

KIC 003633545

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})
003633545-01	OBS	No	407.877975	278.081780	119.6	10.623	24.8	13.0	0.82	5313	0.95	0.49
003633545-02	OBS	No	486.334829	265.965747	1027.7	1.011	58.8	34.3	0.82	5313	2.88	0.39
003633545-03	OBS	No	226.154109	342.882432	56.7	1.261	45.7	3.2	0.82	5313	0.61	1.07
003633545-04	OBS	No	278.316403	370.285856	149.5	2.542	29.9	15.5	0.82	5313	1.09	0.81
003633545-05	OBS	No	310.886176	330.385547	6.4	2.024	62.9	0.6	0.82	5313	0.25	0.70

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
003633545-01	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_CHASES_MARSHALL_SKYE_ZUMA—LPP_DV—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_SATURATED
003633545-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL_TRACKER—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_SATURATED
003633545-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL_ZUMA_TRACKER—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_SATURATED
003633545-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_SATURATED
003633545-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL_TRACKER—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_SATURATED

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

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

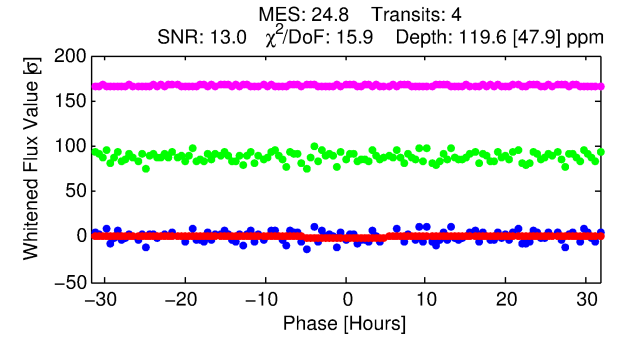
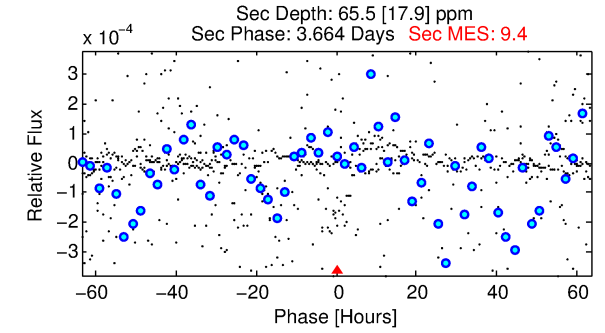
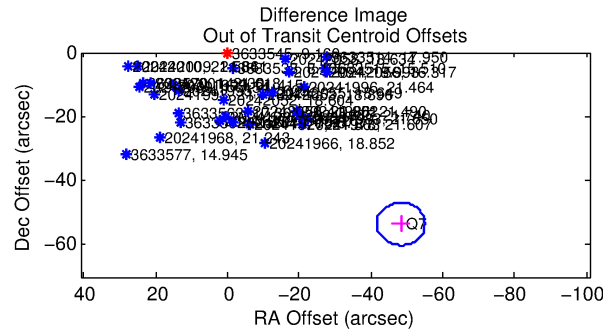
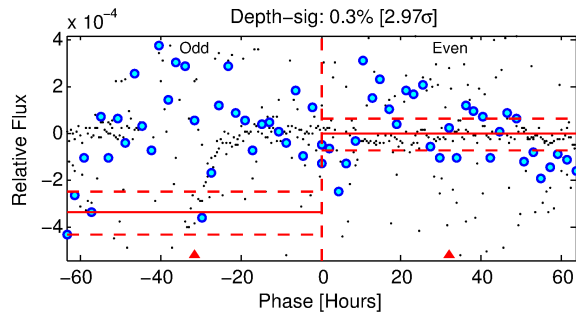
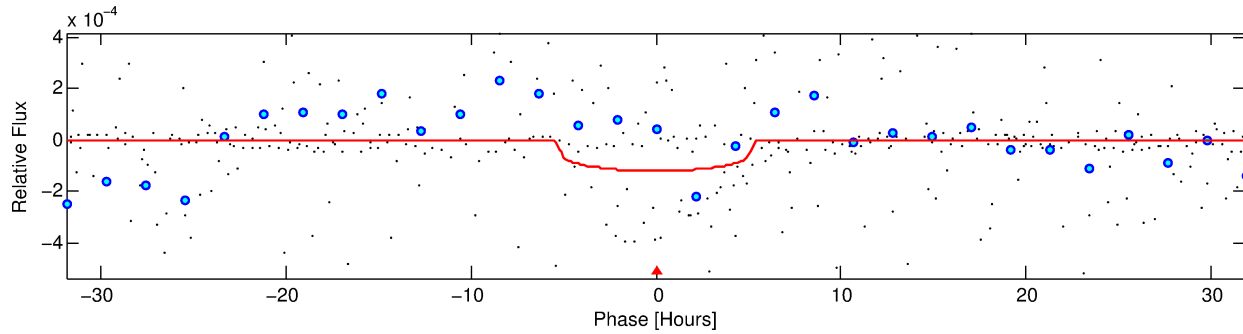
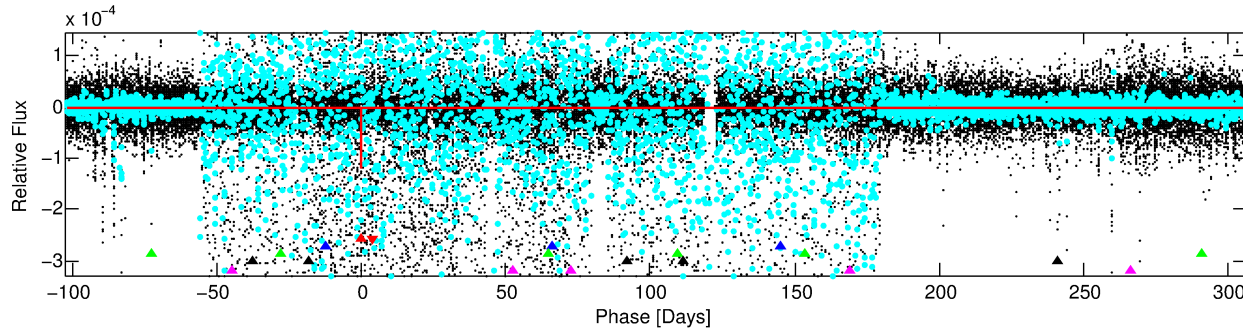
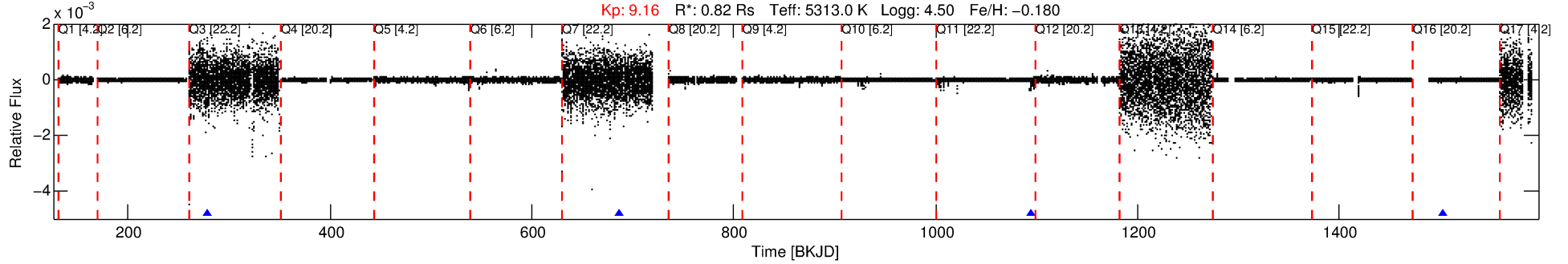
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 003633545-01

No Significant Match Found

DV One-Page Summary

KIC: 3633545 Candidate: 1 of 5 Period: 407.878 d



DV Fit Results:

Period = 407.87797 [0.01531] d
Epoch = 278.0818 [0.0372] BKJD
Rp/R* = 0.0106 [0.0139]
a/R* = 221.75 [1148.03]
b = 0.67 [4.28]
Seff = 0.49 [0.12]
Teq = 213 [13] K
Rp = 0.95 [1.25] Re
a = 0.9929 [0.1328] AU
Ag = 39621.45 [104934.87] [0.38 σ]
Teff = 4646 [3073] K [1.44 σ]

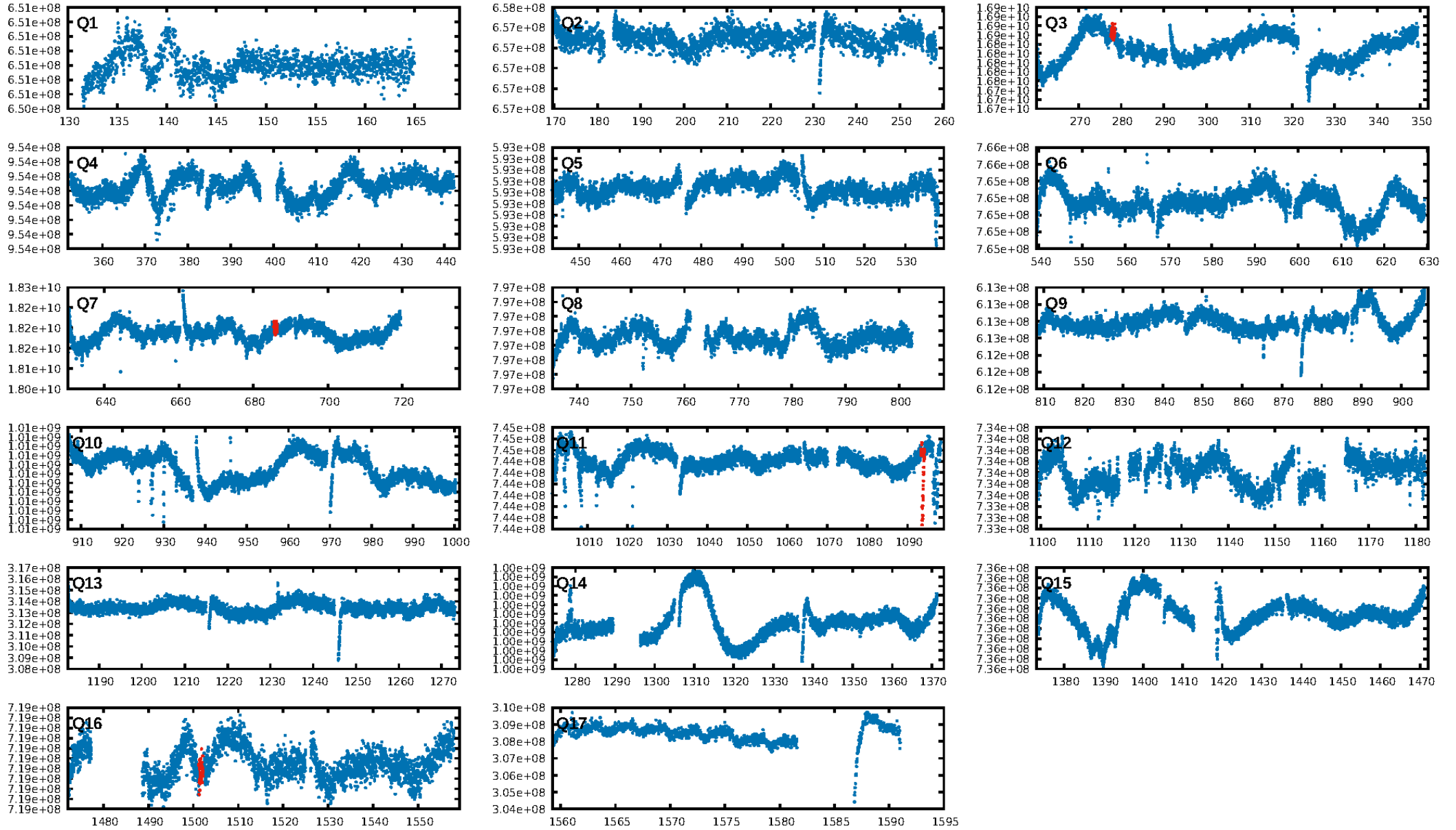
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [215.25 σ]
LongPeriod-sig: 100.0% [176.46 σ]
ModelChiSquare2-sig: 0.0%
ModelChiSquareGof-sig: 0.0%
Bootstrap-pfa: 3.09e-07
RollingBand-fgt: 1.00 [4/4]
GhostDiagnostic-chr: N/A
Centroid-sig: 5.0%
Centroid-so: 5.508 arcsec [0.83 σ]
OotOffset-rm: 72.272 arcsec [32.16 σ]
KicOffset-rm: 73.065 arcsec [32.53 σ]
OotOffset-st: 0/1/0/0 [1]
KicOffset-st: 0/1/0/0 [1]
DiffImageQuality-fgm: 0.00 [0/1]
DiffImageOverlap-fno: 1.00 [3/3]

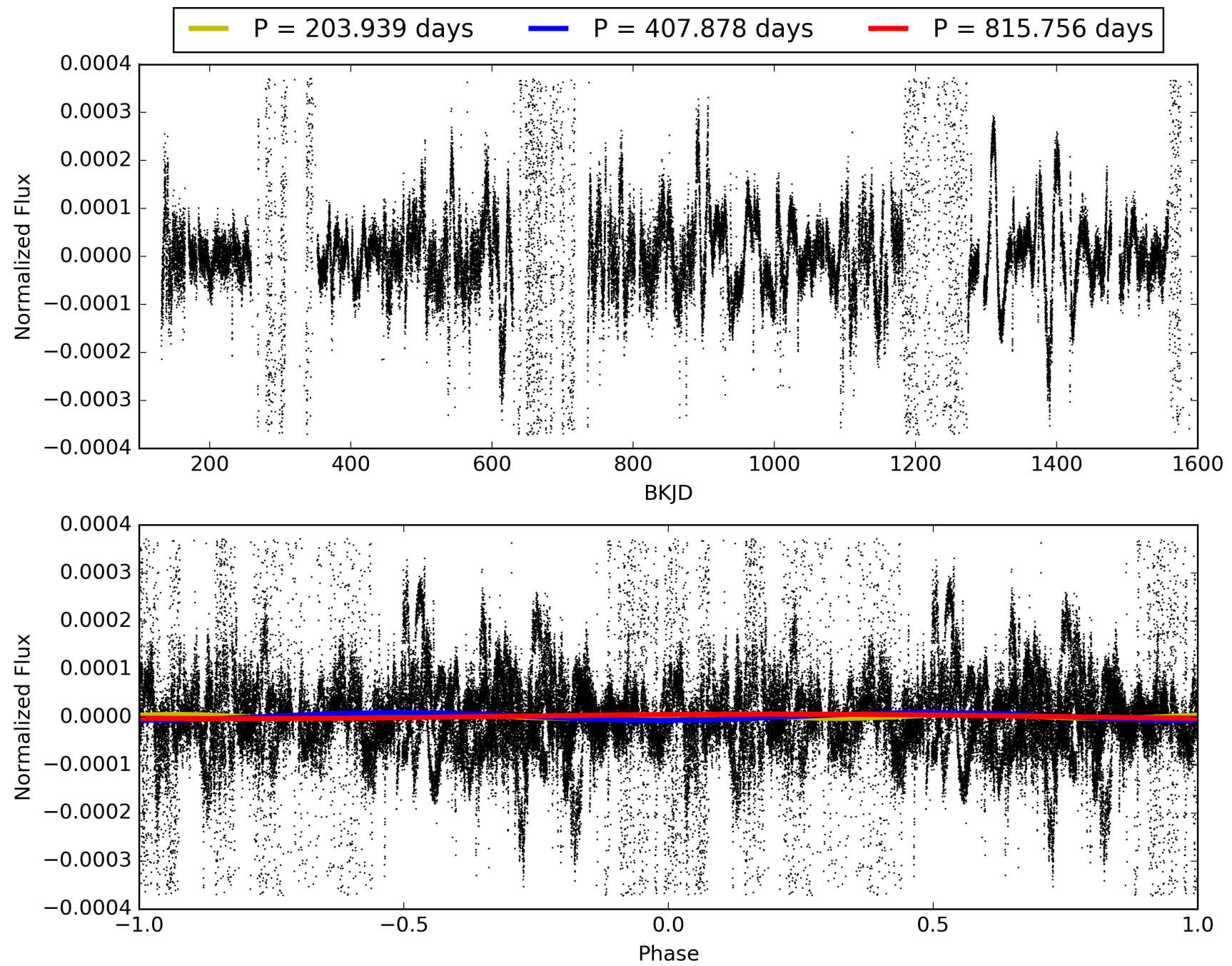
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This Data Validation Report Summary was produced in the Kepler Science Operations Center Pipeline at NASA Ames Research Center

TCE 003633545-01, PDC Light Curves

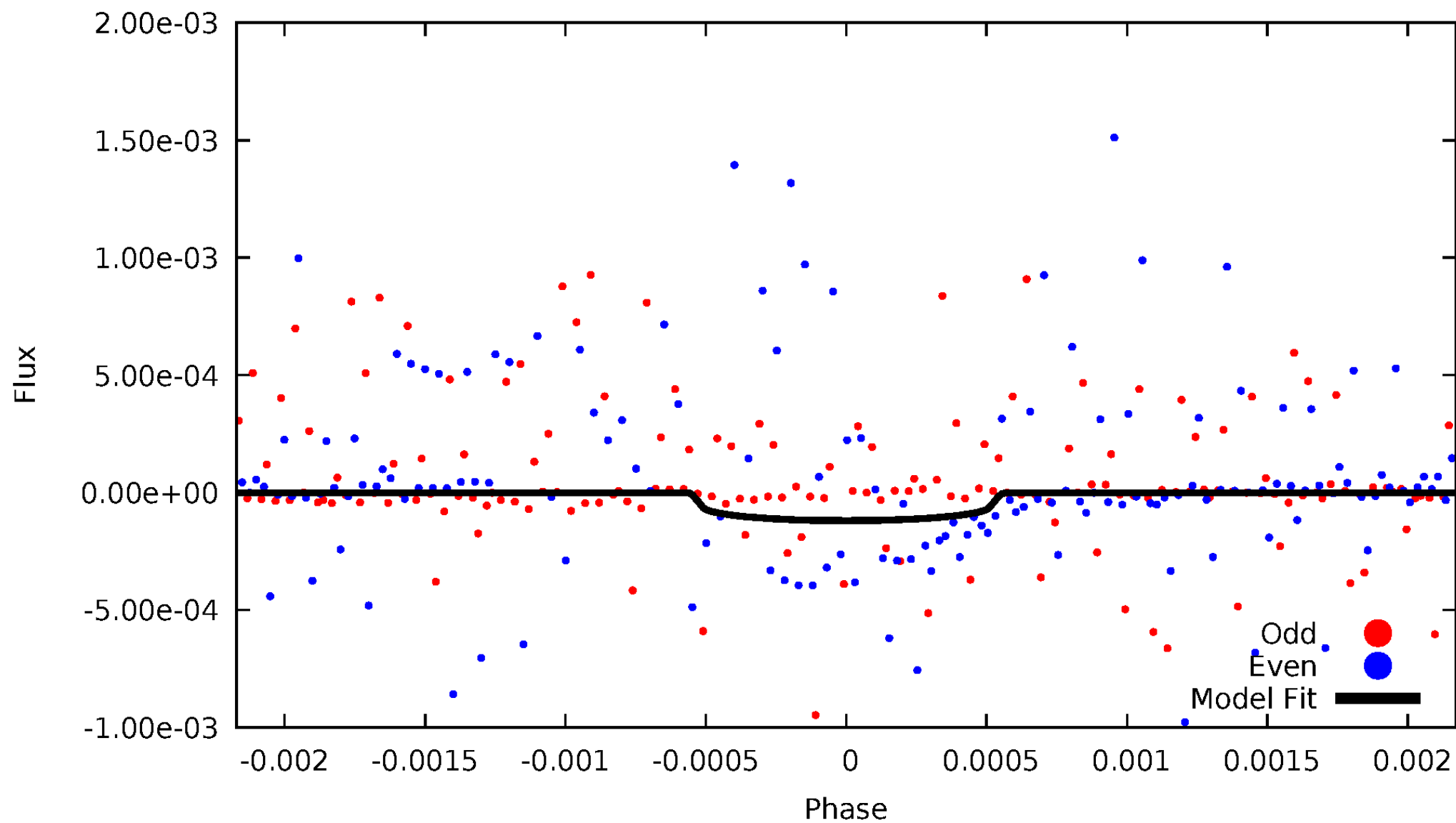


TCE 003633545-01



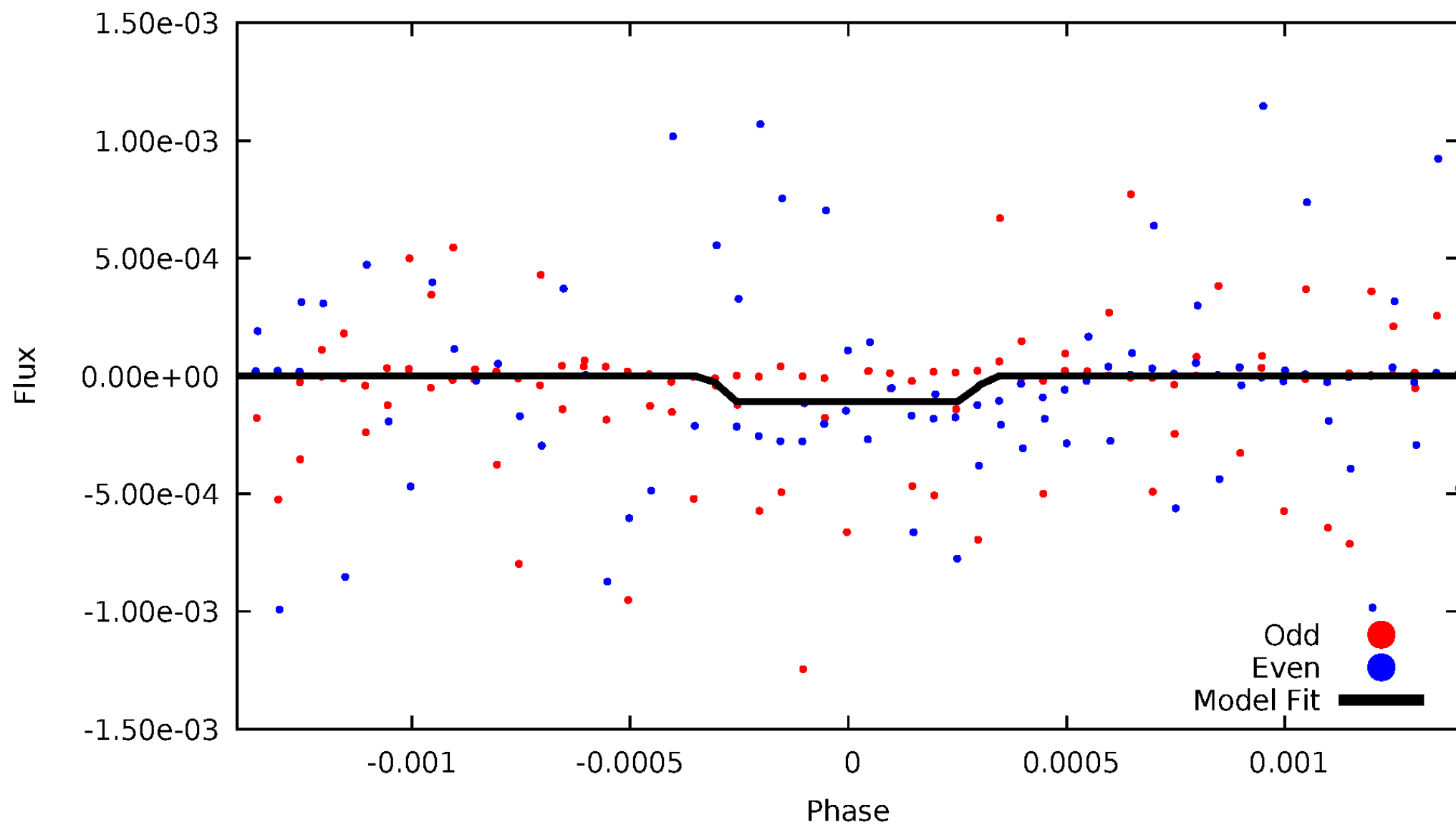
DV Odd/Even

TCE 003633545-01



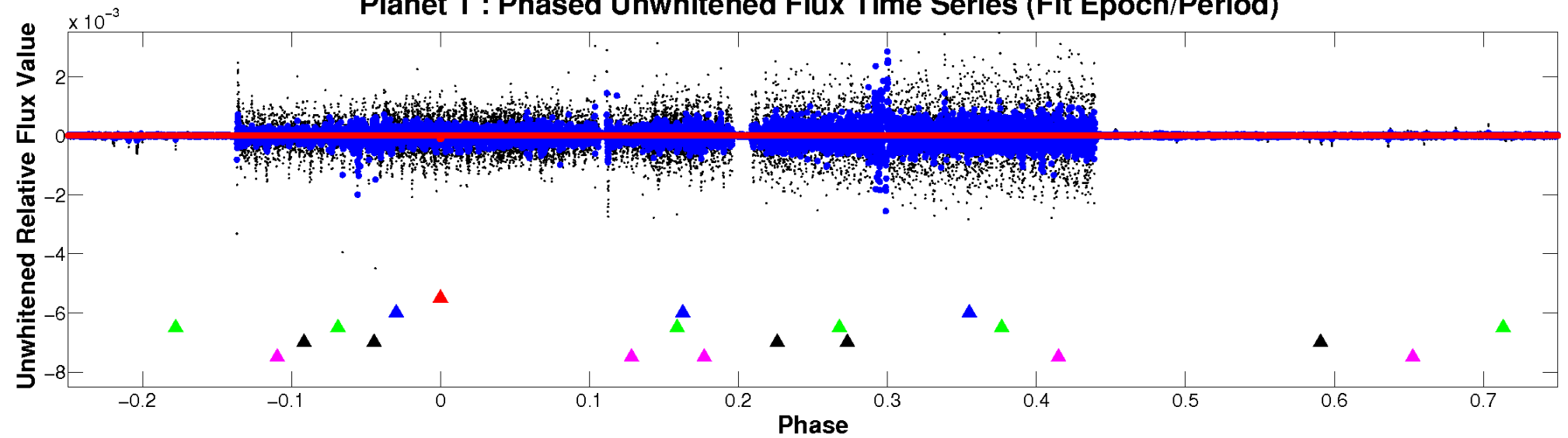
ALT Odd/Even

TCE 003633545-01

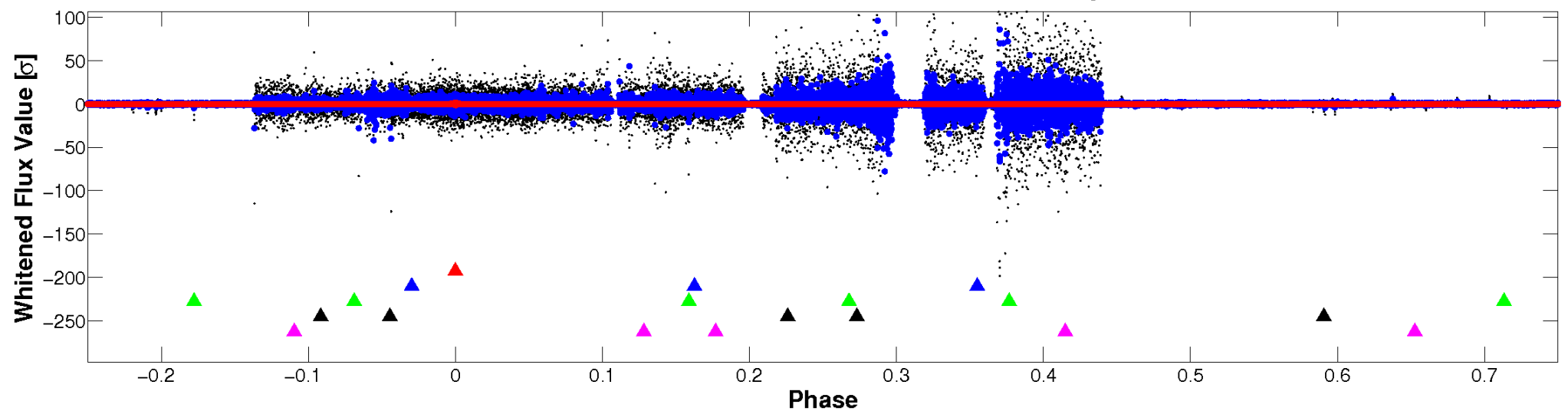


Non-Whitened Vs. Whitened Light Curve

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

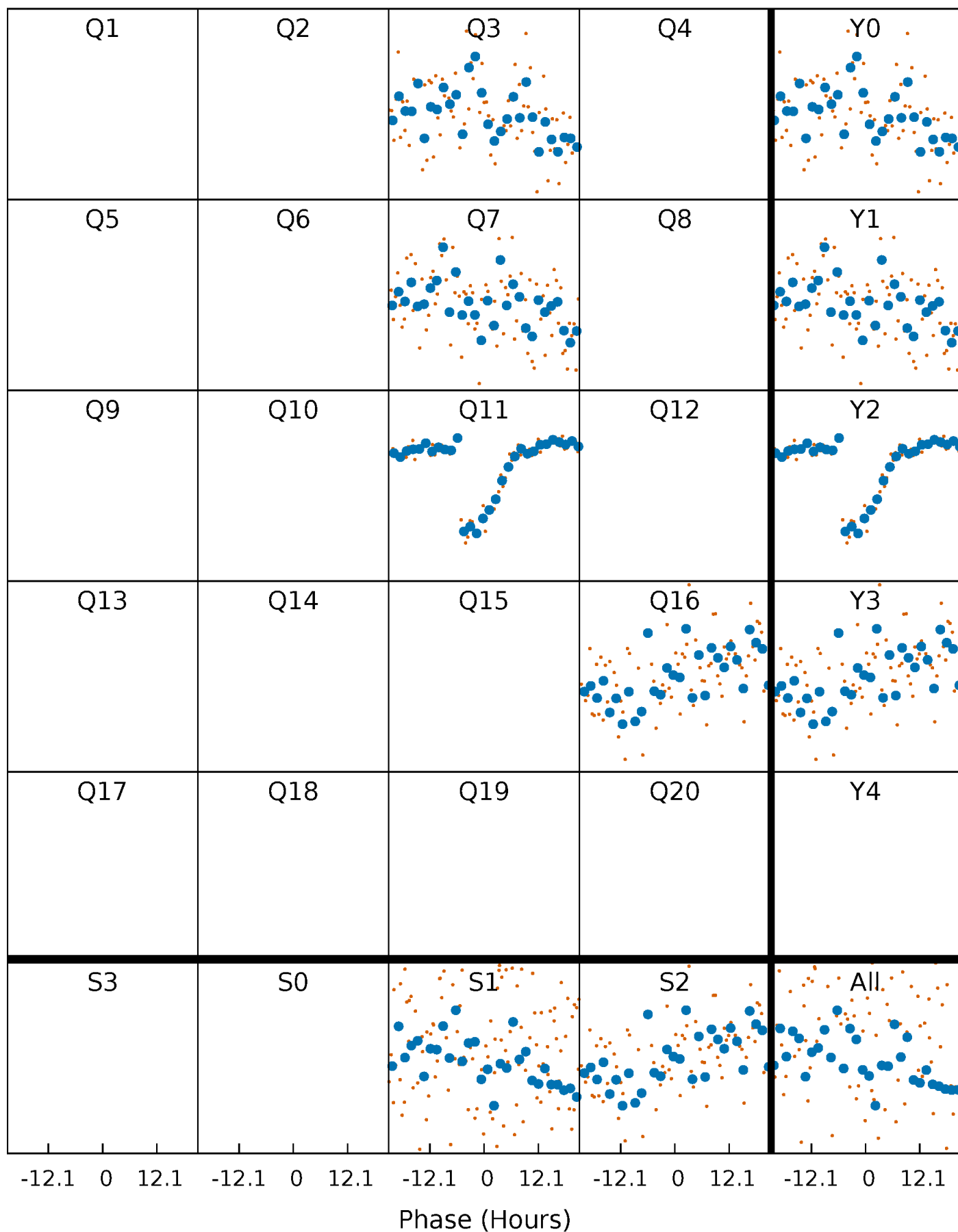


Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)



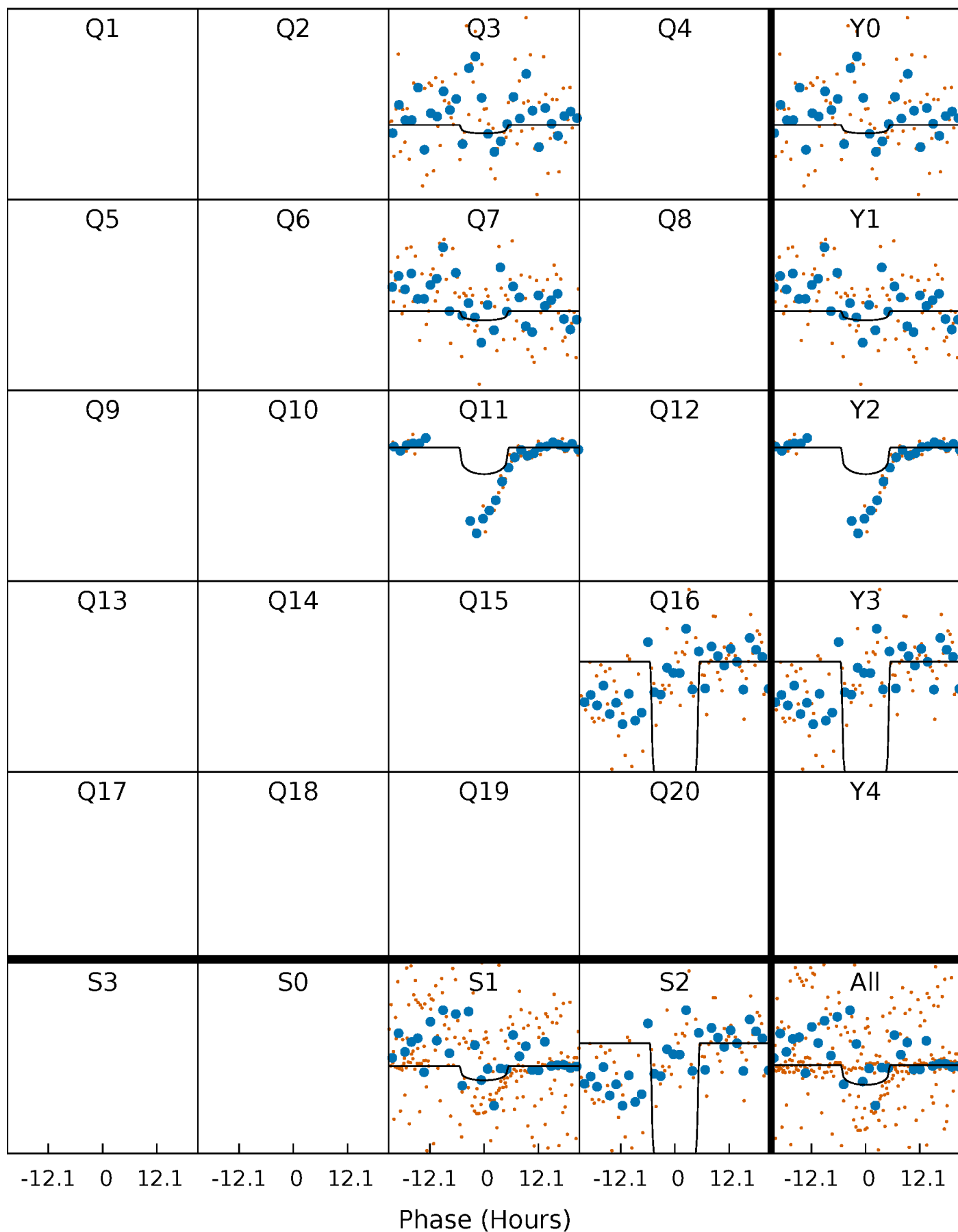
PDC Quarter-Phased Transit Curves

TCE 003633545-01 P=407.877975 Days $T_0=278.081780$ (BKJD)



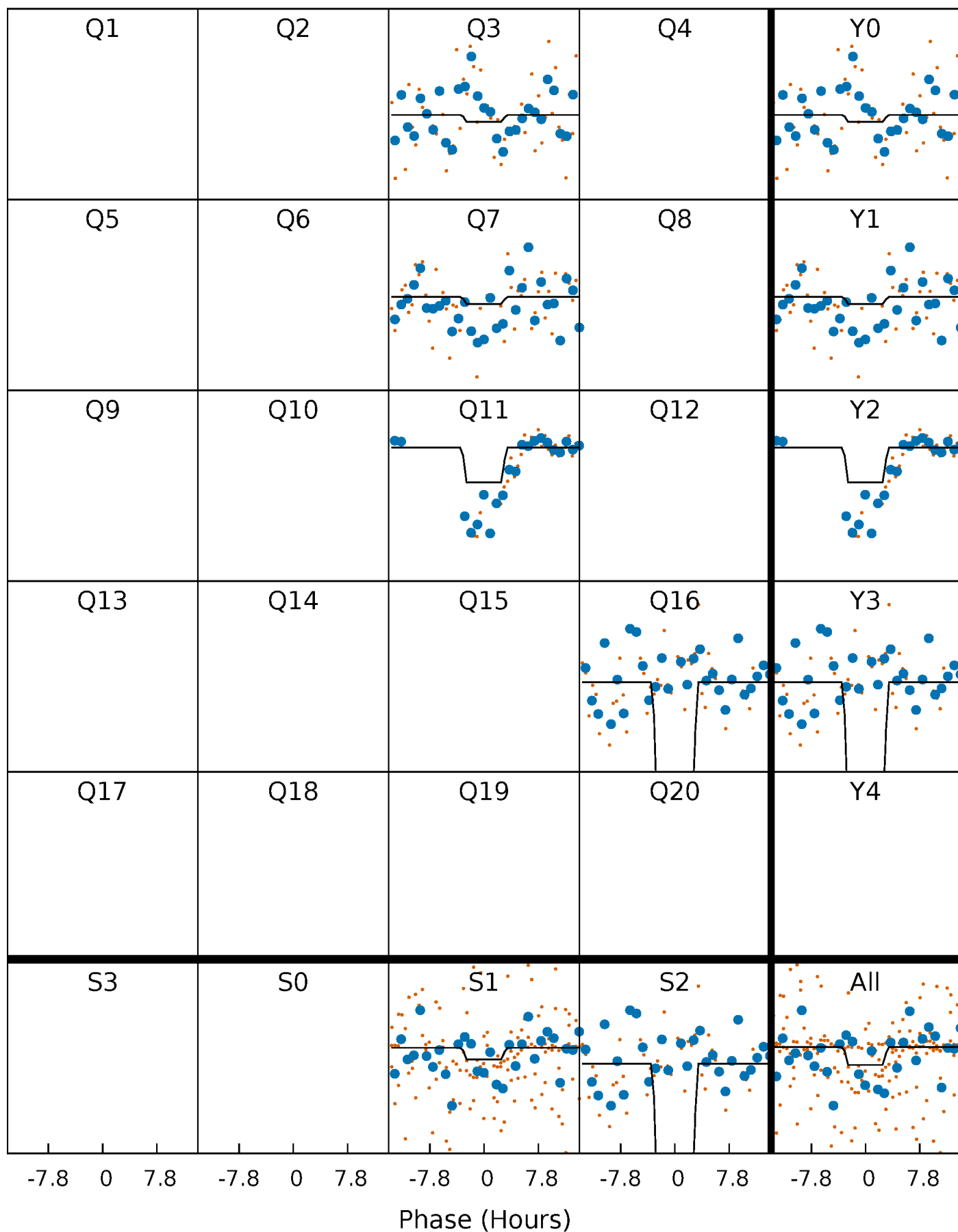
DV Quarter-Phased Transit Curves

TCE 003633545-01 P=407.877975 Days $T_0=278.081780$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

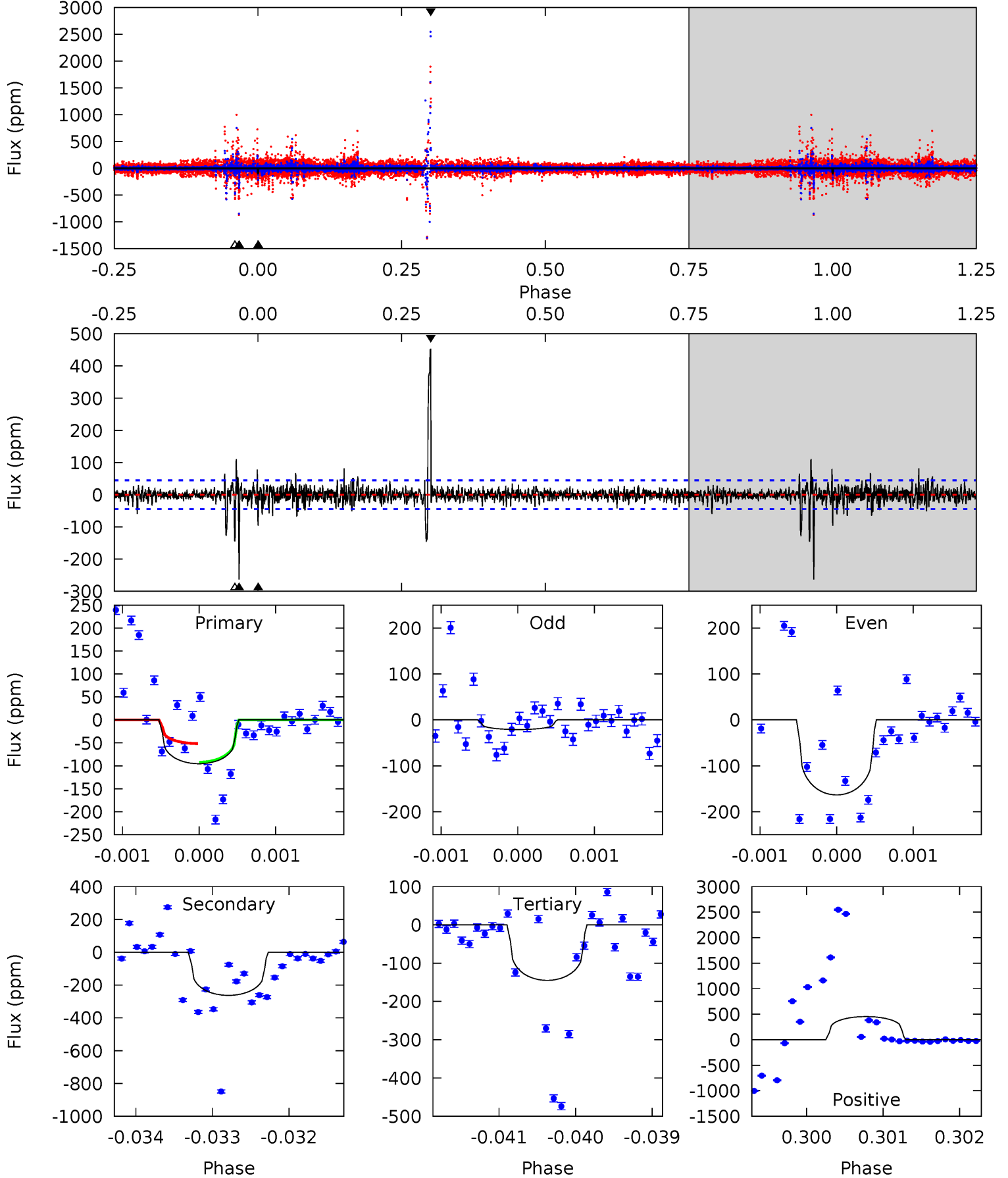
TCE 003633545-01 P=407.874291 Days $T_0=278.083392$ (BKJD)



DV Model-Shift Uniqueness Test

003633545-01, P = 407.877975 Days, E = 278.081780 Days

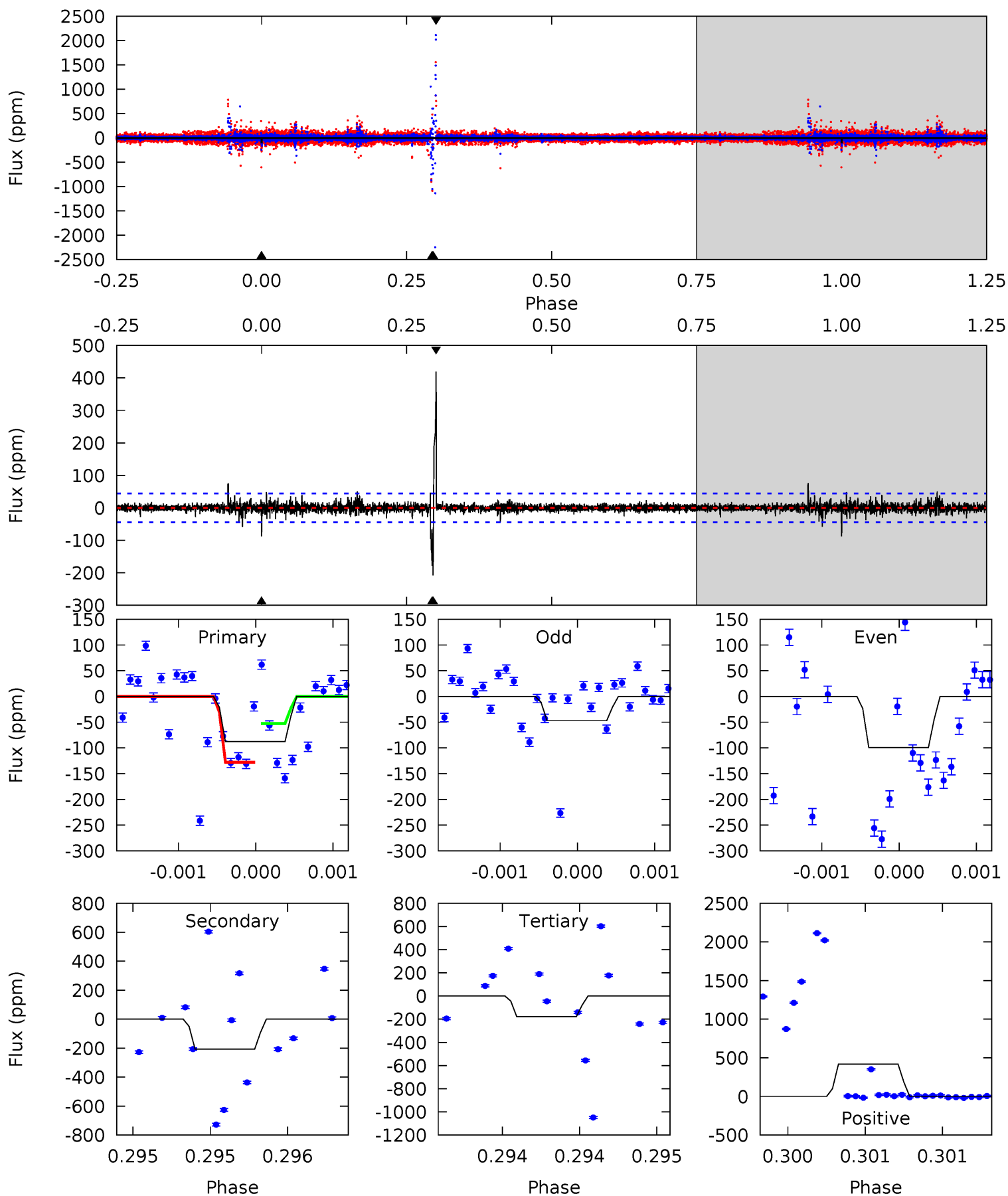
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
11.6	32.0	17.6	55.1	5.43	3.26	2.13	-6.01	-43.5	14.3	-23.2	5.44	1.15	0.63	0



