

KIC 004650327

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})
004650327-01	OBS	No	695.313101	174.258630	2742.7	9.727	18.0	9.9	0.60	4986	3.21	0.12
004650327-02	OBS	No	597.080939	255.039916	1692.7	8.780	17.8	6.4	0.60	4986	2.42	0.15
004650327-03	OBS	No	214.677965	333.707044	1934.7	11.142	14.1	9.3	0.60	4986	3.05	0.57
004650327-04	OBS	No	399.560232	288.128419	1559.4	6.010	12.6	6.8	0.60	4986	2.36	0.25
004650327-05	OBS	No	571.603874	178.881644	740.6	3.676	12.0	3.1	0.60	4986	1.83	0.15
004650327-06	OBS	No	541.169214	313.645531	1117.8	6.000	12.3	-1.0	0.60	4986	1.97	0.17

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
004650327-01	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—INCONSISTENT_TRANS—CENT_FEW_DIFFS
004650327-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_SKYE—LPP_DV—MOD_NONUNIQ_DV—MOD_TER_DV—INCONSISTENT_TRANS—CENT_FEW_DIFFS
004650327-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_MARSHALL—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—CENT_FEW_DIFFS
004650327-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—INCONSISTENT_TRANS—CENT_FEW_DIFFS
004650327-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—INCONSISTENT_TRANS—CENT_FEW_DIFFS
004650327-06	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—LPP_DV—ALL_TRANS_CHASES—CENT_NOFITS

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

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

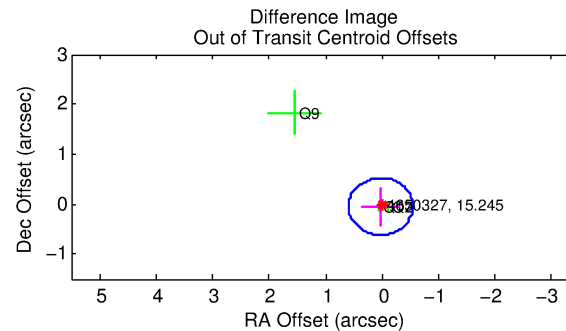
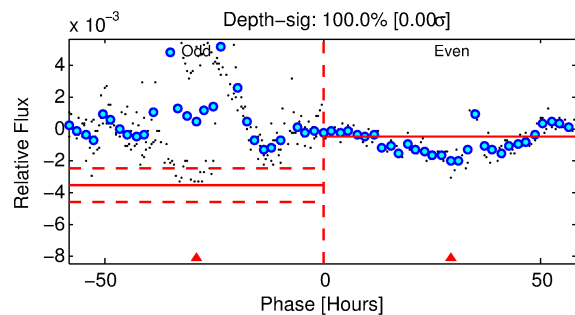
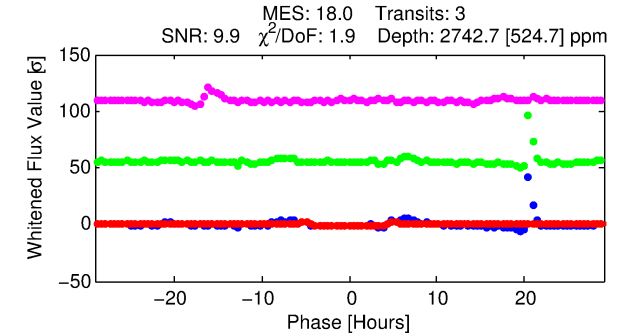
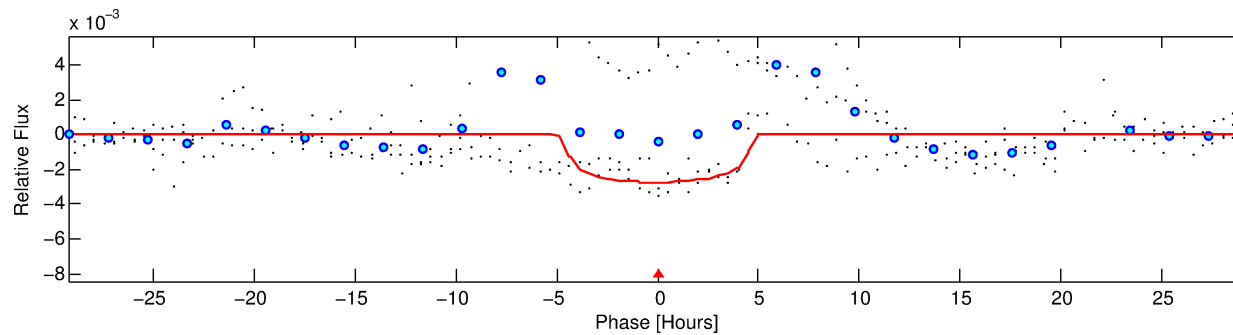
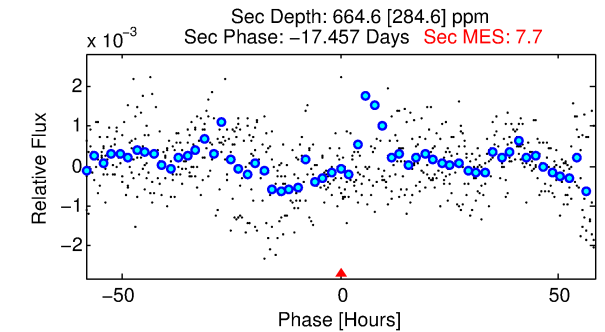
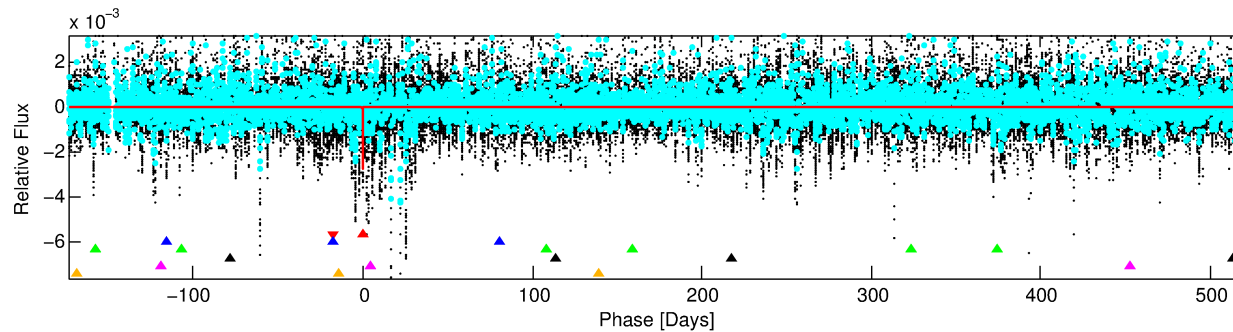
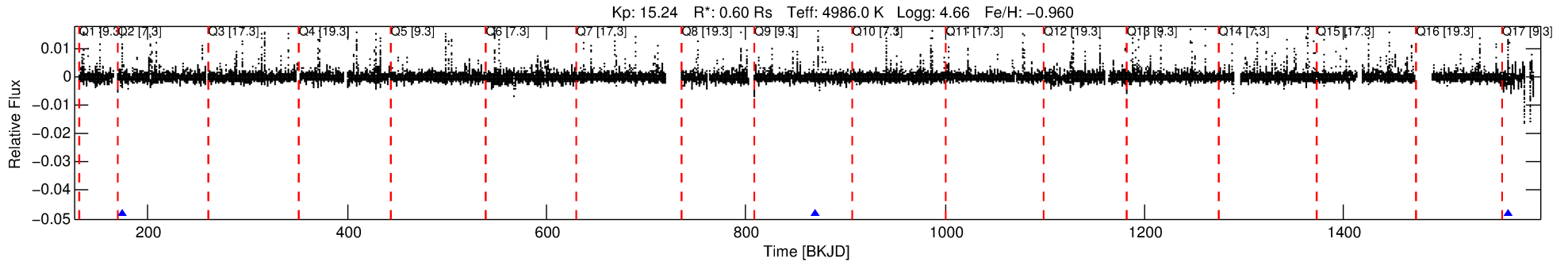
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 004650327-01

No Significant Match Found

DV One-Page Summary

KIC: 4650327 Candidate: 1 of 6 Period: 695.313 d



DV Fit Results:

Period = 695.31310 [0.00833] d
Epoch = 174.2586 [0.0109] BKJD
Rp/R* = 0.0491 [0.0153]
a/R* = 492.21 [535.34]
b = 0.54 [1.43]
Seff = 0.12 [0.02]
Teq = 150 [7] K
Rp = 3.21 [1.03] Re
a = 1.2930 [0.0900] AU
Ag = 59240.28 [45226.67] [1.31σ]
Teffp = 3614 [695] K [4.99σ]

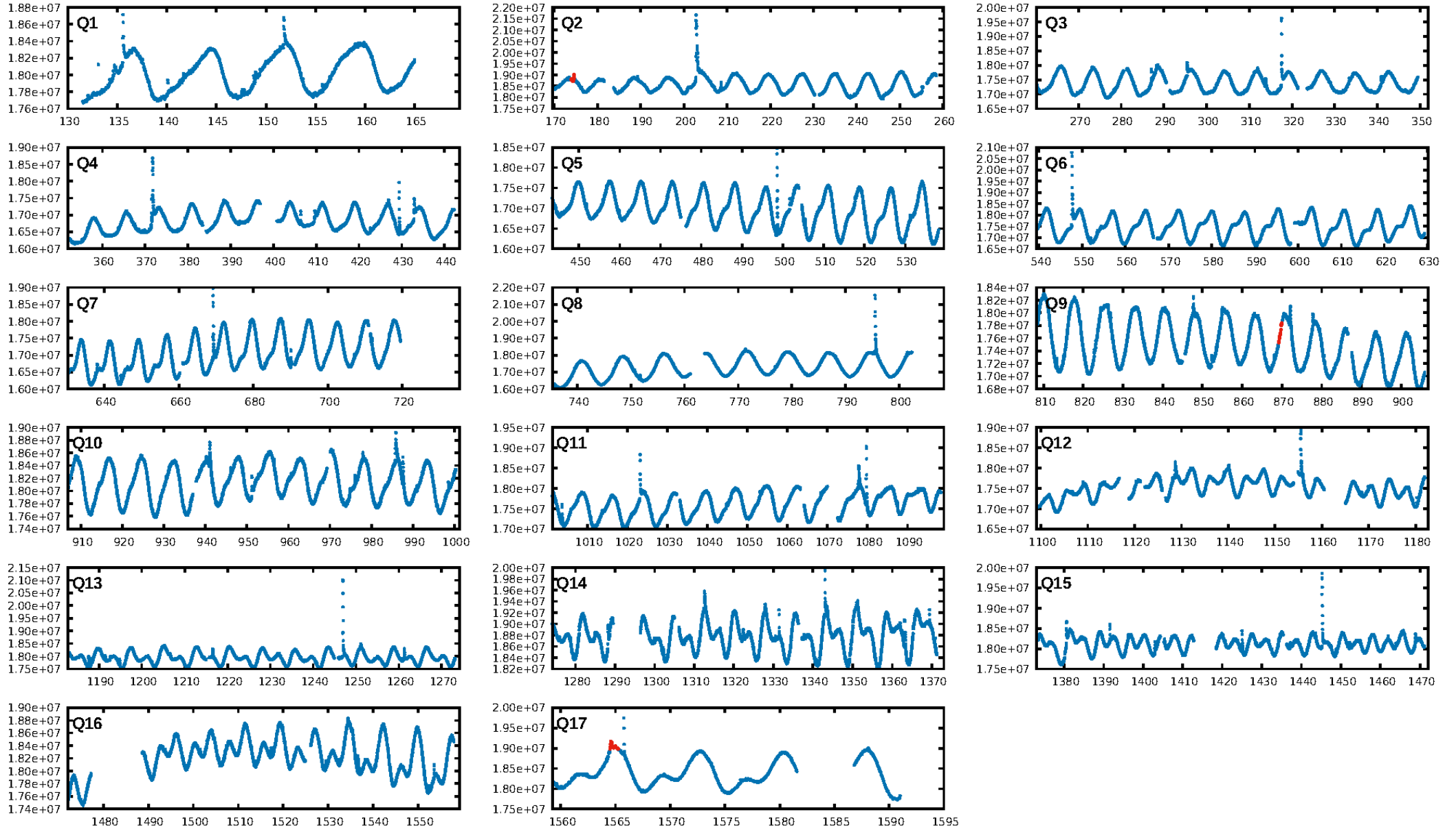
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [179.93σ]
LongPeriod-sig: N/A
ModelChiSquare2-sig: 0.0%
ModelChiSquareGof-sig: 0.1%
Bootstrap-pfa: N/A
RollingBand-fgt: 1.00 [2/2]
GhostDiagnostic-chr: 1.588
Centroid-sig: 24.1%
Centroid-so: 0.314 arcsec [0.77σ]
OotOffset-rm: 0.056 arcsec [0.30σ]
OotOffset-st: 1/0/0/2 [3]
KicOffset-rm: 0.108 arcsec [0.26σ]
KicOffset-st: 1/0/0/2 [3]
DiffImageQuality-fgm: 0.67 [2/3]
DiffImageOverlap-fno: 1.00 [3/3]

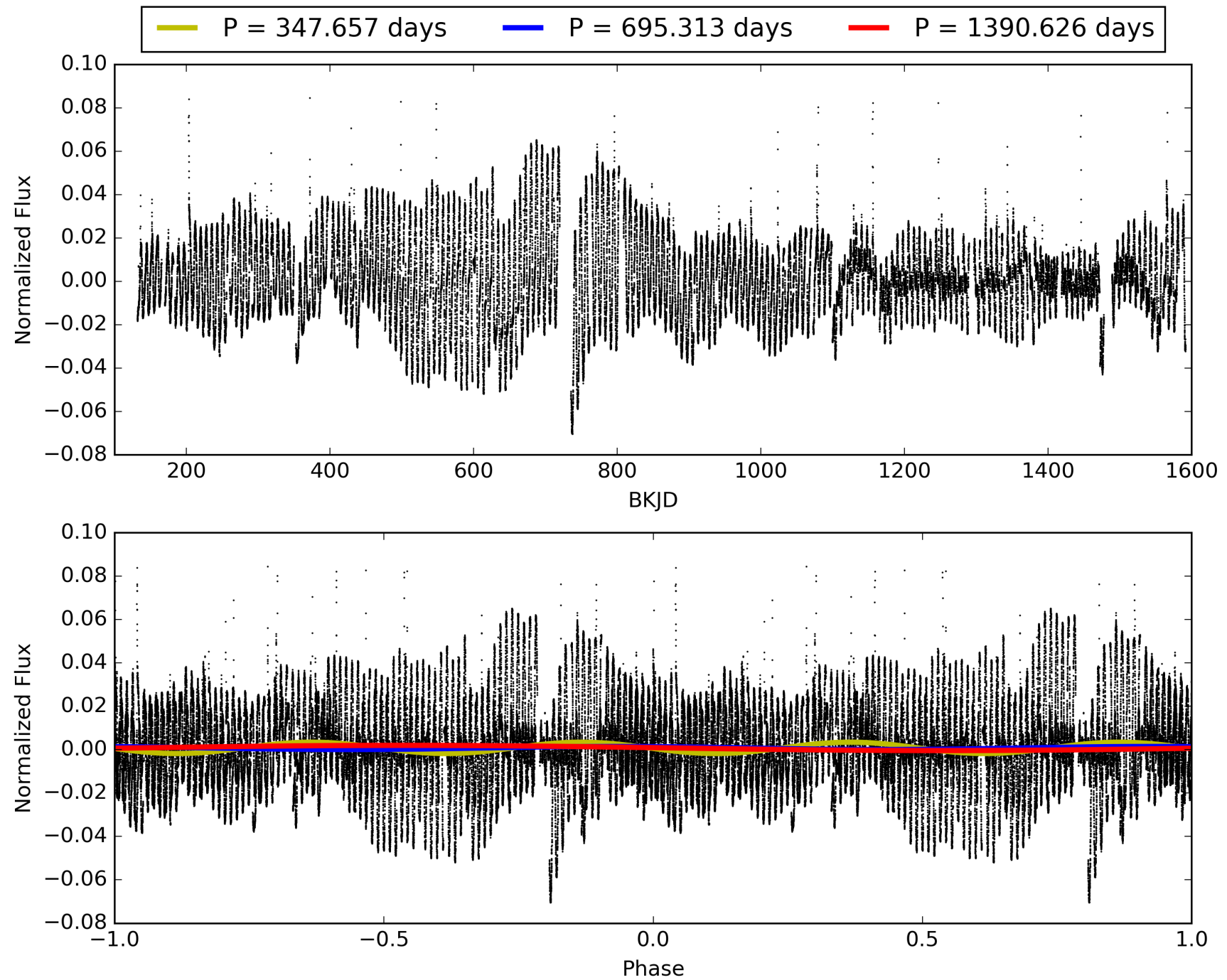
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 01-Feb-2016 13:04:41 Z

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

TCE 004650327-01, PDC Light Curves

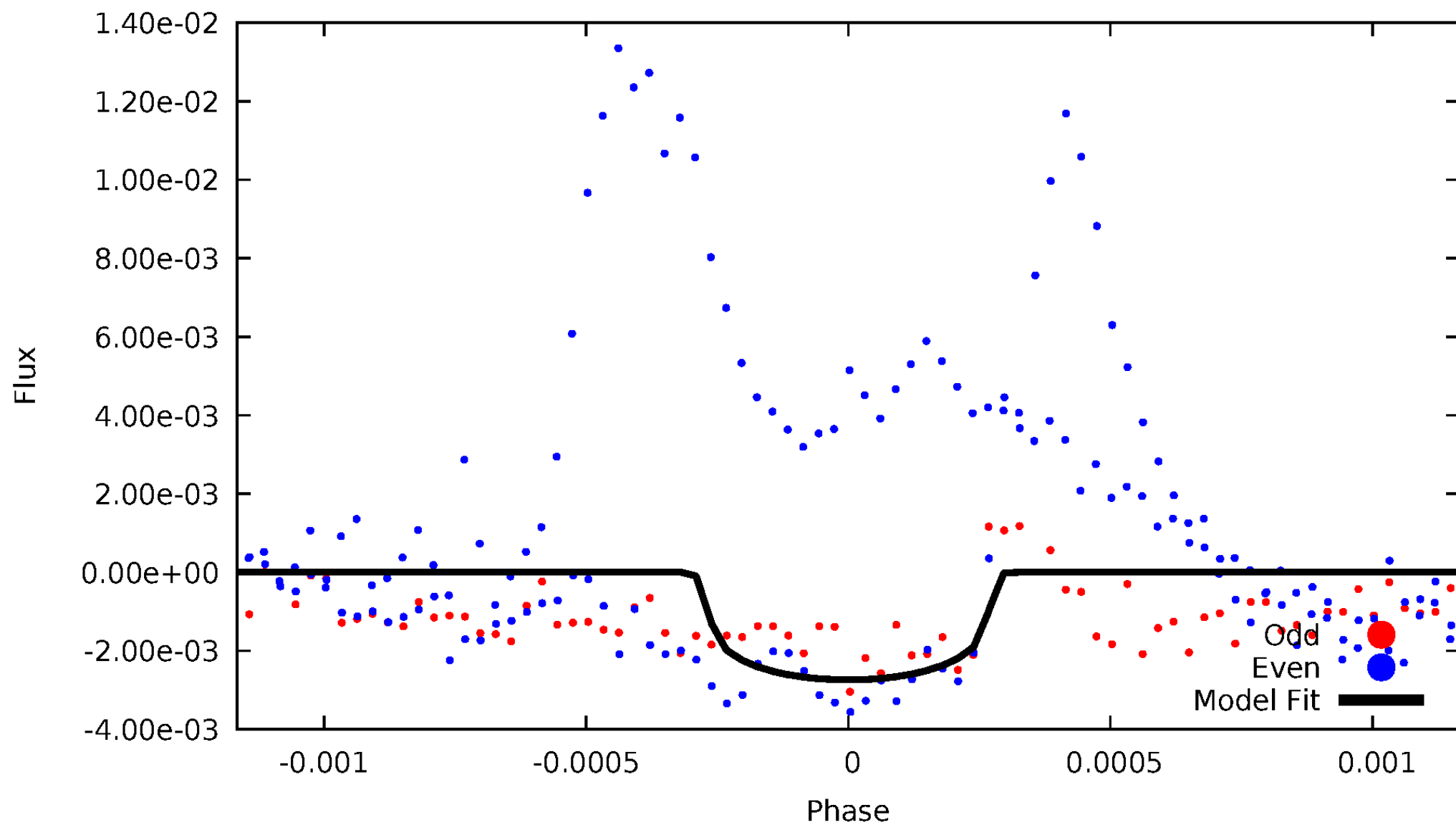


TCE 004650327-01



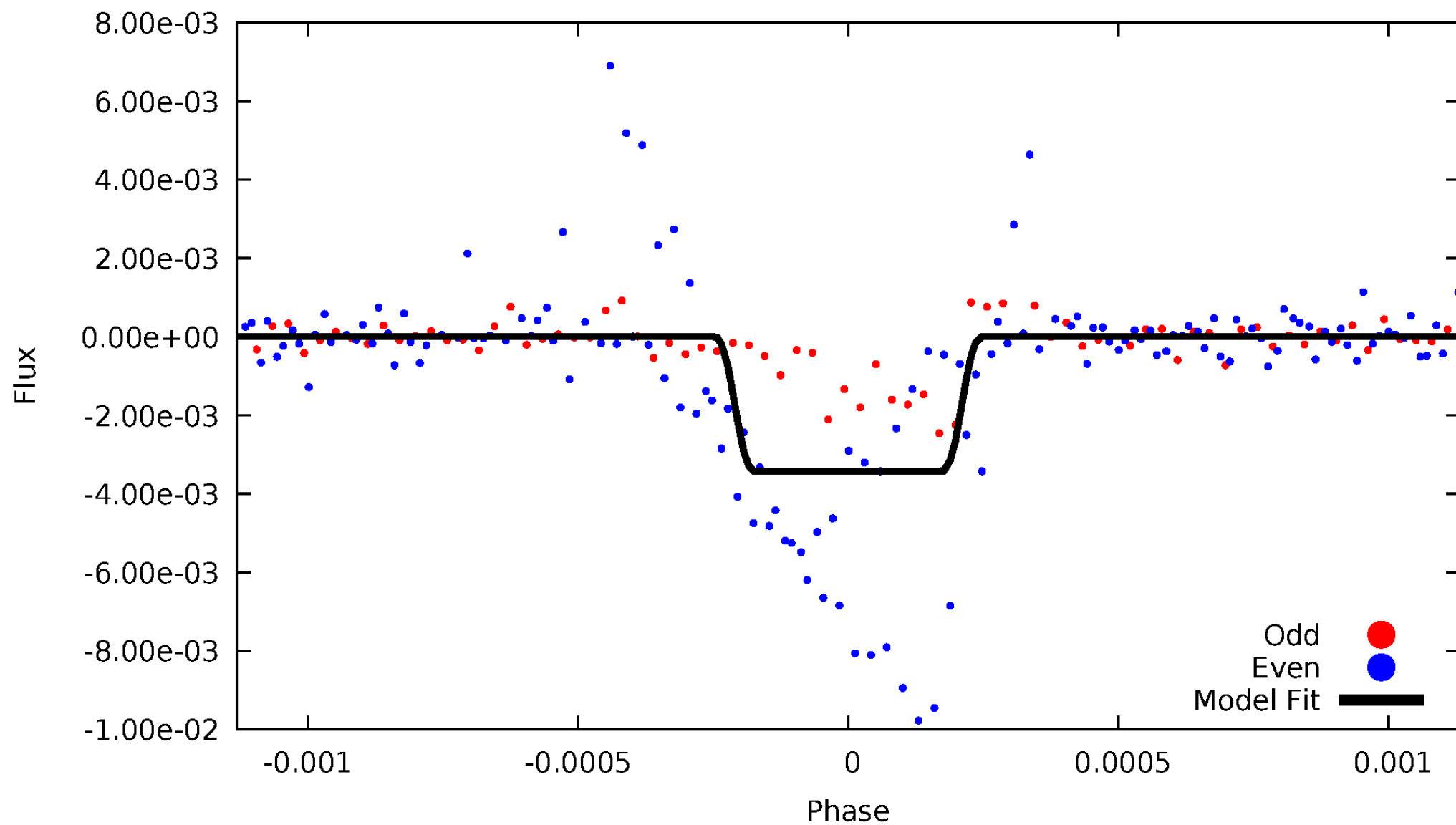
DV Odd/Even

TCE 004650327-01



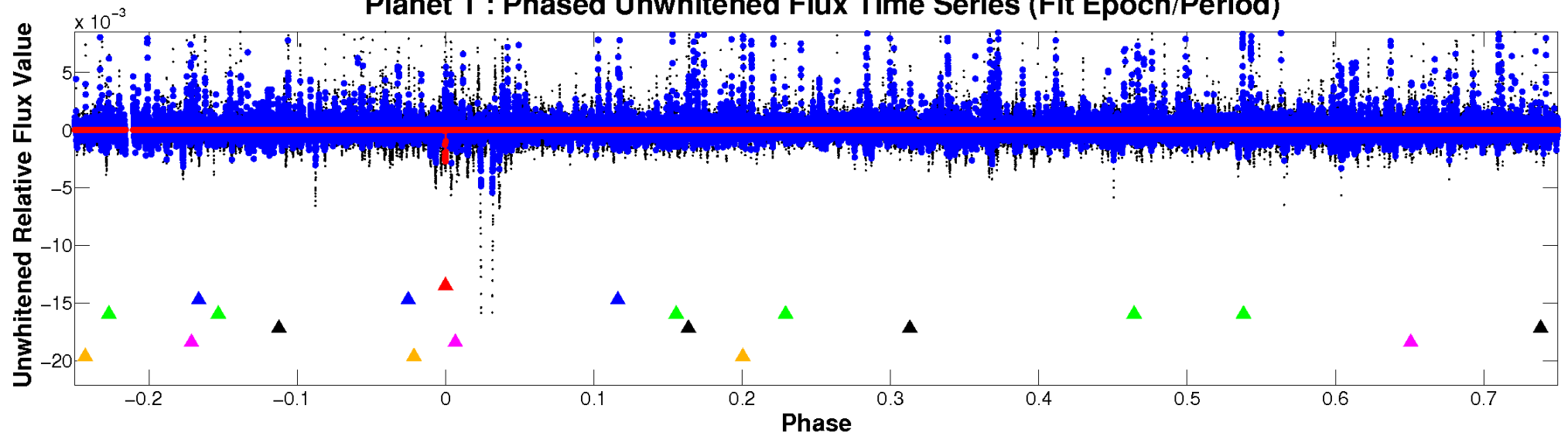
ALT Odd/Even

TCE 004650327-01

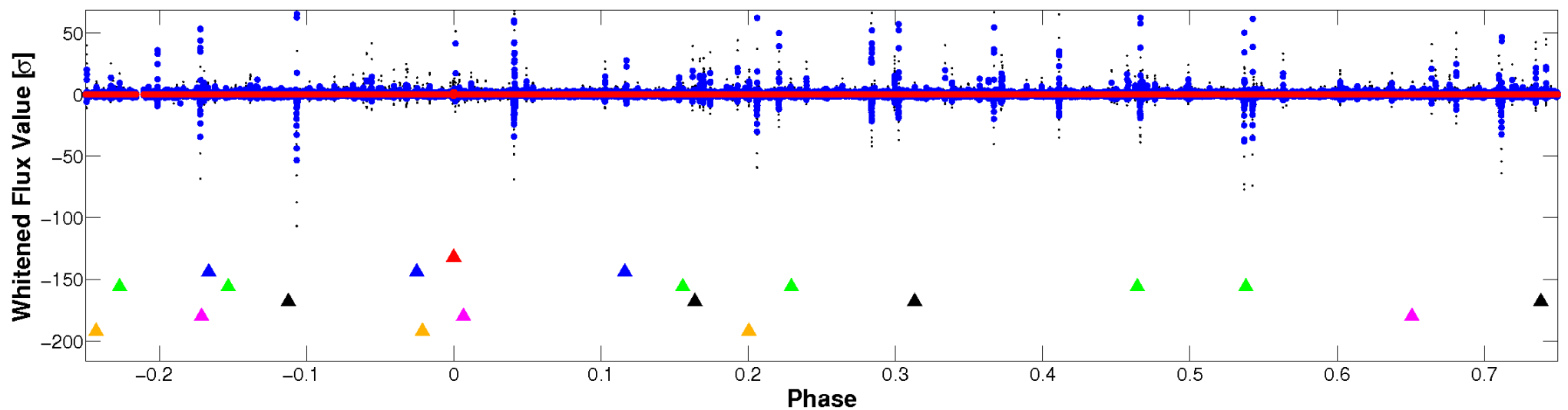


Non-Whitened Vs. Whitened Light Curve

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

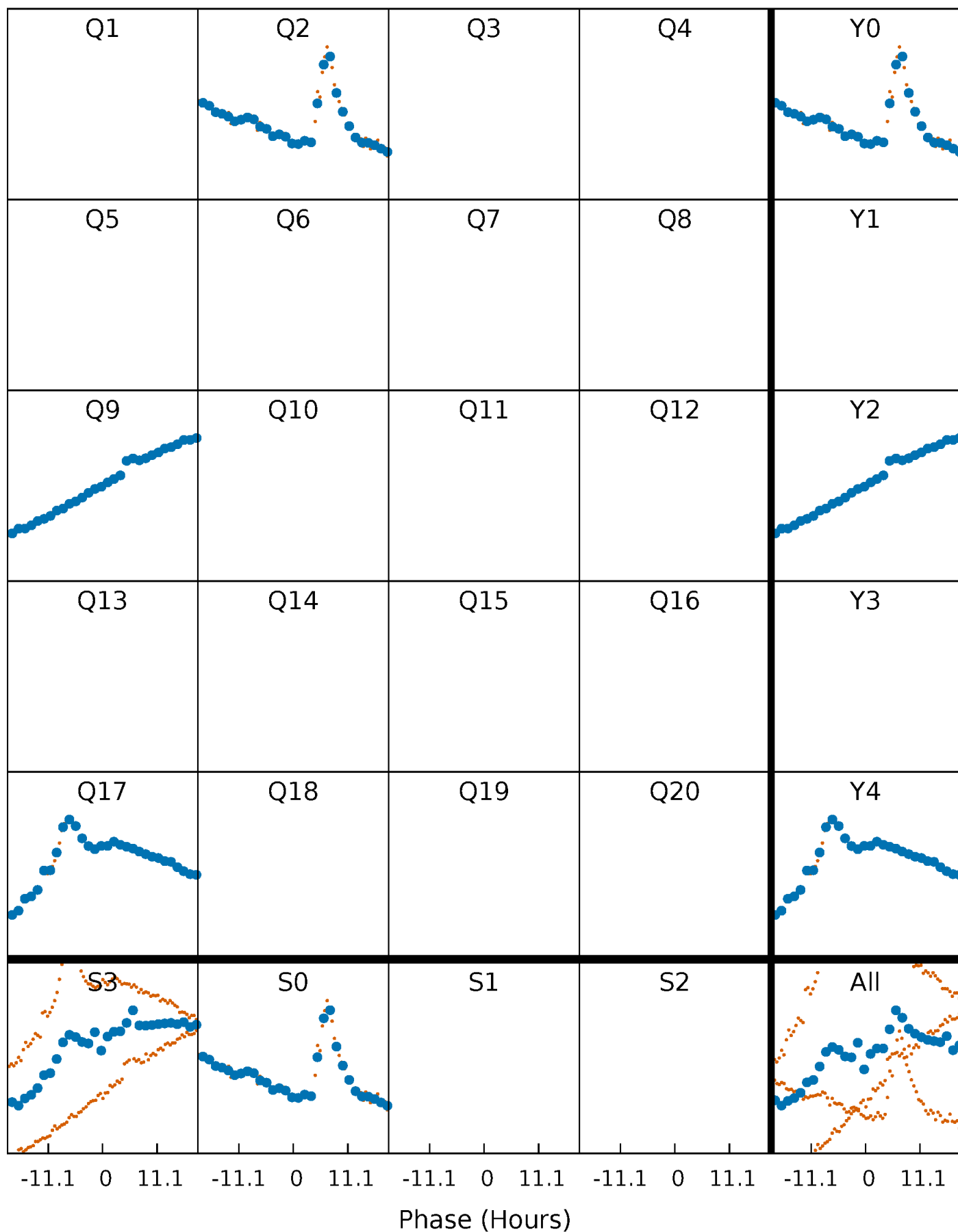


Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)



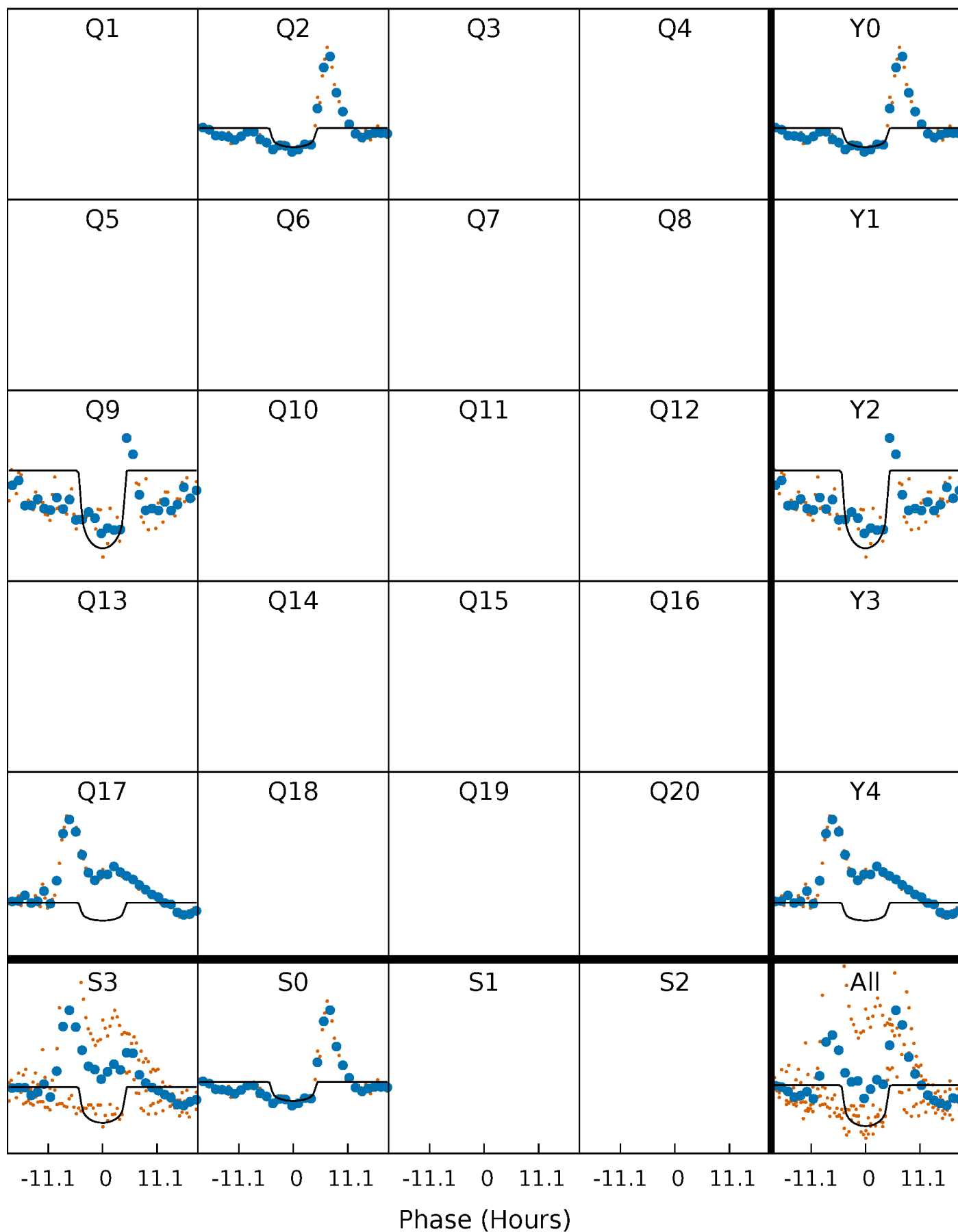
PDC Quarter-Phased Transit Curves

TCE 004650327-01 P=695.313101 Days $T_0=174.258630$ (BKJD)



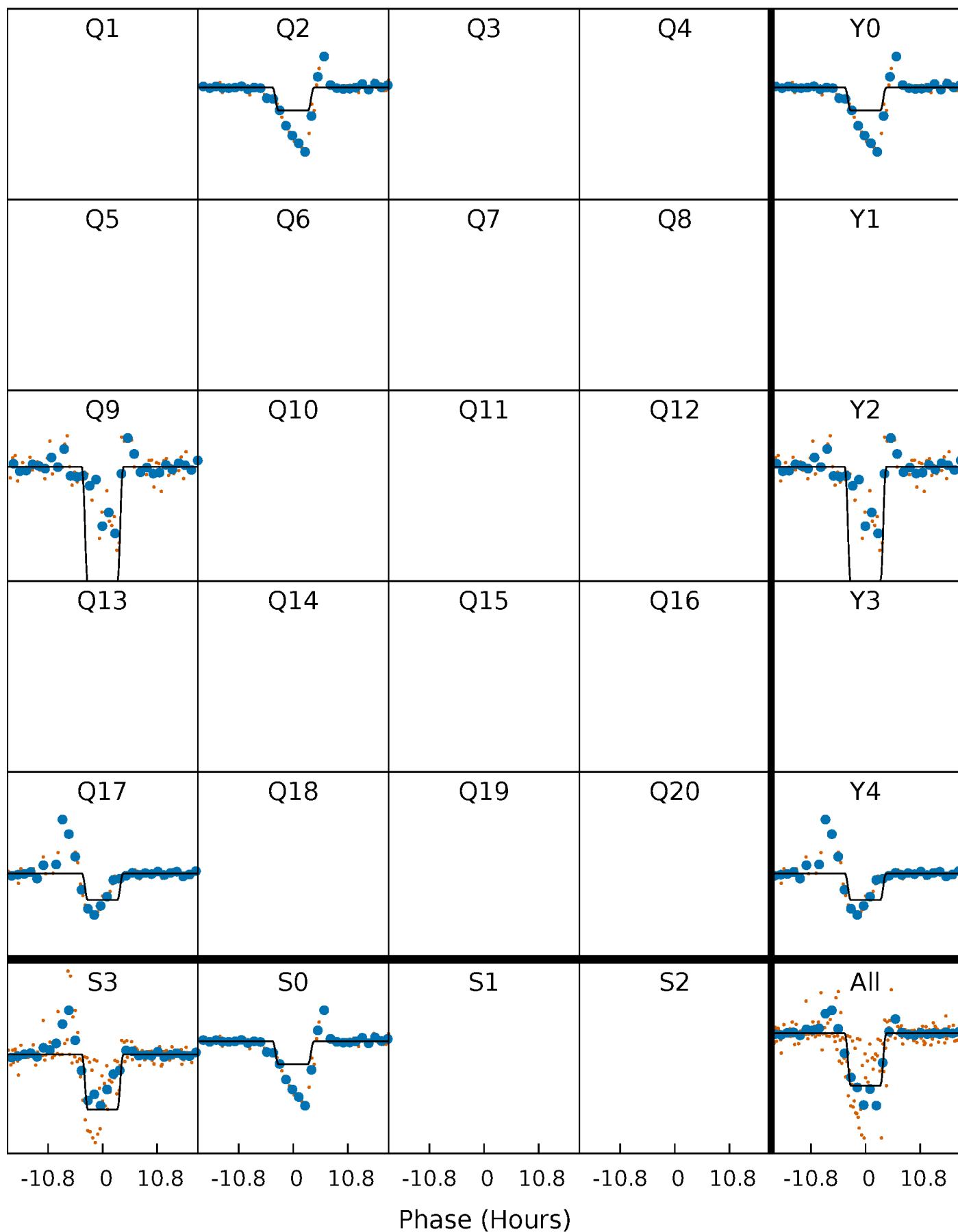
DV Quarter-Phased Transit Curves

TCE 004650327-01 P=695.313101 Days $T_0=174.258630$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

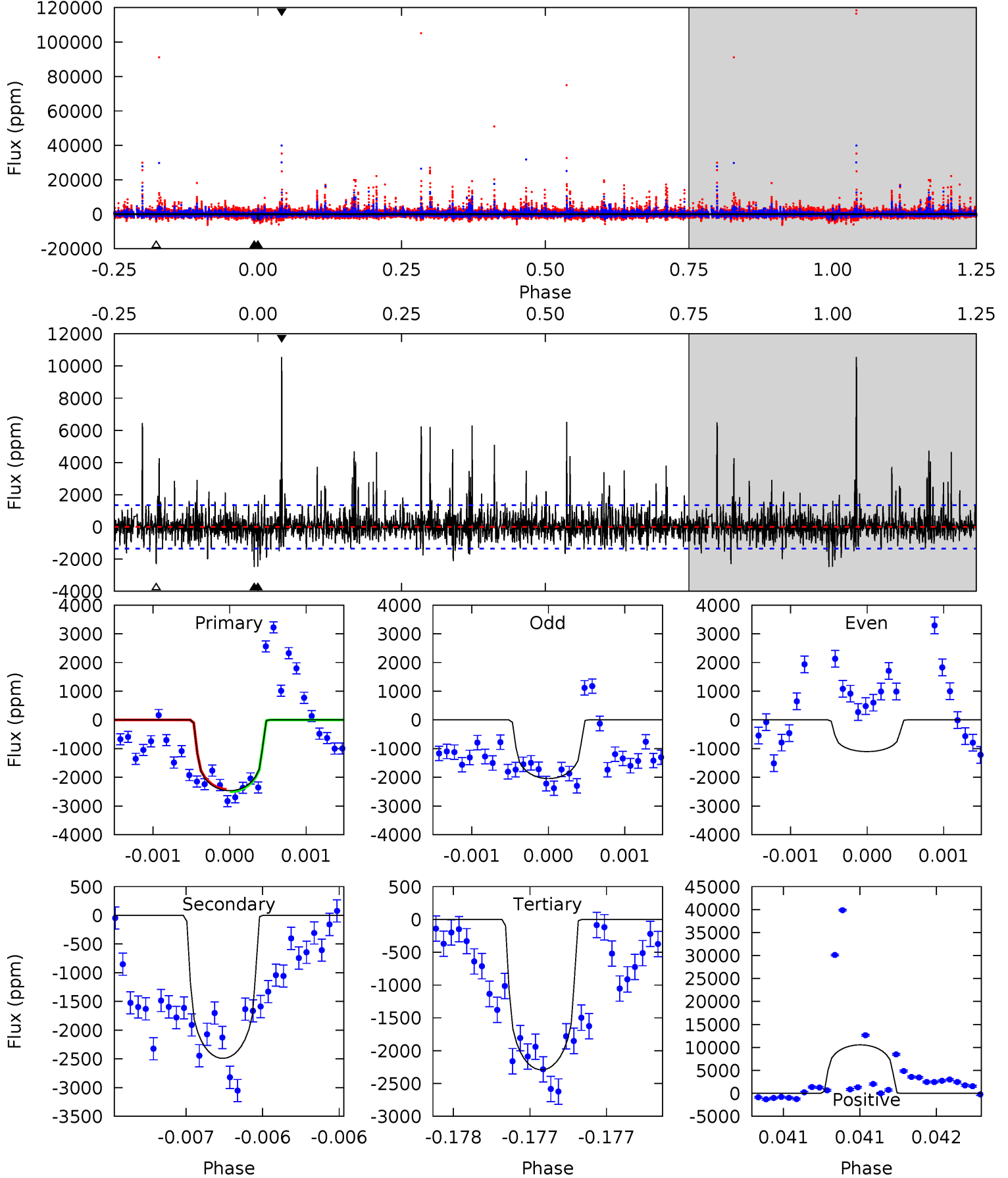
TCE 004650327-01 P=695.285935 Days $T_0=174.313917$ (BKJD)



DV Model-Shift Uniqueness Test

004650327-01, P = 695.313101 Days, E = 174.258630 Days

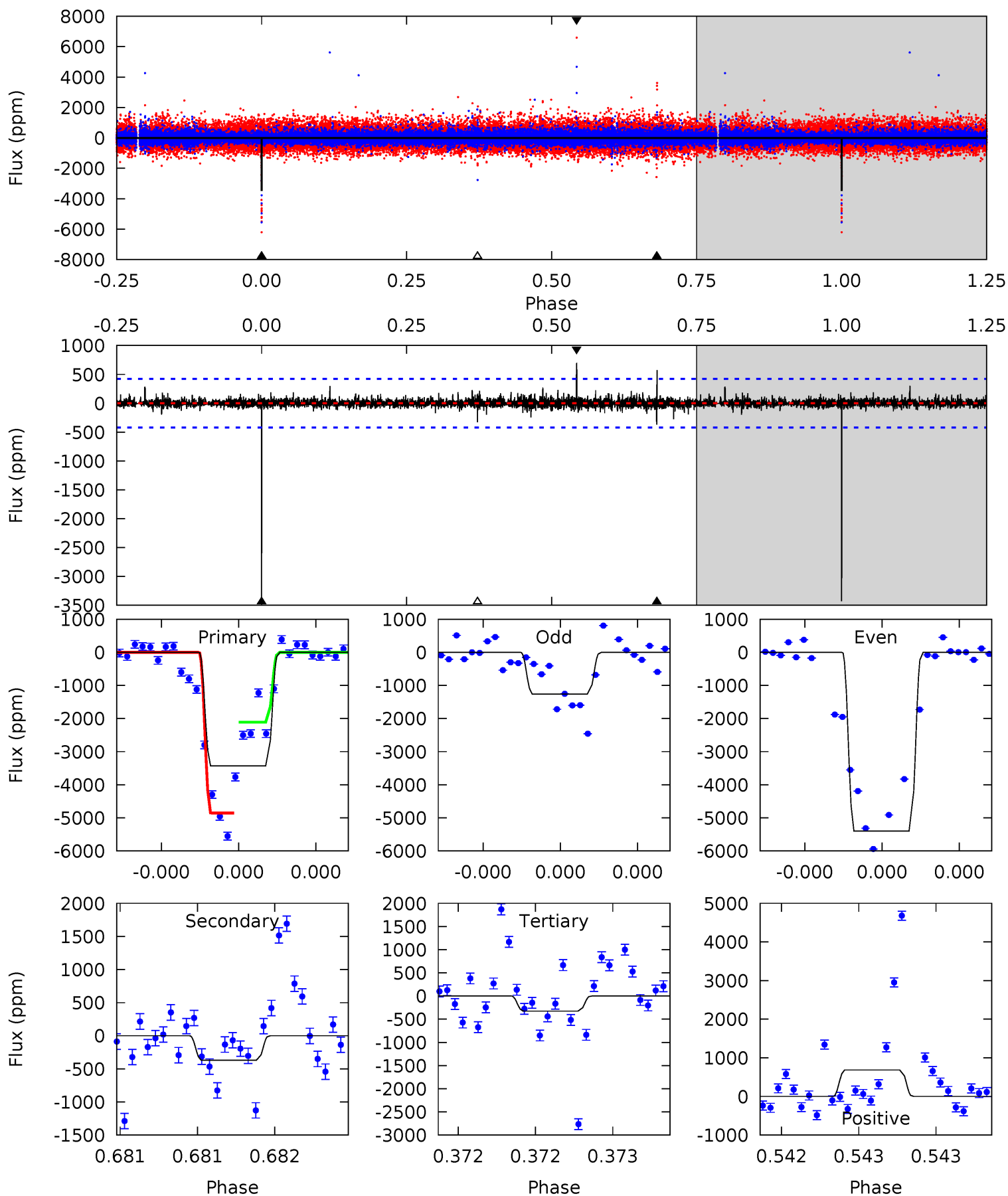
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
10.1	10.2	9.42	43.4	5.54	3.42	3.09	0.72	-33.2	0.82	-33.1	1.08	-0.03	0.81	0.16



Alt Model-Shift Uniqueness Test

004650327-01, P = 695.285935 Days, E = 174.313917 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
45.5	4.92	4.31	9.09	5.58	3.49	0.58	41.2	36.5	0.61	-4.17	25.6	1.13	0.17	0



Stellar Parameters For KIC 004650327

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	$M(M_{\odot})$	p_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	4986^{+173}_{-173}	$4.657^{+0.060}_{-0.035}$	$-0.960^{+0.300}_{-0.300}$	$0.600^{+0.047}_{-0.042}$	$0.597^{+0.055}_{-0.026}$	$3.884^{+0.876}_{-0.535}$
	+3%/-3%	+1%/-1%	+31%/-31%	+8%/-7%	+9%/-4%	+23%/-14%
Source	PHO1	KIC0	KIC0	DSEP		

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

Secondary Eclipse Parameters for KIC 004650327-01 / KOI

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	-2491 ± 243	$3.21^{+0.94}_{-1.03}$	209^{+8}_{-9}	5041^{+1009}_{-565}	$228502^{+264411}_{-93510}$
Alt.	-371 ± 75	$3.82^{+0.98}_{-1.05}$	208^{+8}_{-8}	3344^{+373}_{-252}	23889^{+19874}_{-9627}

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

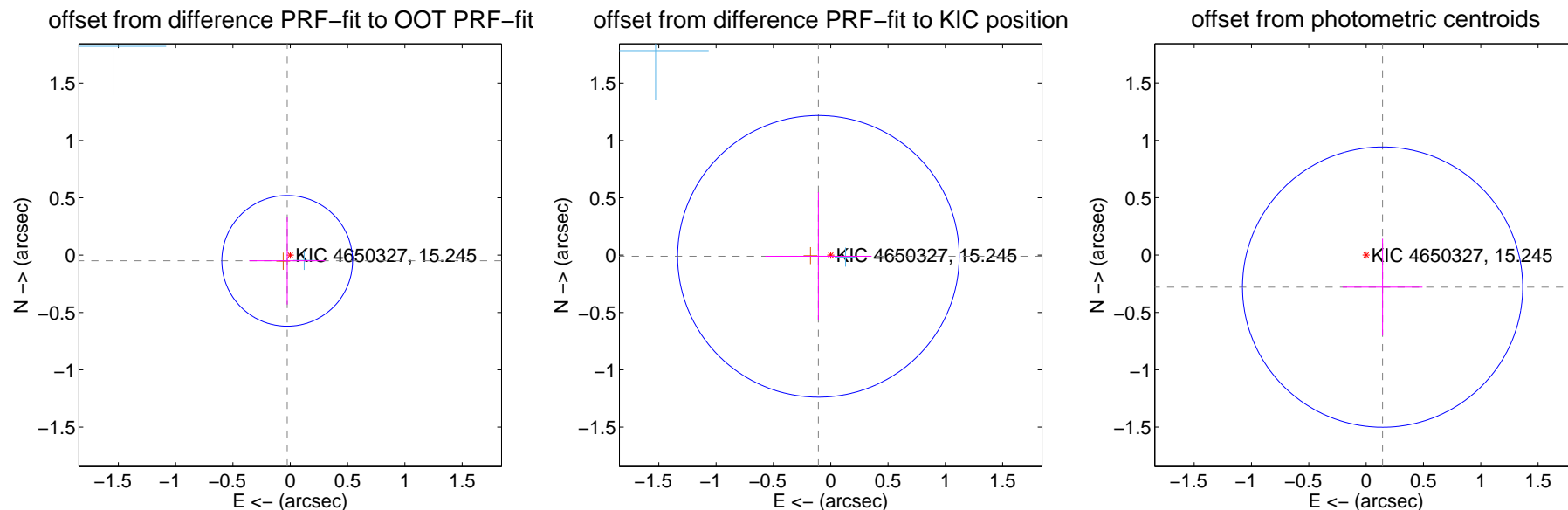
DV Centroid Data

Supplemental centroid analysis for 004650327-01. Kepler magnitude: 15.24. Transit SNR 9.87

There are 2 quarters with good PRF difference image offsets

The direct PRF centroid is offset from the target star catalog position by about 0.13 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.056 ± 0.190	0.30	0.027 ± 0.331	-0.050 ± 0.380
PRF-fit source offset from KIC position	0.108 ± 0.409	0.26	0.107 ± 0.464	-0.010 ± 0.559
photometric centroid source offset	0.31 ± 0.41	0.77	-0.14 ± 0.35	-0.28 ± 0.42



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.

