

KIC 009598005

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})
009598005-01	OBS	No	558.145805	216.661507	2268.2	3.210	12.7	7.7	0.77	5432	3.95	0.33
009598005-02	OBS	No	290.186338	356.659045	1615.7	5.979	14.2	6.6	0.77	5432	3.27	0.79
009598005-03	OBS	No	436.000576	526.976229	2679.5	6.332	11.8	6.9	0.77	5432	4.90	0.46
009598005-04	OBS	No	292.745447	398.263564	2205.5	2.238	10.5	7.3	0.77	5432	3.84	0.78
009598005-05	OBS	No	328.053178	243.044554	2069.4	3.000	10.9	-1.0	0.77	5432	3.46	0.67

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
009598005-01	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_POS_ALT—CENT_FEW_DIFFS
009598005-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—INCONSISTENT_TRANS
009598005-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—CENT_FEW_DIFFS
009598005-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_FEW_DIFFS
009598005-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—LPP_DV—ALL_TRANS_CHASES—INCONSISTENT_TRANS—CENT_NOFITS

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

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

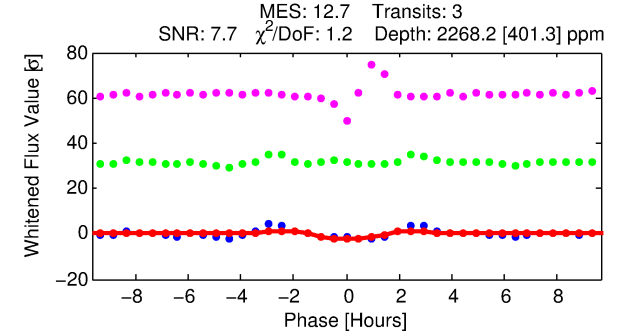
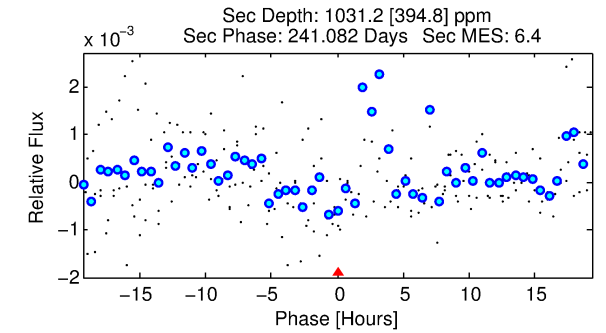
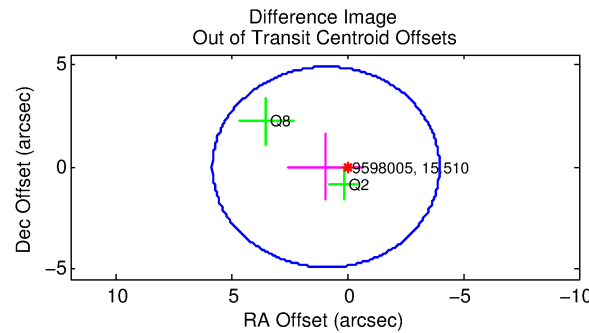
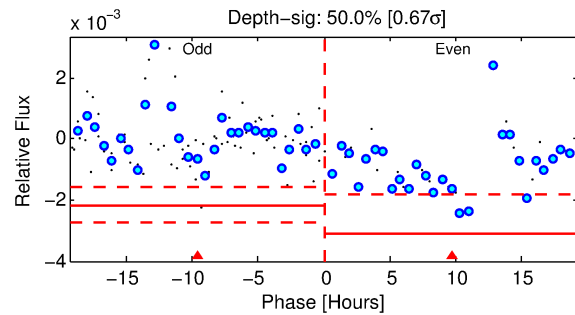
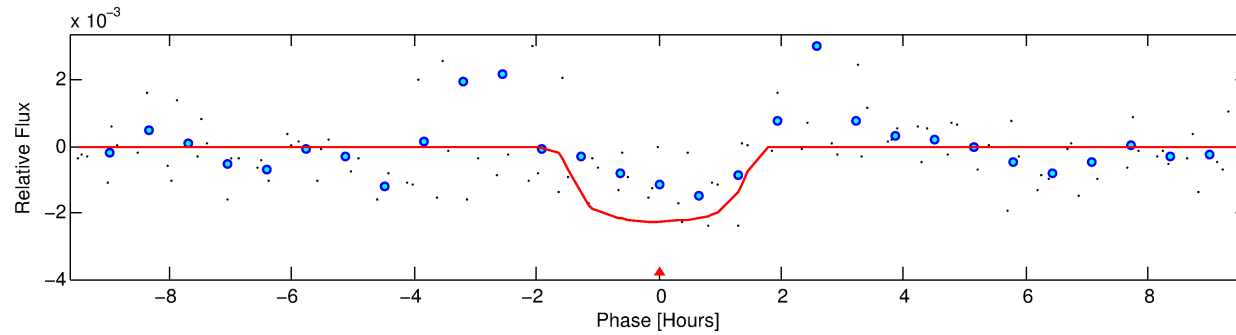
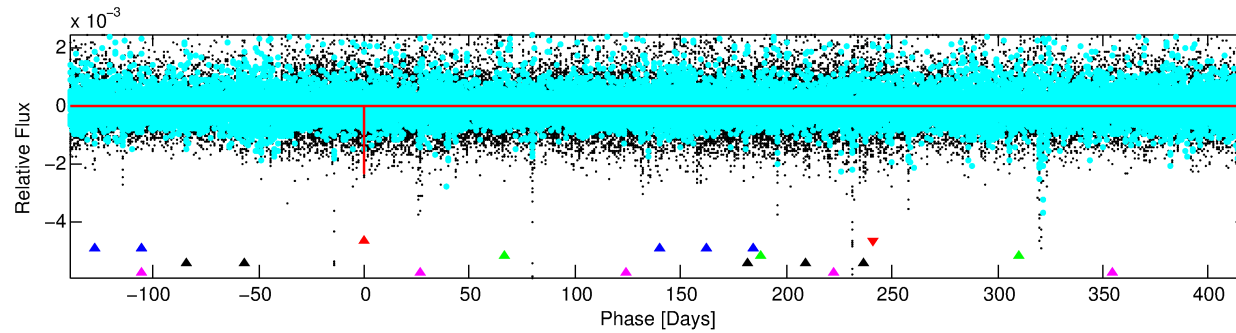
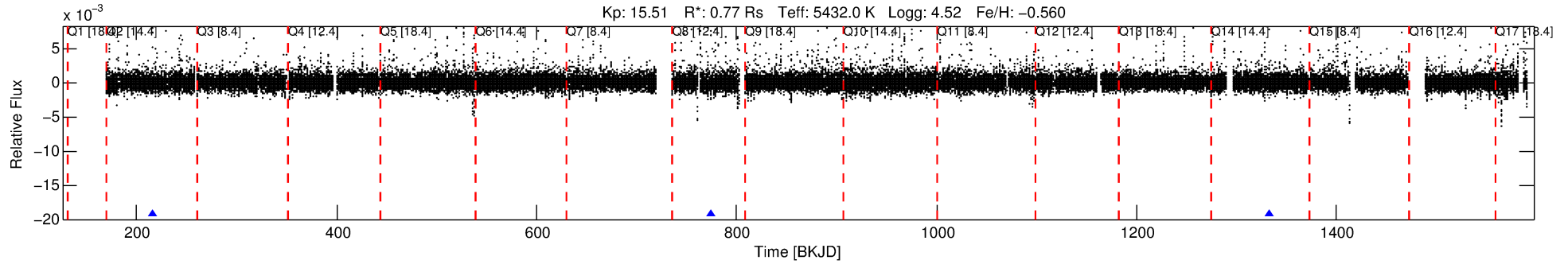
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 009598005-01

No Significant Match Found

DV One-Page Summary

KIC: 9598005 Candidate: 1 of 5 Period: 558.146 d



DV Fit Results:

Period = 558.14580 [0.00556] d
Epoch = 216.6615 [0.0081] BKJD
Rp/R* = 0.0471 [0.0391]
a/R* = 998.03 [3451.46]
b = 0.73 [2.26]
Seff = 0.33 [0.08]
Teq = 193 [11] K
Rp = 3.95 [3.32] Re
a = 1.1825 [0.1445] AU
Ag = 50812.81 [87059.08] [0.58 σ]
Teffp = 4486 [1916] K [2.24 σ]

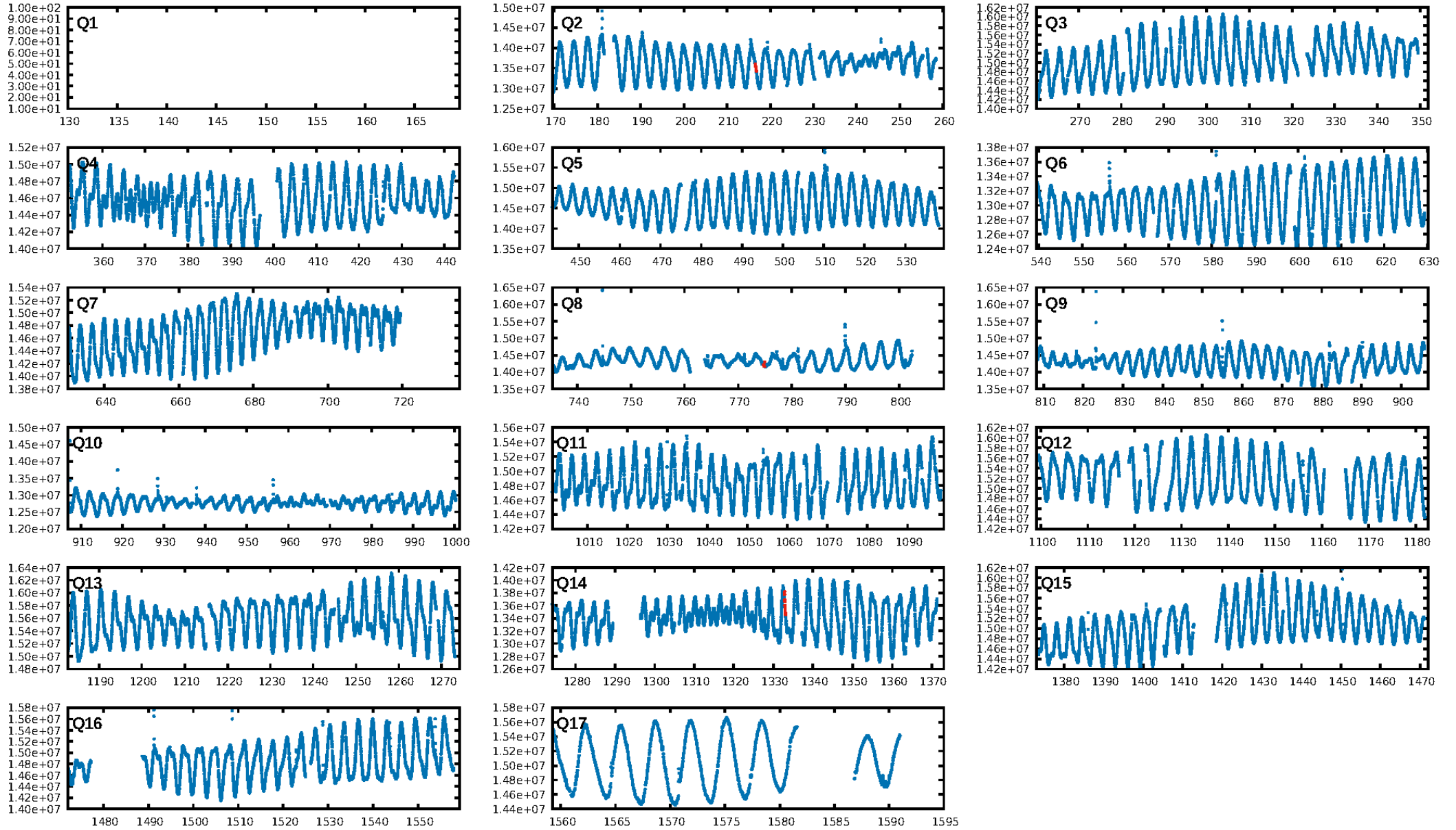
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [412.92 σ]
LongPeriod-sig: N/A
ModelChiSquare2-sig: 0.3%
ModelChiSquareGof-sig: 47.1%
Bootstrap-pfa: N/A
RollingBand-fgt: 1.00 [3/3]
GhostDiagnostic-chr: -5.154
Centroid-sig: 31.4%
Centroid-so: 1.211 arcsec [1.06 σ]
OotOffset-rm: 0.943 arcsec [0.58 σ]
OotOffset-st: 1/0/1/0 [2]
KicOffset-rm: 1.021 arcsec [0.63 σ]
KicOffset-st: 1/0/1/0 [2]
DiffImageQuality-fgm: 0.00 [0/2]
DiffImageOverlap-fno: 1.00 [3/3]

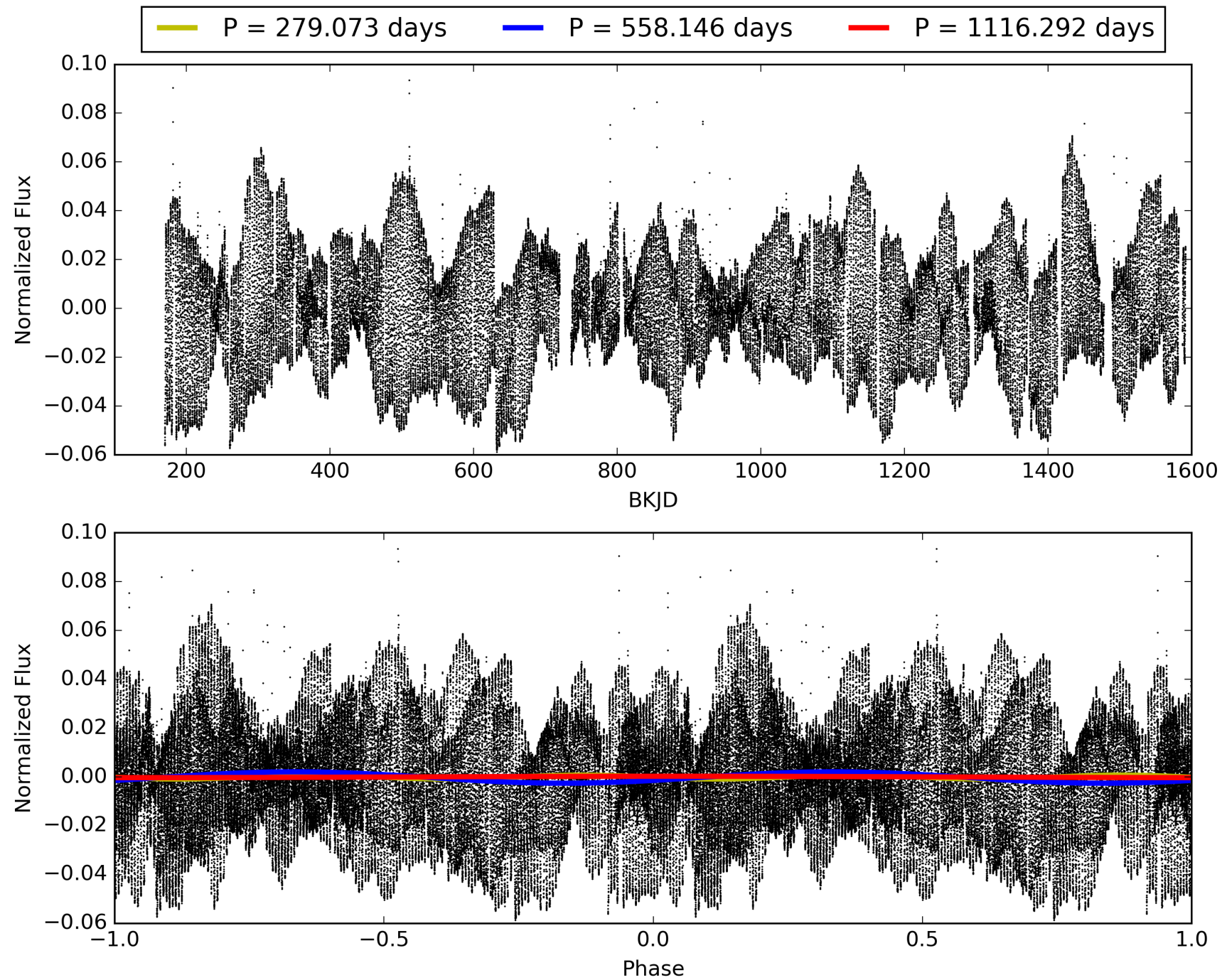
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 03-Feb-2016 07:57:49 Z

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

TCE 009598005-01, PDC Light Curves

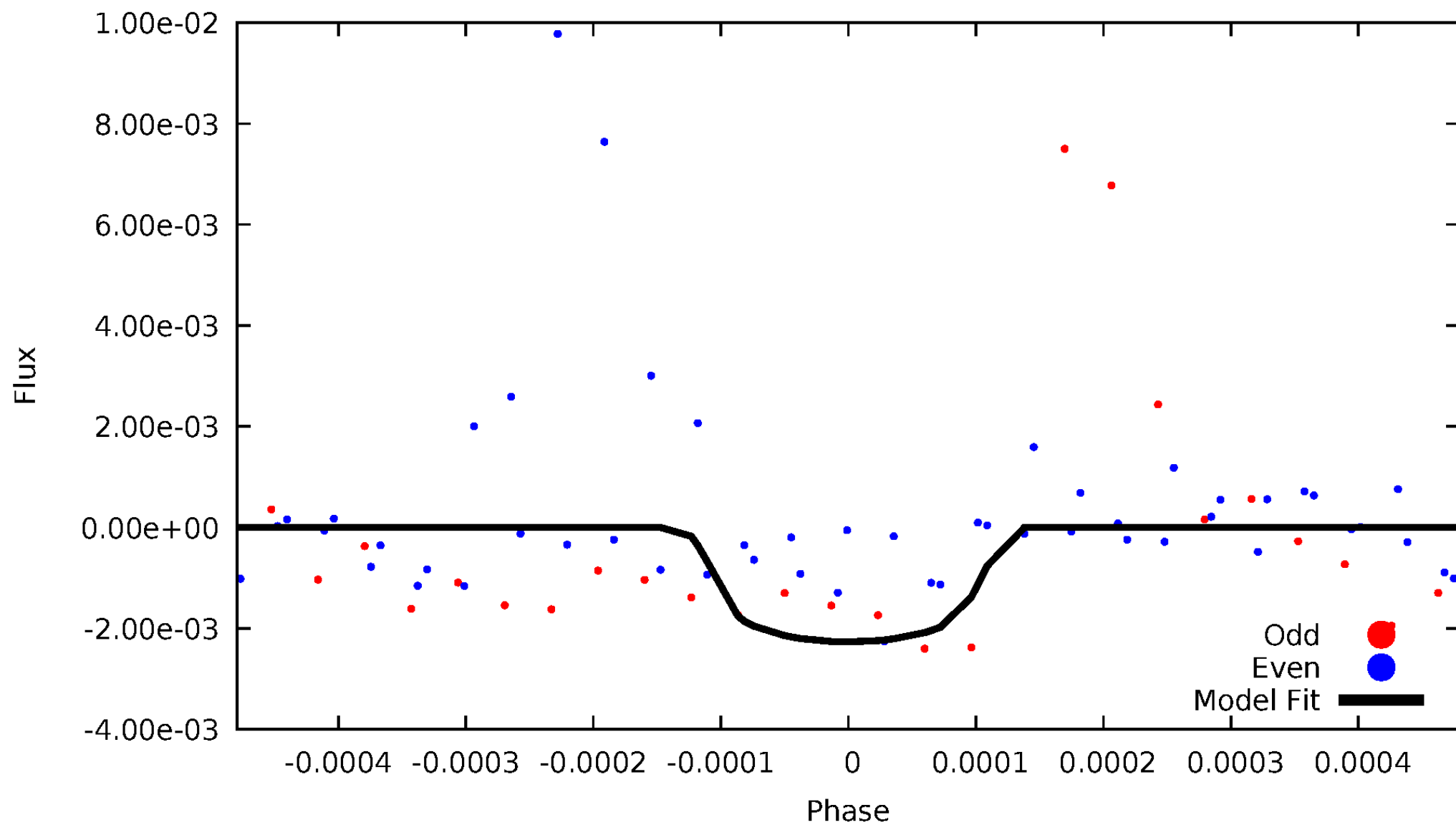


TCE 009598005-01



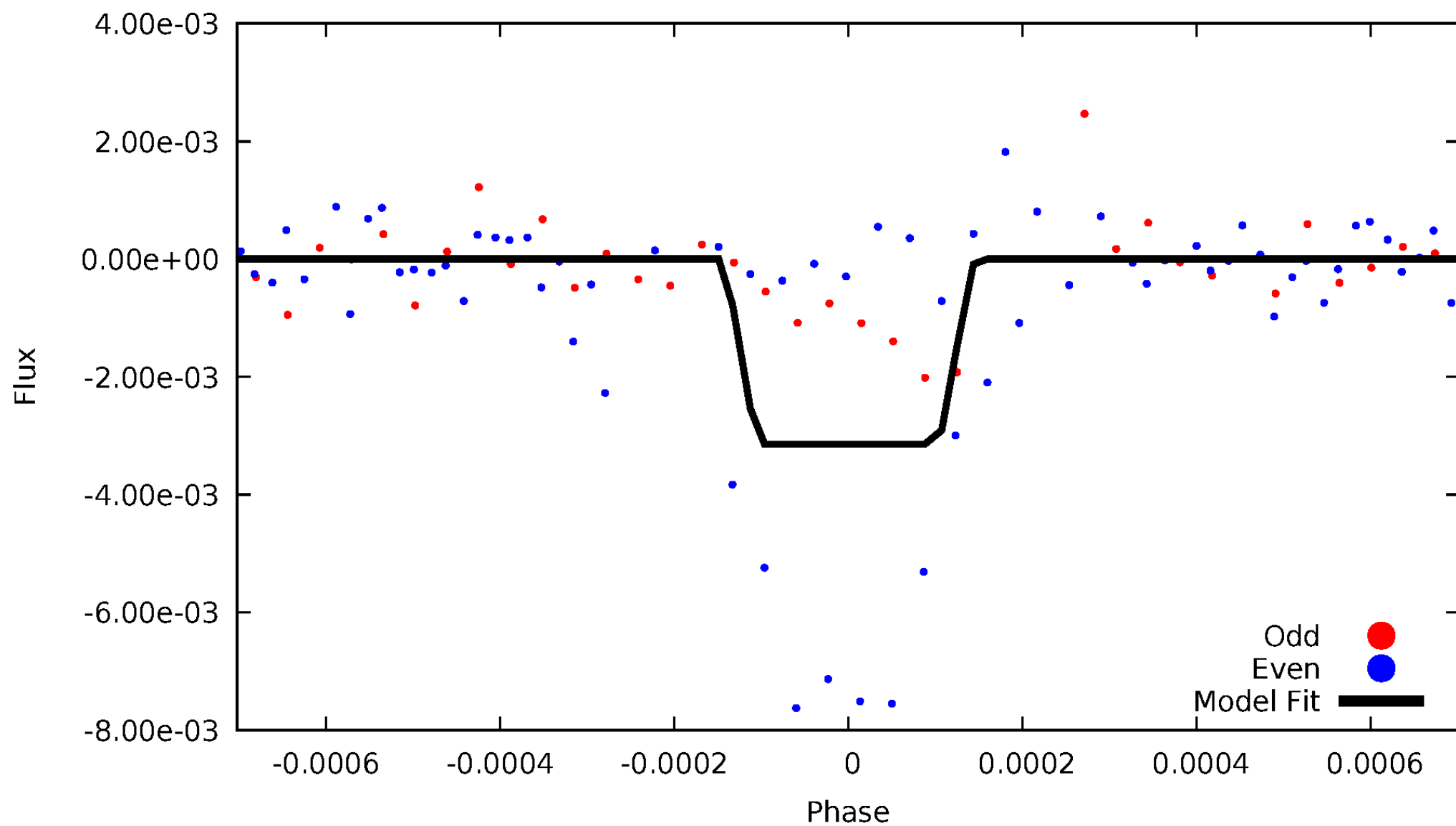
DV Odd/Even

TCE 009598005-01



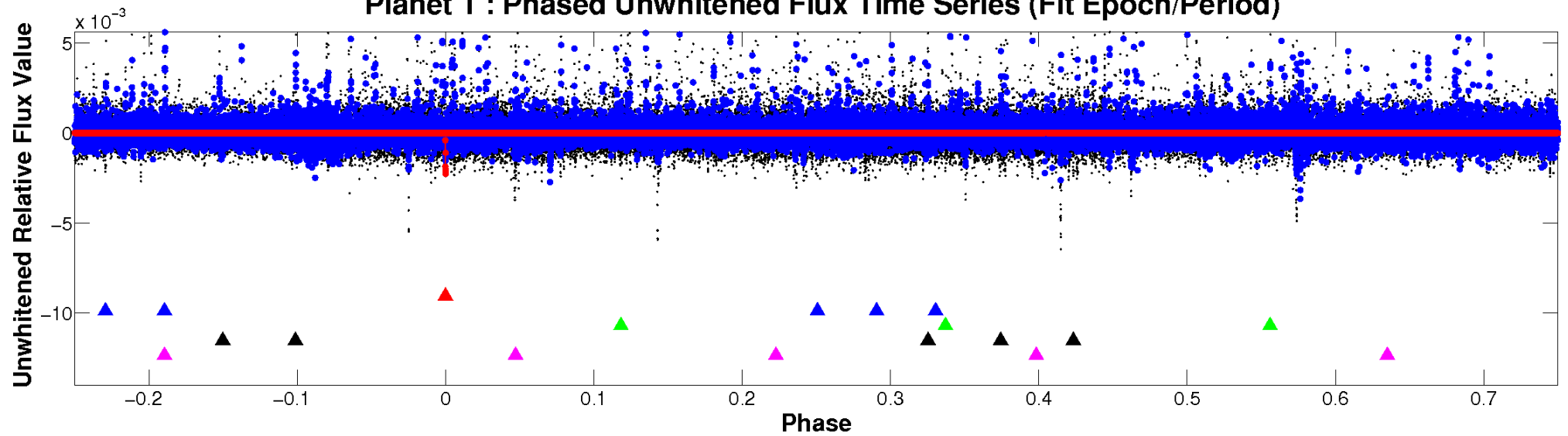
ALT Odd/Even

TCE 009598005-01

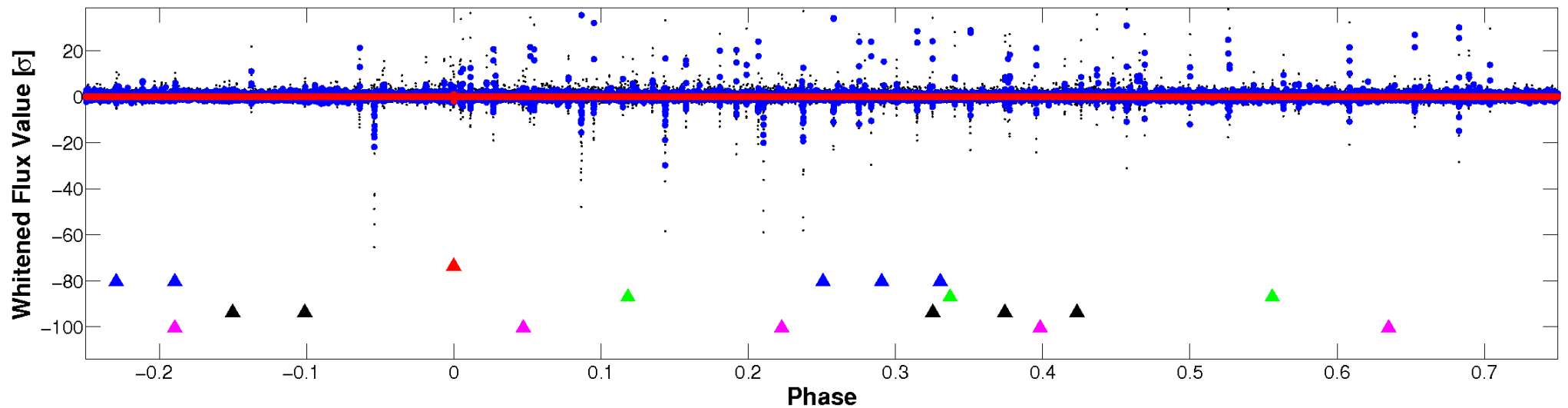


Non-Whitened Vs. Whitened Light Curve

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

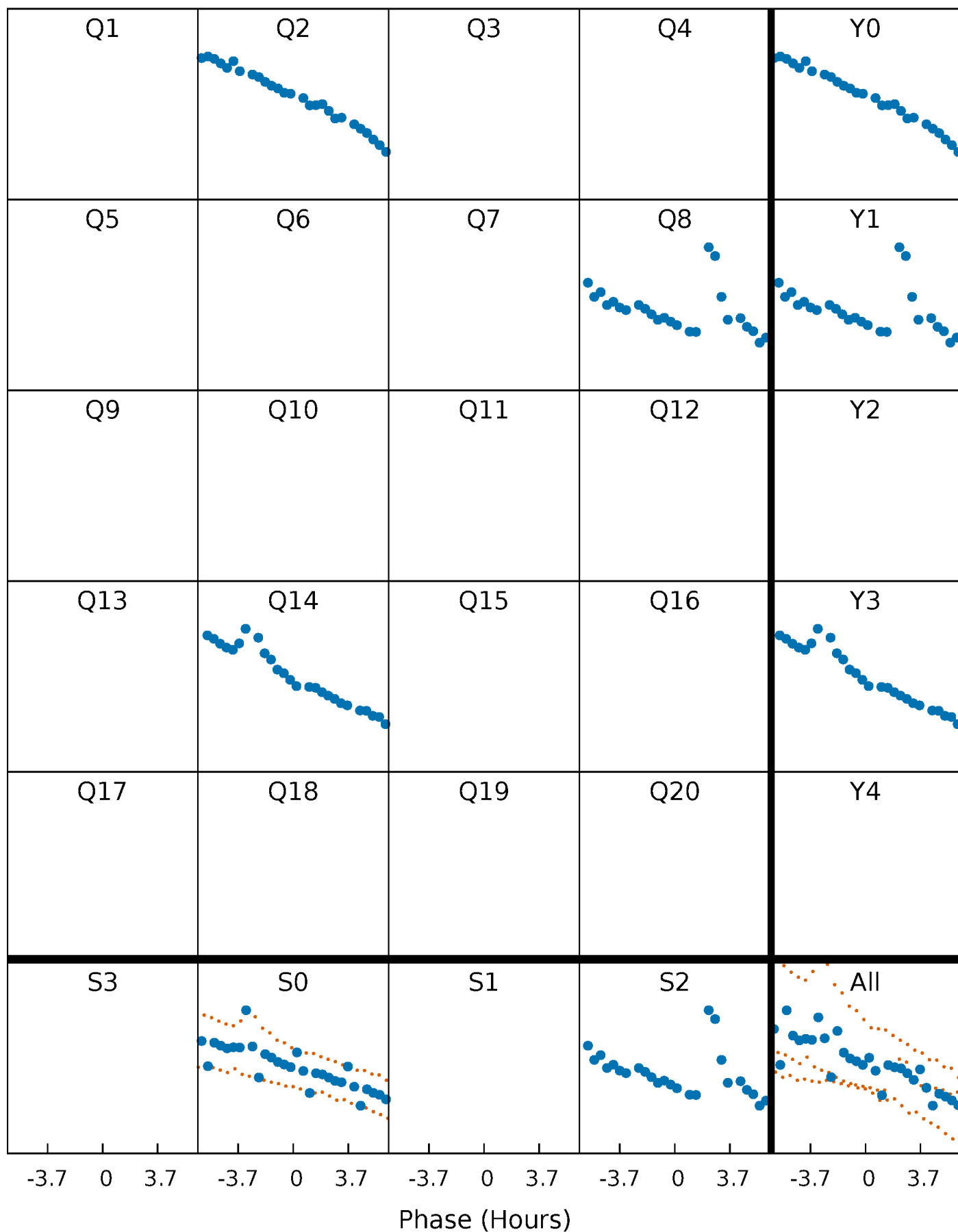


Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)



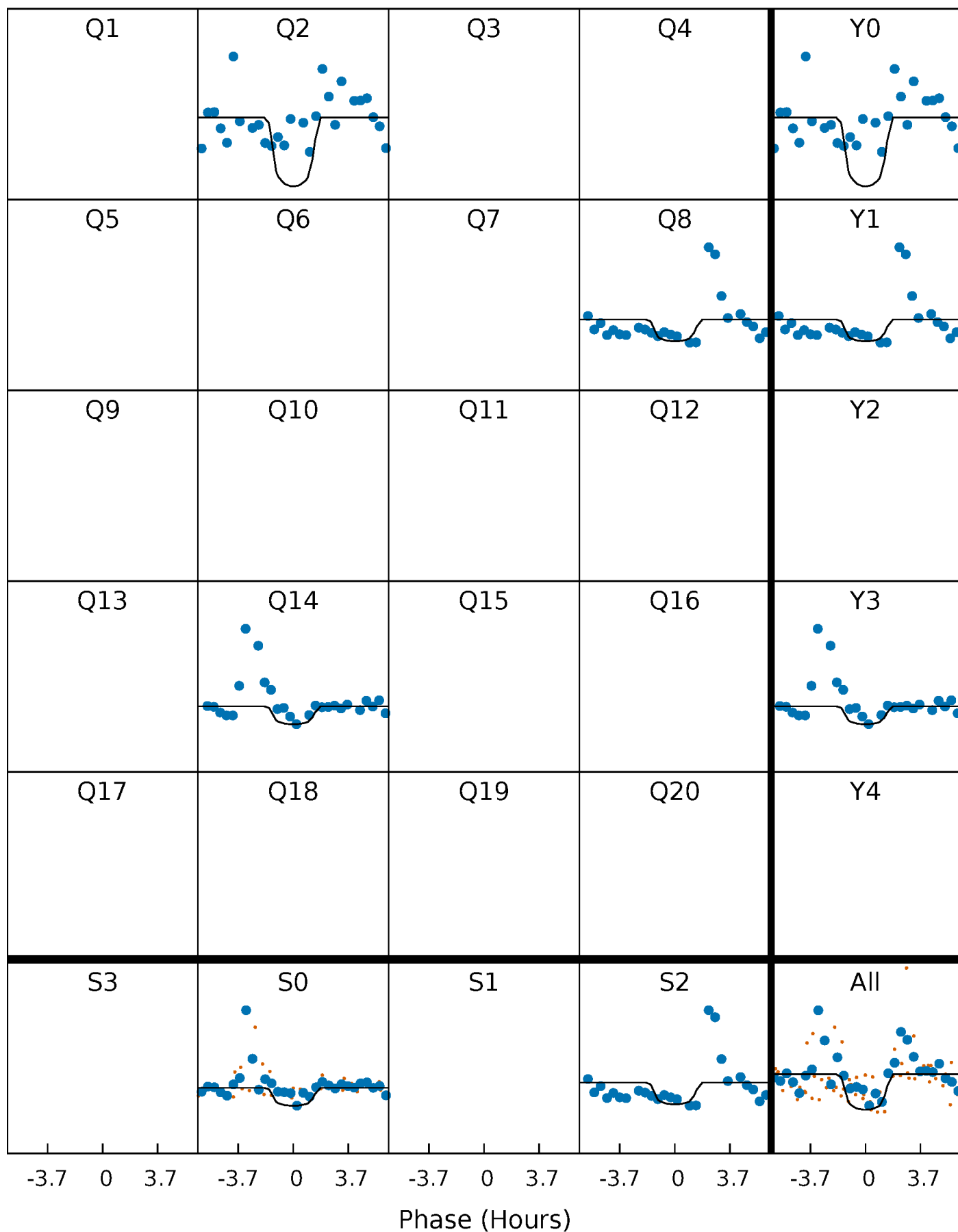
PDC Quarter-Phased Transit Curves

TCE 009598005-01 P=558.145805 Days $T_0=216.661507$ (BKJD)



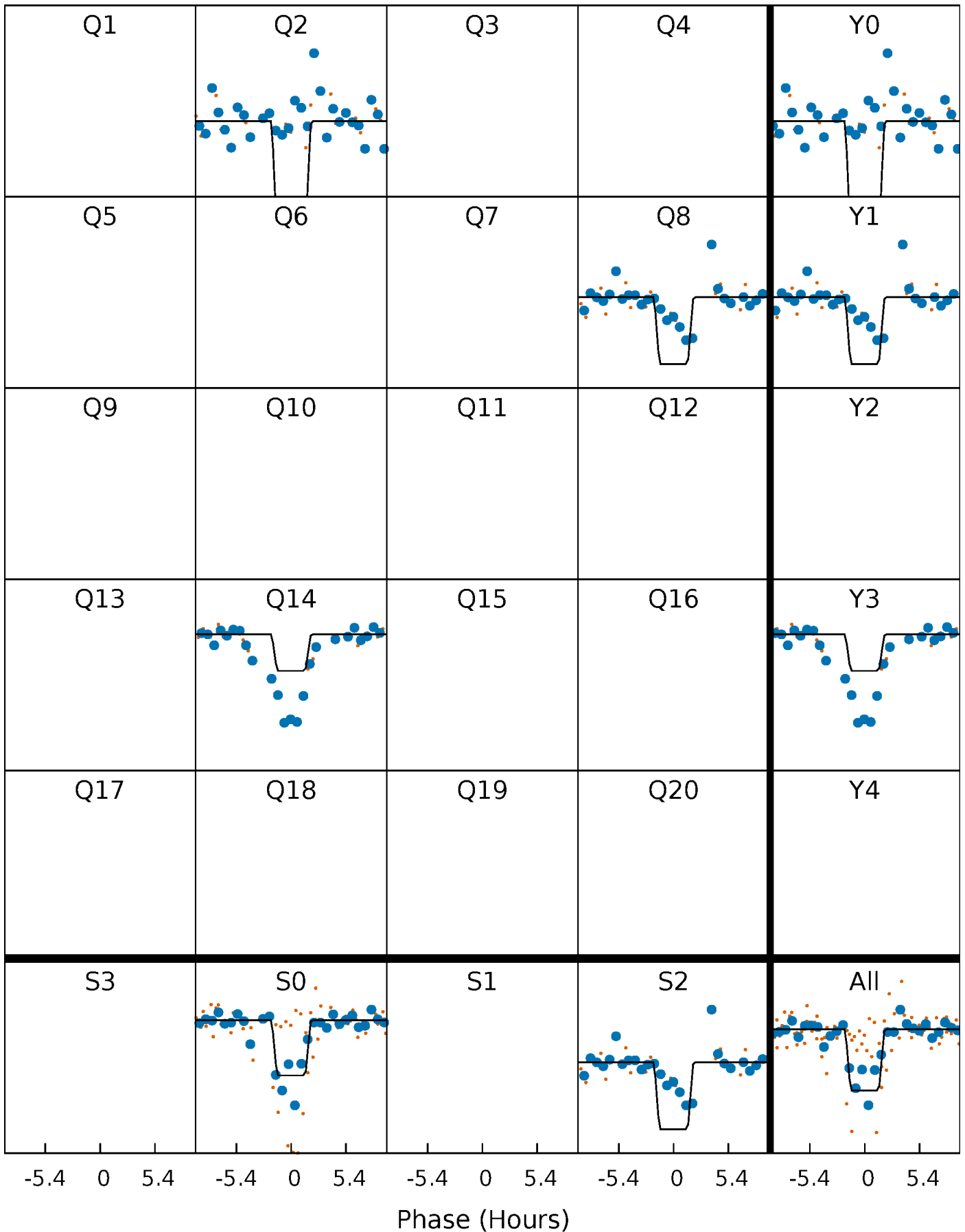
DV Quarter-Phased Transit Curves

TCE 009598005-01 P=558.145805 Days $T_0=216.661507$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

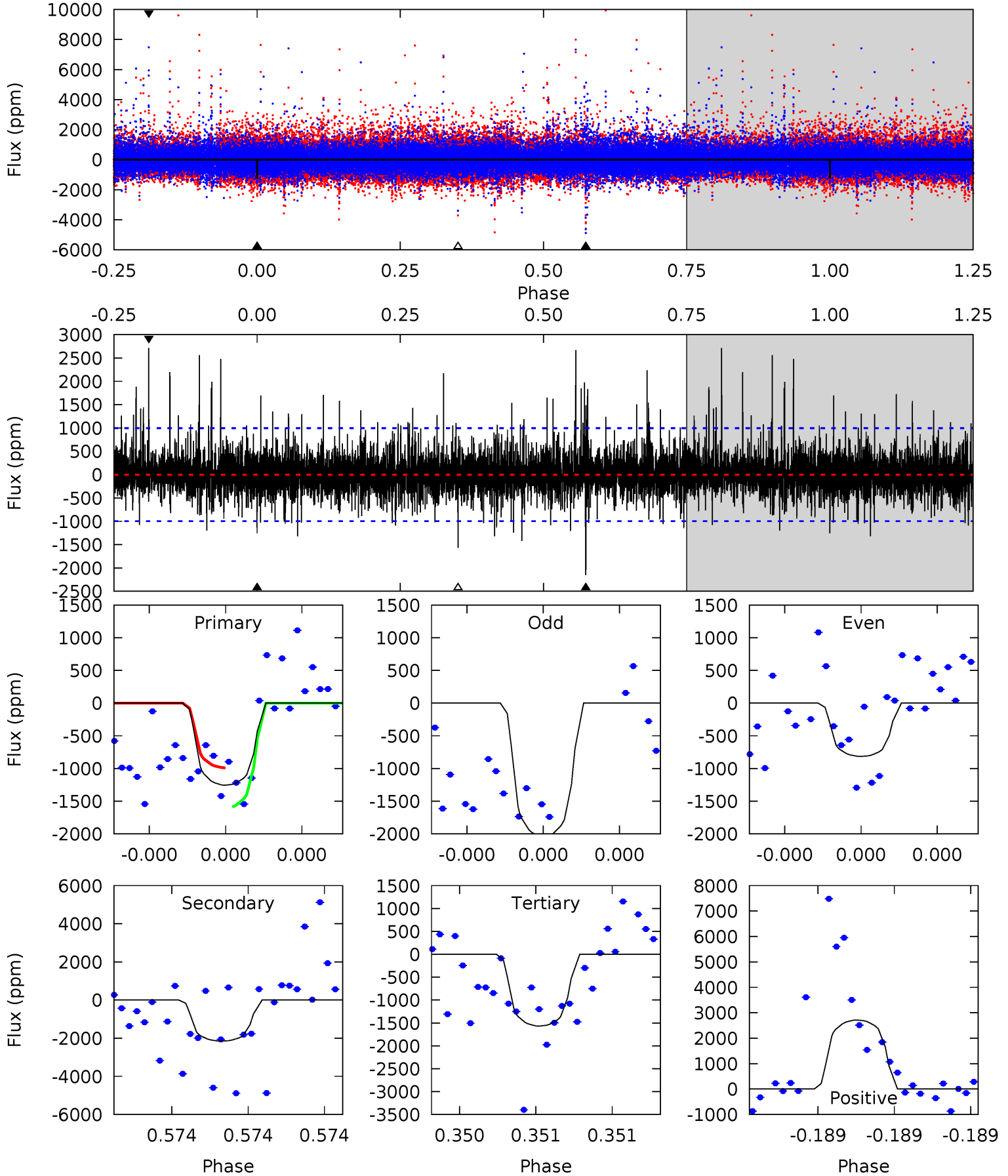
TCE 009598005-01 P=558.149503 Days $T_0=216.642030$ (BKJD)



DV Model-Shift Uniqueness Test

009598005-01, P = 558.145805 Days, E = 216.661507 Days

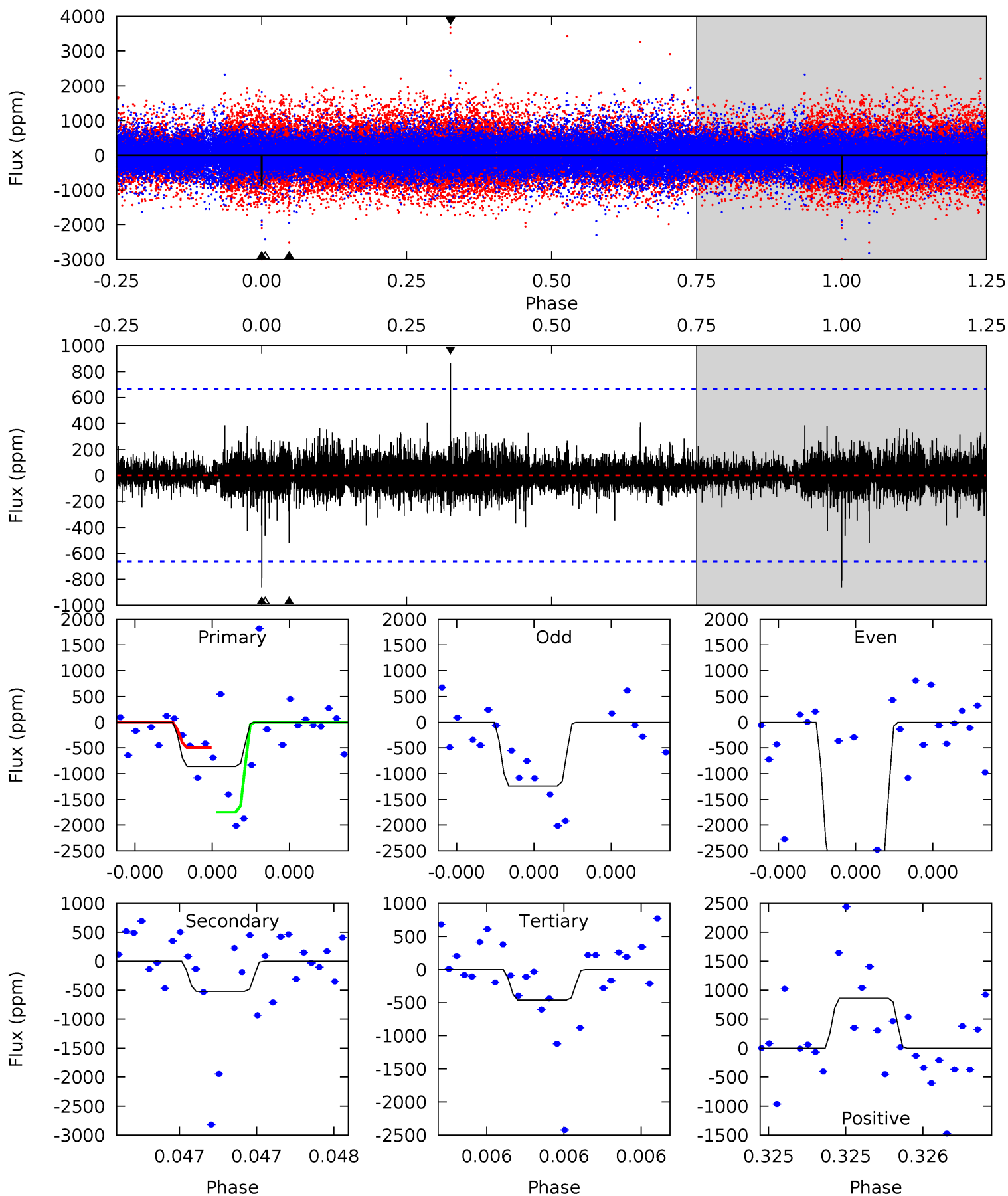
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
7.17	12.3	8.95	15.5	5.69	3.65	1.97	-1.78	-8.33	3.33	-3.22	1.27	1.23	0.56	1.70



