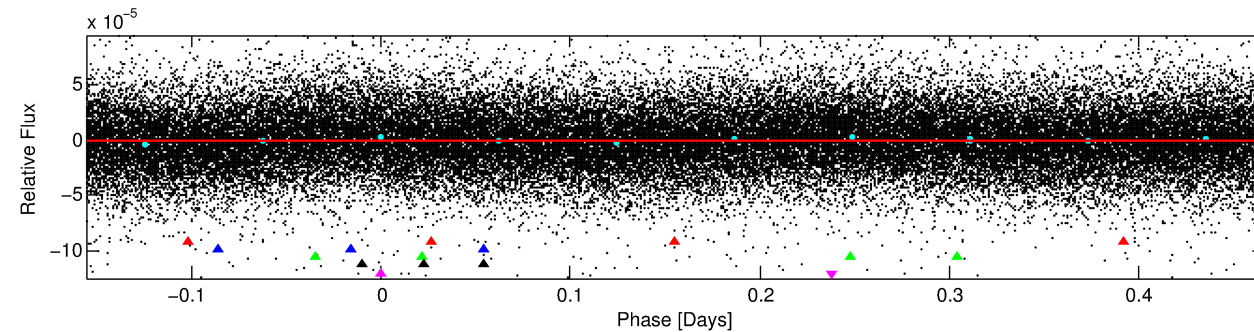
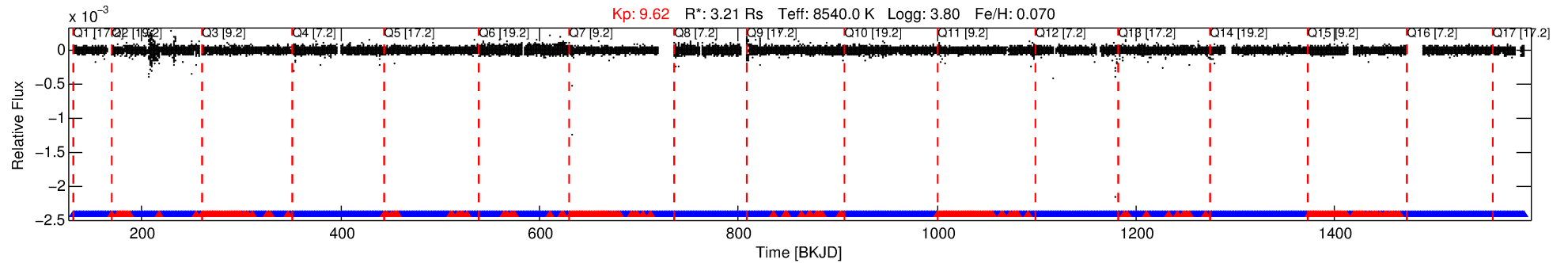
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 010533616-05

No Significant Match Found

DV One-Page Summary

KIC: 10533616 Candidate: 5 of 5 Period: 0.622 d



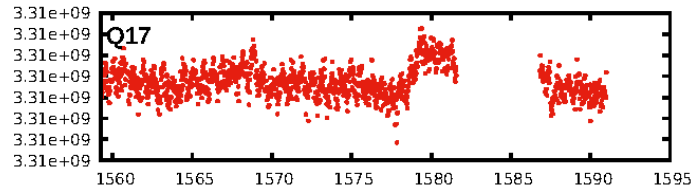
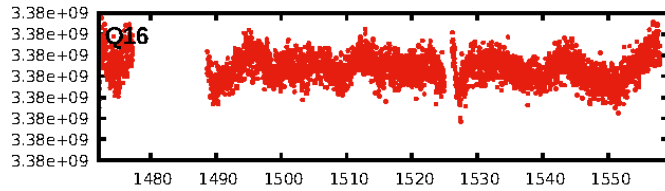
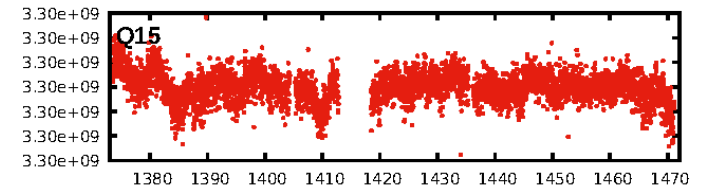
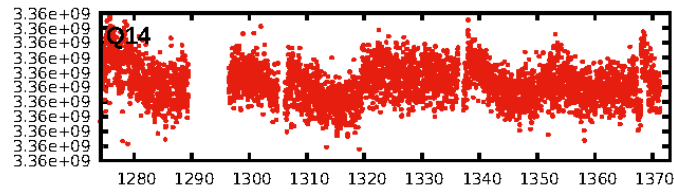
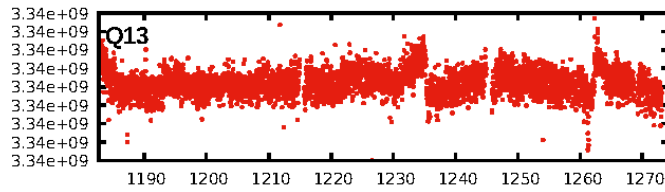
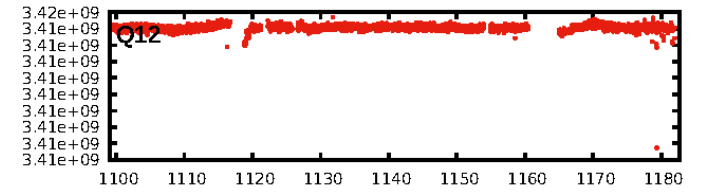
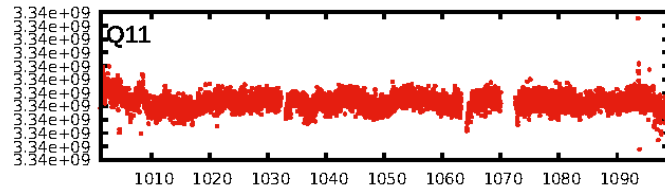
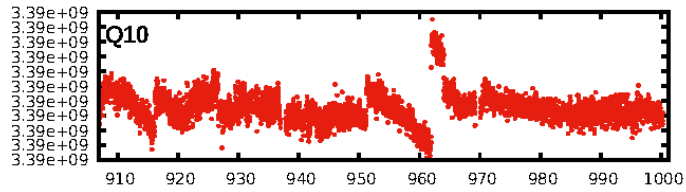
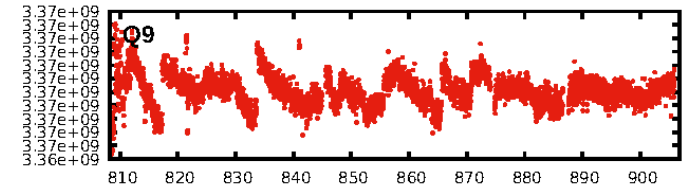
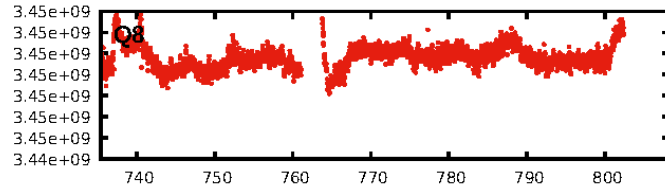
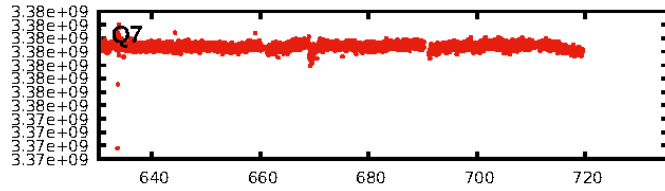
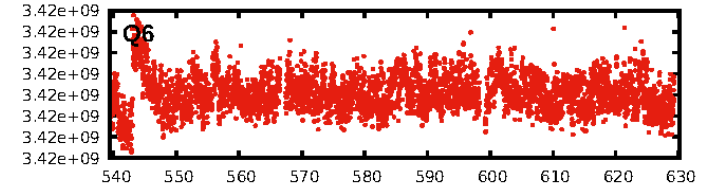
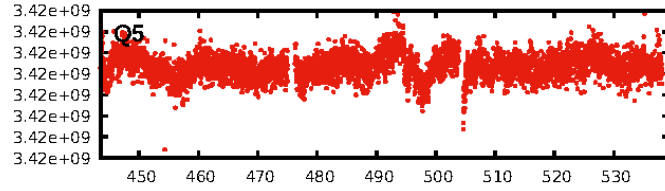
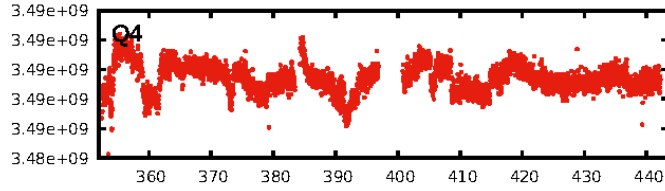
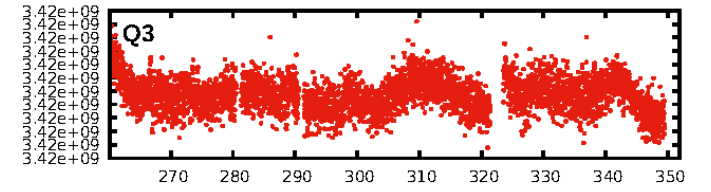
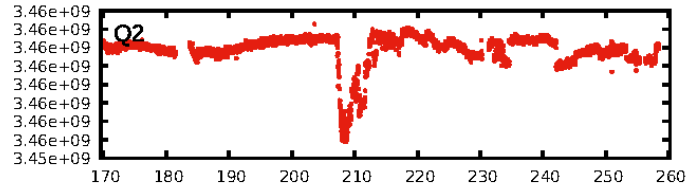
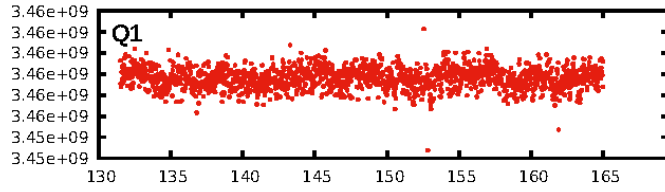
DV Fit Results:

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Epoch = 131.7350 [0.0119] BKJD
Rp/R* = 0.0010 [0.0008]
a/R* = 1.00 [0.00]
b = 0.12 [42.05]
Seff = 136065.53 [90279.46]
Teq = 4897 [812] K
Rp = 0.35 [0.33] Re
a = 0.0190 [0.0078] AU
Ag = 4.83 [8.57] [0.45σ]
Teffp = 11226 [4678] K [1.33σ]

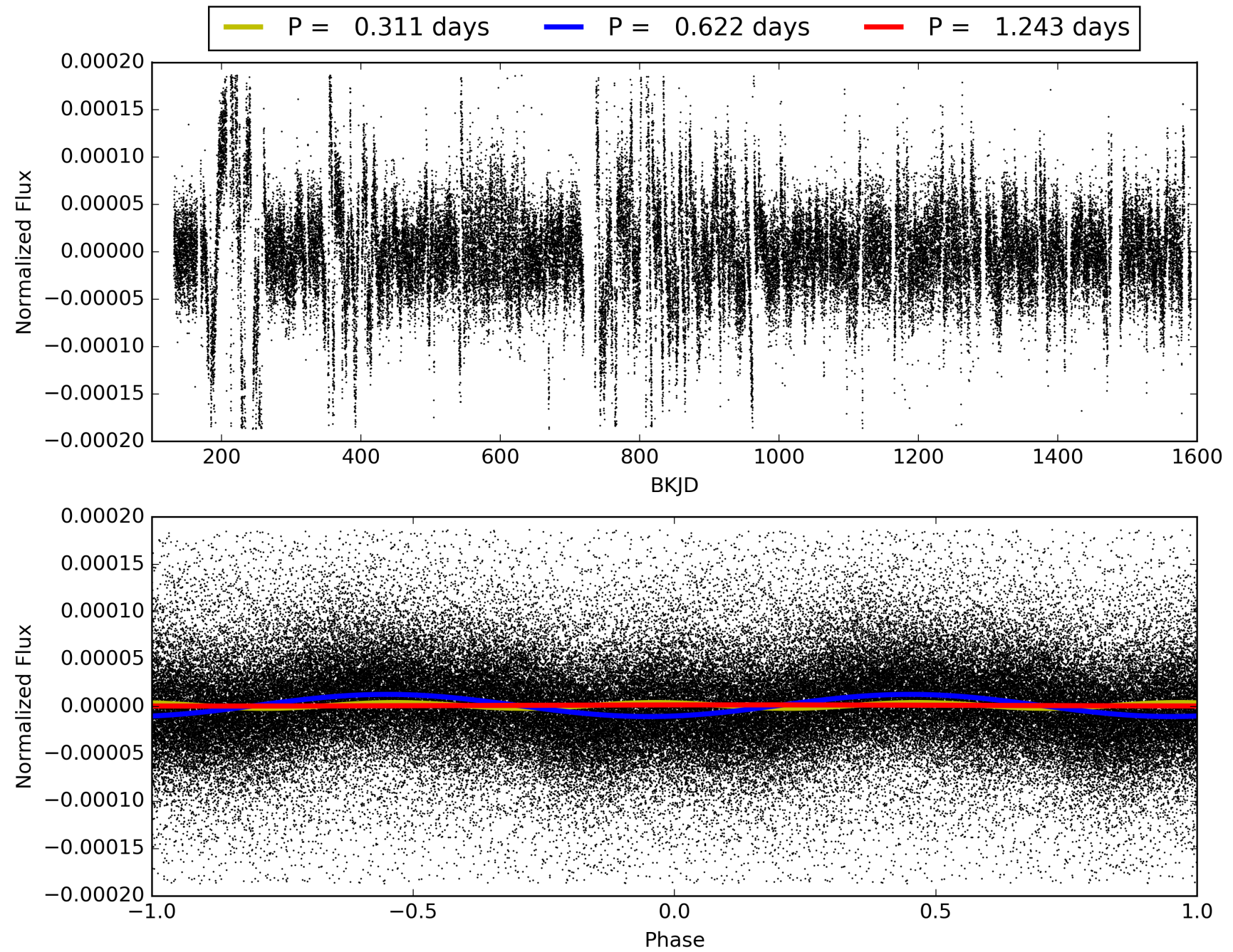
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: 100.0% [540.19σ]
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: N/A
RollingBand-fgt: 0.81 [1659/2052]
GhostDiagnostic-chr: N/A
Centroid-sig: N/A
Centroid-so: N/A
OotOffset-rm: 1.935 arcsec [0.89σ]
KicOffset-rm: 3.350 arcsec [2.15σ]
OotOffset-st: 0/3/0/3 [6]
KicOffset-st: 0/3/0/3 [6]
DiffImageQuality-fgm: 0.50 [3/6]
DiffImageOverlap-fno: 1.00 [17/17]