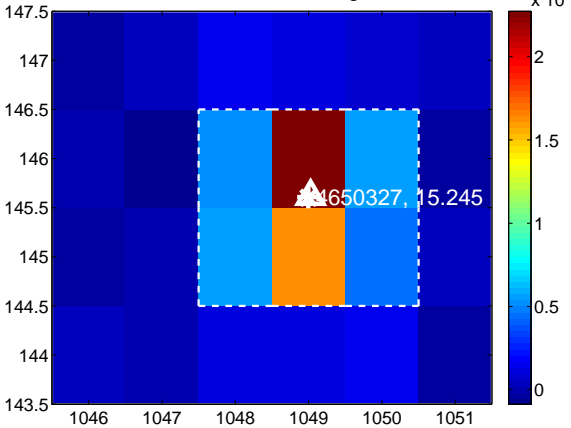
Q1 no difference image



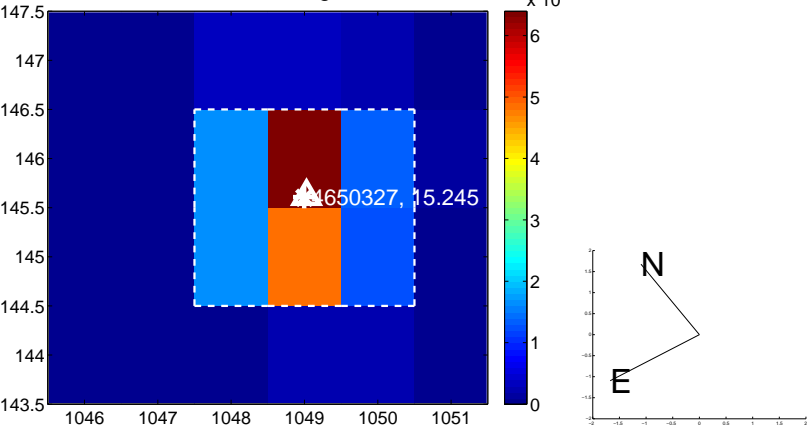
Q1 no OOT image



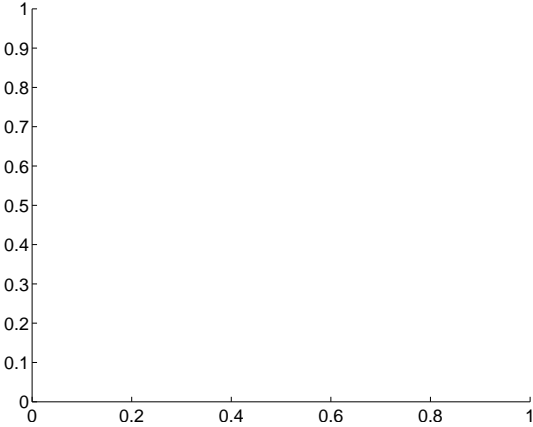
Q2 difference image



Q2 OOT image



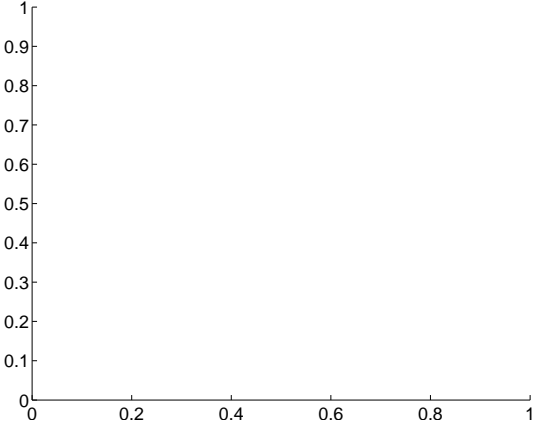
Q3 no difference image



Q3 no OOT image



Q4 no difference image



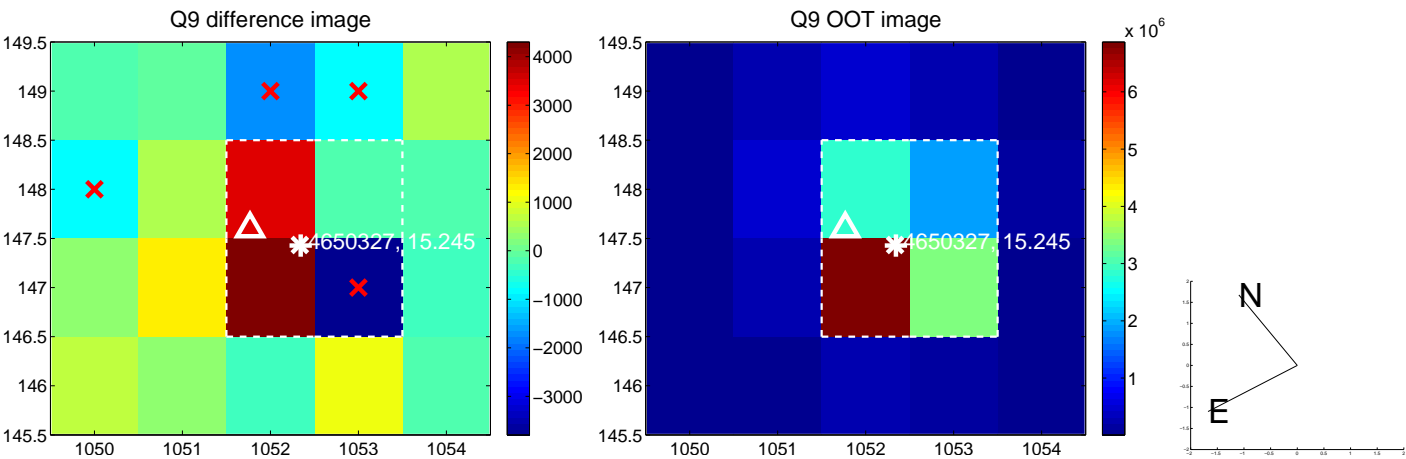
Q4 no OOT image



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



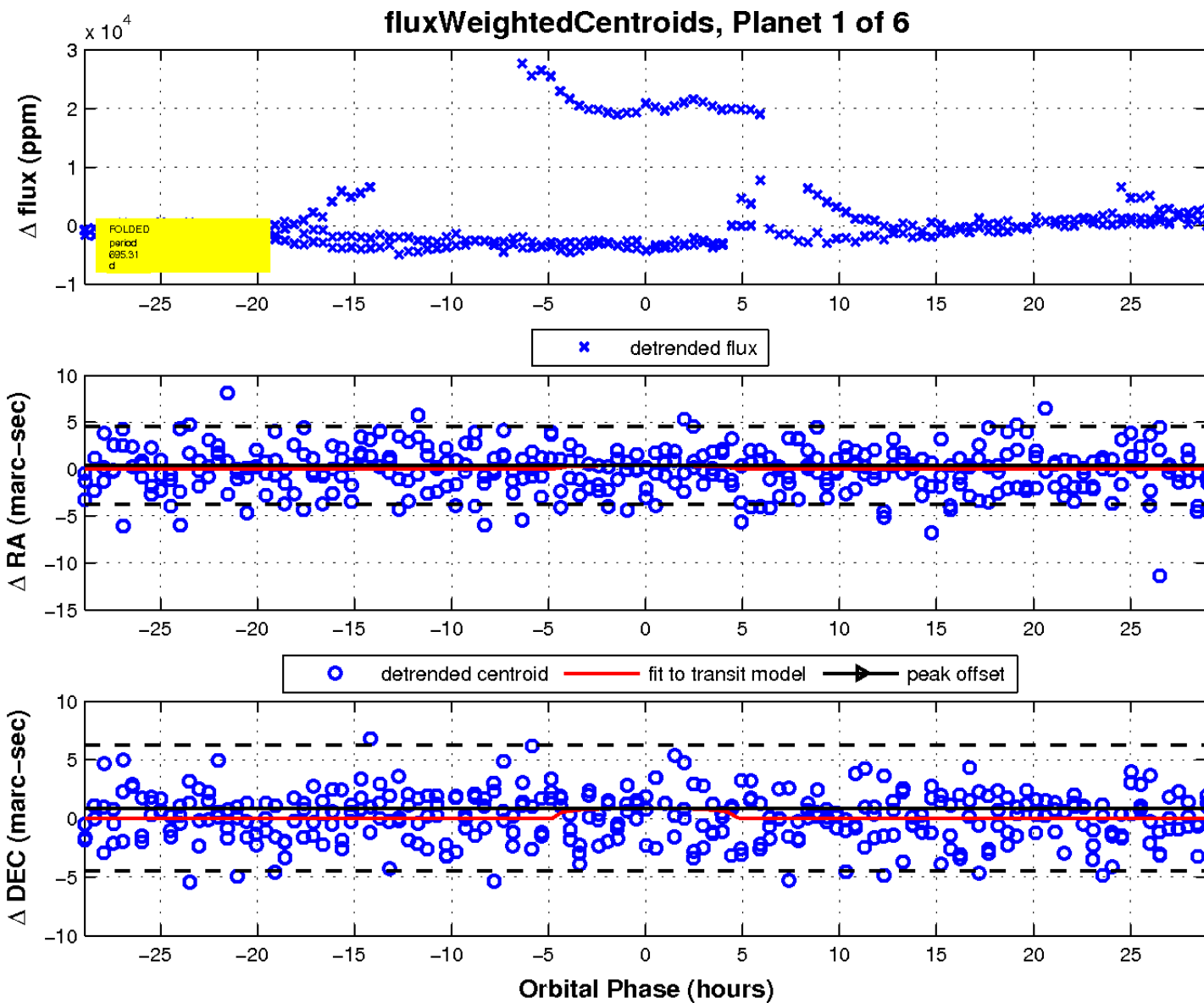
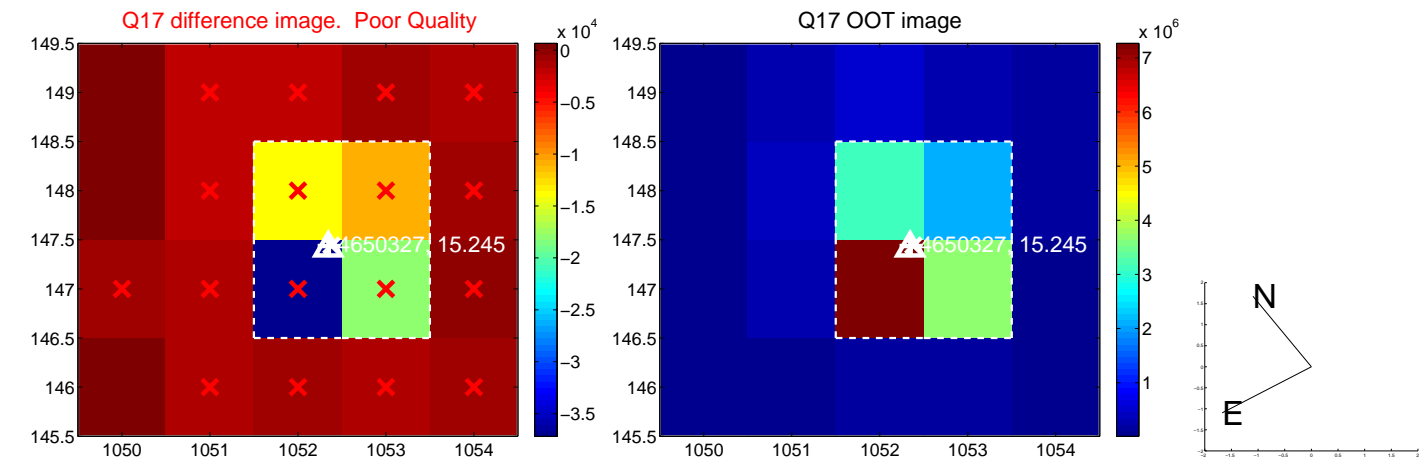
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

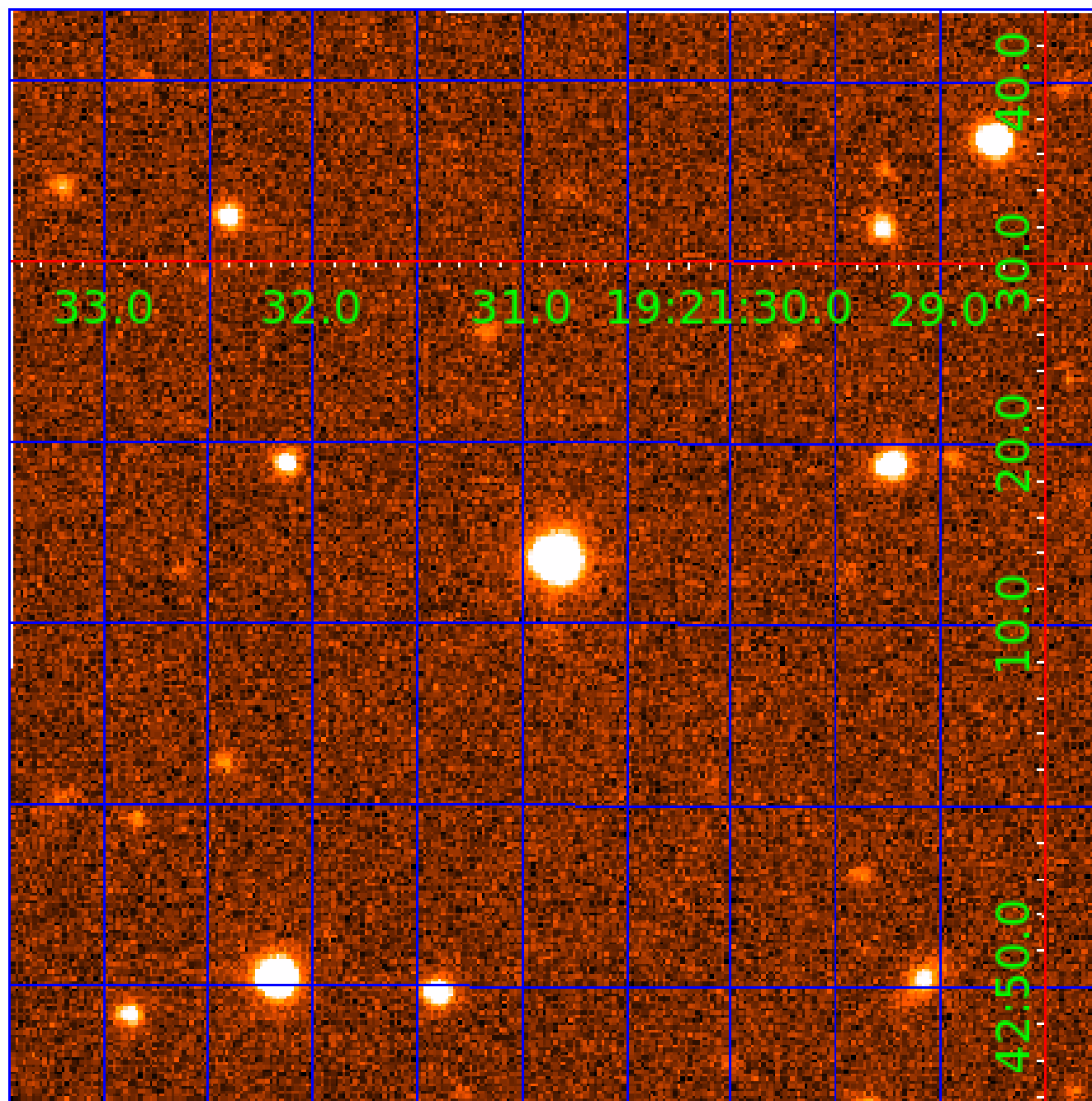


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 004650327

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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004650327-06	OBS	No	541.169214	313.645531	1117.8	6.000	12.3	-1.0	0.60	4986	1.97	0.17

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
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004650327-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_SKYE—LPP_DV—MOD_NONUNIQ_DV—MOD_TER_DV—INCONSISTENT_TRANS—CENT_FEW_DIFFS
004650327-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_MARSHALL—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—CENT_FEW_DIFFS
004650327-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—INCONSISTENT_TRANS—CENT_FEW_DIFFS
004650327-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—INCONSISTENT_TRANS—CENT_FEW_DIFFS
004650327-06	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—LPP_DV—ALL_TRANS_CHASES—CENT_NOFITS

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

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

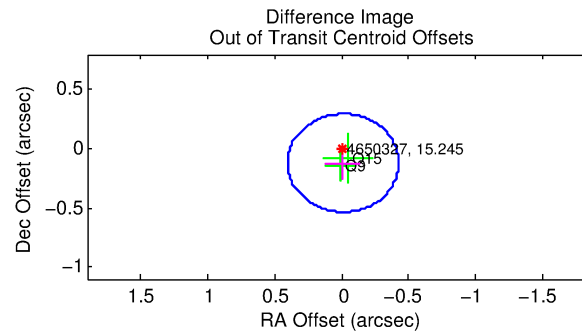
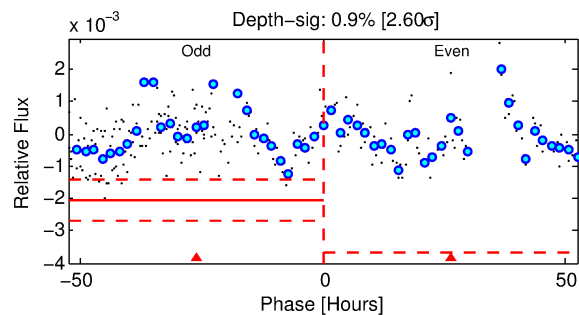
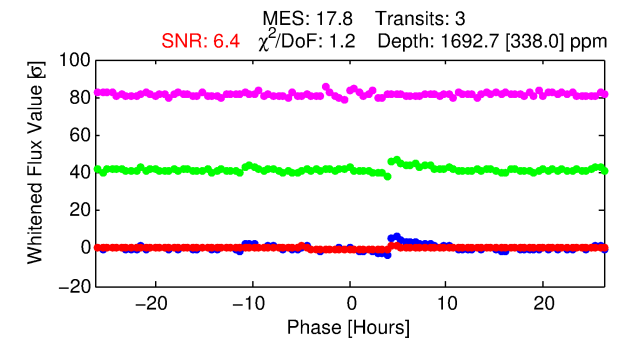
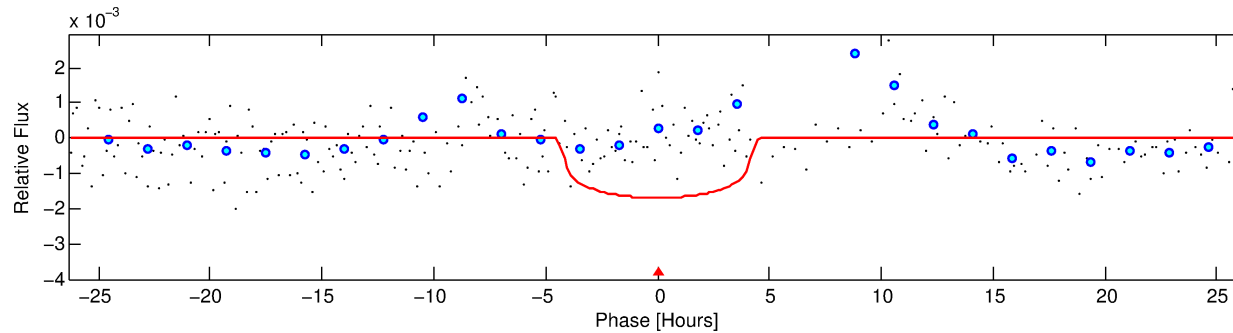
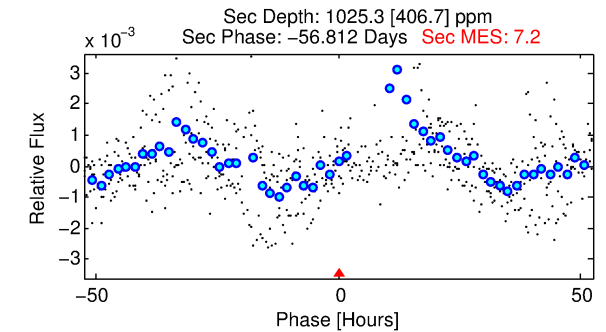
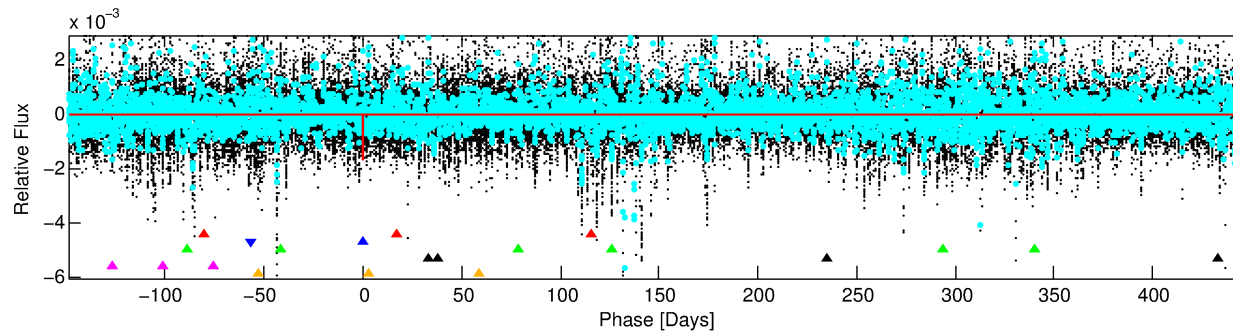
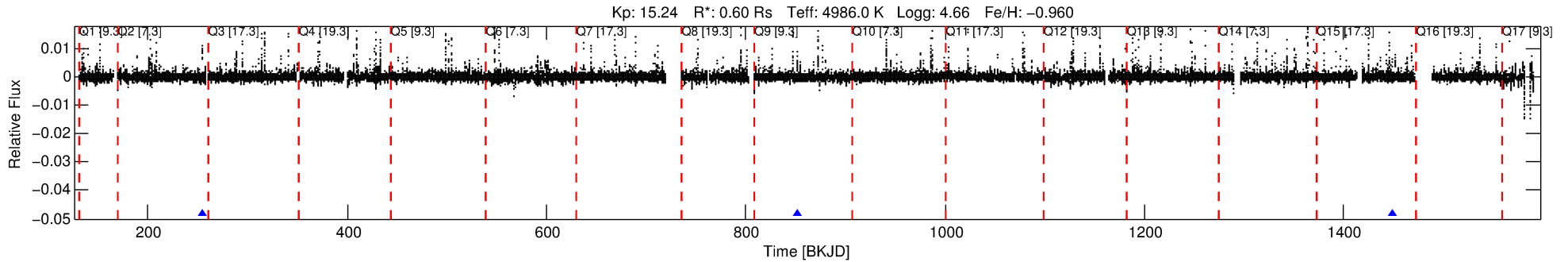
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 004650327-02

No Significant Match Found

DV One-Page Summary

KIC: 4650327 Candidate: 2 of 6 Period: 597.081 d



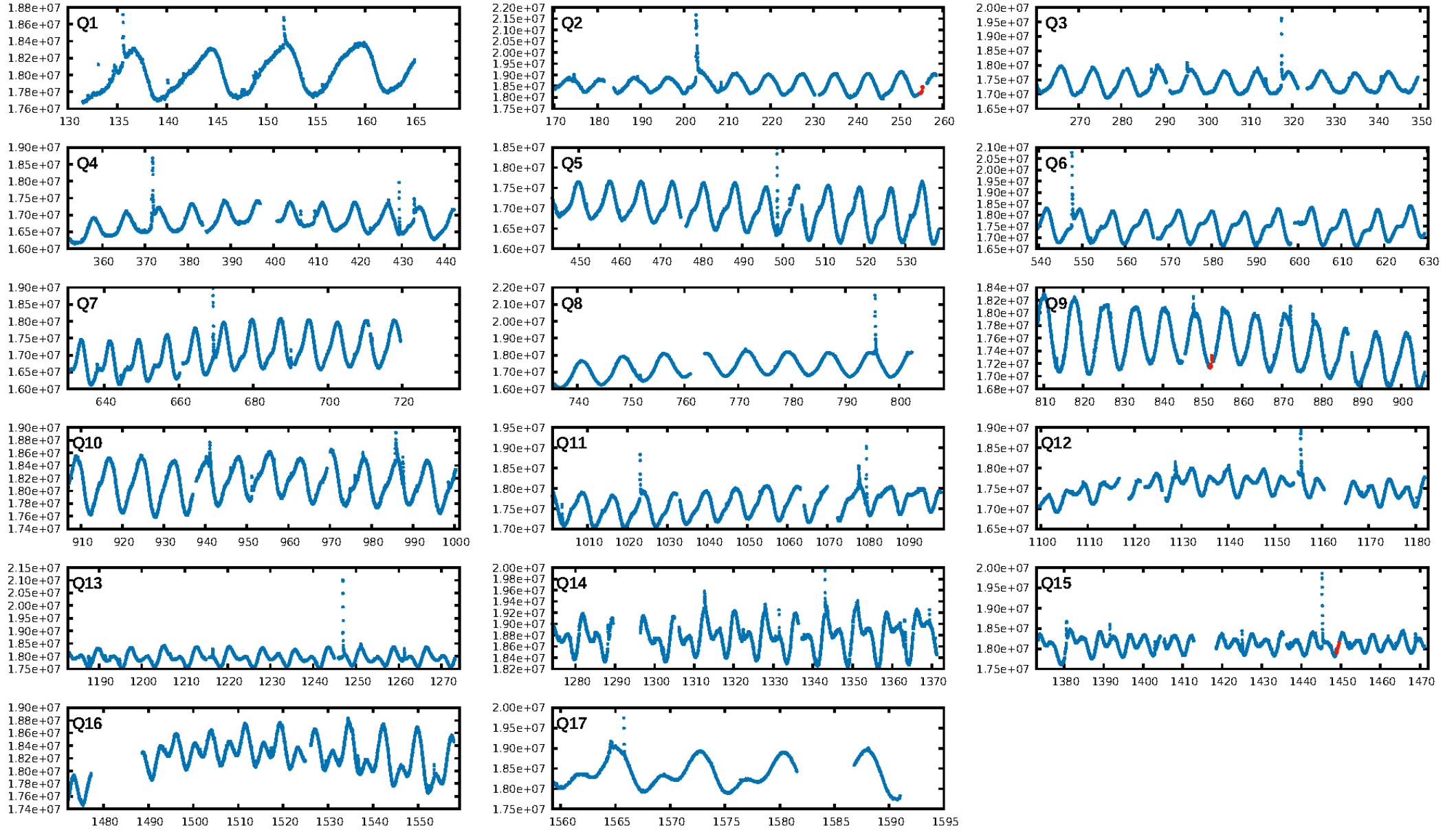
DV Fit Results:

Period = 597.08094 [0.00776] d
Epoch = 255.0399 [0.0120] BKJD
Rp/R* = 0.0370 [0.0337]
a/R* = 535.44 [1896.46]
b = 0.12 [30.60]
Seff = 0.15 [0.03]
Teq = 158 [7] K
Rp = 2.42 [2.22] Re
a = 1.1681 [0.0813] AU
Ag = 131054.74 [244777.97] [0.54σ]
Teffp = 4638 [2168] K [2.07σ]

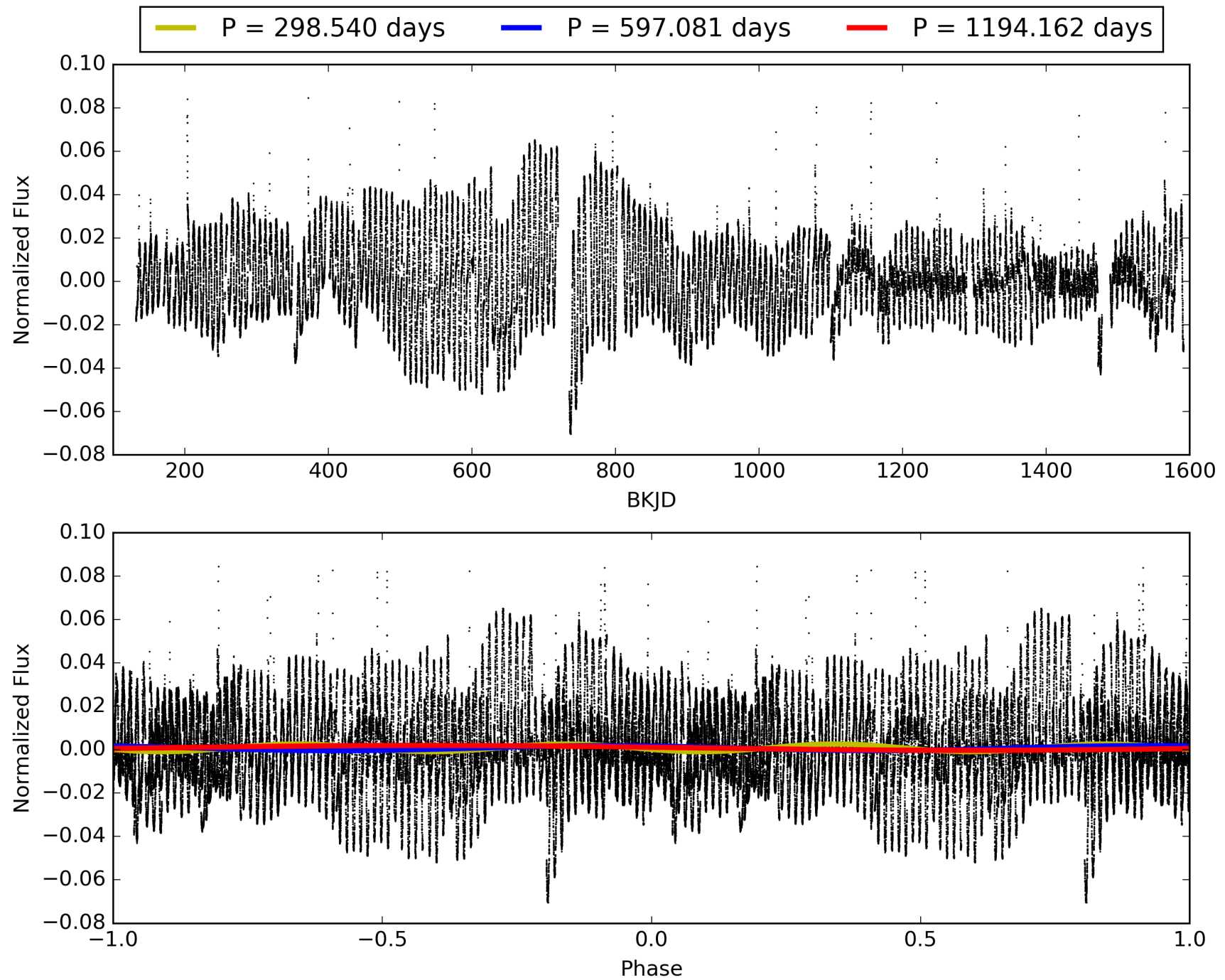
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [64.24σ]
LongPeriod-sig: 100.0% [179.93σ]
ModelChiSquare2-sig: 0.0%
ModelChiSquareGof-sig: 83.6%
Bootstrap-pfa: N/A
RollingBand-fgt: 1.00 [3/3]
GhostDiagnostic-chr: -1.675
Centroid-sig: 19.1%
Centroid-so: 0.859 arcsec [1.31σ]
OotOffset-rm: 0.119 arcsec [0.86σ]
KicOffset-rm: 0.135 arcsec [0.98σ]
OotOffset-st: 0/1/0/1 [2]
KicOffset-st: 0/1/0/1 [2]
DiffImageQuality-fgm: 1.00 [2/2]
DiffImageOverlap-fno: 1.00 [2/2]

TCE 004650327-02, PDC Light Curves

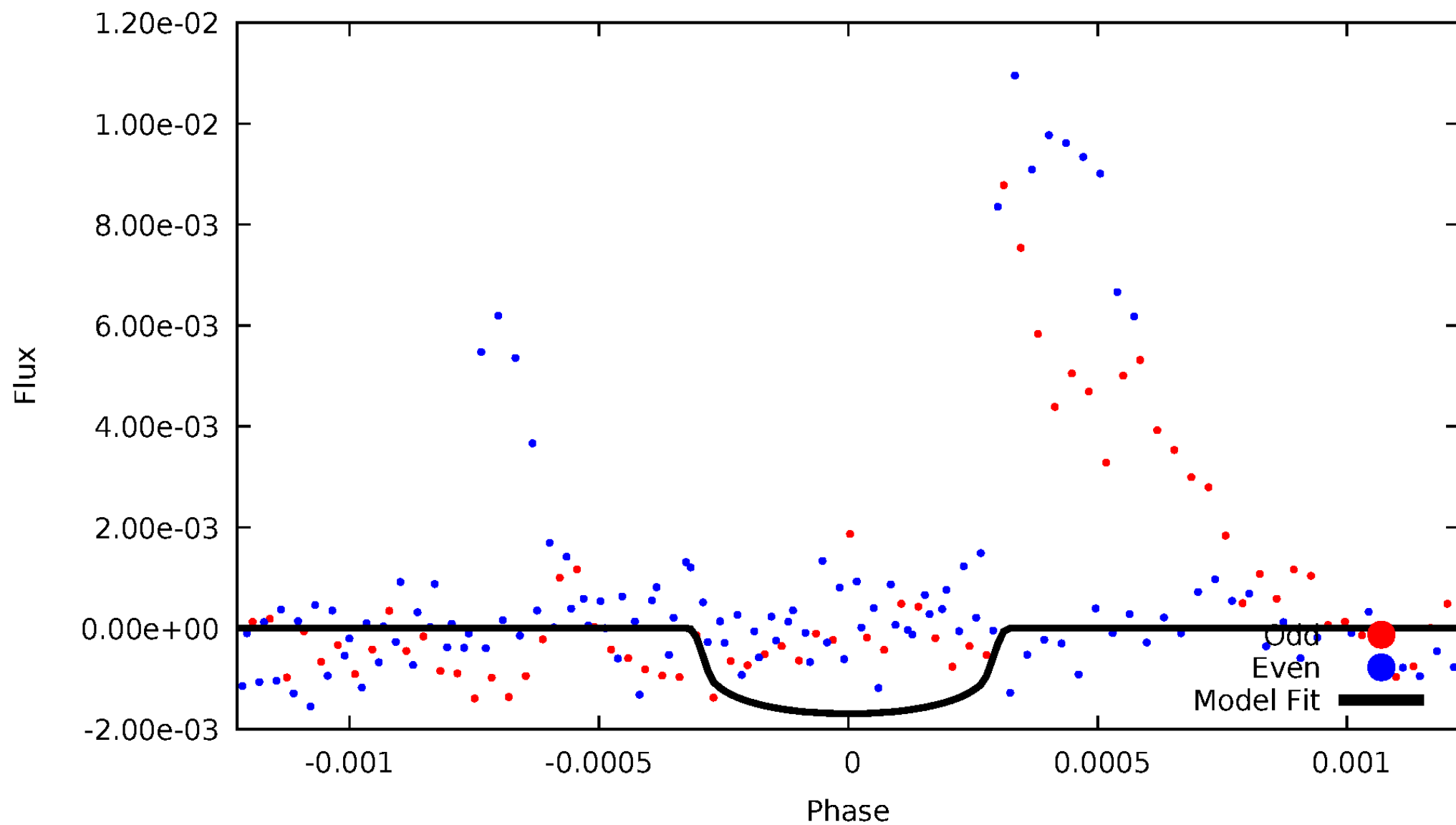


TCE 004650327-02



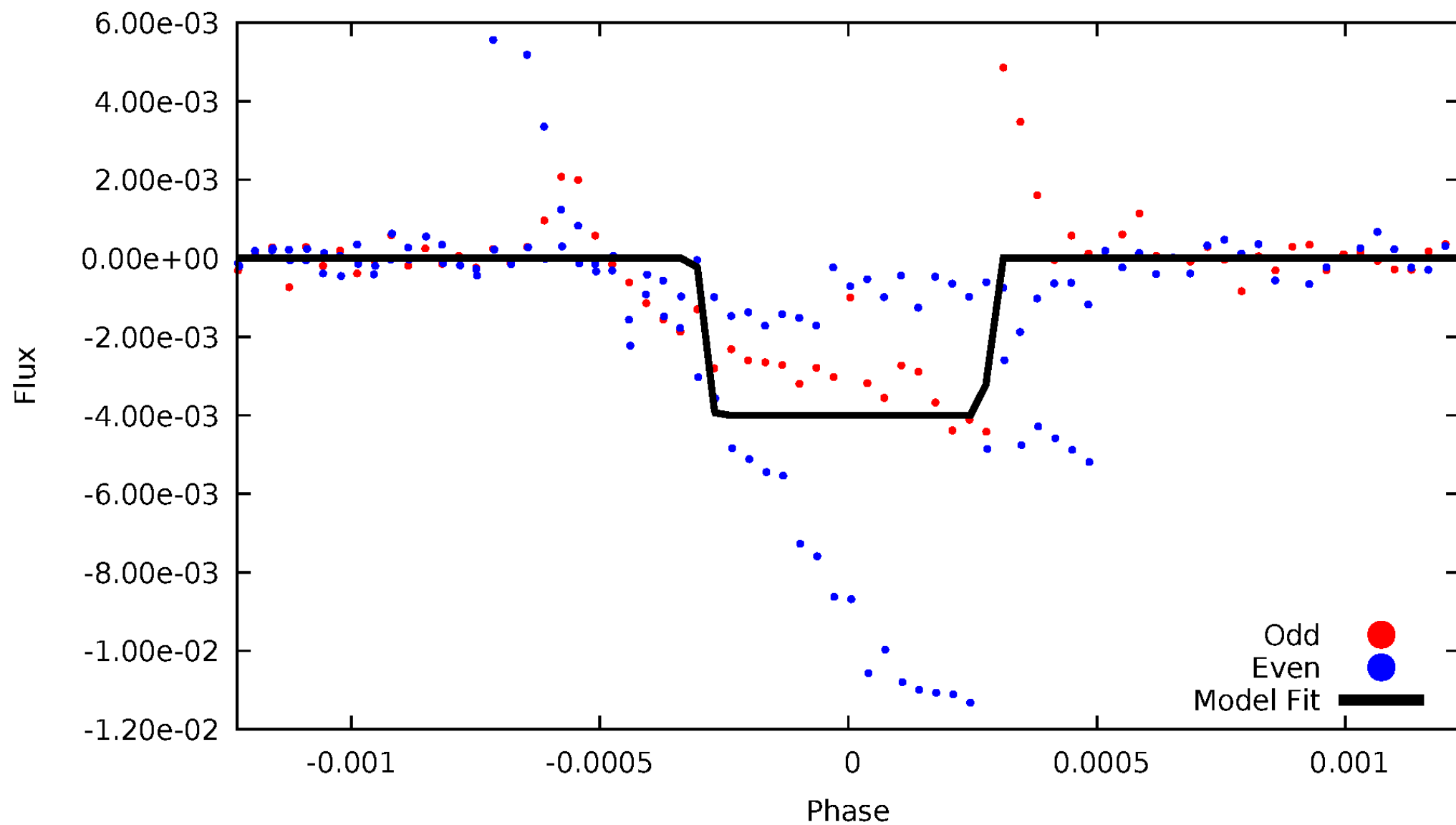
DV Odd/Even

TCE 004650327-02



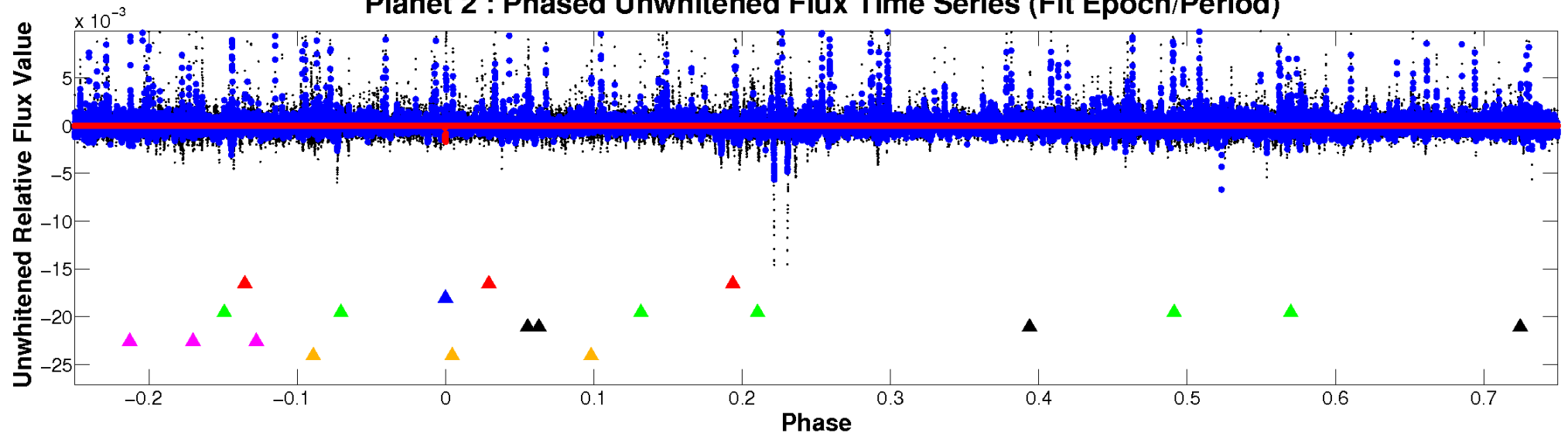
ALT Odd/Even

TCE 004650327-02

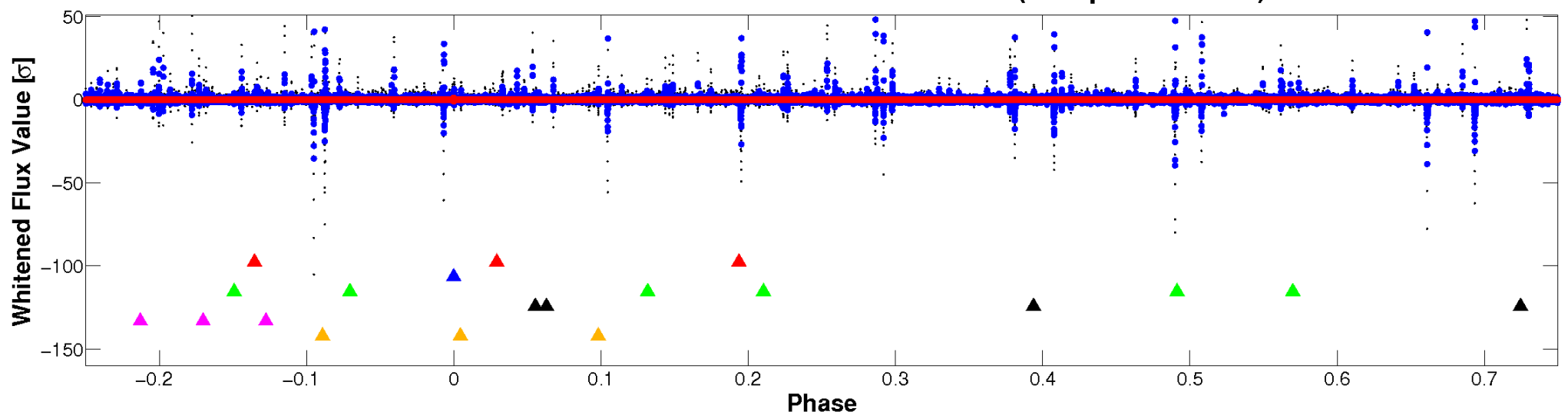


Non-Whitened Vs. Whitened Light Curve

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

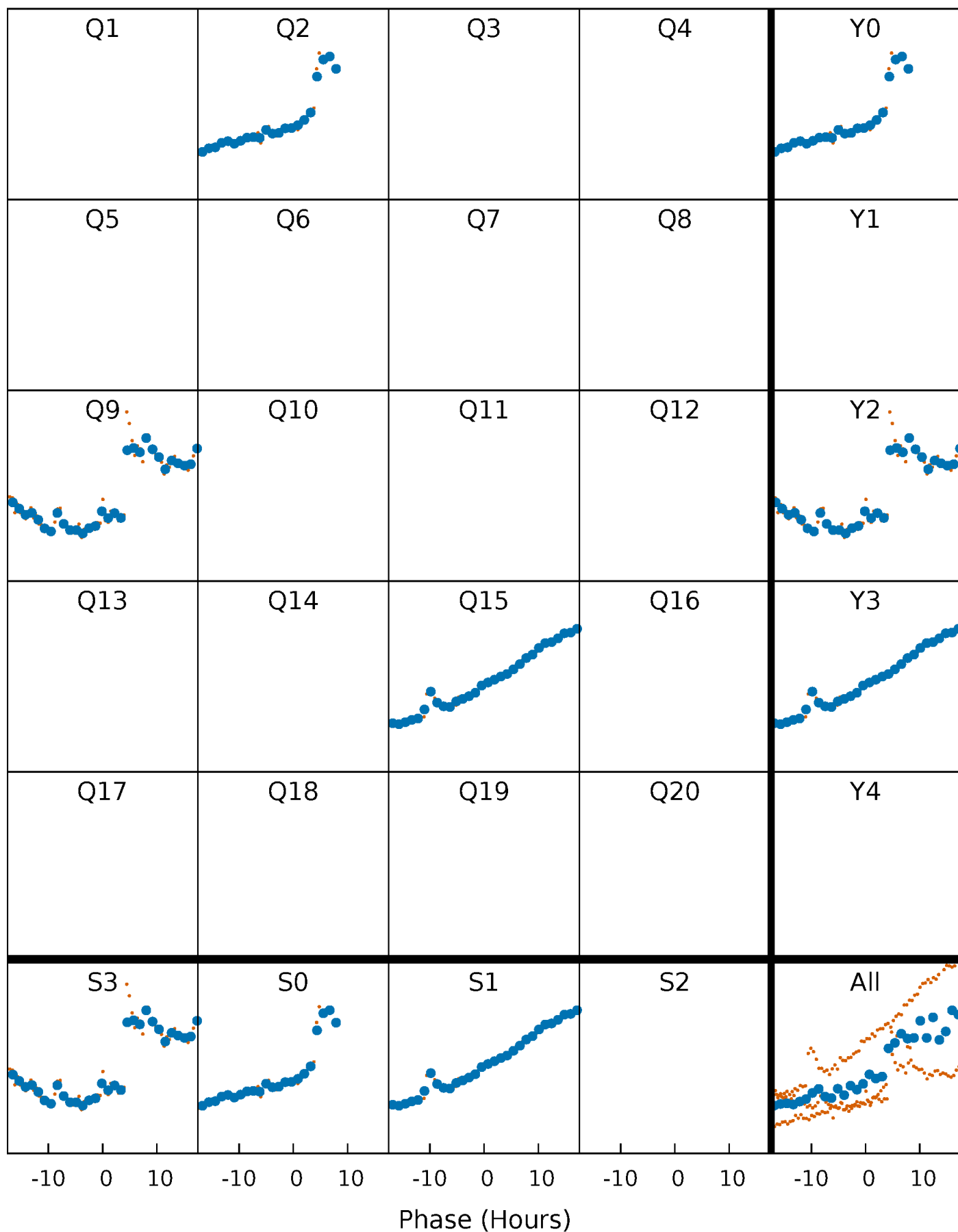


Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



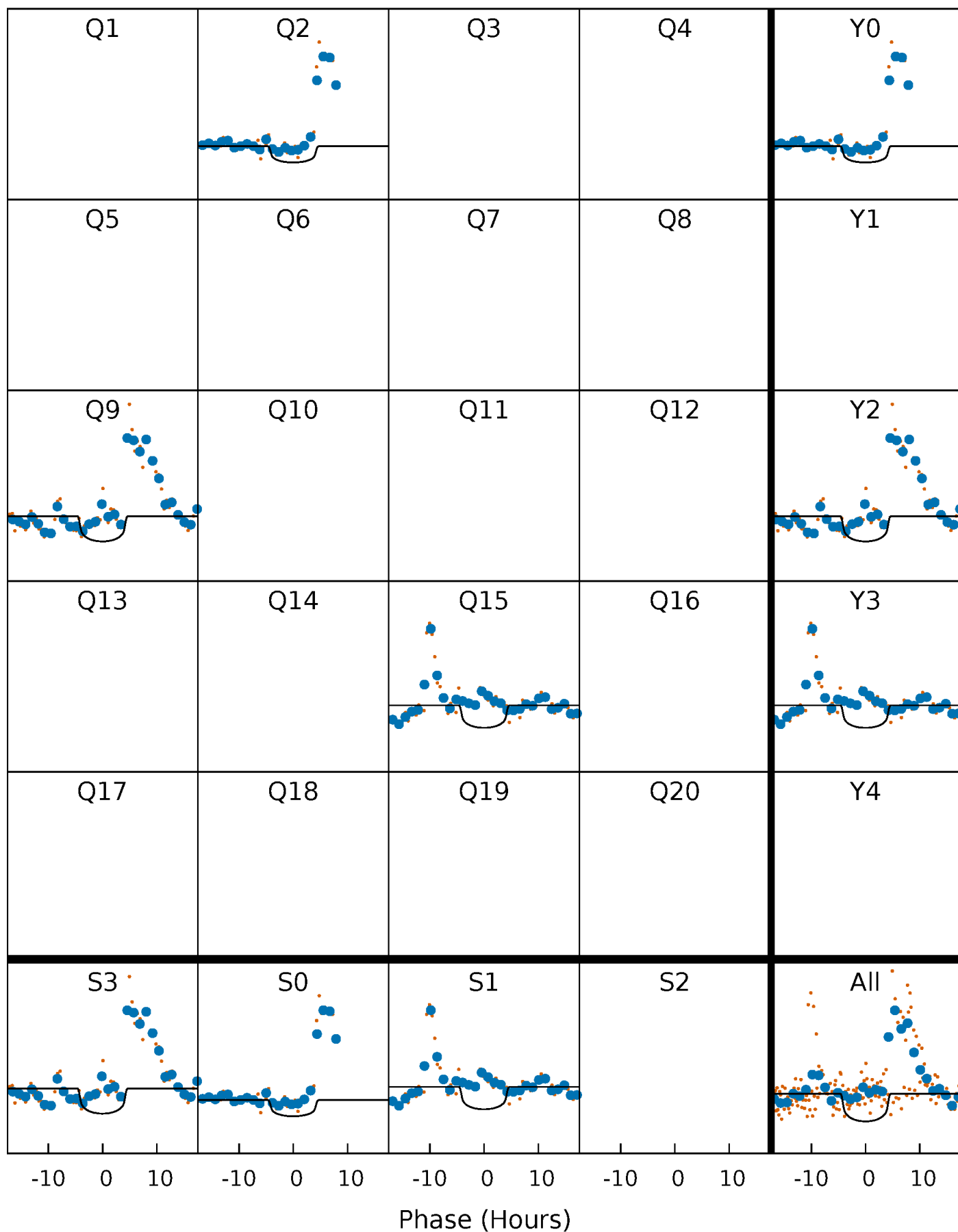
PDC Quarter-Phased Transit Curves

TCE 004650327-02 P=597.080939 Days $T_0=255.039916$ (BKJD)



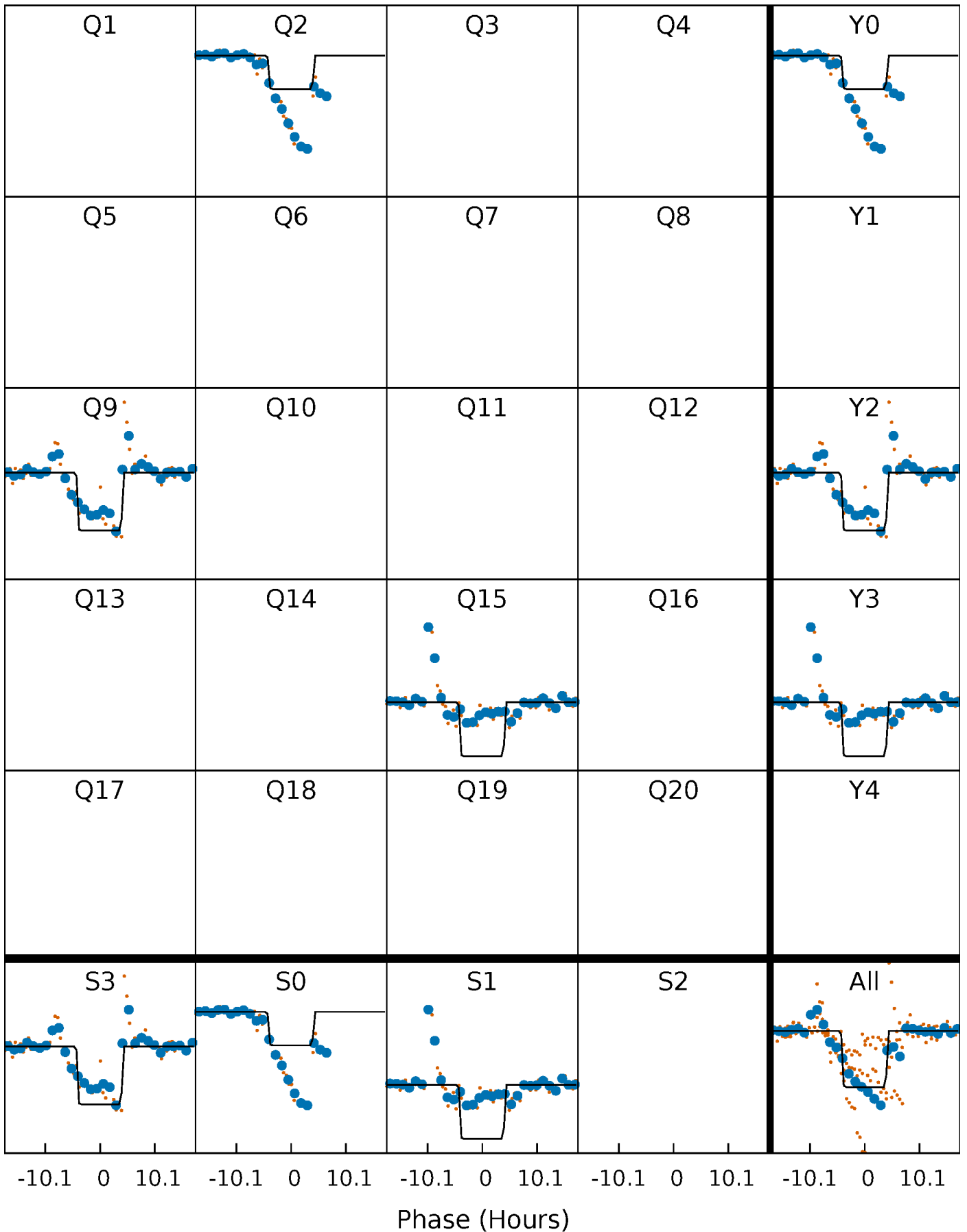
DV Quarter-Phased Transit Curves

TCE 004650327-02 P=597.080939 Days $T_0=255.039916$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

