

KIC 011146627

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})
011146627-01	OBS	No	49.396212	167.734763	172.8	4.069	12.2	7.4	1.00	5780	1.49	14.40
011146627-02	OBS	No	49.316355	152.332874	484.6	1.500	90.9	-1.0	1.00	5780	2.19	14.43
011146627-03	OBS	No	76.594576	152.669532	84.9	3.000	15.1	-1.0	1.00	5780	0.91	8.02
011146627-04	OBS	No	96.050668	187.225513	567.6	4.378	12.2	7.8	1.00	5780	3.07	5.93
011146627-05	OBS	No	65.309861	180.667328	15.9	4.500	11.4	-1.0	1.00	5780	0.40	9.92

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
011146627-01	OBS	FP	0.00	1	0	0	0	LPP_DV—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—CENT_SATURATED
011146627-02	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_SATURATED
011146627-03	OBS	FP	0.00	1	0	0	0	LPP_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_SATURATED
011146627-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_SKYE_ZUMA—LPP_DV—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT— INCONSISTENT_TRANS—CENT_SATURATED
011146627-05	OBS	FP	0.00	1	0	0	0	LPP_DV—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.

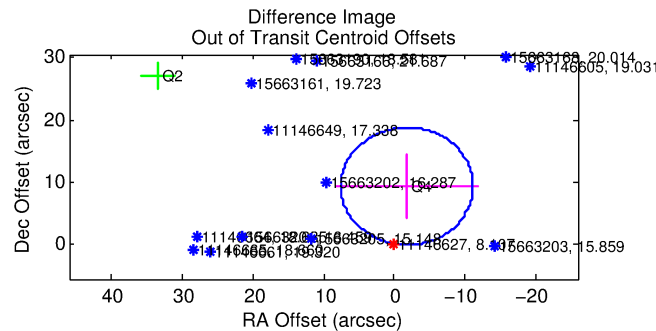
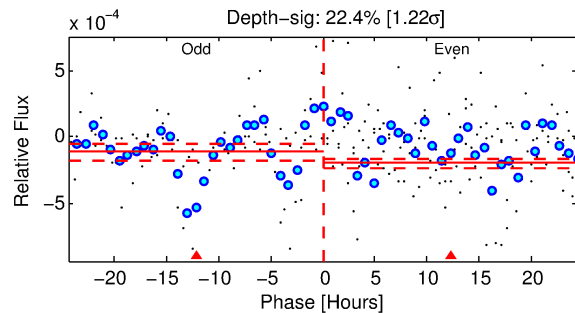
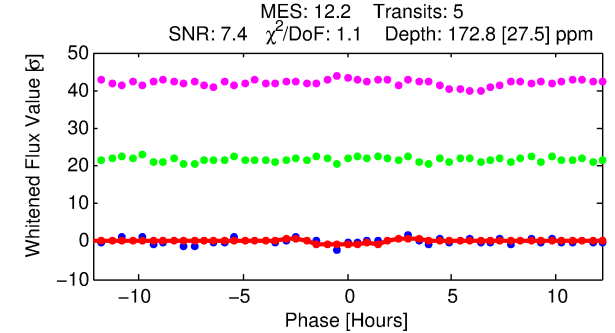
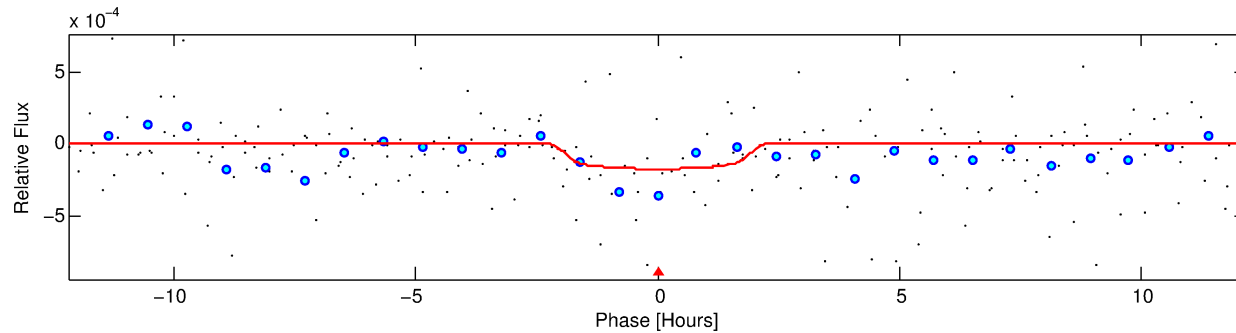
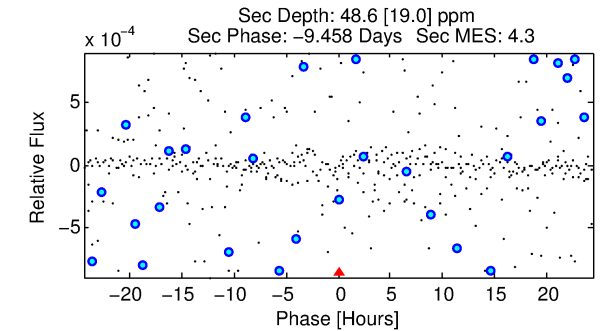
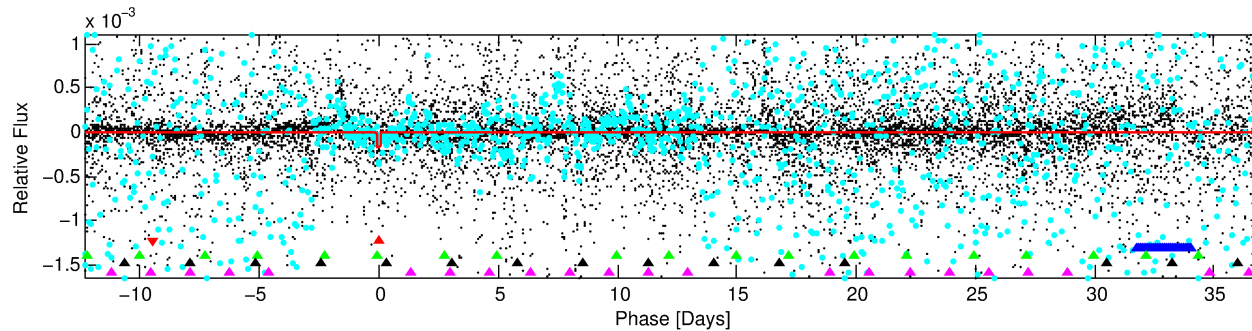
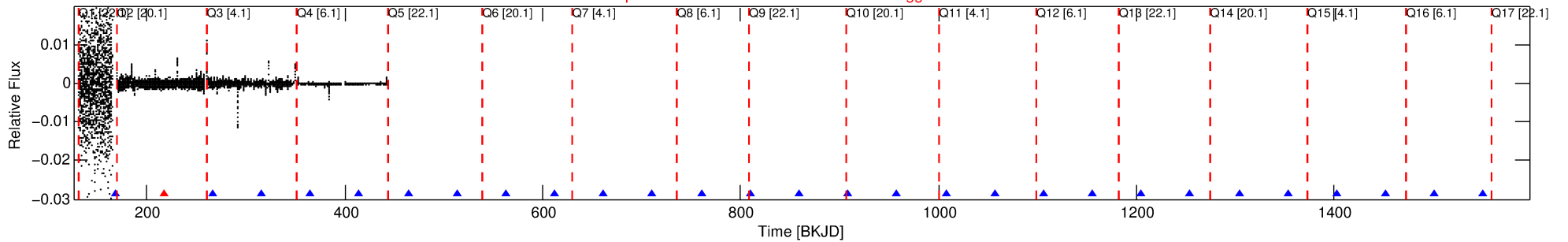
Ephemeris Match Information For 011146627-01

No Significant Match Found

DV One-Page Summary

KIC: 11146627 Candidate: 1 of 5 Period: 49.396 d

Kp: 8.11 R*: 1.00 Rs Teff: 5780.0 K Logg: 4.44 Fe/H: 0.000



DV Fit Results:

Period = 49.39621 [0.00453] d
Epoch = 167.7348 [0.0199] BKJD
Rp/R* = 0.0136 [0.0138]
a/R* = 53.61 [247.60]
b = 0.83 [1.74]
Seff = 14.40 [0.00]
Teq = 497 [0] K
Rp = 1.49 [1.50] Re
a = 0.2635 [0.0000] AU
Ag = 841.81 [1734.43] [0.48σ]
Teffp = 4137 [2131] K [1.71σ]

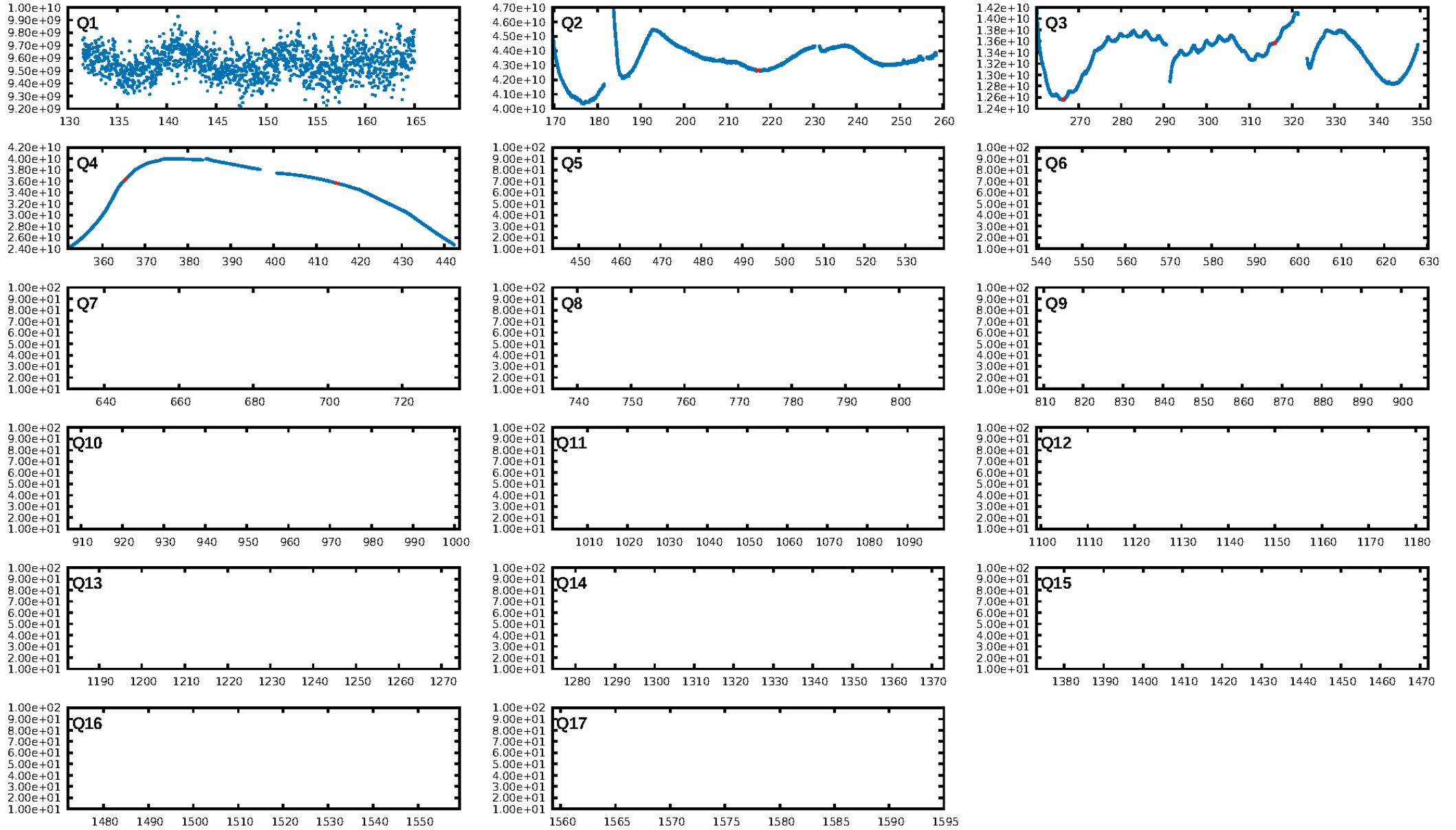
DV Diagnostic Results:

ShortPeriod-sig: 34.1% [0.44σ]
LongPeriod-sig: 100.0% [62.95σ]
ModelChiSquare2-sig: 12.4%
ModelChiSquareGof-sig: 72.1%
Bootstrap-pfa: N/A
RollingBand-fgt: 0.80 [4/5]
GhostDiagnostic-chr: N/A
Centroid-sig: N/A
Centroid-so: 18.229 arcsec [0.63σ]
OotOffset-rm: 9.527 arcsec [3.05σ]
KicOffset-rm: 8.425 arcsec [2.84σ]
OotOffset-st: 1/0/1/0 [2]
KicOffset-st: 1/0/1/0 [2]
DiffImageQuality-fgm: 0.00 [0/2]
DiffImageOverlap-fno: 1.00 [3/3]

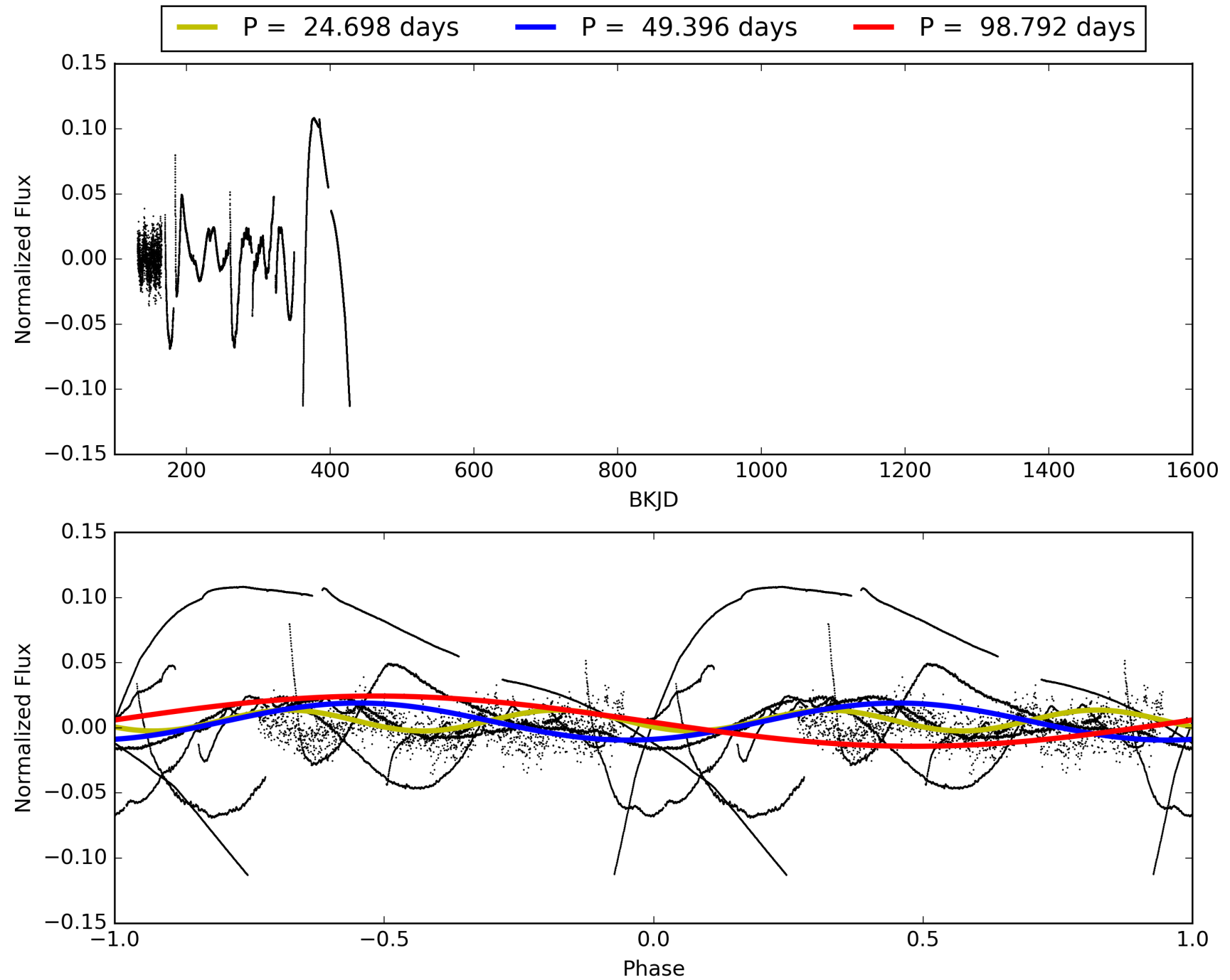
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 04:48:39 Z

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

TCE 011146627-01, PDC Light Curves

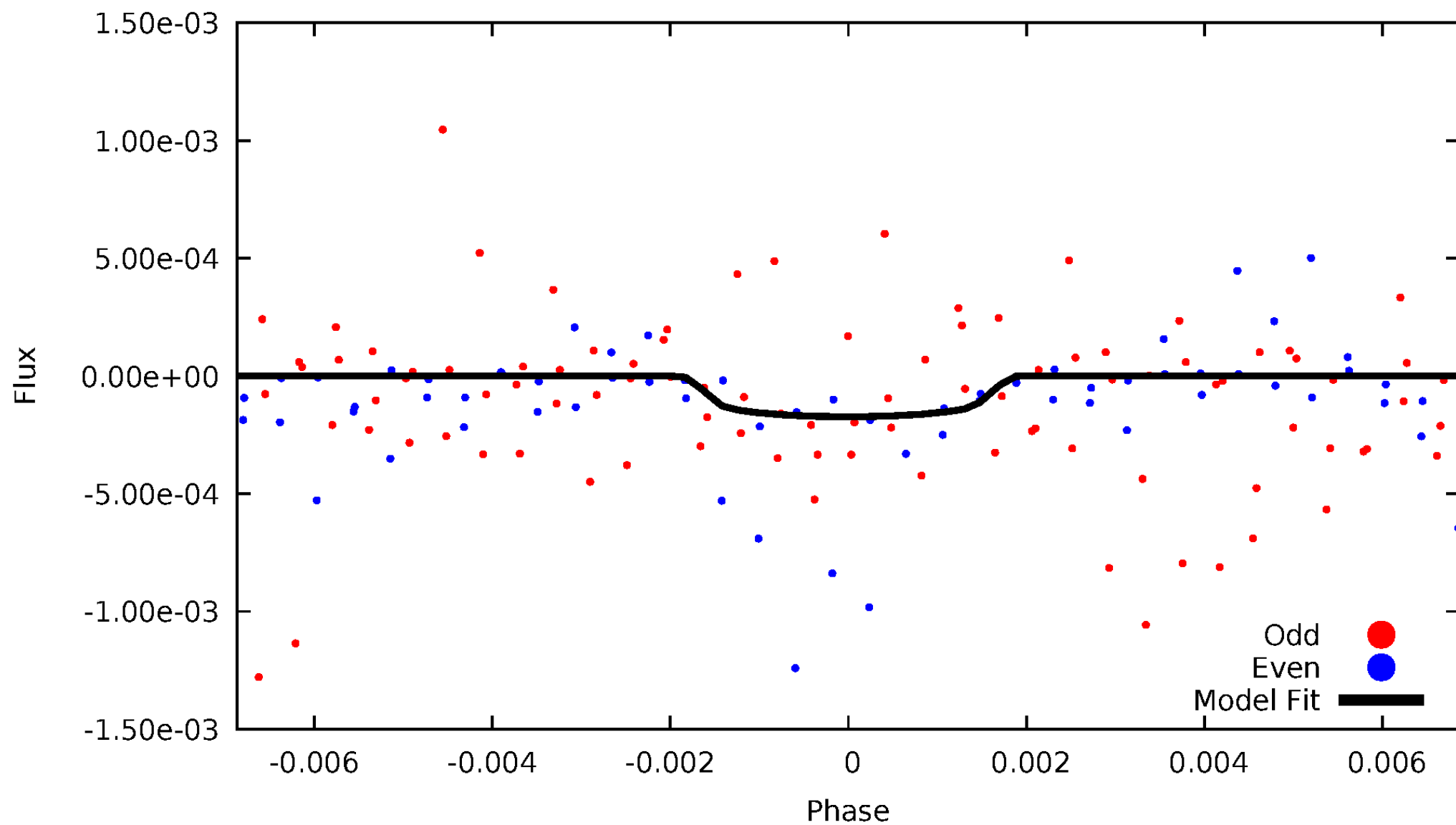


TCE 011146627-01



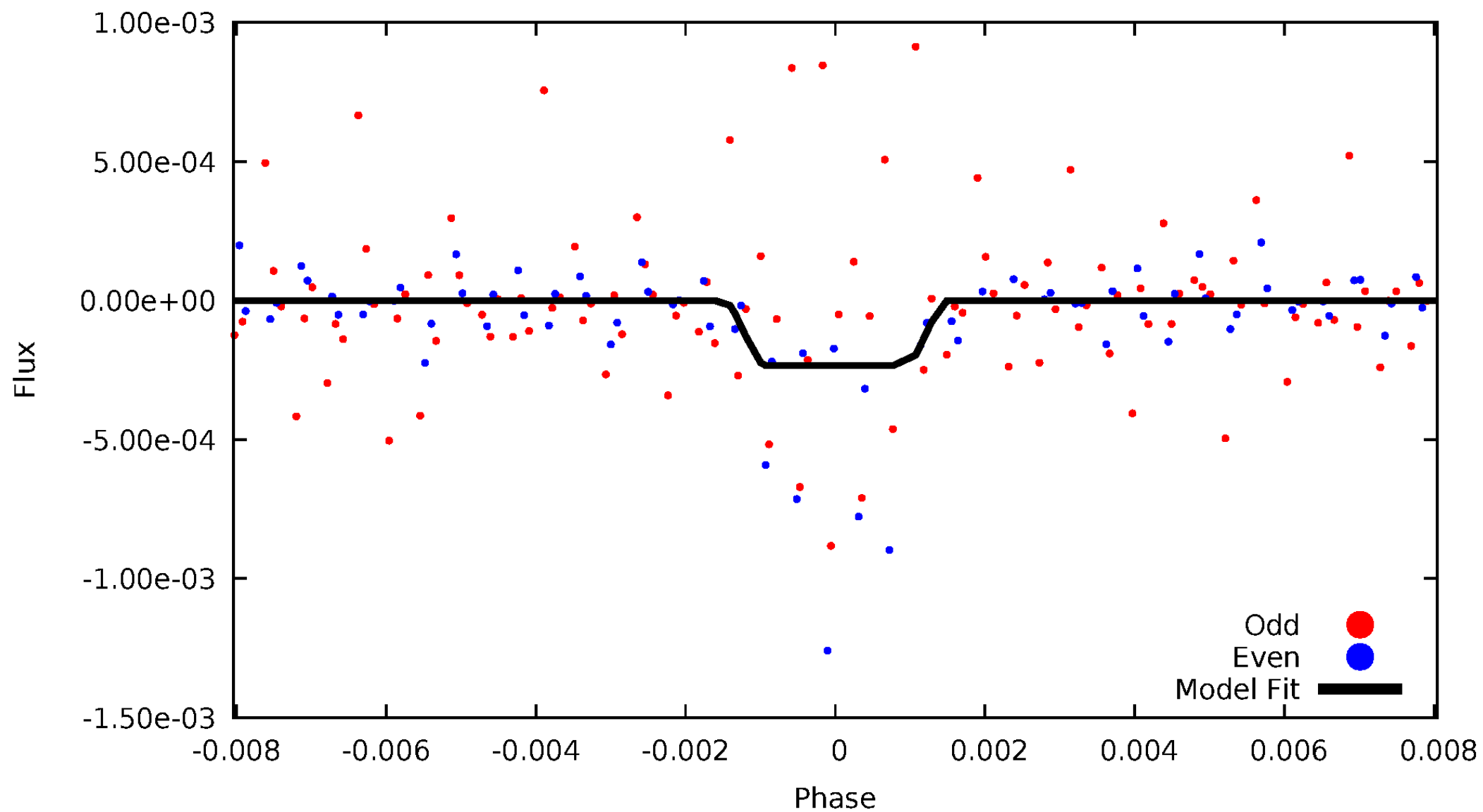
DV Odd/Even

TCE 011146627-01



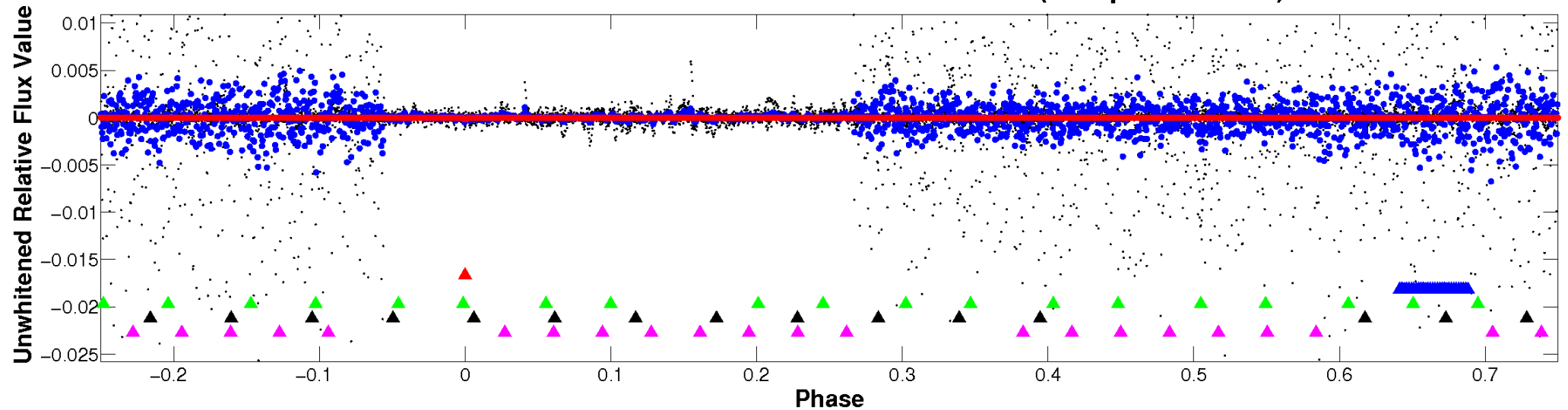
ALT Odd/Even

TCE 011146627-01

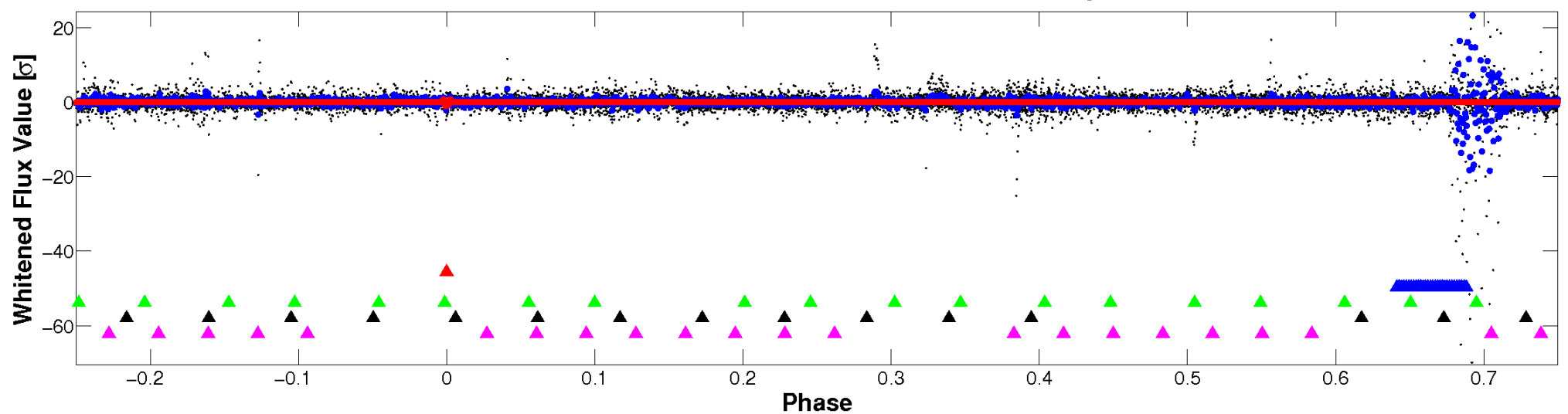


Non-Whitened Vs. Whitened Light Curve

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

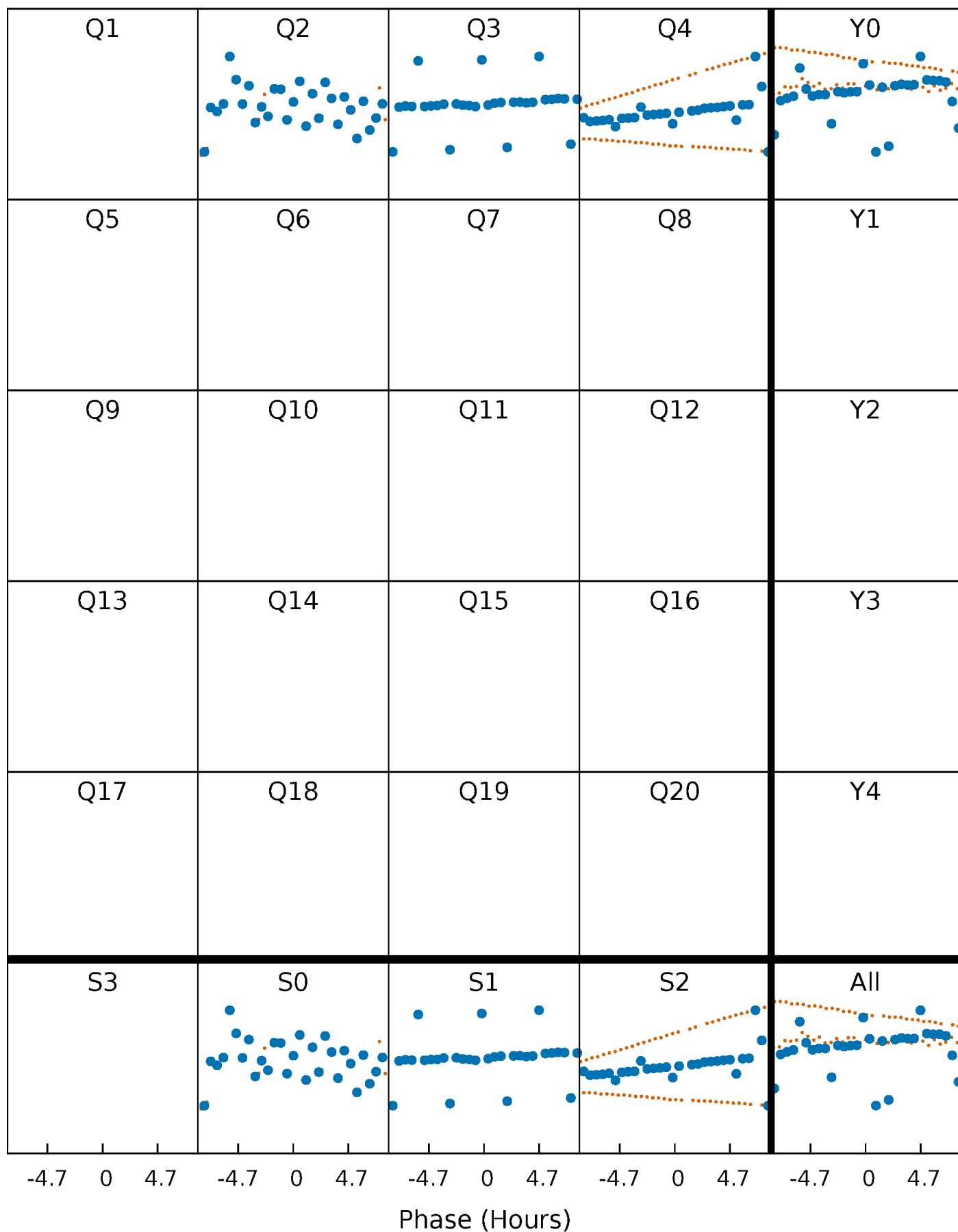


Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)



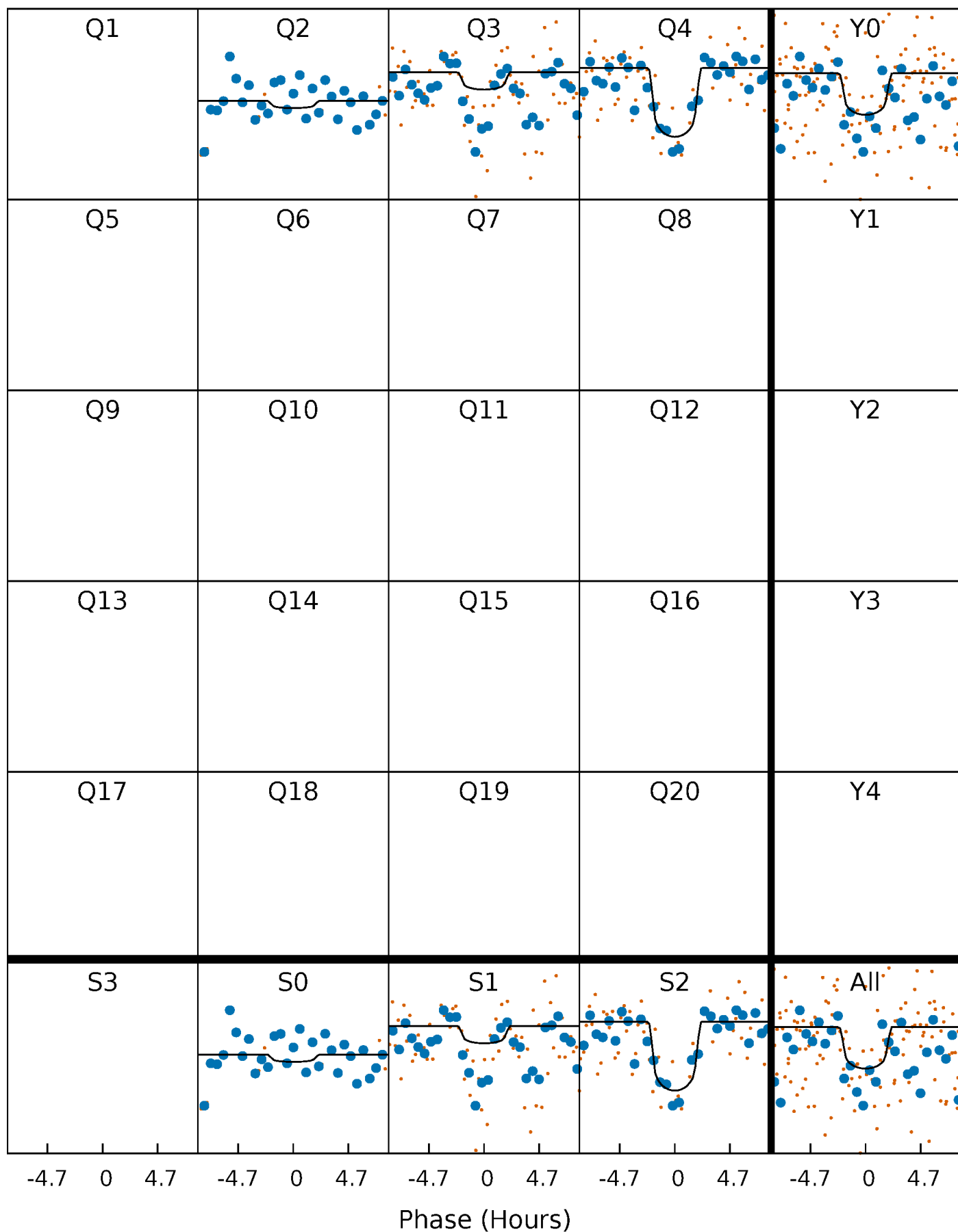
PDC Quarter-Phased Transit Curves

TCE 011146627-01 P= 49.396212 Days $T_0=167.734763$ (BKJD)



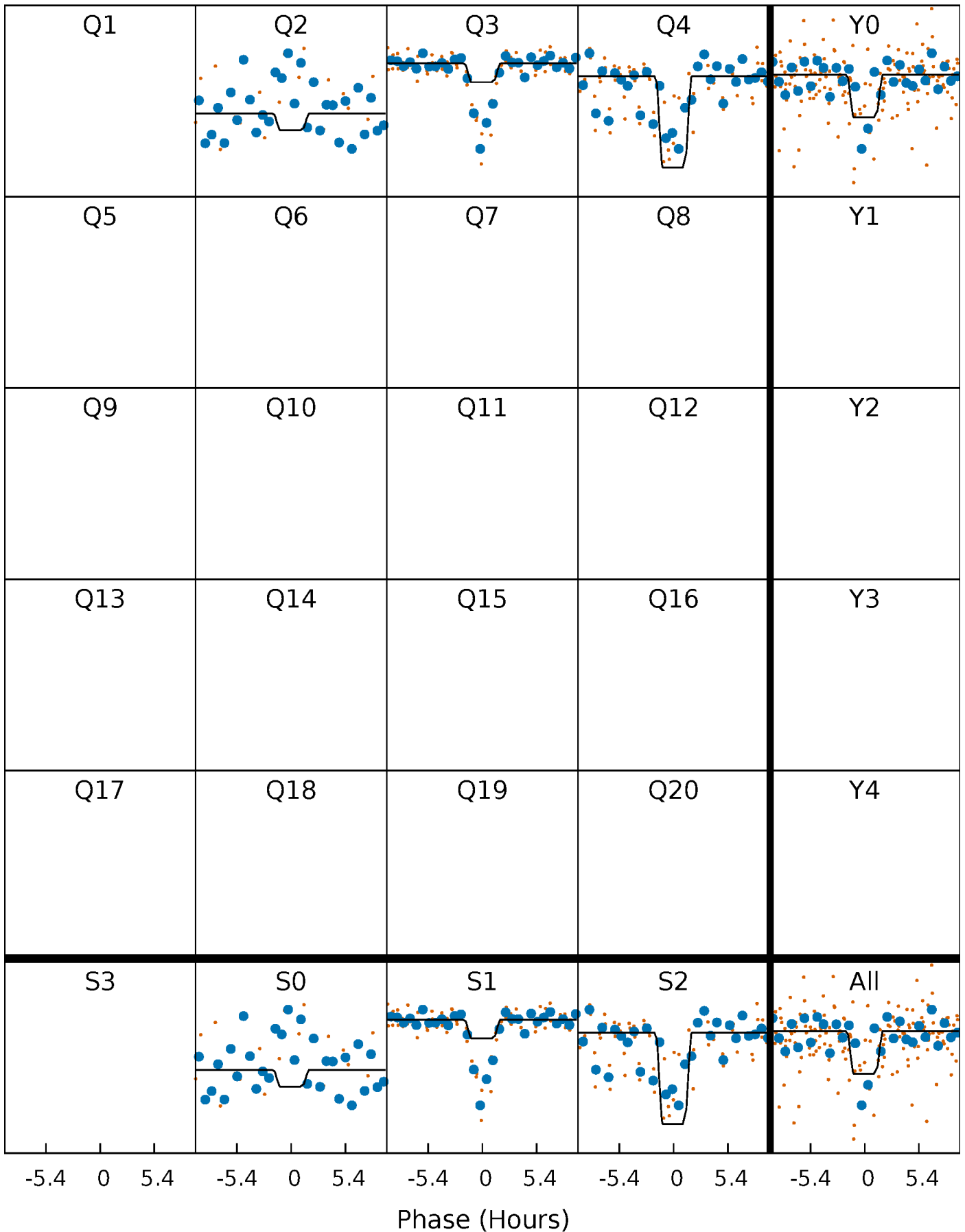
DV Quarter-Phased Transit Curves

TCE 011146627-01 P= 49.396212 Days $T_0=167.734763$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