Alt Model-Shift Uniqueness Test

003633545-01, P = 407.874291 Days, E = 278.083392 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
10.9	25.7	22.2	52.1	5.53	3.41	1.34	-11.3	-41.2	3.55	-26.3	2.28	1.19	0.67	0



Stellar Parameters For KIC 003633545

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	5313^{+204}_{-185}	$4.505^{+0.085}_{-0.104}$	$-0.180^{+0.300}_{-0.300}$	$0.820^{+0.132}_{-0.099}$	$0.786^{+0.104}_{-0.070}$	$2.009^{+0.720}_{-0.625}$
	+4%/-3%	+2%/-2%	+167%/-167%	+16%/-12%	+13%/-9%	+36%/-31%
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 003633545-01 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	-263 ± 8	$1.36^{+1.04}_{-0.85}$	300^{+17}_{-15}	5552^{+4136}_{-1193}	$78459^{+481913}_{-52753}$
Alt.	-207 ± 8	$1.20^{+1.11}_{-0.74}$	299^{+15}_{-15}	5443^{+4297}_{-1245}	$77962^{+497004}_{-57216}$

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 $A_{obs} \gg 1.0$

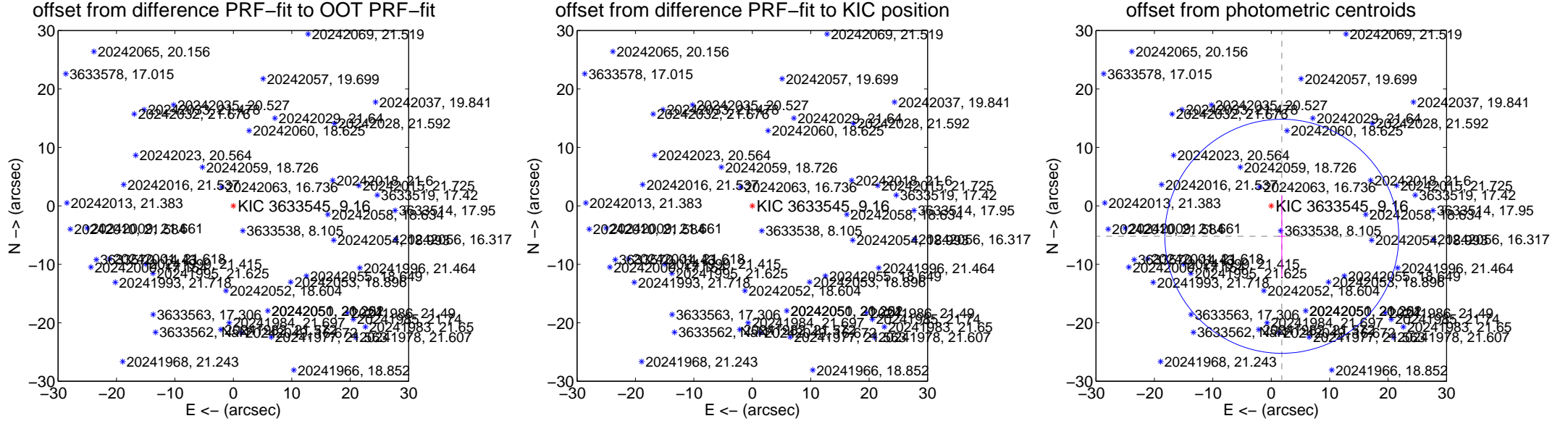
DV Centroid Data

Supplemental centroid analysis for 003633545-01. **Kepler magnitude: 9.16.** Transit SNR 13.03

There are 0 quarters with good PRF difference image offsets

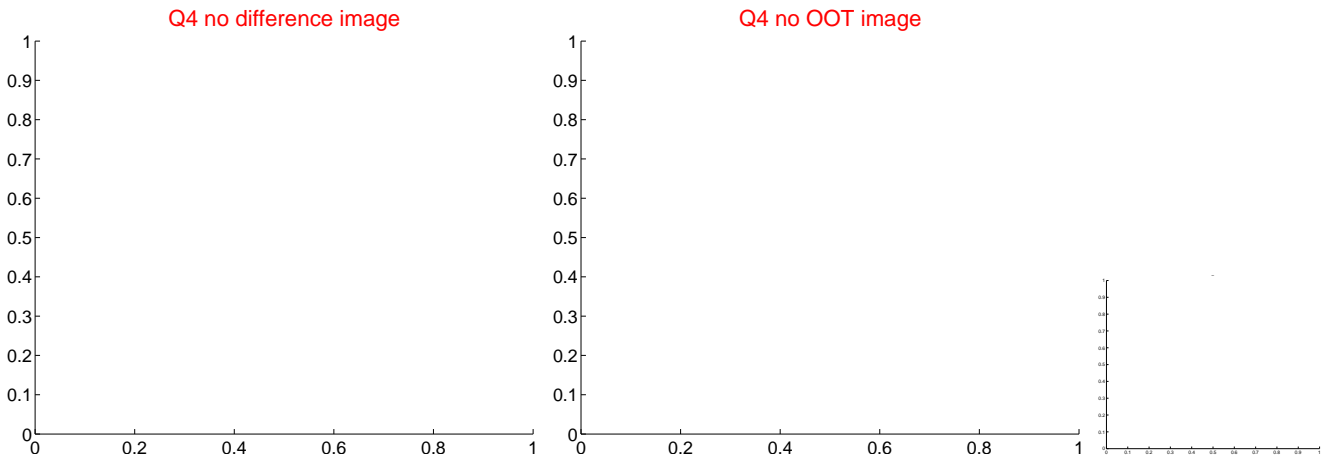
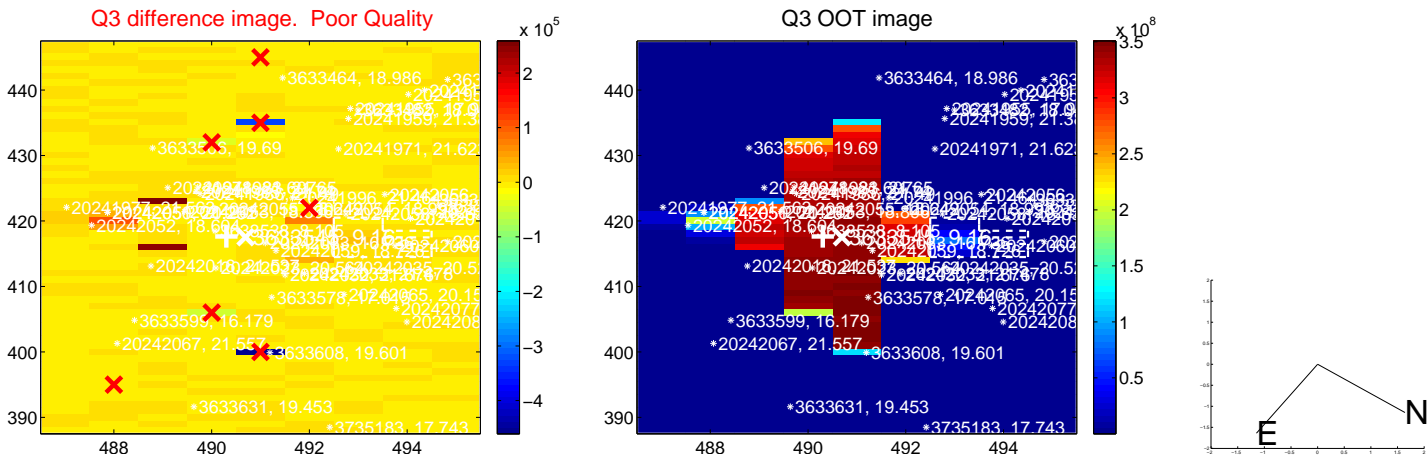
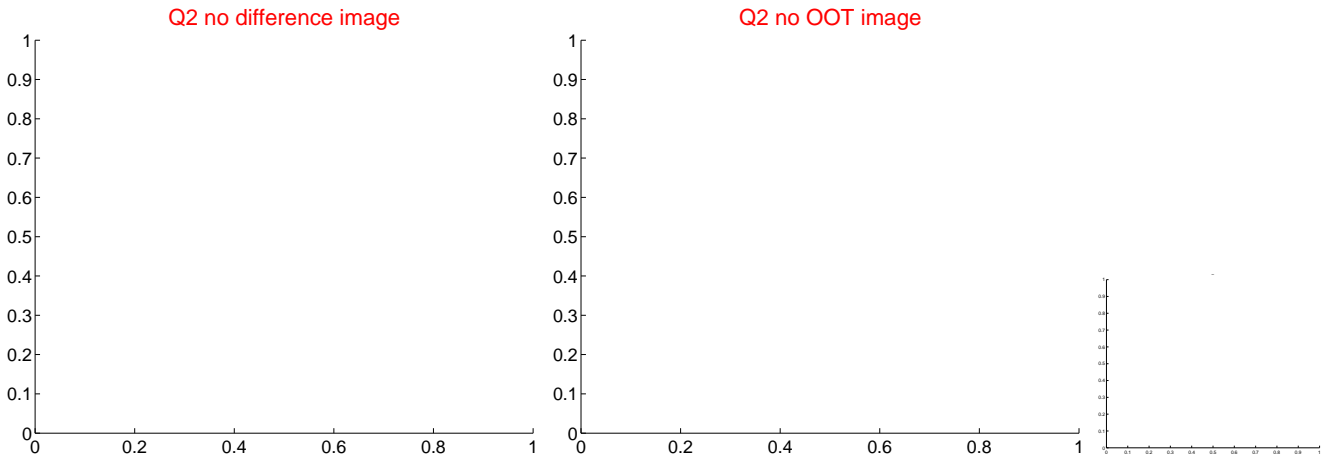
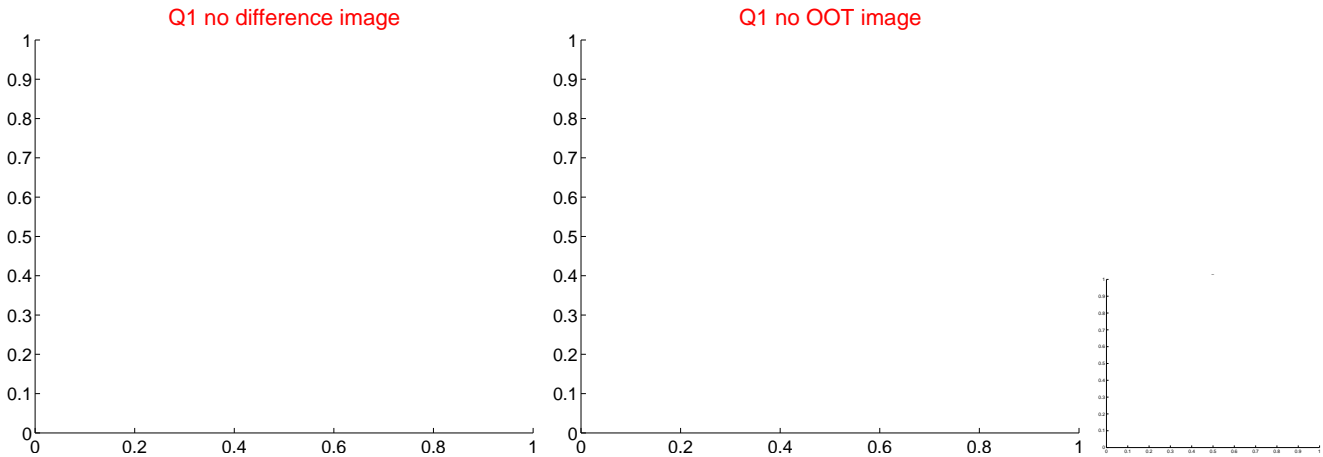
The direct PRF centroid is offset from the target star catalog position by about 1.67 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	72.272 \pm 2.247	32.16	-48.335 \pm 2.275	-53.730 \pm 2.225
PRF-fit source offset from KIC position	73.065 \pm 2.246	32.53	-47.760 \pm 2.275	-55.294 \pm 2.225
photometric centroid source offset	5.51 \pm 6.67	0.83	-1.81 \pm 0.57	-5.20 \pm 7.06

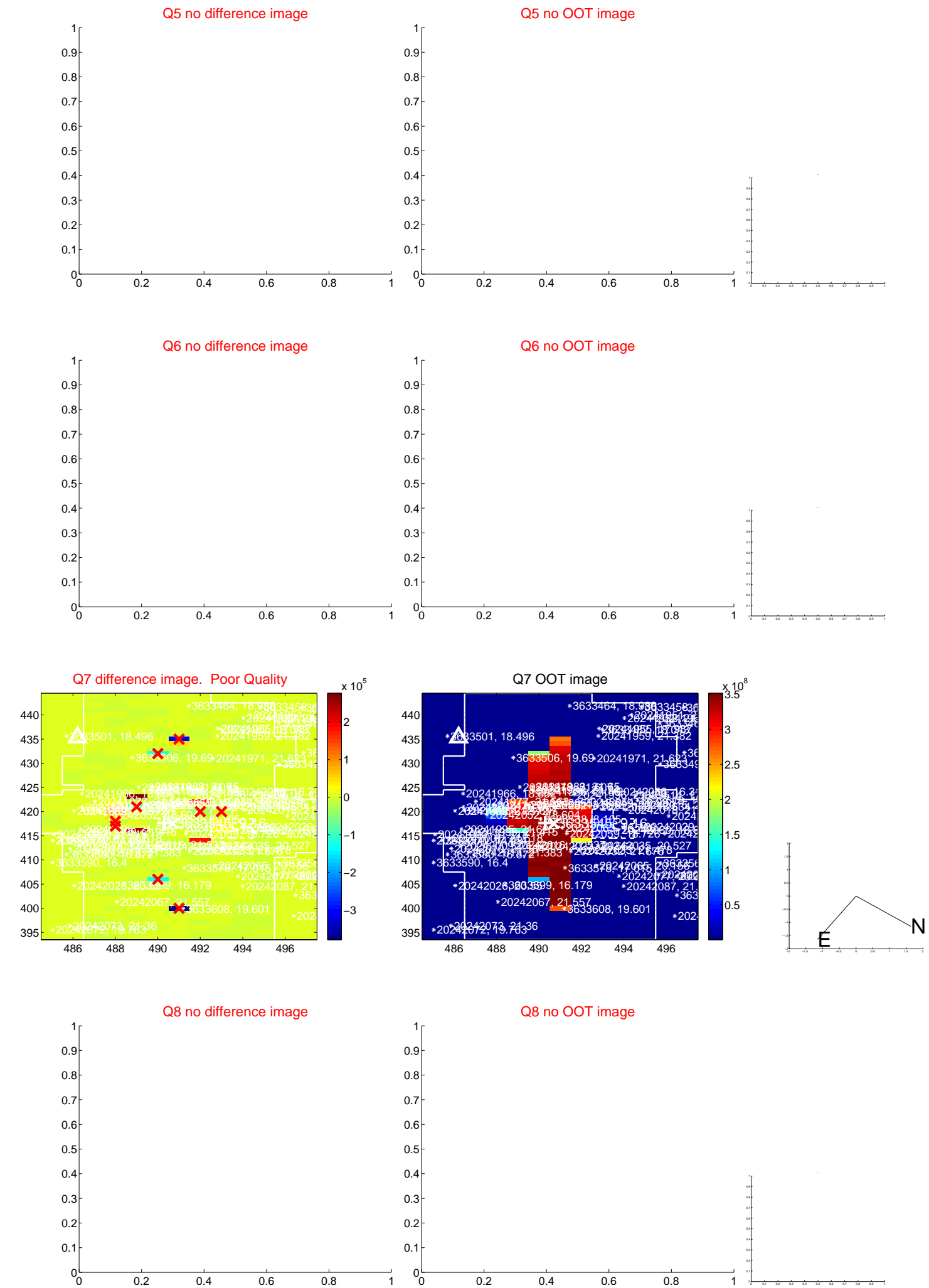


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets;** magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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



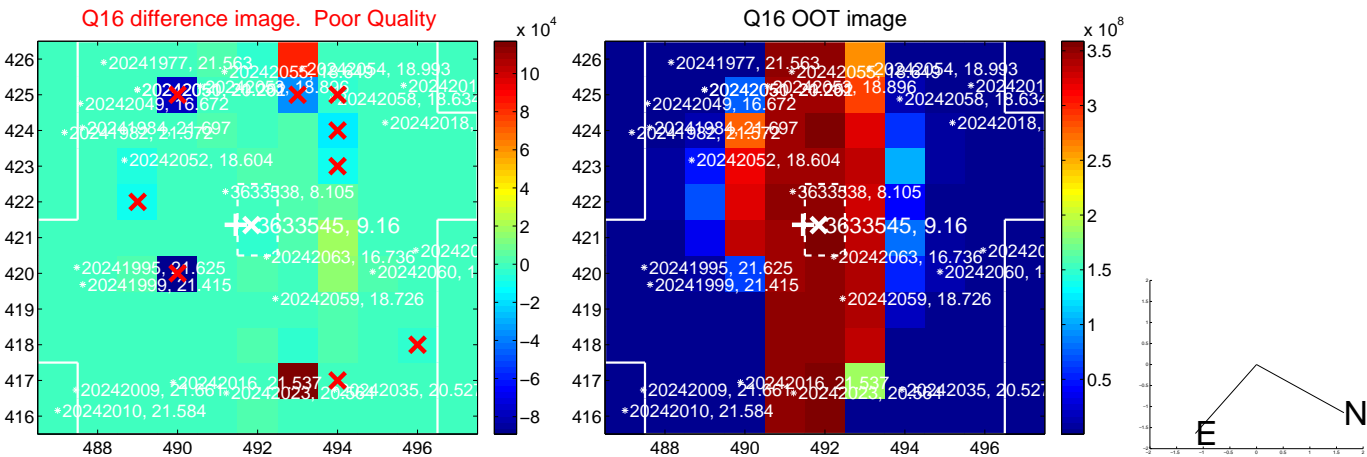
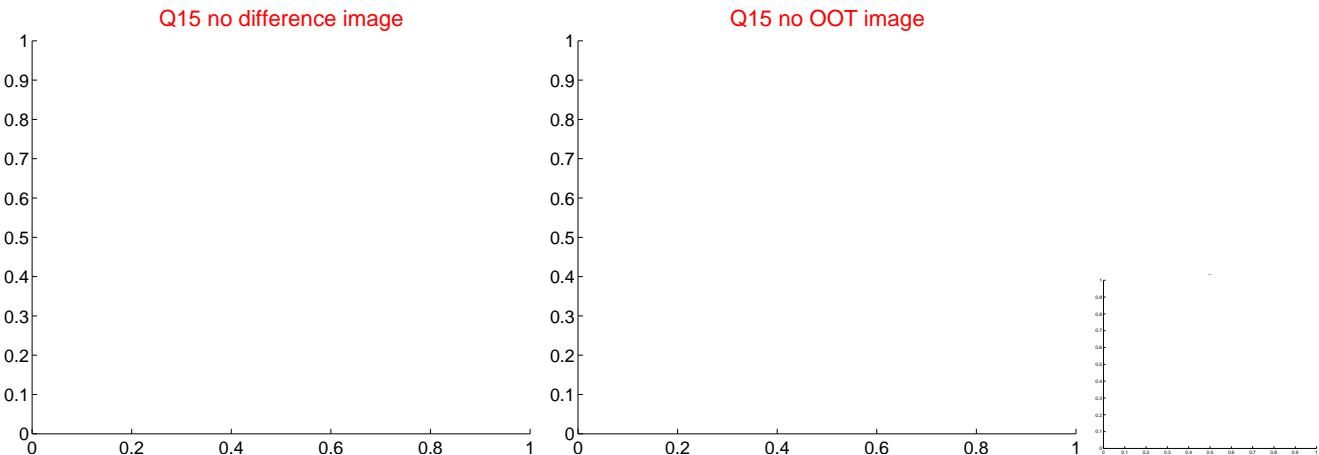
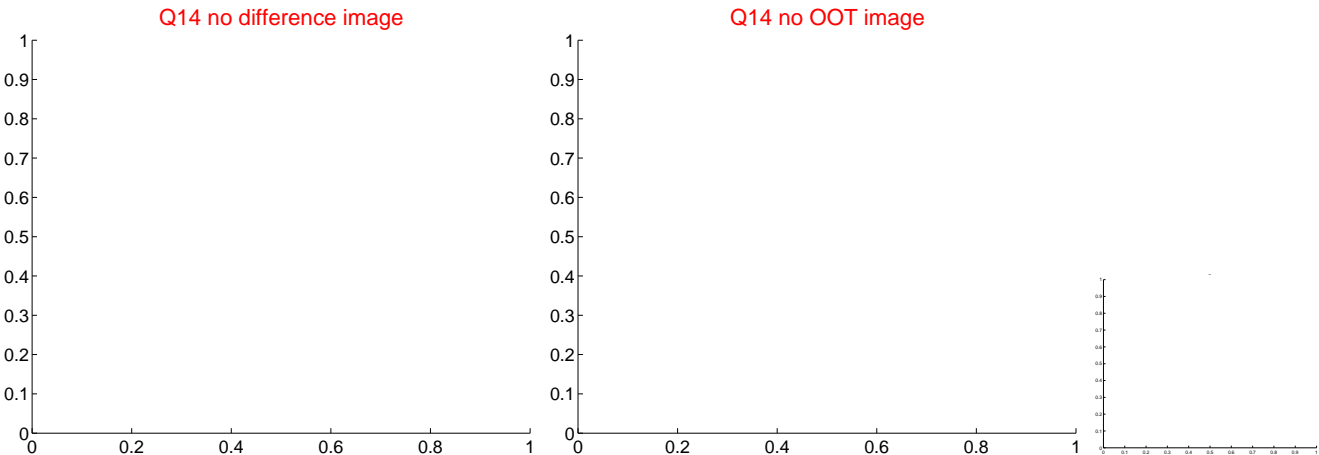
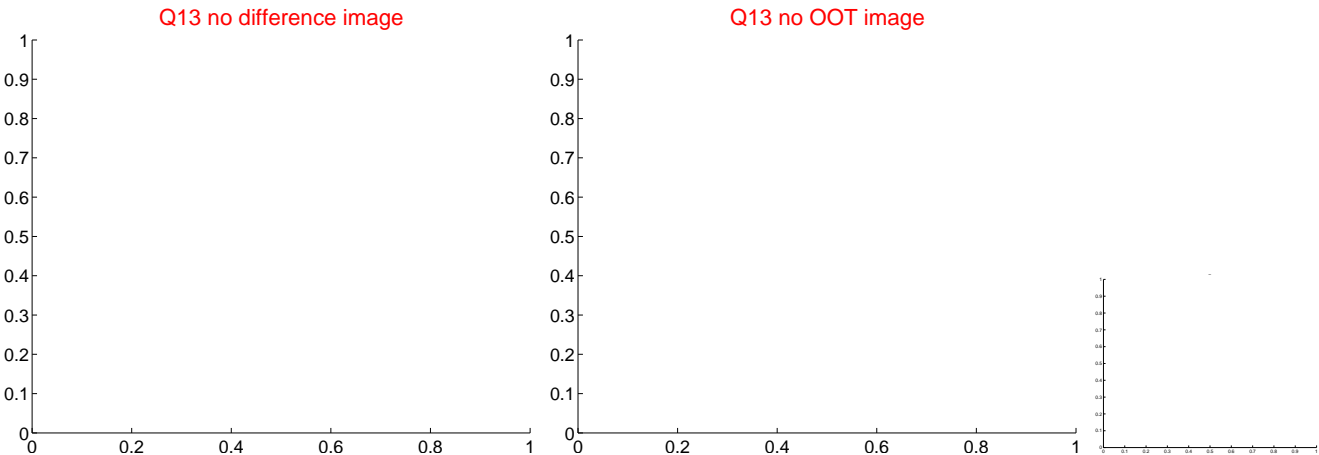
white ×: KIC target position; +: OOT centroid; △: difference centroid. red ✕: large negative pixel value.



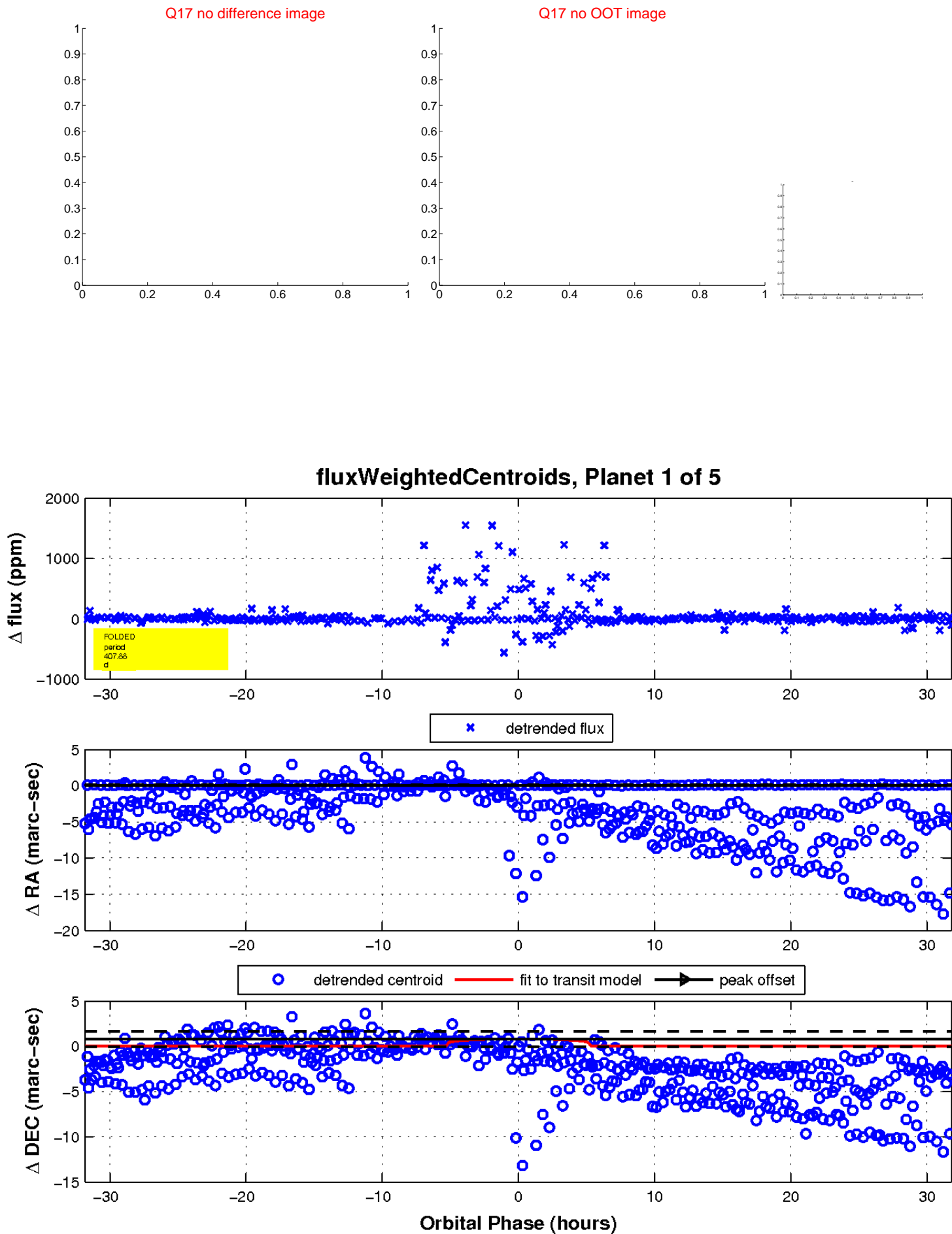
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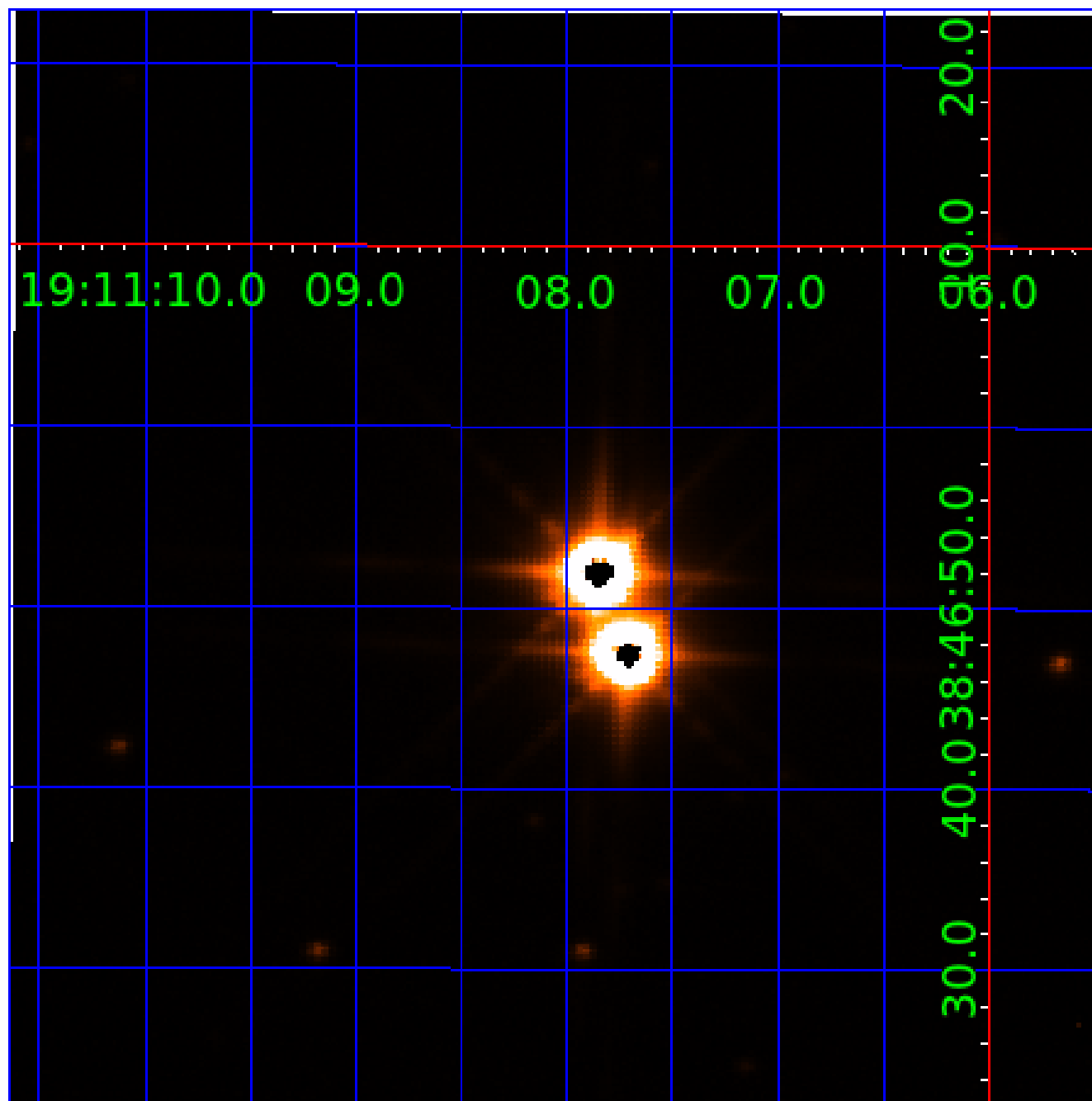


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 003633545

Q1-17 DR25 TCE Parameters

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Robovetter Results

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003633545-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL_TRACKER—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_SATURATED
003633545-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL_ZUMA_TRACKER—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_SATURATED
003633545-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_SATURATED
003633545-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL_TRACKER—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_SATURATED

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

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

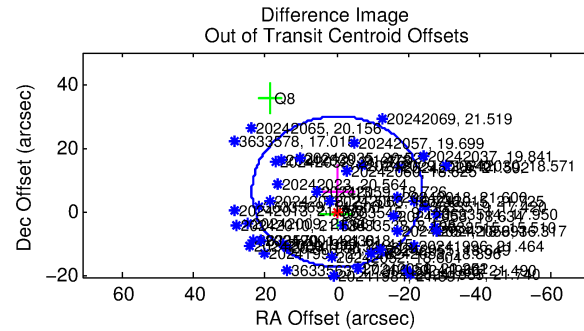
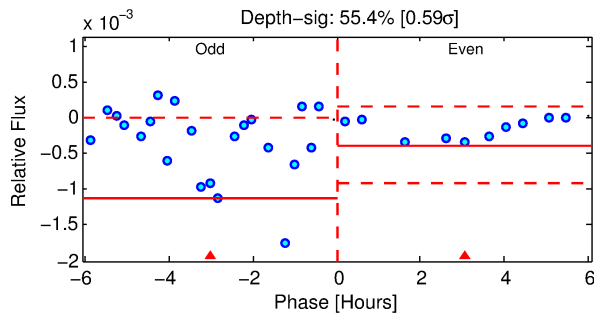
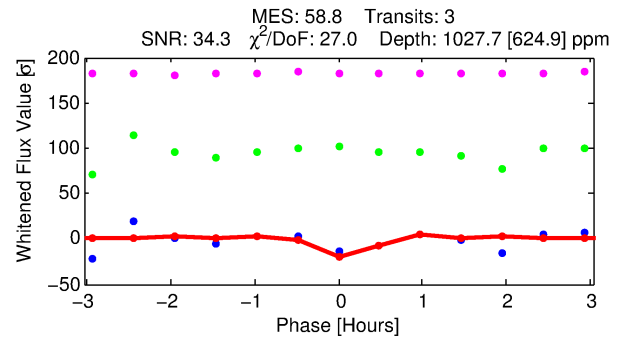
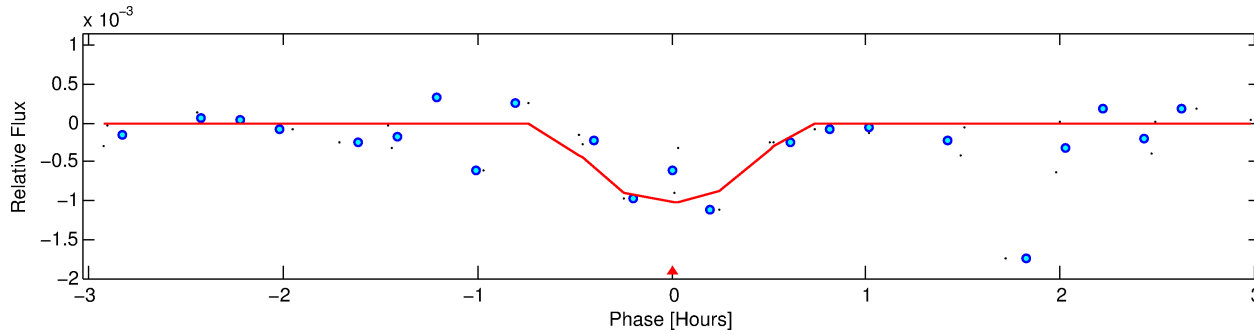
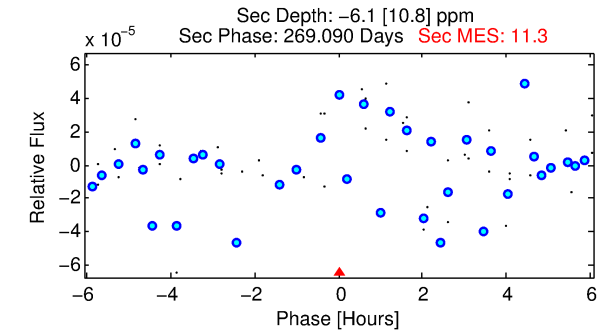
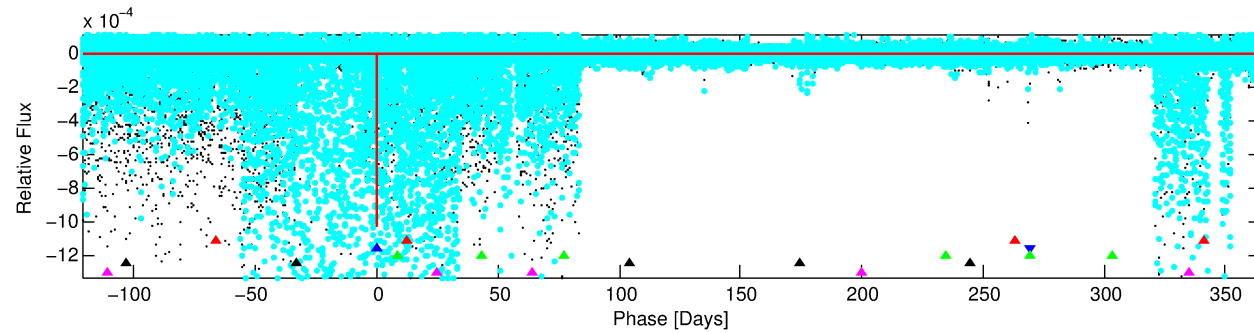
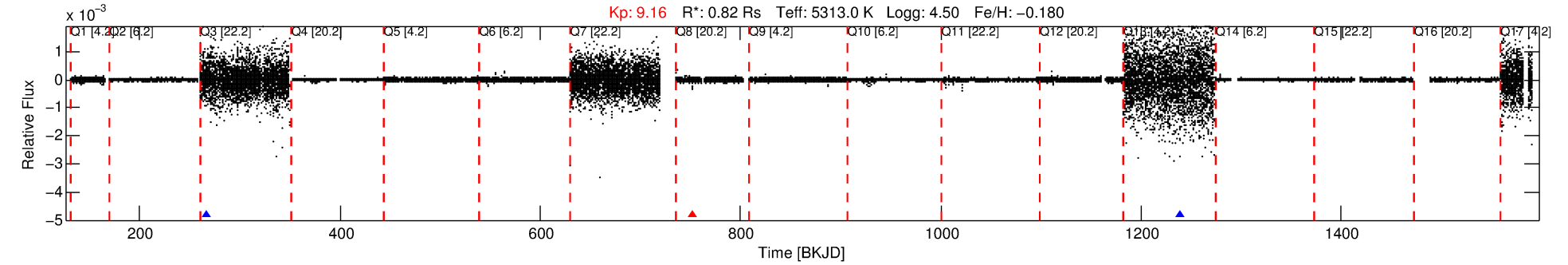
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 003633545-02

No Significant Match Found

DV One-Page Summary

KIC: 3633545 Candidate: 2 of 5 Period: 486.335 d



DV Fit Results:

Period = 486.33483 [0.01041] d
Epoch = 265.9657 [0.0158] BKJD
Rp/R* = 0.0322 [0.5088]
a/R* = 2633.42 [159925.69]
b = 0.74 [37.53]
Seff = 0.39 [0.09]
Teq = 201 [12] K
Rp = 2.89 [45.53] Re
a = 1.1165 [0.1493] AU
Ag = N/A
Teffp = N/A

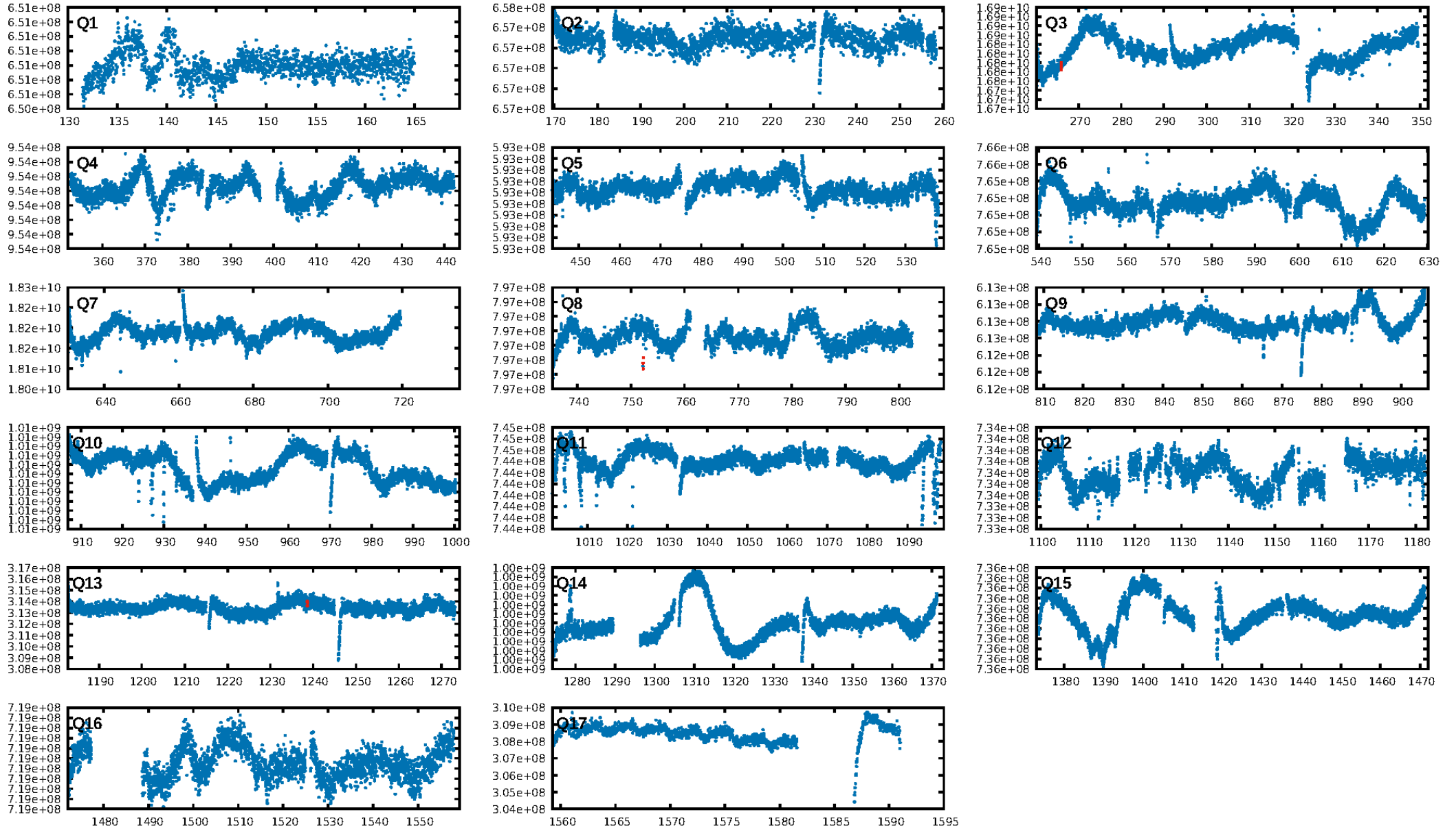
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [176.46 σ]
LongPeriod-sig: N/A
ModelChiSquare2-sig: 0.0%
ModelChiSquareGof-sig: 0.0%
Bootstrap-pfa: 5.56e-12
RollingBand-fgt: 0.67 [2/3]
GhostDiagnostic-chr: N/A
Centroid-sig: 0.0%
Centroid-so: 3.194 arcsec [5.40 σ]
OotOffset-rm: 6.469 arcsec [0.82 σ]
KicOffset-rm: 10.440 arcsec [1.75 σ]
OotOffset-st: 0/1/1/1 [3]
KicOffset-st: 0/1/1/1 [3]
DiffImageQuality-fgm: 0.00 [0/3]
DiffImageOverlap-fno: 1.00 [3/3]

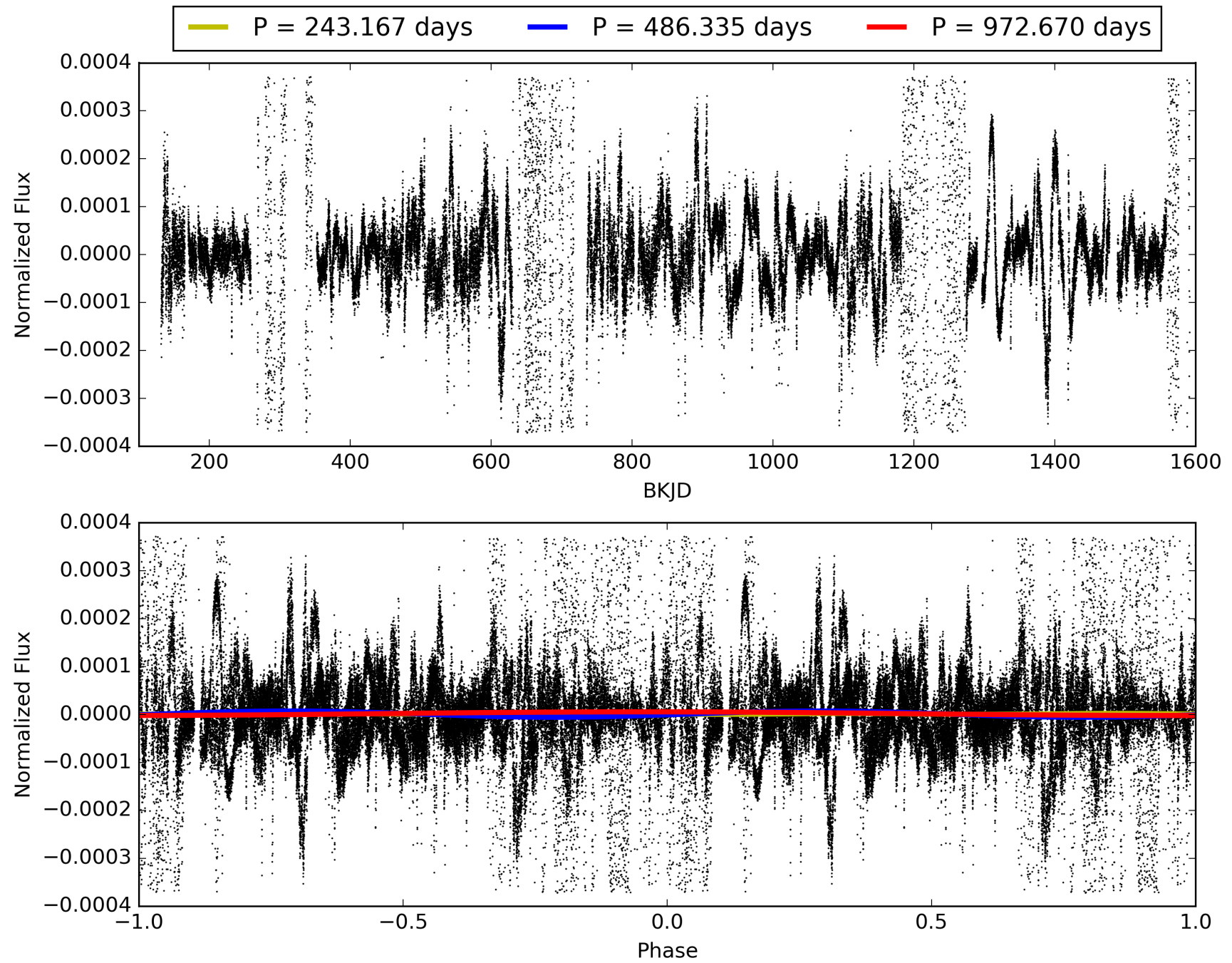
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This Data Validation Report Summary was produced in the Kepler Science Operations Center Pipeline at NASA Ames Research Center

