

KIC 006953069

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})
006953069-01	OBS	No	684.646861	133.523699	1999.3	9.000	11.9	-1.0	0.71	4338	3.01	0.09
006953069-02	OBS	No	515.116300	240.697645	3084.5	16.236	12.2	8.2	0.71	4338	3.73	0.13
006953069-03	OBS	No	512.412384	509.194700	1796.4	5.000	11.3	-1.0	0.71	4338	2.85	0.13
006953069-04	OBS	No	494.952236	245.620294	6636.1	14.188	14.6	14.3	0.71	4338	6.89	0.13

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
006953069-01	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_NOFITS
006953069-02	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_POS_ALT—INCONSISTENT_TRANS
006953069-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_NOFITS
006953069-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_FEW_DIFFS

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

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

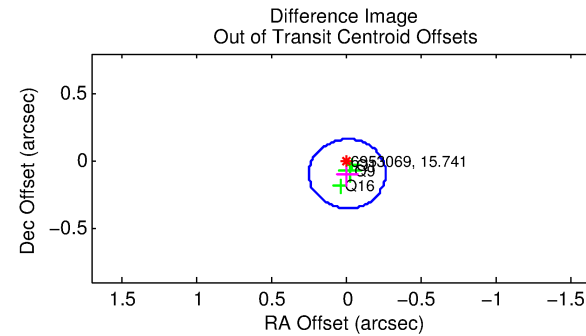
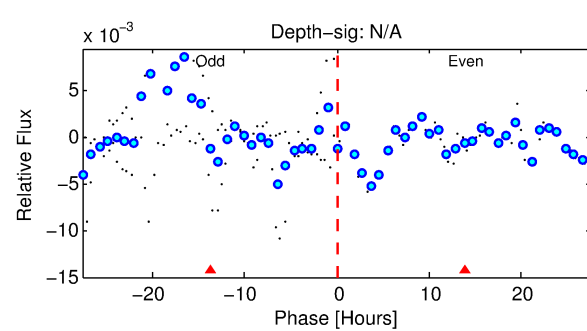
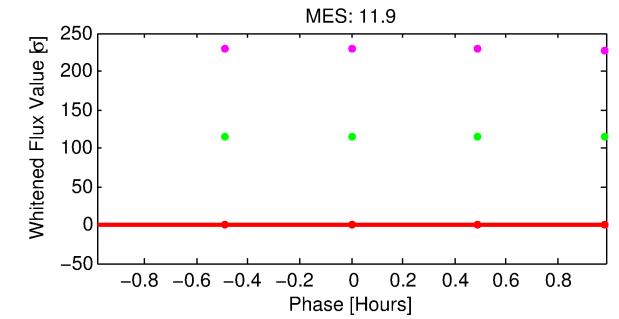
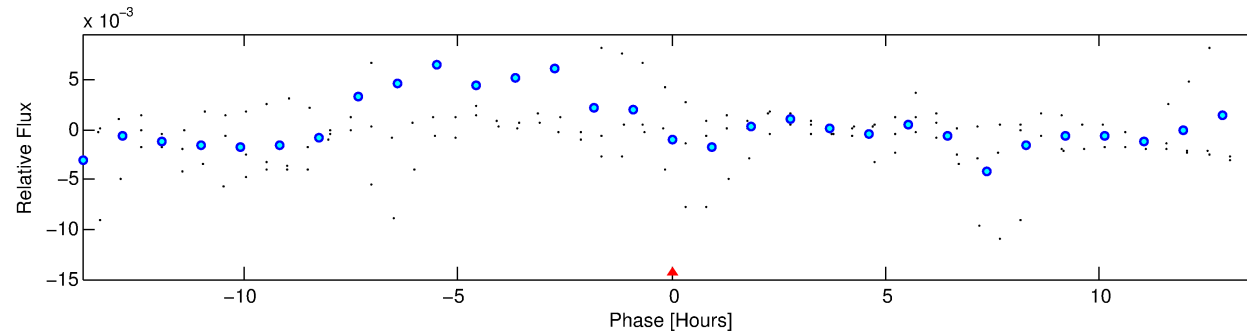
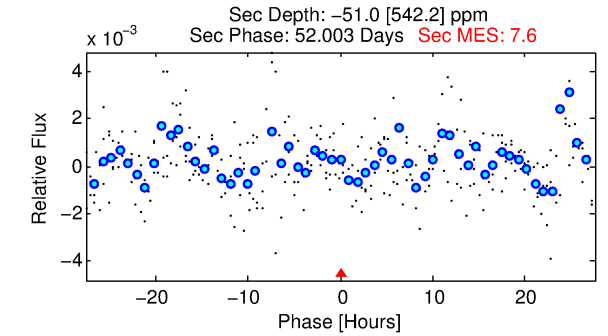
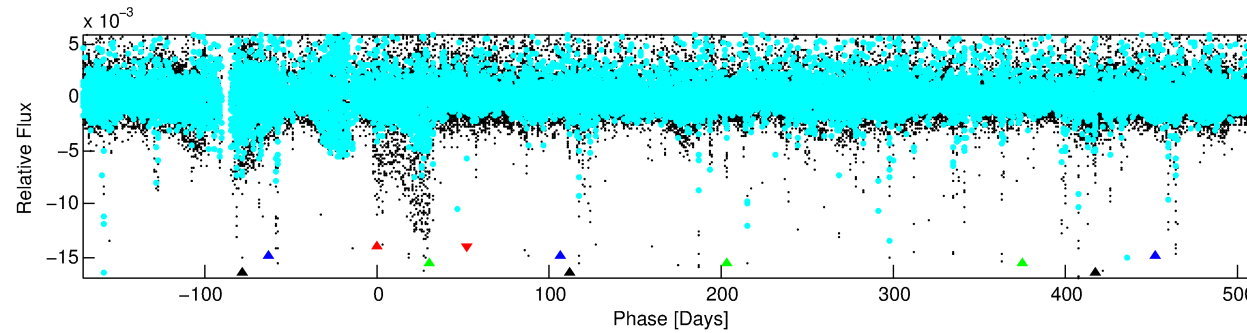
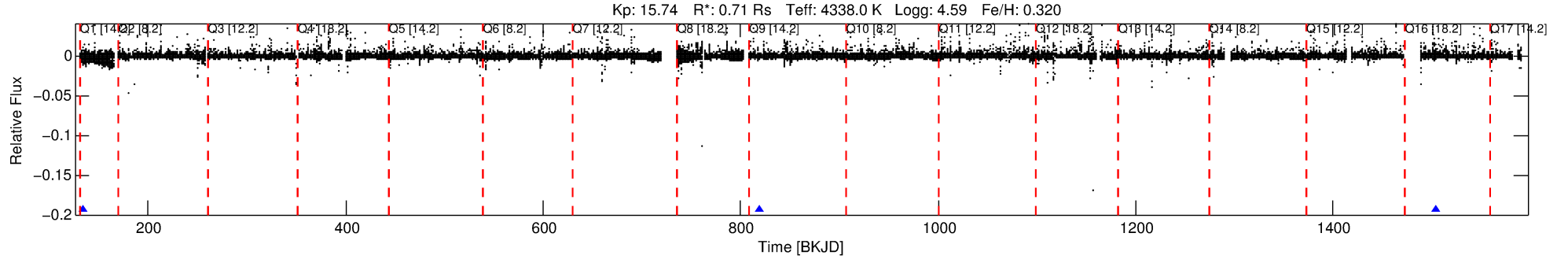
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 006953069-01

No Significant Match Found

DV One-Page Summary

KIC: 6953069 Candidate: 1 of 4 Period: 684.647 d



TPS TCE Results:

Period = 684.64686 d
Epoch = 133.5237 BKJD

DV fit results are unavailable

DV Diagnostic Results:

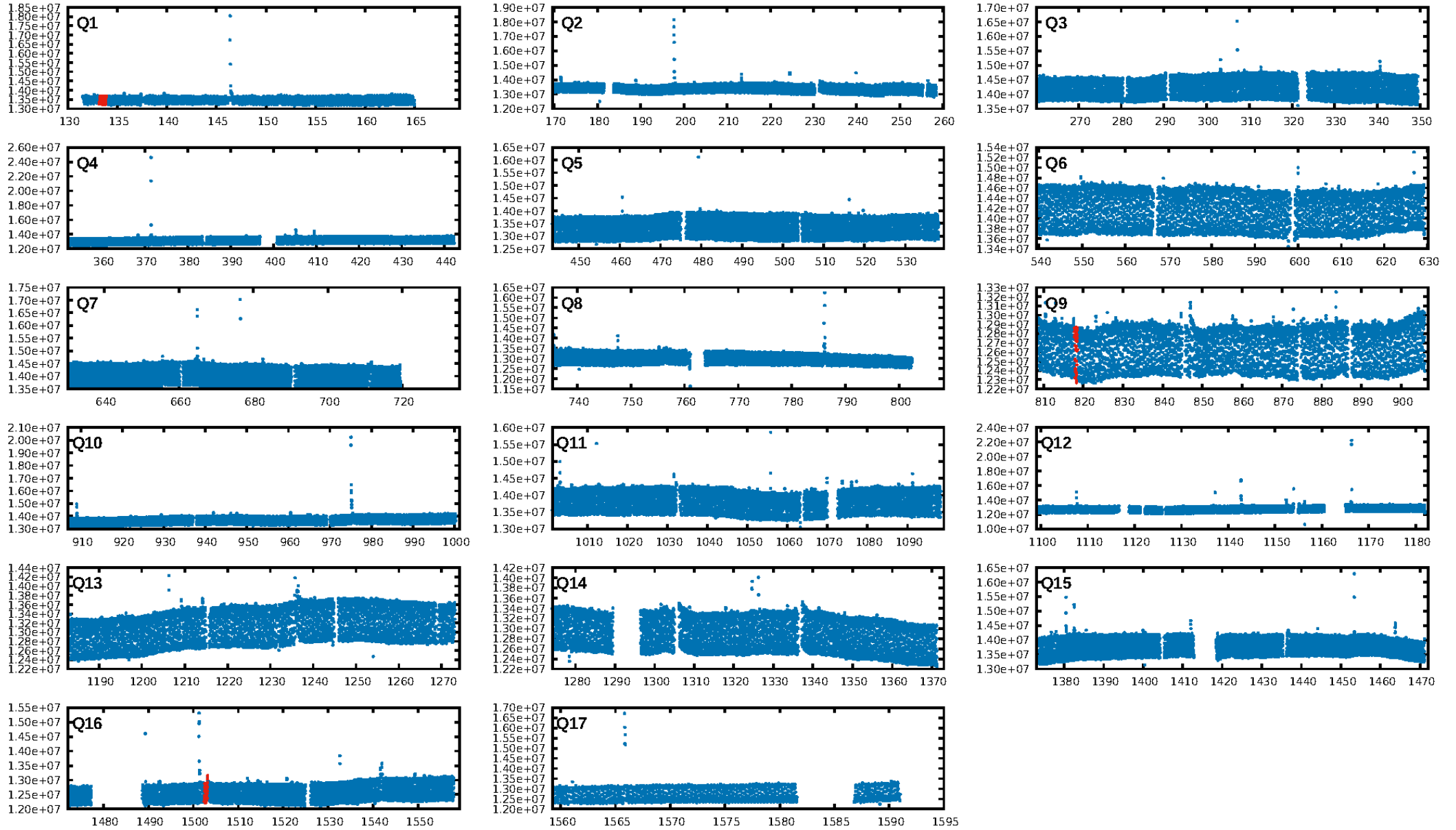
ShortPeriod-sig: 100.0% [219.17 σ]
LongPeriod-sig: N/A
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: 4.37e-07
RollingBand-fgt: 1.00 [2/2]
GhostDiagnostic-chr: 6.08

Centroid-sig: 12.0%
Centroid-so: 0.321 arcsec [1.20 σ]
OotOffset-rm: 0.095 arcsec [1.11 σ]
KicOffset-rm: 0.167 arcsec [2.12 σ]
OotOffset-st: 0/0/1/2 [3]
KicOffset-st: 0/0/1/2 [3]
DiffImageQuality-fgm: 0.67 [2/3]
DiffImageOverlap-fno: 1.00 [3/3]

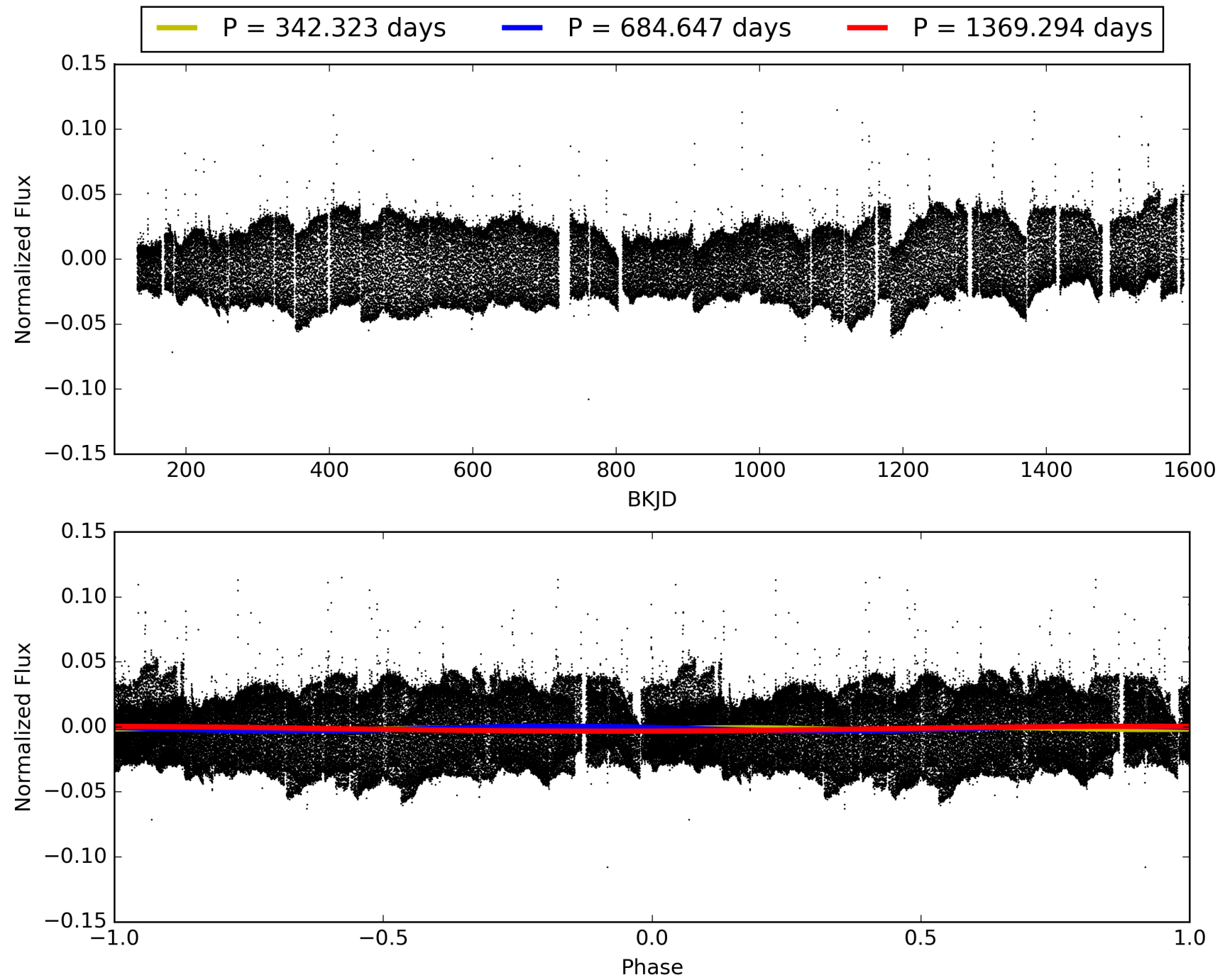
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 01-Feb-2016 09:41:48 Z

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

TCE 006953069-01, PDC Light Curves

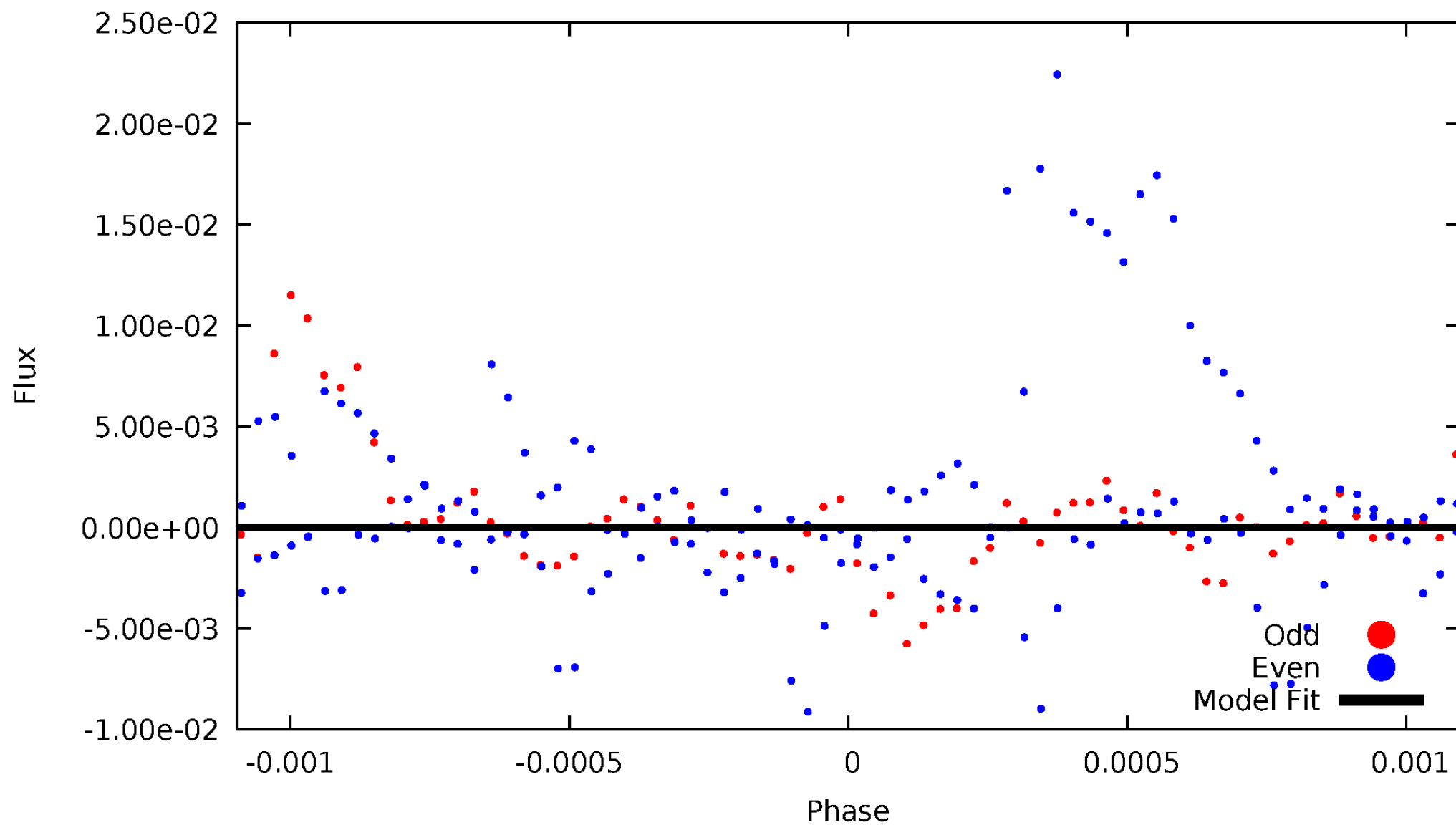


TCE 006953069-01



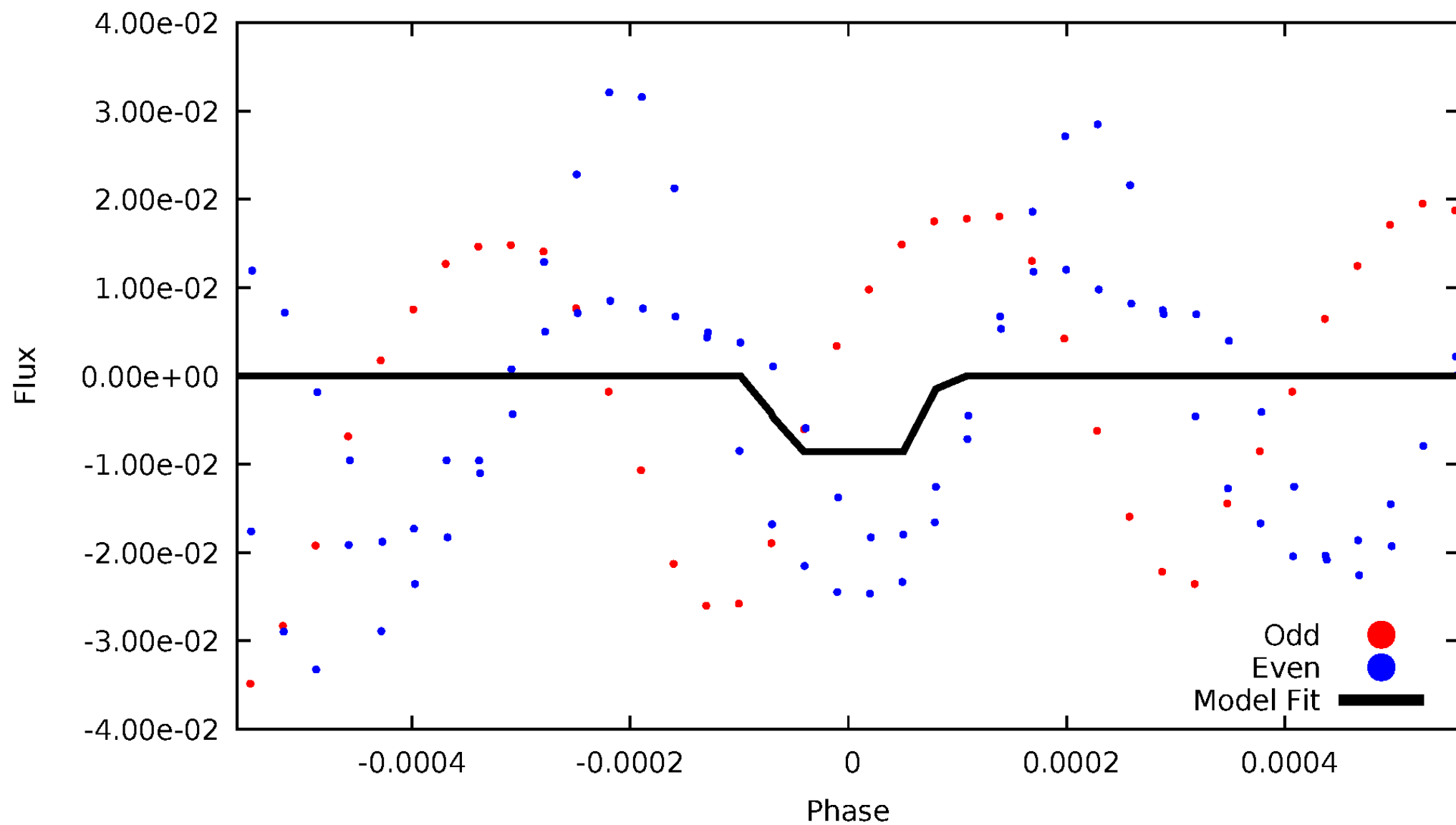
DV Odd/Even

TCE 006953069-01



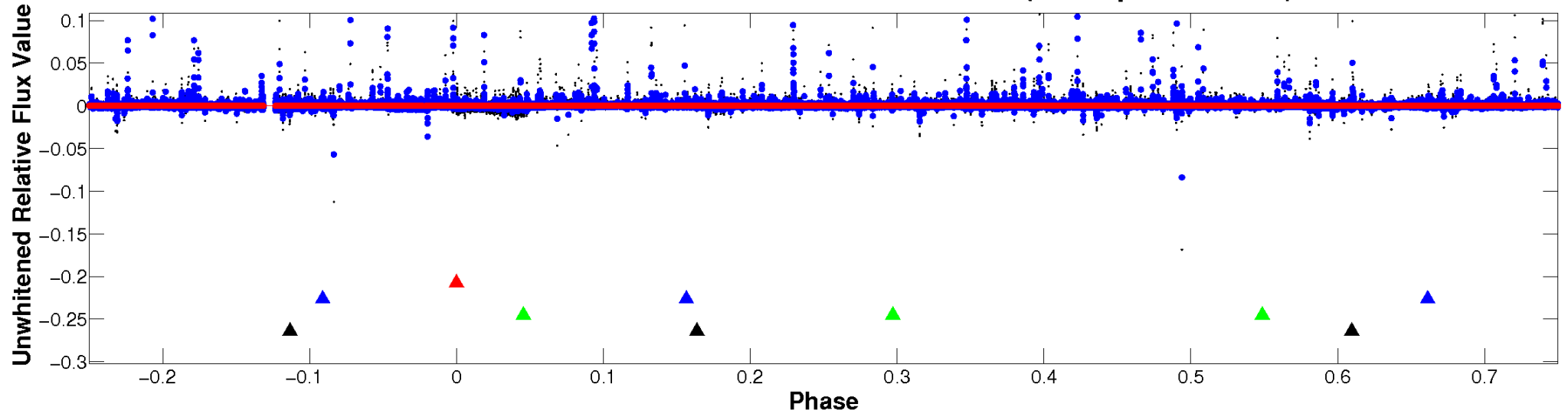
ALT Odd/Even

TCE 006953069-01



Non-Whitened Vs. Whitened Light Curve

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

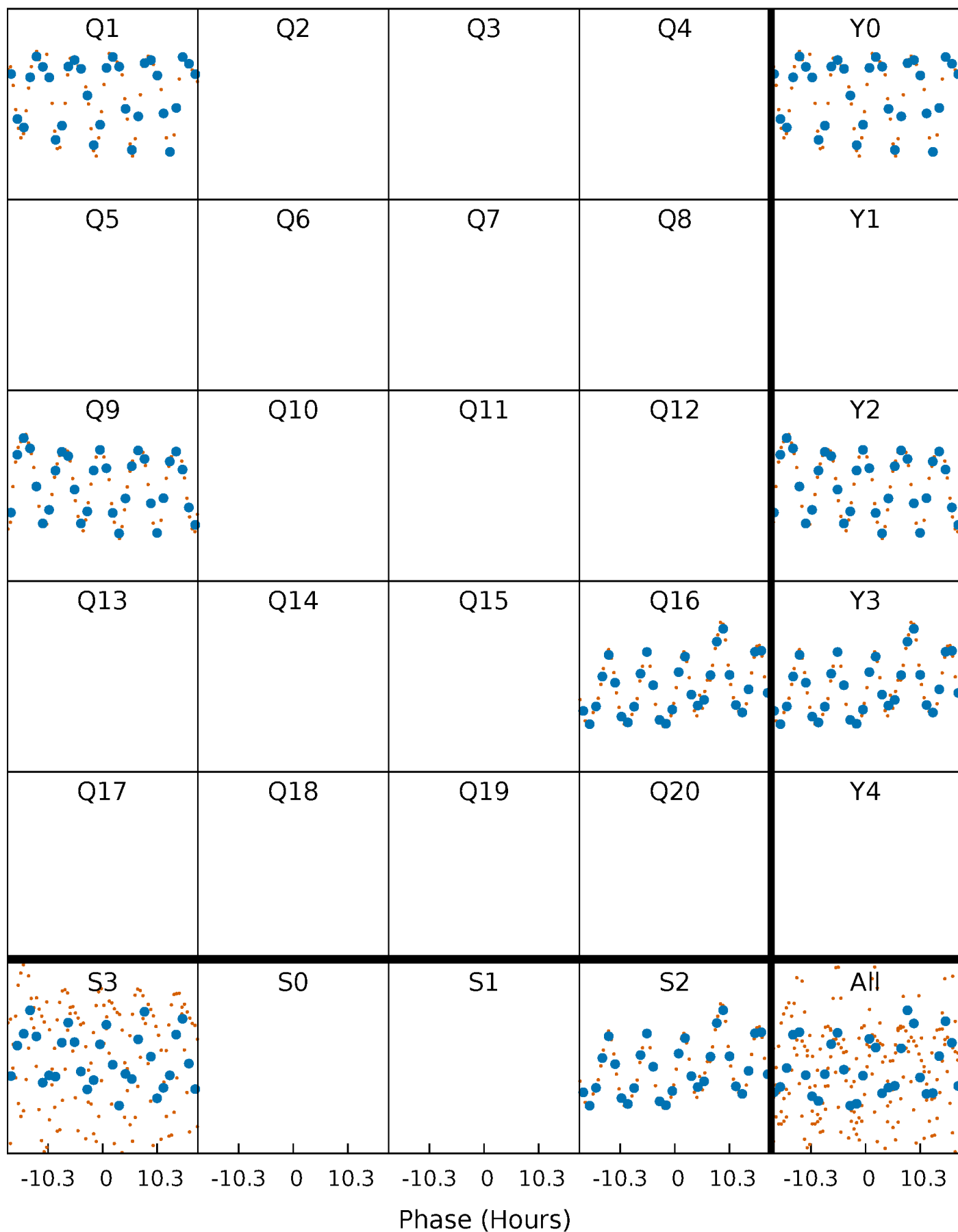


Planet 1 : Phased Whitened Flux Time Series (TPS Epoch/Period)



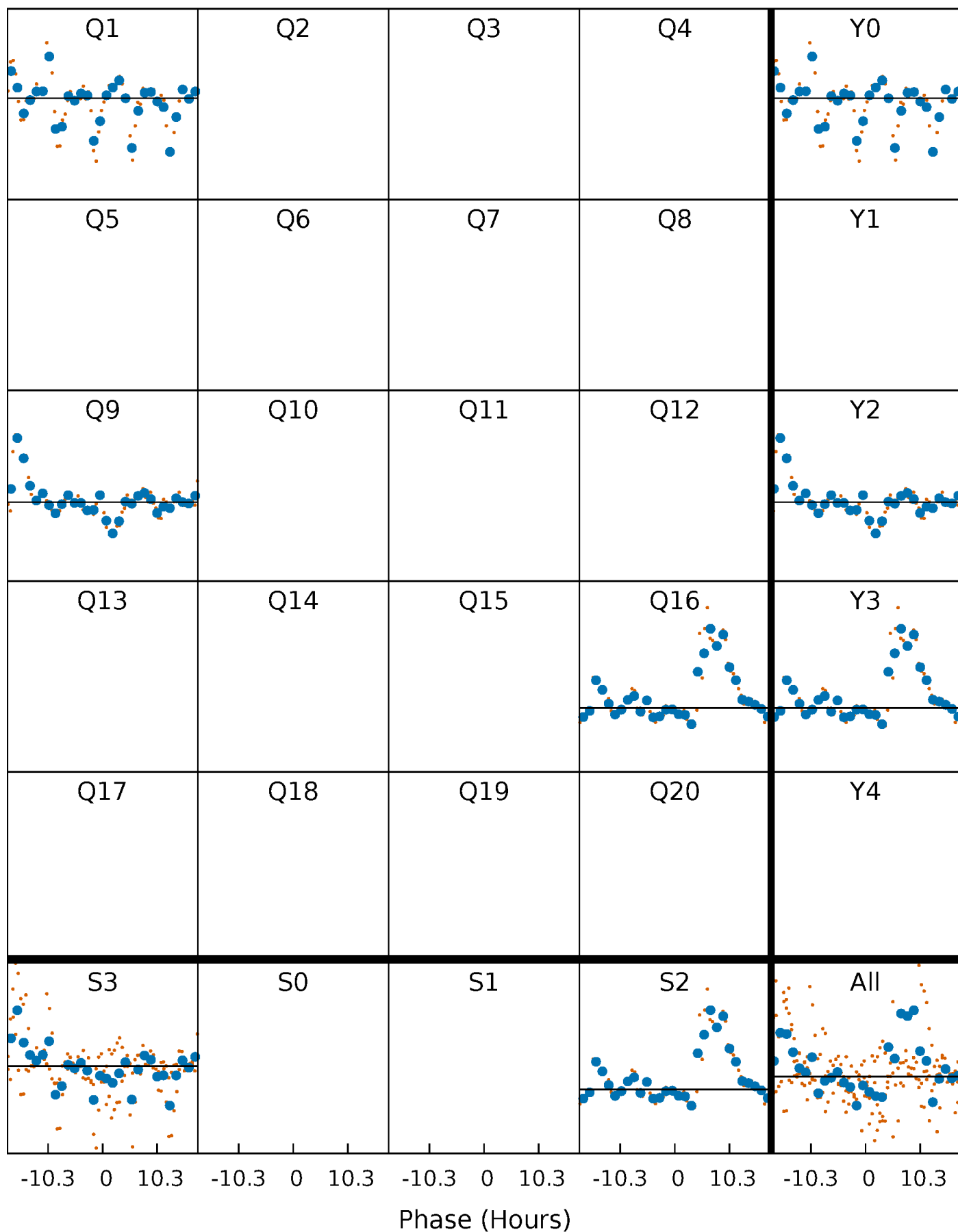
PDC Quarter-Phased Transit Curves

TCE 006953069-01 P=684.646861 Days $T_0=133.523699$ (BKJD)



