

KIC 010748029

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})
010748029-01	OBS	No	370.365049	255.487347	2161.1	3.112	12.0	6.9	0.84	5538	3.95	0.64
010748029-02	OBS	No	237.207104	279.916653	3192.4	3.751	12.9	8.7	0.84	5538	5.03	1.15
010748029-03	OBS	No	357.548402	433.010380	2121.7	2.497	9.1	7.0	0.84	5538	3.87	0.67
010748029-04	OBS	No	325.464691	173.681110	2447.6	2.952	12.5	7.3	0.84	5538	4.12	0.76

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
010748029-01	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
010748029-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—LPP_DV—ALL_TRANS_CHASES—INCONSISTENT_TRANS
010748029-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—INCONSISTENT_TRANS—CENT_FEW_DIFFS
010748029-04	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

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

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

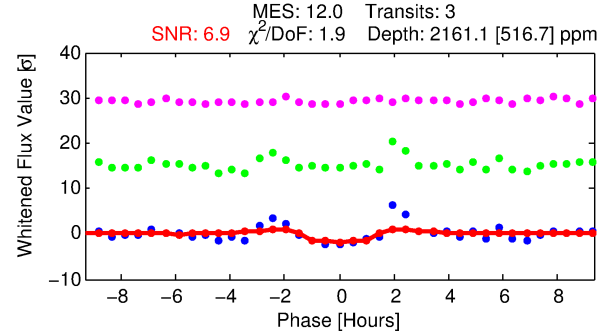
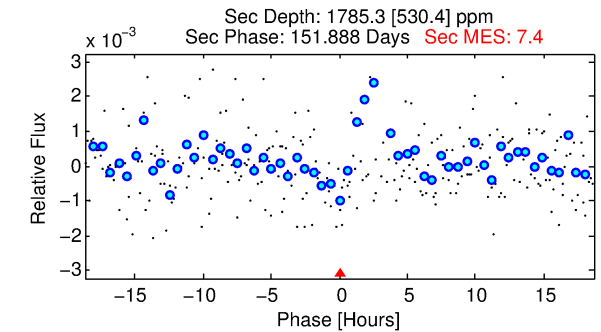
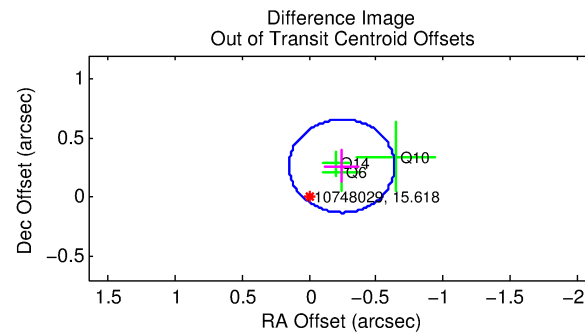
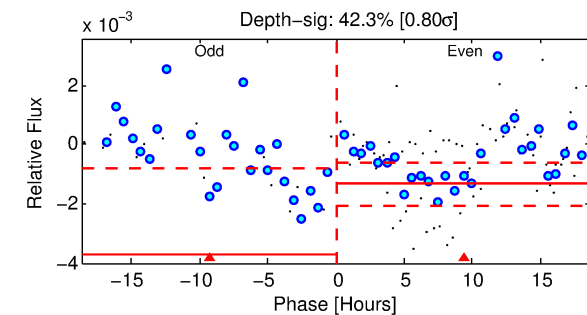
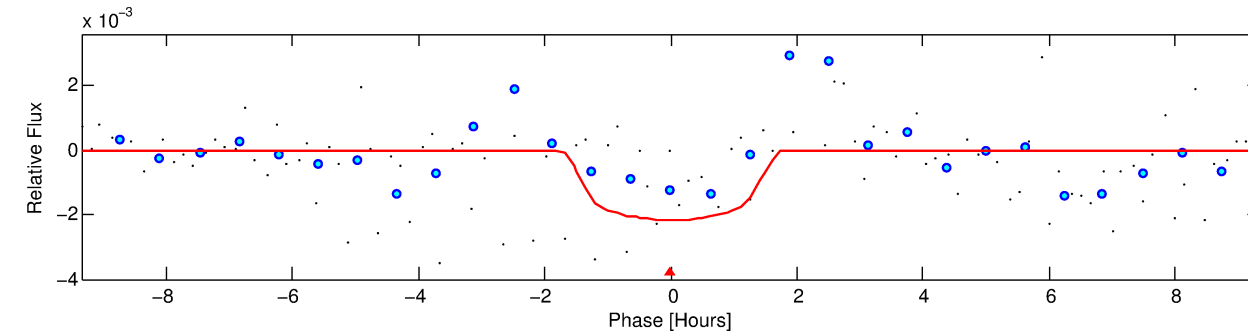
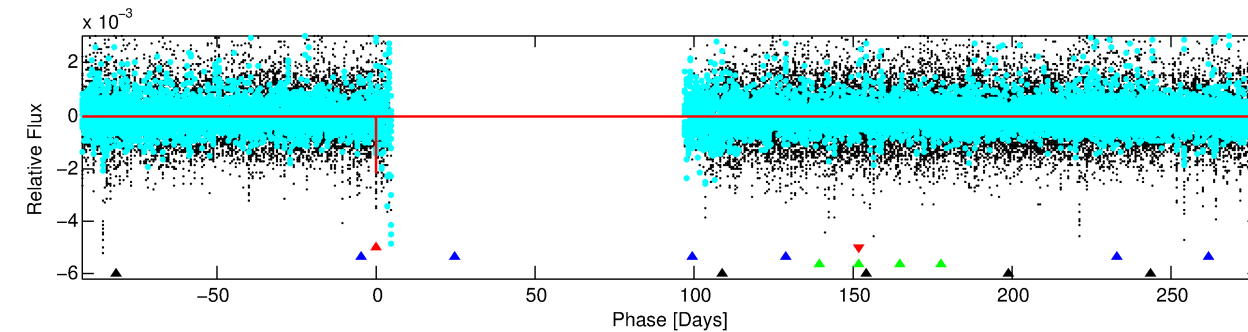
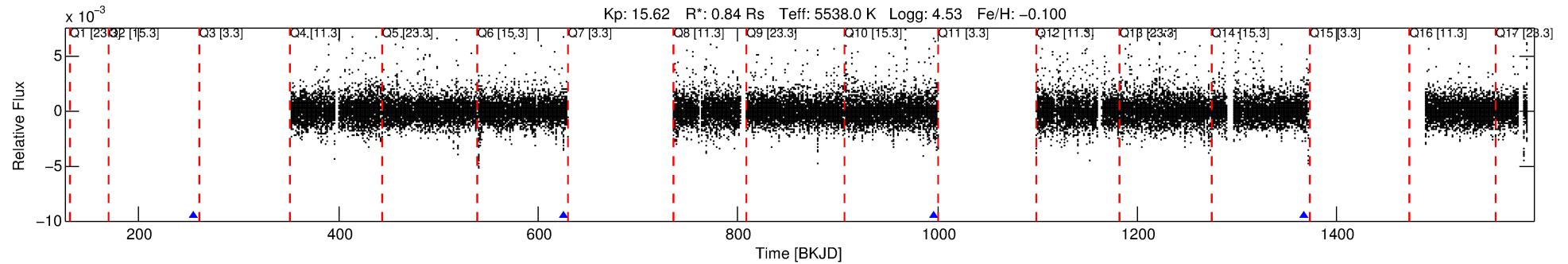
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 010748029-01

No Significant Match Found

DV One-Page Summary

KIC: 10748029 Candidate: 1 of 4 Period: 370.365 d



DV Fit Results:

Period = 370.36505 [0.00820] d
Epoch = 255.4873 [0.0185] BKJD
Rp/R* = 0.0429 [0.1125]
a/R* = 872.15 [9278.09]
b = 0.41 [21.89]
Seff = 0.64 [0.20]
Teq = 228 [18] K
Rp = 3.95 [10.40] Re
a = 0.9705 [0.1927] AU
Ag = 59284.78 [311917.12] [0.19 σ]
Teffp = 5497 [7221] K [0.73 σ]

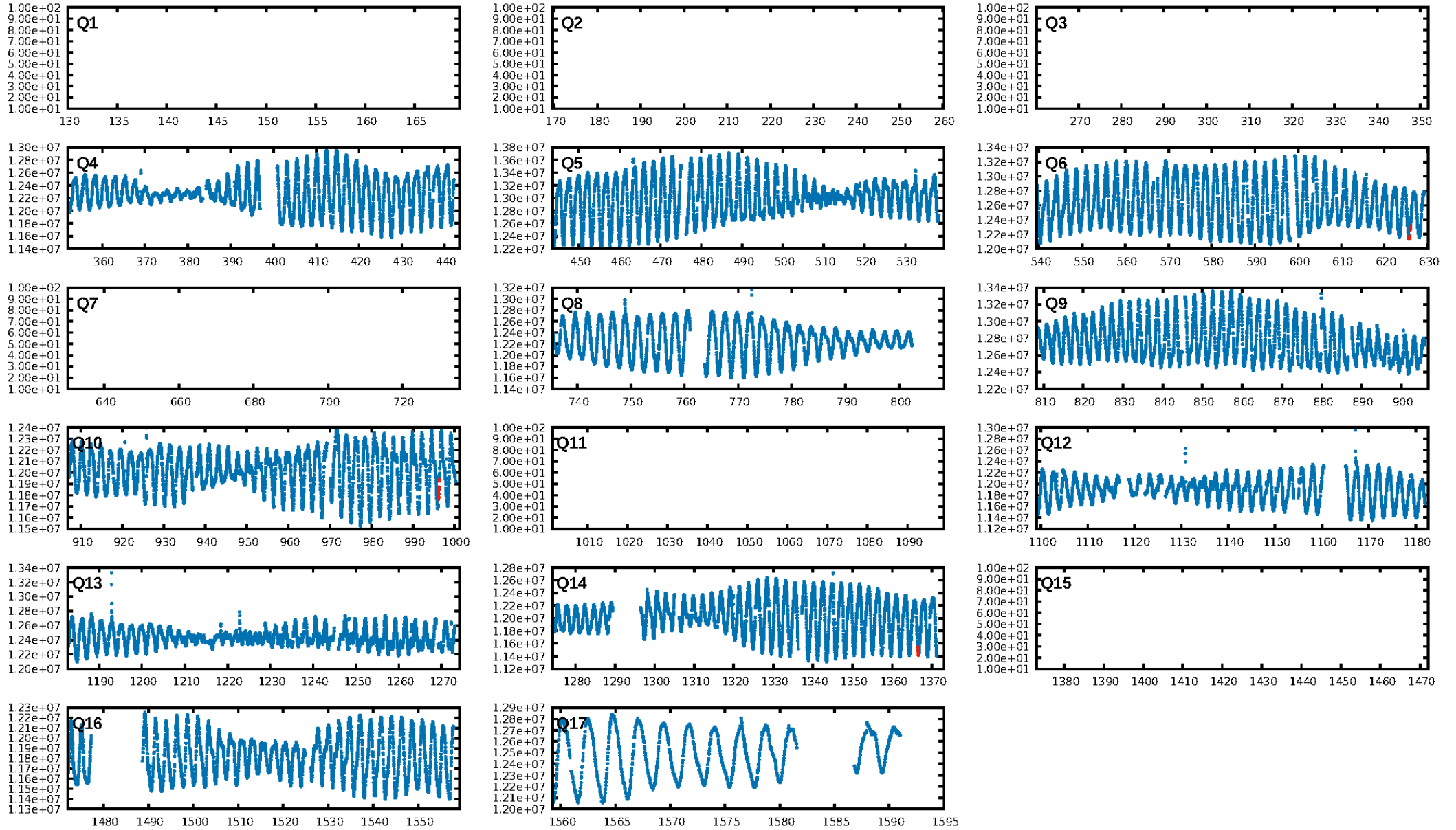
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [77.09 σ]
LongPeriod-sig: N/A
ModelChiSquare2-sig: 0.0%
ModelChiSquareGoF-sig: 9.4%
Bootstrap-pfa: 7.84e-11
RollingBand-fgt: 1.00 [3/3]
GhostDiagnostic-chr: 0.7035
Centroid-sig: 80.4%
Centroid-so: 0.446 arcsec [0.30 σ]
OotOffset-rm: 0.358 arcsec [2.73 σ]
OotOffset-st: 3/0/0/0 [3]
KicOffset-rm: 0.110 arcsec [0.84 σ]
KicOffset-st: 3/0/0/0 [3]
DiffImageQuality-fgm: 1.00 [3/3]
DiffImageOverlap-fno: 1.00 [3/3]

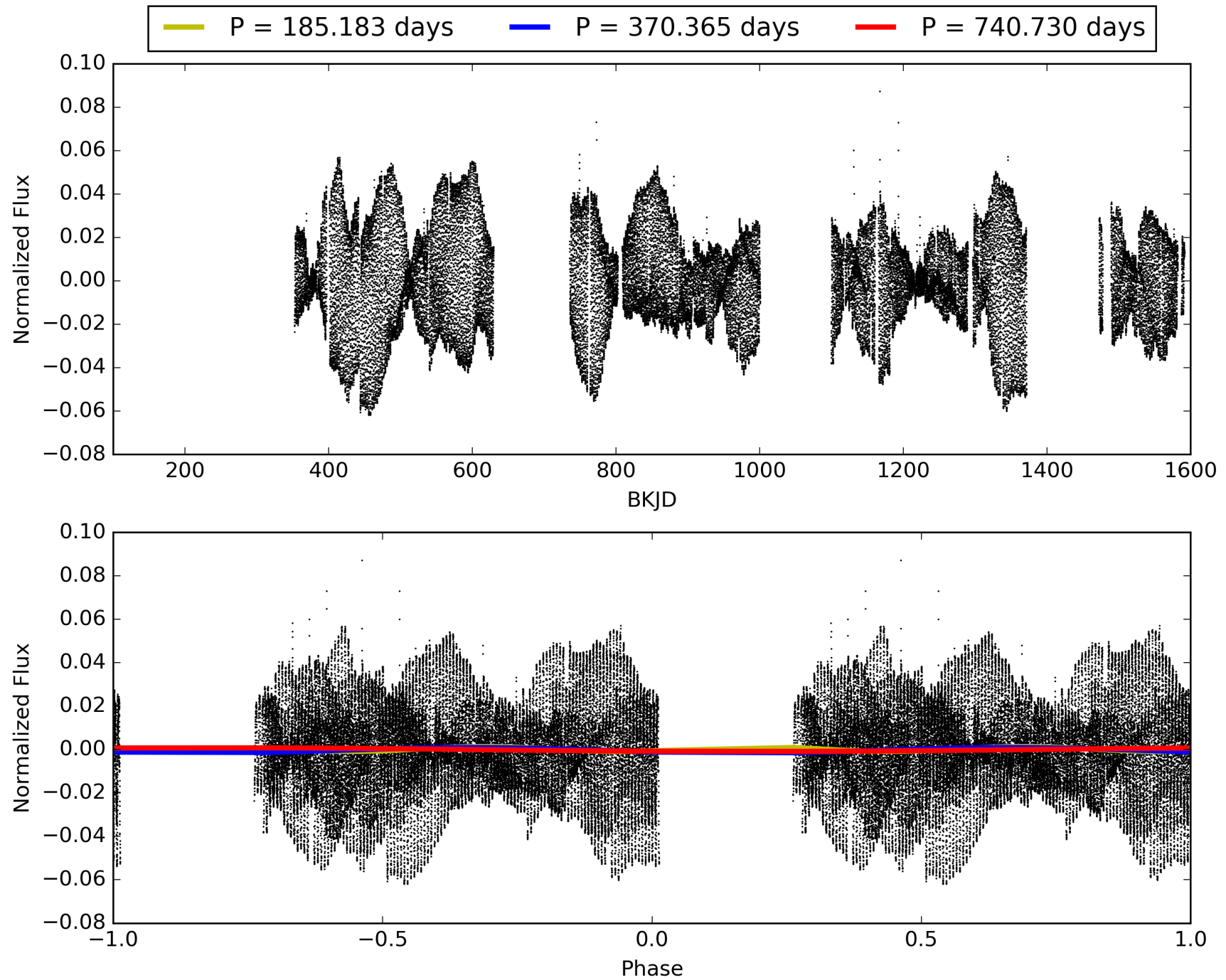
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 01-Feb-2016 00:55:45 Z

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

TCE 010748029-01, PDC Light Curves

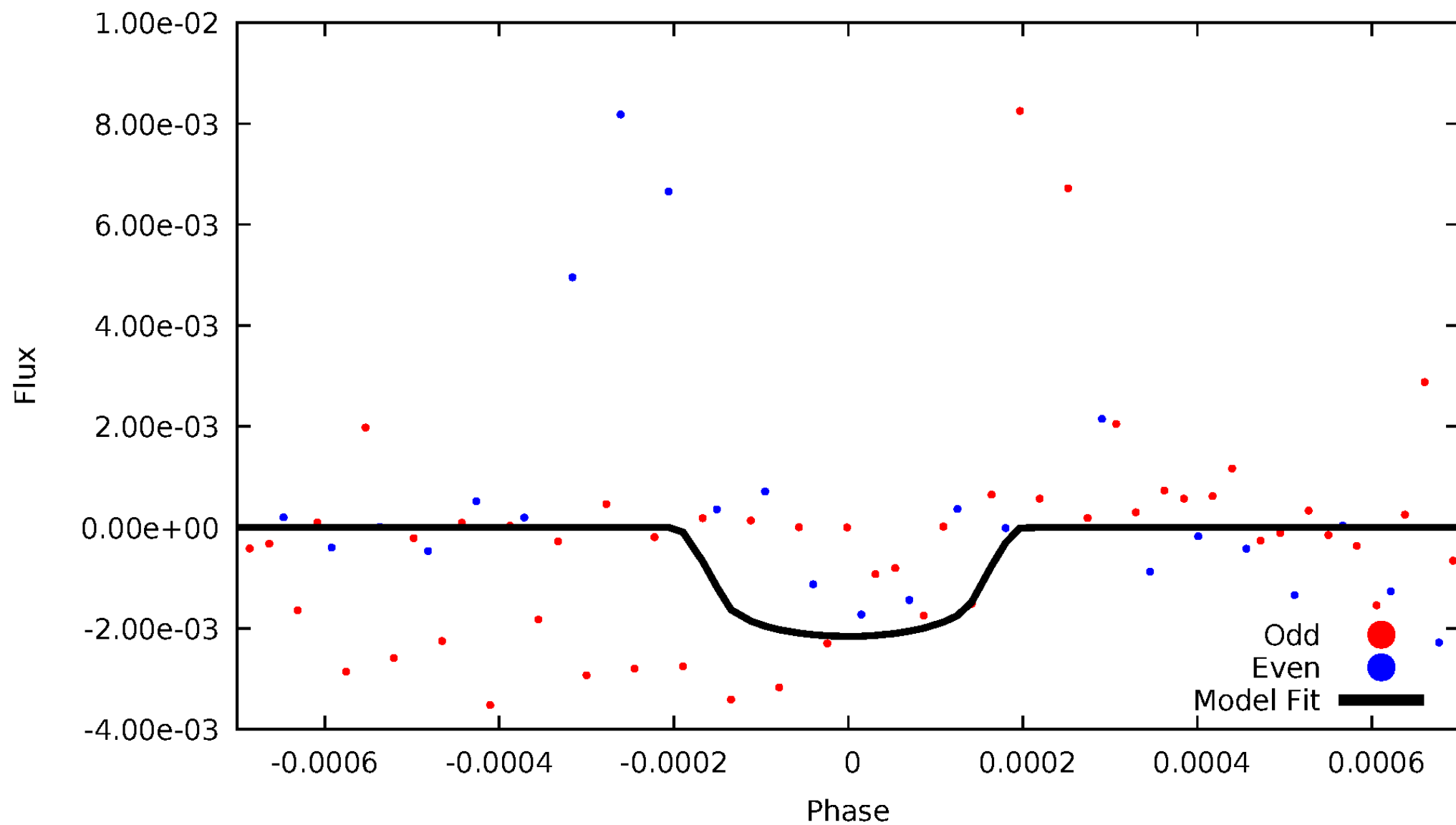


TCE 010748029-01



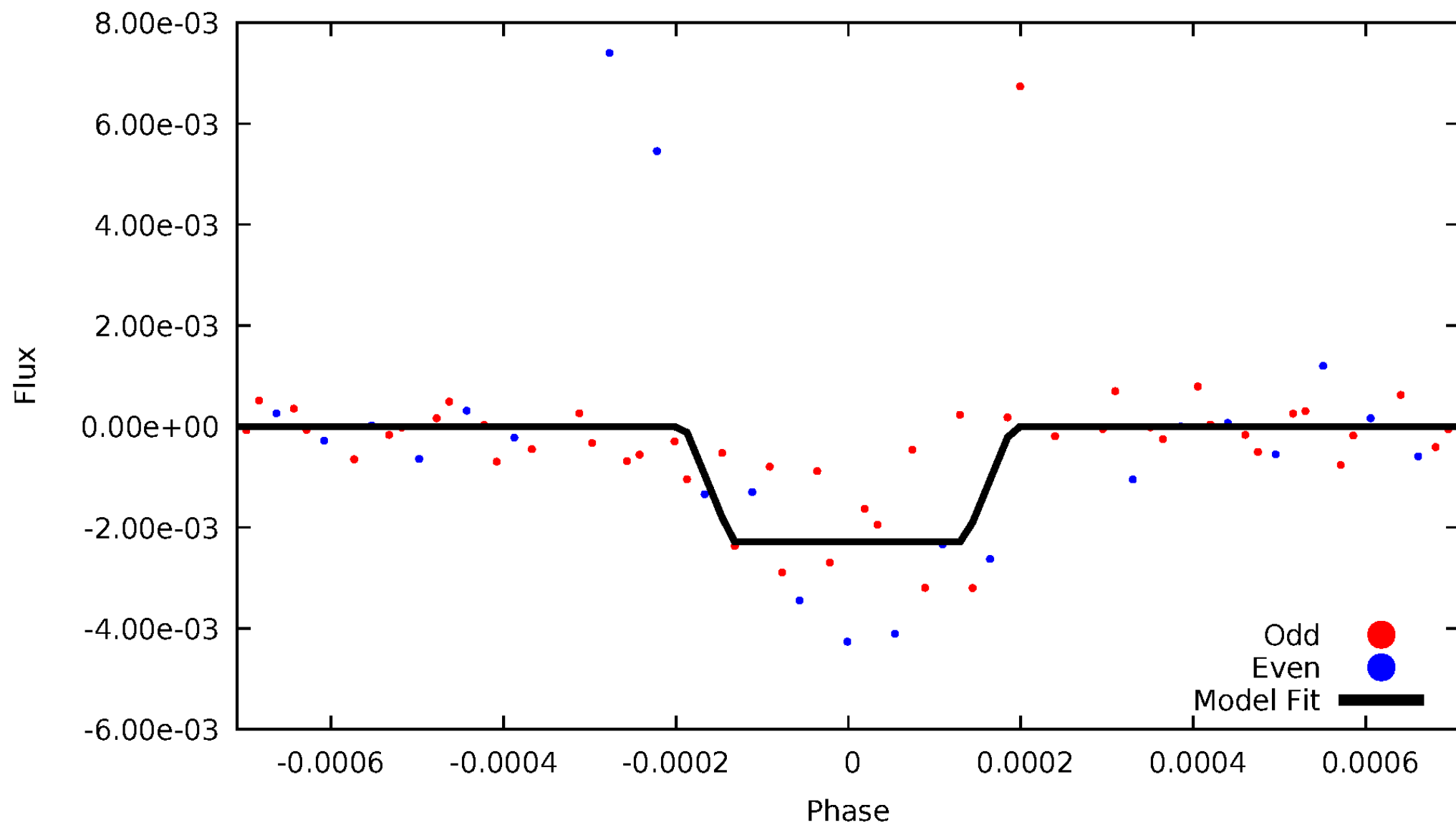
DV Odd/Even

TCE 010748029-01

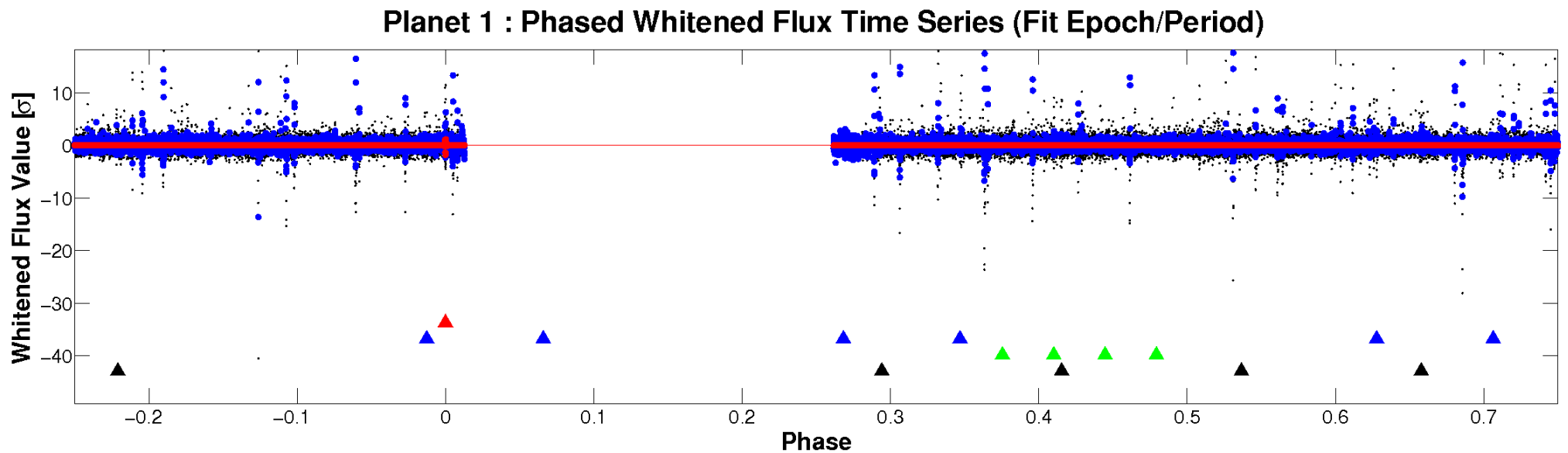
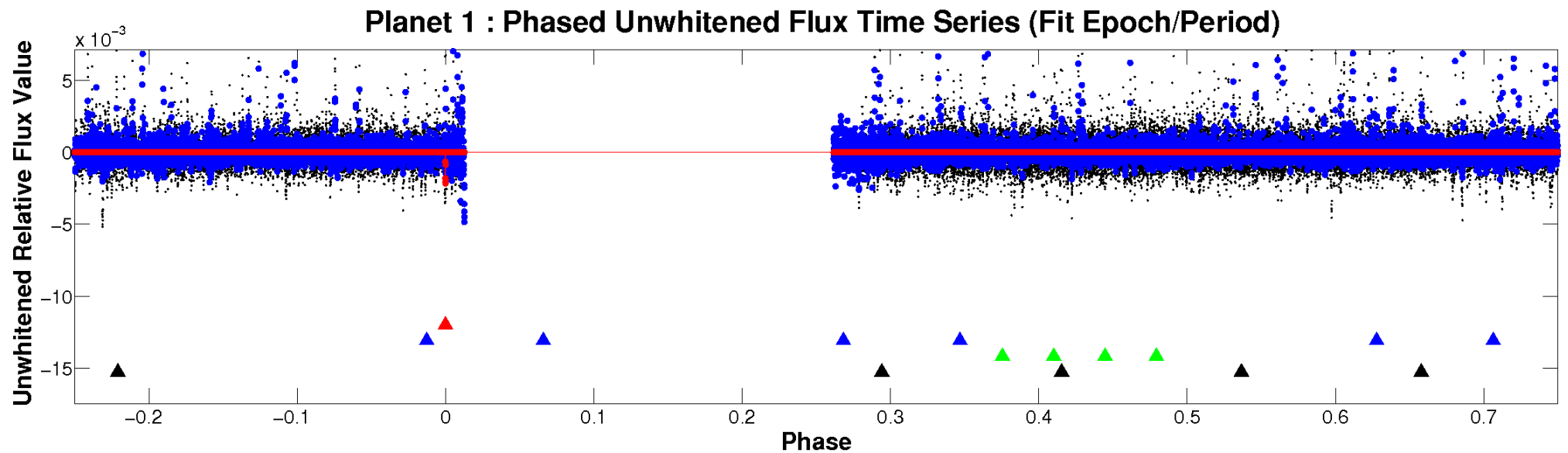


ALT Odd/Even

TCE 010748029-01

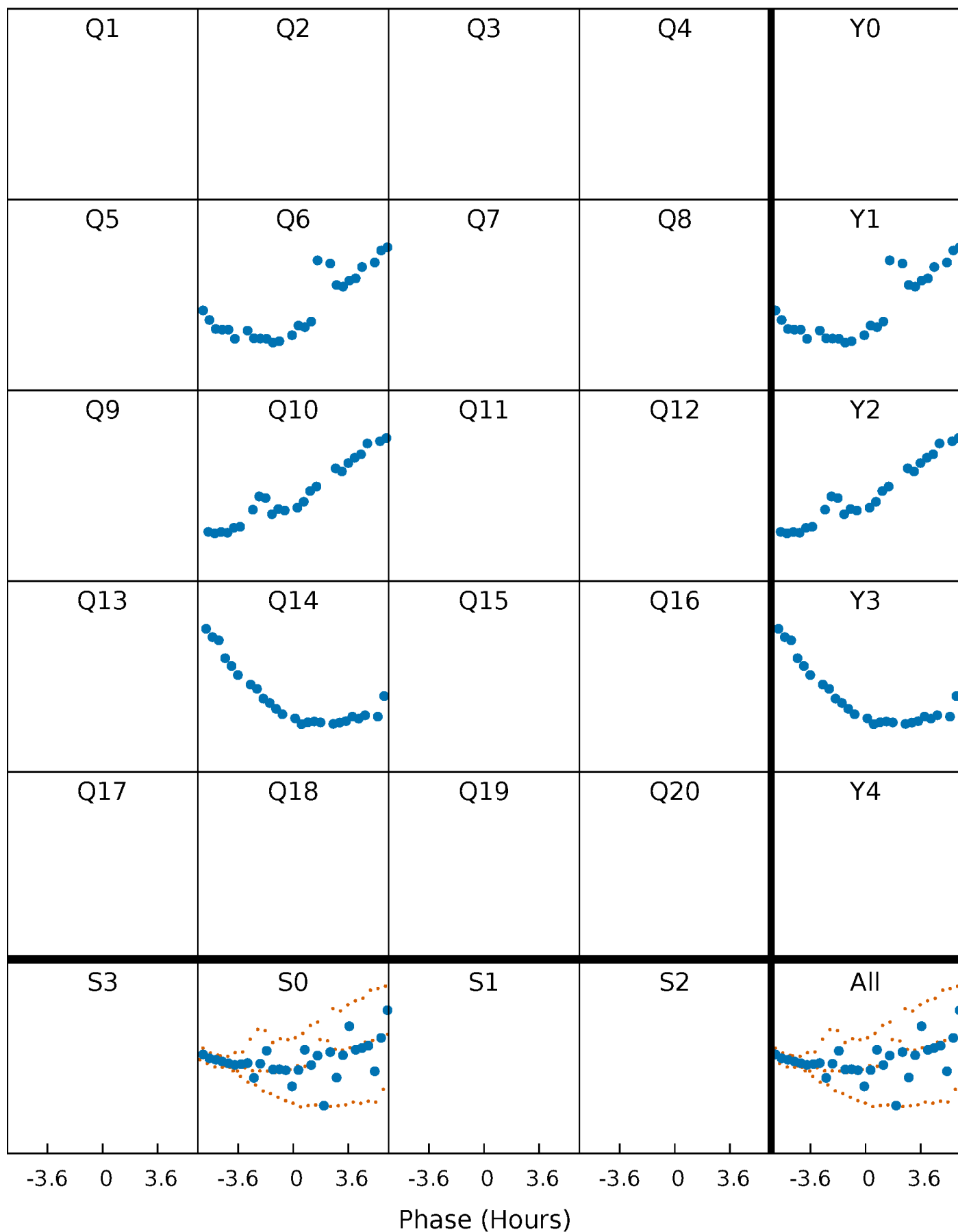


Non-Whitened Vs. Whitened Light Curve



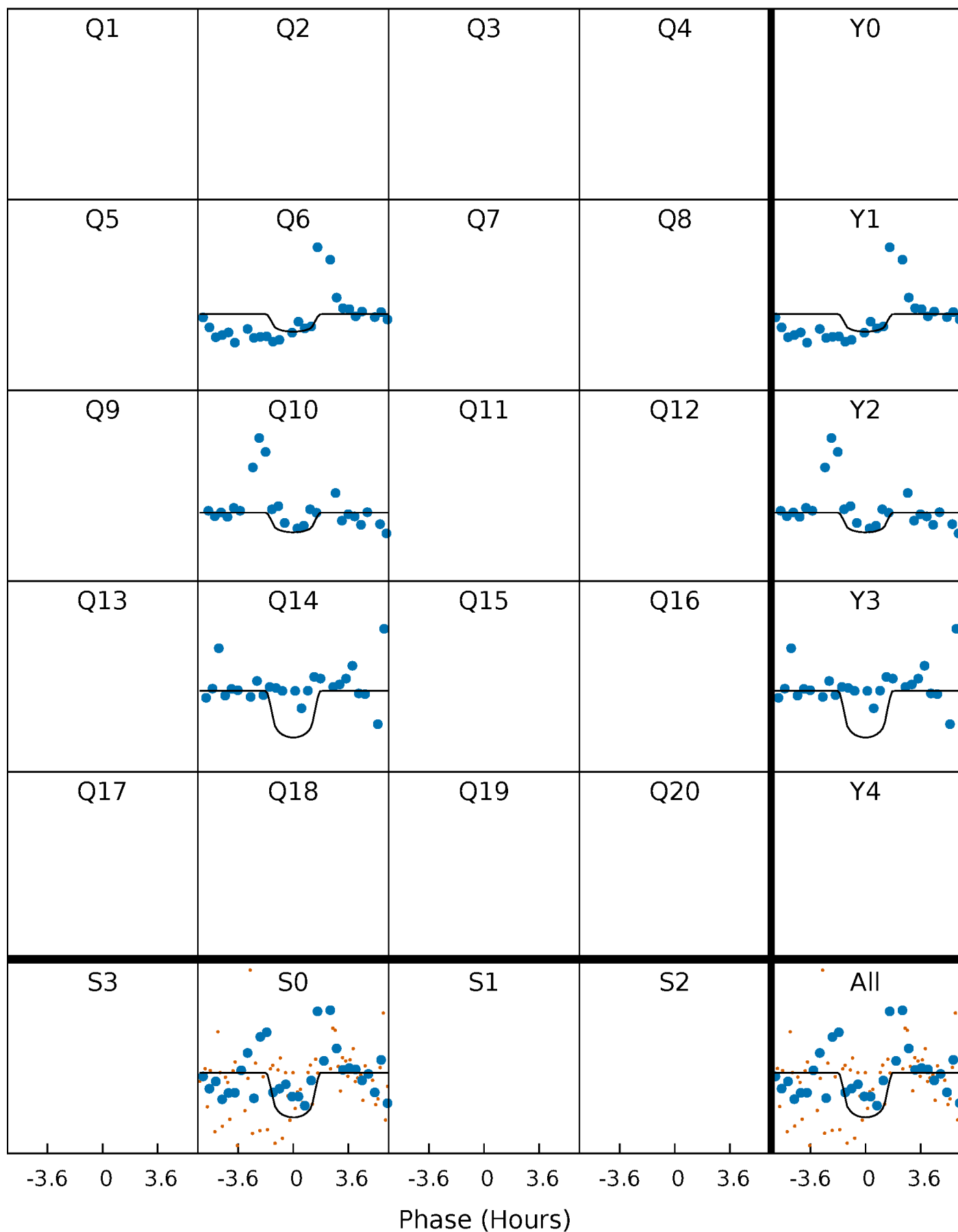
PDC Quarter-Phased Transit Curves

TCE 010748029-01 P=370.365049 Days $T_0=255.487347$ (BKJD)