TCE 003633545-02, PDC Light Curves

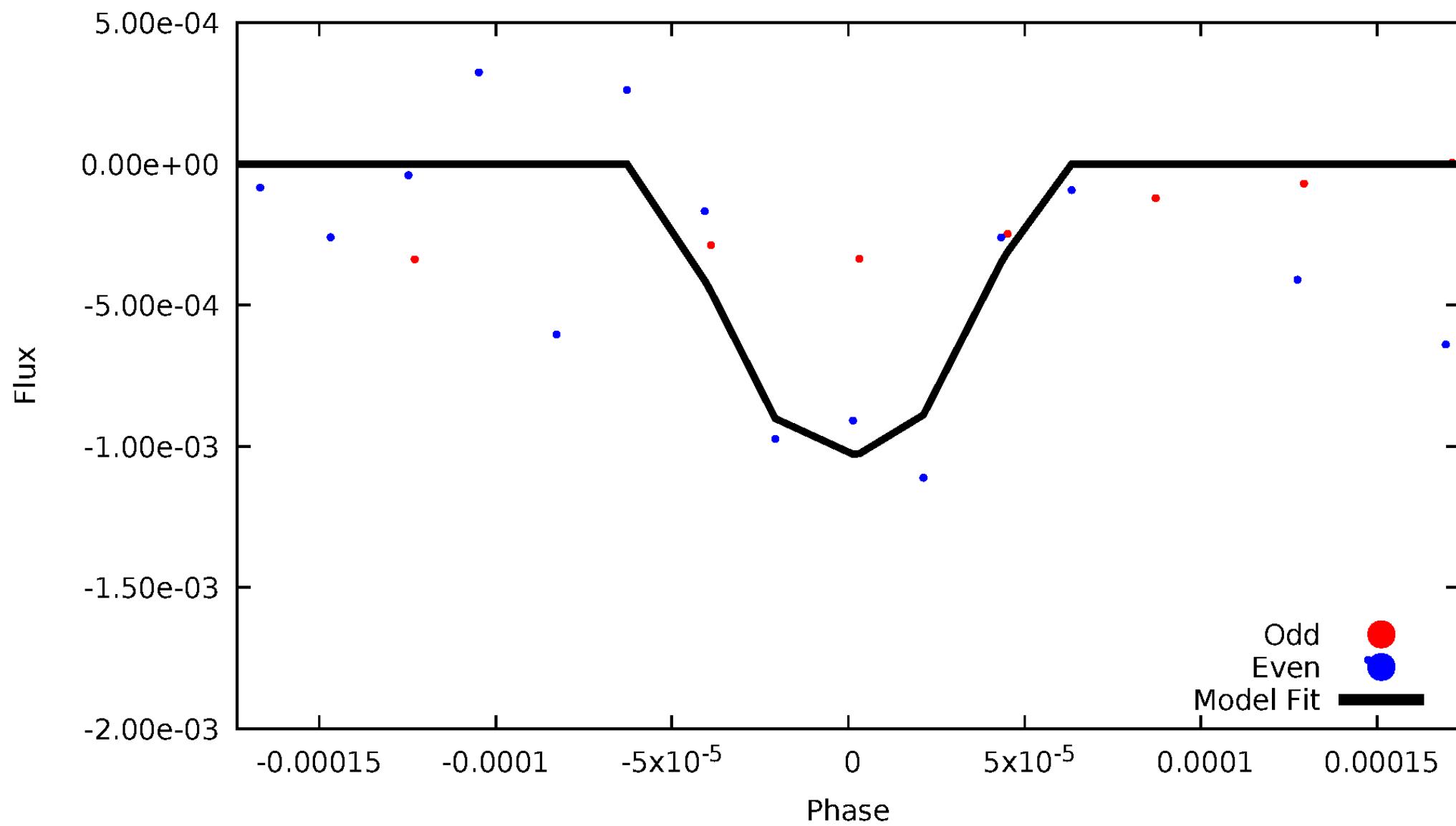


TCE 003633545-02



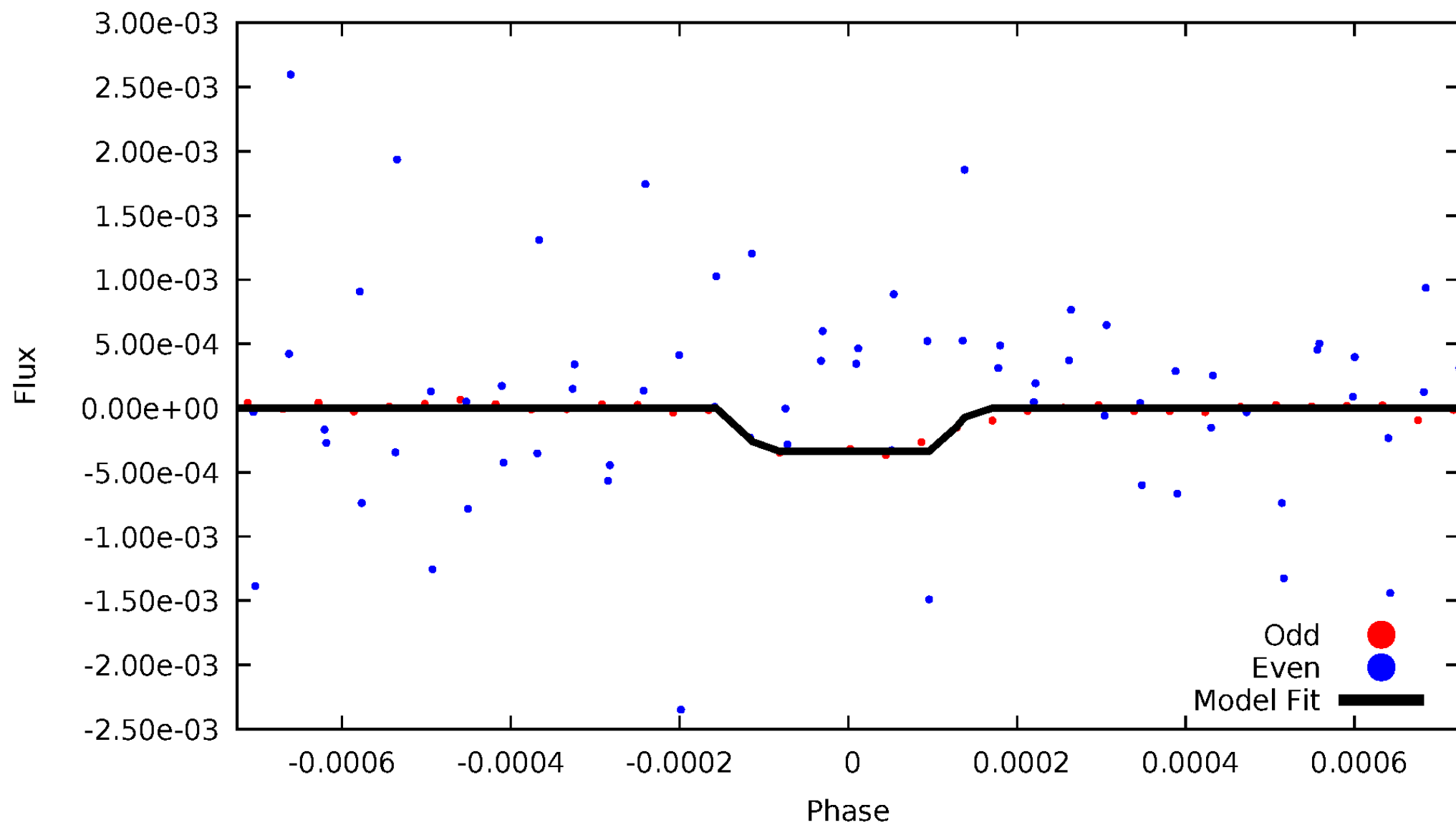
DV Odd/Even

TCE 003633545-02



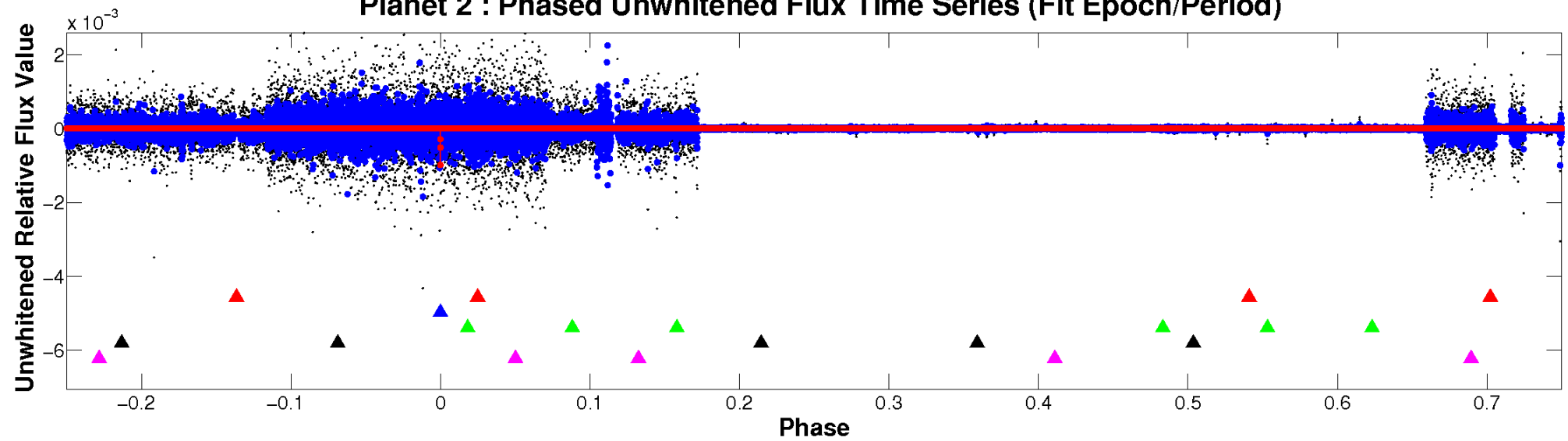
ALT Odd/Even

TCE 003633545-02

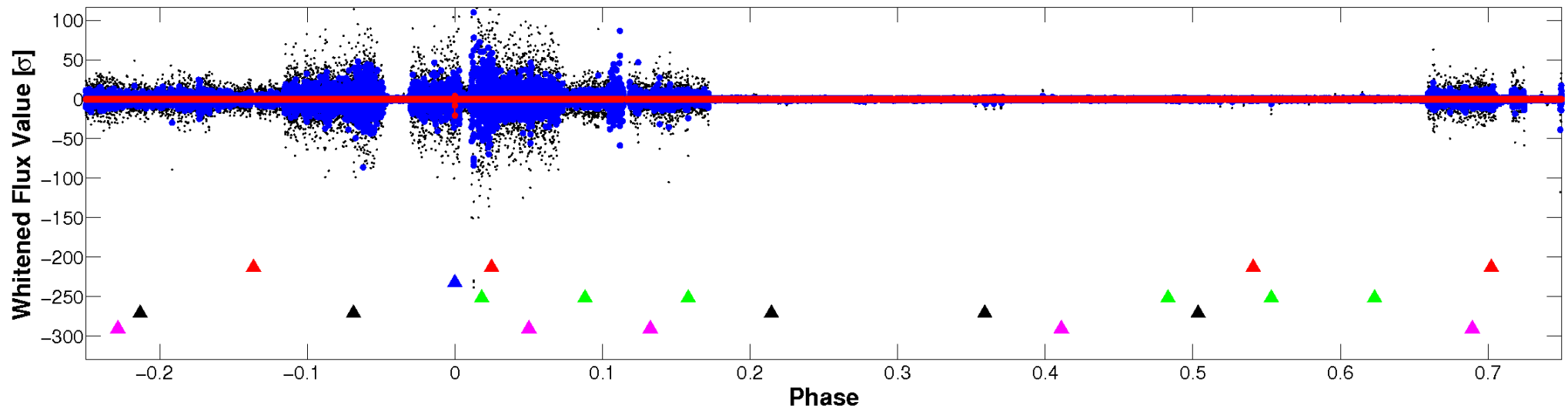


Non-Whitened Vs. Whitened Light Curve

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

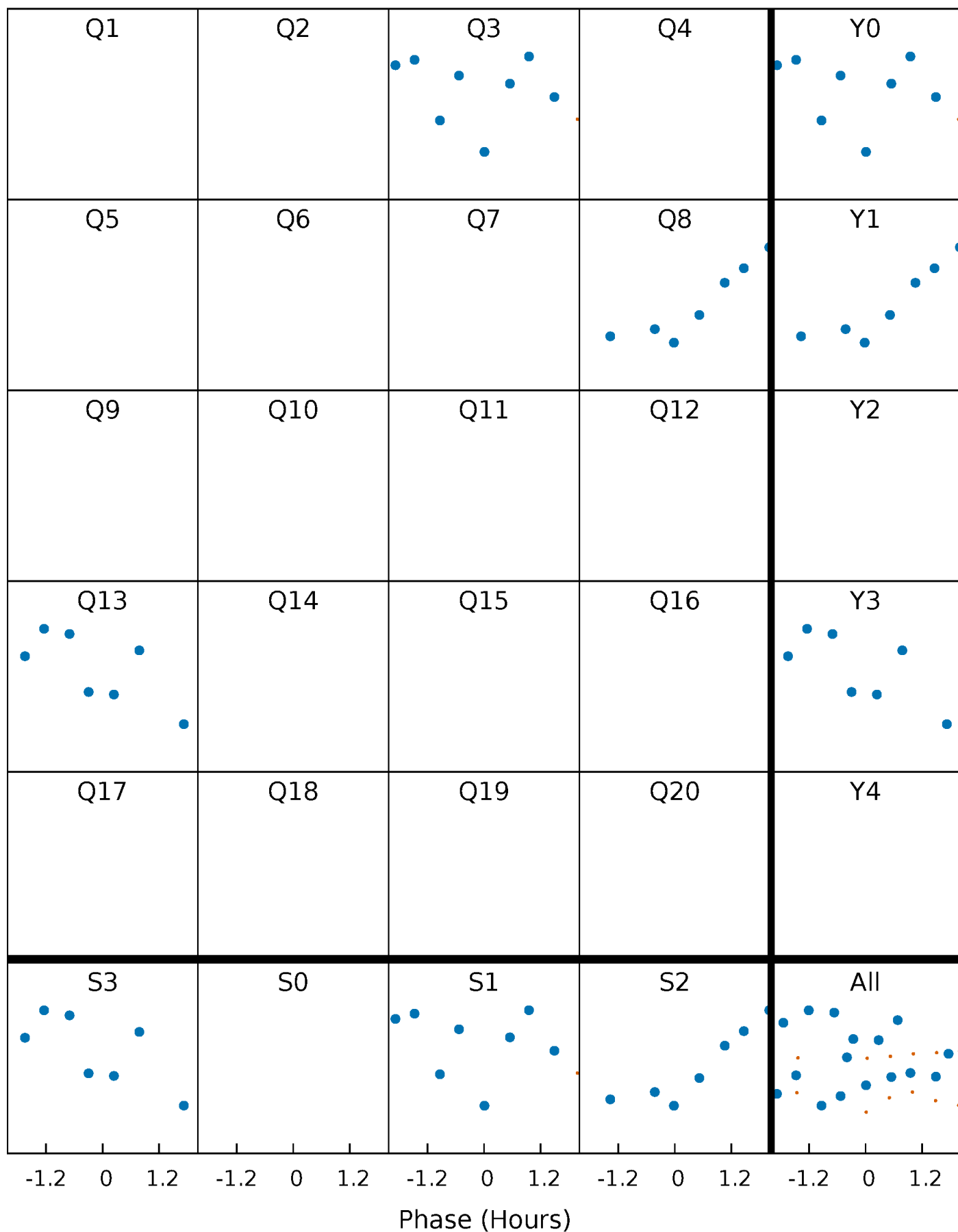


Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



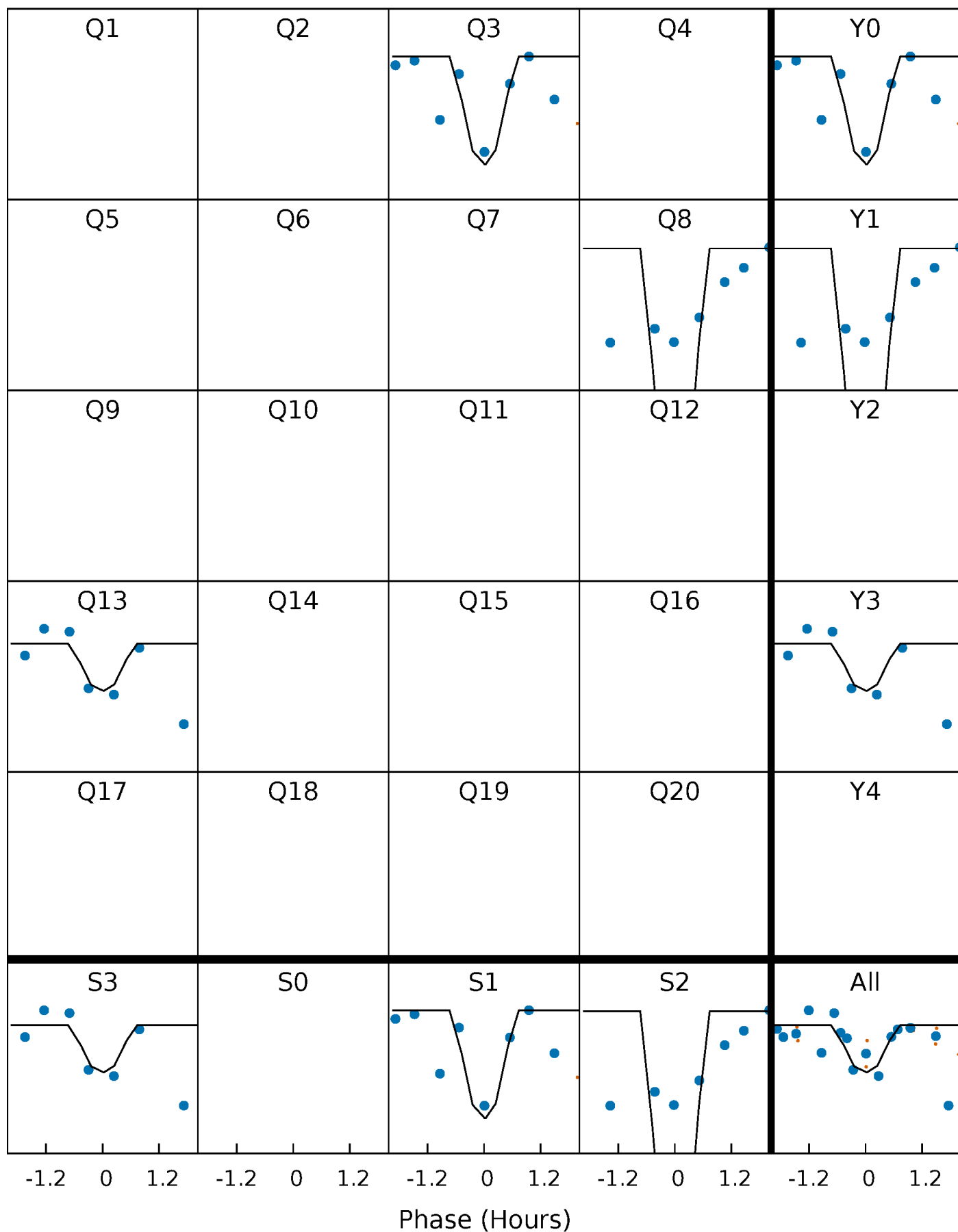
PDC Quarter-Phased Transit Curves

TCE 003633545-02 P=486.334829 Days $T_0=265.965748$ (BKJD)



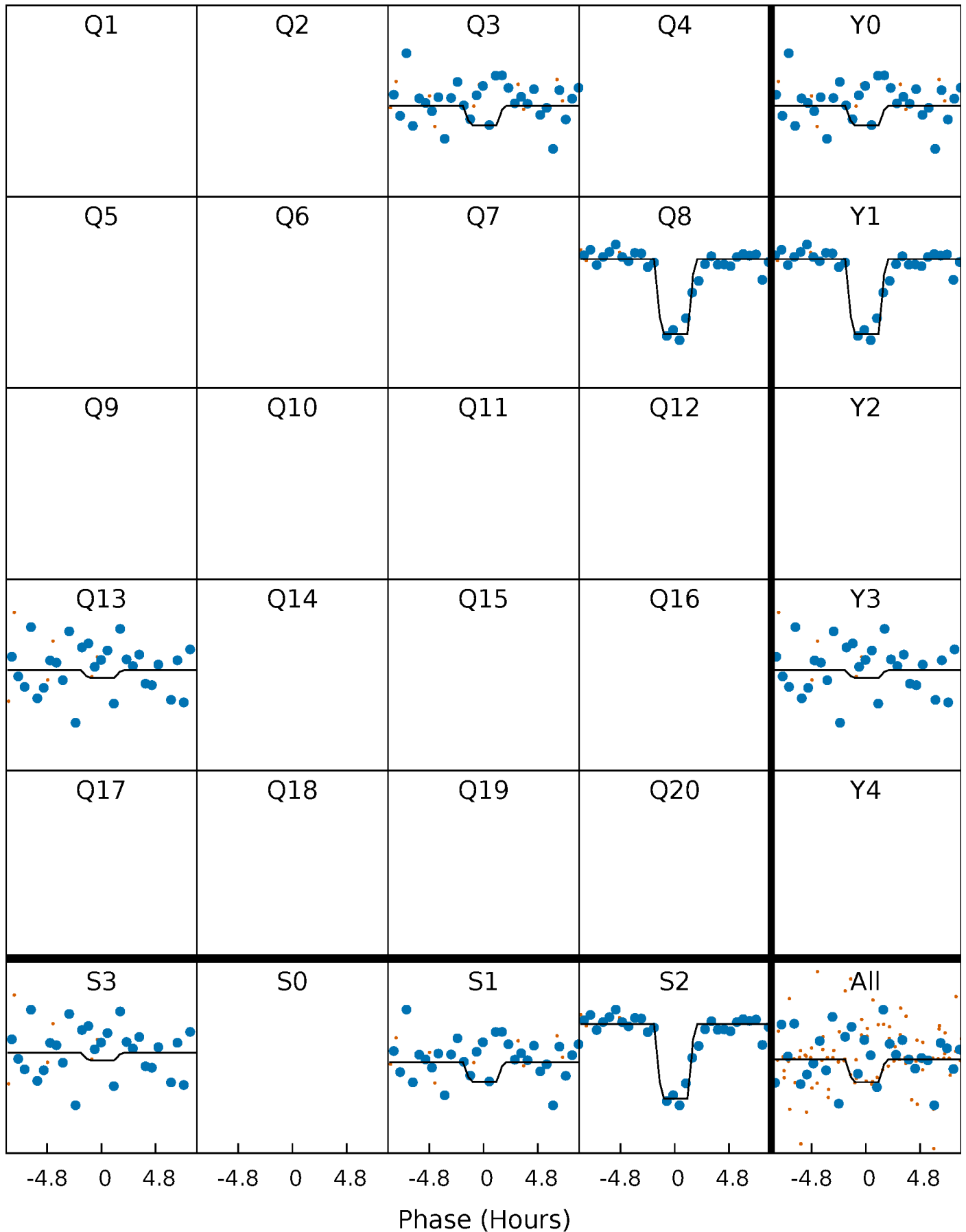
DV Quarter-Phased Transit Curves

TCE 003633545-02 $P=486.334829$ Days $T_0=265.965748$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

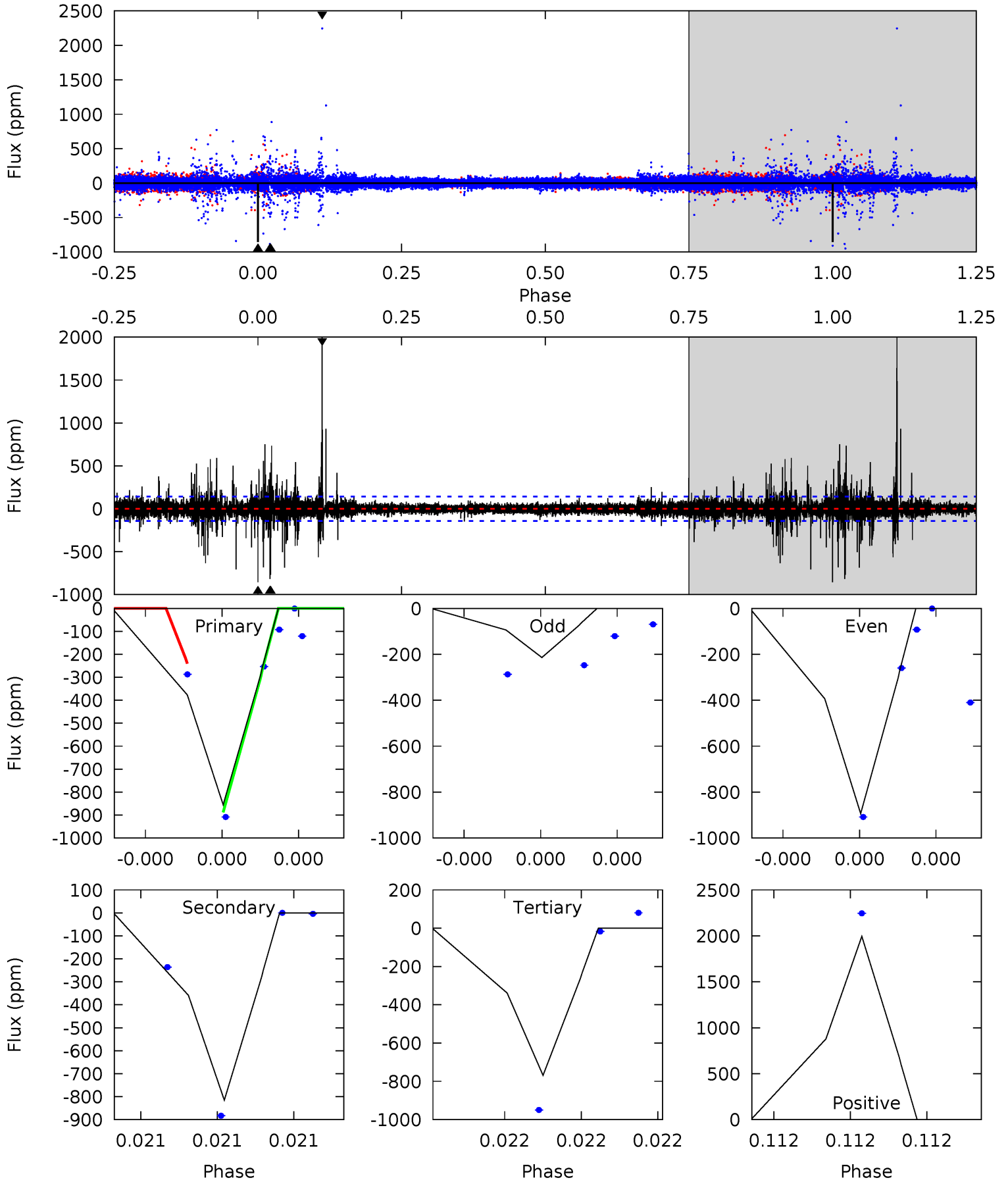
TCE 003633545-02 P=486.175693 Days $T_0=266.104759$ (BKJD)



DV Model-Shift Uniqueness Test

003633545-02, P = 486.334829 Days, E = 265.965748 Days

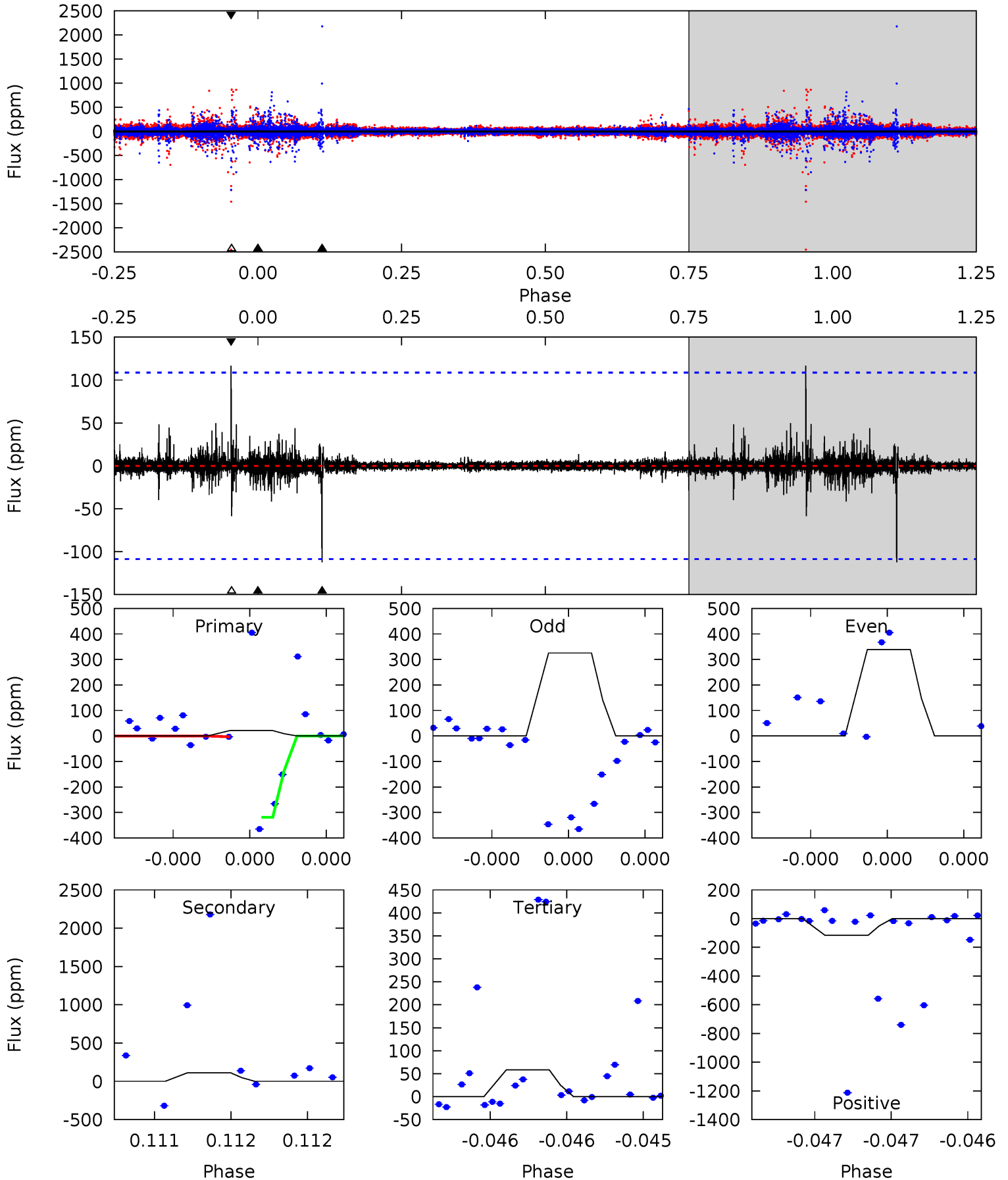
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
35.4	33.8	31.8	82.6	5.87	3.93	1.61	3.57	-47.2	1.92	-48.8	7.30	0.98	0.70	0



Alt Model-Shift Uniqueness Test

003633545-02, P = 486.175693 Days, E = 266.104759 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
1.10	5.86	3.04	6.08	5.67	3.63	0.22	-1.94	-4.98	2.81	-0.23	0.20	0.21	0.51	0



Stellar Parameters For KIC 003633545

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	5313^{+204}_{-185}	$4.505^{+0.085}_{-0.104}$	$-0.180^{+0.300}_{-0.300}$	$0.820^{+0.132}_{-0.099}$	$0.786^{+0.104}_{-0.070}$	$2.009^{+0.720}_{-0.625}$
	+4%/-3%	+2%/-2%	+167%/-167%	+16%/-12%	+13%/-9%	+36%/-31%
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 003633545-02 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	-816 ± 24	$34.42^{+34.94}_{-23.83}$	282^{+15}_{-14}	2349^{+863}_{-329}	468^{+4774}_{-351}
Alt.	-112 ± 19	$31.59^{+32.82}_{-23.12}$	282^{+15}_{-15}	1937^{+645}_{-251}	76^{+998}_{-58}

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 $A_{obs} \gg 1.0$

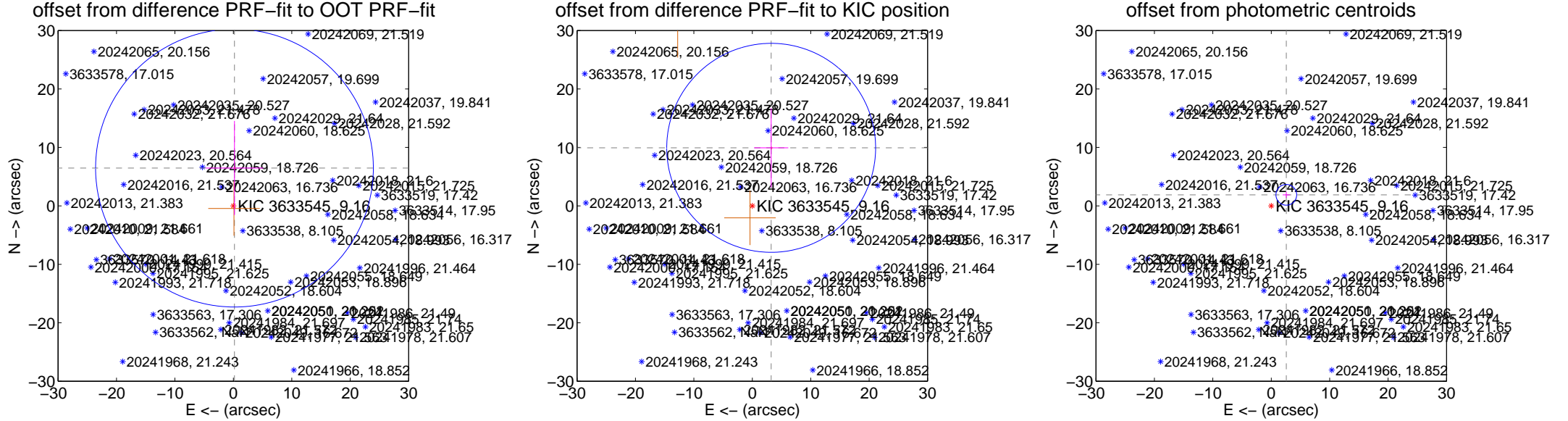
DV Centroid Data

Supplemental centroid analysis for 003633545-02. **Kepler magnitude: 9.16.** Transit SNR 34.29

There are 0 quarters with good PRF difference image offsets

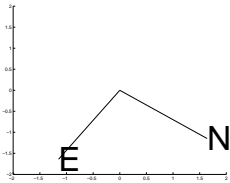
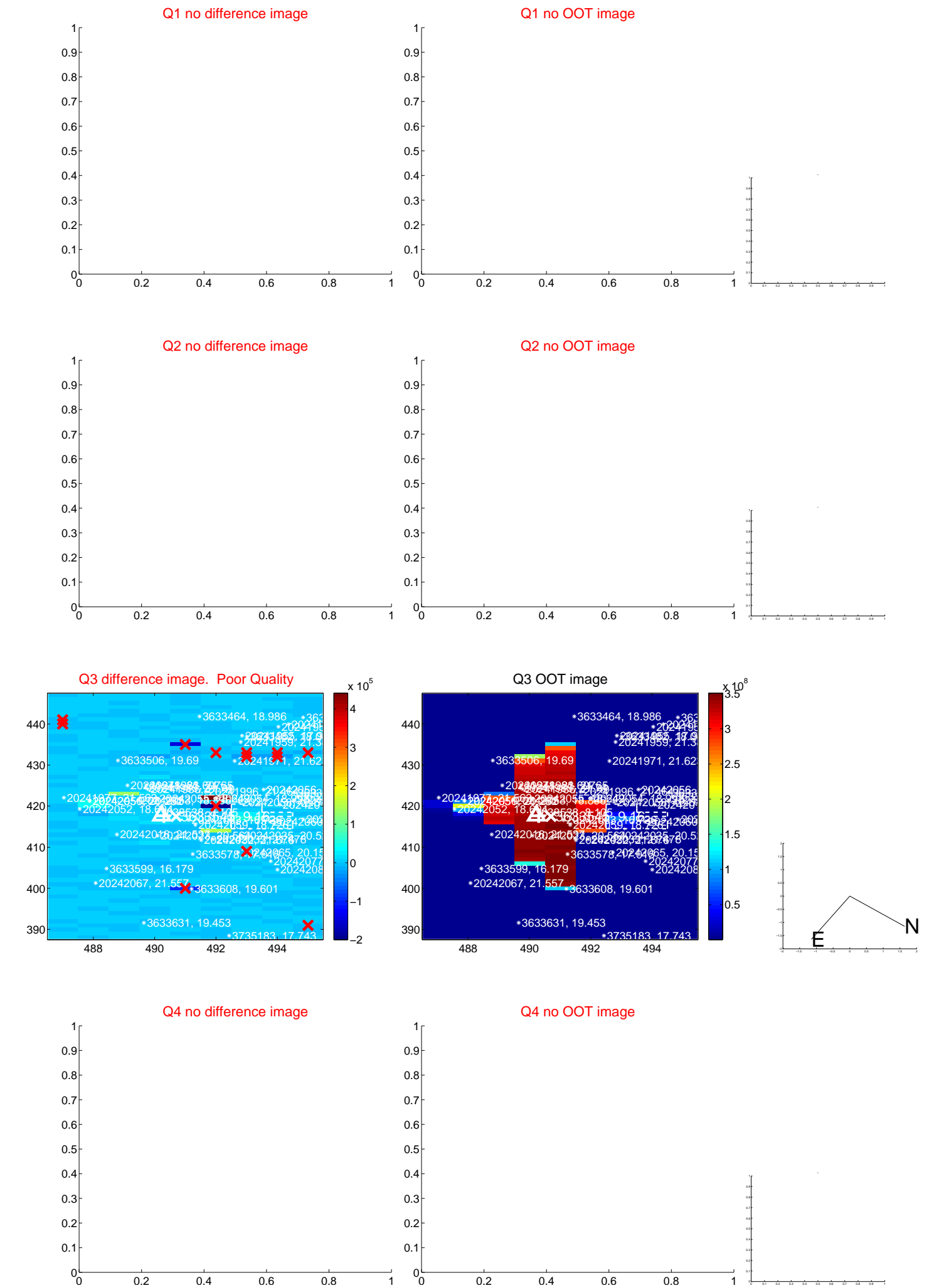
The OOT PRF centroid is offset from the target star catalog position by about 4.60 arcsec so the offset from difference PRF-fit to OOT-fit may be invalid.

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	6.469 ± 7.923	0.82	-0.192 ± 4.921	6.466 ± 8.070
PRF-fit source offset from KIC position	10.440 ± 5.958	1.75	-3.230 ± 2.928	9.928 ± 6.766
photometric centroid source offset	3.19 ± 0.59	5.40	-2.58 ± 0.63	1.89 ± 0.52

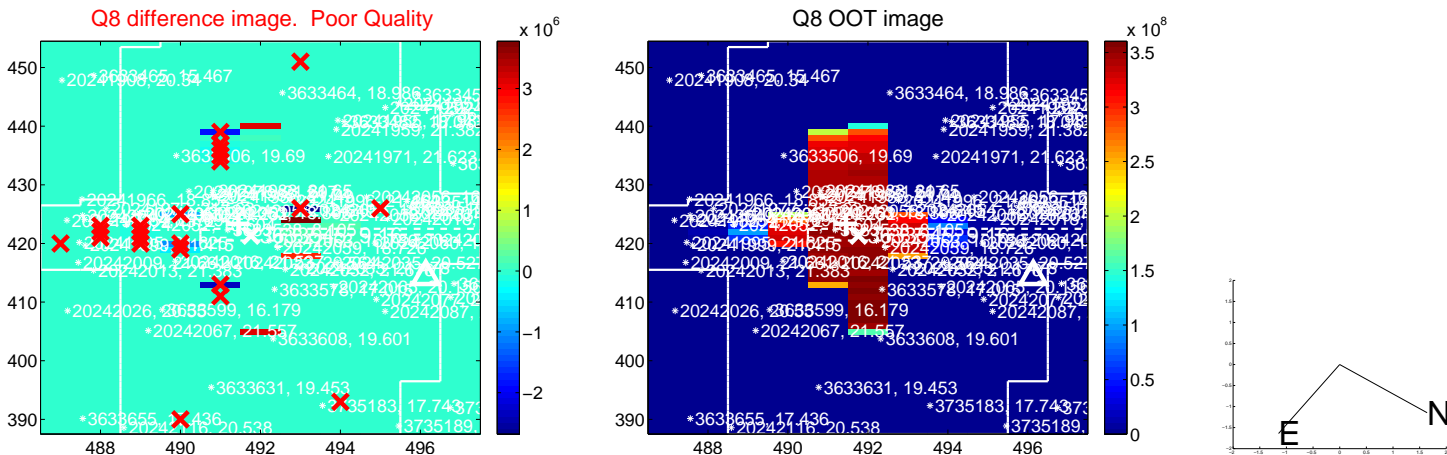
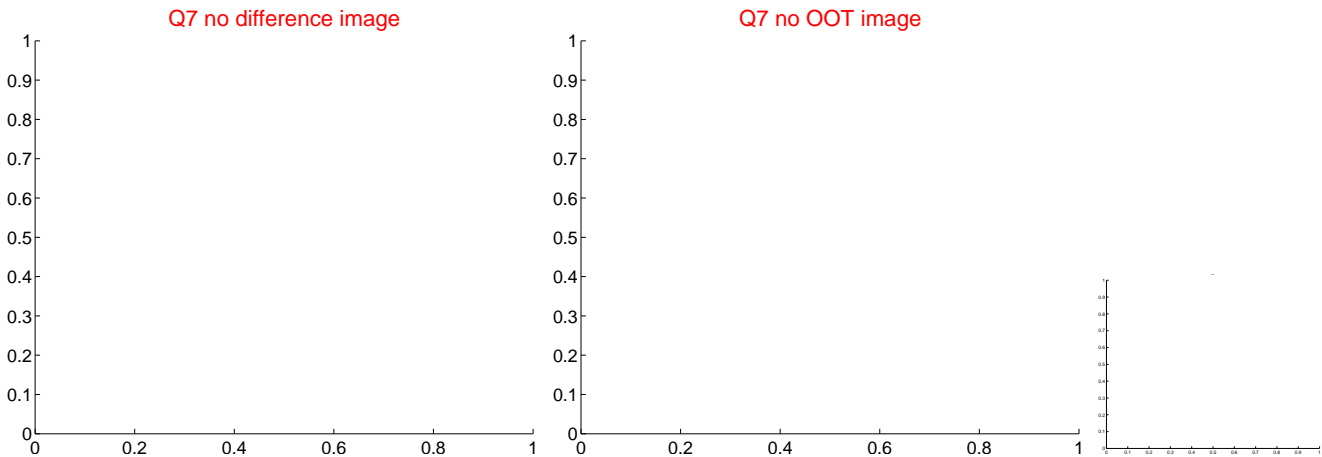
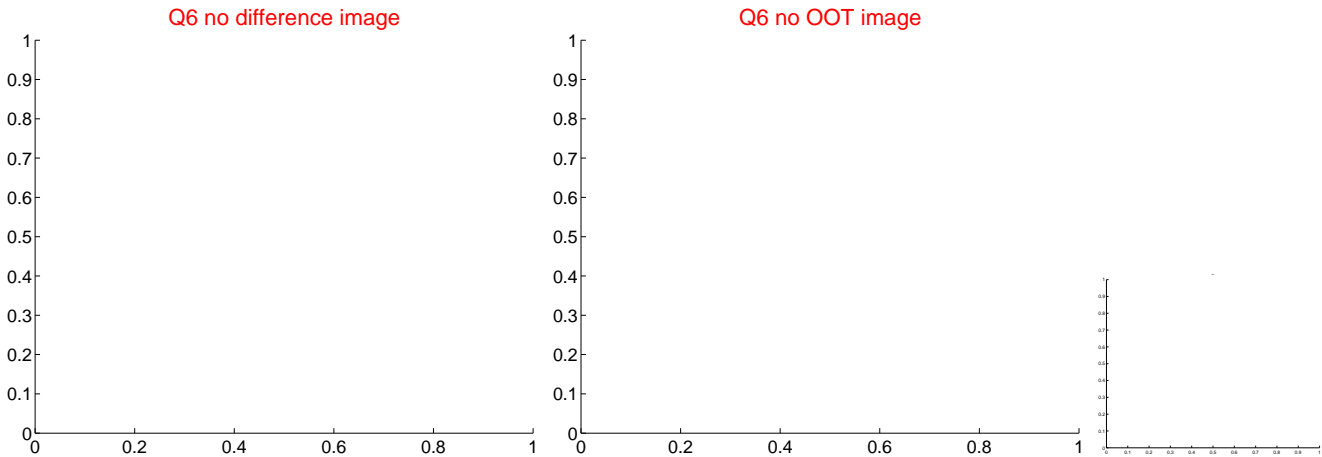
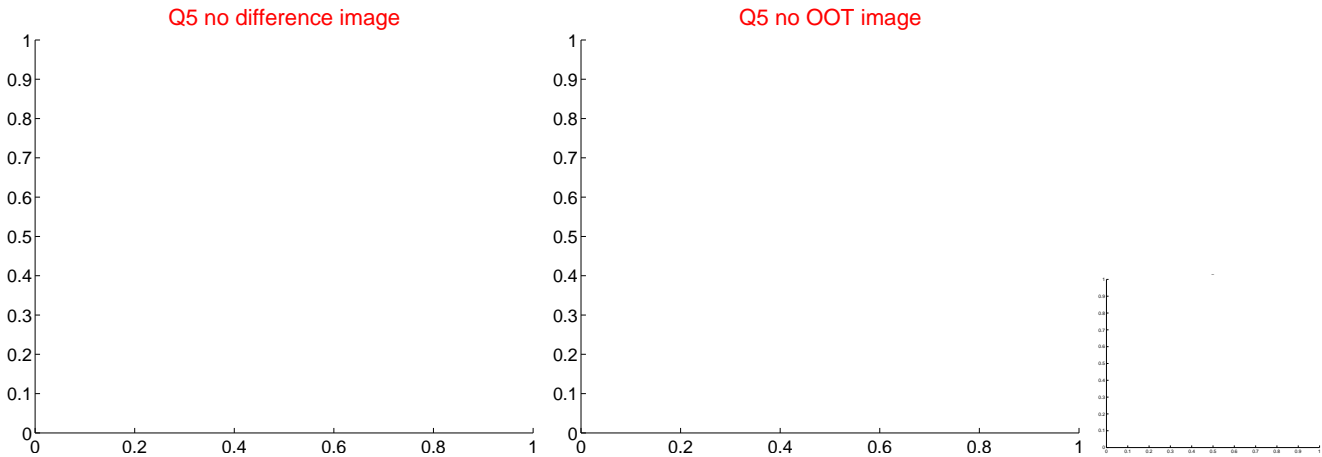