Alt Model-Shift Uniqueness Test

009598005-01, P = 558.149503 Days, E = 216.642030 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
7.34	4.44	3.95	7.35	5.67	3.62	0.64	3.39	-0.02	0.49	-2.92	6.71	2.18	0.50	5.20



Stellar Parameters For KIC 009598005

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	$M(M_{\odot})$	p_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	5432^{+179}_{-163}	$4.516^{+0.105}_{-0.095}$	$-0.560^{+0.350}_{-0.300}$	$0.769^{+0.106}_{-0.106}$	$0.708^{+0.096}_{-0.037}$	$2.190^{+0.980}_{-0.621}$
	+3%/-3%	+2%/-2%	+62%/-54%	+14%/-14%	+14%/-5%	+45%/-28%
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 009598005-01 / KOI

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	-2153 ± 175	$4.38^{+3.31}_{-2.58}$	270^{+12}_{-13}	5210^{+3004}_{-1067}	$88412^{+438478}_{-60209}$
Alt.	-520 ± 117	$5.10^{+3.21}_{-2.64}$	270^{+13}_{-13}	3698^{+1200}_{-509}	15134^{+55488}_{-9342}

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 $A_{obs} \gg 1.0$

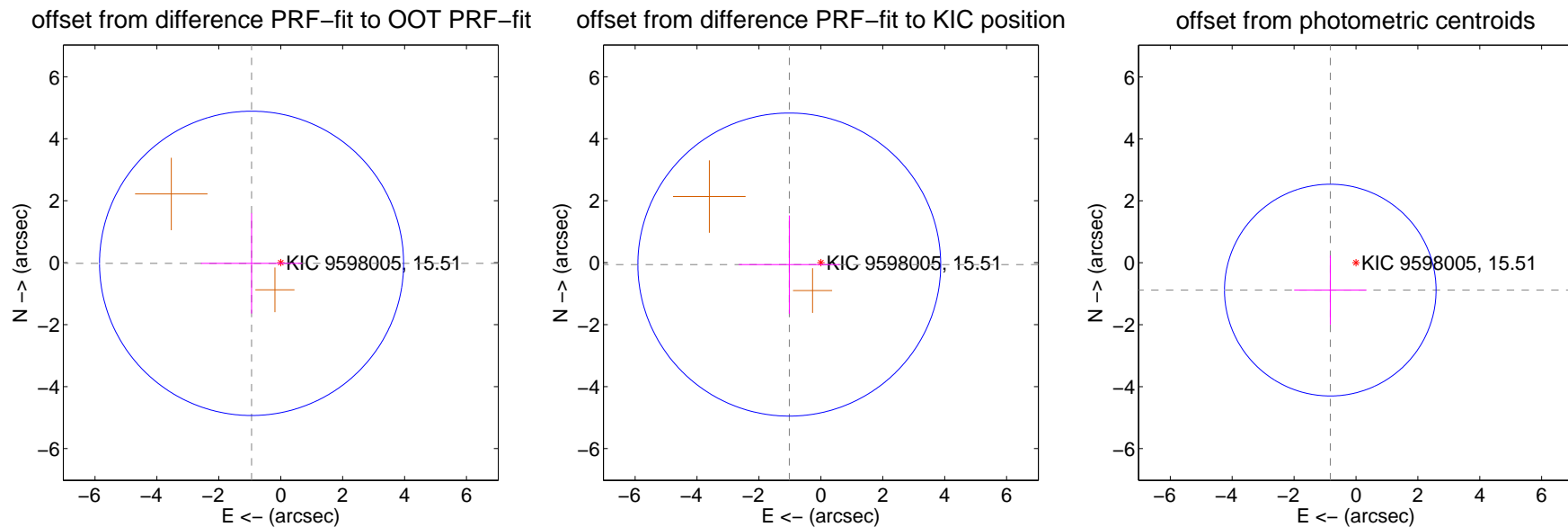
DV Centroid Data

Supplemental centroid analysis for 009598005-01. Kepler magnitude: 15.51. Transit SNR 7.65

There are 0 quarters with good PRF difference image offsets

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

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.943 ± 1.637	0.58	0.943 ± 1.637	-0.021 ± 1.618
PRF-fit source offset from KIC position	1.021 ± 1.630	0.63	1.020 ± 1.630	-0.061 ± 1.587
photometric centroid source offset	1.21 ± 1.14	1.06	0.83 ± 1.17	-0.88 ± 1.11



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

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

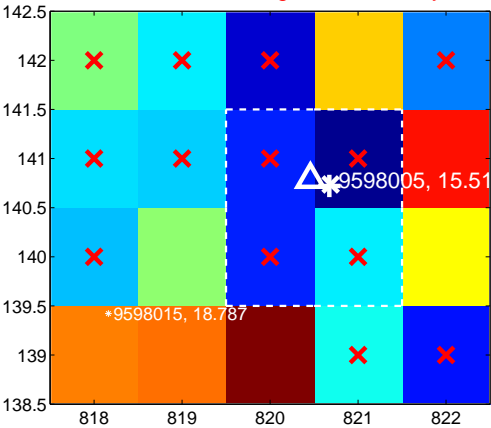
Q1 no difference image



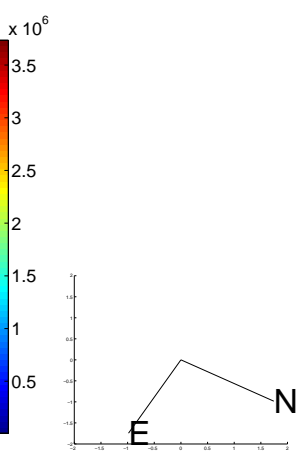
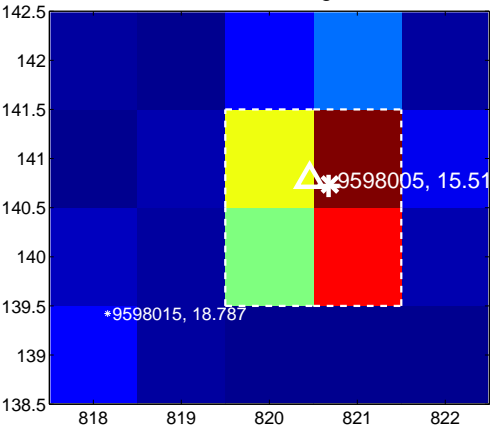
Q1 no OOT image



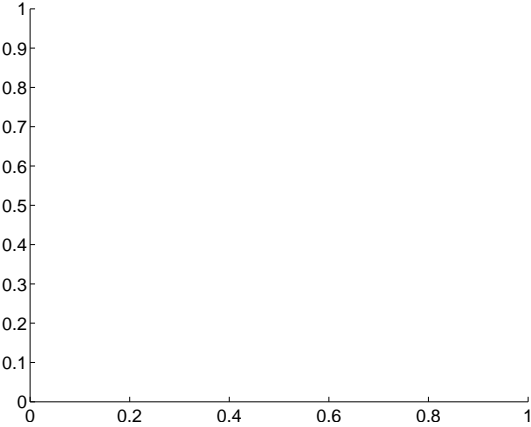
Q2 difference image. Poor Quality



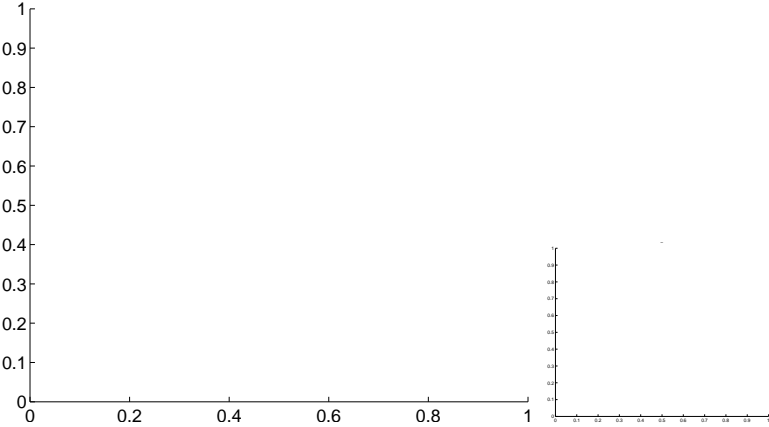
Q2 OOT image



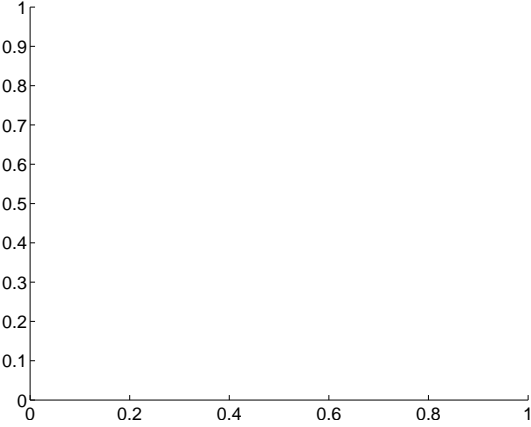
Q3 no difference image



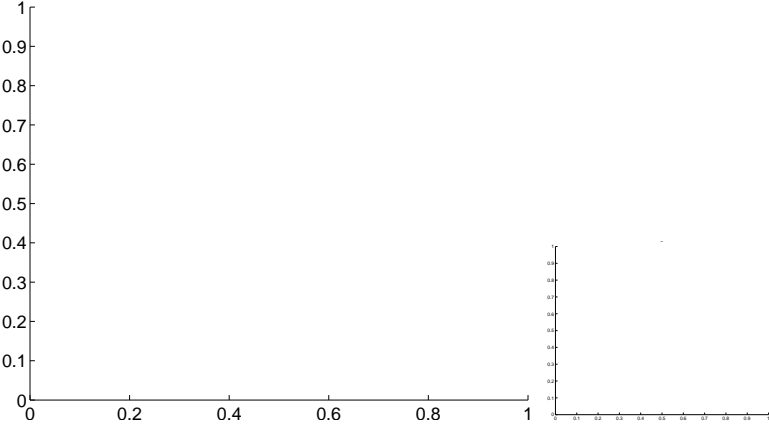
Q3 no OOT image



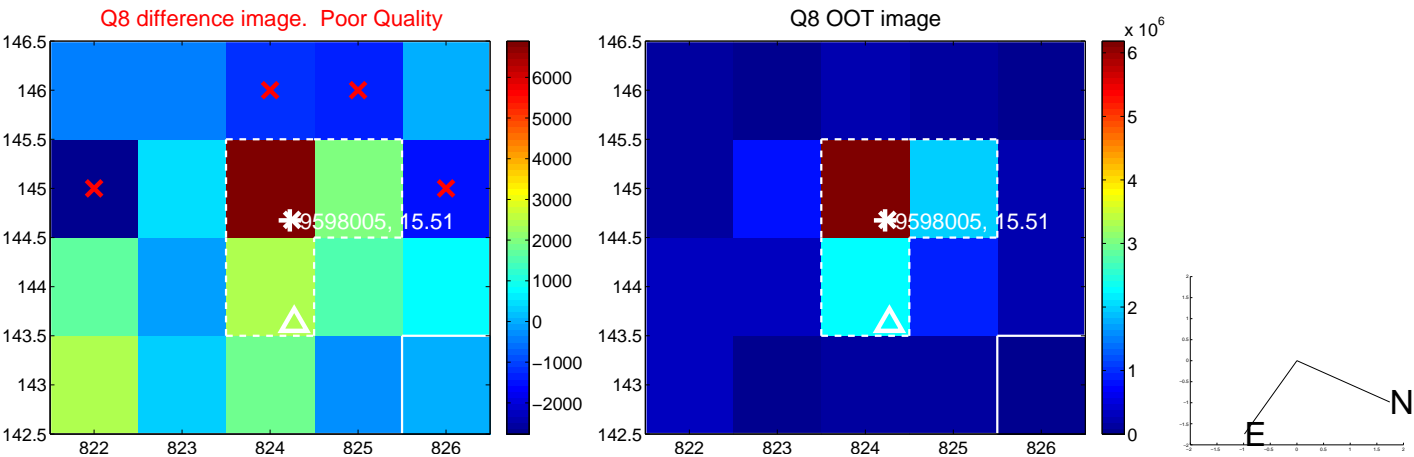
Q4 no difference image



Q4 no OOT image



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



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



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

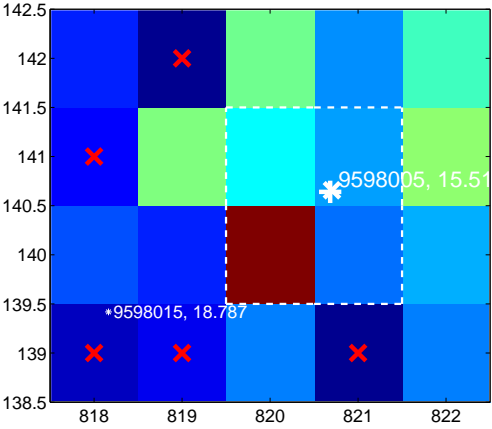
Q13 no difference image



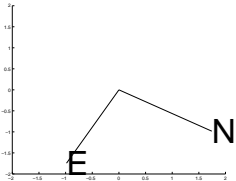
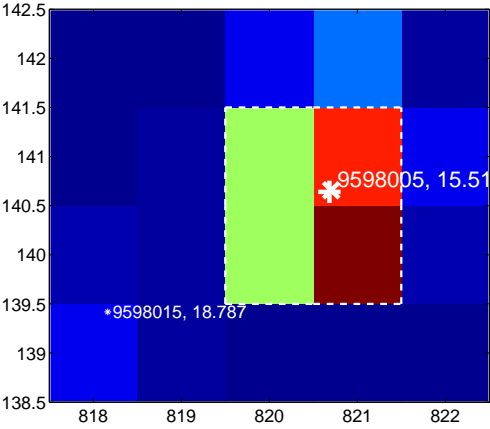
Q13 no OOT image



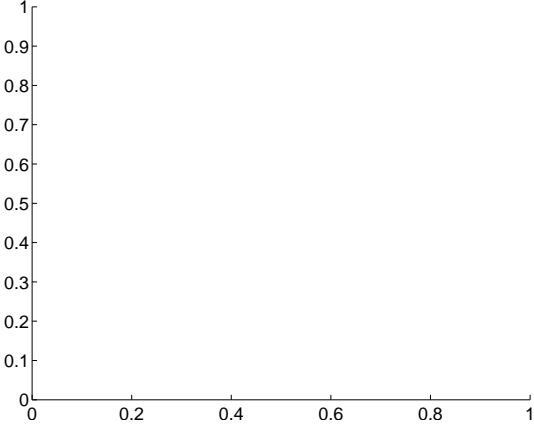
Q14 difference image. Poor Quality



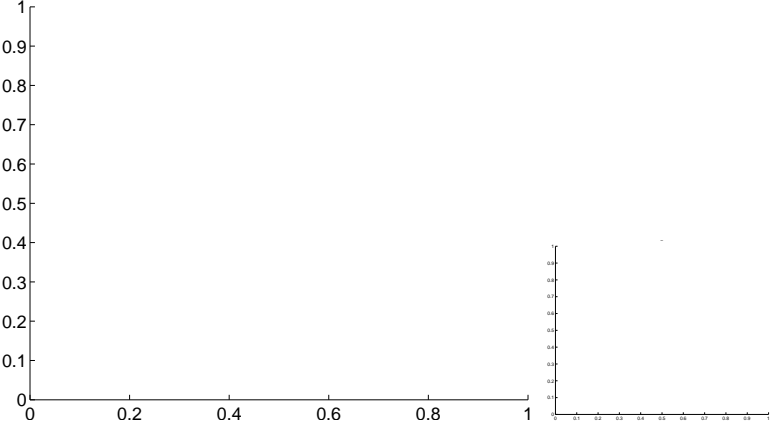
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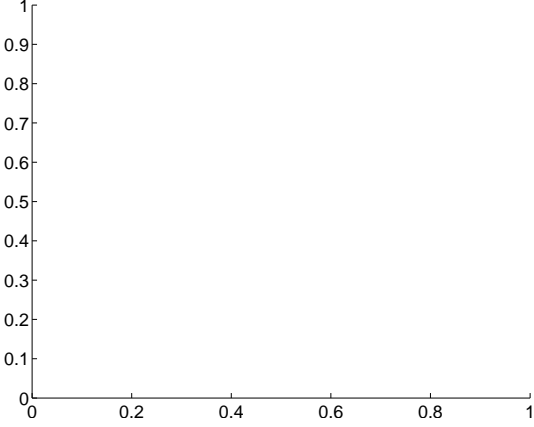
Q15 no difference image



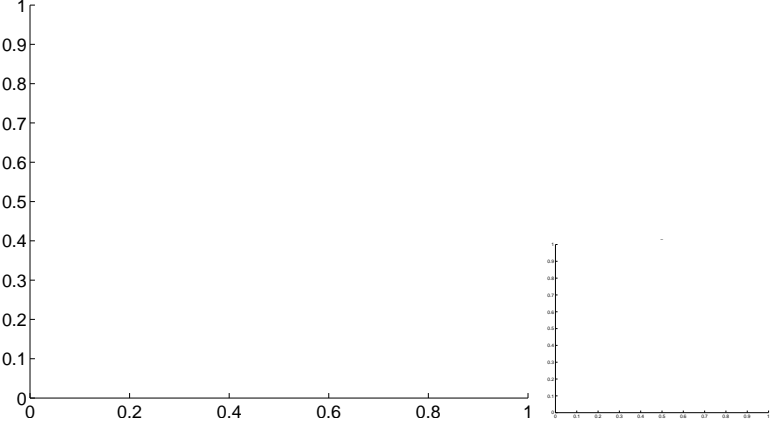
Q15 no OOT image



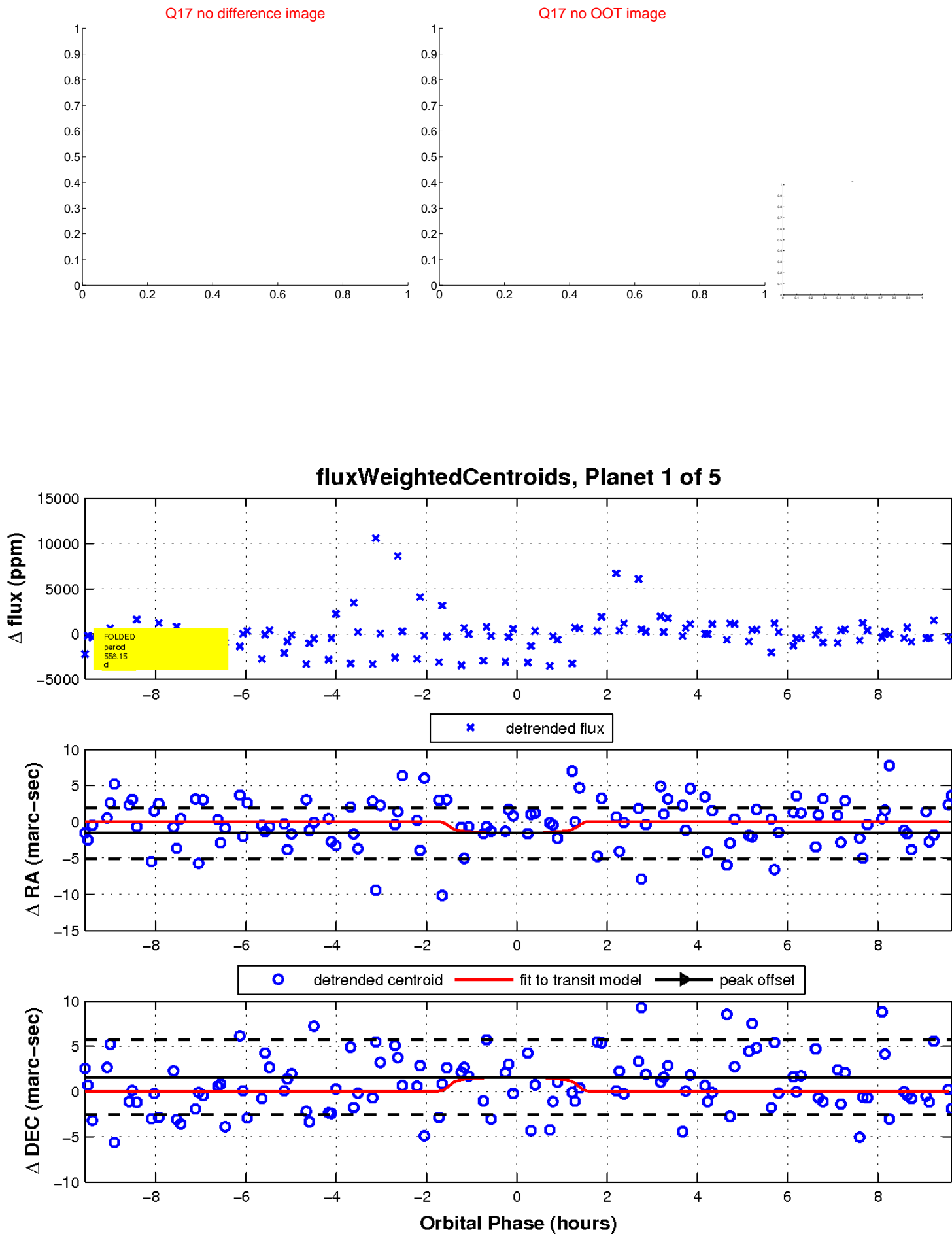
Q16 no difference image



Q16 no OOT image

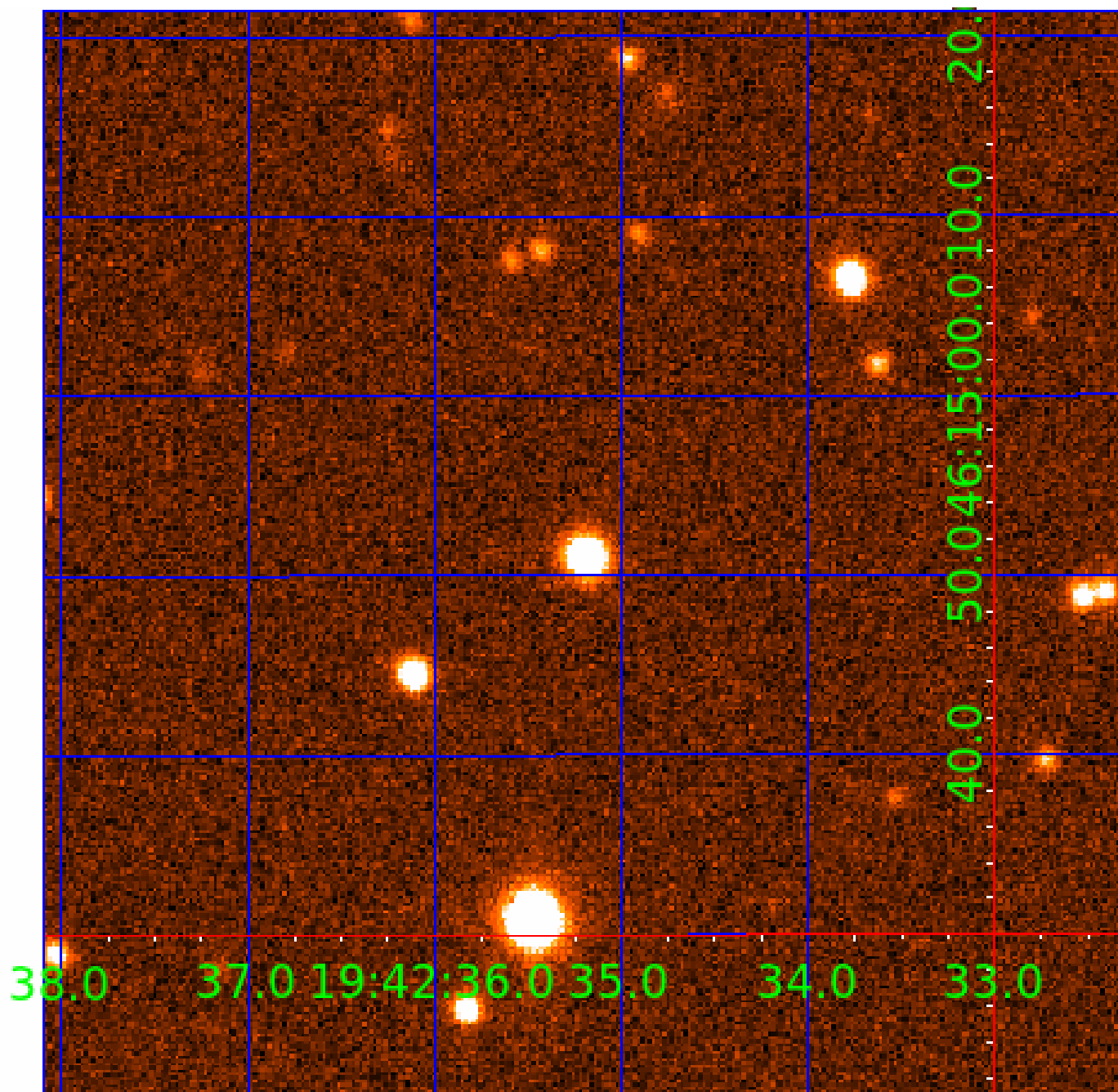


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 009598005

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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009598005-04	OBS	No	292.745447	398.263564	2205.5	2.238	10.5	7.3	0.77	5432	3.84	0.78
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Robovetter Results

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009598005-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—INCONSISTENT_TRANS
009598005-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—CENT_FEW_DIFFS
009598005-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_FEW_DIFFS
009598005-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—LPP_DV—ALL_TRANS_CHASES—INCONSISTENT_TRANS—CENT_NOFITS

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

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

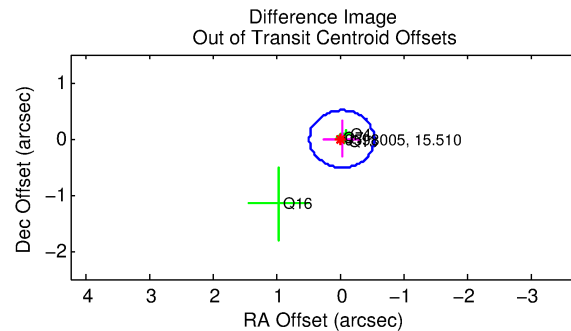
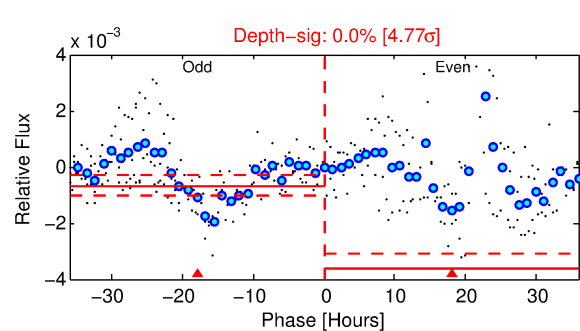
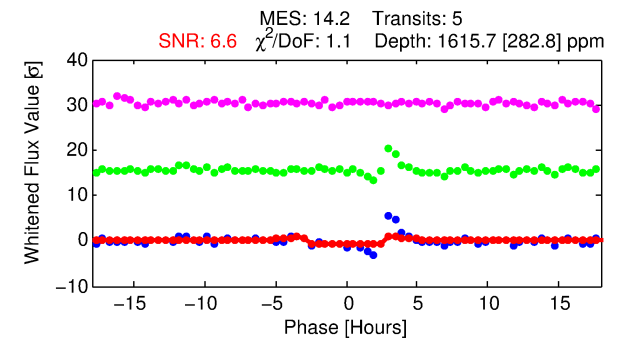
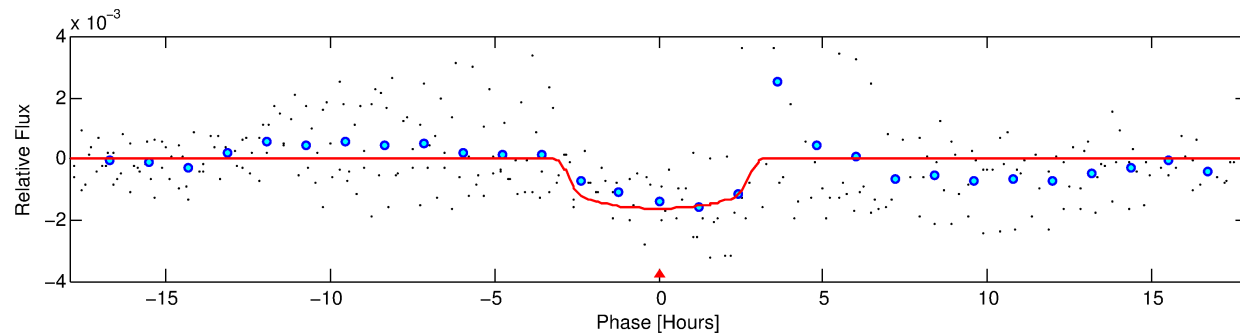
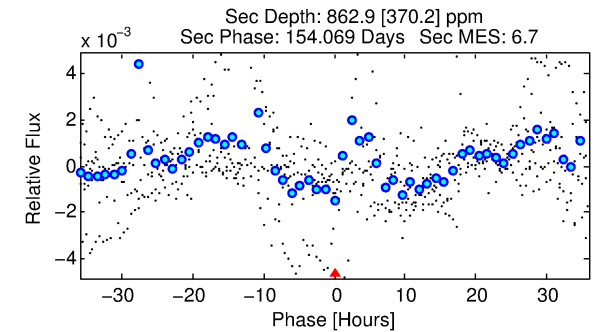
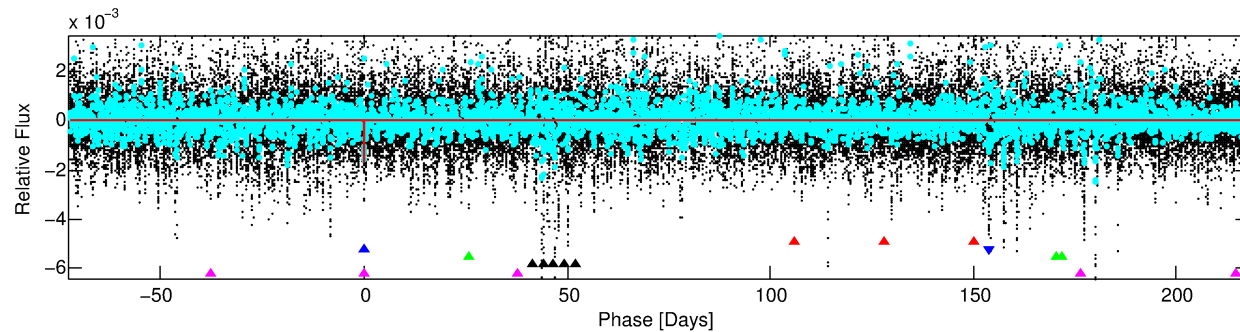
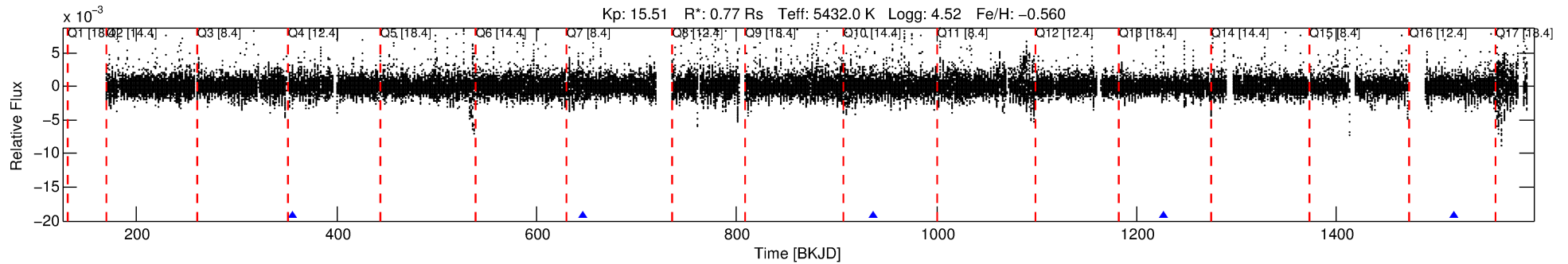
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 009598005-02

No Significant Match Found

DV One-Page Summary

KIC: 9598005 Candidate: 2 of 5 Period: 290.186 d



DV Fit Results:

Period = 290.18634 [0.00328] d
Epoch = 356.6590 [0.0089] BKJD
Rp/R* = 0.0390 [0.0146]
a/R* = 294.22 [436.40]
b = 0.67 [1.23]
Seff = 0.79 [0.18]
Teq = 240 [14] K
Rp = 3.27 [1.30] Re
a = 0.7646 [0.0935] AU
Ag = 25940.63 [22895.21] [1.13 σ]
Teffp = 4716 [1029] K [4.35 σ]

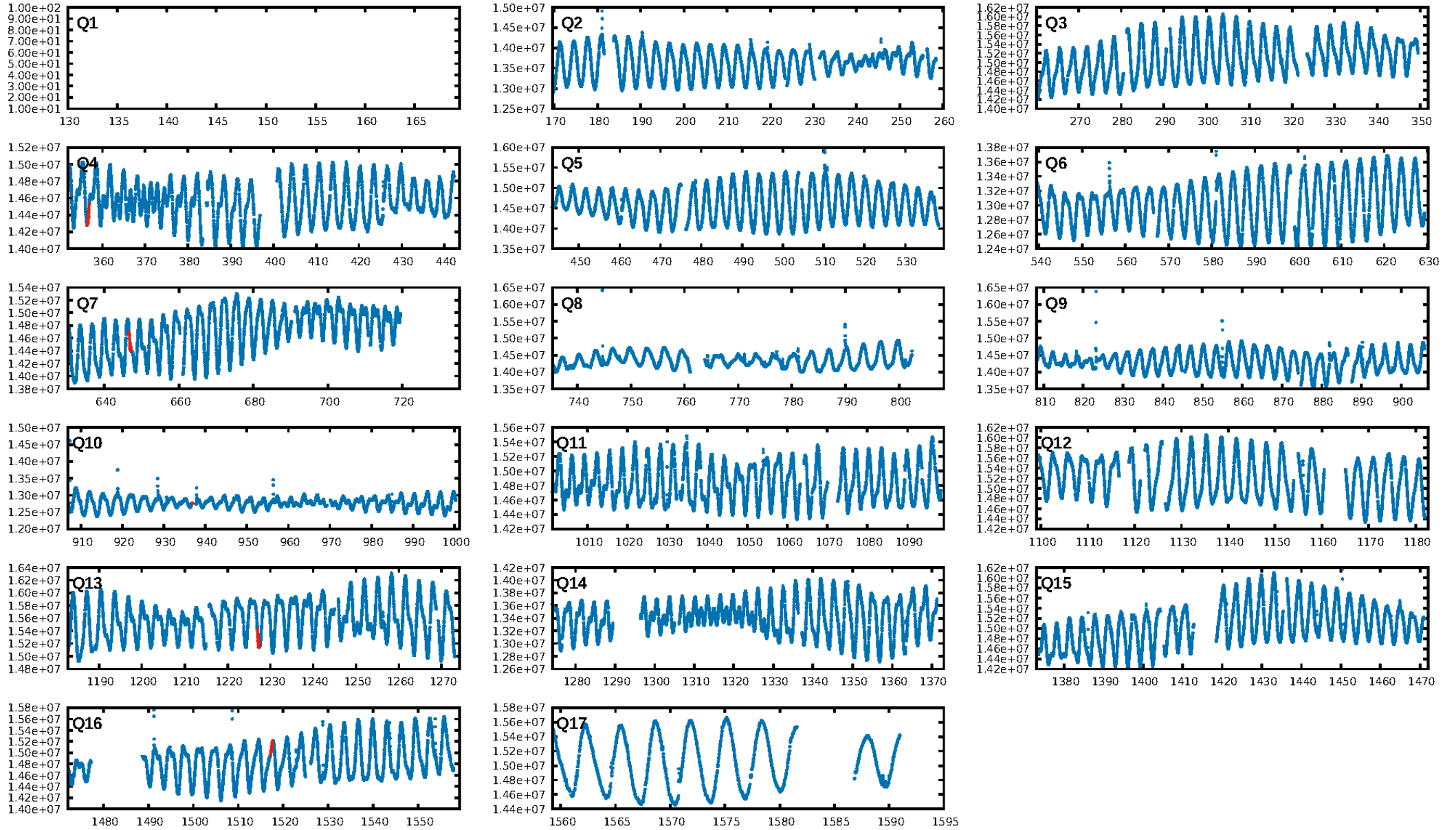
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: 100.0% [9.62 σ]
ModelChiSquare2-sig: 2.1%
ModelChiSquareGof-sig: 97.9%
Bootstrap-pfa: N/A
RollingBand-fgt: 1.00 [5/5]
GhostDiagnostic-chr: 1.087
Centroid-sig: 52.9%
Centroid-so: 0.805 arcsec [0.87 σ]
OotOffset-rm: 0.021 arcsec [0.12 σ]
OotOffset-st: 0/1/2/1 [4]
KicOffset-rm: 0.152 arcsec [0.47 σ]
KicOffset-st: 0/1/2/1 [4]
DiffImageQuality-fgm: 0.75 [3/4]
DiffImageOverlap-fno: 0.75 [3/4]

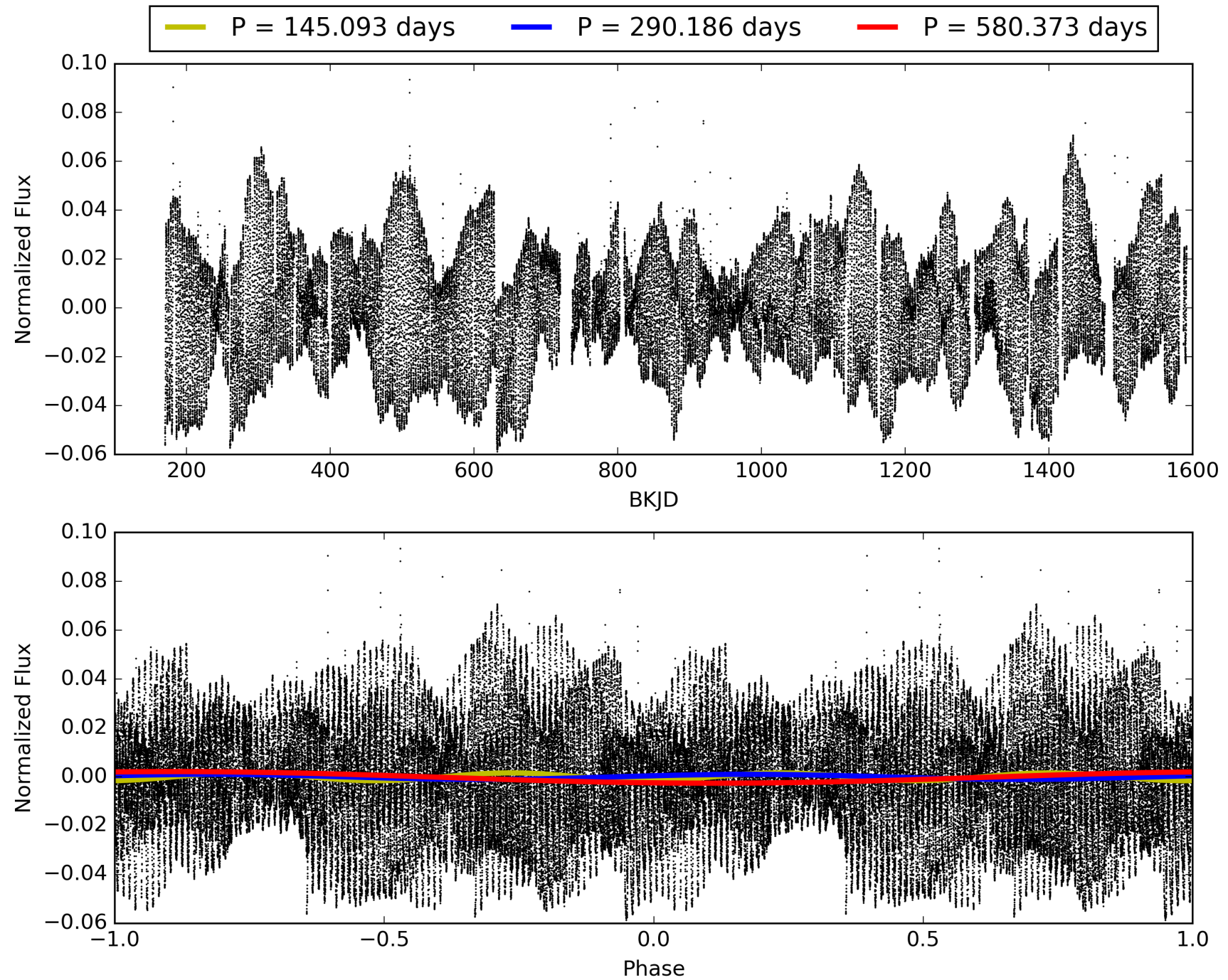
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 03-Feb-2016 07:57:59 Z

