

KIC 004995953

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})
004995953-01	OBS	No	2.651149	133.207682	25.2	6.855	8.9	5.6	2.09	6703	1.22	4361.43
004995953-02	OBS	No	511.745454	243.857778	825.8	10.056	18.9	10.0	2.09	6703	7.48	3.91
004995953-03	OBS	No	526.380671	215.948054	589.8	18.095	12.1	8.3	2.09	6703	5.51	3.77
004995953-04	OBS	No	1.324696	131.726704	22.4	4.288	8.0	5.9	2.09	6703	1.15	10999.82
004995953-05	OBS	No	2.650531	132.610811	135.0	7.554	11.0	14.2	2.09	6703	2.83	4362.78

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
004995953-01	OBS	FP	0.00	1	0	0	0	LPP_DV—MOD_NONUNIQ_DV
004995953-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_CHASES_MARSHALL—LPP_DV—LPP_ALT—INCONSISTENT_TRANS—CENT_FEW_DIFFS
004995953-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL—ALL_TRANS_CHASES—INCONSISTENT_TRANS—CENT_FEW_DIFFS
004995953-04	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT
004995953-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_SKYE_ZUMA—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_ALT—SAME_NTL_PERIOD

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

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

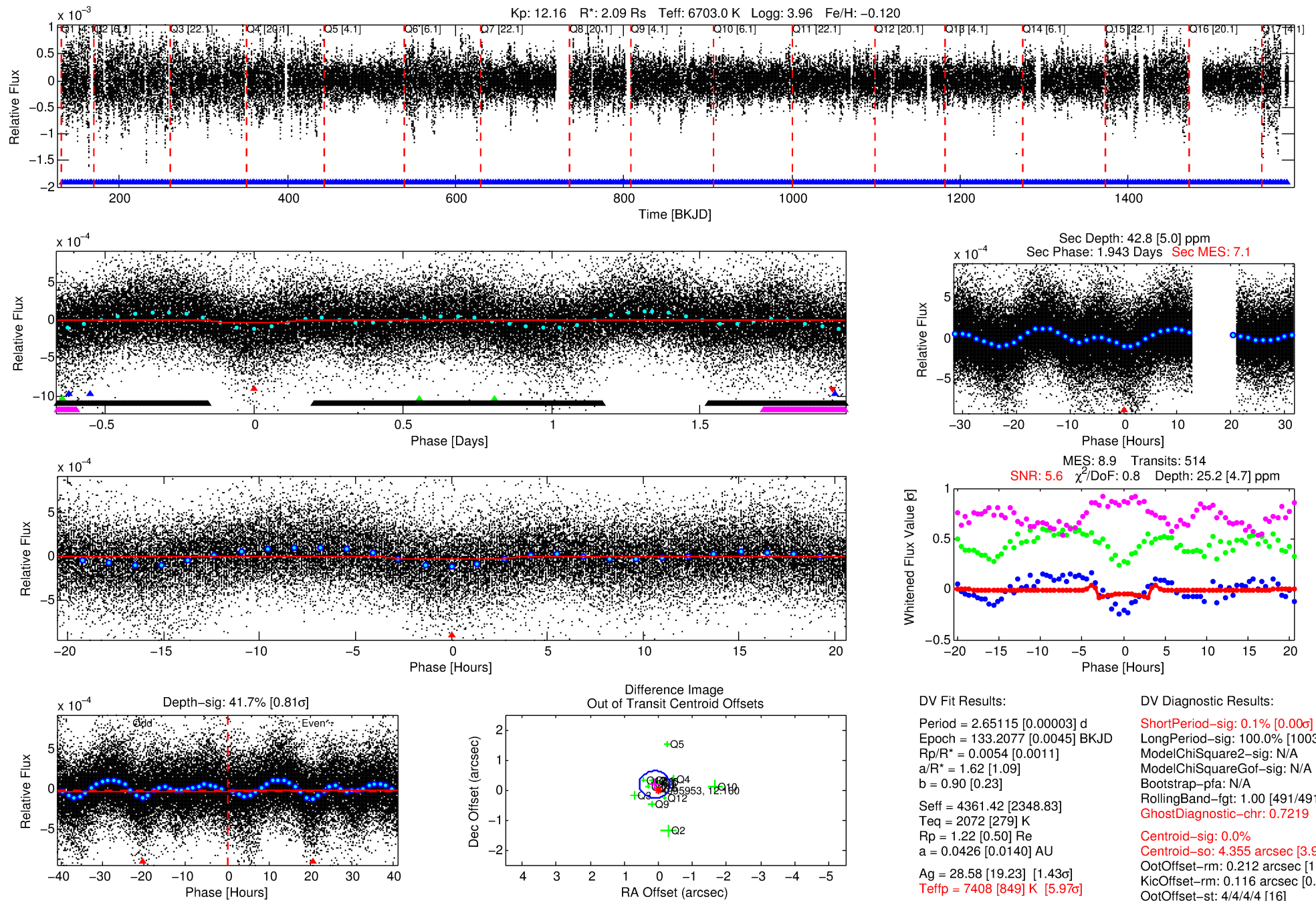
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 004995953-01

No Significant Match Found

DV One-Page Summary

KIC: 4995953 Candidate: 1 of 5 Period: 2.651 d



DV Fit Results:

Period = 2.65115 [0.00003] d
Epoch = 133.2077 [0.0045] BKJD
Rp/R* = 0.0054 [0.0011]
a/R* = 1.62 [1.09]
b = 0.90 [0.23]
Seff = 4361.42 [2348.83]
Teq = 2072 [279] K
Rp = 1.22 [0.50] Re
a = 0.0426 [0.0140] AU
Ag = 28.58 [19.23] [1.43σ]
Teffp = 7408 [849] K [5.97σ]

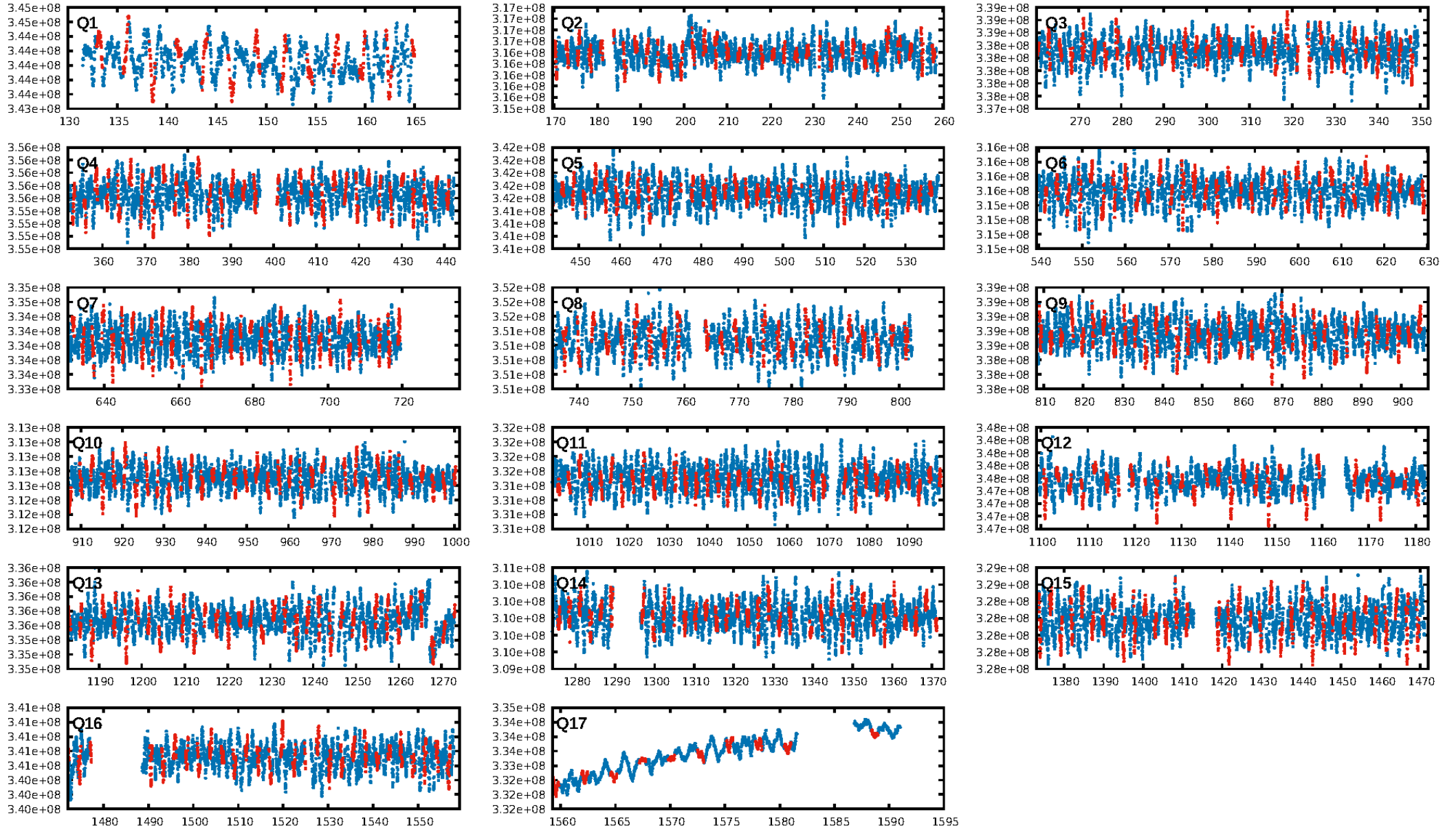
DV Diagnostic Results:

ShortPeriod-sig: 0.1% [0.00σ]
LongPeriod-sig: 100.0% [1003.95σ]
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: N/A
RollingBand-fgt: 1.00 [491/491]
GhostDiagnostic-chr: 0.7219
Centroid-sig: 0.0%
Centroid-so: 4.355 arcsec [3.93σ]
OotOffset-rm: 0.212 arcsec [1.41σ]
KicOffset-rm: 0.116 arcsec [0.73σ]
OotOffset-st: 4/4/4/4 [16]
KicOffset-st: 4/4/4/4 [16]
DiffImageQuality-fgm: 1.00 [16/16]
DiffImageOverlap-fno: 0.12 [2/17]

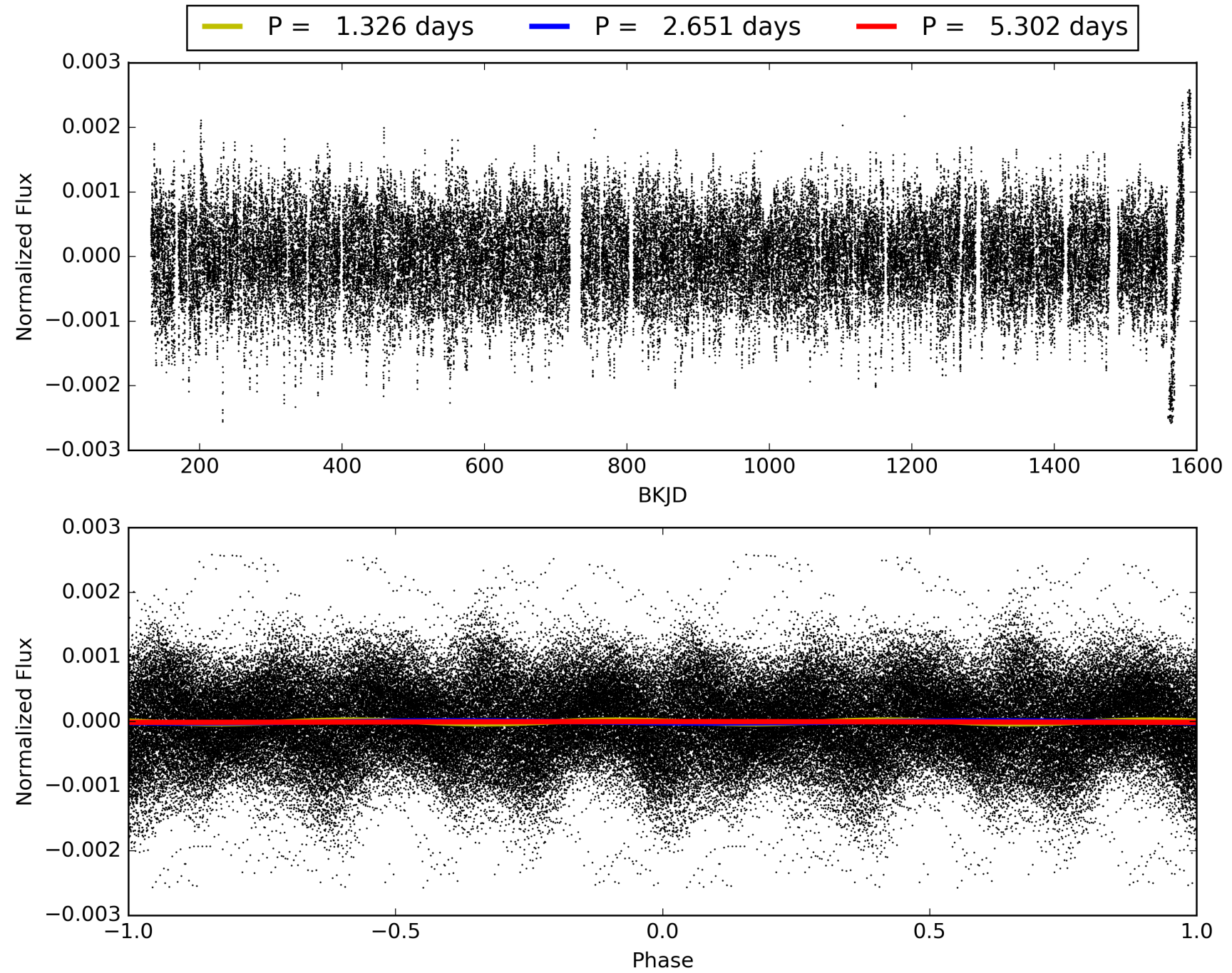
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 02-Feb-2016 07:52:07 Z

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

TCE 004995953-01, PDC Light Curves

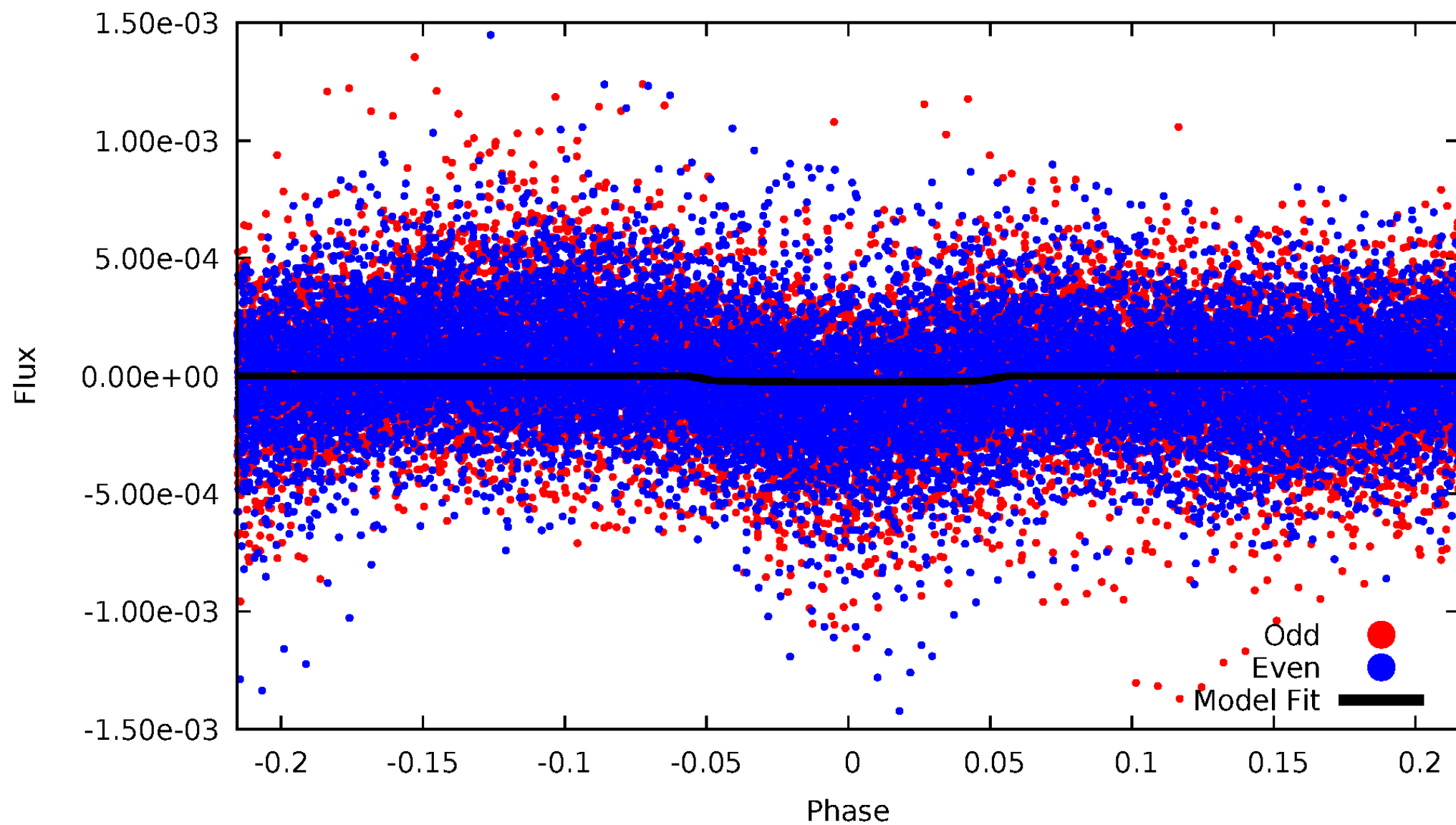


TCE 004995953-01



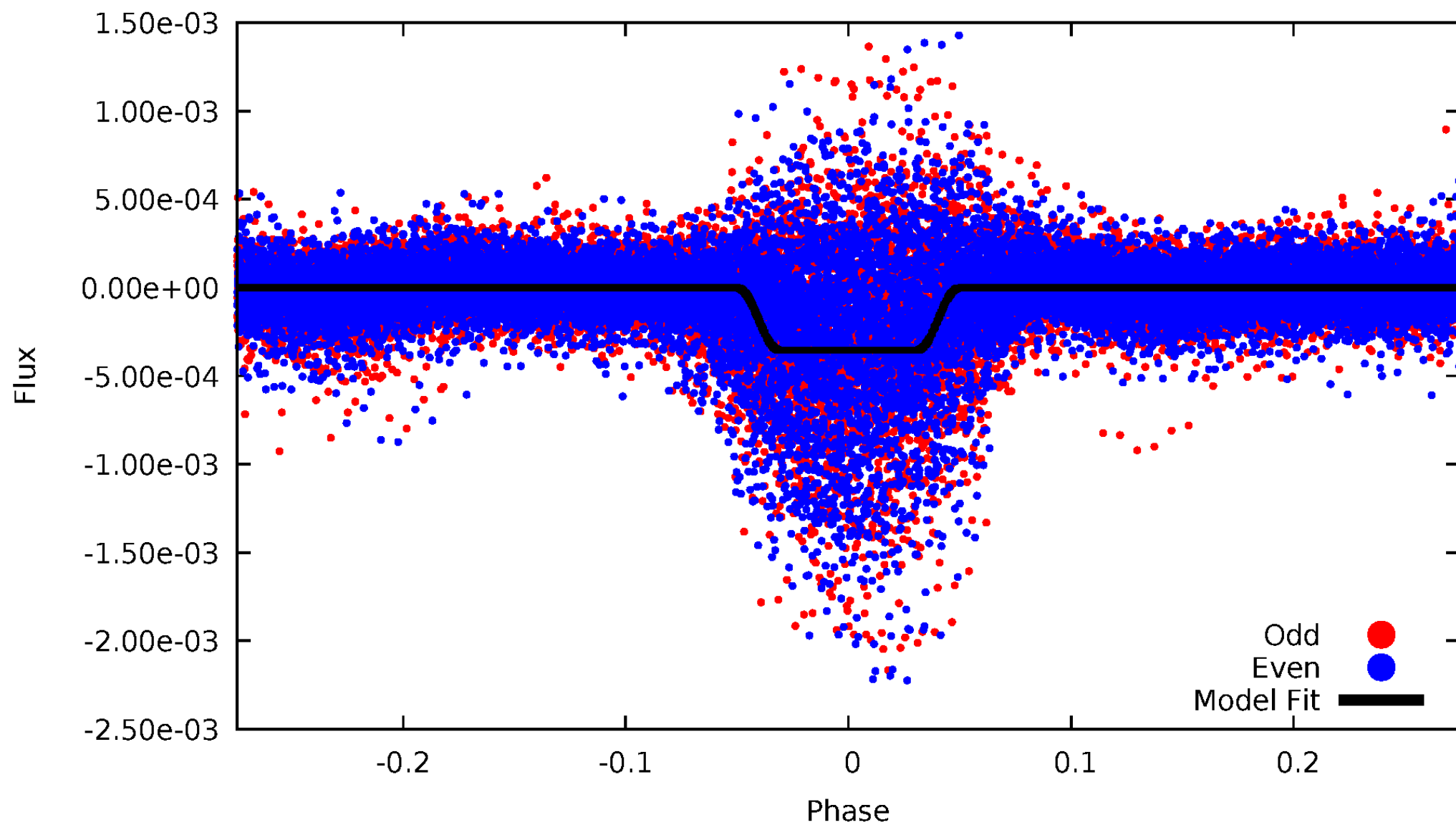
DV Odd/Even

TCE 004995953-01

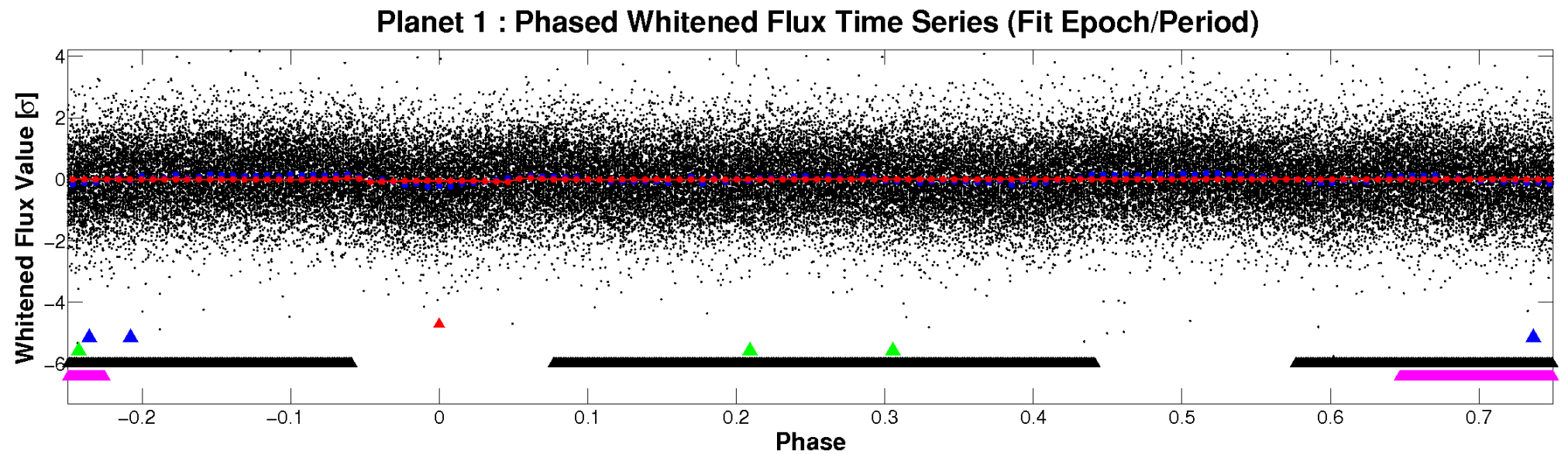
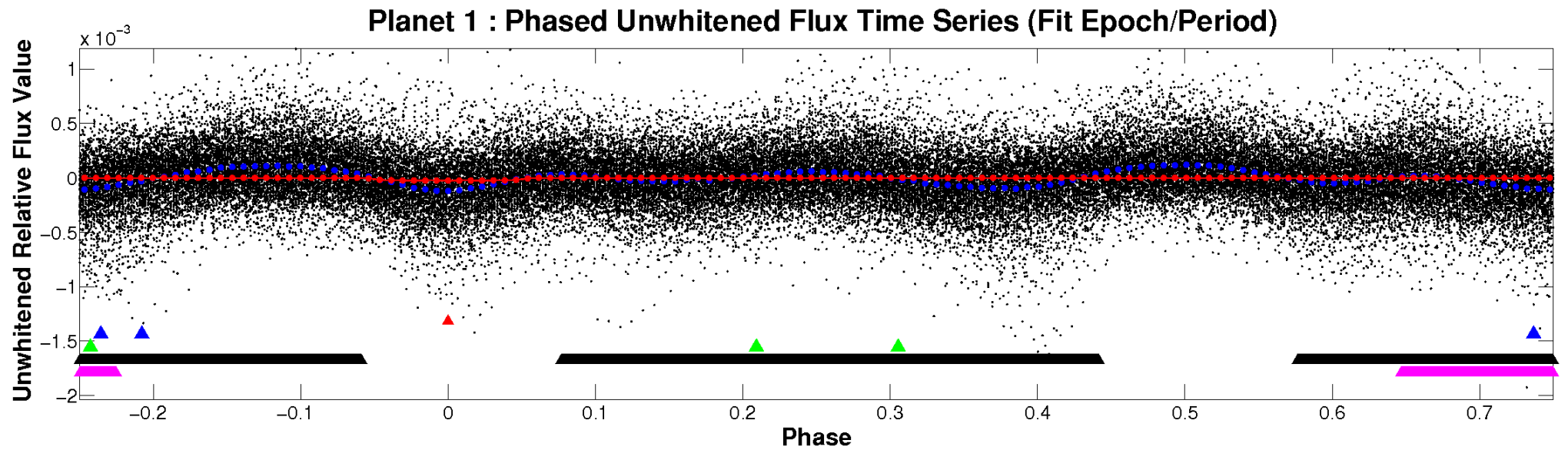


ALT Odd/Even

TCE 004995953-01

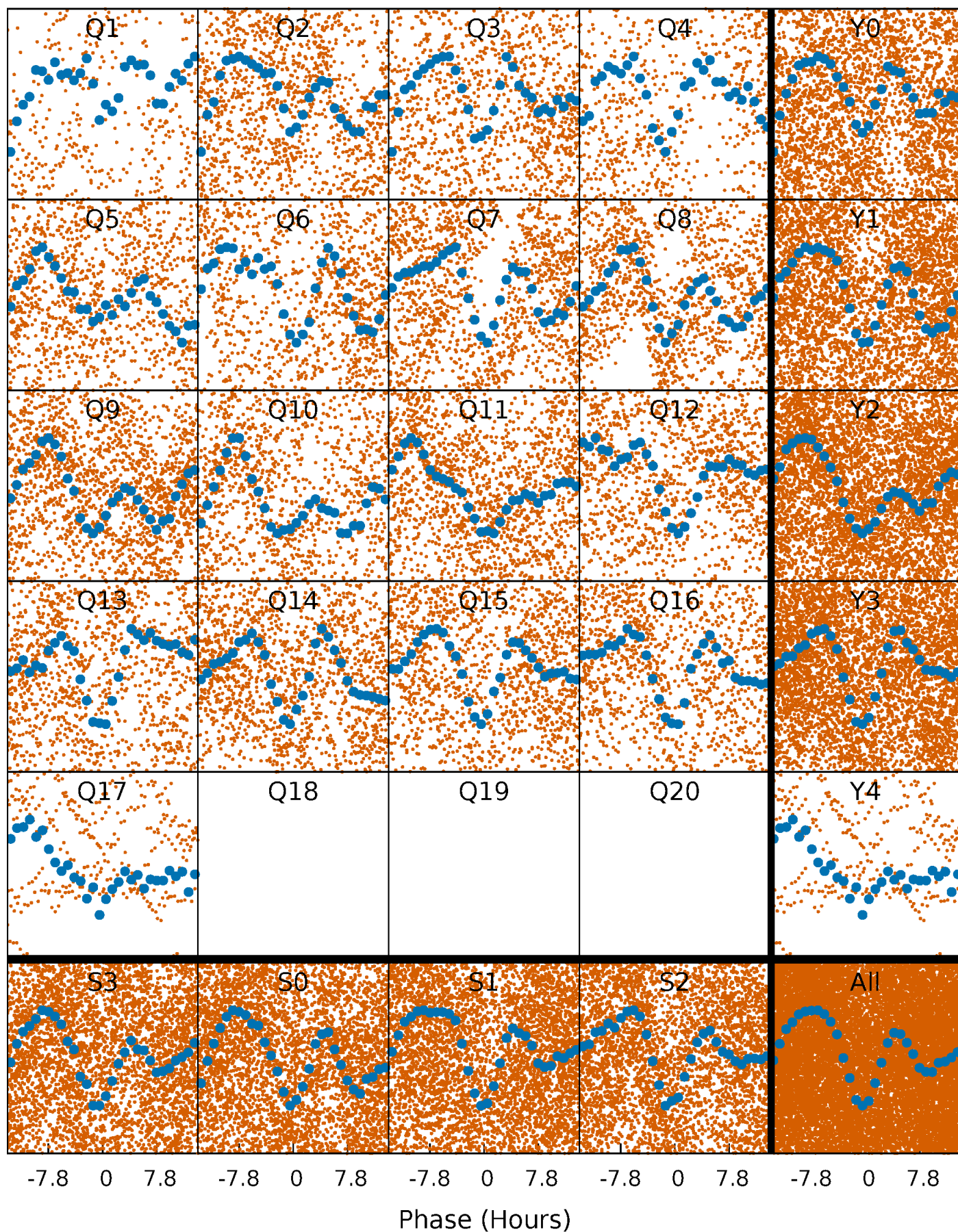


Non-Whitened Vs. Whitened Light Curve



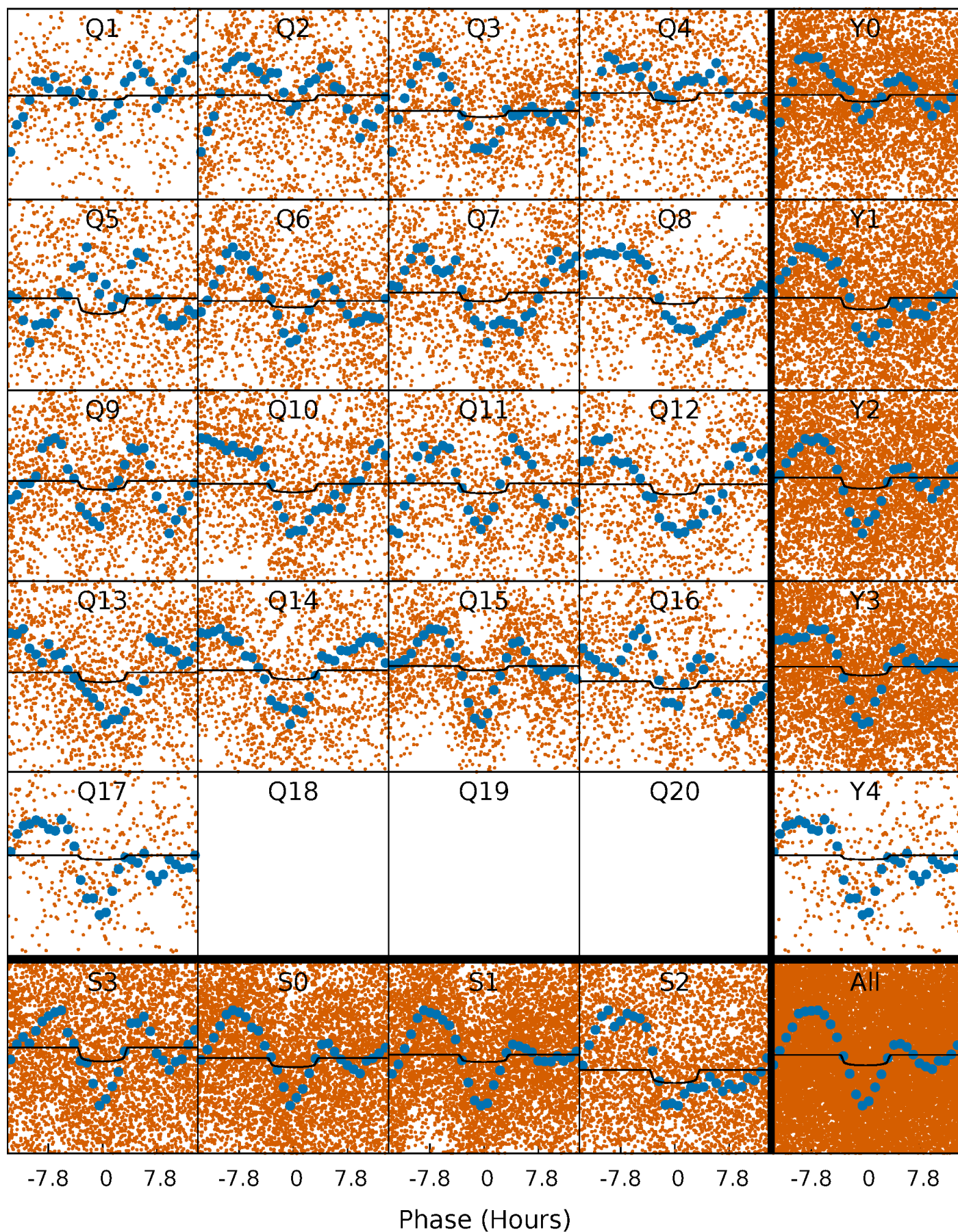
PDC Quarter-Phased Transit Curves

TCE 004995953-01 P= 2.651149 Days $T_0=133.207682$ (BKJD)



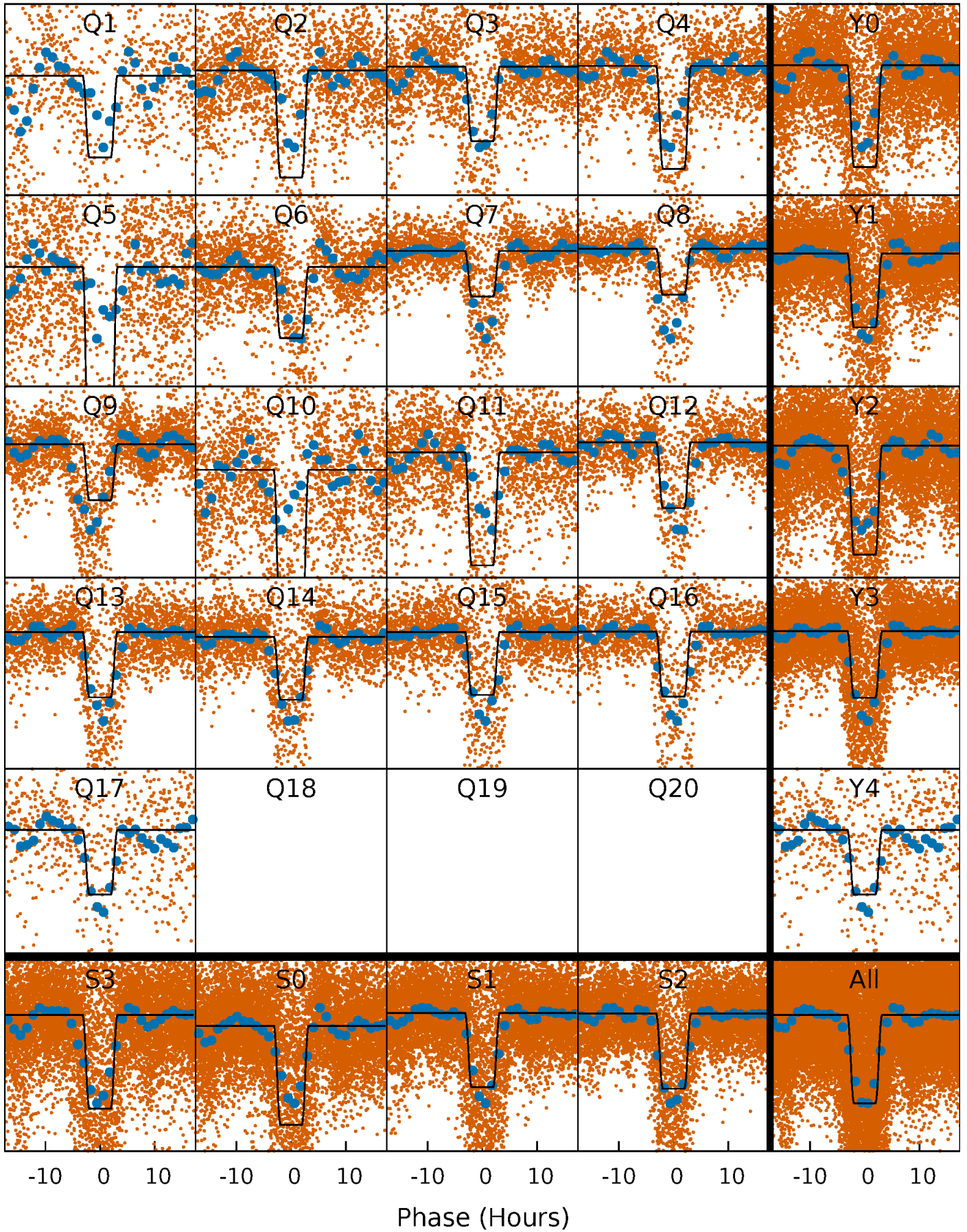
DV Quarter-Phased Transit Curves

TCE 004995953-01 P= 2.651149 Days $T_0=133.207682$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

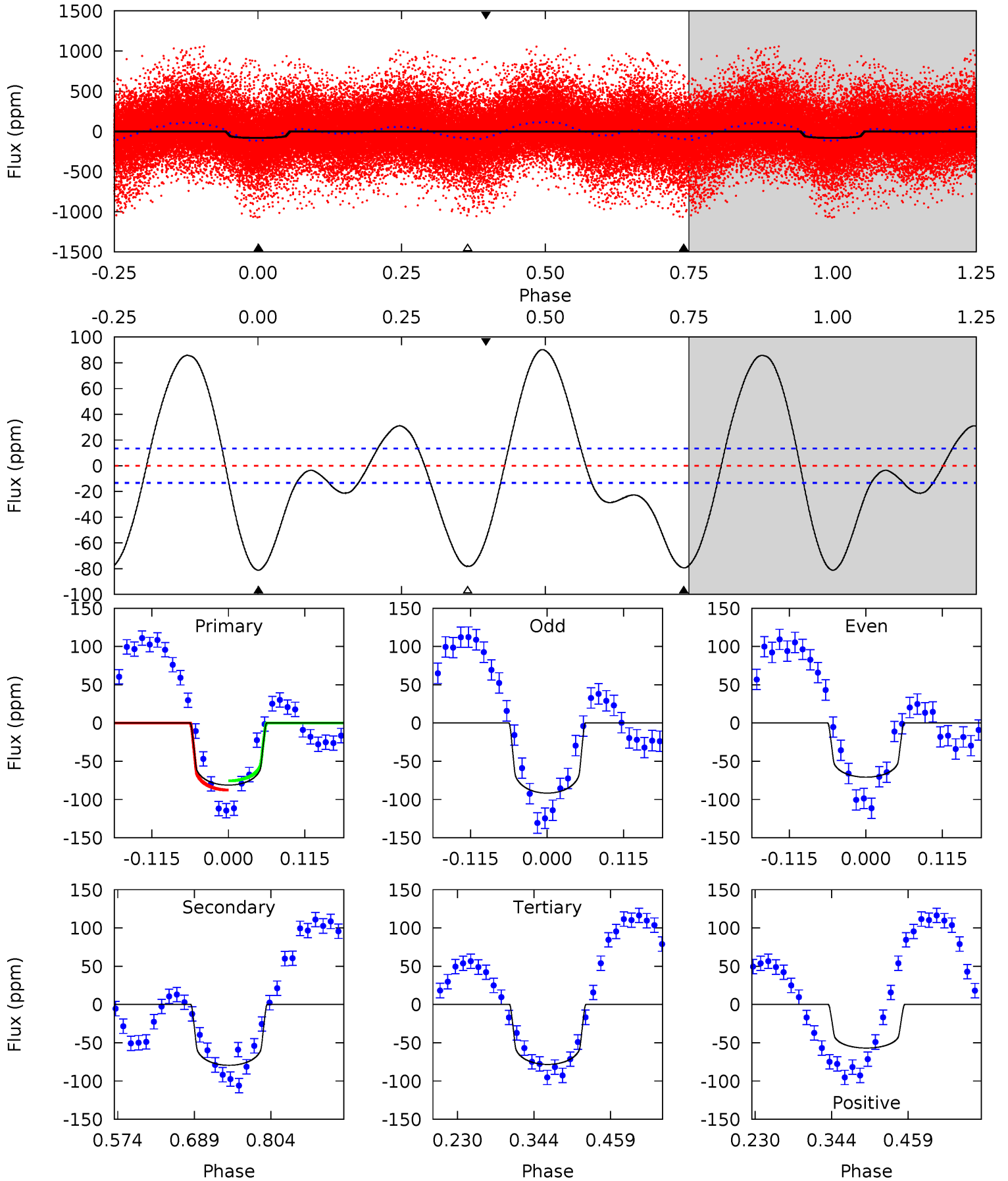
TCE 004995953-01 P= 2.651107 Days $T_0=133.196315$ (BKJD)



DV Model-Shift Uniqueness Test

004995953-01, P = 2.651149 Days, E = 130.556533 Days

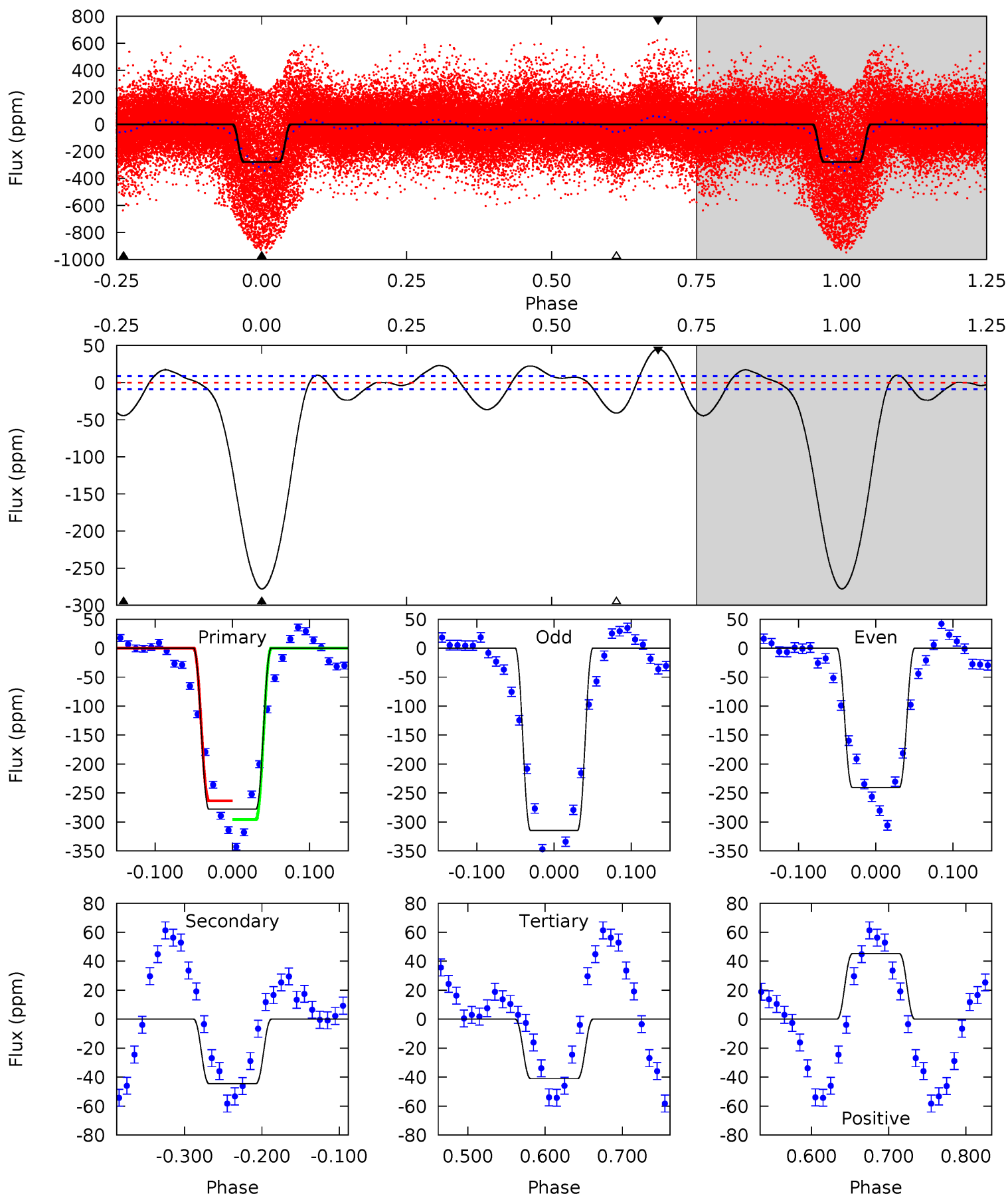
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
27.5	26.9	26.6	-19.3	4.54	1.58	16.3	0.97	46.8	0.38	46.2	3.53	1.13	0.53	2.06



Alt Model-Shift Uniqueness Test

004995953-01, P = 2.651107 Days, E = 130.545208 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
146.7	23.5	21.7	23.9	4.56	1.64	10.7	125.1	122.9	1.80	-0.39	19.4	1.09	0.14	8.38



Stellar Parameters For KIC 004995953

	$T_{\text{eff}}(K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	6703^{+187}_{-258}	$3.963^{+0.299}_{-0.161}$	$-0.120^{+0.300}_{-0.300}$	$2.091^{+0.605}_{-0.740}$	$1.465^{+0.219}_{-0.328}$	$0.226^{+0.501}_{-0.107}$
	+3%/-4%	+8%/-4%	+250%/-250%	+29%/-35%	+15%/-22%	+222%/-47%
Source	PHO54	PHO54	PHO54	DSEP		

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

Secondary Eclipse Parameters for KIC 004995953-01 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-79 ± 3	$1.15^{+0.35}_{-0.29}$	2858^{+233}_{-258}	9178^{+1738}_{-1150}	58^{+48}_{-23}
Alt.	-44 ± 2	$4.18^{+0.77}_{-0.83}$	2850^{+223}_{-274}	4128^{+153}_{-149}	$2.554^{+1.247}_{-0.721}$