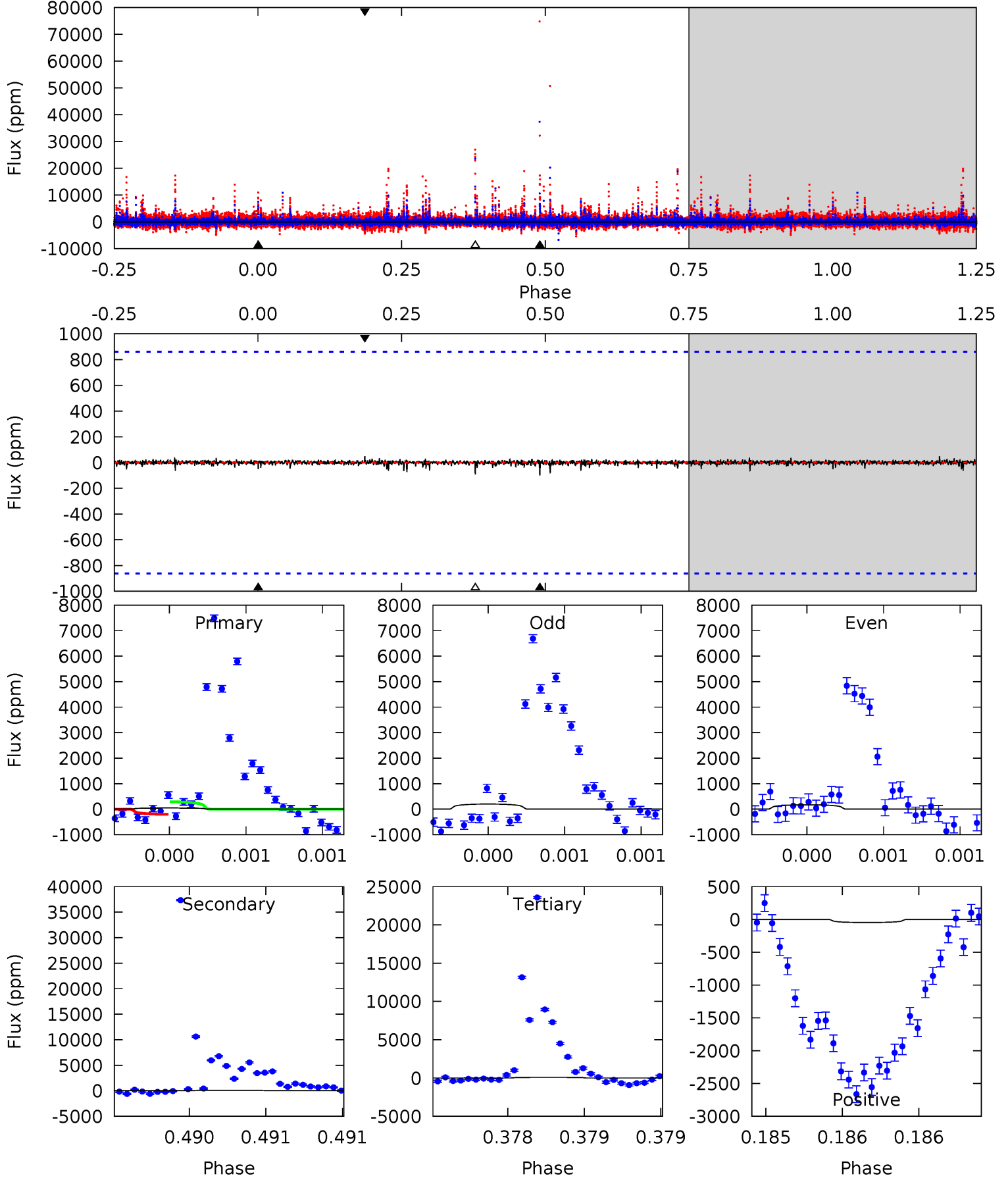
TCE 004650327-02 P=597.068623 Days $T_0=255.051905$ (BKJD)



DV Model-Shift Uniqueness Test

004650327-02, P = 597.080939 Days, E = 255.039916 Days

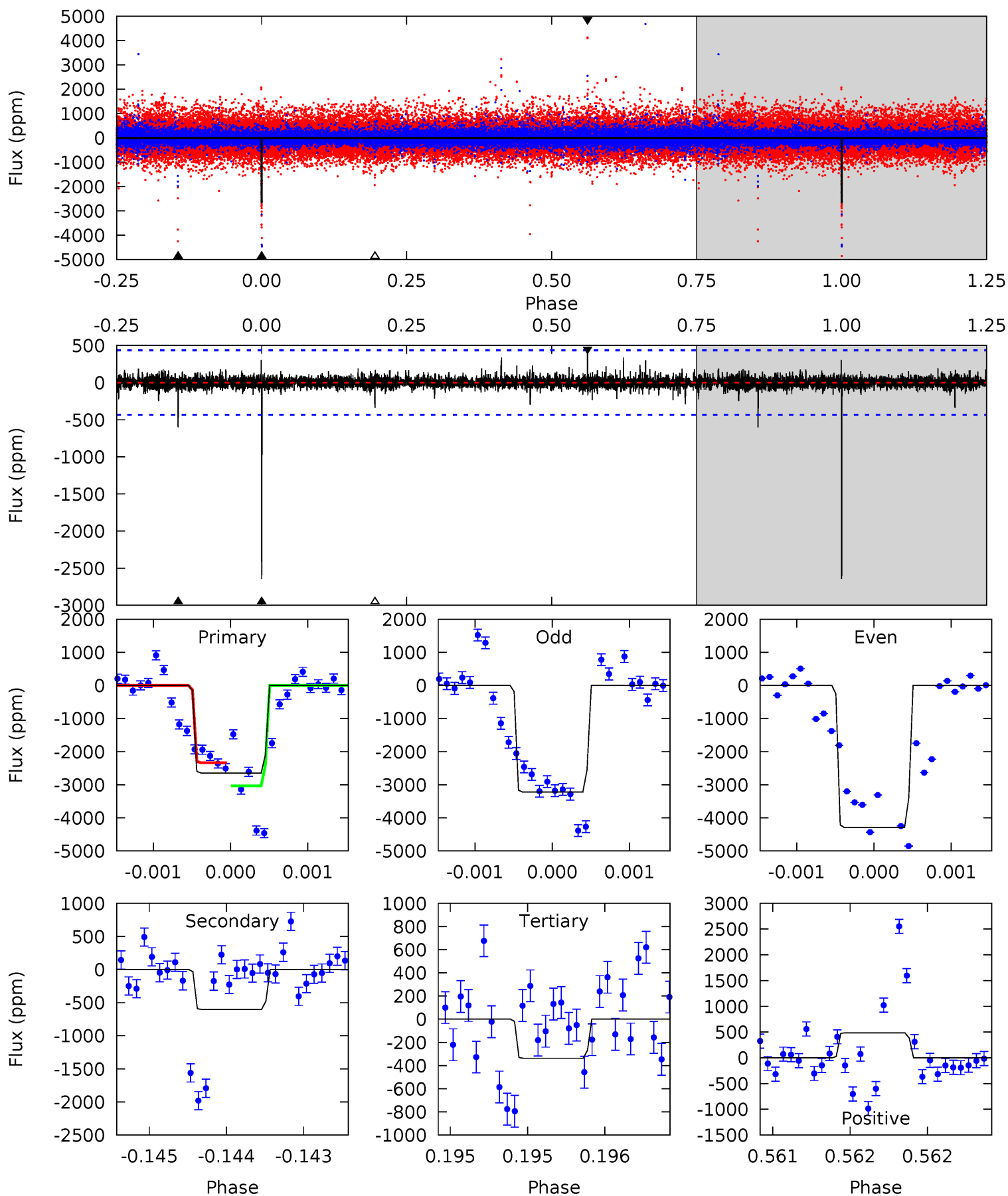
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
0.30	0.64	0.56	0.30	5.53	3.42	0.06	-0.26	-0.00	0.08	0.34	0.04	11.1	0.32	0.28



Alt Model-Shift Uniqueness Test

004650327-02, P = 597.068623 Days, E = 255.051905 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
33.8	7.68	4.30	6.17	5.54	3.42	0.58	29.4	27.6	3.38	1.51	6.87	1.33	0.15	0



Stellar Parameters For KIC 004650327

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	$M(M_{\odot})$	p_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	4986^{+173}_{-173}	$4.657^{+0.060}_{-0.035}$	$-0.960^{+0.300}_{-0.300}$	$0.600^{+0.047}_{-0.042}$	$0.597^{+0.055}_{-0.026}$	$3.884^{+0.876}_{-0.535}$
	+3%/-3%	+1%/-1%	+31%/-31%	+8%/-7%	+9%/-4%	+23%/-14%
Source	PHO1	KIC0	KIC0	DSEP		

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

Secondary Eclipse Parameters for KIC 004650327-02 / KOI

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	-99 ± 156	$2.81^{+1.99}_{-1.76}$	218^{+9}_{-7}	2943^{+1278}_{-5617}	7949^{+67552}_{-12104}
Alt.	-602 ± 78	$4.30^{+2.06}_{-2.09}$	220^{+8}_{-8}	3481^{+929}_{-403}	24390^{+67810}_{-13349}

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

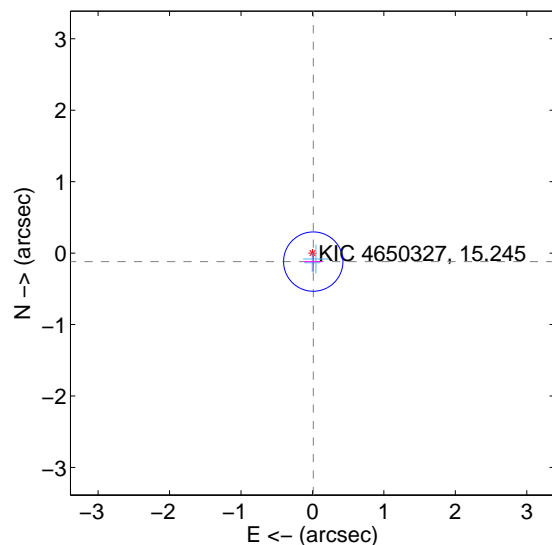
Supplemental centroid analysis for 004650327-02. Kepler magnitude: 15.24. Transit SNR 6.38

There are 2 quarters with good PRF difference image offsets

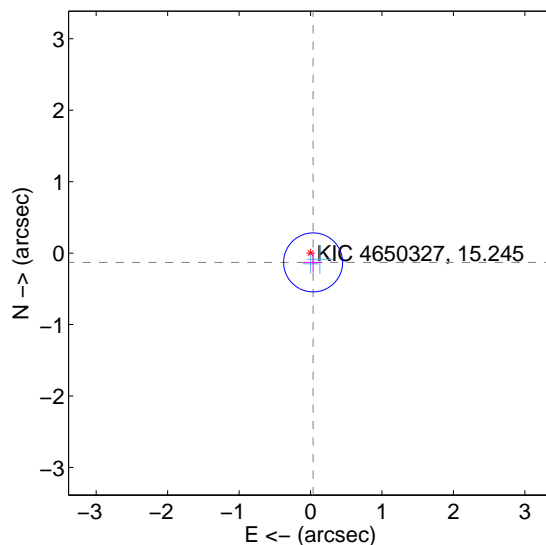
The direct PRF centroid is offset from the target star catalog position by about 0.08 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.119 ± 0.138	0.86	-0.011 ± 0.125	-0.119 ± 0.139
PRF-fit source offset from KIC position	0.135 ± 0.138	0.98	-0.036 ± 0.125	-0.130 ± 0.139
photometric centroid source offset	0.86 ± 0.65	1.31	0.86 ± 0.65	0.02 ± 0.73

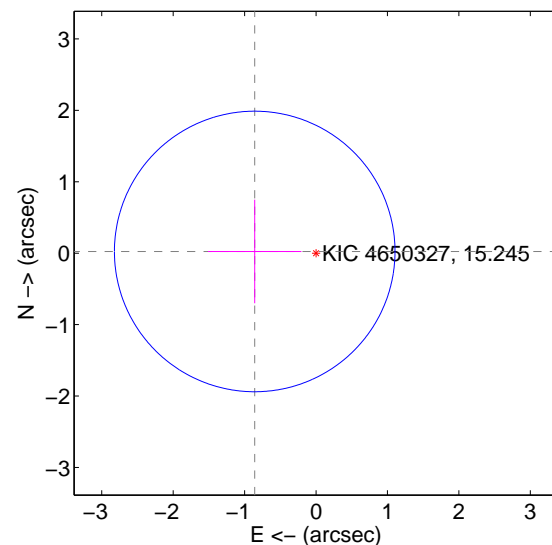
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position



offset from photometric centroids



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

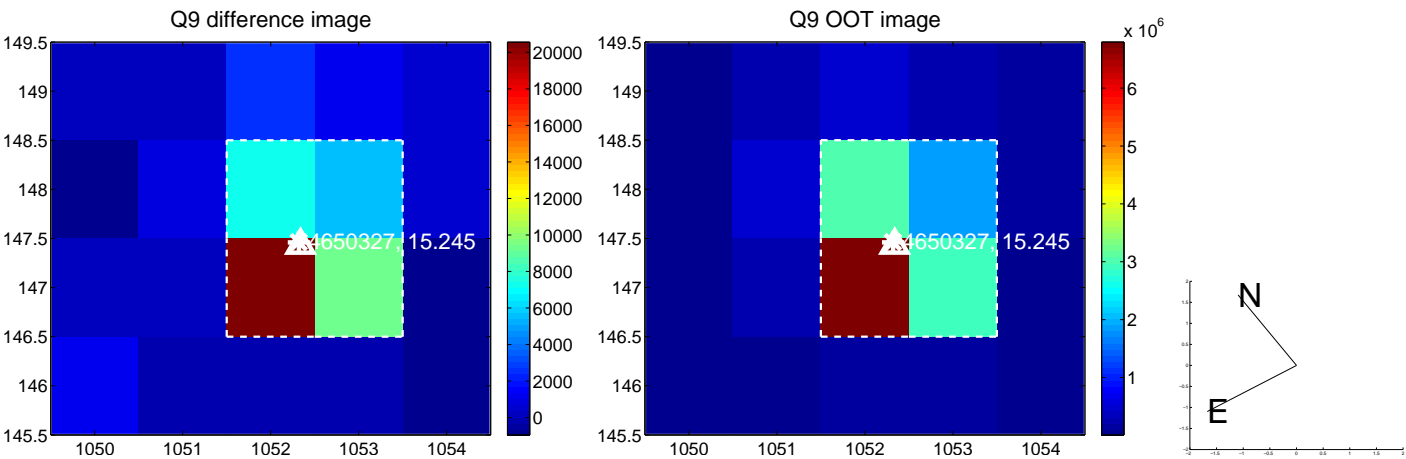
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



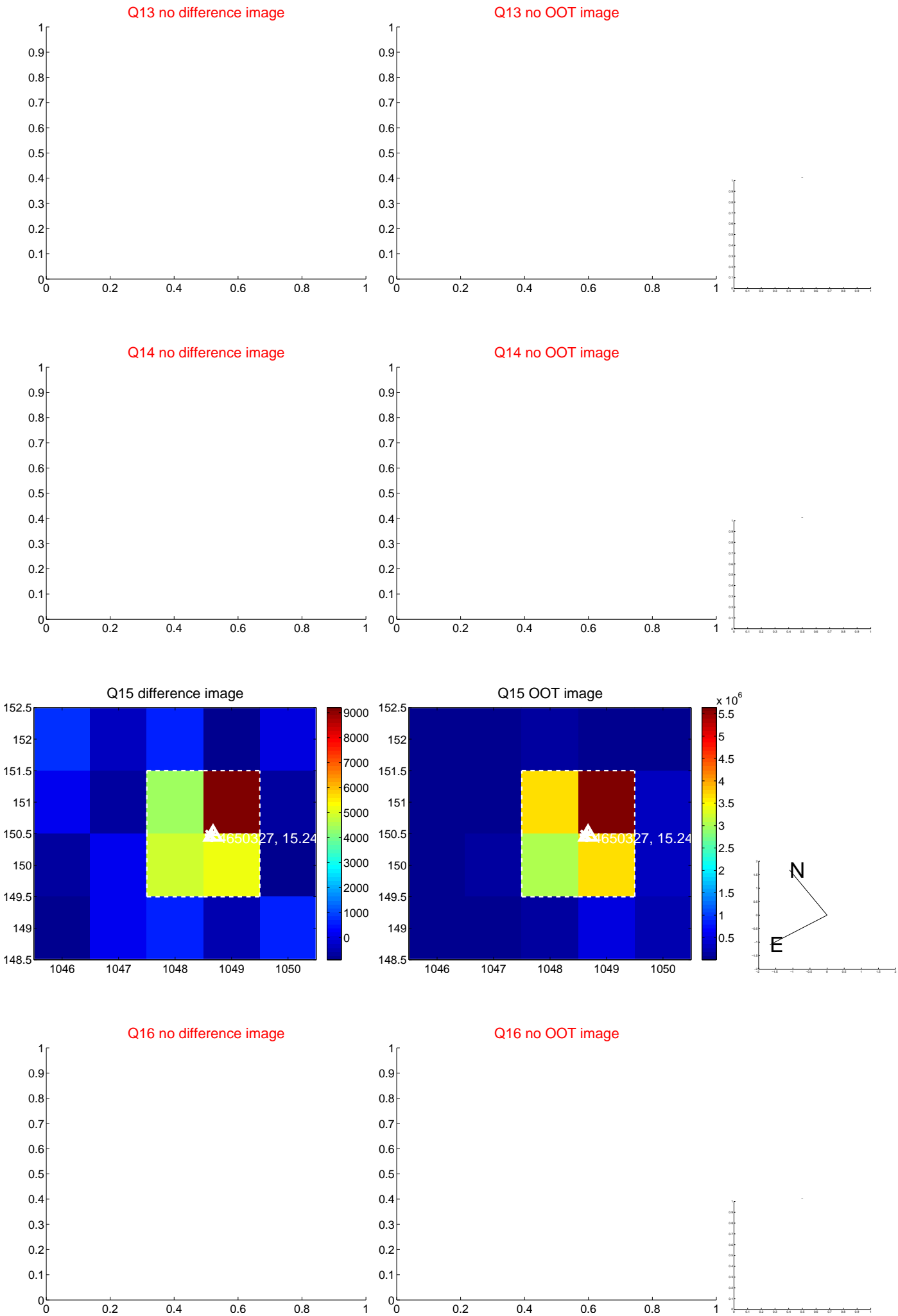
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



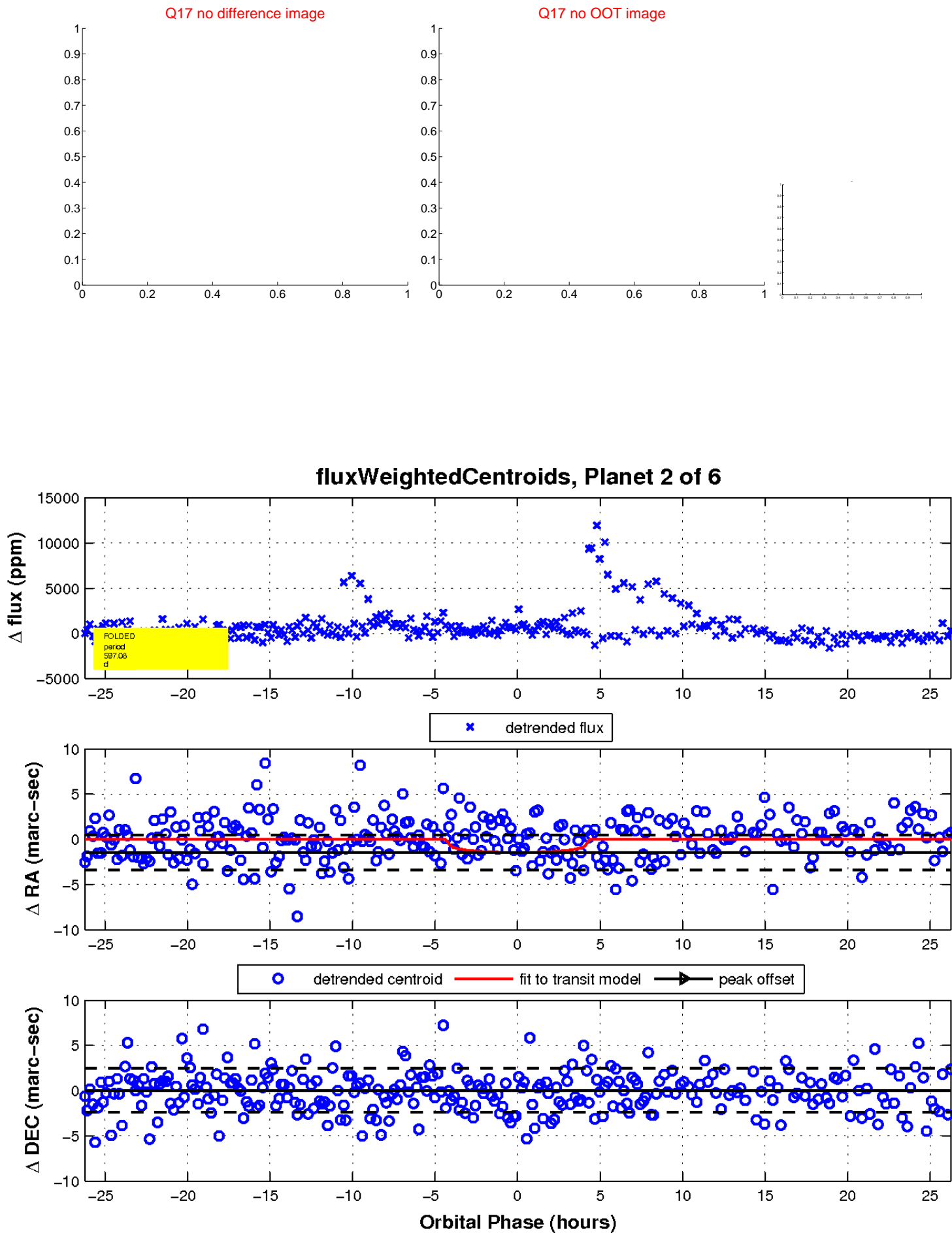
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

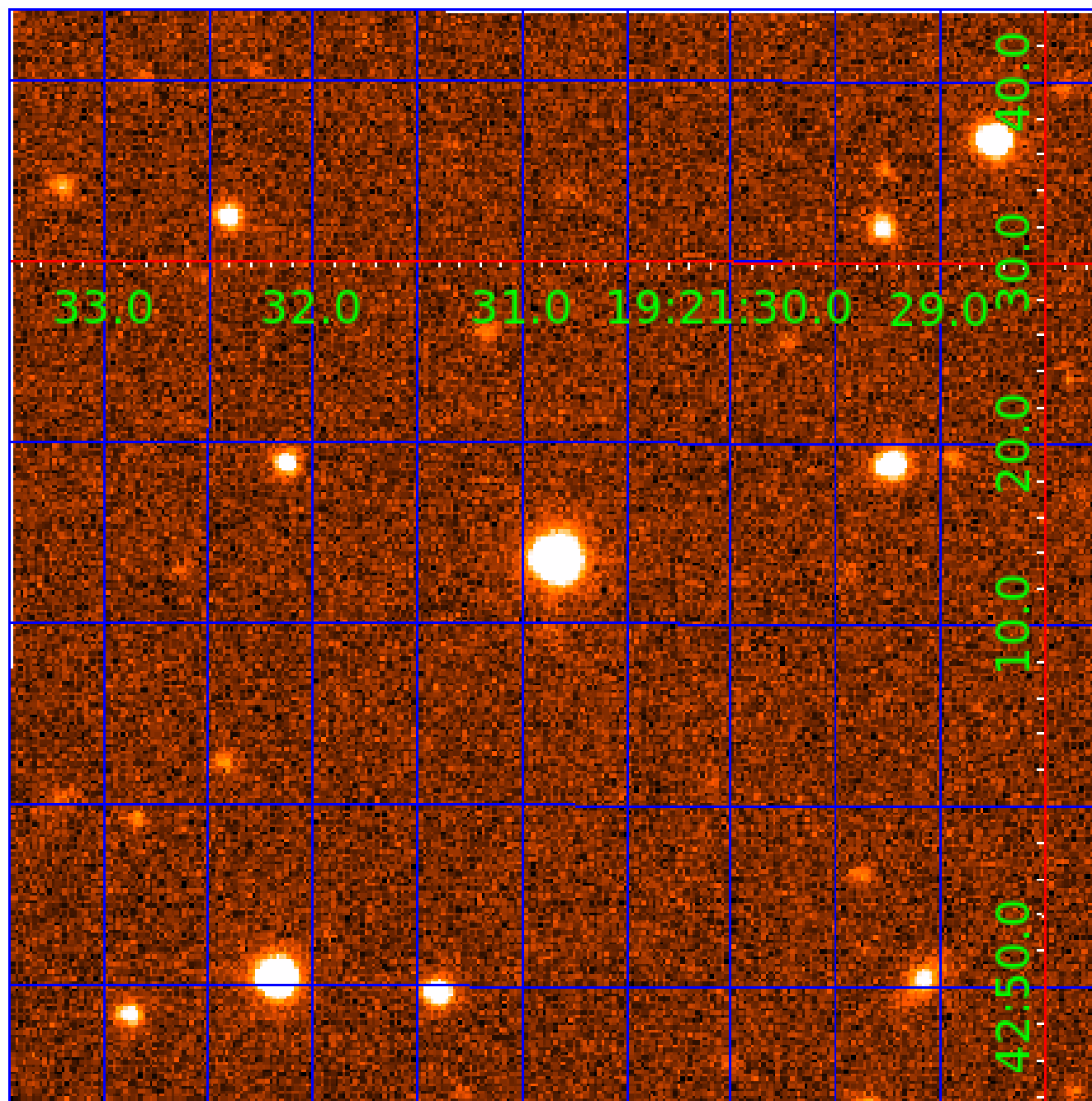


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 004650327

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})
004650327-01	OBS	No	695.313101	174.258630	2742.7	9.727	18.0	9.9	0.60	4986	3.21	0.12
004650327-02	OBS	No	597.080939	255.039916	1692.7	8.780	17.8	6.4	0.60	4986	2.42	0.15
004650327-03	OBS	No	214.677965	333.707044	1934.7	11.142	14.1	9.3	0.60	4986	3.05	0.57
004650327-04	OBS	No	399.560232	288.128419	1559.4	6.010	12.6	6.8	0.60	4986	2.36	0.25
004650327-05	OBS	No	571.603874	178.881644	740.6	3.676	12.0	3.1	0.60	4986	1.83	0.15
004650327-06	OBS	No	541.169214	313.645531	1117.8	6.000	12.3	-1.0	0.60	4986	1.97	0.17

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
004650327-01	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—INCONSISTENT_TRANS—CENT_FEW_DIFFS
004650327-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_SKYE—LPP_DV—MOD_NONUNIQ_DV—MOD_TER_DV—INCONSISTENT_TRANS—CENT_FEW_DIFFS
004650327-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_MARSHALL—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—CENT_FEW_DIFFS
004650327-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—INCONSISTENT_TRANS—CENT_FEW_DIFFS
004650327-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—INCONSISTENT_TRANS—CENT_FEW_DIFFS
004650327-06	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—LPP_DV—ALL_TRANS_CHASES—CENT_NOFITS

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

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

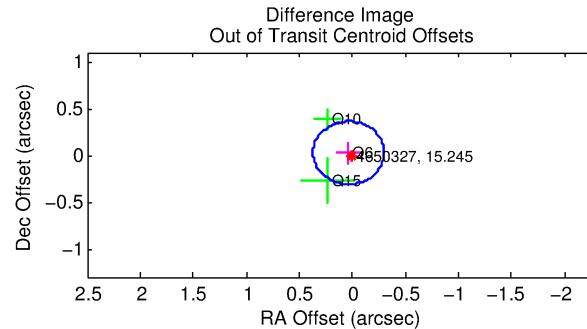
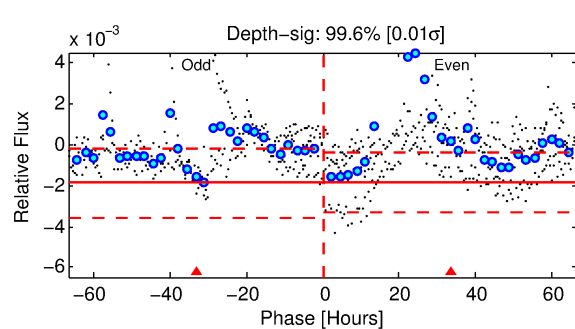
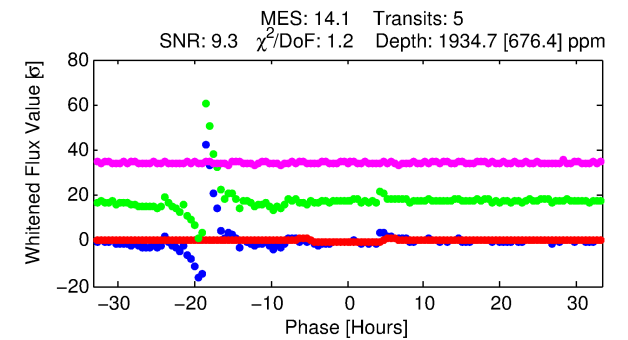
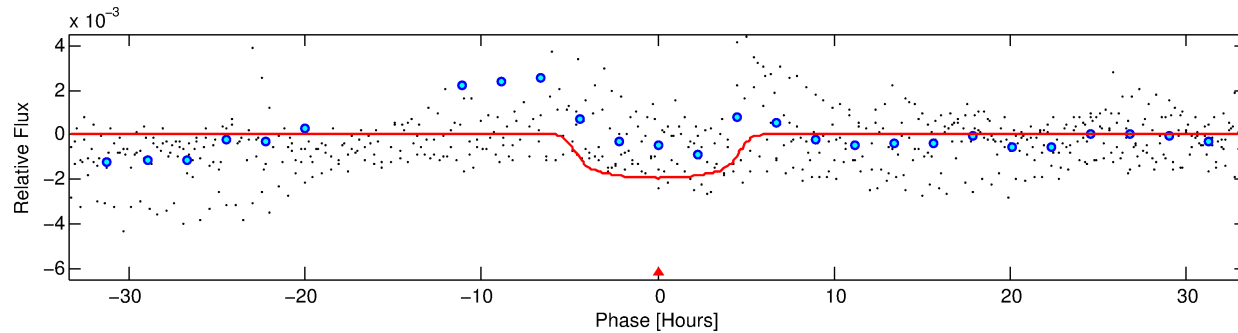
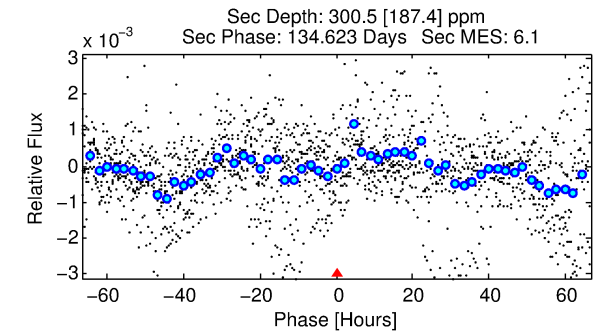
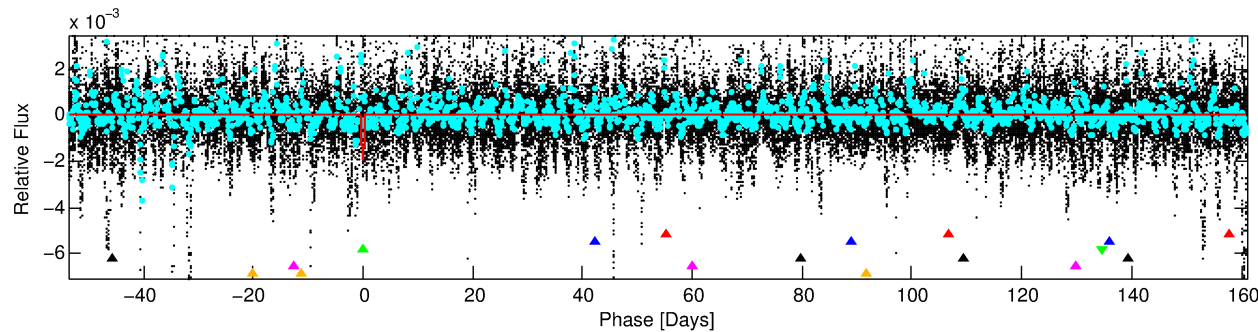
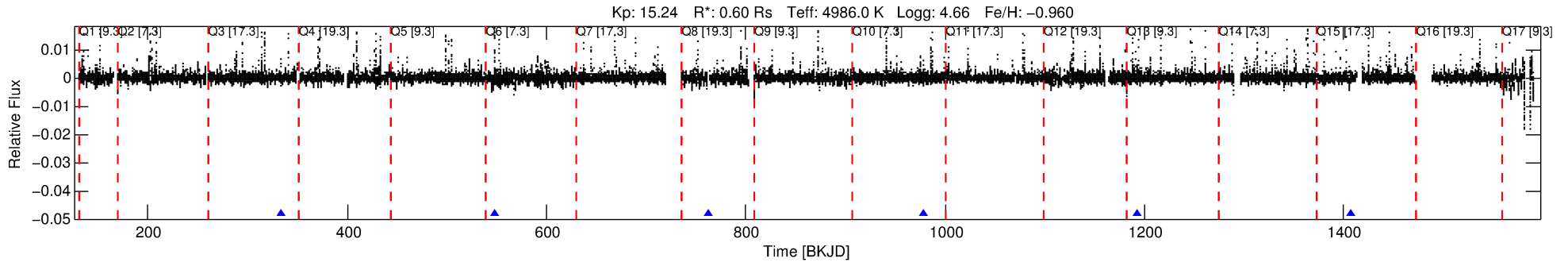
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 004650327-03

No Significant Match Found

DV One-Page Summary

KIC: 4650327 Candidate: 3 of 6 Period: 214.678 d



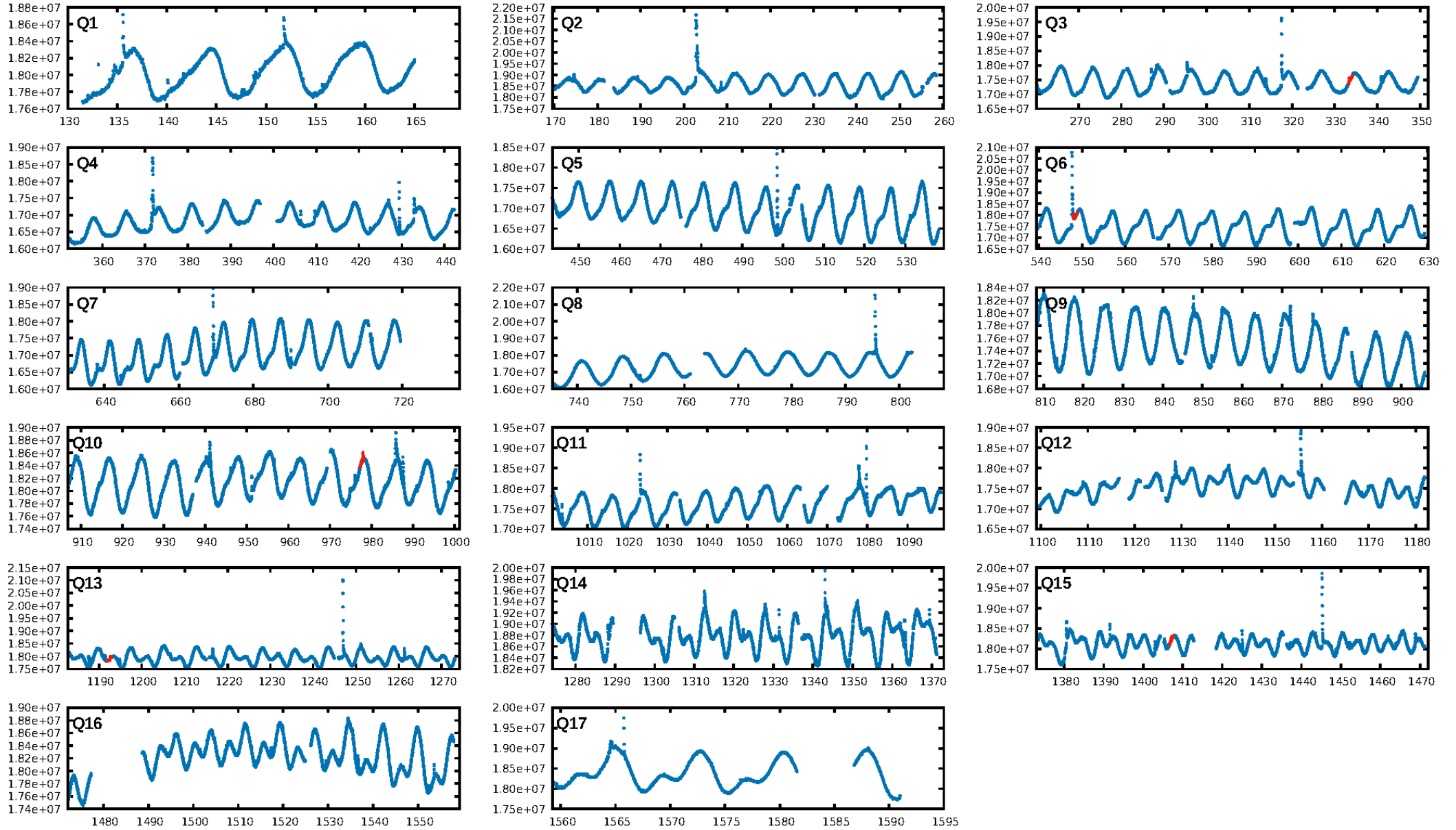
DV Fit Results:

Period = 214.67796 [0.00946] d
Epoch = 333.7070 [0.0290] BKJD
Rp/R* = 0.0466 [0.0112]
a/R* = 88.56 [47.31]
b = 0.86 [0.17]
Seff = 0.57 [0.10]
Teq = 222 [10] K
Rp = 3.05 [0.77] Re
a = 0.5906 [0.0411] AU
Ag = 6203.21 [4922.13] [1.26σ]
Teffp = 3042 [607] K [4.64σ]

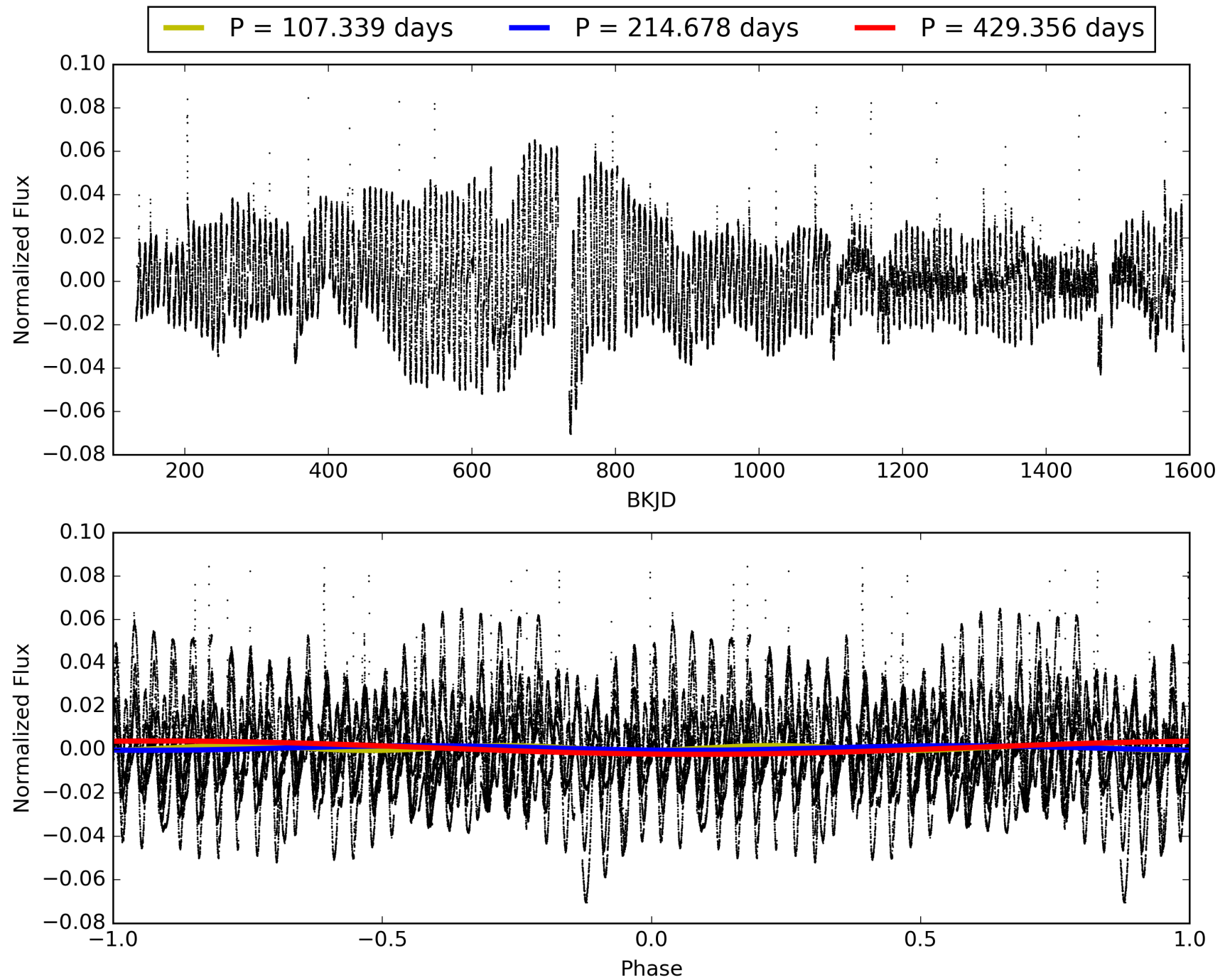
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: 100.0% [350.51σ]
ModelChiSquare2-sig: 43.0%
ModelChiSquareGof-sig: 86.1%
Bootstrap-pfa: N/A
RollingBand-fgt: 1.00 [5/5]
GhostDiagnostic-chr: 1.238
Centroid-sig: 0.0%
Centroid-so: 1.023 arcsec [2.16σ]
OotOffset-rm: 0.045 arcsec [0.40σ]
KicOffset-rm: 0.248 arcsec [1.17σ]
OotOffset-st: 2/1/0/0 [3]
KicOffset-st: 2/1/0/0 [3]
DiffImageQuality-fgm: 0.33 [1/3]
DiffImageOverlap-fno: 1.00 [4/4]

TCE 004650327-03, PDC Light Curves

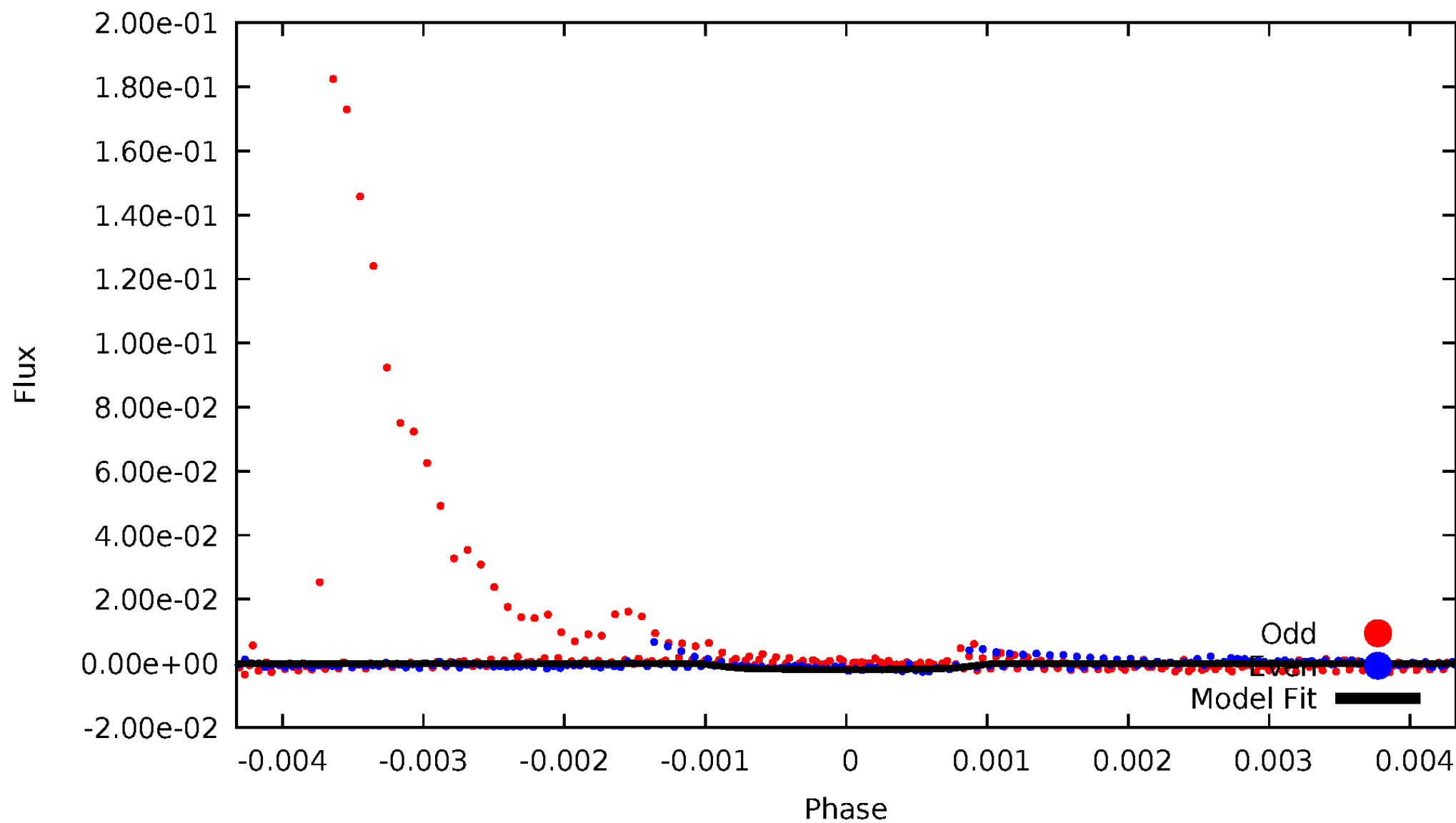


TCE 004650327-03



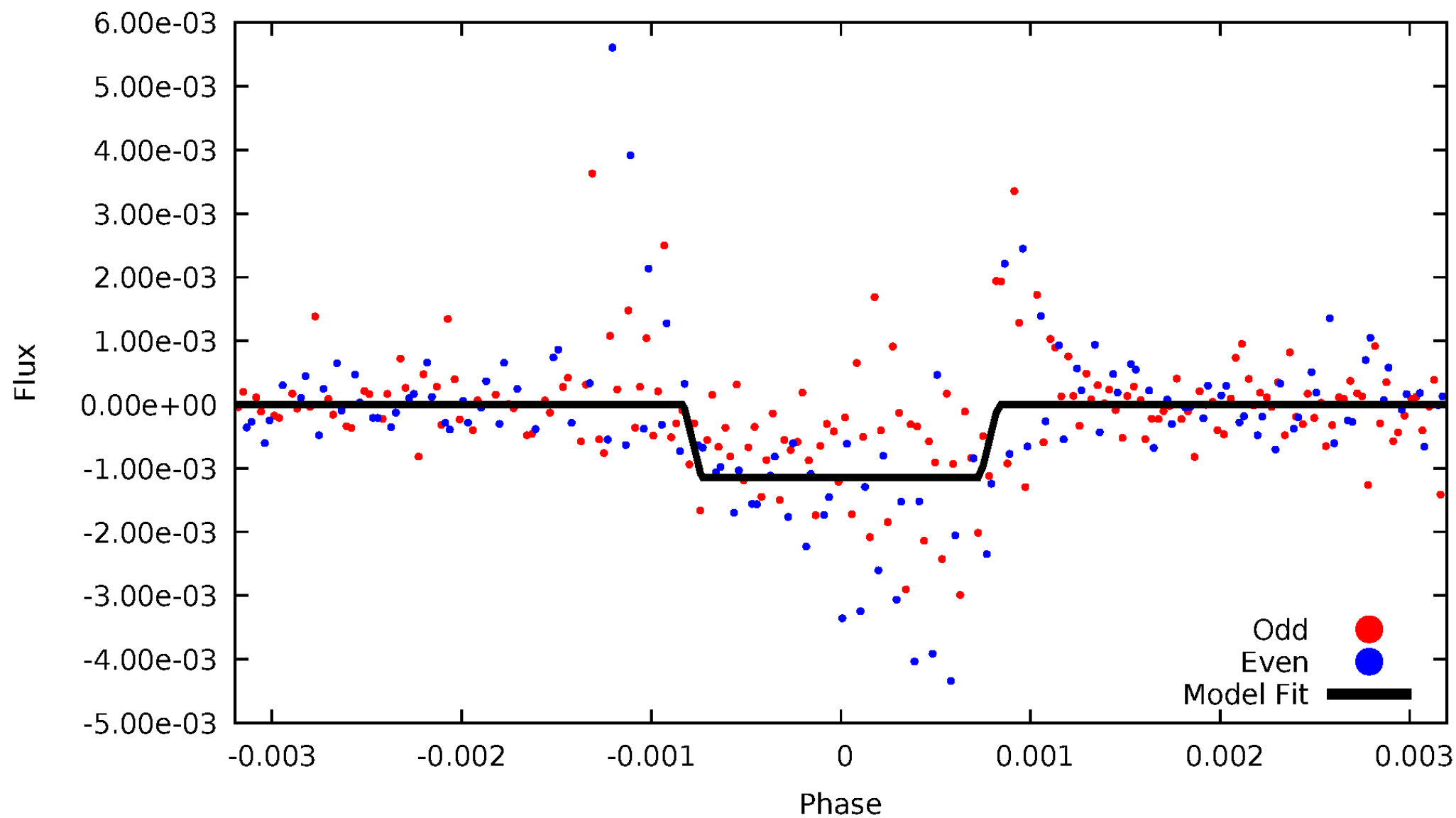
DV Odd/Even

TCE 004650327-03



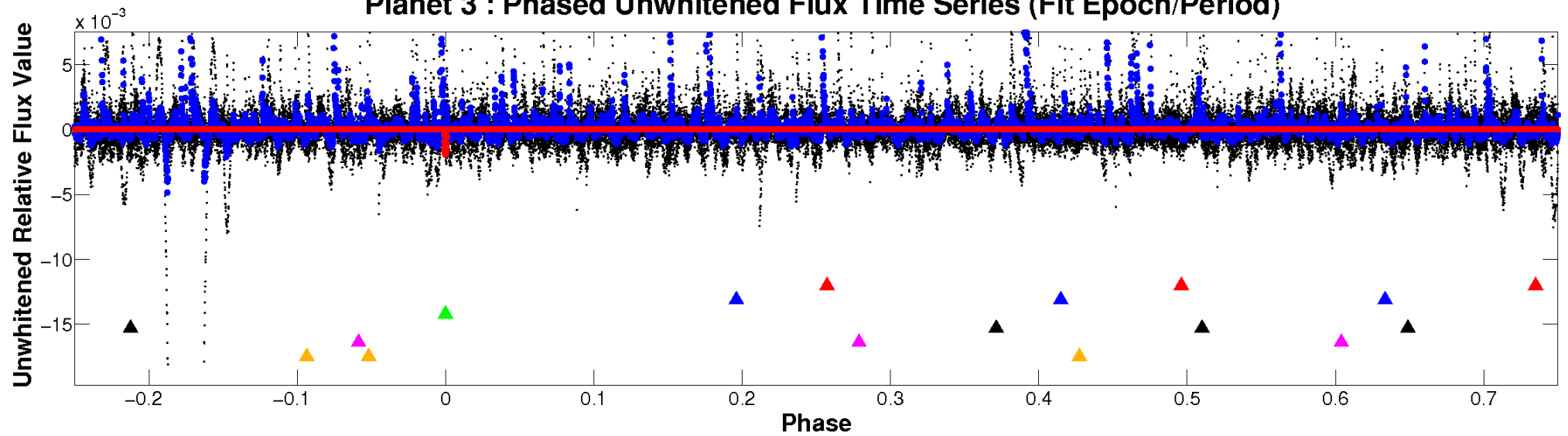
ALT Odd/Even

TCE 004650327-03

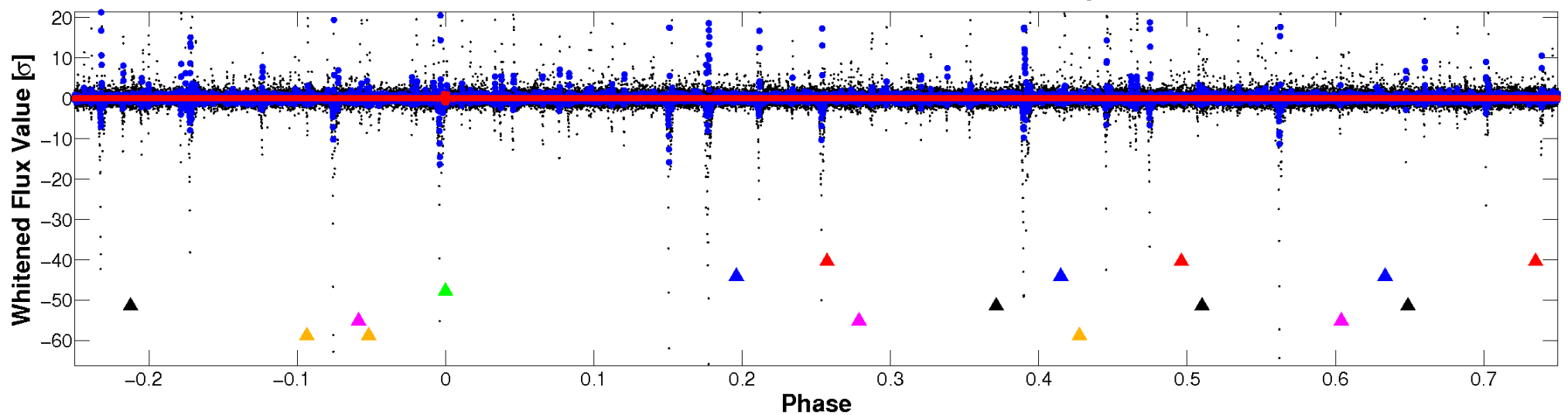


Non-Whitened Vs. Whitened Light Curve

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

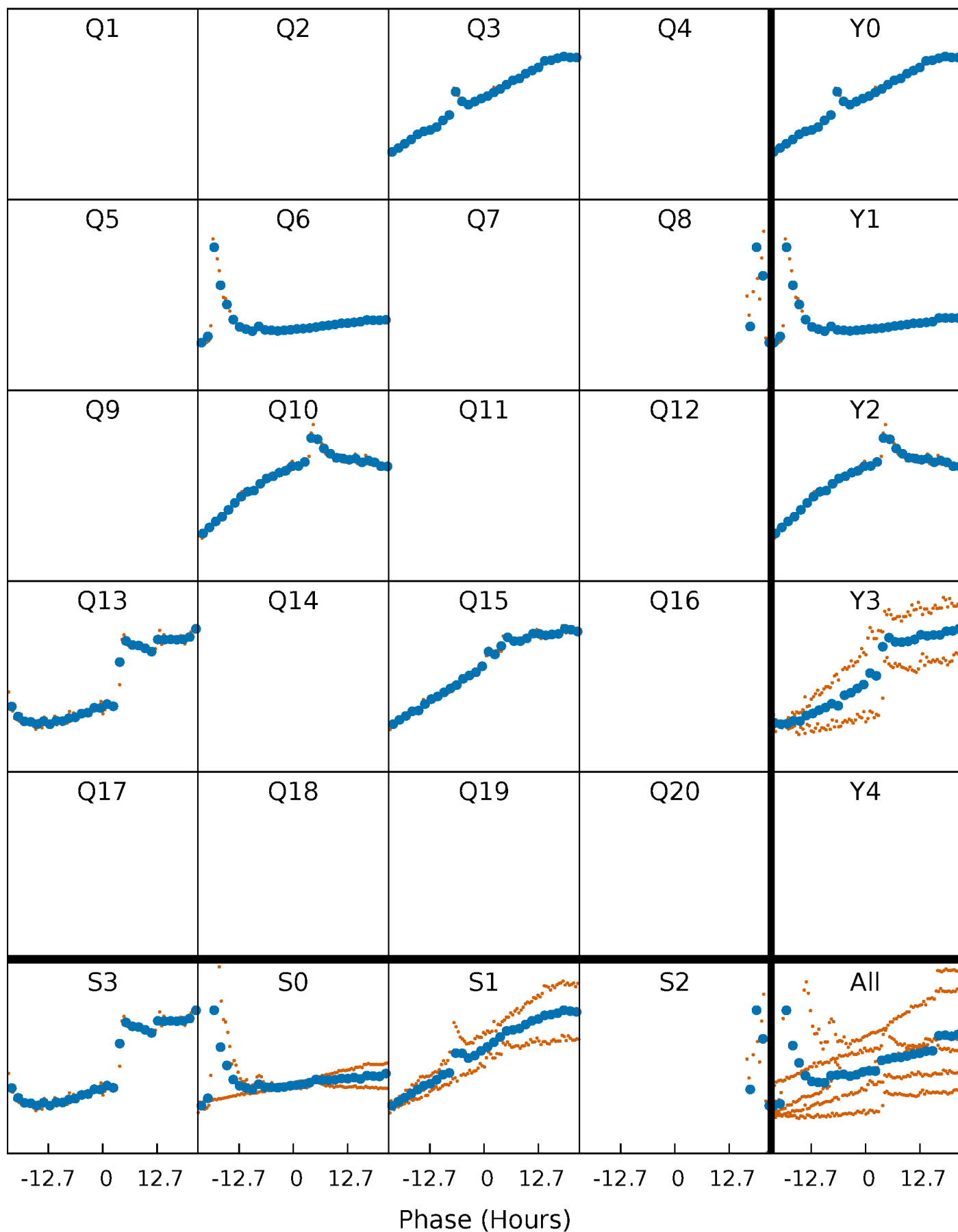


Planet 3 : Phased Whitened Flux Time Series (Fit Epoch/Period)