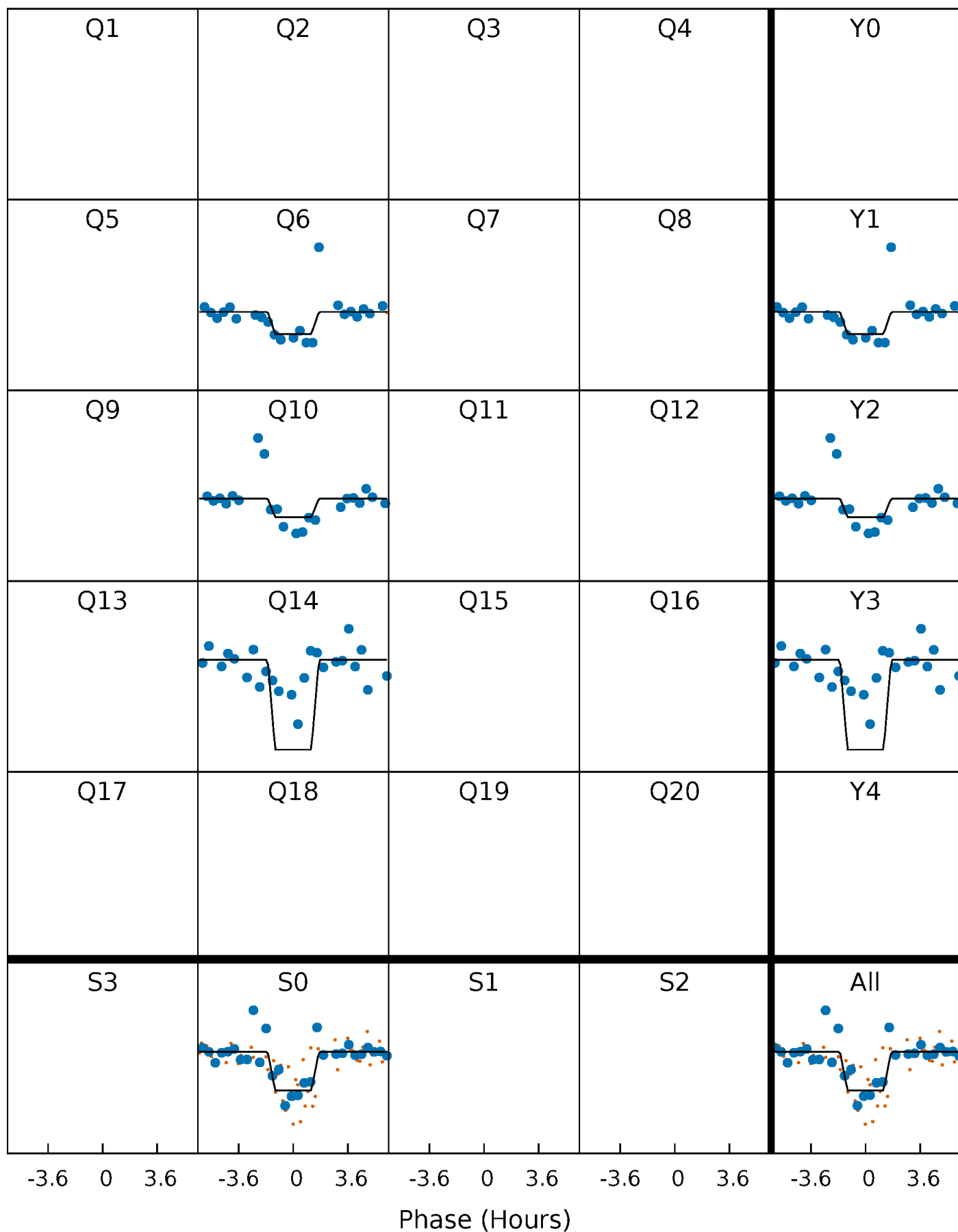
DV Quarter-Phased Transit Curves

TCE 010748029-01 P=370.365049 Days $T_0=255.487347$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

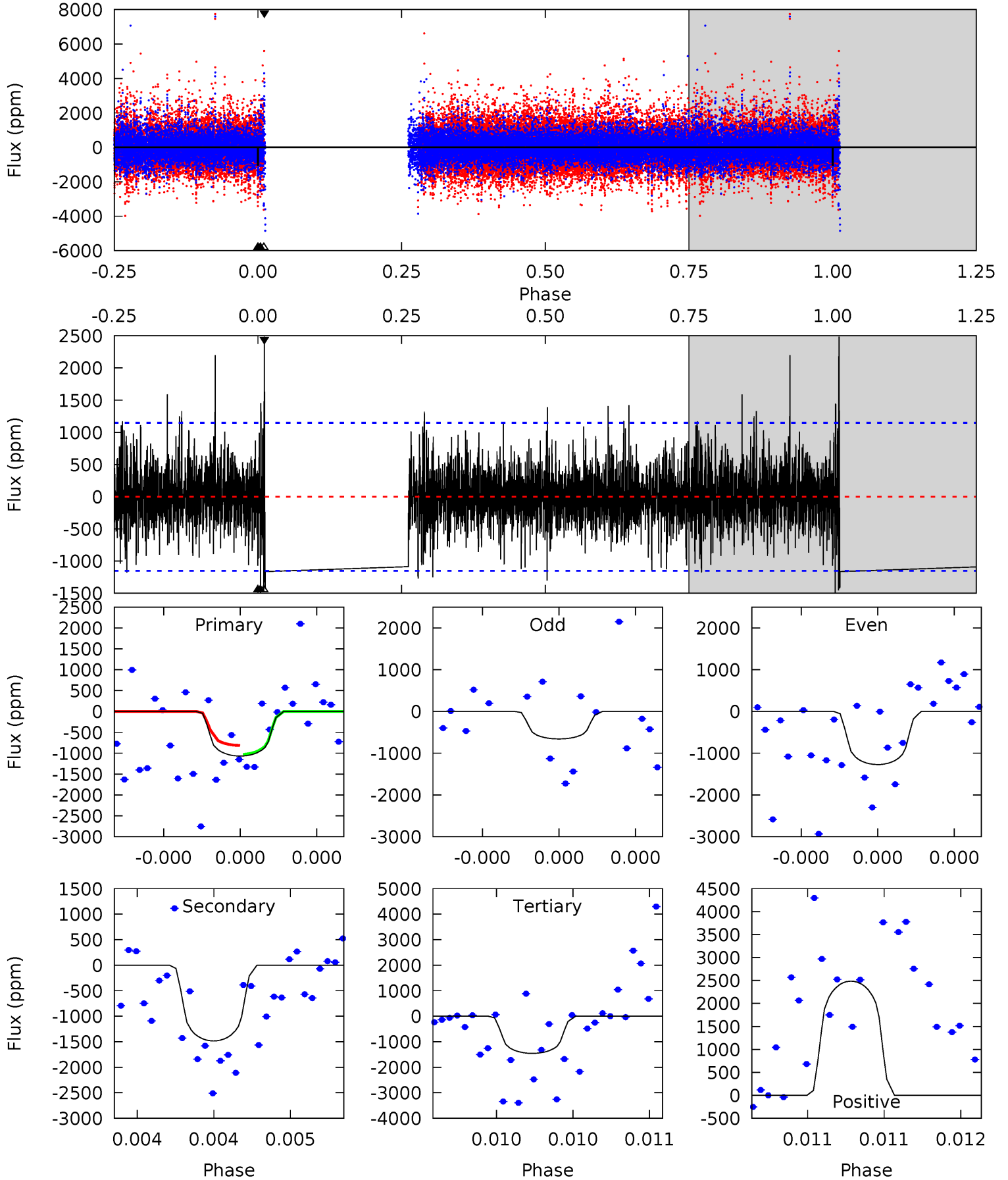
TCE 010748029-01 P=370.371938 Days $T_0=255.479476$ (BKJD)



DV Model-Shift Uniqueness Test

010748029-01, P = 370.365049 Days, E = 255.487347 Days

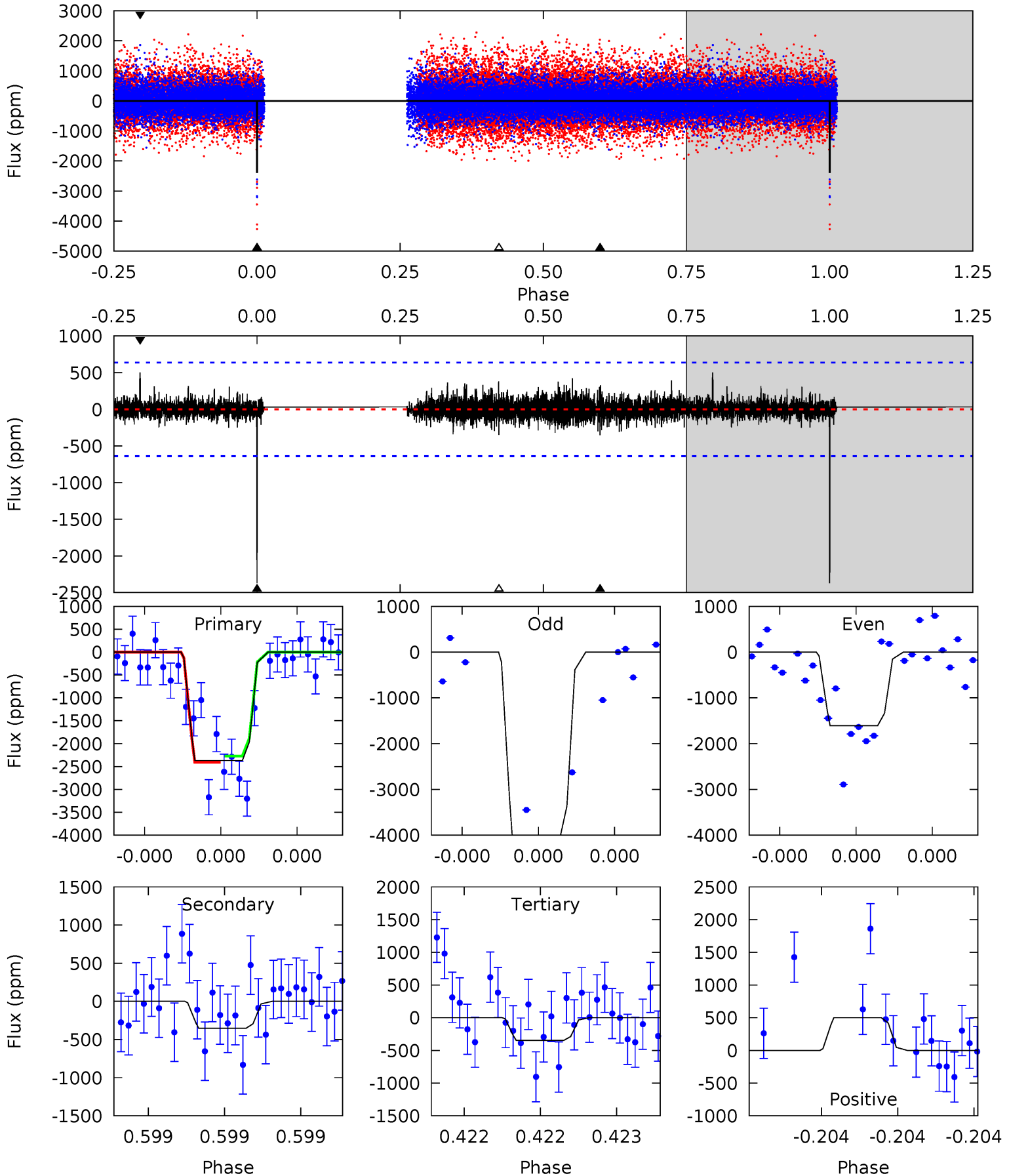
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
5.22	7.25	7.11	12.1	5.62	3.55	1.70	-1.89	-6.92	0.14	-4.89	1.21	1.60	0.63	0.51



Alt Model-Shift Uniqueness Test

010748029-01, P = 370.371938 Days, E = 255.479476 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
20.9	3.10	3.06	4.40	5.62	3.55	0.73	17.8	16.5	0.04	-1.30	8.39	0.80	0.17	0.57



Stellar Parameters For KIC 010748029

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	5538^{+182}_{-182}	$4.534^{+0.053}_{-0.158}$	$-0.100^{+0.300}_{-0.300}$	$0.844^{+0.199}_{-0.085}$	$0.889^{+0.092}_{-0.092}$	$2.081^{+0.457}_{-0.938}$
	+3%/-3%	+1%/-3%	+300%/-300%	+24%/-10%	+10%/-10%	+22%/-45%
Source	KIC0	KIC0	KIC0	DSEP		

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

Secondary Eclipse Parameters for KIC 010748029-01 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	-1485 ± 205	$8.39^{+9.02}_{-5.61}$	323^{+18}_{-13}	3976^{+2360}_{-844}	11031^{+87560}_{-8460}
Alt.	-352 ± 114	$9.29^{+9.88}_{-6.25}$	325^{+19}_{-16}	3039^{+1381}_{-517}	1889^{+16929}_{-1410}

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 $A_{obs} \gg 1.0$

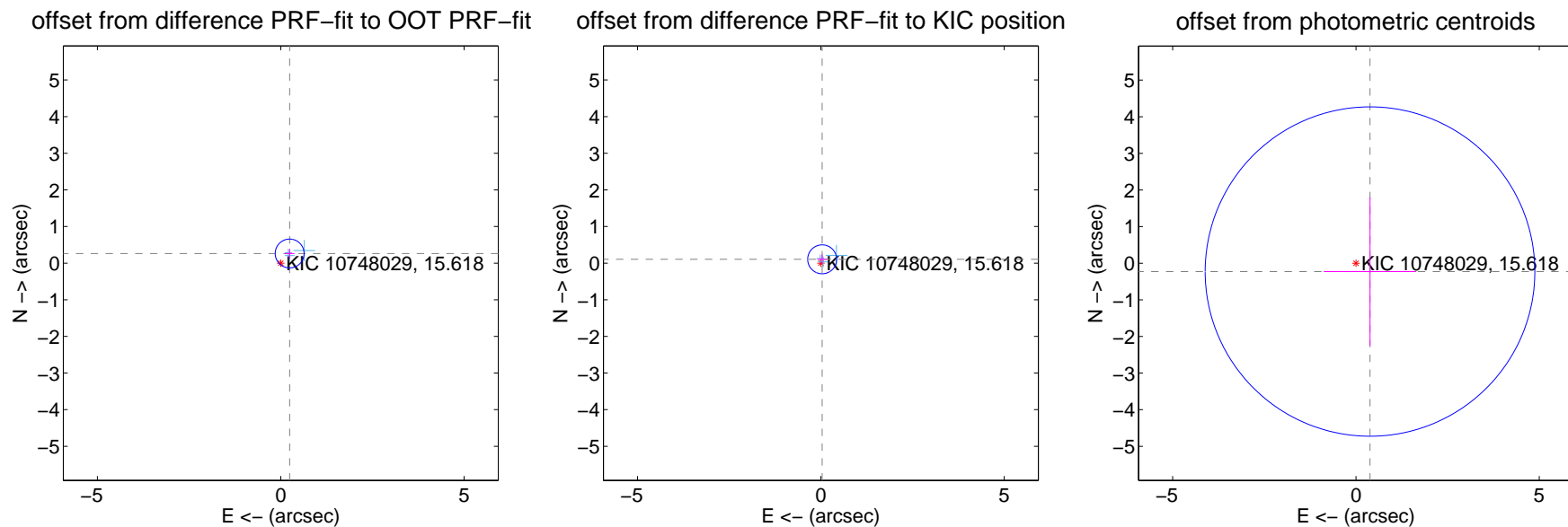
DV Centroid Data

Supplemental centroid analysis for 010748029-01. Kepler magnitude: 15.62. Transit SNR 6.90

There are 3 quarters with good PRF difference image offsets

The direct PRF centroid is offset from the target star catalog position by about 0.27 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.358 ± 0.131	2.73	-0.243 ± 0.131	0.264 ± 0.132
PRF-fit source offset from KIC position	0.110 ± 0.132	0.84	-0.035 ± 0.131	0.105 ± 0.132
photometric centroid source offset	0.45 ± 1.50	0.30	-0.38 ± 1.26	-0.23 ± 2.03

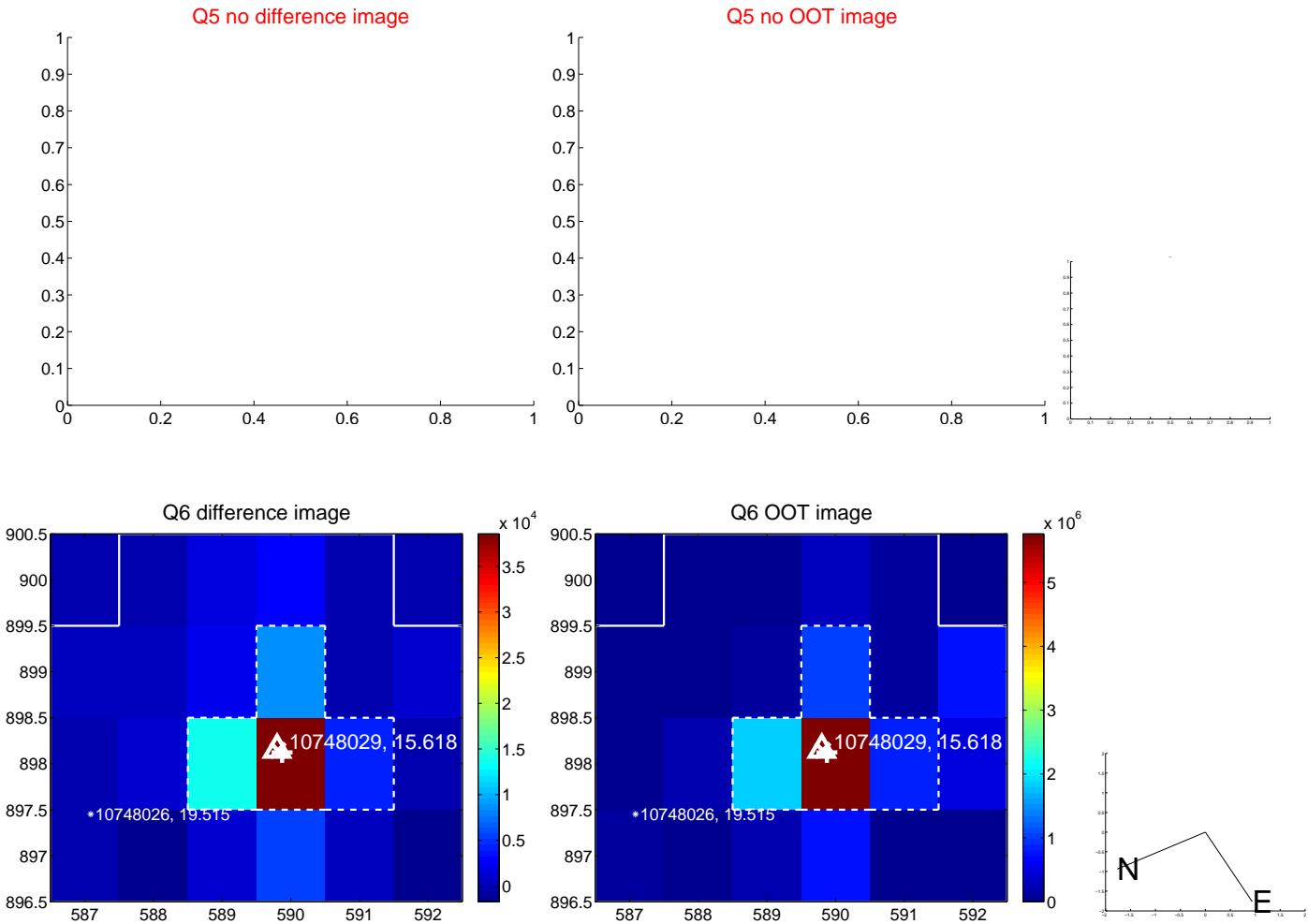


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ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

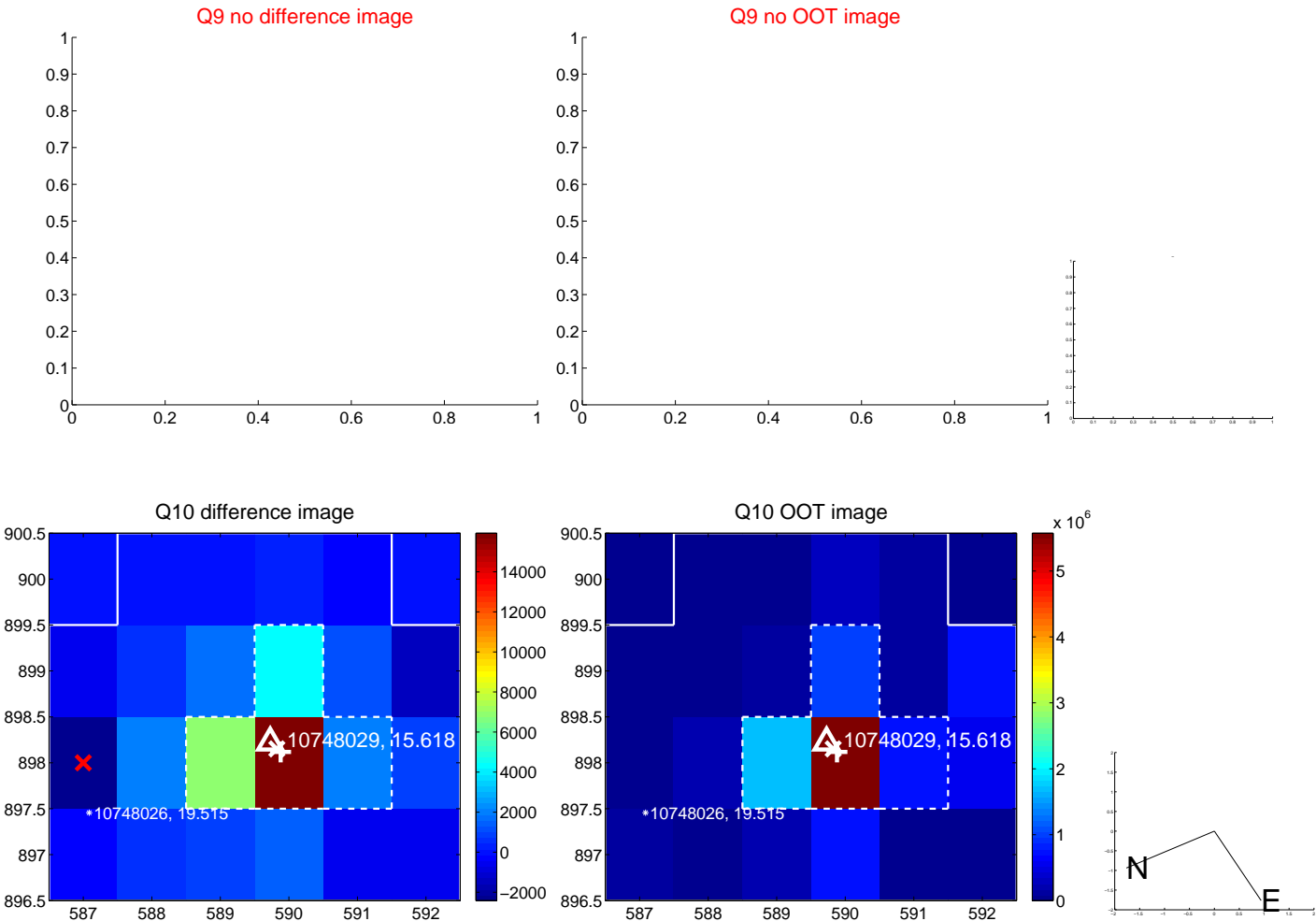
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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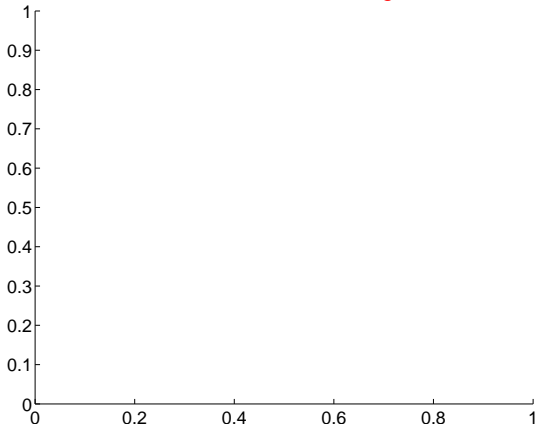


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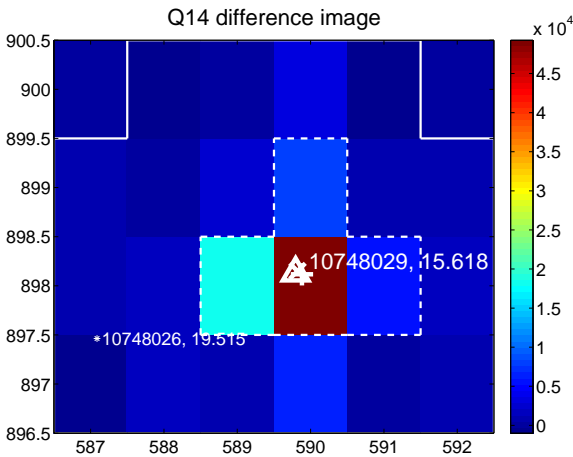
Q13 no difference image



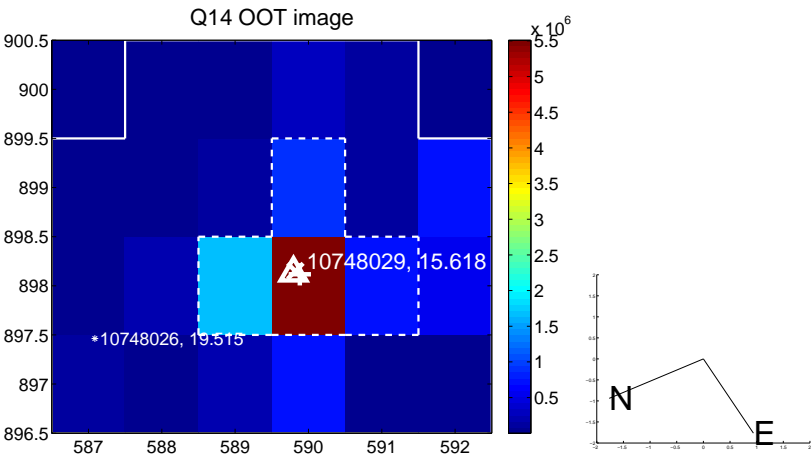
Q13 no OOT image



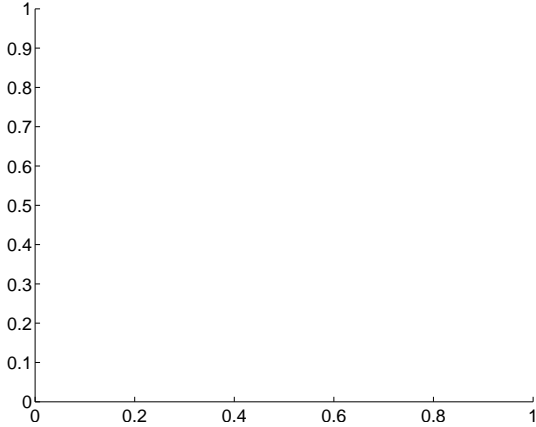
Q14 difference image



Q14 OOT image



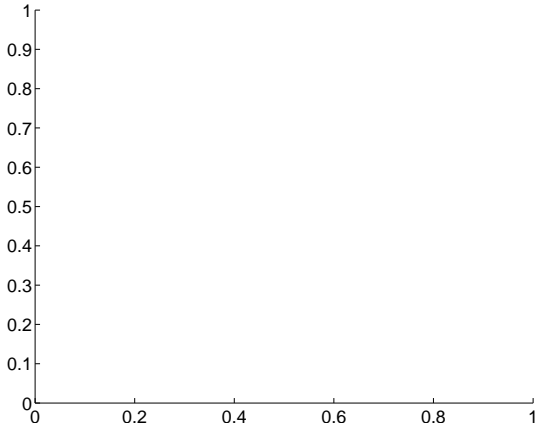
Q15 no difference image



Q15 no OOT image



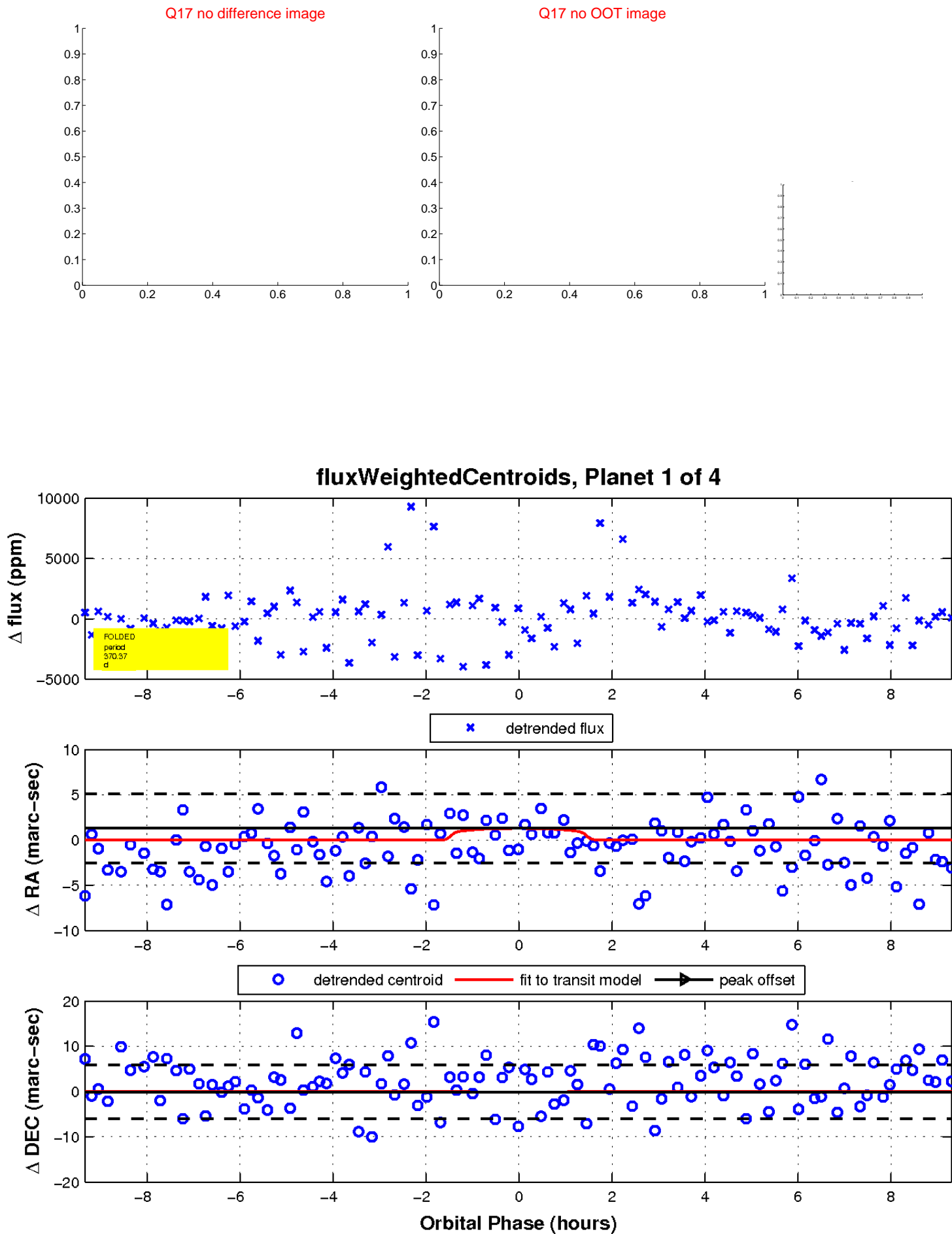
Q16 no difference image



Q16 no OOT image

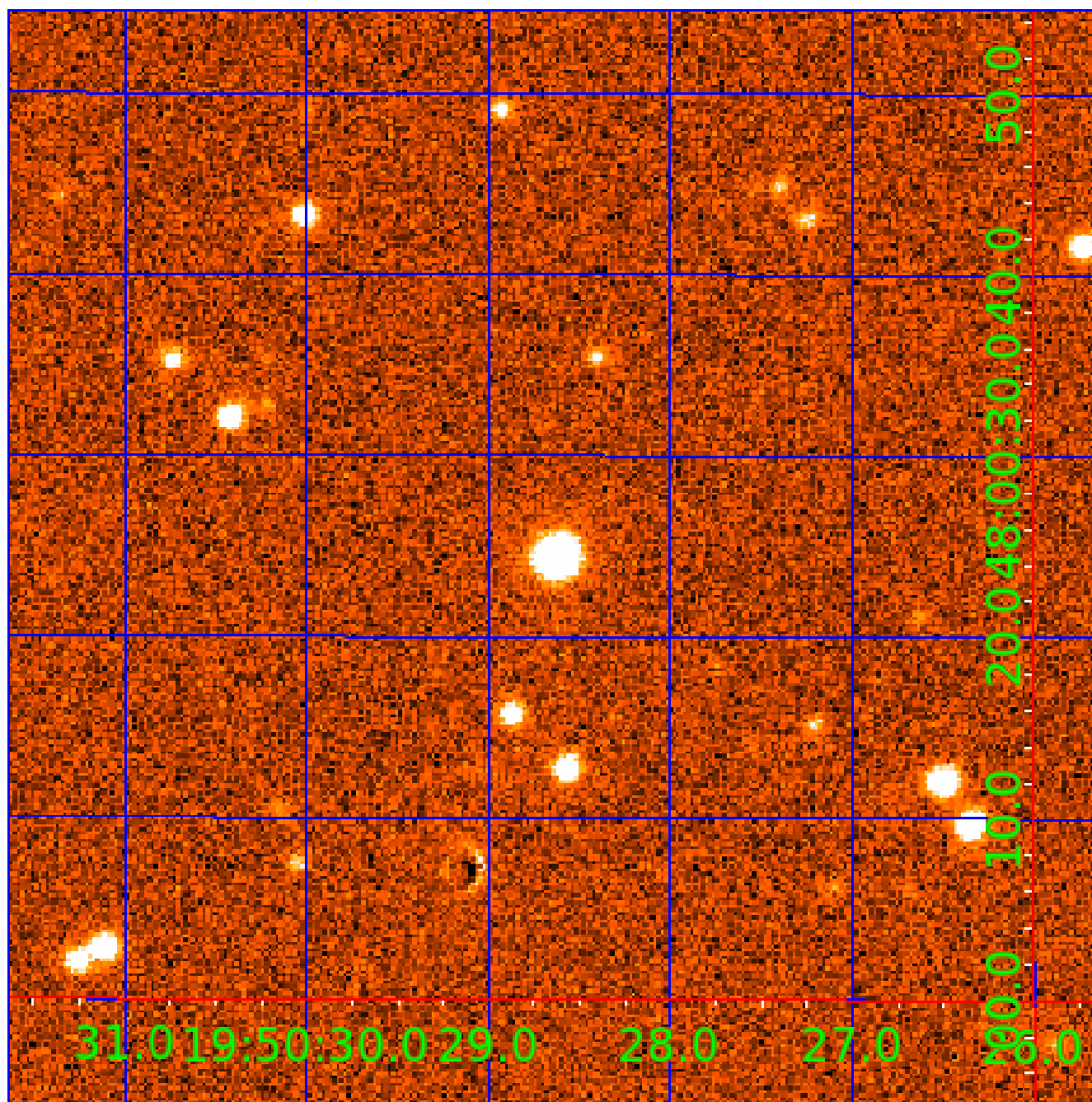


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 010748029

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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010748029-04	OBS	No	325.464691	173.681110	2447.6	2.952	12.5	7.3	0.84	5538	4.12	0.76