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets;** magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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



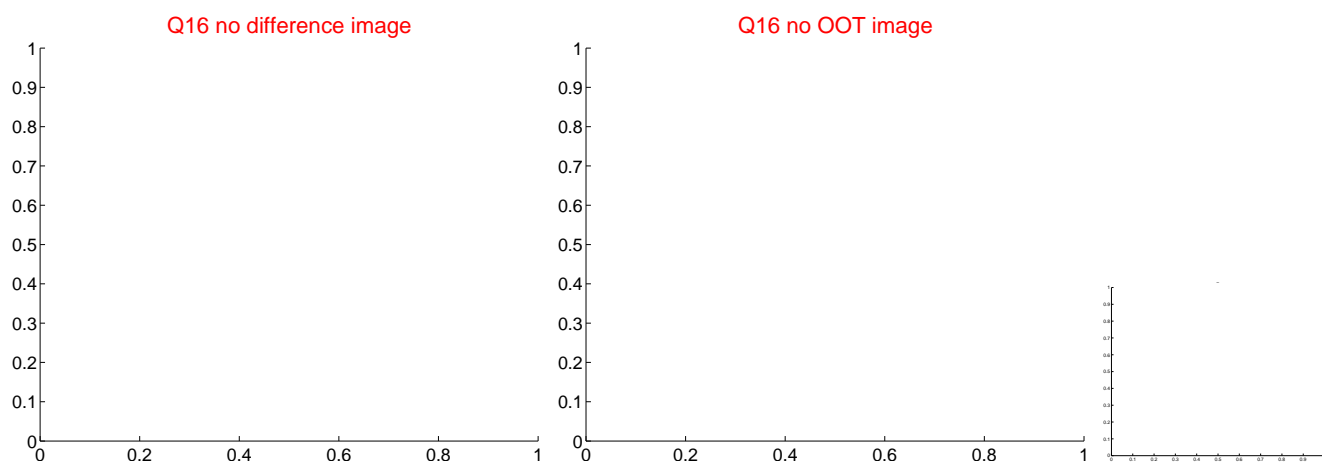
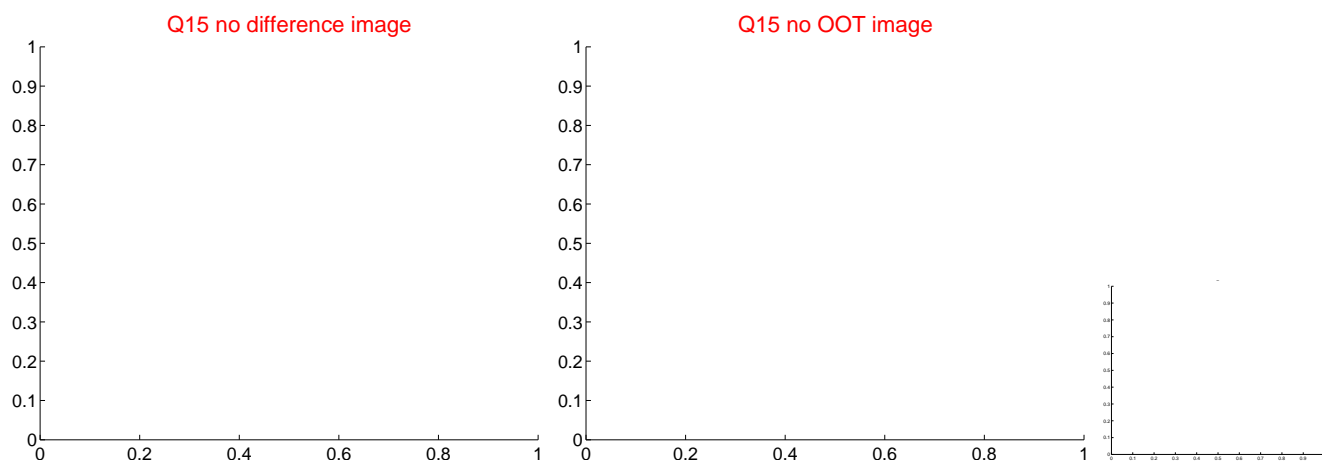
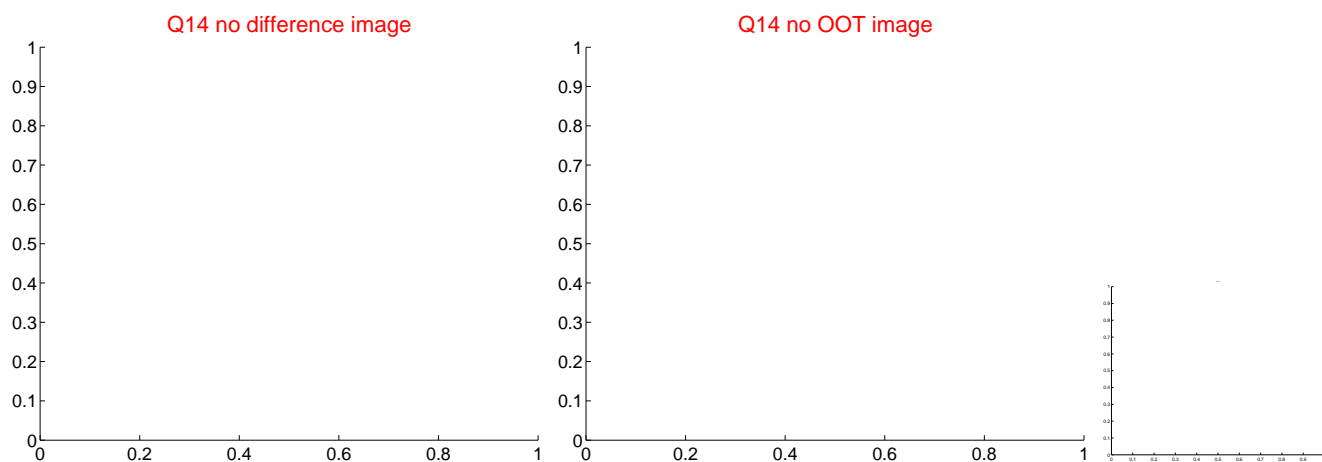
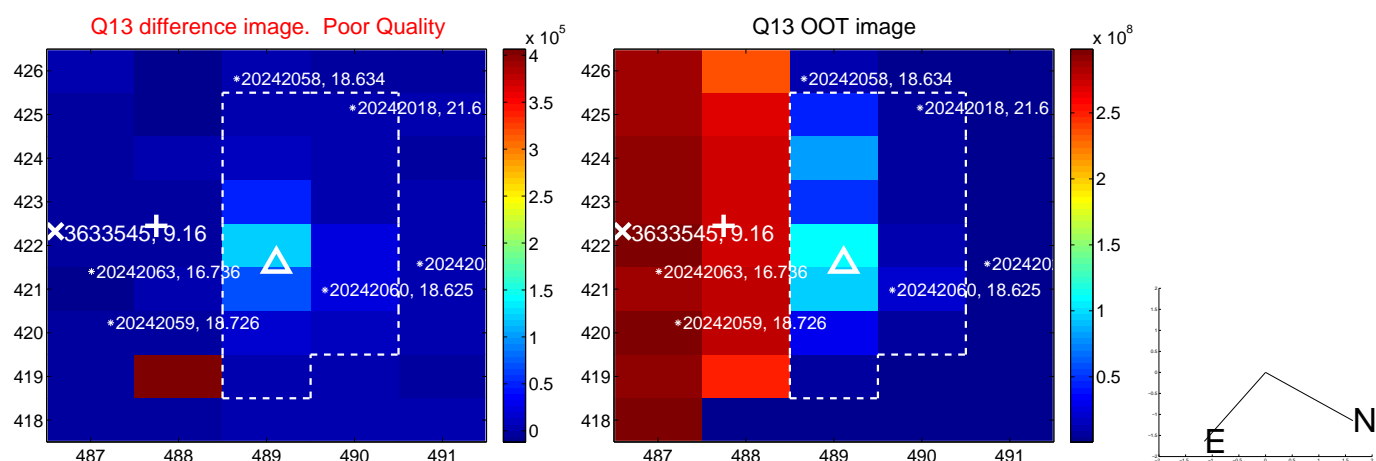
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



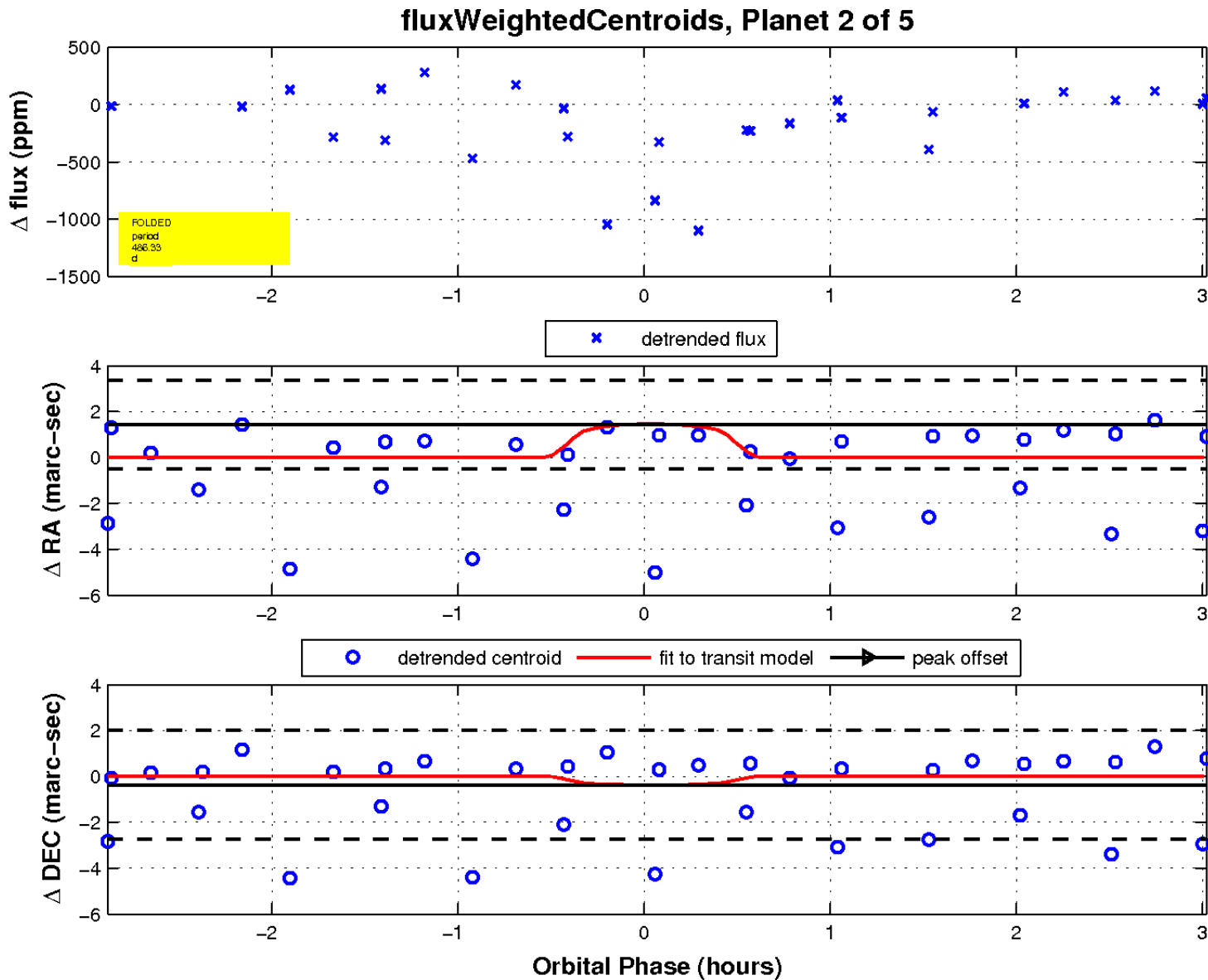
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

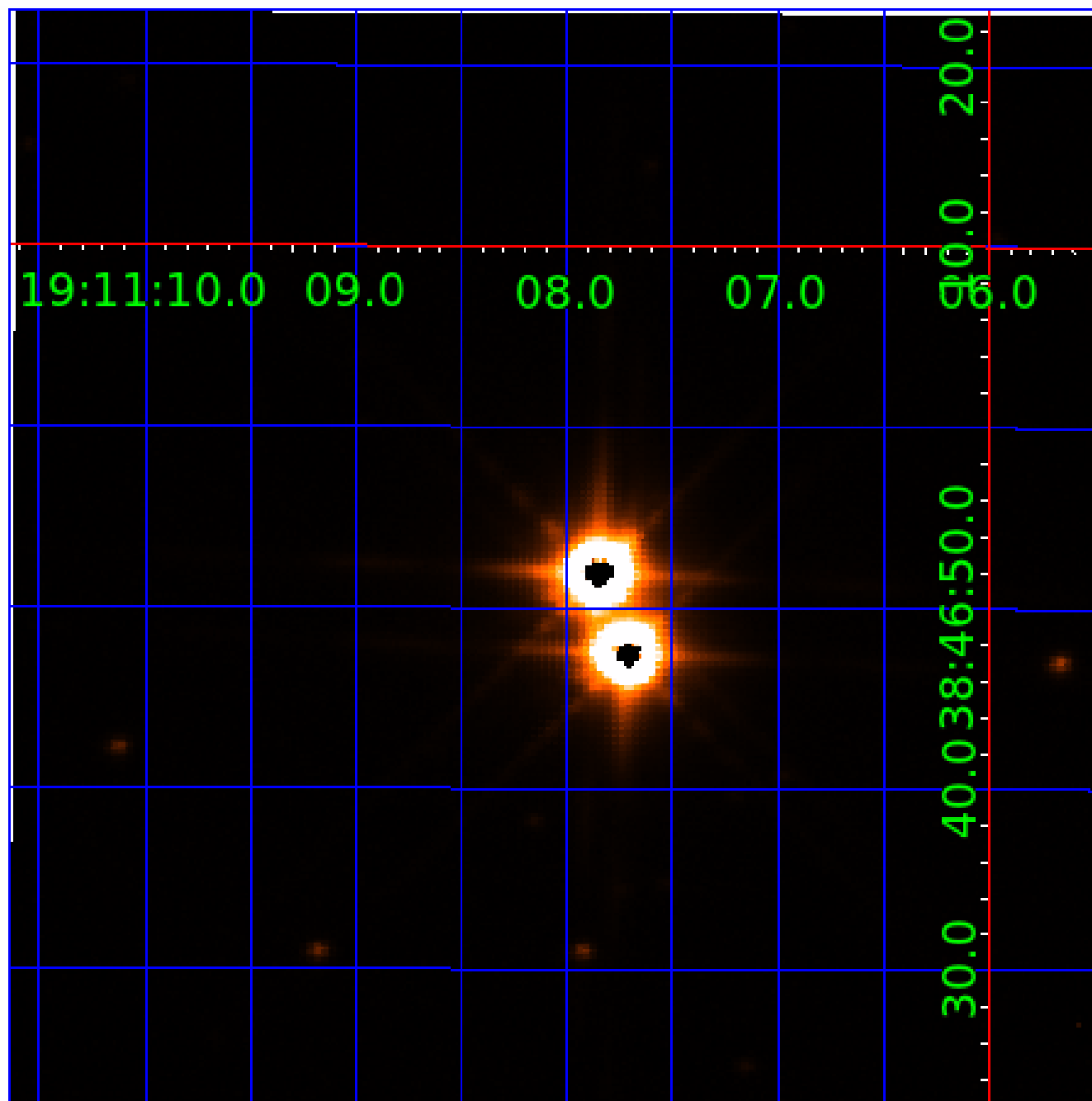


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 003633545

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})
003633545-01	OBS	No	407.877975	278.081780	119.6	10.623	24.8	13.0	0.82	5313	0.95	0.49
003633545-02	OBS	No	486.334829	265.965747	1027.7	1.011	58.8	34.3	0.82	5313	2.88	0.39
003633545-03	OBS	No	226.154109	342.882432	56.7	1.261	45.7	3.2	0.82	5313	0.61	1.07
003633545-04	OBS	No	278.316403	370.285856	149.5	2.542	29.9	15.5	0.82	5313	1.09	0.81
003633545-05	OBS	No	310.886176	330.385547	6.4	2.024	62.9	0.6	0.82	5313	0.25	0.70

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
003633545-01	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_CHASES_MARSHALL_SKYE_ZUMA—LPP_DV—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_SATURATED
003633545-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL_TRACKER—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_SATURATED
003633545-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL_ZUMA_TRACKER—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_SATURATED
003633545-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_SATURATED
003633545-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL_TRACKER—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_SATURATED

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

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

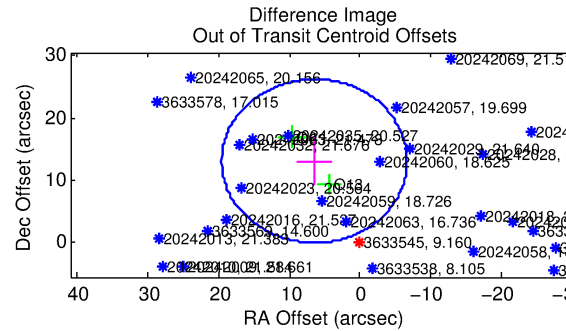
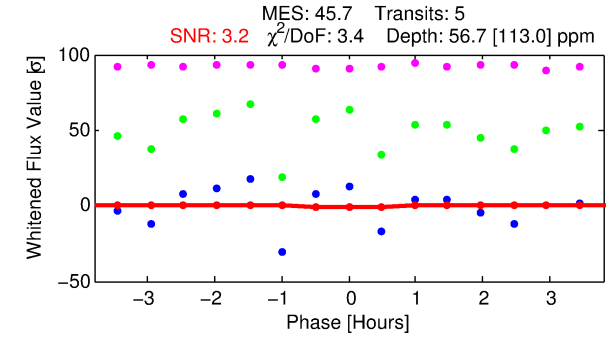
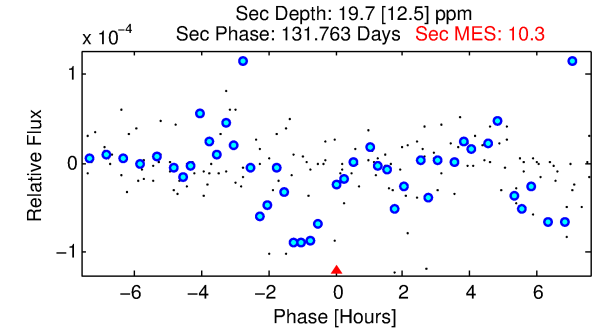
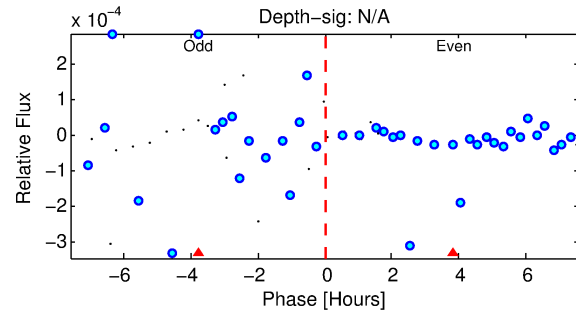
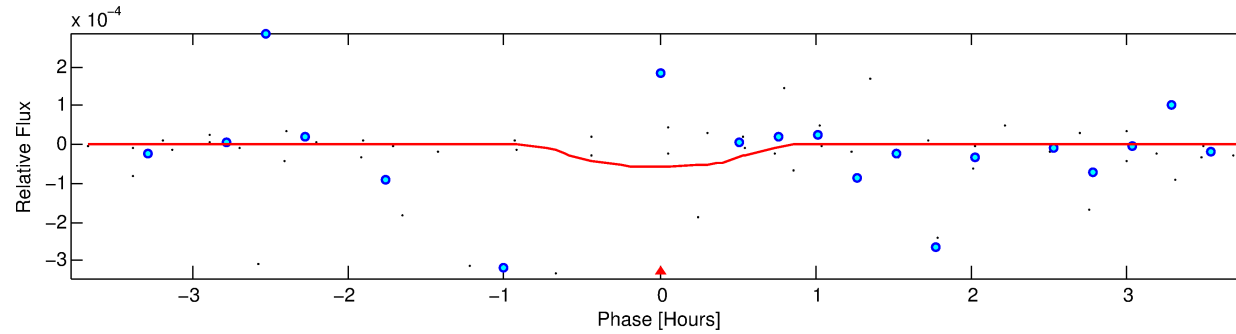
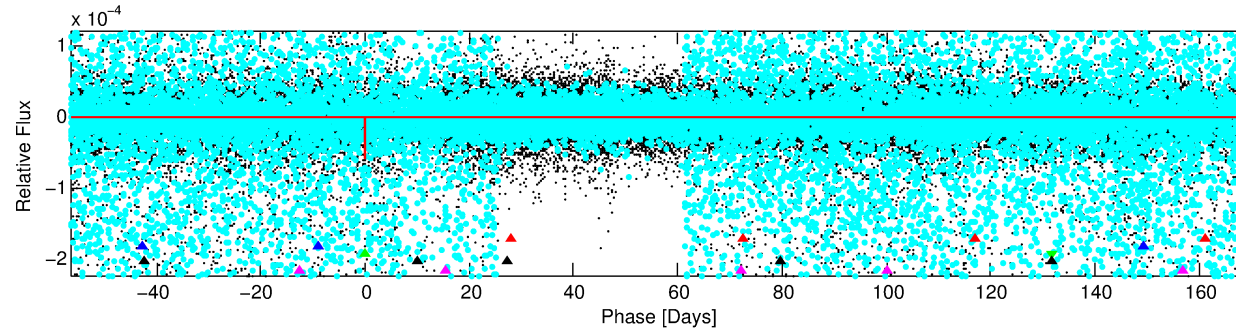
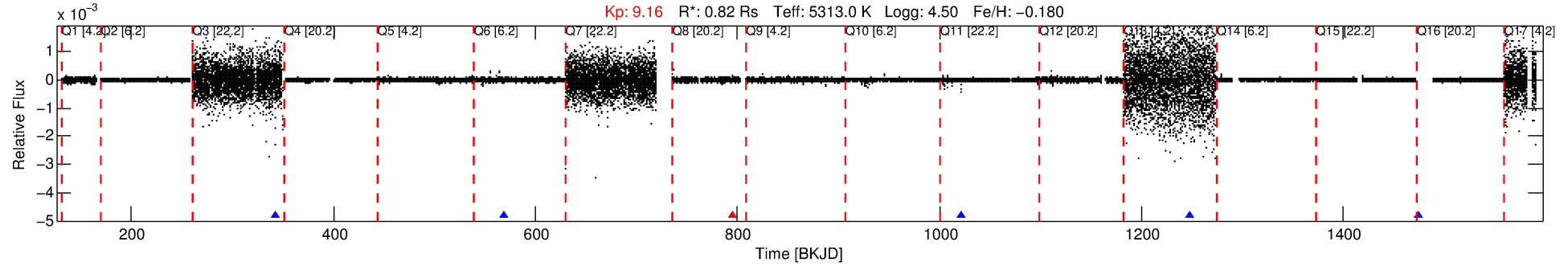
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 003633545-03

No Significant Match Found

DV One-Page Summary

KIC: 3633545 Candidate: 3 of 5 Period: 226.154 d



DV Fit Results:

Period = 226.15411 [0.02449] d
Epoch = 342.8824 [0.0560] BKJD
Rp/R* = 0.0068 [0.4387]
a/R* = 1379.21 [347313.13]
b/R* = 0.01 [19893.90]
Seff = 1.07 [0.26]
Teq = 259 [16] K
Rp = 0.61 [39.26] Re
a = 0.6702 [0.0896] AU
Ag = 13142.56 [1695177.86] [0.01σ]
Teff = 4292 [138402] K [0.03σ]

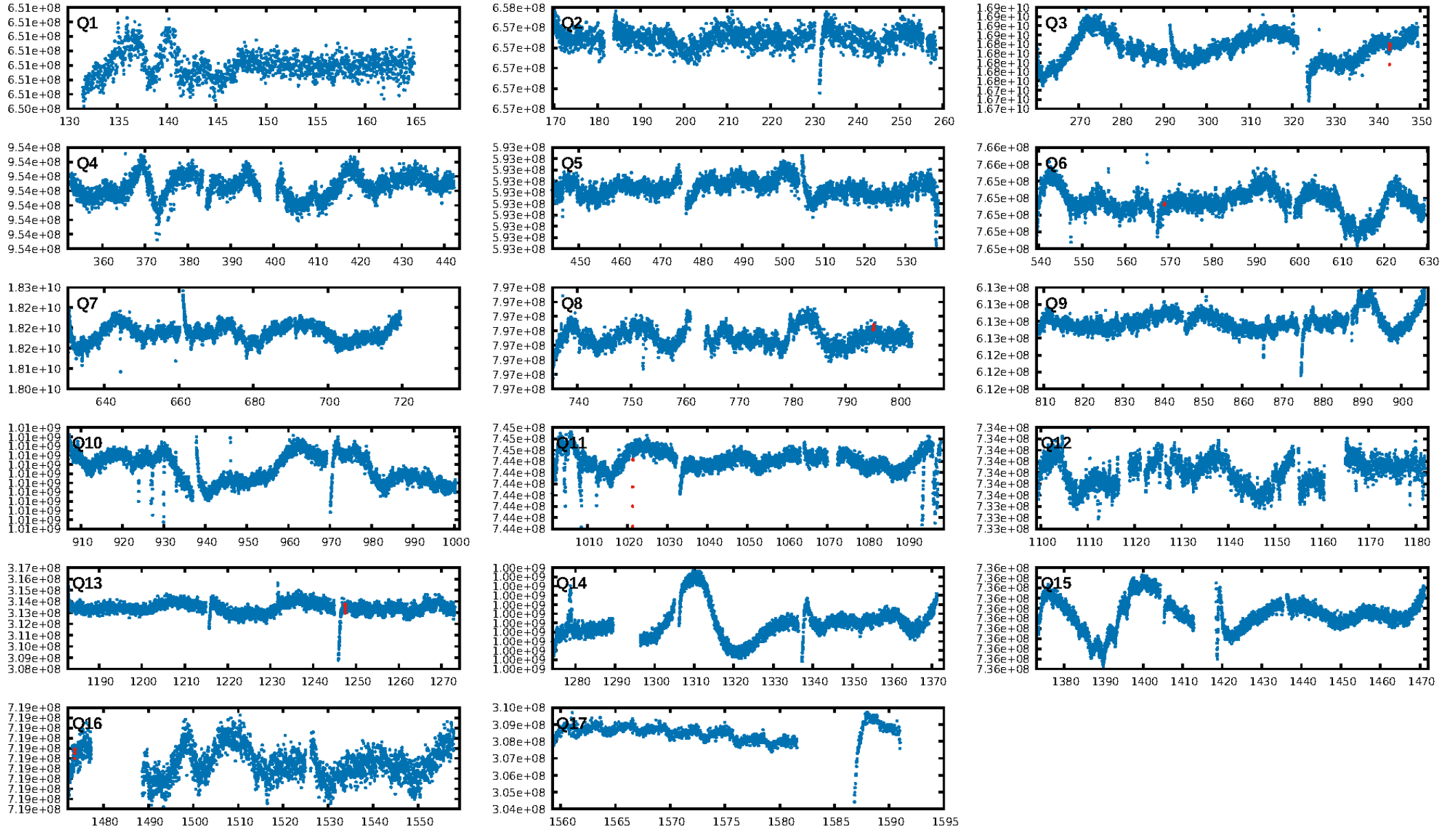
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: 100.0% [441.19σ]
ModelChiSquare2-sig: 0.0%
ModelChiSquareGof-sig: 0.0%
Bootstrap-pfa: 1.81e-07
RollingBand-fgt: 0.80 [4/5]
GhostDiagnostic-chr: N/A
Centroid-sig: 7.7%
Centroid-so: 1.656 arcsec [0.67σ]
OotOffset-rm: 14.589 arcsec [3.34σ]
KicOffset-rm: 15.951 arcsec [5.32σ]
OotOffset-st: 1/0/0/1 [2]
KicOffset-st: 1/0/0/1 [2]
DiffImageQuality-fgm: 0.00 [0/2]
DiffImageOverlap-fno: 1.00 [4/4]

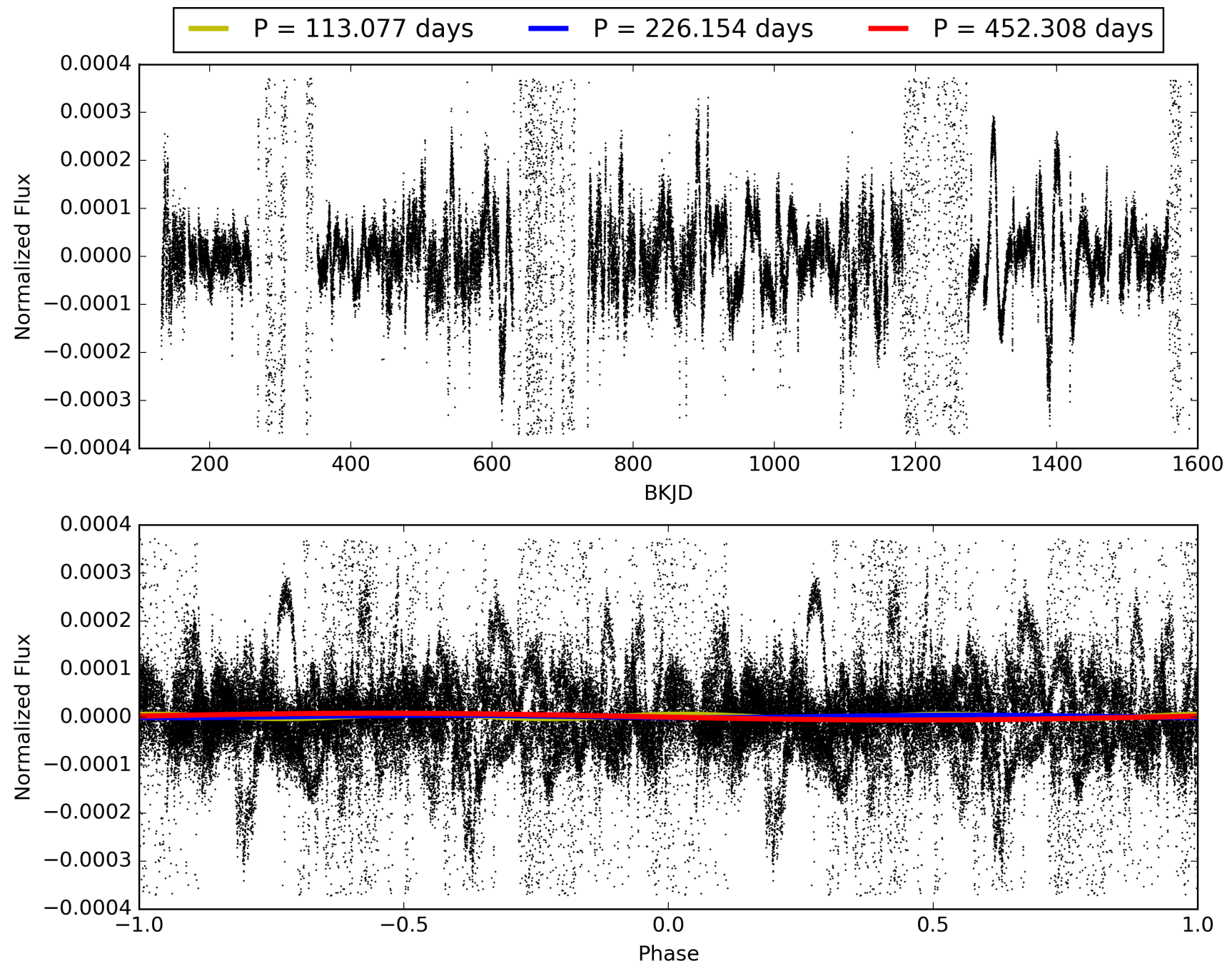
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 02-Feb-2016 00:41:23 Z

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

TCE 003633545-03, PDC Light Curves

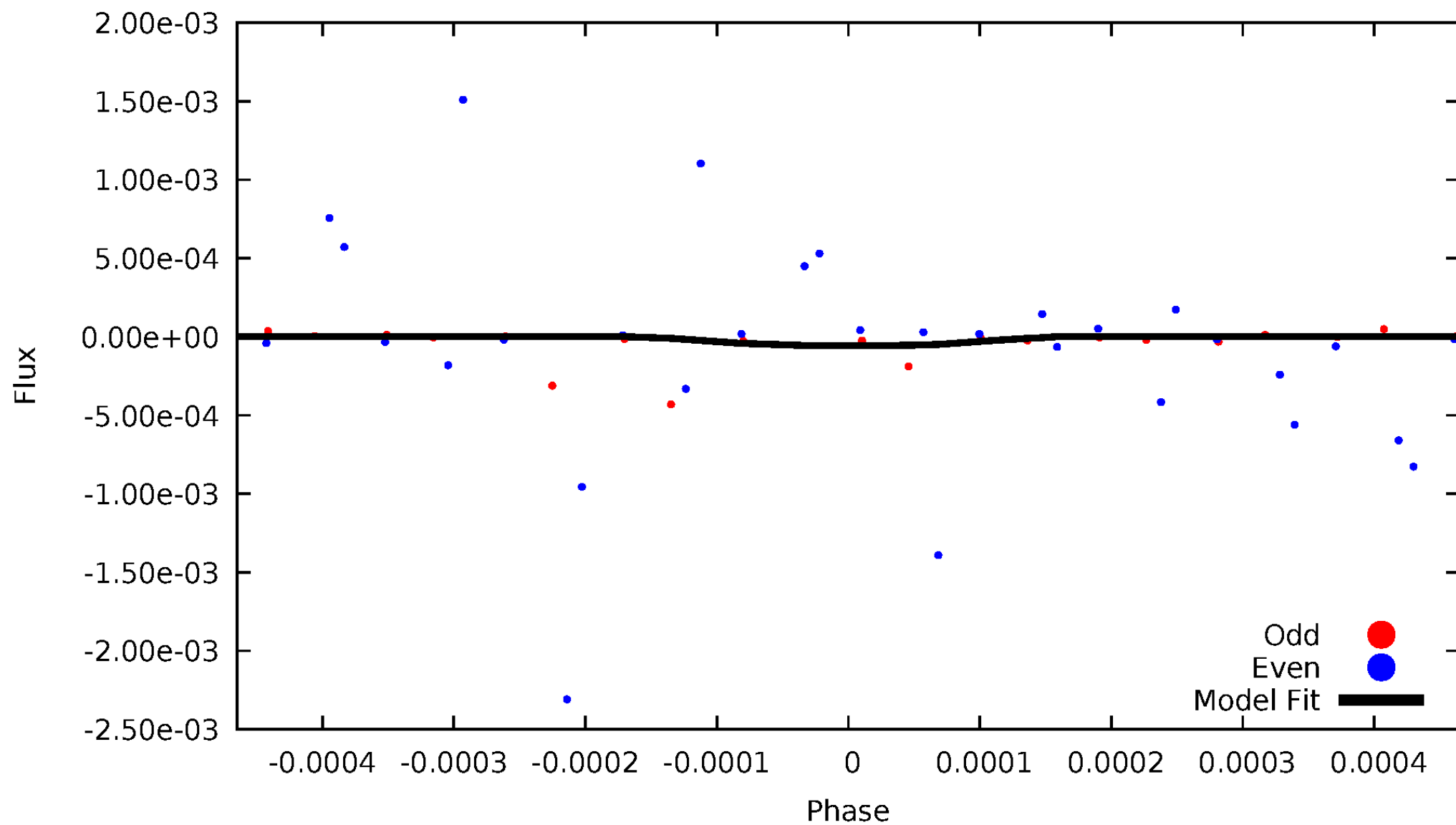


TCE 003633545-03



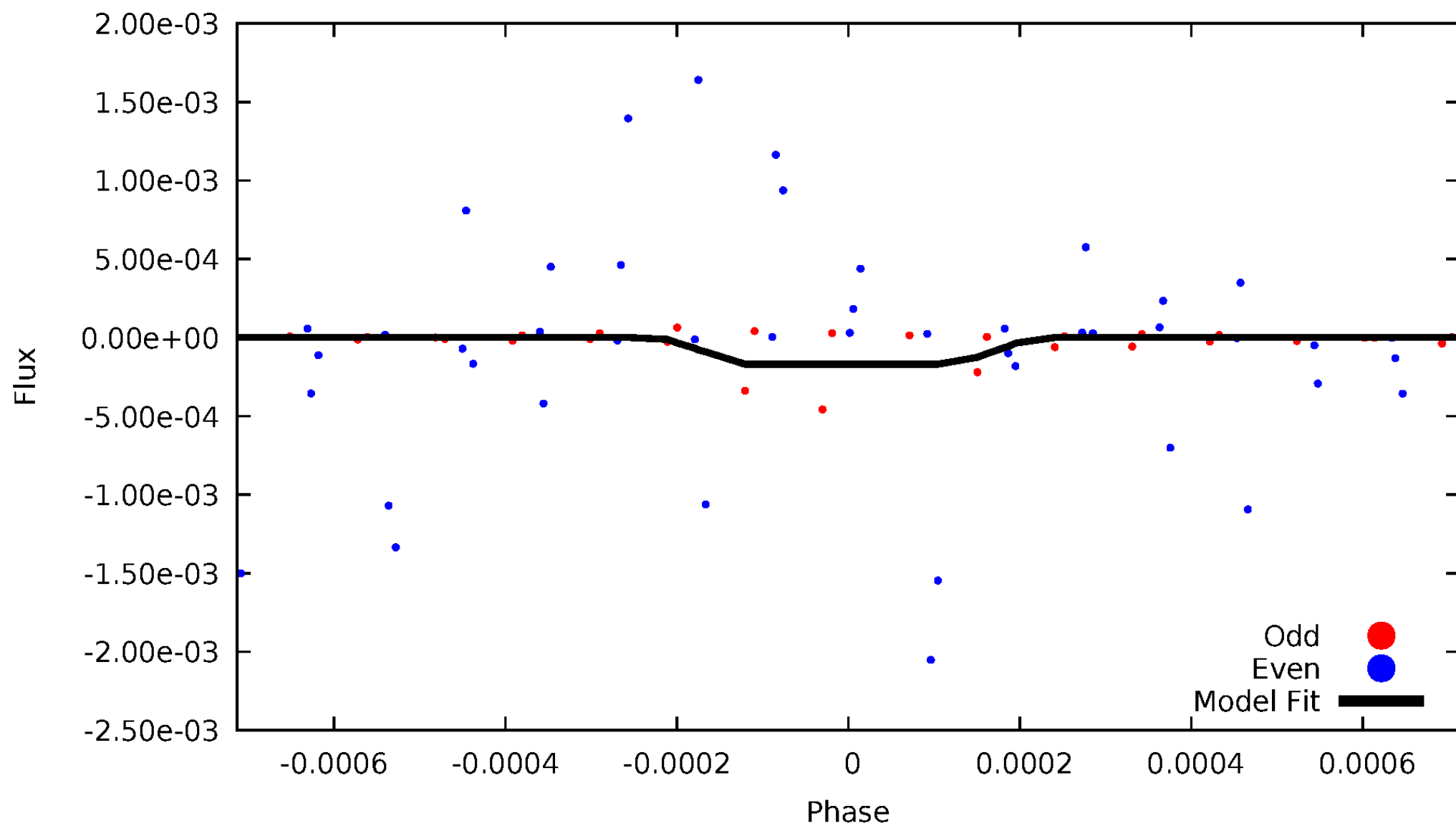
DV Odd/Even

TCE 003633545-03



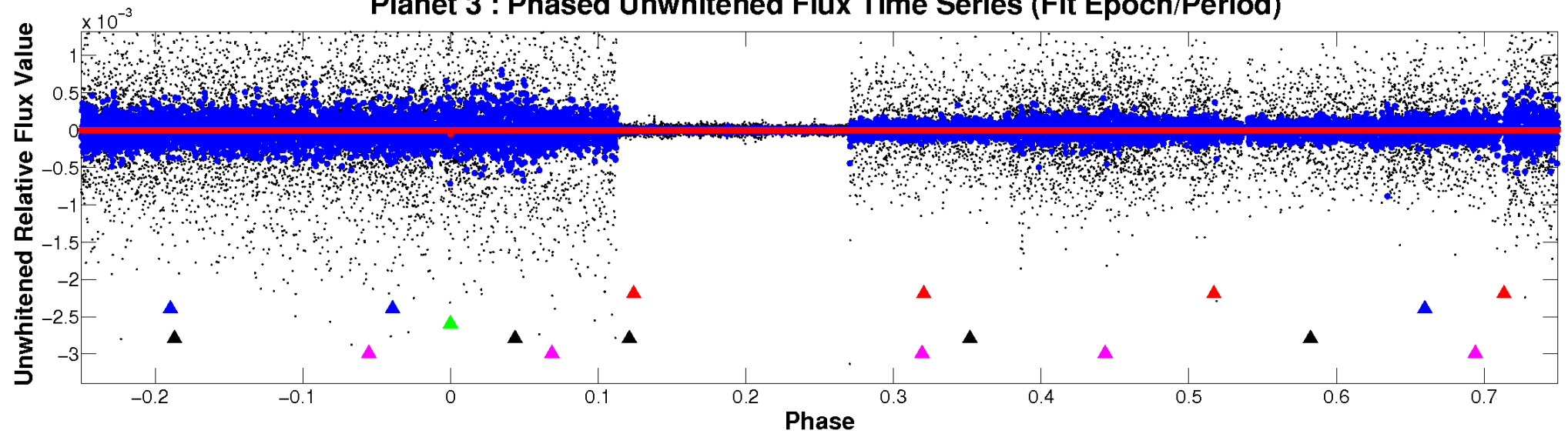
ALT Odd/Even

TCE 003633545-03

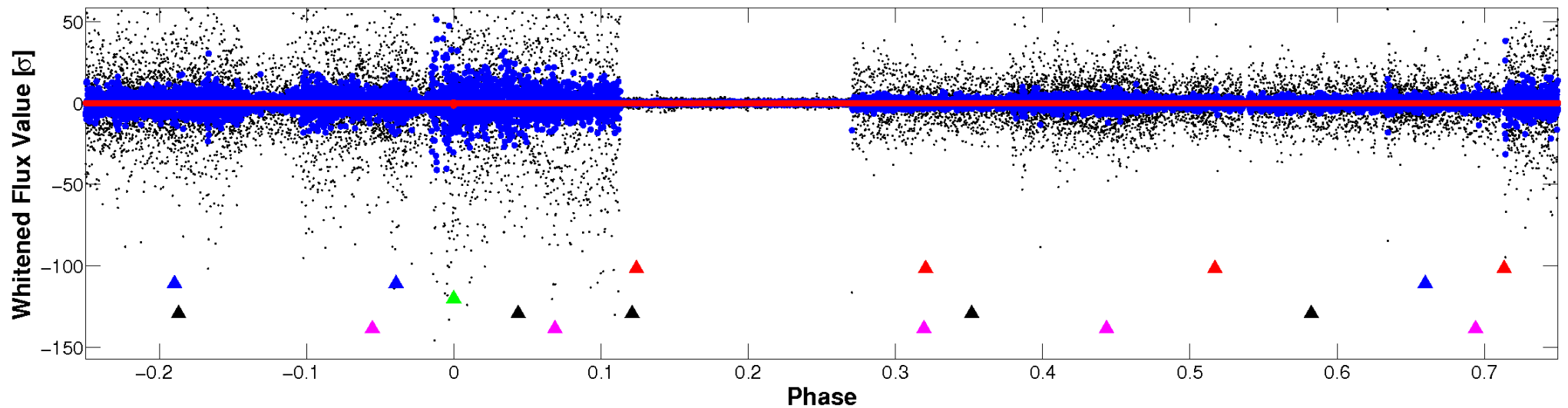


Non-Whitened Vs. Whitened Light Curve

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

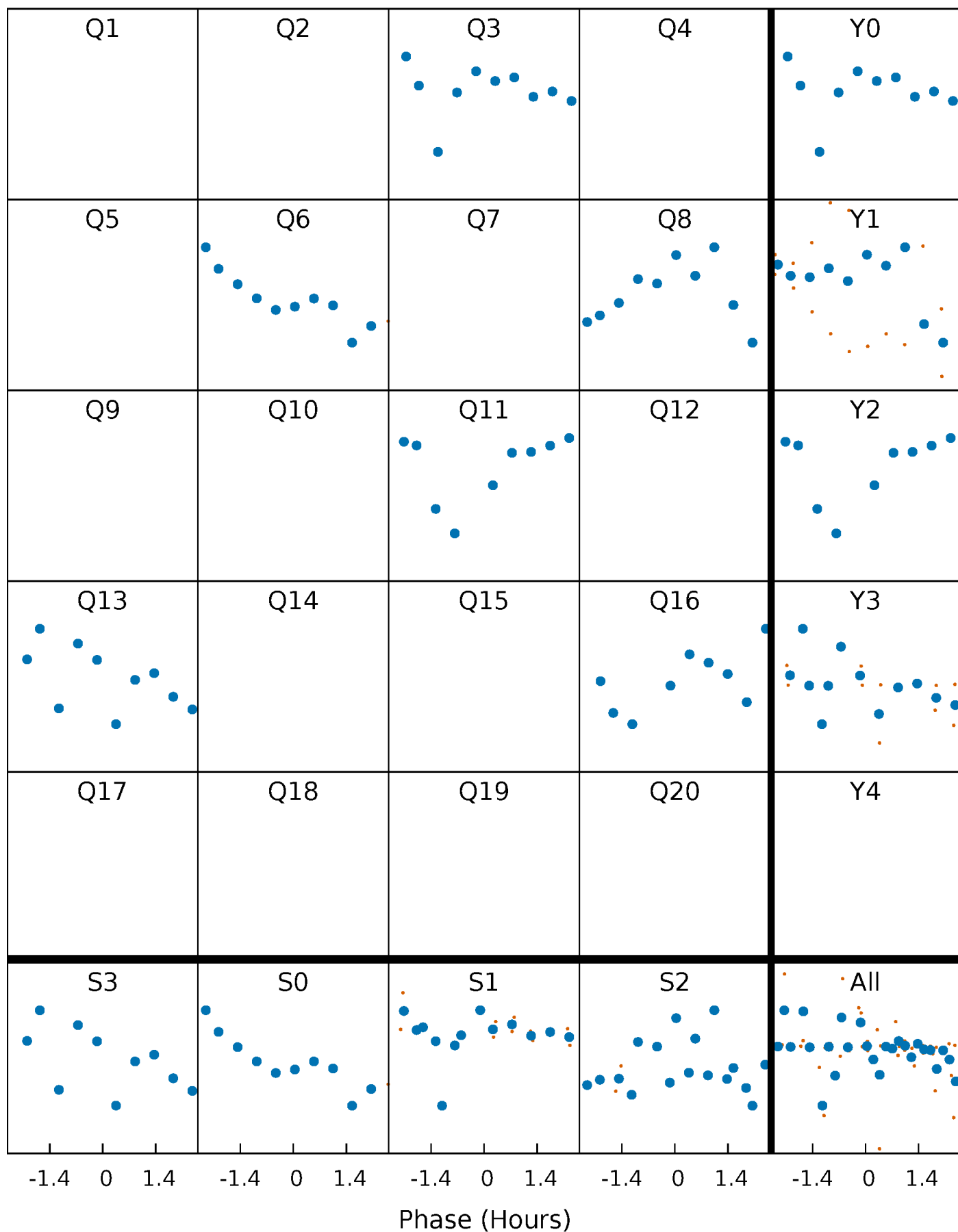


Planet 3 : Phased Whitened Flux Time Series (Fit Epoch/Period)