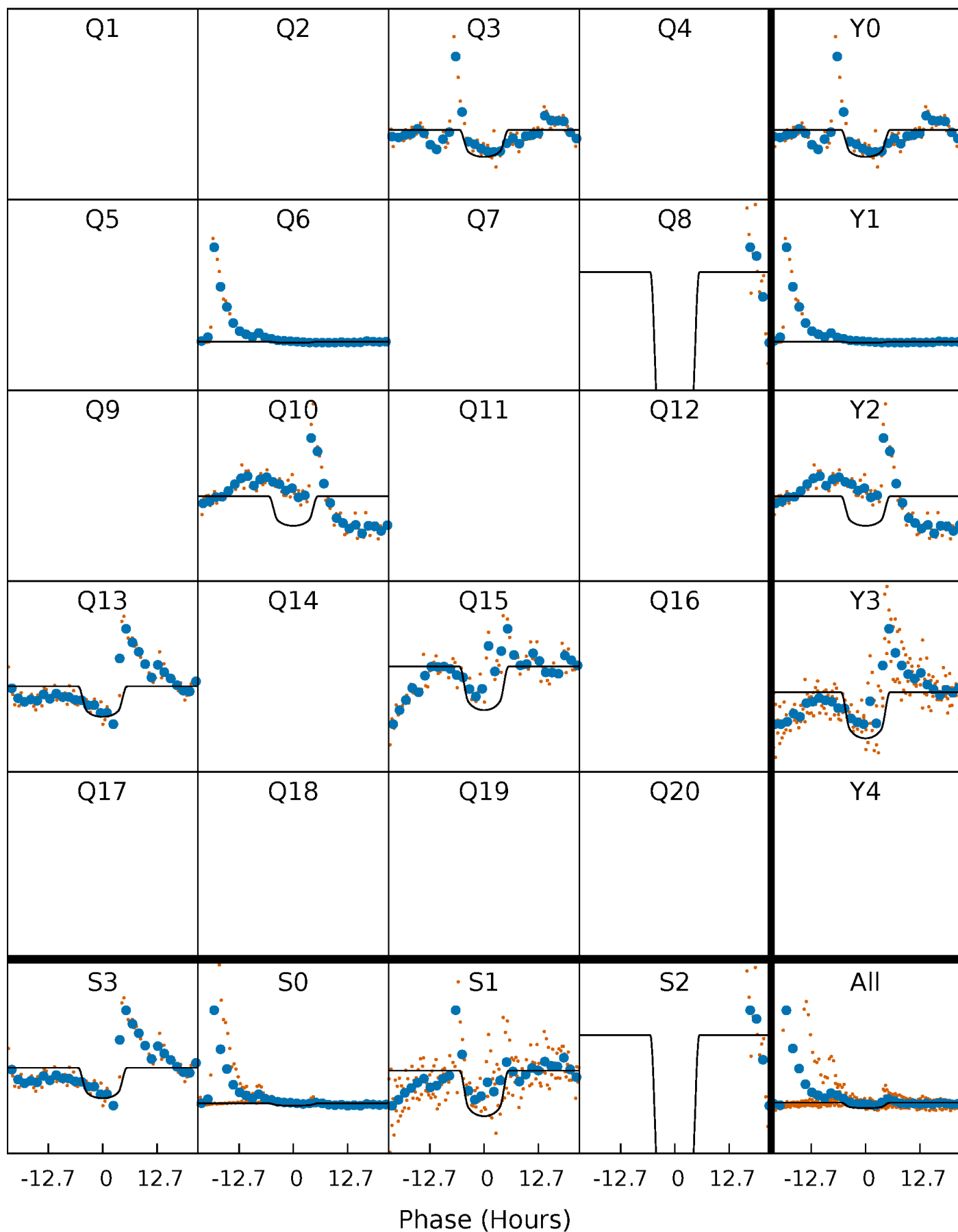
PDC Quarter-Phased Transit Curves

TCE 004650327-03 $P=214.677965$ Days $T_0=333.707044$ (BKJD)



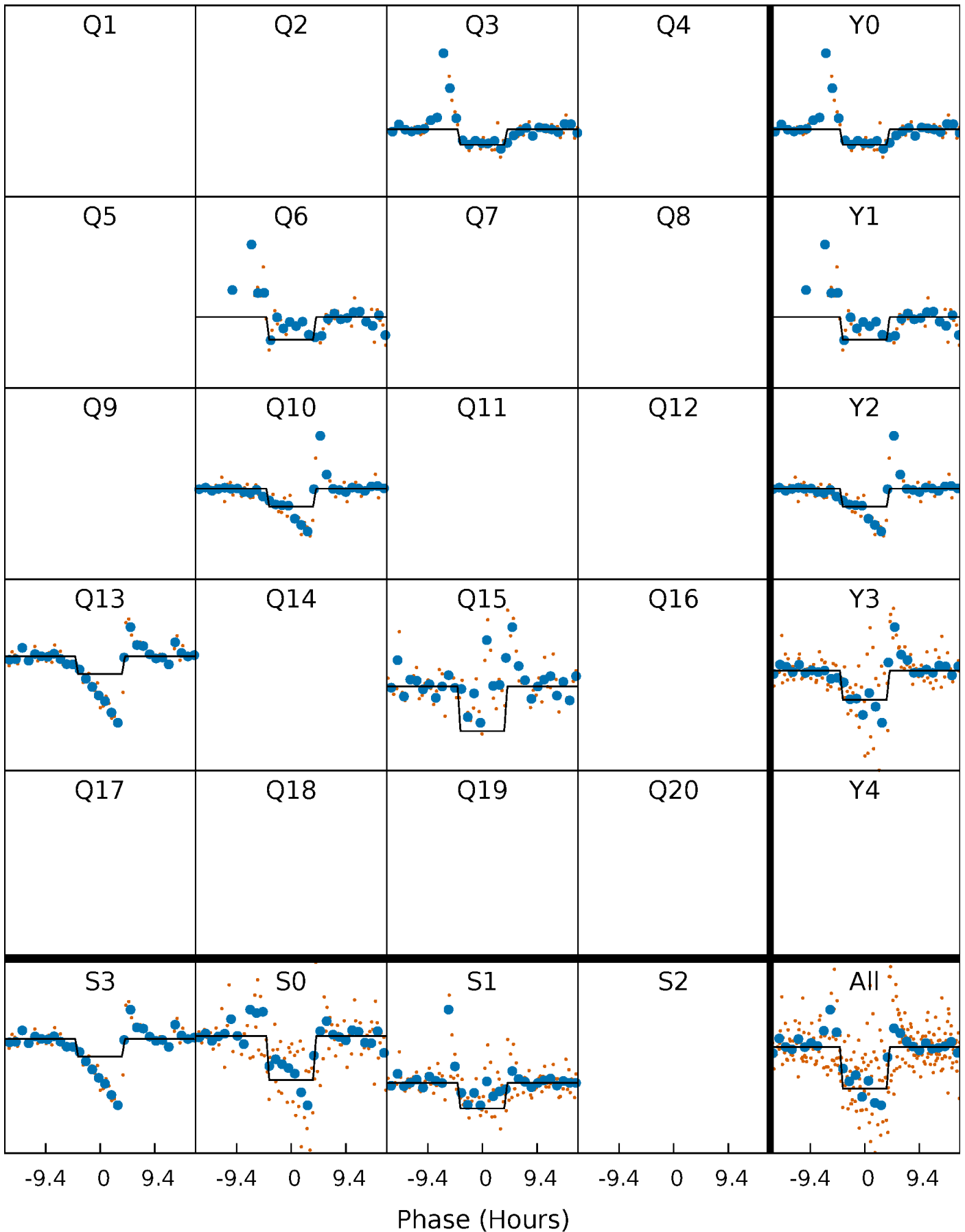
DV Quarter-Phased Transit Curves

TCE 004650327-03 P=214.677965 Days $T_0=333.707044$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

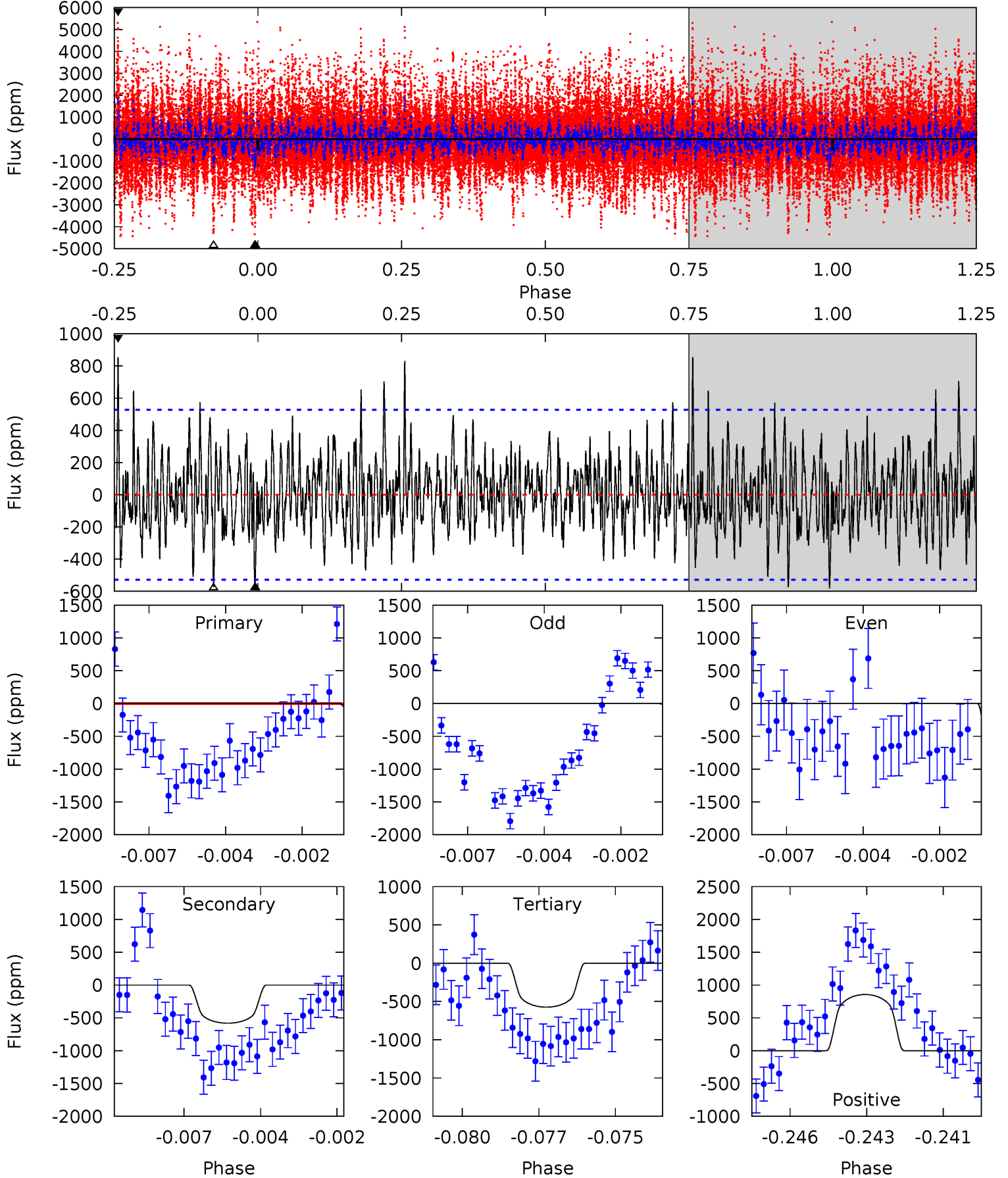
TCE 004650327-03 P=214.681793 Days $T_0=333.693807$ (BKJD)



DV Model-Shift Uniqueness Test

004650327-03, P = 214.677965 Days, E = 119.029079 Days

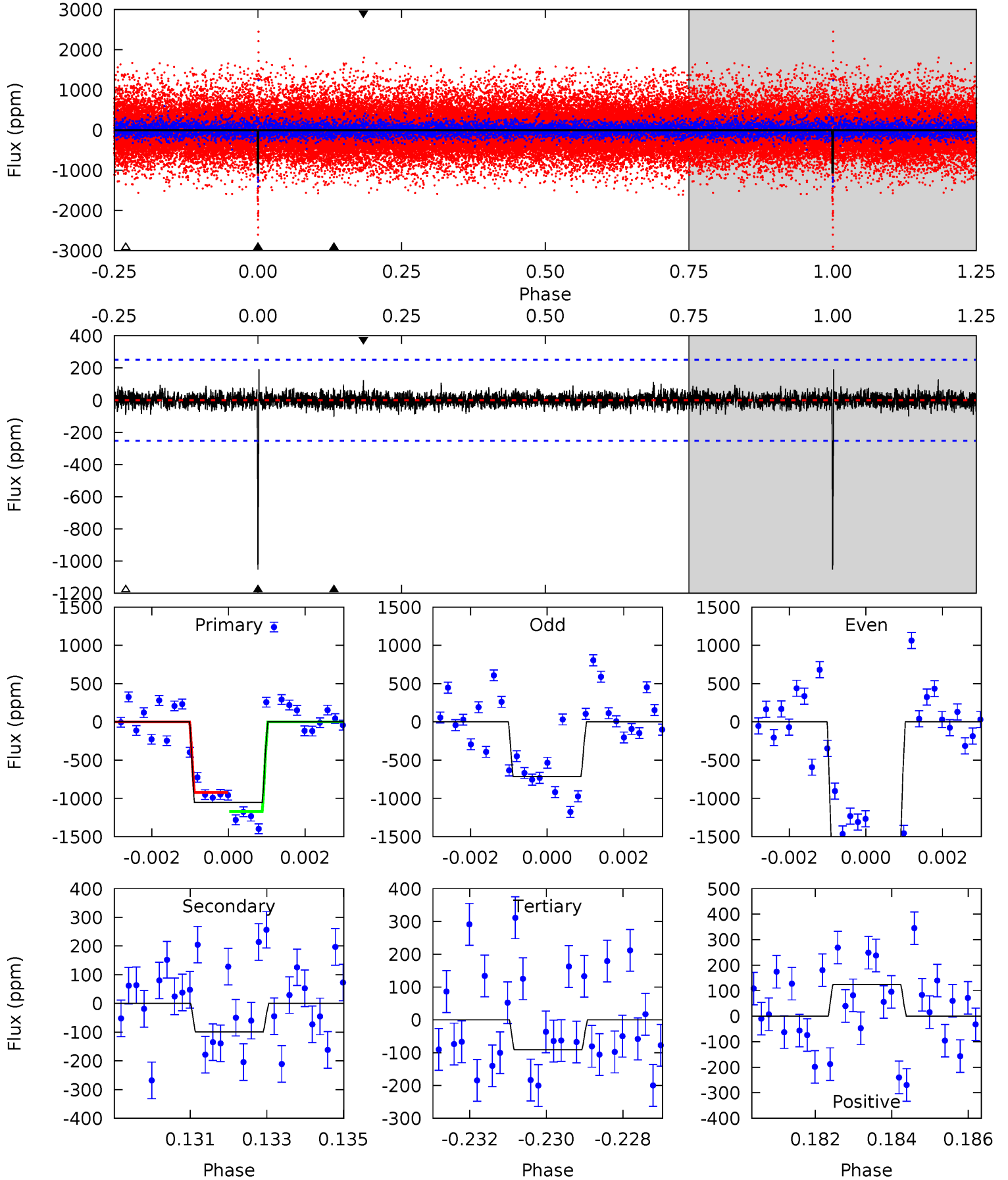
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
4.88	5.84	5.77	8.60	5.31	3.06	1.94	-0.89	-3.71	0.07	-2.76	6.03	0.93	0.60	2.77



Alt Model-Shift Uniqueness Test

004650327-03, P = 214.681793 Days, E = 119.012014 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
22.4	2.11	1.94	2.65	5.36	3.15	0.54	20.5	19.8	0.17	-0.54	11.5	1.13	0.15	2.61



Stellar Parameters For KIC 004650327

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	$M(M_{\odot})$	p_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	4986^{+173}_{-173}	$4.657^{+0.060}_{-0.035}$	$-0.960^{+0.300}_{-0.300}$	$0.600^{+0.047}_{-0.042}$	$0.597^{+0.055}_{-0.026}$	$3.884^{+0.876}_{-0.535}$
	+3%/-3%	+1%/-1%	+31%/-31%	+8%/-7%	+9%/-4%	+23%/-14%
Source	PHO1	KIC0	KIC0	DSEP		

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

Secondary Eclipse Parameters for KIC 004650327-03 / KOI

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	-581 ± 100	$3.05^{+0.68}_{-0.76}$	308^{+12}_{-12}	3877^{+443}_{-325}	12067^{+9863}_{-4393}
Alt.	-99 ± 47	$2.13^{+0.72}_{-0.69}$	308^{+12}_{-12}	3250^{+514}_{-394}	3957^{+6166}_{-2236}

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 $A_{obs} \gg 1.0$

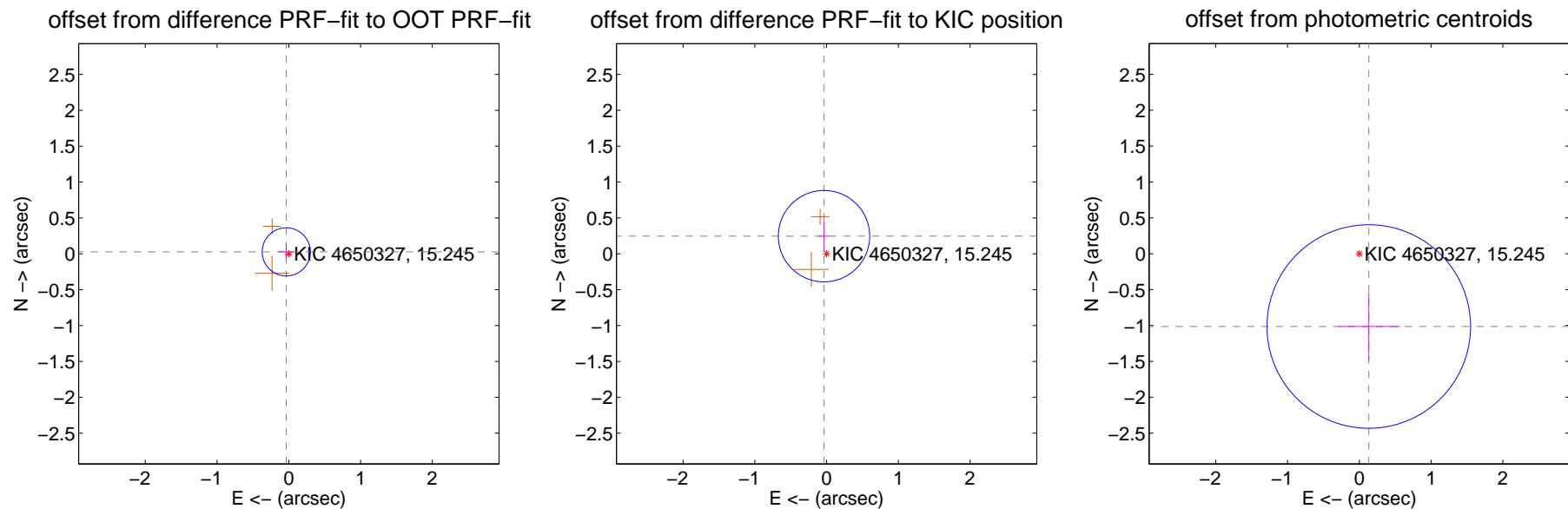
DV Centroid Data

Supplemental centroid analysis for 004650327-03. Kepler magnitude: 15.24. Transit SNR 9.31

There are 1 quarters with good PRF difference image offsets

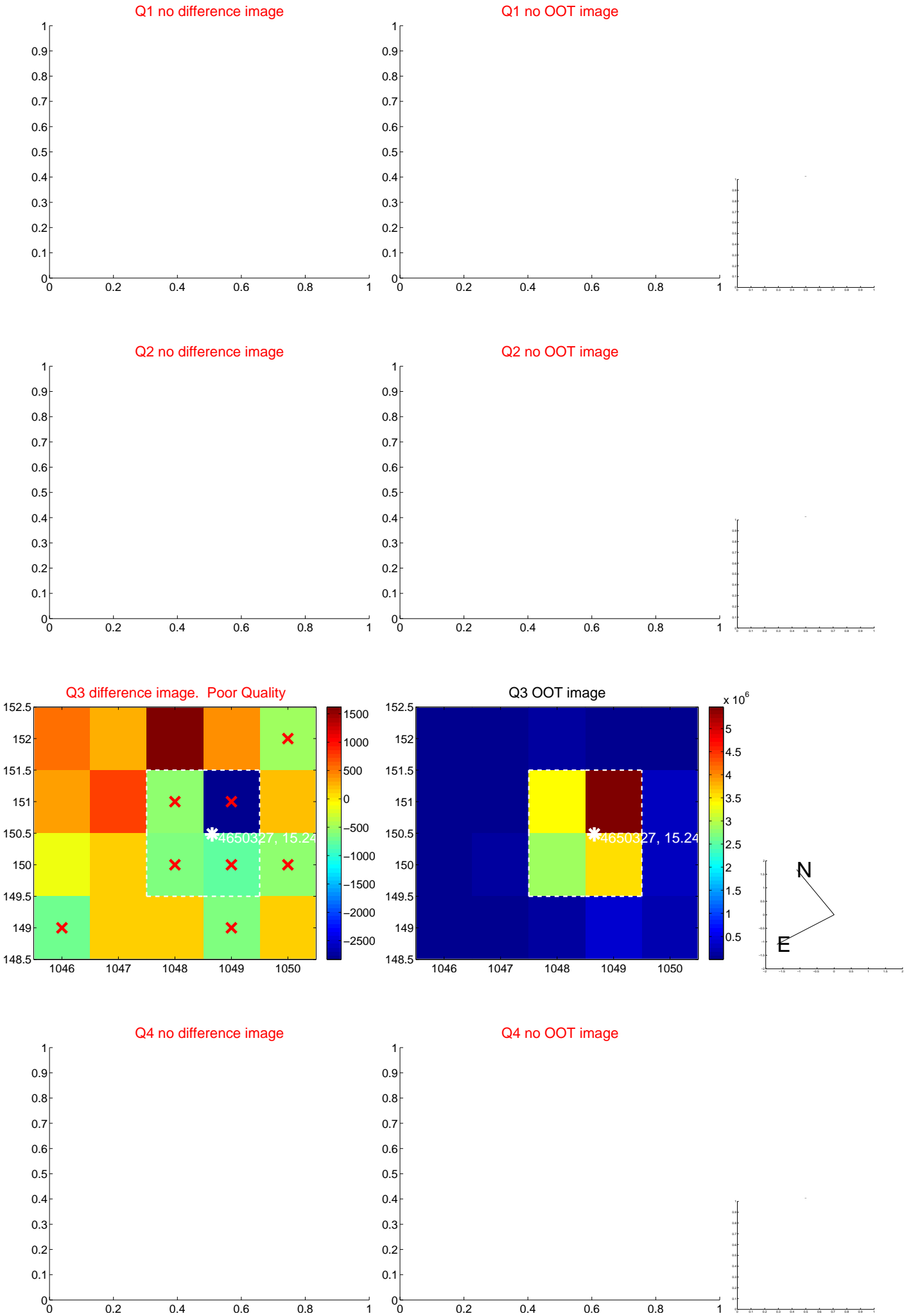
The direct PRF centroid is offset from the target star catalog position by about 0.06 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.045 ± 0.112	0.40	0.036 ± 0.112	0.027 ± 0.111
PRF-fit source offset from KIC position	0.248 ± 0.212	1.17	0.036 ± 0.078	0.245 ± 0.219
photometric centroid source offset	1.02 ± 0.47	2.16	-0.13 ± 0.43	-1.01 ± 0.47



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

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



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

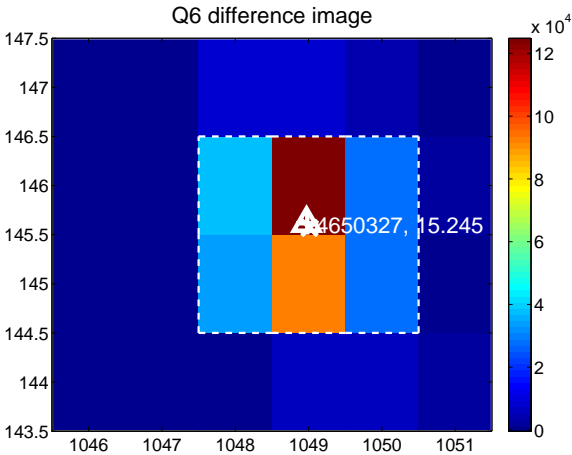
Q5 no difference image



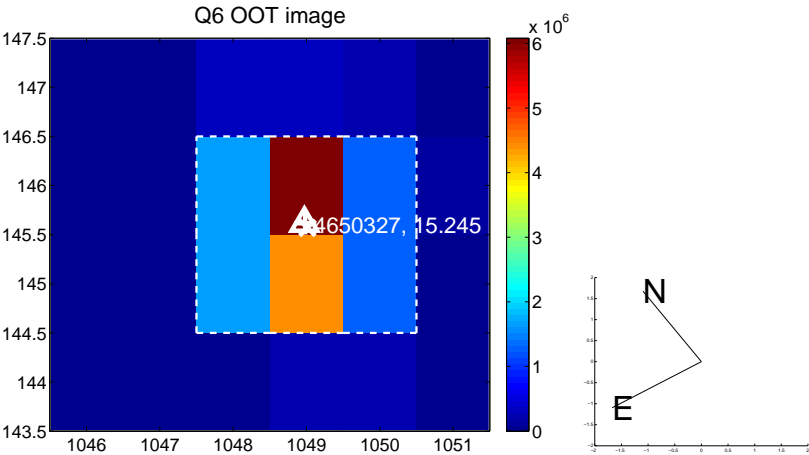
Q5 no OOT image



Q6 difference image



Q6 OOT image



Q7 no difference image



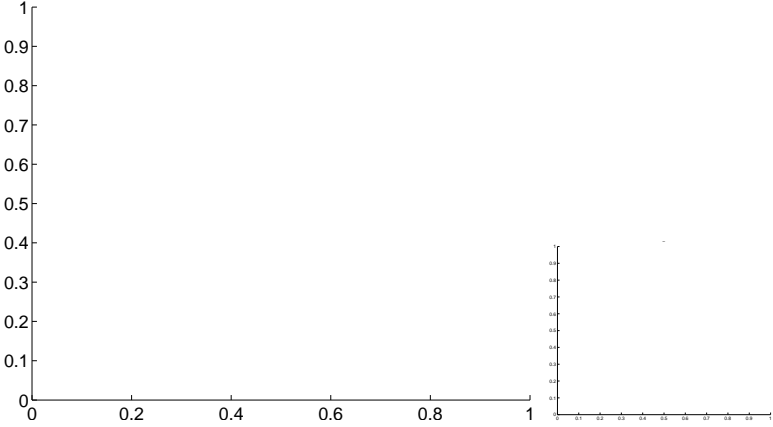
Q7 no OOT image



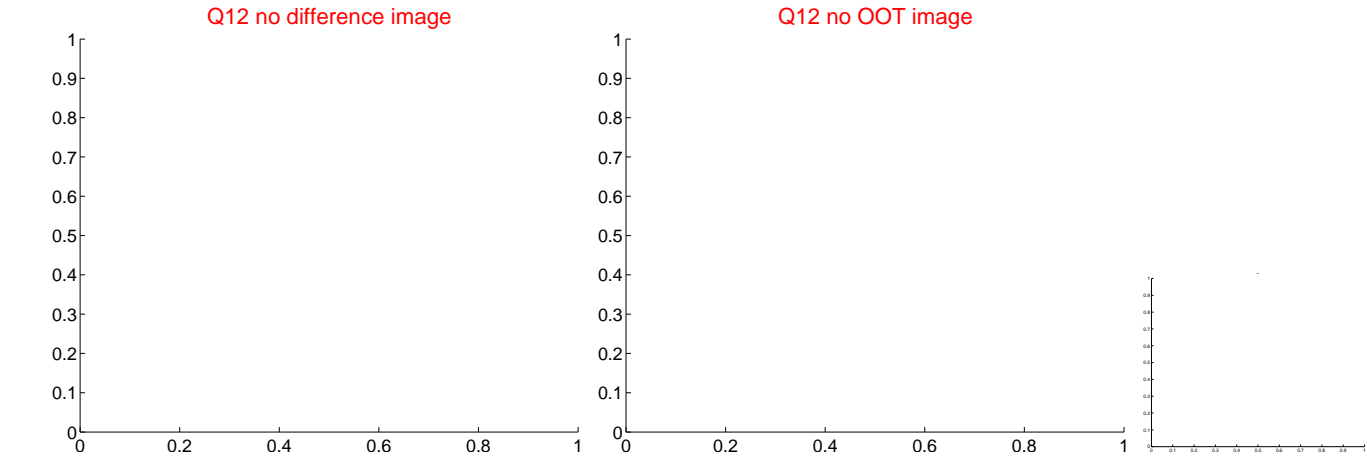
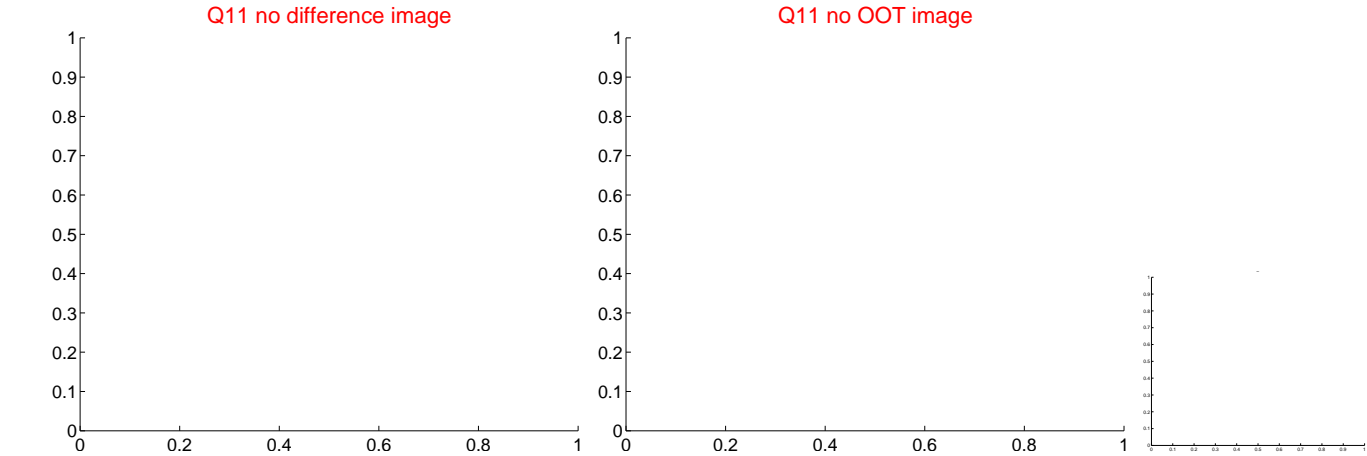
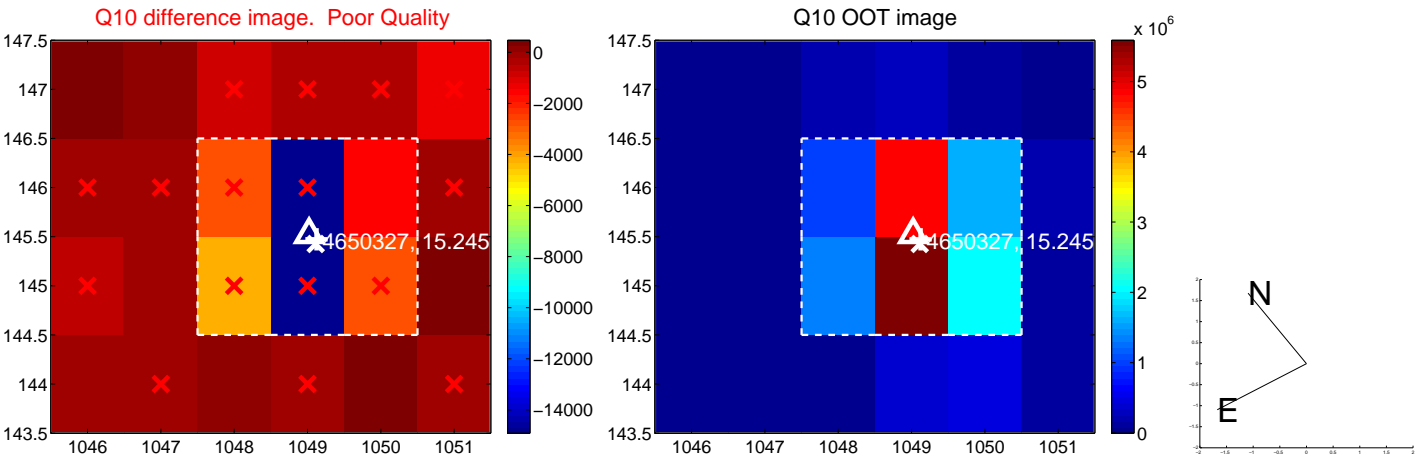
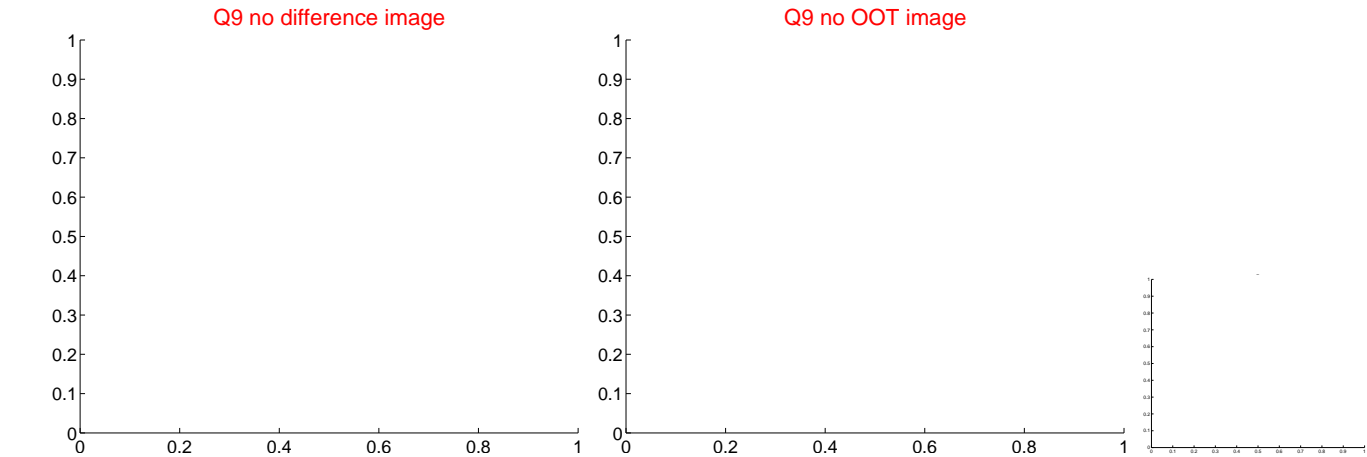
Q8 no difference image



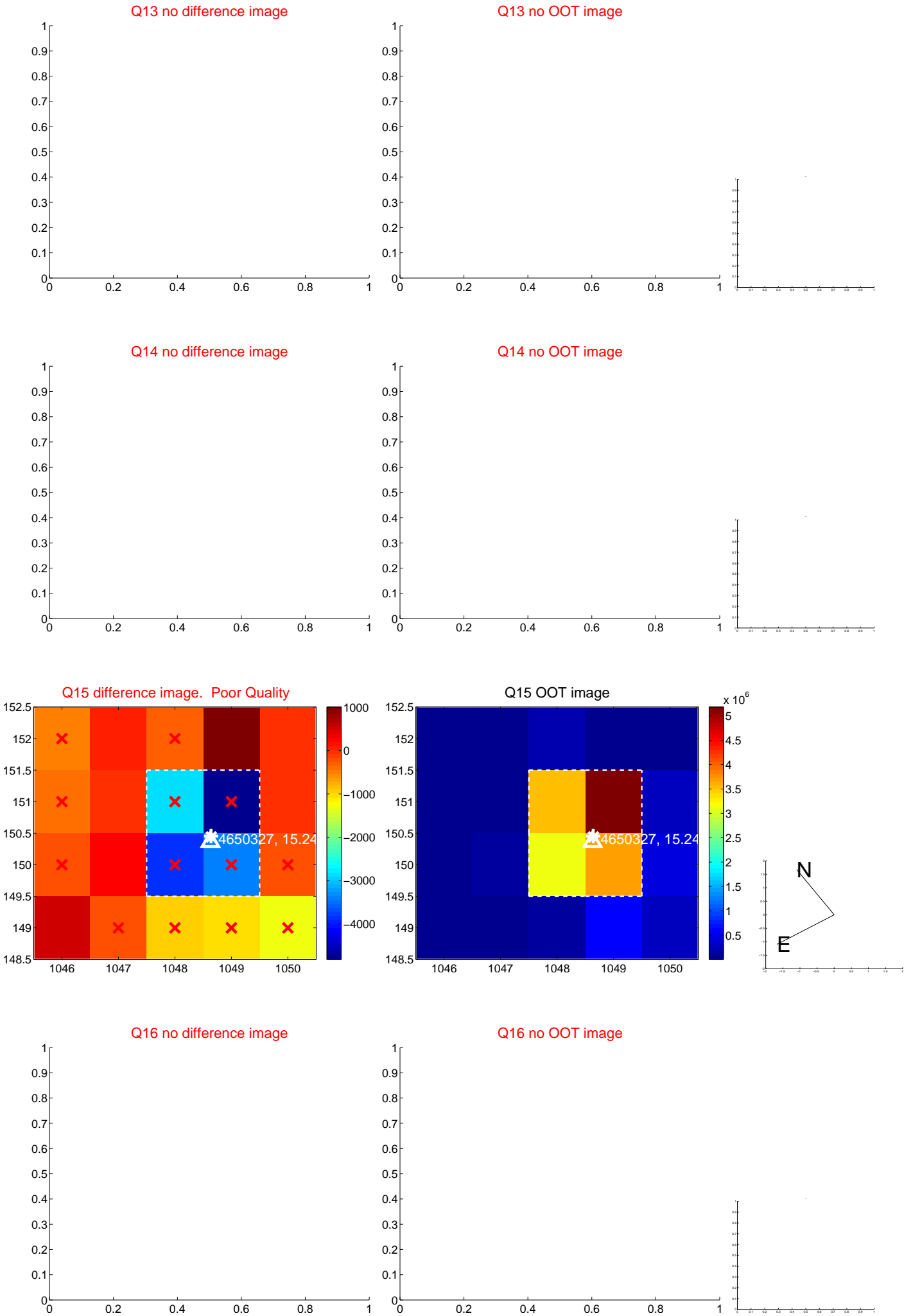
Q8 no OOT image



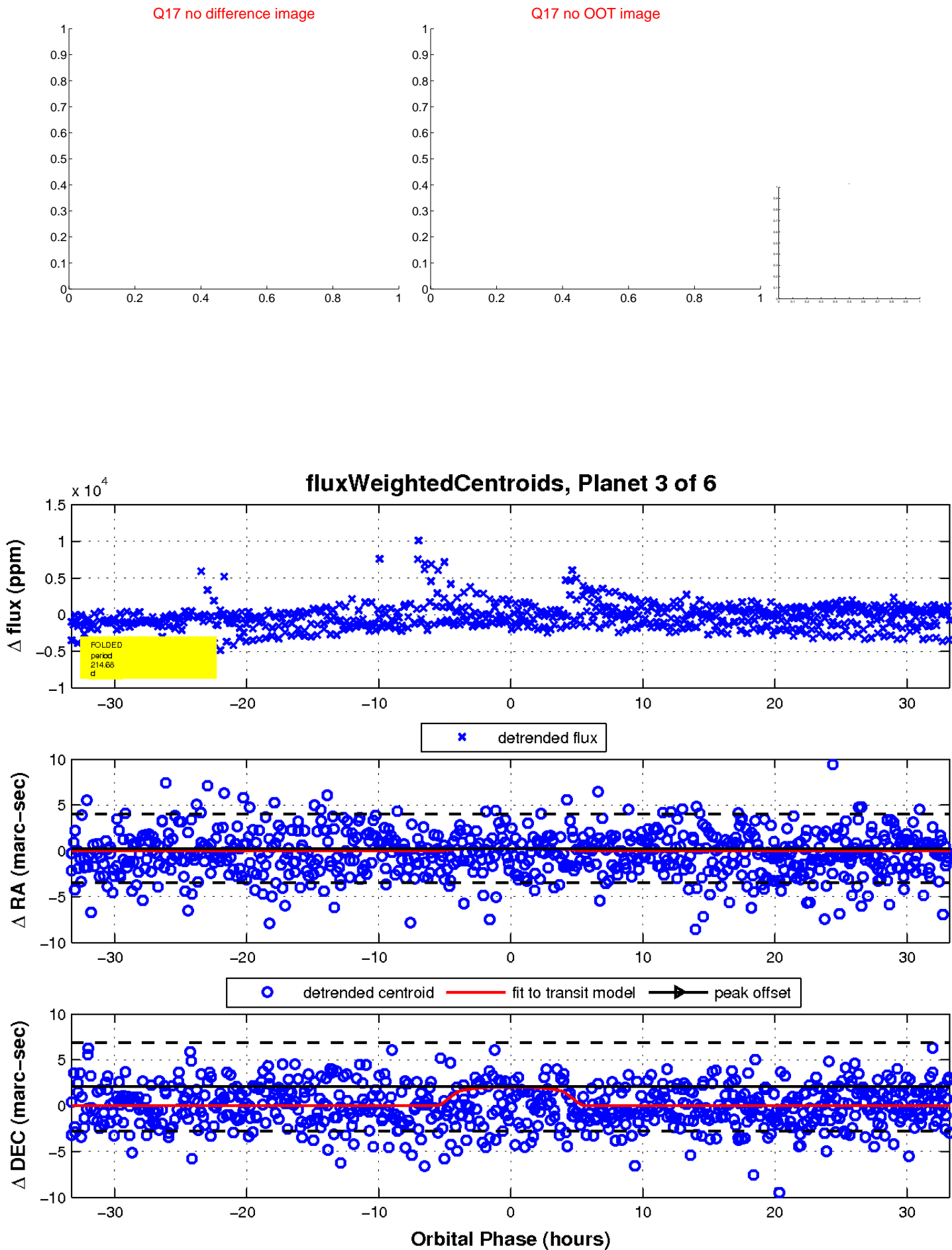
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

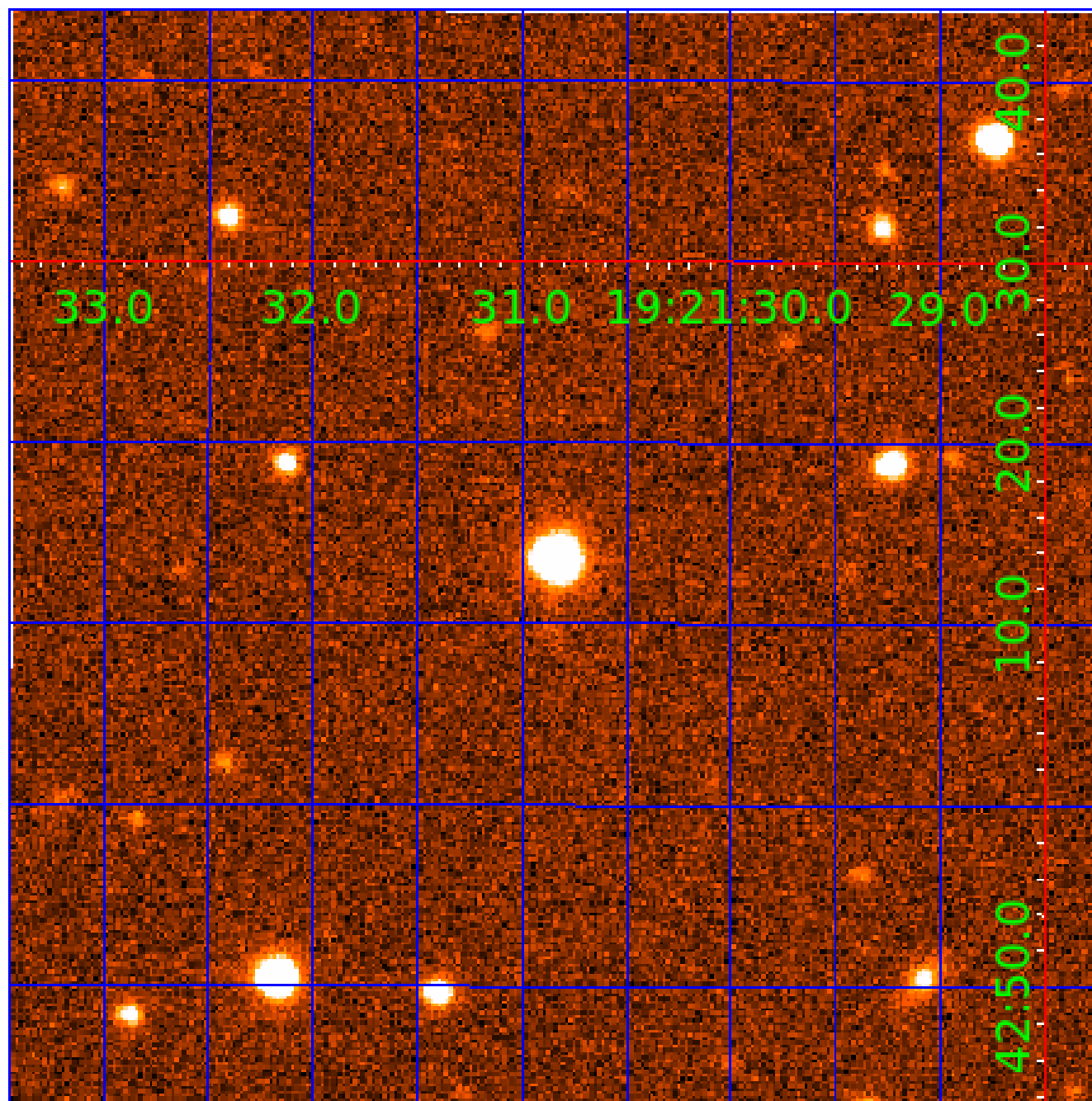


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 004650327

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})
004650327-01	OBS	No	695.313101	174.258630	2742.7	9.727	18.0	9.9	0.60	4986	3.21	0.12
004650327-02	OBS	No	597.080939	255.039916	1692.7	8.780	17.8	6.4	0.60	4986	2.42	0.15
004650327-03	OBS	No	214.677965	333.707044	1934.7	11.142	14.1	9.3	0.60	4986	3.05	0.57
004650327-04	OBS	No	399.560232	288.128419	1559.4	6.010	12.6	6.8	0.60	4986	2.36	0.25
004650327-05	OBS	No	571.603874	178.881644	740.6	3.676	12.0	3.1	0.60	4986	1.83	0.15
004650327-06	OBS	No	541.169214	313.645531	1117.8	6.000	12.3	-1.0	0.60	4986	1.97	0.17

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
004650327-01	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—INCONSISTENT_TRANS—CENT_FEW_DIFFS
004650327-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_SKYE—LPP_DV—MOD_NONUNIQ_DV—MOD_TER_DV—INCONSISTENT_TRANS—CENT_FEW_DIFFS
004650327-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_MARSHALL—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—CENT_FEW_DIFFS
004650327-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—INCONSISTENT_TRANS—CENT_FEW_DIFFS
004650327-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—INCONSISTENT_TRANS—CENT_FEW_DIFFS
004650327-06	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—LPP_DV—ALL_TRANS_CHASES—CENT_NOFITS

