

KIC 012599998

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})
012599998-01	OBS	No	539.634321	435.903604	1749.6	6.237	14.3	4.4	0.72	4453	3.00	0.14
012599998-02	OBS	No	442.912135	470.685783	2695.6	4.093	13.3	6.9	0.72	4453	3.90	0.18
012599998-03	OBS	No	404.885932	393.478767	3775.5	7.247	13.2	7.4	0.72	4453	4.25	0.20
012599998-04	OBS	No	526.031352	218.779406	3141.6	6.679	10.0	7.9	0.72	4453	3.86	0.14
012599998-05	OBS	No	526.046916	213.829971	2610.4	5.021	10.3	7.4	0.72	4453	3.52	0.14

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
012599998-01	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL_SKYE—LPP_DV—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—INCONSISTENT_TRANS—CENT_FEW_DIFFS
012599998-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—LPP_DV—ALL_TRANS_CHASES—MOD_POS_DV—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_FEW_DIFFS
012599998-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL_SKYE—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—INCONSISTENT_TRANS—CENT_FEW_DIFFS
012599998-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL_SKYE—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—CENT_FEW_DIFFS
012599998-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL_SKYE—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—INCONSISTENT_TRANS—SAME_NTL_PERIOD—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.

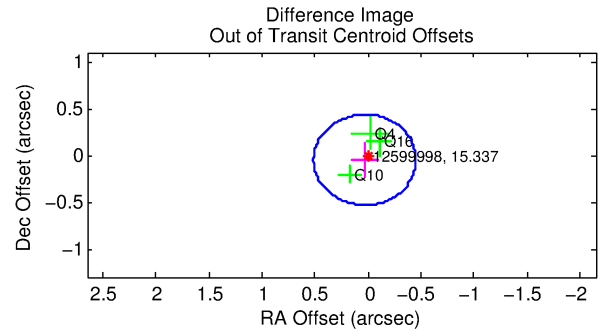
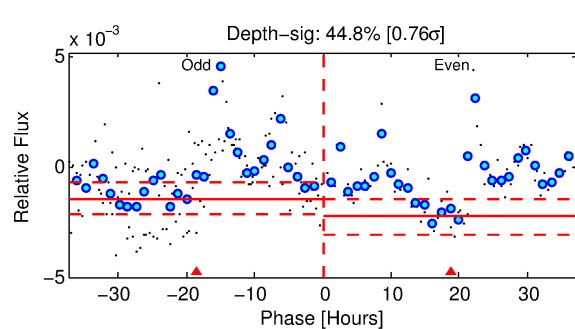
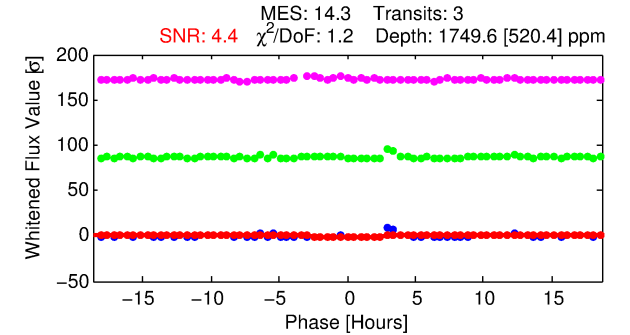
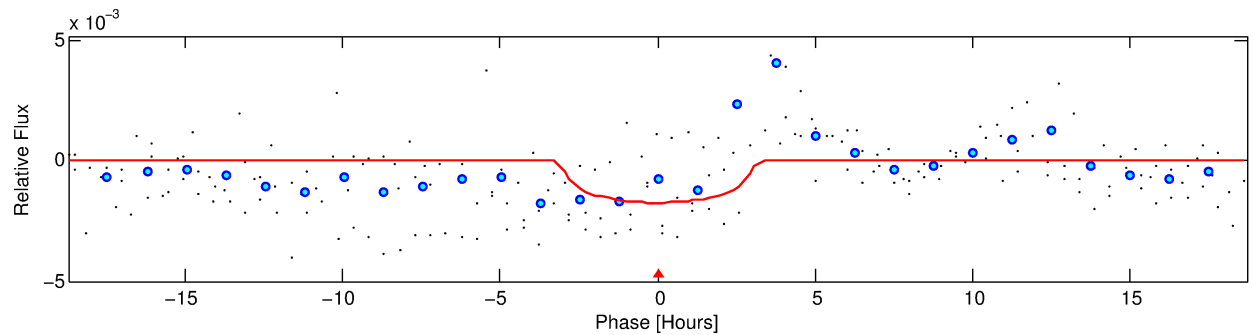
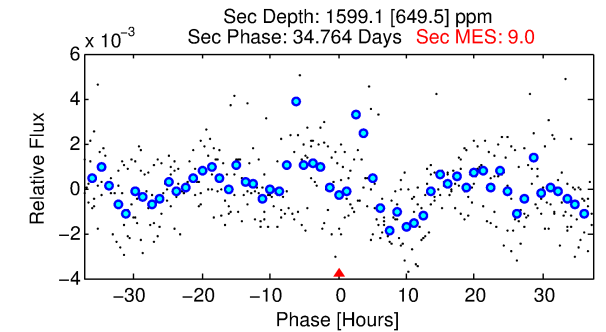
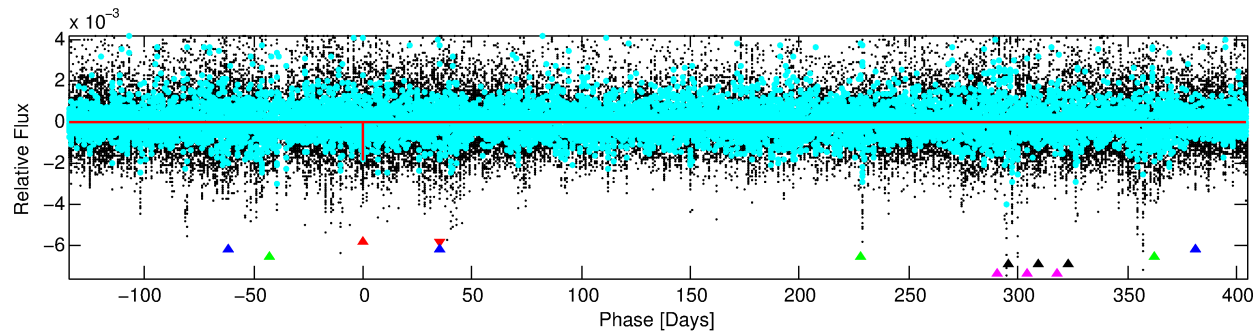
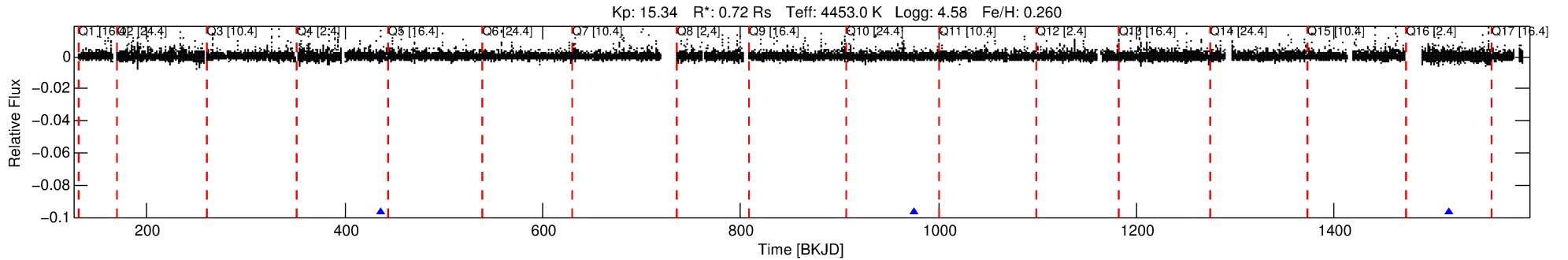
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 012599998-01

No Significant Match Found

DV One-Page Summary

KIC: 12599998 Candidate: 1 of 5 Period: 539.634 d



DV Fit Results:

Period = 539.63432 [0.01122] d
Epoch = 435.9036 [0.0136] BKJD
Rp/R* = 0.0380 [0.0580]
a/R* = 614.53 [2683.84]
b = 0.46 [7.60]
Seff = 0.14 [0.02]
Teq = 155 [6] K
Rp = 3.00 [4.59] Re
a = 1.1630 [0.0806] AU
Ag = 132118.94 [407212.48] [0.32σ]
Teffp = 4569 [3522] K [1.25σ]

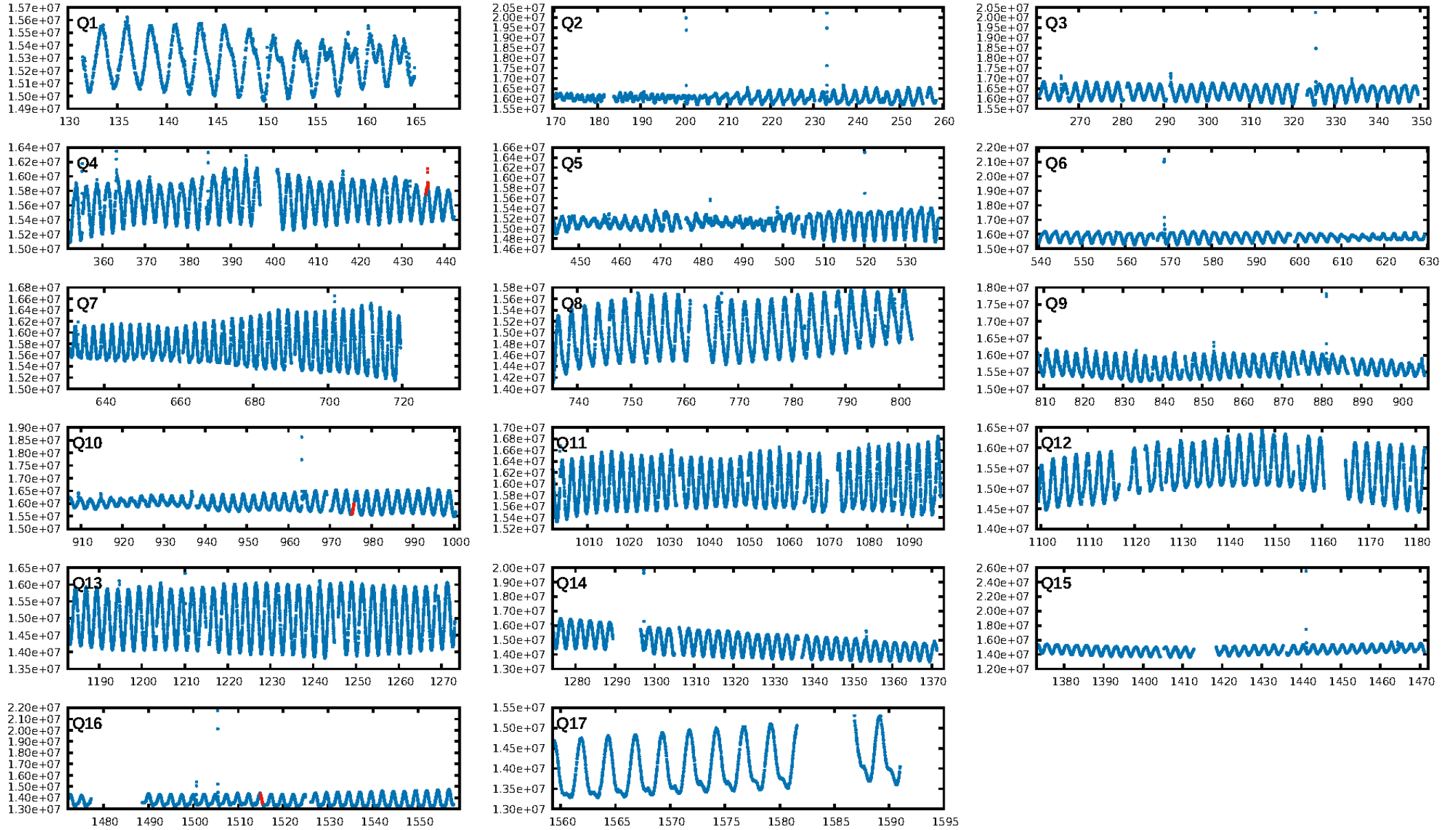
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [40.73σ]
LongPeriod-sig: N/A
ModelChiSquare2-sig: 0.0%
ModelChiSquareGof-sig: 61.3%
Bootstrap-pfa: N/A
RollingBand-fgt: 1.00 [3/3]
GhostDiagnostic-chr: -3.592
Centroid-sig: 91.0%
Centroid-so: 0.965 arcsec [0.88σ]
OotOffset-rm: 0.058 arcsec [0.36σ]
KicOffset-rm: 0.287 arcsec [2.48σ]
OotOffset-st: 1/0/2/0 [3]
KicOffset-st: 1/0/2/0 [3]
DiffImageQuality-fgm: 0.33 [1/3]
DiffImageOverlap-fno: 1.00 [3/3]

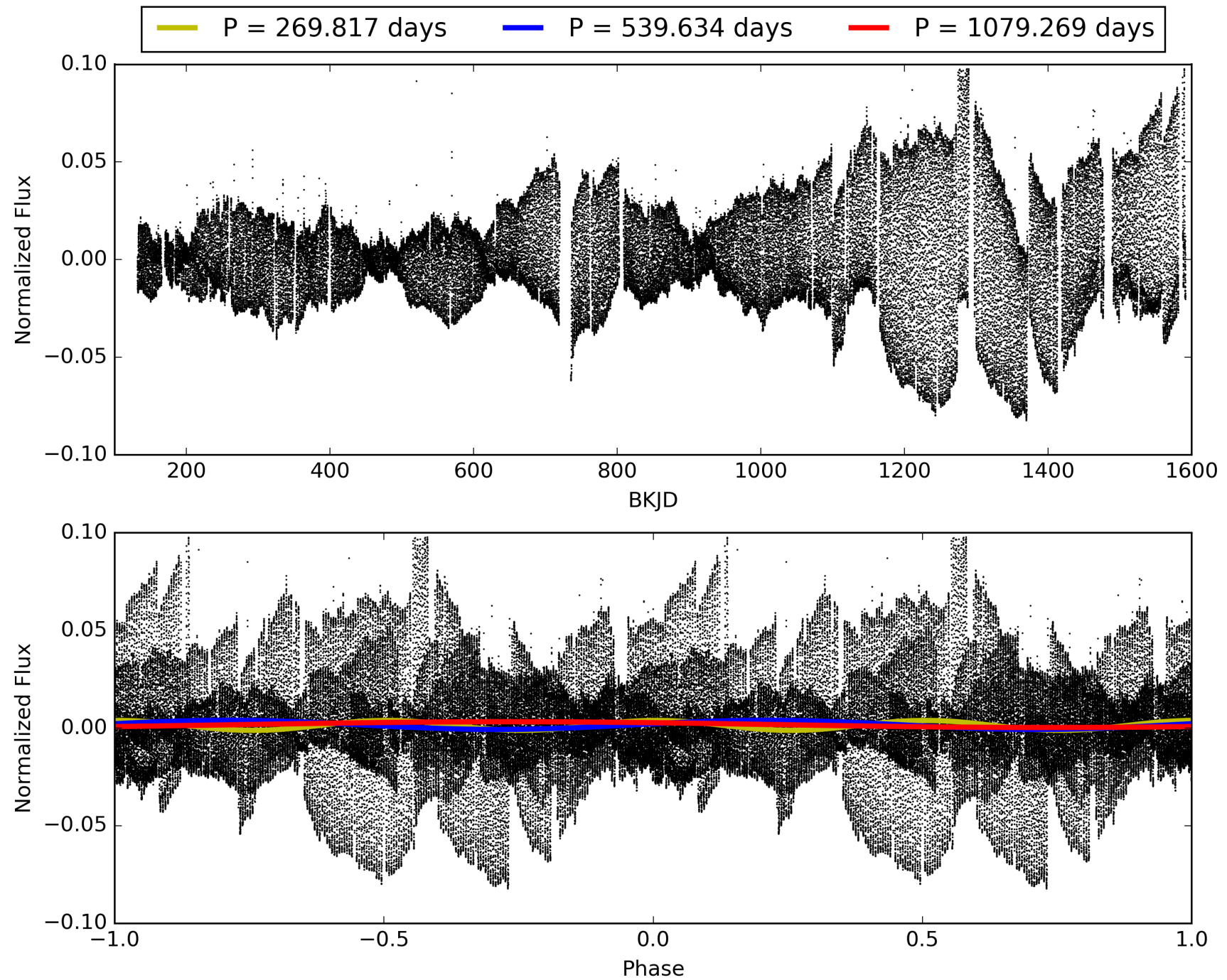
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 05:42:07 Z

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

TCE 012599998-01, PDC Light Curves

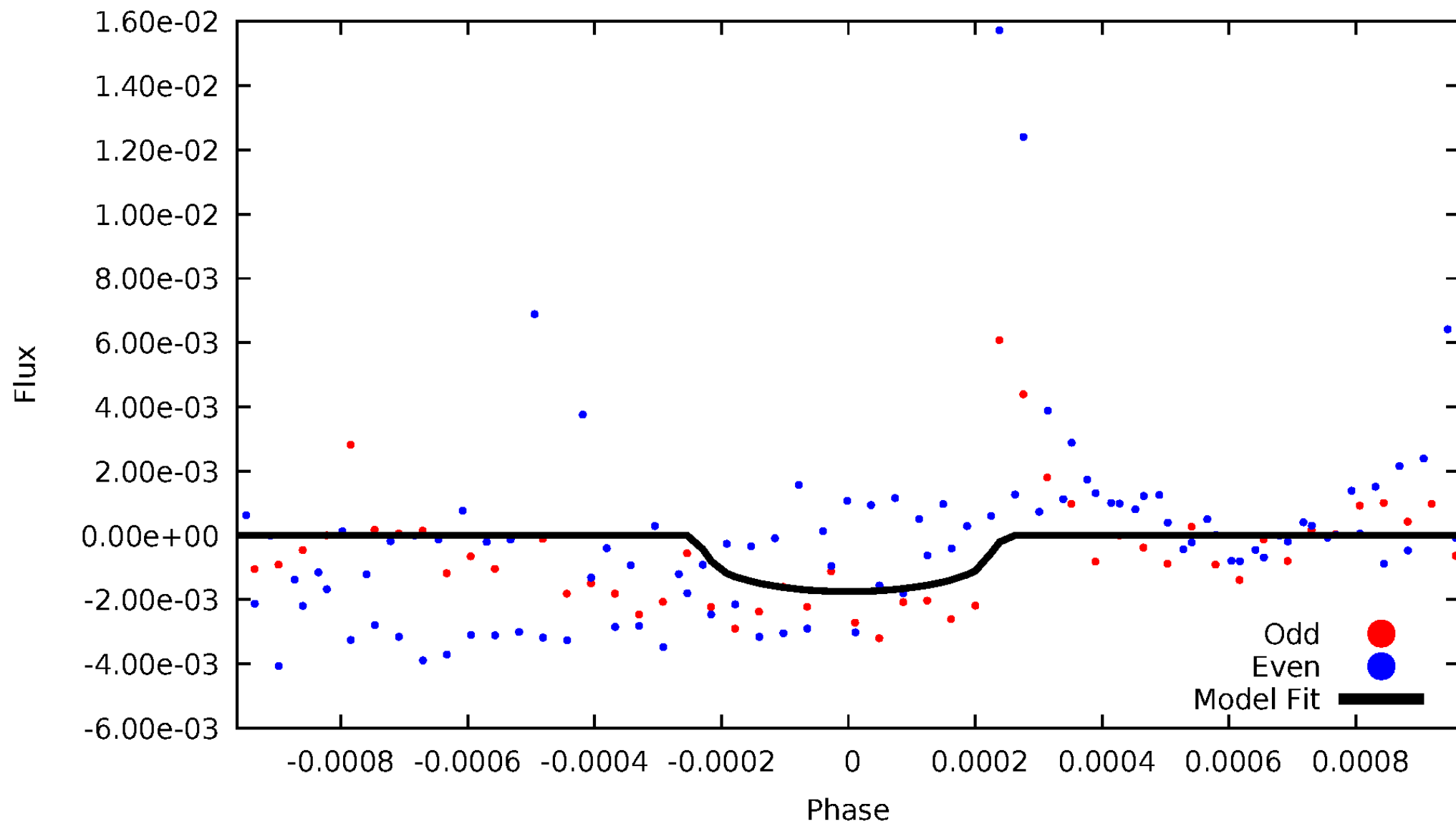


TCE 012599998-01



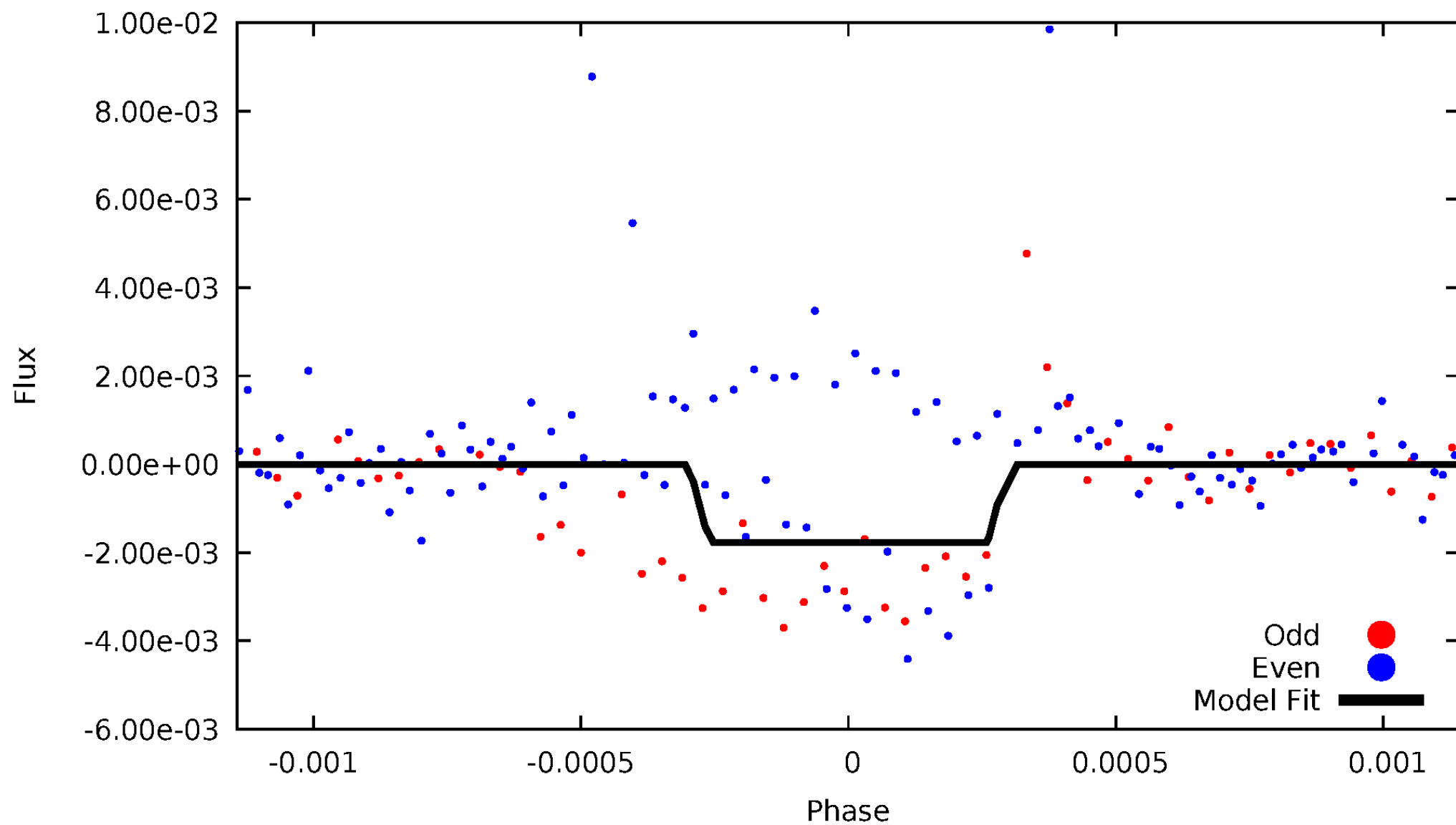
DV Odd/Even

TCE 012599998-01



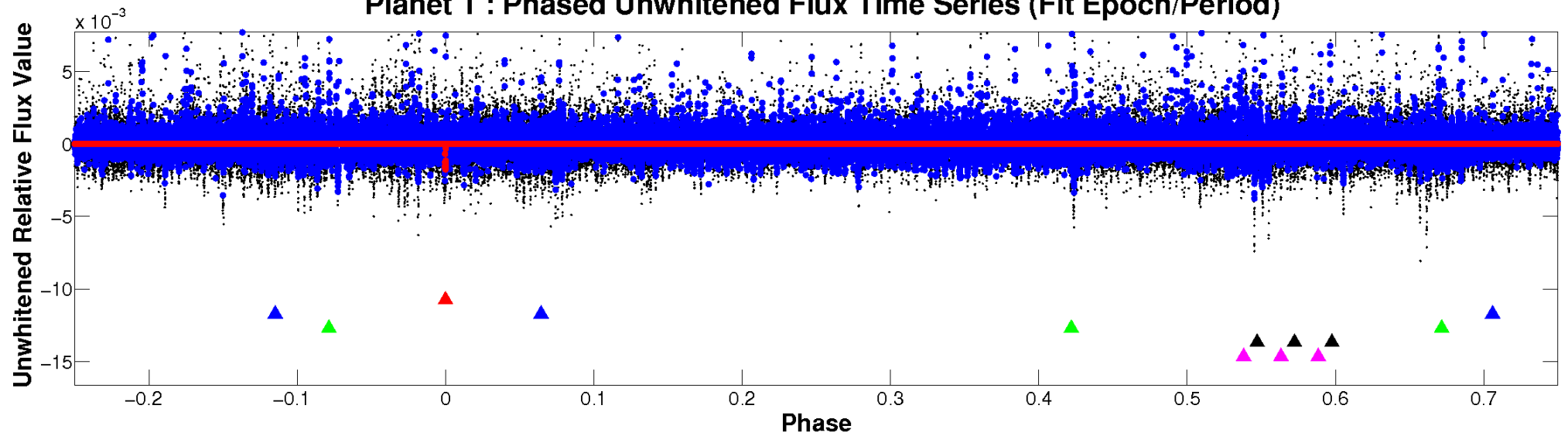
ALT Odd/Even

TCE 01259998-01

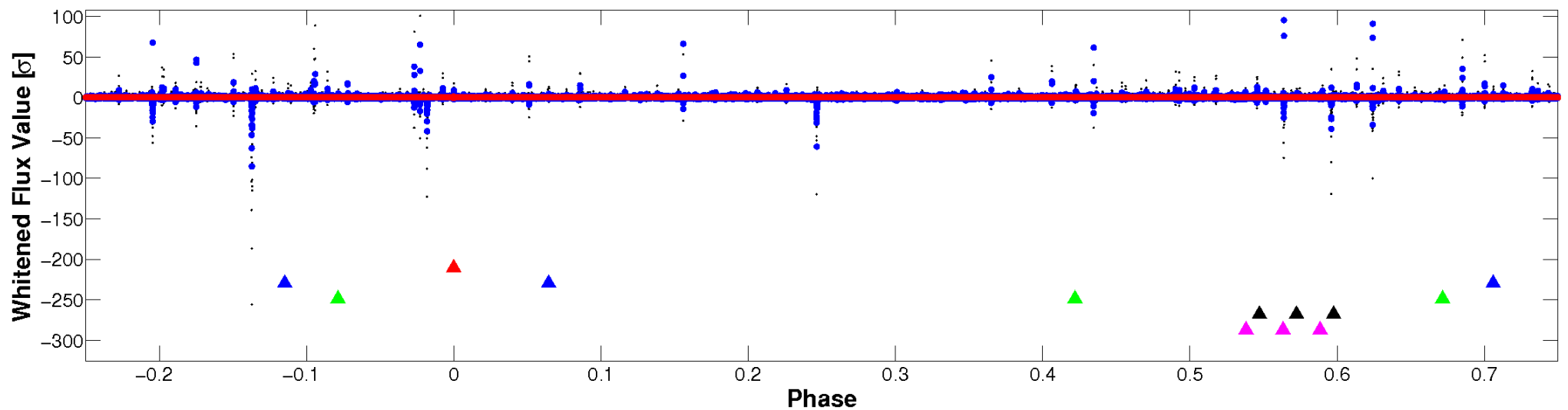


Non-Whitened Vs. Whitened Light Curve

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

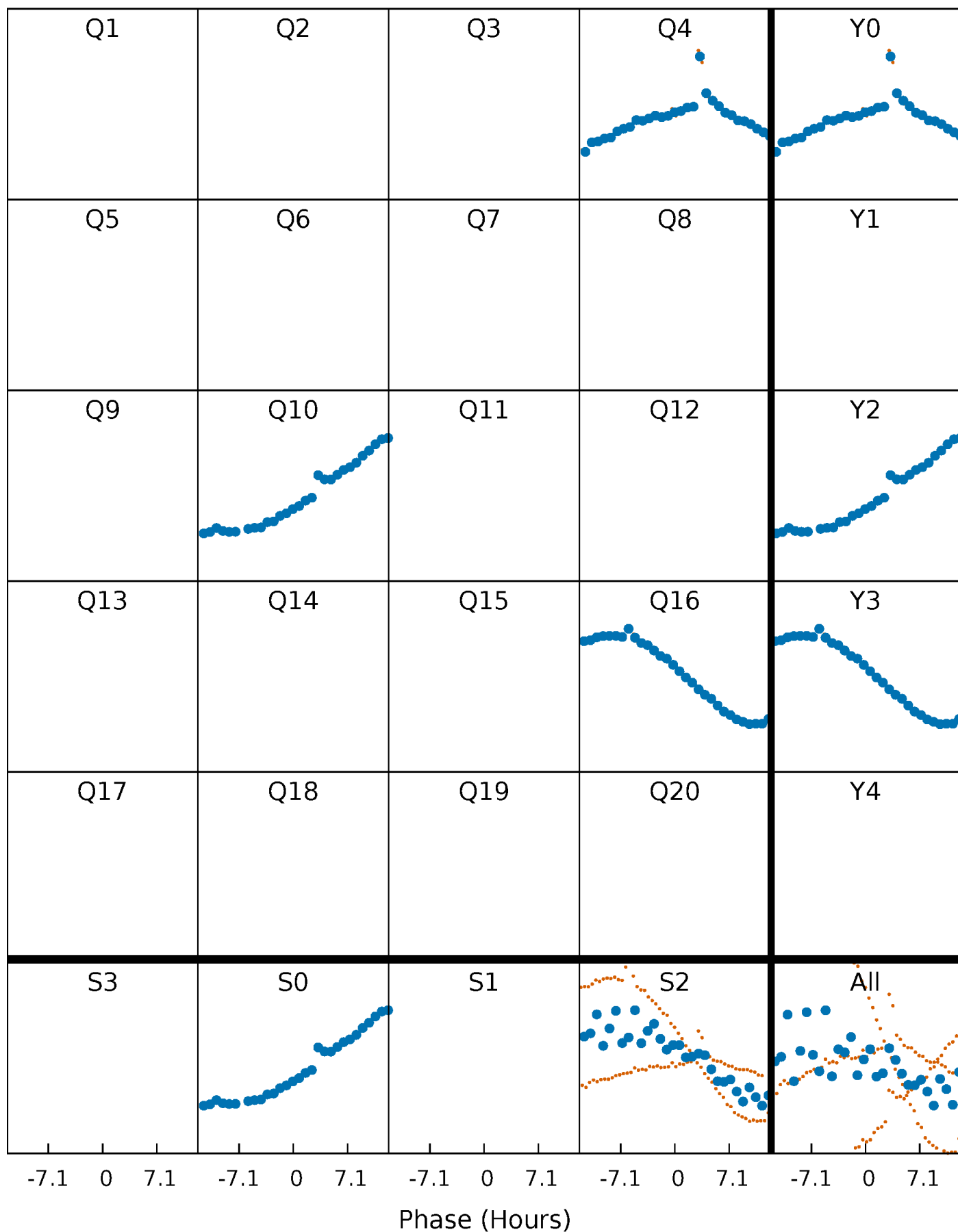


Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)



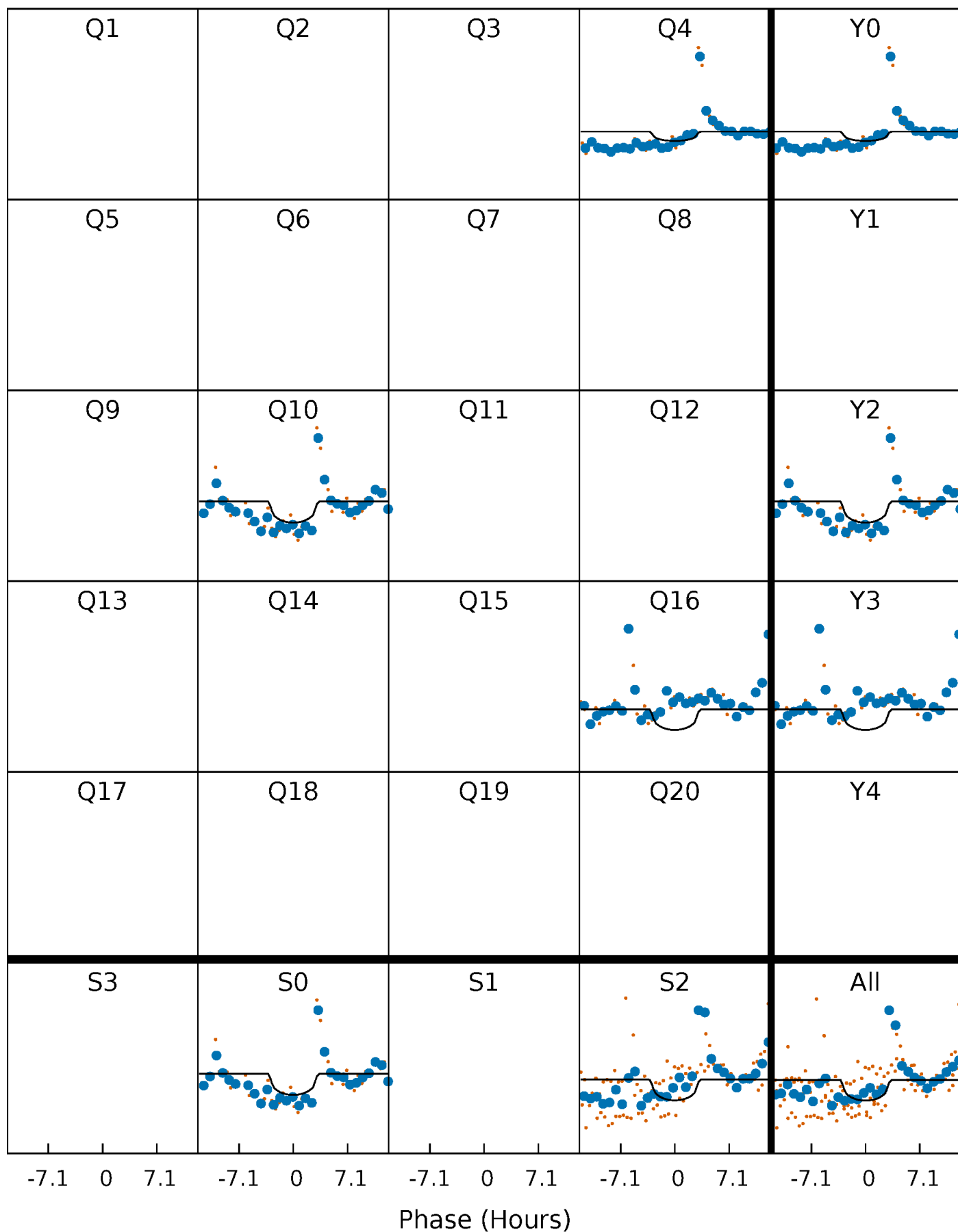
PDC Quarter-Phased Transit Curves

TCE 012599998-01 P=539.634321 Days $T_0=435.903603$ (BKJD)



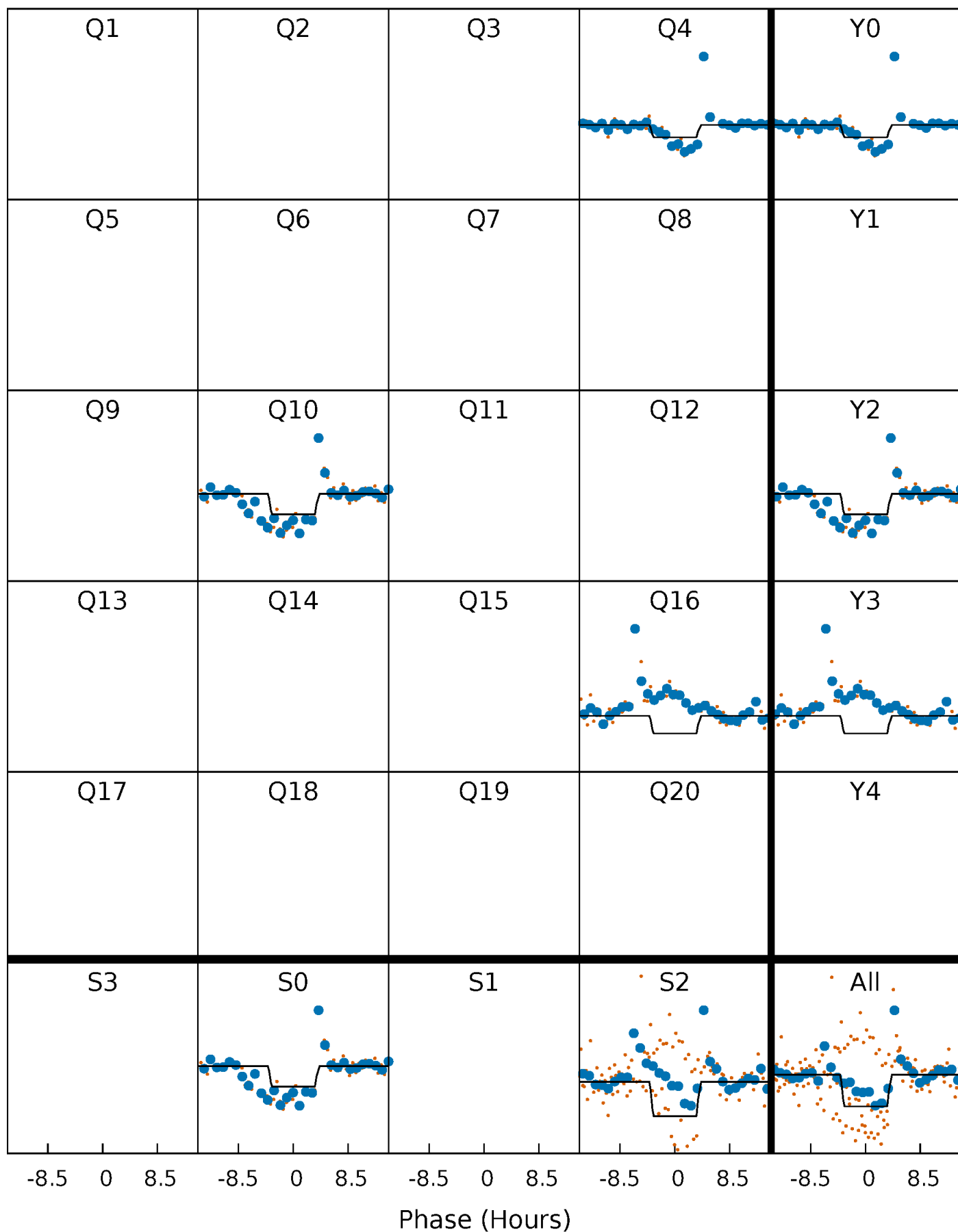
DV Quarter-Phased Transit Curves

TCE 012599998-01 P=539.634321 Days $T_0=435.903603$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

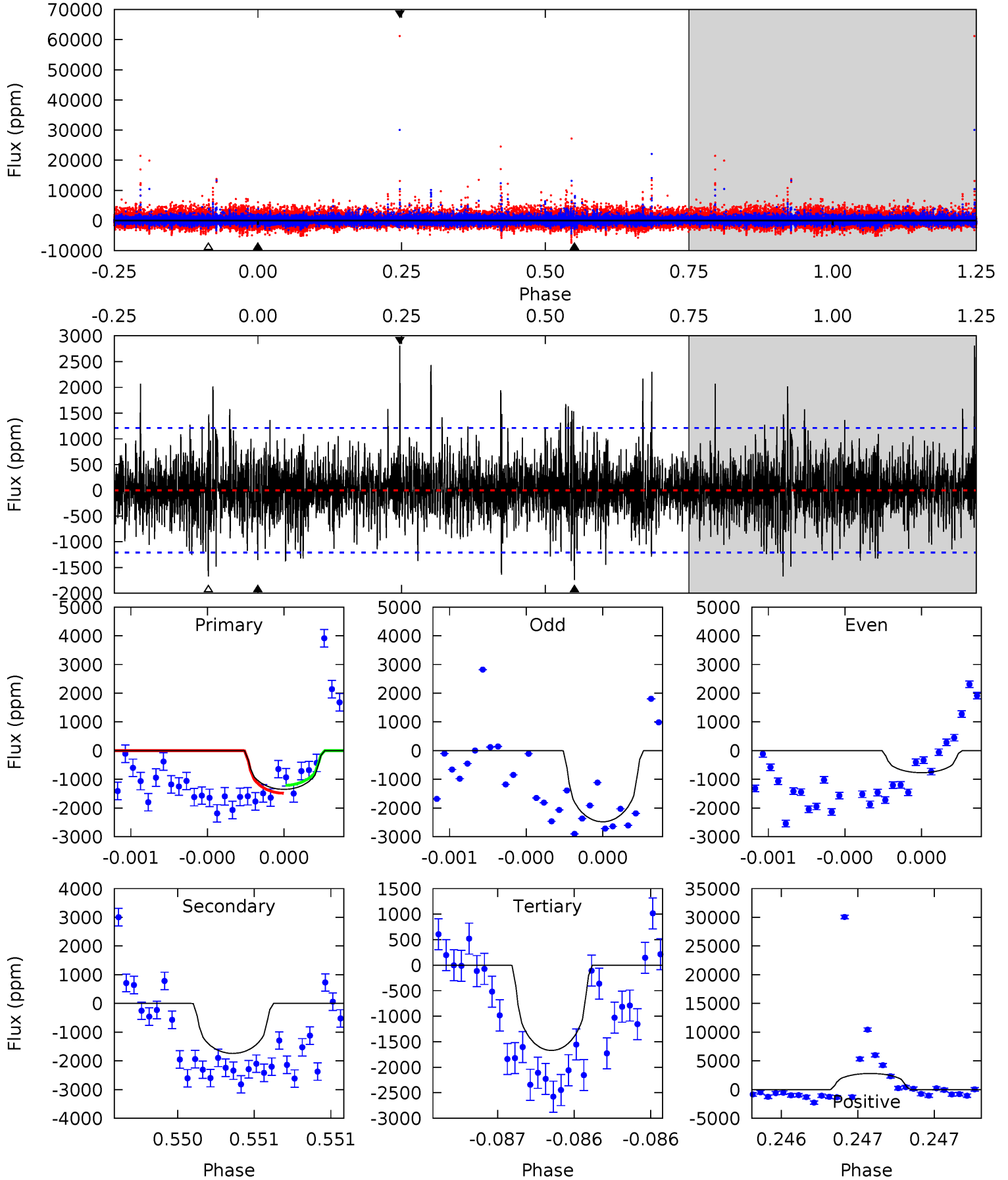
TCE 012599998-01 P=539.657131 Days $T_0=435.849739$ (BKJD)