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

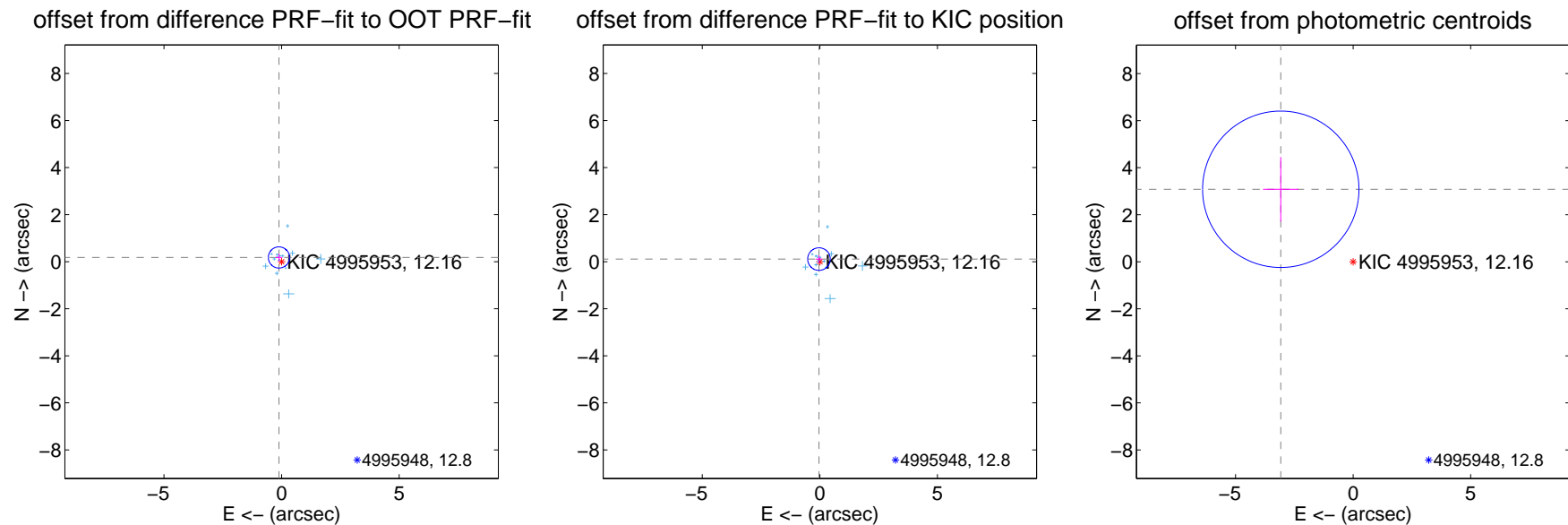
DV Centroid Data

Supplemental centroid analysis for 004995953-01. Kepler magnitude: 12.16. Transit SNR 5.55

There are 16 quarters with good PRF difference image offsets

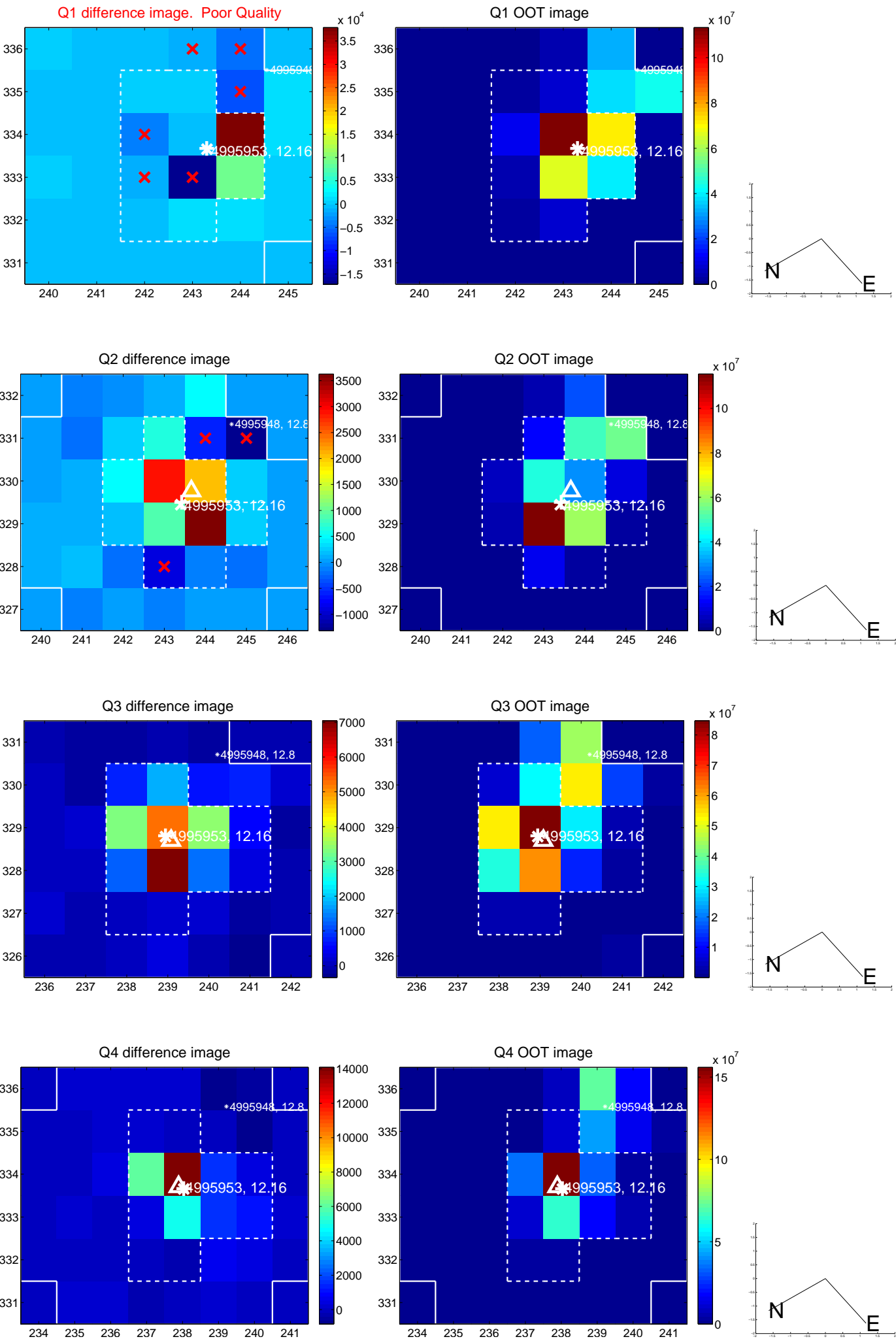
The direct PRF centroid is offset from the target star catalog position by about 0.11 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.212 ± 0.150	1.41	0.112 ± 0.143	0.180 ± 0.160
PRF-fit source offset from KIC position	0.116 ± 0.160	0.73	0.037 ± 0.142	0.110 ± 0.159
photometric centroid source offset	4.35 ± 1.11	3.93	3.08 ± 0.75	3.08 ± 1.38

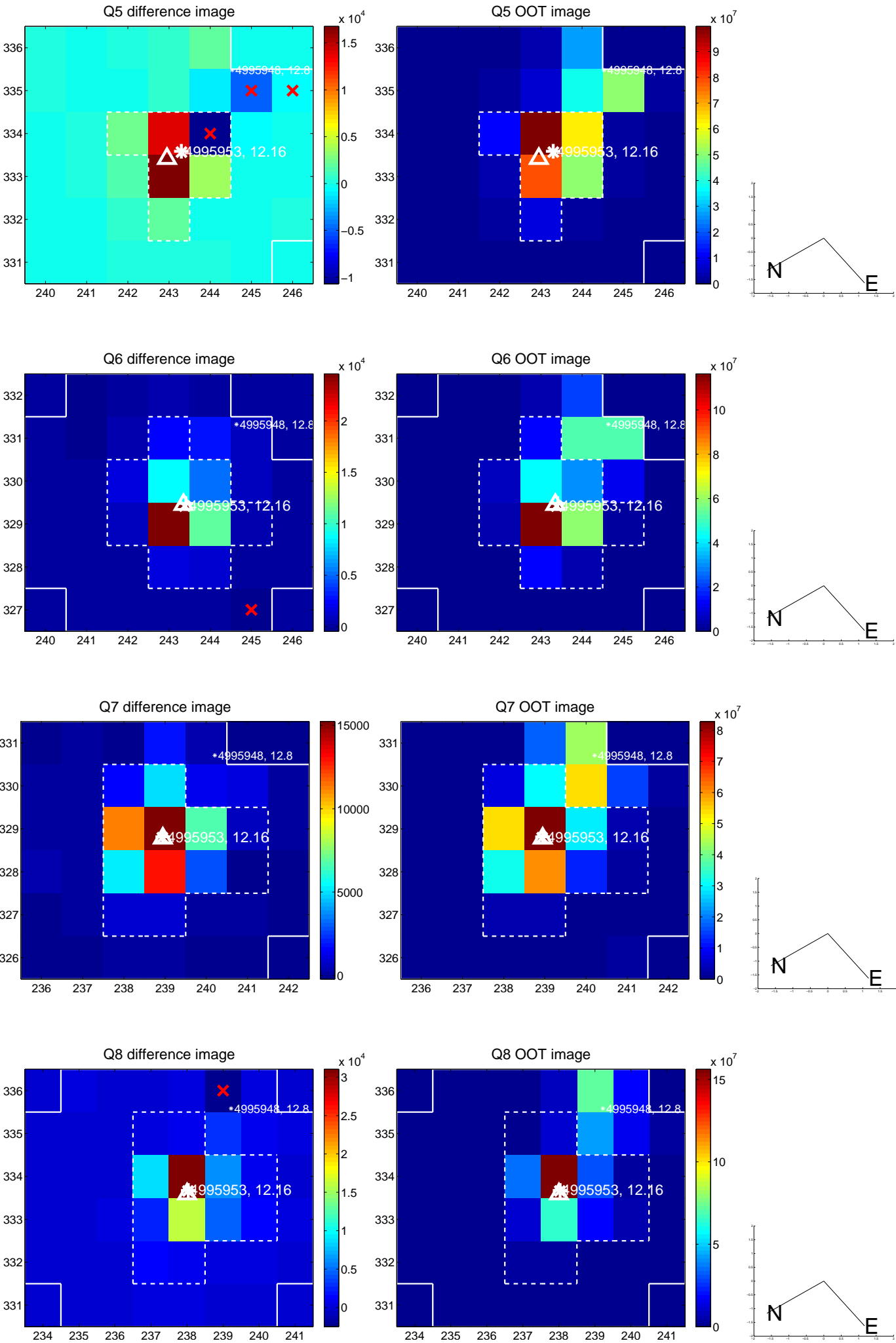


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

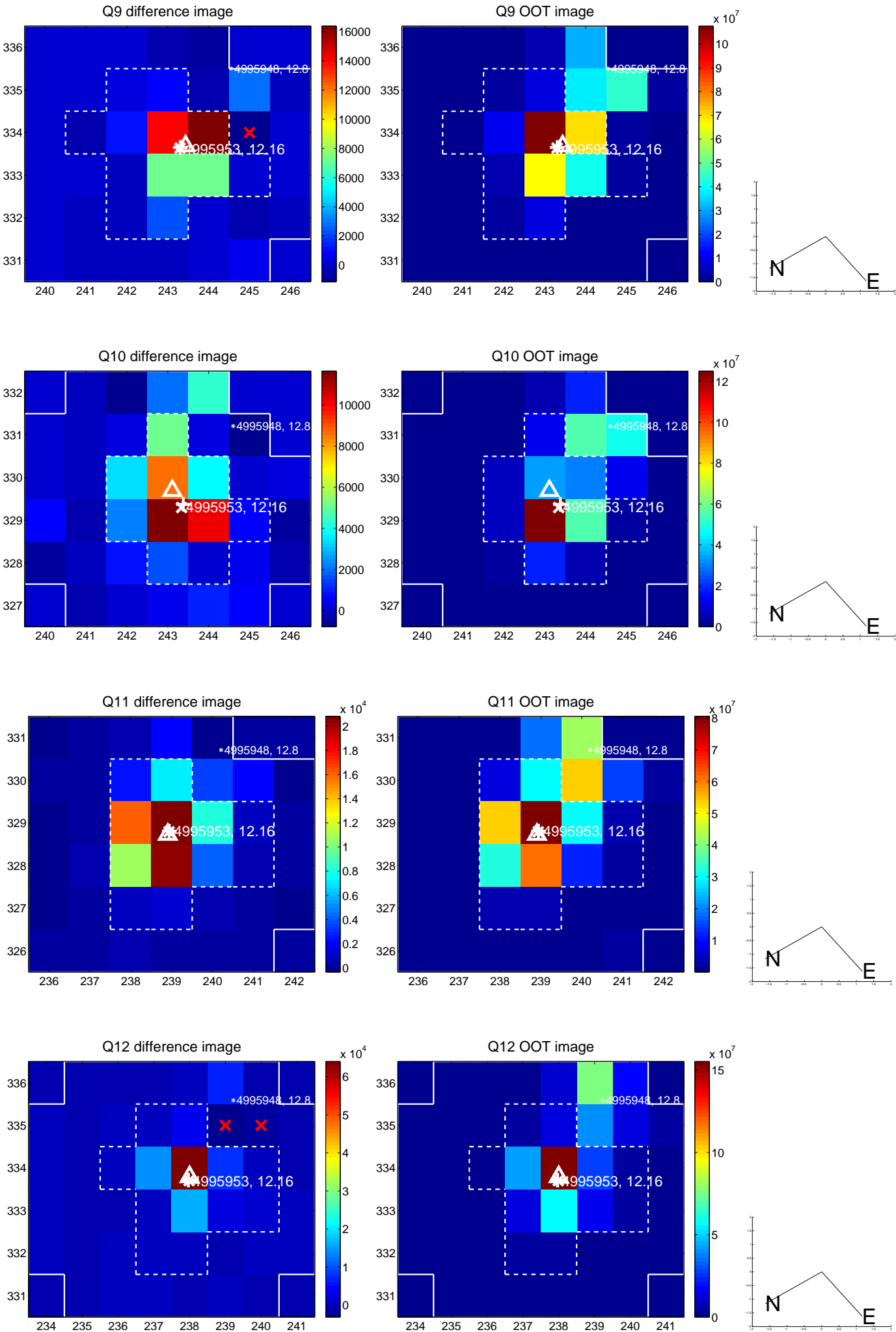
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



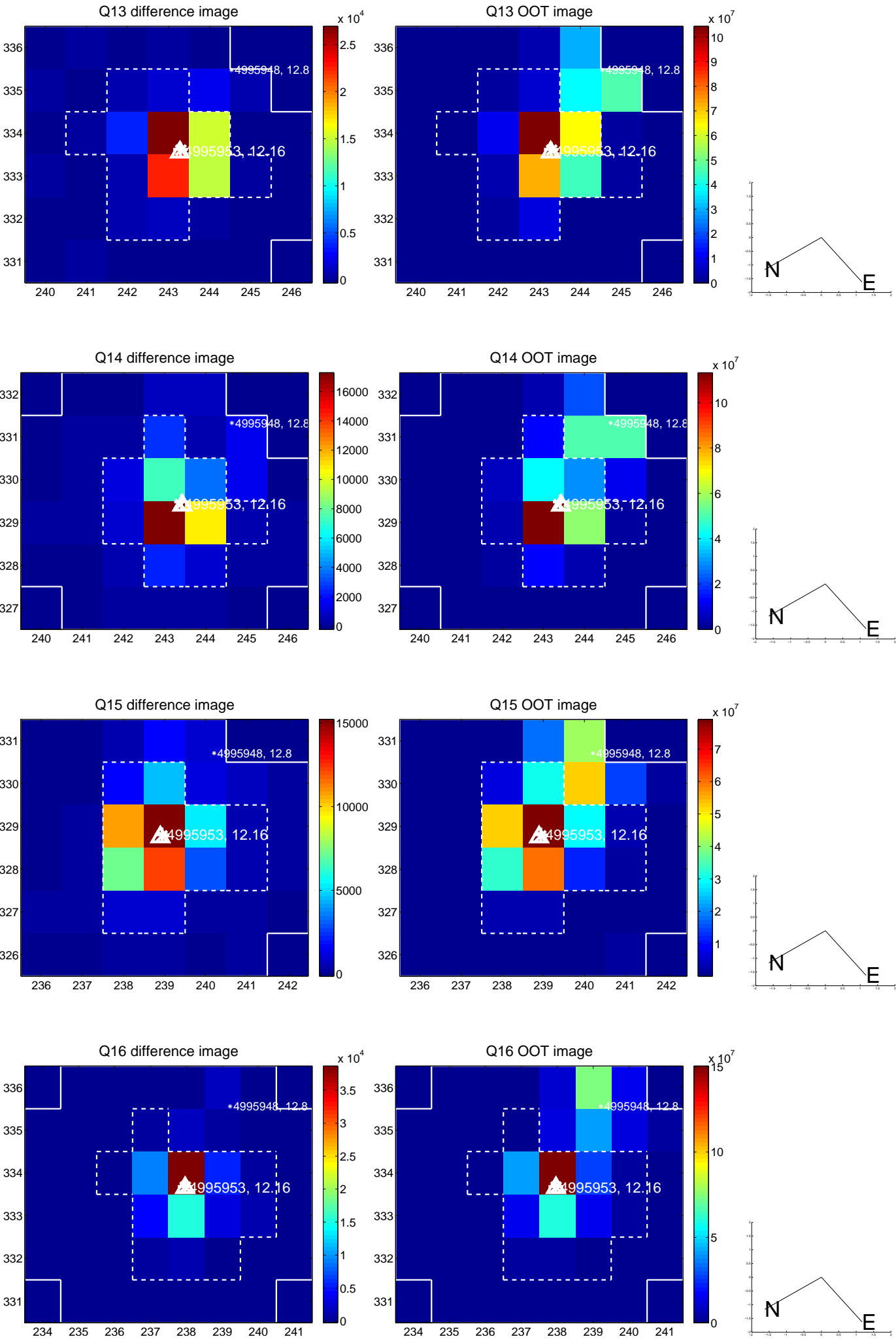
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



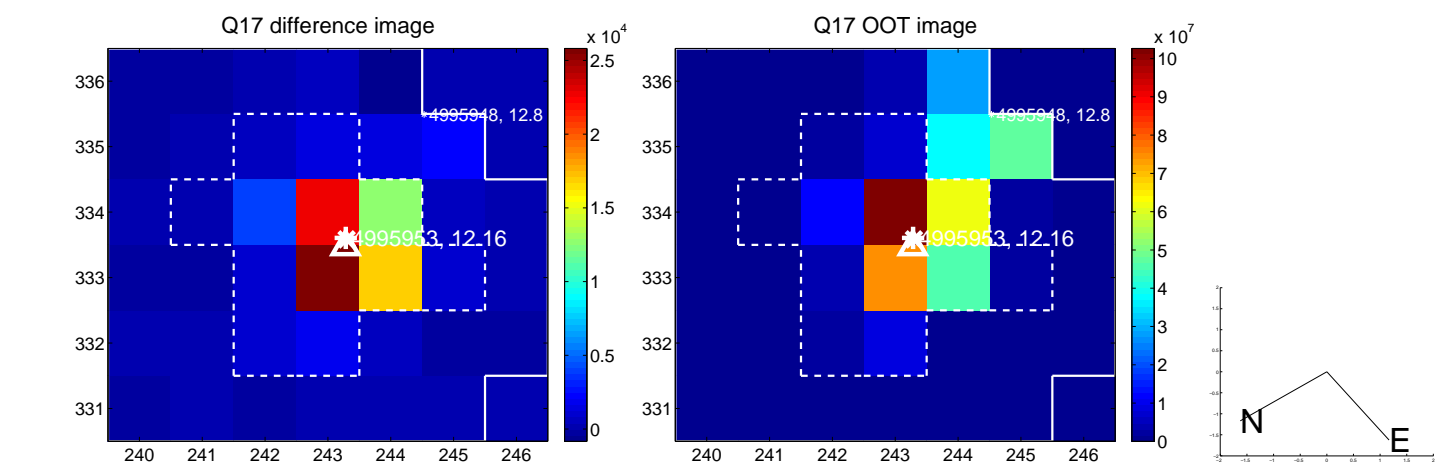
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



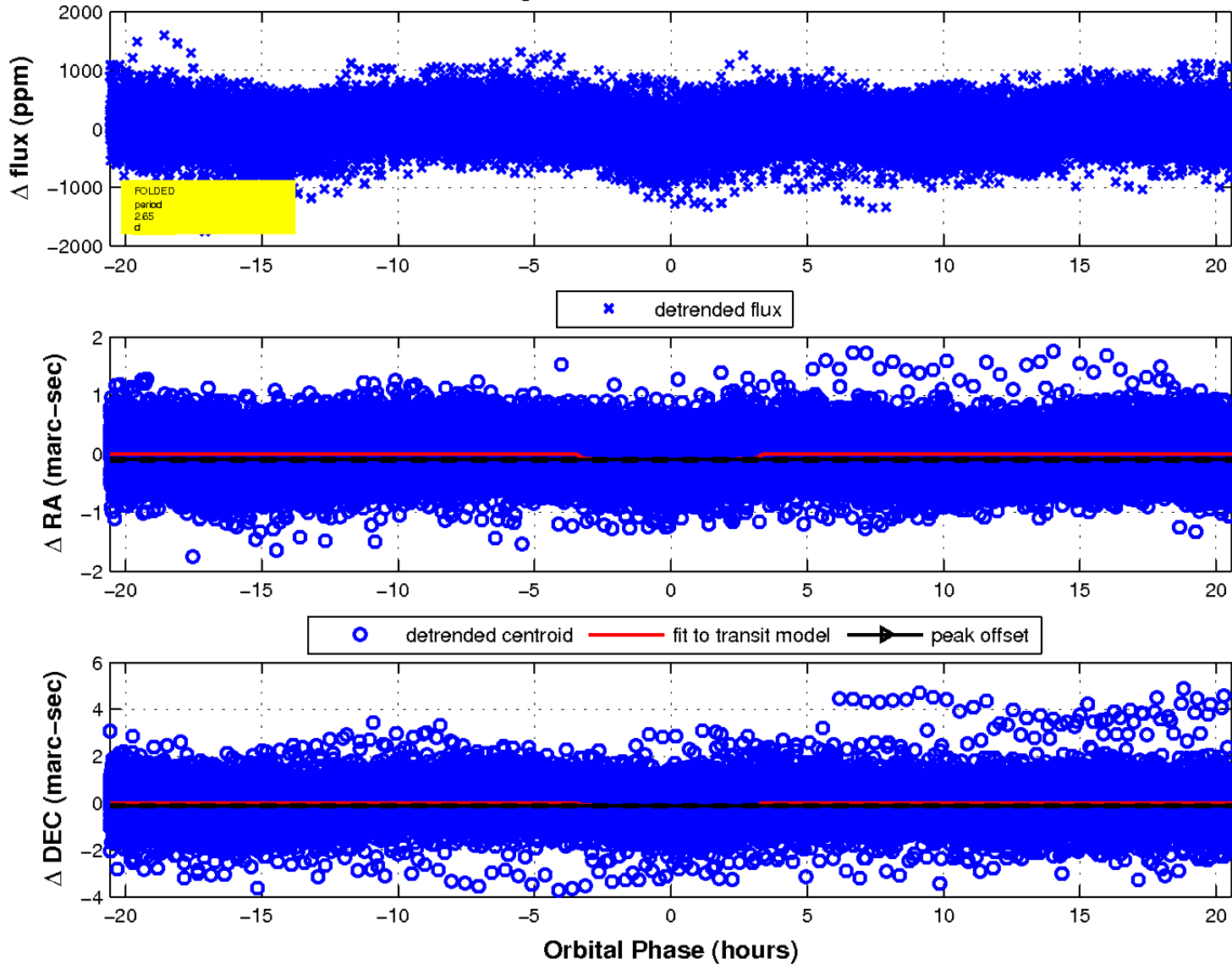
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



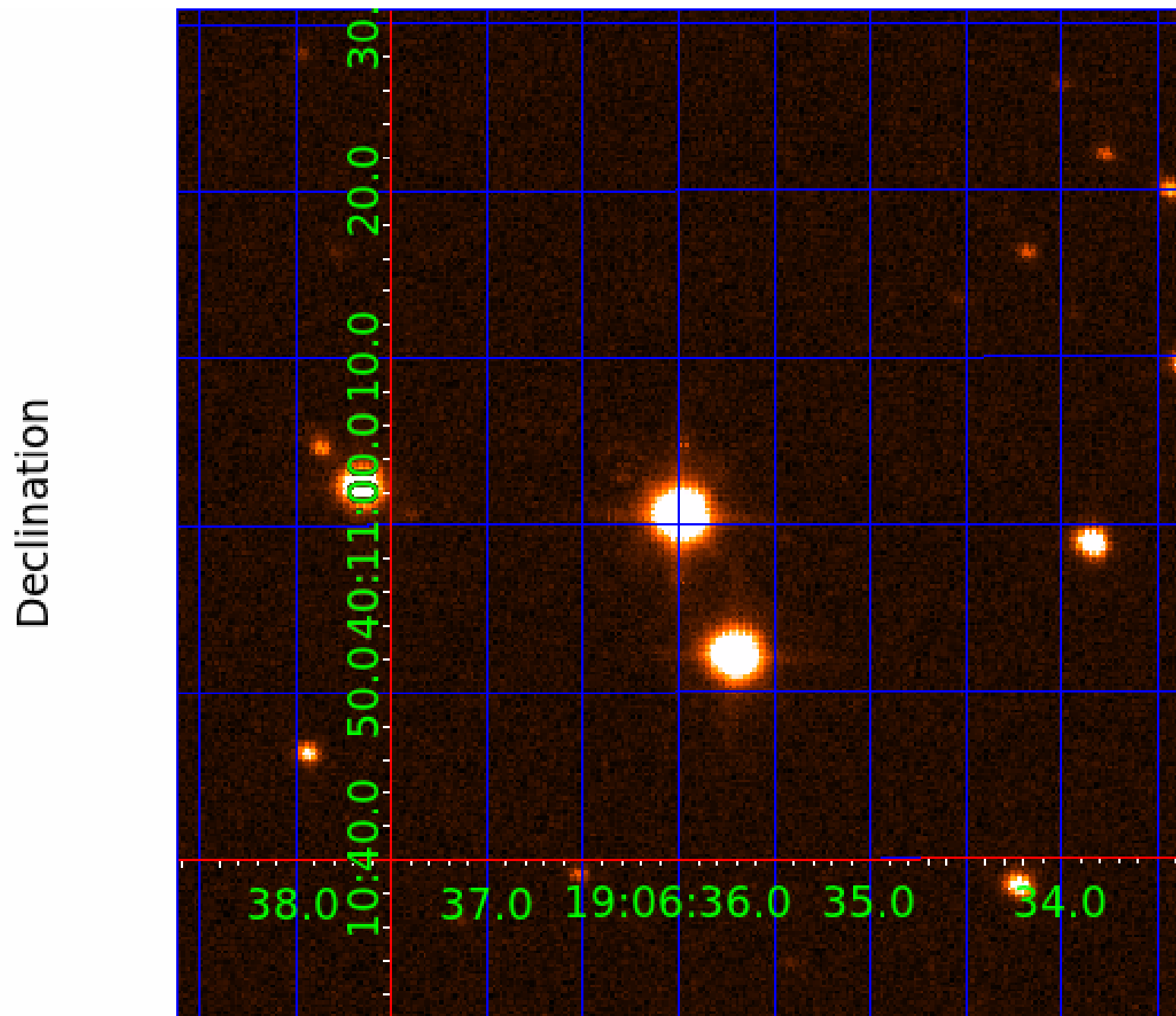
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



fluxWeightedCentroids, Planet 1 of 5



UKIRT Image



KIC 004995953

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})
004995953-01	OBS	No	2.651149	133.207682	25.2	6.855	8.9	5.6	2.09	6703	1.22	4361.43
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004995953-04	OBS	No	1.324696	131.726704	22.4	4.288	8.0	5.9	2.09	6703	1.15	10999.82
004995953-05	OBS	No	2.650531	132.610811	135.0	7.554	11.0	14.2	2.09	6703	2.83	4362.78

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
004995953-01	OBS	FP	0.00	1	0	0	0	LPP_DV—MOD_NONUNIQ_DV
004995953-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_CHASES_MARSHALL—LPP_DV—LPP_ALT—INCONSISTENT_TRANS—CENT_FEW_DIFFS
004995953-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL—ALL_TRANS_CHASES—INCONSISTENT_TRANS—CENT_FEW_DIFFS
004995953-04	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT
004995953-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_SKYE_ZUMA—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_ALT—SAME_NTL_PERIOD

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

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

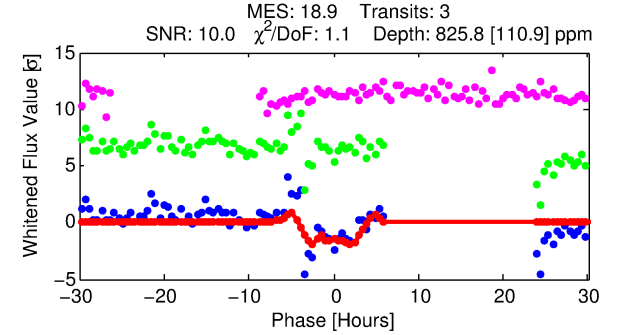
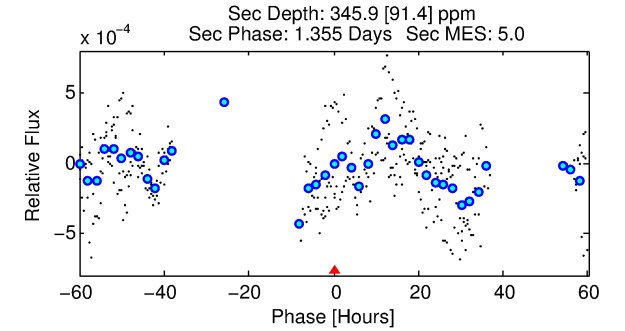
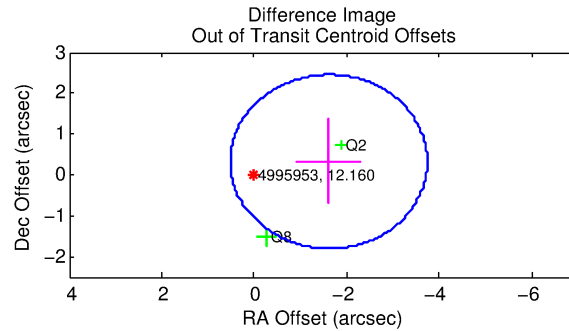
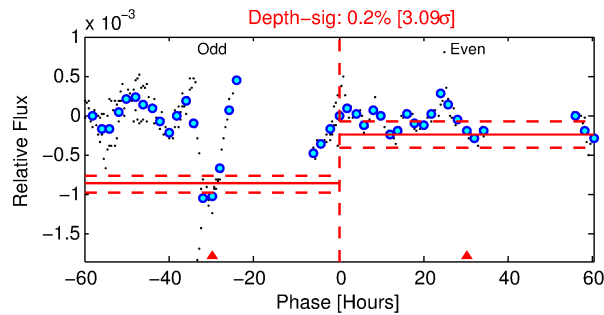
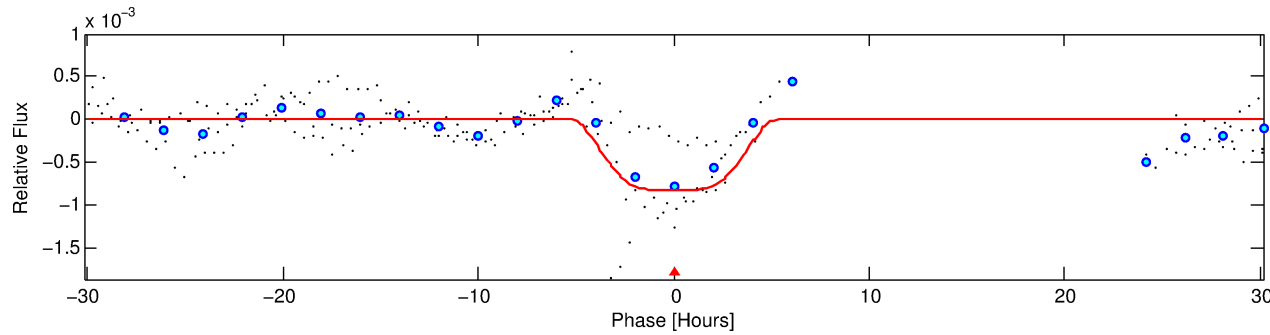
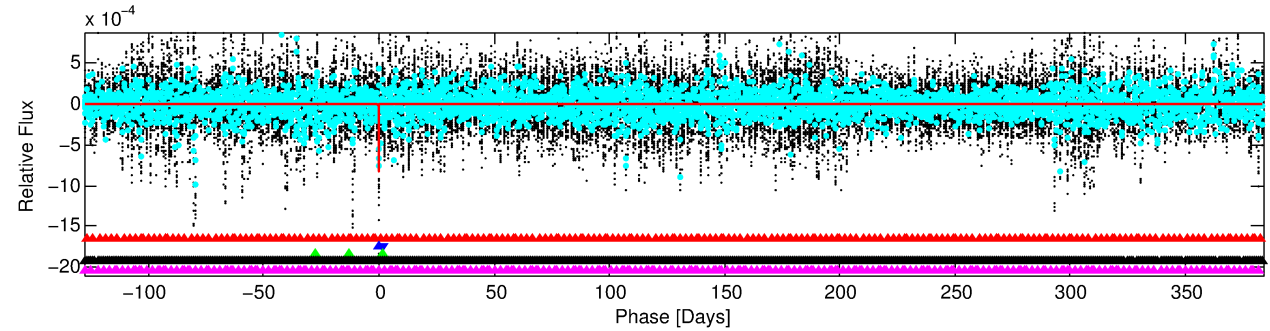
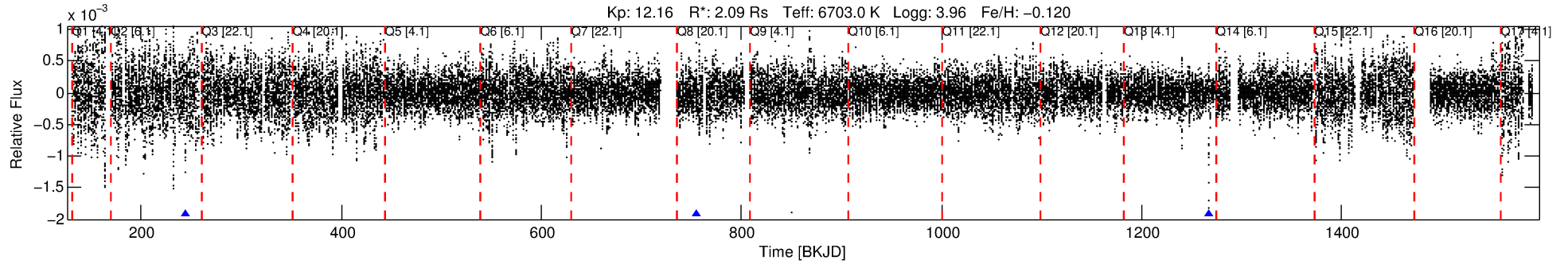
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 004995953-02

No Significant Match Found

DV One-Page Summary

KIC: 4995953 Candidate: 2 of 5 Period: 511.745 d



DV Fit Results:

Period = 511.74545 [0.01229] d
Epoch = 243.8578 [0.0157] BKJD
Rp/R* = 0.0328 [0.0024]
a/R* = 153.00 [16.94]
b = 0.95 [0.01]
Seff = 3.91 [2.11]
Teq = 359 [48] K
Rp = 7.48 [2.70] Re
a = 1.4222 [0.4681] AU
Ag = 6886.39 [4122.43] [1.67] σ
Teffp = 5050 [430] K [10.85] σ

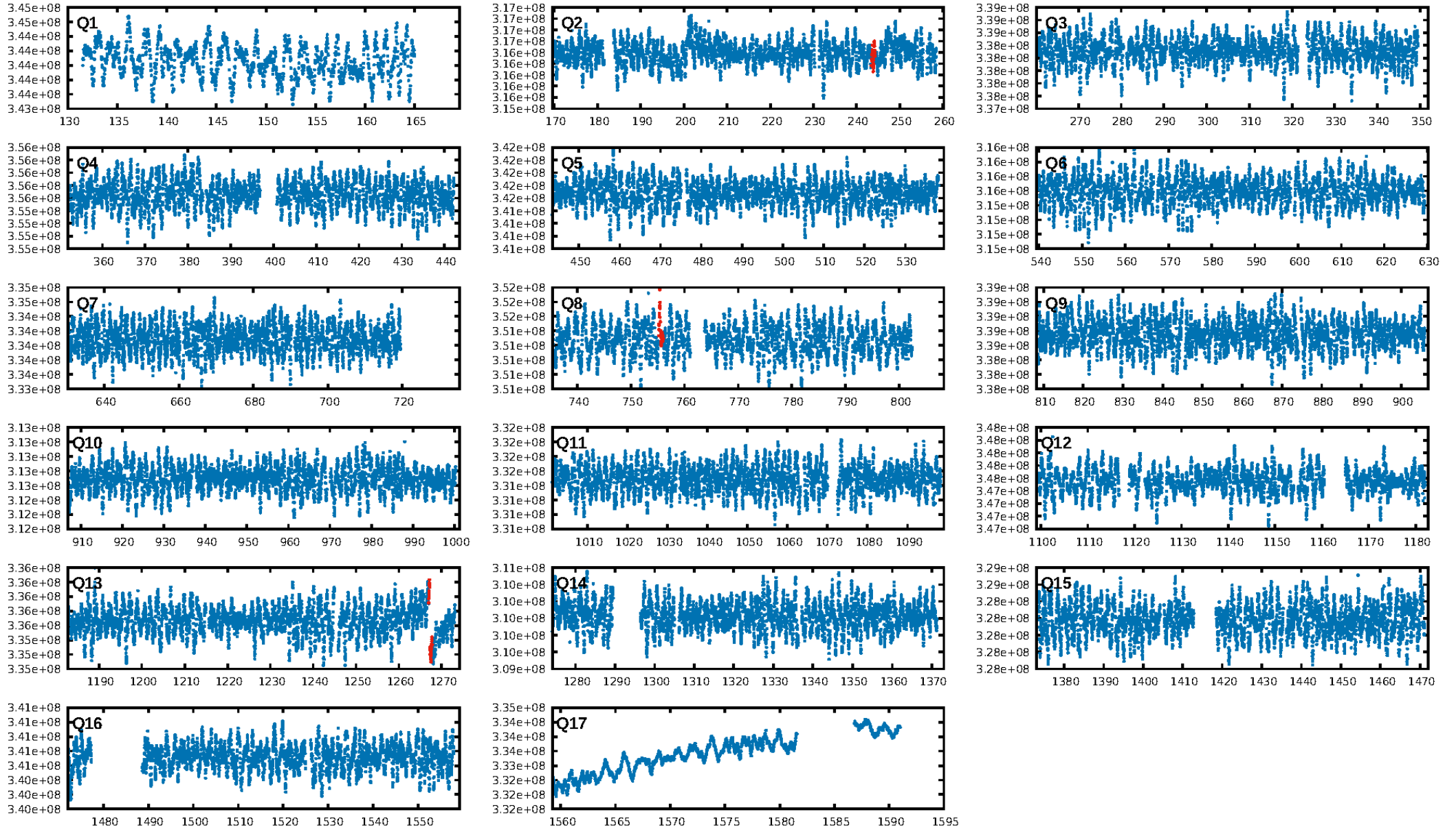
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [1003.95] σ
LongPeriod-sig: 100.0% [16.97] σ
ModelChiSquare2-sig: 0.1%
ModelChiSquareGof-sig: 99.8%
Bootstrap-pfa: N/A
RollingBand-fgt: 1.00 [3/3]
GhostDiagnostic-chr: -0.6329
Centroid-sig: 0.0%
Centroid-so: 0.833 arcsec [1.18] σ
OotOffset-rm: 1.641 arcsec [2.31] σ
KicOffset-rm: 1.716 arcsec [1.88] σ
OotOffset-st: 1/0/1/0 [2]
KicOffset-st: 1/0/1/0 [2]
DiffImageQuality-fgm: 0.50 [1/2]
DiffImageOverlap-fno: 0.00 [0/2]

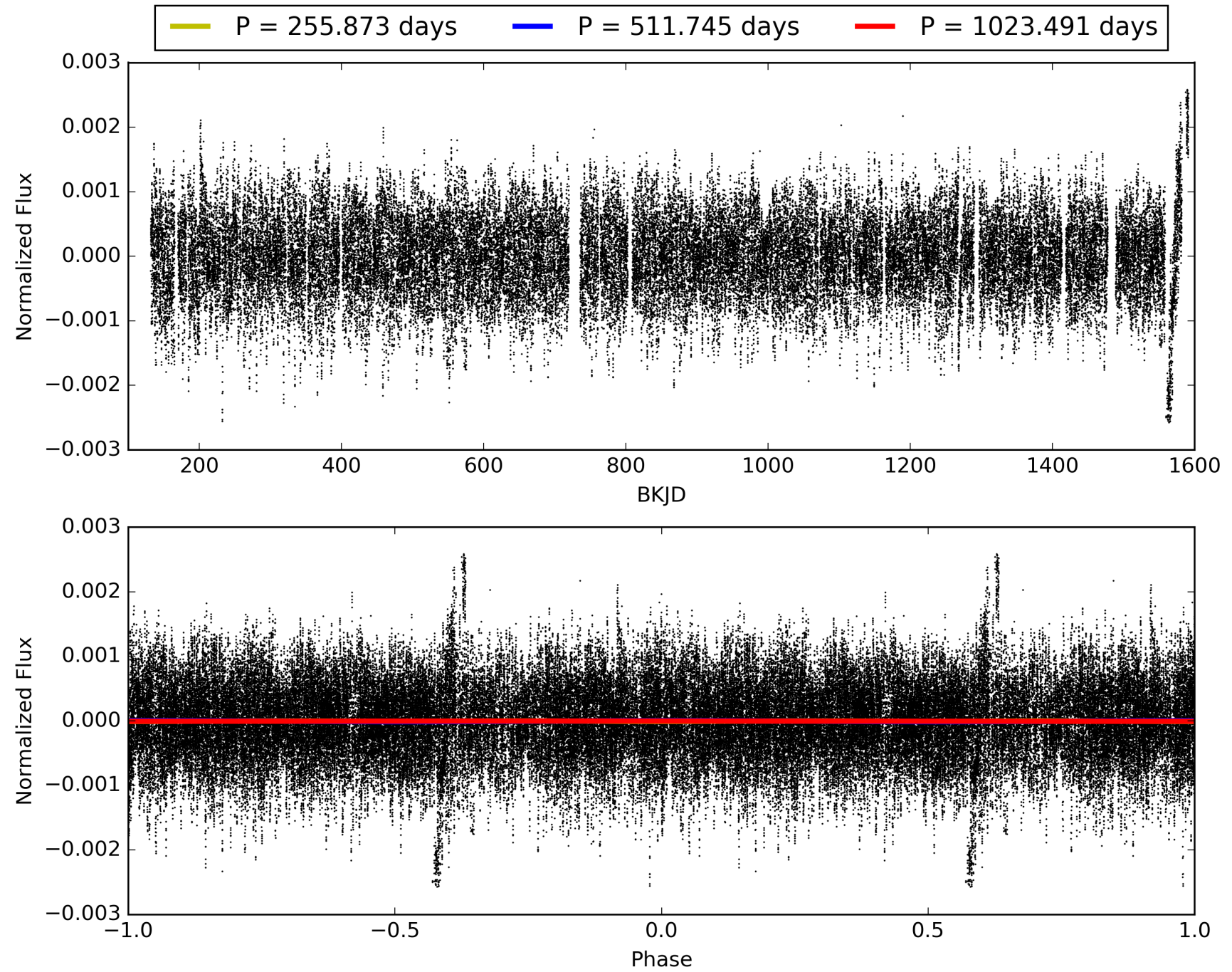
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 02-Feb-2016 07:52:19 Z