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

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

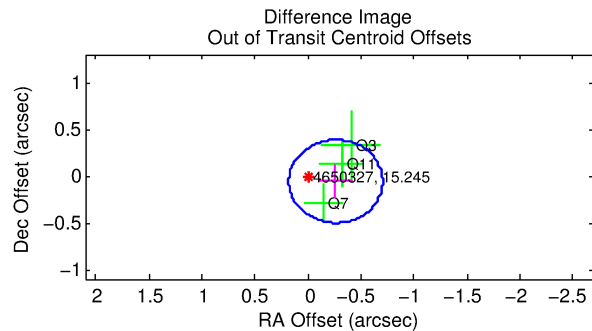
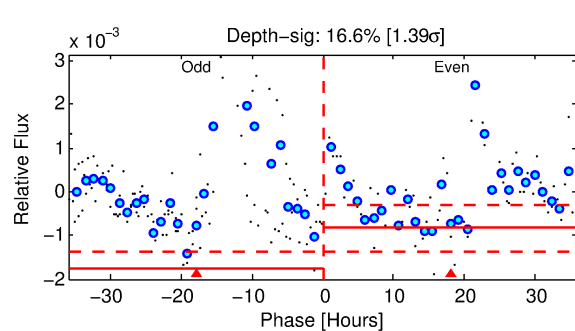
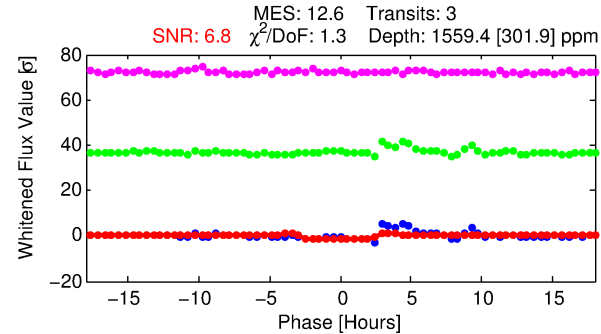
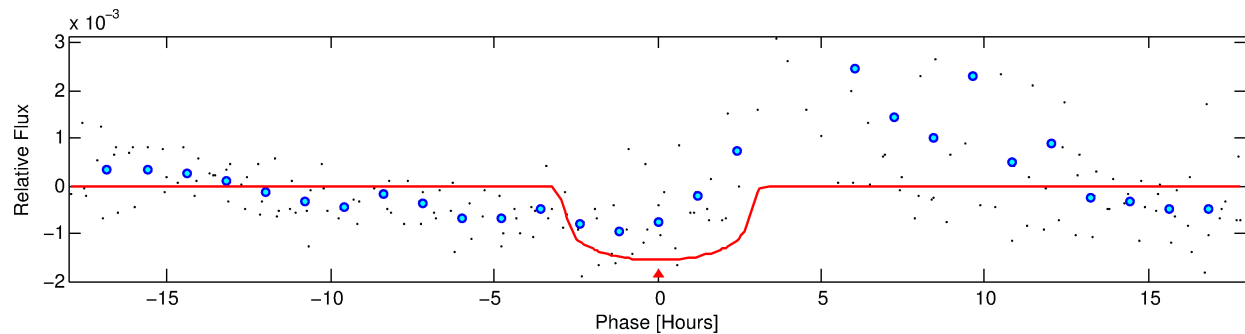
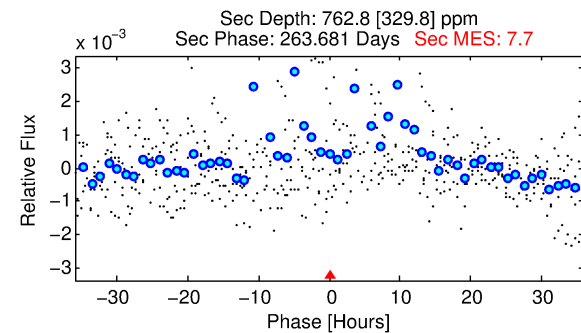
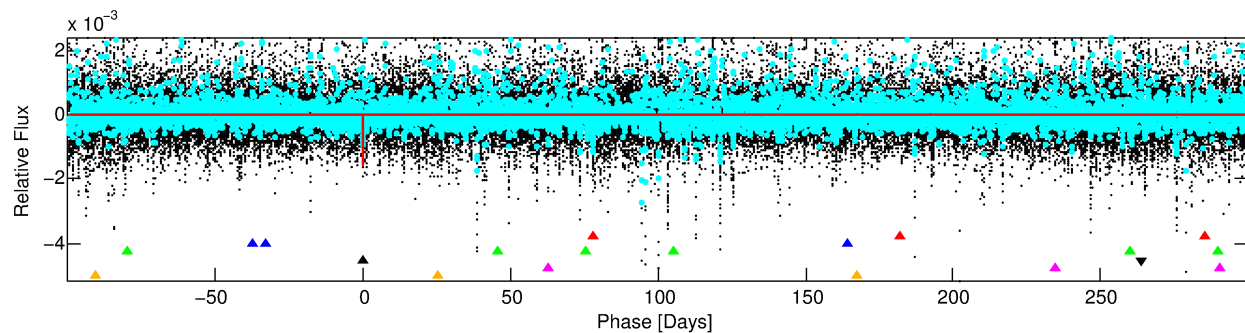
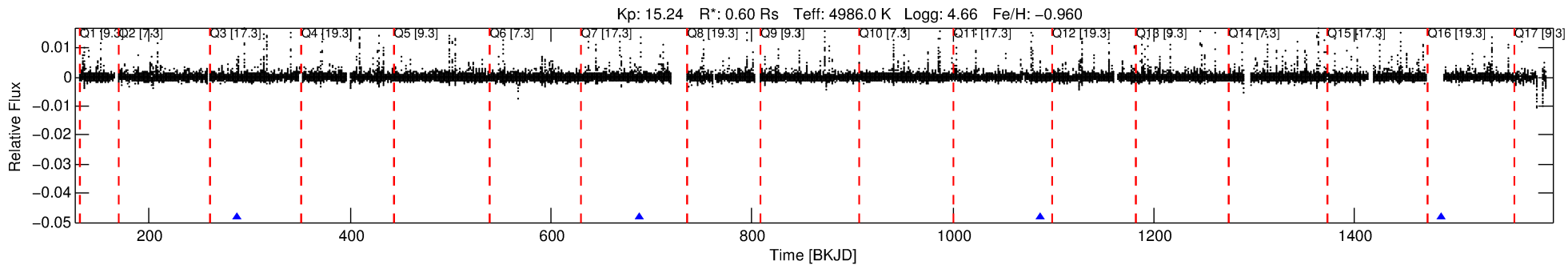
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 004650327-04

No Significant Match Found

DV One-Page Summary

KIC: 4650327 Candidate: 4 of 6 Period: 399.560 d



DV Fit Results:

Period = 399.56023 [0.00797] d
Epoch = 288.1284 [0.0122] BKJD
Rp/R* = 0.0360 [0.0613]
a/R* = 495.11 [3305.54]
b = 0.35 [16.90]
Seff = 0.25 [0.04]
Teq = 180 [8] K
Rp = 2.36 [4.02] Re
a = 0.8937 [0.0622] AU
Ag = 60161.25 [206400.36] [0.29σ]
Teffp = 4364 [3744] K [1.12σ]

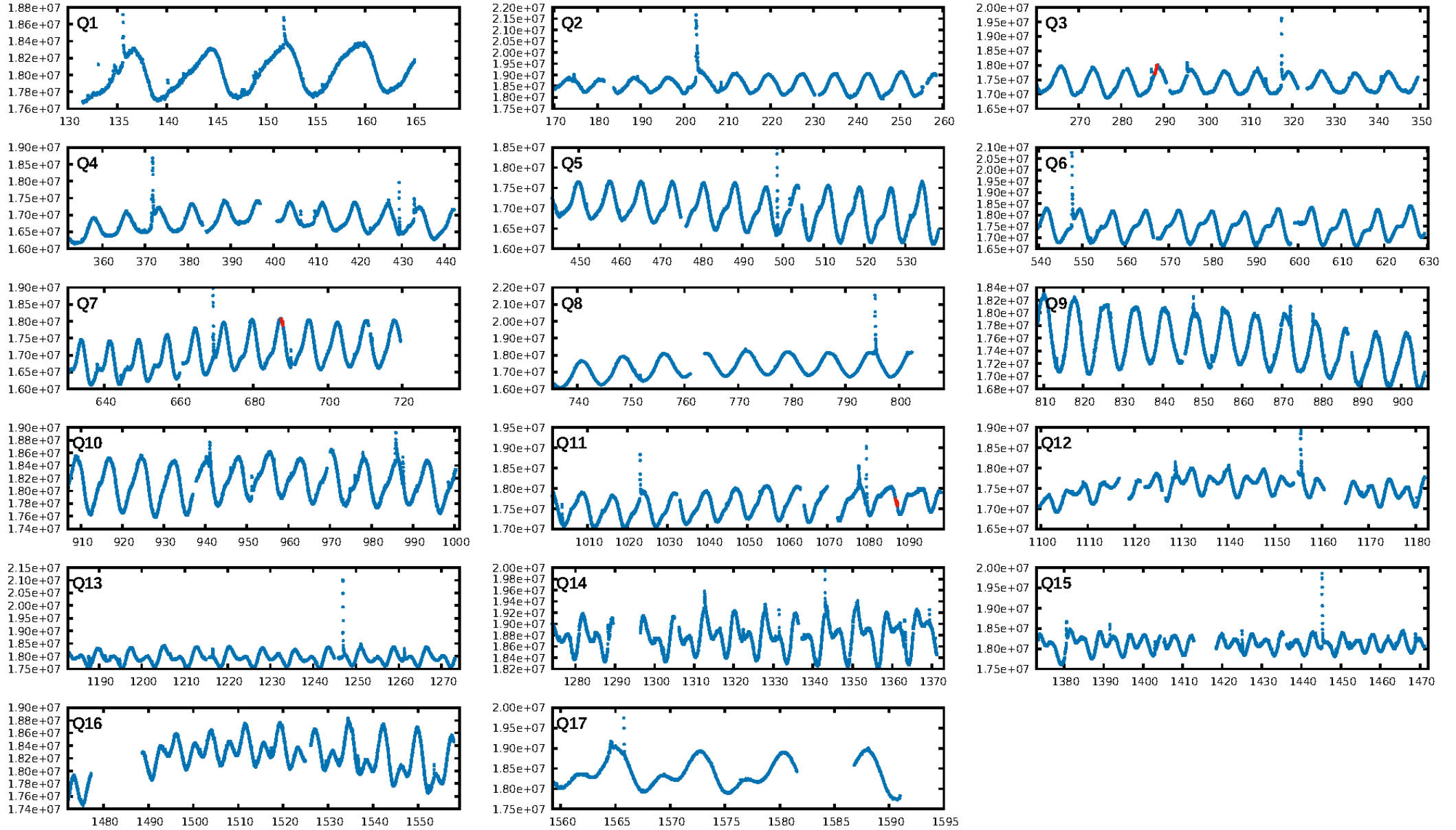
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [350.51σ]
LongPeriod-sig: 100.0% [400.21σ]
ModelChiSquare2-sig: 55.6%
ModelChiSquareGof-sig: 46.3%
Bootstrap-pfa: N/A
RollingBand-fgt: 1.00 [3/3]
GhostDiagnostic-chr: 0.8375
Centroid-sig: 17.5%
Centroid-so: 1.148 arcsec [1.44σ]
OotOffset-rm: 0.270 arcsec [1.83σ]
KicOffset-rm: 0.285 arcsec [1.92σ]
OotOffset-st: 0/3/0/0 [3]
KicOffset-st: 0/3/0/0 [3]
DiffImageQuality-fgm: 0.67 [2/3]
DiffImageOverlap-fno: 1.00 [3/3]

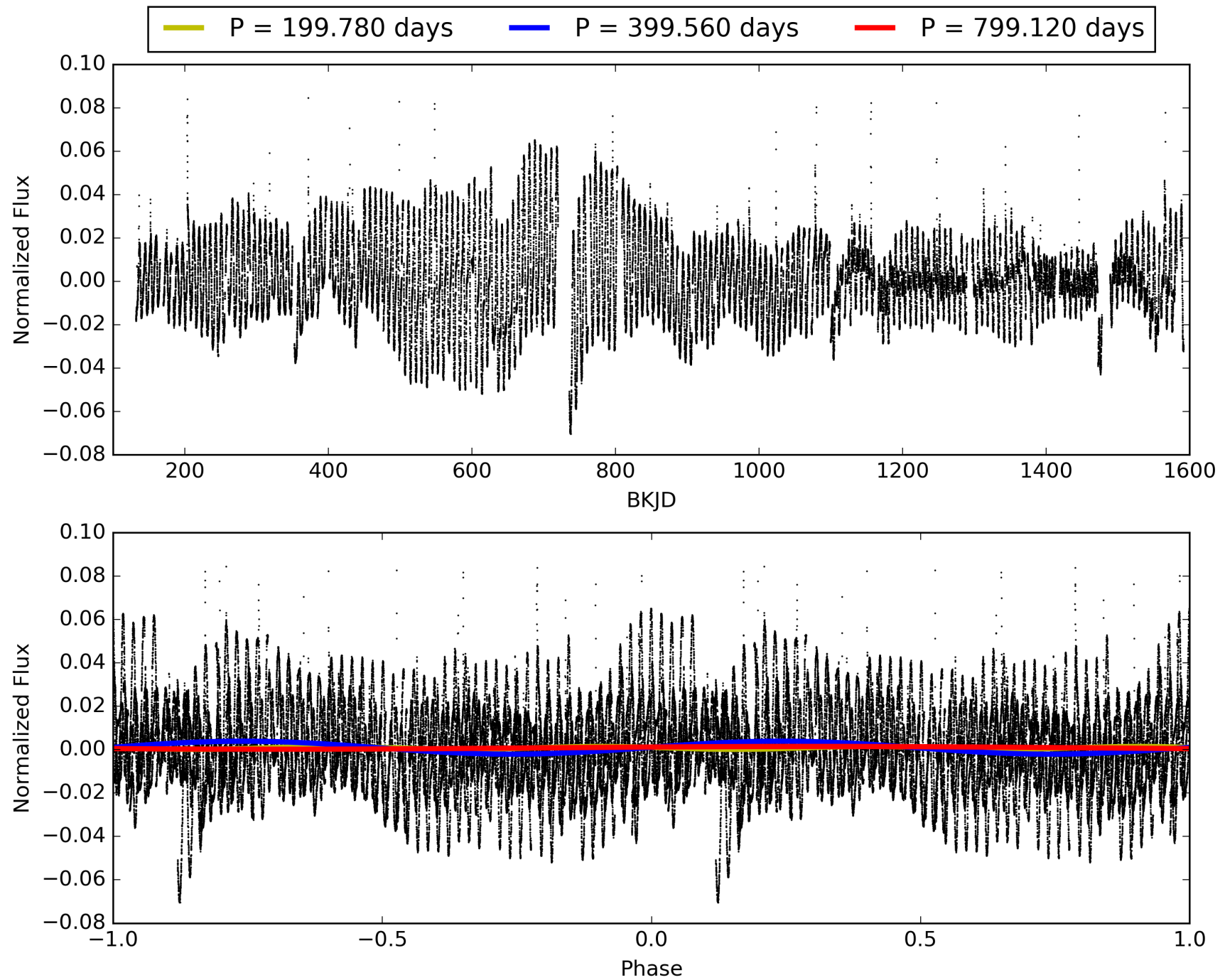
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 01-Feb-2016 13:05:12 Z

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

TCE 004650327-04, PDC Light Curves

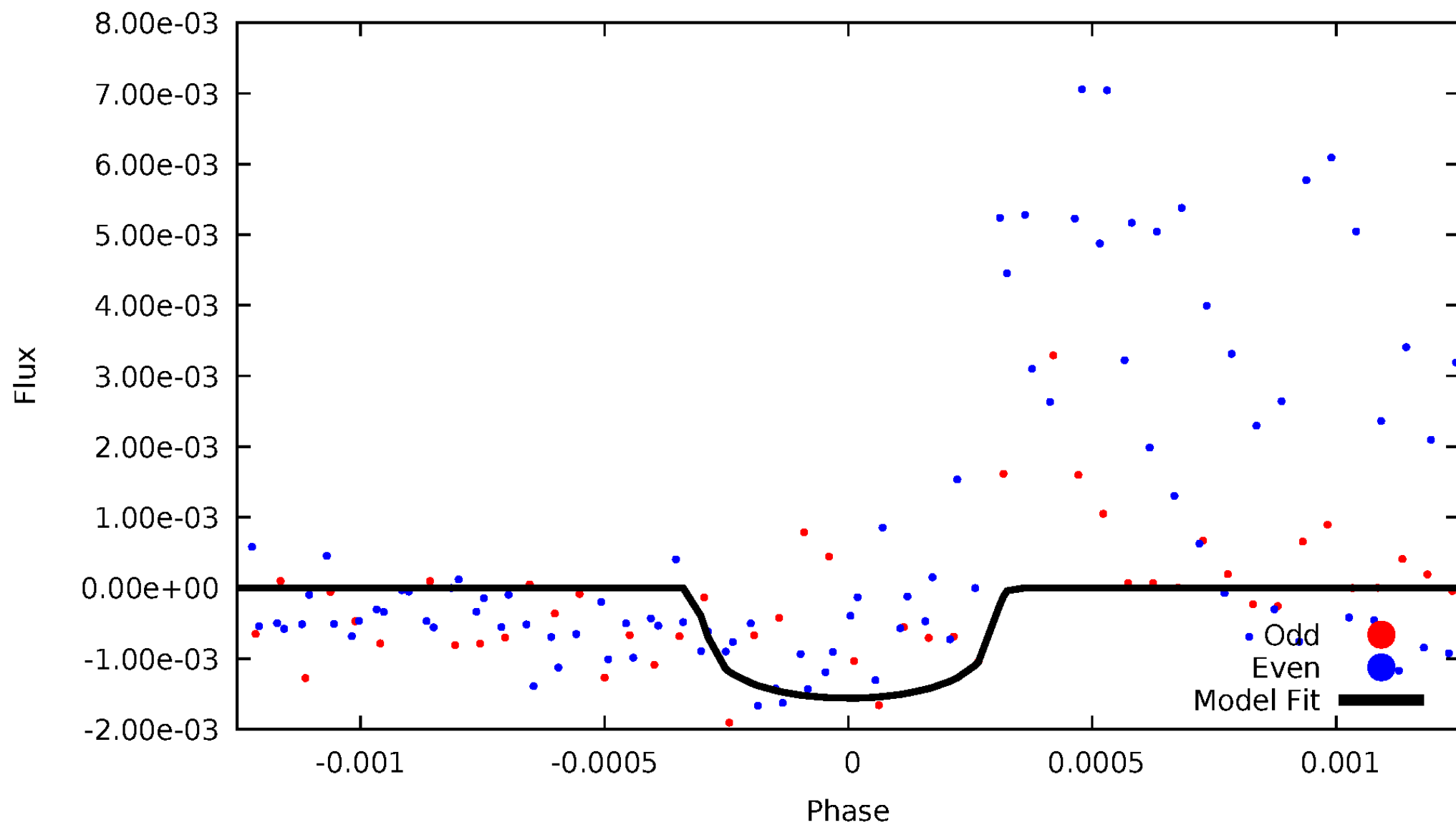


TCE 004650327-04



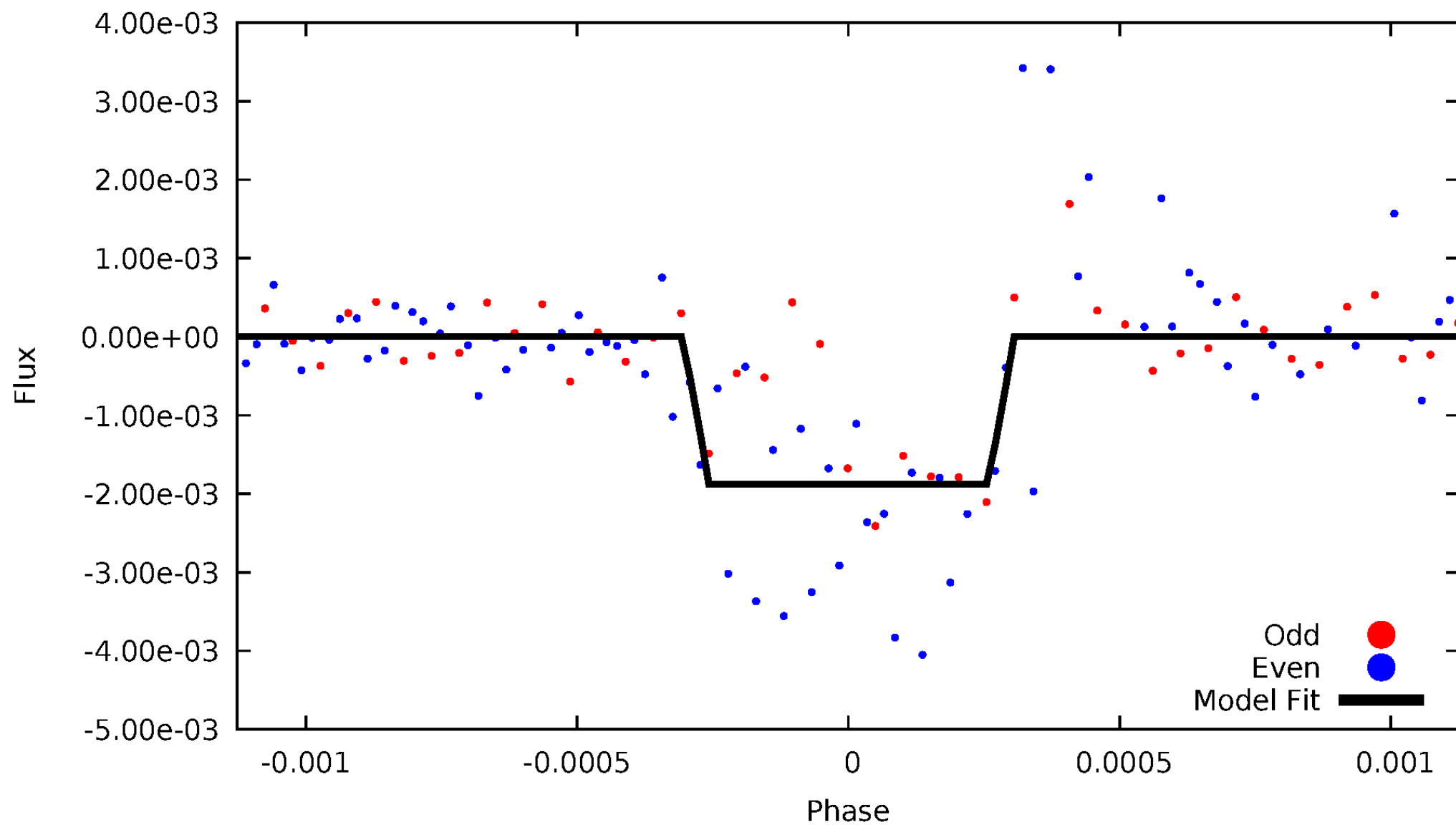
DV Odd/Even

TCE 004650327-04



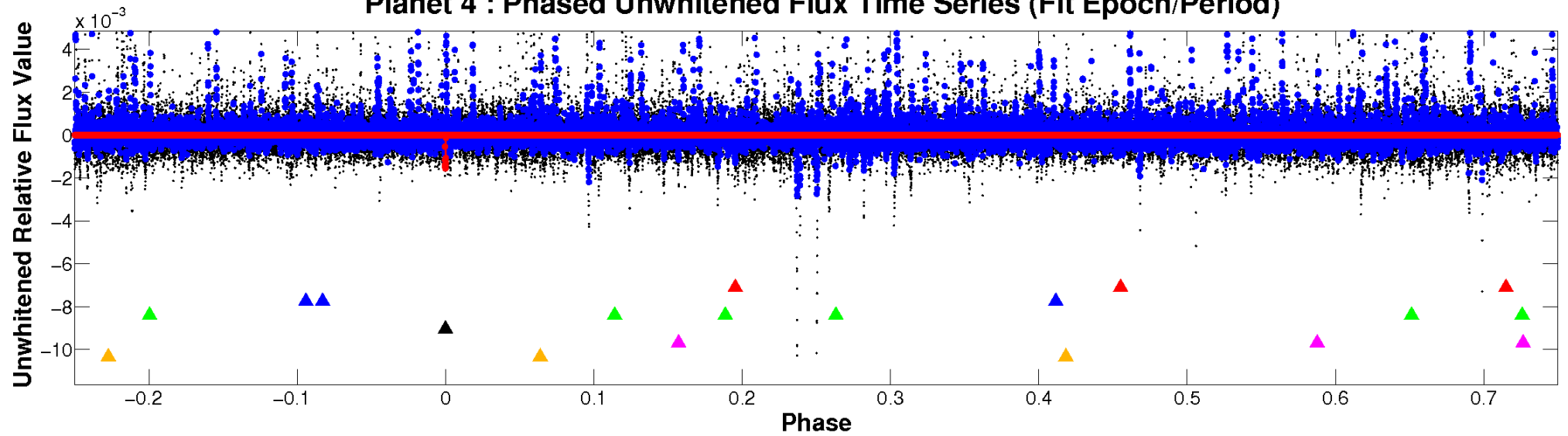
ALT Odd/Even

TCE 004650327-04

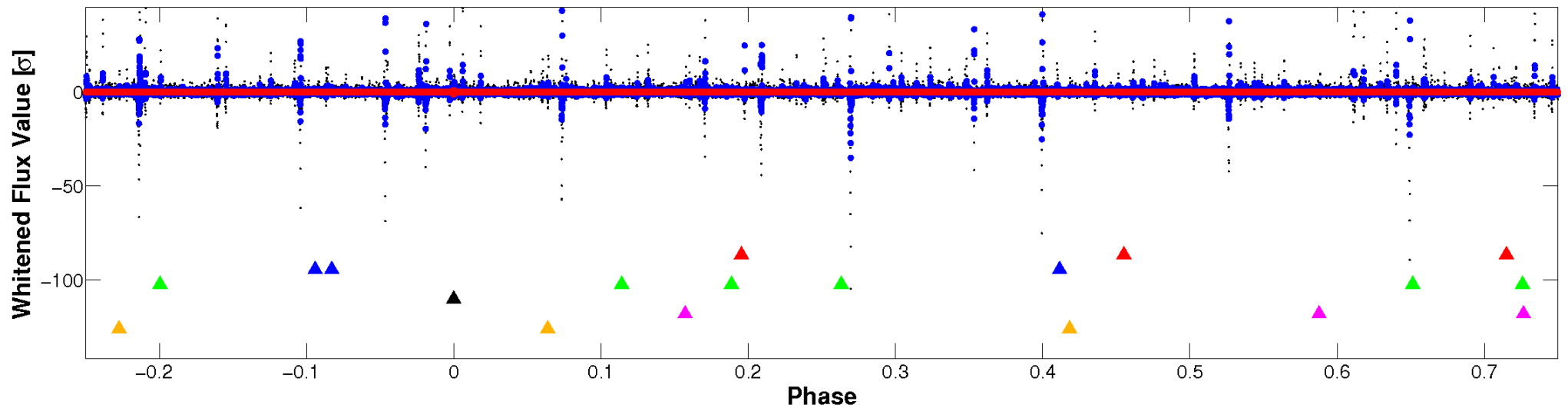


Non-Whitened Vs. Whitened Light Curve

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

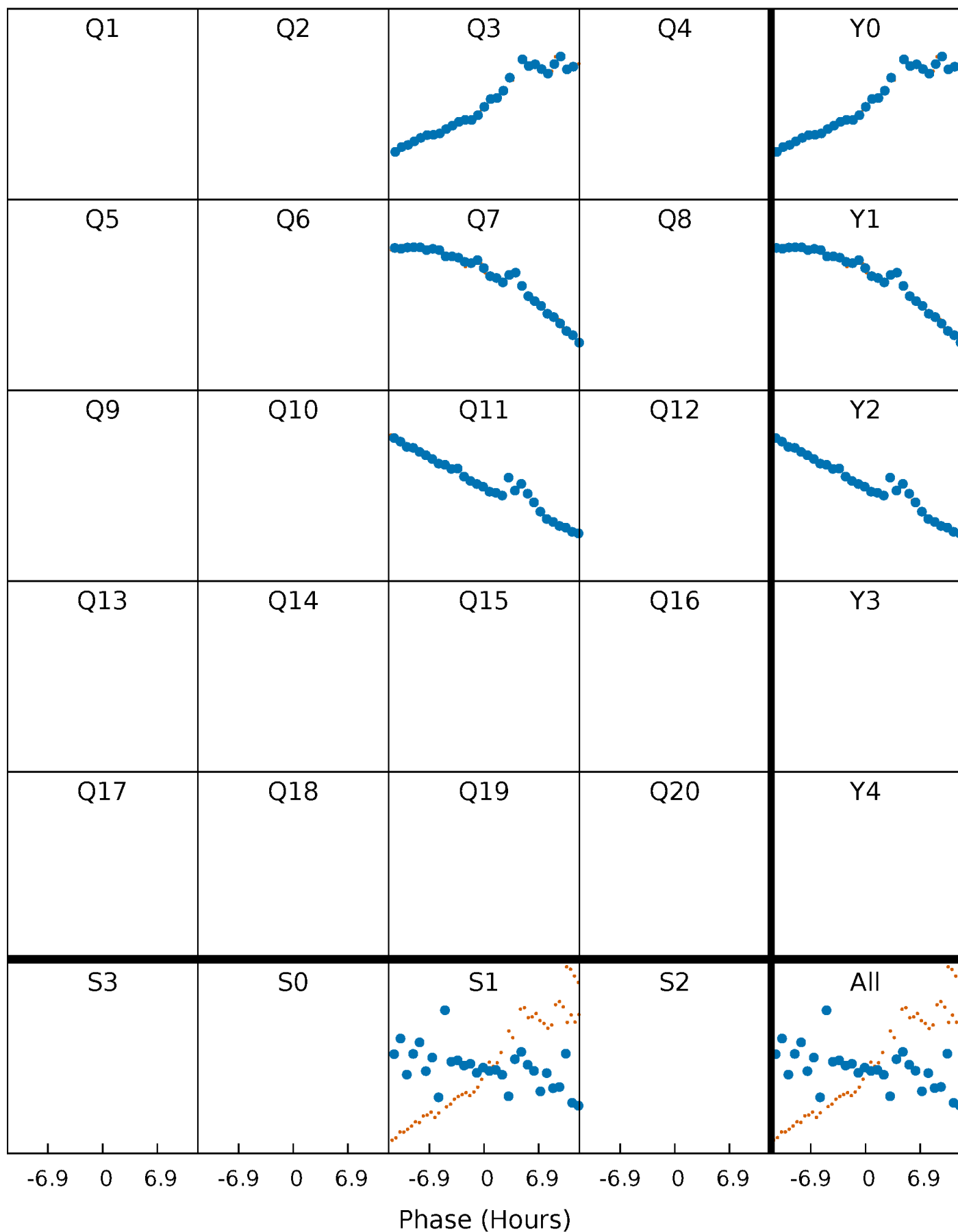


Planet 4 : Phased Whitened Flux Time Series (Fit Epoch/Period)



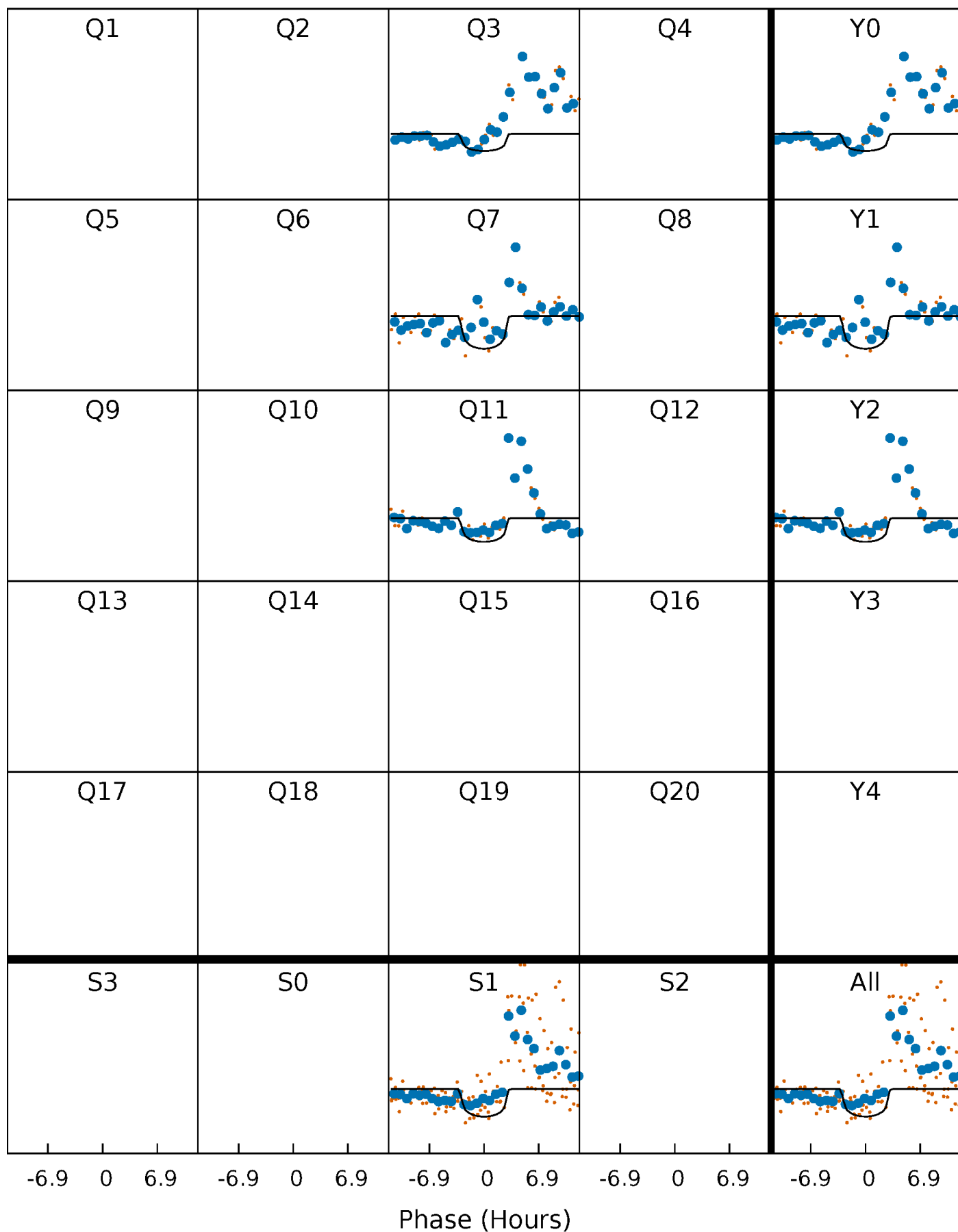
PDC Quarter-Phased Transit Curves

TCE 004650327-04 $P=399.560232$ Days $T_0=288.128419$ (BKJD)



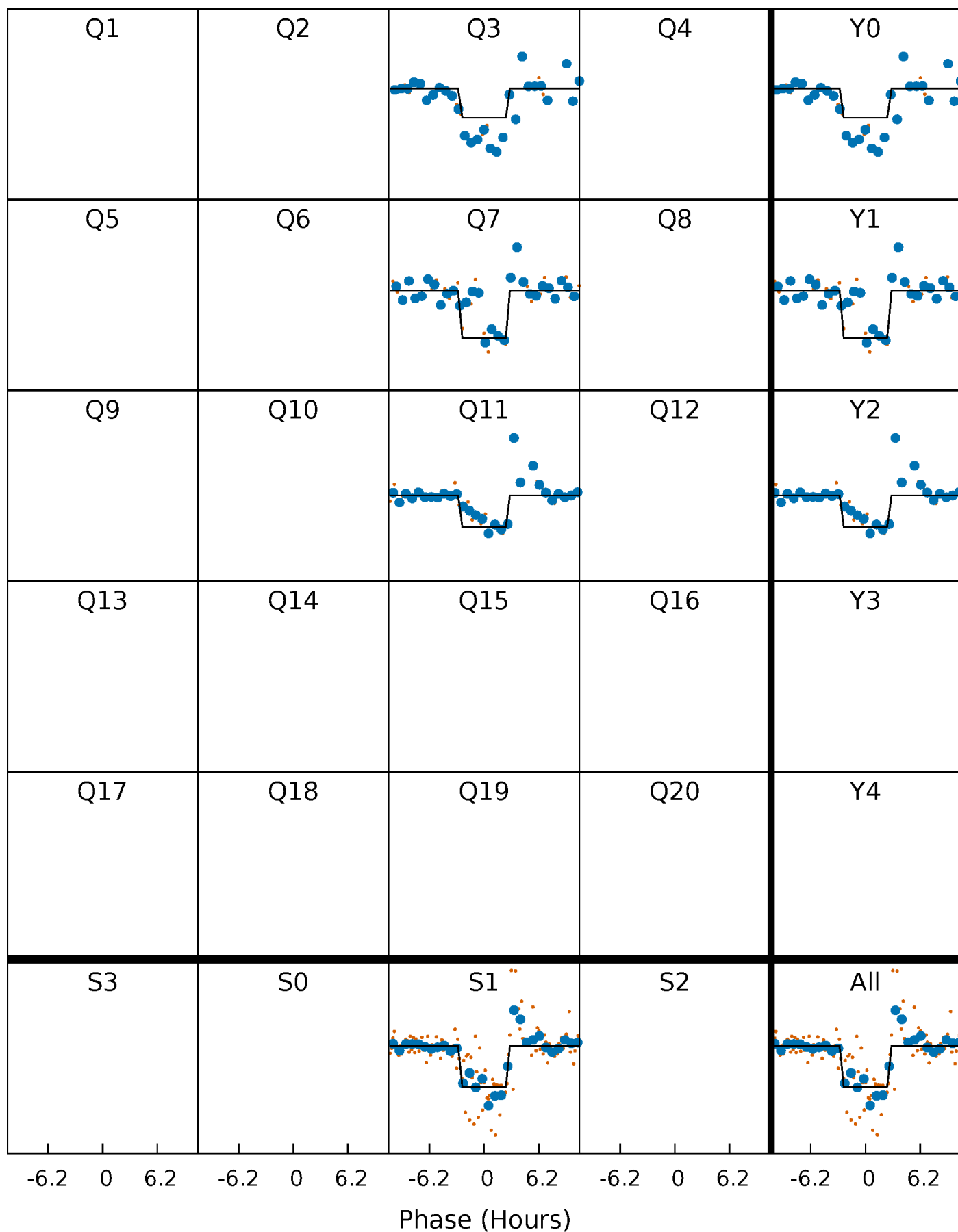
DV Quarter-Phased Transit Curves

TCE 004650327-04 $P=399.560232$ Days $T_0=288.128419$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

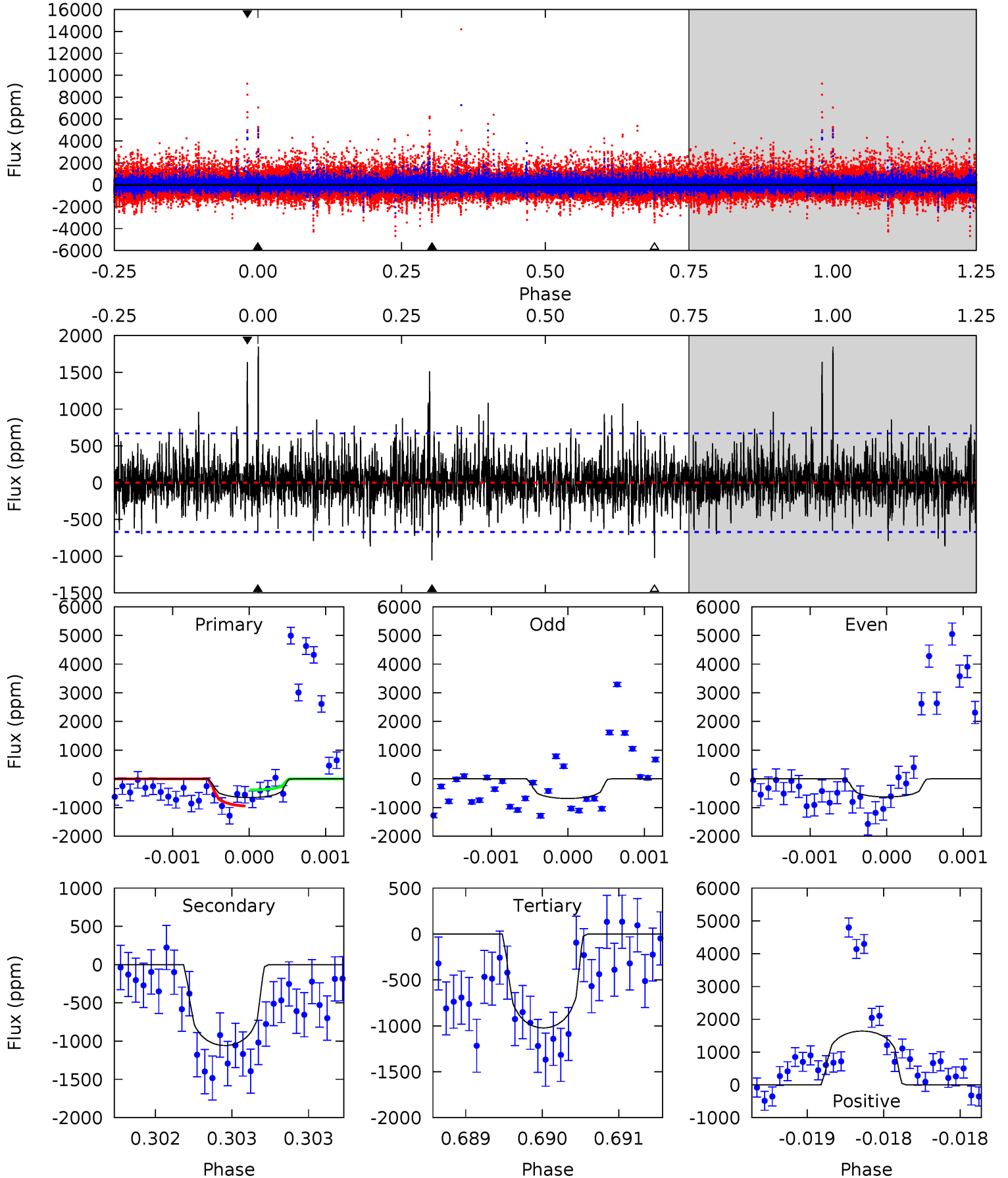
TCE 004650327-04 $P=399.551021$ Days $T_0=288.142701$ (BKJD)



DV Model-Shift Uniqueness Test

004650327-04, P = 399.560232 Days, E = 288.128419 Days

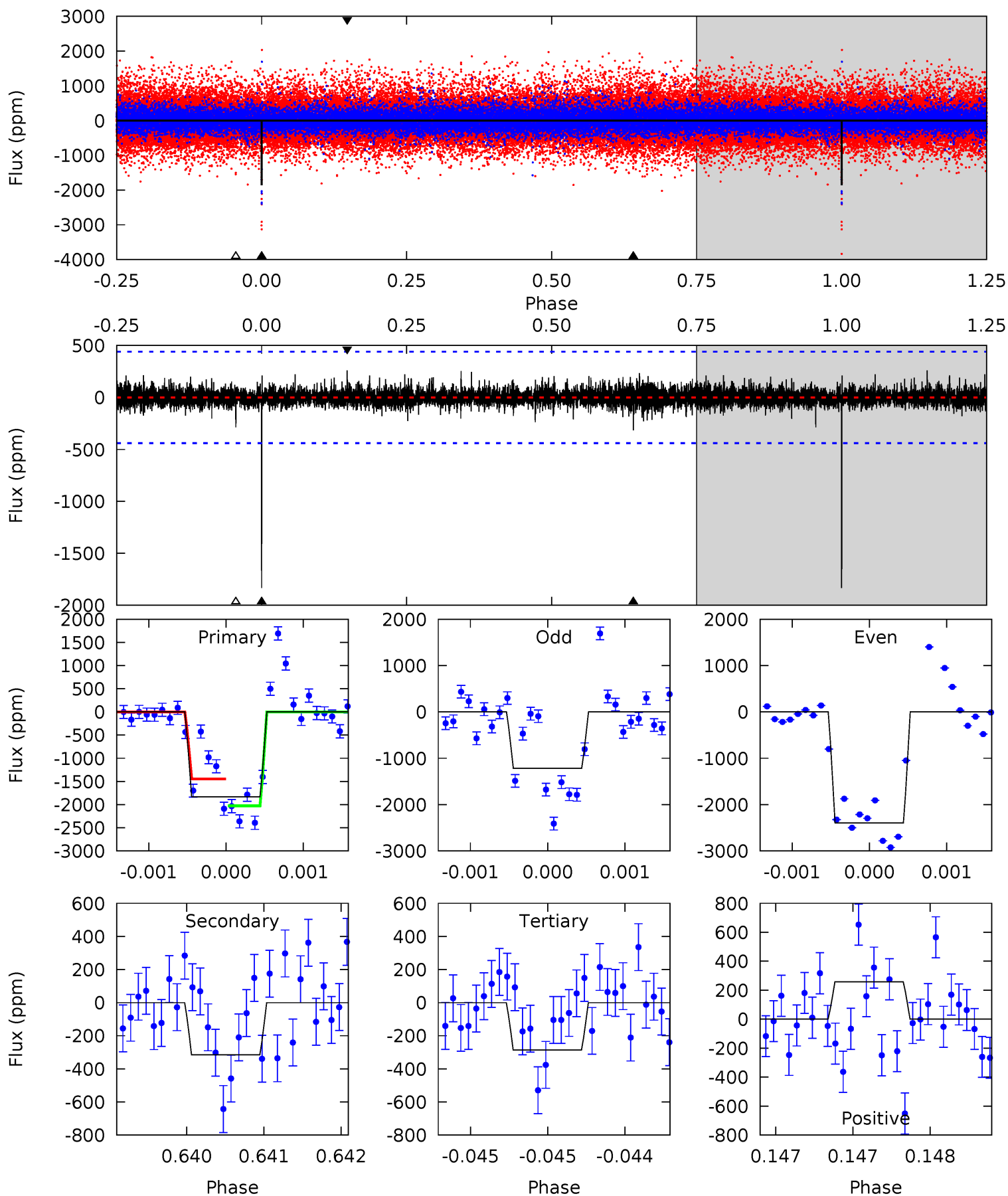
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
5.40	8.73	8.45	13.5	5.53	3.42	1.92	-3.05	-8.14	0.28	-4.81	0.08	0.95	0.64	2.33



Alt Model-Shift Uniqueness Test

004650327-04, P = 399.551021 Days, E = 288.142701 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
23.1	3.97	3.61	3.25	5.55	3.44	0.64	19.5	19.8	0.36	0.72	7.70	1.32	0.12	3.56



Stellar Parameters For KIC 004650327

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	$M(M_{\odot})$	p_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	4986^{+173}_{-173}	$4.657^{+0.060}_{-0.035}$	$-0.960^{+0.300}_{-0.300}$	$0.600^{+0.047}_{-0.042}$	$0.597^{+0.055}_{-0.026}$	$3.884^{+0.876}_{-0.535}$
	+3%/-3%	+1%/-1%	+31%/-31%	+8%/-7%	+9%/-4%	+23%/-14%
Source	PHO1	KIC0	KIC0	DSEP		

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

Secondary Eclipse Parameters for KIC 004650327-04 / KOI

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	-1058 ± 121	$3.60^{+3.57}_{-2.41}$	250^{+11}_{-10}	4058^{+2439}_{-839}	$36495^{+306347}_{-27508}$
Alt.	-315 ± 79	$4.18^{+3.58}_{-2.74}$	251^{+9}_{-10}	3139^{+1374}_{-478}	7469^{+57746}_{-5256}

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 $A_{obs} \gg 1.0$

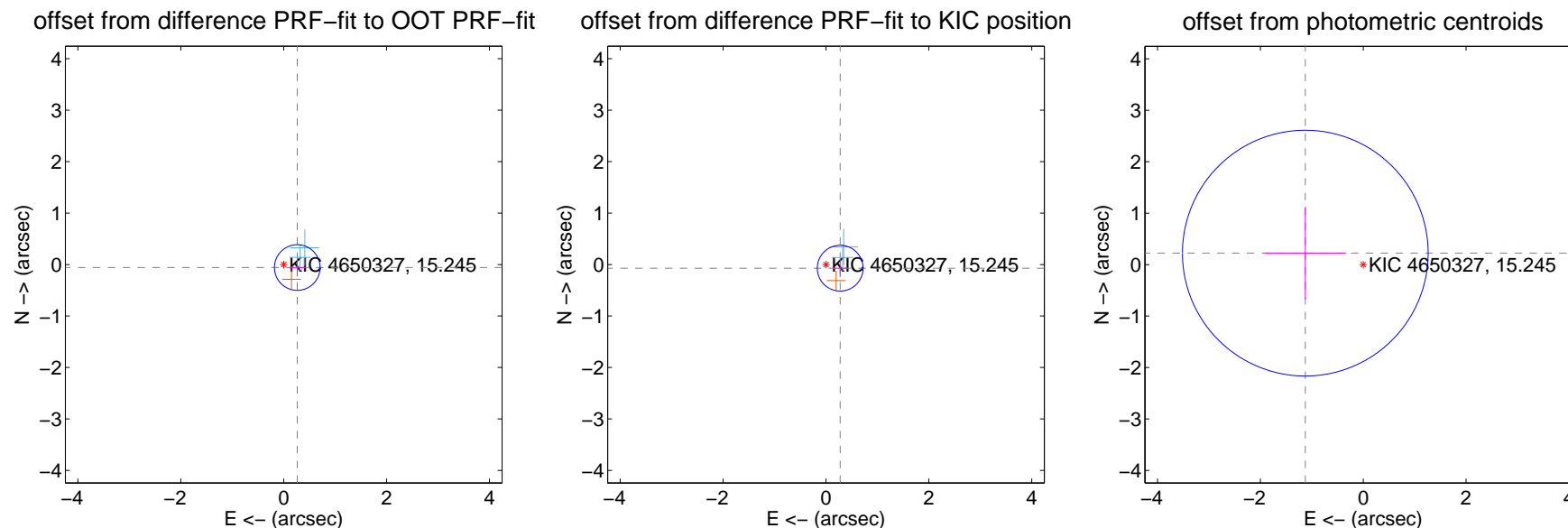
DV Centroid Data

Supplemental centroid analysis for 004650327-04. Kepler magnitude: 15.24. Transit SNR 6.80

There are 2 quarters with good PRF difference image offsets

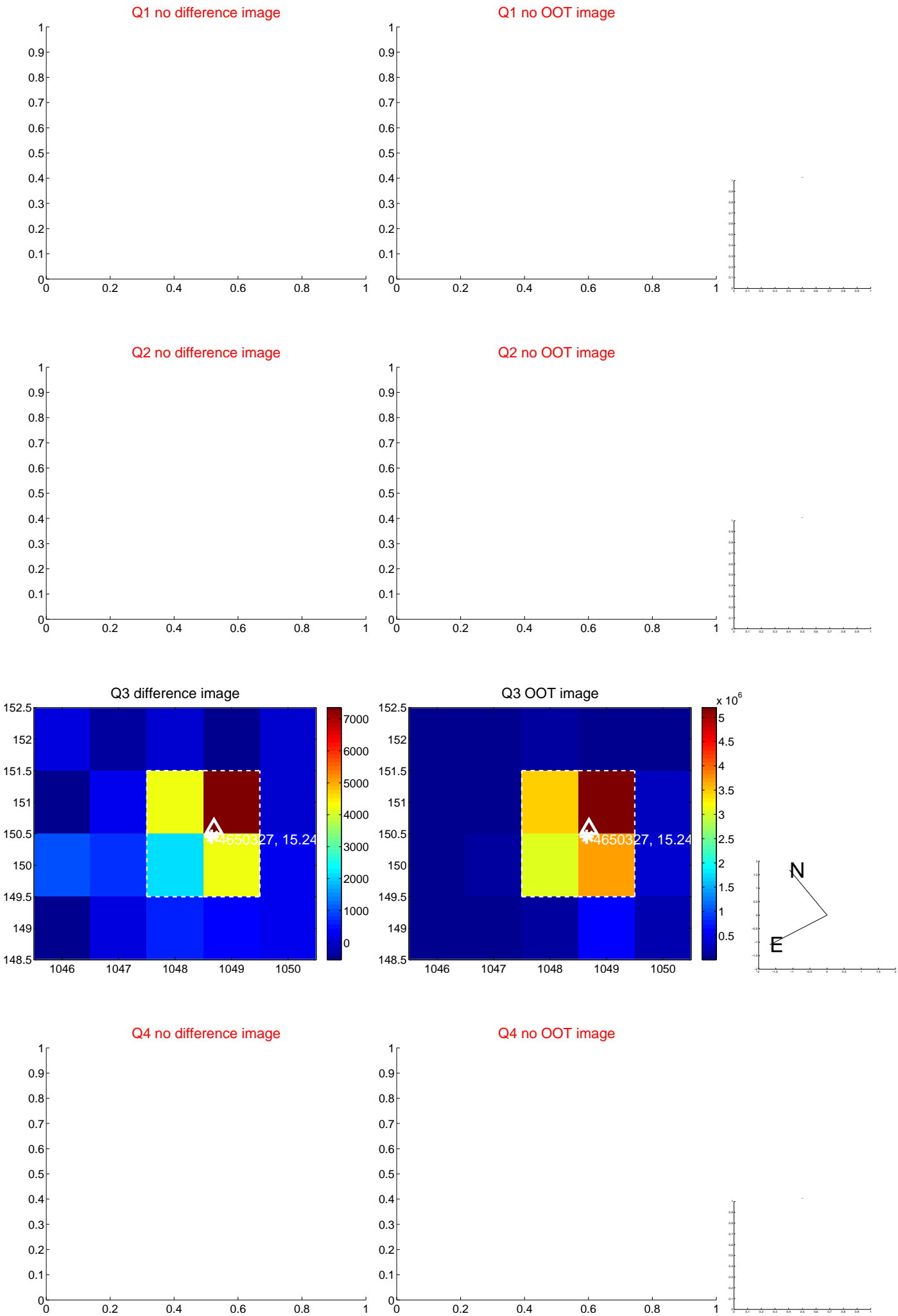
The direct PRF centroid is offset from the target star catalog position by about 0.01 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.270 ± 0.148	1.83	-0.264 ± 0.147	-0.058 ± 0.172
PRF-fit source offset from KIC position	0.285 ± 0.148	1.92	-0.276 ± 0.147	-0.071 ± 0.172
photometric centroid source offset	1.15 ± 0.80	1.44	1.13 ± 0.79	0.22 ± 0.90