Robovetter Results

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010748029-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—LPP_DV—ALL_TRANS_CHASES—INCONSISTENT_TRANS
010748029-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—INCONSISTENT_TRANS—CENT_FEW_DIFFS
010748029-04	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

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

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

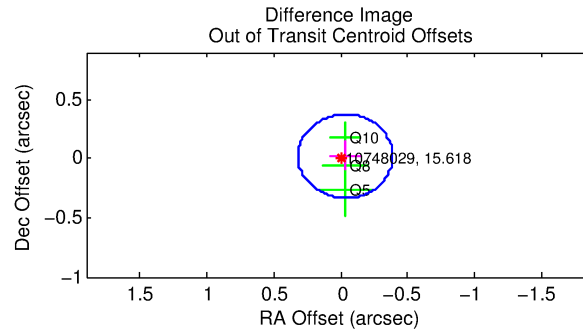
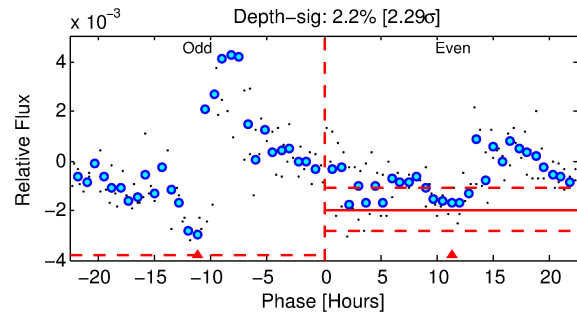
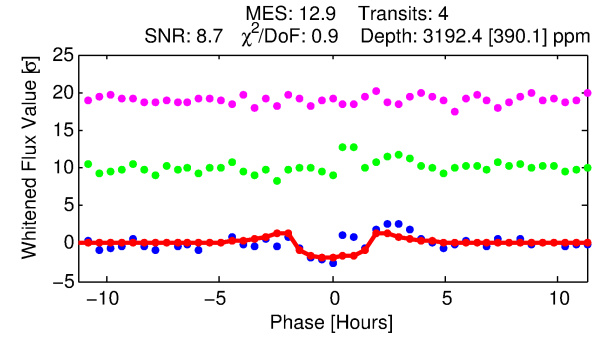
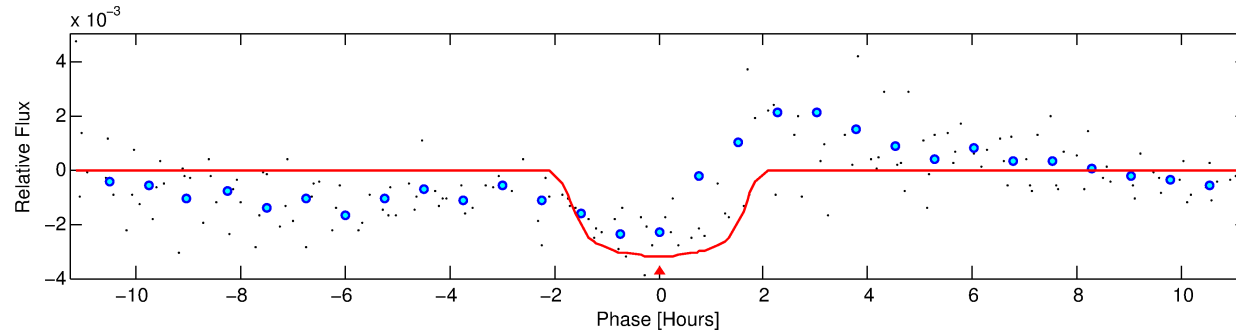
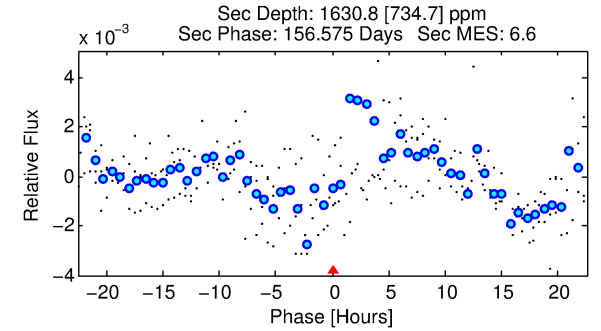
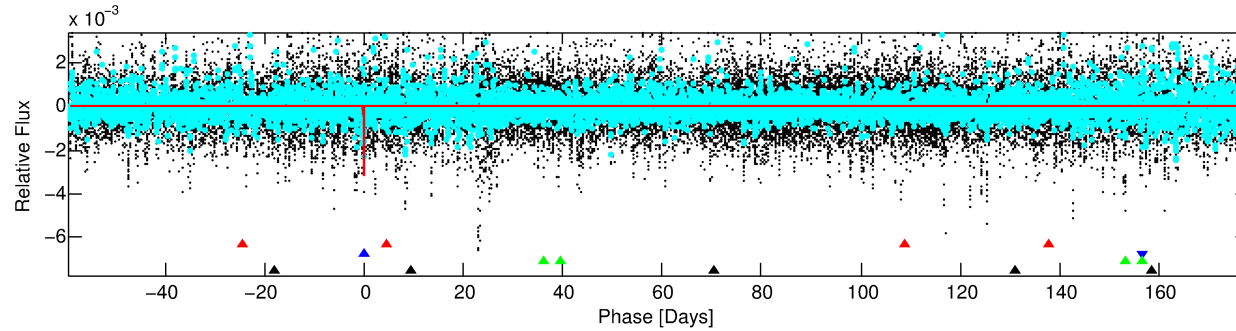
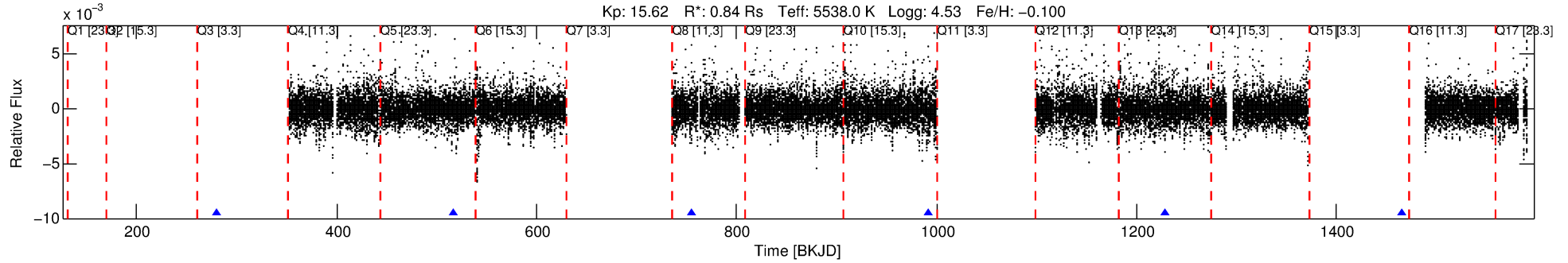
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 010748029-02

No Significant Match Found

DV One-Page Summary

KIC: 10748029 Candidate: 2 of 4 Period: 237.207 d



DV Fit Results:

Period = 237.20710 [0.00208] d
Epoch = 279.9167 [0.0059] BKJD
Rp/R* = 0.0547 [0.0475]
a/R* = 397.71 [1378.05]
b = 0.66 [3.03]
Seff = 1.15 [0.37]
Teq = 264 [21] K
Rp = 5.03 [4.53] Re
a = 0.7211 [0.1432] AU
Ag = 18413.12 [33463.03] [0.55] σ
Teffp = 4760 [2141] K [2.10] σ

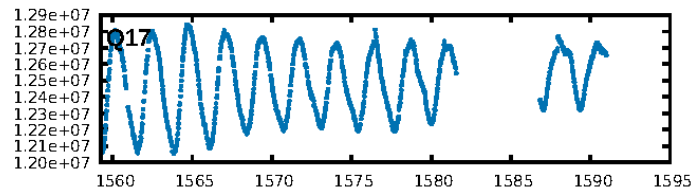
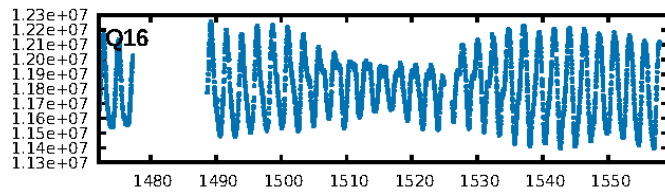
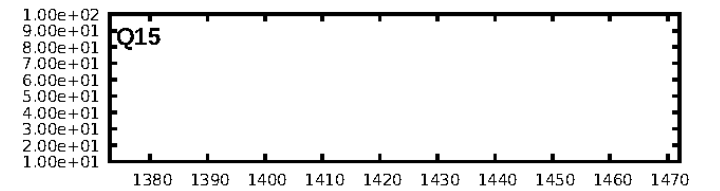
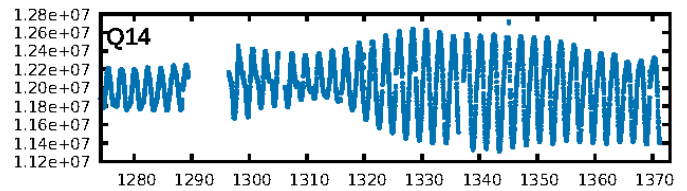
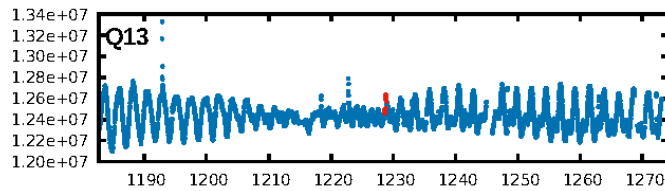
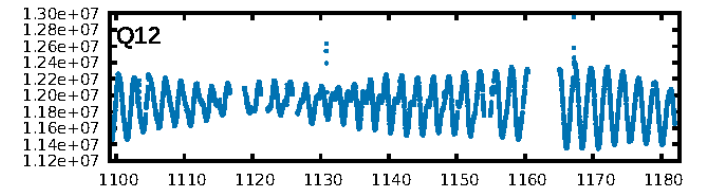
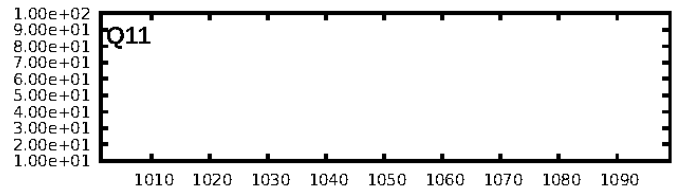
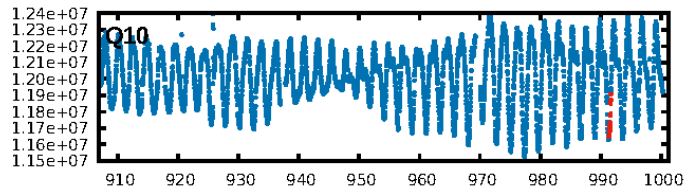
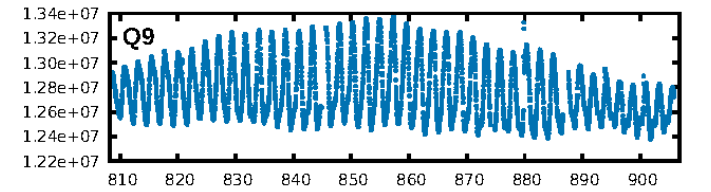
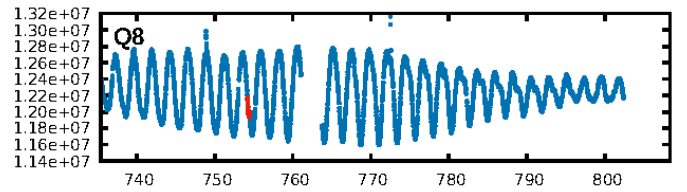
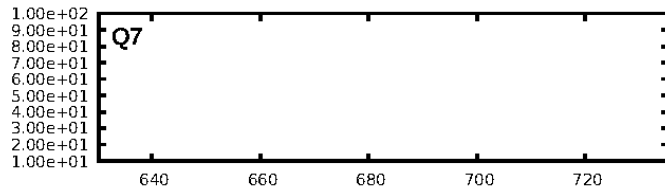
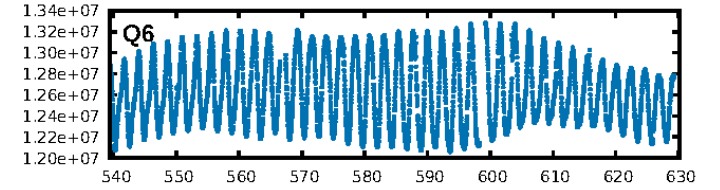
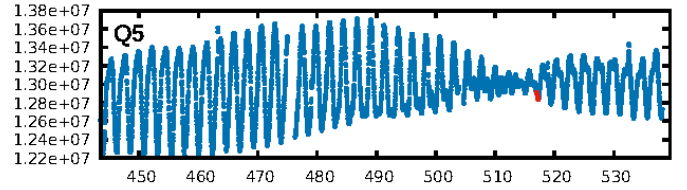
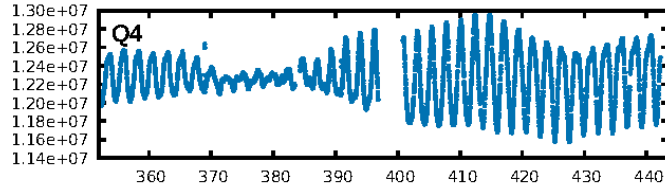
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: 100.0% [443.75] σ
ModelChiSquare2-sig: 0.3%
ModelChiSquareGof-sig: 87.1%
Bootstrap-pfa: 5.16e-13
RollingBand-fgt: 1.00 [4/4]
GhostDiagnostic-chr: 1.445
Centroid-sig: 41.1%
Centroid-so: 0.610 arcsec [0.81] σ
OotOffset-rm: 0.041 arcsec [0.35] σ
KicOffset-rm: 0.114 arcsec [0.97] σ
OotOffset-st: 1/0/1/1 [3]
KicOffset-st: 1/0/1/1 [3]
DiffImageQuality-fgm: 1.00 [3/3]
DiffImageOverlap-fno: 1.00 [3/3]

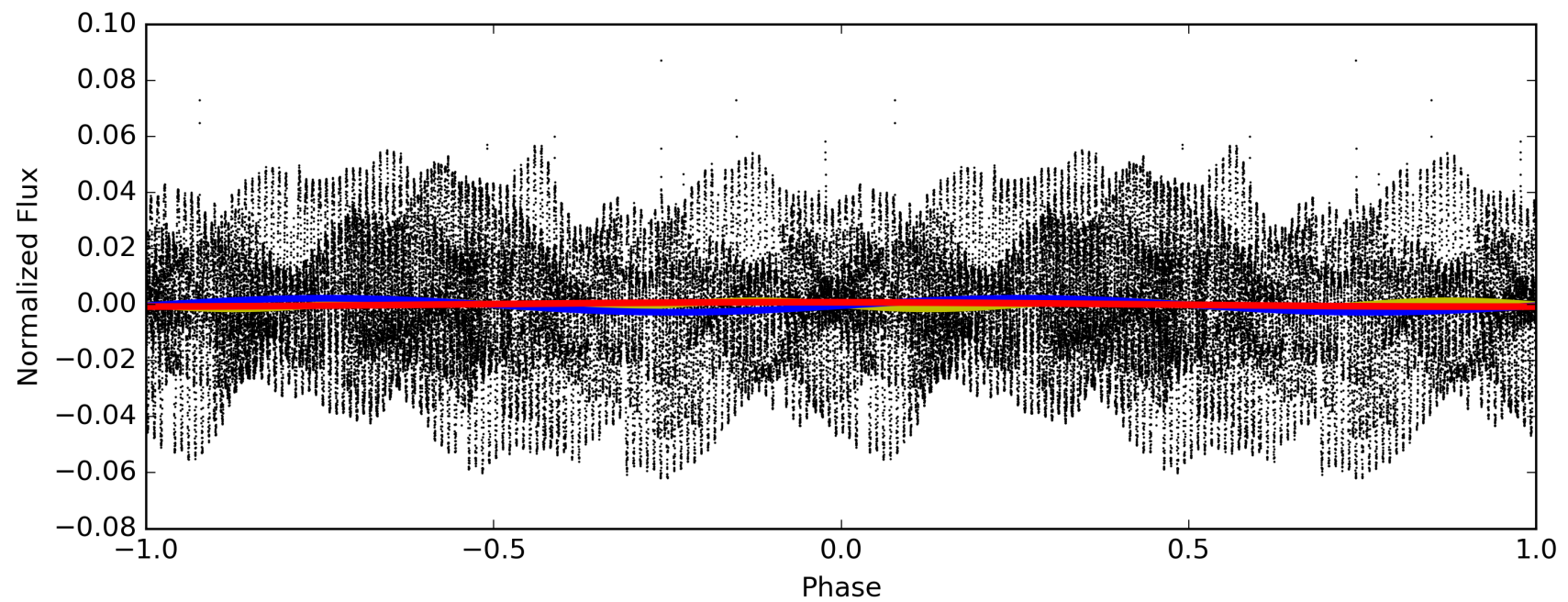
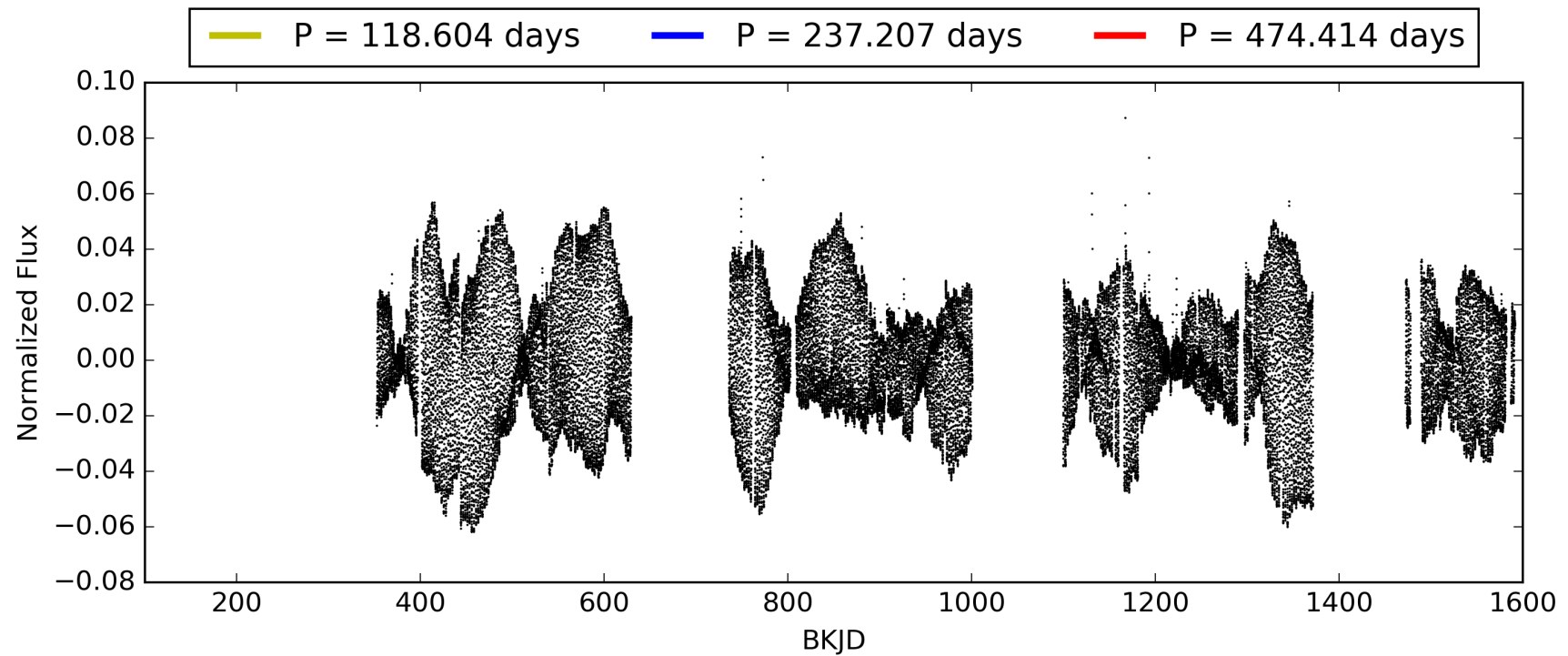
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 01-Feb-2016 00:55:54 Z