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

TCE 004995953-02, PDC Light Curves

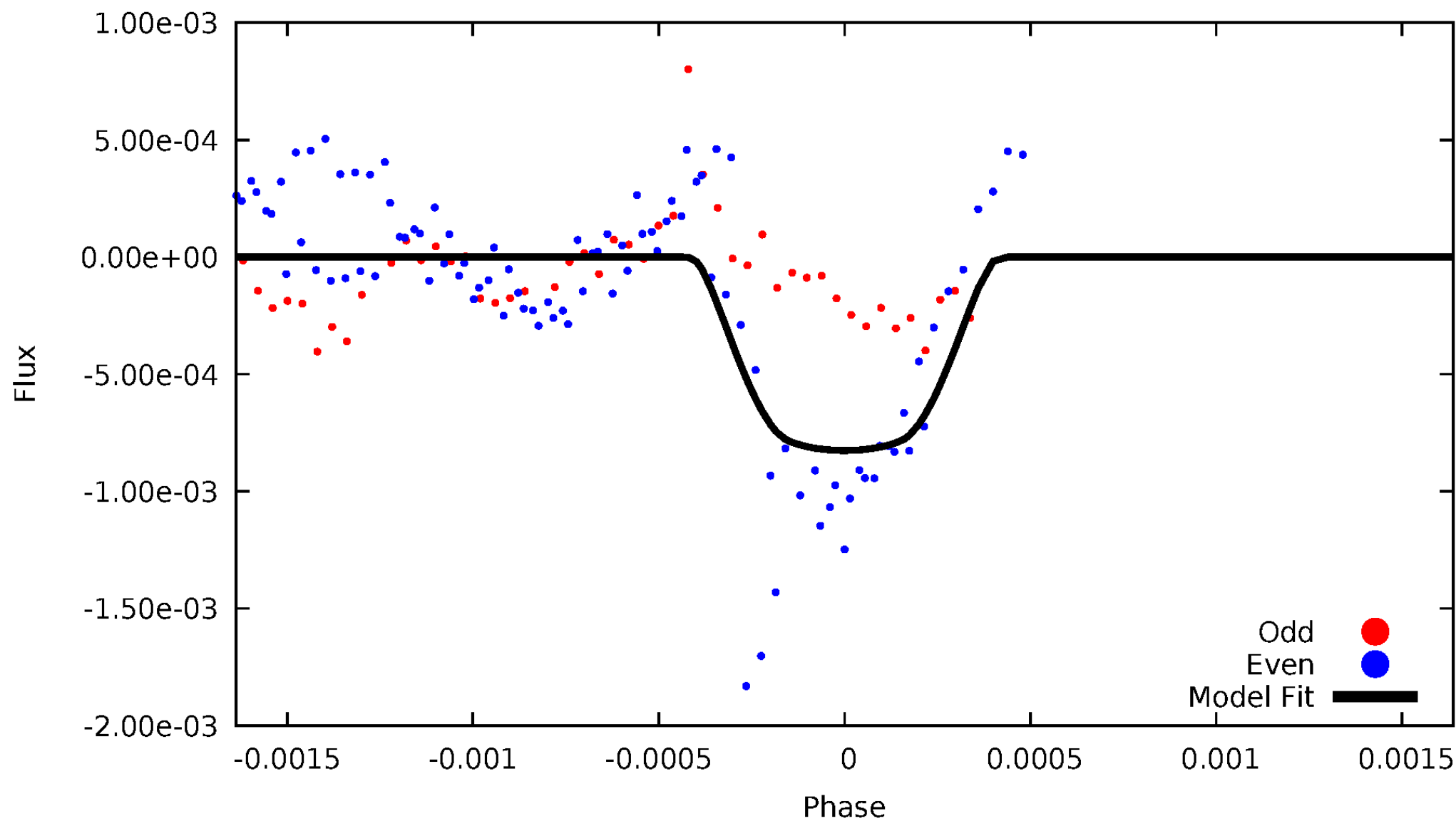


TCE 004995953-02



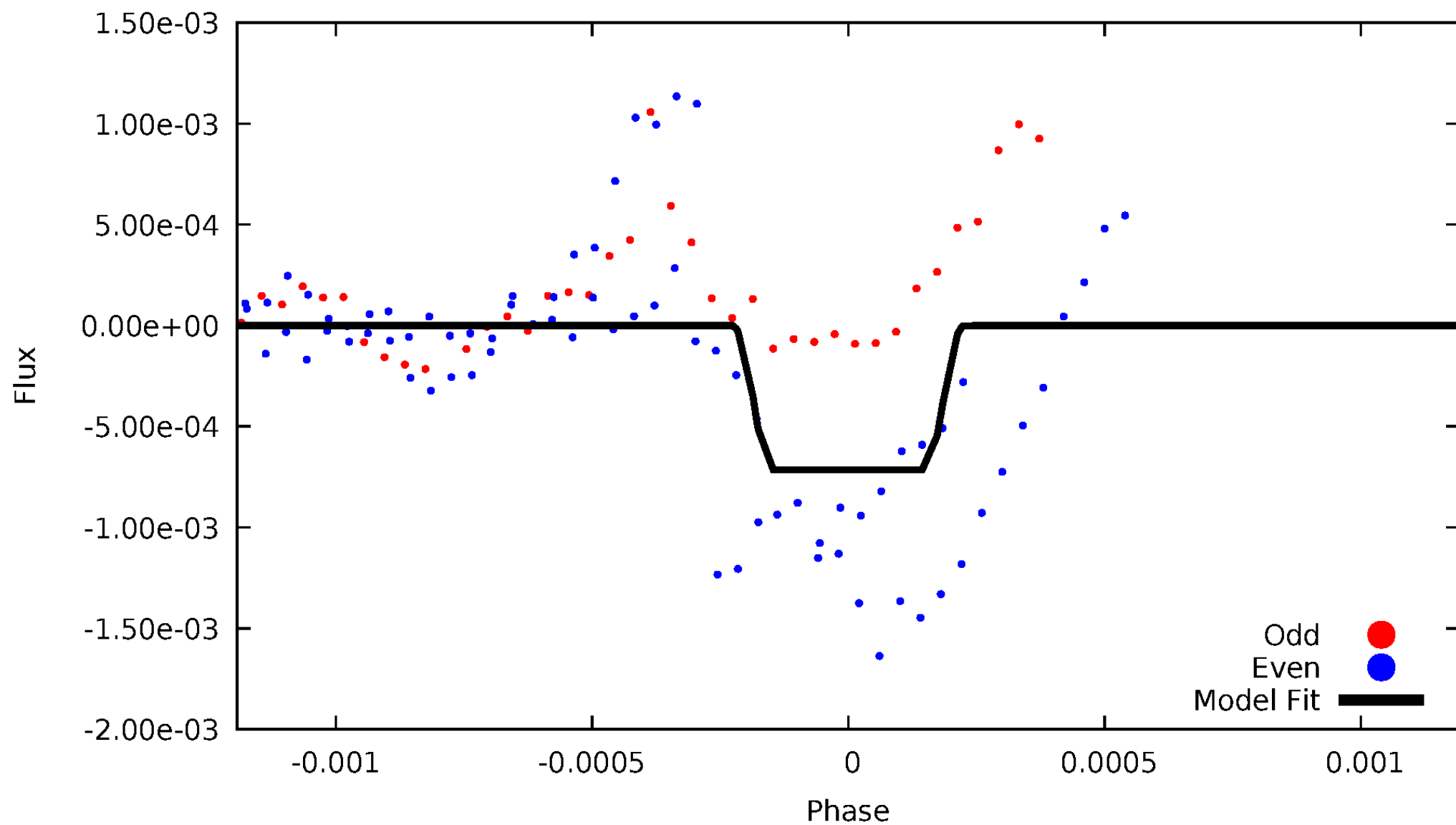
DV Odd/Even

TCE 004995953-02



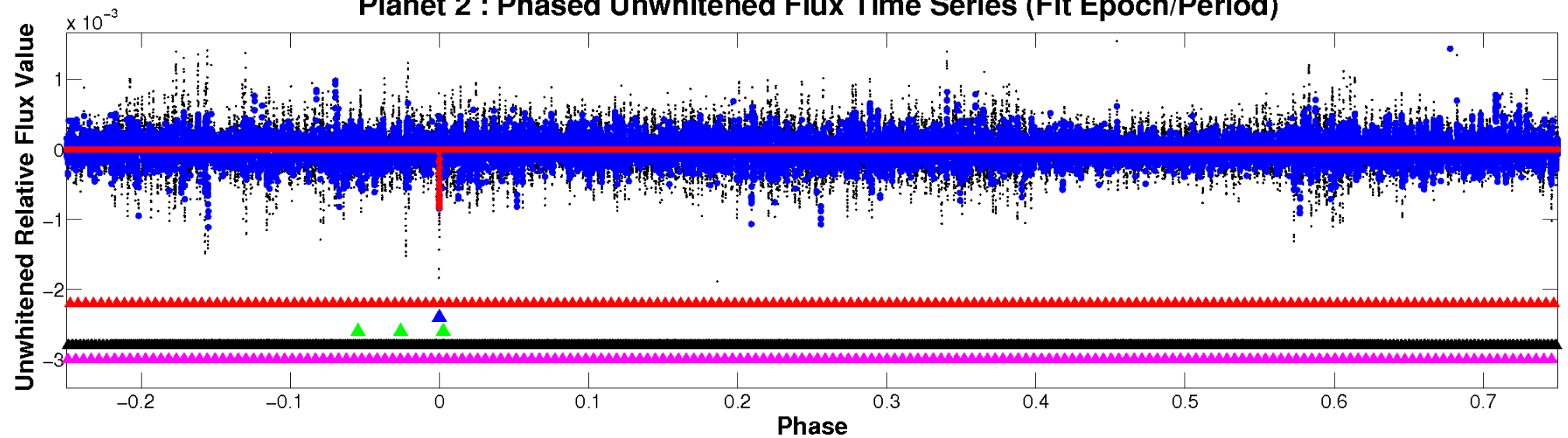
ALT Odd/Even

TCE 004995953-02

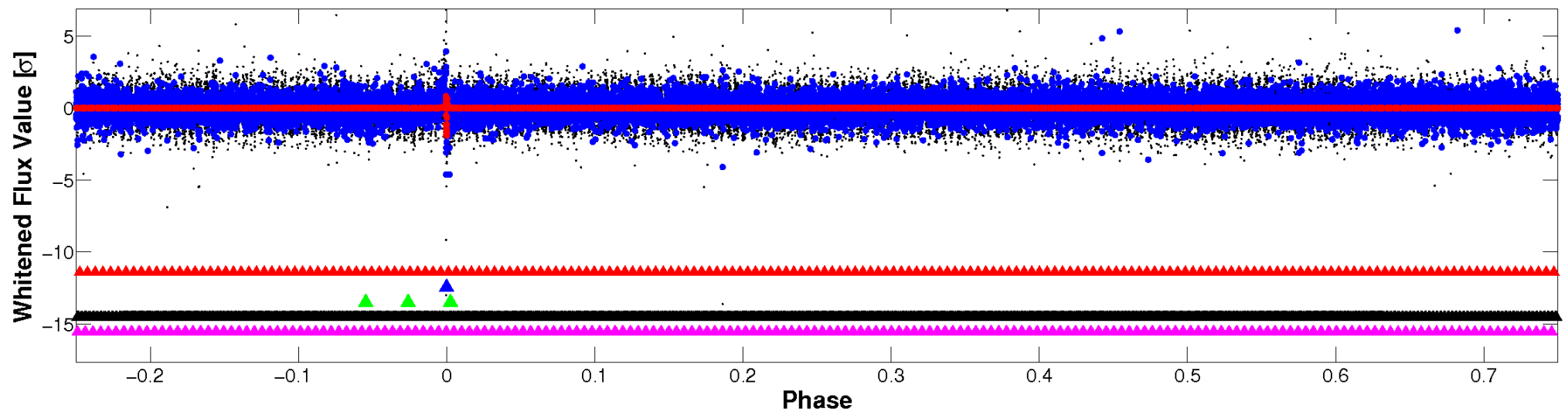


Non-Whitened Vs. Whitened Light Curve

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

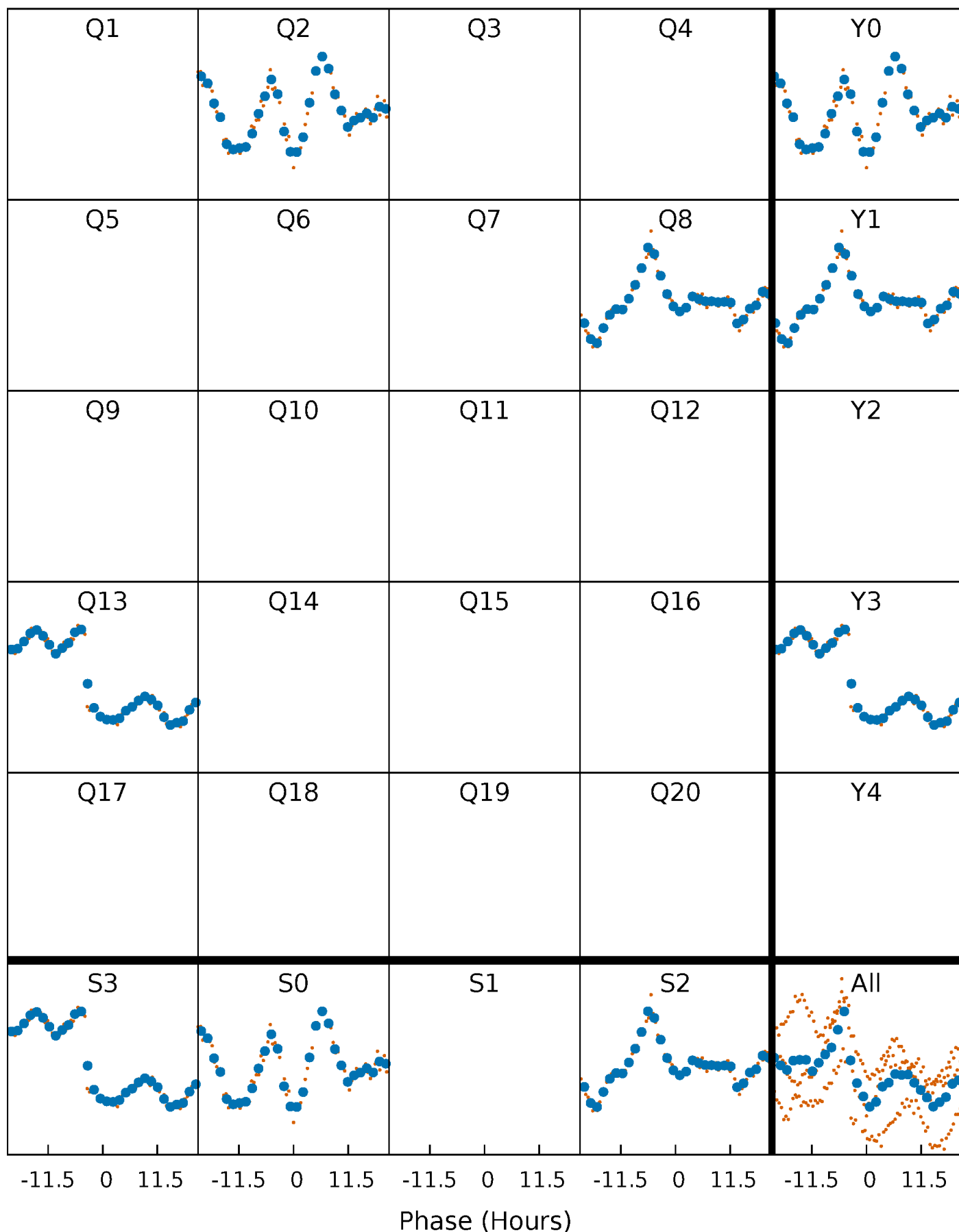


Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



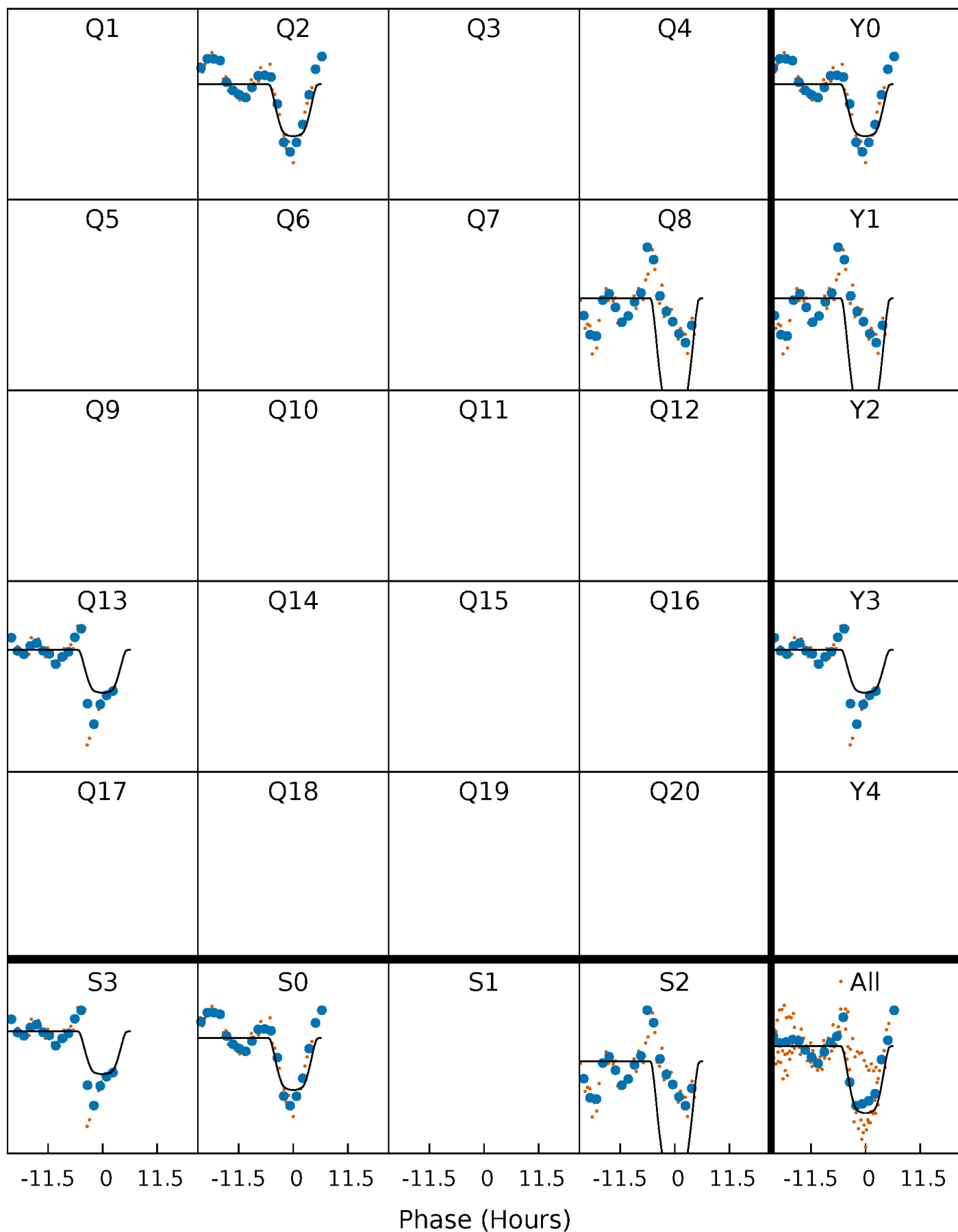
PDC Quarter-Phased Transit Curves

TCE 004995953-02 $P=511.745454$ Days $T_0=243.857778$ (BKJD)



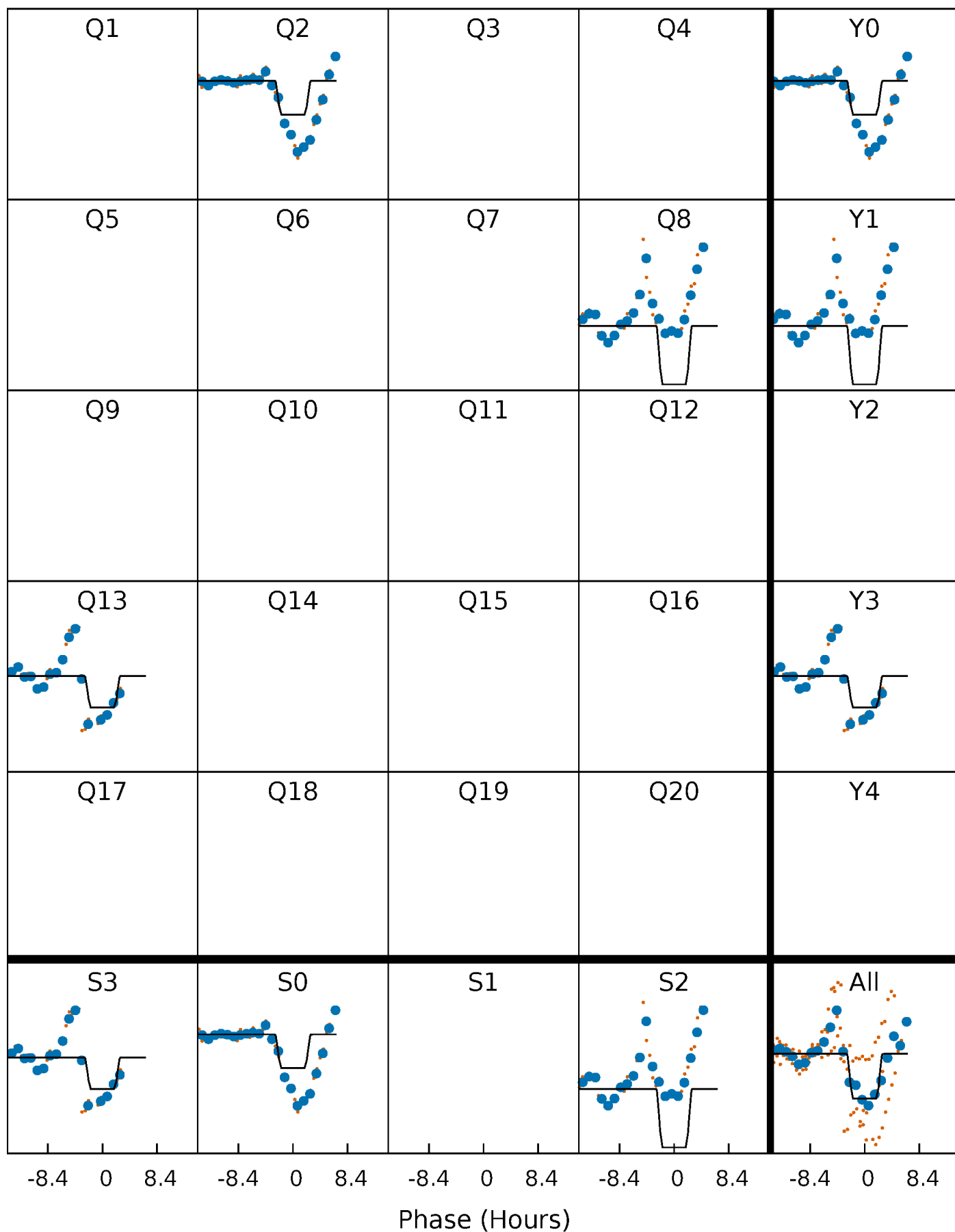
DV Quarter-Phased Transit Curves

TCE 004995953-02 $P=511.745454$ Days $T_0=243.857778$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

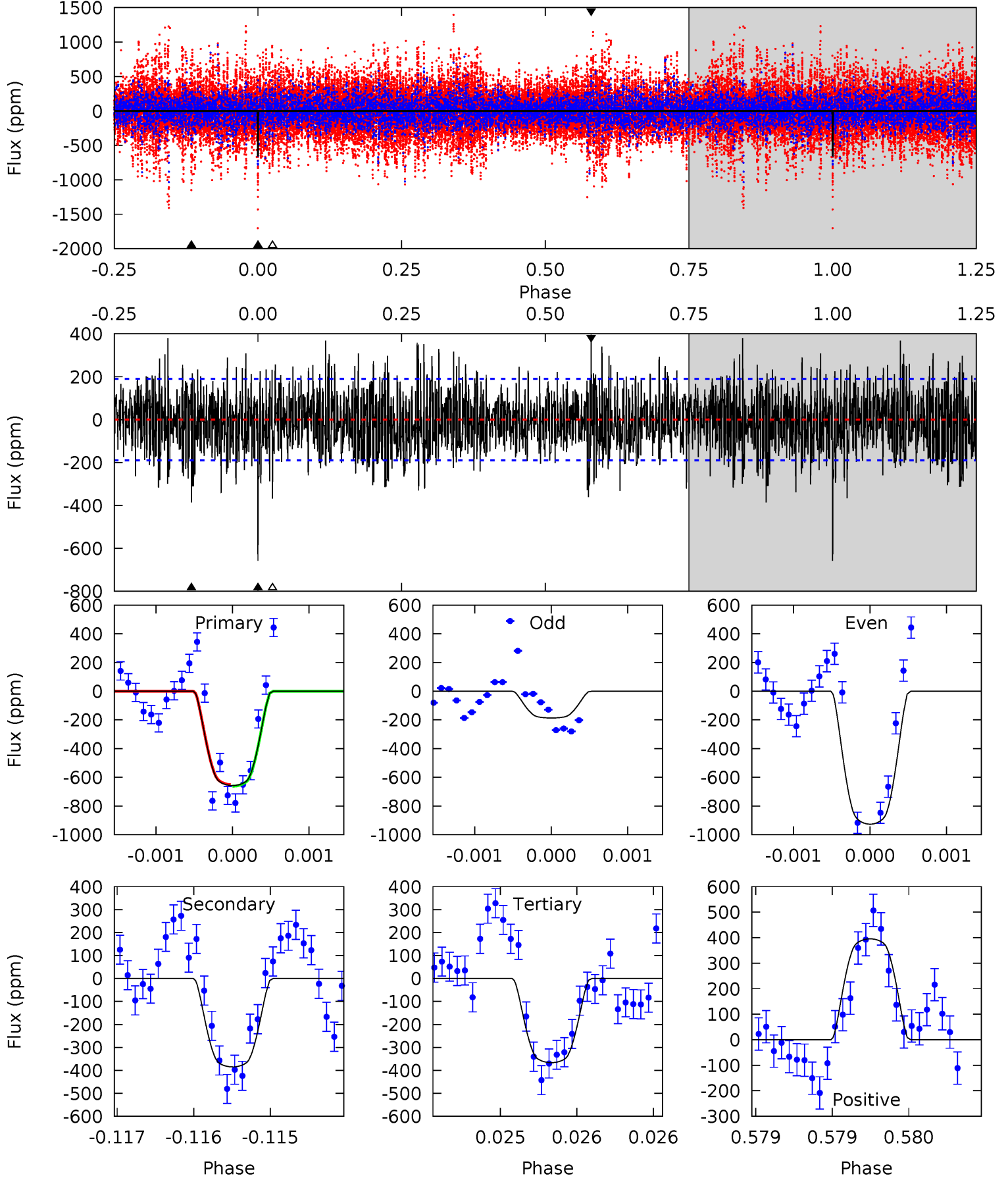
TCE 004995953-02 P=511.758510 Days $T_0=243.826729$ (BKJD)



DV Model-Shift Uniqueness Test

004995953-02, P = 511.745454 Days, E = 243.857778 Days

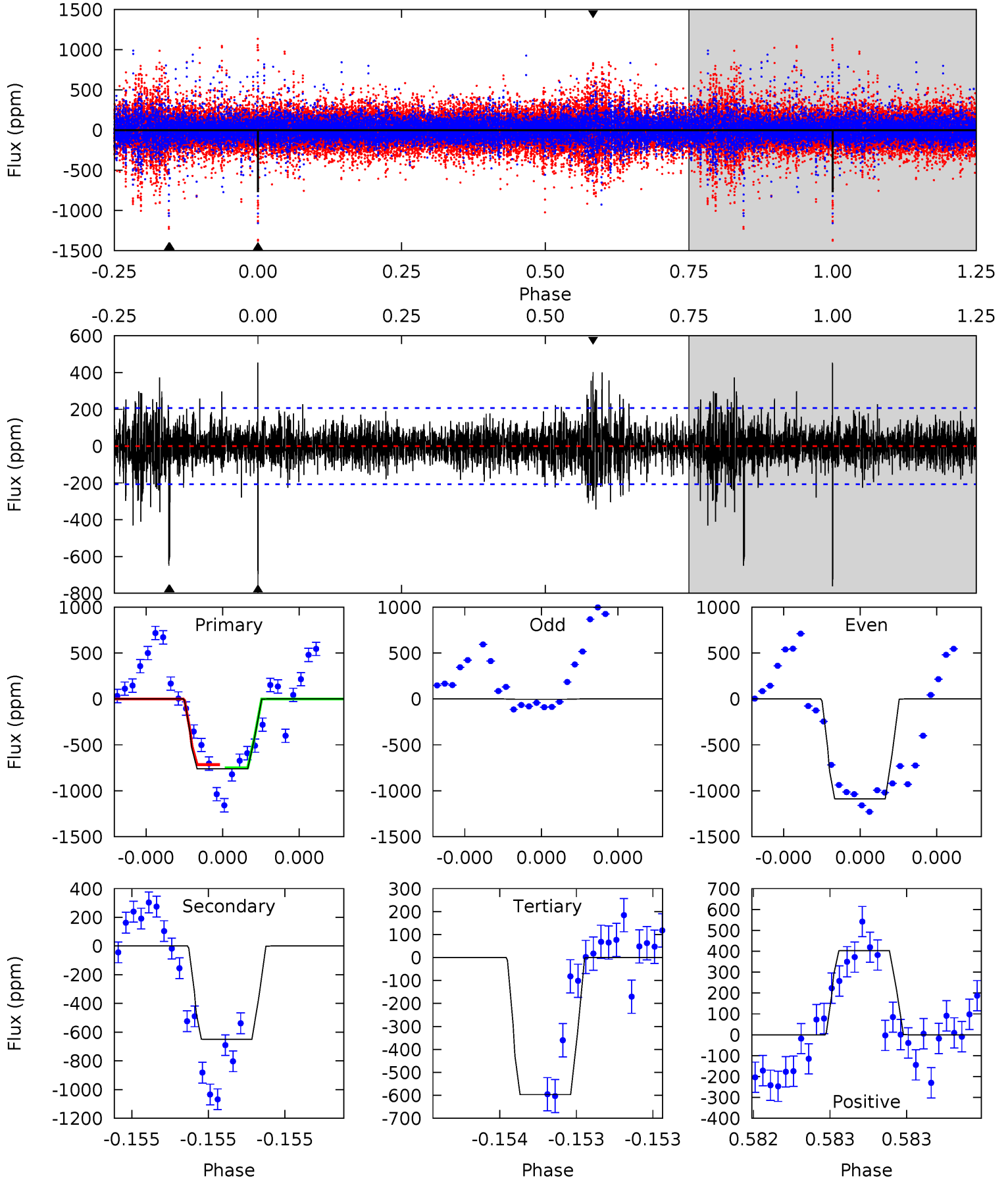
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
19.0	11.1	10.6	11.4	5.49	3.34	3.09	8.41	7.57	0.54	-0.30	10.7	0.84	0.38	0.15



Alt Model-Shift Uniqueness Test

004995953-02, P = 511.758510 Days, E = 243.826729 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
20.6	17.6	16.1	10.9	5.60	3.52	1.98	4.45	9.69	1.42	6.67	17.0	0.81	0.37	0.45



Stellar Parameters For KIC 004995953

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	6703^{+187}_{-258}	$3.963^{+0.299}_{-0.161}$	$-0.120^{+0.300}_{-0.300}$	$2.091^{+0.605}_{-0.740}$	$1.465^{+0.219}_{-0.328}$	$0.226^{+0.501}_{-0.107}$
	+3%/-4%	+8%/-4%	+250%/-250%	+29%/-35%	+15%/-22%	+222%/-47%
Source	PHO54	PHO54	PHO54	DSEP		

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

Secondary Eclipse Parameters for KIC 004995953-02 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	-385 ± 35	$7.27^{+1.31}_{-1.43}$	493^{+39}_{-45}	5215^{+239}_{-233}	8112^{+3713}_{-2388}
Alt.	-649 ± 37	$5.97^{+1.18}_{-1.21}$	494^{+41}_{-46}	6509^{+431}_{-369}	20196^{+10711}_{-5843}

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 $A_{obs} \gg 1.0$

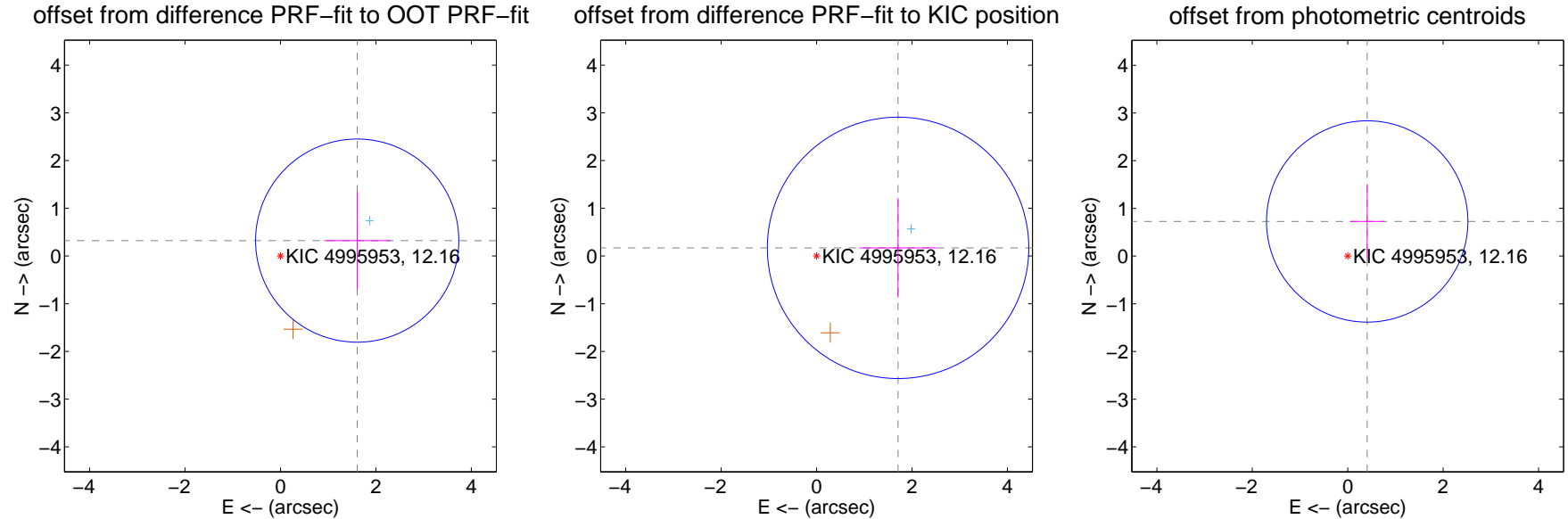
DV Centroid Data

Supplemental centroid analysis for 004995953-02. Kepler magnitude: 12.16. Transit SNR 10.04

There are 1 quarters with good PRF difference image offsets

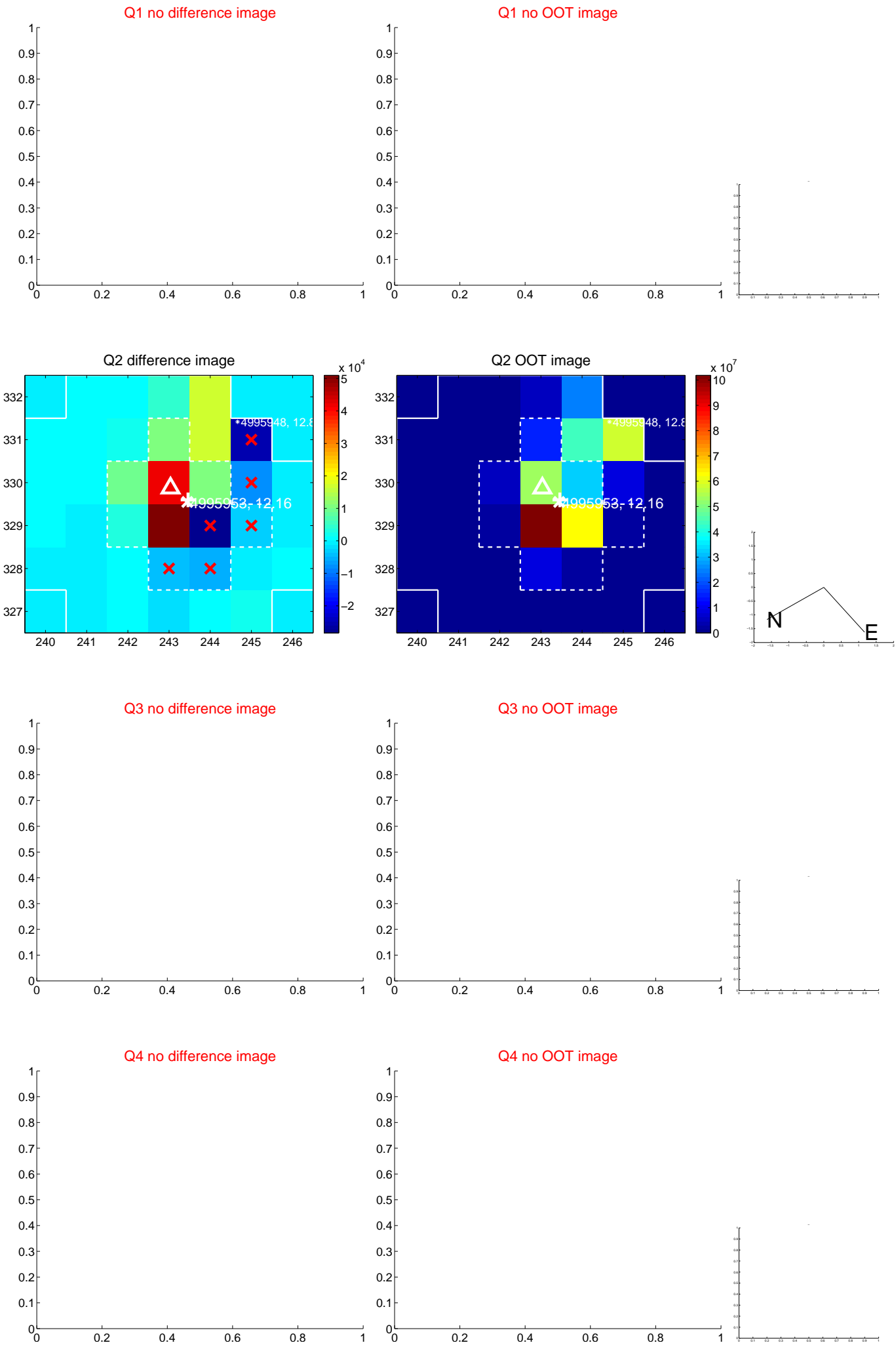
The direct PRF centroid is offset from the target star catalog position by about 0.08 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	1.641 ± 0.710	2.31	-1.609 ± 0.694	0.323 ± 1.027
PRF-fit source offset from KIC position	1.716 ± 0.913	1.88	-1.708 ± 0.814	0.171 ± 1.044
photometric centroid source offset	0.83 ± 0.70	1.18	-0.41 ± 0.36	0.73 ± 0.78

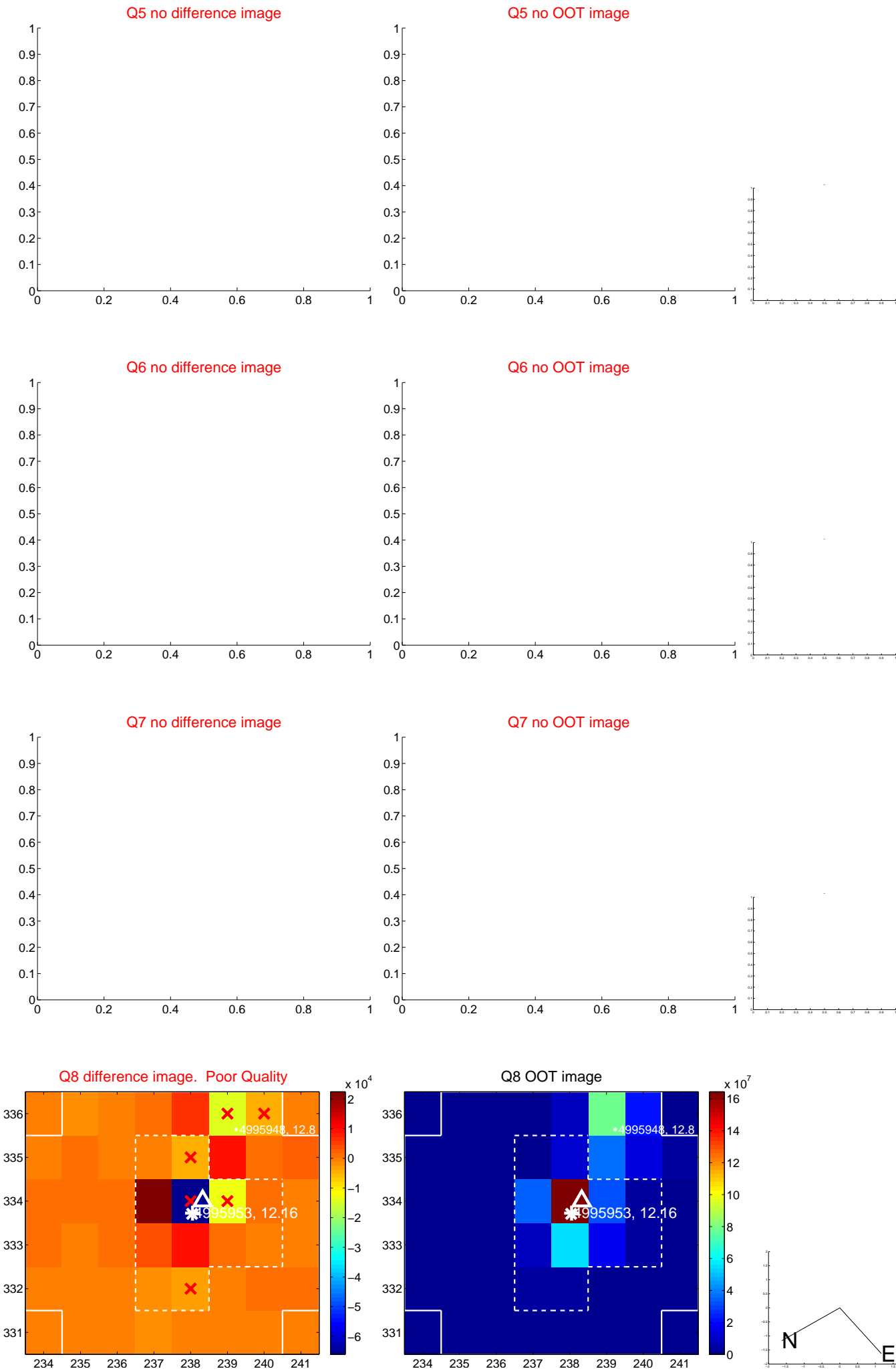


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ . 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 ×: KIC target position; +: OOT centroid; △: difference centroid. red ✕: large negative pixel value.



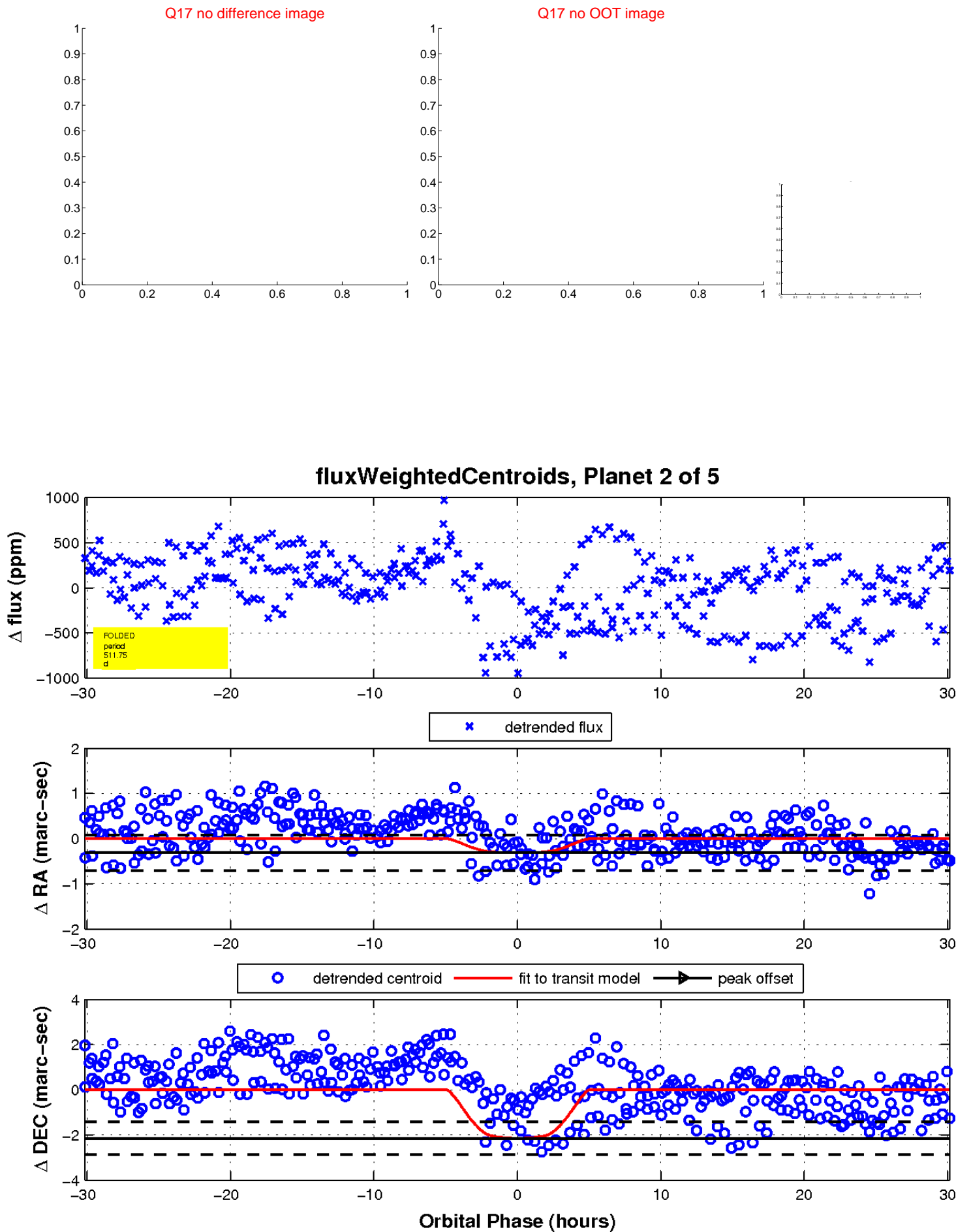
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

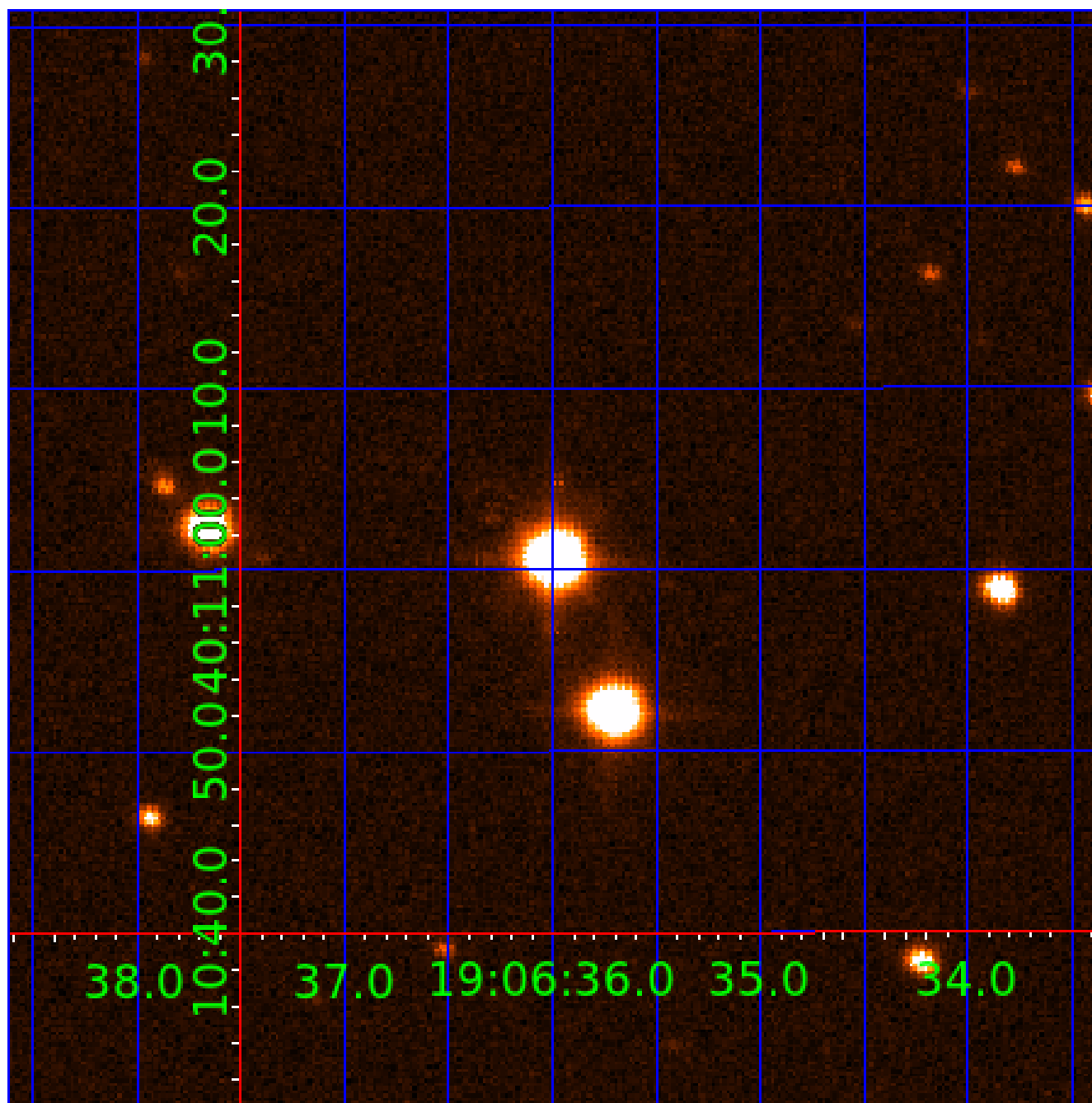


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 004995953

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})
004995953-01	OBS	No	2.651149	133.207682	25.2	6.855	8.9	5.6	2.09	6703	1.22	4361.43
004995953-02	OBS	No	511.745454	243.857778	825.8	10.056	18.9	10.0	2.09	6703	7.48	3.91
004995953-03	OBS	No	526.380671	215.948054	589.8	18.095	12.1	8.3	2.09	6703	5.51	3.77
004995953-04	OBS	No	1.324696	131.726704	22.4	4.288	8.0	5.9	2.09	6703	1.15	10999.82
004995953-05	OBS	No	2.650531	132.610811	135.0	7.554	11.0	14.2	2.09	6703	2.83	4362.78

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
004995953-01	OBS	FP	0.00	1	0	0	0	LPP_DV—MOD_NONUNIQ_DV
004995953-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_CHASES_MARSHALL—LPP_DV—LPP_ALT—INCONSISTENT_TRANS—CENT_FEW_DIFFS
004995953-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL—ALL_TRANS_CHASES—INCONSISTENT_TRANS—CENT_FEW_DIFFS
004995953-04	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT
004995953-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_SKYE_ZUMA—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_ALT—SAME_NTL_PERIOD