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

TCE 009598005-02, PDC Light Curves

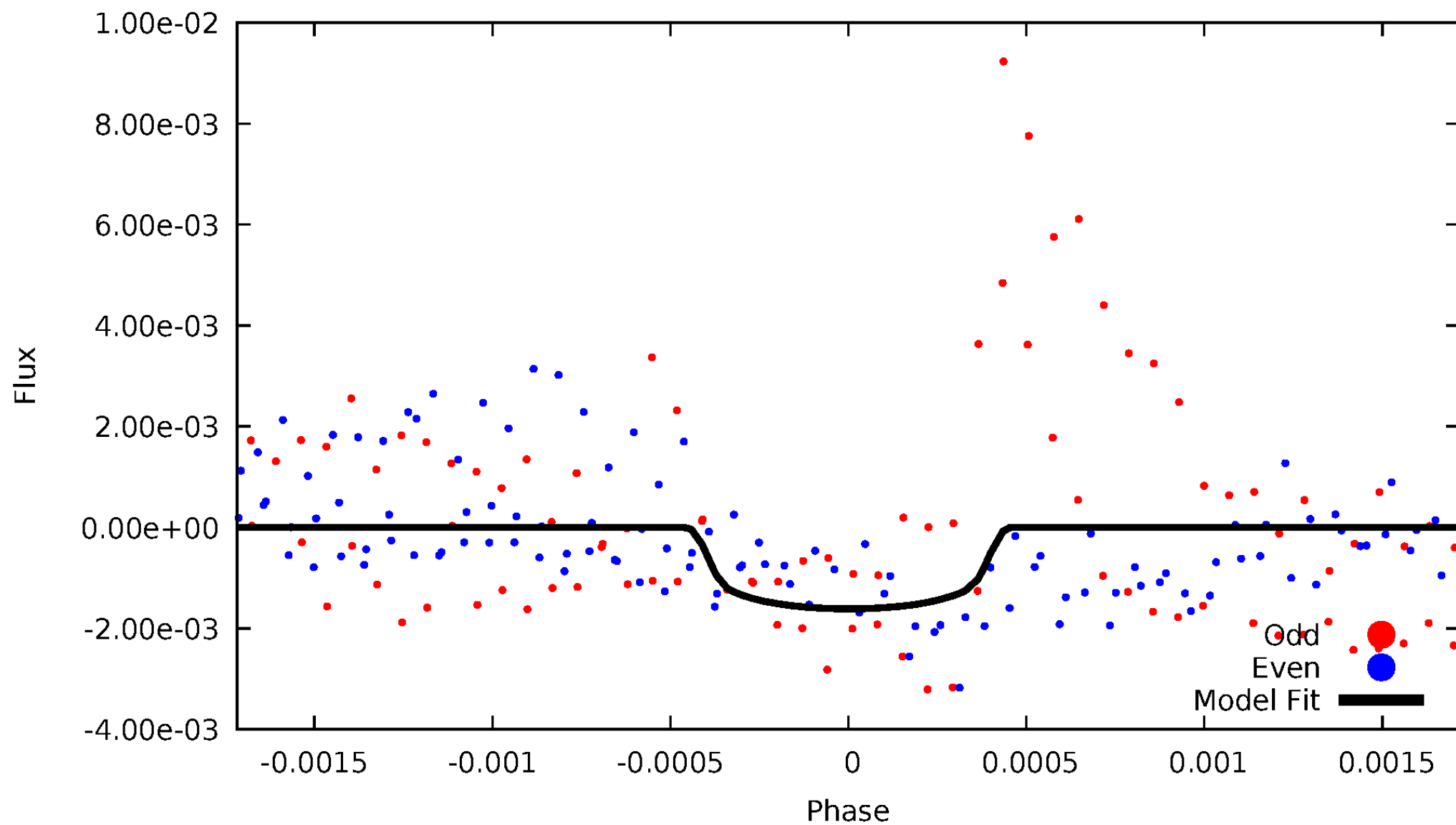


TCE 009598005-02



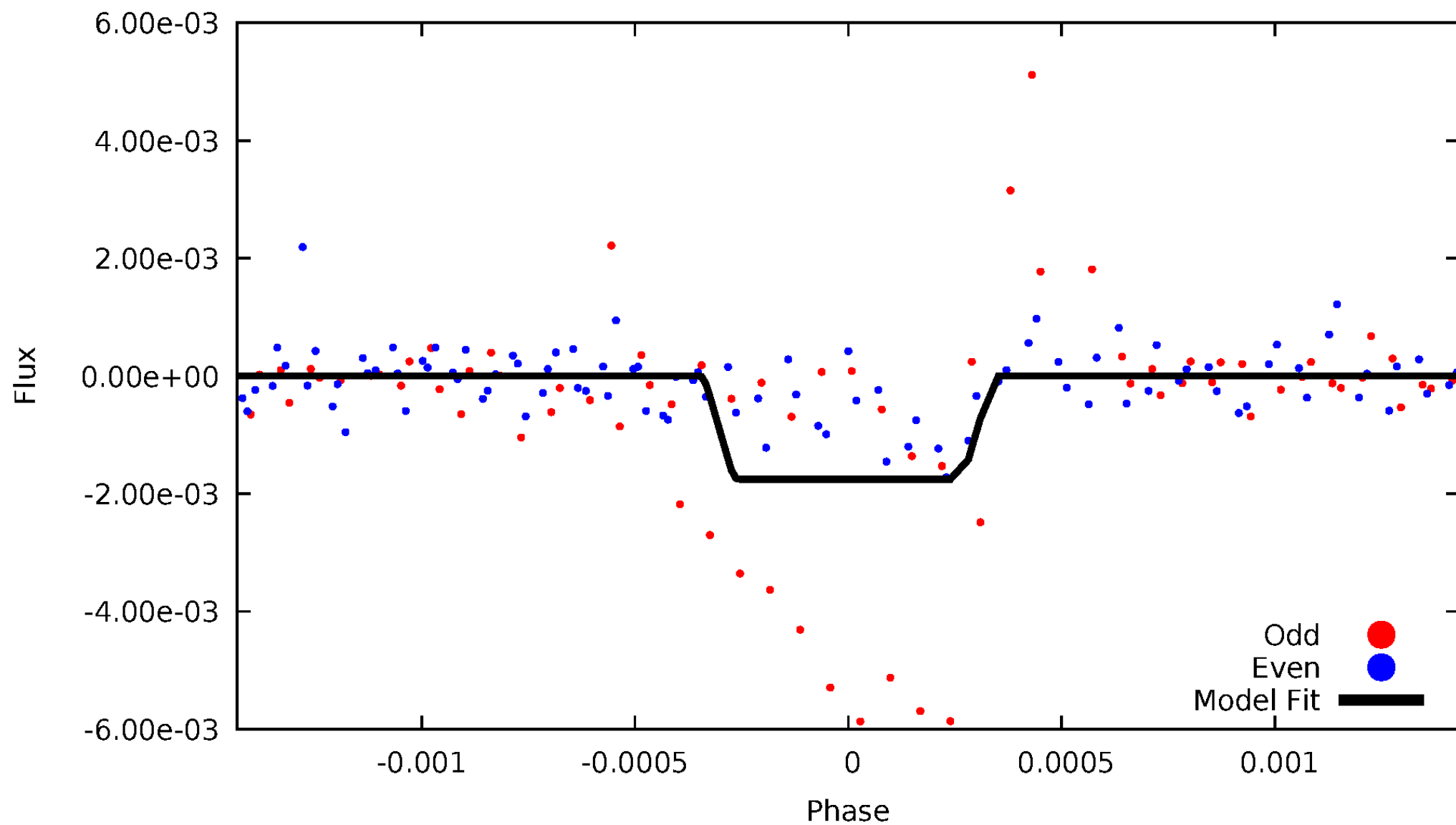
DV Odd/Even

TCE 009598005-02



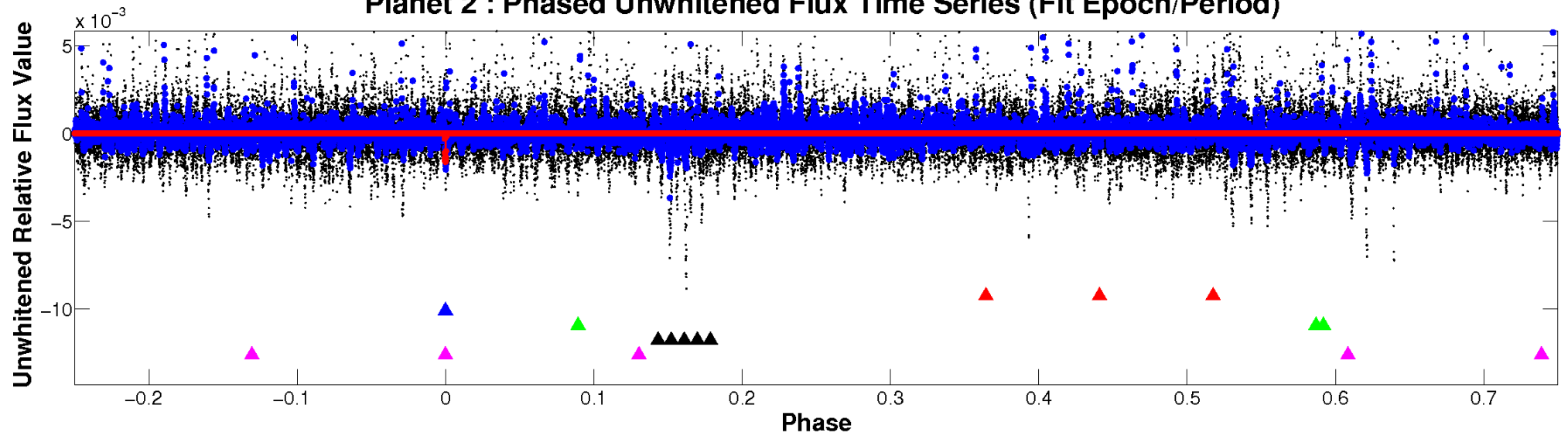
ALT Odd/Even

TCE 009598005-02

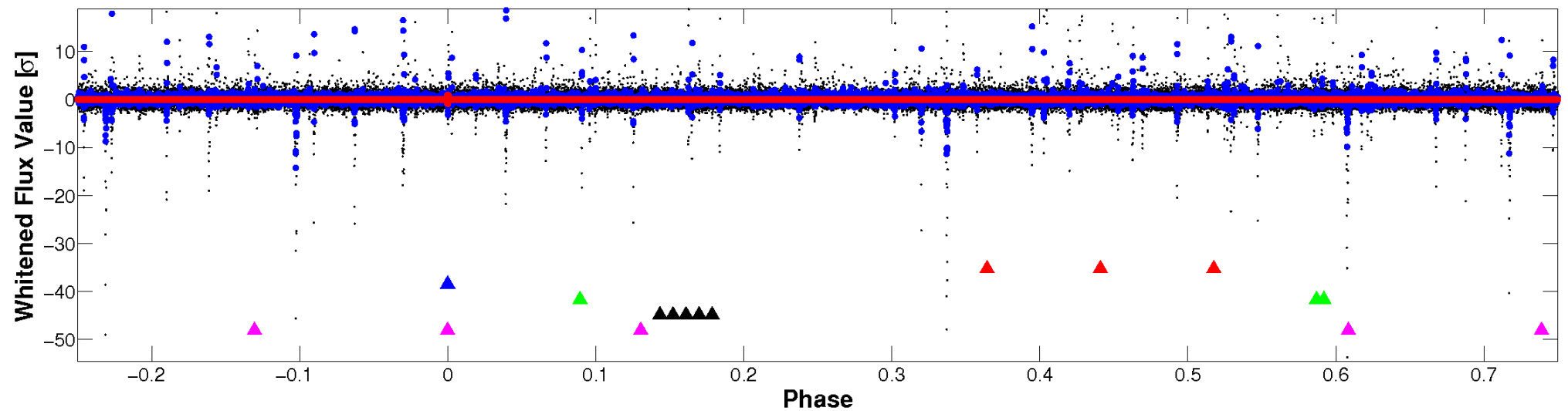


Non-Whitened Vs. Whitened Light Curve

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

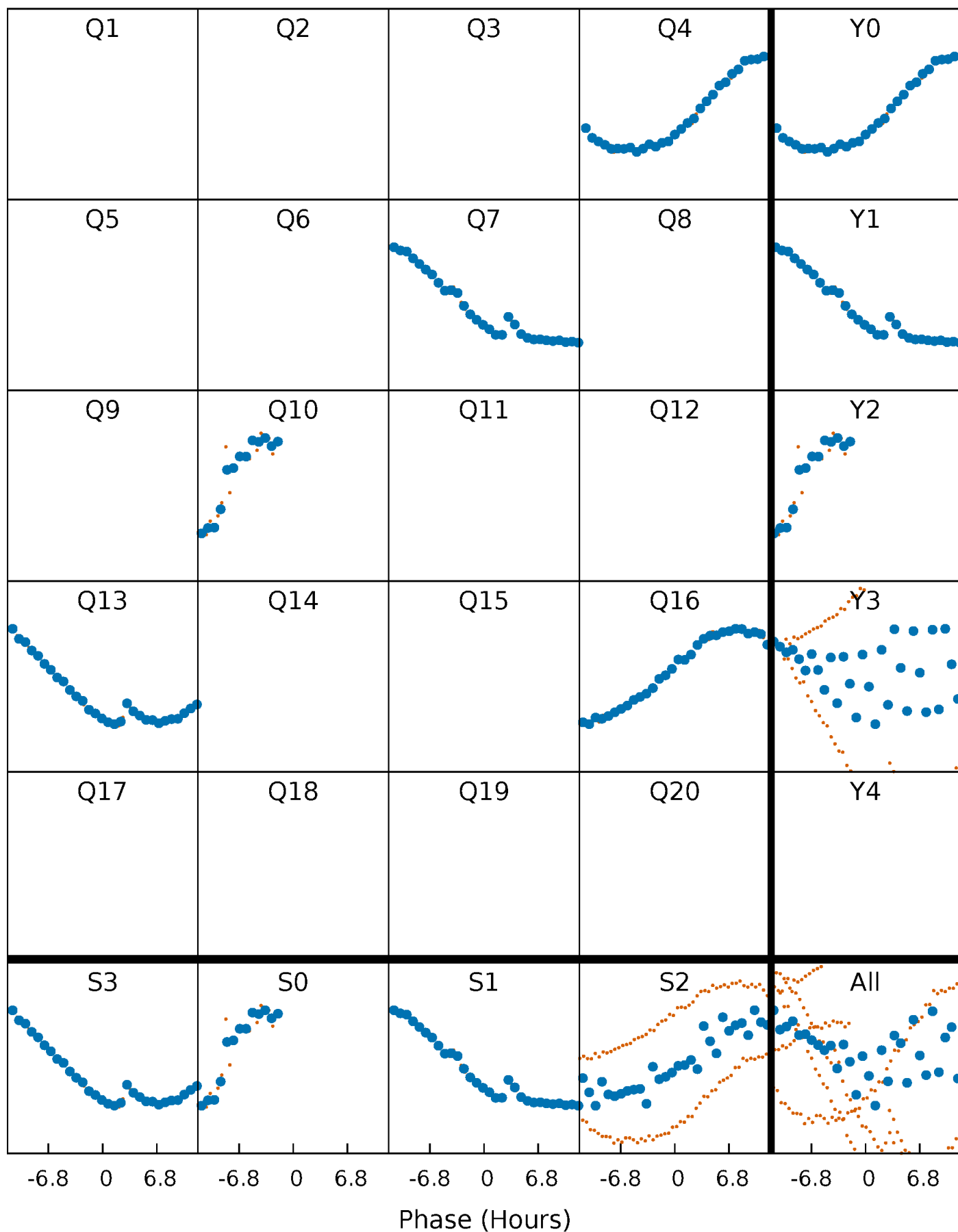


Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



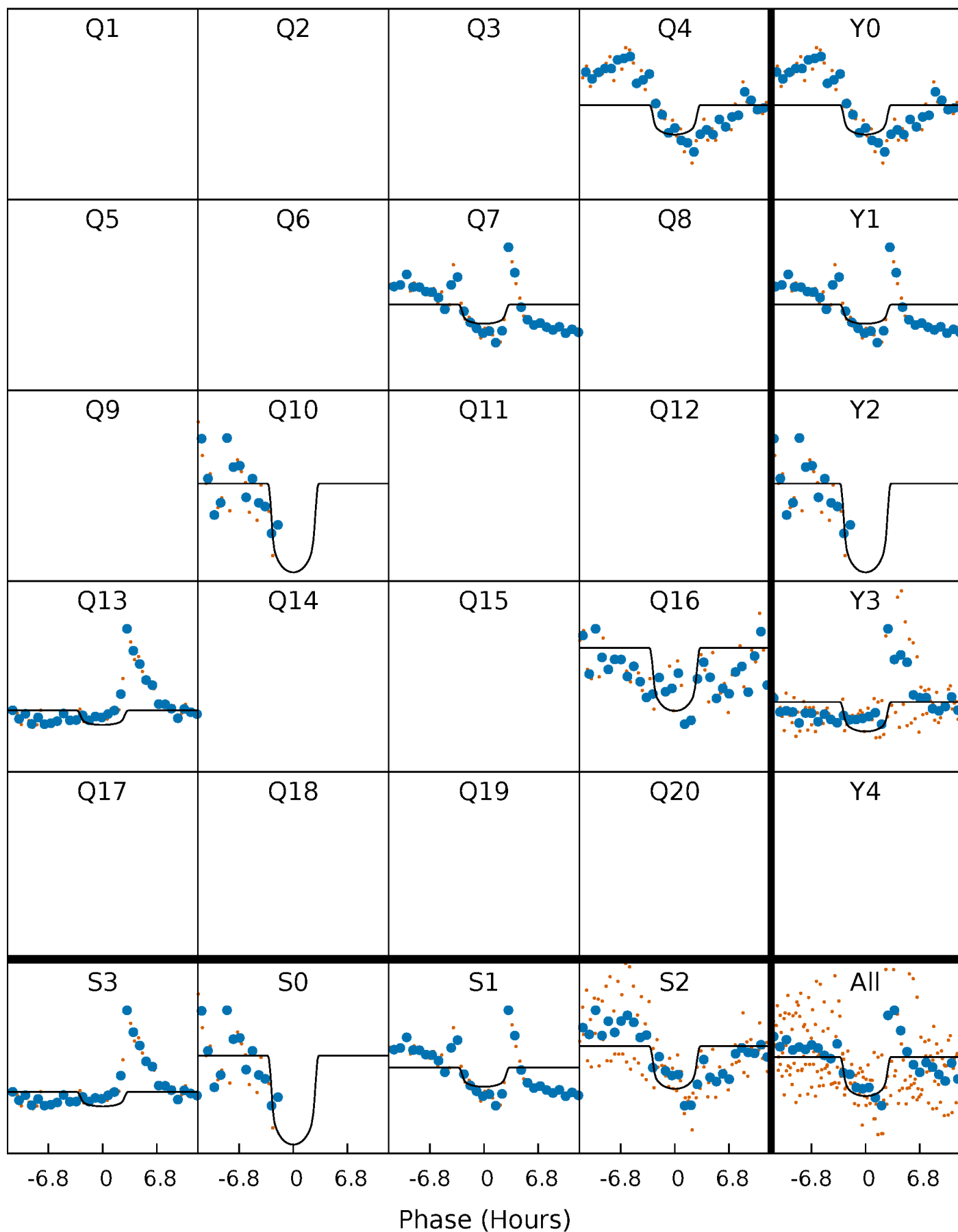
PDC Quarter-Phased Transit Curves

TCE 009598005-02 $P=290.186338$ Days $T_0=356.659045$ (BKJD)



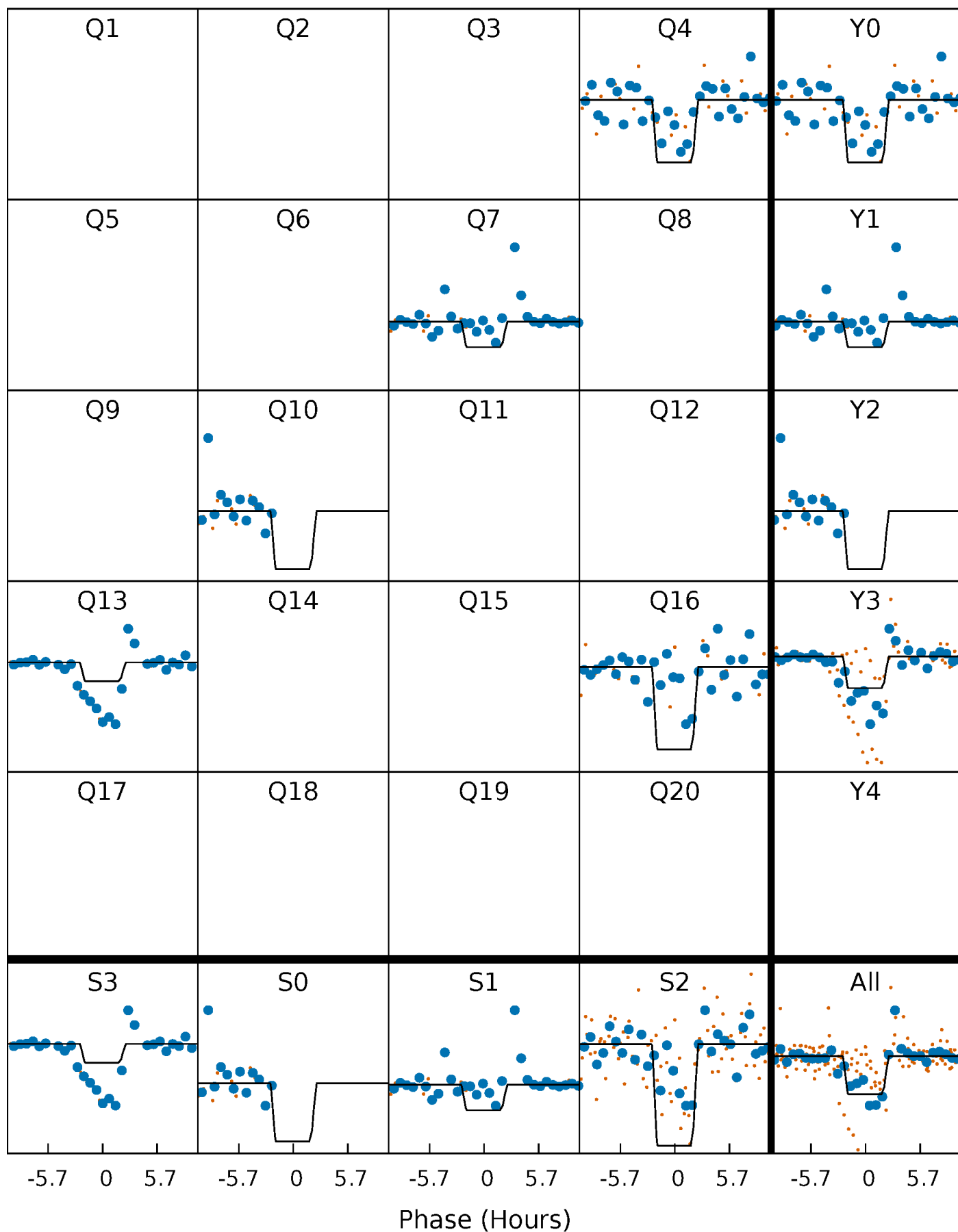
DV Quarter-Phased Transit Curves

TCE 009598005-02 $P=290.186338$ Days $T_0=356.659045$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

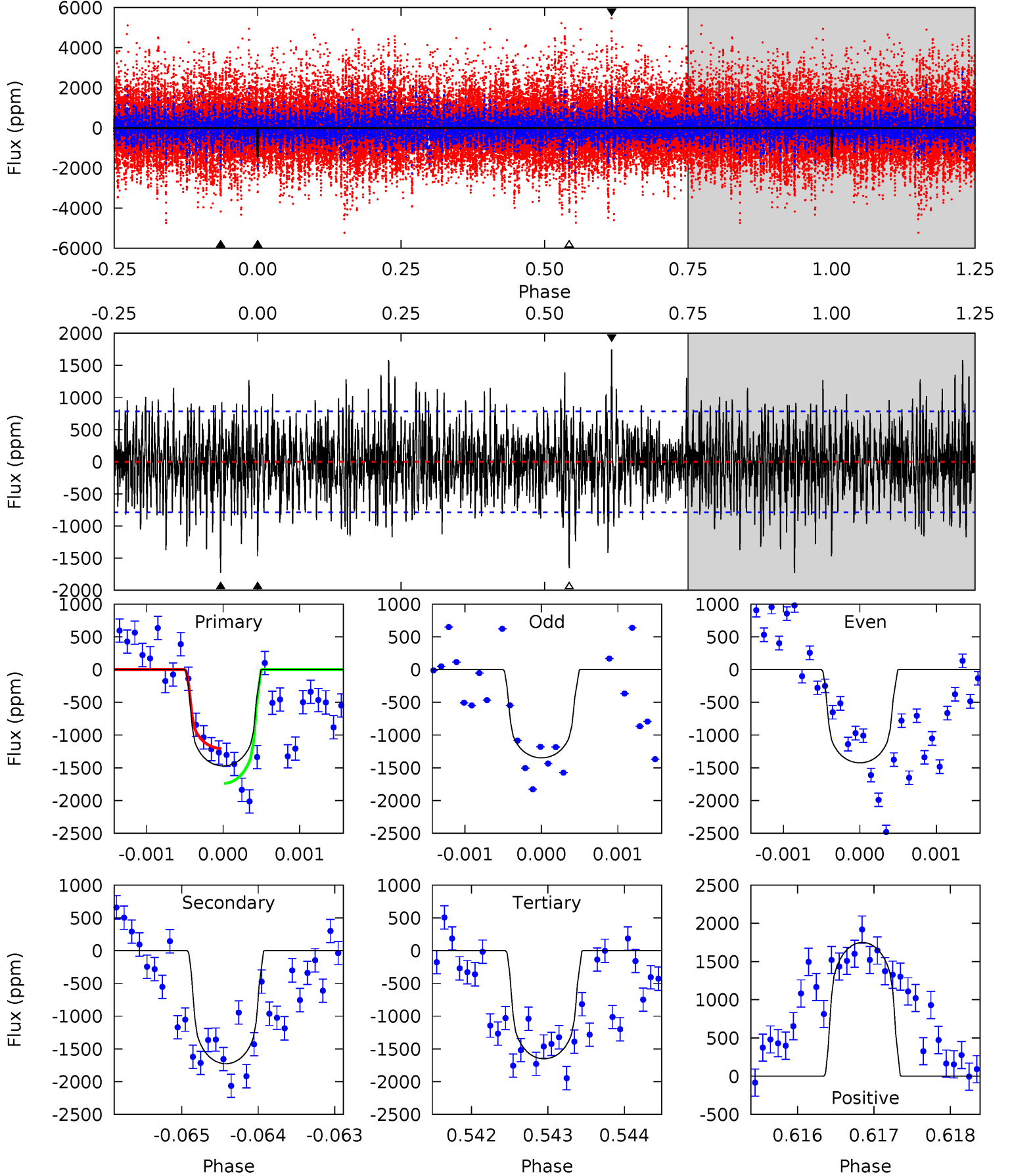
TCE 009598005-02 P=290.183797 Days $T_0=356.683012$ (BKJD)



DV Model-Shift Uniqueness Test

009598005-02, $P = 290.186338$ Days, $E = 66.472707$ Days

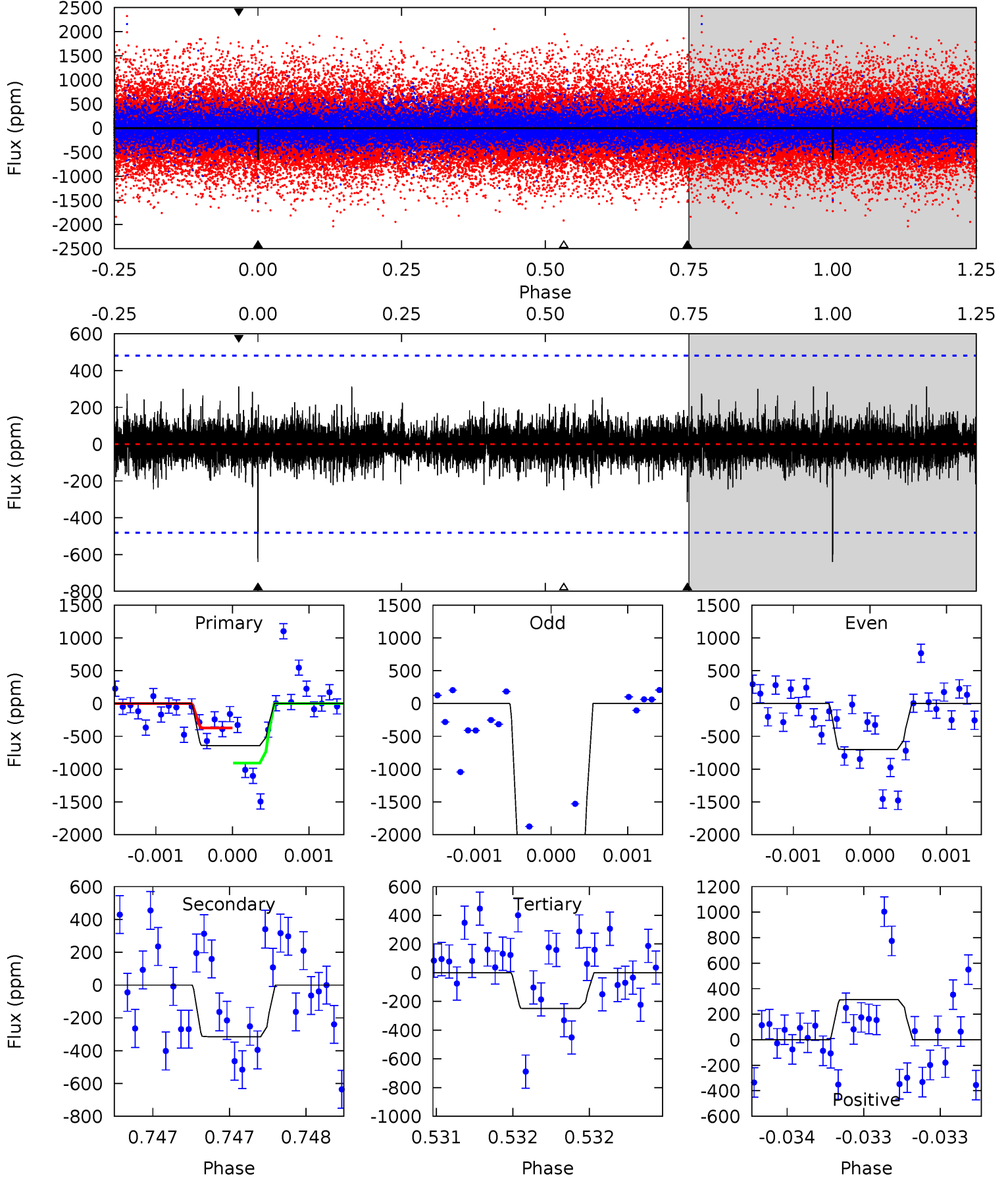
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
10.2	12.0	11.5	12.2	5.47	3.32	2.87	-1.25	-1.94	0.52	-0.16	0.25	1.01	0.50	1.85



Alt Model-Shift Uniqueness Test

009598005-02, $P = 290.183797$ Days, $E = 66.499215$ Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
7.36	3.62	2.87	3.61	5.53	3.41	0.70	4.49	3.76	0.75	0.01	12.7	2.38	0.33	3.09



Stellar Parameters For KIC 009598005

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	$M(M_{\odot})$	p_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	5432^{+179}_{-163}	$4.516^{+0.105}_{-0.095}$	$-0.560^{+0.350}_{-0.300}$	$0.769^{+0.106}_{-0.106}$	$0.708^{+0.096}_{-0.037}$	$2.190^{+0.980}_{-0.621}$
	+3%/-3%	+2%/-2%	+62%/-54%	+14%/-14%	+14%/-5%	+45%/-28%
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 009598005-02 / KOI

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	-1726 ± 144	$3.27^{+1.24}_{-1.22}$	336^{+16}_{-16}	5607^{+1535}_{-700}	53568^{+82223}_{-25373}
Alt.	-315 ± 87	$3.54^{+1.24}_{-1.27}$	335^{+16}_{-15}	3863^{+645}_{-399}	8343^{+11469}_{-4138}

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

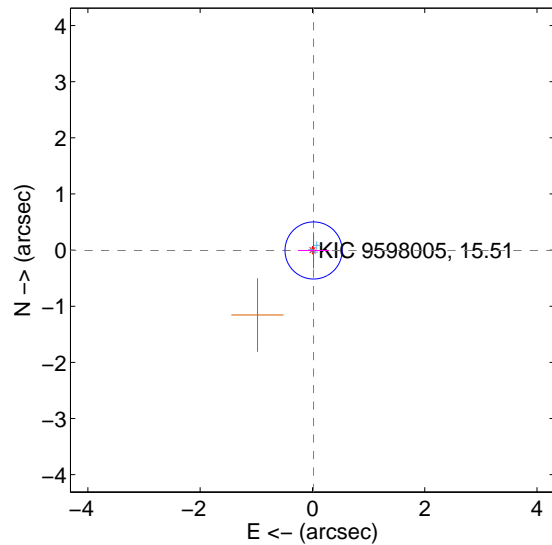
Supplemental centroid analysis for 009598005-02. Kepler magnitude: 15.51. Transit SNR 6.55

There are 3 quarters with good PRF difference image offsets

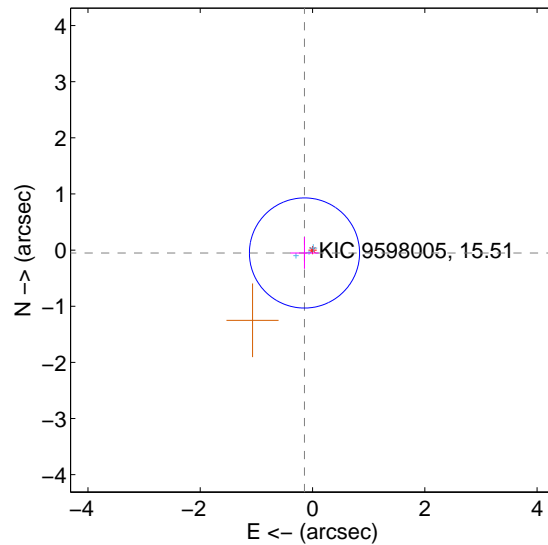
The direct PRF centroid is offset from the target star catalog position by about 0.13 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.021 ± 0.170	0.12	-0.020 ± 0.275	-0.007 ± 0.322
PRF-fit source offset from KIC position	0.152 ± 0.327	0.47	0.143 ± 0.251	-0.051 ± 0.282
photometric centroid source offset	0.80 ± 0.93	0.87	0.79 ± 0.93	0.14 ± 0.91

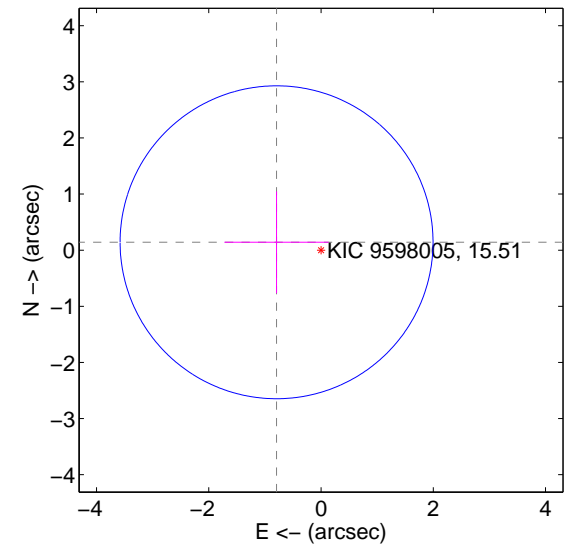
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position

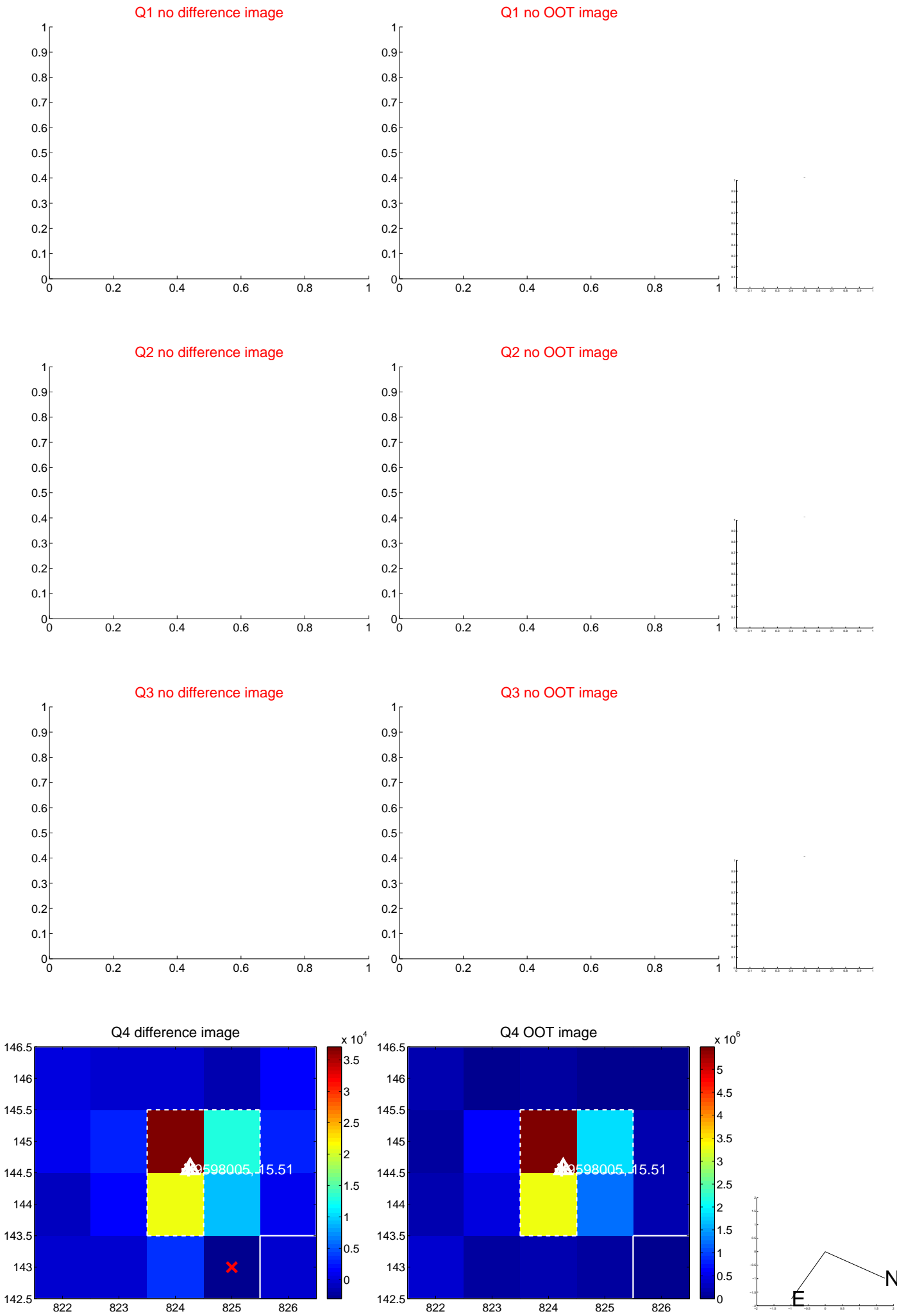


offset from photometric centroids

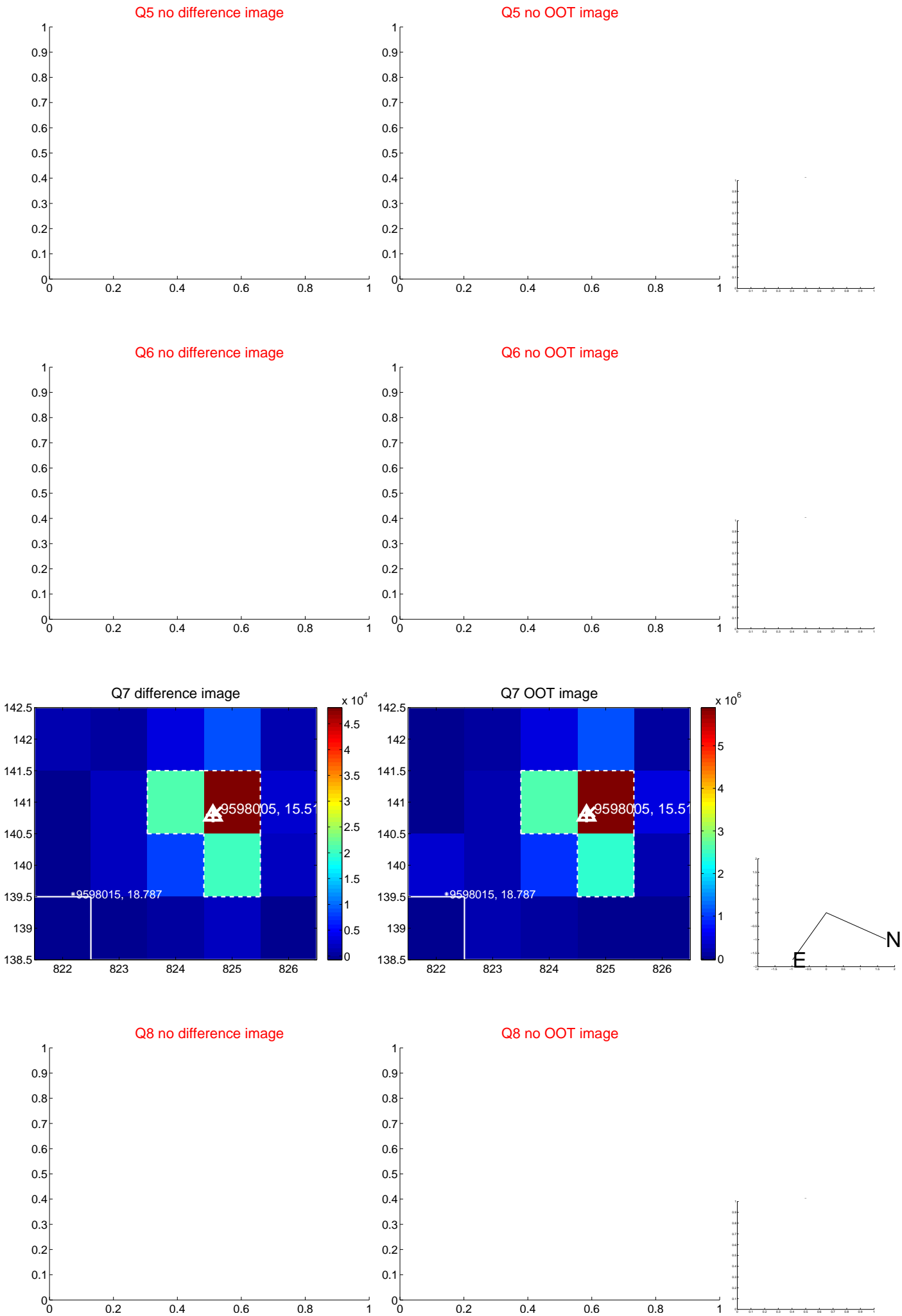


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ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

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



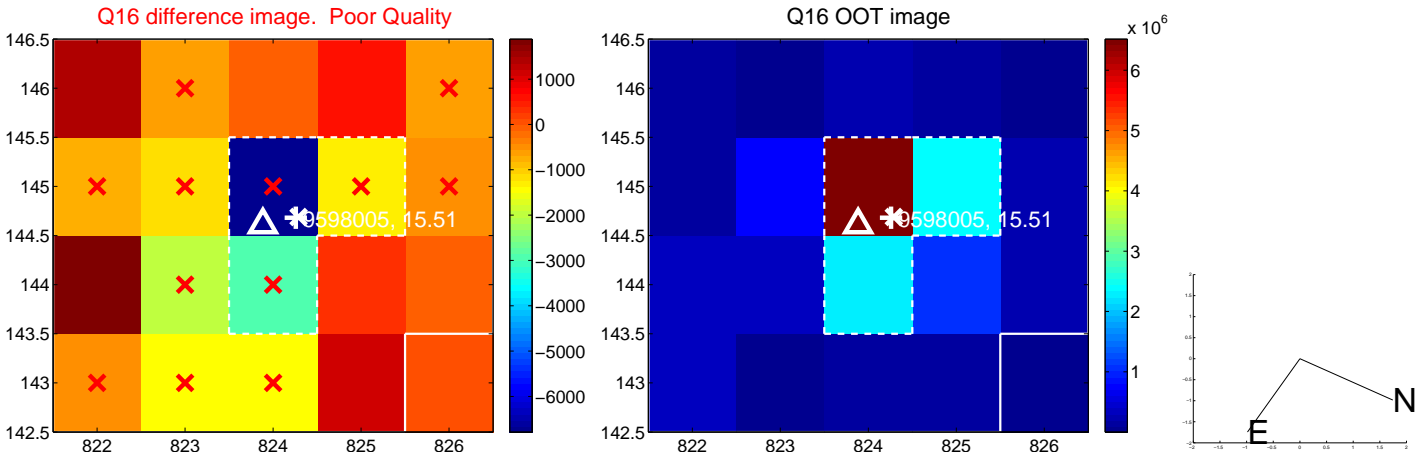
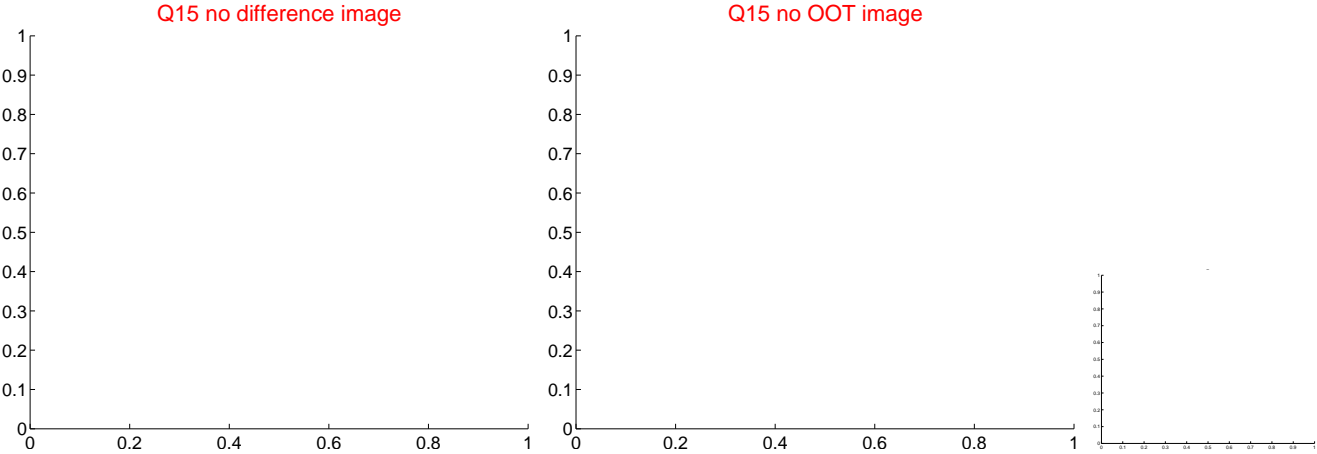
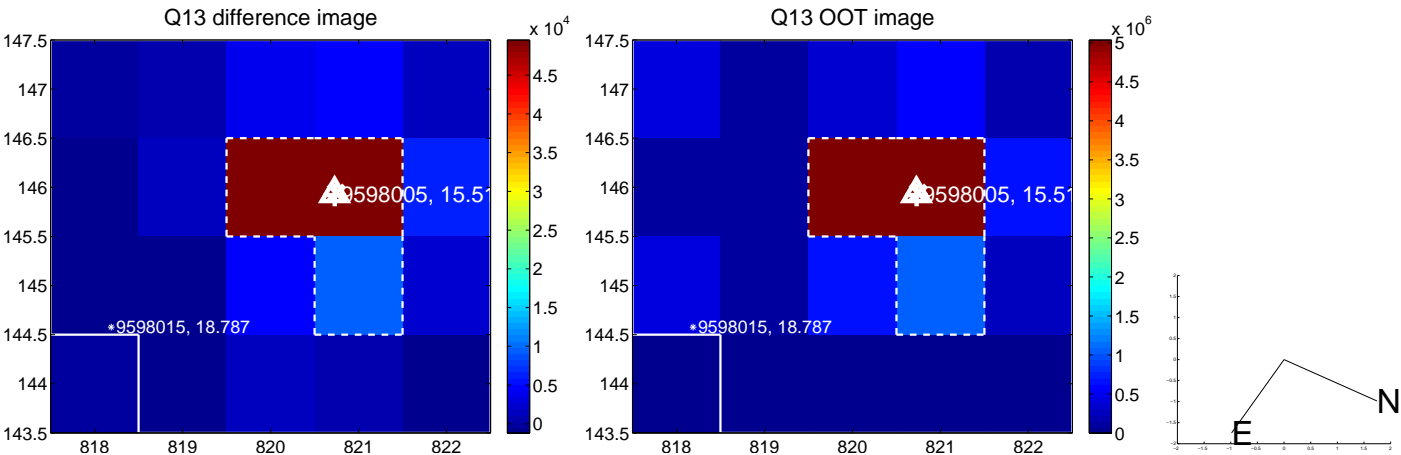
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



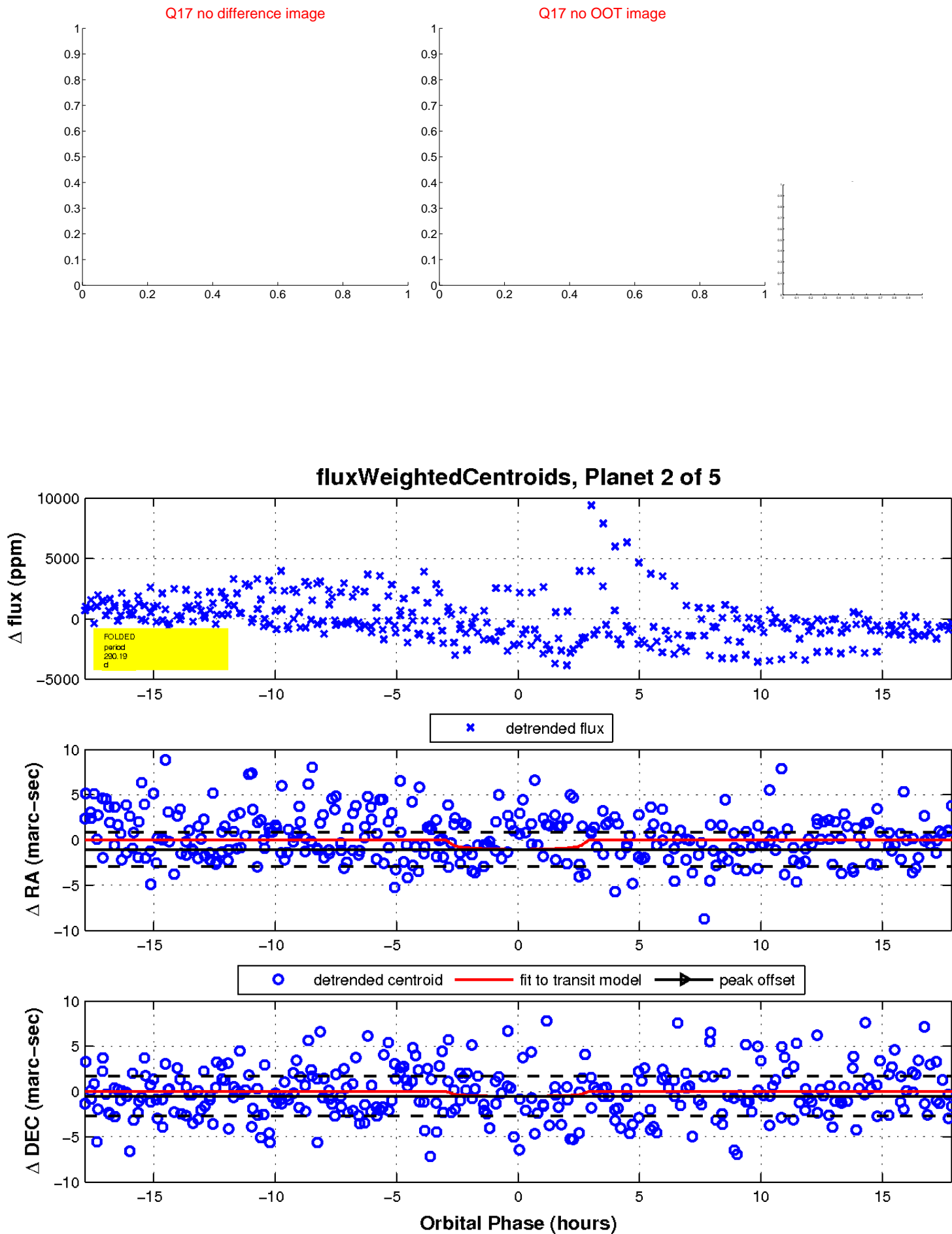
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