TCE 010533616-05, PDC Light Curves

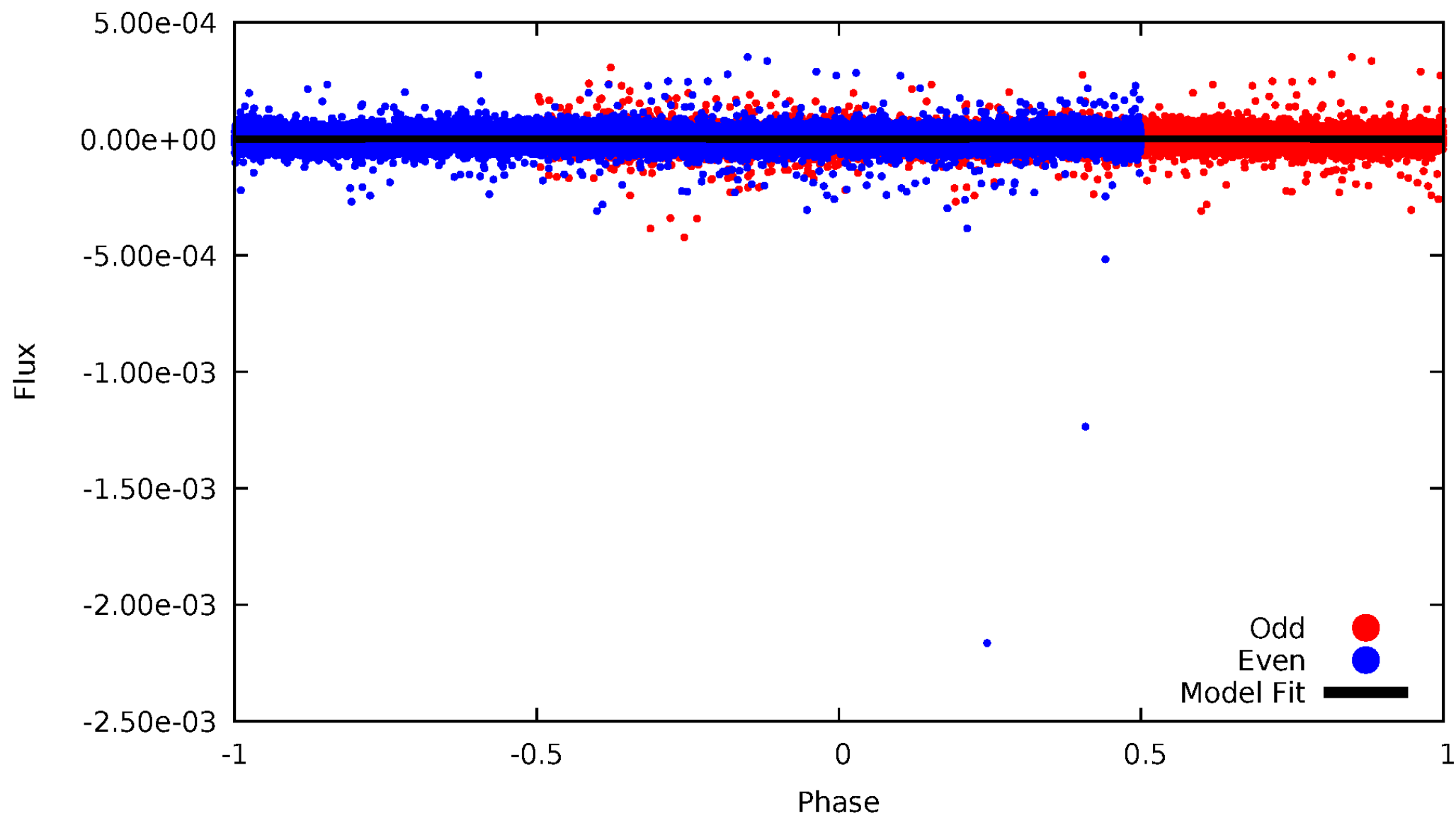


TCE 010533616-05



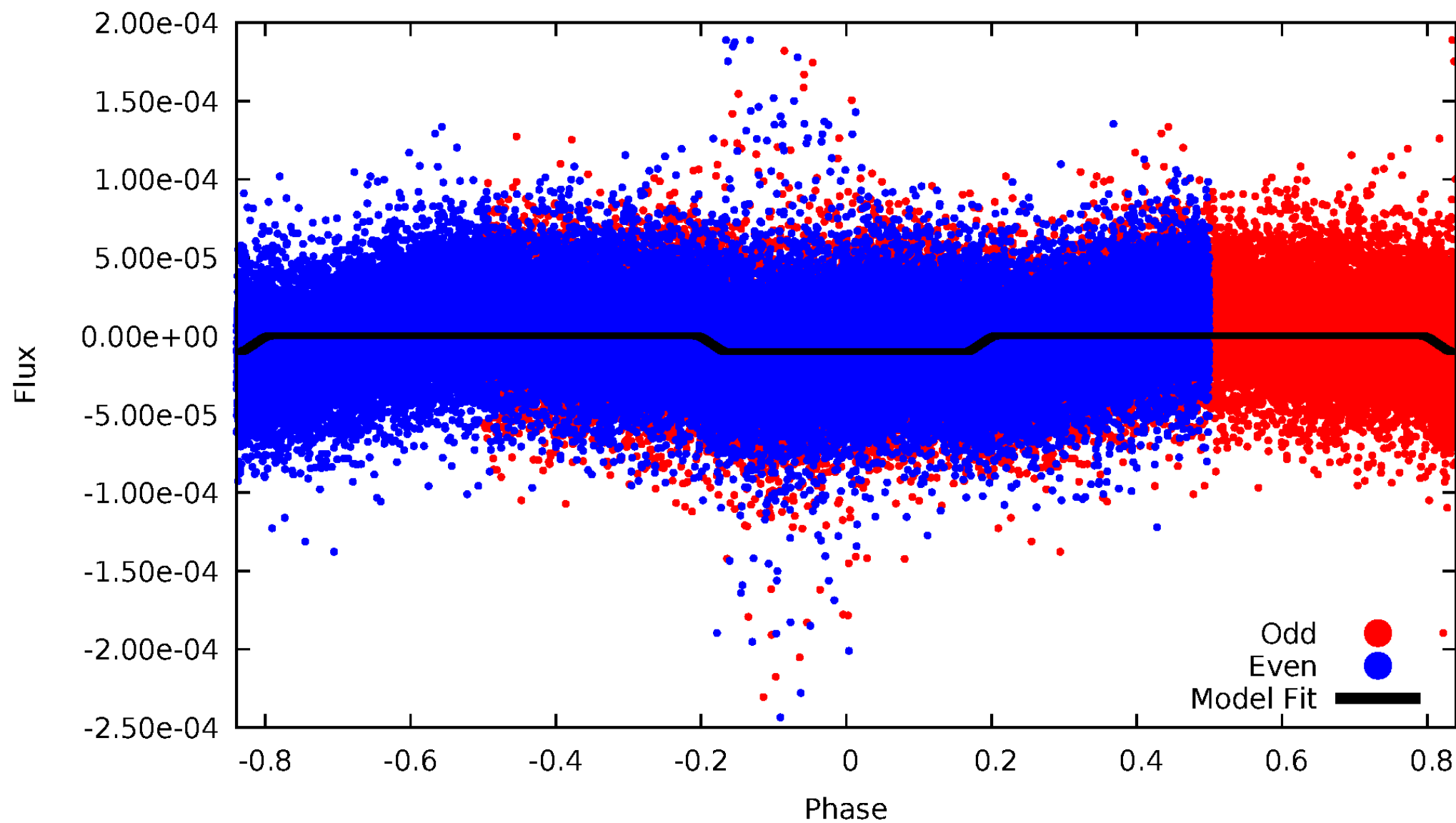
DV Odd/Even

TCE 010533616-05

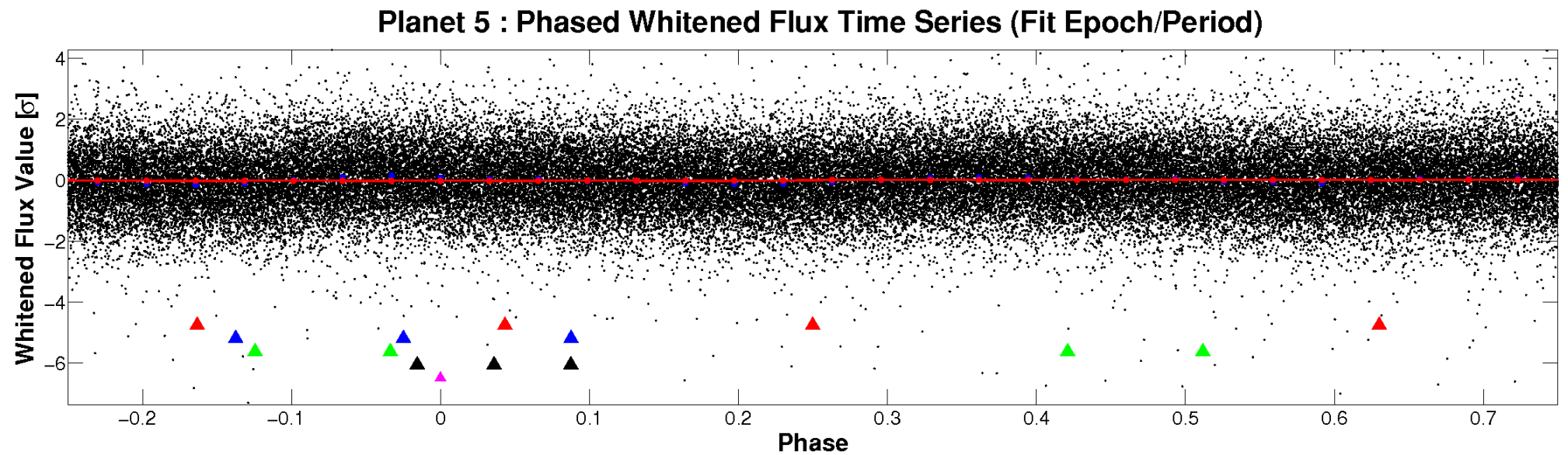
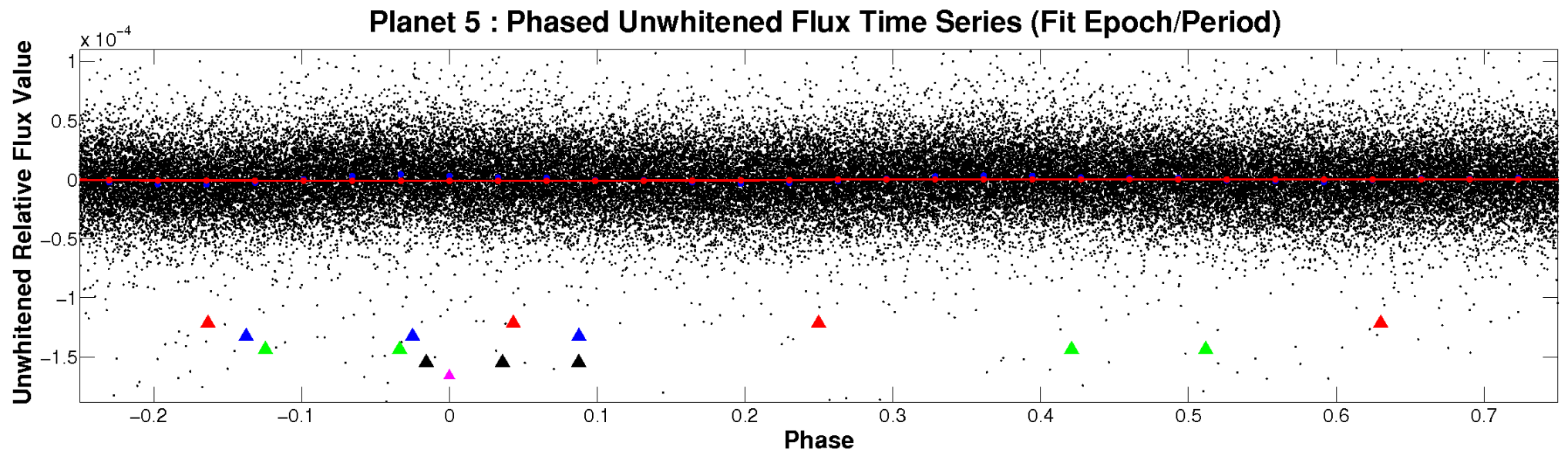