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

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

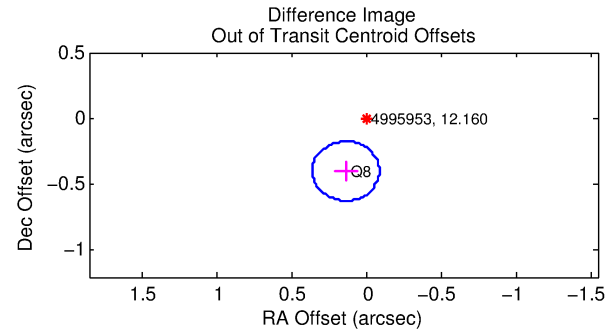
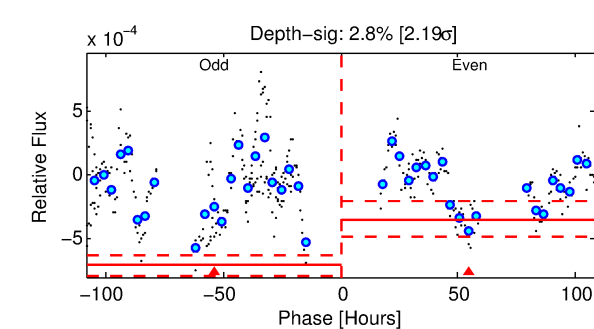
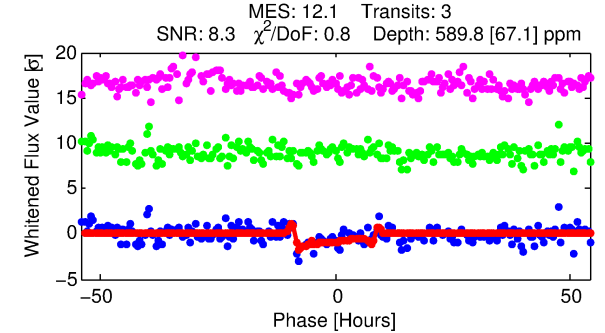
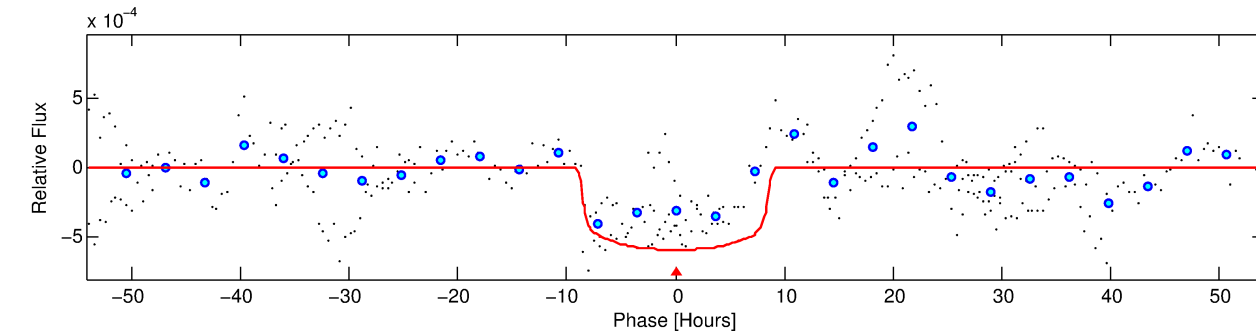
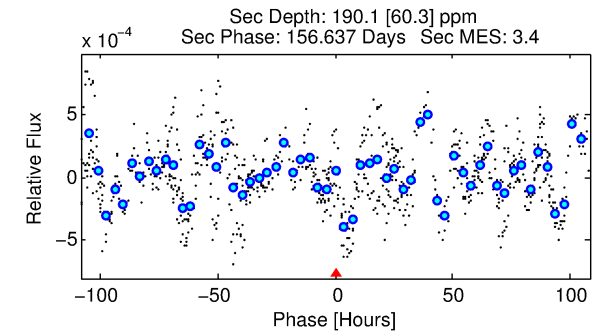
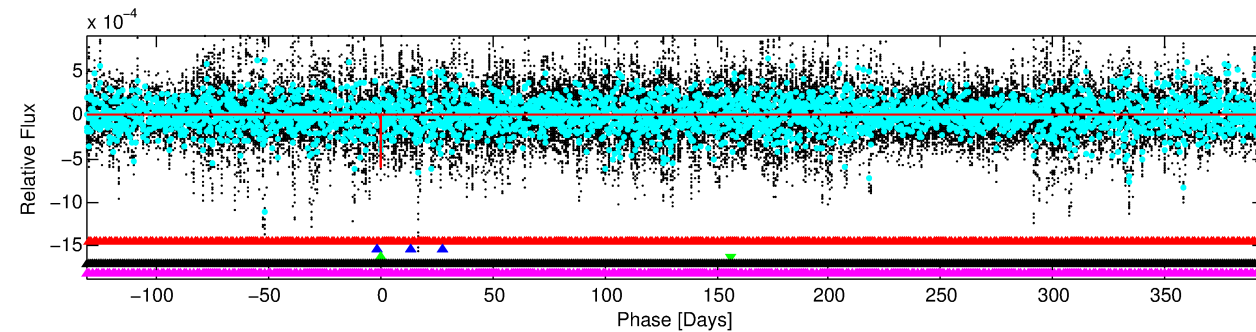
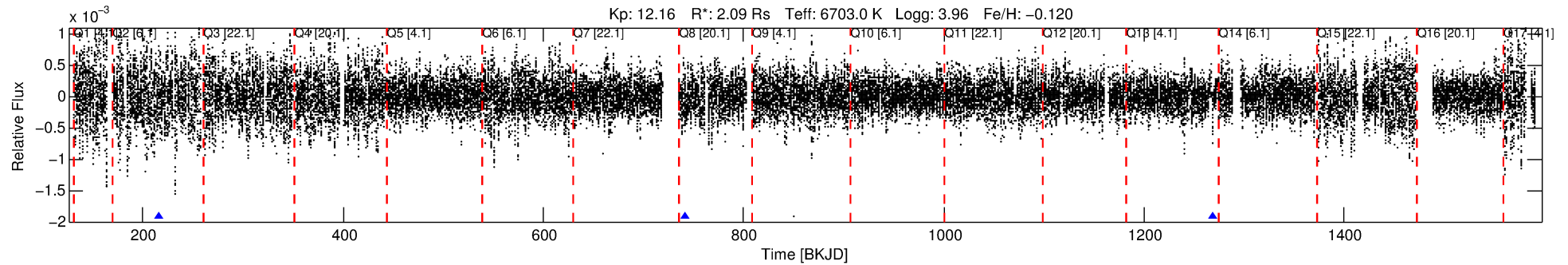
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 004995953-03

No Significant Match Found

DV One-Page Summary

KIC: 4995953 Candidate: 3 of 5 Period: 526.381 d



DV Fit Results:

Period = 526.38067 [0.01308] d
Epoch = 215.9481 [0.0118] BKJD
Rp/R* = 0.0241 [0.0020]
a/R* = 155.56 [46.10]
b = 0.75 [0.18]
Seff = 3.77 [2.03]
Teq = 355 [48] K
Rp = 5.51 [2.00] Re
a = 1.4492 [0.4770] AU
Ag = 7244.46 [4545.97] [1.59σ]
Teffp = 5067 [492] K [9.52σ]

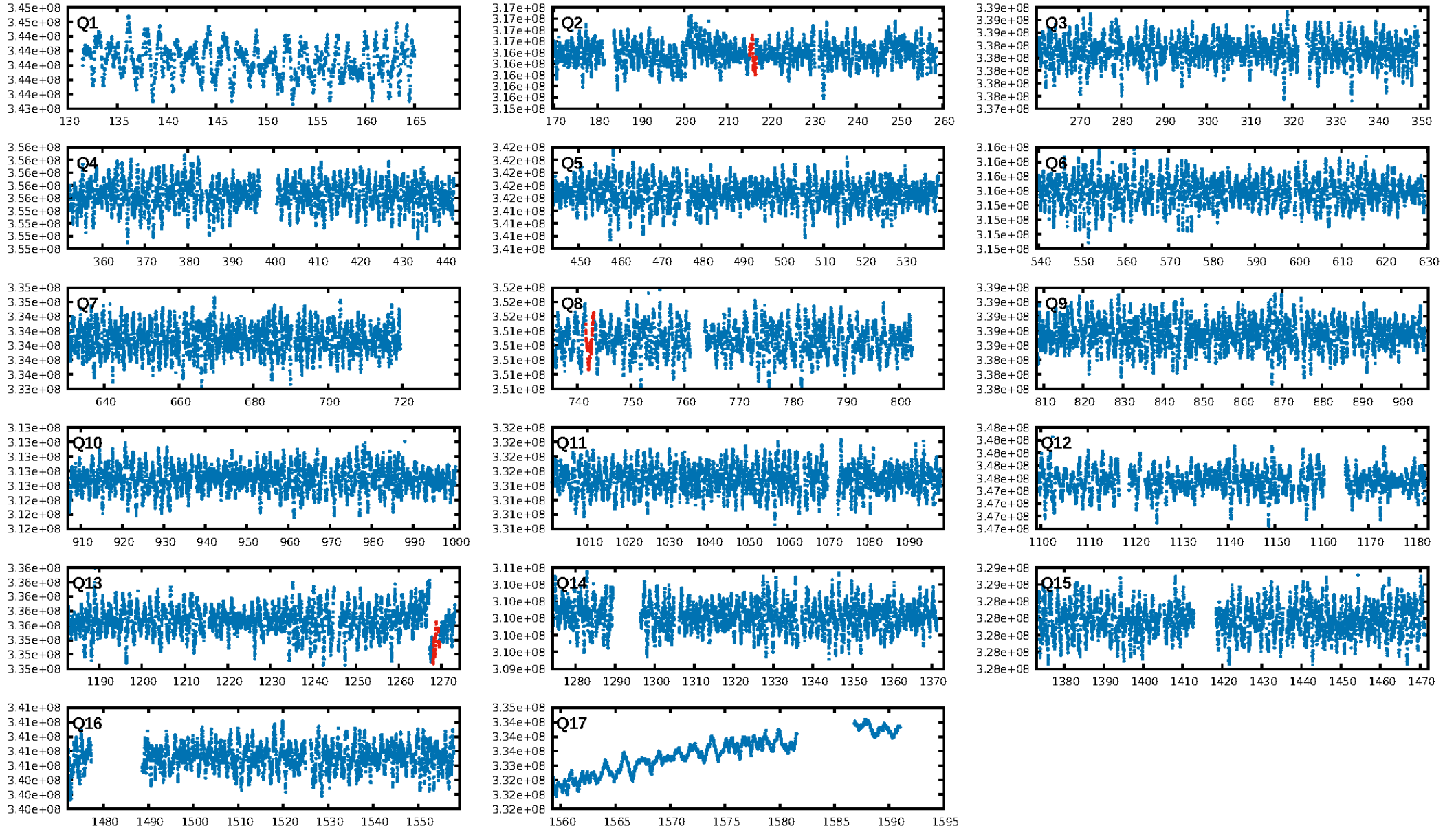
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [16.97σ]
LongPeriod-sig: N/A
ModelChiSquare2-sig: 0.3%
ModelChiSquareGof-sig: 100.0%
Bootstrap-pfa: N/A
RollingBand-fgt: 1.00 [3/3]
GhostDiagnostic-chr: -0.9056
Centroid-sig: 81.6%
Centroid-so: 1.975 arcsec [2.72σ]
OotOffset-rm: 0.421 arcsec [5.63σ]
KicOffset-rm: 0.493 arcsec [6.59σ]
OotOffset-st: 0/0/1/0 [1]
KicOffset-st: 0/0/1/0 [1]
DiffImageQuality-fgm: 1.00 [1/1]
DiffImageOverlap-fno: 0.00 [0/2]

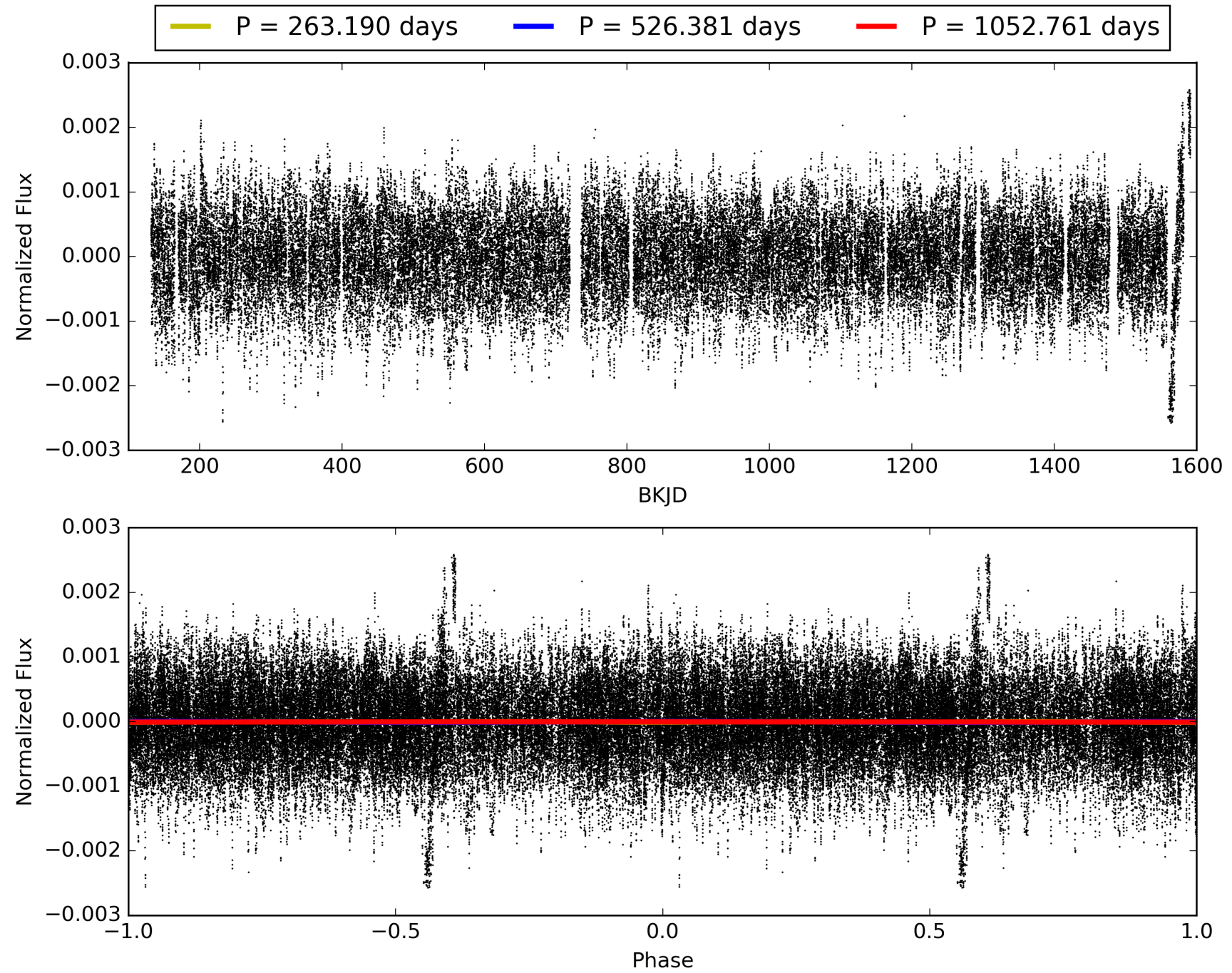
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 02-Feb-2016 07:52:27 Z

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

TCE 004995953-03, PDC Light Curves

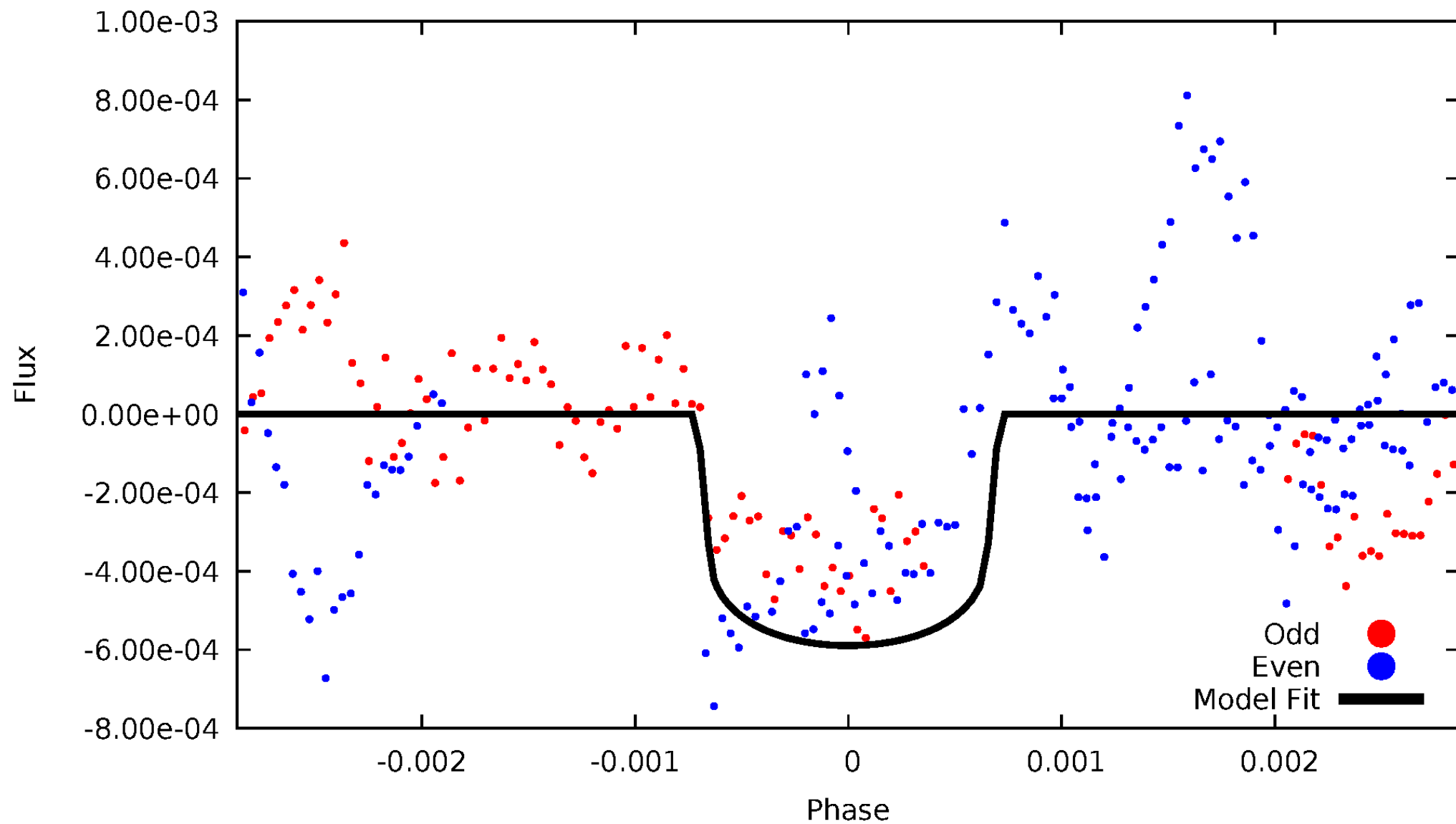


TCE 004995953-03



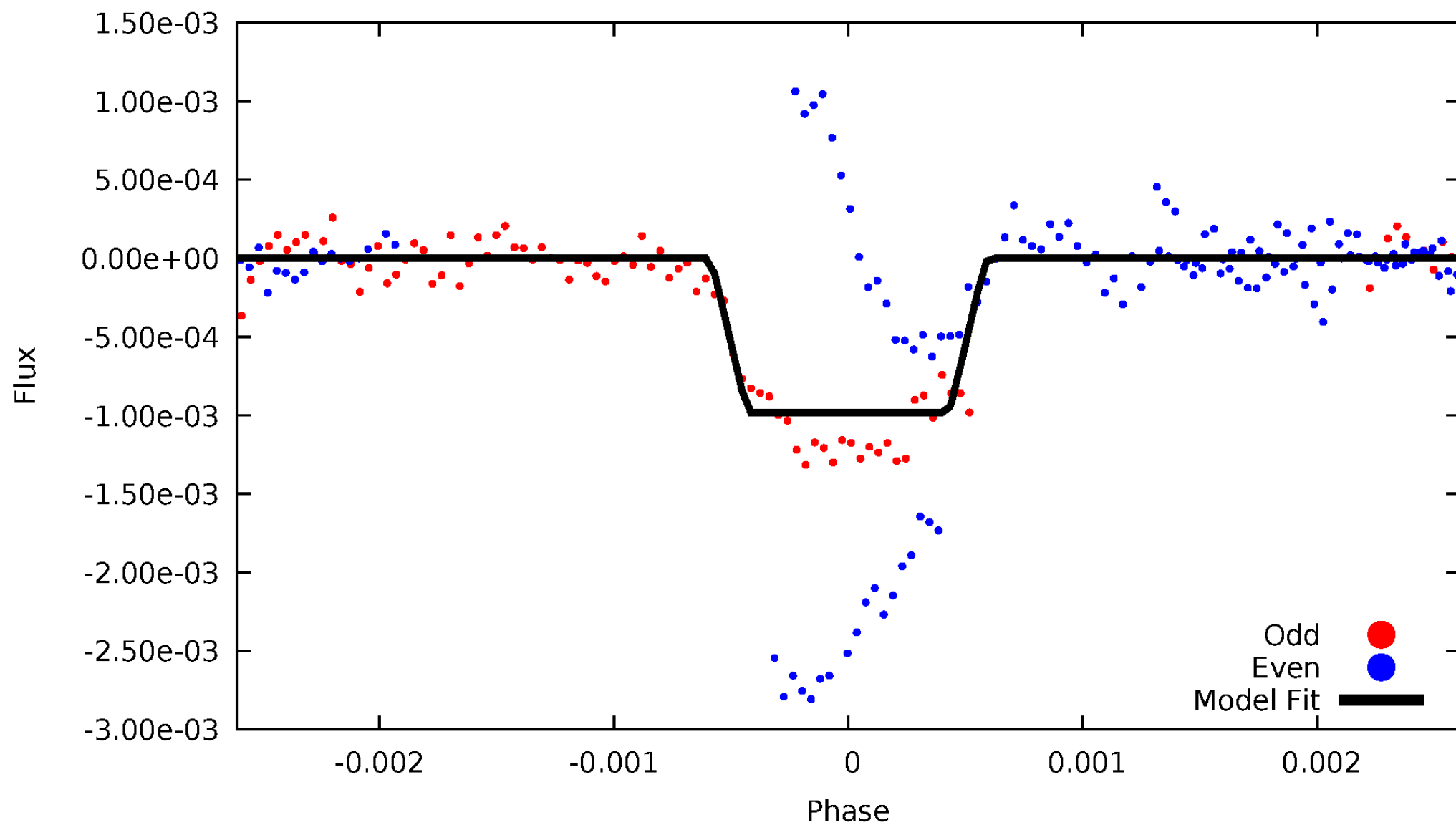
DV Odd/Even

TCE 004995953-03



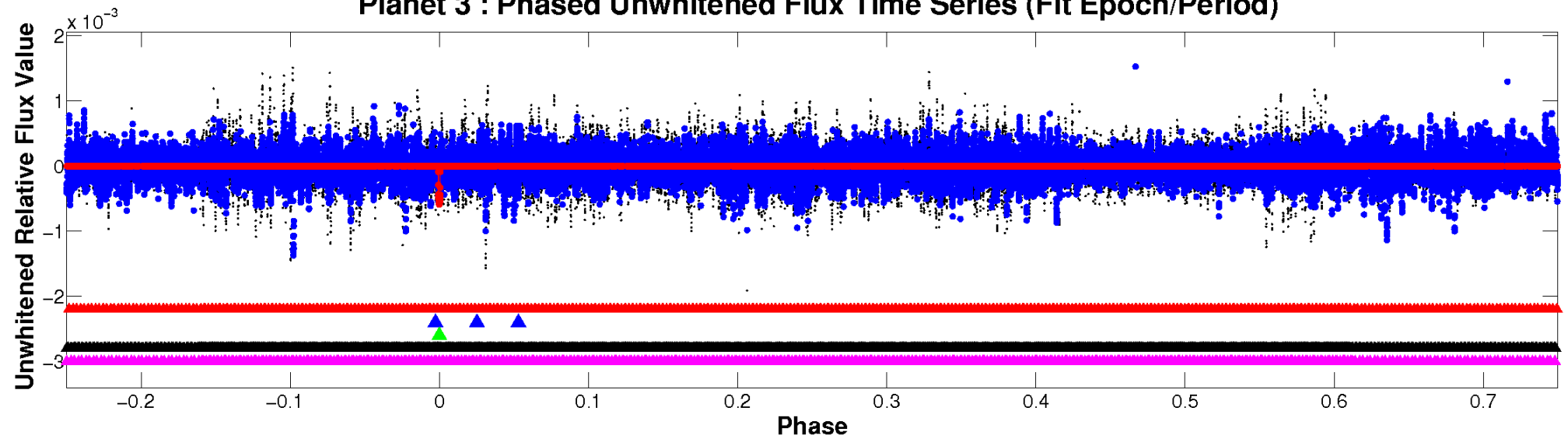
ALT Odd/Even

TCE 004995953-03

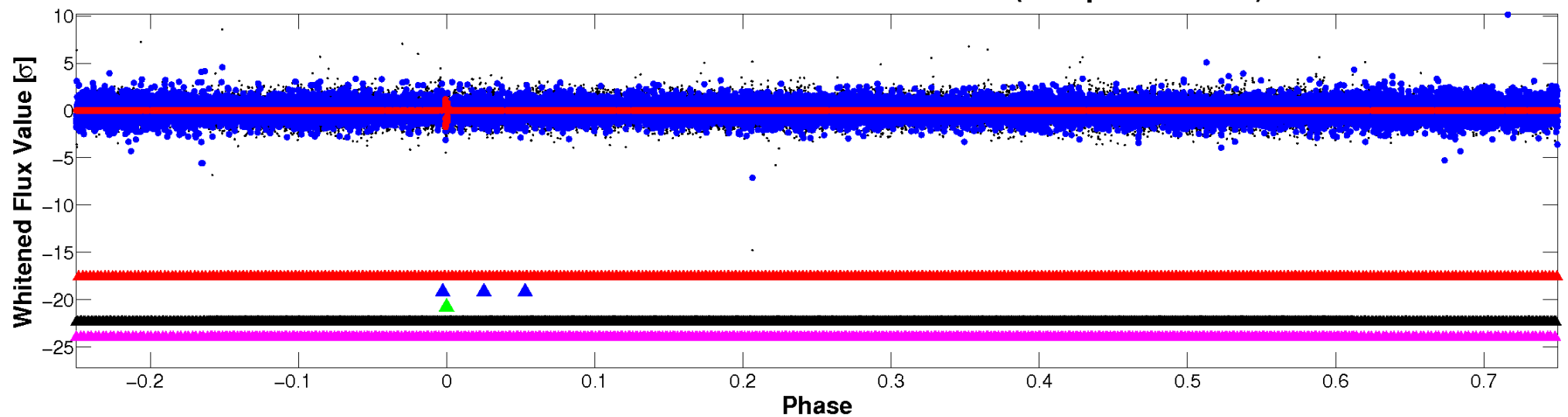


Non-Whitened Vs. Whitened Light Curve

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

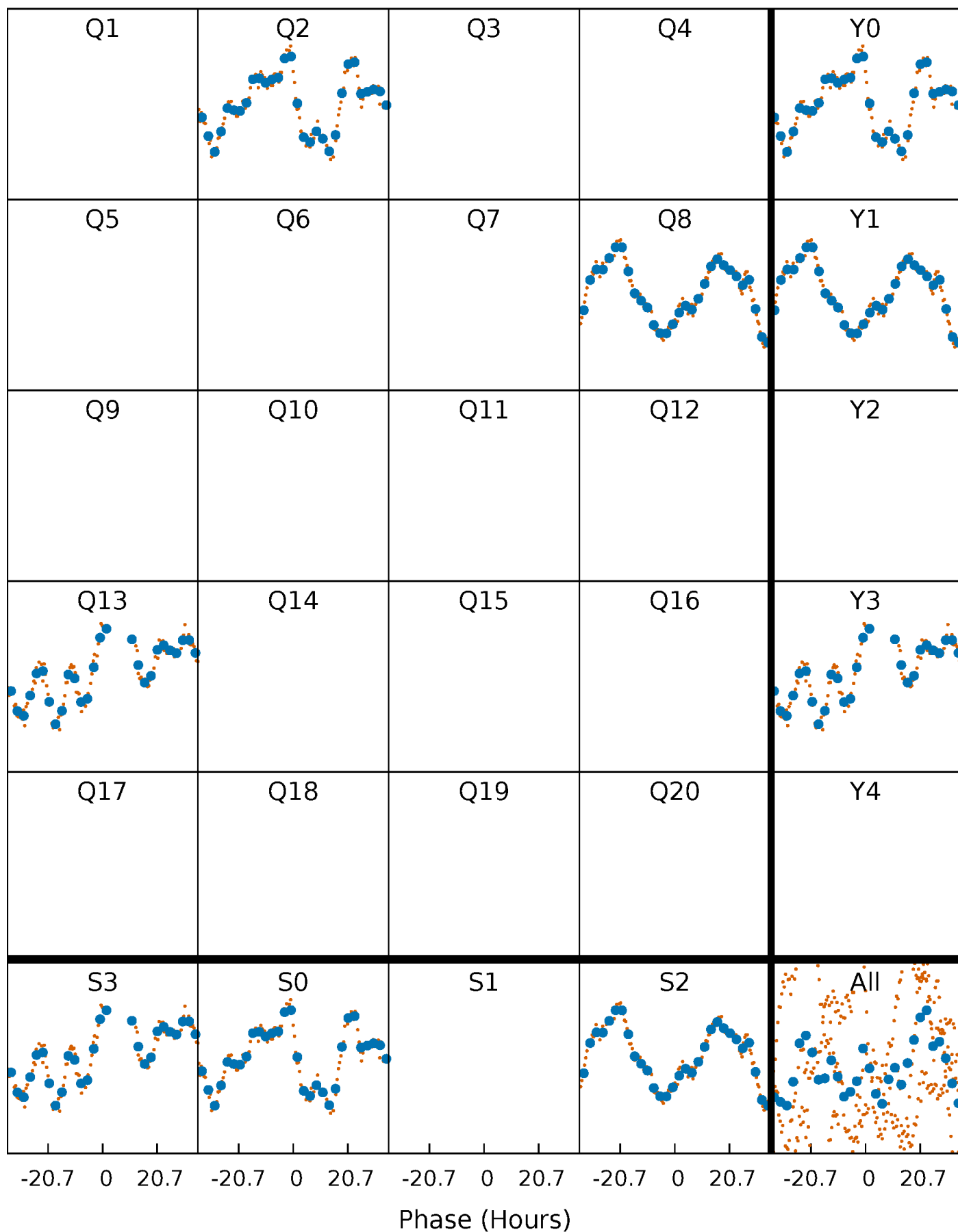


Planet 3 : Phased Whitened Flux Time Series (Fit Epoch/Period)



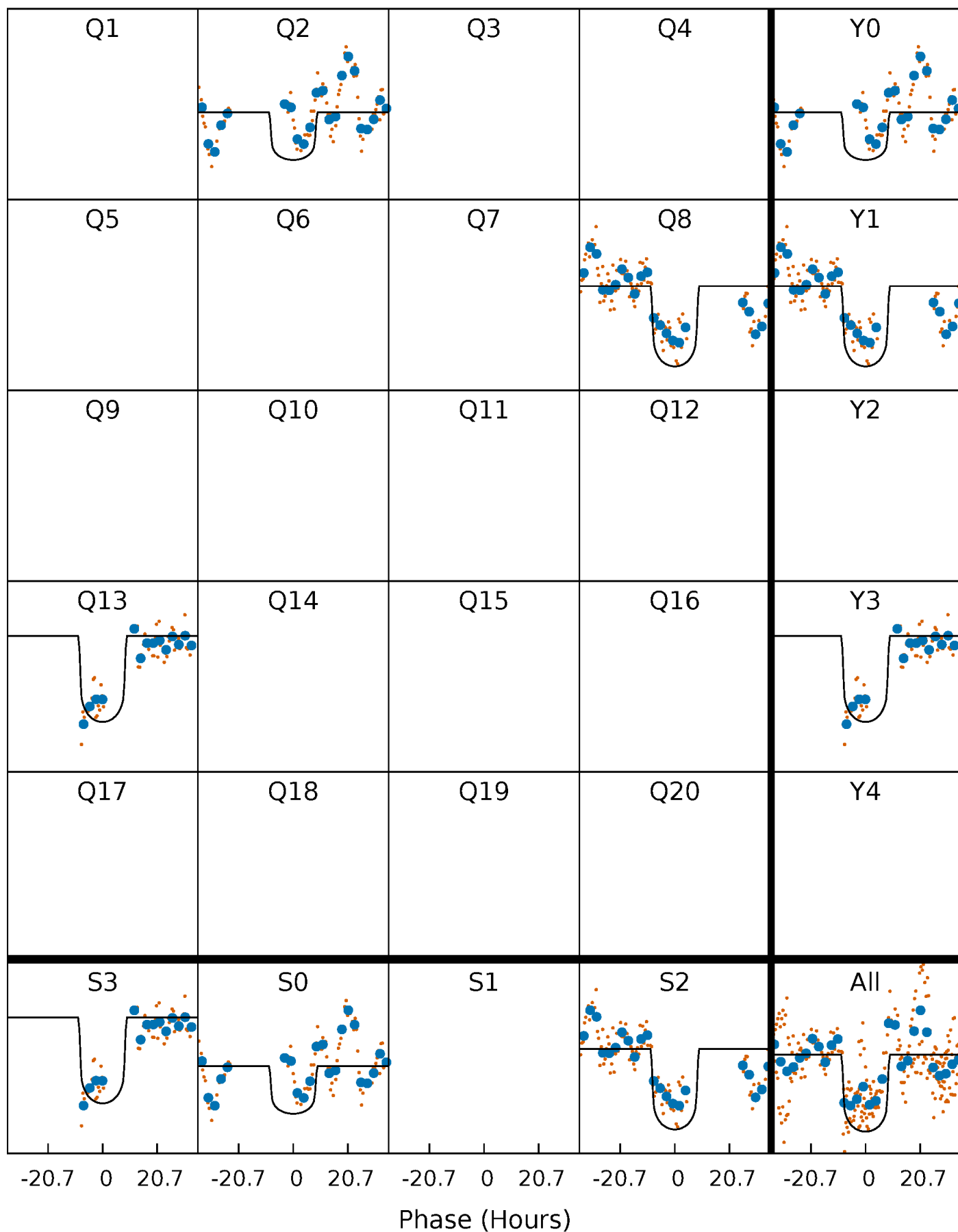
PDC Quarter-Phased Transit Curves

TCE 004995953-03 $P=526.380671$ Days $T_0=215.948054$ (BKJD)



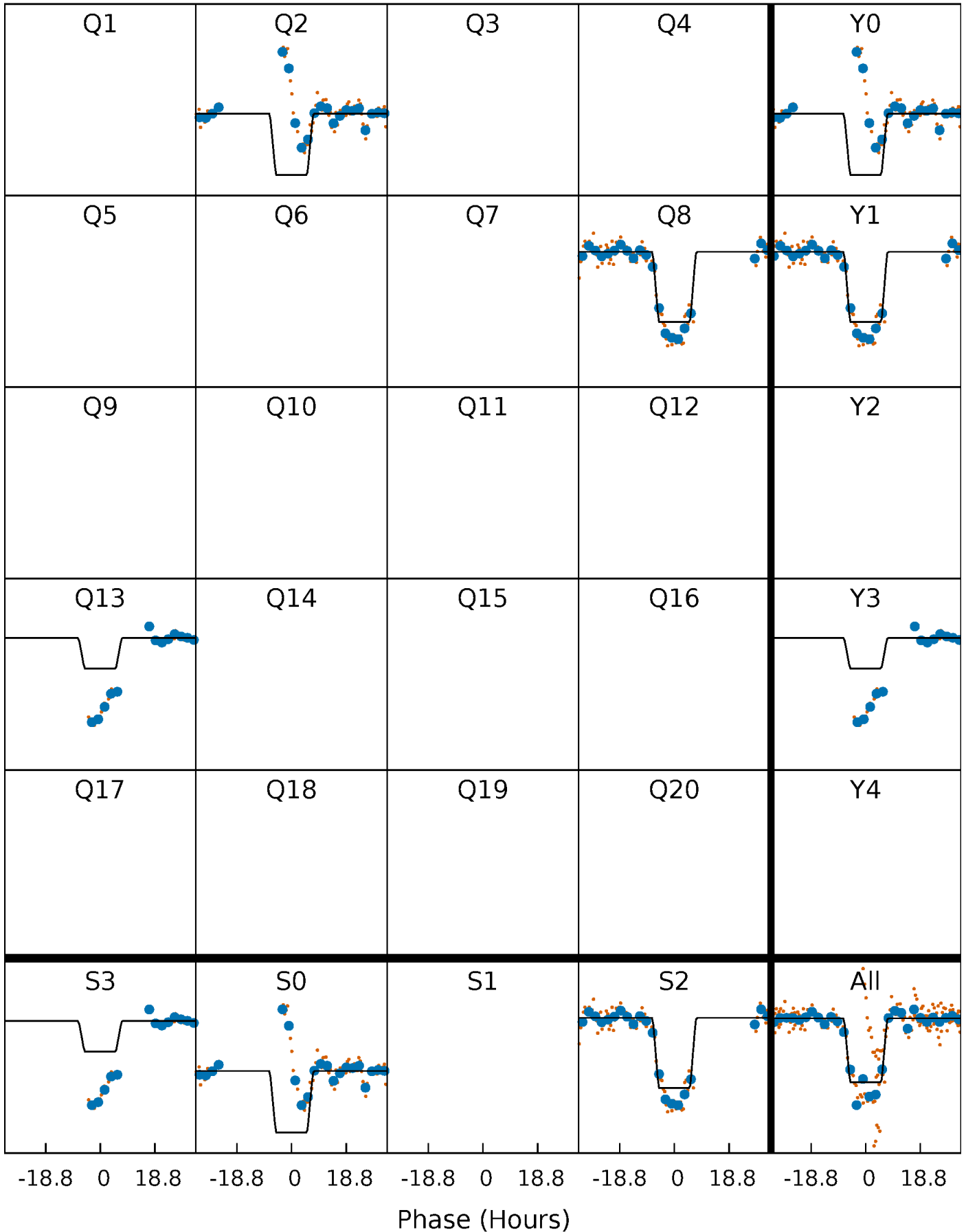
DV Quarter-Phased Transit Curves

TCE 004995953-03 $P=526.380671$ Days $T_0=215.948054$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

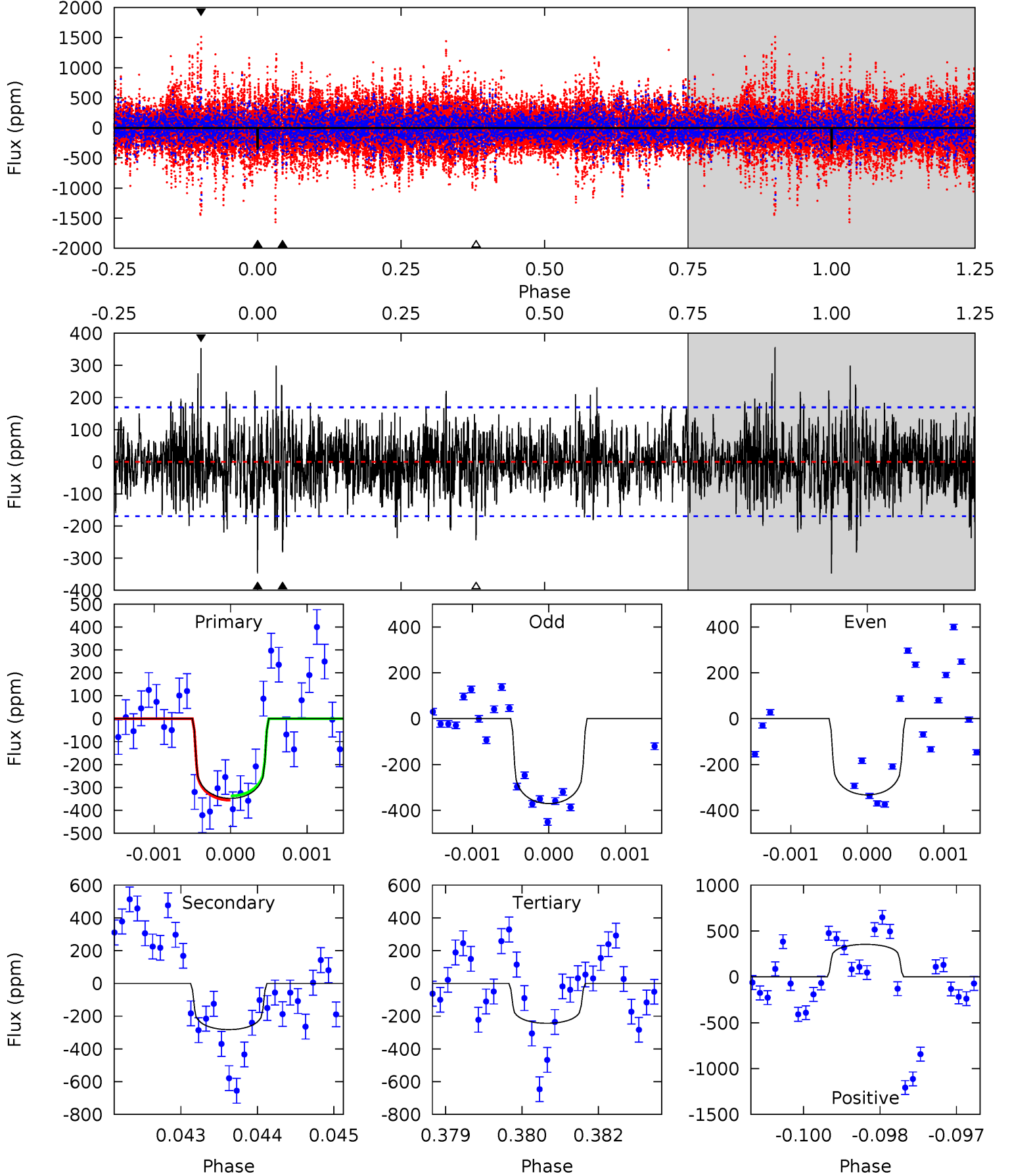
TCE 004995953-03 P=526.279960 Days $T_0=215.962728$ (BKJD)



DV Model-Shift Uniqueness Test

004995953-03, P = 526.380671 Days, E = 215.948054 Days

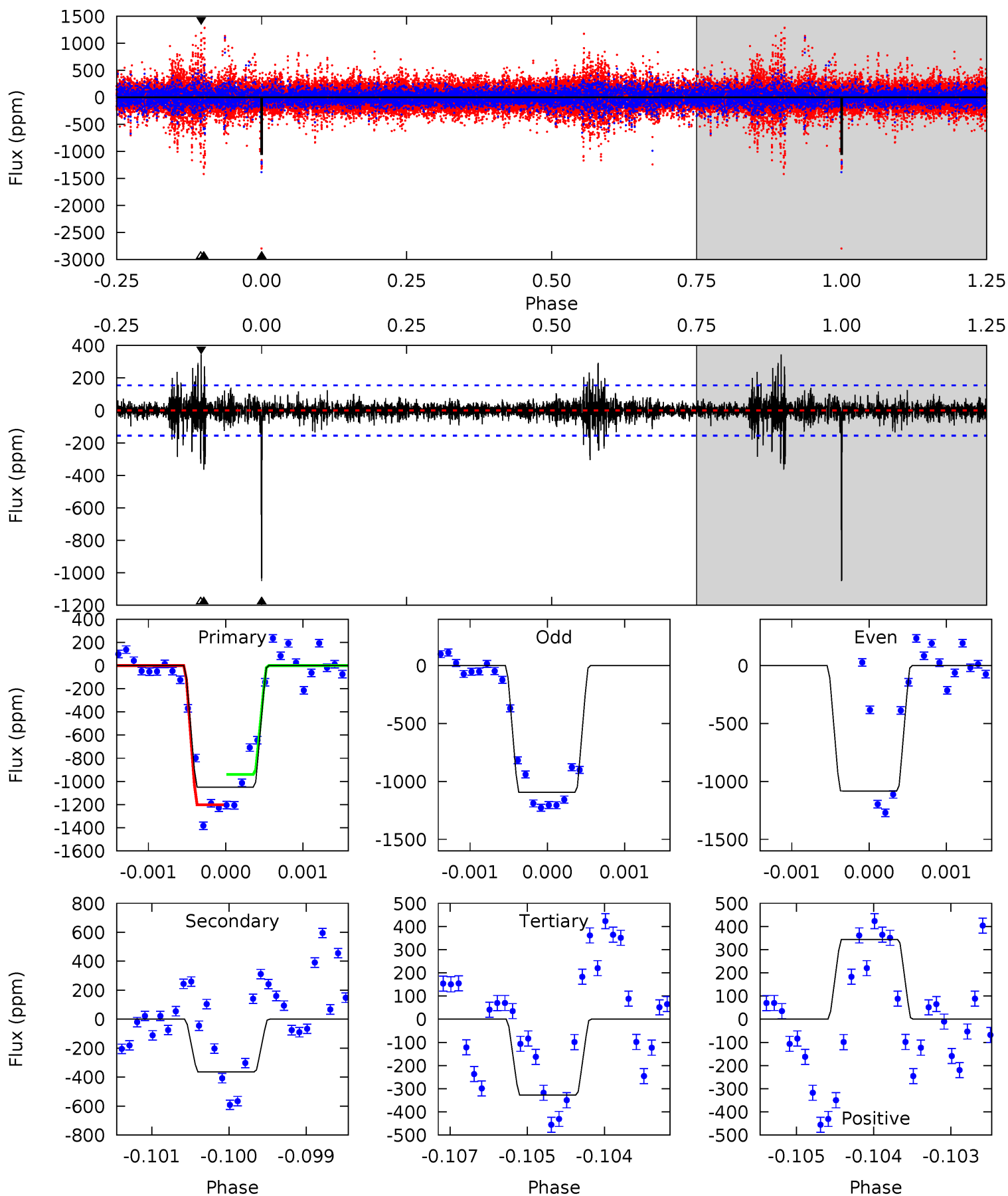
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
11.0	8.96	7.74	11.2	5.38	3.18	2.19	3.31	-0.20	1.22	-2.28	0.61	0.98	0.50	0.29



Alt Model-Shift Uniqueness Test

004995953-03, P = 526.279960 Days, E = 215.962728 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
36.8	12.8	11.5	12.1	5.43	3.26	1.55	25.4	24.8	1.32	0.72	0.26	1.02	0.25	0



Stellar Parameters For KIC 004995953

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	6703^{+187}_{-258}	$3.963^{+0.299}_{-0.161}$	$-0.120^{+0.300}_{-0.300}$	$2.091^{+0.605}_{-0.740}$	$1.465^{+0.219}_{-0.328}$	$0.226^{+0.501}_{-0.107}$
	+3%/-4%	+8%/-4%	+250%/-250%	+29%/-35%	+15%/-22%	+222%/-47%
Source	PHO54	PHO54	PHO54	DSEP		

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

Secondary Eclipse Parameters for KIC 004995953-03 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-282 ± 31	$5.37^{+0.93}_{-1.03}$	487^{+39}_{-40}	5556^{+348}_{-292}	11205^{+5740}_{-3168}
Alt.	-365 ± 29	$6.96^{+1.28}_{-1.24}$	490^{+39}_{-46}	5260^{+217}_{-211}	8564^{+4126}_{-2299}