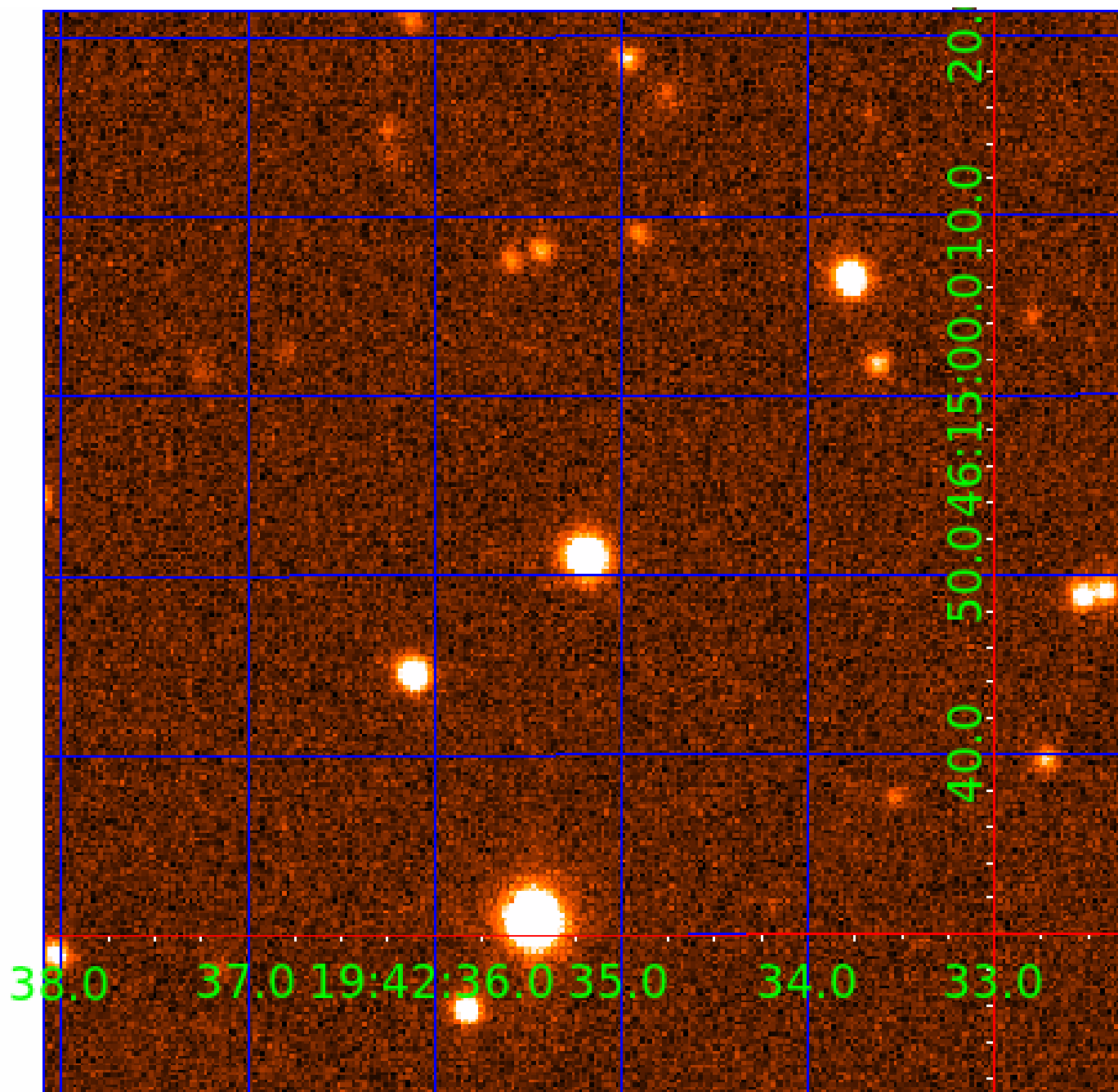


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 009598005

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})
009598005-01	OBS	No	558.145805	216.661507	2268.2	3.210	12.7	7.7	0.77	5432	3.95	0.33
009598005-02	OBS	No	290.186338	356.659045	1615.7	5.979	14.2	6.6	0.77	5432	3.27	0.79
009598005-03	OBS	No	436.000576	526.976229	2679.5	6.332	11.8	6.9	0.77	5432	4.90	0.46
009598005-04	OBS	No	292.745447	398.263564	2205.5	2.238	10.5	7.3	0.77	5432	3.84	0.78
009598005-05	OBS	No	328.053178	243.044554	2069.4	3.000	10.9	-1.0	0.77	5432	3.46	0.67

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
009598005-01	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_POS_ALT—CENT_FEW_DIFFS
009598005-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—INCONSISTENT_TRANS
009598005-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—CENT_FEW_DIFFS
009598005-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_FEW_DIFFS
009598005-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—LPP_DV—ALL_TRANS_CHASES—INCONSISTENT_TRANS—CENT_NOFITS

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

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

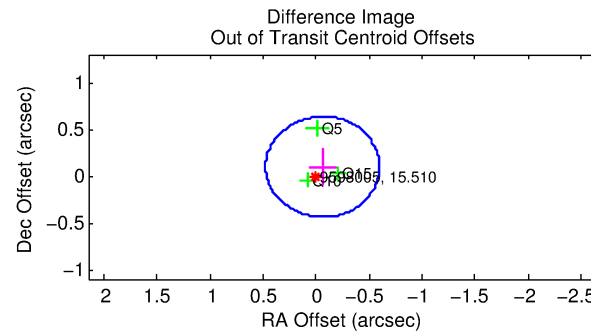
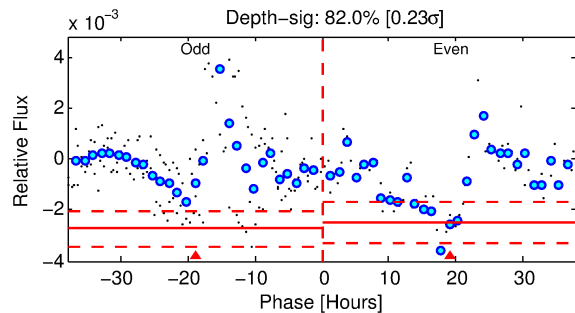
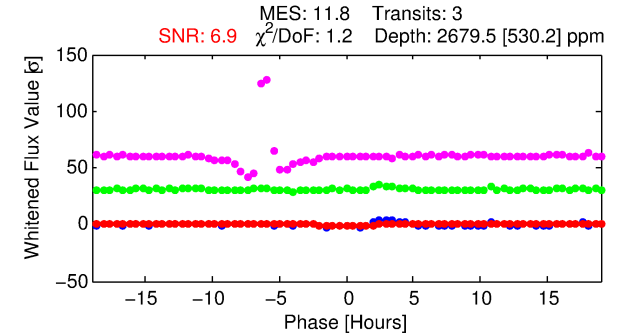
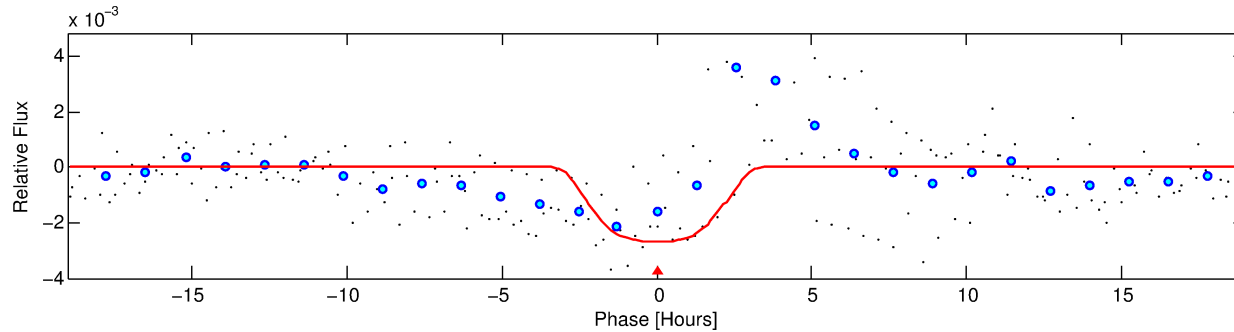
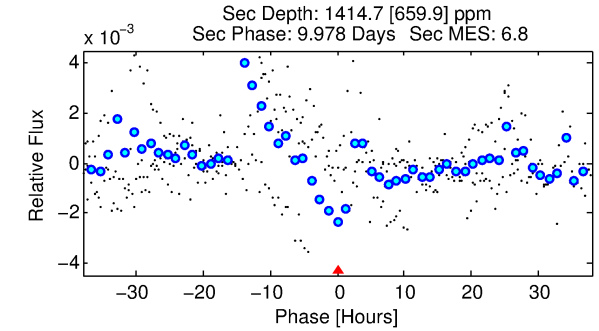
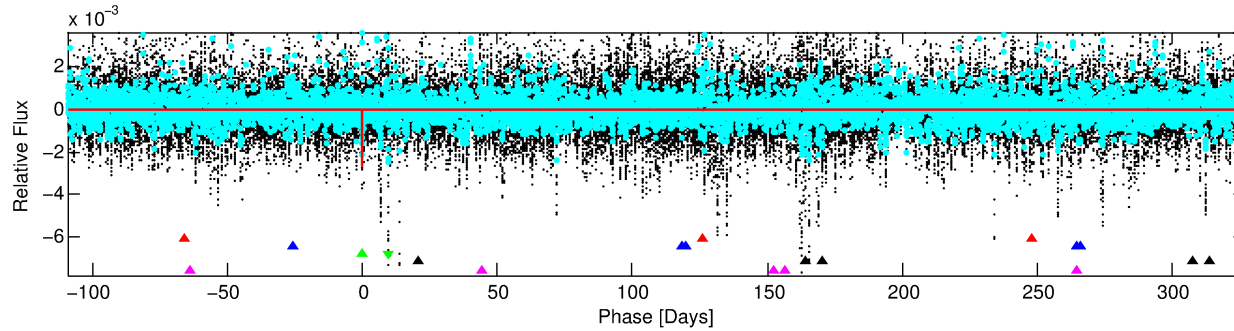
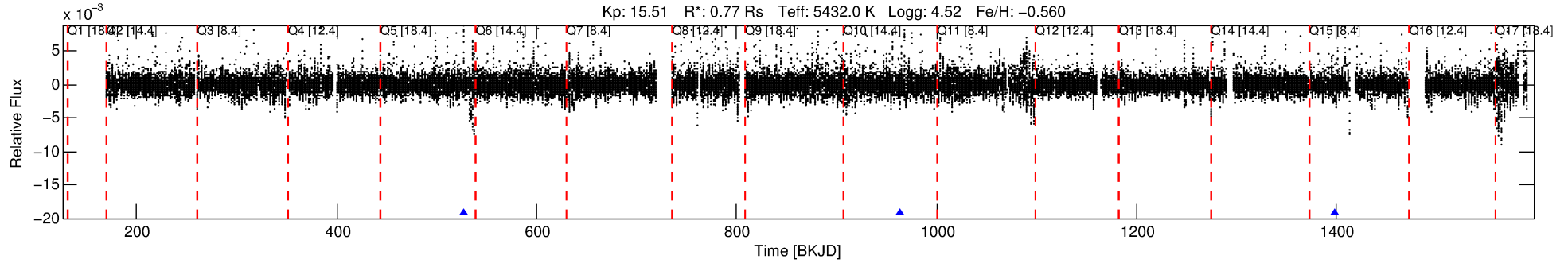
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 009598005-03

No Significant Match Found

DV One-Page Summary

KIC: 9598005 Candidate: 3 of 5 Period: 436.001 d



DV Fit Results:

Period = 436.00058 [0.00906] d
Epoch = 526.9762 [0.0124] BKJD
Rp/R* = 0.0584 [0.0069]
a/R* = 271.37 [45.31]
b = 0.92 [0.03]
Seff = 0.46 [0.10]
Teq = 210 [12] K
Rp = 4.90 [0.89] Re
a = 1.0030 [0.1226] AU
Ag = 32617.01 [18101.58] [1.80 σ]
Teffp = 4360 [588] K [7.06 σ]

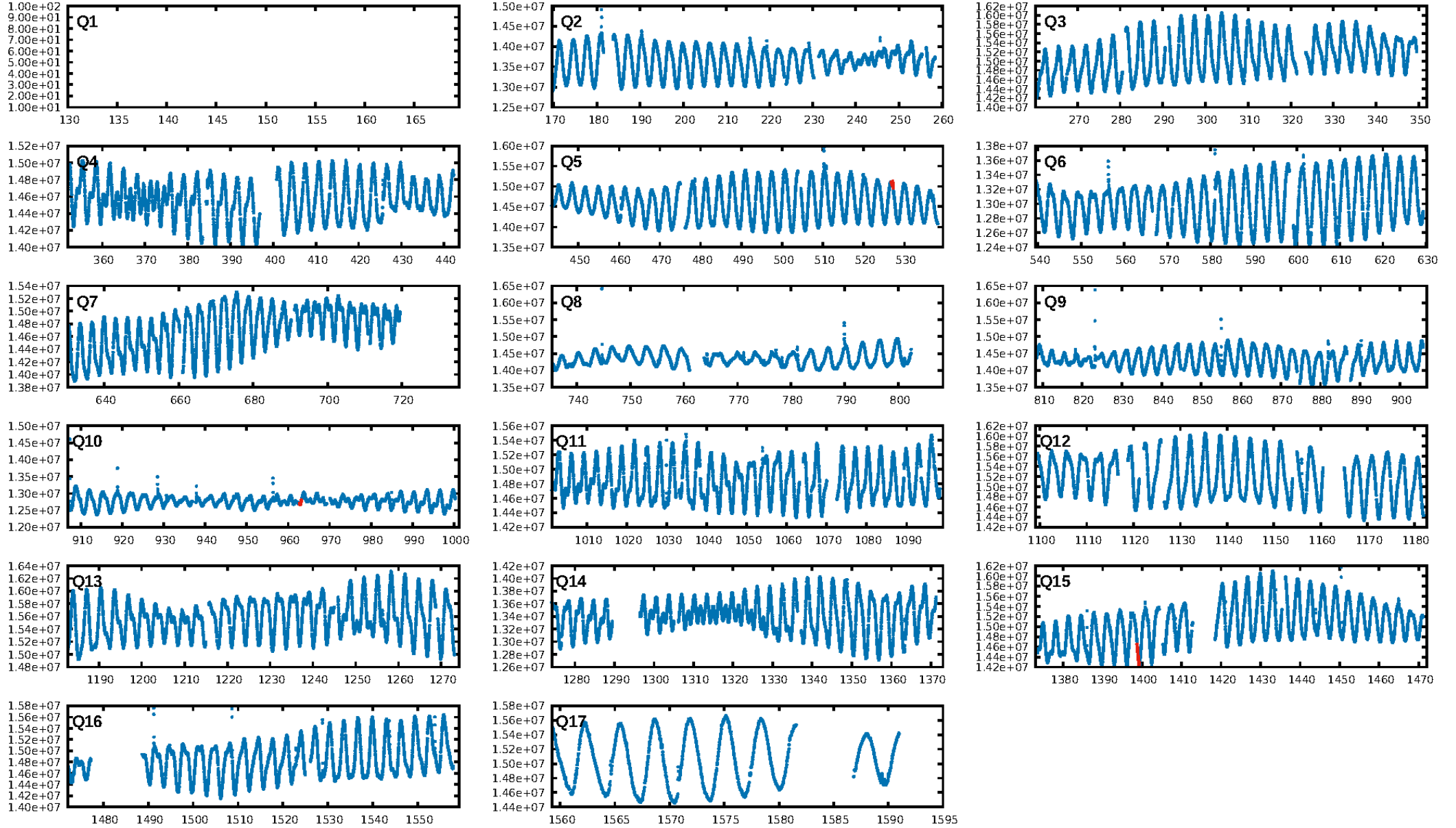
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [369.74 σ]
LongPeriod-sig: 100.0% [412.92 σ]
ModelChiSquare2-sig: 80.0%
ModelChiSquareGof-sig: 91.2%
Bootstrap-pfa: N/A
RollingBand-fgt: 1.00 [3/3]
GhostDiagnostic-chr: 1.547
Centroid-sig: 11.8%
Centroid-so: 1.233 arcsec [1.67 σ]
OotOffset-rm: 0.115 arcsec [0.64 σ]
KicOffset-rm: 0.143 arcsec [1.27 σ]
OotOffset-st: 1/1/0/1 [3]
KicOffset-st: 1/1/0/1 [3]
DiffImageQuality-fgm: 0.67 [2/3]
DiffImageOverlap-fno: 1.00 [3/3]

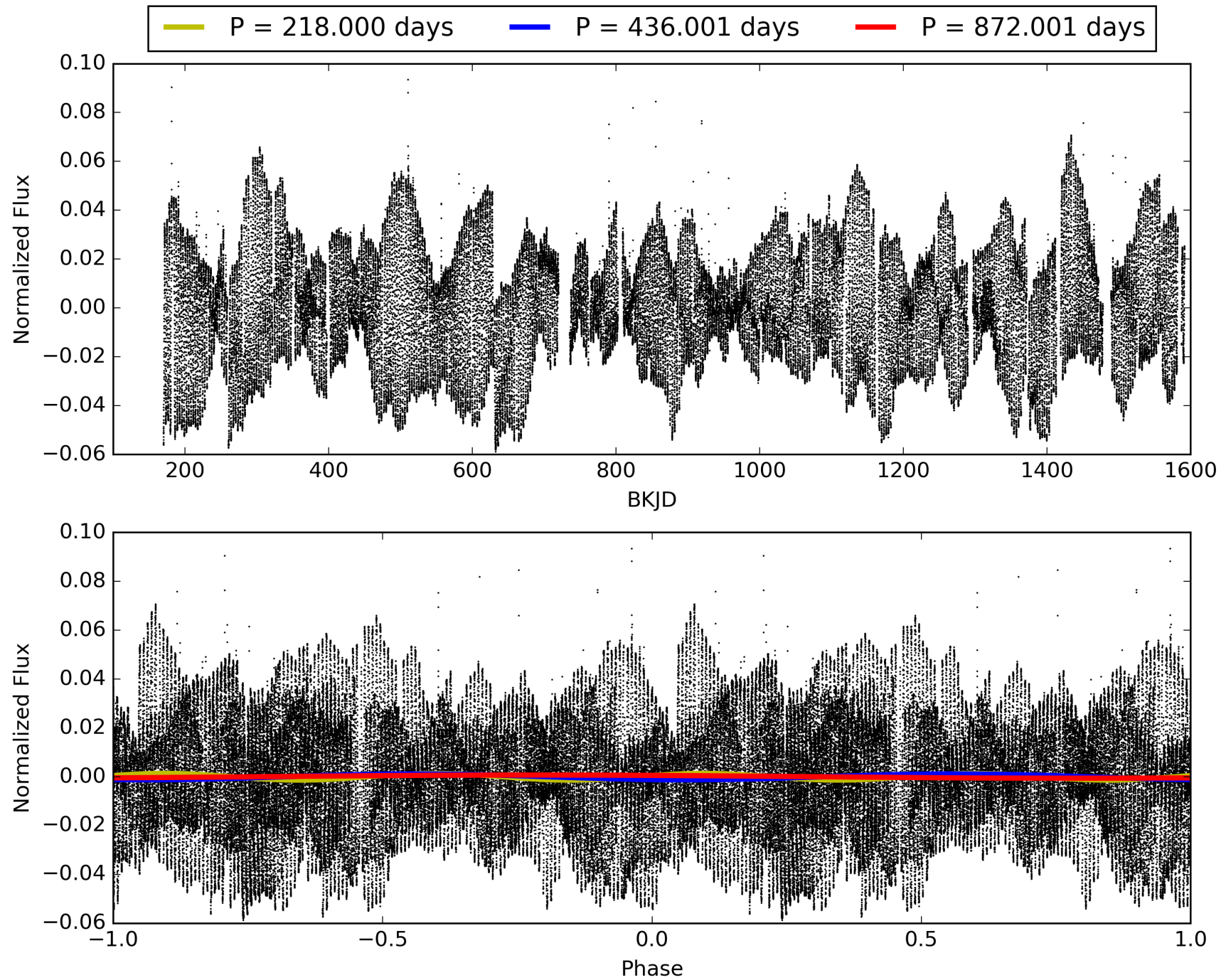
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 03-Feb-2016 07:58:12 Z

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

TCE 009598005-03, PDC Light Curves

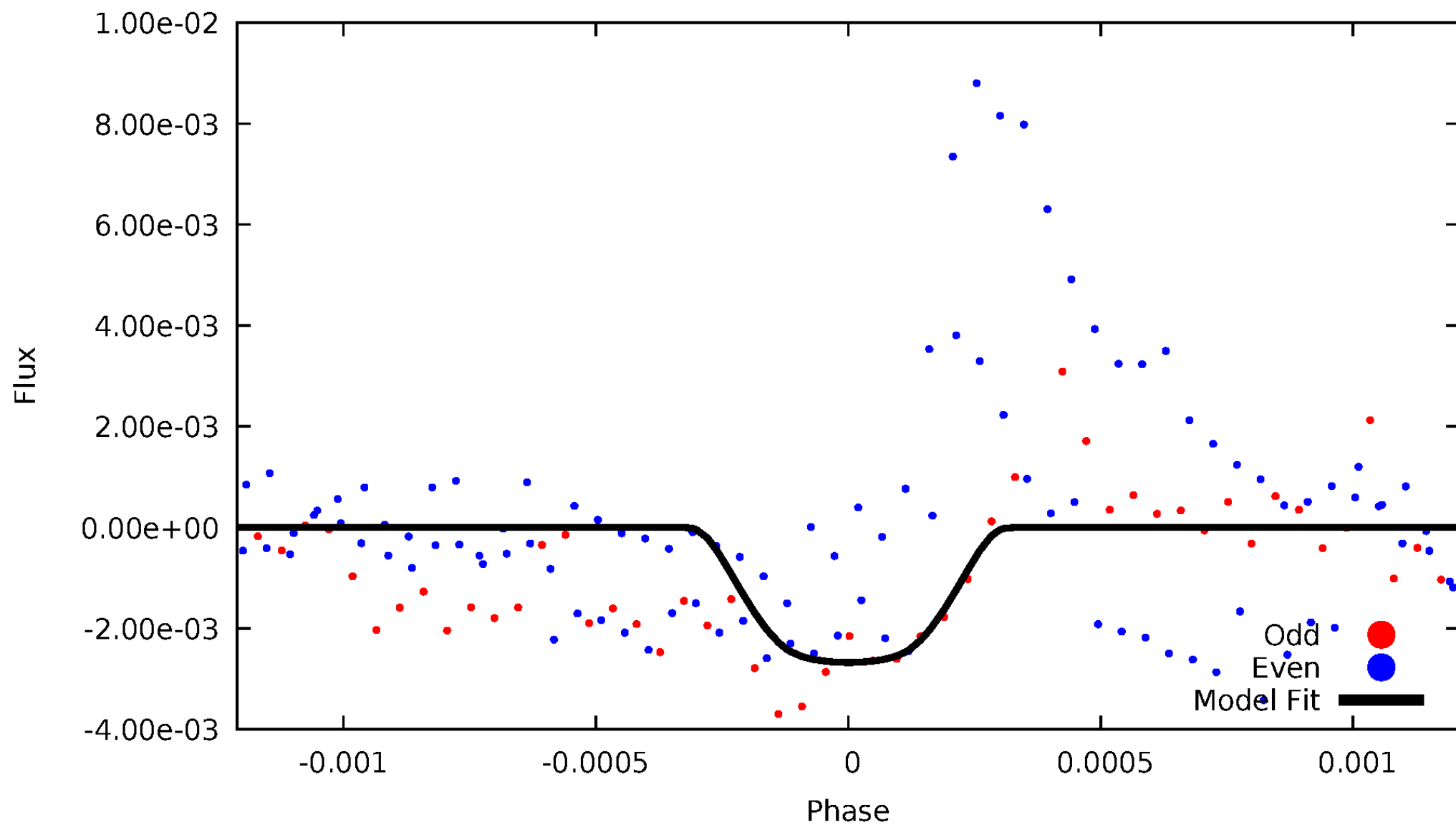


TCE 009598005-03



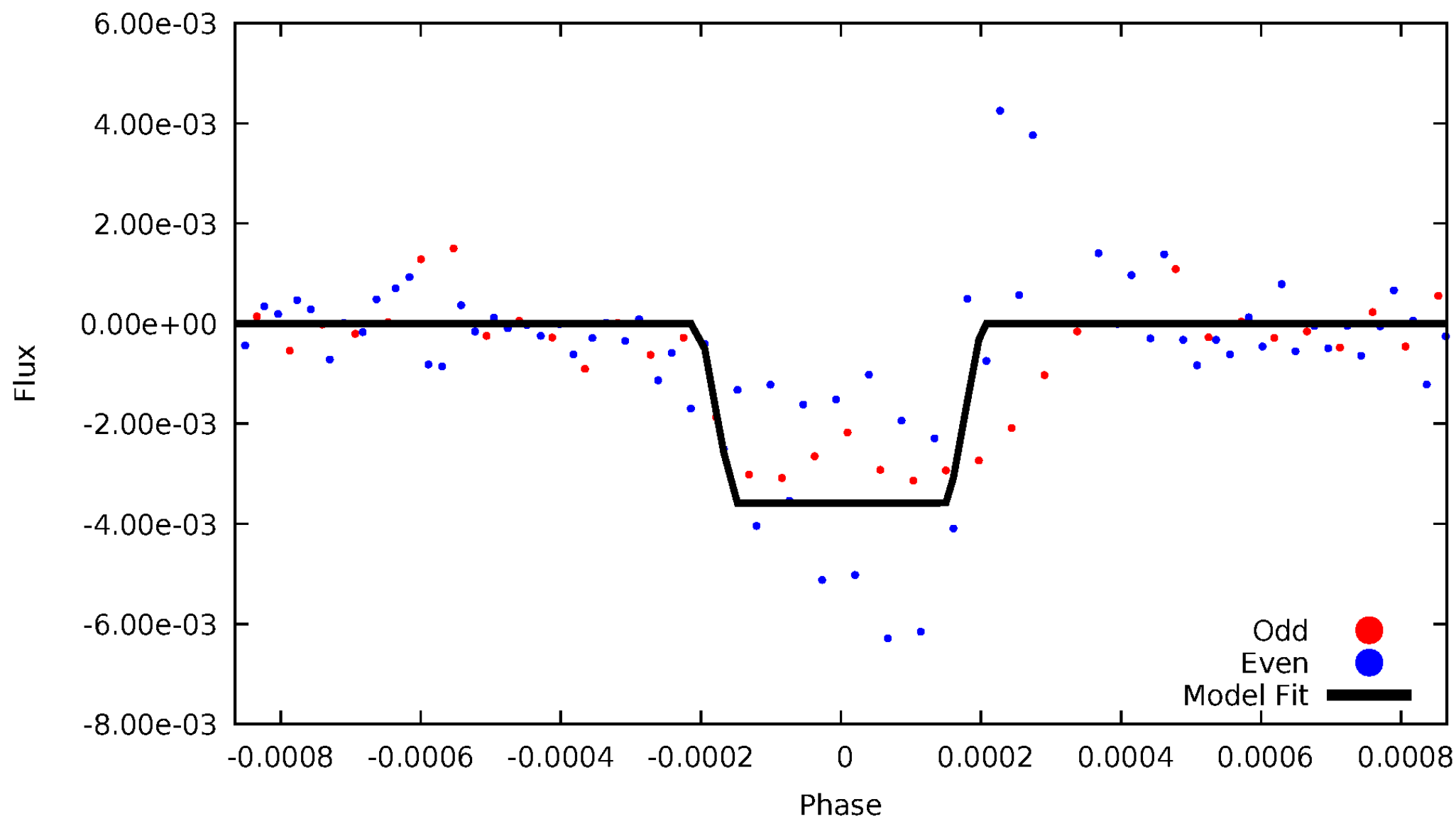
DV Odd/Even

TCE 009598005-03



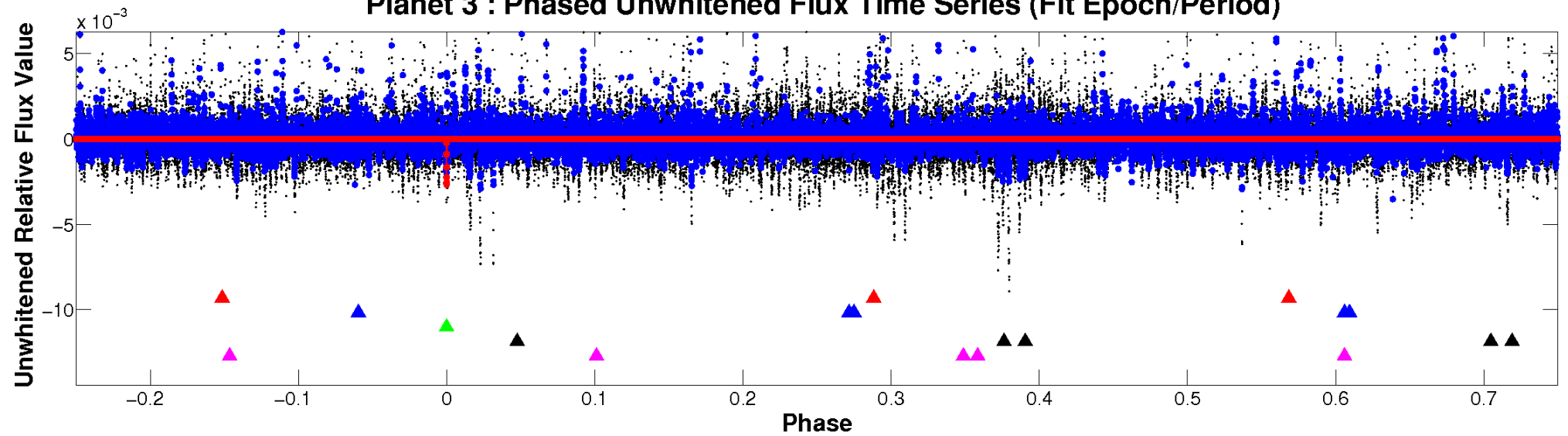
ALT Odd/Even

TCE 009598005-03

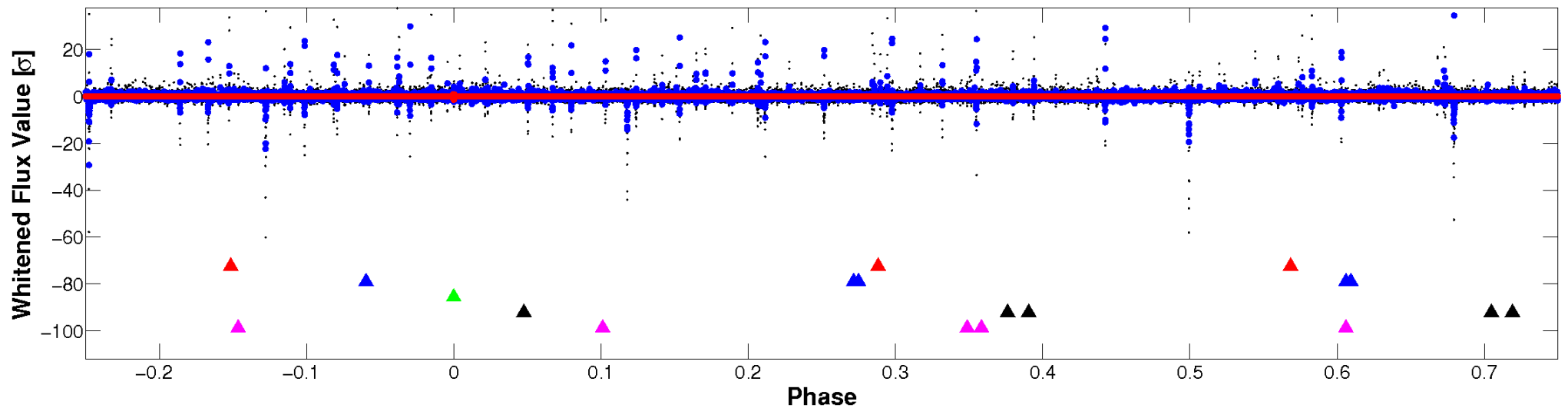


Non-Whitened Vs. Whitened Light Curve

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

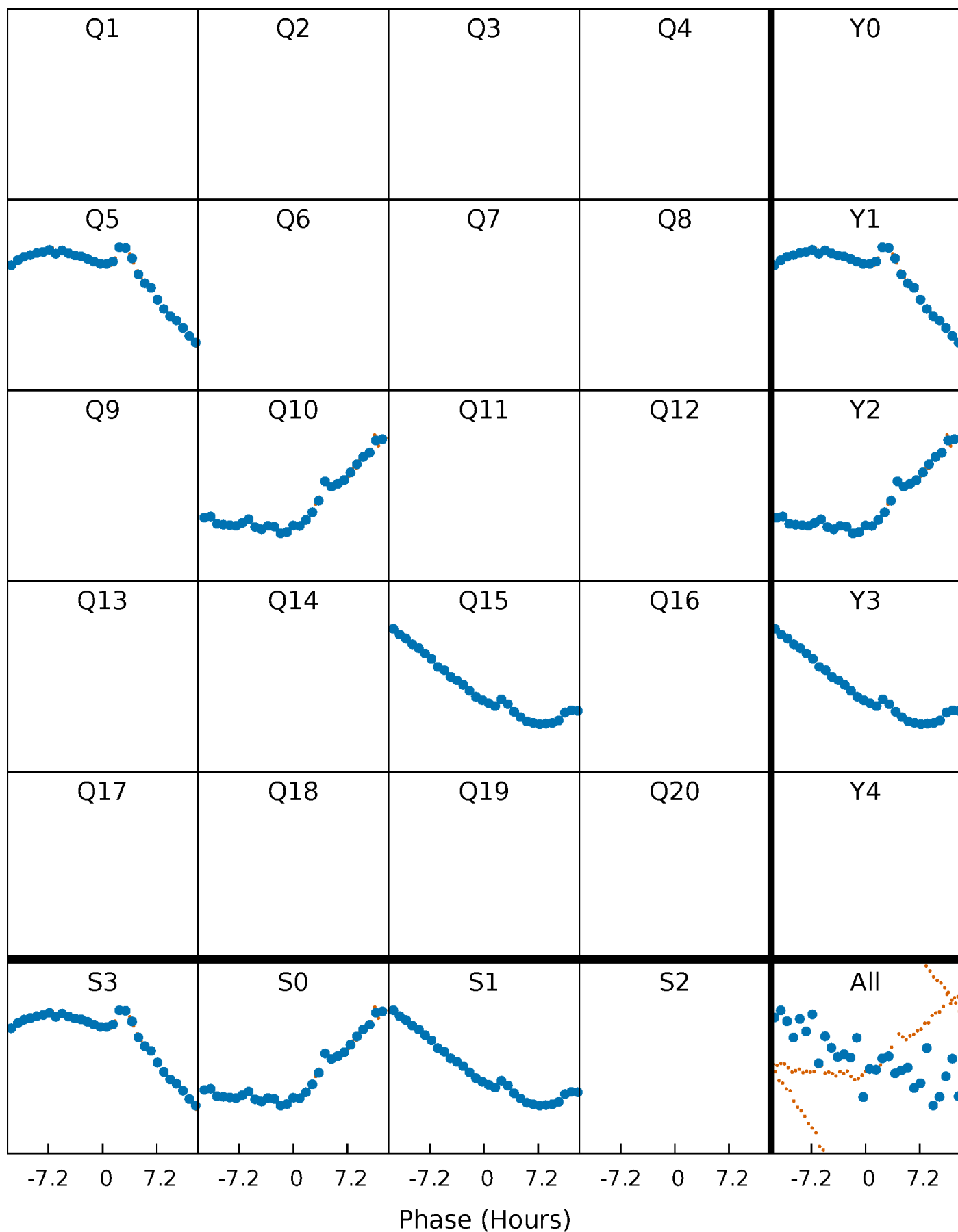


Planet 3 : Phased Whitened Flux Time Series (Fit Epoch/Period)



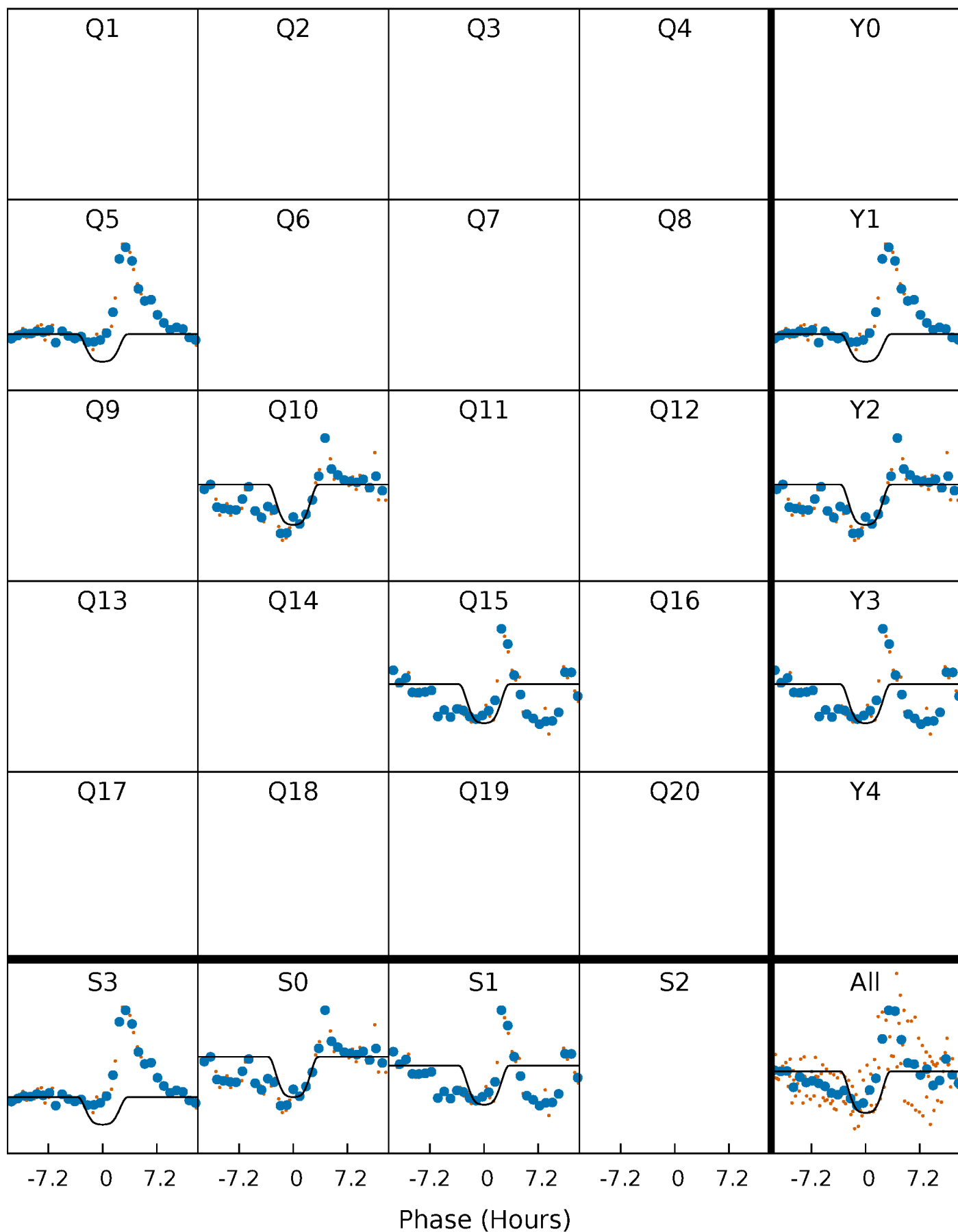
PDC Quarter-Phased Transit Curves

TCE 009598005-03 $P=436.000576$ Days $T_0=526.976229$ (BKJD)



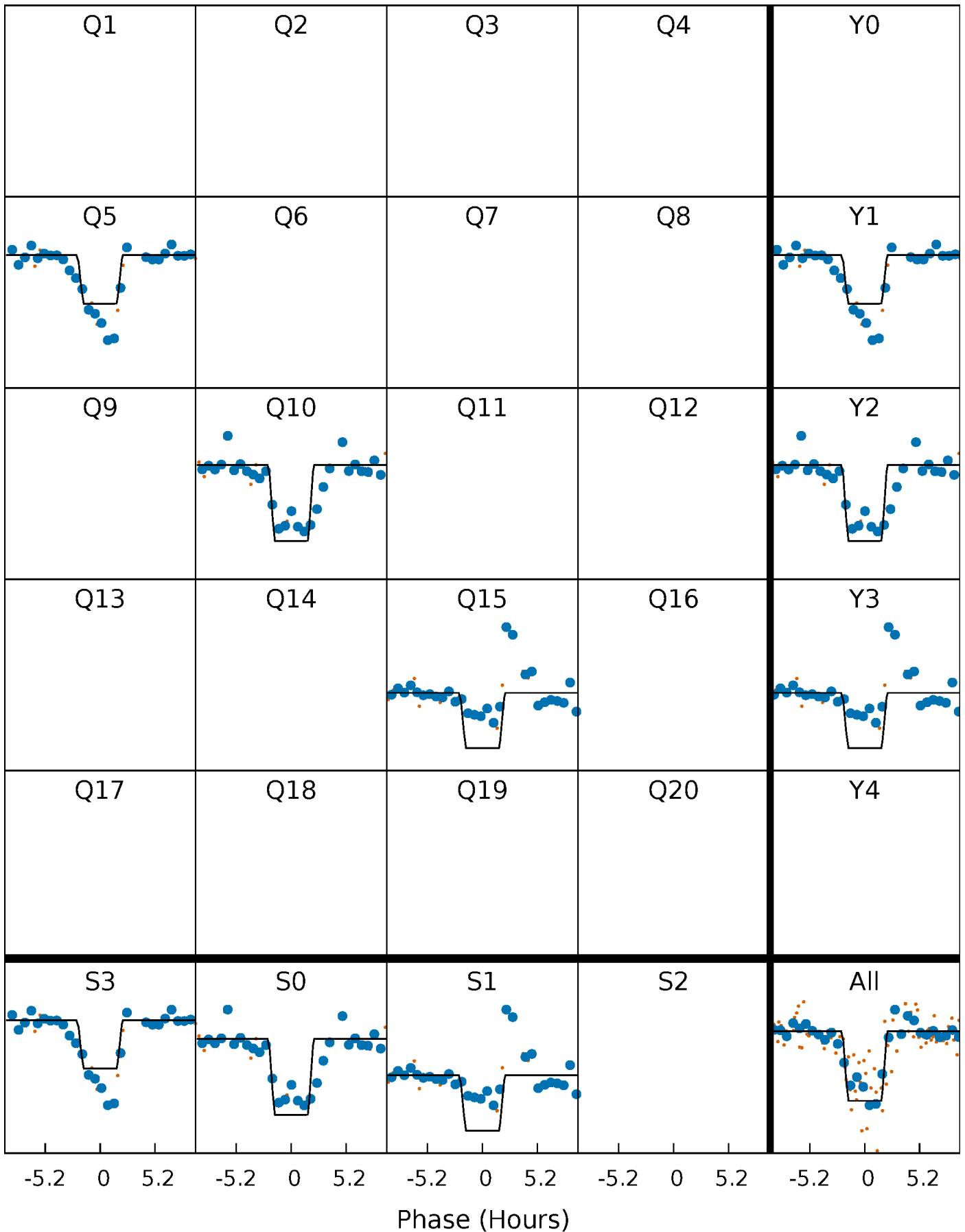
DV Quarter-Phased Transit Curves

TCE 009598005-03 P=436.000576 Days $T_0=526.976229$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

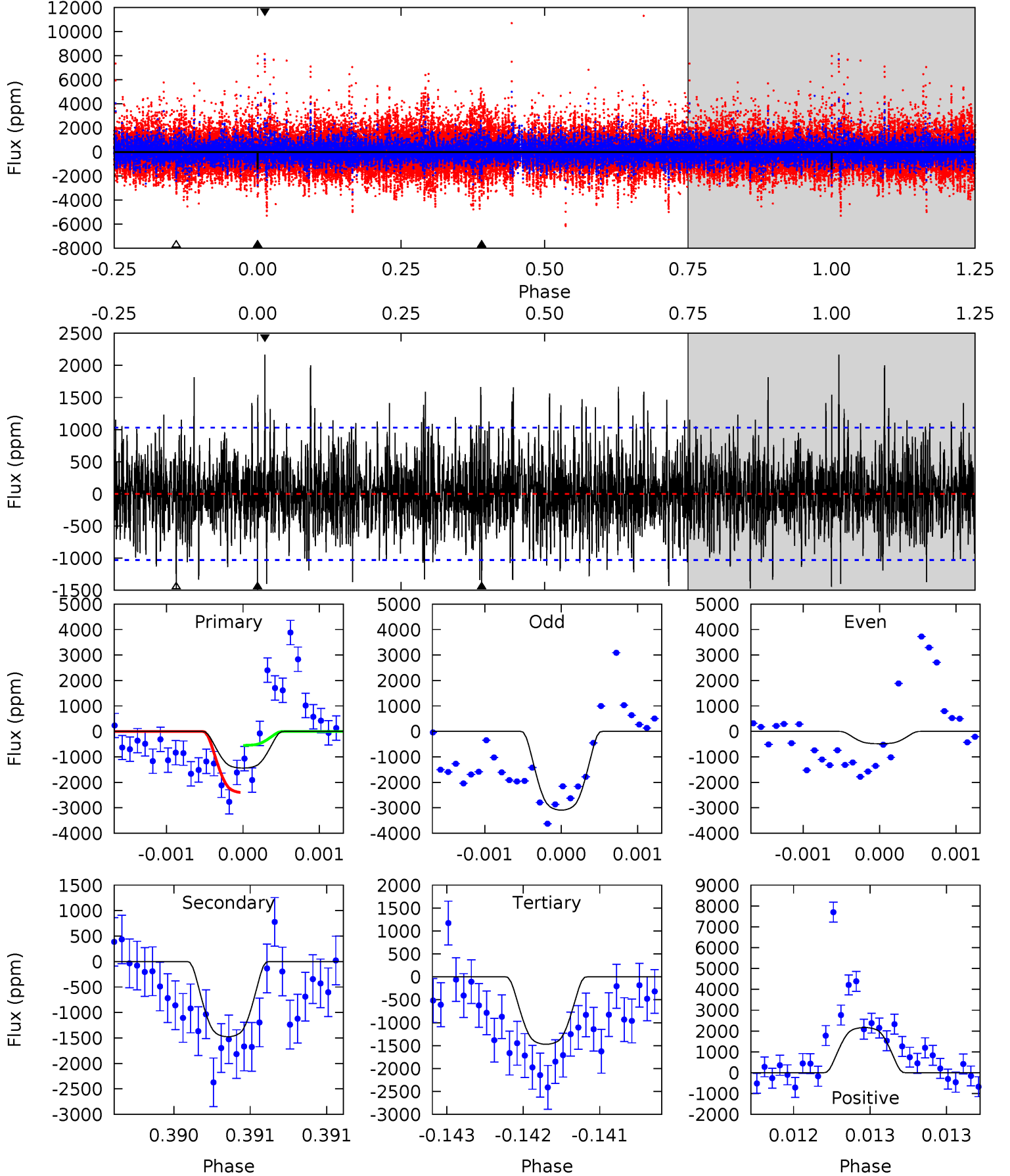
TCE 009598005-03 P=435.997681 Days $T_0=526.975973$ (BKJD)