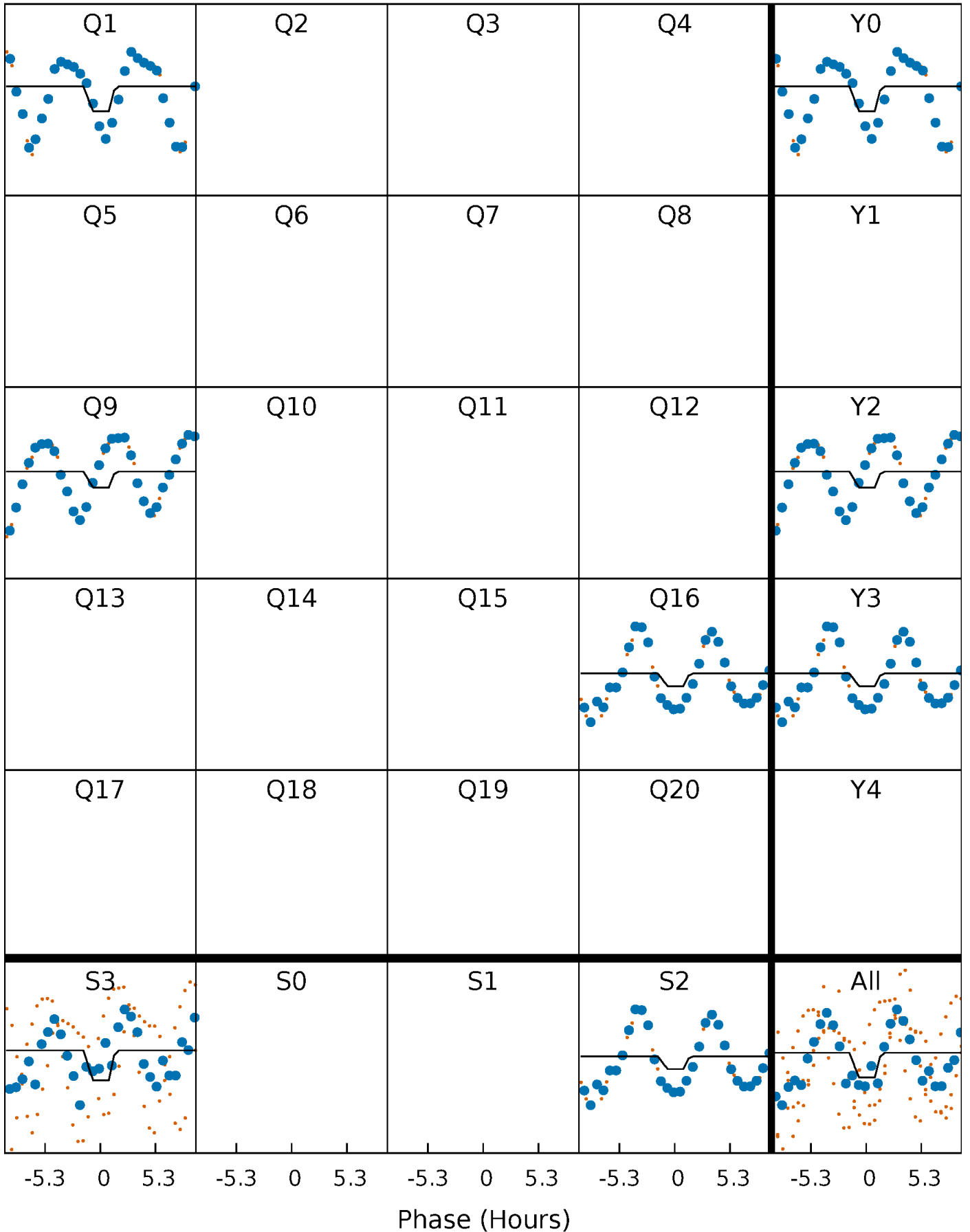
DV Quarter-Phased Transit Curves

TCE 006953069-01 P=684.646861 Days $T_0=133.523699$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

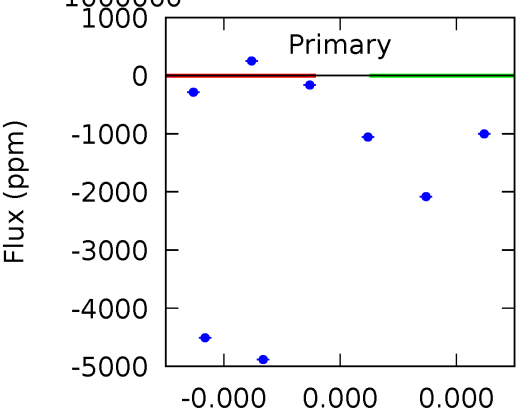
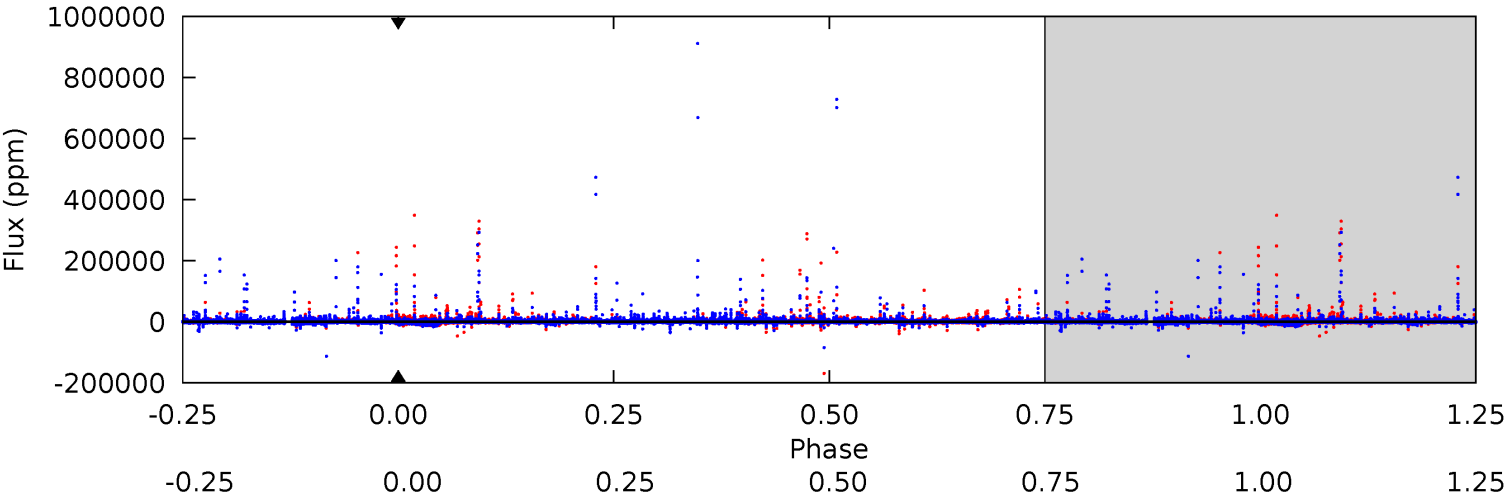
TCE 006953069-01 P=684.646861 Days $T_0=134.032078$ (BKJD)



DV Model-Shift Uniqueness Test

006953069-01, P = 684.646861 Days, E = 133.523699 Days

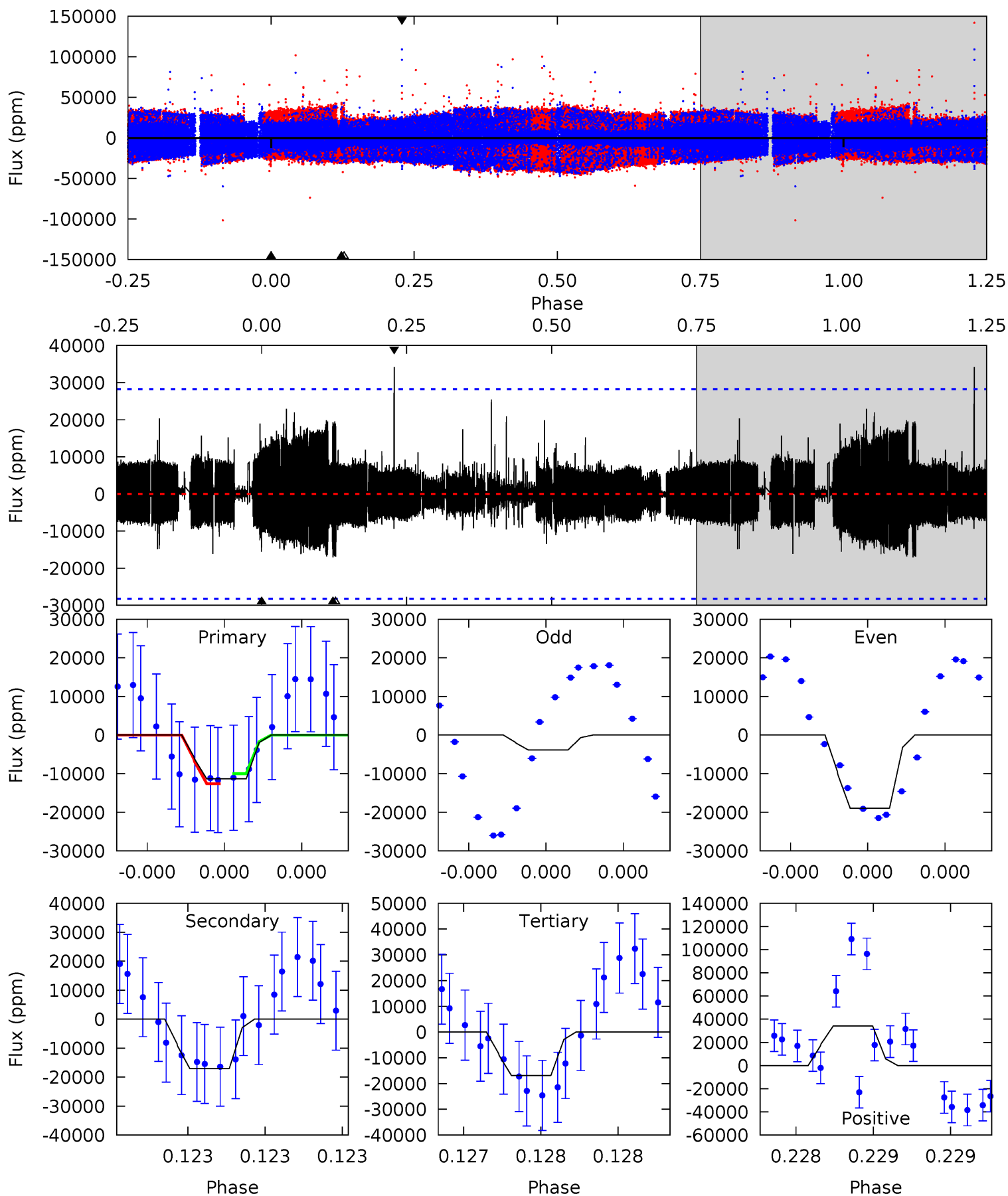
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
0	0	0	0	1.00	1.00	1.00	0	0	0	0	0	0	0	0



Alt Model-Shift Uniqueness Test

006953069-01, P = 684.646861 Days, E = 134.032078 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	3.48	3.44	6.95	5.75	3.75	1.11	-1.13	-4.64	0.04	-3.47	1.46	0.85	0.67	0.26



Stellar Parameters For KIC 006953069

	$T_{\text{eff}}(K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	4338^{+155}_{-172}	$4.586^{+0.056}_{-0.016}$	$0.320^{+0.100}_{-0.300}$	$0.709^{+0.028}_{-0.062}$	$0.708^{+0.042}_{-0.052}$	$2.794^{+0.706}_{-0.202}$
	+4%/-4%	+1%/-0%	+31%/-94%	+4%/-9%	+6%/-7%	+25%/-7%
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 006953069-01 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	0 ± 1000000	$6.74^{+6.07}_{-4.60}$	192^{+8}_{-8}	-2862^{+12715}_{-6975}	$-11918.830^{+4180274.915}_{-3936489.276}$
Alt.	-17091 ± 4910	$8.85^{+6.80}_{-5.52}$	192^{+8}_{-8}	4561^{+2419}_{-914}	$221978^{+1179576}_{-156501}$

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

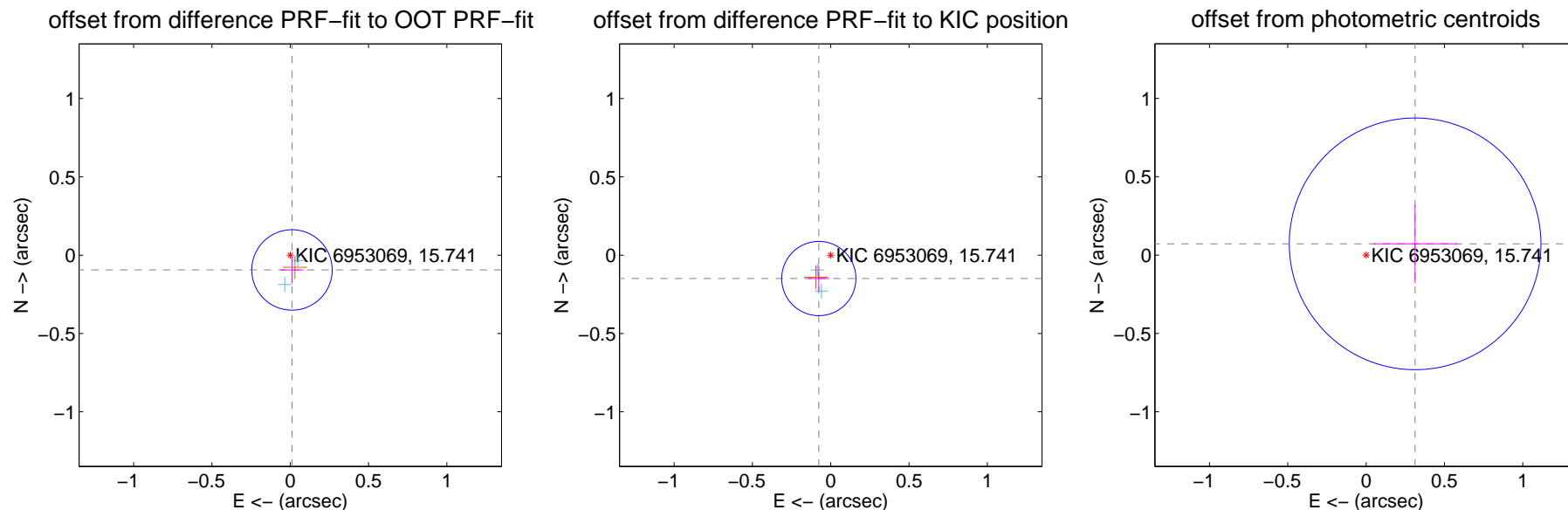
DV Centroid Data

Supplemental centroid analysis for 006953069-01. Kepler magnitude: 15.74. Transit SNR -1.00

There are 2 quarters with good PRF difference image offsets

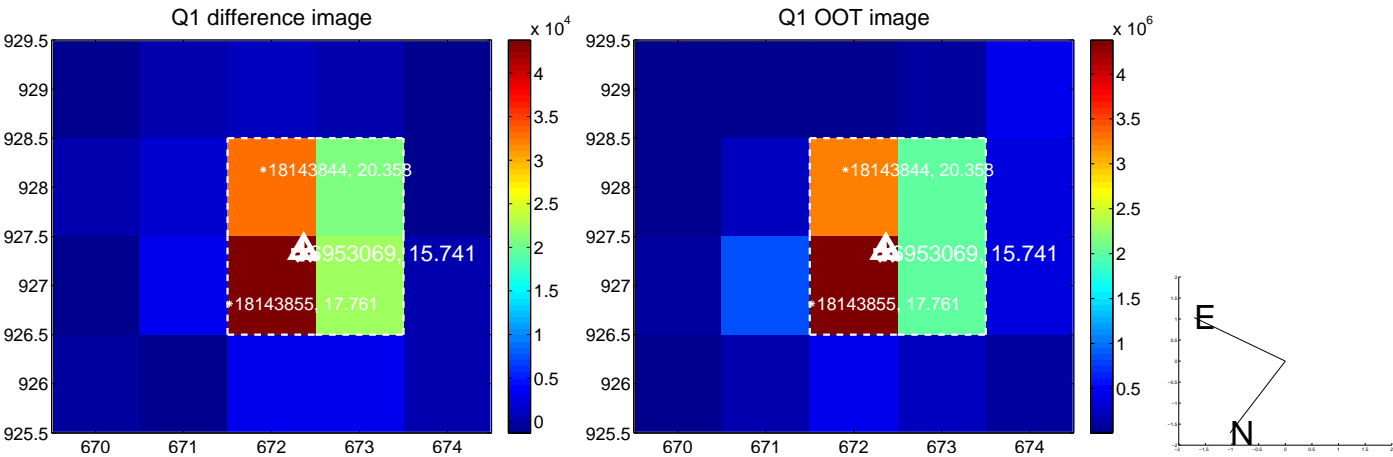
The direct PRF centroid is offset from the target star catalog position by about 0.05 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.095 ± 0.086	1.11	-0.011 ± 0.073	-0.094 ± 0.086
PRF-fit source offset from KIC position	0.167 ± 0.079	2.12	0.076 ± 0.068	-0.149 ± 0.082
photometric centroid source offset	0.32 ± 0.27	1.20	-0.31 ± 0.27	0.07 ± 0.25



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.

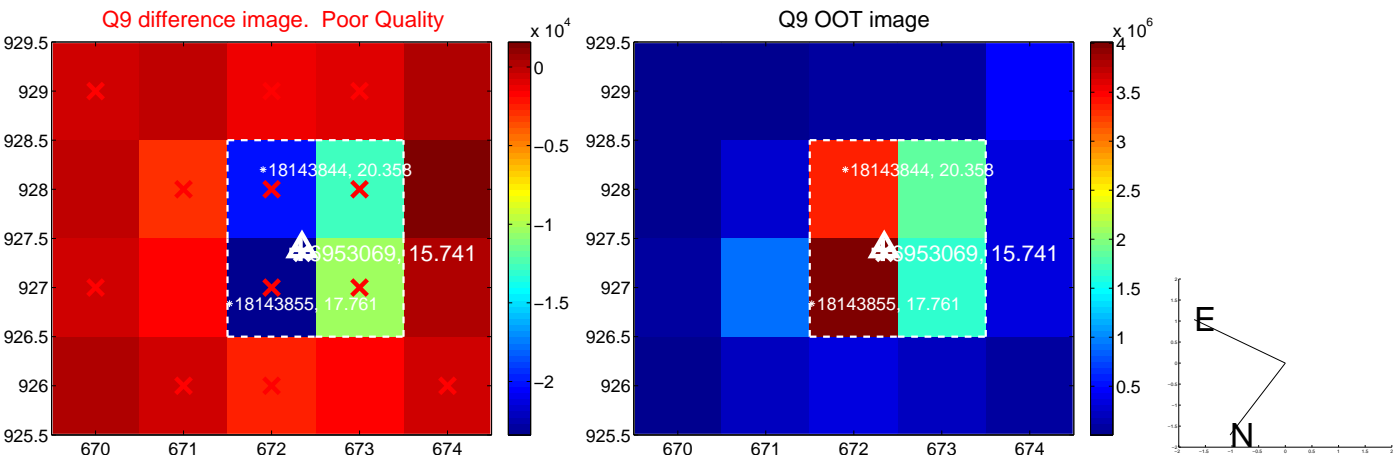
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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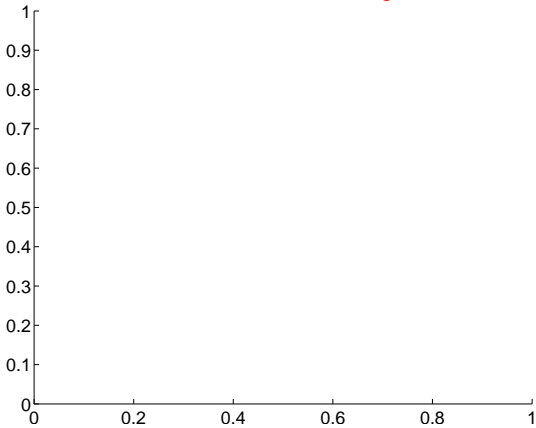


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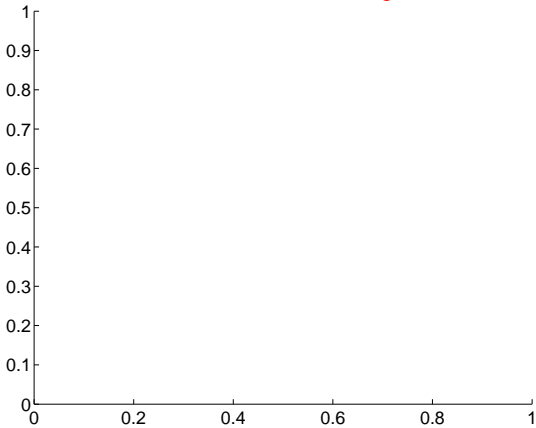
Q13 no difference image



Q13 no OOT image



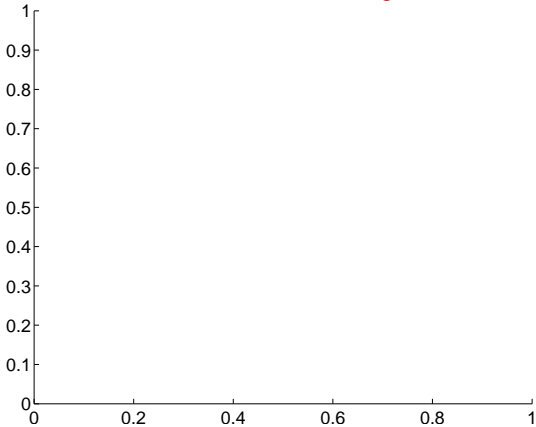
Q14 no difference image



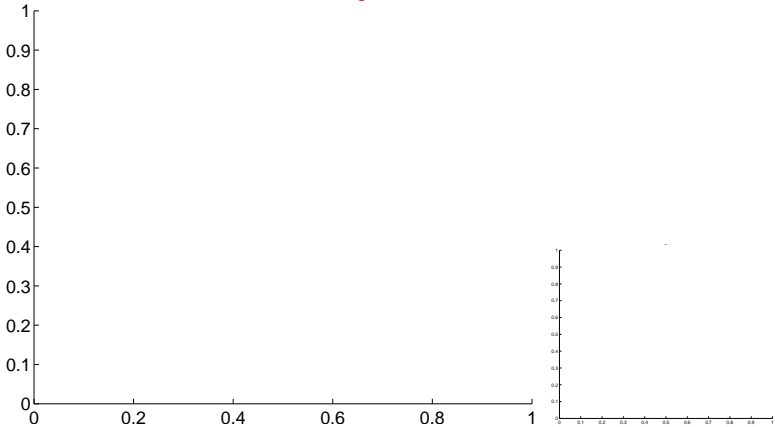
Q14 no OOT image



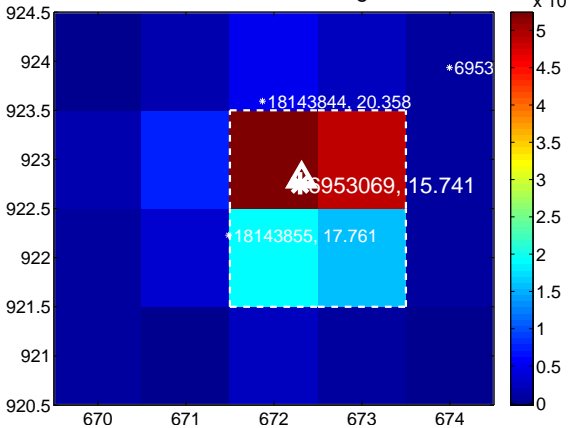
Q15 no difference image



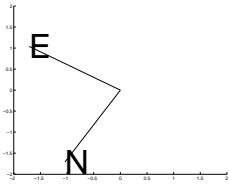
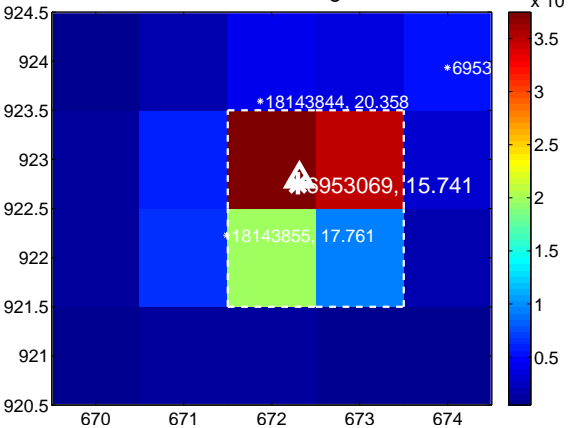
Q15 no OOT image



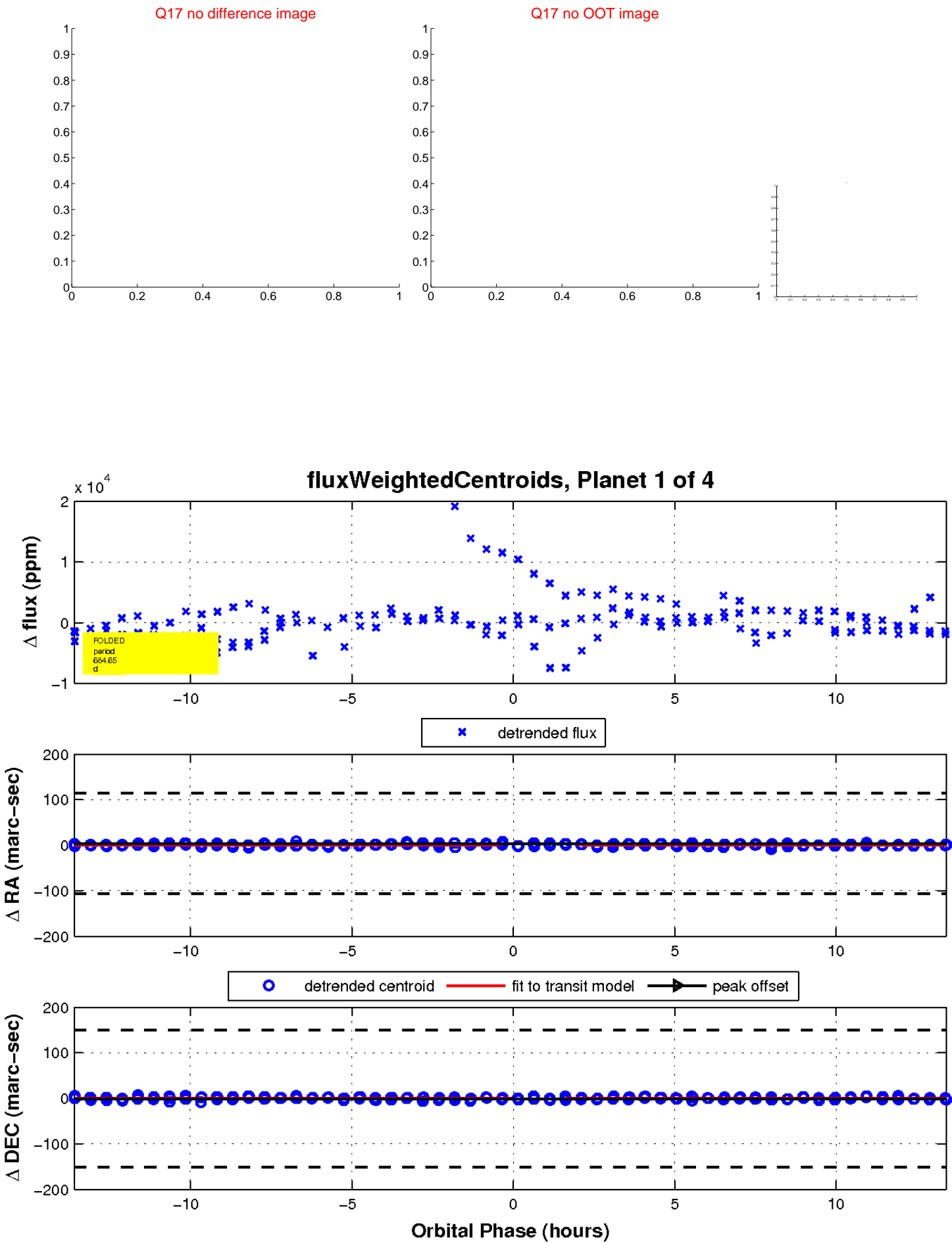
Q16 difference image



Q16 OOT image

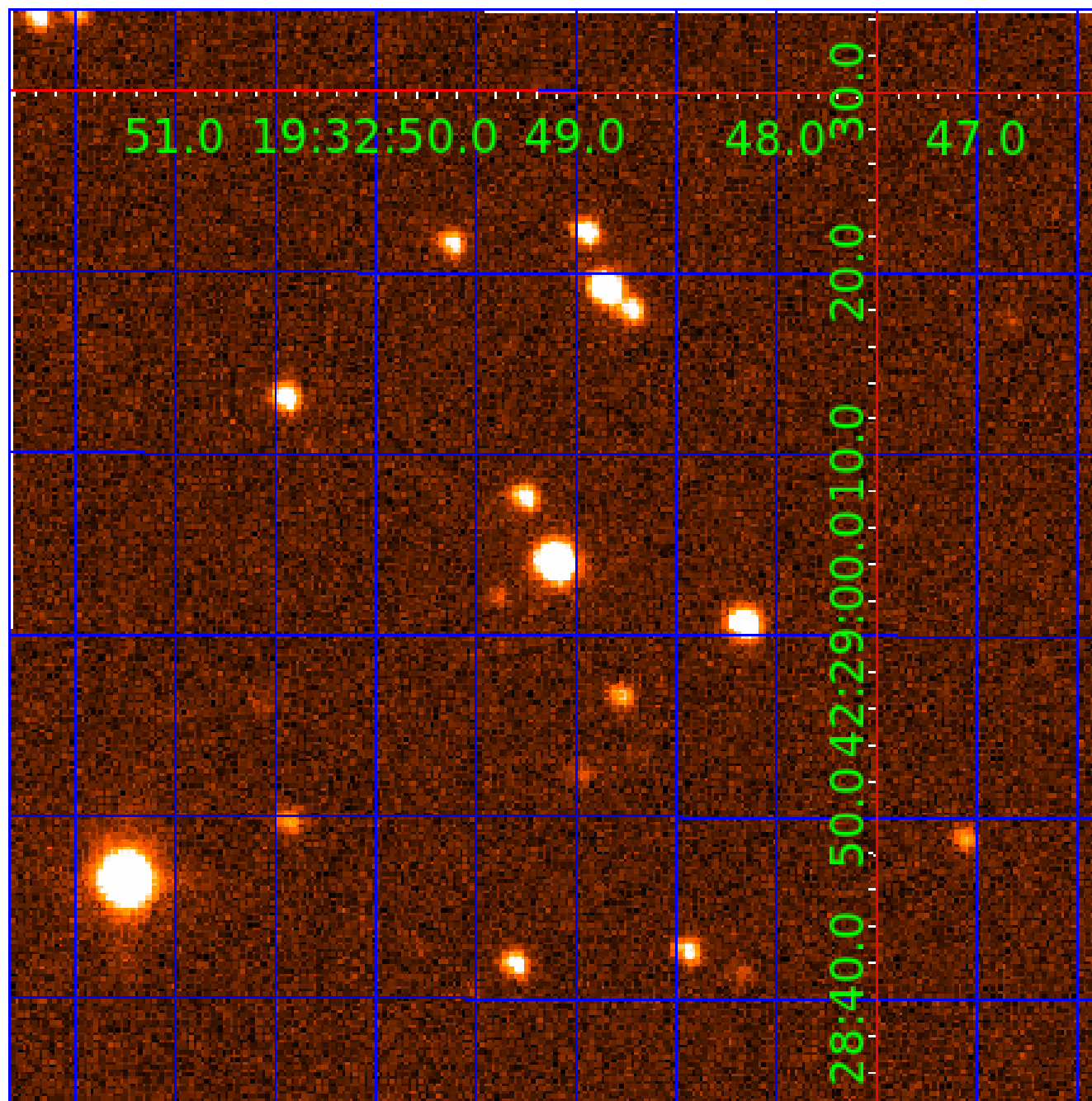


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 006953069

Q1-17 DR25 TCE Parameters

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

TCE	Run Type	Disp	Score	N	S	C	E	Comments
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006953069-02	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_POS_ALT—INCONSISTENT_TRANS
006953069-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_NOFITS
006953069-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_FEW_DIFFS