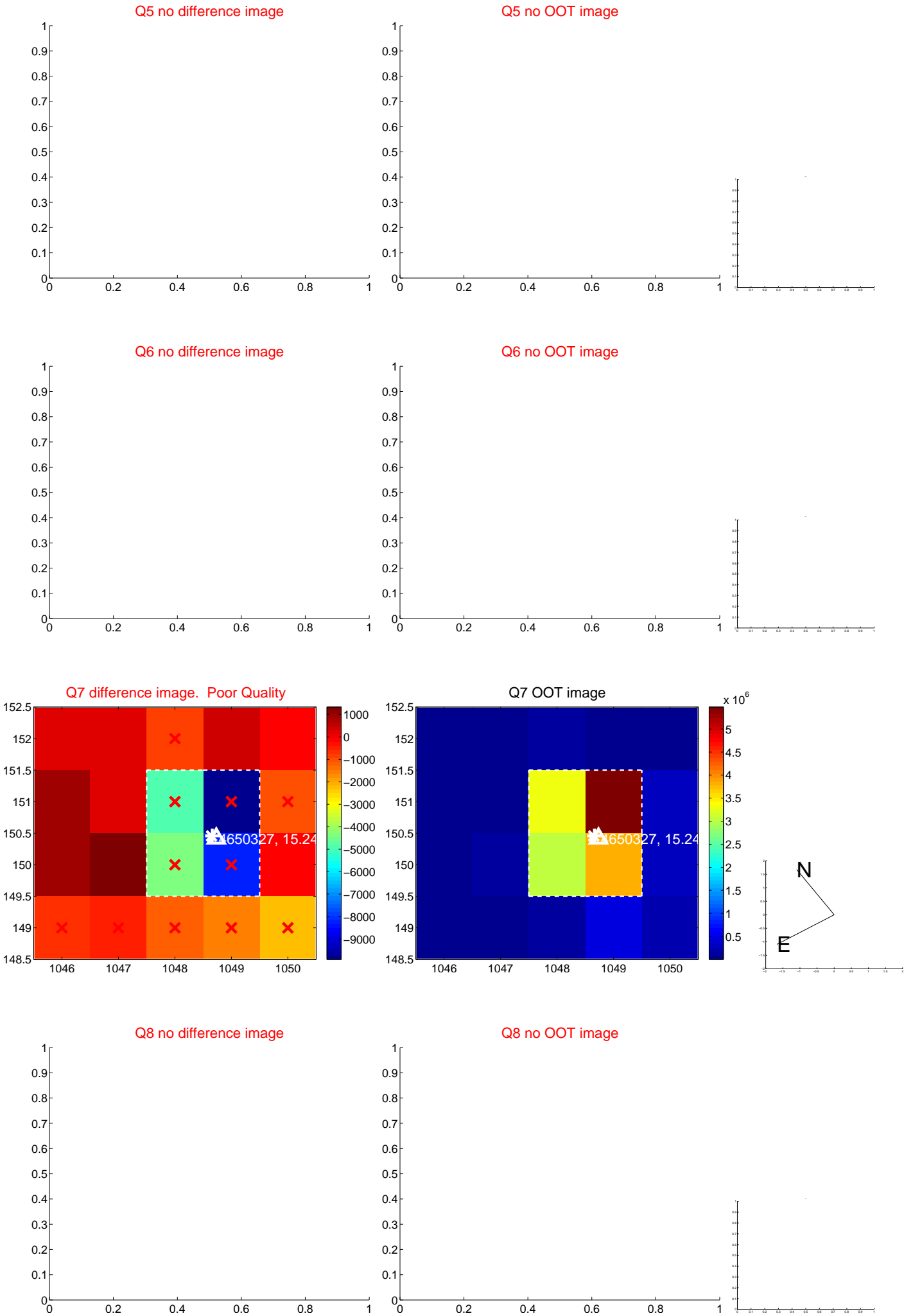


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ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

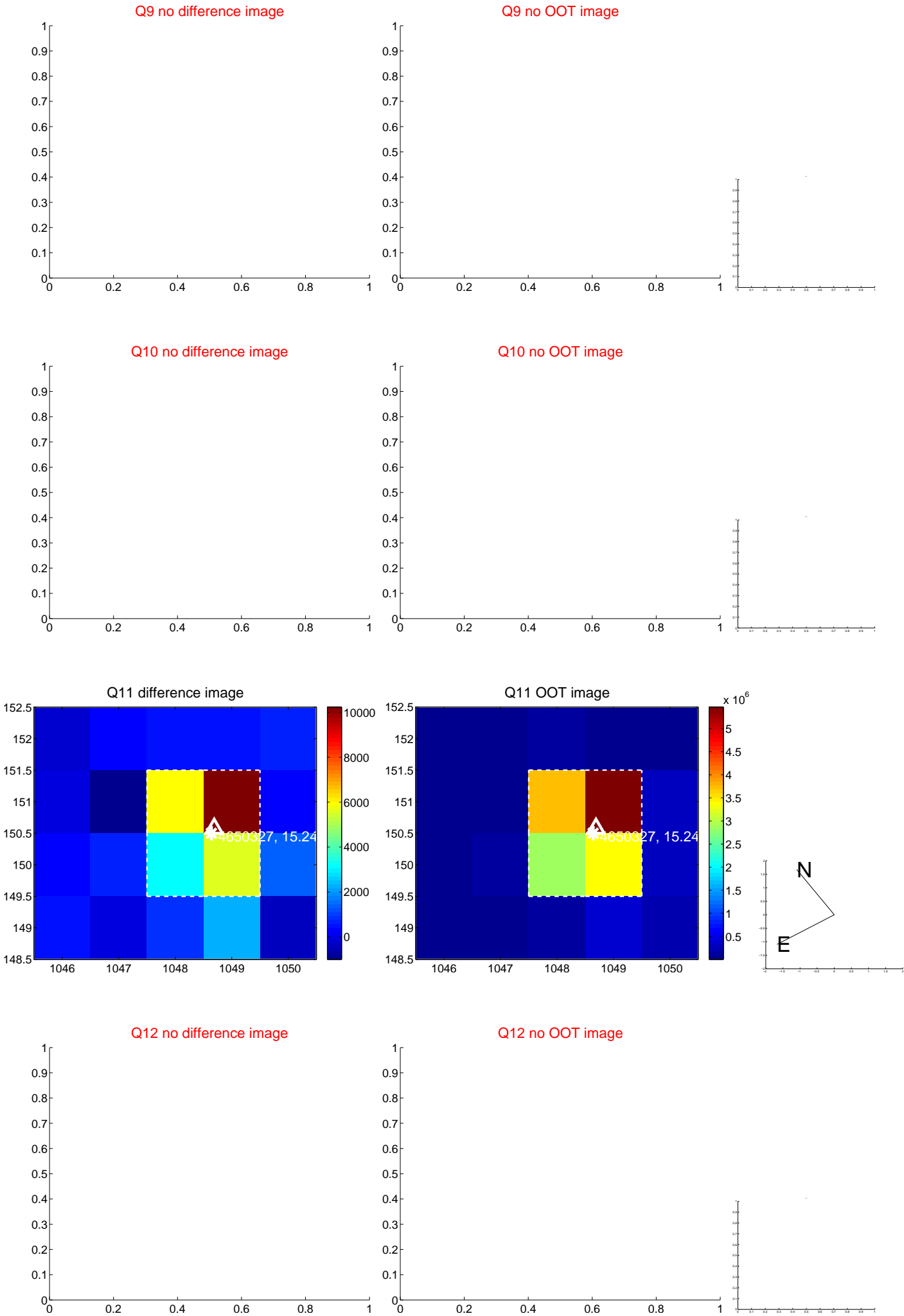
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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



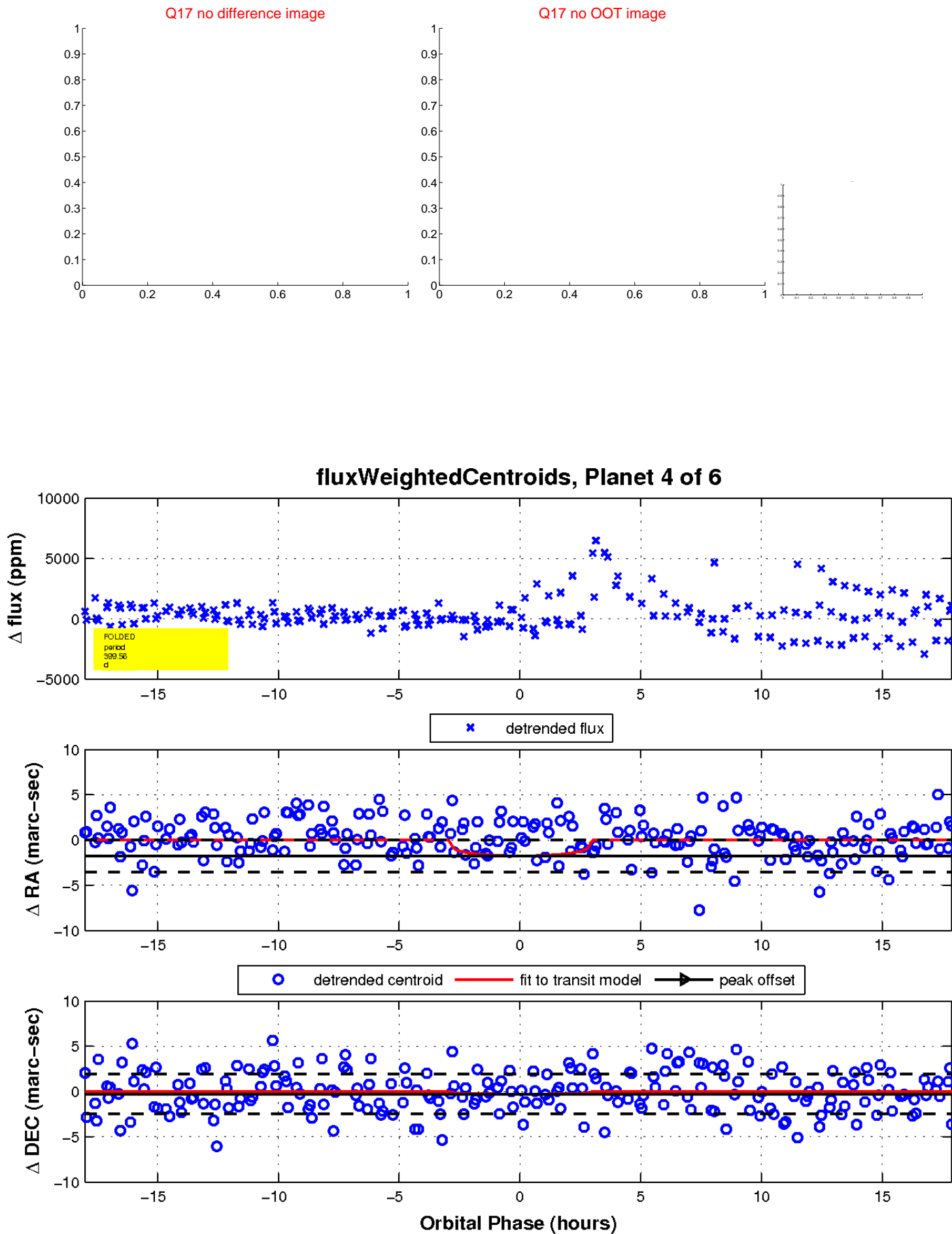
white ×: KIC target position; +: OOT centroid; △: difference centroid. red ✕: large negative pixel value.



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

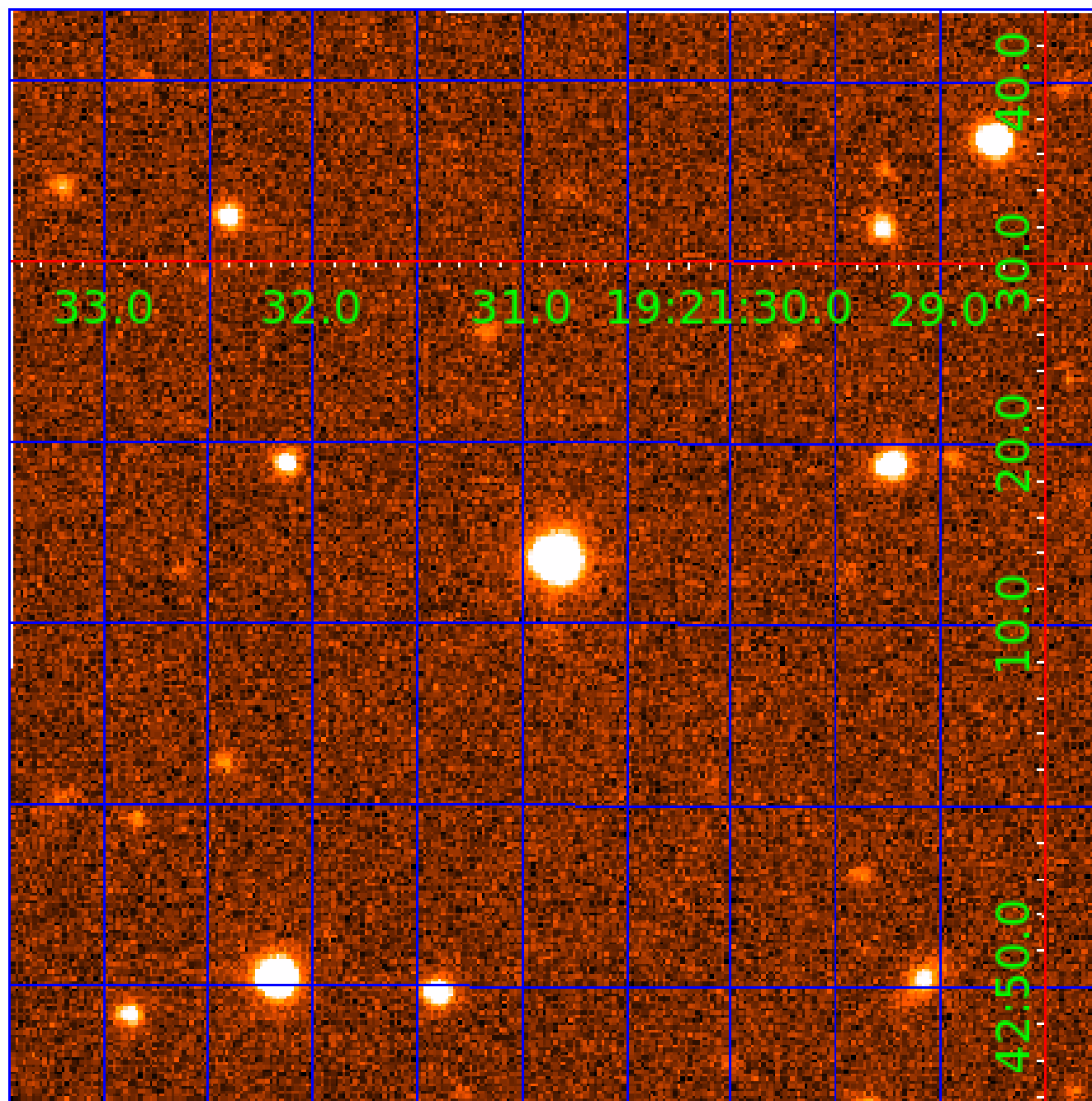


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 004650327

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})
004650327-01	OBS	No	695.313101	174.258630	2742.7	9.727	18.0	9.9	0.60	4986	3.21	0.12
004650327-02	OBS	No	597.080939	255.039916	1692.7	8.780	17.8	6.4	0.60	4986	2.42	0.15
004650327-03	OBS	No	214.677965	333.707044	1934.7	11.142	14.1	9.3	0.60	4986	3.05	0.57
004650327-04	OBS	No	399.560232	288.128419	1559.4	6.010	12.6	6.8	0.60	4986	2.36	0.25
004650327-05	OBS	No	571.603874	178.881644	740.6	3.676	12.0	3.1	0.60	4986	1.83	0.15
004650327-06	OBS	No	541.169214	313.645531	1117.8	6.000	12.3	-1.0	0.60	4986	1.97	0.17

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
004650327-01	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—INCONSISTENT_TRANS—CENT_FEW_DIFFS
004650327-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_SKYE—LPP_DV—MOD_NONUNIQ_DV—MOD_TER_DV—INCONSISTENT_TRANS—CENT_FEW_DIFFS
004650327-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_MARSHALL—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—CENT_FEW_DIFFS
004650327-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—INCONSISTENT_TRANS—CENT_FEW_DIFFS
004650327-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—INCONSISTENT_TRANS—CENT_FEW_DIFFS
004650327-06	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—LPP_DV—ALL_TRANS_CHASES—CENT_NOFITS

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

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

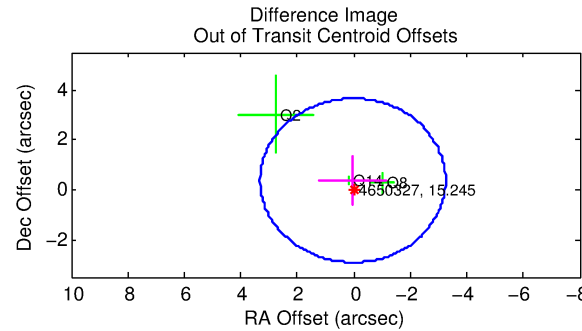
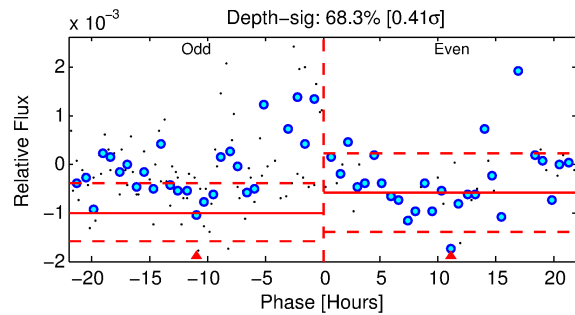
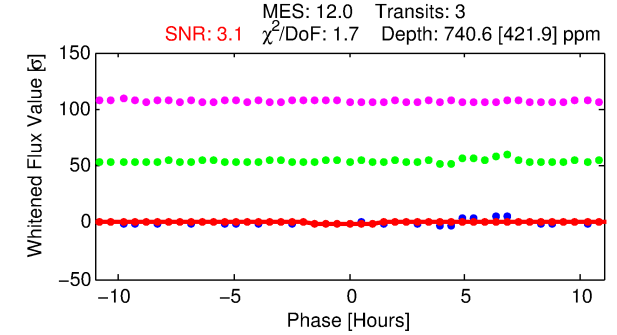
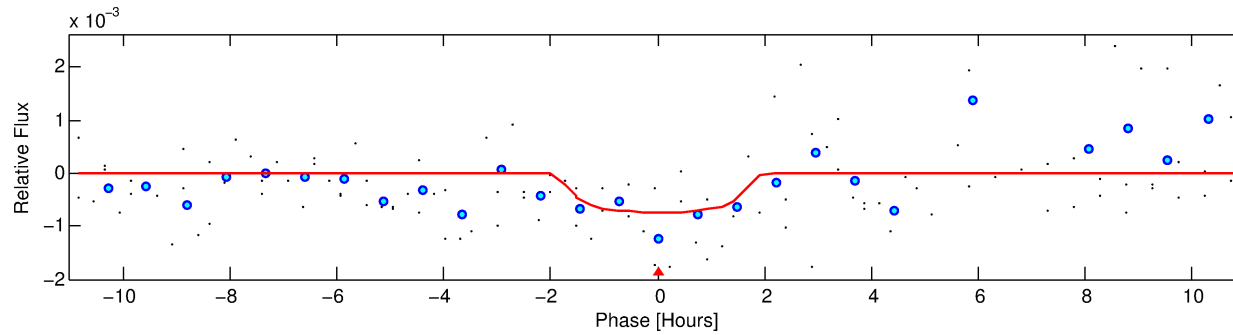
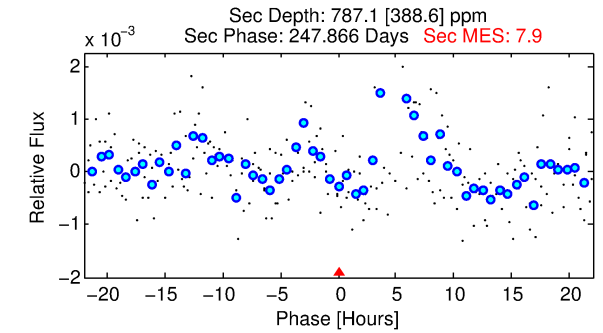
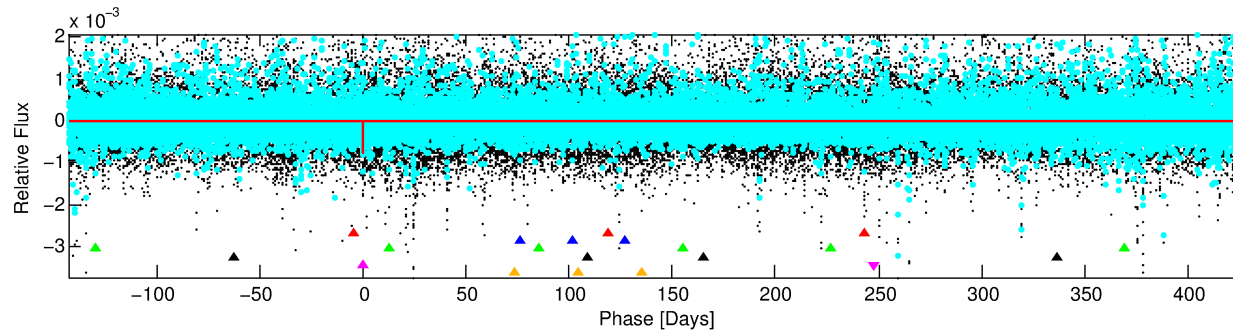
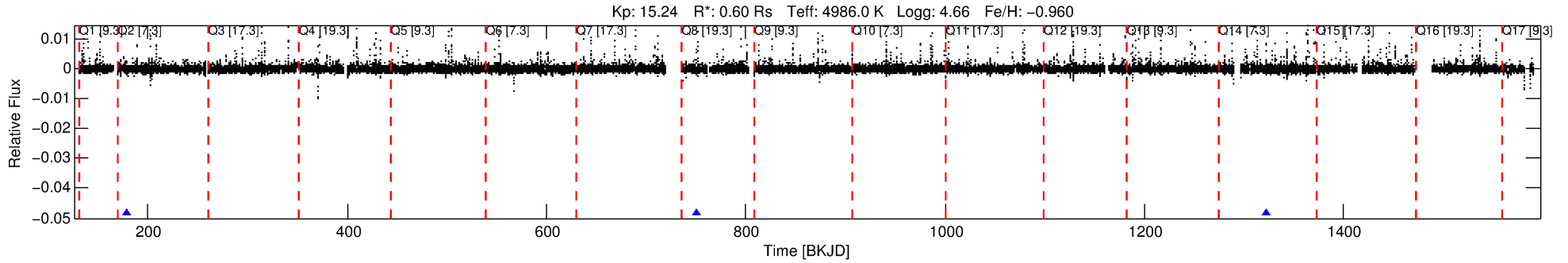
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 004650327-05

No Significant Match Found

DV One-Page Summary

KIC: 4650327 Candidate: 5 of 6 Period: 571.604 d



DV Fit Results:

Period = 571.60387 [0.01861] d
Epoch = 178.8816 [0.0246] BKJD
Rp/R* = 0.0280 [0.0469]
a/R* = 745.43 [4749.96]
b = 0.81 [2.68]
Seff = 0.15 [0.03]
Teff = 160 [7] K
Rp = 1.83 [3.07] Re
a = 1.1346 [0.0790] AU
Ag = 165842.92 [561907.34] [0.30σ]
Teffp = 4991 [4229] K [1.14σ]

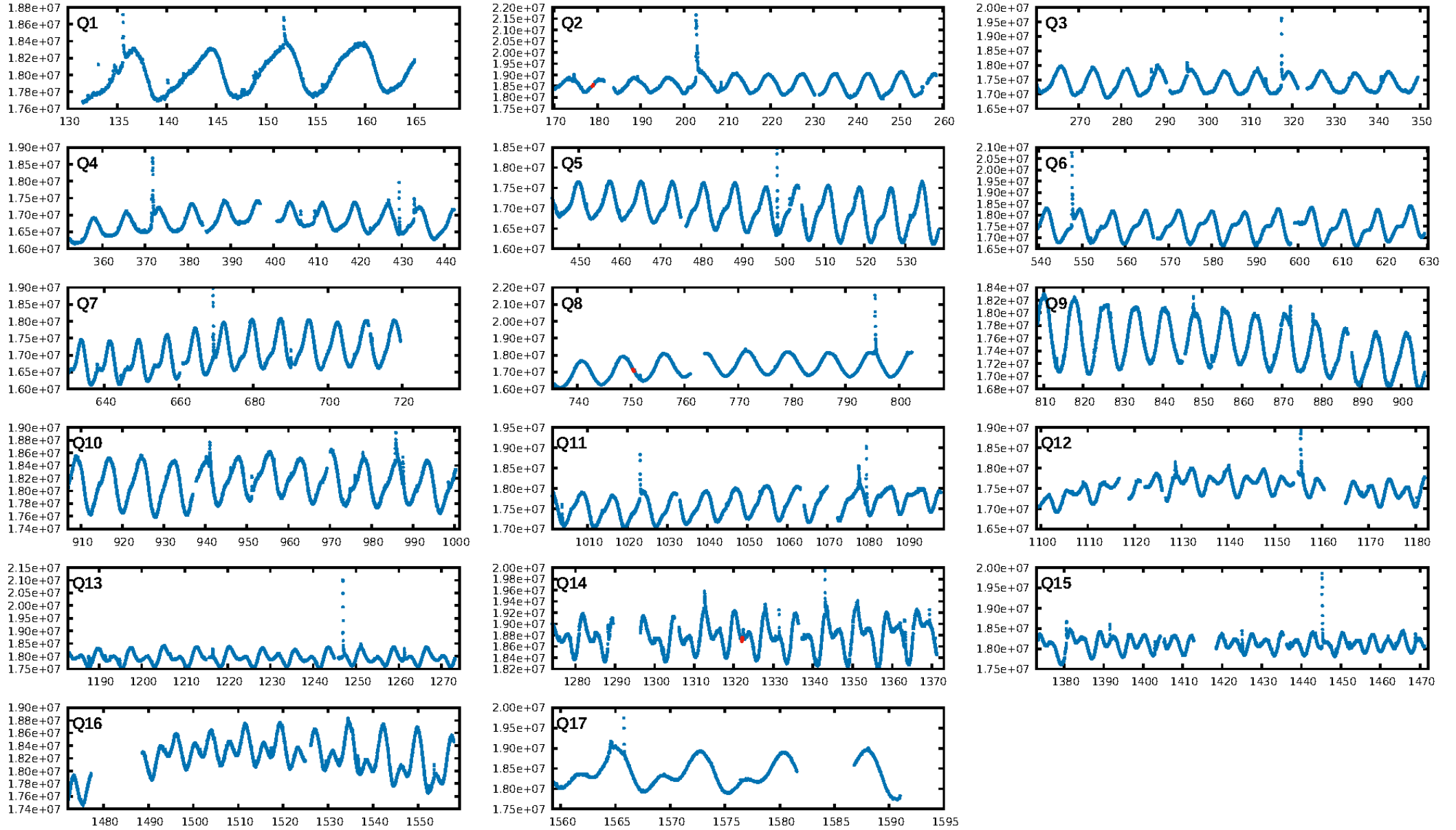
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [103.81σ]
LongPeriod-sig: 100.0% [64.24σ]
ModelChiSquare2-sig: 1.8%
ModelChiSquareGof-sig: 46.4%
Bootstrap-pfa: N/A
RollingBand-fgt: 1.00 [3/3]
GhostDiagnostic-chr: -1.026
Centroid-sig: 30.7%
Centroid-so: 1.982 arcsec [0.86σ]
OotOffset-rm: 0.367 arcsec [0.34σ]
OotOffset-st: 2/0/1/0 [3]
KicOffset-rm: 0.484 arcsec [0.86σ]
KicOffset-st: 2/0/1/0 [3]
DiffImageQuality-fgm: 0.67 [2/3]
DiffImageOverlap-fno: 1.00 [3/3]

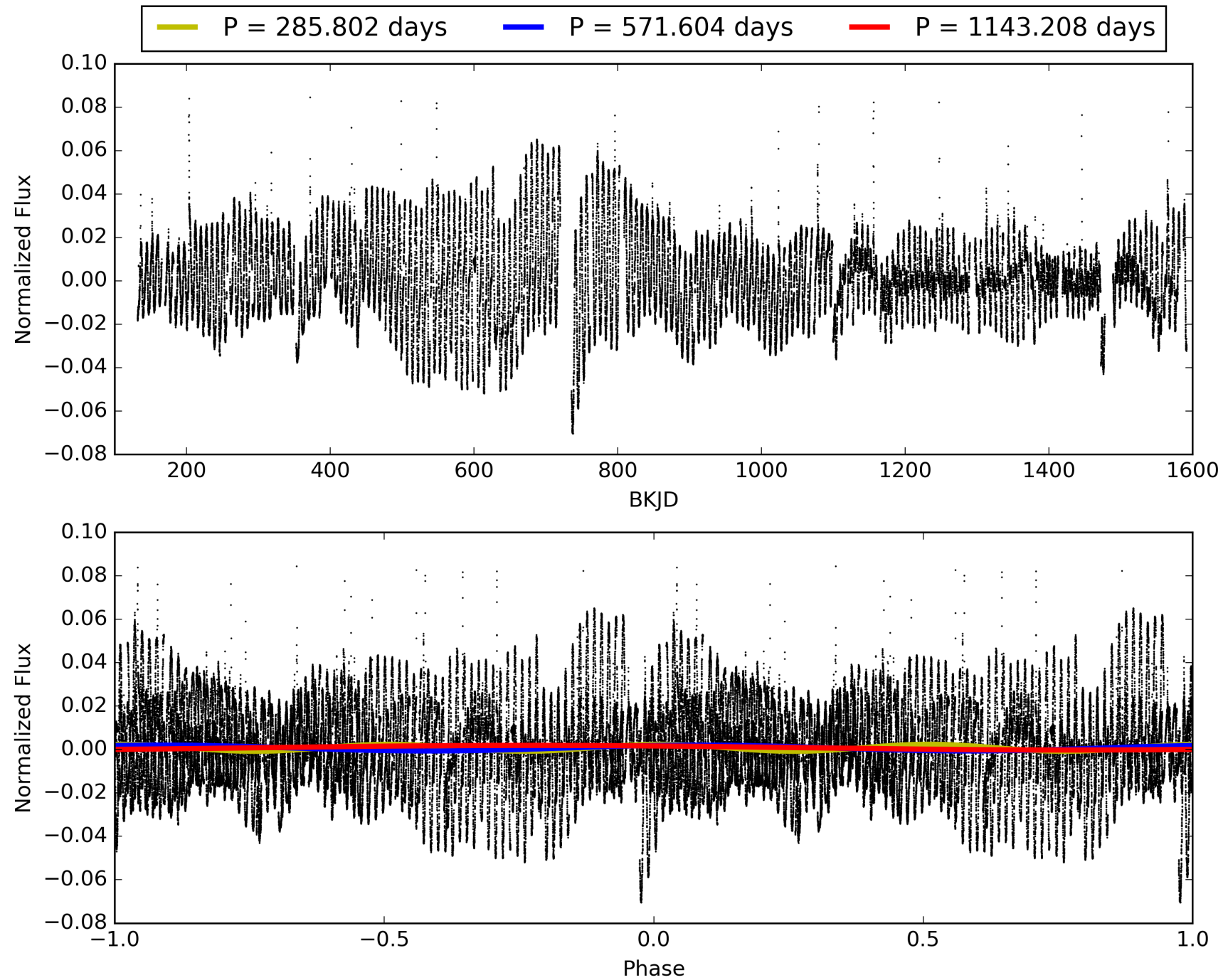
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 01-Feb-2016 13:05:33 Z

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

TCE 004650327-05, PDC Light Curves

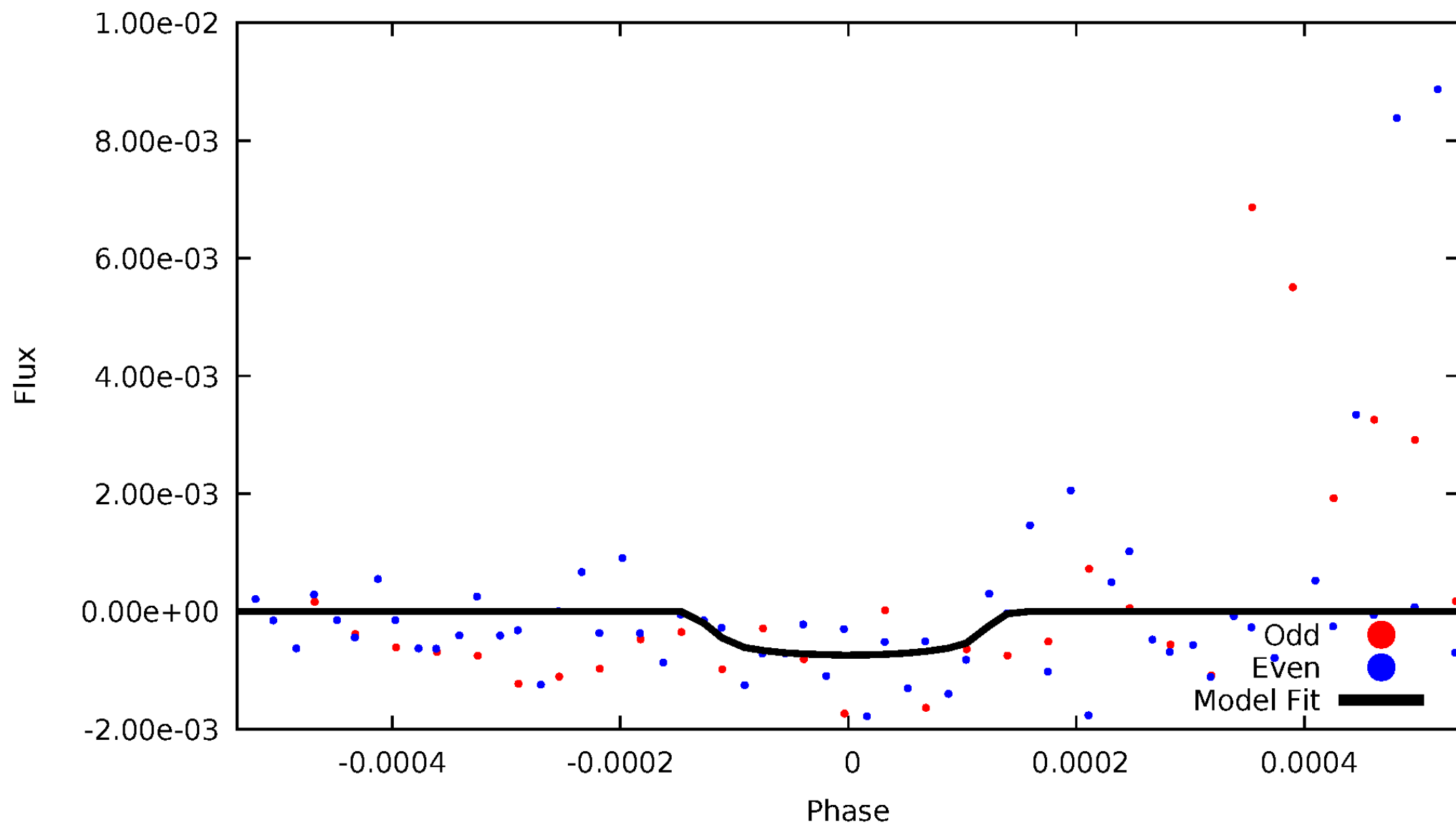


TCE 004650327-05



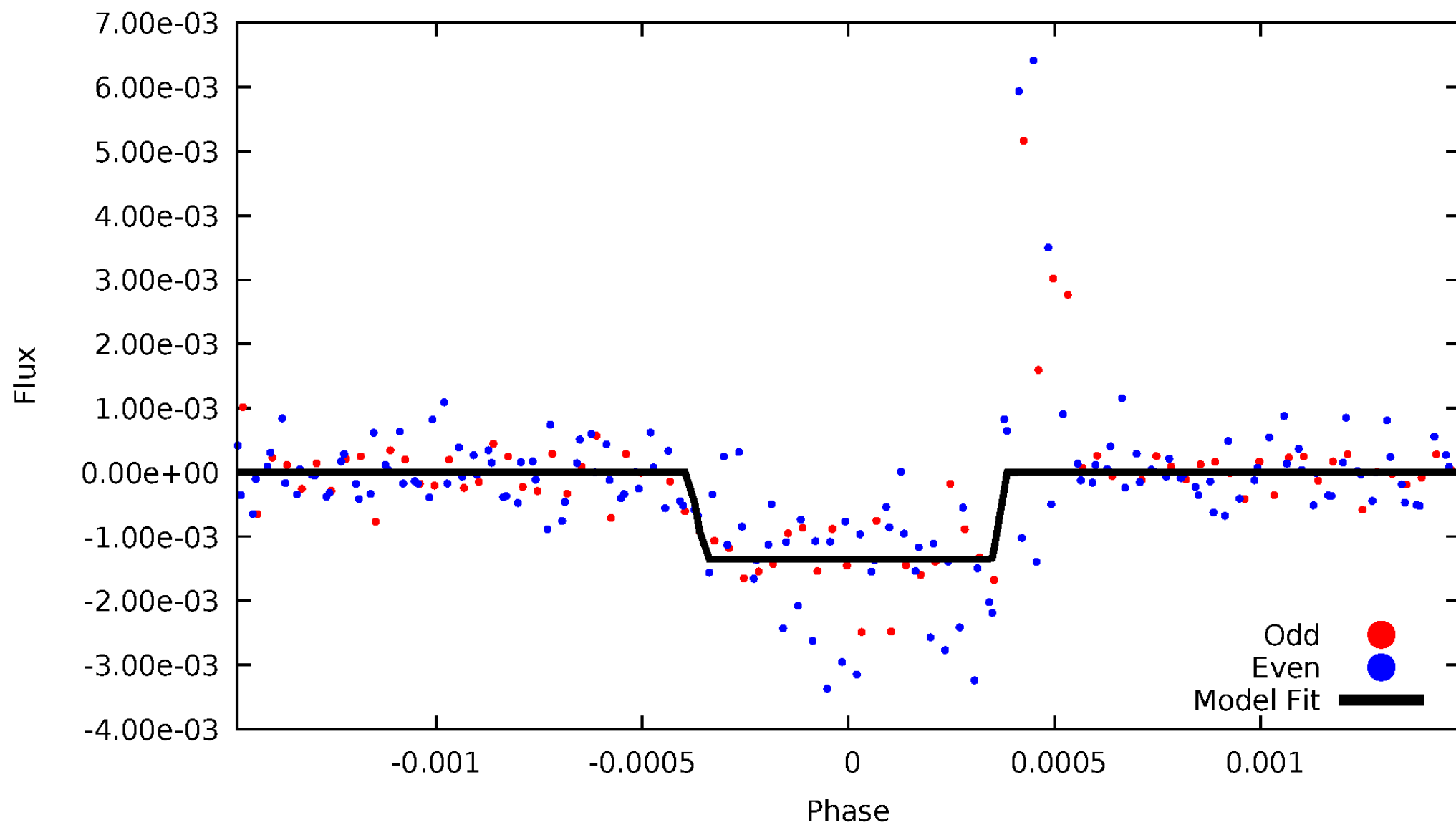
DV Odd/Even

TCE 004650327-05



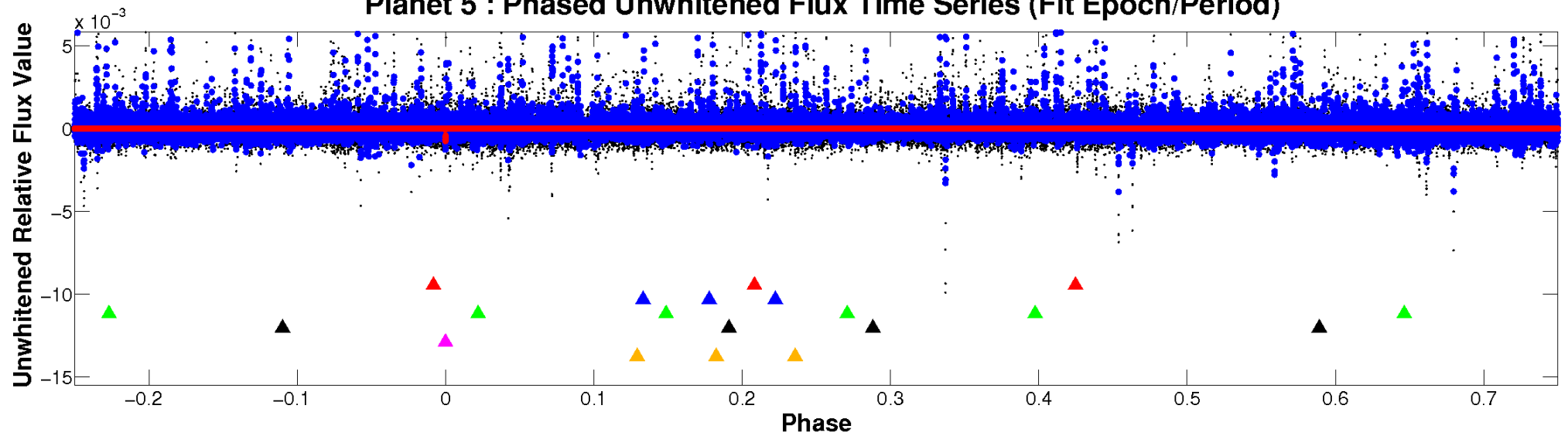
ALT Odd/Even

TCE 004650327-05

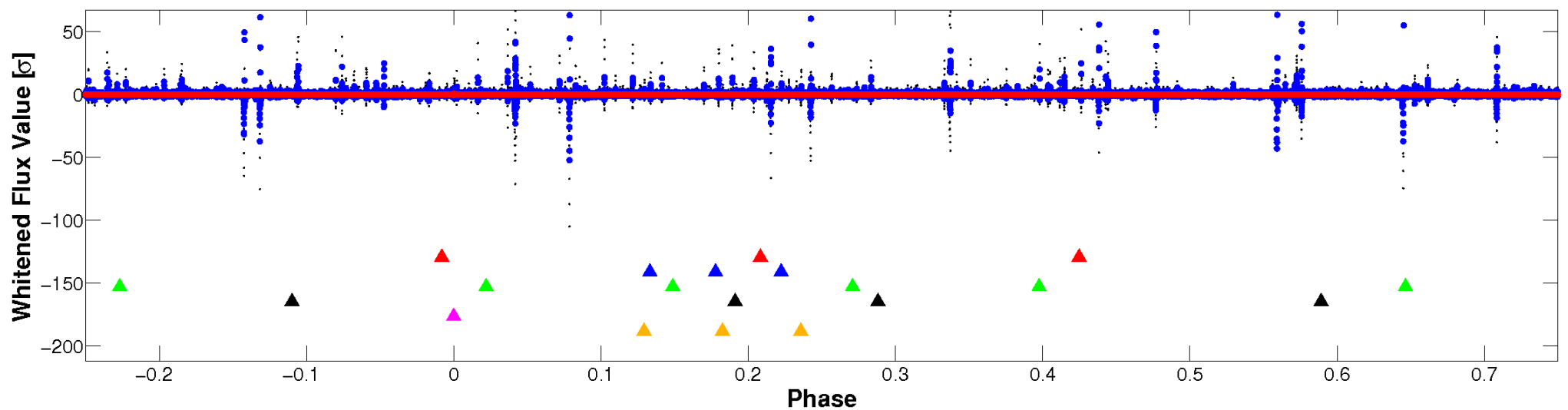


Non-Whitened Vs. Whitened Light Curve

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

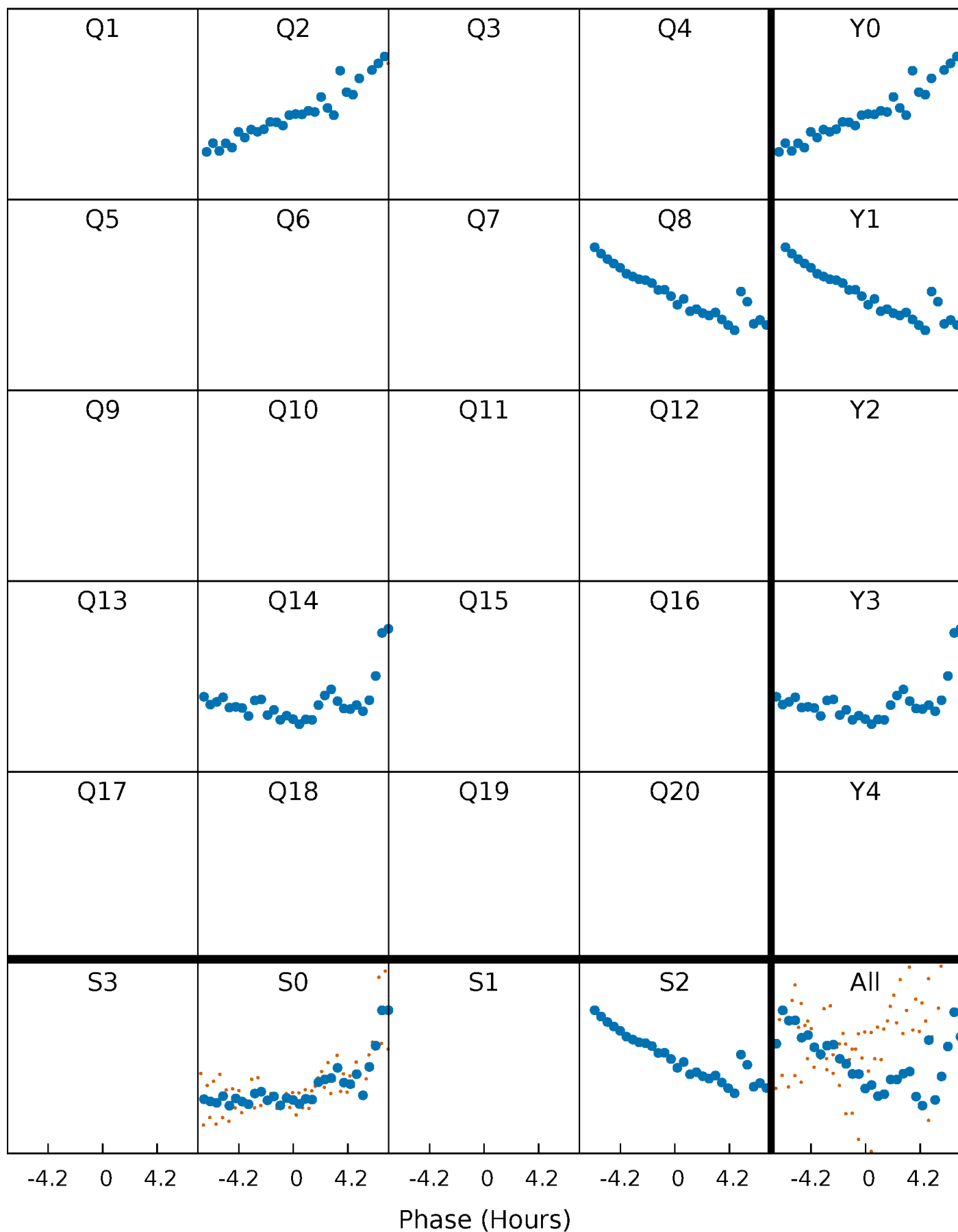


Planet 5 : Phased Whitened Flux Time Series (Fit Epoch/Period)



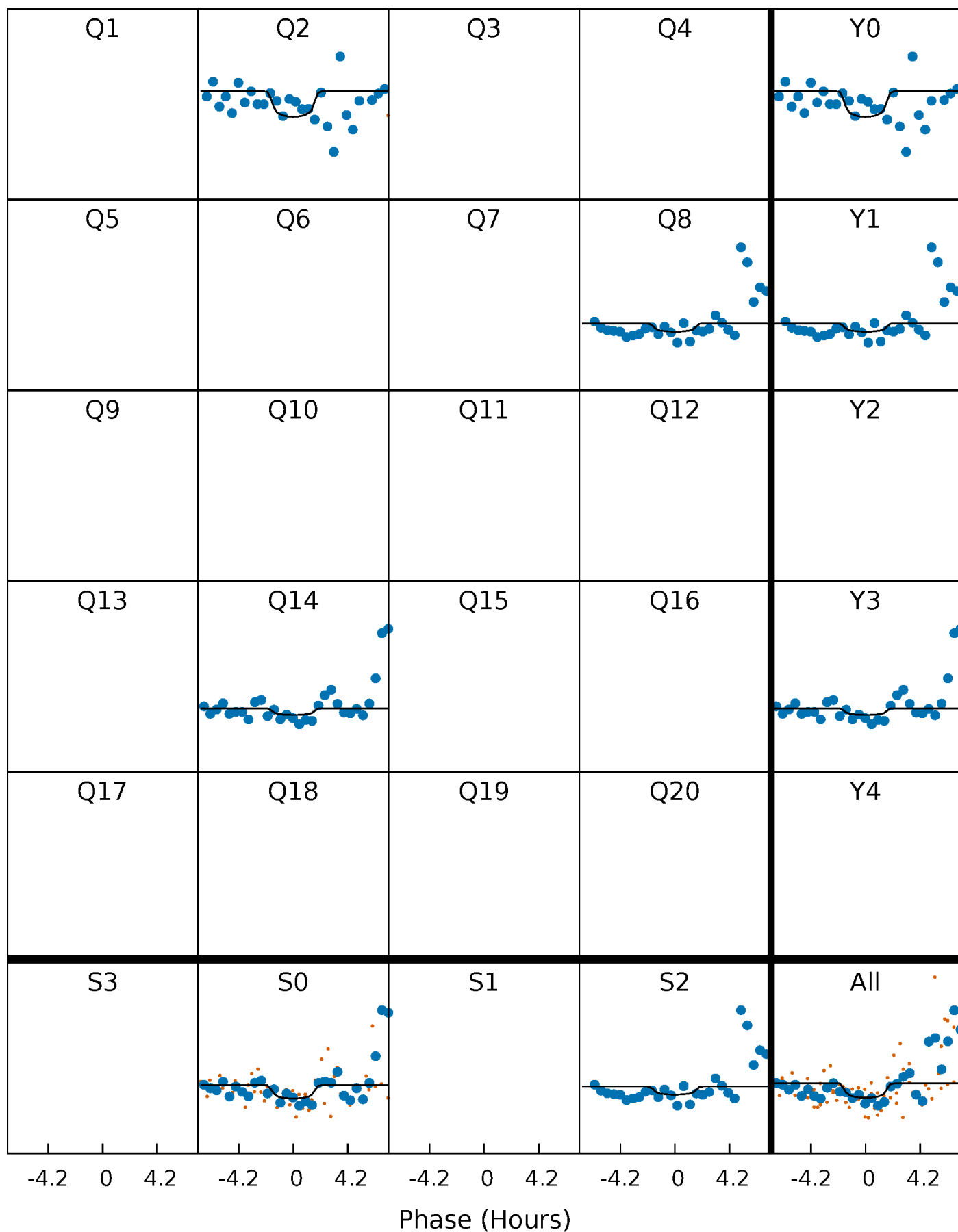
PDC Quarter-Phased Transit Curves

TCE 004650327-05 $P=571.603874$ Days $T_0=178.881644$ (BKJD)



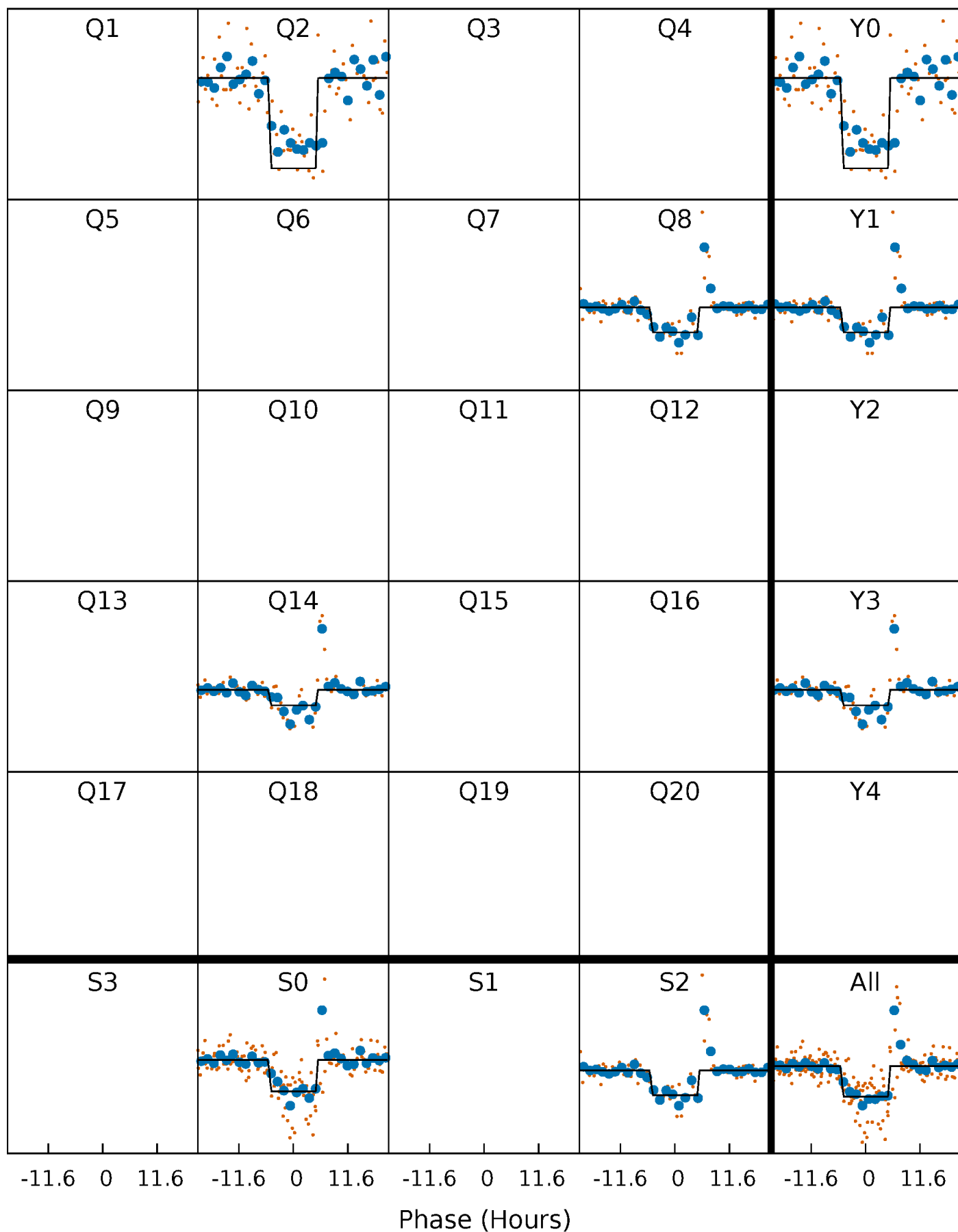
DV Quarter-Phased Transit Curves

TCE 004650327-05 $P=571.603874$ Days $T_0=178.881644$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