ALT Odd/Even

TCE 010533616-05

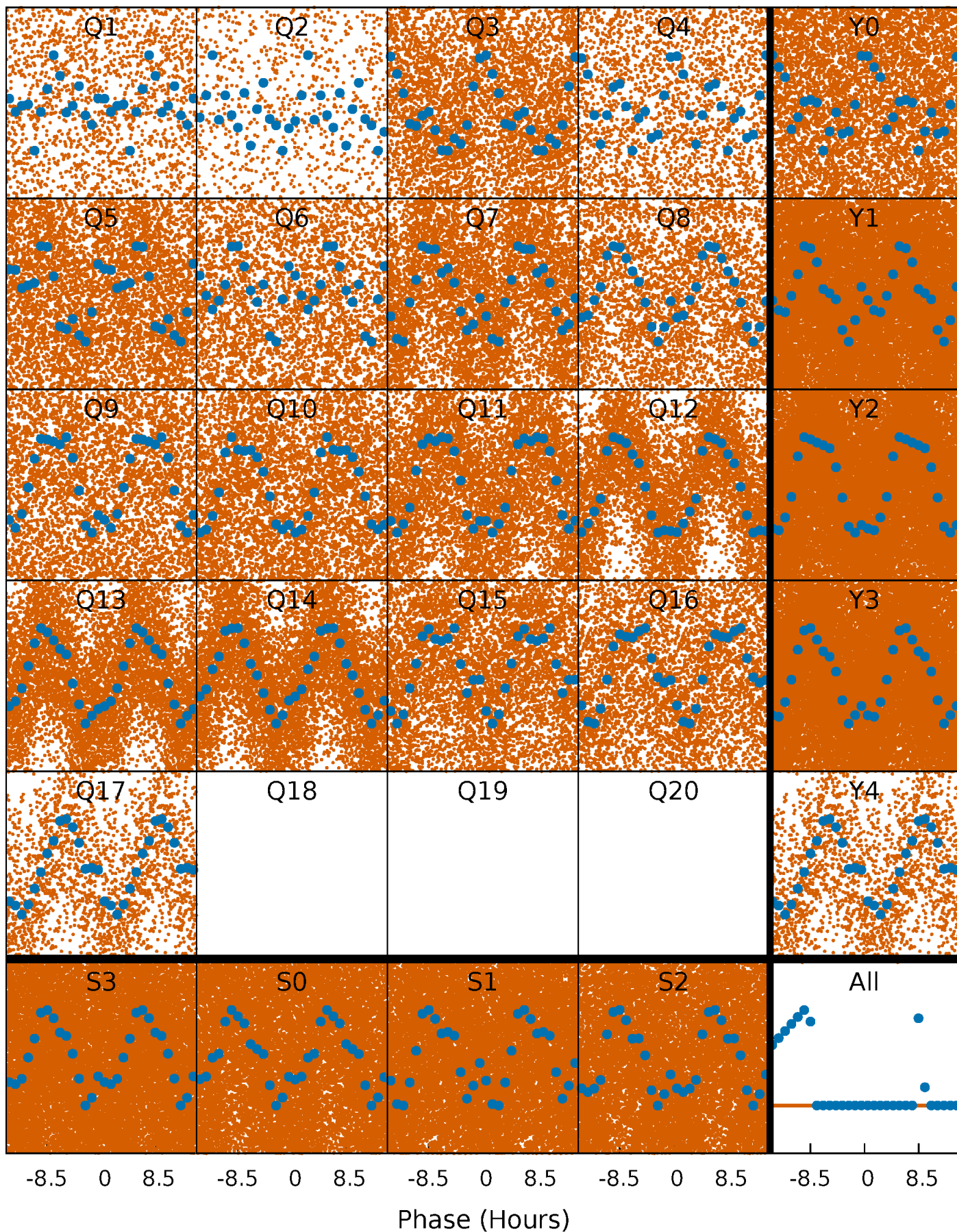


Non-Whitened Vs. Whitened Light Curve



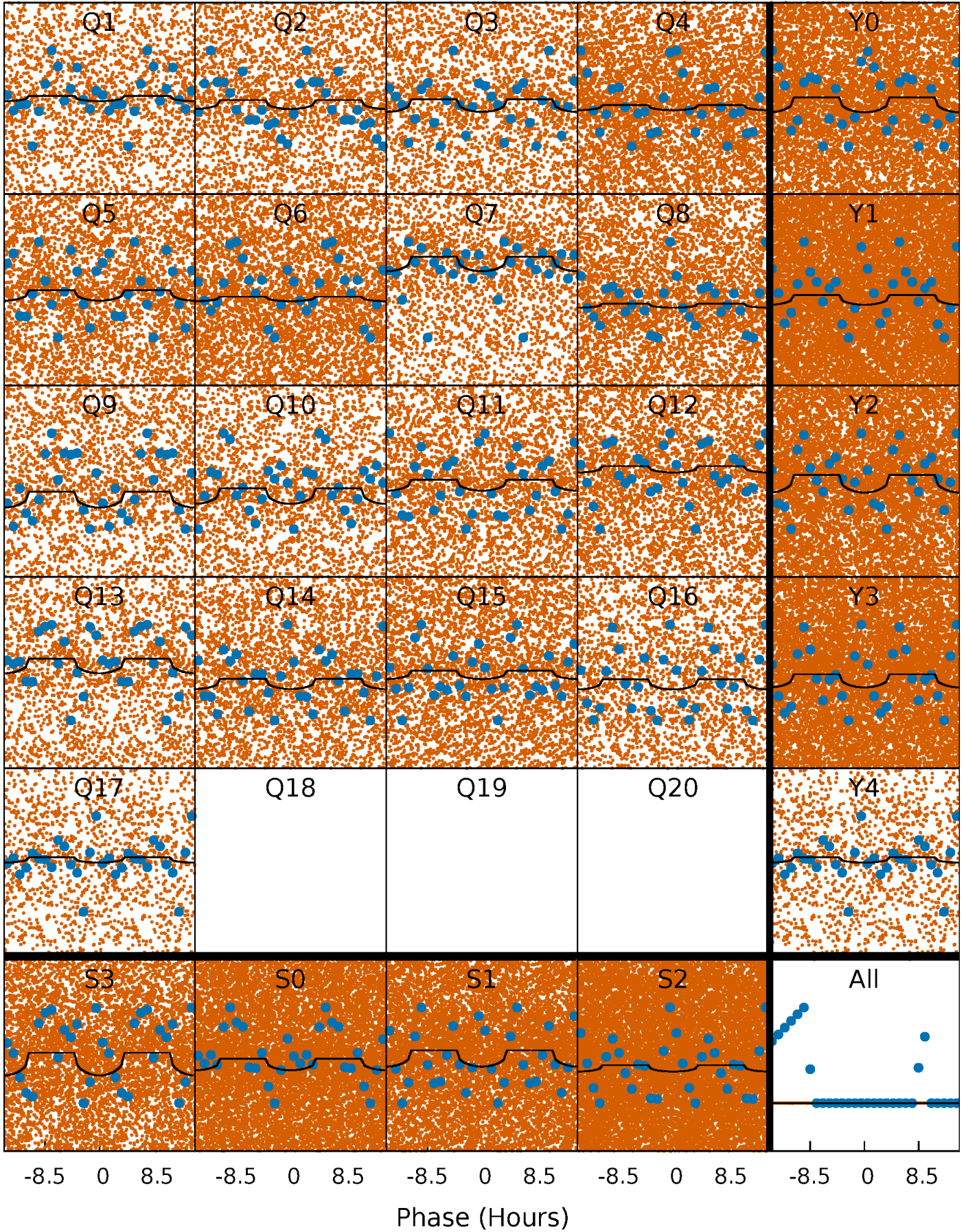
PDC Quarter-Phased Transit Curves

TCE 010533616-05 $P = 0.621661$ Days $T_0 = 131.735009$ (BKJD)