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

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

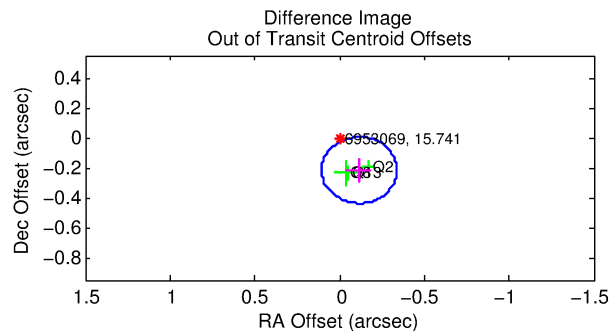
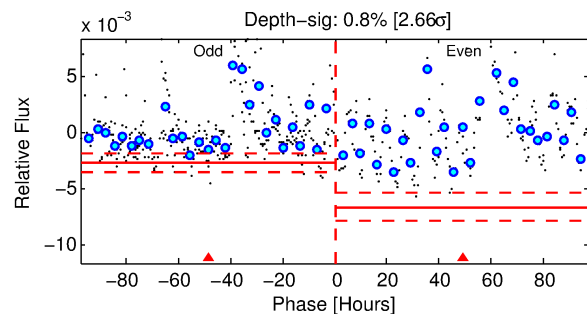
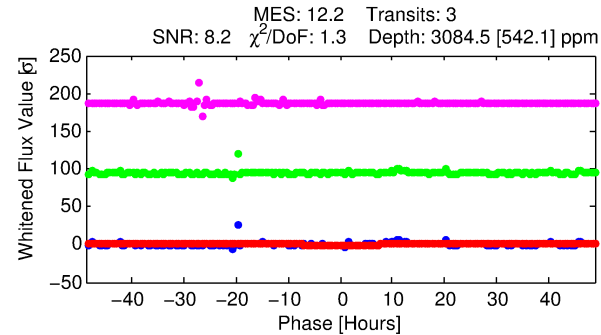
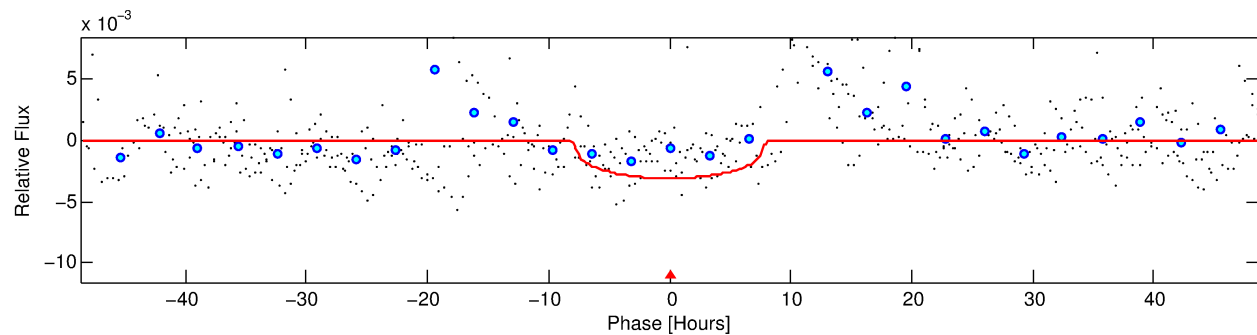
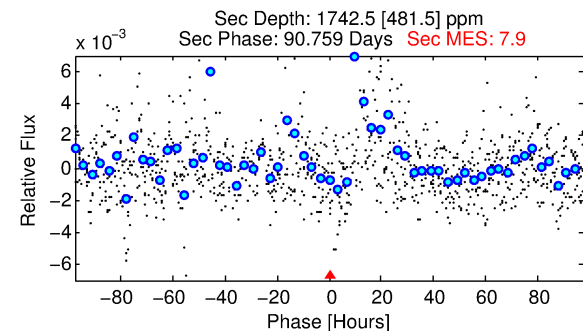
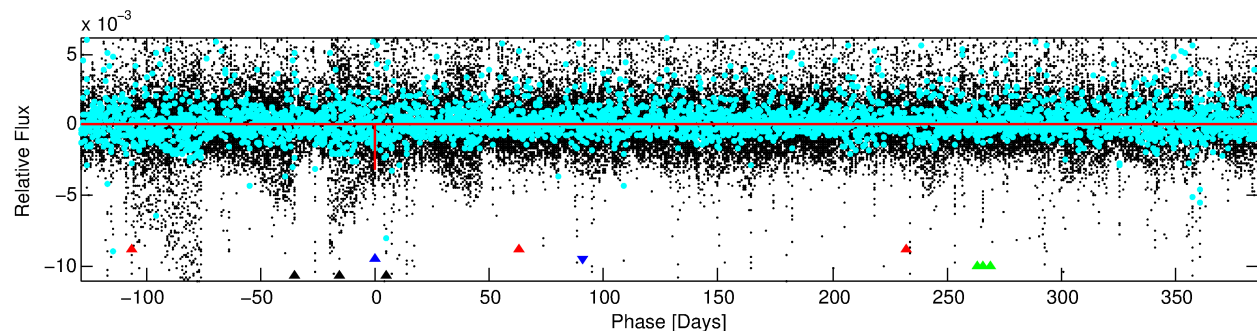
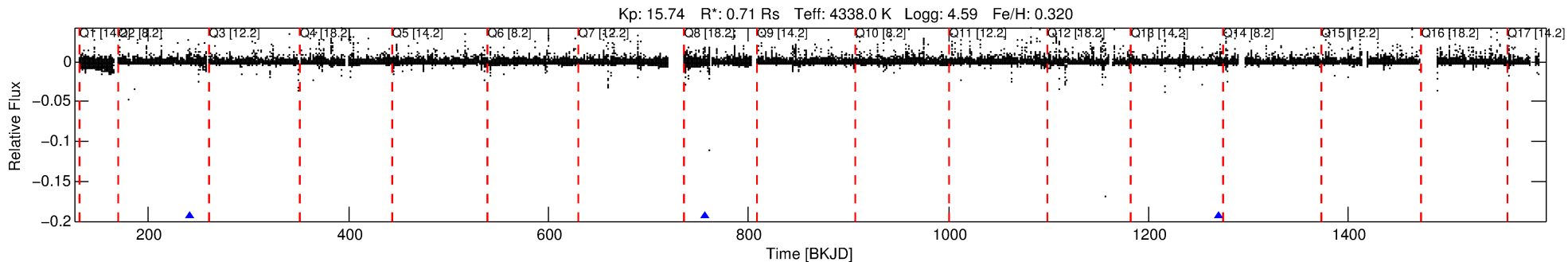
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 006953069-02

No Significant Match Found

DV One-Page Summary

KIC: 6953069 Candidate: 2 of 4 Period: 515.116 d



DV Fit Results:

Period = 515.11630 [0.01736] d
Epoch = 240.6976 [0.0222] BKJD
Rp/R* = 0.0482 [0.0217]
a/R* = 253.33 [301.74]
b = 0.08 [15.09]
Seff = 0.13 [0.02]
Teq = 152 [7] K
Rp = 3.73 [1.71] Re
a = 1.1205 [0.0812] AU
Ag = 86370.11 [81746.23] [1.06σ]
Teffp = 4035 [962] K [4.03σ]

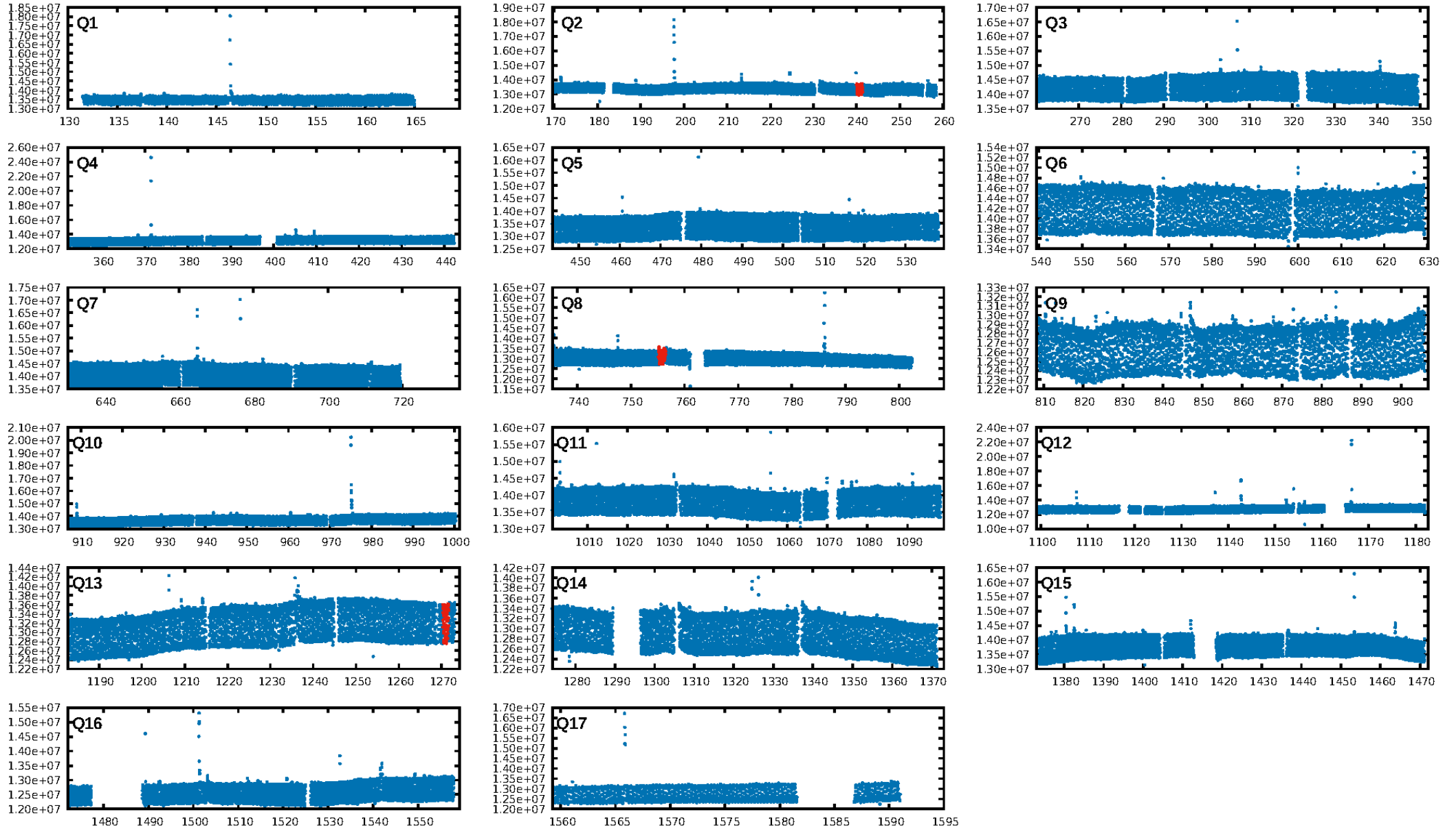
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [3.82σ]
LongPeriod-sig: 100.0% [219.17σ]
ModelChiSquare2-sig: 7.4%
ModelChiSquareGof-sig: 96.8%
Bootstrap-pfa: 1.42e-08
RollingBand-fgt: 1.00 [3/3]
GhostDiagnostic-chr: -15.53
Centroid-sig: 28.1%
Centroid-so: 0.462 arcsec [1.44σ]
OotOffset-rm: 0.245 arcsec [3.32σ]
KicOffset-rm: 0.301 arcsec [3.82σ]
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]

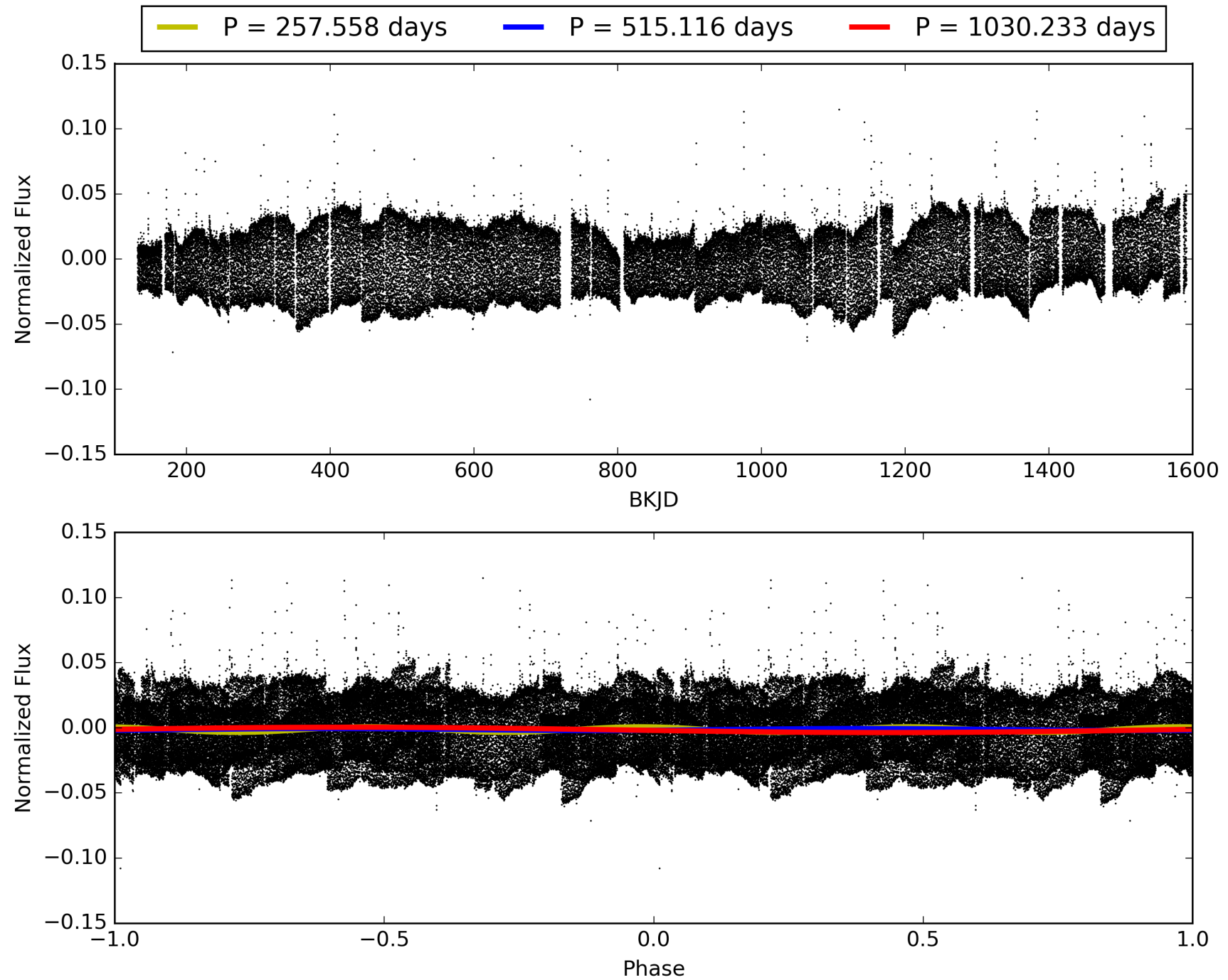
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 01-Feb-2016 09:41:56 Z

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

TCE 006953069-02, PDC Light Curves

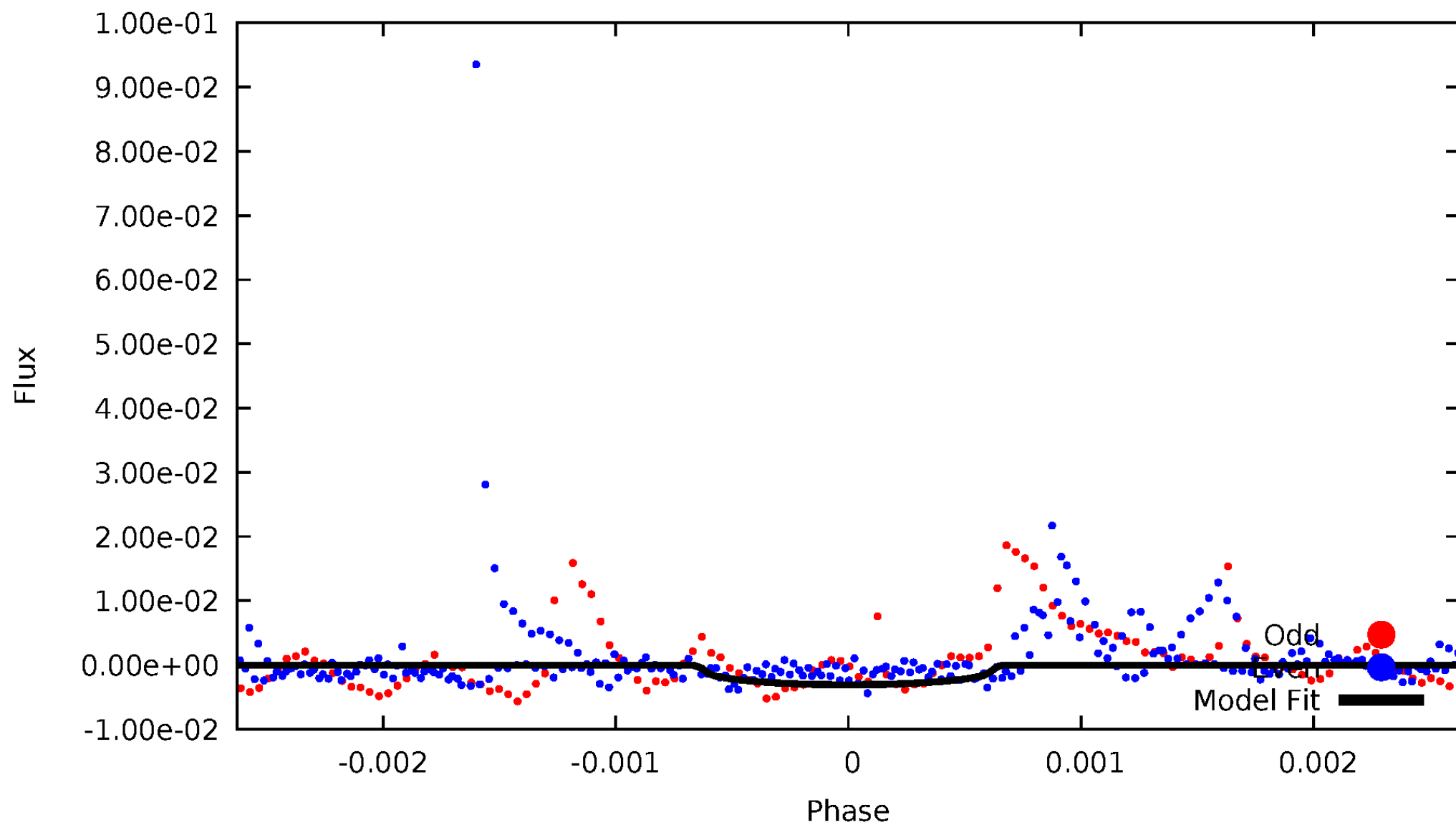


TCE 006953069-02



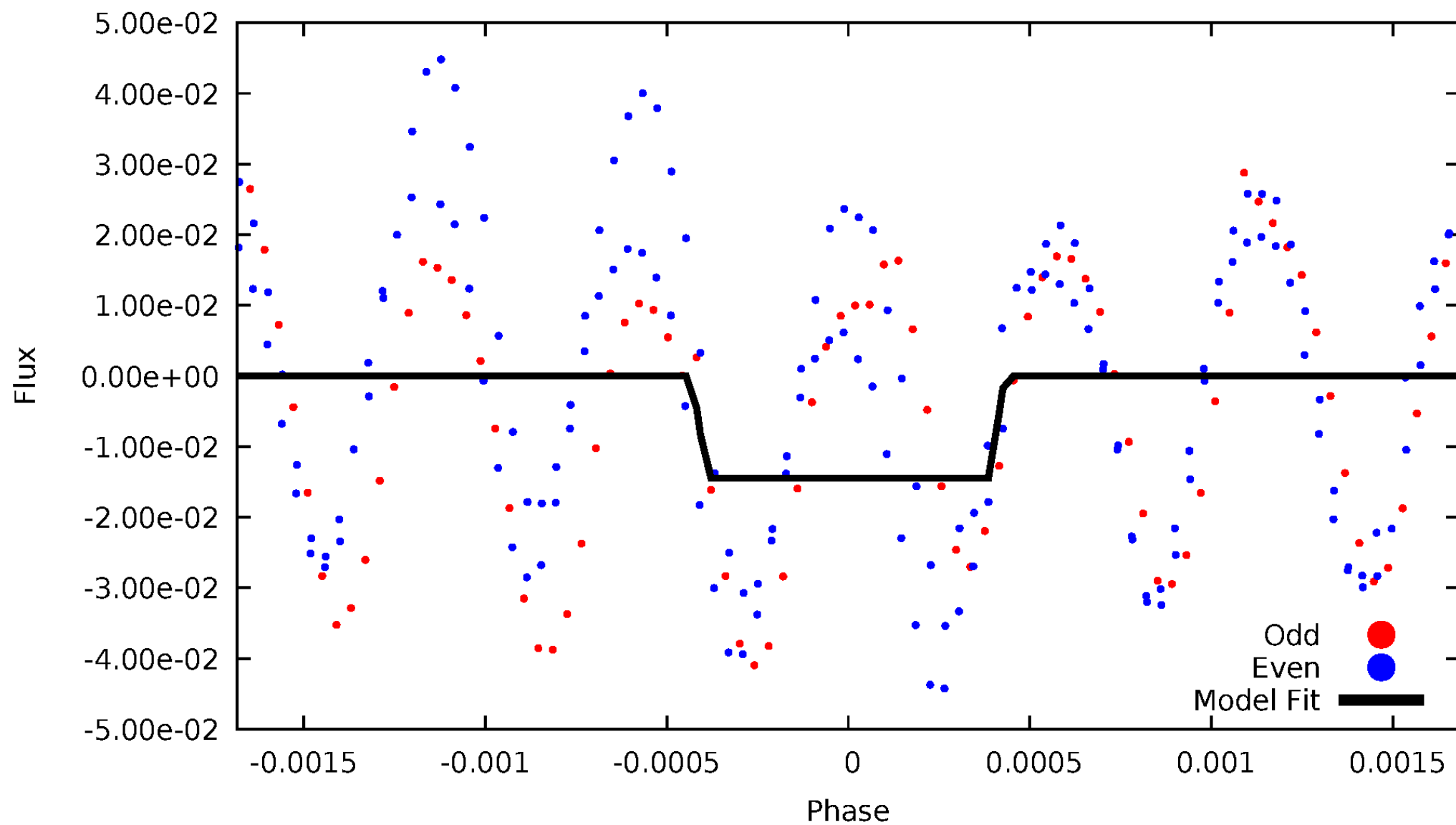
DV Odd/Even

TCE 006953069-02



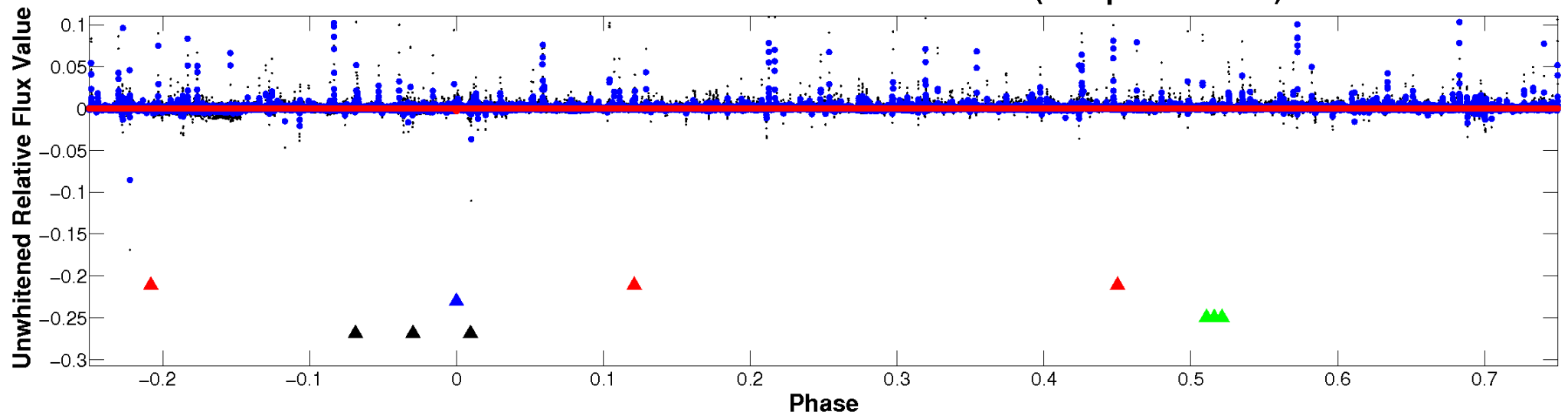
ALT Odd/Even

TCE 006953069-02

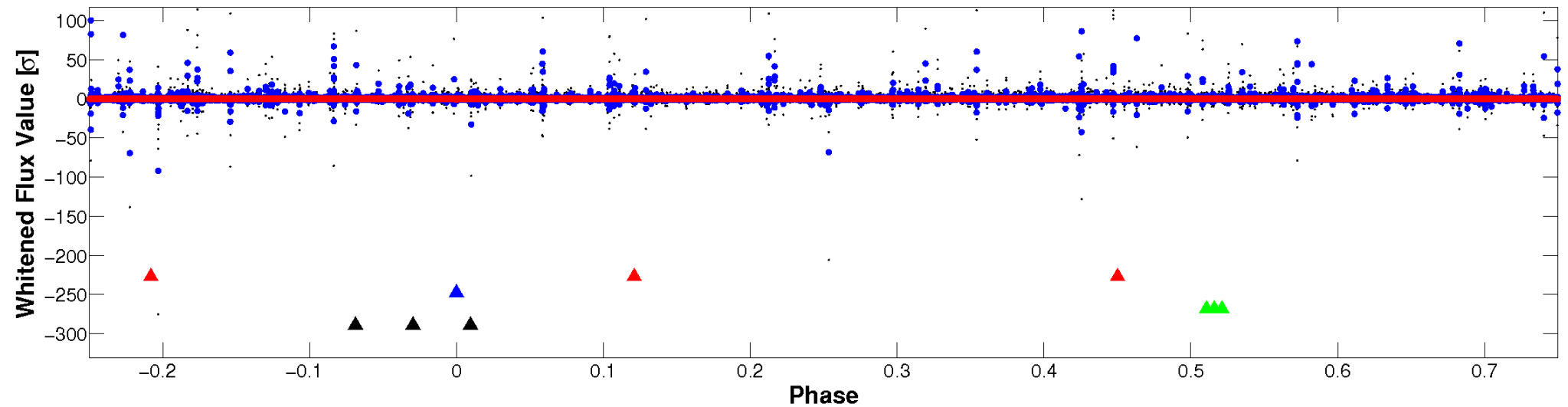


Non-Whitened Vs. Whitened Light Curve

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

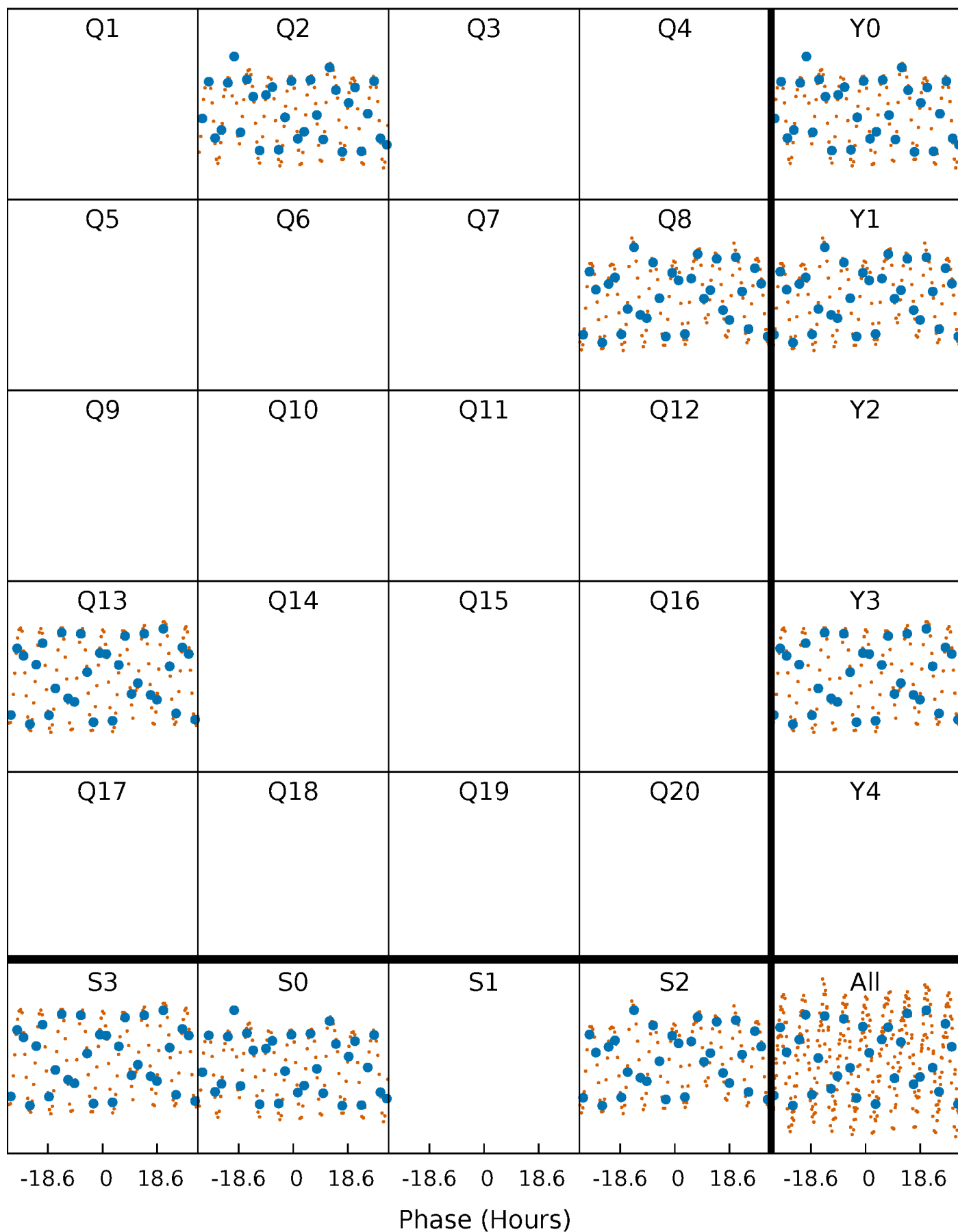


Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



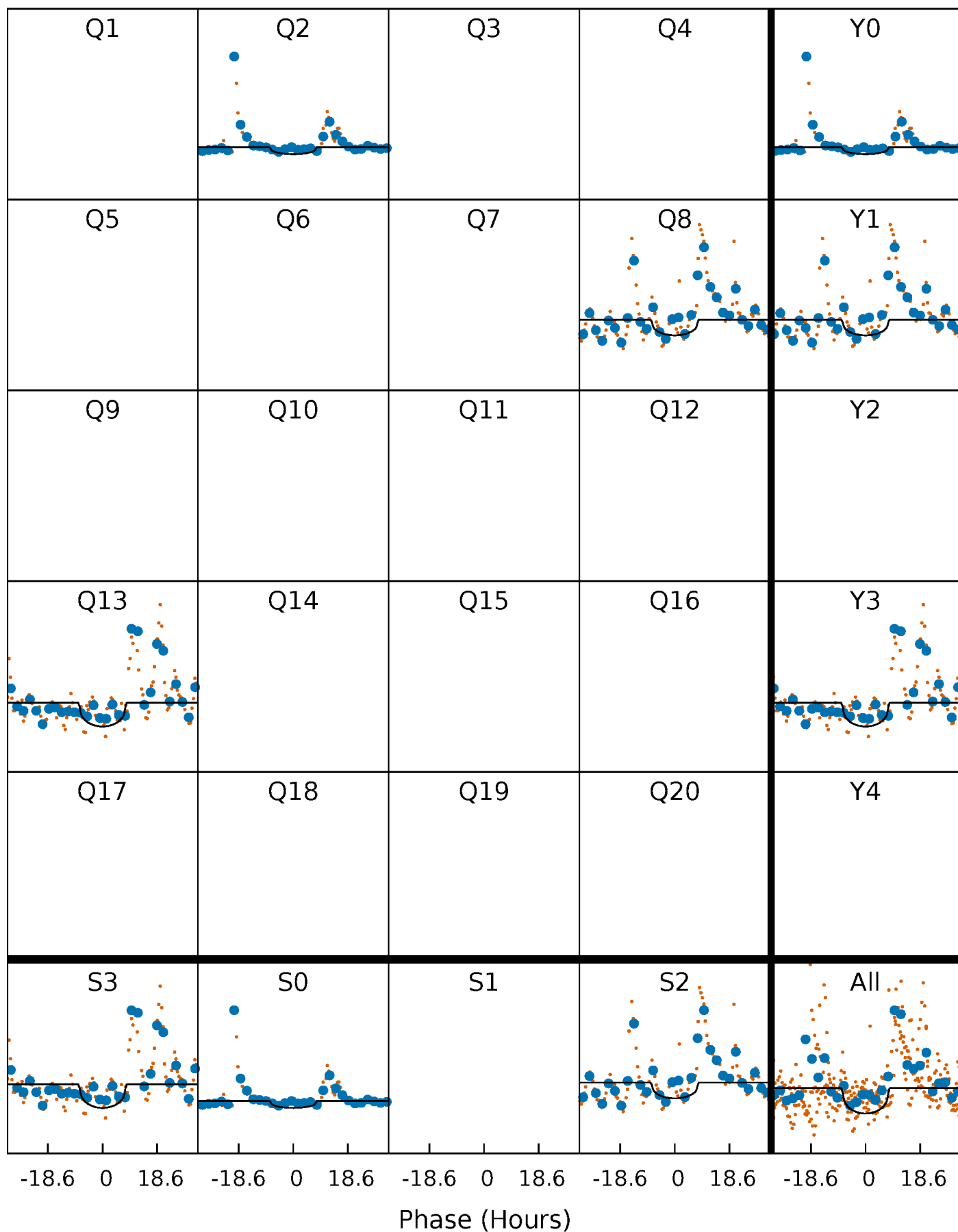
PDC Quarter-Phased Transit Curves

TCE 006953069-02 P=515.116300 Days $T_0=240.697645$ (BKJD)