DV Model-Shift Uniqueness Test

012599998-01, P = 539.634321 Days, E = 435.903603 Days

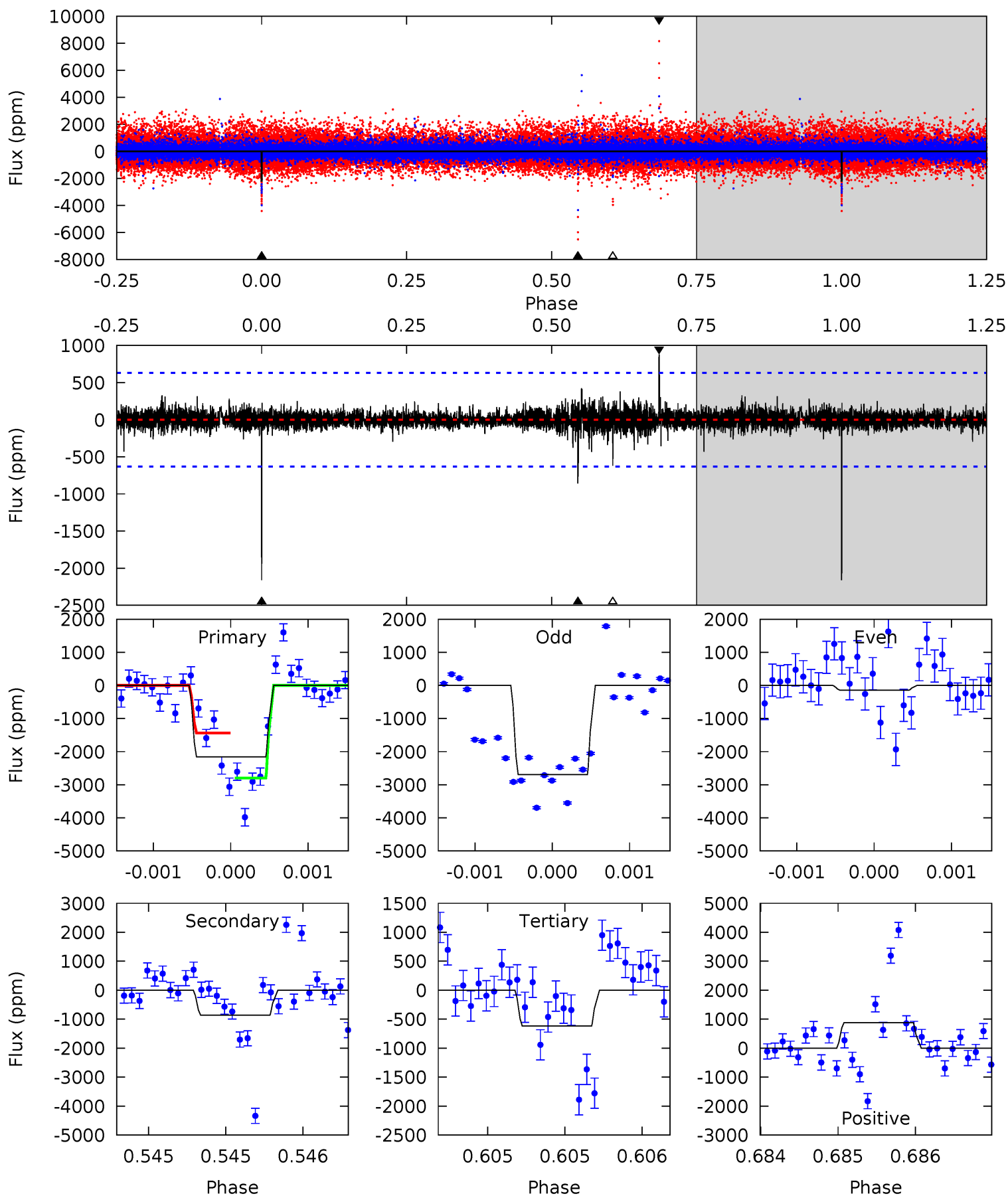
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
6.23	8.02	7.70	12.9	5.58	3.48	1.95	-1.47	-6.70	0.32	-4.90	2.28	0.64	0.62	0.64



Alt Model-Shift Uniqueness Test

012599998-01, P = 539.657131 Days, E = 435.849739 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
19.0	7.55	5.43	7.71	5.55	3.45	0.66	13.6	11.3	2.11	-0.16	12.6	0.45	0.29	6.14



Stellar Parameters For KIC 012599998

	$T_{\text{eff}}(K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	4453^{+145}_{-145}	$4.576^{+0.056}_{-0.017}$	$0.260^{+0.150}_{-0.300}$	$0.724^{+0.029}_{-0.059}$	$0.719^{+0.046}_{-0.050}$	$2.672^{+0.625}_{-0.193}$
	+3%/-3%	+1%/-0%	+58%/-115%	+4%/-8%	+6%/-7%	+23%/-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 012599998-01 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-1741 ± 217	$4.29^{+3.74}_{-2.87}$	215^{+8}_{-8}	4040^{+2379}_{-786}	$71650^{+584924}_{-52002}$
Alt.	-859 ± 114	$4.43^{+4.08}_{-2.70}$	215^{+8}_{-8}	3535^{+1467}_{-633}	$33565^{+173161}_{-24612}$

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

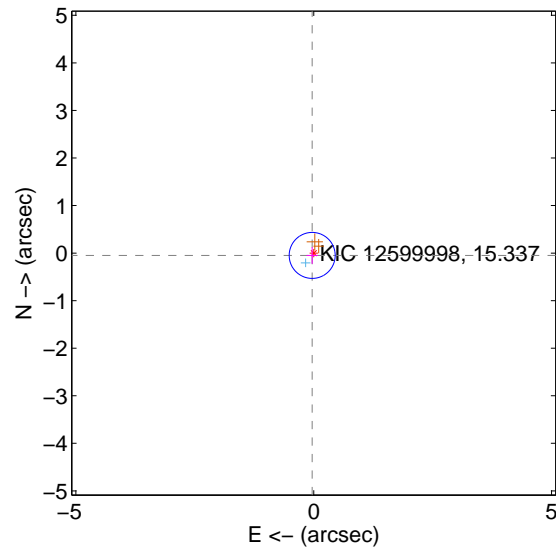
Supplemental centroid analysis for 012599998-01. Kepler magnitude: 15.34. Transit SNR 4.39

There are 1 quarters with good PRF difference image offsets

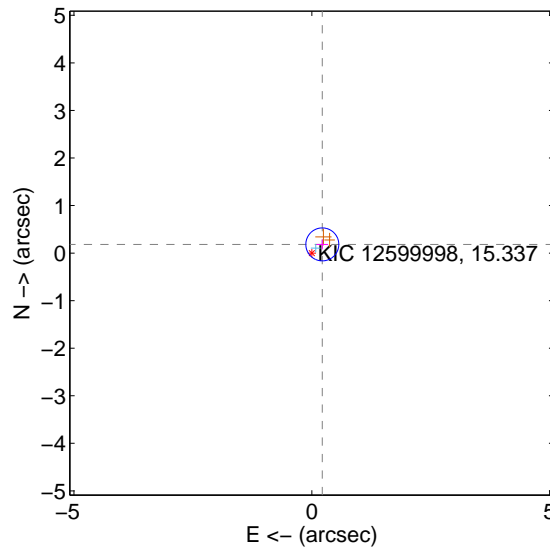
The direct PRF centroid is offset from the target star catalog position by about 0.30 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.058 ± 0.161	0.36	0.032 ± 0.119	-0.049 ± 0.176
PRF-fit source offset from KIC position	0.287 ± 0.116	2.48	-0.221 ± 0.122	0.183 ± 0.105
photometric centroid source offset	0.96 ± 1.09	0.88	-0.29 ± 1.36	0.92 ± 1.06

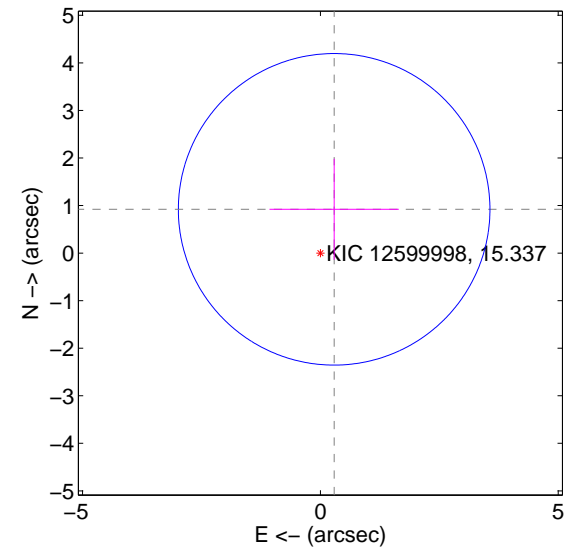
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position



offset from photometric centroids



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

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

Q1 no difference image



Q1 no OOT image



Q2 no difference image



Q2 no OOT image



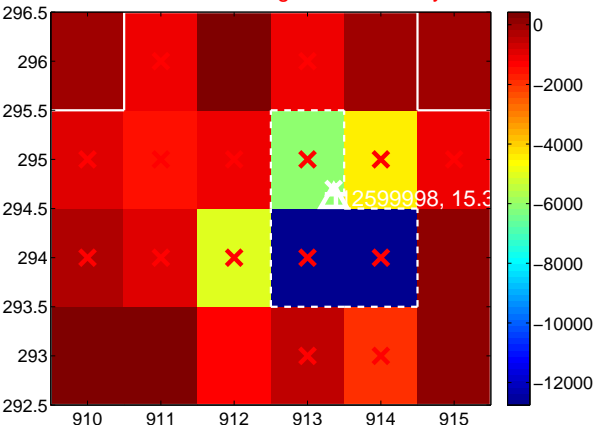
Q3 no difference image



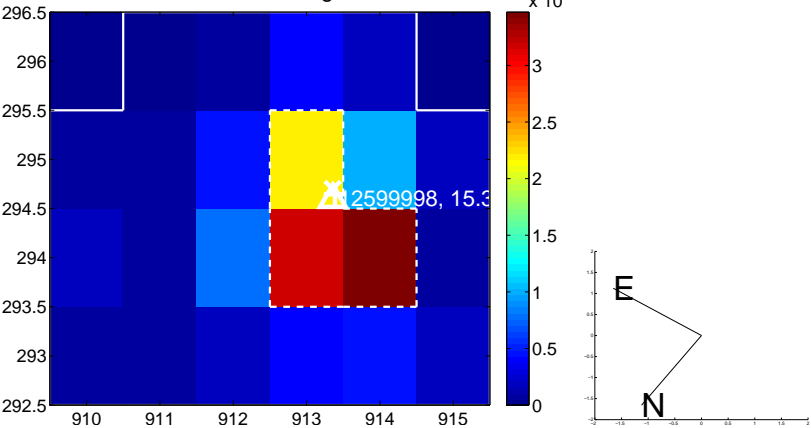
Q3 no OOT image



Q4 difference image. Poor Quality



Q4 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.

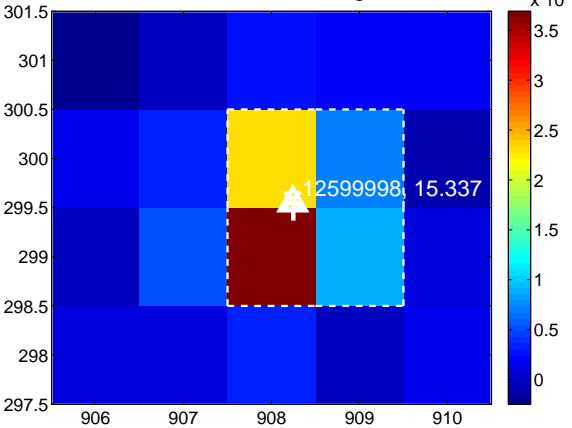
Q9 no difference image



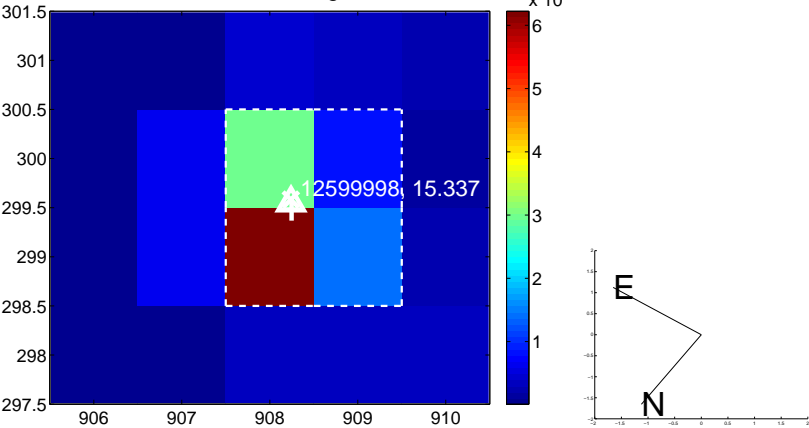
Q9 no OOT image



Q10 difference image



Q10 OOT image



Q11 no difference image



Q11 no OOT image



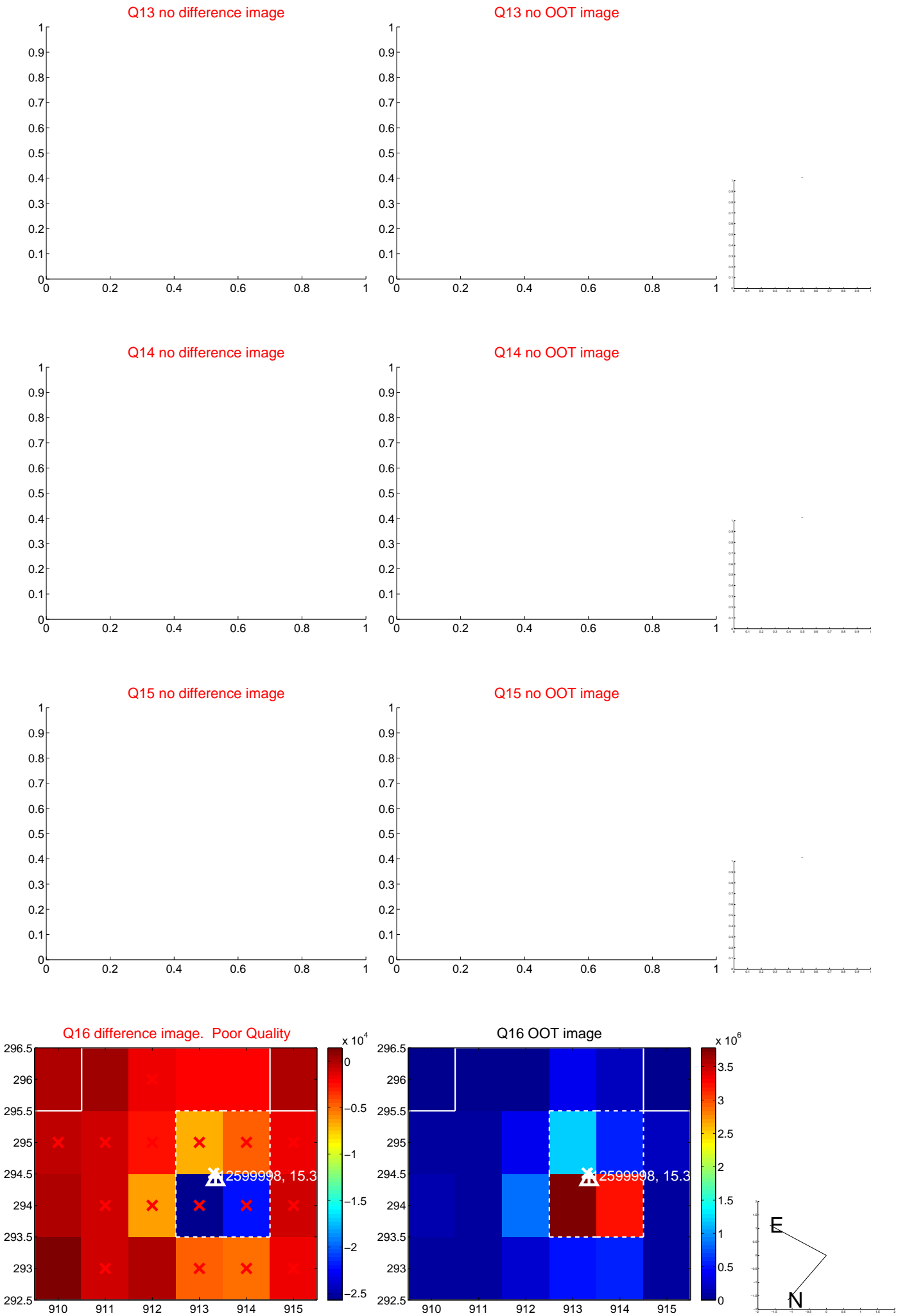
Q12 no difference image



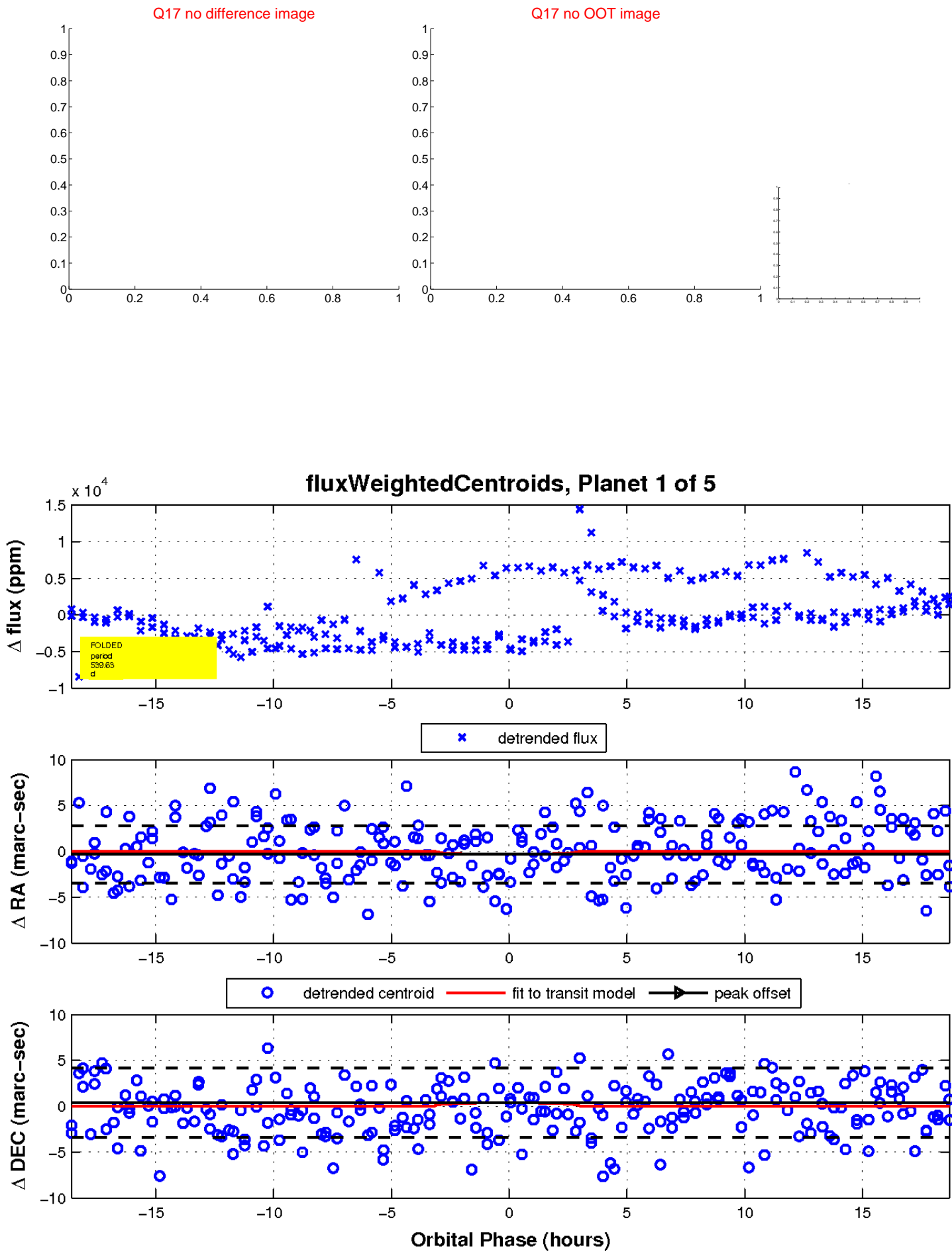
Q12 no OOT image



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

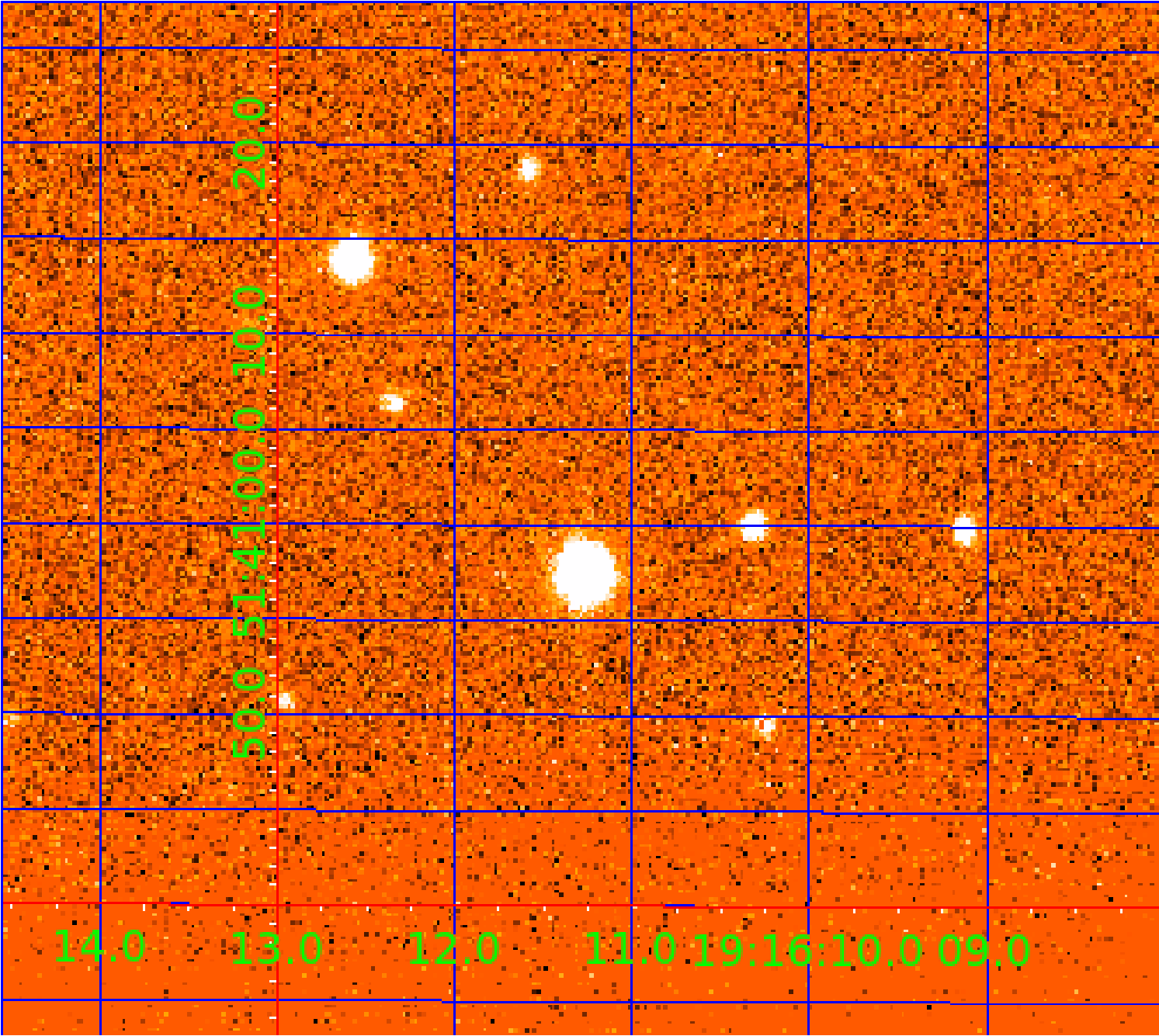


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 012599998

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})
012599998-01	OBS	No	539.634321	435.903604	1749.6	6.237	14.3	4.4	0.72	4453	3.00	0.14
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012599998-04	OBS	No	526.031352	218.779406	3141.6	6.679	10.0	7.9	0.72	4453	3.86	0.14
012599998-05	OBS	No	526.046916	213.829971	2610.4	5.021	10.3	7.4	0.72	4453	3.52	0.14

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
012599998-01	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL_SKYE—LPP_DV—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—INCONSISTENT_TRANS—CENT_FEW_DIFFS
012599998-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—LPP_DV—ALL_TRANS_CHASES—MOD_POS_DV—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_FEW_DIFFS
012599998-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL_SKYE—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—INCONSISTENT_TRANS—CENT_FEW_DIFFS
012599998-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL_SKYE—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—CENT_FEW_DIFFS
012599998-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL_SKYE—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—INCONSISTENT_TRANS—SAME_NTL_PERIOD—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.

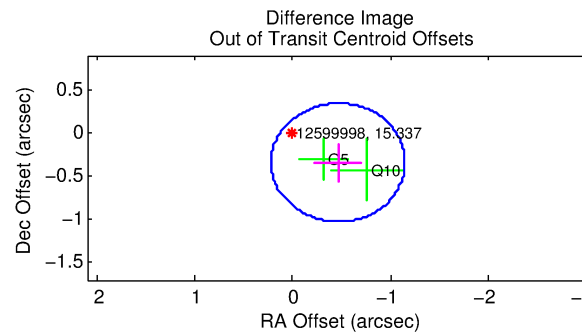
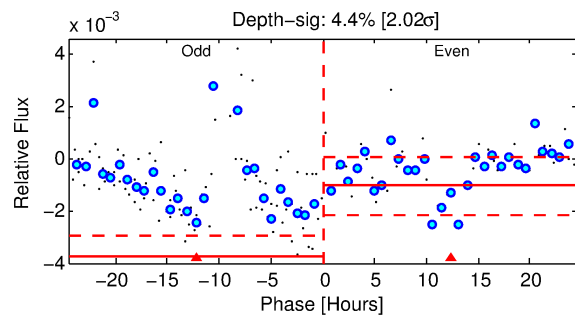
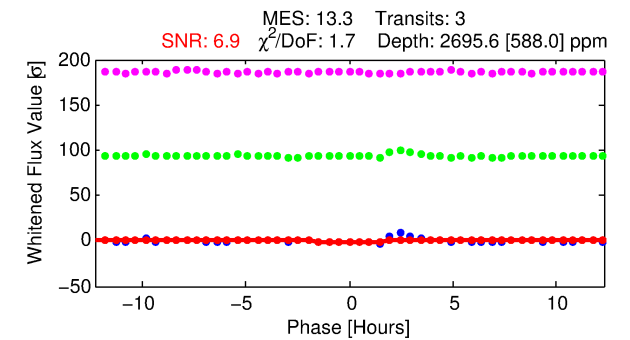
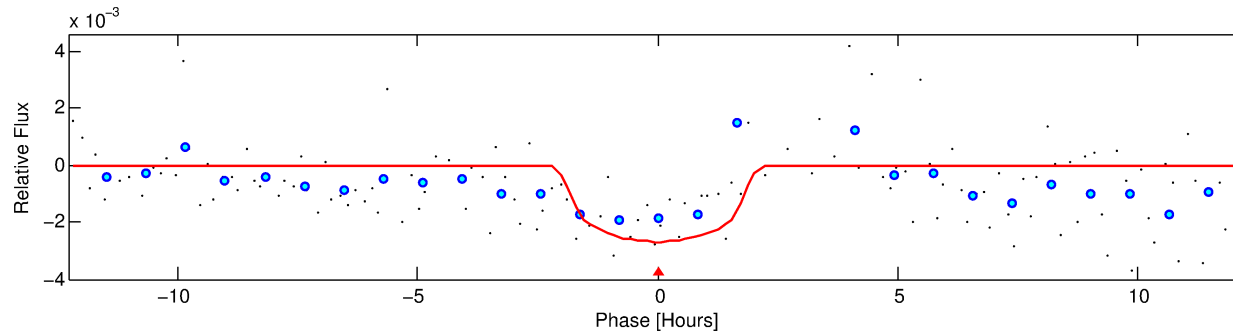
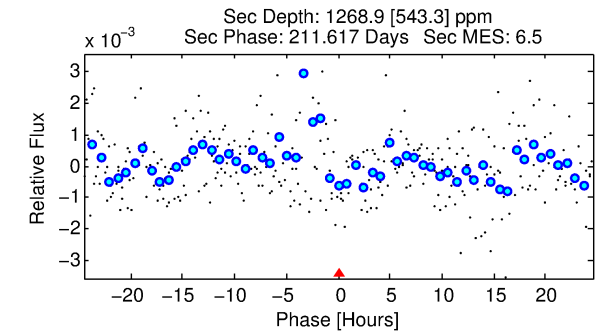
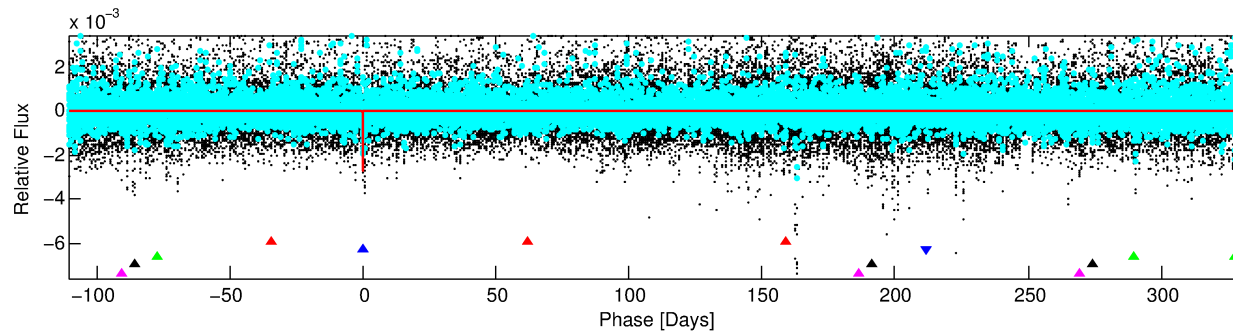
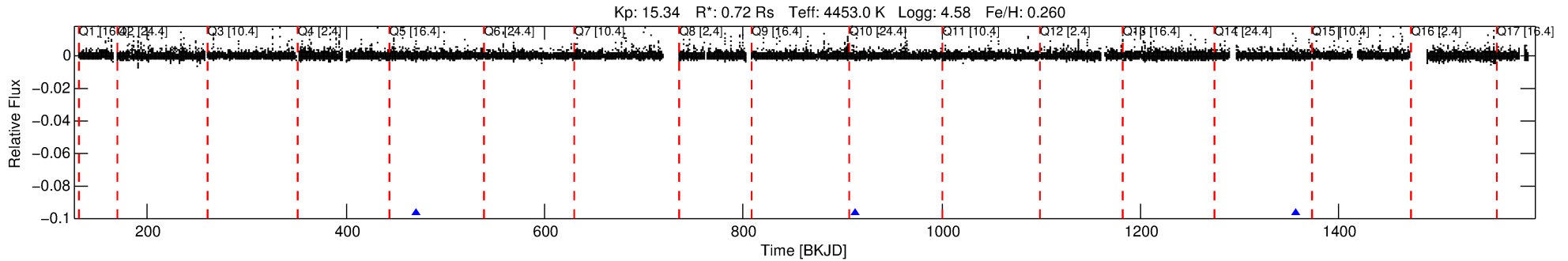
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 012599998-02

No Significant Match Found

DV One-Page Summary

KIC: 12599998 Candidate: 2 of 5 Period: 442.912 d



DV Fit Results:

Period = 442.91213 [0.00816] d
Epoch = 470.6858 [0.0113] BKJD
Rp/R* = 0.0494 [0.0753]
a/R* = 695.30 [3044.17]
b = 0.63 [4.36]
Seff = 0.18 [0.03]
Teq = 166 [7] K
Rp = 3.90 [5.95] Re
a = 1.0195 [0.0706] AU
Ag = 47692.59 [146919.75] [0.32σ]
Teffp = 3782 [2914] K [1.24σ]

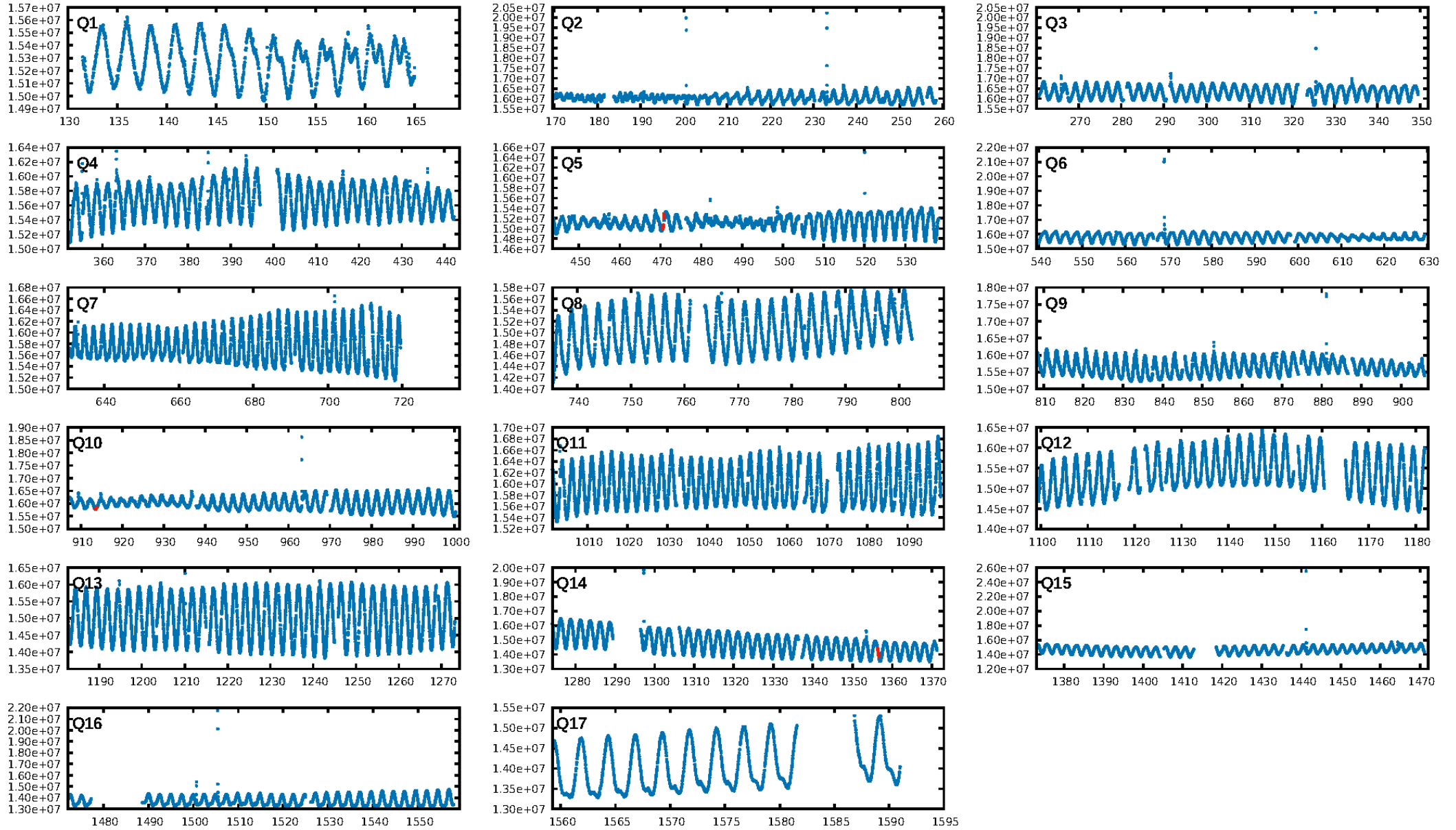
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [109.66σ]
LongPeriod-sig: 100.0% [254.67σ]
ModelChiSquare2-sig: 0.0%
ModelChiSquareGof-sig: 17.9%
Bootstrap-pfa: N/A
RollingBand-fgt: 1.00 [3/3]
GhostDiagnostic-chr: 2.431
Centroid-sig: 91.0%
Centroid-so: 1.198 arcsec [1.49σ]
OotOffset-rm: 0.576 arcsec [2.52σ]
KicOffset-rm: 0.687 arcsec [2.97σ]
OotOffset-st: 1/0/0/1 [2]
KicOffset-st: 1/0/0/1 [2]
DiffImageQuality-fgm: 1.00 [2/2]
DiffImageOverlap-fno: 1.00 [3/3]

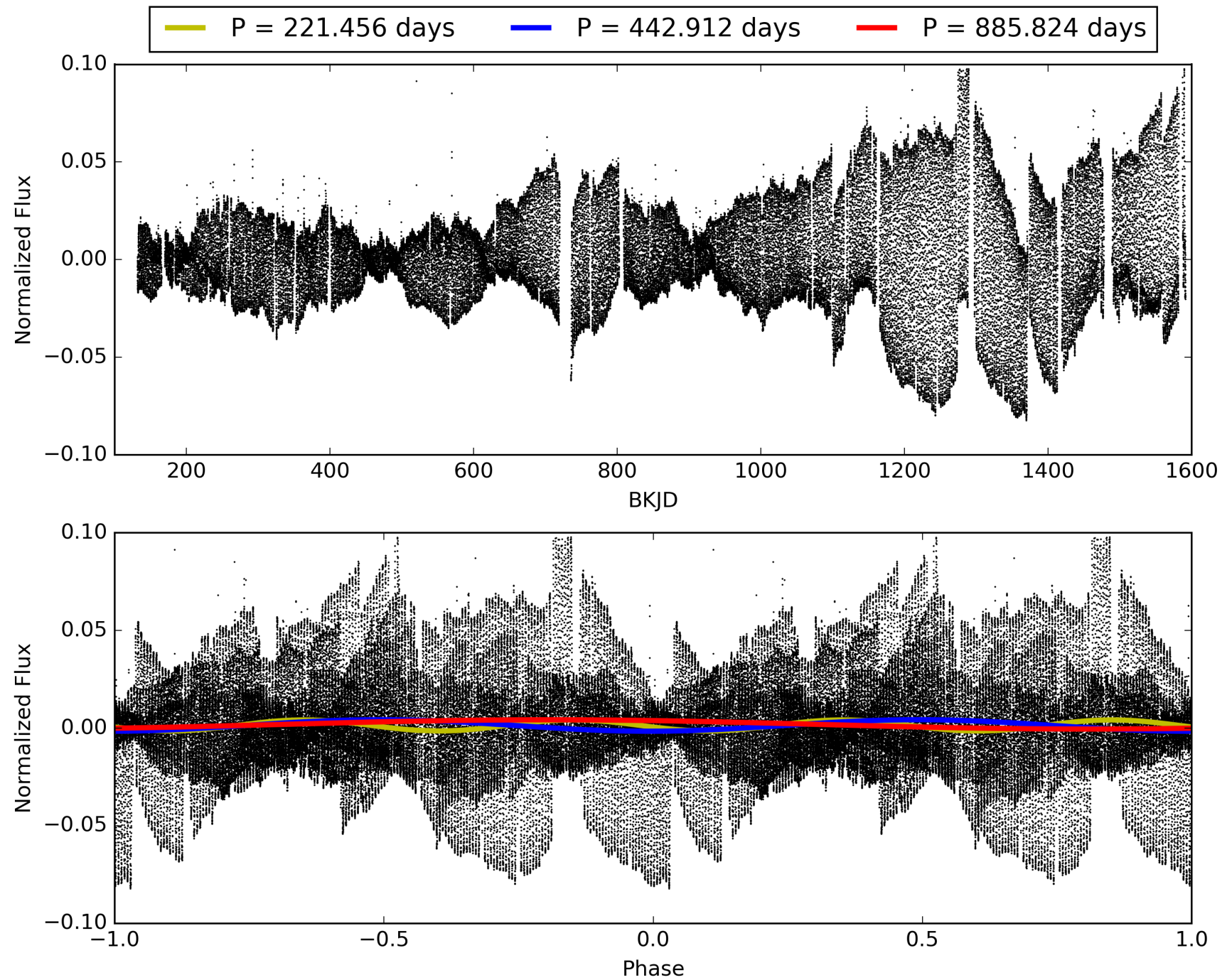
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 05:42:23 Z

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TCE 012599998-02, PDC Light Curves