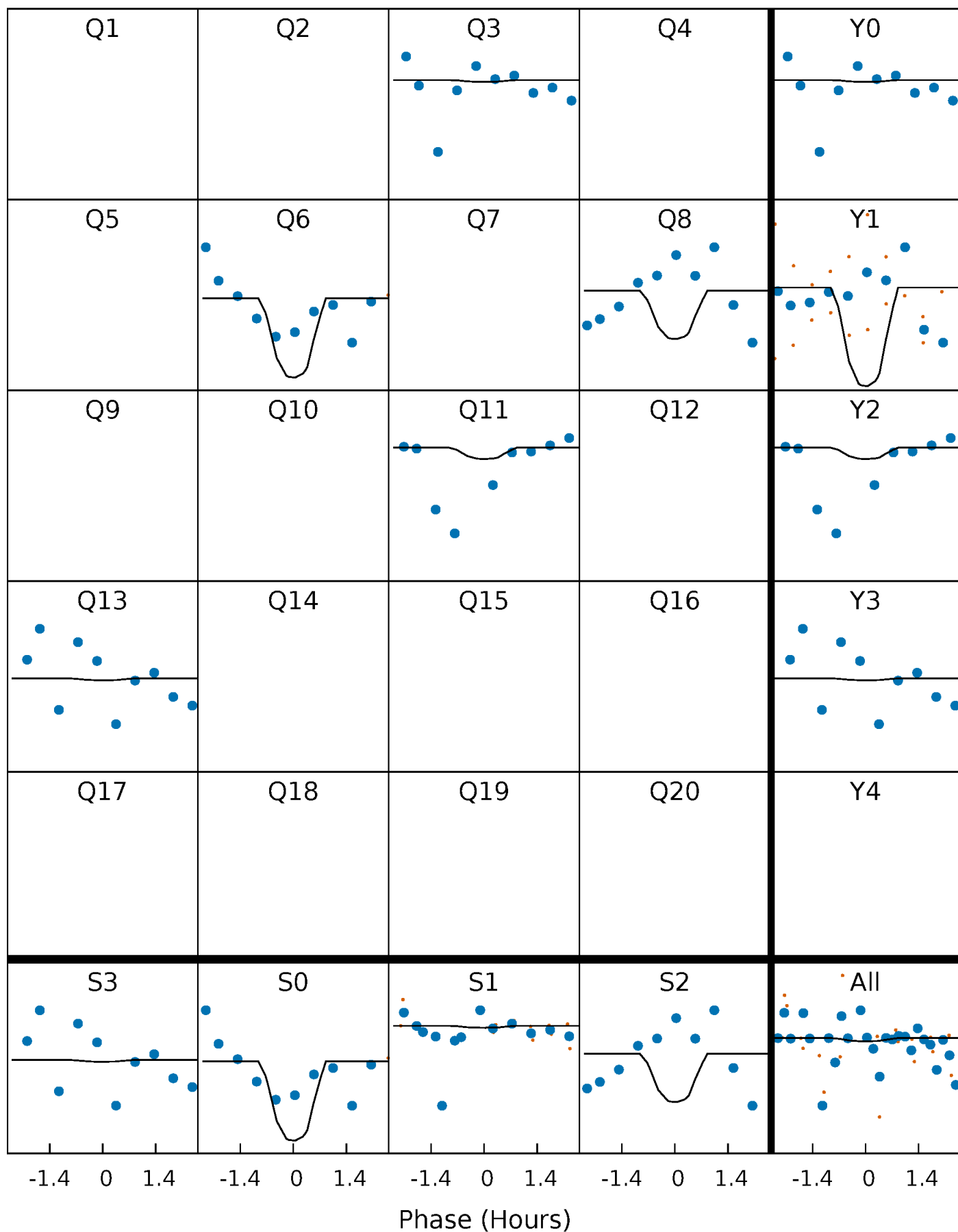
PDC Quarter-Phased Transit Curves

TCE 003633545-03 $P=226.154109$ Days $T_0=342.882432$ (BKJD)



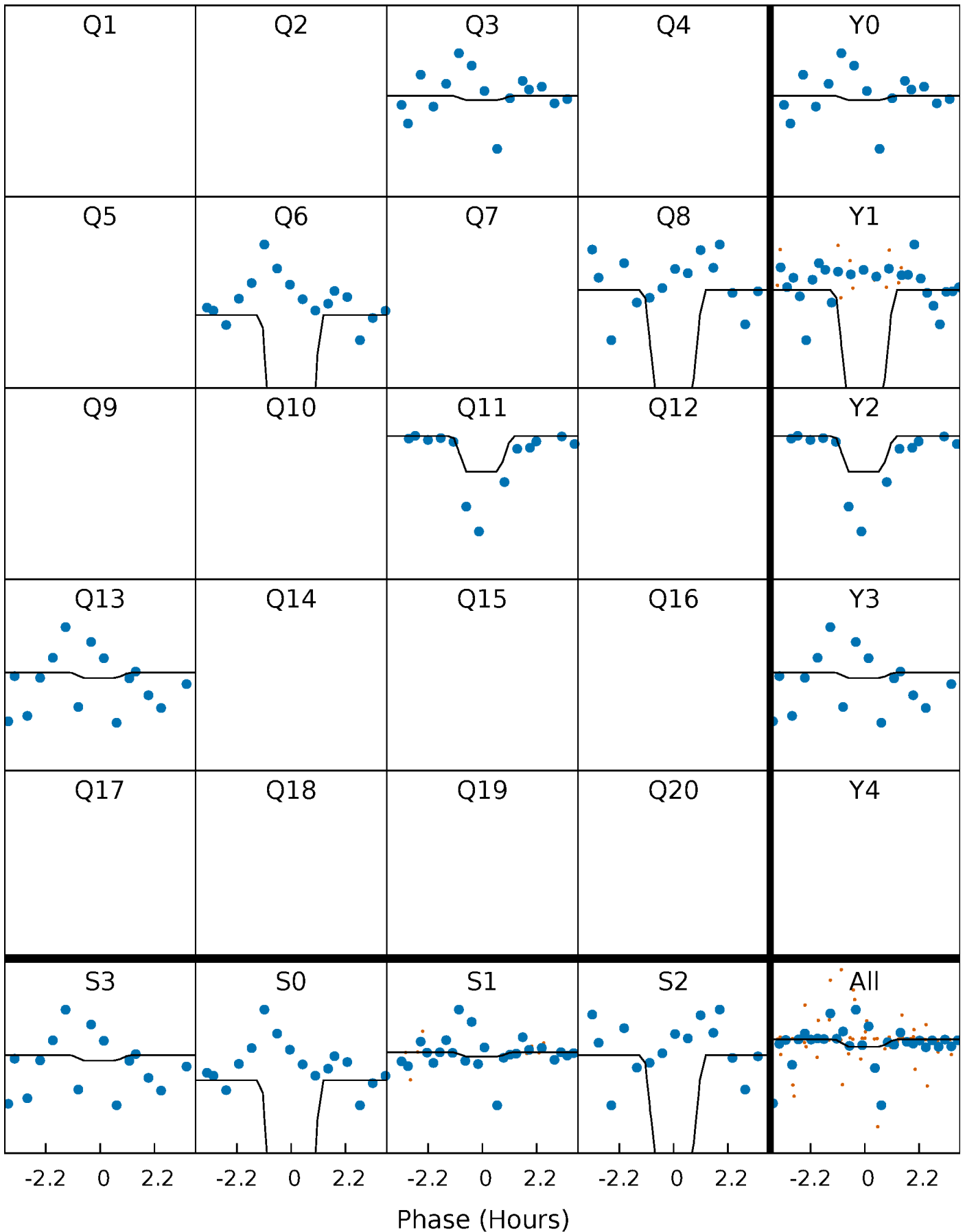
DV Quarter-Phased Transit Curves

TCE 003633545-03 $P=226.154109$ Days $T_0=342.882432$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

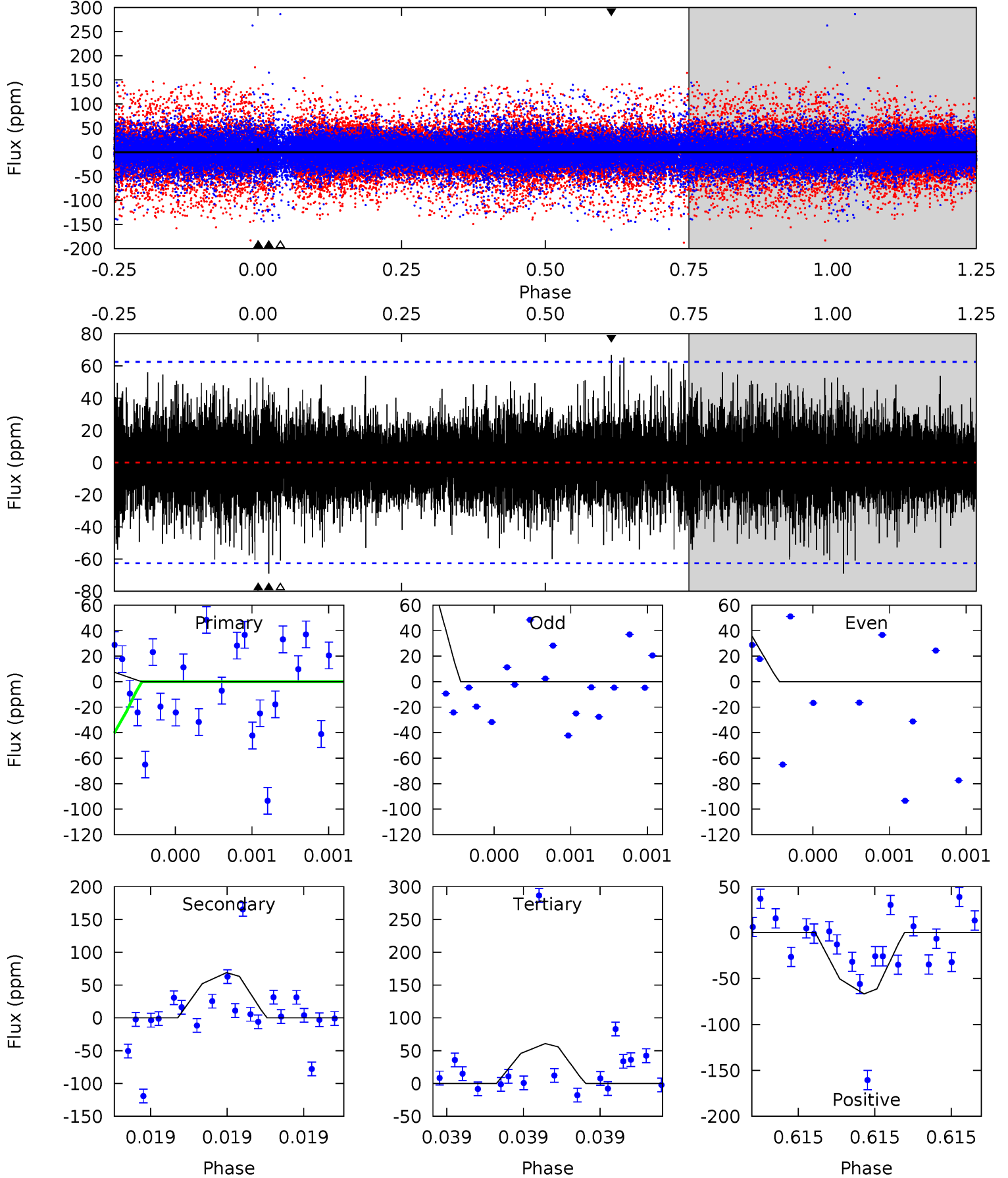
TCE 003633545-03 P=226.169602 Days $T_0=342.812286$ (BKJD)



DV Model-Shift Uniqueness Test

003633545-03, P = 226.154109 Days, E = 116.728323 Days

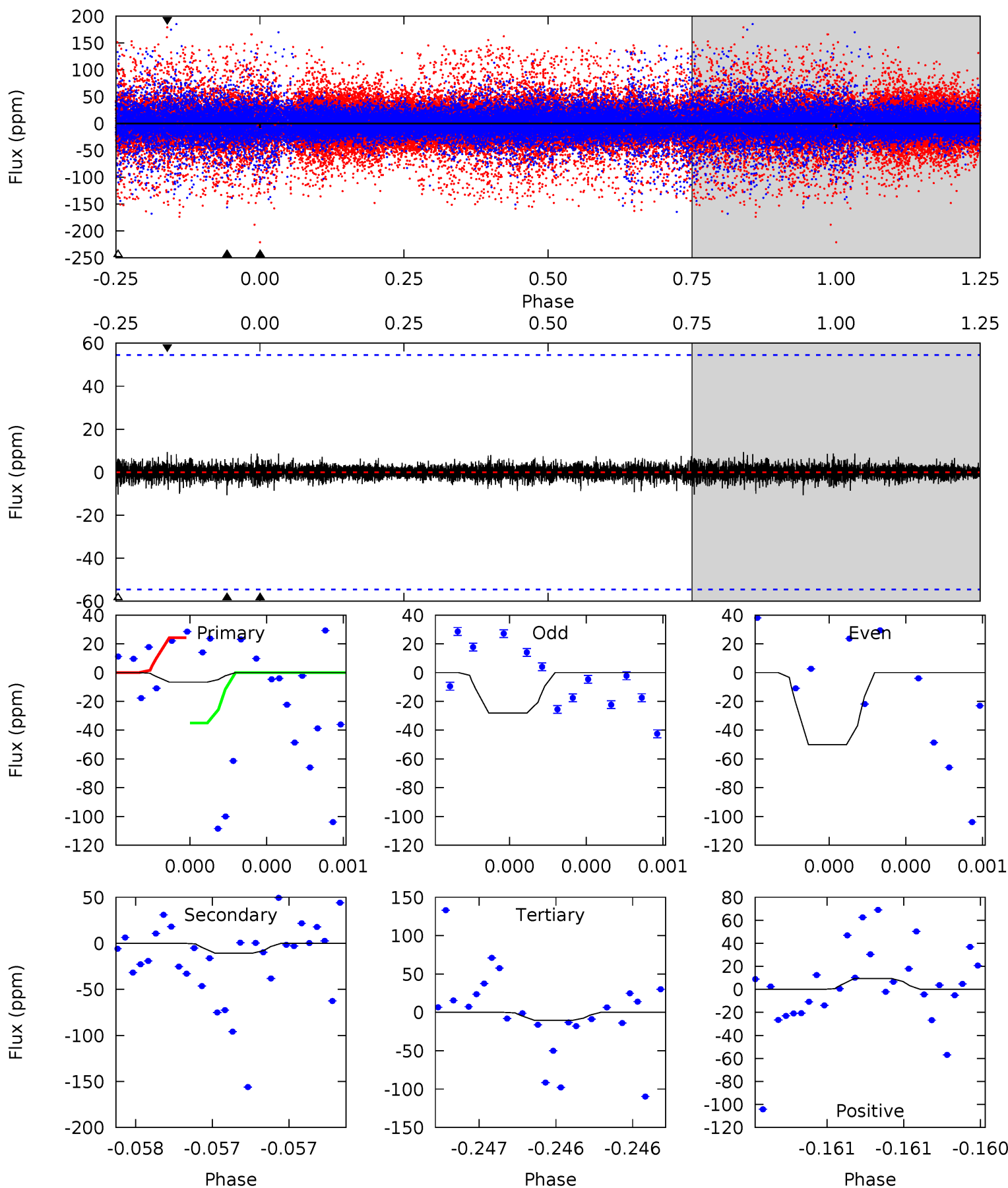
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
0.73	6.24	5.51	6.05	5.67	3.63	1.24	-4.78	-5.32	0.73	0.19	1.38	1.32	0.49	12.7



Alt Model-Shift Uniqueness Test

003633545-03, P = 226.169602 Days, E = 116.642684 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
0.68	1.10	1.07	0.95	5.61	3.54	0.20	-0.39	-0.27	0.03	0.14	0.72	-14.5	0.47	0.51



Stellar Parameters For KIC 003633545

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	5313^{+204}_{-185}	$4.505^{+0.085}_{-0.104}$	$-0.180^{+0.300}_{-0.300}$	$0.820^{+0.132}_{-0.099}$	$0.786^{+0.104}_{-0.070}$	$2.009^{+0.720}_{-0.625}$
	+4%/-3%	+2%/-2%	+167%/-167%	+16%/-12%	+13%/-9%	+36%/-31%
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 003633545-03 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-69±11	$27.10^{+31.01}_{-18.82}$	365^{+18}_{-17}	1902^{+558}_{-260}	23^{+232}_{-18}
Alt.	-11±10	$29.32^{+28.27}_{-21.03}$	364^{+19}_{-18}	1525^{+437}_{-2803}	$2.339^{+29.533}_{-2.228}$

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

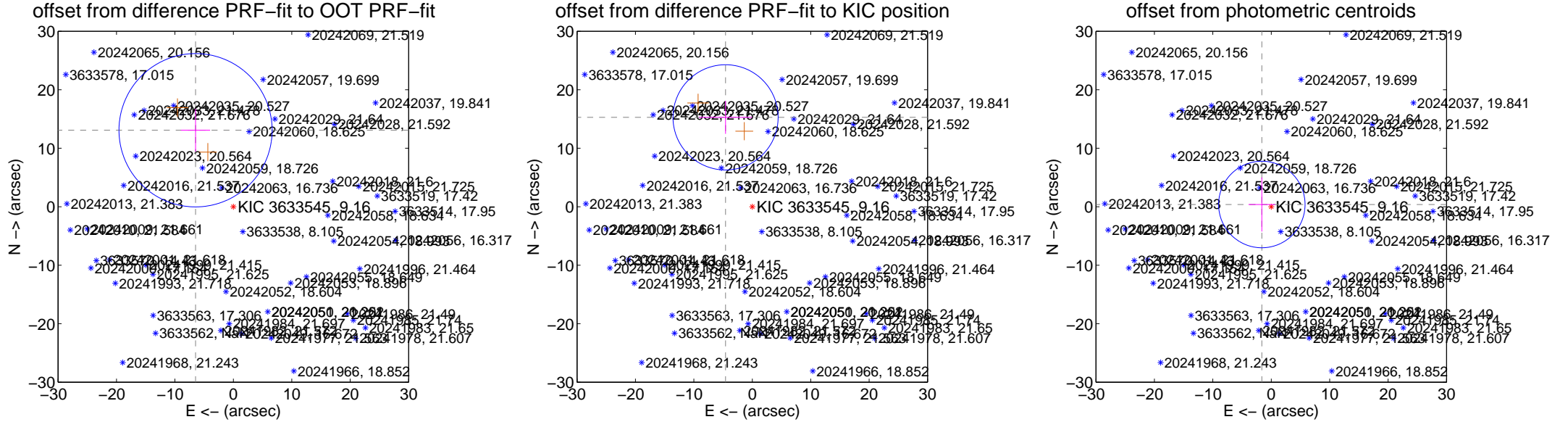
DV Centroid Data

Supplemental centroid analysis for 003633545-03. **Kepler magnitude: 9.16.** Transit SNR 3.23

There are 0 quarters with good PRF difference image offsets

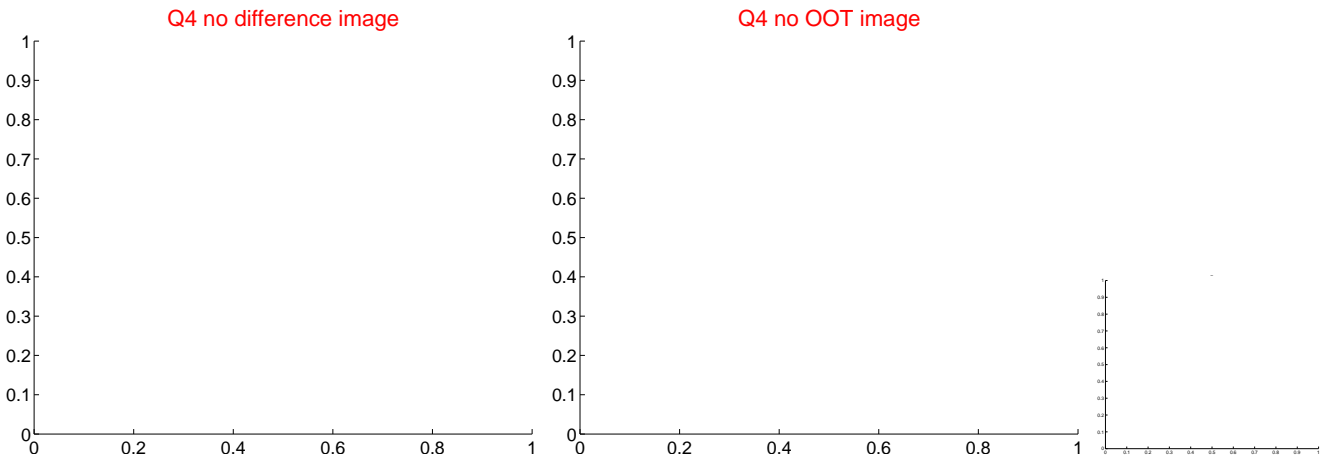
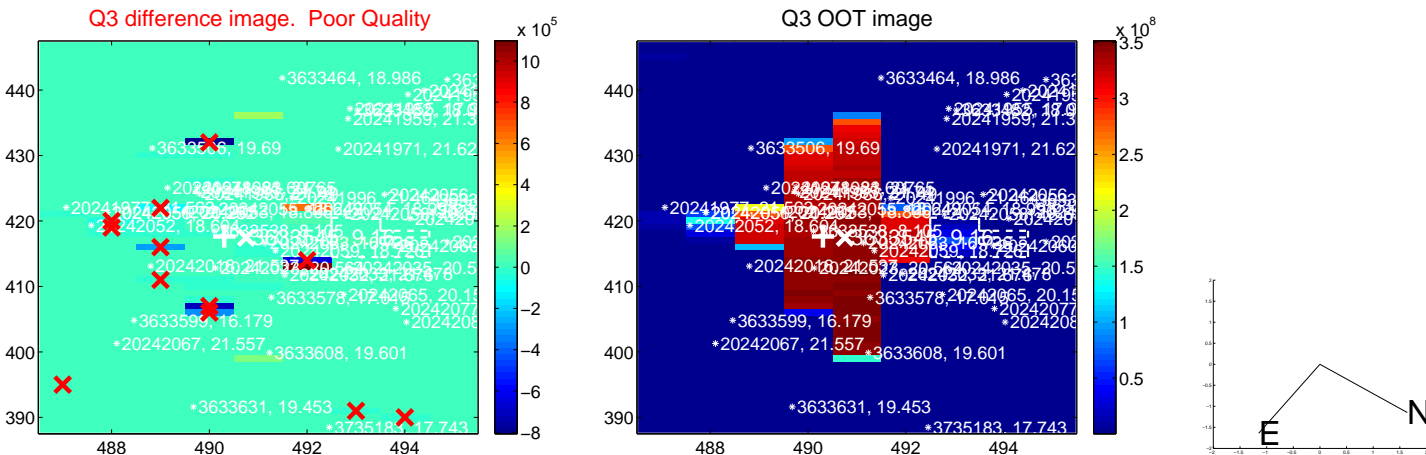
The OOT PRF centroid is offset from the target star catalog position by about 4.66 arcsec so the offset from difference PRF-fit to OOT-fit may be invalid.

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	14.589 ± 4.369	3.34	6.469 ± 2.491	13.076 ± 3.642
PRF-fit source offset from KIC position	15.951 ± 2.999	5.32	4.577 ± 4.541	15.280 ± 2.819
photometric centroid source offset	1.66 ± 2.47	0.67	1.61 ± 2.29	0.38 ± 4.62

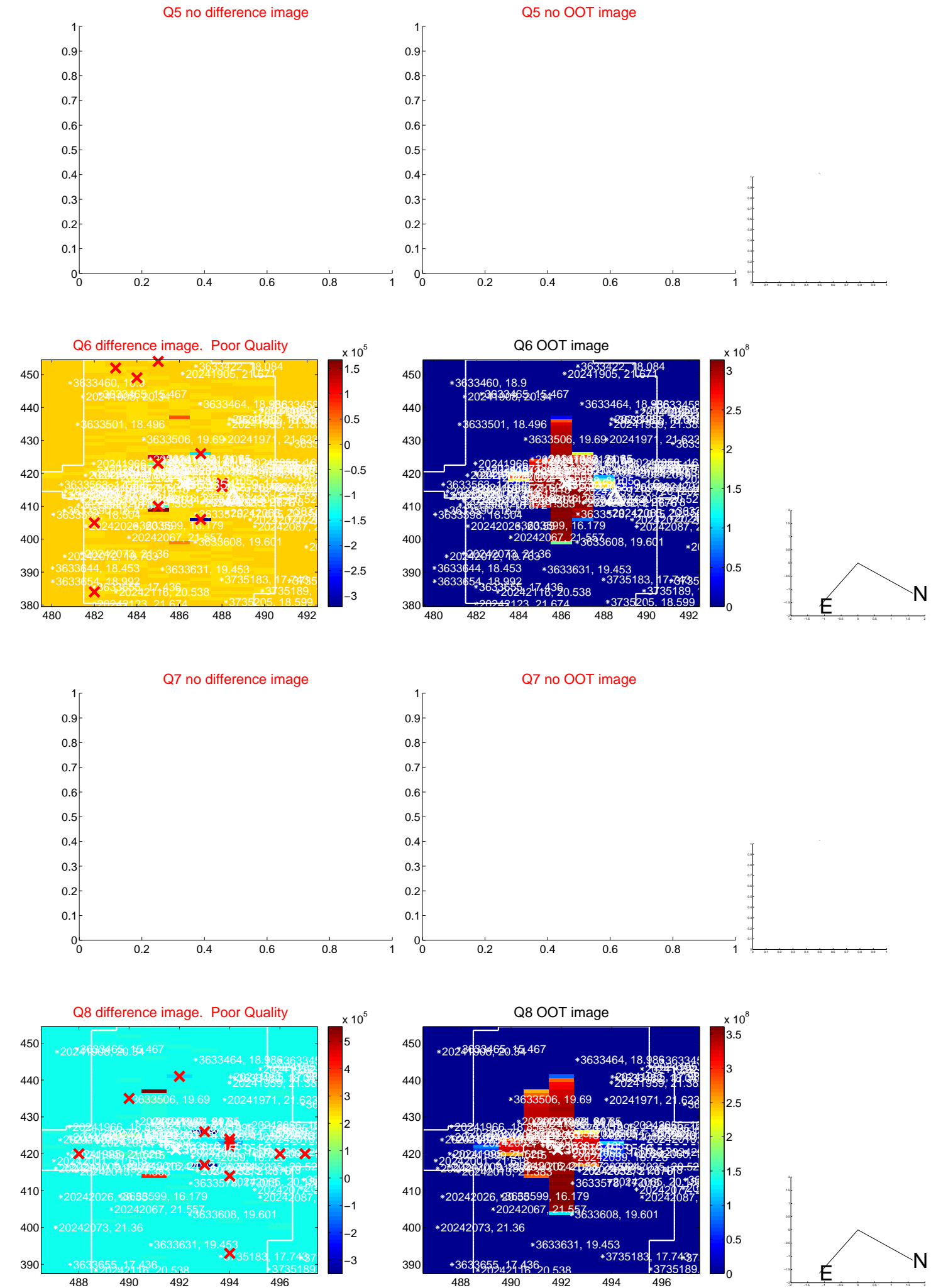


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets;** magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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



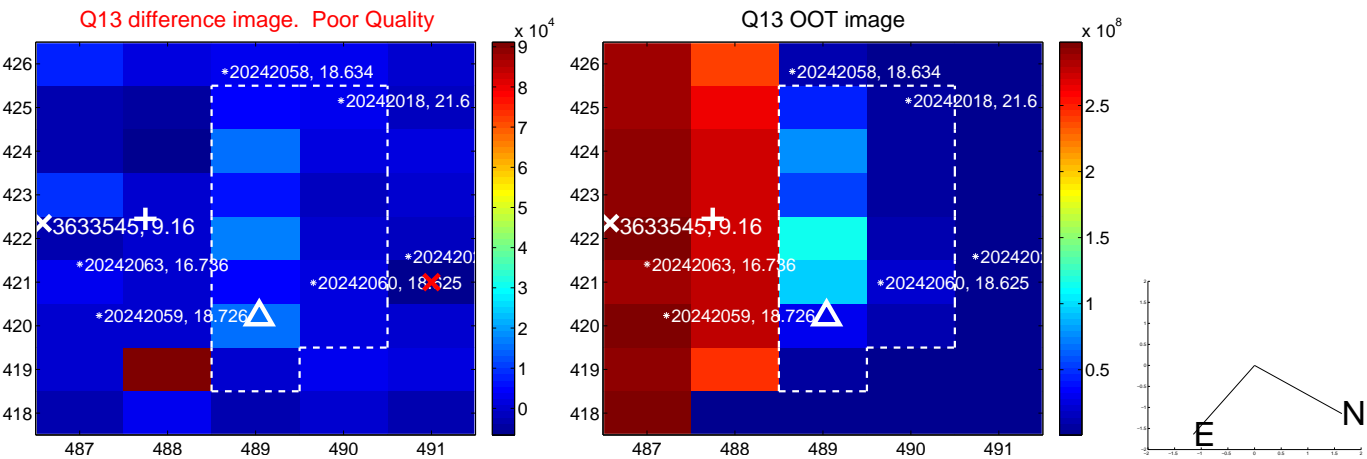
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



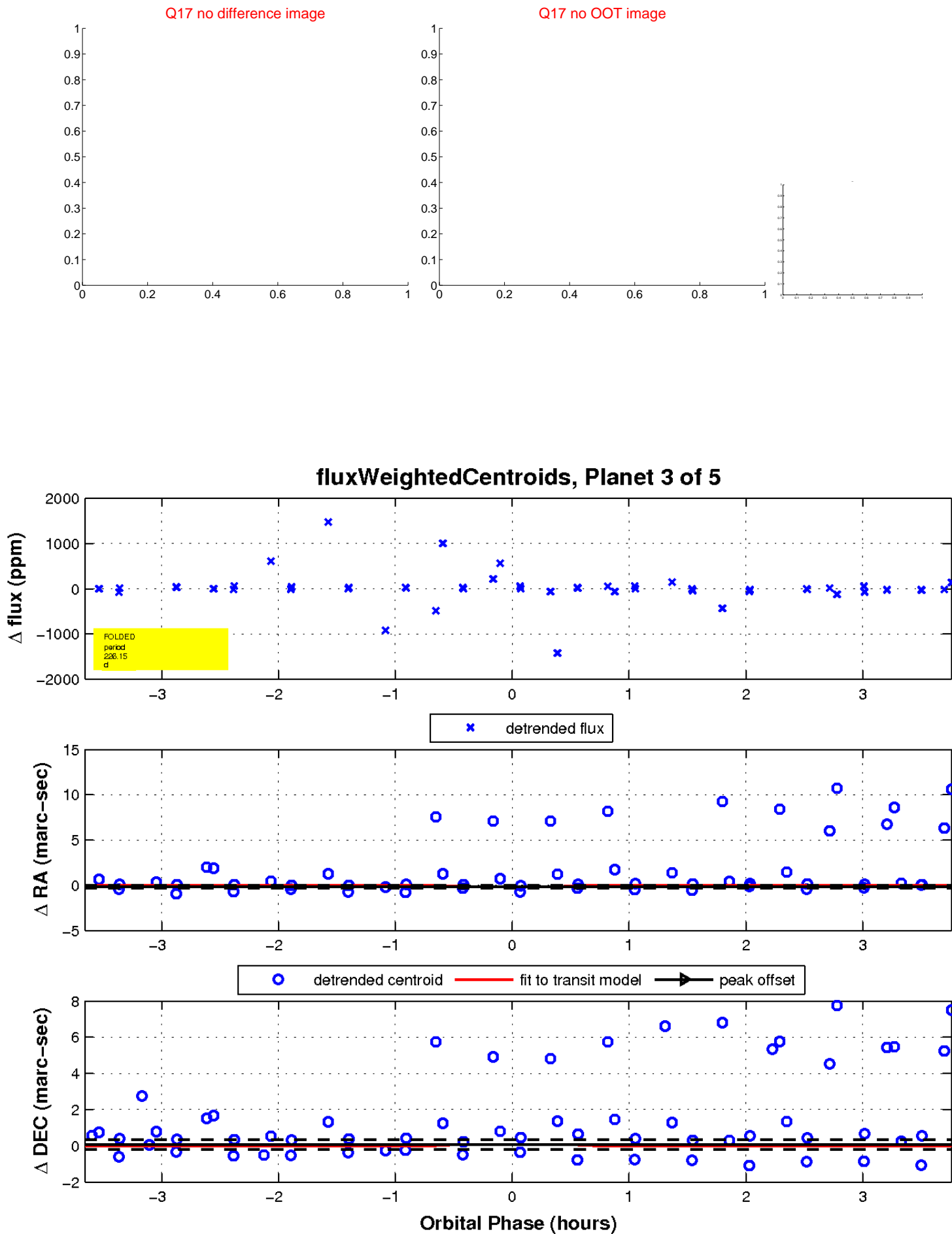
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

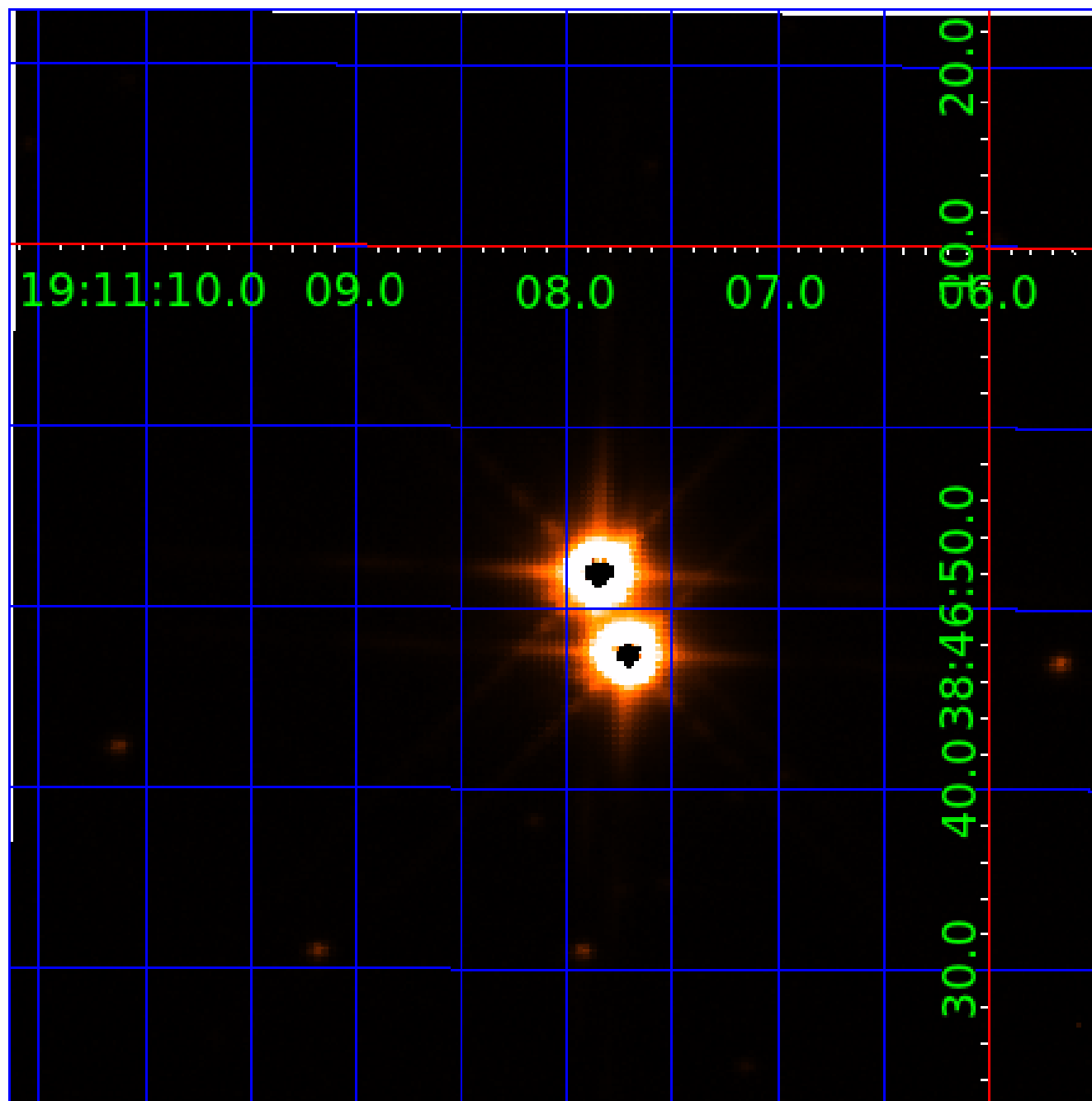


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 003633545

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})
003633545-01	OBS	No	407.877975	278.081780	119.6	10.623	24.8	13.0	0.82	5313	0.95	0.49
003633545-02	OBS	No	486.334829	265.965747	1027.7	1.011	58.8	34.3	0.82	5313	2.88	0.39
003633545-03	OBS	No	226.154109	342.882432	56.7	1.261	45.7	3.2	0.82	5313	0.61	1.07
003633545-04	OBS	No	278.316403	370.285856	149.5	2.542	29.9	15.5	0.82	5313	1.09	0.81
003633545-05	OBS	No	310.886176	330.385547	6.4	2.024	62.9	0.6	0.82	5313	0.25	0.70

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
003633545-01	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_CHASES_MARSHALL_SKYE_ZUMA—LPP_DV—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_SATURATED
003633545-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL_TRACKER—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_SATURATED
003633545-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL_ZUMA_TRACKER—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_SATURATED
003633545-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_SATURATED
003633545-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL_TRACKER—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_SATURATED

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

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

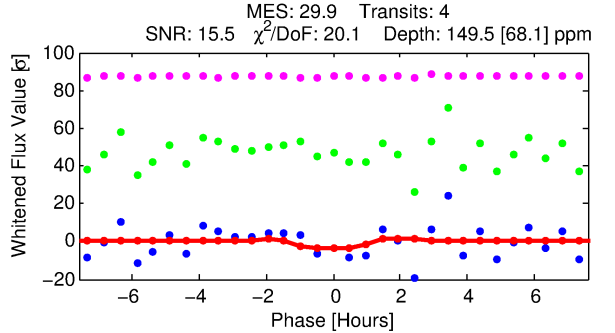
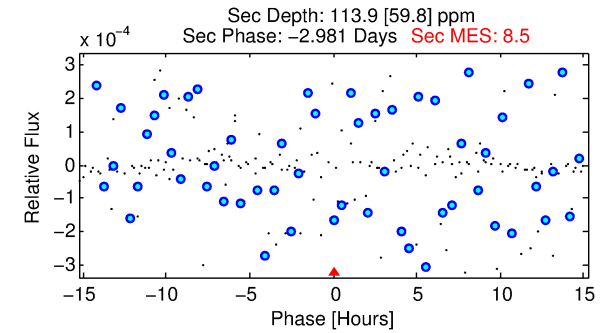
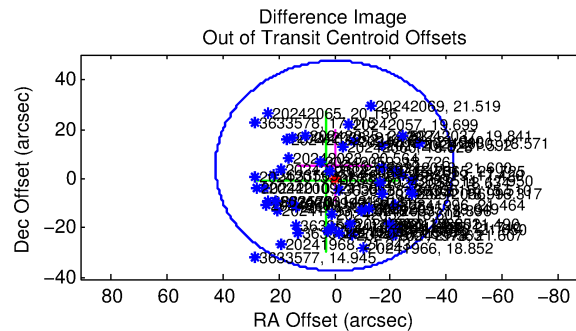
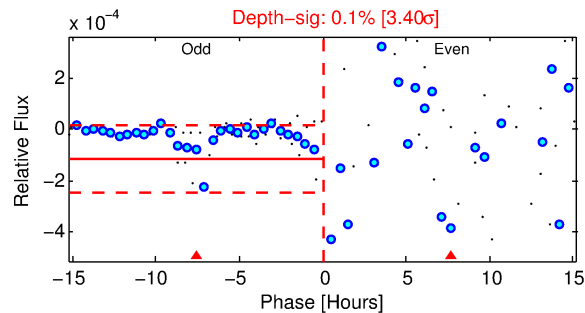
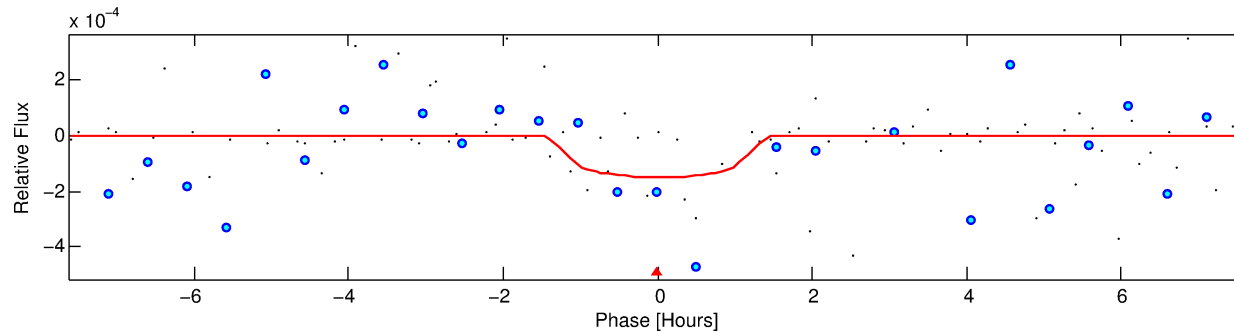
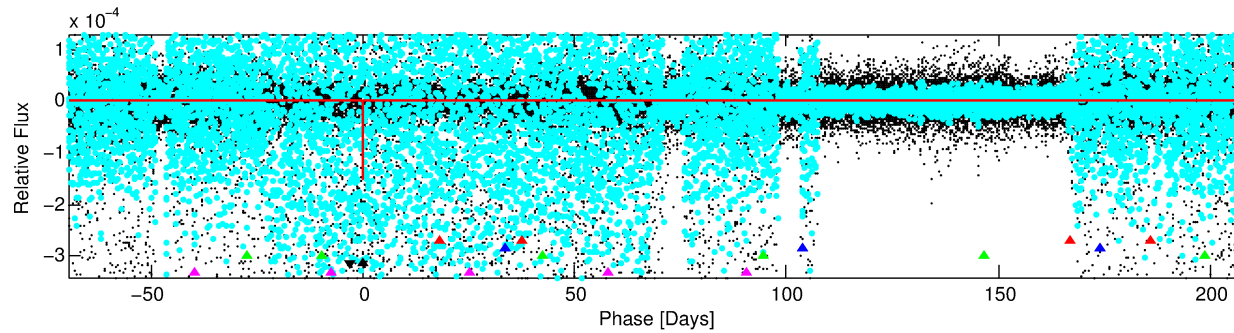
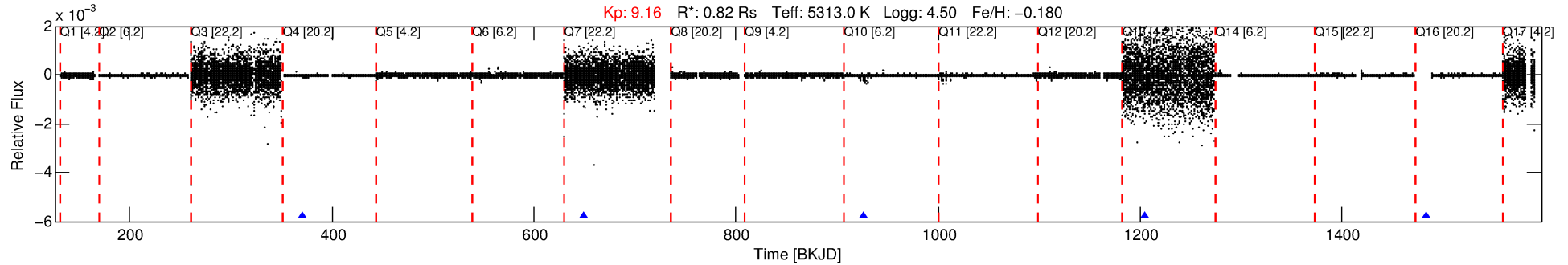
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 003633545-04

No Significant Match Found

DV One-Page Summary

KIC: 3633545 Candidate: 4 of 5 Period: 278.316 d



DV Fit Results:

Period = 278.31640 [0.01038] d
Epoch = 370.2859 [0.0192] BKJD
Rp/R* = 0.0121 [0.0381]
a/R* = 578.07 [7056.60]
b = 0.74 [7.71]
Seff = 0.81 [0.20]
Teq = 242 [15] K
Rp = 1.09 [3.42] Re
a = 0.7696 [0.1029] AU
Ag = 31407.90 [197863.09] [0.16σ]
Teffp = 4980 [7842] K [0.60σ]