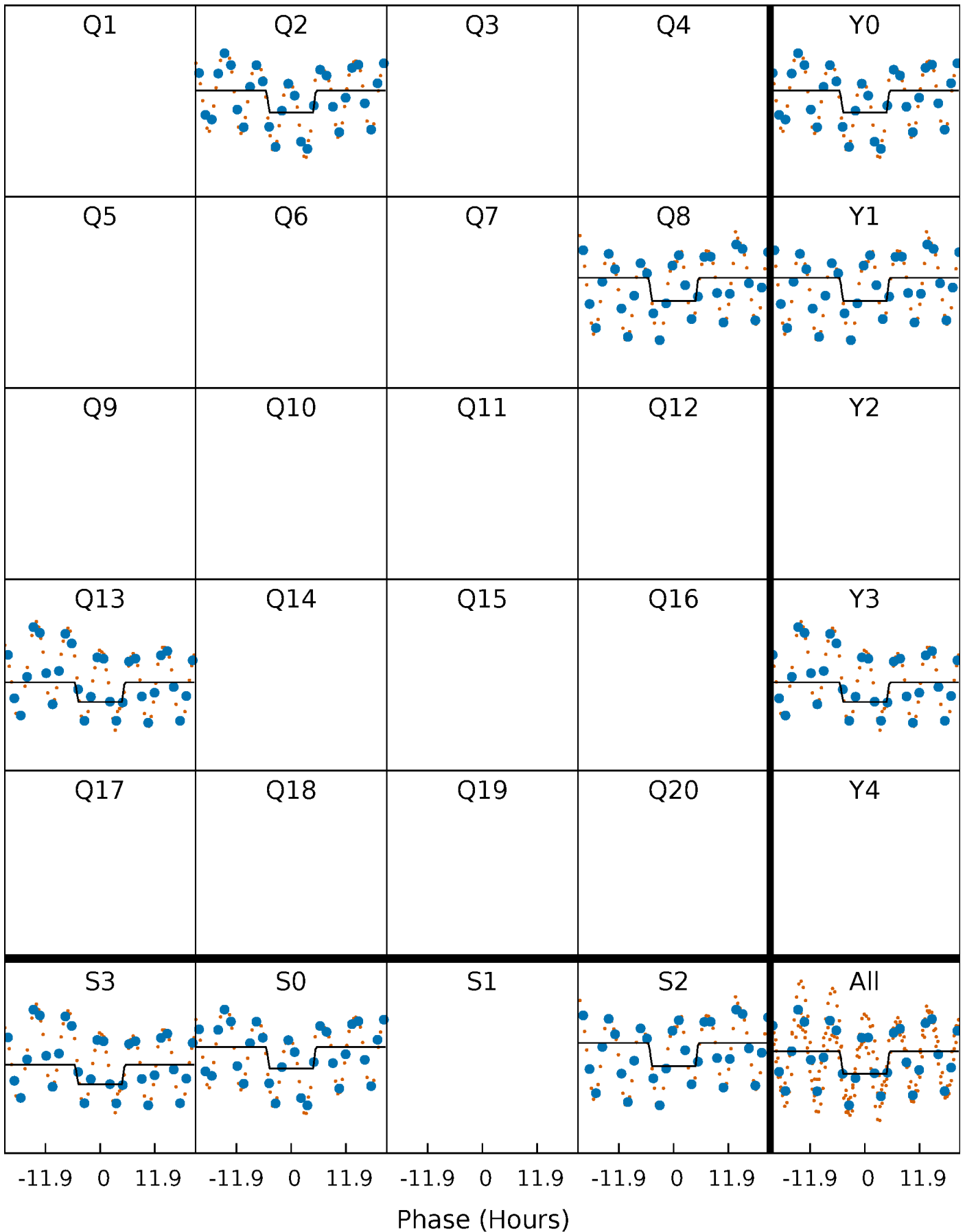
DV Quarter-Phased Transit Curves

TCE 006953069-02 P=515.116300 Days $T_0=240.697645$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

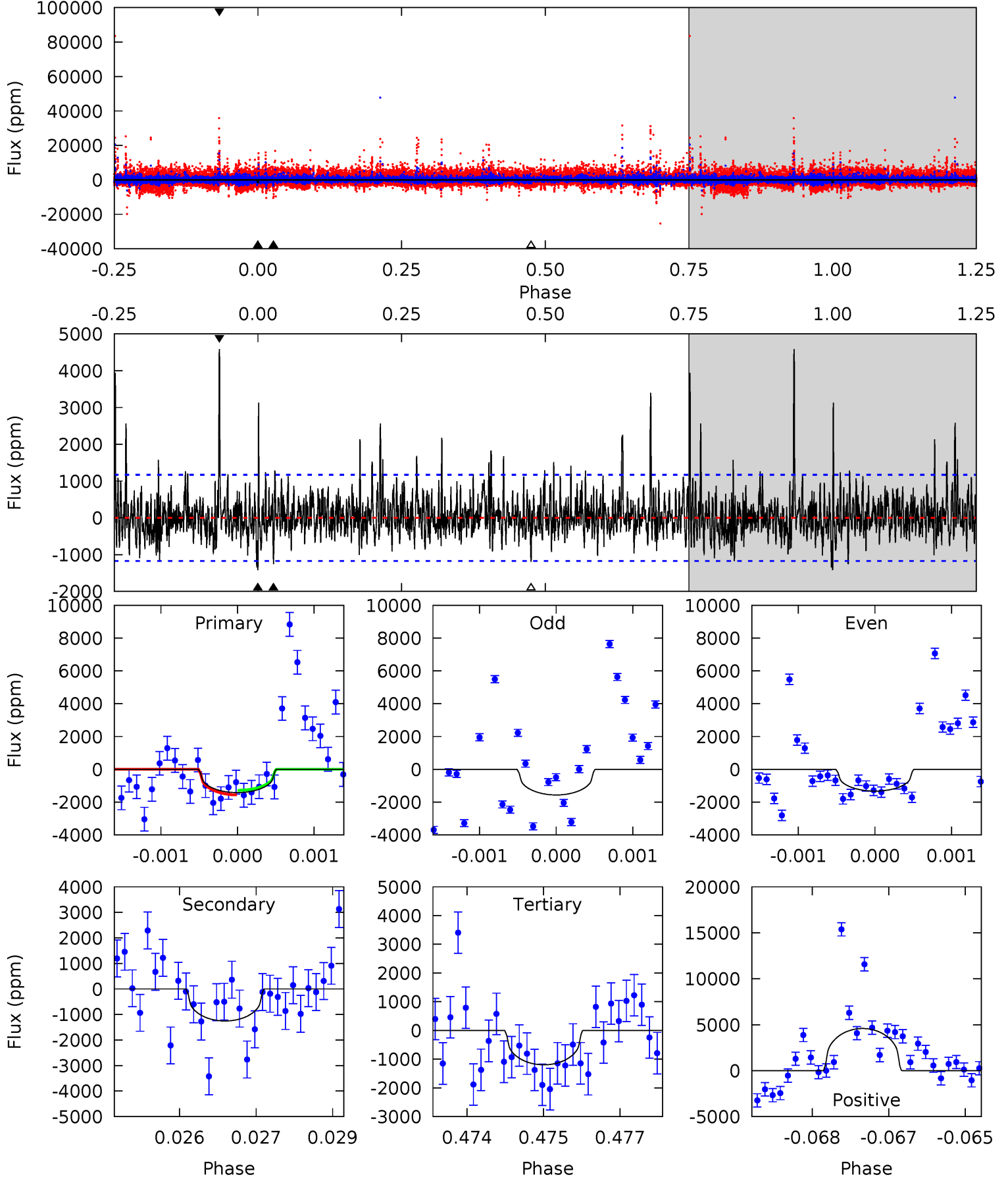
TCE 006953069-02 P=515.130048 Days $T_0=240.963276$ (BKJD)



DV Model-Shift Uniqueness Test

006953069-02, P = 515.116300 Days, E = 240.697645 Days

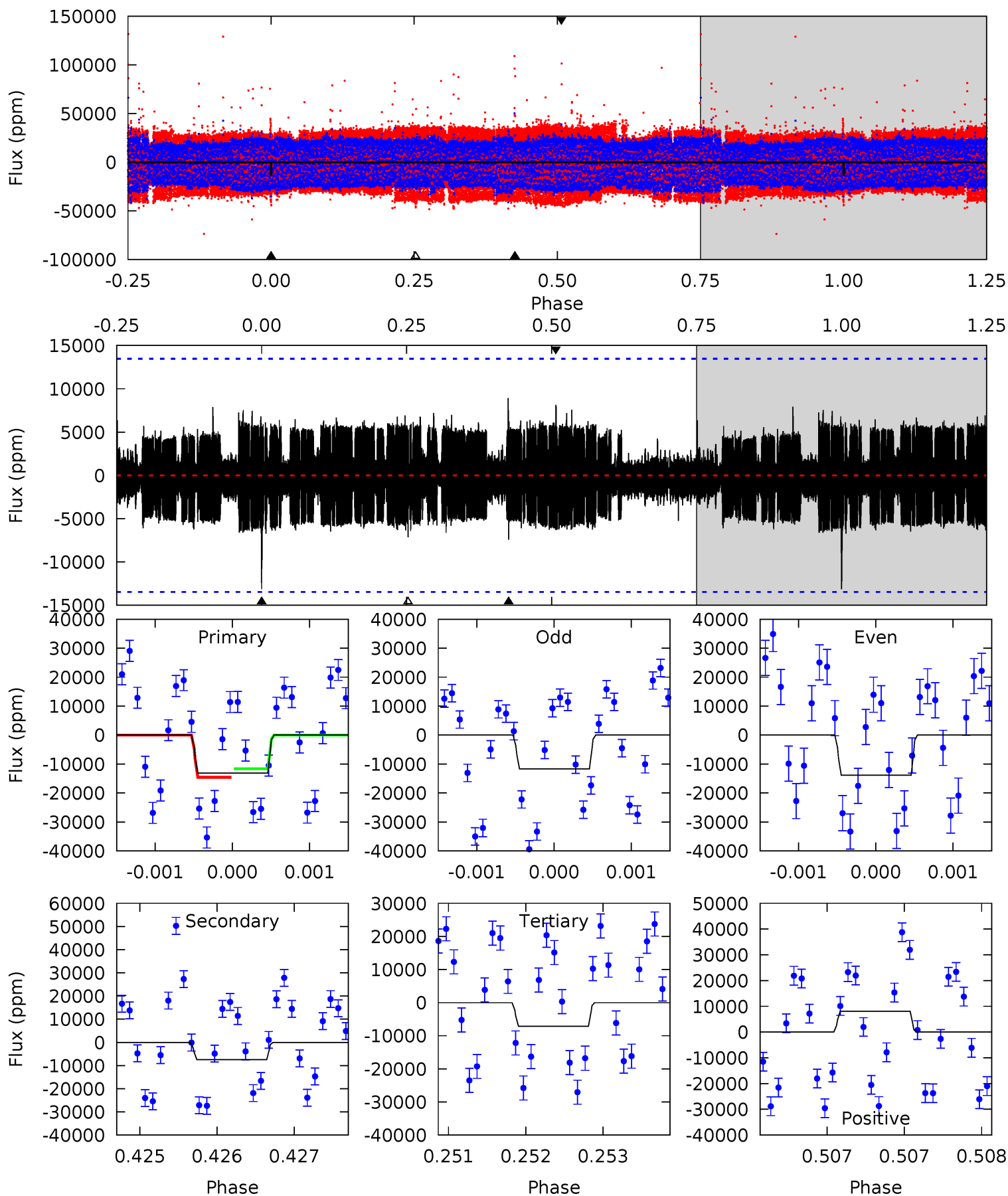
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
6.57	5.80	5.53	21.2	5.40	3.21	2.31	1.04	-14.6	0.27	-15.4	0.24	1.09	0.76	0.65



Alt Model-Shift Uniqueness Test

006953069-02, P = 515.130048 Days, E = 240.963276 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
5.34	3.02	2.91	3.31	5.48	3.34	1.30	2.43	2.04	0.10	-0.29	0.44	1.13	0.41	0.61



Stellar Parameters For KIC 006953069

	$T_{\text{eff}}(K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	4338^{+155}_{-172}	$4.586^{+0.056}_{-0.016}$	$0.320^{+0.100}_{-0.300}$	$0.709^{+0.028}_{-0.062}$	$0.708^{+0.042}_{-0.052}$	$2.794^{+0.706}_{-0.202}$
	+4%/-4%	+1%/-0%	+31%/-94%	+4%/-9%	+6%/-7%	+25%/-7%
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 006953069-02 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	-1255 ± 216	$3.76^{+1.75}_{-1.63}$	211^{+8}_{-9}	3851^{+951}_{-478}	$61588^{+141969}_{-33884}$
Alt.	-7406 ± 2455	$9.11^{+1.76}_{-1.66}$	211^{+8}_{-9}	3845^{+358}_{-327}	62036^{+39513}_{-25311}

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 $A_{obs} \gg 1.0$

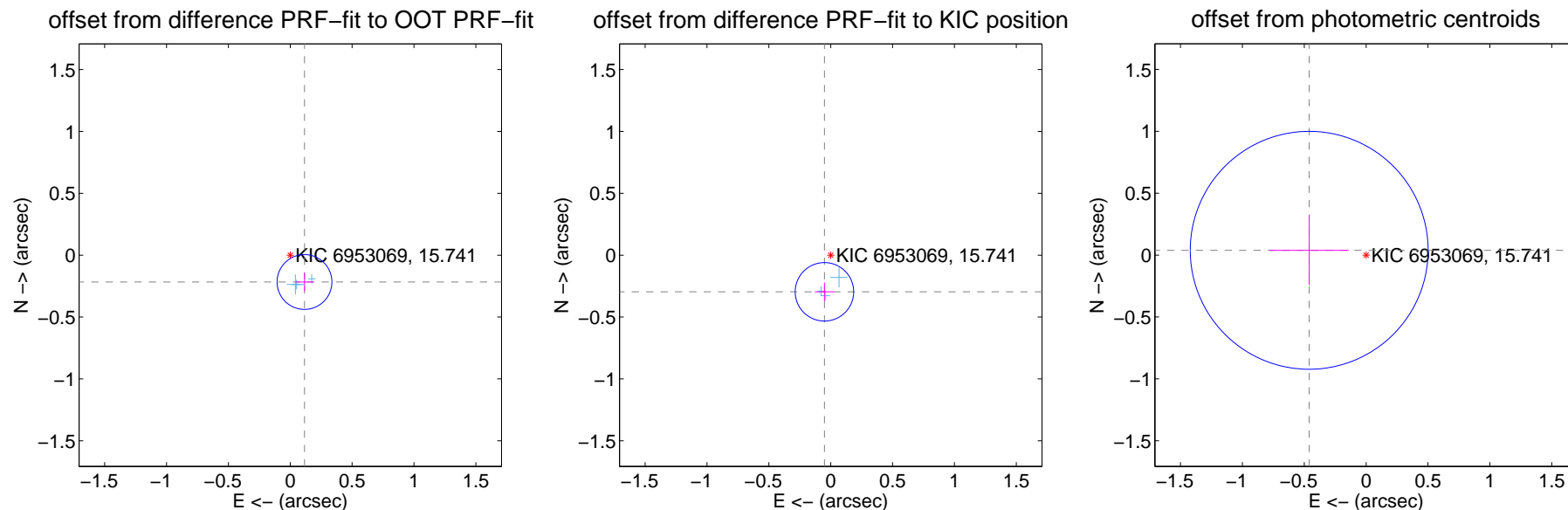
DV Centroid Data

Supplemental centroid analysis for 006953069-02. Kepler magnitude: 15.74. Transit SNR 8.21

There are 3 quarters with good PRF difference image offsets

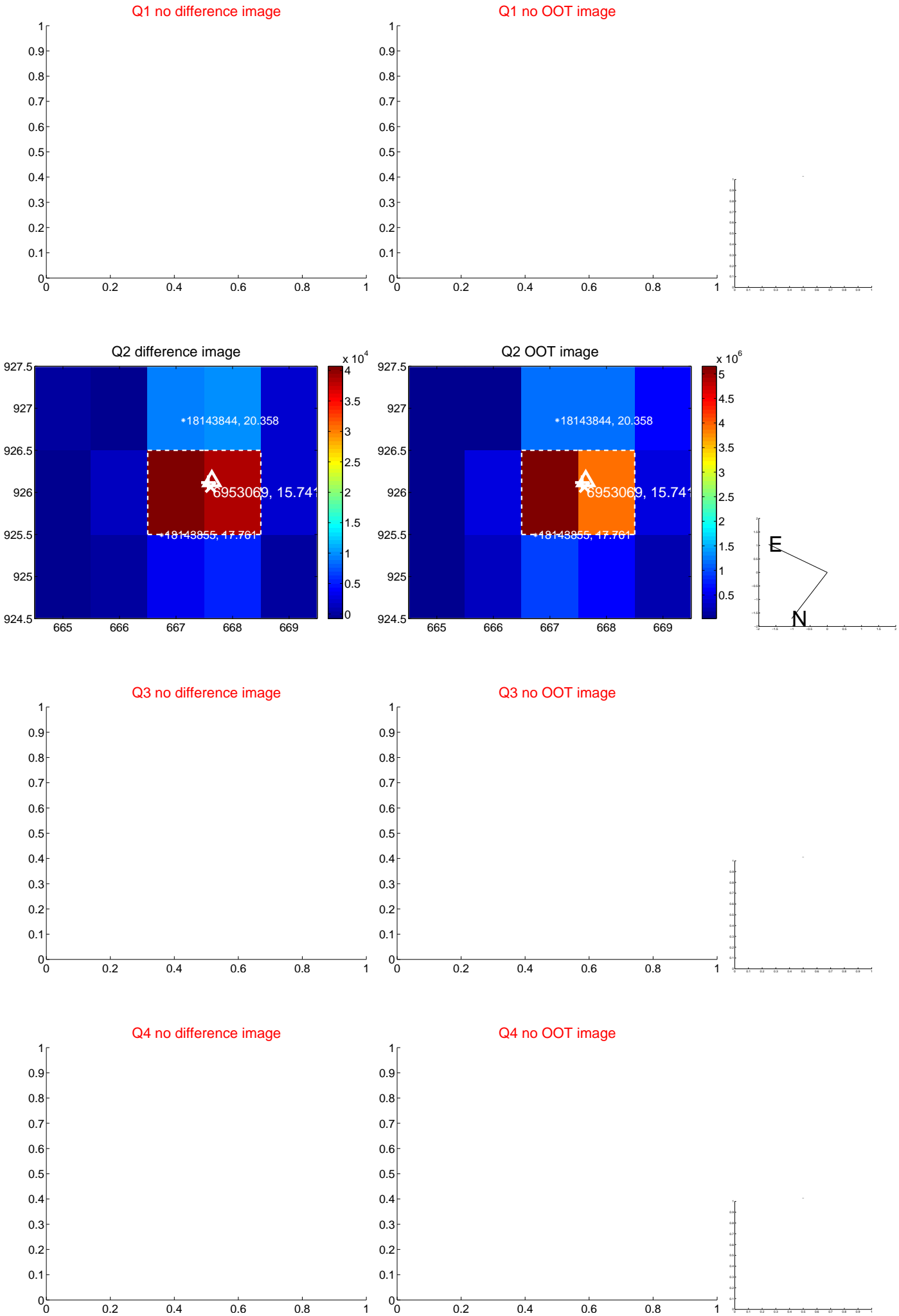
The direct PRF centroid is offset from the target star catalog position by about 0.13 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.245 ± 0.074	3.32	-0.115 ± 0.073	-0.217 ± 0.074
PRF-fit source offset from KIC position	0.301 ± 0.079	3.82	0.051 ± 0.077	-0.296 ± 0.076
photometric centroid source offset	0.46 ± 0.32	1.44	0.46 ± 0.32	0.04 ± 0.28



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

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



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

Q5 no difference image



Q5 no OOT image



Q6 no difference image



Q6 no OOT image



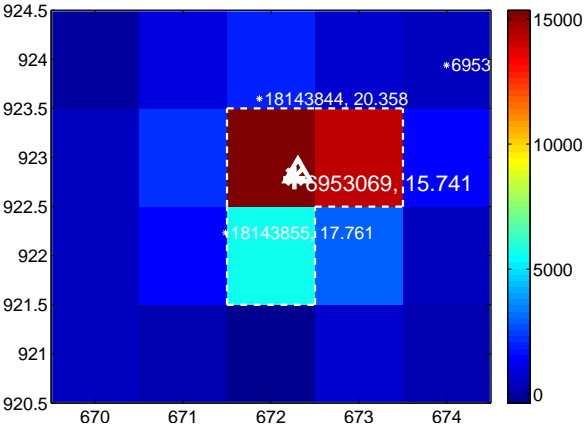
Q7 no difference image



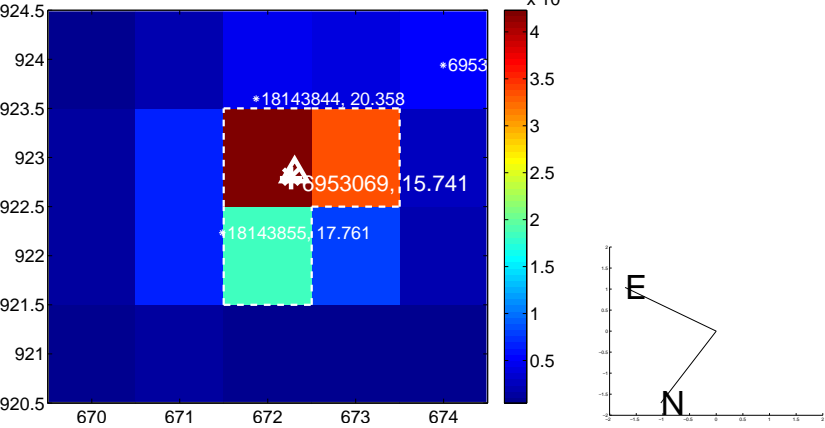
Q7 no OOT image



Q8 difference image



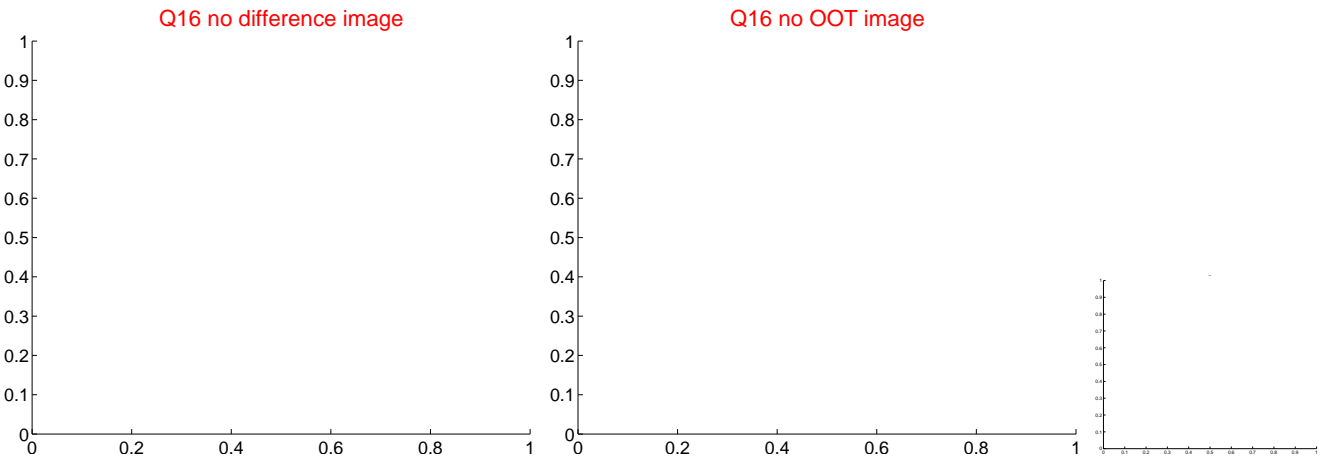
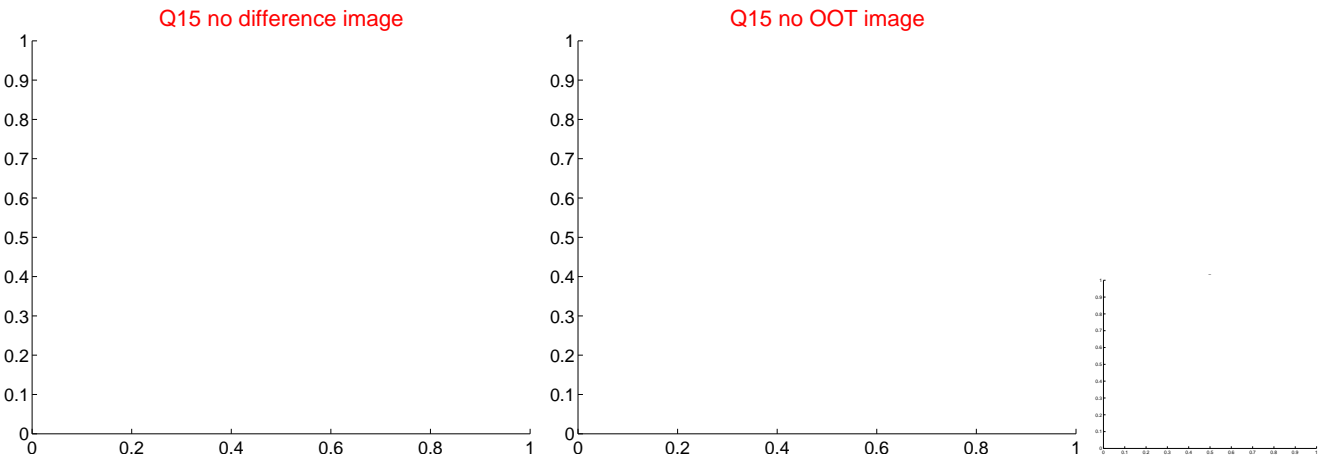
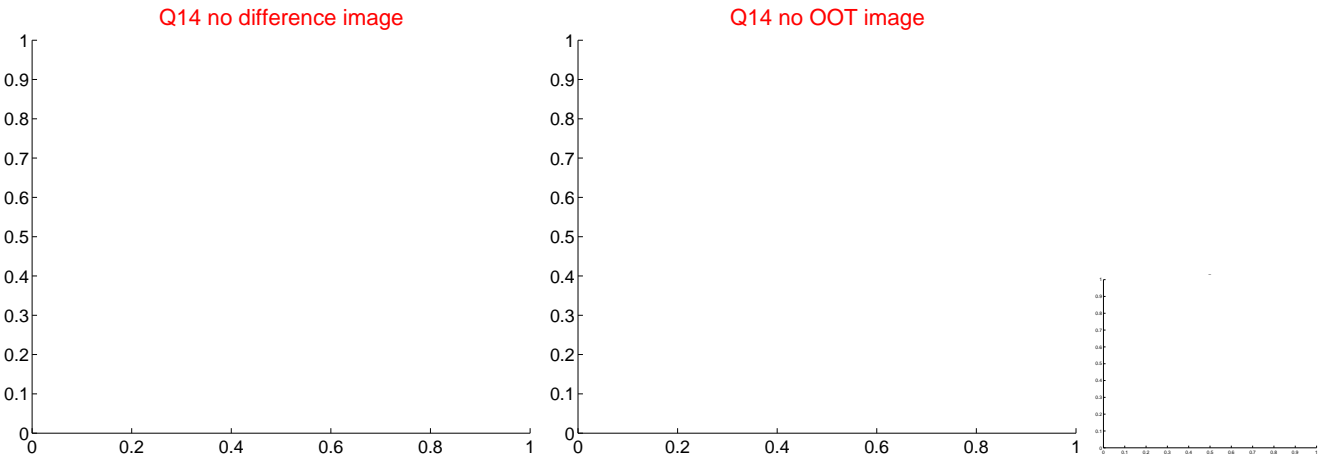
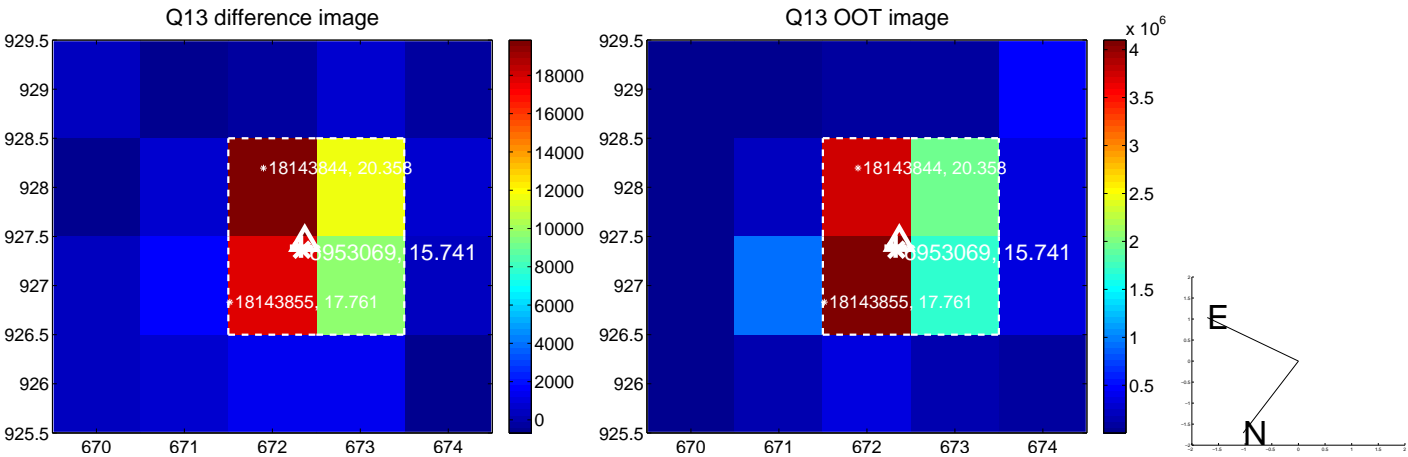
Q8 OOT image



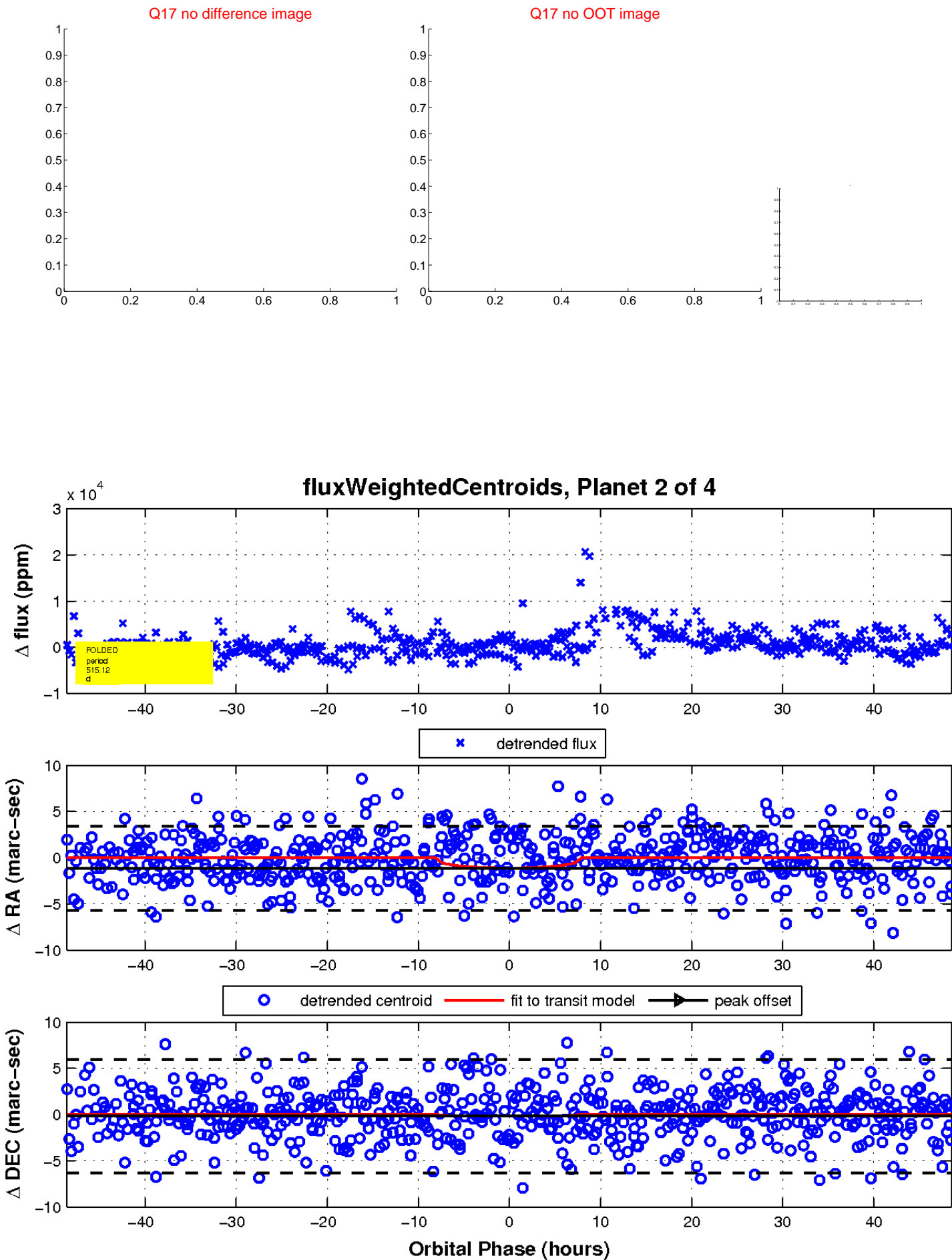
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