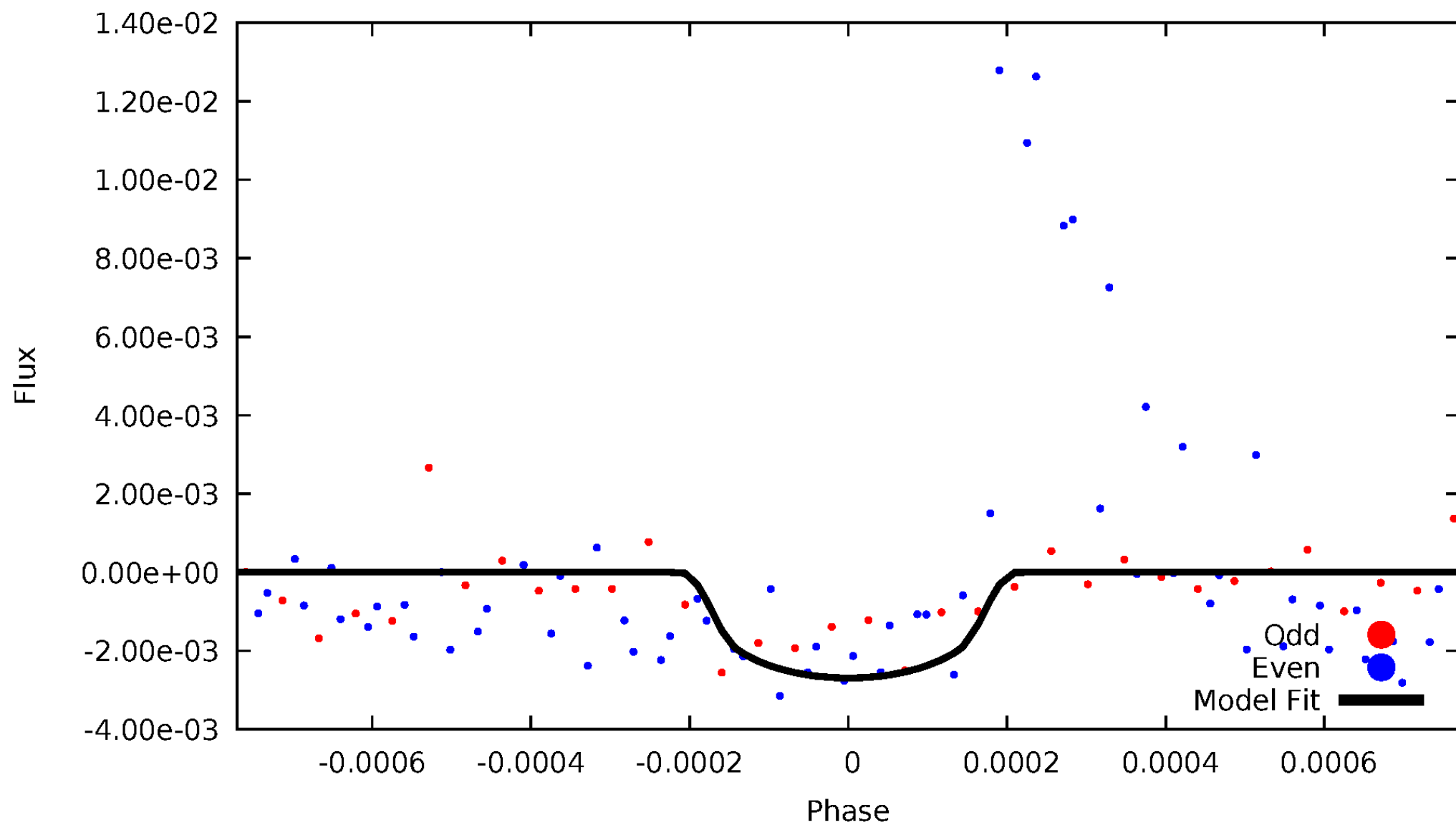


TCE 012599998-02



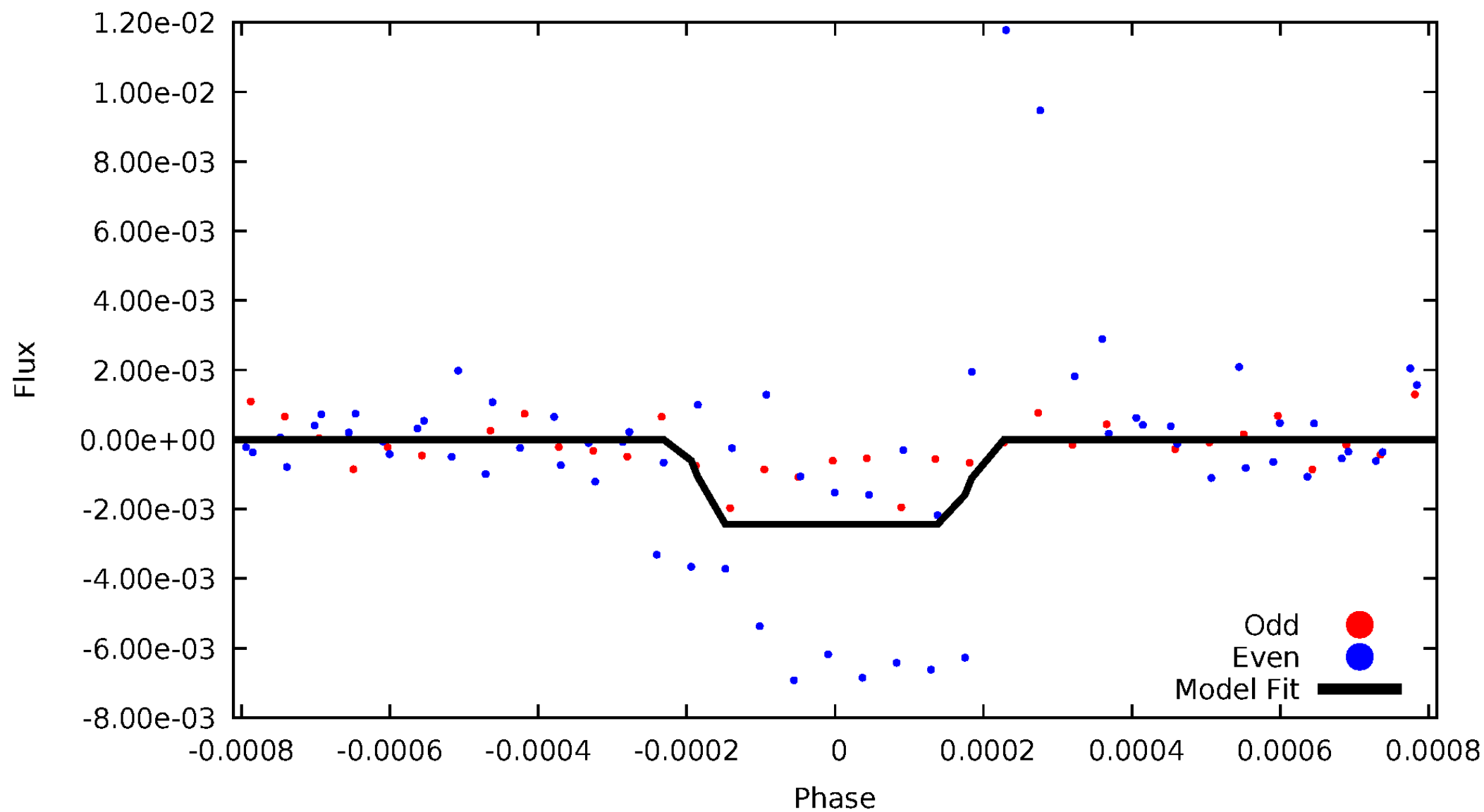
DV Odd/Even

TCE 012599998-02



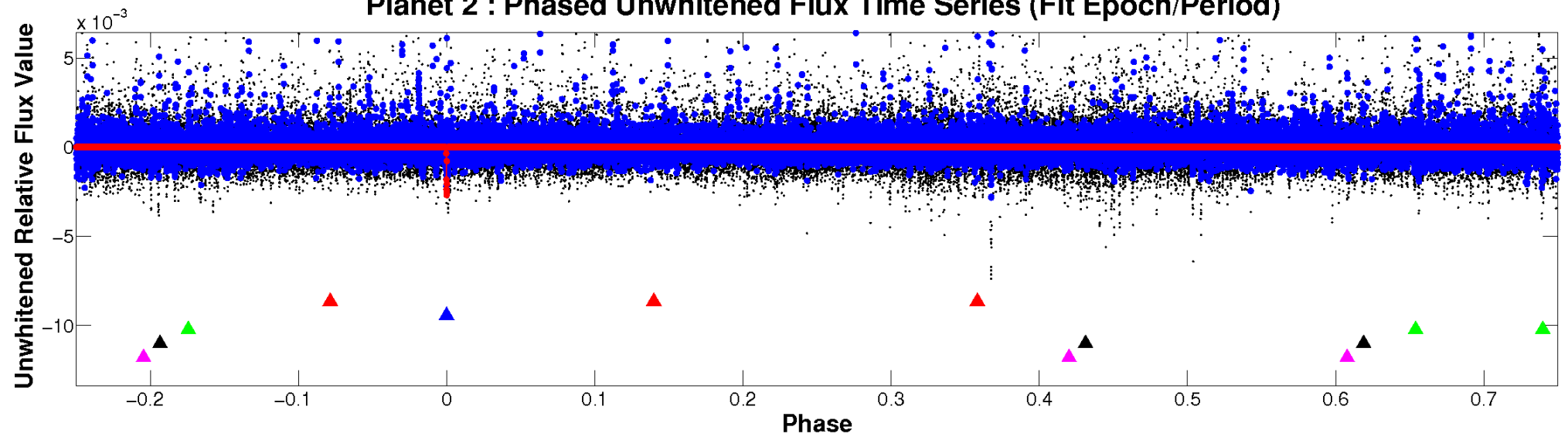
ALT Odd/Even

TCE 012599998-02

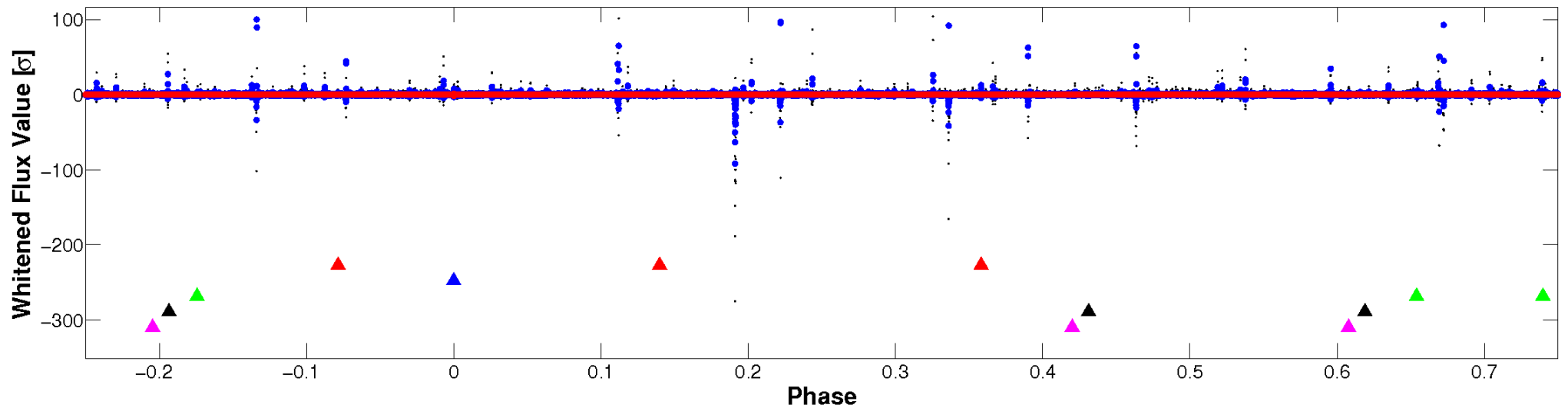


Non-Whitened Vs. Whitened Light Curve

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

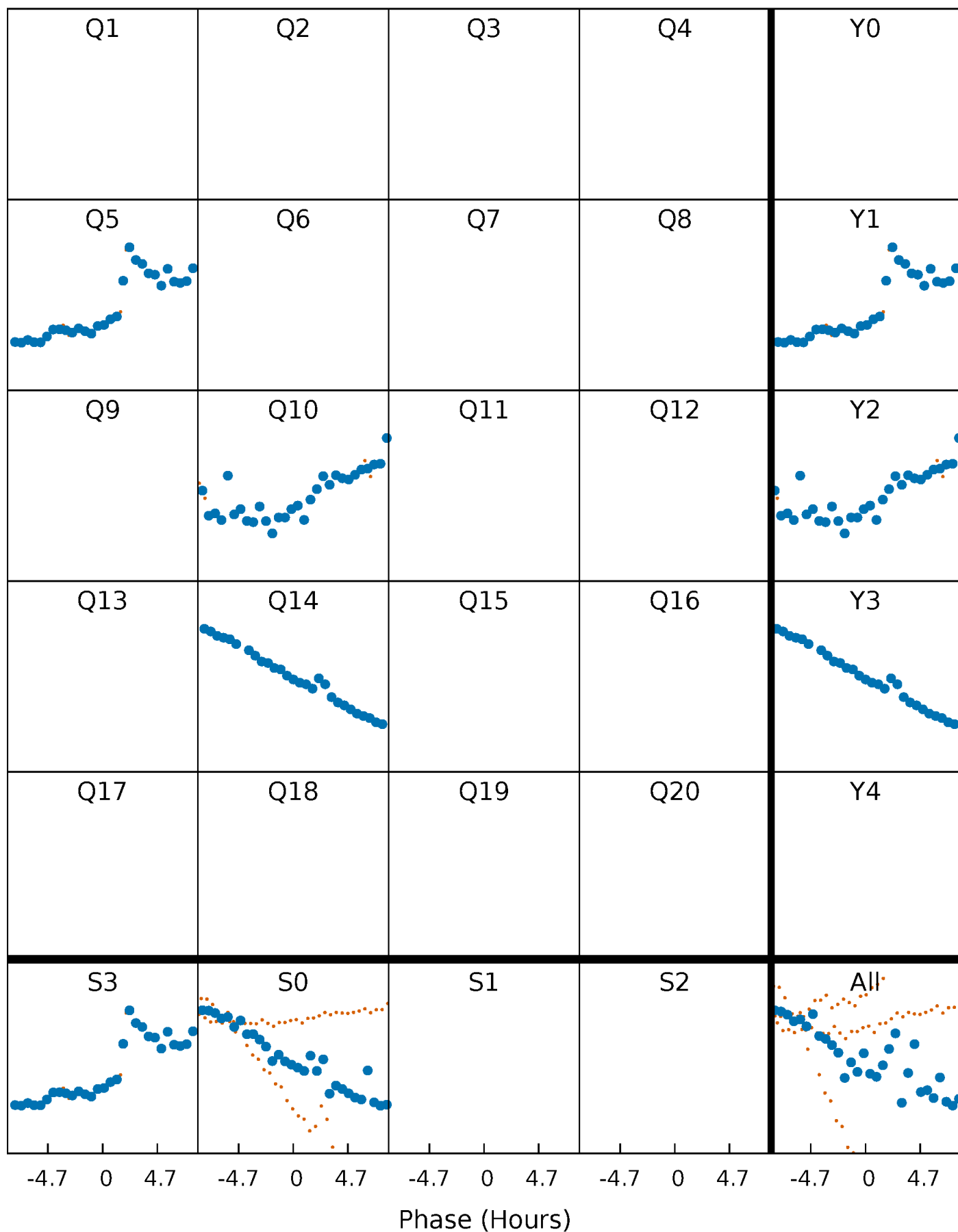


Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



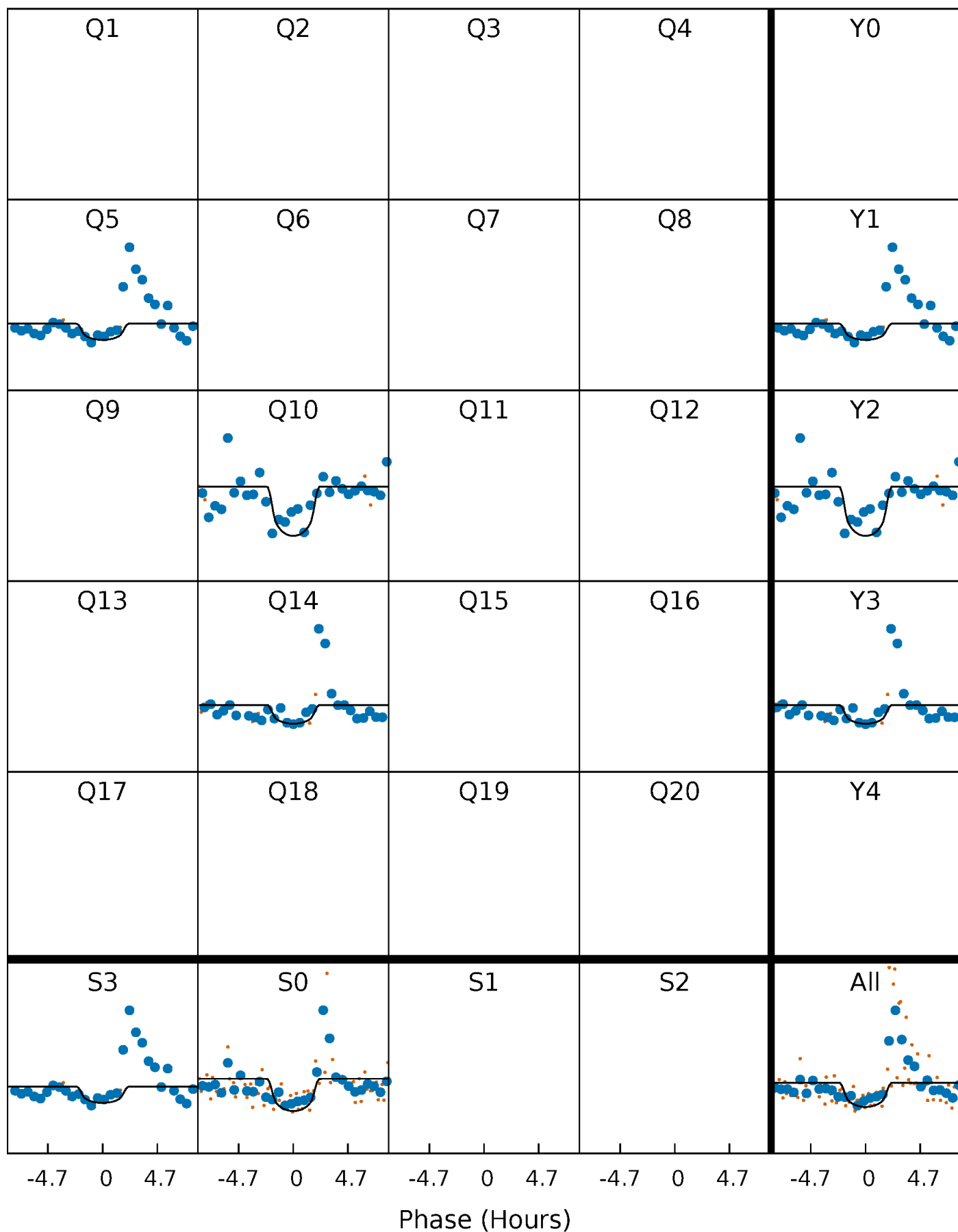
PDC Quarter-Phased Transit Curves

TCE 012599998-02 $P=442.912135$ Days $T_0=470.685783$ (BKJD)



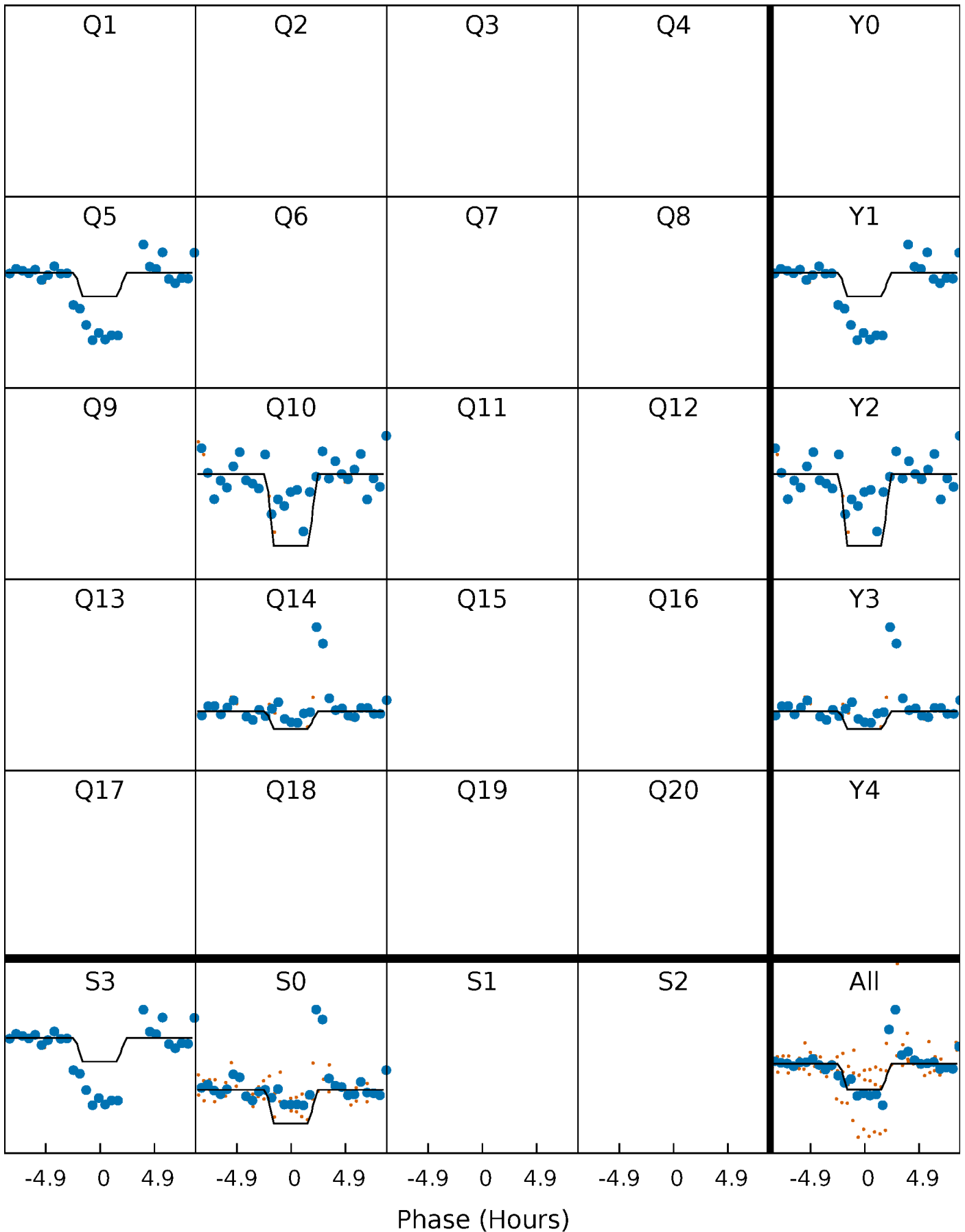
DV Quarter-Phased Transit Curves

TCE 012599998-02 $P=442.912135$ Days $T_0=470.685783$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

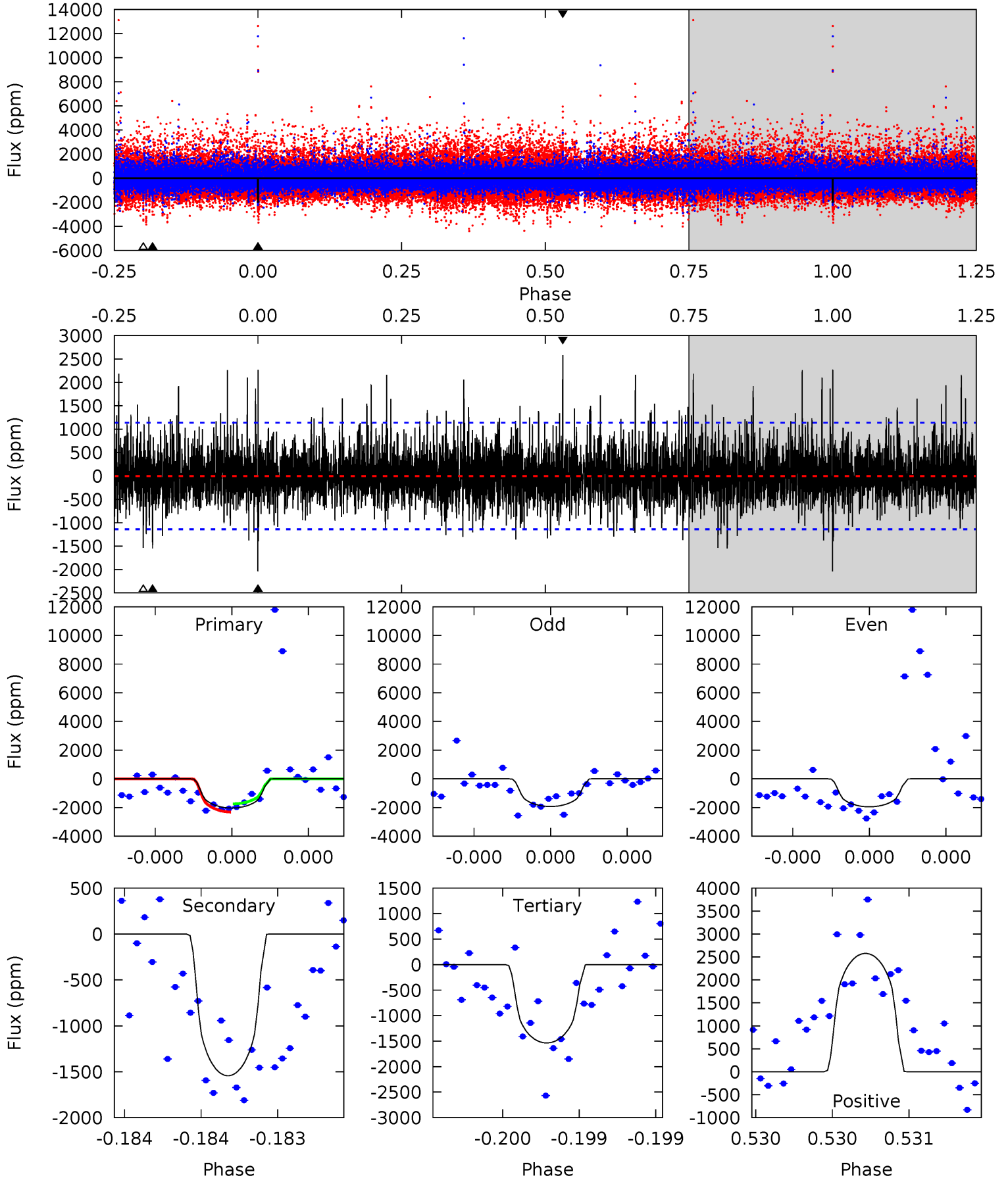
TCE 012599998-02 $P=442.917846$ Days $T_0=470.672131$ (BKJD)



DV Model-Shift Uniqueness Test

012599998-02, P = 442.912135 Days, E = 27.773648 Days

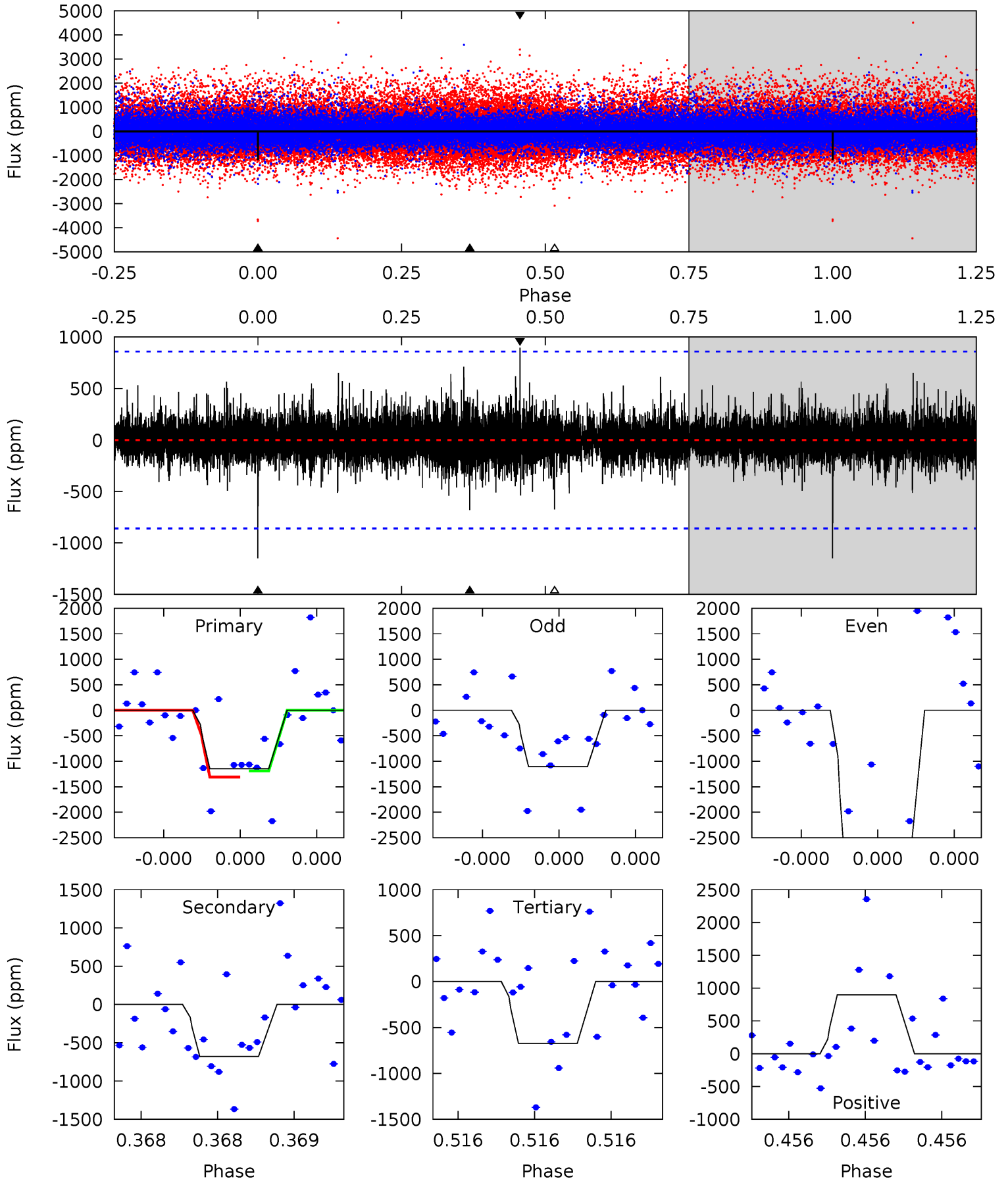
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
10.0	7.59	7.55	12.7	5.61	3.53	2.10	2.45	-2.67	0.04	-5.08	0.03	1.00	0.56	1.41



Alt Model-Shift Uniqueness Test

012599998-02, P = 442.917846 Days, E = 27.754285 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
7.51	4.44	4.41	5.86	5.62	3.56	0.85	3.10	1.64	0.03	-1.42	8.78	2.40	0.44	0.38



Stellar Parameters For KIC 012599998

	$T_{\text{eff}}(K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	4453^{+145}_{-145}	$4.576^{+0.056}_{-0.017}$	$0.260^{+0.150}_{-0.300}$	$0.724^{+0.029}_{-0.059}$	$0.719^{+0.046}_{-0.050}$	$2.672^{+0.625}_{-0.193}$
	+3%/-3%	+1%/-0%	+58%/-115%	+4%/-8%	+6%/-7%	+23%/-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 012599998-02 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-1544 ± 203	$6.06^{+5.56}_{-4.35}$	229^{+8}_{-8}	3496^{+2208}_{-610}	$24115^{+268387}_{-17578}$
Alt.	-679 ± 153	$6.01^{+5.65}_{-4.18}$	229^{+8}_{-9}	3103^{+1474}_{-513}	10867^{+97931}_{-8142}

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

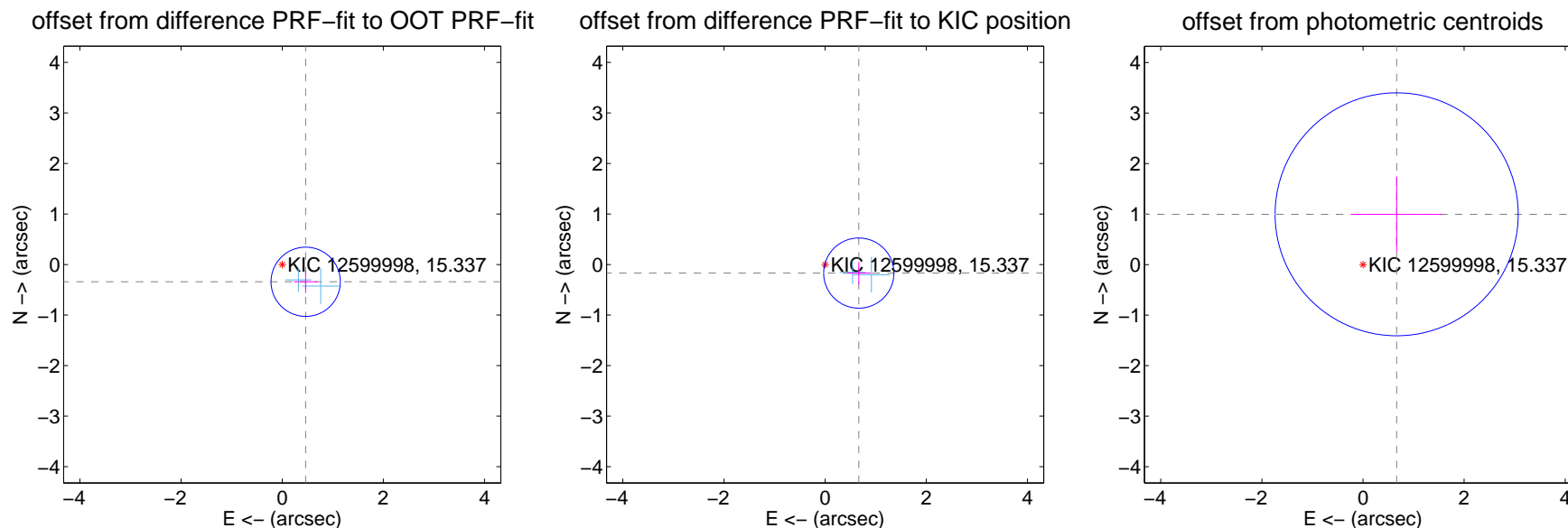
DV Centroid Data

Supplemental centroid analysis for 012599998-02. Kepler magnitude: 15.34. Transit SNR 6.92

There are 2 quarters with good PRF difference image offsets

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

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.576 ± 0.228	2.52	-0.464 ± 0.232	-0.341 ± 0.221
PRF-fit source offset from KIC position	0.687 ± 0.231	2.97	-0.665 ± 0.232	-0.169 ± 0.221
photometric centroid source offset	1.20 ± 0.80	1.49	-0.67 ± 0.91	1.00 ± 0.75

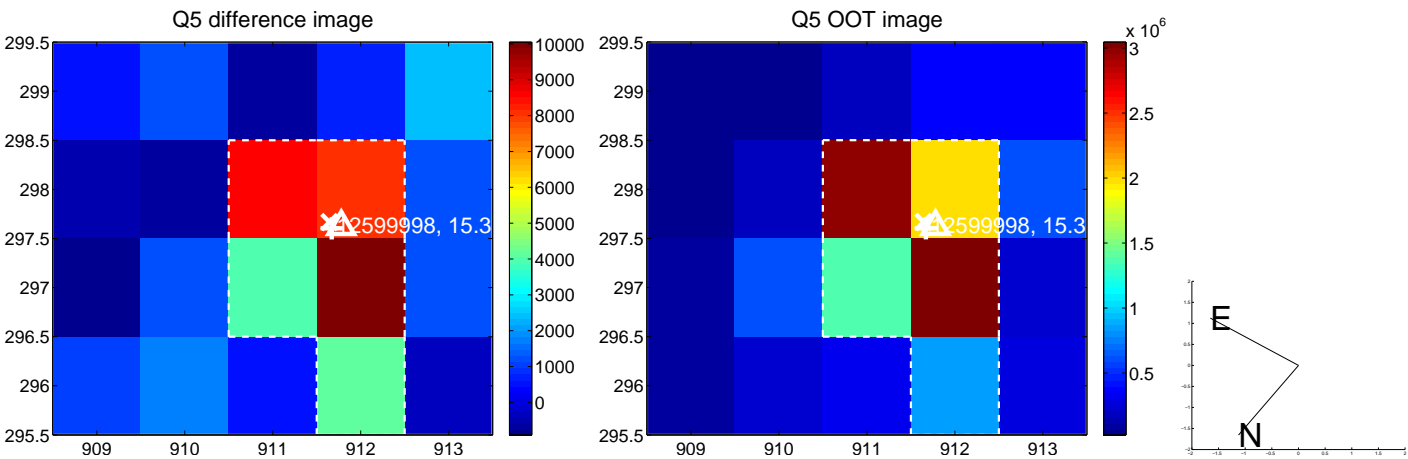


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ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

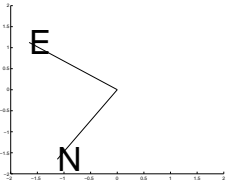
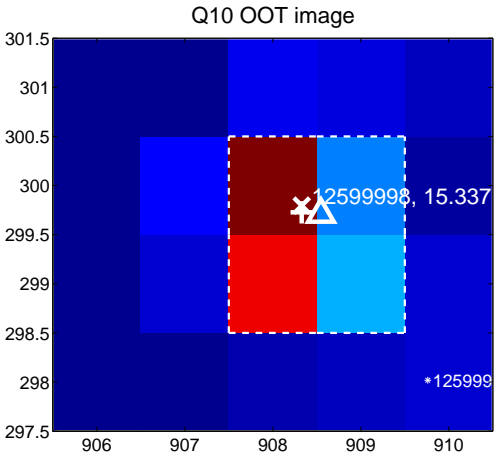
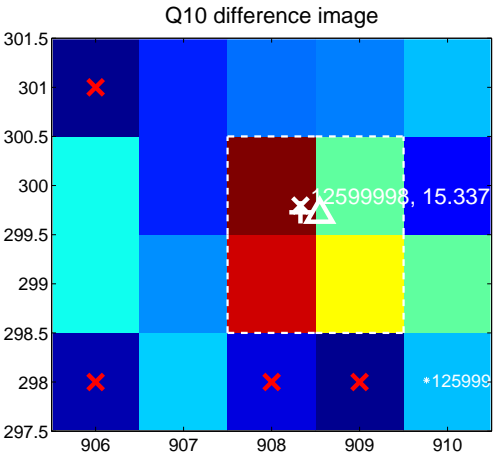


white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.