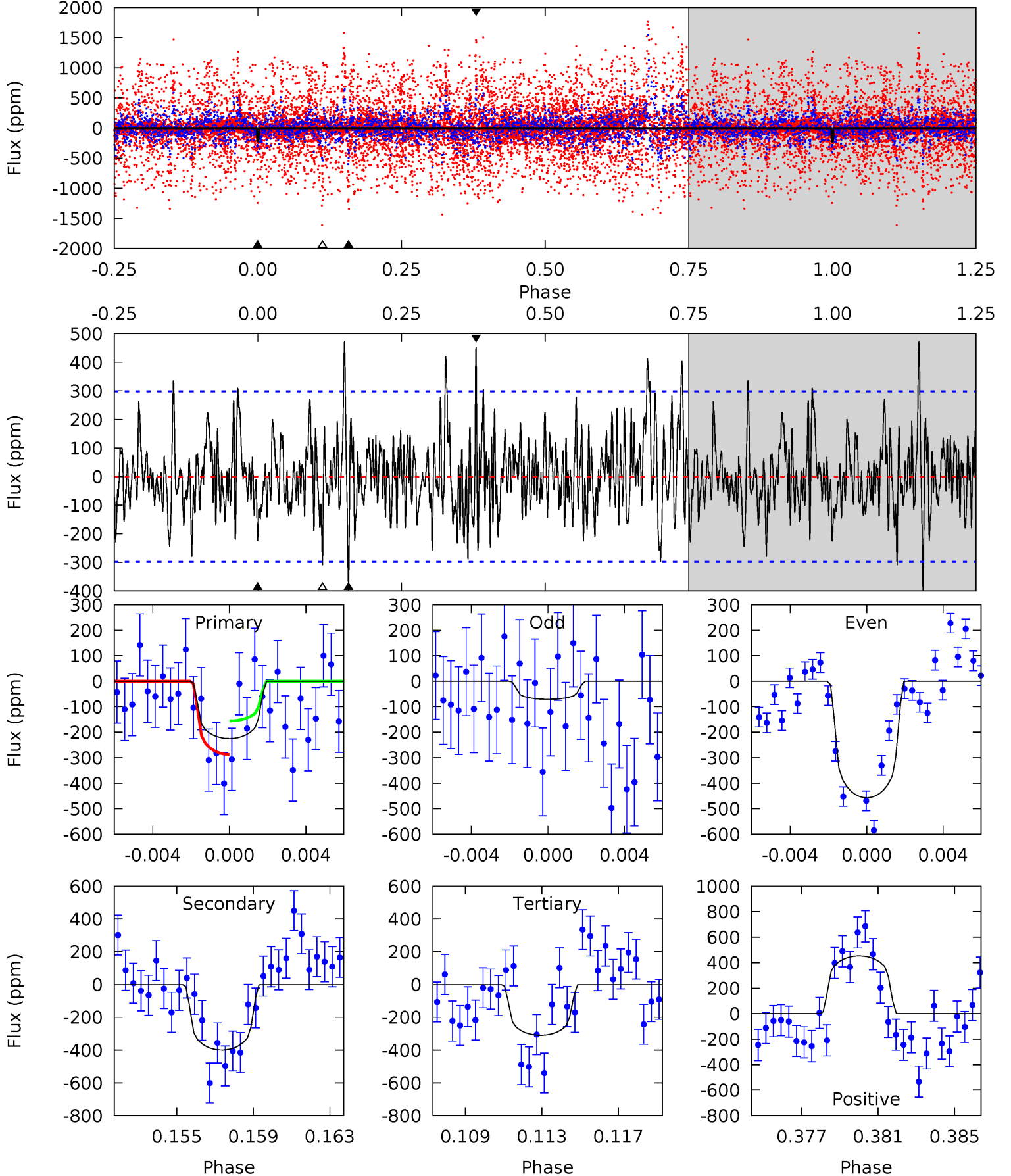
TCE 011146627-01 P= 49.404711 Days $T_0=167.693425$ (BKJD)



DV Model-Shift Uniqueness Test

011146627-01, P = 49.396212 Days, E = 118.338551 Days

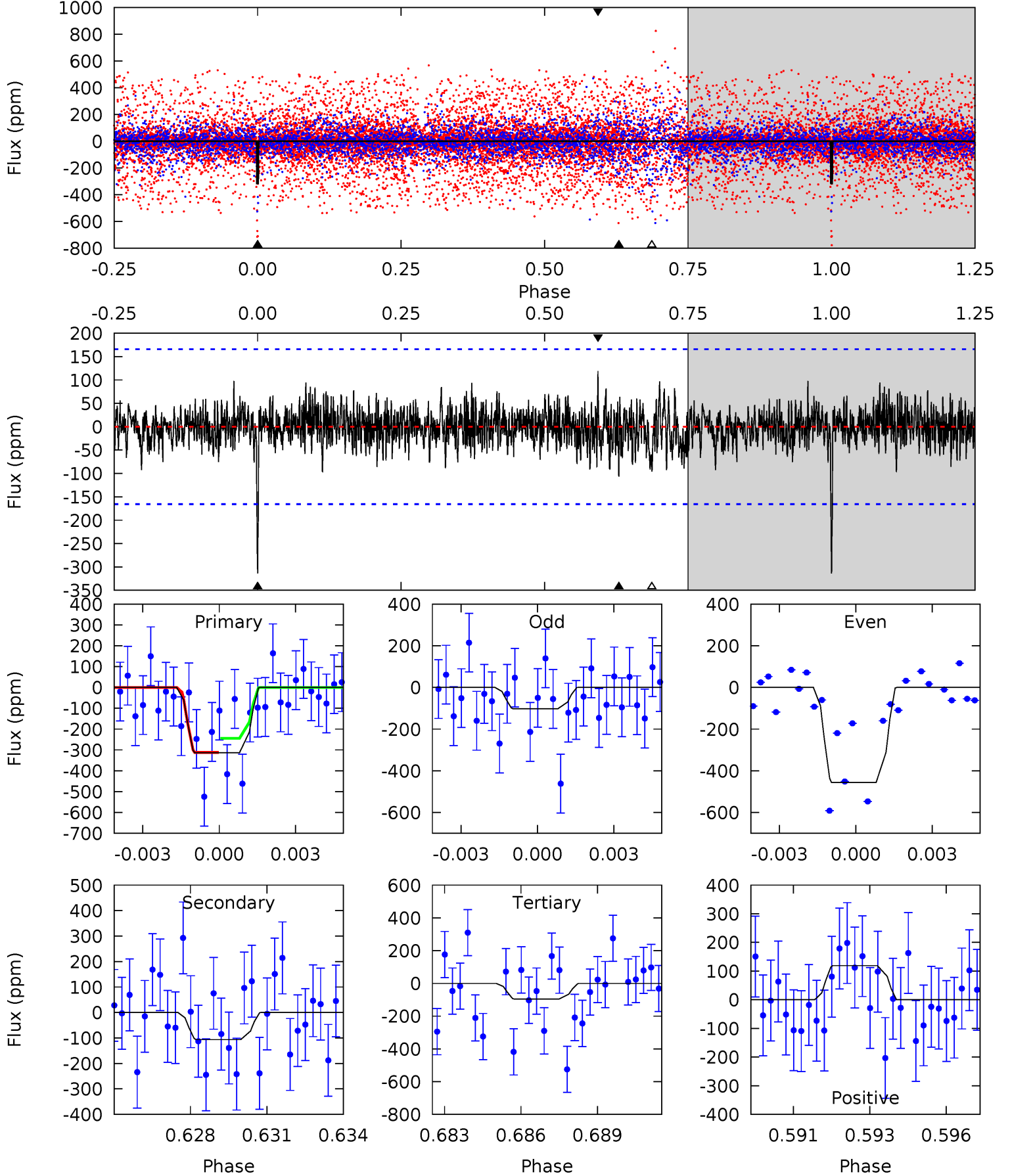
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
3.93	6.99	5.41	7.91	5.20	2.89	2.02	-1.48	-3.98	1.58	-0.92	2.29	1.16	0.54	1.18



Alt Model-Shift Uniqueness Test

011146627-01, $P = 49.404711$ Days, $E = 118.288714$ Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
9.95	3.38	3.05	3.78	5.26	2.98	0.97	6.91	6.17	0.33	-0.40	2.70	1.07	0.28	1.05



Stellar Parameters For KIC 011146627

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	5780^{+1}_{-1}	$4.438^{+1.000}_{-1.000}$	$0.000^{+1.000}_{-1.000}$	$1.000^{+1.000}_{-1.000}$	$-1.000^{+1.000}_{-1.000}$	$-1.000^{+1.000}_{-1.000}$
	+0%/-0%	+23%/-23%	+inf%/-inf%	+100%/-100%	+100%/-100%	+100%/-100%
Source	Solar	Solar	Solar	Solar		

KIC = Kepler Input Catalog; PHO = Photometry; SPE = Spectroscopy; AST = Asteroseismology
 TRA = Transits; DESP = Dartmouth Models; MULT = Multiple Models

Secondary Eclipse Parameters for KIC 011146627-01 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	-400 ± 57	$1.71^{+1.39}_{-1.07}$	695^{+33}_{-35}	6578^{+6092}_{-1707}	5337^{+32428}_{-3839}
Alt.	-106 ± 32	$1.84^{+1.54}_{-1.13}$	695^{+35}_{-33}	4563^{+2837}_{-850}	1099^{+7015}_{-764}

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 $A_{obs} \gg 1.0$

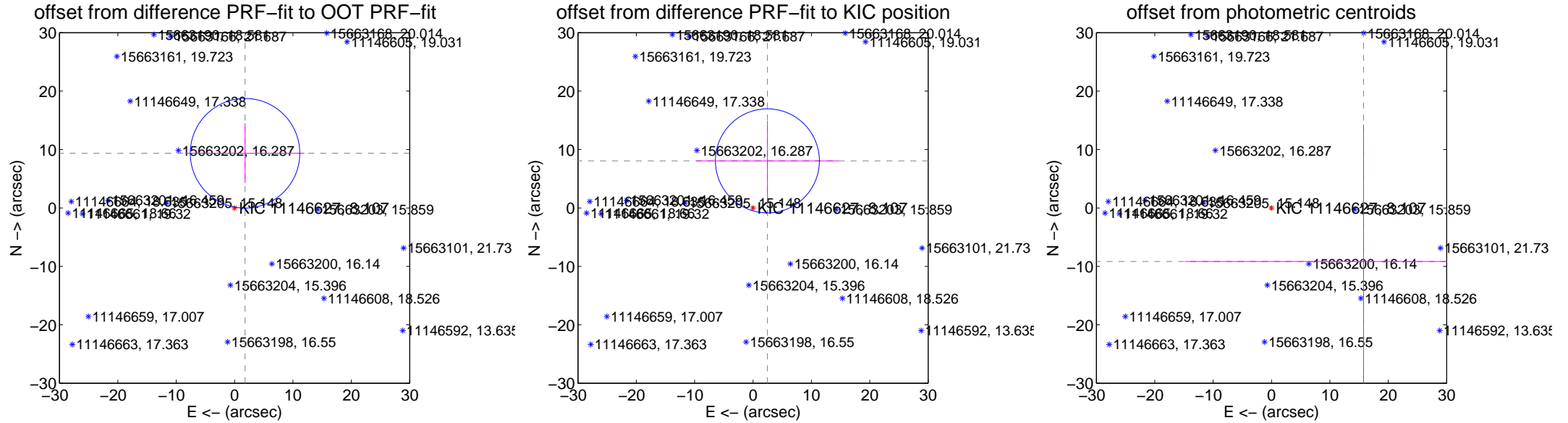
DV Centroid Data

Supplemental centroid analysis for 011146627-01. **Kepler magnitude: 8.11.** Transit SNR 7.41

There are 0 quarters with good PRF difference image offsets

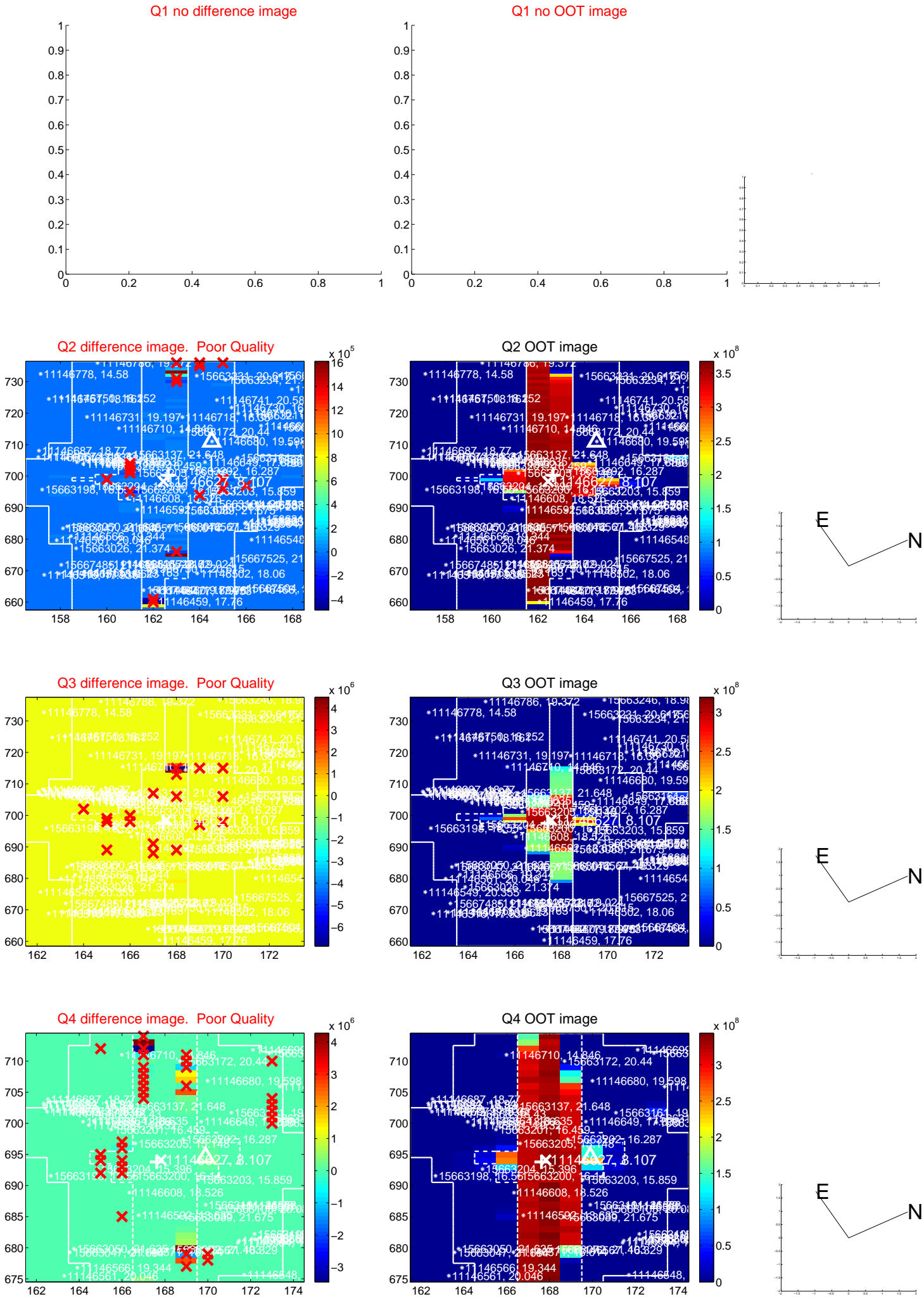
The direct PRF centroid is offset from the target star catalog position by about 1.46 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	9.527 \pm 3.127	3.05	-1.791 \pm 10.170	9.357 \pm 5.130
PRF-fit source offset from KIC position	8.425 \pm 2.969	2.84	-2.457 \pm 12.245	8.059 \pm 6.836
photometric centroid source offset	18.23 \pm 28.95	0.63	-15.76 \pm 30.59	-9.16 \pm 23.45



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.



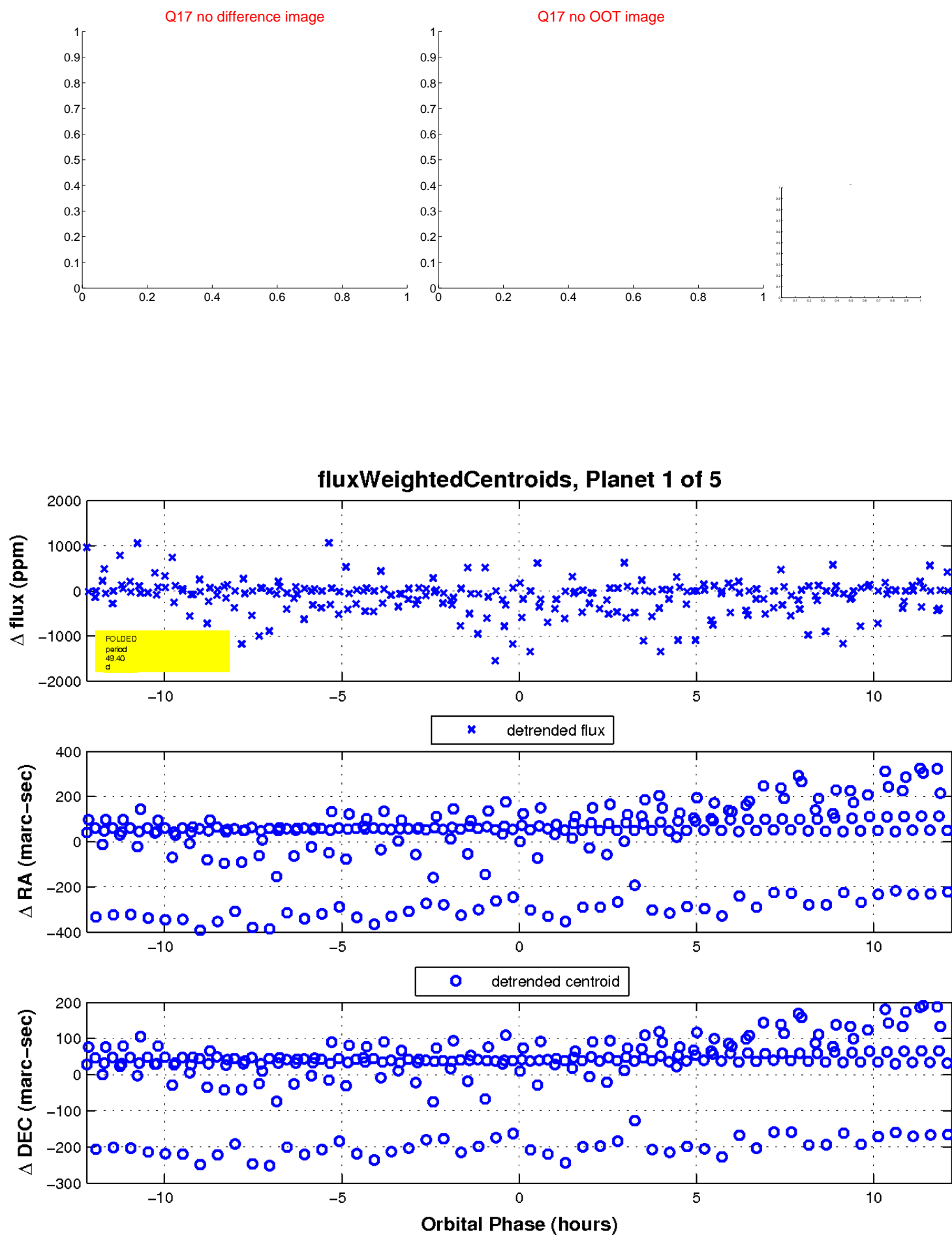
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



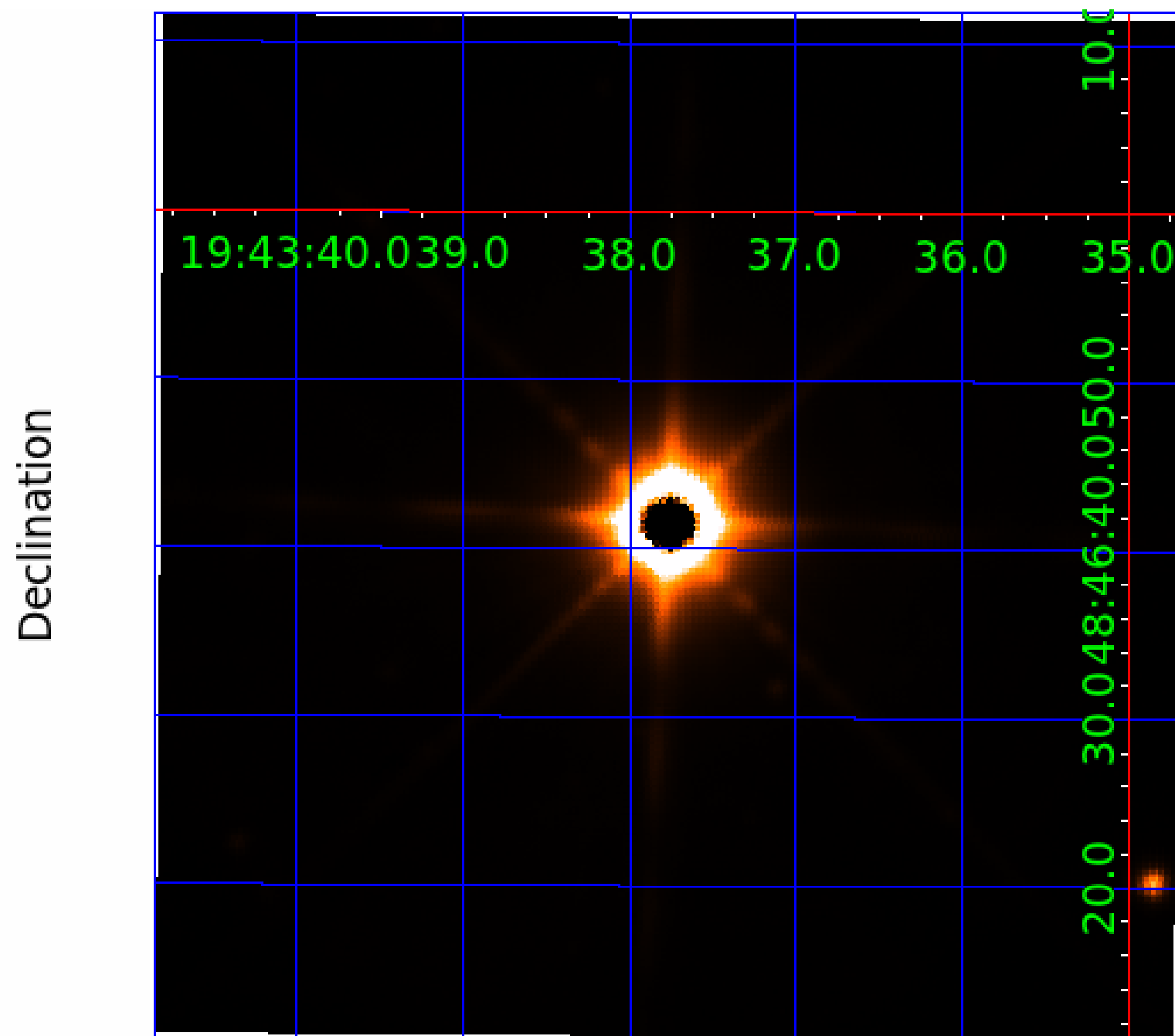
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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



UKIRT Image



KIC 011146627

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})
011146627-01	OBS	No	49.396212	167.734763	172.8	4.069	12.2	7.4	1.00	5780	1.49	14.40
011146627-02	OBS	No	49.316355	152.332874	484.6	1.500	90.9	-1.0	1.00	5780	2.19	14.43
011146627-03	OBS	No	76.594576	152.669532	84.9	3.000	15.1	-1.0	1.00	5780	0.91	8.02
011146627-04	OBS	No	96.050668	187.225513	567.6	4.378	12.2	7.8	1.00	5780	3.07	5.93
011146627-05	OBS	No	65.309861	180.667328	15.9	4.500	11.4	-1.0	1.00	5780	0.40	9.92

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
011146627-01	OBS	FP	0.00	1	0	0	0	LPP_DV—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—CENT_SATURATED
011146627-02	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_SATURATED
011146627-03	OBS	FP	0.00	1	0	0	0	LPP_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_SATURATED
011146627-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_SKYE_ZUMA—LPP_DV—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_SATURATED
011146627-05	OBS	FP	0.00	1	0	0	0	LPP_DV—CENT_SATURATED

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

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

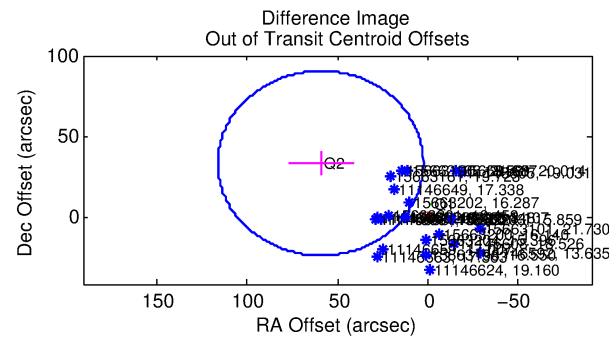
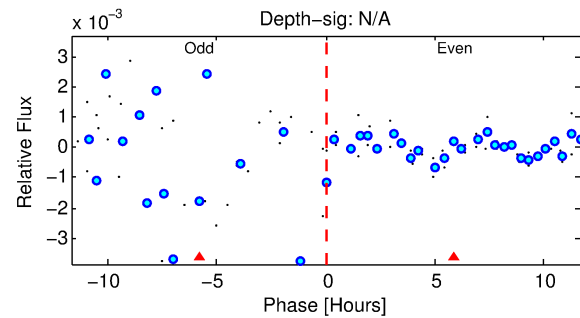
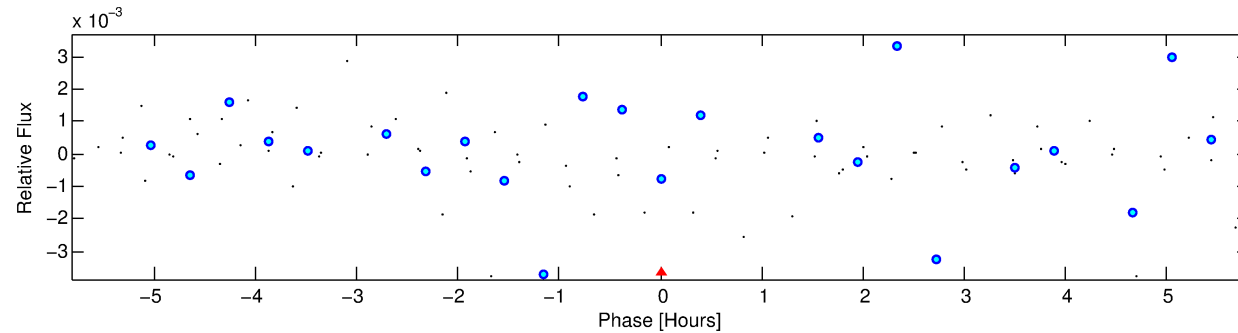
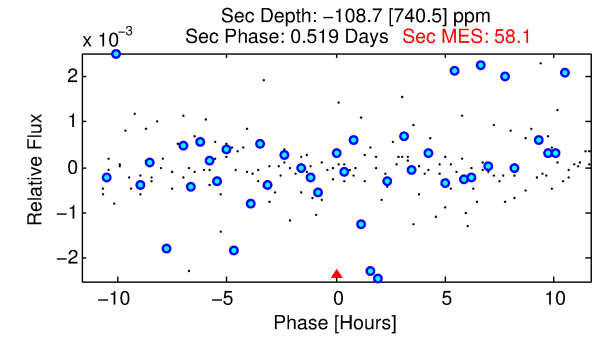
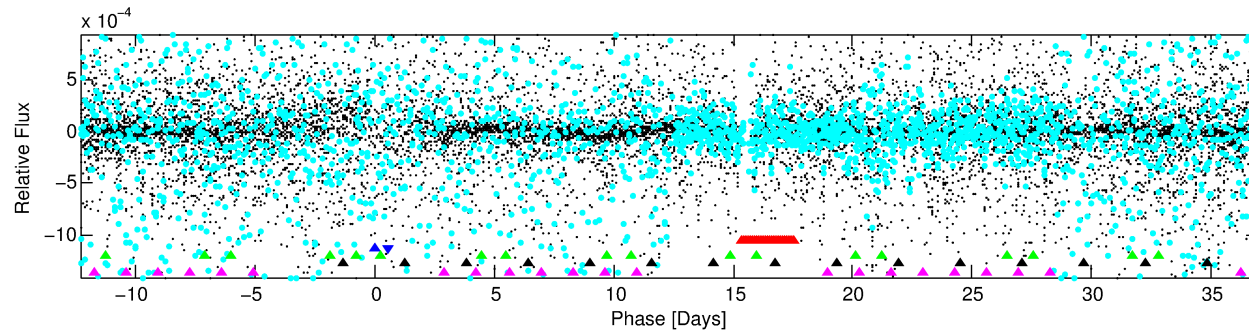
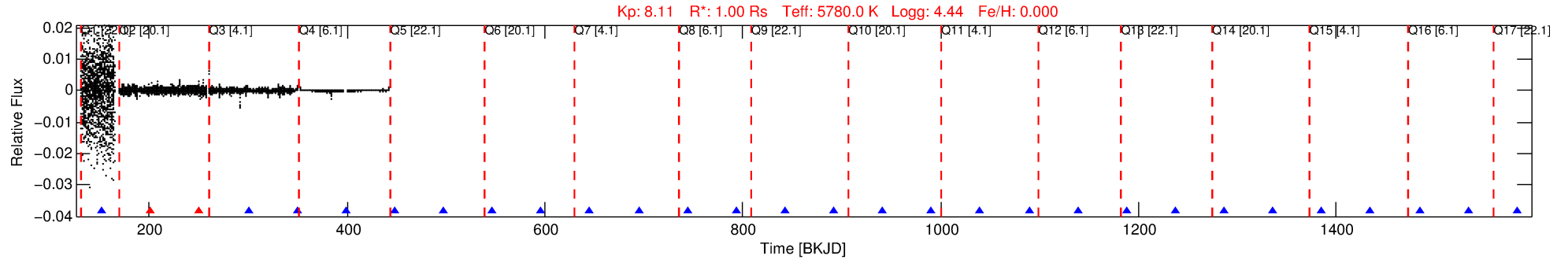
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 011146627-02

No Significant Match Found

DV One-Page Summary

KIC: 11146627 Candidate: 2 of 5 Period: 49.316 d



TPS TCE Results:

Period = 49.31636 d
Epoch = 152.3329 BKJD

DV fit results are unavailable

DV Diagnostic Results:

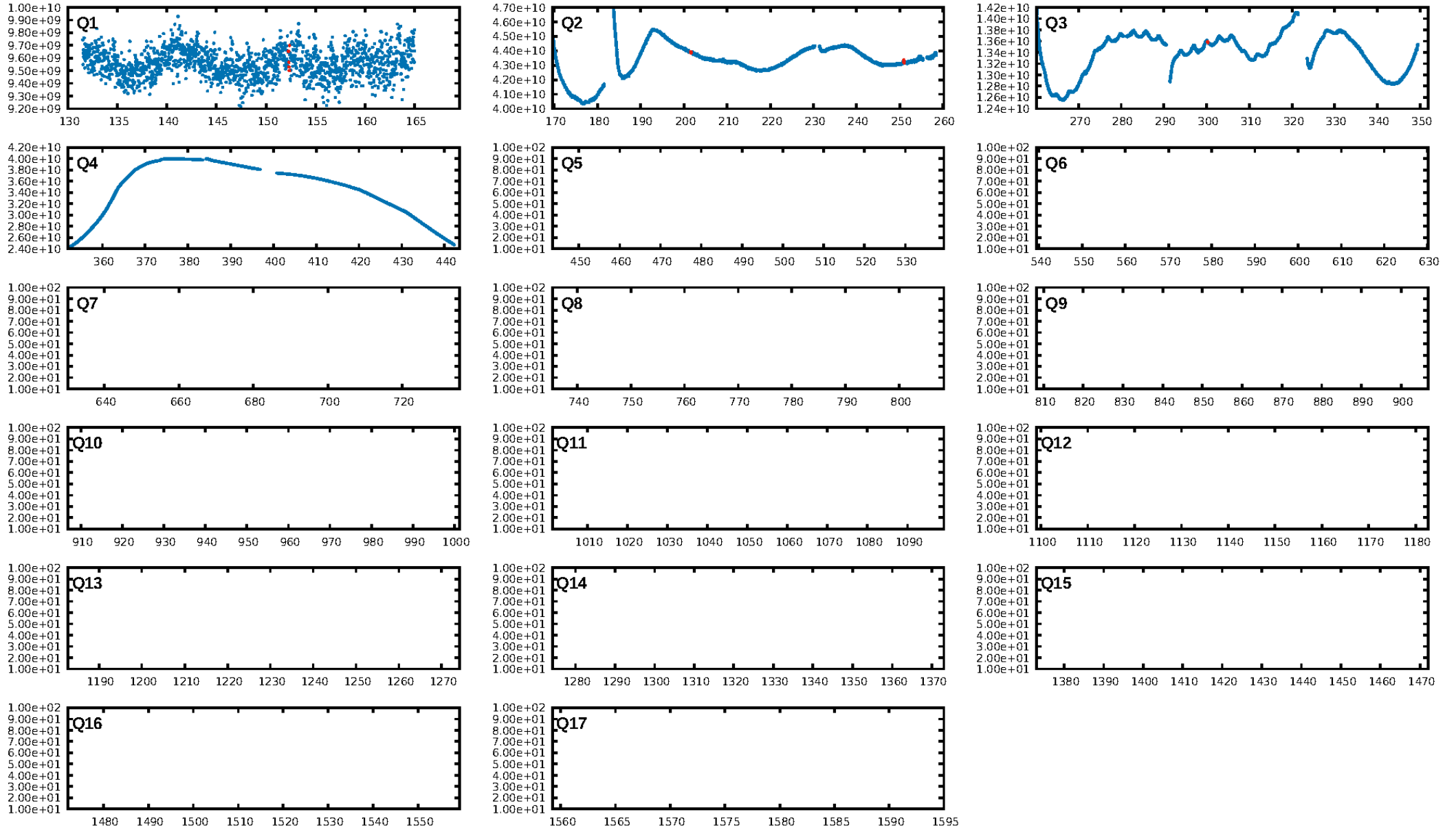
ShortPeriod-sig: N/A
LongPeriod-sig: 34.1% [0.44 σ]
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: N/A
RollingBand-fgt: 0.33 [1/3]
GhostDiagnostic-chr: N/A

Centroid-sig: N/A
Centroid-so: 16.510 arcsec [0.51 σ]
OotOffset-rm: 68.347 arcsec [3.60 σ]
OotOffset-st: 1/0/0/1 [2]
KicOffset-st: 1/0/0/1 [2]
DiffImageQuality-fgm: 0.00 [0/2]
DiffImageOverlap-fno: 0.67 [2/3]

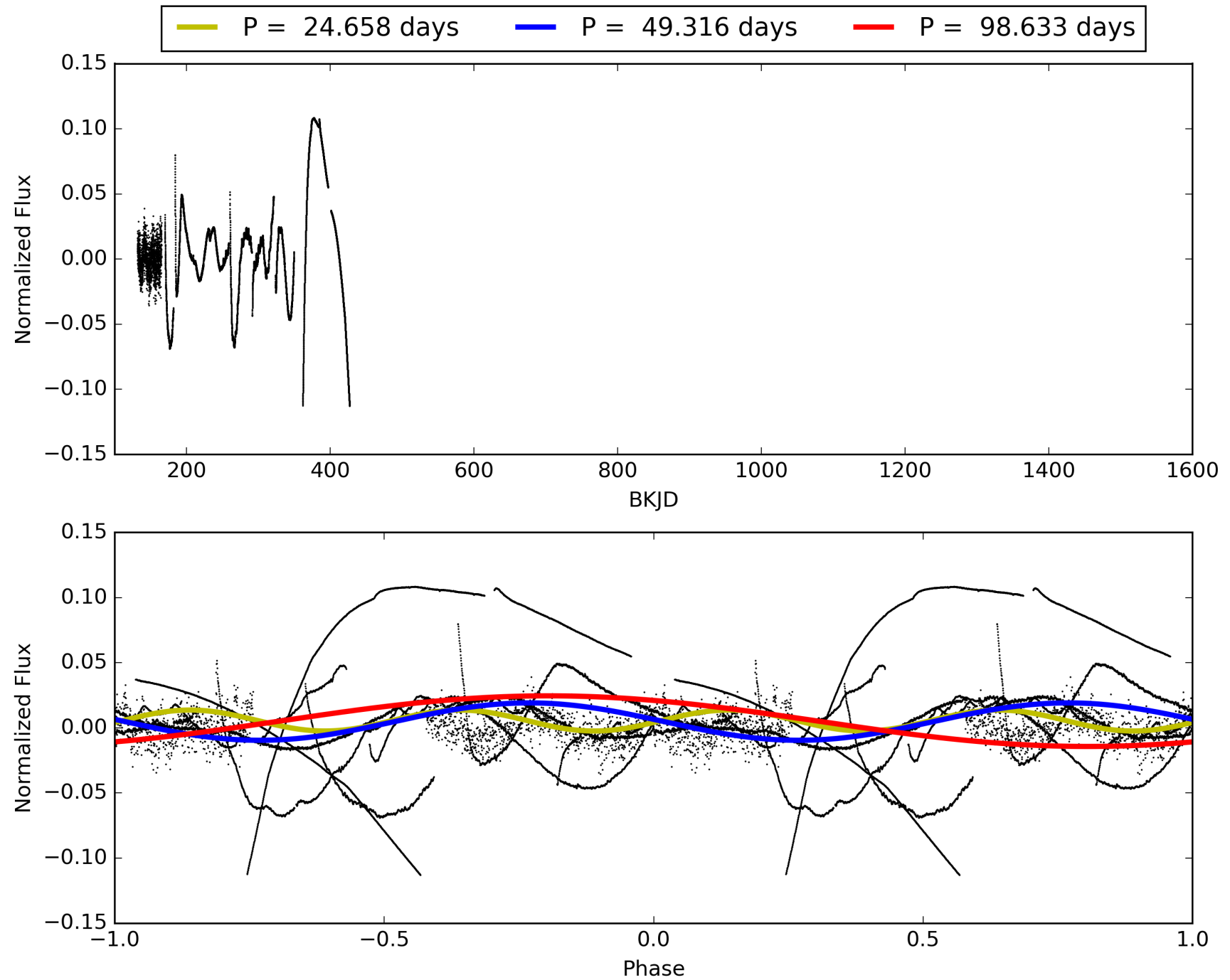
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 04:48:43 Z