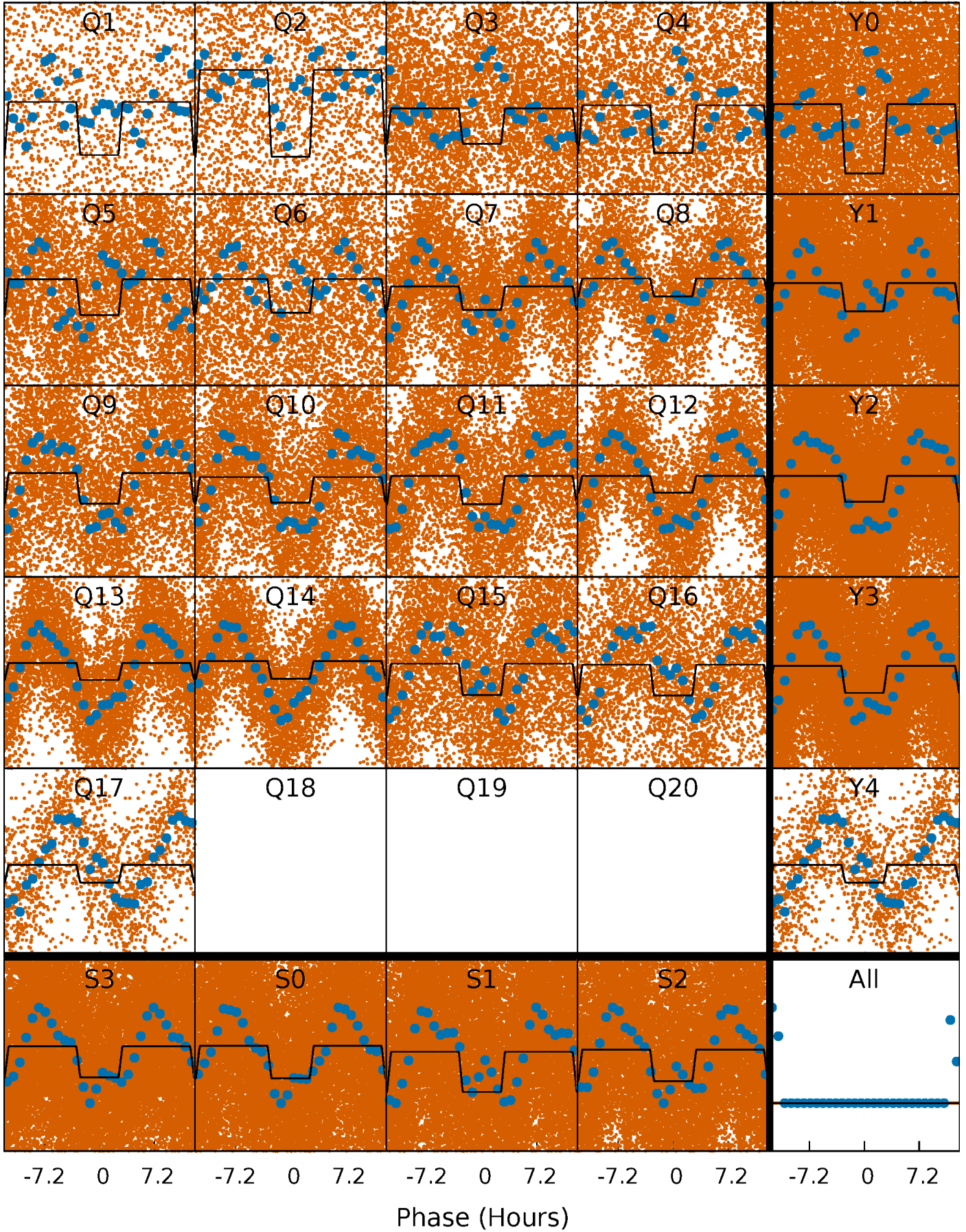
DV Quarter-Phased Transit Curves

TCE 010533616-05 P= 0.621661 Days $T_0=131.735009$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

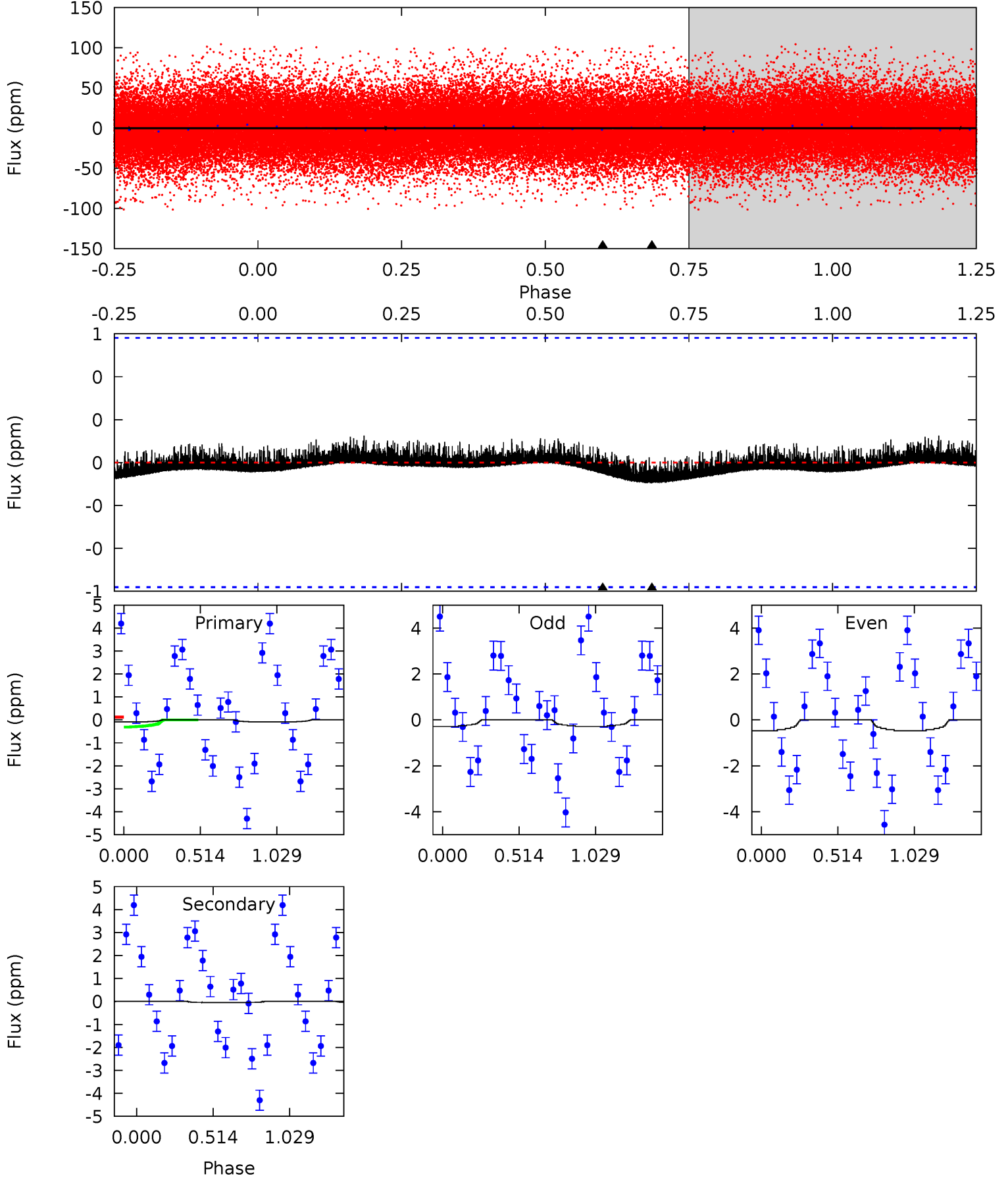
TCE 010533616-05 P= 0.621647 Days $T_0=131.708004$ (BKJD)



DV Model-Shift Uniqueness Test

010533616-05, P = 0.621661 Days, E = 131.113348 Days

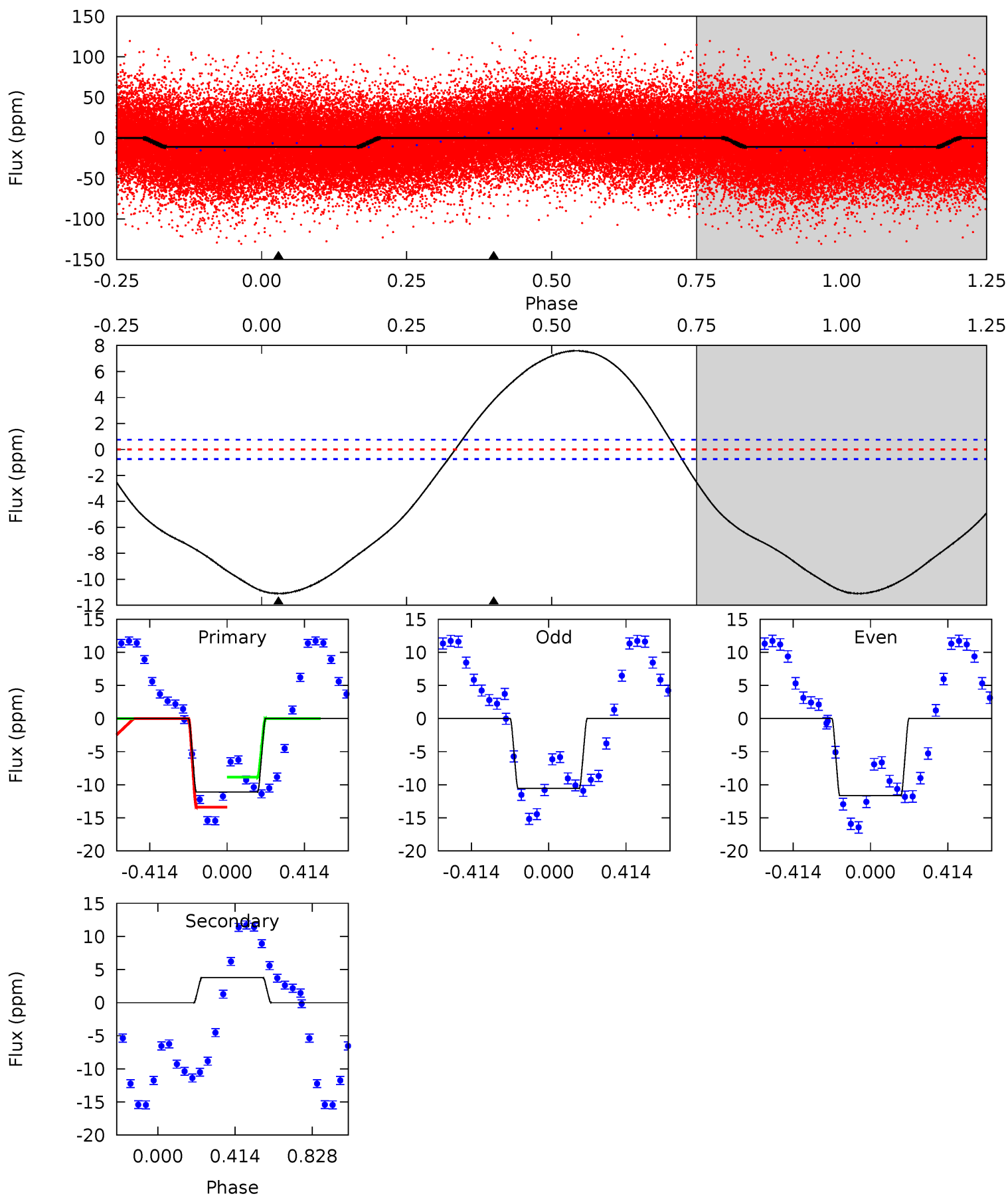
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
0.67	0.37	0	0	4.21	0.65	0.09	0.67	0.67	0.37	0.37	0.72	0.85	0.58	0.66