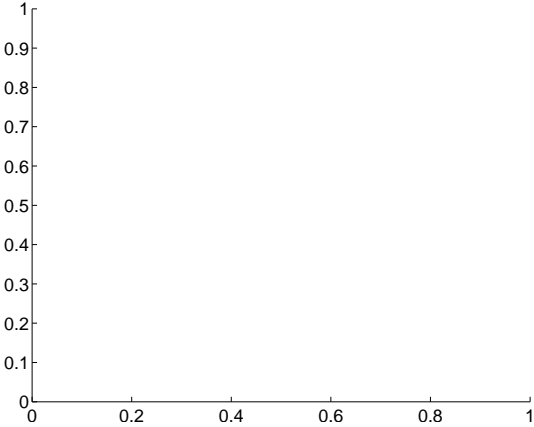
Q9 no difference image



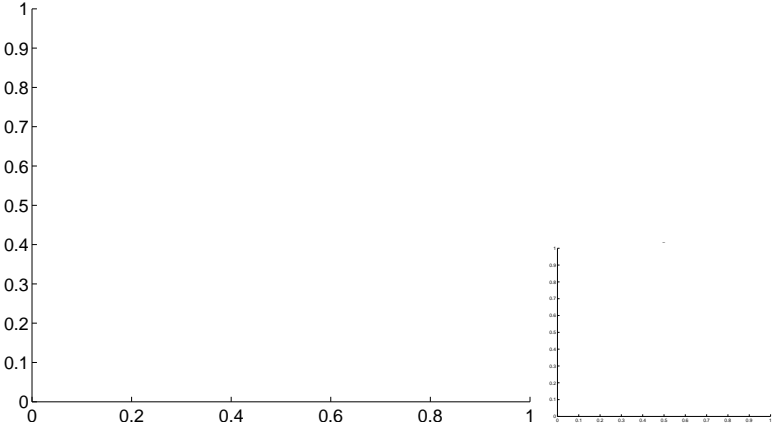
Q9 no OOT image



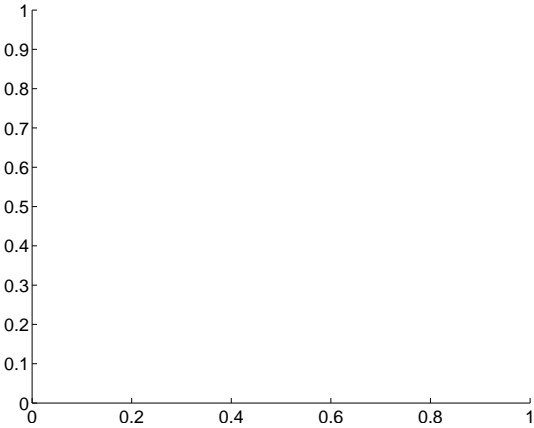
Q11 no difference image



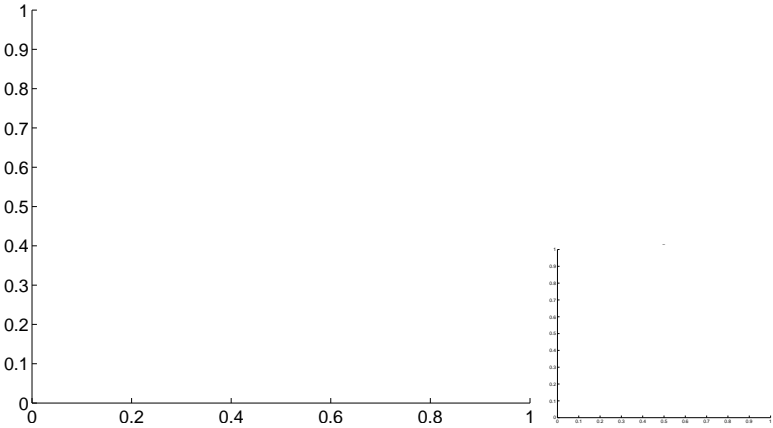
Q11 no OOT image



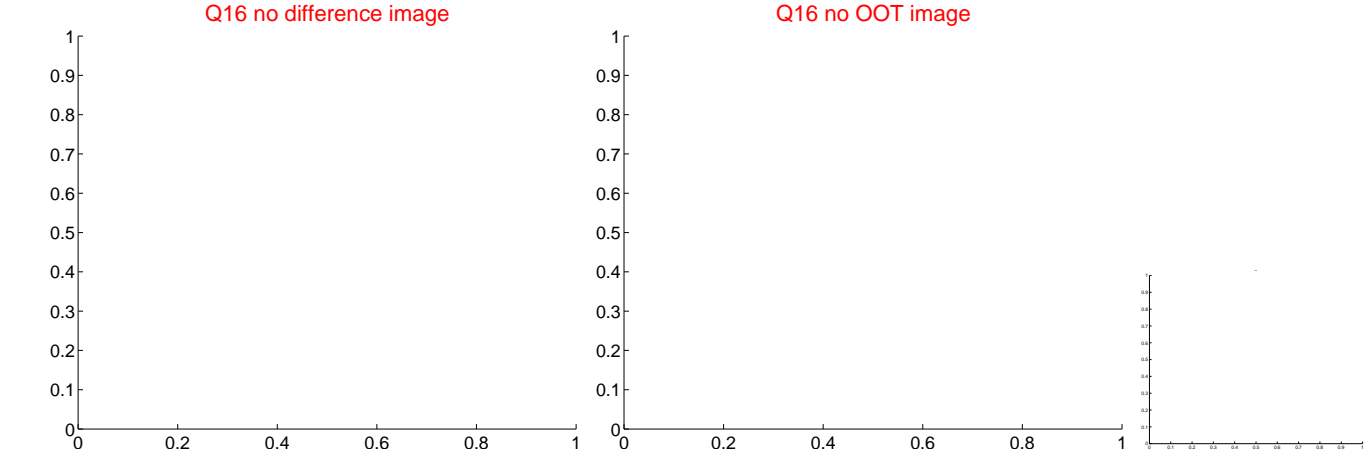
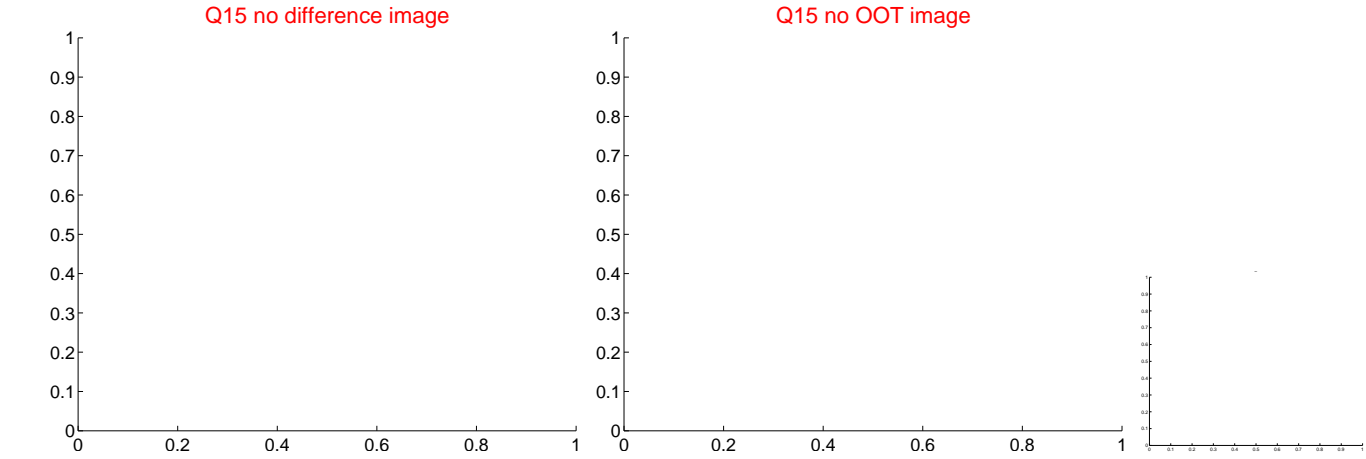
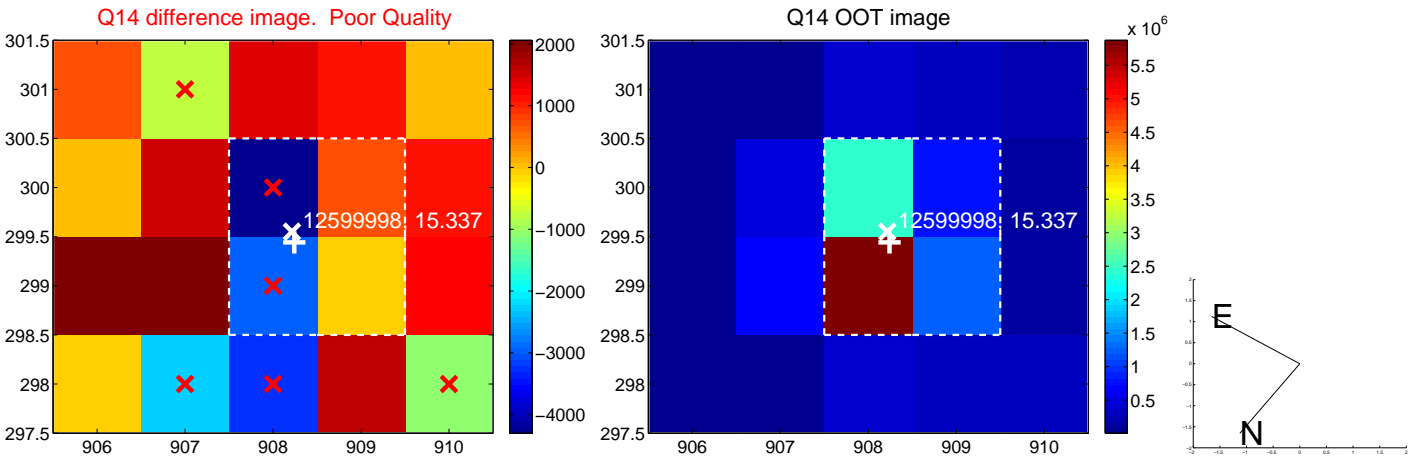
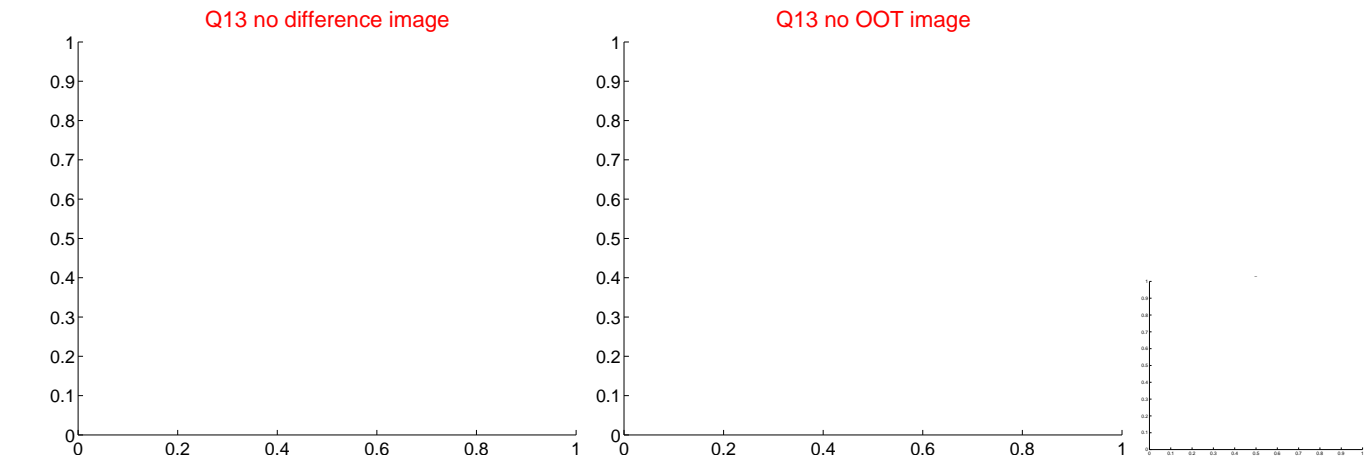
Q12 no difference image



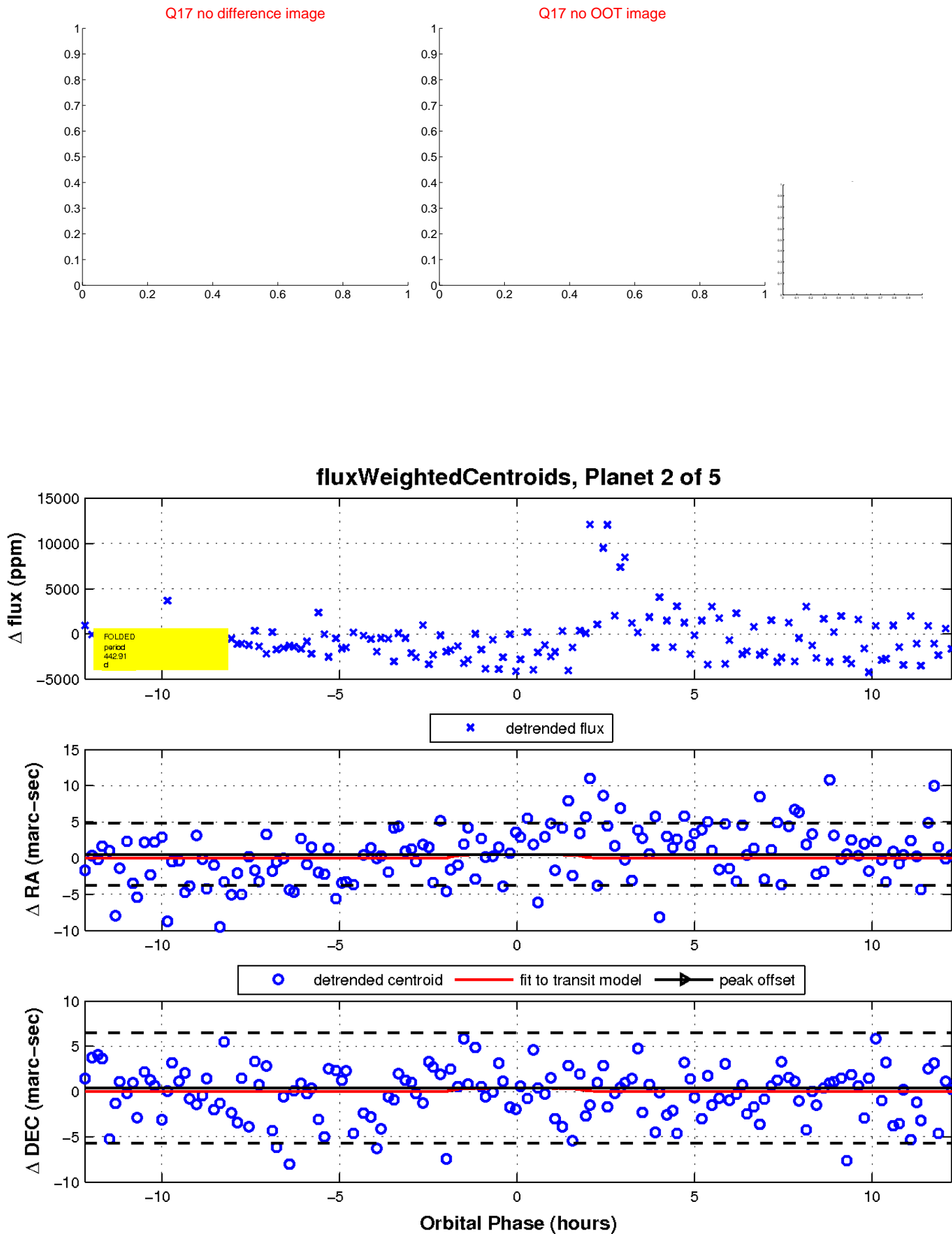
Q12 no OOT image



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

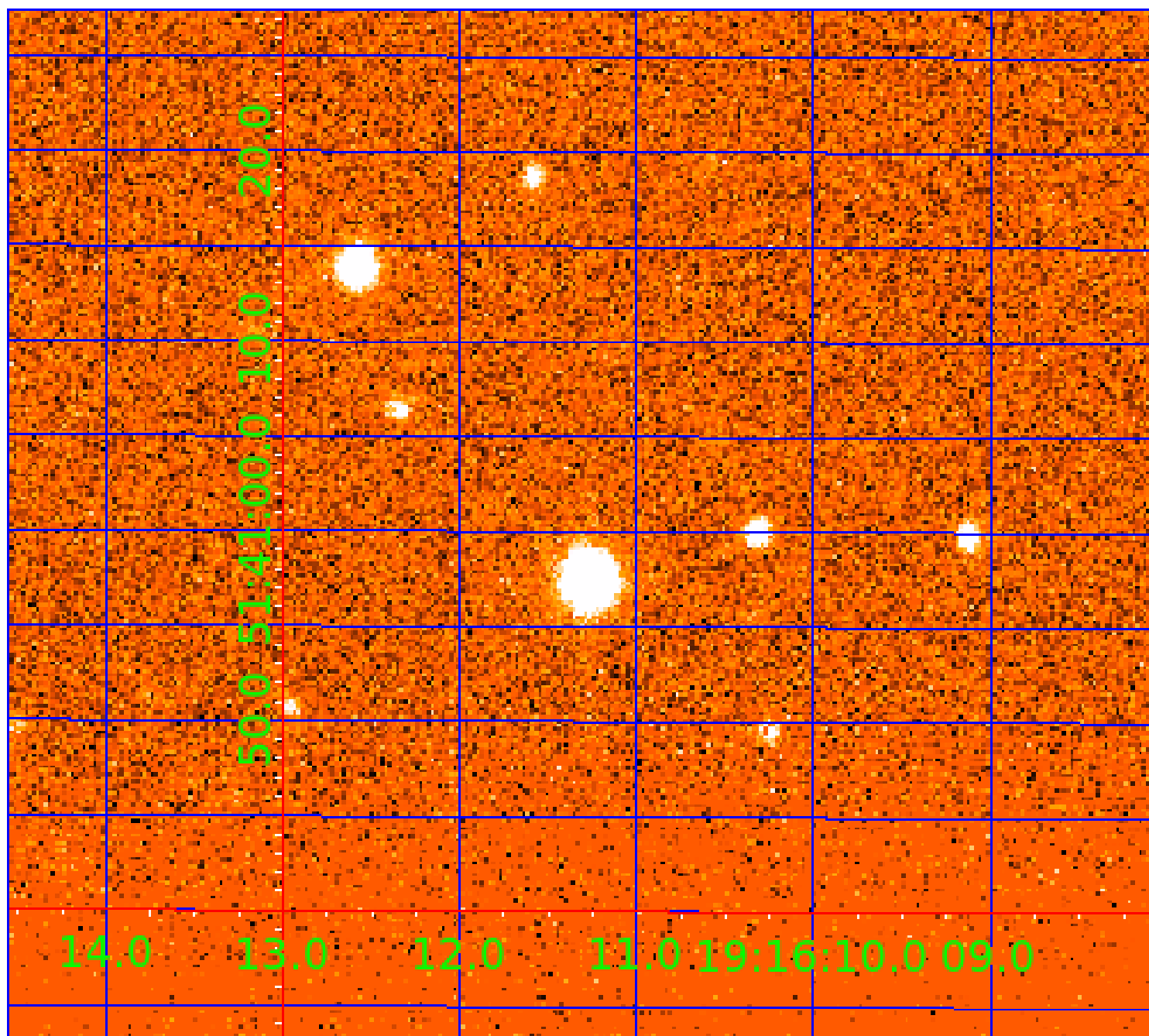


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 012599998

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})
012599998-01	OBS	No	539.634321	435.903604	1749.6	6.237	14.3	4.4	0.72	4453	3.00	0.14
012599998-02	OBS	No	442.912135	470.685783	2695.6	4.093	13.3	6.9	0.72	4453	3.90	0.18
012599998-03	OBS	No	404.885932	393.478767	3775.5	7.247	13.2	7.4	0.72	4453	4.25	0.20
012599998-04	OBS	No	526.031352	218.779406	3141.6	6.679	10.0	7.9	0.72	4453	3.86	0.14
012599998-05	OBS	No	526.046916	213.829971	2610.4	5.021	10.3	7.4	0.72	4453	3.52	0.14

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
012599998-01	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL_SKYE—LPP_DV—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—INCONSISTENT_TRANS—CENT_FEW_DIFFS
012599998-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—LPP_DV—ALL_TRANS_CHASES—MOD_POS_DV—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_FEW_DIFFS
012599998-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL_SKYE—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—INCONSISTENT_TRANS—CENT_FEW_DIFFS
012599998-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL_SKYE—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—CENT_FEW_DIFFS
012599998-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL_SKYE—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—INCONSISTENT_TRANS—SAME_NTL_PERIOD—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.

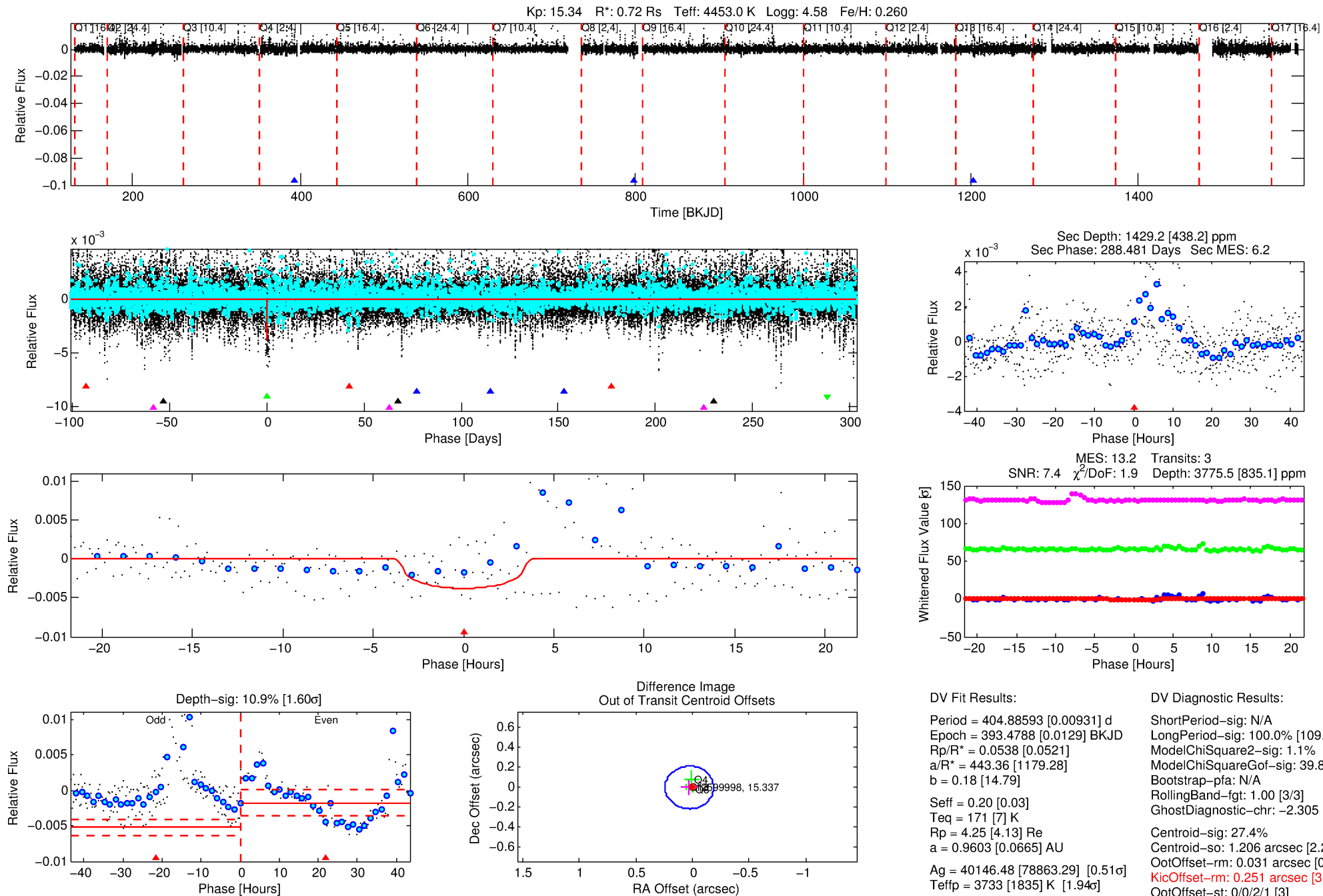
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 012599998-03

No Significant Match Found

DV One-Page Summary

KIC: 12599998 Candidate: 3 of 5 Period: 404.886 d



DV Fit Results:

Period = 404.88593 [0.00931] d
Epoch = 393.4788 [0.0129] BKJD
Rp/R* = 0.0538 [0.0521]
a/R* = 443.36 [1179.28]
b = 0.18 [14.79]
Seff = 0.20 [0.03]
Teq = 171 [7] K
Rp = 4.25 [4.13] Re
a = 0.9603 [0.0665] AU
Ag = 40146.48 [78863.29] [0.51σ]
Teff = 3733 [1835] K [1.94σ]

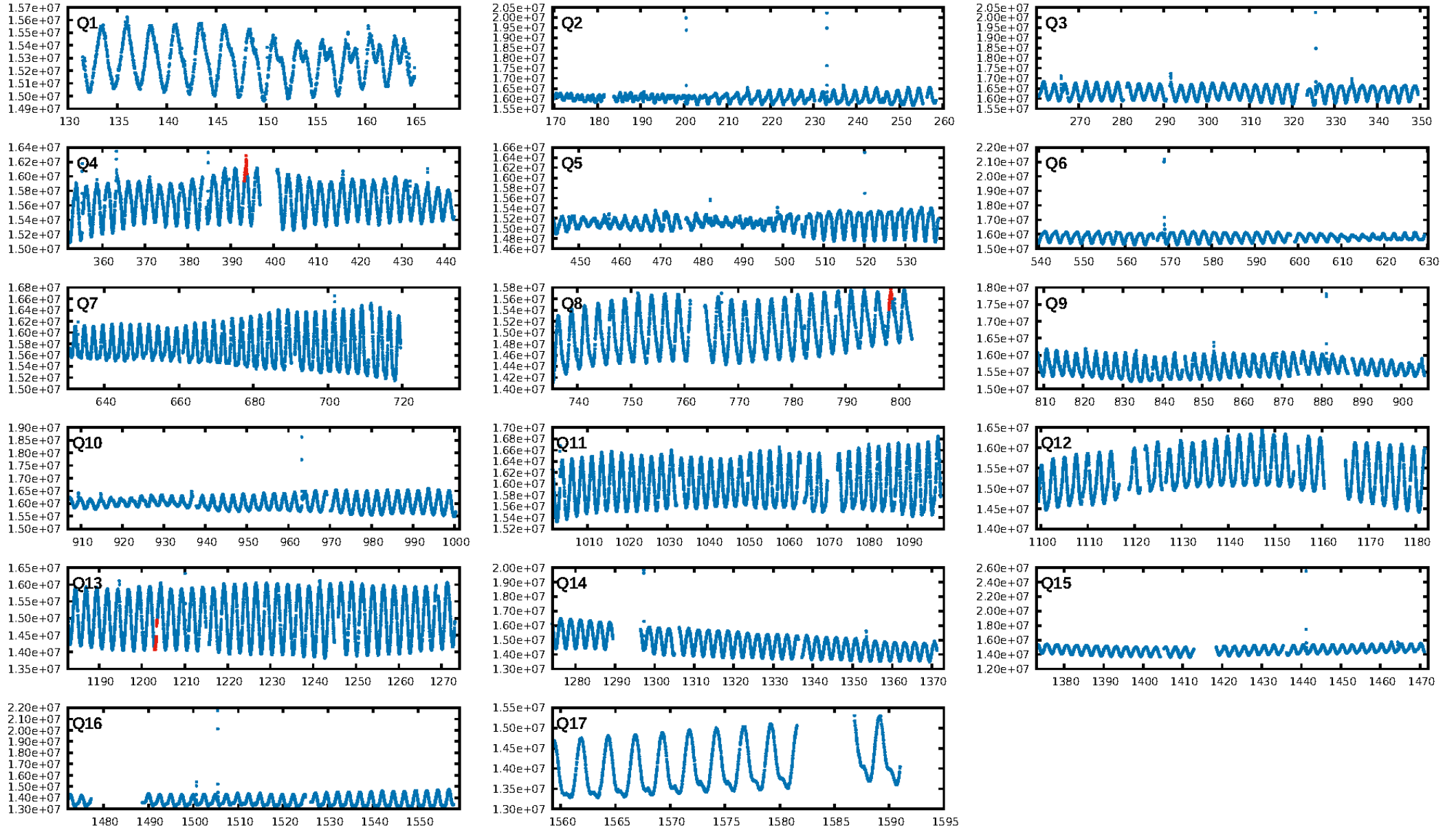
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: 100.0% [109.66σ]
ModelChiSquare2-sig: 1.1%
ModelChiSquareGof-sig: 39.8%
Bootstrap-pfa: N/A
RollingBand-fgt: 1.00 [3/3]
GhostDiagnostic-chr: -2.305
Centroid-sig: 27.4%
Centroid-so: 1.206 arcsec [2.21σ]
OotOffset-rm: 0.031 arcsec [0.44σ]
OotOffset-st: 0/0/2/1 [3]
KicOffset-st: 0/0/2/1 [3]
DiffImageQuality-fgm: 0.33 [1/3]
DiffImageOverlap-fno: 1.00 [3/3]

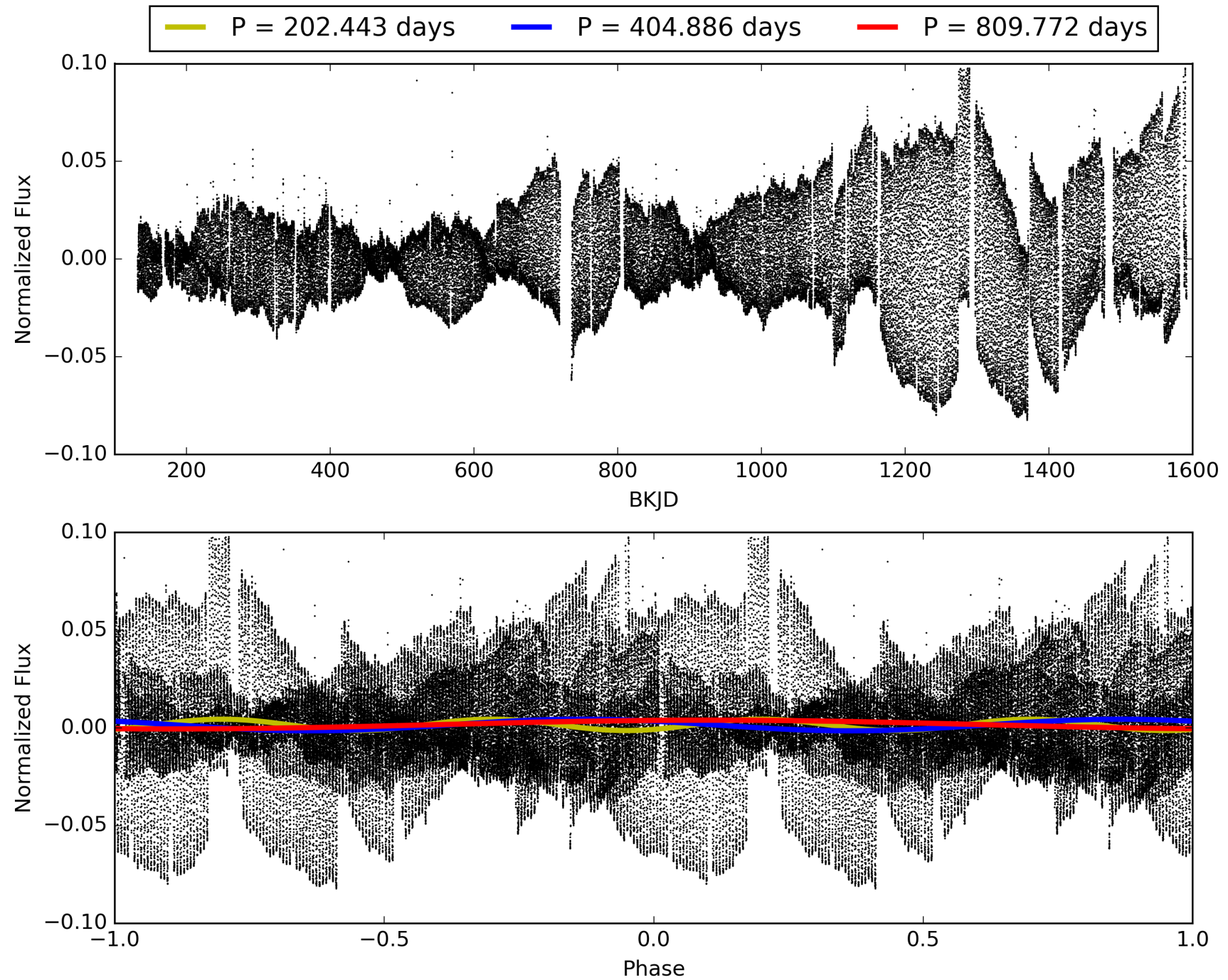
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 05:42:34 Z

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

TCE 012599998-03, PDC Light Curves

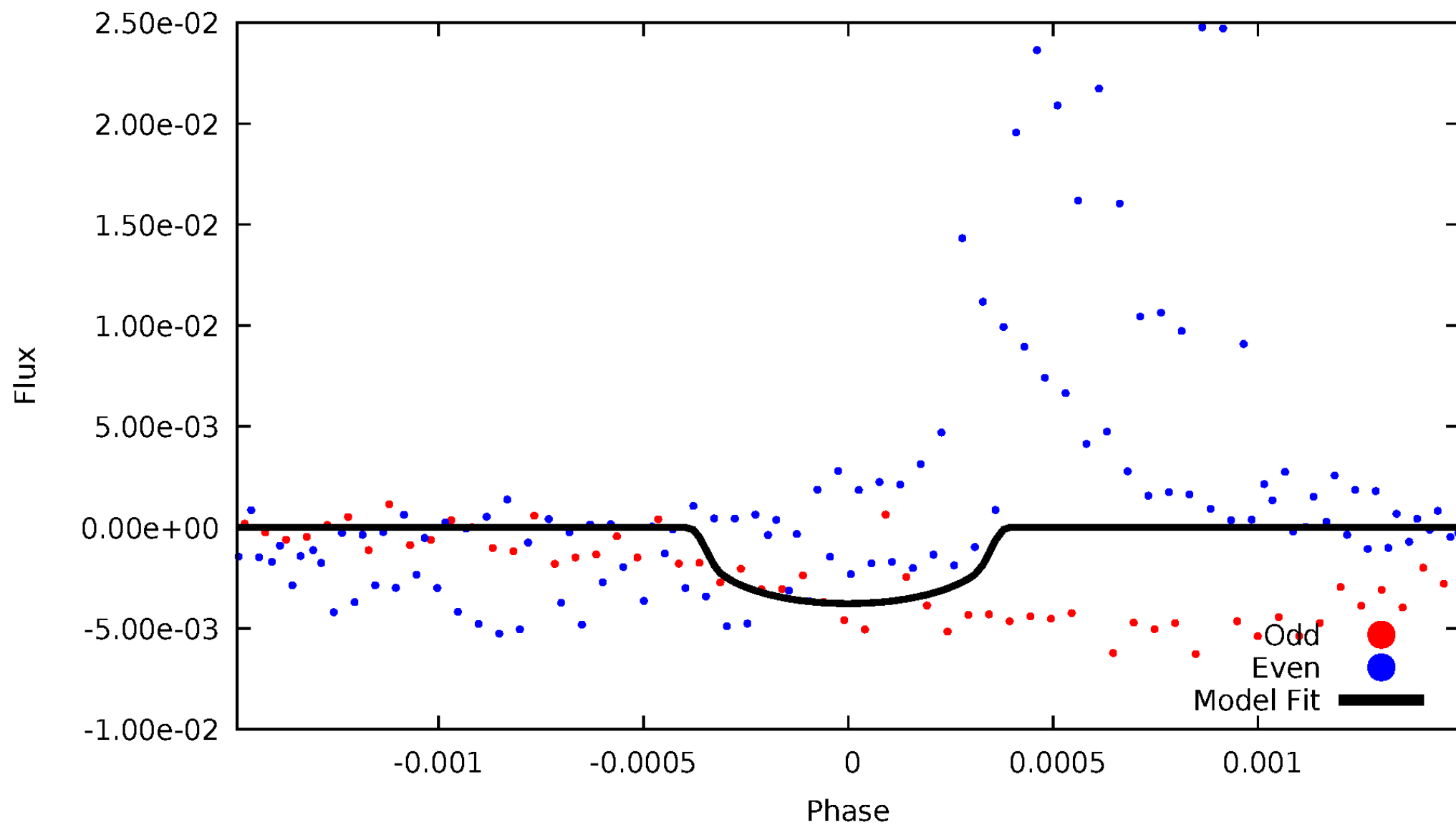


TCE 012599998-03



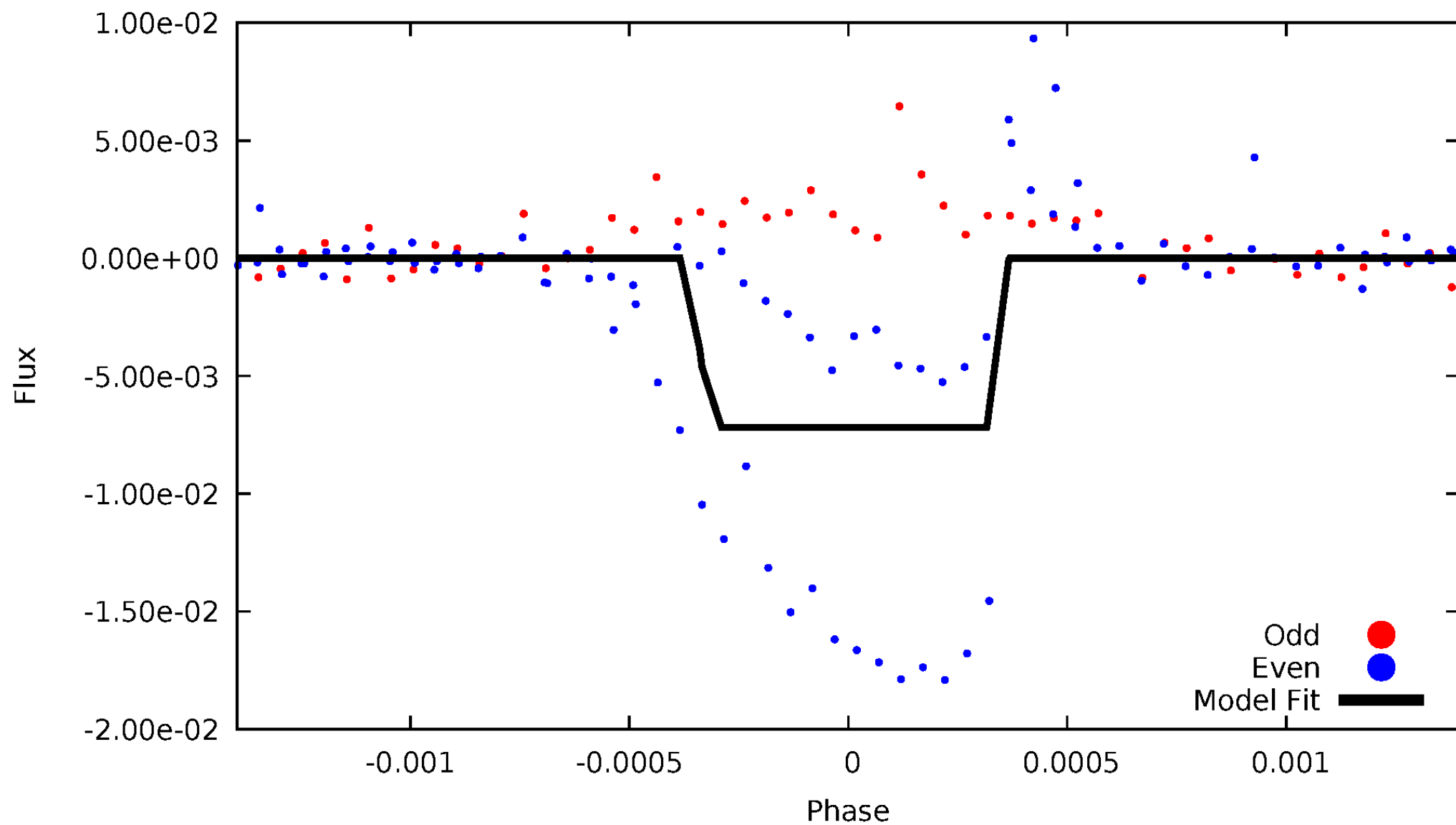
DV Odd/Even

TCE 012599998-03



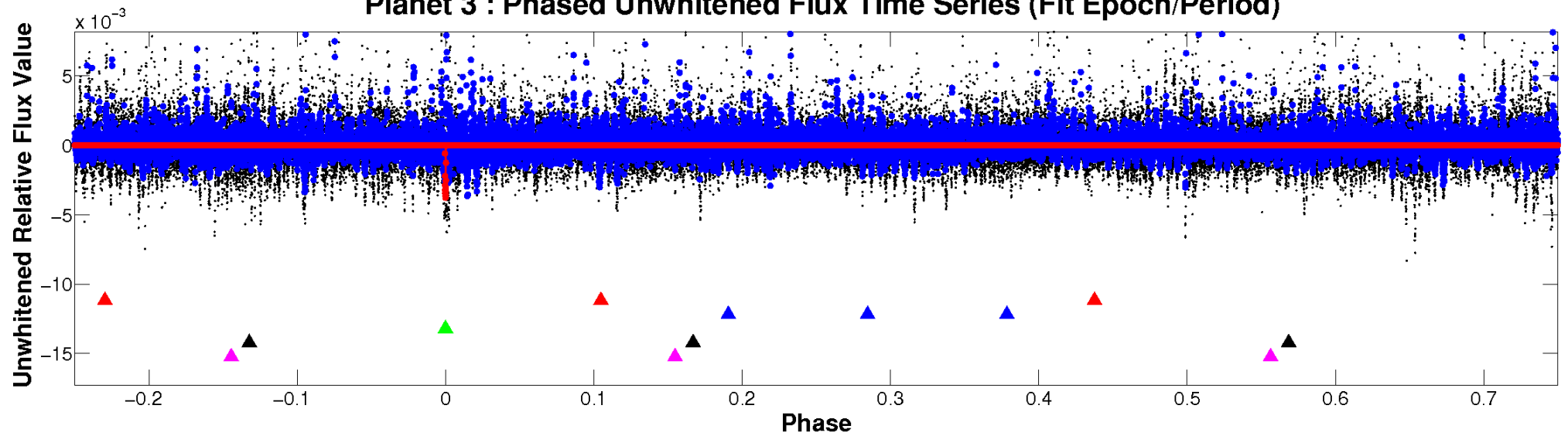
ALT Odd/Even

TCE 012599998-03

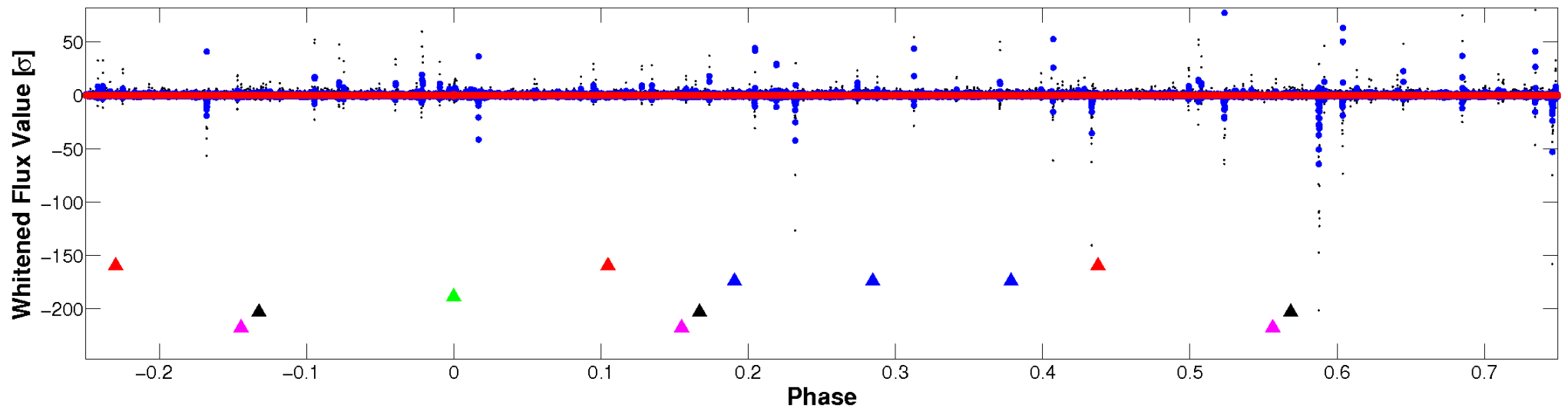


Non-Whitened Vs. Whitened Light Curve

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

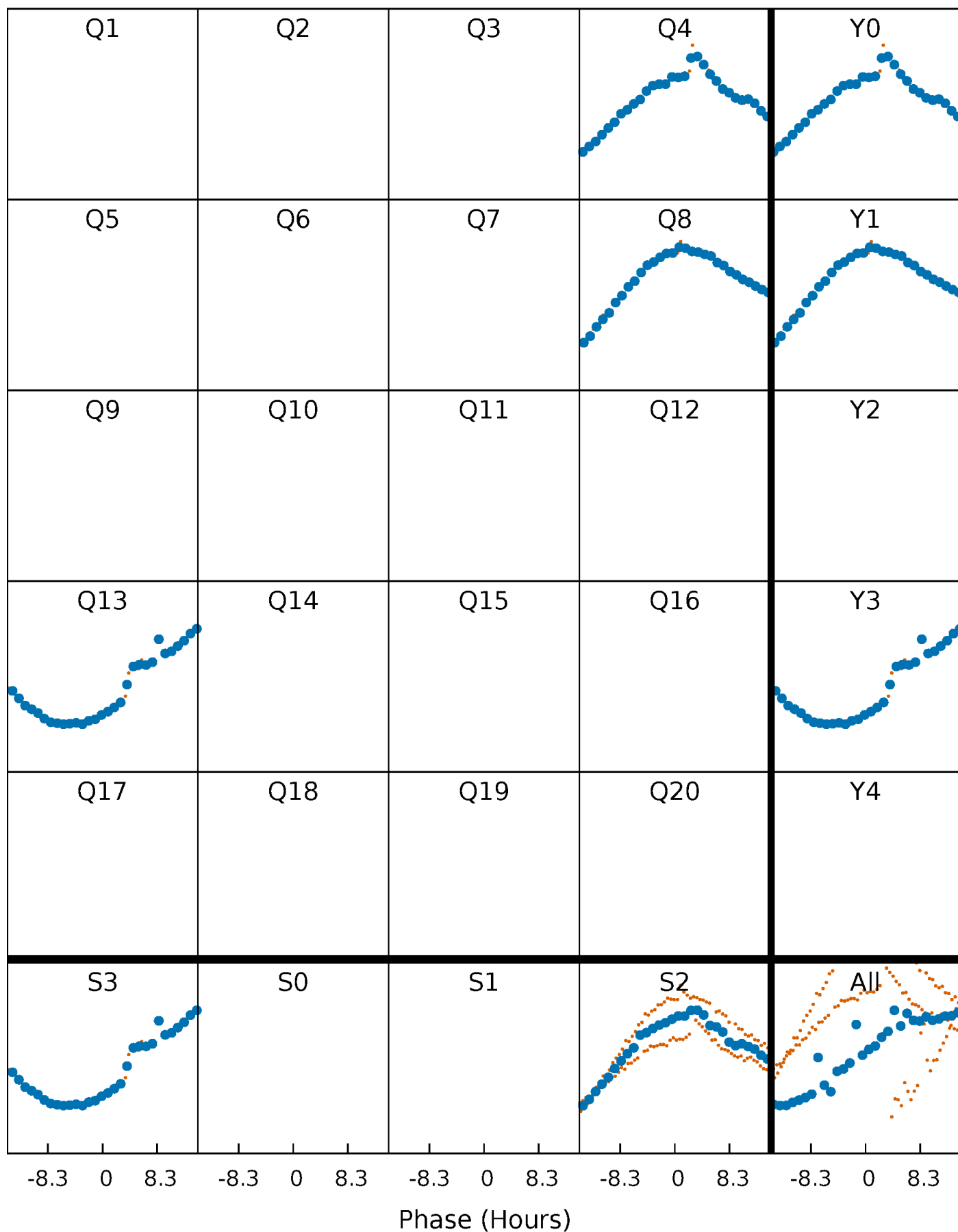


Planet 3 : Phased Whitened Flux Time Series (Fit Epoch/Period)