DV Model-Shift Uniqueness Test

009598005-03, $P = 436.000576$ Days, $E = 90.975653$ Days

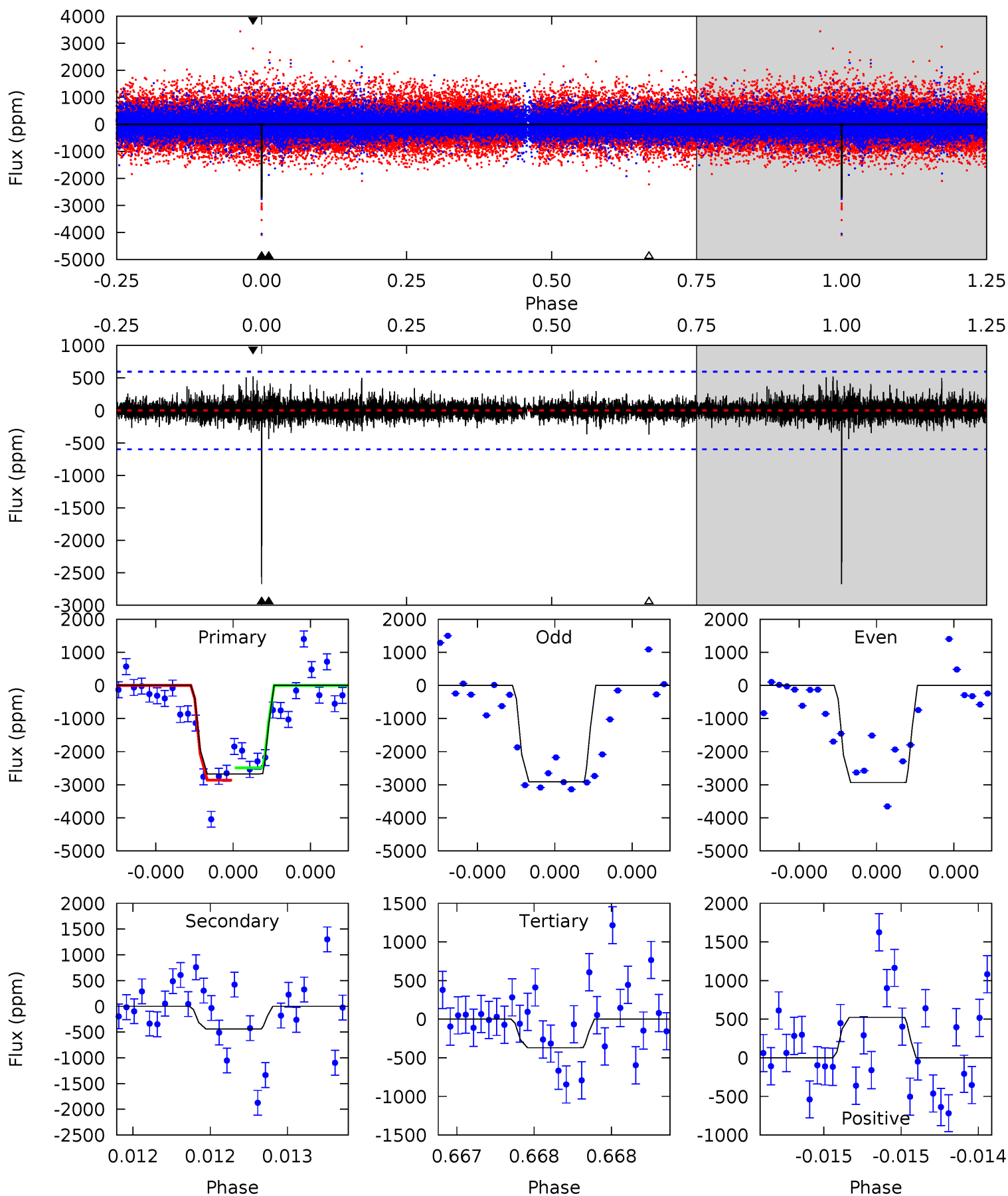
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
7.74	7.94	7.91	11.7	5.54	3.43	2.32	-0.17	-3.91	0.03	-3.71	3.46	0.73	0.59	4.99



Alt Model-Shift Uniqueness Test

009598005-03, P = 435.997681 Days, E = 90.978292 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
25.1	4.12	3.47	4.91	5.62	3.55	0.75	21.6	20.2	0.65	-0.79	0.12	1.07	0.16	1.76



Stellar Parameters For KIC 009598005

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	$M(M_{\odot})$	p_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	5432^{+179}_{-163}	$4.516^{+0.105}_{-0.095}$	$-0.560^{+0.350}_{-0.300}$	$0.769^{+0.106}_{-0.106}$	$0.708^{+0.096}_{-0.037}$	$2.190^{+0.980}_{-0.621}$
	+3%/-3%	+2%/-2%	+62%/-54%	+14%/-14%	+14%/-5%	+45%/-28%
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 009598005-03 / KOI

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	-1476 ± 186	$4.94^{+0.78}_{-0.70}$	294^{+15}_{-16}	4561^{+290}_{-258}	33824^{+12959}_{-8708}
Alt.	-439 ± 107	$5.08^{+0.69}_{-0.73}$	292^{+16}_{-13}	3638^{+219}_{-215}	9662^{+4208}_{-2916}

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

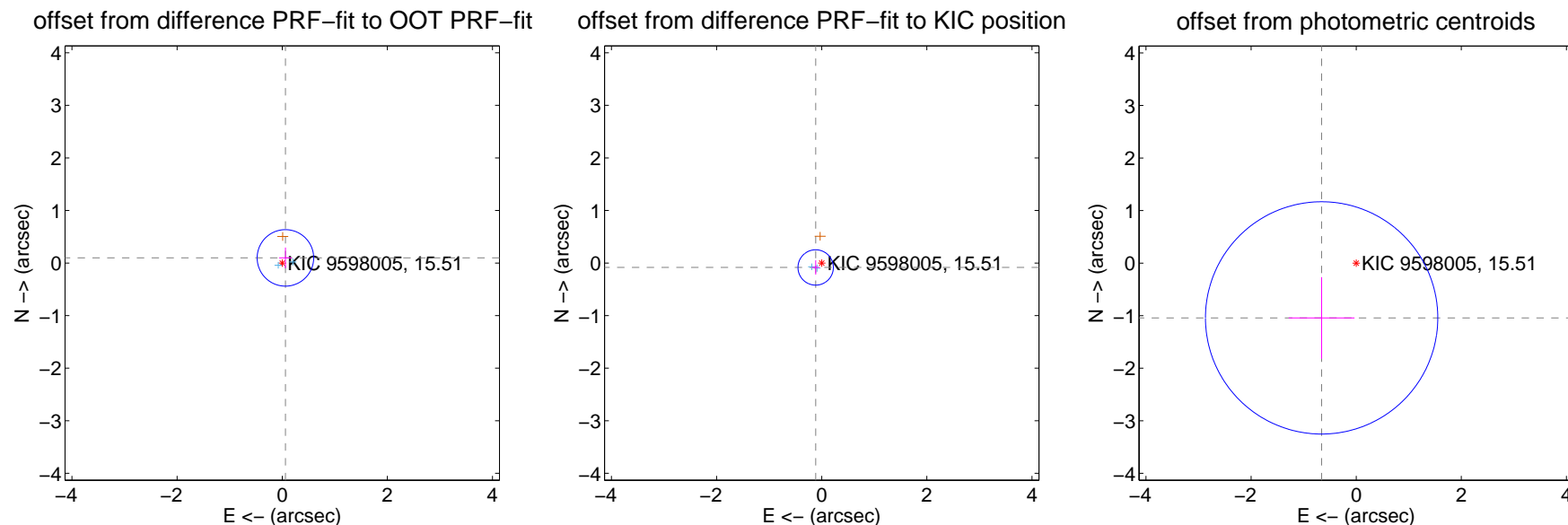
DV Centroid Data

Supplemental centroid analysis for 009598005-03. Kepler magnitude: 15.51. 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 0.32 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.115 ± 0.179	0.64	-0.061 ± 0.120	0.098 ± 0.197
PRF-fit source offset from KIC position	0.143 ± 0.112	1.27	0.115 ± 0.073	-0.084 ± 0.136
photometric centroid source offset	1.23 ± 0.74	1.67	0.66 ± 0.63	-1.04 ± 0.78

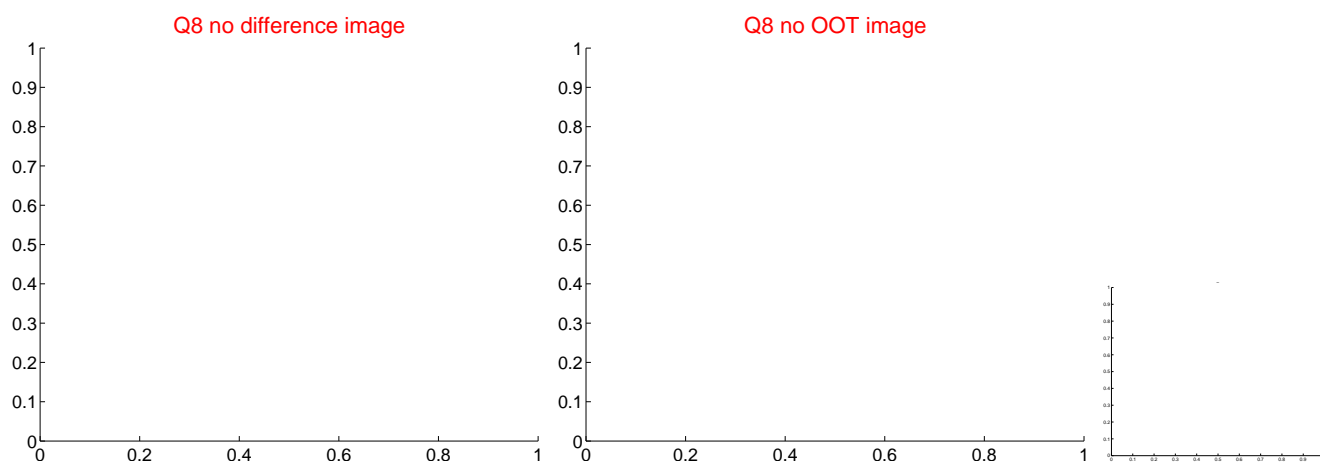
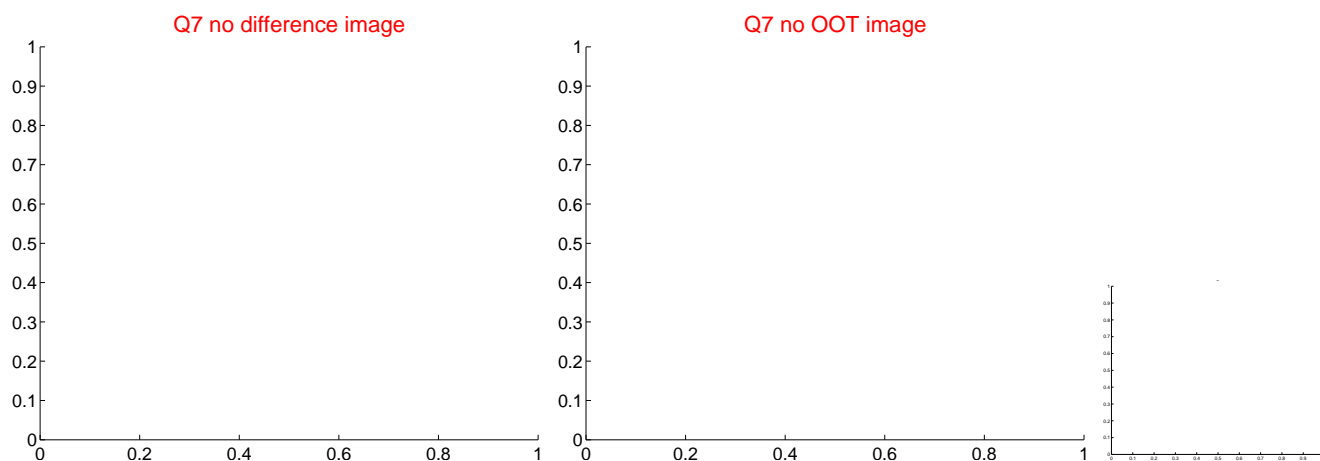
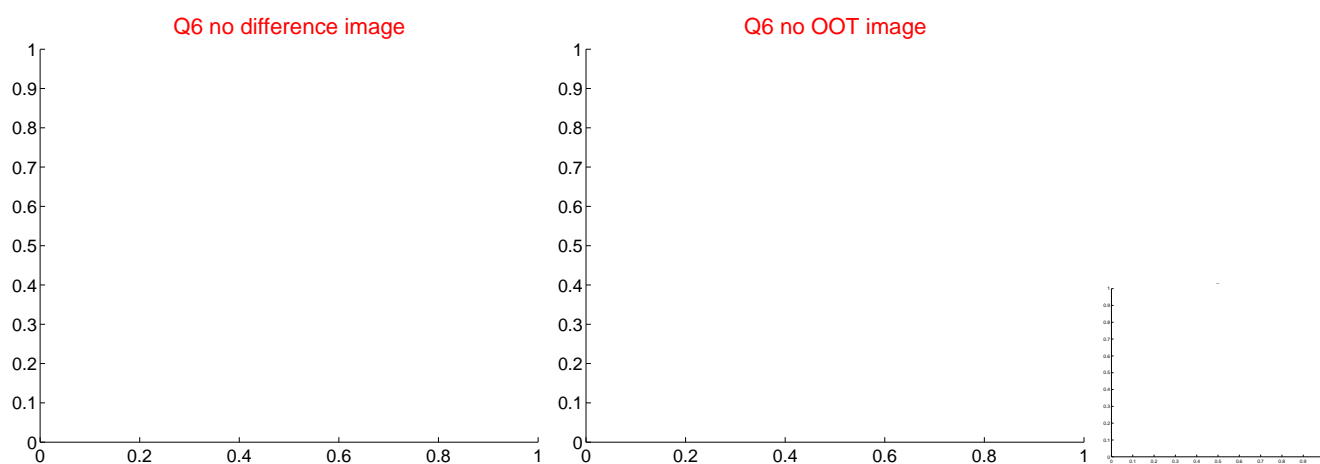
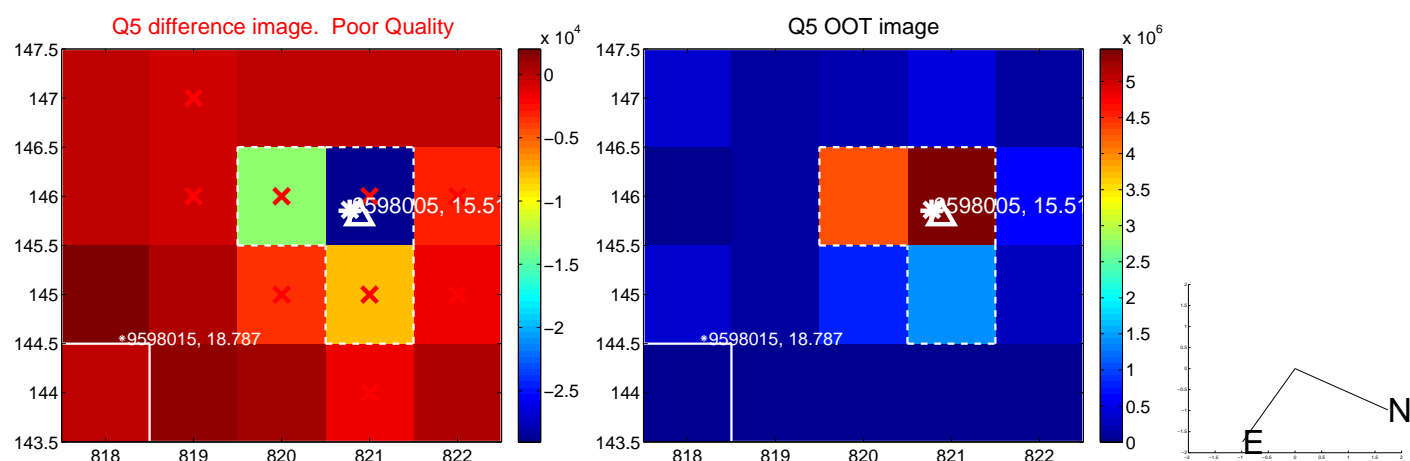


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ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

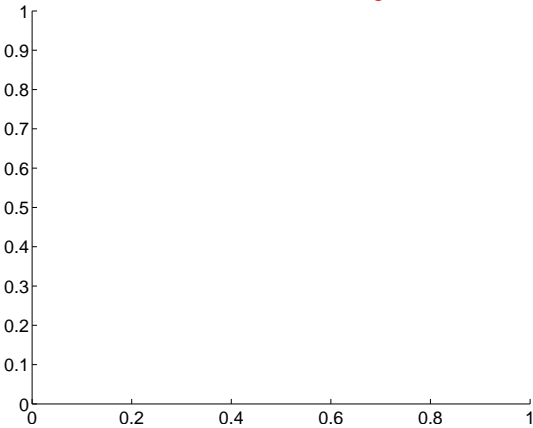


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value

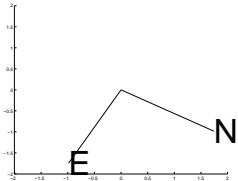
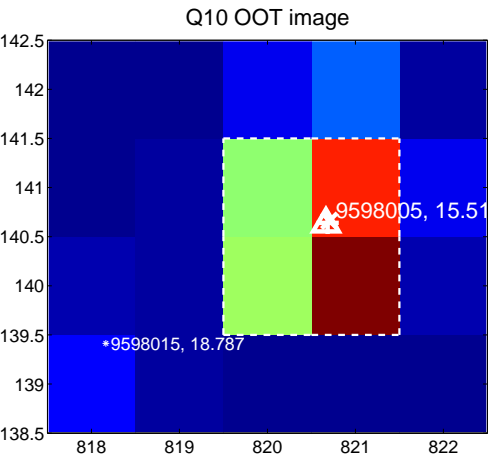
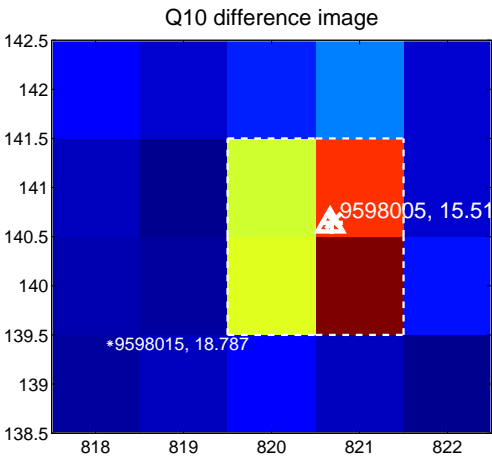
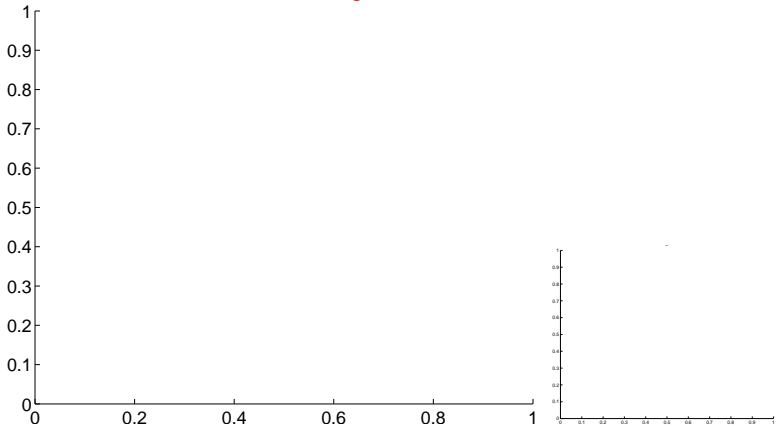


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.

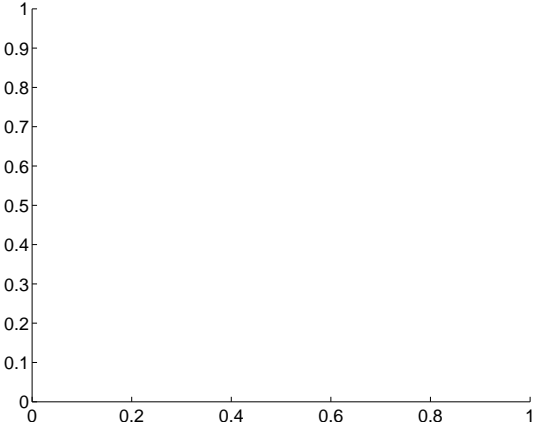
Q9 no difference image



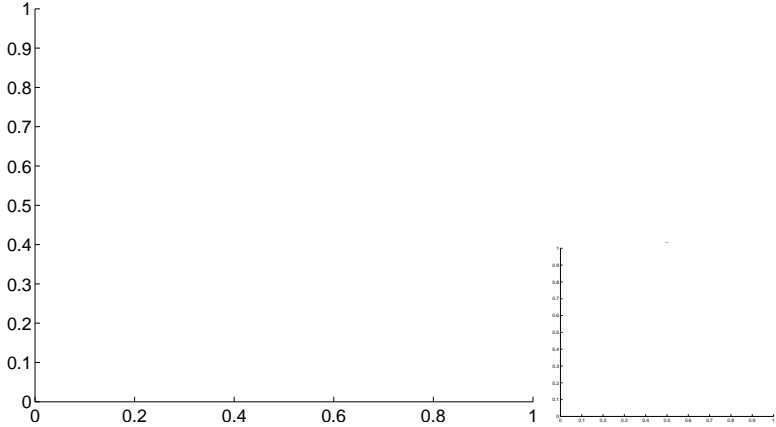
Q9 no OOT image



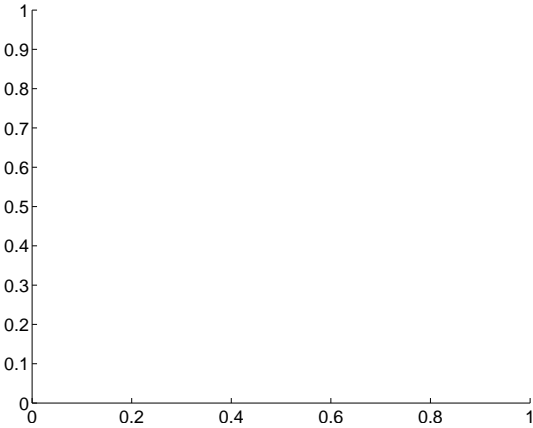
Q11 no difference image



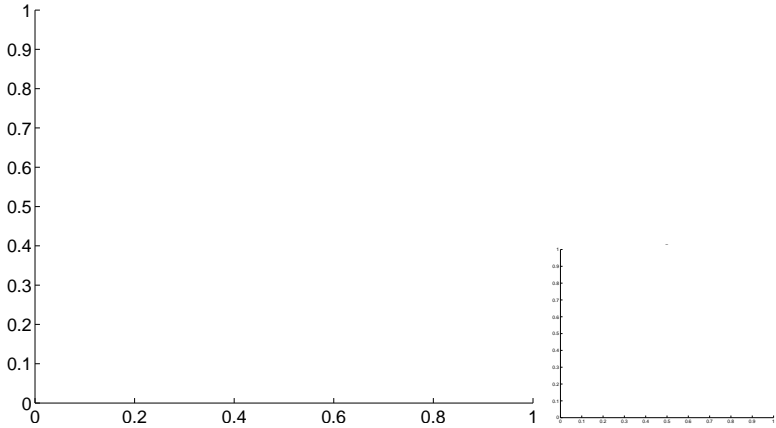
Q11 no OOT image



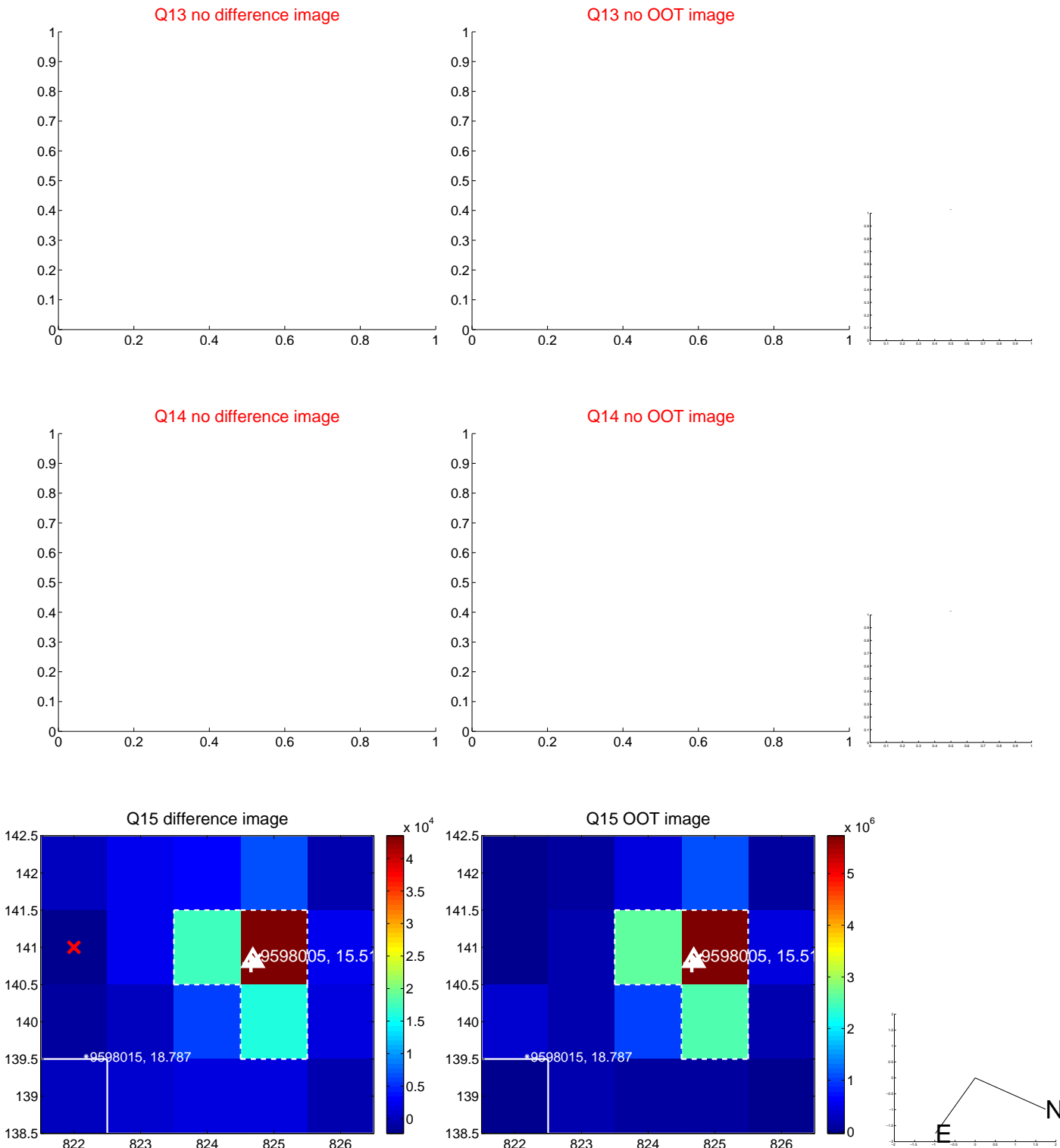
Q12 no difference image



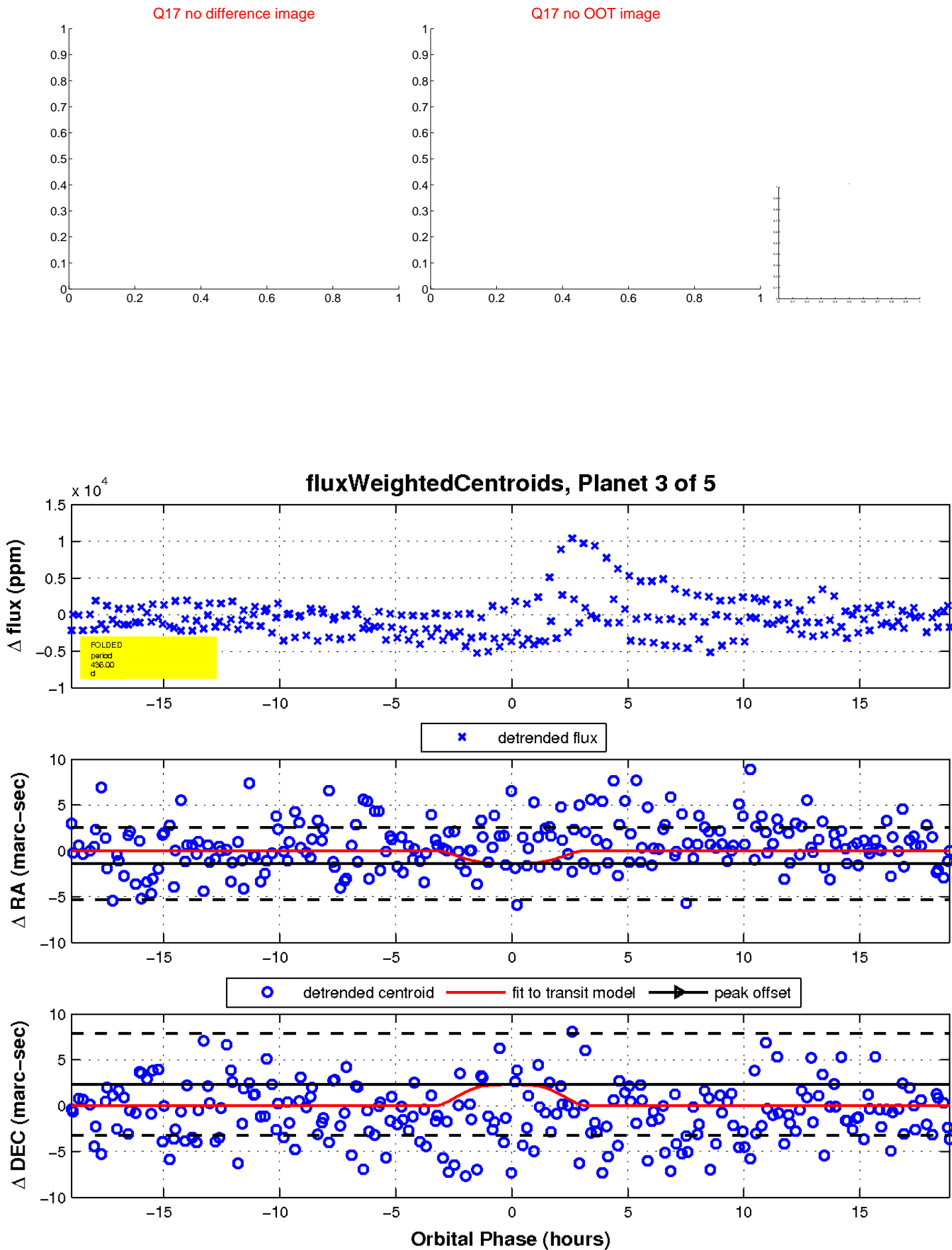
Q12 no OOT image



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

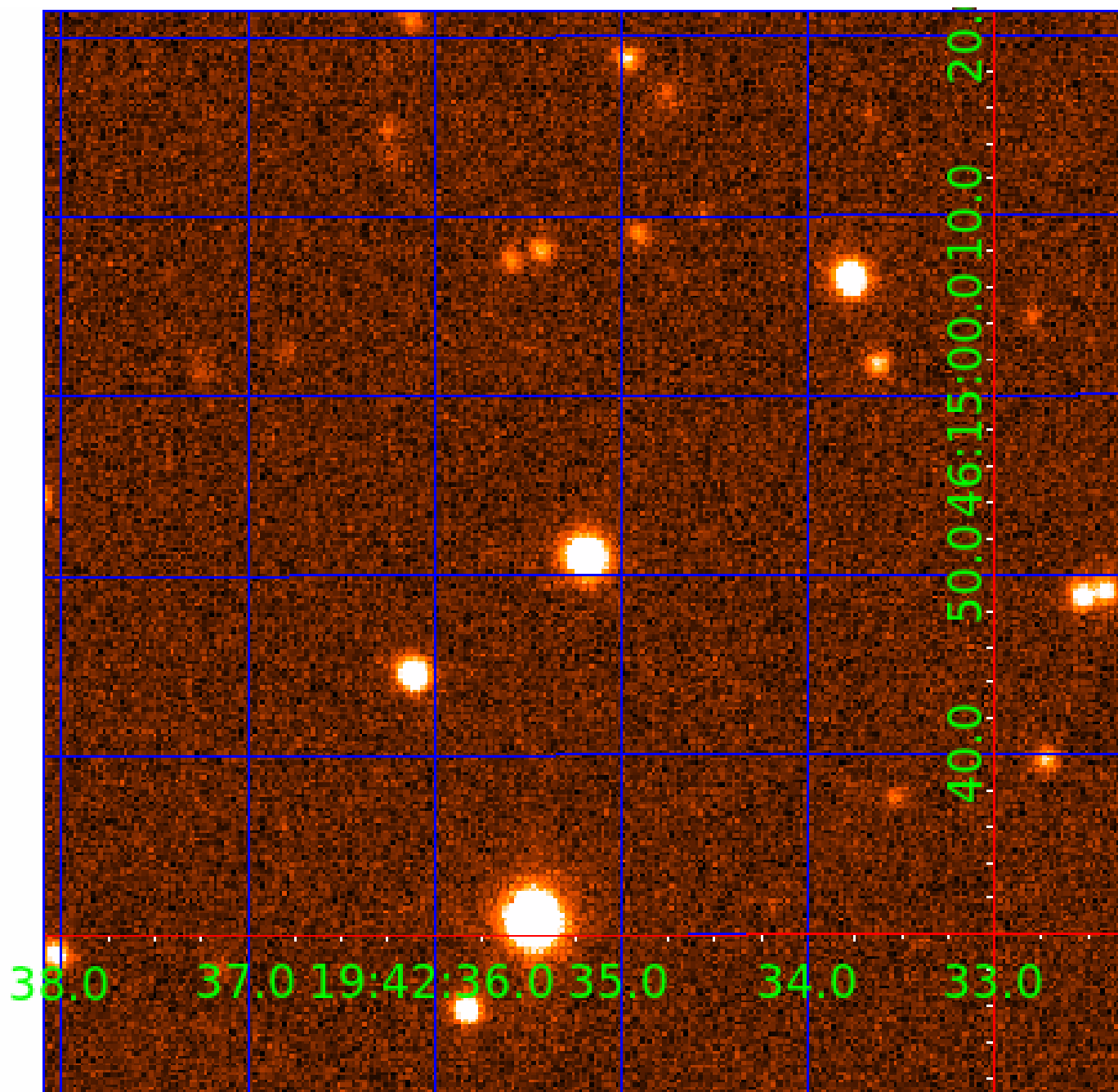


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 009598005

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})
009598005-01	OBS	No	558.145805	216.661507	2268.2	3.210	12.7	7.7	0.77	5432	3.95	0.33
009598005-02	OBS	No	290.186338	356.659045	1615.7	5.979	14.2	6.6	0.77	5432	3.27	0.79
009598005-03	OBS	No	436.000576	526.976229	2679.5	6.332	11.8	6.9	0.77	5432	4.90	0.46
009598005-04	OBS	No	292.745447	398.263564	2205.5	2.238	10.5	7.3	0.77	5432	3.84	0.78
009598005-05	OBS	No	328.053178	243.044554	2069.4	3.000	10.9	-1.0	0.77	5432	3.46	0.67

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
009598005-01	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_POS_ALT—CENT_FEW_DIFFS
009598005-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—INCONSISTENT_TRANS
009598005-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—CENT_FEW_DIFFS
009598005-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_FEW_DIFFS
009598005-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—LPP_DV—ALL_TRANS_CHASES—INCONSISTENT_TRANS—CENT_NOFITS

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

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

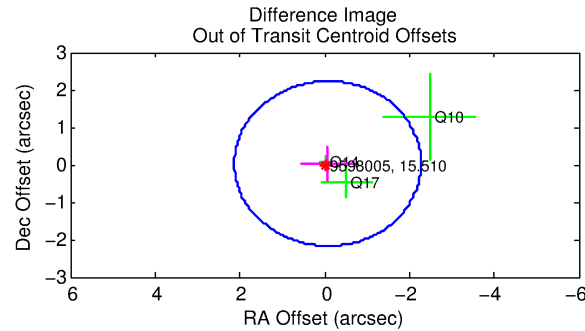
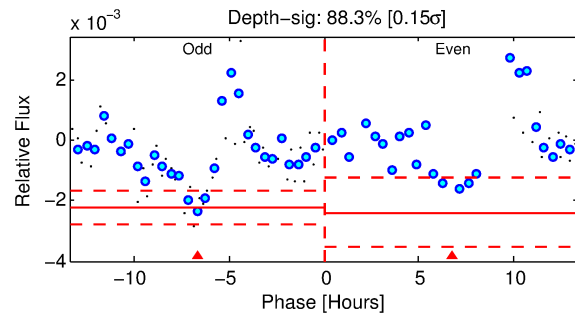
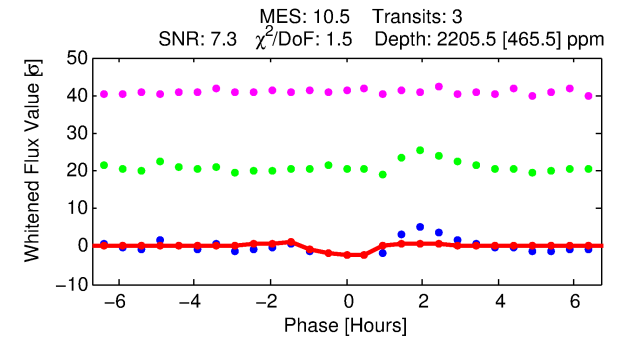
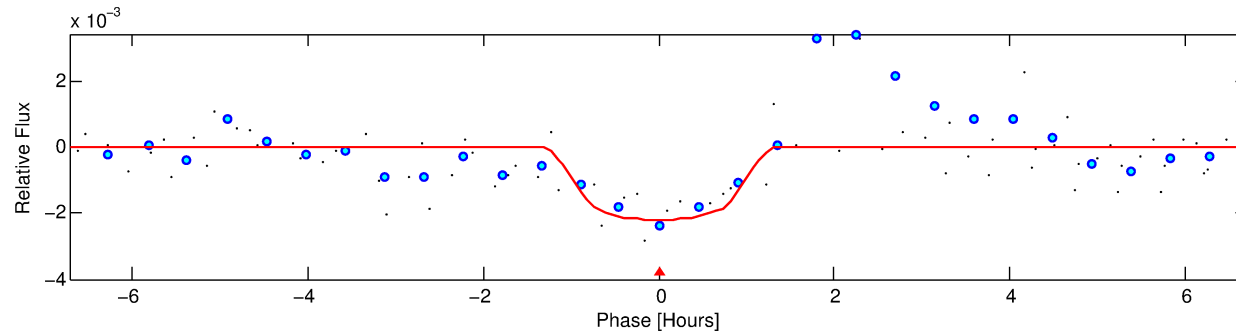
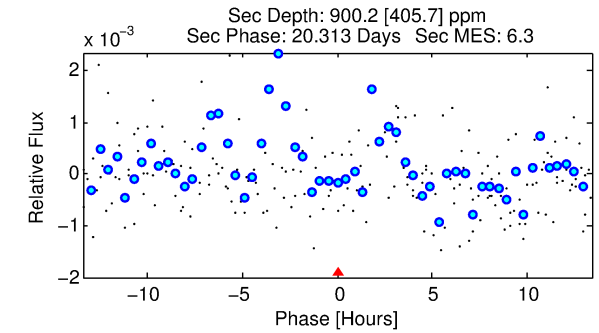
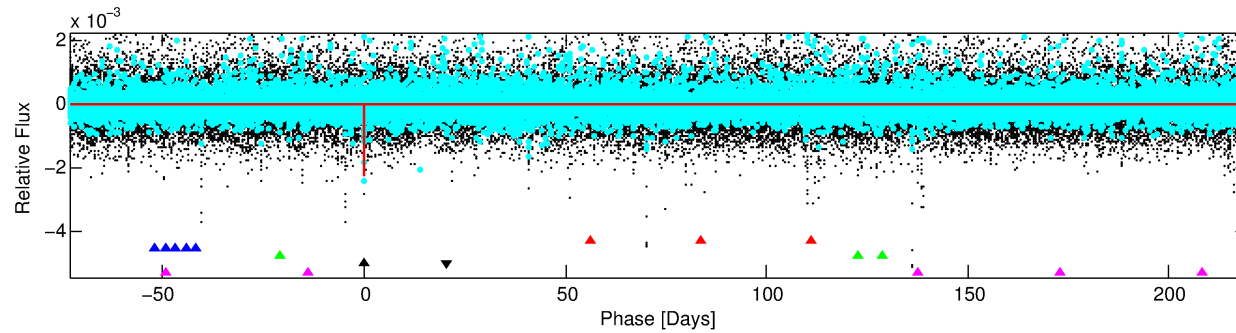
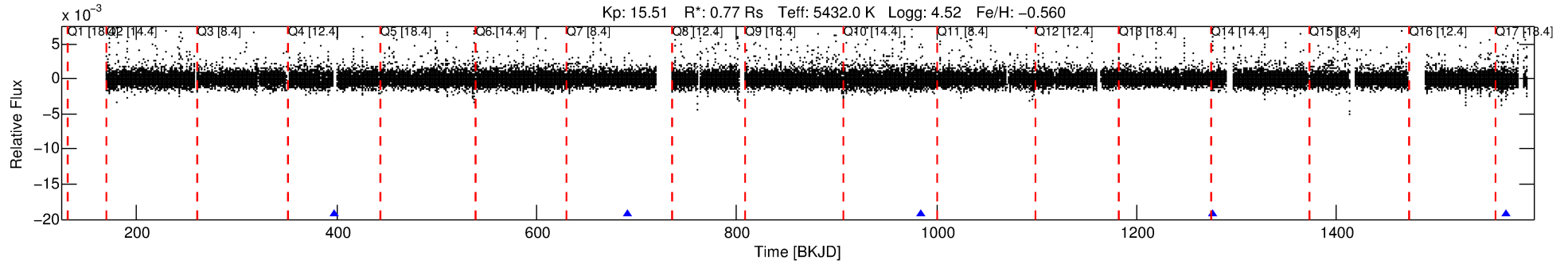
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 009598005-04

No Significant Match Found

DV One-Page Summary

KIC: 9598005 Candidate: 4 of 5 Period: 292.745 d



DV Fit Results:

Period = 292.74545 [0.00405] d
Epoch = 398.2636 [0.0108] BKJD
Rp/R* = 0.0458 [0.0575]
a/R* = 796.07 [4192.64]
b = 0.68 [4.27]
Seff = 0.78 [0.18]
Teq = 240 [14] K
Rp = 3.84 [4.85] Re
a = 0.7691 [0.0940] AU
Ag = 19859.10 [50803.63] [0.39 σ]
Teffp = 4398 [2809] K [1.48 σ]

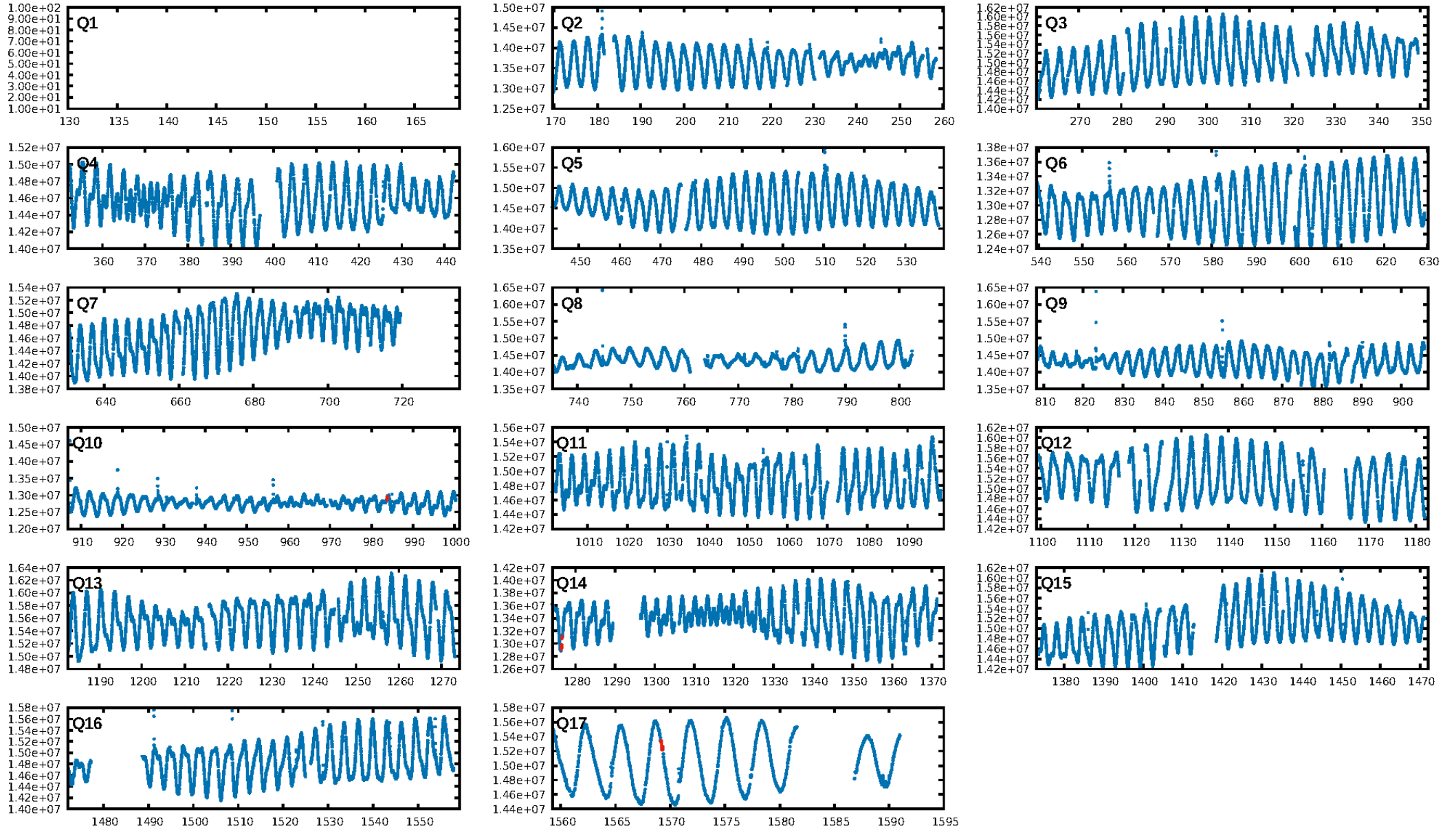
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [9.62 σ]
LongPeriod-sig: 100.0% [226.39 σ]
ModelChiSquare2-sig: 2.5%
ModelChiSquareGof-sig: 80.8%
Bootstrap-pfa: N/A
RollingBand-fgt: 1.00 [2/2]
GhostDiagnostic-chr: -0.8573
Centroid-sig: 81.0%
Centroid-so: 0.582 arcsec [0.51 σ]
OotOffset-rm: 0.080 arcsec [0.11 σ]
OotOffset-st: 2/0/0/1 [3]
KicOffset-rm: 0.048 arcsec [0.12 σ]
KicOffset-st: 2/0/0/1 [3]
DiffImageQuality-fgm: 0.67 [2/3]
DiffImageOverlap-fno: 1.00 [3/3]