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

TCE 011146627-02, PDC Light Curves

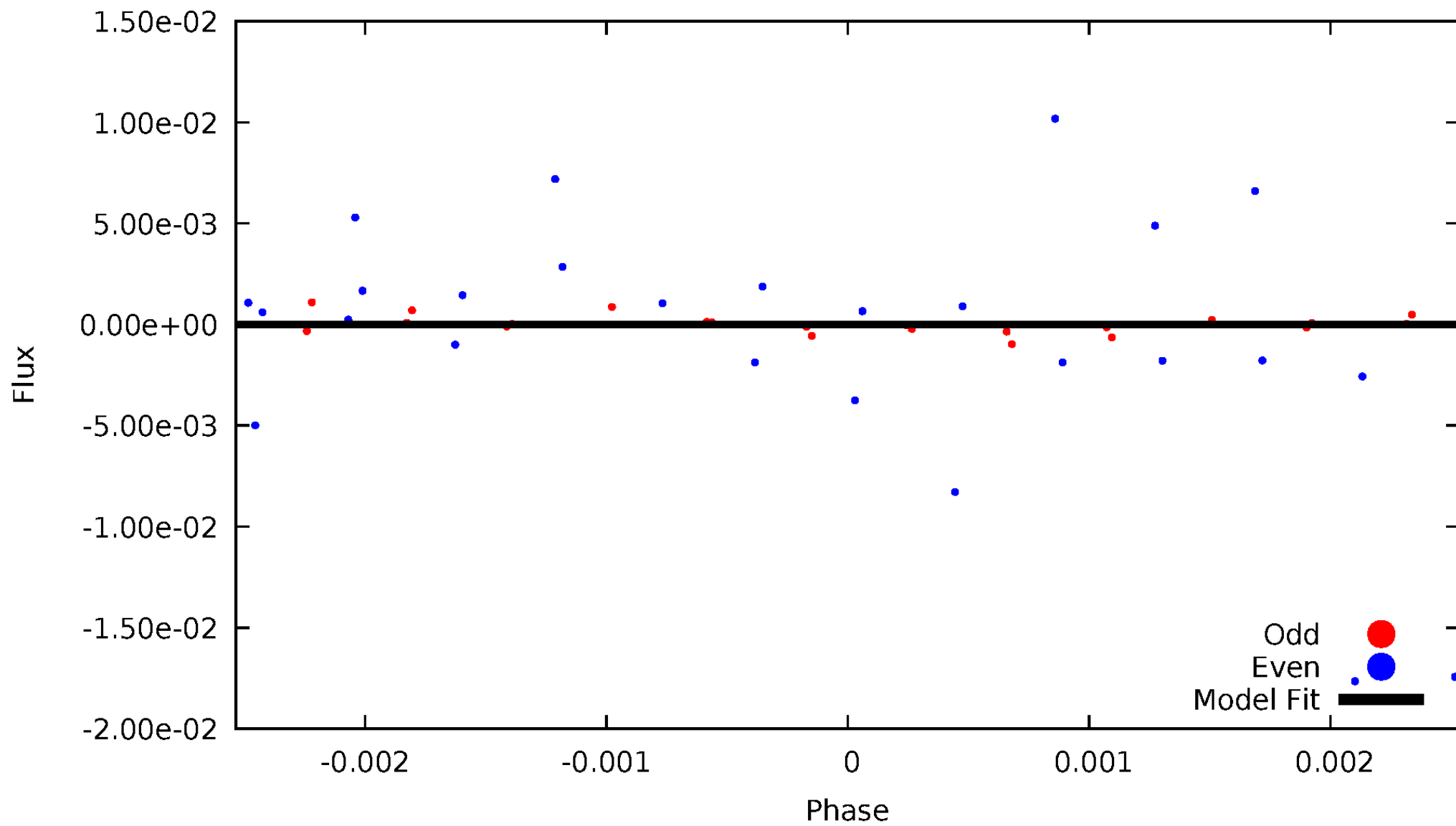


TCE 011146627-02



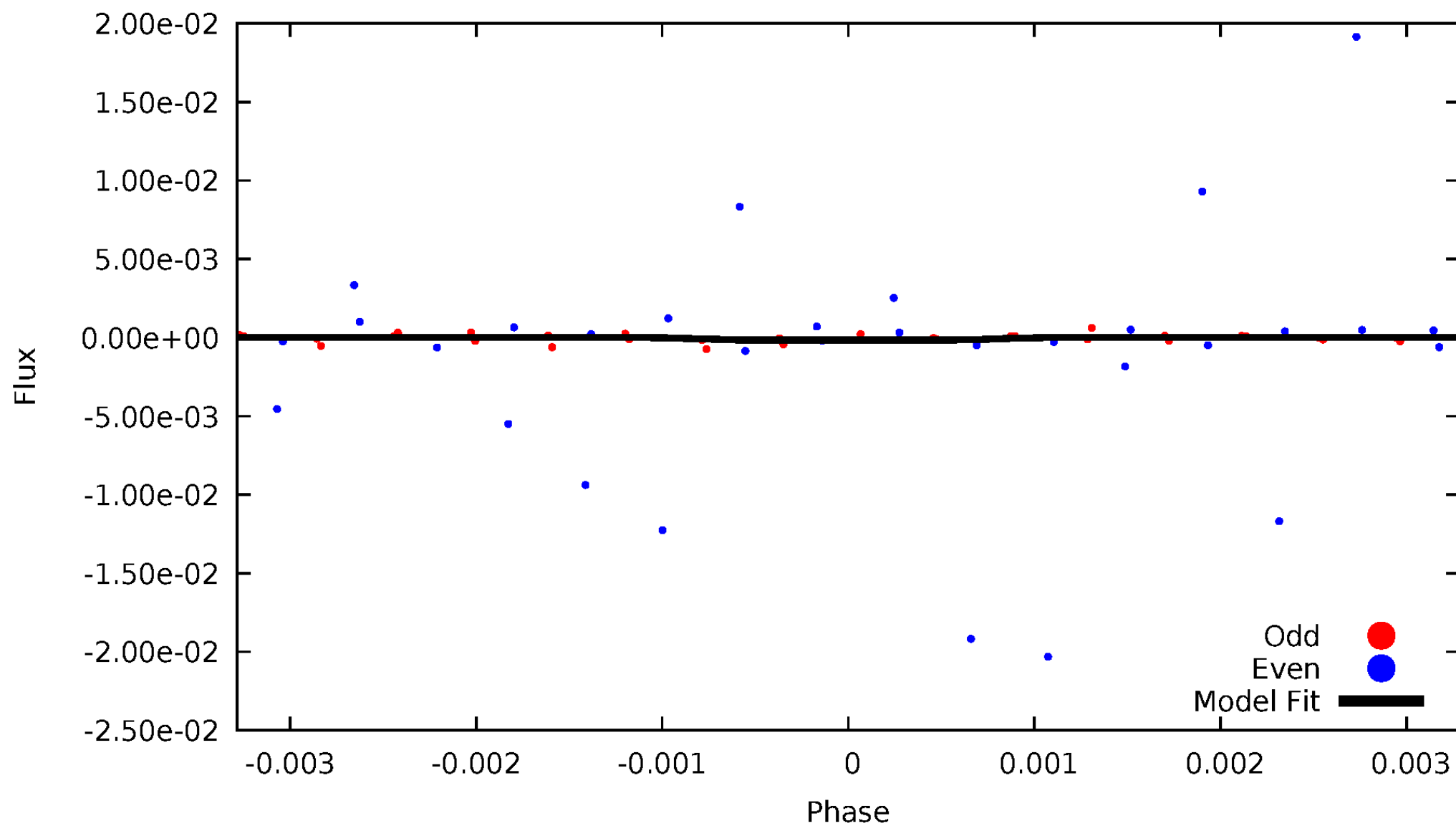
DV Odd/Even

TCE 011146627-02



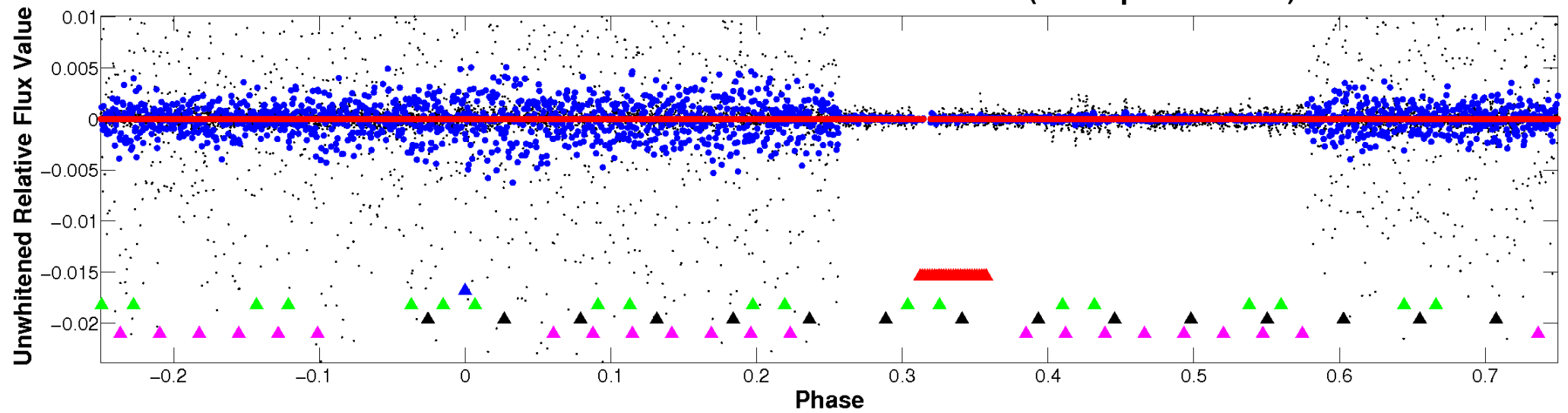
ALT Odd/Even

TCE 011146627-02



Non-Whitened Vs. Whitened Light Curve

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

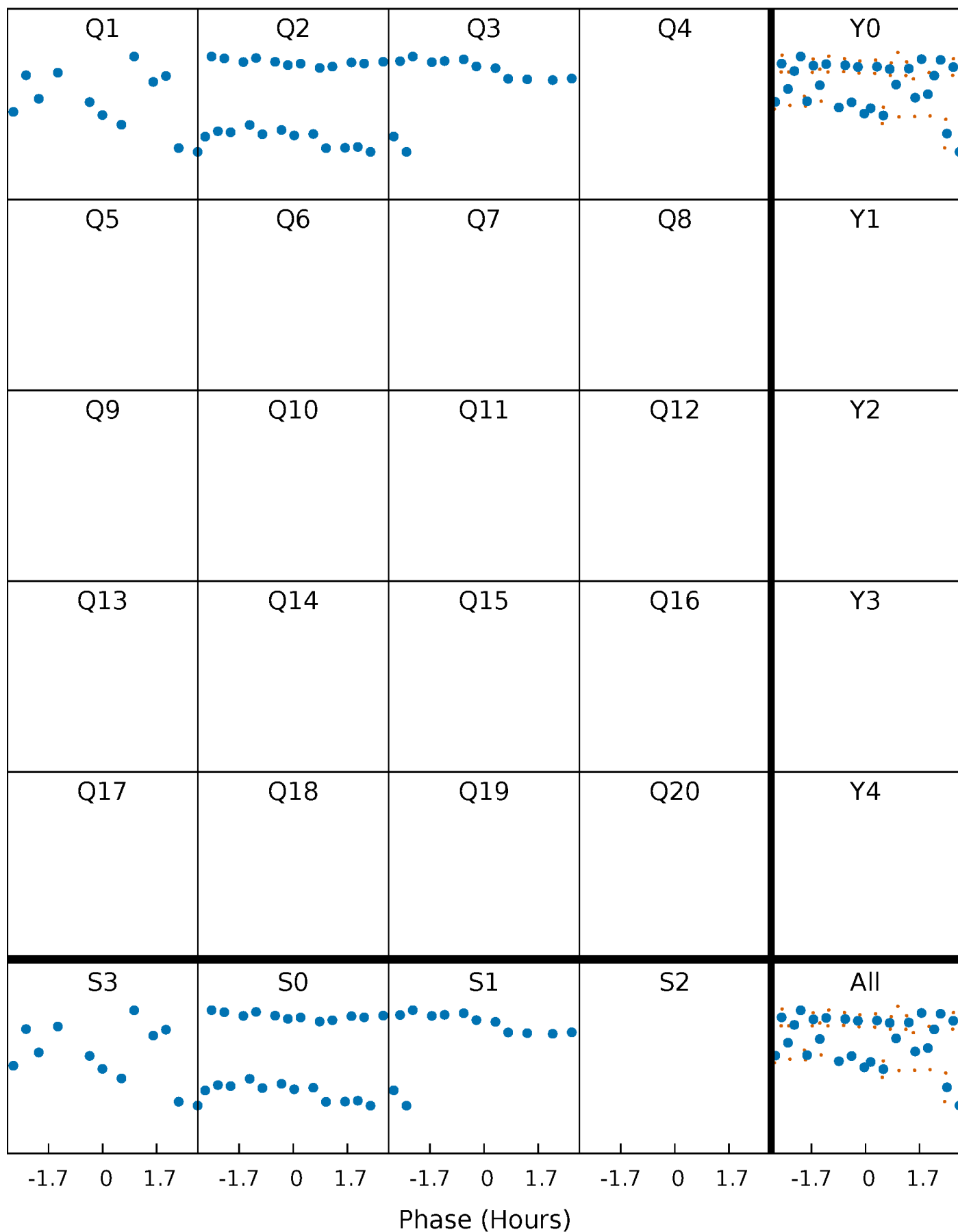


Planet 2 : Phased Whitened Flux Time Series (TPS Epoch/Period)



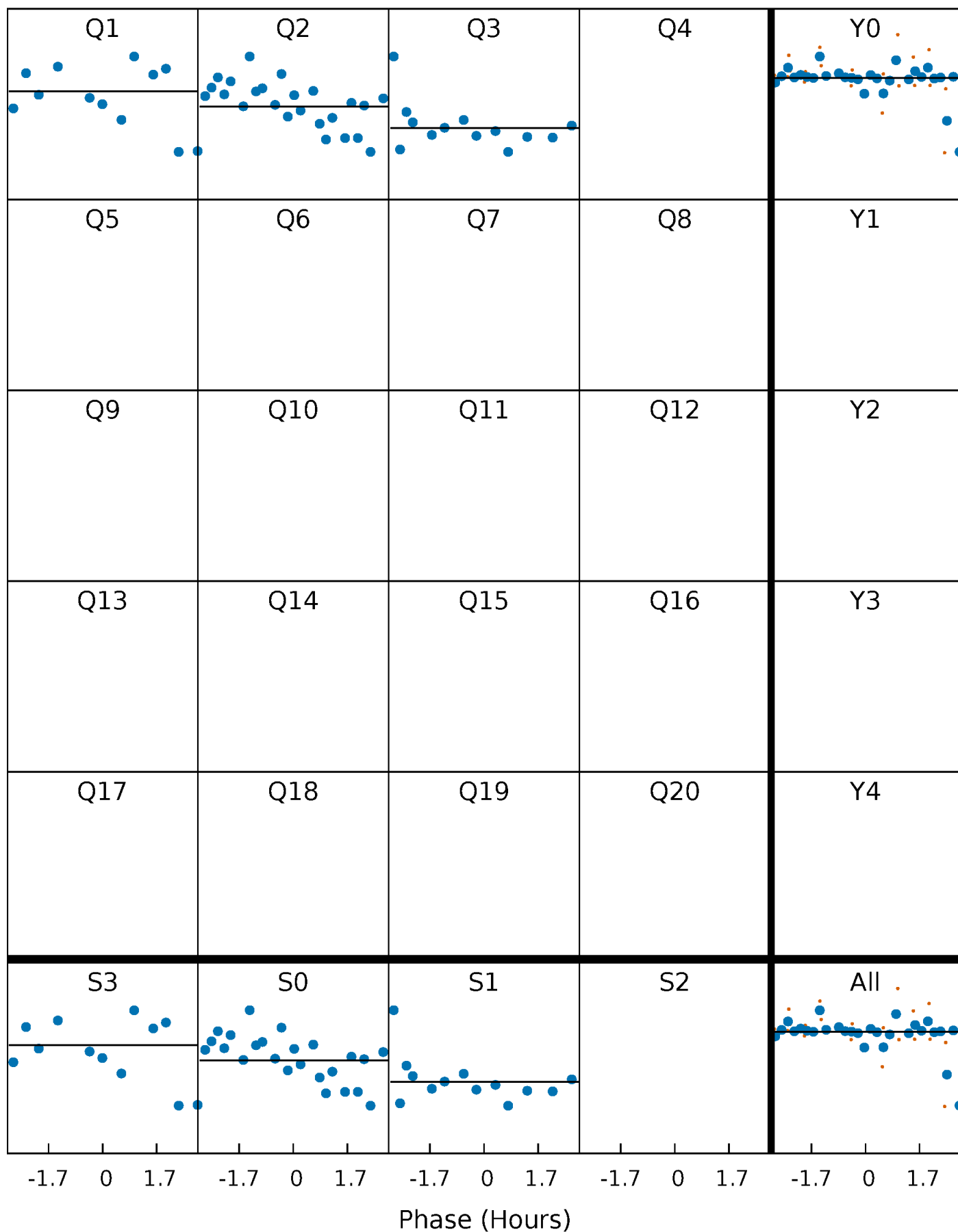
PDC Quarter-Phased Transit Curves

TCE 011146627-02 P= 49.316355 Days $T_0=152.332874$ (BKJD)



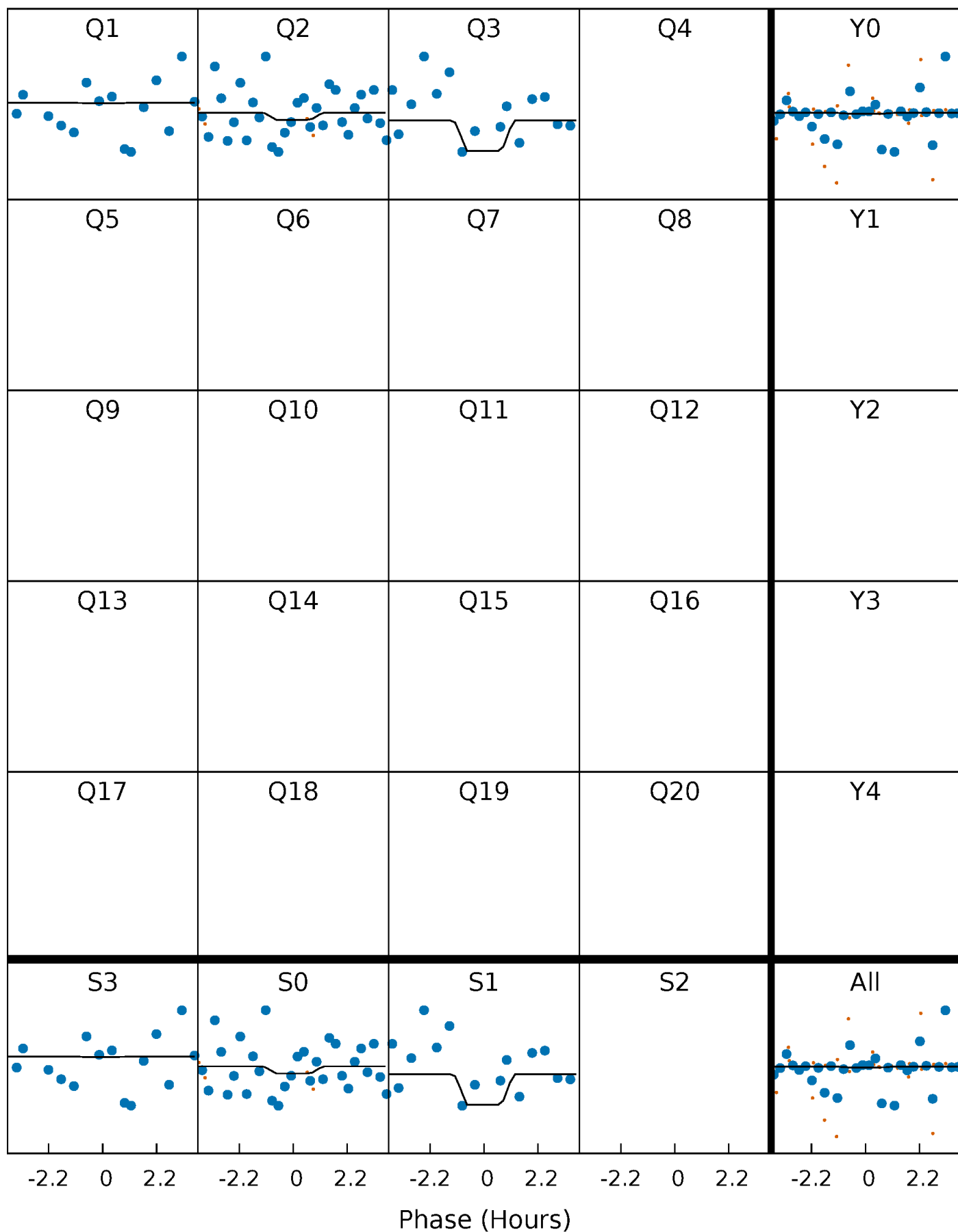
DV Quarter-Phased Transit Curves

TCE 011146627-02 P= 49.316355 Days $T_0=152.332874$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

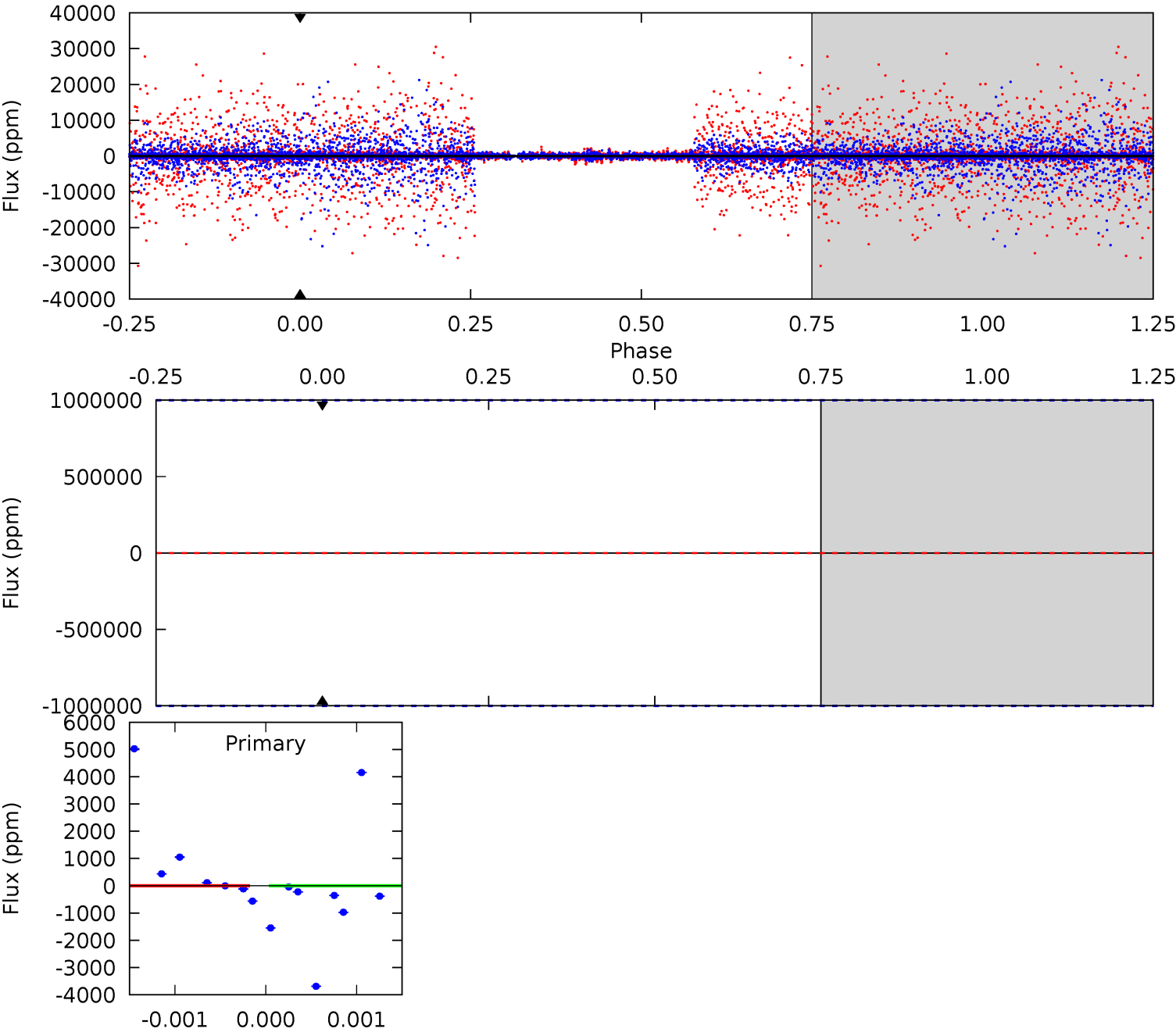
TCE 011146627-02 P= 49.316355 Days $T_0=152.404059$ (BKJD)



DV Model-Shift Uniqueness Test

011146627-02, P = 49.316355 Days, E = 103.016519 Days

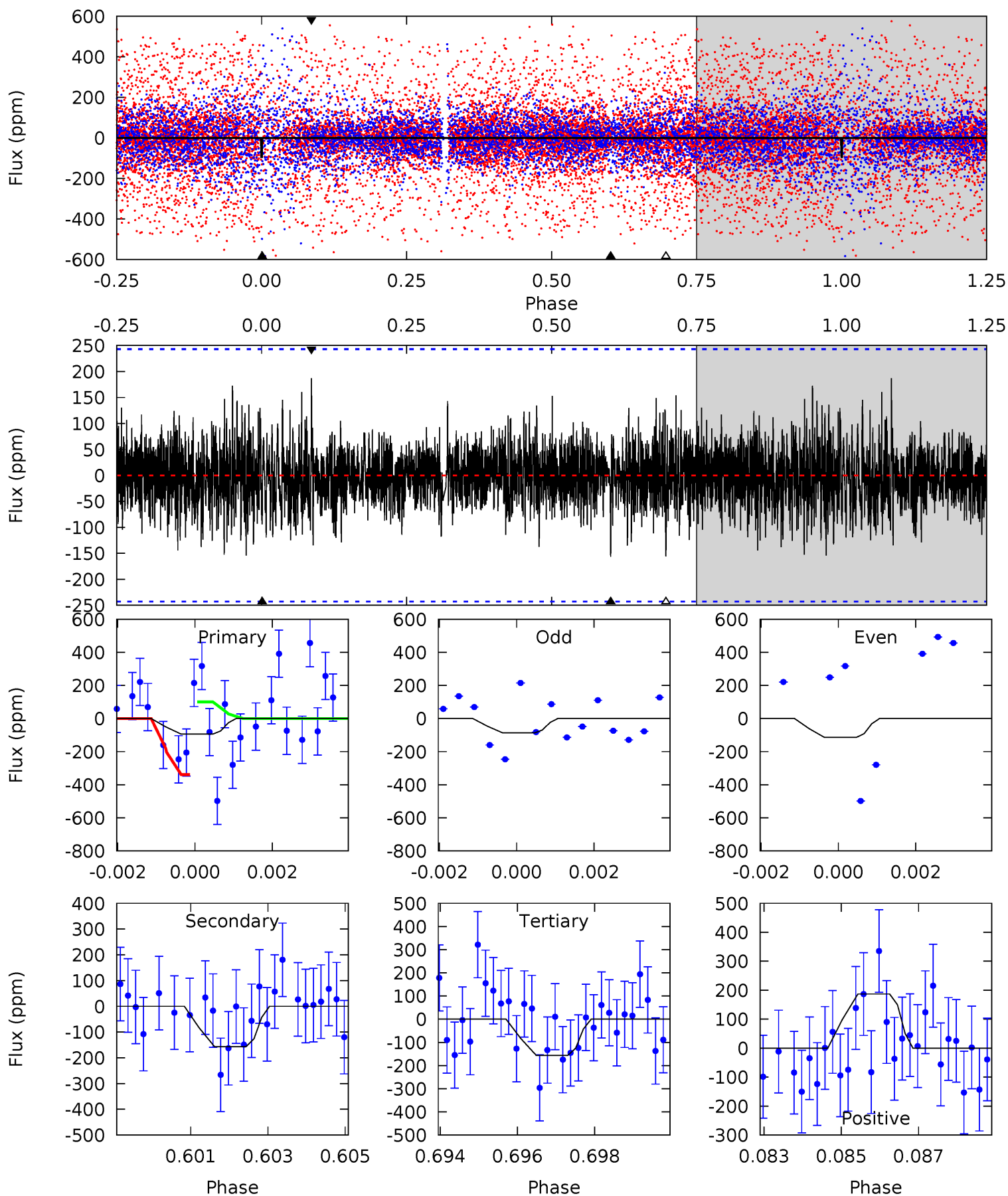
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
0	0	0	0	1.00	1.00	1.00	0	0	0	0	0	0	0	0



Alt Model-Shift Uniqueness Test

011146627-02, P = 49.316355 Days, E = 103.087704 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
2.06	3.43	3.42	4.10	5.32	3.08	0.97	-1.36	-2.04	0.01	-0.67	0.11	2.14	0.54	2.66



Stellar Parameters For KIC 011146627

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	5780^{+1}_{-1}	$4.438^{+1.000}_{-1.000}$	$0.000^{+1.000}_{-1.000}$	$1.000^{+1.000}_{-1.000}$	$-1.000^{+1.000}_{-1.000}$	$-1.000^{+1.000}_{-1.000}$
	+0%/-0%	+23%/-23%	+inf%/-inf%	+100%/-100%	+100%/-100%	+100%/-100%
Source	Solar	Solar	Solar	Solar		

KIC = Kepler Input Catalog; PHO = Photometry; SPE = Spectroscopy; AST = Asteroseismology
 TRA = Transits; DESP = Dartmouth Models; MULT = Multiple Models

Secondary Eclipse Parameters for KIC 011146627-02 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	0 ± 1000000	$7.97^{+8.48}_{-5.66}$	695^{+33}_{-34}	4450^{+18529}_{-22506}	$967^{+113306}_{-89672}$
Alt.	-157 ± 46	$7.66^{+7.99}_{-5.29}$	697^{+32}_{-35}	3054^{+1449}_{-557}	100^{+856}_{-79}

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 $A_{obs} \gg 1.0$

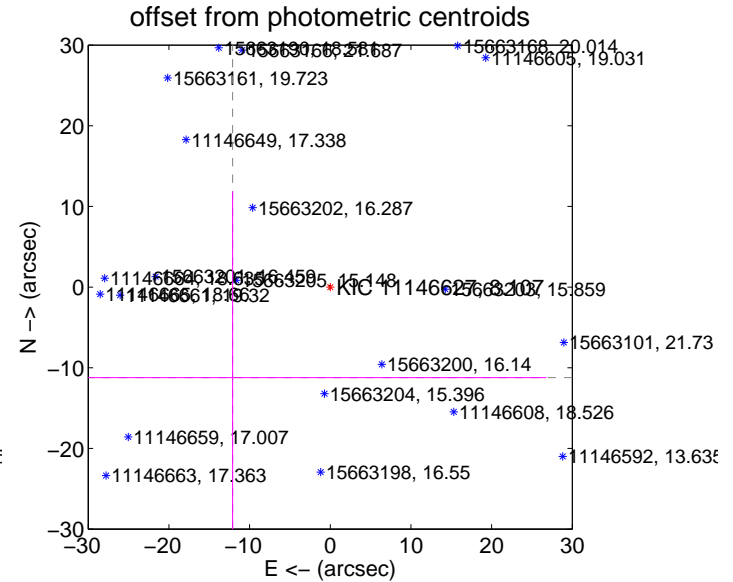
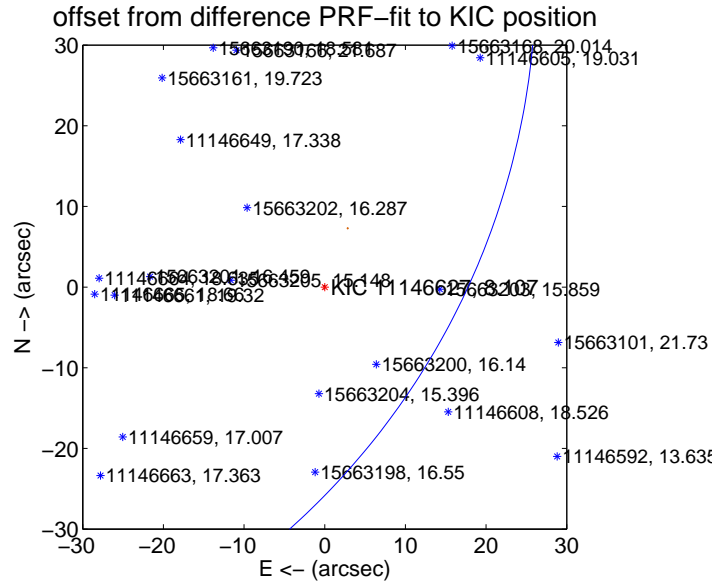
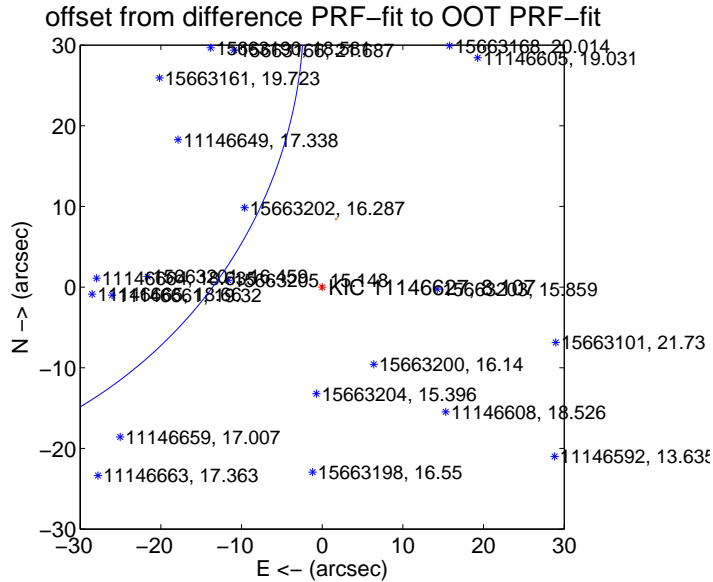
DV Centroid Data

Supplemental centroid analysis for 011146627-02. **Kepler magnitude: 8.11.** Transit SNR -1.00

There are 0 quarters with good PRF difference image offsets

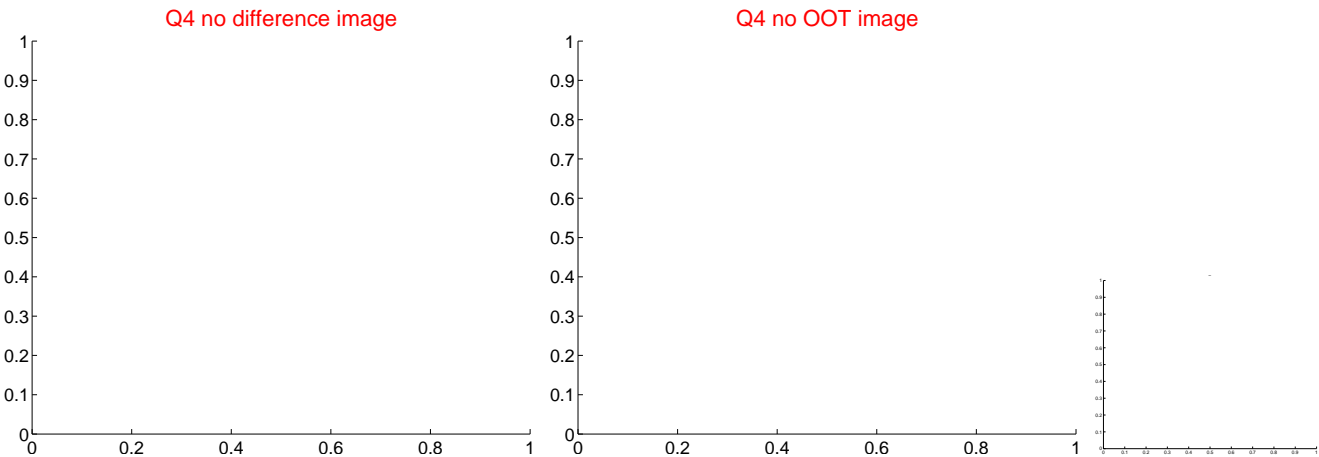
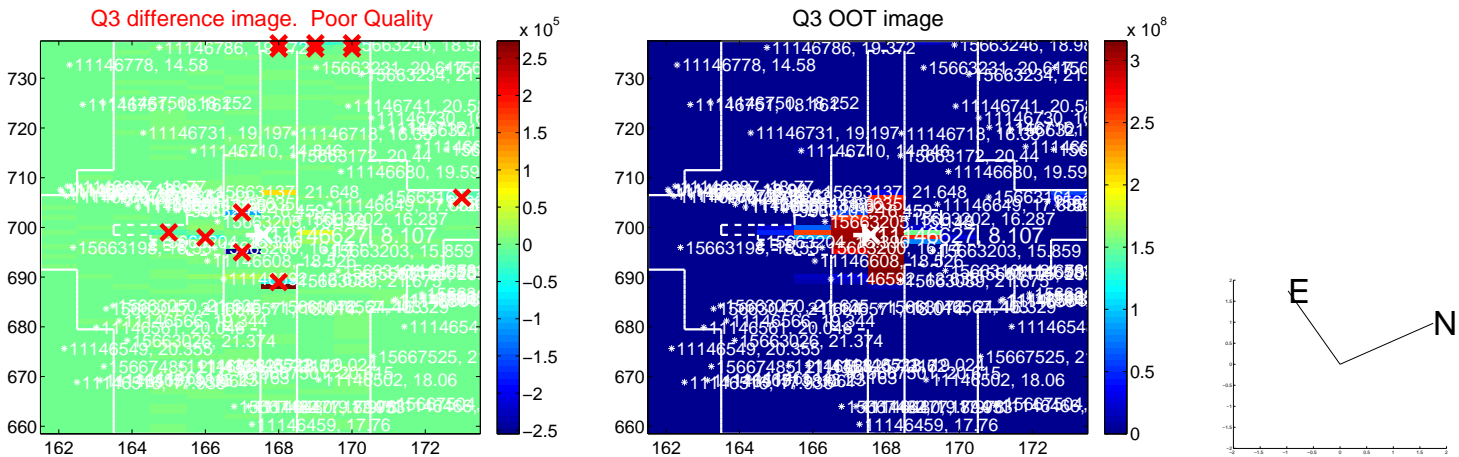
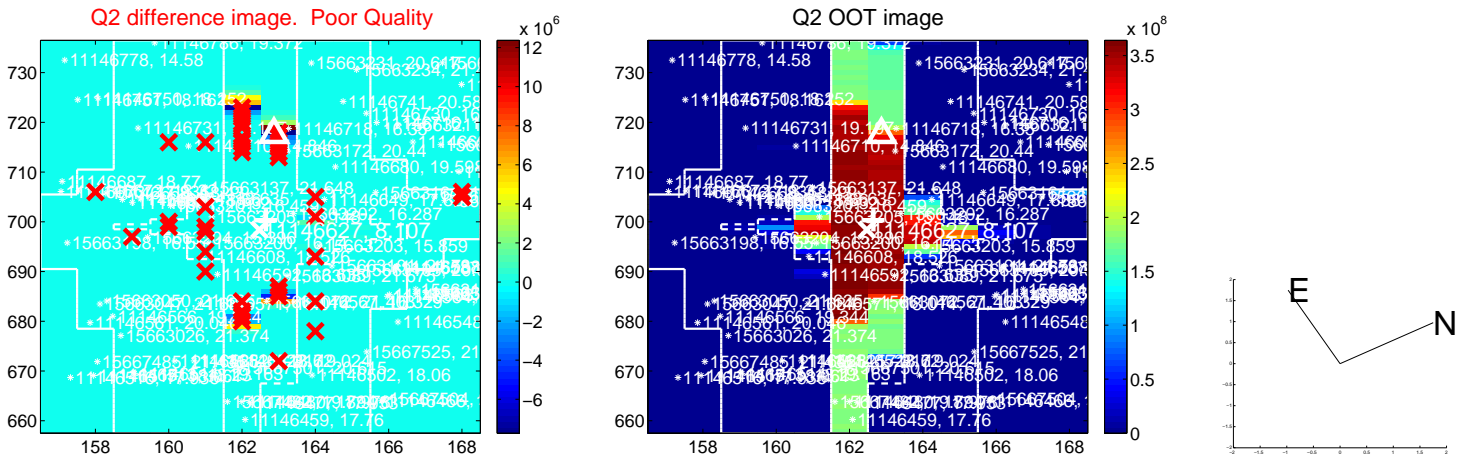
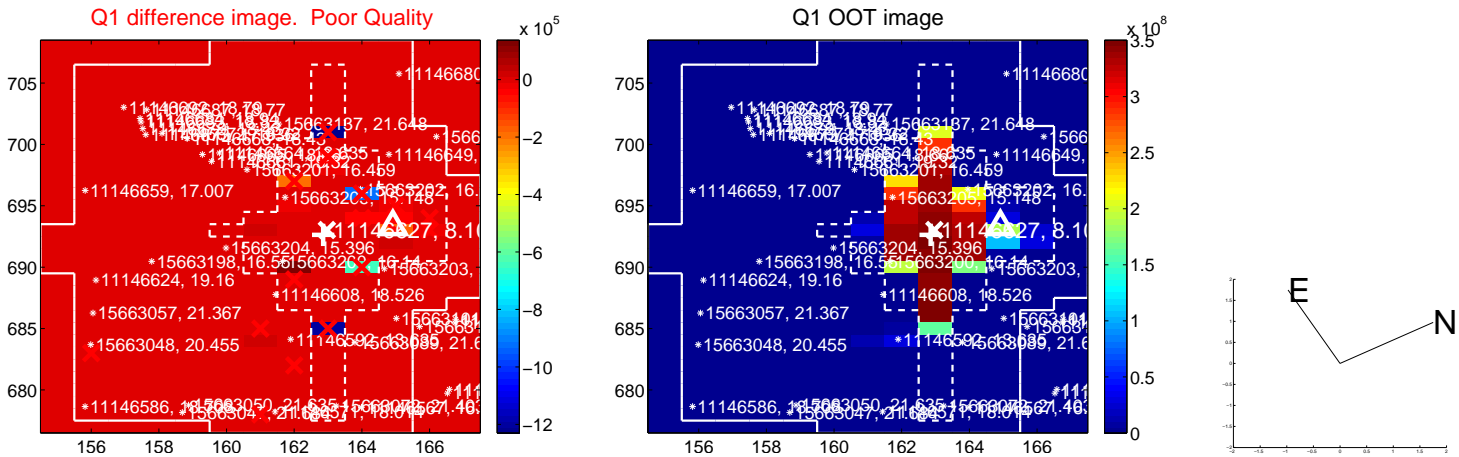
The OOT PRF centroid is offset from the target star catalog position by about 7.74 arcsec so the offset from difference PRF-fit to OOT-fit may be invalid.