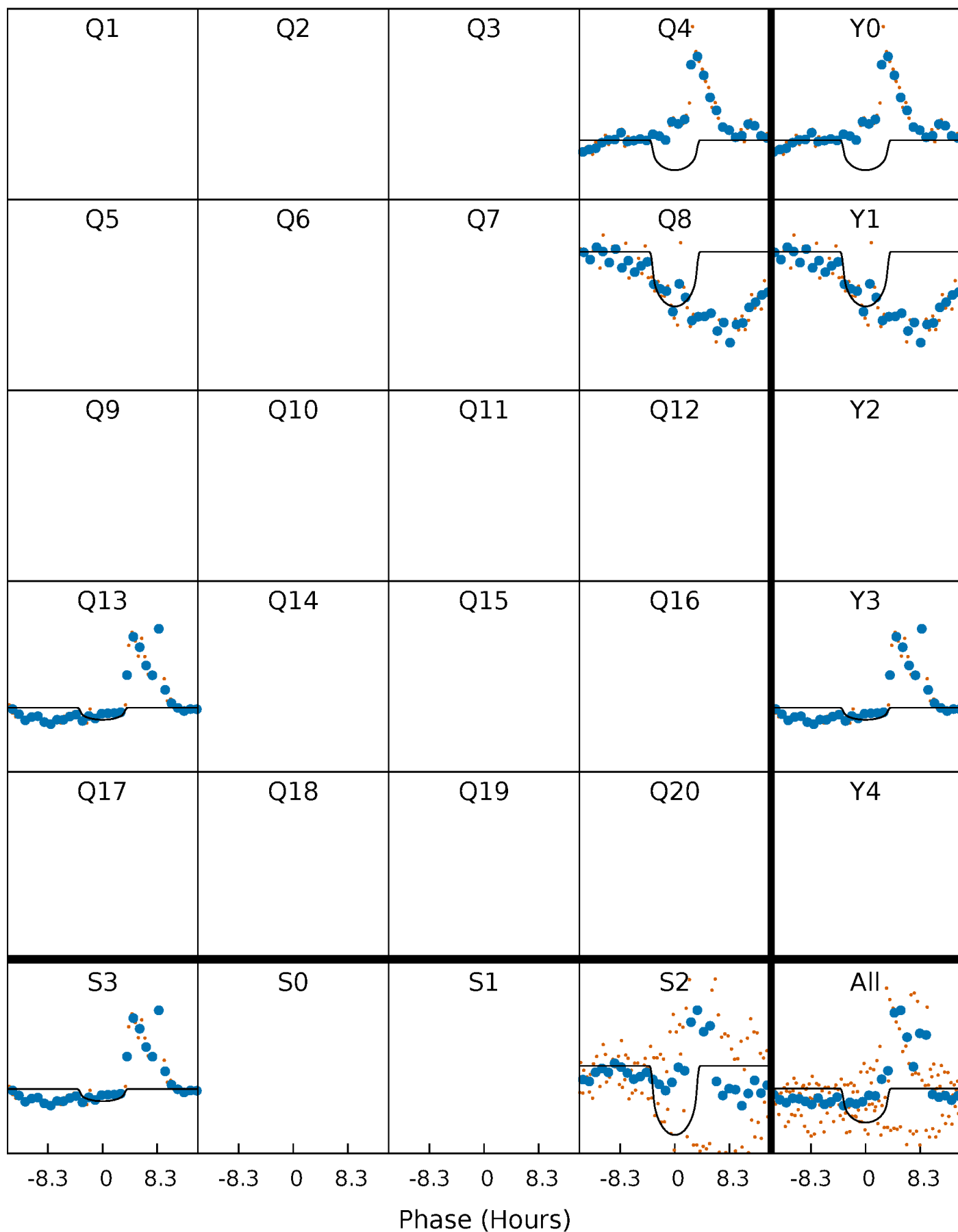
PDC Quarter-Phased Transit Curves

TCE 012599998-03 $P=404.885932$ Days $T_0=393.478767$ (BKJD)



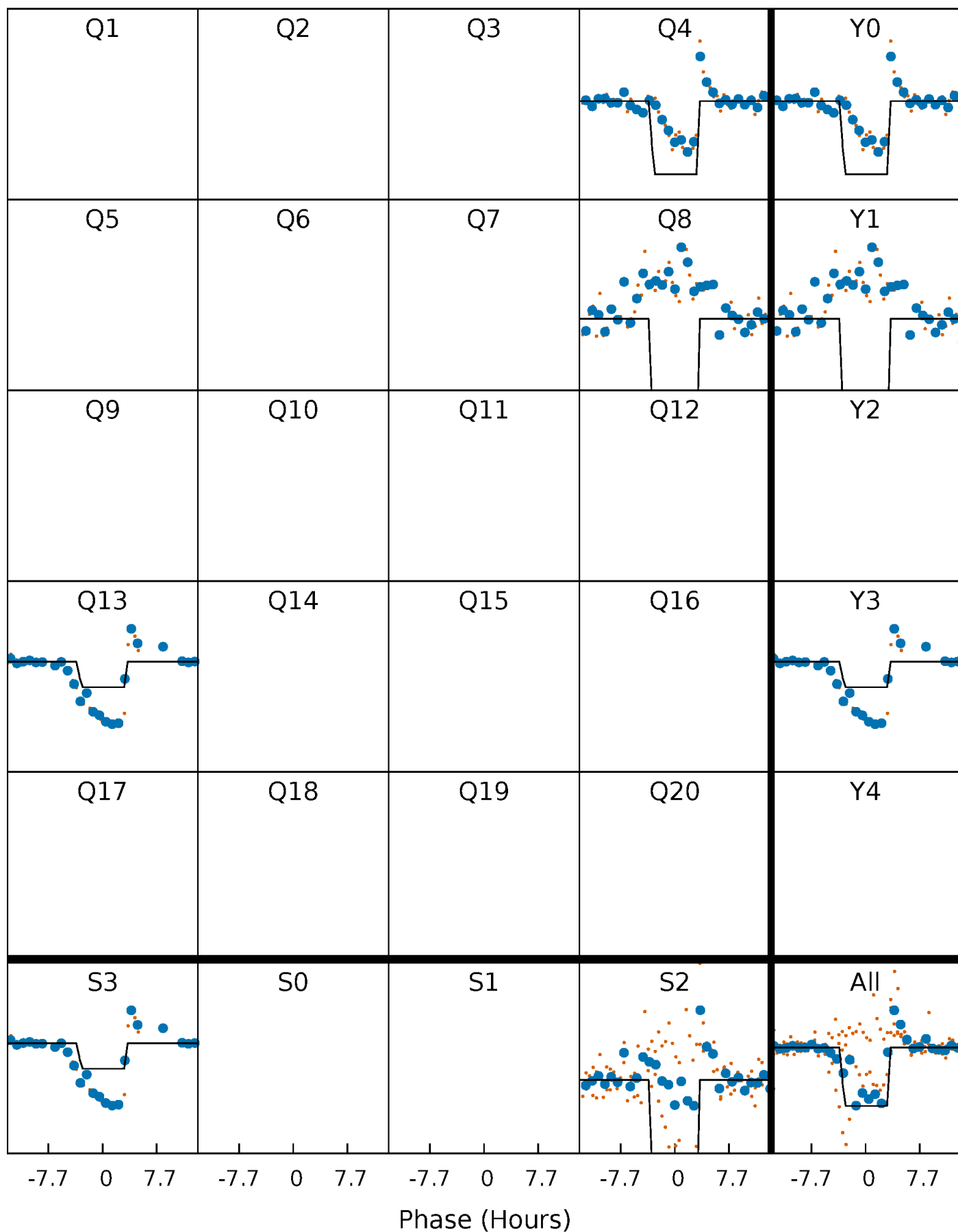
DV Quarter-Phased Transit Curves

TCE 012599998-03 $P=404.885932$ Days $T_0=393.478767$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

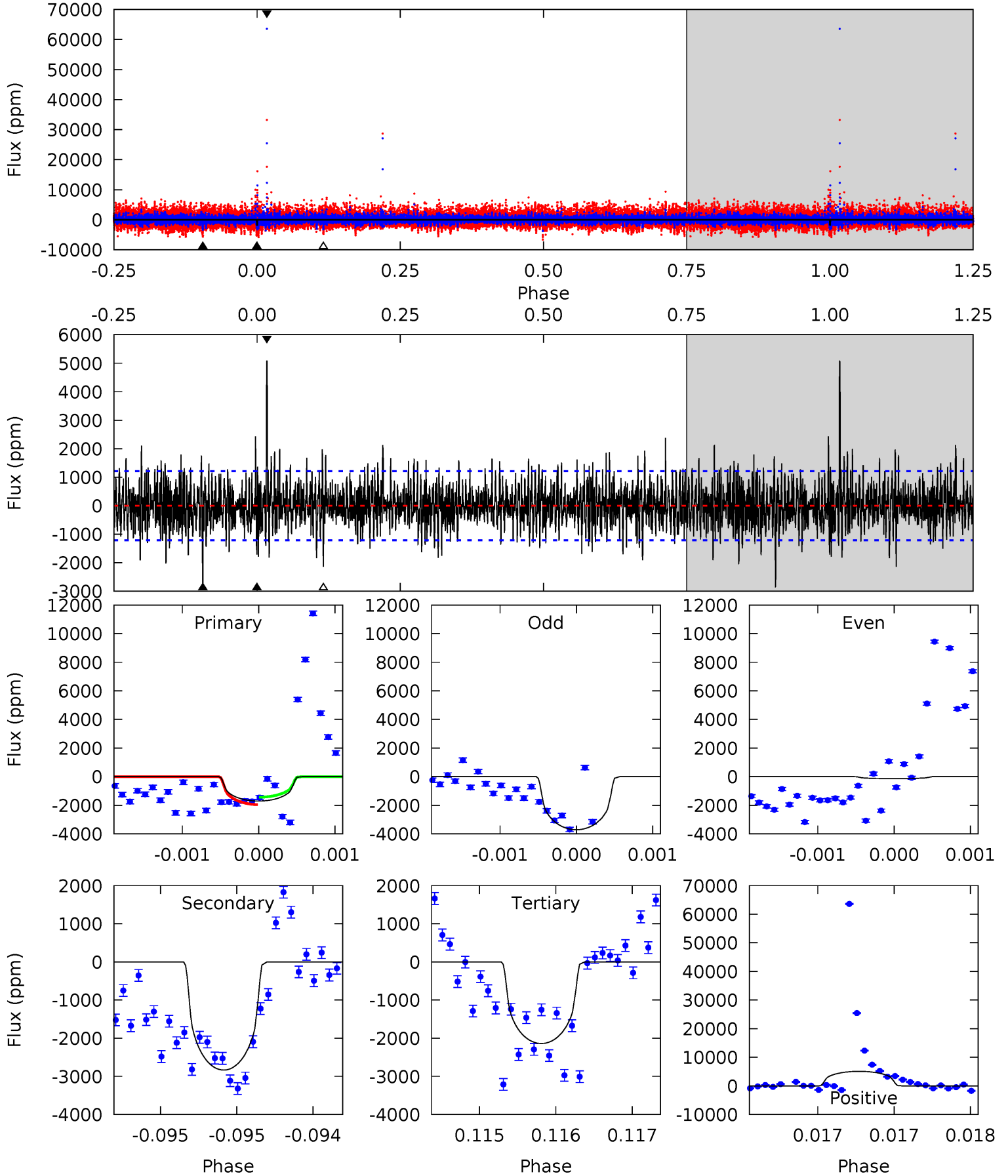
TCE 012599998-03 $P=404.911425$ Days $T_0=393.442908$ (BKJD)



DV Model-Shift Uniqueness Test

012599998-03, P = 404.885932 Days, E = 393.478767 Days

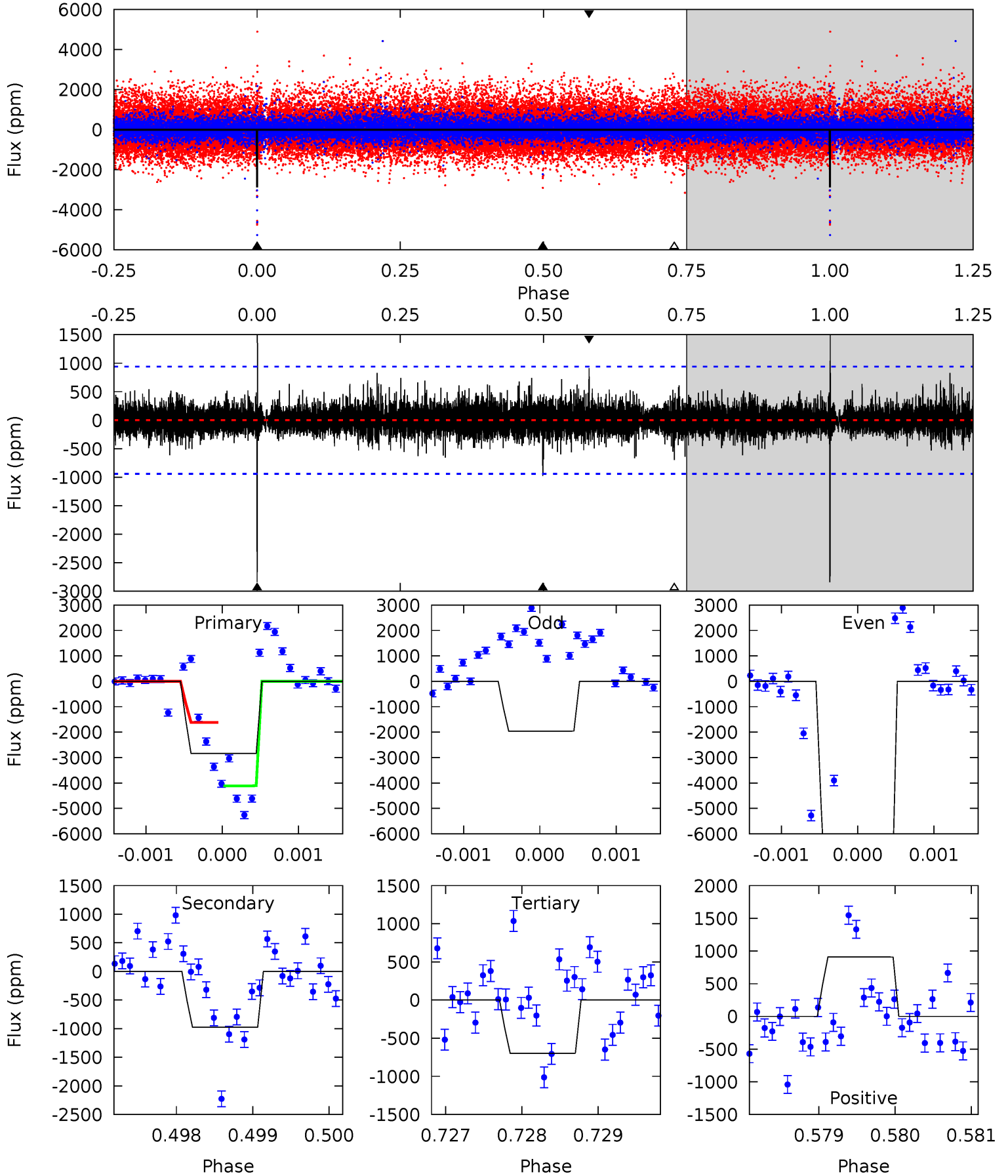
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
7.73	12.8	9.69	23.0	5.50	3.37	2.75	-1.95	-15.3	3.15	-10.2	5.26	0.38	0.64	1.18



Alt Model-Shift Uniqueness Test

012599998-03, P = 404.911425 Days, E = 393.442908 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
16.7	5.73	4.10	5.33	5.51	3.39	0.89	12.6	11.3	1.63	0.39	32.0	1.71	0.35	0



Stellar Parameters For KIC 012599998

	$T_{\text{eff}}(K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	4453^{+145}_{-145}	$4.576^{+0.056}_{-0.017}$	$0.260^{+0.150}_{-0.300}$	$0.724^{+0.029}_{-0.059}$	$0.719^{+0.046}_{-0.050}$	$2.672^{+0.625}_{-0.193}$
	+3%/-3%	+1%/-0%	+58%/-115%	+4%/-8%	+6%/-7%	+23%/-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 012599998-03 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-2835 ± 221	$5.18^{+3.54}_{-3.25}$	237^{+8}_{-8}	4112^{+2036}_{-677}	$54389^{+337001}_{-35501}$
Alt.	-977 ± 171	$6.97^{+4.17}_{-3.51}$	236^{+8}_{-9}	3141^{+757}_{-402}	10085^{+31834}_{-6113}

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

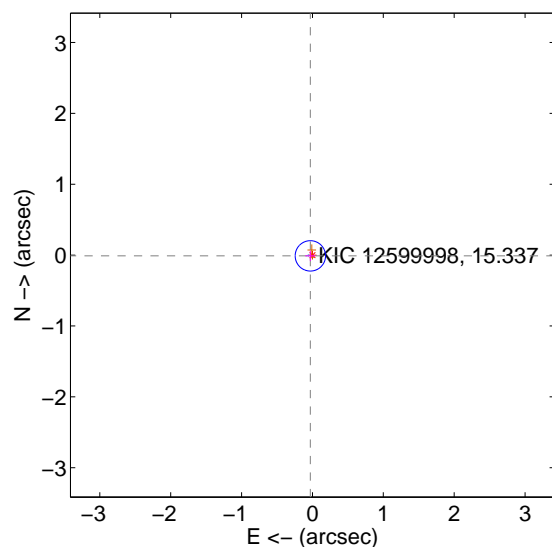
Supplemental centroid analysis for 012599998-03. Kepler magnitude: 15.34. Transit SNR 7.37

There are 1 quarters with good PRF difference image offsets

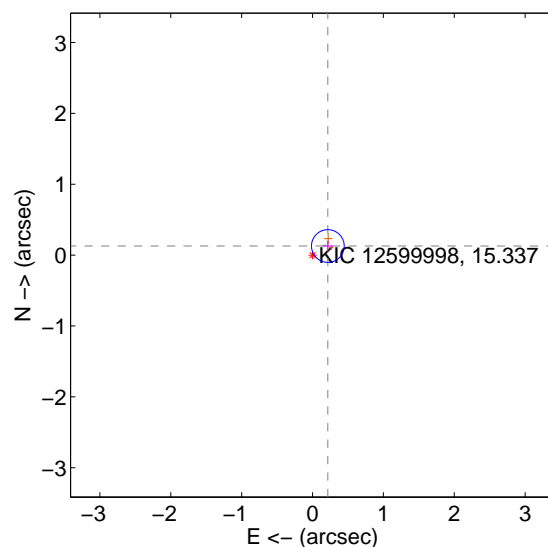
The direct PRF centroid is offset from the target star catalog position by about 0.27 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.031 ± 0.071	0.44	0.029 ± 0.071	-0.011 ± 0.073
PRF-fit source offset from KIC position	0.251 ± 0.077	3.27	-0.216 ± 0.071	0.128 ± 0.076
photometric centroid source offset	1.21 ± 0.55	2.21	-0.92 ± 0.58	0.77 ± 0.49

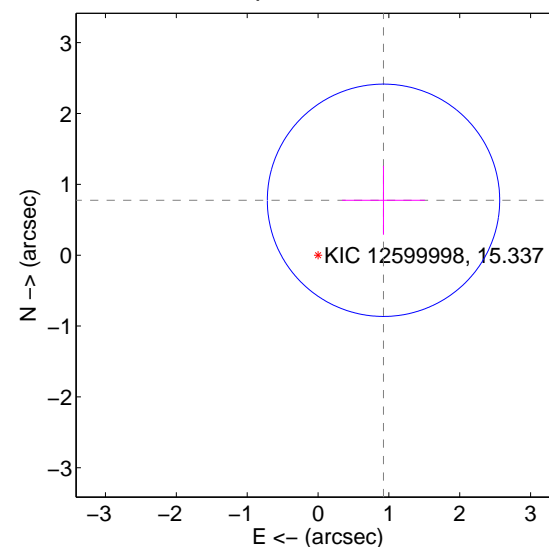
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position

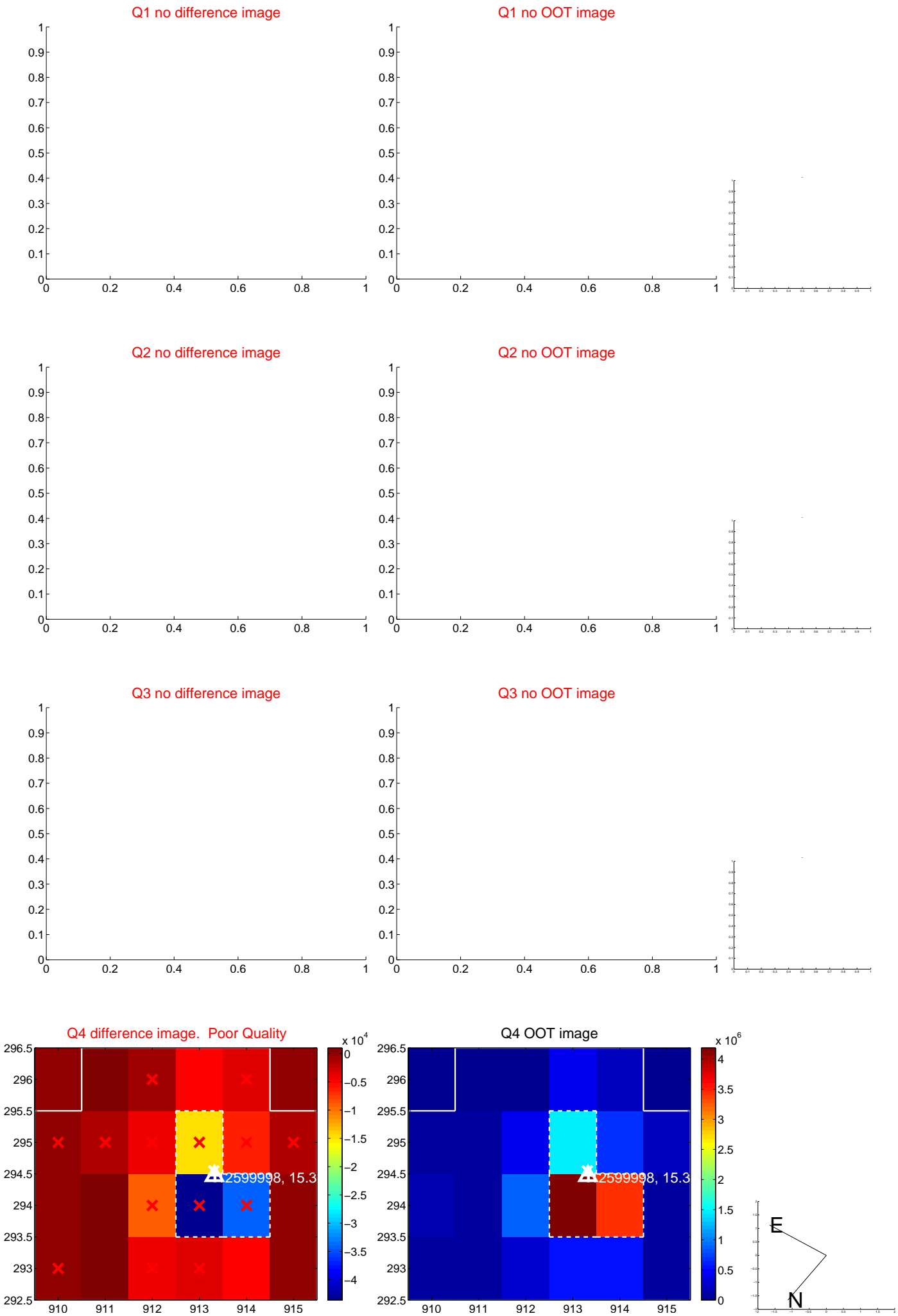


offset from photometric centroids

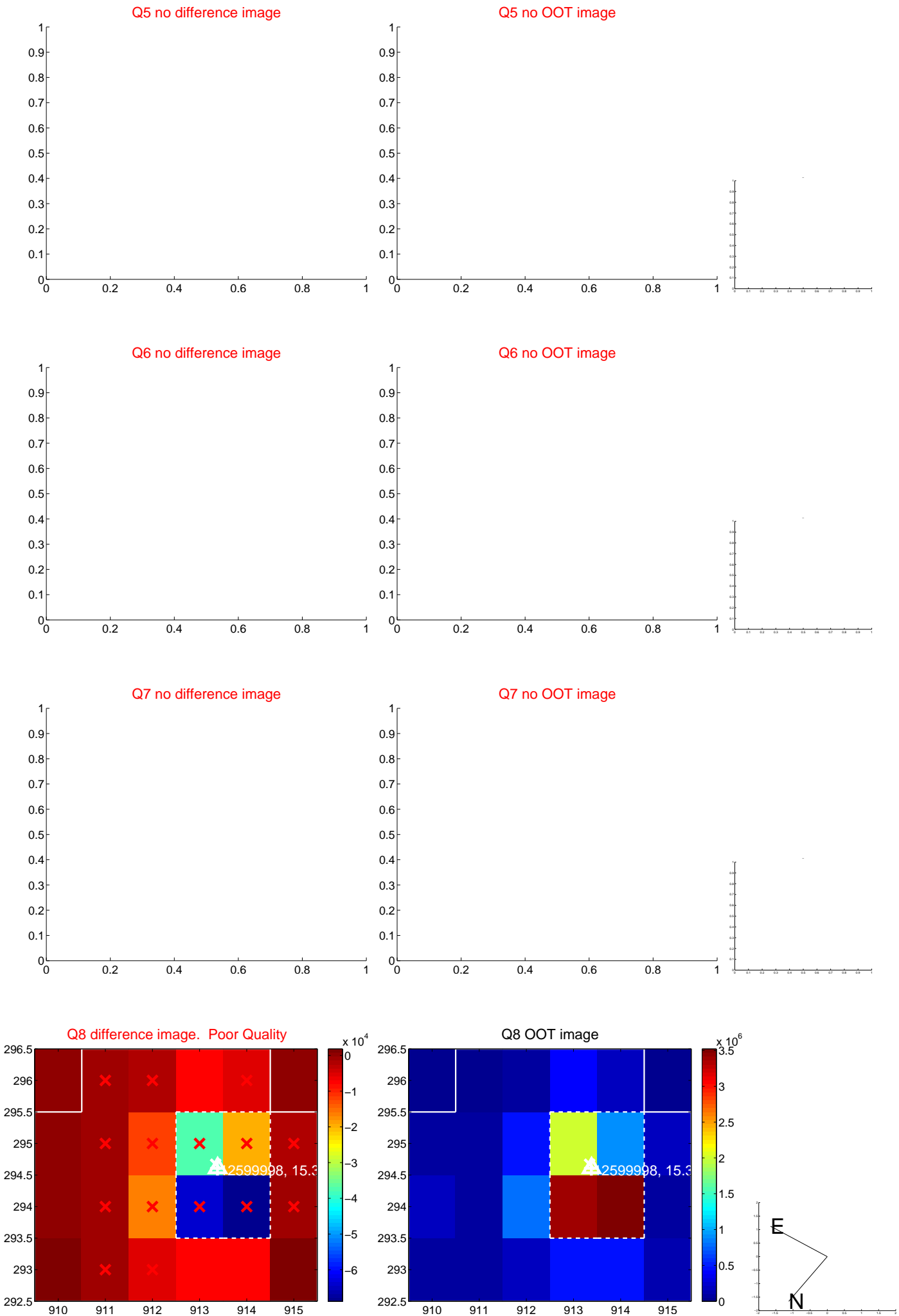


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ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

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



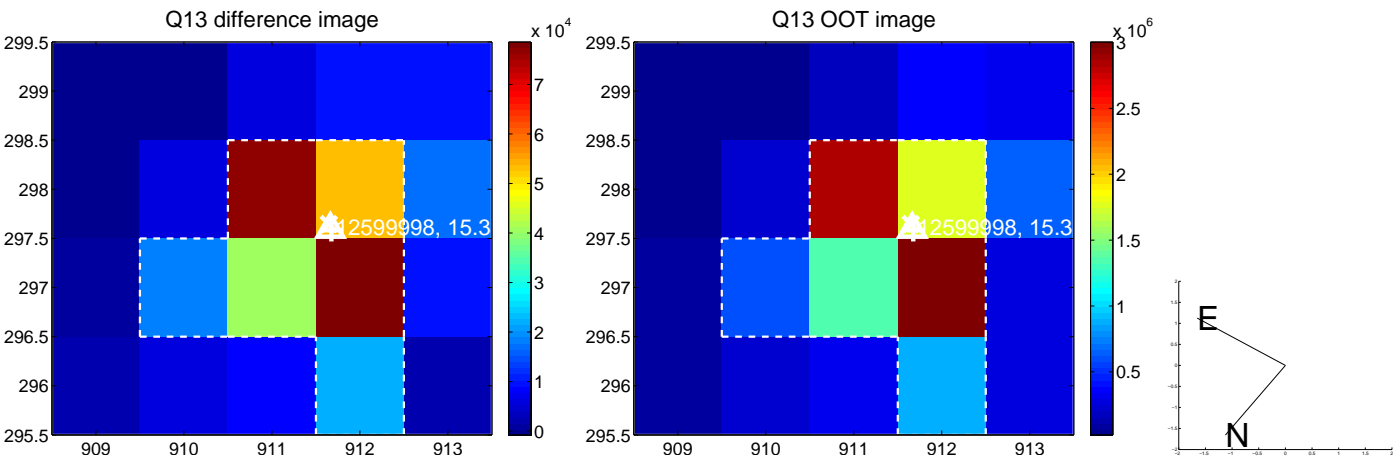
white ×: KIC target position; +: OOT centroid; △: difference centroid. red ✕: large negative pixel value.



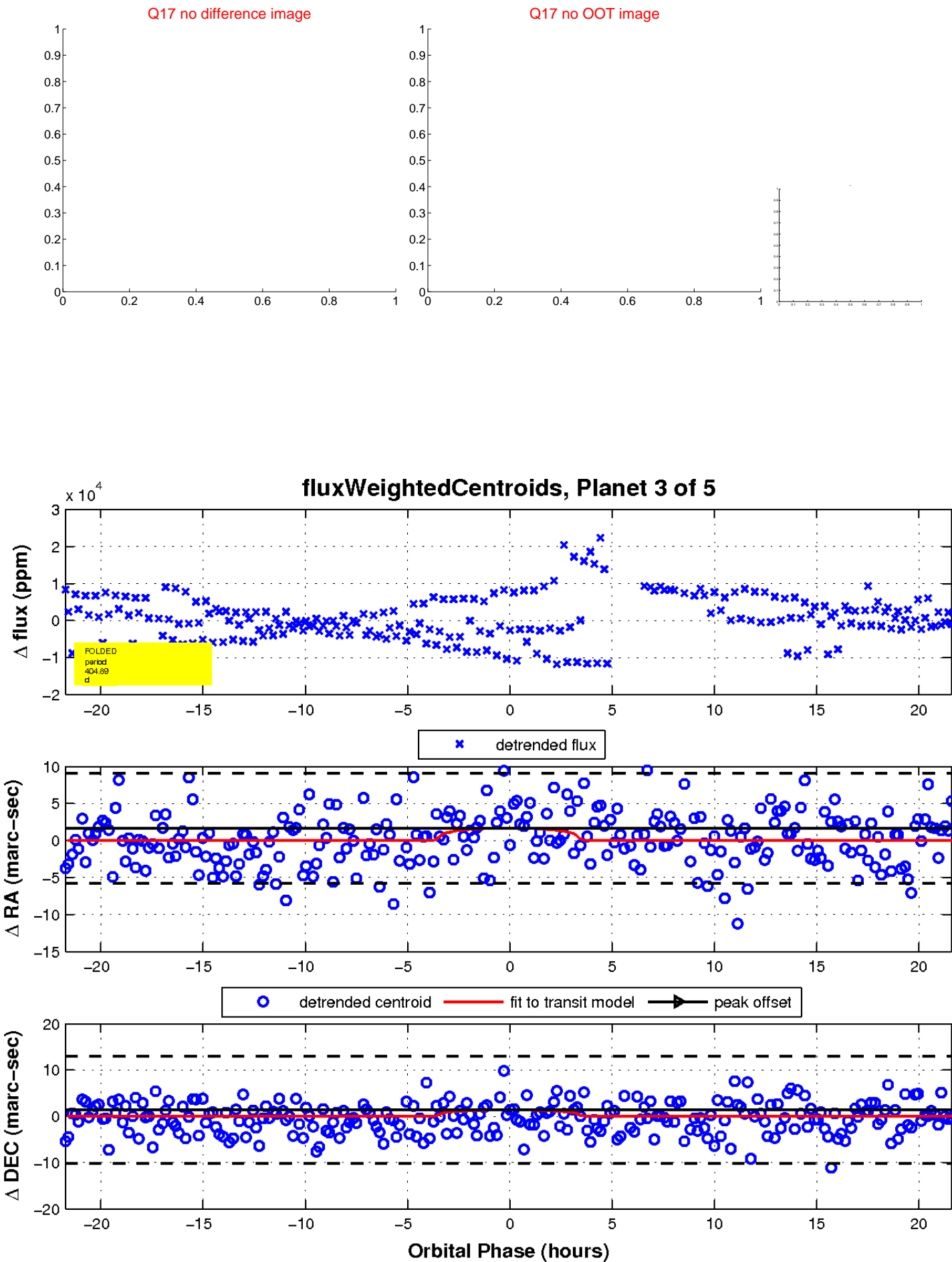
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

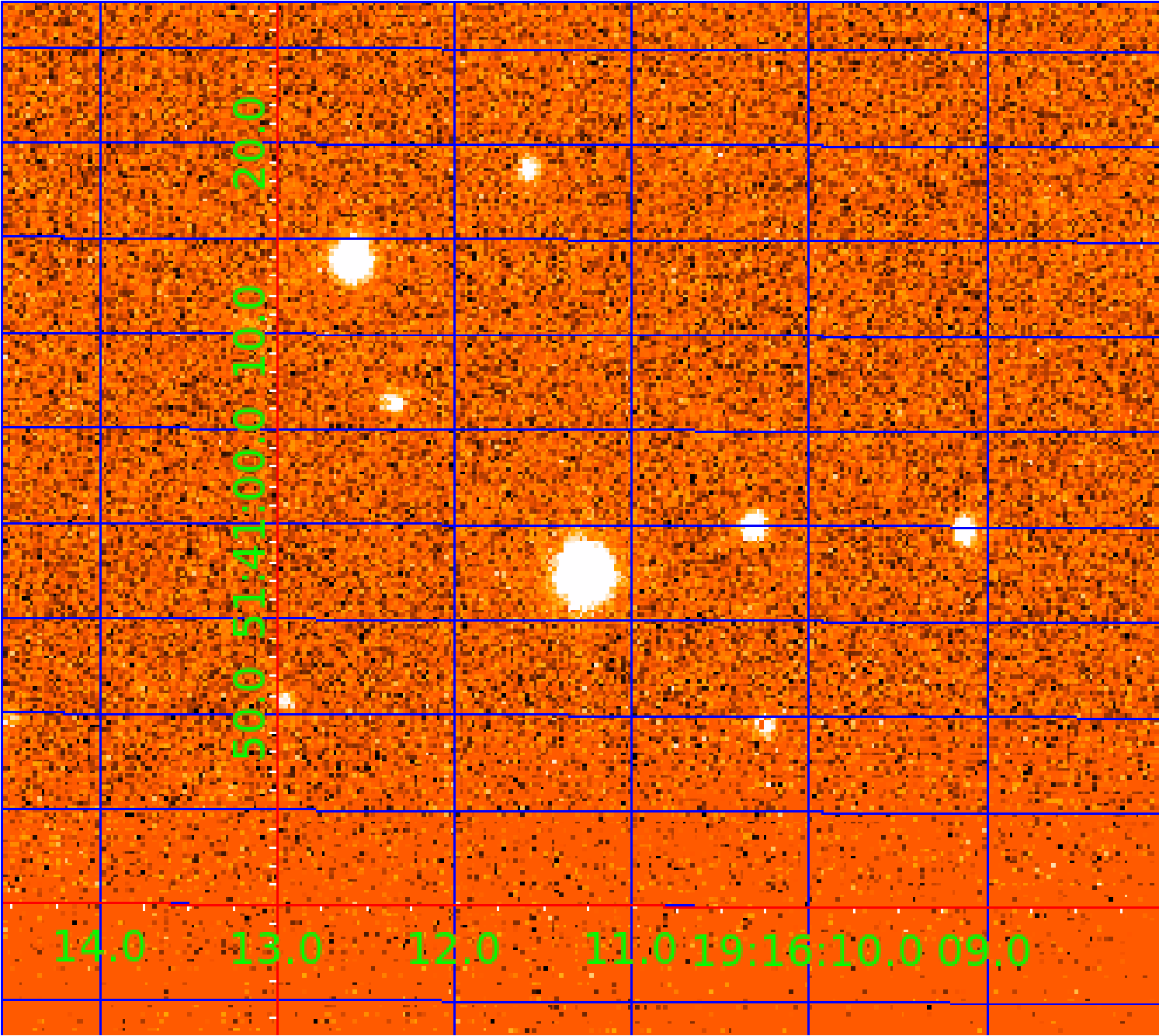


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 012599998

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})
012599998-01	OBS	No	539.634321	435.903604	1749.6	6.237	14.3	4.4	0.72	4453	3.00	0.14
012599998-02	OBS	No	442.912135	470.685783	2695.6	4.093	13.3	6.9	0.72	4453	3.90	0.18
012599998-03	OBS	No	404.885932	393.478767	3775.5	7.247	13.2	7.4	0.72	4453	4.25	0.20
012599998-04	OBS	No	526.031352	218.779406	3141.6	6.679	10.0	7.9	0.72	4453	3.86	0.14
012599998-05	OBS	No	526.046916	213.829971	2610.4	5.021	10.3	7.4	0.72	4453	3.52	0.14

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
012599998-01	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL_SKYE—LPP_DV—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—INCONSISTENT_TRANS—CENT_FEW_DIFFS
012599998-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—LPP_DV—ALL_TRANS_CHASES—MOD_POS_DV—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_FEW_DIFFS
012599998-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL_SKYE—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—INCONSISTENT_TRANS—CENT_FEW_DIFFS
012599998-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL_SKYE—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—CENT_FEW_DIFFS
012599998-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL_SKYE—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—INCONSISTENT_TRANS—SAME_NTL_PERIOD—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.