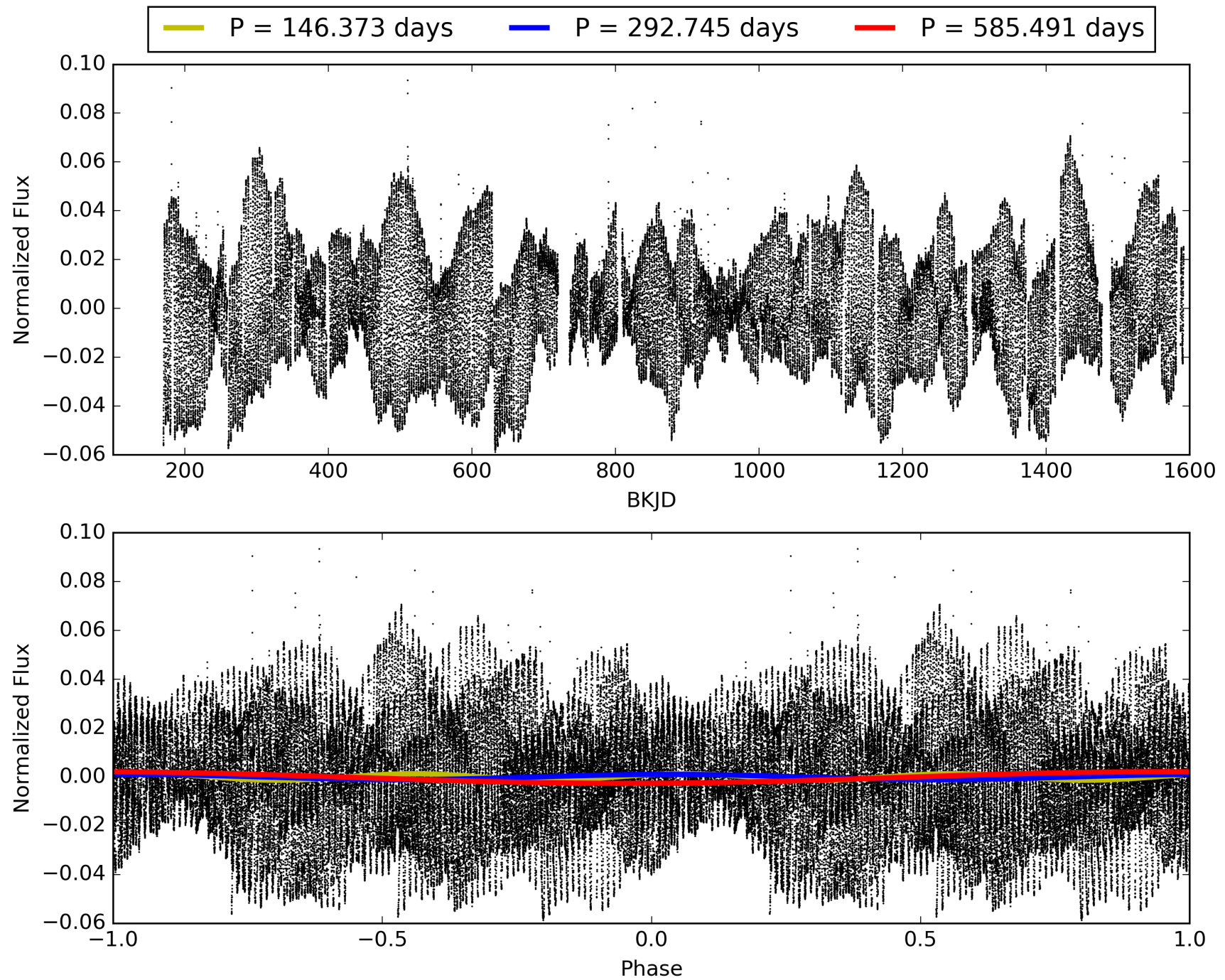
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 03-Feb-2016 07:58:30 Z

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

TCE 009598005-04, PDC Light Curves

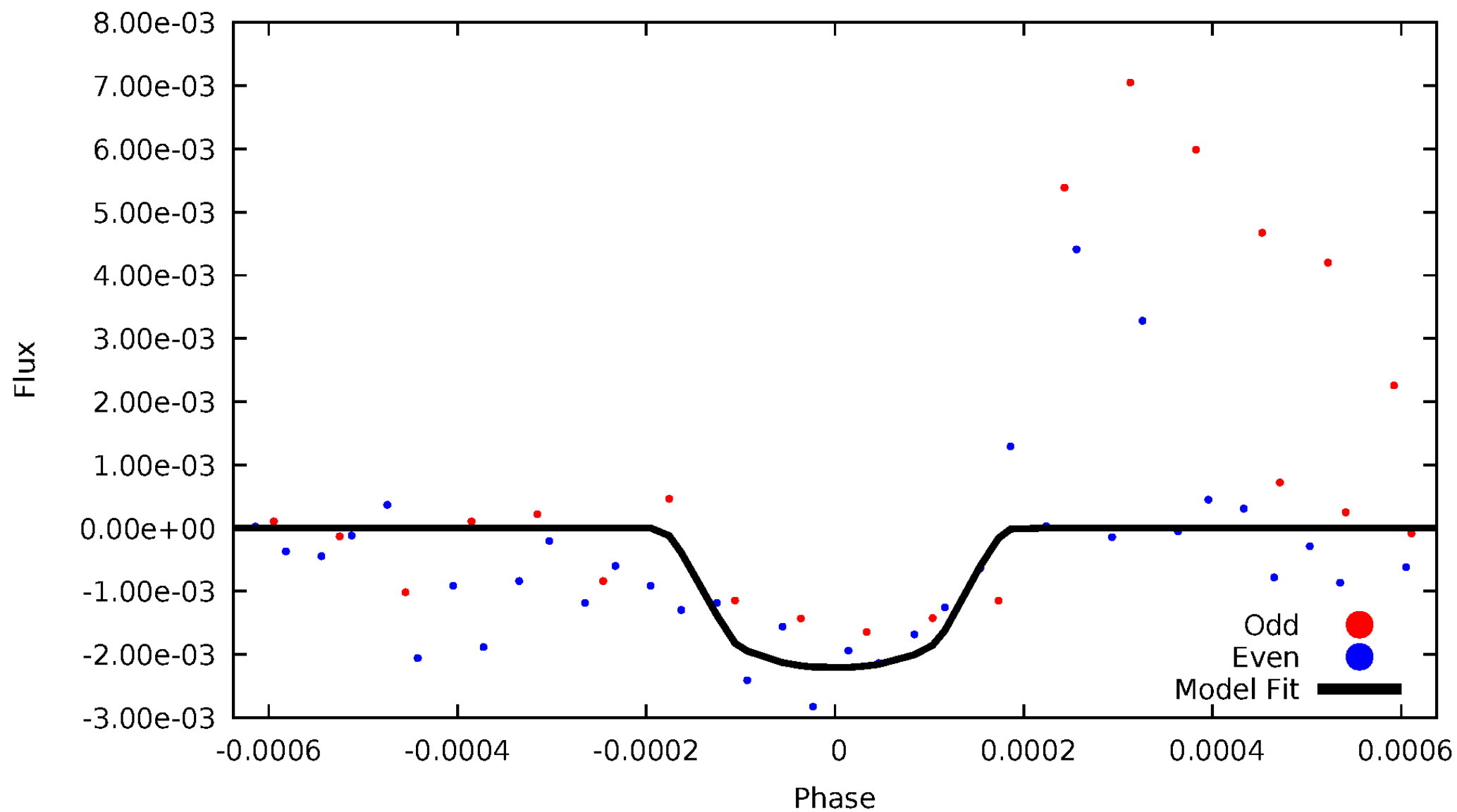


TCE 009598005-04



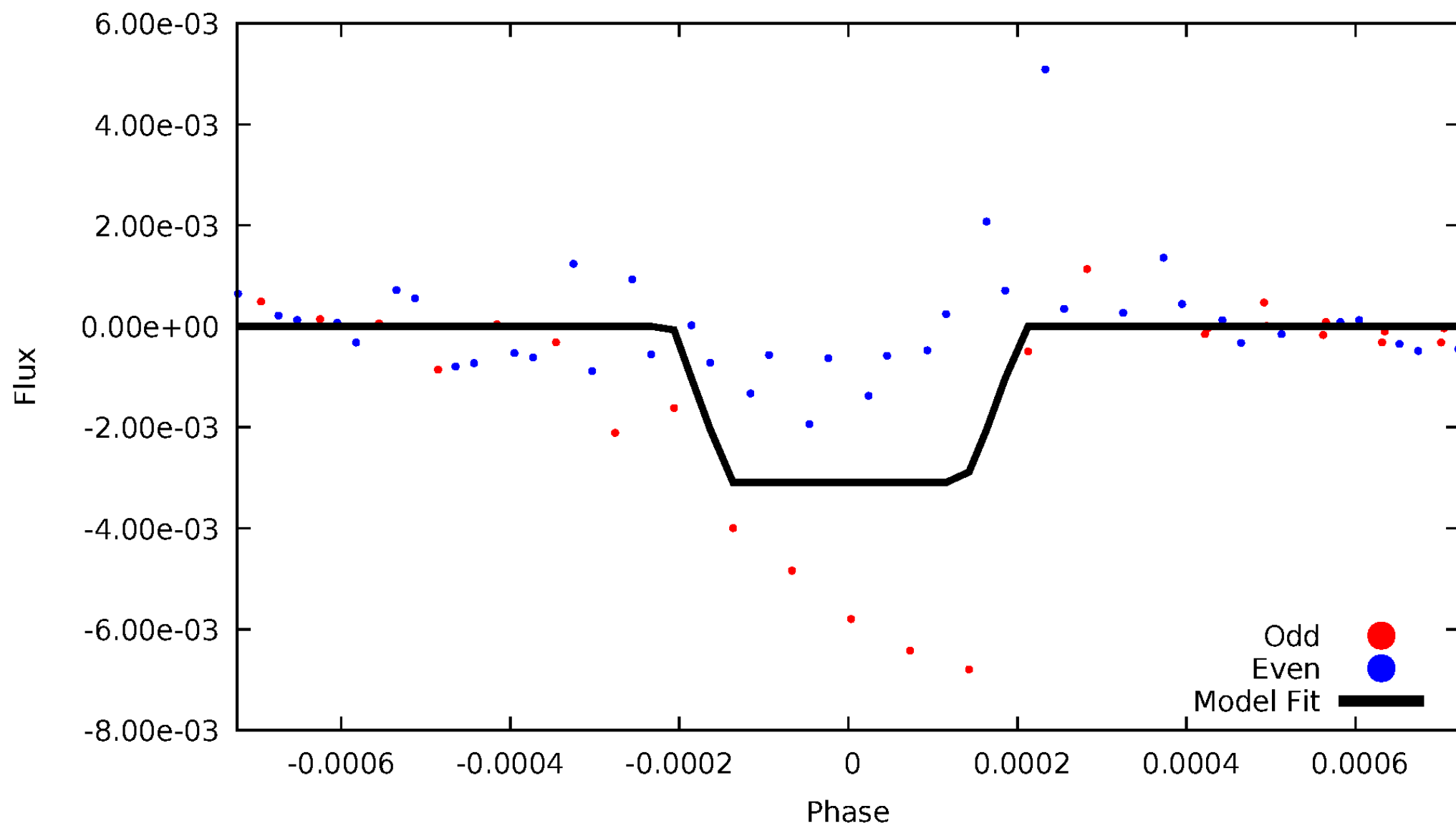
DV Odd/Even

TCE 009598005-04



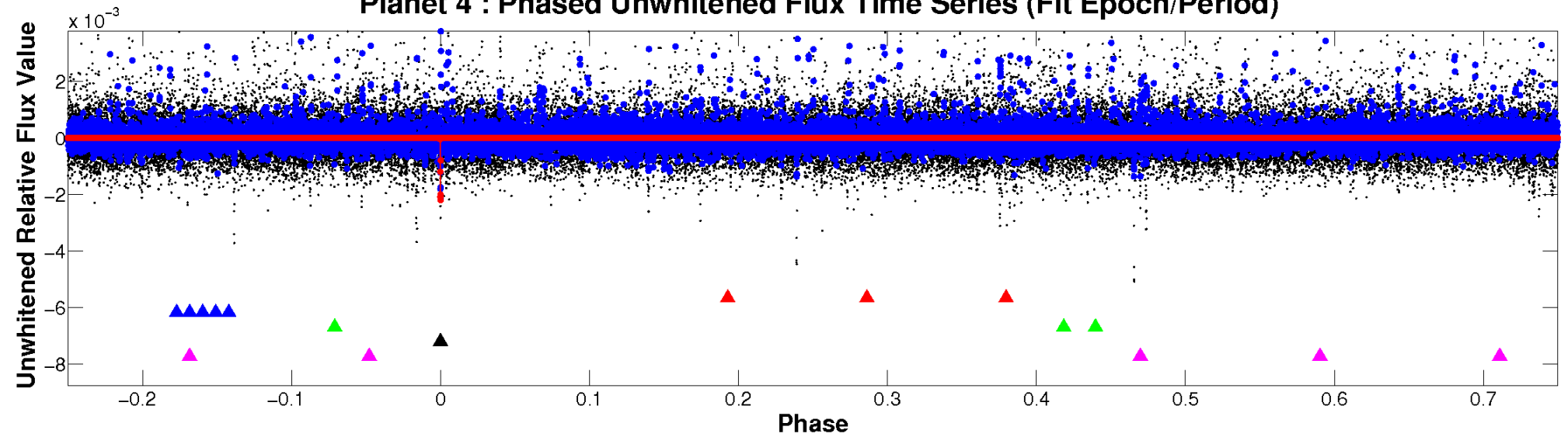
ALT Odd/Even

TCE 009598005-04

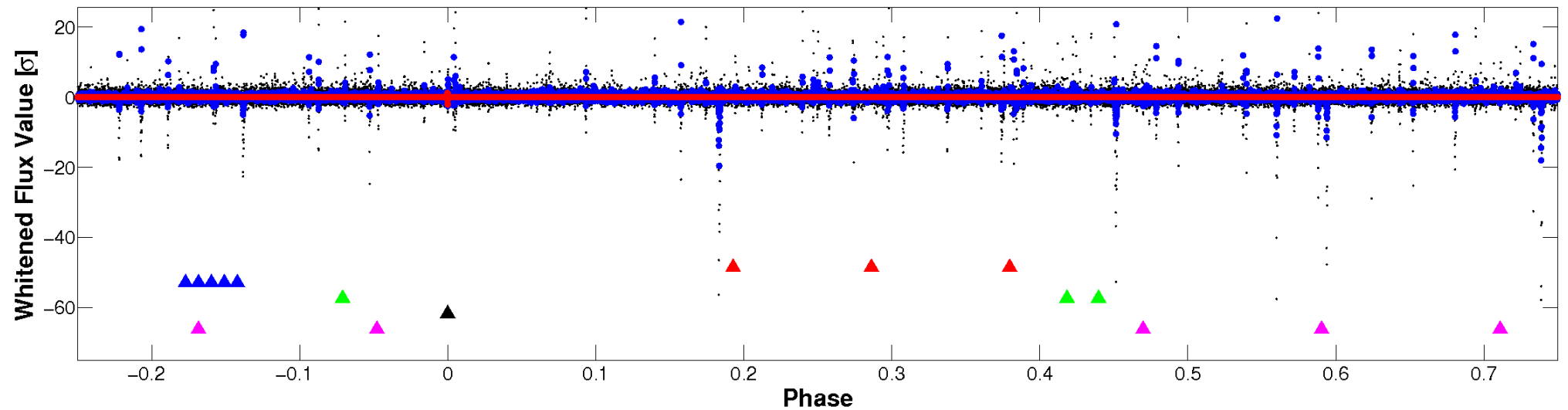


Non-Whitened Vs. Whitened Light Curve

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

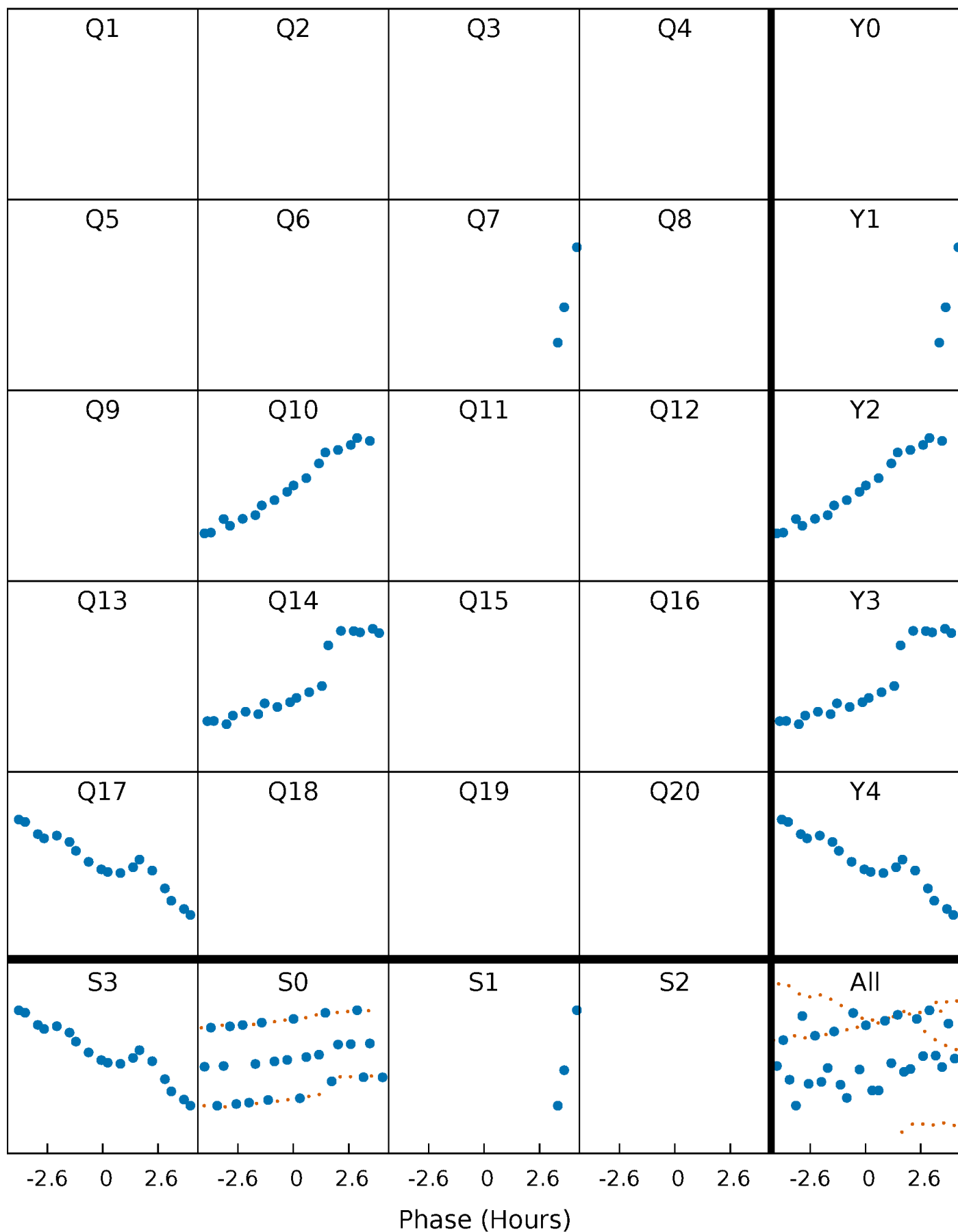


Planet 4 : Phased Whitened Flux Time Series (Fit Epoch/Period)



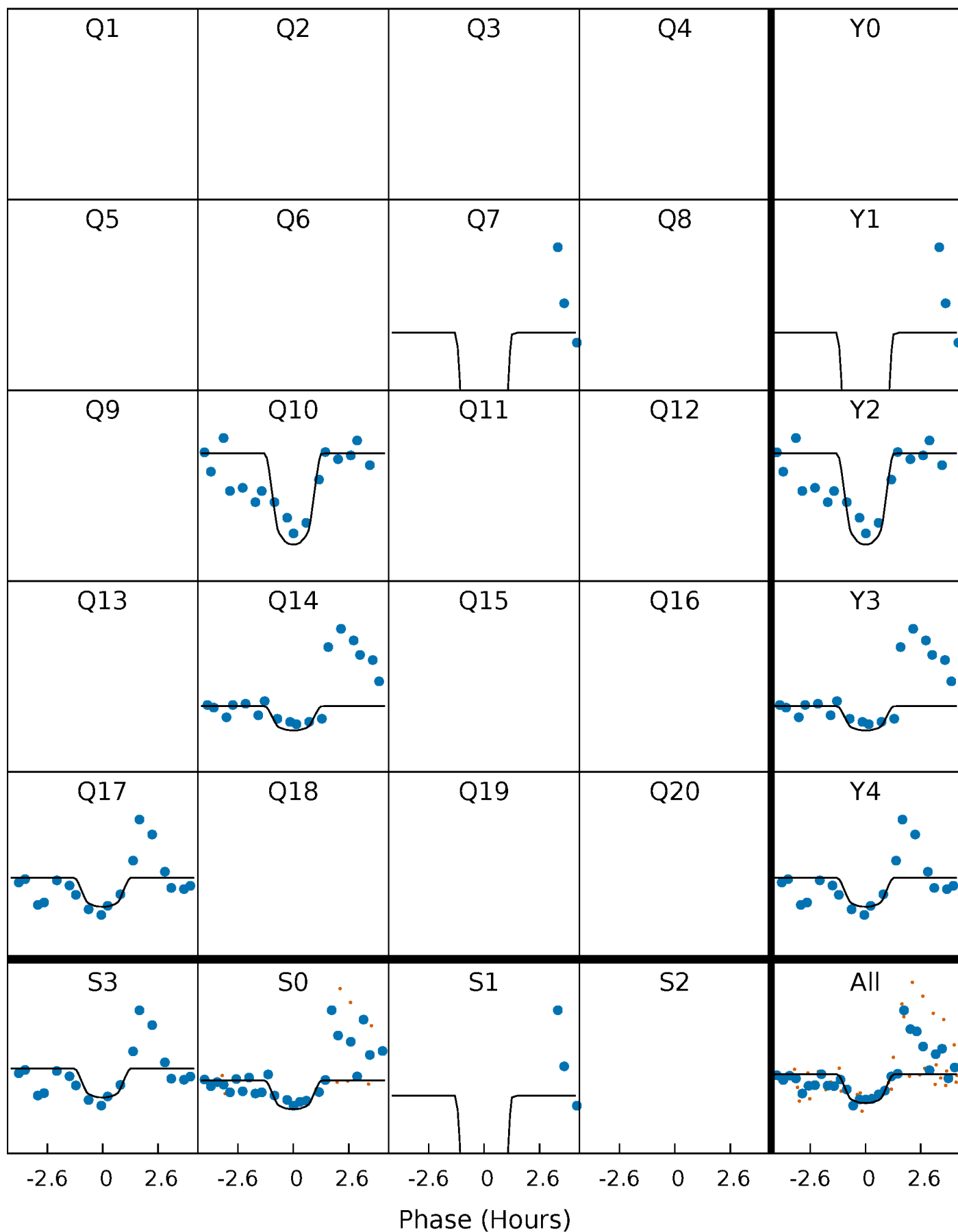
PDC Quarter-Phased Transit Curves

TCE 009598005-04 $P=292.745447$ Days $T_0=398.263563$ (BKJD)



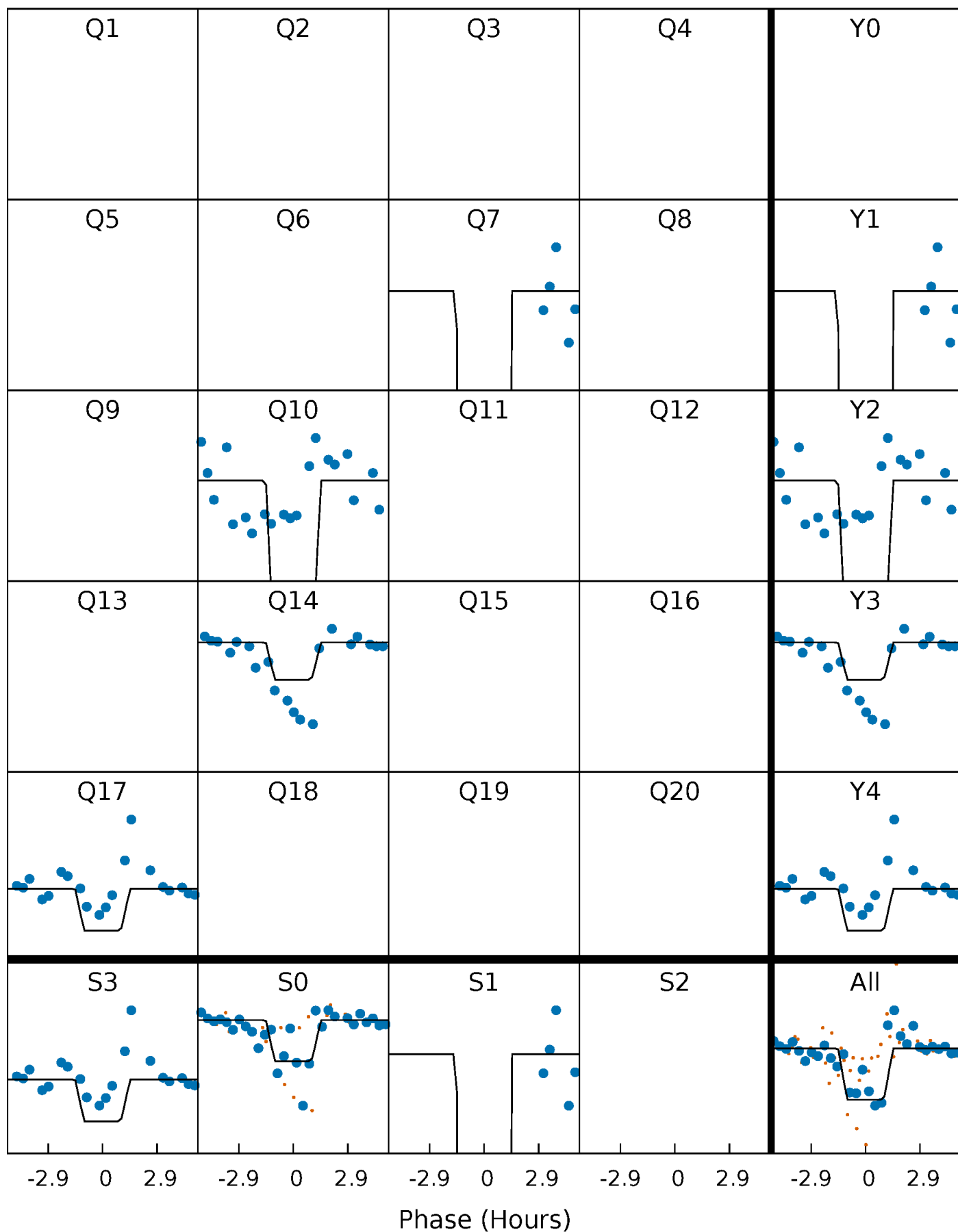
DV Quarter-Phased Transit Curves

TCE 009598005-04 P=292.745447 Days $T_0=398.263563$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

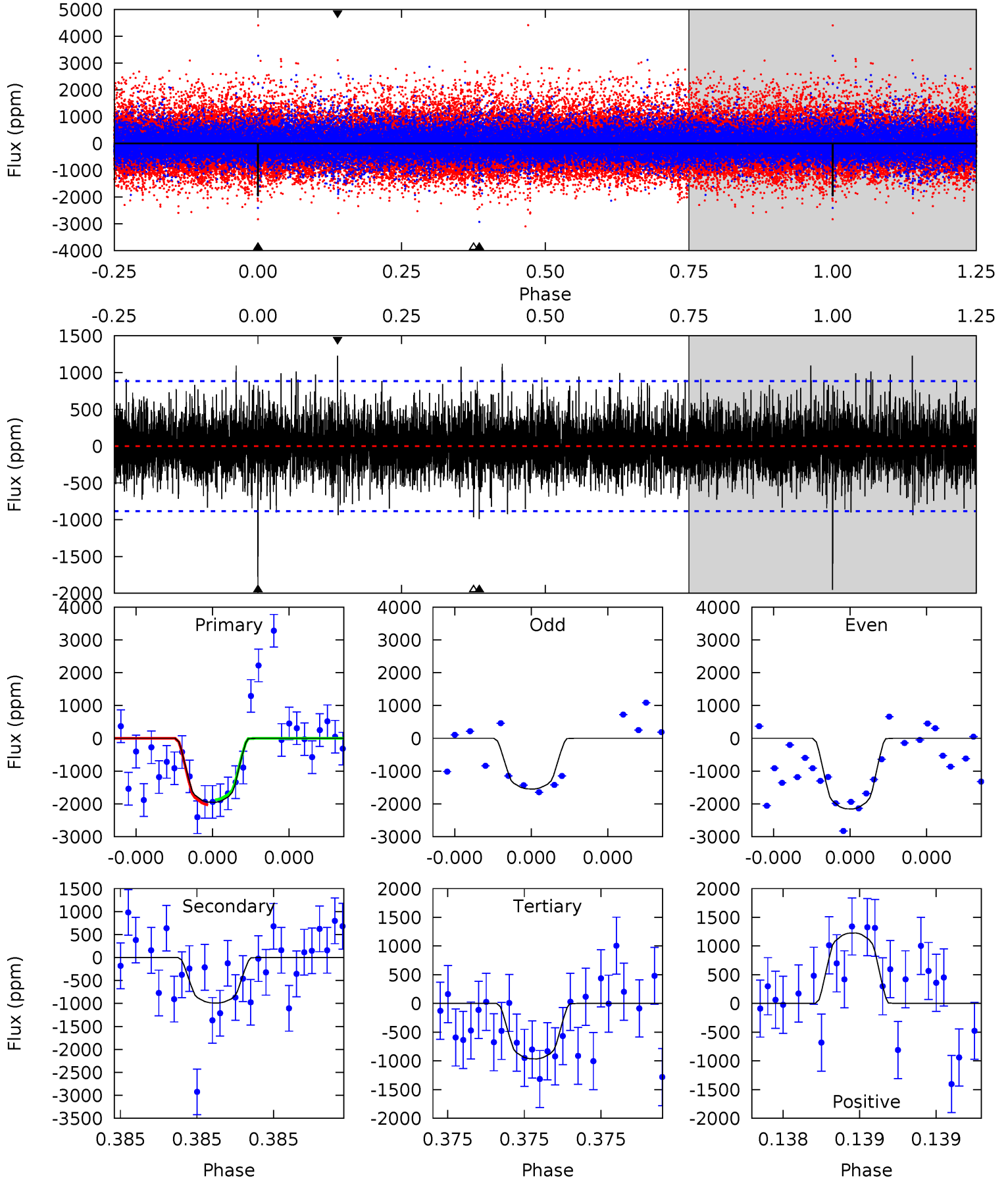
TCE 009598005-04 P=292.743170 Days $T_0=398.279324$ (BKJD)



DV Model-Shift Uniqueness Test

009598005-04, P = 292.745447 Days, E = 105.518116 Days

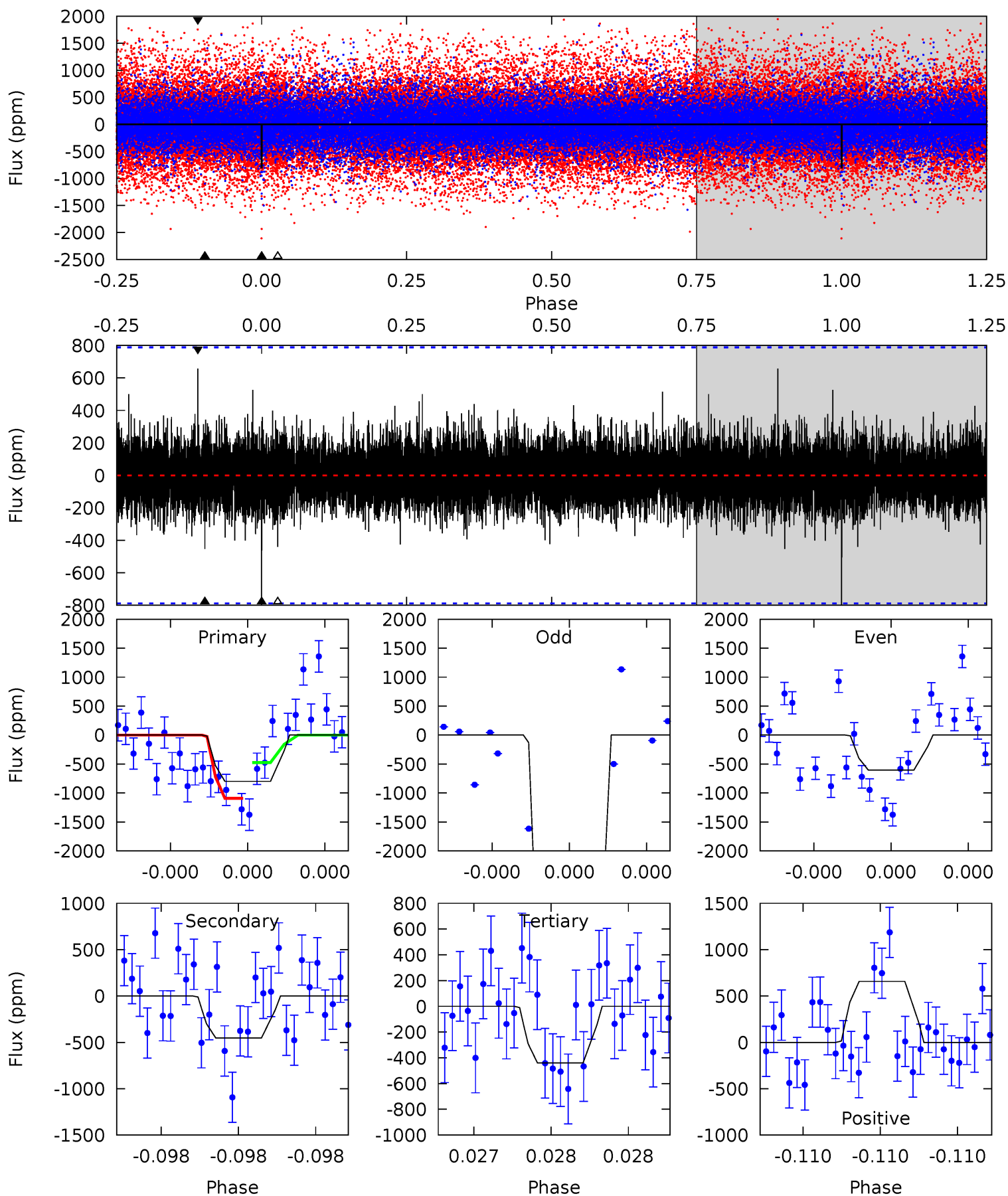
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
12.4	6.29	6.13	7.80	5.61	3.54	1.56	6.28	4.62	0.16	-1.51	1.72	1.07	0.39	0.48



Alt Model-Shift Uniqueness Test

009598005-04, P = 292.743170 Days, E = 105.536154 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	3.23	3.13	4.69	5.62	3.55	0.78	2.56	1.00	0.10	-1.46	21.2	2.79	0.45	2.16



Stellar Parameters For KIC 009598005

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	5432^{+179}_{-163}	$4.516^{+0.105}_{-0.095}$	$-0.560^{+0.350}_{-0.300}$	$0.769^{+0.106}_{-0.106}$	$0.708^{+0.096}_{-0.037}$	$2.190^{+0.980}_{-0.621}$
	+3%/-3%	+2%/-2%	+62%/-54%	+14%/-14%	+14%/-5%	+45%/-28%
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 009598005-04 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-990 ± 157	$4.84^{+4.51}_{-2.88}$	336^{+16}_{-16}	4252^{+1991}_{-879}	13865^{+74582}_{-10161}
Alt.	-453 ± 140	$5.50^{+4.70}_{-3.34}$	334^{+18}_{-15}	3528^{+1595}_{-598}	4872^{+31560}_{-3529}

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

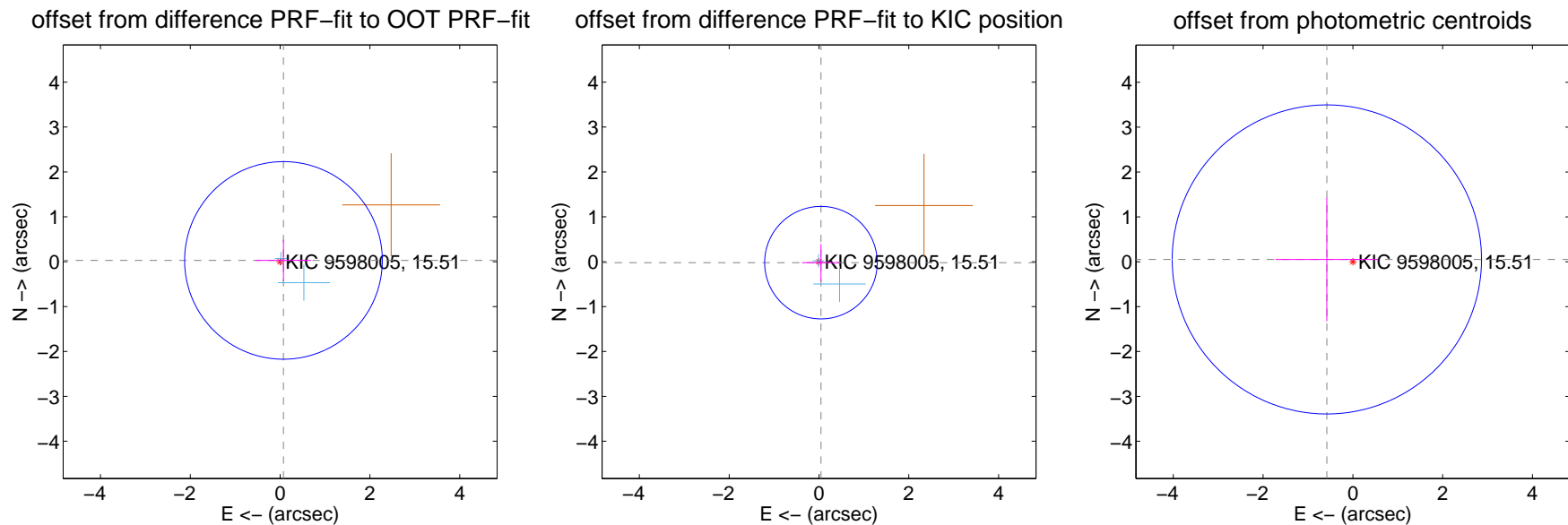
DV Centroid Data

Supplemental centroid analysis for 009598005-04. Kepler magnitude: 15.51. Transit SNR 7.28

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	0.080 ± 0.734	0.11	-0.075 ± 0.618	0.028 ± 0.459
PRF-fit source offset from KIC position	0.048 ± 0.418	0.12	-0.044 ± 0.419	-0.021 ± 0.414
photometric centroid source offset	0.58 ± 1.15	0.51	0.58 ± 1.15	0.05 ± 1.38



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.

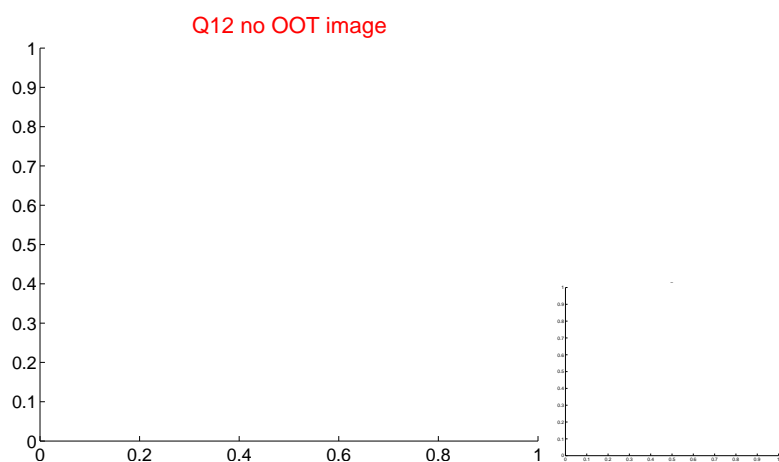
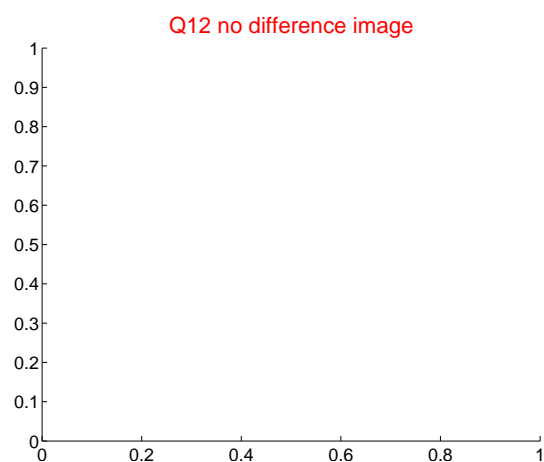
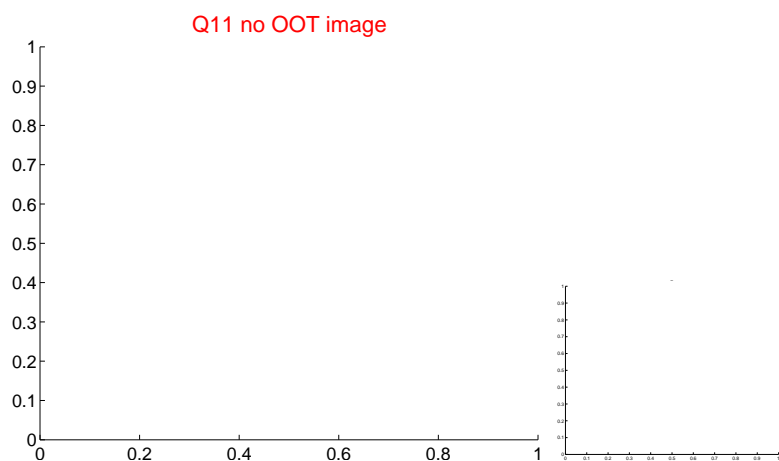
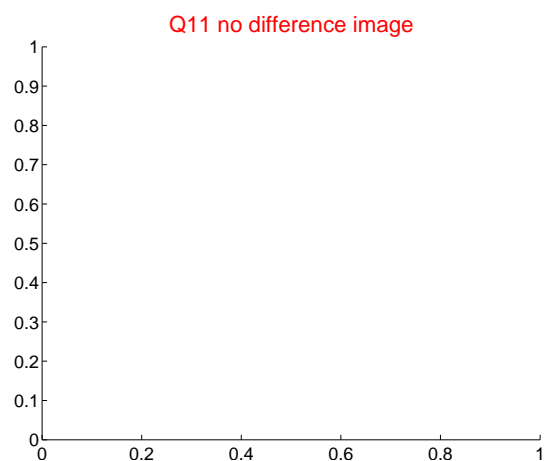
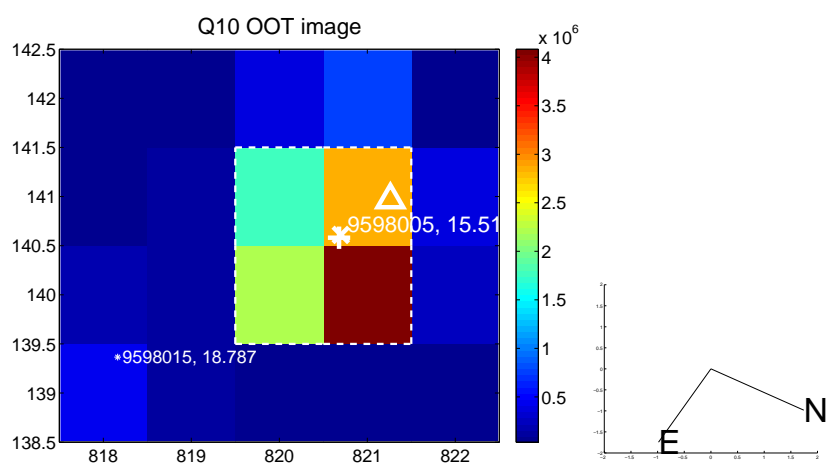
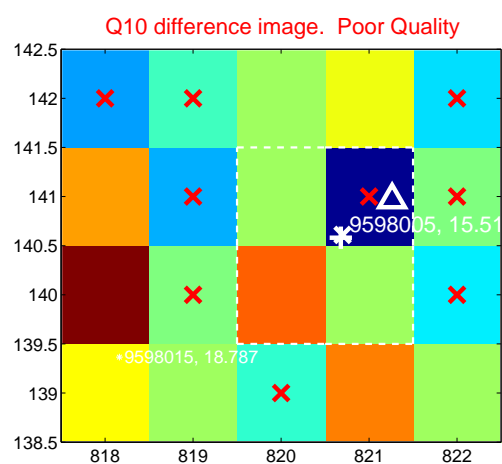
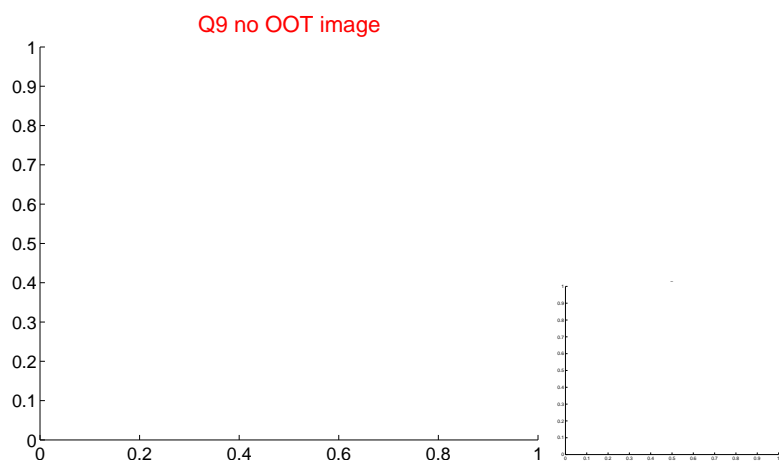
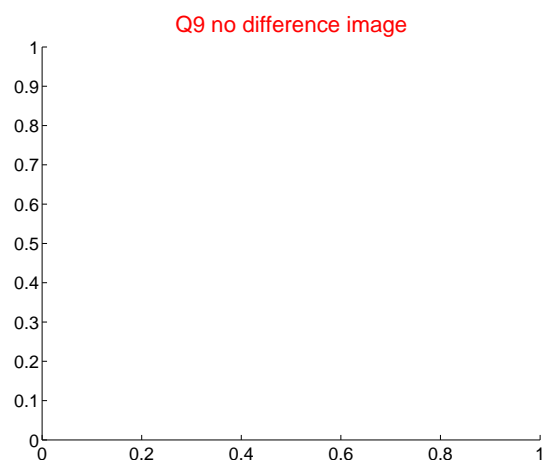
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

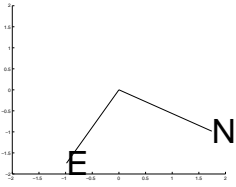
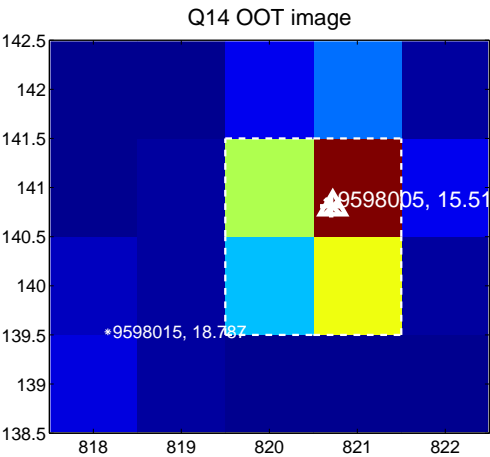
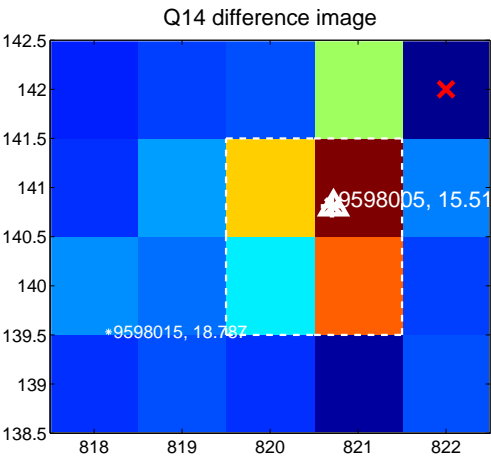


white ×: KIC target position; +: OOT centroid; △: difference centroid. red ×: large negative pixel value.