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	68.347 \pm 18.992	3.60	59.275 \pm 17.646	34.027 \pm 7.409
PRF-fit source offset from KIC position	76.096 \pm 30.624	2.48	65.708 \pm 28.031	38.380 \pm 12.730
photometric centroid source offset	16.51 \pm 32.55	0.51	12.10 \pm 38.89	-11.23 \pm 23.10



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

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



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



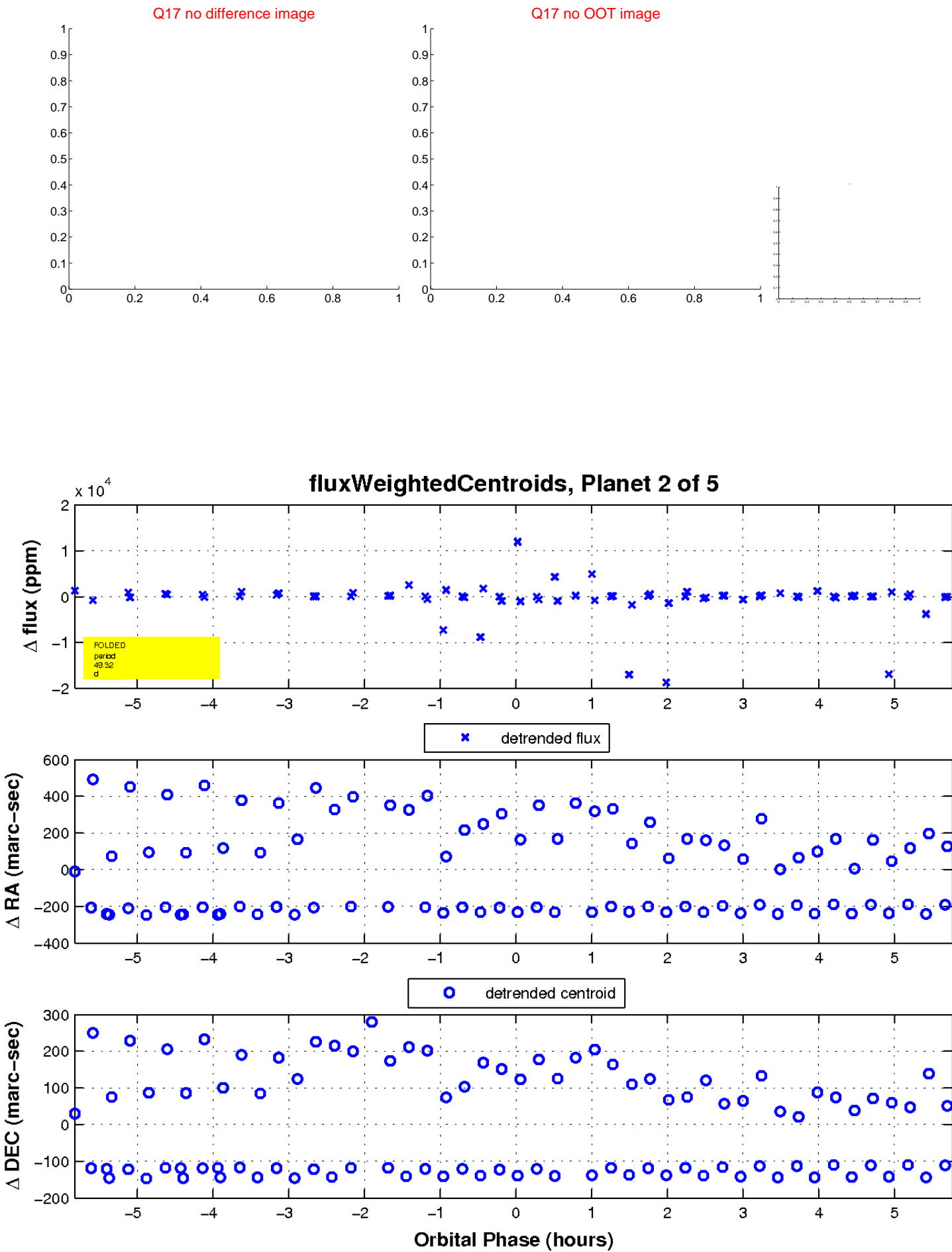
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

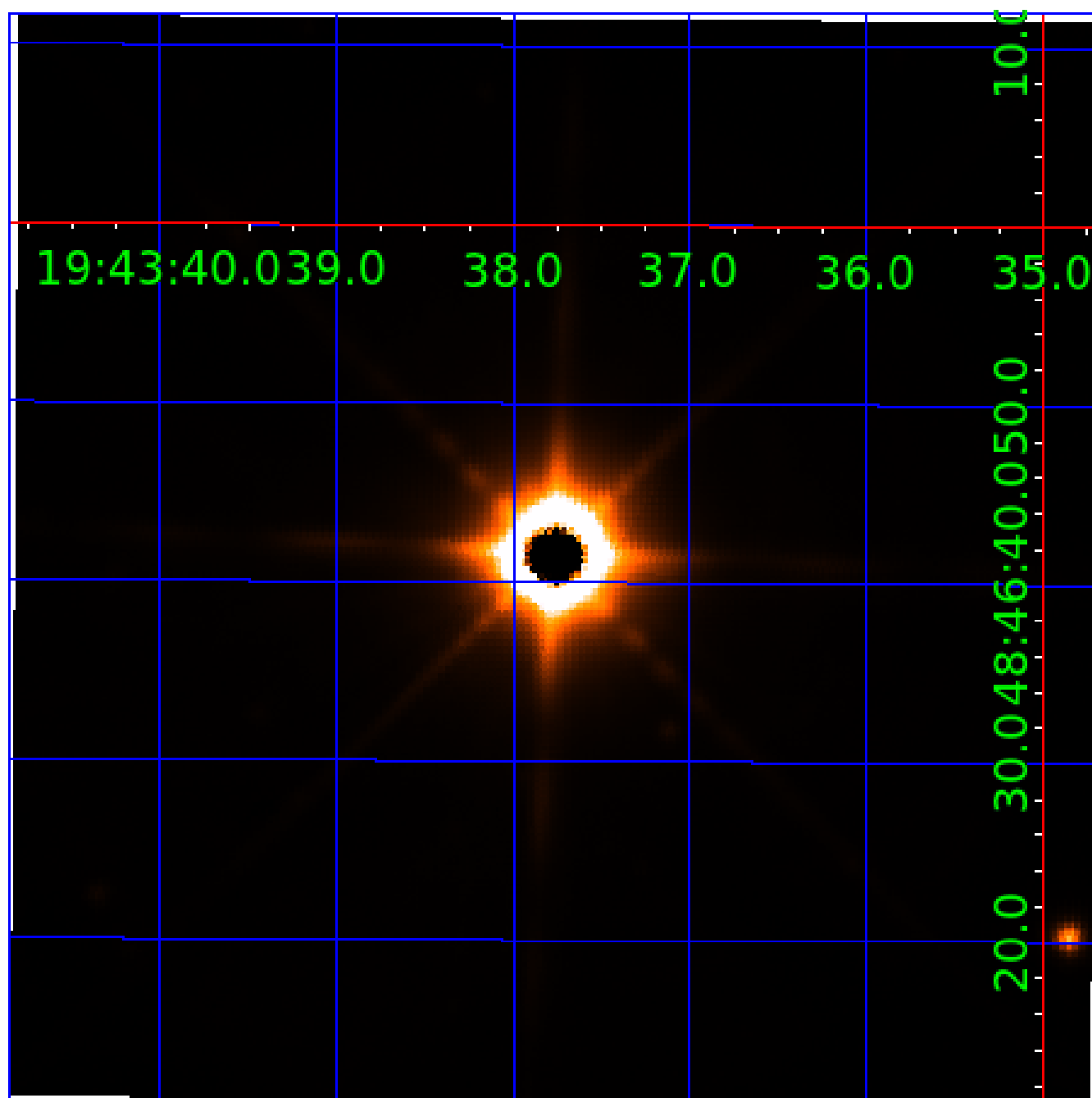


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 011146627

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})
011146627-01	OBS	No	49.396212	167.734763	172.8	4.069	12.2	7.4	1.00	5780	1.49	14.40
011146627-02	OBS	No	49.316355	152.332874	484.6	1.500	90.9	-1.0	1.00	5780	2.19	14.43
011146627-03	OBS	No	76.594576	152.669532	84.9	3.000	15.1	-1.0	1.00	5780	0.91	8.02
011146627-04	OBS	No	96.050668	187.225513	567.6	4.378	12.2	7.8	1.00	5780	3.07	5.93
011146627-05	OBS	No	65.309861	180.667328	15.9	4.500	11.4	-1.0	1.00	5780	0.40	9.92

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
011146627-01	OBS	FP	0.00	1	0	0	0	LPP_DV—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—CENT_SATURATED
011146627-02	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_SATURATED
011146627-03	OBS	FP	0.00	1	0	0	0	LPP_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_SATURATED
011146627-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_SKYE_ZUMA—LPP_DV—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_SATURATED
011146627-05	OBS	FP	0.00	1	0	0	0	LPP_DV—CENT_SATURATED

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

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

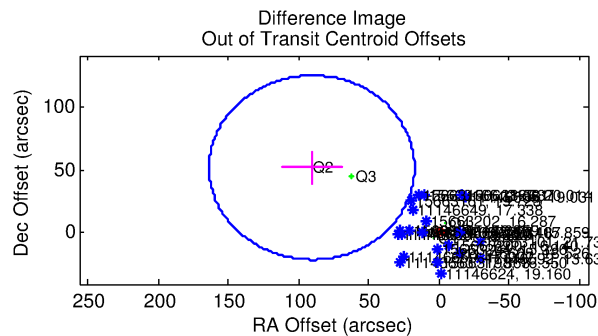
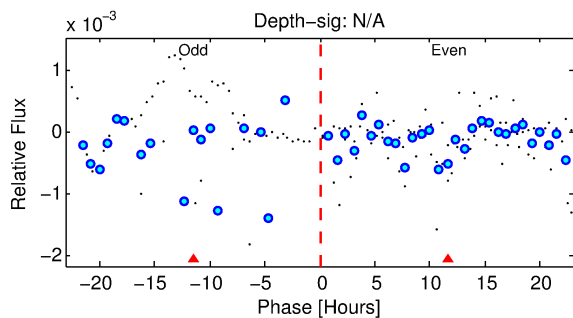
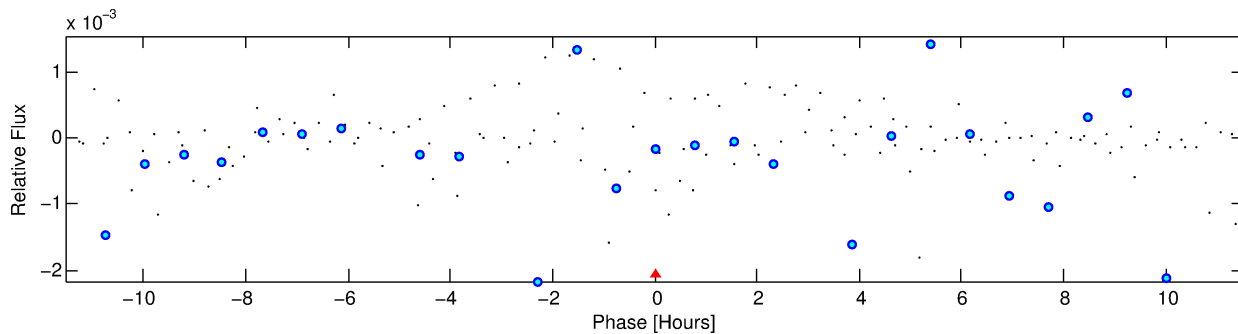
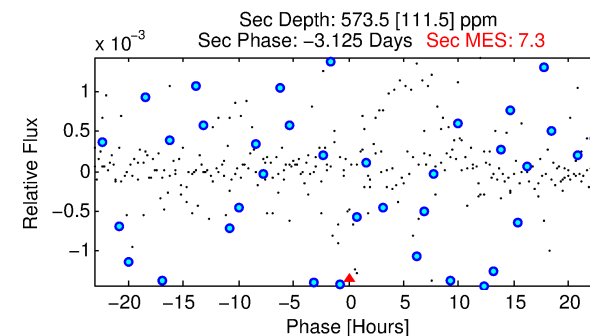
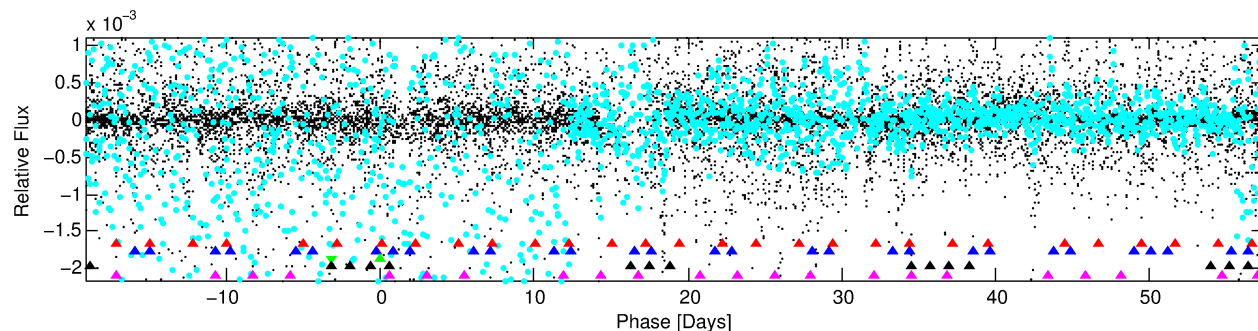
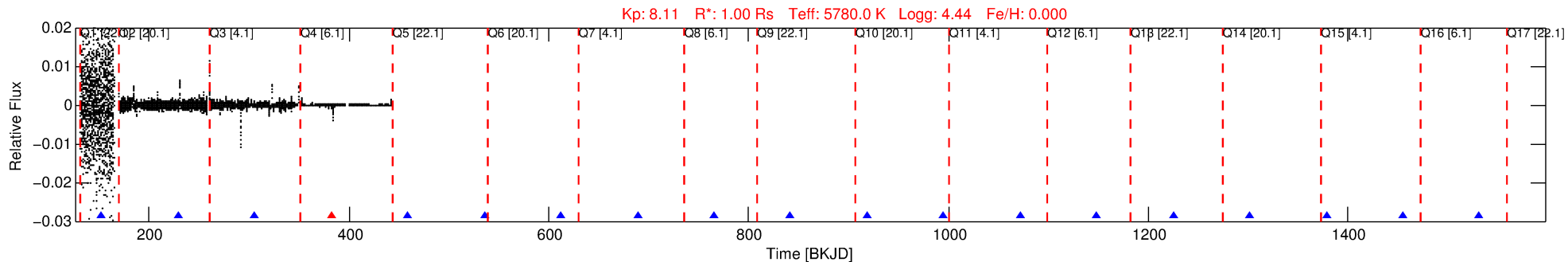
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 011146627-03

No Significant Match Found

DV One-Page Summary

KIC: 11146627 Candidate: 3 of 5 Period: 76.595 d



TPS TCE Results:

Period = 76.59458 d
Epoch = 152.6695 BKJD

DV fit results are unavailable

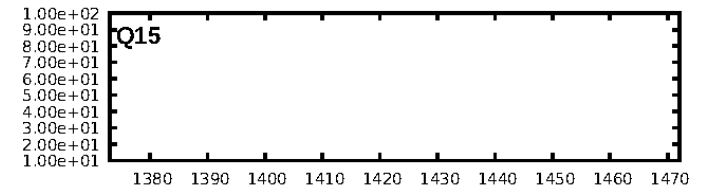
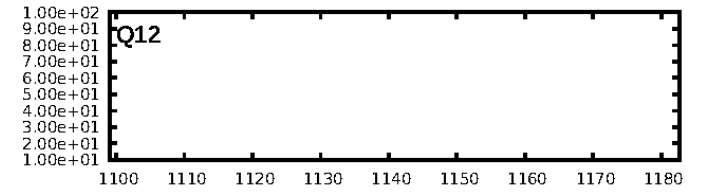
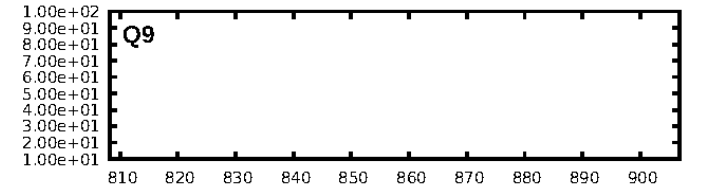
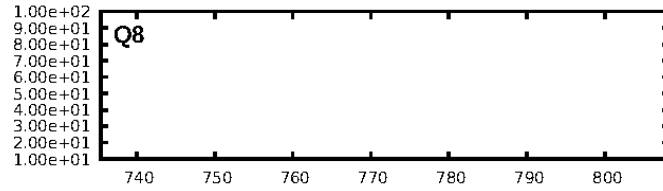
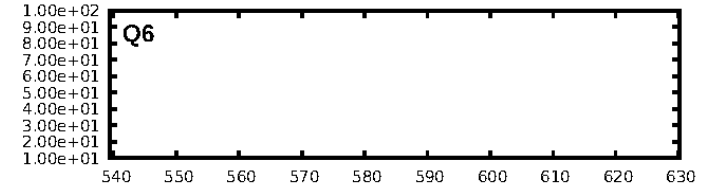
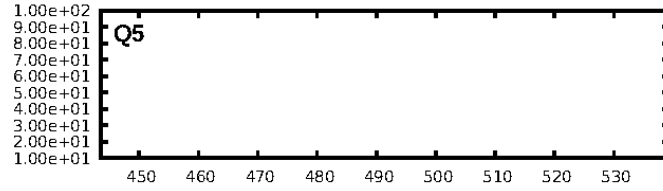
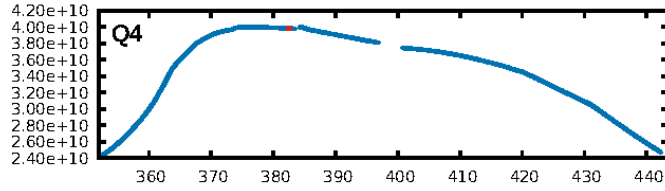
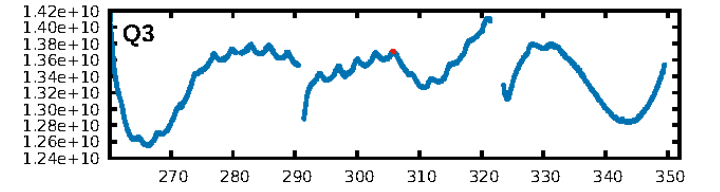
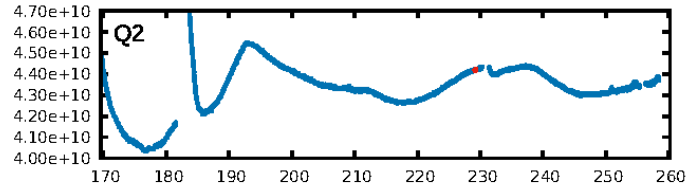
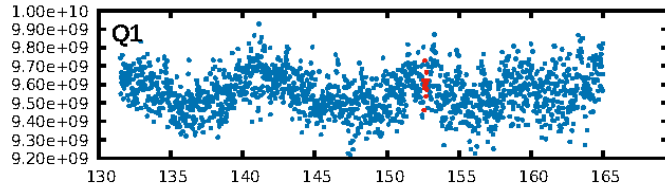
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [50.08 σ]
LongPeriod-sig: 100.0% [87.98 σ]
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: N/A
RollingBand-fgt: 0.67 [2/3]
GhostDiagnostic-chr: N/A
Centroid-sig: N/A
Centroid-so: 3.268 arcsec [0.37 σ]
OotOffset-rm: 104.271 arcsec [4.29 σ]
KicOffset-rm: 116.713 arcsec [5.78 σ]
OotOffset-st: 1/1/1/1 [4]
KicOffset-st: 1/1/1/1 [4]
DiffImageQuality-fgm: 0.00 [0/4]
DiffImageOverlap-fno: 0.75 [3/4]

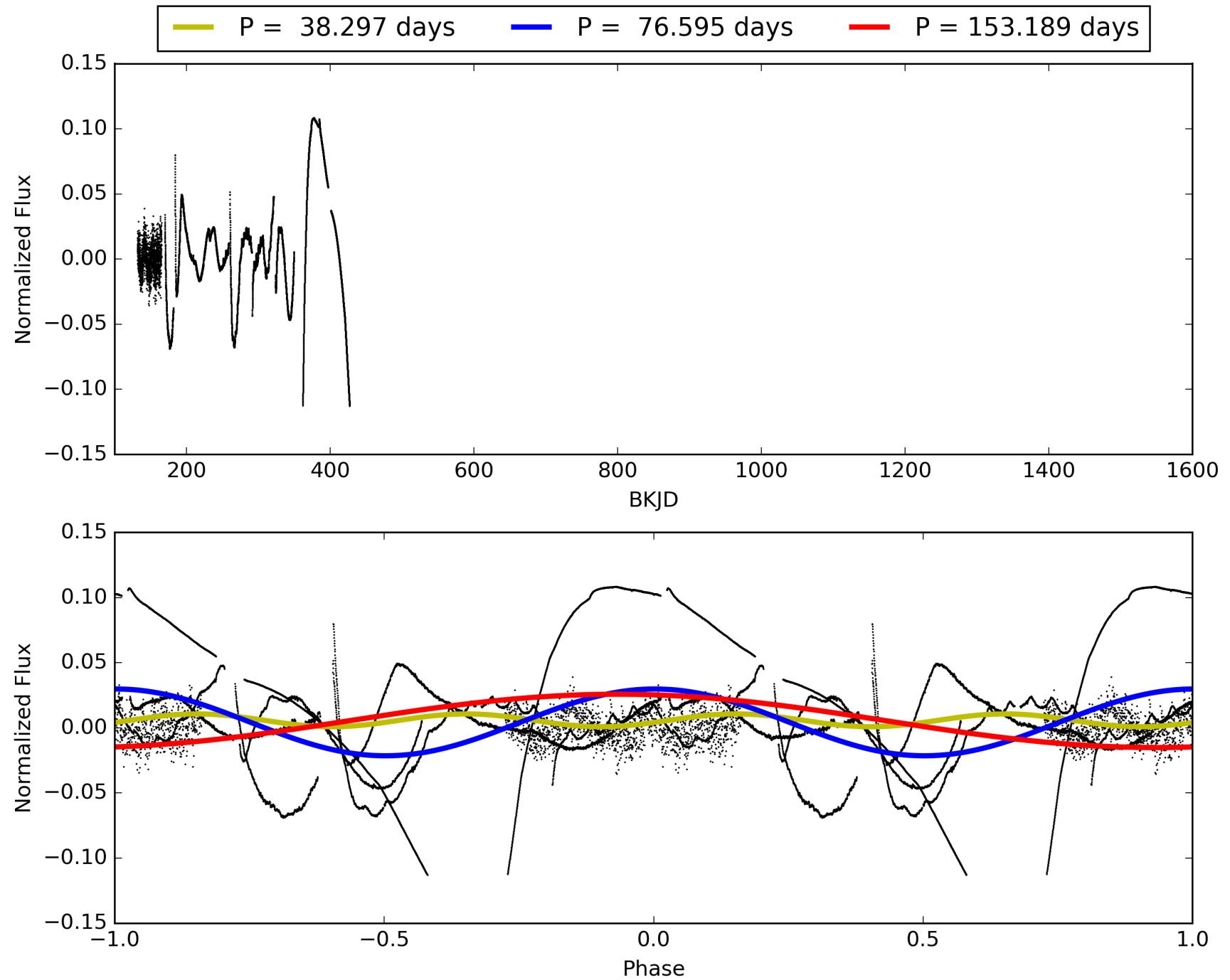
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 04:48:46 Z

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

TCE 011146627-03, PDC Light Curves

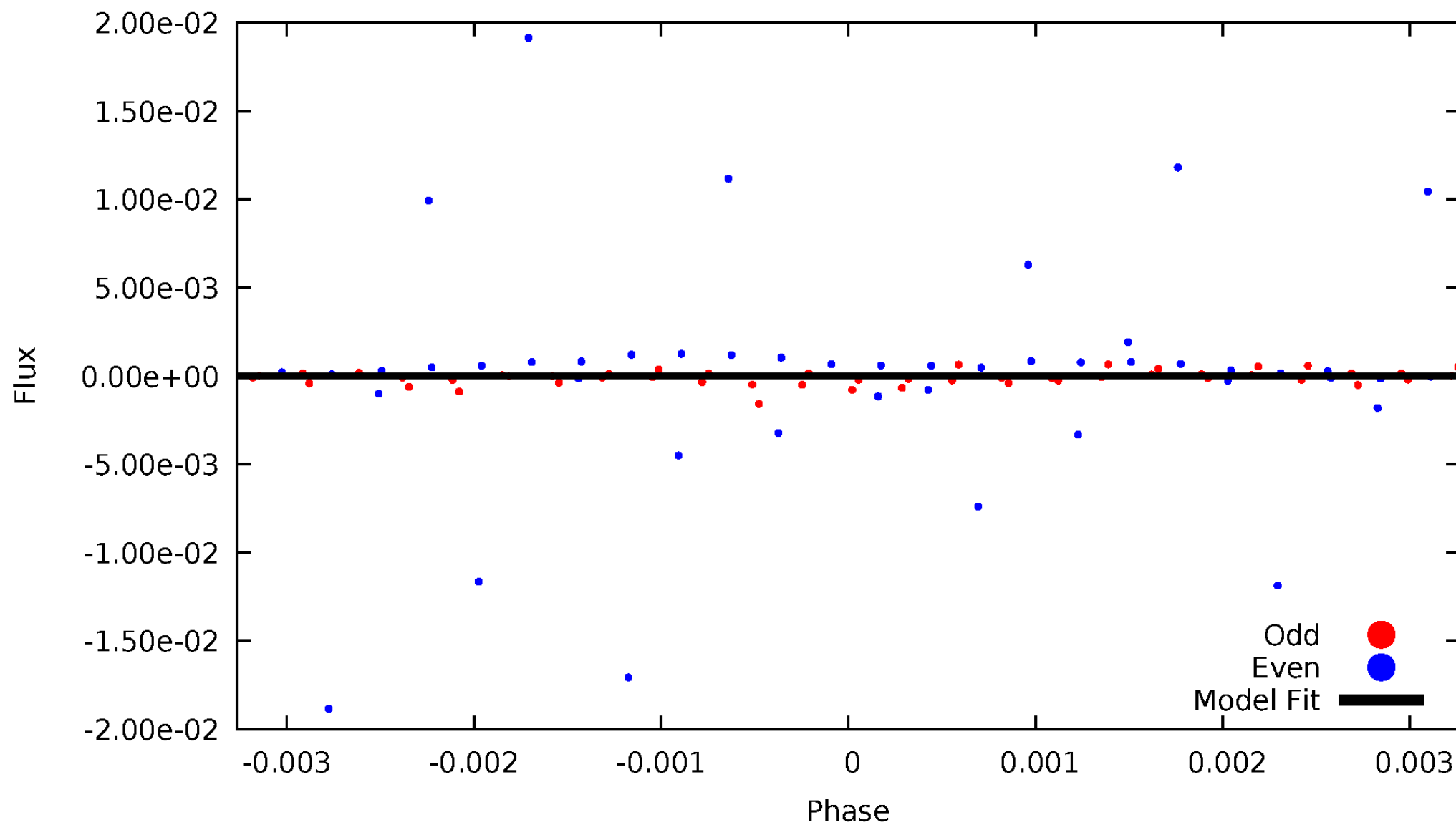


TCE 011146627-03



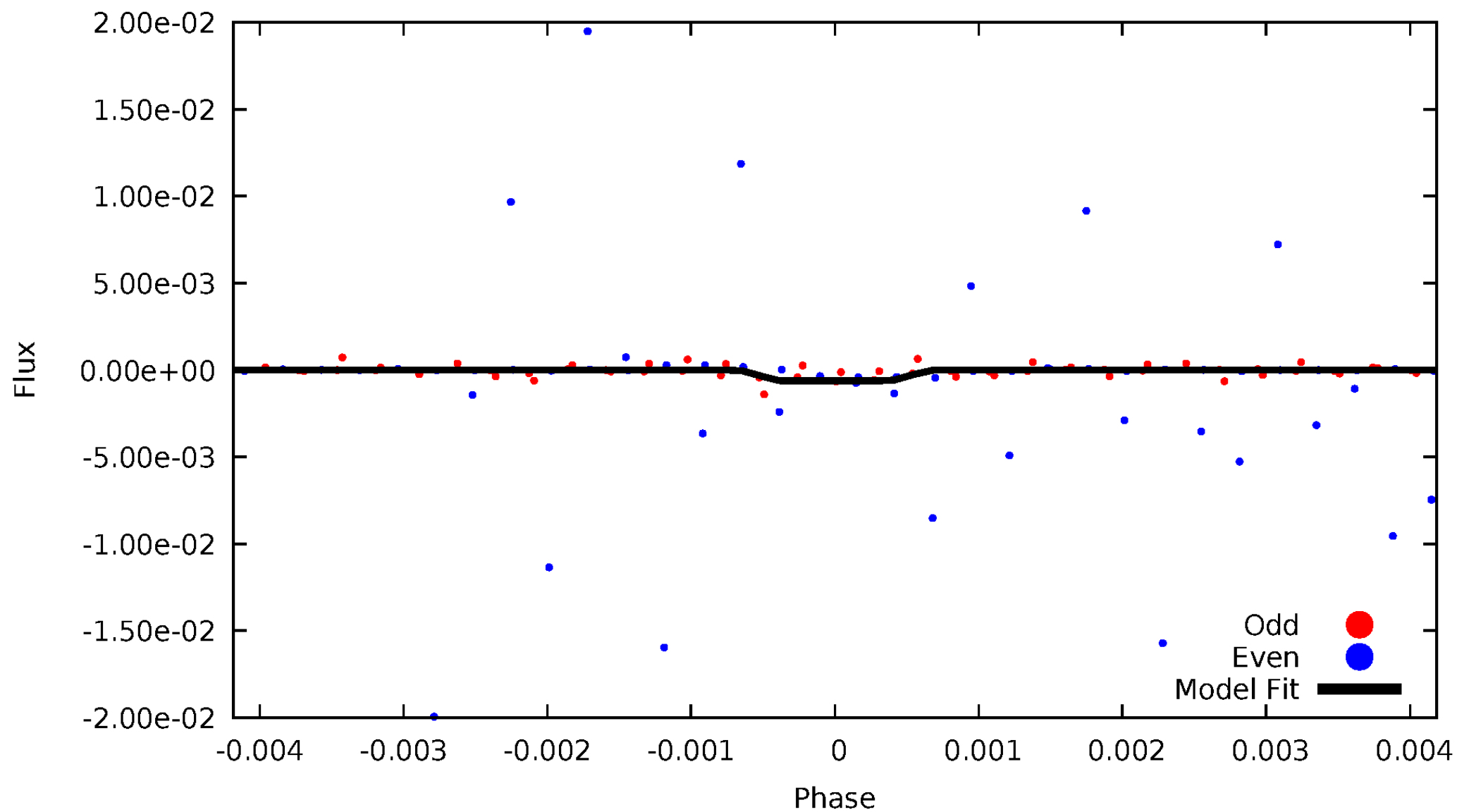
DV Odd/Even

TCE 011146627-03



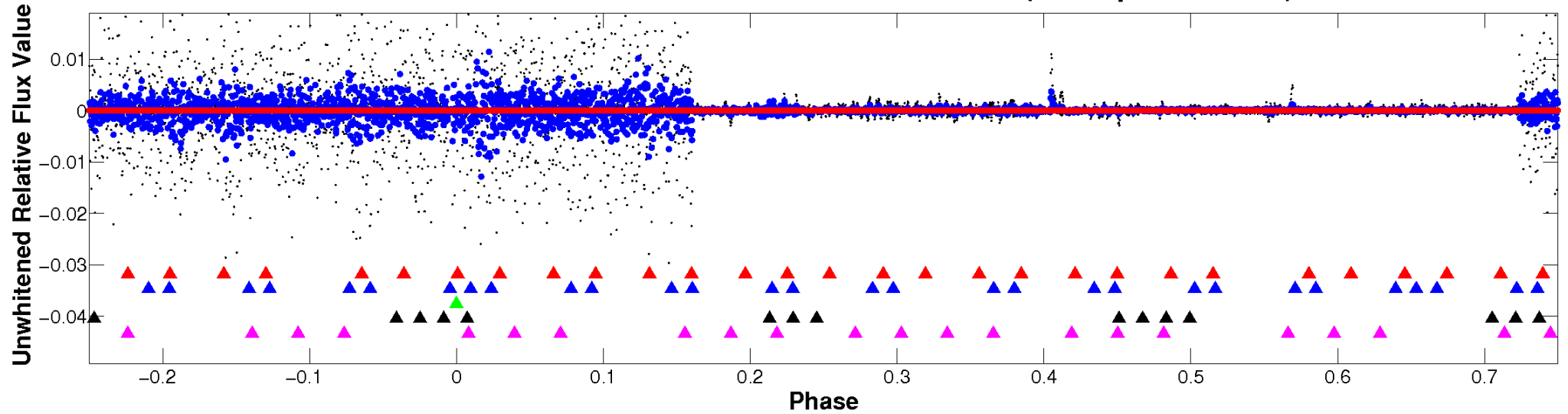
ALT Odd/Even

TCE 011146627-03



Non-Whitened Vs. Whitened Light Curve

Planet 3 : Phased Unwhitened Flux Time Series (TPS Epoch/Period)