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

TCE 010748029-02, PDC Light Curves

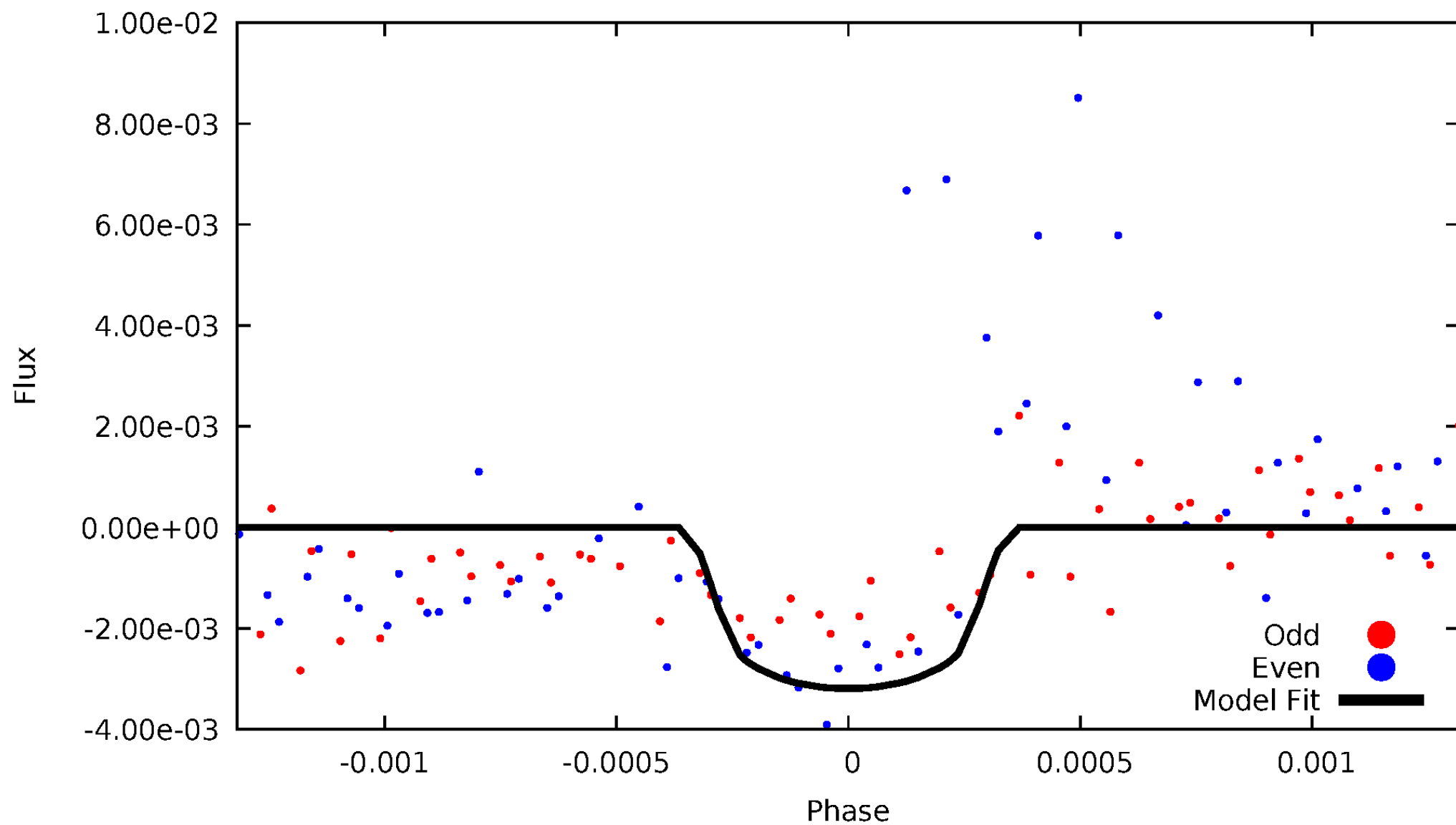


TCE 010748029-02



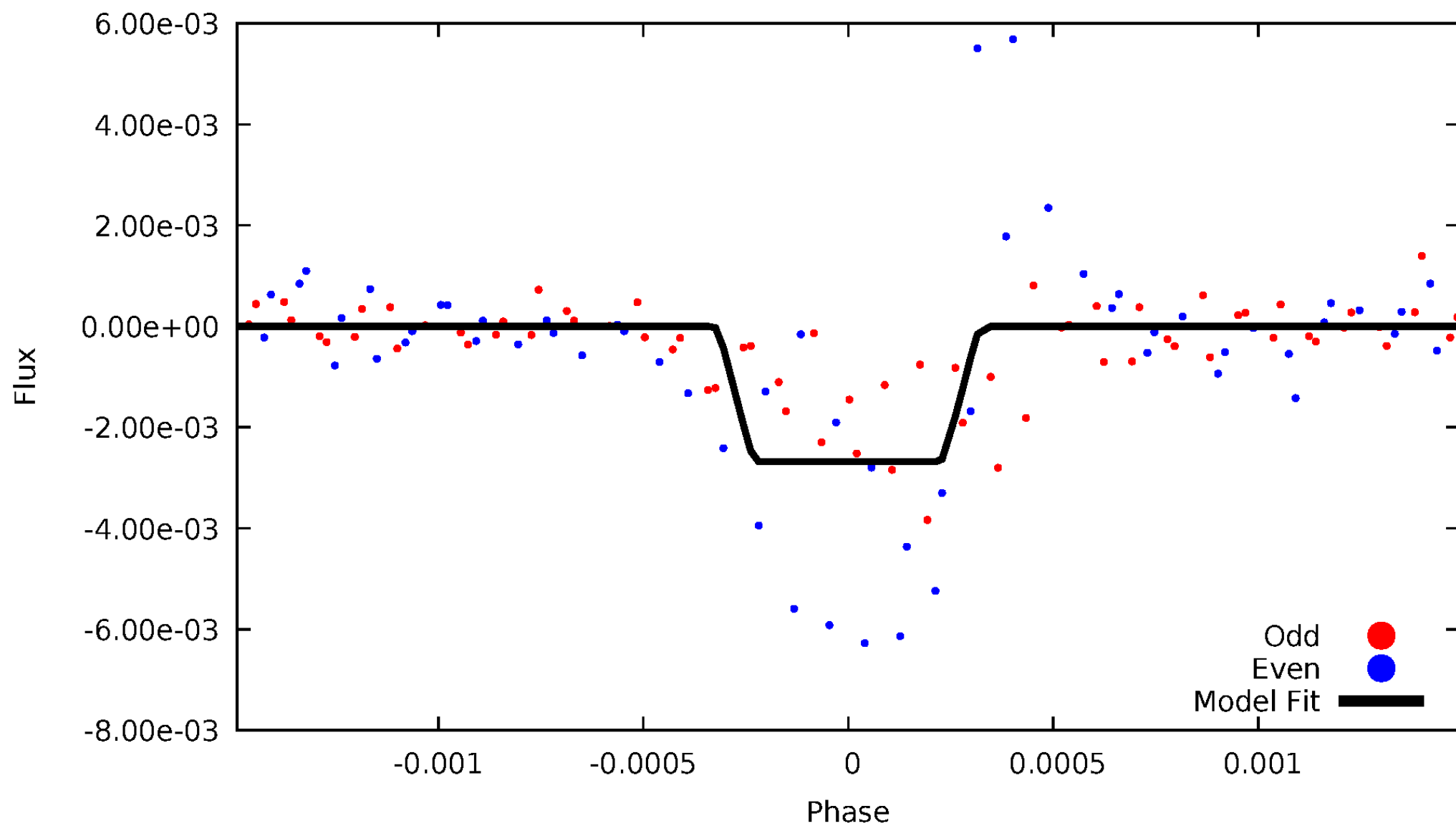
DV Odd/Even

TCE 010748029-02



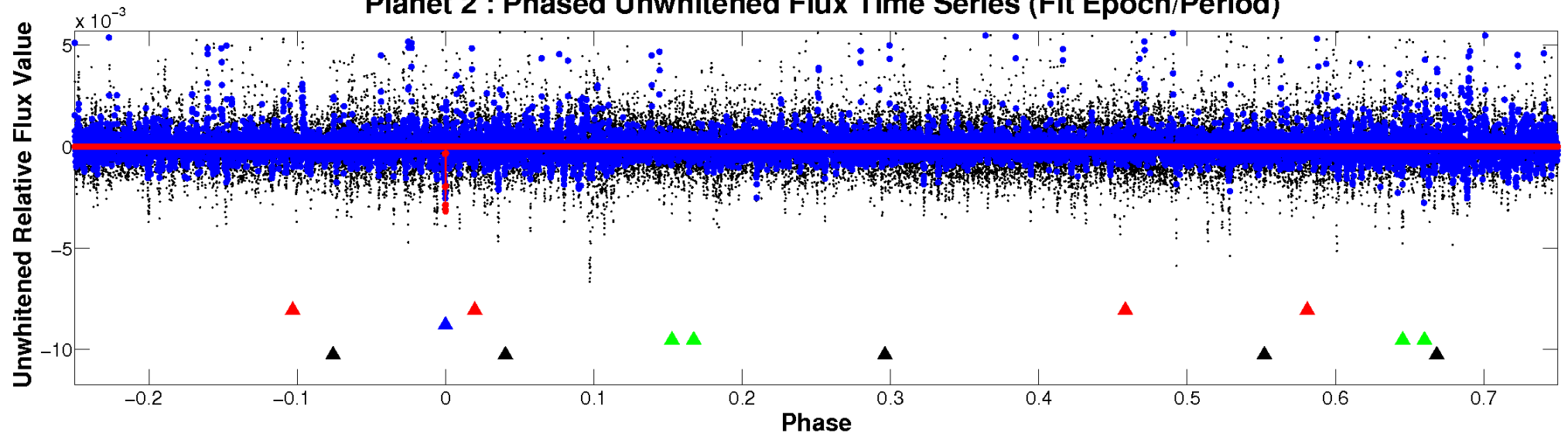
ALT Odd/Even

TCE 010748029-02

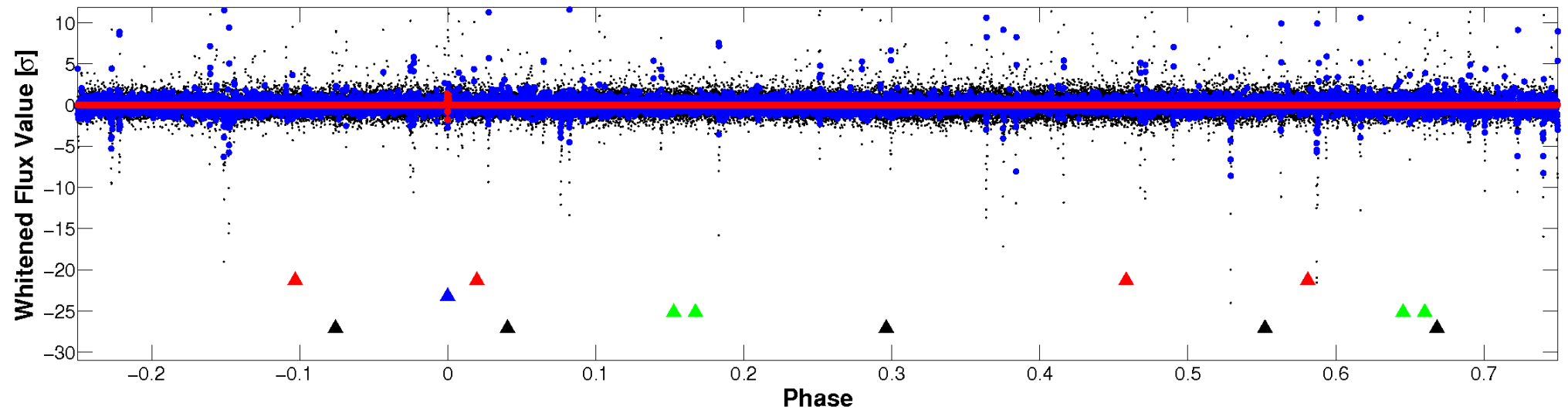


Non-Whitened Vs. Whitened Light Curve

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

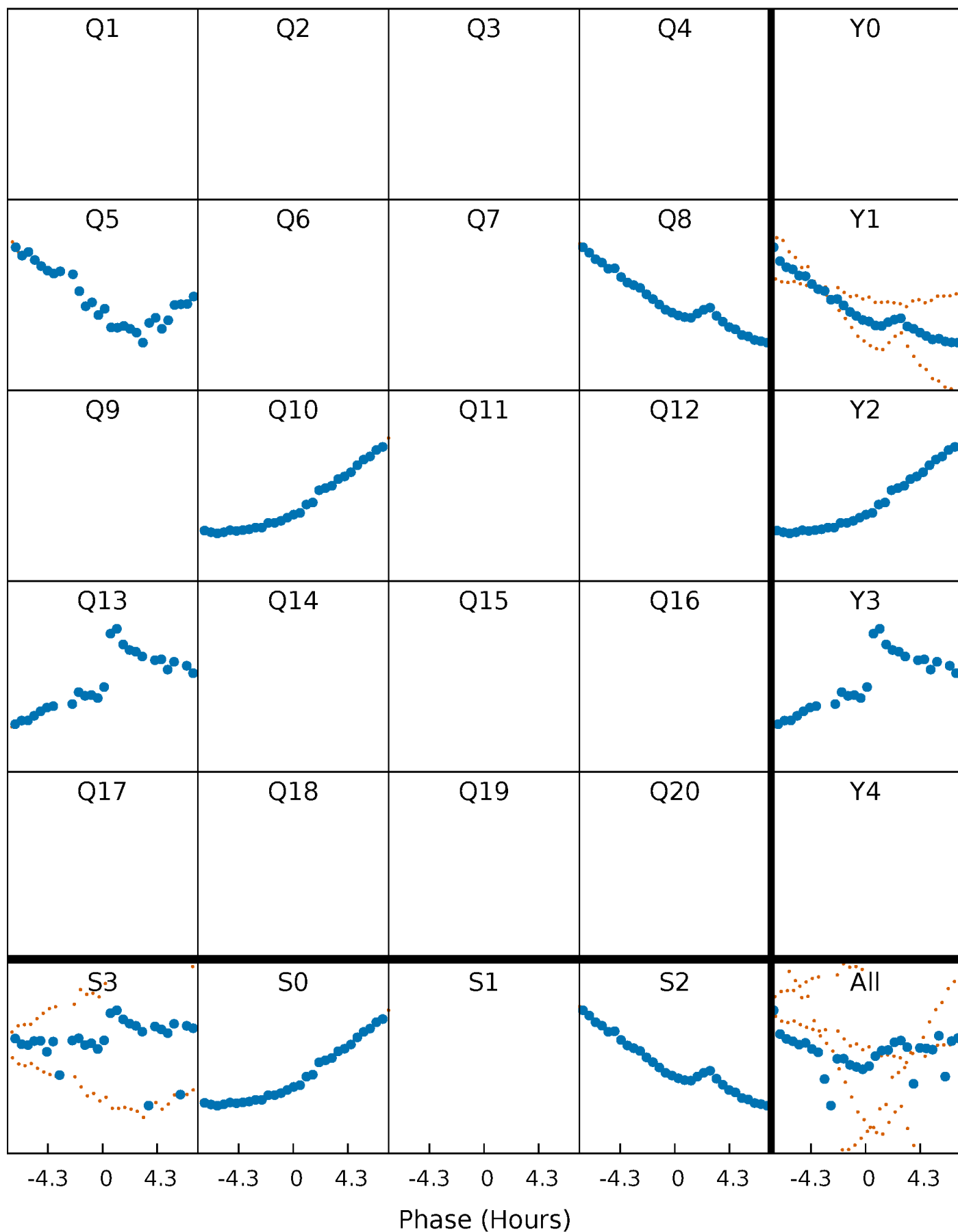


Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



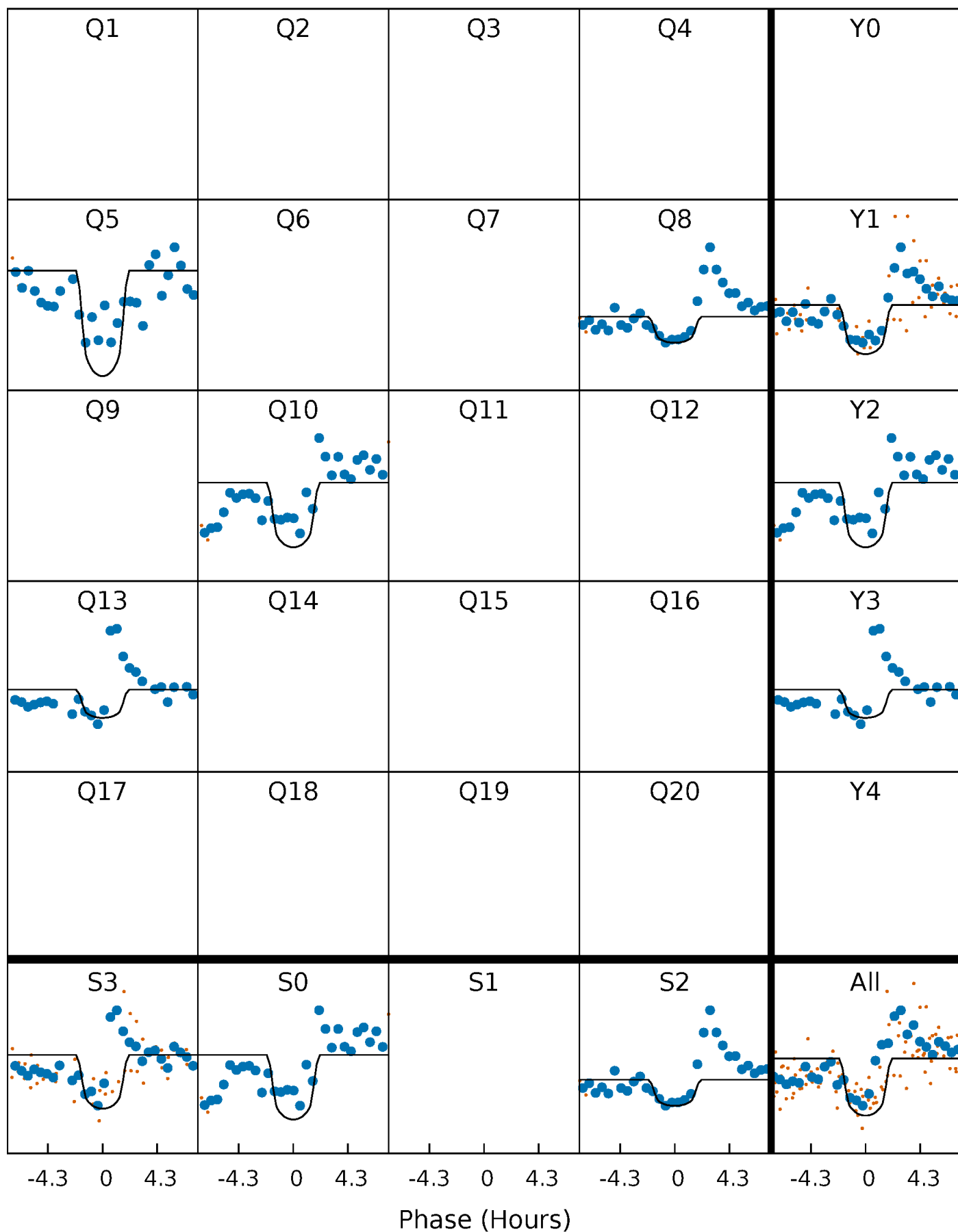
PDC Quarter-Phased Transit Curves

TCE 010748029-02 P=237.207104 Days $T_0=279.916653$ (BKJD)



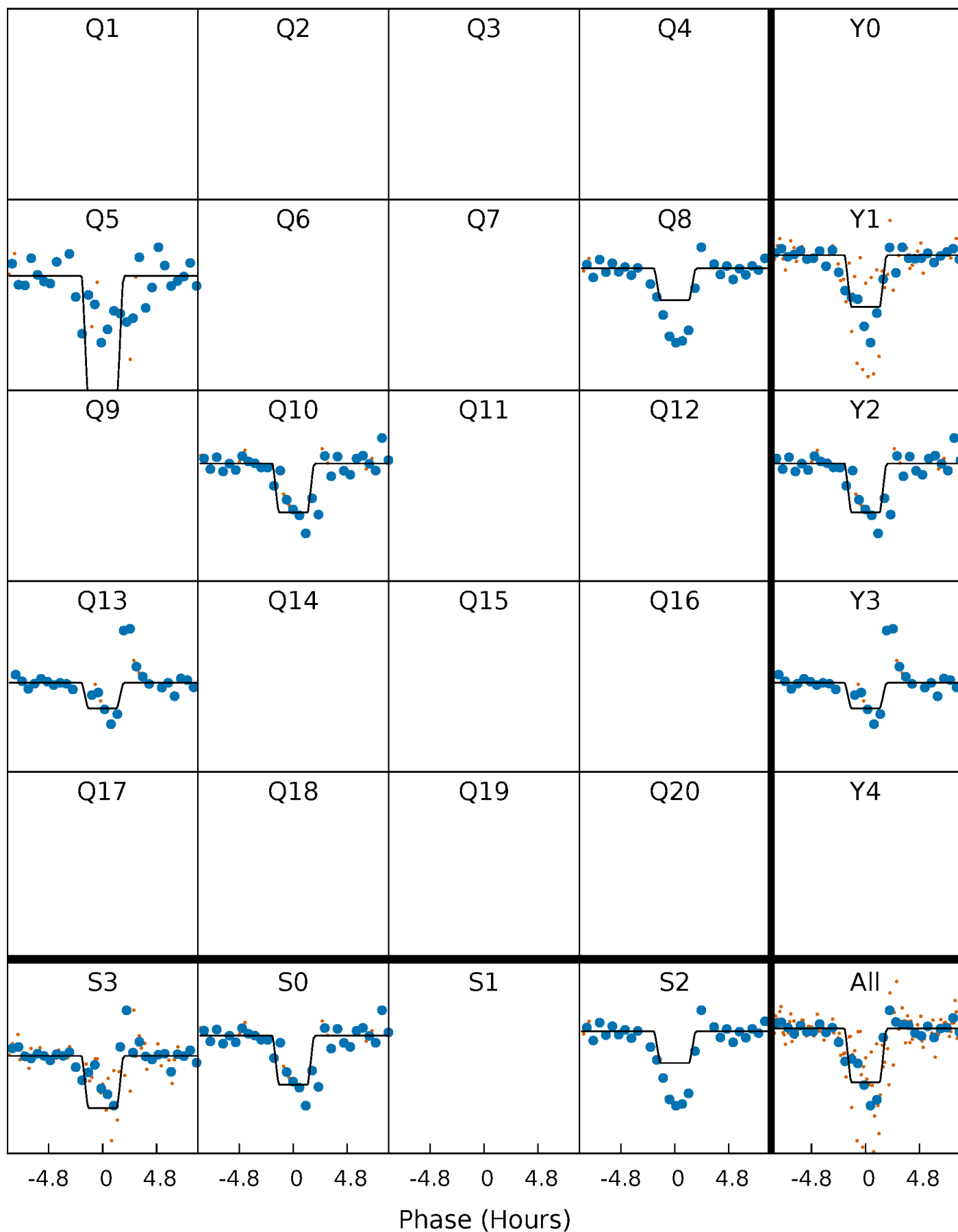
DV Quarter-Phased Transit Curves

TCE 010748029-02 P=237.207104 Days $T_0=279.916653$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

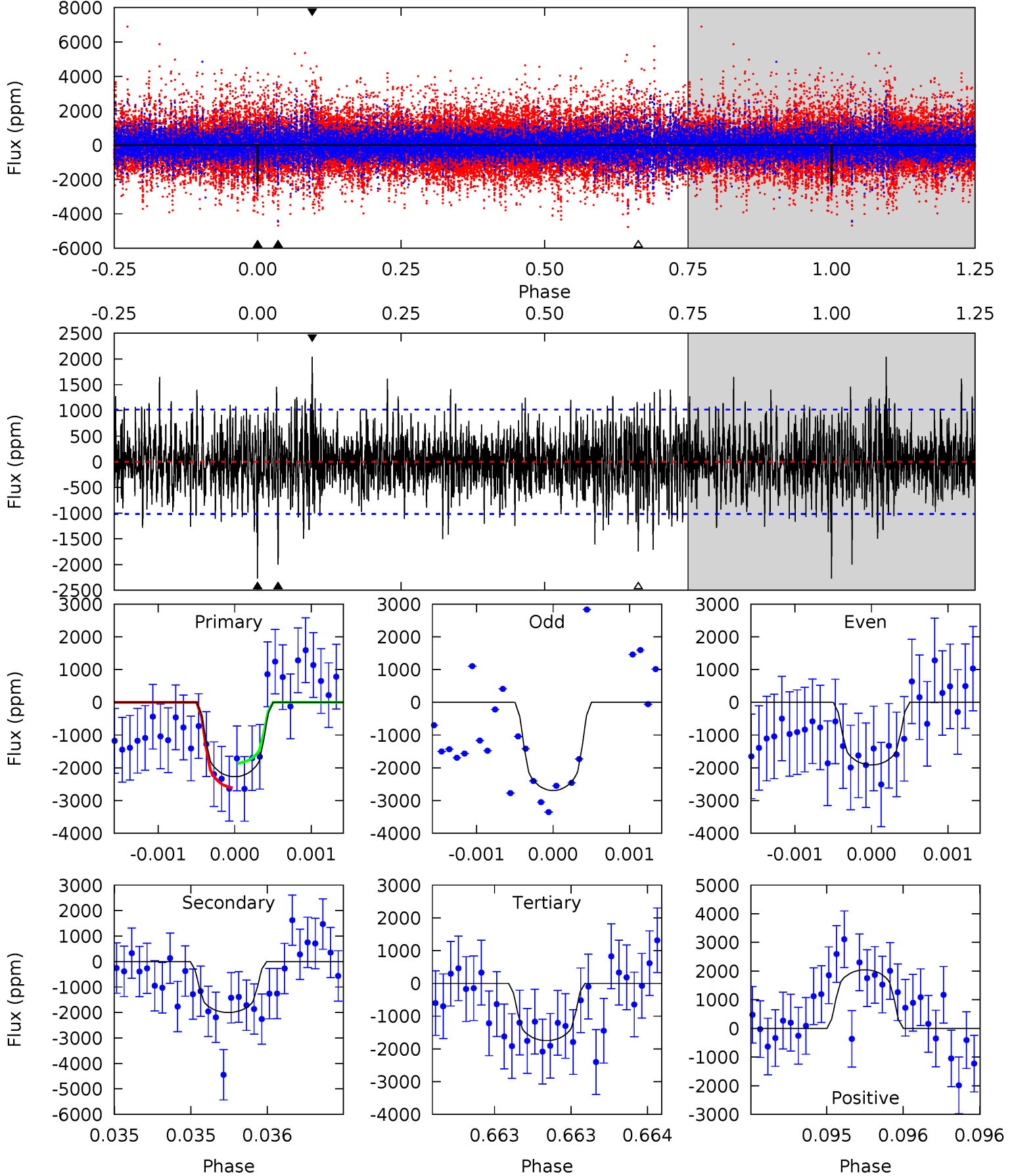
TCE 010748029-02 P=237.181728 Days $T_0=279.973261$ (BKJD)



DV Model-Shift Uniqueness Test

010748029-02, P = 237.207104 Days, E = 279.916653 Days

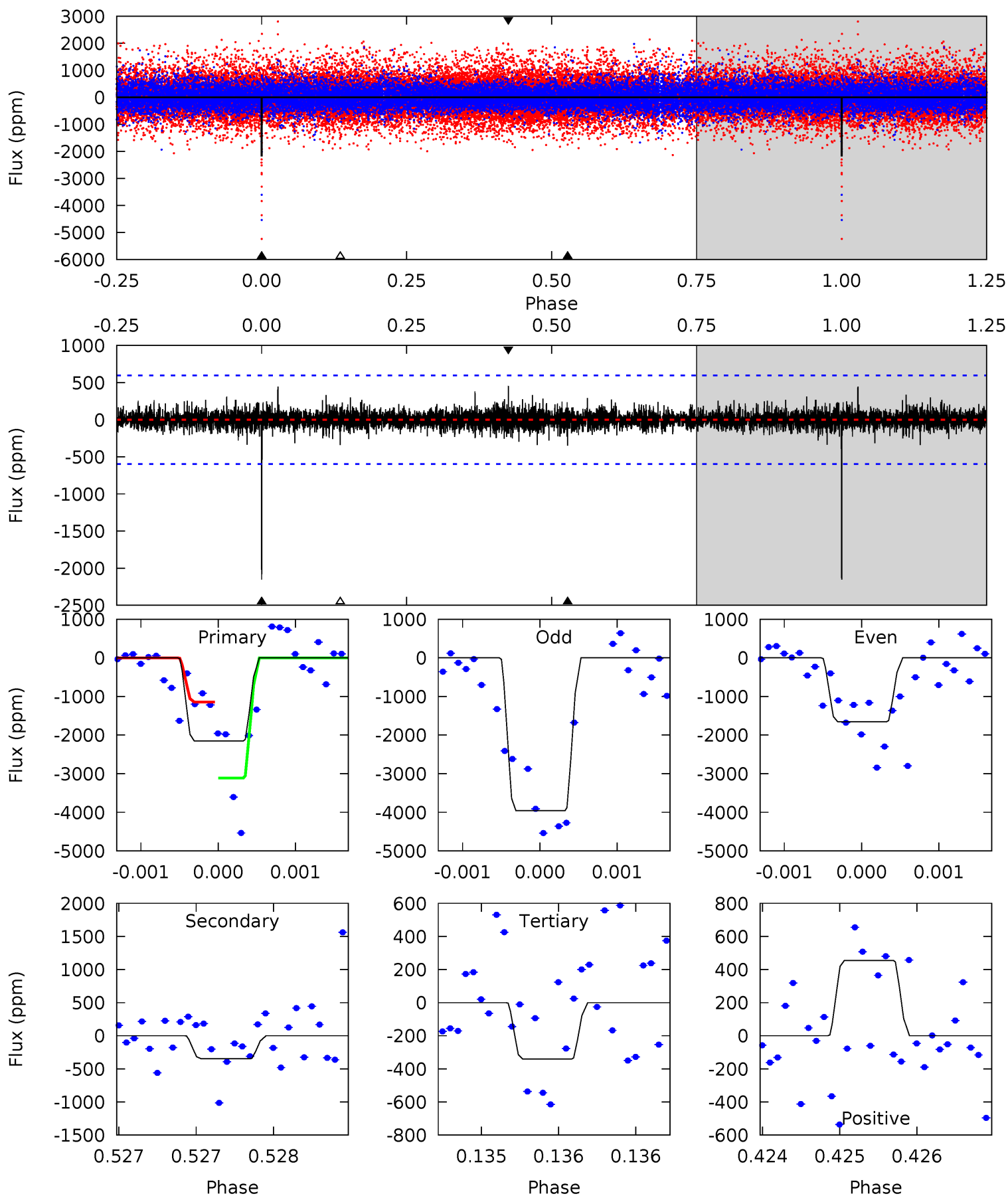
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
12.3	10.8	9.46	11.1	5.51	3.38	2.37	2.84	1.22	1.37	-0.24	1.67	0.80	0.47	2.03



Alt Model-Shift Uniqueness Test

010748029-02, P = 237.181728 Days, E = 279.973261 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
19.9	3.20	3.15	4.20	5.53	3.41	0.69	16.8	15.7	0.05	-1.00	11.9	1.20	0.17	8.84



Stellar Parameters For KIC 010748029

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	5538^{+182}_{-182}	$4.534^{+0.053}_{-0.158}$	$-0.100^{+0.300}_{-0.300}$	$0.844^{+0.199}_{-0.085}$	$0.889^{+0.092}_{-0.092}$	$2.081^{+0.457}_{-0.938}$
	+3%/-3%	+1%/-3%	+300%/-300%	+24%/-10%	+10%/-10%	+22%/-45%
Source	KIC0	KIC0	KIC0	DSEP		

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

Secondary Eclipse Parameters for KIC 010748029-02 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	-1999 ± 185	$5.57^{+4.53}_{-3.48}$	375^{+22}_{-18}	4959^{+2967}_{-1051}	$18371^{+107327}_{-12767}$
Alt.	-346 ± 108	$5.71^{+4.40}_{-3.48}$	377^{+22}_{-18}	3548^{+1518}_{-595}	2881^{+17304}_{-2023}

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 $A_{obs} \gg 1.0$

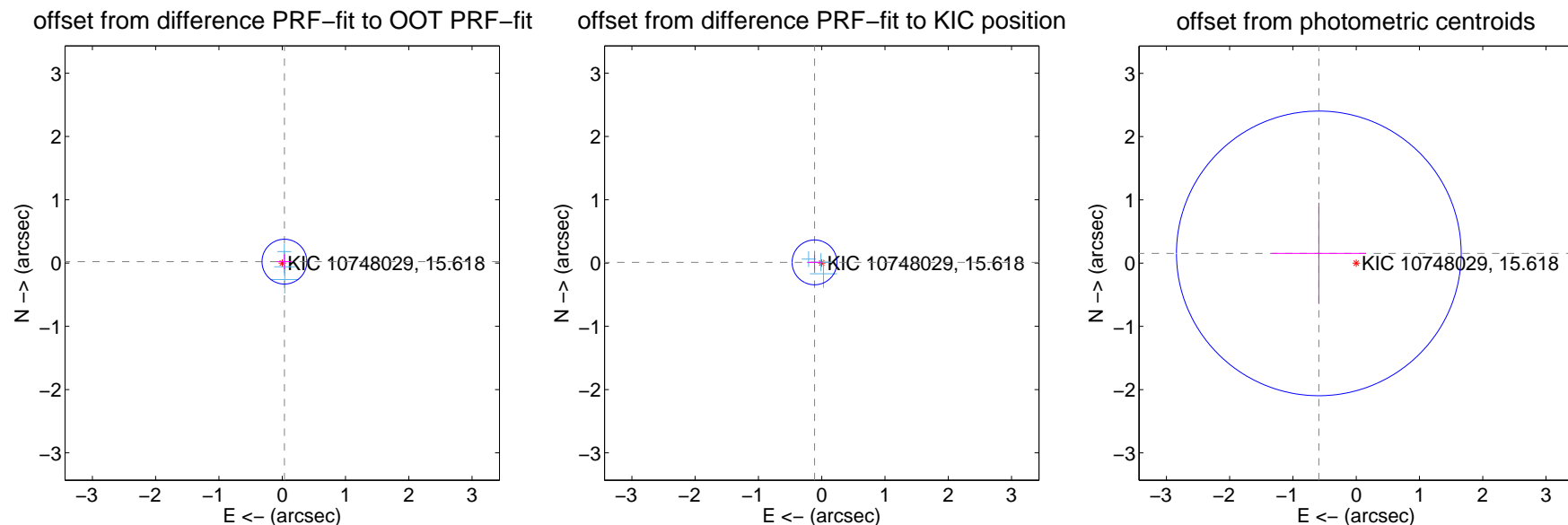
DV Centroid Data

Supplemental centroid analysis for 010748029-02. Kepler magnitude: 15.62. Transit SNR 8.72

There are 3 quarters with good PRF difference image offsets

The direct PRF centroid is offset from the target star catalog position by about 0.27 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.041 ± 0.118	0.35	-0.035 ± 0.118	0.022 ± 0.118
PRF-fit source offset from KIC position	0.114 ± 0.118	0.97	0.114 ± 0.118	0.011 ± 0.118
photometric centroid source offset	0.61 ± 0.75	0.81	0.59 ± 0.75	0.15 ± 0.80

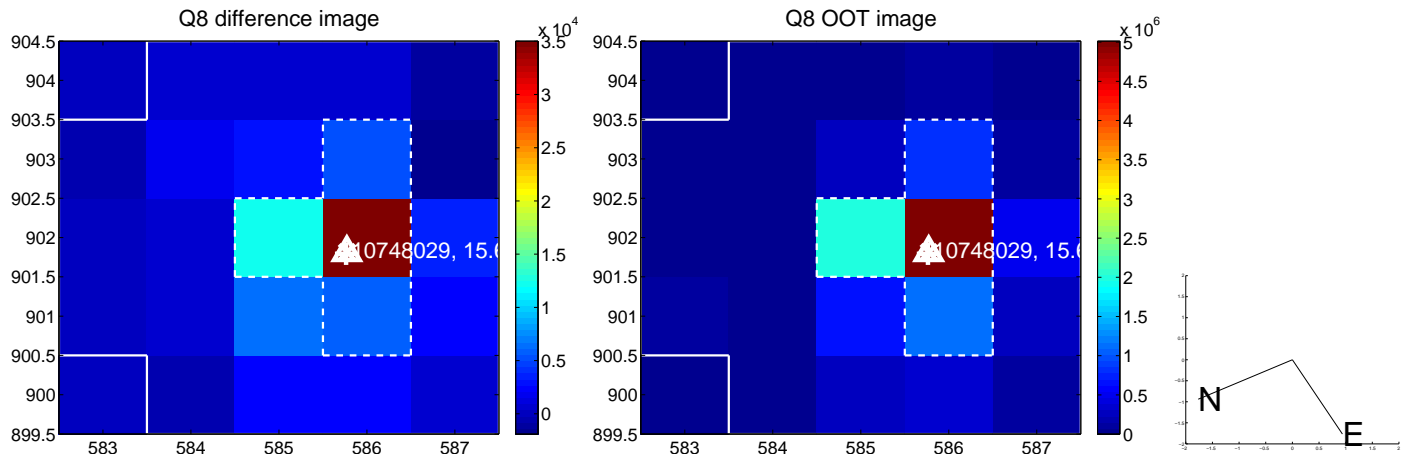
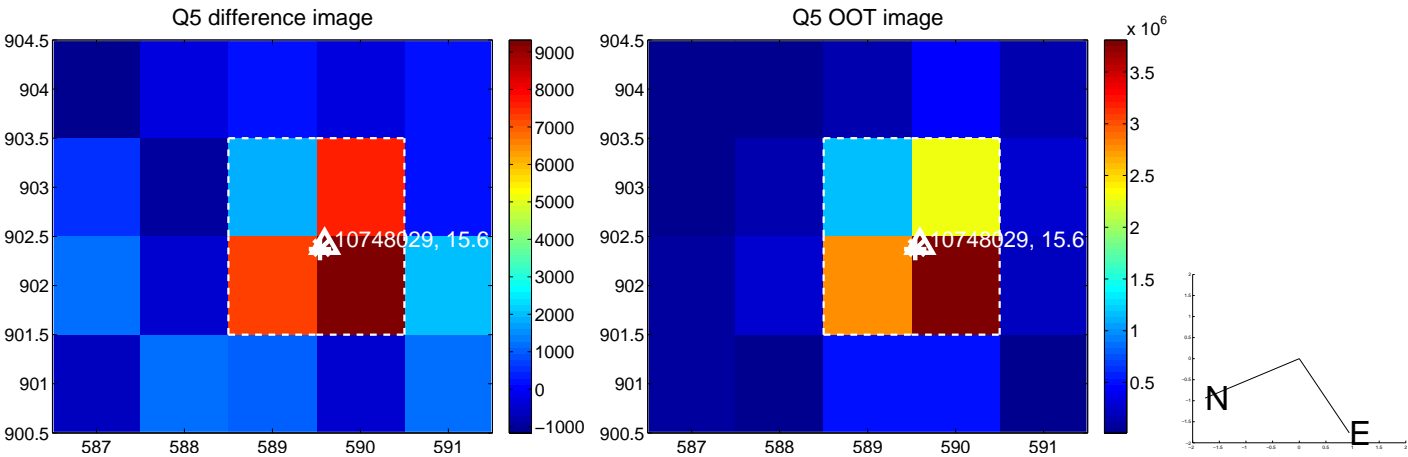


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ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

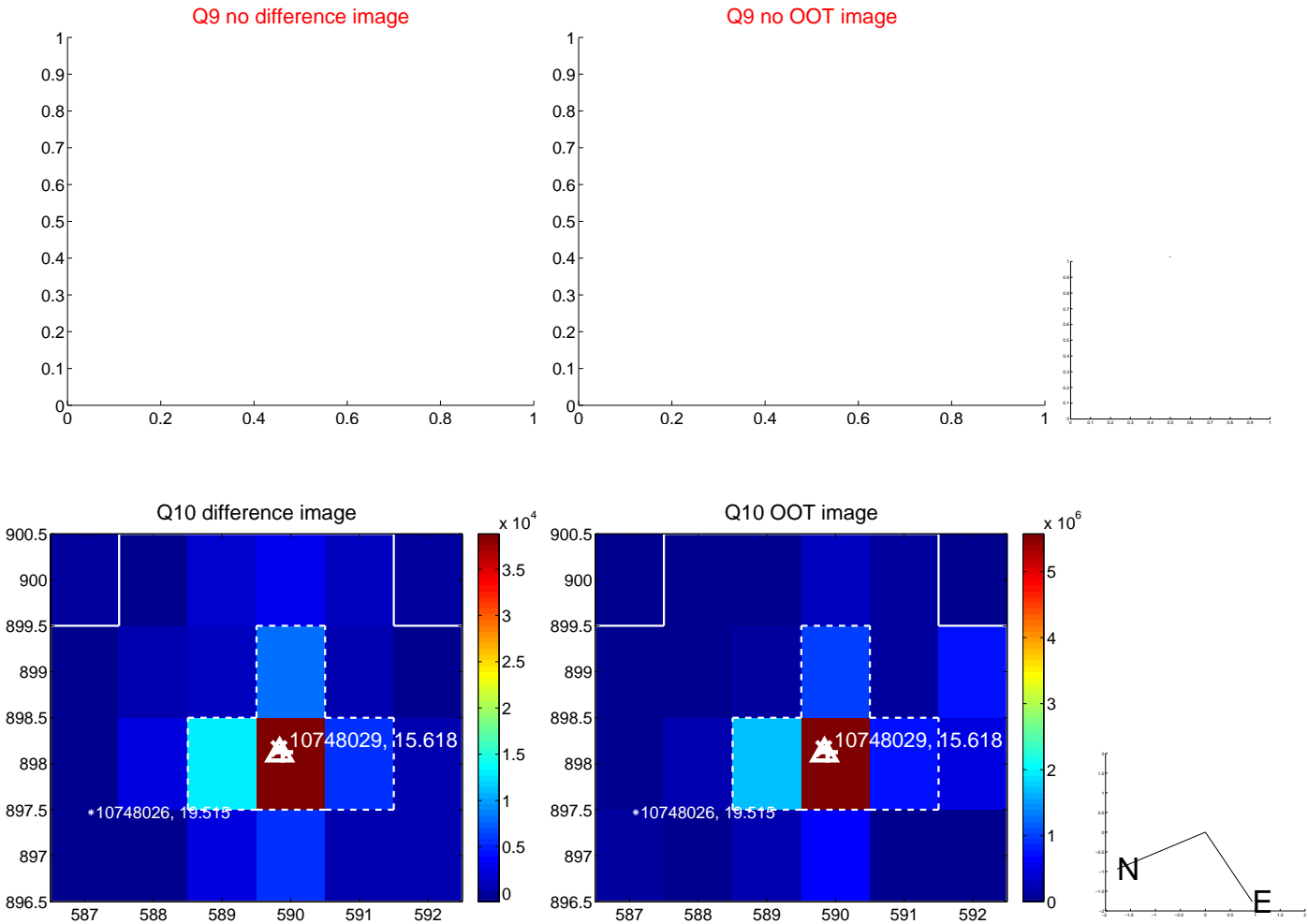
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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



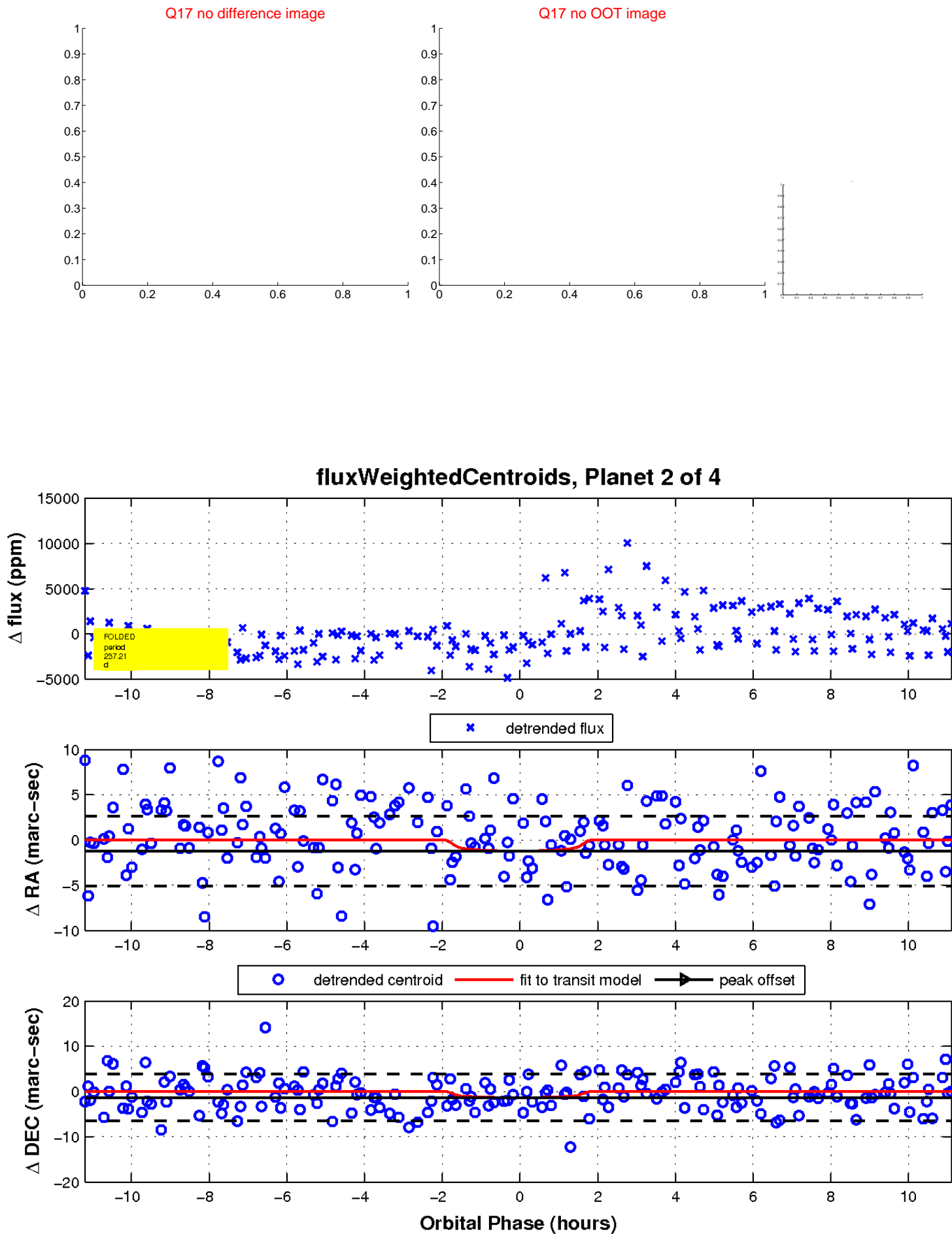
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