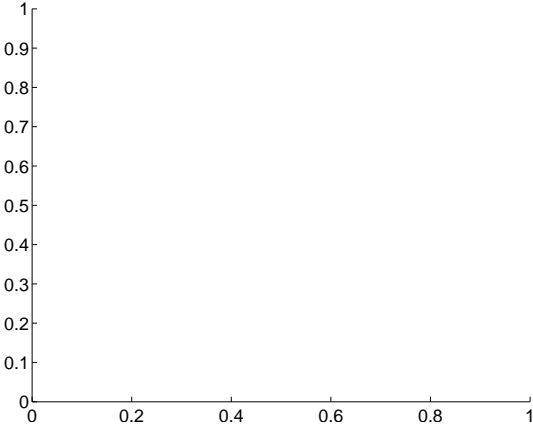
Q13 no difference image



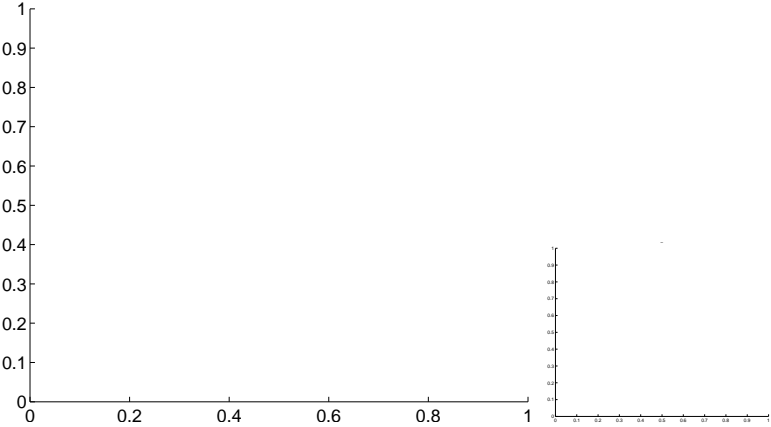
Q13 no OOT image



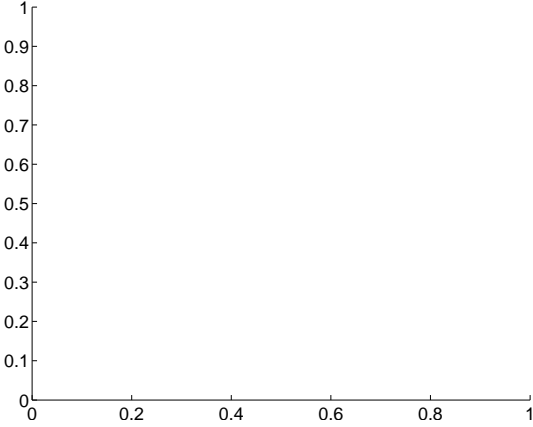
Q15 no difference image



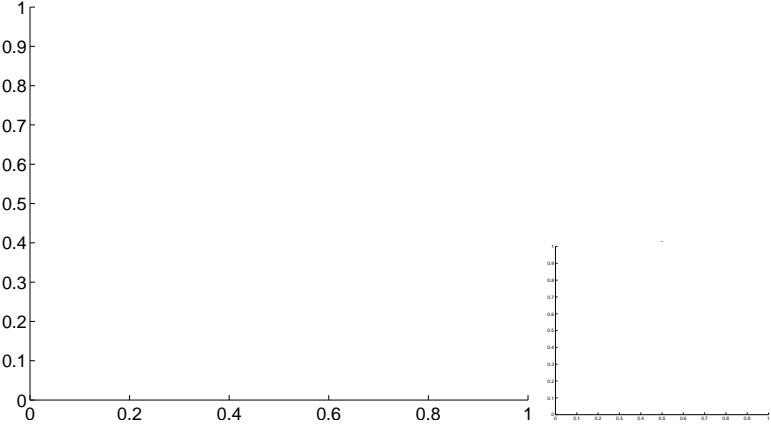
Q15 no OOT image



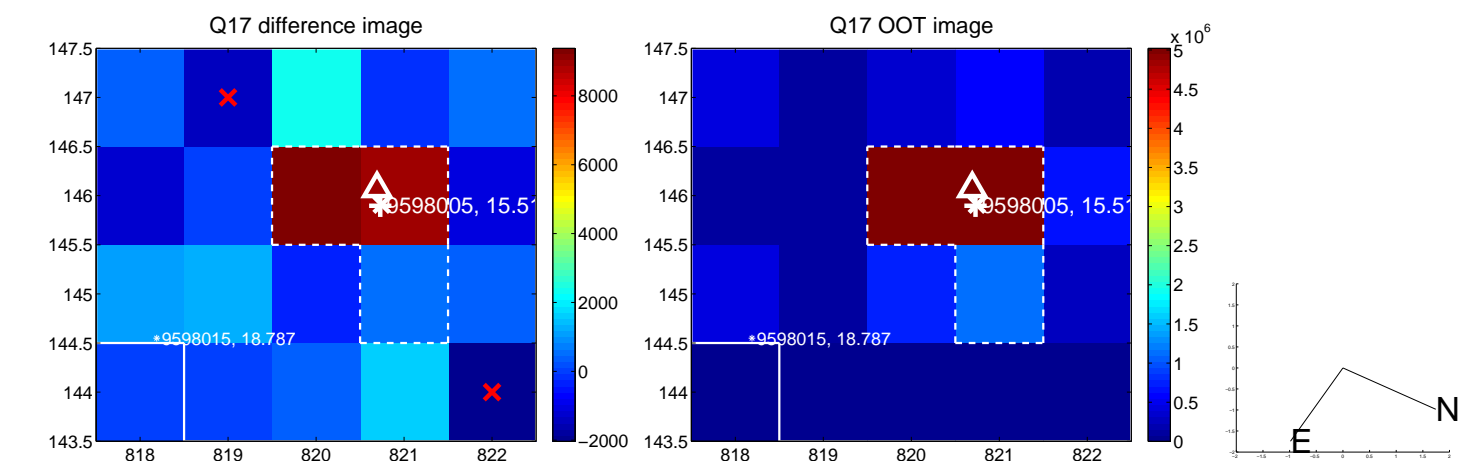
Q16 no difference image



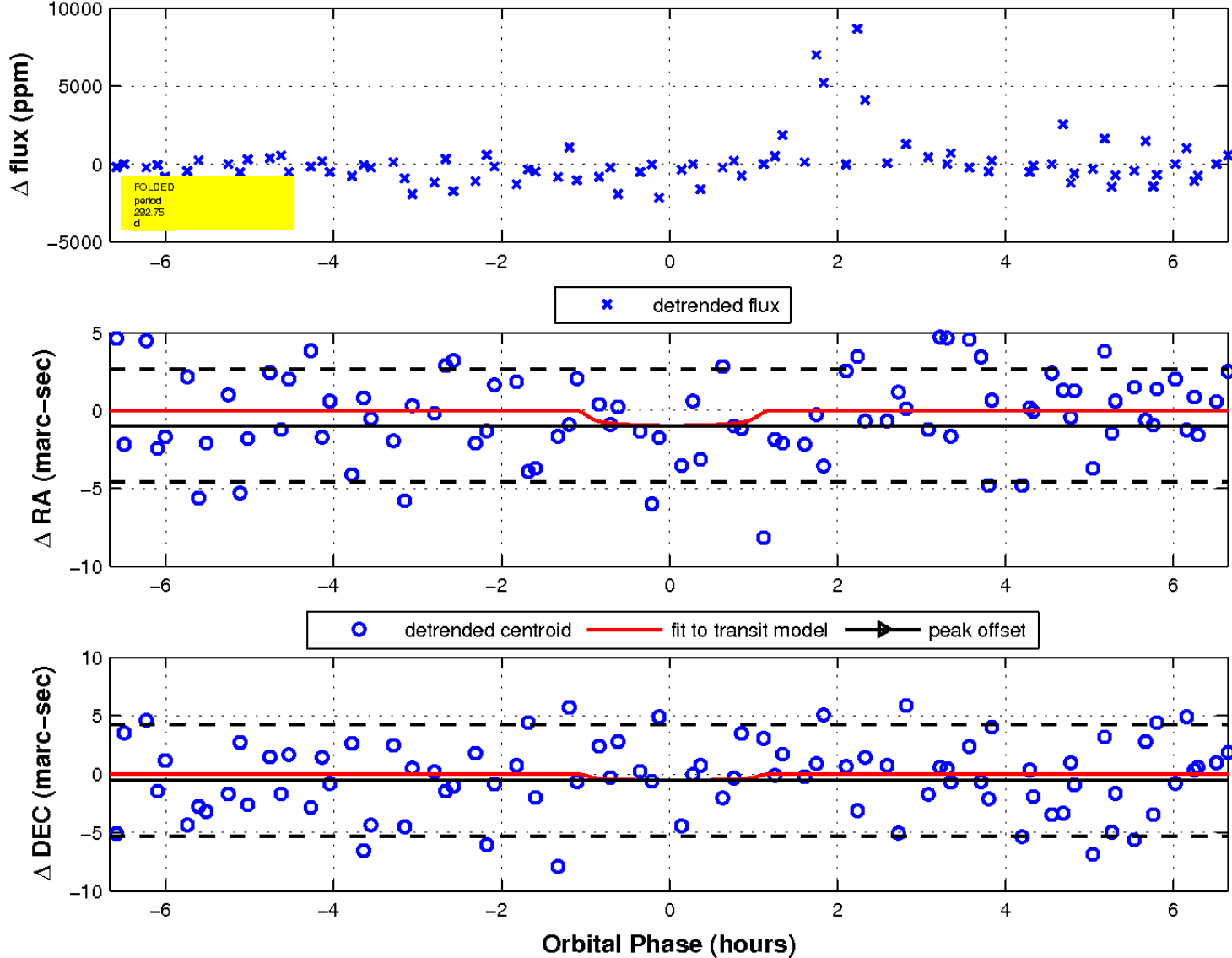
Q16 no OOT image



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

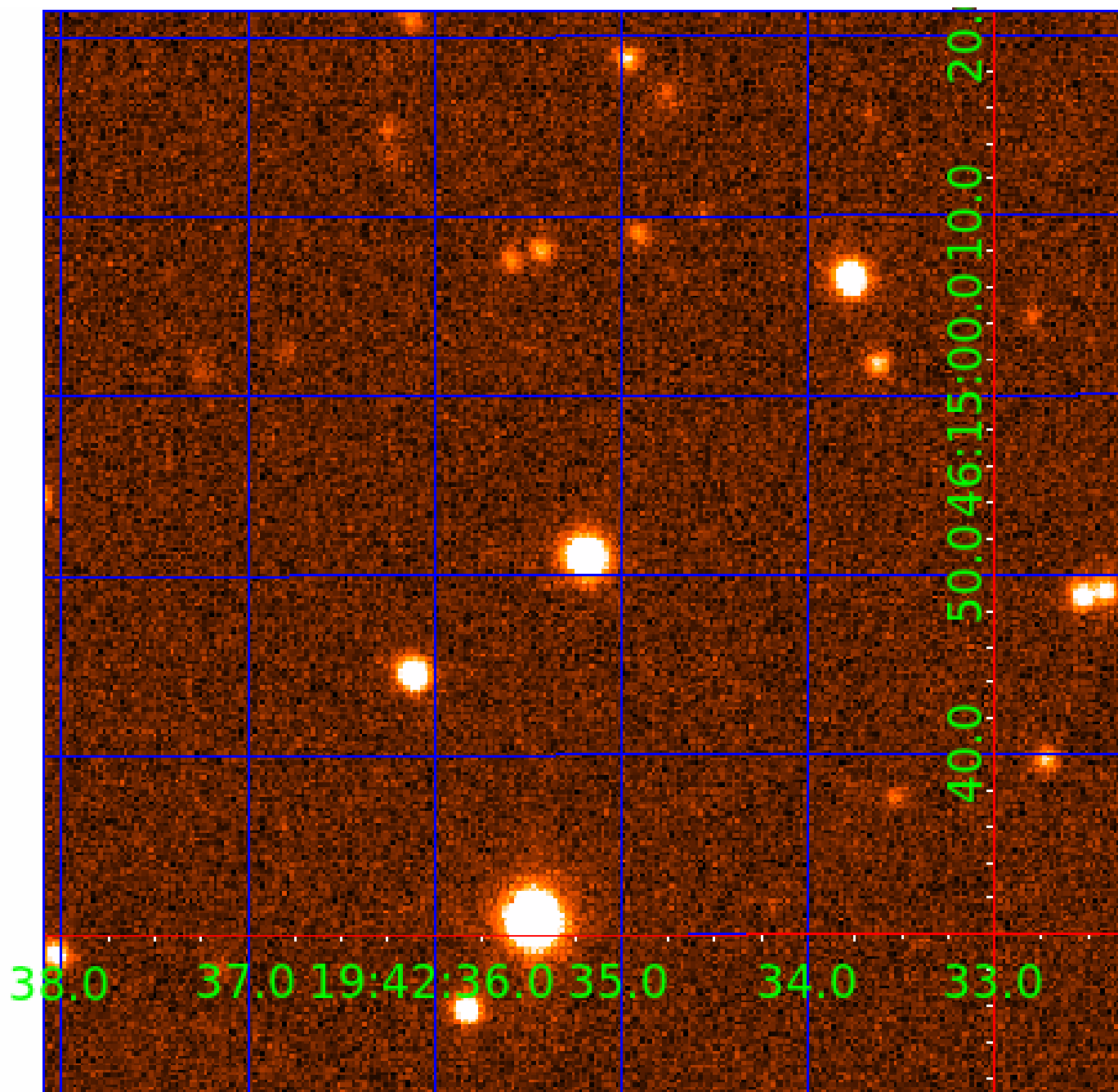


fluxWeightedCentroids, Planet 4 of 5



UKIRT Image

Declination



KIC 009598005

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})
009598005-01	OBS	No	558.145805	216.661507	2268.2	3.210	12.7	7.7	0.77	5432	3.95	0.33
009598005-02	OBS	No	290.186338	356.659045	1615.7	5.979	14.2	6.6	0.77	5432	3.27	0.79
009598005-03	OBS	No	436.000576	526.976229	2679.5	6.332	11.8	6.9	0.77	5432	4.90	0.46
009598005-04	OBS	No	292.745447	398.263564	2205.5	2.238	10.5	7.3	0.77	5432	3.84	0.78
009598005-05	OBS	No	328.053178	243.044554	2069.4	3.000	10.9	-1.0	0.77	5432	3.46	0.67

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
009598005-01	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_POS_ALT—CENT_FEW_DIFFS
009598005-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—INCONSISTENT_TRANS
009598005-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—CENT_FEW_DIFFS
009598005-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_FEW_DIFFS
009598005-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—LPP_DV—ALL_TRANS_CHASES—INCONSISTENT_TRANS—CENT_NOFITS

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

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

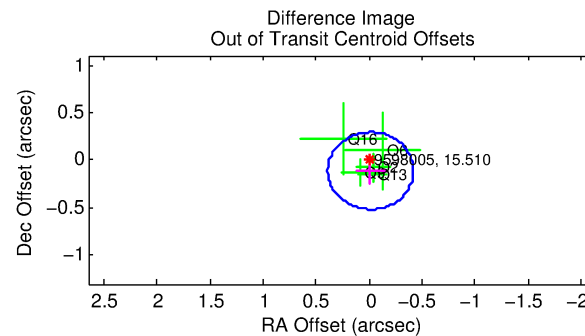
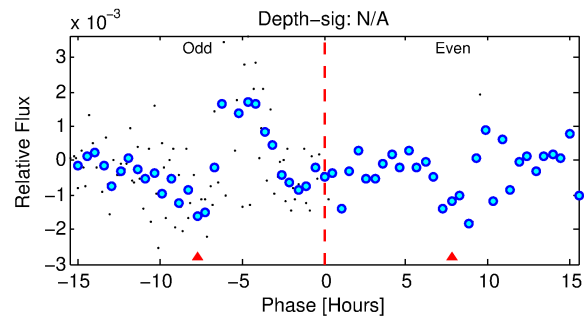
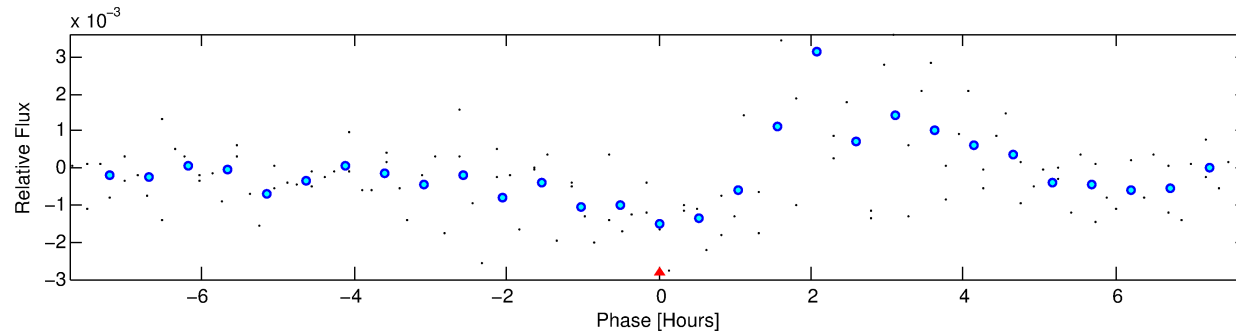
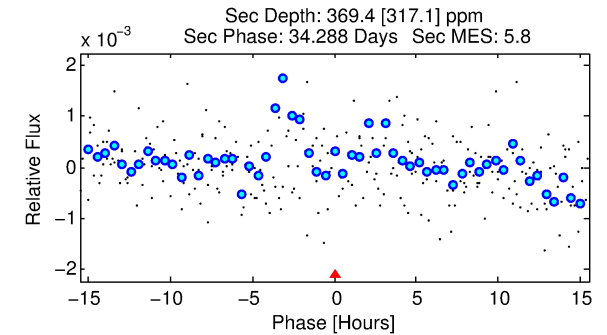
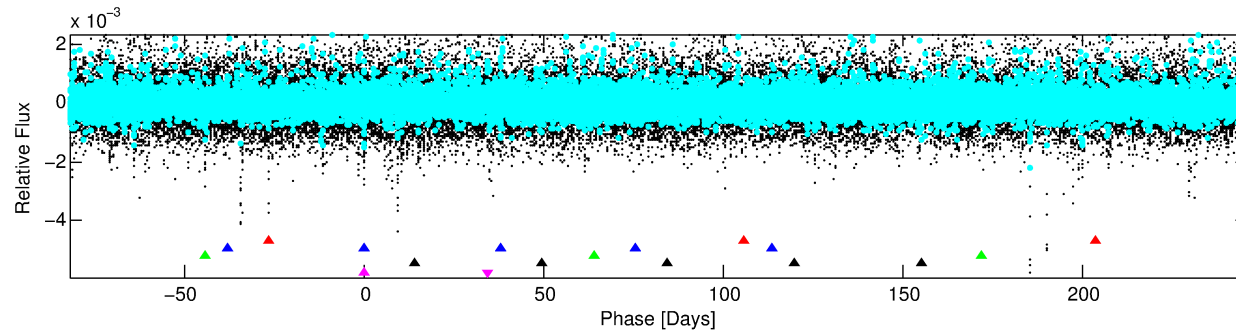
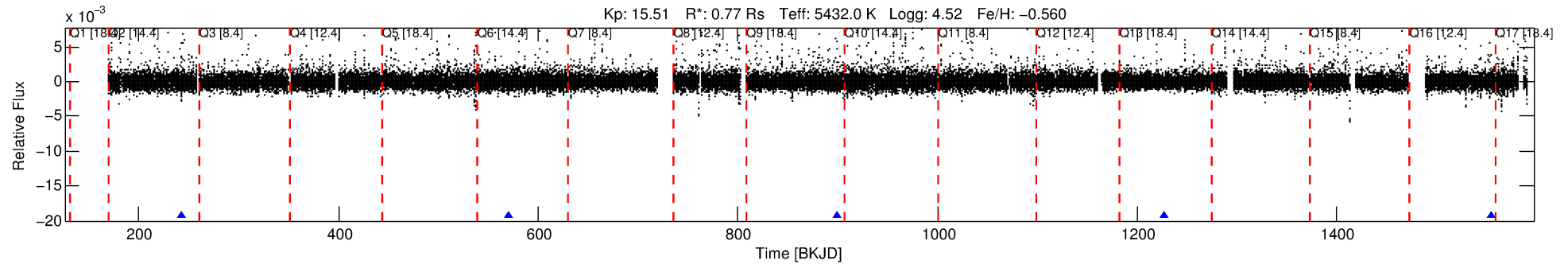
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 009598005-05

No Significant Match Found

DV One-Page Summary

KIC: 9598005 Candidate: 5 of 5 Period: 328.053 d



TPS TCE Results:

Period = 328.05318 d
Epoch = 243.0446 BKJD

DV fit results are unavailable

DV Diagnostic Results:

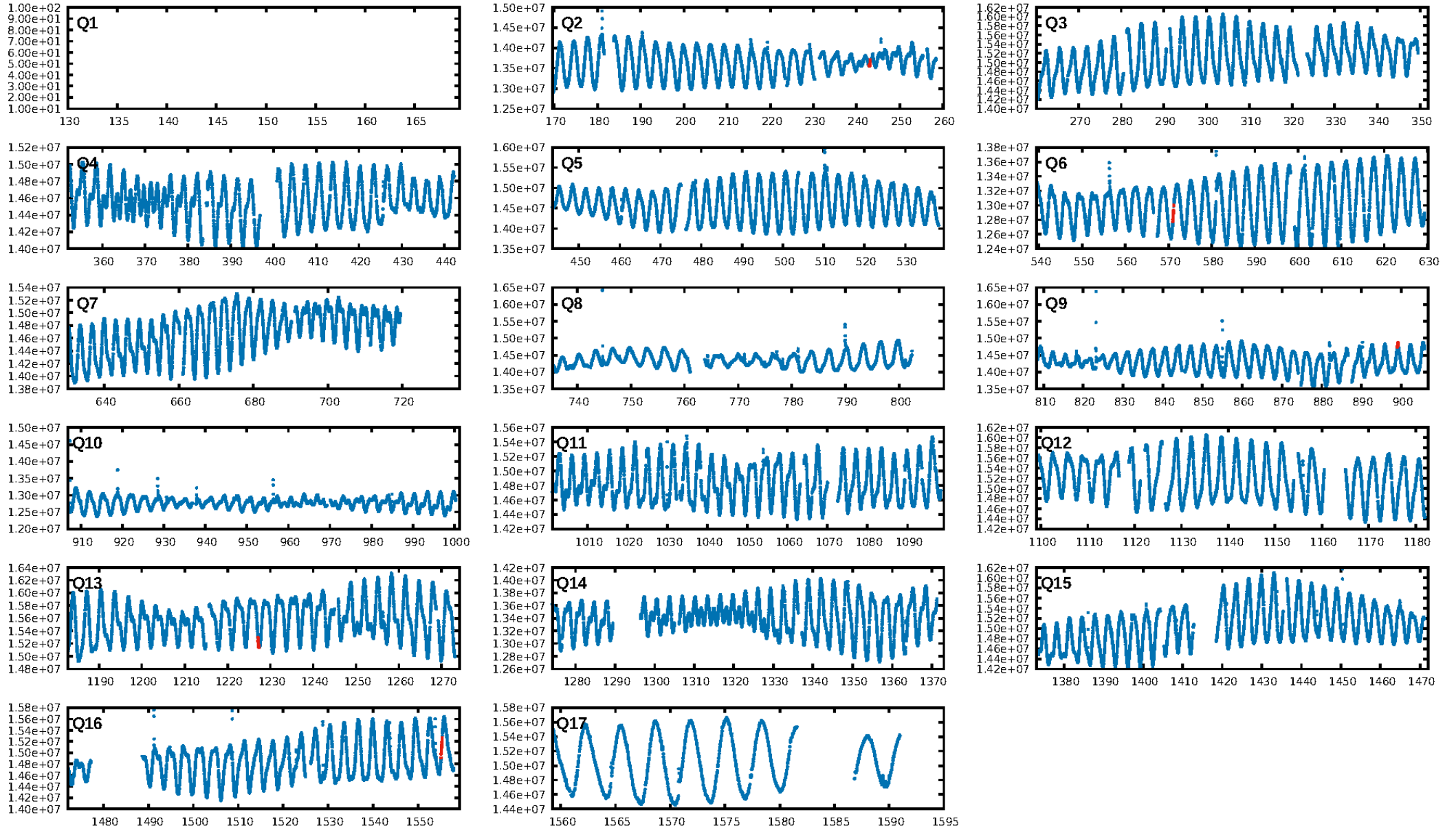
ShortPeriod-sig: 100.0% [226.39 σ]
LongPeriod-sig: 100.0% [369.74 σ]
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: N/A
RollingBand-fgt: 1.00 [4/4]
GhostDiagnostic-chr: 0.4209

Centroid-sig: 5.7%
Centroid-so: 0.737 arcsec [0.99 σ]
OotOffset-rm: 0.111 arcsec [0.82 σ]
KicOffset-rm: 0.142 arcsec [1.04 σ]
OotOffset-st: 2/0/1/2 [5]
KicOffset-st: 2/0/1/2 [5]
DiffImageQuality-fgm: 0.40 [2/5]
DiffImageOverlap-fno: 0.80 [4/5]

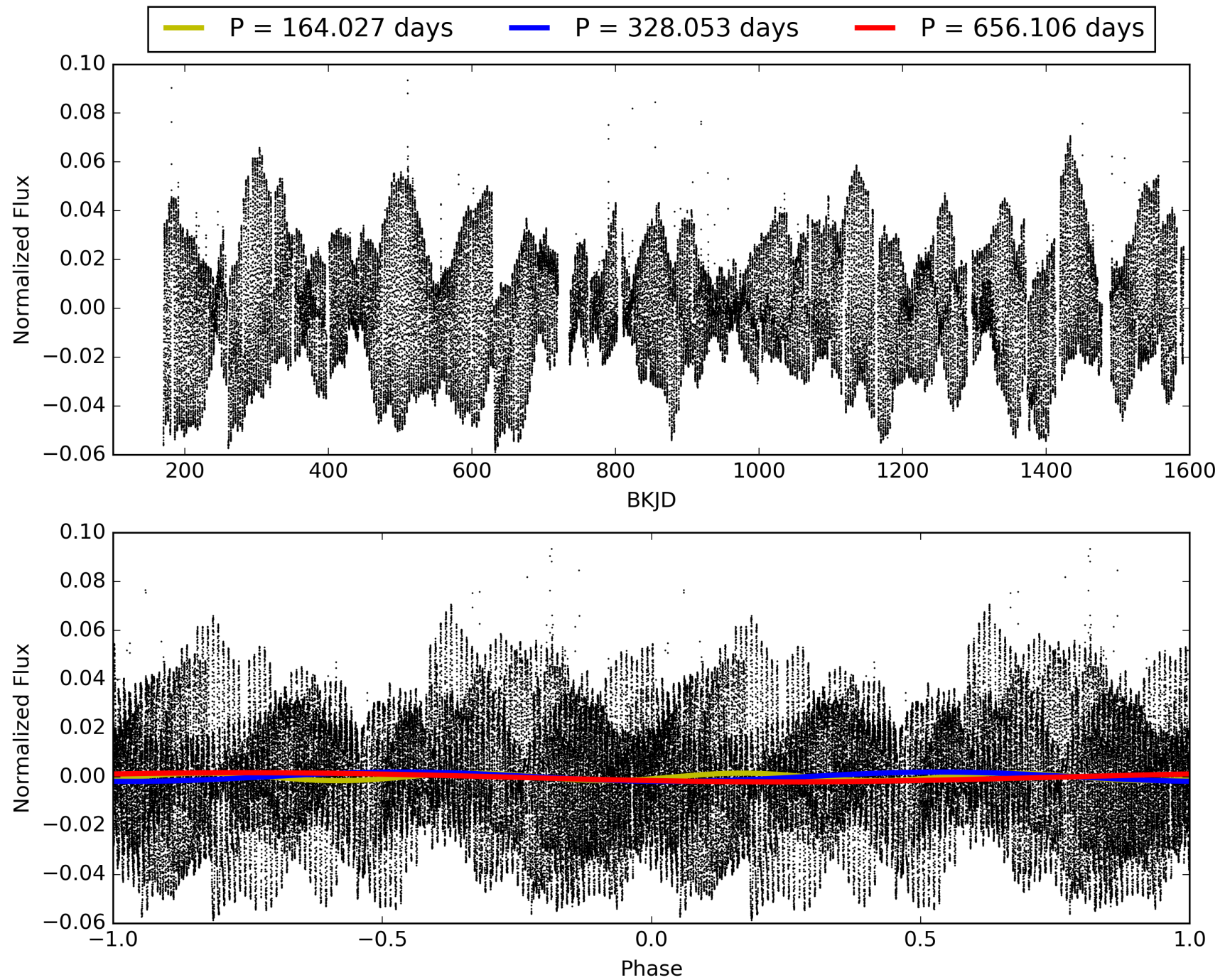
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 03-Feb-2016 07:58:48 Z

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

TCE 009598005-05, PDC Light Curves

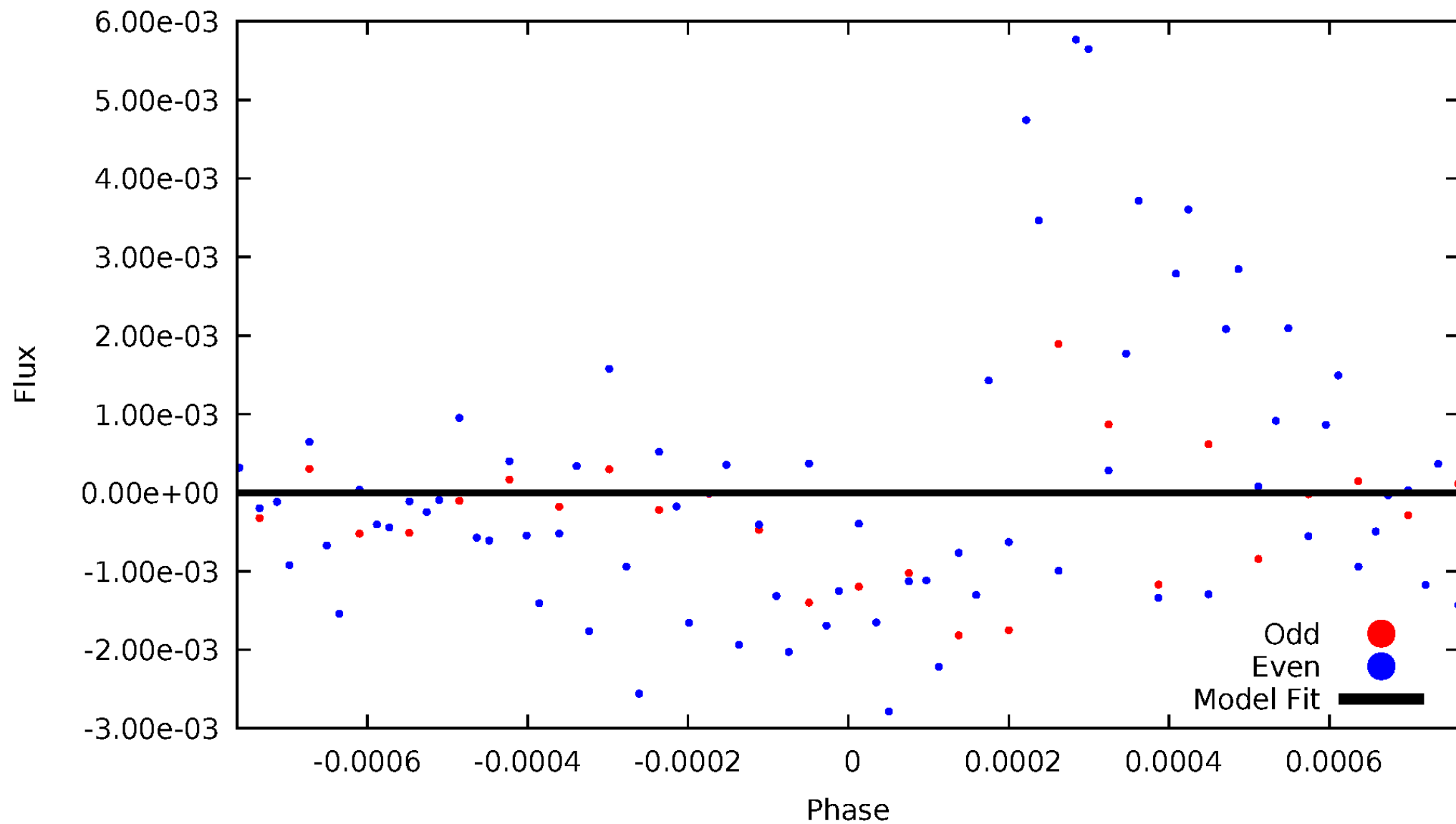


TCE 009598005-05



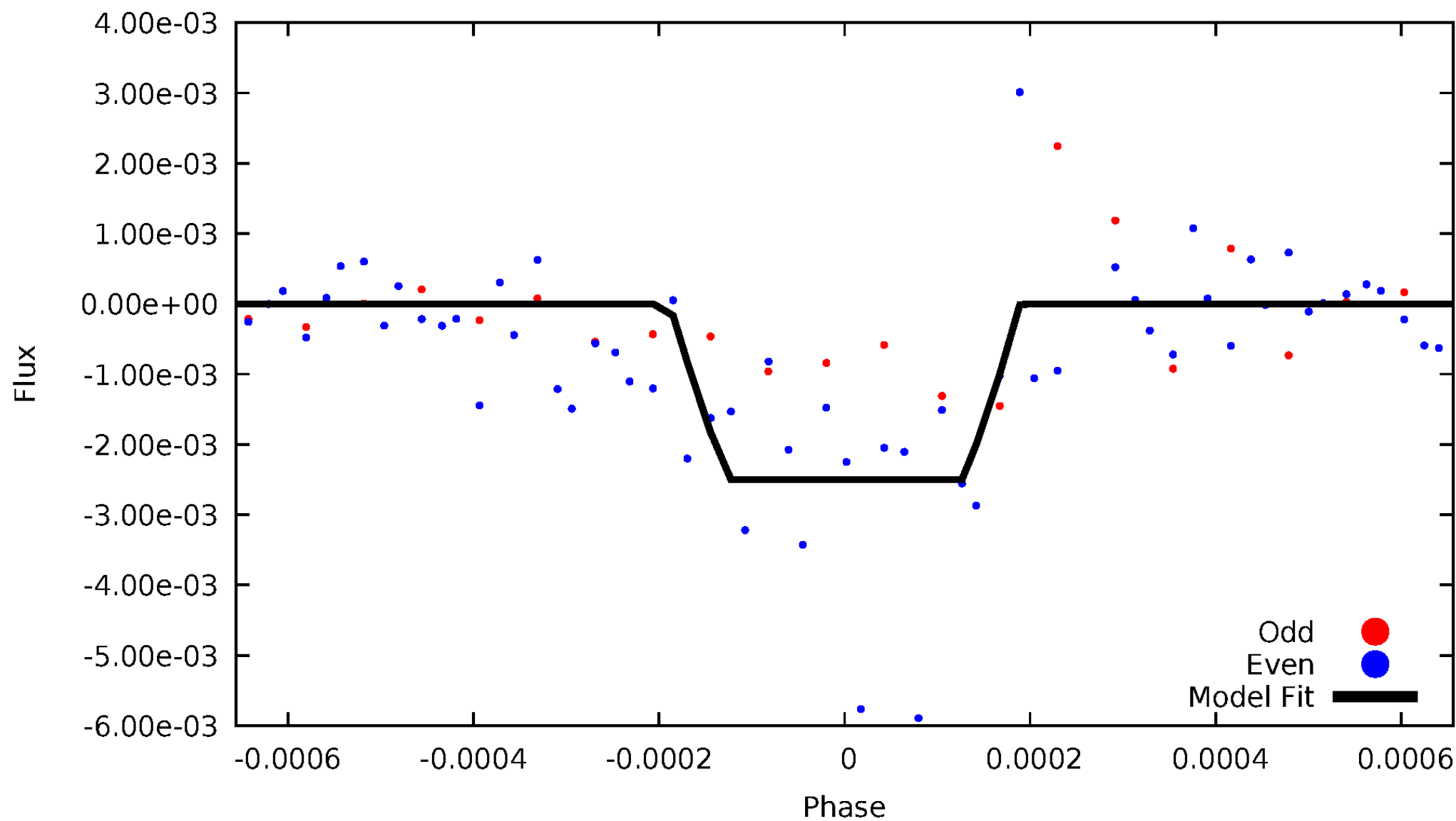
DV Odd/Even

TCE 009598005-05

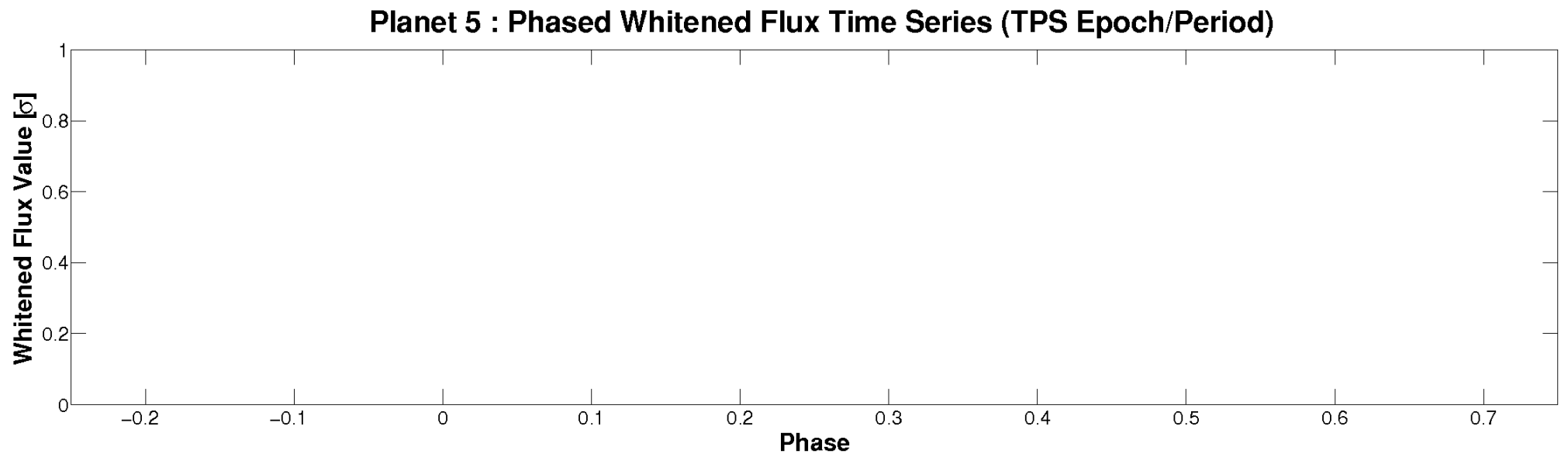
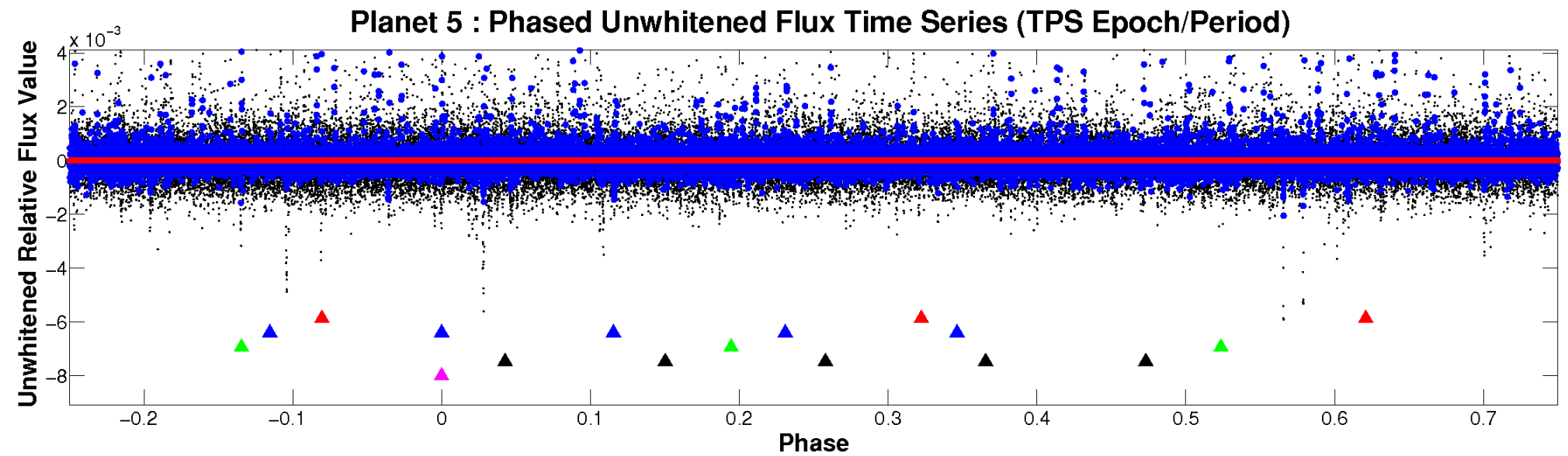


ALT Odd/Even

TCE 009598005-05

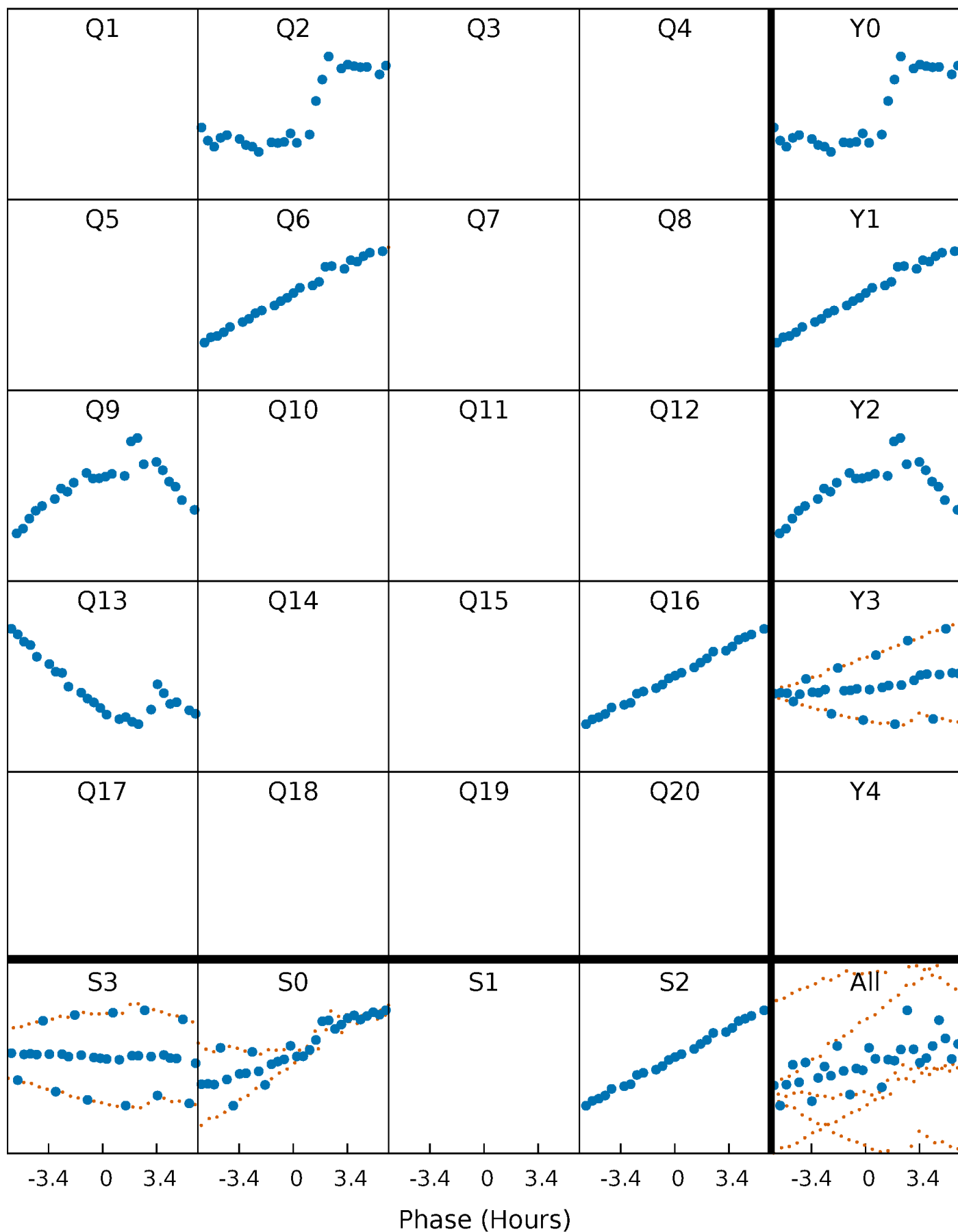


Non-Whitened Vs. Whitened Light Curve



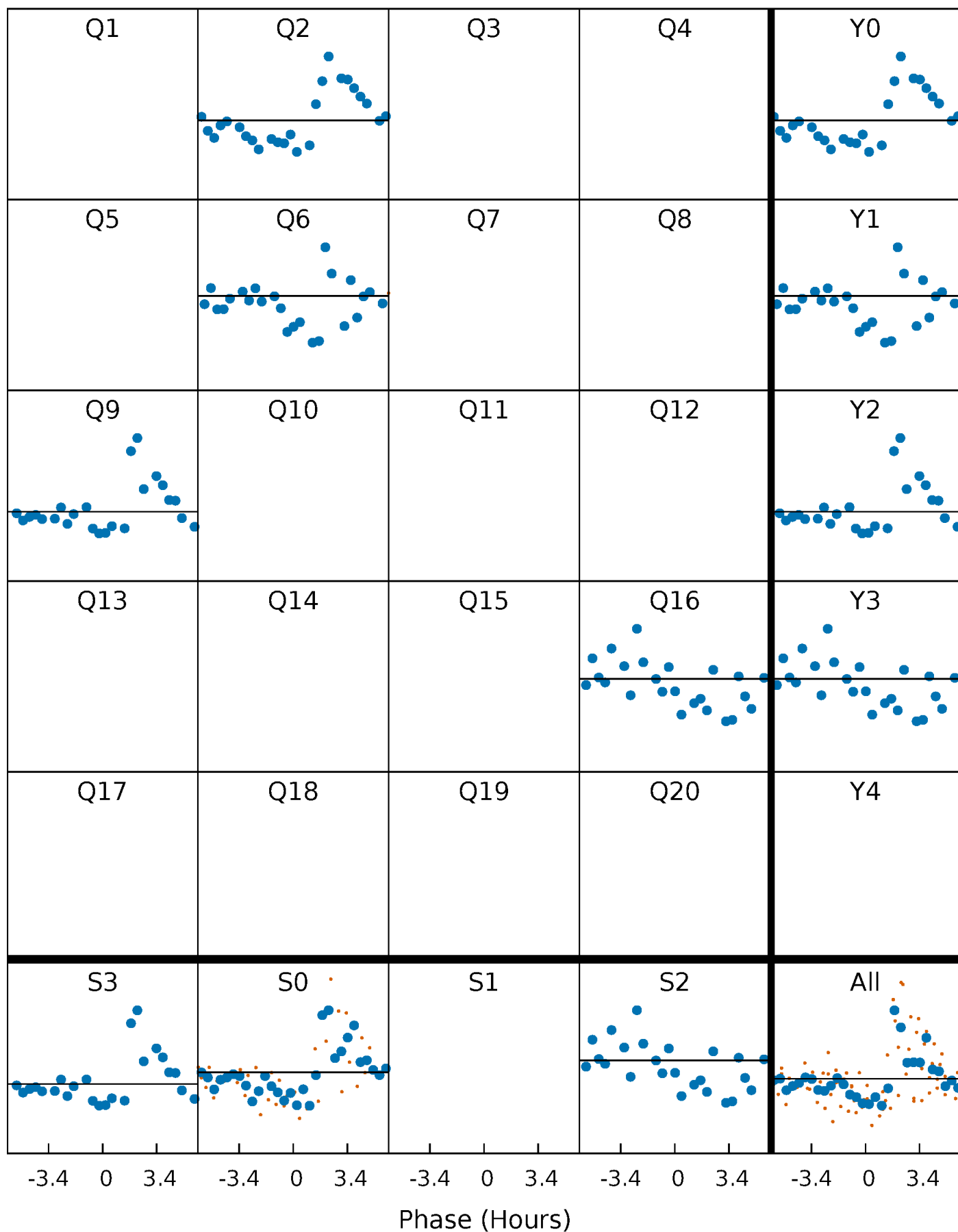
PDC Quarter-Phased Transit Curves

TCE 009598005-05 $P=328.053178$ Days $T_0=243.044554$ (BKJD)