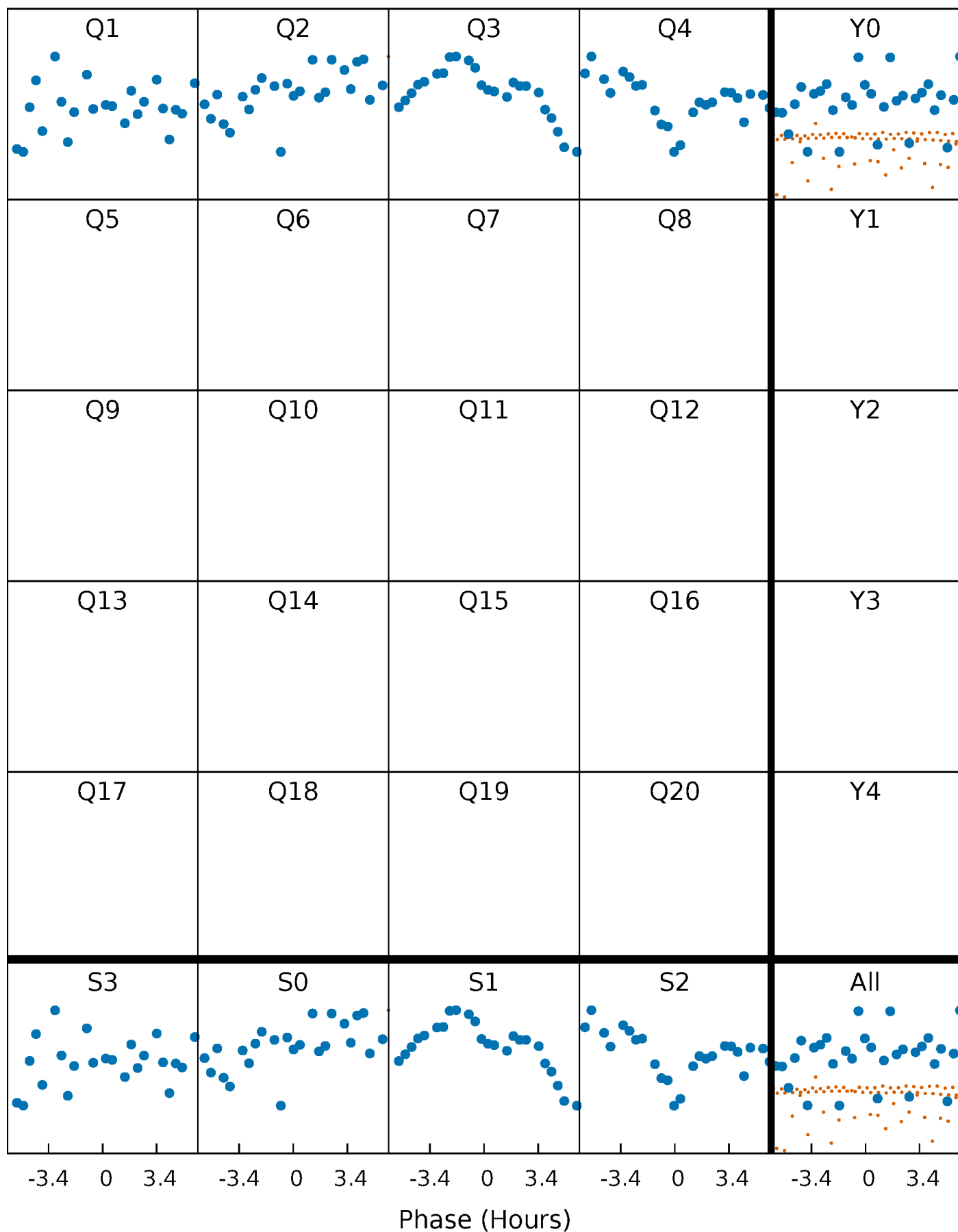


Planet 3 : Phased Whitened Flux Time Series (TPS Epoch/Period)



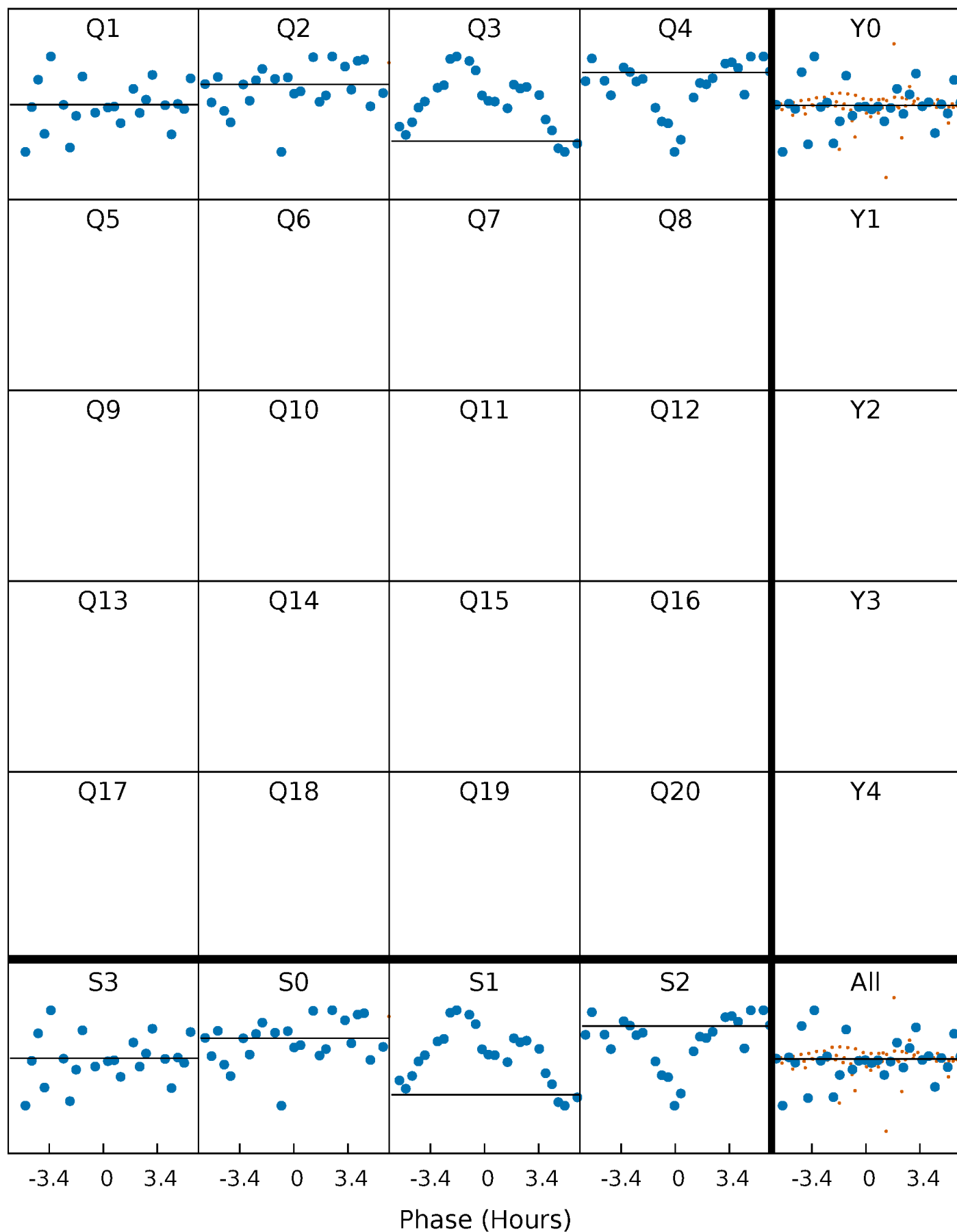
PDC Quarter-Phased Transit Curves

TCE 011146627-03 P= 76.594576 Days $T_0=152.669532$ (BKJD)



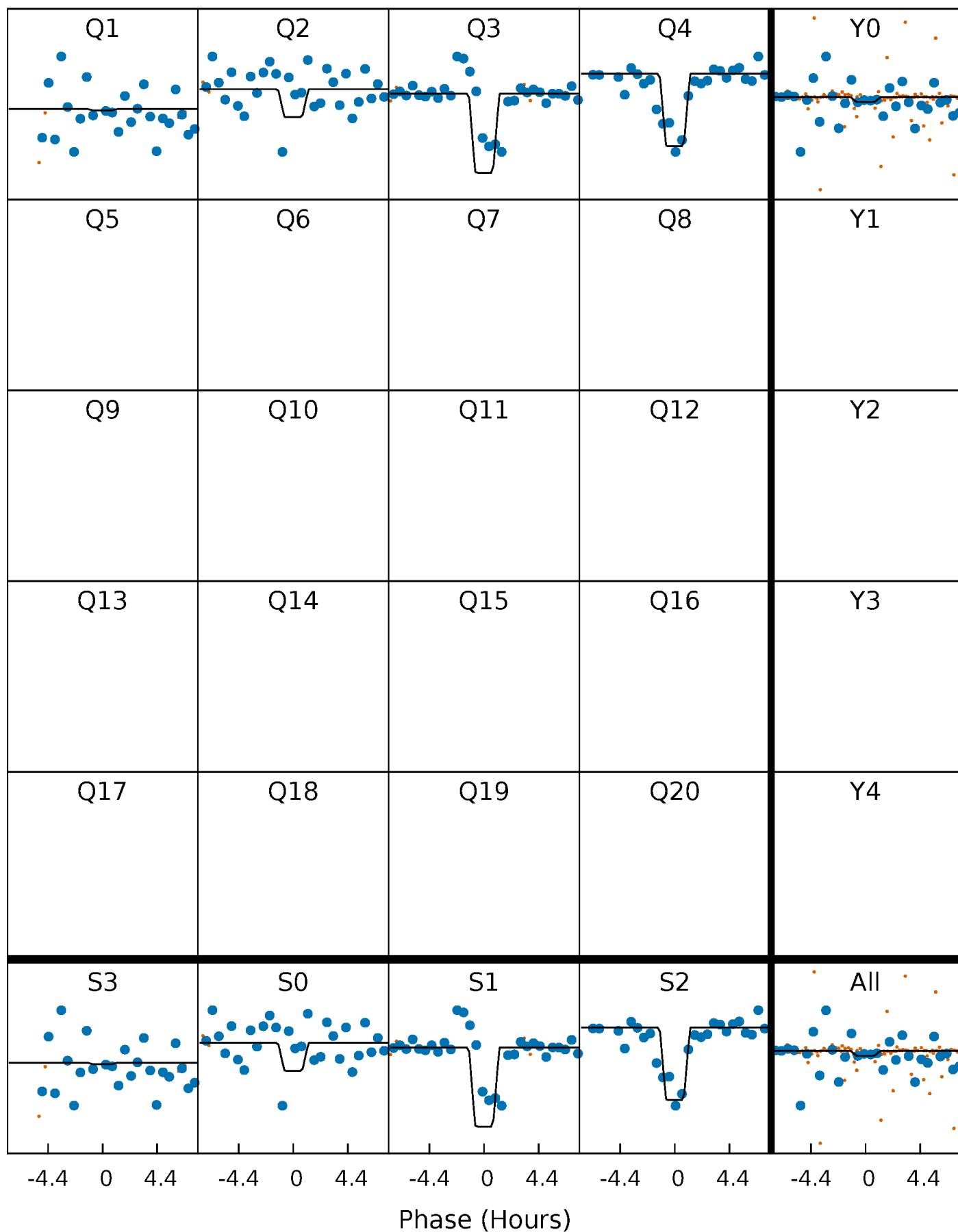
DV Quarter-Phased Transit Curves

TCE 011146627-03 P= 76.594576 Days $T_0=152.669532$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

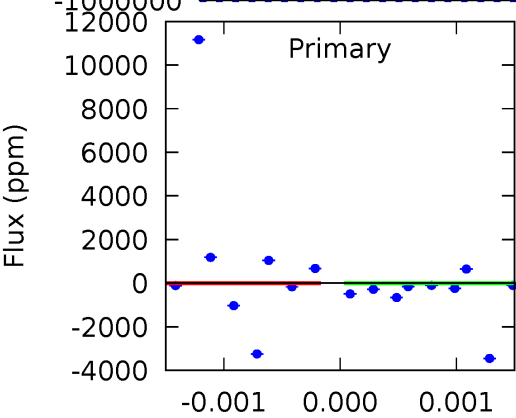
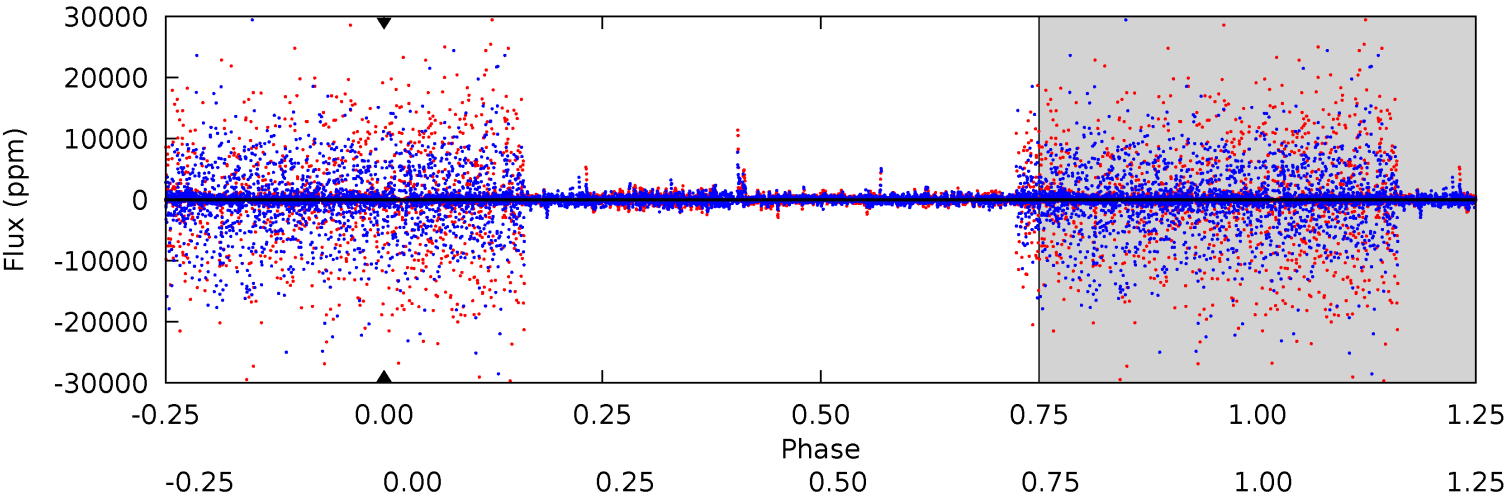
TCE 011146627-03 P= 76.594576 Days $T_0=152.670535$ (BKJD)



DV Model-Shift Uniqueness Test

011146627-03, P = 76.594576 Days, E = 76.074956 Days

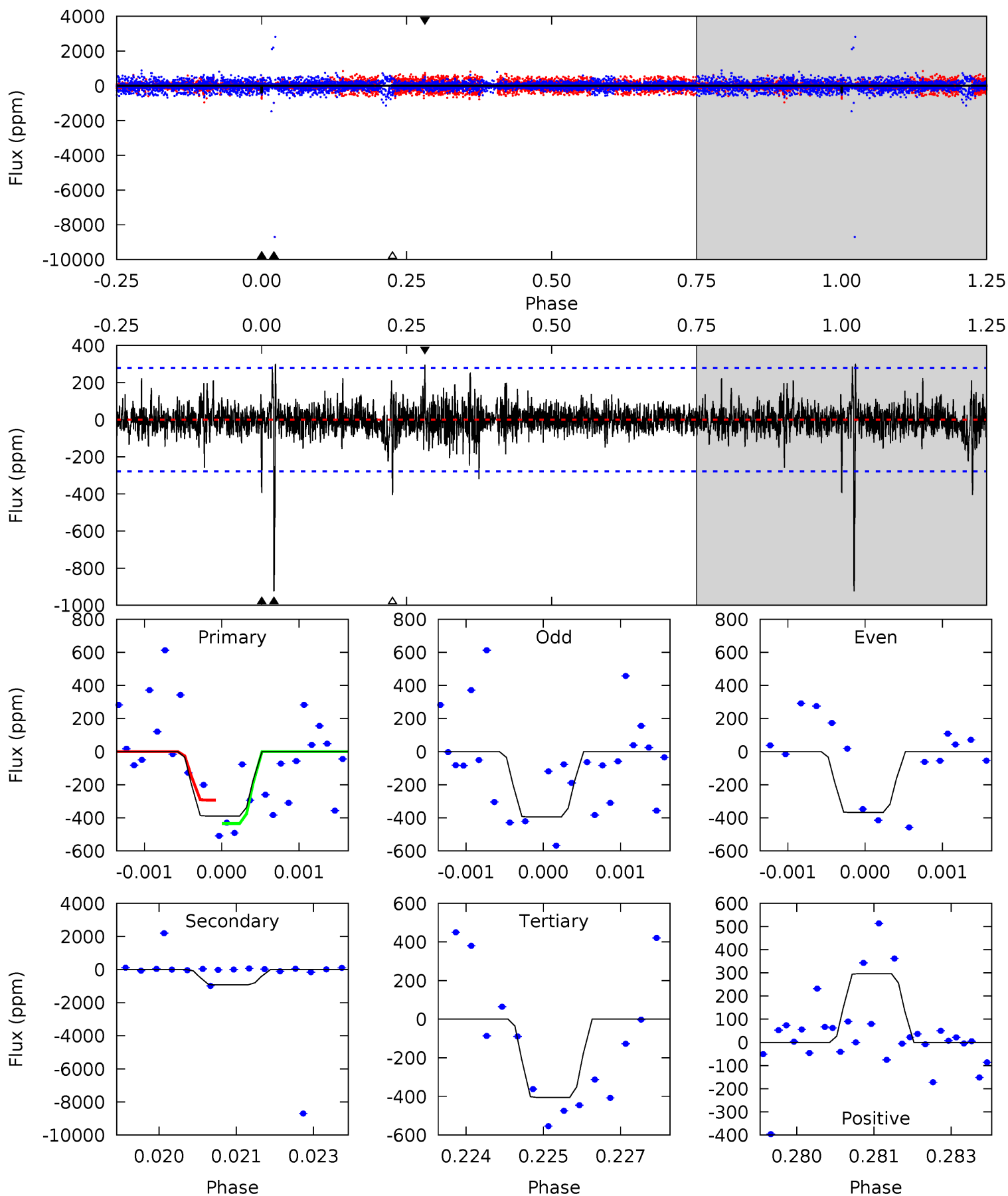
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
0	0	0	0	1.00	1.00	1.00	0	0	0	0	0	0	0	0



Alt Model-Shift Uniqueness Test

011146627-03, P = 76.594576 Days, E = 76.075959 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
7.55	17.9	7.85	5.75	5.40	3.21	1.13	-0.30	1.80	10.1	12.2	0.06	1.40	0.24	1.40



Stellar Parameters For KIC 011146627

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	5780^{+1}_{-1}	$4.438^{+1.000}_{-1.000}$	$0.000^{+1.000}_{-1.000}$	$1.000^{+1.000}_{-1.000}$	$-1.000^{+1.000}_{-1.000}$	$-1.000^{+1.000}_{-1.000}$
	+0%/-0%	+23%/-23%	+inf%/-inf%	+100%/-100%	+100%/-100%	+100%/-100%
Source	Solar	Solar	Solar	Solar		

KIC = Kepler Input Catalog; PHO = Photometry; SPE = Spectroscopy; AST = Asteroseismology
 TRA = Transits; DESP = Dartmouth Models; MULT = Multiple Models

Secondary Eclipse Parameters for KIC 011146627-03 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	0 ± 1000000	$7.78^{+8.07}_{-5.46}$	601^{+29}_{-27}	-4140^{+28637}_{-15973}	$-1011.058^{+252930.419}_{-156855.385}$
Alt.	-924 ± 52	$8.46^{+8.78}_{-6.10}$	601^{+28}_{-29}	3954^{+2818}_{-801}	884^{+10333}_{-672}

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

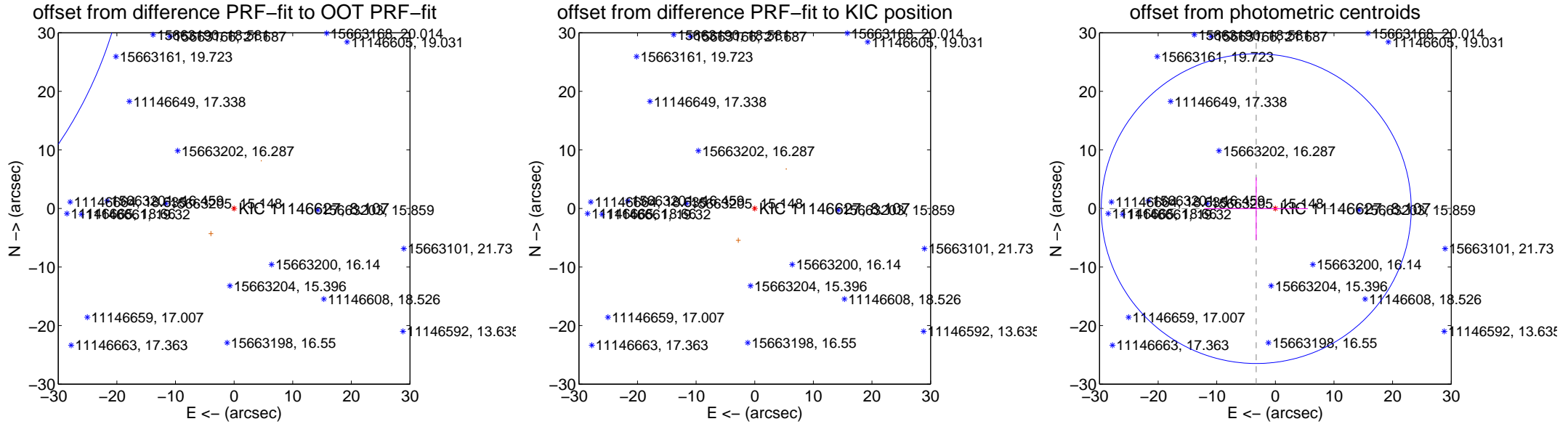
DV Centroid Data

Supplemental centroid analysis for 011146627-03. **Kepler magnitude: 8.11.** Transit SNR -1.00

There are 0 quarters with good PRF difference image offsets

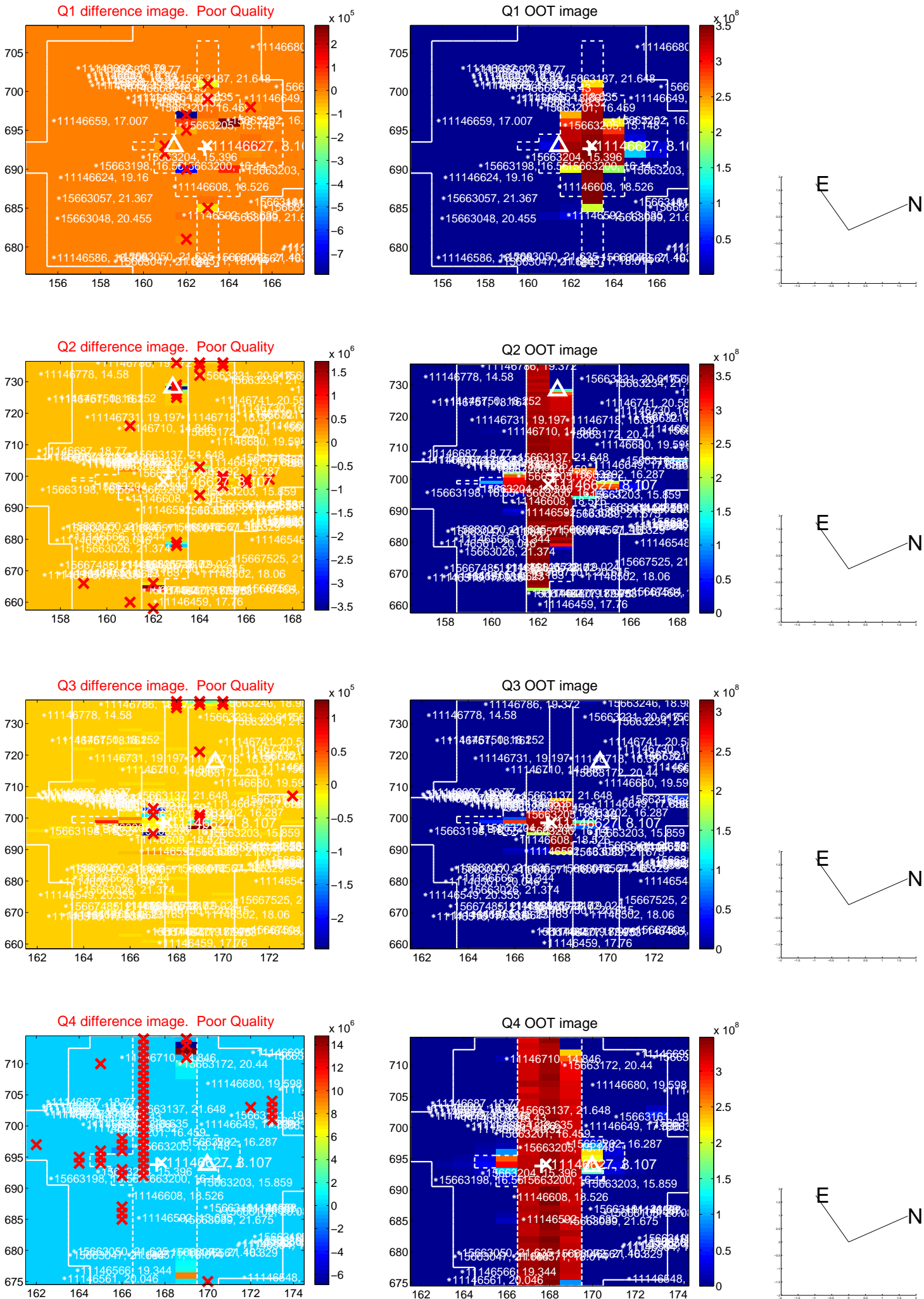
The direct PRF centroid is offset from the target star catalog position by about 1.59 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	104.271 \pm 24.332	4.29	90.540 \pm 21.119	51.721 \pm 12.501
PRF-fit source offset from KIC position	116.713 \pm 20.203	5.78	101.256 \pm 17.295	58.043 \pm 10.714
photometric centroid source offset	3.27 \pm 8.81	0.37	3.27 \pm 8.81	-0.03 \pm 5.34



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.



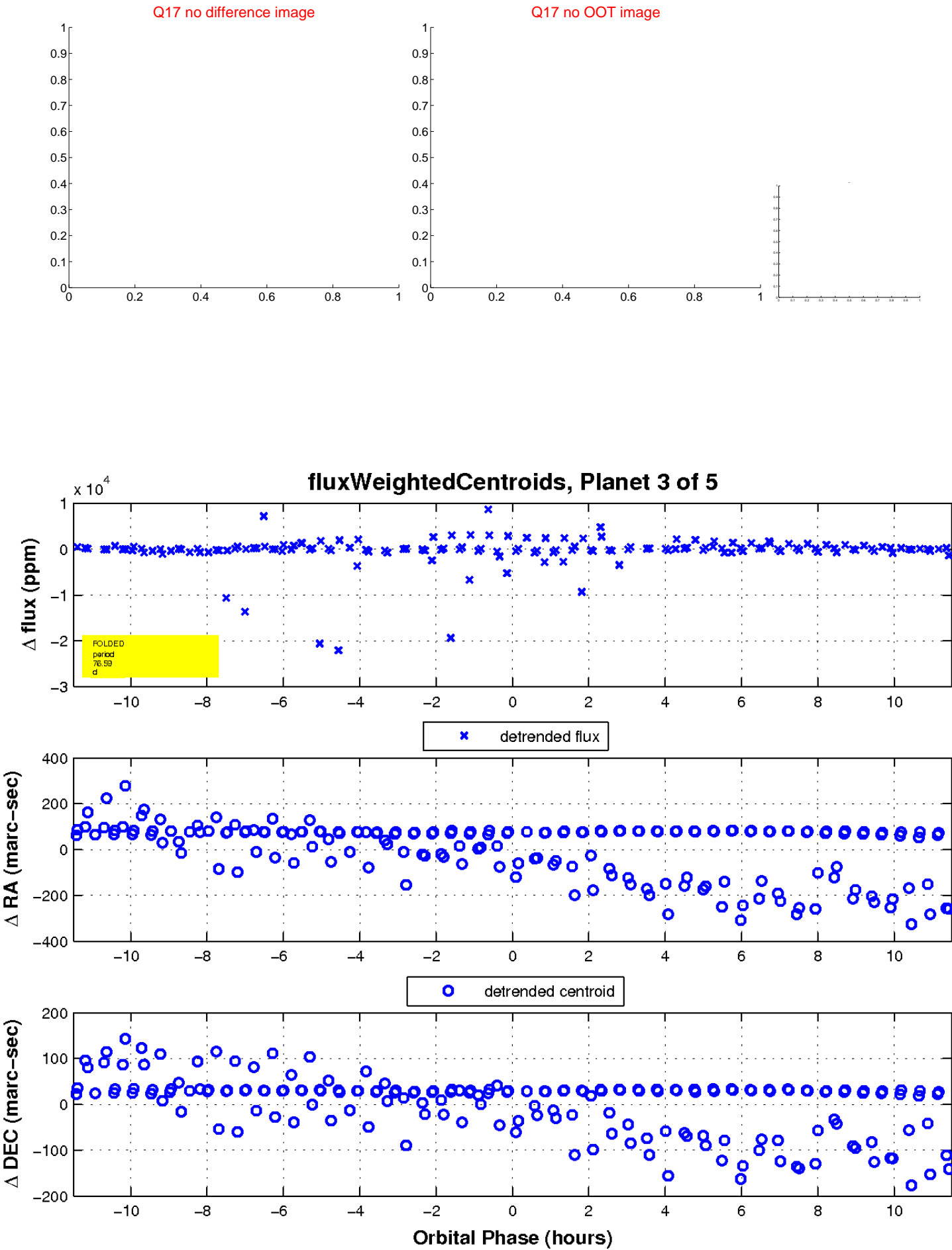
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



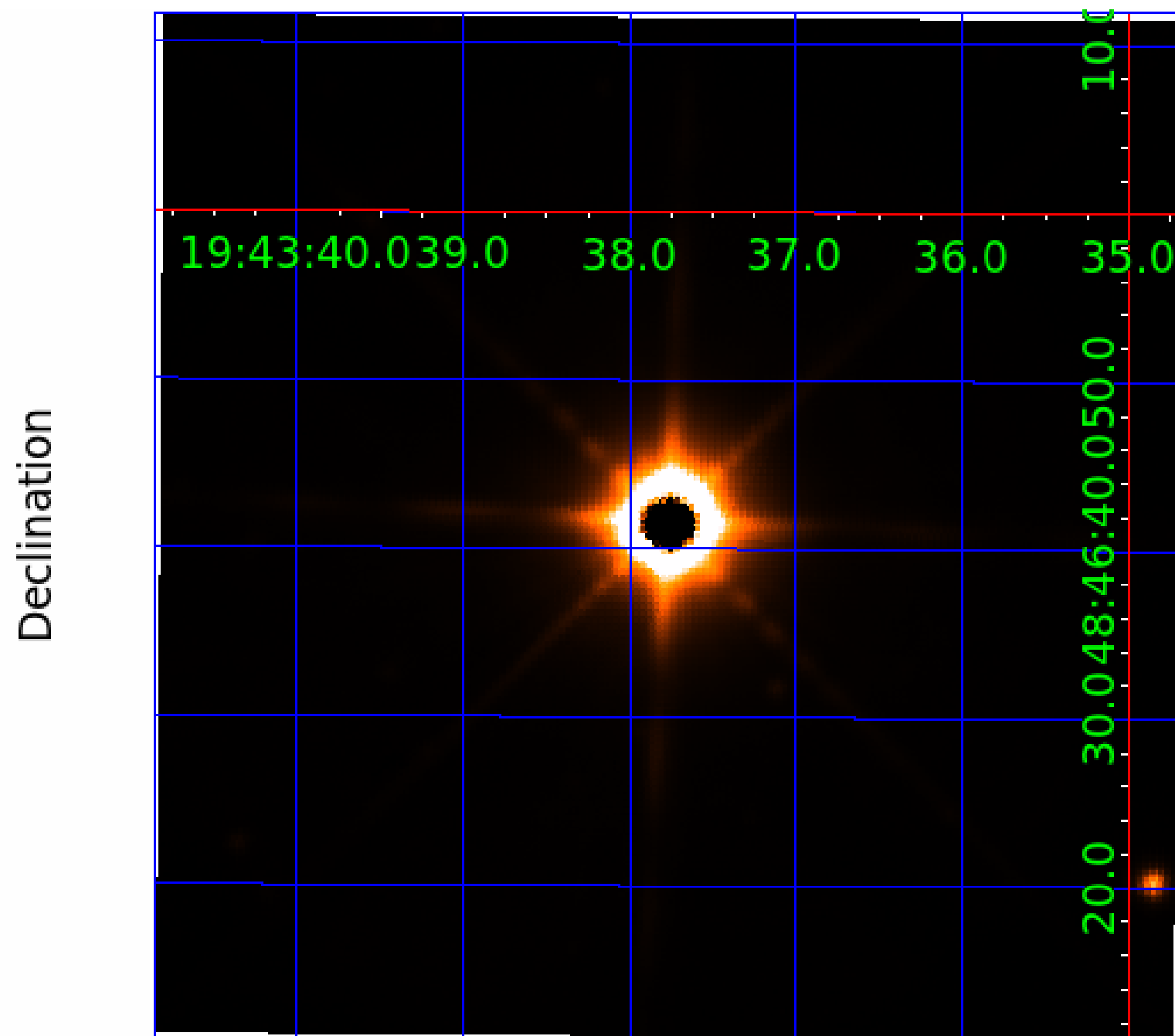
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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



UKIRT Image



KIC 011146627

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})
011146627-01	OBS	No	49.396212	167.734763	172.8	4.069	12.2	7.4	1.00	5780	1.49	14.40
011146627-02	OBS	No	49.316355	152.332874	484.6	1.500	90.9	-1.0	1.00	5780	2.19	14.43
011146627-03	OBS	No	76.594576	152.669532	84.9	3.000	15.1	-1.0	1.00	5780	0.91	8.02
011146627-04	OBS	No	96.050668	187.225513	567.6	4.378	12.2	7.8	1.00	5780	3.07	5.93
011146627-05	OBS	No	65.309861	180.667328	15.9	4.500	11.4	-1.0	1.00	5780	0.40	9.92

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
011146627-01	OBS	FP	0.00	1	0	0	0	LPP_DV—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—CENT_SATURATED
011146627-02	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_SATURATED
011146627-03	OBS	FP	0.00	1	0	0	0	LPP_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_SATURATED
011146627-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_SKYE_ZUMA—LPP_DV—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_SATURATED
011146627-05	OBS	FP	0.00	1	0	0	0	LPP_DV—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.