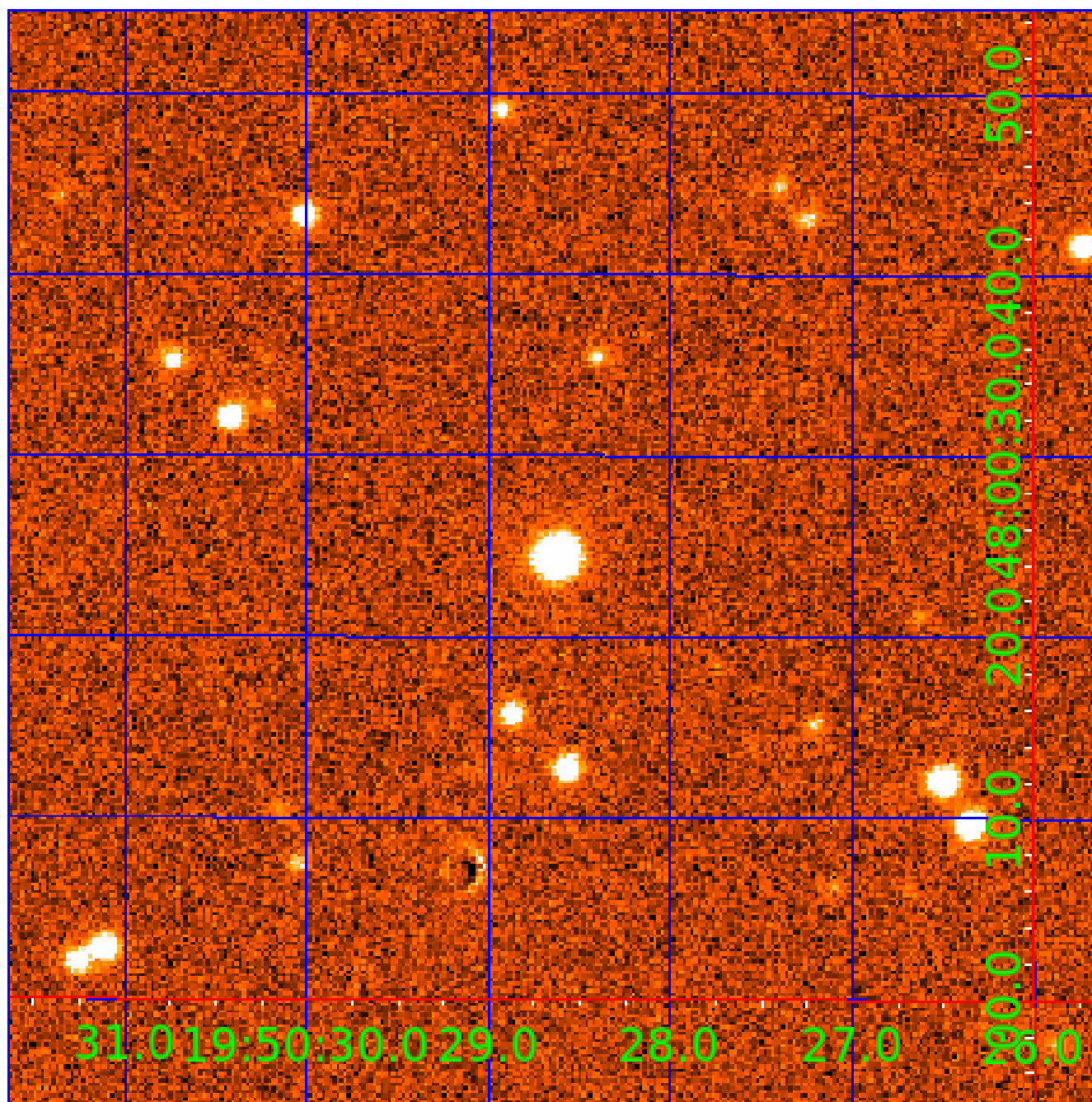


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 010748029

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})
010748029-01	OBS	No	370.365049	255.487347	2161.1	3.112	12.0	6.9	0.84	5538	3.95	0.64
010748029-02	OBS	No	237.207104	279.916653	3192.4	3.751	12.9	8.7	0.84	5538	5.03	1.15
010748029-03	OBS	No	357.548402	433.010380	2121.7	2.497	9.1	7.0	0.84	5538	3.87	0.67
010748029-04	OBS	No	325.464691	173.681110	2447.6	2.952	12.5	7.3	0.84	5538	4.12	0.76

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
010748029-01	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
010748029-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—LPP_DV—ALL_TRANS_CHASES—INCONSISTENT_TRANS
010748029-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—INCONSISTENT_TRANS—CENT_FEW_DIFFS
010748029-04	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

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

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

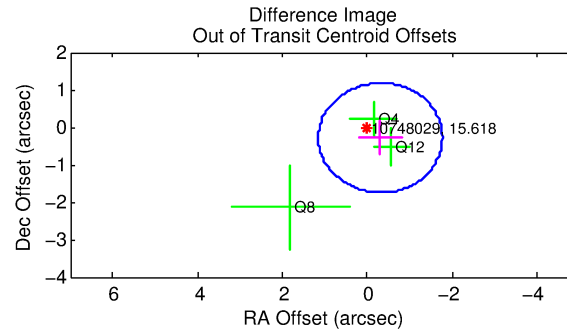
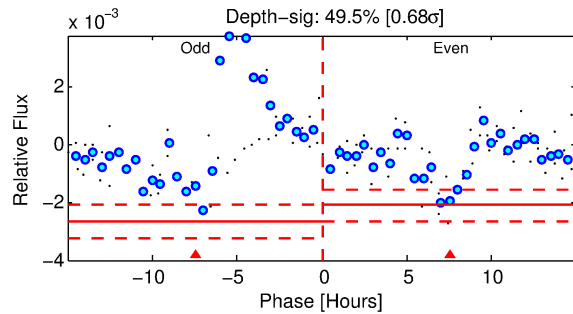
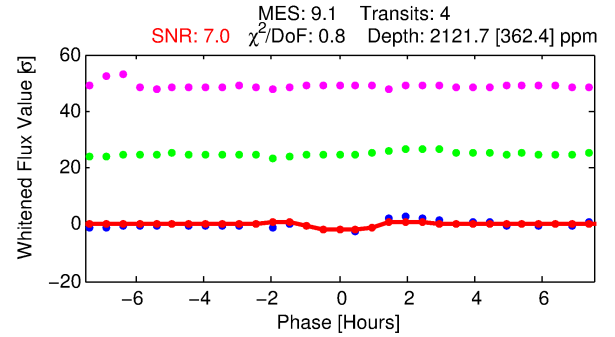
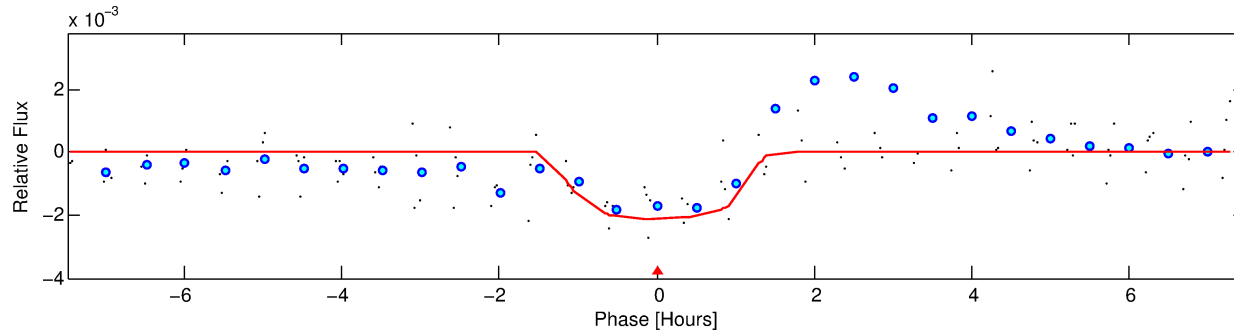
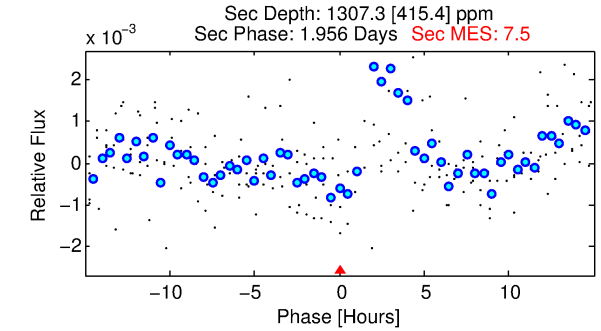
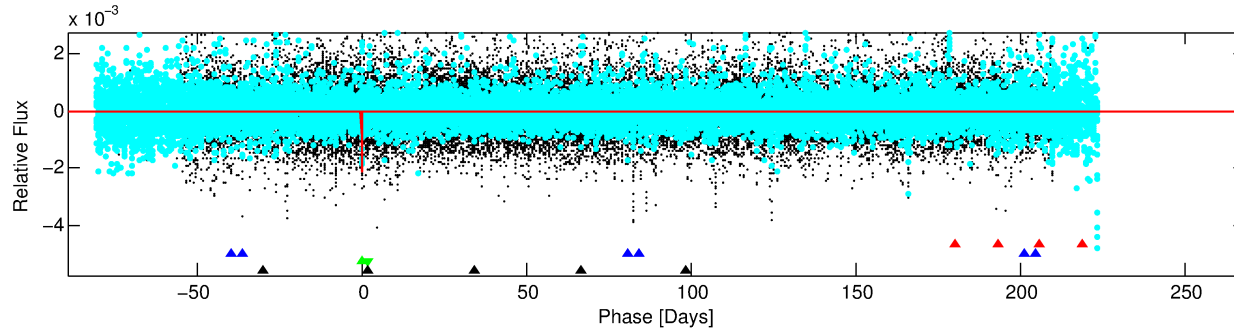
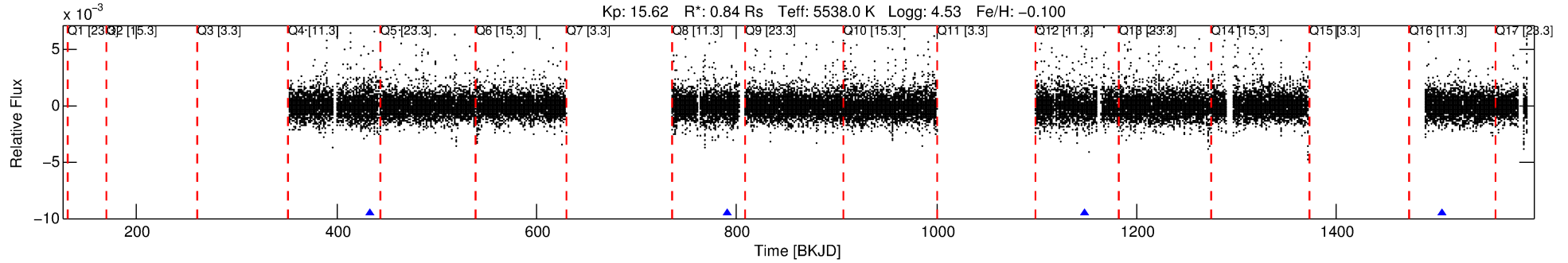
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 010748029-03

No Significant Match Found

DV One-Page Summary

KIC: 10748029 Candidate: 3 of 4 Period: 357.548 d



DV Fit Results:

Period = 357.54840 [0.00281] d
Epoch = 433.0104 [0.0052] BKJD
Rp/R* = 0.0420 [0.1947]
a/R* = 1097.57 [20815.45]
b = 0.28 [62.94]
Seff = 0.67 [0.21]
Teq = 231 [18] K
Rp = 3.87 [17.96] Re
a = 0.9480 [0.1882] AU
Ag = 43134.26 [400082.47] [0.11 σ]
Teffp = 5136 [11906] K [0.41 σ]

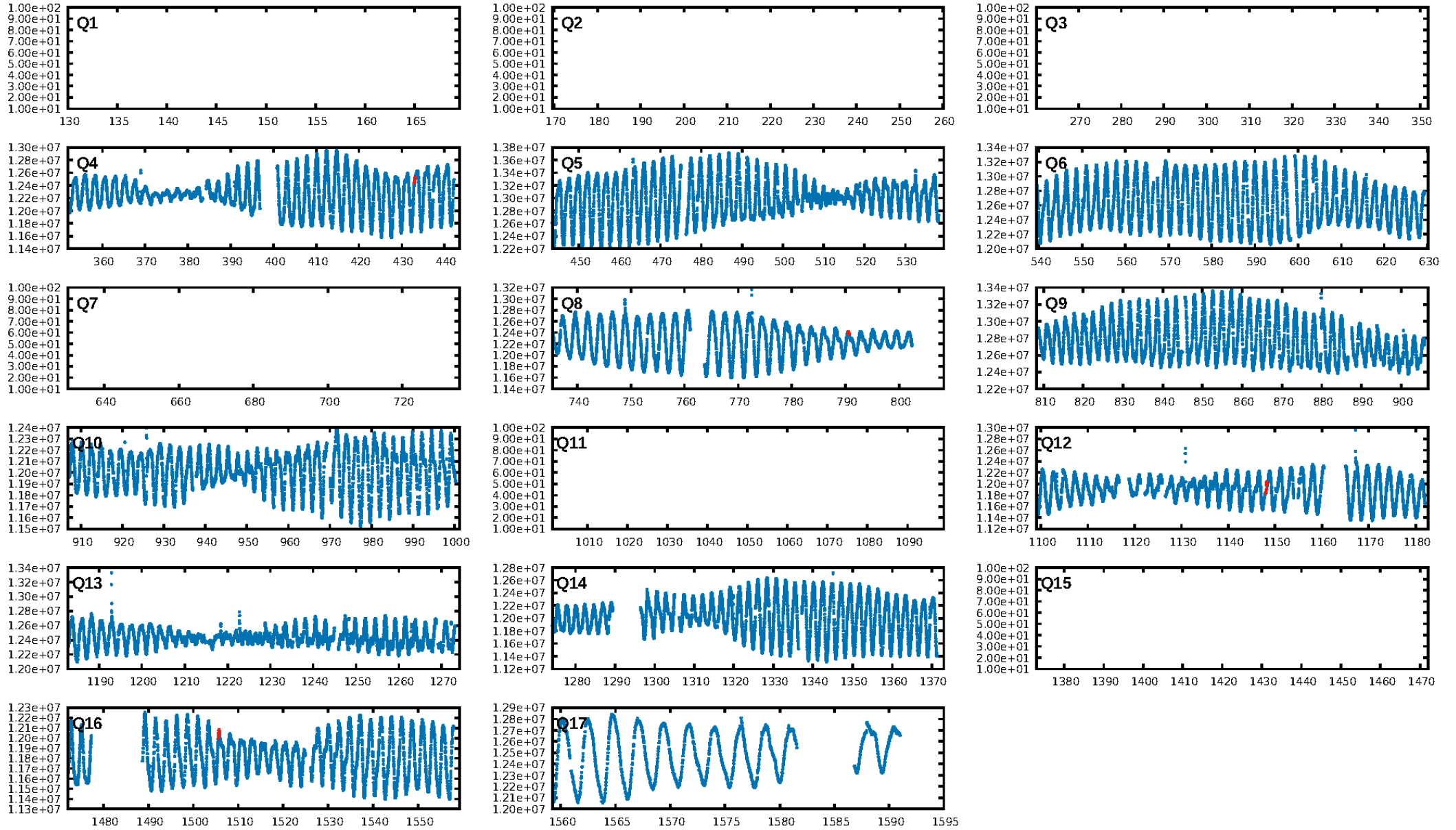
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [199.13 σ]
LongPeriod-sig: 100.0% [77.09 σ]
ModelChiSquare2-sig: 11.0%
ModelChiSquareGof-sig: 97.6%
Bootstrap-pfa: 5.54e-08
RollingBand-fgt: 1.00 [4/4]
GhostDiagnostic-chr: 1.863
Centroid-sig: 85.9%
Centroid-so: 0.749 arcsec [0.57 σ]
OotOffset-rm: 0.425 arcsec [0.87 σ]
OotOffset-st: 0/0/3/0 [3]
KicOffset-rm: 0.269 arcsec [0.55 σ]
KicOffset-st: 0/0/3/0 [3]
DiffImageQuality-fgm: 0.33 [1/3]
DiffImageOverlap-fno: 1.00 [3/3]

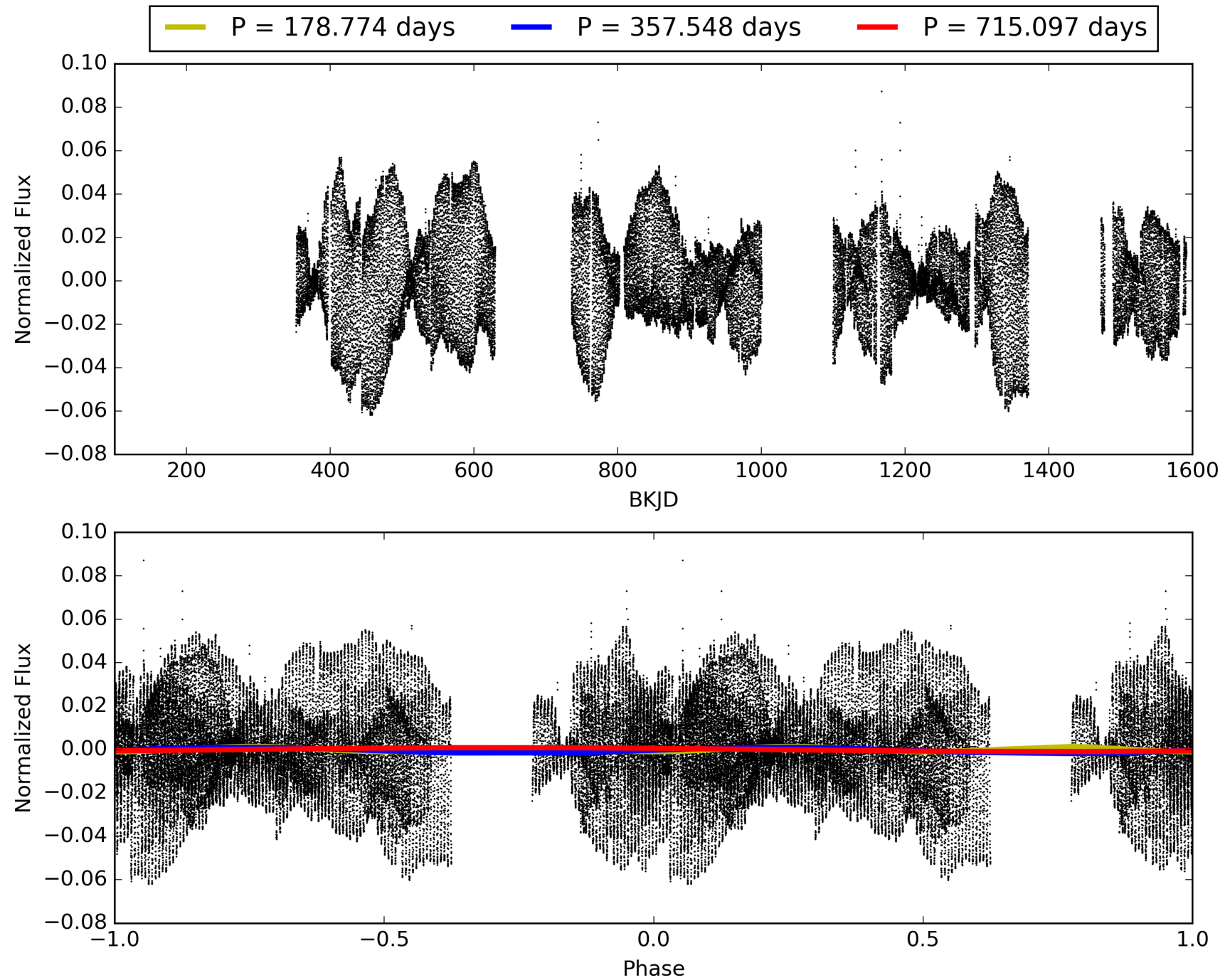
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 01-Feb-2016 00:56:08 Z

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

TCE 010748029-03, PDC Light Curves

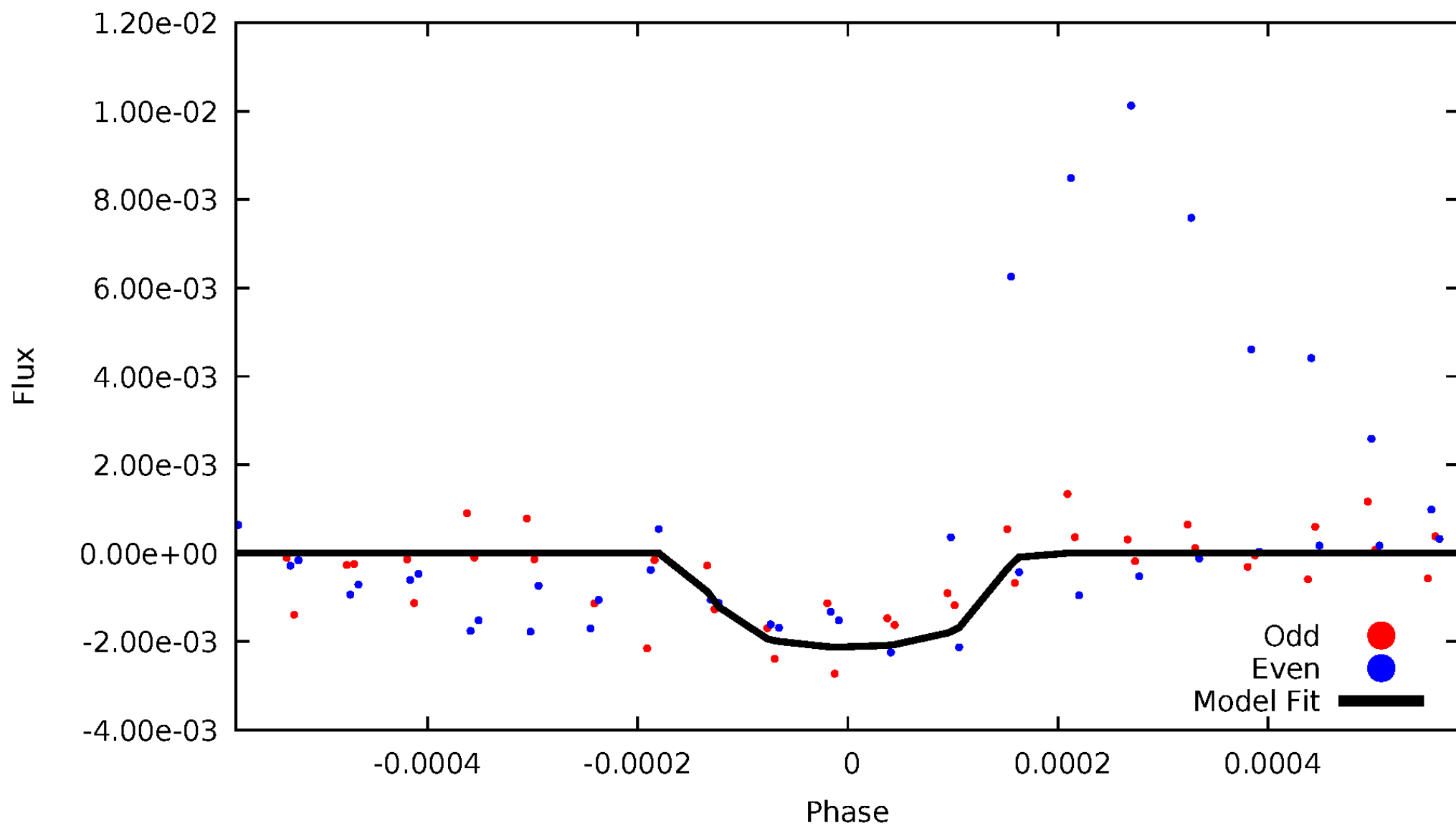


TCE 010748029-03



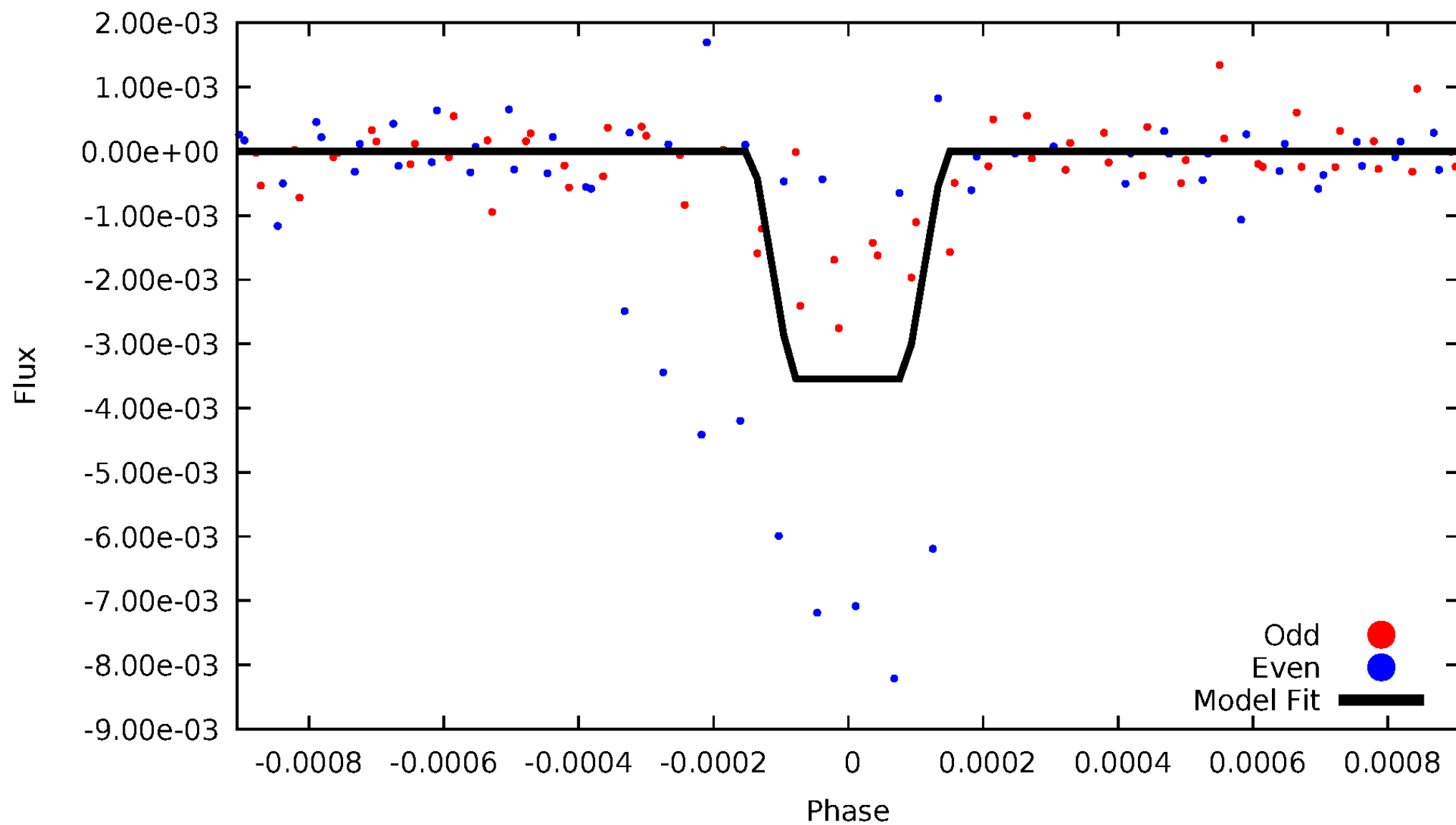
DV Odd/Even

TCE 010748029-03



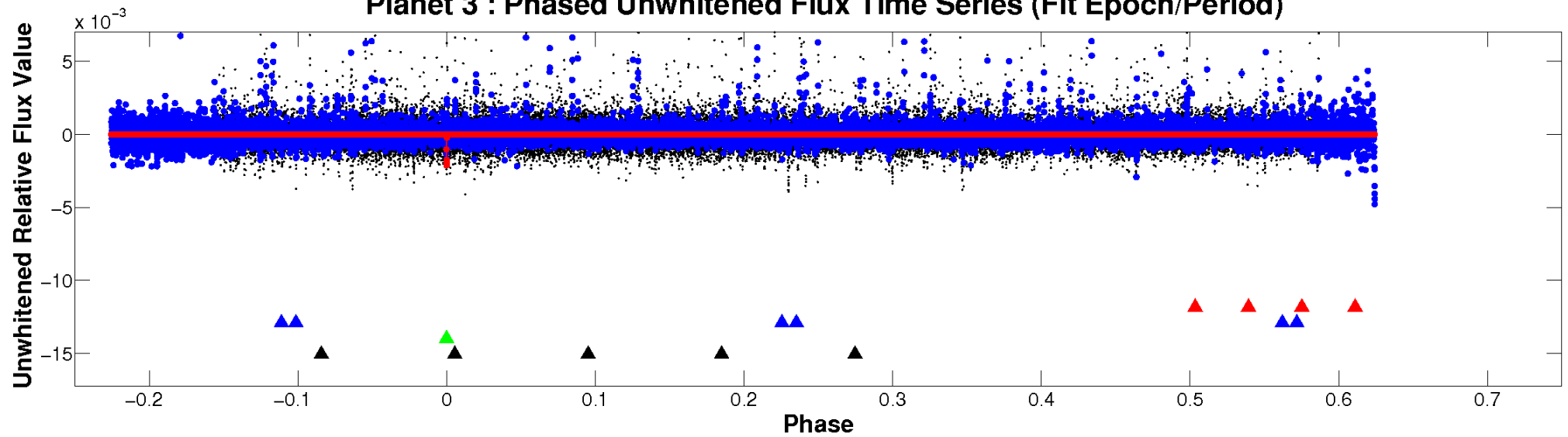
ALT Odd/Even

TCE 010748029-03

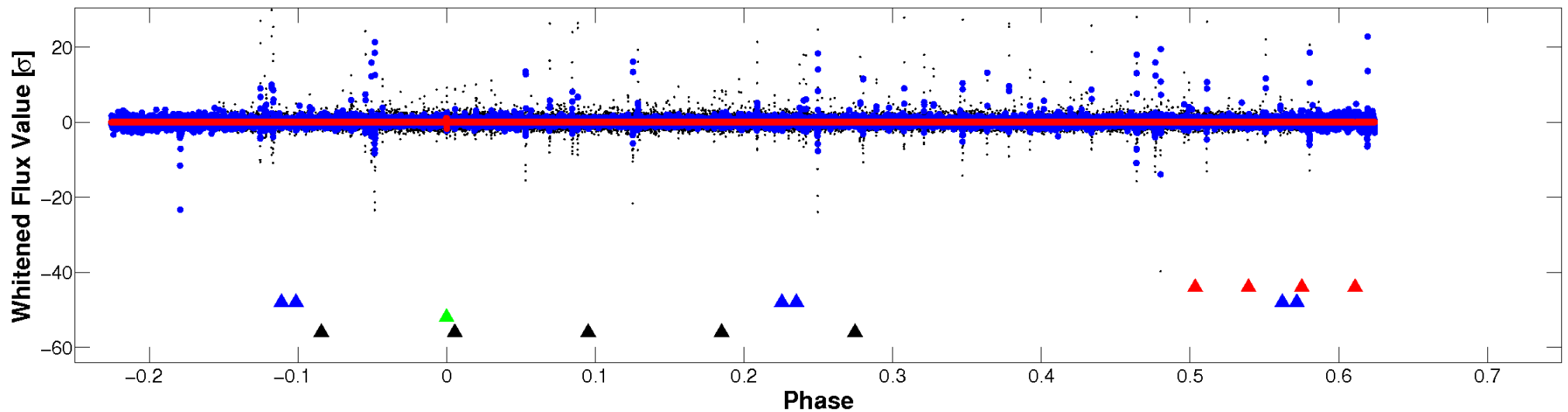


Non-Whitened Vs. Whitened Light Curve

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

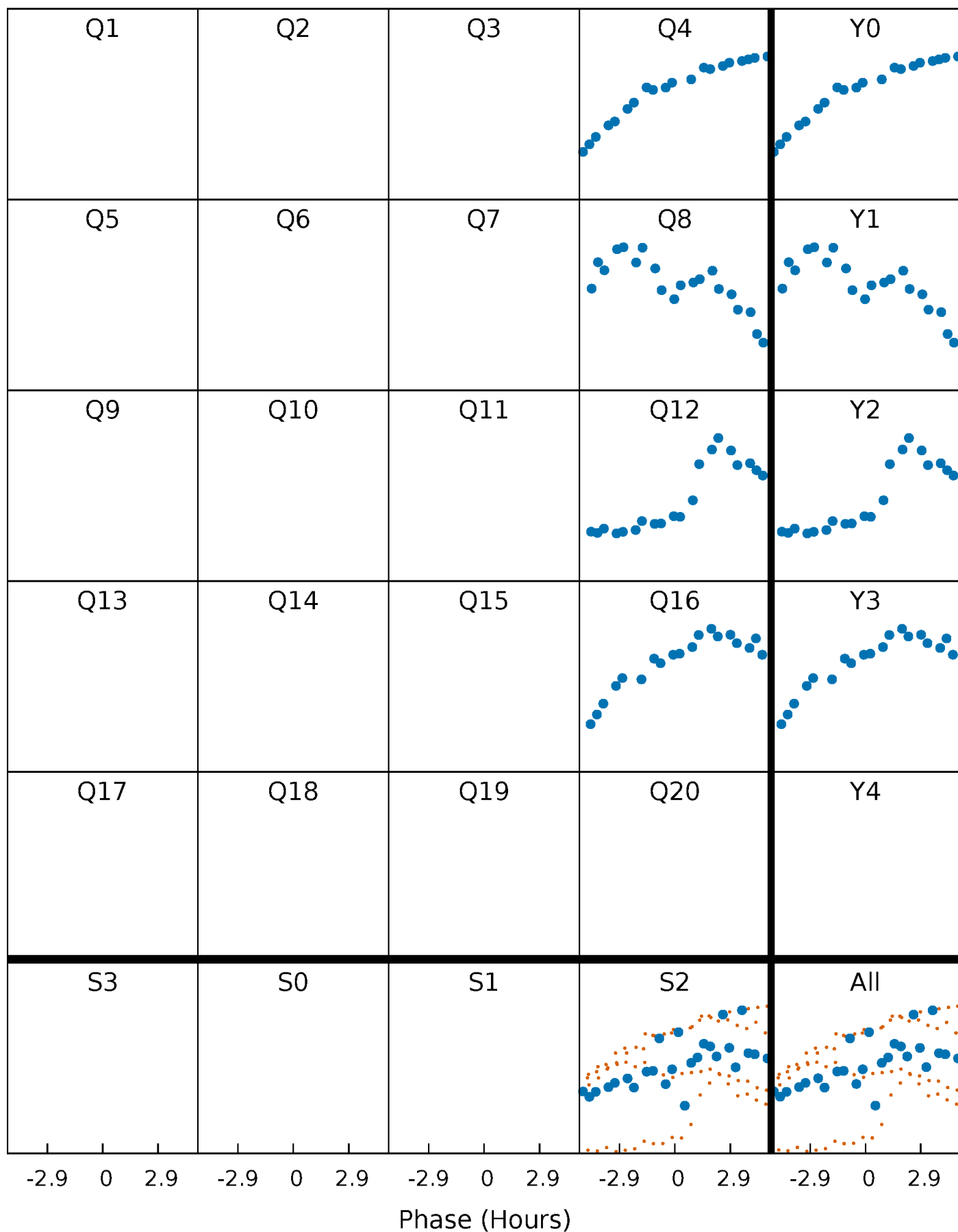


Planet 3 : Phased Whitened Flux Time Series (Fit Epoch/Period)