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

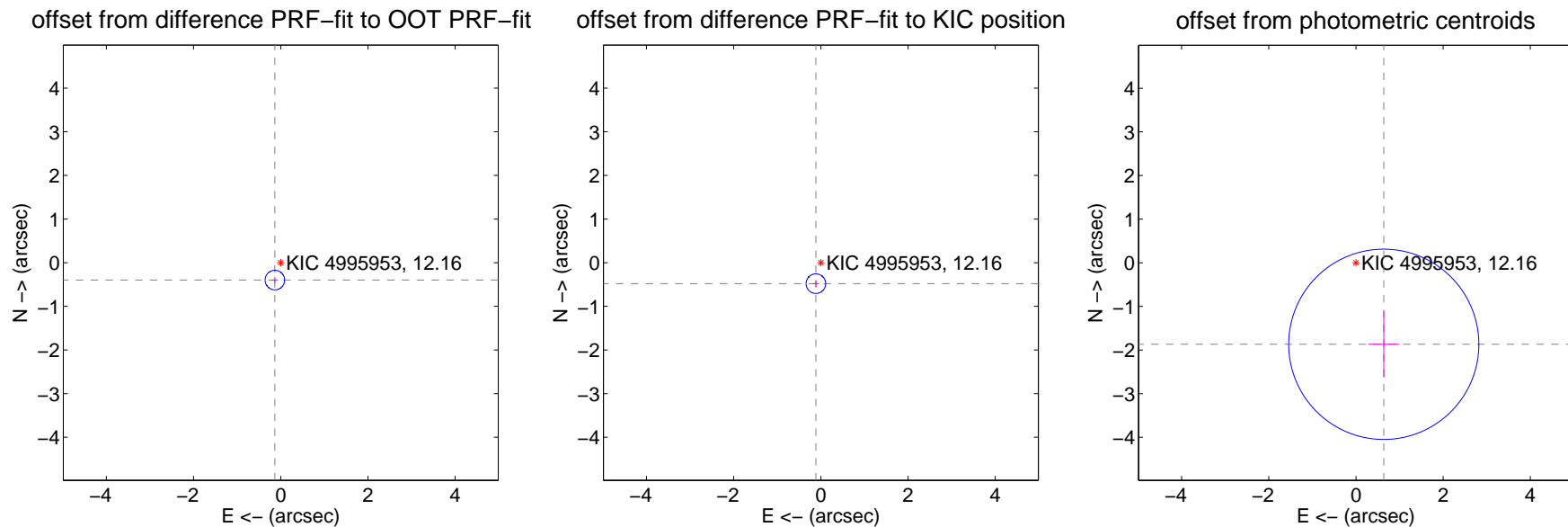
DV Centroid Data

Supplemental centroid analysis for 004995953-03. Kepler magnitude: 12.16. Transit SNR 8.31

There are 1 quarters with good PRF difference image offsets

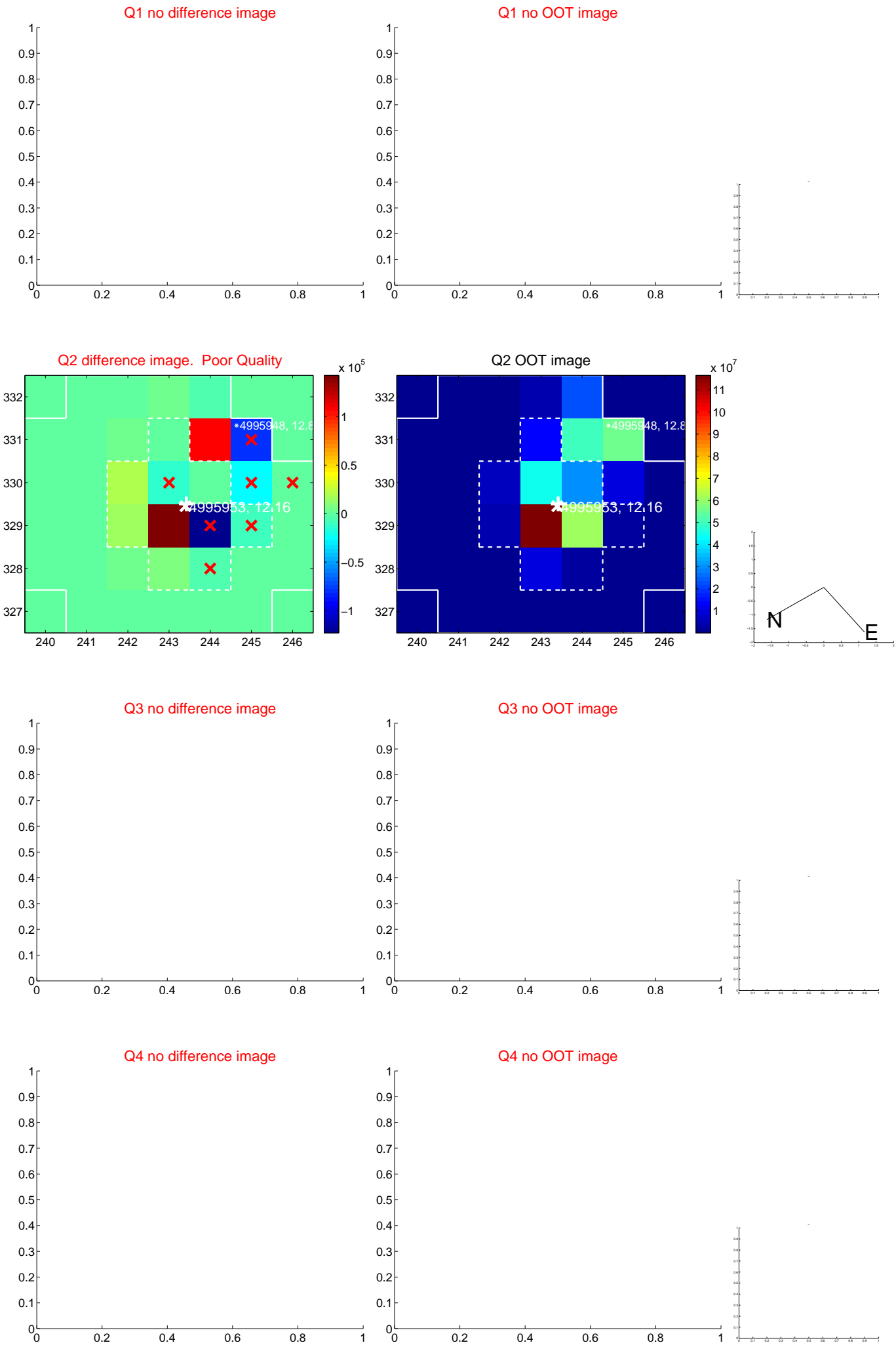
The direct PRF centroid is offset from the target star catalog position by about 0.08 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.421 \pm 0.075	5.63	0.135 \pm 0.074	-0.399 \pm 0.075
PRF-fit source offset from KIC position	0.493 \pm 0.075	6.59	0.114 \pm 0.074	-0.480 \pm 0.075
photometric centroid source offset	1.97 \pm 0.73	2.72	-0.64 \pm 0.36	-1.87 \pm 0.76

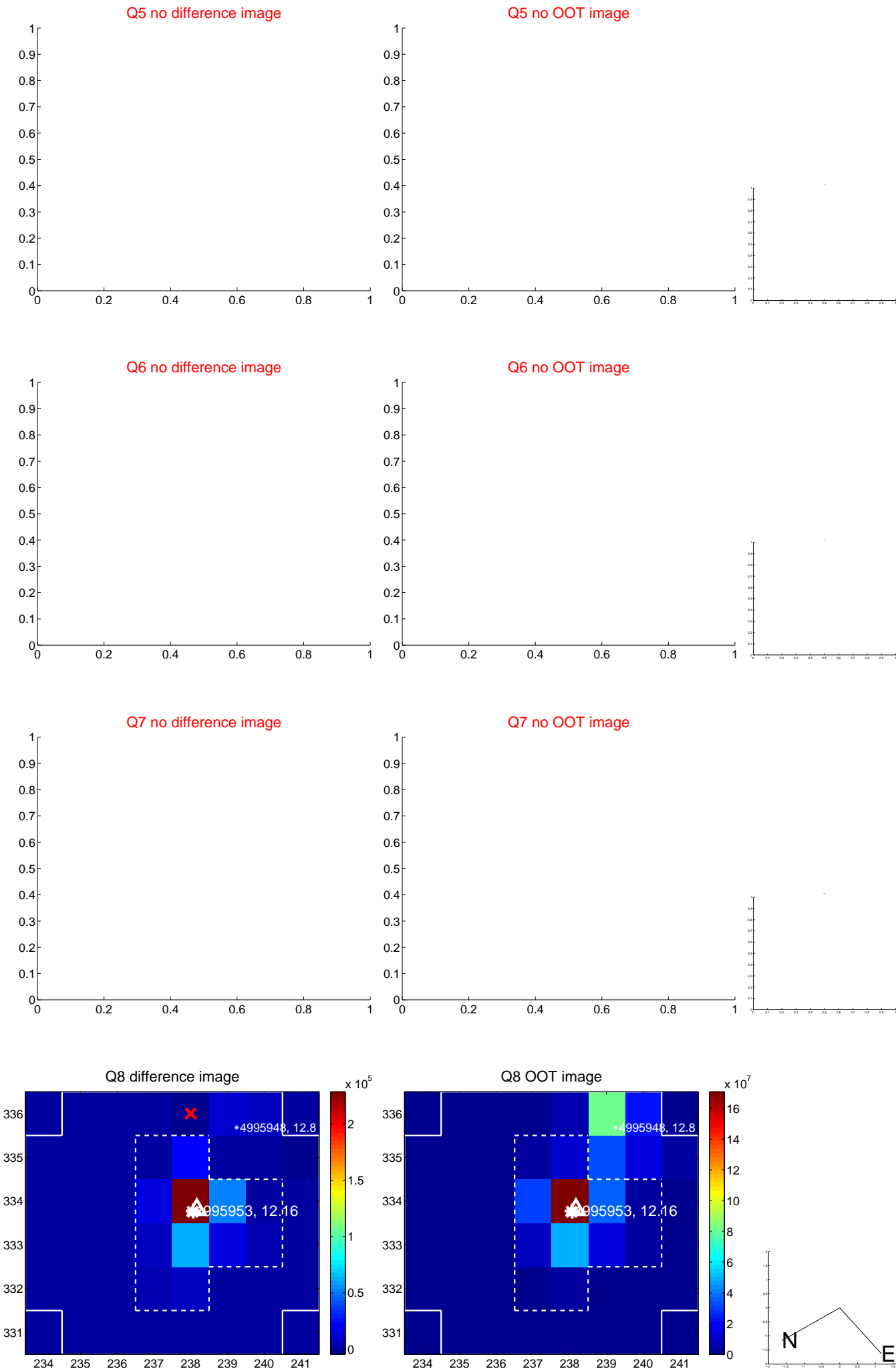


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ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



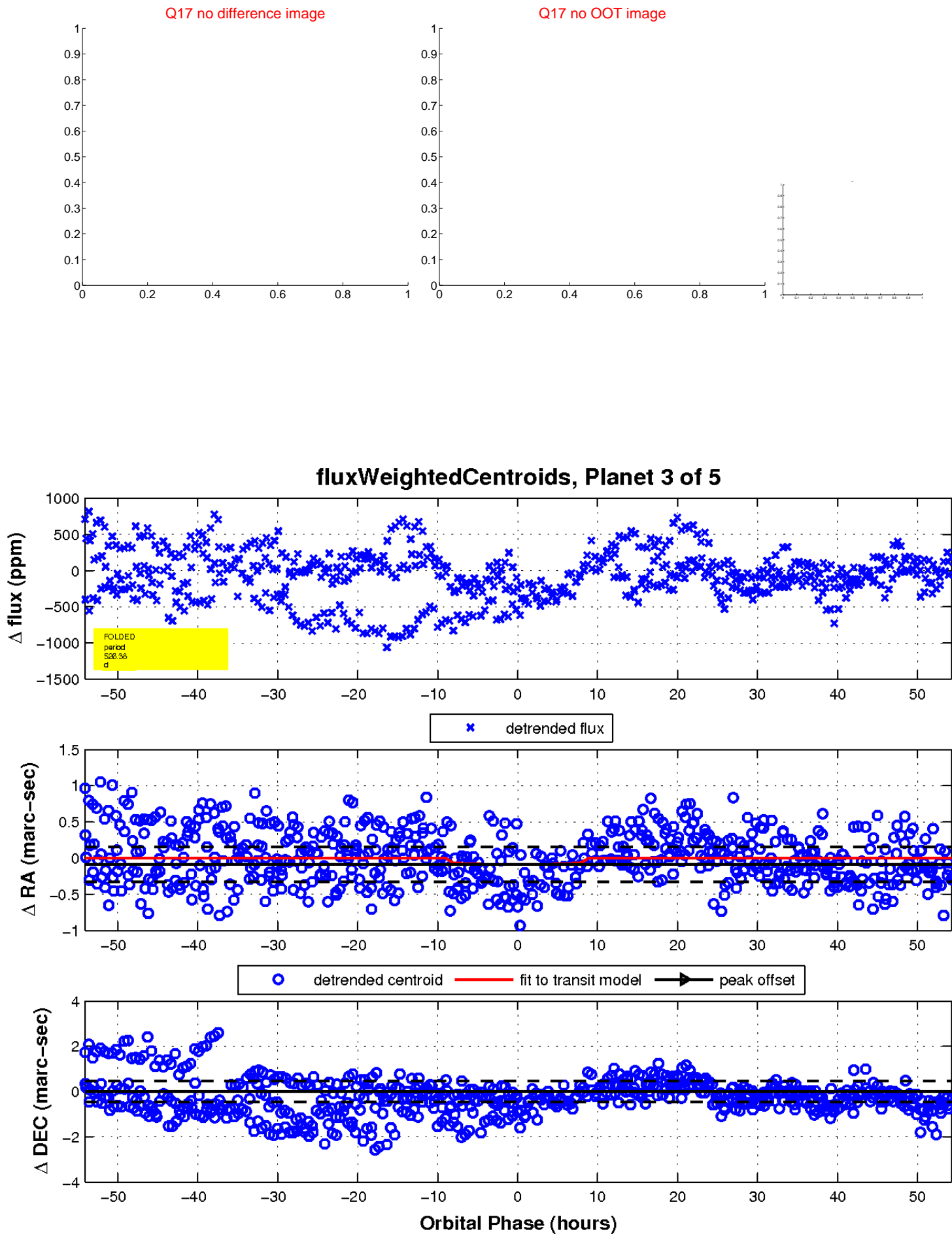
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

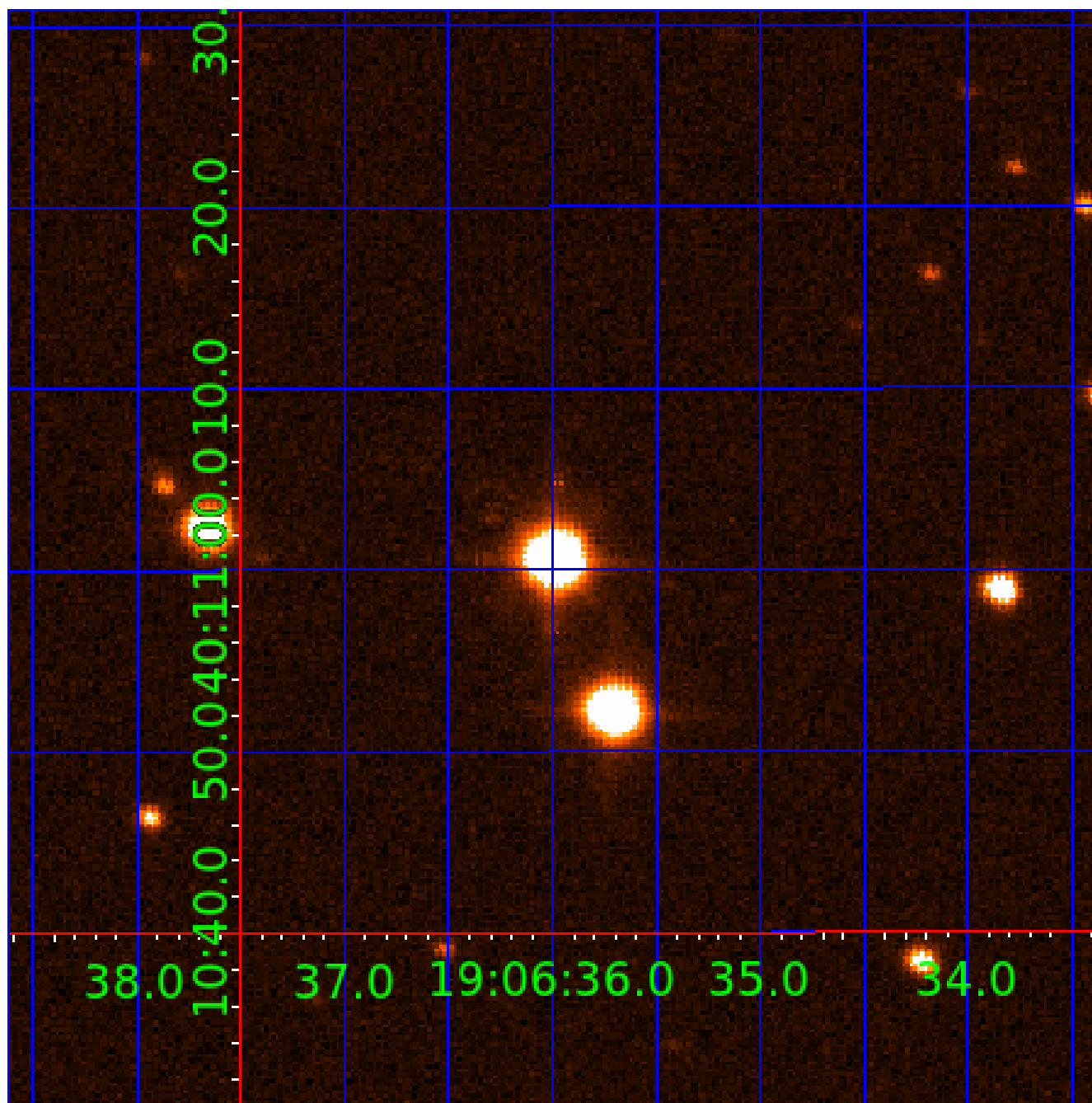


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 004995953

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})
004995953-01	OBS	No	2.651149	133.207682	25.2	6.855	8.9	5.6	2.09	6703	1.22	4361.43
004995953-02	OBS	No	511.745454	243.857778	825.8	10.056	18.9	10.0	2.09	6703	7.48	3.91
004995953-03	OBS	No	526.380671	215.948054	589.8	18.095	12.1	8.3	2.09	6703	5.51	3.77
004995953-04	OBS	No	1.324696	131.726704	22.4	4.288	8.0	5.9	2.09	6703	1.15	10999.82
004995953-05	OBS	No	2.650531	132.610811	135.0	7.554	11.0	14.2	2.09	6703	2.83	4362.78

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
004995953-01	OBS	FP	0.00	1	0	0	0	LPP_DV—MOD_NONUNIQ_DV
004995953-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_CHASES_MARSHALL—LPP_DV—LPP_ALT—INCONSISTENT_TRANS—CENT_FEW_DIFFS
004995953-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL—ALL_TRANS_CHASES—INCONSISTENT_TRANS—CENT_FEW_DIFFS
004995953-04	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT
004995953-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_SKYE_ZUMA—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_ALT—SAME_NTL_PERIOD

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

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

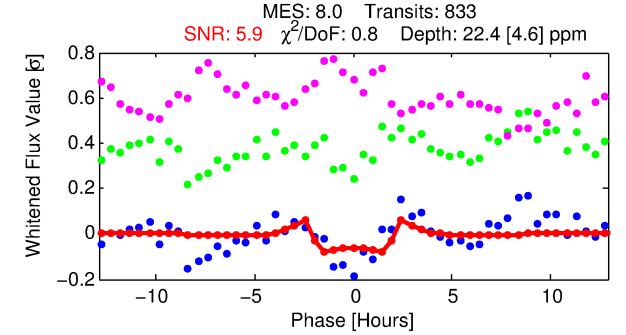
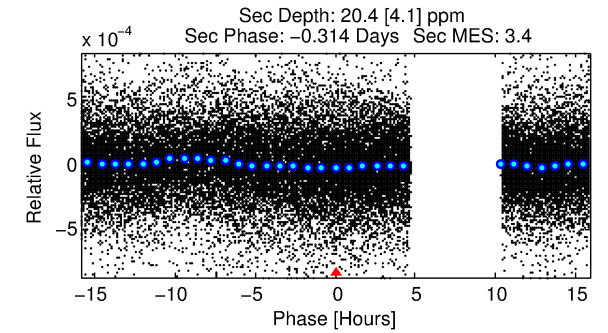
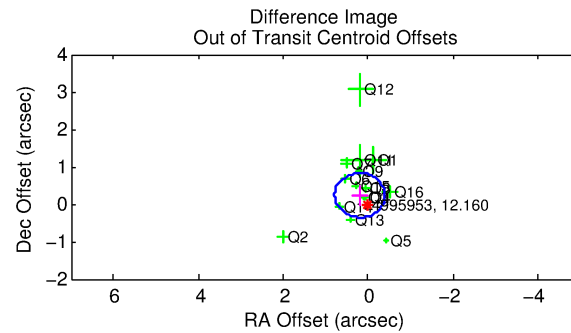
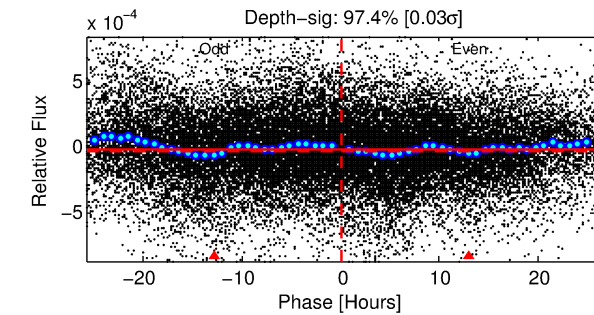
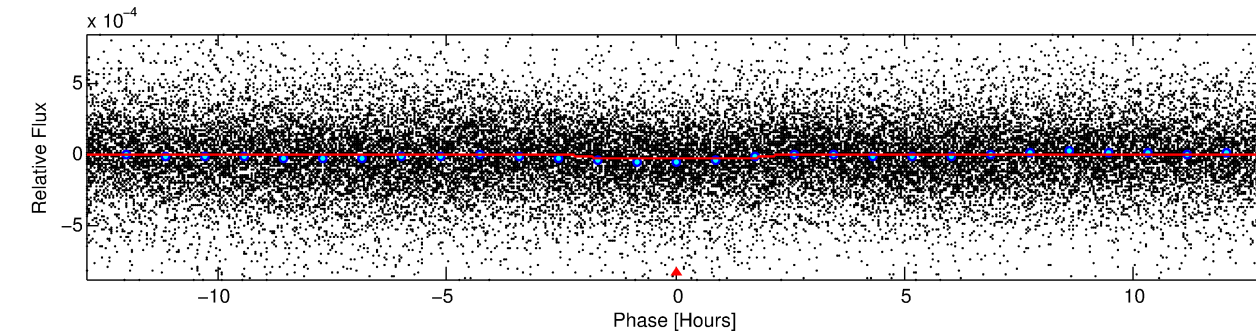
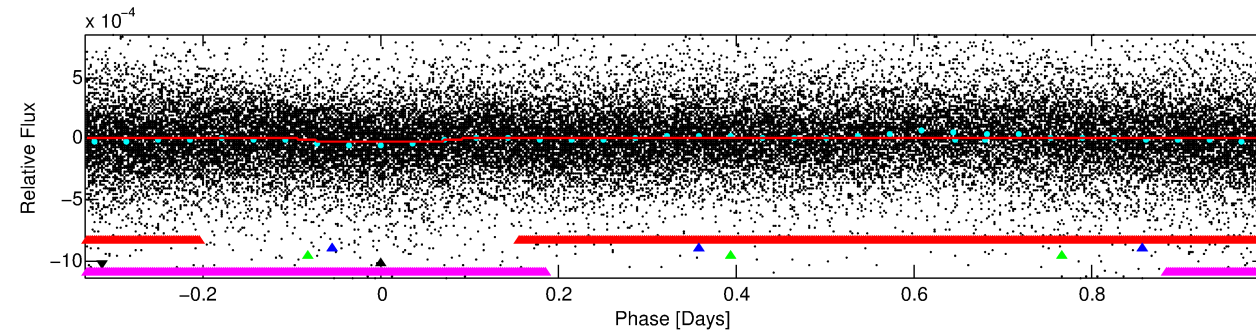
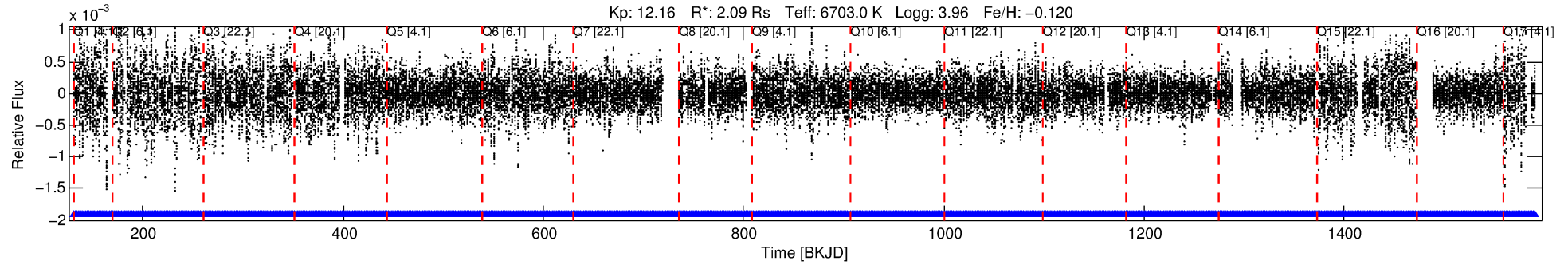
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 004995953-04

No Significant Match Found

DV One-Page Summary

KIC: 4995953 Candidate: 4 of 5 Period: 1.325 d



DV Fit Results:

Period = 1.32470 [0.00002] d
Epoch = 131.7267 [0.0036] BKJD
Rp/R* = 0.0051 [0.0014]
a/R* = 1.41 [1.11]
b = 0.90 [0.34]
Seff = 10999.82 [5923.91]
Teq = 2611 [352] K
Rp = 1.15 [0.52] Re
a = 0.0268 [0.0088] AU
Ag = 6.08 [4.84] [1.05 σ]
Teffp = 6341 [991] K [3.55 σ]

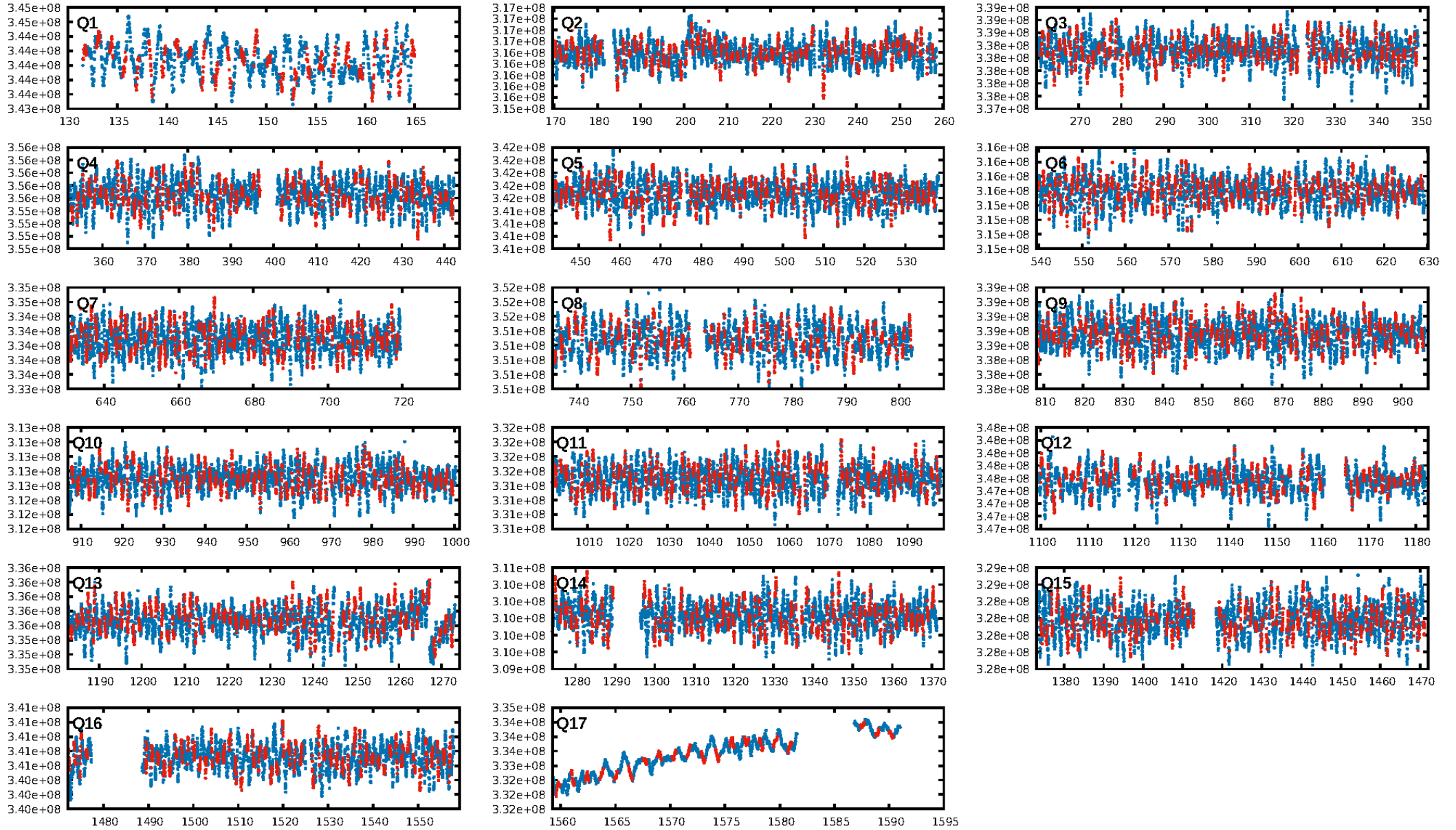
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: 100.0% [3.66 σ]
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: N/A
RollingBand-fgt: 1.00 [810/810]
GhostDiagnostic-chr: -1.545
Centroid-sig: 0.0%
Centroid-so: 2.037 arcsec [2.47 σ]
OotOffset-rm: 0.304 arcsec [1.54 σ]
KicOffset-rm: 0.217 arcsec [0.97 σ]
OotOffset-st: 3/4/4/4 [15]
KicOffset-st: 3/4/4/4 [15]
DiffImageQuality-fgm: 0.53 [8/15]
DiffImageOverlap-fno: 0.65 [11/17]

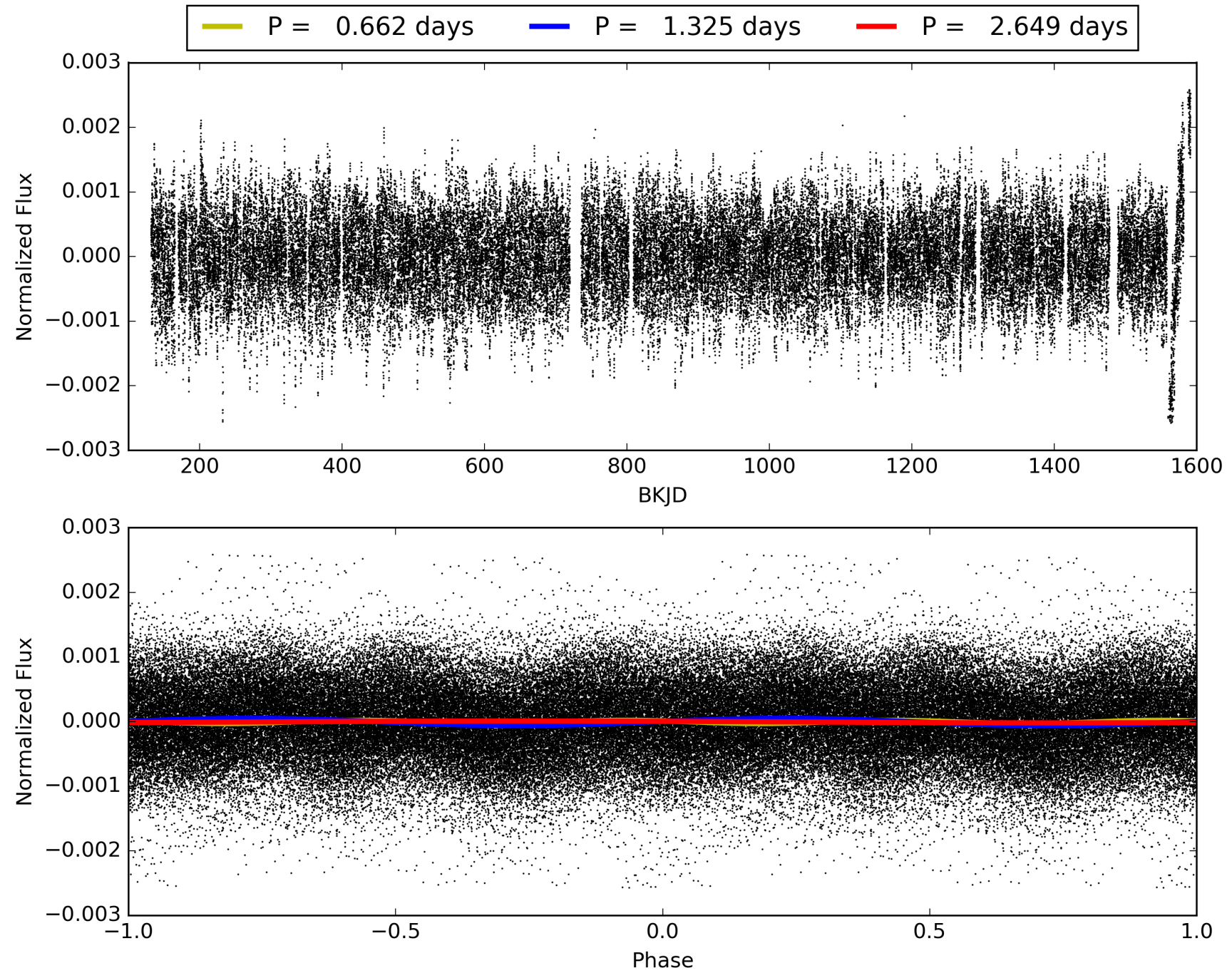
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 02-Feb-2016 07:52:34 Z

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

TCE 004995953-04, PDC Light Curves

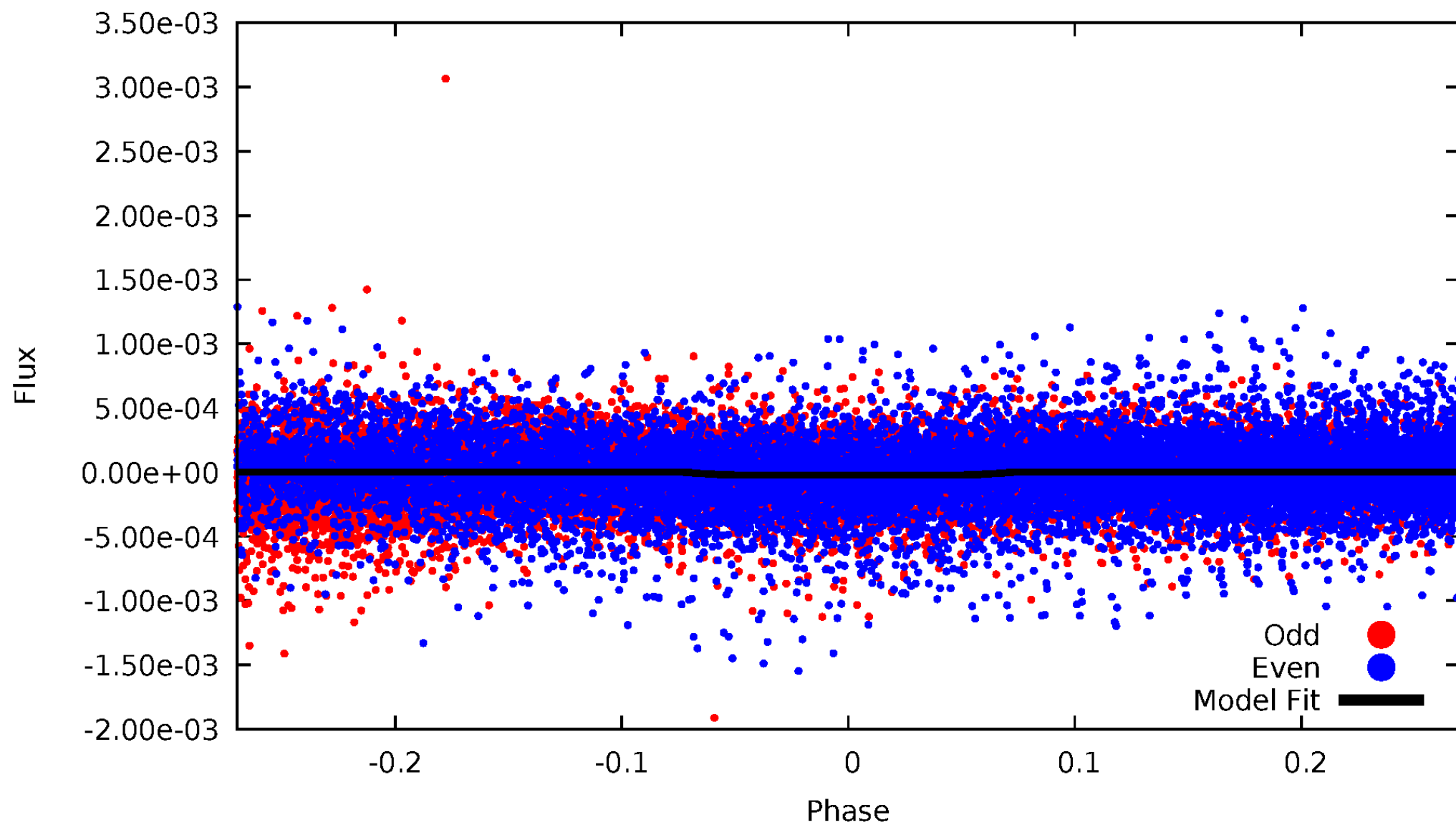


TCE 004995953-04



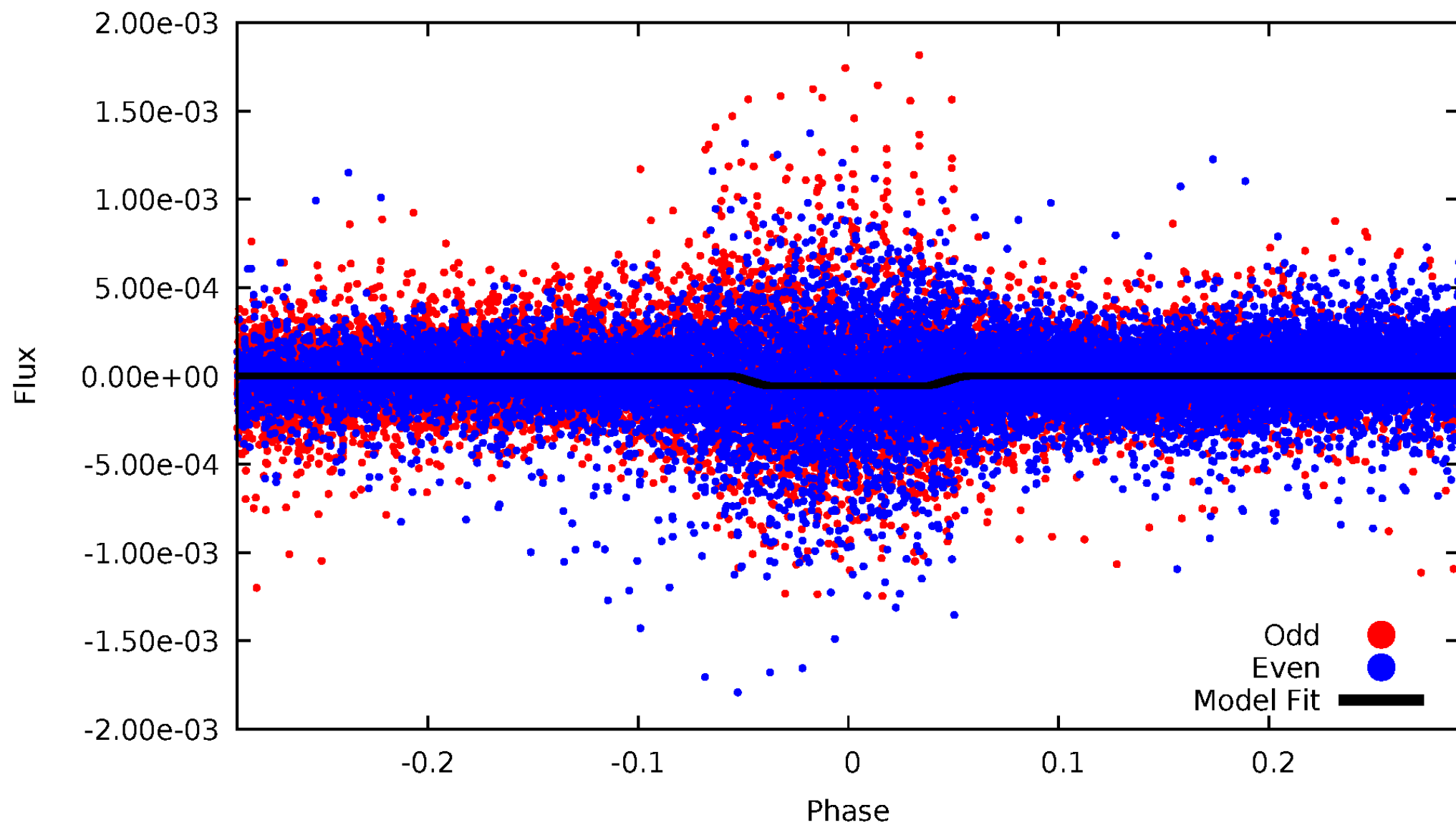
DV Odd/Even

TCE 004995953-04



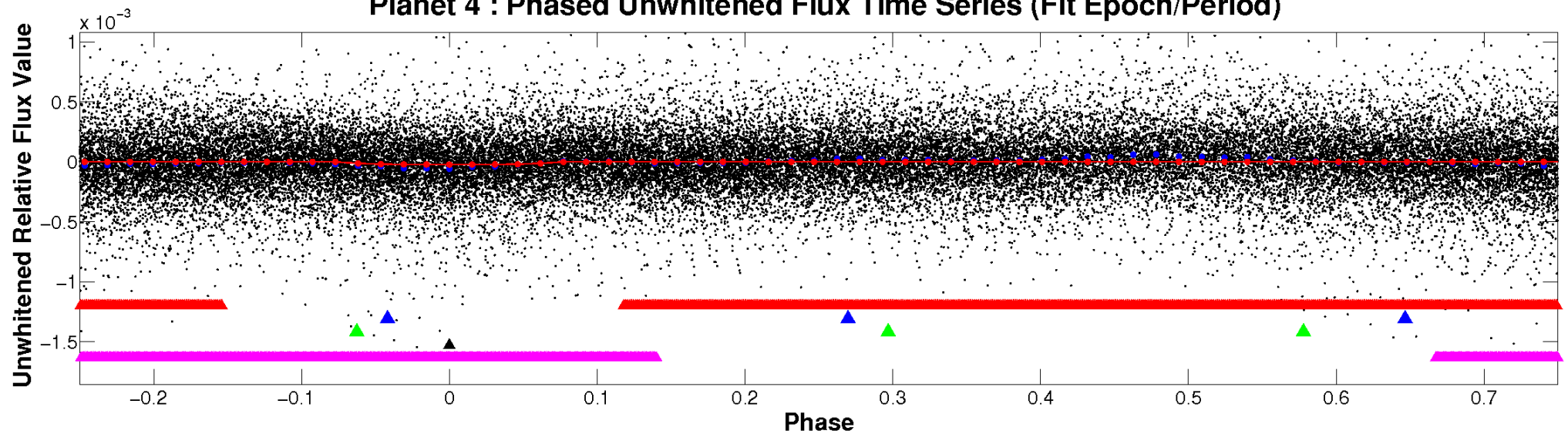
ALT Odd/Even

TCE 004995953-04

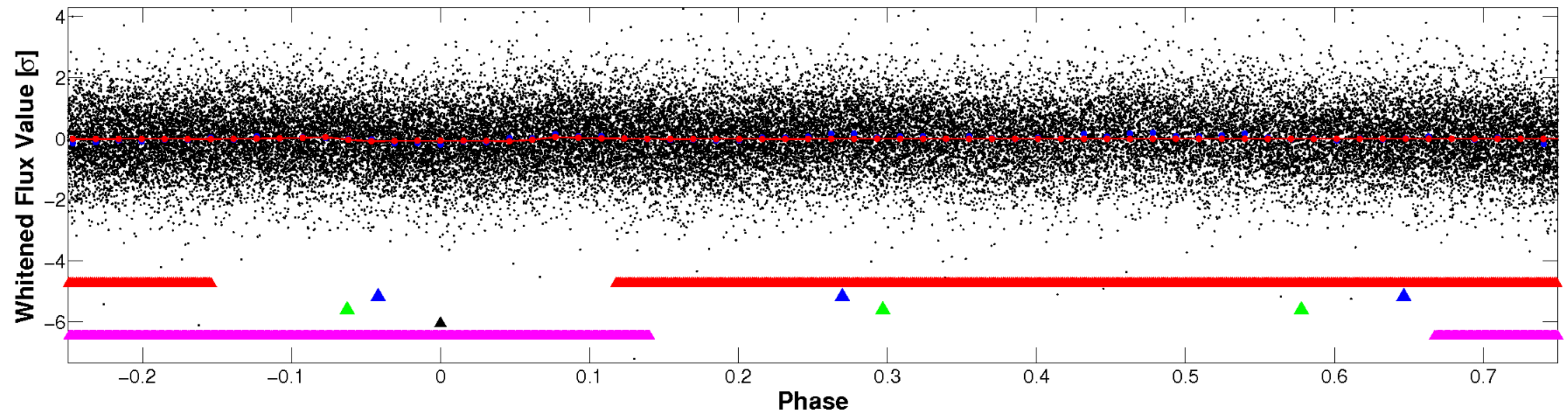


Non-Whitened Vs. Whitened Light Curve

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

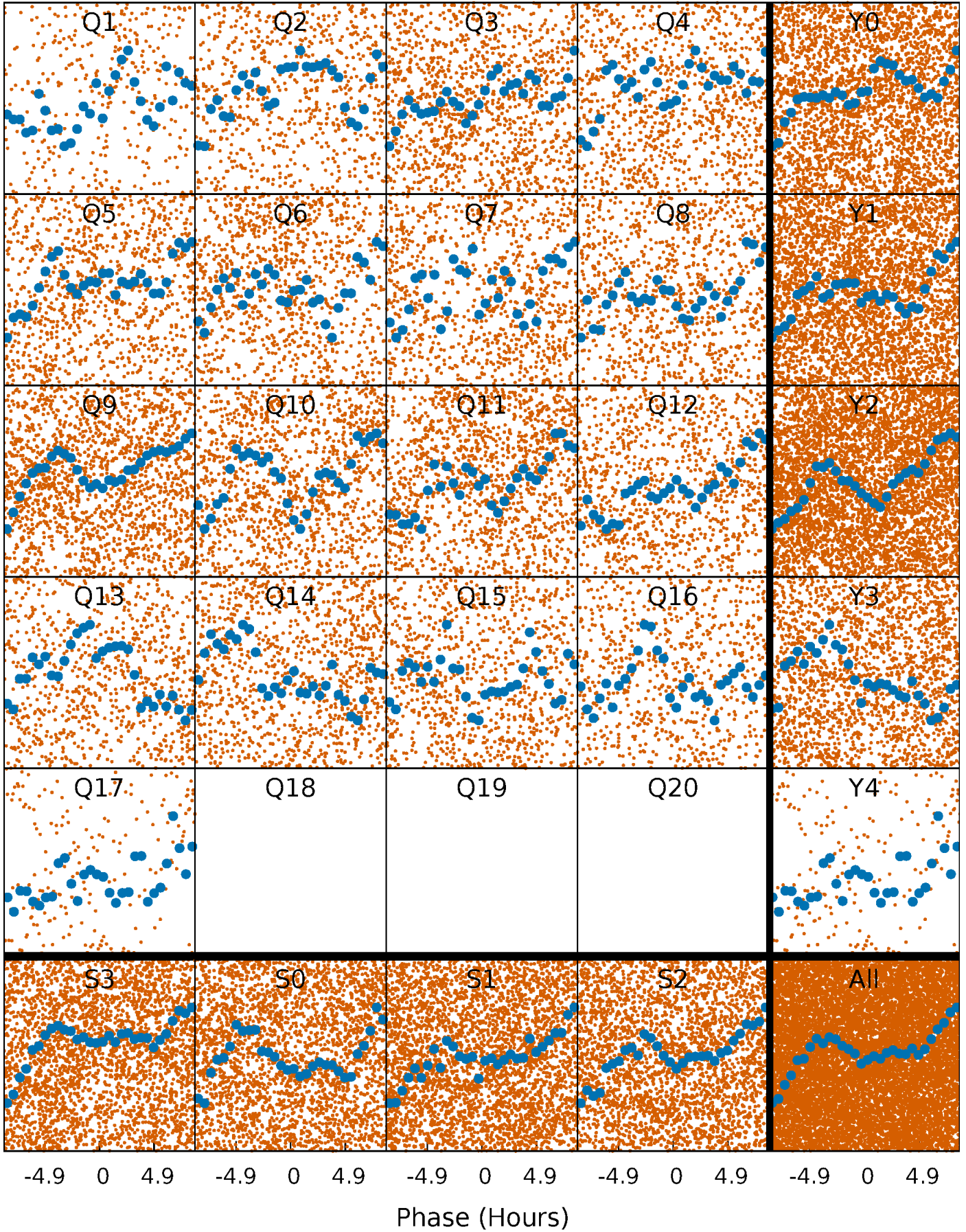


Planet 4 : Phased Whitened Flux Time Series (Fit Epoch/Period)