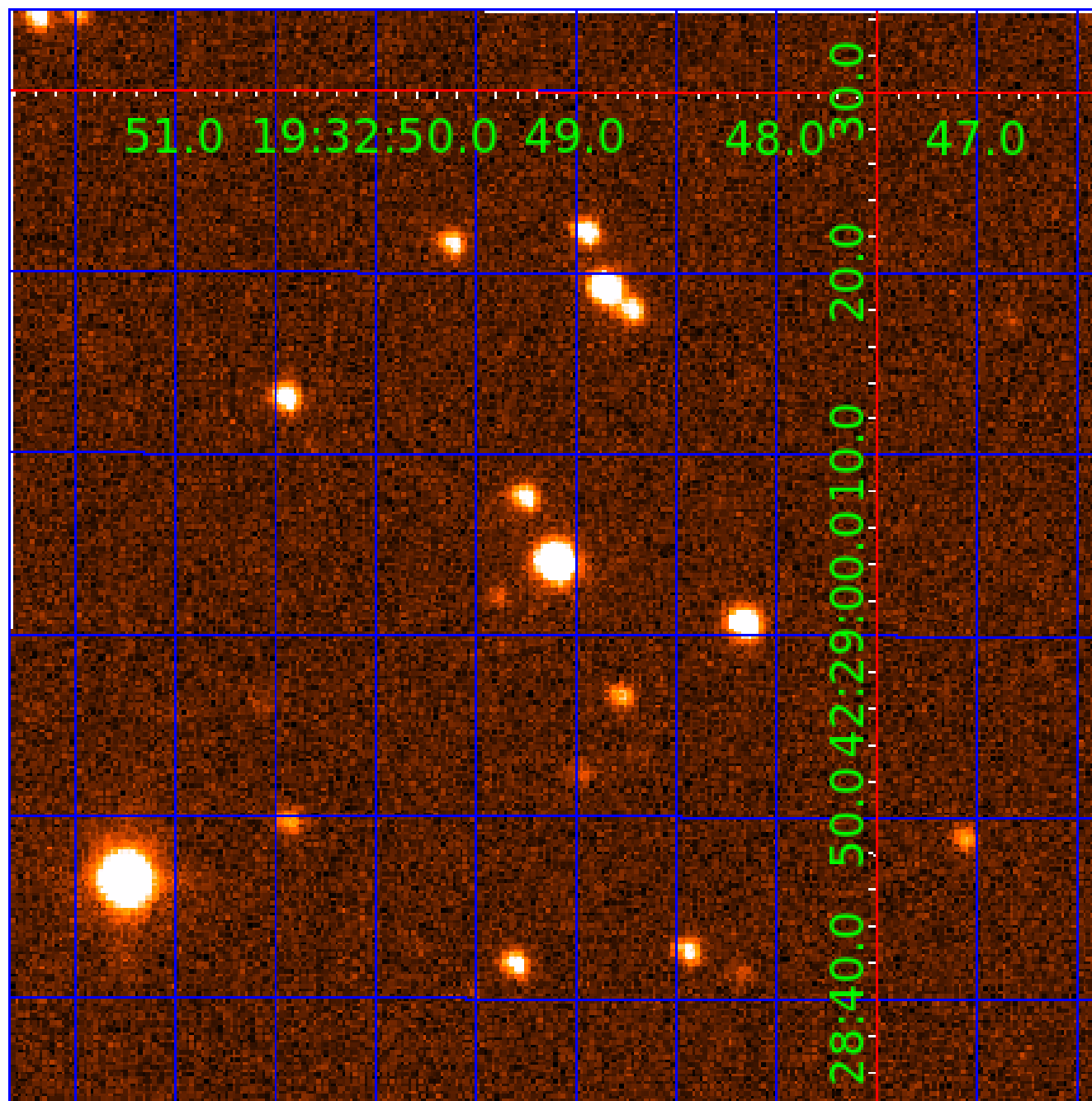


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 006953069

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})
006953069-01	OBS	No	684.646861	133.523699	1999.3	9.000	11.9	-1.0	0.71	4338	3.01	0.09
006953069-02	OBS	No	515.116300	240.697645	3084.5	16.236	12.2	8.2	0.71	4338	3.73	0.13
006953069-03	OBS	No	512.412384	509.194700	1796.4	5.000	11.3	-1.0	0.71	4338	2.85	0.13
006953069-04	OBS	No	494.952236	245.620294	6636.1	14.188	14.6	14.3	0.71	4338	6.89	0.13

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
006953069-01	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_NOFITS
006953069-02	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_POS_ALT—INCONSISTENT_TRANS
006953069-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_NOFITS
006953069-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_FEW_DIFFS

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

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

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

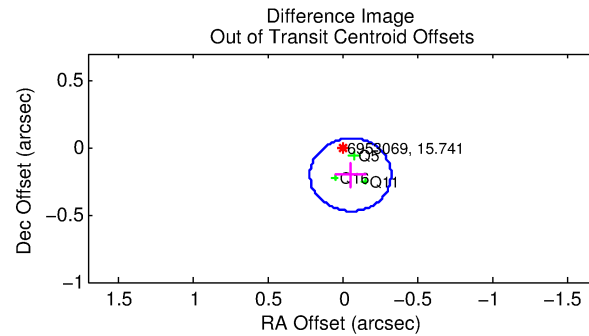
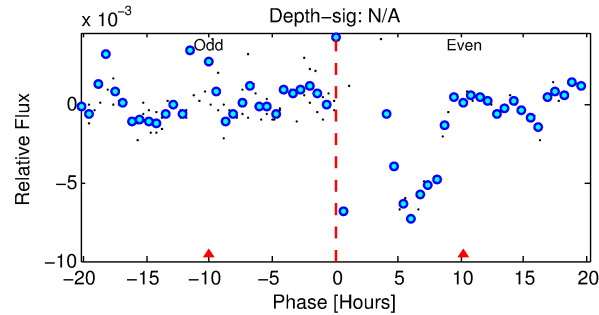
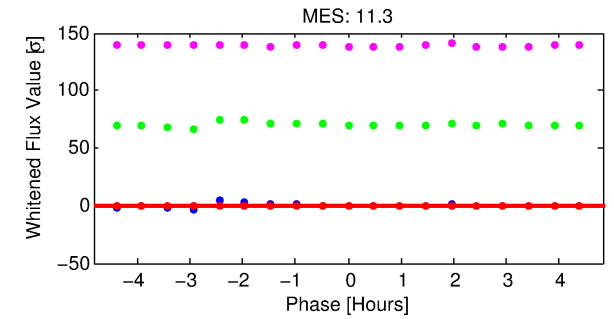
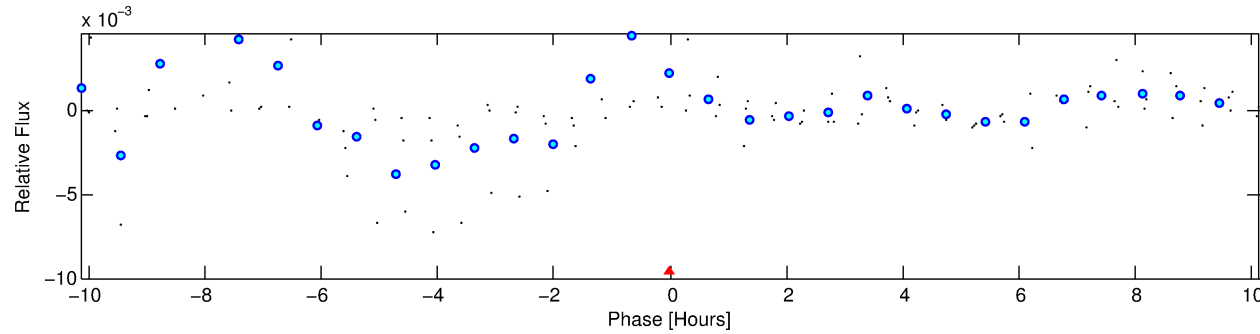
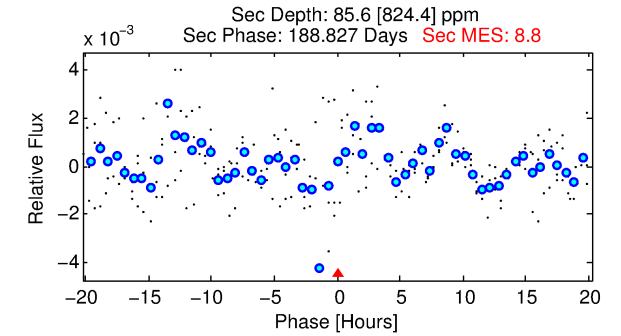
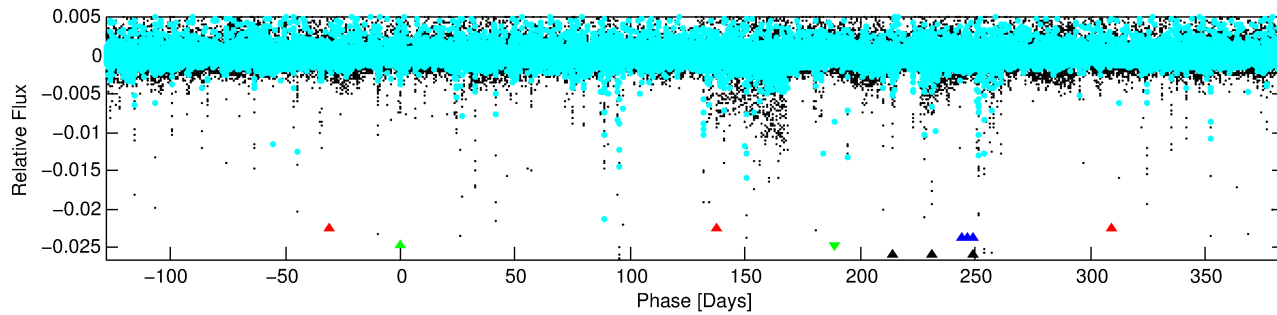
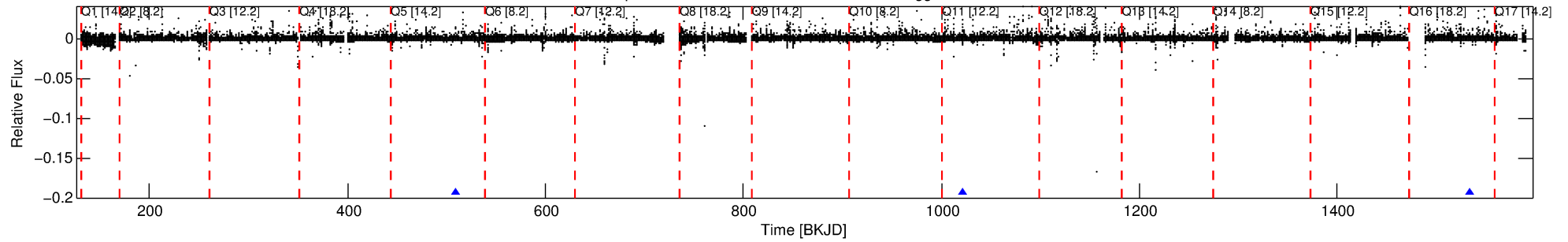
Ephemeris Match Information For 006953069-03

No Significant Match Found

DV One-Page Summary

KIC: 6953069 Candidate: 3 of 4 Period: 512.412 d

Kp: 15.74 R*: 0.71 Rs Teff: 4338.0 K Logg: 4.59 Fe/H: 0.320



TPS TCE Results:

Period = 512.41238 d
Epoch = 509.1947 BKJD

DV fit results are unavailable

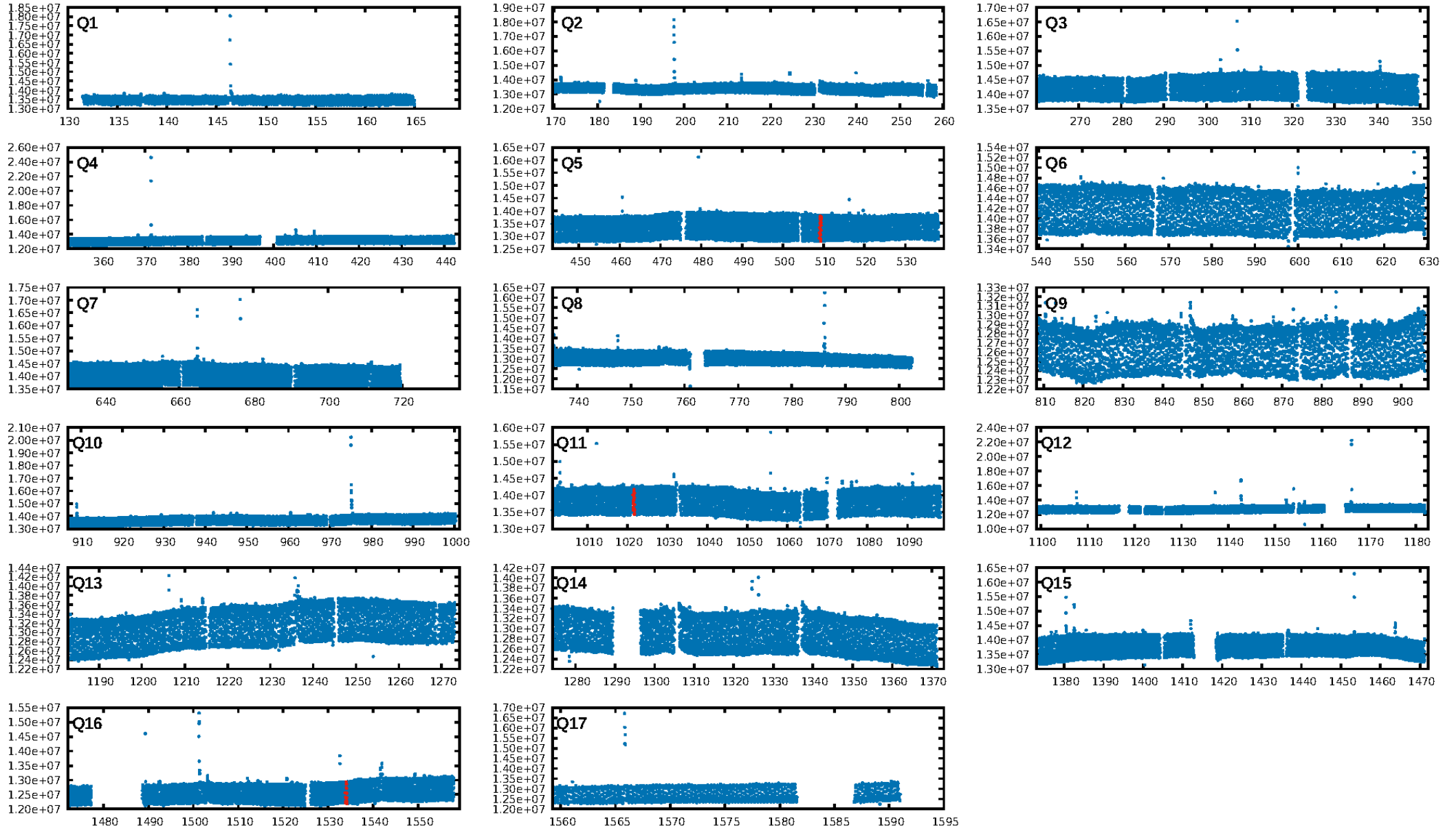
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [27.86σ]
LongPeriod-sig: 100.0% [3.82σ]
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: 3.96e-06
RollingBand-fgt: 1.00 [3/3]
GhostDiagnostic-chr: -1.075
Centroid-sig: 94.6%
Centroid-so: 0.117 arcsec [0.83σ]
OotOffset-rm: 0.209 arcsec [2.32σ]
KicOffset-rm: 0.235 arcsec [3.00σ]
OotOffset-st: 0/1/1/1 [3]
KicOffset-st: 0/1/1/1 [3]
DiffImageQuality-fgm: 0.67 [2/3]
DiffImageOverlap-fno: 1.00 [3/3]

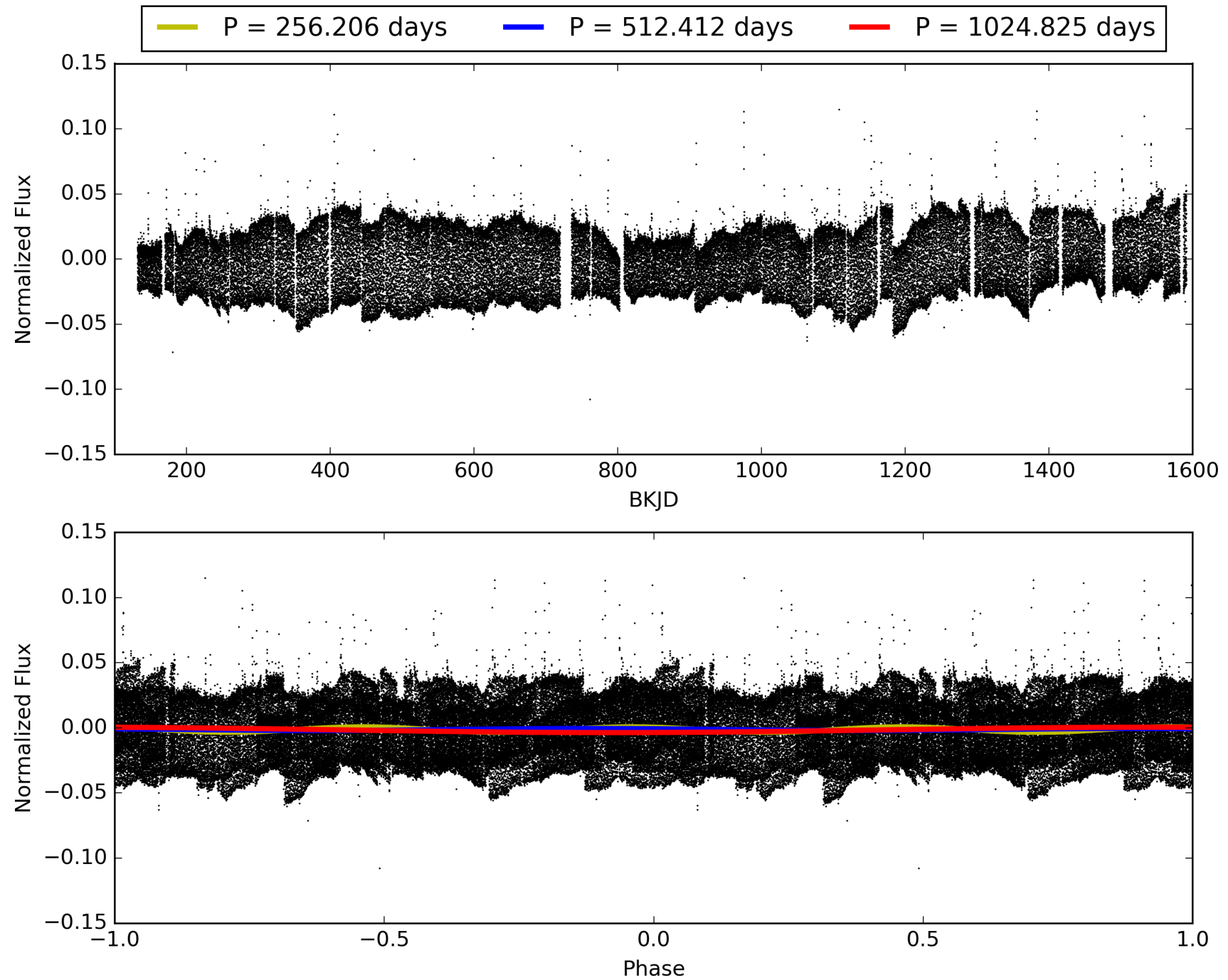
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 01-Feb-2016 09:42:16 Z

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

TCE 006953069-03, PDC Light Curves

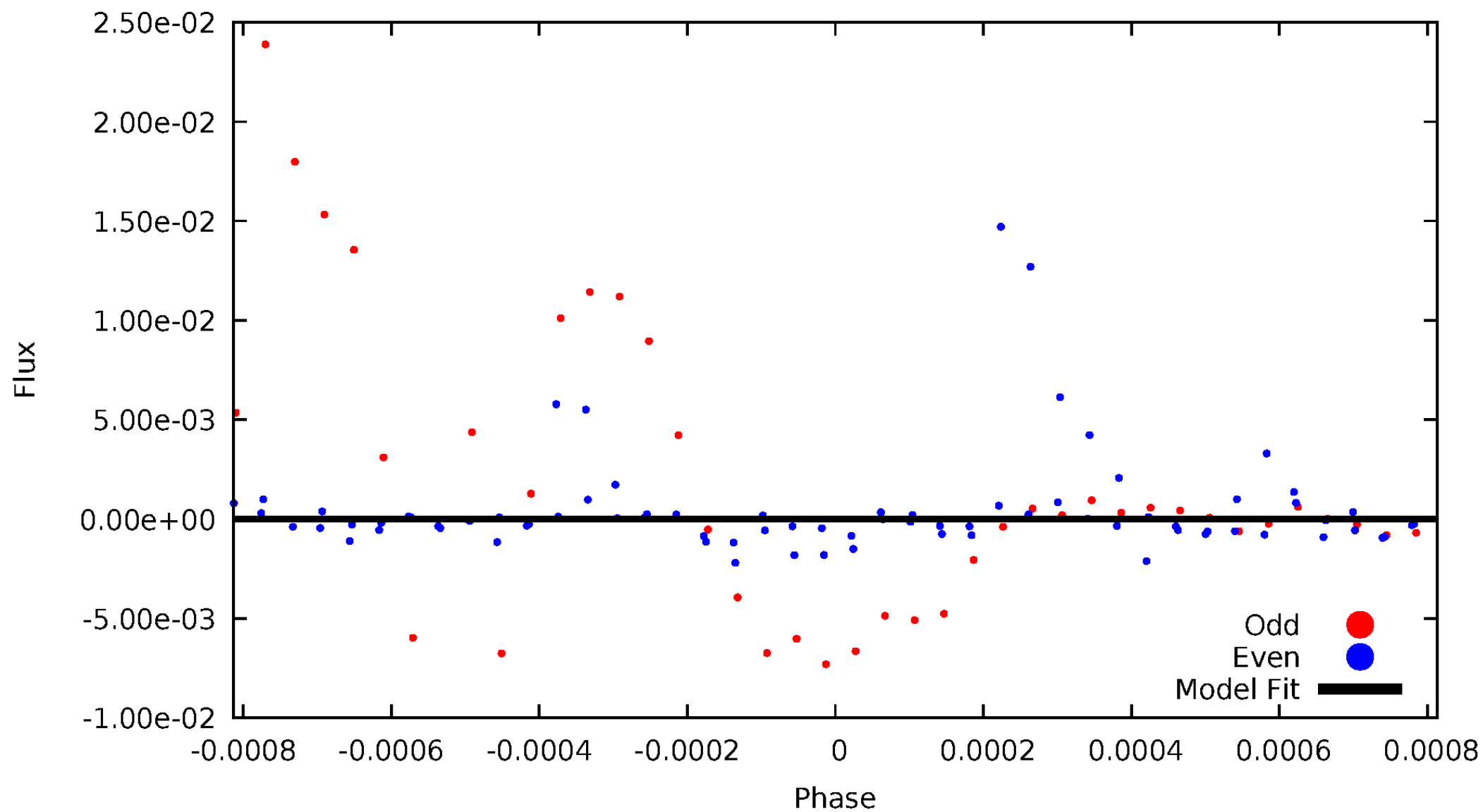


TCE 006953069-03



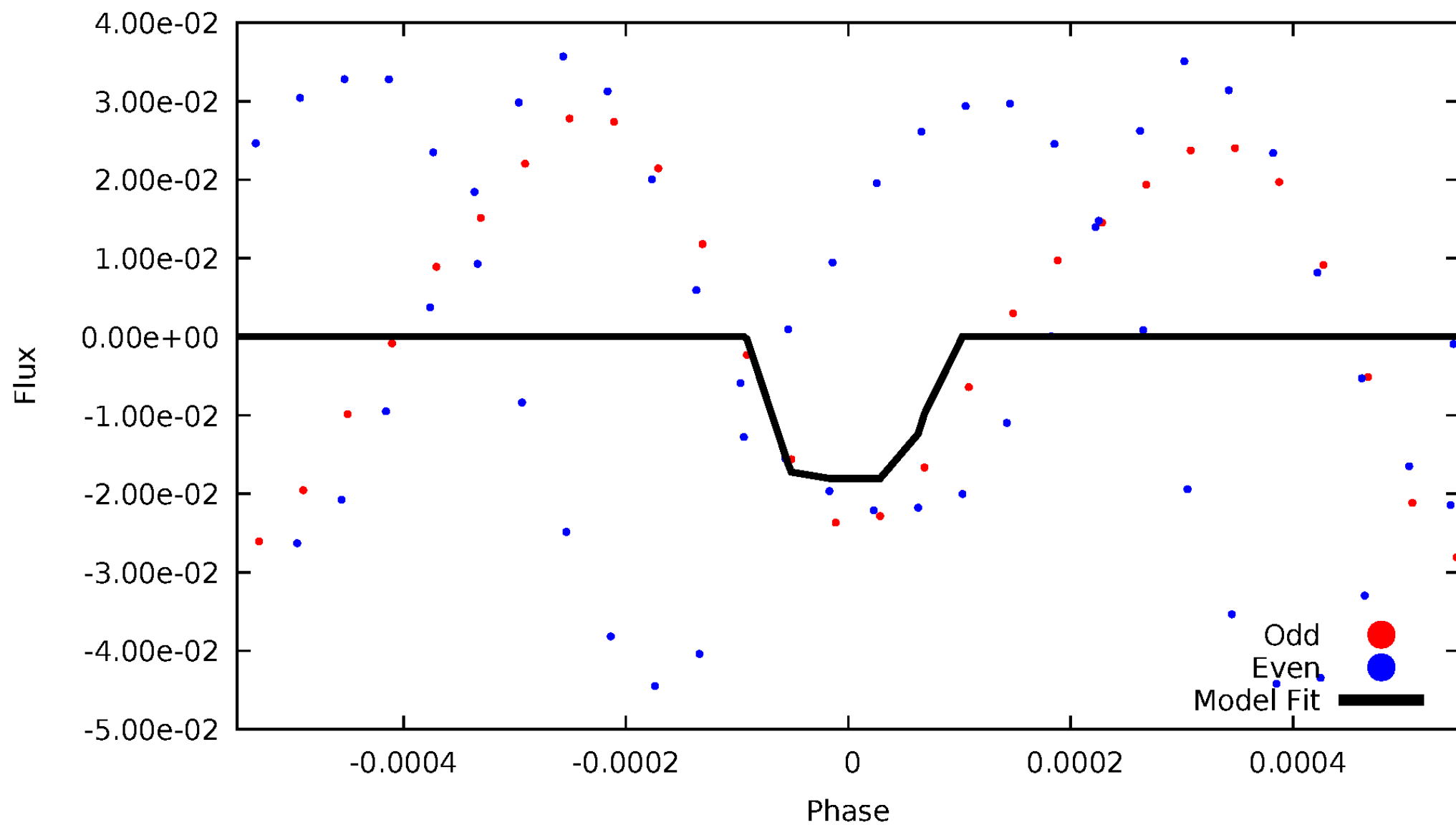
DV Odd/Even

TCE 006953069-03



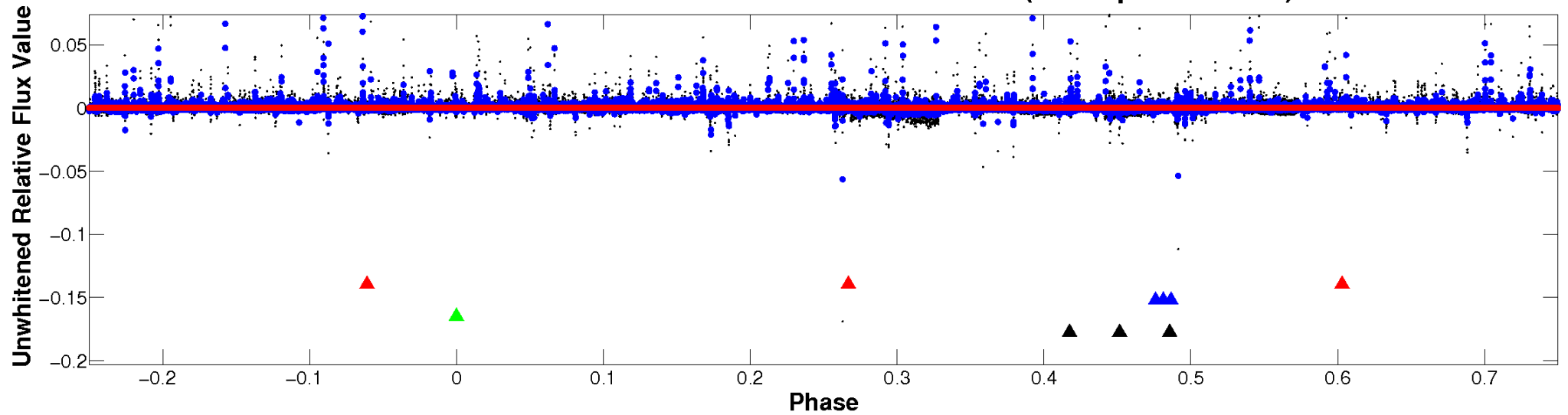
ALT Odd/Even

TCE 006953069-03



Non-Whitened Vs. Whitened Light Curve

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

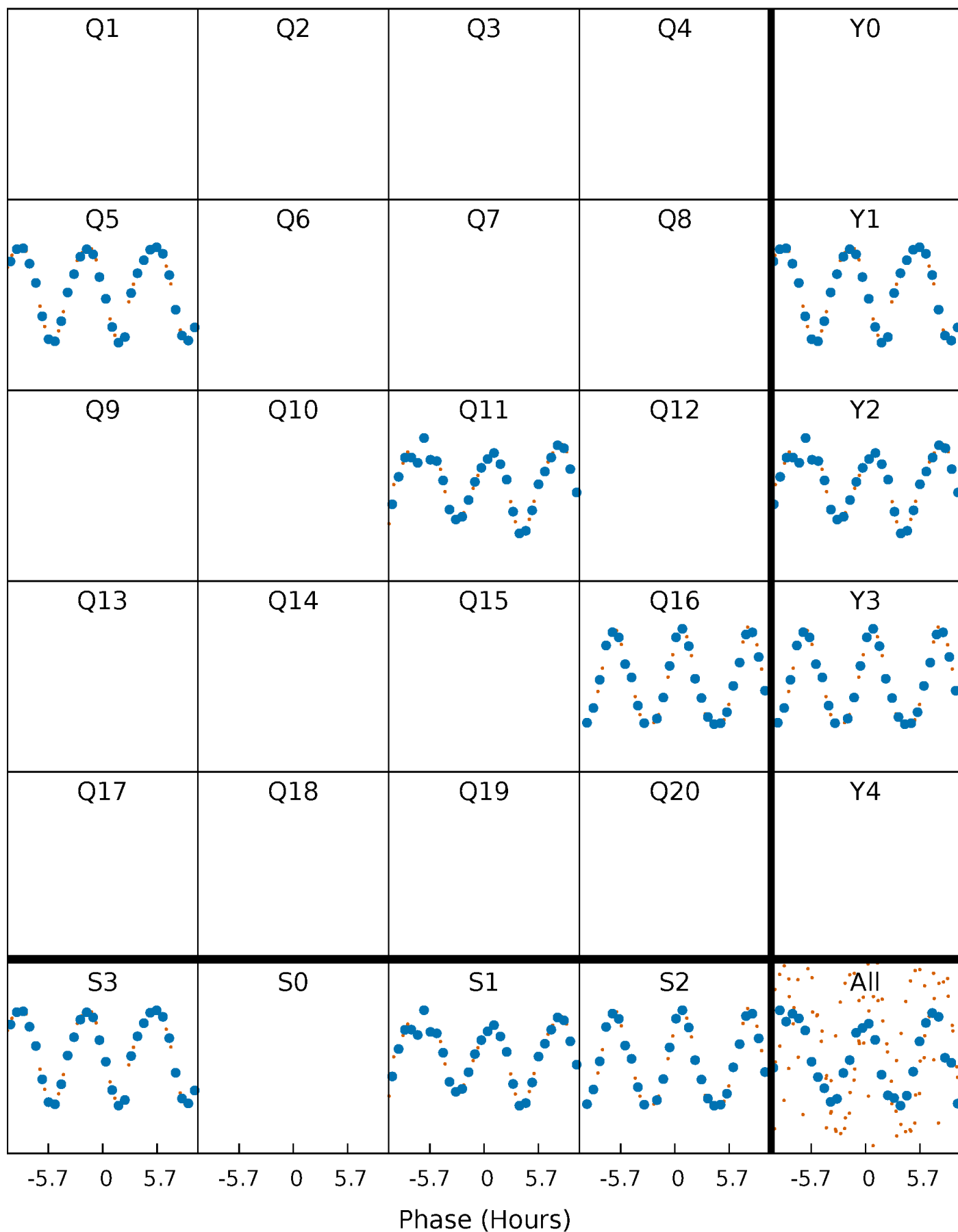


Planet 3 : Phased Whitened Flux Time Series (TPS Epoch/Period)