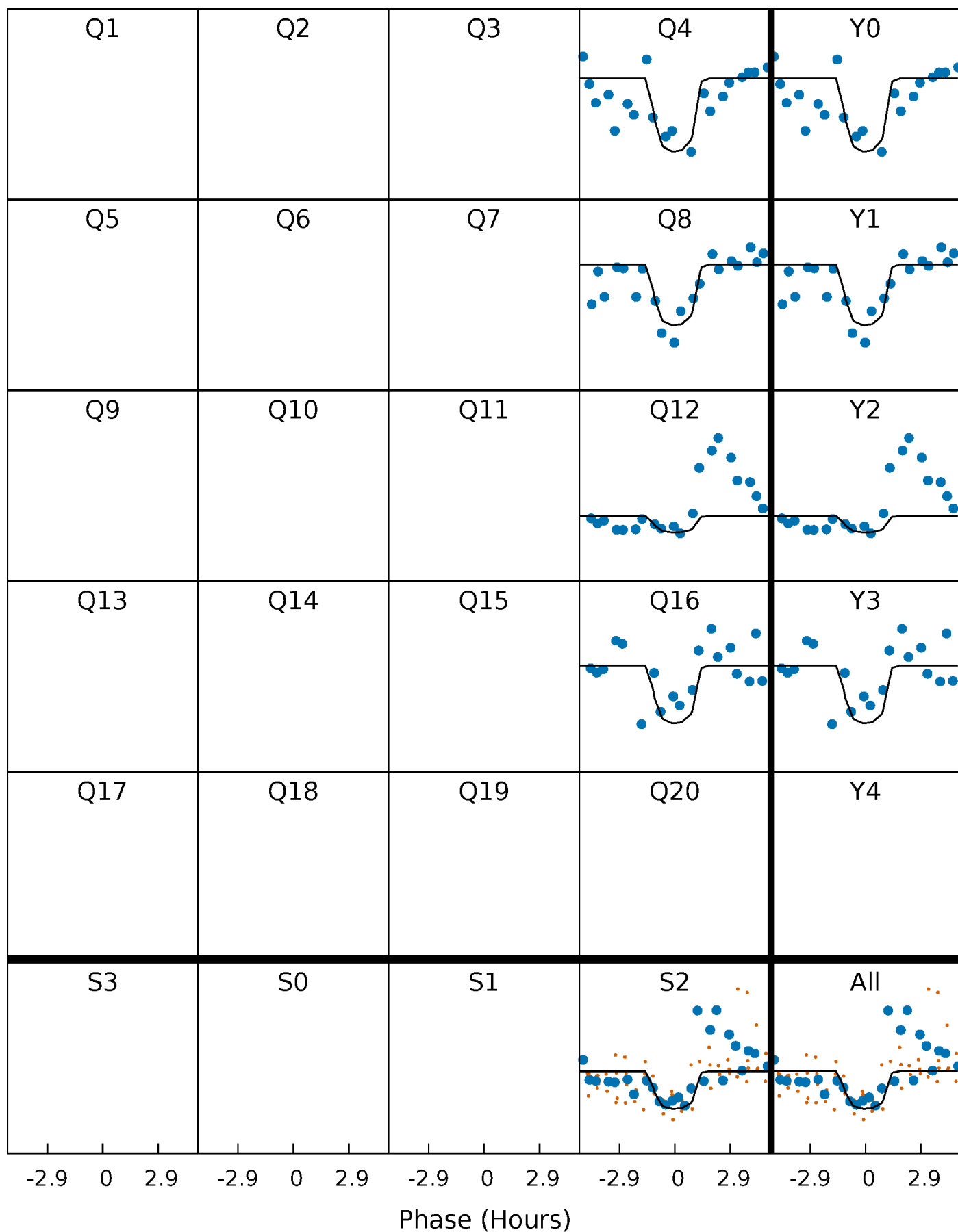
PDC Quarter-Phased Transit Curves

TCE 010748029-03 P=357.548402 Days $T_0=433.010380$ (BKJD)



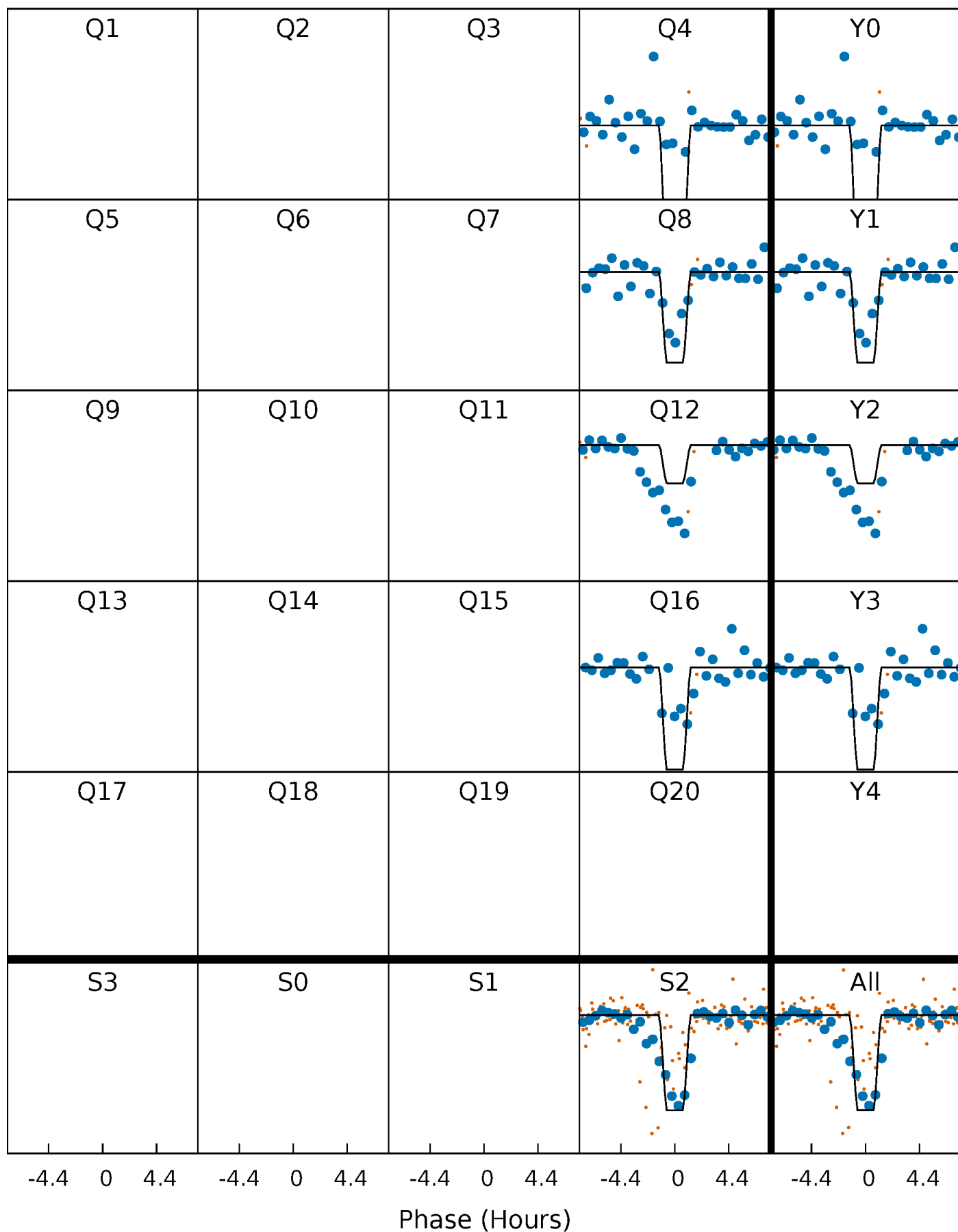
DV Quarter-Phased Transit Curves

TCE 010748029-03 P=357.548402 Days $T_0=433.010380$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

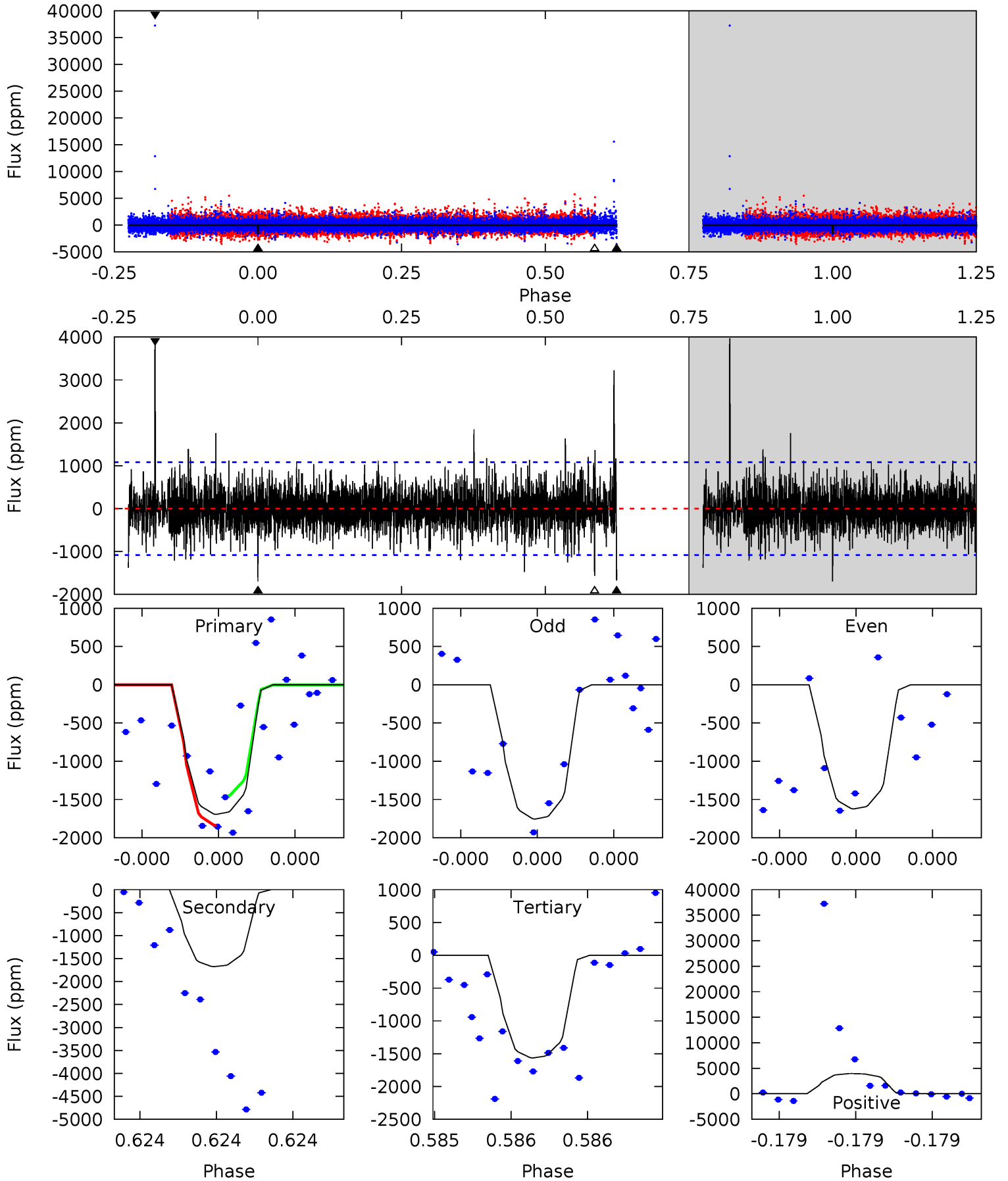
TCE 010748029-03 $P=357.538185$ Days $T_0=433.021113$ (BKJD)



DV Model-Shift Uniqueness Test

010748029-03, P = 357.548402 Days, E = 75.461978 Days

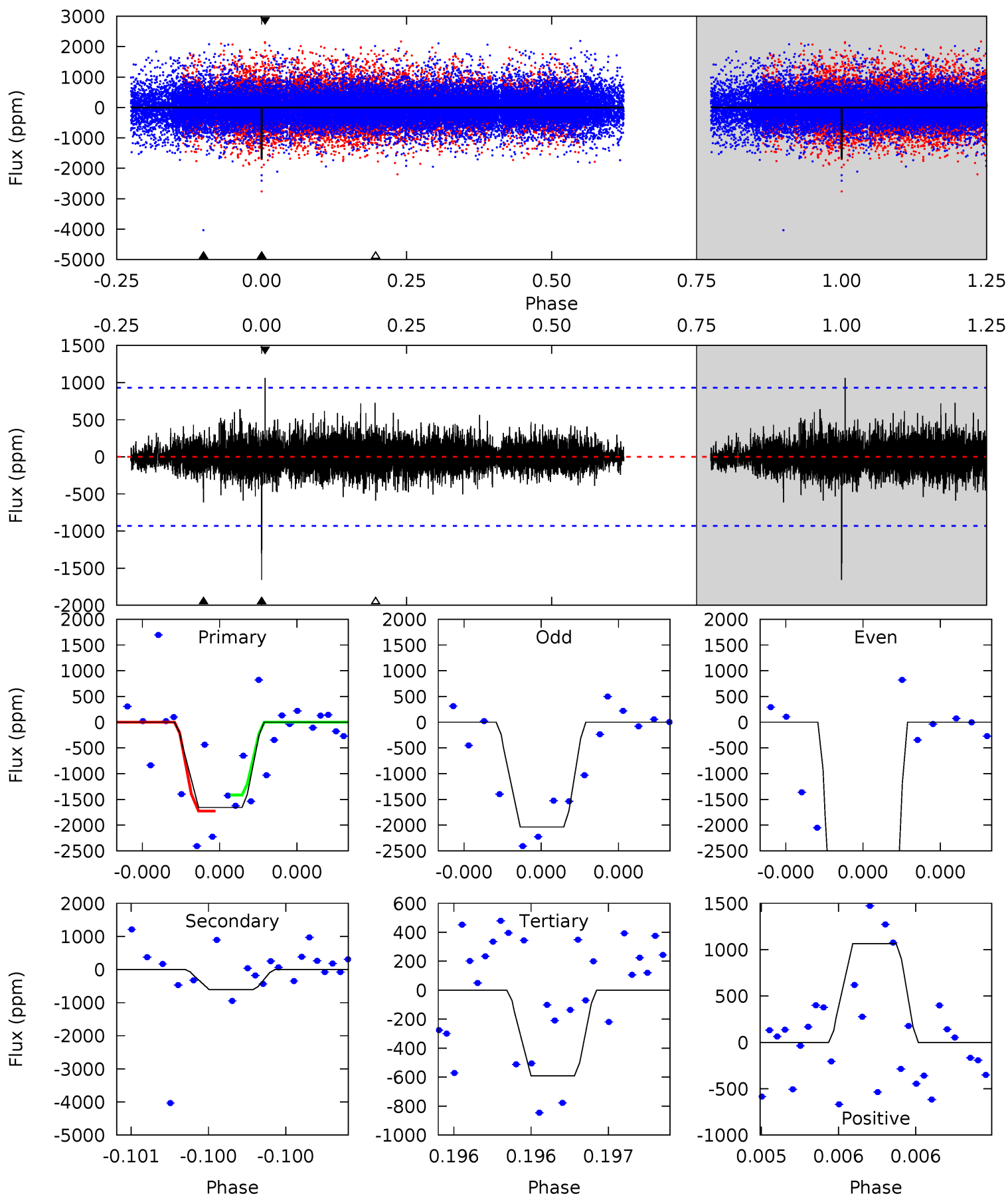
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
8.89	8.79	8.21	20.8	5.67	3.62	1.84	0.68	-11.9	0.58	-12.0	0.29	1.02	0.70	0.99



Alt Model-Shift Uniqueness Test

010748029-03, P = 357.538185 Days, E = 75.482928 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	3.73	3.61	6.49	5.69	3.65	0.84	6.50	3.62	0.12	-2.76	19.0	1.70	0.39	1.00



Stellar Parameters For KIC 010748029

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	5538^{+182}_{-182}	$4.534^{+0.053}_{-0.158}$	$-0.100^{+0.300}_{-0.300}$	$0.844^{+0.199}_{-0.085}$	$0.889^{+0.092}_{-0.092}$	$2.081^{+0.457}_{-0.938}$
	+3%/-3%	+1%/-3%	+300%/-300%	+24%/-10%	+10%/-10%	+22%/-45%
Source	KIC0	KIC0	KIC0	DSEP		

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

Secondary Eclipse Parameters for KIC 010748029-03 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	-1676 ± 191	$14.16^{+16.58}_{-9.36}$	328^{+20}_{-15}	3414^{+1575}_{-667}	4190^{+31048}_{-3319}
Alt.	-611 ± 164	$14.95^{+14.46}_{-10.03}$	327^{+20}_{-15}	2879^{+1221}_{-464}	1270^{+10943}_{-957}

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 $A_{obs} \gg 1.0$

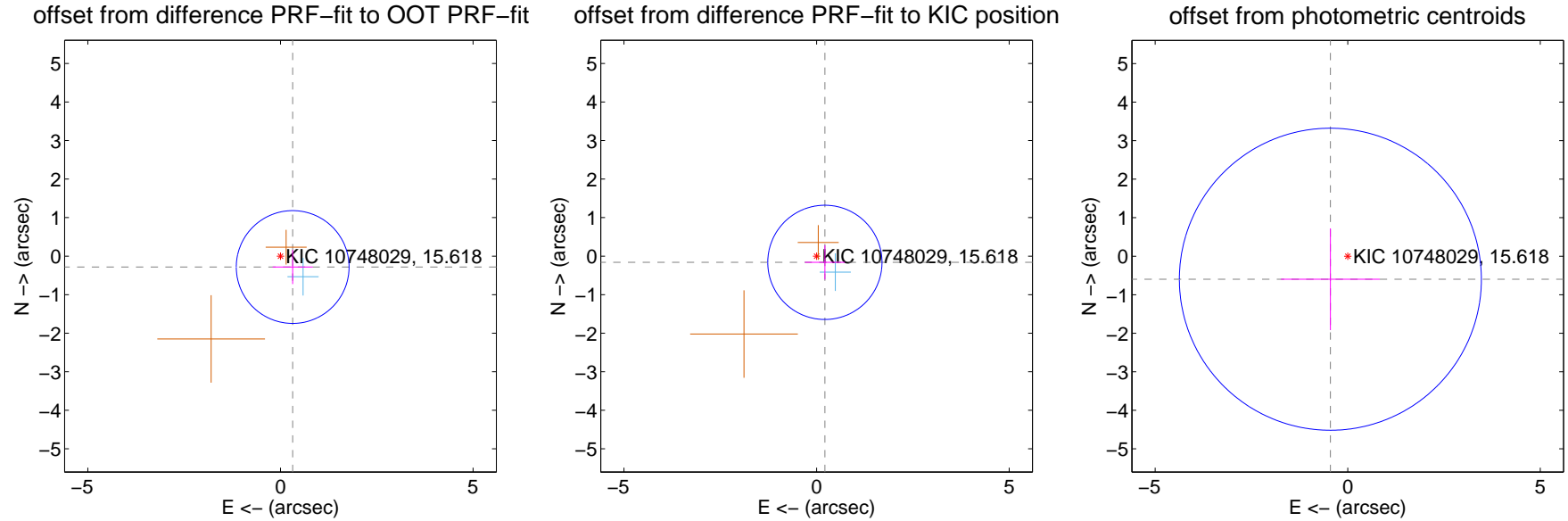
DV Centroid Data

Supplemental centroid analysis for 010748029-03. Kepler magnitude: 15.62. Transit SNR 6.95

There are 1 quarters with good PRF difference image offsets

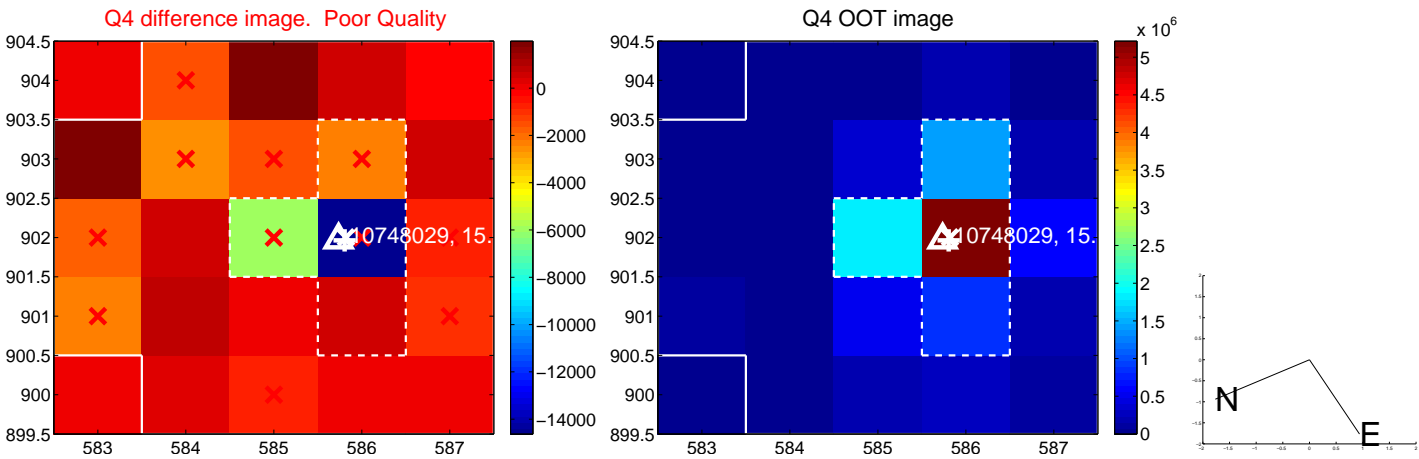
The direct PRF centroid is offset from the target star catalog position by about 0.16 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.425 ± 0.488	0.87	-0.317 ± 0.521	-0.283 ± 0.444
PRF-fit source offset from KIC position	0.269 ± 0.494	0.55	-0.216 ± 0.521	-0.162 ± 0.444
photometric centroid source offset	0.75 ± 1.31	0.57	0.45 ± 1.28	-0.60 ± 1.32

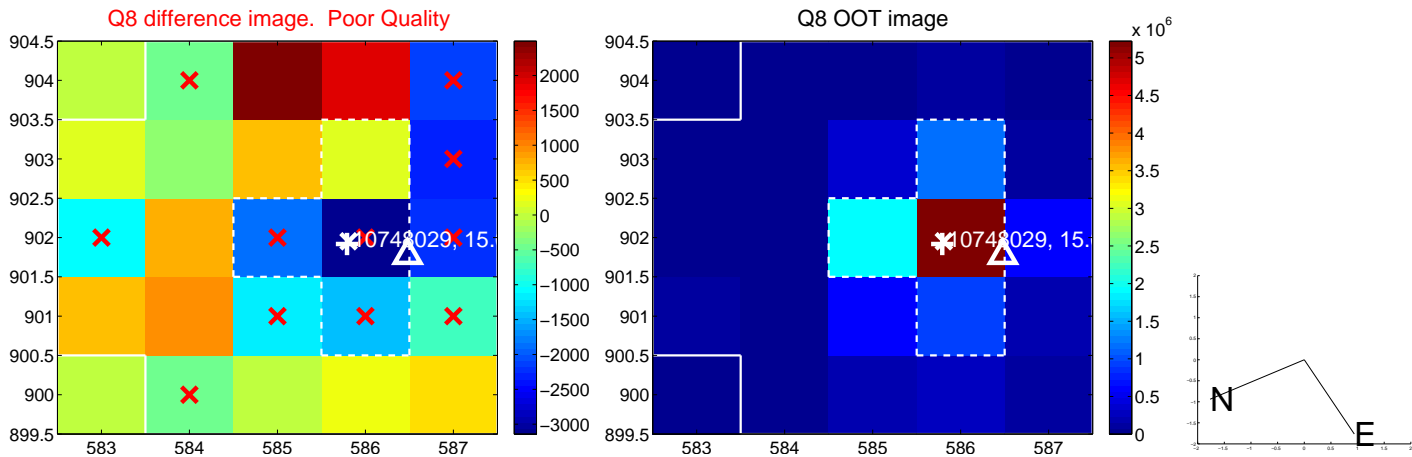
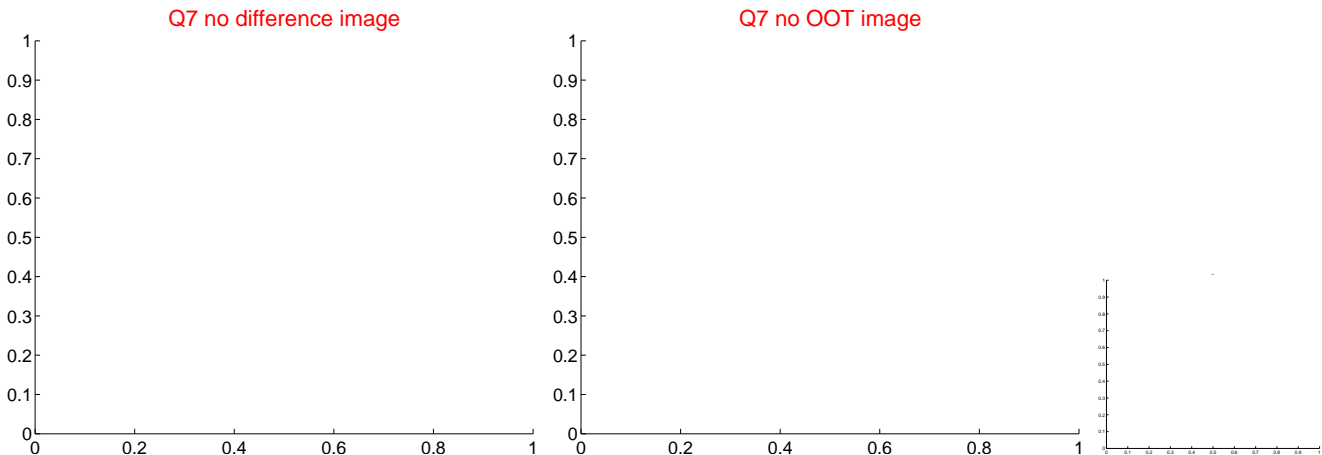
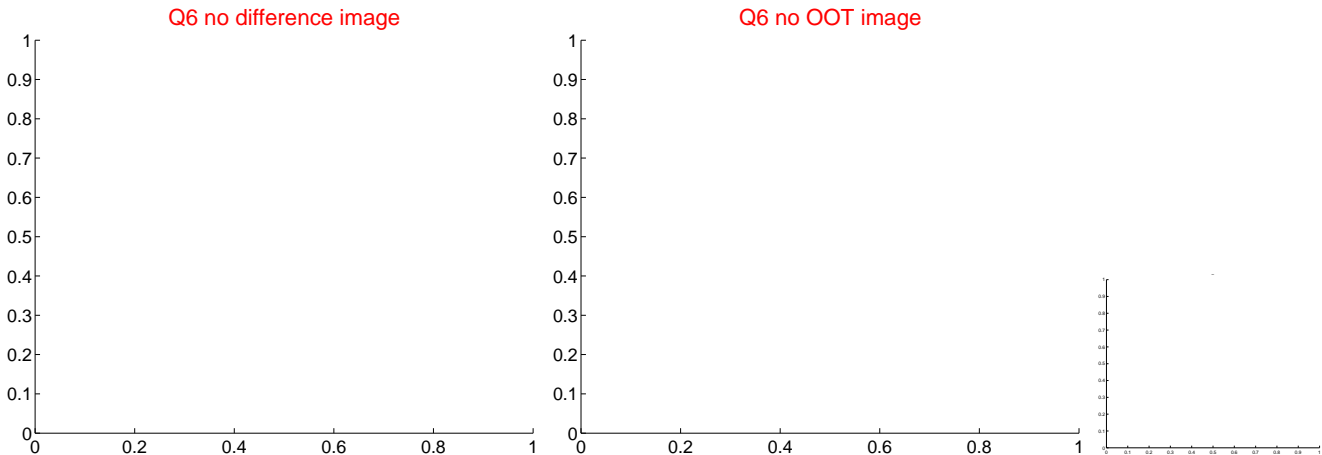
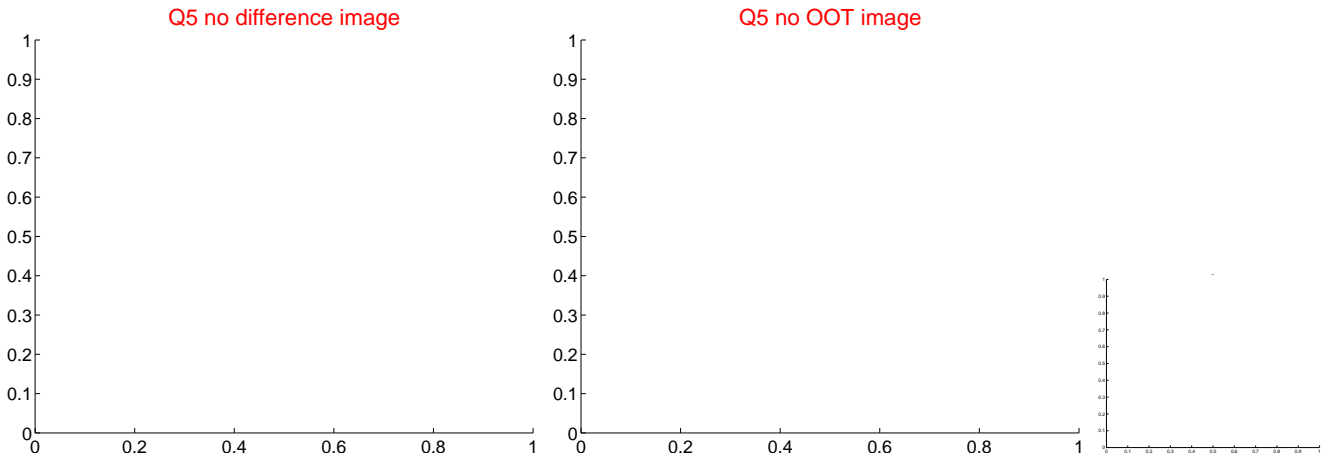


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ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

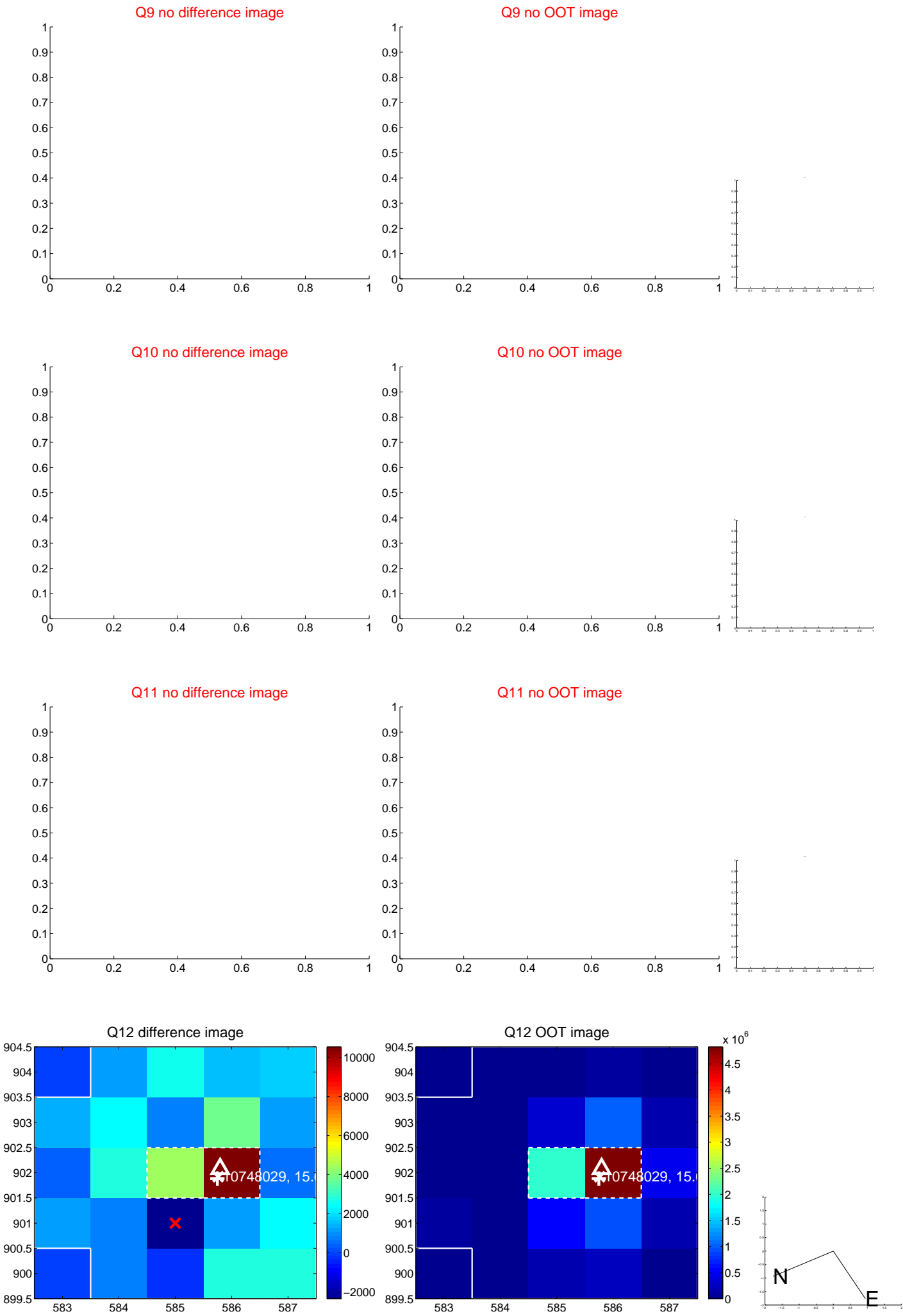
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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