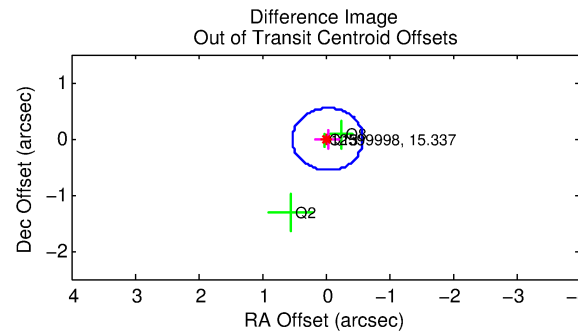
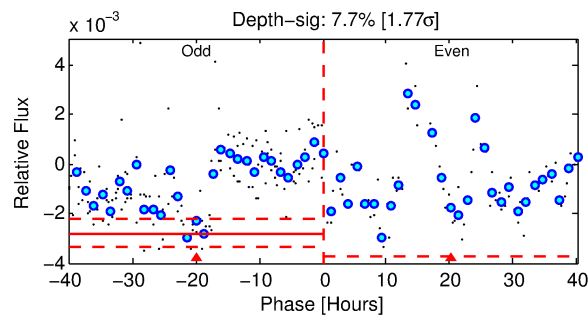
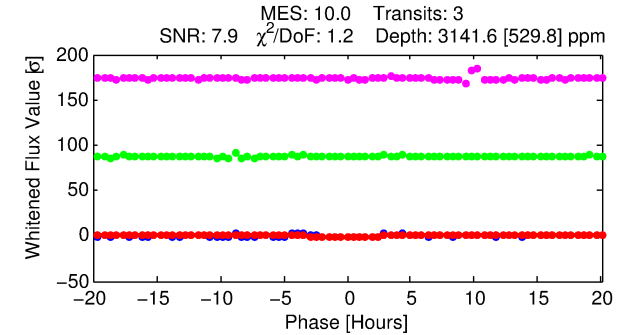
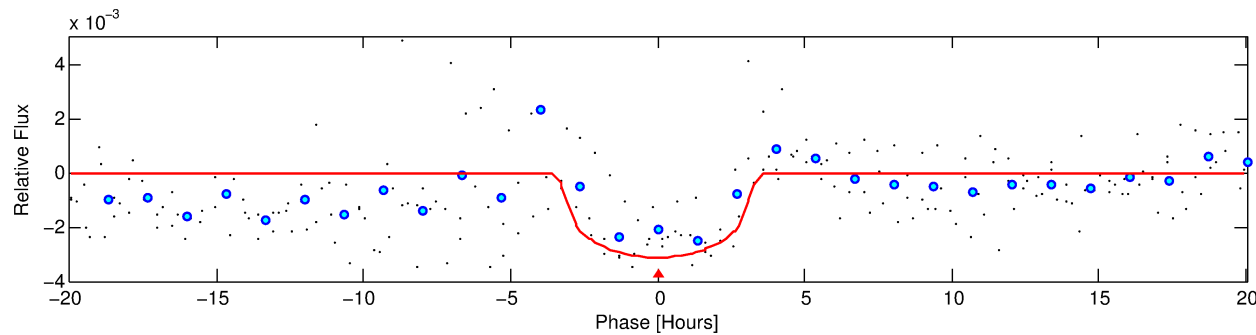
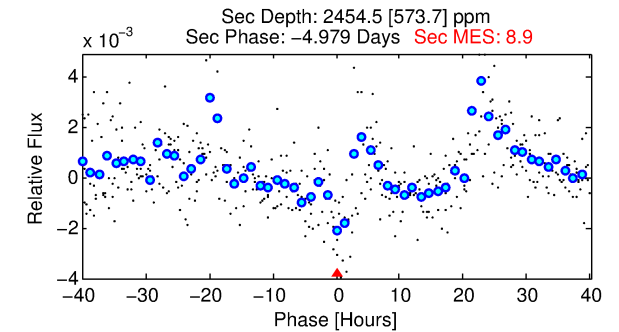
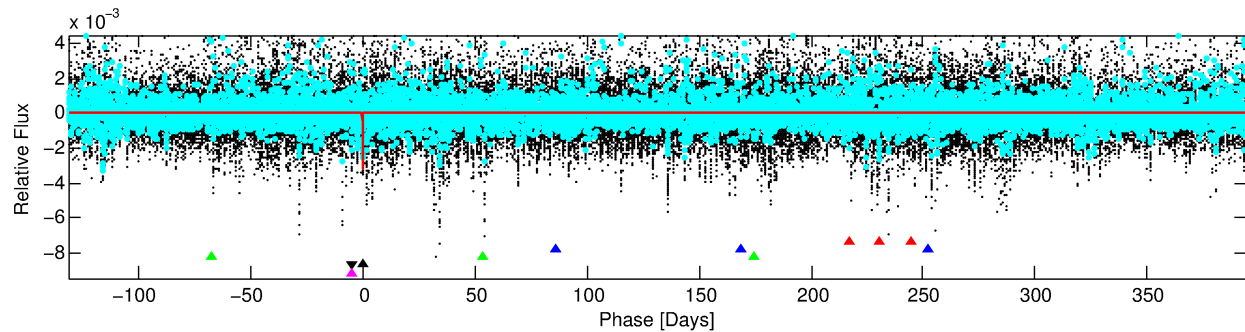
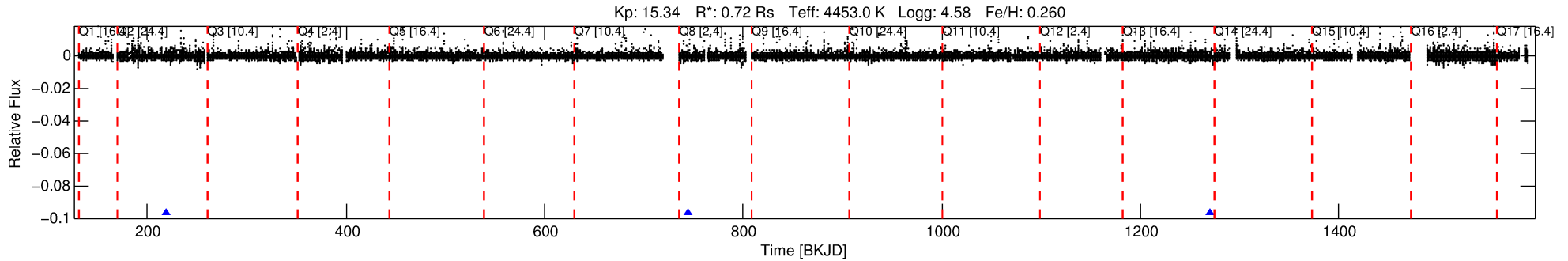
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 012599998-04

No Significant Match Found

DV One-Page Summary

KIC: 12599998 Candidate: 4 of 5 Period: 526.031 d



DV Fit Results:

Period = 526.03135 [0.00623] d
Epoch = 218.7794 [0.0073] BKJD
Rp/R* = 0.0488 [0.0471]
a/R* = 631.05 [1709.33]
b = 0.00 [1477.76]
Seff = 0.14 [0.02]
Teq = 156 [6] K
Rp = 3.86 [3.74] Re
a = 1.1434 [0.0792] AU
Ag = 118744.68 [231411.37] [0.51σ]
Teffp = 4487 [2188] K [1.98σ]

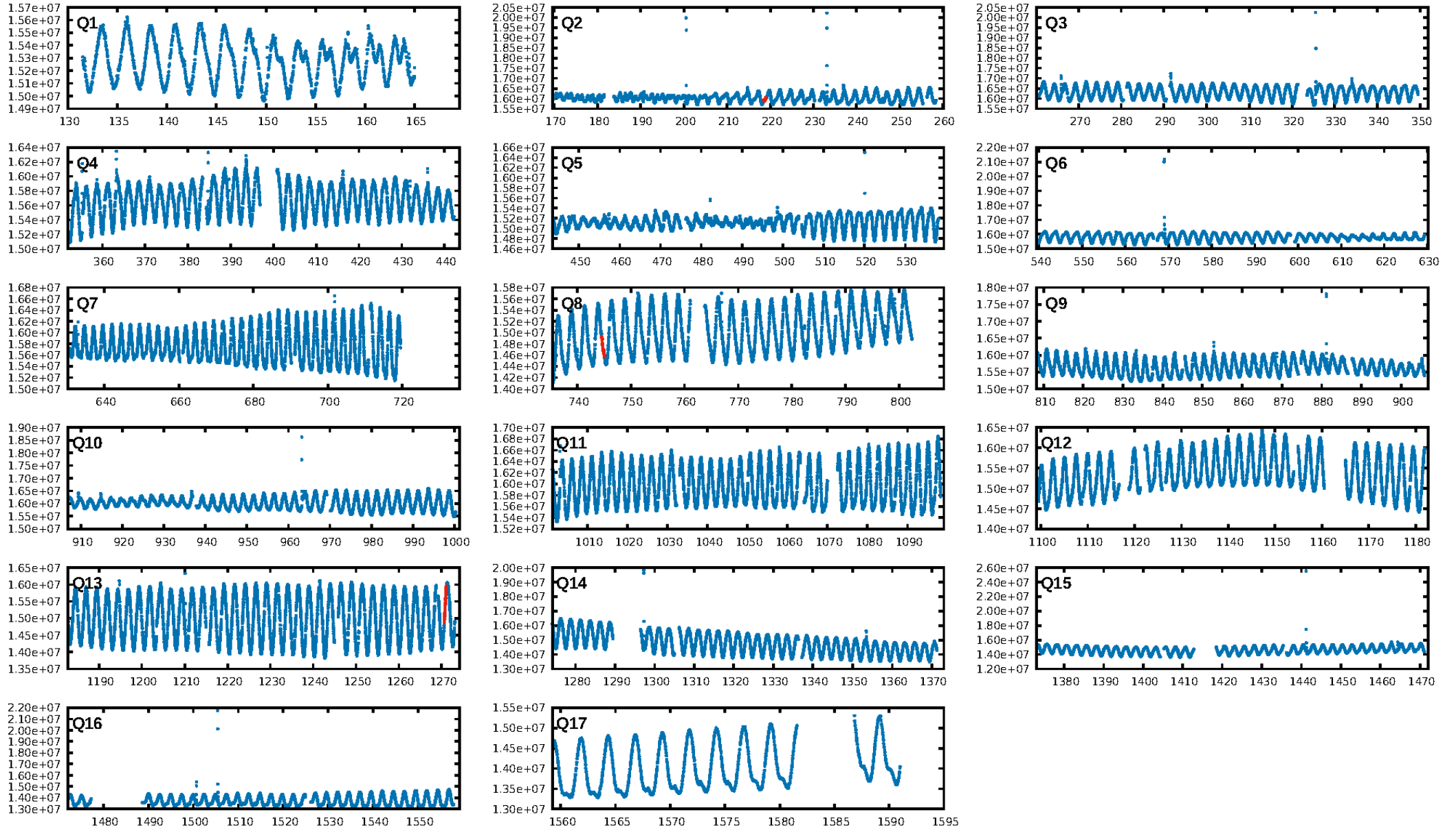
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [254.67σ]
LongPeriod-sig: 3.6% [0.04σ]
ModelChiSquare2-sig: 58.8%
ModelChiSquareGof-sig: 97.6%
Bootstrap-pfa: N/A
RollingBand-fgt: 1.00 [3/3]
GhostDiagnostic-chr: 3.562
Centroid-sig: 22.9%
Centroid-so: 1.105 arcsec [1.67σ]
OotOffset-rm: 0.035 arcsec [0.19σ]
KicOffset-rm: 0.256 arcsec [0.91σ]
OotOffset-st: 1/0/1/1 [3]
KicOffset-st: 1/0/1/1 [3]
DiffImageQuality-fgm: 0.67 [2/3]
DiffImageOverlap-fno: 1.00 [3/3]

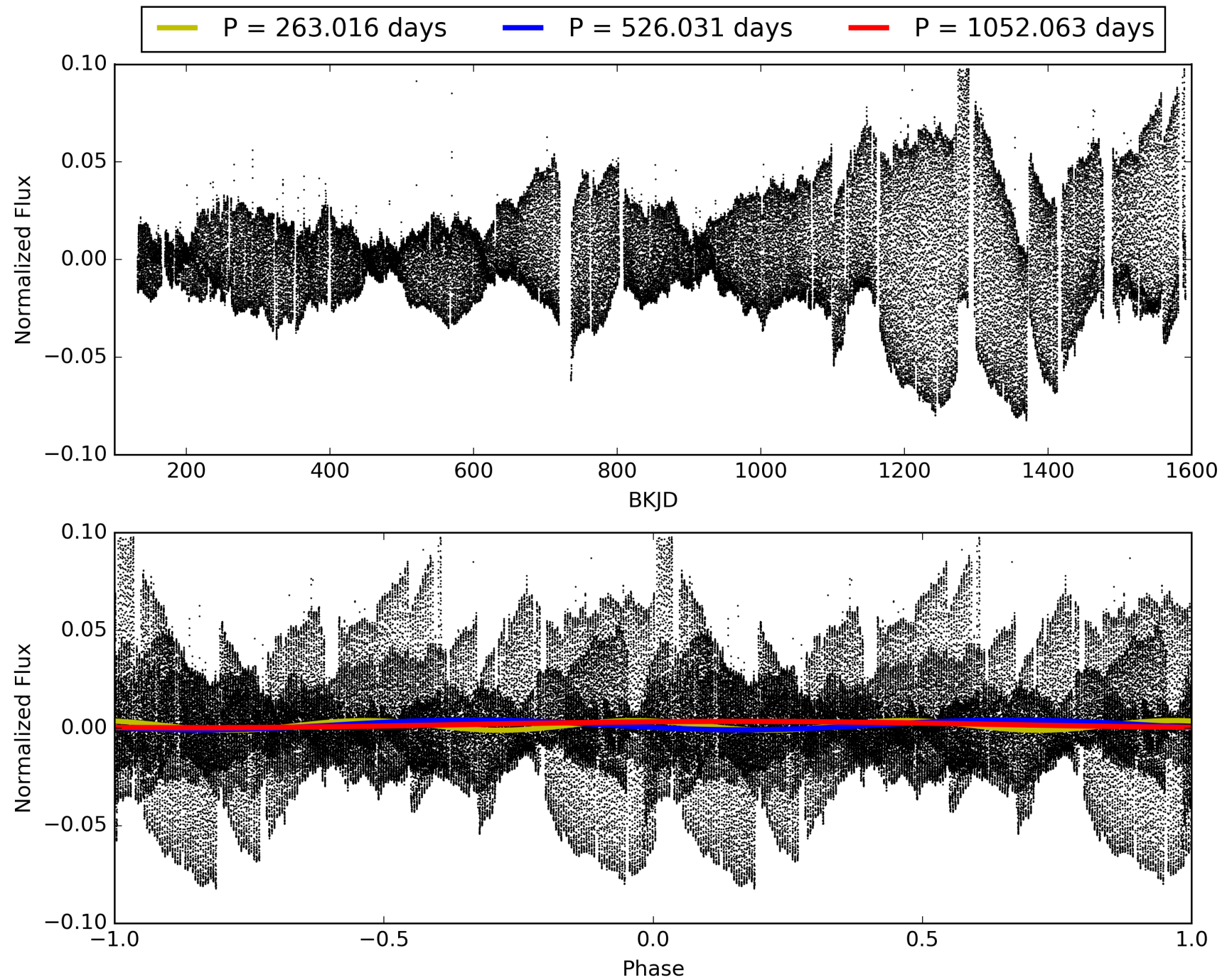
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 05:42:47 Z

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

TCE 012599998-04, PDC Light Curves

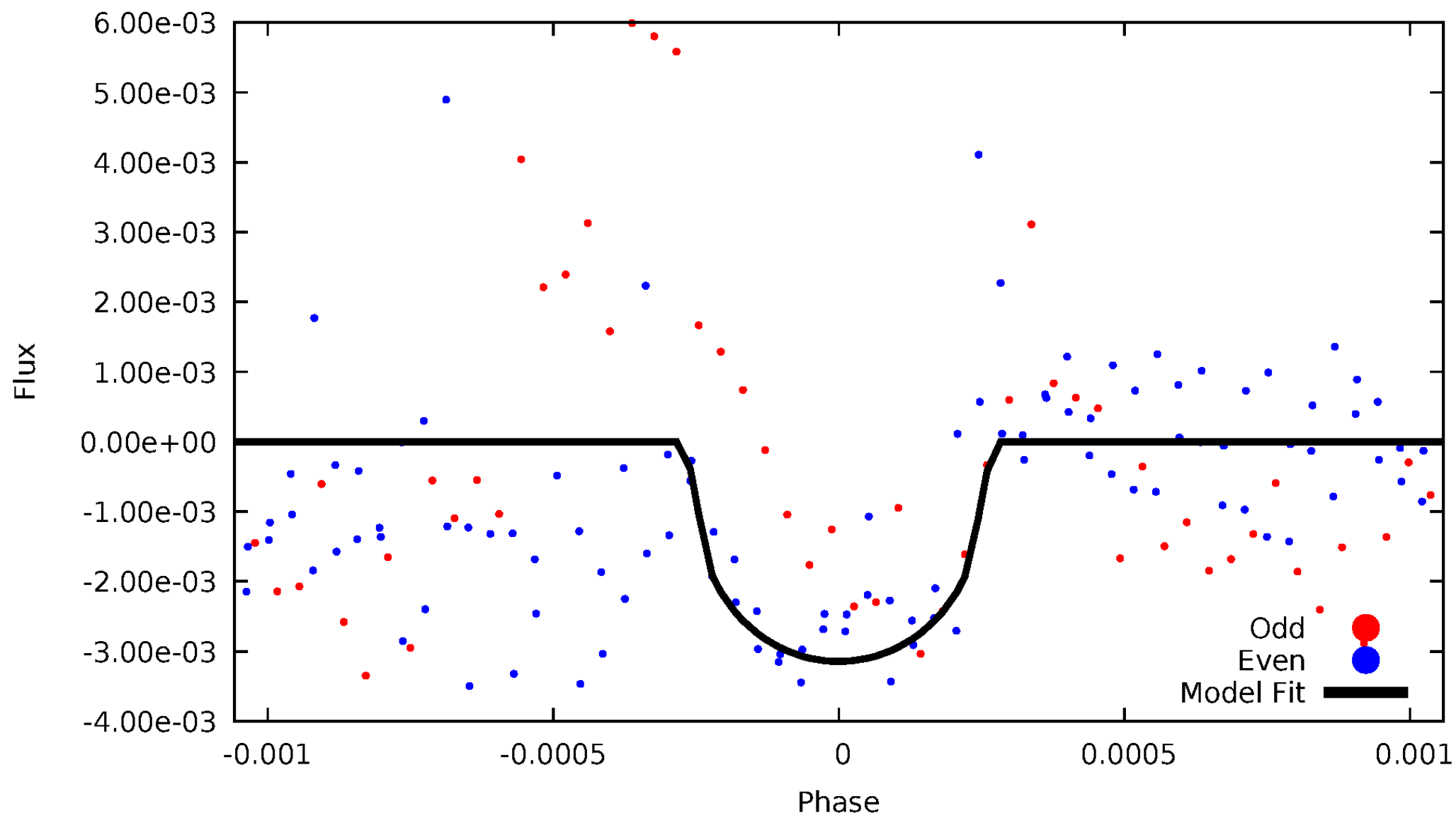


TCE 012599998-04



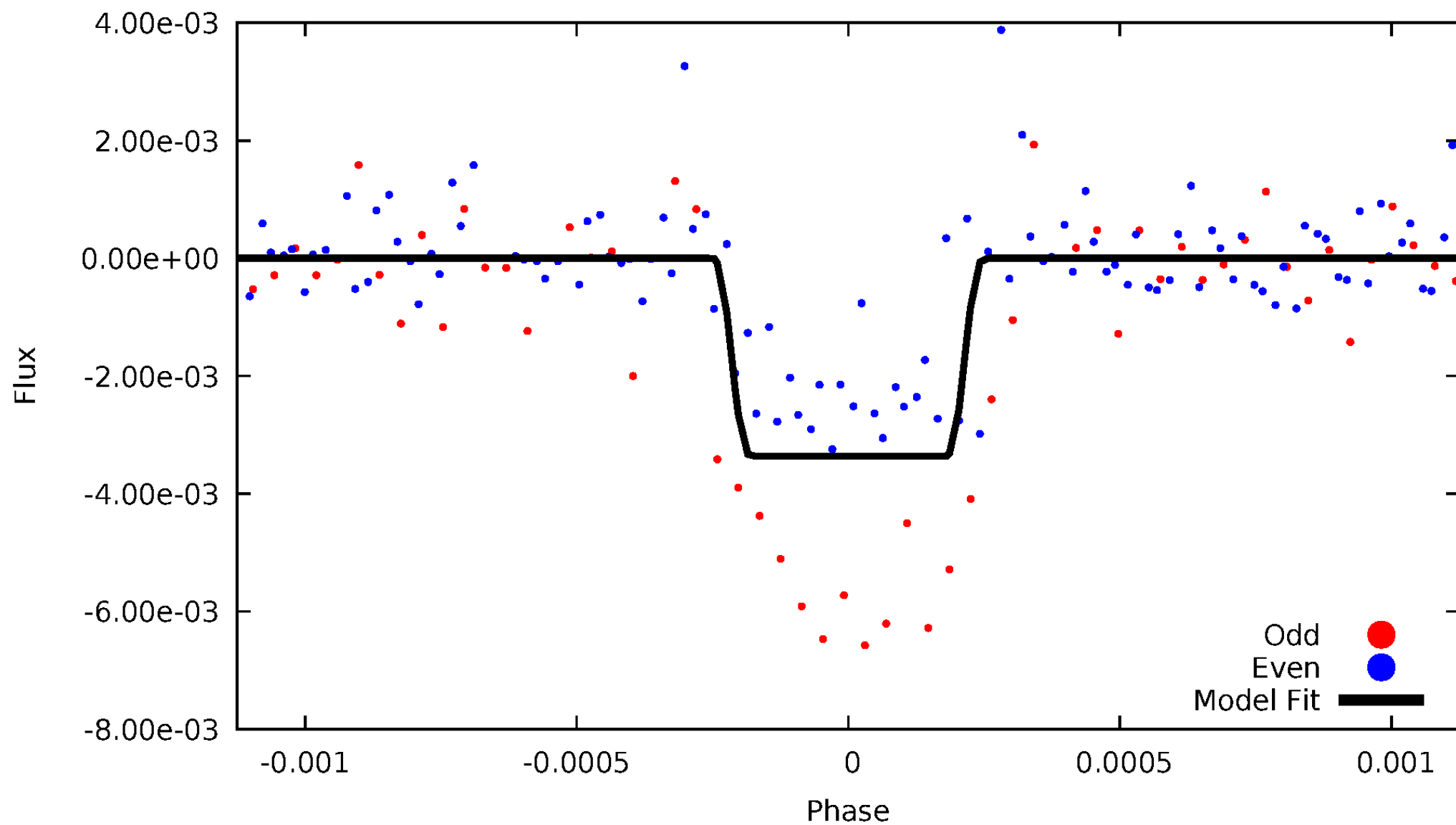
DV Odd/Even

TCE 012599998-04



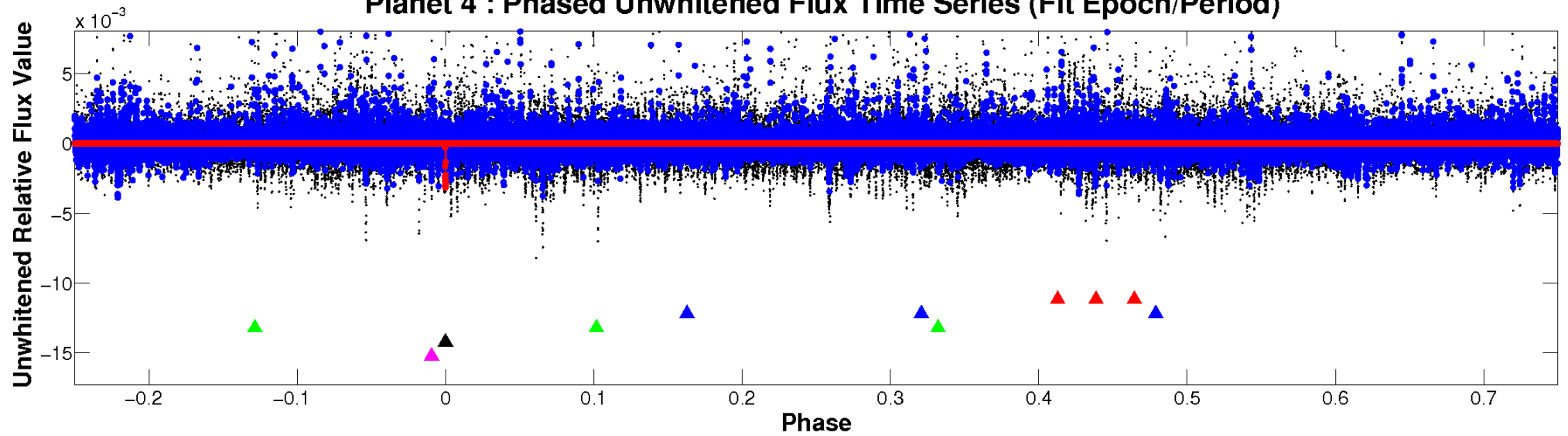
ALT Odd/Even

TCE 012599998-04

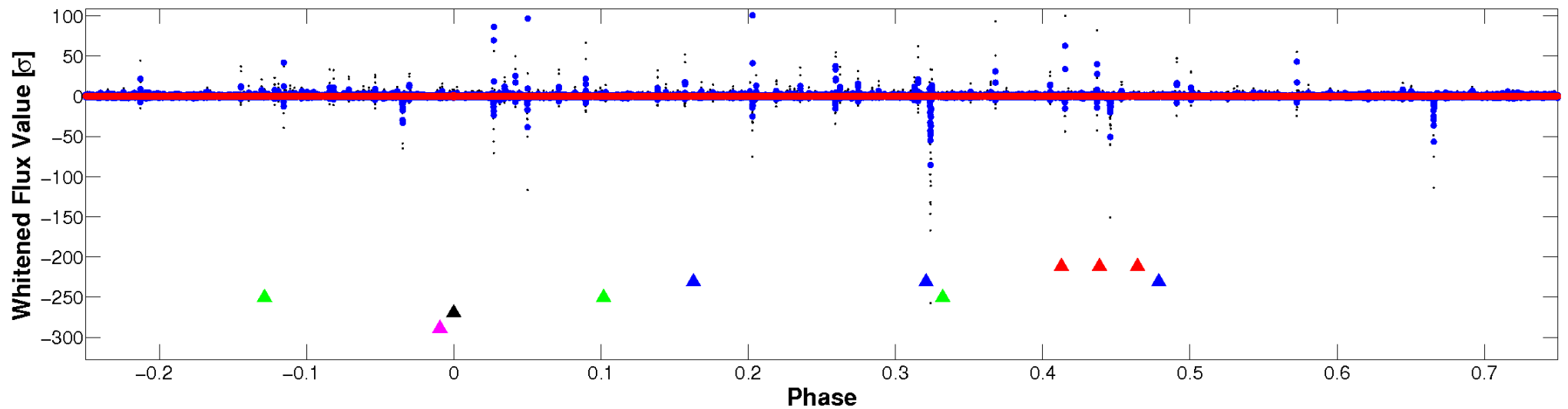


Non-Whitened Vs. Whitened Light Curve

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

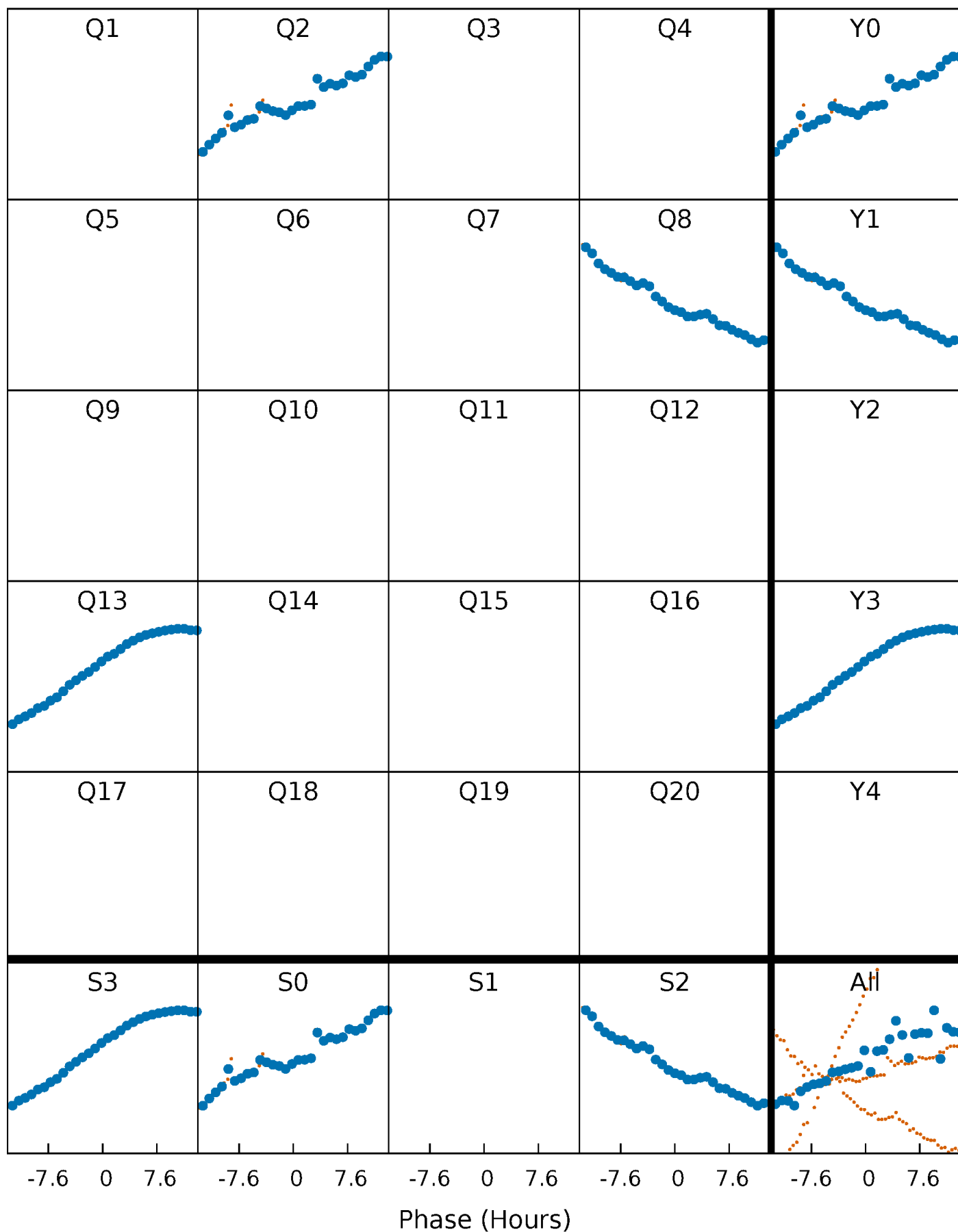


Planet 4 : Phased Whitened Flux Time Series (Fit Epoch/Period)



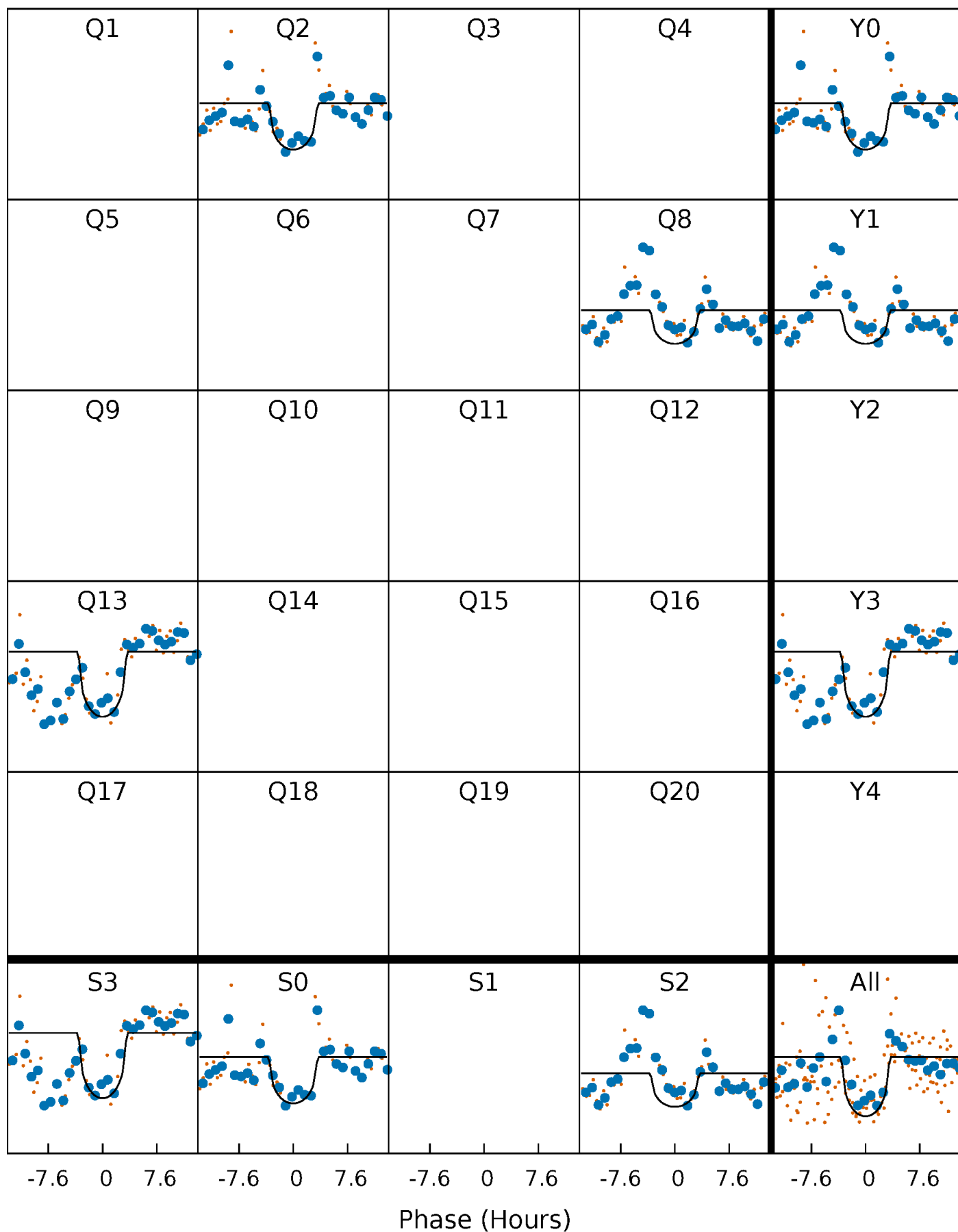
PDC Quarter-Phased Transit Curves

TCE 012599998-04 P=526.031352 Days $T_0=218.779406$ (BKJD)



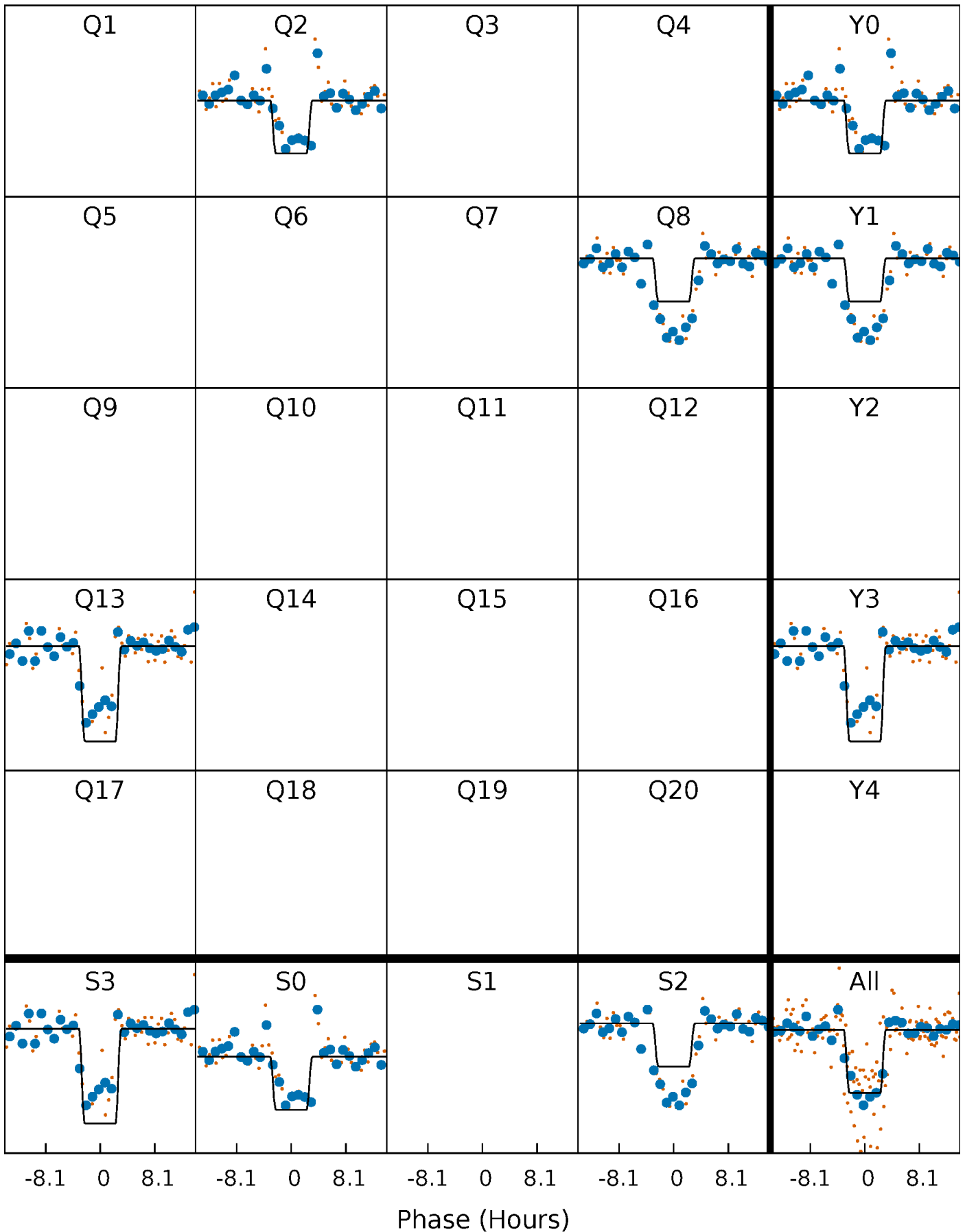
DV Quarter-Phased Transit Curves

TCE 012599998-04 $P=526.031352$ Days $T_0=218.779406$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

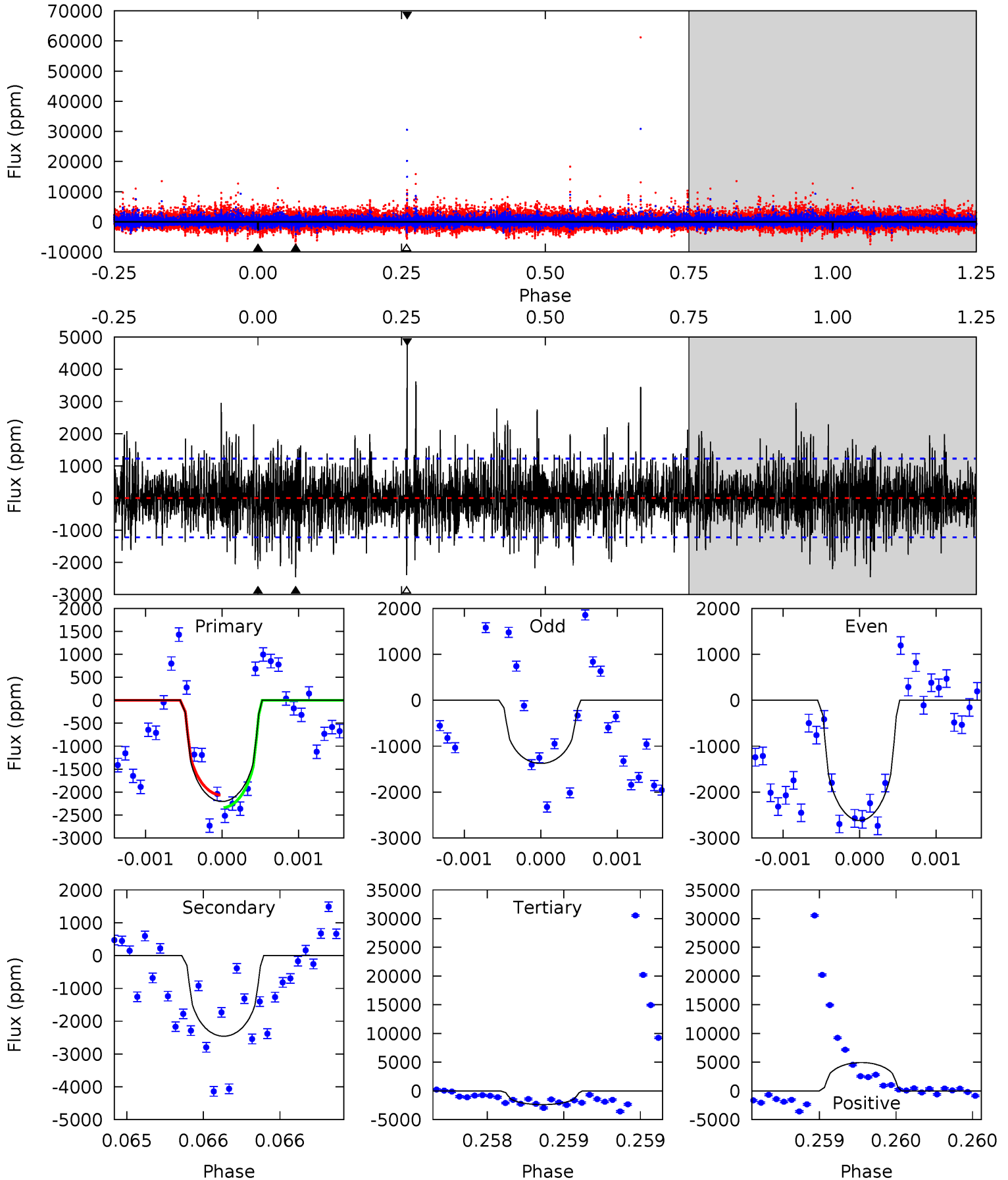
TCE 012599998-04 $P=526.048380$ Days $T_0=218.760103$ (BKJD)



DV Model-Shift Uniqueness Test

012599998-04, P = 526.031352 Days, E = 218.779406 Days

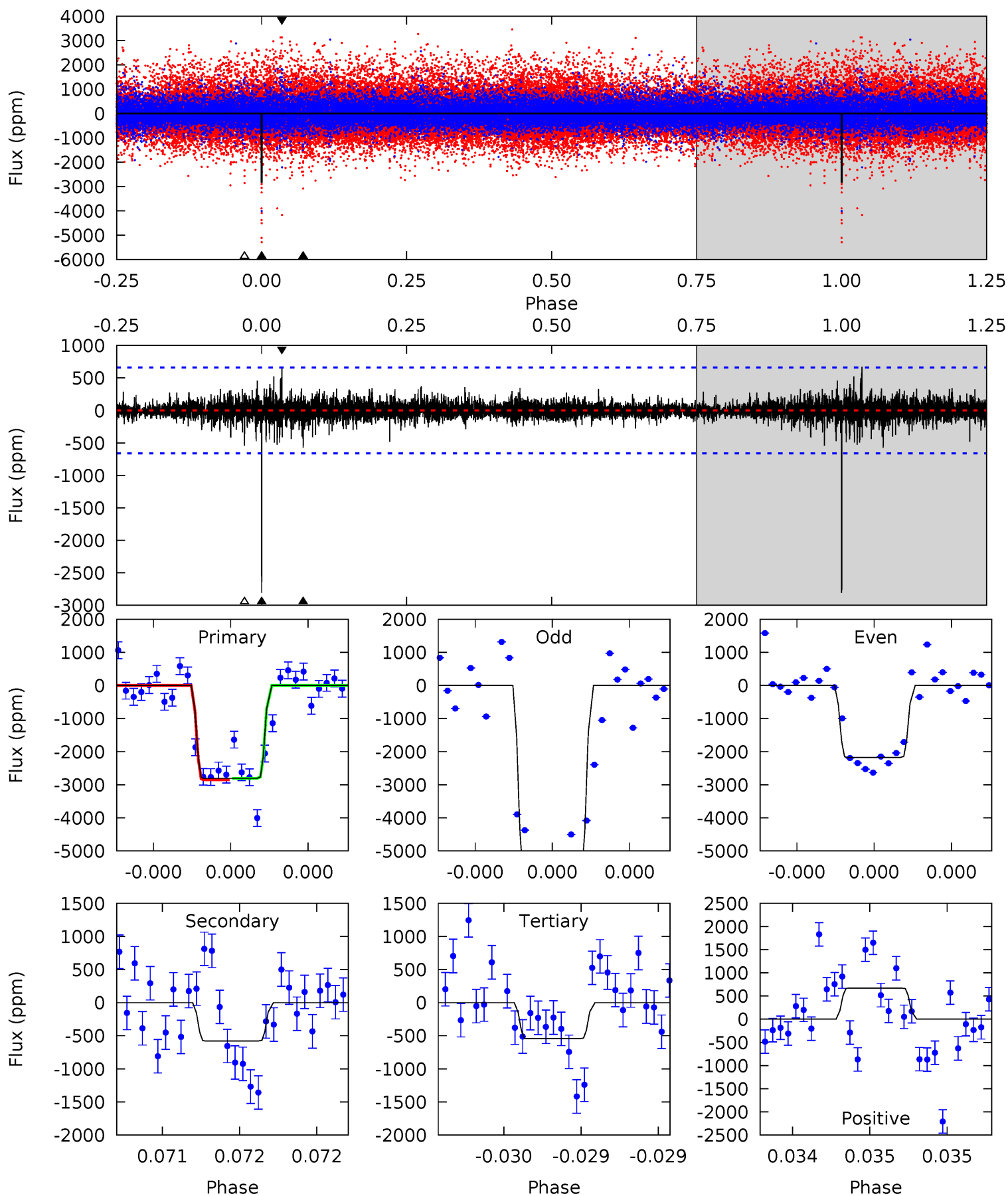
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
10.0	11.2	10.9	22.5	5.56	3.46	2.98	-0.84	-12.4	0.31	-11.3	1.47	0.86	0.67	0.62



Alt Model-Shift Uniqueness Test

012599998-04, P = 526.048380 Days, E = 218.760103 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
23.6	4.87	4.57	5.64	5.58	3.49	0.76	19.1	18.0	0.30	-0.77	15.2	1.42	0.19	0.18



Stellar Parameters For KIC 012599998

	$T_{\text{eff}}(K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	4453^{+145}_{-145}	$4.576^{+0.056}_{-0.017}$	$0.260^{+0.150}_{-0.300}$	$0.724^{+0.029}_{-0.059}$	$0.719^{+0.046}_{-0.050}$	$2.672^{+0.625}_{-0.193}$
	+3%/-3%	+1%/-0%	+58%/-115%	+4%/-8%	+6%/-7%	+23%/-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 012599998-04 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-2458 ± 220	$4.67^{+3.15}_{-3.02}$	217^{+8}_{-8}	4152^{+2416}_{-672}	$83183^{+580338}_{-53489}$
Alt.	-578 ± 119	$4.97^{+3.05}_{-3.02}$	217^{+7}_{-8}	3233^{+1110}_{-468}	17879^{+87687}_{-11718}