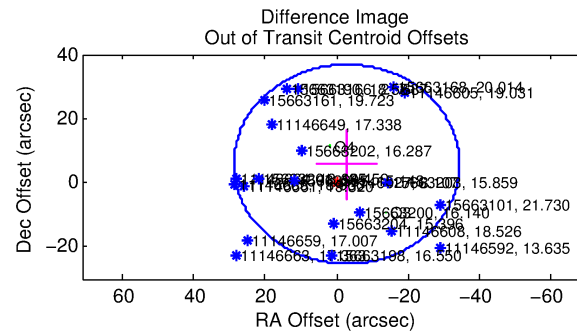
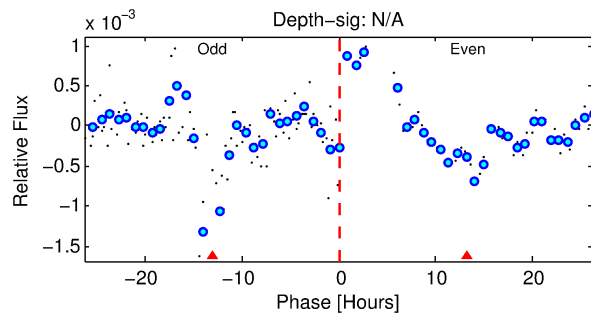
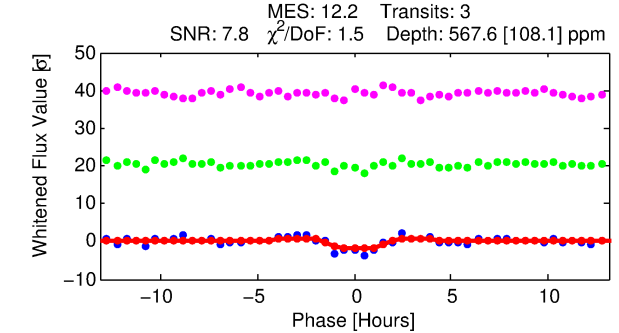
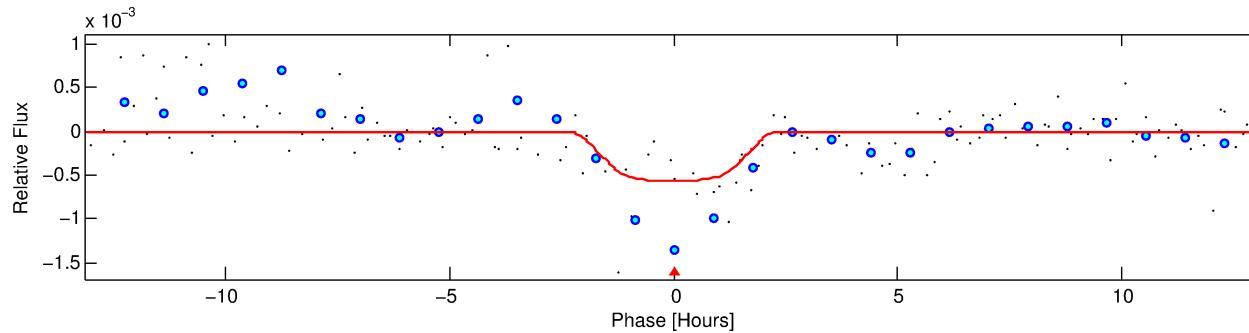
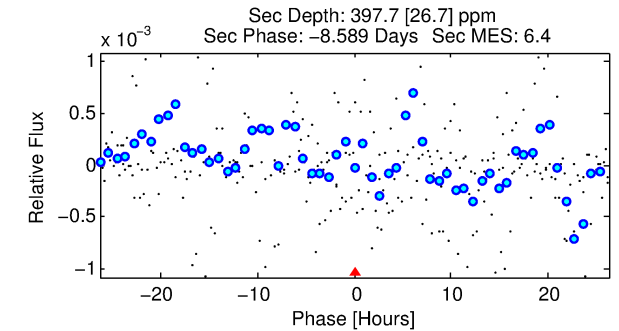
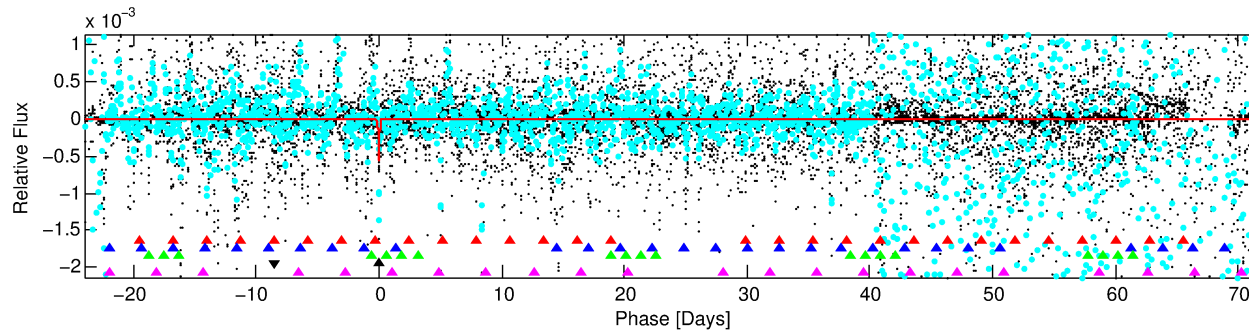
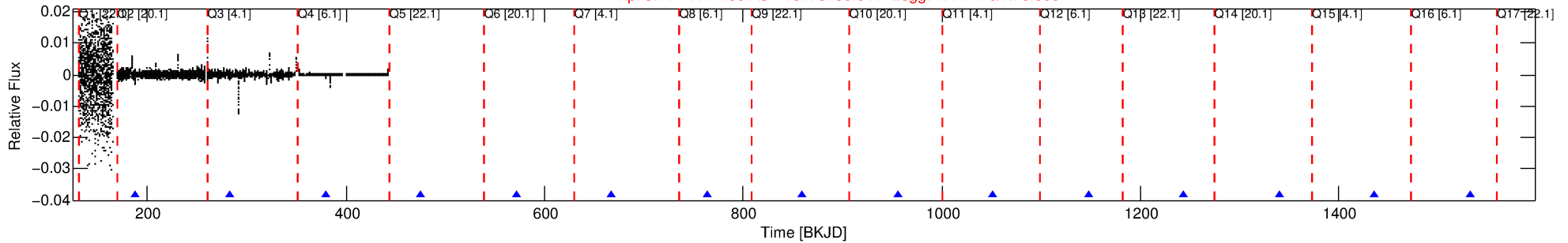
Ephemeris Match Information For 011146627-04

No Significant Match Found

DV One-Page Summary

KIC: 11146627 Candidate: 4 of 5 Period: 96.051 d

Kp: 8.11 R*: 1.00 Rs Teff: 5780.0 K Logg: 4.44 Fe/H: 0.000



DV Fit Results:

Period = 96.05067 [0.00964] d
Epoch = 187.2255 [0.0155] BKJD
Rp/R* = 0.0281 [0.0042]
a/R* = 63.49 [26.04]
b = 0.96 [0.04]
Seff = 5.93 [0.00]
Teq = 398 [0] K
Rp = 3.07 [0.46] Re
a = 0.4105 [0.0000] AU
Ag = 3918.96 [1195.74] [3.28σ]
Teffp = 4868 [371] K [12.04σ]

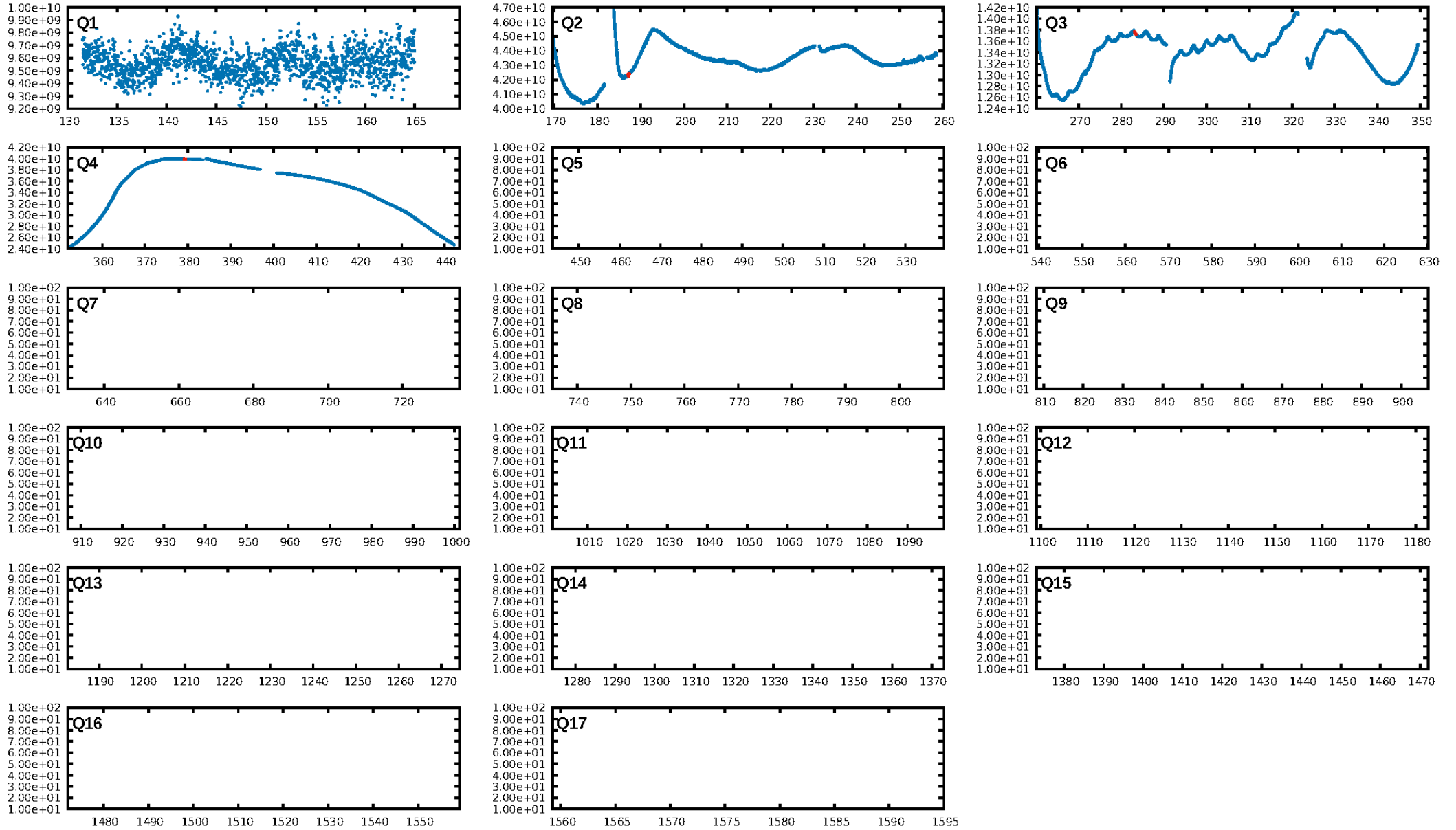
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [87.98σ]
LongPeriod-sig: N/A
ModelChiSquare2-sig: 0.0%
ModelChiSquareGof-sig: 36.2%
Bootstrap-pfa: N/A
RollingBand-fgt: 1.00 [3/3]
GhostDiagnostic-chr: N/A
Centroid-sig: N/A
Centroid-so: 2.133 arcsec [0.15σ]
OotOffset-rm: 6.423 arcsec [0.61σ]
OotOffset-st: 0/1/1/0 [2]
KicOffset-rm: 5.940 arcsec [0.56σ]
KicOffset-st: 0/1/1/0 [2]
DiffImageQuality-fgm: 0.00 [0/2]
DiffImageOverlap-fno: 1.00 [3/3]

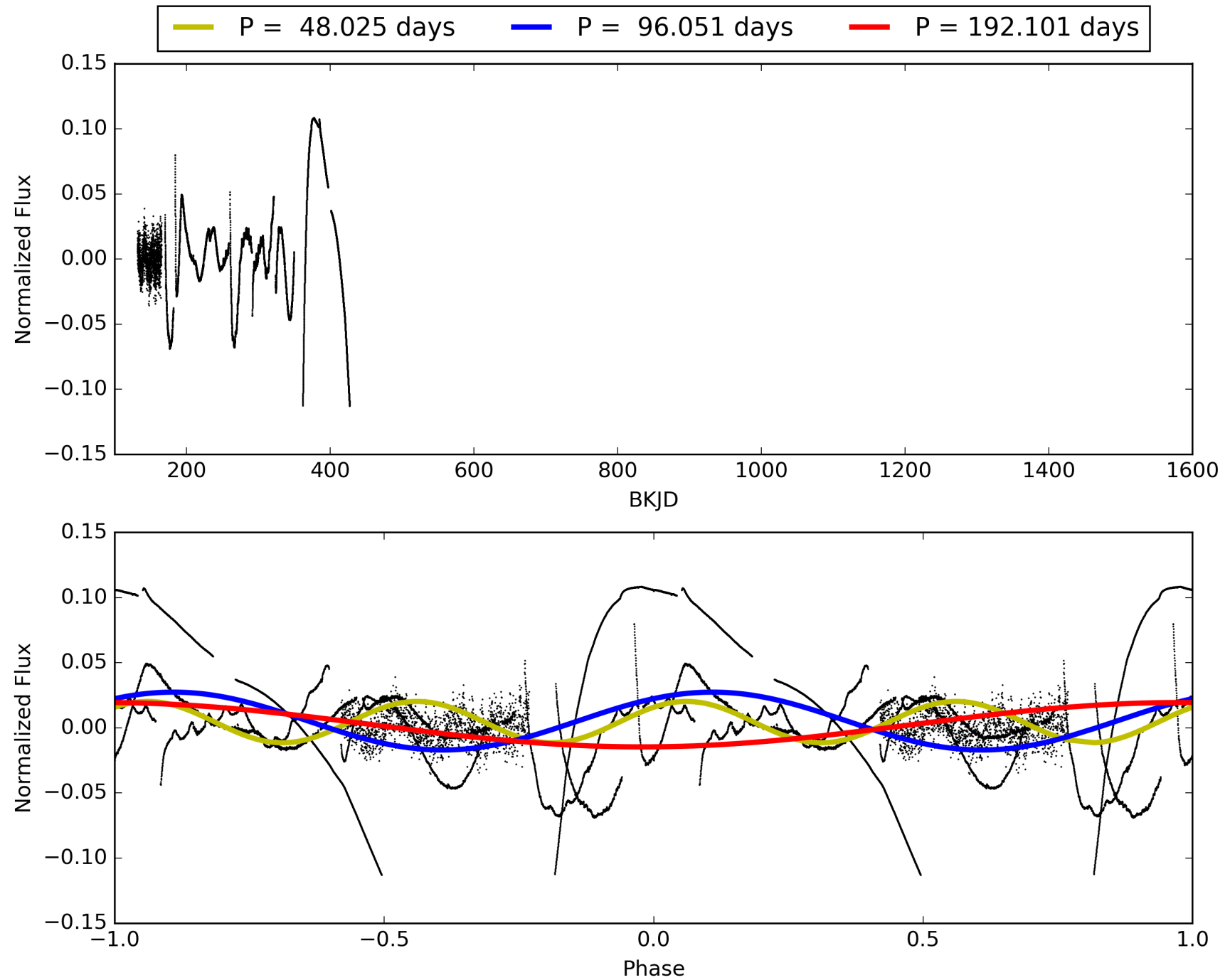
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 04:48:51 Z

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

TCE 011146627-04, PDC Light Curves

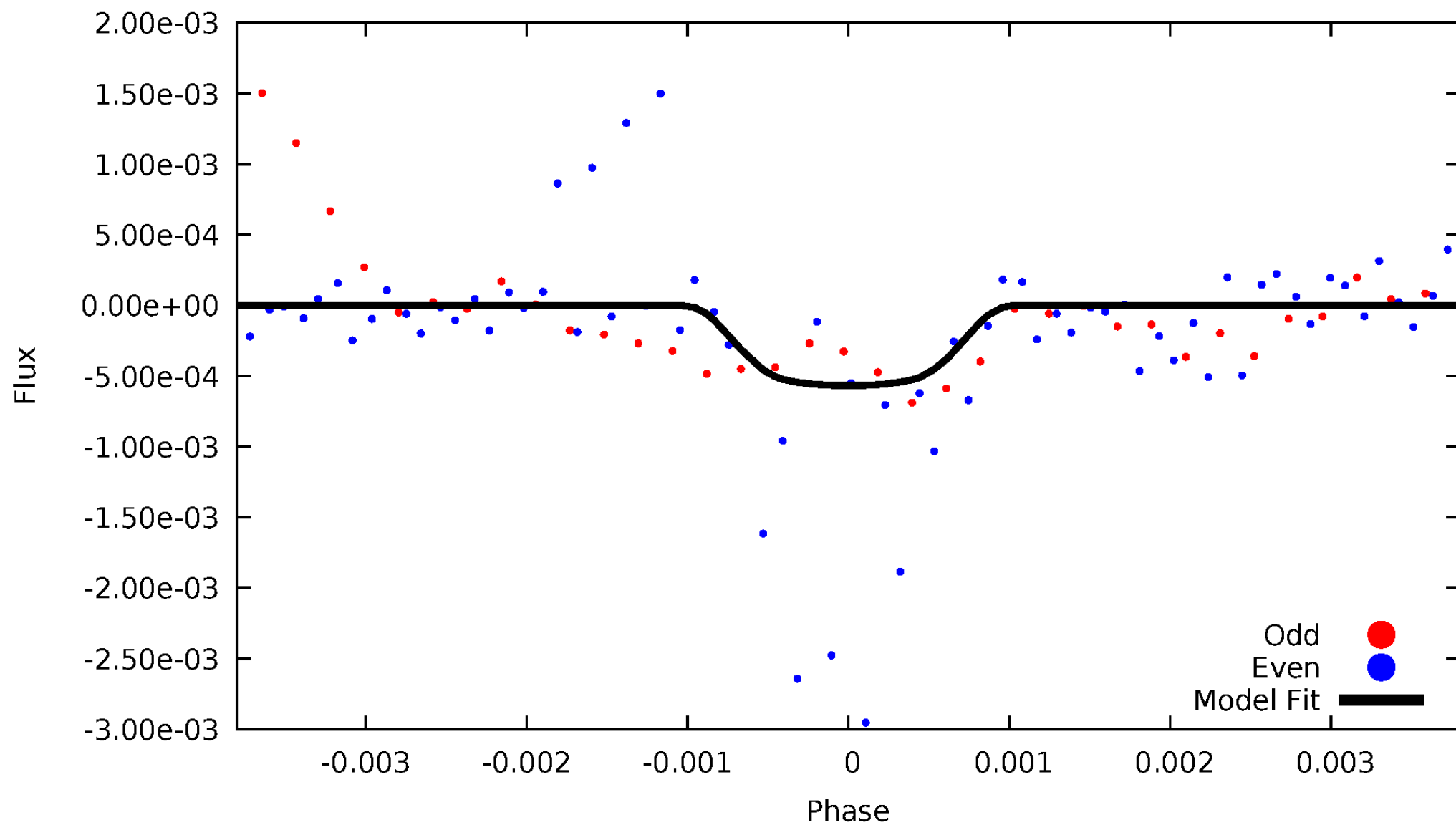


TCE 011146627-04



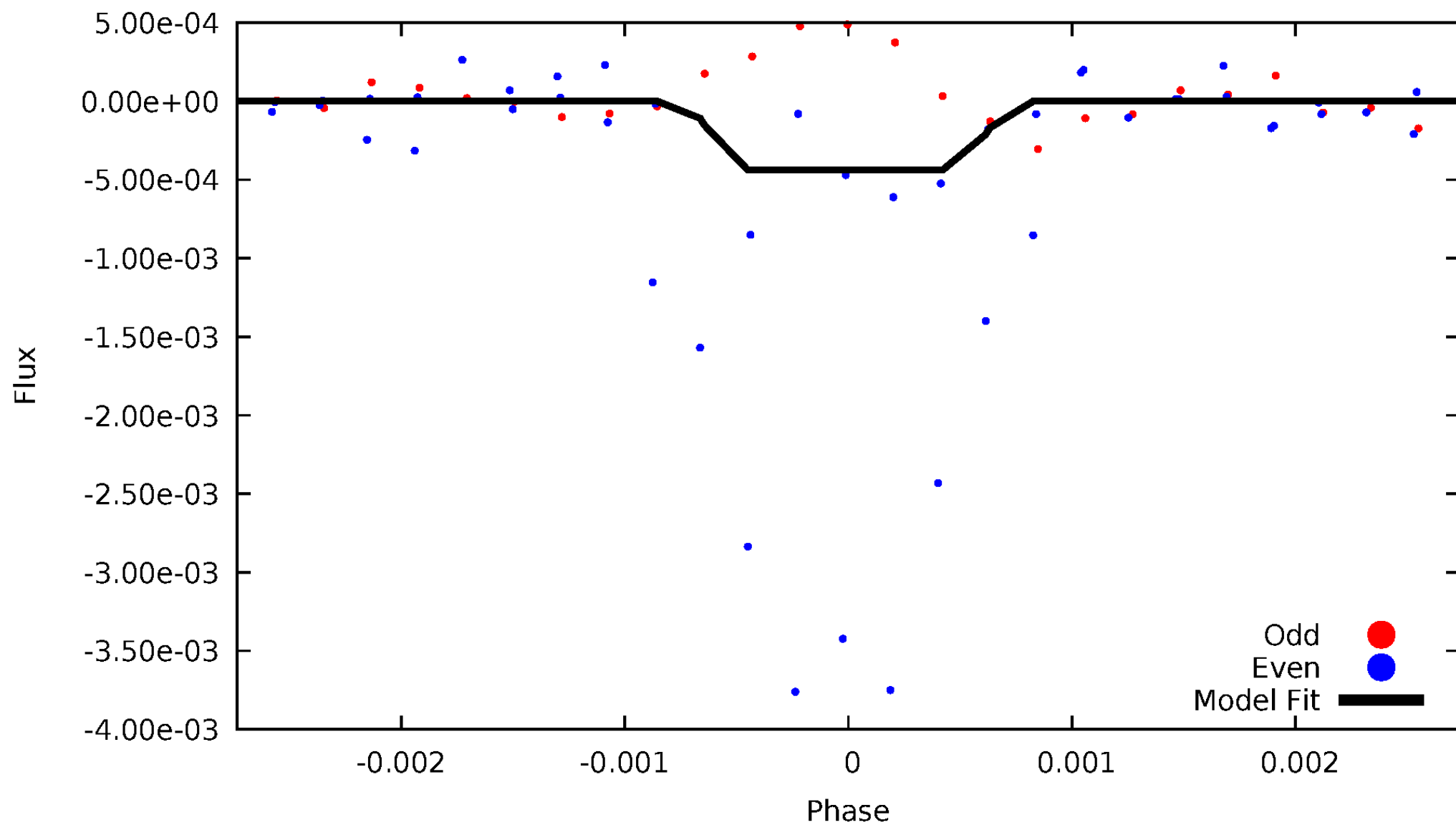
DV Odd/Even

TCE 011146627-04



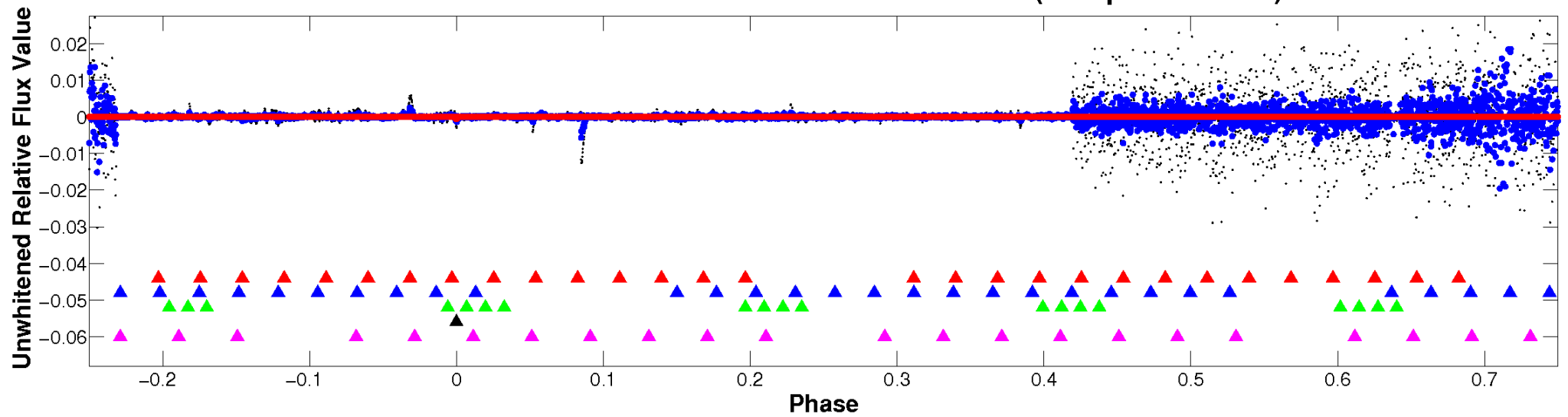
ALT Odd/Even

TCE 011146627-04

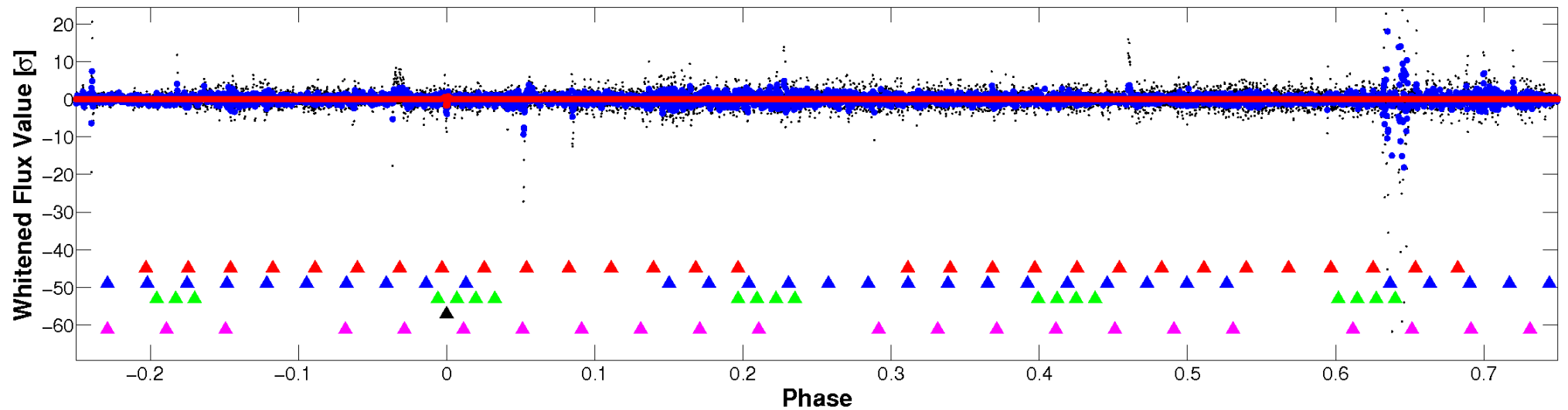


Non-Whitened Vs. Whitened Light Curve

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

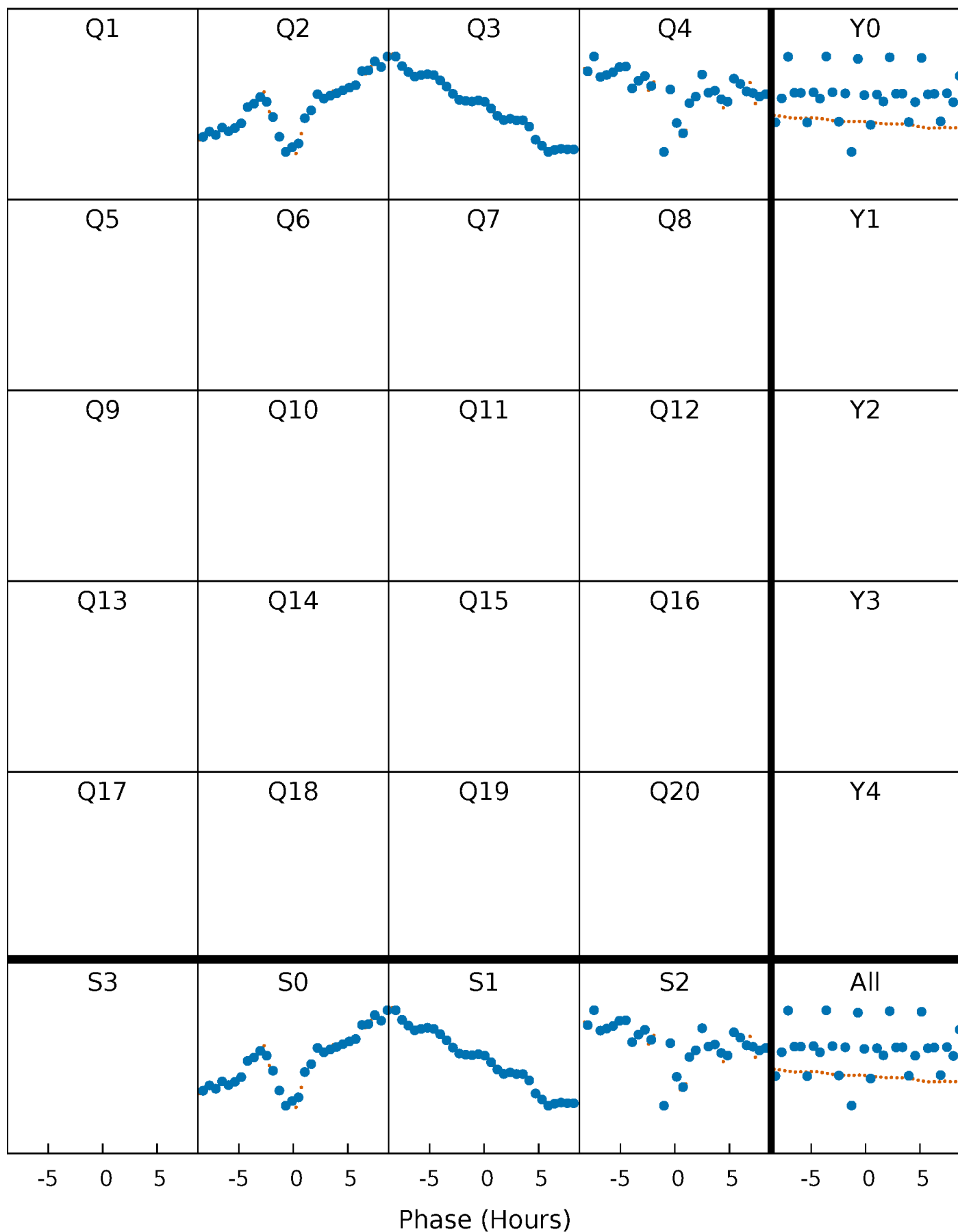


Planet 4 : Phased Whitened Flux Time Series (Fit Epoch/Period)



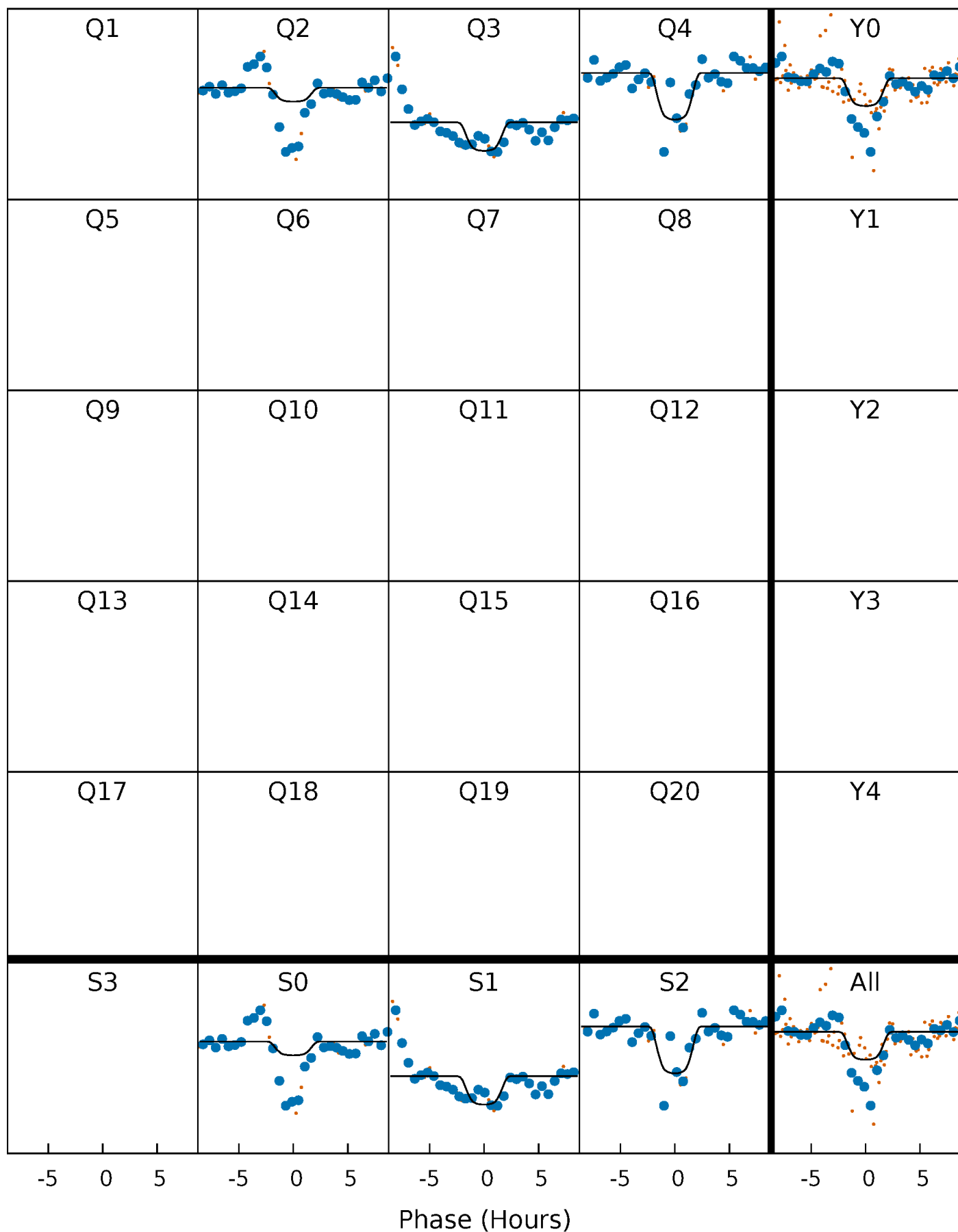
PDC Quarter-Phased Transit Curves

TCE 011146627-04 $P = 96.050668$ Days $T_0 = 187.225513$ (BKJD)



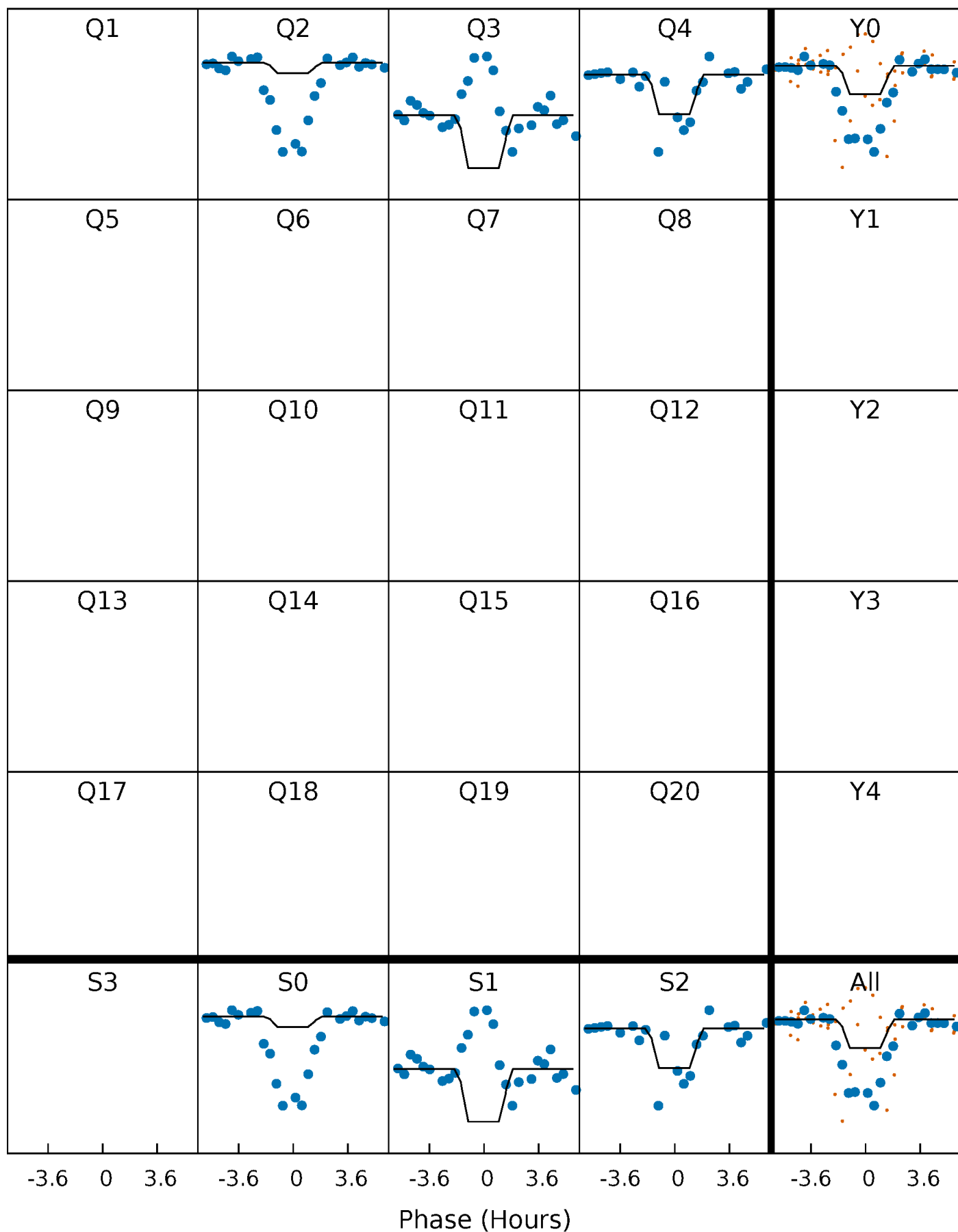
DV Quarter-Phased Transit Curves

TCE 011146627-04 $P = 96.050668$ Days $T_0 = 187.225513$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

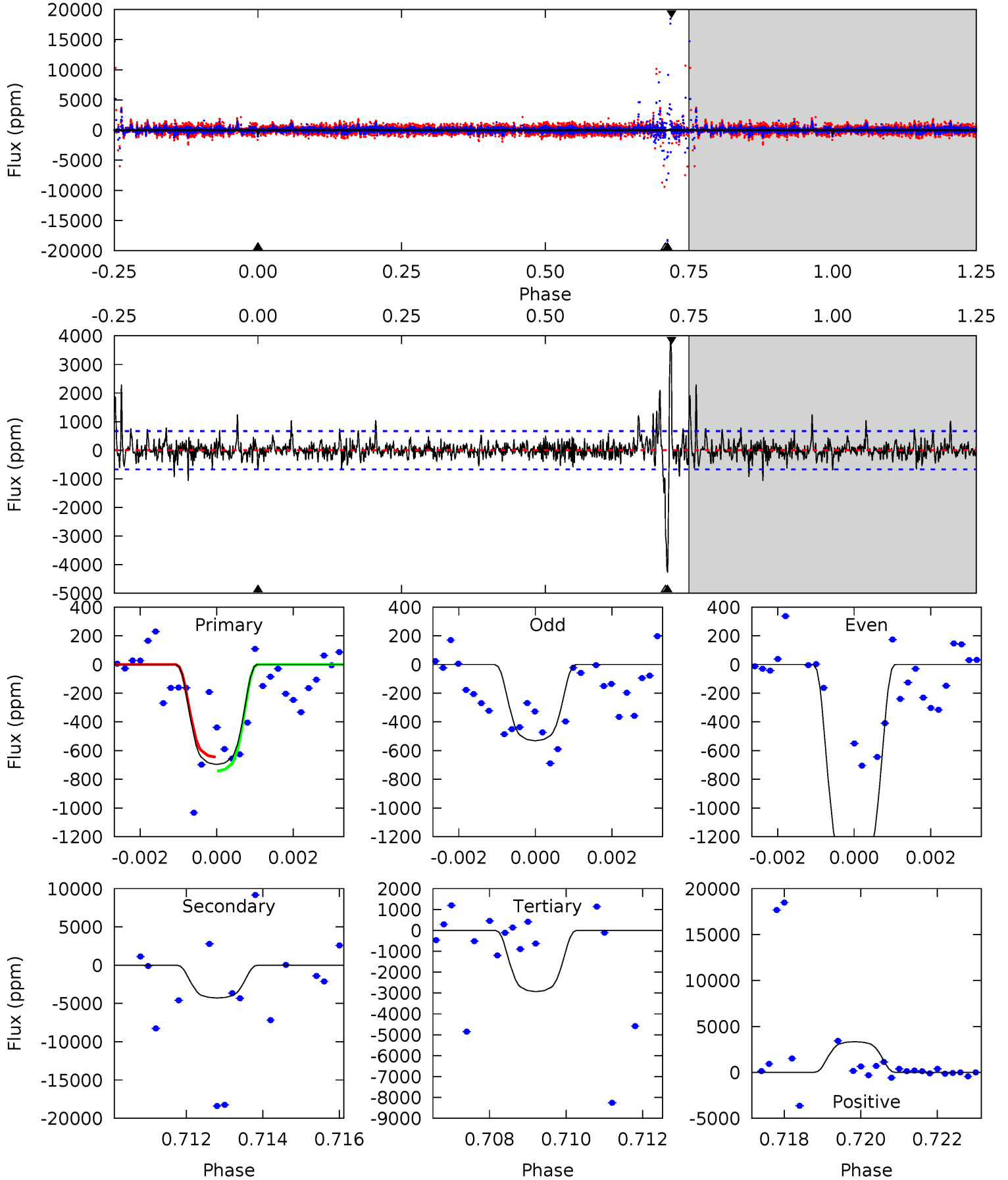
TCE 011146627-04 P= 96.055881 Days $T_0=187.217852$ (BKJD)