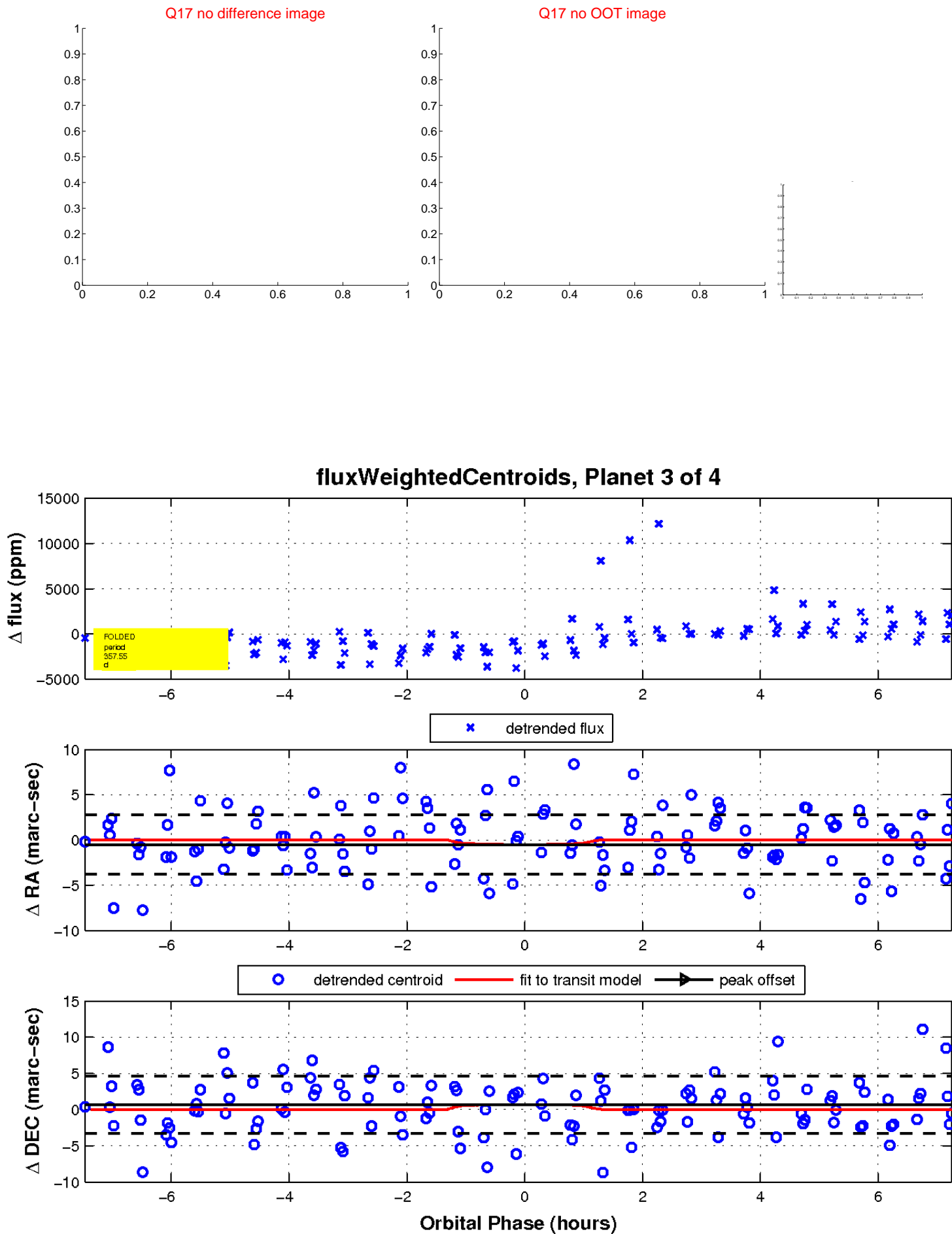
white ×: KIC target position; +: OOT centroid; △: difference centroid. red ✕: large negative pixel value.



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

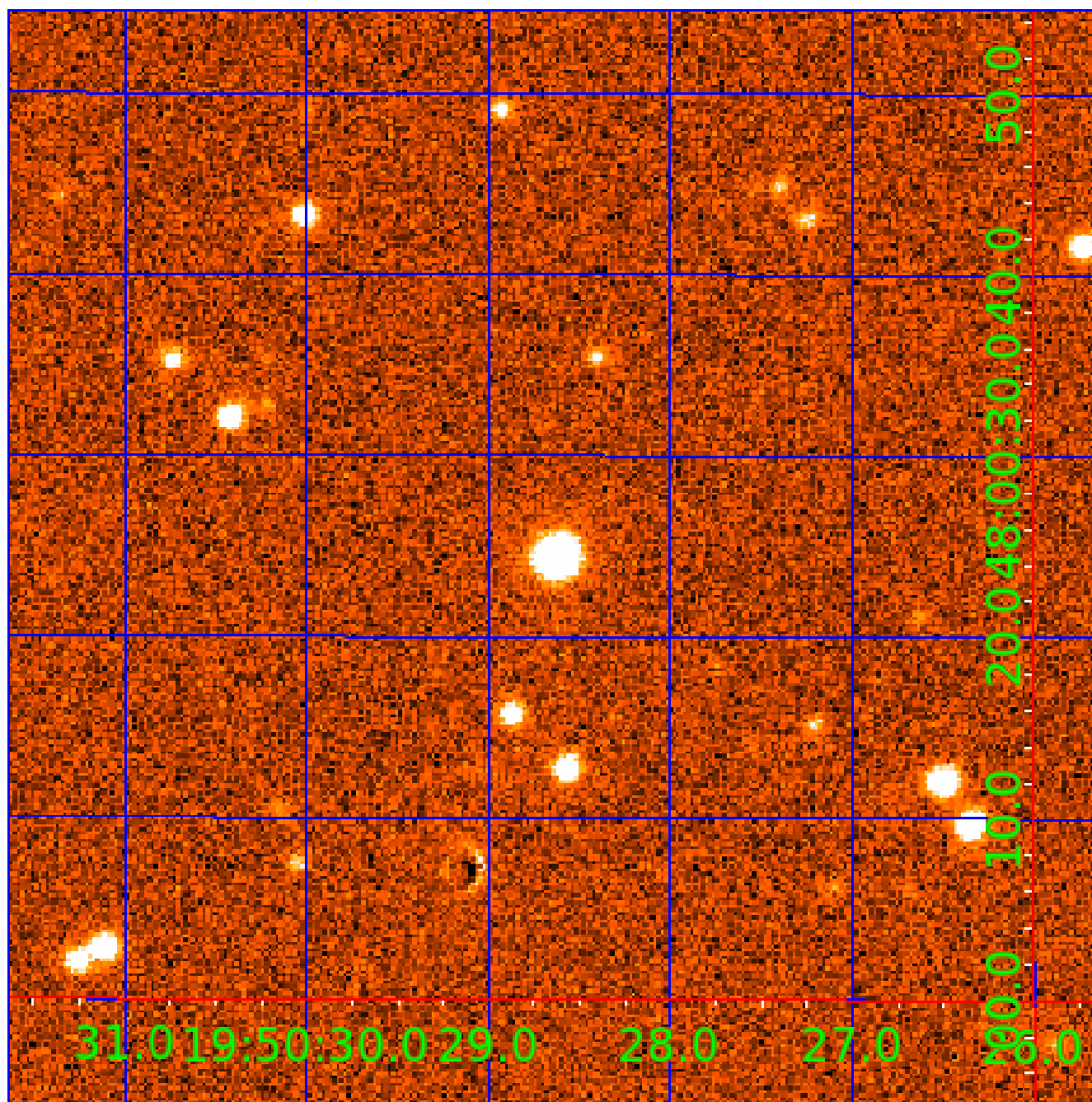


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 010748029

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})
010748029-01	OBS	No	370.365049	255.487347	2161.1	3.112	12.0	6.9	0.84	5538	3.95	0.64
010748029-02	OBS	No	237.207104	279.916653	3192.4	3.751	12.9	8.7	0.84	5538	5.03	1.15
010748029-03	OBS	No	357.548402	433.010380	2121.7	2.497	9.1	7.0	0.84	5538	3.87	0.67
010748029-04	OBS	No	325.464691	173.681110	2447.6	2.952	12.5	7.3	0.84	5538	4.12	0.76

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
010748029-01	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
010748029-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—LPP_DV—ALL_TRANS_CHASES—INCONSISTENT_TRANS
010748029-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—INCONSISTENT_TRANS—CENT_FEW_DIFFS
010748029-04	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

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

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

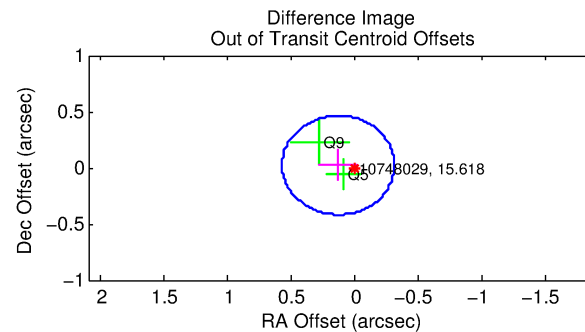
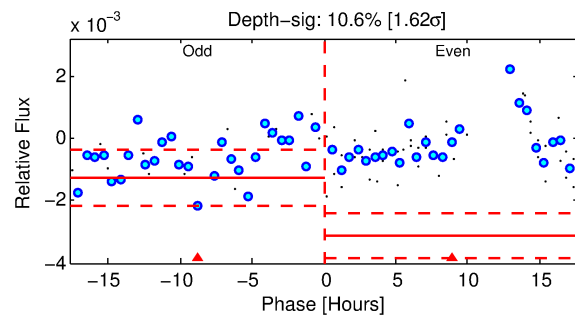
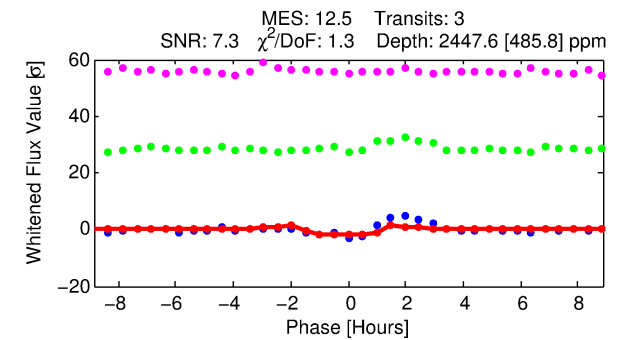
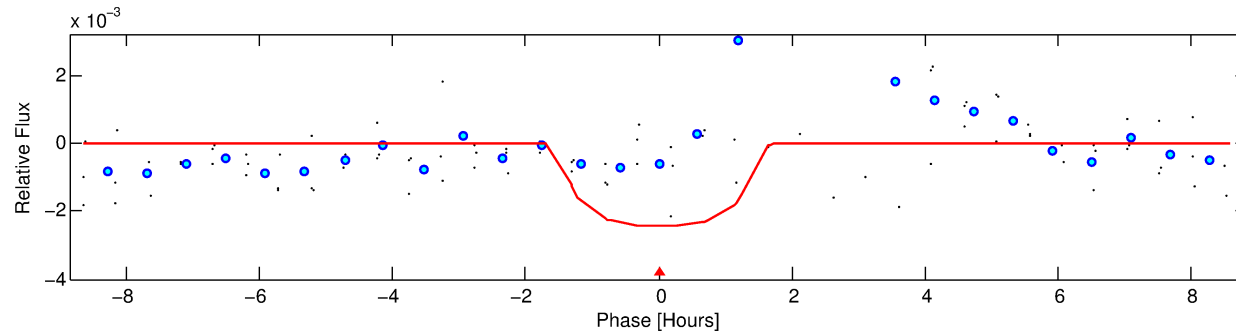
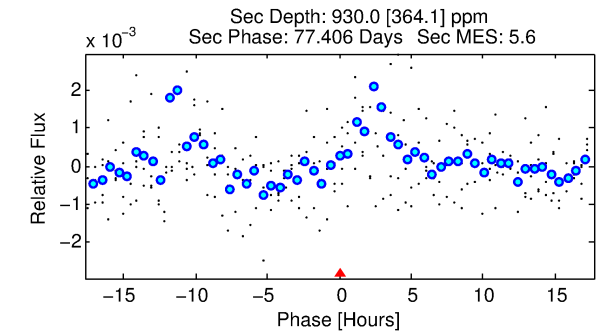
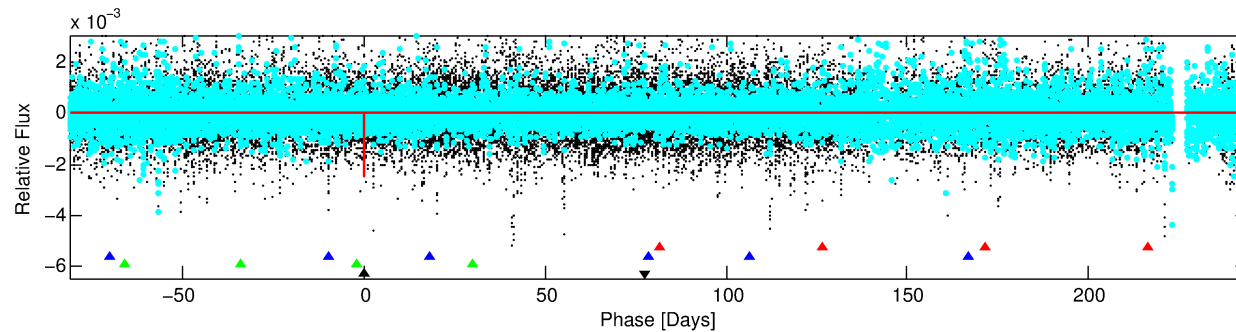
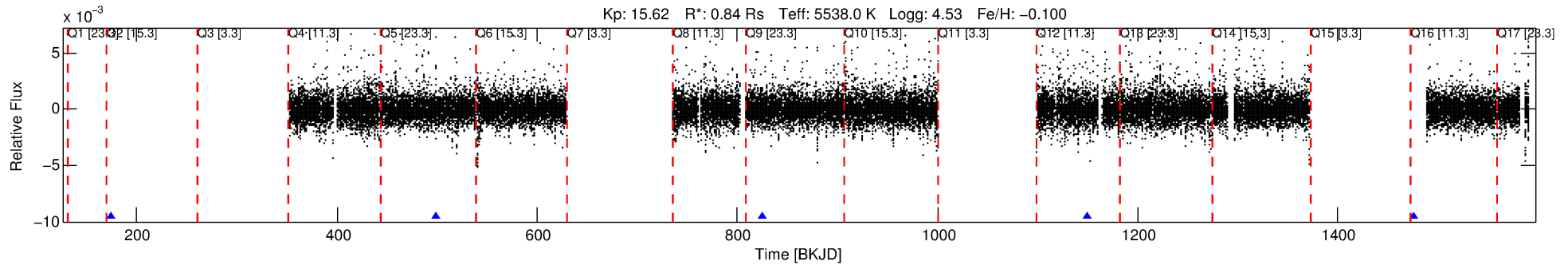
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 010748029-04

No Significant Match Found

DV One-Page Summary

KIC: 10748029 Candidate: 4 of 4 Period: 325.465 d



DV Fit Results:

Period = 325.46469 [0.00522] d
Epoch = 173.6811 [0.0111] BKJD
Rp/R* = 0.0447 [0.0669]
a/R* = 879.80 [5331.82]
b = 0.01 [413.04]
Seff = 0.76 [0.24]
Teq = 238 [19] K
Rp = 4.12 [6.24] Re
a = 0.8904 [0.1768] AU
Ag = 23888.94 [72393.87] [0.33 σ]
Teffp = 4572 [3451] K [1.26 σ]

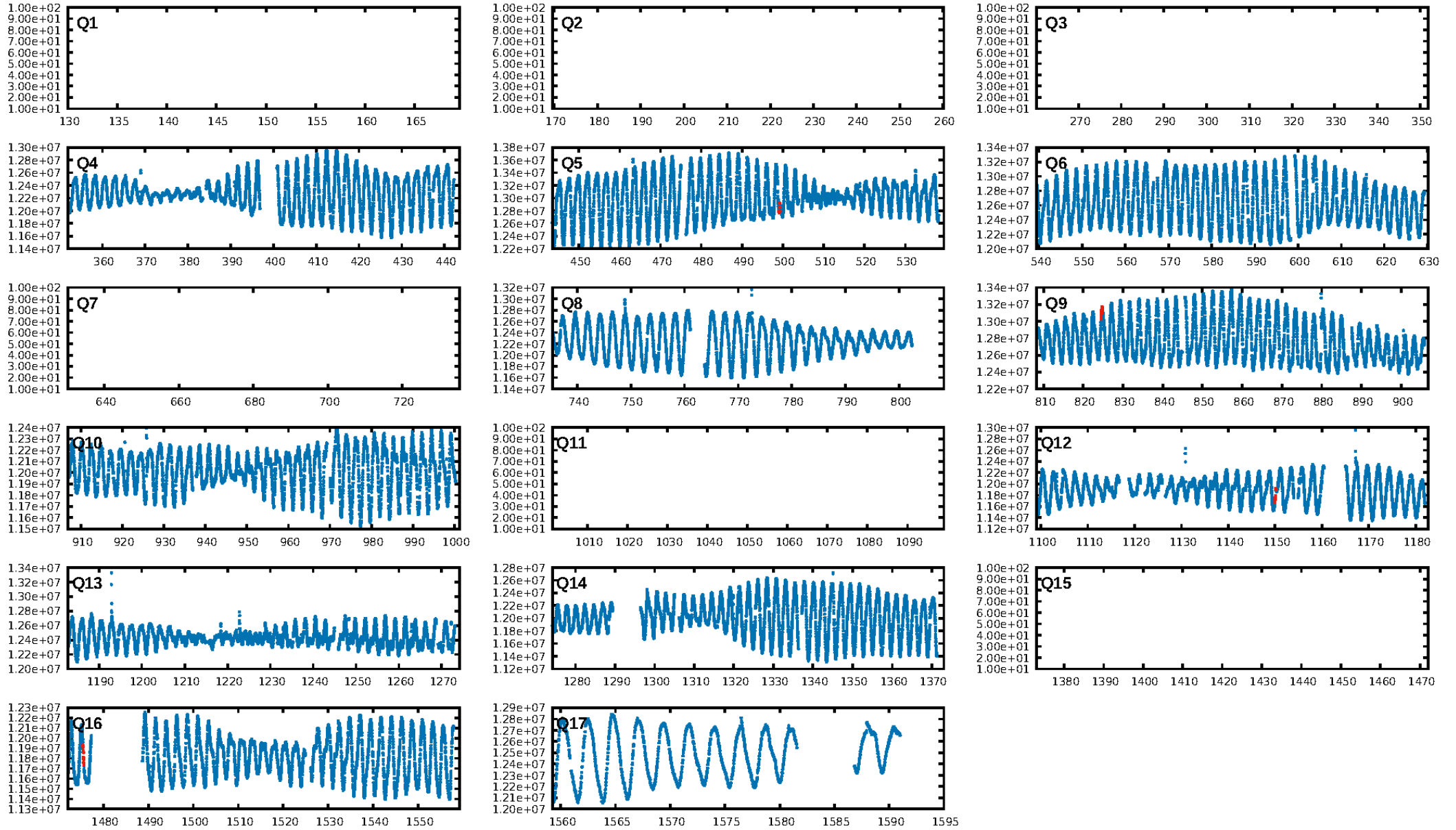
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [443.75 σ]
LongPeriod-sig: 100.0% [199.13 σ]
ModelChiSquare2-sig: 3.3%
ModelChiSquareGof-sig: 84.8%
Bootstrap-pfa: 4.72e-12
RollingBand-fgt: 1.00 [3/3]
GhostDiagnostic-chr: -7.559
Centroid-sig: 69.1%
Centroid-so: 0.402 arcsec [0.36 σ]
OotOffset-rm: 0.137 arcsec [0.93 σ]
KicOffset-rm: 0.193 arcsec [1.32 σ]
OotOffset-st: 0/0/0/2 [2]
KicOffset-st: 0/0/0/2 [2]
DiffImageQuality-fgm: 0.50 [1/2]
DiffImageOverlap-fno: 1.00 [3/3]

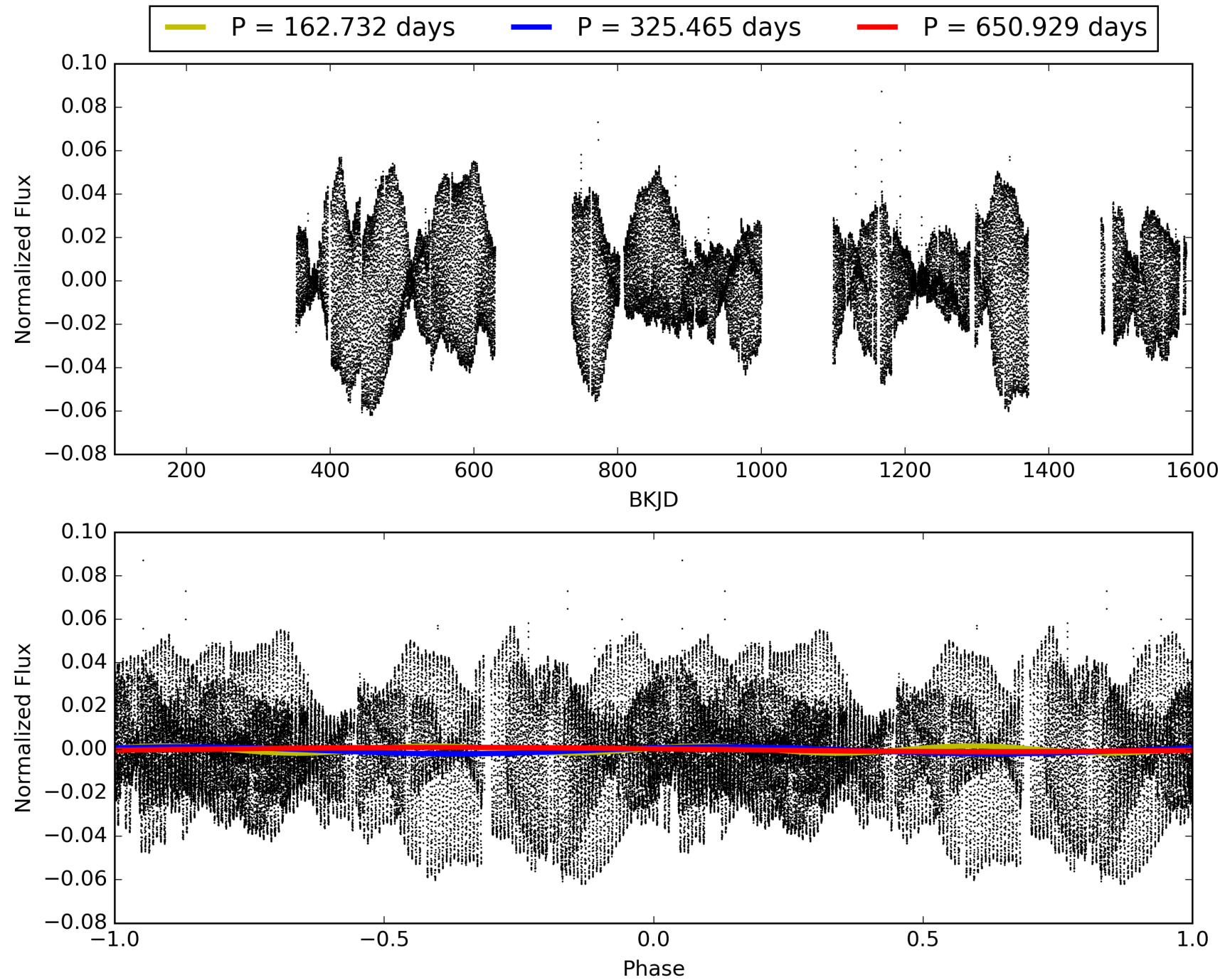
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 01-Feb-2016 00:56:20 Z