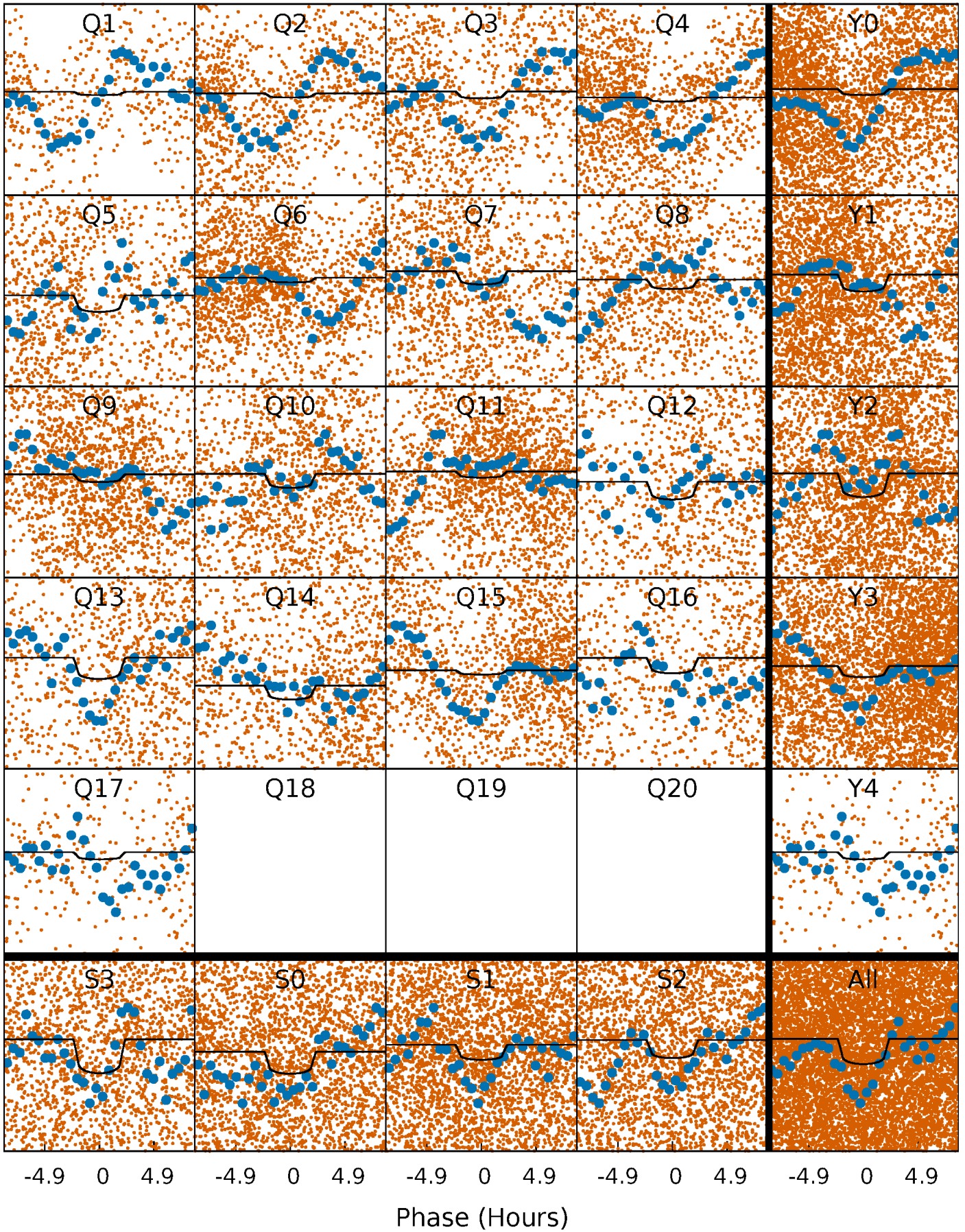
PDC Quarter-Phased Transit Curves

TCE 004995953-04 P= 1.324696 Days $T_0=131.726704$ (BKJD)



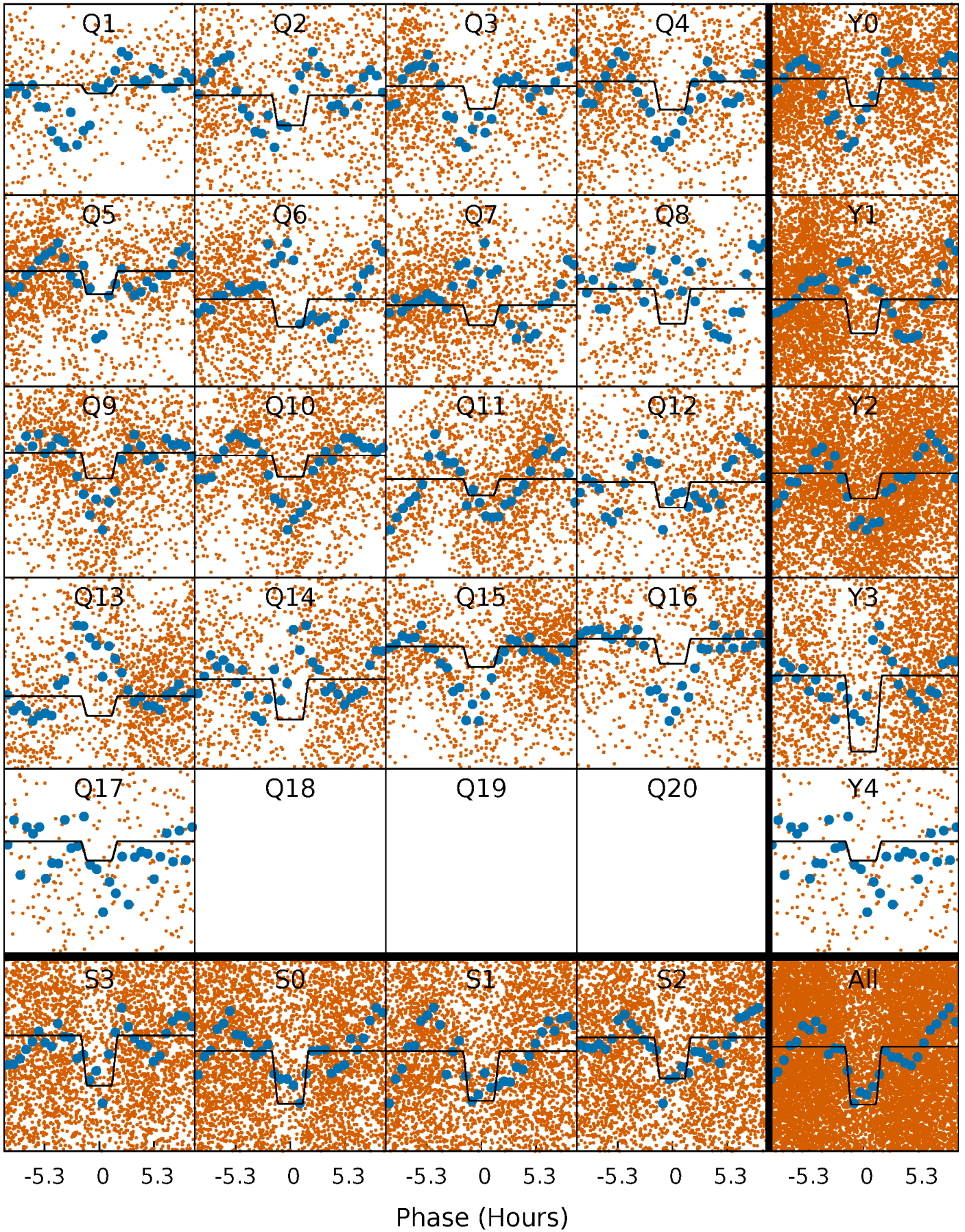
DV Quarter-Phased Transit Curves

TCE 004995953-04 P= 1.324696 Days $T_0=131.726704$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

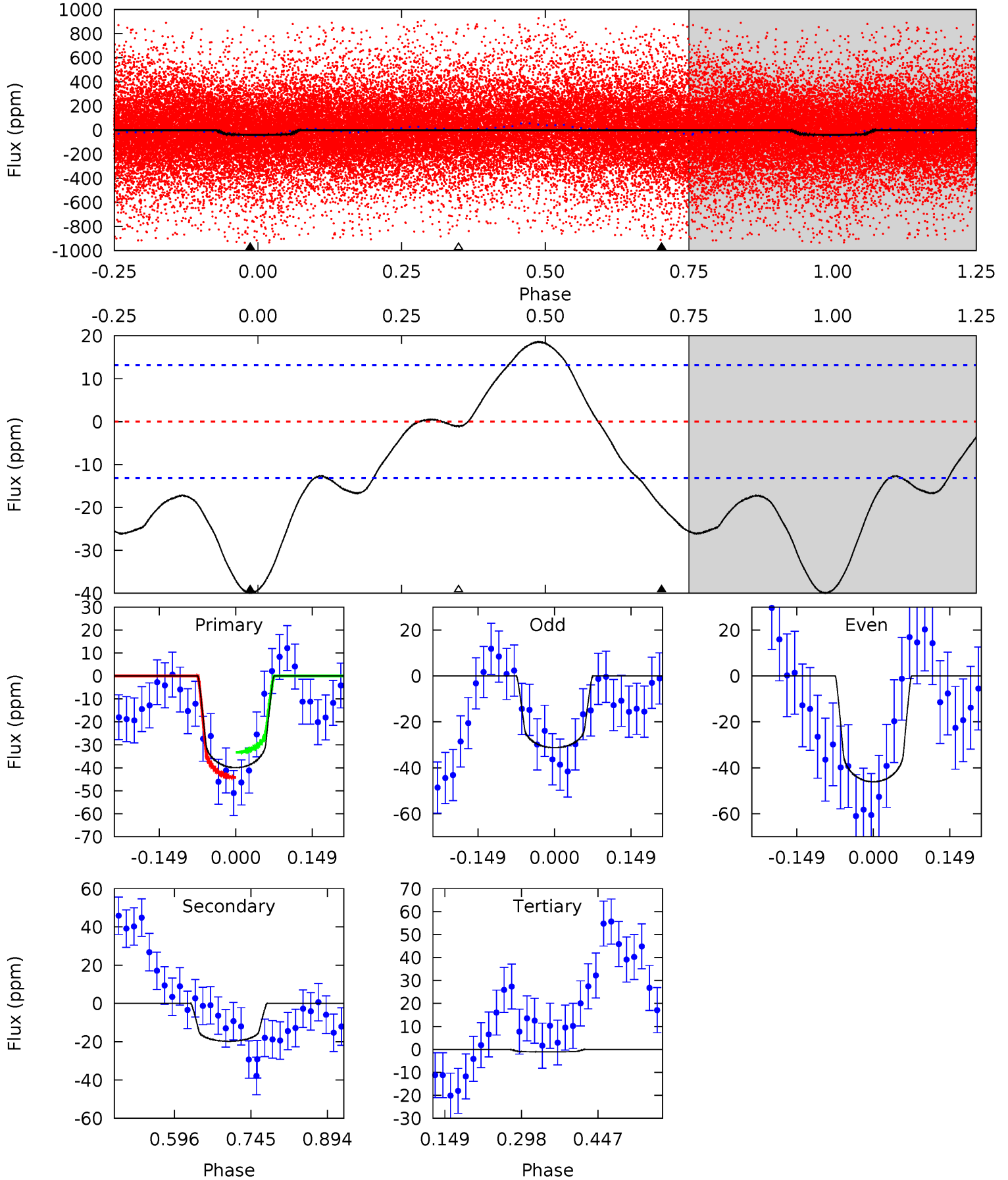
TCE 004995953-04 $P = 1.324713$ Days $T_0 = 131.728329$ (BKJD)



DV Model-Shift Uniqueness Test

004995953-04, P = 1.324696 Days, E = 130.402008 Days

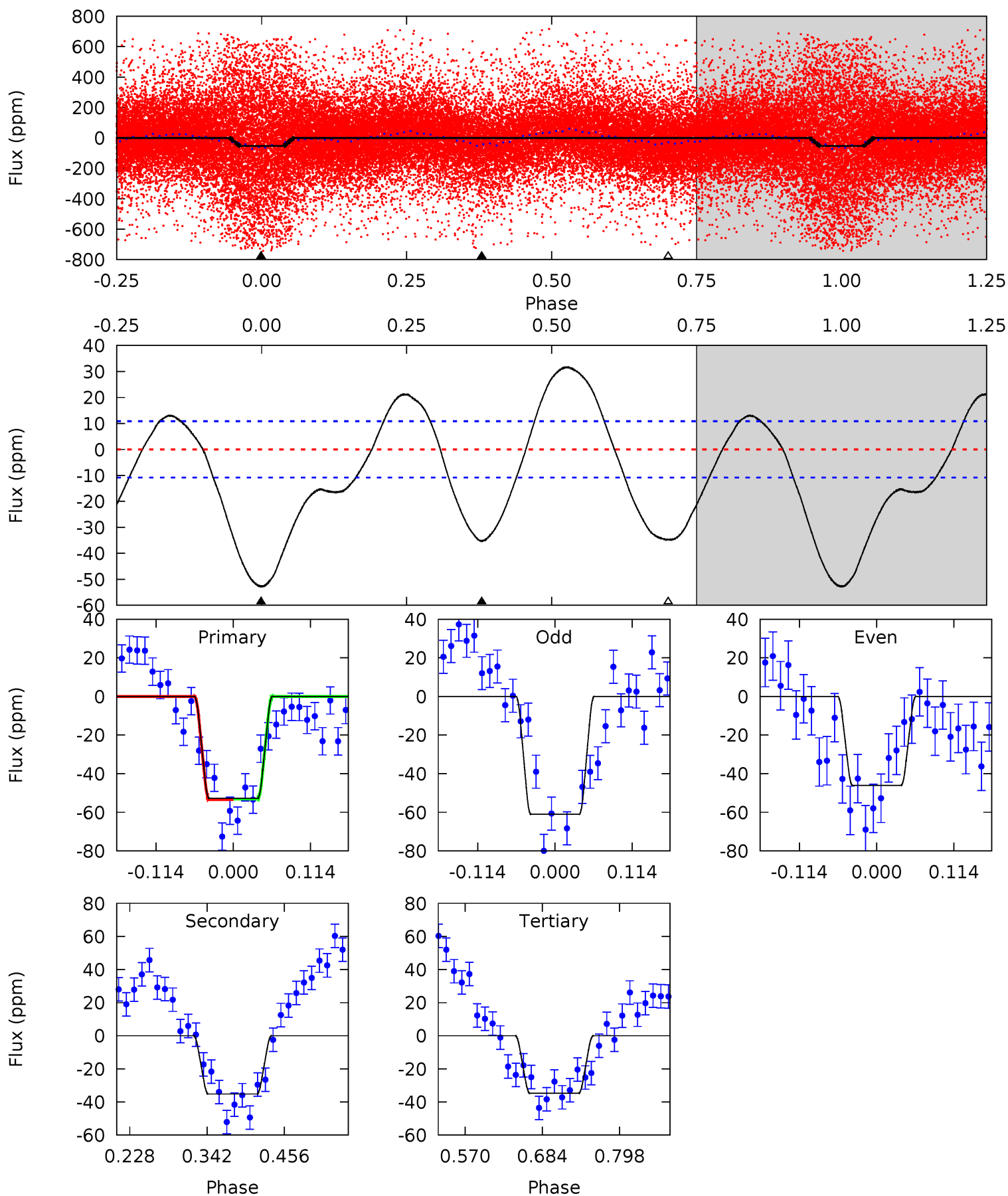
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
13.6	6.72	0.37	0	4.48	1.44	3.85	13.2	13.6	6.34	6.72	2.51	1.35	0.32	1.83



Alt Model-Shift Uniqueness Test

004995953-04, P = 1.324713 Days, E = 130.403616 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
22.1	14.7	14.6	0	4.54	1.58	8.28	7.51	22.1	0.17	14.7	3.04	0.65	0.37	0.05



Stellar Parameters For KIC 004995953

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	M (M_{\odot})	p_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	6703^{+187}_{-258}	$3.963^{+0.299}_{-0.161}$	$-0.120^{+0.300}_{-0.300}$	$2.091^{+0.605}_{-0.740}$	$1.465^{+0.219}_{-0.328}$	$0.226^{+0.501}_{-0.107}$
	+3%/-4%	+8%/-4%	+250%/-250%	+29%/-35%	+15%/-22%	+222%/-47%
Source	PHO54	PHO54	PHO54	DSEP		

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

Secondary Eclipse Parameters for KIC 004995953-04 / KOI

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	-20 ± 3	$1.11^{+0.40}_{-0.36}$	3581^{+291}_{-352}	6144^{+1388}_{-807}	$6.470^{+7.565}_{-3.038}$
Alt.	-35 ± 2	$1.63^{+0.46}_{-0.40}$	3582^{+312}_{-338}	5815^{+751}_{-505}	$5.240^{+3.599}_{-2.023}$

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

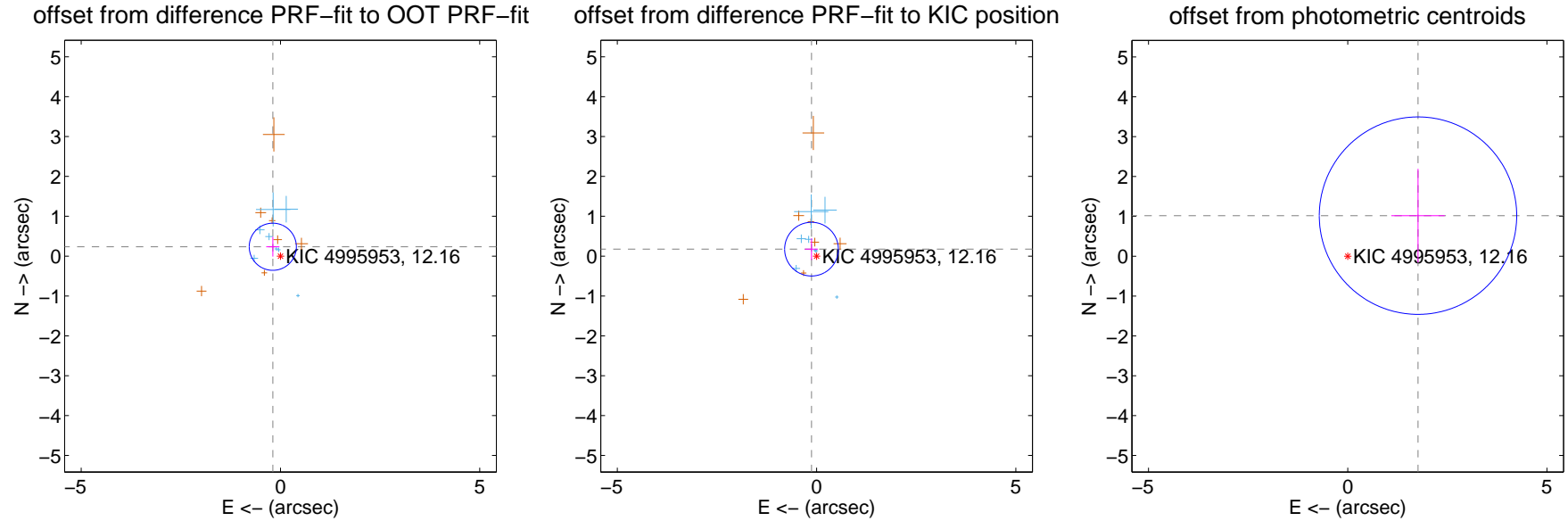
DV Centroid Data

Supplemental centroid analysis for 004995953-04. Kepler magnitude: 12.16. Transit SNR 5.87

There are 8 quarters with good PRF difference image offsets

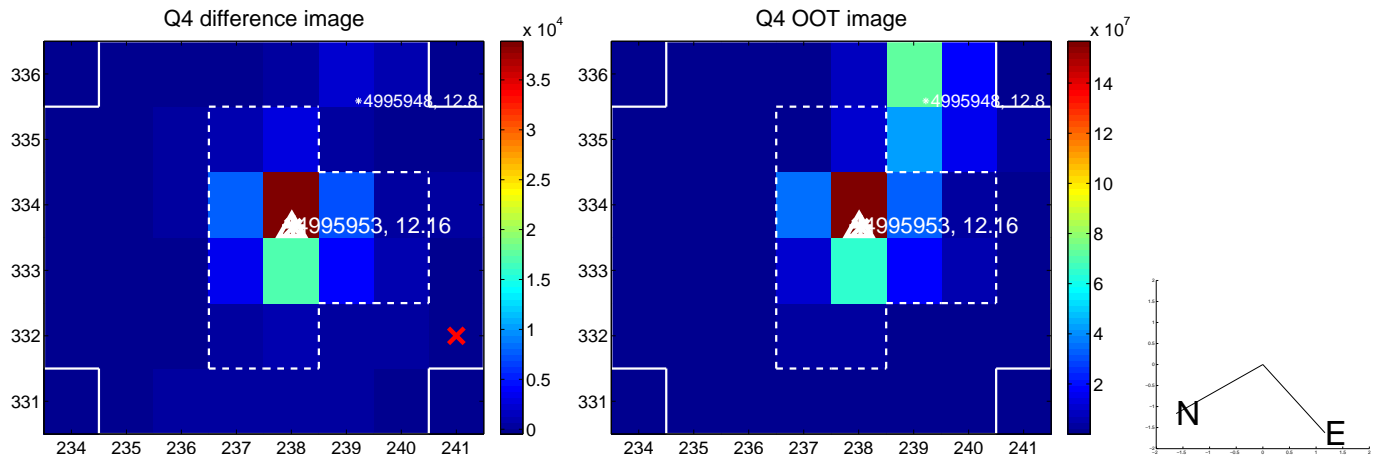
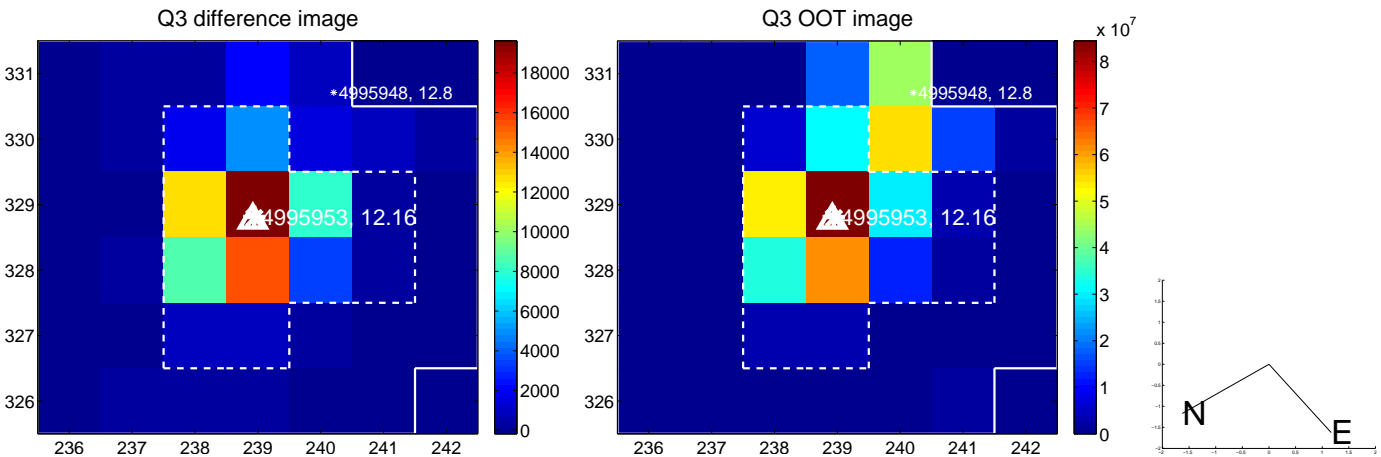
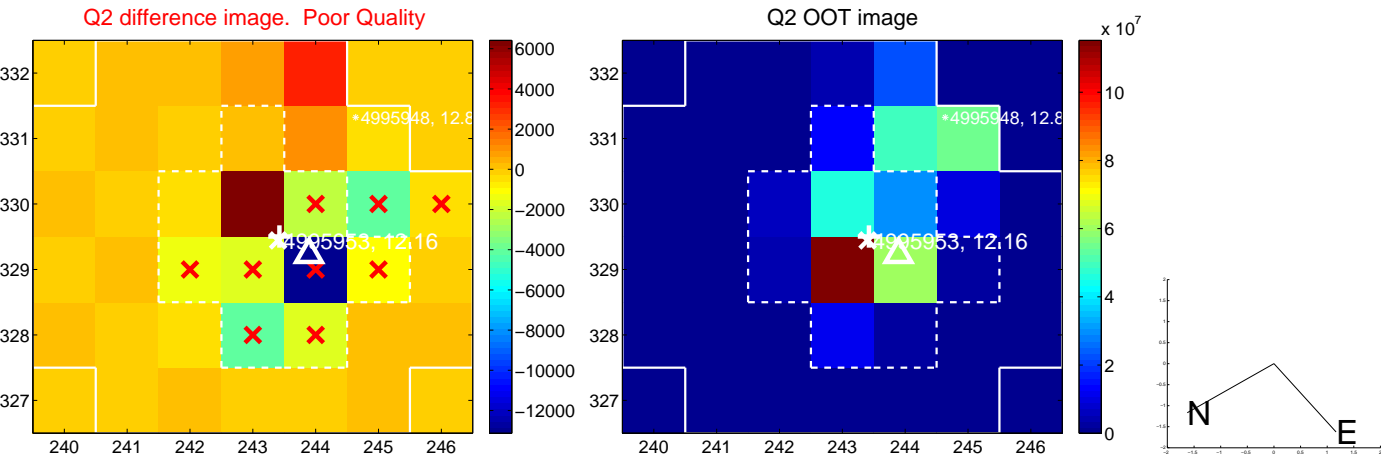
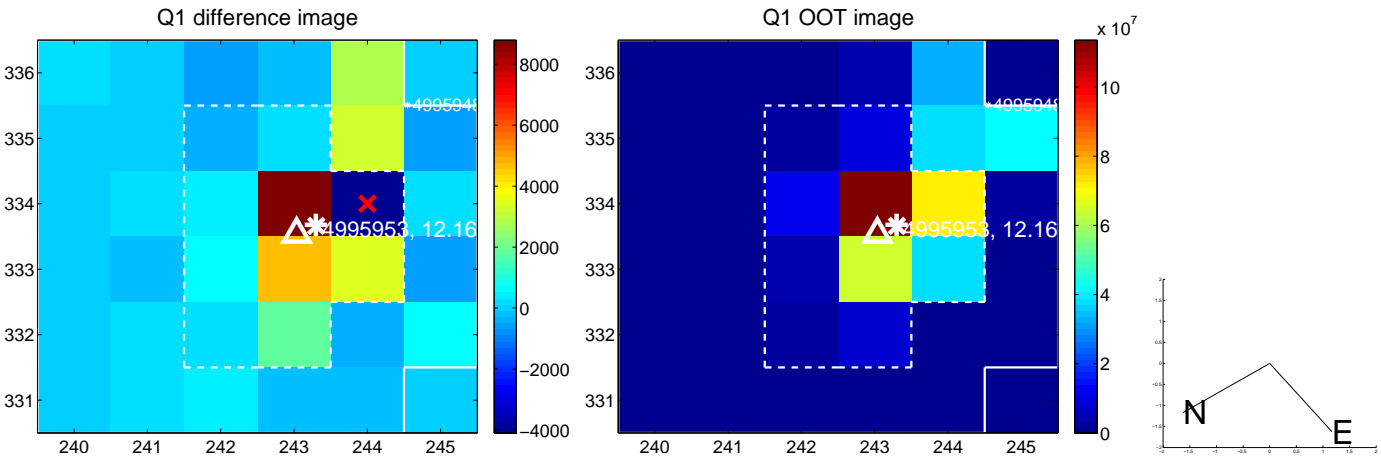
The direct PRF centroid is offset from the target star catalog position by about 0.06 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.304 ± 0.197	1.54	0.192 ± 0.166	0.235 ± 0.248
PRF-fit source offset from KIC position	0.217 ± 0.225	0.97	0.128 ± 0.163	0.175 ± 0.271
photometric centroid source offset	2.04 ± 0.83	2.47	-1.76 ± 0.67	1.02 ± 1.18

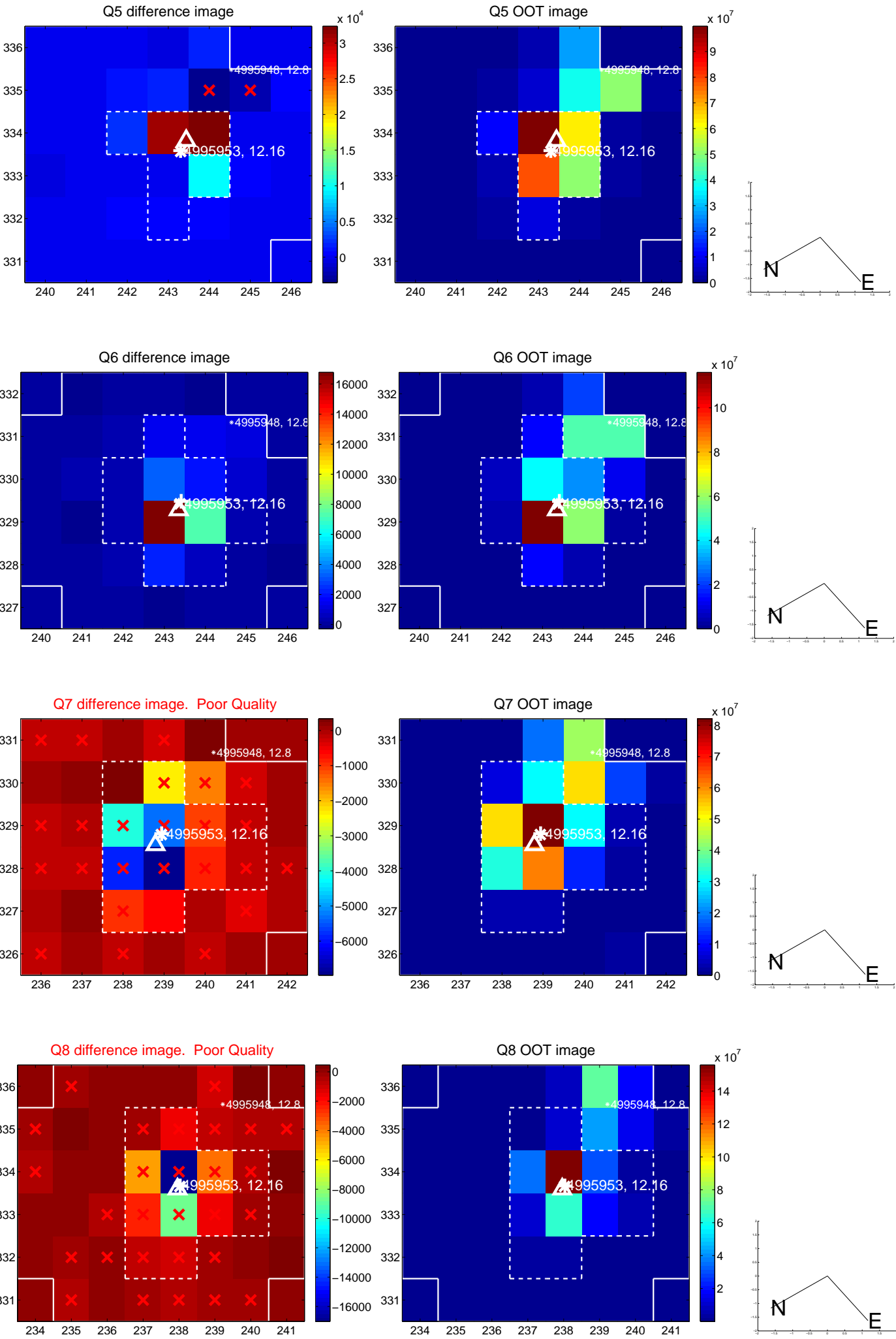


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets**; **Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

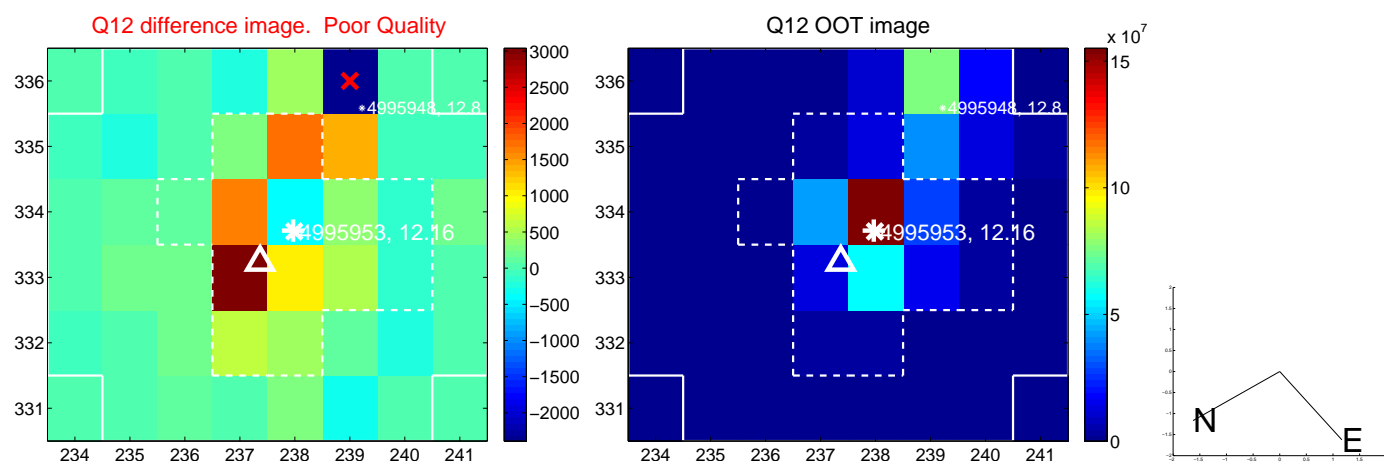
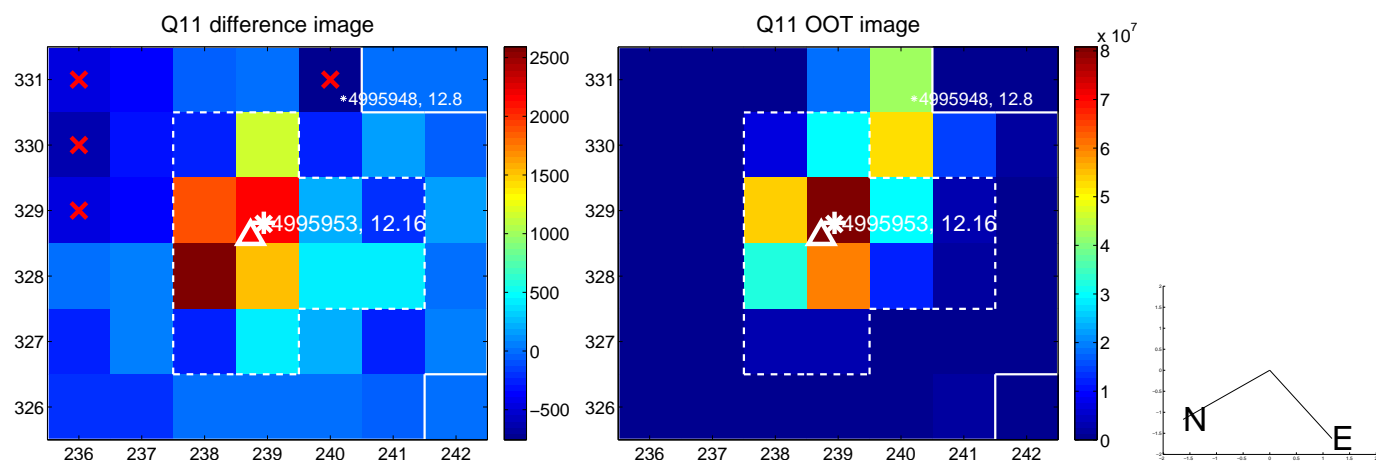
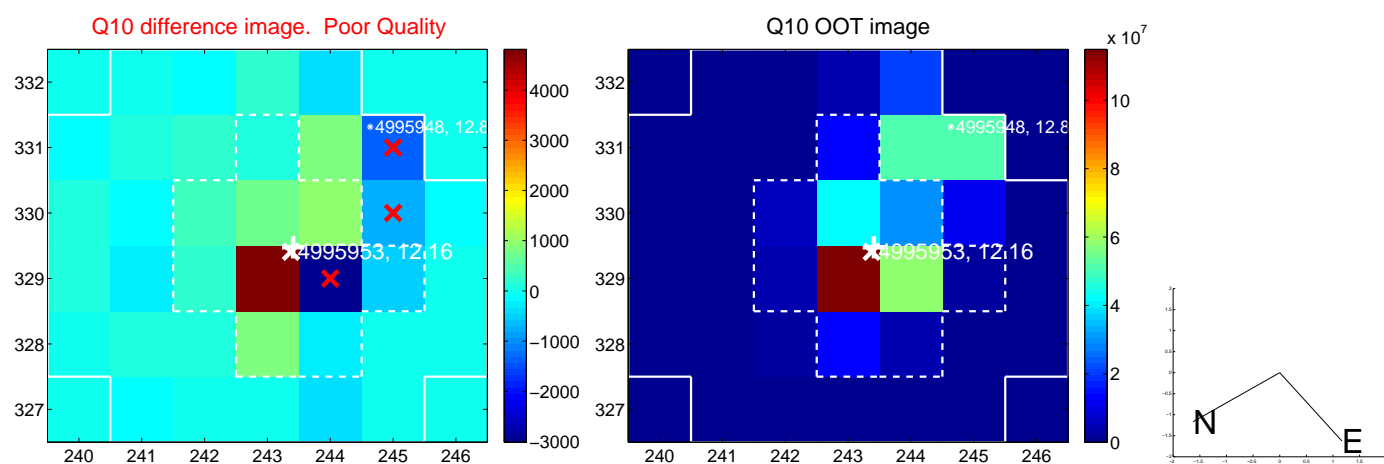
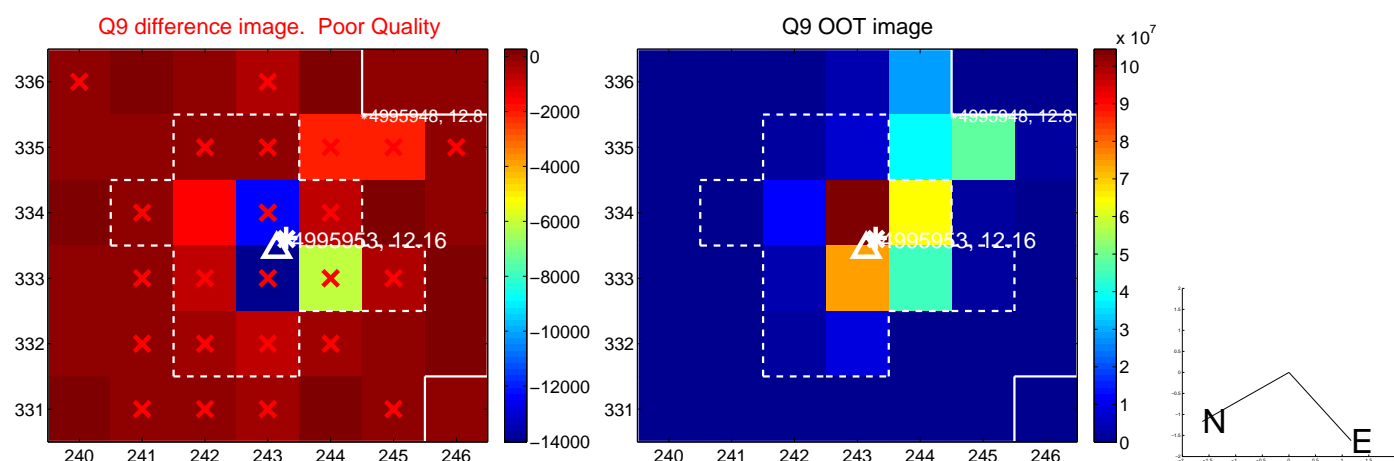
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



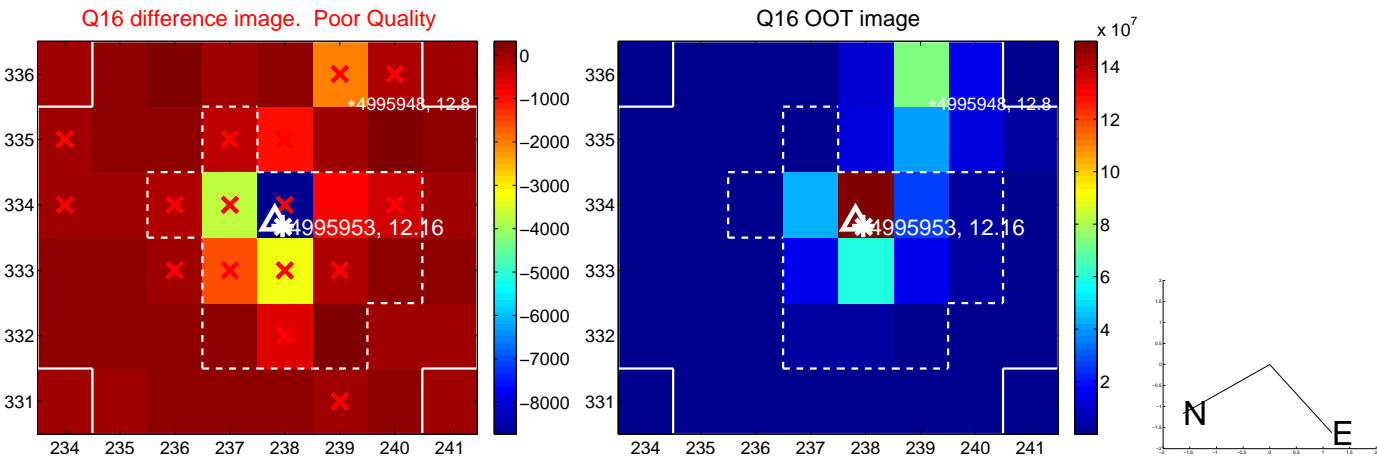
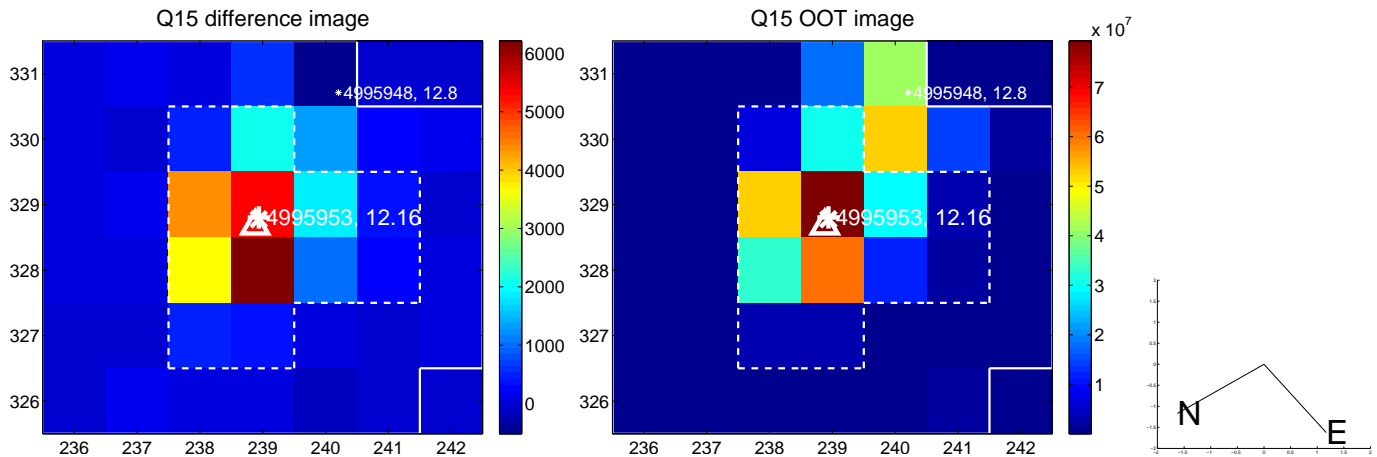
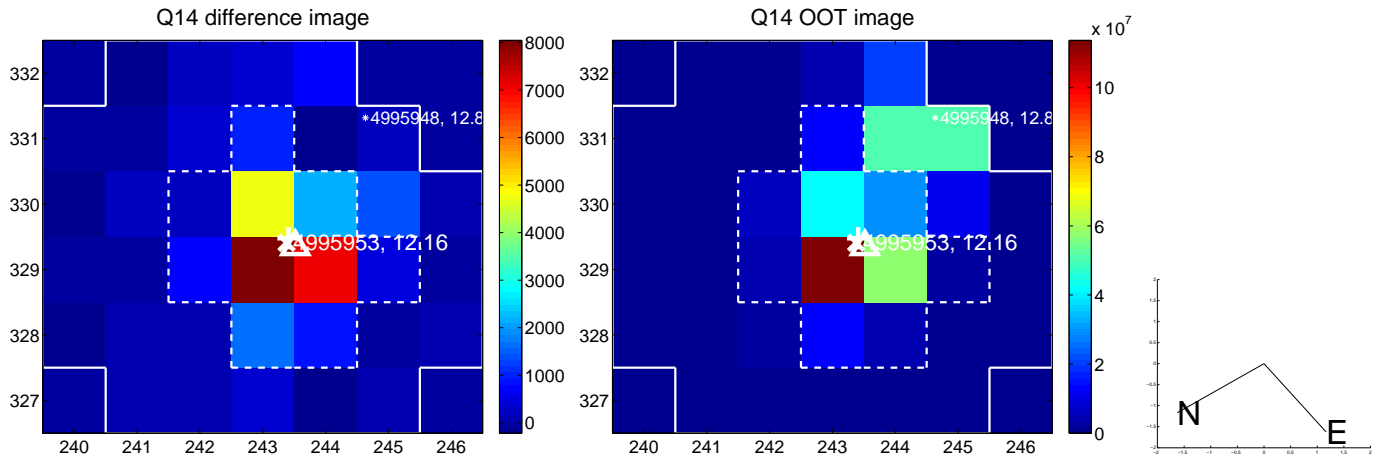
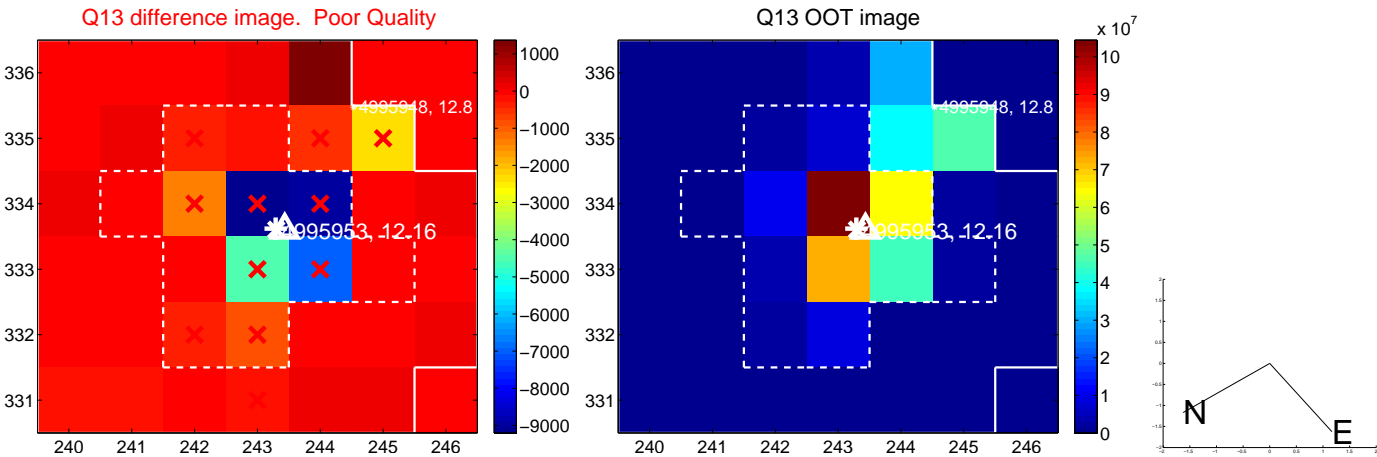
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