DV Model-Shift Uniqueness Test

011146627-04, P = 96.050668 Days, E = 91.174845 Days

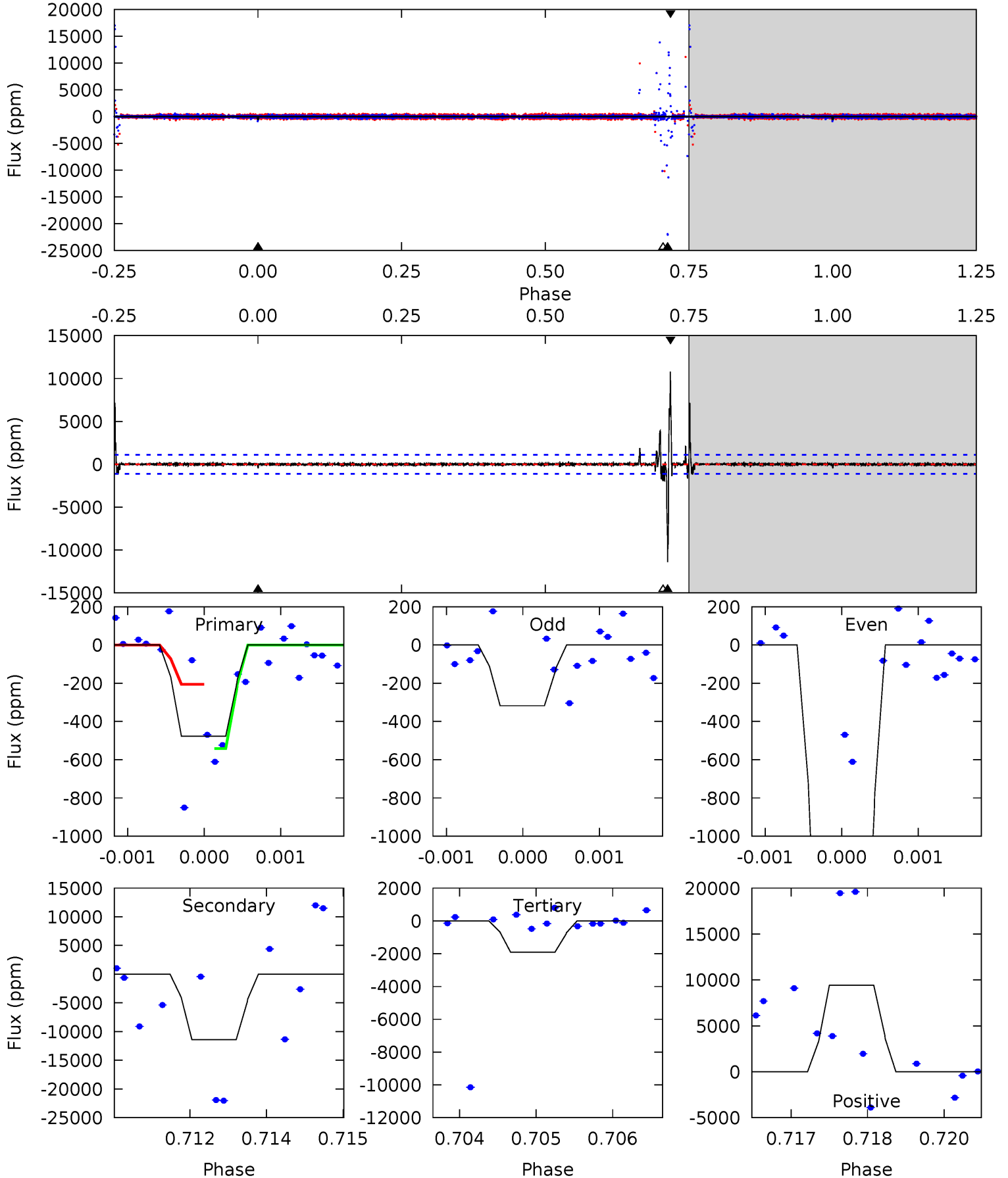
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
5.55	34.1	23.4	26.6	5.33	3.10	2.26	-17.8	-21.0	10.7	7.51	2.43	1.89	0.48	0.35



Alt Model-Shift Uniqueness Test

011146627-04, P = 96.055881 Days, E = 91.161971 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	55.3	9.26	45.8	5.38	3.18	1.62	-6.95	-43.4	46.0	9.51	3.49	2.28	0.49	0.86



Stellar Parameters For KIC 011146627

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	5780^{+1}_{-1}	$4.438^{+1.000}_{-1.000}$	$0.000^{+1.000}_{-1.000}$	$1.000^{+1.000}_{-1.000}$	$-1.000^{+1.000}_{-1.000}$	$-1.000^{+1.000}_{-1.000}$
	+0%/-0%	+23%/-23%	+inf%/-inf%	+100%/-100%	+100%/-100%	+100%/-100%
Source	Solar	Solar	Solar	Solar		

KIC = Kepler Input Catalog; PHO = Photometry; SPE = Spectroscopy; AST = Asteroseismology
 TRA = Transits; DESP = Dartmouth Models; MULT = Multiple Models

Secondary Eclipse Parameters for KIC 011146627-04 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	-4275 ± 125	$3.05^{+0.52}_{-0.50}$	555^{+25}_{-27}	9457^{+1238}_{-1040}	42797^{+18245}_{-10930}
Alt.	-11397 ± 206	$2.30^{+0.47}_{-0.51}$	558^{+26}_{-27}	18708^{+5679}_{-3475}	$204180^{+123598}_{-64267}$

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 $A_{obs} \gg 1.0$

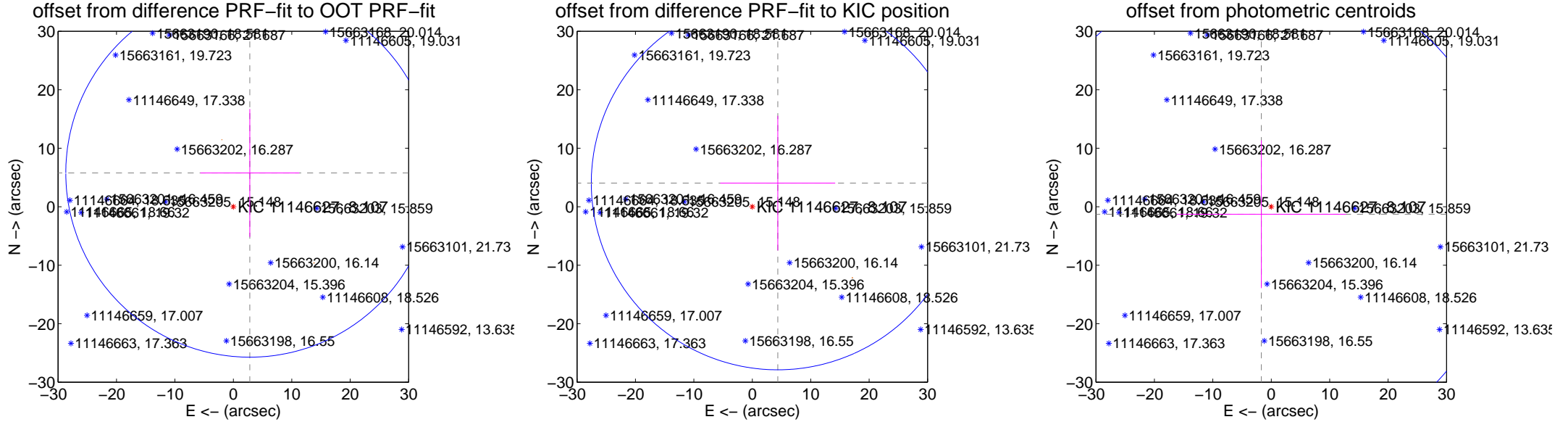
DV Centroid Data

Supplemental centroid analysis for 011146627-04. **Kepler magnitude: 8.11.** Transit SNR 7.84

There are 0 quarters with good PRF difference image offsets

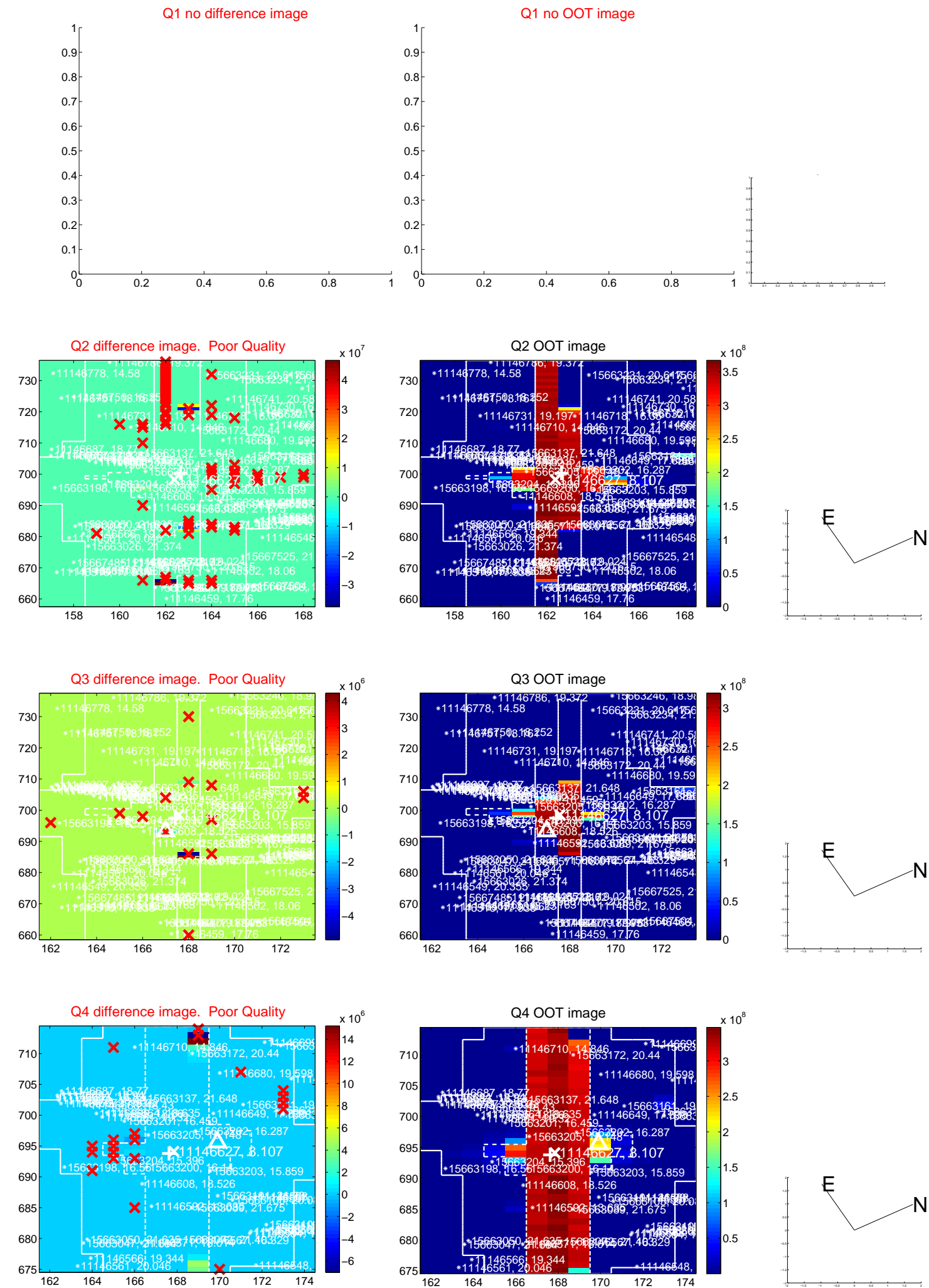
The direct PRF centroid is offset from the target star catalog position by about 1.63 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	6.423 ± 10.498	0.61	-2.817 ± 8.467	5.772 ± 10.926
PRF-fit source offset from KIC position	5.940 ± 10.638	0.56	-4.360 ± 9.837	4.034 ± 11.504
photometric centroid source offset	2.13 ± 13.84	0.15	1.70 ± 14.50	-1.29 ± 12.63



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.



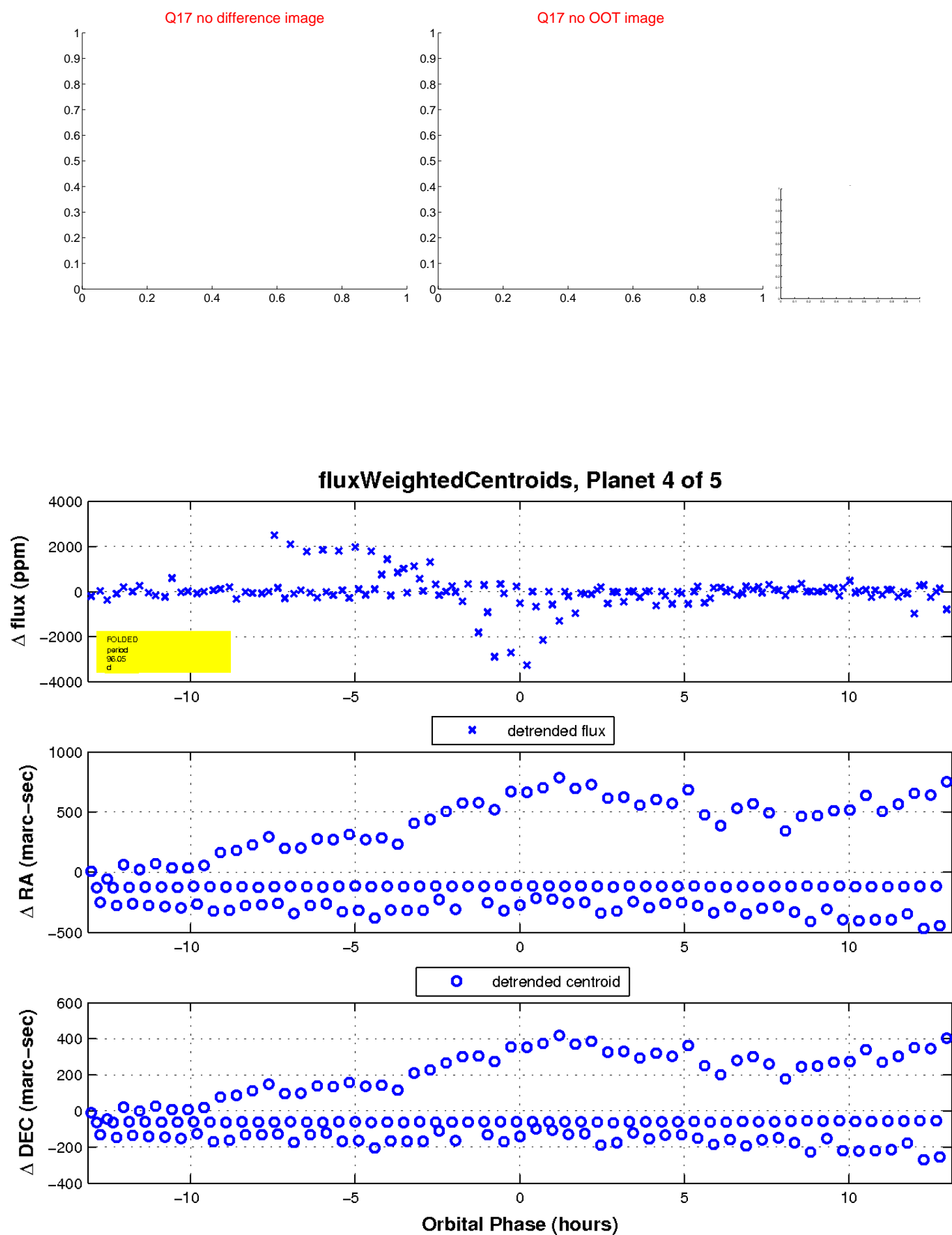
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



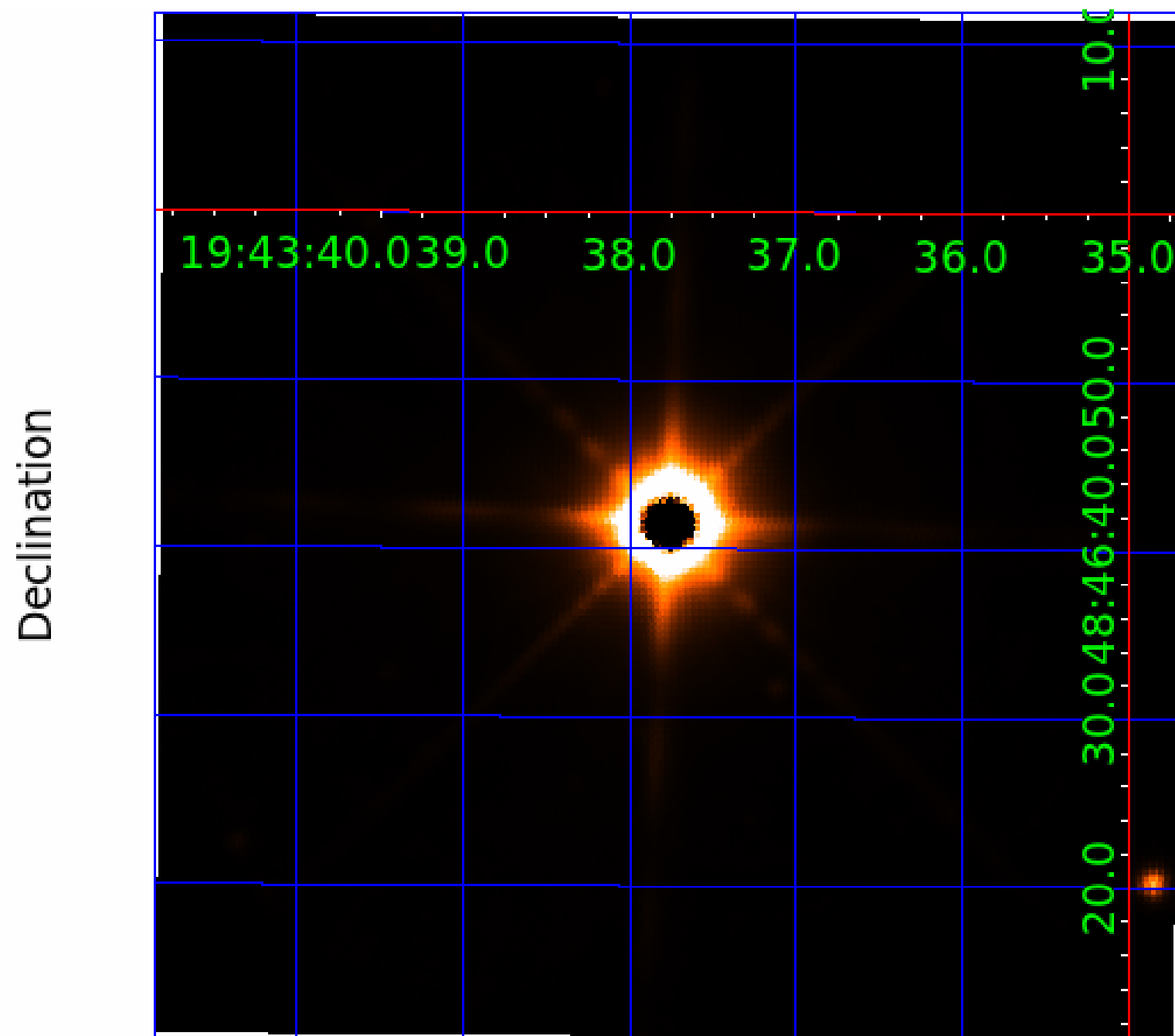
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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



UKIRT Image



KIC 011146627

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})
011146627-01	OBS	No	49.396212	167.734763	172.8	4.069	12.2	7.4	1.00	5780	1.49	14.40
011146627-02	OBS	No	49.316355	152.332874	484.6	1.500	90.9	-1.0	1.00	5780	2.19	14.43
011146627-03	OBS	No	76.594576	152.669532	84.9	3.000	15.1	-1.0	1.00	5780	0.91	8.02
011146627-04	OBS	No	96.050668	187.225513	567.6	4.378	12.2	7.8	1.00	5780	3.07	5.93
011146627-05	OBS	No	65.309861	180.667328	15.9	4.500	11.4	-1.0	1.00	5780	0.40	9.92

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
011146627-01	OBS	FP	0.00	1	0	0	0	LPP_DV—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—CENT_SATURATED
011146627-02	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_SATURATED
011146627-03	OBS	FP	0.00	1	0	0	0	LPP_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_SATURATED
011146627-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_SKYE_ZUMA—LPP_DV—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_SATURATED
011146627-05	OBS	FP	0.00	1	0	0	0	LPP_DV—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.

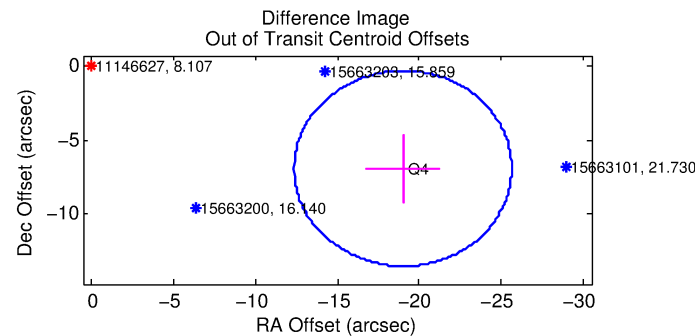
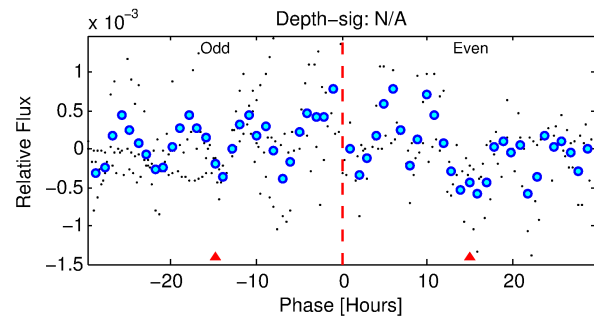
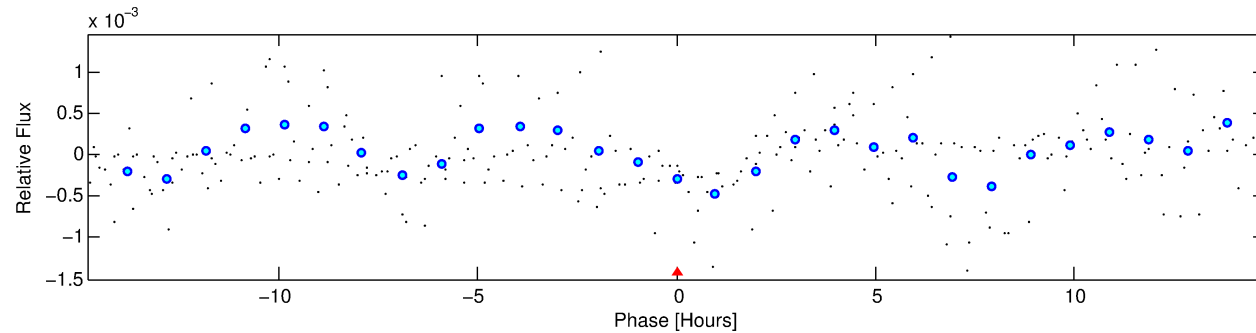
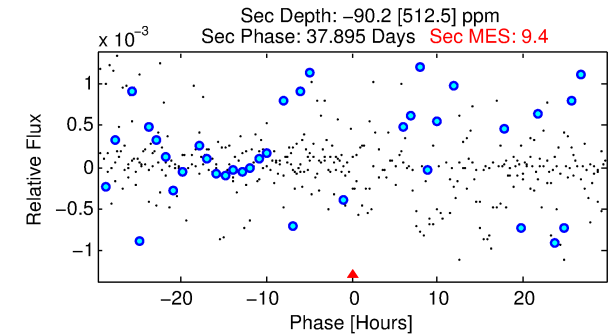
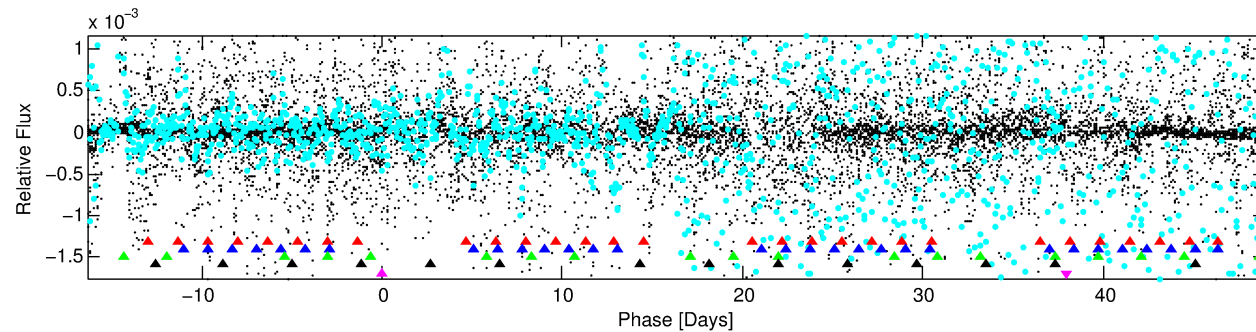
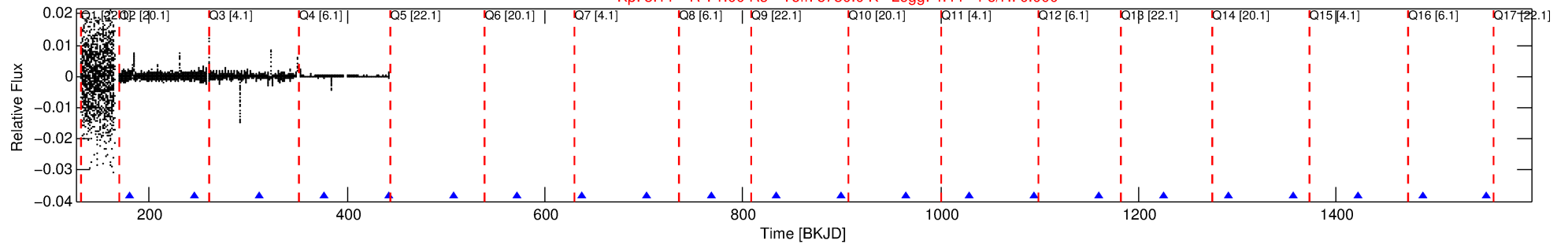
Ephemeris Match Information For 011146627-05

No Significant Match Found

DV One-Page Summary

KIC: 11146627 Candidate: 5 of 5 Period: 65.310 d

Kp: 8.11 R*: 1.00 Rs Teff: 5780.0 K Logg: 4.44 Fe/H: 0.000



TPS TCE Results:

Period = 65.30986 d
Epoch = 180.6673 BKJD

DV fit results are unavailable

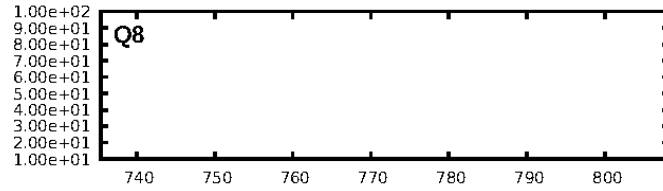
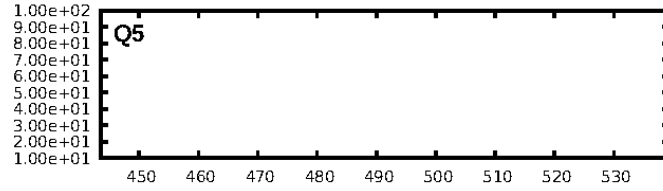
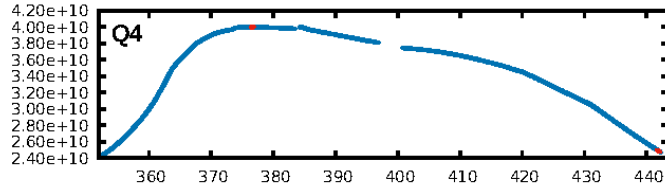
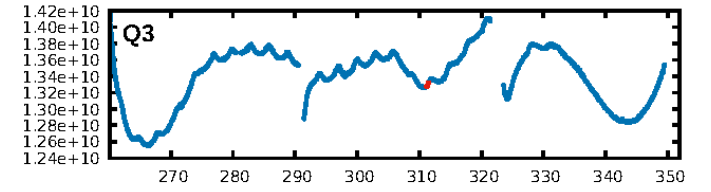
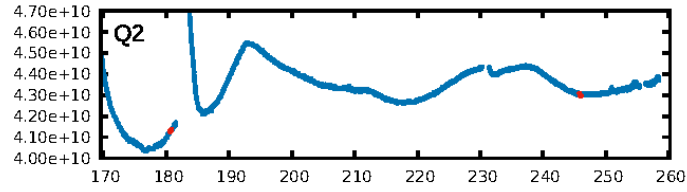
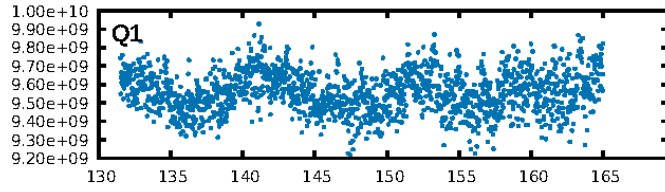
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [62.95σ]
LongPeriod-sig: 100.0% [50.08σ]
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: N/A
RollingBand-fgt: 1.00 [5/5]
GhostDiagnostic-chr: N/A
Centroid-sig: N/A
Centroid-so: 6.746 arcsec [0.28σ]
OotOffset-rm: 20.217 arcsec [9.15σ]
KicOffset-rm: 21.493 arcsec [9.72σ]
OotOffset-st: 0/0/1/0 [1]
KicOffset-st: 0/0/1/0 [1]
DiffImageQuality-fgm: 0.00 [0/1]
DiffImageOverlap-fno: 1.00 [3/3]

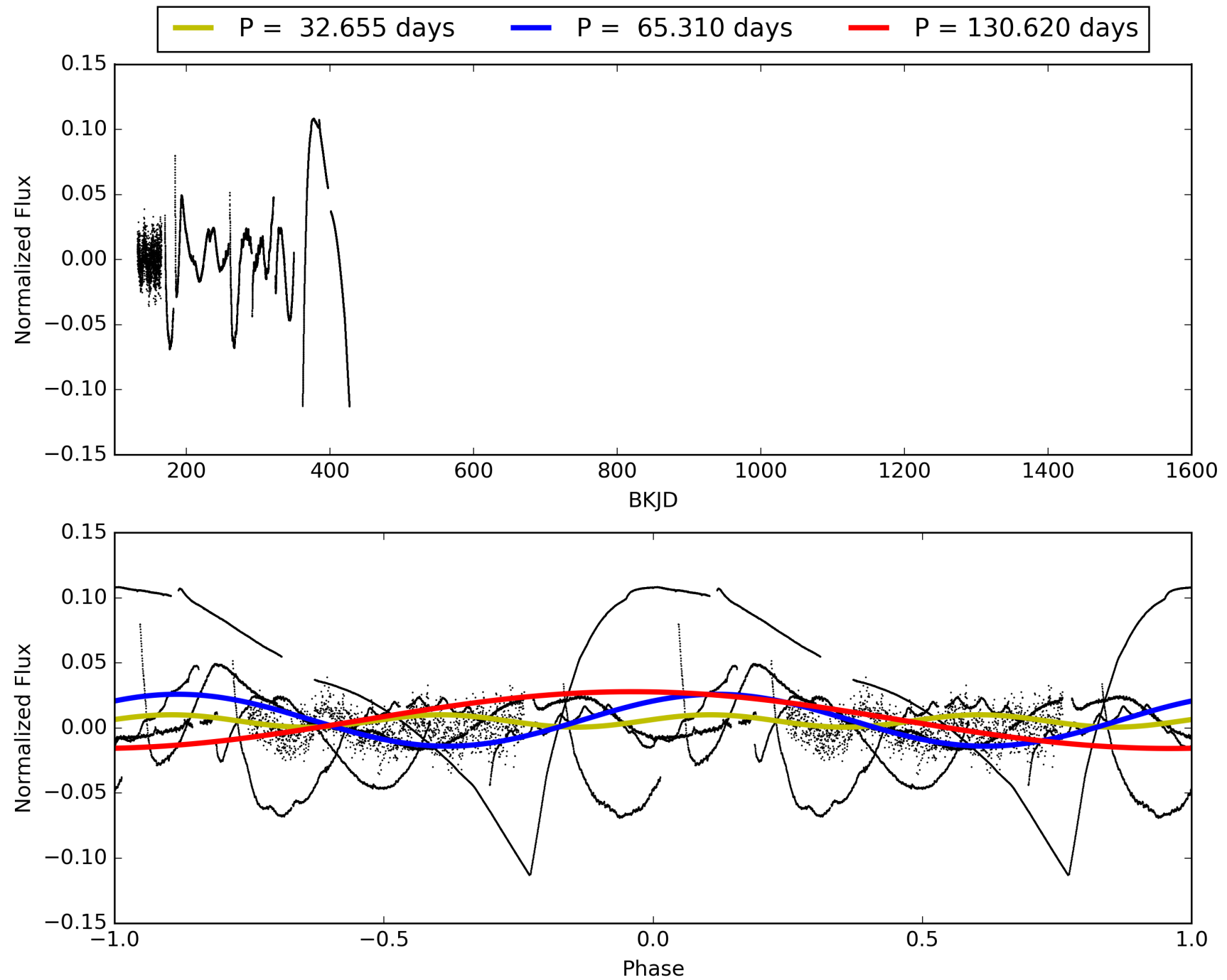
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 04:48:54 Z