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

TCE 010748029-04, PDC Light Curves

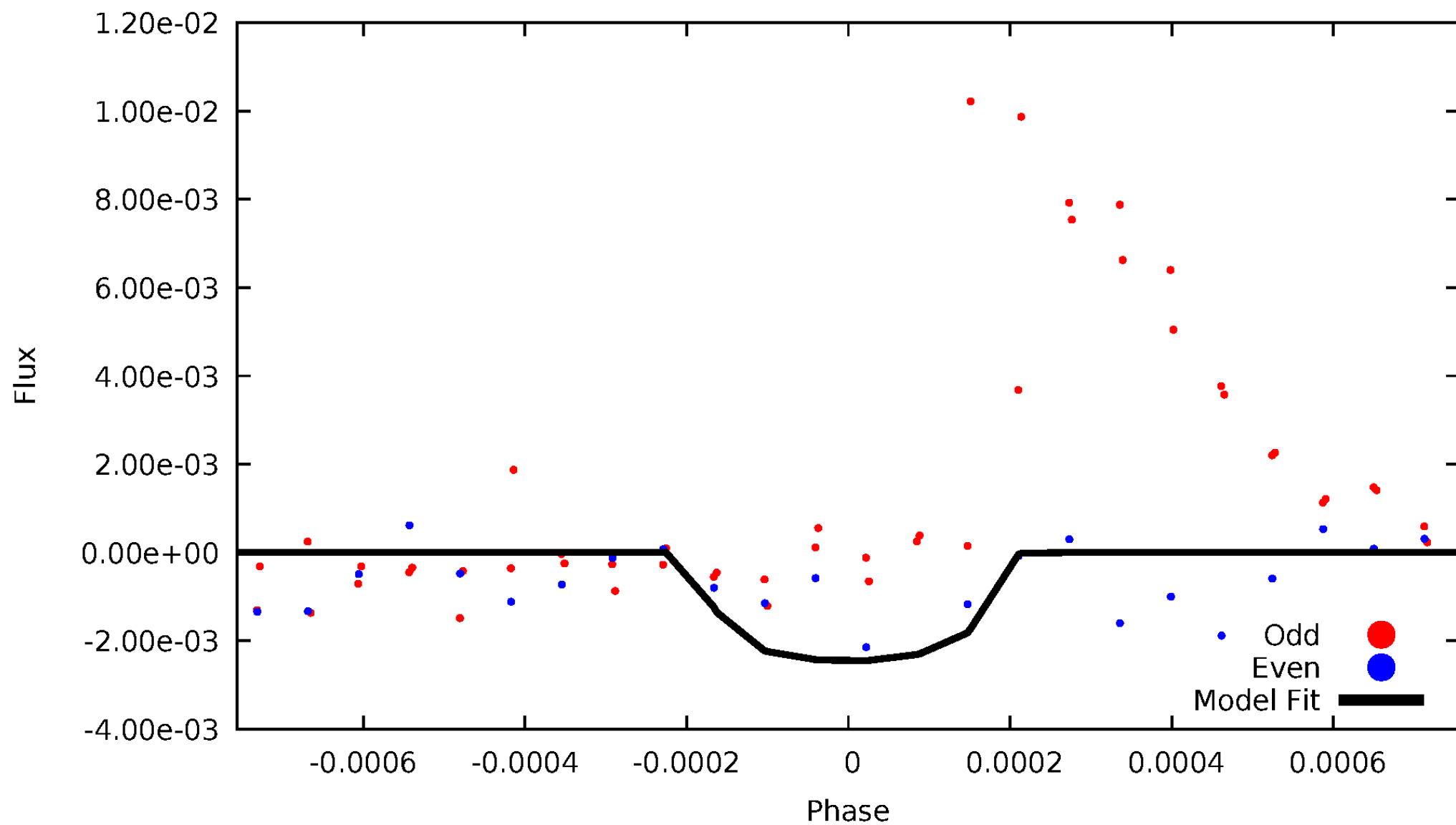


TCE 010748029-04



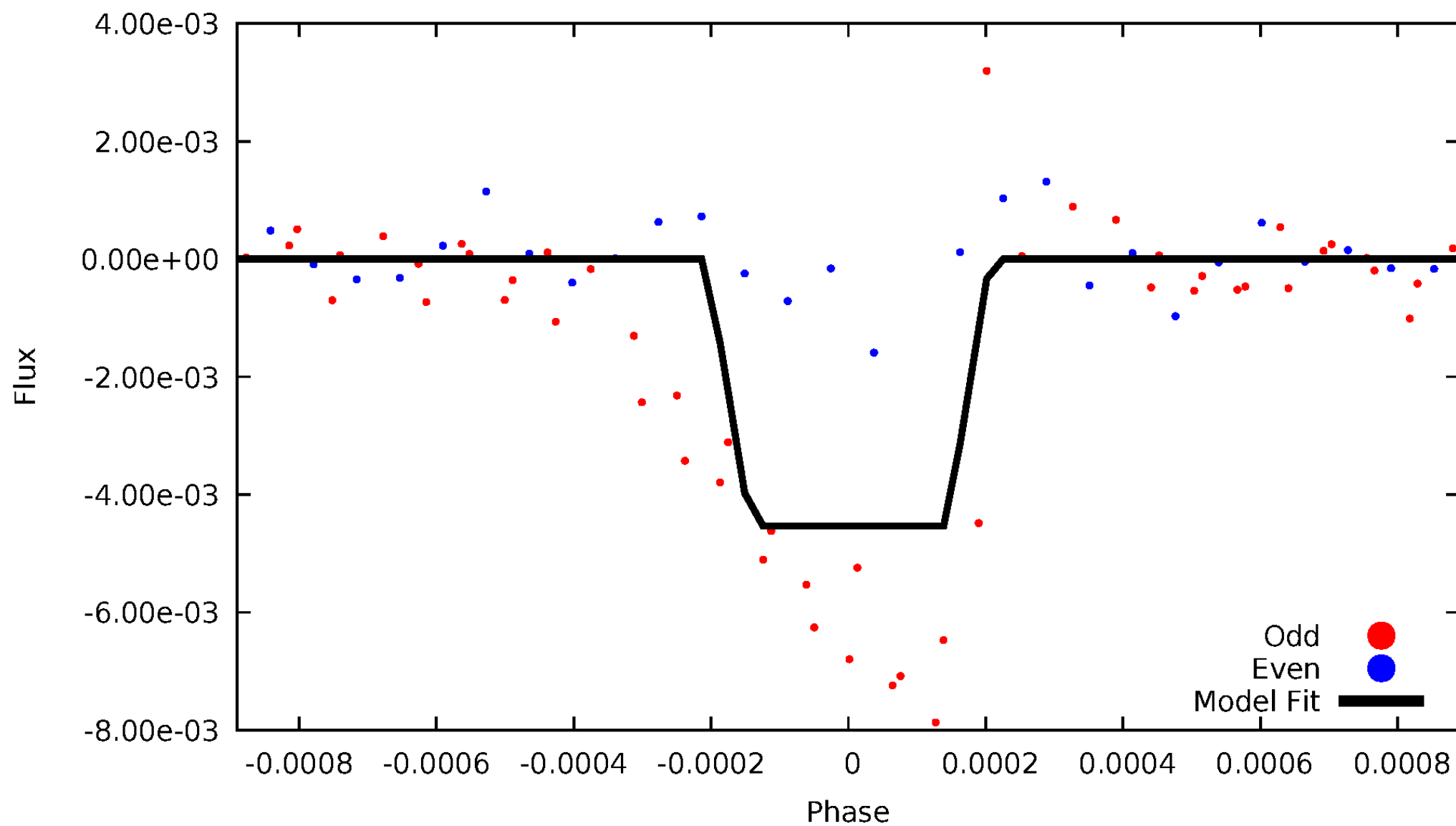
DV Odd/Even

TCE 010748029-04



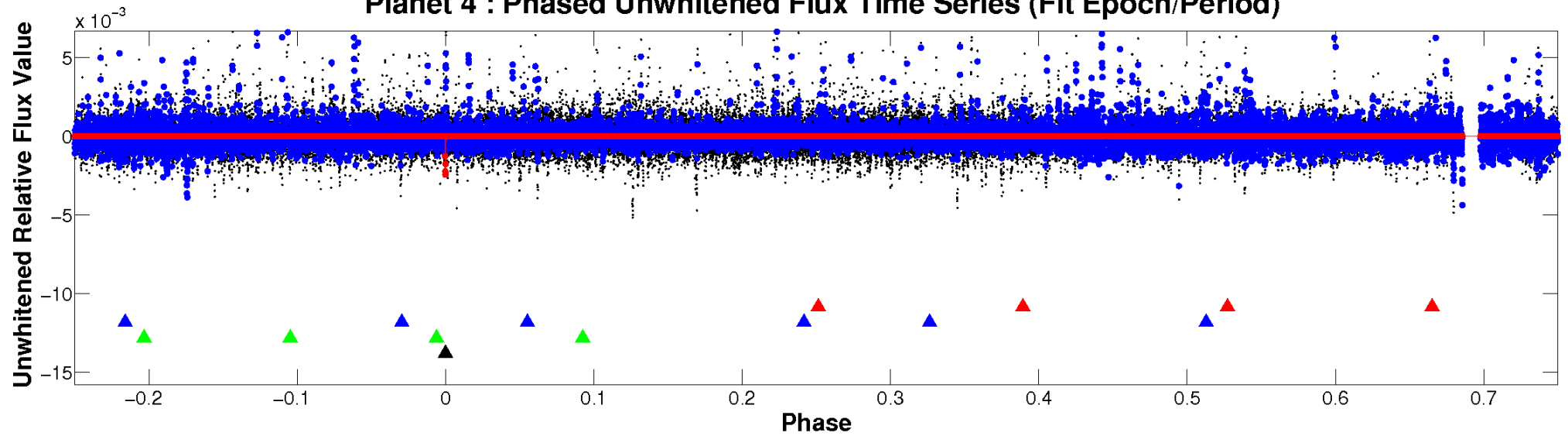
ALT Odd/Even

TCE 010748029-04

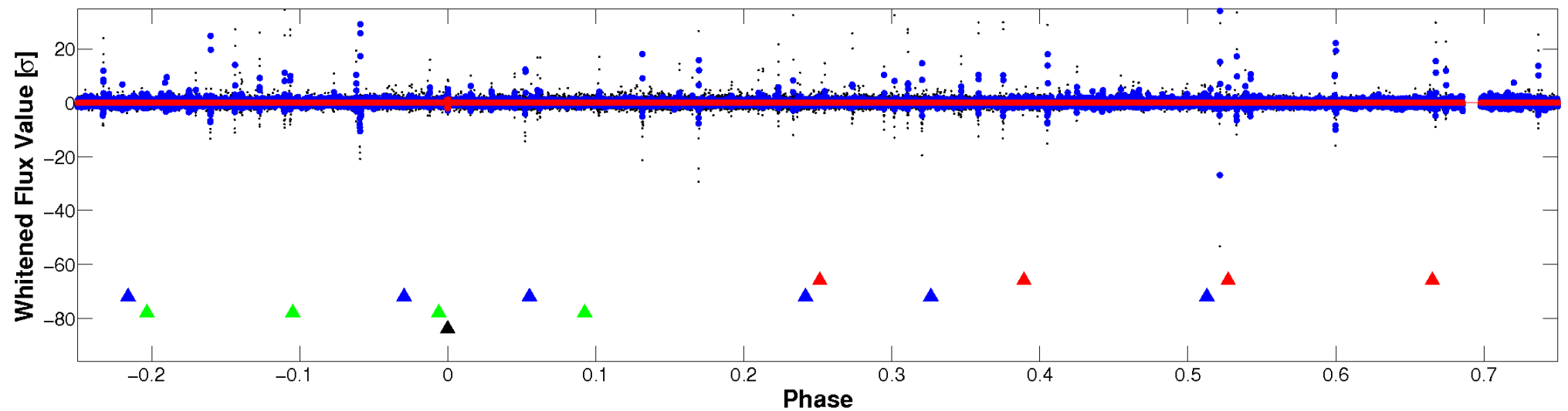


Non-Whitened Vs. Whitened Light Curve

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

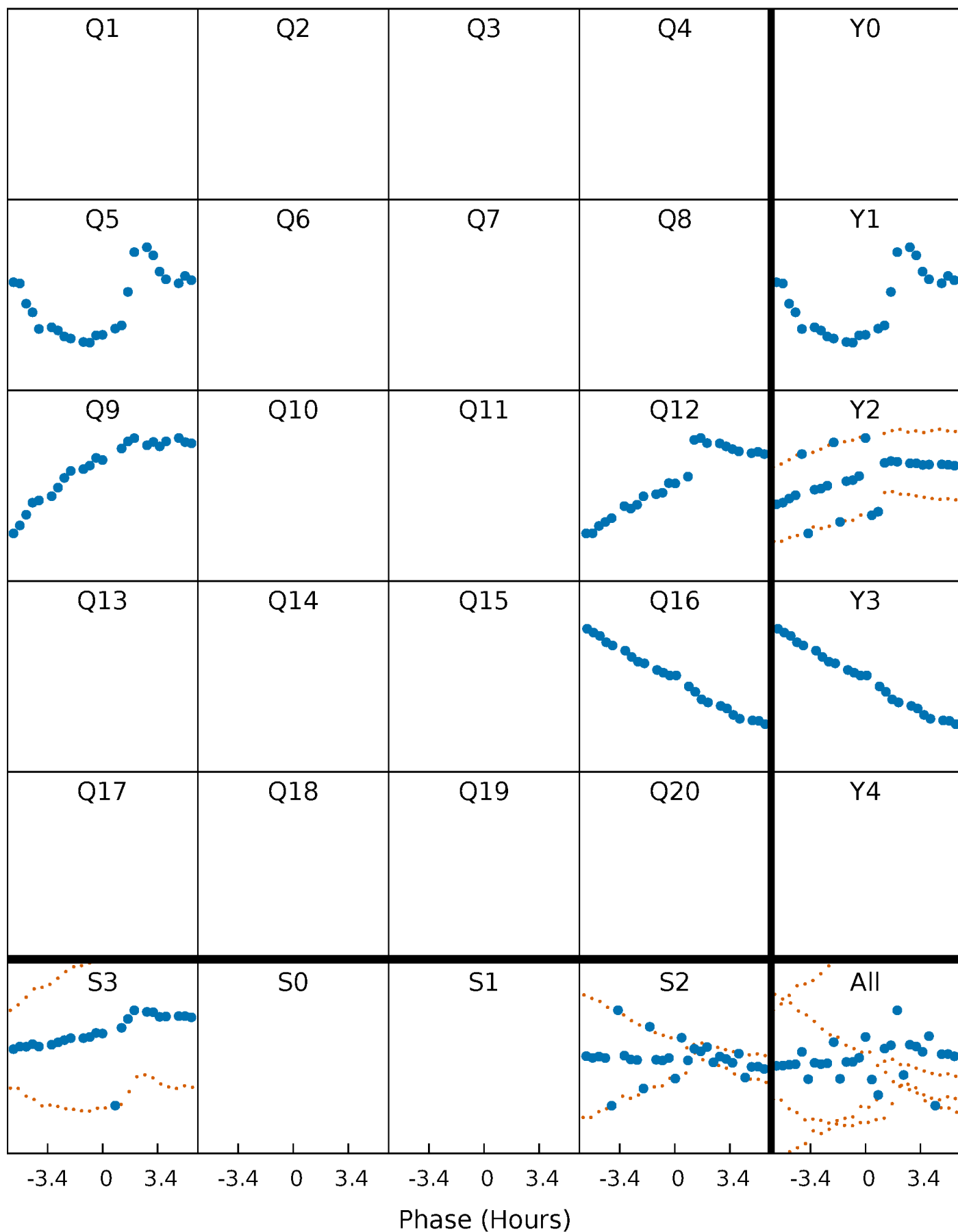


Planet 4 : Phased Whitened Flux Time Series (Fit Epoch/Period)



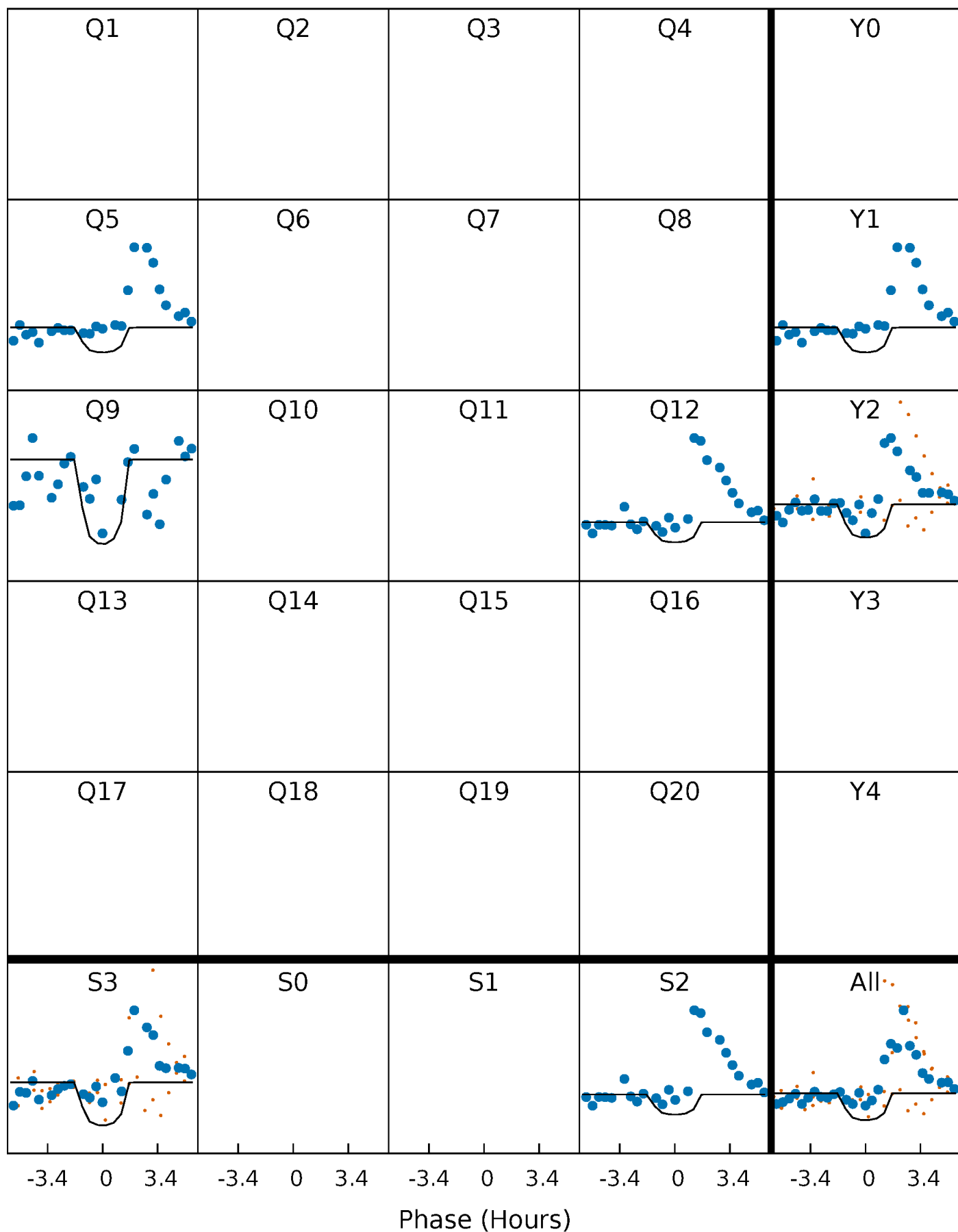
PDC Quarter-Phased Transit Curves

TCE 010748029-04 P=325.464691 Days $T_0=173.681110$ (BKJD)



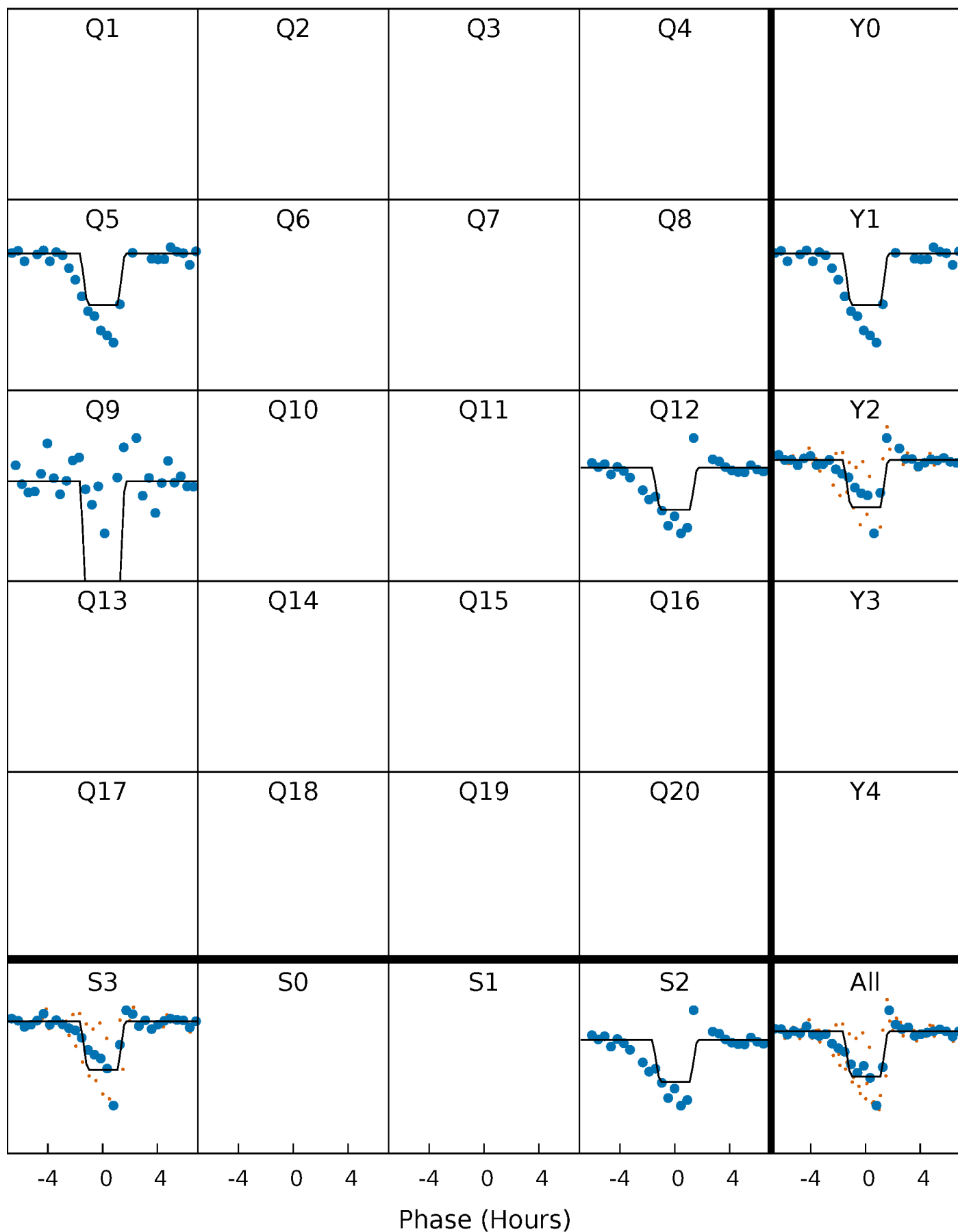
DV Quarter-Phased Transit Curves

TCE 010748029-04 $P=325.464691$ Days $T_0=173.681110$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

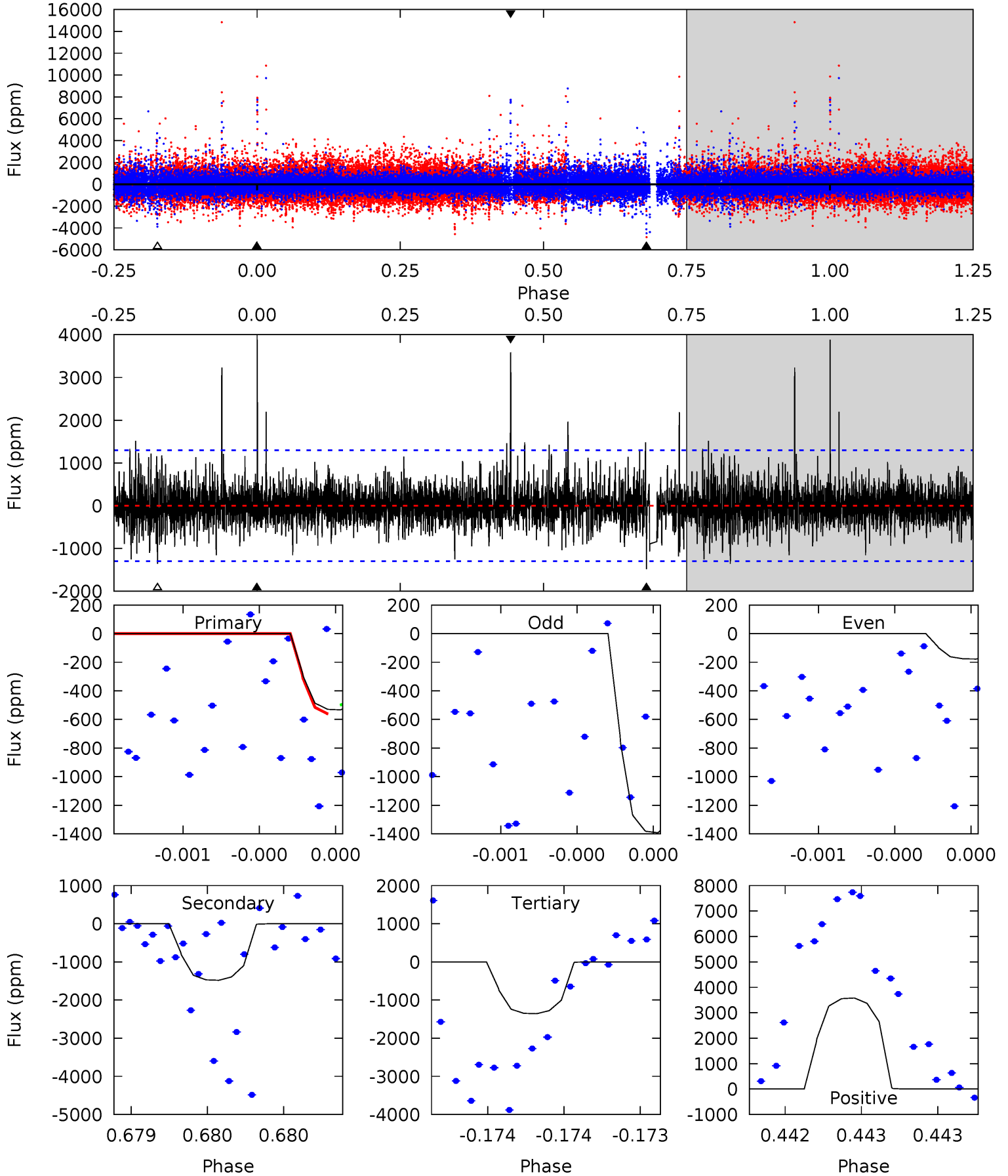
TCE 010748029-04 $P=325.453177$ Days $T_0=173.699229$ (BKJD)



DV Model-Shift Uniqueness Test

010748029-04, P = 325.464691 Days, E = 173.681110 Days

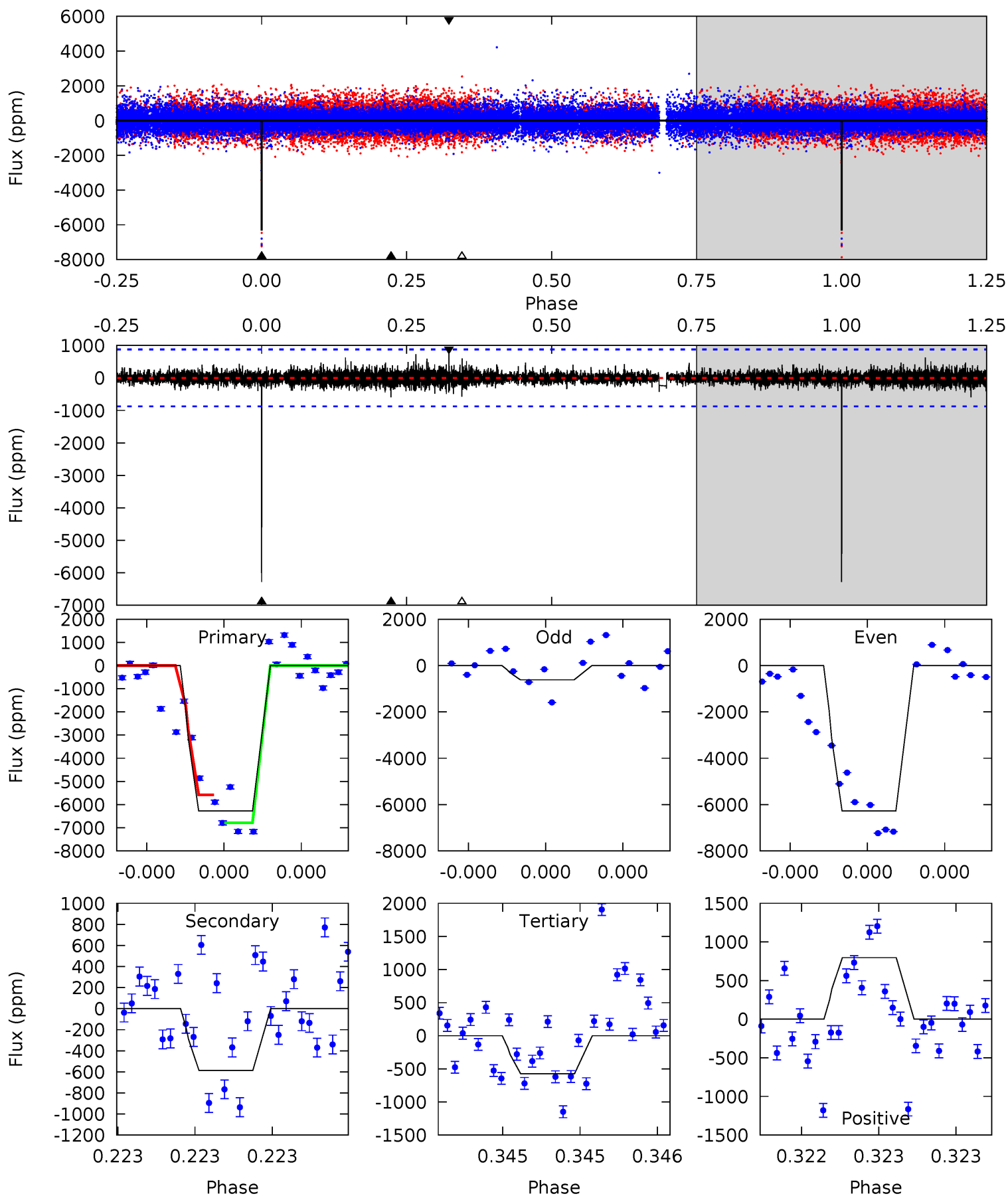
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
2.31	6.42	5.88	15.5	5.62	3.55	1.49	-3.57	-13.2	0.54	-9.10	2.09	0.39	0.72	0.14



Alt Model-Shift Uniqueness Test

010748029-04, P = 325.453177 Days, E = 173.699229 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
40.3	3.77	3.69	5.11	5.62	3.56	0.75	36.6	35.2	0.08	-1.34	20.4	0.75	0.11	0



Stellar Parameters For KIC 010748029

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	5538^{+182}_{-182}	$4.534^{+0.053}_{-0.158}$	$-0.100^{+0.300}_{-0.300}$	$0.844^{+0.199}_{-0.085}$	$0.889^{+0.092}_{-0.092}$	$2.081^{+0.457}_{-0.938}$
	+3%/-3%	+1%/-3%	+300%/-300%	+24%/-10%	+10%/-10%	+22%/-45%
Source	KIC0	KIC0	KIC0	DSEP		

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

Secondary Eclipse Parameters for KIC 010748029-04 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	-1481 ± 231	$5.97^{+5.67}_{-3.95}$	339^{+20}_{-15}	4536^{+2871}_{-965}	$17730^{+129161}_{-13118}$
Alt.	-587 ± 156	$7.92^{+5.67}_{-5.10}$	339^{+20}_{-17}	3483^{+1643}_{-536}	3936^{+28912}_{-2637}

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 $A_{obs} \gg 1.0$

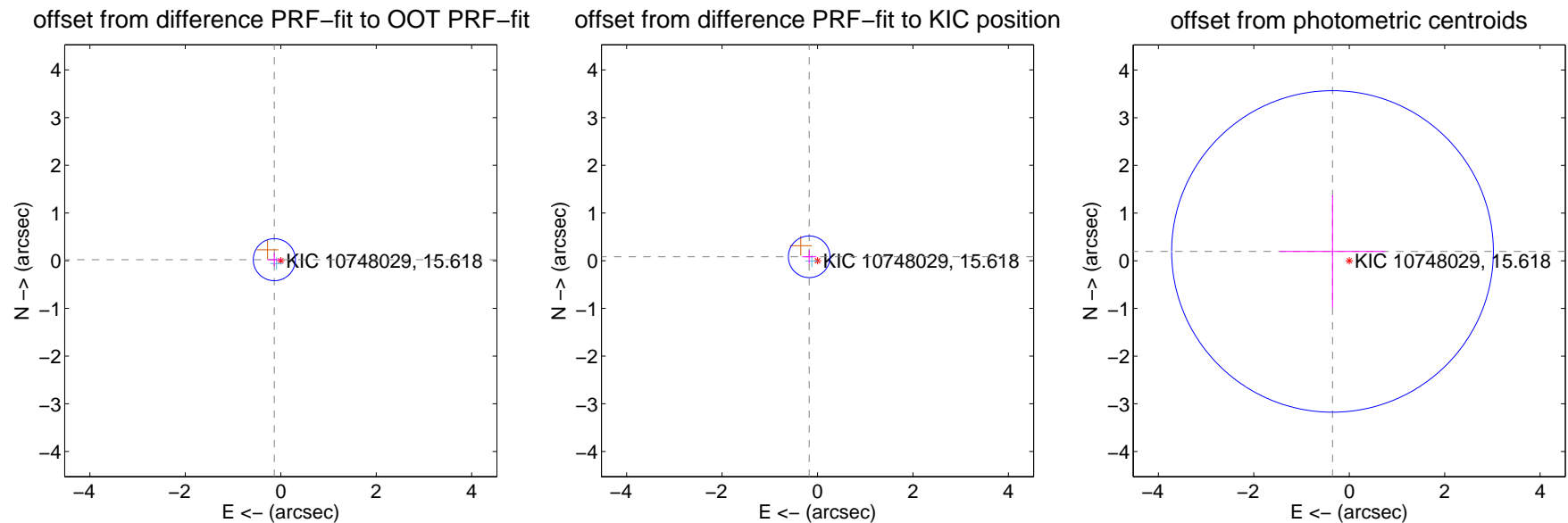
DV Centroid Data

Supplemental centroid analysis for 010748029-04. Kepler magnitude: 15.62. Transit SNR 7.30

There are 1 quarters with good PRF difference image offsets

The direct PRF centroid is offset from the target star catalog position by about 0.11 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.137 ± 0.147	0.93	0.135 ± 0.147	0.021 ± 0.138
PRF-fit source offset from KIC position	0.193 ± 0.146	1.32	0.174 ± 0.147	0.082 ± 0.138
photometric centroid source offset	0.40 ± 1.12	0.36	0.35 ± 1.11	0.20 ± 1.18

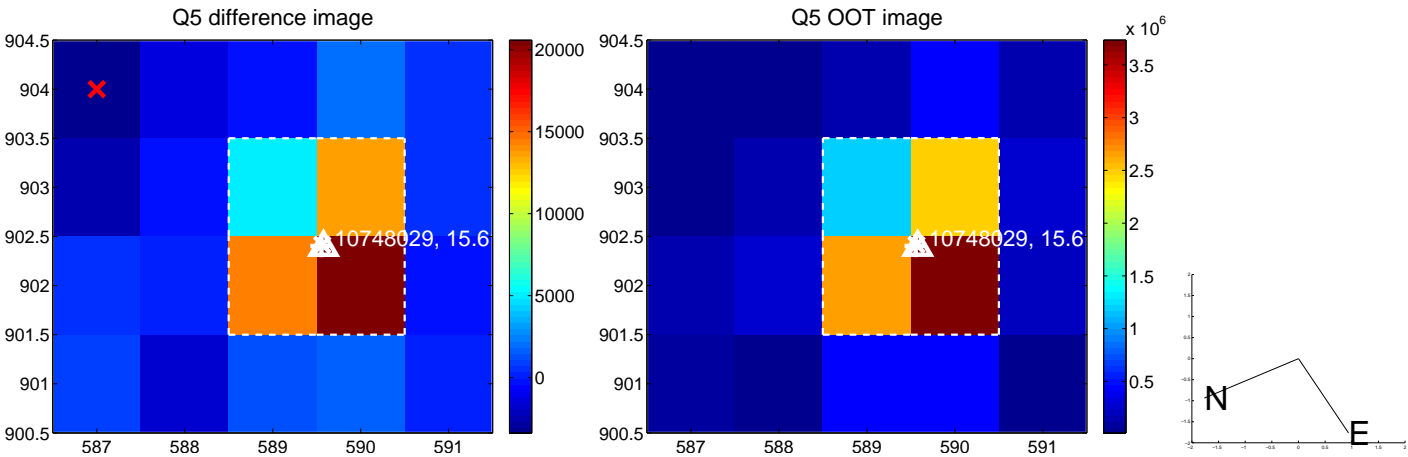


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ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

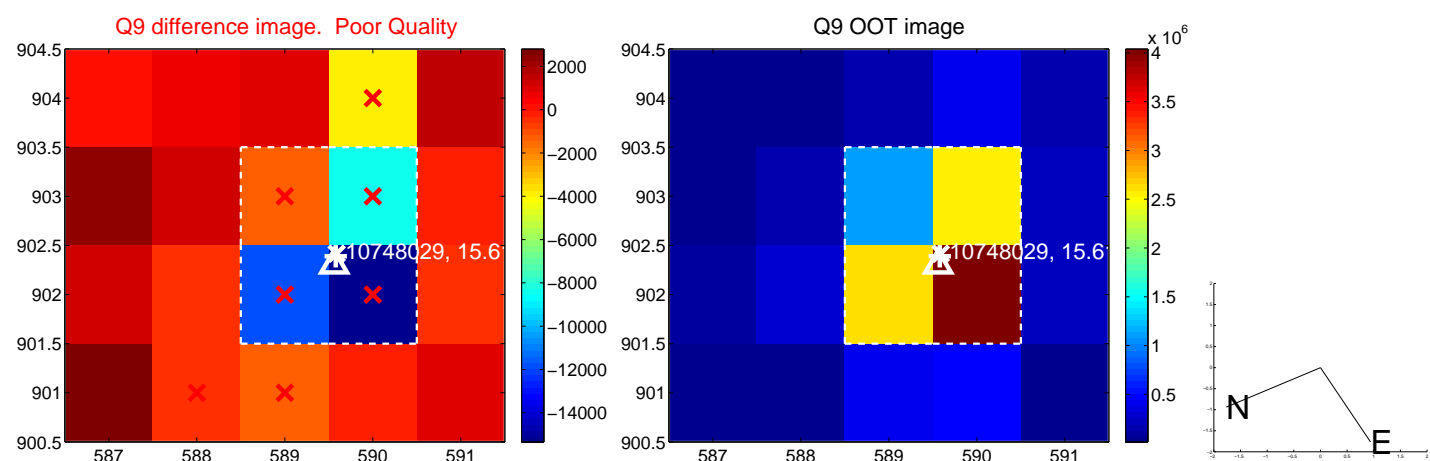
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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



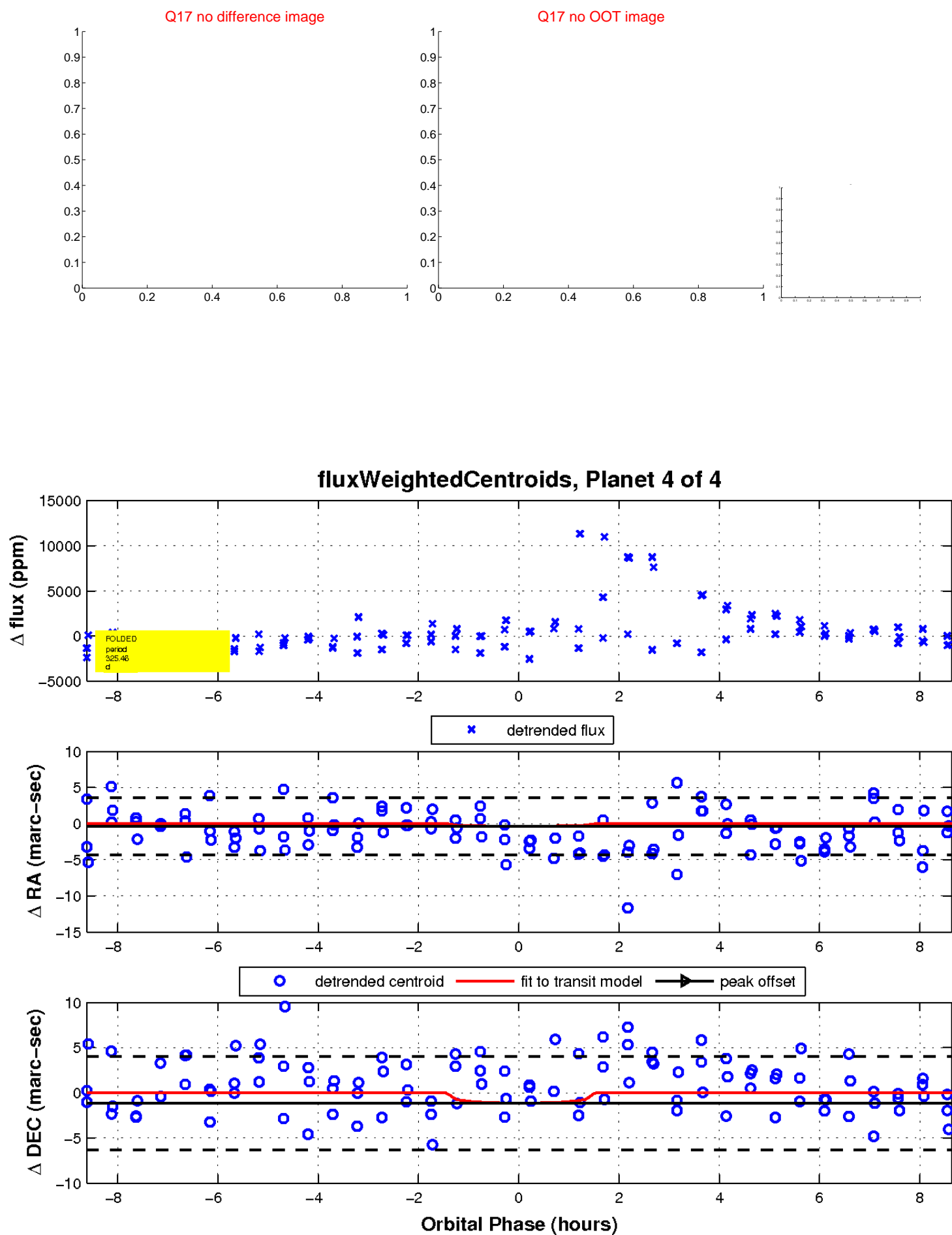
white ×: KIC target position; +: OOT centroid; △: difference centroid. red ×: large negative pixel value.



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