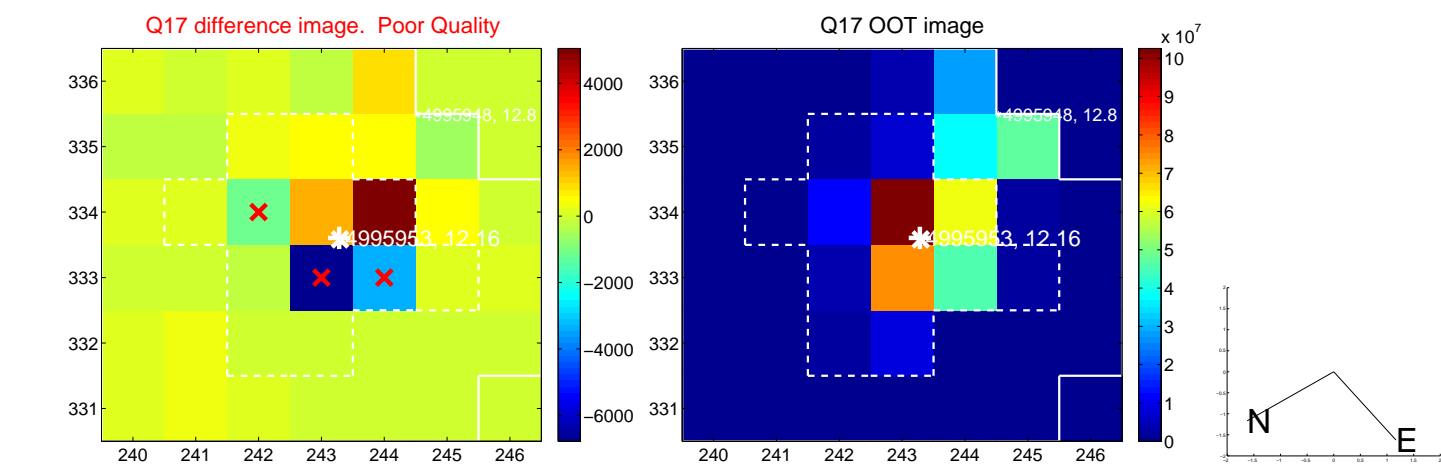
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



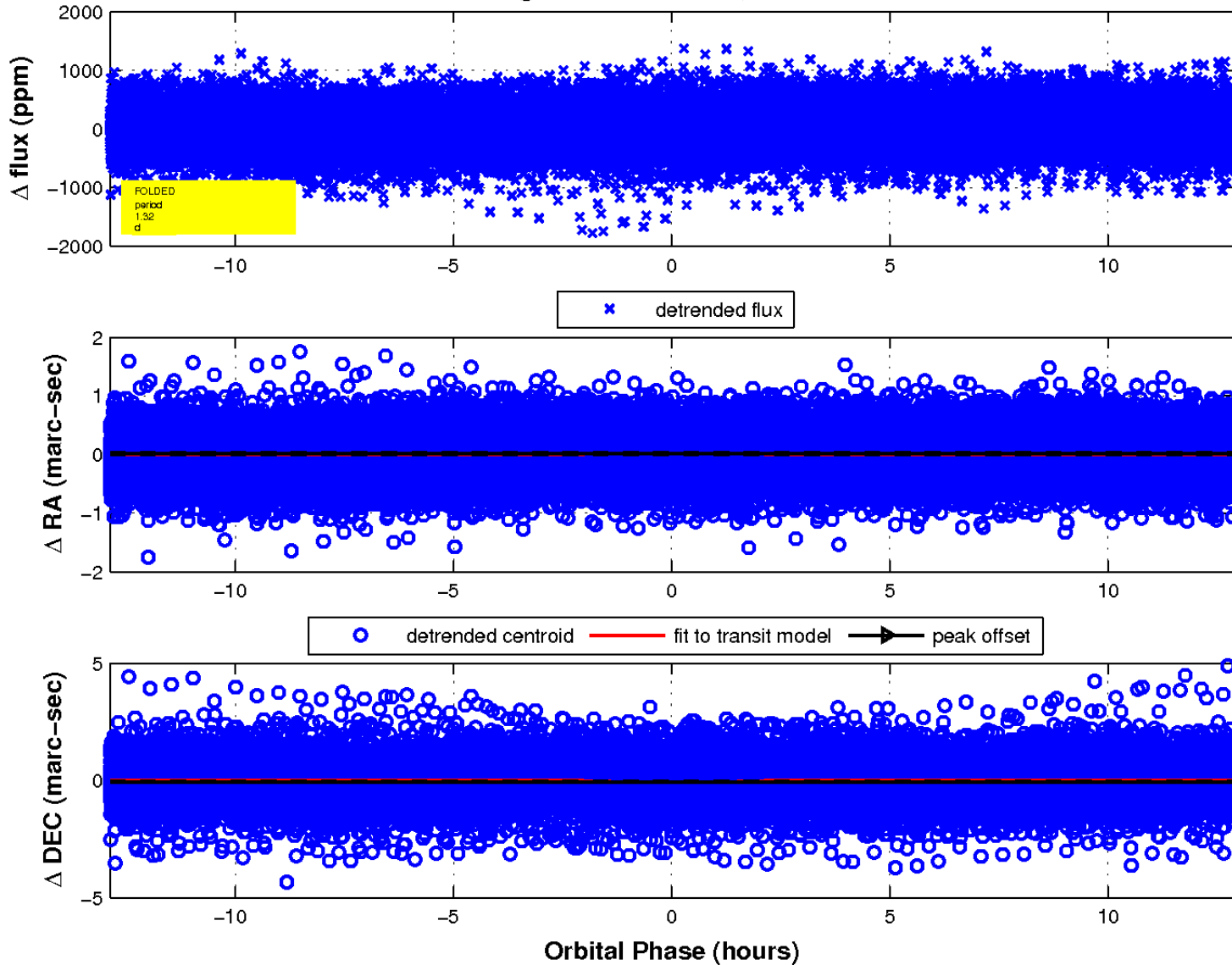
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

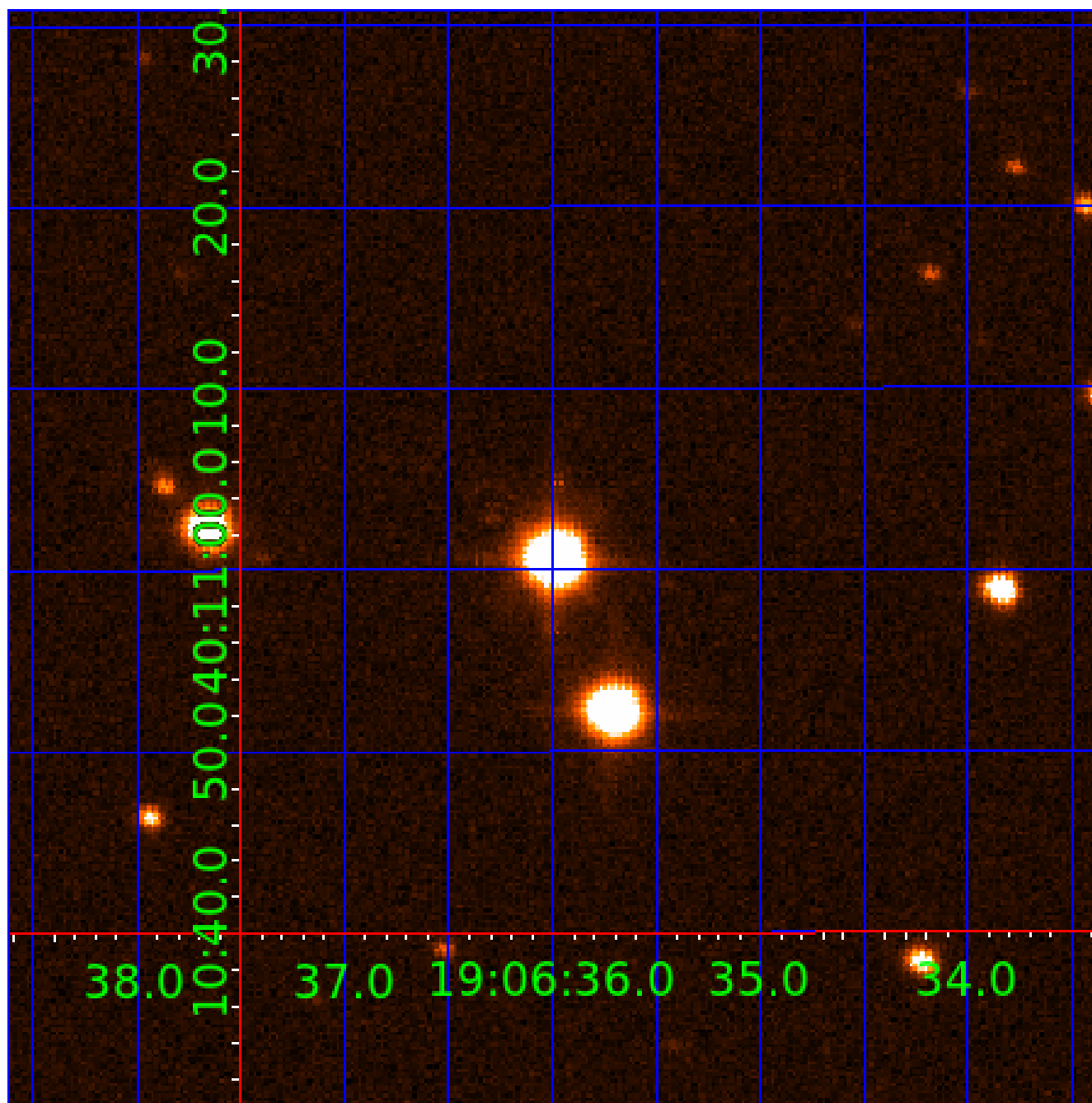


fluxWeightedCentroids, Planet 4 of 5



UKIRT Image

Declination



KIC 004995953

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})
004995953-01	OBS	No	2.651149	133.207682	25.2	6.855	8.9	5.6	2.09	6703	1.22	4361.43
004995953-02	OBS	No	511.745454	243.857778	825.8	10.056	18.9	10.0	2.09	6703	7.48	3.91
004995953-03	OBS	No	526.380671	215.948054	589.8	18.095	12.1	8.3	2.09	6703	5.51	3.77
004995953-04	OBS	No	1.324696	131.726704	22.4	4.288	8.0	5.9	2.09	6703	1.15	10999.82
004995953-05	OBS	No	2.650531	132.610811	135.0	7.554	11.0	14.2	2.09	6703	2.83	4362.78

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
004995953-01	OBS	FP	0.00	1	0	0	0	LPP_DV—MOD_NONUNIQ_DV
004995953-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_CHASES_MARSHALL—LPP_DV—LPP_ALT—INCONSISTENT_TRANS—CENT_FEW_DIFFS
004995953-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL—ALL_TRANS_CHASES—INCONSISTENT_TRANS—CENT_FEW_DIFFS
004995953-04	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT
004995953-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_SKYE_ZUMA—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_ALT—SAME_NTL_PERIOD

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

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

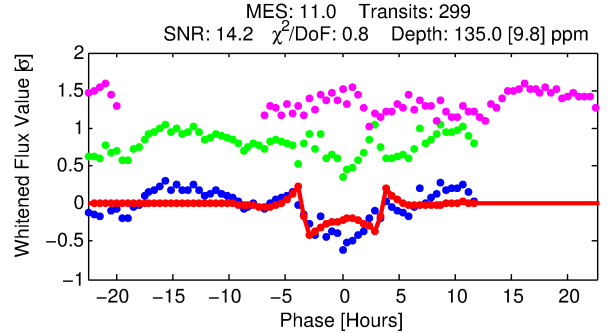
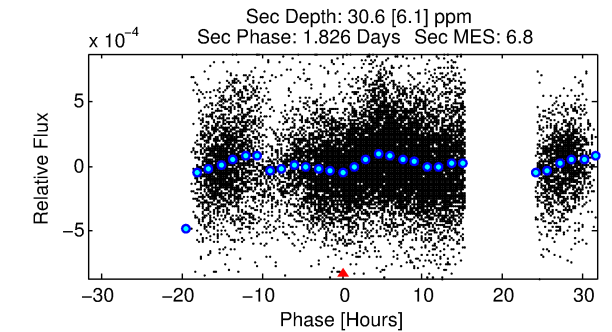
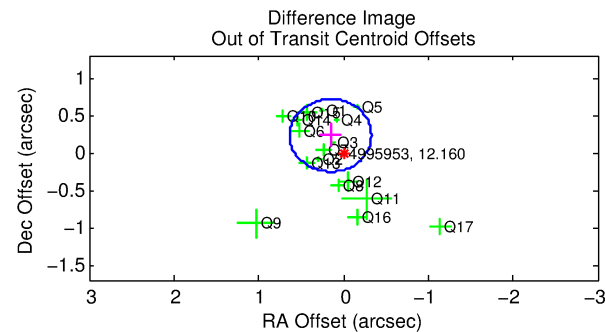
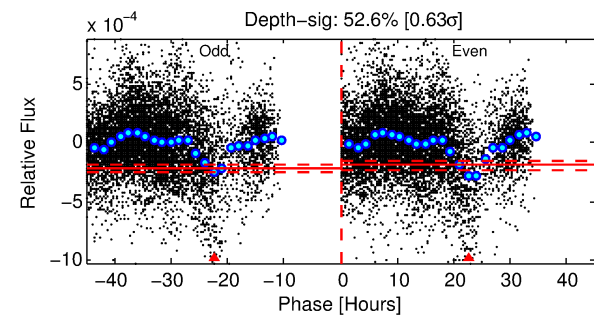
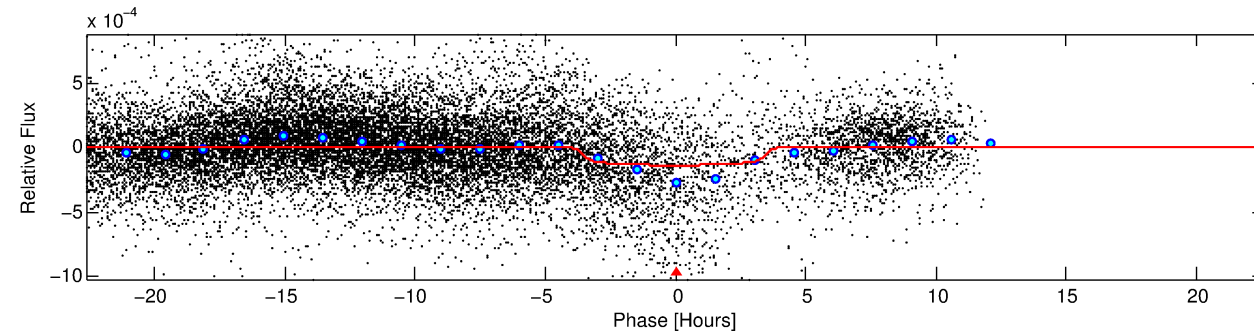
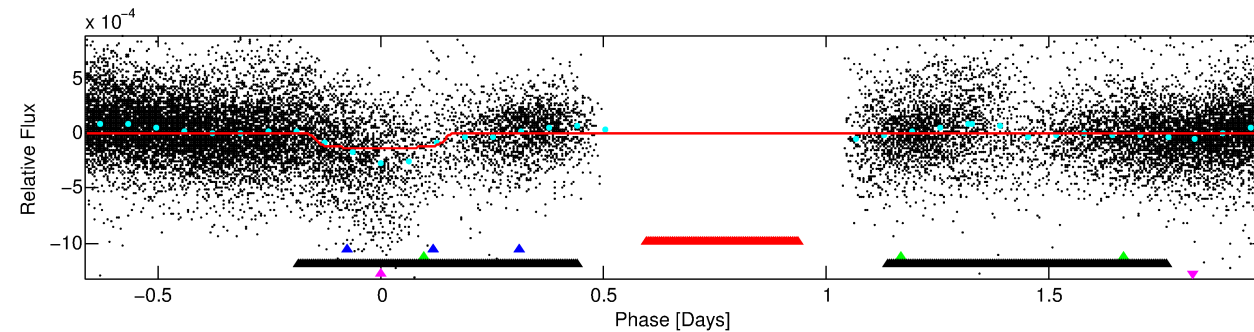
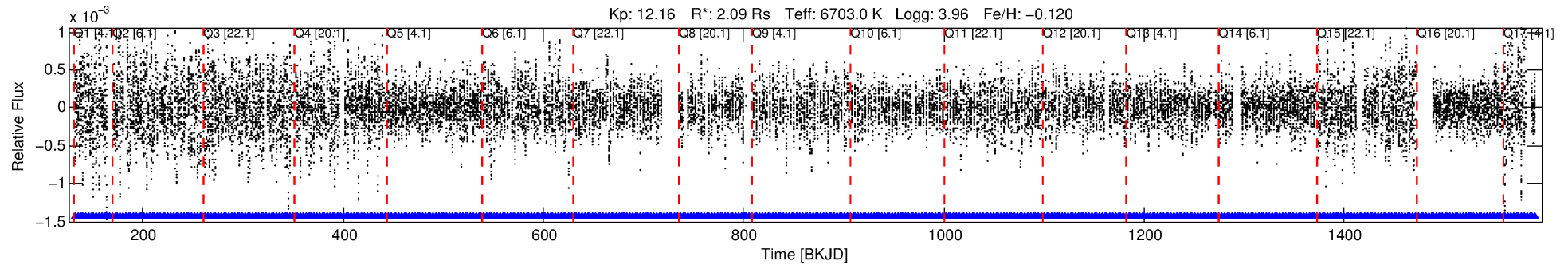
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 004995953-05

No Significant Match Found

DV One-Page Summary

KIC: 4995953 Candidate: 5 of 5 Period: 2.651 d



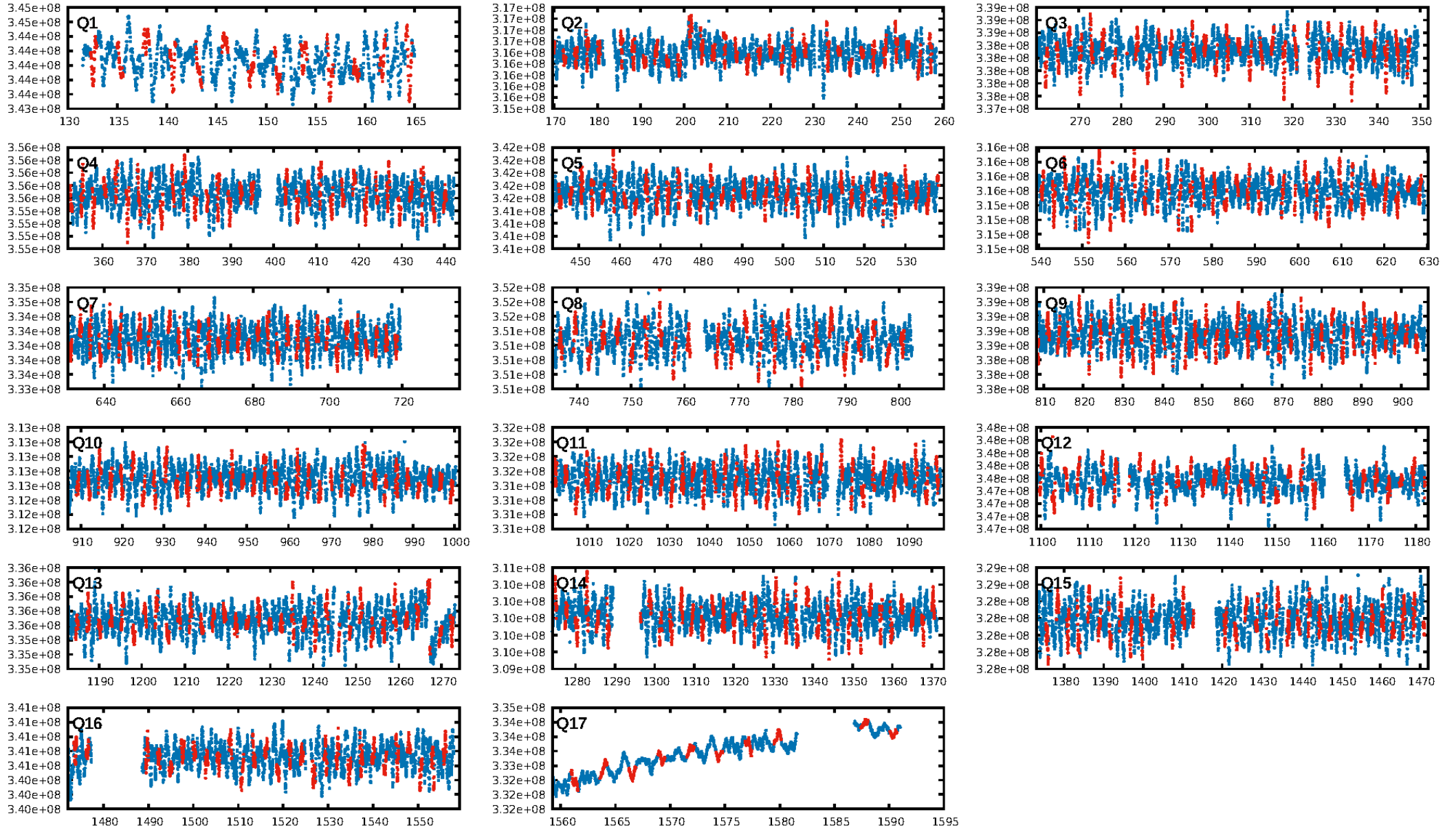
DV Fit Results:

Period = 2.65053 [0.00001] d
Epoch = 132.6108 [0.0028] BKJD
Rp/R* = 0.0124 [0.0008]
a/R* = 1.56 [0.27]
b = 0.90 [0.06]
Seff = 4362.78 [2349.56]
Teq = 2072 [279] K
Rp = 2.83 [1.02] Re
a = 0.0426 [0.0140] AU
Ag = 3.81 [2.17] [1.30 σ]
Teffp = 4478 [318] K [5.68 σ]

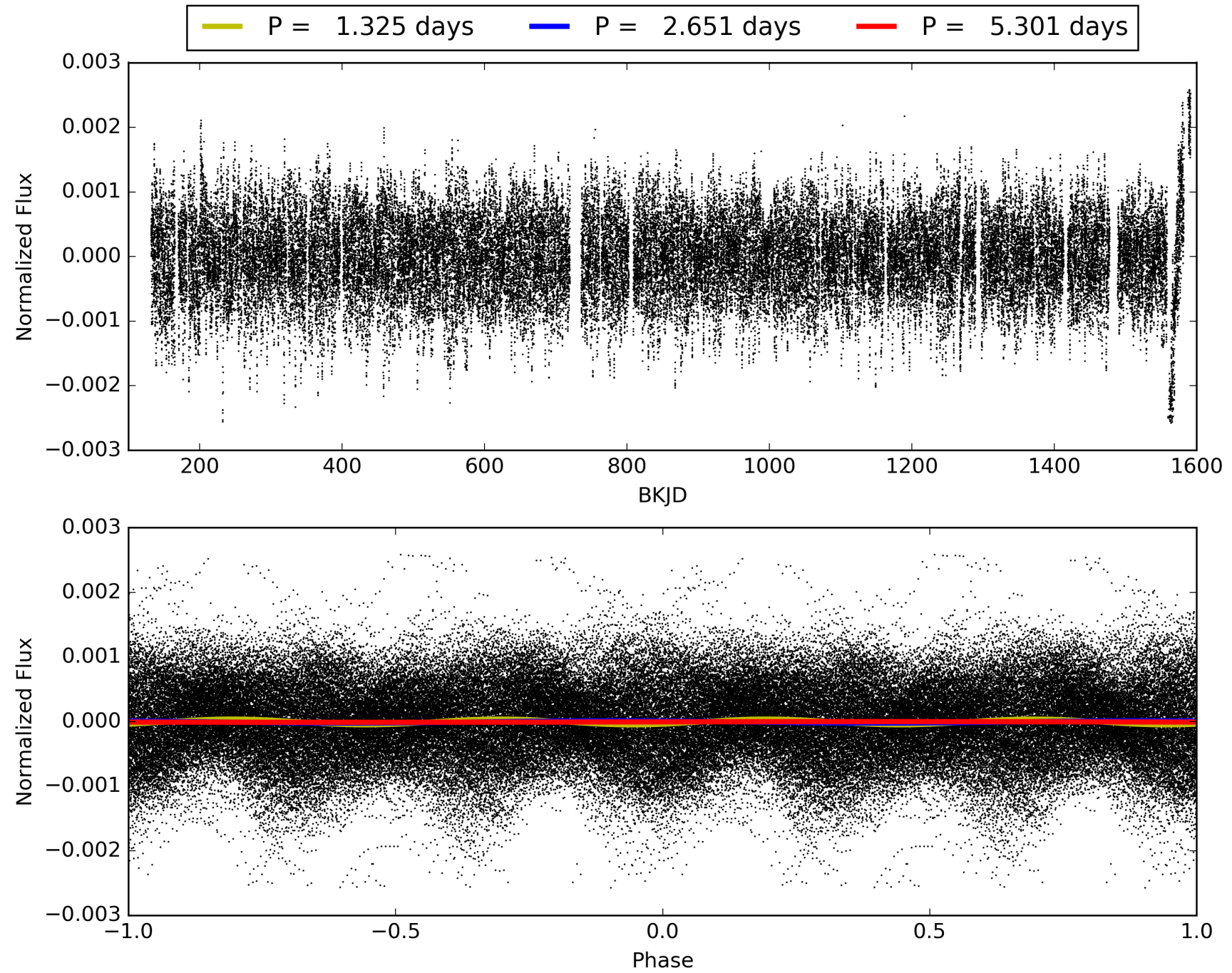
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [3.66 σ]
LongPeriod-sig: 0.1% [0.00 σ]
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: N/A
RollingBand-fgt: 1.00 [276/276]
GhostDiagnostic-chr: 1.072
Centroid-sig: 0.0%
Centroid-so: 1.358 arcsec [5.37 σ]
OotOffset-rm: 0.276 arcsec [1.71 σ]
KicOffset-rm: 0.191 arcsec [1.29 σ]
OotOffset-st: 4/4/4/5 [17]
KicOffset-st: 4/4/4/5 [17]
DiffImageQuality-fgm: 0.82 [14/17]
DiffImageOverlap-fno: 0.00 [0/17]

TCE 004995953-05, PDC Light Curves

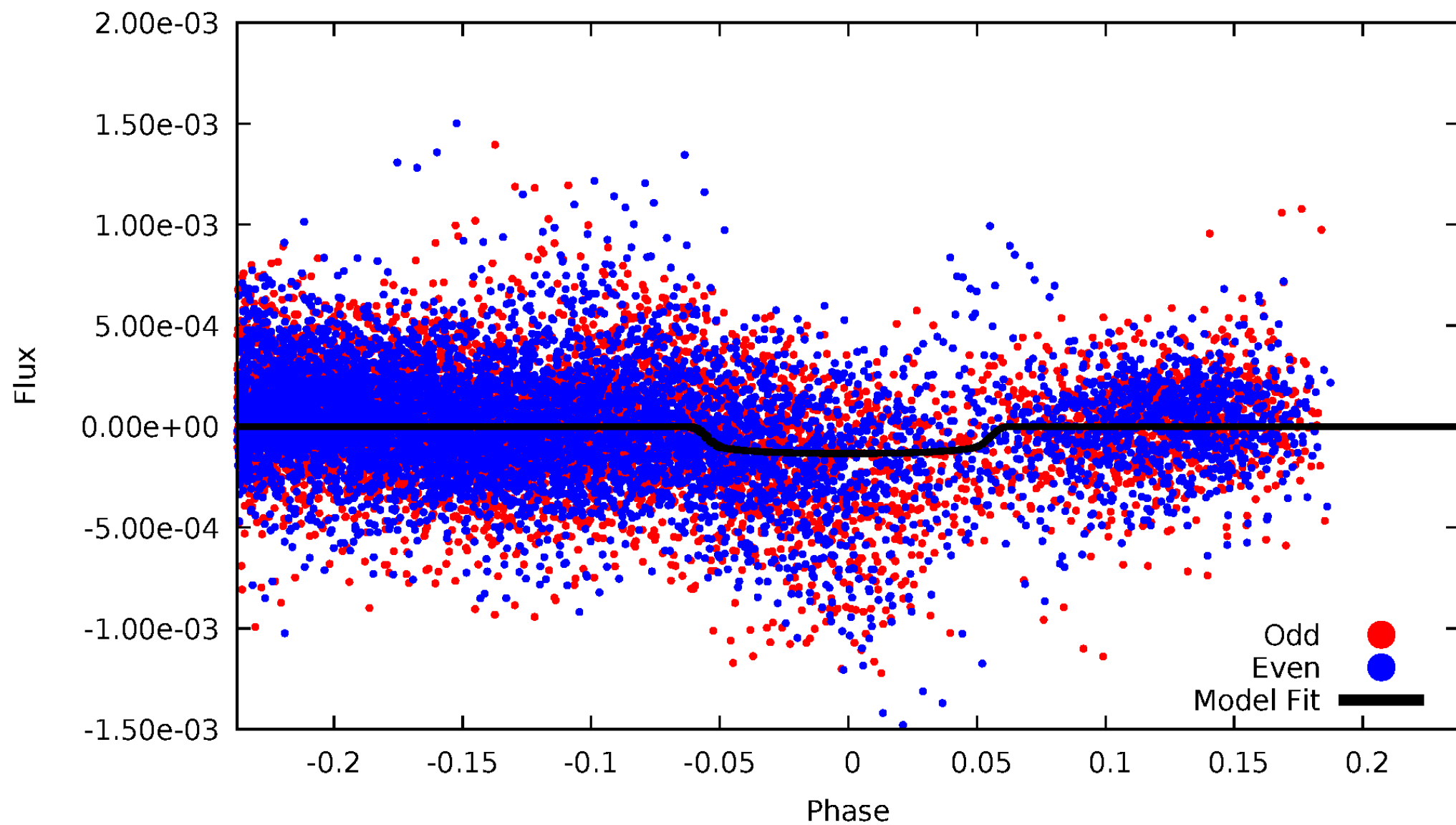


TCE 004995953-05



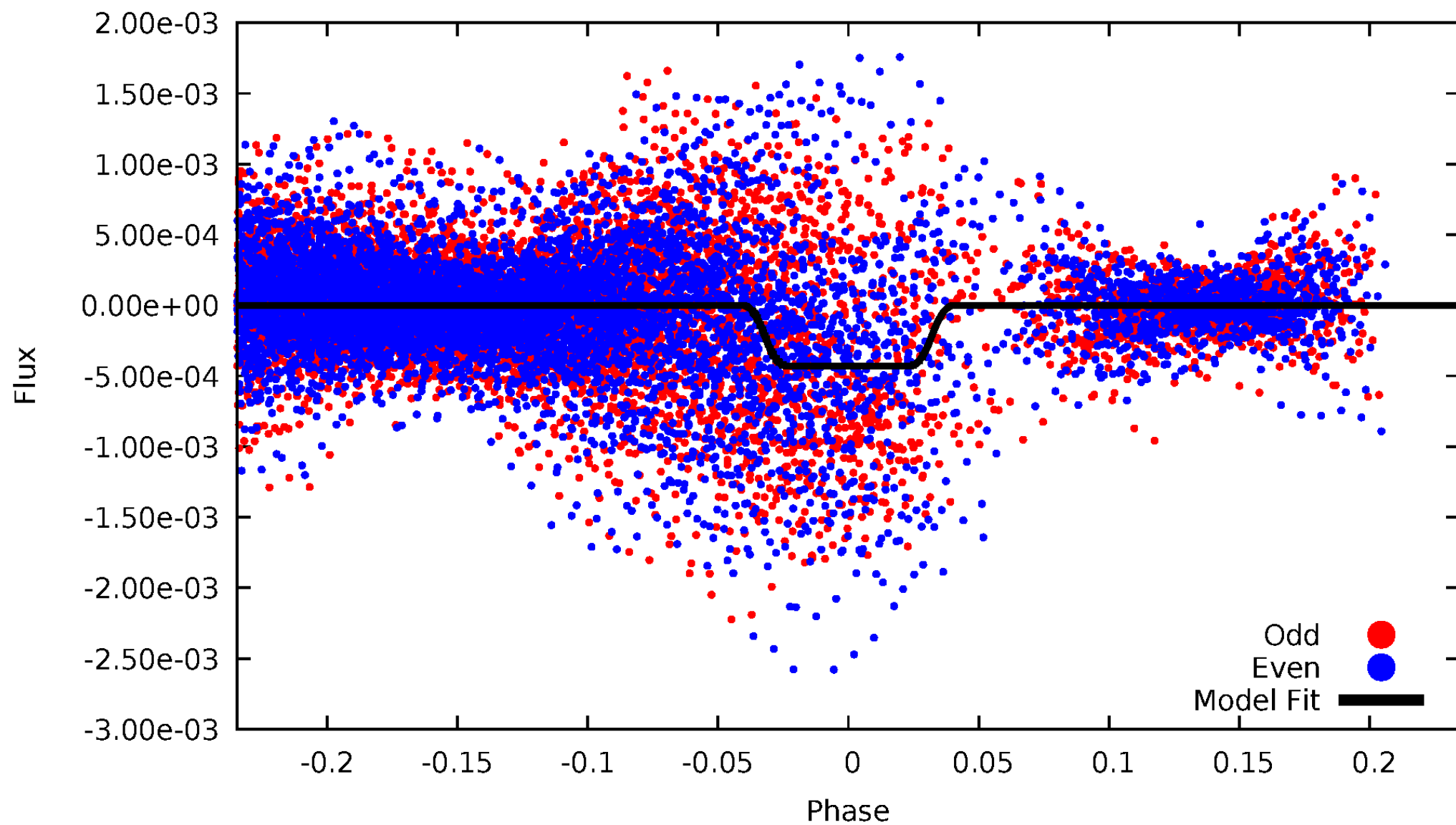
DV Odd/Even

TCE 004995953-05

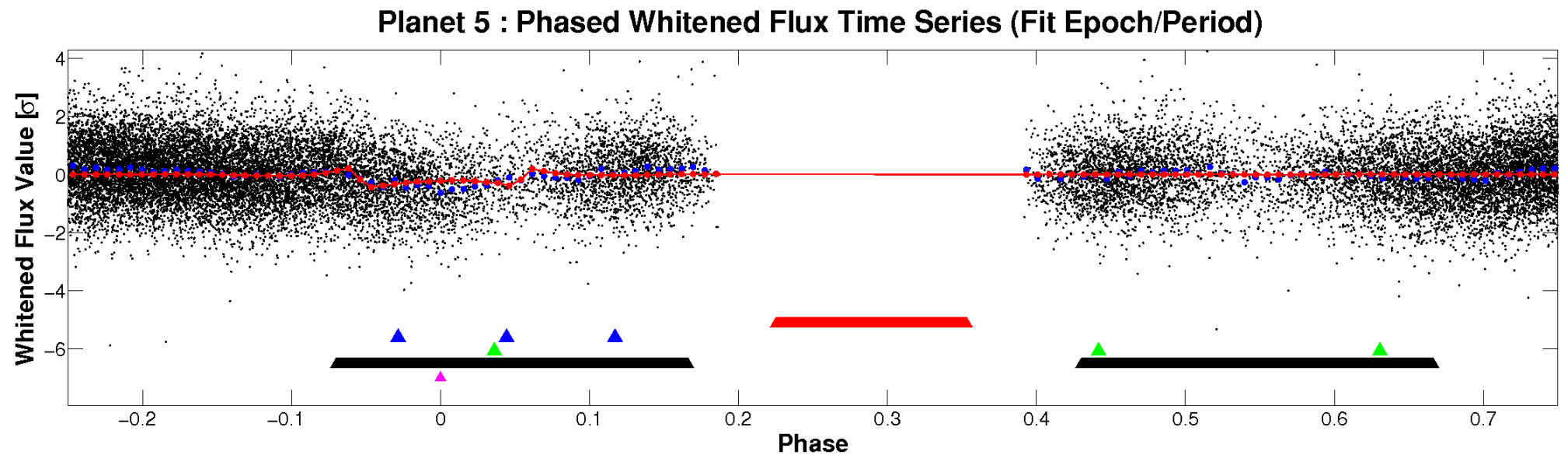
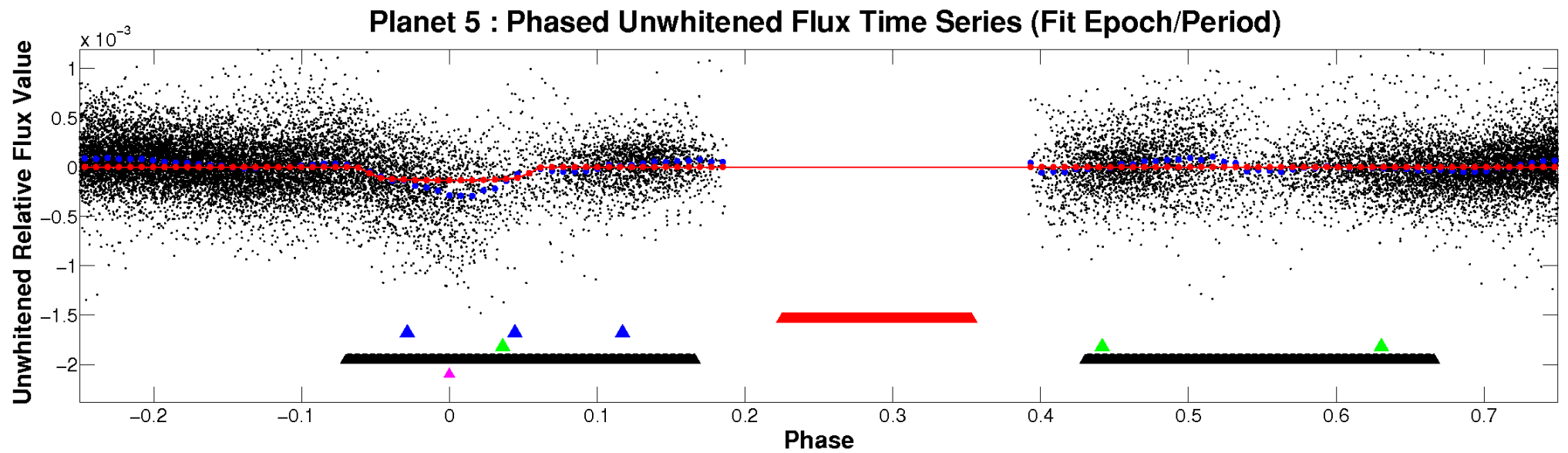


ALT Odd/Even

TCE 004995953-05

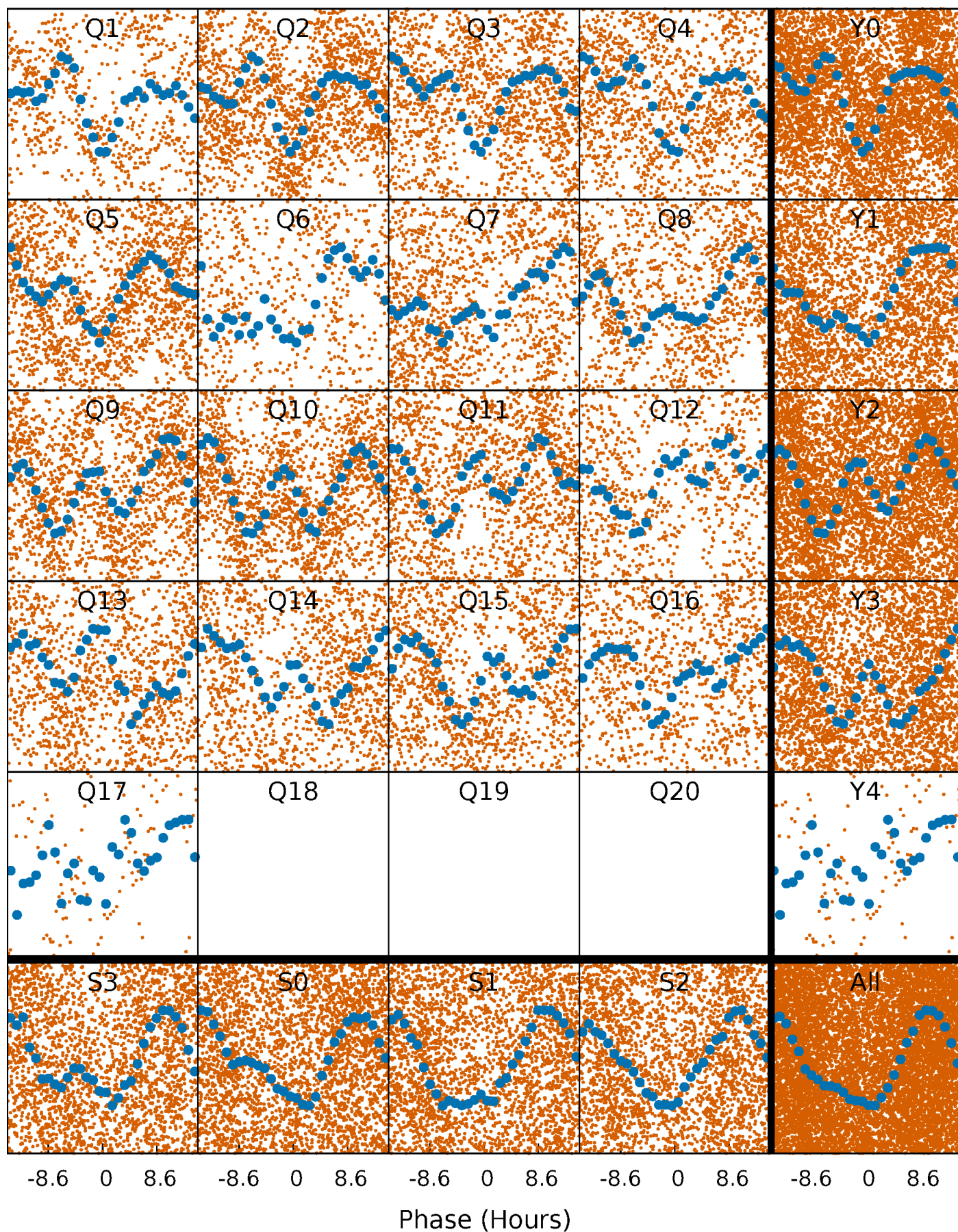


Non-Whitened Vs. Whitened Light Curve



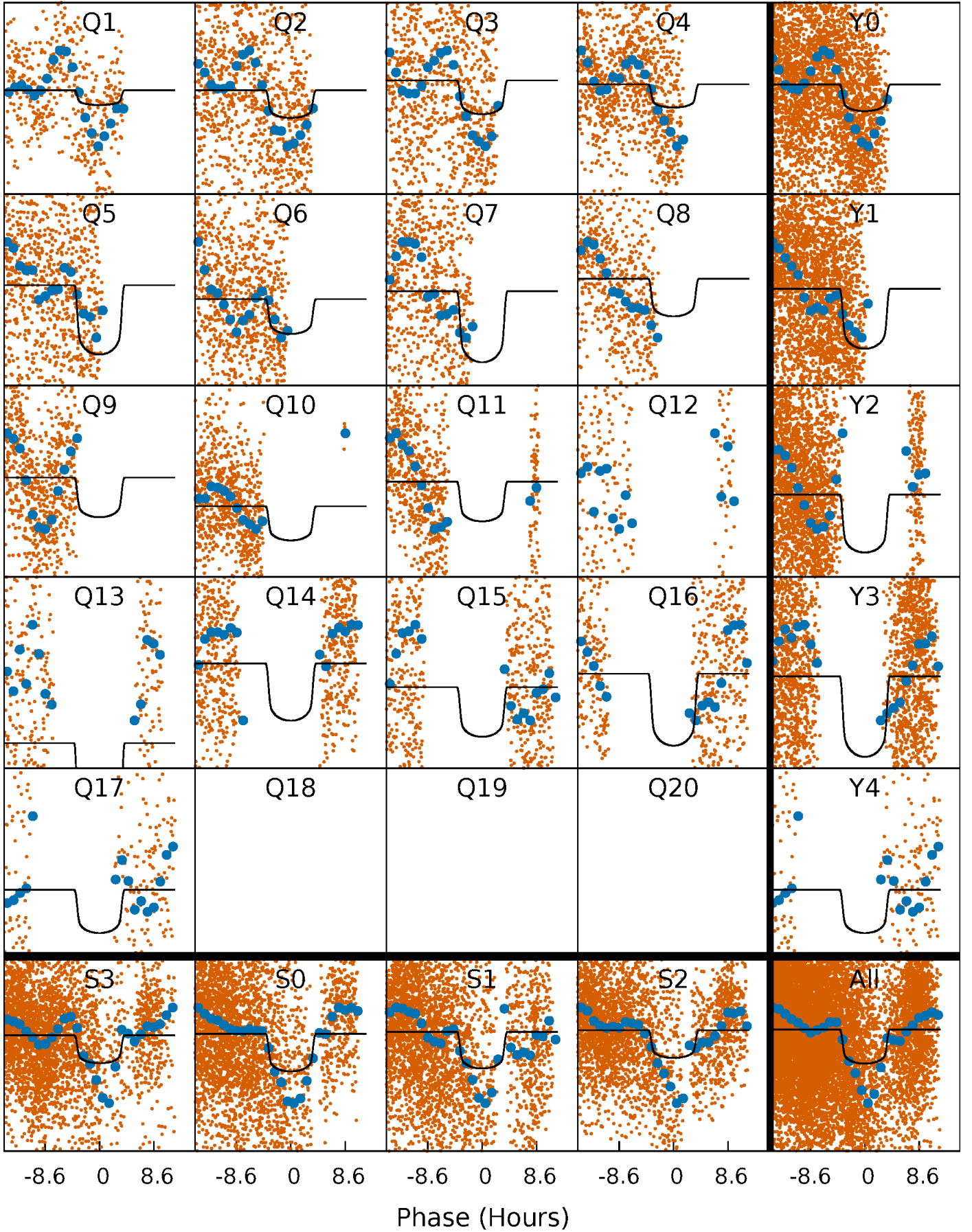
PDC Quarter-Phased Transit Curves

TCE 004995953-05 P= 2.650531 Days $T_0=132.610811$ (BKJD)