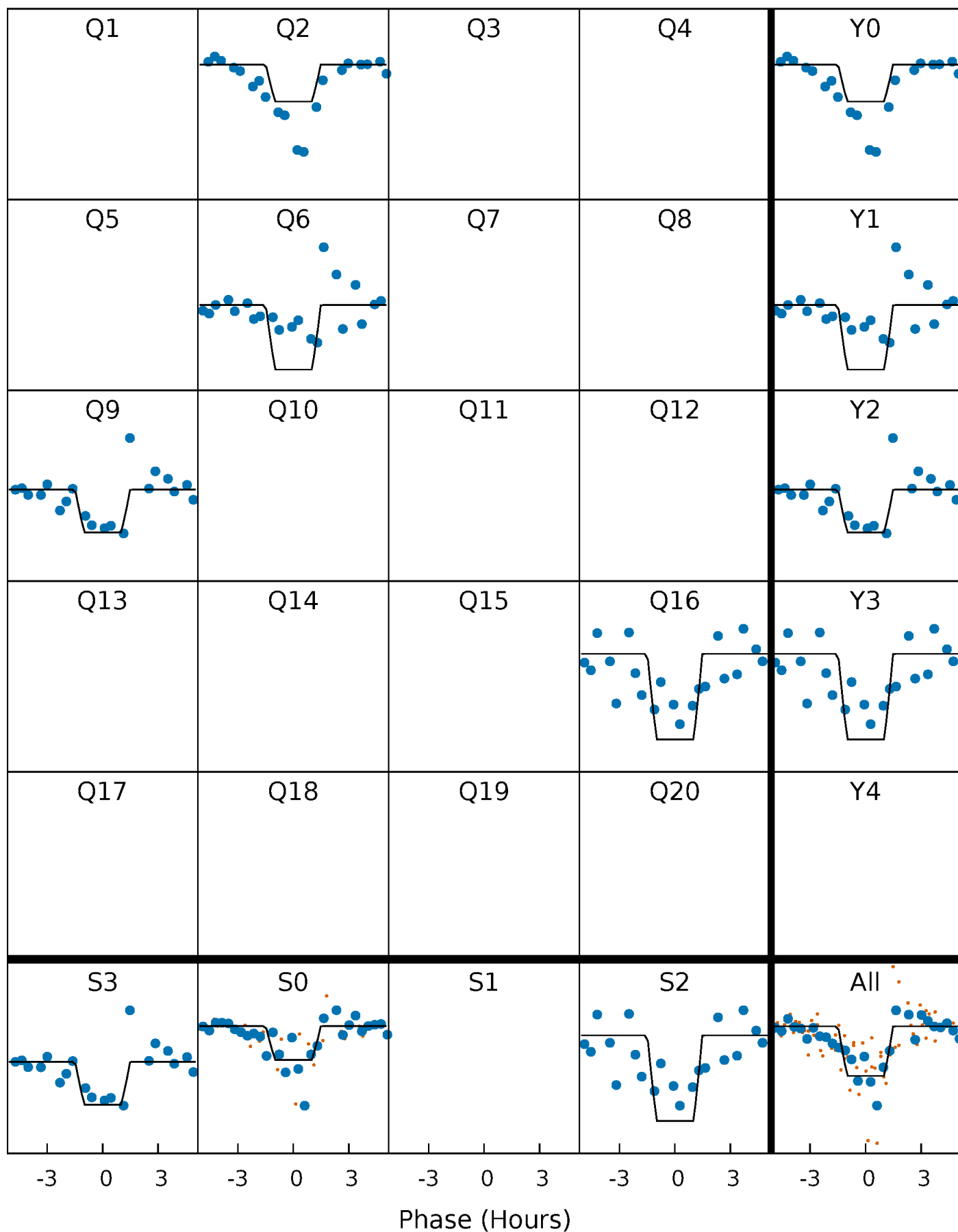
DV Quarter-Phased Transit Curves

TCE 009598005-05 $P=328.053178$ Days $T_0=243.044554$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

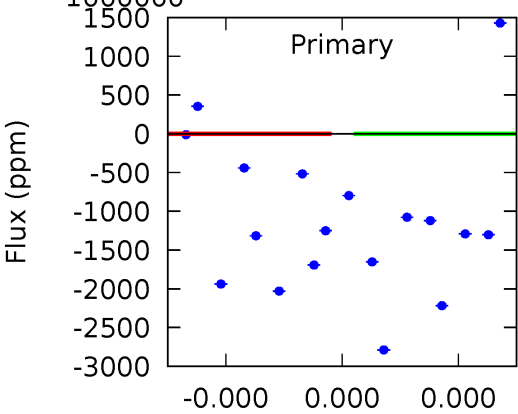
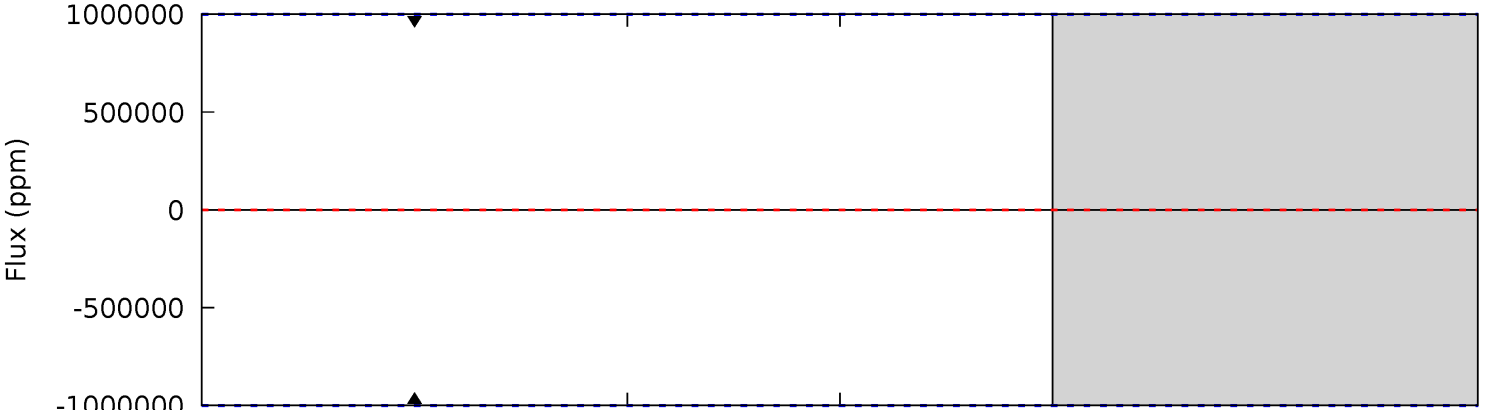
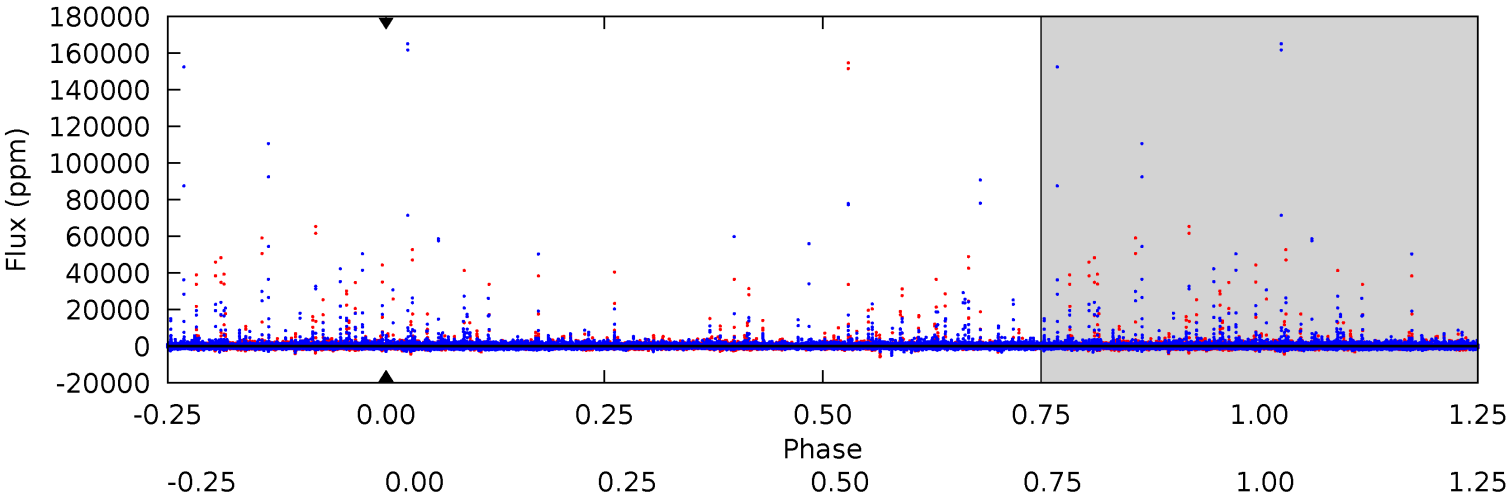
TCE 009598005-05 $P=328.053178$ Days $T_0=243.055347$ (BKJD)



DV Model-Shift Uniqueness Test

009598005-05, P = 328.053178 Days, E = 243.044554 Days

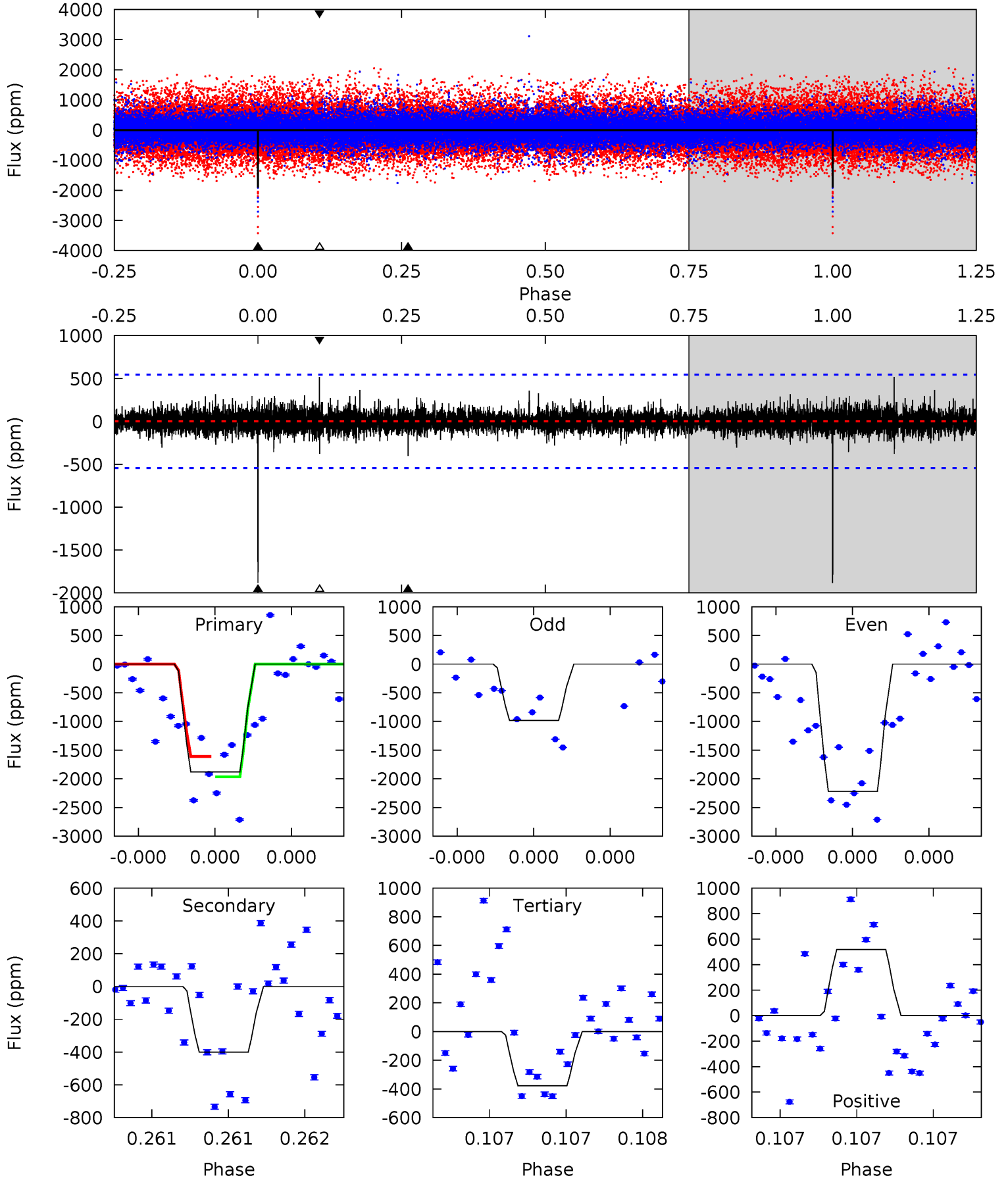
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
0	0	0	0	1.00	1.00	1.00	0	0	0	0	0	0	0	0



Alt Model-Shift Uniqueness Test

009598005-05, P = 328.053178 Days, E = 243.055347 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
19.4	4.14	3.91	5.35	5.62	3.55	0.75	15.5	14.1	0.23	-1.22	5.65	1.24	0.22	1.80



Stellar Parameters For KIC 009598005

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	$M(M_{\odot})$	p_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	5432^{+179}_{-163}	$4.516^{+0.105}_{-0.095}$	$-0.560^{+0.350}_{-0.300}$	$0.769^{+0.106}_{-0.106}$	$0.708^{+0.096}_{-0.037}$	$2.190^{+0.980}_{-0.621}$
	+3%/-3%	+2%/-2%	+62%/-54%	+14%/-14%	+14%/-5%	+45%/-28%
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 009598005-05 / KOI

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	0 ± 1000000	$7.01^{+7.20}_{-4.51}$	322^{+16}_{-15}	-2654^{+19936}_{-11724}	$-608.691^{+1712445.203}_{-1099612.268}$
Alt.	-401 ± 97	$7.68^{+7.16}_{-5.33}$	323^{+16}_{-15}	3143^{+1514}_{-511}	2539^{+23376}_{-1845}

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

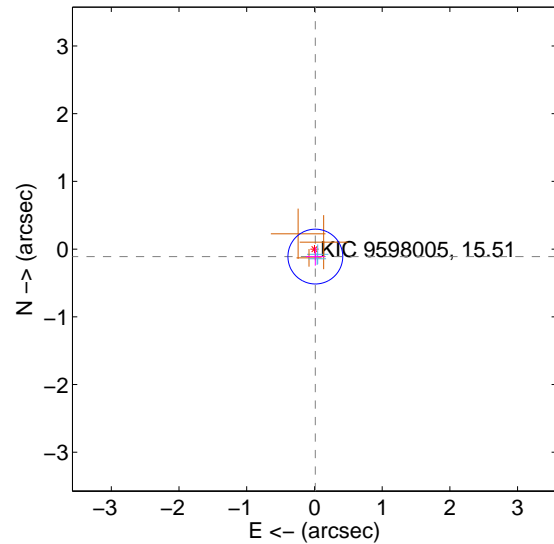
Supplemental centroid analysis for 009598005-05. Kepler magnitude: 15.51. Transit SNR -1.00

There are 2 quarters with good PRF difference image offsets

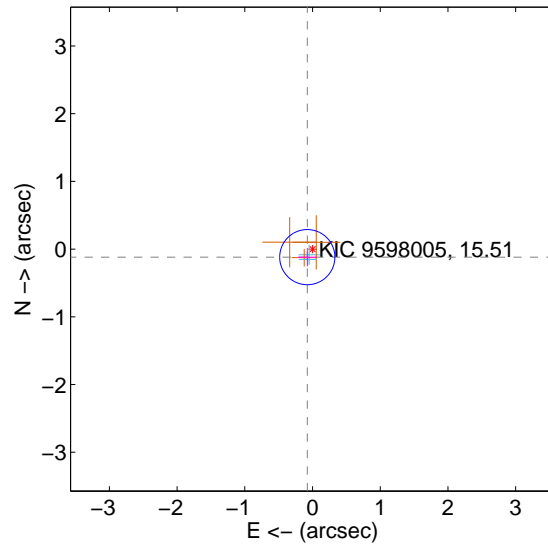
The direct PRF centroid is offset from the target star catalog position by about 0.16 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.111 ± 0.135	0.82	-0.013 ± 0.138	-0.110 ± 0.135
PRF-fit source offset from KIC position	0.142 ± 0.136	1.04	0.078 ± 0.138	-0.119 ± 0.135
photometric centroid source offset	0.74 ± 0.75	0.99	0.34 ± 0.71	0.66 ± 0.76

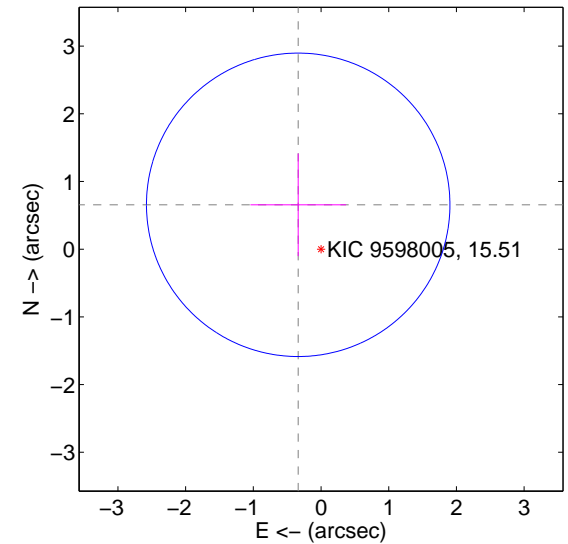
offset from difference PRF-fit to OOT PRF-fit



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.

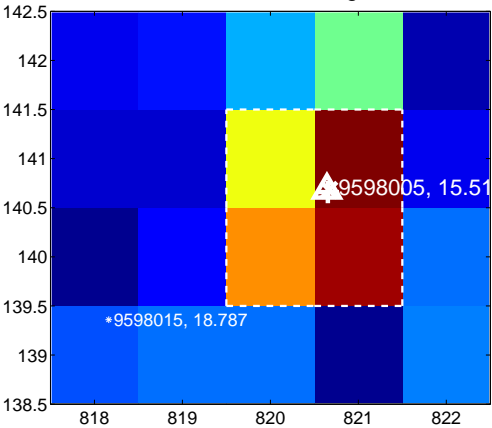
Q1 no difference image



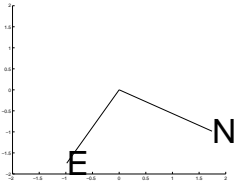
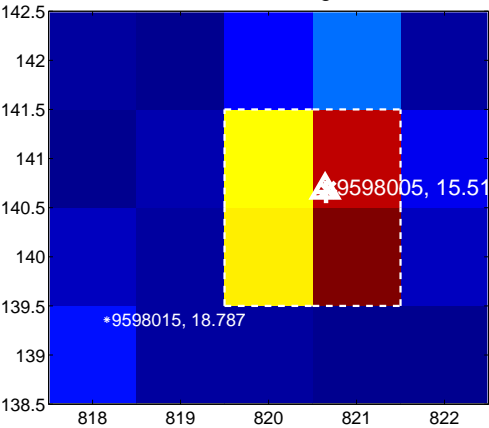
Q1 no OOT image



Q2 difference image



Q2 OOT image



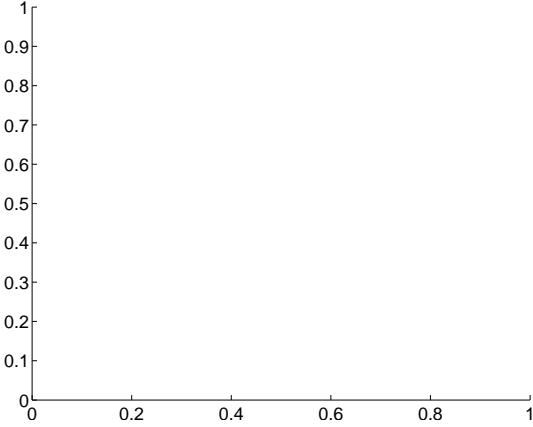
Q3 no difference image



Q3 no OOT image



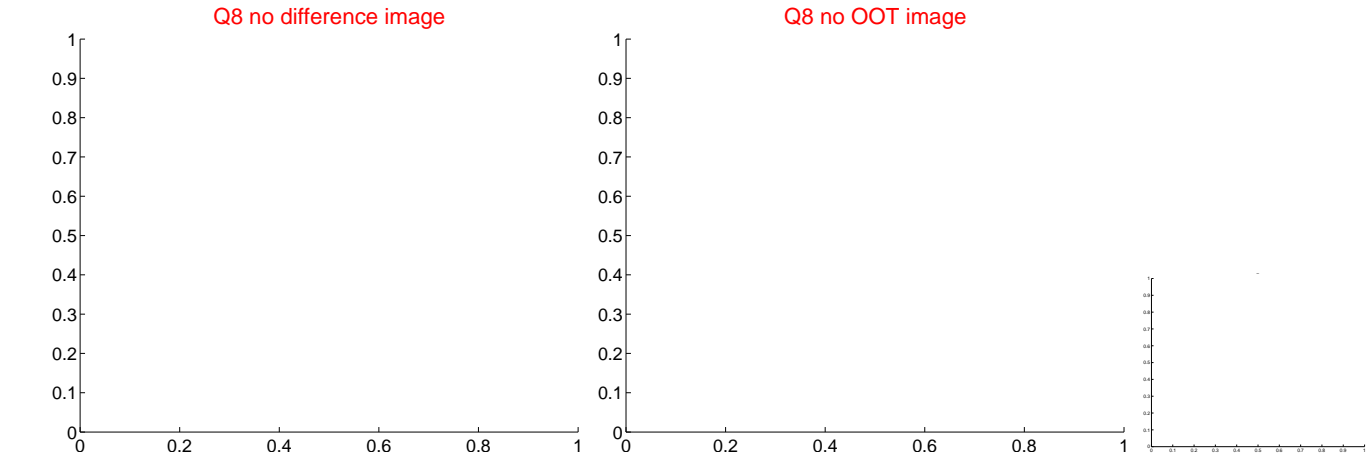
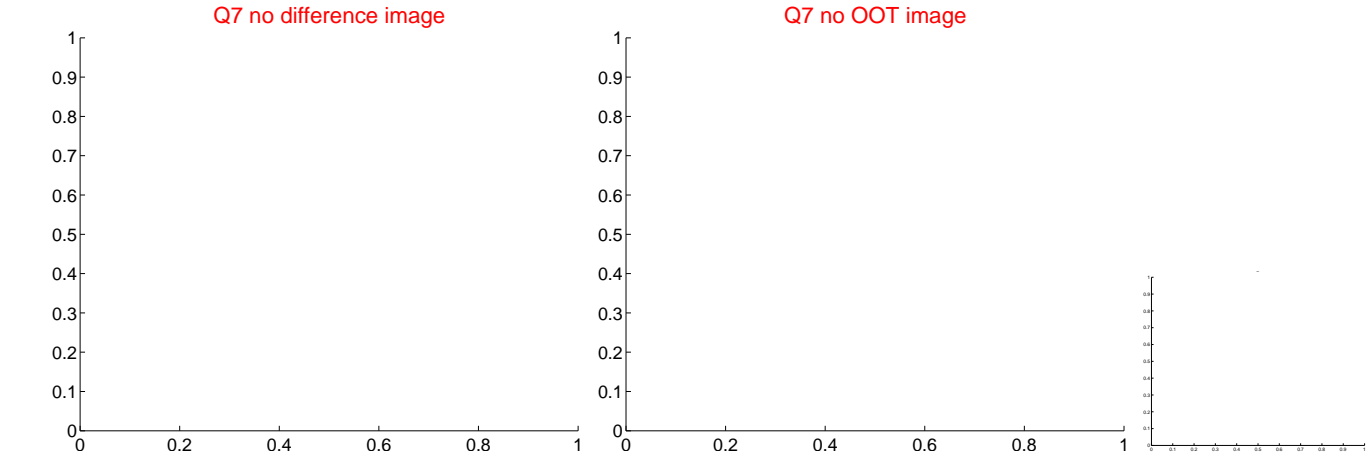
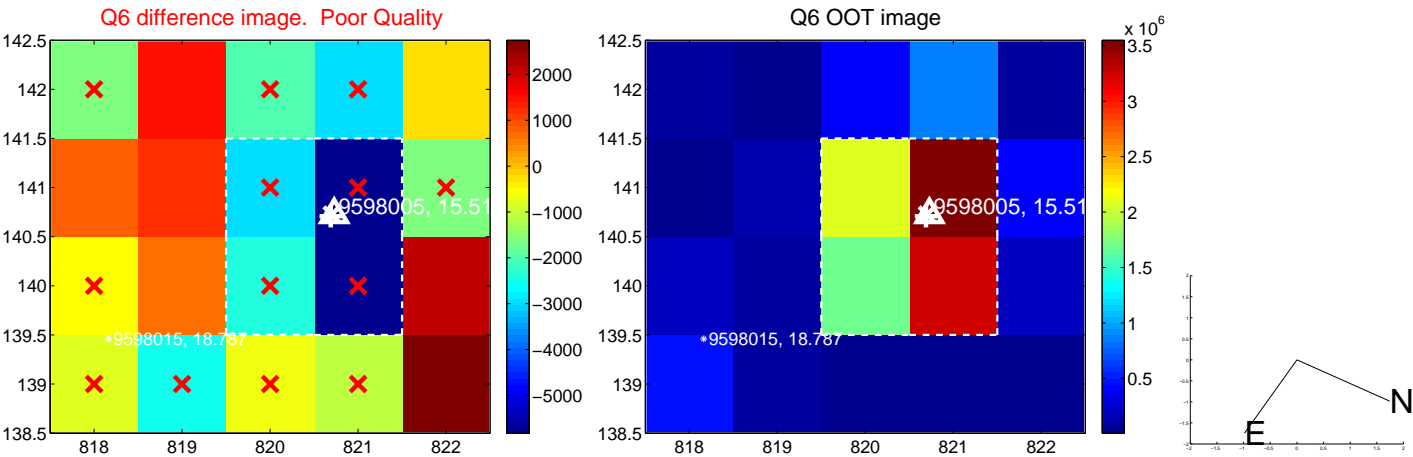
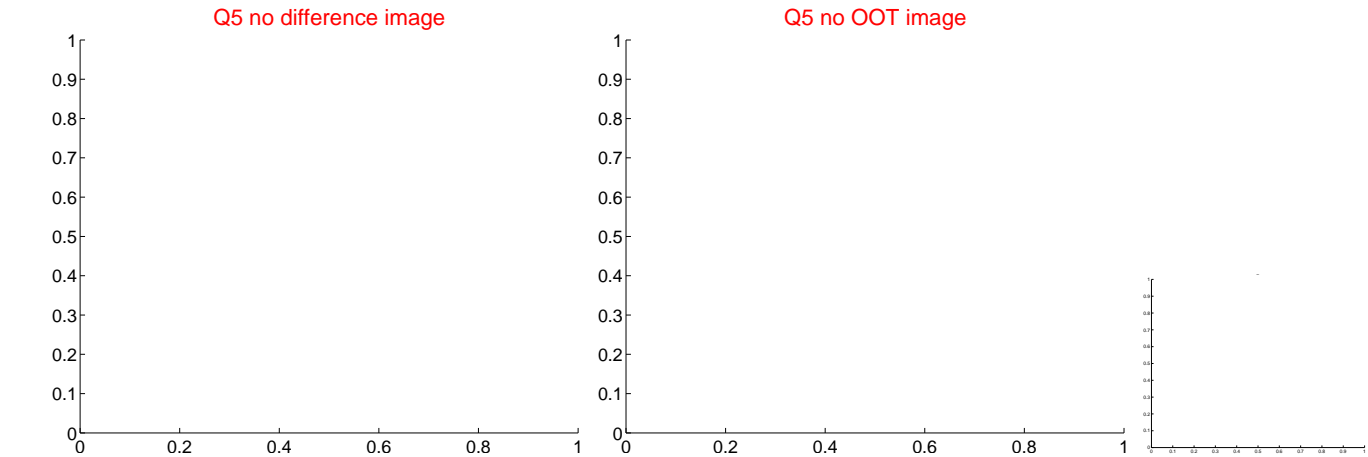
Q4 no difference image



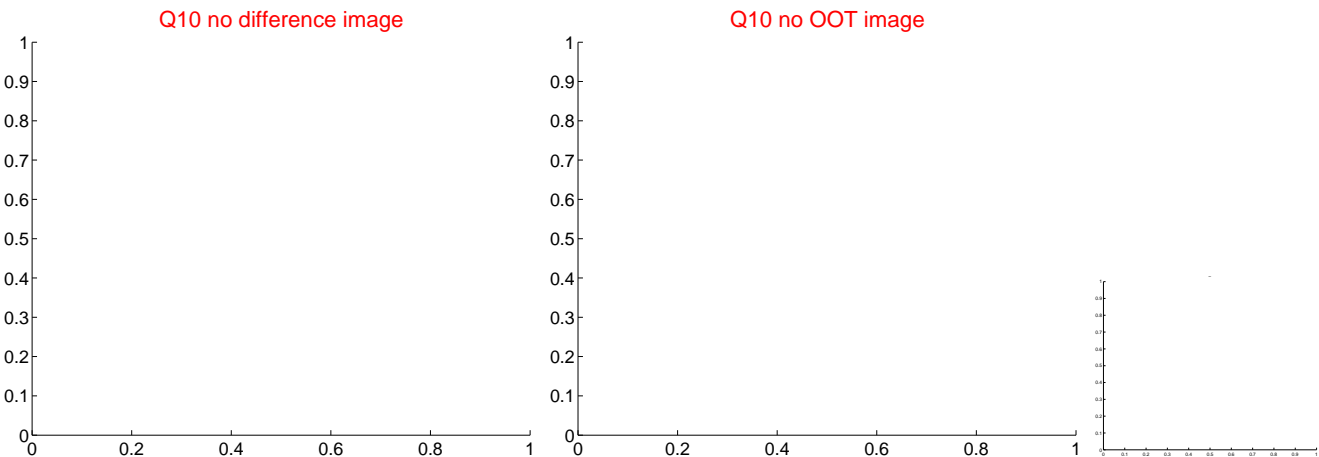
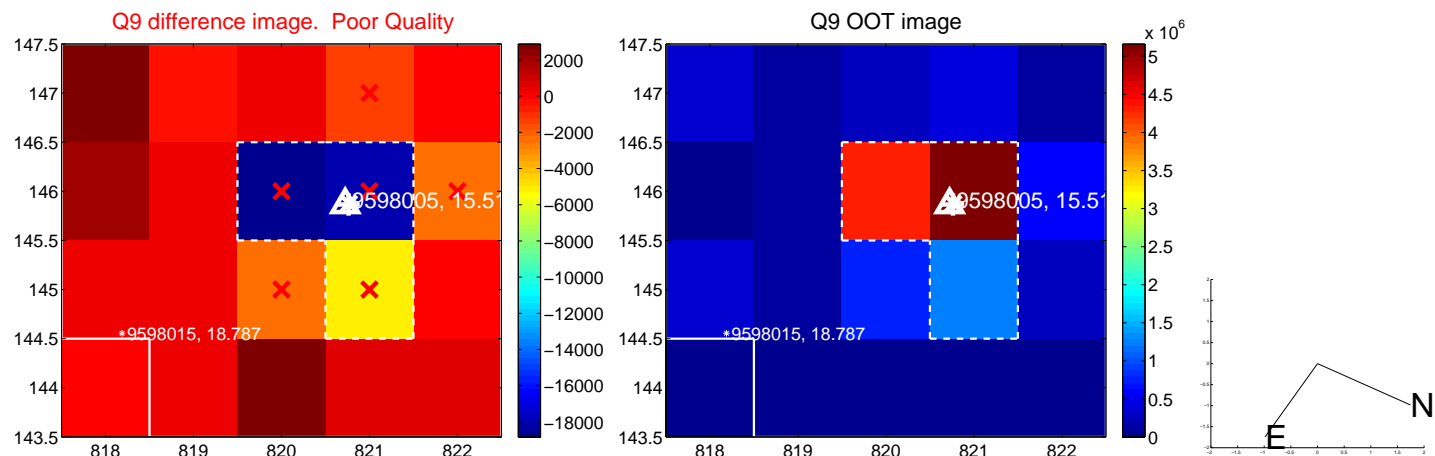
Q4 no OOT image



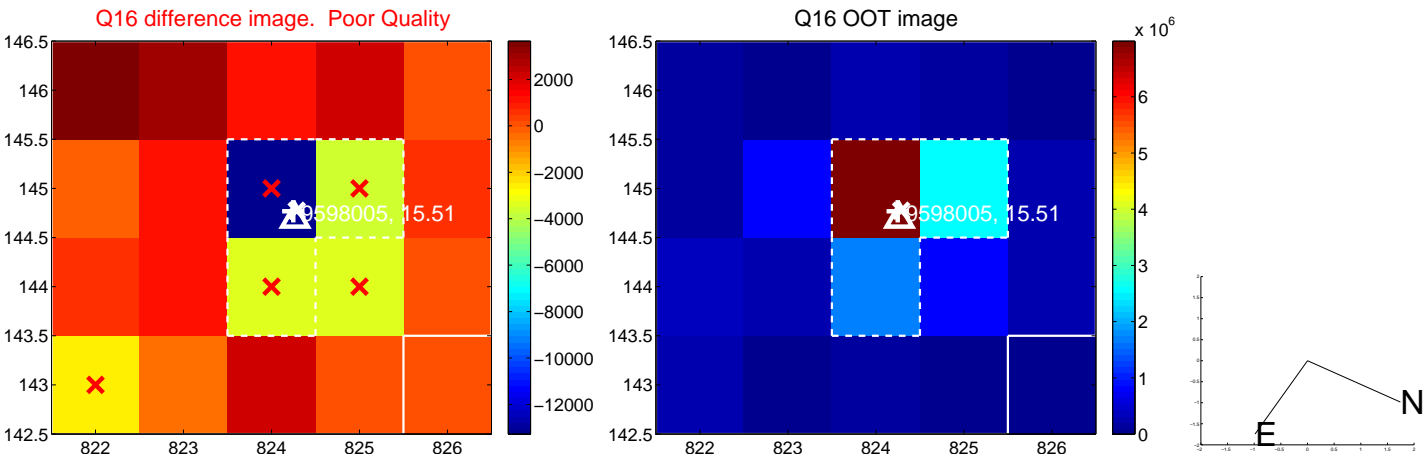
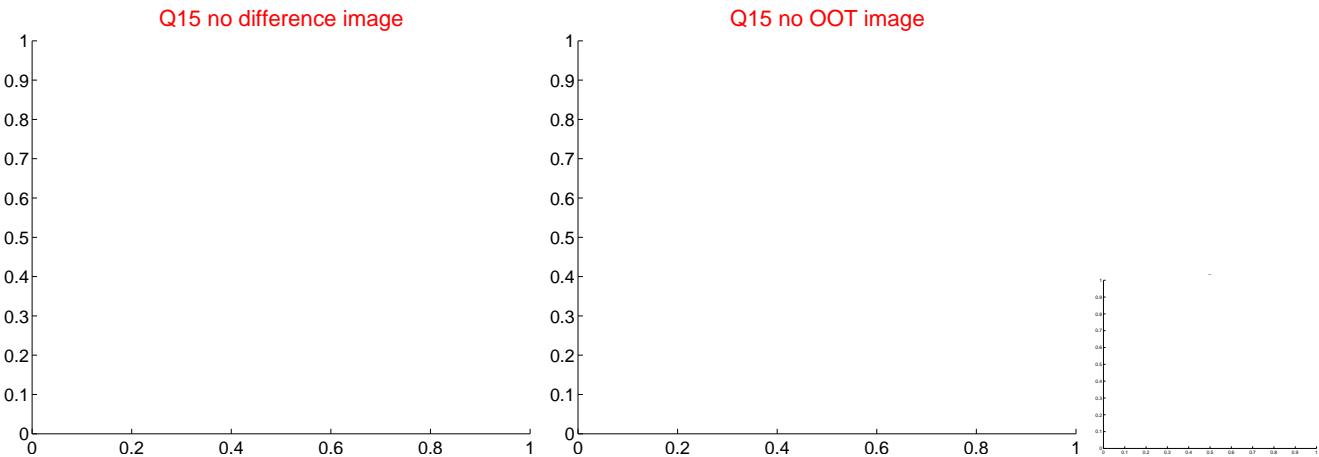
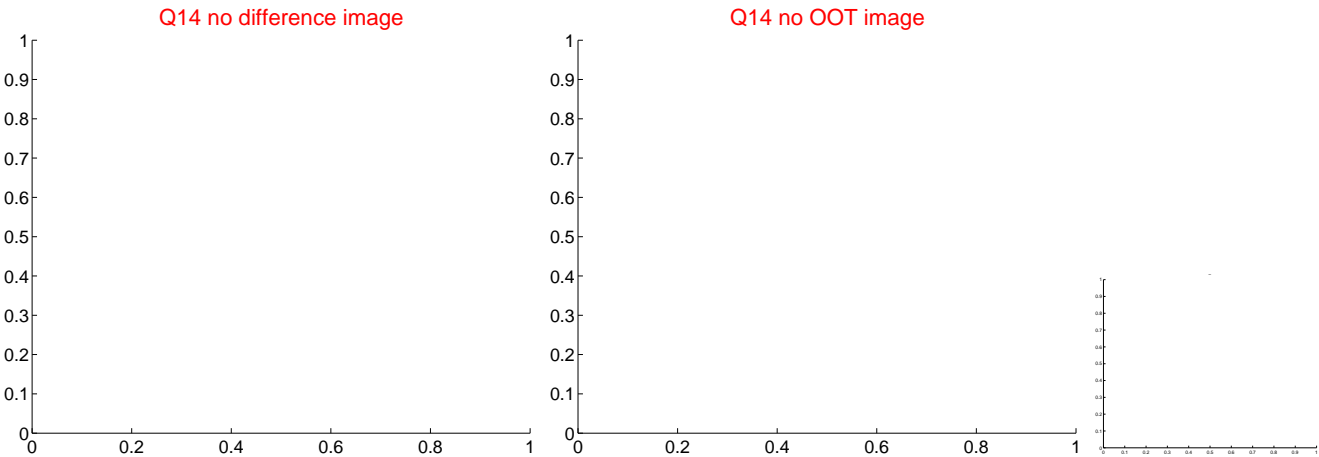
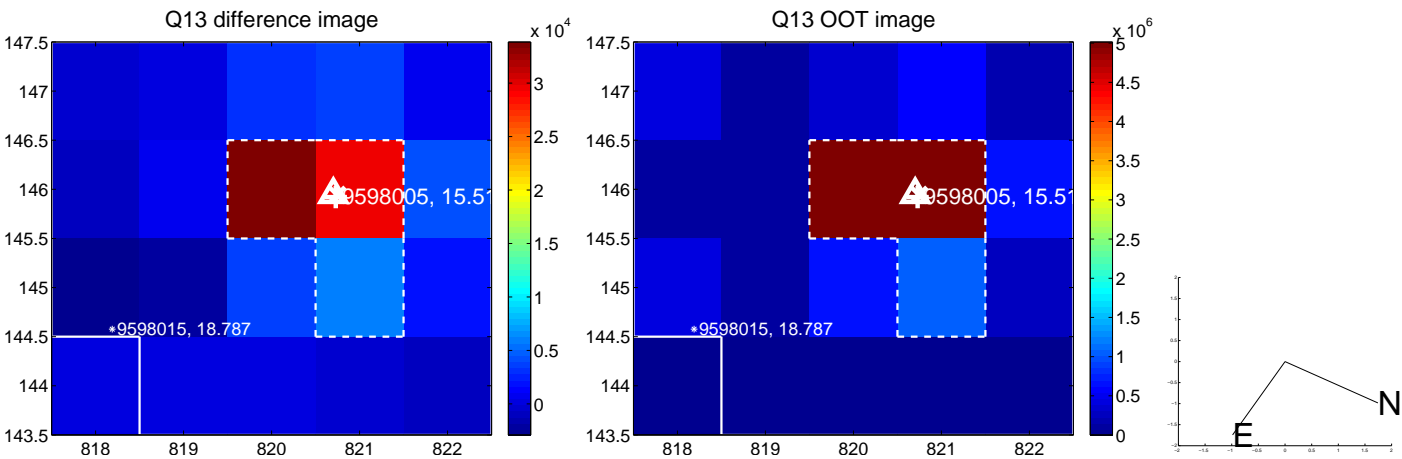
white ×: KIC target position; +: OOT centroid; △: difference centroid. red ✕: large negative pixel value.



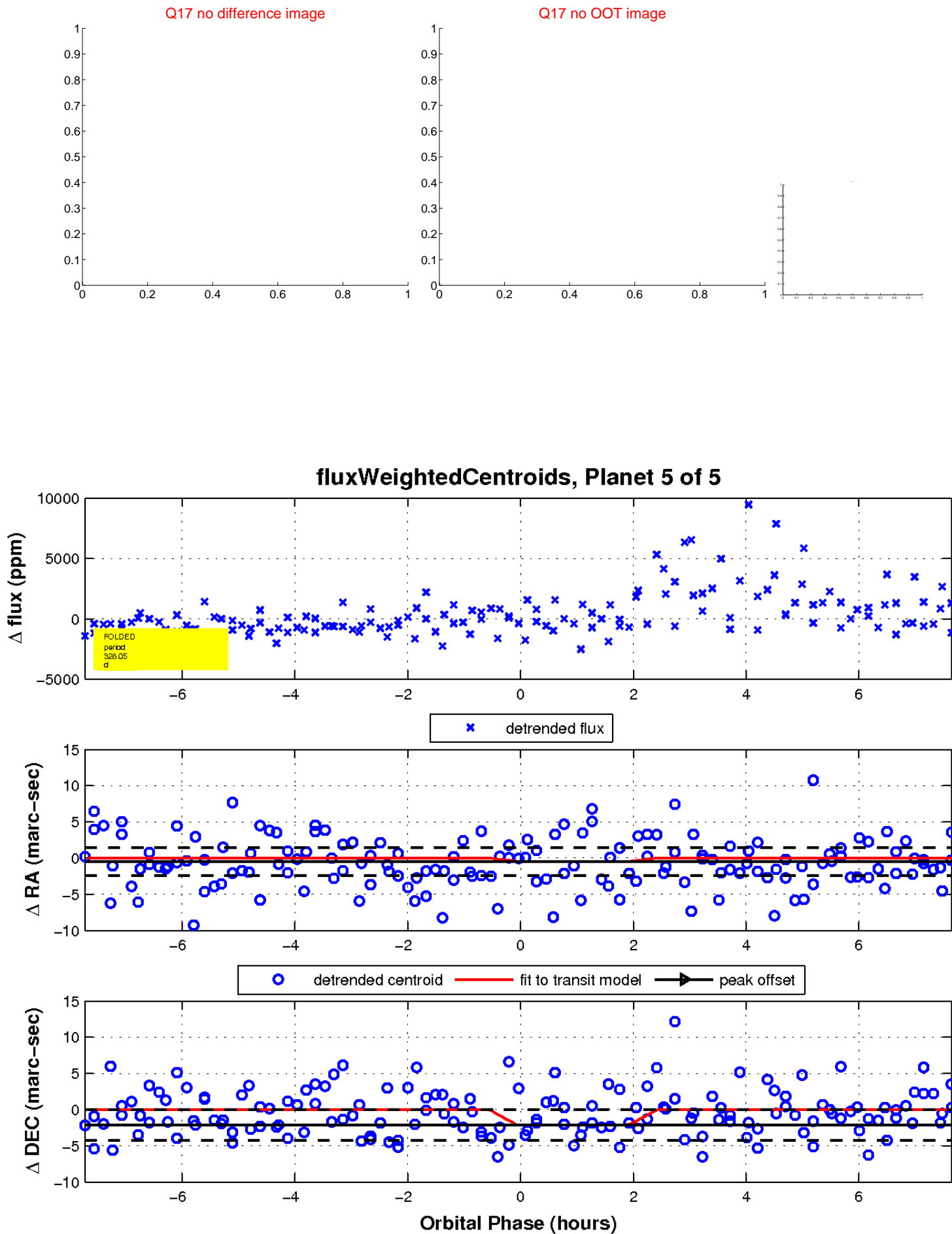
white ×: KIC target position; +: OOT centroid; △: difference centroid. red ×: large negative pixel value.



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



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



UKIRT Image

Declination