Alt Model-Shift Uniqueness Test

010533616-05, P = 0.621647 Days, E = 131.086357 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
63.6	-21.7	0	0	4.26	0.82	12.2	63.6	63.6	-21.7	-21.7	3.07	0.95	0.41	13.3



Stellar Parameters For KIC 010533616

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	$M(M_{\odot})$	p_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	8540^{+235}_{-403}	$3.799^{+0.364}_{-0.156}$	$0.070^{+0.250}_{-0.550}$	$3.211^{+0.976}_{-1.464}$	$2.365^{+0.318}_{-0.794}$	$0.101^{+0.304}_{-0.049}$
	+3%/-5%	+10%/-4%	+357%/-786%	+30%/-46%	+13%/-34%	+302%/-48%
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 010533616-05 / KOI

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	-0 ± 0	$0.35^{+0.31}_{-0.22}$	6662^{+596}_{-756}	-5024^{+9866}_{-958}	$0.049^{+0.487}_{-0.193}$
Alt.	4 ± 0	$1.02^{+0.41}_{-0.33}$	6682^{+589}_{-758}	-7124^{+660}_{-973}	$-0.702^{+0.334}_{-0.808}$

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 $A_{obs} \gg 1.0$

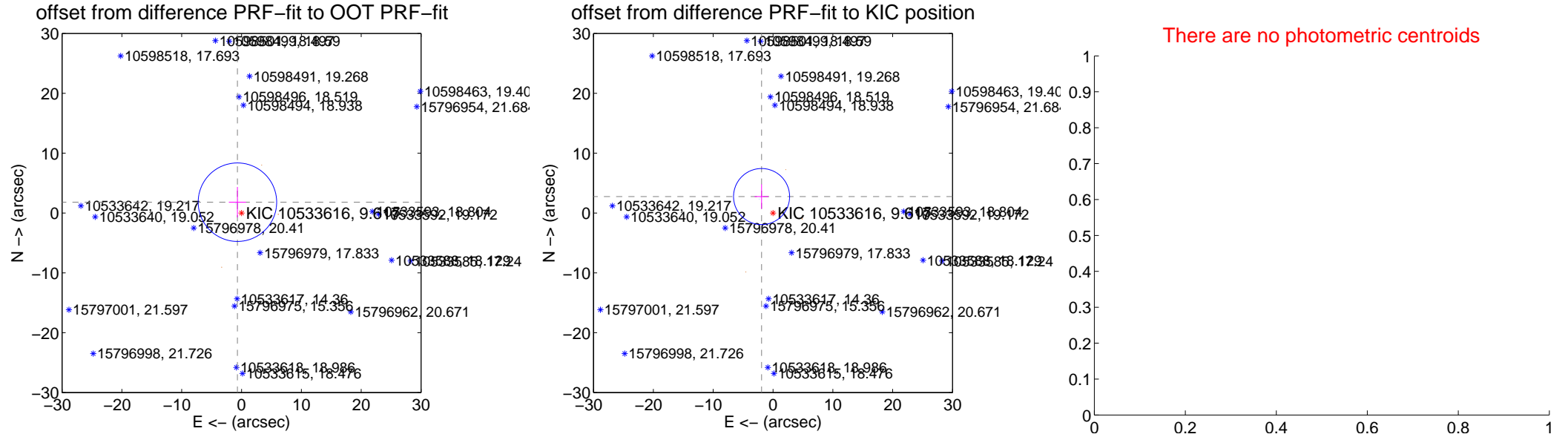
DV Centroid Data

Supplemental centroid analysis for 010533616-05. **Kepler magnitude: 9.62.** Transit SNR 3.77

There are 3 quarters with good PRF difference image offsets

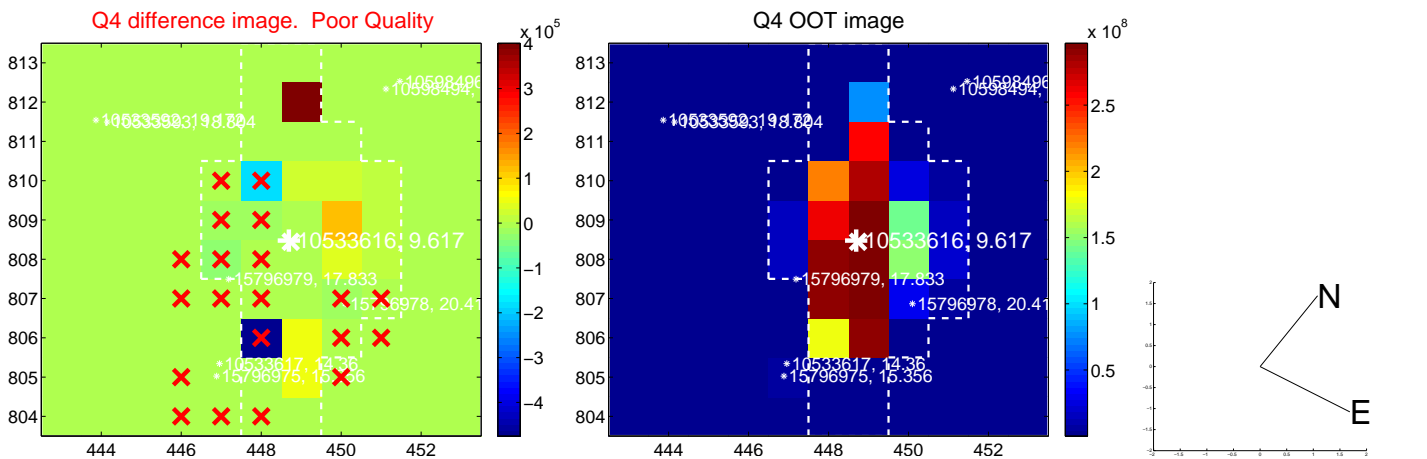
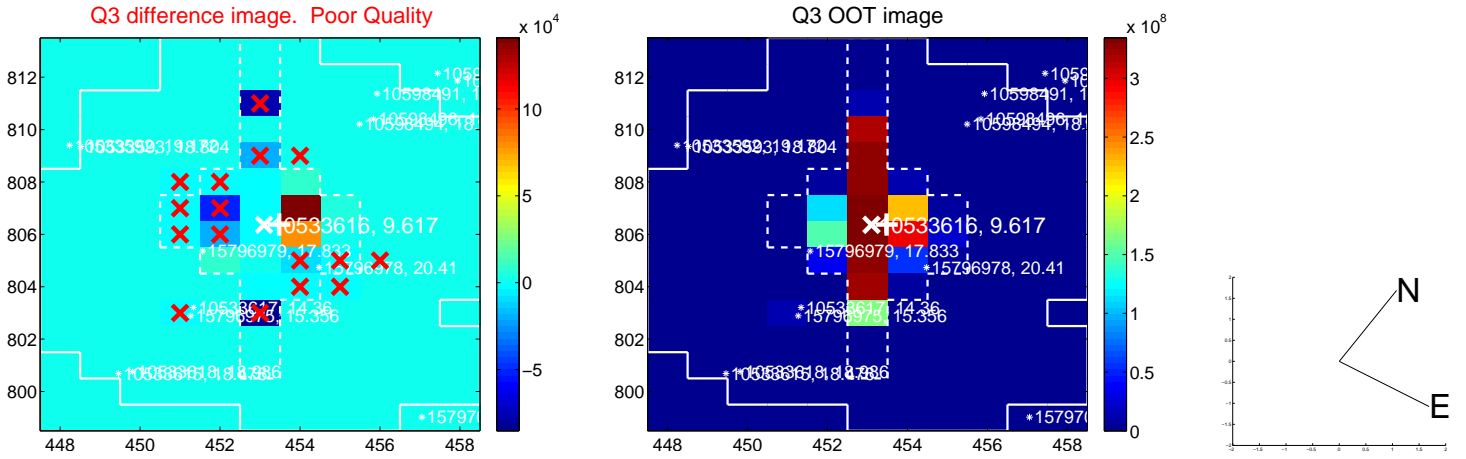
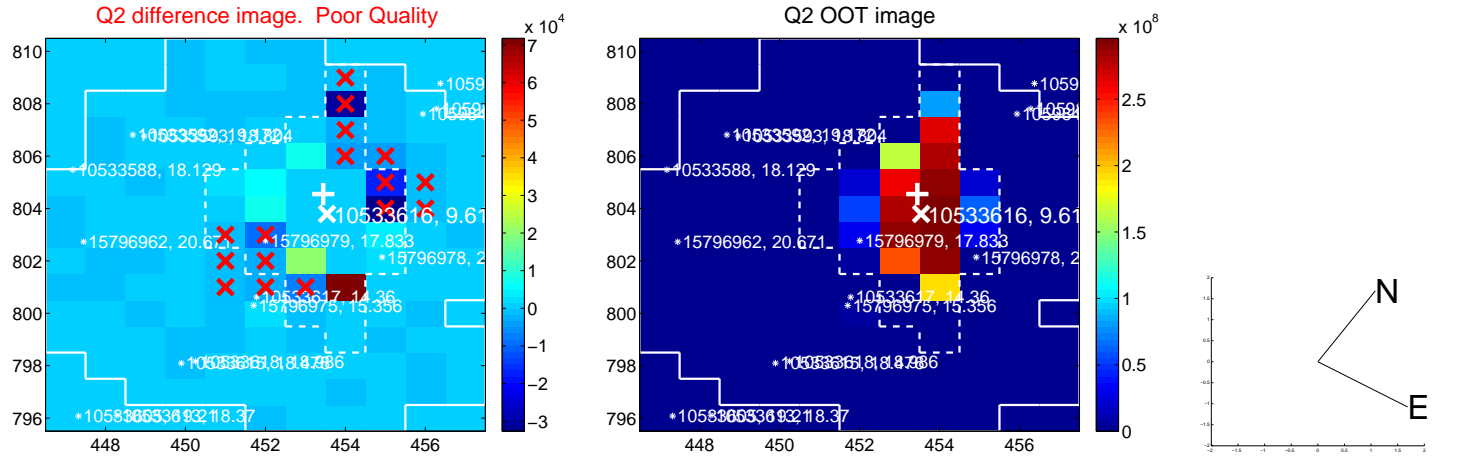
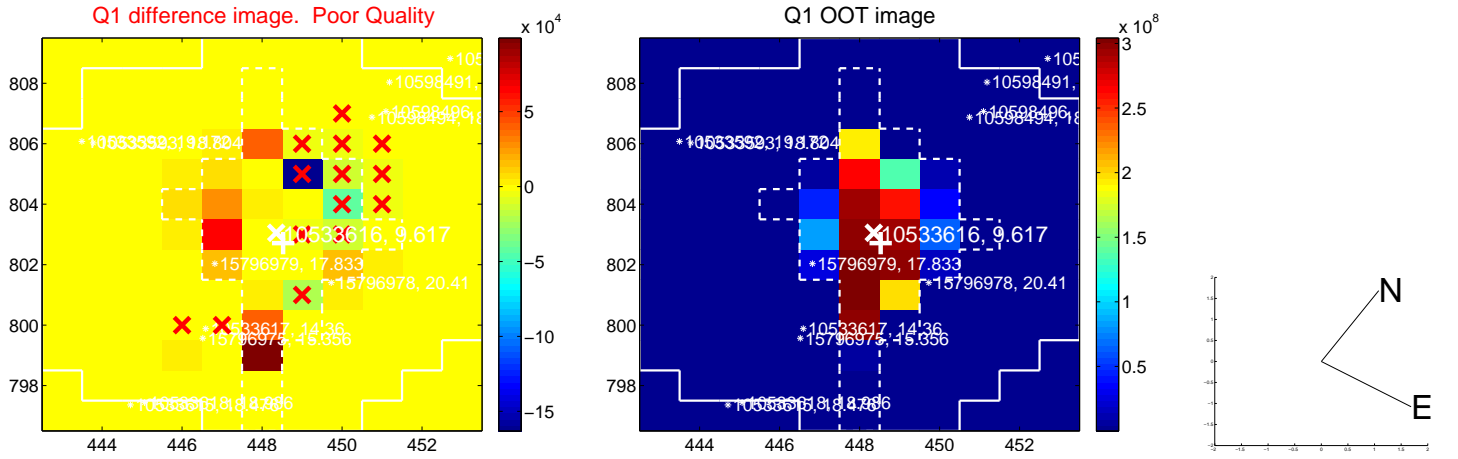
The direct PRF centroid is offset from the target star catalog position by about 1.47 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	1.935 ± 2.186	0.89	0.687 ± 1.432	1.808 ± 2.543
PRF-fit source offset from KIC position	3.350 ± 1.561	2.15	1.911 ± 1.161	2.751 ± 2.043
photometric centroid source offset	—	—	—	—