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

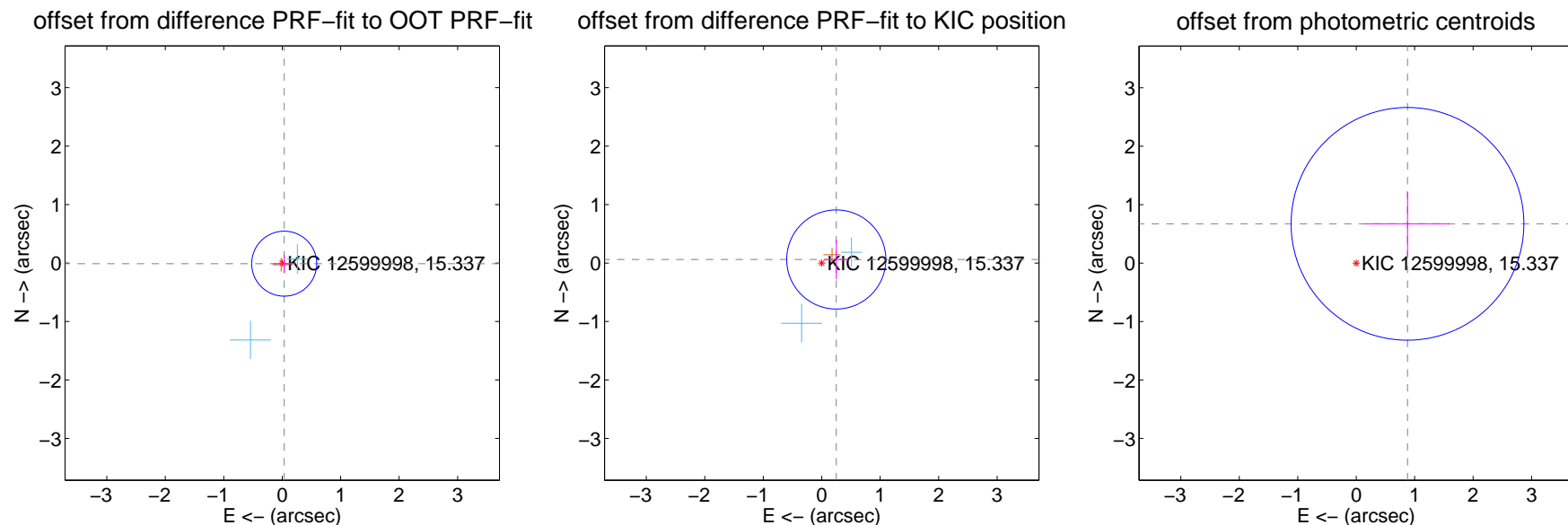
DV Centroid Data

Supplemental centroid analysis for 012599998-04. Kepler magnitude: 15.34. Transit SNR 7.94

There are 2 quarters with good PRF difference image offsets

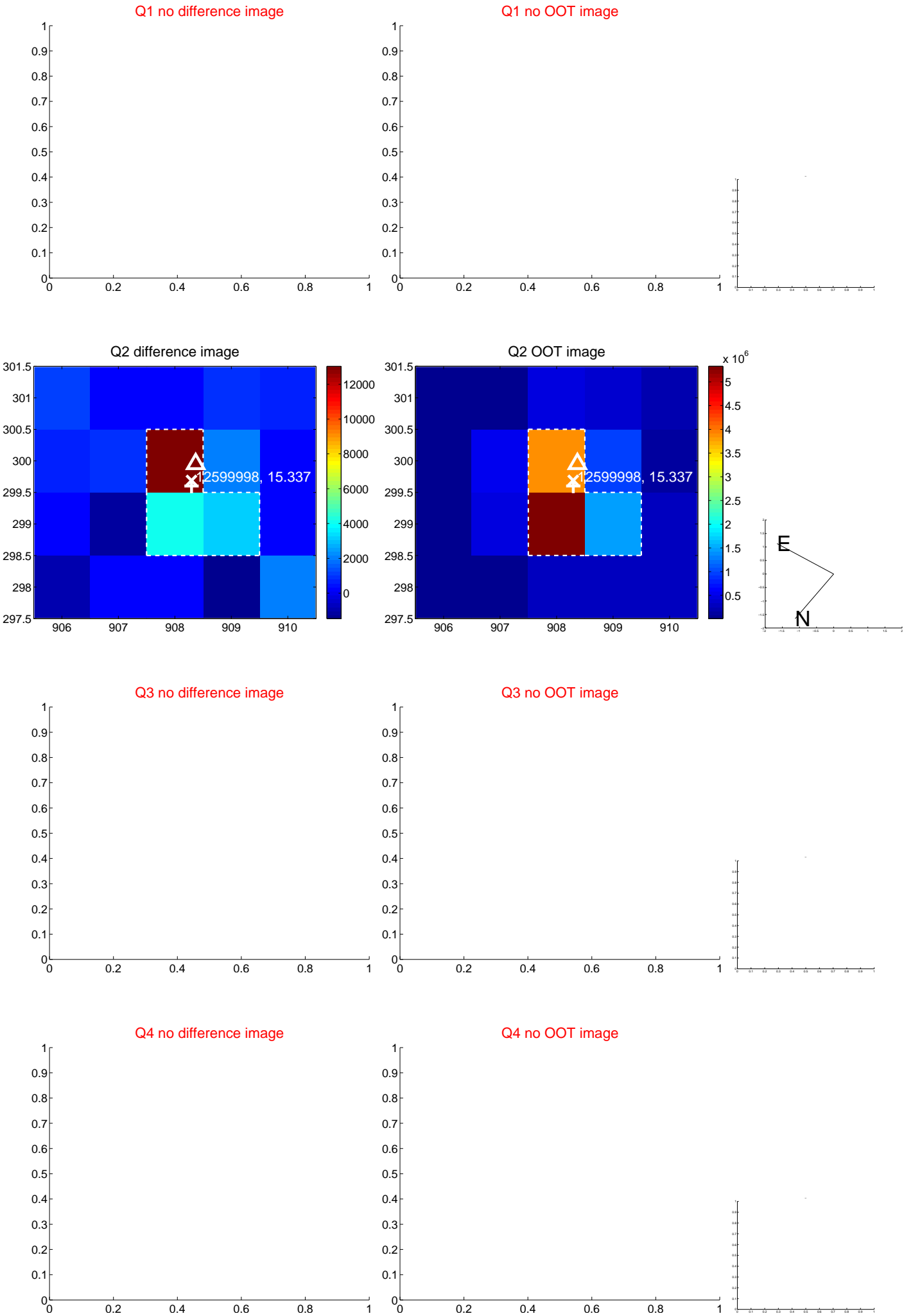
The direct PRF centroid is offset from the target star catalog position by about 0.26 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.035 ± 0.185	0.19	-0.034 ± 0.188	-0.011 ± 0.159
PRF-fit source offset from KIC position	0.256 ± 0.283	0.91	-0.249 ± 0.214	0.061 ± 0.339
photometric centroid source offset	1.10 ± 0.66	1.67	-0.88 ± 0.72	0.67 ± 0.55

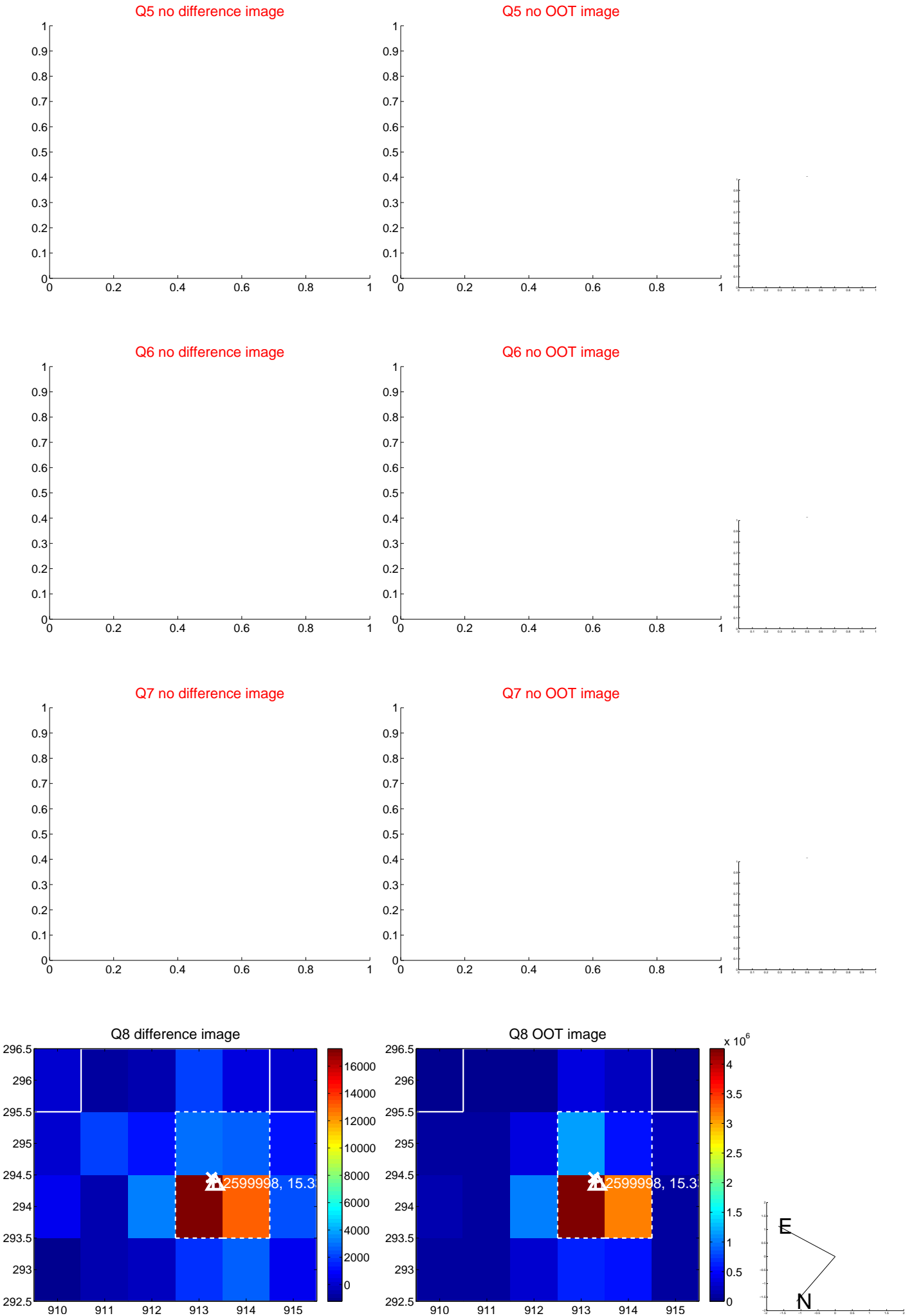


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ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



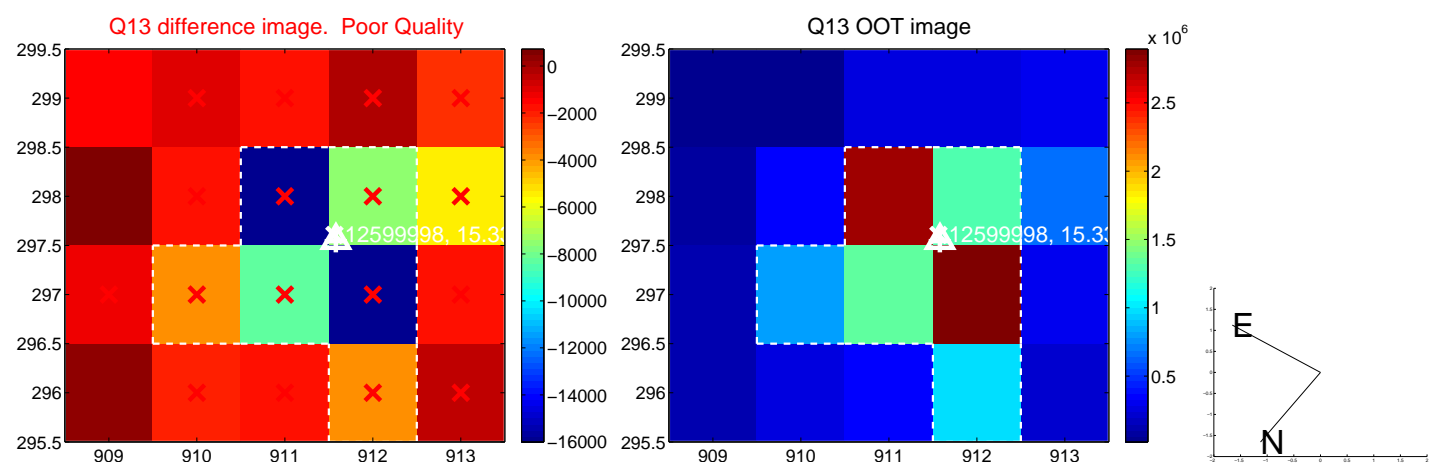
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



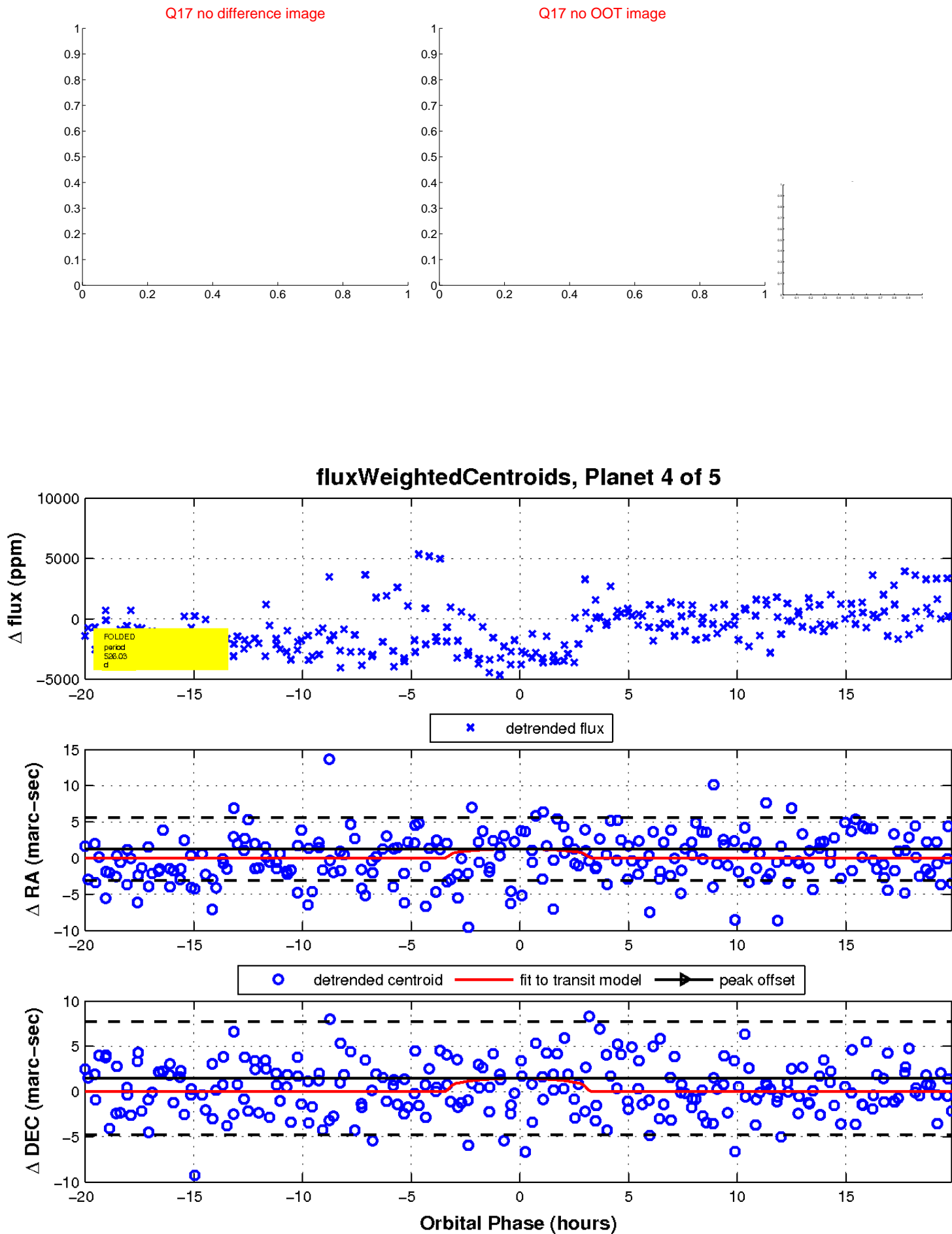
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

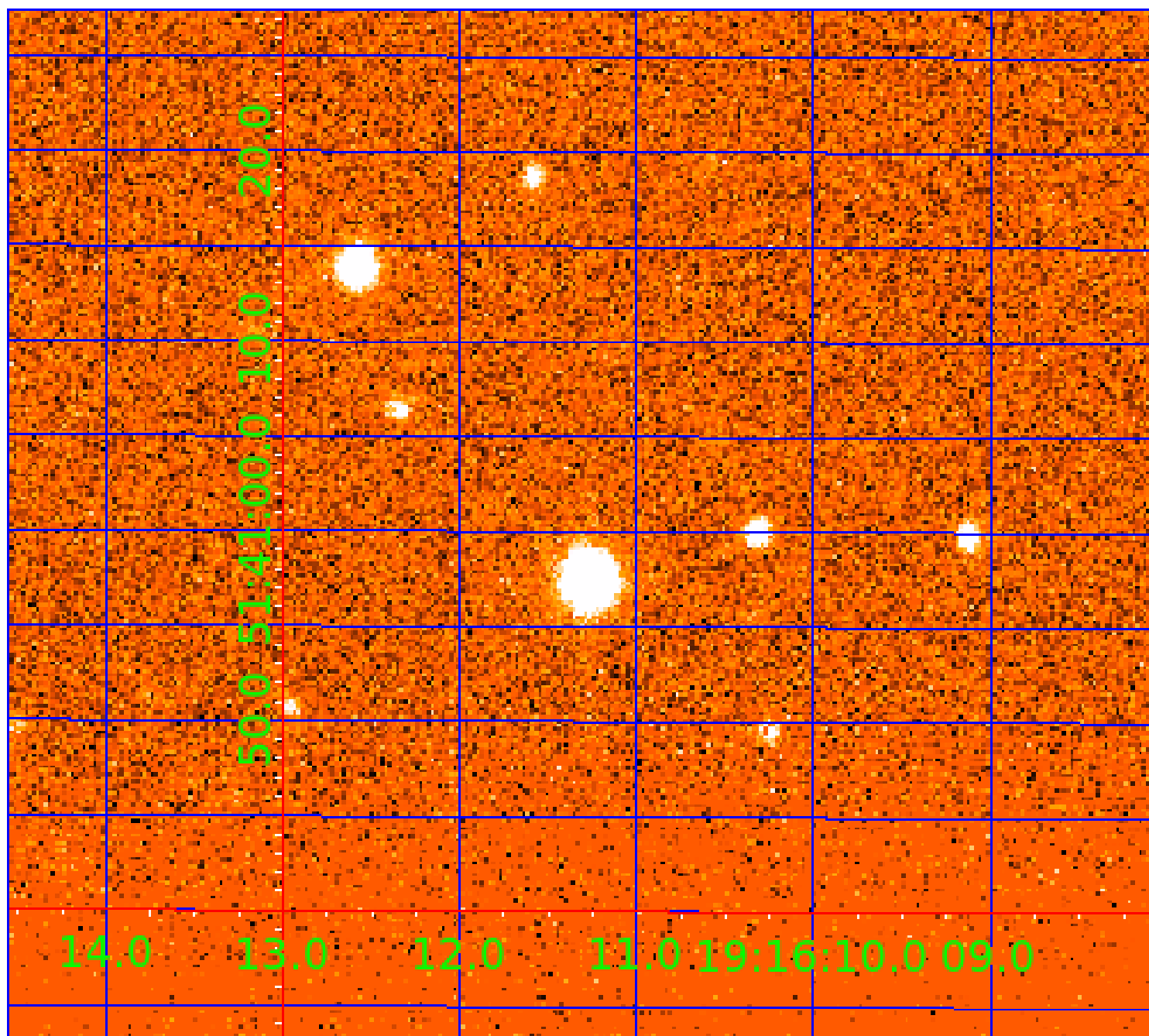


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 012599998

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})
012599998-01	OBS	No	539.634321	435.903604	1749.6	6.237	14.3	4.4	0.72	4453	3.00	0.14
012599998-02	OBS	No	442.912135	470.685783	2695.6	4.093	13.3	6.9	0.72	4453	3.90	0.18
012599998-03	OBS	No	404.885932	393.478767	3775.5	7.247	13.2	7.4	0.72	4453	4.25	0.20
012599998-04	OBS	No	526.031352	218.779406	3141.6	6.679	10.0	7.9	0.72	4453	3.86	0.14
012599998-05	OBS	No	526.046916	213.829971	2610.4	5.021	10.3	7.4	0.72	4453	3.52	0.14

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
012599998-01	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL_SKYE—LPP_DV—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—INCONSISTENT_TRANS—CENT_FEW_DIFFS
012599998-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—LPP_DV—ALL_TRANS_CHASES—MOD_POS_DV—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_FEW_DIFFS
012599998-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL_SKYE—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—INCONSISTENT_TRANS—CENT_FEW_DIFFS
012599998-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL_SKYE—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—CENT_FEW_DIFFS
012599998-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL_SKYE—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—INCONSISTENT_TRANS—SAME_NTL_PERIOD—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.

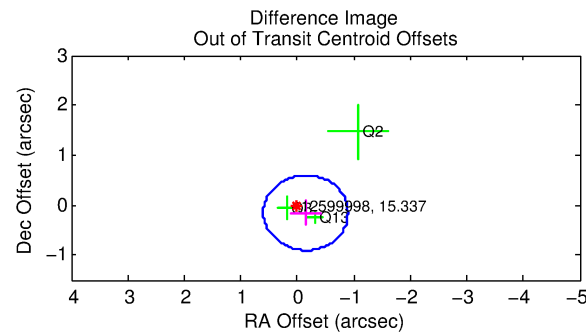
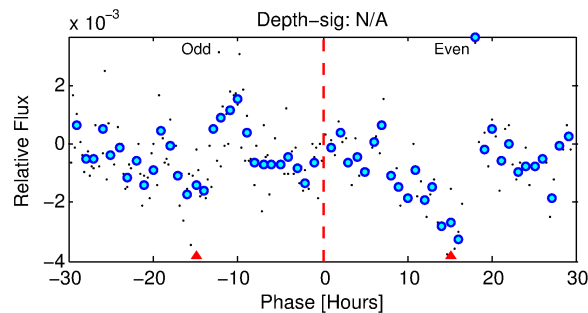
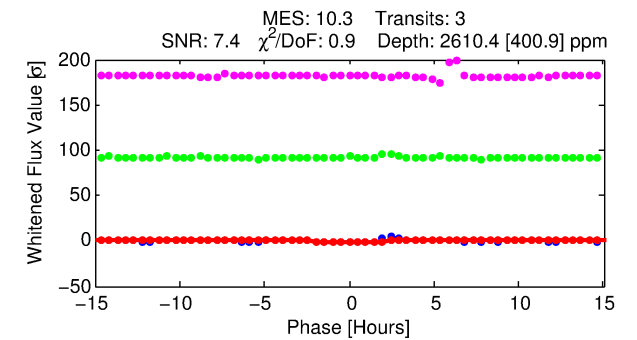
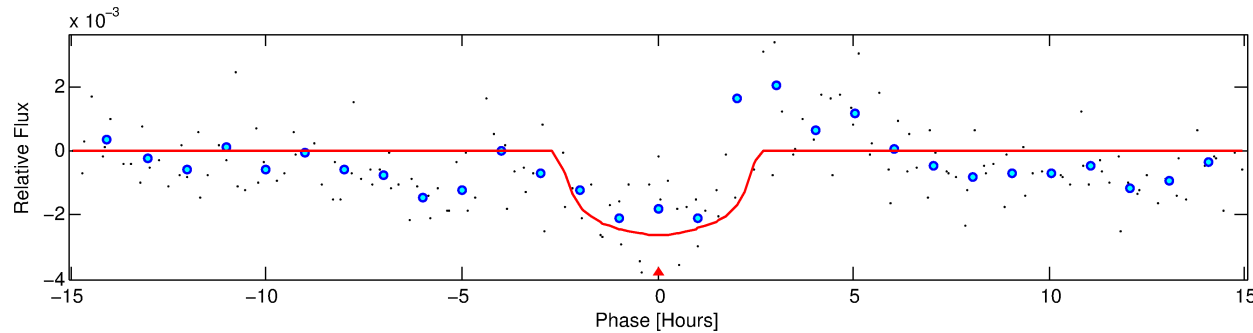
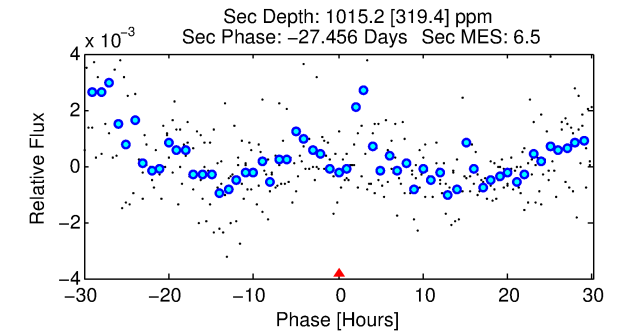
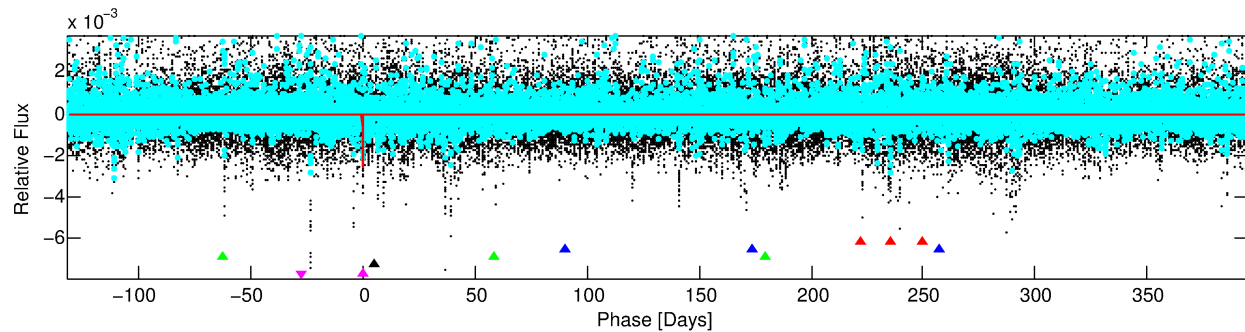
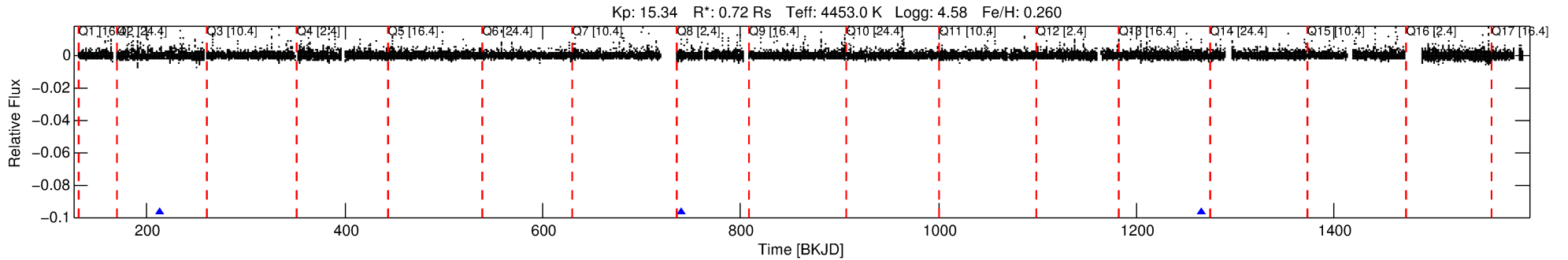
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 012599998-05

No Significant Match Found

DV One-Page Summary

KIC: 12599998 Candidate: 5 of 5 Period: 526.047 d



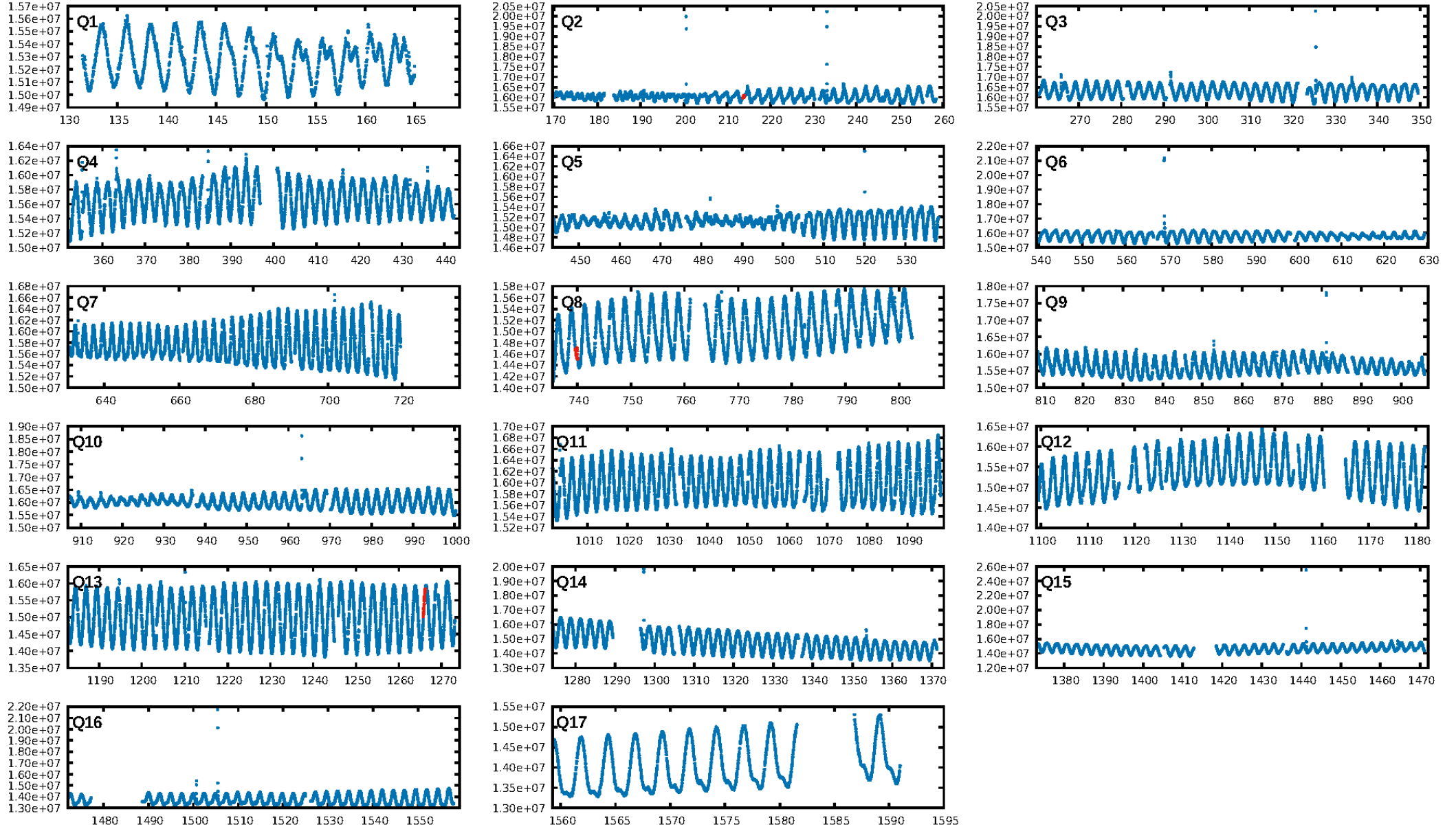
DV Fit Results:

Period = 526.04692 [0.00652] d
Epoch = 213.8300 [0.0062] BKJD
Rp/R* = 0.0446 [0.0575]
a/R* = 832.25 [2978.21]
b = 0.10 [36.68]
Seff = 0.14 [0.02]
Teq = 156 [6] K
Rp = 3.52 [4.55] Re
a = 1.1434 [0.0792] AU
Ag = 58920.28 [153375.19] [0.38σ]
Teffp = 3766 [2452] K [1.47σ]

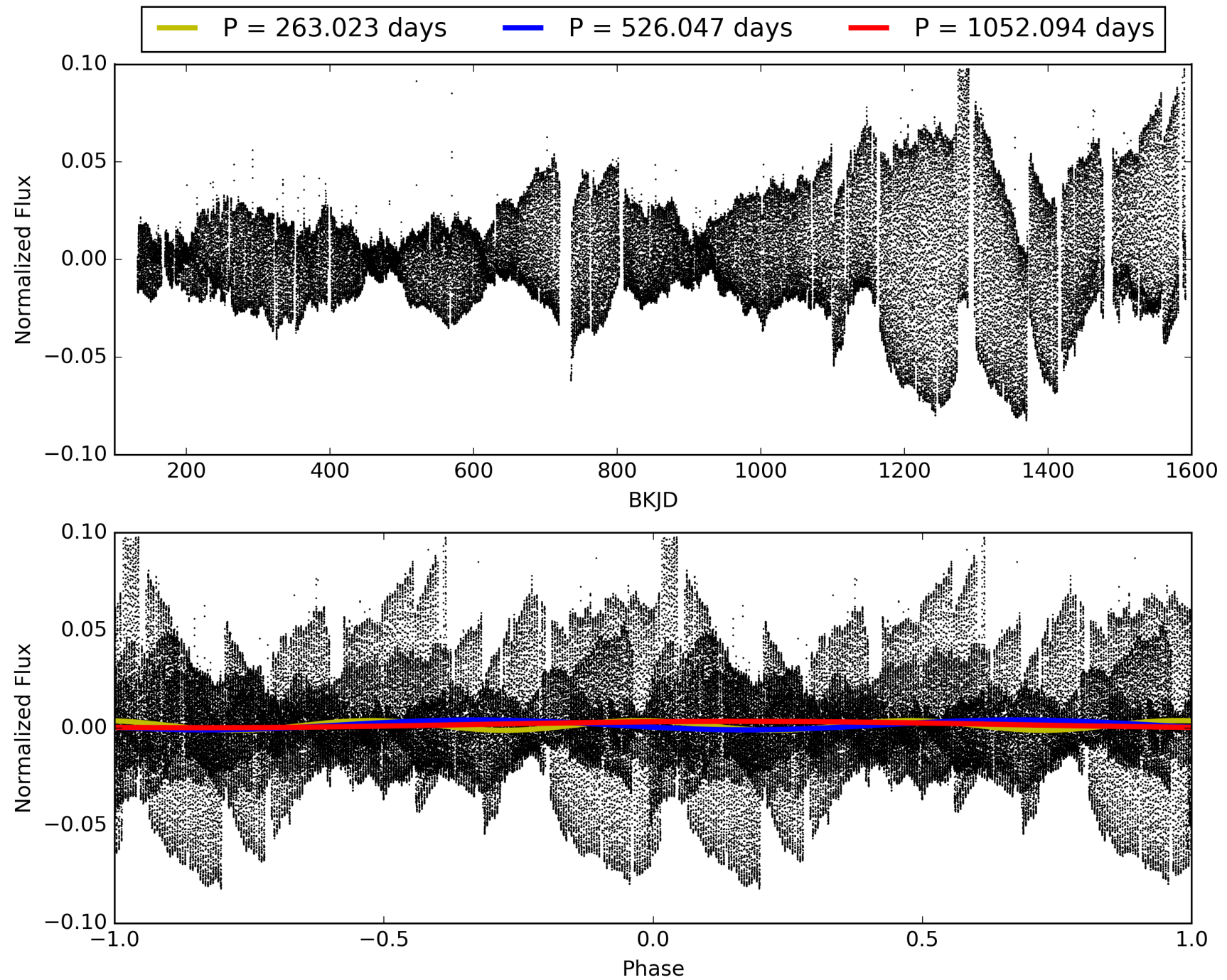
DV Diagnostic Results:

ShortPeriod-sig: 3.6% [0.04σ]
LongPeriod-sig: 100.0% [40.73σ]
ModelChiSquare2-sig: 23.8%
ModelChiSquareGof-sig: 98.5%
Bootstrap-pfa: N/A
RollingBand-fgt: 1.00 [3/3]
GhostDiagnostic-chr: -2.078
Centroid-sig: 79.0%
Centroid-so: 1.105 arcsec [1.50σ]
OotOffset-rm: 0.215 arcsec [0.86σ]
KicOffset-rm: 0.365 arcsec [1.24σ]
OotOffset-st: 1/0/1/1 [3]
KicOffset-st: 1/0/1/1 [3]
DiffImageQuality-fgm: 0.67 [2/3]
DiffImageOverlap-fno: 1.00 [3/3]