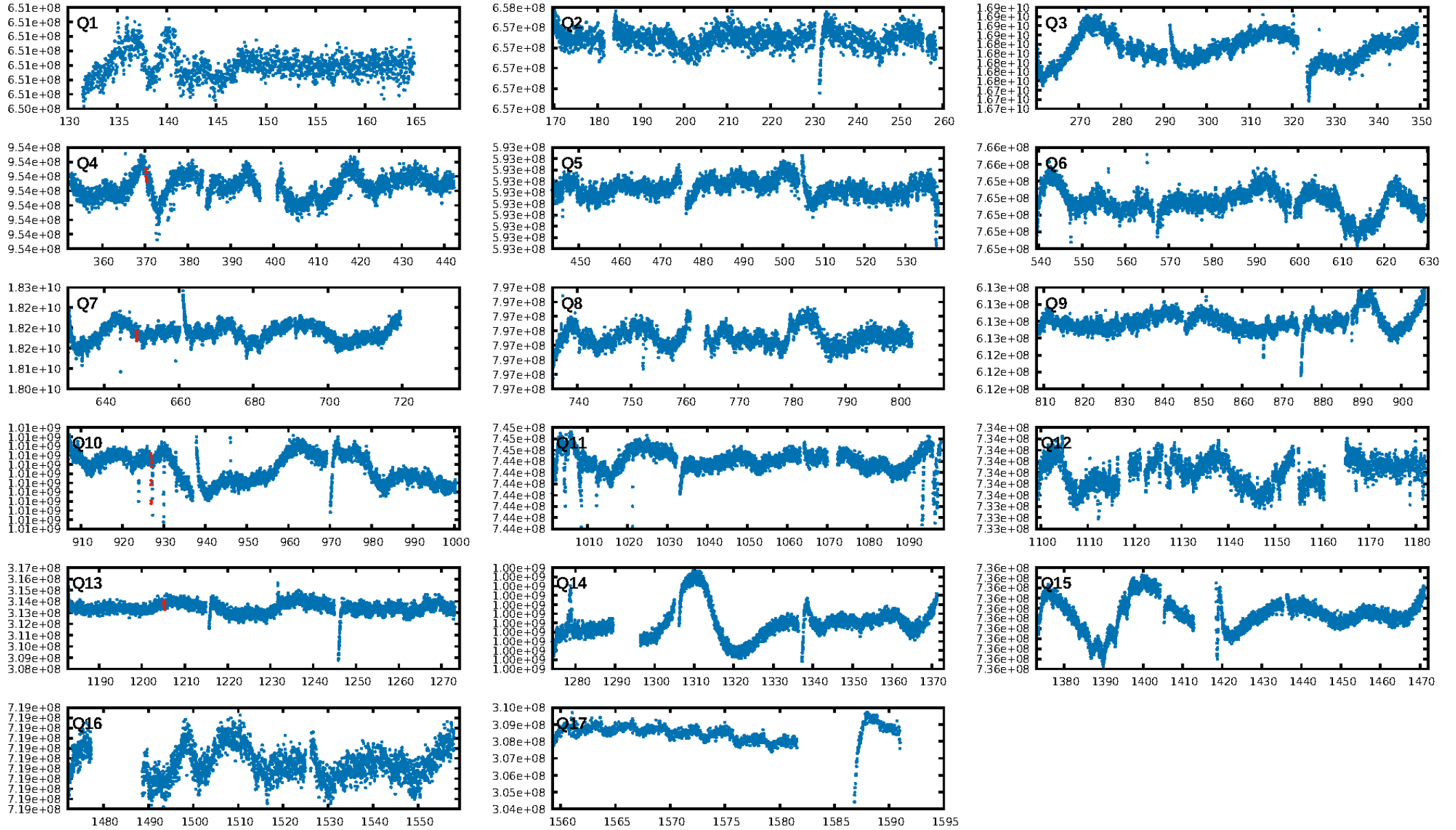
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [441.19σ]
LongPeriod-sig: 100.0% [240.56σ]
ModelChiSquare2-sig: 0.0%
ModelChiSquareGof-sig: 0.0%
Bootstrap-pfa: 4.13e-06
RollingBand-fgt: 1.00 [4/4]
GhostDiagnostic-chr: N/A
Centroid-sig: 7.8%
Centroid-so: 2.030 arcsec [1.95σ]
OotOffset-rm: 5.316 arcsec [0.37σ]
KicOffset-rm: 6.196 arcsec [0.44σ]
OotOffset-st: 1/0/0/1 [2]
KicOffset-st: 1/0/0/1 [2]
DiffImageQuality-fgm: 0.00 [0/2]
DiffImageOverlap-fno: 1.00 [4/4]

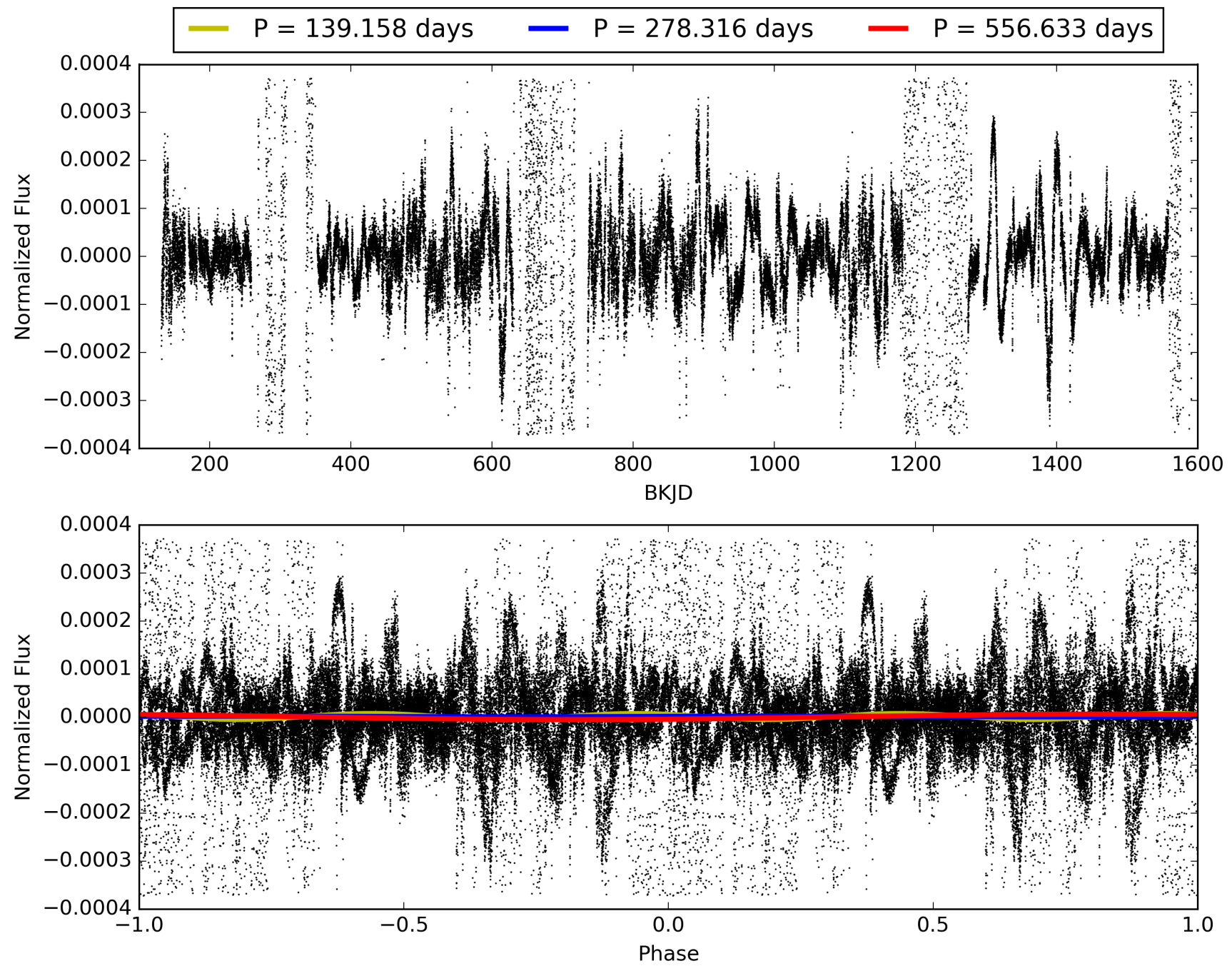
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 02-Feb-2016 00:41:40 Z

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

TCE 003633545-04, PDC Light Curves

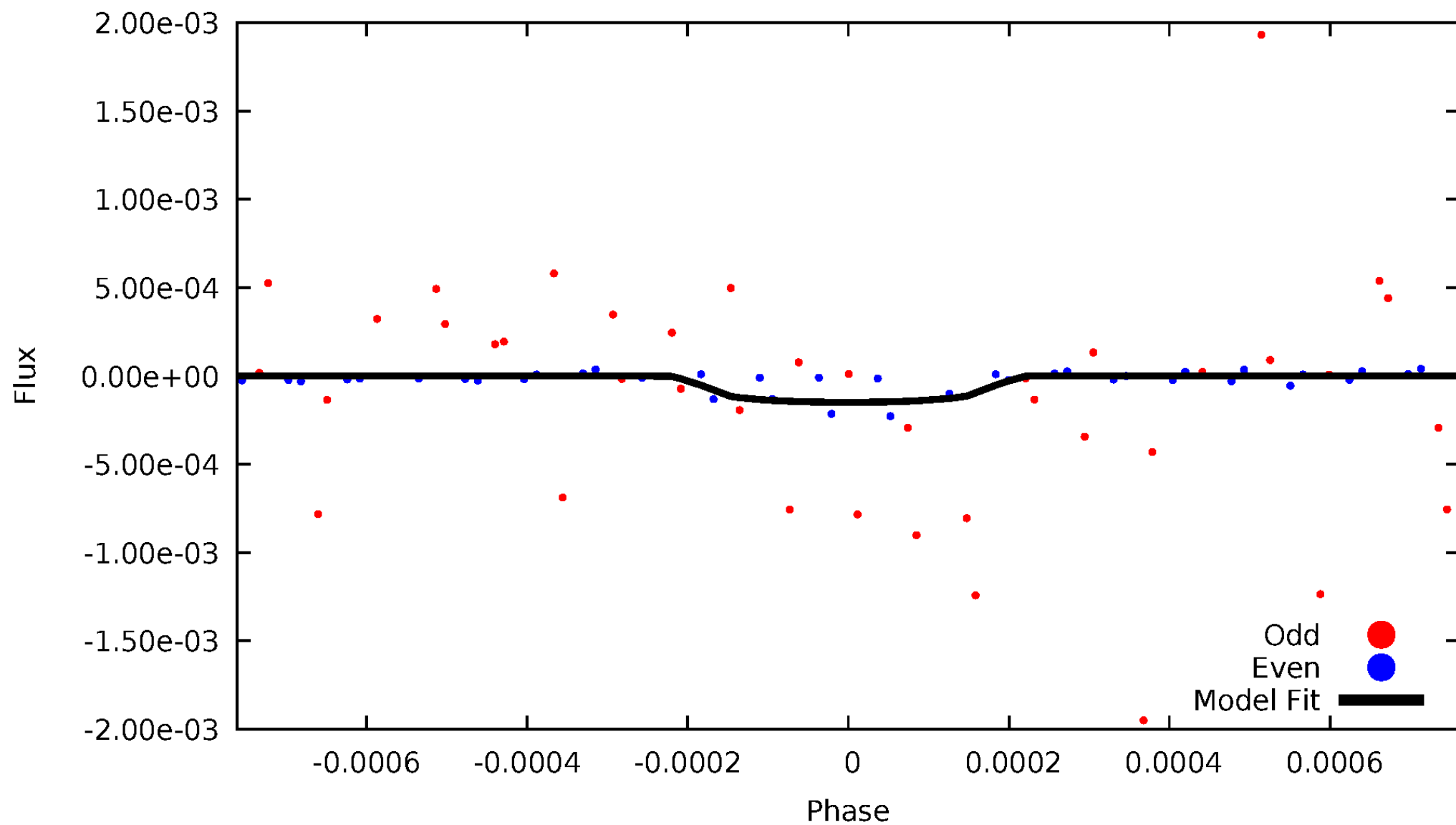


TCE 003633545-04



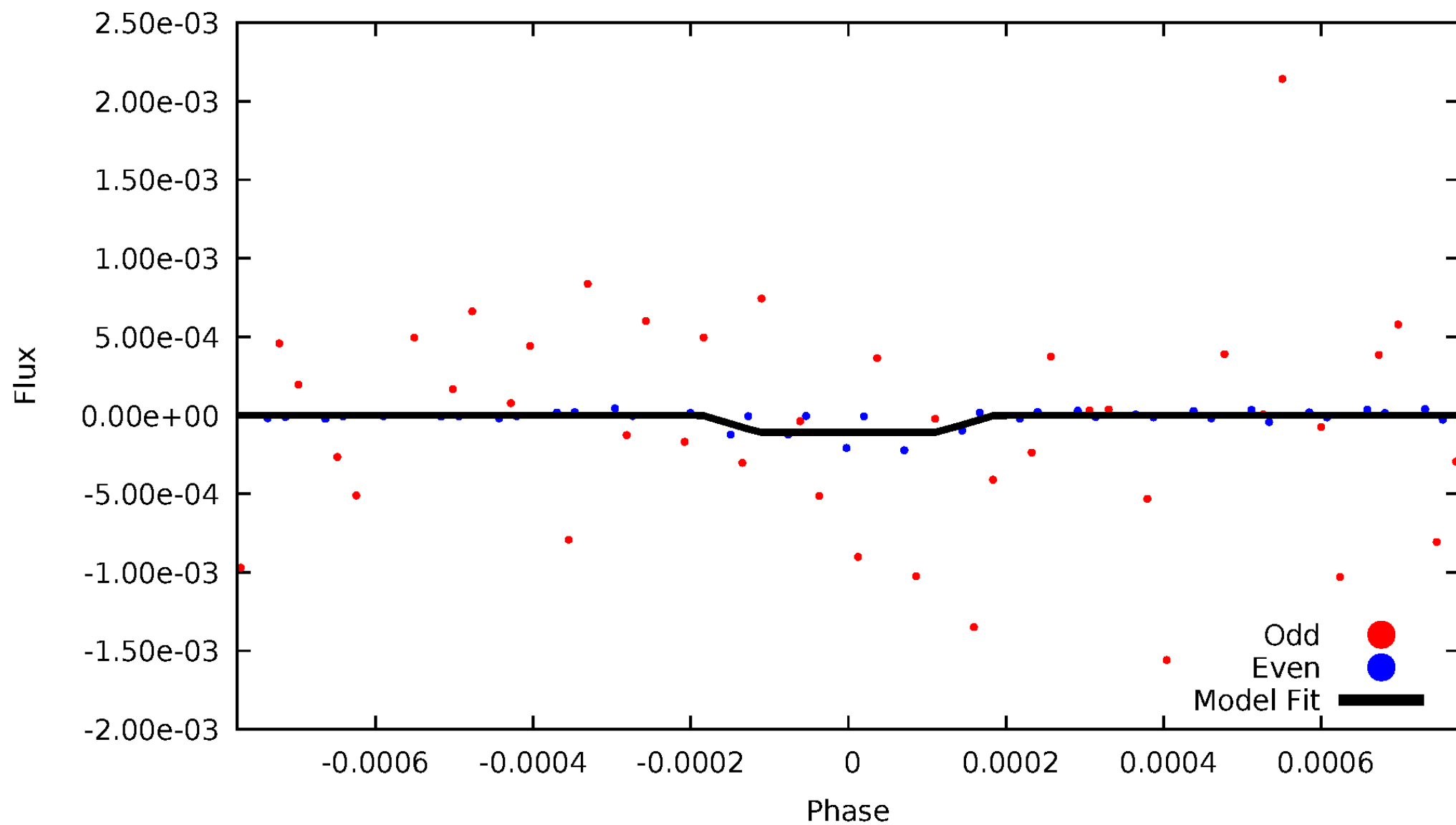
DV Odd/Even

TCE 003633545-04



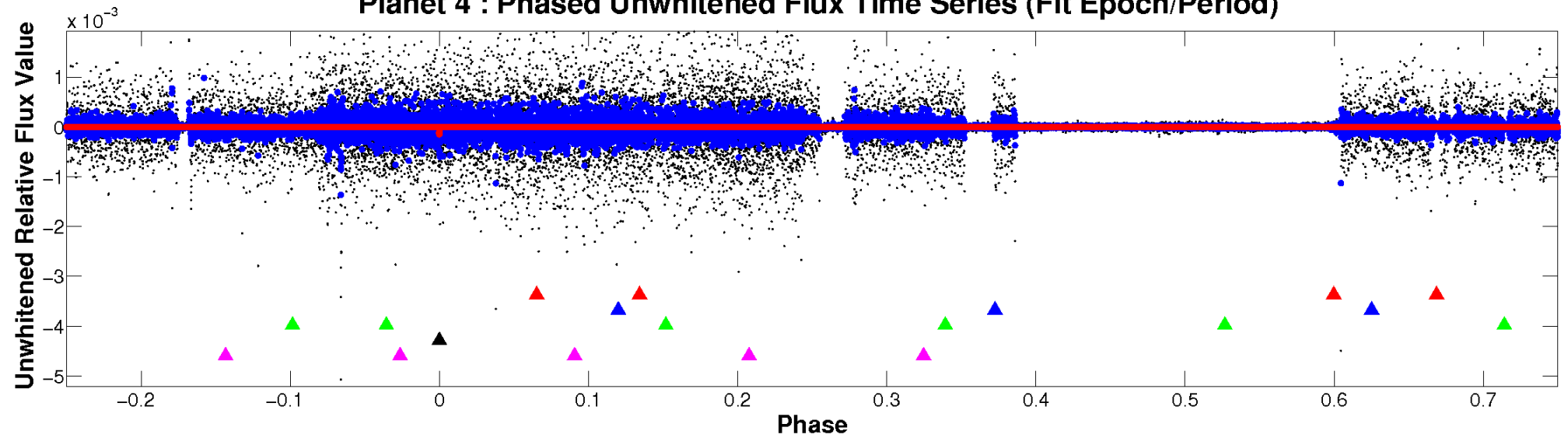
ALT Odd/Even

TCE 003633545-04

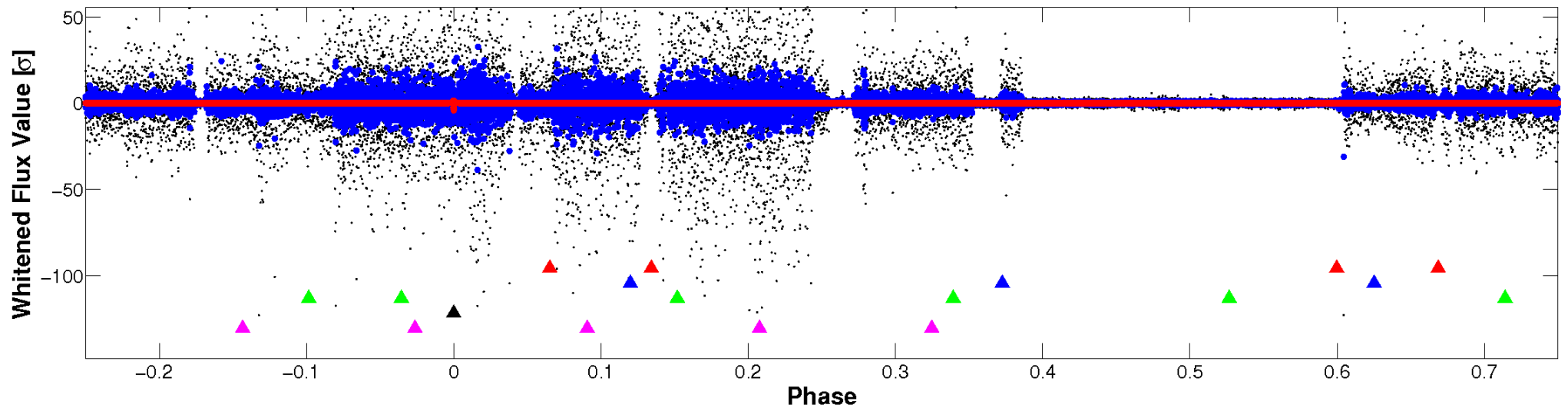


Non-Whitened Vs. Whitened Light Curve

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

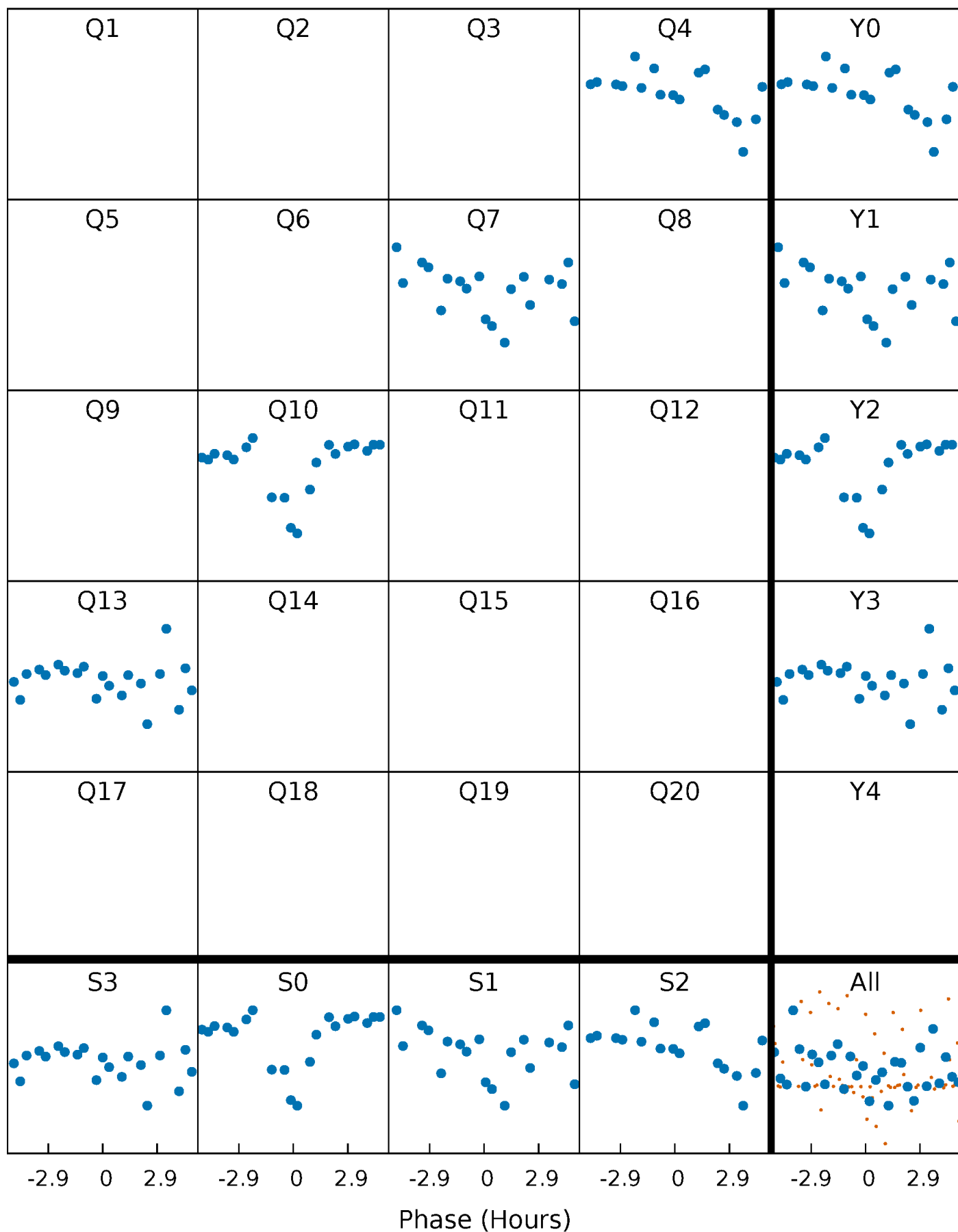


Planet 4 : Phased Whitened Flux Time Series (Fit Epoch/Period)



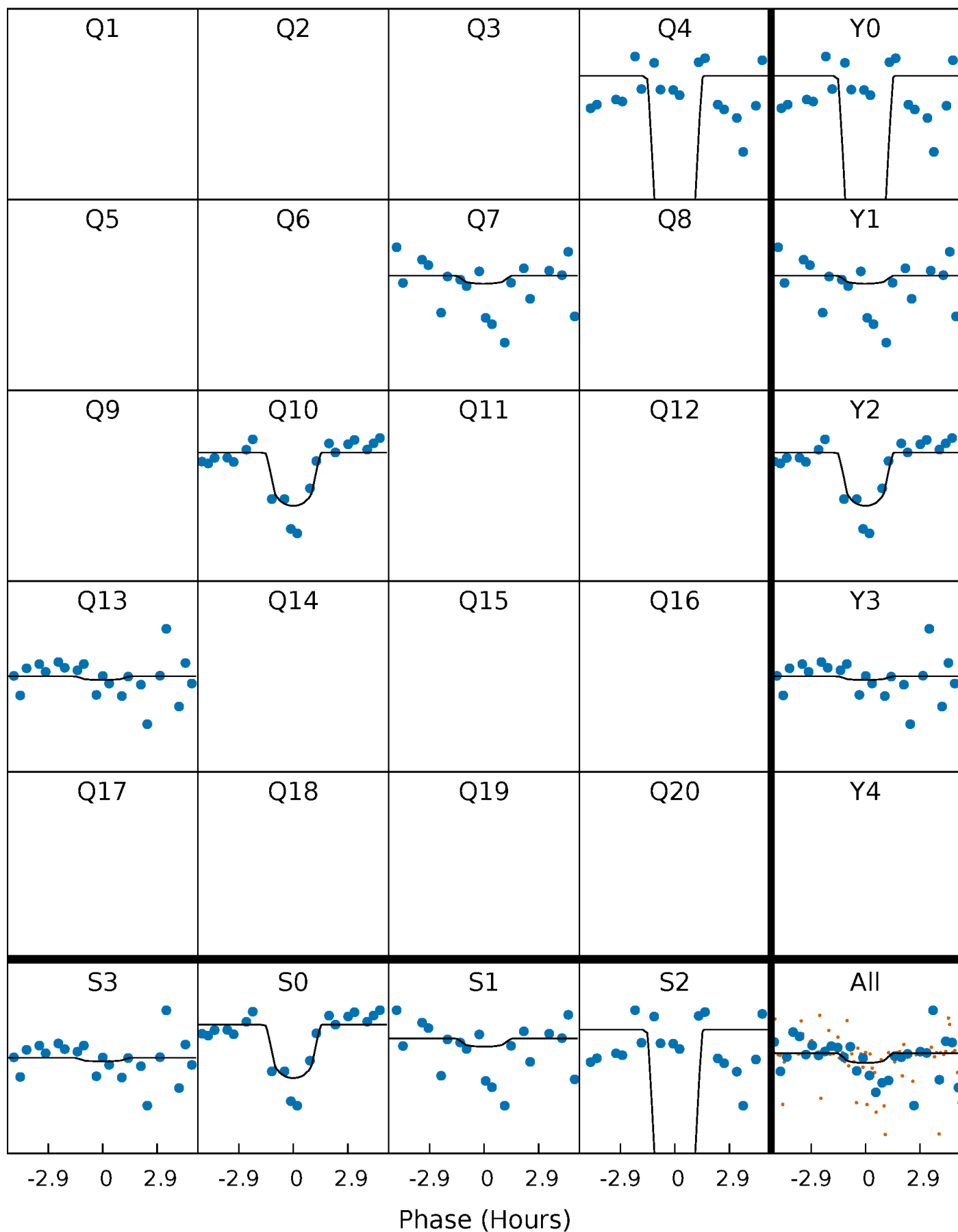
PDC Quarter-Phased Transit Curves

TCE 003633545-04 $P=278.316403$ Days $T_0=370.285856$ (BKJD)



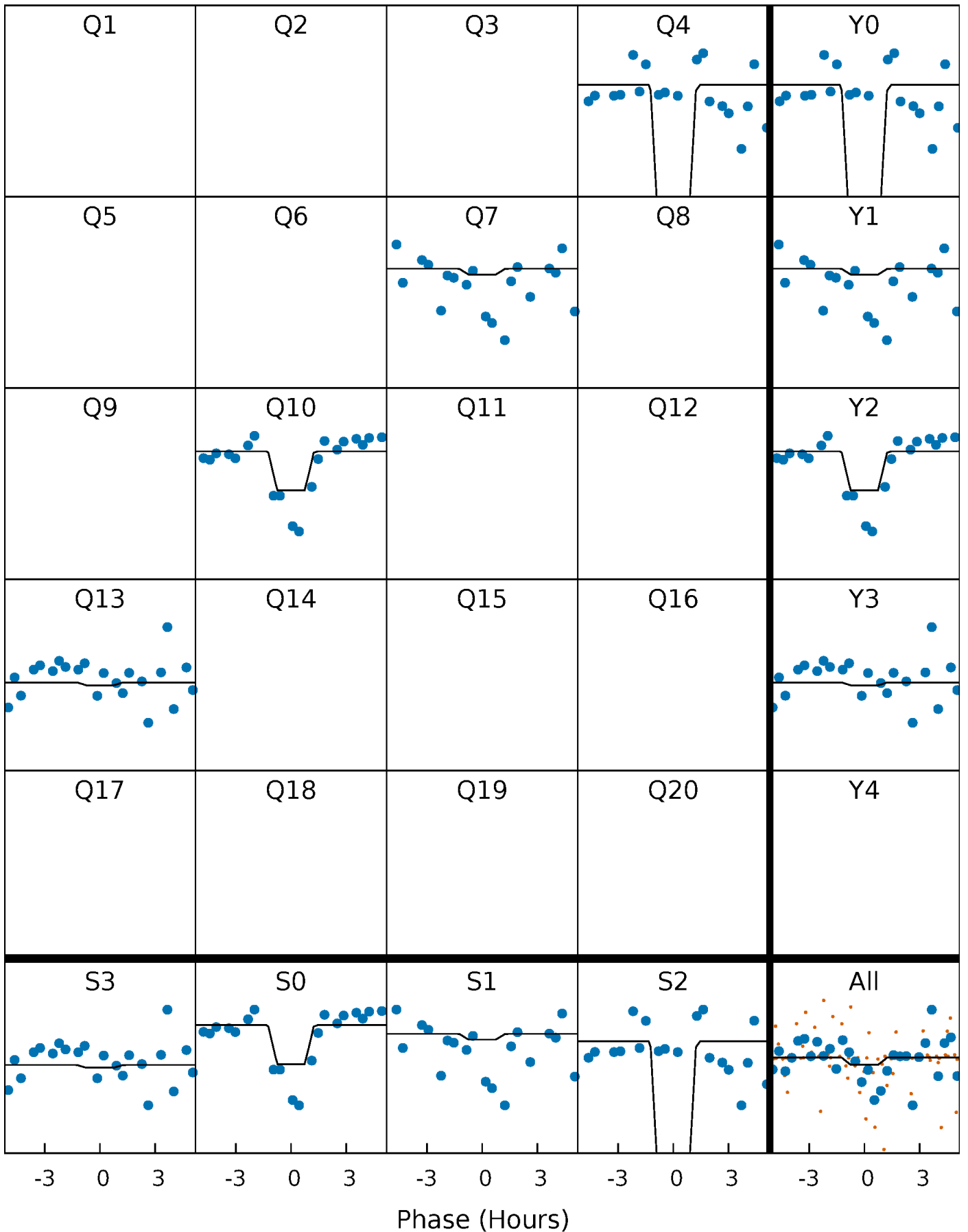
DV Quarter-Phased Transit Curves

TCE 003633545-04 P=278.316403 Days $T_0=370.285856$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

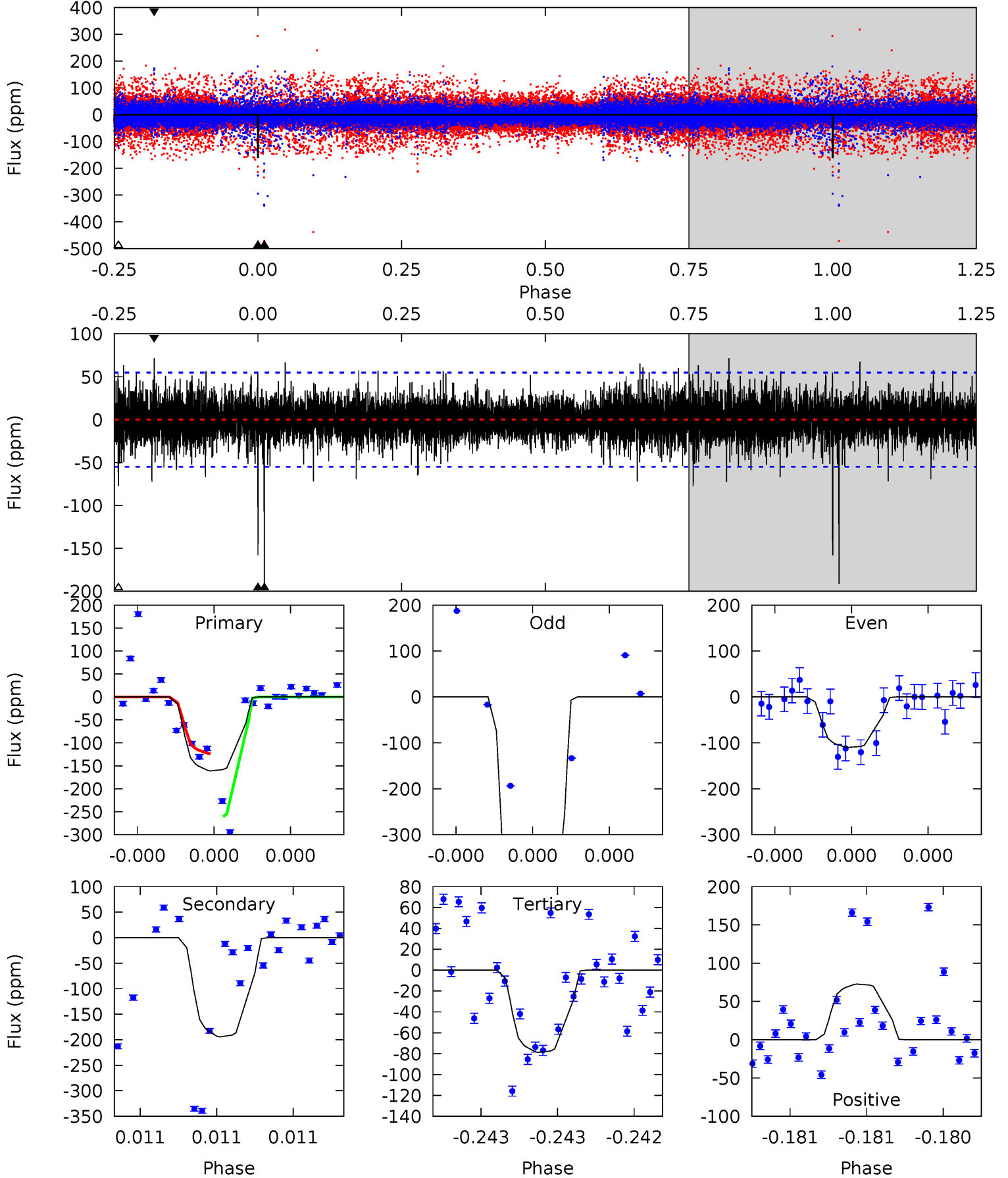
TCE 003633545-04 P=278.311500 Days $T_0=370.290515$ (BKJD)



DV Model-Shift Uniqueness Test

003633545-04, P = 278.316403 Days, E = 91.969453 Days

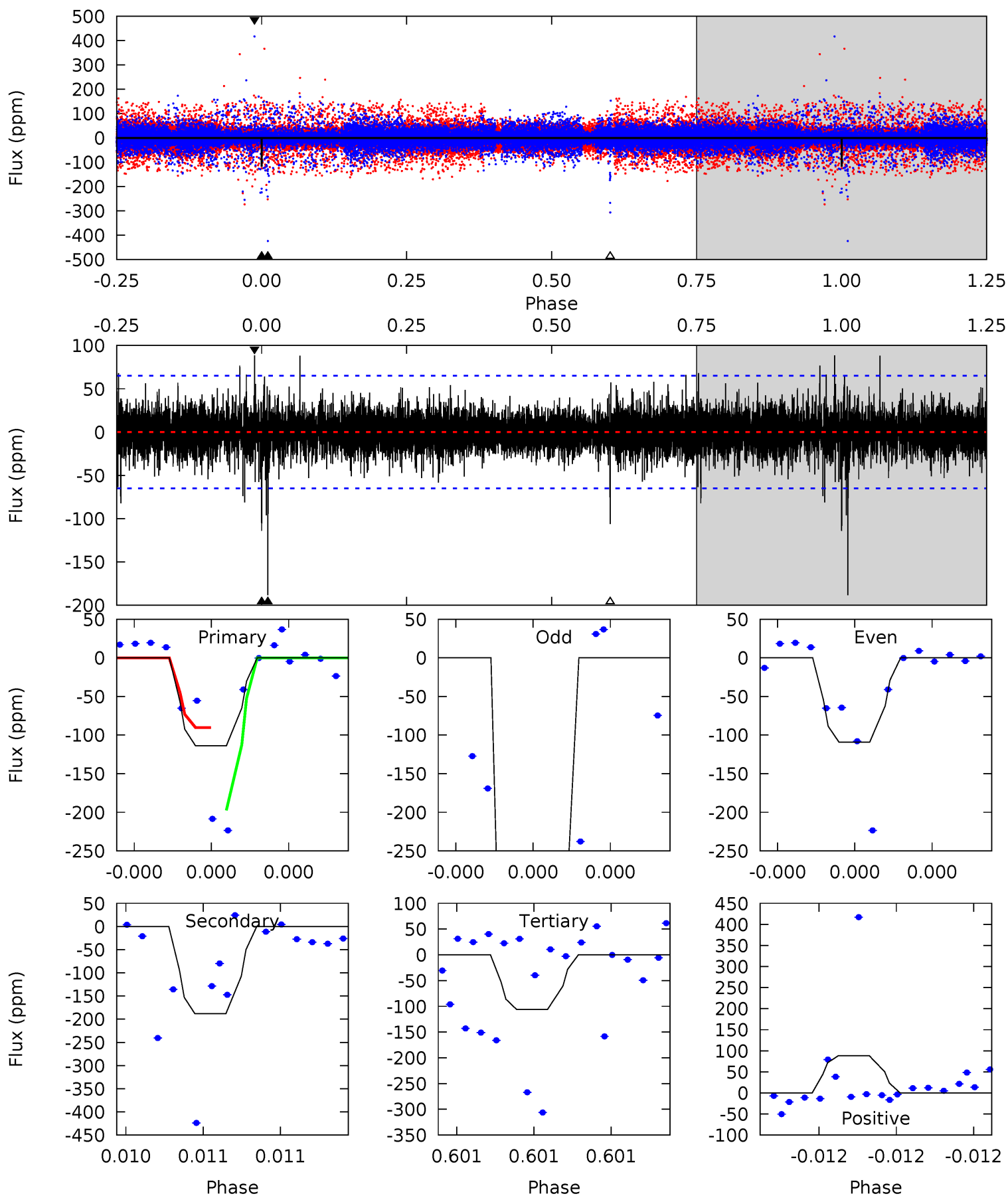
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
16.1	19.5	7.89	7.28	5.60	3.51	1.50	8.25	8.85	11.6	12.2	10.1	1.16	0.27	6.66



Alt Model-Shift Uniqueness Test

003633545-04, P = 278.311500 Days, E = 91.979015 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
9.85	16.3	9.18	7.64	5.63	3.56	1.25	0.68	2.21	7.12	8.66	11.9	2.04	0.32	4.64



Stellar Parameters For KIC 003633545

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	5313^{+204}_{-185}	$4.505^{+0.085}_{-0.104}$	$-0.180^{+0.300}_{-0.300}$	$0.820^{+0.132}_{-0.099}$	$0.786^{+0.104}_{-0.070}$	$2.009^{+0.720}_{-0.625}$
	+4%/-3%	+2%/-2%	+167%/-167%	+16%/-12%	+13%/-9%	+36%/-31%
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 003633545-04 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	-191 ± 10	$2.80^{+2.68}_{-1.88}$	340^{+18}_{-17}	3873^{+2331}_{-756}	7949^{+68812}_{-5887}
Alt.	-188 ± 12	$2.59^{+2.82}_{-1.82}$	339^{+18}_{-16}	4016^{+2767}_{-869}	$9751^{+104080}_{-7637}$

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 $A_{obs} \gg 1.0$

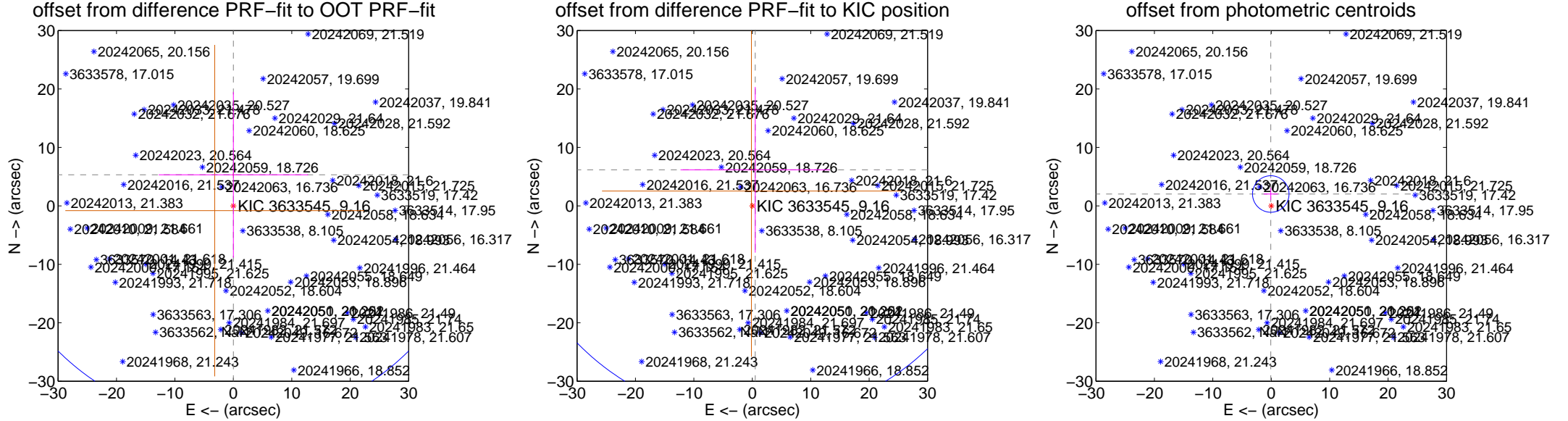
DV Centroid Data

Supplemental centroid analysis for 003633545-04. **Kepler magnitude: 9.16.** Transit SNR 15.49

There are 0 quarters with good PRF difference image offsets

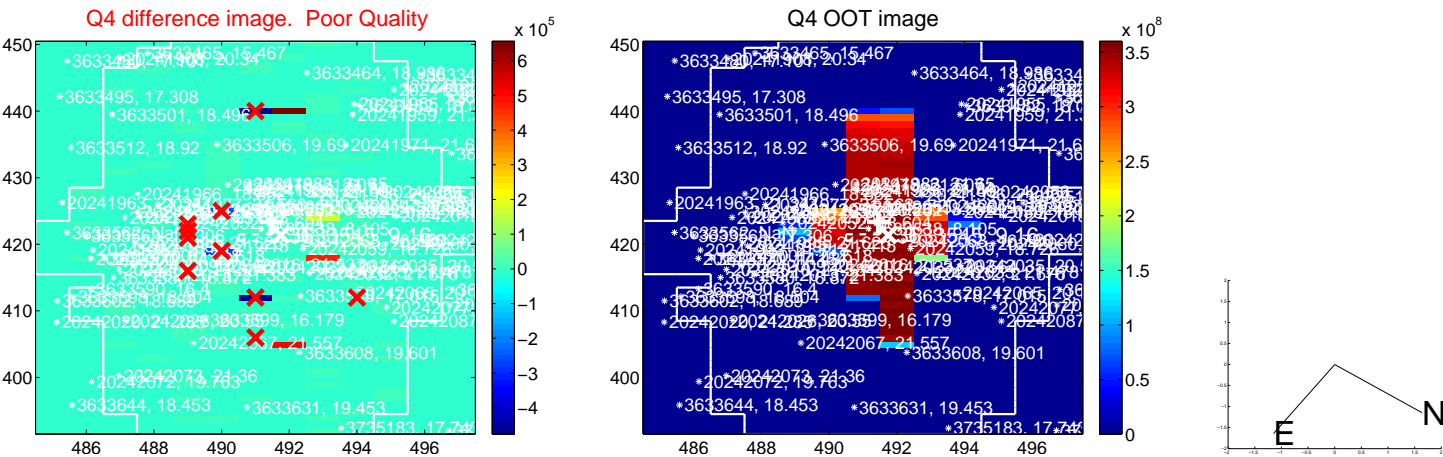
The OOT PRF centroid is offset from the target star catalog position by about 4.52 arcsec so the offset from difference PRF-fit to OOT-fit may be invalid.