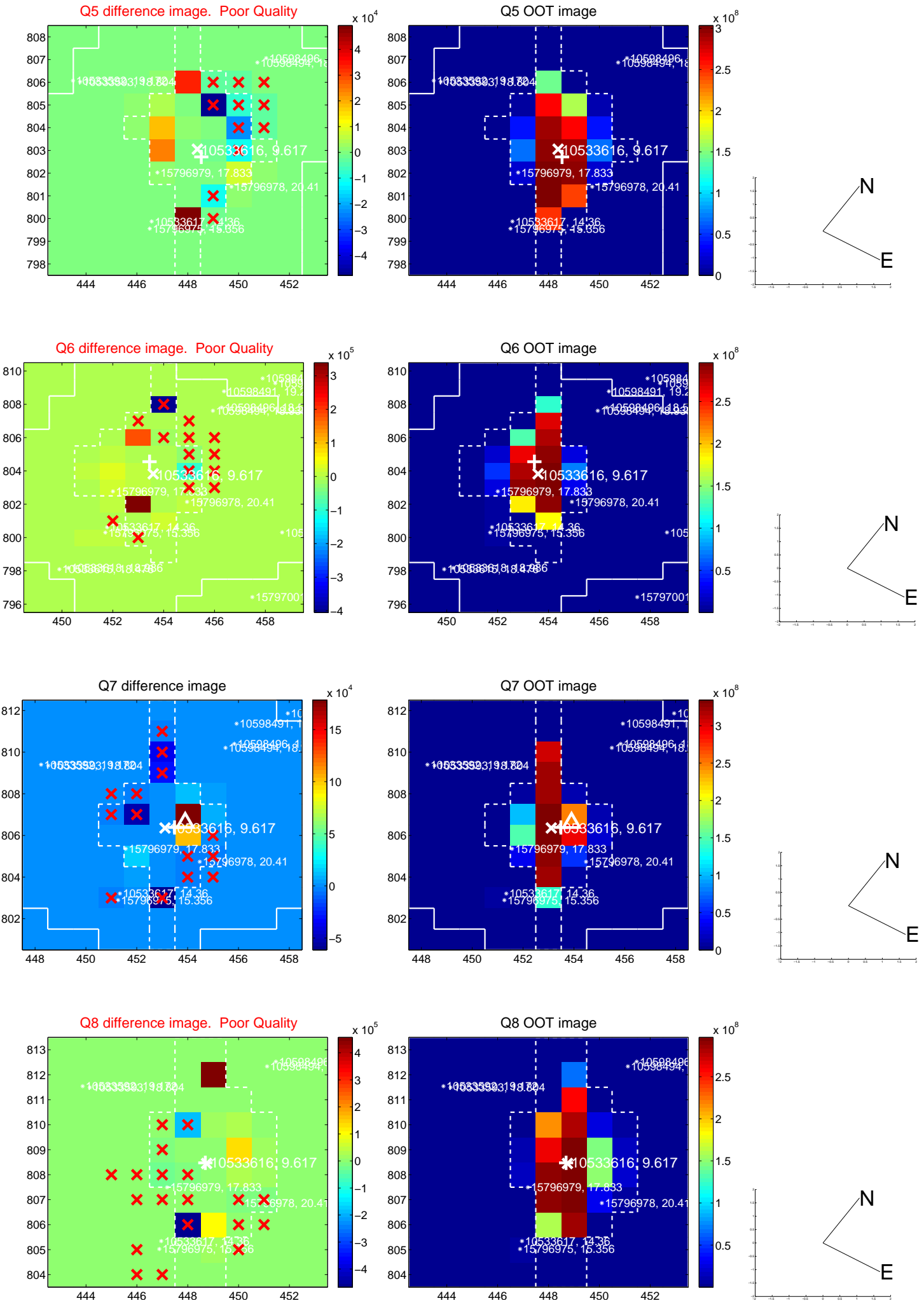


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets;** magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