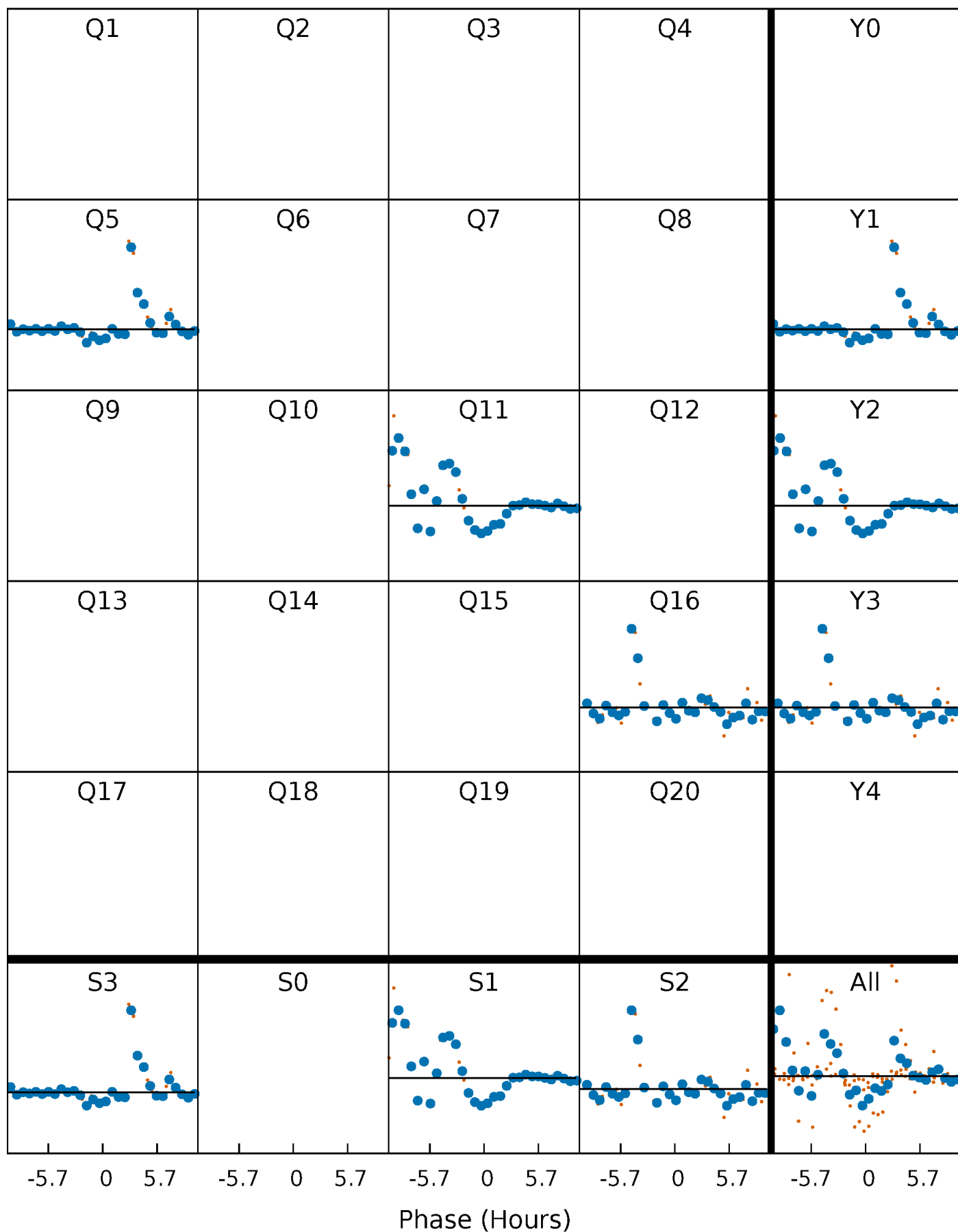
PDC Quarter-Phased Transit Curves

TCE 006953069-03 $P=512.412384$ Days $T_0=509.194700$ (BKJD)



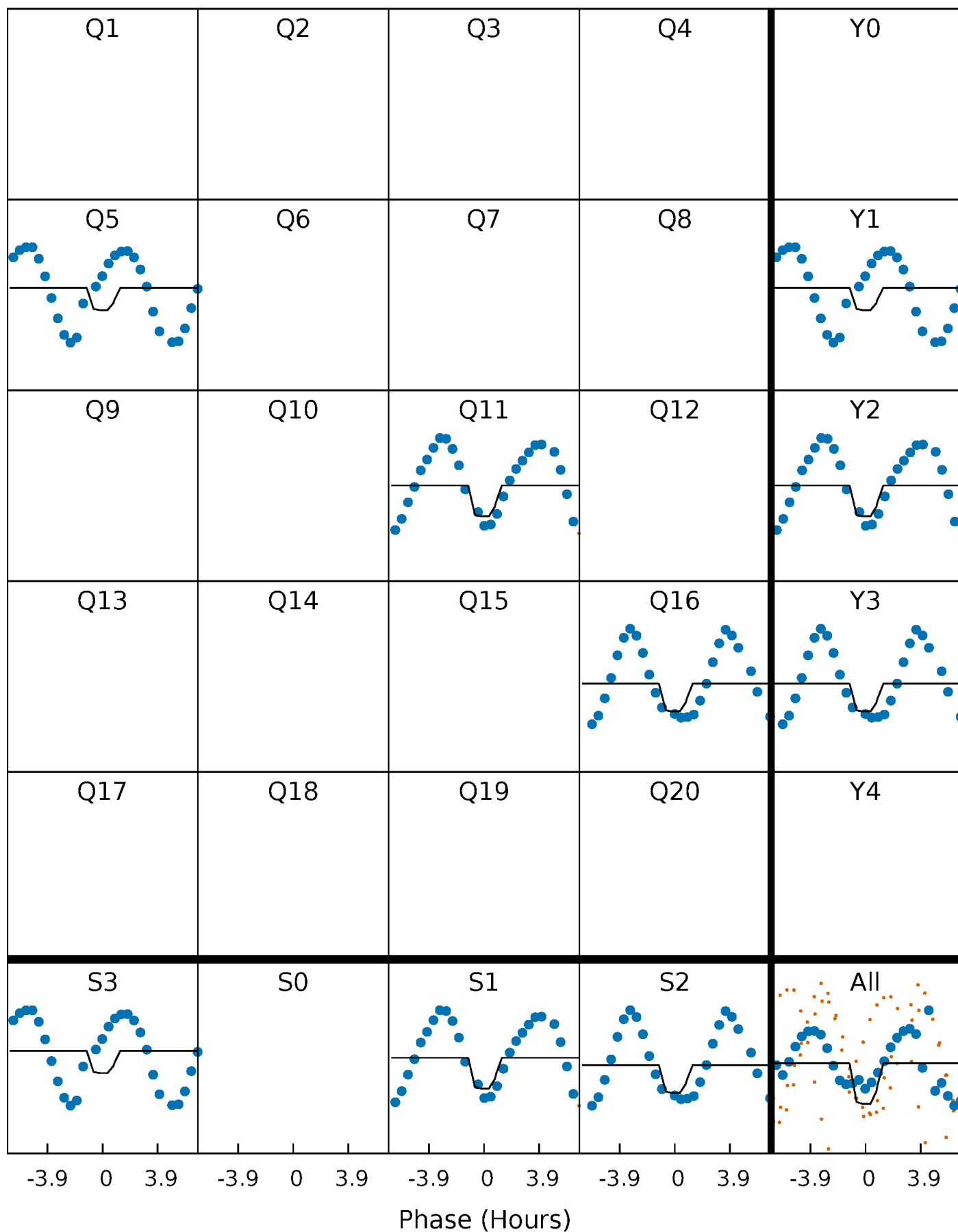
DV Quarter-Phased Transit Curves

TCE 006953069-03 $P=512.412384$ Days $T_0=509.194700$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

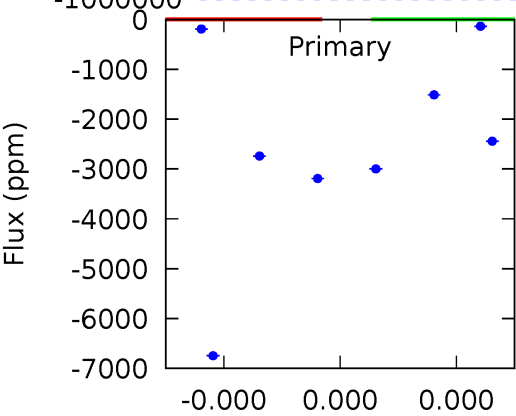
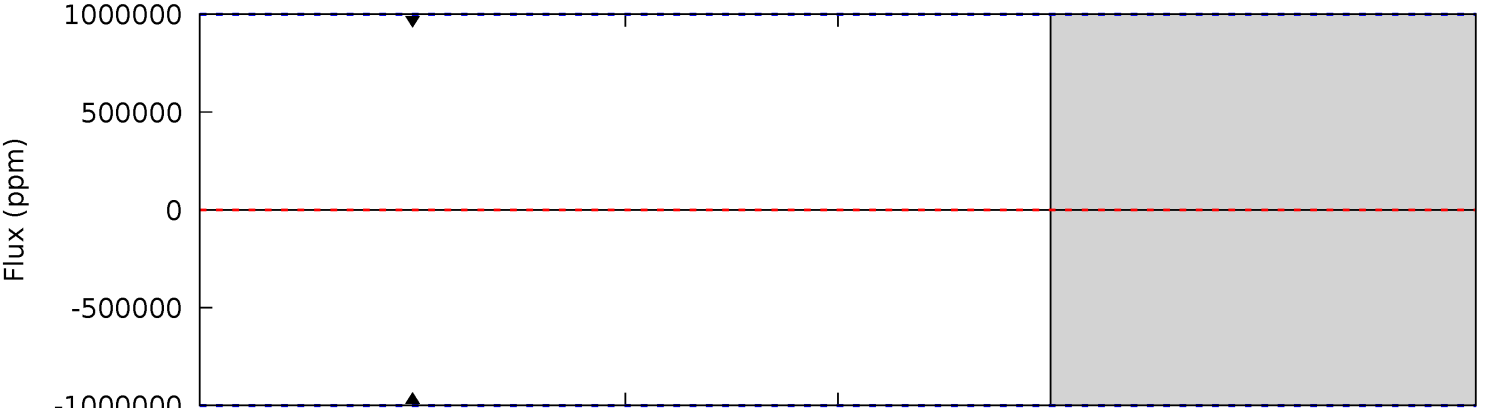
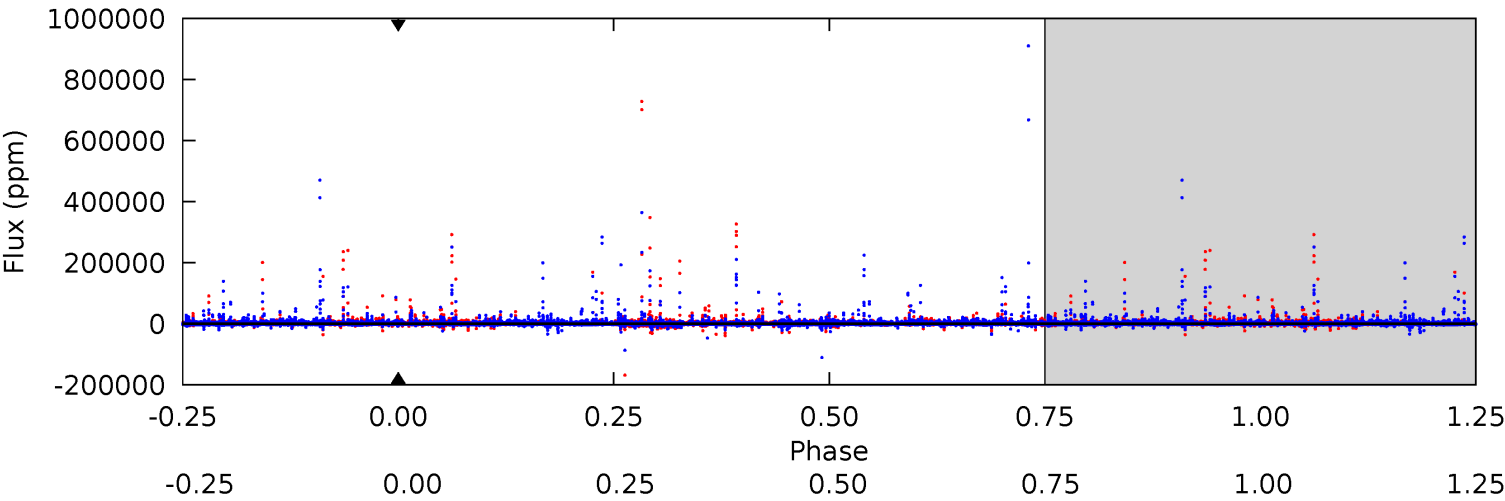
TCE 006953069-03 P=512.412384 Days $T_0=509.357567$ (BKJD)



DV Model-Shift Uniqueness Test

006953069-03, P = 512.412384 Days, E = 509.194700 Days

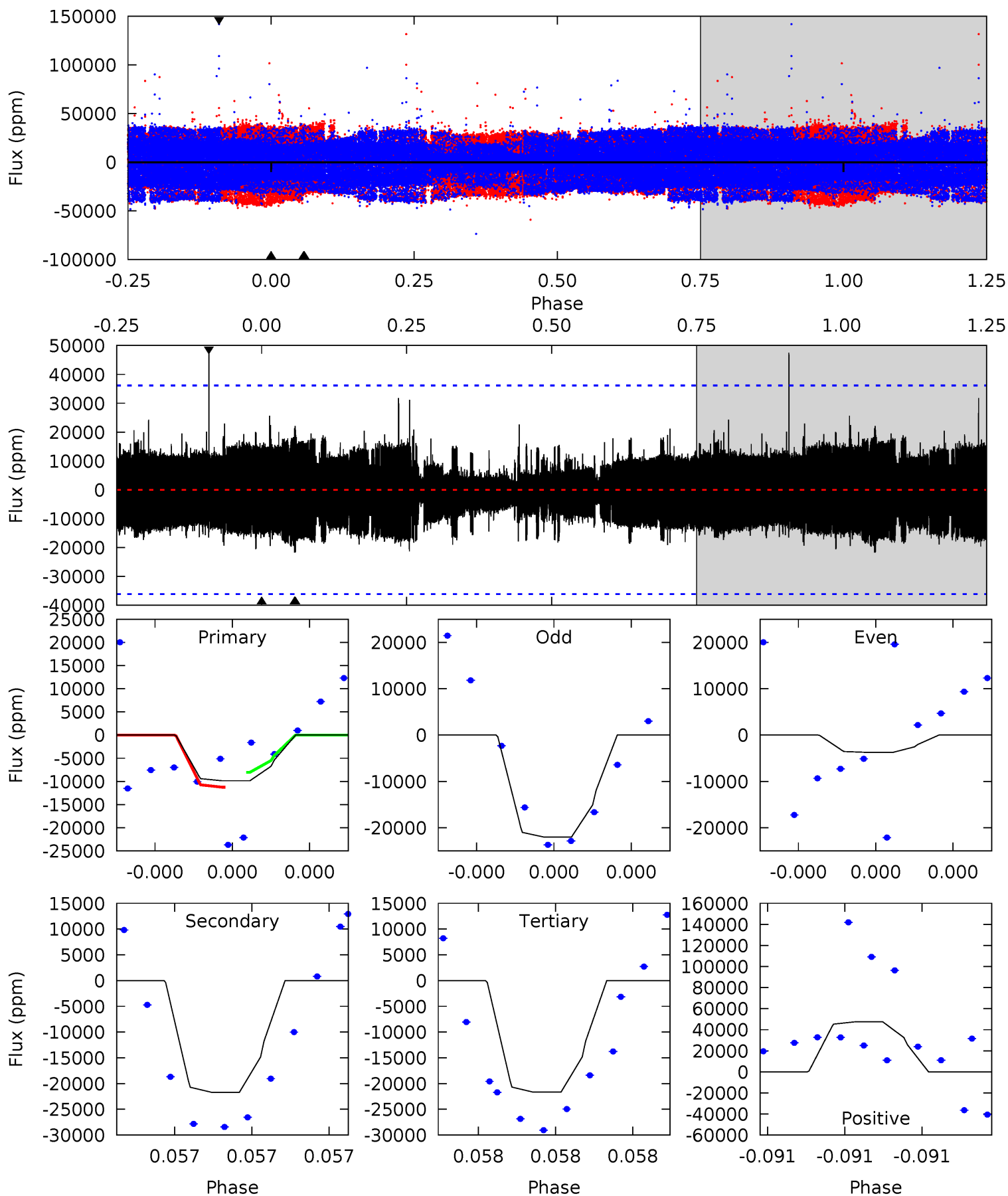
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
0	0	0	0	1.00	1.00	1.00	0	0	0	0	0	0	0	0



Alt Model-Shift Uniqueness Test

006953069-03, P = 512.412384 Days, E = 509.357567 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
1.59	3.49	3.48	7.64	5.81	3.84	1.26	-1.90	-6.06	0.01	-4.15	1.38	0.45	0.69	0.26



Stellar Parameters For KIC 006953069

	$T_{\text{eff}}(K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	4338^{+155}_{-172}	$4.586^{+0.056}_{-0.016}$	$0.320^{+0.100}_{-0.300}$	$0.709^{+0.028}_{-0.062}$	$0.708^{+0.042}_{-0.052}$	$2.794^{+0.706}_{-0.202}$
	+4%/-4%	+1%/-0%	+31%/-94%	+4%/-9%	+6%/-7%	+25%/-7%
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 006953069-03 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	0 ± 1000000	$6.81^{+6.37}_{-4.72}$	212^{+8}_{-10}	3752^{+6097}_{-13325}	$51510^{+2940930}_{-2617797}$
Alt.	-21695 ± 6216	$11.33^{+6.85}_{-6.76}$	212^{+8}_{-9}	4354^{+2103}_{-743}	$118634^{+621446}_{-78148}$

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

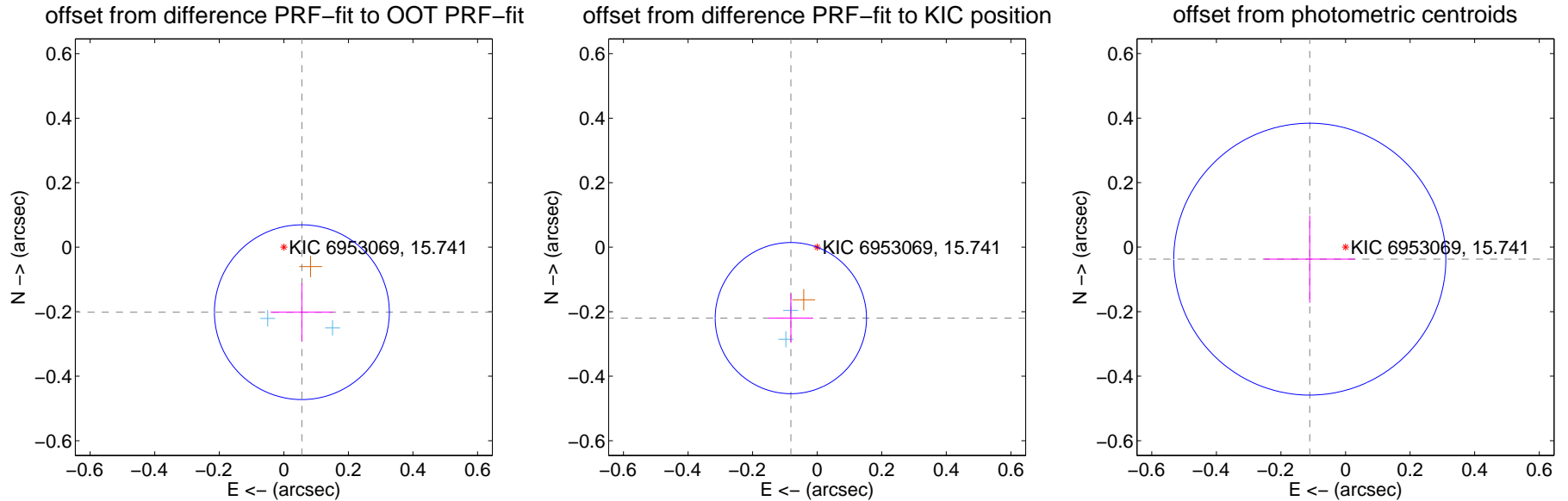
DV Centroid Data

Supplemental centroid analysis for 006953069-03. Kepler magnitude: 15.74. Transit SNR -1.00

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	0.209 ± 0.090	2.32	-0.056 ± 0.097	-0.202 ± 0.090
PRF-fit source offset from KIC position	0.235 ± 0.078	3.00	0.082 ± 0.069	-0.220 ± 0.076
photometric centroid source offset	0.12 ± 0.14	0.83	0.11 ± 0.14	-0.04 ± 0.14

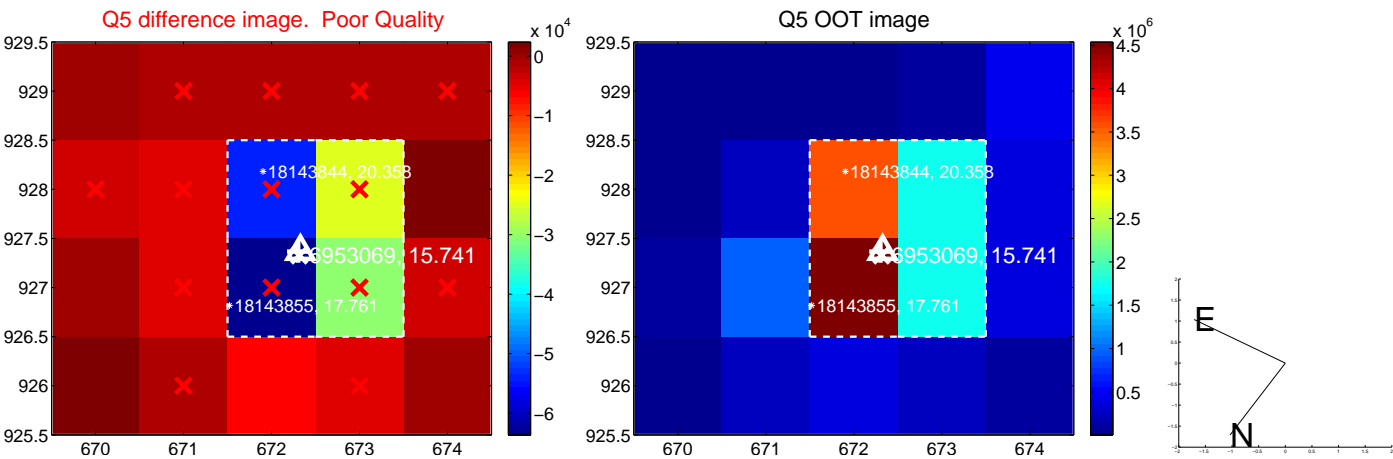


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ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

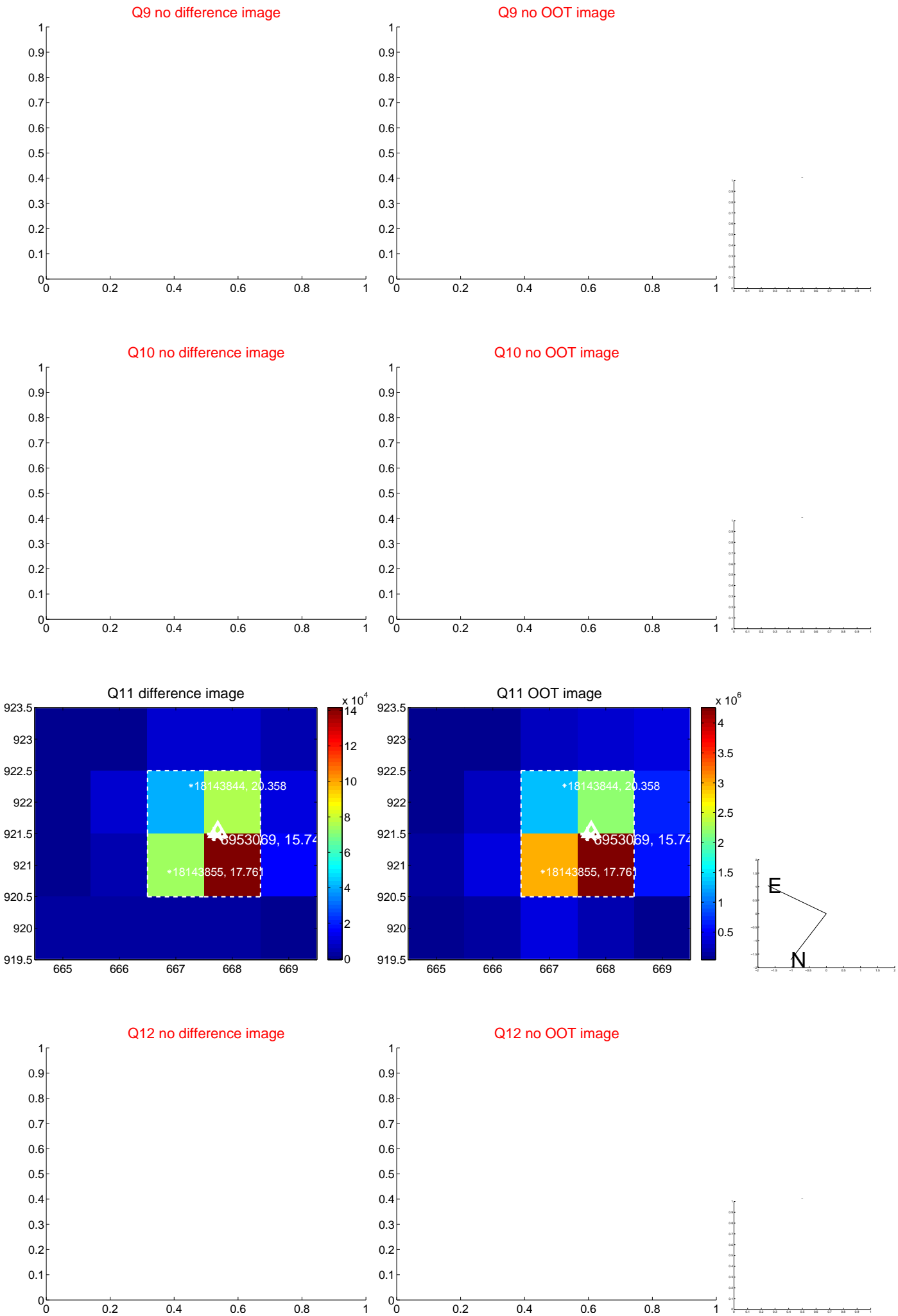
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



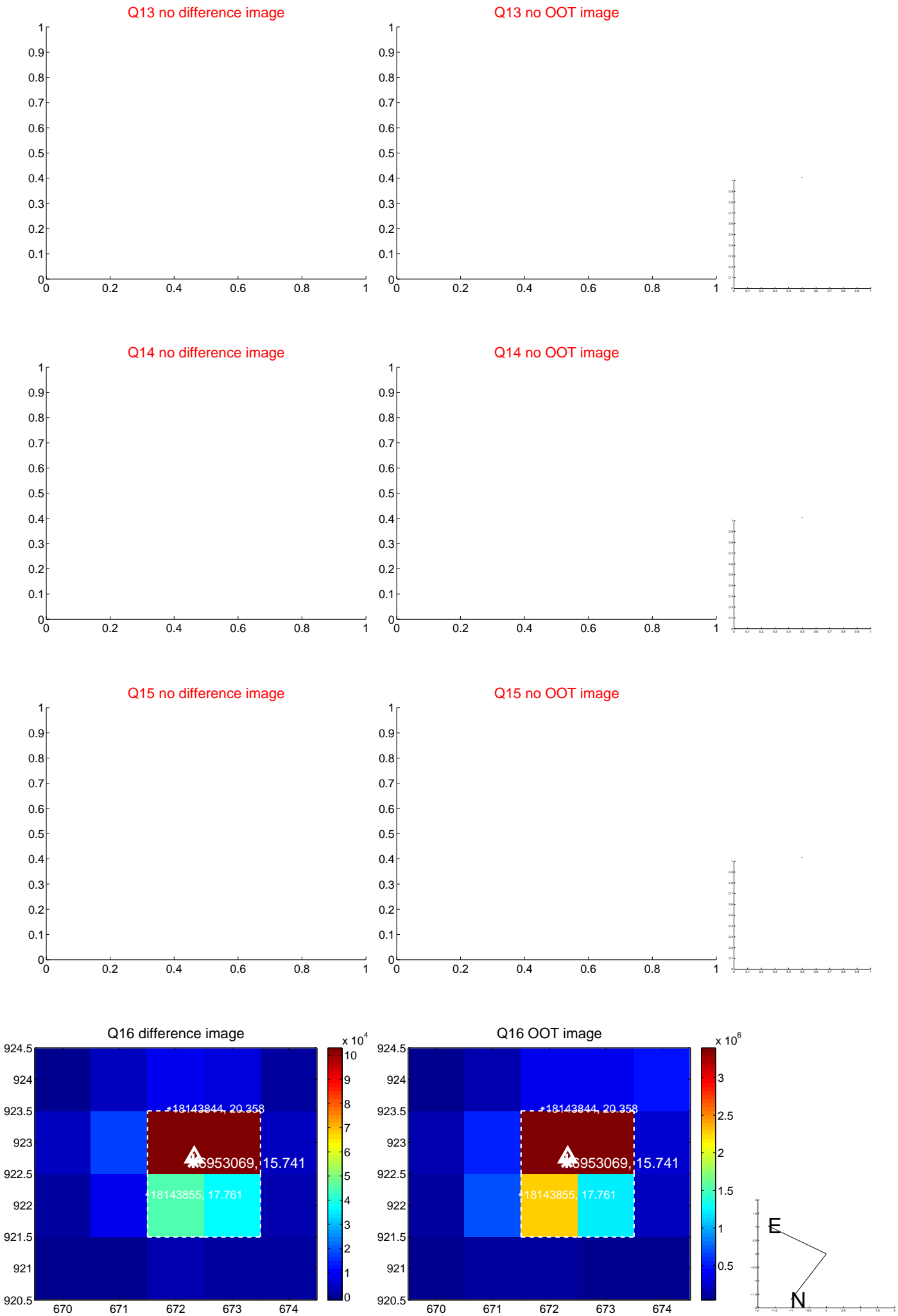
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



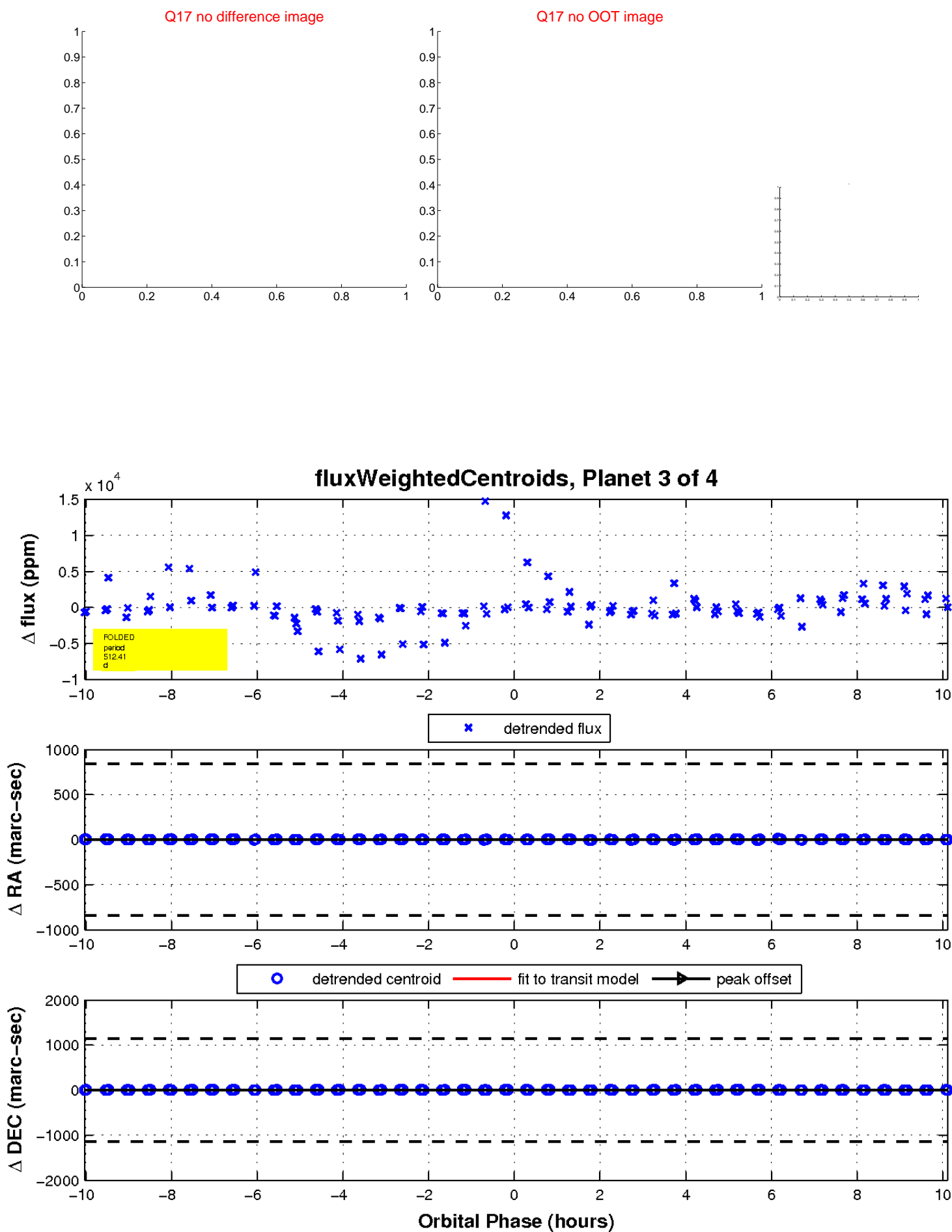
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