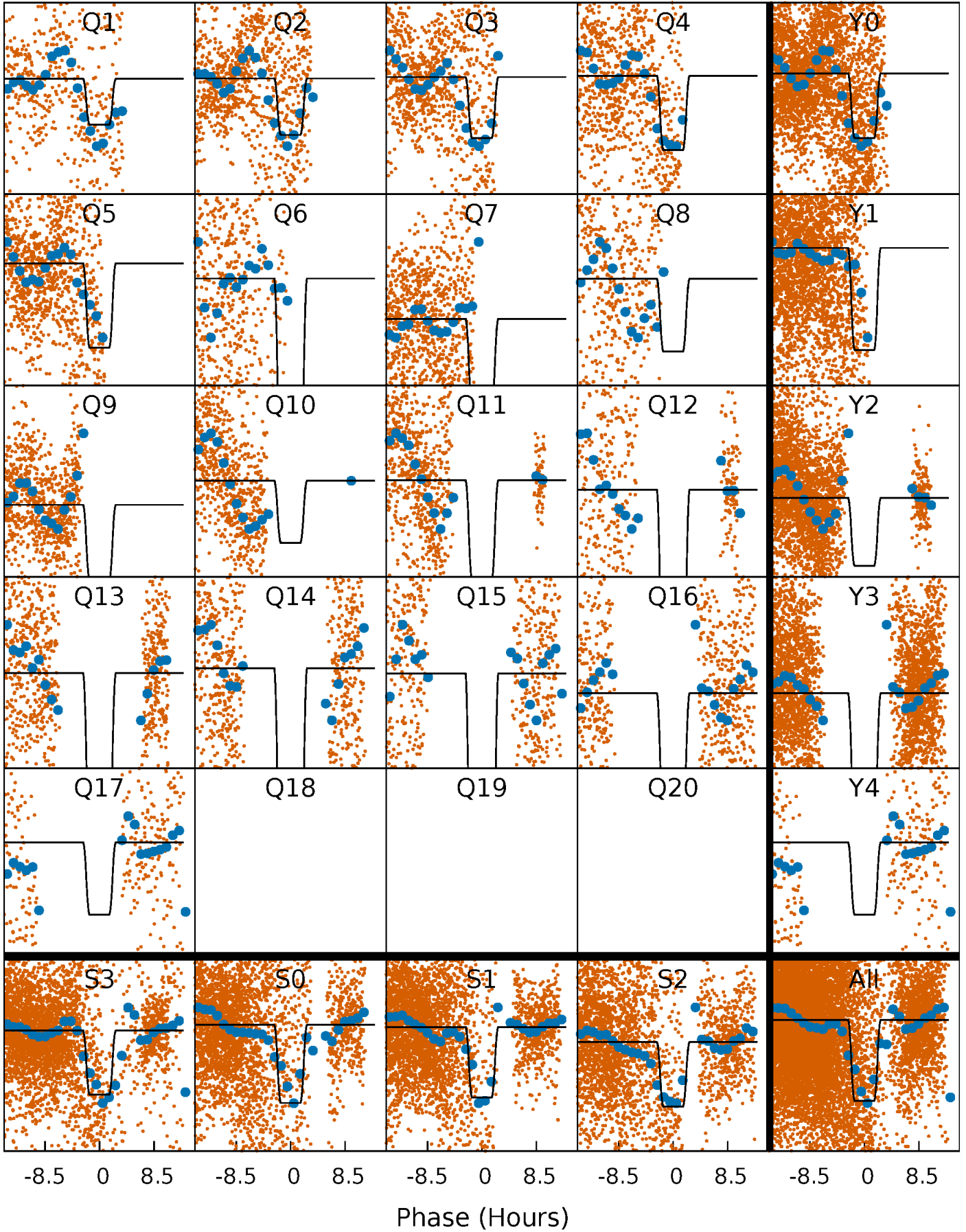
DV Quarter-Phased Transit Curves

TCE 004995953-05 P= 2.650531 Days $T_0=132.610811$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

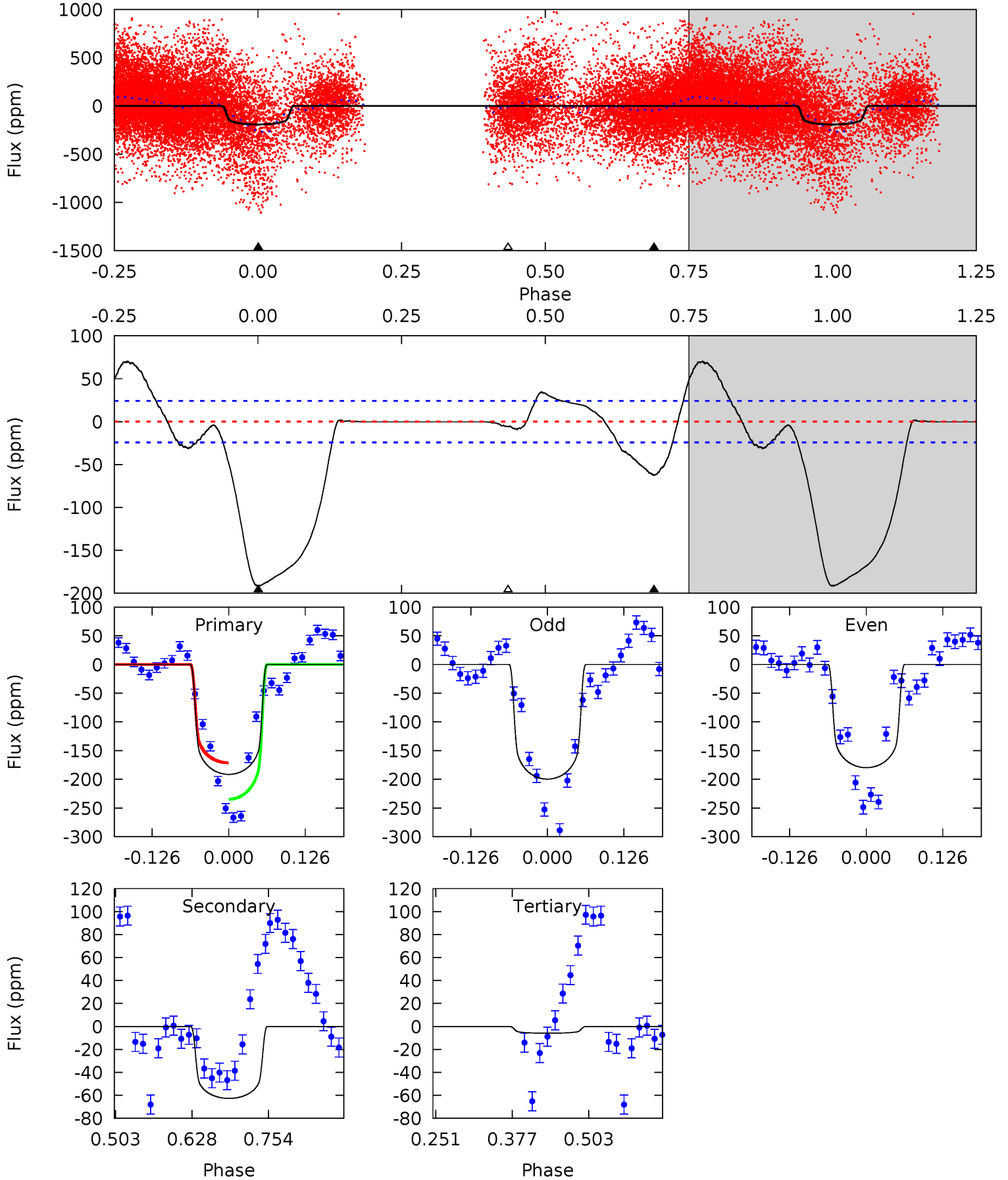
TCE 004995953-05 P= 2.650439 Days $T_0=132.612523$ (BKJD)



DV Model-Shift Uniqueness Test

004995953-05, P = 2.650531 Days, E = 129.960280 Days

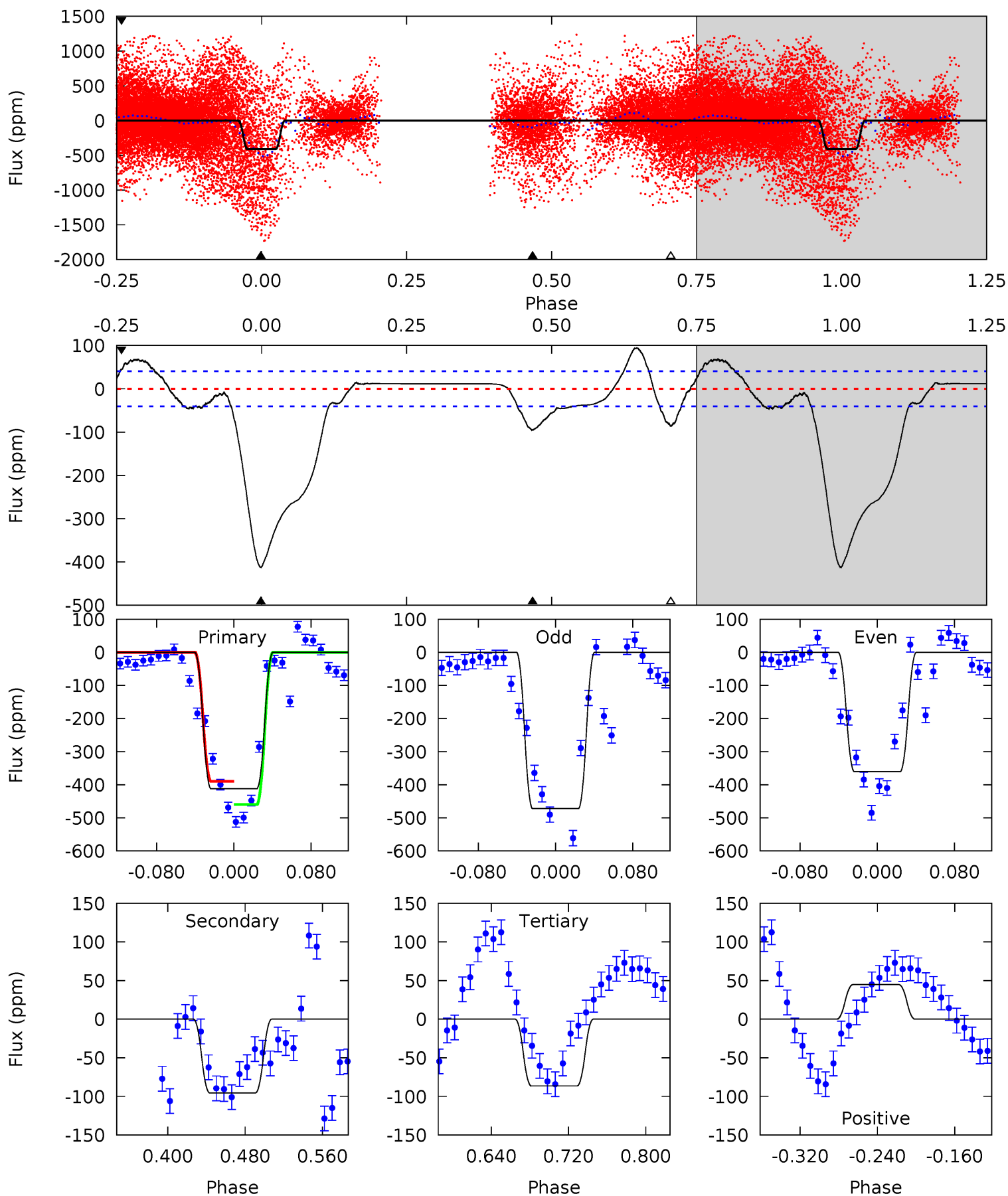
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
35.7	11.7	1.11	0	4.52	1.53	3.43	34.6	35.7	10.6	11.7	1.87	0.95	0.27	6.08



Alt Model-Shift Uniqueness Test

004995953-05, P = 2.650439 Days, E = 129.962084 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
46.8	10.8	9.81	5.08	4.61	1.75	5.76	37.0	41.7	1.02	5.74	6.42	0.90	0.19	4.30



Stellar Parameters For KIC 004995953

	$T_{\text{eff}} (K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R (R_{\odot})$	$M (M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	6703^{+187}_{-258}	$3.963^{+0.299}_{-0.161}$	$-0.120^{+0.300}_{-0.300}$	$2.091^{+0.605}_{-0.740}$	$1.465^{+0.219}_{-0.328}$	$0.226^{+0.501}_{-0.107}$
	+3%/-4%	+8%/-4%	+250%/-250%	+29%/-35%	+15%/-22%	+222%/-47%
Source	PHO54	PHO54	PHO54	DSEP		

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

Secondary Eclipse Parameters for KIC 004995953-05 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-63 ± 5	$2.81^{+0.48}_{-0.53}$	2875^{+227}_{-249}	5321^{+252}_{-261}	$7.885^{+3.825}_{-2.062}$
Alt.	-95 ± 9	$4.64^{+0.82}_{-0.91}$	2848^{+256}_{-260}	4645^{+159}_{-168}	$4.413^{+2.230}_{-1.190}$

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

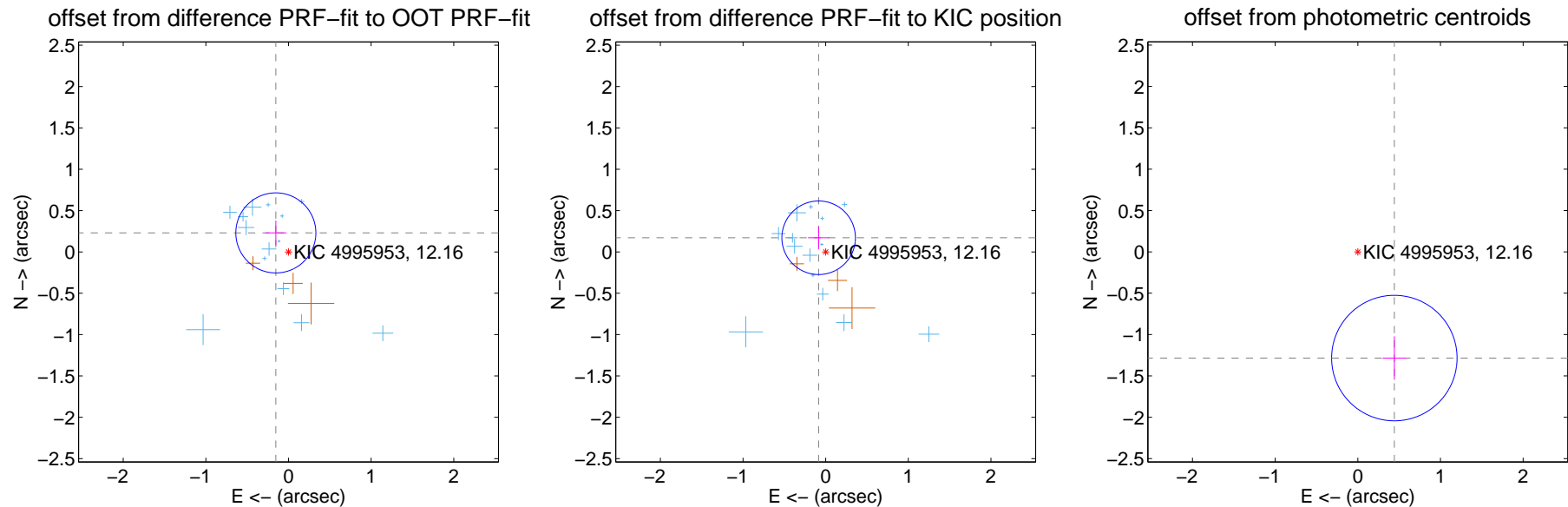
DV Centroid Data

Supplemental centroid analysis for 004995953-05. Kepler magnitude: 12.16. Transit SNR 14.18

There are 14 quarters with good PRF difference image offsets

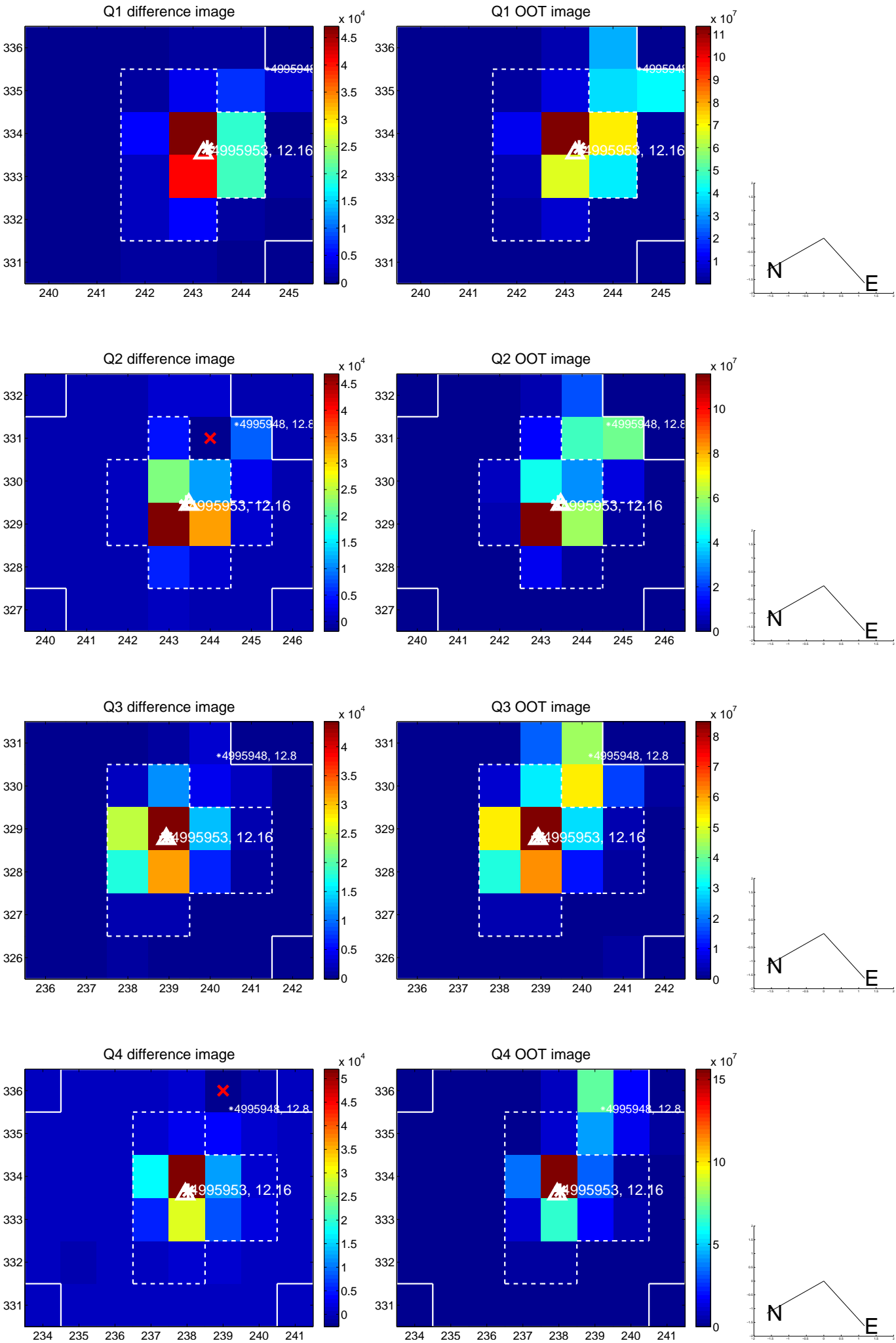
The direct PRF centroid is offset from the target star catalog position by about 0.11 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.276 ± 0.161	1.71	0.153 ± 0.128	0.230 ± 0.149
PRF-fit source offset from KIC position	0.191 ± 0.148	1.29	0.085 ± 0.128	0.171 ± 0.138
photometric centroid source offset	1.36 ± 0.25	5.37	-0.44 ± 0.14	-1.28 ± 0.26

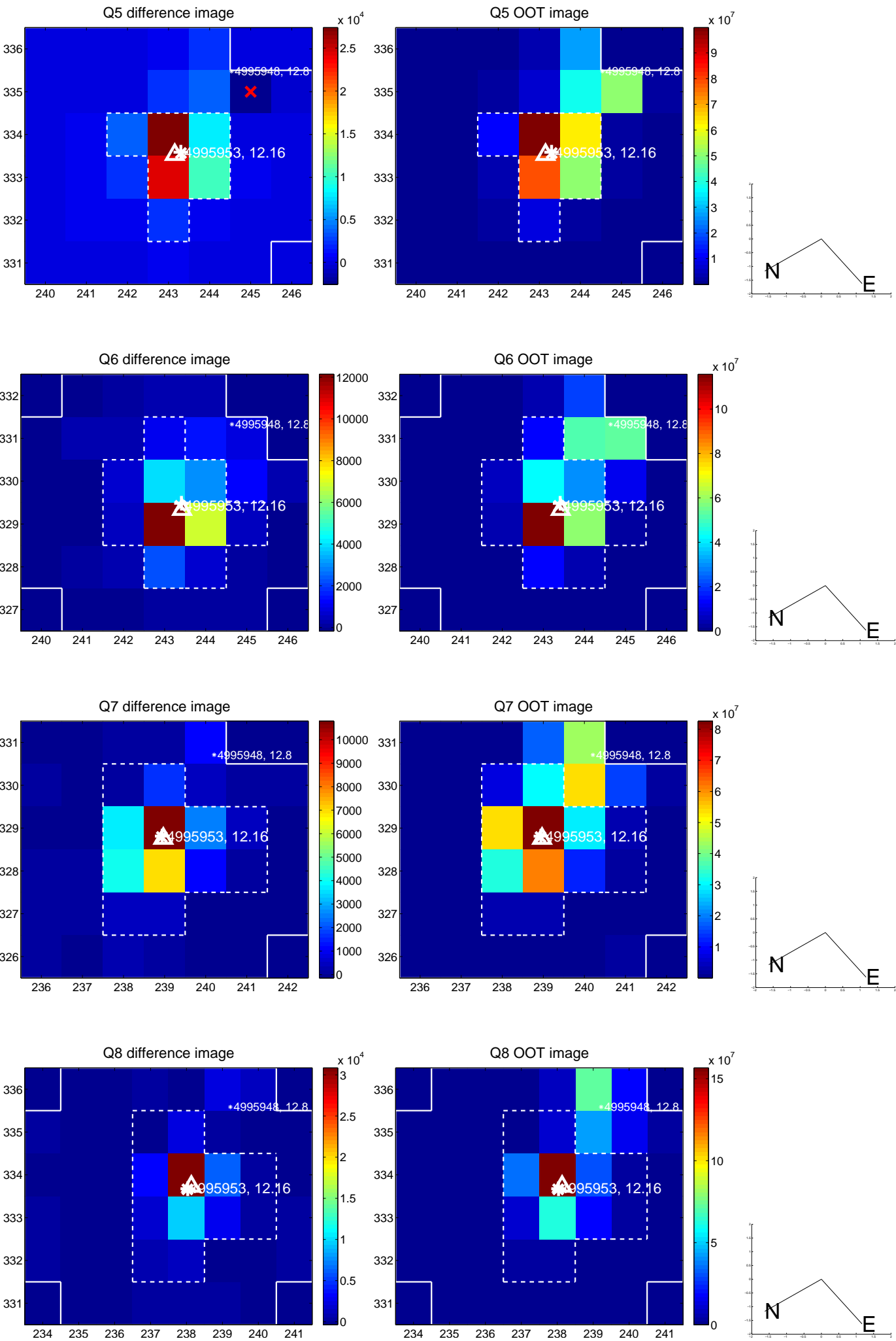


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses:** good quarterly centroid offsets; **Vermillion crosses:** bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

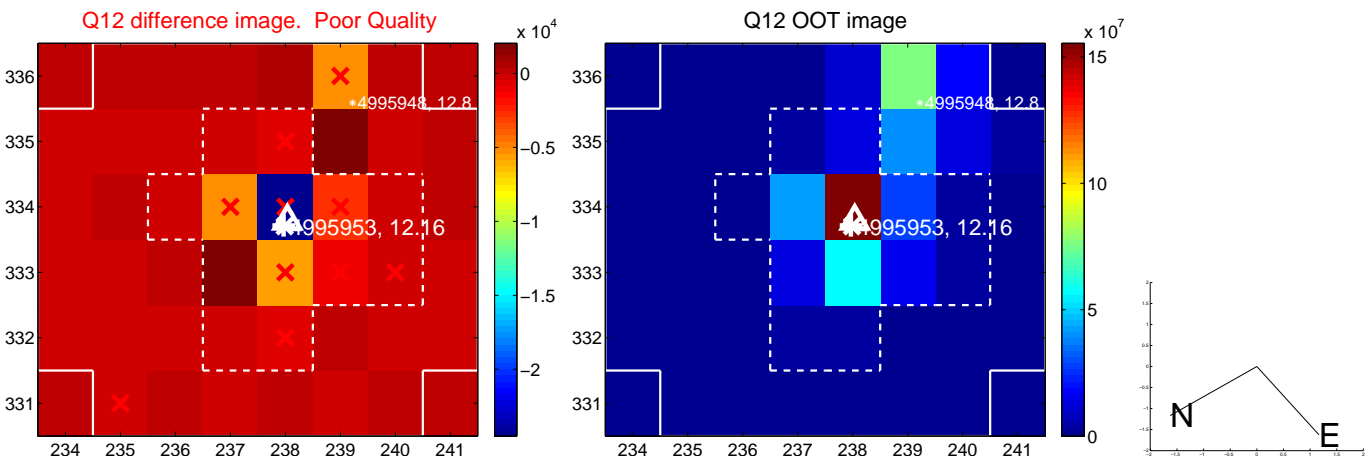
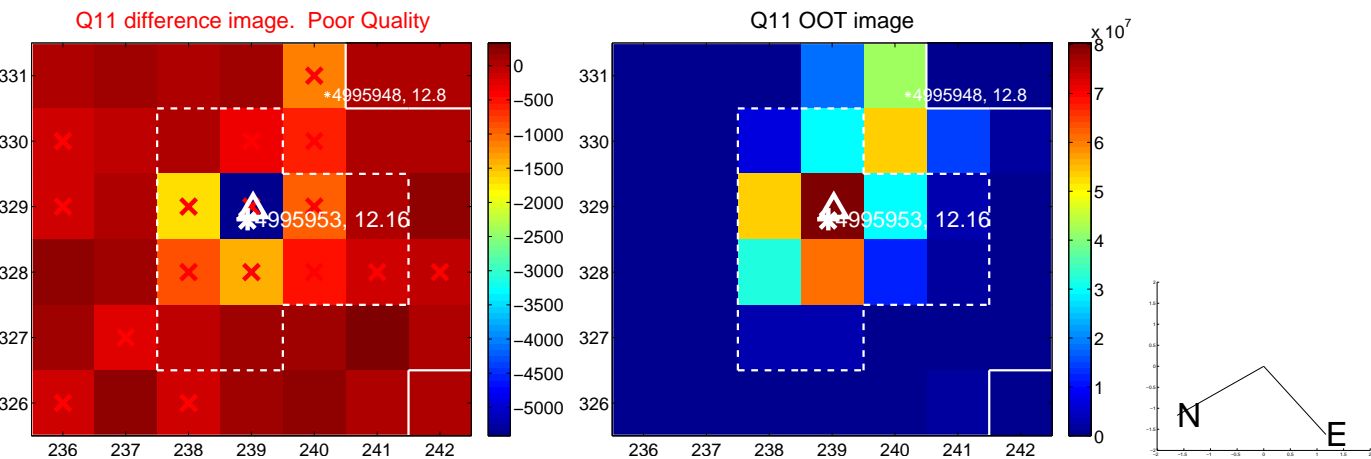
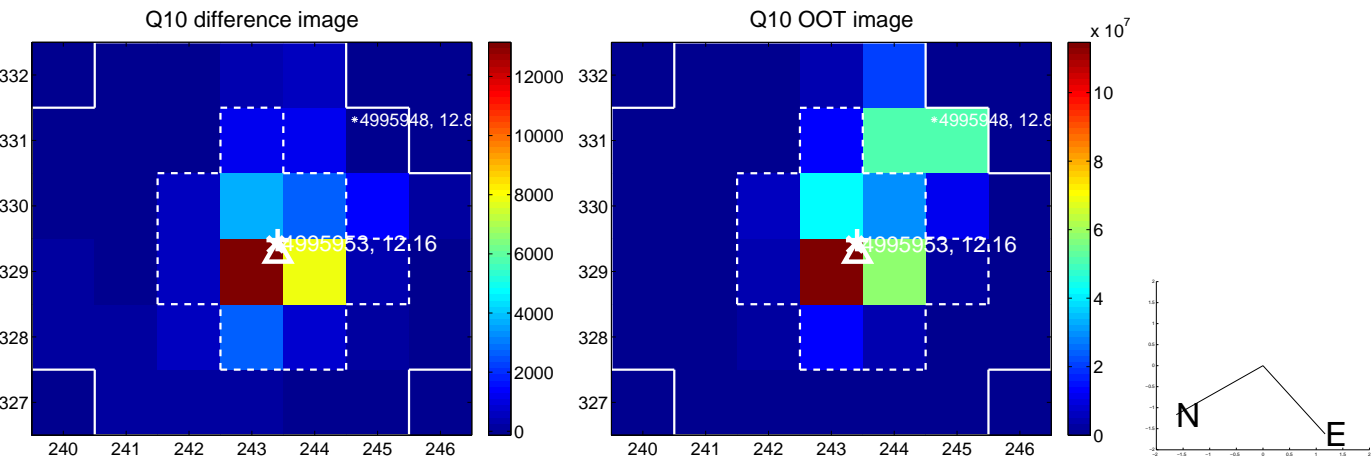
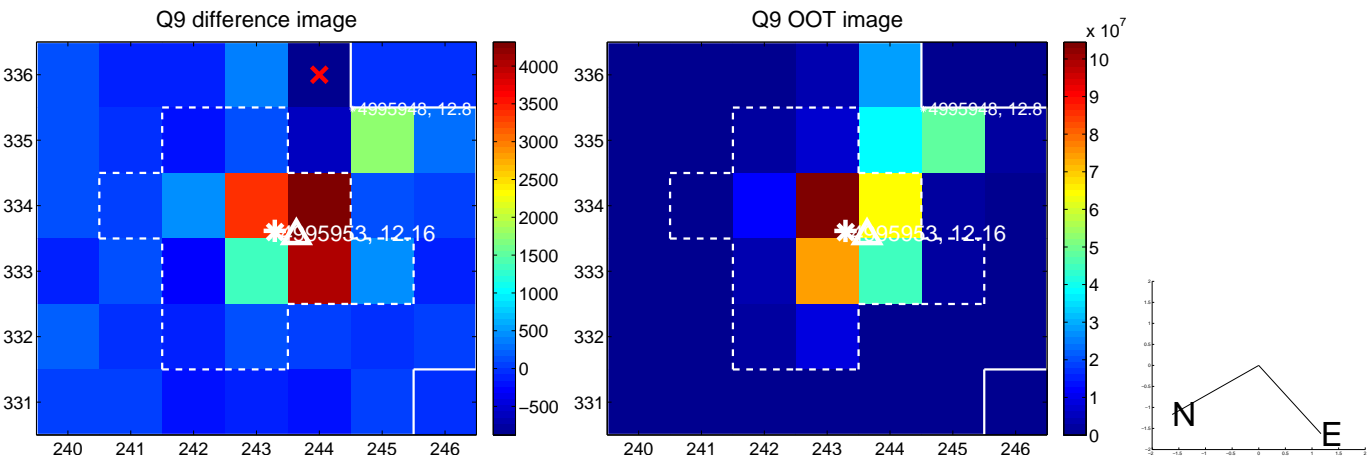
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



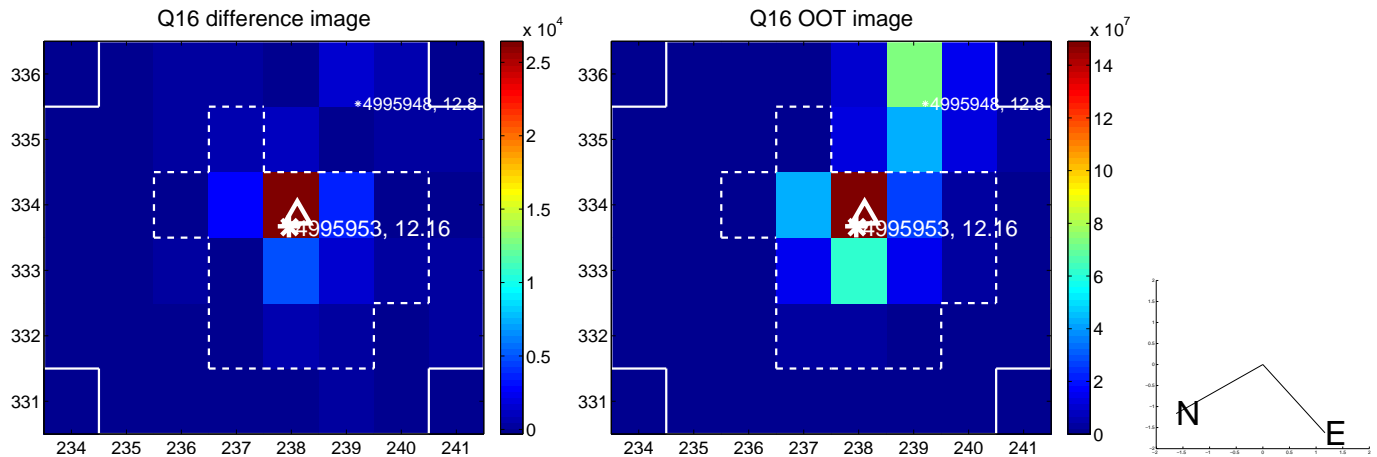
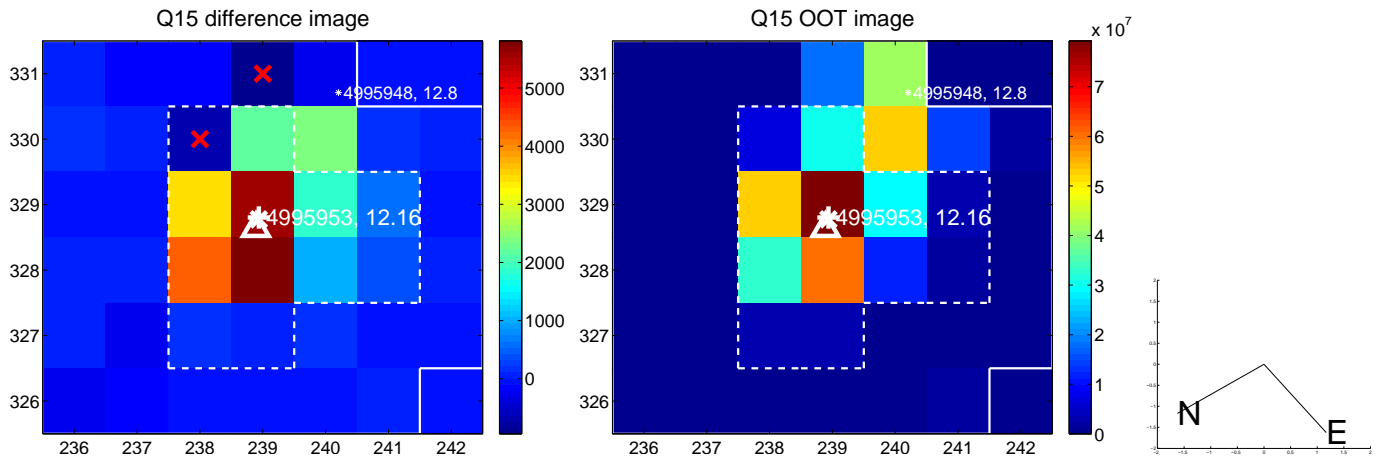
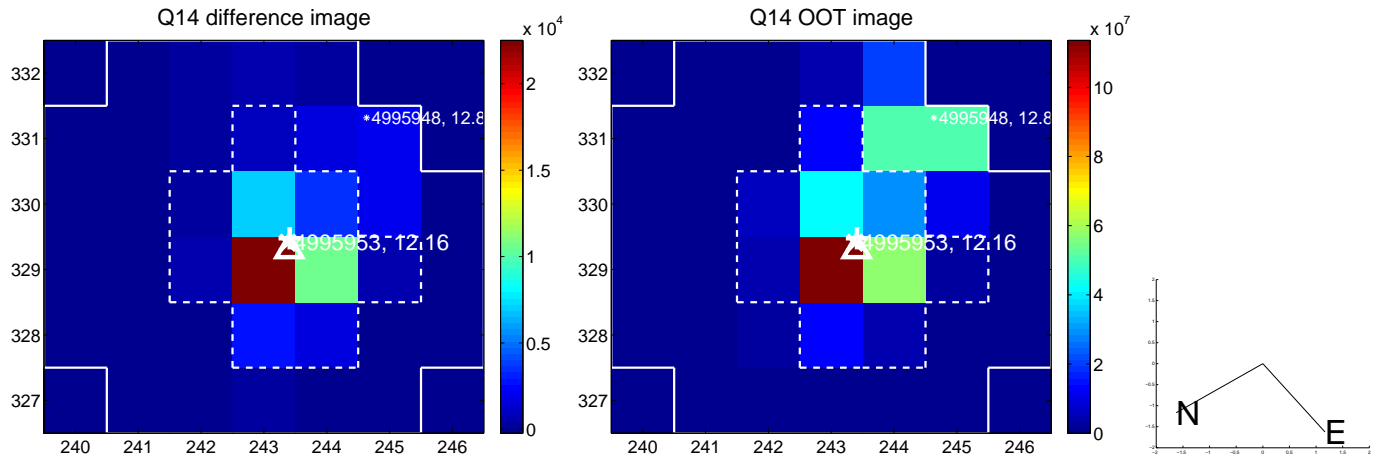
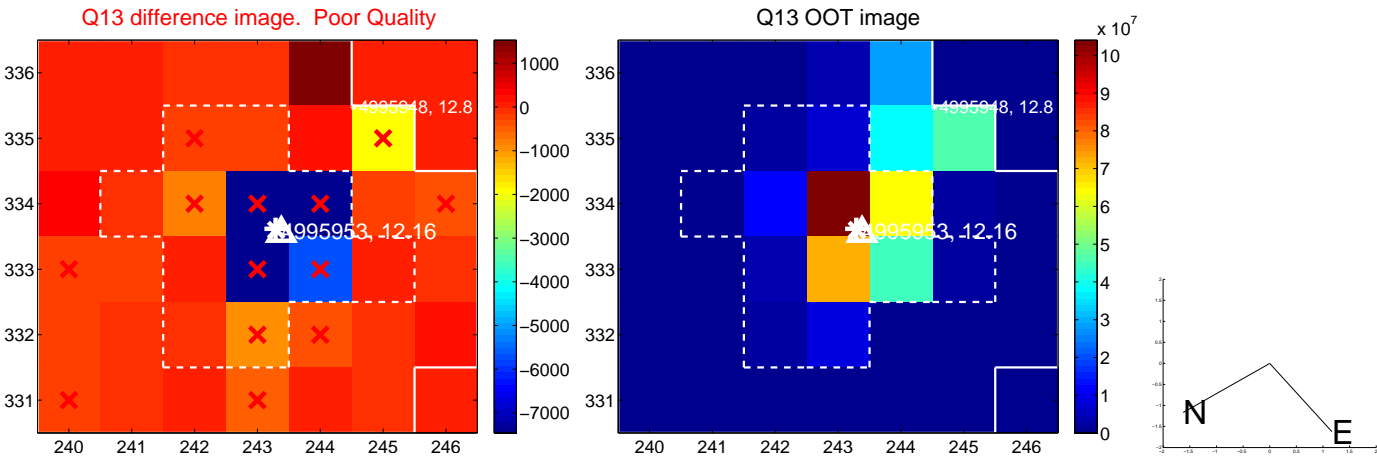
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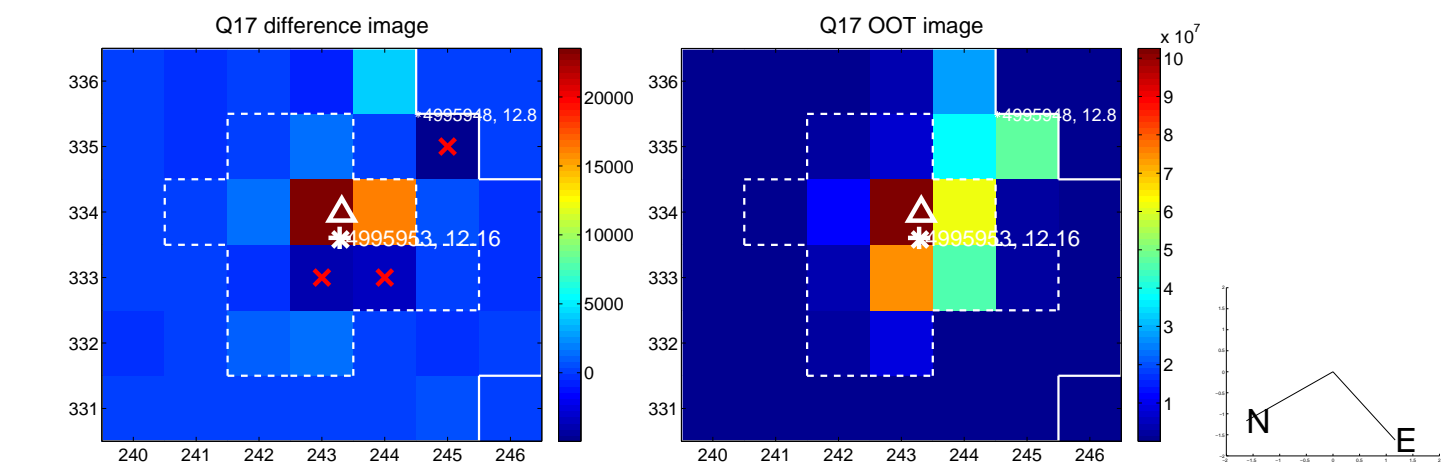
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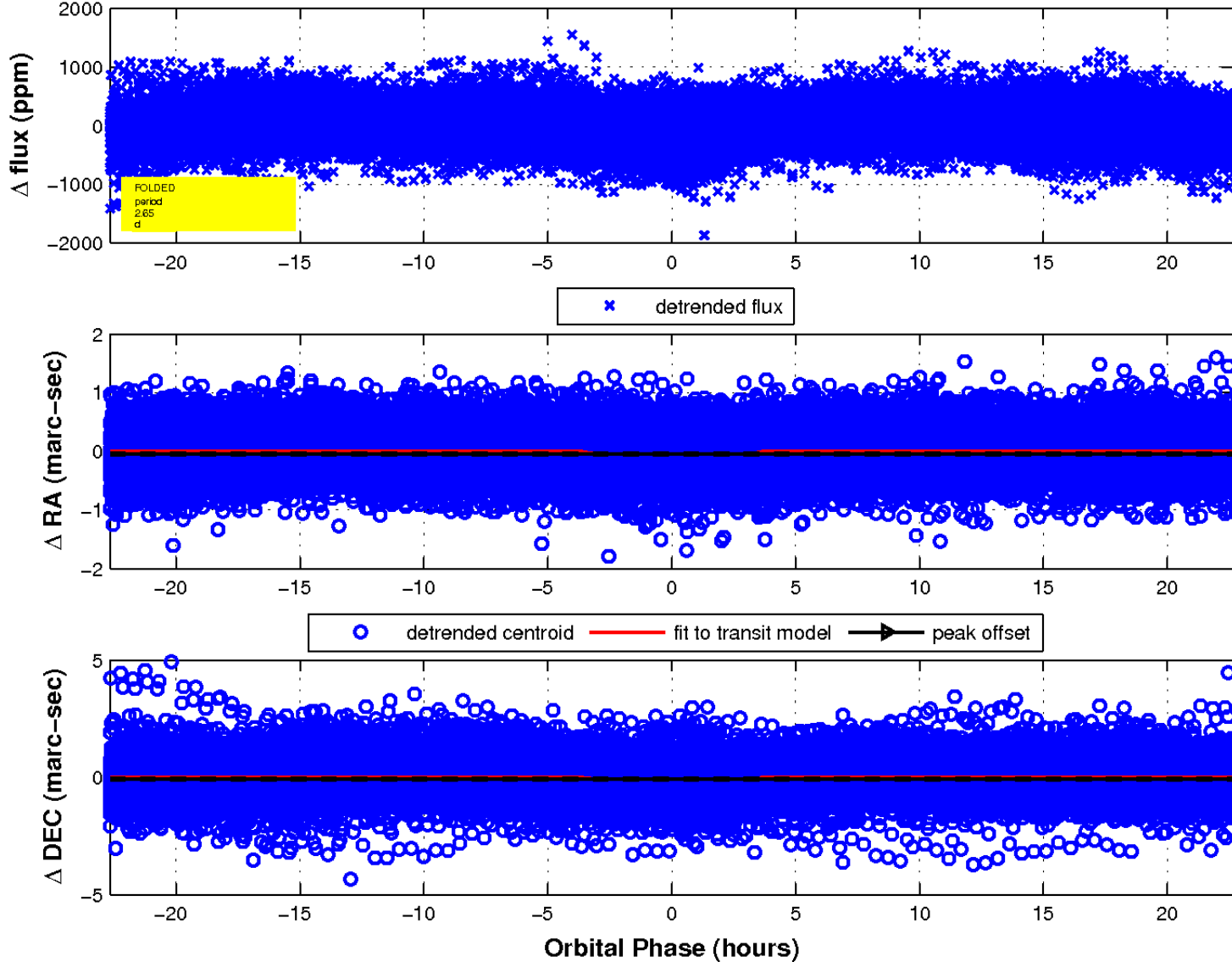
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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



fluxWeightedCentroids, Planet 5 of 5



UKIRT Image

Declination