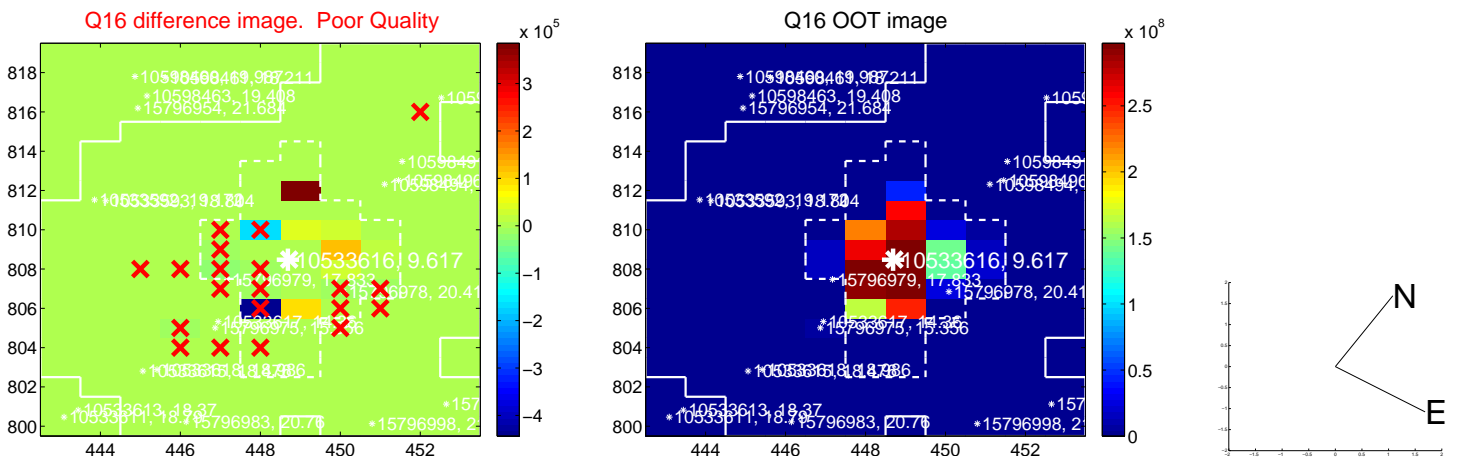
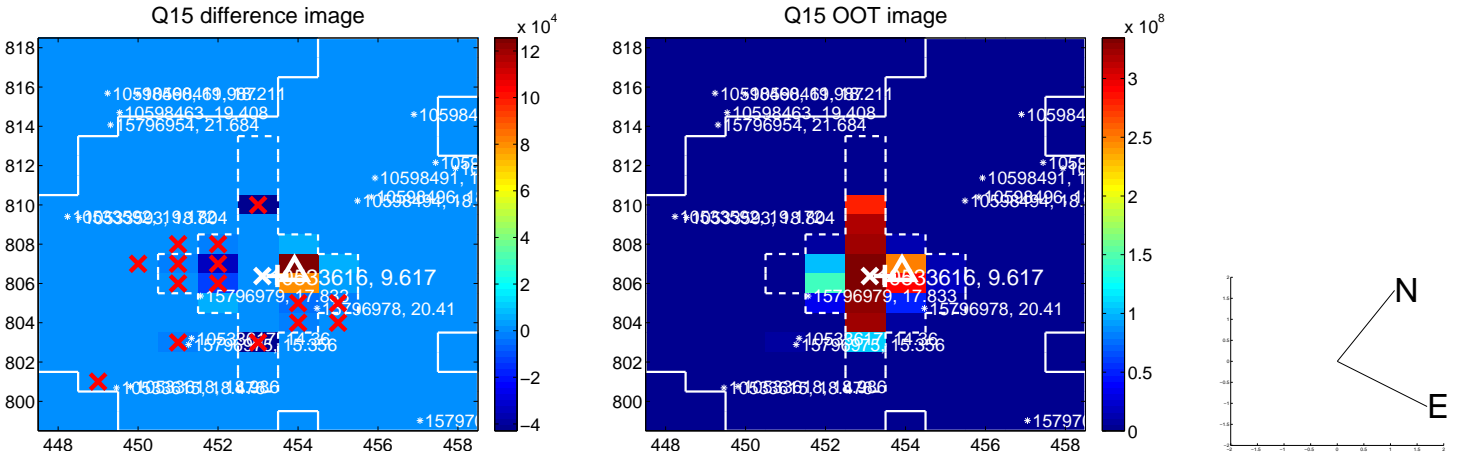
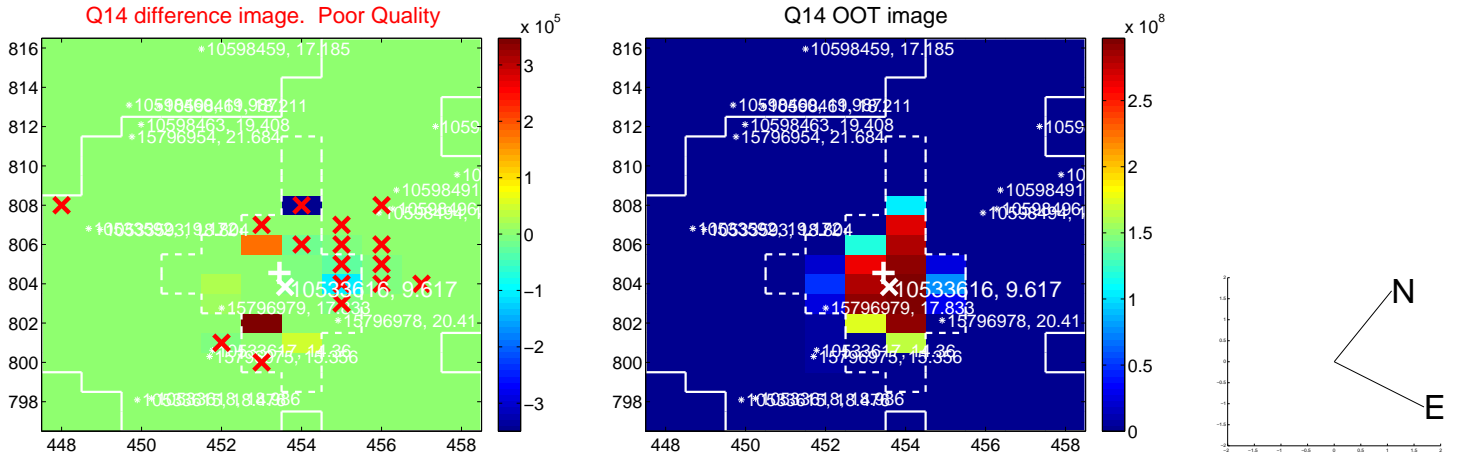
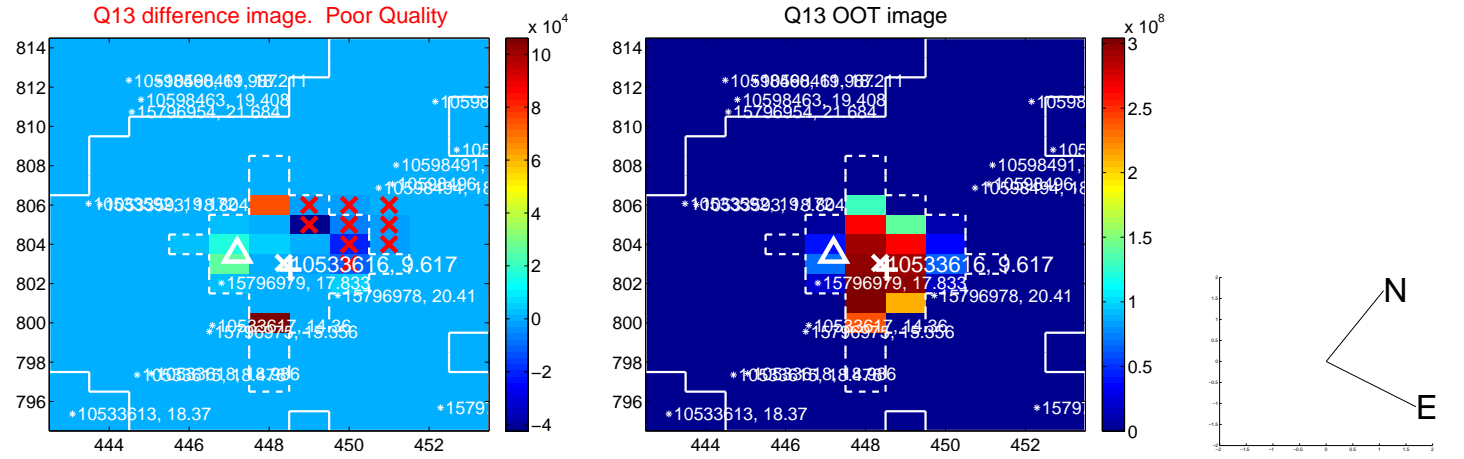
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



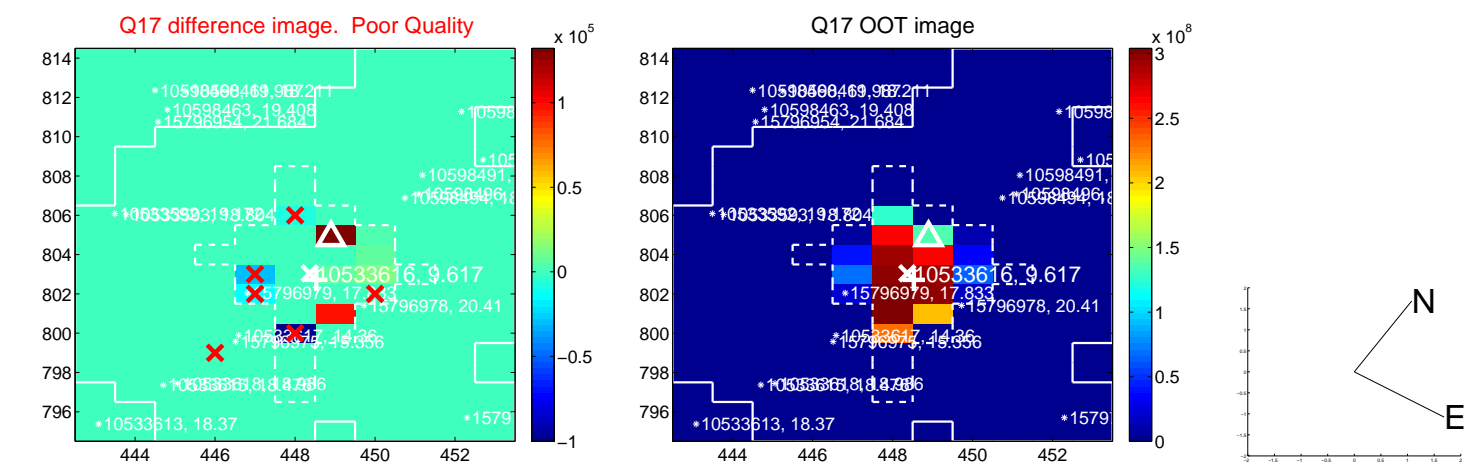
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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.



folded centroid time series figure for this object.

UKIRT Image