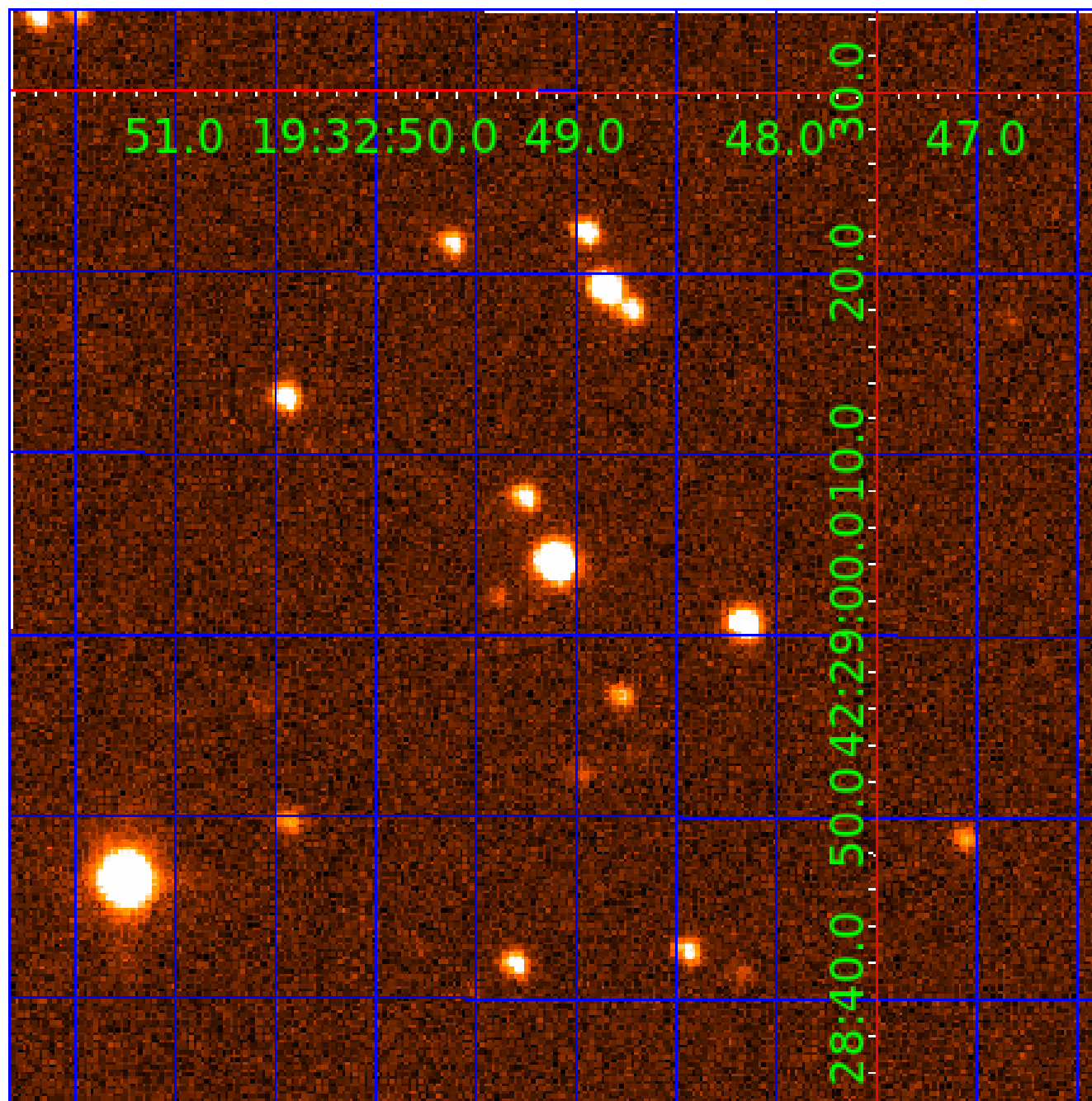


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 006953069

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})
006953069-01	OBS	No	684.646861	133.523699	1999.3	9.000	11.9	-1.0	0.71	4338	3.01	0.09
006953069-02	OBS	No	515.116300	240.697645	3084.5	16.236	12.2	8.2	0.71	4338	3.73	0.13
006953069-03	OBS	No	512.412384	509.194700	1796.4	5.000	11.3	-1.0	0.71	4338	2.85	0.13
006953069-04	OBS	No	494.952236	245.620294	6636.1	14.188	14.6	14.3	0.71	4338	6.89	0.13

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
006953069-01	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_NOFITS
006953069-02	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_POS_ALT—INCONSISTENT_TRANS
006953069-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_NOFITS
006953069-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_FEW_DIFFS

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

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

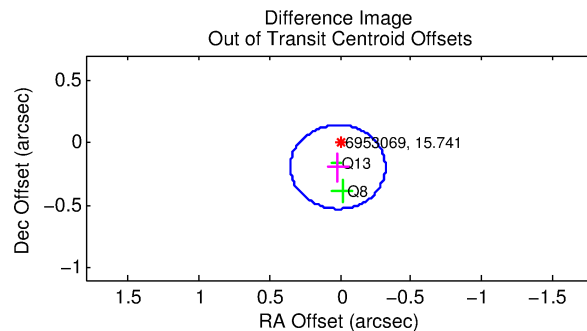
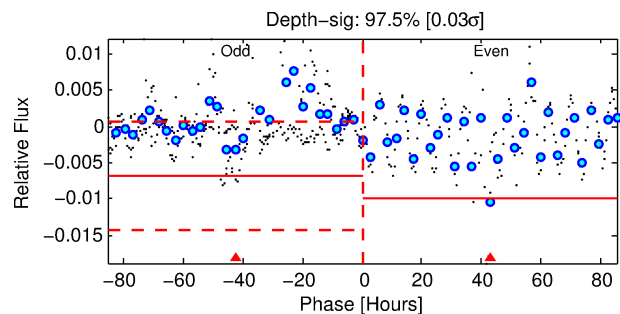
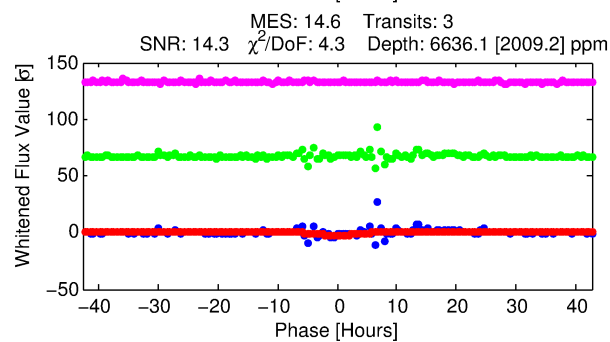
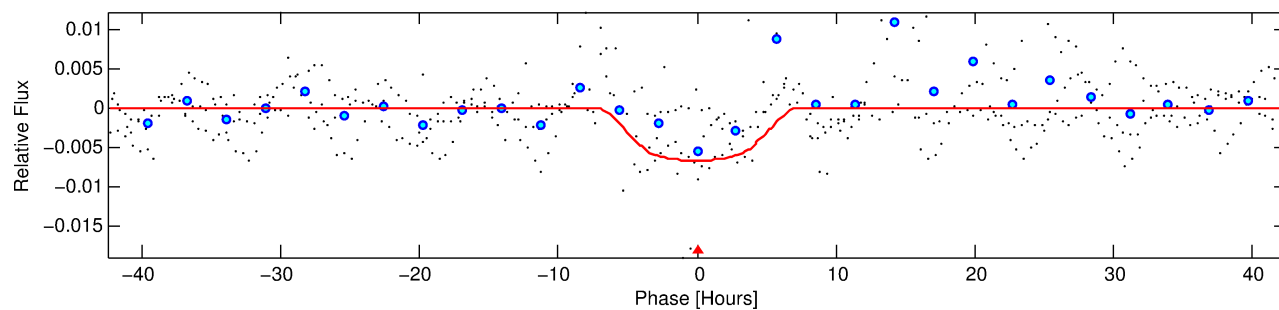
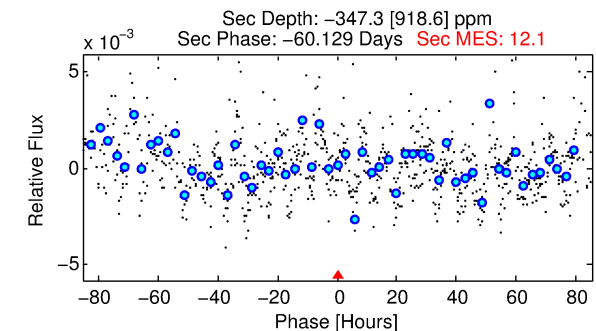
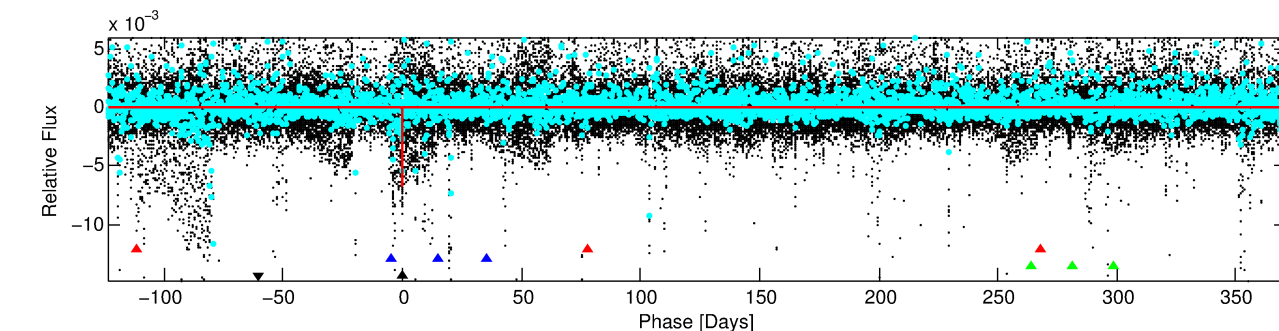
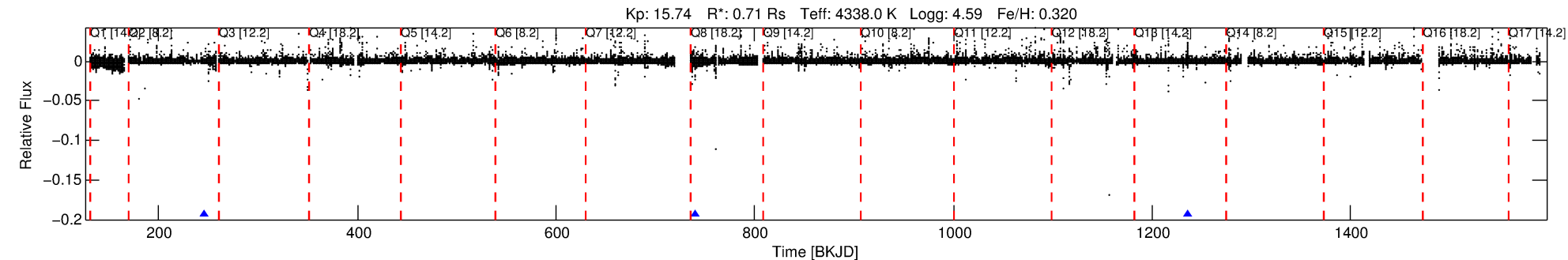
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 006953069-04

No Significant Match Found

DV One-Page Summary

KIC: 6953069 Candidate: 4 of 4 Period: 494.952 d



DV Fit Results:

Period = 494.95224 [0.05064] d
Epoch = 245.6203 [0.0627] BKJD
Rp/R* = 0.0891 [0.0268]
a/R* = 178.24 [105.29]
b = 0.86 [0.21]
Seff = 0.13 [0.03]
Teq = 154 [7] K
Rp = 6.89 [2.16] Re
a = 1.0910 [0.0790] AU
Ag = N/A
Teffp = N/A

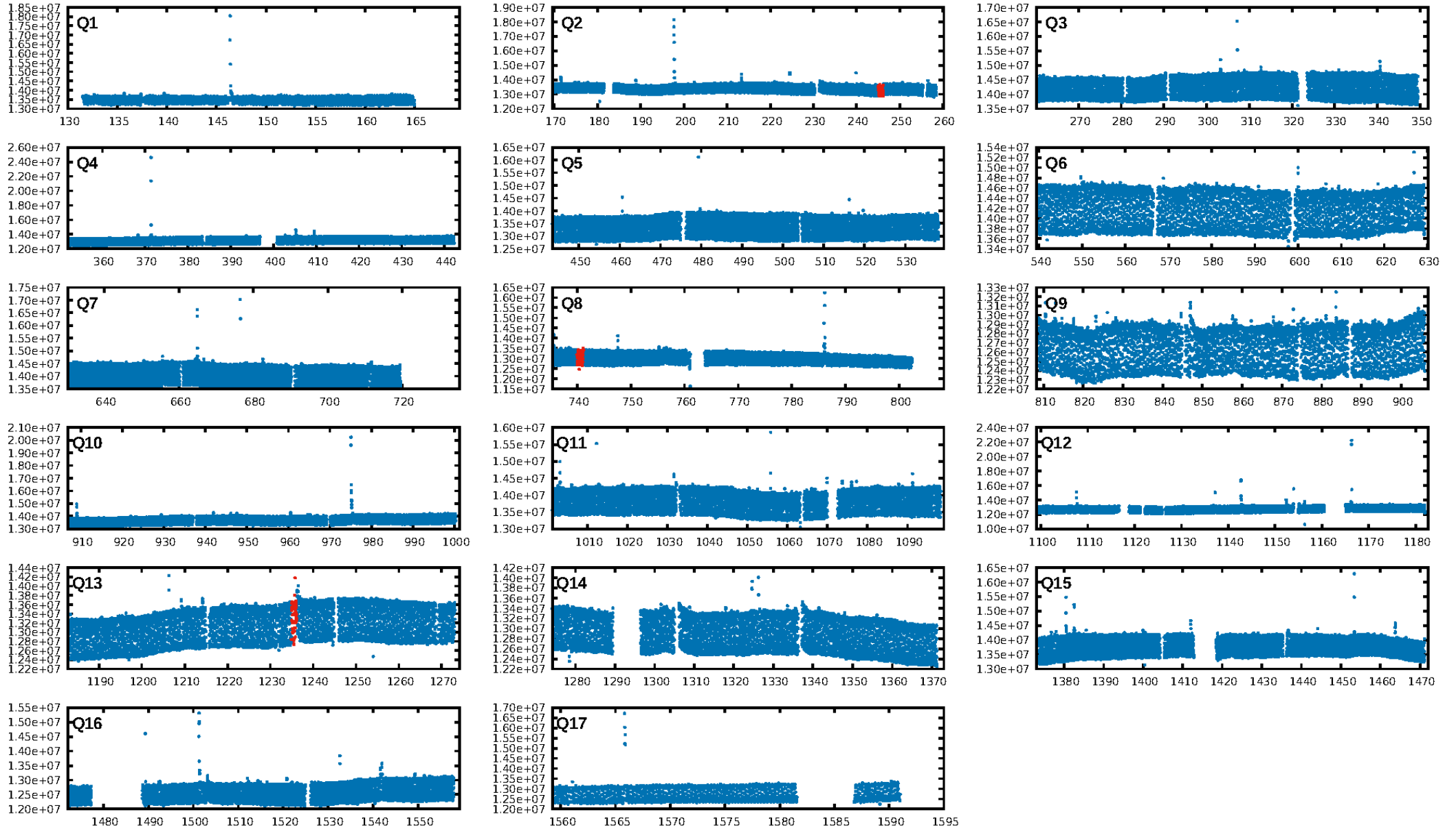
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: 100.0% [27.86 σ]
ModelChiSquare2-sig: 0.0%
ModelChiSquareGof-sig: 0.0%
Bootstrap-pfa: 1.24e-07
RollingBand-fgt: 1.00 [3/3]
GhostDiagnostic-chr: -9.82
Centroid-sig: 51.1%
Centroid-so: 0.218 arcsec [1.20 σ]
OotOffset-rm: 0.195 arcsec [1.74 σ]
KicOffset-rm: 0.295 arcsec [3.59 σ]
OotOffset-st: 0/0/1/1 [2]
KicOffset-st: 0/0/1/1 [2]
DiffImageQuality-fgm: 1.00 [2/2]
DiffImageOverlap-fno: 1.00 [2/2]

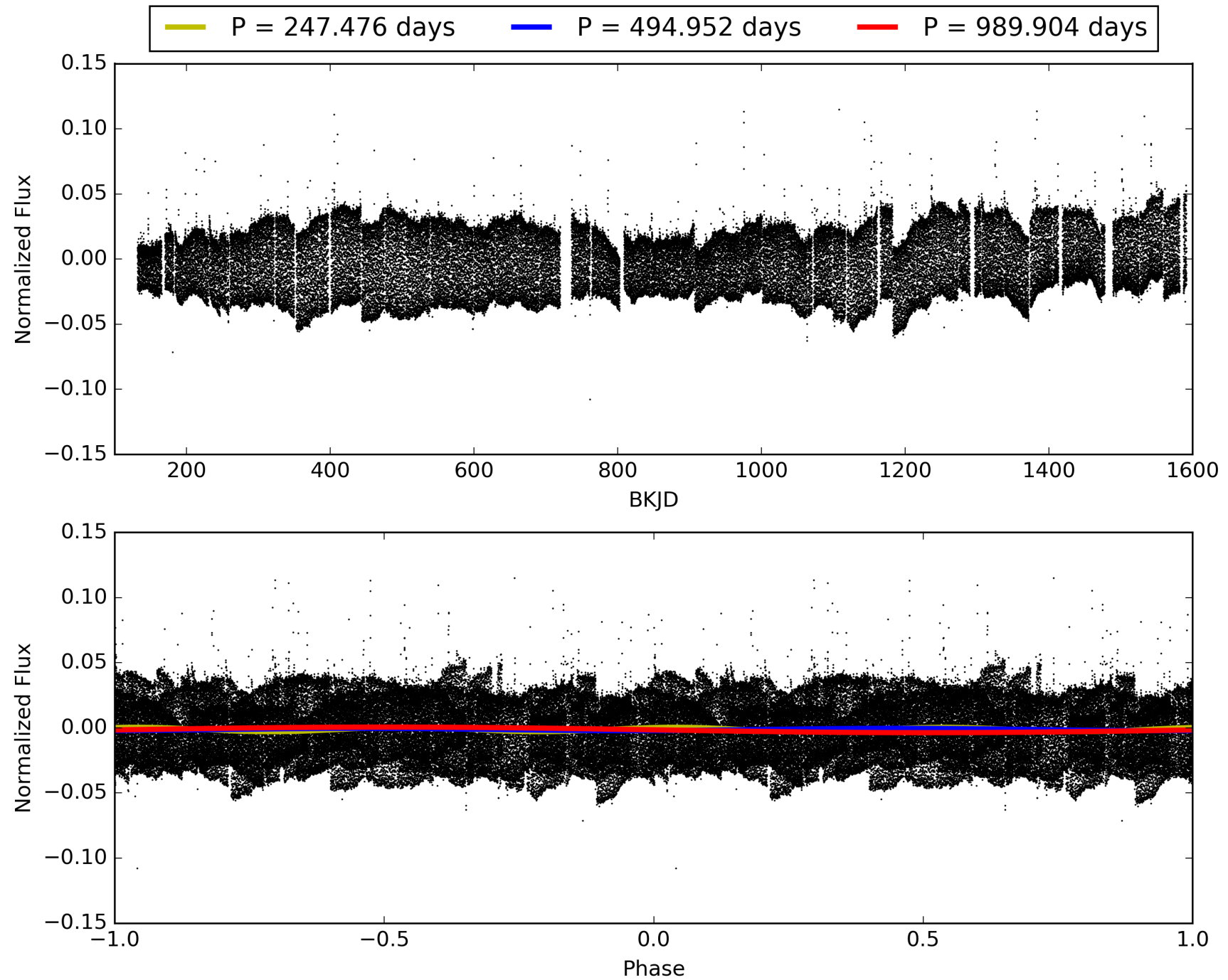
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 01-Feb-2016 09:42:25 Z

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

TCE 006953069-04, PDC Light Curves

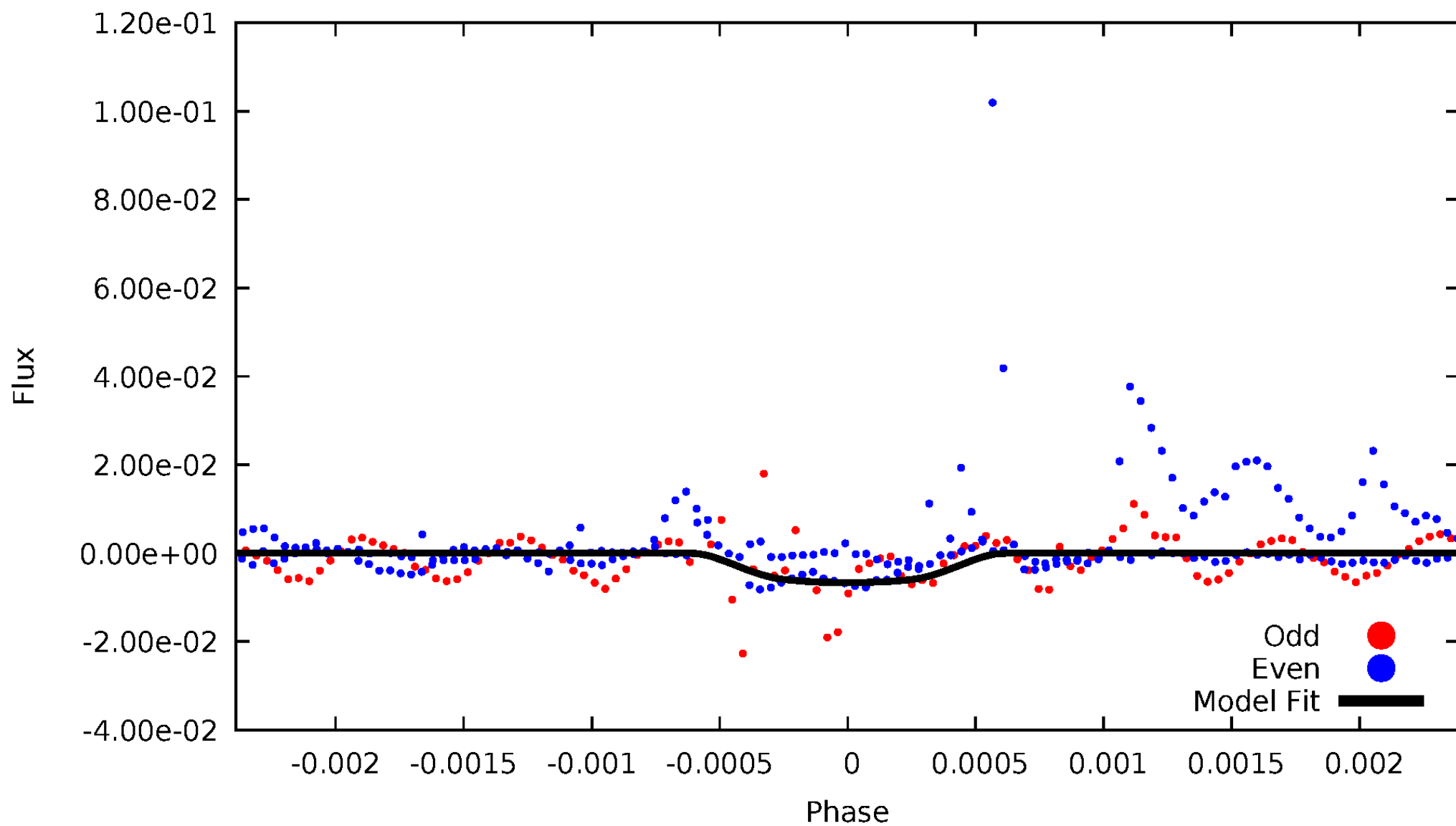


TCE 006953069-04



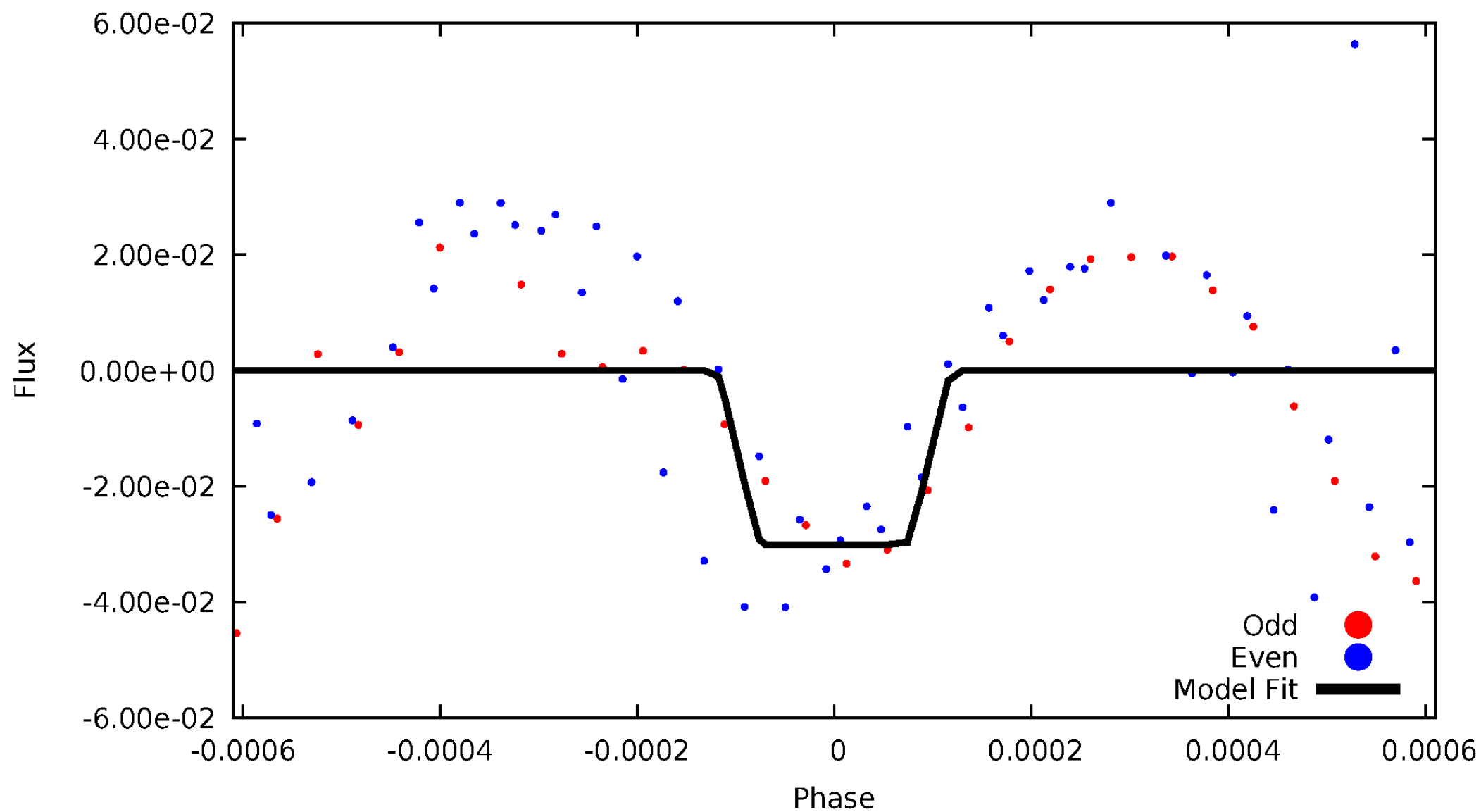
DV Odd/Even

TCE 006953069-04



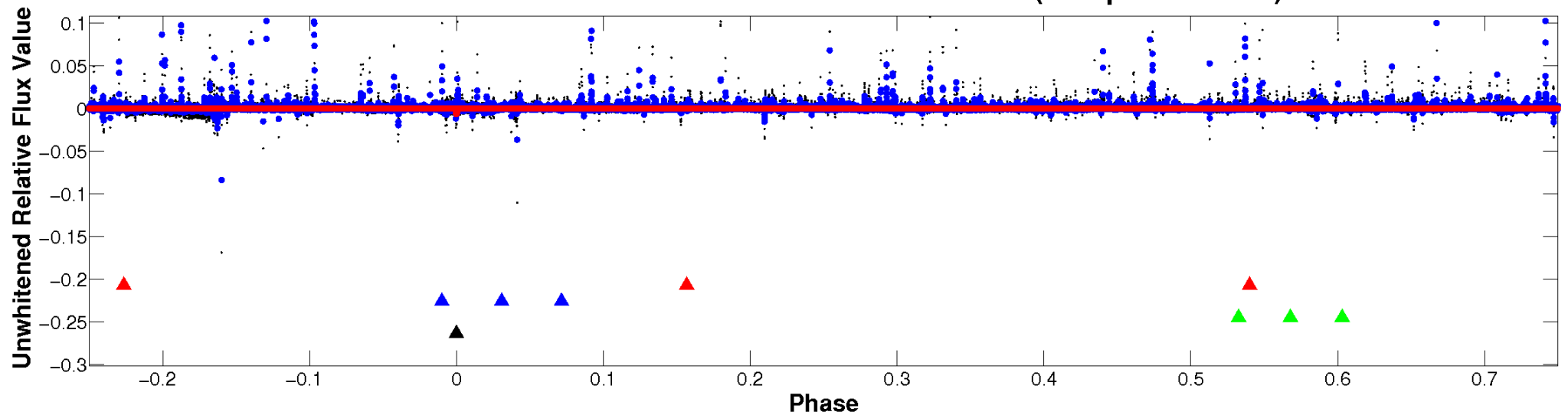
ALT Odd/Even

TCE 006953069-04

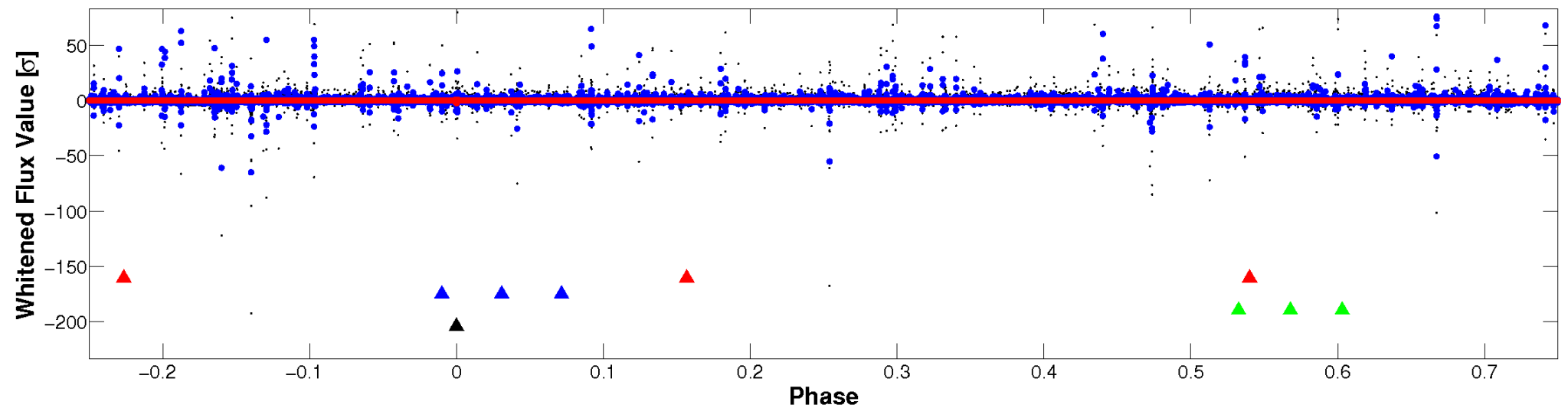


Non-Whitened Vs. Whitened Light Curve

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

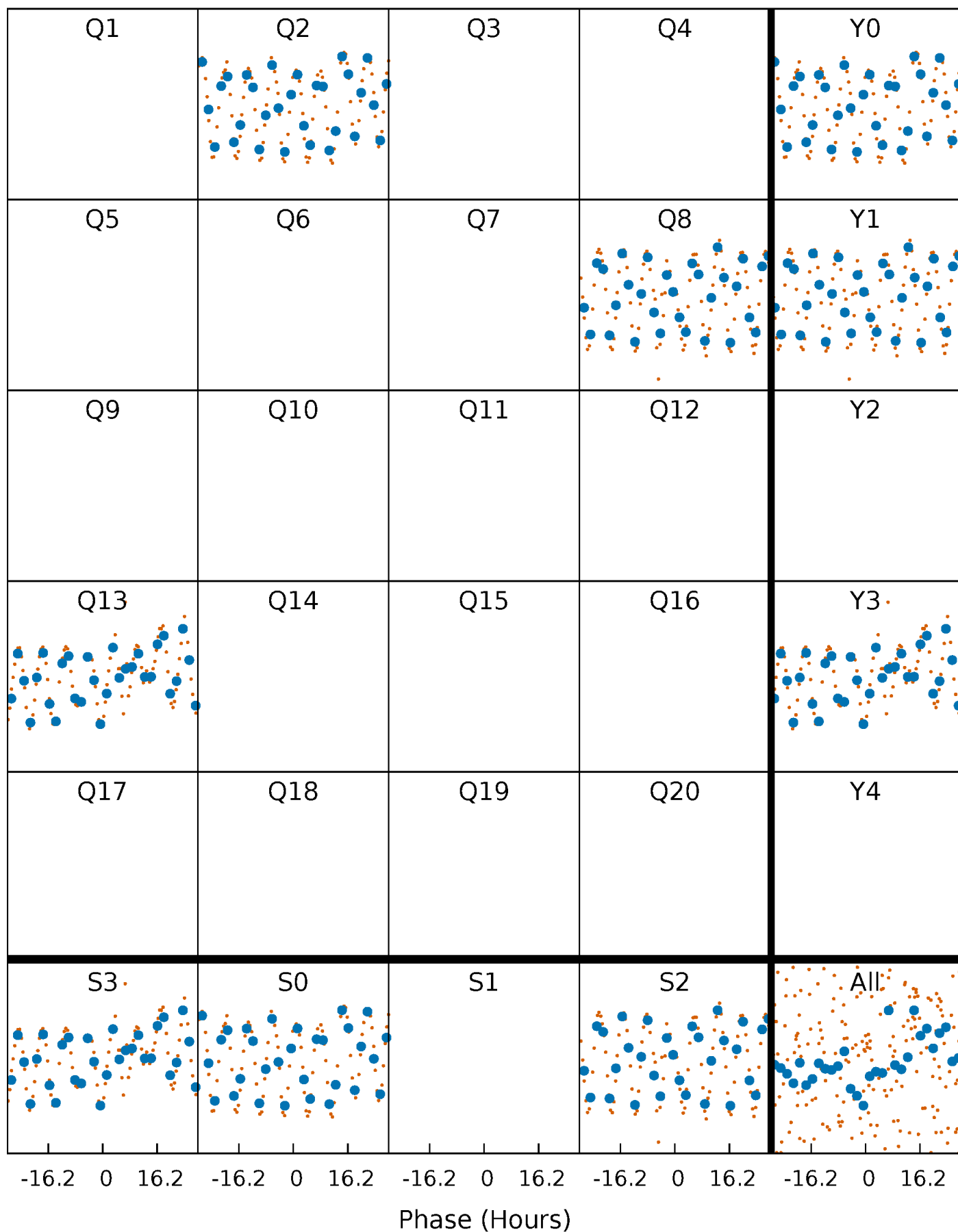


Planet 4 : Phased Whitened Flux Time Series (Fit Epoch/Period)