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	5.316 ± 14.177	0.37	-0.007 ± 12.788	5.316 ± 14.177
PRF-fit source offset from KIC position	6.196 ± 14.168	0.44	-0.504 ± 12.788	6.175 ± 14.177
photometric centroid source offset	2.03 ± 1.04	1.95	0.08 ± 1.22	2.03 ± 1.04

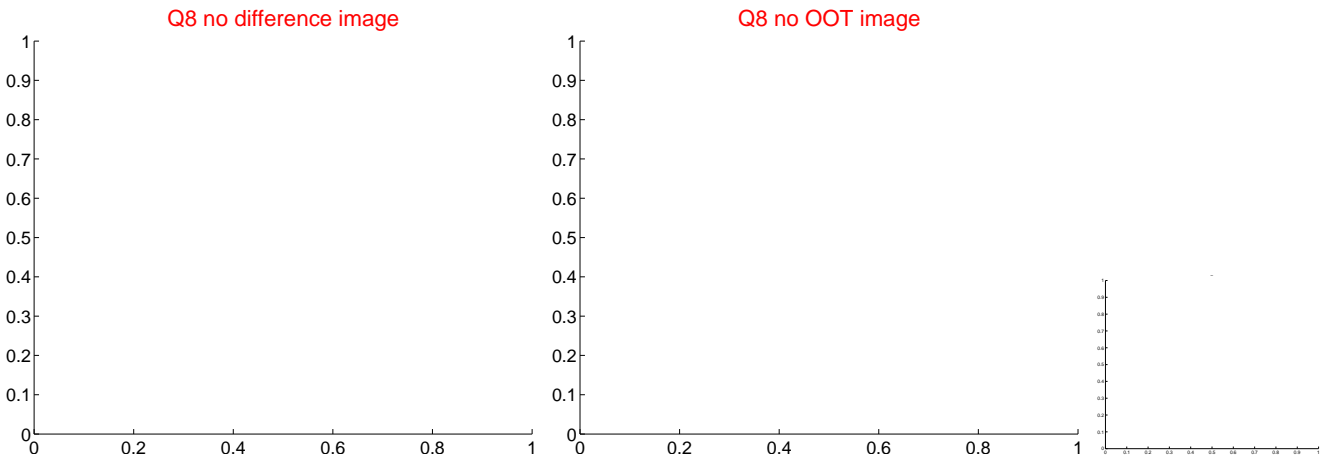
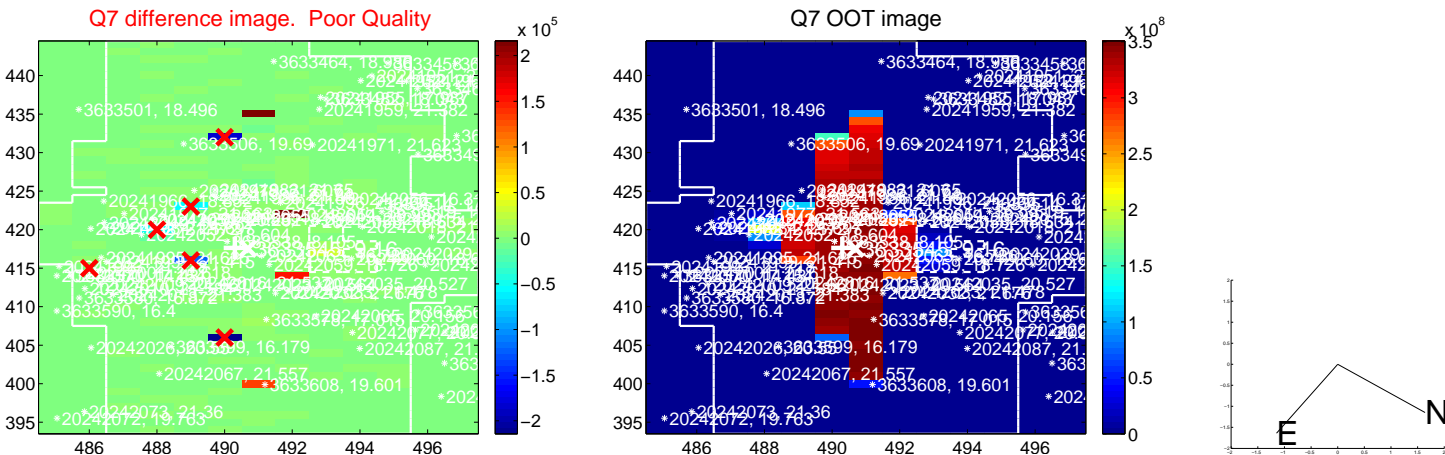
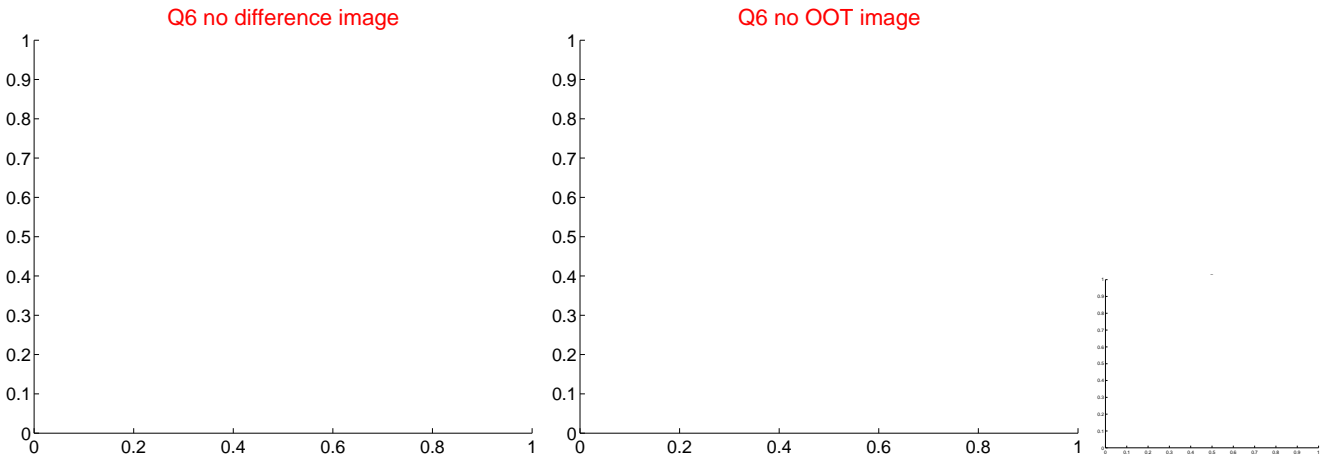
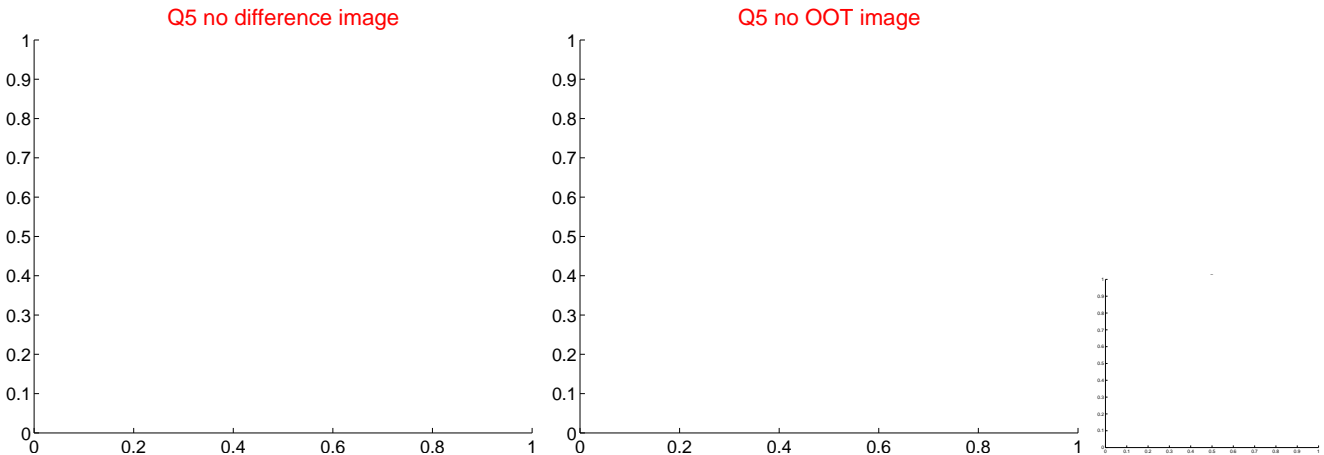


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets;** magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

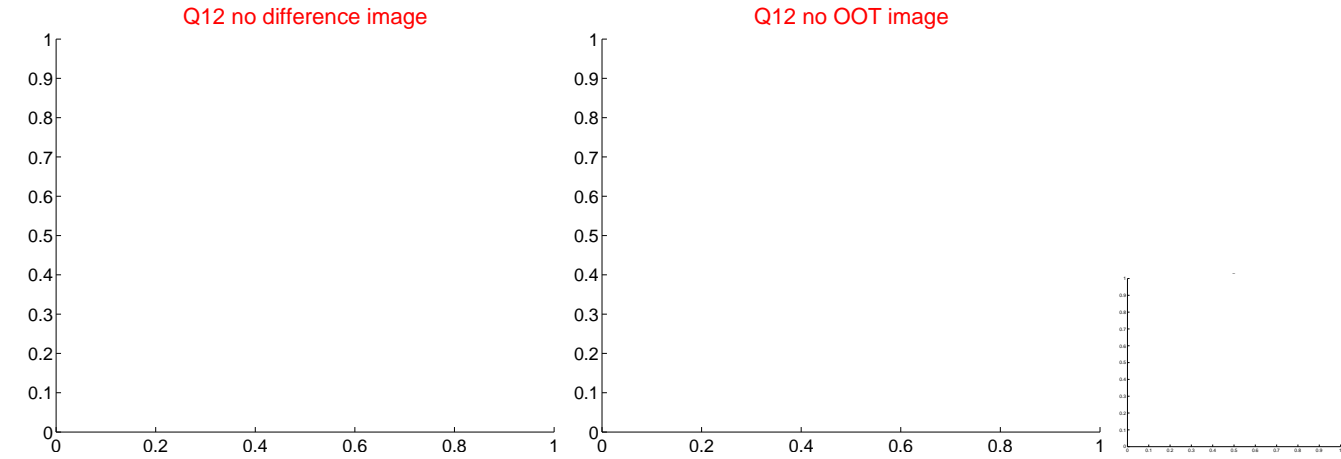
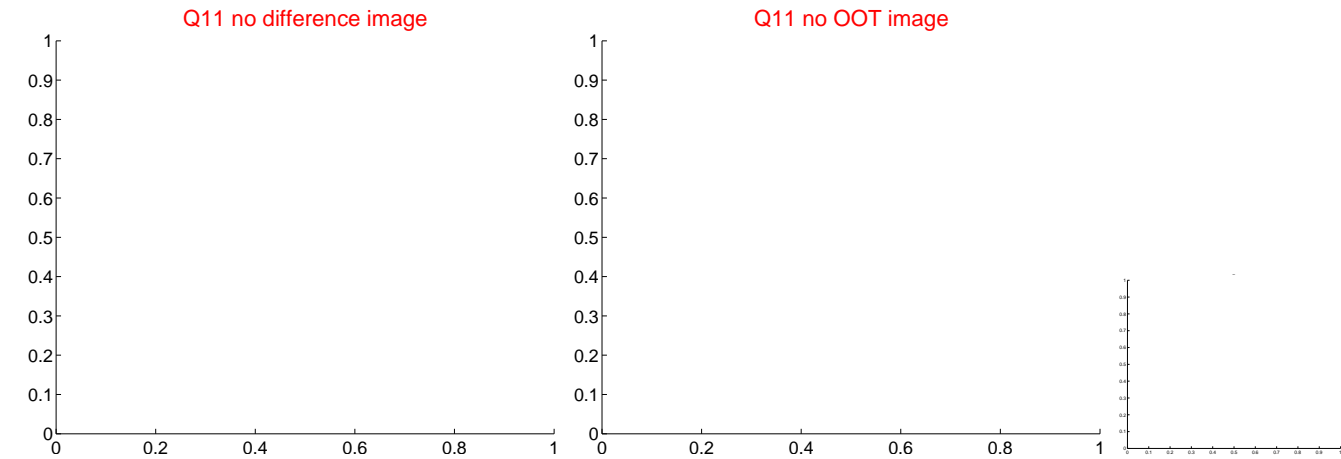
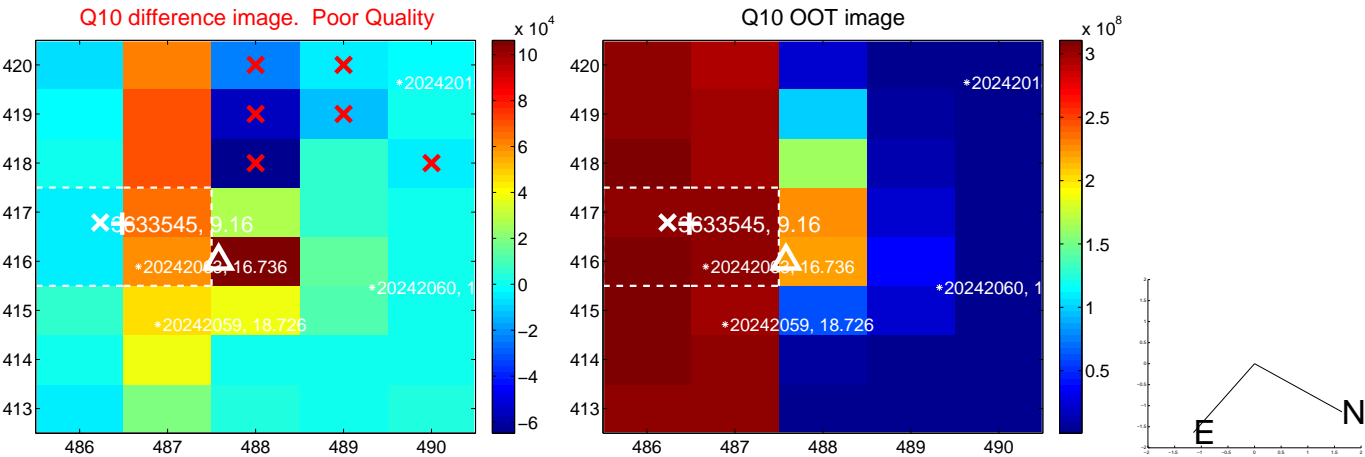
white ×: KIC target position; +: OOT centroid; △: difference centroid. red ✕: large negative pixel value.



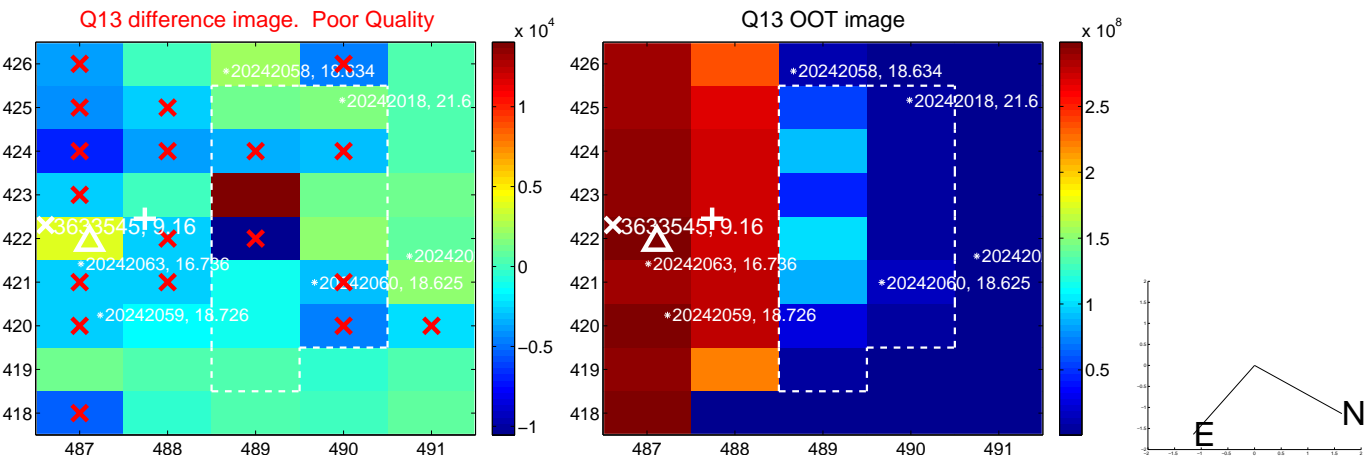
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value



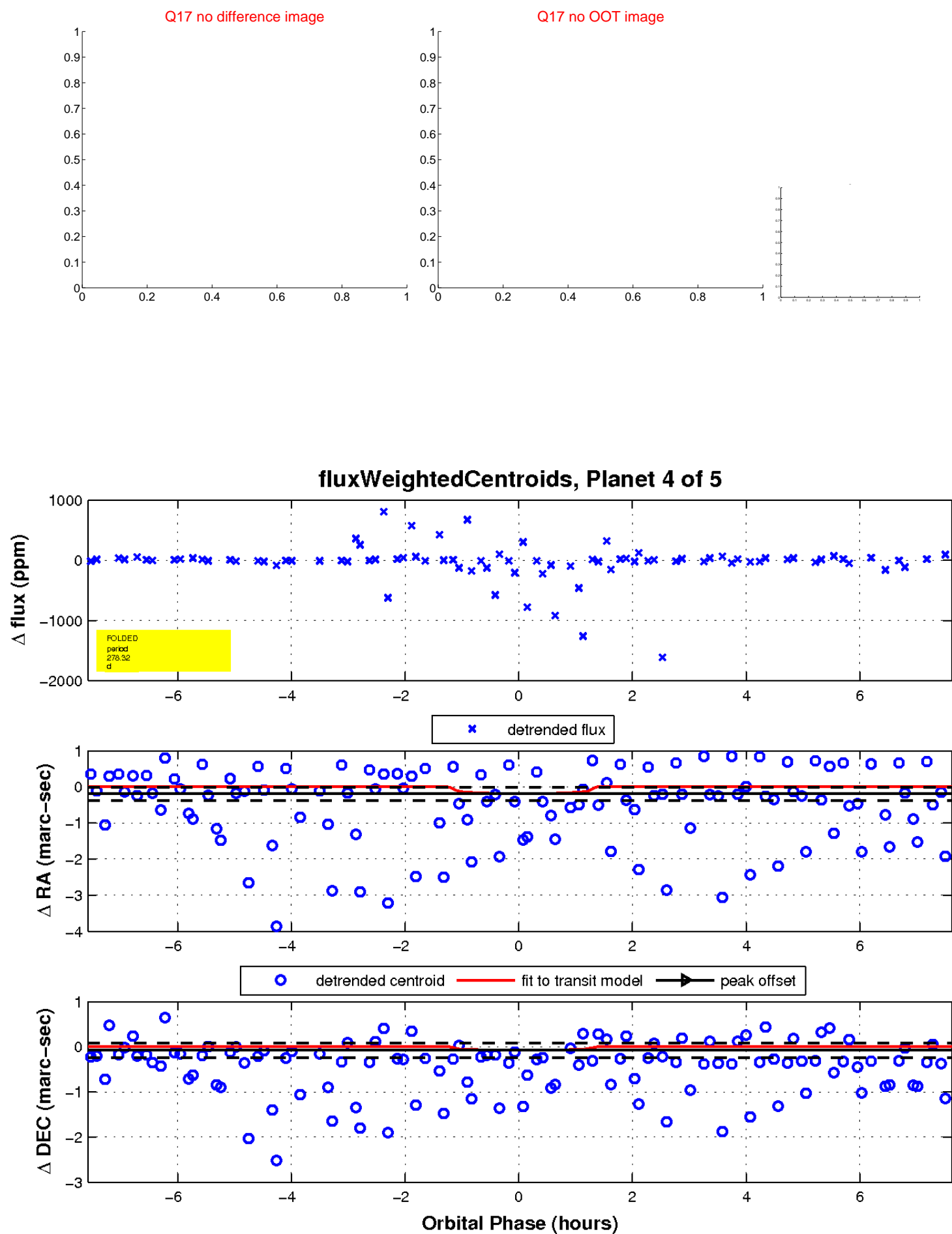
white ×: KIC target position; +: OOT centroid; △: difference centroid. red ✕: large negative pixel value.



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

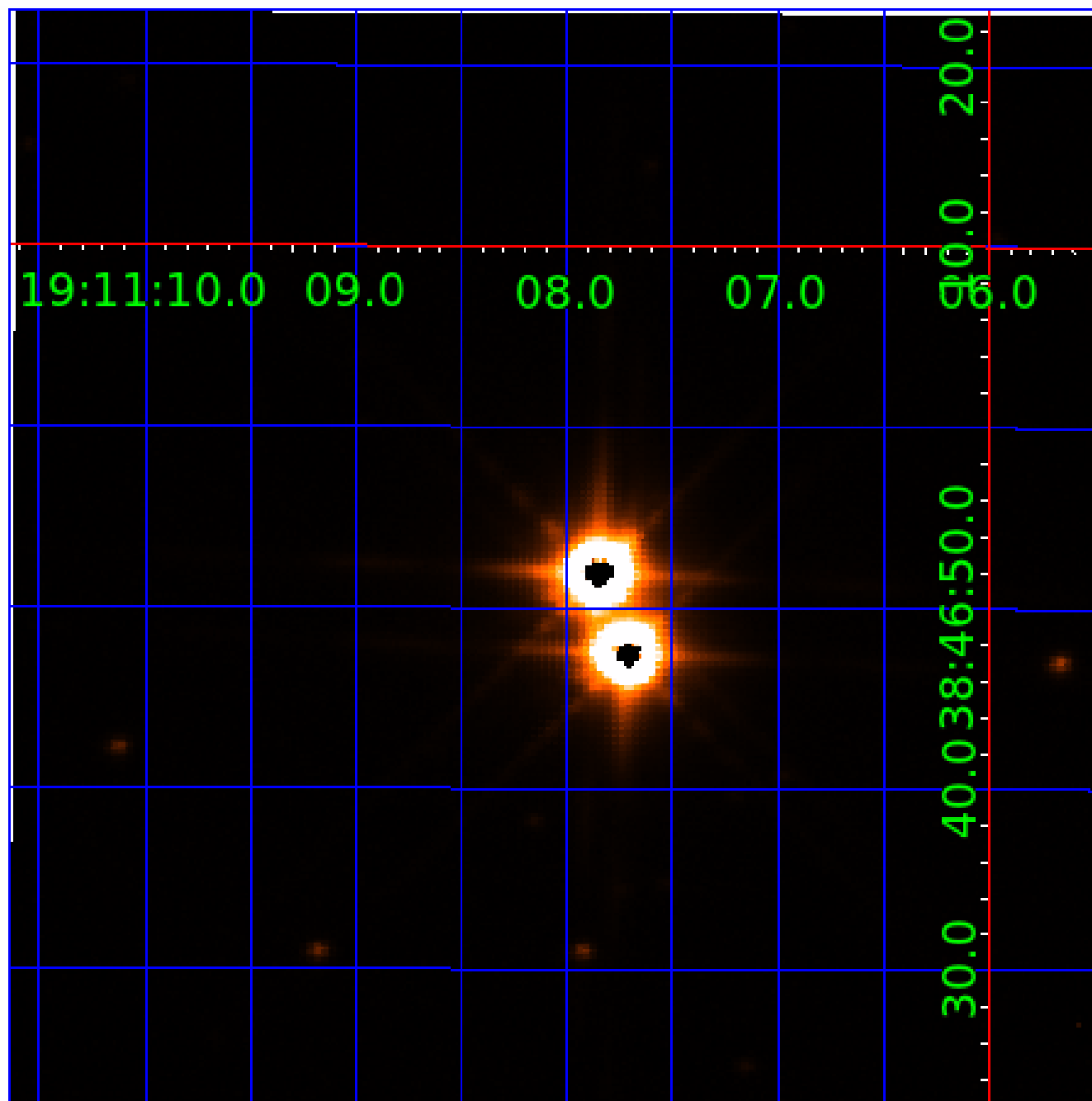


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 003633545

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})
003633545-01	OBS	No	407.877975	278.081780	119.6	10.623	24.8	13.0	0.82	5313	0.95	0.49
003633545-02	OBS	No	486.334829	265.965747	1027.7	1.011	58.8	34.3	0.82	5313	2.88	0.39
003633545-03	OBS	No	226.154109	342.882432	56.7	1.261	45.7	3.2	0.82	5313	0.61	1.07
003633545-04	OBS	No	278.316403	370.285856	149.5	2.542	29.9	15.5	0.82	5313	1.09	0.81
003633545-05	OBS	No	310.886176	330.385547	6.4	2.024	62.9	0.6	0.82	5313	0.25	0.70

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
003633545-01	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_CHASES_MARSHALL_SKYE_ZUMA—LPP_DV—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_SATURATED
003633545-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL_TRACKER—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_SATURATED
003633545-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL_ZUMA_TRACKER—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_SATURATED
003633545-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_SATURATED
003633545-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL_TRACKER—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_SATURATED

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

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

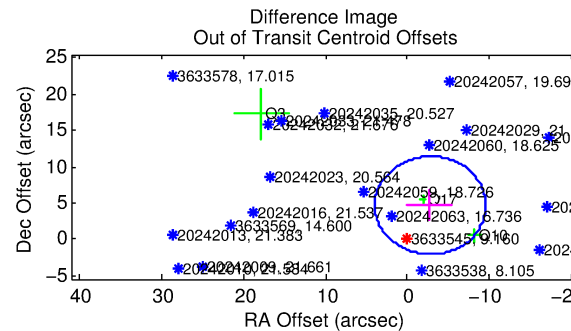
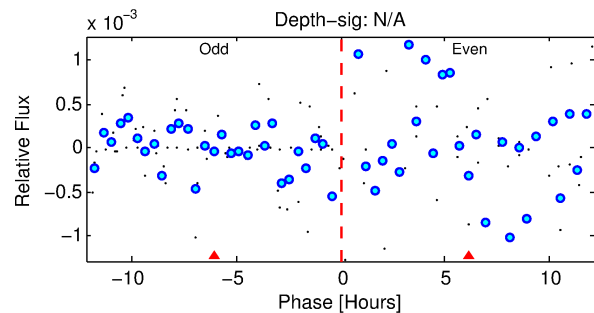
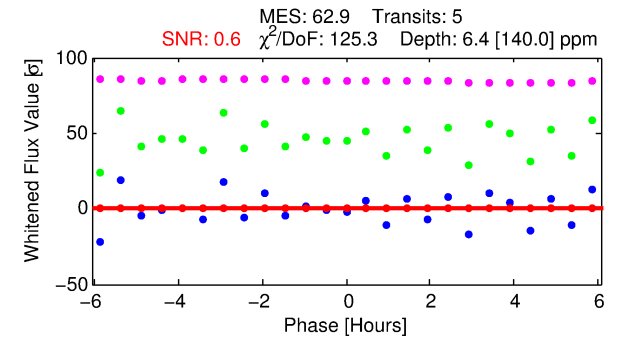
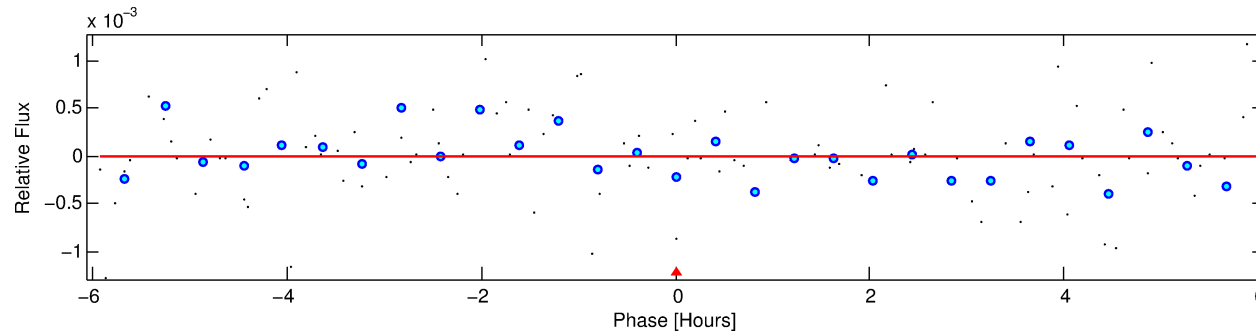
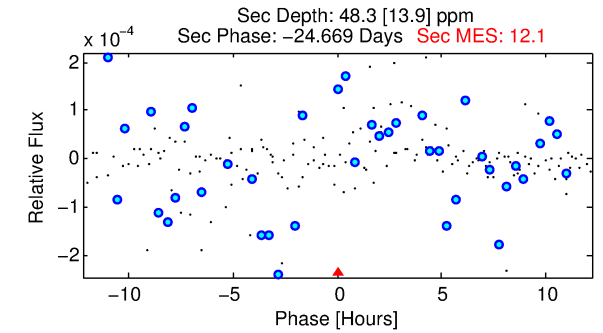
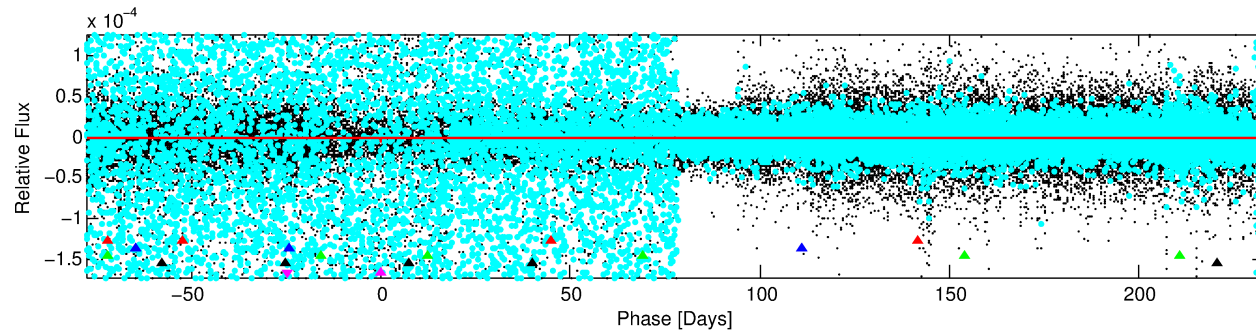
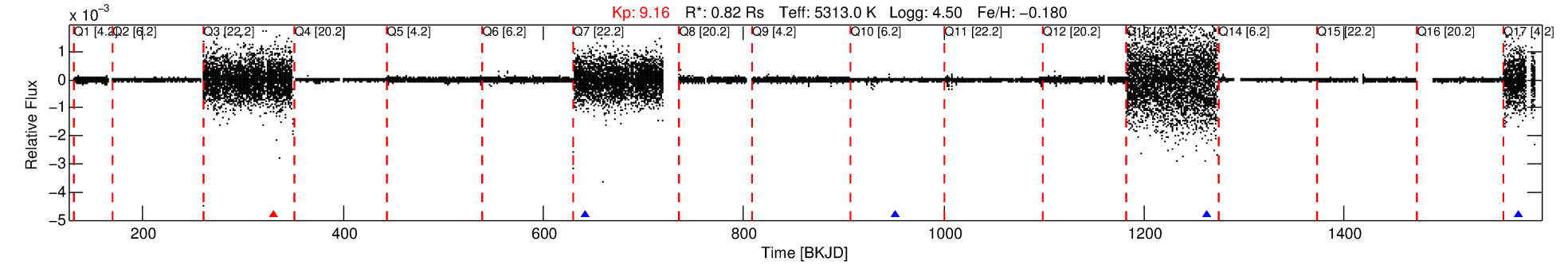
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 003633545-05

No Significant Match Found

DV One-Page Summary

KIC: 3633545 Candidate: 5 of 5 Period: 310.886 d



DV Fit Results:

Period = 310.88618 [0.31081] d
Epoch = 330.3855 [0.8015] BKJD
Rp/R* = 0.0028 [0.1142]
a/R* = 487.41 [86445.21]
b = 0.91 [32.10]
Seff = 0.70 [0.17]
Teq = 233 [14] K
Rp = 0.25 [10.22] Re
a = 0.8285 [0.1108] AU
Ag = 285776.67 [23122416.80] [0.01σ]
Teff = 8336 [168609] K [0.05σ]

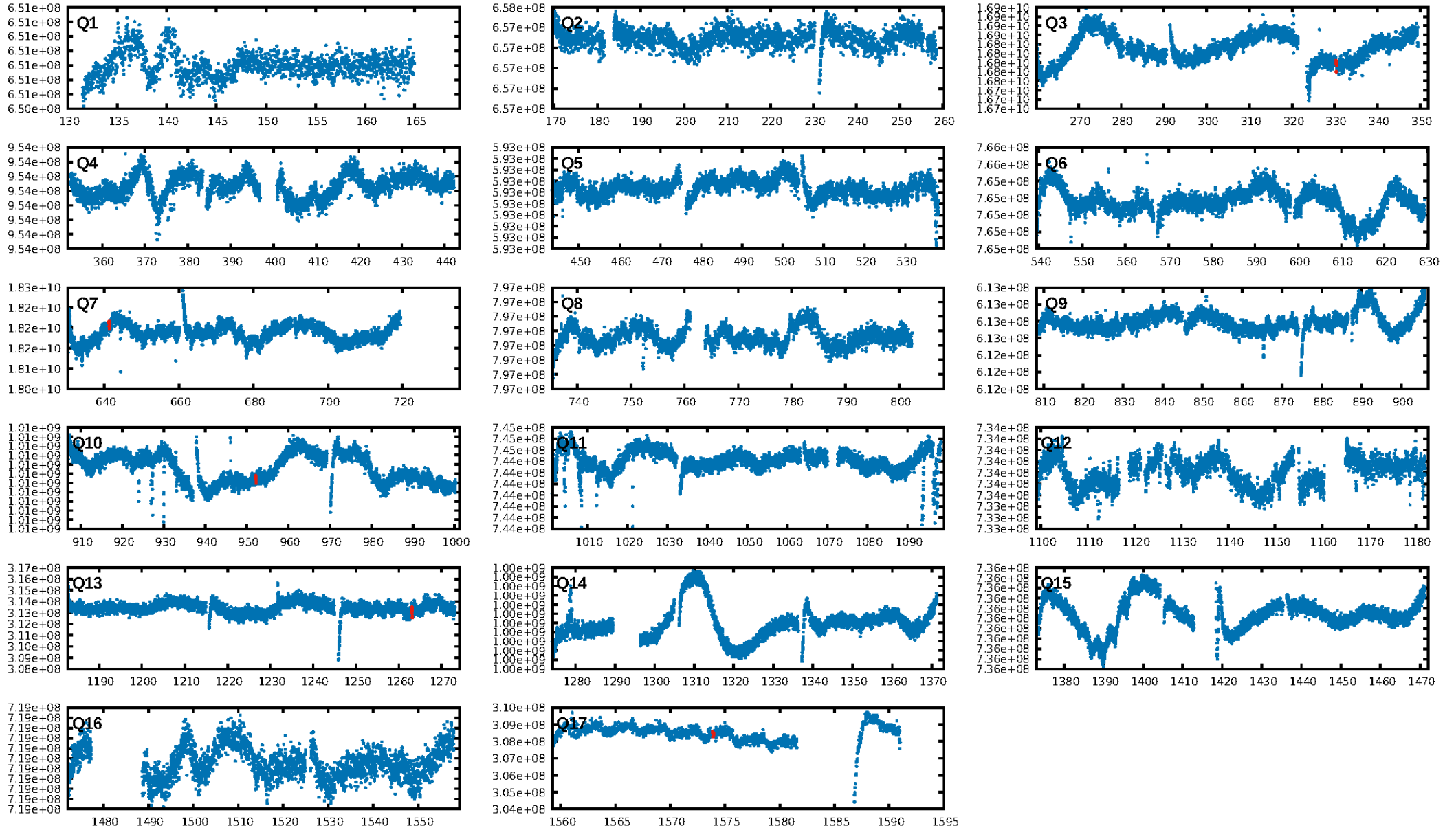
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [240.56σ]
LongPeriod-sig: 100.0% [215.25σ]
ModelChiSquare2-sig: 0.0%
ModelChiSquareGof-sig: 0.0%
Bootstrap-pfa: 5.56e-11
RollingBand-fgt: 0.75 [3/4]
GhostDiagnostic-chr: N/A
Centroid-sig: 38.8%
Centroid-so: 26.047 arcsec [0.64σ]
OotOffset-rm: 5.408 arcsec [2.40σ]
KicOffset-rm: 9.200 arcsec [3.86σ]
OotOffset-st: 1/1/0/1 [3]
KicOffset-st: 1/1/0/1 [3]
DiffImageQuality-fgm: 0.00 [0/3]
DiffImageOverlap-fno: 1.00 [5/5]

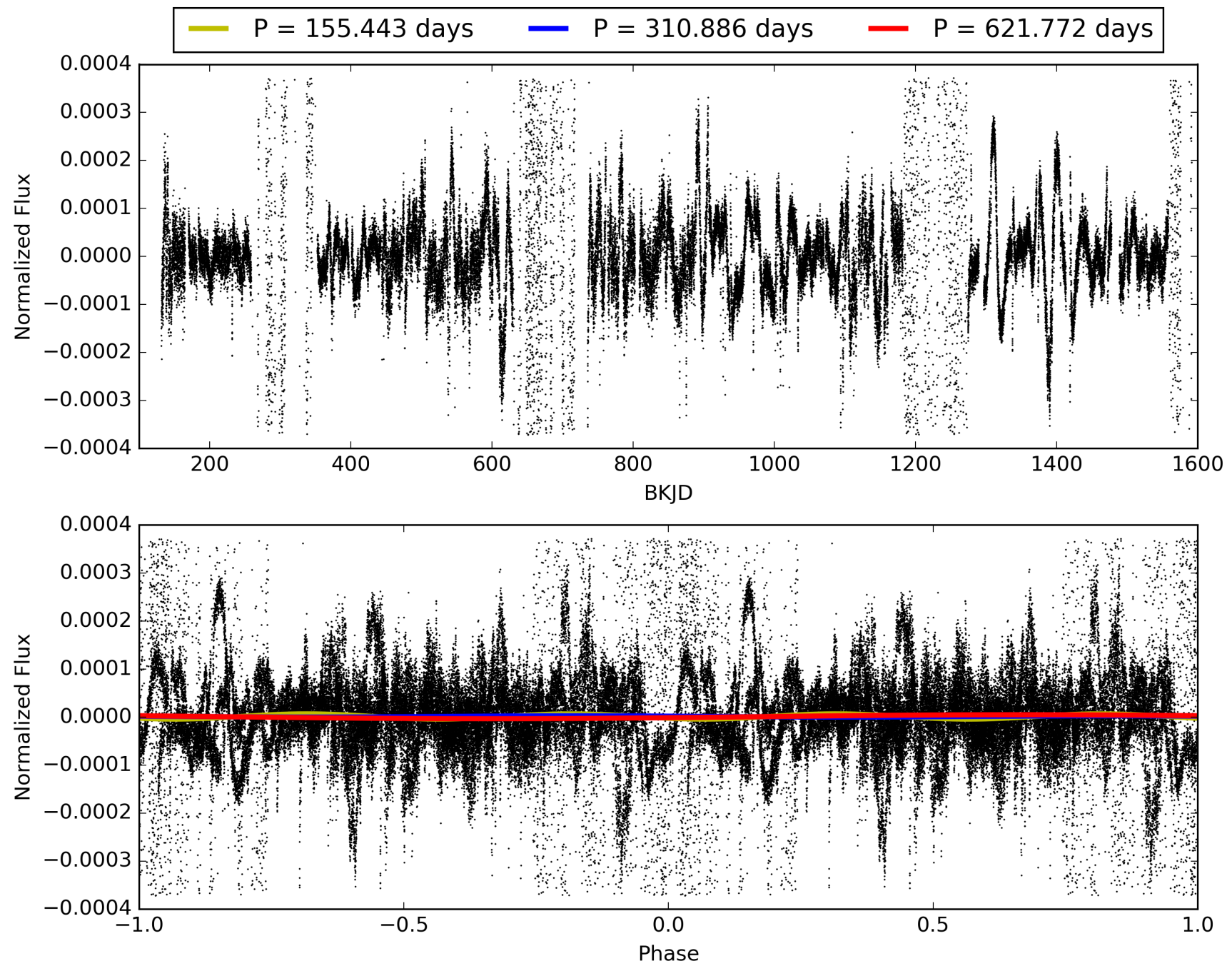
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 02-Feb-2016 00:42:00 Z

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

TCE 003633545-05, PDC Light Curves

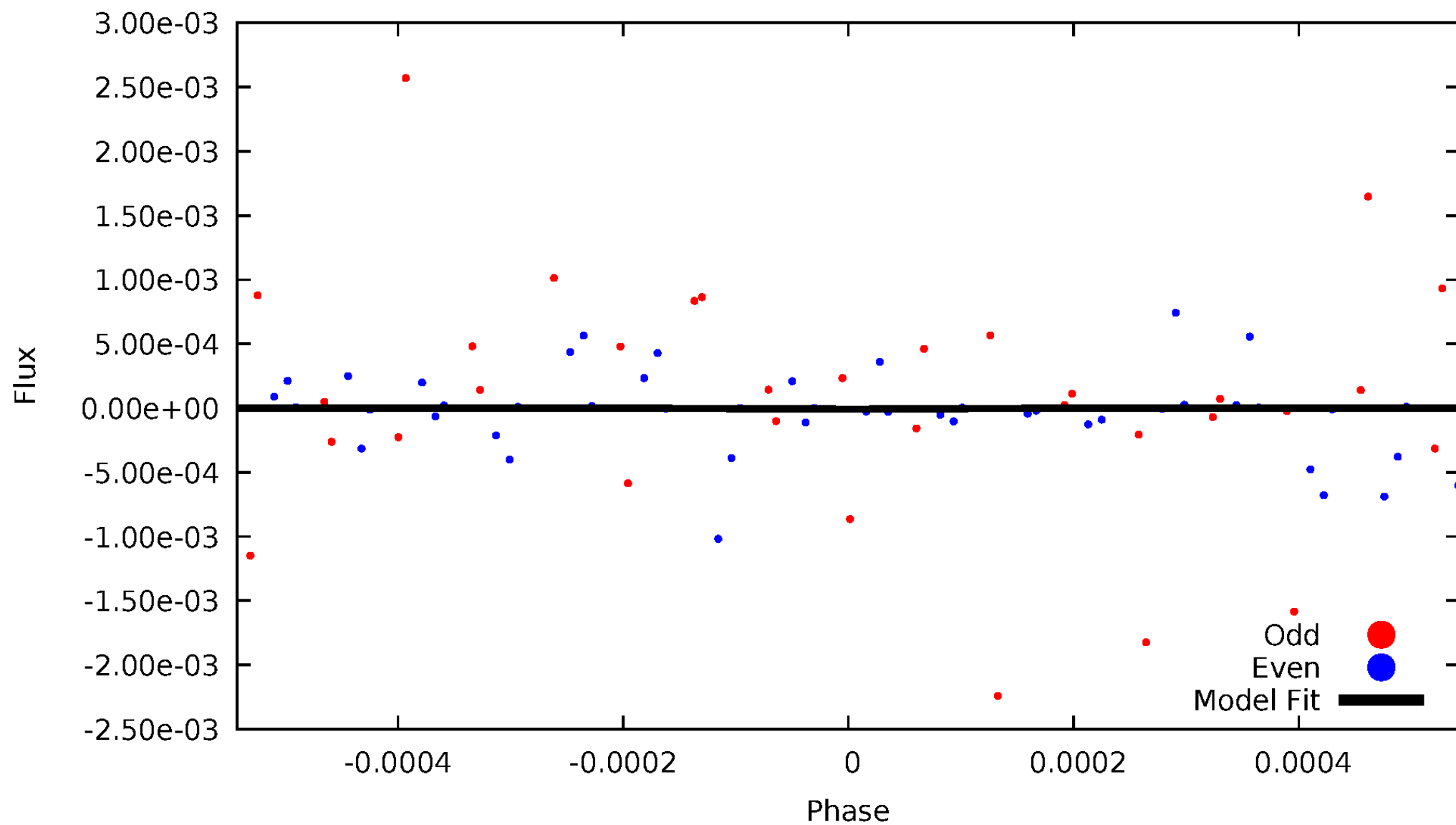


TCE 003633545-05



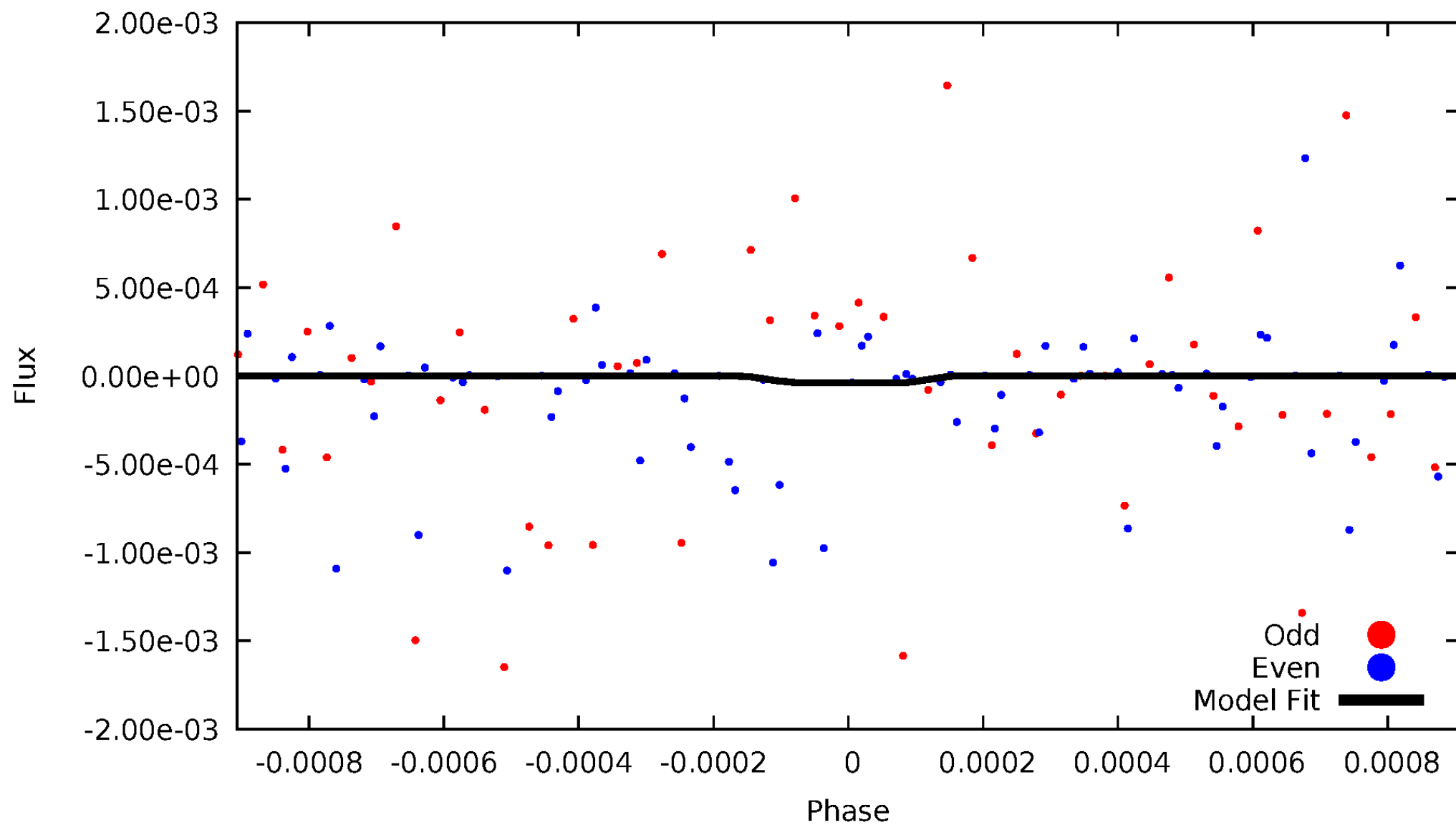
DV Odd/Even

TCE 003633545-05



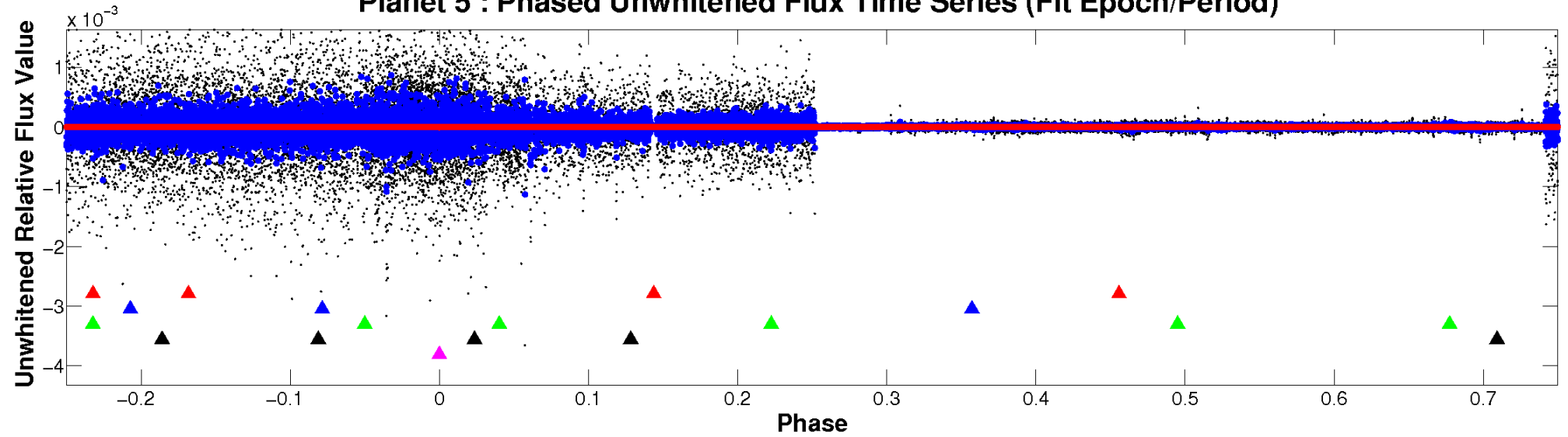
ALT Odd/Even

TCE 003633545-05

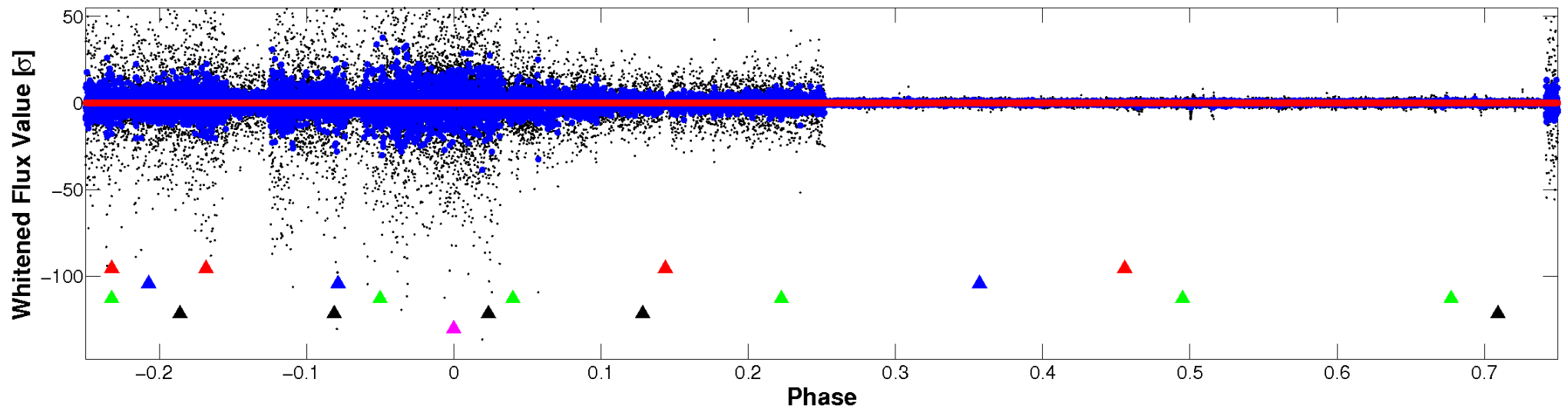


Non-Whitened Vs. Whitened Light Curve

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

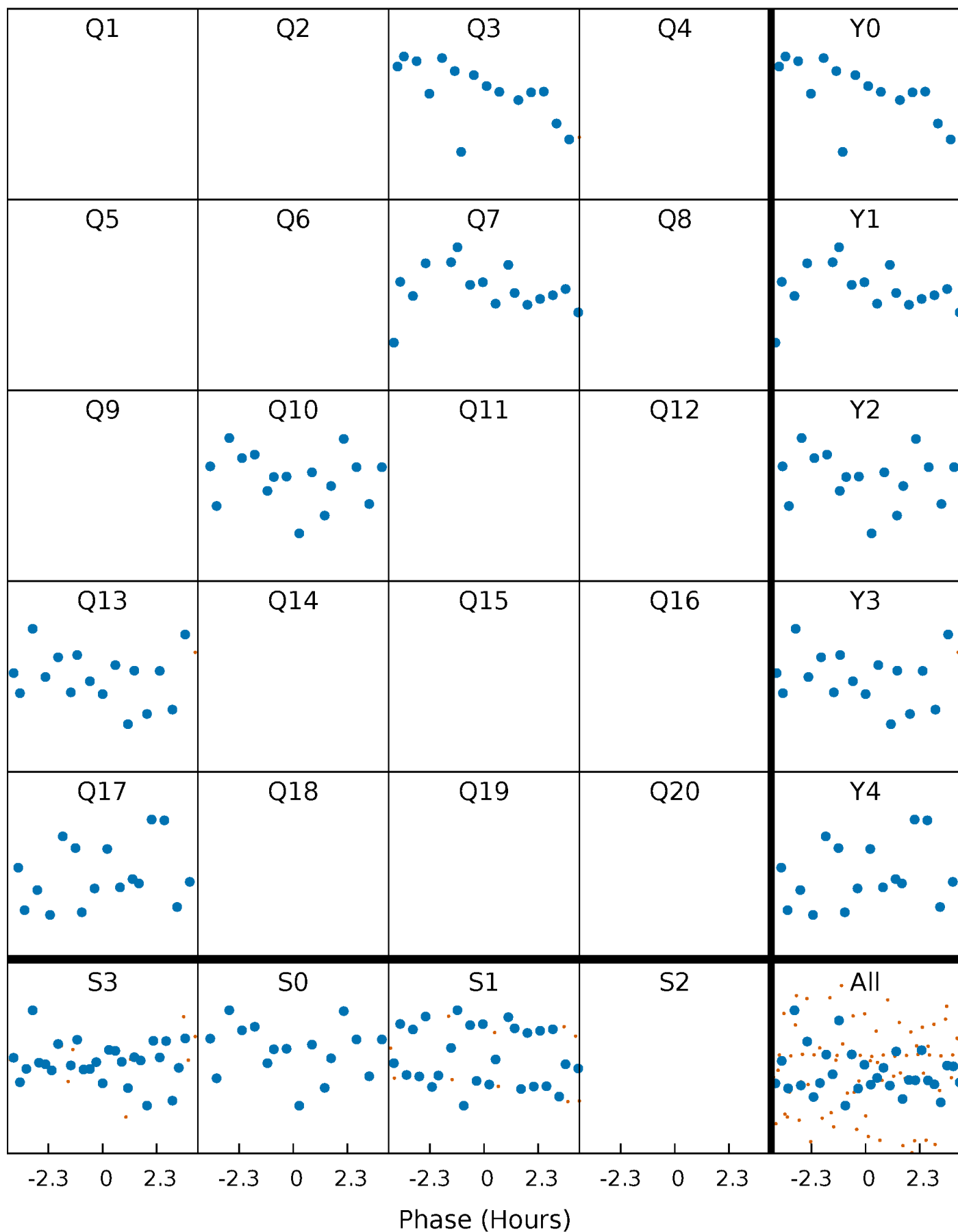


Planet 5 : Phased Whitened Flux Time Series (Fit Epoch/Period)