TCE 012599998-05, PDC Light Curves

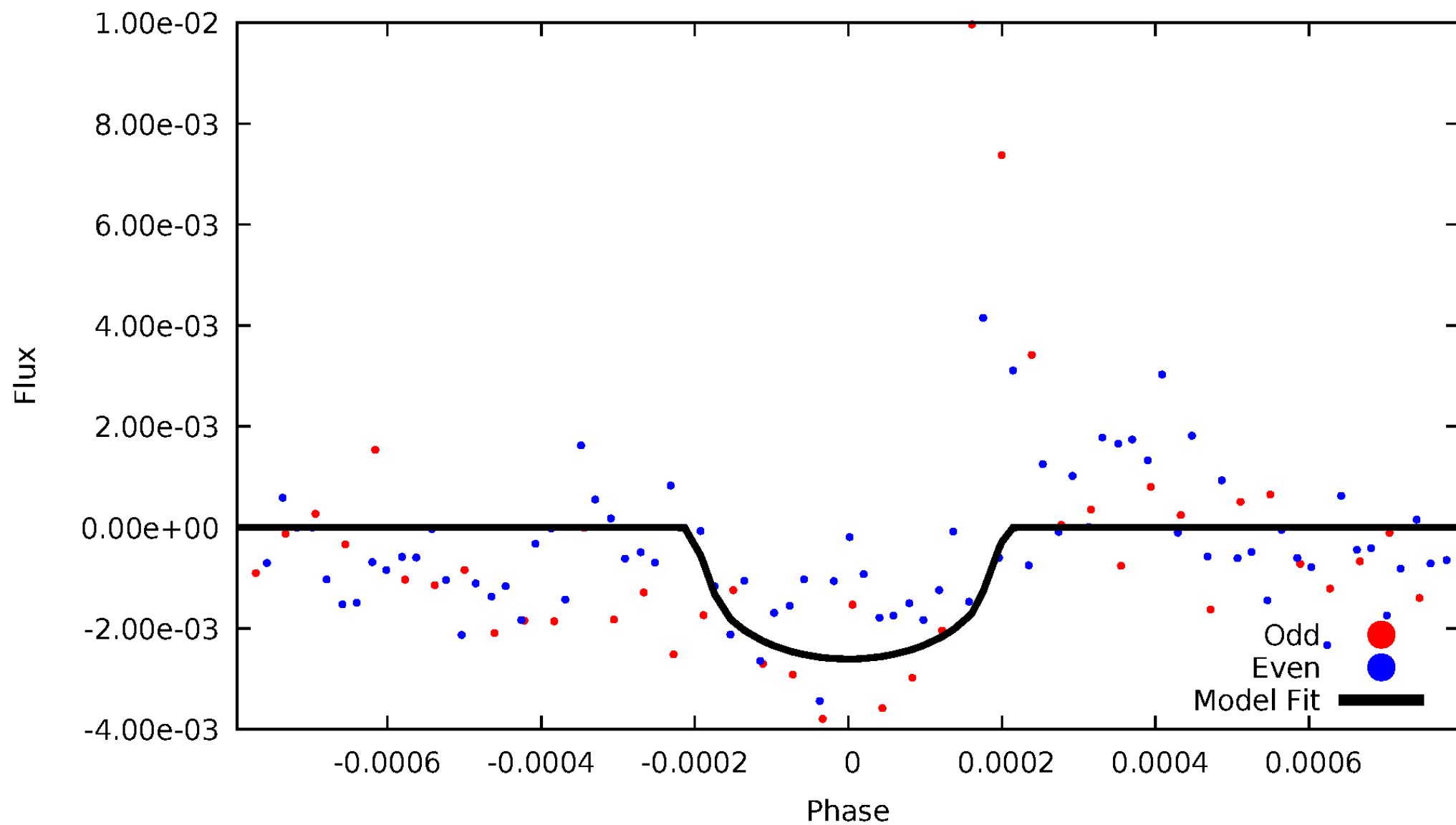


TCE 012599998-05



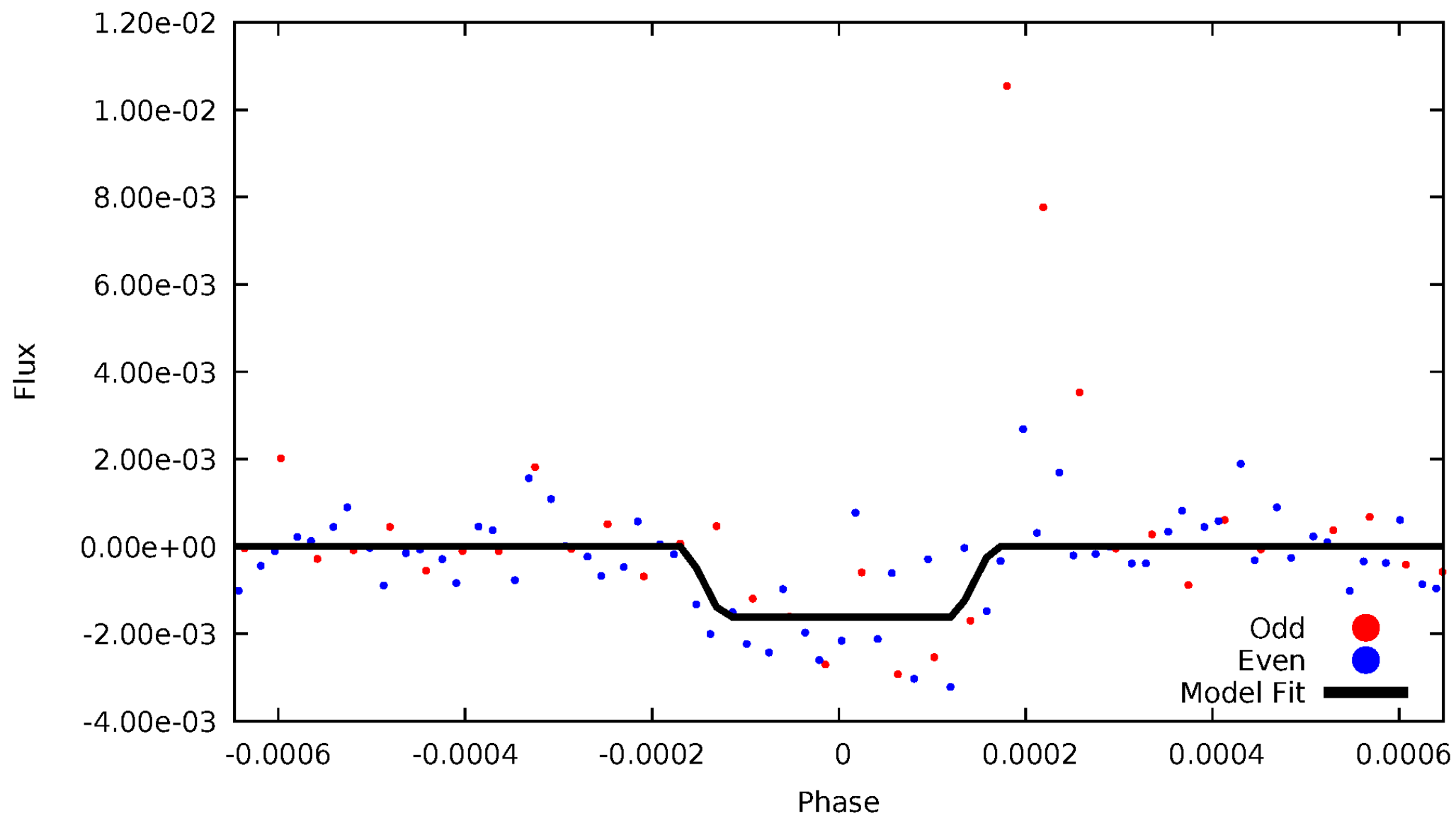
DV Odd/Even

TCE 012599998-05



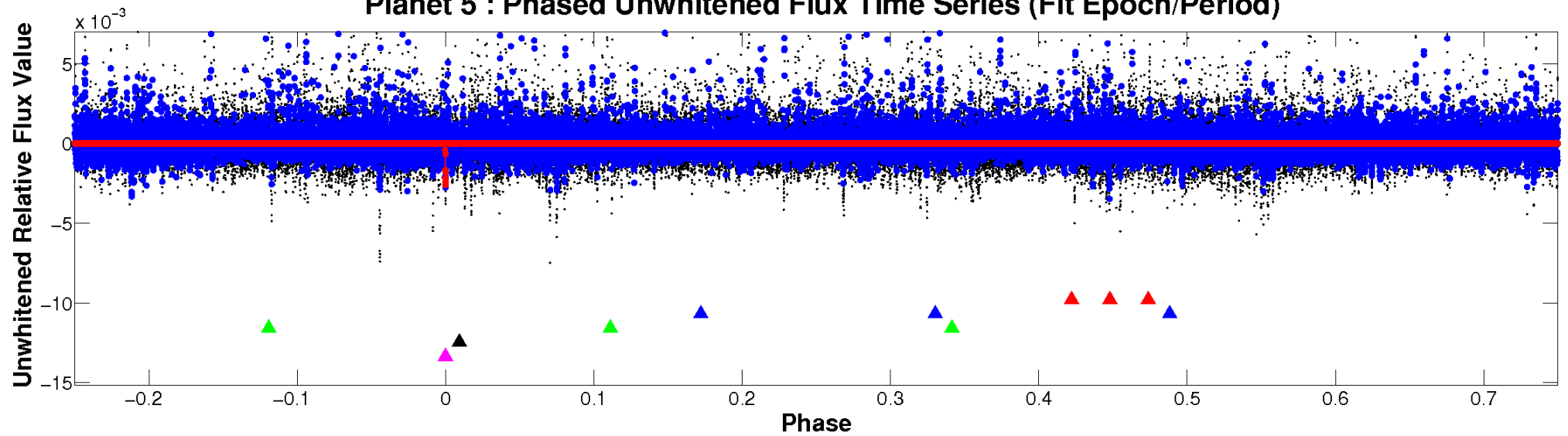
ALT Odd/Even

TCE 012599998-05

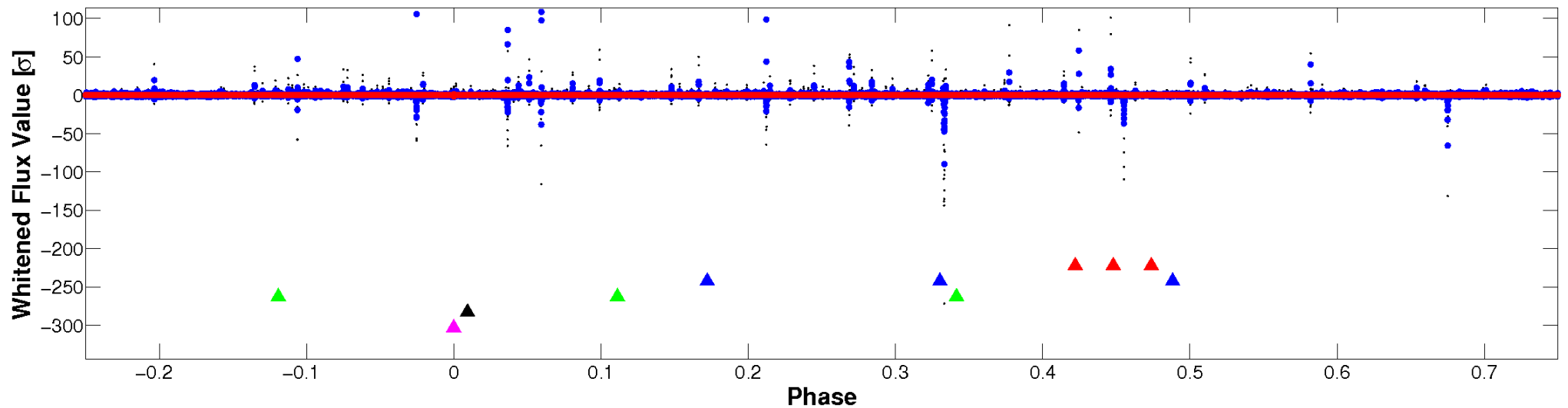


Non-Whitened Vs. Whitened Light Curve

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

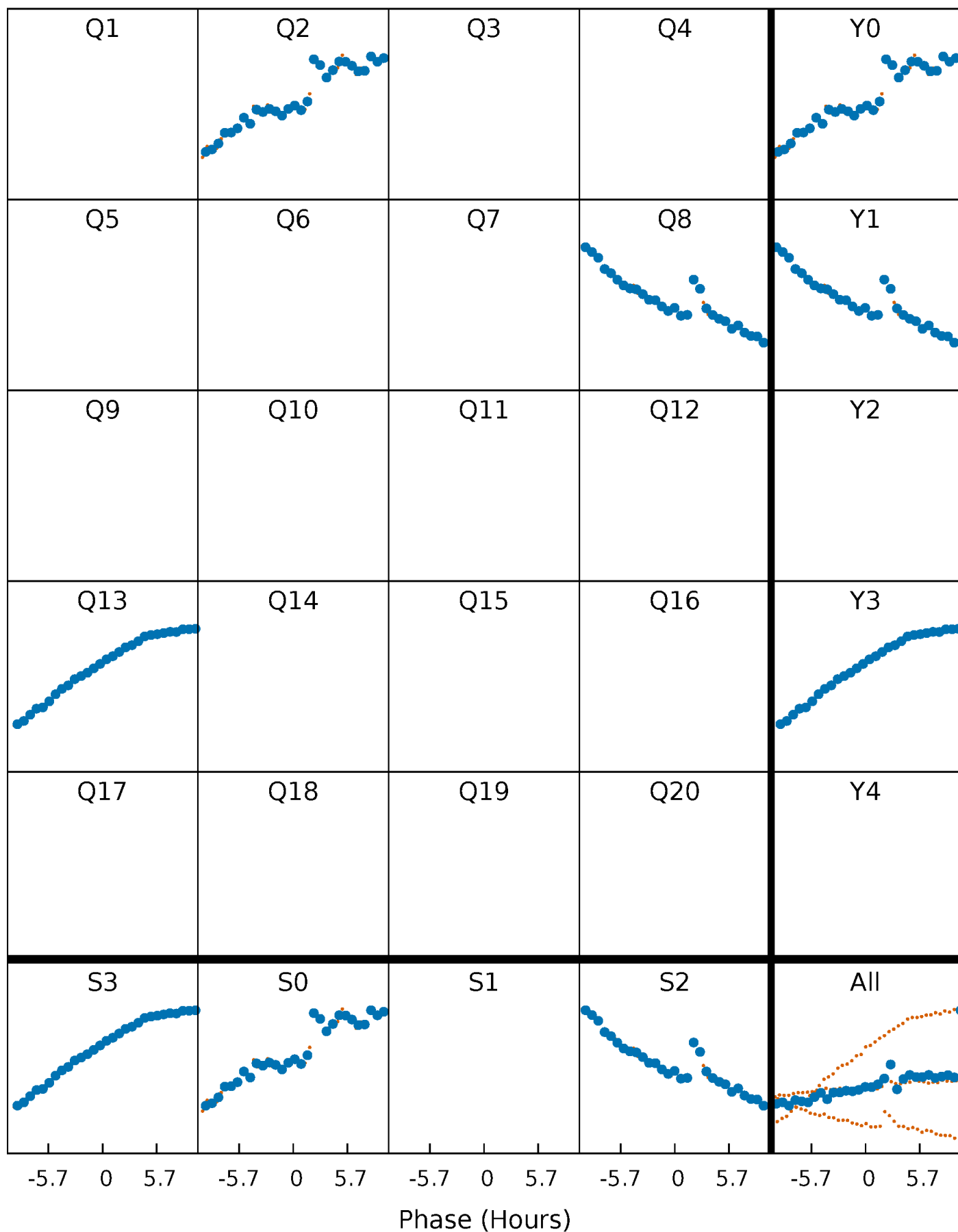


Planet 5 : Phased Whitened Flux Time Series (Fit Epoch/Period)



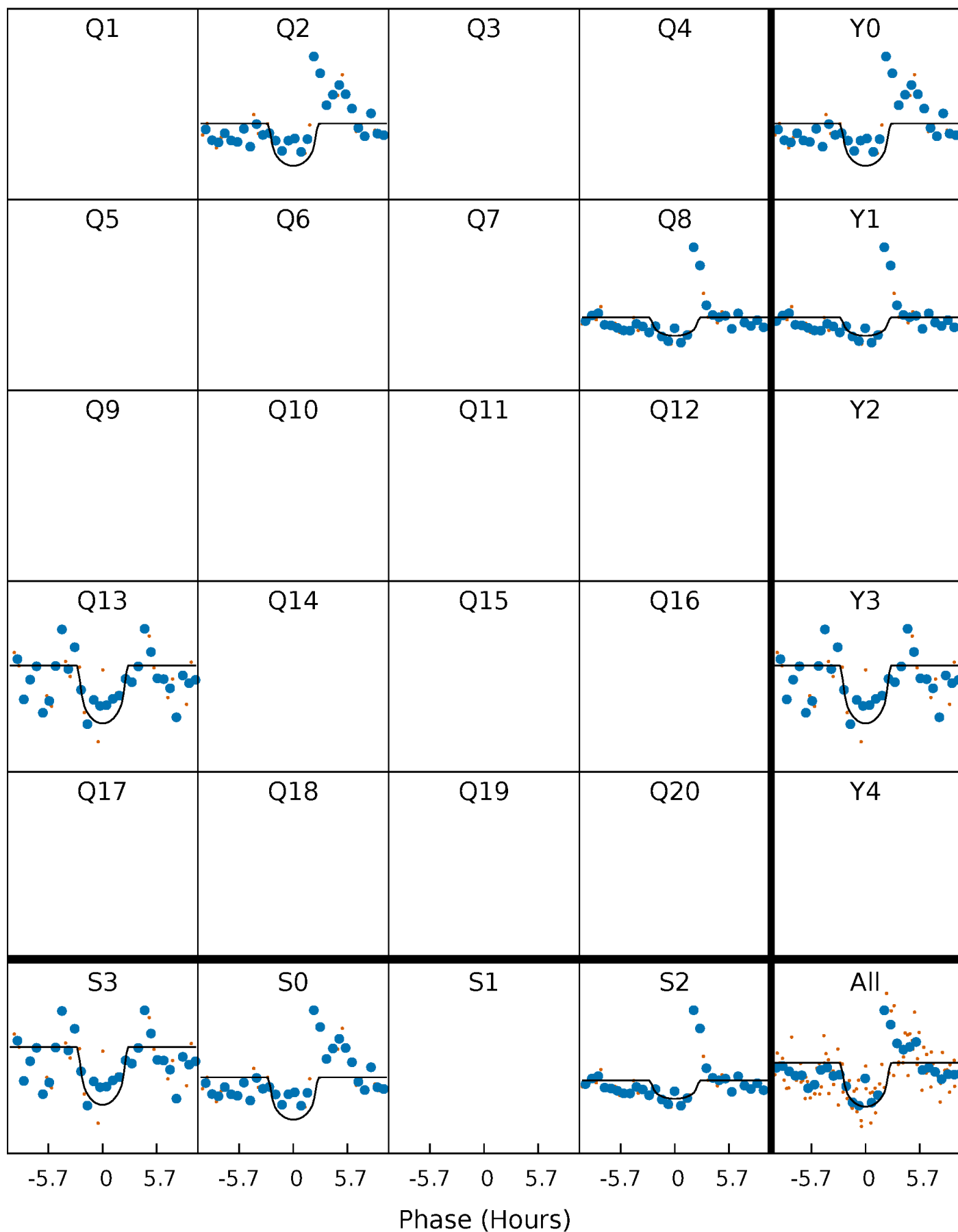
PDC Quarter-Phased Transit Curves

TCE 012599998-05 $P=526.046916$ Days $T_0=213.829971$ (BKJD)



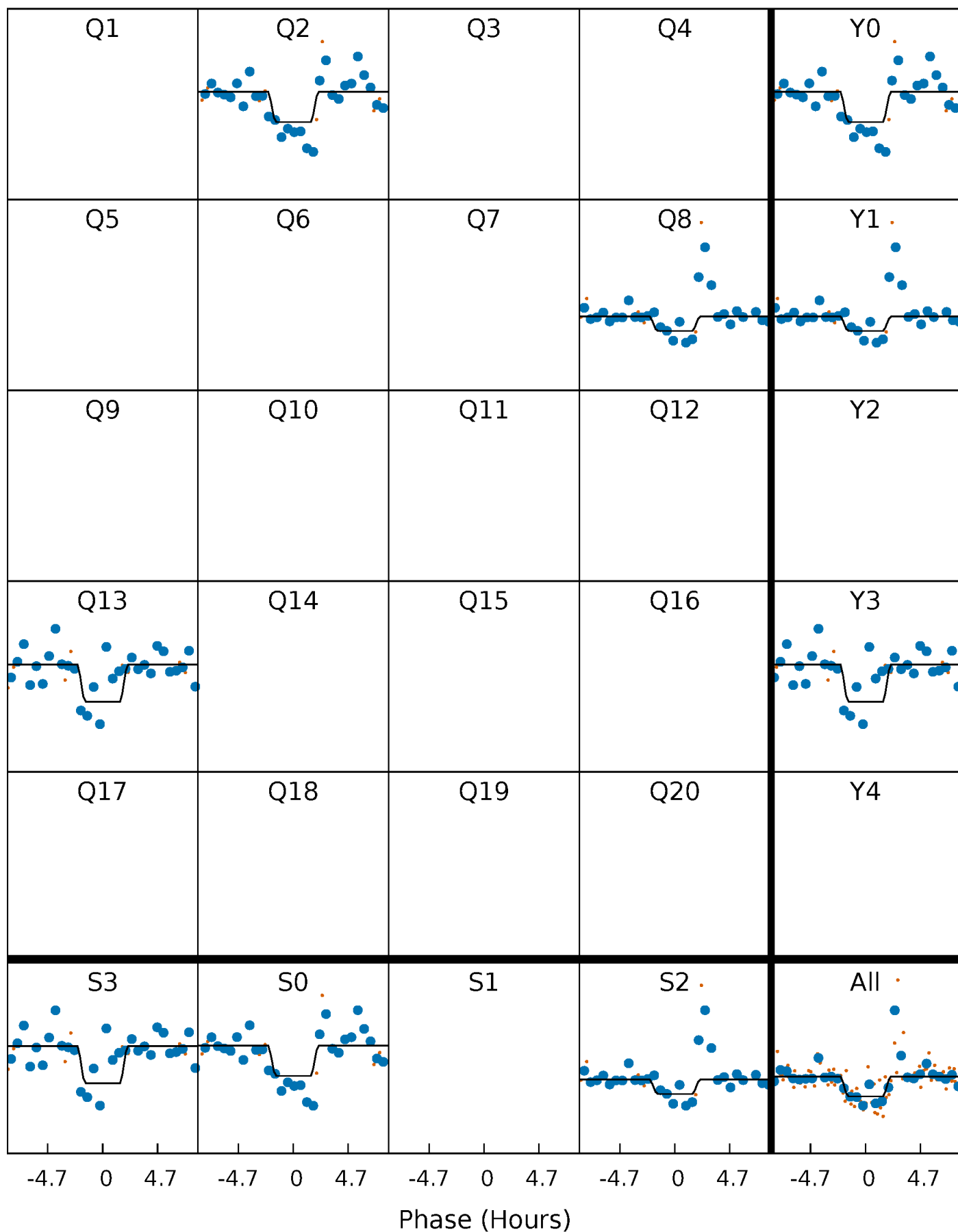
DV Quarter-Phased Transit Curves

TCE 012599998-05 $P=526.046916$ Days $T_0=213.829971$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

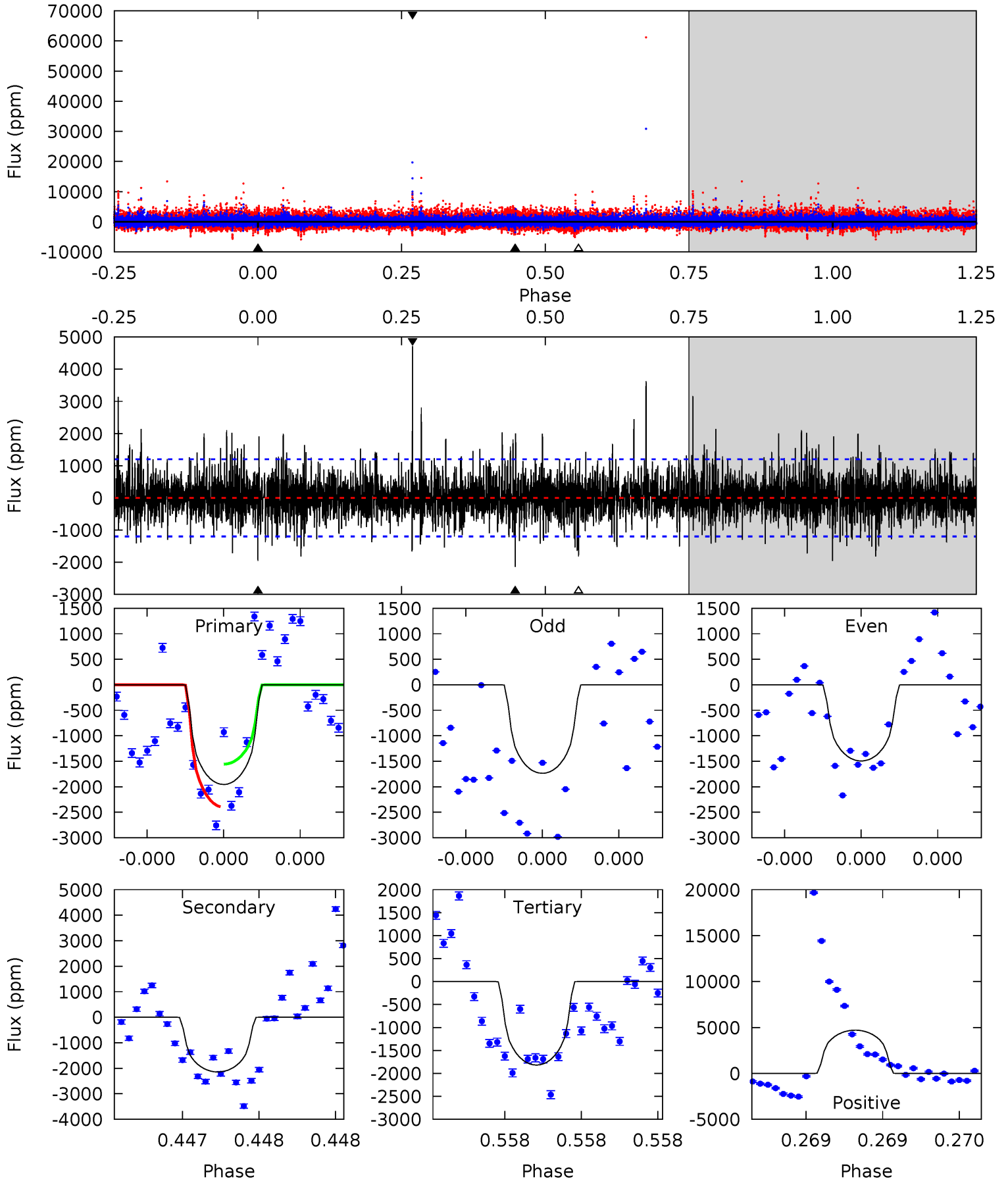
TCE 012599998-05 $P=526.048380$ Days $T_0=213.818560$ (BKJD)



DV Model-Shift Uniqueness Test

012599998-05, P = 526.046916 Days, E = 213.829971 Days

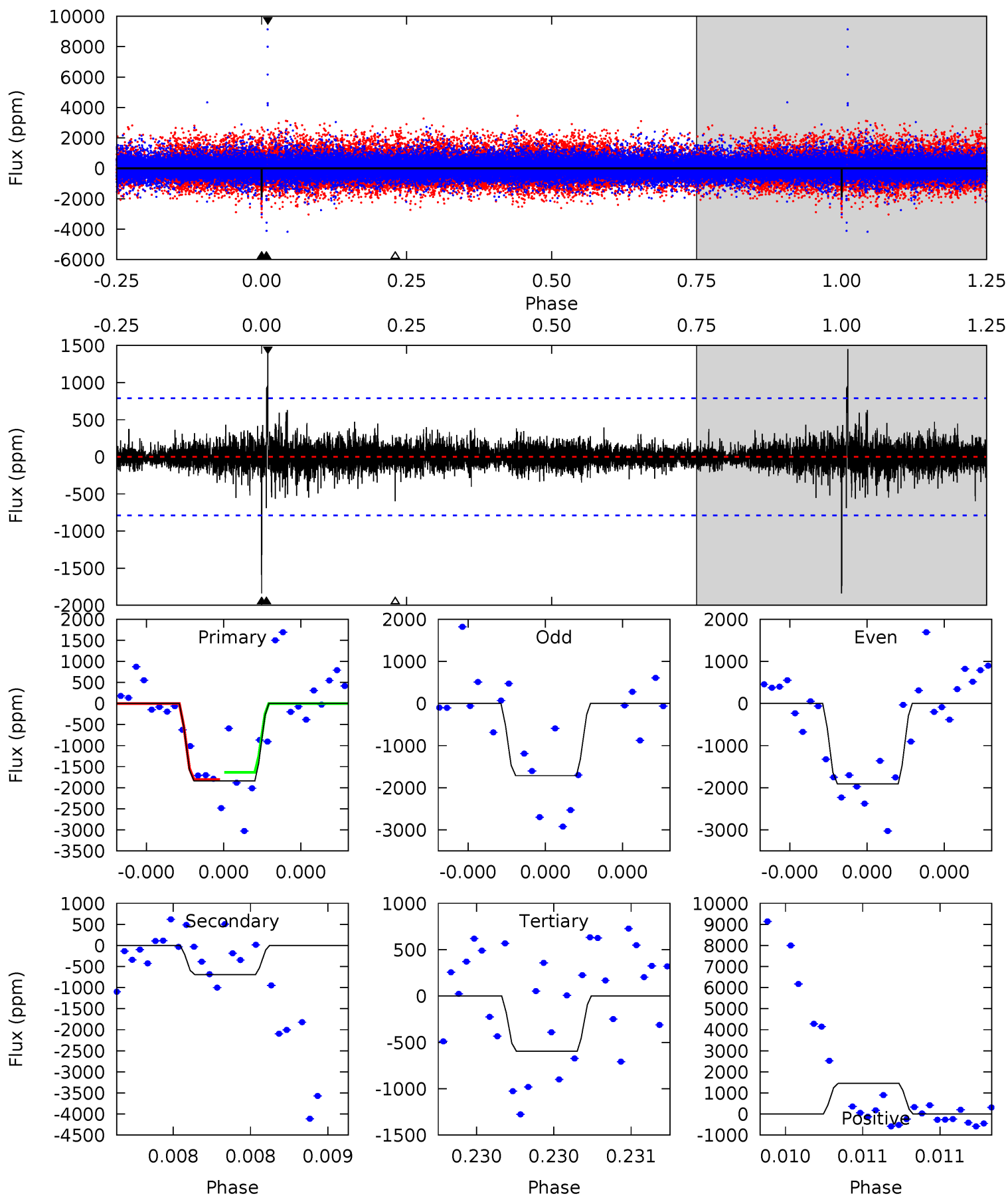
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
9.13	10.0	8.49	22.0	5.60	3.52	2.31	0.64	-12.8	1.52	-12.0	0.27	0.91	0.69	1.95



Alt Model-Shift Uniqueness Test

012599998-05, P = 526.048380 Days, E = 213.818560 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
13.2	4.96	4.27	10.4	5.66	3.62	0.76	8.94	2.80	0.69	-5.46	0.67	1.00	0.44	0.62



Stellar Parameters For KIC 012599998

	$T_{\text{eff}}(K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	4453^{+145}_{-145}	$4.576^{+0.056}_{-0.017}$	$0.260^{+0.150}_{-0.300}$	$0.724^{+0.029}_{-0.059}$	$0.719^{+0.046}_{-0.050}$	$2.672^{+0.625}_{-0.193}$
	+3%/-3%	+1%/-0%	+58%/-115%	+4%/-8%	+6%/-7%	+23%/-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 012599998-05 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-2144 ± 214	$4.65^{+4.03}_{-3.18}$	217^{+8}_{-8}	4056^{+2677}_{-744}	$72540^{+644686}_{-51234}$
Alt.	-691 ± 139	$4.69^{+3.68}_{-3.09}$	216^{+8}_{-8}	3341^{+1484}_{-520}	$22440^{+156668}_{-15618}$

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

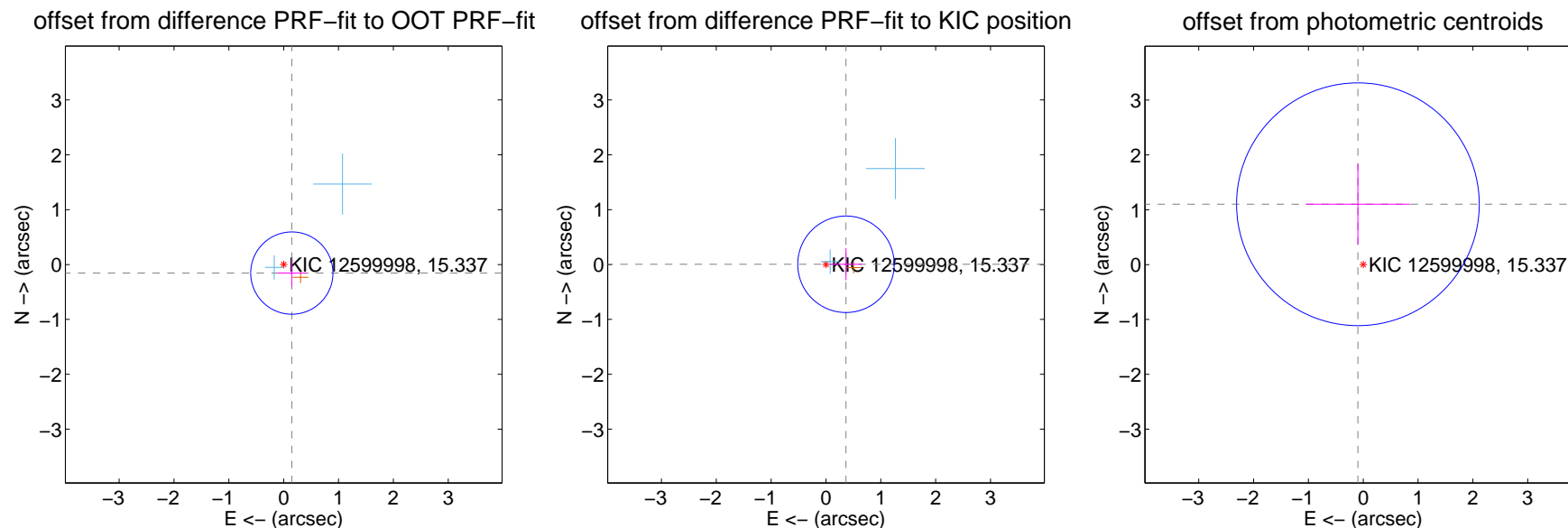
DV Centroid Data

Supplemental centroid analysis for 012599998-05. Kepler magnitude: 15.34. Transit SNR 7.37

There are 2 quarters with good PRF difference image offsets

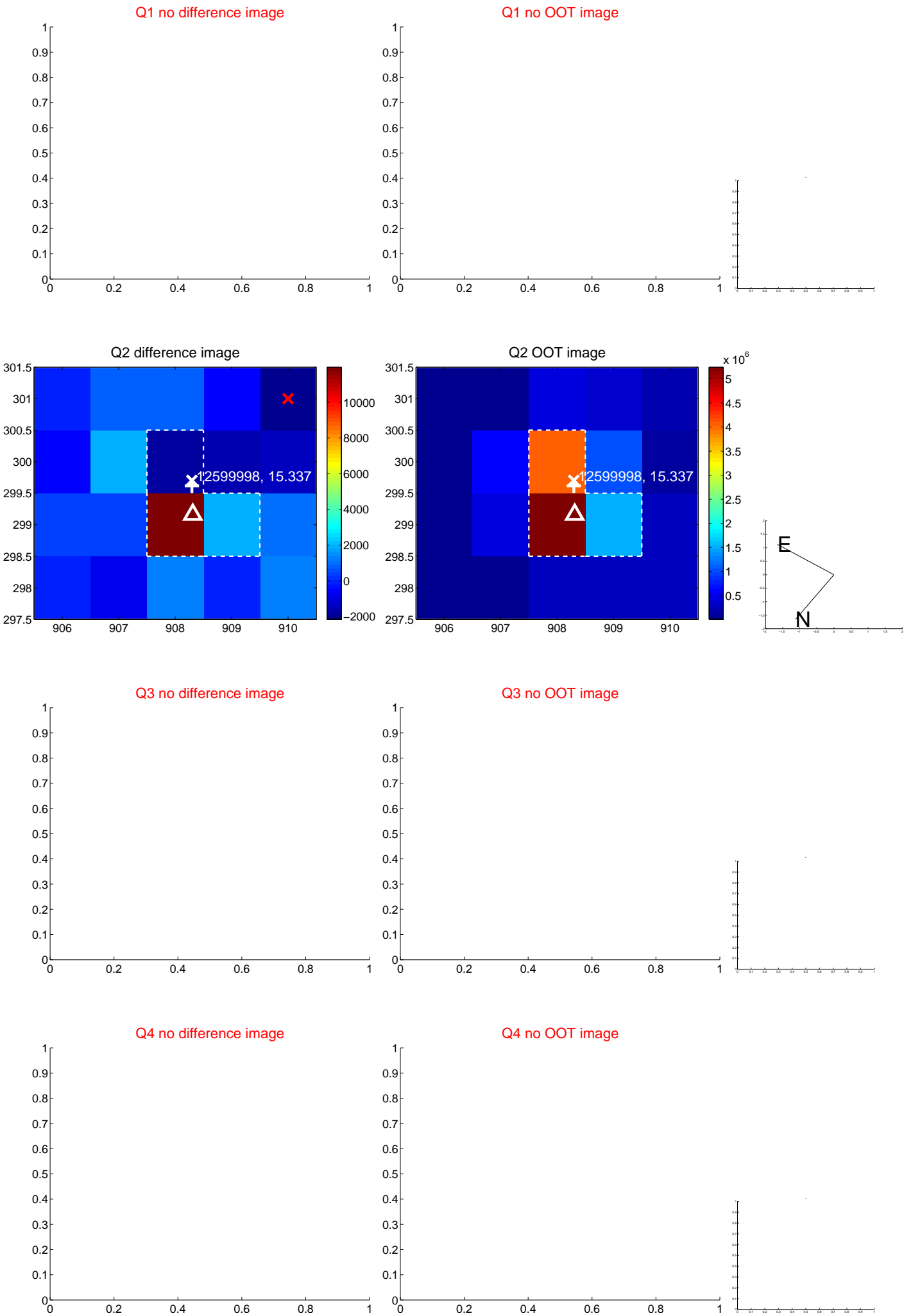
The direct PRF centroid is offset from the target star catalog position by about 0.26 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.215 ± 0.250	0.86	-0.149 ± 0.260	-0.156 ± 0.240
PRF-fit source offset from KIC position	0.365 ± 0.293	1.24	-0.365 ± 0.290	0.005 ± 0.291
photometric centroid source offset	1.10 ± 0.74	1.50	0.10 ± 0.95	1.10 ± 0.74

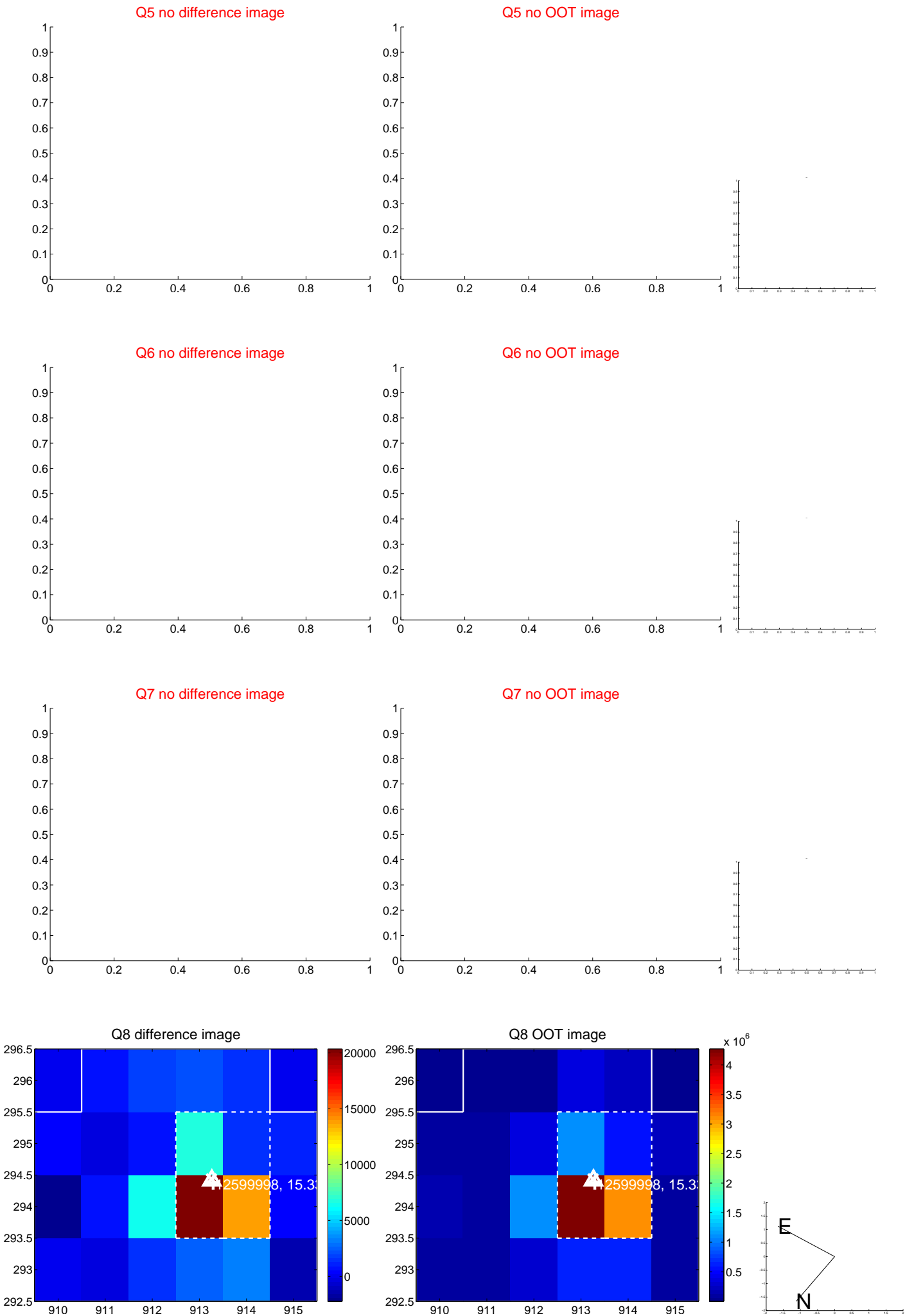


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ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



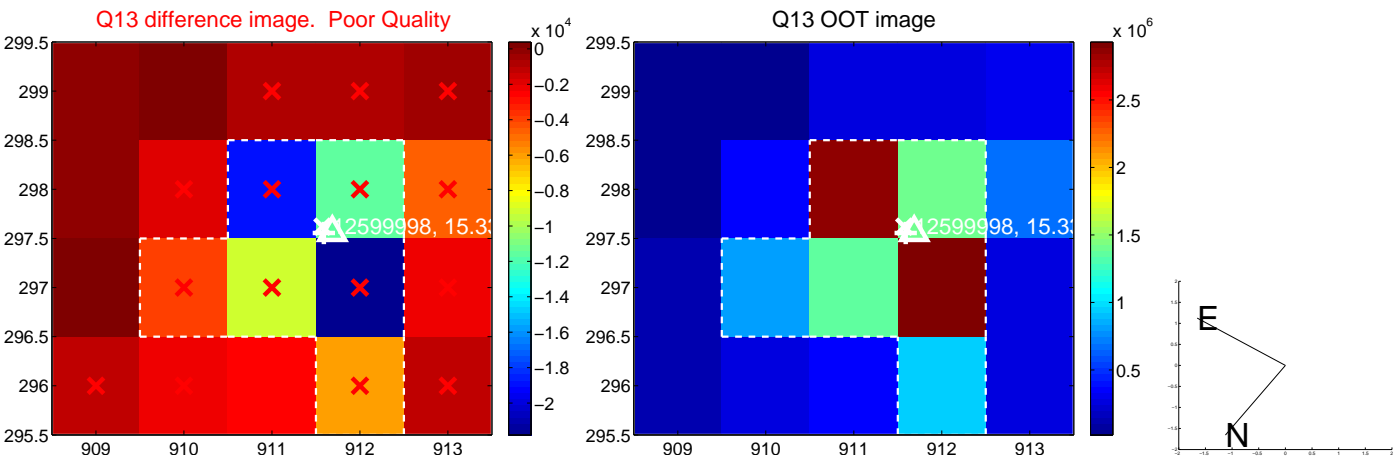
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



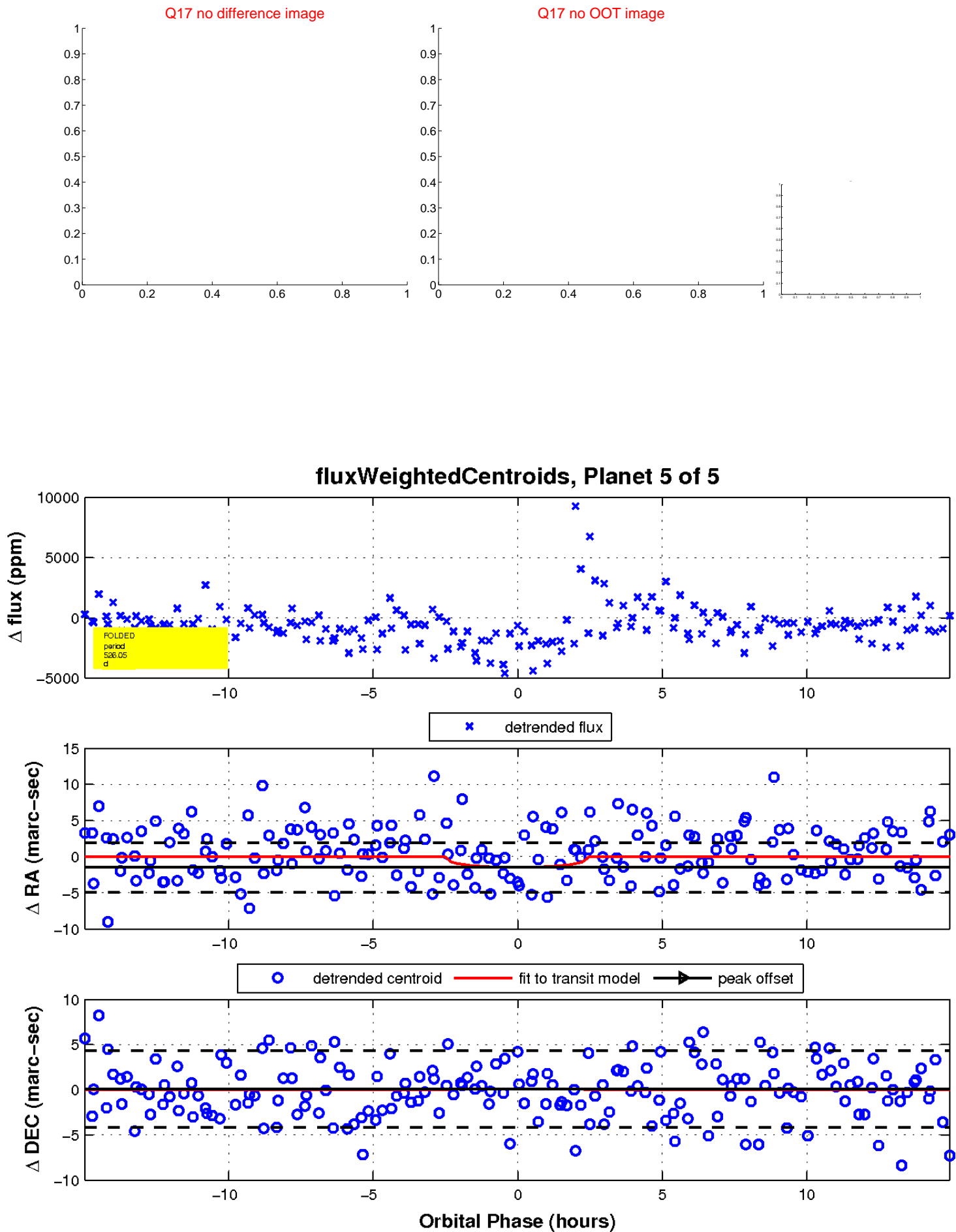
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