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

TCE 011146627-05, PDC Light Curves

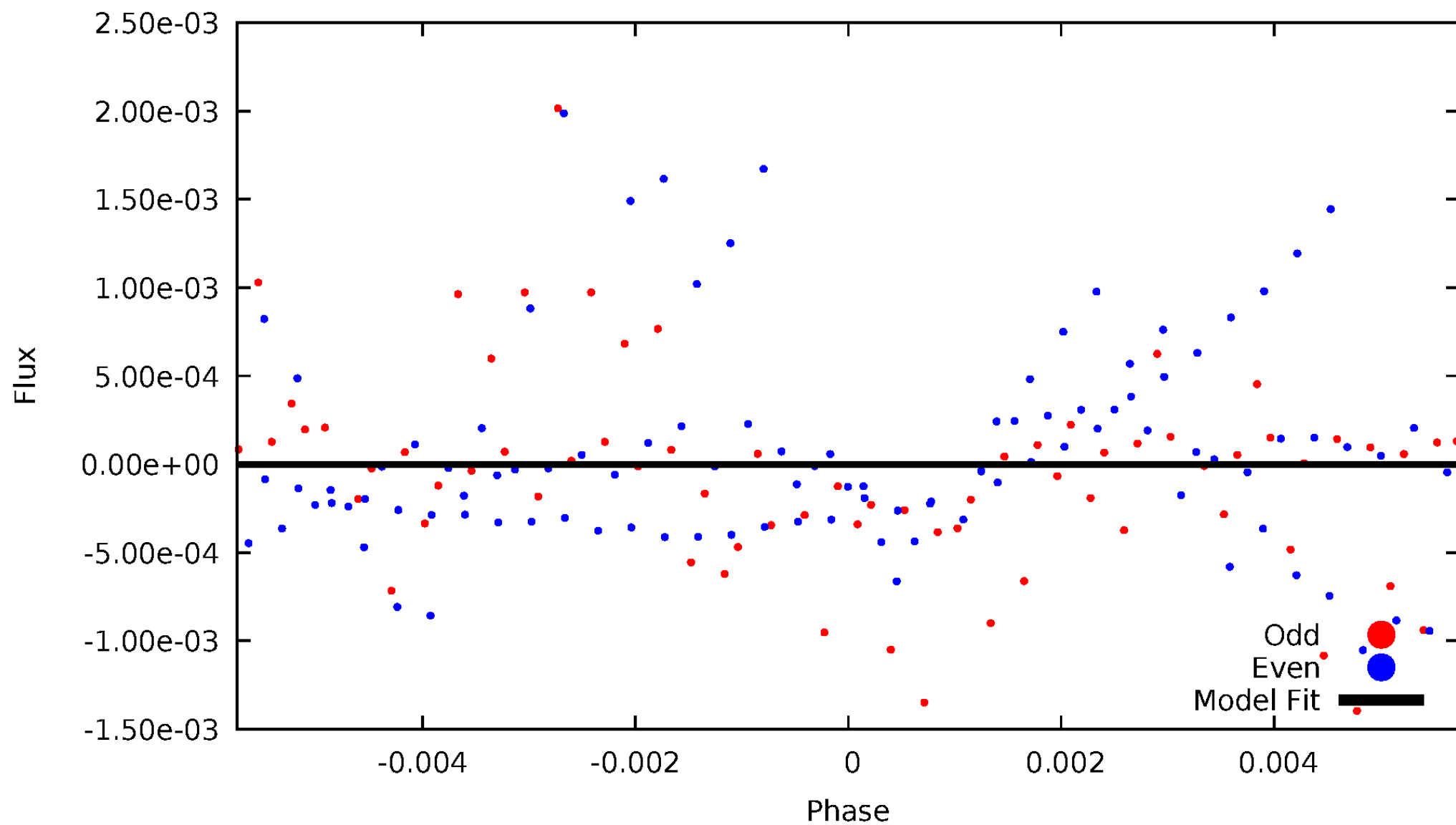


TCE 011146627-05



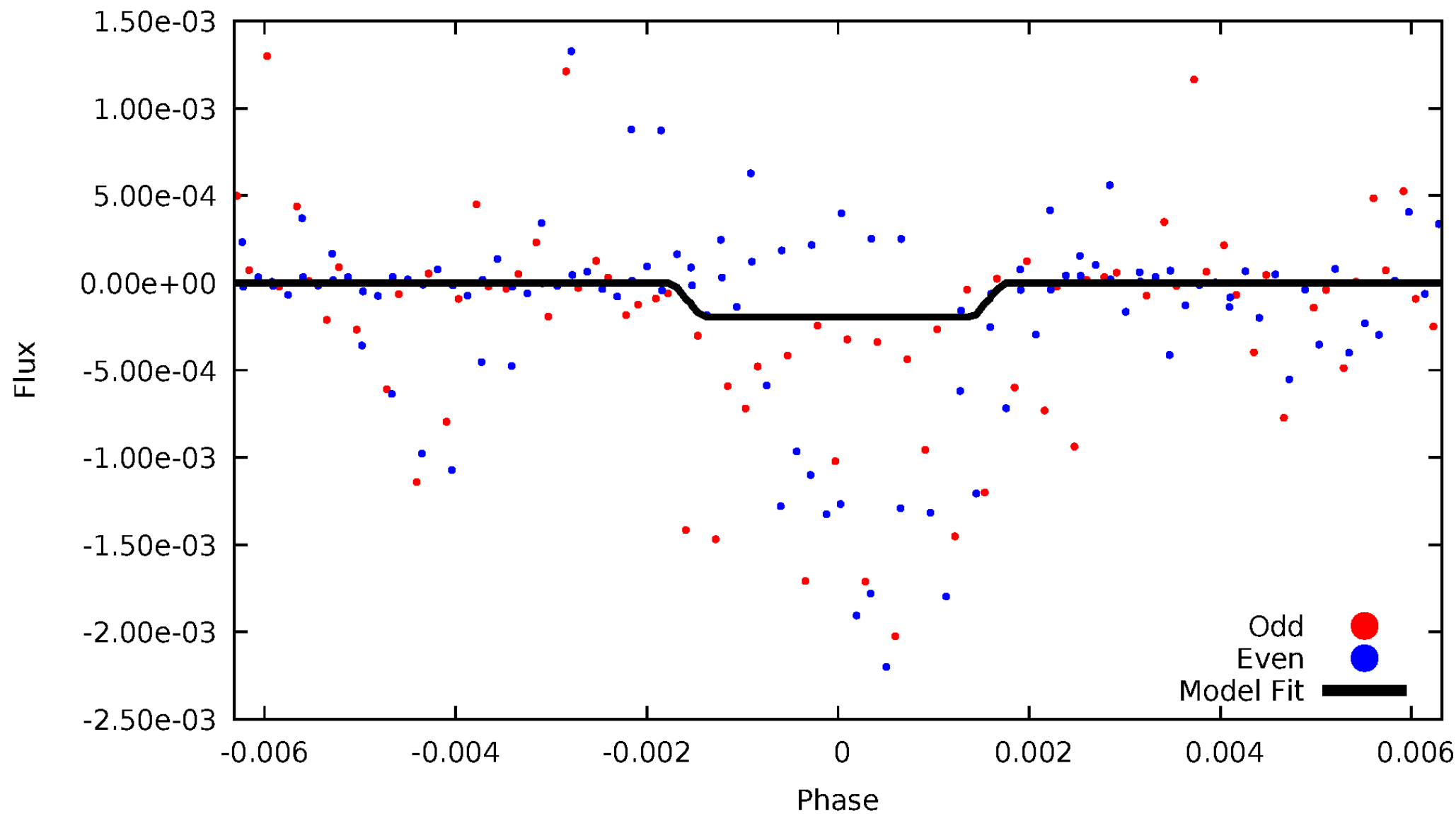
DV Odd/Even

TCE 011146627-05



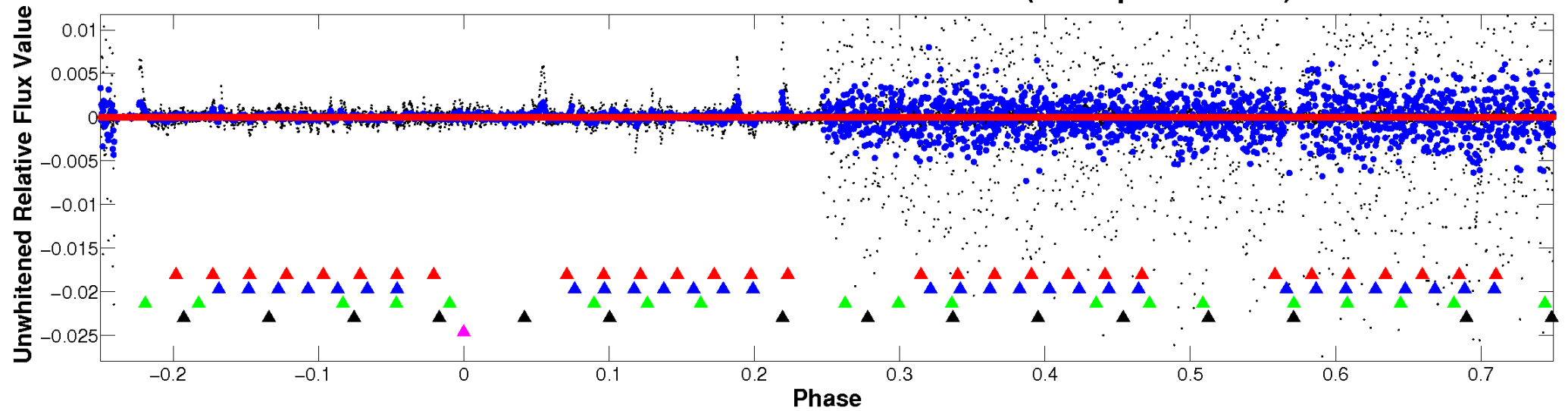
ALT Odd/Even

TCE 011146627-05

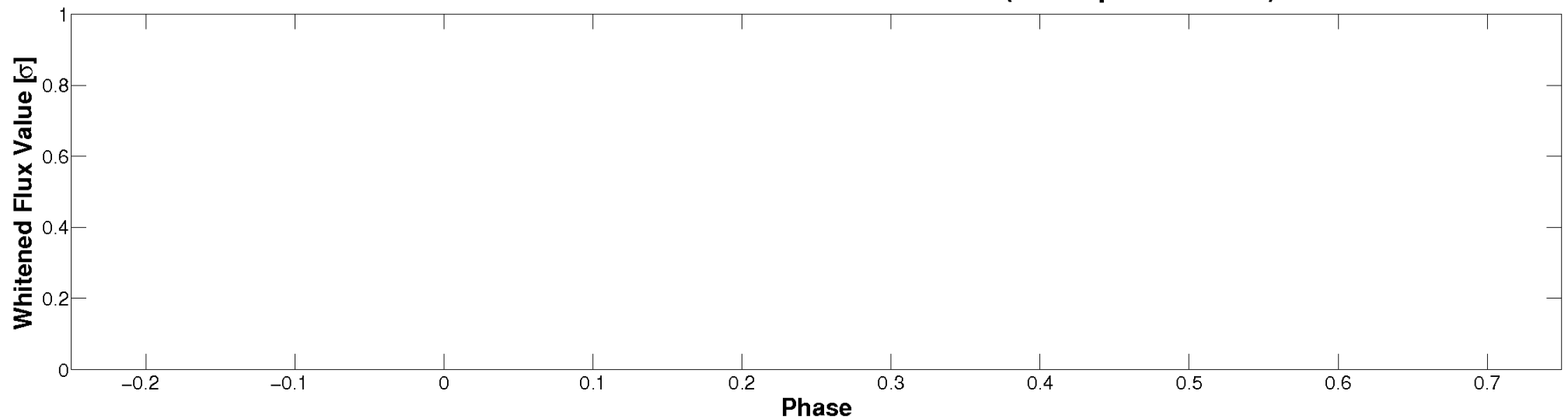


Non-Whitened Vs. Whitened Light Curve

Planet 5 : Phased Unwhitened Flux Time Series (TPS Epoch/Period)

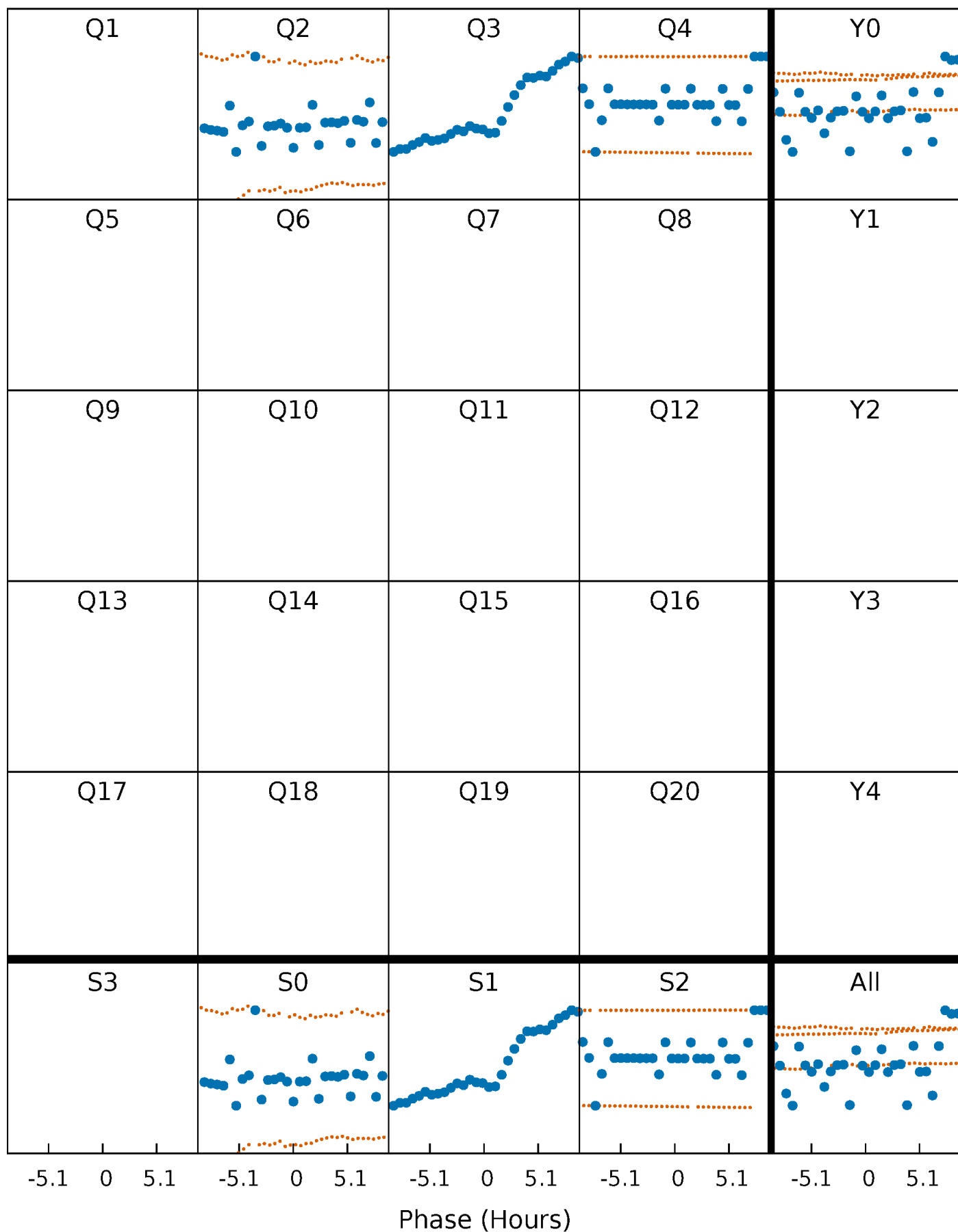


Planet 5 : Phased Whitened Flux Time Series (TPS Epoch/Period)



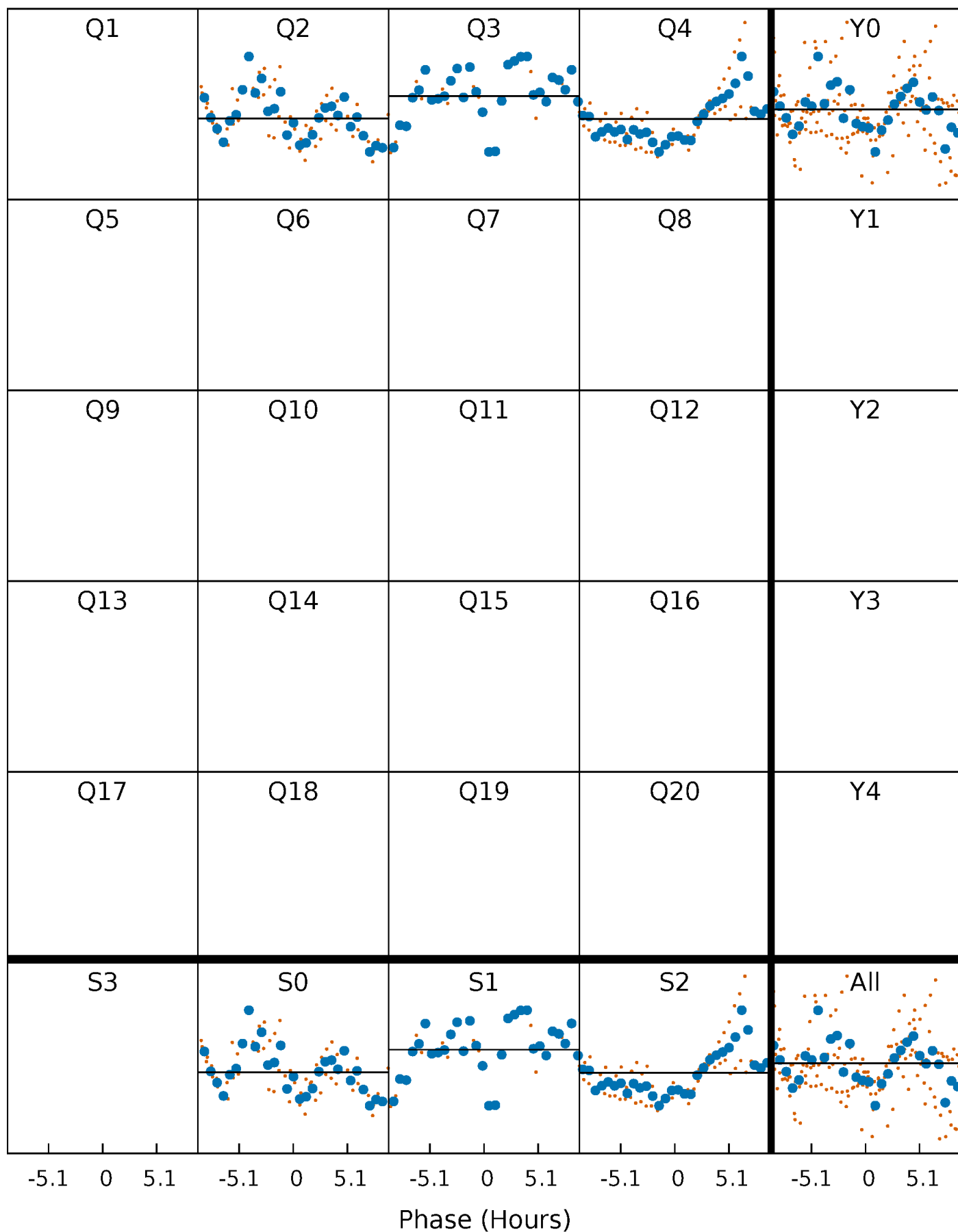
PDC Quarter-Phased Transit Curves

TCE 011146627-05 $P = 65.309861$ Days $T_0 = 180.667328$ (BKJD)



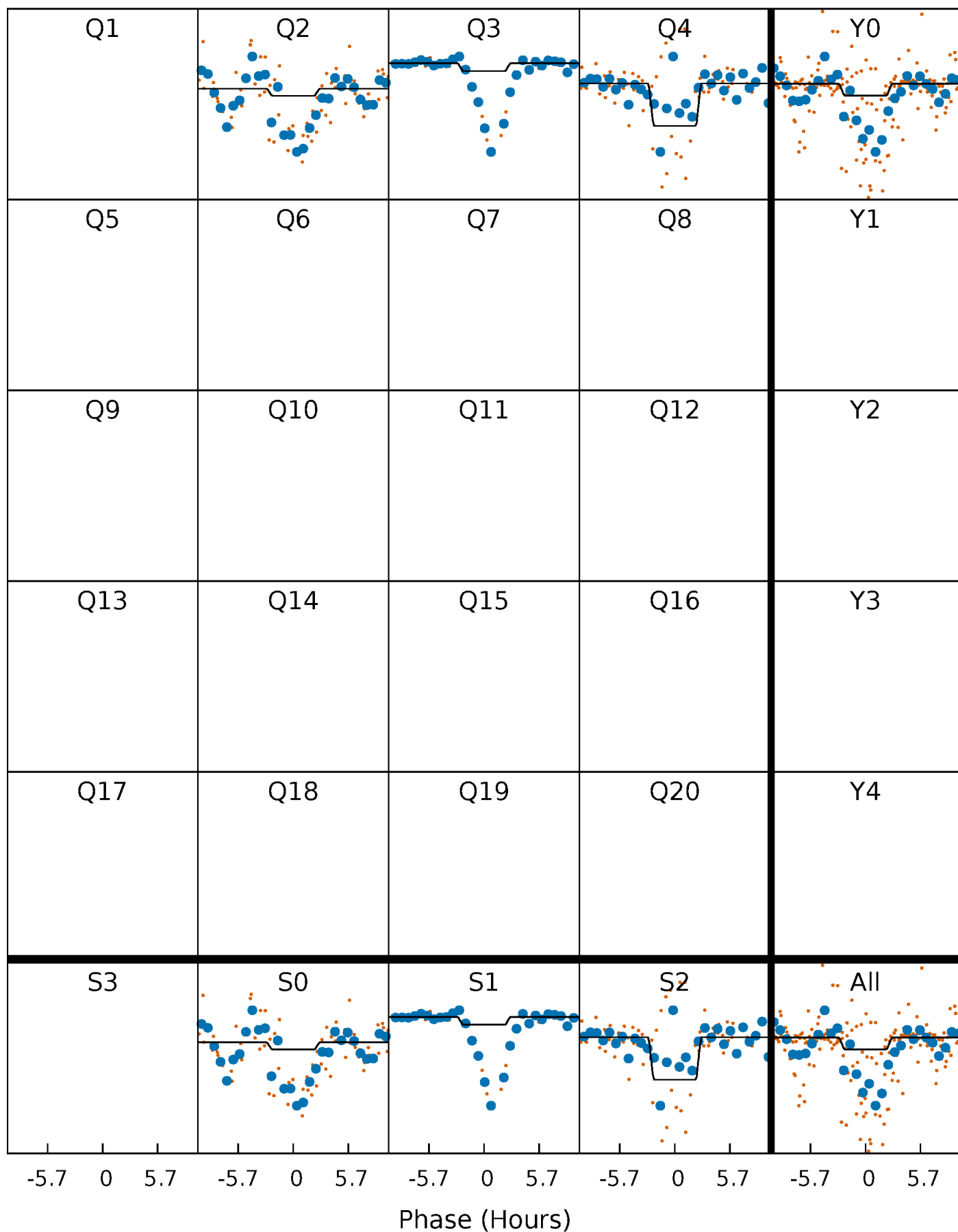
DV Quarter-Phased Transit Curves

TCE 011146627-05 $P = 65.309861$ Days $T_0 = 180.667328$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

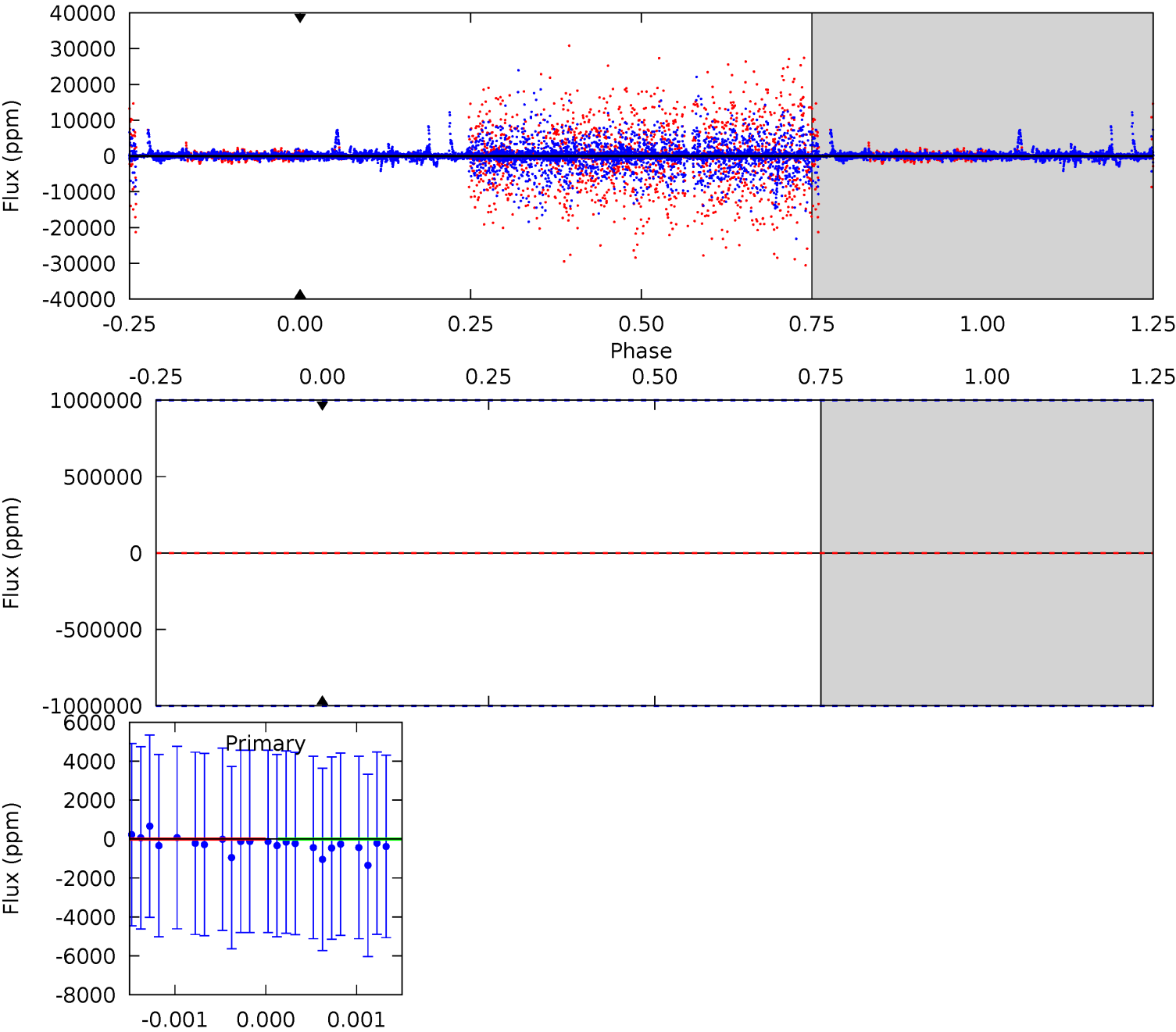
TCE 011146627-05 $P = 65.309861$ Days $T_0 = 180.674915$ (BKJD)



DV Model-Shift Uniqueness Test

011146627-05, P = 65.309861 Days, E = 115.357467 Days

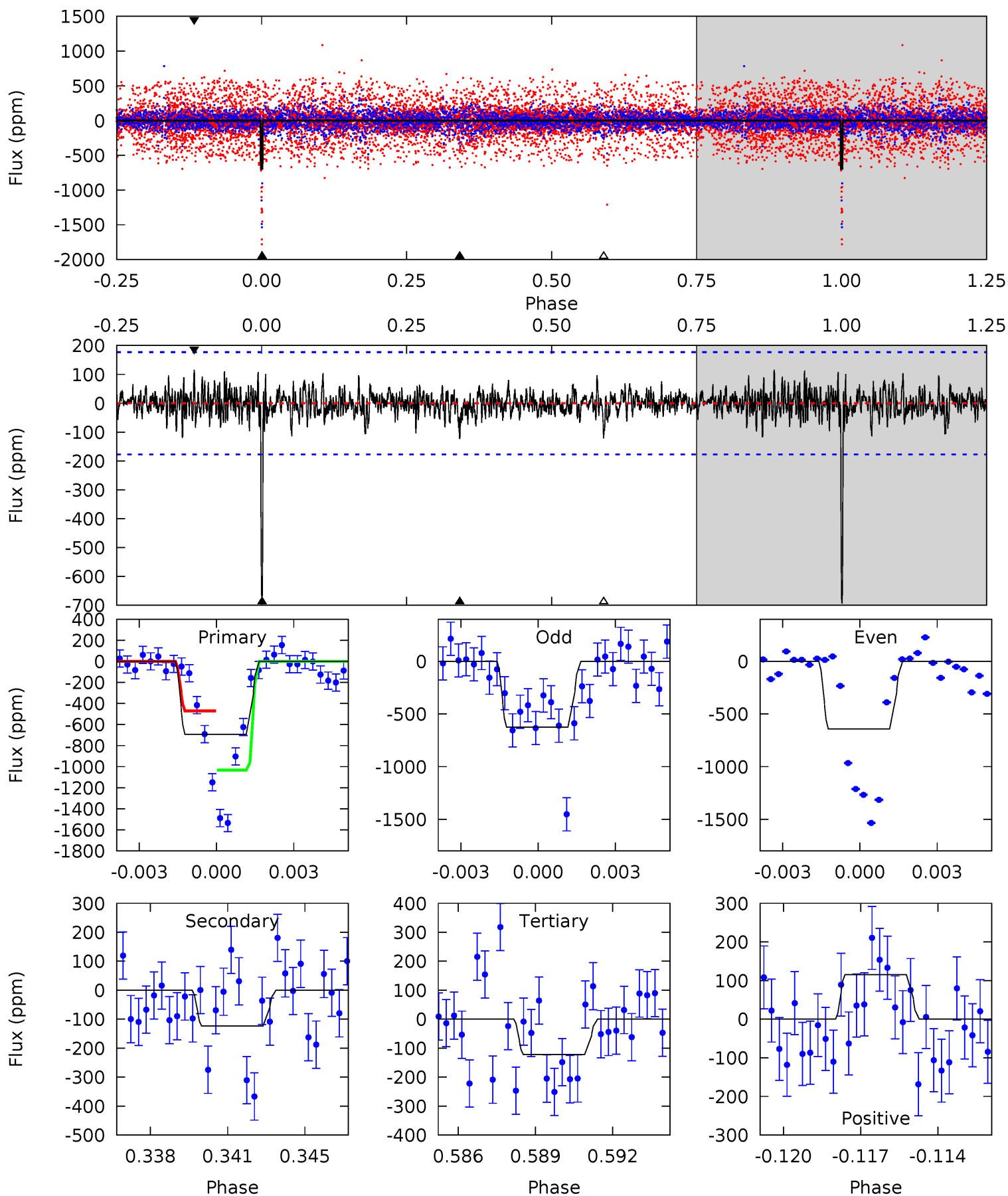
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
0	0	0	0	1.00	1.00	1.00	0	0	0	0	0	0	0	0



Alt Model-Shift Uniqueness Test

011146627-05, P = 65.309861 Days, E = 115.365054 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
20.5	3.65	3.59	3.40	5.23	2.93	0.95	16.9	17.1	0.06	0.25	0.13	0.88	0.14	8.74



Stellar Parameters For KIC 011146627

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	5780^{+1}_{-1}	$4.438^{+1.000}_{-1.000}$	$0.000^{+1.000}_{-1.000}$	$1.000^{+1.000}_{-1.000}$	$-1.000^{+1.000}_{-1.000}$	$-1.000^{+1.000}_{-1.000}$
	+0%/-0%	+23%/-23%	+inf%/-inf%	+100%/-100%	+100%/-100%	+100%/-100%
Source	Solar	Solar	Solar	Solar		

KIC = Kepler Input Catalog; PHO = Photometry; SPE = Spectroscopy; AST = Asteroseismology
 TRA = Transits; DESP = Dartmouth Models; MULT = Multiple Models

Secondary Eclipse Parameters for KIC 011146627-05 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	0 ± 1000000	$6.86^{+8.27}_{-4.91}$	632^{+31}_{-30}	-4585^{+34295}_{-19001}	$-1726.085^{+260209.051}_{-167723.898}$
Alt.	-124 ± 34	$8.07^{+8.49}_{-5.77}$	633^{+30}_{-28}	2954^{+1431}_{-530}	107^{+1144}_{-83}

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

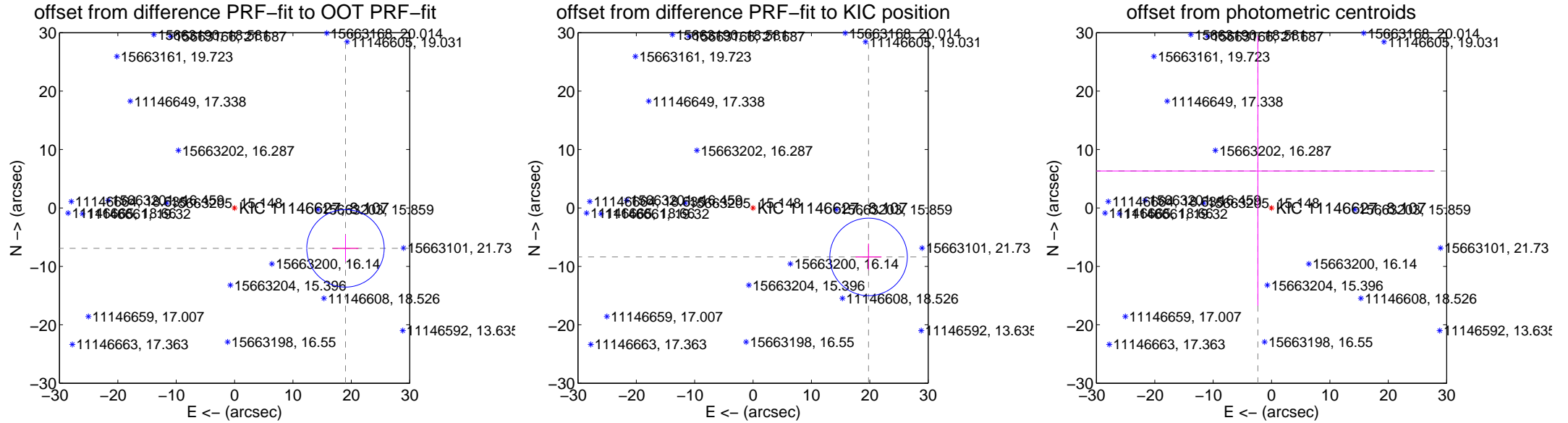
DV Centroid Data

Supplemental centroid analysis for 011146627-05. **Kepler magnitude: 8.11.** Transit SNR -1.00

There are 0 quarters with good PRF difference image offsets

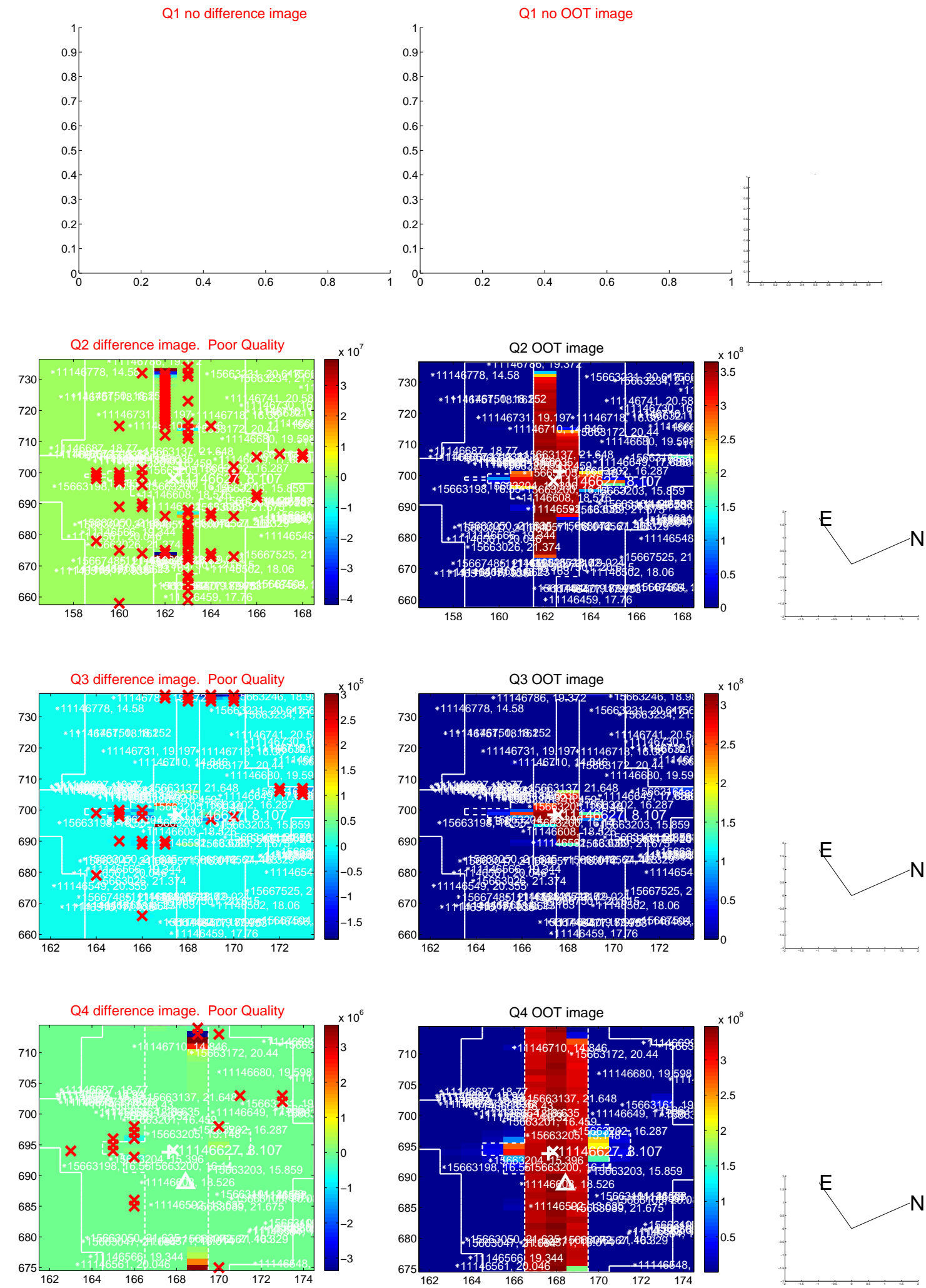
The direct PRF centroid is offset from the target star catalog position by about 1.67 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	20.217 ± 2.210	9.15	-18.998 ± 2.204	-6.913 ± 2.258
PRF-fit source offset from KIC position	21.493 ± 2.212	9.72	-19.791 ± 2.204	-8.382 ± 2.258
photometric centroid source offset	6.75 ± 24.01	0.28	2.34 ± 30.07	6.33 ± 23.06



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.



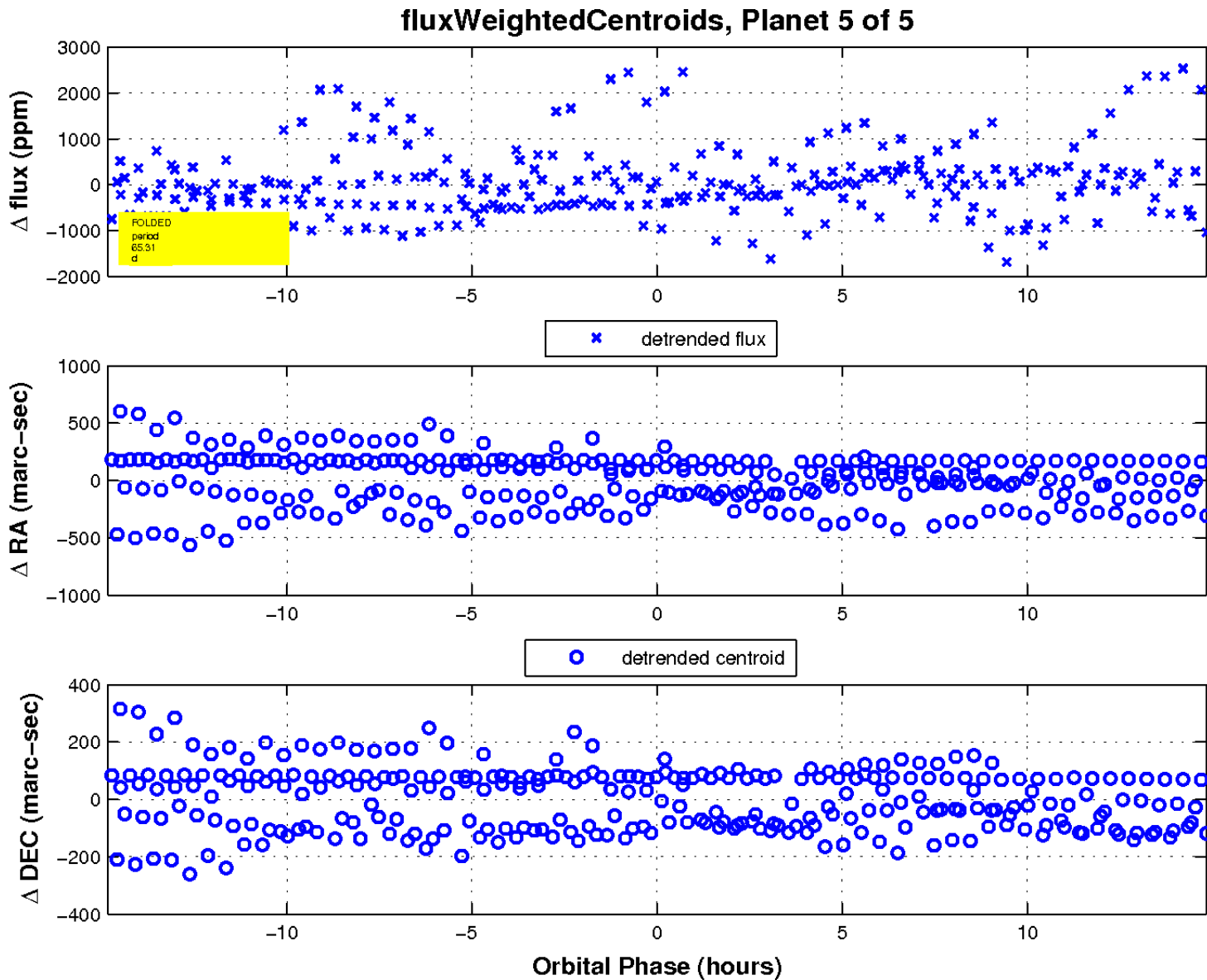
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