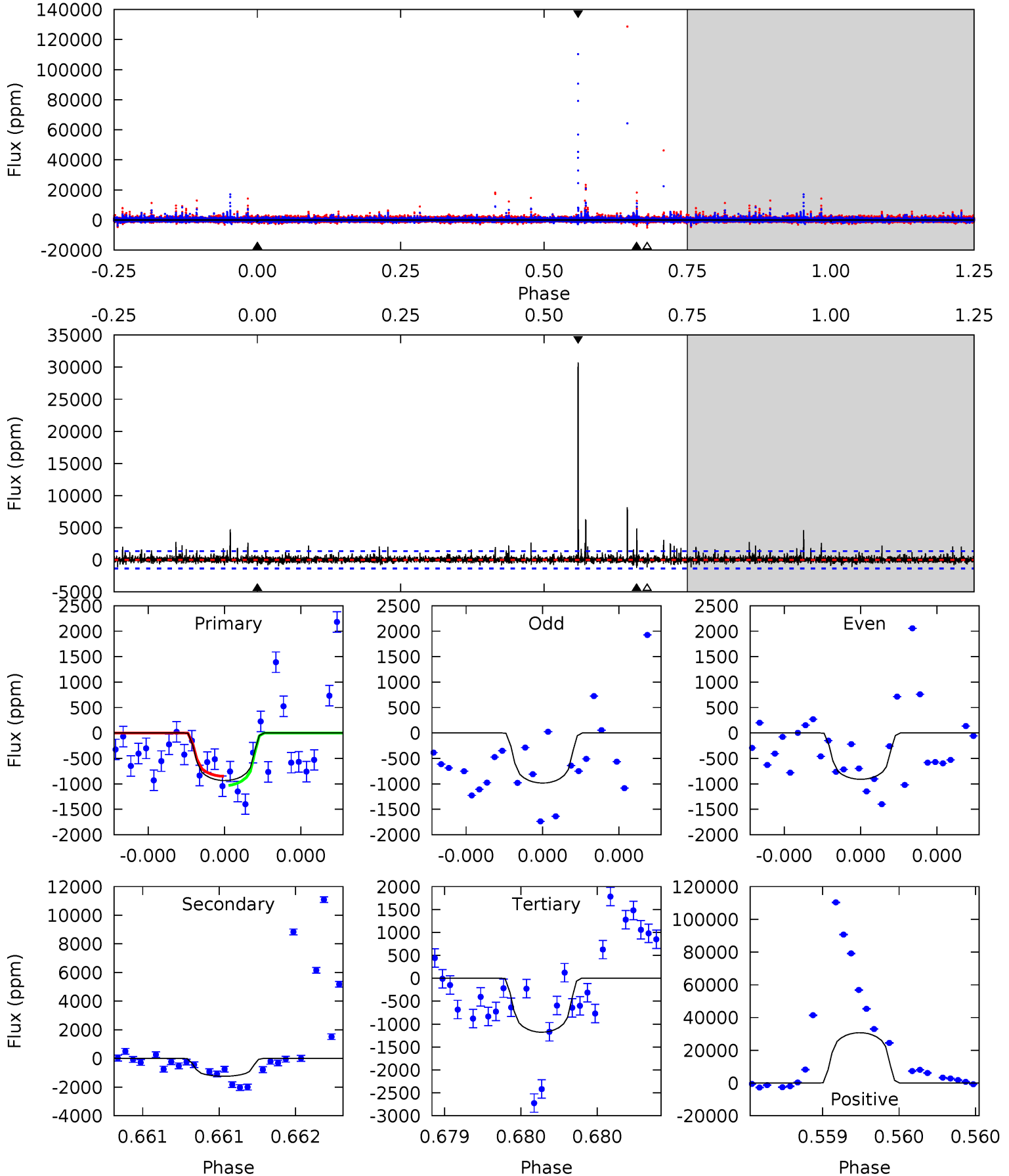
TCE 004650327-05 $P=571.662897$ Days $T_0=178.802168$ (BKJD)



DV Model-Shift Uniqueness Test

004650327-05, P = 571.603874 Days, E = 178.881644 Days

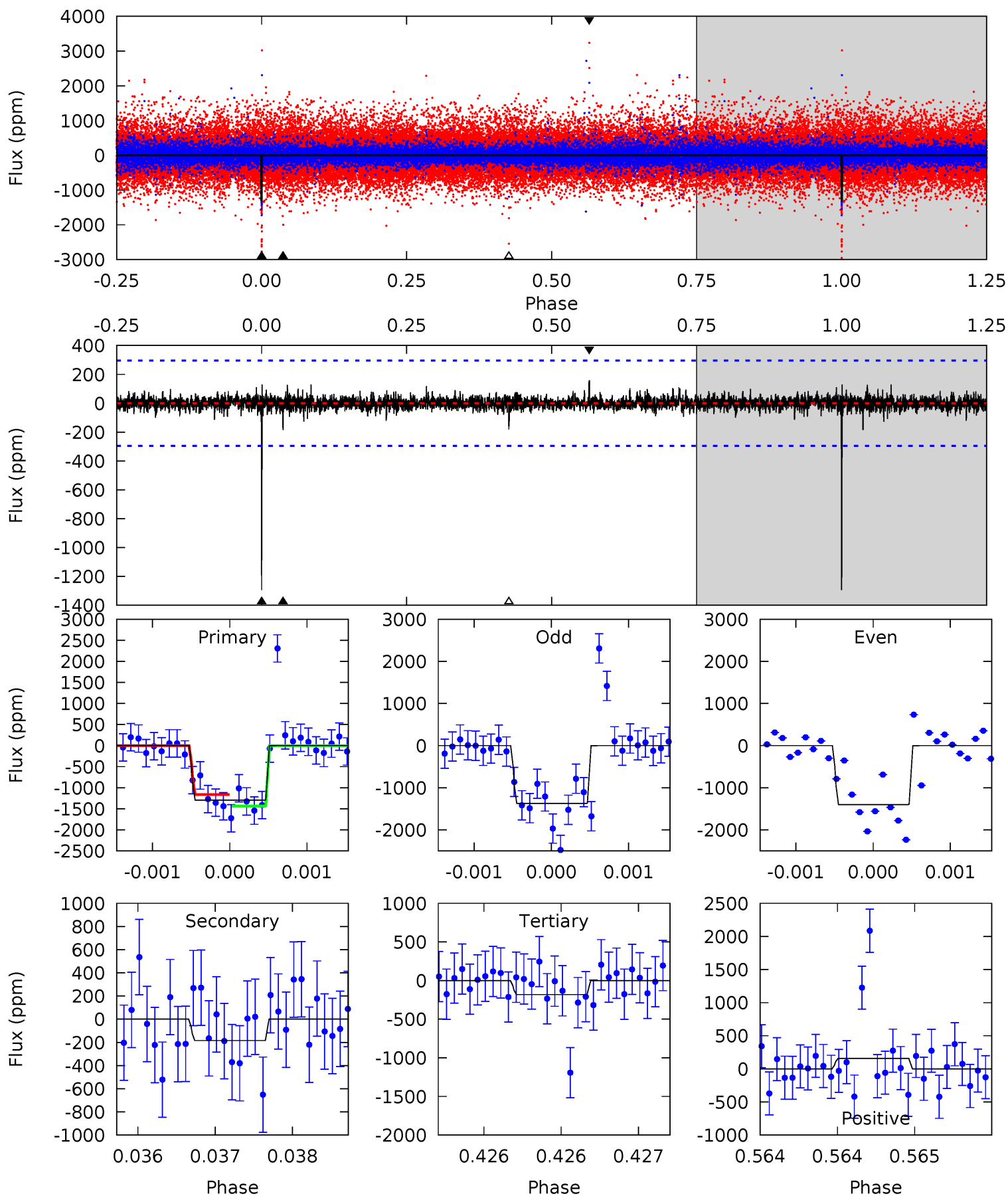
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
3.90	5.18	4.91	128.2	5.66	3.61	2.46	-1.02	-124.3	0.27	-123.0	0.06	0.95	0.96	0.35



Alt Model-Shift Uniqueness Test

004650327-05, $P = 571.662897$ Days, $E = 178.802168$ Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
24.1	3.43	3.38	2.96	5.50	3.37	0.48	20.7	21.1	0.05	0.47	0.21	1.05	0.11	2.55



Stellar Parameters For KIC 004650327

	$T_{\text{eff}} (K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M (M_{\odot})$	$p_{\star} (g \cdot \text{cm}^{-3})$
	4986^{+173}_{-173}	$4.657^{+0.060}_{-0.035}$	$-0.960^{+0.300}_{-0.300}$	$0.600^{+0.047}_{-0.042}$	$0.597^{+0.055}_{-0.026}$	$3.884^{+0.876}_{-0.535}$
	+3%/-3%	+1%/-1%	+31%/-31%	+8%/-7%	+9%/-4%	+23%/-14%
Source	PHO1	KIC0	KIC0	DSEP		

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

Secondary Eclipse Parameters for KIC 004650327-05 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-1244 ± 240	$2.89^{+2.76}_{-1.90}$	223^{+8}_{-9}	4499^{+3292}_{-913}	$103605^{+870083}_{-75853}$
Alt.	-184 ± 54	$3.23^{+2.76}_{-2.13}$	223^{+9}_{-9}	3160^{+1395}_{-533}	$12153^{+100504}_{-8874}$

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

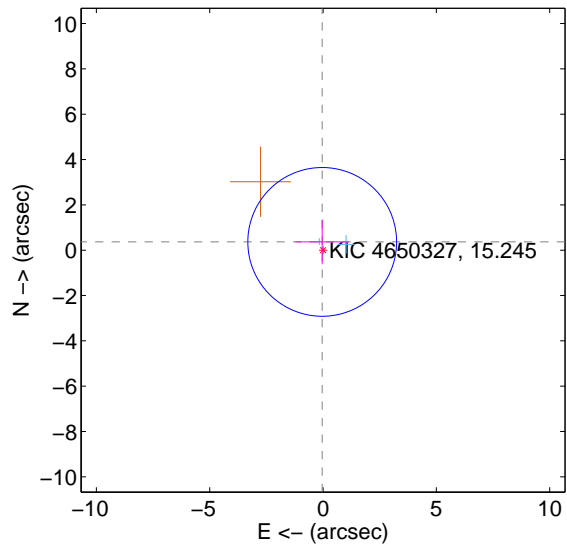
Supplemental centroid analysis for 004650327-05. Kepler magnitude: 15.24. Transit SNR 3.10

There are 2 quarters with good PRF difference image offsets

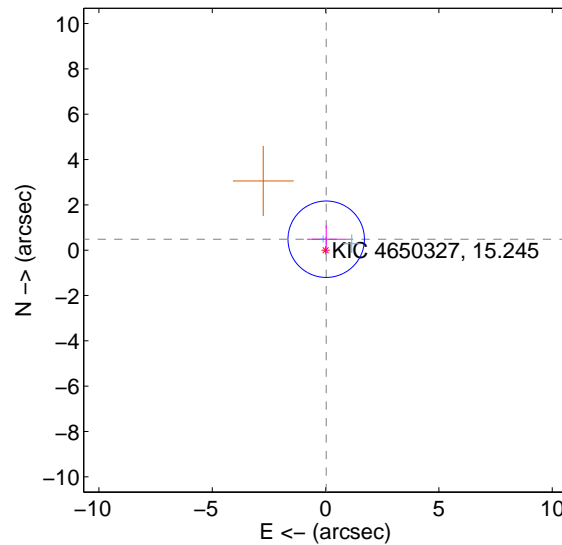
The direct PRF centroid is offset from the target star catalog position by about 0.13 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.367 ± 1.094	0.34	0.036 ± 1.177	0.365 ± 0.984
PRF-fit source offset from KIC position	0.484 ± 0.562	0.86	-0.027 ± 0.842	0.483 ± 0.608
photometric centroid source offset	1.98 ± 2.30	0.86	-1.50 ± 2.32	-1.30 ± 2.29

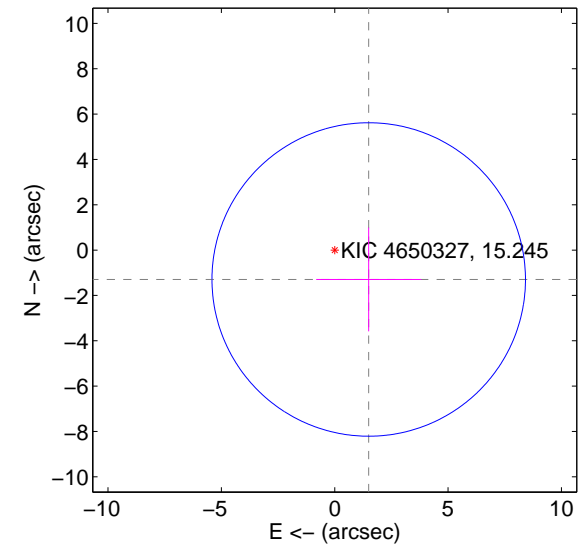
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position

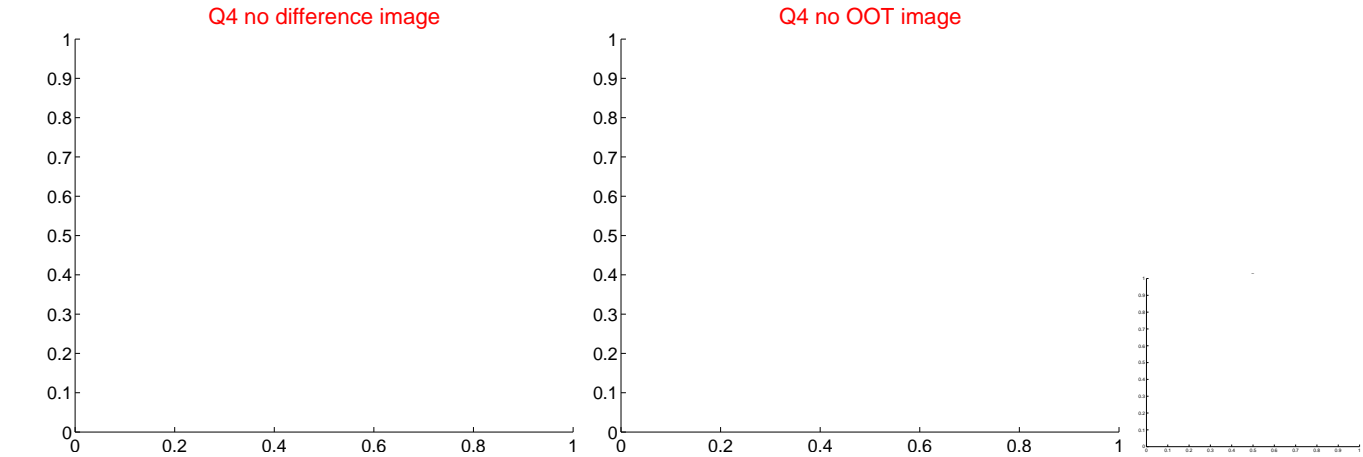
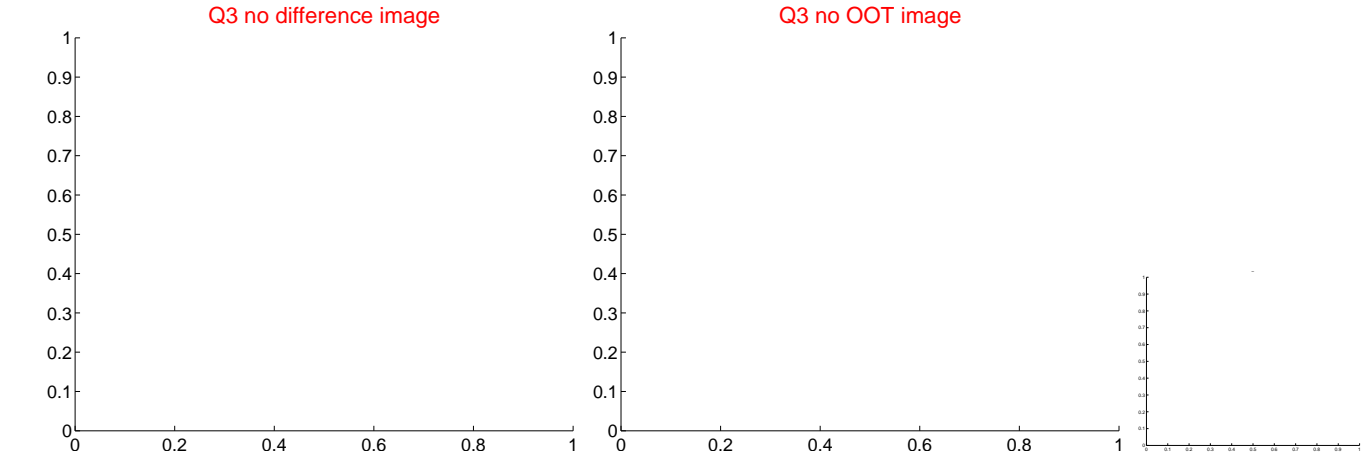
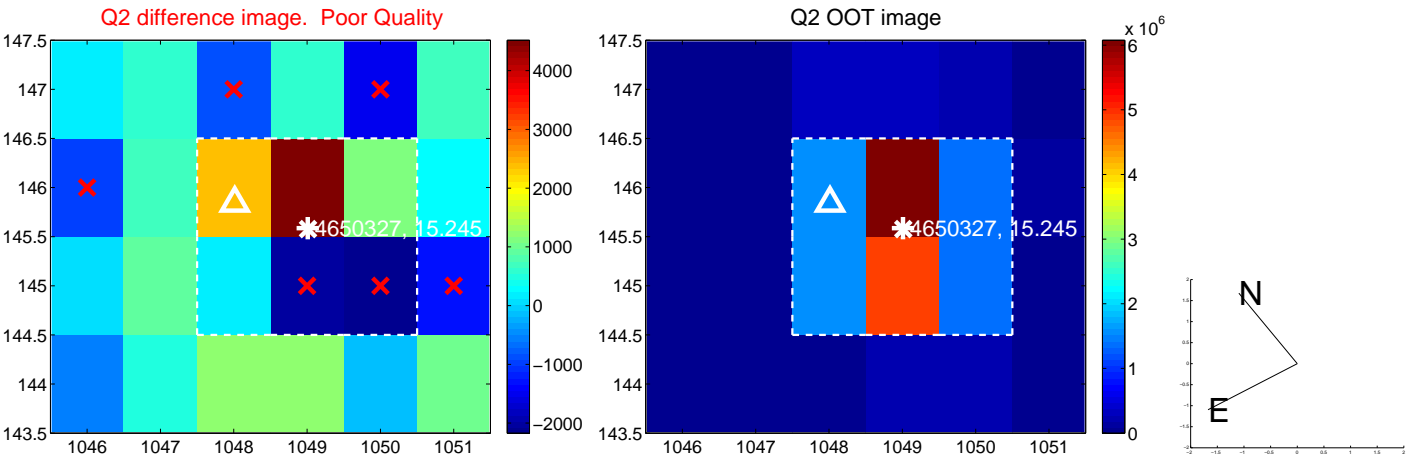
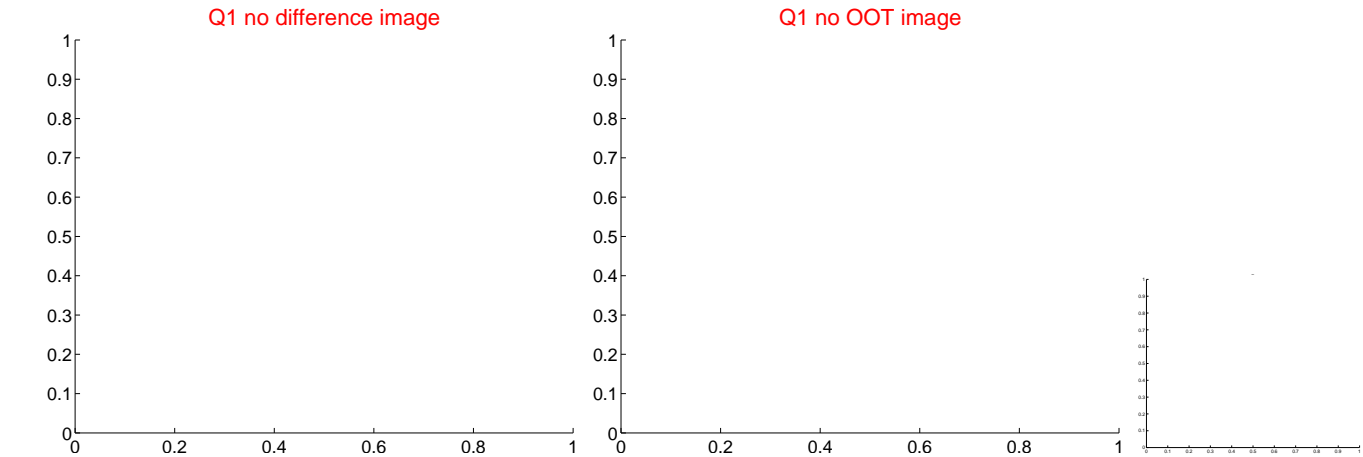


offset from photometric centroids

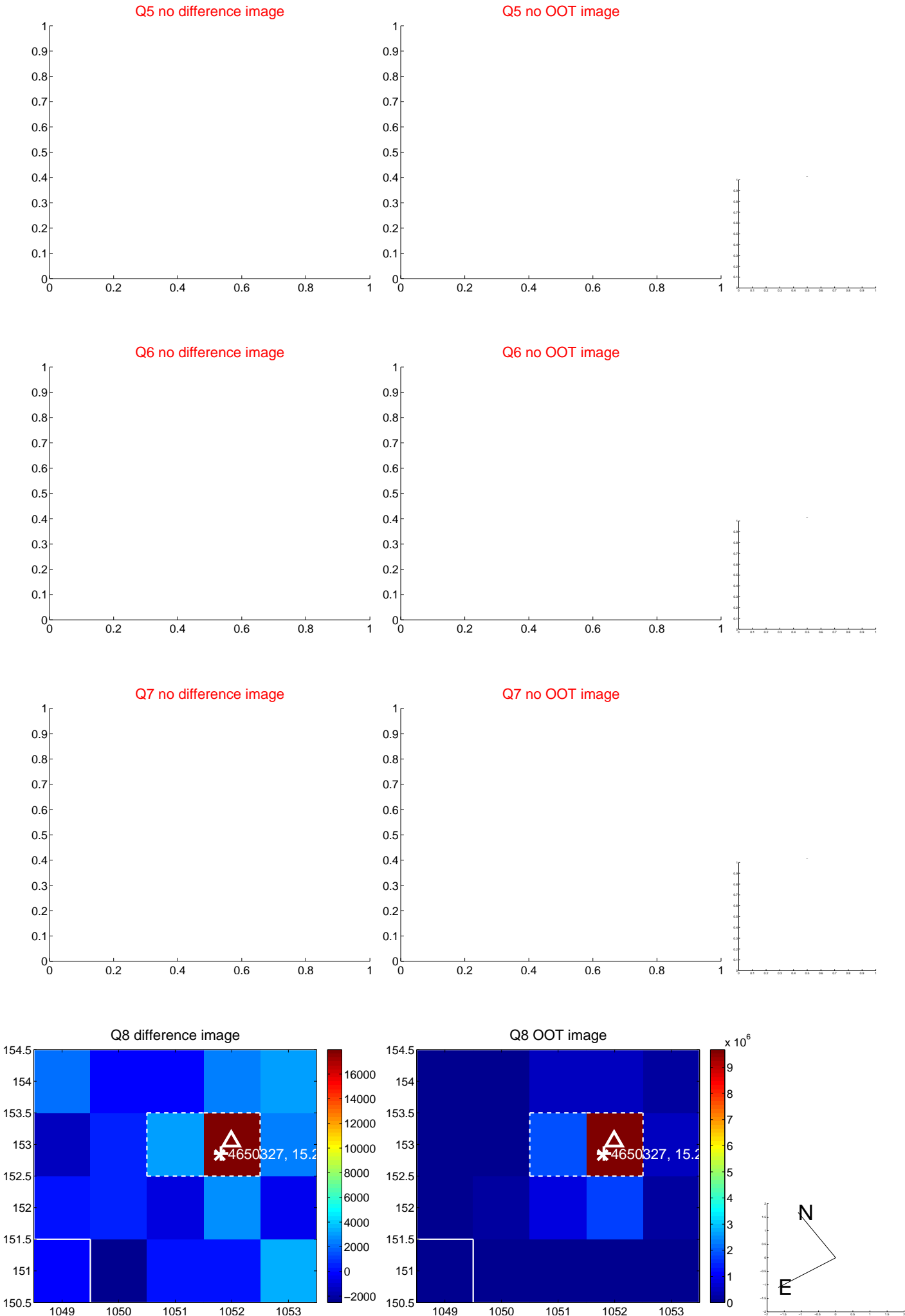


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ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

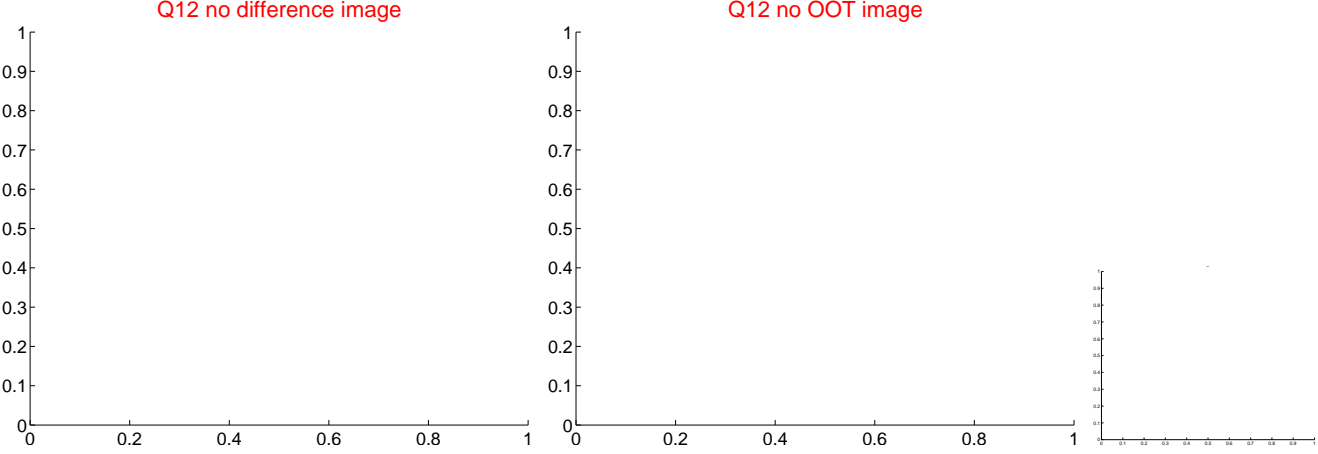
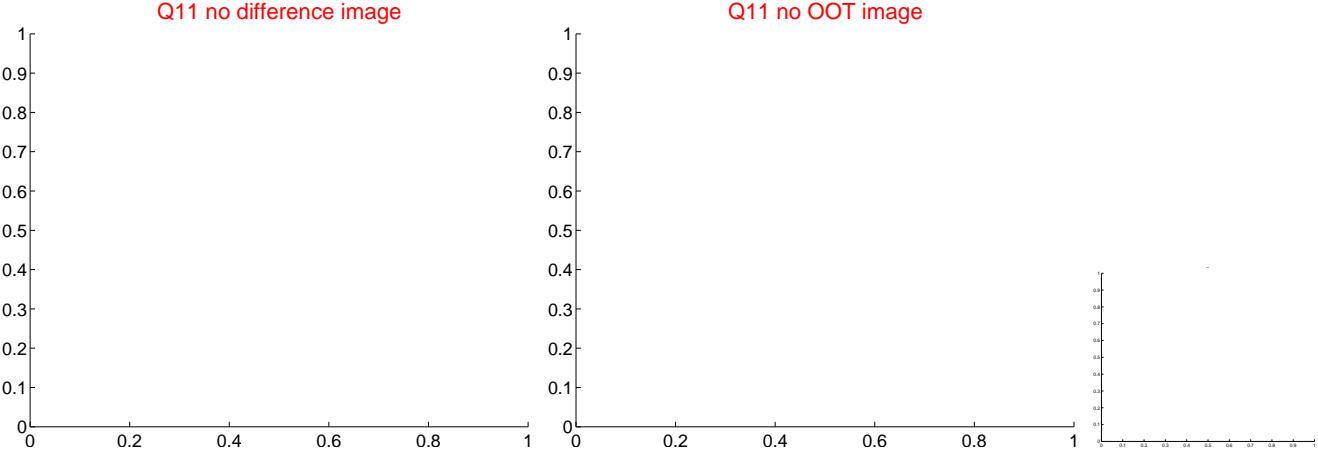
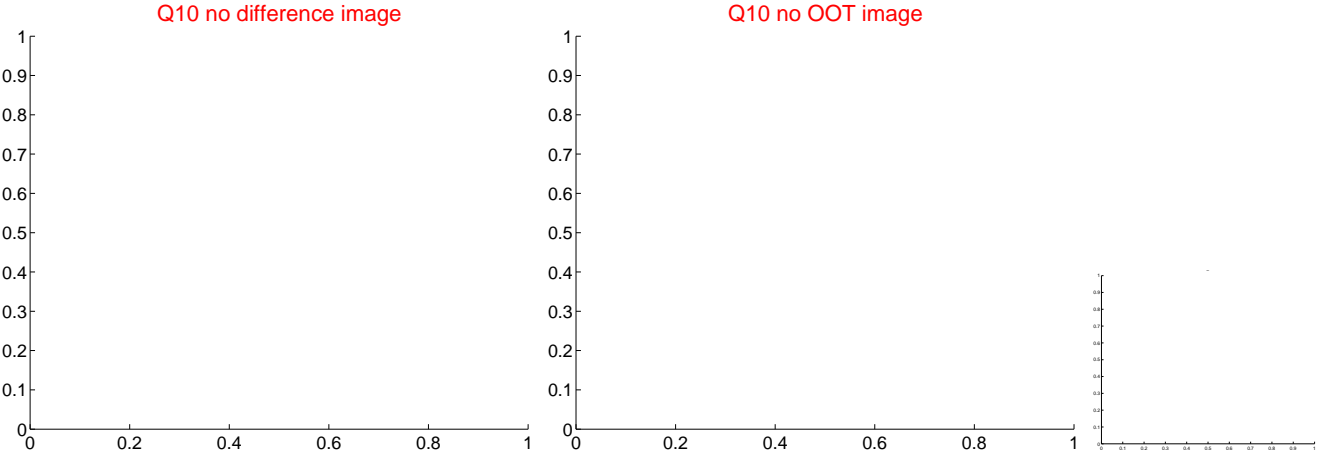
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

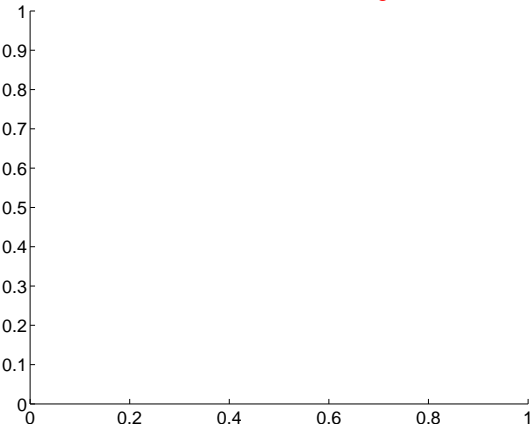


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.

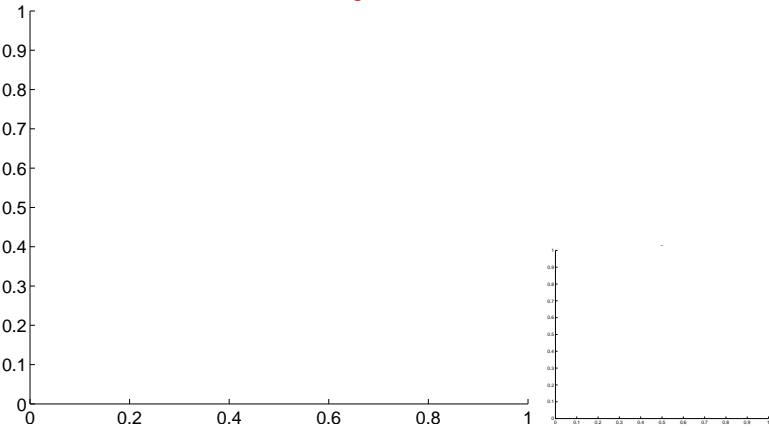


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.

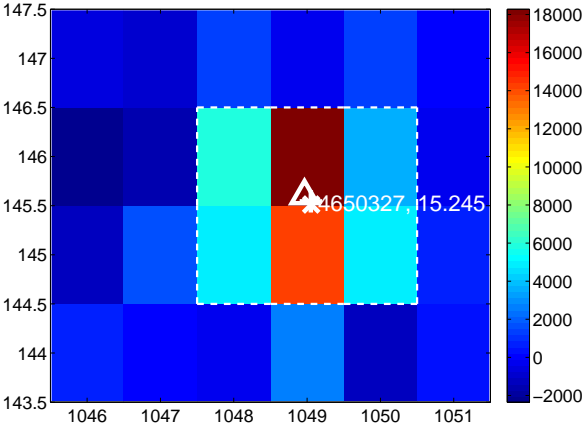
Q13 no difference image



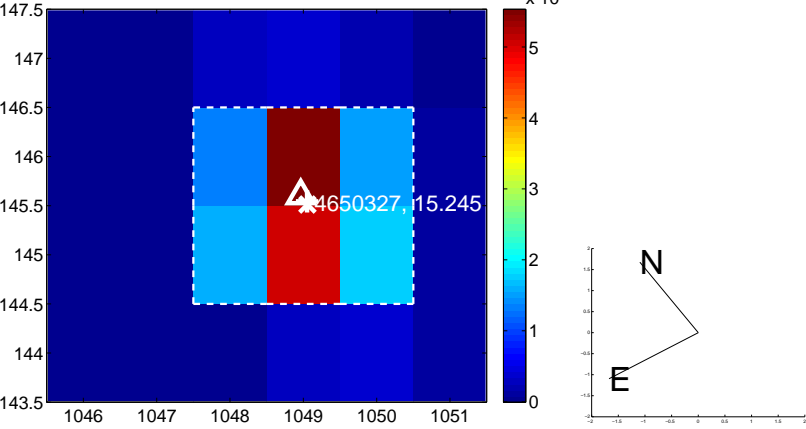
Q13 no OOT image



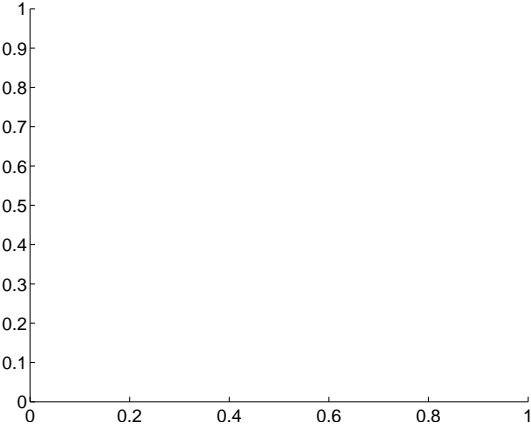
Q14 difference image



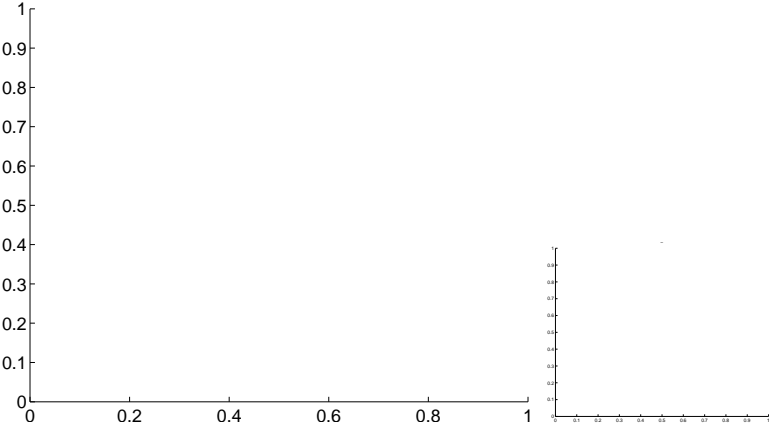
Q14 OOT image



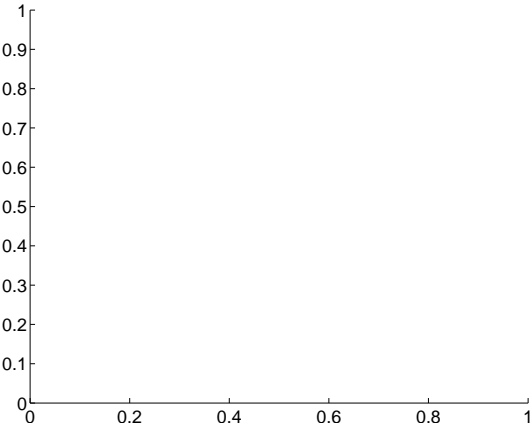
Q15 no difference image



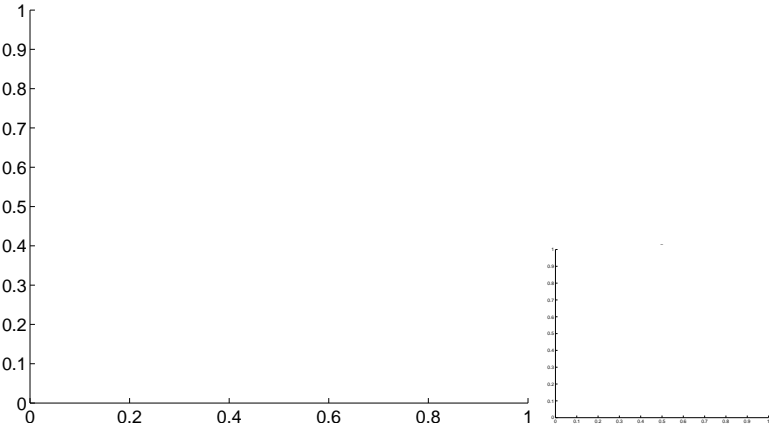
Q15 no OOT image



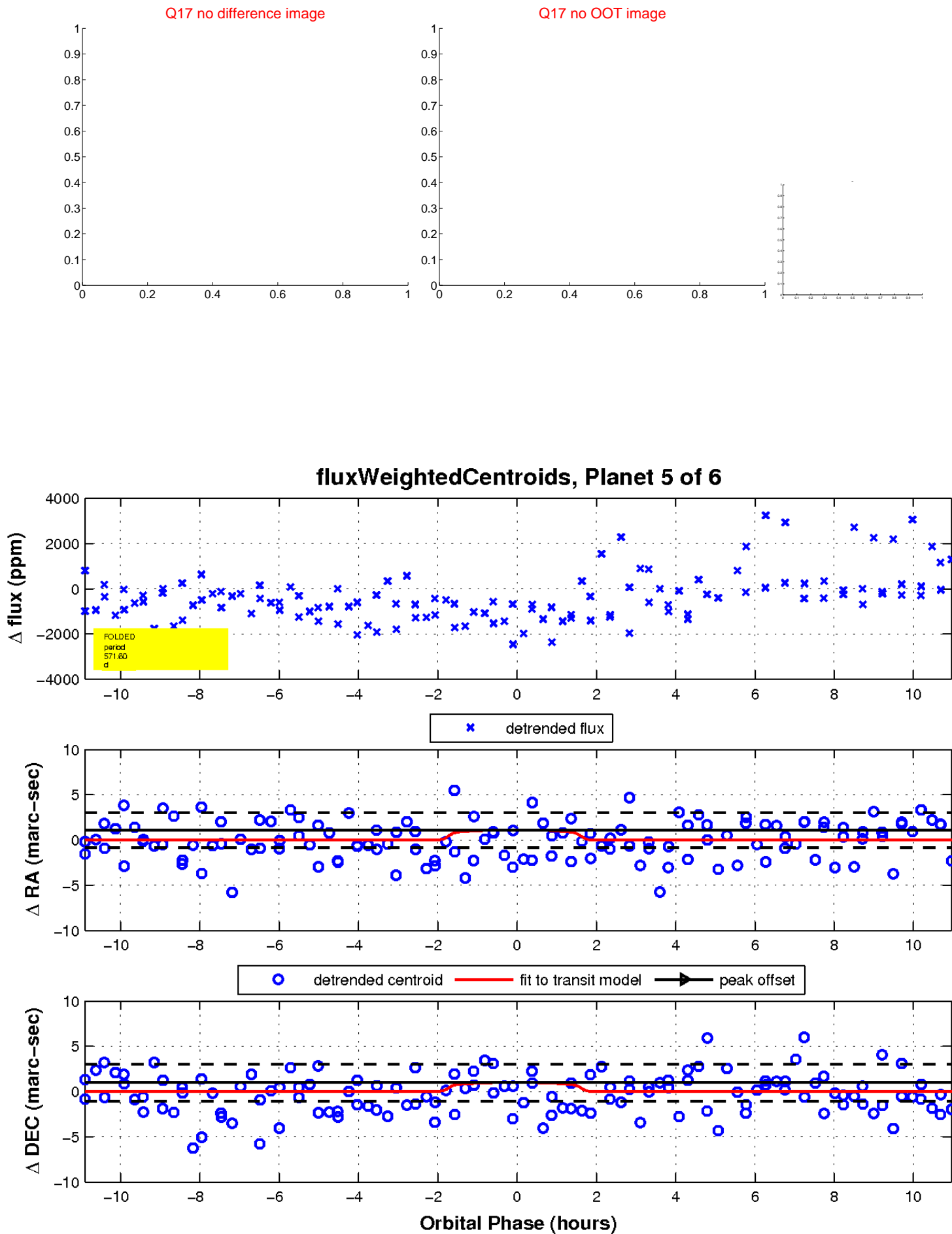
Q16 no difference image



Q16 no OOT image

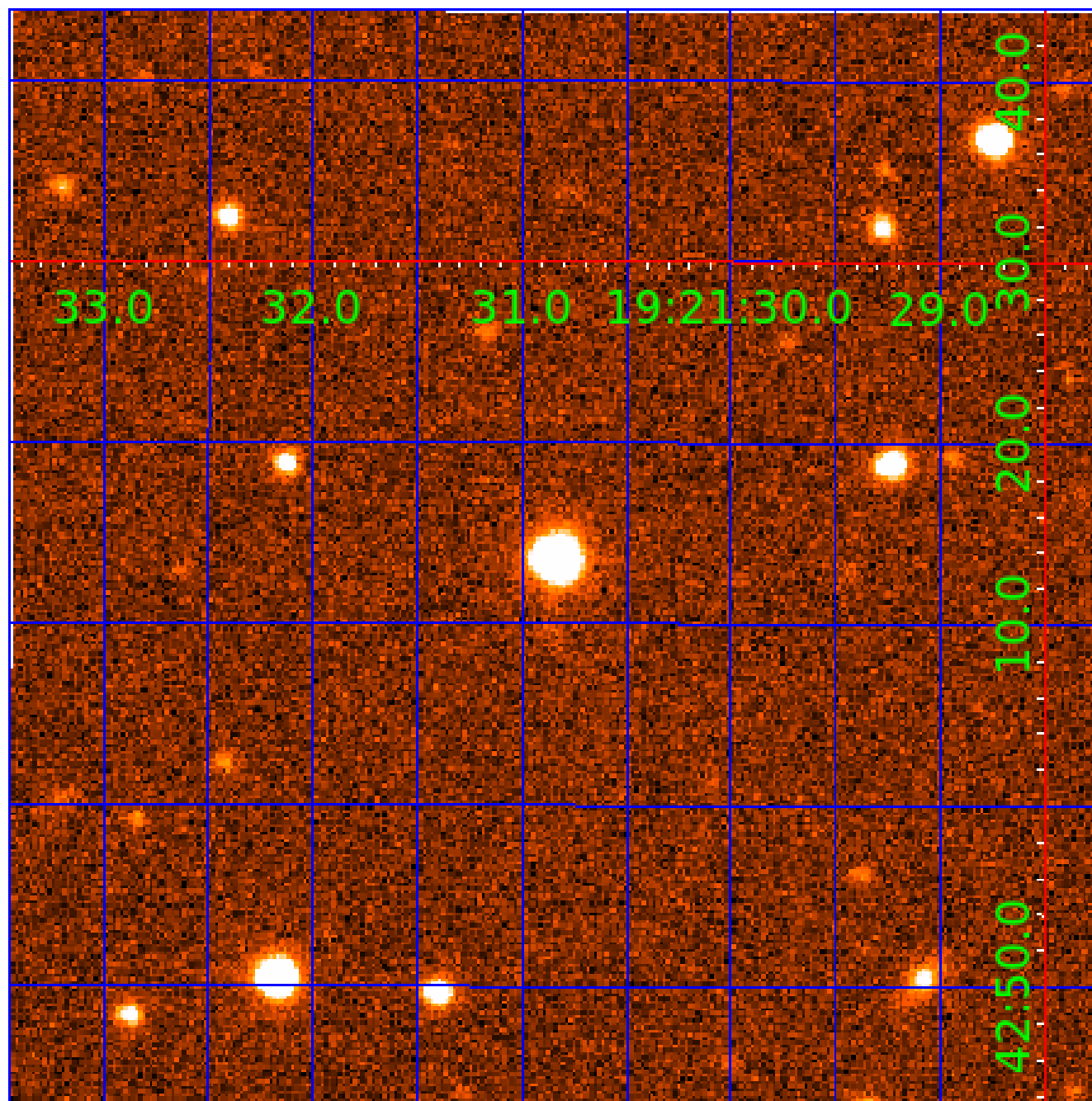


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 004650327

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})
004650327-01	OBS	No	695.313101	174.258630	2742.7	9.727	18.0	9.9	0.60	4986	3.21	0.12
004650327-02	OBS	No	597.080939	255.039916	1692.7	8.780	17.8	6.4	0.60	4986	2.42	0.15
004650327-03	OBS	No	214.677965	333.707044	1934.7	11.142	14.1	9.3	0.60	4986	3.05	0.57
004650327-04	OBS	No	399.560232	288.128419	1559.4	6.010	12.6	6.8	0.60	4986	2.36	0.25
004650327-05	OBS	No	571.603874	178.881644	740.6	3.676	12.0	3.1	0.60	4986	1.83	0.15
004650327-06	OBS	No	541.169214	313.645531	1117.8	6.000	12.3	-1.0	0.60	4986	1.97	0.17

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
004650327-01	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—INCONSISTENT_TRANS—CENT_FEW_DIFFS
004650327-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_SKYE—LPP_DV—MOD_NONUNIQ_DV—MOD_TER_DV—INCONSISTENT_TRANS—CENT_FEW_DIFFS
004650327-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_MARSHALL—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—CENT_FEW_DIFFS
004650327-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—INCONSISTENT_TRANS—CENT_FEW_DIFFS
004650327-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—INCONSISTENT_TRANS—CENT_FEW_DIFFS
004650327-06	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—LPP_DV—ALL_TRANS_CHASES—CENT_NOFITS

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

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

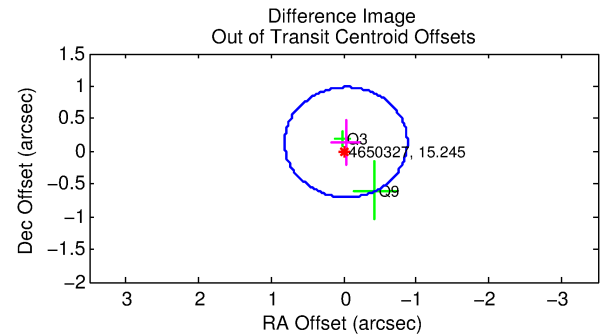
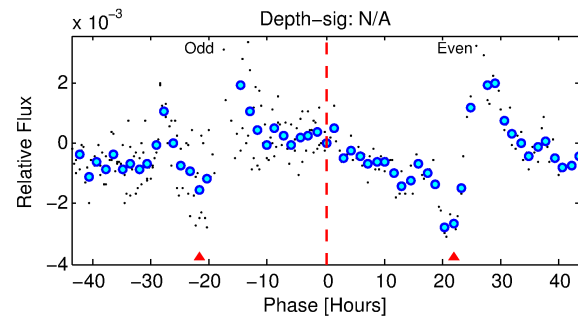
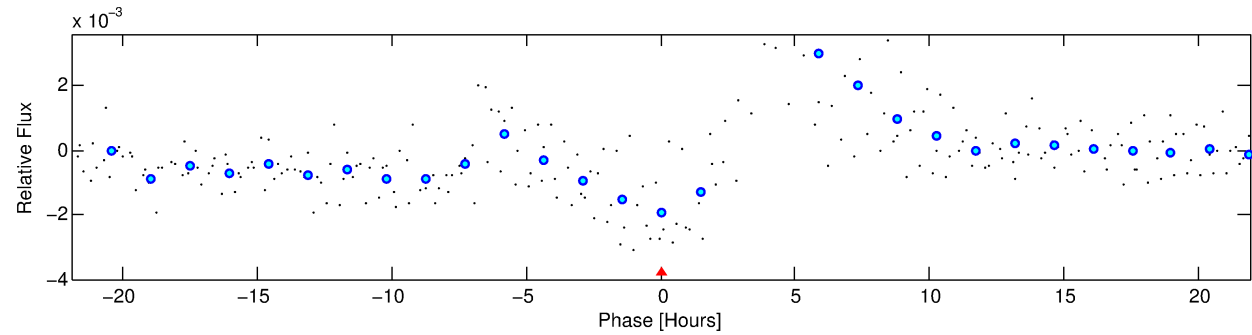
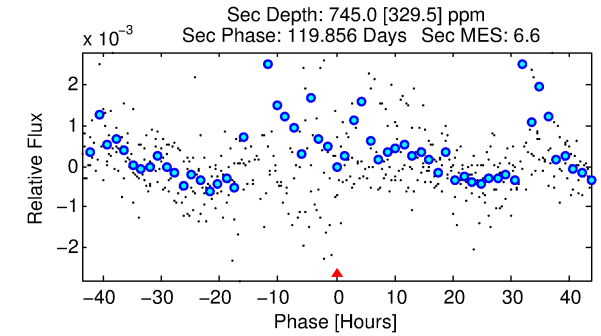
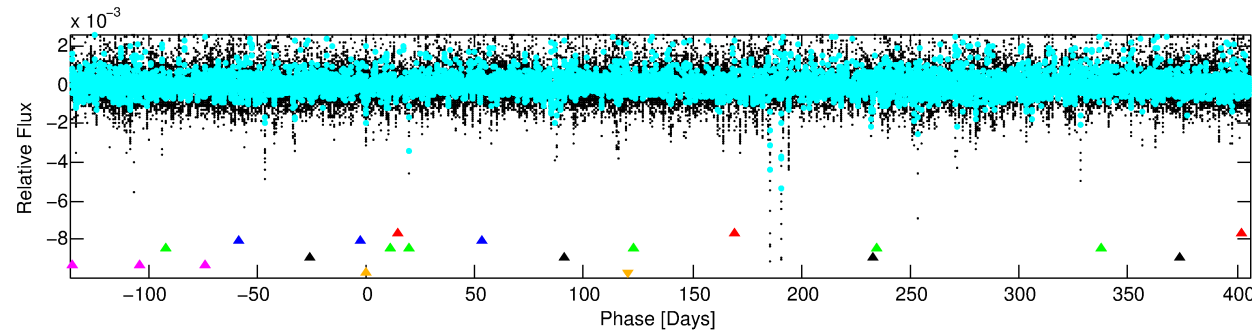
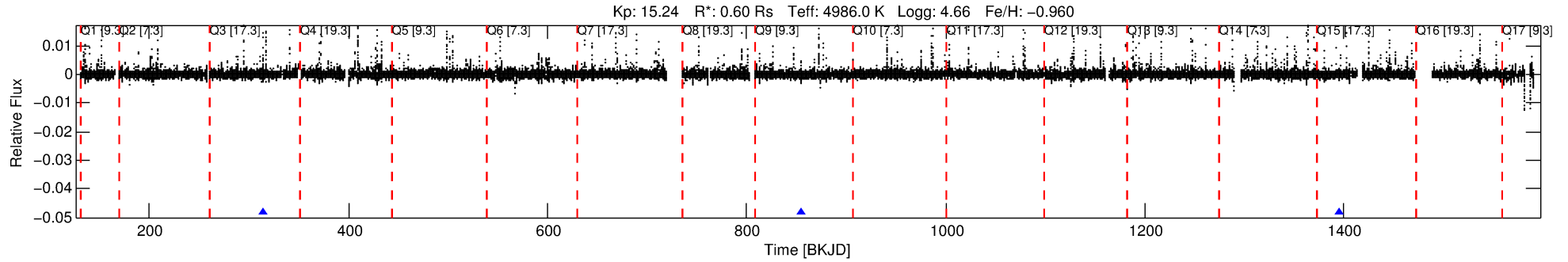
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 004650327-06

No Significant Match Found

DV One-Page Summary

KIC: 4650327 Candidate: 6 of 6 Period: 541.169 d



TPS TCE Results:

Period = 541.16921 d
Epoch = 313.6455 BKJD

DV fit results are unavailable

DV Diagnostic Results:

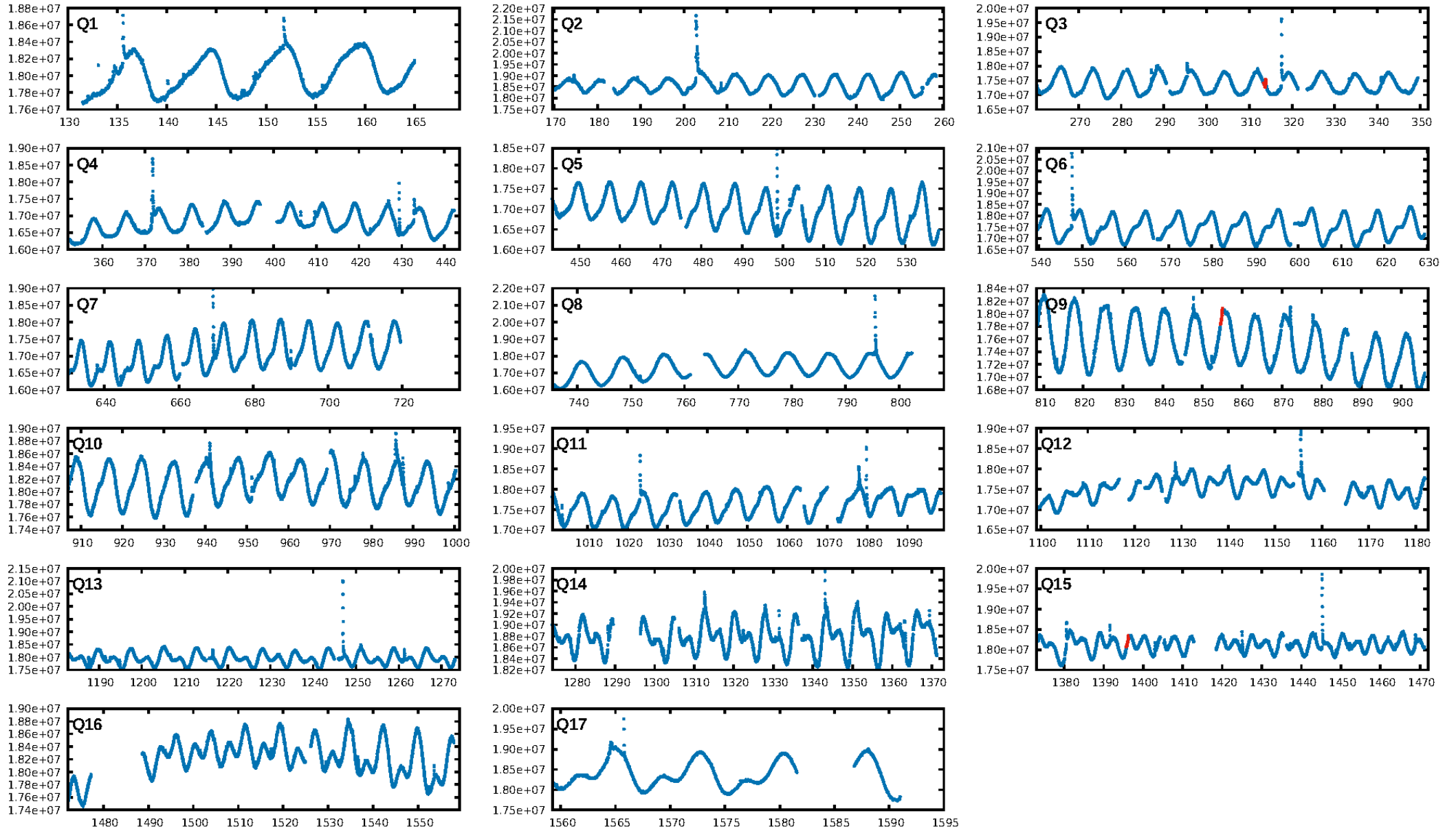
ShortPeriod-sig: 100.0% [400.21 σ]
LongPeriod-sig: 100.0% [103.81 σ]
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: N/A
RollingBand-fgt: 1.00 [3/3]
GhostDiagnostic-chr: 2.777

Centroid-sig: 64.8%
Centroid-so: 0.173 arcsec [0.69 σ]
OotOffset-rm: 0.144 arcsec [0.51 σ]
KicOffset-rm: 0.119 arcsec [0.37 σ]
OotOffset-st: 0/1/0/1 [2]
KicOffset-st: 0/1/0/1 [2]
DiffImageQuality-fgm: 0.50 [1/2]
DiffImageOverlap-fno: 1.00 [2/2]

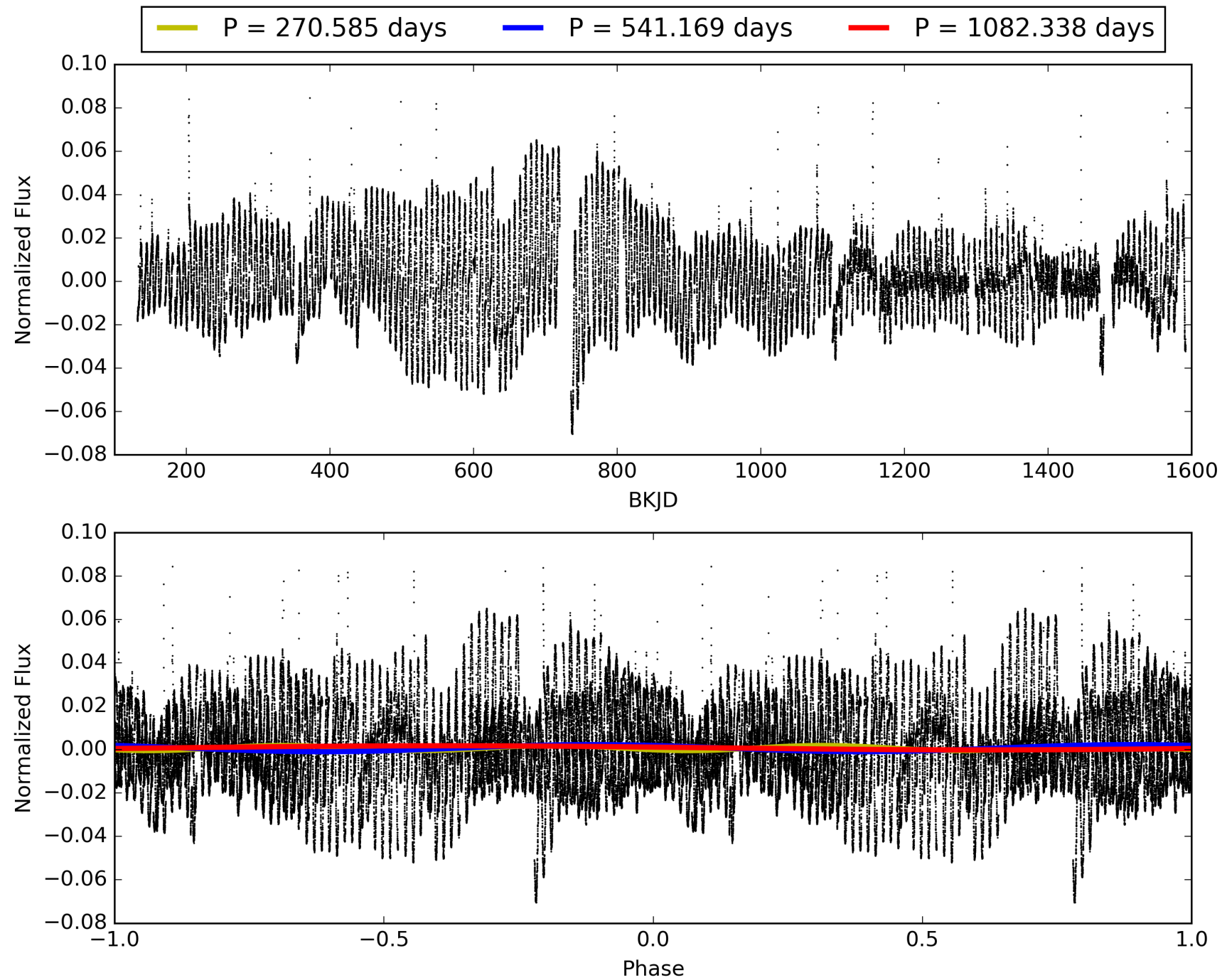
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 01-Feb-2016 13:05:46 Z

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

TCE 004650327-06, PDC Light Curves

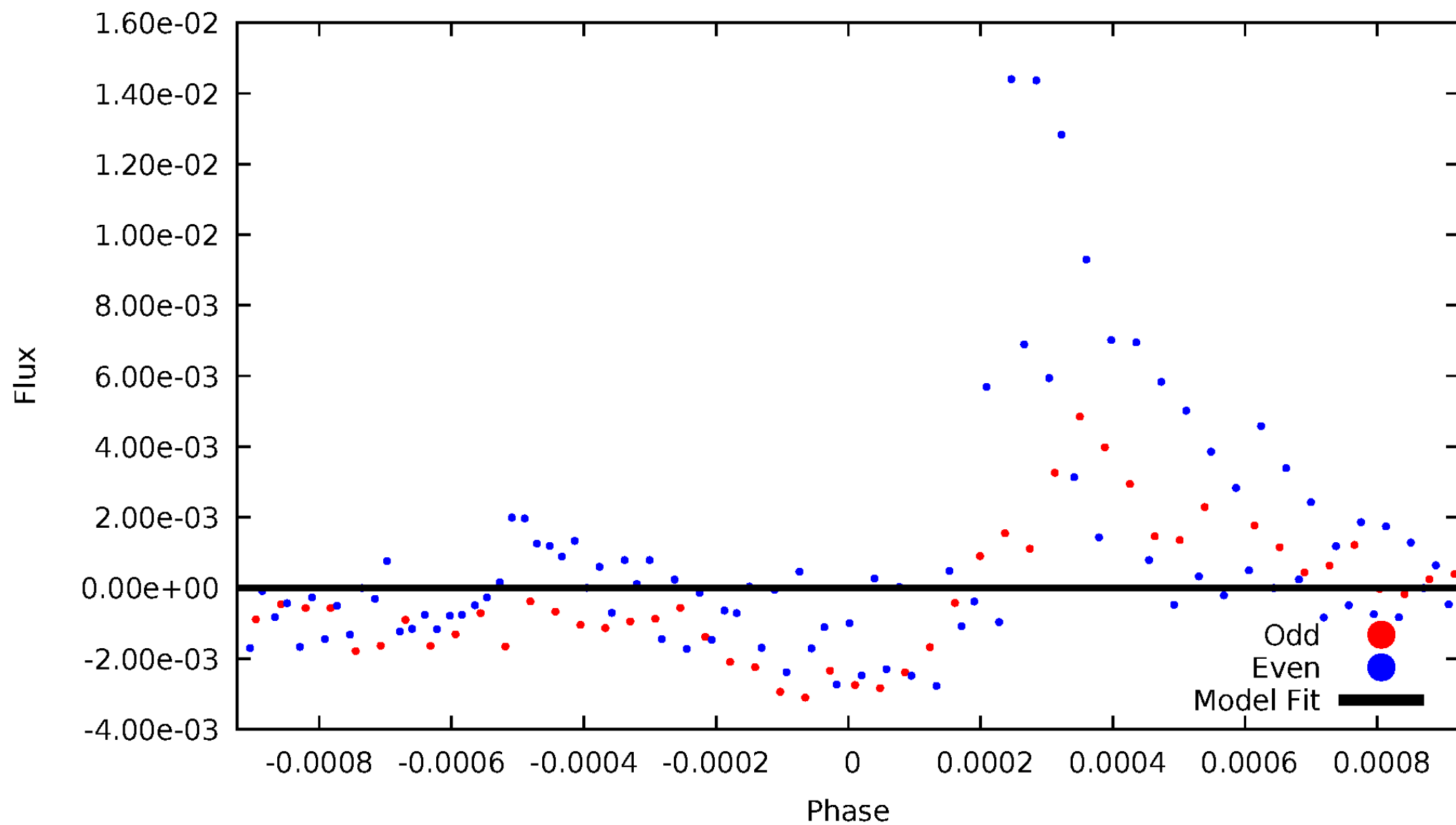


TCE 004650327-06



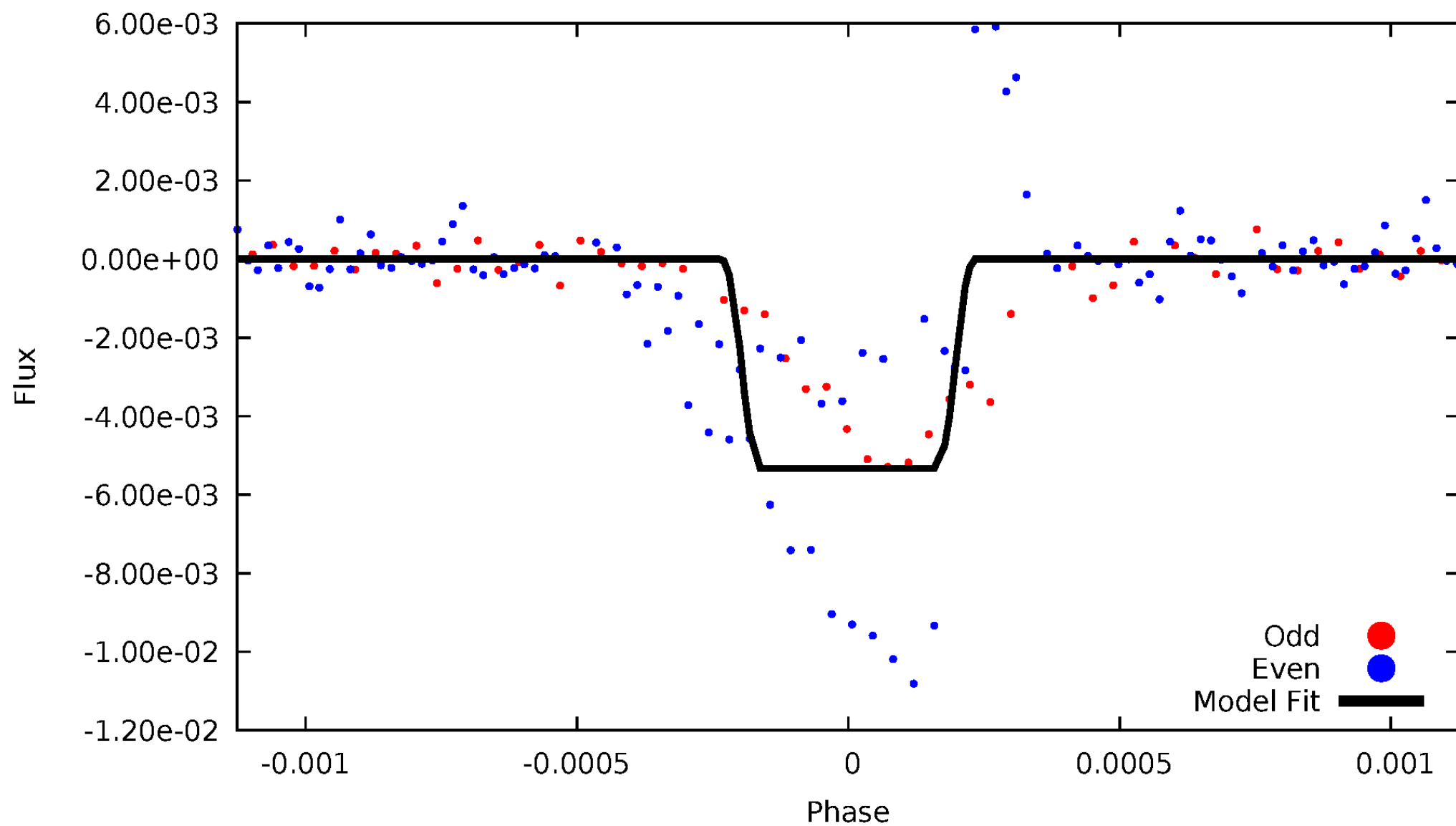
DV Odd/Even

TCE 004650327-06



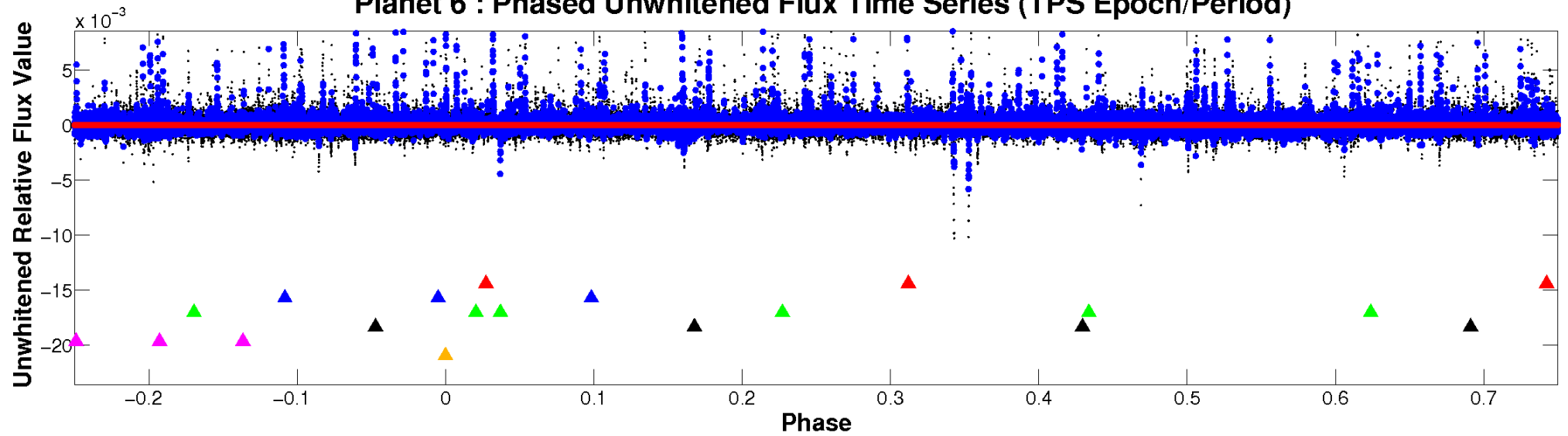
ALT Odd/Even

TCE 004650327-06

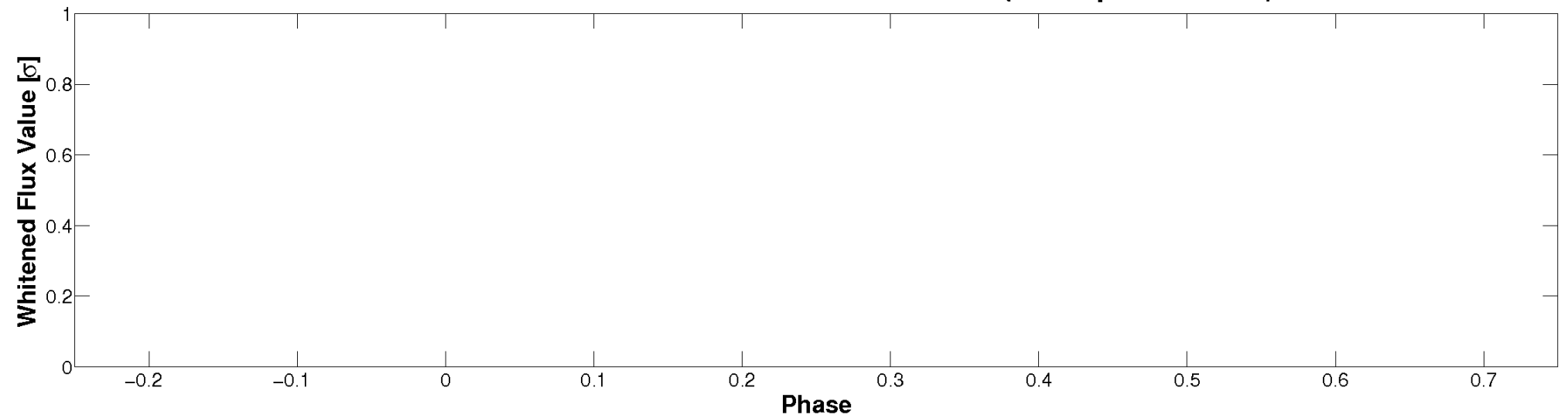


Non-Whitened Vs. Whitened Light Curve

Planet 6 : Phased Unwhitened Flux Time Series (TPS Epoch/Period)

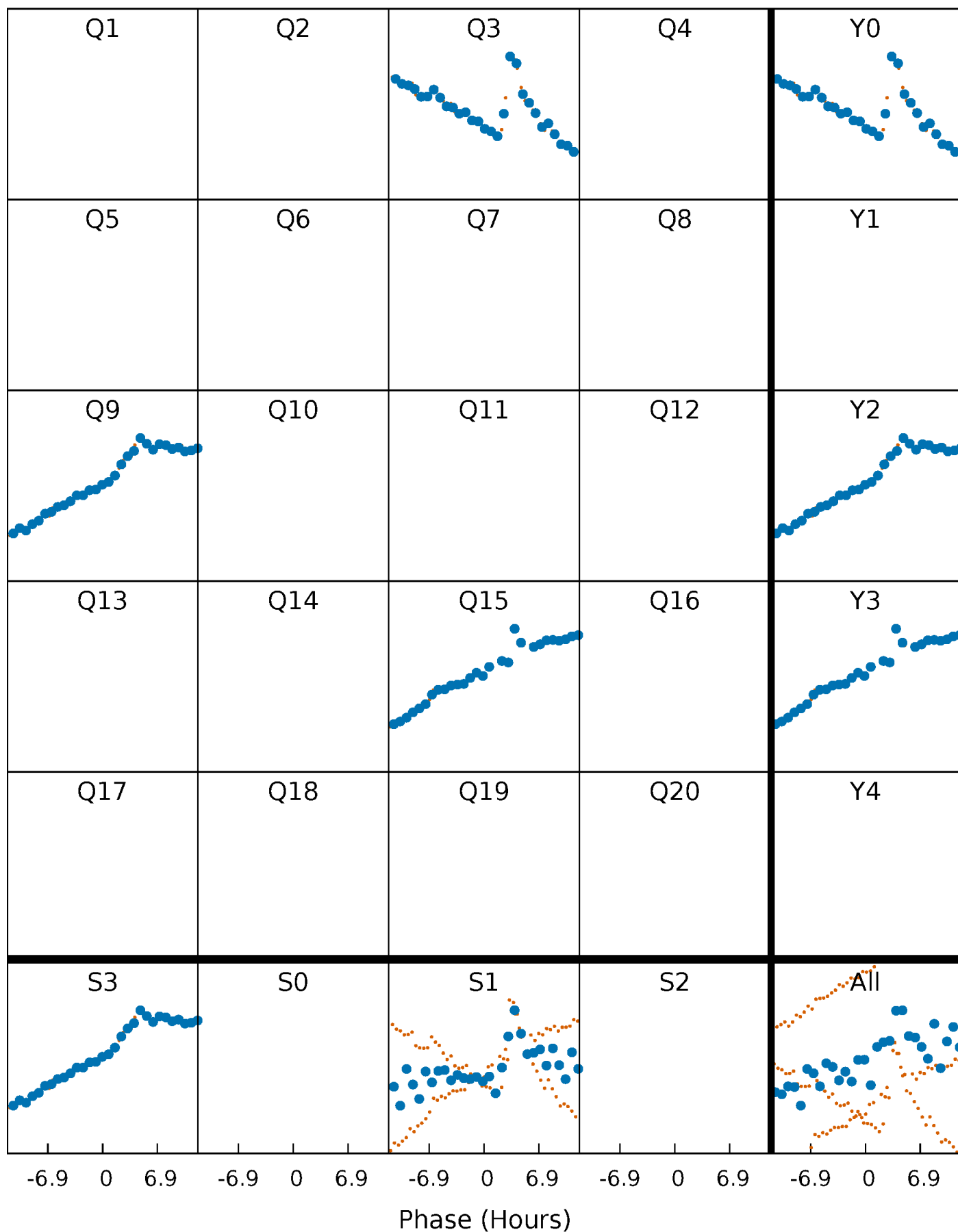


Planet 6 : Phased Whitened Flux Time Series (TPS Epoch/Period)



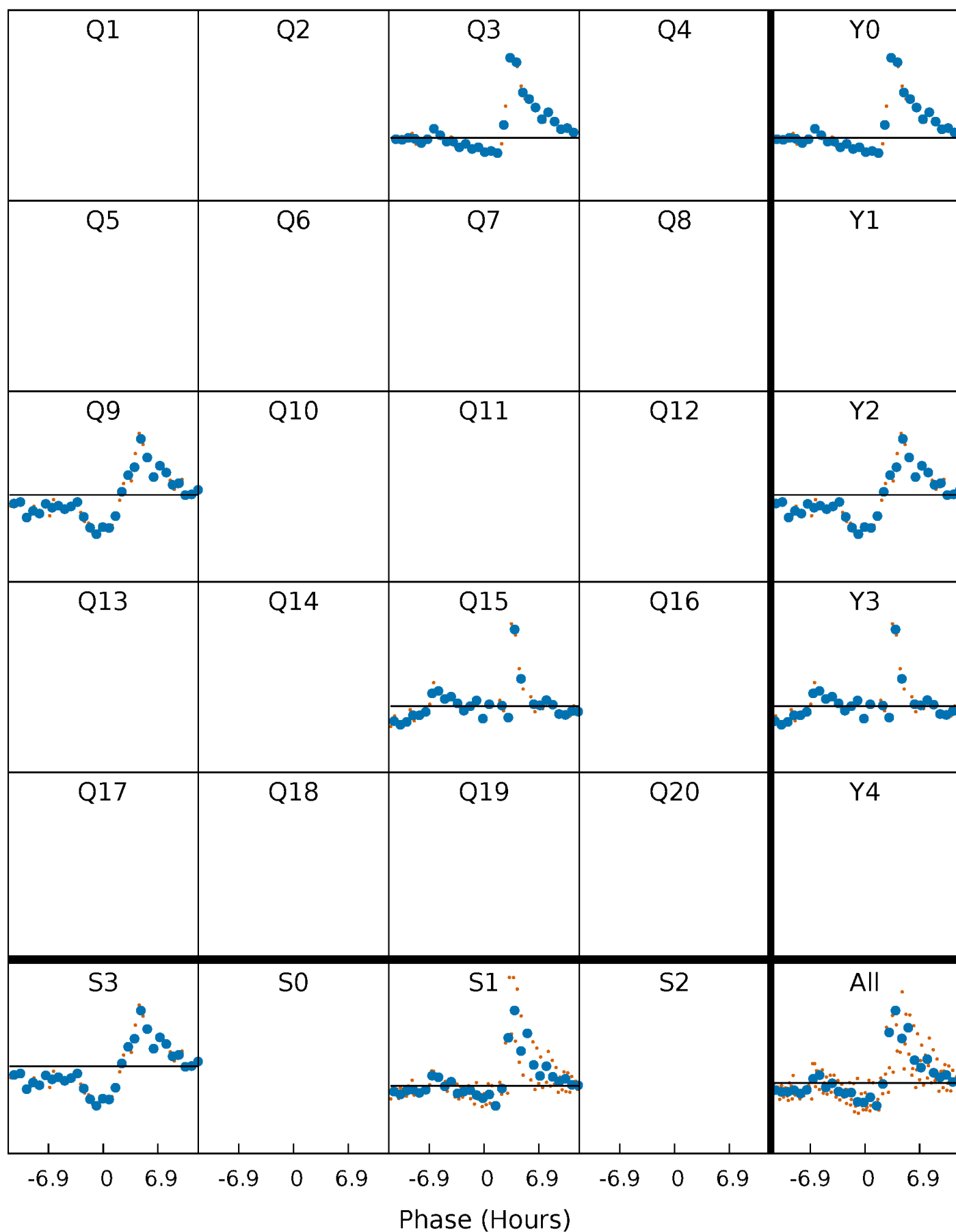
PDC Quarter-Phased Transit Curves

TCE 004650327-06 P=541.169214 Days $T_0=313.645531$ (BKJD)



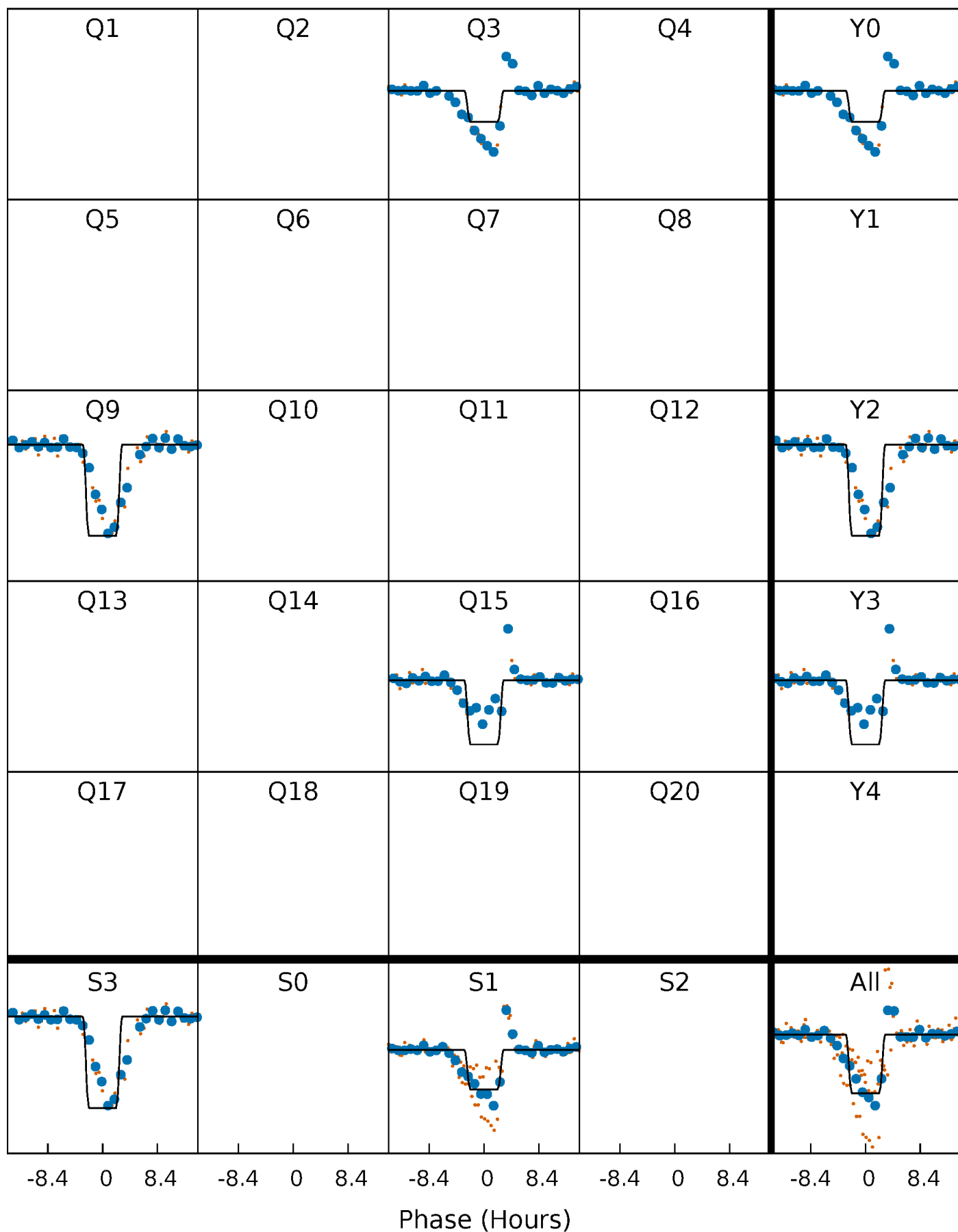
DV Quarter-Phased Transit Curves

TCE 004650327-06 P=541.169214 Days $T_0=313.645531$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

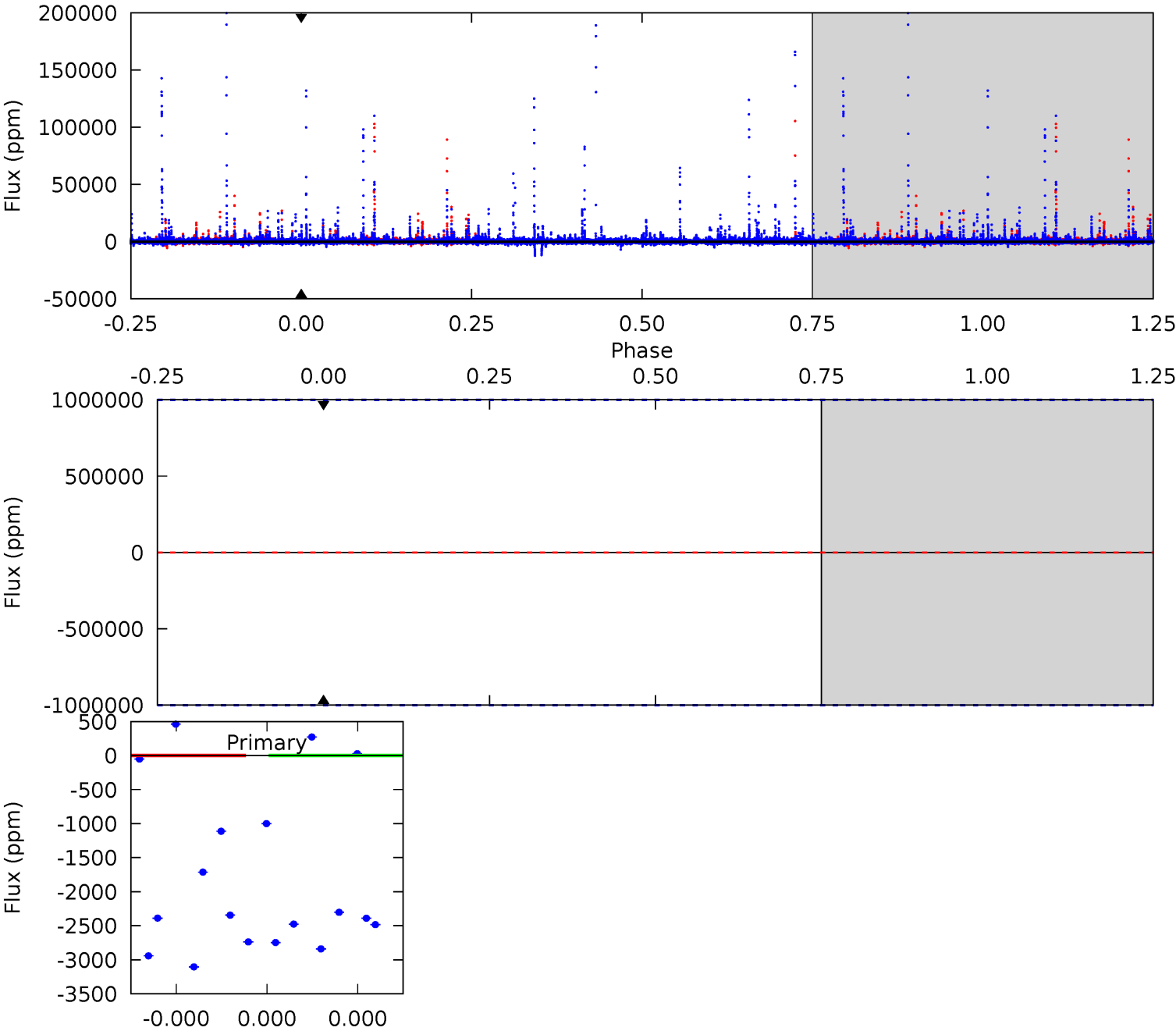
TCE 004650327-06 P=541.169214 Days $T_0=313.652491$ (BKJD)



DV Model-Shift Uniqueness Test

004650327-06, P = 541.169214 Days, E = 313.645531 Days

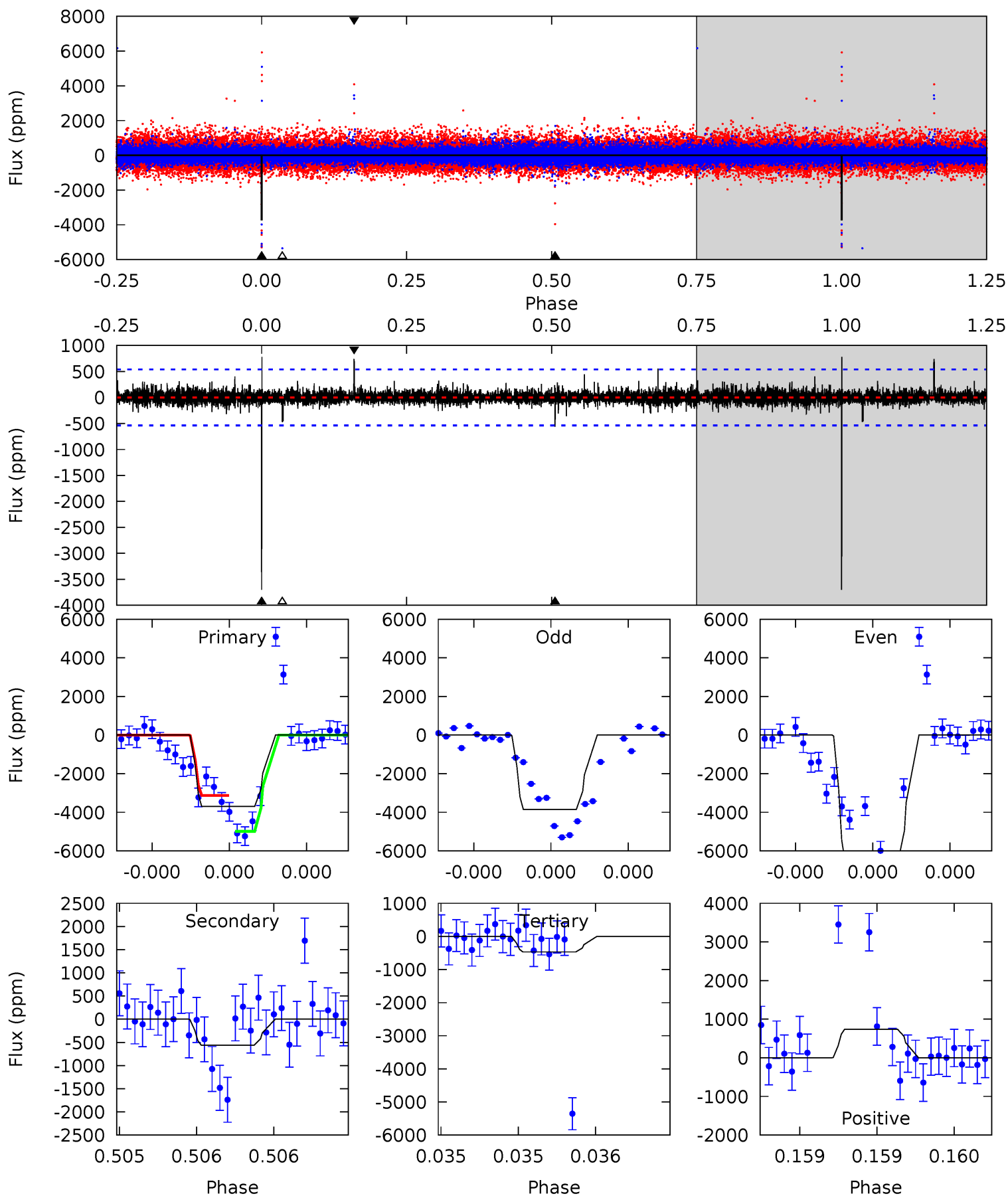
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
0	0	0	0	1.00	1.00	1.00	0	0	0	0	0	0	0	0



Alt Model-Shift Uniqueness Test

004650327-06, P = 541.169214 Days, E = 313.652491 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
38.3	5.80	4.87	7.65	5.59	3.51	0.71	33.5	30.7	0.93	-1.85	15.8	1.30	0.17	9.23



Stellar Parameters For KIC 004650327

	$T_{\text{eff}} (K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M (M_{\odot})$	$p_{\star} (g \cdot \text{cm}^{-3})$
	4986^{+173}_{-173}	$4.657^{+0.060}_{-0.035}$	$-0.960^{+0.300}_{-0.300}$	$0.600^{+0.047}_{-0.042}$	$0.597^{+0.055}_{-0.026}$	$3.884^{+0.876}_{-0.535}$
	+3%/-3%	+1%/-1%	+31%/-31%	+8%/-7%	+9%/-4%	+23%/-14%
Source	PHO1	KIC0	KIC0	DSEP		

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

Secondary Eclipse Parameters for KIC 004650327-06 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	0 ± 1000000	$5.36^{+5.25}_{-3.67}$	226^{+9}_{-9}	-4119^{+18017}_{-9377}	$-57724.525^{+4348394.584}_{-4132169.449}$
Alt.	-560 ± 97	$6.60^{+5.72}_{-4.24}$	227^{+8}_{-9}	3029^{+1166}_{-473}	8477^{+59758}_{-5994}

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 $A_{obs} \gg 1.0$

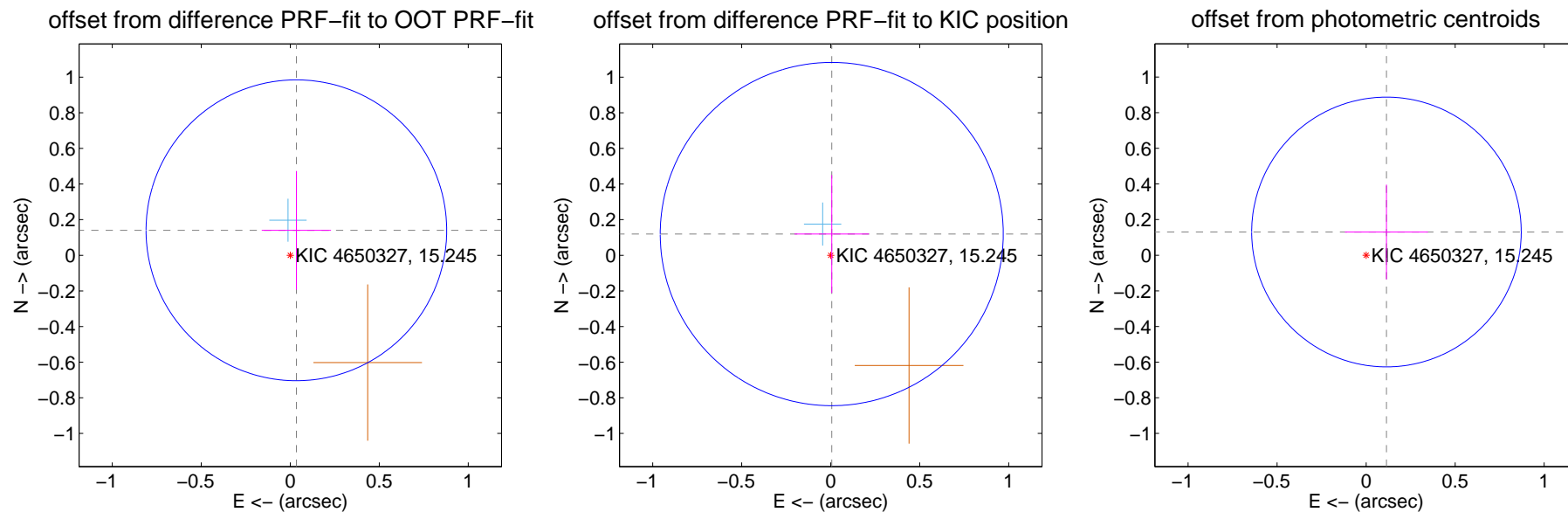
DV Centroid Data

Supplemental centroid analysis for 004650327-06. Kepler magnitude: 15.24. Transit SNR -1.00

There are 1 quarters with good PRF difference image offsets

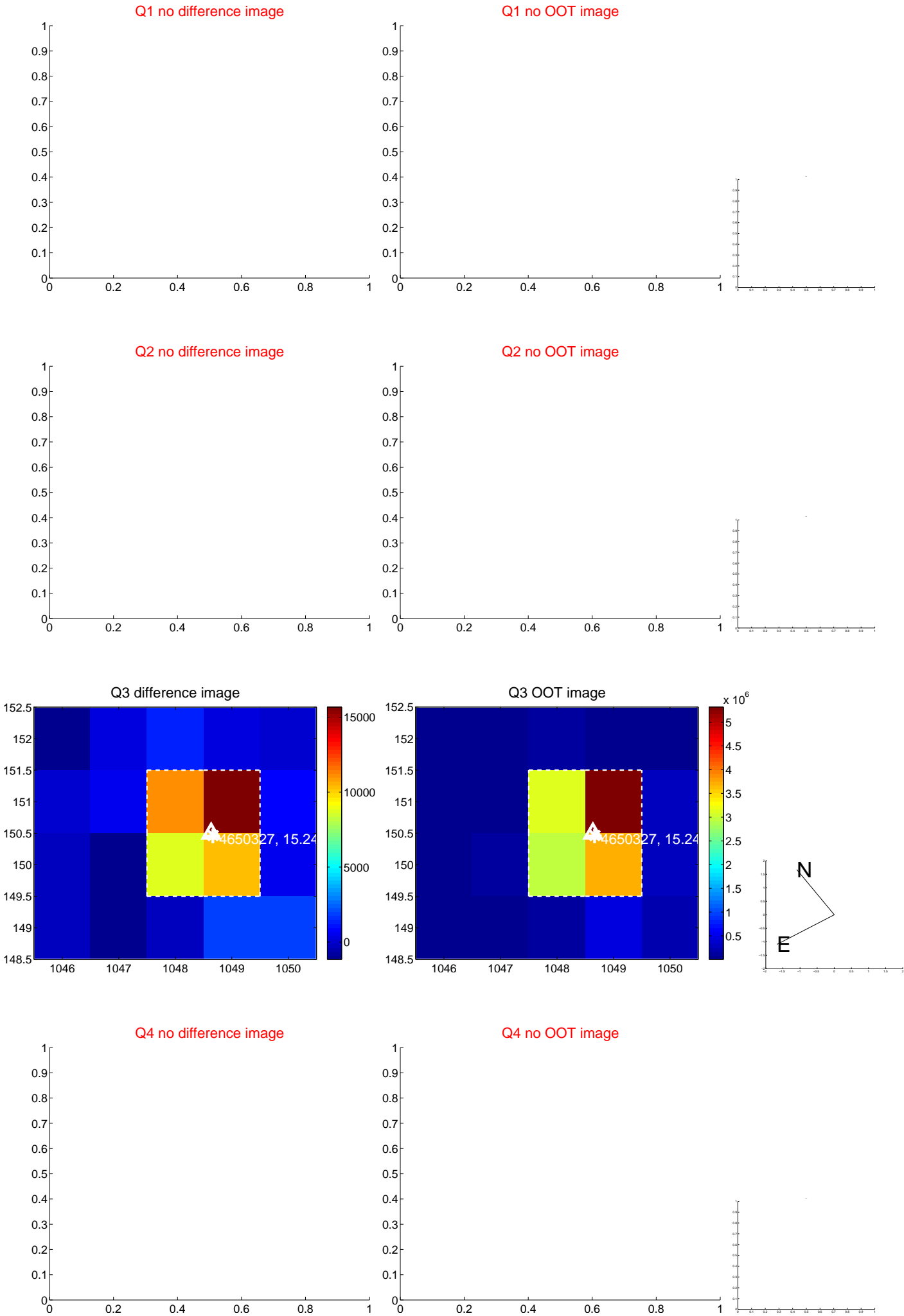
The direct PRF centroid is offset from the target star catalog position by about 0.02 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.144 ± 0.281	0.51	-0.034 ± 0.195	0.140 ± 0.333
PRF-fit source offset from KIC position	0.119 ± 0.321	0.37	-0.006 ± 0.209	0.119 ± 0.331
photometric centroid source offset	0.17 ± 0.25	0.69	-0.11 ± 0.23	0.13 ± 0.27



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.

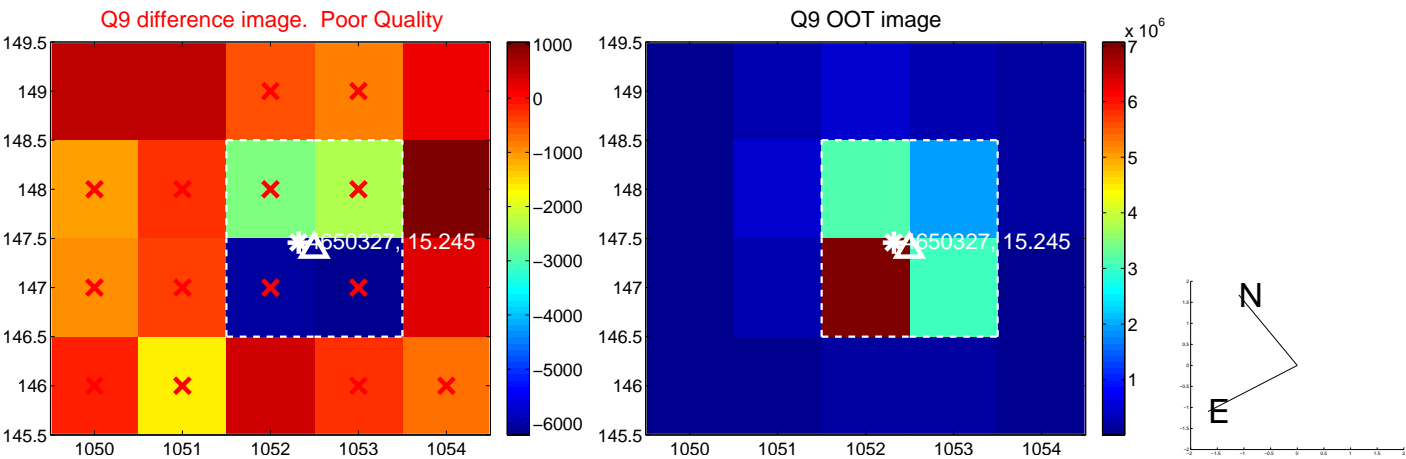
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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



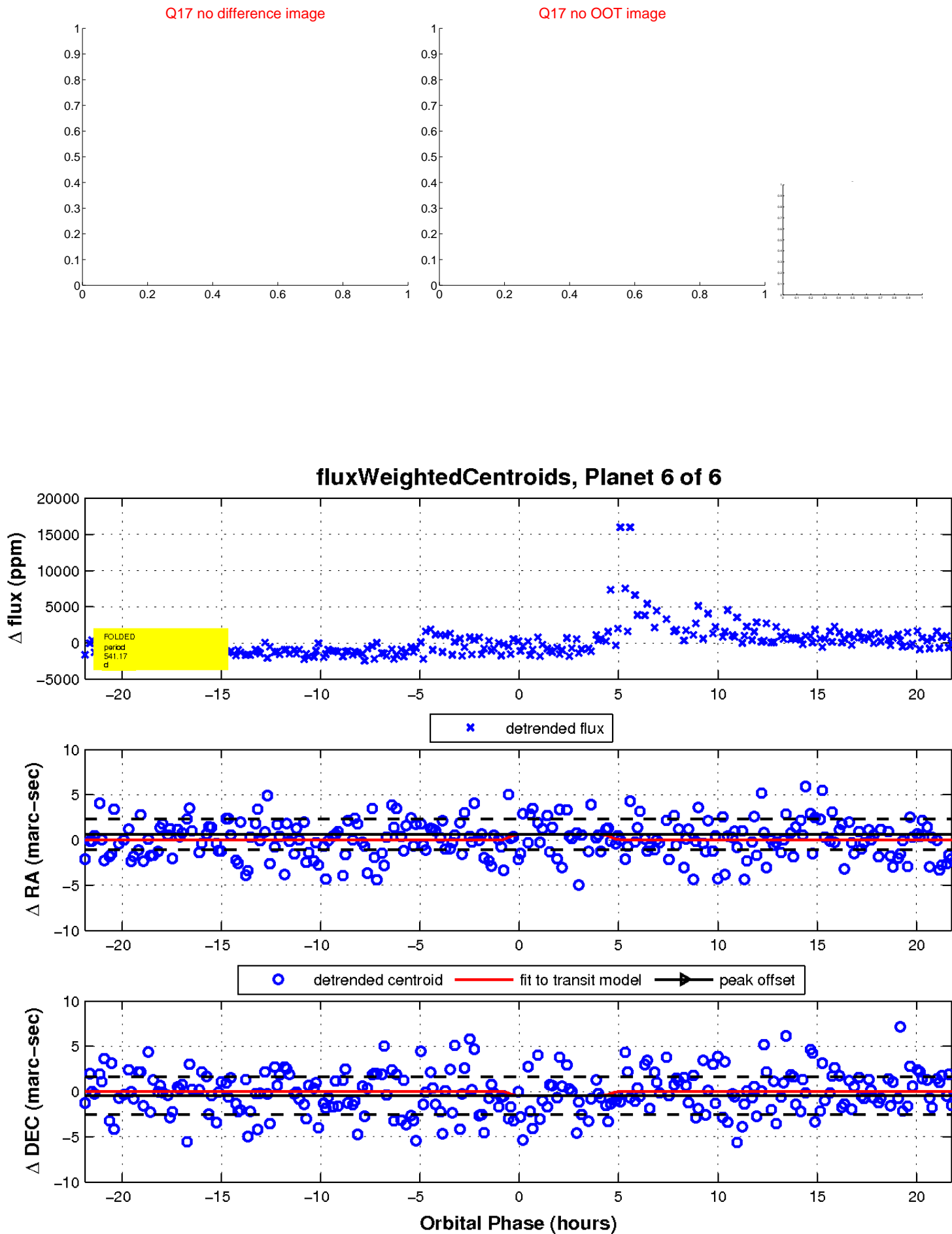
white ×: KIC target position; +: OOT centroid; △: difference centroid. red ×: large negative pixel value.



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



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



UKIRT Image

Declination