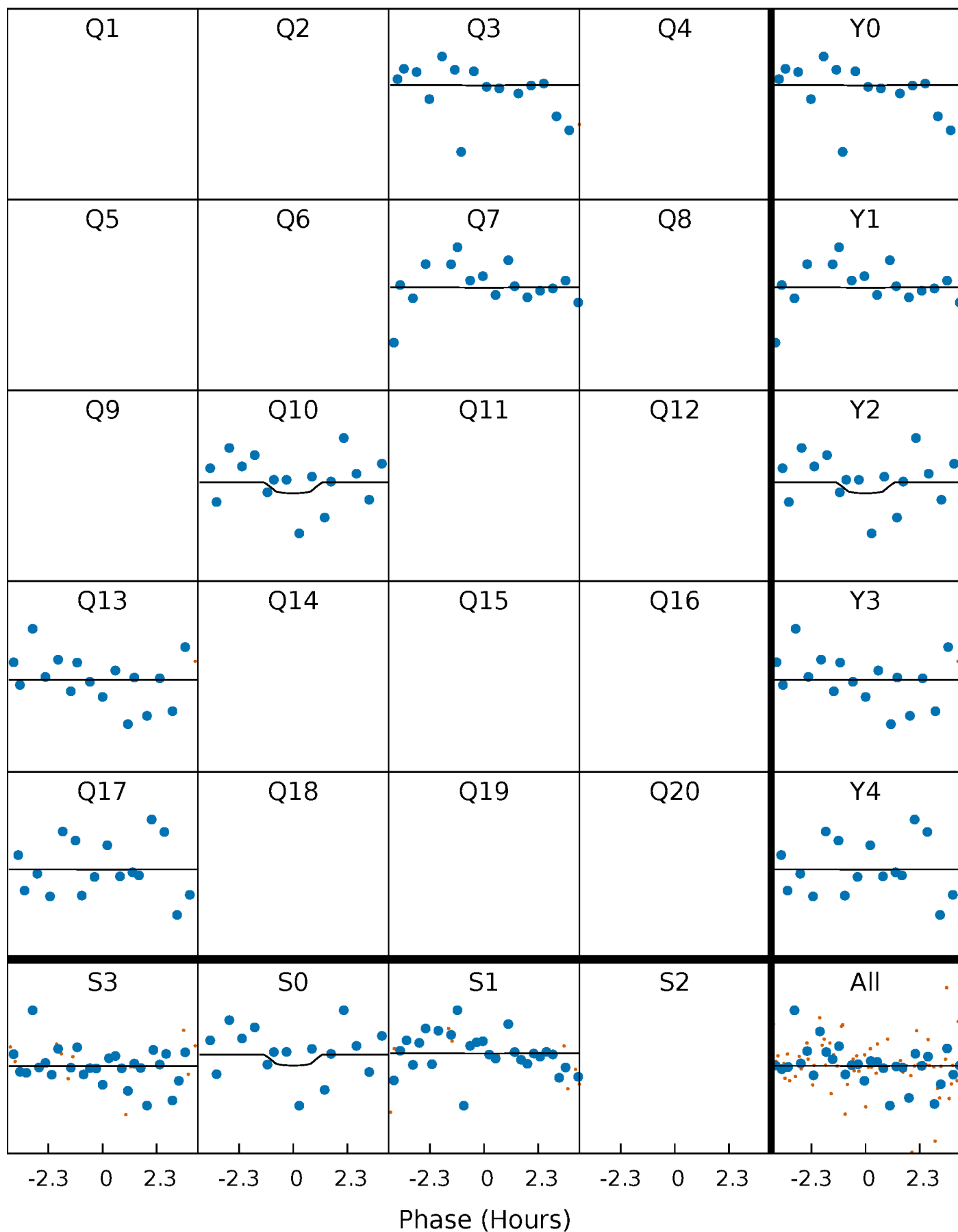
PDC Quarter-Phased Transit Curves

TCE 003633545-05 $P=310.886176$ Days $T_0=330.385547$ (BKJD)



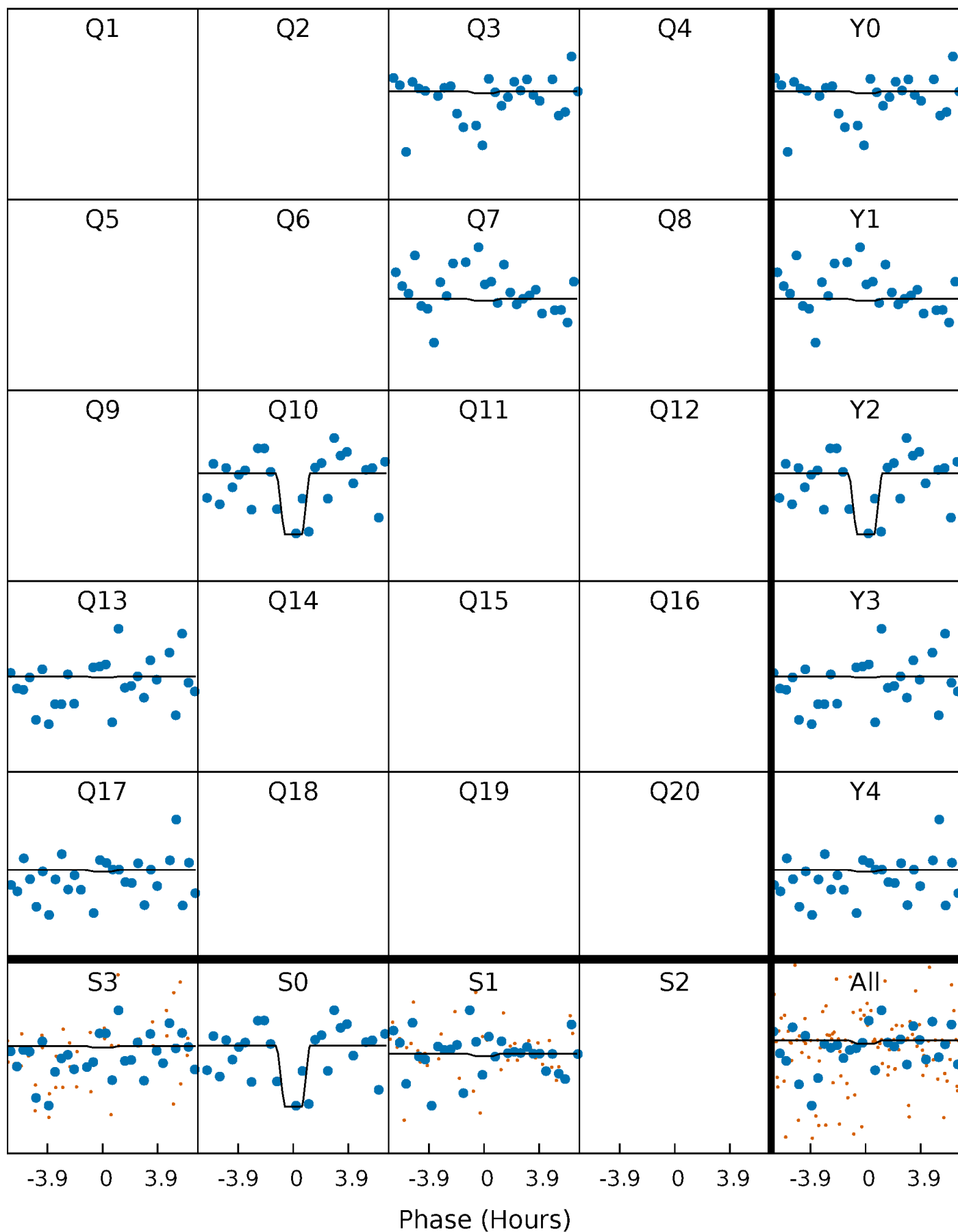
DV Quarter-Phased Transit Curves

TCE 003633545-05 $P=310.886176$ Days $T_0=330.385547$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

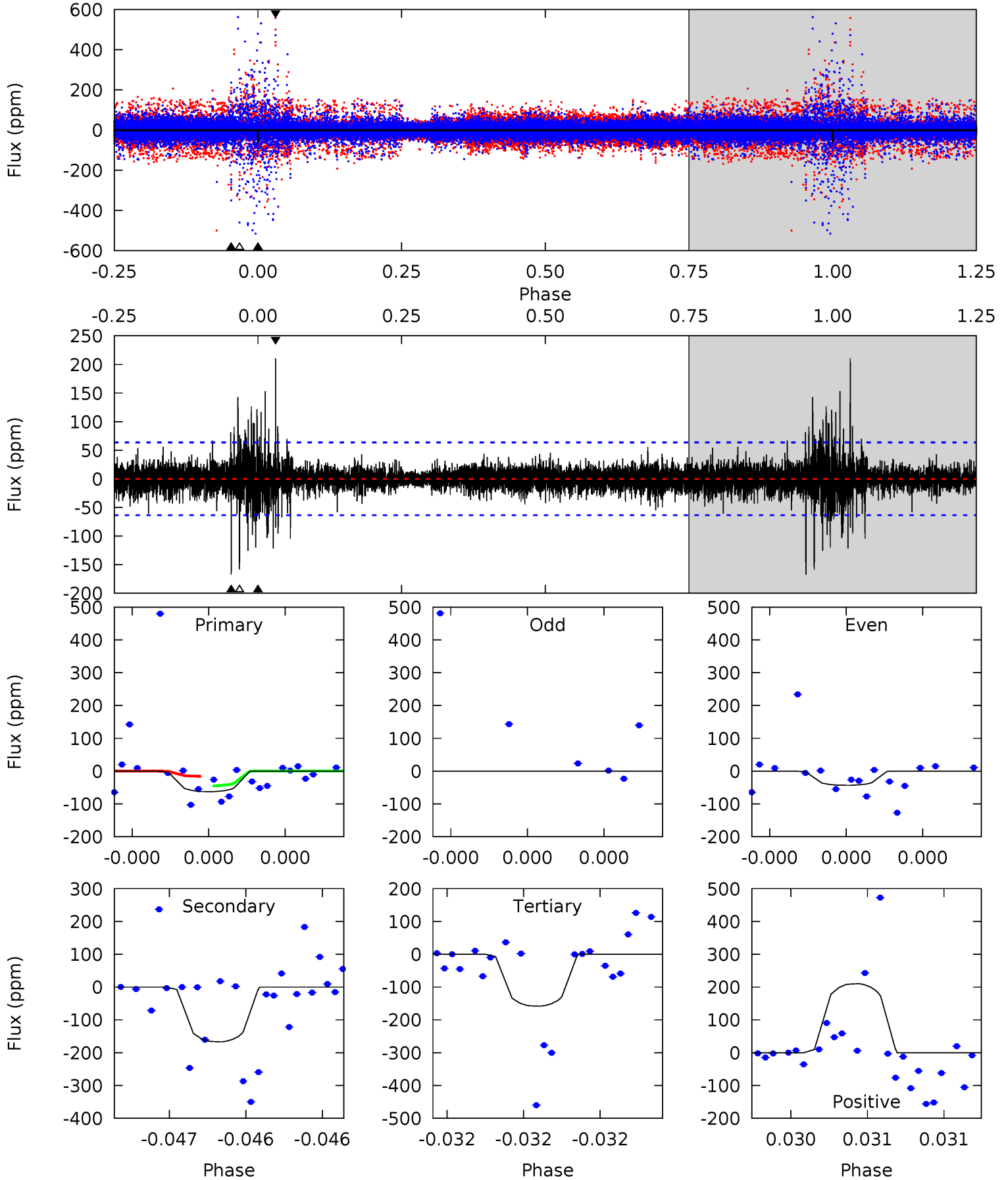
TCE 003633545-05 P=310.668174 Days $T_0=330.585654$ (BKJD)



DV Model-Shift Uniqueness Test

003633545-05, P = 310.886176 Days, E = 19.499371 Days

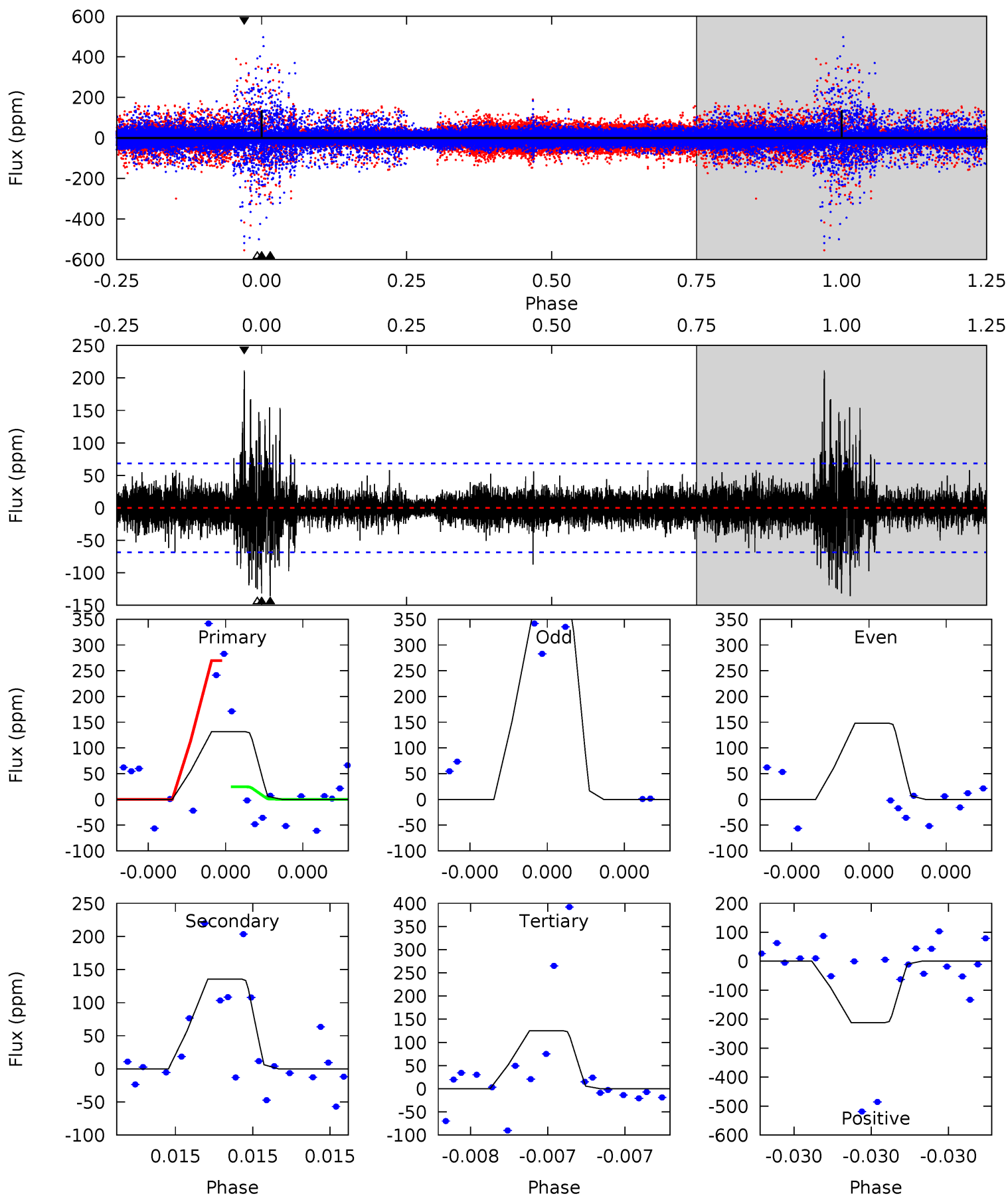
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
5.59	14.9	14.1	18.7	5.66	3.61	1.29	-8.50	-13.1	0.79	-3.84	0	1.33	0.56	0



Alt Model-Shift Uniqueness Test

003633545-05, P = 310.668174 Days, E = 19.917480 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
10.9	11.2	10.4	17.5	5.67	3.64	1.30	0.54	-6.65	0.88	-6.31	2.78	0.30	0.61	9.41



Stellar Parameters For KIC 003633545

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	M (M_{\odot})	p_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	5313^{+204}_{-185}	$4.505^{+0.085}_{-0.104}$	$-0.180^{+0.300}_{-0.300}$	$0.820^{+0.132}_{-0.099}$	$0.786^{+0.104}_{-0.070}$	$2.009^{+0.720}_{-0.625}$
	+4%/-3%	+2%/-2%	+167%/-167%	+16%/-12%	+13%/-9%	+36%/-31%
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 003633545-05 / KOI

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	-167 ± 11	$6.86^{+7.65}_{-5.04}$	326^{+18}_{-15}	2873^{+1484}_{-478}	1338^{+17056}_{-1034}
Alt.	-136 ± 12	$7.26^{+8.09}_{-5.07}$	327^{+18}_{-16}	2787^{+1125}_{-485}	987^{+10011}_{-771}

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 $A_{obs} \gg 1.0$

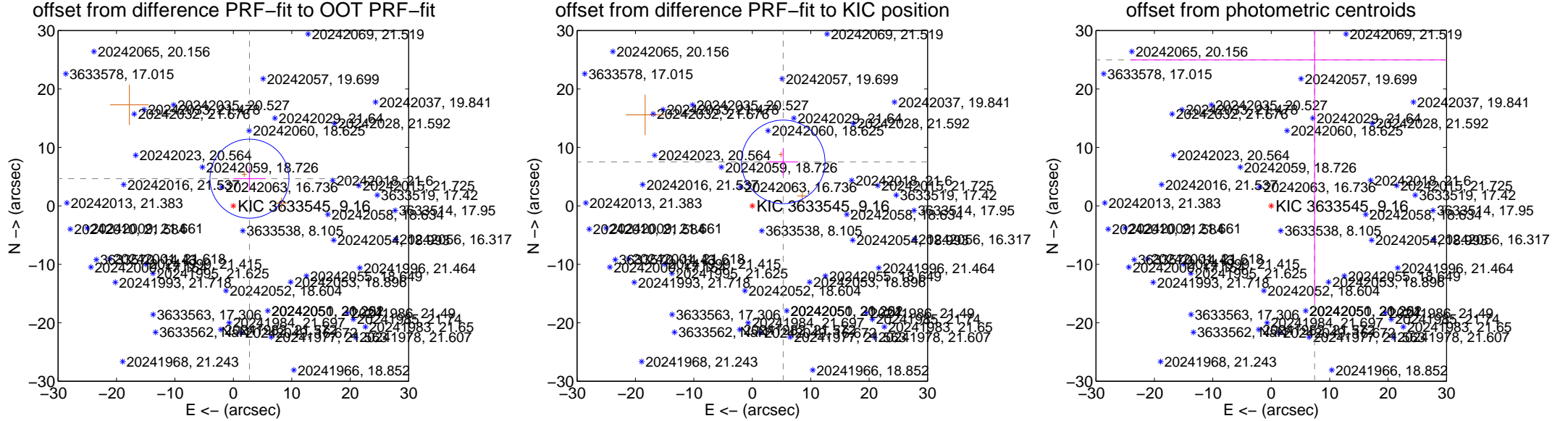
DV Centroid Data

Supplemental centroid analysis for 003633545-05. **Kepler magnitude: 9.16.** Transit SNR 0.63

There are 0 quarters with good PRF difference image offsets

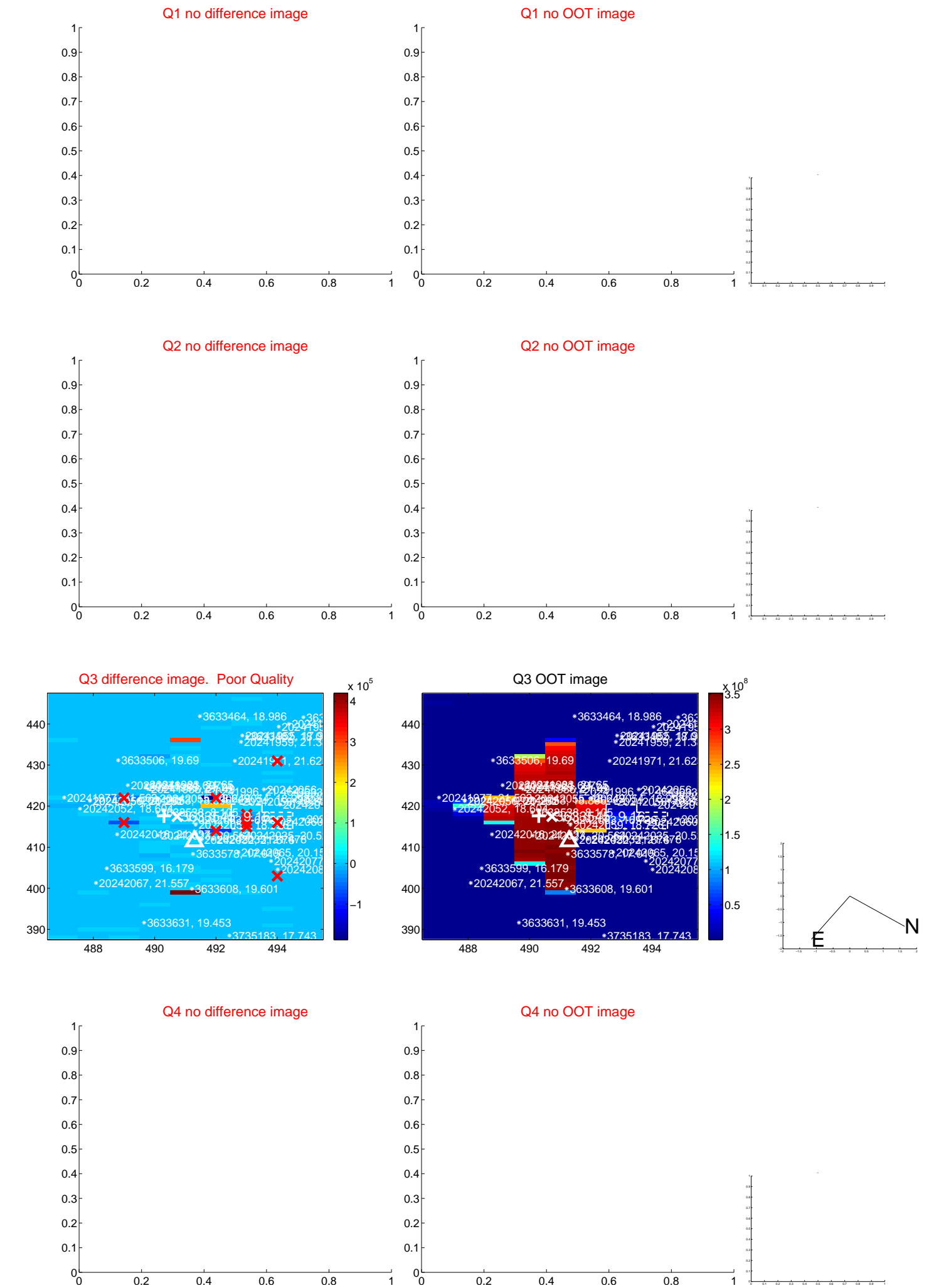
The OOT PRF centroid is offset from the target star catalog position by about 4.54 arcsec so the offset from difference PRF-fit to OOT-fit may be invalid.

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	5.408 ± 2.254	2.40	-2.761 ± 2.735	4.650 ± 2.057
PRF-fit source offset from KIC position	9.200 ± 2.383	3.86	-5.295 ± 2.540	7.523 ± 2.302
photometric centroid source offset	26.05 ± 40.92	0.64	-7.42 ± 31.46	24.97 ± 41.65



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 ×: 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.

Q5 no difference image



Q5 no OOT image



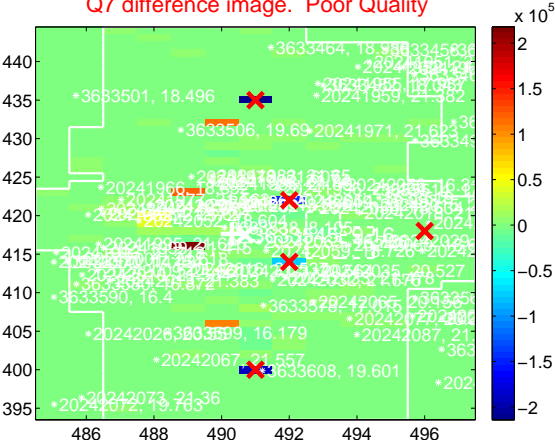
Q6 no difference image



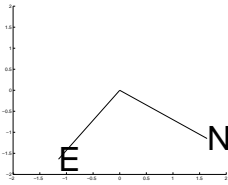
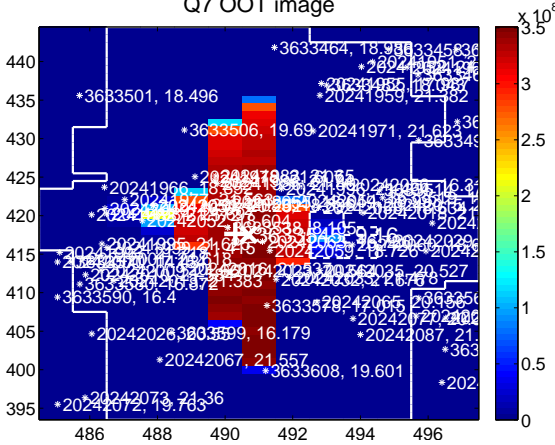
Q6 no OOT image



Q7 difference image. Poor Quality



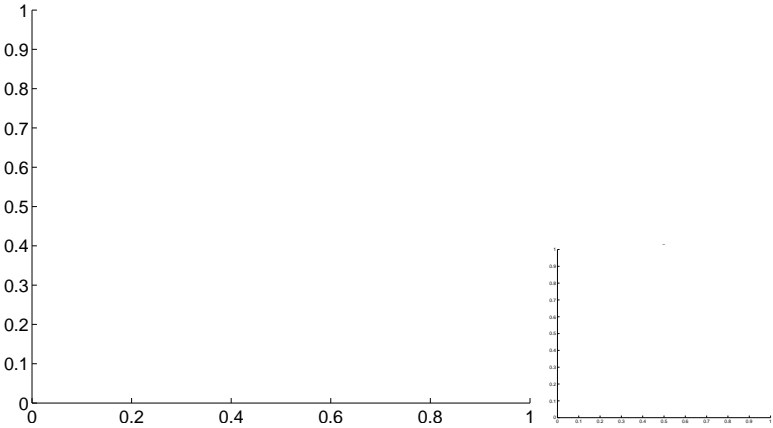
Q7 OOT image



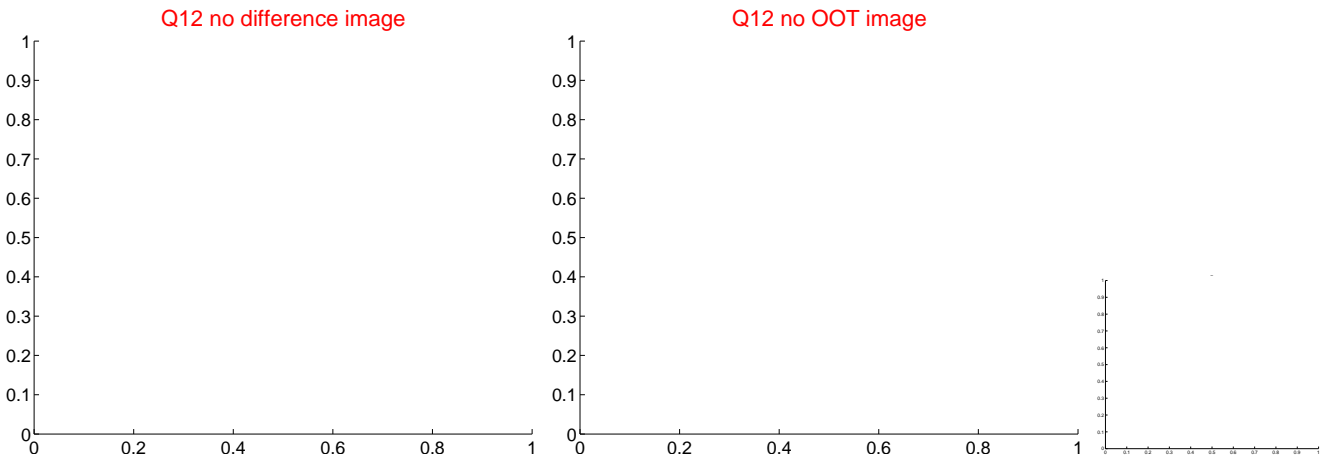
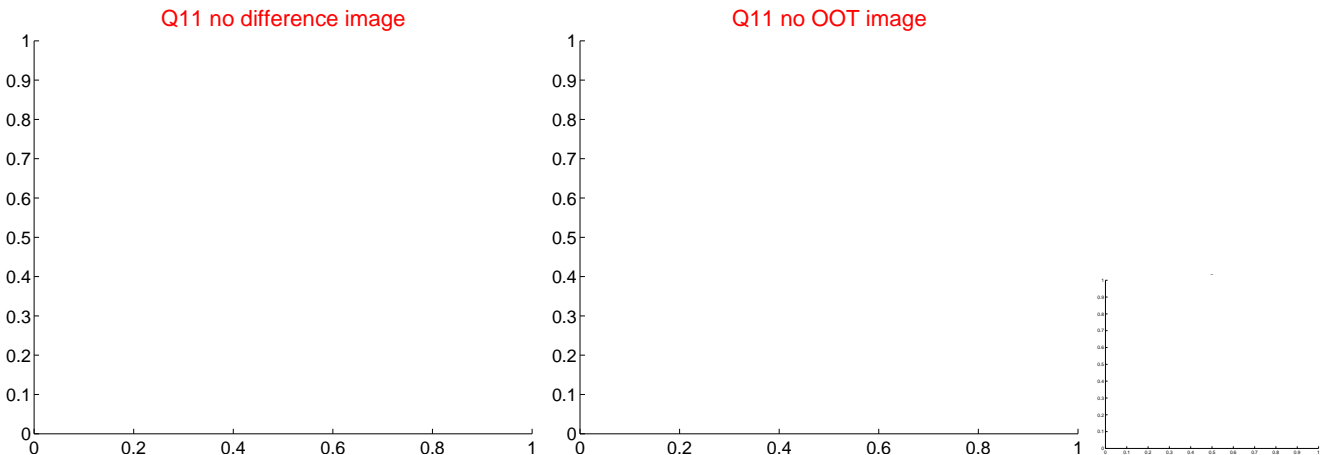
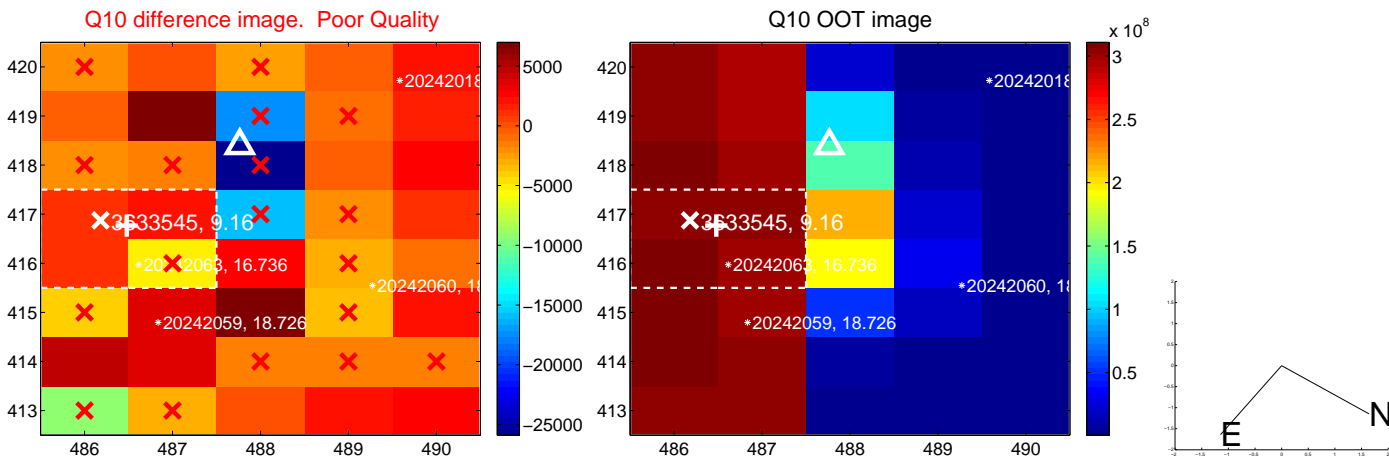
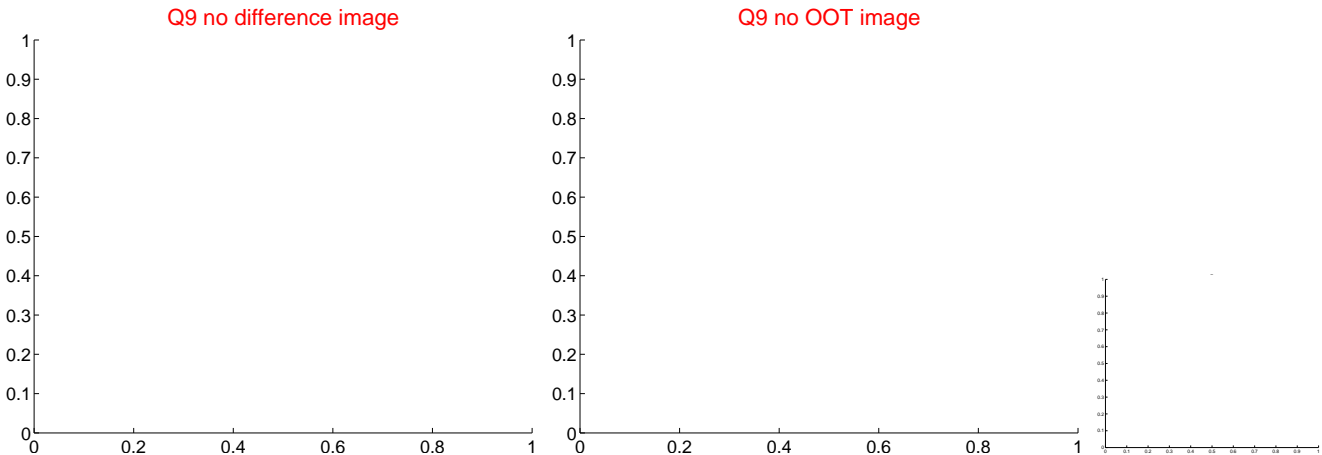
Q8 no difference image



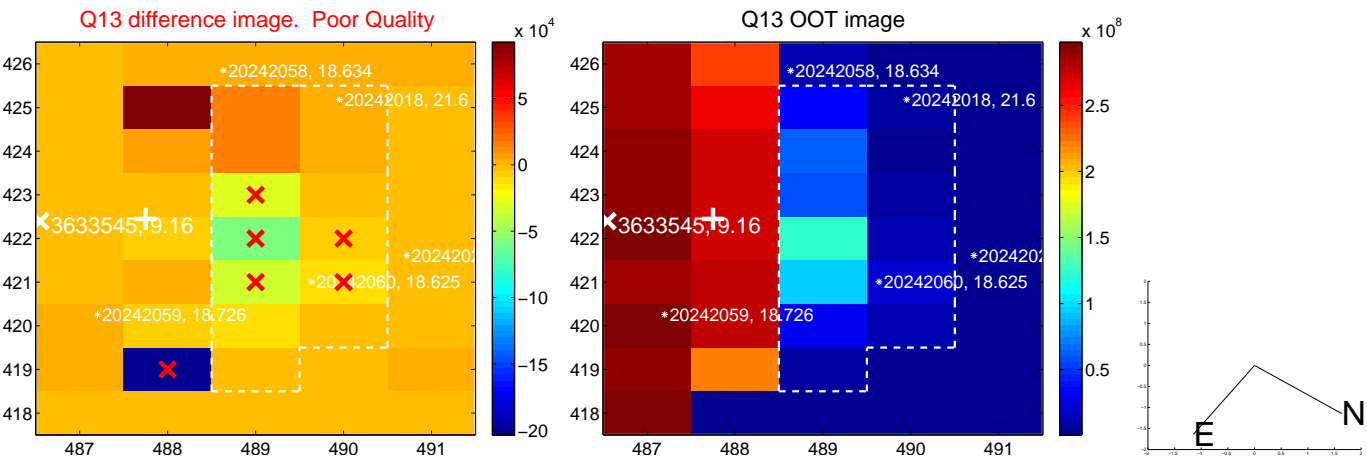
Q8 no OOT image



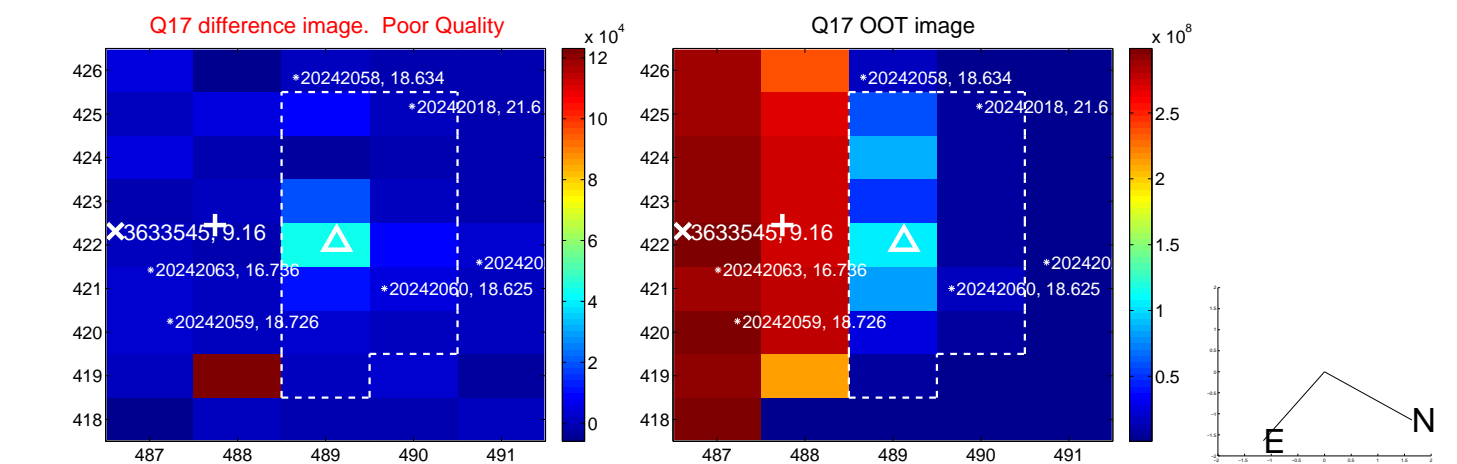
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value



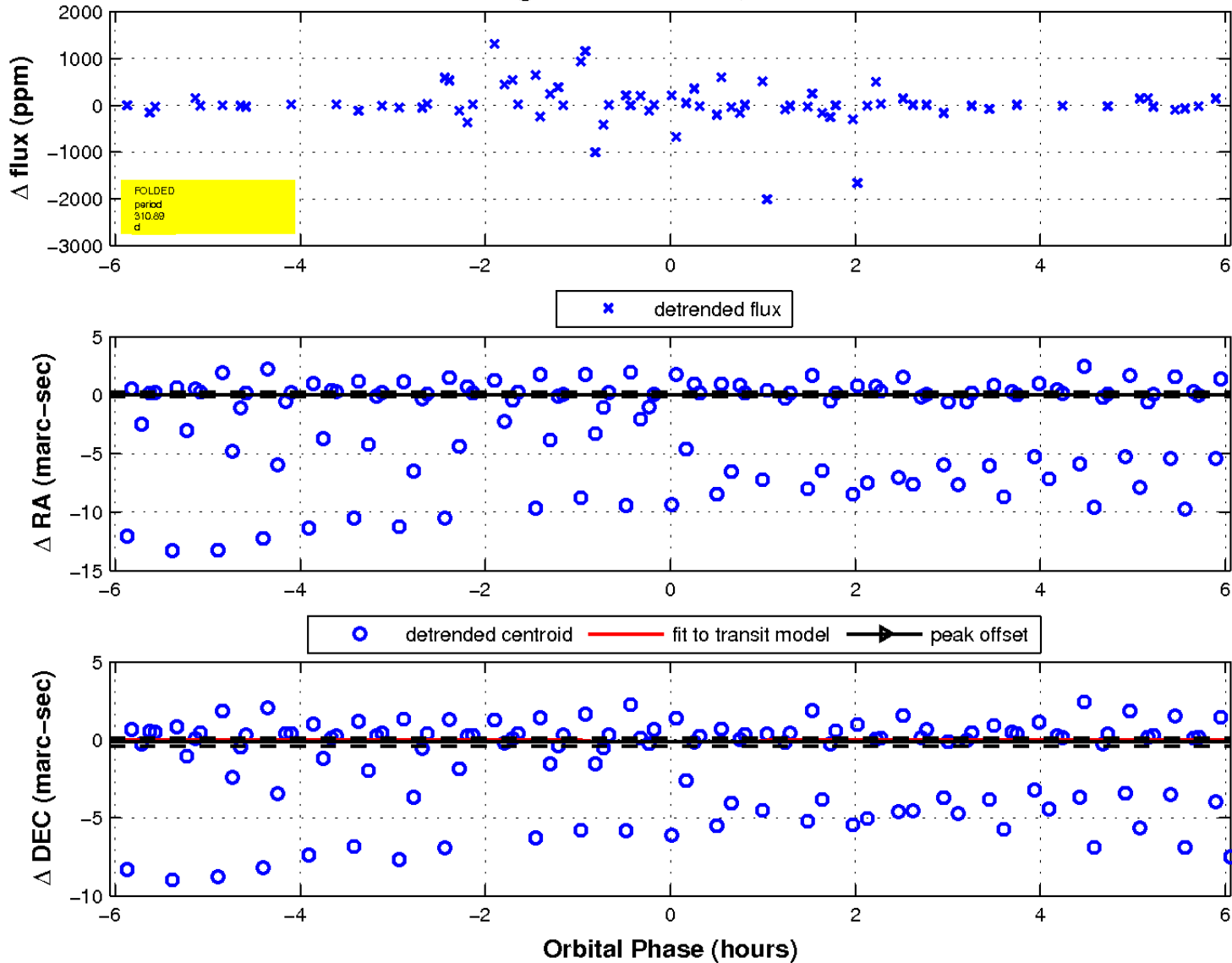
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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



fluxWeightedCentroids, Planet 5 of 5



UKIRT Image

Declination