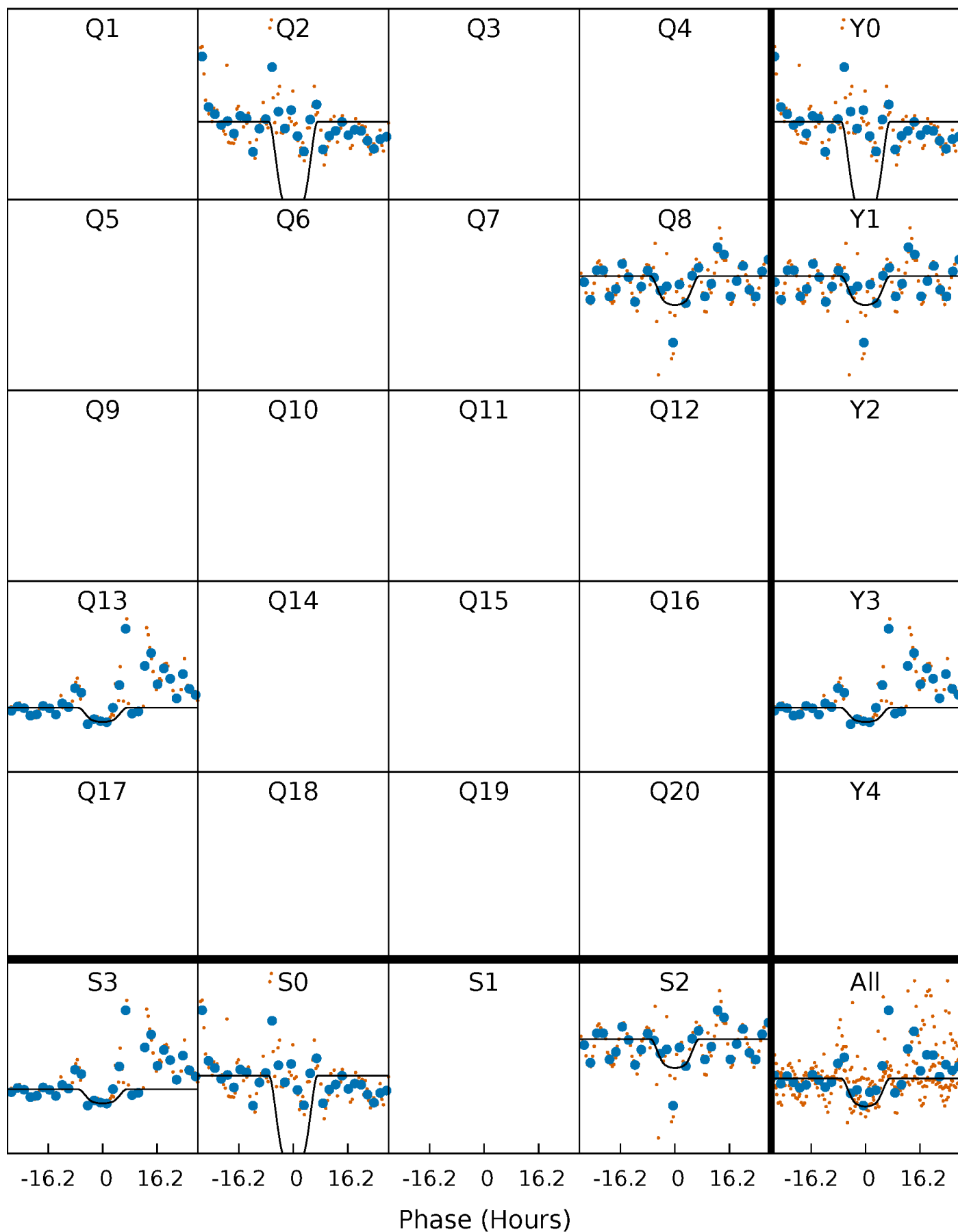
PDC Quarter-Phased Transit Curves

TCE 006953069-04 $P=494.952236$ Days $T_0=245.620294$ (BKJD)



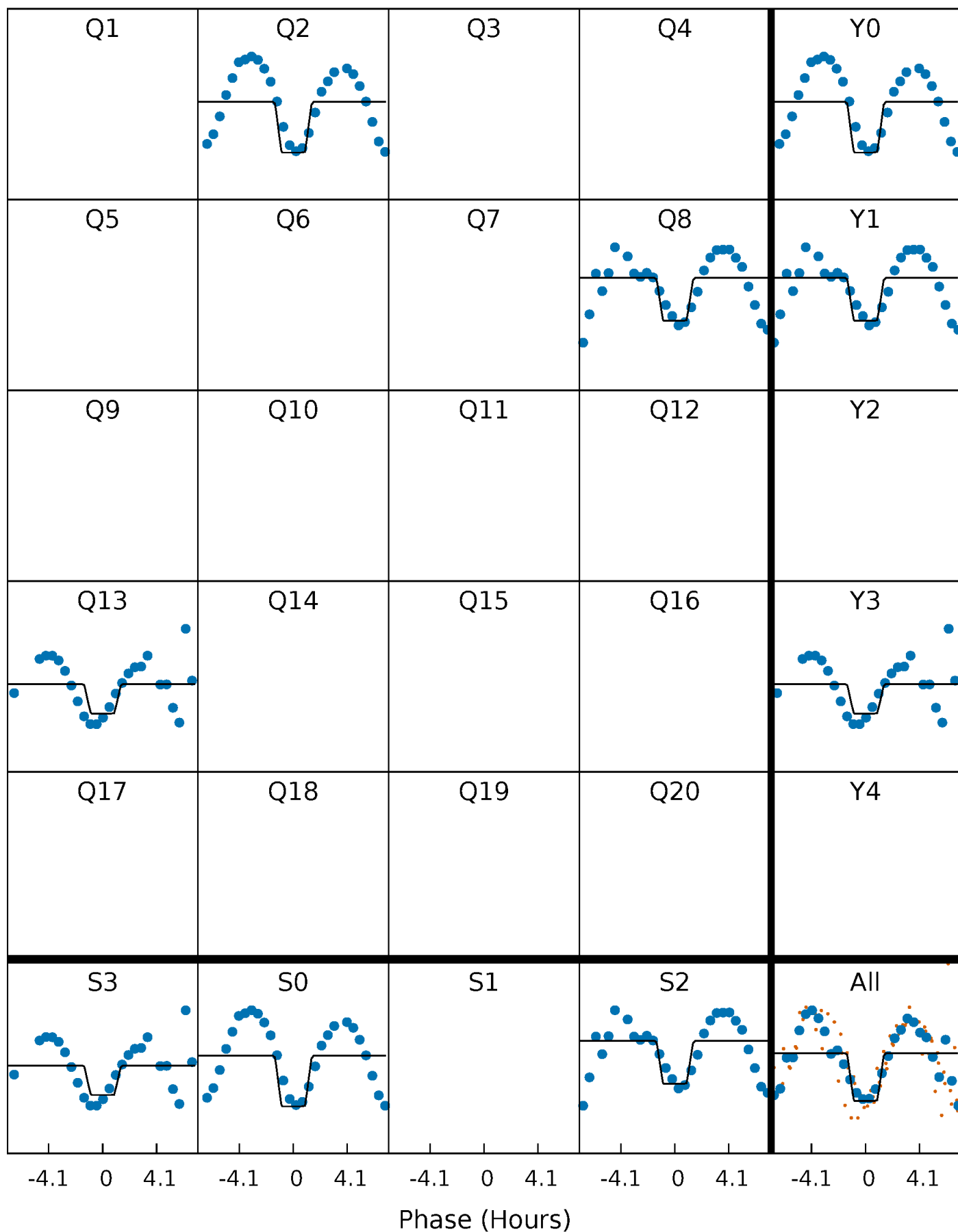
DV Quarter-Phased Transit Curves

TCE 006953069-04 $P=494.952236$ Days $T_0=245.620294$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

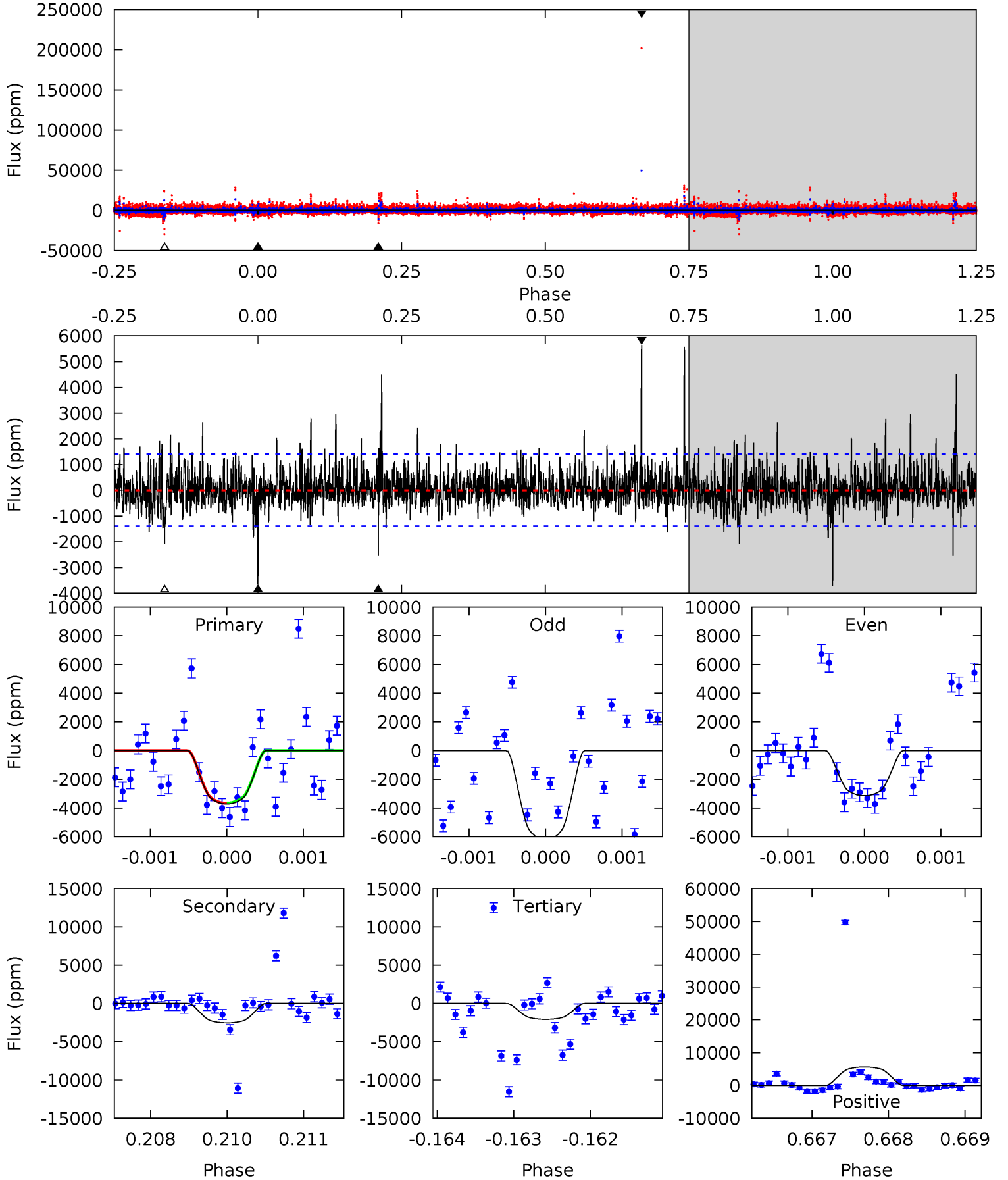
TCE 006953069-04 P=494.873578 Days $T_0=245.796084$ (BKJD)



DV Model-Shift Uniqueness Test

006953069-04, P = 494.952236 Days, E = 245.620294 Days

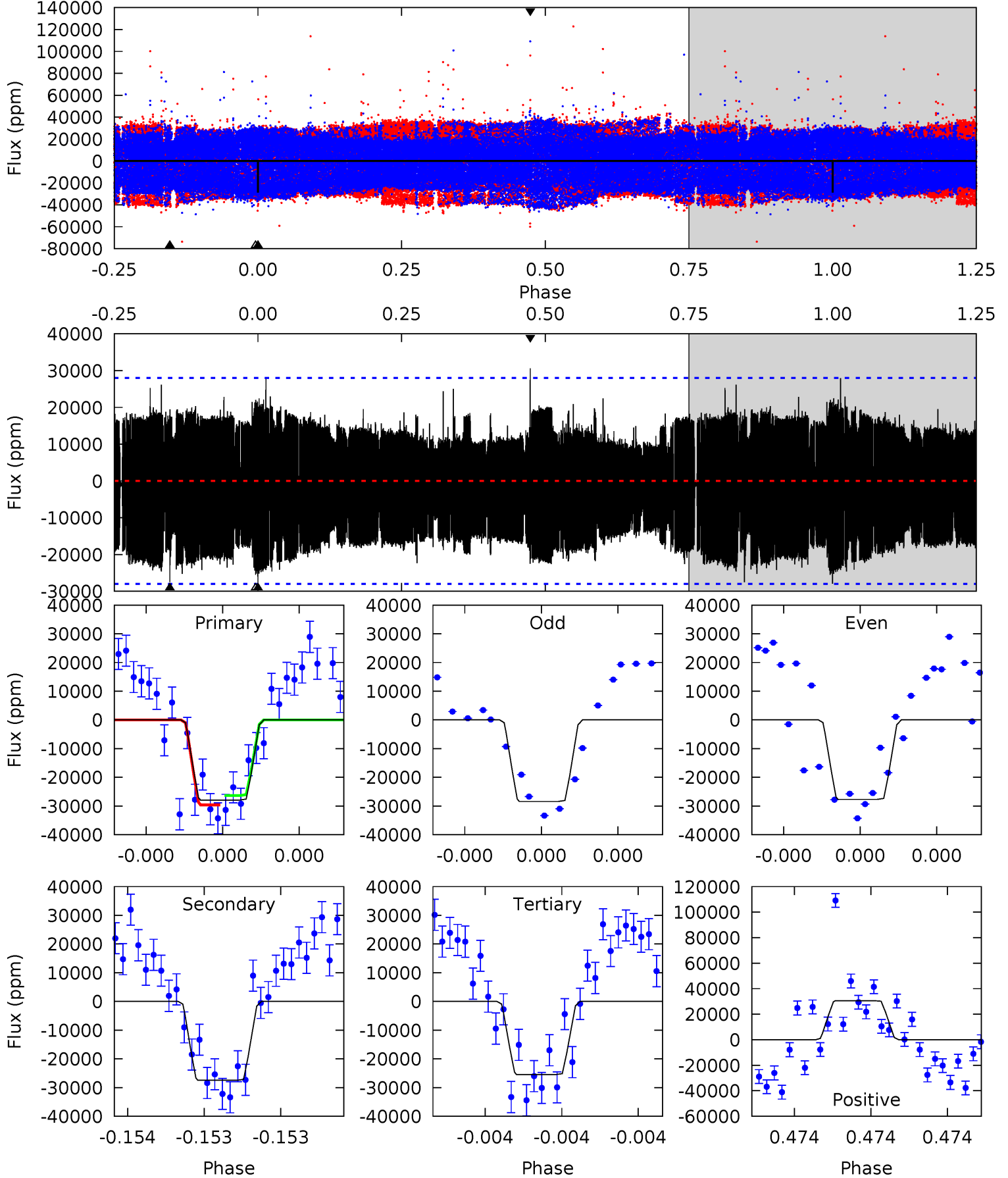
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
14.4	9.88	8.08	21.9	5.42	3.24	2.25	6.36	-7.48	1.80	-12.0	2.90	0.81	0.60	0.05



Alt Model-Shift Uniqueness Test

006953069-04, P = 494.873578 Days, E = 245.796084 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
5.69	5.60	5.18	6.23	5.70	3.67	2.27	0.50	-0.54	0.41	-0.63	0.07	0.98	0.52	0.33



Stellar Parameters For KIC 006953069

	$T_{\text{eff}}(K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	4338^{+155}_{-172}	$4.586^{+0.056}_{-0.016}$	$0.320^{+0.100}_{-0.300}$	$0.709^{+0.028}_{-0.062}$	$0.708^{+0.042}_{-0.052}$	$2.794^{+0.706}_{-0.202}$
	+4%/-4%	+1%/-0%	+31%/-94%	+4%/-9%	+6%/-7%	+25%/-7%
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 006953069-04 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-2542 ± 257	$6.69^{+2.01}_{-1.99}$	214^{+8}_{-9}	3586^{+459}_{-314}	38310^{+36950}_{-16335}
Alt.	-27480 ± 4911	$13.26^{+2.14}_{-1.95}$	213^{+9}_{-8}	4270^{+353}_{-284}	107728^{+44145}_{-35005}

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

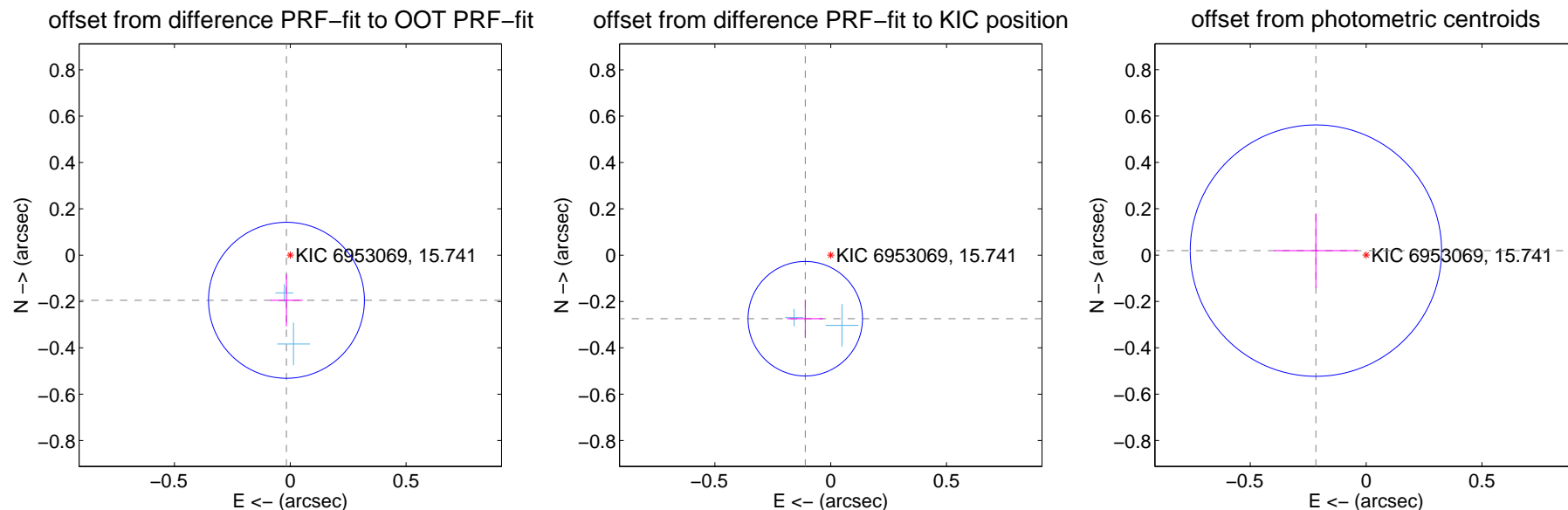
DV Centroid Data

Supplemental centroid analysis for 006953069-04. Kepler magnitude: 15.74. Transit SNR 14.25

There are 2 quarters with good PRF difference image offsets

The direct PRF centroid is offset from the target star catalog position by about 0.17 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.195 ± 0.112	1.74	0.016 ± 0.070	-0.195 ± 0.112
PRF-fit source offset from KIC position	0.295 ± 0.082	3.59	0.110 ± 0.078	-0.274 ± 0.083
photometric centroid source offset	0.22 ± 0.18	1.20	0.22 ± 0.18	0.02 ± 0.16



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

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



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

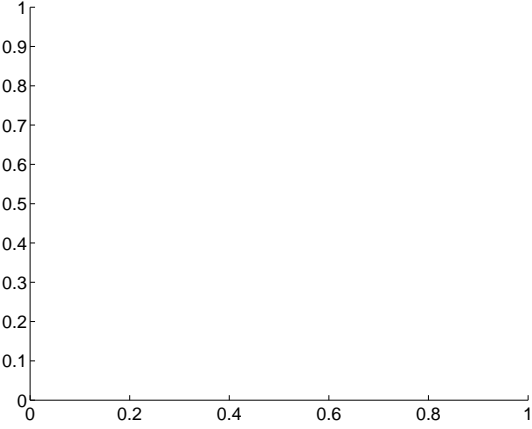
Q5 no difference image



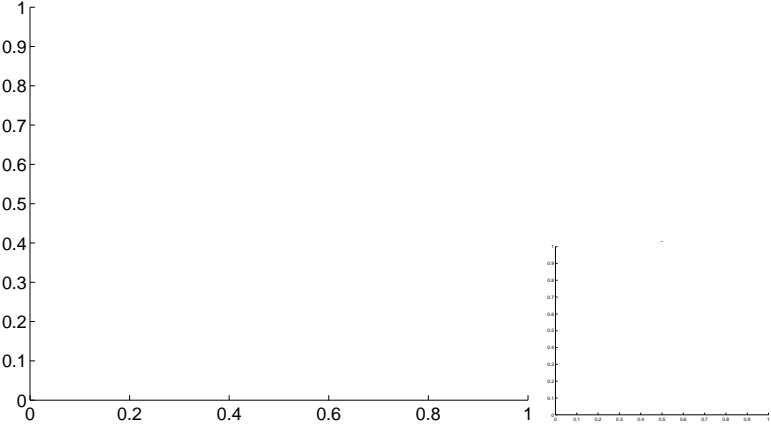
Q5 no OOT image



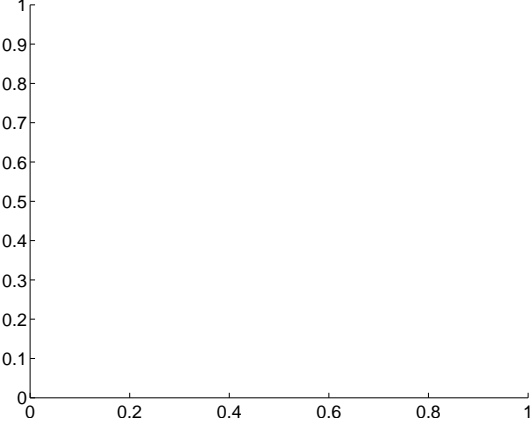
Q6 no difference image



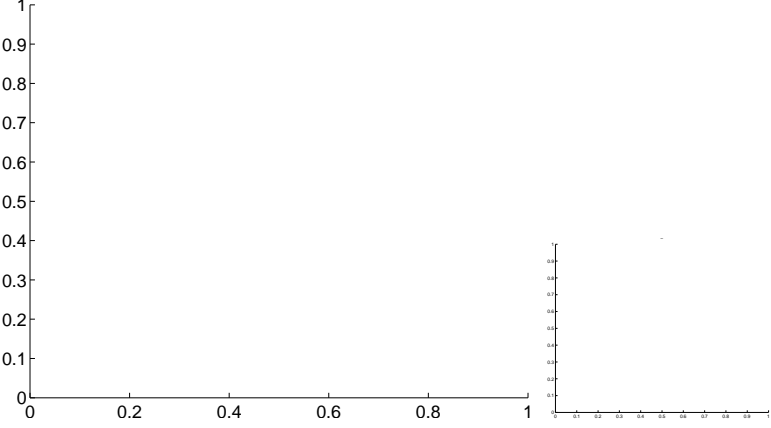
Q6 no OOT image



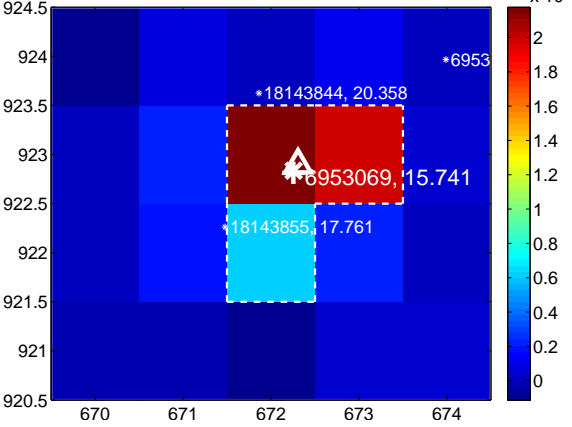
Q7 no difference image



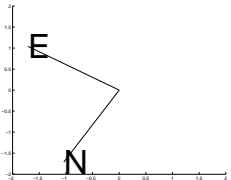
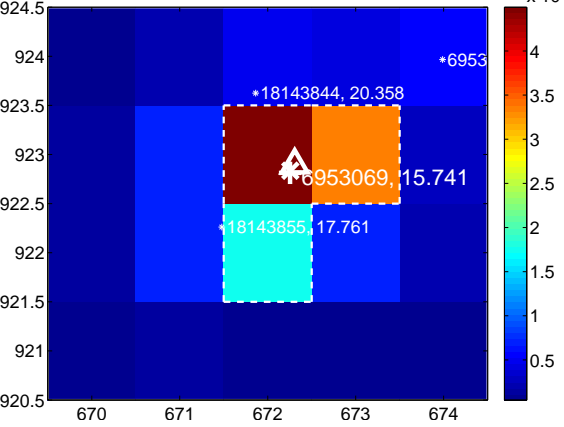
Q7 no OOT image



Q8 difference image



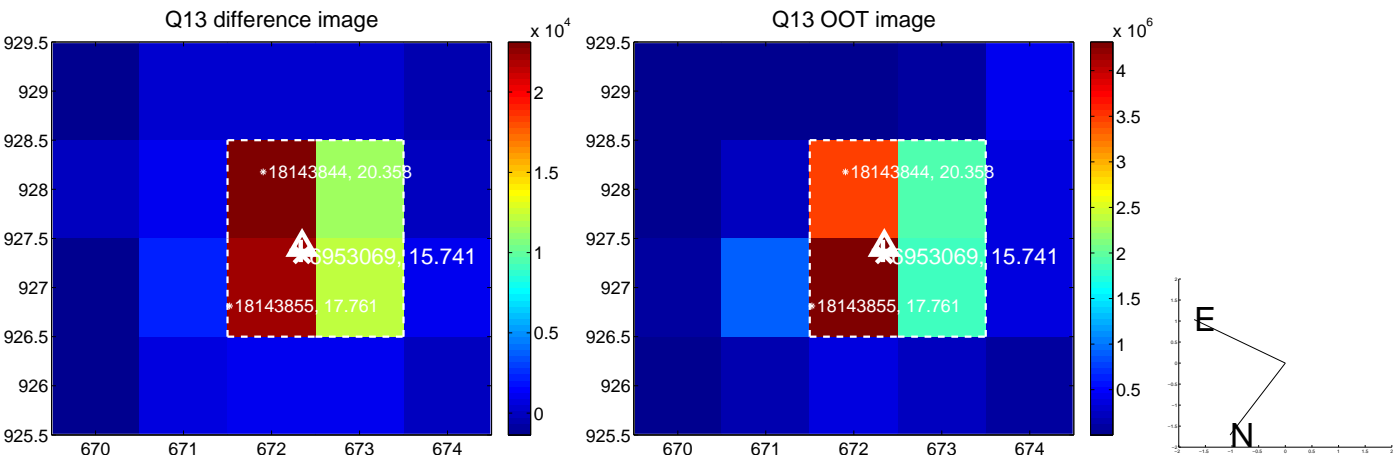
Q8 OOT image



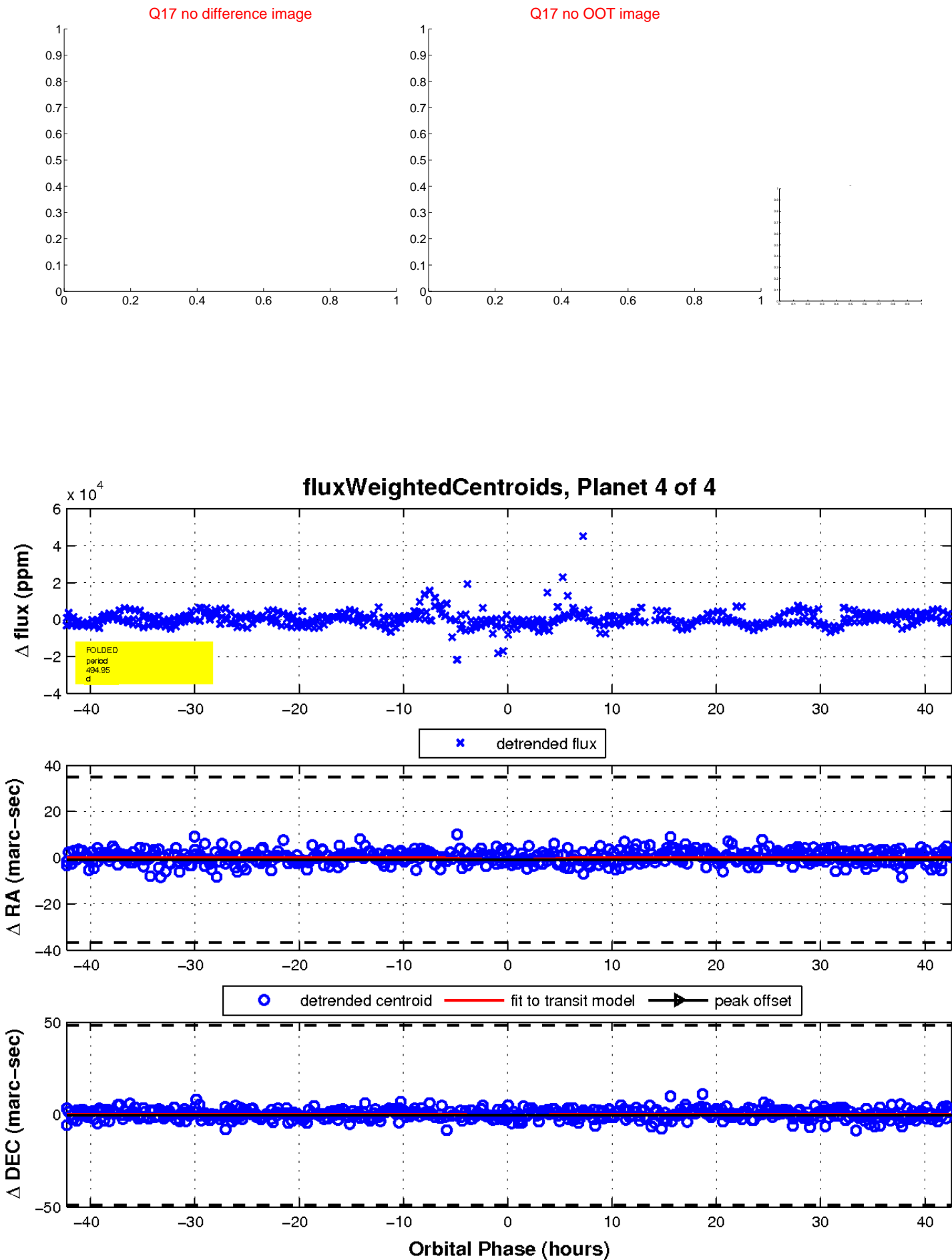
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

